

IPR2024-00934
U.S. Patent No. 7,496,342
Patent Owner's Response

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TEXAS INSTRUMENTS INCORPORATED
Petitioner,

v.

PARKERVISION, INC.
Patent Owner.

U.S. Patent No. 7,496,342

Issue Date: February 24, 2009

Title: DOWN-CONVERTING ELECTROMAGNETIC SIGNALS, INCLUDING
CONTROLLED DISCHARGE OF CAPACITORS

Inter Partes Review No. IPR2024-00934

DECLARATION OF DR. DAVID RICKETTS

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I have personal knowledge of the facts set forth in this declaration and, if called to testify as a witness, would testify under oath as follows:

I. BACKGROUND

1. I have been retained as an expert on behalf of ParkerVision, Inc. (“ParkerVision”) in the above-captioned matter (IPR2024-00934).

2. I have been asked by ParkerVision to provide my expert opinion regarding the validity of claims 19-21 of U.S. Patent No. 7,496,342 (“the ’342 patent”). For the reasons set forth below, it is my opinion that claims 19-21 of the ’342 patent are valid.

II. PROFESSIONAL QUALIFICATIONS

3. I am currently Full Professor of Electrical and Computer Engineering at the North Carolina State University. In my position I conduct research and teach undergraduate and graduate students in the area of electrical and computer engineering. The courses I teach include Advanced Analog Integrated Circuit (“IC”) Design, Radio System Design, Analog Circuit Laboratory and Power Management IC Design. I also lead a research group that conducts research and design of electrical and electronic circuits, including millimeter wave and microwave circuits and systems, radio frequency identification (“RFID”) circuits, wireless power transfer circuits, analog circuits, and radio frequency (“RF”) circuits. In lead research in power electronics and power conversion integrated circuits. I also

conduct research in mixed signal RF/digital systems, including microcontroller-based Bluetooth systems. I have served in my current position since 2012.

4. Prior to my current position, I served as an Assistant Professor of Electrical and Computer Engineering and Assistant Professor of Materials Science and Engineering at Carnegie Mellon University from 2006 to 2012.

5. I received my B.S. and M.S. in Electrical Engineering in 1995 and 1997, respectively, from Worcester Polytechnic Institute in Worcester, Massachusetts. I received my Ph.D. in Electrical Engineering from Harvard University in Cambridge, Massachusetts in 2006.

6. Prior to entering academia, I worked as an engineer in private industry holding several engineering and managerial positions where I developed and oversaw the development of electrical and electronic circuits, including those related to power transfer, power conversion, and semiconductor design in wired and wireless circuits and systems.

7. From 1995 to 1999, I held a position as an engineer and senior engineer at American Power Conversion, where I designed AC-DC and DC-DC converters. In 1996, I completed my master's Thesis with Analog Devices on the design of a 622 MHz Frequency Synthesizer.

8. From 1999 to 2001, I held a position as a Principal Consultant at Renaissance Design, Inc., where I designed power management ICs.

9. From 2000 to 2002, I held a position as a Manager of New Product Development at ON Semiconductor Corp., where I was responsible for six product development teams. In that role I oversaw the development of over twenty power management ICs in bipolar, CMOS, and BiCMOS technologies.

10. From 2002 to 2003, I held the position of Advanced System Engineering Manager at ON Semiconductor Corp., where I directed a team of system engineers to develop multi-phase power management ICs for Intel and AMD microprocessors.

11. In 2006 I received my PhD on the topic of advanced oscillator topologies. My work on integrated circuit oscillators was included in the 2008 McGraw-Hill Yearbook of Science and Technology and discussed in Nature, the pre-eminent science journal.

12. I have published at least 52 academic journal papers, as shown in my curriculum vitae, relating to various topics related to millimeter wave and microwave circuits and systems, RFID circuits, wireless power transfer circuits, analog circuits, and RF circuits.

13. I have been the author of at least 81 conference articles, as shown in my curriculum vitae, relating to various topics related to millimeter wave and microwave circuits and systems, RFID circuits, wireless power transfer circuits, analog circuits, and RF circuits.

14. My qualifications forming the opinion set forth in this declaration are summarized here and explained in more detail in my curriculum vitae, which is attached as Appendix A hereto.

15. Based on my experience in the wireless communications industry, I have a detailed understanding of radio frequency circuit design.

III. MATERIAL CONSIDERED

16. In preparing this declaration, I have reviewed the specification, claims and prosecution history of the '342 patent.

17. I have reviewed and understand the following documents, as well as any other(s) cited herein.

Exhibit No.	Description
1001	U.S. Patent No. 7,496,342
1002	Excerpts from the Prosecution History of the '342 Patent
1003	Declaration and Curriculum Vitae of Dr. Ian Galton
1004	U.S. Patent No. 6,230,000 ("Tayloe")
1016	DeMaw, Practical RF Design Manual (Prentice-Hall 1982)
1021	U.S. Patent No. US 7,065,327 ("Macnally")
1022	U.S. Provisional Patent Application 60/099,723 ("MacNally Provisional")
1023	International Publication No. WO 00/16492 ("Macnally")
2025	Excerpts from Howe, R. et al., Microelectronics: An Integrated Approach
2031	Excerpt of Graf, R., Modern Dictionary of Electronics, Seventh Edition
2032	Rofougaran, A., et al., A 1 GHz CMOS RF Front-End IC for a Direct Conversion Wireless Receiver
2033	U.S. Patent No. 6,061,551
2034	Deposition Transcript of Ian Galton, dated March 12, 2025

2035	Sedra, Microelectronic Circuits (4 th ed. 1998)
2036	Deposition Transcript of Ian Galton, dated February 28, 2025
2037	CMOS Analog Circuit Design
2038	Sze, Physics of Semiconductor Devices (2 nd ed. 1981)
2039	Deposition Transcript of Ian Galton, dated April 14, 2025
2040	Email dated 2/28/2025 from Petitioner to Patent Owner
2041	Email dated 3/4/2025 from Patent owner to PTAB

IV. LEGAL STANDARDS

18. I am not an attorney, and I have not independently researched the law. ParkerVision's counsel has explained certain legal principles to me that I have relied on in forming my opinions set forth in this declaration. I have applied these legal principles in arriving at my opinions expressed in this declaration.

A. Obviousness

19. I have been informed and understand that an invention cannot be patented if the subject matter as a whole would have been obvious to a person of ordinary skill in the art at the time of the invention. Also, I understand that while the prior art is compared to each claim on an element-by-element basis, the claimed invention as a whole must have been obvious to one of ordinary skill in order for a claim to be invalid.

20. I understand that the fundamental question in analyzing obviousness is whether, at the time of the invention, the subject matter of the claimed invention as a whole would have been obvious to a person of ordinary skill in the art to which the subject matter pertains, taking into account: (a) the scope and content of the prior

art; (b) the differences between the prior art and the claims at issue; (c) the level of ordinary skill in the art; and (d) any objective indicia of non-obviousness referred to as secondary considerations.

21. It is my understanding that objective indicia of non-obviousness (secondary considerations) include industry praise, commercial success, long-felt but unresolved need, copying, failure of others, and/or unexpected results. I also understand that there should be a nexus between the objective indicia and the claimed invention.

22. I understand that multiple references can be combined, with one another and/or with the knowledge of a person of ordinary skill in the art, in rendering a claim obvious. I also understand, however, that obviousness cannot be established by simply demonstrating that each element was independently known in the prior art. Rather, it may be necessary to identify a reason, such as a teaching, suggestion, or motivation, that would have prompted a person of ordinary skill in the art to combine the elements in the way the claimed invention does.

23. I also understand that obviousness cannot be established through hindsight. I understand this to mean that the claimed invention cannot be used as a roadmap to combine elements from different pieces of prior art, or different embodiments of a single prior art reference, to create the claimed invention. I understand that the claimed invention as a whole must be compared to the prior art

as a whole, and one must avoid aggregating pieces of prior art through hindsight that would not have been combined absent the patent inventor's insight.

V. LEVEL OF ORDINARY SKILL IN THE ART

24. I have been informed and understand that claims are construed from the perspective of a person of ordinary skill in the art ("POSITA") at the time of the claimed invention.

25. In my opinion, a POSITA with respect to the '342 patent would have (a) a Bachelor of Science degree in electrical or computer engineering (or a related academic field), and at least two (2) additional years of work experience in the design and development of radio frequency circuits and/or systems, or (b) at least five (5) years of work experience and training in the design and development of radio frequency circuits and/or systems.

26. In view of my qualifications, experience, and understanding of the subject matter of the claimed invention, I believe that I meet the above-mentioned criteria and consider myself a person with at least ordinary skill in the art pertaining to the '342 patent.

VI. GENERAL OVERVIEW OF WIRELESS TECHNOLOGY

27. I have reviewed the declarations of ParkerVision's expert submitted in prior *inter partes* review proceedings and agree with the background information presented therein. Accordingly, I incorporate relevant portions of that background

into my declaration, as they accurately describe the relevant technology and concepts.

A. Wired communications

28. Traditional wired communications networks transmit audio signals over wire lines by converting audio signals to electrical signals and back to audio signals.



29. When Bob speaks into a phone, Bob's phone converts his voice (low frequency audio signals) into electrical signals. Electrical signals are transmitted over wires to Alice's phone, which converts the electrical signals back into audio signals so that Alice can hear Bob's voice

B. Wireless Communications

30. Similar to wired communications, in wireless communications, low frequency audio signals are converted into electrical signals. But instead of travelling through wires, the signals are transmitted through air as radio waves (electromagnetic (EM) waves).



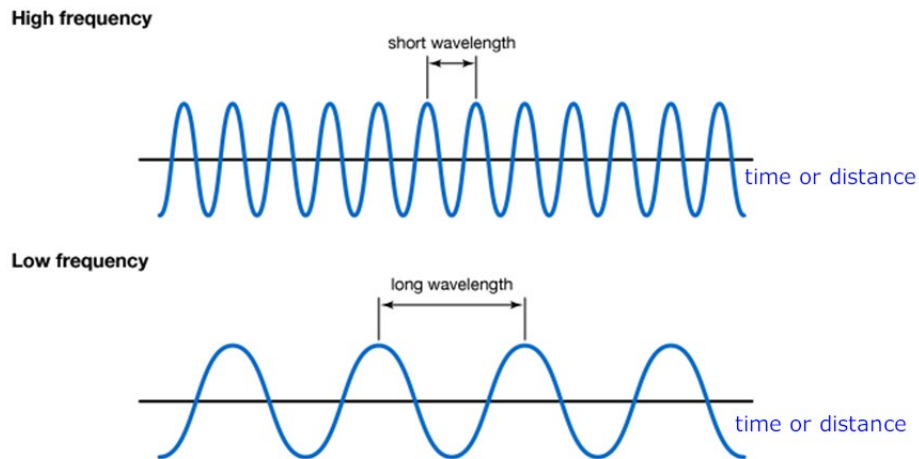
31. As shown above, wireless devices use high radio frequency (RF) signals (e.g., above 300 MHz (red)) because high frequency signals can carry more information and because high frequency antennas can physically fit within small devices such as cellular phones.



32. In wireless communication, when Bob speaks into his cell phone, Bob's cell phone converts his voice (low frequency audio signals) into a high frequency RF signal. The RF signal is transmitted over the air to Alice's cell phone. Alice's cell phone then converts the RF signal back into a low frequency audio signal and Alice can hear Bob's voice.

C. Frequency

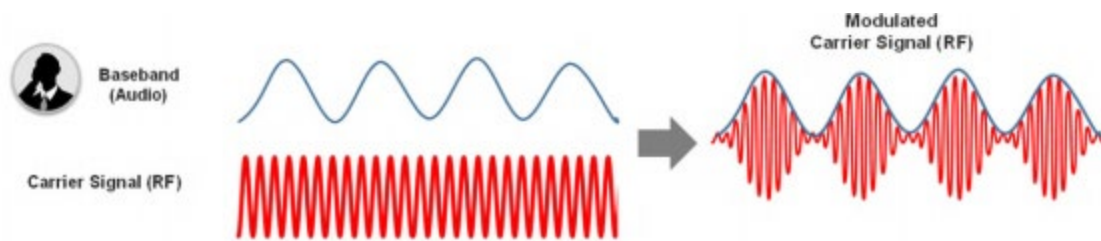
33. Frequency is the number of cycles of a wave per unit time (second).



34. As shown above, a high frequency signal has more cycles of a wave per second than a low frequency signal. Notably, the frequency of an audio wave can be one thousand cycles per second whereas the frequency of a radio wave can be one billion cycles per second.

D. Up-conversion

35. In order to transmit an audio signal over air, a wireless device must transform the audio signal to an RF signal. Since the RF signal is used to carry the information in the audio signal, the RF signal is referred to as a “carrier signal.” And since audio waves are at a low frequency, they are referred to as “baseband,” a “baseband signal” or at a “baseband frequency.”

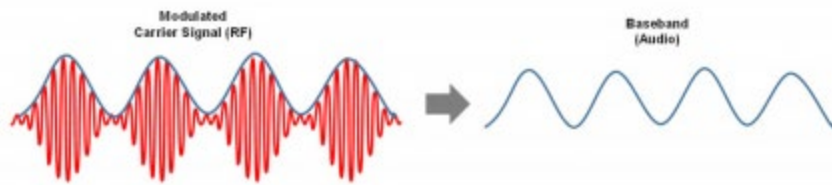


36. In order to transport the baseband (audio) signal, the transmitting wireless device (e.g., Bob’s cell phone) modifies the carrier (RF) signal. As shown above, the baseband signal is impressed upon the carrier signal (above left), thereby modulating/changing the shape of the carrier signal to approximate the shape of the baseband (audio) signal (above right).¹ The modified signal is referred to as a “modulated carrier signal.” The process is referred to as “up-conversion” because the low frequency signal is being up-converted to a high frequency signal.

E. Down-conversion.

37. In order for the receiving wireless device (e.g., Alice’s cell phone) to recover the baseband (audio) signal from the modulated carrier signal, the receiving wireless device must transform the modulated carrier signal back to an audio signal. This process is referred to as “down-conversion” because a high frequency signal is being down-converted to a low frequency signal.

¹ This type of modification is referred to as amplitude modulation. But other types of modulation can be used, which involve modifying other properties of the carrier signal, such as frequency or phase.



As shown above, “down-conversion” is the process by which the baseband (audio) signal can be recovered from the carrier signal. Down-conversion is the subject of the challenged claims of the ’342 patent.

VII. DETAILED TECHNOLOGY BACKGROUND

A. Basic circuit concepts

38. RF signals are created and processed using electronic circuits. To appreciate the operation of such circuits, it is important to understand fundamental electrical concepts, including charge, voltage, current, energy, power, resistance, and impedance. These principles govern the operation of RF wireless receivers and down-conversion systems.

39. Charge: Charge is a fundamental property of matter. There are two physical types of charge: positive and negative. Protons carry a positive charge (+), while electrons carry a negative charge (–).

40. The operation of electrical circuits depends on the movement of electrons (not protons), which in turn facilitates the transfer of energy and information. An electron has potential energy, also called electric potential energy or just electrical energy. When charges move, both energy and charge are

conserved and may be converted into other forms, such as heat. The buildup of charge establishes a voltage signal. Here, a voltage signal refers to information that is almost entirely conveyed as a voltage. Alternatively, the movement of charge—measured as current—can itself serve as the signal.

41. Voltage: Voltage represents the difference in electric potential energy per unit charge between two points in a circuit. It quantifies the amount of potential energy available to move charges. Negative charges (electrons) are naturally attracted to higher voltages, while positive charges (protons) are drawn toward lower voltages.

42. Electric current: Electric current is the flow/movement of charge within a circuit (in a conductor or into, out of, or through an electrical component).

43. Electric energy: Electric energy is the capacity to accomplish work based on a quantity of electric charge and its related electric field. Energy can be transferred by the motion of charge and the resulting electric field of the charge. Greater quantities of charge in motion are capable of transferring greater quantities of energy.

44. Energy is not the same as voltage. Energy can be retained as electrical energy or it can be converted to thermal energy. Voltage is the difference in electric potential energy (per unit charge) between two points and there can be a voltage whether or not energy is converted from electrical form to thermal form. Generally,

when we are talking about electrical circuits, we are referring to electrical energy only and we talk about energy being dissipated where dissipated is short-hand for electrical energy being converted to thermal energy. Energy and voltage are used in circuits in different ways.

45. Power: Power is the rate at which energy is transferred within a circuit, measured per unit time. In electronic circuits, power quantifies the average rate at which charge carriers deliver energy.

46. Resistance: Resistance is a measure of the difficulty of passing current through a conductor

47. Impedance: Impedance is the measure of the opposition that a circuit presents to a current when a voltage is applied. Impedance is related to, but not the same as, resistance. Resistance is one component of impedance. In addition, impedance describes the ability of a circuit element to store and/or return electrical energy (referred to as reactance). A circuit component with high resistance has high impedance.

B. Circuit Components

48. Circuit designers and engineers use circuit diagrams to illustrate how various circuit elements are connected and interact. Each circuit element affects voltage, current, charge, and energy in a specific way. By combining different circuit elements in various configurations and selecting components with specific values,

designers can create circuits that perform a wide range of functions.

1. Transistor

49. A transistor is a semiconductor device used to switch, detect, or amplify electronic signals and electrical power.

50. A transistor has at least three terminals for connection to an external circuit. Key to the functionality of a transistor is that a controlling voltage or current at one terminal can control a current between two of the other terminals.

51. A transistor has at least three terminals for connection to an external circuit. Key to the functionality of a transistor is that a controlling voltage or current at one terminal can control a current between two of the other terminals.

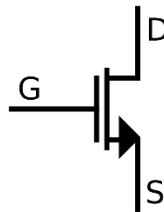
52. Some types of transistors can be used as a switch. Transistors, however, can also be used to provide other functions (e.g., amplification). Whether a transistor is used as a switch or performs another function depends on the signals applied to the terminals of the transistor, and on the circuit in which the transistor is embedded.

53. A field-effect transistor (FET) is one type of transistor. Most FETs are classified into junction-gate field-effect transistors (JFETs) and metal–oxide–semiconductor field-effect transistors (MOSFETs). One of the characteristics of a FET is that controlling a voltage at one terminal controls a current between two of the other terminals. A JFET or MOSFET can therefore be used as a switch, a continuous time-varying resistor, or can be used in other ways, such as to provide

amplification.

54. Indeed, at the time of the invention of the '342 patent, a POSITA understood that a transistor behaves/can be used in different ways and operates as different circuit elements depending on how it is set-up.

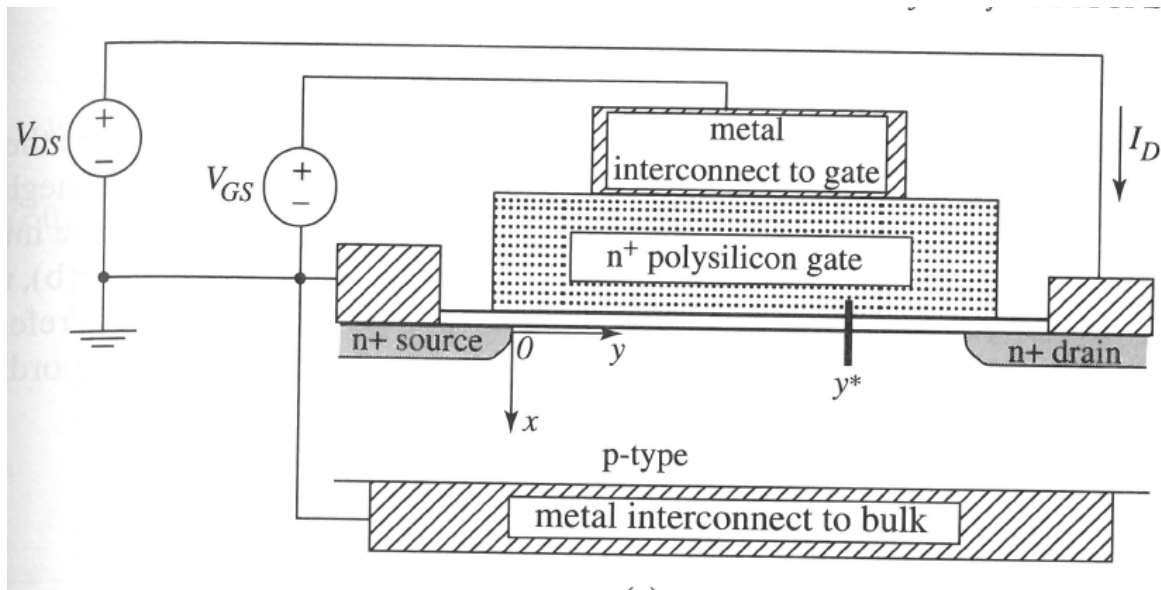
55. The symbol for one type of FET is shown below.



56. A FET has three terminals: (1) source (S), (2) drain (D), and (3) gate (G). In a FET, a voltage at the gate (G) controls the current flow between the drain (D) and source (S).

2. NMOS transistors

57. An NMOS (N-channel Metal-Oxide-Semiconductor) Field-Effect Transistor (FET) consists of three terminals: gate (G), drain (D), and source (S). The electron flow (current) from the drain (D) to the source (S) is controlled by the voltage at the gate (G).

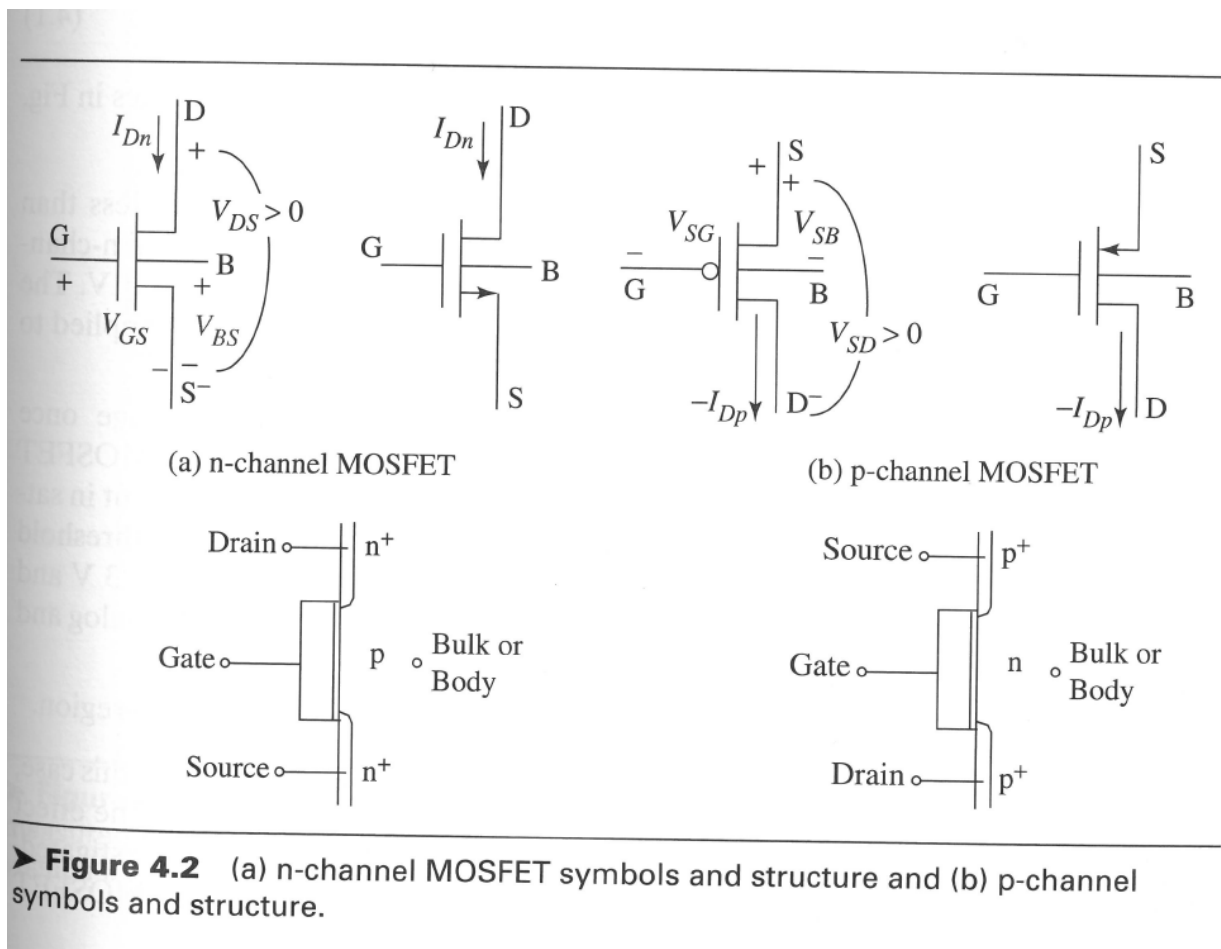


Ex.-2025, at p. 199.

58. When a positive voltage exceeding a fixed threshold² is applied to the gate relative to the source, an inversion layer forms in the p-type substrate, creating a conductive n-channel between the drain and source. This allows current to flow when a voltage difference is applied between the drain and source. The current is controlled by the gate voltage, making NMOS FETs highly efficient for switching and amplification applications.

59. The symbol for a n-channel (and its dual the p-channel) MOSFET is shown below.

² The threshold voltage (V_{Th}) is determined by the fabrication technology of the NMOS transistor and typically ranges between 0.3V and 1V.



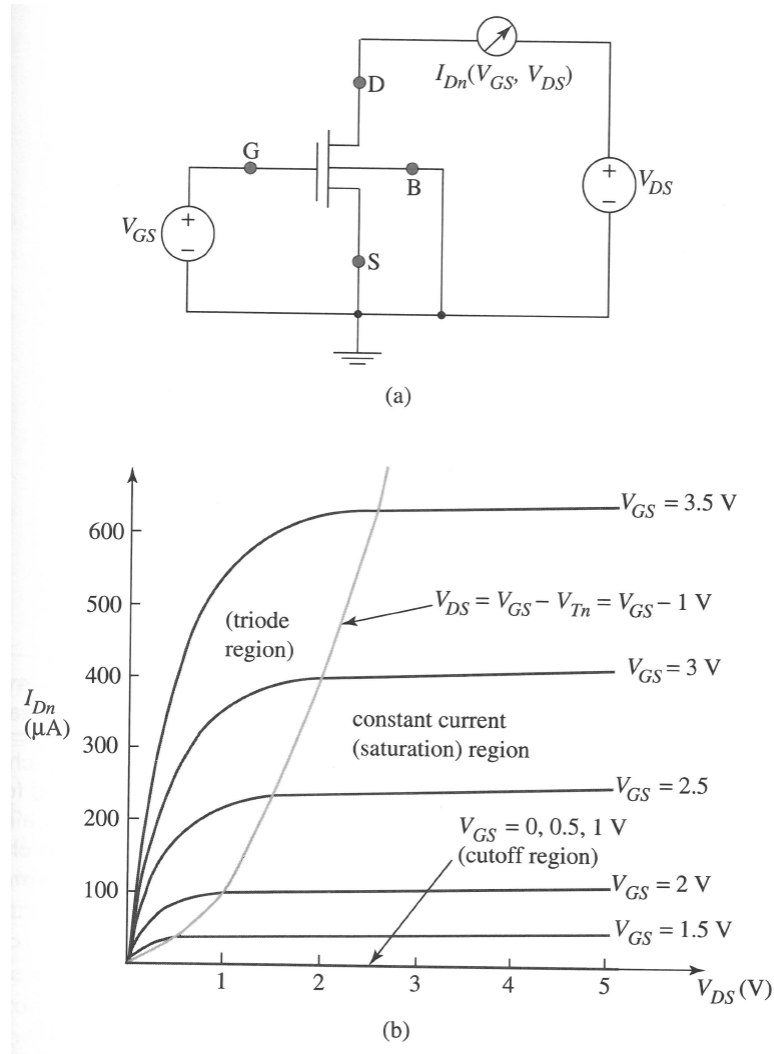
Ex.-2025, at p. 195.

60. As shown by the arrow in Figure 4.2 (a) above, the current I_{Dn} flows from the drain (D) to the source (S).

61. The NMOS MOSFET has two primary regions of operation³: (1) triode region, where the current is proportional to the drain-source voltage (V_{DS}), and (2)

³ There is a third region, called sub-threshold, but is not a region considered in the references discussed in this declaration. This region is used for ultra-low power circuit designs.

saturation region, where the current is constant across all V_{DS} ⁴. These two regions—triode and saturation—are shown in the figure below.



⁴ In practical devices, the current is not perfectly constant but will vary slightly with V_{DS} due to a phenomenon known as channel length modulation. However, to a first-order approximation, the current is considered constant and independent of V_{DS} .

Ex.-2025, at p. 197.

62. The saturation region occurs when the gate-to-source voltage (V_{GS}) exceeds the threshold (voltage V_{Th}) and the drain-to-source voltage (V_{DS}) satisfies: $V_{DS} \geq V_{GS} - V_{Th}$. For example, assuming $V_{Th} = 1\text{ V}$ as shown in the figure above, the minimum required V_{DS} for saturation would be:

If $V_{GS} = 2\text{V}$, then $V_{DS} \geq (2\text{V} - 1\text{V}) = 1\text{ V}$.

If $V_{GS} = 3\text{ V}$, then $V_{DS} \geq 2\text{V}$.

63. In saturation, the current flows only from the drain to the source, and V_{DS} is at least $> V_{Th}$ (usually much greater to allow larger current to flow).

64. An NMOS FET in saturation has a drain voltage of at least the threshold voltage (typically 0.3V to 1V) and supports unidirectional current flow from drain to source.

3. Resistor

65. A resistor is a circuit element that introduces resistance into a circuit.

66. The symbol for one type of resistor is shown below.

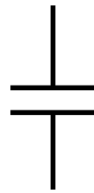


67. Resistors serve various functions, including reducing current, adjusting signal levels, dividing voltages, biasing active elements, and terminating transmission lines.

4. Capacitor

68. A capacitor is one type of circuit element used to accumulate energy. A capacitor accumulates electric energy in an electric field by separating charges over a distance.

69. The symbol for one type of capacitor is shown below.



70. A capacitor accumulates energy in an electric field established between two plates.

71. The ability of a capacitor to accumulate energy is described by its capacitance. The capacitance C of a capacitor is equal to the charge Q accumulated on the plates (with a positive charge $+Q$ on one plate and a negative charge $-Q$ on the other plate) divided by the voltage V between the plates and is calculated using the formula: $C = Q/V$. The capacitance of a capacitor is proportional to plate area and inversely proportional to the distance between the plates.

72. The formula for the energy E accumulated in a capacitor is set forth below (where C is the capacitance of the capacitor and V is the voltage across the capacitor).

$$E_{cap} = \frac{C \times V^2}{2}$$

73. As such, the energy accumulated in a capacitor is proportional to (a) the

square of the voltage across the capacitor and (b) the capacitance of the capacitor.

74. Given that energy accumulated in a capacitor is proportional to its capacitance, a capacitor with a small capacitance cannot accumulate much energy, whereas a capacitor with a larger capacitance can accumulate more energy for a given voltage.

5. Electrical Load

75. An electrical load is an electrical element or portion of a circuit that absorbs power and converts it into a desired form. Whereas a power source supplies energy, a load extracts/uses energy. For example, a resistor (Section VII.B.3 above) is a type of load.

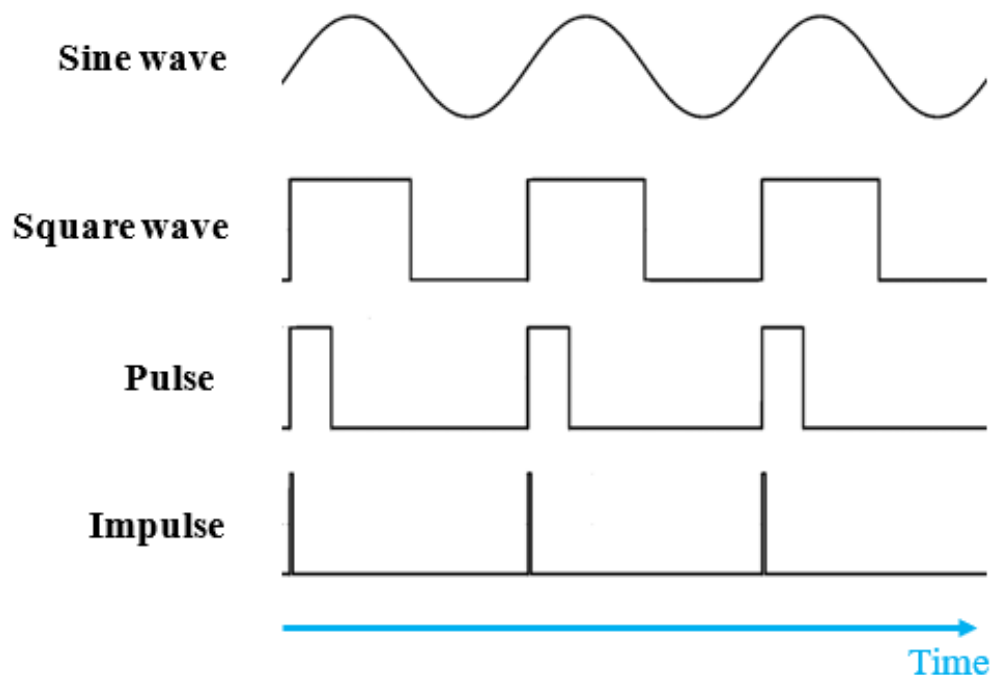
76. Connecting a load to a capacitor affects the amount of potential energy accumulated on the capacitor and how much energy is transferred to the load and, thus, the way the capacitor is used in a circuit. There are high impedance loads and low impedance loads. A high impedance load inhibits current from moving in a circuit and absorbs very little electrical energy. A low impedance load provides little constraint to current moving in a circuit and absorbs electrical energy. Thus, a low impedance load must have a low resistance, whereas a load with a high resistance is a high impedance load. The low impedance load will significantly discharge a capacitor, thereby changing the energy that was previously accumulated.

77. Since a load is connected to the output of other circuitry, the circuitry

(e.g., capacitor, source, transistors) is said to be driving the load (when substantial current flows from the circuitry to the load). For example, when circuitry is connected to a low impedance load, the circuitry is said to be driving a low impedance load.

6. Local Oscillator

78. A local oscillator is “[a]n oscillator used in a ... circuit to reproduce a sum or difference frequency equal to the intermediate frequency of the receiver. This is done by mixing its output with the received signal.” Ex.-2031, p. 5. The terms “local oscillator,” “LO,” or “LO circuit” are used to refer to the local oscillator circuit. The output signal of a local oscillator is commonly referred to as the “LO,” “LO signal,” or “local oscillator signal.”



79. The diagram above shows different types of signals that can be

generated by a local oscillator. The signal can be (1) a sine or sinusoidal wave, (2) a square wave, (3) a pulse, or (4) an impulse. A square wave, pulse and impulse are each periodic repetition of pulses.

80. A sine or sinusoidal wave is “a wave that can be expressed as the sine of a linear function of time, space, or both.” *Id.* at p. 8. In the context of circuits, a sine wave is a voltage or current that varies sinusoidally with time. The sine wave is a continuous signal with a value that changes smoothly over time.

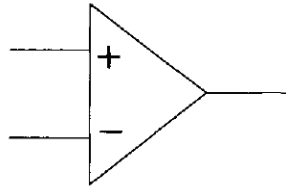
81. A square wave is a “square- or rectangular-shaped periodic wave that alternately assumes two fixed values for equal lengths of time, the transition time being negligible in comparison with the duration of each fixed value.” *Id.* at p. 9. A square wave is a signal that has two values, and unlike a sine wave, has abrupt transitions between those values.

82. A pulse is defined by “[a] sudden and abrupt jump in an electrical quantity from its usual level to a higher or lower value, quickly followed by an equally abrupt return.” *Id.* at p. 7. In other words, a local oscillator producing a pulse is actually producing a train of pulses, which repeat periodically in time. A train of pulses is a signal that has two values, and unlike a sine wave, has abrupt transitions between those values.

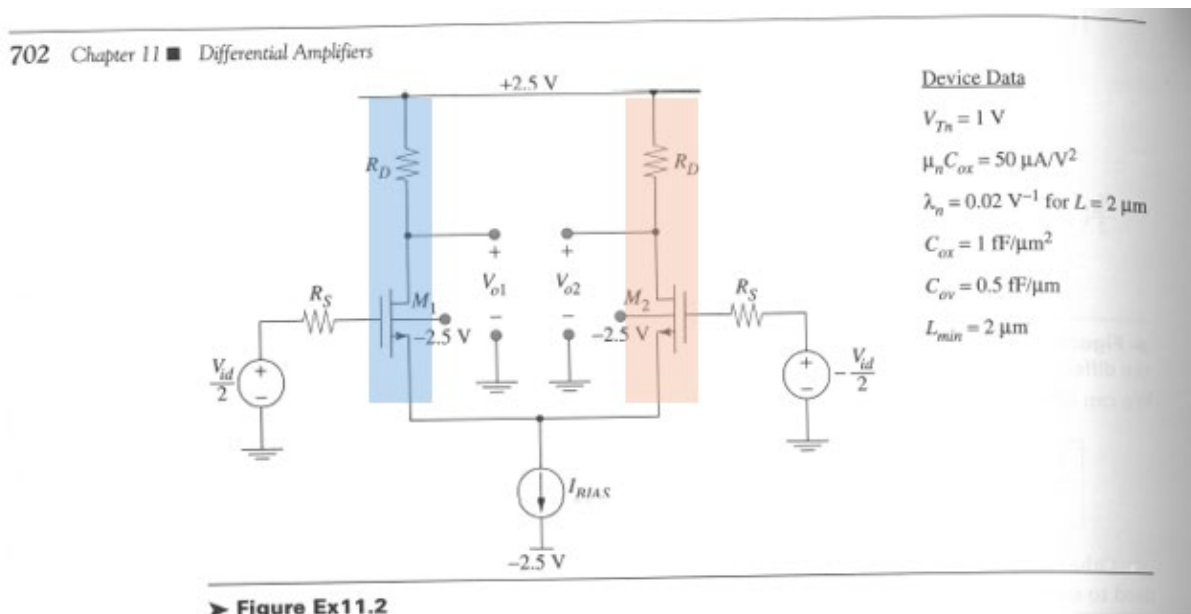
7. Differential Amplifiers

83. A differential amplifier is an electrical element that amplifies voltage

or current. It has two input terminals and either one or two output terminals. The symbol for a single-output differential amplifier is shown below.



84. A differential amplifier circuit amplifies a differential input signal using a “differential pair,” which consists of a pair of transistors connected as shown in the diagram below.



Ex.-2025, at p. 702.

85. As shown above, the differential amplifier circuit operates with a constant current bias (I_{BIAS}), which provides the bias, or operating point (quiescent point), for both transistors M1 and M2. A differential input voltage, V_{id} , which is

split into its differential components (a positive component and a negative component), is applied to the gates of M1 and M2.

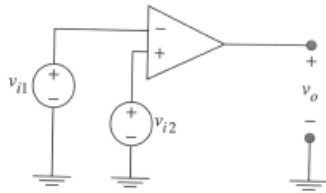
86. The bias current I_{BIAS} is divided between the two branches: (i) transistor M1 and resistor R_D (blue) and (ii) transistor M2 and resistor R_D (red). The differential output voltage is composed of V_{o1} and V_{o2} , where the voltages at these nodes are determined by the current through M1 (for V_{o1}) or M2 (V_{o2}) and the resistor R_D , following Ohm's Law: $V = I \times R$.

87. The differential input voltage (V_{id}) steers the current I_{BIAS} between the two branches (blue and red).

88. For large input differential input signals, the current may be entirely steered into either the blue branch or the red branch, resulting in the maximum possible output voltage swing.

89. For example, if the differential input voltage is such that all of I_{BIAS} is directed through M1, then: $V_{o1} = 2.5 \text{ V} - R_D \times I_{M1}$ and $V_{o2} = 2.5 \text{ V}$. The differential output would then be: $V_{o1} - V_{o2} = -R_D \times I_{M1} = -R_D \times I_{BIAS}$, since the maximum current through either transistor is I_{BIAS} .

90. Operational amplifiers (op-amps) use a differential pair as their input.



► **Figure 11.19** Many operational amplifiers require a differential-to-single-ended conversion.

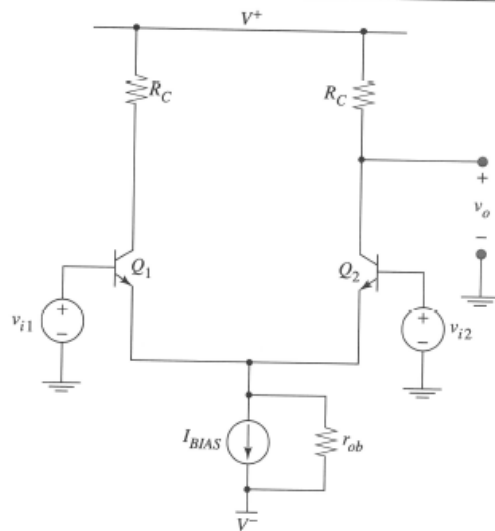
where $a_{dm} = -g_m R_C$ and $a_{cm} = \frac{-g_m R_C}{1 + 2g_m r_{ob}}$.

Using Eq. (11.38) the differential-mode gain for a purely differential input signal for this single-ended amplifier is

$$\frac{v_o}{v_{id}} = -\frac{a_{dm}}{2} = \frac{g_m R_C}{2} \quad (11.39)$$

The common-mode gain for a purely common-mode input signal is

$$\frac{v_o}{v_{ic}} = a_{cm} = \frac{-g_m R_C}{1 + 2g_m r_{ob}} \quad (11.40)$$



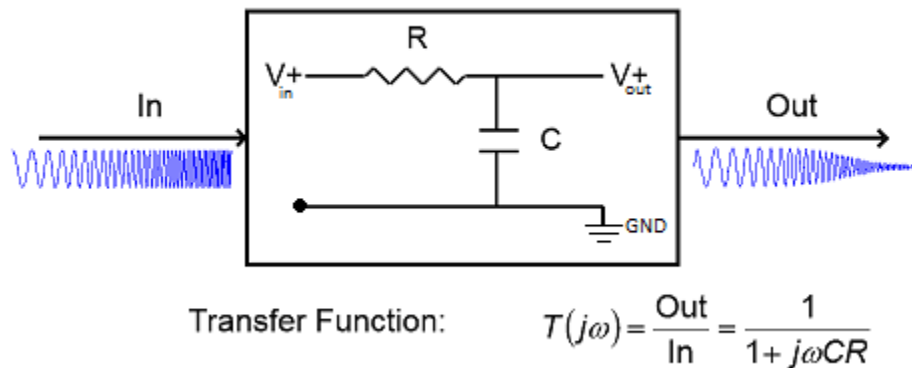
► **Figure 11.20** Differential amplifier with single-ended output.

Ex.-2025, at p. 709.

8. Low-pass Filter

91. A low pass filter is a circuit that attenuates high-frequency signals while allowing low-frequency signals to pass through. Typically, a low-pass filter shunts

high-frequency components to ground. An example implementation of a low-pass filter is the RC filter, as shown below. In such a circuit, low frequencies pass through the filter (as illustrated by the left portion of the blue waveform), whereas the high frequencies are attenuated (i.e., not passed through).



92. A low-pass filter can be implemented in various ways. In the simple RC filter above, filtering is achieved due to the frequency-dependent impedance of the capacitor, C. The impedance of a capacitor decreases as frequency increases. When the frequency is low, the impedance of the capacitor C is high, and the voltage divider formed by R and C is such that $V_{out} \approx V_{in}$. However, as the frequency increases, the impedance of the capacitor C decreases, causing more of the input signal to be dropped across the capacitor rather than appearing at V_{out} . At sufficiently high frequencies, the capacitor C behaves as a short circuit ($\sim 0\Omega$ impedance), and essentially all of the input signal is dissipated across R, leading to V_{out} approaching 0V.

9. Transformers

93. A transformer is a passive electrical device that transfers electrical energy between two or more circuits through electromagnetic induction. Transformers are commonly used to increase (step-up) or decrease (step-down) voltage levels in a circuit while maintaining power balance.

VIII. DOWN-CONVERSION SYSTEMS

94. There are two fundamentally different categories of down-conversion: (1) non-sampling/heterodyning; and (2) sampling-based down-conversion.

A. Heterodyning (Non-Sampling)

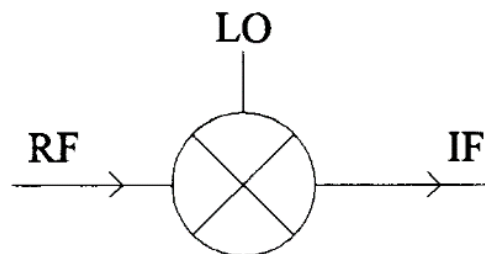
95. From the late 1980s through 2000, the industry was focused on the use of non-sampling mixers and heterodyne receivers for down-conversion. Heterodyne receivers, which used a decades-old RF technology called heterodyning, dominated the cellular/wireless industry for receiving and processing RF signals.

96. This technology used nonlinear and time-varying elements (e.g., transistors or diodes) in a nonlinear or time-varying mixer to effect translation of information centered at one frequency to information centered at another frequency. But this technology had problems – the circuitry was large and required significant power. The size and power requirements of heterodyne receivers were, at least in part, the result of the number of components these receivers used in order to perform down-conversion.

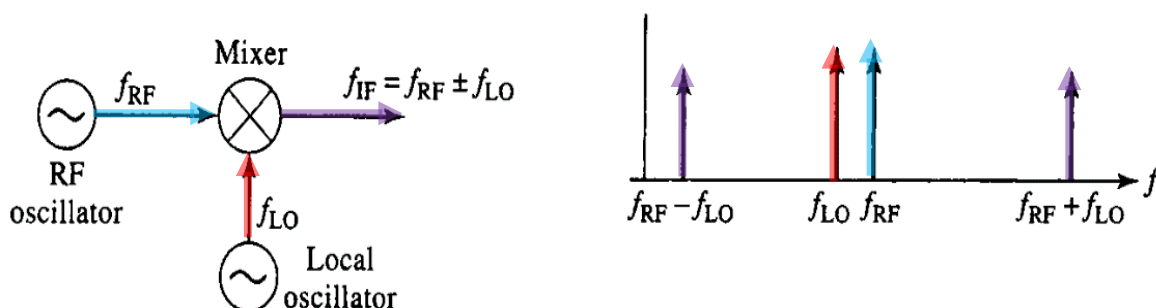
97. A non-sampling mixer operates by continuously multiplying two

sinusoidal signals—an incoming RF signal with a local oscillator (LO) signal—resulting in an output spectrum governed by the equation: $f_o = mf_{RF} \pm nf_{LO}$, where f_{RF} is the frequency of the RF signal, f_{LO} is the frequency of the local oscillator, and m and n are integers.

98. The typical symbol for a mixer is shown below.



99. The function of a mixer is to convert a signal received at one frequency to another frequency. As shown above, an input signal (here, an RF signal (modulated carrier signal)) enters a mixer and an output signal (here, an intermediate frequency (IF) signal) leaves the mixer. A component referred to as a local oscillator (LO) sends a signal to the mixer to effect down-conversion by the mixer.



100. As shown in the diagrams above, an RF signal is down-converted by frequency shifting the RF signal (blue arrow) to an IF signal (purple arrows). The

frequency shift is accomplished by using a local oscillator to send a signal with a frequency f_{LO} (red arrow) to the mixer. The mixer mixes the RF signal having a frequency f_{RF} and the LO signal having a frequency f_{LO} to produce an IF signal having frequencies at $f_{RF} - f_{LO}$ and $f_{RF} + f_{LO}$. As shown in the frequency domain (above right), down-conversion by the mixer replicates the RF signal frequency (blue arrow) at two frequencies: $f_{RF} - f_{LO}$ and $f_{RF} + f_{LO}$ (purple arrows).⁵ The circuitry after the mixer filters out the higher frequency $f_{RF} + f_{LO}$ signal, thus, leaving just the lower frequency $f_{RF} - f_{LO}$ signal. The mixer exploits the non-linearity of circuit elements to achieve the multiplication, i.e., mixing, of the RF and LO signals.

101. In view of the foregoing, the mixer described above is inherently a nonlinear circuit exploiting the nonlinear current-voltage characteristic of a nonlinear device.

102. Despite its widespread adoption, conventional receivers and mixers had significant drawbacks. The circuits were large, required substantial power, and introduced unwanted signals at undesired frequencies due to practical nonlinearities. This led to excessive noise and interference in direct down-conversion systems,

⁵ The mixer described in this section is an ideal mixer/multiplier. As such, while not shown, in practice there will be many other unwanted frequency components in the RF signal leaving the mixer (i.e., there will be noise).

requiring additional filtering and circuit components. Moreover, direct conversion schemes using heterodyning struggled to accommodate modern communication protocols with wide variations in baseband characteristics, including large amplitude variations. Furthermore, continuously time-varying elements consumed considerable battery power, reducing device efficiency and battery life. There are significant disadvantages to using mixers with continuously time-varying resistance (e.g., Gilbert cell analog multiplier). Because of practical nonlinearities inherent to their operation, they create unwanted signals at frequencies other than the desired frequency. Because of non-linearity, mixers have traditionally been the limiting factor in the performance of radio receivers.⁶

103. In non-sampling mixers, noise and nonlinear distortion generated by the mixer become significant. A consequence of the noise generated is that the RF signal level needs to be much higher than it would otherwise be for the mixer to output a down-converted signal level that is more than the noise level. This high level of noise means that the down-converted signal cannot be distinguished from noise for low RF input signal levels. Once noise is produced at frequencies corresponding to the down-converted signal, it cannot be removed without loss of desired information. A consequence of this is that more battery power is required by

⁶ I note that I am not stating that any mixer that multiplies is a non-linear mixer.

the LNA before the mixer to boost the RF signal level, which causes additional problems.

104. The nonlinearity in the process of multiplying an RF signal and an LO signal using practical hardware results in nonlinear distortion which is made worse with larger RF signal levels input to the mixer. A result is that no matter what is done, the minimum RF input signal level received by a receiver, e.g., the receiver in a cell phone, must be much larger than it would be if the mixer was ideal with no non-linearity and no noise injection. The distance the receiver (e.g., a phone) can be from a transmitter (e.g., base station) is much less than it would be if the mixer had lower noise and nonlinear distortion levels.

105. Mixers used in heterodyne receives could not efficiently handle baseband signals that varied widely in amplitude such as the range of amplitudes used in advanced communication protocols. In addition, with mixers, there was a problem of too much noise and interference being inserted into the down-converted signal. Addressing this noise and interference required many additional circuit components such as filters to eliminate unwanted signals. But no component could remove noise near the frequency of the down-converted signal without removing part of the down-converted signal. There was yet another problem with mixers in that the non-sampling and time-varying elements consumed considerable battery power, thus reducing battery lifetime. As a result, research and design of mixers

based on a nonlinear mixing was pursued extensively in order to address these issues.

106. Another type of down-converter is a direct down-converter, where the RF and LO frequencies are the same, such that the purple arrow would be near or around 0 Hz. This would put the information signal at baseband.

107. Direct conversion schemes used non-sampling or time-varying devices to effect conversion. But these schemes had difficulty handling signals (RF or baseband) that varied widely in amplitude. With direct down-converters, there was a problem of too much noise and interference being inserted into the down-converted signal. These problems required many additional circuit components and also resulted in direct conversion schemes that could not be used with advanced communication protocols that have wide variations in the baseband characteristics such as having large amplitude variations.

B. Sampling

108. In contrast to heterodyning, sampling-based down-conversion uses pulsed LO signals rather than continuous sinusoidal signals. These systems use switches to capture discrete samples of the RF signal at specific time intervals, leveraging aliasing effects for frequency translation.

109. Sampling-based down-conversion systems can be further categorized into two distinct types: (1) voltage sampling systems, and (2) energy transfer (energy sampling) systems – the technology claimed in the '528 patent.

1. Voltage sampling

110. In the late 1980s through 2000, a technology being considered for direct down-conversion (to recover the baseband signal directly from the RF signal without using IF) was sample-and-hold (a type of voltage sampling).

111. In the late 1990s through the early 2000s, the radio (cellular/wireless) industry was exploring direct down-conversion solutions that replicated the voltage of the RF signal and introduced as little voltage distortion as possible. At this time, it was thought that the best (and most accurate) way to accomplish this was to use the held voltage of the RF signal itself or its envelope, at a particular instant in time. Such a solution was quite logical – replicate voltage as faithfully as possible and hold the sampled voltage on a capacitor, until the next sampling instance. Holding the voltage level for an interval of time required that there should be no charge leaving (i.e., discharging from) the capacitor. *See Ex.-2037, pp. 523-524.* As such, the state-of-the-art at that time was to use a sample-and-hold system to accomplish this.

112. One implementation of sample-and-hold was based on sampling the RF signal using an impulse sampling concept. Impulse sampling attempts to replicate the voltage of the RF signal at the sampling instant with as little distortion as possible. The sampled voltage of the RF signal, in turn, is a representation of the original baseband signal sent from a transmitting device. The technique that was

being explored at the time was impulse sample-and-hold. A switch was used to connect the RF signal to a small holding capacitor which held the sampled voltage long enough for its value to be read. It was critical that the holding capacitor was small so that relatively few charges were transferred during sampling so that the source RF voltage signal was not distorted.

113. Another implementation of sample-and-hold is track-and-hold. In track-and-hold, the same or equivalent circuit configuration to an impulse sample-and-hold circuit is used. In track-and-hold, the switch is connected to the holding capacitor for a tracking interval and the voltage that is sampled (and held on the holding capacitor) is the voltage at the end of the tracking interval. Thus, the sampling aperture is the instant, i.e., negligible aperture, at the end of the tracking interval. Track-and-hold is a type of voltage sampling because track-and-hold uses readings of voltage across a capacitor in order to down-convert, and energy is not discharged from the capacitor to form the down-converted signal. A track-and-hold voltage sampling mixer circuit “fundamentally suffers from a large noise figure, because while tracking the narrowband signal, it also tracks and aliases wideband noise. This, and the difficulty of buffering such a switched mixer to the inductive load of an integrated LNA, make it inappropriate in a sensitive receiver.” Ex.-2032 at p. 5. The above quoted description and analysis applies to voltage sampling in general.

114. In a voltage sampling system, the system captures discrete voltage readings on a capacitor and recreates the baseband signal based on those voltage readings. A high impedance load is used to hold the voltage on a capacitor during each sample. The high impedance load prevents the capacitor from discharging so that an accurate reading of voltage can be taken. Without a high impedance load, the voltage on the capacitor would fluctuate, thereby preventing an accurate reading of the voltage and defeating the fundamental purpose of voltage sampling. And, without an accurate reading of the voltage, the baseband signal cannot be accurately recreated (the system would not work). Transferring any energy out of the capacitor does not allow for an accurate reading of the voltage, thereby defeating the entire purpose of the system. Each sample of a voltage sampling circuit is independent from the previous sample. Energy does not become part of the baseband signal; instead, energy is effectively thrown away and wasted. In other words, in voltage sampling, energy from the input signal is not integrated nor does it make up/become part of the baseband signal itself. *See Ex.-2037, pp. 523-524.*

2. Energy Sampling

115. In the late 1990s through early 2000s, a POSITA was not looking into energy sampling as an alternative to voltage sampling in order to perform down-conversion. Nor was sampling the only solution being considered. So, a POSITA would not look at the problems with sample-and-hold/voltage sampling and turn to

energy sampling for a solution. On the contrary, using energy sampling to form a baseband signal was counter-intuitive and against the thinking in the radio (cellular/wireless) industry at the time.

116. Energy transfer (energy sampling) was/is a fundamentally different and competing method to voltage sampling. Energy samplers do not attempt to replicate or sample the voltage of an RF signal. As such, at the time of the invention of the '528 patent, a POSITA would not simply substitute or consider using an energy transfer (energy sampling) system in place of a sample-and-hold/voltage sampling system and vice versa.

117. In ParkerVision's energy transfer system, non-negligible amounts of energy from an input signal (a radio frequency (RF) signal) pass through the switch and the energy transferred itself to a load forms the down-converted (baseband) signal. In an energy transfer system, energy is integrated in a storage module and a low impedance load is used. The low impedance load allows energy to be transferred through the system. This configuration allows energy to continuously flow to the low impedance load and forms the baseband signal. In particular, the RF signal drives the low impedance load when the switch is closed (ON), and the storage module continues to drive the low impedance load when the switch is opened (OFF). So energy flows from the switch when the switch is closed (ON) and from the storage module when the switch is opened (OFF).

118. If the capacitor did not continue to drive the low impedance load, there would be gaps in the output signal. As such, the energy transfer system would not work properly, and information would be lost.

119. Whereas the high impedance load in voltage sampling (e.g., sample-and-hold) causes a capacitor to hold energy (i.e., prevent energy in the capacitor from being discharged to form the down-converted signal), the low impedance load in energy sampling has the opposite effect, enabling a capacitor to store energy and then discharge the stored energy in between samples to form the down-converted signal (i.e., the discharged energy is conveyed in the down-converted signal).

120. The technique used in energy sampling enables direct down-conversion with advantages over other techniques including voltage sampling/sample-and-hold.

121. Energy sampling is an accurate way to form a baseband signal (which is a representation of the original baseband signal sent from a transmitting device). In energy sampling, unlike voltage sampling, accurately capturing the voltage of the RF signal is not critical. An advantage of an energy sampling system is that the energy stored on the capacitor is accumulated. This accumulation enabled the random noise fluctuations on the RF signal to average out even further than would be obtained by averaging out over just one sampling aperture. Moreover, the baseband signal carries significant power because non-negligible energy is discharged from the capacitor for driving a low impedance load.

122. There are significant advantages to using energy sampling instead of voltage sampling. For example, use of energy sampling to down-convert an RF signal improves RF receiver performance, lowers power consumption, reduces size of integrated circuits/devices and has other integration benefits. In other words, by using energy sampling, RF receivers can be built smaller, cheaper and with improved performance.

IX. OPERATION OF FETS

123. A FET is a type of transistor that can amplify, oscillate, or switch the flow of current between two terminals by varying the current or voltage at a third terminal. The specific function a FET performs depends on how it is configured within a circuit.

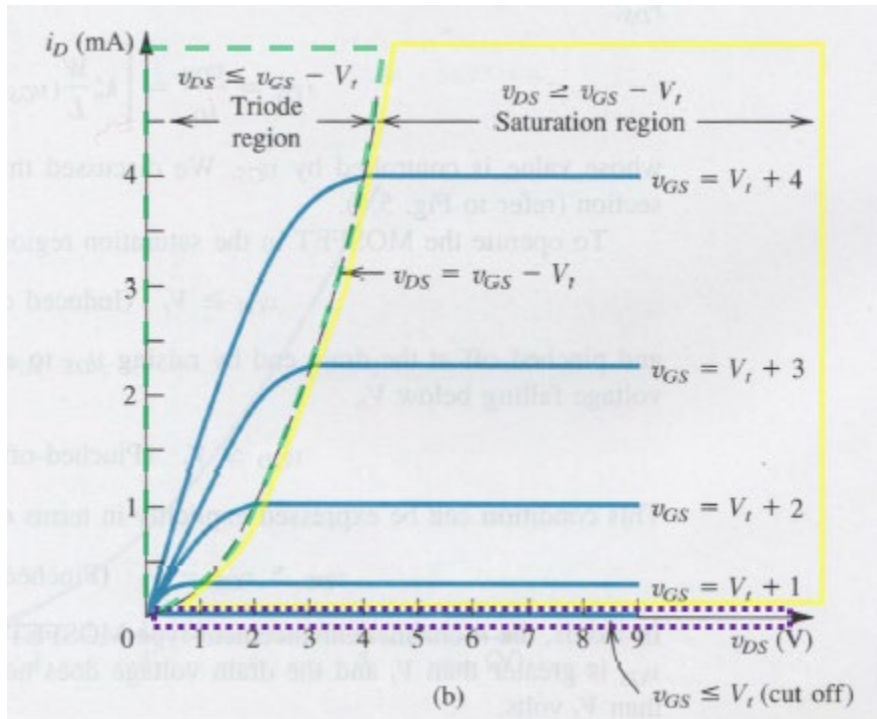
124. In electronics, “biasing” refers to setting a device’s operating conditions—such as its current or voltage—to achieve a desired mode of operation. FETs are non-linear devices, meaning their electrical characteristics change in response to variations in voltage and current. Because of this, a FET can behave differently depending on how it is biased and how it interacts with the surrounding circuit.

125. The behavior of a FET is primarily determined by three factors: the input signal applied to the gate (e.g., LO signal), the biasing conditions of the FET, and the overall circuit configuration.

126. Even if the same exact FET is used in the same exact circuit, applying different input signals at the gate can cause the FET to function in entirely different ways.

127. When a FET receives a moderate amplitude sinusoidal input signal at its gate, it modulates the current flowing between its output terminals in a continuous manner. The FET behaves as a continuous time-varying resistor. This mode of operation is referred to as time-varying transconductance—where a change in voltage at one terminal affects the conductance (ease of current flow) elsewhere in the circuit.

128. If that same exact FET receives a high-amplitude, rapidly changing input signal (e.g., square wave or a pulse train) it operates as a switch. In this mode, the FET alternates between an “on” state (allowing current to flow) and “off” state (blocking current flow), effectively opening and closing the circuit at defined intervals.



Ex.-2035, 367.

129. In order to explain how a FET works, a current-voltage characteristic graph for a MOSFET is shown above. The figure shows several current-voltage (I - V) curves (blue lines) of an enhancement-type NMOS transistor (a type of MOSFET). Each blue line corresponds to a different controlling voltage, i.e., gate to source voltage (V_{GS}). The vertical axis is the current (I_{DS}) that flows between the drain (D) and source (S) terminals, and the horizontal axis is the voltage (V_{DS}) between the drain and source.

130. A MOSFET has distinct regions of operation: (i) cutoff region (dotted purple box); (ii) triode region (dashed green box); and (iii) saturation region (yellow box). When operating in different regions, a MOSFET (and FETs in general)

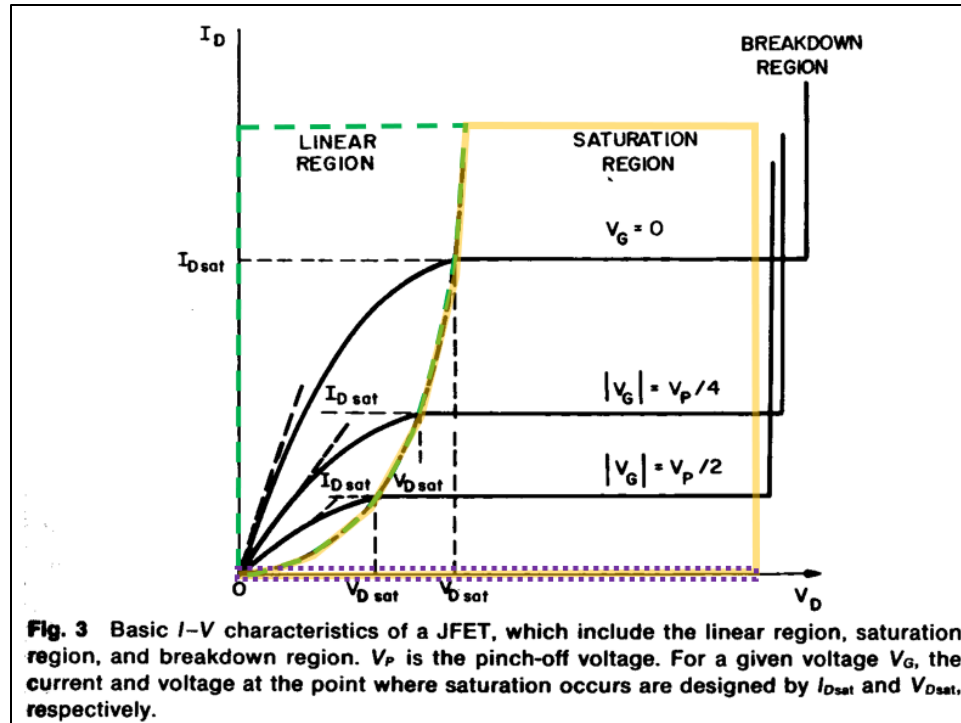
exhibits different behaviors and, thus, the MOSFET will act as different devices.

131. **Cutoff Region**: When V_{GS} is below a critical voltage, which is the threshold voltage of the transistor V_t , the conductive channel is closed, and no current flows between the drain and source ($I_{DS} = 0$).

132. **Triode (Transconductance) Region**: When V_{GS} exceeds the threshold voltage and V_{DS} is less than the saturation voltage of the MOSFET, the MOSFET behaves like a voltage-controlled resistor. The relationship between I_{DS} and V_{DS} is roughly linear.

133. **Saturation (Non-Linear) Region**: When V_{DS} exceeds a certain saturation voltage, I_{DS} remains relatively constant despite increases in V_{DS} . In this mode, the MOSFET functions as a voltage-controlled current source, with a non-linear response to changes in voltage.

134. Another type of FET is the junction field-effect transistor (JFET).



Ex.-2038, 315.

135. A JFET exhibits similar behavior to a MOSFET, with three operational regions: (i) pinch-off region (dotted purple box); (ii) linear region (dashed green box); and (iii) saturation region (yellow box).

136. Pinch-Off (Cutoff) Region: Equivalent to the MOSFET's cutoff region, where the channel is fully depleted, and no current flows.

137. Linear Region: Similar to the MOSFET's triode region, where the JFET behaves as a voltage-controlled resistor.

138. Saturation Region: Analogous to the MOSFET's saturation region, where the JFET functions as a current source.

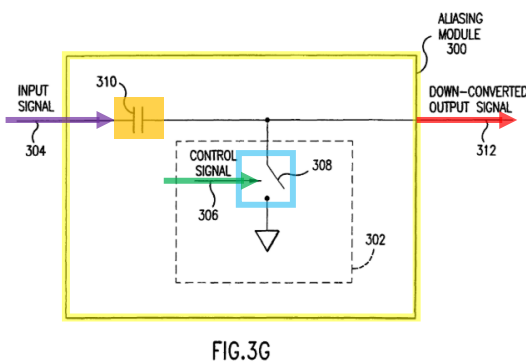
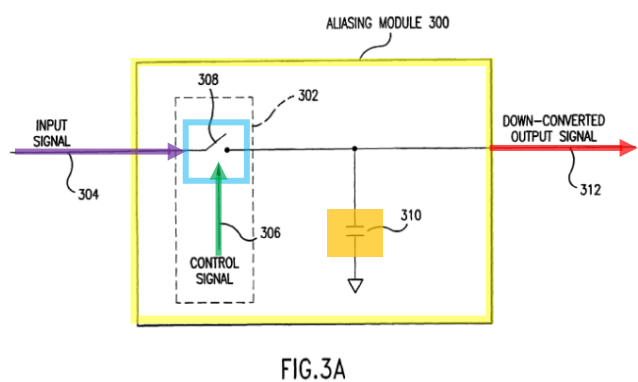
139. FETs have many modes of operation depending on circuit topology and

signals is well known. FETs are used in different ways in different circuits/systems depending on the needs of the circuit/system.

X. THE '342 PATENT

A. Overview

140. The '342 patent relates to a system and method to down-convert an electromagnetic signal (radio frequency signal).

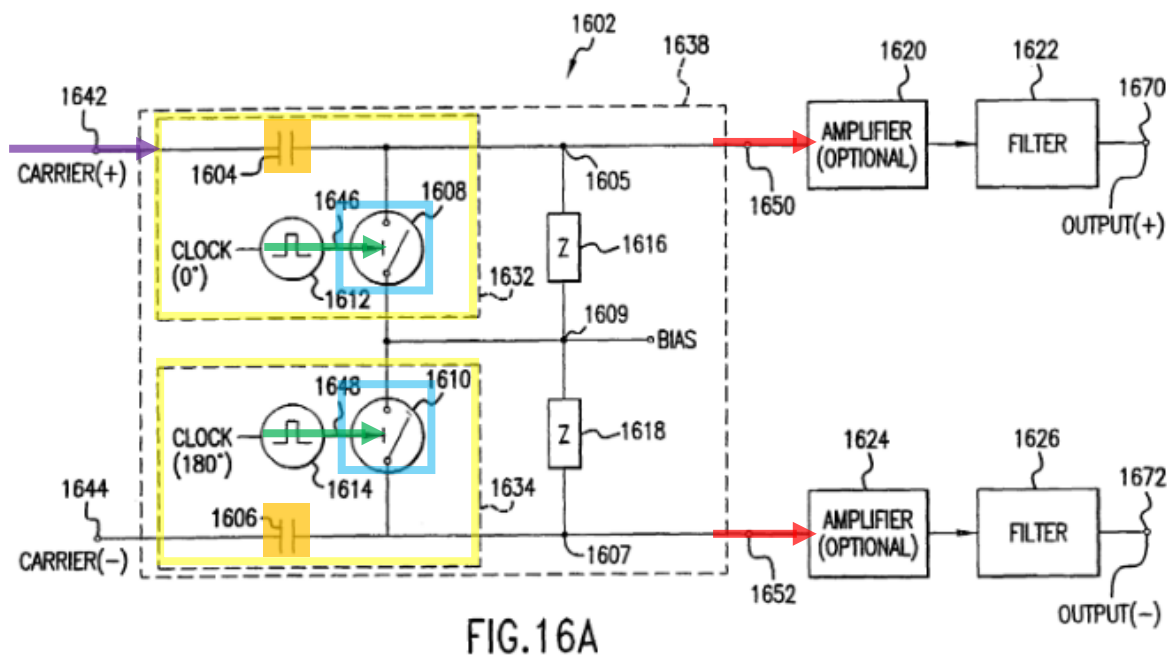


141. Figure 3A (above left) shows a configuration of an aliasing module 300 for down-conversion. Ex.-1001, 7:31-33. Aliasing module 300 (yellow) includes (1) a universal frequency translation (UFT) module 302 (implemented as a switch 308 (blue) with a control signal 306 (green) for controlling the switch) and (2) a capacitor 310 (orange) for storing and discharging energy. *Id.*, 7:33-36. The switch receives an input signal 304 (purple arrow), samples the signal as discussed below, and outputs a down-converted output signal 312 (red arrow). In this configuration, the switch 302 is in series with input signal 304 and capacitor 310 is shunted to e.g., ground. *Id.*, 7:37-41.

142. Figure 3G (above right) shows an alternative configuration of the aliasing module 300 of Figure 3A. In Figure 3G, the capacitor 310 is in series with input signal 304 and the switch 308 is shunted to ground. *Id.*, 7:41-45.

143. Nevertheless, the configurations of Figures 3A/3G will operate in the same way.

144. The '342 patent discloses various embodiments of receivers into which the aliasing module of Figures 3A/3G can be incorporated, such as, for example, into the receiver 7000 of Figures 16A.



145. Figures 16A illustrates an exemplary receiver 1602 that down-converts a modulated carrier signal. *Id.*, 18:6-9. As illustrated in Fig. 16A, exemplary receiver 1602 receives a modulated carrier signal 1642 at its carrier (+) port. *Id.*, 19:56-57. The modulated carrier signal 1642 is inverted to generate signal

1644, which is input to carrier port (-) of receiver 1602. *Id.*, 19:62-63. The resulting output signal is a differential down-converted signal, formed by the sum of signals 1670 and 1672. *Id.*, 19:9-21.

146. Receiver 1602 includes a universal frequency down-conversion (UFD) module 1638, a first optional amplifier 1620, a first low-pass filter 1622, a second optional amplifier 1624, and a second low-pass filter 1626. *Id.*, 18:9-12. The UFD module 1638 includes two aliasing modules 1632, 1634 (yellow)—each configured as shown in Figure 3G—and two impedances 1616, 1618 (resistors). *Id.*, 18:13-22. Within each aliasing module, a capacitor 1604, 1606 (orange) and a switching device 1608, 1610 (blue) operate under the control of an aperture generator 1612, 1614, respectively. *Id.*, 18:34-37, 51-54.

147. In particular, input signal 1642, 1644 is provided to the input of aliasing module 1632, 1634, respectively. *Id.*, 18:39-41, 55-56. A switch in the aliasing module 1632, 1634 is turned ON (closes) and OFF (opens) based on a control signal 1646, 1648 (green), respectively. *Id.*; *see also id.*, 19:59-61, 66-67. As the switch opens and closes, a down-converted signal 1650 (red) is formed. *Id.*, 20:1-11. The down-converted signal 1650, 1652 may then pass through an amplifier 1620, 1624, respectively, and filter 1622, 1626, respectively. *Id.*, 20:12-17.

148. The differential output signal of UFD module 1638 (and consequently

receiver 1602) is formed by signals 1650 and 1652, which are 180 degrees out of phase. *Id.*, 20:11-13. The total output of receiver 1602 is the sum of these signals. *Id.*

149. Figures 15/16H/160/17/18A/19/20A/20E/20F/21 illustrate other receiver embodiments using the aliasing modules of Figures 3A/3G.

B. The patent's disclosure regarding down-conversion systems

150. The disclosure regarding down-conversion in U.S. Patent No. 6,061,551 ("the '551 patent") (Ex.-2033) is specifically incorporated by reference into the '342 patent.

151. The '551 patent and, thus, the '342 patent, discloses two systems for down-conversion: (1) energy transfer (energy sampling) and (2) sample and hold (voltage sampling).

152. Claims 19-21 of the '342 patent are directed to energy transfer. See Section X.C.

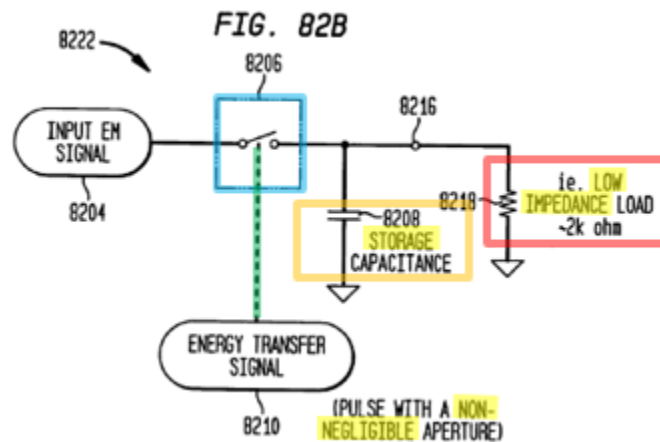
153. Energy transfer and sample/hold are distinctly different technologies. In energy transfer, the down-converted signal includes the energy⁷ from the RF signal; in voltage sampling, the down-converted signal is derived from discrete

⁷ Energy and voltage are not the same thing. Energy is the total amount of work a circuit or component can deliver, i.e. energy = Power X time.

voltage readings of the RF signal. Ex.-2033, 66:33-68:15 (describing an energy transfer system); 54:45-55:2 (describing a sample and hold system). While energy transfer and sample/hold both result in down-converted signals, an energy transfer system results in a higher quality baseband signal and, therefore, allows for wireless devices with fewer components, reduced size and cost, and increased battery life. Id., 62:60-63, 66:34-54.

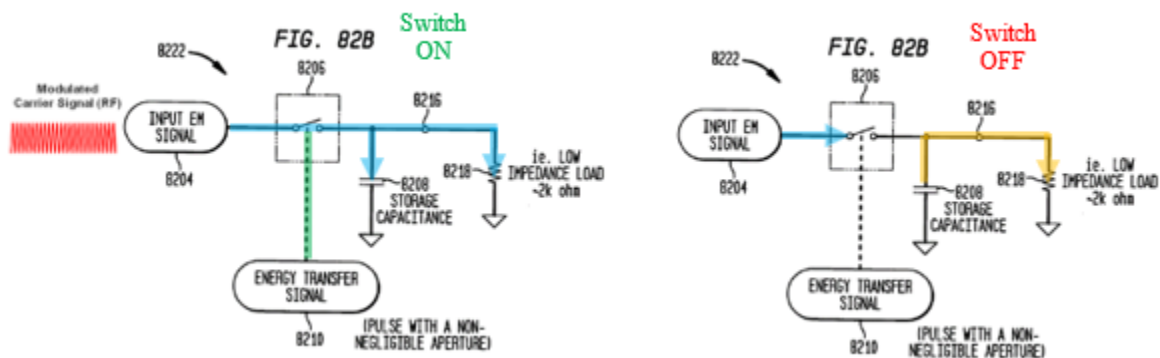
1. Energy Transfer (energy sampling)

154. Figure 82B of the '528 patent (below) illustrates an energy transfer (energy sampling) system, which would be incorporated into a transceiver chip of a wireless device.

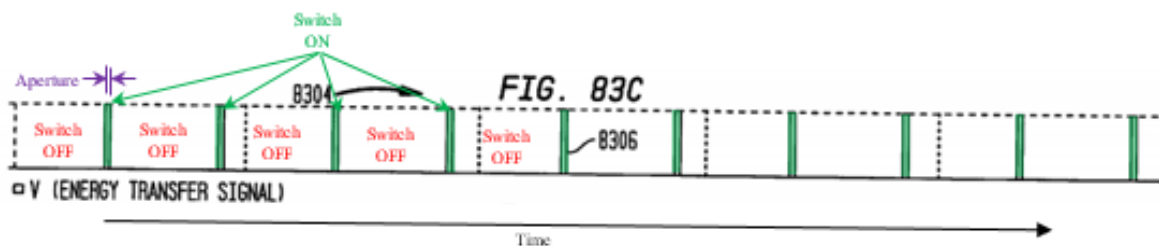


155. The system includes a switch 8206 (blue), an energy transfer signal 8210 (green) for controlling the switch, a “storage” capacitor 8208 (orange) for storing and discharging energy, and a low impedance load (red). Notably, there are several key features (yellow highlights) that distinguish an energy transfer system

from sample and hold. In particular, an energy transfer system uses (1) a control signal having a pulse with a non-negligible aperture/duration, and (2) a “storage” capacitor for storing and discharging non-negligible amounts of energy for driving a low impedance load. Indeed, low impedance is what enables a storage capacitor to discharge its energy when the switch is OFF (open). If the impedance were high, the “storage” capacitor could not discharge sufficient energy for the system to perform energy transfer (energy sampling) and form a down-converted signal from energy transferred to the low impedance load.

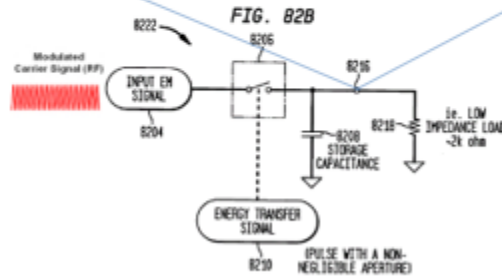
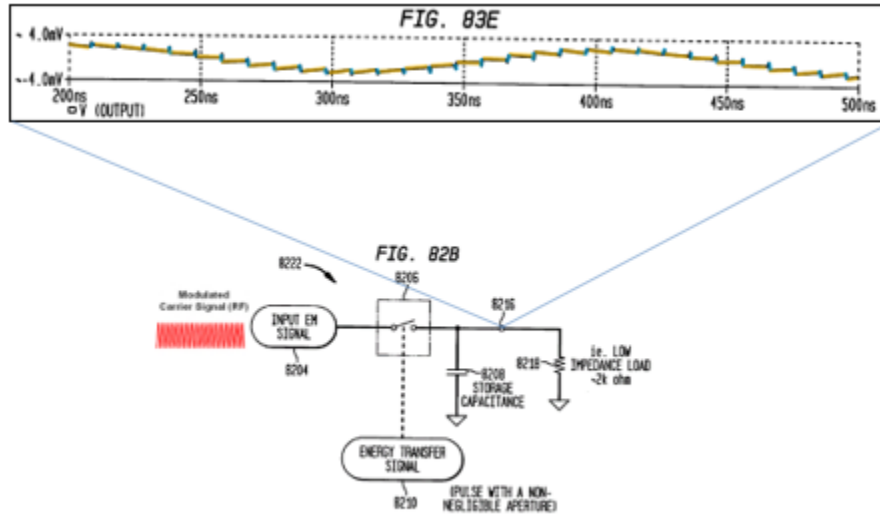


156. The annotations in Figure 82B above illustrate how an energy transfer system down-converts a high frequency input EM signal 8204 (e.g., modulated carrier signal (red)) to a baseband signal. In particular, down-conversion occurs by repetitively opening and closing the switch 8206.

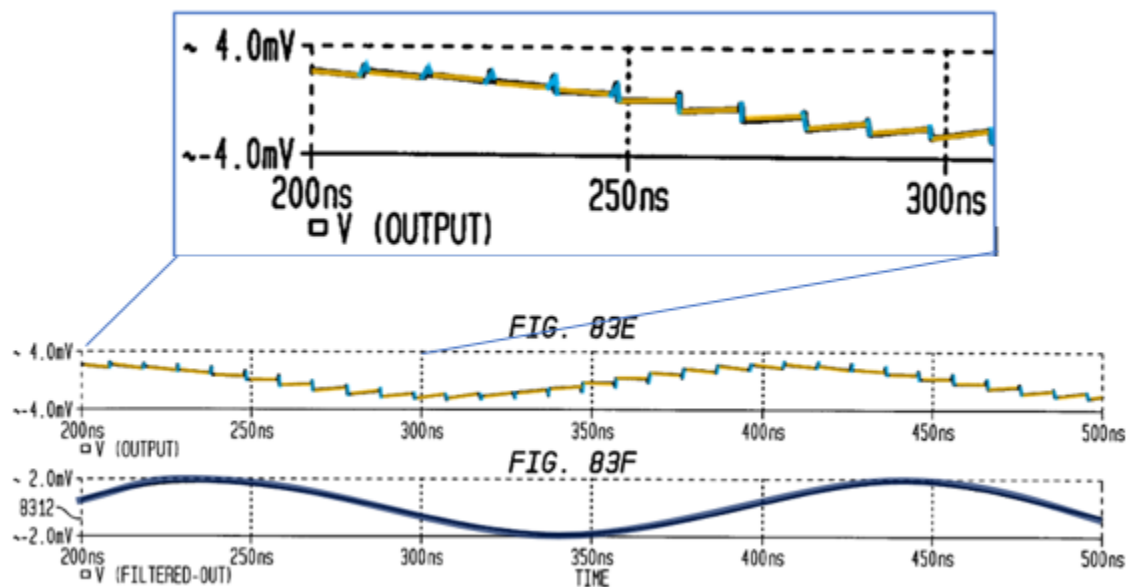


157. As shown in Figure 83C above, the switch is turned ON (closed) by sending a pulse 8306 (green) to the switch. The switch is kept ON (kept closed) for the duration of the pulse (i.e., a non-negligible aperture (purple) of the pulse). As shown by the repetitive pulses 8306, this opening and closing of the switch repeats continuously over time.

158. As shown in Figure 82B above (left), when the switch is ON (during the aperture), a portion of the input EM signal 8204 (blue) passes to the “storage” capacitor 8208 and the low impedance load 8218. When the pulse 8306 (green) stops, the switch is turned OFF (opened), and the input EM signal is prevented from passing through the switch. Since the load is low impedance, when the switch is OFF (opened), as shown in Figure 82B above (right), energy (orange) stored in the “storage” capacitor 8208 is discharged to the low impedance load 8218. For this reason, the “storage” capacitor is said to “drive the load.” Ex.-1001, 73:65-74:2.

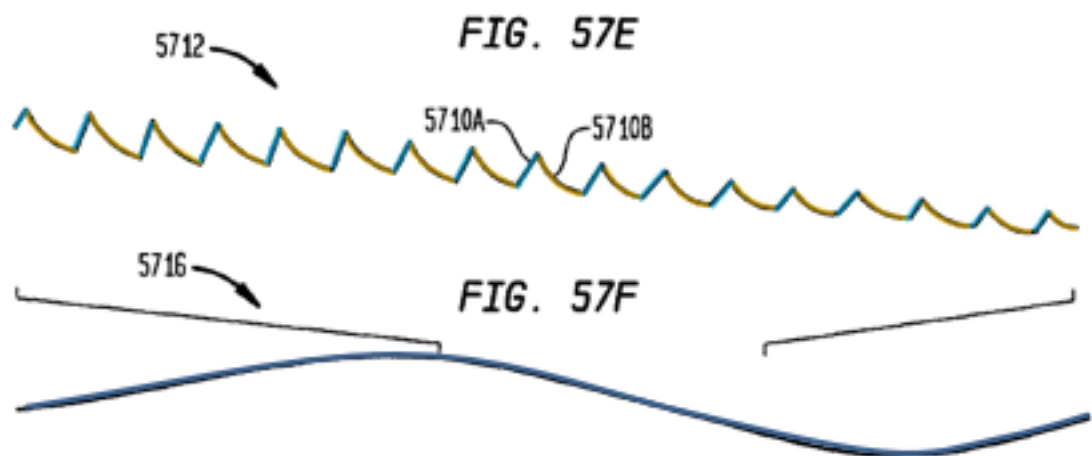


159. The repetitive opening and closing of the switch results in the waveform (blue/orange) shown above in Figure 83E at terminal 8216. The waveform is made up of energy (blue) from the EM signal and discharged energy (orange) from the “storage” capacitor. Indeed, the discharged energy (orange) from the “storage” capacitor is essential. Without the discharged energy, the waveform of Figure 83E would be incomplete (the orange portions would be missing), thereby producing a degraded and/or unusable signal that could not be properly processed by a receiving wireless device.



160. As shown above, the waveform of Figure 83E is filtered to create a smooth waveform (dark blue) as shown in Figure 83F.

161. The figures below illustrate a close-up view of another embodiment of a down-converted signal in an energy transfer system.

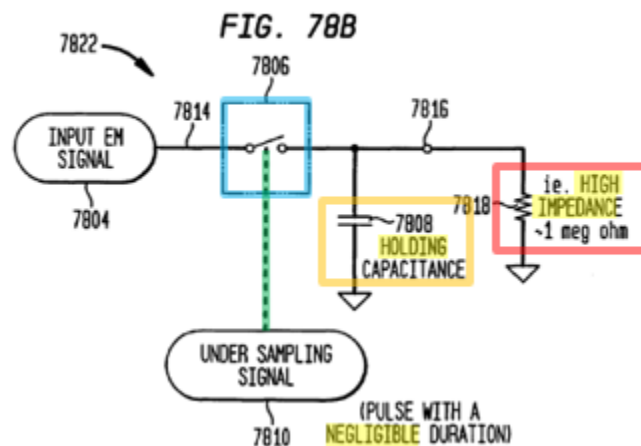


162. FIG. 57E shows a segment 5712 of the down-converted signal 5716

of Figure 57F. The down-converted signal of Figure 57E is made up of two portions - portion 5710A (i.e., energy (blue) from the EM signal) and portion 5710B (i.e., discharged energy (orange) from the “storage” capacitor). The baseband signal is derived from an accumulation function (e.g., integration) in which the energy transferred from the current cycle is combined with previously accumulated energy left in the storage module from preceding cycles. Thus, the energy transfer occurs and is accumulated, or “integrated,” over multiple apertures.

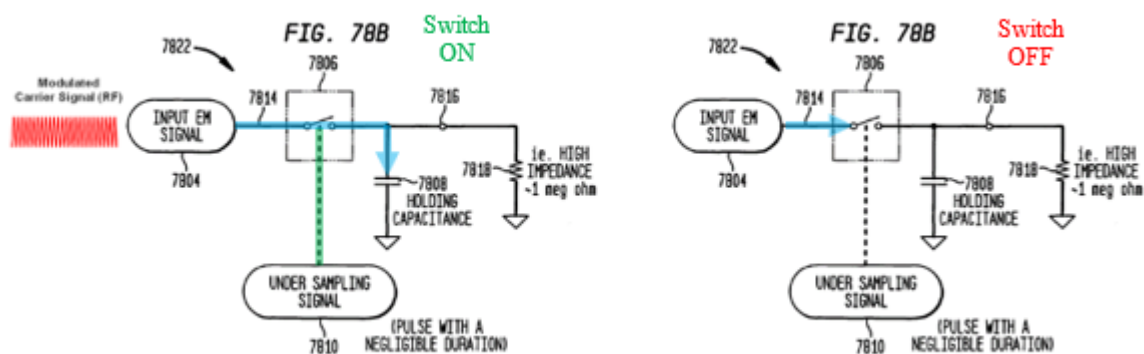
2. Sample-and-hold (voltage sampling)

163. Figure 78B of the '528 patent illustrates a sample and hold (voltage sampling) system.

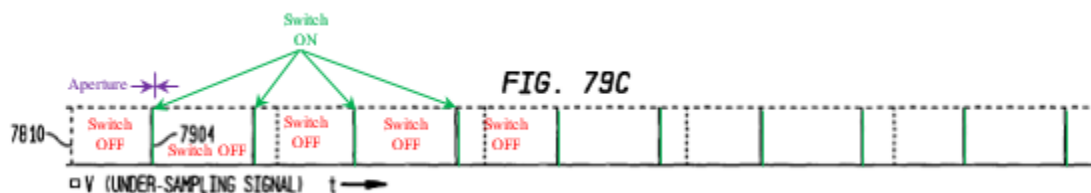


164. The system includes a switch 7806 (blue), a control signal 7810 (green) for controlling the switch, a “holding” capacitor 7808 (orange) for holding a voltage across the capacitor, and a high impedance load (red). Unlike an energy transfer system, a sample and hold system uses (1) a control signal having a pulse with a

negligible aperture/duration, (2) a “holding” capacitor for holding a constant voltage across the capacitor and (3) a high impedance load (yellow highlights). The capacitor is referred to as a “holding” capacitor because, unlike the “storage” capacitor in an energy transfer system, a “holding” capacitor does not discharge any significant energy to the load. Indeed, the high impedance load is specifically included to prevent the holding capacitor from discharging energy, which would degrade the discrete voltage measurements and adversely affect the system performing sample and hold (voltage sampling).



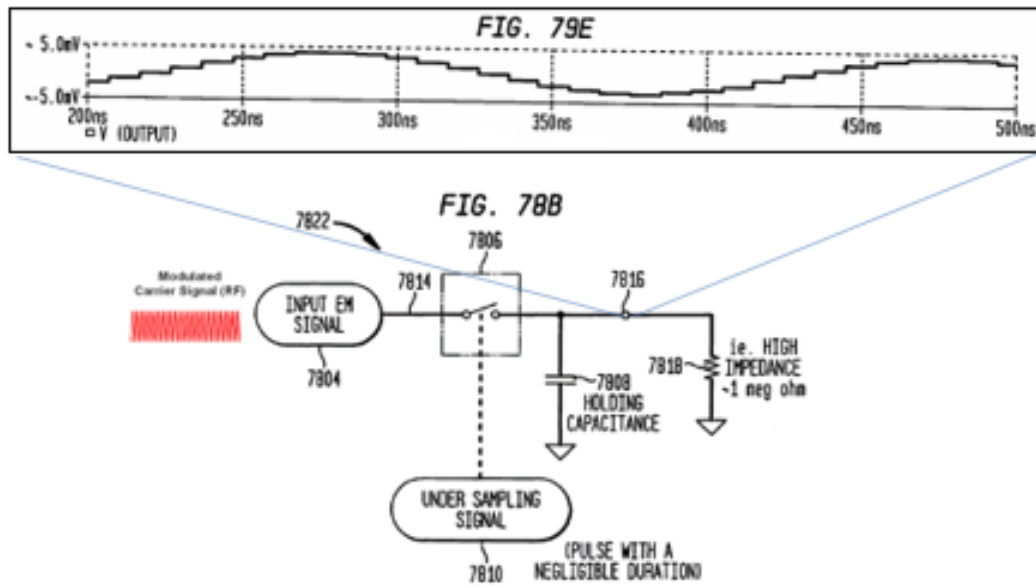
165. The annotations in Figure 78B illustrate how a sample and hold system down-converts a high frequency input EM signal 7804 (e.g., modulated carrier signal (red)) to a baseband signal.



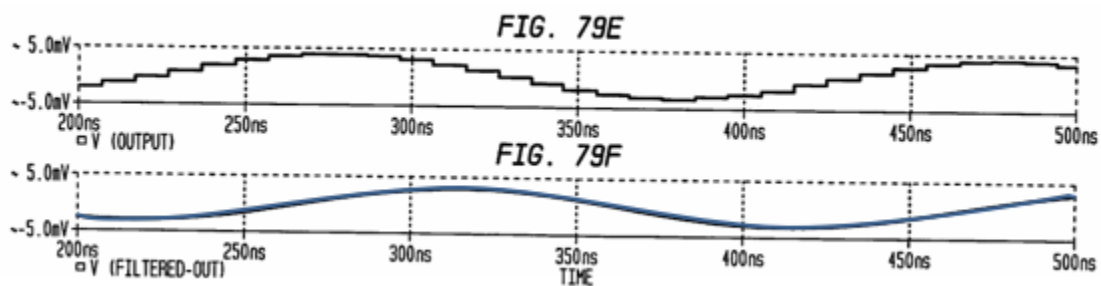
166. As shown in Figure 79C, the switch is turned ON (closed) by sending a pulse 7904 (green vertical line) of an extremely short/negligible duration to the switch. Thus, the aperture (purple) of a pulse is referred to as a negligible aperture because the pulse width “tend[s] toward zero time.” Ex.-1001, 70:2-4. As shown by the repetitive pulses 7904, this opening and closing of the switch repeats continuously over time.

167. As shown in Figure 78B above, when the switch is ON (closed) (during the aperture), the EM signal 8204 (blue) is sent to the “holding” capacitor 7808. When the pulse 7904 (green) stops, the switch is turned OFF (opened). But unlike energy transfer (energy sampling), since sample and hold uses a high impedance load, when the switch is OFF (opened), there is high resistance to the flow of current and, thus, the “holding” capacitor holds a constant voltage value.

168. Because there is no significant energy discharge between pulses, the terminal 7816 maintains a constant voltage value until the next pulse. Ex.-1001, 70:43-48. The voltage value serves as the “sample” of a discrete voltage value that the system uses to recover the baseband signal. In particular, the system uses each discrete change (increase/decrease) in the voltage value over time to recover the baseband. This is unlike energy transfer (energy sampling) which uses the energy from the input EM signal provided to a low impedance load to recover the baseband.



169. As shown in Figure 79E, sample and hold produces a voltage wave with a stair step pattern. The vertical part of the step represents the “sample” of the voltage value which occurs at the time of pulse 7904. The horizontal portion of the step represents the “holding” of that voltage value until the next pulse when the next sample of voltage is taken. Id., 70:48-52.



170. As shown above, the waveform of Figure 79E is filtered to create a smooth waveform (dark blue) as shown in Figure 79F.

C. Claims 19-21 are directed to an energy transfer system

171. Claims 19-21 of the '342 patent specifically recite various elements that are specific to an energy transfer system.

172. For example, claims 18 recites “controlling a charging and discharging cycle of the first and second capacitors...” and “performing a plurality of charging and discharging cycles of the first and second capacitors to generate first and second down-converted information signals across first and second impedance devices.” Further, claims 19-21 recite significant percentage discharge from the capacitors – 6% or more of the total charge stored – when a switching device is open (OFF).

173. There are one two types of systems disclosed in the '342 patent – an energy transfer system and a voltage sampling system. As discussed in Section VIII.B.2 and X.B.1, energy transfer system discharged significant amounts of charge/energy when a switching device is open. Voltage sampling systems, on the other hand, do not discharge stored charged when a switching device is open. As discussed in Section VIII.B.1 and X.B.2, in a voltage sampling system, current is held on the capacitor when the switching device is open. *See also, e.g.,* Ex.-1001, 37:60-38:15.

174. Because there are only two disclosed systems and voltage sampling does not discharge when a switching device is open, the only system that can be

covered by claims 19-21 of the '342 patent is an energy transfer system.

D. Prosecution history

175. The '342 patent was filed October 25, 2004.

176. On June 3, 2008, the USPTO issued an Office Action allowing claims 1-17. The USPTO provisionally rejecting claims 18-23 based on non-statutory obviousness-type double patenting in view of claims of co-pending U.S. Application No. 10/972,132 (which later issued as U.S. Patent No. 7,386,292).

177. On July 21, 2008, the applicants filed a “terminal disclaimer directed to the '292 patent.” On September 19, 2008, the USPTO issued a Notice of Allowance.

XI. CLAIM CONSTRUCTION

178. I understand that claim construction is the process of determining the meaning of words used in a patent claim in order to understand the meaning of the claim. I have been informed that claim construction is a matter of law and that claim construction will be determined by the Patent Trial and Appeal Board. I understand that the proper construction of a term is how a POSITA, at the time of the invention, would have understood the term based on its use in the claims, specification, and prosecution history of the patent. I further understand that the claims are not to be reviewed in this proceeding under the “broadest reasonable interpretation” standard.

A. switching device

179. Claims 18-21 recite first and second “switching device.”

180. The PTAB has previously construed the term “switch” in IPR2021-00346 related to in U.S. Patent No. 8,190,108 to mean “an electronic device for opening and closing a circuit.” *Intel Corp. v. ParkerVision, Inc.*, IPR2021-00346, Paper 33, at 25-26 (PTAB Jun. 30, 2022). The Federal Circuit affirmed this construction in a Rule 36 judgment. *ParkerVision, Inc. v. Vidal*, No. 2022-2173, at 2 (Fed. Cir. 2024). I have used this construction for “switching device” with regard to the challenged claims.

B. electrically coupling

181. I understand that the PTAB previously considered claim 18 of the ’342 patent in a Petition for *inter partes* review filed by Dr. Michael Farmwald and RXP Corp. I further understand that in its decision denying institution, the PTAB construed the term “electrically coupling” to mean “indirectly or directly connecting such that an electric signal can flow between.” *Farmwald v. ParkerVision, Inc.*, IPR2014-01107, Paper 7, p. 10 (PTAB Jan. 8, 2015). I have used this construction with regard to the challenged claims.

C. controlling a charging and discharging cycle

182. A POSITA would readily understand the term “controlling a charging and discharging cycle” and its plain and ordinary meaning.

183. Petitioner inserts the word “then” into the claim term: “controlling a

cycle of charging and *then* discharging.” Pet., 5.

184. Petitioner asserts that “the alleged invention is always either charging or discharging, and never simultaneously both charging and discharging.” *Id.* I disagree.

185. Petitioner ignores the embodiment disclosed in the specification (and claimed in claims 19-21) when two switches and two capacitors are being used. In particular, the first and second capacitors can operate simultaneously but on opposite schedules – i.e., the first capacitor can be charging while the second capacitor is discharging and vice versa.

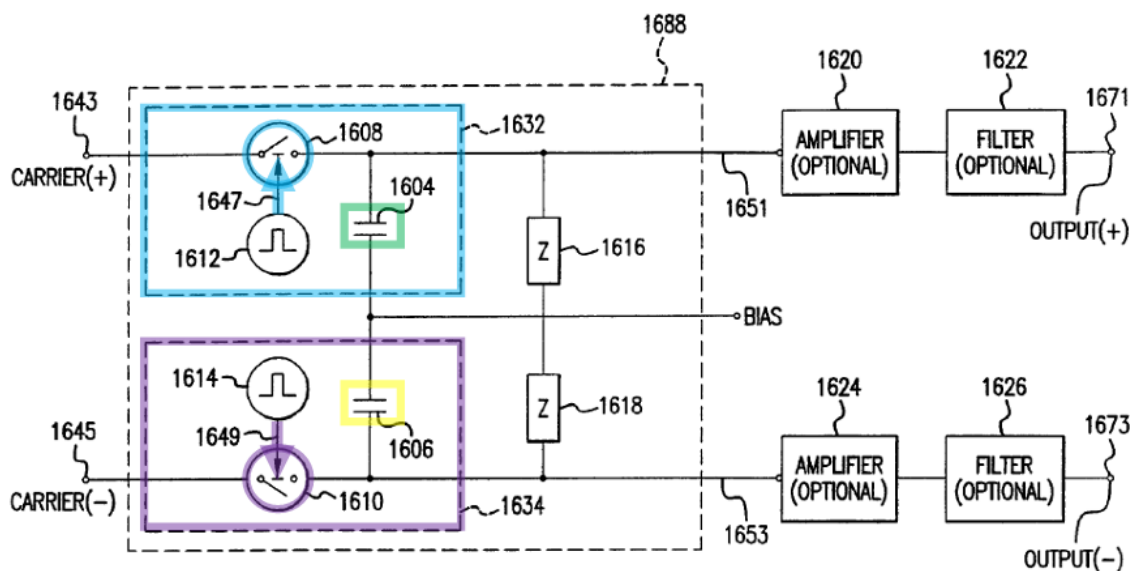


FIG.16H

186. Figure 16H of the '342 patent (above) illustrates an exemplary receiver having a first aliasing module 1632 (blue box) and a second aliasing module 1634 (purple box). Ex.-1001, 18:13-15; 20:33-39; 21:27-31.

187. The first aliasing module 1632 (blue box) includes a first switching device 1608 (blue circle) and a first capacitor 1604 (green box). The second aliasing module 1634 (purple box) includes a second switching device 1610 (purple circle) and a second capacitor 1606 (yellow box). *Id.*, 18:34-36.

188. The switching device 1608, 1610 is turned ON (closed) and OFF (open) based on a control signal 1647, 1649, respectively. The closing and opening of the switching device 1608, 1610 controls the charging and discharging of their corresponding capacitors 1604, 1606, respectively. *Id.*, 49:64-50:25

189. Petitioner's construction requires that the charging/discharging cycles of both first and second capacitors are synchronized. That is not how the technology works.

190. Indeed, Petitioner's position is contrary to the teaching of the '342 patent, which explicitly states that the apertures of the control signals for the first and second switching devices "do not overlap" and are "180 degrees out of phase." *See, e.g., Id.*, FIG. 16I, 18:59-61; 19:48-53; 20:40-43. This means that the first and second switching devices do not turn ON and OFF at the same time. Instead, while one capacitor is charging (due to the first switch being ON (closed)), the other is discharging (due to the second switch being OFF (open)), and vice versa.

XII. OVERVIEW OF THE ALLEGED PRIOR ART

A. DeMaw

191. DeMaw is a book entitled “Practical RF Design Manual,” and has a copyright date of 1982. Ex.-1016.

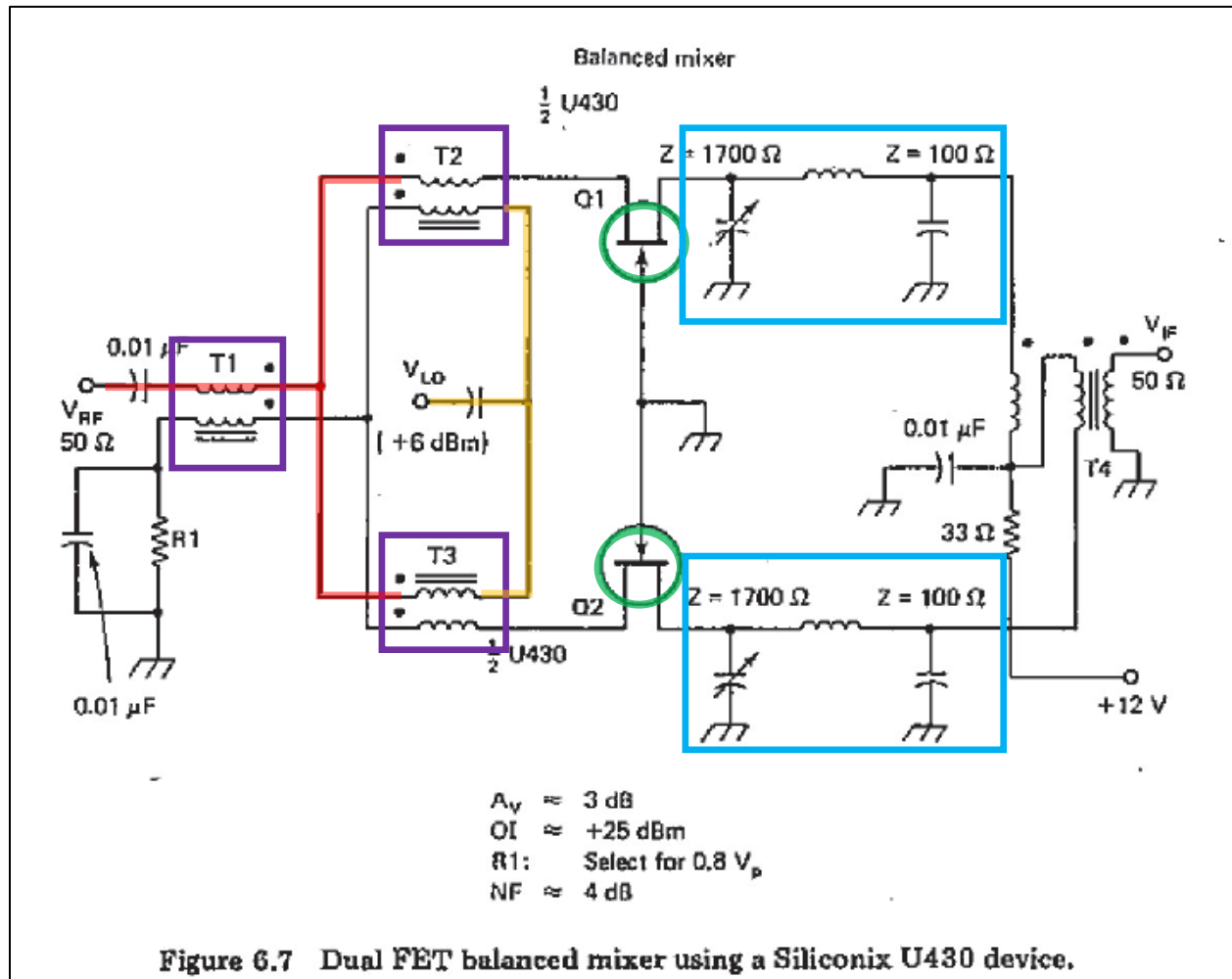
192. As discussed in Section VIII above, during this period, the wireless radio industry was focused on the use of non-sampling mixers and heterodyne receivers for down-conversion.

193. Consistent with the industry knowledge at the time, Chapter 6 of DeMaw (“Mixers, Balanced Modulators, and Detectors”), and specifically Subsection 6.1 (“Mixers”), compares various non-sampling mixers and their associated design tradeoffs. DeMaw’s non-sampling mixers rely on the non-linearity of circuit elements, such as transistors, to mix signals.

194. Chapter 6 begins by explaining the fundamental principle of mixers, modulators, and detectors: “[a]ll three operate on the principle of combining two frequencies to produce a third one.” Ex.-1016, 187. DeMaw then outlines the common design goals for these circuits, including achieving high dynamic range, minimal distortion, and good isolation between circuit ports. *Id.*

195. Subsection 6.1 focuses specifically on mixers, analyzing both single-ended and balanced mixer architectures. Within this discussion, DeMaw provides “[a]n example of a properly designed JFET singly balanced mixer” illustrated in

Figure 6.7. *Id.*, 196-197.



196. Figure 6.7 of DeMaw (above) illustrates a dual FET balanced mixer using a Siliconix U430 device. *Id.*, 196. The circuit of Figure 6.7 includes an RF input (V_{RF} , shown along the red path), an LO input (V_{LO} , shown along the orange path), transformers (T1, T2, and T3, shown in the purple boxes), transistors (Q1 and Q2, shown in the green circles), and low-pass matching networks (shown in the blue boxes).

197. As shown above, the RF signal (V_{RF}) passes through transformer T1,

which splits the signal into two paths that feed into the left side of transformers T2 and T3. Similarly, the LO signal (V_{LO}) splits at a node and is applied to the opposite (right) side of the primary windings of transformer T2 and T3. As a result, the outputs of transformers T2 and T3 combine the RF and LO signals, facilitating the mixing operation.

198. DeMaw states that a “[s]ymmetrical feed is used at the mixer input by means of T1, T2, and T3, providing a 180° phase differential between the source of Q1 and Q2.” *Id.* at 196-197. The signal provided by transformers T2 and T3, on the right side of their secondary windings, is a combination of the RF and LO signals. The RF and LO signals at the sources of Q1 and Q2 mix nonlinearly, generating both sum and difference frequencies at the drain. The outputs of Q1 and Q2 are then filtered in low-pass matching networks (shown in the blue boxes) and applied to transformer T4.

199. DeMaw further teaches that “R1 is selected to give a V_{GS} of 0.8 the pinchoff voltage, which will be on the order of 2 V, allowing for the published spread of -1 to -4 V, $V_{GS(off)}$.” Ex.-1016, 196. This reference to “pinchoff” describes the characteristic of Q1 and Q2 as JFETs, where conduction is controlled by the gate-source voltage V_{GS} relative to their pinchoff voltage (V_P or $V_{GS(OFF)}$).

200. As discussed above in Section VII.B.1 and IX, a JFET is a three-terminal device that controls the flow of current between its drain and source based

on the voltage applied to its gate. The gate-source voltage (V_{GS}) is calculated as: $V_{GS} = V_G - V_S$, where V_G is the gate voltage and V_S is the source voltage.

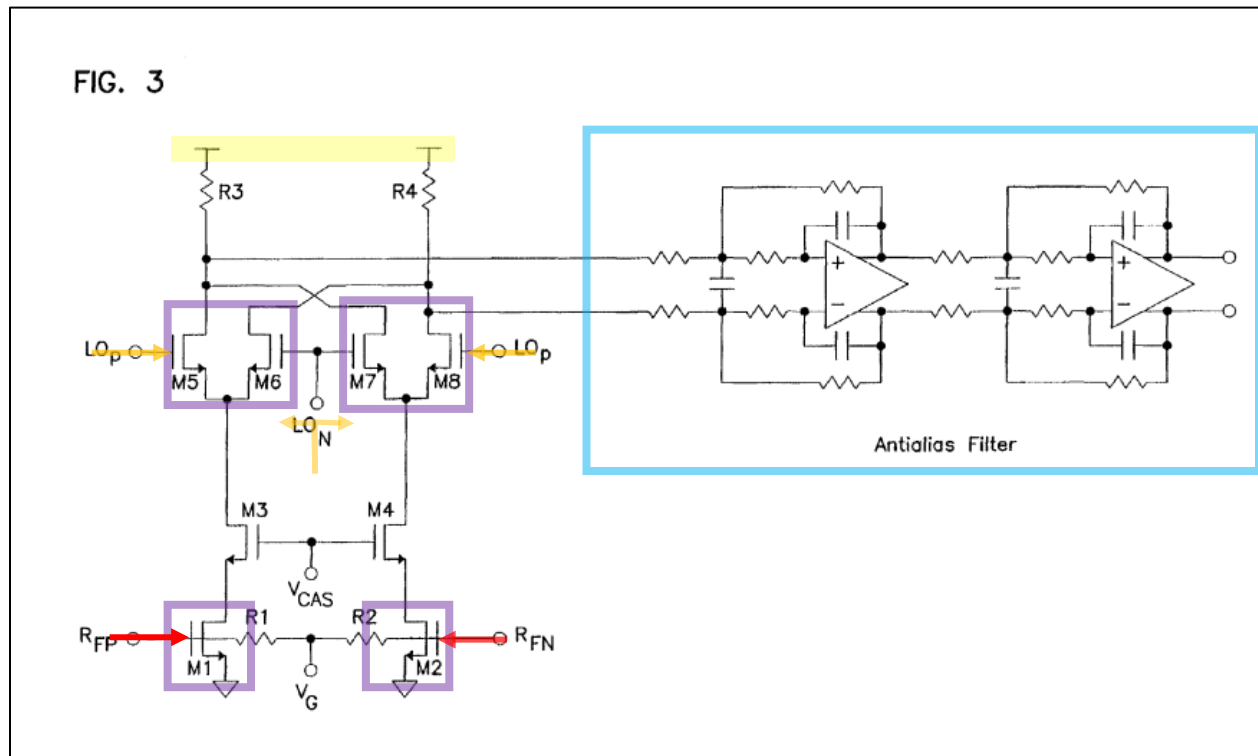
201. In Figure 6.7 of DeMaw, the gates of Q1 and Q2 are connected directly to ground (shown along the purple path), meaning the gate voltage (V_G) = 0 V. Therefore, the gate-source voltage of Q1 and Q2 simplifies to: $V_{GS} = (V_G) - (V_S) = (0) - (V_S) = -V_S$. A POSITA understands that a JFET operates in different modes depending on the gate-source voltage (V_{GS}). When $V_{GS} = 0V$, the JFET is in its fully conducting “ON” state, allowing current to flow freely. As V_{GS} becomes more negative, the conducting channel narrows, restricting current flow. If V_{GS} reaches a critical threshold called the pinchoff voltage (V_P or $V_{GS(OFF)}$), the JFET effectively turns off, blocking current flow.

202. DeMaw explicitly teaches that resistor R1 is selected so that V_{GS} remains at 80% of the pinchoff voltage. A POSITA would understand that this design choice ensures that Q1 and Q2 remain in a conductive state, and do not turn off. This approach is consistent with established industry know-how of non-sampling mixing at the time, where FETs act as variable resistors—not switches—to mix the RF and LO signals.

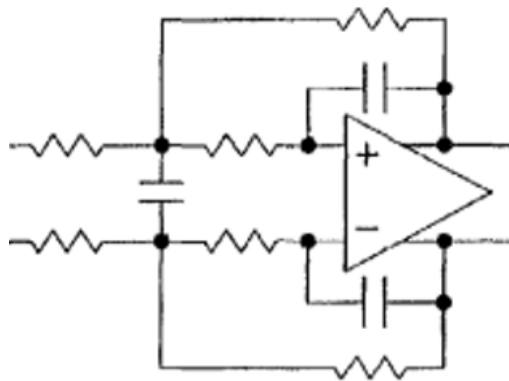
B. U.S. Patent No. 7,065,327 to Macnally

203. Macnally issued on June 20, 2006, and is entitled “Single-Chip CMOS Direct-Conversion Transceiver.” Ex.-1021.

204. Macnally discloses a “single-chip CMOS direct-conversion transceiver includ[ing] an RF circuit, a transmitter having a synthesizer, a receiver having a baseband filter, and a demodulator.” Ex.-1021, Abstract.



205. Figure 3 of Macnally (above) illustrates a circuit diagram of the mixer and antialias filter. Ex.-1021, 7:7-16. Dr. Galton confirms that Macnally uses a traditional Gilbert cell double-balanced mixer. Ex.-1021, 7:8-10; Ex.-2034, 57:17-58:5. “The mixer’s conversion gain is 14.3 dB.” Ex.-1021, 7:8. The circuit includes a differential RF input signal (R_{FP} , R_{FN} , red arrows), differential LO signal (LO_p , LO_n , orange arrows), transistors M1, M2, M5, M6, M7, and M8 (purple boxes), and an antialias filter (blue box).



206. The antialias filter is made up of two biquad two-pole filters (one filter is shown above). Ex.-1021, 7:17-29; Ex.-2034, 56:14-57:5, 288:9-14 (explaining that the antialias filter is made up of biquad circuits (differential biquads) that perform amplification).

207. Macnally's disclosure is notably limited, as it does not provide component values for any of the elements shown in Figure 3. However, Macnally discloses that "[t]he mixer uses a double-balanced structure without a tail current source to increase headroom," and the "[b]iasing for the RF input transistors is performed by a replica circuit that suppresses transconductance variations with process and temperature." Ex.-1021, 7:8-12. Additionally, Macnally states that "[t]he output of the mixer is fed to a four-pole Butterworth antialias filter with a cut-off frequency of 2.4 MHz." *Id.* at 7:14-16.

208. As shown in Figure 3, signals R_{FP} and R_{FN} are applied to the gates of transistors M1 and M2, respectively.

209. In Macnally, transistors M5, M6 and M7, M8 in Figure 3 are driven by a differential LO signal (labeled LO_p and LO_N). Local oscillators are typically sinusoidal waveforms or near-sinusoidal waveforms due to filtering by parasitics when generated at high frequencies (900MHz at the date of Macnally would be considered a high frequency).

210. The LO signals LO_p and LO_N are applied to the gates of transistors M5, M8, and transistors M6, M7, respectively. “The LO input transistors [M5, M6, M7, M8] operate as switches that steer a process and temperature independent current.” *Id.*, 7:12-14.

211. Because Macnally’s mixer circuit provides gain, a POSITA would understand that the mixer is an active non-sampling mixer, using the NMOS FETs as voltage-controlled current sources, thereby allowing the circuit to amplify the signal while performing frequency conversion. *See* Section IX above.

212. Because Macnally’s active mixer has high gain, Macnally is not transferring the RF input signal or its energy to the output of the mixer. Rather, Macnally creates a new output signal based on the input signal and its modulation information and adds gain to create a copy of that information signal at the output of the mixer. Macnally is using energy from a power supply (shown in yellow above) to accomplish this. In other words, unlike an energy sampling (transfer) system, the output signal energy in Macnally comes from a power supply, not from sampled

energy of the RF input signal itself.

213. Transistors M1-M8 are NMOS field-effect transistors (FETs) because they use the symbol for NMOS FETs. The RF input signal is applied to the gates of M1 and M2. The drain terminals of M1 and M2 are connected to the power source (yellow box) through resistors R3 and R4.

FIG. 3

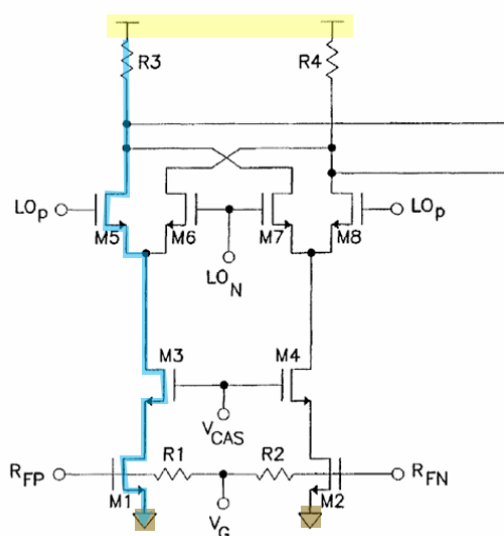
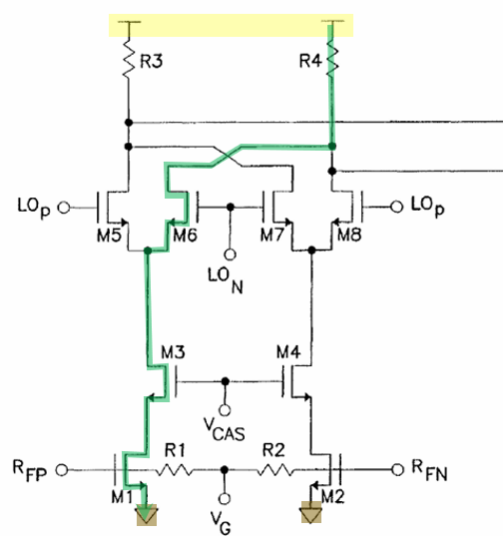


FIG. 3



214. A POSITA would recognize that transistors M5, M6 form a well-known circuit topology known as a differential pair. Transistors M7, M8 also form a differential pair.

215. A POSITA would also recognize that transistors M5, M6 and M7, M8 pass a DC current that flows from the power source (yellow) to ground (brown triangles). As shown above by the blue arrow, current flows downward through resistor R3 and transistors M5, M3, M1 (in the direction of the arrows of the

transistors). As shown above by the green arrow, current flows downward through resistor R4 and transistors M6, M3, M1 (in the direction of the arrows of the transistors). Similarly, current flows downward through R3, M7, M4, M2 and R4, M8, M4, M2.

216. There is always current flowing downward from the power source to ground. In other words, current is always flowing through M1 and M2 to ground. In particular, a POSITA understands that Macnally uses a 50% duty cycle LO. This means that 50% of the time current flows from R3 to M5 to M1 and simultaneously from R3 to M7 to M2. The other 50% of the time, current flows from R4 to M6 to M1 and simultaneously from R4 to M8 to M2.

217. A POSITA would recognize from fundamental circuit theory that the current flowing from the power source to ground must be direct current (DC). DC is the non-time varying (non-RF) current that provides the bias and operating points for M5, M6 and M7, M8.

218. The transistor pair M5, M6 operates by steering current from the power source through either R3 and M5 or R4 and M6, depending on the local oscillator (LO) signal applied to their gates. As the LO signal varies, it modulates the gate voltages of M5, M6 which, in turn, affects the flow of current through them. When the gate voltage of M5 is substantially greater than that of M6, current flows from the power source, through R3 and M5, and down through M1 to ground. Conversely,

when the gate voltage of M6 is substantially greater than that of M5, current flows from the power source, through R4 and M6, and down through M1 to ground. Therefore, M5 and M6 serve as a current-steering mechanism that routes current from the power source through either R3 or R4 before reaching M1.

219. The switching pair M7, M8 works the same way as M5, M6 to steer current except that the current passes through M2 to ground.

220. The RF input signal (R_{FP} and R_{FN}) modulates the gate voltage of M1 and M2, respectively, which, in turn, affects/modulates the flow of current from the power source to ground.

221. A POSITA understands that in order for Macnally to achieve high gain, M5, M6 and M7, M8 must remain in saturation. A POSITA understands that for an NMOS transistor to remain in saturation, the drain-to-source voltage must be positive, meaning current can only flow from the drain to the source. *See* Section VII.B.2. Therefore, a POSITA would understand that, in the NMOS transistors used in Macnally, current flows from the drain to the source, not in the opposite direction. This means that current cannot flow upward from the drains of M1 and M2 into M5-8.

222. Moreover, because the RF input signal is applied to the gates of M1 and M2, a POSITA would understand that the gate terminal controls the flow of current through the channel but does not conduct current itself. No current flows from the

gate⁸ into the drain; rather, the RF signal modulates the drain-to-source current, which continues to flow in the downward direction only. Thus, current cannot—and does not—flow upward through the NMOS transistors, nor from the gate into the drain.

223. A POSITA further understands that in Macnally, current flows from the power source downward towards M1 and M2—from a higher potential to a lower potential.

224. While M1 and M2 can modulate the amount of current flowing downward from the power source, they do not reverse the current flow direction. No current flows upward through M1 or M2 toward the power source. Because the RF input signal is at the gate of a FET, neither the RF input signal nor its current/energy propagates upward towards M5, M6, M7, M8 or R3, R4.

225. To circumvent this fact, Dr. Galton appears to assert that a signal flows upward in the circuit. Ex.-1003, ¶¶134, 137, 146, 148. However, Dr. Galton is incorrect. While current flowing downward from the power source to ground is affected by the RF input signal, the current remains unidirectional—always flowing downward to ground. There is never a scenario in which current from the RF input

⁸ The gate has a capacitance to ground (source). RF current will flow through the gate capacitance to ground, but this is also downward.

XIII. SIMULATIONS

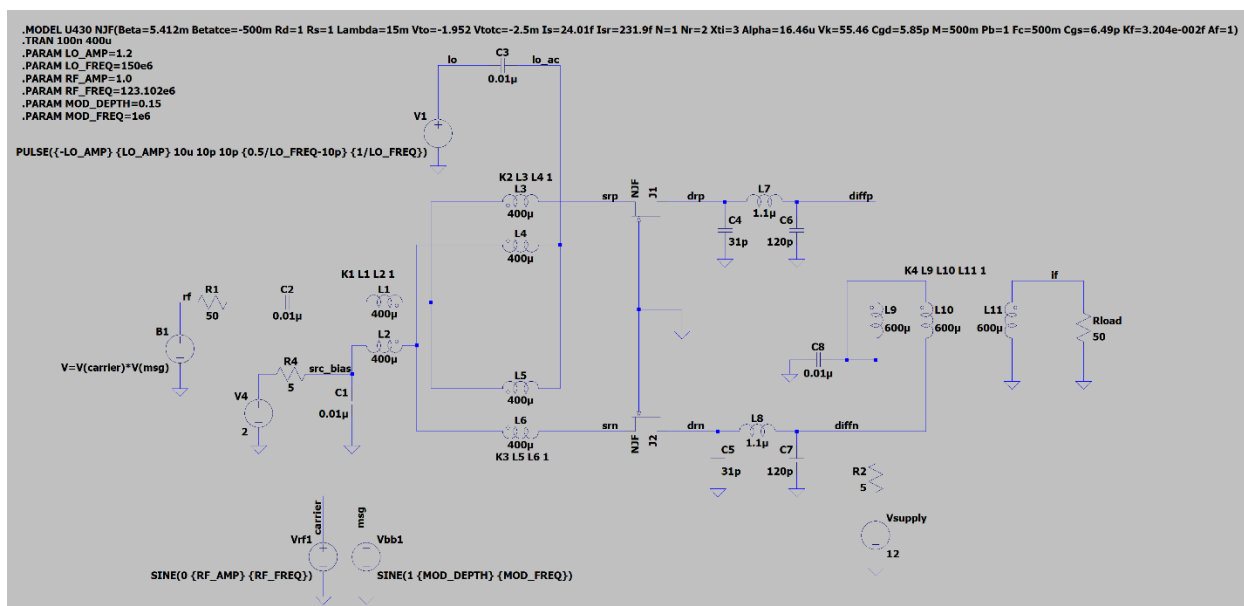
226. Because Dr. Galton submitted two distinct sets of simulations—one with the Petition (Ex. 1003) (“DeMaw-1” and “Macnally-1”) and one served after the POPR (“DeMaw-2” and “Macnally-2”)—I address each set separately below.

1. Dr. Galton's Original Simulations Deviate from DeMaw's Teachings

ParkerVision Exhibit 2021
TI v. ParkerVision - IPR2024-00934

[Dr. Galton's LTspice schematic (DEMAW-SIM-FIG. 1)]

228. In order to evaluate and verify Dr. Galton's simulations, I recreated his LTspice schematic using the same component values and topology shown in DEMAW-SIM-FIG. 1 (above). Because Dr. Galton did not provide any Python code or native LTspice source files with his original declaration, the only way to verify his results at that time was to independently reconstruct his circuit. My recreated schematic is shown below.



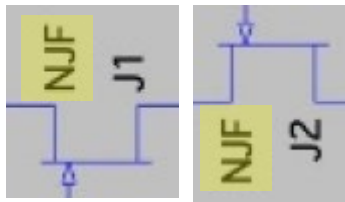
[Recreated schematic based on Dr. Galton's LTspice schematic]

229. Upon reviewing the reconstructed circuit, I identified several deviations between Dr. Galton's simulation and the actual teachings of DeMaw. Each of these deviations materially affects the circuit's operation and undermines the accuracy/reliability of Dr. Galton's analysis.

a. JFET Model

230. Although Dr. Galton purports to simulate DeMaw’s dual JFET mixer using the specified Siliconix U430 model, his LTspice schematic does not, in fact, use that model.

231. As shown below, the transistors in Dr. Galton’s LTspice schematic are labeled “NJF,” which refers to the default, generic N-channel JFET provided by LTspice—not the U430 model disclosed in DeMaw.



[Zoomed-in view of transistor label “NJF” in Dr. Galton’s schematic]

232. A POSITA would recognize that LTspice automatically labels transistors based on the active model. Had the correct U430 model been loaded, the schematic would have reflected that label (e.g., “U430” or the corresponding filename).

233. Using the incorrect JFET model materially affects transistor behavior such as transconductance, threshold voltage, and cutoff characteristics—each of which directly impacts circuit operation.

234. As discussed in more detail below, this error alone materially affects the results of his simulations.

235. Indeed, during deposition, Dr. Galton admitted that his simulations used the wrong JFET model. He acknowledged that DeMaw specifically calls for

the Siliconix U430 device and admitted the failure to use it was an oversight. Ex. 2034, 44:6–20; 24:21–25:2.

b. Local Oscillator Signal

236. Dr. Galton modeled the LO signal in his simulation as “a square wave of 150 MHz and amplitude of 1.2V peak.” Ex.-1003, ¶74. His LTspice configuration uses the following command:

```
PULSE({-LO_AMP} {LO_AMP} 10u 10p 10p {0.5/LO_FREQ-10p} {1/LO_FREQ})
```

237. A POSITA would recognize that this command generates a square wave.

238. Dr. Galton alleges that “ V_{LO} can be considered a periodic waveform with fundamental frequency f_{LO} (DeMaw 3.A.1) (or a squared-up version of a sinusoid thereof, as described in Section VII).”⁹ Ex.-1003, ¶69. I disagree.

239. Dr. Galton cites to his own 2019 paper to justify using the “squared-up” LO signals and asserts that “most modern practical mixer circuits perform multiplication by ‘squared-up’ oscillator signals, i.e., by oscillator signals which resemble square waves that ideally have the same mid-point crossing times as the corresponding sinusoidal oscillator.” Ex. 1003, ¶37. DeMaw, however, is a 1980s-era reference. Dr. Galton’s 2019 paper does not show the state-of-the-art knowledge

⁹ I note that “DeMaw 3.A.1” refers to the Petition at III.A.1, not to any portion of DeMaw itself.

at the time of the '342 patent.

240. DeMaw itself provides no basis for using a square wave. To the contrary, a POSITA would understand that DeMaw teaches a sinusoidal LO input signal—not a square wave.

TABLE 6.1 Comparison of Output Products from Mixers					
(N)	Single-Ended Mixer				
	f_o	$2f_o$	$3f_o$	$4f_o$	$5f_o$
f_s	$f_o \pm f_s$	$2f_o \pm f_s$	$3f_o \pm f_s$	$4f_o \pm f_s$	$5f_o \pm f_s$
$2f_s$	$2f_s \pm f_o$	$2f_o \pm 2f_s$	$3f_o \pm 2f_s$	$4f_o \pm 2f_s$	$5f_o \pm 2f_s$
$3f_s$	$3f_s \pm f_o$	$3f_s \pm 2f_o$	$3f_o \pm 3f_s$	$4f_o \pm 3f_s$	$5f_o \pm 3f_s$
$4f_s$	$4f_s \pm f_o$	$4f_s \pm 2f_o$	$4f_s \pm 3f_o$	$4f_o \pm 4f_s$	$5f_o \pm 4f_s$
$5f_s$	$5f_s \pm f_o$	$5f_s \pm 2f_o$	$5f_s \pm 3f_o$	$5f_s \pm 4f_o$	$5f_o \pm 5f_s$
(0.5 N)	Singly Balanced Mixer				
	f_o	$2f_o$	$3f_o$	$4f_o$	$5f_o$
f_s	$f_o \pm f_s$	$2f_o \pm f_s$	$3f_o \pm f_s$	$4f_o \pm f_s$	$5f_o \pm f_s$
$2f_s$	$2f_s \pm f_o$	$2f_o \pm 2f_s$	$3f_o \pm 2f_s$	$4f_o \pm 2f_s$	$5f_o \pm 2f_s$
$3f_s$	$3f_s \pm f_o$	$3f_s \pm 2f_o$	$3f_o \pm 3f_s$	$4f_o \pm 3f_s$	$5f_o \pm 3f_s$
$4f_s$	$4f_s \pm f_o$	$4f_s \pm 2f_o$	$4f_s \pm 3f_o$	$4f_o \pm 4f_s$	$5f_o \pm 4f_s$
$5f_s$	$5f_s \pm f_o$	$5f_s \pm 2f_o$	$5f_s \pm 3f_o$	$5f_s \pm 4f_o$	$5f_o \pm 5f_s$
(0.25 N)	Doubly Balanced Mixer				
	f_o	$2f_o$	$3f_o$	$4f_o$	$5f_o$
f_s	$f_o \pm f_s$	—	$3f_o \pm f_s$	—	$5f_o \pm f_s$
$2f_s$	$2f_s \pm f_o$	—	$3f_o \pm 2f_s$	—	$5f_o \pm 2f_s$
$3f_s$	$3f_s \pm f_o$	—	$3f_o \pm 3f_s$	—	$5f_o \pm 3f_s$
$4f_s$	$4f_s \pm f_o$	—	$4f_s \pm 3f_o$	—	$5f_o \pm 4f_s$
$5f_s$	$5f_s \pm f_o$	—	$5f_s \pm 3f_o$	—	$5f_o \pm 5f_s$

LO = f_o , signal frequency = f_s
 $2f_o \pm f_s$ = third-order product
 $3f_s \pm 3f_o$ = sixth-order product, etc.
N = number of mixer products

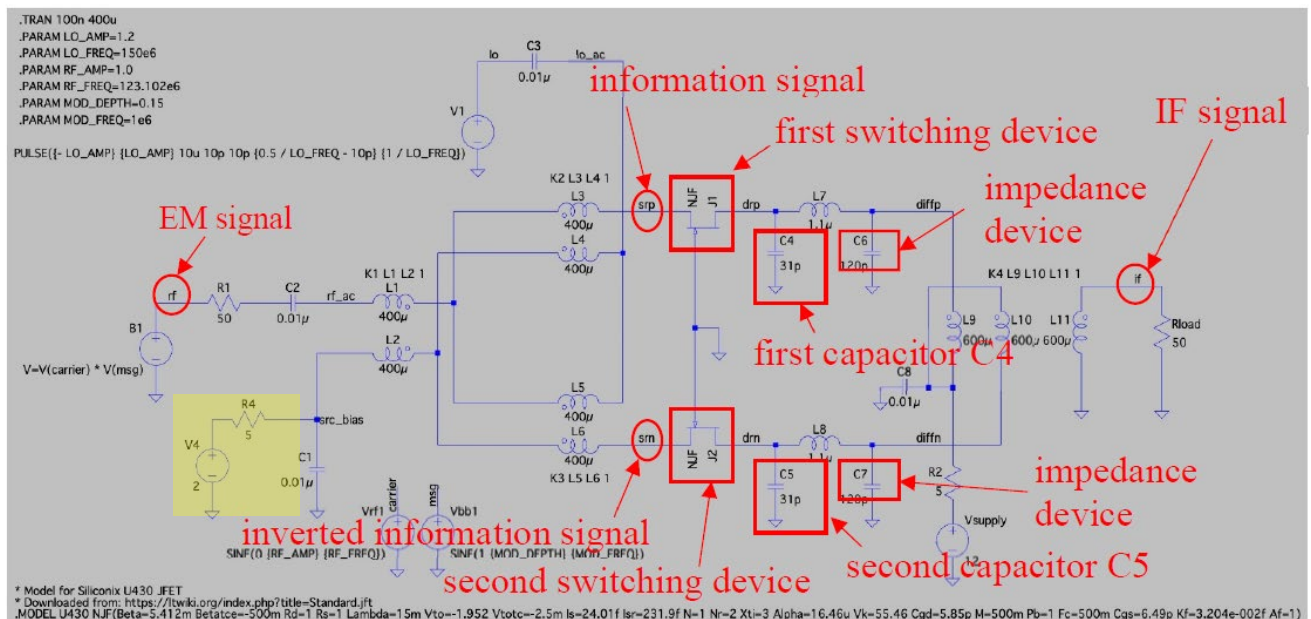
241. DeMaw provides Table 6.1 (above), which compares output products from different mixers. DeMaw specifically states that “LO = f_o , signal frequency = f_s .” A POSITA understands this refers to a sinusoidal signal, because a sinusoidal

signal has a “single frequency” component. A square wave, on the other hand, is not a single frequency but, rather, a composite of multiple harmonics/frequencies.

242. By substituting a square wave for a sinusoidal LO, Dr. Galton introduced high-frequency components that do not exist in DeMaw. These harmonics force artificial switching behavior and distort the mixer’s operation—again rendering the simulation unreliable.

c. Biasing

243. Dr. Galton biased the JFETs in his simulation using a 2V DC supply in series with a 5Ω resistor (highlighted in yellow below).



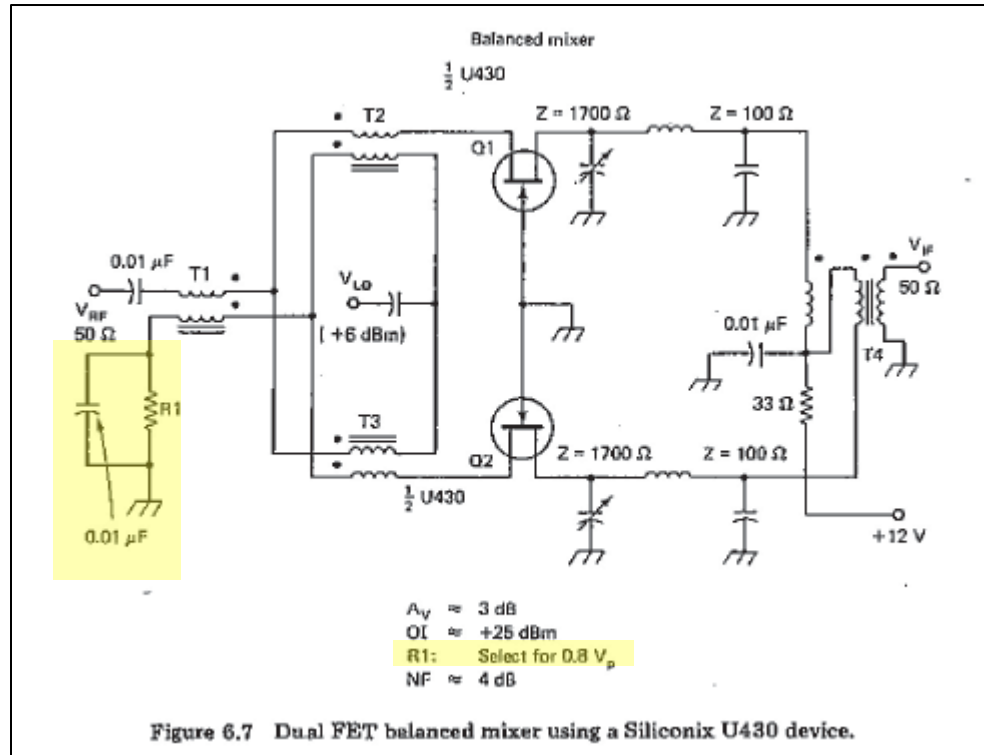
DEMAW-SIM-FIG. 1, DeMaw Balanced Mixer

244. This bias configuration results in a gate-source voltage (V_{GS}) at or near the JFET’s pinch-off voltage. In particular, since the gate is grounded and the source

is raised by the voltage drop across the resistor, $V_{GS} \approx -2V$.

245. But DeMaw teaches a different bias point: “R1 is selected to give a V_{GS} of 0.8 the pinchoff voltage, which will be on the order of 2 V, allowing for the published spread of -1 to -4 V, $V_{GS}(\text{off})$.” Ex.-1016, 196. For a pinch-off voltage of 2V, this implies a gate-source voltage (V_{GS}) of approximately $-1.6V$.

246. DeMaw’s actual bias configuration is shown below—where R1 is tied directly to ground.



247. But his change biases the JFETs closer to cutoff, exaggerating ON/OFF transitions and further deviating from DeMaw’s intended circuit operation.

d. Operating Frequencies

248. Dr. Galton’s simulation uses an RF signal at 123.102 MHz and an LO

at 150 MHz—both well outside the 3–30 MHz range specified by DeMaw’s transformer design.

249. In particular, Dr. Galton uses a “1.0V, 123.102 MHz sinusoidal carrier AM modulated with a 0.15V, 1 MHz sinusoidal ‘message signal,’ and an LO “a square wave of 150 MHz and amplitude of 1.2V peak.” Ex.-1003, ¶¶ 74, 96.

250. DeMaw, however, states that the “transformer dimensions [in Figure 6.7] are suitable for use from 3 to 30 MHz.” Ex.-1016, 197.

251. Dr. Galton’s frequencies exceed this range by a factor of five—further distorting DeMaw’s circuit’s intended operation. And a POSITA understands that transformers are frequency-dependent components. Operating them outside their design range produces inaccurate behavior.

252. Dr. Galton also uses an LO amplitude of 1.2V peak (2.4V peak-to-peak). But DeMaw teaches that the LO amplitude should be 80% of $V_{GS(off)}$. For a pinchoff voltage of 2V, this corresponds to 0.8V peak, not 1.2V. Dr. Galton’s value is 50% too high.

253. By using much higher frequency and amplitude values, Dr. Galton further distorts the behavior of the simulated circuit—creating switching behavior that is not representative of how DeMaw’s mixer operates.

254. A POSITA would recognize that these deviations—particularly the inflated amplitude and square wave input—force the transistors into artificial

ON/OFF transitions and misrepresent DeMaw's circuit's intended/disclosed operation.

255. In sum, a POSITA would recognize that Dr. Galton's simulations contain numerous deviations from the actual teachings of DeMaw—including the incorrect transistor model (generic NJF instead of U430), improper signal shape (square wave instead of sinusoid), inaccurate biasing, and frequencies and amplitudes far outside DeMaw's design parameters. These deviations are not minor modeling differences but materially affect the circuit's behavior.

256. As a result, Dr. Galton's simulations do not accurately represent DeMaw's circuit.

2. Corrected Simulation Using the Siliconix U430 Model

257. In addition to replicating Dr. Galton's original simulation, I conducted another simulation using the exact same parameters —except that I substituted the generic “NJF” model used by Dr. Galton with the correct Siliconix U430 JFET model called for by DeMaw. Even with this single modification, the results were markedly different.

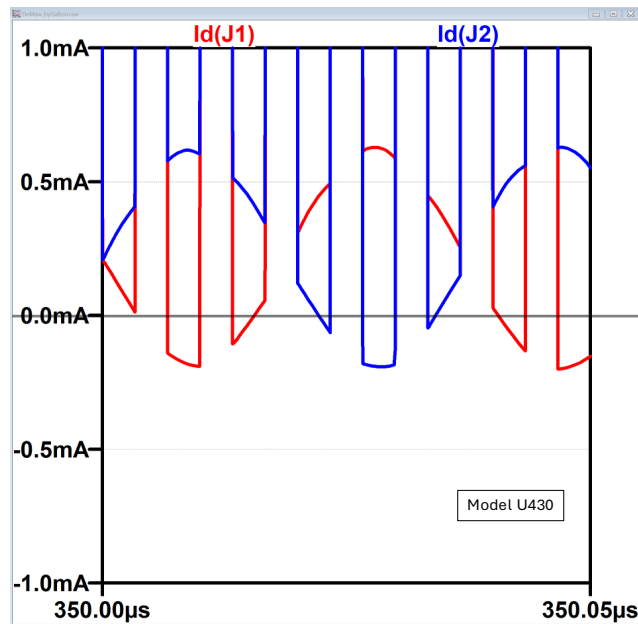
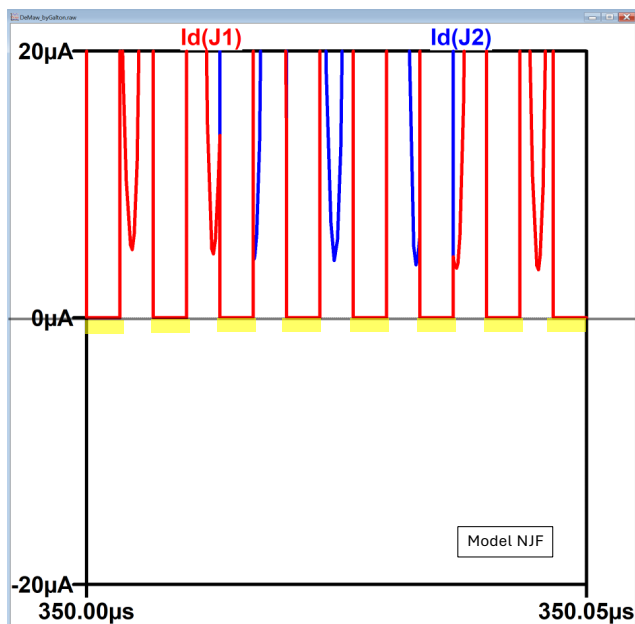
258. First, the magnitude of the drain current through transistors Q1 and Q2 increased substantially. *See* Section XIII.C.1; Ex.-2039, Ex.-1 ¶4 (Dr. Galton admits U430 models “resulted in a significant increase in mixer gain”). With the correct U430 model, the simulated drain current was approximately ten times greater than

what Dr. Galton reported using the NJF model.

259. More significantly, however, the corrected simulation fundamentally altered the shape of the drain current waveform. In Dr. Galton's NJF-based simulation, the drain current periodically drops and remains at zero (0 mA) for periods of time—suggesting that the transistors are “off” during those times. In contrast, when using the correct U430 model, the drain current never flatlines. Instead, it fluctuates continuously throughout the entire cycle, indicating that the transistors conduct current at all times (i.e., they are never OFF).

260. This distinction is critical. In his declaration, Dr. Galton explicitly states that “the switches are off when their drain currents are zero and on when their drain currents are non-zero.” Ex.-1003, ¶103. By his own definition, the presence or absence of drain current serves as a proxy for the alleged switch state—i.e., whether the JFET is “on” or “off.”

261. The figures below show the drain current waveforms for the two simulations. In both graphs, the red waveform represents the drain current of switch J1 and the blue waveform represents switch J2. The left-hand graph shows Dr. Galton's NJF-based simulation; the right-hand graph shows the corrected simulation using the U430 model.



262. To make the comparison more clear, I marked the 0 mA axis on both graphs with a gray reference line. In Dr. Galton’s NJF-based simulation (left), the current waveform visibly flattens at 0 mA for multiple intervals (highlighted in yellow). A POSITA would recognize this as an indication that the transistors are non-conducting during those periods-i.e., “off,” consistent with Dr. Galton’s definition.

263. However, in the corrected U430-based simulation (right), the current waveform never remains at 0 mA. Instead, it varies continuously—including negative values, which a POSITA would understand as indicating reverse current flow through the JFETs. A POSITA would understand this as an indication of continuous conduction, with the negative values reflecting current flowing in the reverse direction through the JFETs.

264. Indeed, a POSITA would recognize that negative drain current does not mean the transistor is OFF. Rather, it confirms that the transistor is still conducting—just in the opposite direction. In other words, the transistor remains “on.” This is consistent with the expected operation of a non-sampling mixer, as in DeMaw, where conduction is continuous and bidirectional.

265. Moreover, a POSITA would understand that merely crossing zero (0 mA) is not the same as to being at zero. Drain current is only zero when it remains flat along the 0 mA axis over some interval—which is not observed in the corrected U430 simulation.

266. The corrected U430-based simulation directly contradicts Dr. Galton’s analysis and conclusions. Dr. Galton’s assertion that the JFETs in DeMaw act as switches—turning “on” and “off”—is based on an inaccurate model, which he later acknowledged as incorrect. The corrected simulation using the U430 model shows no OFF state in the manner he describes. Instead, the transistors operate to continuously conduct current, consistent with the non-sampling mixing behavior disclosed in DeMaw.

267. This error also undermines Dr. Galton’s capacitor discharge analysis. The claims require an evaluation of capacitor behavior “when the switch is off.” According to Dr. Galton’s own definition, this occurs only when drain current is zero. But in the corrected U430 simulation, that condition never occurs. Thus, any

analysis based on the NJF model’s artificial ON/OFF switching behavior is not only inaccurate—it is inapplicable, as further detailed below.

C. DeMaw-2

268. In his Second Declaration, Dr. Galton submits additional simulations beyond those described in his original Declaration (Ex.-1003). These new simulations were accompanied by native Python scripts and text files to facilitate easier replication of his results.

269. Dr. Galton divides the Second Declaration into multiple sections. Sections II through VI of his Second Declaration each address different versions or modifications of Dr. Galton’s DeMaw circuit simulations.

270. Section II of Dr. Galton’s Second Declaration specifically addresses the use of the incorrect JFET model—the error identified in his original simulations. This section isolates that correction by simply substituting the incorrect generic JFETs with the proper Siliconix U430 models, while keeping all other parameters unchanged.

271. Sections III through VI of Dr. Galton’s Second Declaration, by contrast, introduce additional modifications to the DeMaw circuit beyond the JFET model substitution. I address these separately below.

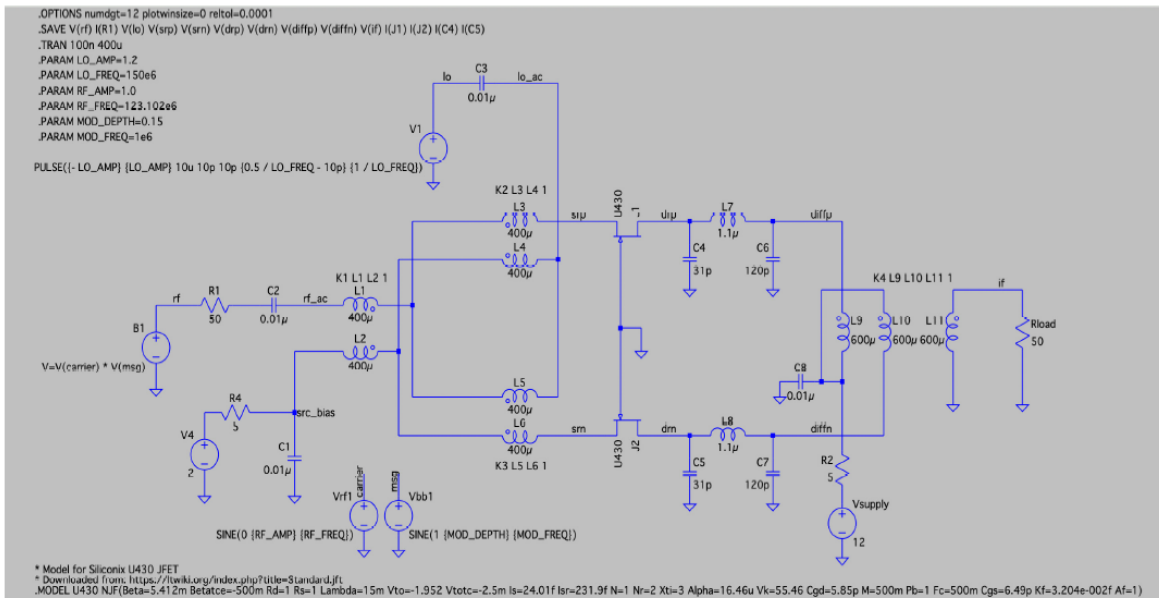
1. DeMaw-2, Section II: Corrected U430 JFET Models

272. Section II of Dr. Galton’s Second Declaration is titled “DeMaw Circuit

With Siliconix U430 JFET Models.” This section addresses the transistor model error identified in Dr. Galton’s original simulations—namely, his failure to use the Siliconix U430 JFET models as required by DeMaw.

273. In Section II.A of Dr. Galton’s Second Declaration, Dr. Galton re-runs the exact same DeMaw simulation setup presented in his original Declaration, making only one modification: substituting the generic “NJF” LTspice transistor with the correct Siliconix U430 models. Dr. Galton confirms this: “[t]he first set of simulation results shown in Part A of this section correspond to the same version of the DeMaw circuit, the same input, and the same local oscillator (LO) signals that were described in my original Declaration, except with the Siliconix U430 JFET models.” Ex.-2039, Ex.-1 ¶3.

274. The LTspice schematic corresponding to Dr. Galton’s corrected U430-based simulation is shown in DEMAW-SIM-FIG. 1 (revised), reproduced below:



DEMAW-SIM-FIG. 1 (revised, clean). DeMaw circuit as described in the original Declaration but with U430 JFET models (highlighting two capacitors).

275. I reviewed this schematic and confirmed that it reflects the same DeMaw circuit configuration discussed in Section XIII.B.1 above, with the only change being the use of the correct U430 model.

276. Consistent with the behavior I observed in my own U430-based simulations, Dr. Galton acknowledges that using the U430 models increases the mixer gain significantly. Ex.-2039, Ex.-1 ¶4.

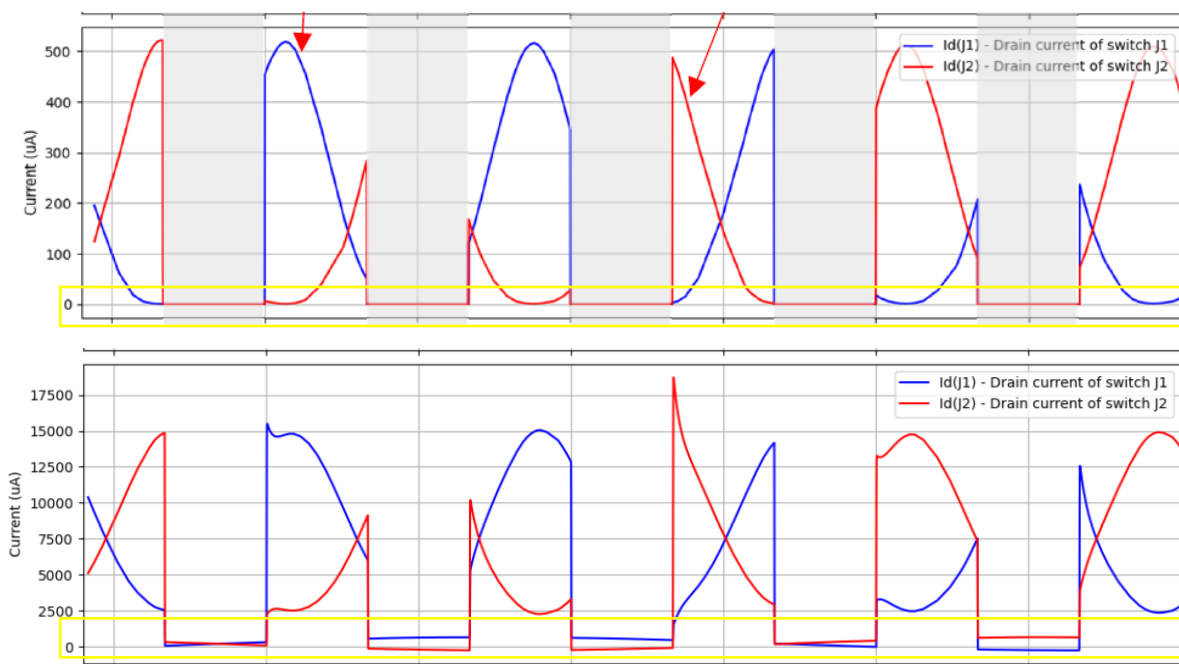
277. In Section II.B of Dr. Galton's Second Declaration, Dr. Galton re-runs the same simulation as in Section II.A but attenuates the input RF signal power by 6 dB. Dr. Galton states that this was done to ensure the mixer operates within its linear region. *Id.*

278. I reviewed and confirmed that the simulation in Section II.B of Dr.

Galton's Second Declaration uses the same schematic and LO signal as in DEMAW-SIM-FIG. 1 (revised). The only difference is the reduction in RF signal amplitude.

279. My analysis below referring to Section II.A waveforms applies equally to Section II.B. I independently re-ran simulations for both Section II.A and II.B configurations, and the results and conclusions are consistent across both.

280. Similar to his original Declaration, Dr. Galton provides plots of the drain current waveforms. For example, DEMAW-SIM-FIG. 5 (revised) in his Second Declaration corresponds to DEMAW-SIM-FIG. 5 from his original Declaration. Both are reproduced below for comparison (top: original; bottom: revised):

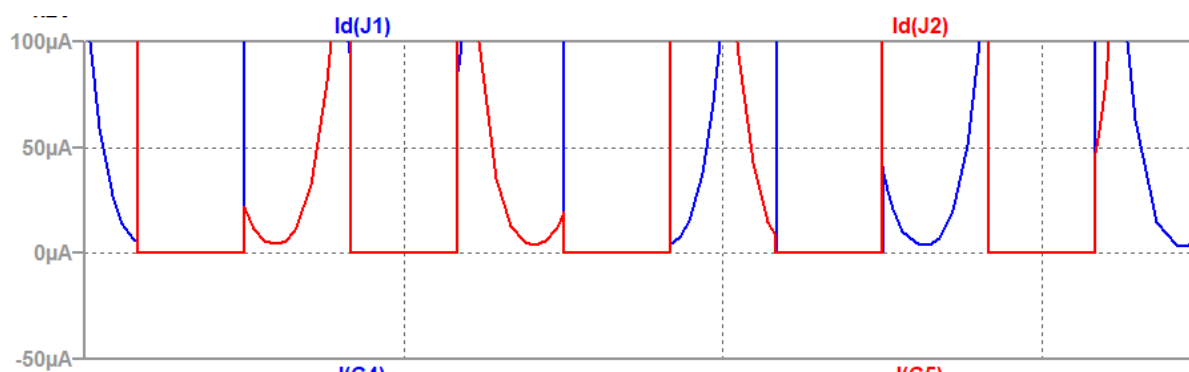


281. While the waveforms appear similar at first glance, this is misleading. A closer inspection—particularly near the 0 axis (yellow boxes)—reveals a material

difference, particularly with regard to how the transistors conduct current.

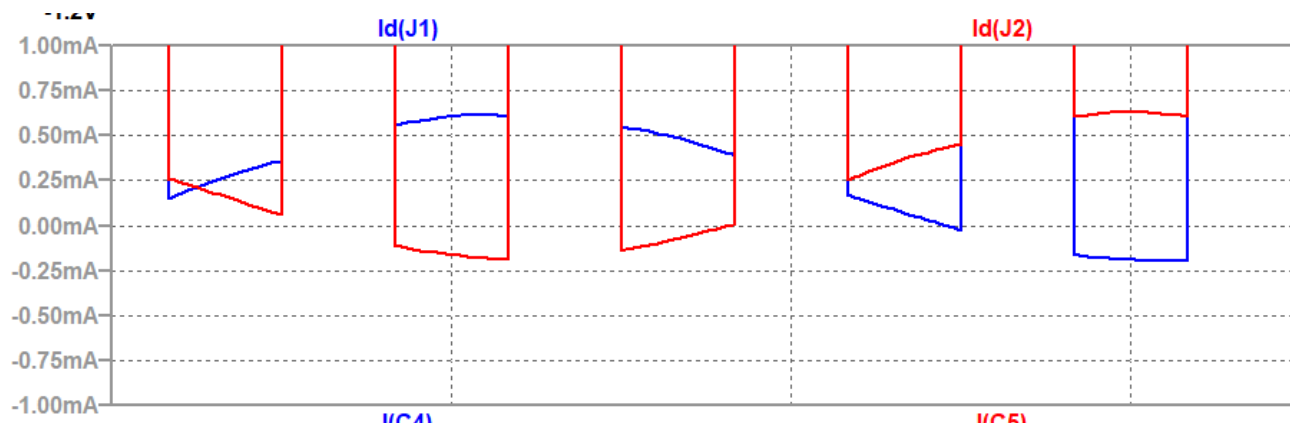
282. To illustrate this distinction, I re-ran both simulations using Dr. Galton's native files and zoomed in on the relevant regions of the drain current waveforms for transistors J1 and J2.

283. The figure below shows the original NJF-based simulation, where Dr. Galton used the incorrect transistor model.



284. In drain current plot (above), the current drops to and flattens at 0 μA during certain intervals—suggesting that the transistors are “off” during those times.

285. In contrast, the figure below shows the U430-based simulation (using the correct Siliconix U430 JFET model disclosed in DeMaw), zoomed in at the 0-axis region.



286. As shown in the drain current plot (above), the current never flattens at 0 mA. It continues to fluctuate, including into negative values—demonstrating continuous conduction through both JFETs.

287. The results confirm my analysis set forth above in Section XIII.B.2: when using the correct U430 model, the transistors do not switch off. Instead, they remain in a state of continuous bidirectional conduction (current flows continuously in either one of two directions)—consistent with the expected behavior of a non-sampling mixer as disclosed in DeMaw. In other words, when using the correct U430 transistor model, the transistors do not turn “OFF”; they do not open. The artificial ON/OFF behavior observed in Dr. Galton’s original simulations was simply a byproduct of the incorrect transistor model.

288. Nevertheless, Dr. Galton states in his Second Declaration: “Everything I wrote in my original Declaration about DEMA W-SIM-FIG. 5 is true of this revised version.” Ex.-2039, Ex.-1 ¶¶8, 12.

289. However, as explained above—Dr. Galton is incorrect. The switching

behavior in the revised simulations is materially different, as shown in the corrected waveform plots. The drain current no longer drops to zero, and the transistors remain in continuous conduction—contradicting Dr. Galton’s assertion regarding ON/OFF operation, i.e., that the transistors turn on/off.

290. In addition, because Dr. Galton’s Section II simulations in his Second Declaration are otherwise identical to those presented in his original Declaration—with the only modification being the corrected JFET model—all of the deficiencies previously identified in Section XIII.B.1 remain present.

291. A POSITA would understand that correcting only the transistor model is not sufficient to render the simulation faithful to DeMaw’s teachings. Specifically, Dr. Galton’s revised simulations in Section II of his Second Declaration continue to suffer from the same technical flaws I identified in Section XIII.B.1:

292. Biasing Error: Dr. Galton continues to use an improper JFET bias configuration—a 2V DC supply in series with a 5Ω resistor—rather than following DeMaw’s teachings to bias at $0.8 \times V_{GS(OFF)}$. This causes the transistors to operate near or at pinch-off and artificially exaggerates ON/OFF transitions. A POSITA would recognize that such biasing deviates from DeMaw’s disclosure and impacts circuit performance.

293. [Intentionally Left Blank].

294. Incorrect LO Signal Shape: The LO waveform used in Section II

remains a 150 MHz square wave. As explained above, DeMaw teaches the use of a sinusoidal LO at a single frequency. A POSITA would understand that this change materially affects how the JFETs respond.

295. Excessive Signal Frequency: The RF and LO frequencies used—123.102 MHz and 150 MHz, respectively—remain outside the 3–30 MHz operating range for which DeMaw’s transformer-based design is specified. A POSITA would recognize that transformer characteristics degrade significantly at out-of-band frequencies, making the simulation physically unrealistic.

296. LO Amplitude Error: Dr. Galton still uses a 1.2V peak (2.4v peak-to-peak) LO signal, despite DeMaw’s express teaching that the LO amplitude should be 80% of $V_{GS(OFF)}$. For a pinchoff voltage of 2V, this corresponds to 0.8V peak (1.6V peak-to-peak)—not 1.2V peak (2.4V peak-to-peak). A POSITA would recognize that an LO signal having greater amplitude exaggerates switching behavior.

297. These deviations, individually and collectively, continue to render Dr. Galton’s simulations inaccurate and unreliable. As a result, Dr. Galton’s conclusions— particularly regarding ON/OFF switching behavior and capacitor discharge—are unsupported.

2. DeMaw-2, Section III: DeMaw Circuit Modified to Match DeMaw FIG. 6.7 With a Squared-Up LO

298. Section III of Dr. Galton’s Second Declaration is titled “DeMaw Circuit

Modified to Match DeMaw FIG. 6.7 With a Squared-Up LO.” In this section, Dr. Galton acknowledges that his original simulations contained “some minor differences” from the actual circuit shown in Figure 6.7 of DeMaw. He states that the new simulations in Section III were created “to address this criticism” raised in Patent Owner’s Preliminary Response. Ex.-2039, Ex.-1 ¶18.

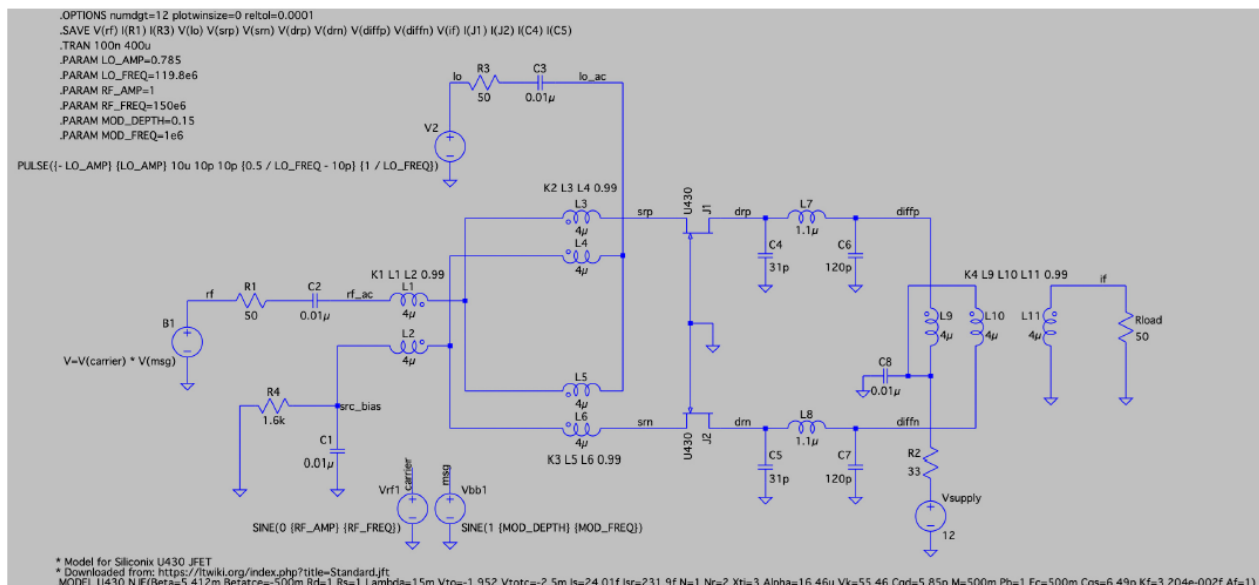
299. According to Dr. Galton, the simulations in Section III of his Second Declaration are meant to “correspond as closely as possible to the circuit shown in FIG. 6.7 given the information provided in the figure and associated text of DeMaw.” *Id.* However, the circuit introduced in Section III of his Second Declaration introduces significant alterations to Dr. Galton’s original simulation, as well as the corrected JFET model simulation in Section II. A POSITA would recognize that these changes are not mere adjustments but constitute a new and materially different simulation.

300. Dr. Galton further alleges that each of the five sets of results provided in Section III (Section III.A-III.E) “show the same simulation output” as his original simulations and therefore support the “original Declaration regarding the claims.” Ex.-2039, Ex.-1 ¶20. I disagree.

301. A side-by-side comparison of the waveform results shows that the output of Section III simulations deviates substantially from both Dr. Galton’s original and Section II simulations. A POSITA would not interpret these results as

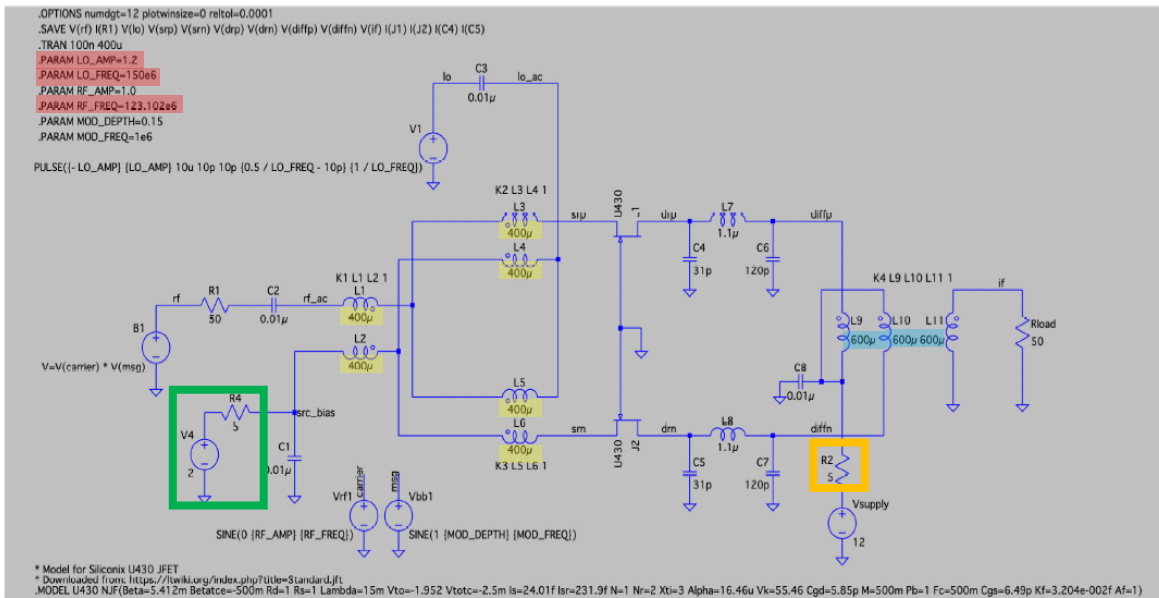
“the same.” Rather, the observed differences indicate distinct underlying circuit behavior due to significant changes in topology, component values, and signal characteristics. As a result, Dr. Galton needed to re-analyze each new simulation, which produced a different waveform to properly determine if it meets the claims. Because the new simulations deviate – and do not “show the same simulation output” they cannot rely on his previous analysis.

302. The LTspice schematic corresponding to the Section III simulations is shown in DEMA-W-SIM-FIG. 1.2, reproduced below:



DEMAW-SIM-FIG. 1.2. DeMaw circuit modified to match DeMaw FIG. 6.7 with a squared-up LO and a large input signal.

303. For comparison, DEMA-W-SIM-FIG. 1 (revised)—shown below—depicts the simulation from Section II, which corrected only the JFET model but otherwise retained the original simulation parameters:

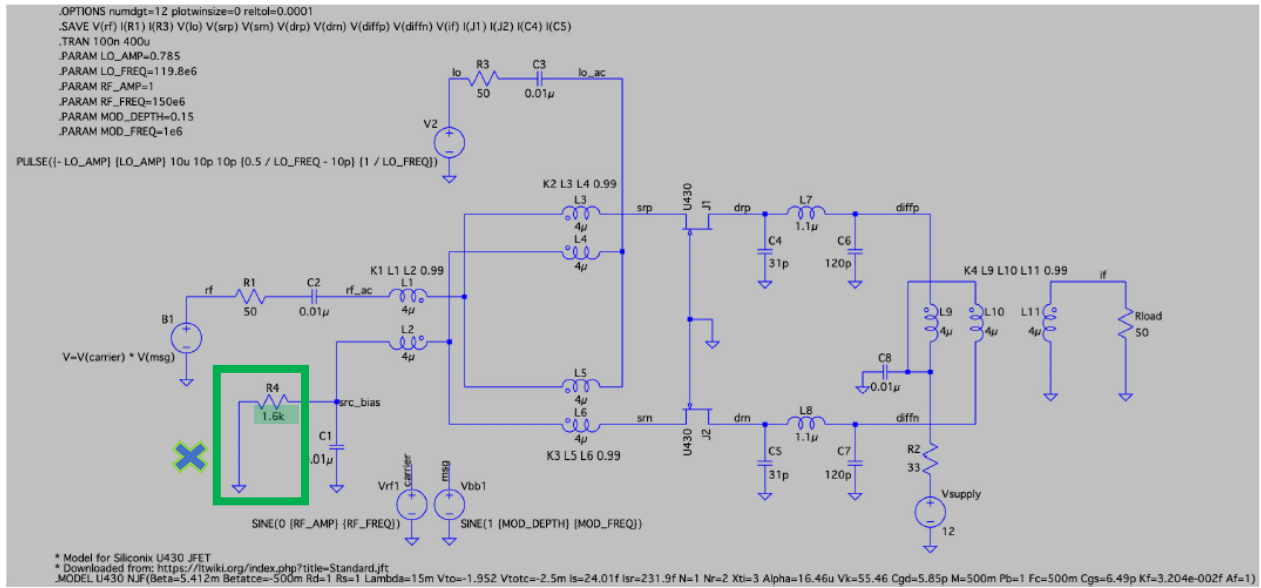


DEMAW-SIM-FIG. 1 (revised, clean). DeMaw circuit as described in the original Declaration but with U430 JFET models (highlighting two capacitors).

304. I reviewed and annotated DEMAW-SIM-FIG. 1 (revised), shown above, to identify each simulation parameter subsequently changed by Dr. Galton in DEMAW-SIM-FIG. 1.2. These changes are discussed and annotated below.

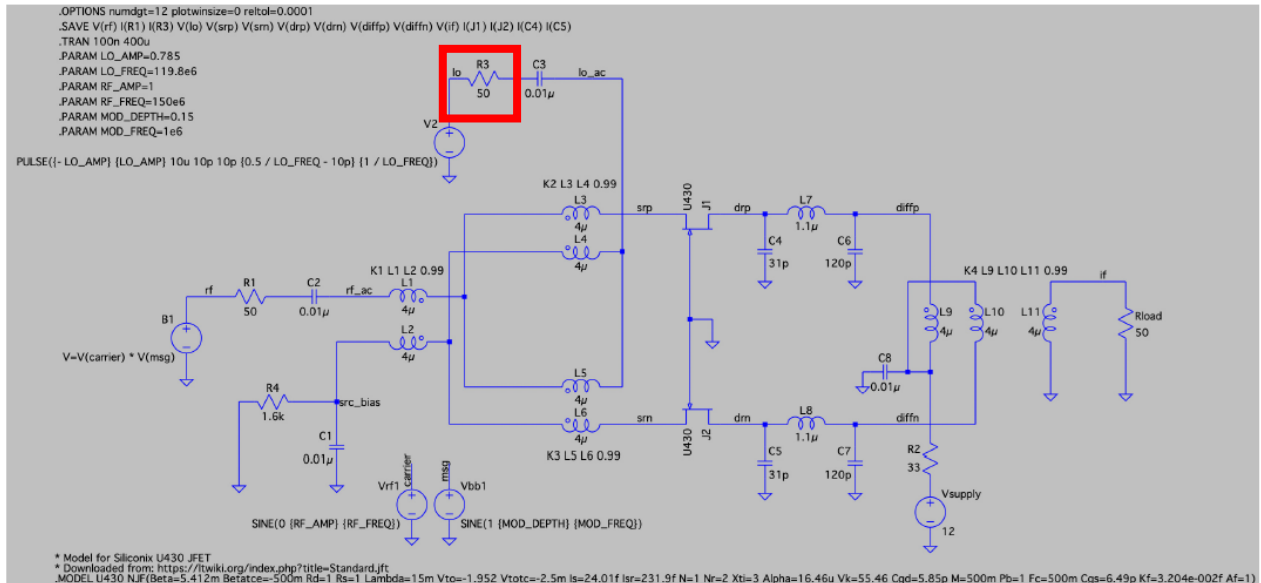
305. The following changes, none of which appeared in Dr. Galton's original Declaration, were introduced in Section III of Dr. Galton's Second Declaration:

306. As shown below, Dr. Galton removed the 2V DC bias source and 5Ω resistor (in DEMAW-SIM-FIG. 1 (revised) above) and replaced them with a 1.6kΩ resistor to ground.



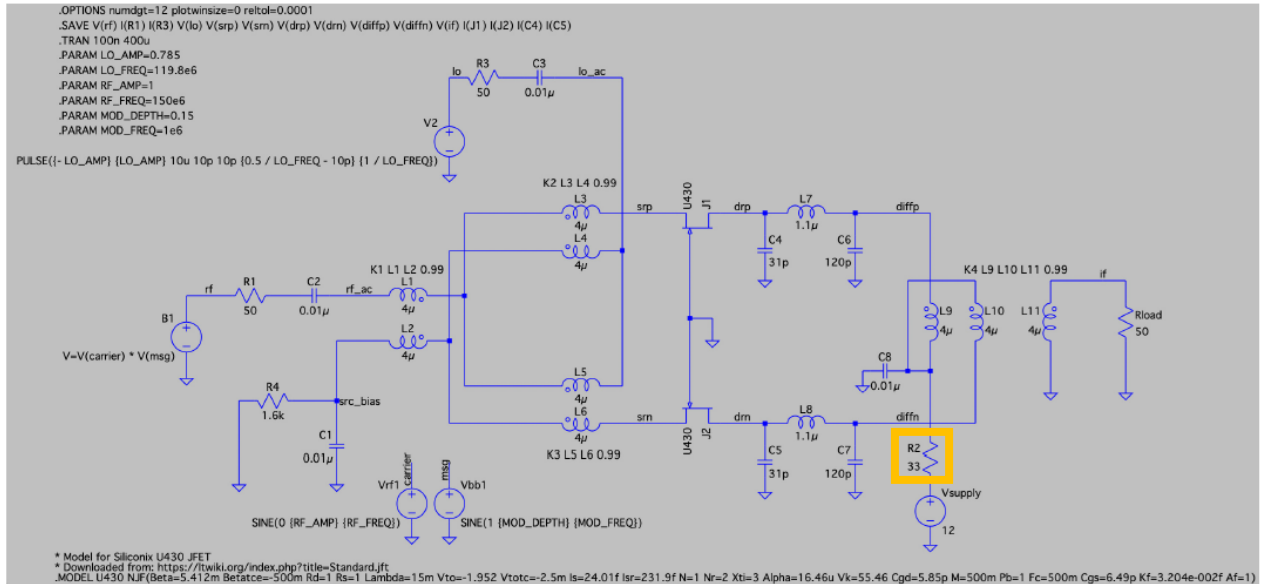
DEMAW-SIM-FIG. 1.2. DeMaw circuit modified to match DeMaw FIG. 6.7 with a squared-up LO and a large input signal.

307. As shown below, Dr. Galton added a 50Ω resistor in series with the LO input which would alter LO drive strength.



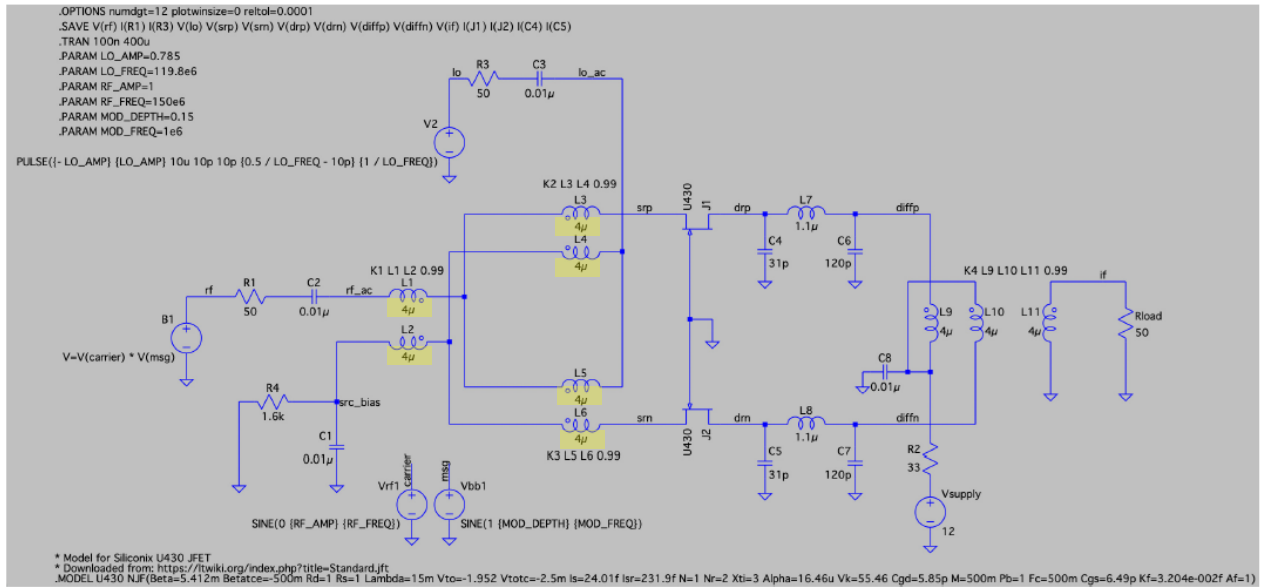
DEMAW-SIM-FIG. 1.2. DeMaw circuit modified to match DeMaw FIG. 6.7 with a squared-up LO and a large input signal.

308. As shown below, the supply resistor R2 was increased from 5Ω to 33Ω , changing the voltage drop.



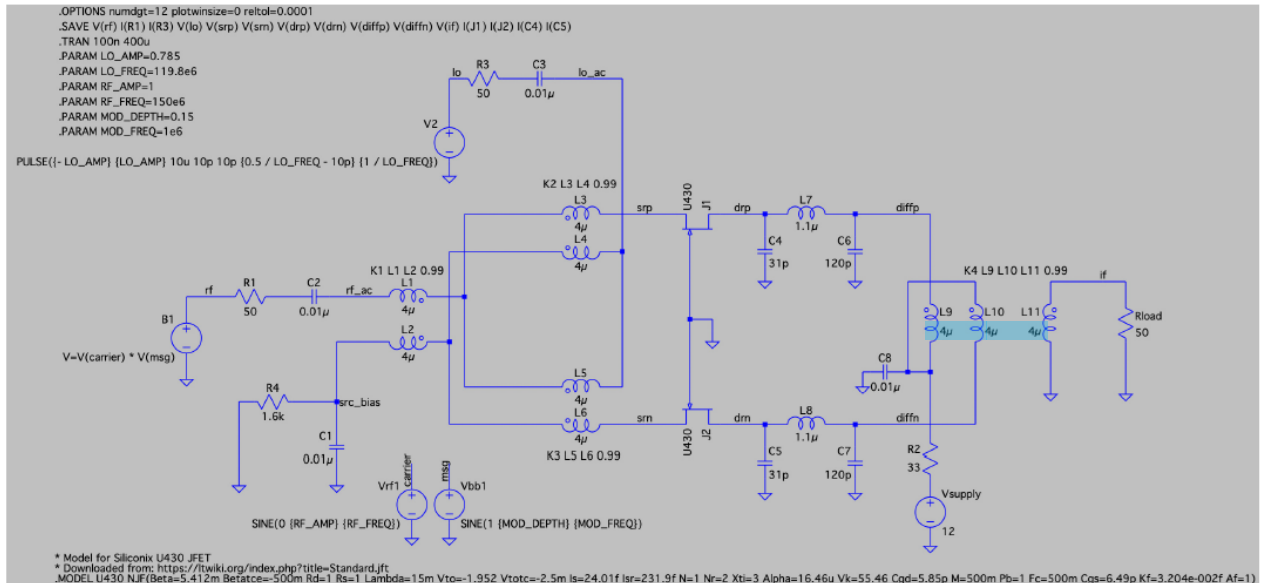
DEMAW-SIM-FIG. 1.2. DeMaw circuit modified to match DeMaw FIG. 6.7 with a squared-up LO and a large input signal.

309. As shown below, inductors L1-L6, which were originally $400\mu\text{H}$ inductors, were replaced with $4\mu\text{H}$ inductors.



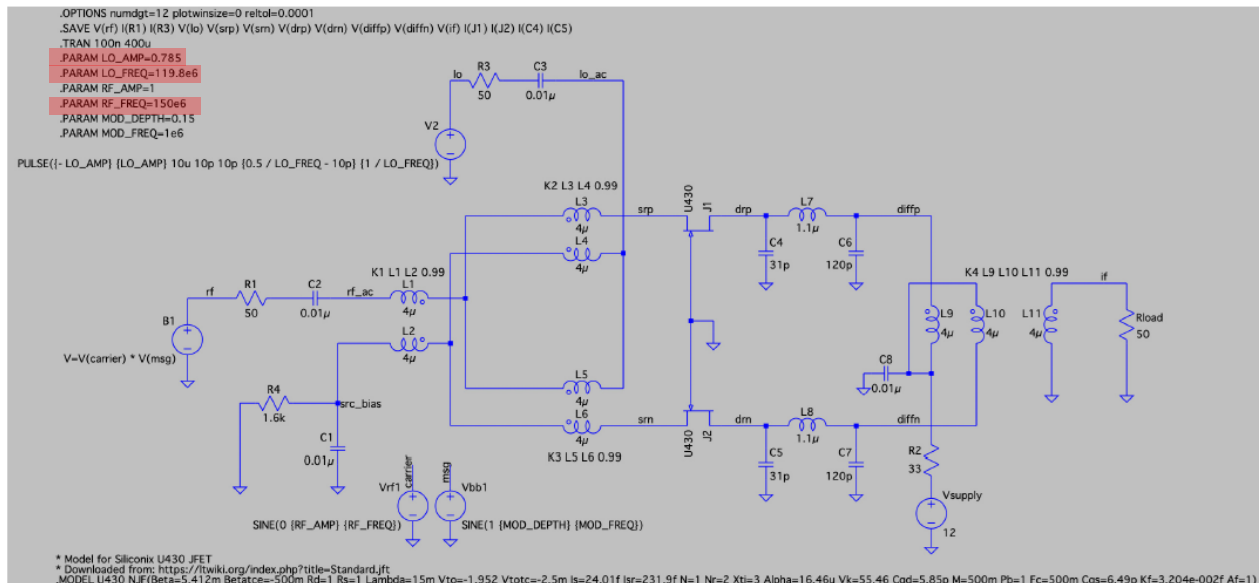
DEMAW-SIM-FIG. 1.2. DeMaw circuit modified to match DeMaw FIG. 6.7 with a squared-up LO and a large input signal.

310. As shown below, inductors L9-11, which were originally 600 μH inductors, were replaced with 4 μH inductors.



DEMAW-SIM-FIG. 1.2. DeMaw circuit modified to match DeMaw FIG. 6.7 with a squared-up LO and a large input signal.

311. In addition, Dr. Galton changed the RF and LO signal parameters as follows: (i) increased the RF input frequency from 123.102 MHz to 150 MHz; (ii) decreased the LO frequency from 150 MHz to 119.8 MHz; and (iii) reduced the LO amplitude from 1.2V to 0.785V. Notably, the revised simulation now uses an RF frequency higher than the LO frequency, and the RF amplitude exceeds the LO amplitude—conditions that differ substantially from the configuration analyzed in Dr. Galton’s original Declaration.



DEMAW-SIM-FIG. 1.2. DeMaw circuit modified to match DeMaw FIG. 6.7 with a squared-up LO and a large input signal.

312. A summary of all modifications introduced in Section III of Dr. Galton’s Second Declaration, compared to his original simulation setup in Dr. Galton’s original declaration (Ex.-1003), is presented below. This same summary also applies to the differences between the Section II and Section III simulations in

Dr. Galton's Second Declaration—except for the row concerning the JFET model, which was corrected in Section II.

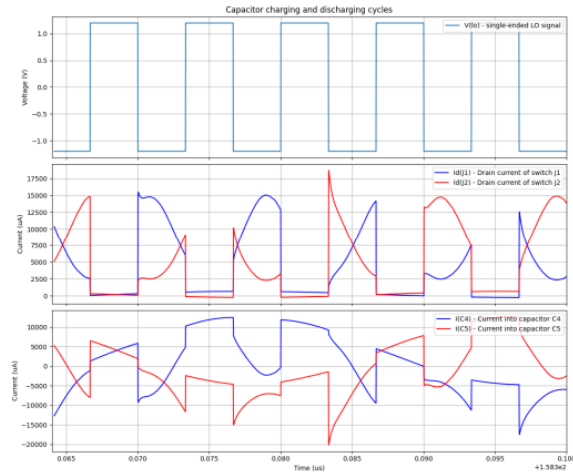
Parameter	Original (FIGURE DEMA-W-SIM-FIG.1)	Section III (FIGURE DEMA-W-SIM-FIG 1.2)
JFET Model	default, generic LTspice JFET model	Siliconix U430 JFET
Bias Network	V4 = 2 V Resistor R4 = 5 Ω	No V4 Resistor R4 = 1.6k Ω
LO input	No source impedance	Resistor R3 = 50 Ω added
VDD supply resistor	Resistor R2 = 5 Ω	Resistor R2 = 33 Ω
Inductors L1, L2, L3, L4, L5 and L6	400 μ H	4 μ H
Inductors L9, L10, and L11	600 μ H	4 μ H
RF Frequency	123.102 MHz	150 MHz
LO Frequency	150 MHz	119.8 MHz
LO Amplitude	1.2 V	0.785

313. Section III.A of Dr. Galton's Second Declaration shows simulation results for the modified circuit described above. Sections III.B–III.E repeat the same simulation with RF input power reduced by 6 dB, 12 dB, 18 dB, and 24 dB, respectively. The only change across those subsections is the RF amplitude—everything else remains as in Section III.A.

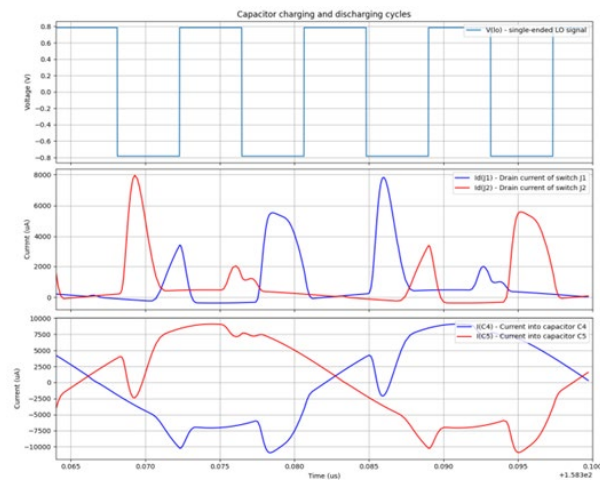
314. I independently ran all of Dr. Galton's Section III simulations using the native files he provided. My analysis below applies equally to all Section III simulations.

315. The waveforms from Section III of Dr. Galton's Second Declaration

also differ materially from those in prior simulations. For example, below is a side-by-side comparison of the drain current plots from Dr. Galton's Second Declaration Section II (DEMAW-SIM-FIG. 5 (revised), left) and Section III (DEMAW-SIM-FIG. 5.2, right).



DEMAW-SIM-FIG. 5 (revised). Graphical representation of the charging and discharging cycles of both of the capacitors highlighted in the DeMaw circuit of DEMAW-SIM-FIG. 1 (revised).



DEMAW-SIM-FIG. 5.2. Capacitors C4 and C5 charging and discharging cycles (circuit of DEMAW-SIM-FIG. 1.2).

316. As is clear from the graphs above, the waveforms differ at least in magnitude and shape. With regard to DEMAW-SIM-FIG. 5 (revised), shown above on the left, I provided a zoomed-in version in Section XIII.C.1 above to clearly show that the drain current never flattens at 0 mA; instead, it continues to fluctuate—including into negative values—demonstrating continuous bidirectional conduction. Notably, DEMAW-SIM-FIG. 5.2 (shown above on the right) from Section III does not require any zooming to observe this behavior. Even to the naked eye, it is evident that the current waveform does not flatten at 0.

317. The modified biasing, signal frequencies, impedances, and inductor

values all reflect a circuit that materially differs from what Dr. Galton originally simulated.

318. Significantly, the Section III waveforms (DEMAW-SIM-FIG. 5.2, 5.3, 5.4, 5.5, 5.6) in Dr. Galton’s Second Declaration confirm my analysis from Section XIII.B.2 above: with the correct U430 model, and even with all of Dr. Galton’s new changes, the JFETs never turn “off.” Instead, they conduct continuously in both directions—consistent with the expected behavior of a non-sampling mixer as disclosed in DeMaw. *See* Appendix B (showing zoomed-in waveforms of the Section III simulations).

319. Nevertheless, Dr. Galton concludes: “DEMAW-SIM-FIGS. 4.2, 5.2, 6.2, 7.2A and 7.2B show the same simulation output as DEMAW-SIM-FIGS. 4, 5, 6, and 7... and therefore support my original Declaration regarding the claims.” Ex.-2039, Ex.1 ¶20; *see also id.* at ¶26.

320. However, as explained above, Dr. Galton is incorrect. The switching behavior, impedance response, and waveform profiles are materially different. These simulations do not support, and in fact undermine, the claims made in his original Declaration.

321. In addition, as with Section II, the Section III simulations still retain critical flaws. The RF and LO frequencies (150 MHz and 119.8 MHz, respectively) remain well outside the 3–30 MHz range disclosed in DeMaw for its transformer-

based mixer. A POSITA would understand that transformer characteristics degrade significantly outside this range—making the simulation results physically unrealistic and unreliable.

3. DeMaw-2, Section IV: DeMaw Circuit Modified to Match DeMaw FIG. 6.7 With a Sinusoidal LO

322. Section IV of Dr. Galton’s Second Declaration is titled “DeMaw Circuit Modified to Match DeMaw FIG. 6.7 With a Sinusoidal LO.” The simulations in section adopt all of the circuit modifications introduced in Section III of Dr. Galton’s Second Declaration, with one additional change: the LO waveform has been altered from a squared-up to sinusoidal wave.

323. Dr. Galton explains that the simulation results presented in this section “correspond to the same circuit and input conditions as those for the simulation results presented in Section [III],” except that the local oscillator (LO) waveform has been changed from a square wave to a sinusoid. Ex.-2039, Ex.1 ¶65.

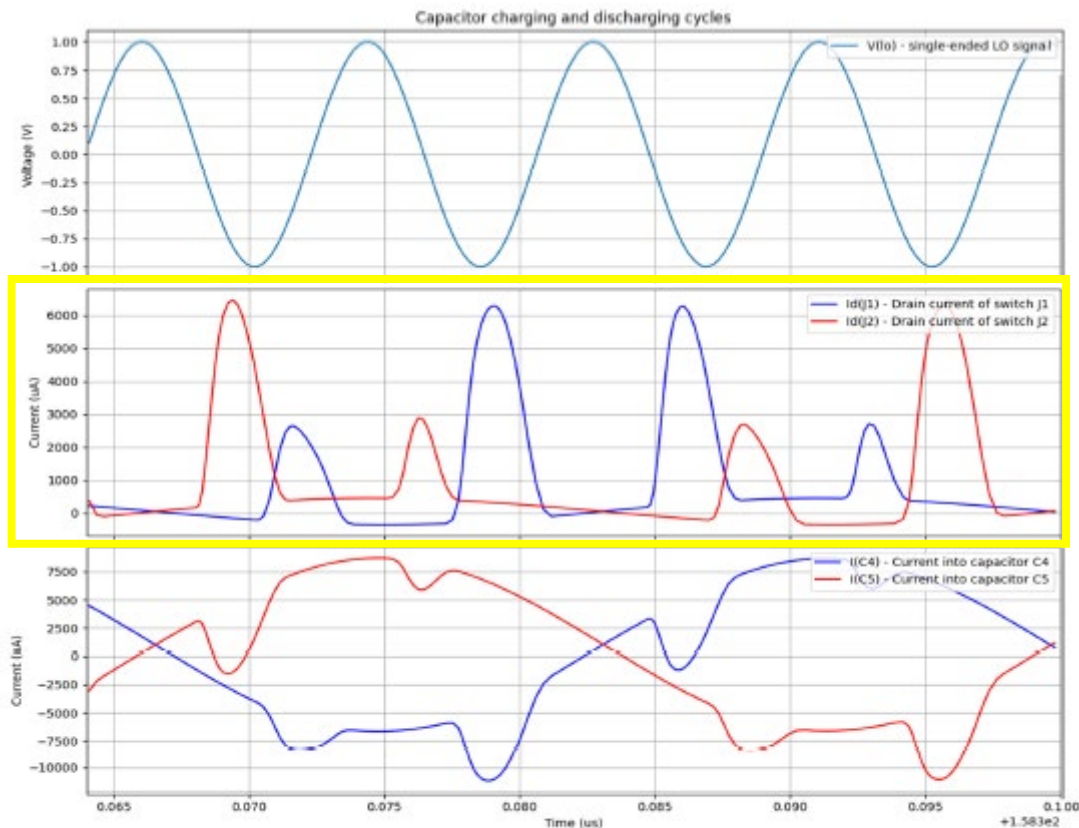
324. Section IV.A of Dr. Galton’s Second Declaration shows simulation results for the modified circuit described above with a sinusoidal LO. Sections IV.B–IV.E repeat the same simulation with RF input power reduced by 6 dB, 12 dB, 18 dB, and 24 dB, respectively. The only change across those subsections is the RF amplitude—everything else remains as in Section IV.A.

325. I independently ran all of Dr. Galton’s Section IV simulations using the native files he provided. My analysis below applies equally to all Section IV

simulations.

326. The underlying circuit and component parameters in Section IV of Dr. Galton's Second Declaration are identical to those introduced in Section III—only the LO waveform has been changed. Accordingly, all of the deficiencies outlined above in Section XIII.C.2 apply equally here. These include, but are not limited to modified biasing, inductors, signal frequencies, source impedances, and component values.

327. The waveforms from Section IV of Dr. Galton's Second Declaration also differ materially from those in his prior simulations. For example, DEMAW-SIM-FIG. 5.7 in Section IV.A of Dr. Galton's Second Declaration is shown below.



DEMAW-SIM-FIG. 5.7. Capacitor charging and discharging cycles (circuit of DEMAW-SIM-FIG. 1.7).

328. As shown above in the yellow box, drain current never flattens at 0 mA.

329. Significantly, all of the Section IV waveforms (DEMAW-SIM-FIG. 5.7, 5.8, 5.9, 5.10, 5.11) in Dr. Galton’s Second Declaration confirm my analysis from Section XIII.B.2 above: with the correct U430 model, and even with all of Dr. Galton’s new changes, the JFETs never turn “off.” Instead, they conduct continuously in both directions—consistent with the expected behavior of a non-sampling mixer as disclosed in DeMaw. *See* Appendix B (showing zoomed-in waveforms of the Section IV simulations).

330. Nevertheless, Dr. Galton concludes: “DEMAW-SIM-FIGS. 4.7, 5.7, 6.7, 7.7A and 7.7B show the same simulation output ... as DEMAW-SIM-FIGS. 4, 5, 6, and 7 show from DEMAW-SIM-FIG. 1. The conclusion in my original Declaration regarding the claims...are likewise supported.” Ex.-2039, Ex.1 ¶51; *see also id.* at ¶¶57, 63, 71, 77.

331. However, as explained above, Dr. Galton is incorrect. The switching behavior, impedance response, and waveform profiles are materially different. These simulations do not support, and in fact undermine, the claims made in his original Declaration.

332. In addition, as with Section II simulations, the Section IV simulations still retain critical flaws. The RF and LO frequencies (150 MHz and 119.8 MHz, respectively) remain well outside the 3–30 MHz range disclosed in DeMaw for its transformer-based mixer. A POSITA would understand that transformer characteristics degrade significantly outside this range—making the simulation results physically unrealistic and unreliable.

333. Moreover, this simulation introduces yet another alternative theory of operation—altering the LO waveform from square to sinusoidal—without explanation for how it supports or relates to the conclusions in Dr. Galton’s original Declaration. A POSITA would recognize this as a substantial change in signal behavior that alters how the JFETs respond.

4. DeMaw-2, Section V: DeMaw Circuit Modified to Match Oxner With a Squared-Up LO

334. Section V of Dr. Galton’s Second Declaration is titled “DeMaw Circuit Modified to Match Oxner With a Squared-Up LO.” In this section, Dr. Galton introduces a new circuit simulation that is expressly based on a different reference altogether: Siliconix Application Note AN72-1 authored by E. Oxner. Ex.-2039, Ex.1 ¶83.

335. Notably, in his first Declaration, Dr. Galton expressly stated: “DeMaw is a different circuit than Oxner.” Ex.-1003, ¶62. Despite this, Dr. Galton now presents new simulation results that are explicitly based on Oxner’s component values and configuration—not DeMaw’s.

336. Notably, many of the changes Dr. Galton adopts from Oxner’s configuration overlap with those introduced in Sections III and IV of his Second Declaration. These include:

Parameter	Original (FIGURE DEMA-W-SIM-FIG.1)	Section V (FIGURE DEMA-W-SIM-FIG 1.12)
JFET Model	default, generic LTspice JFET model	Siliconix U430 JFET
LO input	No source impedance	Resistor R3 = 50Ω added
VDD supply resistor	Resistor R2 = 5Ω	Resistor R2 = 1Ω
Inductors L1, L2, L3, L4, L5 and L6	400 μH	4 μH
Inductors L9, L10	600 μH	4 μH
RF Frequency	123.102 MHz	150 MHz

LO Frequency	150 MHz	119.8 MHz
LO Amplitude	1.2 V	0.785 V

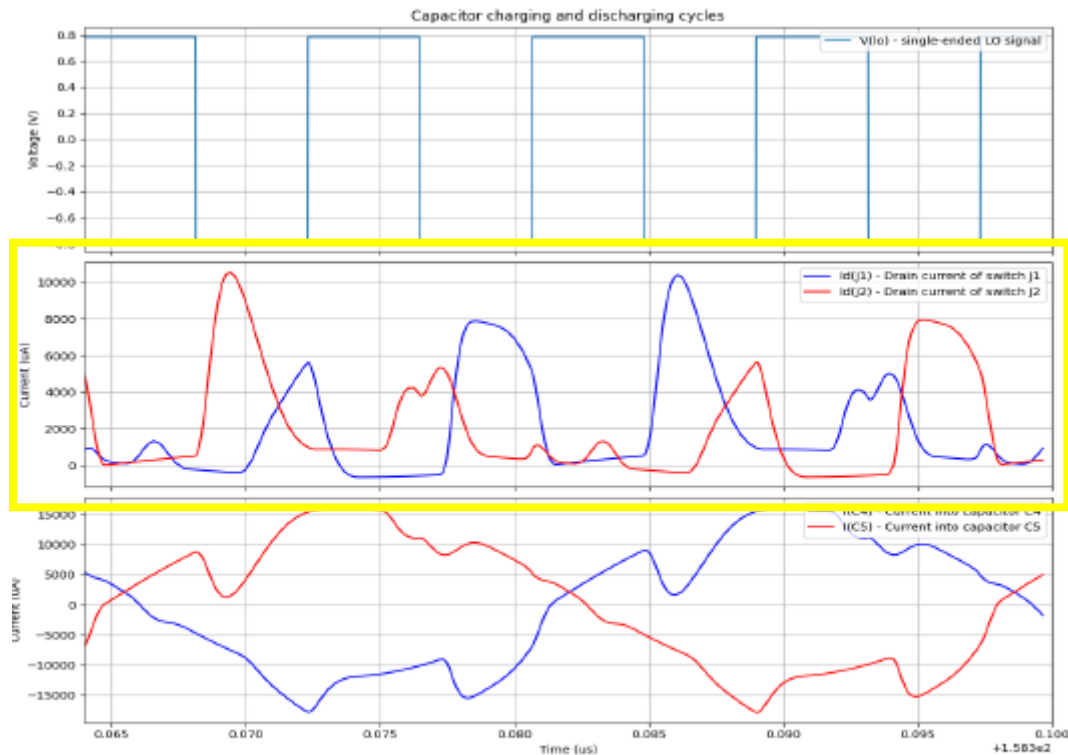
337. Additionally, Section V of Dr. Galton's Second Declaration introduces other modifications not seen in Sections III or IV, including:

Parameter	Original (FIGURE DEMAW-SIM-FIG.1)	Section III (FIGURE DEMAW-SIM-FIG 1.2)
Bias Network	Resistor R4 = 5Ω	Resistor R4 = 1Ω
VDD supply resistor	Resistor R2 = 5Ω	Resistor R2 = 1Ω
Inductors L11	600 μ H	1 μ H
Capacitors C4, C5	31p	30p
Capacitors C6, C7	120p	68p

338. Section V.A of Dr. Galton's Second Declaration shows simulation results for the modified circuit described above. Sections V.B-E repeat the same simulation with RF input power reduced by 6 dB, 12 dB, 18 dB, and 24 dB, respectively. The only change across those subsections is the RF amplitude—everything else remains as in Section V.A.

339. I independently ran all of Dr. Galton's Section V simulations using the native files he provided. My analysis applies equally to all Section V simulations.

340. The waveforms from Section V of Dr. Galton's Second Declaration also differ materially from those in his prior simulations. For example, DEMAW-SIM-FIG. 5.12 in Section V.A of Dr. Galton's Second Declaration is shown below.



DEMAW-SIM-FIG. 5.12. Capacitor charging and discharging cycles (circuit of DEMAW-SIM-FIG. 1.12).

341. As shown above in the yellow box, drain current never flattens at 0.

342. Significantly, all of the Section V waveforms (DEMAW-SIM-FIG. 5.12, 5.13, 5.14, 5.15, 5.16) confirm my analysis from Section XIII.B.2: with the correct U430 model, and even with all of Dr. Galton’s new changes in view of Oxner, the JFETs never turn “off.” Instead, they conduct continuously in both directions—consistent with the expected behavior of a non-sampling mixer as disclosed in DeMaw. *See* Appendix B (showing zoomed-in waveforms of the Section V simulations).

343. Nevertheless, Dr. Galton concludes: “DEMAWSIM-FIGS. 4.12, 5.12,

6.12, 7.12A and 7.12B show the same simulation output from DEMAW-SIM-FIG. 1.12 as DEMAW-SIM-FIGS. 4, 5, 6, and 7 show from DEMAW-SIM-FIG. 1. The conclusion in my original Declaration regarding the claims...are likewise supported.” Ex.-2039, Ex.-1 ¶84; *see also id.* at ¶¶90, 96, 102, 108.

344. However, as explained above, Dr. Galton is incorrect. The switching behavior, impedance response, and waveform profiles are materially different. These simulations do not support, and in fact undermine, the claims made in his original Declaration.

345. In addition, Section V simulations still retain critical flaws. The RF and LO frequencies (150 MHz and 119.8 MHz, respectively) remain well outside the 3–30 MHz range disclosed in DeMaw for its transformer-based mixer. A POSITA would understand that transformer characteristics degrade significantly outside this range—making the simulation results physically unrealistic and unreliable.

5. DeMaw-2, Section VI: DeMaw Circuit Modified to Match Oxner With a Sinusoidal LO

346. Section VI of Dr. Galton’s Second Declaration is titled “DeMaw Circuit Modified to Match Oxner With a Sinusoidal LO.” Dr. Galton explains that the simulation results presented in this section “correspond to the same circuit and input conditions as those for the simulation results presented in Section V except with a sinusoidal LO in place of a squared-up LO. Ex.-2039, Ex.-1 ¶114.

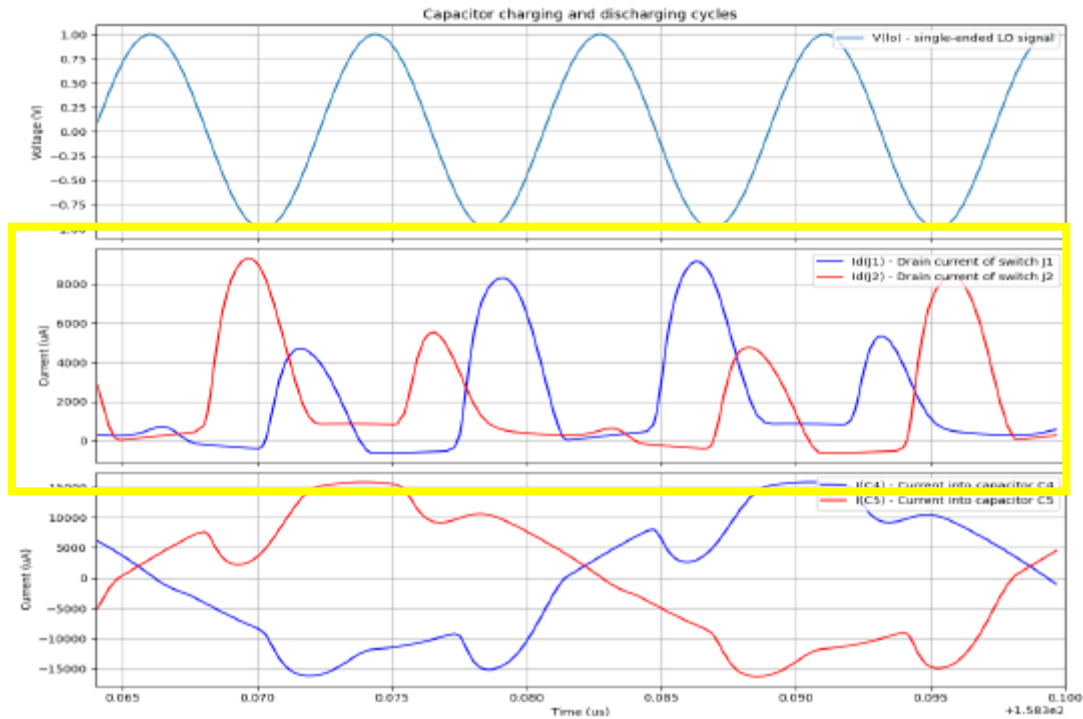
347. Accordingly, all of the deficiencies outlined above in Section XIII.C.4

above apply equally here.

348. Section VI.A of Dr. Galton's Second Declaration shows simulation results for the modified circuit described above in Section XIII.C.4 with a sinusoidal LO. Sections VI.B–VI.E repeat the same simulation with RF input power reduced by 6 dB, 12 dB, 18 dB, and 24 dB, respectively. The only change across those subsections is the RF amplitude—everything else remains as in Section VI.A.

349. I independently ran all of Dr. Galton's Section VI simulations using the native files he provided. My analysis below applies equally to all Section VI simulations.

350. The waveforms from Section VI of Dr. Galton's Second Declaration also differ materially from those in his prior simulations. For example, DEMAW-SIM-FIG. 5.17 in Section VI.A of Dr. Galton's Second Declaration is shown below.



DEMAW-SIM-FIG. 5.17. Capacitor charging and discharging cycles (circuit of DEMAW-SIM-FIG. 1.17).

351. As shown above in the yellow box, drain current never flattens at 0 mA.

352. Significantly, all of the Section VI waveforms (DEMAW-SIM-FIG. 5.17, 5.18, 5.19, 5.20, 5.21) in Dr. Galton’s Second Declaration confirm my analysis from Section XIII.B.2 above: with the correct U430 model, and even with all of Dr. Galton’s new changes, the JFETs never turn “off.” Instead, they conduct continuously in both directions—consistent with the expected behavior of a non-sampling mixer as disclosed in DeMaw. *See* Appendix B (showing zoomed-in waveforms of the Section VI simulations).

353. Nevertheless, Dr. Galton concludes: “DEMAW-SIM-FIGS. 4.17, 5.17, 6.17, 7.17A and 7.17B show the same simulation output from DEMAW-SIM-FIG.

1.17 as DEMA W-SIM-FIGS. 4, 5, 6, and 7 show from DEMA W-SIM-FIG. 1. The conclusions in my original Declaration regarding the claims...are likewise supported.” Ex.-2039, Ex.1 ¶115; *see also id.* at ¶¶121, 127, 133, 139.

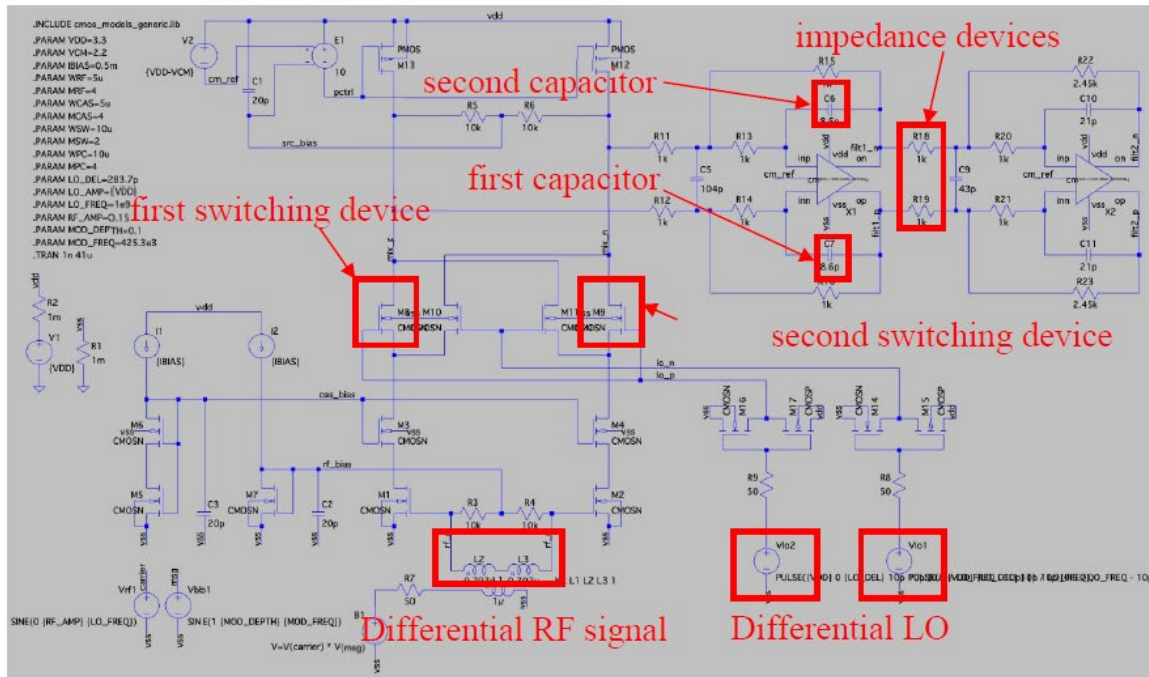
354. However, as explained above, Dr. Galton is incorrect. The switching behavior, impedance response, and waveform profiles are materially different. These simulations do not support, and in fact undermine, the claims made in his original Declaration.

355. In addition, as with Section V, the Section VI simulations still retain critical flaws. The RF and LO frequencies (150 MHz and 119.8 MHz, respectively) remain well outside the 3–30 MHz range disclosed in DeMaw for its transformer-based mixer. A POSITA would understand that transformer characteristics degrade significantly outside this range—making the simulation results physically unrealistic and unreliable.

D. Macnally-1

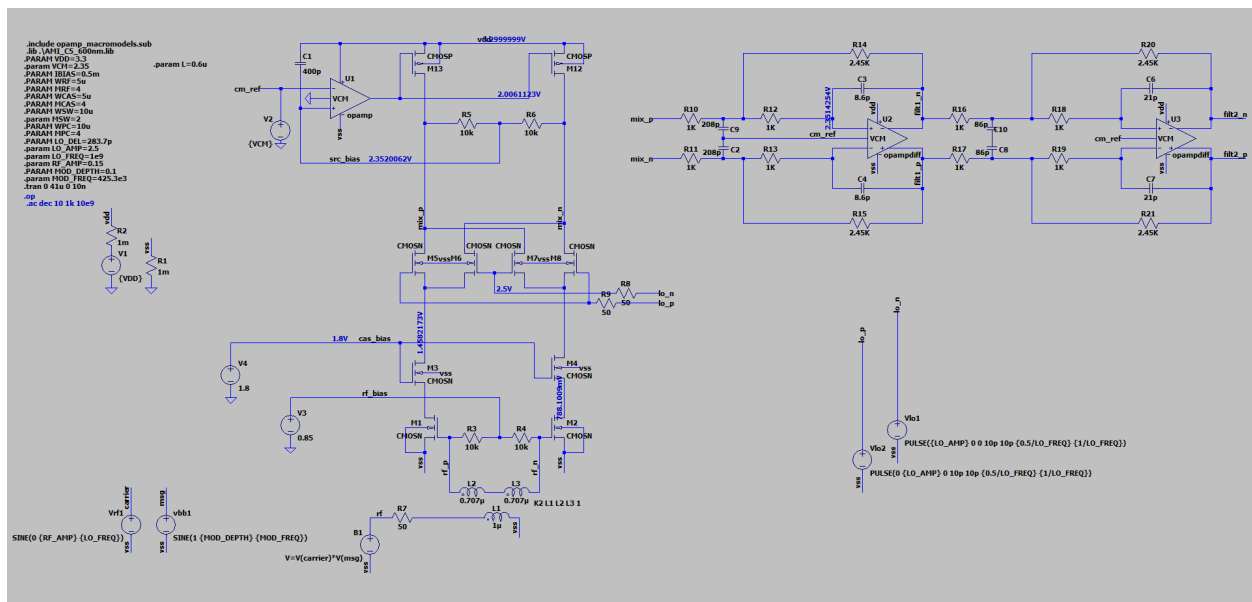
356. Dr. Galton’s original declaration accompanying the Petition provided LTspice simulations that purported to model the mixer circuit disclosed in Macnally.

357. Dr. Galton created simulations of Macnally’s circuit using LTspice XVII (17.2.4). His circuit setup was provided in MACNALLY-SIM-FI.1 in his original Declaration (Ex.-1003, ¶93), reproduced below.



MACNALLY-SIM-FIG. 1 (annotated)

358. Because Dr. Galton did not provide any Python code or native LTspice source files with his original Declaration, the only way to evaluate his results was to independently reconstruct the circuit. My recreated schematic is shown below.



[Recreated schematic based on Dr. Galton's LTspice schematic]

359. I replicated Dr. Galton's simulation using parameters and topologies as close as possible to those presented in his figure. However, Dr. Galton's circuit schematic omits several critical modeling details that prevent an exact reproduction.

360. Notably, unlike his DeMaw simulations—where he explicitly included the U430 JFET model—Dr. Galton did not include any SPICE model definitions for the transistors used in the Macnally simulation.

361. For example, Dr. Galton previously used the following explicit model definition for the DeMaw U430 JFET:

A screenshot of a SPICE model definition for a U430 JFET. The text is:

```
* Model for Siliconix U430 JFET
* Downloaded from: https://ltwiki.org/index.php?title=Standard_jft
.MODEL U430 NJF(Beta=5.412m Betacoe=-500m Rd=1 Rs=1 Lambda=15m Vto=-1.952 Vtocc=-2.5m Is=24.01f Isr=231.9f N=1 Nr=2 Xti=3 Alpha=16.46u Vb=55.46 Cgd=5.85p M=500m Pb=1 Fc=500m Cgs=6.49p Kf=3.204e-002f Af=1)
```

[Snippet from DEMAW-SIM-FIG.1]

362. In contrast, Dr. Galton's Macnally simulation refers to an undisclosed, private LTspice library file (see image below), leaving out key model parameters such as threshold voltage (V_{th}), transconductance (K_n/K_p), channel length modulation (λ), and parasitic capacitance. A POSITA would understand that such model details are essential for accurately simulating CMOS analog behavior.

A screenshot of a SPICE library include statement. The text is:

```
.INCLUDE cmos_models_generic.lib
```

[Snippet from MACNALLY-SIM-FIG.1]

363. Because Dr. Galton's transistor models were undisclosed, I used a standard 0.6 μm generic CMOS model—consistent with Dr. Galton's own representation in ¶92 of his original Declaration: “The SPICE technology library

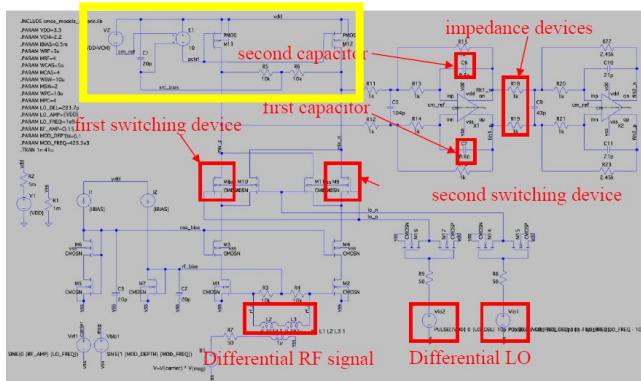
models a generic CMOS process with 0.6um gate lengths, using a 3.3V supply voltage.”

364. Upon reviewing the reconstructed circuit, I identified several deviations between Dr. Galton’s simulation and the actual teachings of Macnally. Indeed, Dr. Galton concedes that “[t]he circuit was built using the limited descriptive text available in the patent.” Ex.-1003, ¶92.

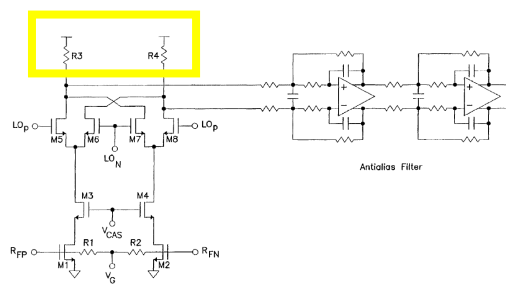
365. For example, while Macnally does not specify an LO drive circuit, Dr. Galton’s simulation uses a “full-swing LO clock signal” (Ex.-1003, ¶149) that is neither taught nor suggested by the patent. To match Dr. Galton’s simulation setup, I employed a full-swing LO signal with similar amplitude and frequency.

366. Further, while Macnally describes BFSK modulation, Dr. Galton instead simulates down-conversion of a “1.0 GHz sinusoidal carrier amplitude-modulated (AM) 10% by a 425.3 kHz sinusoidal message signal.” Ex.-1003 ¶94. Dr. Galton admits that his simulation “deviates from the original patent’s intended modulation of BFSK.” Ex.-1003, ¶94.

367. Dr. Galton also inserted a biasing network using transistors M12 and M13—circuit elements that do not appear anywhere in Macnally



MACNALLY-SIM-FIG. 1 (annotated)



368. As shown above, the left image highlights the biasing network using transistor M12 and M13 (shown in the yellow box) in MACNALLY-SIM-FIG.1 of Dr. Galton's original Declaration. In contrast, the corresponding region of Macnally's Figure 3 (right) simply shows resistors R3 and R4.

369. To match Dr. Galton's simulation setup, I used a similar biasing configuration.

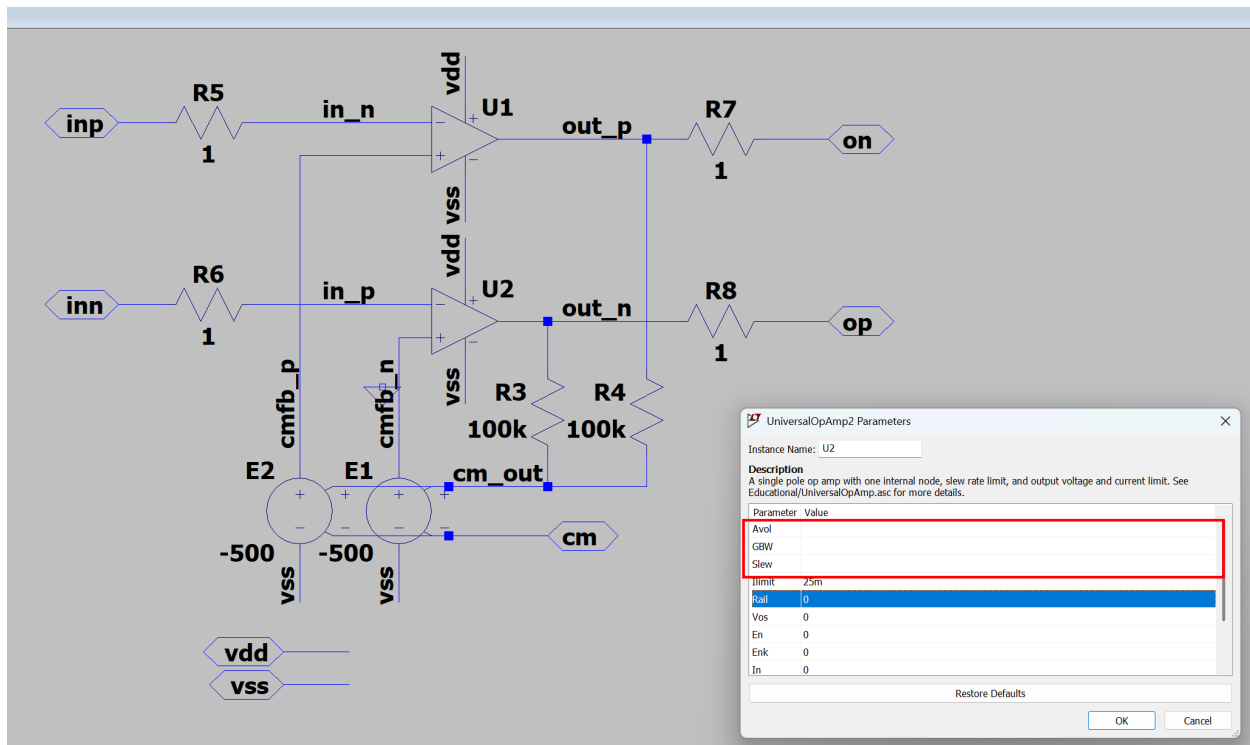
370. Upon reviewing Dr. Galton's native files, I identified several deficiencies in his original simulation setup—each of which confirms the concerns described above.

371. Load Devices: In his original simulation, the active load transistors M12 and M13 were modeled using LTspice default devices, which have no defined electrical parameters (e.g., V_{th} , K_n , λ). These transistors are not part of the Macnally disclosure and were later removed and replaced with resistors in Dr. Galton's revised simulation.

372. Transistor Gate Length: Although Dr. Galton states that his Macnally

simulations used a 0.6 μm CMOS process (Ex.1003, ¶92), transistors M8–M11 in his simulated circuit (corresponding to transistors M5-M8 in Macnally Figure 3) were modeled with a gate length of 300 nm—half the stated value. All other transistors used the 600 nm gate length. A POSITA would understand that such inconsistency materially affects parasitic capacitance, gain, and switching behavior.

373. Operational Amplifier Model: In his original Declaration, Dr. Galton states that an operational amplifier “macromodel was used that emulates an op-amp with 60 dB of DC gain.” Ex.-1003, ¶92. However, upon review of the native LTspice files later provided by Dr. Galton with his revised Declaration, I found that the operational amplifier component (universalopamp2) lacks any specified parameter values. As shown in the red box below, no values were provided for performance characteristics such as open-loop gain (A_{vol}), gain-bandwidth product (GBW), or slew rate.



374. Without these values, I could not verify whether the op-amp model used by Dr. Galton actually achieves the 60 dB of gain he claimed. A POSITA would recognize that omitting such parameters renders the op-amp behavior undefined and the simulation results unreliable.

375. Missing Parasitic Capacitances: The original simulation omits device parasitic capacitances entirely. A POSITA would not consider a simulation omitting these parasitics to be reliable for evaluating high-frequency analog performance.

376. These omissions and inconsistencies materially affect the simulated behavior of the Macnally circuit. A POSITA would not regard Dr. Galton's original simulation as a faithful representation of Macnally's actual teachings. Instead, it reflects an incomplete and speculative construction—one that is insufficient to

support the conclusions presented in Dr. Galton's original Declaration.

E. Macnally-2

377. In his Second Declaration, Dr. Galton submits a revised set of Macnally circuit simulations that were not included in his original Declaration (Ex.-1003). These new simulations —presented for the first time in Section VII of his Second Declaration—were accompanied by native Python scripts and text files to facilitate replication of his results.

378. Section VII of Dr. Galton's Second Declaration is titled "Macnally Circuit Modified to Match That Presented in Macnally Patent." According to Dr. Galton, the simulations presented in this section were created to address criticism raised in Patent Owner's Preliminary Response. Ex.-2039, Ex.-1 ¶145. Dr. Galton states that the revised simulations "correspond to the mixer circuit presented in the Macnally patent with component values and an input signal that matches the information presented in the Macnally patent as closely as possible." *Id.*

379. However, the circuit introduced in Section VII reflects more than a minor revision. A POSITA would recognize that these changes are not mere adjustments but constitute a new and materially different simulation from what was presented in Dr. Galton's original Declaration.

380. In paragraph 145 of his Second Declaration, Dr. Galton identifies several changes made to his original setup:

381. Use of Actual Resistors: Dr. Galton states that he replaced the current source/resistor combinations used in his original simulation (*see* Section XIII.B above) with actual resistors to implement R3 and R4 from Macnally Figure 3. Ex.-2039, Ex.1 ¶145. While Dr. Galton characterizes this as “common practice,” he could have implemented actual resistors in the original simulation. Moreover, Macnally does not disclose values for resistors R3 and R4, and Dr. Galton provides no citation or justification for the values he now selects.

382. Mixer Gain Adjustment: Dr. Galton modified the sizes and bias voltages of transistors M1 and M2 allegedly “to achieve the 8.5 mS of transconductance mentioned in Macnally,” and adjusted the LO signal crossover points allegedly “to prevent the mixer core transistors... from cross-conducting.” *Id.* These modifications are unsupported. Macnally does not disclose any 8.5 mS transconductance value—or any transconductance value at all. In addition, the term “cross-conducting” never appears in Macnally. A POSITA would understand Dr. Galton’s assertions as speculative post-hoc design choices, not faithful implementations of Macnally’s circuit.

383. BFSK Signal Change: Dr. Galton modified the RF input signal to incorporate BFSK modulation centered at 915 MHz. The modulation format disclosed in Macnally was known at the time of Dr. Galton’s original Declaration. Dr. Galton could have used BFSK in his original simulations but chose not to.

384. In addition to the changes explicitly identified by Dr. Galton above, I also identified several other material changes not acknowledged in Dr. Galton's Second Declaration:

385. Transistor Dimensions Updated: In the revised simulation, transistors M8–M11 (corresponding to transistors M5–M8 in Figure 3 of Macnally) now use a gate length of 600 nm, consistent with the 0.6 μ m process Dr. Galton originally claimed to be using. However, his original simulation used 300 nm gate lengths for these same devices. This inconsistency materially impacts switching behavior, parasitics, and gain.

386. Op-Amp Topology Changed: The original simulation used differential macro-model operational amplifiers, which Dr. Galton claimed “accelerate simulation time but do not affect the presented results.” Ex.-1003, ¶92. In the revised simulation, however, these have been replaced with single-ended op-amps—a architectural change that is not acknowledged or justified. Indeed, Dr. Galton used two single-ended op-amps for the differential operational amplifier, not an emulation of the op-amp as alleged in his original Declaration. *See* figure in ¶373 above.

387. Transistor Redesign Throughout: All transistors in the circuit—except for those in the LO inverter—have been redesigned with new dimensions. *Compare* parameters of the transistors from original simulation (below, left) *with* parameters from revised simulation (below, right).. A POSITA would view this as a complete

redesign. Notably, Dr. Galton only mentions modifications to transistors M1 and M2, but this redesign extends circuit-wide. Dr. Galton claims these changes were used to achieve a particular transconductance allegedly “described” in Macnally. However, no such transconductance value is disclosed in the Macnally.

```
.INCLUDE cmos_models_generic.lib
.PARAM VDD=3.3
.PARAM VCM=2.2
.PARAM IBIAS=0.5m
.PARAM WRF=5u
.PARAM MRF=4
.PARAM WCAS=5u
.PARAM MCAS=4
.PARAM WSW=10u
.PARAM MSW=2
.PARAM WPC=10u
.PARAM MPC=4
.PARAM LO_DEL=283.7p
.PARAM LO_AMP={VDD}
.PARAM LO_FREQ=1e9
.PARAM RF_AMP=0.1
.PARAM MOD_DEPTH=0.1
.PARAM MOD_FREQ=425.3e3
.TRAN 1n 41u
```

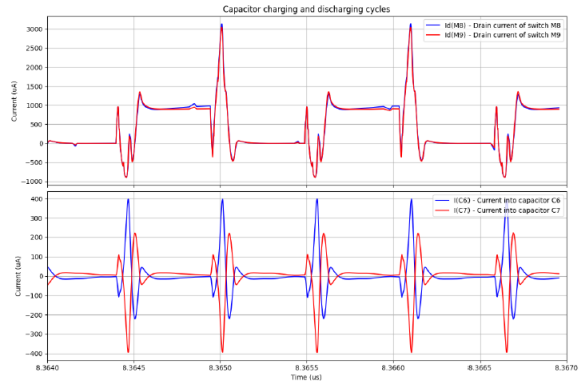
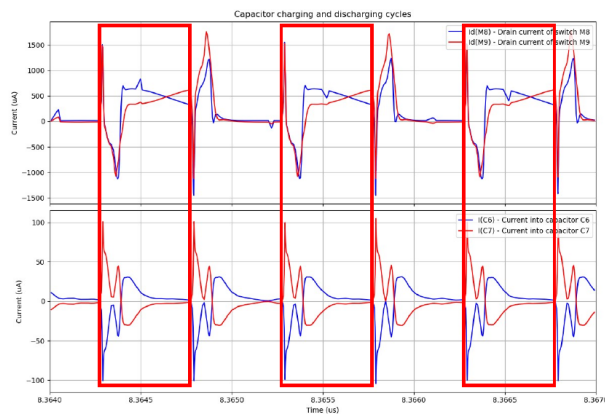
```
.PARAM VDD=3.3 .PARAM WRF=8u .TRAN 1n 40.5u
.PARAM VCM=2.2 .PARAM MRF=16 .op
.PARAM IBIAS=1m .PARAM WCAS=8u *.AC DEC 10 100G 100
.PARAM TRTF=20p .PARAM MCAS=8
.PARAM MSW=2
.PARAM WSW=10u

.PARAM LO_DEL=283.7p .PARAM RF_AMP=0.01
.PARAM LO_AMP={VDD} .PARAM DEV_FREQ=425.39e3
.PARAM LO_FREQ=915.1e6 .PARAM MOD_FREQ=617.13e3
```

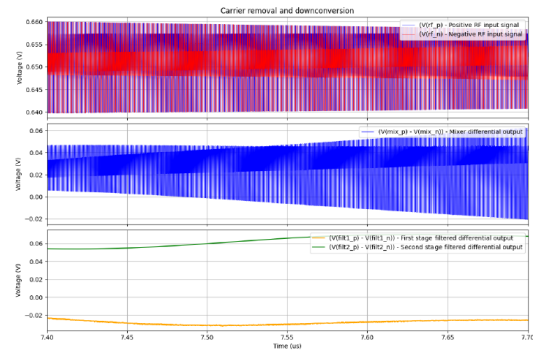
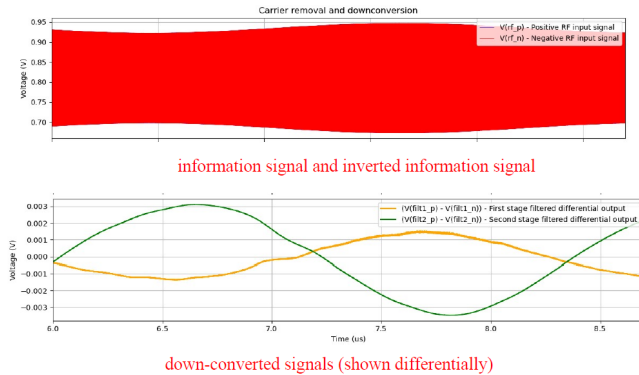
388. These modifications reflect a fundamentally different simulation than the one presented in Dr. Galton’s original Declaration. The revised circuit uses new component values, altered geometries, changed op-amp topologies, and a different modulation format. These are not minor refinements—they are substantial departures that collectively represent a new theory of how Macnally allegedly operates.

389. Indeed, the waveforms from Section VII of Dr. Galton’s Second Declaration differ materially from his prior simulations. Below is a side-by-side comparison of the corresponding waveforms from Dr. Galton’s original Declaration (DEMAW-SIM-FIGs. 2, 3, 4, left) from Dr. Galton’s Second Declaration

(MACNALLY-SIM-FIG. 2.1, 3.1, and 4.1, right).

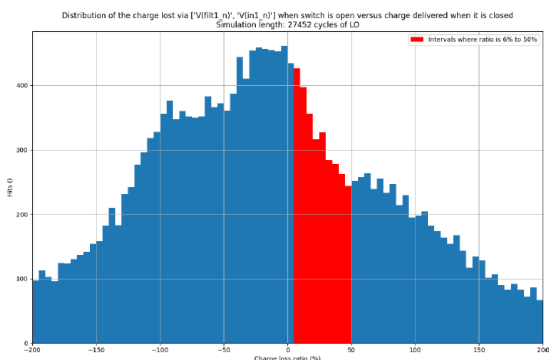
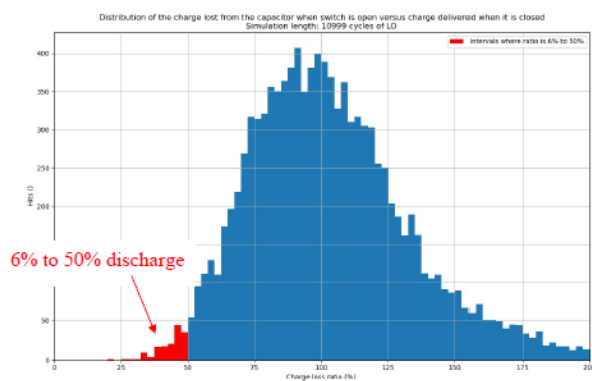


MACNALLY-SIM-FIG. 2.1. Capacitor charging and discharging cycles (circuit of MACNALLY-SIM-FIG. 1.1).



MACNALLY-SIM-FIG. 3.1. Carrier removal and downconversion (circuit of MACNALLY-SIM-FIG. 1.1).

MACNALLY-SIM-FIG. 3 (annotated)



MACNALLY-SIM-FIG. 4.1A. Charge loss ratio percentages histogram for capacitor C6 (circuit of MACNALLY-SIM-FIG. 1.1).

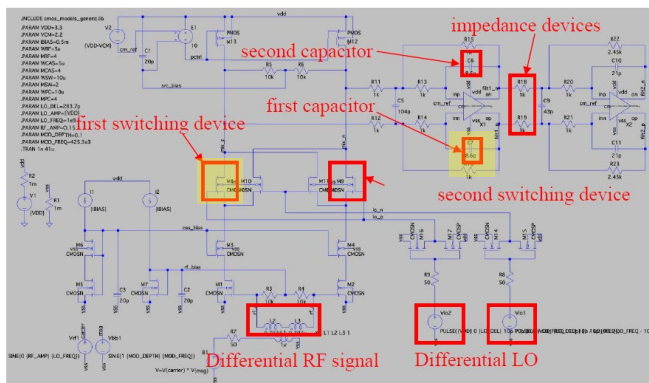
390. The waveforms differ noticeably in both shape and magnitude. The histograms also significantly differ. Yet Dr. Galton concludes: “MACNALLY-SIM-

FIGS. 2.1, 3.1, 4.1A and 4.1B show the same simulation output from MACNALLY-SIM-FIG. 1.1 as MACNALLY-SIM-FIGS. 2, 3, 4, 5 and 6 show from MACNALLY-SIM-FIG. 1. The conclusions in my original Declaration regarding the claims... are likewise supported.” Ex.-2039, Ex.1 ¶146 (emphasis added). I disagree.

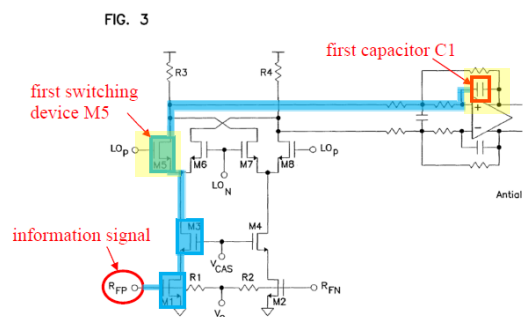
391. The changes to circuit topology, loading conditions, transistor dimensions, and signal behavior reflect a materially different simulation. Accordingly, the simulations in Section VII represent a new and distinct theory of how Macnally allegedly operates.

392. Significantly, Dr. Galton provides no waveforms for charge and discharge of capacitors—only Python-processed calculations.

393. I independently ran Dr. Galton’s Section VII simulations using the native files he provided. In his simulation, transistor M8 and capacitor C7 (highlighted in yellow, below left) correspond to what Dr. Galton identifies as transistor M5 and capacitor C1 in MacNally’s Figure 3 (below right).

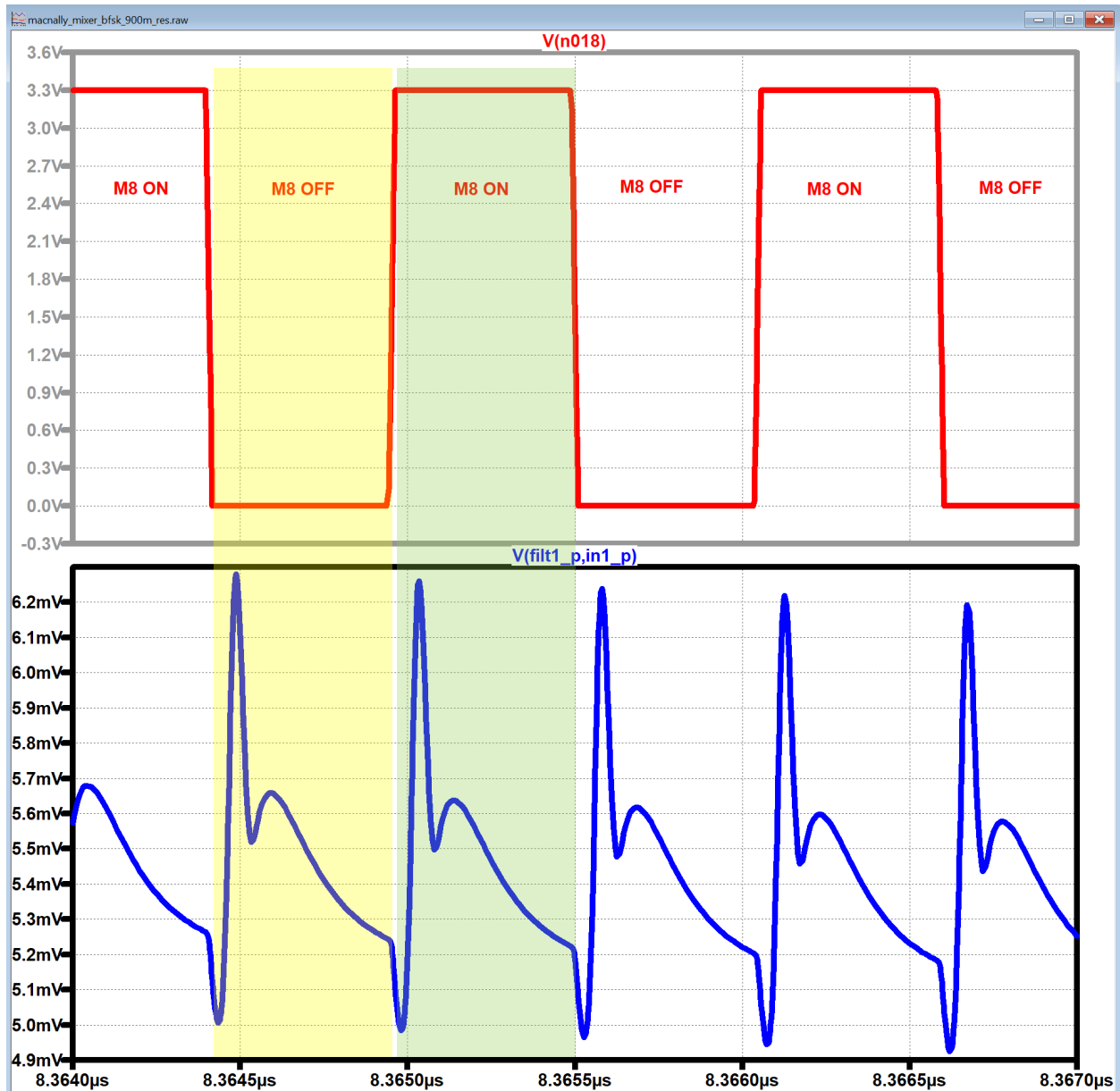


MACNALLY-SIM-FIG. 1 (annotated)



Macnally, FIG. 3 (partial, annotated)

394. Transistor M8 turns on when the LO_p signal is high. The plot below shows both the LO_p signal and capacitor voltage (V_c). The charge on the capacitor remains materially the same whether M8 is ON or OFF:



395. As highlighted in green (ON) and yellow (OFF), the total charge on the capacitor remains materially the same during both phases. This is expected. In Macnally's design, current continuously flows to capacitors C1 and C2—and through M1 and M2—regardless of LO state.

396. A POSITA would understand that the LO_P and LO_N signals are

The schematic diagram illustrates a 100-MHz CMOS PLL. The core is a differential divider consisting of two cross-coupled NMOS transistors (M3, M4) and PMOS transistors (M5, M6). The PMOS network includes a current source (M1) and a load resistor (R1) for the left branch, and a current source (M2) and a load resistor (R2) for the right branch. The NMOS network includes a current source (M7) and a load resistor (R3) for the left branch, and a current source (M8) and a load resistor (R4) for the right branch. The output of the divider is connected to a differential output filter, which consists of two op-amp stages (C1, C2) and a feedback network (R1, R2, R3, R4). The filter is labeled "Antialias Filter". The input of the filter is connected to the output of the divider. The output of the filter is connected to the input of the divider. The filter is a second-order system with two poles and two zeros. The poles are located at the output of the divider and the input of the filter. The zeros are located at the output of the filter and the input of the divider. The filter is designed to provide a phase margin of 60 degrees and a gain margin of 20 dB. The filter is implemented using two op-amp stages (C1, C2) and a feedback network (R1, R2, R3, R4). The op-amp stages are configured as voltage followers. The feedback network consists of two resistors (R1, R2) and two capacitors (C1, C2). The filter is labeled "Antialias Filter".

The schematic diagram illustrates a differential signal path for a 10-bit SAR ADC. The input stage consists of a differential pair of NMOS transistors, M1 and M2, whose sources are connected to ground. Their gates are driven by a common-mode voltage V_G . The drains of M1 and M2 are connected to nodes R_{FP} and R_{FN} through resistors R1 and R2, respectively. These nodes are also connected to a common-mode voltage V_{CAS} through PMOS transistors M3 and M4. The signal paths continue through a series of transistors (M5-M8) and resistors (R3, R4) to the input of an Antialias Filter. The filter is composed of two op-amp stages, each with a feedback capacitor (C1, C2) and a network of resistors and capacitors. The output of the filter is connected to the input of a 10-bit SAR ADC, which is represented by a dashed box. The ADC's output is connected to a digital-to-analog converter (DAC) block, which is also represented by a dashed box. The DAC's output is connected to the input of the ADC, forming a feedback loop. The diagram also shows a differential signal path for the DAC, with nodes LO_p and LO_N connected to the input of the DAC through PMOS transistors M5 and M6, respectively. The gates of M5 and M6 are connected to a common-mode voltage V_{CAS} through PMOS transistors M7 and M8. The drains of M7 and M8 are connected to nodes R_{FP} and R_{FN} through resistors R1 and R2, respectively. The signal paths continue through a series of transistors (M1-M4) and resistors (R3, R4) to the input of the Antialias Filter. The filter is composed of two op-amp stages, each with a feedback capacitor (C1, C2) and a network of resistors and capacitors. The output of the filter is connected to the input of a 10-bit SAR ADC, which is represented by a dashed box. The ADC's output is connected to a digital-to-analog converter (DAC) block, which is also represented by a dashed box. The DAC's output is connected to the input of the ADC, forming a feedback loop.

XIV. VALIDITY OF THE '342 PATENT

- 1. DeMaw does not disclose, teach, or suggest the claimed percentage of capacitor discharge using Dr. Galton's own simulation results.**

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percentages of “the total charge stored therein during a period of time that the first switching devices is open,” and that (2) the second capacitor discharges specific percentages of “the total charge stored therein during a period of time that the second switching devices is open.” Claim 19 recites a discharge range of 6-50%; claim 20 recites a discharge range of 10–25% and claim 21 recites 15–30%.

400. DeMaw does not discuss any percentage discharged from the capacitors. Thus, Petitioner relies entirely on simulations performed by Dr. Galton.

401. But Dr. Galton misapplies the claim language and computes the wrong percentage.

402. The claims require the calculation of how much of the total charge stored in a capacitor is discharged during the time a switch is open. But instead of using this metric, Dr. Galton performs a cycle-by-cycle analysis—comparing the charge discharged during an alleged switch-open interval with the charge added during the immediately preceding switch-closed interval of the same cycle. Dr. Galton confirmed this methodology in deposition:

403. Dr. Galton’s Python script defines discharge percentage as $q_{loss} = 100 * q_{out} / q_{in}$.

```
726      # Plot histogram
727      qloss = 100 * qout / qin
```

Ex.-2039, Ex.-2, line 727.

404. Dr. Galton admitted that “qin” represents the charge delivered to the capacitor during one switch-on (closed) interval, and that “qout” represents the charge discharged during one switch-off (open) interval.

9	Can we say that qin is proportional to
10	the charge delivered to the capacitor when the
11	switch is on during one cycle?
12	A Yes.

Ex.-2039, 34:9-12; *see also* id., 34:14-22.

4	Q In Line 727, gloss is how you calculated
5	the percentage, which is 100 times qout divided by
6	qin. Correct?
7	A Yes.
8	Q So would you say that the percentage
9	discharge would be proportional to the charge loss
10	during one discharge cycle divided by the charge
11	delivered to the capacitor during the charge
12	cycle?
13	A Yes.

Id. at 37:4-13.

405. This is not what the claims require.

406. As a POSITA would understand, the capacitors in DeMaw (C4 and C5 in Dr. Galton’s simulation) do not fully discharge between LO cycles. Instead, they incrementally accumulate charge over many cycles. The residual baseline voltage—

set by a 12V power supply—remains largely unchanged, and new charge is added on top of what was previously stored. Accordingly, the “total charge stored” at any given discharge event is the cumulative charge on the capacitor—not just what was added in the immediately prior cycle.

407. Thus, to calculate the percentage of “total charge stored” that has been discharged, one must consider *all* of the charge that is on a capacitor when a discharge occurs—not just the most recent increment.

408. The proper formula for calculating discharge under the claims is defined as equation (1) below:

$$\% \text{ discharge} = \frac{\text{Charge discharged during the period switch is open}}{\text{Total charge stored at the beginning of the discharge period}}$$

409. Since charges on a capacitor are proportional to the voltage across it, i.e., $Q=CV$, and capacitance (C) is constant, we can directly use voltages to calculate the discharge ratio: $\frac{Q_2-Q_1}{Q_1} = \frac{CV_2-CV_1}{CV_1} = \frac{V_2-V_1}{V_1}$.

410. A negative result indicates a discharge; a positive value indicates a charge.

411. Because LO controls the switching, we compute this ratio for every LO pulse across an IF cycle and report the maximum observed discharge.

412. Rather than using the correct formula above, Dr. Galton uses a different, incorrect formula:

$$\% \text{ discharge} = \frac{\text{Charge discharged during the period switch is open}}{\text{Charge stored in the same cycle}}$$

413. This approach ignores the accumulated charge already present on the capacitor before the current cycle began and thus significantly overstates the calculated percentage.

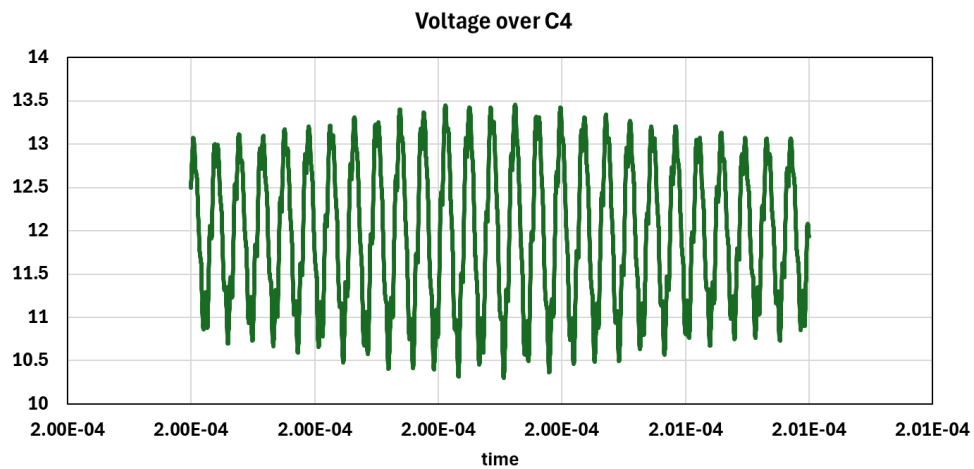
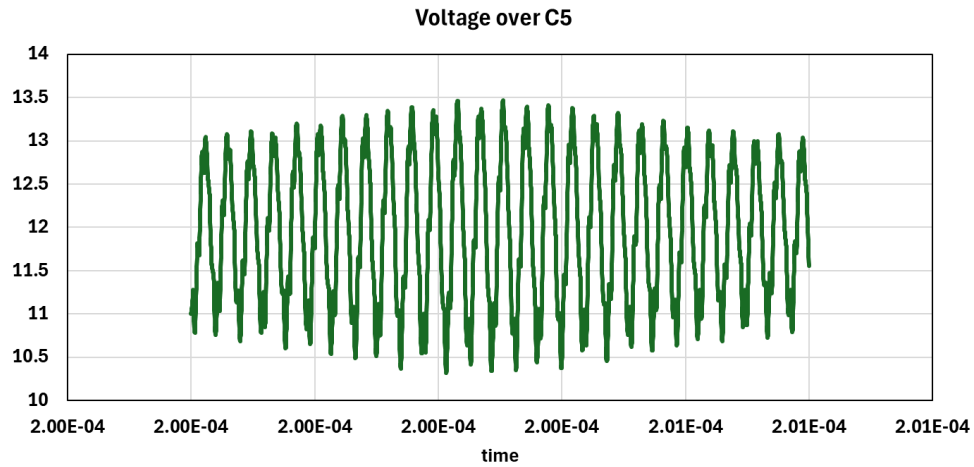
414. Indeed, Dr. Galton fails to account for the baseline 12V charge on the capacitors—even though he acknowledges that a 12V supply charges them. Ex.- 2036, 19:4–15. By failing to account for this charge, Dr. Galton understates the denominator and thereby overstates the calculated discharge percentage.

415. This is a fundamental analytical error.

416. Using Dr. Galton's revised simulations (DEMAW-SIM-FIG. 1 (revised)), I computed the percentage discharge across capacitors C4 and C5 during the time their corresponding switches are allegedly open as defined by Dr. Galton—i.e., when LO is high.

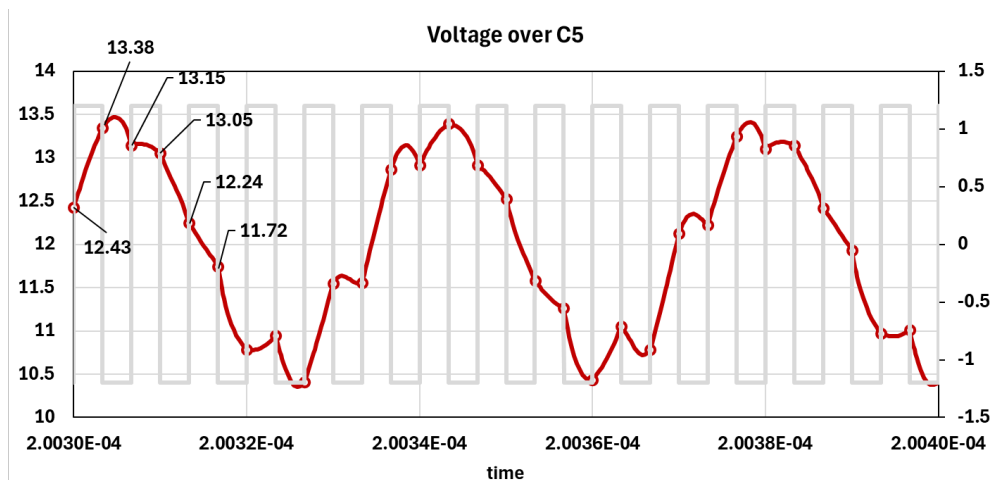
417. While, as discussed in Sections XIII and XIV.A.2, there is no actual switch-open period in DeMaw, my analysis adopts Dr. Galton's own assumptions for illustrative purposes.

418. Figure 1 (below) shows voltage across C4 and C5 over one full cycle of the modulated IF signal, which contains multiple LO pulses (Modulation frequency 1MHz, IF frequency 26.9MHz, LO frequency 150MHz).



[FIGURE 1: Voltage across C5 and C4]

419. Figure 2 shows a zoomed in span of voltage across C5 together with the LO pulses.



[FIGURE 2: Zoom in of portion of C5 voltage to demonstrate voltage points]

420. The switch is allegedly open when LO is “high” or positive. The method employed here is to identify the time stamps for the rising edge and falling edges of the LO signal and find values of the voltage at these points. I then use the proper discharge equation (equation (1) above) to calculate the discharge ratio for all the times LO is high.

421. As an example for the few points shown in Figure 2 above, we will have the numbers shown below.

V(t0)	V(t1)	%
12.427	13.348	7.42 (charging)
13.146	13.052	-0.71
12.248	11.748	-4.08

422. For each LO pulse, I measured the voltage at the rising and falling edges of LO. Using Equation (1), I computed the discharge ratio.

423. I note positive value (e.g., +7.42%) indicates the capacitor charged

rather than discharged.

424. Because the transistors in DeMaw are never off, there is no period of time when the switch is open, nor a period of time when the transistors are not contributing to the charge of the capacitors. As such, the claimed “period of time that the [] switching device is open” does not exist in DeMaw’s circuit. Although I disagree that DeMaw is a sampling circuit having transistors that turn off (open), I nevertheless calculate the discharge percentage using the correct equation (1), and Dr. Galton’s assumption that LO-high corresponds to a switch-open interval. As shown in Appendix B, I calculated the maximum percentage discharge across the capacitors for all of Dr. Galton’s revised simulations. The maximum discharge is shown for each simulation using the correct discharge equation.

425. I note that several instances when the switch is off, the capacitor charges, rather than discharges. This is due to the reactive energy in the inductors in the impedance matching circuit.

426. Using the data from Dr. Galton’s own simulation results and plugging the data into the correct formula demonstrates that nearly all of the percentage discharged falls outside the ranges set forth in claims 19-21. Nevertheless, to the extent any percentages fall within the claimed ranges, these do not reflect when the switch is open, as required by the claim.

**2. Dr. Galton's discharge calculation misapplies the claimed
"a period of time that the [] switching devices is open."**

427. Claims 19-21 of the '342 patent require that a specific discharge percentage "during a period of time that the first switching device is open."

428. As discussed in Section XIII.B and Section XIII.C above, DeMaw's transistors are never open (off). The transistors are always closed (on). Thus, DeMaw's capacitors cannot discharge during a period of time when the switch is open.

429. As Dr. Galton acknowledges, the "open" or "off" state of a switching device is not an arbitrary signal timing event—it must be tied to the actual state of the switch, i.e., whether the transistor is conducting current.

430. In fact, in his original Declaration, Dr. Galton expressly defined the alleged switching behavior as follows: "The switches are off when their drain currents are zero and on when their drain currents are non-zero." Ex.-1003, ¶103.

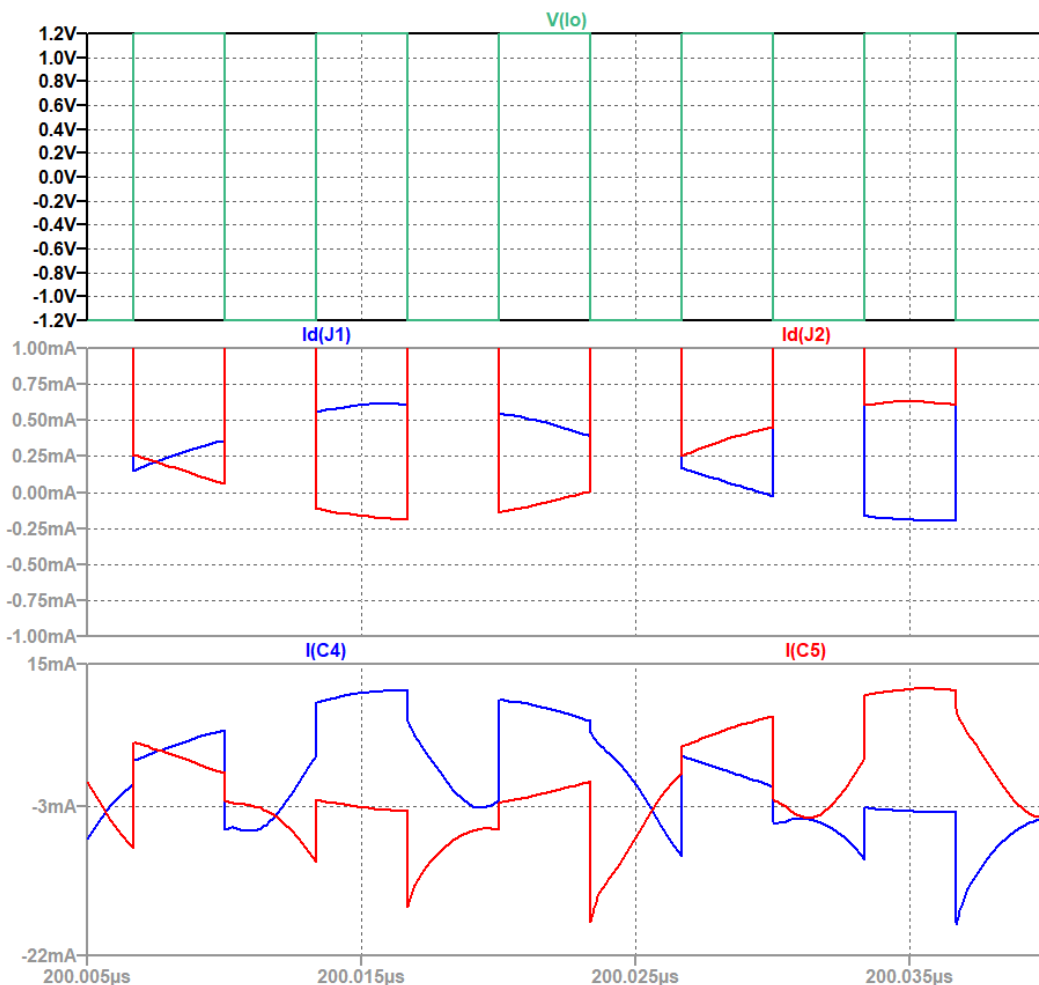
431. A JFET in a switching configuration is considered "on" when it conducts drain current and "off" when drain current is zero (0). Thus, by Dr. Galton's own definition, the switch-open period begins when the drain current drops to zero and ends when current resumes

432. Yet, when computing the discharge percentage, Dr. Galton abandons this definition. Instead of using the actual interval during which drain current is zero, he uses the duration of the LO signal being "high" as a proxy for when the switch is

open. *See, e.g.,* Ex.2039, Ex.1 ¶90. But as shown below, this substitution is factually and technically incorrect.

433. Using Dr. Galton’s simulations, I plotted the drain current waveforms of J1 and J2 alongside the LO waveform. These plots reveal that the drain current continues to flow—often in both directions—even while LO is high.

434. As shown in the zoomed-in drain current waveform excerpted below, the current through J1 and J2 does not drop to zero at the LO high transitions. In fact, the current never flatlines at 0 mA, even during LO “high” periods.



435. Accordingly, the switch is never “off” as defined by Dr. Galton (i.e., zero drain current), and the assumption that LO being “high” corresponds to the switch being “open” is incorrect.

3. Dr. Galton’s Discharge Period Is Overstated

436. By defining the “switch open period” as the entire LO high interval, Dr. Galton’s analysis includes time segments during which the transistor is clearly conducting current. This inflates the time interval over which voltage is measured and distorts the computed discharge percentage. For example, if LO is high from time t_0 to t_1 , but the drain current remains non-zero for all or part of that window, then the switch is not actually “open” during the full period. By including that full interval in his calculation, Dr. Galton overstates the duration of discharge, which biases the percentage downward or causes incorrect interpretation of charging versus discharging behavior.

437. A POSITA would know that if the transistor is still conducting, then charge is not being discharged from the capacitor through a high-impedance open switch; rather, it is still part of an active conduction path, which may involve both charging and discharging effects due to reactive feedback.

438. A POSITA would recognize that the claimed “period of time that the first switching device is open” must correspond to actual switch behavior—not just control signal levels.

439. Accordingly, Dr. Galton’s discharge calculations are based on the wrong time interval, rendering his percentage discharge values inaccurate and unsupported by the evidence.

440. These inconsistencies further undermine the reliability of Dr. Galton’s analysis and confirm that DeMaw does not disclose the required claim limitation.

B. Ground 2: Macnally

441. Macnally fails to teach (or suggest) each and every limitation of claims 18-21. Specifically, Macnally does not disclose (1) “electrically coupling the information signal to a first capacitor and the inverted information signal to a second capacitor,” (2) first and second “switching device,” or (3) capacitors discharging certain percentages of “total charge stored” “during a period of time that the [first/second] switching device is open.”

442. The reason that Macnally does not disclose these claim elements is because Macnally is a heterodyne system, which uses non-sampling mixers. In Macnally, the transistors remain active – there is a continuous current flow. There are no periods of time when the transistors are “open” (OFF) as required by claims 18-21. Thus, Macnally does not disclose, teach, or suggest the claimed features.

443. Notably, Petitioner does not (and cannot) point to any express disclosure in Macnally that describes the charging/discharging cycles of capacitors, let alone the discharge percentage ranges as claimed in claims 19-21. Macnally

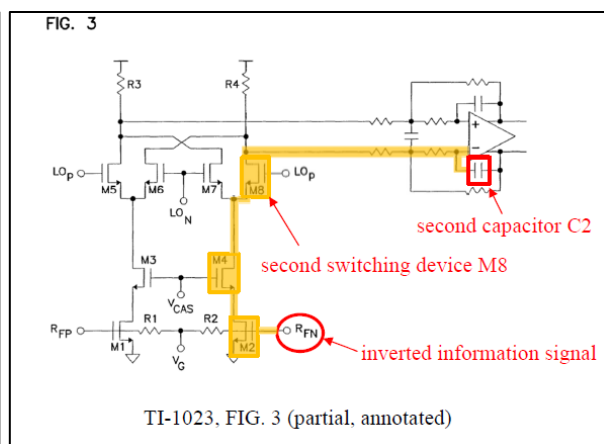
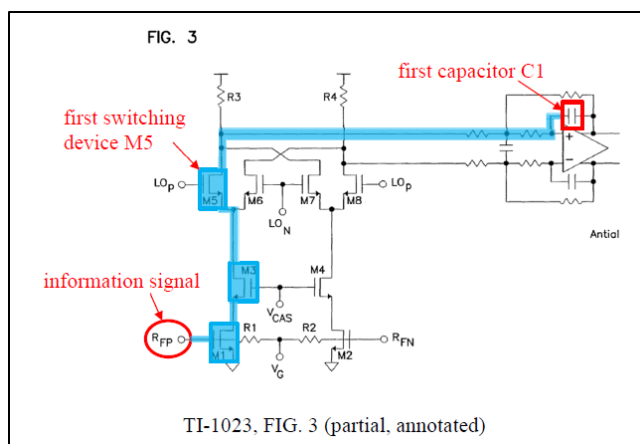
contains no such teachings. So Petitioner relies solely on the declaration of Dr. Galton, and circuit simulations to suggest that Macnally's system operates as claimed.

444. But Dr. Galton's simulations are flawed as discussed in Section XIII.D and XIII.E above. These deviations render Dr. Galton's simulations purely speculative and, therefore, insufficient to establish that the claimed capacitor discharge behavior is present in Macnally.

1. Macnally does not disclose the “electrically coupling” limitation of claim 18.

445. Claim 18 recites: “electrically coupling the information signal to a first capacitor and the inverted information signal to a second capacitor.” As mentioned in Section XI.B above, the PTAB previously construed “electrically coupling” to be “indirectly or directly connecting such that an electrical signal can flow between.” Petitioner does not dispute this construction, nor does Petitioner seek an alternative construction. Pet., 6.

446. In view of the PTAB's prior construction of “electrically coupled,” the claim language requires that the information signal (an electrical signal) *itself* must be able to flow to the first capacitor, and the inverted information signal (another electrical signal) *itself* must be able to flow to the second capacitor.



447. In particular, Petitioner asserts that, in Macnally, (1) the R_{FP} input (shown in blue below above) is the information signal that is “electrically coupled” to capacitor C1 through first switching device M5, and (1) the R_{FN} input (shown in orange) in the inverted information signal that is “electrically coupled” to capacitor C2 through second switching device M8. Pet., 60-63. I disagree.

448. M1 and M2 are CMOS FETs. Dr. Galton agrees. Ex.-2036, 68:16-22. As shown above, Macnally’s R_{FP} and R_{FN} inputs are applied to the *gates* of FETs M1 and M2, respectively, to *control* the flow of current between the drain (D) and source (S).

449. As discussed above in Section VII.B.2 and IX, in saturation, current only flows from the drain to the source.

450. Unlike the drain and source of a CMOS FET, the gate does not provide a path for current to flow upward or through the drain. Instead, the gate acts as a control terminal that modulates the flow of current between the source and the drain.

current (red arrow) flows from the power source through R3 and to capacitor C1 (red box) and current (blue arrow) flows from the power source through resistor R4 and to capacitor C2 (blue box).

454. A POSITA would understand that the LO_P and LO_N signals are differential signals, meaning that when LO_P is high, LO_N is low, and vice versa.

455. When LO_P is high and LO_N is low, transistors M5 and M8 conduct. Current from the power supply flows through resistors R3 and R4. Some of the current is directed to capacitor C1 (red line) and C2 (blue line) while the remainder of the current flows through M5 and M1 to ground and M8 and M2 to ground.¹⁰

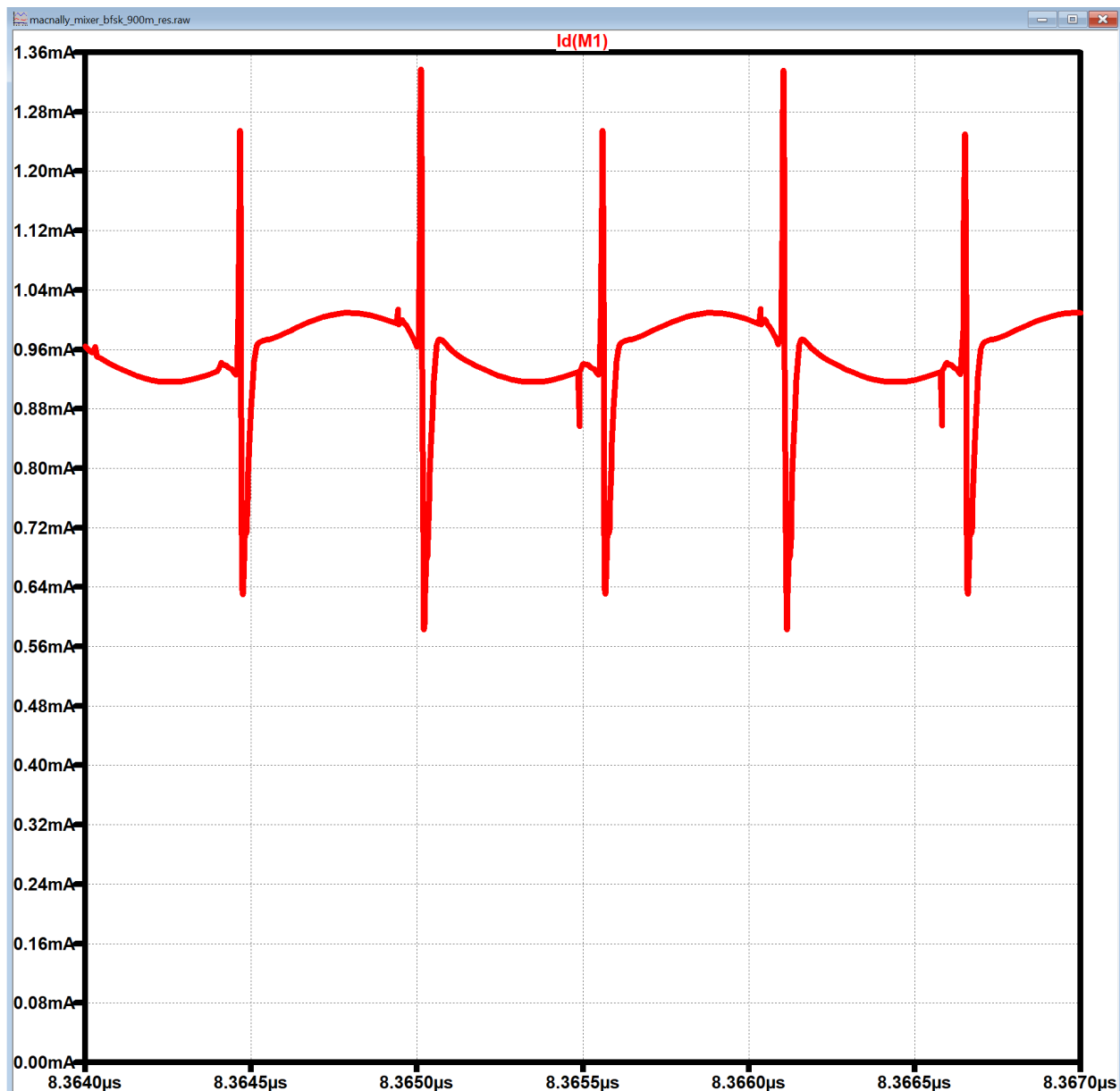
456. Transistors M1 and M2 (and the RF input signals) only control how much of the current from the power supply is directed downward through M5, M6, M7, and M8.

457. This behavior is confirmed in the simulations I ran using Dr. Galton's native LTspice files. I measured the current flowing from the drain to the source, i.e., the current flowing downward. As shown in the plot below, current through

¹⁰ On the other hand, when LO_N is high and LO_P is low, transistors M6 and M7 conduct. Current from the power supply flows through resistors R3 and R4. Some of the current is directed to capacitor C1 and C2), while the remainder of the current flows through M6 and M1 to ground and M7 and M2 to ground.

M1¹¹—the transistor controlled by the RFP signal—is strictly unidirectional (the current never becomes negative, which would be required for current to flow upward through M1), and thus only flows downward. This demonstrates that the information signal applied to the gate of M1 is not—and cannot be—electrically coupled to any capacitor in the circuit, as required by the claims. Furthermore, this plot demonstrates that there is no energy flowing upward from the gate, as this is the plot of drain current, which would be the sum of any and all currents in the CMOS FET that flow through the drain node – the current is always downward.

¹¹ The same plot applies to M2—the transistor controlled by the RFN signal.



458. As explained above, while transistors M1 and M2 affect the distribution of current flow from the power source, they do not themselves actually supply the current to the capacitors. Thus, neither current nor a signal flows from the R_{FP} and R_{FN} input signal to the capacitors. Accordingly, the R_{FP} and R_{FN} signals are not *electrically coupled* to capacitors C1 and C2 as that term has been construed.

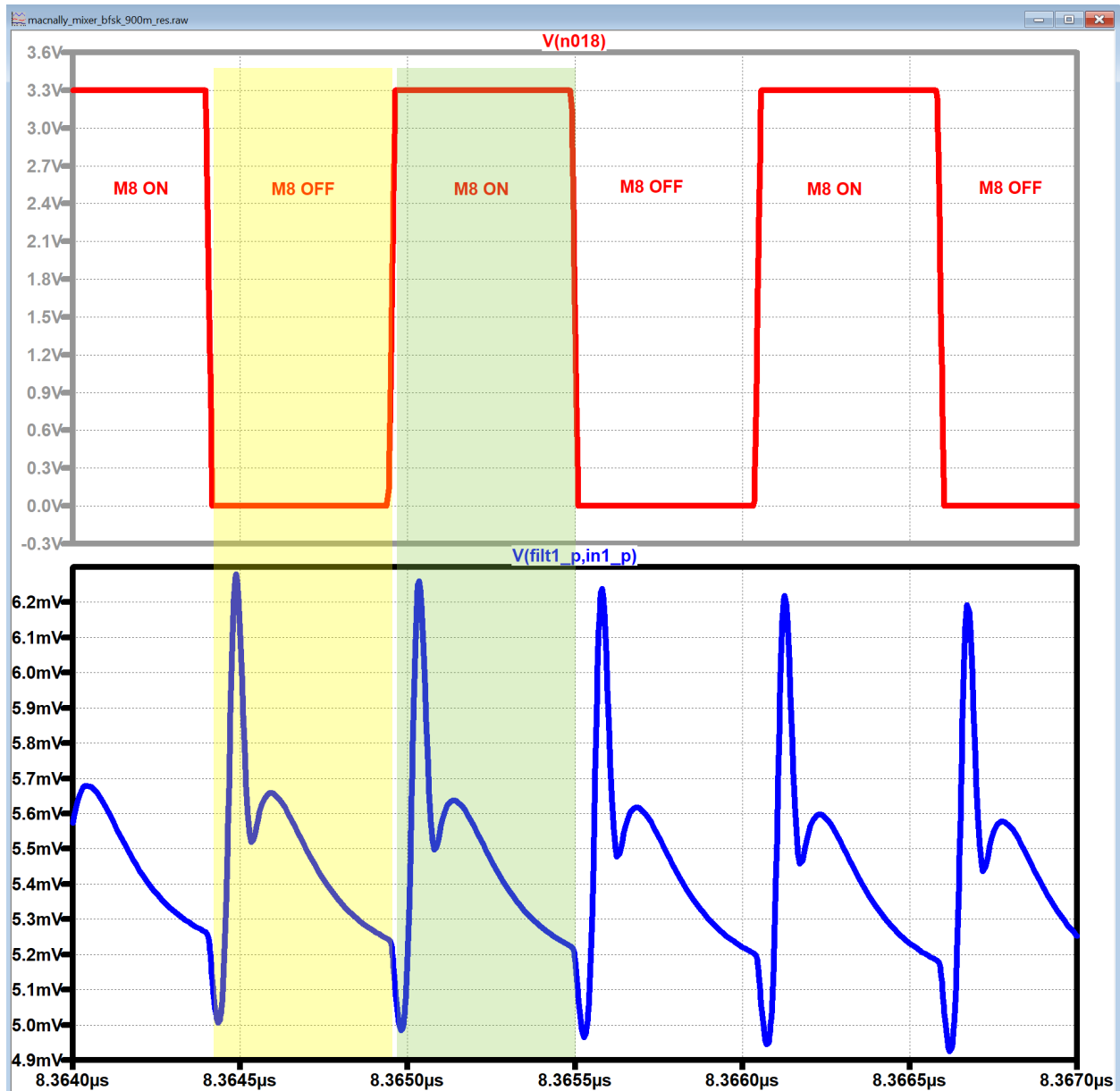
2. Macnally does not disclose a first and second “switching device.”

459. Claim 18 recites “a first and second switching device.” As explained above in Section XI.A above, the Federal Circuit previously held that a “switch” is “an electronic component for opening and closing a circuit.” “Switching device” would have the same meaning.

460. Petitioner identifies transistors M5 and M8 in Figure 3 of Macnally as the claimed switching devices. However, transistors M5 and M8 do not “open” a circuit and, therefore, are not switching devices.

461. In Macnally’s circuit, there is a continuous flow of current to capacitors C1 and C2, and also a continuous flow of current through transistors M1 and M2 regardless of the LO signal state.

462. As demonstrated by the simulation results discussed in Section XIII.E, the plot below shows both the LO signal and the capacitor voltage (V_c). The charge on the capacitor remains materially the same whether the corresponding transistor is ON (conducting) or OFF (not conducting):

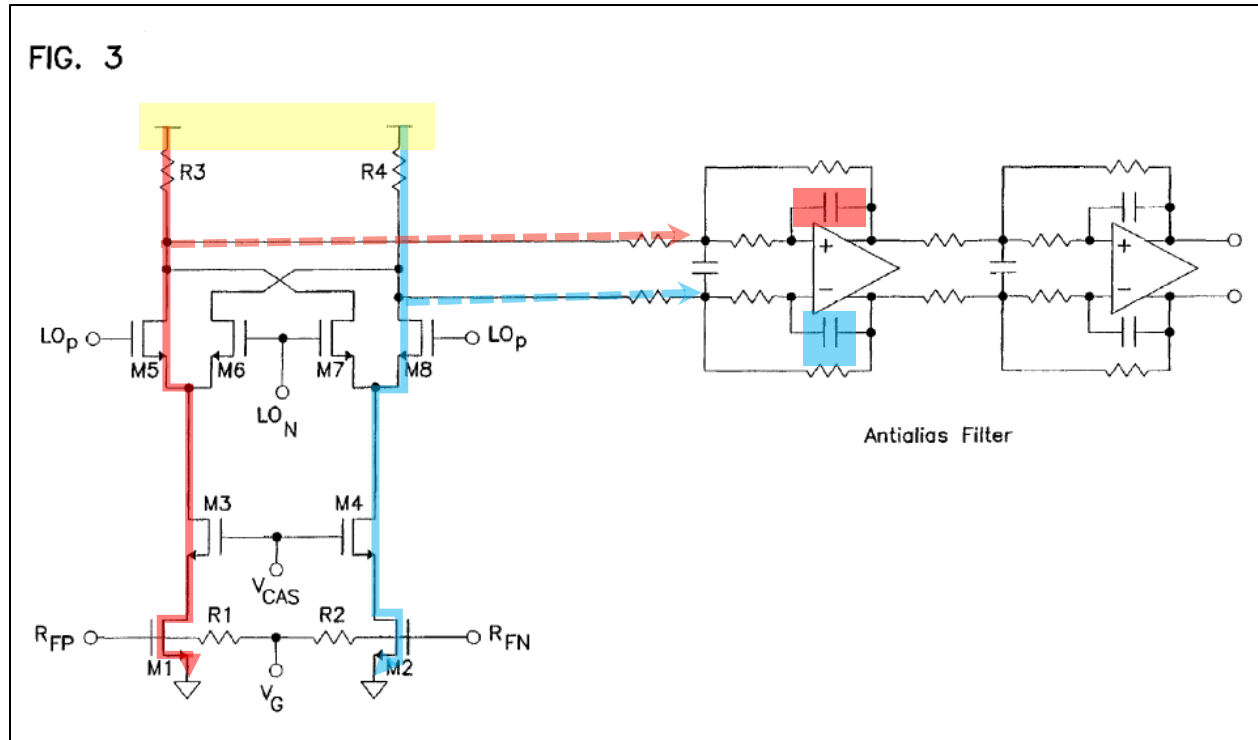


463. As highlighted in green (ON) and yellow (OFF), the capacitor voltage remains materially unchanged across both phases. This is consistent with a continuous conduction—not switching.

464. If transistor M5 or M8 operated as switches in a sampling system, turning them OFF would isolate the capacitor from the signal path, allowing the

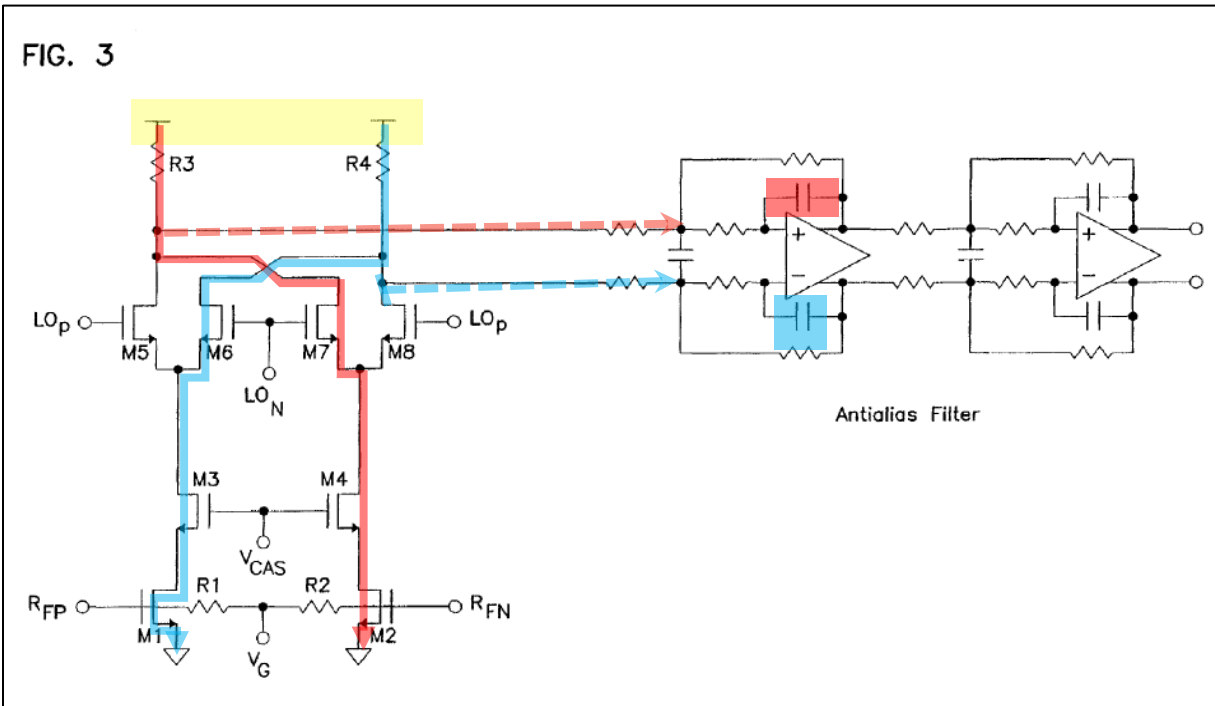
capacitor to discharge through a load. But that is not what Macnally shows. Instead, energy continues to flow into the capacitors, even when M5 and M8 are OFF.

465. Thus, because the current supply is always flowing through the circuit from the power supply down to M1 and M2, transistors M5 and M8 are not “opening” a circuit. Even if M5 and M8 are not conducting (i.e., they are open/OFF), Macnally’s circuit never experiences any interruption in the flow of current. This is due to the way that Macnally is configured to operate.



466. As shown above, when the LO_P signal is high, transistors M5 and M8 conduct. Current from the power supply (yellow) flows through resistor R3. Some of the current (dashed red line) flows to capacitor C1 (red box) while the remainder of the current (solid red line) flows down through M5 and M1. At the same time,

current from the power supply flows through resistor R4. Some of the current (dashed blue line) flows to capacitor C2 (blue box) while the remainder of the current (slide blue line) flows through M8 and M2.



467. As shown above, when the LO_N signal is high, transistors M6 and M7 conduct. Current from the power supply (yellow) flows through resistor R3. Some of the current (dashed red line) flows to capacitor C1 (red box) while the remainder of the current (solid red line) flows down through M7 and M2. At the same time, current from the power supply flows through resistor R4. Some of the current (dashed blue line) flows to capacitor C2 (blue box) while the remainder of the current (slide blue line) flows through M6 and M1.

468. Petitioner fails to account for the fact that when transistors M5 and M8

are not conducting current, M6 and M7 continue to conduct and vice versa. Consequently, the current supply remains uninterrupted in Macnally's circuit, and M5 and M8 are not "opening a circuit." Thus, transistors M5 and M8 are not "switching devices."

3. Dr. Galton's discharge calculations are incorrect.

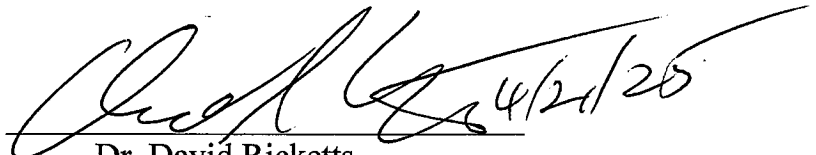
469. During his deposition, Dr. Galton testified that he used the same Python script to generate the discharge percentage histograms for both the DeMaw and Macnally simulations. Ex.-2039, 37:16-38:2. Accordingly, the same flaws identified in Section XIV.A above regarding the discharge calculations in DeMaw apply equally to his discharge calculations for Macnally. The methodology is identical, and therefore, so are the errors.

XV. SUPPLEMENTATION

I reserve the right to supplement the opinions set forth in this declaration to (a) respond to any arguments that Petitioner or its expert raise and/or (b) consider new information that becomes available to me from Petitioner, its expert or otherwise.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Dated: April 21, 2025


Dr. David Ricketts

APPENDIX A

1. EDUCATION

Harvard University

Ph.D., 2006.
Thesis: Electrical Soliton Modelocking.
Advisor: Donhee Ham.

Worcester Polytechnic Institute

M.S.E.E., 1997.
Thesis: AD6509, A 622 MHz Frequency Synthesizer.
Advisor: John A. McNeill

Worcester Polytechnic Institute

B.S.E.E., 1995, with *High Distinction*.
Thesis: Development methodology and control systems in a NASA GASCAN project.

2. REASEARCH INTERESTS

- Mm-wave and Microwave circuits and systems
- RFID
- Wireless Power Transfer
- Analog and RF circuits

3. AWARDS & FELLOWSHIPS

- Best Paper Award, IEEE Asia-Pacific Microwave Conference 2016.
- Certificate of Teaching Excellence, Derek Bok Center, Harvard University, 2013
- NSF CAREER Award, 2011
Spin-torque Oscillator Arrays. 13 % funding rate in 2011.
- Wimmer Teaching Fellow, Carnegie Mellon University, 2009
One of five fellows selected per year on a university wide bases. Award is for development of educational content for new courses.
- George Tallman Ladd Research Award 2009
Awarded to the two junior faculty in the College of Engineering at CMU for outstanding research.
- National Academy of Engineers Frontiers of Engineering Education Recipient, 2009.
Visualization of E&M for undergraduate course.
- DARPA Young Faculty Award, 2008
Spin-torque oscillators for agile RF systems.
- McGraw-Hill Yearbook of Science and Technology, 2008
Research on solitons selected as top research highlight for 2008.

4. PROFESSIONAL EXPERIENCE

Full Professor of Electrical and Computer Engineering, North Carolina State University, 2012-

My research centers on the application of physical phenomena to electrical devices, circuits and systems, covering a range of areas in electrical engineering. I focus on ultra-fast electronics and microwave systems.

Visiting Researcher (Research Scientist), Massachusetts Institute of Technology, 2012-2013 (On leave from NCSU)

I am working with a team of 13 members on the DARPA ELASTx program. I am focusing on developing state-of-the-art power amplifier (PA) and power combining systems for mm-wave applications (Q-W band).

Innovation Fellow and Visiting Associate Professor (2012), School of Engineering and Applied Science, Technology and Entrepreneurship Center, Harvard University, 2010-

Research with graduate students at the School of Engineering and Applied Science and the Harvard Business School on Innovation in Science and Creativity, specifically the role of the individual in the creation of new knowledge. This work supports both scholarly research in this area as well as the development of educational material for courses taught at Carnegie Mellon and Harvard.

Assistant Professor of Electrical and Computer Engineering, Assistant Professor (Courtesy) of Materials Science and Engineering, Carnegie Mellon University 2006-2012

I was the PI of a successful 15 member DARPA team on Tip-directed Field-emission Assisted Nanofabrication, where we developed arrays of MEMS cantilevers to write nanoscale features (< 10 nm) on Si and Ti surfaces with application in quantum electronic devices. In addition, I received my NSF CAREER award for my work on a nanoscale magnetic device, the spin-torque oscillator, where I am pursuing fundamental research on its ultimate performance and application into wider electronic systems. I also investigated many other interdisciplinary programs in circuits, systems and sensing, including a large DARPA program on high-speed circuits & energy with MIT. I received the NSF CAREER award, the DARPA Young Faculty Award and the George Tallman Ladd Research Award. I have also developed/redesigned several new courses at CMU in device physics, circuit design and innovation in science and have developed a new outreach program with Disney Animal Kingdom on animal conservation. I am a 2008 Wimmer Teaching Fellow and an invited participant in the 2009 NAE, Frontiers of Engineering Education Symposium.

Research Assistant (Ph. D), Ham Group, Harvard University, 2004 – 2006.

Doctoral research in Ultrafast electronics, nonlinear wave and soliton based electronics and nanowire based circuits. Developed the first electrical soliton modelocked oscillator and also the first chip-scale modelocked oscillator in any field. Through collaboration with the Lieber group,

helped to develop the fastest integrated nanowire circuit to date. Other projects included phase noise analysis and stochastic resonance.

Staff Research Assistant, Harvard University, 2003 – 2004.

Supported research efforts in high-speed electronics.

Advanced System Engineering Manager, ON Semiconductor, 2002-2003.

Directed a highly skilled team of system engineers to develop next generation technology for multi-phase power management ICs for Intel and AMD microprocessors. Initiated 10 new products in first 12 months and generated eight new patent/IP disclosures in first 6 months. Responsible for the development of new IP for the product line and the investigation of emerging technologies for acquisition.

Manager of New Product Development, ON Semiconductor, 2000-2002.

Responsible for 6 product development teams consisting of technical members across design, test, application engineering and layout. Oversaw the development of over 20 power management ICs in bipolar, CMOS and BiCMOS technologies. Responsible for ensuring technical excellence in design and system engineering as well as mentoring engineering staff.

Principal Consultant, Renaissance Design, Inc. 1999-2001.

Provided design and system engineering services for the power management semiconductor industry. Led the system architecture and transistor level design of a custom 2-stage dc-ac inverter. Used Verilog to develop an all-digital controller which enhanced controller functionality and robustness. Designed system supervisory circuitry and peripherals, including a 5V LDO, ac line sense, current sense and protection, etc.

IC Technology Unit Manager/Staff IC Designer, APC, 1995-1999.

Responsible for the development of custom power management ICs for uninterruptible power supplies (UPS). Developed a custom controller for push-pull dc-ac inverters, an 8-bit A/D supervisory IC for sine wave inverters, and a next generation sine-wave inverter controller. Designs utilized bipolar, CMOS and BiCMOS technologies.

5. Consulting

Nuvotronics, Durham, NC 2015- 2019

RF Circuits & Systems

bMuse, New York, New York, 2015-16

Magnetoquasistatic Positioning

General Motors, Herzlia, Israel 2012-2015

Wireless Power.

Cadence Corporation, Porto Alegre, Brazil, August 2008-July 2009

Co-taught RF design course as part of technology infrastructure initiative by Brazilian government.

ALTRAN Corporation, Paris, France, May 2006, May 2007

Lecturer for “Innovation in Science and Engineering”, course offered to consortium of top engineering schools in Paris vicinity (Ecole Polytechnique, SUPELEC, etc.).

Sparktronics, Inc., Torrance, CA, 2008

System design and modeling for Soliton/NLTL based EMP system development.

SigmaTel Corp, Burlington MA, 2005

Consulting on the development of high power audio driver IC.

Apogee Technologies, Norwood MA, 2004

Consulting on IC controller for DC-DC power conversion.

6. Teaching and Education

U- undergraduate, G – graduate

North Carolina State University (2013-)

ECE714	Advanced Analog IC Design
ECE424/524	Radio System Design
ECE734	Power Management IC

Harvard University (F2012, 2006+)

Taught (F12) and Co-Taught (2006+) course on innovation for scientists

ES139/239 Innovation in Science and Engineering (U/G)

Massachusetts Institute of Technology (S2013)

6.775 Design of Analog MOS Circuits (Co-Taught with H.S. Lee)

Carnegie Mellon University (2006-)

18-623	Analog Circuit Design (G)
18-310	Fund Devices Physics (U)
18-610	Modern CMOS Devices (G)
18-513	RF Circuits and Antennas for Wireless Systems (U - capstone)
18-605	Innovation in Science and Engineering: Theory (G - interdisciplinary)
18-606	Innovation in Science and Engineering: Application (G - interdisciplinary)

Educational Contributions

Applied Physics

- Curriculum development of AP undergraduate and graduate courses with AP faculty.
- Introduced new graduate device physics course, 18-610, Modern Device Physics
- Redeveloped 18-310, Fundamentals of Semiconductor Devices, including development of 5 virtual labs for web deployment
- Development of discovery based learning tools in conjunction with J. Bain and Eberly center via Wimmer Fellow, “IEMFE: Intuitive Electromagnetic Fields Education”

E&M and Circuits

- Curriculum development for undergraduate courses with circuits faculty, including proposal for reorganizing 300 level circuits courses into 18-320 (introductory analog/digital), 18-422 (advanced digital) and 18-423 (advanced analog).

- Collaborated with D. Stancil to re-design 18-513 into an interdisciplinary, wireless course: Wireless System Design, to include RF circuit content, enabling an analog circuit's capstone while broadening the AP antennas capstone.
- ECE 592 Analog-to-digital Converters: (NCSU) Fall 2013
Developing new course for ADCs as part of ECS circuit's curriculum. Developed 4 Verilog A labs for course. Developed ADC design project for course
- ECE 492(592) Radio Systems Design: (NCSU) Spring 2014
Developing new experiential undergraduate course in radio system design. Included final 2.4 GHz QAM design project. Developed 8 experimental labs
- ECE 792 Advanced Analog IC Design (ADCs): (NCSU) Fall 2015
Developing new course for advanced analog IC design. Adds synergistic course to ECE511 and complements ECE712

Interdisciplinary

- Developed a new interdisciplinary/interdepartmental course between ECE and EPP: 18-605/6 & 19-685/6: Innovation in Science and Technology, which explores the role of scientists and engineers in developing technological innovations. These courses focus on the development of technical solutions to a variety of scientific/engineering problems.

Outreach

- Collaboration with Disney Animal Kingdom
 - Developed nest positioning systems for conservation monitoring of sea turtles on Florida beaches
 - Developed dolphin identification and location instrumentation for monitoring dolphin activity
- Participated in Carnegie Science Museum Engineers Week symposium, demonstrating engineering and science concepts to children ages 3-18.
- International outreach:
 - Taught courses in innovation and discovery in science in France (2005-2008)
 - Taught RF electronics in Brazil as part of a governmental program to develop engineering talent and infrastructure in Brazil.
-

Analog to Digital Converter Executive Education, Analog Devices, 2023.

- ADC course based on my university course taught to Analog Devices engineering students..

NSCAD - Instituto de Informática – UFRGS/ Cadence Design Systems, Porto Alegre, Brazil (July-August 2008)

- BA03 RF IC Design – Full time intense course (40 hrs/week) as part of Brazilian government initiative to increase high-tech infrastructure in Brazil.

Lecturer (2002-2006)

- Teaching Fellow, ES139 Innovation in Science and Engineering , (G, U), Harvard University, 2004 & 2005
- Guest Lecturer, ES 272 RF and High Speed Circuits, (G), Harvard University, 2005
- Invited Lecturer, Innovation in Science & Technology (G, U), Paris University Consortium, Paris, France, 2005
- Guest Lecturer, EE2799 Electrical and Computer Engineering Design, (G) Worcester Polytechnic Institute (WPI), 2002
- Guest Lecturer, ELE535 BiCMOS Integrated Circuit Design, (G), University of Rhode Island, 2002.

7. Research Supervision

GRADUATE STUDENT SUPERVISION NCSU

1. Prya Darshni (PhD Canddiate, 2026)
2. Hongtao Zhong (PhD Candidate, 2025)
3. Shian Su (PhD Candidate, 2025)
4. Joe Zhou (PhD Candiate 2023)
5. Karan Maru F20-S21 RA
6. Sriraj Kandala, Summer 2020 RA
7. Bhaumik Jain Summer-Fall 2020 RA
8. Matt Dwyer Summer-Fall 2020. RA
9. William Harris (PhD candidate, 2019)
10. Junyu Shen (PhD candidate, 2019)
11. Hangjin Liu (PhD Candidate, 2021)
12. You Zhou (PhD Candidate, 2021)
13. Deeksha Lal (PhD 2018)
14. Samyak Parakh (MS, 2018)
15. Rafael de Silva (PhD candidate, 2020)
16. Michael Aiken (MS 2017, PhD Candidate)
17. Viswanath Ramesh (Initial PhD work 2015-2016)

GRADUATE STUDENT SUPERVISION CMU

1. Emre Karagozler, PhD 2013
2. Wei Tai, PhD 2012
3. Darmin Arumugam, PhD 2012
4. Weihua Hu, PhD 2012
5. Chongzhe Li, MS 2012
6. Zacharias George, MS 2012
7. En Shi, MS 2010
8. Qianyu Liu, MS 2009

GRADUATE COMMITTEES

1. Yongduk Oh (PhD Candidate 2023)
2. Jaewoo Kim (MS 2021)
3. Sarah Colebaugh
4. Weifu Li (PhD Candidate 2019)
5. Kirti Bhanushali (PhD candidate 2018)
6. Weihu Wang (PhD candidate 2018)
7. Yunjia Zhu (MS candidate Textiles 2017)
8. Junan Zhu (PhD candidate 2016)
9. Yunjia Zhu (MS candidate 2016)
10. Anirban Sarkar, (PhD candidate 2016)
11. Sandeep Hari, (PhD candidate 2018)
12. Kevin Green (PhD candidate 2016)

13. Ying Yi Tang, PhD 2015 (CMU)
14. Mohammad Noman, PhD 2013 (CMU)
15. Erkan Alpman, PhD 2007 (CMU)

UNDERGRADUATE STUDENT SUPERVISION

1. Maya Clinton F22-S23 (MechE)
2. Cole Contos F22
3. Jason Abell F22-S23
4. Landon Calton F22
5. Frank di Lustro S21
6. Alan Davila Summer 2020
7. Casey Crouse Spring 2020-Summer 2020
8. Jacob Abramow Spring 2020
9. Jeremy Peterson Spring 2020-Summer 2020
10. Laura Walker Spring 2020
11. Ryan Hardy REU Spring 2020-Spring 2021
12. Matt Dwyer Connor Walker REU Fall/Spring 2019
13. Matt Dwyer REU 2019 Summer.
14. Casey Crouse REU 2019 Summer.
15. Zack Miller, Felix Chamielec, Danny Krafft, Grason Humphrey, Sufian Ahmad (NCSU UG Senior Design: Qi Charger, 2019)
16. Matt Dwyer, S19 (NCSU, Undergrad Research)
17. Shakti Reddy, F18/S19 (NCSU, Undergrad Research)
18. Shane Reagan, Zach Cline, Daniel Robson, Andrew Cragg, (NCSU UG Senior Design: Pringles Radar 2017/18)
19. Christian Burke, F17/S18 (NCSU, Undergrad Research)
20. Bill Zhou (BSEE) Fall 2016 (NCSU, Undergrad Research)
21. Akshay Iyer, Stephen Kerr, William Stepp, Kirk Weston, (NCSU UG Senior Design: Magnetic Sports Tracking, 2015/16)
22. Shaunak Turaga (BSEE), Fall/Spring 2014/15 (NCSU, Undergrad Research)
23. Mathew Briley (BSEE), Fall/Spring 2014/15 (NCSU, Undergrad Research)
24. Adeola Salu (BS), Spring 2013 (Harvard, Independent Study)
25. Zackary Hamad (BS), Spring 2011 (Harvard, independent Study)
26. Andrew Hillenius (BS), Summer/Fall, 2011 (CMU, Independent Study)
27. Chongzhe Li (BS), Spring 2010 (CMU, Independent Study)
28. Christopher Heidelberger (BS), Summer 2009, (CMU) NSF REU
29. Yue Lu (BS), Summer 2007 (CMU Independent Study)

SPECIAL STUDENT ADVISING

1. Karan Maru, S20 (NCSU MSEE Research)
2. Bhaumik Jain, F19 (NCSU, MSEE Research)
3. Sriraj Kandala, F19 (NCSU, MSEE Research)

4. Sandesh Shanmukha, S19 (NCSU, MSEE Research)
5. Shubhankar Patwardham F17/S18/F18 (NCSU, Ind. Study)
6. Amrutha Anantha S18 (NCSU, Ind. Study)
7. David Philpott S2017 (NCSU, Ind. Study)
8. Shenoy Akshat S2017 (NCSU, Ind. Study)
9. Sayan Das Fall 2016 (NCSU, Ind. Study)
10. Rounak Lokare Spring 2016 (NCSU, Ind. Study)
11. Swaroop Mohapatra Spring 2016 (NCSU, Ind. Study)
12. Ganapati Pai Spring 2016 (NCSU, Ind. Study)
13. Mahmoud Metwally 2015 (NCSU, MS research)
14. Ashwin Thyagarajan Spring 2015 (NCSU Ind. Study)
15. Reza Chavoshisani 2015 (PhD – 1 year visiting scholar)
16. Abhishek Malhotra (MS), Spring/Summer, 2013 (NCSU, Independent Study)
17. Syed Saad (MS), Summer 2011 (CMU, Independent Study)
18. Brian Lee (MS), Summer 2011 (CMU, Independent Study)
19. Ashwath Krishnan (MS), Summer 2010 (CMU, Independent Study)
20. Akshat Gupta (MS), Fall 2009 (CMU, Independent Study)
21. Heer Ghandi (MS), Fall 2007 (CMU, Independent Study)

Publications

1.1 Books

Radio System Design, **D. S. Ricketts**, Ingram Spark, 2015.

Electrical Solitons: Theory, Design and Applications, **D. S. Ricketts** and D. Ham, CRC Press, 2010.

The Designers Guide to Jitter in Ring Oscillators, J. A. McNeill and **D. S. Ricketts**, Springer Verlag, 2009.

1.2 Books Chapters/Sections

D. S. Ricketts, Xiaofeng Li, and Donhee Ham, "Soliton Electronics," in *Circuits for Emerging Technologies - CMOS and beyond*, CRC Press 2008.

X. Li, **D. S. Ricketts**, and D. Ham, "Solitons in electrical networks," *McGraw-Hill 2008 Yearbook of Science and Technology*, McGraw-Hill, 2008.

1.3 Journal Articles (51 papers)

1. W. C. Harris and D. S. Ricketts, "Maximum Gain Enhancement n Wireless Power Transfer using Anisotropic Metamaterials," Scientific Reports, 2023.
2. J. Shen and D. S. Ricketts, "Compact W-Band "Swan Neck" Turnstile Junction Orthomode Transducer Implemented by 3-D Printing," in IEEE Transactions on Microwave Theory and Techniques, vol. 68, no. 8, pp. 3408-3417, Aug. 2020
3. **M. Dwyer** and D. S. Ricketts, "The North Carolina state university rabbit radar: Build a frequency-modulated continuous-wave radar in a day [application notes]," IEEE Microwave Magazine, vol. 21, no. 5, pp. 136–145, 2020..**[Invited]**
4. D. S. Ricketts, "A modern 16-qam digital radio you can design and build at home [application notes]," IEEE Microwave Magazine, vol. 21, no. 7, pp. 10–22, 2020.

5. **W. C. Harris**, D. D. Stancil, and David S. Ricketts, "Improved wireless power transfer efficiency with non-perfect lenses," *Applied Physics Letters* 114:14, April 2019.
6. D. S. Ricketts, E. Shi, X. Li, N. Sun, O. O. Yildirim and D. Ham, "Electrical Solitons for Microwave Systems: Harmonizing Nonlinearity and Dispersion with Nonlinear Transmission Line," in *IEEE Microwave Magazine*, vol. 20, no. 4, pp. 123-134, April 2019 [Invited].
7. **J. Shen** and D. S. Ricketts, "Additive Manufacturing of Complex Millimeter-Wave Waveguides Structures Using Digital Light Processing," in *IEEE Transactions on Microwave Theory and Techniques*, vol. 67, no. 3, pp. 883-895, March 2019.
8. D. S. Ricketts, **J. Shen**, J. Dunn, "Expanding the Antenna Frontier With Antenna Synthesis and 3D Printing", (Cover article), *Microwave Engineering Europe*, Sept. 2018.
9. **D. Lal**, A. M. A. Ali and D. S. Ricketts, "Analysis and Comparison of High-Resolution GS/s Samplers in Advanced BiCMOS and CMOS," in *IEEE Transactions on Circuits and Systems II: Express Briefs*, vol. 65, no. 5, pp. 532-536, May 2018.
10. J. Besnoff, M. Abbasi and D. S. Ricketts, "Ultrahigh-Data-Rate Communication and Efficient Wireless Power Transfer at 13.56 MHz," in *IEEE Antennas and Wireless Propagation Letters*, vol. 16, pp. 2634-2637, 2017.
11. M. Abbasi, B. Wang, S. Tamaru, H. Kubota, A. Fukushima and D. S. Ricketts, "Accurate De-Embedding and Measurement of Spin-Torque Oscillators," in *IEEE Transactions on Magnetics*, vol. 53, no. 11, pp. 1-4, Nov. 2017.
12. **V. Pasku** et al., "Magnetic Field-Based Positioning Systems," in *IEEE Communications Surveys & Tutorials*, vol. 19, no. 3, pp. 2003-2017, thirdquarter 2017.
13. W. Tai, M. Abbasi and D. S. Ricketts, "Analysis and design of high-power and efficient, millimeter-wave power amplifier systems using zero degree combiners," *IET J. of Electronics*, pp. 1-11, Jul. 2017.
14. M. Chabalko, J. Besnoff, M. Laifenfeld and D. S. Ricketts, "Resonantly Coupled Wireless Power Transfer for Non-Stationary Loads With Application in Automotive Environments," in *IEEE Transactions on Industrial Electronics*, vol. 64, no. 1, pp. 91-103, Jan. 2017.
15. Abbasi M, Ricketts DS. A high-power, broadband 245-285 GHz balanced frequency doubler in 45 nm SOI CMOS *Microwave and Optical Technology Letters*. 58: 423-426, 2016.
16. M. E. Karagozler, S. C. Goldstein and D. S. Ricketts, "Scalable self-assembly process for the fabrication of sub-millimetre three-dimensional cylindrical tubes," in *IET Micro & Nano Letters*, vol. 11, no. 1, pp. 4-8, 1 2016.
17. M. Abbasi, D. S. Ricketts, "A 275 GHz-285 GHz Balanced Frequency Quadrupler in 45nm SOI CMOS," *Electronic Letters*, vol. 51, no. 18, pp. 1424-1426, Sept 2015.
18. J. Besnoff, M. Abbasi and D. S. Ricketts, "High Data-Rate Communication in Near-Field RFID and Wireless Power Using Higher Order Modulation," in *IEEE Transactions on Microwave Theory and Techniques*, vol. 64, no. 2, pp. 401-413, Feb. 2016.
19. J. Besnoff, M. Chabalko and D. S. Ricketts, "A Frequency-Selective Zero-Permeability Metamaterial Shield for Reduction of Near-Field Electromagnetic Energy," in *IEEE Antennas and Wireless Propagation Letters*, vol. 15, pp. 654-657, 2016.
20. M. J. Chabalko, J. Besnoff and D. S. Ricketts, "Magnetic Field Enhancement in Wireless Power With Metamaterials and Magnetic Resonant Couplers," in *IEEE Antennas and Wireless Propagation Letters*, vol. 15, pp. 452-455, 2016.
21. M. Chabalko and D. S. Ricketts, "Experimental characterization of Fabry-Perot resonances of magnetostatic volume waves in near-field metamaterials", *Applied Physics Letters*, 106, 062401 (2015).
22. **Ozcan, O.; Weihua Hu**; Sitti, M.; Bain, J.; Ricketts, D.S., "Investigation of tip current and normal force measured simultaneously during local oxidation of titanium using dual-mode scanning probe microscopy," *Micro & Nano Letters*, IET, vol. 9, no. 5, pp. 332, 336, May 2014
23. Ricketts, D.S.; Chabalko, M.; **Hillenius, A.**, "Tri-Loop Impedance and Frequency Matching With High- Q Resonators in Wireless Power Transfer," *Antennas and Wireless Propagation Letters*, IEEE, vol. 13, no., pp. 341, 344, Jan. 2014.
24. **D. Arumugam**, J. Griffin, D. Stancil and D. S. Ricketts, "Three-Dimensional Position and Orientation Measurements using Magnetoquasistatic Fields and Complex Image Theory," *Antennas and Propagation Magazine*, IEEE, vol. 56, no. 1, pp. 160, 173, Feb. 2014
25. Williams, D.F.; Corson, P.; Sharma, J.; Krishnaswamy, H.; **Tai, W.**; George, Z.; Ricketts, D.S.; Watson, P.M.; Dacquay, E.; Voinigescu, S.P., "Calibrations for Millimeter-Wave Silicon Transistor Characterization," *Microwave Theory and Techniques*, IEEE Transactions on, vol. 62, no. 3, pp. 658, 668, Mar. 2014.
26. **Tai, W.**; Ricketts, D.S., "A compact, 36 to 72 GHz 15.8 dBm power amplifier with 66.7% fractional bandwidth in 45 nm SOI CMOS," *Microw. And Opt. Tech Lett.*, vol. 56, pp. 1098-2760, Nov. 2013.
27. J. Xu and D. S. Ricketts, "An Efficient, Watt-Level Microwave Rectifier Using an Impedance Compression Network (ICN) With Applications in Outphasing Energy Recovery Systems," *Microwave and Wireless Components Letters*, IEEE, vol. 23, no. 10, pp. 542, 544, Oct. 2013.

28. Arumugam, D.D.; Ricketts, D.S., "Passive orientation measurement using magnetoquasistatic fields and coupled magnetic resonances," *Electronics Letters*, vol.49, no.16, pp.999,1001, Aug. 2013.
29. Williams, D.F.; Corson, P.; Sharma, J.; Krishnaswamy, H.; **Wei Tai**; George, Z.; Ricketts, D.; Watson, P.; Dacquay, E.; Voinigescu, S.P., "Calibration-Kit Design for Millimeter-Wave Silicon Integrated Circuits," *Microwave Theory and Techniques, IEEE Transactions on*, vol.61, no.7, pp.2685,2694, July 2013.
30. **Tai, W.**; Ricketts, D.S., "74 GHz, 17.2 dBm power amplifier in 45 nm SOI CMOS," *Electronics Letters*, vol.49,no.12,pp.758,759, June 2013.
31. S. Tamaru and D. S. Ricketts, "Measurement of ultra-low power oscillators using adaptive drift cancellation with applications to nano-magnetic spin torque oscillators," *Rev. of Scien. Instr.*, vol. 84, p. 054704-7, May 2013.
32. Arumugam, D.D.; Ricketts, D.S., "Passive Magnetoquasistatic Position Measurement Using Coupled Magnetic Resonances," *Antennas and Wireless Propagation Letters, IEEE*, vol.12, no., pp.539,542, Apr. 2013
33. Arumugam, D.D.; Griffin, J.D.; Stancil, D.D.; Ricketts, D.S., "Magneto-Quasistatic Tracking of an American Football: A Goal-Line Measurement," *Antennas and Propagation Magazine, IEEE*, vol.55, no.1, pp.138,146, Feb. 2013.
34. D. S. Ricketts, M. Chabalko and **A. Hillenius**, "Experimental demonstration of the equivalence of inductive and strongly coupled magnetic resonance wireless power transfer," *Applied Physics Letters*, vol. 102, no. 5, Feb. 2013.
35. C. Li and D. S. Ricketts, "Loss minimization in $\lambda/4$ impedance transformers using multiple $\lambda/4$ segments," *Electronic Letters*, vol.49, no.4, pp.274,276, Feb. 14 2013
36. **W. Hu**, J. Bain and D. S. Ricketts, "An AFM/STM multi-mode nanofabrication approach allowing in situ surface modification and characterization," *Micro and Nano Letters*, Vol. 8, p. 43-46, Jan 2013.
37. **Arumugam**, J. Griffin, D. Stancil and D. S. Ricketts, "Error Reduction in Magnetoquasistatic Positioning Using Orthogonal Emitter Measurements," *Antennas and Wireless Propagation Letters, IEEE*, vol.11, no., pp.1462,1465, 2012
38. R. Birt, K. An, M. Tsoi, S. Tamaru, D. Ricketts, K. L. Wong, P. K. Amiri, K. L. Wang, and X. Li, "Deviation from exponential decay for spin waves excited with a coplanar waveguide antenna," *Applied Physics Letters*, vol. 101, no. 25, 2012.
39. S. Tamaru and D. S. Ricketts, "Experimental Study of the Variation in Oscillation Characteristics of Point-Contact-Based Spin-Torque Oscillators," *IEEE Trans. on Magnetics*, vol.3, no., pp.3000504, 2012
40. **M. E. Korogozlar**, S. Goldstein and D. S. Ricketts, "Analysis and modeling of capacitive power transfer in microsystems," *Circuits and Systems I: Regular Papers, IEEE Transactions on*, vol.59, no.7, pp.1557,1566, July 2012
41. **W. Hu**, J. A. Bain and D. S. Ricketts "In-Situ quantification of electrical isolation in STM-fabricated TiOx nanostructures," *Micro and Nano Letters*, vol. 7, no. 4, pp. 334-36, Apr. 2012.
42. S. Tamaru, J. A. Bain, M. H. Kryder and D. S. Ricketts, "Theory for calculating the Green's function of magnetostatic surface waves and its application to the study of spatial diffraction patterns," *Physical Rev. B*, 84, pp.064437 (2011).
43. D.S. Ricketts, J. A. Bain, Y. Luo, S. Blanton, K. Mai and G. K. Fedder, "Enhancing CMOS using nanoelectronic devices, a perspective on hybrid integrated systems," *Proc. of the IEEE* vol.98, no.12, pp.2061,2075, Dec. 2010.
44. **R. Evarts**, L. Cao, D. S. Ricketts, N. D. Rizzo, J. A. Bain, and S. A. Majetich, "Characterization of conducting atomic force microscopy for use with magnetic tunnel junctions," *IEEE Trans. on Magnetics*, vol.46, no.6, pp.1741,1744, June 2010
45. **E.R. Evarts**, L. Cao, D. S. Ricketts, N. D. Rizzo, J. A. Bain, and S. A. Majetich, "Spin transfer torque switching of magnetic tunnel junctions using a conductive atomic force microscope," *Applied Physics Letters* 95, 132510 (2009).
46. **O. O. Yildirim**, D. S. Ricketts, and D. Ham, "Reflection soliton oscillator," *IEEE Transactions on Microwave Theory and Technique*, vol. 57, no. 10, pp. 2344-2353, Oct. 2009.
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51. R. S. Friedman, M. C. McAlpine, D. S. Ricketts, D. Ham, C. M. Lieber, "High-speed integrated nanowire circuits," *Nature*, vol. 434, p.1085, Apr. 2005.

1.4 Archival Conference Articles (79 Papers)

1. H. Zhaong and D. S. Ricketts, "14dB Active Gain Magnetic Negative Permeability Metamaterial Cell with Self-coupling Compensation," European Microwave Conference, Sept., 2023.
2. J. Besnoff and D. S. Ricketts, "Teaching 100 remote students hands-on microwave design: Building a 16 QAM radio at home by hand," 2021 51st European Microwave Conference (EuMC), London, United Kingdom, 2022, pp. 1-4
3. J. Shen and D. S. Ricketts, "Advances in 3D additive manufacturing for complex mm-wave components and sub-systems," IEEE Radio Wireless Week, Jan 2020. **Invited**.
4. **M. Aiken** and D. S. Ricketts, "Simple Laminated PCB Artificial Dielectrics for mm-Wave Quasioptical Lenses," 2019 49th European Microwave Conference (EuMC), Paris, 2019, Submitted.
5. J. Besnoff, Y. Buchbut, K. Scheim and D. S. Ricketts, "A 50% Fractional Bandwidth, Wireless Power Communication System Achieving 6.78 Mbps at 13.56 MHz Carrier," 2018 48th European Microwave Conference (EuMC), Madrid, 2018, pp. 178-181.
6. J. Besnoff, Y. Buchbut, K. Scheim and D. S. Ricketts, "Dynamic Impedance Matching of Multiple Loads in Wireless Power Transfer using a Genetic Optimization Approach," 2018 IEEE/MTT-S International Microwave Symposium - IMS, Philadelphia, PA, 2018, pp. 1272-1274.
7. **J. Shen, D. P. Parekh**, M. D. Dickey and D. S. Ricketts, "3D Printed Coaxial Transmission Line Using Low Loss Dielectric and Liquid Metal Conductor," 2018 IEEE/MTT-S International Microwave Symposium - IMS, Philadelphia, PA, 2018, pp. 59-62.
8. **J. Shen**, M. Abbasi, and David S. Ricketts, "3D Printed Antennas: Enabling Complex Antenna Structures," USNC-URSI, Jan 2018.
9. J. Besnoff, D. S. Ricketts, Y. Buchbut, G. Castillo, M. Laifendfeld and K. Scheim, "Smart wireless power: A wireless power and bi-directional LIN communication system," 2017 IEEE International Conference on Microwaves, Antennas, Communications and Electronic Systems (COMCAS), Tel-Aviv, 2017, pp. 1-3.
10. **J. Shen, M. Aiken**, M. Abbasi, **D. P. Parekh, X. Zhao**, M. D. Dickey, David S. Ricketts, "Rapid prototyping of low loss 3D printed waveguides for millimeter-wave applications," 2017 IEEE MTT-S International Microwave Symposium (IMS), Honolulu, HI, 2017, pp. 41-44.
11. D. S. Ricketts, "Analog limitations for high-speed digital radios: Where the bits stop working," 2017 IEEE 60th International Midwest Symposium on Circuits and Systems (MWSCAS), Boston, MA, 2017, pp. 37-40. (**Invited**)
12. M. Abbasi, B. Wang, S. Tamaru, H. Kubota, A. Fukushima and D. Ricketts, "Precision power measurement of spin-torque nano-oscillators using an accurate de-embedding structure and analysis," 2017 IEEE International Magnetics Conference (INTERMAG), Dublin, 2017, pp. 1-1.
13. D. Ricketts and M. Abbasi, "Analytical limits to maximum RF performance of spin torque nano-oscillators," 2017 IEEE International Magnetics Conference (INTERMAG), Dublin, 2017, pp. 1-1.
14. **J. Shen, M. Aiken**, C. Ladd, M. Dickey and D. S. Ricketts, "A Simple Electroless Plating Solution for 3D Printed Microwave Components," *IEEE Asia Pacific Microw. Conf.*, Dec 2016. (**Best paper award**)
15. **W. Harris**, T. Nichols, M. Abbasi and D. S. Ricketts, "A Simple Electroless Plating Solution for 3D Printed Microwave Components A Versatile mm-Wave Micromachined Anti-Reflective Layer," *IEEE Asia Pacific Microw. Conf.*, Dec 2016.
16. M. Abbasi and D. S. Ricketts, "W-Band Conical and Corrugated Horn Antennas Using Stereolithography 3D-Printing Technology," *IEEE Asia Pacific Microw. Conf.*, Dec 2016.
17. M. Abbasi and D. S. Ricketts, "mm-Wave and THz Multipliers: Advances and Opportunities," *IEEE Asia Pacific Microw. Conf.*, Dec 2016. (**Invited**)
18. **D. Lal**, M. Abbasi and D. S. Ricketts, "A broadband, compact 140–170GHz double side-band receiver in 90nm SiGe technology," 2016 46th European Microwave Conference (EuMC), London, 2016, pp. 687-690.
19. **Lal, D.**; Abbasi, M. and D. S. Ricketts, "A Compact, High Linearity 40GS/s Track-and-Hold Amplifier in 90nm SiGe Technology," IEEE Custom Integrated Circuits Conf., Sept. 2015.
20. Besnoff, J. and D. S. Ricketts, "Wide bandwidth for high-speed communication in mid-range, resonant WPT and RFID systems," Microwave Conference (EuMC), 2015 European.
21. Besnoff, J.; Ricketts, D.S., "Near field wireless power transfer and quadrature amplitude modulated (QAM) communication link," in Wireless Power Transfer Conference (WPTC), 2015 IEEE , vol., no., pp.1-4, 13-15 May 2015.
22. Besnoff, J.; Ricketts, D., "Quadrature amplitude modulated (QAM) communication link for near and mid-range RFID systems," in RFID (RFID), 2015 IEEE International Conference on , vol., no., pp.151-157, 15-17 April 2015.
23. **Wei Tai**; Ricketts, D.S., "A Compact, High-gain Q-Band Stacked Power Amplifier in 45nm SOI CMOS With 19.2dBm Psat and 19% PAE, IEEE PAWR Conference, Jan 2015," IEEE PAWR Conference, Jan 2015.

24. M. J. Chabalko, **W. C. Harris**, D. D. Stancil and D. S. Ricketts, "Experimental Characterization of Volume-mode Waves in Near-field Anisotropic Metamaterials with Application to Wireless Power Transfer," Asia-Pacific Microwave Conference, Nov 2014.
25. Junfeng Xu; Ricketts, D.S., "Broadband W-band On-Chip Yagi Antenna Using Superstrate for High Efficiency and Endfire Radiation" Asia Pacific Microwave Conference, Nov. 2014
26. Chabalko, M.J.; Laifenfeld, M.; Buchbut, Y.; Ricketts, D.S., "Resonantly-coupled wireless powered seat locomotion in automotive applications," European Microwave Conference (EuMC), 2014 44th , vol., no., pp.421,424, 6-9 Oct. 2014.
27. Chabalko, M.J.; Ricketts, D.S., "The effects of magneto-static resonances in metamaterials on the quality factor of coils in near field applications," Antennas and Propagation Society International Symposium (APSURSI), 2014 IEEE , vol., no., pp.426,427, 6-11 July 2014.
28. Chabalko, M.; Alarcon, E.; **Bou, E.**; Ricketts, D.S., "Optimization of WPT efficiency using a conjugate load in non-impedance matched systems," Antennas and Propagation Society International Symposium (APSURSI), 2014 IEEE , vol., no., pp.645,646, 6-11 July 2014
29. Chabalko, M.J.; Ricketts, D.S., "Low-frequency metamaterial permeability retrieval for near-field applications," Antennas and Propagation Society International Symposium (APSURSI), 2014 IEEE , vol., no., pp.233,234, 6-11 July 2014
30. **Wei Tai**; Ricketts, D.S., "A W-band 21.1 dBm power amplifier with an 8-way zero-degree combiner in 45 nm SOI CMOS," Microwave Symposium (IMS), 2014 IEEE MTT-S International , vol., no., pp.1,3, 1-6 June 2014
31. **Wei Tai**; Ricketts, D.S., "Watt-Level, All-Silicon mm-Wave Power Amplifiers Using Zero-Degree Combiners" GOMACTech (Government Microcircuit Applications and Critical Technology) Conference, April 2014
32. **Wei Tai**; Ricketts, D.S., "A Q-band power amplifier with high-gain pre-driver and 18.7 dBm output power for fully integrated CMOS transmitters," Power Amplifiers for Wireless and Radio Applications (PAWR), 2014 IEEE Topical Conference on , vol., no., pp.34,36, 19-23 Jan. 2014
33. **Chen, M.W.**; Carley, L.R.; Ricketts, D.S., "A process-technology-scaling-tolerant pipelined ADC architecture achieving 6-bit and 4 GS/s ADC in 45nm CMOS," Silicon Monolithic Integrated Circuits in Rf Systems (SiRF), 2014 IEEE 14th Topical Meeting on , vol., no., pp.16,18, 19-23 Jan. 2014
34. M. Trotter, J. D. Griffin, D. S. Ricketts, "Enhanced Accuracy for a Complex Image Theory Position Estimator using Frequency Diversity," Wireless Sensors and Sensor Networks, IEEE Topical meeting on, Feb. 2014.
35. Junfeng Xu; **Wei Tai**; Ricketts, D.S., "Microwave watt-level rectifiers for power recycling applications," Microwave Integrated Circuits Conference (EuMIC), 2013 European, pp.516,519, 6-8 Oct. 2013.
36. Ricketts, D.S.; Chabalko, M.J.; **Hillenius, A.**, "Optimization of wireless power transfer for mobile receivers using automatic digital capacitance tuning," Microwave Conference (EuMC), 2013 European , vol., no., pp.515,518, 6-10 Oct. 2013.
37. M. Chabalko and D. S. Ricketts, "The Effects of Magneto-static Surface Resonances in Metamaterials on the Quality Factor of Coils in Near Field Applications," Antennas and Propagation Society International Symposium (APSURSI), July, 2014.
38. Trotter, M.S.; Ricketts, D.S.; Griffin, J.D., "Experimental demonstration of complex image theory for vertical magnetic dipoles with applications to remote sensing and position tracking," Electromagnetics in Advanced Applications (ICEAA), 2013 International Conference on , vol., no., pp.1248,1251, 9-13 Sept. 2013.
39. **O. Ozcan, W. Hu**, M. Sitti, J. A. Bain and D.S. Ricketts, "Experimental Investigation of Force, Conduction and Growth in Nano-oxidation using scanning probe microscopy," Enabling Nanomanufacturing for Rapid Innovation, Aug. 2013. [Best Poster]
40. D. S. Ricketts and M. Chabalko, "Distributed Resonant Coil Systems for Efficient Wireless Power Transfer," Progress in Electromagnetics Research Symposium (PIERS), Aug. 2013.
41. J. Xu and D. S. Ricketts, "A Transmission line based resistance compression network (TRCN) for microwave applications," Microwave Symposium Digest (IMS), 2013 IEEE MTT-S International , vol., no., pp.1,3, 2-7 June 2013
42. D. S. Ricketts and M. Chabalko, "On the efficient wireless power transfer in resonant multi-receiver systems," Circuits and Systems (ISCAS), 2013 IEEE International Symposium on , vol., no., pp.2779,2782, 19-23 May 2013
43. **Arumugam, D.D.**; **Sibley, M.**; Griffin, J.D.; Stancil, D.D.; Ricketts, D.S., "An active position sensing tag for sports visualization in American football," RFID (RFID), 2013 IEEE International Conference on , vol., no., pp.96,103, April 30 2013.
44. **W. Tai**, L. R. Carley and D. S. Ricketts, "A 0.7W Fully Integrated 42GHz Power Amplifier with 10% PAE in 130nm SiGe BiCMOS," Solid-State Circuits Conference Digest of Technical Papers (ISSCC), 2013 IEEE International , vol., no., pp.142,143, 17-21 Feb. 2013

45. **M. W. Chen, D. Tian, S. Phatak,** L. R. Carley, D. S. Ricketts, "A 4GHz-Bandwidth Op-Amp Free Track-and-Hold and 6-bit Flash ADC in 45nm SOI CMOS" Silicon Monolithic Integrated Circuits in RF Systems (SiRF), 2013 IEEE 13th Topical Meeting on , vol., no., pp.126,128, 21-23 Jan. 2013
46. **D. Birt, K. An, M. Tsoi,** S. Tamaru, D. Ricketts, K.L. Wong, P.K. Amiri, K.L. Wang and X. Li," Oscillatory Spatial Intensity Pattern for Spin Waves Excited with a Coplanar Waveguide Antenna," Conference on Magnetism and Magnetic Materials, Chicago, IL, paper EC-02, Jan. 2013.
47. **C. Li** and D. S. Ricketts, "A low-loss, compact, $\lambda/4$ power combiner architecture," Microwave Integrated Circuits Conference (EuMIC), 2012 7th European , vol., no., pp.147,150, 29-30 Oct. 2012
48. D. S. Ricketts and **A. Hillenius**, "Equivalence of inductive coupling and strongly coupled Magnetic resonance in wireless power transfer," Progress in Electromagnetics Research Symposium (PIERS), Aug. 2012.
49. **D. Arumugam,** J. Griffin, D. Stancil and D. S. Ricketts, "Experimental study on the effects of groups of people on magnetoquasistatic positioning accuracy," Antennas and Propagation Society International Symposium (APSURSI), 2012 IEEE , vol., no., pp.1,2, 8-14 July 2012
50. D. S. Ricketts, "A dispersion-tapered reflection soliton oscillator," Microwave Symposium Digest (MTT), 2012 IEEE MTT-S International , vol., no., pp.1,3, 17-22 June 2012
51. **D. Tian,** L. R. Carley and D. S. Ricketts, "Frequency Scaling of Power Reclamation Networks in Outphasing PA Architectures," Circuits and Systems (ISCAS), 2012 IEEE International Symposium on , vol., no., pp.1058,1061, 20-23 May 2012
52. S. Tamaru and D. S. Ricketts, "Origin of variation in the oscillation characteristics of point contact based spin torque oscillators," Magnetics Letters, IEEE , vol.3, no., pp.3000504,3000504, 2012
53. **W. Hu** J. A. Bain and D. S. Ricketts, "In-situ characterization using AFM probes in multiple modes," Int. Conf. Electron, Ion, Photon Beam Technology and Nanofabrication, May, 2012.
54. **Lee, B.J.; Hillenius, A.;** Ricketts, D.S., "Magnetic resonant wireless power delivery for distributed sensor and wireless systems," Wireless Sensors and Sensor Networks (WiSNet), 2012 IEEE Topical Conference on , vol., no., pp.13,16, 15-18 Jan. 2012.
55. **D. Arumugam,** J. Griffin, D. Stancil and D. S. Ricketts, "A wireless orientation sensor using magnetoquasistatic fields and complex image theory," Radio and Wireless Symposium (RWS), 2012 IEEE , vol., no., pp.251,254, 15-18 Jan. 2012
56. **W. Tai,** L. R. Carley and D. S. Ricketts, "A Q-band SiGe Power Amplifier with 15.5 dBm Saturated Output Power and 26% Peak PAE," Bipolar/BiCMOS Circuits and Technology Meeting (BCTM), 2011 IEEE , vol., no., pp.146,149, 9-11 Oct. 2011
57. **D. Arumugam,** D. Stancil and D. S. Ricketts, "Proximity and Orientation Sensing Using Magnetoquasistatic Fields and Complex Image Theory" Vehicular Technology Conference (VTC Fall), 2011 IEEE , vol., no., pp.1,5, 5-8 Sept. 2011
58. **W. Hu,** J. Gu, **Z. George** and D. S. Ricketts, "Directed scanning probe nanomanufacturing of lateral Ti-TiO₂-Ti junctions for low capacitance MIM rectenna diodes," Micro and Nano Engineering Conf., Berlin, Sept. 2011.
59. **D. Arumugam,** J. Griffin, D. Stancil and D. S. Ricketts, "2-Dimensional Position Measurement using Magnetoquasistatic Fields," Antennas and Propagation in Wireless Communications (APWC), 2011 IEEE-APS Topical Conference on , vol., no., pp.1193,1196, 12-16 Sept. 2011
60. **W. Hu, Y. Tang, Y. Zhang,** J. Gu, S. Tamaru, J. A. Bain, L. R. Carley, R. F. Davis, G. K. Fedder and D. S. Ricketts, "Ti/TiO₂ nanodevice fabrication using compliant probes and CMOS probe-arrays," Technologies for Future Micro-Nano Manufacturing, Napa Valley, CA, Aug. 2011.
61. **D. Arumugam,** J. Griffin, D. Stancil and D. S. Ricketts, "Higher Order Loop Corrections for Short Range Magnetoquasistatic Position Tracking," Antennas and Propagation (APSURSI), 2011 IEEE International Symposium on , vol., no., pp.1755,1757, 3-8 July 2011
62. **M. E. Karagozler, A. M. Thaker,** S. Goldstein and D. S. Ricketts, "Electrostatic-actuation generation and control of micro robots in a post-processed HV SOI CMOS," Circuits and Systems (ISCAS), 2011 IEEE International Symposium on , vol., no., pp.2509,2512, 15-18 May 2011
63. **W. Hu,** S. Tamaru, J. A. Bain and D. S. Ricketts, "High Current Pulse Generation for Thermal Surface Modification using Standard STM," Int. Conf. Electron, Ion, Photon Beam Technology and Nanofabrication, May. 2011.
64. J. R. Smith, D. S. Ricketts and J. A. Bain, "Localized thermal modification of surfaces via pulsed electron bombardment from an STM tip," Int. Conf. Electron, Ion, Photon Beam Technology and Nanofabrication, May. 2011.
65. **D. Arumugam,** J. Griffin, D. Stancil and D. S. Ricketts, "Long Range Magnetoquasistatic Position Tracking using a Simple Active RFID Tag," IEEE Int. Conf. RFID, Apr. 2011.
66. S. Tamaru and D. S. Ricketts, "Influence of the bias field orientation on the interaction strength between two closely formed spin torque oscillators," Int. Magnetics Conf., paper CO-05, Taiwan, Apr 2011.

67. **E.R. Evarts, R.A. Booth, L.R. Shah, Y. Tang, S. Tamaru, D.S. Ricketts, J.A. Bain, S.A. Majetich**, "Sub-30 nm Magnetic Tunnel Junction and Spin Valve Nanopillar Analysis Using Conductive Atomic Force Microscopy," Int. Magnetism Conf., paper BB-03, Taiwan, Apr 2011.
68. **J. R. Smith, W. Hu, Y-Y Dang, O. Ozcan, M. Sitti, J. A. Bain, D. S. Ricketts, R. Davis**, "Scanning Probe Nanomanufacturing on Si: Surface Characterization of the Process Technique," Materials Research Symposium, paper G1.5, Nov. 2010
69. **E. R. Evarts, M. Moneck, R. A. Booth, C. Hogg, D. S. Ricketts, J-G Zhu, J.A. Bain, and S. A. Majetich**, "Spin Torque Switching of 26 nm Diameter Magnetic Tunnel Junction Using a Conductive Atomic Force Microscope," Conference on Magnetism and Magnetic Materials, Atlanta, GA, paper FC-13, Nov. 2010.
70. **E. R. Evarts, T.T. Farkas, B. Tsukerman, L. Cao, D. S. Ricketts, G. Markovich, J.A. Bain, and S.A. Majetich**, "Noise Measurements on Magnetic Tunnel Junction Nanopillars using Conductive Atomic Force Microscopy," Conference on Magnetism and Magnetic Materials, Atlanta, GA, paper CB-10, Nov. 2010.
71. **M. W. Chen and D. S. Ricketts**, "An 8.6GHz 42ps Pulse-Width Electrical Mode-Locked Oscillator," International Solid-State Circuits Conference (ISSCC), pp. 500-501, Feb. 2010.
72. **D. S. Ricketts, L. Cao and S. Tamaru**, "Spin-torque oscillator arrays as a solution for line width reduction in RF applications", Conference on Magnetism and Magnetic Materials, paper EY-01, Washington D.C., Dec. 2009.
73. **D. S. Ricketts, T. Schlesinger, Y. Luo and J. Bain**, "Materials and Devices for Hybrid CMOS Circuits: Expanding the Functionality of Nanoscale CMOS," Nano-DDS Conference, Ft. Lauderdale, FL, Oct. 2009 (Invited).
74. **D. S. Ricketts and S. Bruck**, "Stochastic Logic", NRI-MIND, Architectures for post-CMOS switches (Invited), Notre Dame, IN, Oct. 2009.
75. **D. S. Ricketts, X. Li and D. Ham**, "Soliton Electronics," (Invited) CMOS Emerging Technology Workshop, Whistler, Canada, 2007. (invited)
76. **W. F. Andress, D. S. Ricketts, X. Li, and D. Ham**, "Passive & active control of regenerative standing & soliton waves," (Invited) Proc. of the IEEE Custom Integrated Circuits Conference, pp. 29-36, Sept. 2006.
77. **D. S. Ricketts, X. Li and D. Ham**, "Taming the electrical soliton: A new direction in picosecond electronics," Radio Frequency Integrated Circuits (RFIC) Symposium, 2006 IEEE, vol., no., pp.4 pp., 24, 11-13 June 2006
78. **D. S. Ricketts and D. Ham**, "A chip-scale electrical soliton modelocked oscillator," IEEE International Solid-State Circuits Conference (ISSCC), pp. 432-433, Feb 2006.
79. **D. S. Ricketts, X. Li, M. DePetro, and D. Ham**, "A self-sustained electrical soliton oscillator," Microwave Symposium Digest, 2005 IEEE MTT-S International, vol., no., pp.4 pp., 12-17 June 2005
80. **D. Ham, W. Andress, and D. S. Ricketts**, "Phase noise in oscillators," (Invited) Int. Workshop on Sip/SoC Integration of MEMS and Passive Components with RF-ICs, March 2004.

1.5 Papers in Symposium or Conference Proceedings (No archival paper)

1. **M. Abbasi and D. S. Ricketts**, "100 Gb/s All-electronic Radios: Opportunities and Challenges", GomacTech, Mar. 2014
2. **W. Tai, C. Li, Z. Li, G. Yahalom, D.S. Ricketts, V. Stojanovic and J. Dawson**, "A 45 GHz Asymmetric Multilevel Outphasing Transmitter in 45nm SOI CMOS," Student Research Int. Solid-State Circuits Conf, IEEE, Feb. 2012.
3. **J.R. Smith, W. Hu, Y.Y. Dang, O. Ozcan, M. Sitti, J. Bain, R. Davis and D. S. Ricketts**, "Writing Si nanowires on Si (100) with an STM tip: surface preparation and initial results," Materials Research Symposium, M11.50, Boston, MA, Nov. 2009
4. **R. S. Friedman, M. C. McAlpine, D. S. Ricketts, D. Ham, C. M. Lieber**, "Fully integrated high frequency nanowire ring oscillators," Materials Research Symposium, Mar. 2005.
5. **D. S. Ricketts**, "Current sensing and accuracy for CPU multi-phase DC-DC converters: the sub 20 mV challenge," IBM Power Delivery Symposium, 2002.

1.6 ACADEMIC WORKSHOPS and SHORT COURSES (Chair or Co-Chair)

1. 12th Tom Brazil Doctoral School of microwaves "Build a Frequency Modulated Continuous Wave Radar in 1-day" IEEE European Microwave Week, Milan, Italy, Sept 2022.
2. 11th Tom Brazil Doctoral School of microwaves "Build a modern digital radio" IEEE European Microwave Week, London, UK, June 2021.
3. "Build a NIST Atomic Clock Radio" International Microwave Symposium, Denver, Co June, 2022.
4. "5th European Microwave Student and Doctoral Schools: Build a modern digital radio," IEEE, IEEE European Microwave Week, Paris, France, Oct 2019.

5. "Build a 950 MHz radar in a day," IEEE Int. Microwave Symposium, Boston, MA, June 2019.
6. "Design, Fab and Test Your Own Microwave Component," Industry Workshop, IEEE Int. Microwave Symposium, Boston, MA, June 2019..
7. "From Bits to Waves: Building a Modern Digital Radio in 1 Day – Hand-on Workshop," IEEE Asia Pacific Microwave Conference, Kyoto, Japan, 2018.
8. "4th European Microwave Student and Doctoral Schools: Build a modern digital radio," IEEE , IEEE European Microwave Week, Madrid, Spain, Sep 2017.
9. "Build a 16 QAM Radio – Student Design Competition," IEEE Int. Microwave Symposium, Philadelphia, PA, June 2018.
10. "Design, Fab and Test Your Own Microwave Component," Industry Workshop, IEEE Int. Microwave Symposium, Philadelphia, PA, June 2018.
11. "3rd European Microwave Student and Doctoral Schools: Build a modern digital radio," IEEE , IEEE European Microwave Week, Nuremberg, Germany, Oct 2017.
12. "Build a Modern Digital Radio in a day," Int. Microwave Symposium, Honolulu, HI, June 2017.
13. "From Bits to Waves: Building a Modern Digital Radio in 1 Day – Hand-on Workshop," IEEE Asia Pacific Microwave Conference, New Delhi, India, Nov 2016.
14. "From Bits to Waves: Building a Modern Digital Radio in 1 Day – Hand-on Workshop," IEEE European Microwave Week, London, UK, Oct 2016.
15. "From Bits to Waves: Building a Modern Digital Radio in 1 Day – Hand-on Workshop," EDICON, Boston, MA, Sep. 2016.
16. "Emerging devices for Microwave Circuits and Systems," IEEE Int. Microwave Symposium, San Francisco CA., May 2016.
17. "Build a Modern Digital Radio in a day," IEEE Int. Microwave Symposium, San Francisco, CA, May 2016.
18. "Build a Modern Digital Radio in a day," IEEE Radio Wireless Week, Austin, Texas, Jan, 2016.

1.7 Discussion PI's Work

Nature, News & Views article by Thomas H. Lee, "Electrical solitons come of age," *Nature*, vol. 440, 36-37, Mar. 2006.

1.8 Patents

Ricketts, *et.al* U.S. Patent No. 8,154,354 "Nonlinear pulse oscillator methods and apparatus".

Ricketts, *et. al* U.S. Patent No. 7,339,440 "Nonlinear pulse oscillator methods and apparatus"

Arumugam, *et. al* U.S. Patent No. 9,625,247 "Systems and methods for position tracking using magnetoquasistatic fields"

8. Invited and Contributed Talks (65)

1. "Live from Faraday's Lab": An Intuitive and Historical Perspective on Electromagnetism" IEEE MTT Webinar, May 2022.
2. "NCSU Rabbit Radar: Design, Simulation & Building your own Frequency Modulated Continuous Wave Radar at Home," IEEE MTT-S Virtual Lecture, Sept, 2020
3. "From Bits to Waves - Building a Modern Digital Radio," Cadence Live, August 2020.
4. "Data, Sensors and New Technologies for Smart Cities," RMIT, Melbourne Australia, Mar 2019.
5. "New Approaches to IoT in Smart Cities," Western Sydney University, Sydney, Australia, Mar 2019.
6. "Enhancing, Shaping and Steering WPT Fields," WPT NSF ERC Industry Workshop, Alexandria, VA, Dec 2018.
7. "High-speed GaN RF DC-DC Converter design," Power America Webinar, NCSU, Oct. 2018.
8. "High-speed Communication & Field Enhancement Using Artificial Materials," Pennsylvania State University, Oct 2018.
9. "Modern Digital Radios," EuMW Microapp Lecture, Madrid Sept. 2018.
10. "Sensors and Networks for Smart Cities," City of San Diego, CA, Apr 2018.
11. "Emerging Technologies in Sensors for Smart Cities," Facebook, Dublin, Feb 2018.
12. "Science in Microwaves," NSF Workshop at IMS2017, June 2017.
13. "Magic with Magnetic Fields: NFL Football Tracking", Raleigh Engineers Club, Raleigh, NC, June 2017.
14. "Maximum power and phase noise in spin-torque oscillators," AIST Dec 2016.
15. "High-power, broadband multipliers for high-speed microscale radios," IEEE IMS invited workshop presentation, May 2016.
16. "Advances in wireless power transfer research: challenges and opportunities," General Motors, Feb. 2016.
17. "Magic with magnetic fields: NFL football tracking and advances in wireless power transfer & communication," Univ. of Washington, Feb, 2015.
18. "State of the art and future of high-speed wireless transceivers: Opportunities and challenges for near-THz communication," CMOS Emerging Technologies Conference, PLENARY, May 2015.
19. "Advances in wireless power transfer research from academia: Challenges and opportunities," Wireless Power Summit, INVITED, Berkeley, CA, Nov 2014.
20. "Advances in high-speed integrated and nanoelectronics," AIST Nov 2014.
21. "Watt-level, Highly Efficient, Fully Integrated all-Silicon Linear Power Amplification for mm-Wave Radar and Communications," Berkeley Nov. 2014.
22. "High-speed integrated circuits: From water waves to optical sampling," Analog Devices, Oct 2014.
23. "Advanced RF substrates: Applications in mm-wave electronics," DuPont 2014.
24. "Advanced mm-wave Circuits and Systems," Nuvotronics, 2014.
25. "Watt-level, Highly Efficient, Fully Integrated all-Silicon Linear Power Amplification for mm-Wave Radar and Communications," University of Delft, Netherlands, 2014
26. "Watt-level, Highly Efficient, Fully Integrated all-Silicon Linear Power Amplification for mm-Wave Radar and Communications," University of Pavia, Italy, 2014
27. "Magnetoquasistatics: Emerging Applications in Sports Visualization and Enhanced Wireless Power Transfer," University of Perugia, Italy, 2014
28. "Power, Sensing and Communication: Opportunities for a wireless world," General Motors Research, Herzlia Israel, Oct. 2013.
29. "Enabling Rapid Innovation in Nanomanufacturing," ENRI NSF workshop keynote, Napa, CA. Aug. 2013.
30. "Watt-level, Highly Efficient, Fully Integrated Linear Power Amplification for mm-Wave Radar and Communications," MIT, Boston Ma, May 2013.
31. "Watt-level, Highly Efficient, Fully Integrated Linear Power Amplification for mm-Wave Radar and Communications," Qualcomm, San Diego, CA, Jan 2013.
32. "Impedance Matched Magnetoquasistatic Wireless Power: On the equivalence of inductive and strongly coupled magnetic resonance and the challenges of multiple and mobile receivers" Qualcomm, San Diego, CA, Jan 2013.
33. RF from Kilometer to Millimeter Waves: NFL Football Tracking and High-power mm-Wave Circuits and Systems," POSTECH, Korea Aug 2012 (Distinguished Lecturer)
34. "Watt-level, Highly Efficient, Fully Integrated Linear Power Amplification for mm-Wave Radar and Communications," Jet Propulsion Laboratory, Pasadena, CA, Jul 2012.
35. "NFL Football Tracking, Microrobots and Nanoelectronics: Novel applications of Analog Circuits, E&M and MEMS," University of FL, Apr 2012.
36. "RF devices, circuits & systems: from nanometers to kilometers," University of Illinois, Urbana Champagne, Apr 2012.

37. "Applications of Analog Circuits and Electromagnetics in mm-wave RF and μ Robots," NCSU Mar 2012.
38. "RF from Kilometer- to Millimeter-waves: NFL Football Tracking and Power Amplifier Circuits & Systems," UMich. Mar 2012.
39. "RF devices, circuits and systems: from nanometer to kilometer" University of Utah, Feb 2012
40. "NFL Football Tracking and Microrobots: Novel Applications of Analog Circuits, MEMS and E&M," Harvard University, Feb 2012
41. "RF devices, circuits and systems: from nanometer to kilometer," Duke Univ, Jan 2012
42. "At the boundaries of high-frequency analog & RF ICs: Speed, energy and uncertainty", Univ. NC State, NC, Dec 2011, (Distinguished Lecturer)
43. "Quasistatics in E&M: Sports Visualization, Wireless Power and Microrobots," Ga Tech, GA Nov. 2011.
44. "RF devices, circuits and systems: from nanometer to kilometer," Univ. of Texas, Austin, Oct 2011
45. "RF devices, circuits and systems: from nanometer to kilometer," Princeton Univ., Oct 2011
46. "High-speed PA and ADCs," Univ. Wisconsin, Oct. 2011
47. "At the boundaries of high-frequency analog & RF ICs: Speed, energy and uncertainty", GA Tech, GA, May 2011
48. "RF PA's and spin-torque oscillators for RF," University of FL, Mar, 2011
49. "Tip-directed, Field-assisted Nanofabrication," NIST, Mar 2011.
50. "Extending the boundaries of analog and RF electronics," Brown Univ., Mar, 2011.
51. "Nanoscale magnetics for integrated power conversion and RF," ARL, Jan, 2011.
52. "Ultimate limitation of conversion in conventional ADCs," ONR Superconducting Electronics Program, San Diego, Jan. 2011.
53. "Tip-assisted, field emission nanofabrication," Zyvex Corp., Apr., 2010.
54. "Tip-assisted Nanofabrication," Worcester Polytechnic Institute, MA, Mar. 2010.
55. "Spin Torque Oscillators for Agile RF," DARPA YFA Program, Oct. 2009.
56. "Perspectives on electrical oscillators," IBM Research, NY, Apr., 2009
57. "Electrical oscillators and phase noise," NIST, Boulder, CO, Oct. 2008
58. "Creativity in science and engineering," Innovation in Science and Engineering, Harvard University, Oct. 2008
59. "The Double Helix, a case study in scientific discovery," Innovation in Science & Technology, Paris University Consortium, Paris France, 2008.
60. "Creativity in science and engineering," Innovation in Science & Technology, Paris University Consortium, Paris France, 2008.
61. "New directions : soliton mode-locking and nanowire circuits," CMU, Sept. 2006
62. "Electrical soliton oscillators" University of Michigan, Mar, 2006
63. "Electrical soliton oscillator and nanowire Circuits," University of California, Berkeley, Apr. 2006
64. "Electrical soliton oscillators," Cornell University, Mar 2006.
65. "Electrical solitons," The Cooper Union, Feb. 2006.

9. Professional Activities

Societies

- **Chair**, IEEE Chapter ACME (Joint chapter of Antennas and Propagation (AP), Electronic Packaging Society (EP), Microwave Theory and Techniques (MTT), and Electron Devices (ED) 2019-
- Technical Committee **Vice-chair** for IEEE T-MTT TC-9 Society 2015-2019, **Chair** 2019-2021
-
- Technical Program **Chair**: Enabling Nanomanufacturing for Rapid Innovation, TRC/NSF Workshop, Aug. 2013
- Technical Program Committee (member) – IEEE International Microwave Symposium 2014-;
- Technical Program Committee IEEE BioWireless 2012-2015.
- Session Chair - Nanotechnology, CMOS Emerging Technologies Conf., Banff, Canada 2009; NANO-DDS, Chemically-Synthesized, Biomimetic Systems and Biologically-Inspired Architectures Session, August 2011.

10. Editorial Roles on Publications, Major Activities in Professional

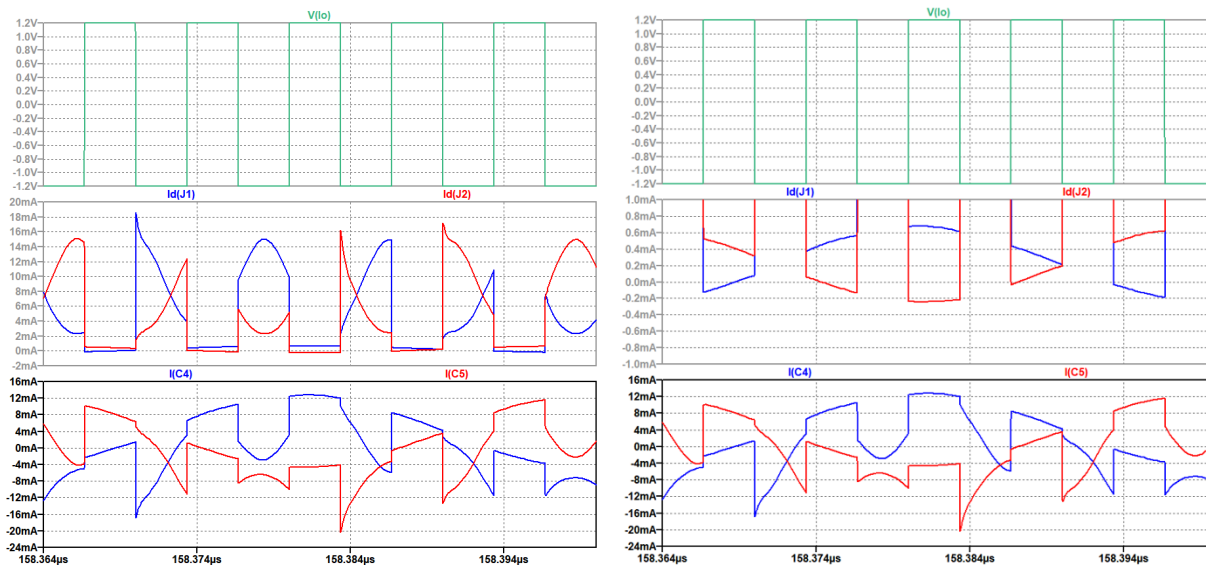
Meetings

- Track Editor, T-MTT Oct 2019 -
- Session Chair, *BioWireless*, Energy Scavenging and Remote Patient Monitoring, Jan. 2012.
- Session Chair, *NANO-DDS*, Chemically-Synthesized, Biomimetic Systems and Biologically-Inspired Architectures Session, August 2011.
- Session Chair, *Nanotechnology*, CMOS Emerging Technologies Conf., Banff, Canada 2009.
- Harvard College Innovation Challenge Reviewer/Judge (2012, 2013)
- Guest Editor for:
 - Journal of Solid State Circuits special issue of the JSSC on ISSCC 2009
- Reviewer for:
 - ACS Nano Letters
 - Journal of Solid State Circuits (IEEE)
 - Electron Device Letters (IEEE)
 - Transactions on Circuits and Systems (IEEE)
 - Proceedings of the National Academy of Sciences
 - MacArthur Foundation (Fellows program)
 - Nano Letters

- Sensors
- Journal of Applied Physics
- Journal of Emerging and Selected Topics in Power Electronics
- IET Circuits, Devices & Systems
- IEEE Transactions on Power Electronics
- IEEE AP-S
- IEEE Transaction on Antennas and Propagation

APPENDIX B

Fig5_Revised_Demaw



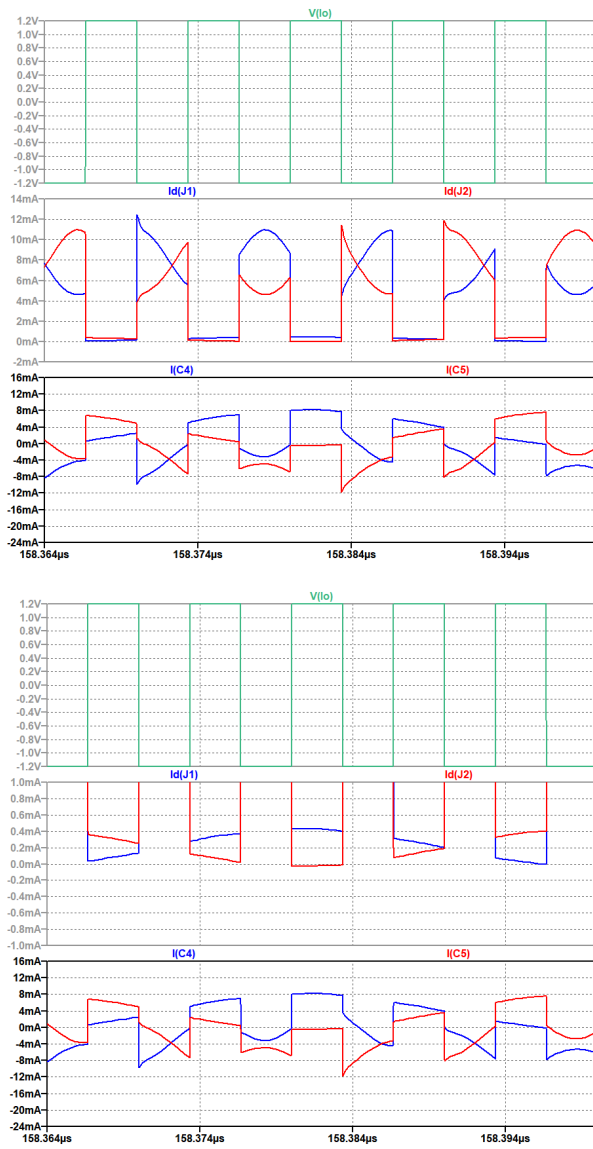
max discharge of CAP1		-4.2903
max discharge of CAP2		-3.9001
max discharge of CAP1 and CAP2		-4.2903

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0000E-05	1.0003E-05	10.62	12.876	11.682	12.723	9.9935	-1.1899
1.0007E-05	1.0010E-05	11.647	11.931	12.808	11.633	9.9649	-2.4994
1.0013E-05	1.0017E-05	12.803	10.773	13.218	11.165	3.2486	3.6425
1.0020E-05	1.0023E-05	12.746	10.717	12.419	11.855	-2.5629	10.614
1.0027E-05	1.0030E-05	11.535	11.85	11.317	12.929	-1.8908	9.1081
1.0033E-05	1.0037E-05	10.547	12.891	11.179	13.168	5.9937	2.1503
1.0040E-05	1.0043E-05	10.906	12.628	12.165	12.269	11.536	-2.8379
1.0047E-05	1.0050E-05	12.231	11.358	13.167	11.262	7.6481	-0.84828
1.0053E-05	1.0057E-05	13.01	10.524	13.037	11.302	0.20679	7.3938
1.0060E-05	1.0063E-05	12.331	11.082	11.897	12.349	-3.5231	11.437
1.0067E-05	1.0070E-05	10.97	12.423	11.057	13.225	0.79289	6.4561
1.0073E-05	1.0077E-05	10.472	13.006	11.48	12.915	9.6224	-0.69625
1.0080E-05	1.0083E-05	11.417	12.147	12.691	11.753	11.156	-3.2445
1.0087E-05	1.0090E-05	12.751	10.829	13.322	11.079	4.4746	2.3119
1.0093E-05	1.0097E-05	12.93	10.548	12.629	11.663	-2.3294	10.572
1.0100E-05	1.0103E-05	11.74	11.644	11.394	12.85	-2.9544	10.363
1.0107E-05	1.0110E-05	10.542	12.881	11.041	13.293	4.7344	3.1988
1.0113E-05	1.0117E-05	10.696	12.822	11.971	12.458	11.926	-2.837
1.0120E-05	1.0123E-05	12.049	11.532	13.136	11.3	9.02	-2.0157
1.0127E-05	1.0130E-05	13.064	10.482	13.208	11.152	1.101	6.3855
1.0133E-05	1.0137E-05	12.555	10.869	12.076	12.181	-3.8163	12.074
1.0140E-05	1.0143E-05	11.109	12.276	11.043	13.229	-0.59344	7.763
1.0147E-05	1.0150E-05	10.372	13.091	11.294	13.091	8.8945	-0.004111
1.0153E-05	1.0157E-05	11.188	12.363	12.543	11.901	12.117	-3.7396
1.0160E-05	1.0163E-05	12.65	10.932	13.378	11.035	5.7623	0.94267
1.0167E-05	1.0170E-05	13.071	10.424	12.83	11.481	-1.8452	10.144
1.0173E-05	1.0177E-05	11.959	11.428	11.51	12.734	-3.7534	11.425
1.0180E-05	1.0183E-05	10.594	12.816	10.946	13.374	3.3219	4.3503
1.0187E-05	1.0190E-05	10.524	12.98	11.775	12.648	11.891	-2.5555
1.0193E-05	1.0197E-05	11.843	11.731	13.057	11.383	10.254	-2.9617
1.0200E-05	1.0203E-05	13.056	10.503	13.336	11.04	2.1478	5.12
1.0207E-05	1.0210E-05	12.751	10.687	12.267	12.001	-3.7888	12.288
1.0213E-05	1.0217E-05	11.286	12.093	11.082	13.179	-1.8112	8.9828
1.0220E-05	1.0223E-05	10.335	13.114	11.142	13.23	7.8035	0.88794
1.0227E-05	1.0230E-05	10.977	12.563	12.37	12.073	12.691	-3.9001
1.0233E-05	1.0237E-05	12.499	11.084	13.377	11.046	7.0277	-0.34384
1.0240E-05	1.0243E-05	13.151	10.362	13.005	11.323	-1.1117	9.2786
1.0247E-05	1.0250E-05	12.176	11.219	11.664	12.581	-4.208	12.143
1.0253E-05	1.0257E-05	10.707	12.693	10.907	13.396	1.8733	5.5391
1.0260E-05	1.0263E-05	10.41	13.082	11.591	12.823	11.344	-1.9805
1.0267E-05	1.0270E-05	11.628	11.941	12.931	11.512	11.214	-3.5865
1.0273E-05	1.0277E-05	12.981	10.588	13.408	10.981	3.2946	3.7104
1.0280E-05	1.0283E-05	12.901	10.566	12.459	11.822	-3.4266	11.994
1.0287E-05	1.0290E-05	11.491	11.888	11.176	13.076	-2.7447	9.993
1.0293E-05	1.0297E-05	10.371	13.067	11.037	13.319	6.4177	1.9304
1.0300E-05	1.0303E-05	10.805	12.726	12.184	12.254	12.758	-3.703
1.0307E-05	1.0310E-05	12.309	11.275	13.313	11.116	8.1613	-1.4101
1.0313E-05	1.0317E-05	13.159	10.372	13.137	11.206	-0.16826	8.0362
1.0320E-05	1.0323E-05	12.373	11.036	11.843	12.405	-4.2805	12.412
1.0327E-05	1.0330E-05	10.873	12.52	10.932	13.355	0.5409	6.6686
1.0333E-05	1.0337E-05	10.365	13.117	11.435	12.966	10.326	-1.1526
1.0340E-05	1.0343E-05	11.421	12.143	12.768	11.677	11.787	-3.8369
1.0347E-05	1.0350E-05	12.844	10.735	13.416	10.983	4.4536	2.3117
1.0353E-05	1.0357E-05	12.991	10.487	12.632	11.659	-2.7605	11.181
1.0360E-05	1.0363E-05	11.705	11.679	11.317	12.928	-3.318	10.89
1.0367E-05	1.0370E-05	10.474	12.954	10.988	13.348	4.9086	3.0439
1.0373E-05	1.0377E-05	10.685	12.838	12	12.43	12.305	-3.1776
1.0380E-05	1.0383E-05	12.099	11.487	13.195	11.238	9.0649	-2.1635
1.0387E-05	1.0390E-05	13.098	10.452	13.216	11.139	0.90387	6.576
1.0393E-05	1.0397E-05	12.53	10.896	12.031	12.223	-3.988	12.173
1.0400E-05	1.0403E-05	11.074	12.316	11.014	13.256	-0.54009	7.6297
1.0407E-05	1.0410E-05	10.39	13.082	11.321	13.062	8.9652	-0.14899
1.0413E-05	1.0417E-05	11.242	12.318	12.581	11.86	11.915	-3.7137
1.0420E-05	1.0423E-05	12.662	10.926	13.363	11.044	5.5345	1.0843
1.0427E-05	1.0430E-05	13.016	10.485	12.773	11.53	-1.8629	9.969
1.0433E-05	1.0437E-05	11.91	11.485	11.491	12.748	-3.5143	10.996
1.0440E-05	1.0443E-05	10.632	12.787	10.998	13.317	3.4423	4.142
1.0447E-05	1.0450E-05	10.623	12.892	11.833	12.585	11.392	-2.3818
1.0453E-05	1.0457E-05	11.885	11.7	13.036	11.4	9.6776	-2.5641
1.0460E-05	1.0463E-05	12.978	10.589	13.241	11.125	2.0325	5.0617
1.0467E-05	1.0470E-05	12.643	10.806	12.213	12.047	-3.3989	11.486
1.0473E-05	1.0477E-05	11.291	12.099	11.143	13.111	-1.316	8.368
1.0480E-05	1.0483E-05	10.472	12.988	11.251	13.111	7.4421	0.95271
1.0487E-05	1.0490E-05	11.098	12.456	12.389	12.047	11.636	-3.2821
1.0493E-05	1.0497E-05	12.454	11.141	13.261	11.154	6.4823	0.10967
1.0500E-05	1.0503E-05	12.985	10.539	12.879	11.438	-0.82212	8.5322
1.0507E-05	1.0510E-05	12.093	11.318	11.682	12.556	-3.396	10.941
1.0513E-05	1.0517E-05	10.822	12.589	11.054	13.238	2.1434	5.1579
1.0520E-05	1.0523E-05	10.611	12.893	11.692	12.71	10.191	-1.4195
1.0527E-05	1.0530E-05	11.685	11.9	12.853	11.584	10.002	-2.6538
1.0533E-05	1.0537E-05	12.818	10.764	13.221	11.157	3.147	3.6533
1.0540E-05	1.0543E-05	12.711	10.761	12.38	11.89	-2.6069	10.489
1.0547E-05	1.0550E-05	11.509	11.886	11.302	12.94	-1.8004	8.8744
1.0553E-05	1.0557E-05	10.595	12.853	11.221	13.119	5.9086	2.0755
1.0560E-05	1.0563E-05	10.989	12.556	12.203	12.225	11.051	-2.6407
1.0567E-05	1.0570E-05	12.237	11.362	13.128	11.294	7.2763	-0.59969
1.0573E-05	1.0577E-05	12.913	10.632	12.95	11.381	0.28261	7.0438
1.0580E-05	1.0583E-05	12.249	11.179	11.875	12.365	-3.0526	10.613
1.0587E-05	1.0590E-05	11.028	12.377	11.145	13.128	1.055	6.0638
1.0593E-05	1.0597E-05	10.634	12.855	11.577	12.807	8.8594	-0.37848
1.0600E-05	1.0603E-05	11.5	12.079	12.662	11.774	10.107	-2.525
1.0607E-05	1.0610E-05	12.638	10.954	13.171	11.219	4.2152	2.4182
1.0613E-05	1.0617E-05	12.747	10.749	12.529	11.755	-1.7143	9.3576
1.0620E-05	1.0623E-05	11.718	11.686	11.475	12.761	-2.0695	9.1988
1.0627E-05	1.0630E-05	10.738	12.697	11.218	13.099	4.472	3.167
1.0633E-05	1.0637E-05	10.906	12.626	12.029	12.387	10.295	-1.8956
1.0640E-05	1.0643E-05	12.023	11.574	12.979	11.447	7.9473	-1.0976
1.0647E-05	1.0650E-05	12.819	10.745	12.997	11.35	1.3962	5.6322
1.0653E-05	1.0657E-05	12.384	11.064	12.064	12.185	-2.5862	10.132

1.0660E-05	1.0663E-05	11.236	12.167	11.253	13.004	0.15638	6.8778
1.0667E-05	1.0670E-05	10.678	12.797	11.481	12.883	7.5217	0.67077
1.0673E-05	1.0677E-05	11.33	12.238	12.472	11.959	10.084	-2.2797
1.0680E-05	1.0683E-05	12.452	11.146	13.105	11.297	5.2385	1.3536
1.0687E-05	1.0690E-05	12.764	10.754	12.664	11.637	-0.78565	8.2094
1.0693E-05	1.0697E-05	11.916	11.498	11.653	12.583	-2.2107	9.4293
1.0700E-05	1.0703E-05	10.888	12.536	11.232	13.066	3.154	4.2295
1.0707E-05	1.0710E-05	10.836	12.68	11.863	12.538	9.4837	-1.1236
1.0713E-05	1.0717E-05	11.814	11.778	12.826	11.603	8.5631	-1.4797
1.0720E-05	1.0723E-05	12.715	10.862	13.034	11.331	2.5054	4.3138
1.0727E-05	1.0730E-05	12.507	10.961	12.247	12.014	-2.081	9.6135
1.0733E-05	1.0737E-05	11.44	11.963	11.368	12.879	-0.62804	7.658
1.0740E-05	1.0743E-05	10.727	12.732	11.395	12.949	6.2315	1.7088
1.0747E-05	1.0750E-05	11.166	12.387	12.286	12.139	10.027	-2.0025
1.0753E-05	1.0757E-05	12.266	11.333	13.034	11.378	6.2592	0.39761
1.0760E-05	1.0763E-05	12.774	10.762	12.792	11.527	0.14299	7.1023
1.0767E-05	1.0770E-05	12.11	11.317	11.83	12.409	-2.3068	9.652
1.0773E-05	1.0777E-05	11.038	12.376	11.25	13.031	1.9184	5.2944
1.0780E-05	1.0783E-05	10.768	12.73	11.703	12.684	8.6823	-0.38233
1.0787E-05	1.0790E-05	11.605	11.976	12.673	11.758	9.2017	-1.8219
1.0793E-05	1.0797E-05	12.609	10.977	13.067	11.314	3.6344	3.0665
1.0800E-05	1.0803E-05	12.629	10.858	12.43	11.847	-1.572	9.1083
1.0807E-05	1.0810E-05	11.644	11.761	11.485	12.756	-1.3663	8.4659
1.0813E-05	1.0817E-05	10.775	12.667	11.311	13.016	4.9733	2.7539
1.0820E-05	1.0823E-05	11.001	12.535	12.099	12.318	9.9837	-1.7322
1.0827E-05	1.0830E-05	12.076	11.518	12.962	11.459	7.3325	-0.51471
1.0833E-05	1.0837E-05	12.783	10.768	12.923	11.417	1.0883	6.0239
1.0840E-05	1.0843E-05	12.306	11.134	12.011	12.237	-2.3926	9.9098
1.0847E-05	1.0850E-05	11.19	12.216	11.27	12.998	0.70966	6.4062
1.0853E-05	1.0857E-05	10.698	12.781	11.54	12.832	7.8726	0.39755
1.0860E-05	1.0863E-05	11.391	12.176	11.518	11.913	9.8877	-2.1563
1.0867E-05	1.0870E-05	12.498	11.091	13.101	11.295	4.8209	1.8424
1.0873E-05	1.0877E-05	12.752	10.752	12.618	11.678	-1.0487	8.6171
1.0880E-05	1.0883E-05	11.854	11.554	11.607	12.634	-2.0848	9.3443
1.0887E-05	1.0890E-05	10.828	12.6	11.227	13.084	3.6885	3.8481
1.0893E-05	1.0897E-05	10.832	12.686	11.907	11.501	9.9266	-1.4555
1.0900E-05	1.0903E-05	11.878	11.708	12.885	11.542	8.4816	-1.416
1.0907E-05	1.0910E-05	12.786	10.776	13.053	11.306	2.088	4.9228
1.0913E-05	1.0917E-05	12.506	10.946	12.2	12.061	-2.4437	10.184
1.0920E-05	1.0923E-05	11.353	12.047	11.297	12.962	-0.49197	7.5994
1.0927E-05	1.0930E-05	10.633	12.828	11.376	12.983	6.987	1.2052
1.0933E-05	1.0937E-05	11.168	12.382	12.352	12.077	10.598	-2.4649
1.0940E-05	1.0943E-05	12.373	11.215	13.127	11.282	6.1004	0.59467
1.0947E-05	1.0950E-05	12.87	10.648	12.811	11.505	-0.45552	8.0543
1.0953E-05	1.0957E-05	12.076	11.337	11.744	12.502	-2.755	10.277
1.0960E-05	1.0963E-05	10.896	12.519	11.15	13.149	2.3376	5.0273
1.0967E-05	1.0970E-05	10.664	12.835	11.708	12.692	9.785	-1.1122
1.0973E-05	1.0977E-05	11.663	11.911	12.973	11.638	9.6954	-2.2868
1.0980E-05	1.0983E-05	12.771	10.798	13.179	11.2	3.1897	3.7191
1.0987E-05	1.0990E-05	12.706	10.759	12.401	11.877	-2.4005	10.383
1.0993E-05	1.0997E-05	11.535	11.861	11.342	12.912	-1.6697	8.8634
1.1000E-05	1.1003E-05	10.587	12.858	11.218	13.13	5.9556	2.1161
1.1007E-05	1.1010E-05	10.942	12.591	12.172	12.254	11.239	-2.6732
1.1013E-05	1.1017E-05	12.222	11.36	13.135	11.686	7.4624	-0.65744
1.1020E-05	1.1023E-05	12.968	10.562	13.002	11.335	0.26185	7.3188
1.1027E-05	1.1030E-05	12.307	11.113	11.9	12.352	-3.3039	11.157
1.1033E-05	1.1037E-05	10.992	12.411	11.094	13.194	0.92851	6.3054
1.1040E-05	1.1043E-05	10.515	12.966	11.507	12.884	9.4287	-0.6282
1.1047E-05	1.1050E-05	11.433	12.126	12.677	11.754	10.883	-3.0432
1.1053E-05	1.1057E-05	12.723	10.851	13.284	11.111	4.4078	2.4037
1.1060E-05	1.1063E-05	12.893	10.587	12.611	11.684	-2.1847	10.367
1.1067E-05	1.1070E-05	11.738	11.655	11.416	12.836	-2.7441	10.127
1.1073E-05	1.1077E-05	10.576	12.854	11.076	13.259	4.7269	3.1544
1.1080E-05	1.1083E-05	10.728	12.789	11.979	12.443	11.664	-2.7026
1.1087E-05	1.1090E-05	12.043	11.531	13.108	11.319	8.8452	-1.8413
1.1093E-05	1.1097E-05	13.029	10.513	13.177	11.18	1.139	6.3487
1.1100E-05	1.1103E-05	12.533	10.895	12.078	12.186	-3.6357	11.844
1.1107E-05	1.1110E-05	11.125	12.269	11.074	13.205	-0.46371	7.6261
1.1113E-05	1.1117E-05	10.406	13.061	11.317	13.065	8.7599	0.034083
1.1120E-05	1.1123E-05	11.201	12.345	12.533	11.902	11.896	-3.5888
1.1127E-05	1.1130E-05	12.629	10.945	13.249	11.058	5.7013	1.0367
1.1133E-05	1.1137E-05	13.043	10.45	12.815	11.498	-1.7437	10.023
1.1140E-05	1.1143E-05	11.956	11.439	11.526	12.726	-3.5952	11.254
1.1147E-05	1.1150E-05	10.618	12.8	10.972	13.351	3.3886	4.3042
1.1153E-05	1.1157E-05	10.545	12.957	11.781	12.636	11.718	-2.4782
1.1160E-05	1.1163E-05	11.839	11.727	13.038	11.394	10.132	-2.8431
1.1167E-05	1.1170E-05	13.033	10.518	13.316	11.058	2.171	5.1287
1.1173E-05	1.1177E-05	12.738	10.703	12.27	12.205	-3.675	12.167
1.1180E-05	1.1183E-05	11.296	12.092	11.102	13.188	-1.722	8.8953
1.1187E-05	1.1190E-05	10.354	13.099	11.155	13.216	7.7404	0.8938
1.1193E-05	1.1197E-05	10.982	12.552	12.363	12.071	12.574	-3.8297
1.1200E-05	1.1203E-05	12.487	11.087	13.361	11.056	7	-0.27985
1.1207E-05	1.1210E-05	13.138	10.371	12.999	11.331	-1.0563	9.2966
1.1213E-05	1.1217E-05	12.177	11.224	11.674	12.58	-4.1311	12.086
1.1220E-05	1.1223E-05	10.718	12.69	10.92	13.39	1.8879	5.5126
1.1227E-05	1.1230E-05	10.415	13.076	11.591	12.818	11.29	-3.9691
1.1233E-05	1.1237E-05	11.622	11.937	12.923	11.513	11.186	-1.554
1.1240E-05	1.1243E-05	12.973	10.587	13.403	10.983	3.3136	3.7421
1.1247E-05	1.1250E-05	12.901	10.556	12.464	11.823	-3.3894	12.009
1.1253E-05	1.1257E-05	11.497	11.89	11.184	13.078	-2.7244	9.9901
1.1260E-05	1.1263E-05	10.372	13.07	11.038	13.321	6.4155	1.9144
1.1267E-05	1.1270E-05	10.799	12.727	12.178	12.253	12.776	-3.7234
1.1273E-05	1.1277E-05	12.304	11.269	13.312	11.11	8.1898	-1.4077
1.1280E-05	1.1283E-05	13.163	10.362	13.143	11.201	-0.1526	8.0988
1.1287E-05	1.1290E-05	12.38	11.031	11.849	12.409	-4.2903	12.485
1.1293E-05	1.1297E-05	10.872	12.529	10.93	13.366	-0.528	6.6805
1.1300E-05	1.1303E-05	10.353	13.129	12.428	11.972	10.379	-1.1985
1.1307E-05	1.1310E-05	11.412	12.143	12.766	11.67	11.871	-3.8983
1.1313E-05	1.1317E-05	12.85	10.719	13.427	10.969	4.4869	2.333
1.1320E-05	1.1323E-05	13.006	10.47	12.643	11.654	-2.7884	11.313

1.1327E-05	1.1330E-05	11.71	11.68	11.315	12.94	-3.3757	10.787
1.1333E-05	1.1337E-05	10.46	12.973	10.976	13.366	4.9297	3.025
1.1340E-05	1.1343E-05	10.666	12.853	11.993	12.432	12.443	-3.2753
1.1347E-05	1.1350E-05	12.097	11.477	13.206	11.22	9.1645	-2.2369
1.1353E-05	1.1357E-05	13.117	10.424	13.235	11.12	0.89546	6.6853
1.1360E-05	1.1363E-05	12.547	10.88	12.036	12.227	-4.078	12.376
1.1367E-05	1.1370E-05	11.066	12.331	10.999	13.28	-0.60308	7.698
1.1373E-05	1.1377E-05	10.362	13.111	11.304	13.081	9.0874	-0.23108
1.1380E-05	1.1383E-05	11.226	12.326	12.585	11.85	12.106	-3.8606
1.1387E-05	1.1390E-05	12.677	10.9	13.386	11.016	5.5965	1.0652
1.1393E-05	1.1397E-05	13.044	10.452	12.791	11.517	-1.9414	10.193
1.1400E-05	1.1403E-05	11.917	11.482	11.482	12.767	-3.6462	11.195
1.1407E-05	1.1410E-05	10.607	12.818	10.973	13.349	3.4555	4.1394
1.1413E-05	1.1417E-05	10.592	12.92	11.823	12.593	11.619	-2.5356
1.1420E-05	1.1423E-05	11.885	11.691	13.055	11.374	9.8475	-2.7095
1.1427E-05	1.1430E-05	13.008	10.55	13.271	11.095	2.0168	5.1705
1.1433E-05	1.1437E-05	12.668	10.78	12.219	12.049	-3.5464	11.776
1.1440E-05	1.1443E-05	11.281	12.115	11.119	13.144	-1.4295	8.4971
1.1447E-05	1.1450E-05	10.435	13.028	11.226	13.14	7.5809	0.85967
1.1453E-05	1.1457E-05	11.076	12.472	12.394	12.037	11.901	-3.4836
1.1460E-05	1.1463E-05	12.473	11.112	13.293	11.116	6.5753	0.041557
1.1467E-05	1.1470E-05	13.023	10.496	12.902	11.418	-0.92626	8.7835
1.1473E-05	1.1477E-05	12.103	11.309	11.67	12.577	-3.5771	11.209
1.1480E-05	1.1483E-05	10.793	12.624	11.023	13.278	2.1297	5.1772
1.1487E-05	1.1490E-05	10.574	12.93	11.679	12.723	10.452	-1.5997
1.1493E-05	1.1497E-05	11.682	11.893	12.876	11.555	10.217	-2.8456
1.1500E-05	1.1503E-05	12.854	10.719	13.256	11.12	3.1343	3.7358
1.1507E-05	1.1510E-05	12.741	10.729	12.387	11.889	-2.7801	10.81
1.1513E-05	1.1517E-05	11.498	11.901	11.275	12.977	-1.9421	9.0382
1.1520E-05	1.1523E-05	10.555	12.897	11.192	13.152	6.0391	1.9796
1.1527E-05	1.1530E-05	10.966	12.576	12.208	12.216	11.334	-2.863
1.1533E-05	1.1537E-05	12.257	11.333	13.161	11.254	7.3784	-0.69535
1.1540E-05	1.1543E-05	12.952	10.587	12.974	11.358	0.17427	7.2744
1.1547E-05	1.1550E-05	12.26	11.169	11.863	12.385	-3.2407	10.893
1.1553E-05	1.1557E-05	10.999	12.412	11.112	13.169	1.0275	6.0948
1.1560E-05	1.1563E-05	10.599	12.893	11.564	12.821	9.1011	-0.55725
1.1567E-05	1.1570E-05	11.498	12.073	12.684	11.745	10.316	-2.7189
1.1573E-05	1.1577E-05	12.672	10.912	13.204	11.182	4.2008	2.4718
1.1580E-05	1.1583E-05	12.775	10.718	12.535	11.753	-1.8783	9.6613
1.1587E-05	1.1590E-05	11.708	11.7	11.45	12.795	-2.2037	9.3596
1.1593E-05	1.1597E-05	10.703	12.738	11.193	13.13	4.5795	3.0795
1.1600E-05	1.1603E-05	10.886	12.644	12.034	12.379	10.543	-2.1
1.1607E-05	1.1610E-05	12.042	11.548	13.009	11.411	8.0361	-1.1914
1.1613E-05	1.1617E-05	12.851	10.706	13.017	11.328	1.296	5.8154
1.1620E-05	1.1623E-05	12.391	11.057	12.051	12.204	-2.7451	10.372
1.1627E-05	1.1630E-05	11.211	12.199	11.226	13.04	0.13531	6.8957
1.1633E-05	1.1637E-05	10.651	12.827	11.472	12.893	7.7136	0.51304
1.1640E-05	1.1643E-05	11.332	12.231	12.492	11.933	10.24	-2.4369
1.1647E-05	1.1650E-05	12.48	11.111	13.13	11.266	5.2101	1.401
1.1653E-05	1.1657E-05	12.782	10.732	12.665	11.637	-0.92004	8.4379
1.1660E-05	1.1663E-05	11.904	11.514	11.631	12.612	-2.2961	9.5361
1.1667E-05	1.1670E-05	10.862	12.568	11.215	13.089	3.249	4.1388
1.1673E-05	1.1677E-05	10.827	12.69	11.873	12.527	9.654	-1.284
1.1680E-05	1.1683E-05	11.833	11.753	12.849	11.573	8.5931	-1.5316
1.1687E-05	1.1690E-05	12.736	10.834	13.043	11.317	2.4075	4.4663
1.1693E-05	1.1697E-05	12.505	10.962	12.232	12.033	-2.1826	9.7703
1.1700E-05	1.1703E-05	11.419	11.99	11.349	12.905	-0.60617	7.6305
1.1707E-05	1.1710E-05	10.713	12.75	11.396	12.951	6.3727	1.5736
1.1713E-05	1.1717E-05	11.177	12.375	12.305	12.115	10.091	-2.0958
1.1720E-05	1.1723E-05	12.287	11.306	13.047	11.358	6.1892	0.46611
1.1727E-05	1.1730E-05	12.778	10.753	12.784	11.534	0.044664	7.2589
1.1733E-05	1.1737E-05	12.093	11.337	11.812	12.433	-2.3214	9.6722
1.1740E-05	1.1743E-05	11.022	12.399	11.245	13.042	2.0261	5.1825
1.1747E-05	1.1750E-05	10.774	12.727	11.718	12.668	8.7666	-0.46941
1.1753E-05	1.1757E-05	11.626	11.951	12.689	11.735	9.1453	-1.8078
1.1760E-05	1.1763E-05	12.618	10.961	13.064	11.312	3.5302	3.2009
1.1767E-05	1.1770E-05	12.614	10.871	12.412	11.867	-1.6089	9.1667
1.1773E-05	1.1777E-05	11.625	11.786	11.475	12.772	-1.2825	8.3716
1.1780E-05	1.1783E-05	10.776	12.672	11.324	13.006	5.081	2.6349
1.1787E-05	1.1790E-05	11.023	12.514	12.119	12.294	9.9445	-1.7535
1.1793E-05	1.1797E-05	12.093	11.496	12.964	11.45	7.2032	-0.40313
1.1800E-05	1.1803E-05	12.773	10.774	12.903	11.434	1.0175	6.1227
1.1807E-05	1.1810E-05	12.281	11.161	11.995	12.258	-2.3321	9.8296
1.1813E-05	1.1817E-05	11.183	12.231	11.278	12.996	0.85019	6.2559
1.1820E-05	1.1823E-05	10.719	12.765	11.564	12.808	7.8864	0.33512
1.1827E-05	1.1830E-05	11.417	12.148	12.528	11.896	9.7292	-2.0711
1.1833E-05	1.1837E-05	12.498	11.086	13.085	11.306	4.6919	1.9856
1.1840E-05	1.1843E-05	12.724	10.778	12.593	11.704	-1.034	8.5921
1.1847E-05	1.1850E-05	11.834	11.58	11.605	12.642	-1.9338	9.1677
1.1853E-05	1.1857E-05	10.84	12.595	11.252	13.063	3.7939	3.7199
1.1860E-05	1.1863E-05	10.865	12.654	11.93	12.474	9.7974	-1.4196
1.1867E-05	1.1870E-05	11.893	11.688	12.878	11.542	8.2806	-1.2519
1.1873E-05	1.1877E-05	12.765	10.793	13.023	11.332	2.0252	4.9985
1.1880E-05	1.1883E-05	12.473	10.982	12.183	12.082	-2.3244	10.018
1.1887E-05	1.1890E-05	11.349	12.059	11.314	12.951	-0.30666	7.3994
1.1893E-05	1.1897E-05	10.666	12.801	11.409	12.951	6.9642	1.1646
1.1900E-05	1.1903E-05	11.201	12.349	12.361	12.061	10.359	-2.3268
1.1907E-05	1.1910E-05	12.367	11.215	13.101	11.301	5.9344	0.76452
1.1913E-05	1.1917E-05	12.832	10.683	12.779	11.536	-0.41436	7.9853
1.1920E-05	1.1923E-05	12.052	11.367	11.744	12.507	-2.5535	10.028
1.1927E-05	1.1930E-05	10.914	12.508	11.183	13.119	2.4617	4.8829
1.1933E-05	1.1937E-05	10.707	12.795	11.735	12.661	9.604	-1.046
1.1940E-05	1.1943E-05	11.68	11.89	12.782	11.642	9.4333	-2.0833
1.1947E-05	1.1950E-05	12.744	10.821	13.141	11.232	3.1174	3.8005
1.1953E-05	1.1957E-05	12.666	10.801	12.381	11.899	-2.255	10.168
1.1960E-05	1.1963E-05	11.531	11.872	11.363	12.896	-1.4501	8.6226
1.1967E-05	1.1970E-05	10.625	12.826	11.255	13.093	5.936	2.0761
1.1973E-05	1.1977E-05	10.98	12.553	12.182	12.238	10.953	-2.5128
1.1980E-05	1.1983E-05	12.217	11.361	13.105	11.308	7.2668	-0.46471
1.1987E-05	1.1990E-05	12.927	10.601	12.967	11.369	0.30446	7.2435
1.1993E-05	1.1997E-05	12.279	11.145	11.9	12.357	-3.0868	10.872

Fig5.1_Revised_Demaw_6dBlower



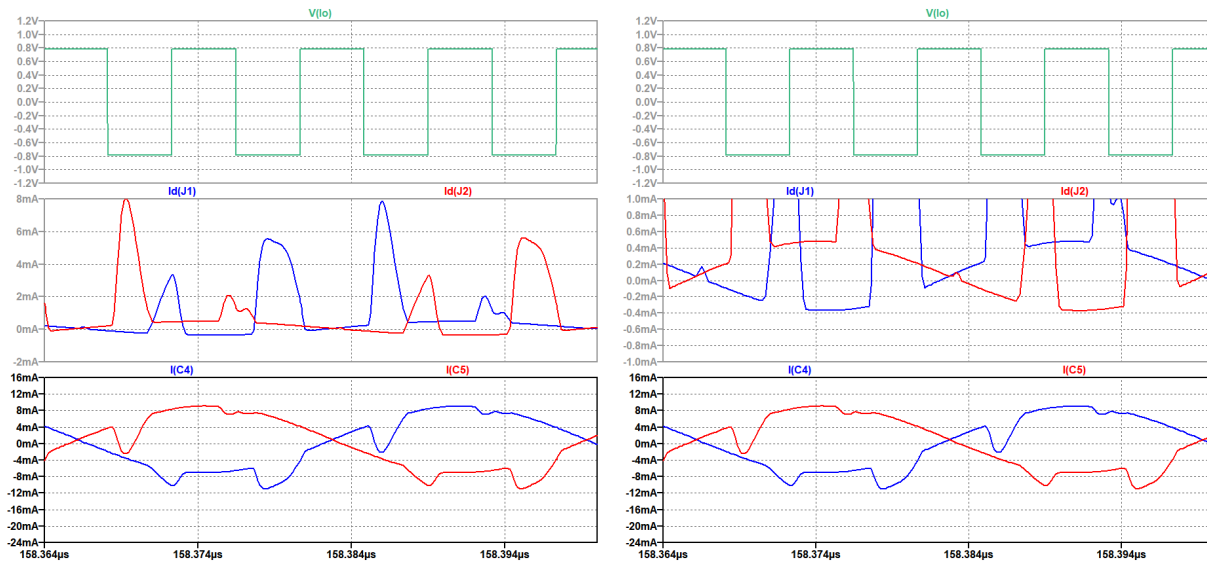
max discharge of CAP1		-0.67172
max discharge of CAP2		-0.4364
max discahrge of CAP1 and CAP2		-0.67172

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0000E-05	1.0003E-05	11.193	12.328	11.915	12.446	6.4481	0.96176
1.0007E-05	1.0010E-05	11.713	11.862	12.482	11.906	6.567	0.36809
1.0013E-05	1.0017E-05	12.289	11.28	12.683	11.665	3.2018	3.4145
1.0020E-05	1.0023E-05	12.256	11.247	12.277	12.004	0.1738	6.7326
1.0027E-05	1.0030E-05	11.646	11.81	11.725	12.542	0.676	6.1988
1.0033E-05	1.0037E-05	11.152	12.332	11.658	12.665	4.541	2.7024
1.0040E-05	1.0043E-05	11.34	12.207	12.159	12.222	7.2172	0.11979
1.0047E-05	1.0050E-05	12.006	11.575	12.66	11.718	5.4523	1.2331
1.0053E-05	1.0057E-05	12.391	11.154	12.588	11.731	1.596	5.1736
1.0060E-05	1.0063E-05	12.047	11.428	12.015	12.251	-0.26328	7.2042
1.0067E-05	1.0070E-05	11.363	12.096	11.596	12.69	2.0457	4.9143
1.0073E-05	1.0077E-05	11.118	12.392	11.812	12.541	6.2378	1.2037
1.0080E-05	1.0083E-05	11.598	11.97	12.423	11.965	7.1125	-0.038866
1.0087E-05	1.0090E-05	12.264	11.309	12.735	11.623	3.8361	2.778
1.0093E-05	1.0097E-05	12.349	11.164	12.382	11.909	0.2691	6.6746
1.0100E-05	1.0103E-05	11.75	11.708	11.763	12.502	0.11291	6.7827
1.0107E-05	1.0110E-05	11.149	12.326	11.588	12.726	3.9354	3.2434
1.0113E-05	1.0117E-05	11.234	12.304	12.06	12.315	7.3574	0.092838
1.0120E-05	1.0123E-05	11.916	11.663	12.646	11.737	6.1266	0.63732
1.0127E-05	1.0130E-05	12.419	11.133	12.674	11.655	2.0566	4.689
1.0133E-05	1.0137E-05	12.16	11.322	12.104	12.166	-0.45777	7.4574
1.0140E-05	1.0143E-05	11.433	12.023	11.588	12.692	1.3539	5.5639
1.0147E-05	1.0150E-05	11.067	12.434	11.717	12.627	5.8788	1.5567
1.0153E-05	1.0157E-05	11.484	12.077	12.35	12.038	7.5376	-0.32339
1.0160E-05	1.0163E-05	12.215	11.362	12.764	11.602	4.4955	2.1172
1.0167E-05	1.0170E-05	12.42	11.103	12.482	11.818	0.50272	6.444
1.0173E-05	1.0177E-05	11.86	11.601	11.821	12.443	-0.32674	7.2619
1.0180E-05	1.0183E-05	11.175	12.293	11.54	12.765	3.2662	3.8417
1.0187E-05	1.0190E-05	11.147	12.382	11.961	12.409	7.3031	0.22248
1.0193E-05	1.0197E-05	11.813	11.763	12.607	11.78	6.7172	0.14408
1.0200E-05	1.0203E-05	12.416	11.144	12.739	11.6	2.6059	4.0923
1.0207E-05	1.0210E-05	12.258	11.232	12.2	12.076	-0.47639	7.5145
1.0213E-05	1.0217E-05	11.521	11.932	11.606	12.667	0.73708	6.1577
1.0220E-05	1.0223E-05	11.047	12.444	11.64	12.696	5.3628	2.0223
1.0227E-05	1.0230E-05	11.377	12.177	12.262	12.124	7.7786	-0.4364
1.0233E-05	1.0237E-05	12.14	11.439	12.764	11.608	5.1423	1.4844
1.0240E-05	1.0243E-05	12.461	11.072	12.571	11.739	0.8814	6.029
1.0247E-05	1.0250E-05	11.969	11.497	11.897	12.367	-0.59824	7.5734
1.0253E-05	1.0257E-05	11.231	12.232	11.52	12.776	2.5726	4.4524
1.0260E-05	1.0263E-05	11.088	12.432	11.868	12.495	7.0323	0.51202
1.0267E-05	1.0270E-05	11.705	11.867	12.544	11.844	7.1687	-0.19482
1.0273E-05	1.0277E-05	12.379	11.187	12.777	11.572	3.213	3.3481
1.0280E-05	1.0283E-05	12.334	11.167	12.296	11.987	-0.30856	7.3467
1.0287E-05	1.0290E-05	11.624	11.83	11.653	12.616	0.24996	6.6373
1.0293E-05	1.0297E-05	11.064	12.42	11.586	12.74	4.7232	2.5719
1.0300E-05	1.0303E-05	11.29	12.257	12.168	12.214	7.779	-0.35433
1.0307E-05	1.0310E-05	12.046	11.533	12.734	11.644	5.7144	0.95648
1.0313E-05	1.0317E-05	12.466	11.077	12.638	11.681	1.3777	5.4586
1.0320E-05	1.0323E-05	12.067	11.466	11.987	12.28	-0.66655	7.6643
1.0327E-05	1.0330E-05	11.314	12.145	11.532	12.755	1.9309	5.0243
1.0333E-05	1.0337E-05	11.064	12.447	11.79	12.565	6.5567	0.94946
1.0340E-05	1.0343E-05	11.601	11.967	12.462	11.927	7.4241	-0.34163
1.0347E-05	1.0350E-05	12.312	11.262	12.782	11.575	3.8244	2.7822
1.0353E-05	1.0357E-05	12.379	11.133	12.383	11.907	0.033706	6.9537
1.0360E-05	1.0363E-05	11.731	11.725	11.724	12.541	-0.06229	6.9527
1.0367E-05	1.0370E-05	11.114	12.362	11.562	12.753	4.0238	3.1652
1.0373E-05	1.0377E-05	11.228	12.312	12.075	12.301	7.5452	-0.082386
1.0380E-05	1.0383E-05	11.94	11.64	12.676	11.706	6.1602	0.57392
1.0387E-05	1.0390E-05	12.436	11.117	12.679	11.649	1.9573	4.7844
1.0393E-05	1.0397E-05	12.147	11.335	12.082	12.187	-0.53759	7.5206
1.0400E-05	1.0403E-05	11.414	12.042	11.573	12.706	1.3928	5.5101
1.0407E-05	1.0410E-05	11.074	12.429	11.731	12.614	5.9332	1.4905
1.0413E-05	1.0417E-05	11.51	12.054	12.369	12.019	7.4704	-0.2969
1.0420E-05	1.0423E-05	12.221	11.358	12.758	11.607	4.3934	2.1953
1.0427E-05	1.0430E-05	12.392	11.131	12.455	11.843	0.50779	6.3913
1.0433E-05	1.0437E-05	11.833	11.628	11.811	12.451	-0.18939	7.0791
1.0440E-05	1.0443E-05	11.191	12.279	11.566	12.738	3.345	3.7448
1.0447E-05	1.0450E-05	11.195	12.337	11.992	12.378	7.1197	0.33322
1.0453E-05	1.0457E-05	11.833	11.746	12.598	11.788	6.4581	0.36071
1.0460E-05	1.0463E-05	12.377	11.186	12.694	11.644	2.9638	4.0912
1.0467E-05	1.0470E-05	12.203	11.29	12.173	12.101	-0.24453	7.1811
1.0473E-05	1.0477E-05	11.522	11.934	11.637	12.634	0.99803	5.8682
1.0480E-05	1.0483E-05	11.114	12.38	11.695	12.638	5.2359	2.0811
1.0487E-05	1.0490E-05	11.436	12.122	12.273	12.112	7.3231	-0.084788
1.0493E-05	1.0497E-05	12.117	11.465	12.709	11.663	4.8839	1.7243
1.0500E-05	1.0503E-05	12.378	11.158	12.509	11.798	1.065	5.7328
1.0507E-05	1.0510E-05	11.925	11.544	11.907	12.356	-0.15321	7.0296
1.0513E-05	1.0517E-05	11.286	12.179	11.594	12.699	2.7262	4.2728
1.0520E-05	1.0523E-05	11.186	12.336	11.92	12.44	6.5603	0.84544
1.0527E-05	1.0530E-05	11.731	11.845	12.506	11.881	6.6106	0.30025
1.0533E-05	1.0537E-05	12.298	11.273	12.687	11.661	3.1636	3.4385
1.0540E-05	1.0543E-05	12.238	11.267	12.258	12.023	0.16296	6.7059
1.0547E-05	1.0550E-05	11.632	11.827	11.717	12.549	0.73544	6.1051
1.0553E-05	1.0557E-05	11.173	12.312	11.679	12.642	4.5264	2.6809
1.0560E-05	1.0563E-05	11.379	12.17	12.179	12.2	7.0292	0.24346
1.0567E-05	1.0570E-05	12.008	11.575	12.643	11.734	5.2881	1.3718
1.0573E-05	1.0577E-05	12.342	11.205	12.547	11.771	1.6586	5.0463
1.0580E-05	1.0583E-05	12.004	11.474	12.005	12.26	0.0022564	6.8472
1.0587E-05	1.0590E-05	11.389	12.073	11.639	12.644	2.1941	4.7345
1.0593E-05	1.0597E-05	11.196	12.316	11.861	12.488	5.9392	1.3993
1.0600E-05	1.0603E-05	11.637	11.933	12.411	11.975	6.6468	0.36359
1.0607E-05	1.0610E-05	12.208	11.368	12.663	11.693	3.7252	2.8571
1.0613E-05	1.0617E-05	12.257	11.261	12.334	11.966	0.62745	6.1704
1.0620E-05	1.0623E-05	11.736	11.727	11.804	12.459	0.57867	6.2452
1.0627E-05	1.0630E-05	11.244	12.233	11.677	12.631	3.8531	3.2555
1.0633E-05	1.0637E-05	11.336	12.204	12.091	12.281	6.6619	0.62864
1.0640E-05	1.0643E-05	11.901	11.681	12.569	11.811	5.617	1.1151
1.0647E-05	1.0650E-05	12.296	11.262	12.573	11.756	2.2501	4.3874
1.0653E-05	1.0657E-05	12.072	11.418	12.099	12.171	0.22484	6.5947

1.0660E-05	1.0663E-05	11.493	11.967	11.693	12.582	1.7442	5.1342
1.0667E-05	1.0670E-05	11.217	12.285	11.812	12.525	5.3127	1.9553
1.0673E-05	1.0677E-05	11.552	12.011	12.316	12.068	6.6128	0.46975
1.0680E-05	1.0683E-05	12.116	11.465	12.631	11.734	4.2524	2.3446
1.0687E-05	1.0690E-05	12.265	11.265	12.402	11.899	1.1125	5.6215
1.0693E-05	1.0697E-05	11.835	11.634	11.893	12.37	0.48635	6.3272
1.0700E-05	1.0703E-05	11.319	12.152	11.684	12.614	3.2266	3.8005
1.0707E-05	1.0710E-05	11.3	12.229	12.008	12.355	6.2676	1.0286
1.0713E-05	1.0717E-05	11.796	11.782	12.494	11.89	5.9126	0.91647
1.0720E-05	1.0723E-05	12.245	11.322	12.591	11.748	2.8332	3.7669
1.0727E-05	1.0730E-05	12.134	11.367	12.191	12.086	0.47192	6.3238
1.0733E-05	1.0737E-05	11.595	11.865	11.751	12.518	1.3396	5.5033
1.0740E-05	1.0743E-05	11.24	12.251	11.769	12.557	4.7003	2.4986
1.0747E-05	1.0750E-05	11.469	12.085	12.221	12.157	6.5624	0.60094
1.0753E-05	1.0757E-05	12.022	11.56	12.596	11.776	4.7706	1.8736
1.0760E-05	1.0763E-05	12.271	11.271	12.467	11.845	1.5982	5.0922
1.0767E-05	1.0770E-05	11.933	11.544	11.982	12.283	0.41152	6.3995
1.0773E-05	1.0777E-05	11.394	12.071	11.693	12.595	2.6228	4.3393
1.0780E-05	1.0783E-05	11.265	12.252	11.926	12.426	5.8713	1.422
1.0787E-05	1.0790E-05	11.691	11.881	12.416	11.968	6.2067	0.72929
1.0793E-05	1.0797E-05	12.192	11.38	12.609	11.741	3.422	3.1697
1.0800E-05	1.0803E-05	12.196	11.317	12.284	12.003	0.72057	6.0627
1.0807E-05	1.0810E-05	11.699	11.764	11.81	12.456	0.94711	5.8854
1.0813E-05	1.0817E-05	11.264	12.218	11.725	12.589	4.0922	3.0396
1.0820E-05	1.0823E-05	11.385	12.158	12.126	12.46	6.5158	1.74243
1.0827E-05	1.0830E-05	11.927	11.653	12.56	11.818	5.3058	2.4079
1.0833E-05	1.0837E-05	12.277	11.275	12.534	11.79	2.0904	4.5728
1.0840E-05	1.0843E-05	12.032	11.453	12.073	12.196	0.33838	6.479
1.0847E-05	1.0850E-05	11.471	11.991	11.702	12.578	2.0168	4.89
1.0853E-05	1.0857E-05	11.229	12.277	11.843	12.499	5.4717	1.8103
1.0860E-05	1.0863E-05	11.583	11.981	12.338	12.045	6.5161	0.53683
1.0867E-05	1.0870E-05	12.138	11.438	12.627	11.733	4.033	2.5774
1.0873E-05	1.0877E-05	12.259	11.265	12.378	11.919	0.97599	5.8065
1.0880E-05	1.0883E-05	11.805	11.662	11.817	12.395	0.55581	6.2869
1.0887E-05	1.0890E-05	11.29	12.184	11.682	12.322	3.4716	3.5957
1.0893E-05	1.0897E-05	11.299	12.232	12.03	12.336	6.462	0.84969
1.0900E-05	1.0903E-05	11.828	11.748	12.522	11.859	5.8641	0.94571
1.0907E-05	1.0910E-05	12.28	11.28	12.6	11.735	2.6077	4.0411
1.0913E-05	1.0917E-05	12.134	11.361	12.168	12.109	0.28117	6.5822
1.0920E-05	1.0923E-05	11.554	11.907	11.716	12.559	1.4057	5.471
1.0927E-05	1.0930E-05	11.196	12.299	11.76	12.573	5.0354	2.2237
1.0933E-05	1.0937E-05	11.471	12.084	12.254	12.127	6.825	0.35368
1.0940E-05	1.0943E-05	12.075	11.502	12.64	12.727	4.6816	1.9607
1.0947E-05	1.0950E-05	12.319	11.214	12.476	11.833	1.2714	5.515
1.0953E-05	1.0957E-05	11.918	11.554	11.939	12.328	0.17961	6.7002
1.0960E-05	1.0963E-05	11.325	12.144	11.643	12.653	2.8123	4.1978
1.0967E-05	1.0970E-05	11.215	12.306	11.928	12.43	6.3616	1.0088
1.0973E-05	1.0977E-05	11.72	11.85	12.445	11.908	6.4418	0.48321
1.0980E-05	1.0983E-05	12.273	11.291	12.673	11.682	3.1785	3.4608
1.0987E-05	1.0990E-05	12.236	11.268	12.269	12.016	0.27017	6.6385
1.0993E-05	1.0997E-05	11.646	11.815	11.738	12.534	0.7932	6.0819
1.1000E-05	1.1003E-05	11.172	12.315	11.678	12.646	4.5313	2.6883
1.1007E-05	1.1010E-05	11.357	12.188	12.162	12.214	7.0875	0.2182
1.1013E-05	1.1017E-05	12	11.575	12.644	11.73	5.3652	1.3333
1.1020E-05	1.1023E-05	12.369	11.172	12.572	11.748	1.6359	5.1486
1.1027E-05	1.1030E-05	12.035	11.443	12.018	12.253	-0.1407	7.0794
1.1033E-05	1.1037E-05	11.374	12.09	11.615	12.675	2.1161	4.8396
1.1040E-05	1.1043E-05	11.139	12.371	11.826	12.525	6.161	1.2436
1.1047E-05	1.1050E-05	11.605	11.959	12.416	11.967	6.9912	0.088636
1.1053E-05	1.1057E-05	12.25	11.319	12.717	11.639	3.81	2.8278
1.1060E-05	1.1063E-05	12.33	11.182	12.374	11.92	0.35509	6.5943
1.1067E-05	1.1070E-05	11.749	11.714	11.775	12.495	0.2223	6.6737
1.1073E-05	1.1077E-05	11.166	12.313	11.606	12.709	3.9378	3.2224
1.1080E-05	1.1083E-05	11.249	12.287	12.064	12.308	7.2476	0.16793
1.1087E-05	1.1090E-05	11.912	11.661	12.632	11.746	6.0474	0.72698
1.1093E-05	1.1097E-05	12.402	11.148	12.66	11.669	2.0866	6.466
1.1100E-05	1.1103E-05	12.15	11.335	12.106	12.17	-0.35691	7.364
1.1107E-05	1.1110E-05	11.441	12.02	11.603	12.68	1.4185	5.4968
1.1113E-05	1.1117E-05	11.083	12.419	11.729	12.615	5.8254	1.5788
1.1120E-05	1.1123E-05	11.49	12.067	12.345	12.038	7.4425	-0.24314
1.1127E-05	1.1130E-05	12.204	11.367	12.75	11.613	4.4713	2.1659
1.1133E-05	1.1137E-05	12.406	11.115	12.478	11.827	0.5636	6.3995
1.1140E-05	1.1143E-05	11.859	11.606	11.83	12.44	-0.24362	7.1842
1.1147E-05	1.1150E-05	11.187	12.286	11.553	12.754	3.2782	3.8165
1.1153E-05	1.1157E-05	11.157	12.37	11.964	12.403	7.2338	0.26382
1.1160E-05	1.1163E-05	11.811	11.76	12.598	11.784	6.664	0.20551
1.1167E-05	1.1170E-05	12.405	11.151	12.73	11.609	2.6237	4.1053
1.1173E-05	1.1177E-05	12.252	11.24	12.202	12.079	-0.41154	7.4647
1.1180E-05	1.1183E-05	11.526	11.932	11.617	12.692	0.78295	6.1136
1.1187E-05	1.1190E-05	11.056	12.437	11.647	12.689	5.3397	2.0242
1.1193E-05	1.1197E-05	11.379	12.171	12.259	12.122	7.7299	-0.39919
1.1200E-05	1.1203E-05	12.134	11.439	12.757	11.613	5.1343	1.5189
1.1207E-05	1.1210E-05	12.455	11.076	12.569	11.743	0.91502	6.0245
1.1213E-05	1.1217E-05	11.97	11.499	11.903	12.367	-0.55583	7.546
1.1220E-05	1.1223E-05	11.237	12.231	11.527	12.773	2.5822	4.436
1.1227E-05	1.1230E-05	11.091	12.428	11.868	12.492	7.0108	0.51641
1.1233E-05	1.1237E-05	11.702	11.865	12.25	11.844	7.1586	-0.17755
1.1240E-05	1.1243E-05	12.376	11.186	12.775	11.573	3.2274	3.4558
1.1247E-05	1.1250E-05	12.334	11.167	12.299	11.988	-0.28597	7.3551
1.1253E-05	1.1257E-05	11.627	11.832	11.657	12.617	0.26013	6.6346
1.1260E-05	1.1263E-05	11.064	12.422	11.587	12.74	4.7231	2.5604
1.1267E-05	1.1270E-05	11.286	12.257	12.166	12.212	7.7923	-0.36675
1.1273E-05	1.1277E-05	12.044	11.53	12.734	11.614	5.7289	0.95886
1.1280E-05	1.1283E-05	12.468	11.071	12.241	11.679	1.3874	5.4891
1.1287E-05	1.1290E-05	12.071	11.404	11.99	12.282	-0.67172	7.6979
1.1293E-05	1.1297E-05	11.313	12.15	11.531	12.76	1.9253	5.0276
1.1300E-05	1.1303E-05	11.058	12.453	11.786	12.568	6.5793	0.92127
1.1307E-05	1.1310E-05	11.596	11.967	12.462	11.922	7.4642	-0.37282
1.1313E-05	1.1317E-05	12.314	11.253	12.788	11.568	3.8439	2.7949
1.1320E-05	1.1323E-05	12.386	11.125	12.389	11.905	0.018035	7.0105

1.1327E-05	1.1330E-05	11.734	11.726	11.724	12.547	-0.091542	6.9983
1.1333E-05	1.1337E-05	11.108	12.372	11.556	12.762	4.0354	3.1526
1.1340E-05	1.1343E-05	11.218	12.319	12.072	12.302	7.6071	-0.13876
1.1347E-05	1.1350E-05	11.94	11.634	12.681	11.697	6.2116	0.53896
1.1353E-05	1.1357E-05	12.446	11.103	12.689	11.64	1.9544	4.8327
1.1360E-05	1.1363E-05	12.156	11.327	12.085	12.19	-0.58554	7.6112
1.1367E-05	1.1370E-05	11.41	12.05	11.966	12.718	1.3625	5.5427
1.1373E-05	1.1377E-05	11.061	12.443	11.723	12.622	5.9843	1.4416
1.1380E-05	1.1383E-05	11.502	12.058	12.371	12.013	7.5598	-0.37405
1.1387E-05	1.1390E-05	12.228	11.344	12.77	11.593	4.4284	2.1871
1.1393E-05	1.1397E-05	12.407	11.115	12.465	11.836	0.46655	6.4881
1.1400E-05	1.1403E-05	11.838	11.627	11.808	12.461	-0.25776	7.1733
1.1407E-05	1.1410E-05	11.18	12.284	11.554	12.754	3.3465	3.7412
1.1413E-05	1.1417E-05	11.179	12.351	11.986	12.381	7.2176	0.24677
1.1420E-05	1.1423E-05	11.832	11.741	12.607	11.775	6.5447	0.28732
1.1427E-05	1.1430E-05	12.392	11.166	12.709	11.628	2.559	4.1389
1.1433E-05	1.1437E-05	12.217	11.277	12.177	12.101	-0.3229	7.3131
1.1440E-05	1.1443E-05	11.517	11.943	11.626	12.651	0.94075	5.9322
1.1447E-05	1.1450E-05	11.095	12.401	11.683	12.652	5.2972	2.0239
1.1453E-05	1.1457E-05	11.424	12.13	12.275	12.106	7.4436	-0.19595
1.1460E-05	1.1463E-05	12.126	11.45	12.725	11.643	4.9359	1.8917
1.1467E-05	1.1470E-05	12.396	11.137	12.522	11.787	1.0105	5.8447
1.1473E-05	1.1477E-05	11.931	11.54	11.902	12.366	-0.24655	7.1576
1.1480E-05	1.1483E-05	11.272	12.197	11.578	12.719	2.7178	4.2795
1.1487E-05	1.1490E-05	11.167	12.354	11.913	12.446	6.6753	0.74202
1.1493E-05	1.1497E-05	11.73	11.841	12.518	11.865	6.7174	0.20232
1.1500E-05	1.1503E-05	12.315	11.25	12.704	11.642	3.1588	3.4789
1.1507E-05	1.1510E-05	12.254	11.251	12.262	12.022	0.071252	6.8545
1.1513E-05	1.1517E-05	11.626	11.835	11.704	12.567	0.66563	6.1828
1.1520E-05	1.1523E-05	11.154	12.334	11.665	12.658	4.5863	2.6236
1.1527E-05	1.1530E-05	11.367	12.179	12.181	12.194	7.1596	0.12257
1.1533E-05	1.1537E-05	12.017	11.56	12.66	11.713	5.3445	1.328
1.1540E-05	1.1543E-05	12.361	11.183	12.559	11.759	1.6034	5.1529
1.1547E-05	1.1550E-05	12.01	11.47	11.999	12.27	-0.092243	6.98
1.1553E-05	1.1557E-05	11.376	12.09	11.624	12.664	2.1811	4.7479
1.1560E-05	1.1563E-05	11.179	12.334	11.854	12.495	6.0458	1.3001
1.1567E-05	1.1570E-05	11.636	11.93	12.422	11.961	6.7503	0.25417
1.1573E-05	1.1577E-05	12.224	11.347	12.679	11.674	3.7235	2.8846
1.1580E-05	1.1583E-05	12.271	11.246	12.337	11.955	0.54421	6.3061
1.1587E-05	1.1590E-05	11.732	11.734	11.792	12.476	0.51515	6.3244
1.1593E-05	1.1597E-05	11.227	12.254	11.665	12.647	3.9028	3.206
1.1600E-05	1.1603E-05	11.326	12.212	12.093	12.276	6.7759	0.518
1.1607E-05	1.1610E-05	11.909	11.667	12.584	11.793	5.6686	1.0724
1.1613E-05	1.1617E-05	12.312	11.242	12.583	11.745	2.2024	4.4767
1.1620E-05	1.1623E-05	12.076	11.414	12.094	12.18	0.1473	6.7105
1.1627E-05	1.1630E-05	11.481	11.983	11.68	12.6	1.7362	5.1445
1.1633E-05	1.1637E-05	11.203	12.3	11.808	12.53	5.3991	1.8688
1.1640E-05	1.1643E-05	11.552	12.008	12.326	12.054	6.6953	0.38815
1.1647E-05	1.1650E-05	12.128	11.447	12.643	11.718	4.2454	2.3698
1.1653E-05	1.1657E-05	12.275	11.254	12.403	11.899	1.0481	5.7307
1.1660E-05	1.1663E-05	11.83	11.642	11.883	12.385	0.44658	6.3852
1.1667E-05	1.1670E-05	11.306	12.168	11.676	12.625	3.2698	3.7532
1.1673E-05	1.1677E-05	11.295	12.234	12.012	12.349	6.3482	0.94276
1.1680E-05	1.1683E-05	11.804	11.77	12.505	11.875	5.9351	0.89196
1.1687E-05	1.1690E-05	12.255	11.307	12.597	11.741	2.7906	3.8413
1.1693E-05	1.1697E-05	12.134	11.367	12.185	12.095	0.42528	6.4036
1.1700E-05	1.1703E-05	11.586	11.879	11.742	12.532	1.3536	5.4976
1.1707E-05	1.1710E-05	11.234	12.26	11.769	12.558	4.7661	2.4275
1.1713E-05	1.1717E-05	11.473	12.078	12.231	12.145	6.599	0.55253
1.1720E-05	1.1723E-05	12.032	11.545	12.603	11.766	4.744	1.9096
1.1727E-05	1.1730E-05	12.273	11.265	12.464	11.848	1.5544	5.171
1.1733E-05	1.1737E-05	11.925	11.554	11.974	12.295	0.41006	6.4178
1.1740E-05	1.1743E-05	11.387	12.083	11.691	12.601	2.6759	4.2842
1.1747E-05	1.1750E-05	11.267	12.251	11.934	12.418	5.9143	1.3657
1.1753E-05	1.1757E-05	11.7	11.868	12.424	11.956	6.1871	0.73894
1.1760E-05	1.1763E-05	12.196	11.371	12.608	11.74	3.376	3.2392
1.1767E-05	1.1770E-05	12.189	11.323	12.276	12.013	0.7093	6.0995
1.1773E-05	1.1777E-05	11.69	11.777	11.806	12.465	0.99499	5.8428
1.1780E-05	1.1783E-05	11.265	12.221	11.732	12.584	4.1476	2.9769
1.1787E-05	1.1790E-05	11.395	12.147	12.136	12.234	6.5043	0.71529
1.1793E-05	1.1797E-05	11.935	11.641	12.561	11.812	5.2478	1.4716
1.1800E-05	1.1803E-05	12.272	11.277	12.525	11.798	2.0614	4.6286
1.1807E-05	1.1810E-05	12.02	11.467	12.066	12.208	0.37903	6.4609
1.1813E-05	1.1817E-05	11.467	12	11.707	12.578	2.0926	4.8176
1.1820E-05	1.1823E-05	11.239	12.269	11.856	12.487	5.4851	1.7784
1.1827E-05	1.1830E-05	11.596	11.965	12.344	12.035	6.4488	0.58553
1.1833E-05	1.1837E-05	12.137	11.435	12.619	11.738	3.9728	2.6538
1.1840E-05	1.1843E-05	12.245	11.277	12.366	11.932	0.99433	5.8056
1.1847E-05	1.1850E-05	11.795	11.675	11.871	12.4	0.64182	6.2043
1.1853E-05	1.1857E-05	11.297	12.181	11.695	12.612	3.5274	3.5323
1.1860E-05	1.1863E-05	11.316	12.216	12.041	12.322	6.4094	0.87292
1.1867E-05	1.1870E-05	11.835	11.737	12.518	11.859	5.771	1.035
1.1873E-05	1.1877E-05	12.268	11.287	12.585	11.749	2.5836	4.0861
1.1880E-05	1.1883E-05	12.117	11.379	12.16	12.12	0.35465	6.5138
1.1887E-05	1.1890E-05	11.552	11.913	11.725	12.554	1.5049	5.3747
1.1893E-05	1.1897E-05	11.212	12.286	11.777	12.557	5.0334	2.2043
1.1900E-05	1.1903E-05	11.487	12.066	12.259	12.118	6.7193	0.43207
1.1907E-05	1.1910E-05	12.072	11.501	12.628	11.736	4.6022	2.0505
1.1913E-05	1.1917E-05	12.3	11.232	12.46	11.849	1.3035	5.4944
1.1920E-05	1.1923E-05	11.905	11.569	11.94	12.331	0.29313	6.5856
1.1927E-05	1.1930E-05	11.334	12.138	11.661	12.639	2.8795	4.1243
1.1933E-05	1.1937E-05	11.236	12.286	11.942	12.414	6.2869	1.049
1.1940E-05	1.1943E-05	11.729	11.838	12.47	11.909	6.3197	0.59443
1.1947E-05	1.1950E-05	12.259	11.302	12.645	11.699	3.1492	3.5091
1.1953E-05	1.1957E-05	12.216	11.289	12.26	12.028	0.36016	6.5484
1.1960E-05	1.1963E-05	11.644	11.821	11.75	12.526	0.91035	5.9647
1.1967E-05	1.1970E-05	11.191	12.298	11.698	12.627	4.5283	2.6709
1.1973E-05	1.1977E-05	11.376	12.168	12.168	12.205	6.9618	0.30624
1.1980E-05	1.1983E-05	11.997	11.575	12.629	11.741	5.2728	1.4347
1.1987E-05	1.1990E-05	12.348	11.191	12.554	11.765	1.6696	5.125
1.1993E-05	1.1997E-05	12.021	11.459	12.019	12.256	-0.017733	6.9524

Fig5.2_ExactDemaw_SqLO



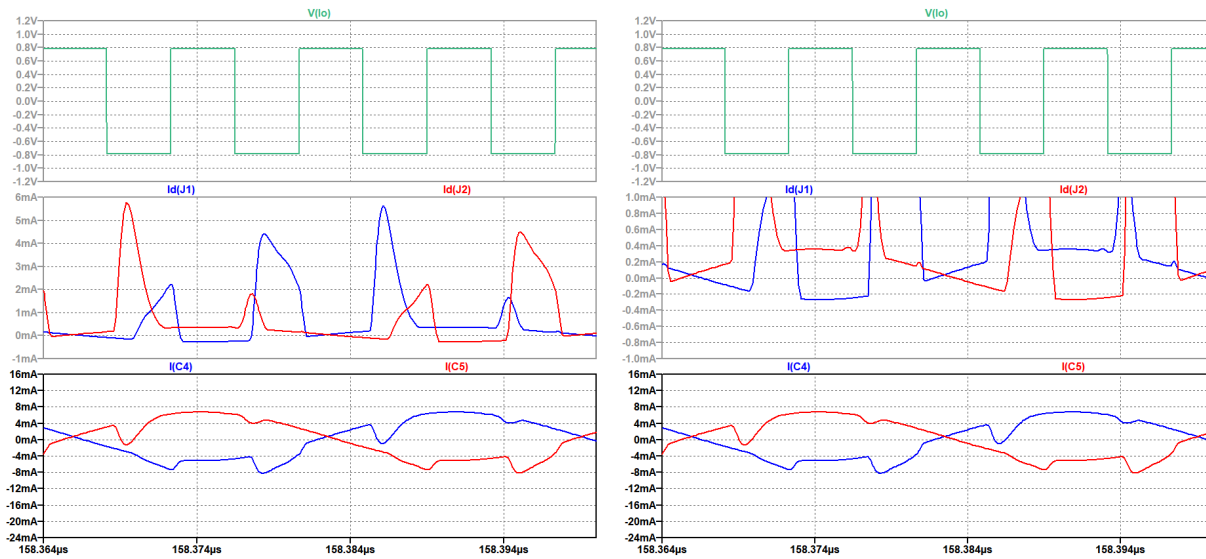
max discharge of CAP1		-7.9145
max discharge of CAP2		-7.8706
max discahrge of CAP1 and CAP2		-7.9145

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0000E-05	1.0004E-05	11.299	12.476	10.923	13.051	-3.3222	4.6111
1.0008E-05	1.0013E-05	10.85	12.965	11.691	12.322	7.4882	-4.9567
1.0017E-05	1.0021E-05	12.517	11.265	13.074	10.904	4.4493	-3.2035
1.0025E-05	1.0029E-05	12.956	10.845	12.289	11.706	-5.1539	7.9417
1.0033E-05	1.0038E-05	11.222	12.543	10.882	13.095	-3.0366	4.4047
1.0042E-05	1.0046E-05	10.856	12.959	11.74	12.275	8.1438	-5.2809
1.0050E-05	1.0054E-05	12.587	11.189	13.119	10.862	4.2251	-2.9239
1.0058E-05	1.0063E-05	12.949	10.851	12.238	11.755	-5.4868	8.3347
1.0067E-05	1.0071E-05	11.145	12.611	10.839	13.139	-2.7459	4.1854
1.0075E-05	1.0079E-05	10.863	12.951	11.79	12.225	8.5329	-5.6082
1.0083E-05	1.0088E-05	12.656	11.112	13.163	10.821	3.9995	-2.6231
1.0092E-05	1.0096E-05	12.94	10.859	12.186	11.805	-5.8219	8.7088
1.0100E-05	1.0104E-05	11.068	12.681	10.796	13.182	-2.4383	3.9524
1.0109E-05	1.0113E-05	10.872	12.94	11.84	12.172	8.9035	-5.9356
1.0117E-05	1.0121E-05	12.726	11.035	13.204	10.781	3.7614	-2.3019
1.0125E-05	1.0129E-05	12.927	10.872	12.133	11.857	-6.1448	9.0689
1.0134E-05	1.0138E-05	10.992	12.751	10.76	13.222	-2.1103	3.695
1.0142E-05	1.0146E-05	10.887	12.924	11.893	12.115	9.2407	-6.2592
1.0150E-05	1.0154E-05	12.794	10.958	13.242	10.744	3.5014	-1.9576
1.0159E-05	1.0163E-05	12.908	10.888	12.075	11.912	-6.4557	9.4014
1.0167E-05	1.0171E-05	10.918	12.88	10.727	13.26	-1.7539	3.4219
1.0175E-05	1.0179E-05	10.907	12.904	11.948	12.056	9.5437	-6.57
1.0184E-05	1.0188E-05	12.861	10.884	13.274	10.711	3.2114	-1.5911
1.0192E-05	1.0196E-05	12.882	10.91	12.013	11.968	-6.7494	9.6997
1.0200E-05	1.0205E-05	10.846	12.888	10.696	13.292	-1.3659	3.1324
1.0209E-05	1.0213E-05	10.934	12.877	12.007	11.994	9.814	-6.8593
1.0217E-05	1.0221E-05	12.928	10.813	13.302	10.684	2.8965	-1.1954
1.0225E-05	1.0230E-05	12.85	10.94	11.947	12.027	-7.0242	9.9423
1.0234E-05	1.0238E-05	10.777	12.953	10.674	13.317	-0.94812	2.8124
1.0242E-05	1.0246E-05	10.967	12.842	12.069	11.828	10.042	-7.1208
1.0250E-05	1.0255E-05	12.992	10.748	13.324	10.664	2.5562	-0.7785
1.0259E-05	1.0263E-05	12.812	10.976	11.879	12.089	-7.2796	10.1145
1.0267E-05	1.0271E-05	10.711	13.014	10.656	13.334	-0.51247	2.4594
1.0275E-05	1.0280E-05	11.007	12.8	12.133	11.859	10.225	-7.3502
1.0284E-05	1.0288E-05	13.052	10.687	13.339	10.652	2.1974	-0.32971
1.0292E-05	1.0296E-05	12.767	11.021	11.809	12.154	-7.503	10.28
1.0301E-05	1.0305E-05	10.652	13.071	10.646	13.343	-0.056933	2.0788
1.0309E-05	1.0313E-05	11.054	12.749	12.198	11.787	-7.5456	9.349
1.0317E-05	1.0321E-05	13.108	10.633	13.345	10.648	1.8144	0.14267
1.0326E-05	1.0330E-05	12.715	11.075	11.739	12.222	-7.6769	10.36
1.0334E-05	1.0338E-05	10.6	13.124	10.644	13.343	0.41025	1.6701
1.0342E-05	1.0346E-05	11.107	12.692	12.263	11.714	10.41	-7.7016
1.0351E-05	1.0355E-05	13.156	10.586	13.342	10.653	1.4167	0.63141
1.0359E-05	1.0363E-05	12.657	11.134	11.668	12.29	-7.8145	10.386
1.0367E-05	1.0371E-05	10.558	13.17	10.652	13.334	0.89232	1.2474
1.0376E-05	1.0380E-05	11.167	12.628	12.329	11.641	10.403	-7.8127
1.0384E-05	1.0388E-05	13.197	10.547	13.329	10.666	0.99912	1.1226
1.0392E-05	1.0397E-05	12.592	11.199	11.598	12.358	-7.8916	10.349
1.0401E-05	1.0405E-05	10.524	13.209	10.669	13.316	1.3783	0.80945
1.0409E-05	1.0413E-05	11.235	12.559	12.395	11.571	10.325	-7.8706
1.0417E-05	1.0422E-05	13.23	10.518	13.305	10.688	0.57032	1.6143
1.0426E-05	1.0430E-05	12.521	11.227	11.53	12.424	-7.9145	10.236
1.0434E-05	1.0438E-05	10.501	13.237	10.697	13.287	1.8656	0.37085
1.0442E-05	1.0447E-05	13.308	12.486	12.459	11.504	10.177	-7.8651
1.0451E-05	1.0455E-05	13.253	10.501	13.271	10.72	0.13779	2.0846
1.0459E-05	1.0463E-05	12.446	11.346	11.466	12.486	-7.8738	10.053
1.0467E-05	1.0472E-05	10.489	13.255	10.734	13.247	2.3383	-0.063482
1.0476E-05	1.0480E-05	11.386	12.409	12.52	11.442	9.9611	-7.7923
1.0484E-05	1.0488E-05	13.265	10.496	13.227	10.763	-0.28512	2.5389
1.0492E-05	1.0497E-05	12.368	11.424	11.407	12.543	-7.7737	9.7943
1.0501E-05	1.0505E-05	10.488	13.26	10.78	13.197	2.7879	-0.47494
1.0509E-05	1.0513E-05	11.466	12.331	12.576	11.387	9.6816	-7.6512
1.0518E-05	1.0522E-05	13.266	10.503	13.175	10.814	-0.68256	2.9609
1.0526E-05	1.0530E-05	12.29	11.505	11.355	12.595	-7.6064	9.4729
1.0534E-05	1.0538E-05	10.498	13.253	10.834	13.139	3.1952	-0.8612
1.0543E-05	1.0547E-05	11.545	12.253	12.624	11.34	9.343	-7.4447
1.0551E-05	1.0555E-05	13.255	10.521	13.117	10.874	-1.0473	3.3491
1.0559E-05	1.0563E-05	12.214	11.86	11.312	12.64	-7.3849	9.0935
1.0568E-05	1.0572E-05	10.519	13.236	10.894	13.075	3.5623	-1.2194
1.0576E-05	1.0580E-05	11.624	12.175	12.665	11.3	8.9572	-7.1884
1.0584E-05	1.0588E-05	13.236	10.548	13.053	10.938	-1.3866	3.698
1.0593E-05	1.0597E-05	12.14	11.666	11.276	12.678	-7.1128	8.6792
1.0601E-05	1.0605E-05	10.549	13.213	10.958	13.008	3.8828	-1.5543
1.0609E-05	1.0614E-05	11.7	12.1	12.699	11.265	8.5356	-6.8951
1.0618E-05	1.0622E-05	13.21	10.58	12.986	11.005	-1.6961	4.0203
1.0626E-05	1.0630E-05	12.067	11.742	11.246	12.71	-6.8053	8.2444
1.0634E-05	1.0639E-05	10.584	13.185	11.027	12.939	4.1813	-1.8632
1.0643E-05	1.0647E-05	11.774	12.027	12.727	11.236	8.0934	-6.5797
1.0651E-05	1.0655E-05	13.179	10.616	12.917	11.073	-1.9882	4.3089
1.0659E-05	1.0664E-05	11.996	11.816	11.22	12.738	-6.4687	7.8087
1.0668E-05	1.0672E-05	10.623	13.154	11.096	12.871	4.4557	-2.1488
1.0676E-05	1.0680E-05	11.846	11.958	12.752	11.211	7.6468	-6.2483
1.0684E-05	1.0689E-05	13.146	10.652	12.848	11.14	-2.2635	4.5812
1.0693E-05	1.0697E-05	11.928	11.885	11.197	12.762	-6.1241	7.3763
1.0701E-05	1.0705E-05	10.662	13.122	11.166	12.806	4.7235	-2.4114
1.0710E-05	1.0714E-05	11.916	11.891	12.775	11.189	7.212	-5.91
1.0718E-05	1.0722E-05	13.113	10.689	12.781	11.206	-2.5274	4.836
1.0726E-05	1.0730E-05	11.86	11.952	11.175	12.784	-5.7748	6.9647
1.0735E-05	1.0739E-05	10.699	13.091	11.233	12.742	4.9671	-2.6626
1.0743E-05	1.0747E-05	11.983	11.827	12.798	11.168	6.799	-5.5723
1.0751E-05	1.0755E-05	13.082	10.724	12.717	11.27	-2.785	5.0975
1.0760E-05	1.0764E-05	11.794	12.016	11.153	12.805	-5.4379	6.5732
1.0768E-05	1.0772E-05	10.733	13.061	11.286	12.861	5.2599	-2.9051
1.0776E-05	1.0780E-05	12.049	11.763	12.822	11.147	6.4178	-5.2415
1.0785E-05	1.0789E-05	13.054	10.755	12.657	11.332	-3.0411	5.366
1.0793E-05	1.0797E-05	11.729	12.078	11.13	12.829	-5.1094	6.2131
1.0801E-05	1.0806E-05	10.762	13.035	11.359	12.624	5.5442	-3.1537
1.0810E-05	1.0814E-05	12.113	11.699	12.848	11.123	6.0684	-4.9196
1.0818E-05	1.0822E-05	13.03	10.782	12.6	11.392	-3.2975	5.6608

1.0826E-05	1.0831E-05	11.664	12.141	11.104	12.855	-4.8001	5.8798
1.0835E-05	1.0839E-05	10.787	13.013	11.418	12.569	5.8483	-3.4108
1.0843E-05	1.0847E-05	12.175	11.633	12.876	11.096	5.7507	-4.6134
1.0851E-05	1.0856E-05	13.101	10.803	12.547	11.449	-3.5623	5.9793
1.0860E-05	1.0864E-05	11.598	12.204	11.077	12.886	-4.4981	5.5849
1.0868E-05	1.0872E-05	10.807	12.996	11.474	12.517	6.1698	-3.6833
1.0876E-05	1.0881E-05	12.239	11.566	12.907	11.066	5.4598	-4.3241
1.0885E-05	1.0889E-05	12.984	10.818	12.495	11.502	-3.8363	6.3269
1.0893E-05	1.0897E-05	11.531	12.268	11.046	12.92	-4.2096	5.3196
1.0902E-05	1.0906E-05	10.823	12.984	11.528	12.469	6.5153	-3.966
1.0910E-05	1.0914E-05	12.302	11.497	12.941	11.031	5.1927	-4.0512
1.0918E-05	1.0922E-05	12.981	10.828	12.445	11.553	-4.1281	6.693
1.0927E-05	1.0931E-05	11.461	12.331	11.011	12.958	-3.9236	5.0852
1.0935E-05	1.0939E-05	10.835	12.976	11.58	12.423	6.8822	-4.2639
1.0943E-05	1.0947E-05	12.368	11.426	12.98	10.994	4.9444	-3.7871
1.0952E-05	1.0956E-05	12.971	10.835	12.396	11.602	-4.4344	7.0764
1.0960E-05	1.0964E-05	11.389	12.396	10.973	12.999	6.3641	4.8633
1.0968E-05	1.0972E-05	10.843	12.971	11.632	12.378	7.2704	-4.5719
1.0977E-05	1.0981E-05	12.435	11.354	13.021	10.954	4.7111	-3.5254
1.0985E-05	1.0989E-05	12.964	10.84	12.347	11.65	-4.7567	7.4645
1.0993E-05	1.0998E-05	11.314	12.462	10.933	13.042	-3.3697	4.6551
1.1002E-05	1.1006E-05	10.85	12.966	11.682	12.332	7.6648	-4.8886
1.1010E-05	1.1014E-05	12.504	11.28	13.065	10.913	4.4842	-3.2965
1.1018E-05	1.1023E-05	12.957	10.845	12.298	11.697	-5.0665	7.8572
1.1027E-05	1.1031E-05	11.238	12.528	10.89	13.085	-3.0918	4.4439
1.1035E-05	1.1039E-05	10.856	12.96	11.731	12.285	8.0649	-5.2092
1.1043E-05	1.1048E-05	12.573	11.205	13.11	10.871	4.2669	-2.9785
1.1052E-05	1.1056E-05	12.95	10.85	12.248	11.745	-5.4223	8.2483
1.1060E-05	1.1064E-05	11.16	12.597	10.848	13.129	-2.8025	4.2279
1.1068E-05	1.1073E-05	10.862	12.952	11.78	12.235	8.4556	-5.5376
1.1077E-05	1.1081E-05	12.643	11.128	13.154	10.83	4.0451	-2.6798
1.1085E-05	1.1089E-05	12.942	10.859	12.197	11.796	-5.7539	8.6267
1.1093E-05	1.1098E-05	11.084	12.666	10.806	13.172	-2.5054	3.9921
1.1102E-05	1.1106E-05	10.87	12.941	11.83	12.182	8.8281	-5.8669
1.1110E-05	1.1114E-05	12.711	11.051	13.196	10.79	3.8119	-2.9611
1.1119E-05	1.1123E-05	12.93	10.87	12.144	11.848	-6.0783	8.8922
1.1127E-05	1.1131E-05	11.008	12.737	10.768	13.214	-2.1811	3.7458
1.1135E-05	1.1139E-05	10.884	12.927	11.882	12.126	9.169	-6.6967
1.1144E-05	1.1148E-05	12.78	10.974	13.234	10.751	3.5548	-2.0262
1.1152E-05	1.1156E-05	12.912	10.885	12.087	11.901	-6.389	9.3988
1.1160E-05	1.1164E-05	10.934	12.807	10.734	13.252	-1.8295	3.4802
1.1169E-05	1.1173E-05	10.903	12.908	11.937	12.068	9.4776	-6.5074
1.1177E-05	1.1181E-05	12.847	10.899	13.267	10.717	3.2706	-1.6657
1.1185E-05	1.1189E-05	12.888	10.905	12.025	11.957	-6.6891	9.9422
1.1194E-05	1.1198E-05	10.861	12.875	10.704	13.286	-1.4415	3.6498
1.1202E-05	1.1206E-05	10.929	12.883	11.996	12.006	9.7553	-6.8032
1.1210E-05	1.1215E-05	12.914	10.827	13.296	10.689	2.9564	-1.2791
1.1219E-05	1.1223E-05	12.856	10.933	11.96	12.015	-6.9674	9.8964
1.1227E-05	1.1231E-05	10.791	12.94	10.679	13.312	-1.0305	2.7921
1.1235E-05	1.1240E-05	10.961	12.85	12.057	11.942	9.9972	-7.0691
1.1244E-05	1.1248E-05	12.979	10.761	13.319	10.668	2.6217	-0.96439
1.1252E-05	1.1256E-05	12.819	10.968	11.892	12.076	-7.2314	10.101
1.1260E-05	1.1265E-05	10.724	13.001	10.66	13.331	-0.95678	2.5336
1.1268E-05	1.1273E-05	10.999	12.809	12.12	11.873	10.189	-7.3029
1.1277E-05	1.1281E-05	13.041	10.7	13.336	10.655	2.2662	-4.4021
1.1285E-05	1.1290E-05	12.776	11.012	11.823	12.141	-7.4604	10.25
1.1294E-05	1.1298E-05	10.663	13.059	10.647	13.341	-0.15082	2.1547
1.1302E-05	1.1306E-05	11.044	12.759	12.185	11.802	10.328	-7.5036
1.1311E-05	1.1315E-05	13.097	10.645	13.345	10.65	1.8824	0.048707
1.1319E-05	1.1323E-05	12.726	11.065	11.753	12.208	-7.6459	10.0477
1.1327E-05	1.1331E-05	10.61	13.113	10.644	13.343	0.31512	1.7509
1.1336E-05	1.1340E-05	11.096	12.703	12.25	11.728	10.4	-7.6702
1.1344E-05	1.1348E-05	13.147	10.596	13.344	10.652	1.4986	0.53624
1.1352E-05	1.1356E-05	12.669	11.122	11.683	12.277	-7.7877	10.0362
1.1361E-05	1.1365E-05	10.566	13.161	10.65	13.336	0.78981	1.3275
1.1369E-05	1.1373E-05	11.155	12.64	12.316	11.655	10.406	-7.7917
1.1377E-05	1.1381E-05	13.189	10.554	13.332	10.663	1.0855	1.0284
1.1386E-05	1.1390E-05	12.606	11.187	11.613	12.345	-7.8767	10.387
1.1394E-05	1.1398E-05	10.531	13.202	10.666	13.32	1.2798	0.89524
1.1402E-05	1.1407E-05	11.221	12.573	12.381	11.584	10.338	-7.8639
1.1411E-05	1.1415E-05	13.223	10.523	13.31	10.683	0.65705	1.515
1.1419E-05	1.1423E-05	12.535	11.256	11.544	12.411	-7.9073	10.2616
1.1427E-05	1.1432E-05	10.506	13.233	10.692	13.293	1.7673	0.45591
1.1436E-05	1.1440E-05	11.294	12.501	12.446	11.517	10.204	-8.7806
1.1444E-05	1.1448E-05	13.248	10.504	13.277	10.713	0.2225	1.99
1.1452E-05	1.1457E-05	12.46	11.33	11.478	12.474	-7.8826	10.093
1.1461E-05	1.1465E-05	10.491	13.252	10.727	13.255	2.2491	0.024651
1.1469E-05	1.1473E-05	11.371	12.425	12.508	11.454	10.001	-7.8109
1.1477E-05	1.1482E-05	13.263	10.497	13.236	10.754	-0.20643	2.445
1.1486E-05	1.1490E-05	12.383	11.408	11.418	12.531	-7.7918	9.8458
1.1494E-05	1.1498E-05	10.487	13.259	10.771	13.207	2.7042	-0.39444
1.1503E-05	1.1507E-05	11.45	12.347	12.566	11.399	9.7387	-7.6792
1.1511E-05	1.1515E-05	13.266	10.502	13.185	10.805	-0.61118	2.8794
1.1519E-05	1.1523E-05	12.305	11.489	11.365	12.585	-7.6452	9.5337
1.1528E-05	1.1532E-05	10.495	13.254	10.823	13.15	3.1205	-0.78307
1.1536E-05	1.1540E-05	11.53	12.268	12.615	11.35	9.4129	-7.484
1.1544E-05	1.1548E-05	13.258	10.519	13.129	10.863	-0.97833	3.2706
1.1553E-05	1.1557E-05	12.229	11.571	11.32	12.631	-7.432	9.1645
1.1561E-05	1.1565E-05	10.515	13.239	10.881	13.067	3.4881	-1.5115
1.1569E-05	1.1573E-05	12.608	12.19	12.657	11.308	9.0373	-7.235
1.1578E-05	1.1582E-05	13.241	10.543	13.066	10.826	-1.318	6.3325
1.1586E-05	1.1590E-05	12.155	11.651	11.283	12.671	-7.1704	8.7842
1.1594E-05	1.1599E-05	10.543	13.217	10.946	13.02	3.8182	-1.4926
1.1603E-05	1.1607E-05	11.684	12.114	12.691	11.272	8.618	-6.9519
1.1611E-05	1.1615E-05	13.215	10.574	12.999	10.993	-1.6323	3.9596
1.1619E-05	1.1624E-05	12.082	11.728	11.253	12.705	-6.8635	8.3275
1.1628E-05	1.1632E-05	10.578	13.191	11.013	12.952	4.1144	-1.8083
1.1636E-05	1.1640E-05	11.759	12.041	12.72	11.241	8.1767	-6.6418
1.1644E-05	1.1648E-05	13.184	10.608	12.93	11.06	-1.9269	4.2562
1.1653E-05	1.1657E-05	12.011	11.802	11.226	12.733	-6.5314	7.8624

1.1661E-05	1.1665E-05	10.617	13.16	11.084	12.885	4.3968	-2.0938
1.1669E-05	1.1674E-05	11.832	11.971	12.746	11.215	7.7255	-6.316
1.1678E-05	1.1682E-05	13.151	10.645	12.861	11.127	-2.2084	4.5256
1.1686E-05	1.1690E-05	11.941	11.871	11.202	12.757	-6.1834	7.4628
1.1694E-05	1.1699E-05	10.656	13.128	11.153	12.819	4.6664	-2.359
1.1703E-05	1.1707E-05	11.903	11.905	12.77	11.193	7.2881	-5.9773
1.1711E-05	1.1715E-05	13.118	10.682	12.793	11.193	-2.4771	4.7812
1.1720E-05	1.1724E-05	11.873	11.938	11.18	12.779	-5.8384	7.0429
1.1728E-05	1.1732E-05	10.693	13.096	11.221	12.755	4.9367	-2.6064
1.1736E-05	1.1740E-05	11.971	11.841	12.794	11.173	6.8717	-5.6373
1.1745E-05	1.1749E-05	13.087	10.718	12.729	11.258	-2.7386	5.0344
1.1753E-05	1.1757E-05	11.806	12.002	11.157	12.8	-5.5004	6.6454
1.1761E-05	1.1765E-05	10.727	13.065	11.285	12.693	5.2065	-2.8521
1.1770E-05	1.1774E-05	12.037	11.776	12.818	11.152	6.4889	-5.299
1.1778E-05	1.1782E-05	13.059	10.751	12.668	11.321	-2.9903	5.3035
1.1786E-05	1.1790E-05	11.742	12.066	11.134	12.823	-5.1754	6.2739
1.1795E-05	1.1799E-05	10.757	13.038	11.347	12.634	5.4863	-3.0985
1.1803E-05	1.1807E-05	12.1	11.712	12.842	11.129	6.1343	-4.9759
1.1811E-05	1.1816E-05	13.035	10.778	12.612	11.381	-3.2459	5.5931
1.1820E-05	1.1824E-05	11.677	12.129	11.11	12.849	-4.8595	5.8365
1.1828E-05	1.1832E-05	10.782	13.015	11.406	12.578	5.7803	-3.3576
1.1836E-05	1.1841E-05	12.162	11.646	12.869	11.103	5.8136	-4.6649
1.1845E-05	1.1849E-05	13.014	10.8	12.558	11.439	-3.5037	5.9117
1.1853E-05	1.1857E-05	11.613	12.192	11.083	12.879	-4.5593	5.6319
1.1861E-05	1.1866E-05	10.804	12.998	11.462	12.526	6.0963	-3.6283
1.1870E-05	1.1874E-05	12.225	11.579	12.899	11.072	5.5154	-4.3779
1.1878E-05	1.1882E-05	12.996	10.816	12.506	11.493	-3.7738	6.2567
1.1886E-05	1.1891E-05	11.546	12.256	11.054	12.913	-4.2626	5.3667
1.1895E-05	1.1899E-05	10.821	12.986	11.517	12.478	6.4297	-3.9116
1.1903E-05	1.1907E-05	12.289	11.51	12.933	11.038	5.2394	-4.104
1.1912E-05	1.1916E-05	12.982	10.827	12.454	11.543	-4.0611	6.6205
1.1920E-05	1.1924E-05	11.476	12.319	11.02	12.951	-3.9747	5.1293
1.1928E-05	1.1932E-05	10.834	12.978	11.571	12.432	6.8007	-4.2039
1.1937E-05	1.1941E-05	12.355	11.441	12.97	11.001	4.983	-3.8445
1.1945E-05	1.1949E-05	12.971	10.834	12.404	11.592	-4.3702	6.9933
1.1953E-05	1.1957E-05	11.403	12.382	10.982	12.99	-3.6924	4.9116
1.1962E-05	1.1966E-05	10.844	12.972	11.623	12.387	7.188	-4.5054
1.1970E-05	1.1974E-05	12.423	11.37	13.013	10.963	4.7478	-3.5818
1.1978E-05	1.1982E-05	12.964	10.84	12.355	11.639	-4.6937	7.375
1.1987E-05	1.1991E-05	11.328	12.447	10.941	13.032	-3.4206	4.6964
1.1995E-05	1.1999E-05	10.85	12.966	11.673	12.342	7.5897	-4.8142

Fig5.3_ExactDemaw_SqLO_6dBlower

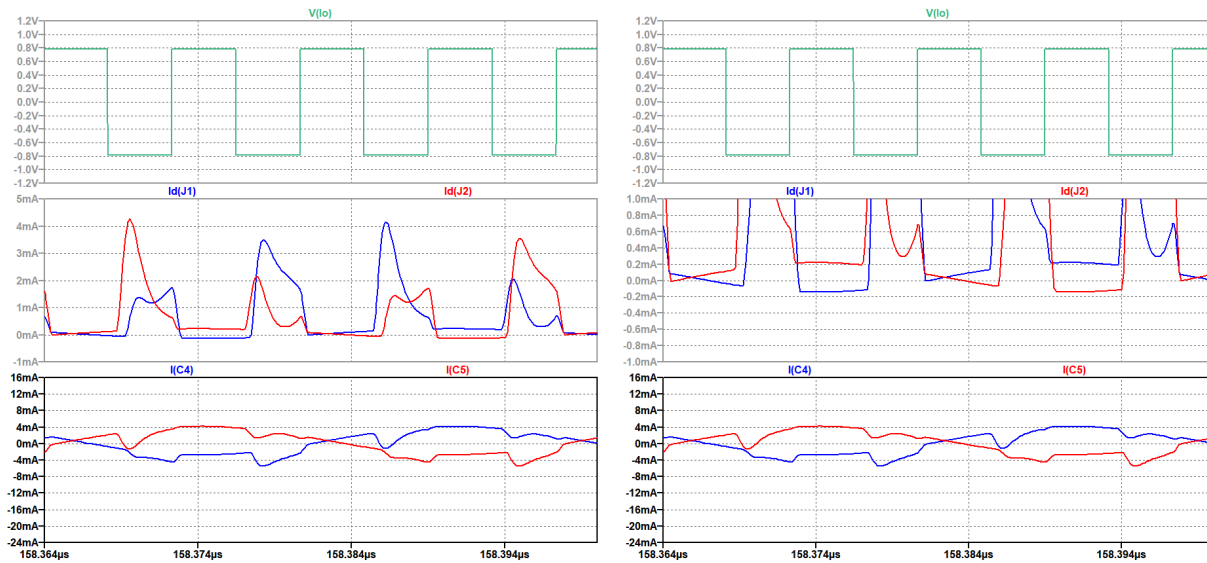


max discharge of CAP1		-5.7253
max discharge of CAP2		-5.6943
max discahrge of CAP1 and CAP2		-5.7253

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0000E-05	1.0004E-05	11.439	12.358	11.15	12.822	-2.5345	3.7548
1.0008E-05	1.0013E-05	11.086	12.745	11.759	12.255	6.073	-3.8456
1.0017E-05	1.0021E-05	12.393	11.419	12.84	11.141	3.6076	-2.4398
1.0025E-05	1.0029E-05	12.736	11.087	12.226	11.773	-4.002	6.1904
1.0033E-05	1.0038E-05	11.384	12.409	11.122	12.849	-2.3059	3.5484
1.0042E-05	1.0046E-05	11.097	12.731	11.802	12.213	6.3587	-4.0659
1.0050E-05	1.0054E-05	12.446	11.365	12.889	11.115	3.3978	-2.1974
1.0058E-05	1.0063E-05	12.722	11.101	12.183	11.818	-4.2331	6.4663
1.0067E-05	1.0071E-05	11.329	12.462	11.095	12.876	-2.0637	3.3264
1.0075E-05	1.0079E-05	11.11	12.714	11.847	12.168	6.6305	-4.2931
1.0083E-05	1.0088E-05	12.499	11.308	12.896	11.09	3.1794	-1.9323
1.0092E-05	1.0096E-05	12.705	11.117	12.139	11.866	-4.4597	6.7379
1.0100E-05	1.0104E-05	11.274	12.516	11.071	12.903	-1.8	3.0899
1.0109E-05	1.0113E-05	11.127	12.694	11.894	12.12	6.889	-4.5241
1.0117E-05	1.0121E-05	12.551	11.251	12.92	11.065	2.9394	-1.653
1.0125E-05	1.0129E-05	12.684	11.136	12.091	11.915	-4.6757	7.0002
1.0134E-05	1.0138E-05	11.219	12.571	11.049	12.828	-1.511	2.8418
1.0142E-05	1.0146E-05	11.149	12.672	11.943	12.07	7.1217	-4.7495
1.0150E-05	1.0154E-05	12.603	11.195	12.941	11.043	2.6809	-1.3577
1.0159E-05	1.0163E-05	12.658	11.157	12.039	11.965	-4.8849	7.2362
1.0167E-05	1.0171E-05	11.164	12.624	11.031	12.95	-1.1959	2.5818
1.0175E-05	1.0179E-05	11.175	12.646	11.995	12.019	7.3327	-4.9581
1.0184E-05	1.0188E-05	12.656	11.141	12.959	11.024	2.3986	-1.0477
1.0192E-05	1.0196E-05	12.627	11.184	11.985	12.016	-5.0815	7.44
1.0200E-05	1.0205E-05	11.111	12.675	11.016	12.968	-0.85873	2.3059
1.0209E-05	1.0213E-05	11.206	12.616	12.049	11.967	7.5141	-5.1466
1.0217E-05	1.0221E-05	12.706	11.09	12.973	11.011	2.1023	-0.71483
1.0225E-05	1.0230E-05	12.592	11.215	11.929	12.067	-5.265	7.5999
1.0234E-05	1.0238E-05	11.061	12.723	11.005	12.979	-0.50512	2.0113
1.0242E-05	1.0246E-05	11.241	12.58	12.104	11.912	7.6705	-5.3124
1.0250E-05	1.0255E-05	12.755	11.043	12.983	11.003	1.7917	-0.36399
1.0259E-05	1.0263E-05	12.554	11.252	11.873	12.12	-5.4255	7.7175
1.0267E-05	1.0271E-05	11.014	12.768	10.998	12.985	-0.1416	1.6973
1.0275E-05	1.0280E-05	11.28	12.539	12.157	11.856	7.7734	-5.4452
1.0284E-05	1.0288E-05	12.799	11.001	12.988	11.002	1.4761	0.0092343
1.0292E-05	1.0296E-05	12.512	11.295	11.816	12.174	-5.5585	7.7875
1.0301E-05	1.0305E-05	10.972	12.809	10.997	12.984	0.22824	1.3668
1.0309E-05	1.0313E-05	11.322	12.492	12.21	11.799	7.8365	-5.5517
1.0317E-05	1.0321E-05	12.838	10.963	12.986	11.006	1.1521	0.93934
1.0326E-05	1.0330E-05	12.466	11.342	11.761	12.229	-5.6538	7.8171
1.0334E-05	1.0338E-05	10.937	12.846	11.003	12.977	0.60153	1.0237
1.0342E-05	1.0346E-05	11.369	12.442	12.261	11.741	7.8457	-5.6316
1.0351E-05	1.0355E-05	12.872	10.93	12.978	11.016	0.82441	0.78855
1.0359E-05	1.0363E-05	12.415	11.394	11.706	12.283	-5.7105	7.8037
1.0367E-05	1.0371E-05	10.909	12.879	11.016	12.966	0.97987	0.67649
1.0376E-05	1.0380E-05	11.42	12.388	12.311	11.685	7.8028	-5.6791
1.0384E-05	1.0388E-05	12.899	10.903	12.961	11.031	0.48764	1.1758
1.0392E-05	1.0397E-05	12.361	11.447	11.654	12.334	-5.7253	7.7491
1.0401E-05	1.0405E-05	10.887	12.905	11.036	12.948	1.3612	0.33378
1.0409E-05	1.0413E-05	11.475	12.334	12.36	11.632	7.7088	-5.6911
1.0417E-05	1.0422E-05	12.919	10.883	12.939	11.052	0.15207	1.5511
1.0426E-05	1.0430E-05	12.304	11.502	11.603	12.381	-5.7039	7.6451
1.0434E-05	1.0438E-05	10.873	12.925	11.061	12.925	1.7352	0.0041372
1.0442E-05	1.0447E-05	11.533	12.278	12.406	11.583	7.5736	-5.6591
1.0451E-05	1.0455E-05	12.934	10.871	12.911	11.078	-0.18066	1.9033
1.0459E-05	1.0463E-05	12.246	11.558	11.555	12.424	-5.6462	7.4935
1.0467E-05	1.0472E-05	10.864	12.936	11.092	12.896	2.0926	-0.3102
1.0476E-05	1.0480E-05	11.591	12.222	12.449	11.539	7.4004	-5.5841
1.0484E-05	1.0488E-05	12.943	10.868	12.879	11.111	-0.49617	2.2372
1.0492E-05	1.0497E-05	12.188	11.615	11.511	12.462	-5.558	7.2941
1.0501E-05	1.0505E-05	10.862	12.939	11.126	12.86	2.4262	-0.61021
1.0509E-05	1.0513E-05	11.649	12.165	12.487	11.5	7.1986	-5.4665
1.0518E-05	1.0522E-05	12.945	10.872	12.843	11.149	-0.79135	2.5485
1.0526E-05	1.0530E-05	12.132	11.673	11.473	12.497	-5.4354	7.0603
1.0534E-05	1.0538E-05	10.867	12.936	11.163	12.82	2.7286	-0.89555
1.0543E-05	1.0547E-05	11.704	12.108	12.52	11.464	6.9666	-5.3173
1.0551E-05	1.0555E-05	12.941	10.881	12.804	11.19	-1.0586	2.843
1.0559E-05	1.0563E-05	12.078	11.73	11.44	12.528	-5.2826	6.8015
1.0568E-05	1.0572E-05	10.878	12.928	11.204	12.778	2.9995	-1.1641
1.0576E-05	1.0580E-05	11.758	12.063	12.547	11.433	6.7122	-5.1431
1.0584E-05	1.0588E-05	12.931	10.894	12.763	11.234	-1.3048	3.1144
1.0593E-05	1.0597E-05	12.026	11.786	11.413	12.556	-5.0987	6.5338
1.0601E-05	1.0605E-05	10.894	12.917	11.247	12.734	3.2446	-1.4141
1.0609E-05	1.0614E-05	11.811	11.999	12.571	11.405	6.4366	-4.9553
1.0618E-05	1.0622E-05	12.916	10.91	12.719	11.277	-1.5302	3.3659
1.0626E-05	1.0630E-05	11.976	11.839	11.39	12.58	-4.8931	6.2622
1.0634E-05	1.0639E-05	10.913	12.903	11.292	12.691	3.4723	-1.6422
1.0643E-05	1.0647E-05	11.862	11.949	12.592	11.381	6.1525	-4.7553
1.0651E-05	1.0655E-05	12.889	10.928	12.673	11.321	-1.7463	3.5908
1.0659E-05	1.0664E-05	11.926	11.889	11.369	12.601	-4.6719	5.9933
1.0668E-05	1.0672E-05	10.935	12.887	11.338	12.649	3.6901	-1.849
1.0676E-05	1.0680E-05	11.912	11.901	12.611	11.36	5.8673	-4.5484
1.0684E-05	1.0689E-05	12.88	10.948	12.628	11.364	-1.951	3.7987
1.0693E-05	1.0697E-05	11.877	11.936	11.349	12.619	-4.4498	5.7272
1.0701E-05	1.0705E-05	10.956	12.869	11.384	12.607	3.9038	-2.0386
1.0710E-05	1.0714E-05	11.961	11.856	12.631	11.342	5.595	-4.3329
1.0718E-05	1.0722E-05	12.861	10.968	12.585	11.406	-2.1512	3.9923
1.0726E-05	1.0730E-05	11.83	11.981	11.329	12.636	-4.2302	5.4664
1.0735E-05	1.0739E-05	10.976	12.85	11.428	12.565	4.1166	-2.2205
1.0743E-05	1.0747E-05	12.009	11.812	12.65	11.326	5.337	-4.1144
1.0751E-05	1.0755E-05	12.844	10.989	12.543	11.449	-2.342	4.1865
1.0760E-05	1.0764E-05	11.784	12.025	11.31	12.652	-4.0214	5.2117
1.0768E-05	1.0772E-05	10.984	12.832	11.469	12.524	4.3227	-2.3979
1.0776E-05	1.0780E-05	12.054	11.767	12.669	11.309	5.1009	-3.895
1.0785E-05	1.0789E-05	12.829	11.008	12.504	11.491	-2.5284	4.3888
1.0793E-05	1.0797E-05	11.739	12.07	11.291	12.67	-3.8148	4.967
1.0801E-05	1.0806E-05	11.01	12.814	11.509	12.483	4.5312	-2.5829
1.0810E-05	1.0814E-05	12.098	11.722	12.688	11.29	4.8769	-3.6827
1.0818E-05	1.0822E-05	12.814	11.025	12.467	11.532	-2.7071	4.6059
1.0826E-05	1.0831E-05	11.696	12.116	11.273	12.69	-3.6192	4.7435
1.0835E-05	1.0839E-05	11.025	12.8	11.548	12.445	4.7407	-2.7748
1.0843E-05	1.0847E-05	11.241	11.675	12.707	11.269	4.664	-3.4796
1.0851E-05	1.0856E-05	12.8	11.038	12.43	11.572	-2.8896	4.836
1.0860E-05	1.0864E-05	11.651	12.161	11.253	12.713	-3.4168	4.5384
1.0868E-05	1.0872E-05	11.039	12.788	11.587	12.408	4.9615	-2.9721
1.0876E-05	1.0881E-05	12.185	11.628	12.728	11.246	4.4537	-3.288
1.0885E-05	1.0889E-05	12.786	11.048	12.393	11.609	-3.0777	5.0827
1.0893E-05	1.0897E-05	11.605	12.207	11.232	12.738	-3.2131	4.3479
1.0902E-05	1.0906E-05	11.052	12.779	11.626	12.373	5.1973	-3.1723
1.0910E-05	1.0914E-05	12.231	11.58	12.751	11.221	4.2487	-3.1002
1.0918E-05	1.0922E-05	12.773	11.056	12.354	11.646	-3.2815	5.3348
1.0927E-05	1.0931E-05	11.556	12.253	11.209	12.764	-3.0036	4.1675
1.0935E-05	1.0939E-05	11.064	12.769	11.667	12.338	5.4573	-3.3774
1.0943E-05	1.0947E-05	12.28	11.532	12.777	11.197	4.0449	-2.9104
1.0952E-05	1.0956E-05	12.761	11.064	12.315	11.683	-3.4965	5.5951
1.0960E-05	1.0964E-05	11.504	12.299	11.183	12.79	-2.7933	3.9847
1.0968E-05	1.0972E-05	11.074	12.759	11.709	12.302	5.7325	-3.5844
1.0977E-05	1.0981E-05	12.331	11.483	12.805	11.172	3.8468	-2.7064
1.0985E-05	1.0989E-05	12.75	11.074	12.275	11.723	-3.7247	5.8584
1.0993E-05	1.0998E-05	11.45	12.348	11.155	12.816	-2.5772	3.7944
1.1002E-05	1.1006E-05	11.084	12.747	11.751	12.263	6.0174	-3.7969
1.1010E-05	1.1014E-05	12.383	11.431	12.834	11.147	3.6469	-2.4858
1.101							

1.1661E-05	1.1665E-05	10.932	12.891	11.33	12.658	3.6457	-1.8096
1.1669E-05	1.1674E-05	11.903	11.911	12.607	11.364	5.9179	-4.5928
1.1678E-05	1.1682E-05	12.883	10.944	12.636	11.355	-1.9126	3.7557
1.1686E-05	1.1690E-05	11.886	11.926	11.353	12.616	-4.4898	5.785
1.1694E-05	1.1699E-05	10.953	12.873	11.376	12.615	3.8637	-2.0007
1.1703E-05	1.1707E-05	11.952	11.866	12.627	11.346	5.6425	-4.3783
1.1711E-05	1.1715E-05	12.864	10.964	12.592	11.397	-2.1135	3.9501
1.1720E-05	1.1724E-05	11.838	11.971	11.333	12.632	-4.2718	5.517
1.1728E-05	1.1732E-05	10.972	12.854	11.42	12.573	4.0776	-2.1797
1.1736E-05	1.1740E-05	12	11.821	12.646	11.33	5.386	-4.157
1.1745E-05	1.1749E-05	12.848	10.986	12.551	11.44	-2.3088	4.1402
1.1753E-05	1.1757E-05	11.792	12.016	11.313	12.648	-4.0626	5.2596
1.1761E-05	1.1765E-05	10.99	12.834	11.461	12.532	4.2835	-2.3585
1.1770E-05	1.1774E-05	12.045	11.776	12.665	11.313	5.1477	-3.935
1.1778E-05	1.1782E-05	12.832	11.006	12.512	11.483	-2.4924	4.3425
1.1786E-05	1.1790E-05	11.748	12.061	11.295	12.665	-3.8622	5.0102
1.1795E-05	1.1799E-05	11.006	12.817	11.5	12.491	4.489	-2.5438
1.1803E-05	1.1807E-05	12.089	11.73	12.684	11.294	4.9239	-3.7186
1.1811E-05	1.1816E-05	12.817	11.022	12.475	11.525	-2.6702	4.5596
1.1820E-05	1.1824E-05	11.705	12.107	11.277	12.686	-3.6689	4.7834
1.1828E-05	1.1832E-05	11.022	12.802	11.539	12.452	4.6939	-2.7384
1.1836E-05	1.1841E-05	12.131	11.684	12.702	11.273	4.7067	-3.5171
1.1845E-05	1.1849E-05	12.803	11.036	12.438	11.965	-2.848	4.7925
1.1853E-05	1.1857E-05	11.661	12.153	11.258	12.709	-3.4585	4.5746
1.1861E-05	1.1866E-05	11.037	12.79	11.579	12.415	4.9108	-2.9353
1.1870E-05	1.1874E-05	12.175	11.637	12.723	11.25	4.4943	-3.3255
1.1878E-05	1.1882E-05	12.788	11.046	12.4	11.602	-3.0364	5.0343
1.1886E-05	1.1891E-05	11.615	12.198	11.237	12.733	-3.2499	4.3861
1.1895E-05	1.1899E-05	11.05	12.781	11.619	12.38	5.1442	-3.1349
1.1903E-05	1.1907E-05	12.222	11.59	12.745	11.226	4.2841	-3.1407
1.1912E-05	1.1916E-05	12.775	11.054	12.361	11.639	-3.2371	5.2854
1.1920E-05	1.1924E-05	11.566	12.244	11.214	12.758	-3.0415	4.2045
1.1928E-05	1.1932E-05	11.062	12.772	11.66	12.346	5.4013	-3.3342
1.1937E-05	1.1941E-05	12.27	11.542	12.771	11.202	4.0806	-2.9516
1.1945E-05	1.1949E-05	12.763	11.063	12.322	11.675	-3.4546	5.5381
1.1953E-05	1.1957E-05	11.514	12.289	11.188	12.784	-2.8304	4.0243
1.1962E-05	1.1966E-05	11.073	12.762	11.701	12.31	5.6776	-3.5393
1.1970E-05	1.1974E-05	12.321	11.494	12.8	11.178	3.8823	-2.7504
1.1978E-05	1.1982E-05	12.752	11.072	12.283	11.714	-3.6805	5.8004
1.1987E-05	1.1991E-05	11.46	12.337	11.16	12.81	-2.6204	3.8319
1.1995E-05	1.1999E-05	11.082	12.749	11.743	12.271	5.9634	-3.7493

Fig5.4_ExactDemaw_SqLO_12dBlowe



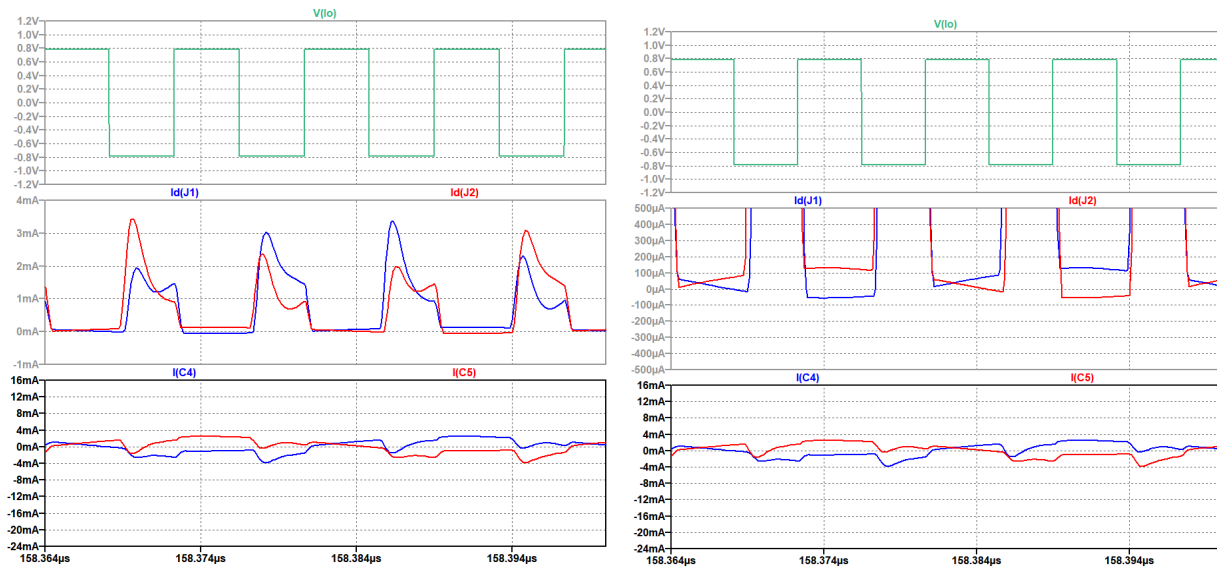
max discharge of CAP1		-3.1029
max discharge of CAP2		-3.0882
max discahrge of CAP1 and CAP2		-3.1029

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0000E-05	1.0004E-05	11.633	12.177	11.512	12.465	-1.0388	2.3678
1.0008E-05	1.0013E-05	11.448	12.372	11.867	12.125	3.6597	-1.9953
1.0017E-05	1.0021E-05	12.199	11.622	12.479	11.51	2.301	-0.9666
1.0025E-05	1.0029E-05	12.373	11.453	12.112	11.879	-2.1113	3.7216
1.0033E-05	1.0038E-05	11.602	12.209	11.495	12.483	-0.92262	2.2472
1.0042E-05	1.0046E-05	11.453	12.366	11.89	12.1	3.8226	-2.1511
1.0050E-05	1.0054E-05	12.23	11.589	12.497	11.492	2.1845	-0.8381
1.0058E-05	1.0063E-05	12.367	11.458	12.088	11.904	-2.2555	3.8938
1.0067E-05	1.0071E-05	11.57	12.243	11.478	12.502	-0.79596	2.1205
1.0075E-05	1.0079E-05	11.459	12.36	11.915	12.075	3.9808	-2.3072
1.0083E-05	1.0088E-05	12.261	11.555	12.514	11.473	2.0561	-0.70308
1.0092E-05	1.0096E-05	12.359	11.465	12.062	11.93	-2.4006	4.0615
1.0100E-05	1.0104E-05	11.537	12.276	11.462	12.52	-0.65077	1.9912
1.0109E-05	1.0113E-05	11.468	12.352	11.942	12.048	4.1332	-2.4584
1.0117E-05	1.0121E-05	12.294	11.521	12.529	11.457	1.9117	-0.56062
1.0125E-05	1.0129E-05	12.347	11.473	12.034	11.957	-2.5401	4.22
1.0134E-05	1.0138E-05	11.505	12.309	11.448	12.537	-0.49237	1.8526
1.0142E-05	1.0146E-05	11.48	12.342	11.972	12.021	4.28	-2.5975
1.0150E-05	1.0154E-05	12.327	11.489	12.543	11.442	1.7571	-0.40799
1.0159E-05	1.0163E-05	12.334	11.484	12.004	11.985	-2.6772	4.3584
1.0167E-05	1.0171E-05	11.472	12.34	11.435	12.55	-0.31905	1.7047
1.0175E-05	1.0179E-05	11.494	12.328	12.002	11.993	4.4154	-2.7223
1.0184E-05	1.0188E-05	12.359	11.459	12.556	11.431	1.5921	-0.24093
1.0192E-05	1.0196E-05	12.318	11.499	11.973	12.014	-2.8027	4.4772
1.0200E-05	1.0205E-05	11.44	12.369	11.424	12.56	-0.13989	1.5404
1.0209E-05	1.0213E-05	11.511	12.311	12.033	11.963	4.5348	-2.8296
1.0217E-05	1.0221E-05	12.389	11.431	12.566	11.424	1.4226	-0.056085
1.0225E-05	1.0239E-05	12.3	11.517	11.941	12.044	-2.914	4.571
1.0234E-05	1.0238E-05	11.411	12.397	11.417	12.566	0.047997	1.3637
1.0242E-05	1.0246E-05	11.529	12.29	12.063	11.931	4.6288	-2.9208
1.0250E-05	1.0255E-05	12.417	11.404	12.572	11.42	1.2472	0.14233
1.0259E-05	1.0263E-05	12.279	11.539	11.911	12.075	-3.0004	4.6455
1.0267E-05	1.0271E-05	11.386	12.423	11.413	12.569	0.239	1.174
1.0275E-05	1.0280E-05	11.551	12.266	12.093	11.898	4.6928	-2.9946
1.0284E-05	1.0288E-05	12.441	11.379	12.574	11.419	1.0678	0.35066
1.0292E-05	1.0296E-05	12.255	11.564	11.88	12.107	-3.0621	4.6954
1.0301E-05	1.0305E-05	11.364	12.446	11.414	12.569	0.43886	0.98171
1.0309E-05	1.0313E-05	11.576	12.239	12.122	11.866	4.7229	-3.0505
1.0317E-05	1.0321E-05	12.461	11.358	12.57	11.422	0.88082	0.55901
1.0326E-05	1.0330E-05	12.228	11.591	11.85	12.138	-3.0941	4.7224
1.0334E-05	1.0338E-05	11.347	12.467	11.42	12.565	0.84342	0.78888
1.0342E-05	1.0346E-05	11.604	12.212	12.152	11.835	4.7218	-3.0828
1.0351E-05	1.0355E-05	12.477	11.341	12.563	11.427	0.88947	0.76484
1.0359E-05	1.0363E-05	12.198	11.619	11.82	12.167	-3.1029	4.7175
1.0367E-05	1.0371E-05	11.333	12.482	11.43	12.557	0.85496	0.60227
1.0376E-05	1.0380E-05	11.635	12.183	12.18	11.806	4.692	-3.0876
1.0384E-05	1.0388E-05	12.489	11.328	12.551	11.437	0.49432	0.96365
1.0392E-05	1.0397E-05	12.166	11.648	11.791	12.194	-3.087	4.683
1.0401E-05	1.0405E-05	11.323	12.493	11.444	12.545	1.0617	0.41923
1.0409E-05	1.0413E-05	11.667	12.152	12.208	11.78	4.6394	-3.0622
1.0417E-05	1.0422E-05	12.498	11.321	12.536	11.452	0.30429	1.1569
1.0426E-05	1.0430E-05	12.133	11.679	11.763	12.218	-3.0525	4.6138
1.0434E-05	1.0438E-05	11.317	12.499	11.46	12.529	1.2634	0.24317
1.0442E-05	1.0447E-05	11.7	12.12	12.233	11.756	4.5641	-3.0088
1.0451E-05	1.0455E-05	12.504	11.318	12.519	11.47	0.12289	1.3428
1.0459E-05	1.0463E-05	12.101	11.711	11.738	12.24	-2.9932	4.5177
1.0467E-05	1.0472E-05	11.314	12.5	11.478	12.509	1.4493	0.070276
1.0476E-05	1.0480E-05	11.732	12.088	12.256	11.733	4.4674	-2.9305
1.0484E-05	1.0488E-05	12.505	11.32	12.489	11.492	-0.044366	1.5228
1.0492E-05	1.0497E-05	12.069	11.745	11.717	12.261	-2.9162	4.3995
1.0501E-05	1.0505E-05	11.316	12.498	11.5	12.486	1.6213	-0.094739
1.0509E-05	1.0513E-05	11.764	12.054	12.275	11.713	4.3494	-2.8336
1.0518E-05	1.0522E-05	12.502	11.324	12.477	11.516	-0.19917	1.6938
1.0526E-05	1.0530E-05	12.037	11.778	11.698	12.28	-2.8143	4.2672
1.0534E-05	1.0538E-05	11.322	12.493	11.523	12.461	1.7756	-0.25367
1.0543E-05	1.0547E-05	11.795	12.021	12.292	11.694	4.212	-2.7228
1.0551E-05	1.0555E-05	12.494	11.331	12.452	11.541	-0.33999	1.8541
1.0559E-05	1.0563E-05	12.006	11.81	11.683	12.297	-2.6951	4.1234
1.0568E-05	1.0572E-05	11.331	12.486	11.549	12.436	1.9199	-0.3987
1.0576E-05	1.0580E-05	11.826	11.99	12.306	11.678	4.0584	-2.603
1.0584E-05	1.0588E-05	12.484	11.34	12.425	11.566	-0.47344	1.9983
1.0593E-05	1.0597E-05	11.976	11.841	11.669	12.312	-2.5591	3.9765
1.0601E-05	1.0605E-05	11.343	12.476	11.576	12.41	2.0536	-0.53177
1.0609E-05	1.0614E-05	11.856	11.96	12.318	11.664	3.8964	-2.4748
1.0618E-05	1.0622E-05	12.472	11.35	12.397	11.592	-0.59976	2.1288
1.0626E-05	1.0630E-05	11.946	11.87	11.657	12.324	-2.4179	3.8228
1.0634E-05	1.0639E-05	11.356	12.465	11.604	12.384	2.1839	-0.64954
1.0643E-05	1.0647E-05	11.886	11.932	12.33	11.653	3.7328	-2.3402
1.0651E-05	1.0655E-05	12.46	11.363	12.37	11.618	-0.72233	2.2443
1.0659E-05	1.0664E-05	11.916	11.898	11.645	12.334	-2.274	3.688
1.0668E-05	1.0672E-05	11.369	12.453	11.631	12.358	2.3062	-0.75912
1.0676E-05	1.0680E-05	11.915	11.906	12.341	11.644	3.5746	-2.1992
1.0684E-05	1.0689E-05	12.447	11.376	12.343	11.644	-0.83847	2.3542
1.0693E-05	1.0697E-05	11.888	11.925	11.634	12.343	-2.1362	3.5092
1.0701E-05	1.0705E-05	11.381	12.44	11.657	12.332	2.4252	-0.86272
1.0710E-05	1.0714E-05	11.943	11.879	12.352	11.635	3.4238	-2.0567
1.0718E-05	1.0722E-05	12.436	11.39	12.318	11.67	-0.94929	2.4614
1.0726E-05	1.0730E-05	11.862	11.951	11.624	12.352	-2.0017	3.3552
1.0735E-05	1.0739E-05	11.393	12.427	11.682	12.306	2.5364	-0.96863
1.0743E-05	1.0747E-05	11.969	11.853	12.362	11.626	3.2816	-1.9161
1.0751E-05	1.0755E-05	12.425	11.402	12.294	11.695	-1.0541	2.5739
1.0760E-05	1.0764E-05	11.836	11.978	11.614	12.362	-1.8742	3.2061
1.0768E-05	1.0772E-05	11.403	12.415	11.705	12.282	2.8465	-1.0772
1.0776E-05	1.0780E-05	11.994	11.826	12.371	11.615	3.1452	-1.7831
1.0785E-05	1.0789E-05	12.415	11.413	12.271	11.72	-1.1583	2.6906
1.0793E-05	1.0797E-05	11.811	12.404	11.605	12.373	-1.7478	3.07
1.0801E-05	1.0806E-05	11.414	12.006	11.728	12.258	2.756	-1.1915
1.0810E-05	1.0814E-05	12.019	11.799	12.382	11.603	3.0143	-1.659
1.0818E-05	1.0822E-05	12.406	11.421	12.249	11.743	-1.2641	2.8157

1.0826E-05	1.0831E-05	11.786	12.031	11.594	12.385	-1.6259	2.9436
1.0835E-05	1.0839E-05	11.423	12.398	11.751	12.236	2.8746	-1.3079
1.0843E-05	1.0847E-05	12.045	11.772	12.393	11.591	2.8866	-1.5456
1.0851E-05	1.0856E-05	12.397	11.428	12.226	11.764	-1.3789	2.9444
1.0860E-05	1.0864E-05	11.759	12.058	11.582	12.399	-1.5041	2.831
1.0868E-05	1.0872E-05	11.431	12.393	11.774	12.215	3.0024	-1.4299
1.0876E-05	1.0881E-05	12.072	11.746	12.406	11.577	2.7646	-1.4383
1.0885E-05	1.0889E-05	12.39	11.433	12.204	11.785	-1.5036	3.0779
1.0893E-05	1.0897E-05	11.731	12.084	11.568	12.413	-1.3892	2.722
1.0902E-05	1.0906E-05	11.437	12.388	11.796	12.195	3.1459	-1.5533
1.0910E-05	1.0914E-05	12.101	11.719	12.422	11.562	2.6484	-1.3333
1.0918E-05	1.0922E-05	12.385	11.438	12.182	11.806	-1.6402	3.2183
1.0927E-05	1.0931E-05	11.701	12.111	11.552	12.428	-1.277	2.6157
1.0935E-05	1.0939E-05	11.441	12.383	11.819	12.174	3.2994	-1.684
1.0943E-05	1.0947E-05	12.131	11.69	12.439	11.547	2.5385	-1.2245
1.0952E-05	1.0956E-05	12.381	11.442	12.16	11.827	-1.7832	3.3667
1.0960E-05	1.0964E-05	11.671	12.14	11.534	12.444	-1.1707	2.5043
1.0968E-05	1.0972E-05	11.444	12.378	11.841	12.153	3.4618	-1.8213
1.0977E-05	1.0981E-05	12.161	11.66	12.457	11.531	2.4317	-1.1109
1.0985E-05	1.0989E-05	12.378	11.447	12.139	11.85	-1.9315	3.5236
1.0993E-05	1.0998E-05	11.64	12.171	11.516	12.462	-1.0607	2.3916
1.1002E-05	1.1006E-05	11.448	12.373	11.863	12.13	3.6246	-1.9692
1.1010E-05	1.1014E-05	12.192	11.629	12.474	11.513	2.3232	-0.9092
1.1018E-05	1.1023E-05	12.374	11.452	12.116	11.874	-2.079	3.6904
1.1027E-05	1.1031E-05	11.608	12.203	11.498	12.148	-0.94743	2.2701
1.1035E-05	1.1039E-05	11.452	12.368	11.886	12.105	3.7888	-2.1212
1.1043E-05	1.1048E-05	12.223	11.595	12.493	11.495	2.2075	-0.86485
1.1052E-05	1.1056E-05	12.368	11.457	12.093	11.899	-2.2267	3.861
1.1060E-05	1.1064E-05	11.576	12.236	11.481	12.499	-0.81982	2.148
1.1068E-05	1.1073E-05	11.458	12.362	11.91	12.08	3.9474	-2.278
1.1077E-05	1.1081E-05	12.255	11.562	12.51	11.477	2.0803	-0.73308
1.1085E-05	1.1089E-05	12.36	11.463	12.067	11.925	-2.3712	4.0299
1.1093E-05	1.1098E-05	11.544	12.269	11.465	12.517	-0.67984	2.0179
1.1102E-05	1.1106E-05	11.467	12.354	11.937	12.054	4.104	-2.4281
1.1110E-05	1.1114E-05	12.288	11.528	12.526	11.46	1.9397	-0.99214
1.1119E-05	1.1123E-05	12.35	11.471	12.039	11.951	-2.5145	4.1876
1.1127E-05	1.1131E-05	11.511	12.302	11.451	12.533	-0.52236	1.8826
1.1135E-05	1.1139E-05	11.478	12.344	11.966	12.027	4.2521	-2.5701
1.1144E-05	1.1148E-05	12.321	11.496	12.541	11.445	1.7873	-0.44027
1.1152E-05	1.1156E-05	12.337	11.482	12.009	11.979	-2.6518	4.3309
1.1160E-05	1.1164E-05	11.478	12.333	11.437	12.547	-0.35523	1.7337
1.1169E-05	1.1173E-05	11.491	12.331	11.996	11.999	4.3918	-2.6965
1.1177E-05	1.1181E-05	12.353	11.465	12.554	11.434	1.6259	-0.2748
1.1185E-05	1.1189E-05	12.321	11.466	11.979	12.008	-2.7809	4.4522
1.1194E-05	1.1198E-05	11.446	12.363	11.426	12.558	-0.17641	1.5736
1.1202E-05	1.1206E-05	11.507	12.314	12.026	11.969	4.5129	-2.809
1.1210E-05	1.1215E-05	12.384	11.436	12.564	11.426	1.4579	-0.092637
1.1219E-05	1.1223E-05	12.304	11.514	11.948	12.038	-2.893	4.5535
1.1227E-05	1.1231E-05	11.417	12.391	11.418	12.565	0.0070227	1.3936
1.1235E-05	1.1240E-05	11.525	12.294	12.057	11.937	4.6123	-2.9235
1.1244E-05	1.1248E-05	12.412	11.409	12.571	11.421	1.2841	0.1038
1.1252E-05	1.1256E-05	12.284	11.535	11.917	12.069	-2.985	4.6318
1.1260E-05	1.1265E-05	11.391	12.418	11.414	12.568	0.19959	1.2114
1.1269E-05	1.1273E-05	11.546	12.271	12.087	11.904	4.6801	-2.9832
1.1277E-05	1.1281E-05	12.436	11.384	12.573	11.419	1.1047	0.30933
1.1285E-05	1.1290E-05	12.26	11.559	11.886	12.101	-3.0482	4.6871
1.1294E-05	1.1298E-05	11.369	12.442	11.414	12.569	0.39675	1.0188
1.1302E-05	1.1306E-05	11.571	12.245	11.116	11.872	4.7172	-3.0423
1.1311E-05	1.1315E-05	12.457	11.362	12.571	11.421	0.91816	0.51727
1.1319E-05	1.1323E-05	12.234	11.585	11.856	12.132	-3.0885	4.72023
1.1327E-05	1.1331E-05	11.351	12.463	11.419	12.566	0.60402	0.82905
1.1336E-05	1.1340E-05	11.598	12.218	12.146	11.841	4.7214	-3.8903
1.1344E-05	1.1348E-05	12.474	11.344	12.564	11.426	0.72591	0.72167
1.1352E-05	1.1356E-05	12.204	11.613	11.825	12.161	-3.1016	4.72263
1.1361E-05	1.1365E-05	11.336	12.479	11.428	12.559	0.81322	0.64017
1.1369E-05	1.1373E-05	11.629	12.189	12.175	11.812	4.7	-3.0682
1.1377E-05	1.1381E-05	12.487	11.331	12.553	11.435	0.53104	0.92209
1.1386E-05	1.1390E-05	12.172	11.642	11.796	12.188	-3.0936	4.6905
1.1394E-05	1.1398E-05	11.325	12.491	11.441	12.548	1.0233	0.45761
1.1402E-05	1.1407E-05	11.661	12.158	12.203	11.785	4.6522	-3.0686
1.1411E-05	1.1415E-05	12.497	11.322	12.54	11.449	0.34019	1.1174
1.1419E-05	1.1423E-05	12.14	11.673	11.768	12.213	-3.0621	4.6286
1.1427E-05	1.1432E-05	11.318	12.498	11.456	12.532	1.2234	0.27728
1.1436E-05	1.1440E-05	11.693	12.127	12.229	11.761	4.583	-3.091
1.1444E-05	1.1448E-05	12.503	11.319	12.523	11.467	0.1586	1.3062
1.1452E-05	1.1457E-05	12.108	11.705	11.743	12.236	-3.0109	4.5371
1.1461E-05	1.1465E-05	11.314	12.5	11.474	12.513	1.4127	0.10378
1.1469E-05	1.1473E-05	11.725	12.094	12.252	11.737	4.4892	-2.9469
1.1477E-05	1.1482E-05	12.505	11.319	12.504	11.488	-0.010655	1.4891
1.1486E-05	1.1490E-05	12.075	11.738	11.721	12.258	-2.9334	4.4241
1.1494E-05	1.1498E-05	11.316	12.499	11.495	12.129	1.5847	-0.065653
1.1503E-05	1.1507E-05	11.757	12.061	12.271	11.716	4.3747	-2.8538
1.1511E-05	1.1515E-05	12.502	11.323	12.481	11.511	-0.16734	1.6636
1.1519E-05	1.1523E-05	12.044	11.772	11.702	12.277	-2.836	4.294
1.1528E-05	1.1532E-05	11.321	12.494	11.518	12.466	1.7446	-0.22399
1.1536E-05	1.1540E-05	11.789	12.028	12.288	11.697	4.2381	-2.748
1.1544E-05	1.1548E-05	12.496	11.329	12.457	11.536	-0.31201	1.8242
1.1553E-05	1.1557E-05	12.013	11.804	11.686	12.294	-2.7172	4.1552
1.1561E-05	1.1565E-05	11.33	12.488	11.544	12.241	1.8903	-0.37229
1.1569E-05	1.1573E-05	11.82	11.996	12.303	11.681	4.0676	-2.6295
1.1578E-05	1.1582E-05	12.486	11.337	12.43	11.561	-0.44832	1.9703
1.1586E-05	1.1590E-05	11.982	11.835	11.672	12.309	-2.5856	4.007
1.1594E-05	1.1599E-05	11.341	12.479	11.571	12.416	2.03	-0.50437
1.1603E-05	1.1607E-05	11.851	11.966	11.612	11.667	3.9264	-2.5028
1.1611E-05	1.1615E-05	12.475	11.348	12.402	11.587	-0.57755	2.1014
1.1619E-05	1.1624E-05	11.951	11.864	11.659	12.321	-2.4449	3.8549
1.1628E-05	1.1632E-05	11.354	12.468	11.599	12.329	2.1597	-0.62584
1.1636E-05	1.1640E-05	11.881	11.938	12.328	11.656	3.7653	-2.6564
1.1644E-05	1.1649E-05	12.462	11.36	12.375	11.613	-0.70062	2.22
1.1653E-05	1.1657E-05	11.922	11.892	11.647	12.332	-2.3044	3.6967

1.1661E-05	1.1665E-05	11.366	12.455	11.626	12.363	2.2852	-0.73567
1.1669E-05	1.1674E-05	11.91	11.911	12.339	11.646	3.6064	-2.2262
1.1678E-05	1.1682E-05	12.45	11.374	12.349	11.639	-0.81741	2.3314
1.1686E-05	1.1690E-05	11.894	11.919	11.636	12.341	-2.1647	3.5388
1.1694E-05	1.1699E-05	11.379	12.442	11.652	12.337	2.4014	-0.84351
1.1703E-05	1.1707E-05	11.937	11.884	12.35	11.637	3.4555	-2.0822
1.1711E-05	1.1715E-05	12.439	11.387	12.323	11.665	-0.9288	2.4408
1.1720E-05	1.1724E-05	11.867	11.946	11.626	12.35	-2.0311	3.3822
1.1728E-05	1.1732E-05	11.39	12.429	11.677	12.311	2.5138	-0.9482
1.1736E-05	1.1740E-05	11.964	11.858	12.36	11.627	3.3101	-1.943
1.1745E-05	1.1749E-05	12.427	11.4	12.299	11.691	-1.0317	2.5529
1.1753E-05	1.1757E-05	11.842	11.973	11.617	12.36	-1.8982	3.2349
1.1761E-05	1.1765E-05	11.402	12.418	11.7	12.286	2.6209	-1.0586
1.1770E-05	1.1774E-05	11.989	11.831	12.369	11.617	3.1719	-1.809
1.1778E-05	1.1782E-05	12.417	11.411	12.276	11.715	-1.1354	2.669
1.1786E-05	1.1790E-05	11.817	12	11.607	12.371	-1.7724	3.0962
1.1795E-05	1.1799E-05	11.412	12.408	11.724	12.263	2.7326	-1.1693
1.1803E-05	1.1807E-05	12.014	11.804	12.379	11.606	3.0375	-1.6855
1.1811E-05	1.1816E-05	12.407	11.42	12.253	11.738	-1.2418	2.7905
1.1820E-05	1.1824E-05	11.791	12.026	11.597	12.383	-1.6471	2.9708
1.1828E-05	1.1832E-05	11.421	12.4	11.747	12.241	2.8487	-1.2851
1.1836E-05	1.1841E-05	12.04	11.778	12.391	11.593	2.9098	-1.5696
1.1845E-05	1.1849E-05	12.398	11.426	12.23	11.76	-1.3559	2.9172
1.1853E-05	1.1857E-05	11.764	12.052	11.585	12.396	-1.5274	2.8537
1.1861E-05	1.1866E-05	11.429	12.394	11.77	12.22	2.978	-1.4027
1.1870E-05	1.1874E-05	12.067	11.752	12.404	11.58	2.7867	-1.4613
1.1878E-05	1.1882E-05	12.392	11.432	12.208	11.781	-1.48	3.0485
1.1886E-05	1.1891E-05	11.736	12.078	11.571	12.41	-1.4112	2.7445
1.1895E-05	1.1899E-05	11.435	12.389	11.792	12.199	3.1169	-1.5269
1.1903E-05	1.1907E-05	12.096	11.725	12.419	11.566	2.6721	-1.3535
1.1912E-05	1.1916E-05	12.386	11.437	12.186	11.802	-1.6135	3.1875
1.1920E-05	1.1924E-05	11.707	12.106	11.555	12.425	-1.3017	2.6347
1.1928E-05	1.1932E-05	11.44	12.384	11.814	12.179	3.2697	-1.6554
1.1937E-05	1.1941E-05	12.125	11.696	12.436	11.551	2.5614	-1.2449
1.1945E-05	1.1949E-05	12.382	11.442	12.165	11.823	-1.7545	3.3347
1.1953E-05	1.1957E-05	11.677	12.134	11.538	12.441	-1.1936	2.5252
1.1962E-05	1.1966E-05	11.444	12.379	11.836	12.157	3.427	-1.7944
1.1970E-05	1.1974E-05	12.155	11.666	12.453	11.534	2.4554	-1.1317
1.1978E-05	1.1982E-05	12.379	11.446	12.143	11.846	-1.9	3.4925
1.1987E-05	1.1991E-05	11.647	12.165	11.52	12.458	-1.0857	2.4112
1.1995E-05	1.1999E-05	11.447	12.374	11.858	12.134	3.5904	-1.94

Fig5.5_ExactDemaw_SqLO_18dBlowe



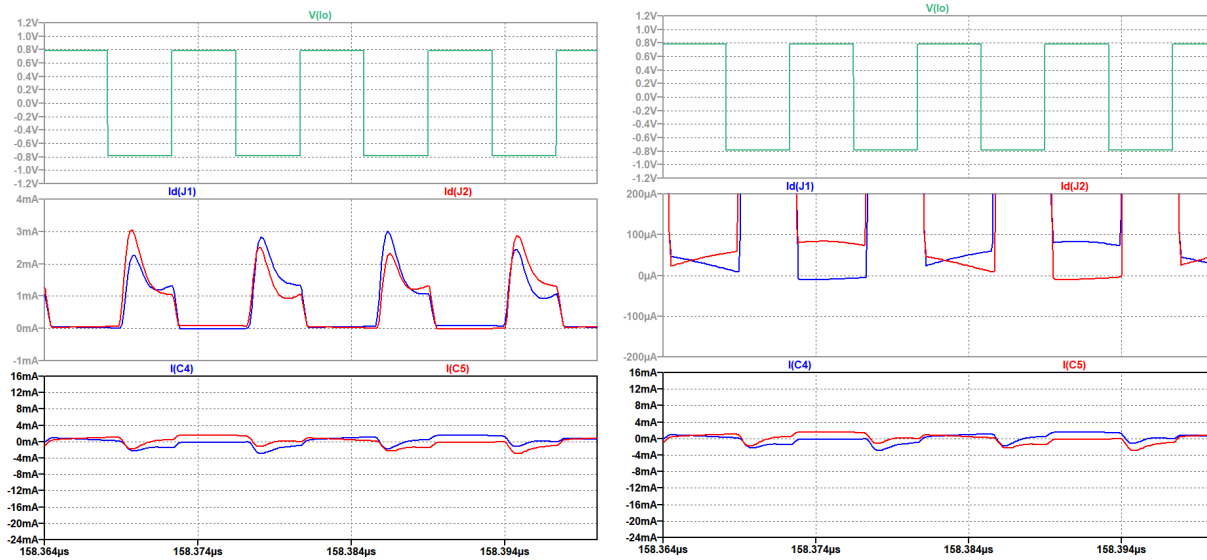
max discharge of CAP1		-1.2821
max discharge of CAP2		-1.2728
max discahrge of CAP1 and CAP2		-1.2821

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0000E-05	1.0004E-05	11.769	12.047	11.748	12.233	-0.17812	1.5458
1.0008E-05	1.0013E-05	11.674	12.143	11.928	12.058	2.1739	-0.70217
1.0017E-05	1.0021E-05	12.058	11.762	12.241	11.747	1.5172	-0.12593
1.0025E-05	1.0029E-05	12.145	11.678	12.052	11.836	-0.76436	2.2138
1.0033E-05	1.0038E-05	11.753	12.064	11.739	12.244	-0.11682	1.4882
1.0042E-05	1.0046E-05	11.677	12.141	11.94	12.045	2.2531	-0.78801
1.0050E-05	1.0054E-05	12.074	11.745	12.25	11.737	1.4547	-0.063656
1.0058E-05	1.0063E-05	12.142	11.68	12.04	11.949	-0.84093	2.3036
1.0067E-05	1.0071E-05	11.737	12.082	11.731	12.254	-0.050389	1.4237
1.0075E-05	1.0079E-05	11.681	12.138	11.954	12.033	2.335	-0.8706
1.0083E-05	1.0088E-05	12.091	11.727	12.258	11.727	1.3845	-0.00029009
1.0092E-05	1.0096E-05	12.137	11.683	12.026	11.961	-0.91967	2.3877
1.0100E-05	1.0104E-05	11.719	12.099	11.722	12.263	0.025873	1.3608
1.0109E-05	1.0113E-05	11.686	12.135	11.968	12.02	2.4152	-0.95
1.0117E-05	1.0121E-05	12.108	11.711	12.267	11.719	1.3089	0.06673
1.0125E-05	1.0129E-05	12.132	11.686	12.011	11.975	-0.9975	2.4661
1.0134E-05	1.0138E-05	11.702	12.115	11.714	12.271	0.10471	1.2893
1.0142E-05	1.0146E-05	11.691	12.13	11.983	12.006	2.4959	-1.0202
1.0150E-05	1.0154E-05	12.126	11.685	12.275	11.712	1.2291	0.14516
1.0159E-05	1.0163E-05	12.126	11.692	11.996	11.989	-1.0735	2.5349
1.0167E-05	1.0171E-05	11.684	12.131	11.706	12.278	0.18953	1.2124
1.0175E-05	1.0179E-05	11.698	12.123	11.998	11.991	2.5685	-1.0852
1.0184E-05	1.0188E-05	12.143	11.679	12.282	11.706	1.1477	0.23086
1.0192E-05	1.0196E-05	12.119	11.7	11.98	12.004	-1.1409	2.5961
1.0200E-05	1.0205E-05	11.668	12.146	11.7	12.283	0.27422	1.1243
1.0209E-05	1.0213E-05	11.705	12.114	12.013	11.976	2.6324	-1.1408
1.0217E-05	1.0221E-05	12.158	11.664	12.287	11.702	1.063	0.32487
1.0225E-05	1.0230E-05	12.11	11.71	11.965	12.02	-1.1968	2.647
1.0234E-05	1.0238E-05	11.654	12.161	11.696	12.286	0.365	1.0315
1.0242E-05	1.0246E-05	11.714	12.103	12.028	11.959	2.6792	-1.1912
1.0250E-05	1.0255E-05	12.172	11.65	12.29	11.699	0.97524	0.42473
1.0259E-05	1.0263E-05	12.1	11.721	11.95	12.036	-1.239	2.6908
1.0267E-05	1.0271E-05	11.641	12.175	11.694	12.288	0.45798	0.93326
1.0275E-05	1.0280E-05	11.725	12.092	12.043	11.943	2.712	-1.2304
1.0284E-05	1.0288E-05	12.183	11.637	12.291	11.698	0.88198	0.52634
1.0292E-05	1.0296E-05	12.088	11.733	11.935	12.052	-1.2668	2.7216
1.0301E-05	1.0305E-05	11.63	12.187	11.696	12.289	0.55904	0.83712
1.0309E-05	1.0313E-05	11.739	12.079	12.059	11.927	2.7265	-1.2601
1.0317E-05	1.0321E-05	12.193	11.626	12.289	11.699	0.78376	0.62671
1.0326E-05	1.0330E-05	12.073	11.746	11.919	12.068	-1.2793	2.7394
1.0334E-05	1.0338E-05	11.622	12.197	11.699	12.287	0.66188	0.74027
1.0342E-05	1.0346E-05	11.753	12.065	12.074	11.912	2.7289	-1.2727
1.0351E-05	1.0355E-05	12.201	11.617	12.284	11.702	0.68264	0.72513
1.0359E-05	1.0363E-05	12.058	11.76	11.903	12.082	-1.2814	2.738
1.0367E-05	1.0371E-05	11.614	12.204	11.704	12.283	0.76946	0.64813
1.0376E-05	1.0380E-05	11.769	12.051	12.089	11.898	2.7175	-1.2698
1.0384E-05	1.0388E-05	12.208	11.612	12.279	11.707	0.58141	0.82204
1.0392E-05	1.0397E-05	12.042	11.775	11.889	12.095	-1.2715	2.7195
1.0401E-05	1.0405E-05	11.609	12.209	11.71	12.276	0.87188	0.55439
1.0409E-05	1.0413E-05	11.786	12.035	12.103	11.885	2.6965	-1.2481
1.0417E-05	1.0422E-05	12.212	11.609	12.271	11.715	0.48442	0.91773
1.0426E-05	1.0430E-05	12.025	11.791	11.875	12.107	-1.2512	2.6832
1.0434E-05	1.0438E-05	11.606	12.211	11.718	12.267	0.97072	0.46361
1.0442E-05	1.0447E-05	11.802	12.019	12.116	11.873	2.661	-1.2141
1.0451E-05	1.0455E-05	12.215	11.608	12.263	11.725	0.39401	1.0131
1.0459E-05	1.0463E-05	12.009	11.808	11.863	12.119	-1.2164	2.6353
1.0467E-05	1.0472E-05	11.605	12.211	11.728	12.256	1.0601	0.37125
1.0476E-05	1.0480E-05	11.818	12.001	12.127	11.861	2.6139	-1.1674
1.0484E-05	1.0488E-05	12.214	11.609	12.252	11.737	0.3108	1.1051
1.0492E-05	1.0497E-05	11.993	11.825	11.853	12.13	-1.1697	2.5767
1.0501E-05	1.0505E-05	11.607	12.21	11.739	12.244	1.1432	0.28536
1.0509E-05	1.0513E-05	11.834	11.984	12.136	11.85	2.5519	-1.1148
1.0518E-05	1.0522E-05	12.212	11.611	12.24	11.749	0.23396	1.1925
1.0526E-05	1.0530E-05	11.977	11.842	11.844	12.14	-1.109	2.514
1.0534E-05	1.0538E-05	11.611	12.207	11.752	12.232	1.2186	0.20286
1.0543E-05	1.0547E-05	11.85	11.967	12.144	11.841	2.4806	-1.0547
1.0551E-05	1.0555E-05	12.207	11.614	12.227	11.762	0.16096	1.271
1.0559E-05	1.0563E-05	11.961	11.859	11.836	12.149	-1.0398	2.4445
1.0568E-05	1.0572E-05	11.616	12.203	11.796	12.219	1.2935	0.13106
1.0576E-05	1.0580E-05	11.866	11.962	12.151	11.833	2.4009	-0.99145
1.0584E-05	1.0588E-05	12.201	11.619	12.212	11.775	0.090165	1.342
1.0593E-05	1.0597E-05	11.944	11.874	11.829	12.156	-0.96417	2.3717
1.0601E-05	1.0605E-05	11.622	12.198	11.781	12.206	1.3632	0.065292
1.0609E-05	1.0614E-05	11.883	11.937	12.158	11.827	2.3193	-0.91988
1.0618E-05	1.0622E-05	12.195	11.625	12.198	11.788	0.022455	1.4039
1.0626E-05	1.0630E-05	11.929	11.889	11.823	12.161	-0.88933	2.2928
1.0634E-05	1.0639E-05	11.628	12.192	11.795	12.193	1.4319	0.008187
1.0643E-05	1.0647E-05	11.898	11.923	12.164	11.822	2.2383	-0.84568
1.0651E-05	1.0655E-05	12.189	11.632	12.184	11.802	-0.04139	1.4614
1.0659E-05	1.0664E-05	11.914	11.903	11.816	12.166	-0.8146	2.2121
1.0668E-05	1.0672E-05	11.635	12.185	11.808	12.179	1.4933	-0.048569
1.0676E-05	1.0680E-05	11.913	11.909	12.17	11.817	2.1622	-0.76655
1.0684E-05	1.0689E-05	12.183	11.639	12.171	11.816	-0.1004	1.5173
1.0693E-05	1.0697E-05	11.9	11.917	11.811	12.17	-0.74392	2.1291
1.0701E-05	1.0705E-05	11.626	12.177	11.821	12.165	1.5521	-0.10284
1.0710E-05	1.0714E-05	11.926	11.895	12.175	11.812	2.0871	-0.69004
1.0718E-05	1.0722E-05	12.177	11.646	12.158	11.829	-0.15454	1.5748
1.0726E-05	1.0730E-05	11.886	11.931	11.806	12.175	-0.67337	2.0504
1.0735E-05	1.0739E-05	11.647	12.171	11.834	12.151	1.6047	-0.16106
1.0743E-05	1.0747E-05	11.939	11.88	12.18	11.807	2.016	-0.61557
1.0751E-05	1.0755E-05	12.171	11.652	12.146	11.842	-0.20649	1.634
1.0760E-05	1.0764E-05	11.874	11.945	11.802	12.181	-0.605	1.9783
1.0768E-05	1.0772E-05	11.653	12.165	11.846	12.139	1.6586	-0.21874
1.0776E-05	1.0780E-05	11.952	11.867	12.184	11.802	1.9438	-0.54908
1.0785E-05	1.0789E-05	12.165	11.657	12.134	11.855	-0.25876	1.695
1.0793E-05	1.0797E-05	11.861	11.968	11.797	12.187	-0.53582	1.9106
1.0801E-05	1.0806E-05	11.658	12.161	11.858	12.127	1.7132	-0.27882
1.0810E-05	1.0814E-05	11.965	11.853	12.19	11.795	1.875	-0.48689
1.0818E-05	1.0822E-05	12.16	11.661	12.122	11.866	-0.31533	1.7566

1.0826E-05	1.0831E-05	11.847	11.972	11.792	12.193	-0.47029	1.8491
1.0835E-05	1.0839E-05	11.663	12.157	11.87	12.116	1.7762	-0.33706
1.0843E-05	1.0847E-05	11.979	11.84	12.196	11.789	1.8078	-0.4306
1.0851E-05	1.0856E-05	12.156	11.664	12.11	11.876	-0.37832	1.8188
1.0860E-05	1.0864E-05	11.833	11.985	11.785	12.2	-0.40653	1.7927
1.0868E-05	1.0872E-05	11.667	12.154	11.882	12.106	1.8432	-0.39913
1.0876E-05	1.0881E-05	11.994	11.827	12.203	11.783	1.7471	-0.3737
1.0885E-05	1.0889E-05	12.152	11.667	12.086	11.887	-0.44739	1.8829
1.0893E-05	1.0897E-05	11.818	11.998	11.777	12.206	-0.34934	1.735
1.0902E-05	1.0906E-05	11.67	12.151	11.893	12.095	1.9186	-0.46173
1.0910E-05	1.0914E-05	12.009	11.813	12.212	11.776	1.6899	-0.31756
1.0918E-05	1.0922E-05	12.15	11.67	12.087	11.898	-0.52036	1.9519
1.0927E-05	1.0931E-05	11.803	12.012	11.768	12.214	-0.29492	1.6776
1.0935E-05	1.0939E-05	11.671	12.148	11.904	12.084	1.9955	-0.53153
1.0943E-05	1.0947E-05	12.024	11.798	12.221	11.768	1.6379	-0.25832
1.0952E-05	1.0956E-05	12.149	11.673	12.077	11.909	-0.59522	2.0275
1.0960E-05	1.0964E-05	11.788	12.028	11.759	12.222	-0.24395	1.6175
1.0968E-05	1.0972E-05	11.672	12.146	11.915	12.072	2.0761	-0.60553
1.0977E-05	1.0981E-05	12.039	11.782	12.23	11.759	1.5844	-0.19924
1.0985E-05	1.0989E-05	12.148	11.675	12.066	11.922	-0.671	2.1102
1.0993E-05	1.0998E-05	11.772	12.044	11.75	12.232	-0.18878	1.5584
1.1002E-05	1.1006E-05	11.674	11.926	12.06	12.157	2.1547	-0

1.1661E-05	1.1665E-05	11.633	12.186	11.806	12.181	1.4829	-0.03575
1.1669E-05	1.1674E-05	11.91	11.911	12.169	11.818	2.1776	-0.78177
1.1678E-05	1.1682E-05	12.184	11.638	12.174	11.813	-0.088994	1.5057
1.1686E-05	1.1690E-05	11.902	11.914	11.812	12.169	-0.75925	2.144
1.1694E-05	1.1699E-05	11.639	12.179	11.819	12.167	1.5392	-0.093401
1.1703E-05	1.1707E-05	11.924	11.897	12.174	11.814	2.1041	-0.70294
1.1711E-05	1.1715E-05	12.178	11.645	12.161	11.827	-0.14362	1.5635
1.1720E-05	1.1724E-05	11.889	11.928	11.807	12.175	-0.68887	2.064
1.1728E-05	1.1732E-05	11.645	12.172	11.831	12.154	1.5936	-0.14984
1.1736E-05	1.1740E-05	11.937	11.883	12.179	11.808	2.0295	-0.63063
1.1745E-05	1.1749E-05	12.172	11.651	12.148	11.84	-0.19432	1.6237
1.1753E-05	1.1757E-05	11.876	11.942	11.803	12.18	-0.61821	1.9908
1.1761E-05	1.1765E-05	11.652	12.166	11.844	12.141	1.6451	-0.20954
1.1770E-05	1.1774E-05	11.949	11.869	12.183	11.803	1.9581	-0.56188
1.1778E-05	1.1782E-05	12.166	11.656	12.136	11.852	-0.24741	1.6832
1.1786E-05	1.1790E-05	11.863	11.956	11.798	12.186	-0.54874	1.9239
1.1795E-05	1.1799E-05	11.658	12.162	11.856	12.129	1.7018	-0.26673
1.1803E-05	1.1807E-05	11.963	11.856	12.188	11.796	1.8859	-0.50147
1.1811E-05	1.1816E-05	12.161	11.66	12.124	11.863	-0.30321	1.7445
1.1820E-05	1.1824E-05	11.85	11.969	11.793	12.192	-0.48135	1.8627
1.1828E-05	1.1832E-05	11.663	12.158	11.868	12.119	1.7624	-0.32573
1.1836E-05	1.1841E-05	11.976	11.843	12.194	11.79	1.8201	-0.44234
1.1845E-05	1.1849E-05	12.156	11.664	12.112	11.874	-0.36664	1.8046
1.1853E-05	1.1857E-05	11.836	11.982	11.786	12.198	-0.41855	1.8042
1.1861E-05	1.1866E-05	11.666	12.155	11.88	12.108	1.8314	-0.38436
1.1870E-05	1.1874E-05	11.991	11.83	12.202	11.784	1.7574	-0.38643
1.1878E-05	1.1882E-05	12.153	11.667	12.1	11.885	-0.43451	1.8683
1.1886E-05	1.1891E-05	11.821	11.995	11.778	12.205	-0.36043	1.7466
1.1895E-05	1.1899E-05	11.669	12.152	11.891	12.097	1.9034	-0.44856
1.1903E-05	1.1907E-05	12.006	11.816	12.21	11.777	1.7025	-0.32721
1.1912E-05	1.1916E-05	12.151	11.67	12.089	11.896	-0.50696	1.936
1.1920E-05	1.1924E-05	11.806	12.01	11.77	12.212	-0.30757	1.6871
1.1928E-05	1.1932E-05	11.671	12.149	11.902	12.086	1.9821	-0.51614
1.1937E-05	1.1941E-05	12.021	11.801	12.219	11.769	1.6486	-0.26946
1.1945E-05	1.1949E-05	12.15	11.673	12.079	11.908	-0.57985	2.0123
1.1953E-05	1.1957E-05	11.791	12.025	11.761	12.221	-0.25524	1.6279
1.1962E-05	1.1966E-05	11.672	12.146	11.912	12.074	2.0581	-0.59215
1.1970E-05	1.1974E-05	12.036	11.785	12.228	11.761	1.5969	-0.20893
1.1978E-05	1.1982E-05	12.148	11.675	12.068	11.919	-0.65514	2.094
1.1987E-05	1.1991E-05	11.776	12.041	11.752	12.23	-0.20116	1.5686
1.1995E-05	1.1999E-05	11.674	12.144	11.923	12.062	2.1381	-0.67224

Fig5.6_ExactDemaw_SqLO_24dBlowe



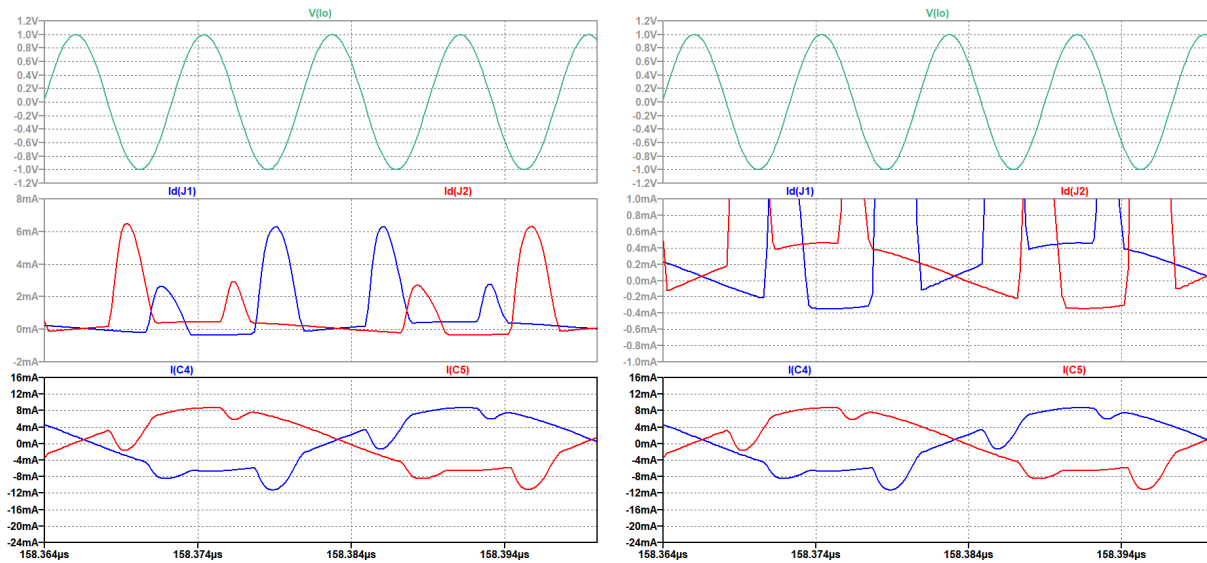
max discharge of CAP1		-0.30753
max discharge of CAP2		-0.29924
max discahrge of CAP1 and CAP2		-0.30753

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0000E-05	1.0004E-05	11.839	11.979	11.87	12.114	0.25873	1.1276
1.0008E-05	1.0013E-05	11.792	12.026	11.96	12.025	1.4307	-0.0079883
1.0017E-05	1.0021E-05	11.985	11.836	12.117	11.87	1.1085	0.2907
1.0025E-05	1.0029E-05	12.028	11.793	12.022	11.965	-0.047862	1.453
1.0033E-05	1.0038E-05	11.831	11.987	11.865	12.119	0.28892	1.0971
1.0042E-05	1.0046E-05	11.793	12.025	11.966	12.019	1.469	-0.053072
1.0050E-05	1.0054E-05	11.993	11.827	12.122	11.865	1.0779	0.32286
1.0058E-05	1.0063E-05	12.026	11.794	12.016	11.971	-0.085982	1.4985
1.0067E-05	1.0071E-05	11.823	11.996	11.861	12.124	0.32096	1.0644
1.0075E-05	1.0079E-05	11.795	12.024	11.973	12.012	1.5096	-0.095535
1.0083E-05	1.0088E-05	12.001	11.818	12.126	11.86	1.0426	0.35452
1.0092E-05	1.0096E-05	12.024	11.796	12.009	11.978	-0.12518	1.5415
1.0100E-05	1.0104E-05	11.814	12.005	11.857	12.129	0.36001	1.0335
1.0109E-05	1.0113E-05	11.797	12.023	11.98	12.006	1.5482	-0.13776
1.0117E-05	1.0121E-05	12.01	11.809	12.13	11.855	1.0038	0.38835
1.0125E-05	1.0129E-05	12.021	11.797	12.002	11.984	-0.16418	1.5811
1.0134E-05	1.0138E-05	11.805	12.013	11.853	12.133	0.39937	0.99761
1.0142E-05	1.0146E-05	11.8	12.02	11.988	11.999	1.5896	-0.17254
1.0150E-05	1.0154E-05	12.018	11.801	12.134	11.851	0.96245	0.42501
1.0159E-05	1.0163E-05	12.018	11.8	11.994	11.991	-0.2031	1.6162
1.0167E-05	1.0171E-05	11.797	12.021	11.849	12.137	0.44339	0.9606
1.0175E-05	1.0179E-05	11.804	12.017	11.995	11.992	1.6255	-0.20638
1.0184E-05	1.0188E-05	12.027	11.794	12.138	11.849	0.92042	0.46709
1.0192E-05	1.0196E-05	12.014	11.804	11.986	11.998	-0.238	1.6464
1.0200E-05	1.0205E-05	11.788	12.029	11.845	12.139	0.48527	0.91555
1.0209E-05	1.0213E-05	11.807	12.012	12.003	11.984	1.6595	-0.23285
1.0217E-05	1.0221E-05	12.035	11.786	12.141	11.847	0.87741	0.51356
1.0225E-05	1.0230E-05	12.01	11.809	11.978	12.006	-0.26801	1.6712
1.0234E-05	1.0238E-05	11.781	12.036	11.843	12.141	0.53055	0.86901
1.0242E-05	1.0246E-05	11.812	12.007	12.011	11.976	1.6836	-0.25789
1.0250E-05	1.0255E-05	12.042	11.779	12.142	11.846	0.83379	0.56398
1.0259E-05	1.0263E-05	12.005	11.815	11.971	12.015	-0.289	1.693
1.0267E-05	1.0271E-05	11.775	12.043	11.842	12.141	0.57497	0.81767
1.0275E-05	1.0280E-05	11.817	12.001	12.018	11.968	1.7027	-0.27661
1.0284E-05	1.0288E-05	12.048	11.773	12.143	11.845	0.7875	0.61488
1.0292E-05	1.0296E-05	12	11.821	11.963	12.023	-0.30294	1.7085
1.0301E-05	1.0305E-05	11.769	12.049	11.843	12.142	0.62458	0.76871
1.0309E-05	1.0313E-05	11.824	11.994	12.026	11.959	1.7084	-0.29176
1.0317E-05	1.0321E-05	12.053	11.767	12.142	11.845	0.73899	0.66592
1.0326E-05	1.0330E-05	11.992	11.828	11.956	12.031	-0.30753	1.719
1.0334E-05	1.0338E-05	11.765	12.054	11.844	12.141	0.67451	0.71865
1.0342E-05	1.0346E-05	11.831	11.988	12.033	11.952	1.7099	-0.29773
1.0351E-05	1.0355E-05	12.056	11.762	12.139	11.847	0.68752	0.71443
1.0359E-05	1.0363E-05	11.985	11.835	11.948	12.038	-0.30694	1.7197
1.0367E-05	1.0371E-05	11.762	12.058	11.847	12.139	0.72865	0.67295
1.0376E-05	1.0380E-05	11.839	11.981	12.041	11.945	1.7032	-0.29702
1.0384E-05	1.0388E-05	12.06	11.76	12.136	11.849	0.63602	0.76184
1.0392E-05	1.0397E-05	11.976	11.842	11.94	12.045	-0.29976	1.7123
1.0401E-05	1.0405E-05	11.759	12.06	11.851	12.136	0.77972	0.62608
1.0409E-05	1.0413E-05	11.847	11.973	12.048	11.939	1.6934	-0.28484
1.0417E-05	1.0422E-05	12.062	11.758	12.132	11.853	0.85562	0.80775
1.0426E-05	1.0430E-05	11.968	11.85	11.933	12.051	-0.28892	1.6942
1.0434E-05	1.0438E-05	11.757	12.061	11.855	12.131	0.83041	0.58192
1.0442E-05	1.0447E-05	11.856	11.965	12.055	11.933	1.6763	-0.2665
1.0451E-05	1.0455E-05	12.063	11.758	12.128	11.858	0.53936	0.85425
1.0459E-05	1.0463E-05	11.96	11.858	11.927	12.056	-0.27102	1.6702
1.0467E-05	1.0472E-05	11.757	12.061	11.859	12.125	0.874	0.53522
1.0476E-05	1.0480E-05	11.864	11.966	12.06	11.827	1.655	-0.24007
1.0484E-05	1.0488E-05	12.063	11.758	12.123	11.864	0.49743	0.90009
1.0492E-05	1.0497E-05	11.952	11.867	11.922	12.062	-0.24771	1.6402
1.0501E-05	1.0505E-05	11.757	12.06	11.865	12.119	0.91554	0.4918
1.0509E-05	1.0513E-05	11.872	11.947	12.065	11.922	1.6247	-0.2123
1.0518E-05	1.0522E-05	12.062	11.76	12.117	11.871	0.45981	0.94475
1.0526E-05	1.0530E-05	11.944	11.876	11.918	12.067	-0.21596	1.6093
1.0534E-05	1.0538E-05	11.759	12.059	11.871	12.113	0.95149	0.44849
1.0543E-05	1.0547E-05	11.88	11.938	12.068	11.917	1.5895	-0.18039
1.0551E-05	1.0555E-05	12.059	11.761	12.11	11.877	0.42379	0.98492
1.0559E-05	1.0563E-05	11.936	11.884	11.914	12.071	-0.18006	1.5754
1.0568E-05	1.0572E-05	11.762	12.057	11.879	12.107	0.98849	0.41215
1.0576E-05	1.0580E-05	11.888	11.931	12.072	11.913	1.5487	-0.14914
1.0584E-05	1.0588E-05	12.056	11.763	12.103	11.883	0.3888	1.0208
1.0593E-05	1.0597E-05	11.928	11.892	11.911	12.075	-0.13944	1.541
1.0601E-05	1.0605E-05	11.766	12.054	11.886	12.1	1.0227	0.37829
1.0609E-05	1.0614E-05	11.896	11.923	12.075	11.91	1.508	-0.11309
1.0618E-05	1.0622E-05	12.053	11.766	12.095	11.89	0.35375	1.0513
1.0626E-05	1.0630E-05	11.92	11.899	11.908	12.078	-0.10023	1.5025
1.0634E-05	1.0639E-05	11.769	12.051	11.893	12.094	1.0587	0.35094
1.0643E-05	1.0647E-05	11.904	11.916	12.079	11.907	1.4665	-0.076135
1.0651E-05	1.0655E-05	12.05	11.77	12.088	11.897	0.32045	1.079
1.0659E-05	1.0664E-05	11.912	11.906	11.904	12.08	-0.061445	1.4628
1.0668E-05	1.0672E-05	11.772	12.048	11.9	12.086	1.0902	0.32295
1.0676E-05	1.0680E-05	11.912	11.909	12.082	11.905	1.4297	-0.034756
1.0684E-05	1.0689E-05	12.047	11.774	12.081	11.904	0.28907	1.1054
1.0693E-05	1.0697E-05	11.905	11.913	11.901	12.082	-0.026371	1.4204
1.0701E-05	1.0705E-05	11.775	12.044	11.907	12.079	1.121	0.29707
1.0710E-05	1.0714E-05	11.919	11.902	12.085	11.903	1.3928	0.0048256
1.0718E-05	1.0722E-05	12.044	11.777	12.075	11.911	0.26187	1.1341
1.0726E-05	1.0730E-05	11.898	11.92	11.899	12.084	0.0085334	1.3802
1.0735E-05	1.0739E-05	11.778	12.04	11.913	12.072	1.1466	0.26702
1.0743E-05	1.0747E-05	11.925	11.895	12.087	11.901	1.3592	0.044948
1.0751E-05	1.0755E-05	12.041	11.781	12.069	11.918	0.23574	1.1636
1.0760E-05	1.0764E-05	11.892	11.927	11.897	12.087	0.041781	1.3418
1.0768E-05	1.0772E-05	11.78	12.037	11.919	12.066	1.1737	0.23784
1.0776E-05	1.0780E-05	11.931	11.888	12.089	11.897	1.3239	0.079043
1.0785E-05	1.0789E-05	12.038	11.783	12.064	11.924	0.21047	1.1953
1.0793E-05	1.0797E-05	11.885	11.934	11.895	12.09	0.076988	1.3092
1.0801E-05	1.0806E-05	11.783	12.035	11.925	12.06	1.1987	0.20521
1.0810E-05	1.0814E-05	11.937	11.881	12.091	11.894	1.2894	0.11055
1.0818E-05	1.0822E-05	12.035	11.785	12.057	11.93	0.18367	1.228

1.0826E-05	1.0831E-05	11.879	11.941	11.892	12.094	0.11033	1.2784
1.0835E-05	1.0839E-05	11.786	12.033	11.931	12.055	1.2292	0.17478
1.0843E-05	1.0847E-05	11.944	11.874	12.094	11.891	1.2541	0.13732
1.0851E-05	1.0856E-05	12.033	11.786	12.051	11.935	0.15245	1.2596
1.0860E-05	1.0864E-05	11.872	11.948	11.889	12.097	0.14434	1.2521
1.0868E-05	1.0872E-05	11.788	12.032	11.937	12.049	1.2617	0.14254
1.0876E-05	1.0881E-05	11.952	11.868	12.098	11.887	1.2234	0.16527
1.0885E-05	1.0889E-05	12.031	11.788	12.045	11.94	0.11649	1.2905
1.0893E-05	1.0897E-05	11.864	11.954	11.885	12.101	0.17416	1.2242
1.0902E-05	1.0906E-05	11.79	12.031	11.943	12.044	1.3007	0.1122
1.0910E-05	1.0914E-05	11.96	11.861	12.102	11.884	1.193	0.19214
1.0918E-05	1.0922E-05	12.03	11.789	12.04	11.945	0.077832	1.3235
1.0927E-05	1.0931E-05	11.856	11.961	11.88	12.104	0.20203	1.1958
1.0935E-05	1.0939E-05	11.79	12.029	11.948	12.039	1.3401	0.077707
1.0943E-05	1.0947E-05	11.967	11.854	12.107	11.88	1.1676	0.22284
1.0952E-05	1.0956E-05	12.03	11.791	12.034	11.951	0.038466	1.3601
1.0960E-05	1.0964E-05	11.848	11.969	11.875	12.108	0.22654	1.1643
1.0968E-05	1.0972E-05	11.791	12.028	11.954	12.033	1.382	0.041366
1.0977E-05	1.0981E-05	11.975	11.846	12.112	11.876	1.1412	0.25299
1.0985E-05	1.0989E-05	12.029	11.792	12.029	11.957	-0.0006951	1.4008
1.0993E-05	1.0998E-05	11.841	11.977	11.871	12.113	0.25323	1.1337
1.1002E-05	1.1006E-05	11.791	12.027	11.959	12.026	1.4206	-0.001266
1.1010E-05	1.1014E-05	11.983	11.837	12.116	11.871	1.1153	0.28554
1.1018E-05	1.1023E-05	12.028	11.793	12.023	11.964	-0.039287	1.7484
1.1027E-05	1.1031E-05	11.833	11.986	11.866	12.118	0.28109	1.1016
1.1035E-05	1.1039E-05	11.792	12.025	11.965	12.02	1.4612	-0.043995
1.1043E-05	1.1048E-05	11.991	11.828	12.121	11.866	1.0838	0.31576
1.1052E-05	1.1056E-05	12.027	11.794	12.017	11.97	-0.077677	1.49
1.1060E-05	1.1064E-05	11.825	11.955	11.862	12.123	0.31499	1.0716
1.1068E-05	1.1073E-05	11.794	12.024	11.971	12.014	1.4994	-0.089063
1.1077E-05	1.1081E-05	11.999	11.819	12.125	11.861	1.0498	0.34793
1.1085E-05	1.1089E-05	12.024	11.795	12.01	11.976	-0.11673	1.5339
1.1093E-05	1.1098E-05	11.816	12.003	11.858	12.128	0.35177	1.0397
1.1102E-05	1.1106E-05	11.797	12.023	11.979	12.007	1.5407	-0.12923
1.1110E-05	1.1114E-05	12.008	11.811	12.129	11.856	1.01	0.37961
1.1119E-05	1.1123E-05	12.022	11.797	12.003	11.983	-0.1567	1.5737
1.1127E-05	1.1131E-05	11.807	12.012	11.854	12.133	0.39306	1.0066
1.1135E-05	1.1139E-05	11.8	12.021	11.986	12.001	1.5802	-0.16713
1.1144E-05	1.1148E-05	12.017	11.803	12.133	11.852	0.97039	0.41702
1.1152E-05	1.1156E-05	12.019	11.799	11.965	11.989	-0.19588	1.602
1.1160E-05	1.1164E-05	11.798	12.02	11.849	12.136	0.43414	0.96785
1.1169E-05	1.1173E-05	11.803	12.018	11.994	11.994	1.6202	-0.1985
1.1177E-05	1.1181E-05	12.026	11.795	12.137	11.849	0.92796	0.45746
1.1185E-05	1.1189E-05	12.015	11.803	11.967	11.997	-0.23271	1.6333
1.1194E-05	1.1198E-05	11.79	12.027	11.846	12.138	0.4772	0.92914
1.1202E-05	1.1206E-05	11.806	12.013	12.002	11.986	1.6528	-0.22787
1.1210E-05	1.1215E-05	12.034	11.788	12.14	11.847	0.88693	0.50485
1.1219E-05	1.1223E-05	12.011	11.808	11.98	12.005	-0.26318	1.6659
1.1227E-05	1.1231E-05	11.782	12.035	11.843	12.14	0.51963	0.87677
1.1235E-05	1.1240E-05	11.811	12.008	12.009	11.978	1.6805	-0.25219
1.1244E-05	1.1248E-05	12.041	11.781	12.142	11.846	0.84274	0.55387
1.1252E-05	1.1256E-05	12.007	11.814	11.972	12.013	-0.28578	1.6886
1.1260E-05	1.1265E-05	11.776	12.042	11.842	12.141	0.56568	0.82773
1.1269E-05	1.1273E-05	11.816	12.002	12.016	11.969	1.6971	-0.27459
1.1277E-05	1.1281E-05	12.047	11.774	12.143	11.845	0.79798	0.60586
1.1285E-05	1.1290E-05	12.001	11.82	11.965	12.022	-0.29996	1.7098
1.1294E-05	1.1298E-05	11.77	12.048	11.843	12.142	0.61302	0.7892
1.1302E-05	1.1306E-05	11.822	11.996	12.024	11.961	1.7074	-0.28942
1.1311E-05	1.1315E-05	12.052	11.768	12.142	11.845	0.74824	0.65533
1.1319E-05	1.1323E-05	11.994	11.826	11.957	12.029	-0.30647	1.7182
1.1327E-05	1.1331E-05	11.766	12.053	11.844	12.141	0.66535	0.72935
1.1336E-05	1.1340E-05	11.83	11.989	12.032	11.953	1.708	-0.29904
1.1344E-05	1.1348E-05	12.056	11.763	12.14	11.846	0.69751	0.70462
1.1352E-05	1.1356E-05	11.986	11.833	11.949	12.037	-0.30679	1.721
1.1361E-05	1.1365E-05	11.762	12.057	11.847	12.14	0.71778	0.68182
1.1369E-05	1.1373E-05	11.838	11.982	12.04	11.947	1.7053	-0.29747
1.1377E-05	1.1381E-05	12.059	11.76	12.137	11.848	0.64444	0.75078
1.1386E-05	1.1390E-05	11.978	11.84	11.942	12.043	-0.30211	1.7139
1.1394E-05	1.1398E-05	11.759	12.06	11.85	12.136	0.77134	0.63886
1.1402E-05	1.1407E-05	11.846	11.975	12.047	11.94	1.6952	-0.28847
1.1411E-05	1.1415E-05	12.062	11.759	12.133	11.852	0.59502	0.79832
1.1419E-05	1.1423E-05	11.97	11.848	11.935	12.049	-0.29215	1.6978
1.1427E-05	1.1432E-05	11.757	12.061	11.854	12.132	0.62007	0.59021
1.1436E-05	1.1440E-05	11.854	11.966	12.054	11.934	1.6818	-0.26907
1.1444E-05	1.1448E-05	12.063	11.758	12.129	11.857	0.54748	0.84427
1.1452E-05	1.1457E-05	11.961	11.857	11.928	12.055	-0.27634	1.6742
1.1461E-05	1.1465E-05	11.756	12.061	11.858	12.126	0.86605	0.54486
1.1469E-05	1.1473E-05	11.862	11.958	12.059	11.928	1.6594	-0.24604
1.1477E-05	1.1482E-05	12.063	11.758	12.124	11.863	0.50633	0.81807
1.1486E-05	1.1490E-05	11.954	11.866	11.923	12.061	-0.25336	1.6466
1.1494E-05	1.1498E-05	11.757	12.06	11.864	12.12	0.90574	0.5984
1.1503E-05	1.1507E-05	11.87	11.949	12.064	11.923	1.6323	-0.21711
1.1511E-05	1.1515E-05	12.062	11.759	12.118	11.869	0.46733	0.93624
1.1519E-05	1.1523E-05	11.946	11.874	11.919	12.066	-0.22311	1.6153
1.1528E-05	1.1532E-05	11.759	12.059	11.87	12.114	0.94431	0.45671
1.1536E-05	1.1540E-05	11.878	11.94	12.068	11.918	1.5958	-0.18858
1.1544E-05	1.1548E-05	12.06	11.761	12.112	11.876	0.43161	0.97811
1.1553E-05	1.1557E-05	11.938	11.883	11.915	12.071	-0.18682	1.5629
1.1561E-05	1.1565E-05	11.762	12.058	11.877	12.108	0.97993	0.47723
1.1569E-05	1.1573E-05	11.886	11.932	12.071	11.914	1.5571	-0.15554
1.1578E-05	1.1582E-05	12.057	11.763	12.104	11.882	0.39499	1.0134
1.1586E-05	1.1590E-05	11.929	11.89	11.912	12.074	-0.14736	1.5048
1.1594E-05	1.1599E-05	11.765	12.055	11.885	12.102	1.017	0.38563
1.1603E-05	1.1607E-05	11.895	11.925	12.075	11.91	1.5144	-0.12208
1.1611E-05	1.1615E-05	12.053	11.765	12.097	11.888	0.36032	1.0452
1.1619E-05	1.1624E-05	11.921	11.897	11.908	12.077	-0.10749	1.518
1.1628E-05	1.1632E-05	11.768	12.052	11.892	12.095	1.0514	0.35586
1.1636E-05	1.1640E-05	11.903	11.918	12.078	11.908	1.4752	-0.082972
1.1644E-05	1.1648E-05	12.05	11.769	12.089	11.895	0.32553	1.0719
1.1653E-05	1.1657E-05	11.913	11.904	11.905	12.079	-0.06966	1.4701

1.1661E-05	1.1665E-05	11.771	12.048	11.899	12.088	1.0855	0.32988
1.1669E-05	1.1674E-05	11.91	11.911	12.081	11.906	1.4362	-0.043635
1.1678E-05	1.1682E-05	12.047	11.773	12.083	11.902	0.29492	1.0999
1.1686E-05	1.1690E-05	11.906	11.911	11.902	12.081	-0.033859	1.4282
1.1694E-05	1.1699E-05	11.774	12.044	11.905	12.081	1.1143	0.30143
1.1703E-05	1.1707E-05	11.917	11.904	12.084	11.904	1.4016	-0.0013307
1.1711E-05	1.1715E-05	12.045	11.777	12.077	11.91	0.26662	1.1278
1.1720E-05	1.1724E-05	11.899	11.919	11.899	12.084	0.00029207	1.3866
1.1728E-05	1.1732E-05	11.777	12.041	11.911	12.074	1.1419	0.27338
1.1736E-05	1.1740E-05	11.924	11.897	12.086	11.901	1.3654	0.03658
1.1745E-05	1.1749E-05	12.042	11.78	12.071	11.917	0.24197	1.1588
1.1753E-05	1.1757E-05	11.893	11.926	11.897	12.087	0.035013	1.3489
1.1761E-05	1.1765E-05	11.78	12.038	11.917	12.067	1.1659	0.24149
1.1770E-05	1.1774E-05	11.93	11.889	12.089	11.898	1.3316	0.073181
1.1778E-05	1.1782E-05	12.039	11.783	12.065	11.923	0.21584	1.1894
1.1786E-05	1.1790E-05	11.887	11.933	11.895	12.09	0.070116	1.3152
1.1795E-05	1.1799E-05	11.783	12.036	11.924	12.061	1.1935	0.2117
1.1803E-05	1.1807E-05	11.936	11.882	12.091	11.895	1.2944	0.10296
1.1811E-05	1.1816E-05	12.036	11.784	12.059	11.928	0.18968	1.2218
1.1820E-05	1.1824E-05	11.88	11.94	11.893	12.093	0.10477	1.2854
1.1828E-05	1.1832E-05	11.786	12.034	11.93	12.056	1.2219	0.18008
1.1836E-05	1.1841E-05	11.943	11.876	12.094	11.891	1.261	0.13209
1.1845E-05	1.1849E-05	12.033	11.786	12.052	11.934	0.15786	1.2523
1.1853E-05	1.1857E-05	11.873	11.946	11.889	12.097	0.13781	1.2574
1.1861E-05	1.1866E-05	11.788	12.033	11.936	12.051	1.2563	0.15036
1.1870E-05	1.1874E-05	11.95	11.869	12.097	11.888	1.2273	0.15798
1.1878E-05	1.1882E-05	12.031	11.787	12.046	11.939	0.12318	1.2836
1.1886E-05	1.1891E-05	11.865	11.953	11.885	12.1	0.16867	1.2301
1.1895E-05	1.1899E-05	11.789	12.031	11.942	12.045	1.2927	0.11841
1.1903E-05	1.1907E-05	11.958	11.863	12.102	11.885	1.1995	0.18744
1.1912E-05	1.1916E-05	12.03	11.789	12.041	11.944	0.084634	1.3156
1.1920E-05	1.1924E-05	11.858	11.96	11.881	12.103	0.19555	1.2005
1.1928E-05	1.1932E-05	11.79	12.03	11.947	12.04	1.3335	0.085988
1.1937E-05	1.1941E-05	11.966	11.855	12.106	11.881	1.1723	0.21628
1.1945E-05	1.1949E-05	12.03	11.79	12.035	11.95	0.046278	1.3525
1.1953E-05	1.1957E-05	11.85	11.967	11.876	12.107	0.22075	1.1696
1.1962E-05	1.1966E-05	11.791	12.028	11.952	12.034	1.3725	0.048112
1.1970E-05	1.1974E-05	11.973	11.847	12.111	11.877	1.1481	0.24827
1.1978E-05	1.1982E-05	12.029	11.792	12.03	11.956	0.0069517	1.3924
1.1987E-05	1.1991E-05	11.842	11.976	11.872	12.112	0.2465	1.1387
1.1995E-05	1.1999E-05	11.791	12.027	11.958	12.028	1.4131	0.007427

Fig5.7_ExactDemaw_SinLO



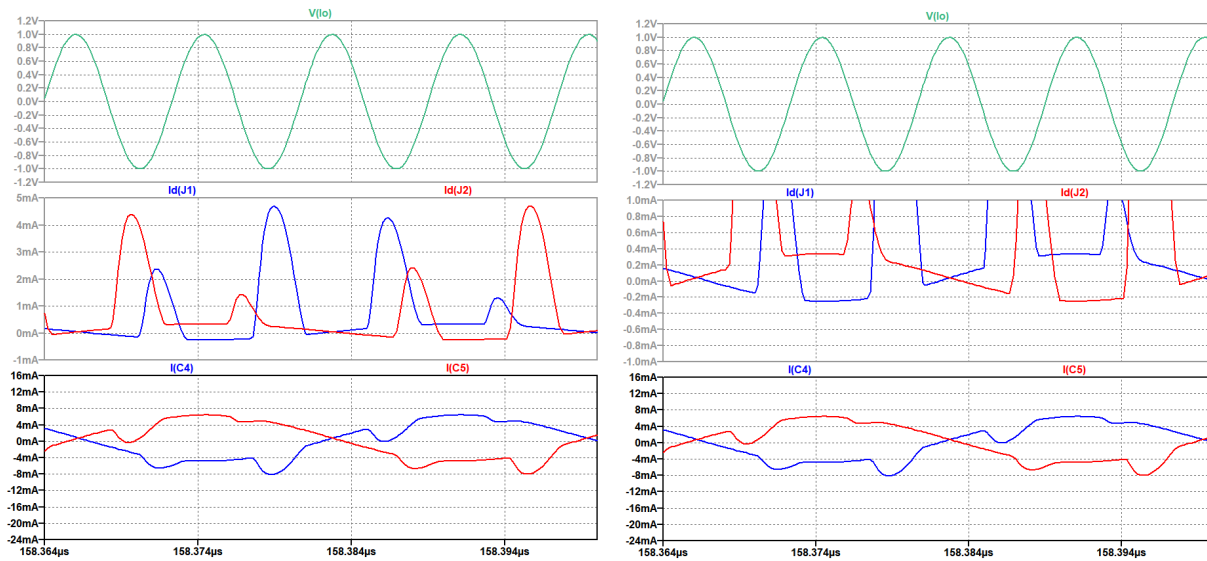
max discharge of CAP1		-7.1071
max discharge of CAP2		-7.0008
max discahrge of CAP1 and CAP2		-7.1071

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0008E-05	1.0004E-05	10.772	13.029	10.926	13.062	1.4297	0.25703
1.0016E-05	1.0013E-05	12.425	11.367	11.611	12.387	-6.5501	8.9724
1.0025E-05	1.0021E-05	13.026	10.766	13.095	10.912	0.53072	1.357
1.0033E-05	1.0029E-05	11.306	12.456	12.342	11.629	9.1672	-6.6373
1.0042E-05	1.0038E-05	10.794	13.008	10.886	13.108	0.85026	0.7819
1.0050E-05	1.0046E-05	12.495	11.288	11.657	12.335	-6.7038	9.2799
1.0058E-05	1.0054E-05	13.012	10.781	13.132	10.875	0.92486	0.86922
1.0067E-05	1.0063E-05	11.251	12.508	12.311	11.663	9.4288	-6.7516
1.0075E-05	1.0071E-05	10.791	13.006	10.848	13.149	0.53311	1.0919
1.0083E-05	1.0079E-05	12.569	11.2	11.69	12.3	-6.9918	9.8181
1.0092E-05	1.0088E-05	13.004	10.787	13.172	10.837	1.2887	0.45881
1.0100E-05	1.0096E-05	11.176	12.578	12.237	11.73	9.4888	-6.7455
1.0108E-05	1.0105E-05	10.802	12.994	10.816	13.196	0.12628	1.557
1.0117E-05	1.0113E-05	12.633	11.126	11.76	12.217	-6.9034	9.8052
1.0125E-05	1.0121E-05	13.003	10.783	13.218	10.803	1.6525	0.18848
1.0133E-05	1.0129E-05	11.102	12.648	12.197	11.77	9.8636	-6.9447
1.0142E-05	1.0138E-05	10.804	12.994	10.787	13.236	-0.1614	1.8598
1.0150E-05	1.0146E-05	12.667	11.086	11.802	12.177	-6.8327	9.8343
1.0159E-05	1.0155E-05	12.974	10.805	13.246	10.768	2.0923	-0.3411
1.0167E-05	1.0163E-05	11.045	12.701	12.144	11.817	9.9533	-6.9659
1.0175E-05	1.0171E-05	10.819	12.982	10.761	13.269	-0.53567	2.2064
1.0184E-05	1.0180E-05	12.781	10.963	11.872	12.102	-7.1071	10.385
1.0192E-05	1.0188E-05	12.955	10.817	13.274	10.744	2.4622	-0.67748
1.0200E-05	1.0196E-05	10.982	12.757	12.076	11.876	9.9577	-6.9081
1.0209E-05	1.0205E-05	10.875	12.927	10.735	13.293	-1.2901	2.8293
1.0217E-05	1.0213E-05	12.812	10.932	11.92	12.058	-6.9634	10.305
1.0225E-05	1.0221E-05	12.92	10.849	13.295	10.714	2.8967	-1.2438
1.0233E-05	1.0230E-05	10.92	12.812	11.988	11.952	9.7825	-6.7161
1.0242E-05	1.0238E-05	10.896	12.904	10.712	13.311	-1.6862	3.1556
1.0250E-05	1.0246E-05	12.866	10.879	11.974	12.004	-6.9335	10.347
1.0259E-05	1.0255E-05	12.899	10.871	13.311	10.716	3.1933	-1.4185
1.0267E-05	1.0263E-05	10.849	12.875	11.94	11.999	-6.8097	9.8097
1.0275E-05	1.0271E-05	10.927	12.869	10.707	13.32	-2.0136	3.506
1.0284E-05	1.0280E-05	12.954	10.789	12.037	11.936	-7.0732	10.631
1.0292E-05	1.0288E-05	12.827	10.944	13.32	10.708	3.8421	-2.1591
1.0300E-05	1.0296E-05	10.754	12.968	11.877	12.06	10.449	-7.0008
1.0309E-05	1.0305E-05	10.976	12.814	10.699	13.321	-2.5271	3.9605
1.0317E-05	1.0313E-05	12.997	10.745	12.117	11.849	-6.7743	10.773
1.0325E-05	1.0322E-05	12.786	10.989	13.317	10.71	4.1599	-2.539
1.0334E-05	1.0330E-05	10.718	13.004	11.819	12.121	10.276	-6.7999
1.0342E-05	1.0338E-05	11.035	12.751	10.702	13.313	-3.0167	4.4076
1.0350E-05	1.0346E-05	13.036	10.705	12.163	11.799	-6.6925	10.22
1.0359E-05	1.0355E-05	12.712	11.064	13.305	10.72	4.6625	-3.1038
1.0367E-05	1.0363E-05	10.677	13.049	11.738	12.202	9.9379	-6.4924
1.0376E-05	1.0372E-05	11.097	12.687	10.715	13.298	-3.4458	4.8161
1.0384E-05	1.0380E-05	13.074	10.667	12.262	11.694	-6.2098	9.6325
1.0392E-05	1.0388E-05	12.66	11.117	13.281	10.738	4.9098	-3.4122
1.0401E-05	1.0397E-05	10.649	13.082	11.66	12.282	9.4921	-6.1112
1.0409E-05	1.0405E-05	11.145	12.642	10.744	13.268	-3.5942	4.9496
1.0417E-05	1.0413E-05	13.078	10.663	12.316	11.641	-5.8277	9.1681
1.0426E-05	1.0422E-05	12.572	11.205	13.25	10.764	5.3958	-3.9369
1.0434E-05	1.0430E-05	10.622	13.114	11.616	12.325	9.3592	-6.0132
1.0442E-05	1.0438E-05	11.251	12.533	10.773	13.233	-4.2507	5.586
1.0451E-05	1.0447E-05	13.122	10.627	12.366	11.991	-5.7609	9.0688
1.0459E-05	1.0455E-05	12.48	11.696	13.214	10.793	5.8822	-4.4597
1.0467E-05	1.0463E-05	10.612	13.127	11.544	12.399	8.7832	-5.5462
1.0476E-05	1.0472E-05	11.323	12.464	10.796	13.198	-4.6484	5.886
1.0484E-05	1.0480E-05	13.14	10.617	12.459	11.503	-5.1844	8.3442
1.0492E-05	1.0488E-05	12.4	11.378	13.171	10.83	6.2146	-4.817
1.0501E-05	1.0497E-05	10.602	13.143	11.492	12.45	8.3942	-5.271
1.0509E-05	1.0505E-05	11.421	12.365	10.851	13.14	-4.9942	6.2718
1.0517E-05	1.0513E-05	13.153	10.615	12.49	11.47	-5.0378	8.0555
1.0526E-05	1.0522E-05	12.338	11.446	13.12	10.878	6.3369	-4.9606
1.0534E-05	1.0530E-05	10.605	13.144	11.441	12.503	7.8765	-4.875
1.0542E-05	1.0538E-05	11.477	12.311	10.896	13.085	-5.0623	6.2869
1.0551E-05	1.0547E-05	13.153	10.623	12.541	11.42	-4.6514	7.4998
1.0559E-05	1.0555E-05	12.279	11.514	13.061	10.837	6.3681	-5.0082
1.0568E-05	1.0564E-05	10.616	13.139	11.377	12.572	7.1679	-4.3089
1.0576E-05	1.0572E-05	11.527	12.264	10.958	13.019	-4.9426	6.1519
1.0584E-05	1.0580E-05	13.135	10.641	12.593	11.368	-4.1272	6.8379
1.0592E-05	1.0588E-05	12.213	11.587	12.999	10.996	6.4407	-5.1008
1.0601E-05	1.0597E-05	10.633	13.126	11.335	12.62	6.594	-3.8551
1.0609E-05	1.0605E-05	11.675	12.111	11.011	12.959	-5.685	7.0038
1.0618E-05	1.0614E-05	13.129	10.655	12.656	11.309	-3.6056	6.1355
1.0626E-05	1.0622E-05	12.086	11.713	12.947	11.043	7.1244	-5.7172
1.0634E-05	1.0630E-05	10.655	13.116	11.303	12.654	6.0839	-3.5218
1.0643E-05	1.0639E-05	11.705	12.088	11.081	12.889	-5.3304	6.6233
1.0651E-05	1.0647E-05	13.113	10.675	12.702	11.266	-3.1375	5.5341
1.0659E-05	1.0655E-05	12.026	11.777	12.871	11.117	7.0254	-5.6012
1.0668E-05	1.0664E-05	10.677	13.097	11.264	12.698	5.4951	-3.0483
1.0676E-05	1.0672E-05	11.803	11.991	11.137	12.832	-5.6498	7.0133
1.0684E-05	1.0680E-05	13.094	10.696	12.72	11.245	-2.8578	5.1296
1.0693E-05	1.0689E-05	11.965	11.84	12.814	11.17	7.0931	-5.6561
1.0701E-05	1.0697E-05	10.702	13.08	11.216	12.753	4.8017	-2.5029
1.0709E-05	1.0705E-05	11.881	11.918	11.189	12.781	-5.8212	7.2401
1.0718E-05	1.0714E-05	13.076	10.718	12.75	11.217	-2.4952	6.4502
1.0726E-05	1.0722E-05	11.894	11.91	12.763	11.218	7.2986	-5.8054
1.0735E-05	1.0731E-05	10.726	13.062	11.19	12.777	4.3283	-2.1754
1.0743E-05	1.0739E-05	11.926	11.881	11.252	12.72	-5.6527	7.0625
1.0751E-05	1.0747E-05	13.06	10.732	12.79	11.183	-2.0628	4.2027
1.0759E-05	1.0756E-05	11.836	11.969	12.692	11.29	7.227	-5.6733
1.0768E-05	1.0764E-05	10.742	13.045	11.161	12.806	3.9056	-1.8356
1.0776E-05	1.0772E-05	12	11.807	11.303	12.67	-5.8037	7.3072
1.0784E-05	1.0781E-05	13.047	10.749	12.832	11.148	-1.6487	3.7083
1.0793E-05	1.0789E-05	11.738	12.063	12.644	11.339	7.7125	-5.9997
1.0801E-05	1.0797E-05	10.763	13.029	11.137	12.829	3.4794	-1.5361
1.0810E-05	1.0806E-05	12.081	11.723	11.346	12.628	-6.0886	7.7214
1.0818E-05	1.0814E-05	13.033	10.77	12.85	11.128	-1.4045	3.3253
1.0826E-05	1.0822E-05	11.707	12.097	12.616	11.369	7.7665	-6.0208

1.0835E-05	1.0831E-05	10.772	13.021	11.113	12.853	3.168	-1.2893
1.0843E-05	1.0839E-05	12.131	11.672	11.402	12.575	-6.0132	7.732
1.0851E-05	1.0847E-05	13.026	10.776	12.876	11.101	-1.153	3.0166
1.0860E-05	1.0856E-05	11.65	12.151	12.542	11.44	7.6516	-5.8497
1.0868E-05	1.0864E-05	10.778	13.017	11.079	12.893	2.7911	-0.94691
1.0876E-05	1.0872E-05	12.188	11.614	11.435	12.547	-6.1844	8.0273
1.0885E-05	1.0881E-05	13.028	10.767	12.925	11.061	-0.78685	2.7265
1.0893E-05	1.0889E-05	11.562	12.232	12.503	11.478	8.1439	-6.1674
1.0901E-05	1.0897E-05	10.792	13.01	11.048	12.927	2.379	-0.64134
1.0910E-05	1.0906E-05	12.252	11.547	11.486	12.5	-6.2526	8.2532
1.0918E-05	1.0914E-05	13.011	10.789	12.961	11.028	-0.38625	2.2111
1.0927E-05	1.0922E-05	11.496	12.29	12.471	11.508	8.4784	-6.3618
1.0935E-05	1.0931E-05	10.786	13.017	11.014	12.964	2.117	-0.40128
1.0943E-05	1.0939E-05	12.291	11.51	11.531	12.459	-6.1814	8.2481
1.0951E-05	1.0948E-05	13.025	10.767	12.993	10.996	-0.2476	2.127
1.0960E-05	1.0956E-05	11.434	12.344	12.442	11.536	8.8164	-6.5435
1.0968E-05	1.0964E-05	10.783	13.02	10.972	13.015	1.7542	-0.03111
1.0976E-05	1.0972E-05	12.339	11.46	11.564	12.431	-6.2883	8.4796
1.0985E-05	1.0981E-05	13.01	10.787	13.032	10.96	0.17129	1.6126
1.0993E-05	1.0989E-05	11.364	12.405	12.404	11.573	9.1511	-6.71
1.1002E-05	1.0998E-05	10.775	13.025	10.934	13.054	1.4821	0.22666
1.1010E-05	1.1006E-05	12.394	11.401	11.605	12.389	-6.3696	8.6648
1.1018E-05	1.1014E-05	13.007	10.789	13.084	10.92	0.58874	1

1.1666E-05	1.1665E-05	11.792	12.005	11.121	12.849	-5.6877	7.0311
1.1678E-05	1.1674E-05	10.097	10.683	12.715	11.252	-2.9126	5.2322
1.1686E-05	1.1682E-05	11.574	11.828	12.831	11.153	7.161	-5.7094
1.1694E-05	1.1691E-05	10.666	13.082	11.219	12.747	4.8872	-2.5604
1.1703E-05	1.1699E-05	11.896	11.934	11.178	12.79	-5.7922	7.1894
1.1711E-05	1.1707E-05	13.078	10.712	12.761	11.213	-2.4295	4.6768
1.1719E-05	1.1715E-05	11.905	11.9	12.76	11.225	7.1782	-5.6713
1.1728E-05	1.1724E-05	10.722	13.063	11.194	12.772	4.4054	-2.2275
1.1736E-05	1.1732E-05	11.922	11.88	12.244	12.724	-5.6861	7.1039
1.1744E-05	1.1741E-05	13.063	13.733	12.797	11.18	-2.0379	4.1608
1.1753E-05	1.1749E-05	11.844	11.964	12.7	11.285	7.2253	-5.6718
1.1761E-05	1.1757E-05	10.738	13.047	11.166	12.804	3.9669	-1.8649
1.1769E-05	1.1765E-05	11.966	11.84	11.288	12.681	-5.6675	7.1052
1.1778E-05	1.1774E-05	13.045	10.759	12.807	11.164	-1.8238	3.7637
1.1786E-05	1.1782E-05	11.777	12.031	12.667	11.318	7.5576	-5.953
1.1795E-05	1.1791E-05	10.757	13.034	11.147	12.822	3.625	-1.6287
1.1803E-05	1.1799E-05	12.071	11.731	11.336	12.637	-6.0825	7.3366
1.1811E-05	1.1807E-05	13.034	10.766	12.858	11.121	-1.3467	3.3015
1.1820E-05	1.1816E-05	11.692	12.111	12.621	11.362	7.952	-6.1835
1.1828E-05	1.1824E-05	10.788	13.026	11.111	12.865	3.1838	-1.2366
1.1836E-05	1.1832E-05	12.108	11.699	11.388	12.591	-5.9448	7.628
1.1845E-05	1.1841E-05	13.024	10.774	12.891	11.092	-1.0173	2.9575
1.1853E-05	1.1849E-05	11.65	12.149	12.577	11.404	7.9562	-6.1345
1.1861E-05	1.1857E-05	10.781	13.018	11.082	12.894	2.7932	-0.9536
1.1870E-05	1.1866E-05	12.187	11.619	11.432	12.554	-6.195	8.0504
1.1878E-05	1.1874E-05	13.013	10.789	12.92	11.066	-0.70867	2.5677
1.1886E-05	1.1882E-05	11.571	12.22	12.508	11.468	8.1057	-6.1512
1.1895E-05	1.1891E-05	10.789	13.012	11.047	12.933	3.2883	-0.60541
1.1903E-05	1.1899E-05	12.232	11.575	11.481	12.508	-6.1402	8.0579
1.1911E-05	1.1907E-05	13.022	10.779	12.945	11.042	-0.57766	2.4449
1.1920E-05	1.1916E-05	11.501	12.282	12.479	11.5	8.5023	-6.3736
1.1928E-05	1.1924E-05	10.794	13.006	11.02	12.952	2.0891	-0.41969
1.1936E-05	1.1932E-05	12.285	11.518	11.519	12.471	-6.2361	8.2738
1.1945E-05	1.1941E-05	13.023	10.776	12.988	11.006	-0.27073	2.3237
1.1953E-05	1.1949E-05	11.444	12.335	12.448	11.533	8.7713	-6.4972
1.1962E-05	1.1958E-05	10.782	13.015	10.979	13.002	1.8265	-0.094562
1.1970E-05	1.1966E-05	12.326	11.473	11.556	12.433	-6.2489	8.3697
1.1978E-05	1.1974E-05	13.013	10.789	13.024	10.97	0.085983	1.6818
1.1987E-05	1.1983E-05	11.405	12.373	12.387	11.59	8.6144	-6.3307
1.1995E-05	1.1991E-05	10.77	13.026	10.942	13.046	1.6008	0.15501
1.2000E-05	1.1999E-05	11.692	12.266	11.593	12.396	-0.8431	1.0628

Fig5.8_ExactDemaw_SinLO_6dBlowe

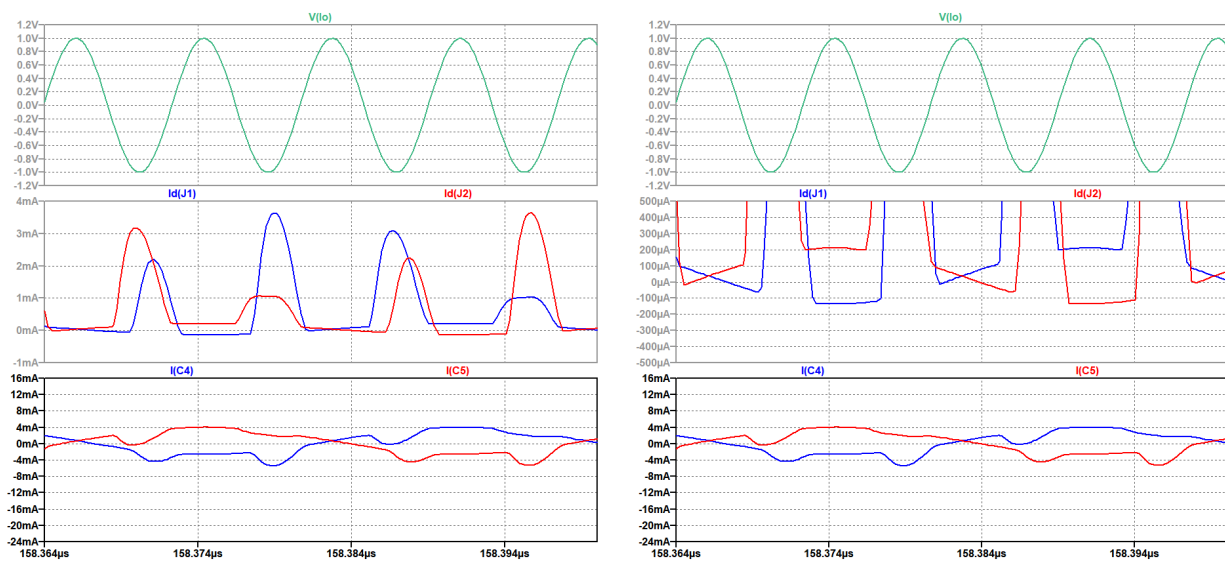


max discharge of CAP1		-5.0909
max discharge of CAP2		-5.1495
max discahrge of CAP1 and CAP2		-5.1495

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0008E-05	1.0004E-05	11.096	12.719	11.202	12.789	0.95452	0.54662
1.0017E-05	1.0013E-05	12.322	11.488	11.74	12.266	-4.7229	6.7693
1.0025E-05	1.0021E-05	12.72	11.715	12.801	12.67	0.63302	1.0147
1.0033E-05	1.0029E-05	11.453	12.337	12.243	11.743	6.8975	-4.8171
1.0042E-05	1.0038E-05	11.097	12.714	11.175	12.812	0.70858	0.76833
1.0050E-05	1.0046E-05	12.369	11.443	11.77	12.237	-4.8466	6.9388
1.0058E-05	1.0054E-05	12.706	11.095	12.833	11.169	1.0038	0.66748
1.0067E-05	1.0063E-05	11.403	12.383	12.208	11.776	7.0582	-4.8975
1.0075E-05	1.0071E-05	11.104	12.701	11.148	12.835	0.39612	1.0588
1.0083E-05	1.0079E-05	12.404	11.412	11.816	12.19	-4.743	6.8243
1.0092E-05	1.0088E-05	12.692	11.109	12.86	11.147	1.3201	0.33396
1.0100E-05	1.0096E-05	11.344	12.44	12.145	11.842	7.0611	-4.8023
1.0109E-05	1.0104E-05	11.127	12.674	11.123	12.861	-0.033829	1.4821
1.0117E-05	1.0113E-05	12.486	11.322	11.851	12.15	-5.0909	7.3179
1.0125E-05	1.0121E-05	12.675	11.128	12.888	11.127	1.6822	-0.0043892
1.0133E-05	1.0129E-05	11.296	12.489	12.114	11.875	7.2377	-4.916
1.0142E-05	1.0138E-05	11.137	12.658	11.101	12.885	-0.32399	1.7979
1.0150E-05	1.0146E-05	12.506	11.299	11.913	12.083	-4.7416	6.9433
1.0158E-05	1.0155E-05	12.667	11.132	12.911	11.113	1.9245	-0.1737
1.0167E-05	1.0163E-05	11.25	12.539	12.077	11.912	7.3577	-4.9976
1.0175E-05	1.0171E-05	11.149	12.645	11.086	12.91	-0.56249	2.0925
1.0183E-05	1.0180E-05	12.546	11.254	11.95	12.042	-4.7467	7.0016
1.0192E-05	1.0188E-05	12.63	11.165	12.925	11.095	2.3352	-0.62999
1.0200E-05	1.0196E-05	11.195	12.595	12.028	11.959	7.435	-5.0445
1.0209E-05	1.0205E-05	11.169	12.627	11.073	12.929	-0.86238	2.3973
1.0217E-05	1.0213E-05	12.632	11.163	11.991	12	-5.076	7.4988
1.0225E-05	1.0221E-05	12.614	11.173	12.935	11.078	2.5453	-0.84855
1.0234E-05	1.0230E-05	11.141	12.649	11.947	12.036	7.2366	-4.8454
1.0242E-05	1.0238E-05	11.195	12.604	11.068	12.942	-1.1283	2.685
1.0250E-05	1.0246E-05	12.665	11.131	12.031	11.961	-5.0059	7.4555
1.0259E-05	1.0255E-05	12.563	11.219	12.943	11.068	3.0235	-1.3522
1.0267E-05	1.0263E-05	11.095	12.691	11.901	12.074	7.2631	-4.8594
1.0275E-05	1.0271E-05	11.252	12.548	11.055	12.95	-1.7517	3.2074
1.0284E-05	1.0280E-05	12.699	11.103	12.108	11.888	-4.6583	7.0688
1.0292E-05	1.0288E-05	12.513	11.268	12.95	11.058	3.493	-1.8607
1.0300E-05	1.0297E-05	11.06	12.722	11.845	12.125	7.0921	-4.6897
1.0309E-05	1.0305E-05	11.298	12.499	11.058	12.948	-2.1225	3.5891
1.0317E-05	1.0313E-05	12.739	11.066	12.15	11.845	-4.6297	7.0322
1.0325E-05	1.0322E-05	12.487	11.296	12.947	11.07	3.681	-1.9978
1.0334E-05	1.0330E-05	11.028	12.752	11.82	12.145	7.1767	-4.7592
1.0342E-05	1.0338E-05	11.327	12.465	11.059	12.942	-2.3646	3.8267
1.0350E-05	1.0346E-05	12.768	11.041	12.193	11.796	-4.5065	6.8353
1.0359E-05	1.0355E-05	12.444	11.343	12.944	11.073	4.0129	-2.3755
1.0367E-05	1.0363E-05	10.988	12.796	11.762	12.205	7.0382	-4.6124
1.0375E-05	1.0372E-05	11.348	12.439	11.071	12.928	-2.4444	3.9305
1.0384E-05	1.0380E-05	12.813	10.994	12.259	11.725	-4.3235	6.6445
1.0392E-05	1.0388E-05	12.393	11.398	12.927	11.093	4.3138	-2.6744
1.0400E-05	1.0397E-05	10.98	12.809	11.714	12.254	6.6851	-4.3288
1.0409E-05	1.0405E-05	11.393	12.393	11.08	12.916	-2.7465	4.2221
1.0417E-05	1.0413E-05	12.835	10.971	12.298	11.678	-4.183	6.4456
1.0426E-05	1.0422E-05	12.358	11.434	12.908	11.109	4.4442	-2.8452
1.0434E-05	1.0430E-05	10.958	12.839	11.653	12.32	6.341	-4.0432
1.0442E-05	1.0438E-05	11.469	12.317	11.116	12.888	-3.0778	4.6358
1.0450E-05	1.0447E-05	12.84	10.964	12.329	11.641	-3.98	6.1745
1.0459E-05	1.0455E-05	12.276	11.514	12.888	11.118	4.9865	-3.4373
1.0467E-05	1.0463E-05	10.945	12.857	11.616	12.352	6.1271	-3.9285
1.0475E-05	1.0472E-05	11.488	12.305	11.136	12.869	-3.0638	4.577
1.0484E-05	1.0480E-05	12.86	10.945	12.4	11.574	-3.5787	5.7392
1.0492E-05	1.0488E-05	12.248	11.54	12.856	11.146	4.9669	-3.4114
1.0501E-05	1.0497E-05	10.938	12.868	11.575	12.388	5.821	-3.7241
1.0509E-05	1.0505E-05	11.578	12.218	11.16	12.843	-3.6105	5.1141
1.0517E-05	1.0514E-05	12.867	10.943	12.436	11.539	-3.3522	5.4491
1.0526E-05	1.0522E-05	12.155	11.629	12.821	11.179	5.4852	-3.8715
1.0534E-05	1.0530E-05	10.934	12.871	11.515	12.446	5.3182	-3.3014
1.0542E-05	1.0538E-05	11.635	12.165	11.191	12.81	-3.81	5.3021
1.0551E-05	1.0547E-05	12.886	10.934	12.476	11.501	-3.1791	5.1904
1.0559E-05	1.0555E-05	12.136	11.651	12.78	11.225	5.3071	-3.6578
1.0567E-05	1.0563E-05	10.929	12.875	11.487	12.467	5.1093	-3.1678
1.0576E-05	1.0572E-05	11.662	12.14	11.229	12.767	-3.7155	5.1712
1.0584E-05	1.0580E-05	12.884	10.942	12.505	11.473	-2.9393	4.852
1.0592E-05	1.0588E-05	12.077	11.715	12.747	11.26	5.5517	-3.8889
1.0601E-05	1.0597E-05	10.937	12.864	11.46	12.492	4.7761	-2.8958
1.0609E-05	1.0605E-05	11.7	12.1	11.265	12.725	-3.7195	5.169
1.0618E-05	1.0614E-05	12.879	10.951	12.527	11.446	-2.7375	4.5204
1.0626E-05	1.0622E-05	12.009	11.788	12.701	11.311	5.7632	-4.0507
1.0634E-05	1.0630E-05	10.945	12.864	11.425	12.534	4.3866	-2.5671
1.0643E-05	1.0639E-05	11.78	12.015	11.303	12.684	-4.0518	5.5675
1.0651E-05	1.0647E-05	12.866	10.962	12.564	11.409	-2.3511	4.0705
1.0659E-05	1.0655E-05	11.959	11.844	12.671	11.336	5.9583	-4.2895
1.0668E-05	1.0664E-05	10.961	12.853	11.406	12.557	4.0547	-2.3039
1.0676E-05	1.0672E-05	11.816	11.981	11.336	12.65	-4.0674	5.5891
1.0684E-05	1.0680E-05	12.849	10.974	12.571	11.393	-2.1641	3.8127
1.0693E-05	1.0689E-05	11.931	11.875	12.626	11.377	5.8306	-4.1886
1.0701E-05	1.0697E-05	10.979	12.84	11.384	12.584	3.6907	-1.9661
1.0710E-05	1.0705E-05	11.921	11.877	11.387	12.605	-4.475	6.1254
1.0718E-05	1.0714E-05	12.831	10.986	12.602	11.365	-1.7895	3.4571
1.0726E-05	1.0722E-05	11.883	11.921	12.57	11.431	5.7796	-4.1031
1.0734E-05	1.0730E-05	10.997	12.825	11.369	12.597	3.3807	-1.7809
1.0743E-05	1.0739E-05	11.947	11.859	11.434	12.565	-4.2952	5.9521
1.0751E-05	1.0747E-05	12.815	11.001	12.605	11.36	-1.642	3.2699
1.0759E-05	1.0756E-05	11.847	11.952	12.529	11.466	5.7558	-4.0701
1.0768E-05	1.0764E-05	11.012	12.809	11.35	12.615	3.0692	-1.5151
1.0776E-05	1.0772E-05	11.98	11.834	11.466	12.533	-4.2947	5.9089
1.0784E-05	1.0781E-05	12.802	11.016	12.647	11.334	-1.2047	2.8854
1.0793E-05	1.0789E-05	11.806	11.992	12.489	11.504	5.7931	-4.0667
1.0801E-05	1.0797E-05	11.026	12.79	11.328	12.634	2.7389	-1.2236
1.0809E-05	1.0806E-05	12.03	11.787	11.518	12.484	-4.2576	5.9127
1.0818E-05	1.0814E-05	12.785	11.04	12.673	11.318	-0.8784	2.5146
1.0826E-05	1.0822E-05	11.722	12.073	12.461	11.534	6.3004	-4.4619

1.0835E-05	1.0831E-05	11.036	12.774	11.312	12.647	2.5018	-0.99338
1.0843E-05	1.0839E-05	12.09	11.725	11.546	12.45	-4.4933	6.1759
1.0851E-05	1.0848E-05	12.777	11.048	12.693	11.303	-0.66025	2.3021
1.0860E-05	1.0856E-05	11.687	12.113	12.433	11.565	6.3886	-4.5221
1.0868E-05	1.0864E-05	11.039	12.765	11.292	12.671	2.2906	-0.73984
1.0876E-05	1.0872E-05	12.145	11.665	11.574	12.417	-4.7023	6.4484
1.0885E-05	1.0881E-05	12.769	11.054	12.708	11.285	-0.47422	2.089
1.0893E-05	1.0889E-05	11.654	12.15	12.405	11.595	6.444	-4.5661
1.0901E-05	1.0897E-05	11.052	12.754	11.274	12.696	2.0124	-0.45262
1.0910E-05	1.0906E-05	12.187	11.619	11.623	12.37	-4.6246	6.4642
1.0918E-05	1.0914E-05	12.749	11.07	12.728	11.263	-0.16496	1.7498
1.0926E-05	1.0922E-05	11.609	12.198	12.367	11.634	6.5325	-4.6244
1.0935E-05	1.0931E-05	11.074	12.738	11.254	12.726	1.6293	-0.10033
1.0943E-05	1.0939E-05	12.191	11.616	11.659	12.337	-4.3603	6.205
1.0952E-05	1.0948E-05	12.734	11.077	12.742	11.242	0.060671	1.4887
1.0960E-05	1.0956E-05	11.572	12.233	12.313	11.696	6.4063	-4.4706
1.0968E-05	1.0964E-05	11.07	12.743	11.234	12.75	1.4789	0.049969
1.0977E-05	1.0973E-05	12.266	11.541	11.689	12.312	-4.7042	6.6824
1.0985E-05	1.0981E-05	12.733	11.068	12.768	11.219	0.27144	1.3637
1.0993E-05	1.0989E-05	11.523	12.276	12.283	11.708	6.5967	-4.625
1.1002E-05	1.0998E-05	11.097	12.72	11.208	12.778	0.99993	0.44942
1.1010E-05	1.1006E-05	12.309	11.502	11.735	12.273	-4.6618	6.6993
1.1018E-05	1.1014E-05	12.721	11.078	12.8	11.196	0.62508	1.0592
1.1027E-05	1.1023E-05	11.466	12.324	12.249	11.736	6.828	-4.7692
1.1035E-05	1.1031E-05	11.104	12.71	11.18	12.806	0.6881	0.75607
1.1043E-05	1.1039E-05	12.376	11.439	11.761	12.247	-4.9677	7.0695
1.1052E-05	1.1048E-05	12.7	11.102	12.828	11.175	1.0084	0.65863
1.1060E-05	1.1056E-05	11.412	12.373	12.216	11.767	7.0486	-4.897
1.1068E-05	1.1064E-05	11.103	12.702	11.153	12.834	0.44939	1.0456
1.1077E-05	1.1073E-05	12.399	11.418	11.809	12.198	-4.7522	6.8322
1.1085E-05	1.1081E-05	12.698	11.106	12.856	11.153	1.2464	0.42343
1.1093E-05	1.1089E-05	11.362	12.422	12.152	11.836	6.955	-4.7167
1.1102E-05	1.1098E-05	11.108	12.689	11.128	12.857	0.1754	1.3243
1.1110E-05	1.1106E-05	12.47	11.339	11.84	12.16	-5.0522	7.2337
1.1118E-05	1.1115E-05	12.678	11.127	12.885	11.133	1.6306	0.050528
1.1127E-05	1.1123E-05	11.291	12.495	12.115	11.877	7.2932	-4.947
1.1135E-05	1.1131E-05	11.138	12.656	11.108	12.883	-0.27061	1.796
1.1143E-05	1.1140E-05	12.506	11.297	11.906	12.09	-4.7962	7.0156
1.1152E-05	1.1148E-05	12.673	11.128	12.905	11.112	1.828	-0.14724
1.1160E-05	1.1156E-05	11.243	12.547	12.085	11.906	7.4905	-5.1024
1.1169E-05	1.1165E-05	11.151	12.643	11.093	12.908	-0.52349	2.0904
1.1177E-05	1.1173E-05	12.536	11.263	11.942	12.05	-4.743	6.9871
1.1185E-05	1.1181E-05	12.638	11.157	12.918	11.085	2.2155	-0.63991
1.1194E-05	1.1190E-05	11.201	12.592	12.04	11.949	7.4938	-5.1065
1.1202E-05	1.1198E-05	11.173	12.624	11.075	12.926	-0.88091	2.3926
1.1210E-05	1.1206E-05	12.582	11.215	11.985	12.007	-4.7499	7.067
1.1219E-05	1.1215E-05	12.617	11.177	12.932	11.08	2.497	-0.80621
1.1227E-05	1.1223E-05	11.151	12.639	11.993	11.988	7.5491	-5.1495
1.1235E-05	1.1231E-05	11.198	12.603	11.064	12.941	-1.2027	2.6886
1.1244E-05	1.1240E-05	12.66	11.138	12.028	11.967	-4.99	7.4421
1.1252E-05	1.1248E-05	12.587	11.194	12.94	11.073	2.8041	-1.0761
1.1260E-05	1.1256E-05	11.106	12.679	11.91	12.065	7.2367	-4.8472
1.1269E-05	1.1265E-05	11.218	12.583	11.064	12.947	-1.3714	2.8988
1.1277E-05	1.1273E-05	12.693	11.11	12.1	11.898	-4.6697	7.0909
1.1285E-05	1.1281E-05	12.548	11.233	12.949	11.06	3.1946	-1.5395
1.1294E-05	1.1290E-05	11.064	12.716	11.873	12.094	7.3158	-4.8996
1.1302E-05	1.1298E-05	11.273	12.524	11.054	12.949	-1.4959	3.3893
1.1310E-05	1.1306E-05	12.733	11.075	12.14	11.856	-4.6635	7.055
1.1319E-05	1.1315E-05	12.499	11.284	12.825	11.066	3.6091	-1.935
1.1327E-05	1.1323E-05	11.034	12.745	11.827	12.139	7.1838	-4.7555
1.1335E-05	1.1331E-05	11.316	12.475	11.055	12.942	-2.3028	3.7459
1.1344E-05	1.1340E-05	12.767	11.042	12.033	11.789	-4.4211	6.7609
1.1352E-05	1.1348E-05	12.45	11.339	12.945	11.075	3.983	-2.3351
1.1361E-05	1.1357E-05	10.997	12.785	11.764	12.204	6.9793	-4.542
1.1369E-05	1.1365E-05	11.357	12.428	11.062	12.932	-2.5976	4.0612
1.1377E-05	1.1373E-05	12.809	10.999	12.23	11.751	-4.519	6.3891
1.1386E-05	1.1382E-05	12.405	11.388	12.931	11.092	4.2394	-2.5976
1.1394E-05	1.1390E-05	10.971	12.82	11.727	12.245	6.8914	-4.4908
1.1402E-05	1.1398E-05	11.408	12.375	11.086	12.914	-2.8238	4.3598
1.1411E-05	1.1407E-05	12.826	10.977	12.285	11.689	-4.216	6.4882
1.1419E-05	1.1415E-05	12.376	11.418	12.913	11.102	4.3345	-2.7689
1.1427E-05	1.1423E-05	10.967	12.831	11.655	12.321	6.2726	-3.9763
1.1436E-05	1.1432E-05	11.441	12.345	11.109	12.896	-2.9045	4.4578
1.1444E-05	1.1440E-05	12.854	10.949	12.338	11.634	-4.0179	6.2562
1.1452E-05	1.1448E-05	12.295	11.493	12.886	11.121	4.8126	-3.2352
1.1461E-05	1.1457E-05	10.95	12.855	11.608	12.365	6.0155	-3.8101
1.1469E-05	1.1465E-05	11.498	12.295	11.131	12.875	-3.1943	4.7218
1.1477E-05	1.1474E-05	12.855	10.948	12.392	11.583	-3.5021	5.7921
1.1486E-05	1.1482E-05	12.22	11.564	11.261	11.138	6.2617	-3.6851
1.1494E-05	1.1490E-05	10.938	12.867	11.565	12.402	5.726	-3.6149
1.1502E-05	1.1498E-05	11.556	12.243	11.154	12.851	-3.4782	4.9634
1.1511E-05	1.1507E-05	12.883	10.931	12.427	11.55	-3.5414	5.6519
1.1519E-05	1.1515E-05	12.168	11.613	12.828	11.172	5.422	-3.7987
1.1527E-05	1.1524E-05	10.933	12.87	11.523	12.436	5.4009	-3.7199
1.1536E-05	1.1532E-05	11.619	12.182	11.181	12.818	-3.7654	5.2492
1.1544E-05	1.1540E-05	12.886	10.935	12.468	11.512	-3.2453	5.2795
1.1552E-05	1.1548E-05	12.145	11.641	12.799	11.202	2.9839	-3.7743
1.1561E-05	1.1557E-05	10.931	12.868	11.491	12.461	5.123	-3.1582
1.1569E-05	1.1565E-05	11.653	12.148	11.22	12.775	-3.7183	5.615
1.1578E-05	1.1574E-05	12.887	10.942	12.508	11.473	-2.9449	4.8608
1.1586E-05	1.1582E-05	12.088	11.705	12.75	11.263	5.4742	-3.7789
1.1594E-05	1.1590E-05	10.93	12.873	11.45	12.507	4.752	-2.8431
1.1602E-05	1.1599E-05	11.692	12.105	11.251	12.735	-3.7716	5.205
1.1611E-05	1.1607E-05	12.873	10.954	12.522	11.451	-2.7277	4.5383
1.1619E-05	1.1615E-05	12.024	11.777	12.714	11.3	5.7403	-4.0524
1.1628E-05	1.1624E-05	10.944	12.861	11.428	12.533	4.4238	-2.5471
1.1636E-05	1.1632E-05	11.767	12.025	11.298	12.689	-3.9883	5.5214
1.1644E-05	1.1640E-05	12.864	10.96	12.554	11.414	-2.4093	4.1474
1.1653E-05	1.1649E-05	11.968	11.837	12.662	11.352	5.8031	-0.9089
1.1661E-05	1.1657E-05	10.96	12.853	11.415	12.55	4.1505	-2.361

Fig5.9_ExactDemaw_SinLO_12dBlow



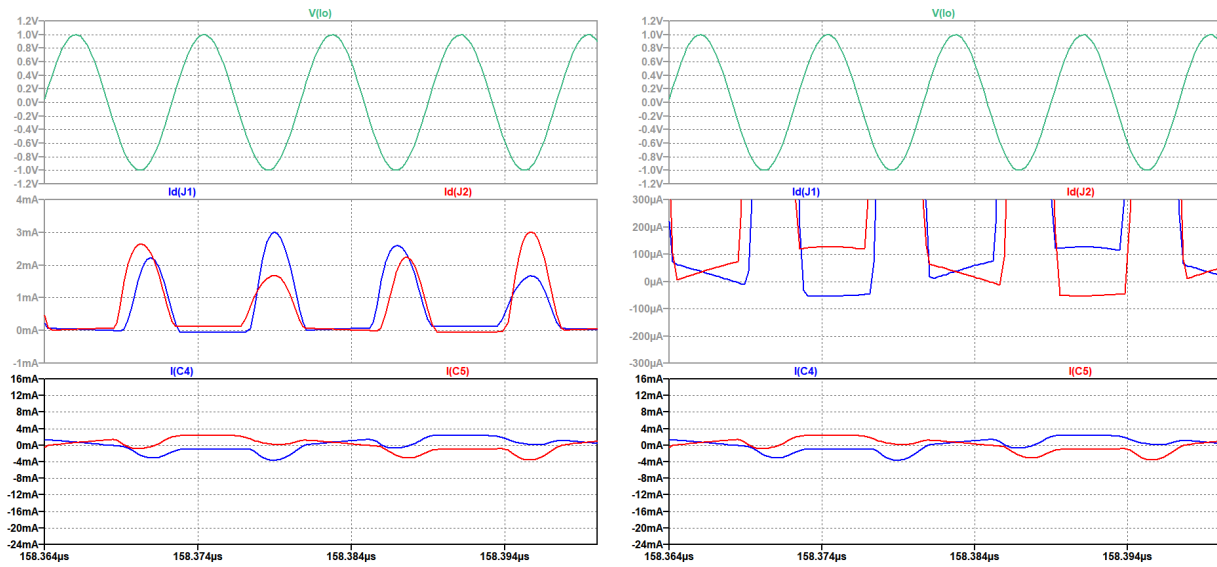
max discharge of CAP1		-2.6838
max discharge of CAP2		-2.7616
max disachrge of CAP1 and CAP2		-2.7616

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0008E-05	1.0004E-05	11.436	12.375	11.536	12.448	0.87425	0.59996
1.0017E-05	1.0013E-05	12.143	11.664	11.866	12.137	-2.2802	0.40609
1.0025E-05	1.0021E-05	12.378	11.428	12.466	11.531	0.70924	0.90402
1.0033E-05	1.0029E-05	11.651	12.146	12.118	11.877	0.40132	-2.2173
1.0042E-05	1.0038E-05	11.438	12.372	11.518	12.464	0.70099	0.74574
1.0050E-05	1.0046E-05	12.187	11.623	11.873	12.125	-2.5766	0.43245
1.0058E-05	1.0054E-05	12.367	11.439	12.48	11.515	0.90878	0.66756
1.0067E-05	1.0063E-05	11.601	12.194	12.102	11.889	0.43186	-2.4994
1.0075E-05	1.0071E-05	11.444	12.363	11.5	12.48	0.48953	0.94761
1.0083E-05	1.0079E-05	12.203	11.608	11.907	12.095	-2.4255	0.41973
1.0092E-05	1.0088E-05	12.361	11.448	12.499	11.501	1.1195	0.47071
1.0100E-05	1.0096E-05	11.567	12.228	12.079	11.913	4.4255	-2.5758
1.0108E-05	1.0104E-05	11.451	12.352	11.483	12.496	0.27787	1.1664
1.0117E-05	1.0113E-05	12.247	11.562	11.92	12.074	-2.6716	0.433
1.0125E-05	1.0121E-05	12.355	11.453	12.516	11.489	1.3014	0.30871
1.0133E-05	1.0129E-05	11.557	12.241	12.058	11.935	4.3324	-2.5005
1.0142E-05	1.0138E-05	11.457	12.344	11.473	12.515	0.14056	1.3882
1.0150E-05	1.0146E-05	12.266	11.54	11.937	12.052	-2.6838	0.43445
1.0158E-05	1.0155E-05	12.346	11.461	12.528	11.476	1.4744	0.12315
1.0167E-05	1.0163E-05	11.51	12.29	12.035	11.966	4.9607	-2.7135
1.0175E-05	1.0171E-05	11.462	12.338	11.461	12.528	-0.006835	1.5423
1.0184E-05	1.0180E-05	12.306	11.498	11.987	12.008	-2.5938	0.4285
1.0192E-05	1.0188E-05	12.325	11.48	12.535	11.456	1.7041	-0.20877
1.0200E-05	1.0196E-05	11.48	12.321	12.001	11.991	4.5389	-2.6802
1.0209E-05	1.0205E-05	11.476	12.326	11.456	12.54	-0.17264	1.7396
1.0217E-05	1.0213E-05	12.326	11.478	11.996	11.993	-2.6799	0.4844
1.0225E-05	1.0222E-05	12.305	11.497	12.545	11.461	1.9488	-0.31288
1.0234E-05	1.0230E-05	11.457	12.343	11.961	12.033	4.3941	-2.5166
1.0242E-05	1.0238E-05	11.491	12.312	11.45	12.548	-0.35509	1.9135
1.0250E-05	1.0246E-05	12.363	11.443	12.045	11.951	-2.5775	0.4357
1.0259E-05	1.0255E-05	12.298	11.501	12.55	11.444	2.0528	-0.48899
1.0267E-05	1.0263E-05	11.428	12.372	11.934	12.053	4.4306	-2.5719
1.0275E-05	1.0272E-05	11.511	12.292	11.45	12.55	-0.52497	2.1031
1.0284E-05	1.0280E-05	12.384	11.425	12.073	11.923	-2.5086	0.3592
1.0292E-05	1.0288E-05	12.271	11.527	12.552	11.452	2.288	-0.64465
1.0300E-05	1.0296E-05	11.404	12.394	11.904	12.08	4.3876	-2.534
1.0309E-05	1.0305E-05	11.535	12.266	11.441	12.551	-0.8204	2.3226
1.0317E-05	1.0313E-05	12.409	11.402	12.098	11.895	-2.5099	0.3251
1.0325E-05	1.0322E-05	12.244	11.554	12.551	11.456	2.5029	-0.85272
1.0334E-05	1.0330E-05	11.38	12.418	11.869	12.116	4.3025	-2.4346
1.0342E-05	1.0338E-05	11.555	12.243	11.439	12.547	-1.004	2.4811
1.0350E-05	1.0346E-05	12.426	11.396	12.121	11.868	-2.4543	0.42355
1.0359E-05	1.0355E-05	12.219	11.582	12.547	11.459	2.6819	-1.0579
1.0367E-05	1.0363E-05	11.376	12.423	11.84	12.146	0.4766	-2.2232
1.0376E-05	1.0372E-05	11.605	12.192	11.454	12.538	-1.296	2.8394
1.0384E-05	1.0380E-05	12.437	11.374	12.143	11.84	-2.3684	0.4024
1.0392E-05	1.0388E-05	12.193	11.609	12.539	11.463	2.8395	-1.2513
1.0401E-05	1.0397E-05	11.36	12.442	11.81	12.18	3.9603	-2.1082
1.0409E-05	1.0405E-05	11.605	12.191	11.464	12.528	-1.2171	2.7615
1.0417E-05	1.0413E-05	12.449	11.36	12.164	11.814	-2.2832	3.9977
1.0426E-05	1.0422E-05	12.168	11.633	12.527	11.472	2.9445	-1.3847
1.0434E-05	1.0430E-05	11.352	12.453	11.8	12.18	3.952	-2.1958
1.0442E-05	1.0438E-05	11.637	12.16	11.47	12.519	-1.441	2.9512
1.0451E-05	1.0447E-05	12.459	11.348	12.195	11.784	-2.1185	3.8395
1.0459E-05	1.0455E-05	12.131	11.668	12.51	11.486	3.1211	-1.5574
1.0467E-05	1.0463E-05	11.344	12.464	11.785	12.22	3.7136	-1.9559
1.0476E-05	1.0472E-05	11.674	12.125	11.495	12.5	-1.5309	3.0876
1.0484E-05	1.0480E-05	12.458	11.349	12.221	11.759	-1.9023	3.6132
1.0492E-05	1.0488E-05	12.092	11.706	12.491	11.503	3.2996	-1.7352
1.0501E-05	1.0497E-05	11.343	12.465	11.741	12.243	3.5092	-1.7852
1.0509E-05	1.0505E-05	11.725	12.076	11.509	12.484	-1.8426	3.3748
1.0517E-05	1.0513E-05	12.465	11.344	12.242	11.739	-1.785	3.4779
1.0526E-05	1.0522E-05	12.059	11.736	12.472	11.518	3.4242	-1.8578
1.0534E-05	1.0530E-05	11.345	12.463	11.72	12.26	3.3116	-1.6828
1.0542E-05	1.0538E-05	11.744	12.059	11.529	12.463	-1.834	3.3444
1.0551E-05	1.0547E-05	12.464	11.348	12.262	11.722	-1.6276	3.2933
1.0559E-05	1.0555E-05	12.031	11.764	12.445	11.551	3.4381	-1.8159
1.0568E-05	1.0564E-05	11.348	12.457	11.705	12.27	3.1484	-1.5037
1.0576E-05	1.0572E-05	11.777	12.027	11.553	12.438	-1.9018	3.4186
1.0584E-05	1.0580E-05	12.458	11.357	12.286	11.701	-1.3831	3.0313
1.0593E-05	1.0589E-05	11.992	11.806	12.425	11.569	3.6191	-2.0062
1.0601E-05	1.0597E-05	11.355	12.449	11.693	12.278	2.9801	-1.3699
1.0609E-05	1.0605E-05	11.804	11.997	11.573	12.413	-1.9585	3.466
1.0617E-05	1.0614E-05	12.45	11.366	12.291	11.691	-1.2724	2.8601
1.0626E-05	1.0622E-05	11.967	11.835	12.403	11.591	3.6499	-2.0562
1.0634E-05	1.0630E-05	11.364	12.44	11.68	12.293	2.7818	-1.1792
1.0643E-05	1.0639E-05	11.647	11.953	11.595	12.389	-2.1254	3.6477
1.0651E-05	1.0647E-05	12.44	11.374	12.313	11.672	-1.0254	2.6147
1.0659E-05	1.0656E-05	11.937	11.866	12.369	11.634	3.6144	-1.953
1.0668E-05	1.0664E-05	11.375	12.434	11.667	12.312	2.5705	-0.97979
1.0676E-05	1.0672E-05	11.857	11.943	11.635	12.395	-1.8649	3.4605
1.0684E-05	1.0681E-05	12.43	11.382	12.33	11.656	-0.80092	2.4075
1.0693E-05	1.0689E-05	11.921	11.882	12.345	11.654	3.5564	-1.9223
1.0701E-05	1.0697E-05	11.386	12.424	11.651	12.338	2.3227	-0.66883
1.0709E-05	1.0705E-05	11.902	11.899	11.653	12.338	-2.0917	3.6864
1.0718E-05	1.0714E-05	12.42	11.39	12.337	11.647	-0.66475	2.2521
1.0726E-05	1.0722E-05	11.894	11.907	12.32	11.676	3.5834	-1.9425
1.0734E-05	1.0730E-05	11.396	12.416	11.649	12.328	2.2197	-0.71186
1.0743E-05	1.0739E-05	11.906	11.9	11.675	12.317	-1.9339	3.5017
1.0751E-05	1.0747E-05	12.411	11.398	12.339	11.642	-0.57813	2.138
1.0759E-05	1.0755E-05	11.869	11.929	12.305	11.681	3.6727	-2.086
1.0768E-05	1.0764E-05	11.403	12.408	11.63	12.356	1.9902	-0.4223
1.0776E-05	1.0772E-05	11.939	11.869	11.699	12.295	-2.0033	3.5875
1.0784E-05	1.0781E-05	12.405	11.406	12.349	11.633	-0.44745	1.9895
1.0793E-05	1.0789E-05	11.833	11.964	12.264	11.734	3.6468	-1.9165
1.0801E-05	1.0797E-05	11.409	12.4	11.621	12.357	1.8585	-0.34688
1.0810E-05	1.0806E-05	11.978	11.831	11.724	12.271	-2.1169	3.7218
1.0818E-05	1.0814E-05	12.4	11.413	12.363	11.623	-0.30161	1.8411
1.0826E-05	1.0822E-05	11.808	11.989	12.252	11.743	3.7618	-2.0522

1.0834E-05	1.0831E-05	11.413	12.394	11.61	12.366	1.7256	-0.22883
1.0843E-05	1.0839E-05	12	11.808	11.744	12.25	-2.1309	3.7392
1.0851E-05	1.0847E-05	12.396	11.42	12.374	11.612	-0.17916	1.6848
1.0860E-05	1.0856E-05	11.779	12.02	12.23	11.77	3.8284	-2.0774
1.0868E-05	1.0864E-05	11.416	12.39	11.597	12.38	1.5891	-0.077941
1.0876E-05	1.0872E-05	12.023	11.782	11.768	12.225	-2.1237	3.7585
1.0885E-05	1.0881E-05	12.394	11.422	12.389	11.598	-0.036584	1.5385
1.0893E-05	1.0889E-05	11.778	12.024	12.213	11.787	3.695	-1.9698
1.0901E-05	1.0897E-05	11.418	12.388	11.585	12.394	1.4596	0.051433
1.0910E-05	1.0906E-05	12.042	11.761	11.78	12.209	-2.1762	3.8079
1.0918E-05	1.0914E-05	12.39	11.424	12.41	11.581	0.15737	1.3779
1.0926E-05	1.0923E-05	11.75	12.054	12.193	11.808	3.774	-2.0376
1.0935E-05	1.0931E-05	11.425	12.382	11.571	12.411	1.2773	0.23377
1.0943E-05	1.0939E-05	12.063	11.741	11.815	12.181	-2.0502	3.7475
1.0951E-05	1.0948E-05	12.388	11.422	12.422	11.565	0.27226	1.2501
1.0960E-05	1.0956E-05	11.706	12.098	12.178	11.818	0.4034	-2.3081
1.0968E-05	1.0964E-05	11.433	12.377	11.557	12.424	1.0771	0.3783
1.0976E-05	1.0973E-05	12.106	11.697	11.822	12.171	-2.3445	4.0514
1.0985E-05	1.0981E-05	12.381	11.425	12.432	11.548	0.40709	1.0782
1.0993E-05	1.0989E-05	11.691	12.11	12.154	11.84	3.9603	-2.2307
1.1002E-05	1.0998E-05	11.44	12.373	11.54	12.448	0.87354	0.60713
1.1010E-05	1.1006E-05	12.133	11.673	11.858	12.143	-2.2666	4.0284
1.1018E-05	1.1015E-05	12.377	11.428	12.462	11.534	0.68661	0.92841
1.1027E-05	1.1023E-05	11.655	12.143	12.121	11.874	4.004	-2.2097
1.1035E-05	1.1031E-05	11.434	12.376	11.522	12.462	0.76927	0.69471
1.1043E-05	1.1039E-05	12.161	11.649	11.881	12.122	-2.3025	4.061
1.1052E-05	1.1048E-05	12.368	11.439	12.476	11.518	0.87343	0.6882
1.1060E-05	1.1056E-05	11.607	12.188	12.107	11.884	4.3066	-2.4923
1.1068E-05	1.1064E-05	11.444	12.364	11.503	12.476	0.51932	0.90863
1.1077E-05	1.1073E-05	12.196	11.614	11.902	12.099	-2.4096	4.1759
1.1085E-05	1.1081E-05	12.361	11.447	12.496	11.504	1.0912	0.50421
1.1093E-05	1.1089E-05	11.595	12.201	12.082	11.91	4.2064	-2.3875
1.1102E-05	1.1098E-05	11.443	12.36	11.487	12.495	0.38867	1.0896
1.1110E-05	1.1106E-05	12.246	11.563	11.918	12.078	-2.6808	4.4544
1.1118E-05	1.1115E-05	12.354	11.455	12.512	11.49	1.2766	0.30297
1.1127E-05	1.1123E-05	11.542	12.255	12.065	11.941	4.4411	-2.5595
1.1135E-05	1.1131E-05	11.451	12.35	11.474	12.511	0.19825	1.3061
1.1143E-05	1.1140E-05	12.253	11.555	11.953	12.044	-2.448	4.2295
1.1152E-05	1.1148E-05	12.345	11.462	12.525	11.478	1.4615	0.13396
1.1160E-05	1.1156E-05	11.516	12.284	12.023	11.975	4.4084	-2.5106
1.1168E-05	1.1165E-05	11.462	12.339	11.464	12.526	0.020297	1.5213
1.1177E-05	1.1173E-05	12.301	11.504	11.979	12.016	-2.6193	4.4503
1.1185E-05	1.1181E-05	12.328	11.477	12.533	11.458	1.6568	-0.16717
1.1194E-05	1.1189E-05	11.488	12.313	12.015	11.973	4.5926	-2.7616
1.1202E-05	1.1198E-05	11.479	12.323	11.451	12.537	-0.24519	1.7378
1.1210E-05	1.1206E-05	12.327	11.478	11.997	11.994	-2.6761	4.4916
1.1219E-05	1.1215E-05	12.321	11.481	12.542	11.448	1.7969	-0.28106
1.1227E-05	1.1223E-05	11.476	12.326	11.972	12.02	4.3239	-2.4842
1.1235E-05	1.1231E-05	11.489	12.313	11.451	12.546	-0.32673	1.8918
1.1244E-05	1.1240E-05	12.36	11.446	12.043	11.954	-2.5683	4.4396
1.1252E-05	1.1248E-05	12.301	11.498	12.549	11.445	2.0121	-0.45526
1.1260E-05	1.1256E-05	11.432	12.367	11.94	12.409	4.4403	-2.5743
1.1269E-05	1.1265E-05	11.508	12.296	11.439	12.551	-0.95987	2.0757
1.1277E-05	1.1273E-05	12.38	11.429	12.068	11.928	-2.5159	4.3655
1.1285E-05	1.1282E-05	12.275	11.529	12.552	11.453	2.2498	-0.60078
1.1294E-05	1.1290E-05	11.409	12.39	11.911	12.073	4.4035	-2.5554
1.1302E-05	1.1298E-05	11.537	12.265	11.443	12.551	-0.81332	2.3315
1.1310E-05	1.1307E-05	12.408	11.402	12.097	11.898	-2.5059	4.3456
1.1319E-05	1.1315E-05	12.247	11.552	12.554	11.44	2.5067	-0.96646
1.1327E-05	1.1323E-05	11.399	12.399	11.874	12.112	4.172	-2.3154
1.1335E-05	1.1332E-05	11.549	12.25	11.451	12.546	-0.85199	2.4143
1.1344E-05	1.1340E-05	12.424	11.387	12.116	11.873	-2.4813	4.2674
1.1352E-05	1.1348E-05	12.223	11.577	12.548	11.459	2.6561	-1.0189
1.1360E-05	1.1357E-05	11.378	12.421	11.845	12.142	4.0975	-2.2435
1.1369E-05	1.1365E-05	11.574	12.222	11.455	12.539	-1.0296	2.5893
1.1377E-05	1.1373E-05	12.436	11.375	12.138	11.847	-2.3972	4.1479
1.1385E-05	1.1382E-05	12.199	11.602	12.541	11.462	2.7999	-1.2085
1.1394E-05	1.1390E-05	11.361	12.44	11.814	12.175	3.985	-2.1262
1.1402E-05	1.1398E-05	11.611	12.185	11.457	12.532	-1.3249	2.8409
1.1411E-05	1.1407E-05	12.458	11.353	12.177	11.808	-2.2498	4.0193
1.1419E-05	1.1415E-05	12.157	11.644	12.532	11.464	3.0821	-1.5516
1.1427E-05	1.1423E-05	11.362	12.445	11.8	12.183	3.8592	-2.0994
1.1435E-05	1.1432E-05	11.635	12.161	11.467	12.521	-1.4404	2.9596
1.1444E-05	1.1440E-05	12.463	11.345	12.194	11.787	-2.1617	3.8951
1.1452E-05	1.1448E-05	12.129	11.611	12.512	11.486	3.1577	-1.5848
1.1461E-05	1.1457E-05	11.345	12.463	11.773	12.211	3.7749	-2.0208
1.1469E-05	1.1465E-05	11.658	12.143	11.489	12.505	-1.4474	2.981
1.1477E-05	1.1474E-05	12.457	11.35	12.232	11.754	-1.8072	3.556
1.1486E-05	1.1482E-05	12.096	11.701	12.494	11.5	3.2924	-1.7152
1.1494E-05	1.1490E-05	11.343	12.465	11.744	12.24	3.5344	-1.8056
1.1502E-05	1.1498E-05	11.722	12.08	11.507	12.487	-1.8299	3.3671
1.1511E-05	1.1507E-05	12.466	11.343	12.241	11.742	-1.8035	3.5138
1.1519E-05	1.1515E-05	12.086	11.71	12.477	11.512	3.2315	-1.6872
1.1527E-05	1.1524E-05	11.342	12.464	11.72	12.282	3.3317	-1.6243
1.1536E-05	1.1532E-05	11.734	12.07	11.526	12.466	-1.7706	3.2838
1.1544E-05	1.1540E-05	12.464	11.348	12.279	11.713	-1.4839	3.1928
1.1553E-05	1.1549E-05	12.034	11.761	12.454	11.539	3.4873	-2.8154
1.1561E-05	1.1557E-05	11.346	12.46	11.703	12.275	3.1522	-1.4815
1.1569E-05	1.1565E-05	11.779	12.023	11.552	12.44	-1.9286	3.4641
1.1577E-05	1.1574E-05	12.459	11.356	12.281	11.705	-1.4289	3.0793
1.1586E-05	1.1582E-05	12.02	11.778	12.429	11.568	3.3957	-1.7883
1.1594E-05	1.1590E-05	11.355	12.448	11.696	12.276	3.0014	-1.3814
1.1602E-05	1.1599E-05	11.796	12.005	11.568	12.418	-1.9307	3.4368
1.1611E-05	1.1607E-05	12.451	11.364	12.289	11.693	-1.3061	2.8949
1.1619E-05	1.1615E-05	11.971	11.83	12.408	11.587	3.6516	-2.0524
1.1628E-05	1.1624E-05	11.363	12.443	11.683	12.291	2.8193	-1.2162
1.1636E-05	1.1632E-05	11.842	11.957	11.591	12.393	-2.2126	3.6471
1.1644E-05	1.1640E-05	12.441	11.372	12.31	11.674	-1.056	2.6542
1.1653E-05	1.1649E-05	11.942	11.861	12.385	11.607	3.7086	-2.1429
1.1661E-05	1.1657E-05	11.373	12.435	11.672	12.305	2.6278	-1.0417

1.1669E-05	1.1665E-05	11.841	11.961	11.626	12.364	-1.8152	3.3737
1.1678E-05	1.1674E-05	12.431	11.38	12.327	11.658	-0.83724	2.4415
1.1686E-05	1.1682E-05	11.926	11.877	12.349	11.65	3.5548	-1.9127
1.1694E-05	1.1691E-05	11.384	12.426	11.652	12.336	2.3526	-0.72707
1.1703E-05	1.1699E-05	11.897	11.905	11.648	12.343	-2.0935	3.6802
1.1711E-05	1.1707E-05	12.422	11.389	12.336	11.649	-0.69021	2.2864
1.1719E-05	1.1716E-05	11.899	11.902	12.325	11.671	3.5764	-1.9429
1.1728E-05	1.1724E-05	11.394	12.418	11.651	12.324	2.2621	-0.75094
1.1736E-05	1.1732E-05	11.901	11.905	11.672	12.321	-1.9273	3.4945
1.1744E-05	1.1741E-05	12.413	11.397	12.338	11.644	-0.60847	2.1638
1.1753E-05	1.1749E-05	11.887	11.913	12.296	11.701	3.4423	-1.7749
1.1761E-05	1.1757E-05	11.403	12.409	11.635	12.346	2.0305	-0.50029
1.1770E-05	1.1765E-05	11.953	11.854	11.689	12.302	-2.2115	3.7814
1.1778E-05	1.1774E-05	12.405	11.406	12.342	11.638	-0.50876	2.026
1.1786E-05	1.1782E-05	11.837	11.961	12.28	11.712	3.7418	-2.0789
1.1795E-05	1.1791E-05	11.409	12.4	11.623	12.357	1.8747	-0.34562
1.1803E-05	1.1799E-05	11.973	11.836	11.726	12.271	-2.0611	3.6831
1.1811E-05	1.1807E-05	12.401	11.413	12.364	11.624	-0.30191	1.8508
1.1819E-05	1.1816E-05	11.84	11.96	12.257	11.738	3.5271	-1.8503
1.1828E-05	1.1824E-05	11.418	12.391	11.612	12.366	1.7016	-0.20265
1.1836E-05	1.1832E-05	12.004	11.803	11.734	12.256	-2.2523	3.8399
1.1845E-05	1.1841E-05	12.396	11.419	12.381	11.612	-0.12408	1.6836
1.1853E-05	1.1849E-05	11.787	12.013	12.232	11.769	3.7749	-2.0289
1.1861E-05	1.1857E-05	11.415	12.391	11.6	12.377	1.6244	-0.11512
1.1870E-05	1.1866E-05	12.013	11.793	11.76	12.232	-2.1073	3.7237
1.1878E-05	1.1874E-05	12.392	11.422	12.397	11.598	0.036347	1.5346
1.1886E-05	1.1883E-05	11.784	12.018	12.215	11.786	3.6571	-1.9294
1.1895E-05	1.1891E-05	11.419	12.389	11.588	12.392	1.4805	0.029524
1.1903E-05	1.1899E-05	12.036	11.767	11.778	12.213	-2.1503	3.7858
1.1911E-05	1.1908E-05	12.383	11.43	12.406	11.584	0.18405	1.3431
1.1920E-05	1.1916E-05	11.757	12.046	12.201	11.796	3.7768	-2.0792
1.1928E-05	1.1924E-05	11.425	12.383	11.575	12.407	1.3101	0.19162
1.1936E-05	1.1933E-05	12.058	11.747	11.813	12.185	-2.0302	3.7269
1.1945E-05	1.1941E-05	12.377	11.434	12.418	11.568	0.33142	1.1736
1.1953E-05	1.1949E-05	11.713	12.089	12.183	11.812	4.009	-2.2879
1.1962E-05	1.1957E-05	11.434	12.377	11.56	12.419	1.1006	0.33815
1.1970E-05	1.1966E-05	12.099	11.706	11.82	12.175	-2.3071	4.0078
1.1978E-05	1.1974E-05	12.382	11.425	12.429	11.552	0.37855	1.1171
1.1987E-05	1.1983E-05	11.682	12.117	12.161	11.83	4.0968	-2.368
1.1995E-05	1.1991E-05	11.437	12.374	11.543	12.441	0.92081	0.54301
1.2000E-05	1.1999E-05	11.907	12.108	11.834	12.16	-0.60788	0.43007

Fig5.10_ExactDemaw_SinLO_18dBlo



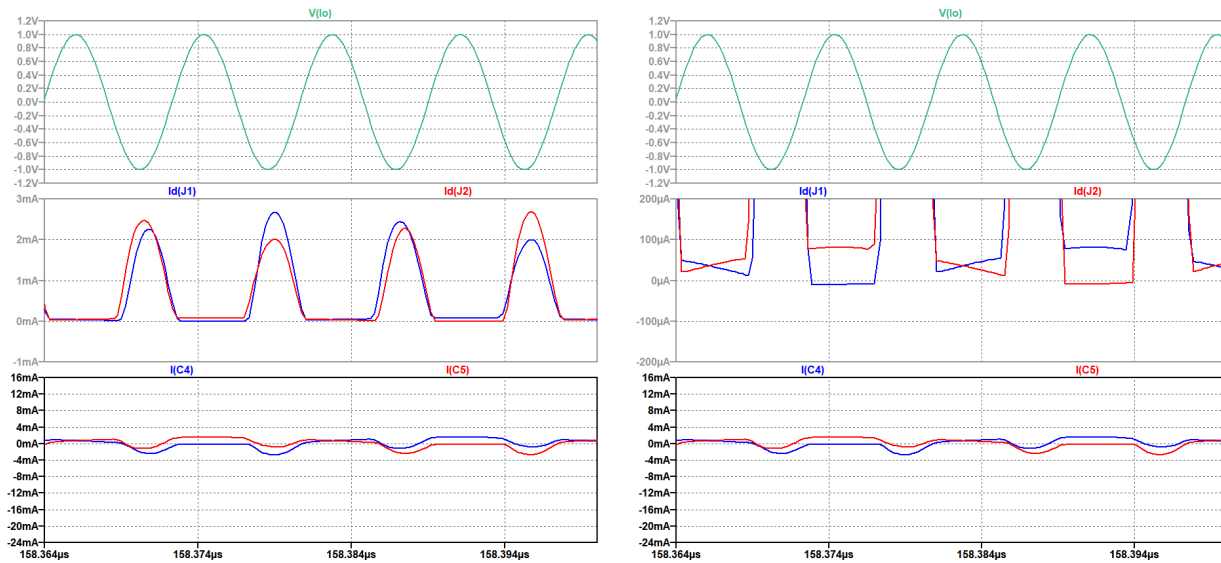
max discharge of CAP1		-1.0907
max discharge of CAP2		-1.0981
max discahrge of CAP1 and CAP2		-1.0981

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0008E-05	1.0004E-05	11.663	12.143	11.757	12.224	0.80717	0.66923
1.0017E-05	1.0013E-05	12.028	11.777	11.921	12.07	-0.88543	2.4846
1.0025E-05	1.0021E-05	12.146	11.658	12.236	11.757	0.74302	0.84591
1.0033E-05	1.0030E-05	11.765	12.037	12.057	11.938	2.4895	-0.82042
1.0042E-05	1.0038E-05	11.667	12.141	11.75	12.239	0.71168	0.81082
1.0050E-05	1.0046E-05	12.041	11.764	11.926	12.061	-0.95688	2.5249
1.0058E-05	1.0054E-05	12.14	11.665	12.245	11.748	0.86725	0.71446
1.0067E-05	1.0063E-05	11.755	12.046	12.041	11.958	2.4375	-0.72875
1.0075E-05	1.0071E-05	11.667	12.138	11.742	12.25	0.64262	0.92148
1.0083E-05	1.0079E-05	12.067	11.74	11.939	12.049	-1.0632	2.63
1.0092E-05	1.0088E-05	12.139	11.666	12.254	11.739	0.9505	0.6308
1.0100E-05	1.0096E-05	11.729	12.071	12.032	11.963	2.5834	-0.89639
1.0108E-05	1.0105E-05	11.668	12.136	11.735	12.26	0.56842	1.0159
1.0117E-05	1.0113E-05	12.085	11.722	11.954	12.034	-1.0792	2.6628
1.0125E-05	1.0121E-05	12.137	11.668	12.263	11.731	1.0309	0.53392
1.0133E-05	1.0130E-05	11.725	12.077	12.018	11.978	2.5023	-0.81936
1.0142E-05	1.0138E-05	11.67	12.132	11.727	12.267	0.48828	1.1128
1.0150E-05	1.0146E-05	12.098	11.708	11.967	12.02	-1.0843	2.6655
1.0158E-05	1.0155E-05	12.134	11.672	12.272	11.727	1.1439	0.46877
1.0167E-05	1.0163E-05	11.71	12.093	12.003	11.997	2.5022	-0.7921
1.0175E-05	1.0171E-05	11.68	12.124	11.718	12.272	0.32355	1.2259
1.0183E-05	1.0179E-05	12.109	11.695	11.979	12.006	-1.0741	2.6571
1.0192E-05	1.0188E-05	12.126	11.679	12.278	11.721	1.2514	0.35854
1.0200E-05	1.0197E-05	11.694	12.11	11.988	12.011	2.5122	-0.81636
1.0209E-05	1.0205E-05	11.682	12.121	11.713	12.278	0.26253	1.2986
1.0217E-05	1.0213E-05	12.12	11.685	12	11.988	-0.98841	2.5971
1.0225E-05	1.0221E-05	12.117	11.686	12.279	11.709	1.3354	0.19964
1.0234E-05	1.0230E-05	11.666	12.137	11.982	12.004	2.7067	-1.0981
1.0242E-05	1.0238E-05	11.693	12.112	11.706	12.282	0.11272	1.4029
1.0250E-05	1.0246E-05	12.136	11.669	12.022	11.971	-0.93608	2.5892
1.0259E-05	1.0255E-05	12.105	11.697	12.284	11.713	1.4845	0.13481
1.0267E-05	1.0263E-05	11.659	12.144	11.966	12.018	2.6319	-1.0358
1.0275E-05	1.0271E-05	12.101	12.104	11.706	12.285	0.044734	1.4938
1.0284E-05	1.0280E-05	12.149	11.658	12.03	11.96	-0.98303	2.5907
1.0292E-05	1.0288E-05	12.1	11.701	12.284	11.705	1.5184	0.034756
1.0300E-05	1.0297E-05	11.651	12.151	11.943	12.048	2.5069	-0.85026
1.0309E-05	1.0305E-05	11.719	12.086	11.702	12.284	-0.1461	1.6339
1.0317E-05	1.0313E-05	12.165	11.641	12.038	11.947	-1.0429	2.6266
1.0325E-05	1.0322E-05	12.082	11.72	12.284	11.711	1.6758	-0.073146
1.0334E-05	1.0330E-05	11.632	12.169	11.931	12.055	2.5699	-0.94149
1.0342E-05	1.0338E-05	11.729	12.075	11.702	12.282	-0.23254	1.7177
1.0350E-05	1.0347E-05	12.171	11.638	12.066	11.926	-0.86146	2.4791
1.0359E-05	1.0355E-05	12.068	11.734	12.282	11.712	1.7683	-0.18372
1.0367E-05	1.0363E-05	11.625	12.176	11.917	12.068	2.5102	-0.88077
1.0376E-05	1.0371E-05	11.746	12.057	11.706	12.278	-0.34637	1.8335
1.0384E-05	1.0380E-05	12.186	11.622	12.073	11.914	-0.93245	2.517
1.0392E-05	1.0388E-05	12.055	11.748	12.277	11.712	1.8415	-0.31
1.0401E-05	1.0397E-05	11.618	12.184	11.899	12.091	2.4227	-0.75838
1.0409E-05	1.0405E-05	11.755	12.047	11.719	12.272	-0.30758	1.8695
1.0417E-05	1.0413E-05	12.191	11.617	12.101	11.894	-0.74315	2.389
1.0426E-05	1.0422E-05	12.038	11.765	12.27	11.721	1.9267	-0.37582
1.0434E-05	1.0430E-05	11.618	12.185	11.89	12.098	2.3426	-0.71181
1.0442E-05	1.0438E-05	11.775	12.027	11.725	12.264	-0.42789	1.9726
1.0451E-05	1.0447E-05	12.191	11.614	12.11	11.882	-0.66471	2.3057
1.0459E-05	1.0455E-05	12.031	11.773	12.261	11.731	1.9097	-0.35899
1.0467E-05	1.0463E-05	11.615	12.189	11.879	12.106	2.275	-0.6859
1.0476E-05	1.0472E-05	11.792	12.01	11.733	12.256	-0.4999	2.0441
1.0484E-05	1.0480E-05	12.188	11.619	12.117	11.872	-0.58224	2.1841
1.0492E-05	1.0488E-05	12.015	11.788	12.25	11.738	1.9607	-0.42474
1.0501E-05	1.0497E-05	11.613	12.192	11.87	12.112	2.2099	-0.66613
1.0509E-05	1.0505E-05	11.809	11.995	11.742	12.246	-0.5651	2.092
1.0517E-05	1.0514E-05	12.188	11.617	12.134	11.86	-0.44574	2.0878
1.0526E-05	1.0522E-05	11.988	11.813	12.239	11.75	2.0912	-0.53058
1.0534E-05	1.0530E-05	11.617	12.188	11.853	12.14	2.0315	-0.38967
1.0542E-05	1.0539E-05	11.824	11.98	11.756	12.234	-0.5749	2.1189
1.0551E-05	1.0547E-05	12.188	11.62	12.142	11.852	-0.3724	2.0012
1.0559E-05	1.0555E-05	11.976	11.825	12.227	11.759	2.0899	-0.5503
1.0567E-05	1.0564E-05	11.62	12.183	11.846	12.141	1.9442	-0.34376
1.0576E-05	1.0572E-05	11.846	11.96	11.762	12.222	-0.70736	2.1893
1.0584E-05	1.0580E-05	12.185	11.623	12.138	11.849	-0.38242	1.94
1.0592E-05	1.0588E-05	11.96	11.841	12.215	11.773	2.1317	-0.57258
1.0601E-05	1.0597E-05	11.621	12.181	11.839	12.147	1.8731	-0.28523
1.0609E-05	1.0605E-05	11.848	11.956	11.784	12.207	-0.53941	2.095
1.0618E-05	1.0614E-05	12.182	11.627	12.153	11.84	-0.23748	1.8247
1.0626E-05	1.0622E-05	11.946	11.856	12.203	11.786	2.1488	-0.5931
1.0634E-05	1.0631E-05	11.628	12.175	11.831	12.163	1.7419	-0.09458
1.0643E-05	1.0639E-05	11.873	11.93	11.799	12.192	-0.63023	2.1993
1.0651E-05	1.0647E-05	11.76	11.632	12.151	11.834	-0.20853	1.7425
1.0659E-05	1.0655E-05	12.132	11.873	12.19	11.798	2.1696	-0.62956
1.0668E-05	1.0664E-05	11.633	12.171	11.827	12.166	1.6688	-0.041877
1.0676E-05	1.0672E-05	11.881	11.92	11.808	12.18	-0.60931	2.1814
1.0684E-05	1.0681E-05	12.17	11.637	12.162	11.827	-0.066031	1.6334
1.0693E-05	1.0689E-05	11.913	11.891	12.177	11.81	2.2116	-0.6805
1.0701E-05	1.0697E-05	11.64	12.167	11.824	12.165	1.5845	-0.018476
1.0709E-05	1.0706E-05	11.888	11.916	11.829	12.166	-0.4929	2.1011
1.0718E-05	1.0714E-05	12.165	11.641	12.165	11.821	0.00096926	1.5532
1.0726E-05	1.0722E-05	11.9	11.904	12.165	11.82	2.2223	-0.70321
1.0734E-05	1.0730E-05	11.645	12.163	11.819	12.167	1.4981	0.029328
1.0743E-05	1.0739E-05	11.908	11.896	11.826	12.159	-0.68731	2.2145
1.0751E-05	1.0747E-05	12.16	11.645	12.171	11.816	0.091964	1.4701
1.0760E-05	1.0755E-05	11.884	11.919	12.152	11.831	2.2552	-0.73091
1.0768E-05	1.0764E-05	11.649	12.158	11.813	12.177	1.4097	0.15789
1.0776E-05	1.0772E-05	11.927	11.878	11.852	12.144	-0.62649	2.2337
1.0784E-05	1.0781E-05	12.156	11.649	12.183	11.811	0.22364	1.3932
1.0793E-05	1.0789E-05	11.869	11.932	12.134	11.863	2.2332	-0.58086
1.0801E-05	1.0797E-05	11.652	12.155	11.807	12.182	1.3307	0.22575
1.0810E-05	1.0806E-05	11.937	11.869	11.859	12.134	-0.65075	2.2341
1.0818E-05	1.0814E-05	12.153	11.653	12.181	11.806	0.22864	1.3157
1.0826E-05	1.0822E-05	11.858	11.942	12.129	11.855	2.2802	-0.72689

1.0834E-05	1.0831E-05	11.653	12.152	11.8	12.183	1.2611	0.25522
1.0843E-05	1.0839E-05	11.951	11.856	11.867	12.124	-0.70513	2.2609
1.0851E-05	1.0847E-05	12.152	11.656	12.19	11.8	0.31308	1.2425
1.0860E-05	1.0856E-05	11.847	11.954	12.119	11.866	2.2979	-0.73582
1.0868E-05	1.0864E-05	11.654	12.15	11.793	12.188	1.1863	0.31116
1.0876E-05	1.0872E-05	11.961	11.844	11.874	12.114	-0.72709	2.2738
1.0885E-05	1.0881E-05	12.15	11.658	12.204	11.794	0.44204	1.1671
1.0893E-05	1.0889E-05	11.836	11.966	12.109	11.878	2.3069	-0.73673
1.0901E-05	1.0898E-05	11.656	12.148	11.787	12.207	1.1321	0.4861
1.0910E-05	1.0906E-05	11.975	11.829	11.891	12.1	-0.70135	2.2914
1.0918E-05	1.0914E-05	12.15	11.658	12.21	11.786	0.48894	1.1025
1.0926E-05	1.0923E-05	11.827	11.977	12.096	11.9	2.2684	-0.64423
1.0935E-05	1.0931E-05	11.659	12.145	11.777	12.204	1.015	0.48738
1.0943E-05	1.0939E-05	11.984	11.821	11.908	12.088	-0.63857	2.2627
1.0952E-05	1.0948E-05	12.145	11.662	12.213	11.776	0.55989	0.97917
1.0960E-05	1.0956E-05	11.812	11.993	12.087	11.905	2.3288	-0.73328
1.0968E-05	1.0964E-05	11.658	12.147	11.769	12.214	0.95485	0.55596
1.0977E-05	1.0973E-05	12.01	11.794	11.914	12.079	-0.79836	2.4207
1.0985E-05	1.0981E-05	12.145	11.66	12.222	11.767	0.62962	0.91432
1.0993E-05	1.0989E-05	11.792	12.011	12.076	11.915	2.405	-0.79942
1.1002E-05	1.0998E-05	11.661	12.145	11.764	12.233	0.88472	0.72
1.1010E-05	1.1006E-05	12.024	11.78	11.911	12.075	-0.94312	2.5049
1.1018E-05	1.1014E-05	12.146	11.659	12.235	11.76	0.73321	0.86557
1.1027E-05	1.1023E-05	11.769	12.033	11.66	11.935	2.4727	-0.8115
1.1035E-05	1.1031E-05	11.665	12.142	11.751	12.235	0.74065	0.77048
1.1043E-05	1.1039E-05	12.038	11.767	11.94	12.057	-0.82069	2.6746
1.1052E-05	1.1048E-05	12.14	11.664	12.243	11.75	0.85008	0.73045
1.1060E-05	1.1056E-05	11.75	12.051	12.045	11.953	2.5088	-0.80889
1.1068E-05	1.1064E-05	11.668	12.139	11.74	12.243	0.61797	0.85388
1.1077E-05	1.1073E-05	12.063	11.744	11.937	12.052	-1.0422	2.6212
1.1085E-05	1.1081E-05	12.139	11.666	12.252	11.741	0.93271	0.64643
1.1093E-05	1.1090E-05	11.735	12.064	12.034	11.96	2.544	-0.86116
1.1102E-05	1.1098E-05	11.668	12.137	11.736	12.258	0.58395	0.99825
1.1110E-05	1.1106E-05	12.081	11.726	11.952	12.037	-1.0735	2.6532
1.1118E-05	1.1115E-05	12.137	11.668	12.263	11.735	1.0395	0.57295
1.1127E-05	1.1123E-05	11.728	12.073	12.019	11.979	2.4824	-0.77932
1.1135E-05	1.1131E-05	11.671	12.133	11.729	12.286	0.50035	1.0939
1.1144E-05	1.1139E-05	12.097	11.71	11.965	12.023	-1.0907	2.6796
1.1152E-05	1.1148E-05	12.134	11.671	12.272	11.729	1.1307	0.49426
1.1160E-05	1.1156E-05	11.712	12.09	12.005	11.984	2.5011	-0.79521
1.1169E-05	1.1165E-05	11.679	12.124	11.719	12.271	0.34481	1.2095
1.1177E-05	1.1173E-05	12.107	11.698	11.976	12.009	-1.0831	2.6577
1.1185E-05	1.1181E-05	12.127	11.678	12.277	11.723	1.2397	0.37944
1.1193E-05	1.1190E-05	11.691	12.111	12.001	11.966	2.6516	-1.2034
1.1202E-05	1.1198E-05	11.682	12.121	11.707	12.273	0.21819	1.2566
1.1210E-05	1.1206E-05	12.118	11.687	12.202	11.99	-0.95424	2.5856
1.1219E-05	1.1215E-05	12.119	11.686	12.28	11.714	1.3325	0.23977
1.1227E-05	1.1223E-05	11.682	12.121	11.985	12	2.5921	-0.9987
1.1235E-05	1.1231E-05	11.689	12.114	11.708	12.281	0.15954	0.39676
1.1244E-05	1.1240E-05	12.142	11.664	12.015	11.975	-1.0438	2.6717
1.1252E-05	1.1248E-05	12.113	11.69	12.281	11.704	1.3912	0.11861
1.1260E-05	1.1257E-05	11.656	12.148	11.961	12.034	2.6238	-0.93644
1.1269E-05	1.1265E-05	11.698	12.106	11.706	12.284	0.063346	1.4698
1.1277E-05	1.1273E-05	12.147	11.659	12.027	11.962	-0.98446	2.5982
1.1285E-05	1.1282E-05	12.098	11.704	12.285	11.709	1.5427	0.037556
1.1294E-05	1.1290E-05	11.65	12.152	11.963	12.031	2.6019	-1.002
1.1302E-05	1.1298E-05	11.706	12.099	11.703	12.284	-0.023655	1.5318
1.1311E-05	1.1306E-05	12.168	11.639	12.039	11.948	-1.0623	2.6563
1.1319E-05	1.1315E-05	12.09	11.712	12.284	11.706	1.6075	-0.052618
1.1327E-05	1.1323E-05	11.642	12.161	11.929	12.066	2.4618	-0.78021
1.1335E-05	1.1331E-05	11.728	12.076	11.703	12.283	-0.21671	1.7111
1.1344E-05	1.1340E-05	12.169	11.638	12.064	11.929	-0.85292	2.4939
1.1352E-05	1.1348E-05	12.078	11.725	12.282	11.707	1.6891	-0.15105
1.1360E-05	1.1357E-05	11.633	12.17	11.914	12.08	2.4125	-0.73015
1.1369E-05	1.1365E-05	11.737	12.066	11.714	12.28	-0.20159	1.7707
1.1377E-05	1.1373E-05	12.177	11.631	11.701	11.917	-0.87189	2.4666
1.1386E-05	1.1382E-05	12.057	11.745	12.278	11.716	1.8317	-0.24907
1.1394E-05	1.1390E-05	11.618	12.184	11.902	12.089	2.4413	-0.77684
1.1402E-05	1.1398E-05	11.752	12.051	11.718	12.273	-0.29225	1.8449
1.1411E-05	1.1407E-05	12.19	11.618	12.099	11.898	-0.75093	2.4087
1.1419E-05	1.1415E-05	12.04	11.763	12.271	11.722	1.9226	-0.34484
1.1427E-05	1.1423E-05	11.617	12.185	11.891	12.096	2.3605	-0.72705
1.1436E-05	1.1432E-05	11.776	12.026	11.717	12.267	-0.50329	1.9967
1.1444E-05	1.1440E-05	12.191	11.616	12.093	11.891	-0.80276	2.3615
1.1452E-05	1.1448E-05	12.029	11.714	12.264	11.725	1.953	-0.41162
1.1461E-05	1.1457E-05	11.613	12.19	11.881	12.104	2.305	-0.70001
1.1469E-05	1.1465E-05	11.783	12.019	11.729	12.257	-0.45809	1.9822
1.1477E-05	1.1473E-05	12.189	11.618	12.113	11.876	-0.62463	2.2169
1.1486E-05	1.1482E-05	12.02	11.784	12.254	11.737	1.9402	-0.40122
1.1494E-05	1.1490E-05	11.614	12.19	11.871	12.111	2.2183	-0.64617
1.1502E-05	1.1498E-05	11.801	12.001	11.739	12.248	-0.52586	2.50616
1.1511E-05	1.1507E-05	12.191	11.615	12.12	11.866	-0.58405	2.1592
1.1519E-05	1.1515E-05	11.994	11.808	12.242	11.748	2.0656	-0.50636
1.1527E-05	1.1524E-05	11.617	12.187	11.859	12.128	2.0806	-0.48041
1.1536E-05	1.1532E-05	11.816	11.987	11.748	12.237	-0.57703	2.0844
1.1544E-05	1.1540E-05	12.191	11.616	12.134	11.856	-0.47077	2.0644
1.1553E-05	1.1549E-05	11.973	11.829	12.23	11.757	2.1459	-0.61136
1.1561E-05	1.1557E-05	11.619	12.185	11.846	12.148	1.9509	-0.30146
1.1569E-05	1.1565E-05	11.83	11.975	11.761	12.225	-0.57901	2.0875
1.1577E-05	1.1574E-05	12.185	11.624	12.121	11.848	-0.35253	1.9276
1.1586E-05	1.1582E-05	11.956	11.845	12.218	11.767	2.1891	-0.66323
1.1594E-05	1.1591E-05	11.623	12.181	11.838	12.157	1.8513	-0.1992
1.1602E-05	1.1599E-05	11.846	11.958	11.772	12.212	-0.62952	1.21113
1.1611E-05	1.1607E-05	12.182	11.625	12.153	11.84	-0.24344	1.8487
1.1619E-05	1.1615E-05	11.946	11.856	12.204	11.786	2.1612	-0.59627
1.1628E-05	1.1624E-05	11.626	12.177	11.835	12.151	1.7942	-0.21087
1.1636E-05	1.1632E-05	11.867	11.937	11.786	12.198	-0.67805	2.1899
1.1644E-05	1.1640E-05	12.178	11.631	12.158	11.834	-0.15856	1.7446
1.1653E-05	1.1649E-05	11.927	11.876	12.219	11.799	2.2186	-0.64811
1.1661E-05	1.1657E-05	11.632	12.172	11.83	12.152	1.705	-0.16064

1.1669E-05	1.1666E-05	11.884	11.919	11.81	12.182	-0.62714	2.2048
1.1678E-05	1.1674E-05	12.172	11.636	12.165	11.828	-0.059991	1.6492
1.1686E-05	1.1682E-05	11.913	11.891	12.179	11.811	2.2313	-0.67639
1.1694E-05	1.1691E-05	11.637	12.167	11.824	12.165	1.6046	-0.013762
1.1703E-05	1.1699E-05	11.888	11.915	11.813	12.172	-0.63092	2.1571
1.1711E-05	1.1707E-05	12.166	11.641	12.165	11.823	-0.015378	1.5634
1.1720E-05	1.1715E-05	11.898	11.906	12.166	11.822	2.2519	-0.70451
1.1728E-05	1.1724E-05	11.643	12.163	11.819	12.173	1.5131	0.080952
1.1736E-05	1.1732E-05	11.904	11.899	11.825	12.16	-0.66878	2.1913
1.1744E-05	1.1741E-05	12.161	11.644	12.171	11.817	0.079829	1.4837
1.1753E-05	1.1749E-05	11.887	11.917	12.154	11.83	2.2485	-0.72526
1.1761E-05	1.1757E-05	11.648	12.159	11.814	12.174	1.4293	0.12467
1.1769E-05	1.1765E-05	11.918	11.887	11.838	12.149	-0.6665	2.2069
1.1778E-05	1.1774E-05	12.157	11.648	12.173	11.812	0.13362	1.4049
1.1786E-05	1.1782E-05	11.872	11.929	12.137	11.861	2.2253	-0.57764
1.1794E-05	1.1791E-05	11.651	12.155	11.808	12.182	1.3469	0.21988
1.1803E-05	1.1799E-05	11.937	11.868	11.858	12.136	-0.66491	2.2511
1.1811E-05	1.1807E-05	12.152	11.653	12.181	11.807	0.2361	1.32
1.1820E-05	1.1816E-05	11.86	11.941	12.128	11.864	2.2519	-0.64493
1.1828E-05	1.1824E-05	11.654	12.153	11.802	12.186	1.272	0.27585
1.1836E-05	1.1832E-05	11.947	11.859	11.867	12.125	-0.67027	2.2481
1.1845E-05	1.1841E-05	12.152	11.655	12.188	11.801	0.30004	1.2537
1.1853E-05	1.1849E-05	11.844	11.956	12.12	11.864	2.3311	-0.77256
1.1861E-05	1.1857E-05	11.659	12.147	11.795	12.19	1.1698	0.35523
1.1870E-05	1.1866E-05	11.962	11.844	11.872	12.116	-0.75745	2.2982
1.1878E-05	1.1874E-05	12.149	11.658	12.197	11.795	0.39192	1.1762
1.1886E-05	1.1882E-05	11.838	11.964	12.109	11.878	2.2963	-0.71463
1.1895E-05	1.1891E-05	11.656	12.148	11.789	12.206	1.1399	0.47844
1.1903E-05	1.1899E-05	11.973	11.832	11.89	12.103	-0.68961	2.2848
1.1911E-05	1.1908E-05	12.151	11.658	12.209	11.788	0.47612	1.1157
1.1920E-05	1.1916E-05	11.82	11.982	12.093	11.908	2.3166	-0.61615
1.1928E-05	1.1924E-05	11.659	12.144	11.78	12.207	1.0368	0.5171
1.1936E-05	1.1933E-05	11.982	11.824	11.906	12.09	-0.63519	2.2505
1.1945E-05	1.1941E-05	12.146	11.661	12.212	11.778	0.54227	1.0063
1.1953E-05	1.1949E-05	11.815	11.989	12.088	11.906	2.3061	-0.69498
1.1961E-05	1.1957E-05	11.86	12.145	11.771	12.211	0.9526	0.54765
1.1970E-05	1.1966E-05	12.009	11.794	11.914	12.081	-0.79721	2.4291
1.1978E-05	1.1974E-05	12.145	11.662	12.22	11.769	0.62006	0.9206
1.1986E-05	1.1983E-05	11.8	12.004	12.079	11.91	2.3614	-0.78048
1.1995E-05	1.1991E-05	11.66	12.145	11.766	12.231	0.90169	0.70523
1.2000E-05	1.1999E-05	11.947	12.061	11.925	12.07	-0.18072	0.071155

Fig5.11_ExactDemaw_SinLO_24dBlo



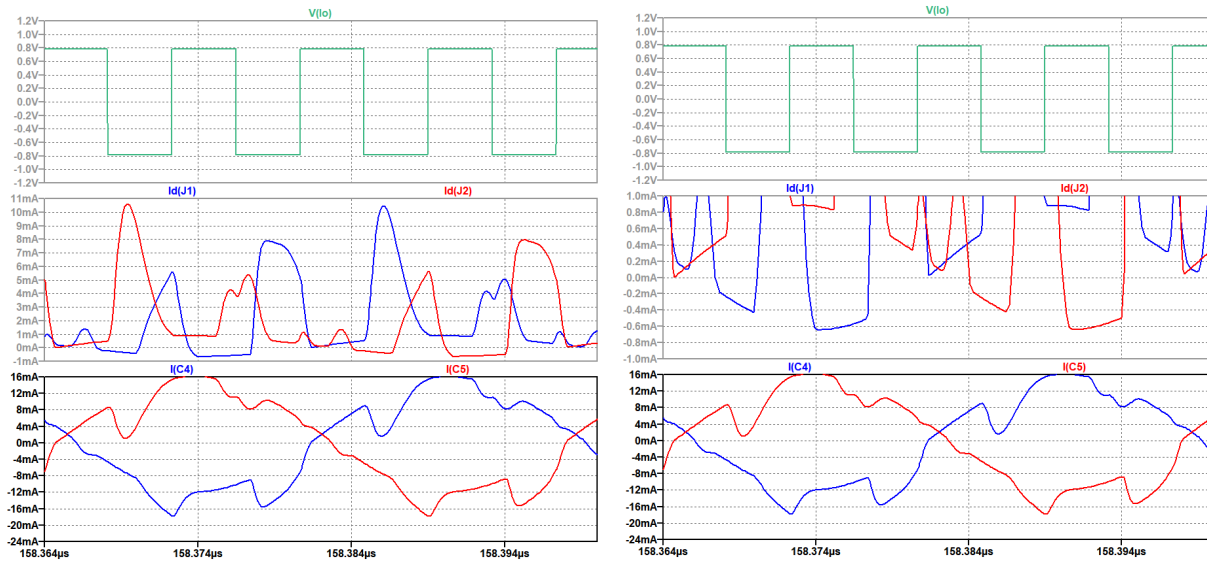
max discharge of CAP1		-0.23053
max discharge of CAP2		-0.16762
max discahrge of CAP1 and CAP2		-0.23053

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0008E-05	1.0004E-05	11.781	12.024	11.877	12.113	0.81112	0.73992
1.0017E-05	1.0013E-05	11.966	11.837	11.961	12.032	-0.03959	1.6404
1.0025E-05	1.0021E-05	12.021	11.782	12.116	11.876	0.78594	0.79625
1.0033E-05	1.0029E-05	11.834	11.969	12.027	11.955	1.6308	-0.11476
1.0042E-05	1.0038E-05	11.784	12.023	11.871	12.117	0.73688	0.79333
1.0050E-05	1.0046E-05	11.976	11.829	11.967	12.027	-0.073221	1.6674
1.0058E-05	1.0054E-05	12.021	11.782	12.121	11.871	0.82892	0.75966
1.0067E-05	1.0063E-05	11.824	11.978	12.02	11.974	1.6575	-0.029535
1.0075E-05	1.0071E-05	11.786	12.021	11.868	12.124	0.70238	0.85588
1.0083E-05	1.0079E-05	11.985	11.822	11.968	12.021	-0.13819	1.6831
1.0092E-05	1.0088E-05	12.021	11.783	12.126	11.867	0.87398	0.71999
1.0100E-05	1.0096E-05	11.814	11.966	12.013	11.98	1.6896	-0.055166
1.0108E-05	1.0104E-05	11.784	12.02	11.858	12.123	0.6323	0.85308
1.0117E-05	1.0113E-05	11.992	11.815	11.982	12.013	-0.080494	1.6835
1.0125E-05	1.0121E-05	12.021	11.785	12.129	11.862	0.90145	0.65659
1.0133E-05	1.0130E-05	11.808	11.993	12.007	11.99	1.6855	-0.018317
1.0142E-05	1.0138E-05	11.784	12.018	11.854	12.127	0.59435	0.9125
1.0150E-05	1.0146E-05	12.003	11.803	11.986	12.006	-0.14154	1.7132
1.0159E-05	1.0155E-05	12.017	11.79	12.137	11.862	0.95951	0.60873
1.0167E-05	1.0163E-05	11.802	12.001	12.002	11.987	1.7012	-0.11939
1.0175E-05	1.0171E-05	11.789	12.013	11.854	12.134	0.55169	1.0194
1.0183E-05	1.0180E-05	12.005	11.799	11.992	11.997	-0.10538	1.6837
1.0192E-05	1.0188E-05	12.014	11.793	12.135	11.853	1.0117	0.51596
1.0200E-05	1.0196E-05	11.796	12.009	11.996	11.989	1.6944	-0.16762
1.0209E-05	1.0205E-05	11.791	12.011	11.848	12.135	0.48114	1.0345
1.0217E-05	1.0213E-05	12.012	11.791	11.991	11.991	-0.1757	1.6973
1.0225E-05	1.0221E-05	12.012	11.793	12.136	11.848	1.0339	0.47253
1.0233E-05	1.0230E-05	11.789	12.017	11.986	12.014	1.6692	-0.024014
1.0242E-05	1.0238E-05	11.799	12.006	11.855	12.143	0.47147	1.1376
1.0250E-05	1.0246E-05	12.022	11.781	11.999	11.984	-0.18949	1.7243
1.0259E-05	1.0255E-05	12.003	11.8	12.141	11.853	1.1454	0.44927
1.0267E-05	1.0263E-05	11.782	12.023	11.978	12.016	1.6588	-0.057888
1.0275E-05	1.0272E-05	11.805	12.002	11.852	12.143	0.4051	1.1809
1.0284E-05	1.0280E-05	12.03	11.774	12.007	11.977	-0.18806	1.7222
1.0292E-05	1.0288E-05	11.997	11.805	12.141	11.852	1.2038	0.39739
1.0300E-05	1.0297E-05	11.772	12.031	11.969	12.028	1.6741	-0.027229
1.0309E-05	1.0305E-05	11.805	12.002	11.846	12.14	0.34735	1.1515
1.0317E-05	1.0313E-05	12.033	11.774	12.017	11.97	-0.13209	1.6651
1.0326E-05	1.0321E-05	11.991	11.812	12.139	11.848	1.2392	0.30278
1.0334E-05	1.0330E-05	11.768	12.034	11.96	12.037	1.6377	0.02361
1.0342E-05	1.0338E-05	11.816	11.989	11.851	12.14	0.28829	1.2629
1.0350E-05	1.0346E-05	12.039	11.769	12.024	11.962	-0.12386	1.6468
1.0359E-05	1.0355E-05	11.991	11.813	12.138	11.85	1.2276	0.31295
1.0367E-05	1.0363E-05	11.763	12.037	11.955	12.03	1.6275	-0.058293
1.0375E-05	1.0372E-05	11.82	11.984	11.85	12.137	0.25976	1.2786
1.0384E-05	1.0380E-05	12.043	11.764	12.039	11.954	-0.029272	1.6131
1.0392E-05	1.0388E-05	11.977	11.829	12.137	11.853	1.3367	0.2056
1.0400E-05	1.0397E-05	11.761	12.041	11.948	12.038	1.5945	-0.024931
1.0409E-05	1.0405E-05	11.825	11.976	11.852	12.134	0.22619	1.3113
1.0417E-05	1.0413E-05	12.047	11.759	12.038	11.947	-0.076355	1.5965
1.0426E-05	1.0422E-05	11.974	11.831	12.134	11.859	1.333	0.23282
1.0434E-05	1.0430E-05	11.757	12.047	11.943	12.048	1.5793	0.013158
1.0442E-05	1.0438E-05	11.837	11.965	11.855	12.13	0.14942	1.3749
1.0451E-05	1.0447E-05	12.046	11.758	12.051	11.939	0.041325	1.5424
1.0459E-05	1.0455E-05	11.965	11.84	12.128	11.859	1.3676	0.16304
1.0467E-05	1.0463E-05	11.76	12.046	11.937	12.055	1.5033	0.079858
1.0476E-05	1.0472E-05	11.847	11.966	11.859	12.126	0.10073	1.4206
1.0484E-05	1.0480E-05	12.046	11.758	12.05	11.934	0.039942	1.4976
1.0492E-05	1.0488E-05	11.958	11.845	12.122	11.862	1.3657	0.14016
1.0501E-05	1.0497E-05	11.76	12.046	11.931	12.057	1.4551	0.091643
1.0509E-05	1.0505E-05	11.856	11.949	11.865	12.121	0.075312	1.4362
1.0517E-05	1.0513E-05	12.045	11.757	12.053	11.929	0.067067	1.4611
1.0526E-05	1.0522E-05	11.95	11.852	12.115	11.866	1.3829	0.1155
1.0534E-05	1.0530E-05	11.761	12.045	11.926	12.068	1.3999	0.18602
1.0542E-05	1.0538E-05	11.86	11.946	11.871	12.115	0.088711	1.4184
1.0551E-05	1.0547E-05	12.046	11.758	12.063	11.926	0.14025	1.4224
1.0559E-05	1.0555E-05	11.942	11.859	12.109	11.873	1.403	0.11299
1.0568E-05	1.0564E-05	11.759	12.044	11.921	12.063	1.374	0.15933
1.0576E-05	1.0572E-05	11.868	11.939	11.881	12.109	0.10774	1.426
1.0584E-05	1.0580E-05	12.044	11.763	12.064	11.922	0.16798	1.3535
1.0592E-05	1.0588E-05	11.932	11.87	12.104	11.88	1.4384	0.083999
1.0601E-05	1.0597E-05	11.761	12.042	11.917	12.078	1.3304	0.30551
1.0609E-05	1.0605E-05	11.874	11.931	11.884	12.101	0.086816	1.4287
1.0618E-05	1.0614E-05	12.043	11.764	12.073	11.919	0.24933	1.3131
1.0626E-05	1.0622E-05	11.927	11.877	12.099	11.892	1.4406	0.12561
1.0634E-05	1.0630E-05	11.764	12.038	11.914	12.07	1.2763	0.26262
1.0643E-05	1.0639E-05	11.887	11.917	11.887	12.094	0.00024635	1.4852
1.0651E-05	1.0647E-05	12.04	11.766	12.075	11.915	0.29162	1.2609
1.0659E-05	1.0655E-05	11.921	11.885	12.093	11.899	1.4456	0.11245
1.0667E-05	1.0664E-05	11.767	12.037	11.911	12.073	1.2243	0.30671
1.0676E-05	1.0672E-05	11.89	11.911	11.9	12.088	0.082239	1.485
1.0684E-05	1.0681E-05	12.037	11.768	12.083	11.912	0.38871	1.2217
1.0693E-05	1.0689E-05	11.915	11.892	12.085	11.902	1.429	0.089413
1.0701E-05	1.0697E-05	11.77	12.035	11.911	12.087	1.1991	0.43283
1.0709E-05	1.0705E-05	11.897	11.906	11.905	12.082	0.066789	1.4779
1.0718E-05	1.0714E-05	12.033	11.77	12.077	11.907	0.36279	1.1683
1.0726E-05	1.0722E-05	11.899	11.906	12.078	11.908	1.5014	0.017929
1.0734E-05	1.0731E-05	11.773	12.033	11.909	12.089	1.1487	0.46404
1.0743E-05	1.0739E-05	11.903	11.902	11.909	12.076	0.049625	1.4696
1.0751E-05	1.0747E-05	12.031	11.772	12.086	11.906	0.45577	1.1401
1.0760E-05	1.0755E-05	11.893	11.909	12.071	11.91	1.4945	0.005696
1.0768E-05	1.0764E-05	11.775	12.031	11.904	12.085	1.0956	0.45411
1.0776E-05	1.0772E-05	11.912	11.895	11.916	12.071	0.034315	1.4818
1.0785E-05	1.0781E-05	12.029	11.775	12.086	11.904	0.47522	1.0945
1.0793E-05	1.0789E-05	11.89	11.911	12.066	11.927	1.4761	0.13248
1.0801E-05	1.0798E-05	11.776	12.028	11.902	12.092	1.0687	0.53637
1.0810E-05	1.0806E-05	11.921	11.886	11.924	12.065	0.024923	1.5096
1.0818E-05	1.0814E-05	12.028	11.778	12.092	11.903	0.52868	1.0581
1.0826E-05	1.0822E-05	11.877	11.924	12.06	11.932	1.5431	0.074025

1.0834E-05	1.0831E-05	11.776	12.026	11.896	12.087		1.0139	0.50619
1.0843E-05	1.0839E-05	11.929	11.878	11.928	12.059	-0.010583		1.5259
1.0851E-05	1.0848E-05	12.028	11.779	12.099	11.902	0.59216		1.0388
1.0860E-05	1.0856E-05	11.876	11.926	12.056	11.931	1.5137	0.046445	
1.0868E-05	1.0864E-05	11.777	12.024	11.895	12.097	1.0025	0.60644	
1.0876E-05	1.0872E-05	11.936	11.869	11.934	12.053	-0.022452	1.5521	
1.0885E-05	1.0881E-05	12.029	11.78	12.099	11.896	0.58171	0.98149	
1.0893E-05	1.0889E-05	11.866	11.939	12.052	11.946	1.5692	0.059501	
1.0901E-05	1.0898E-05	11.779	12.022	11.89	12.098	0.94323	0.62996	
1.0910E-05	1.0906E-05	11.941	11.861	11.935	12.047	-0.055653	1.5656	
1.0918E-05	1.0914E-05	12.025	11.782	12.101	11.891	0.63333	0.921	
1.0926E-05	1.0923E-05	11.861	11.945	12.047	11.955	1.5698	0.078549	
1.0935E-05	1.0931E-05	11.779	12.024	11.885	12.098	0.90067	0.61397	
1.0943E-05	1.0939E-05	11.947	11.854	11.945	12.042	-0.018926	1.587	
1.0951E-05	1.0947E-05	12.025	11.779	12.101	11.883	0.62786	0.88429	
1.0960E-05	1.0956E-05	11.853	11.953	12.041	11.944	1.5839	-0.075258	
1.0968E-05	1.0964E-05	11.78	12.026	11.882	12.106	0.86727	0.66684	
1.0977E-05	1.0973E-05	11.955	11.847	11.953	12.038	-0.022074	1.6118	
1.0985E-05	1.0981E-05	12.023	11.778	12.106	11.879	0.6904	0.85192	
1.0993E-05	1.0990E-05	11.843	11.962	12.034	11.968	1.6103	0.048172	
1.1002E-05	1.0998E-05	11.784	12.024	11.881	12.117	0.82201	0.7591	
1.1010E-05	1.1006E-05	11.965	11.839	11.96	12.033	-0.042222	1.6391	
1.1018E-05	1.1015E-05	12.021	11.781	12.117	11.878	0.80067	0.82286	
1.1027E-05	1.1023E-05	11.833	11.969	12.027	11.971	1.635	0.016619	
1.1035E-05	1.1031E-05	11.784	12.023	11.87	12.113	0.73264	0.75009	
1.1043E-05	1.1039E-05	11.974	11.833	11.963	12.028	-0.088333	1.65025	
1.1052E-05	1.1048E-05	12.021	11.782	12.121	11.873	0.8327	0.77895	
1.1060E-05	1.1056E-05	11.824	11.977	12.021	11.974	1.6664	-0.024051	
1.1068E-05	1.1064E-05	11.783	12.022	11.863	12.116	0.67981	1.7591	
1.1077E-05	1.1073E-05	11.984	11.824	11.971	12.022	-0.10296	0.68389	
1.1085E-05	1.1081E-05	12.022	11.783	12.126	11.869	0.86665	0.72788	
1.1093E-05	1.1090E-05	11.815	11.984	12.015	11.979	1.6862	-0.046096	
1.1102E-05	1.1098E-05	11.784	12.019	11.864	12.127	0.67859	0.90238	
1.1110E-05	1.1106E-05	11.992	11.815	11.974	12.015	-0.15001	1.6871	
1.1118E-05	1.1115E-05	12.022	11.785	12.132	11.867	0.91904	0.82139	
1.1127E-05	1.1123E-05	11.808	11.993	12.009	11.999	1.6993	-0.021935	
1.1135E-05	1.1131E-05	11.783	12.017	11.86	12.131	0.64891	0.9471	
1.1143E-05	1.1140E-05	11.996	11.808	11.986	12.106	-0.081713	1.6735	
1.1152E-05	1.1148E-05	12.018	11.791	12.136	11.863	0.96328	0.61437	
1.1160E-05	1.1156E-05	11.802	12.002	12.003	11.999	1.7006	-0.023139	
1.1168E-05	1.1165E-05	11.789	12.013	11.855	12.134	0.5644	1.0082	
1.1177E-05	1.1173E-05	12.003	11.8	11.988	11.999	-0.1223	1.6814	
1.1185E-05	1.1181E-05	12.015	11.791	12.138	11.859	1.0287	0.57357	
1.1193E-05	1.1190E-05	11.797	12.009	11.996	12.005	1.682	-0.031124	
1.1202E-05	1.1198E-05	11.793	12.011	11.849	12.135	0.47676	1.0351	
1.1210E-05	1.1206E-05	12.01	11.791	11.989	11.992	-0.17721	1.7043	
1.1219E-05	1.1215E-05	12.012	11.791	12.137	11.851	1.0384	0.51019	
1.1227E-05	1.1223E-05	11.791	12.015	11.987	12.013	1.6625	-0.022528	
1.1235E-05	1.1232E-05	11.799	12.008	11.856	12.144	0.48614	1.1297	
1.1244E-05	1.1240E-05	12.019	11.784	12.01	11.984	-0.077434	1.7036	
1.1252E-05	1.1248E-05	12.006	11.794	12.139	11.85	1.1028	0.4701	
1.1260E-05	1.1256E-05	11.778	12.026	11.979	12.01	1.7061	-0.13461	
1.1269E-05	1.1265E-05	11.799	12.008	11.852	12.143	0.4437	1.1199	
1.1277E-05	1.1273E-05	12.03	11.775	12.013	11.979	-0.14309	1.7266	
1.1285E-05	1.1282E-05	12	11.801	12.141	11.852	1.1802	0.42806	
1.1294E-05	1.1290E-05	11.776	12.026	11.971	12.012	1.6539	-0.11758	
1.1302E-05	1.1298E-05	11.81	11.997	11.85	12.142	0.33852	1.2111	
1.1310E-05	1.1306E-05	12.033	11.775	12.017	11.972	-0.13838	1.6706	
1.1319E-05	1.1315E-05	11.992	11.81	12.14	11.848	1.2328	0.31617	
1.1327E-05	1.1323E-05	11.768	12.032	11.961	12.035	1.6401	0.027287	
1.1335E-05	1.1332E-05	11.815	11.99	11.849	12.14	0.29057	1.2462	
1.1344E-05	1.1340E-05	12.038	11.771	12.022	11.964	-0.13478	1.6372	
1.1352E-05	1.1348E-05	11.993	11.812	12.14	11.85	1.2193	0.32007	
1.1360E-05	1.1357E-05	11.764	12.036	11.955	12.042	1.6206	0.045585	
1.1369E-05	1.1365E-05	11.817	11.985	11.849	12.137	0.27383	1.2656	
1.1377E-05	1.1373E-05	12.043	11.765	12.033	11.955	-0.082833	1.6184	
1.1385E-05	1.1382E-05	11.987	11.82	12.138	11.853	1.2608	0.27787	
1.1394E-05	1.1390E-05	11.76	12.042	11.951	12.034	1.6228	-0.063767	
1.1402E-05	1.1398E-05	11.823	11.978	11.853	12.134	0.25616	1.3061	
1.1411E-05	1.1407E-05	12.047	11.758	12.035	11.947	-0.096502	1.6087	
1.1419E-05	1.1415E-05	11.975	11.832	12.135	11.858	1.3342	0.21951	
1.1427E-05	1.1423E-05	11.758	12.048	11.945	12.047	1.5893	-0.0037825	
1.1436E-05	1.1432E-05	11.838	11.964	11.854	12.131	0.14106	1.3935	
1.1444E-05	1.1440E-05	12.044	11.759	12.04	11.94	-0.041053	1.5436	
1.1452E-05	1.1448E-05	11.967	11.838	12.128	11.856	1.349	0.15756	
1.1461E-05	1.1457E-05	11.761	12.046	11.938	12.062	1.5084	0.13033	
1.1469E-05	1.1465E-05	11.839	11.966	11.859	12.127	0.17276	1.3442	
1.1477E-05	1.1473E-05	12.044	11.757	12.049	11.935	0.041368	1.5098	
1.1486E-05	1.1482E-05	11.961	11.843	12.122	11.859	1.3482	0.13821	
1.1494E-05	1.1490E-05	11.759	12.049	11.932	12.061	1.4778	0.09962	
1.1502E-05	1.1498E-05	11.852	11.953	11.864	12.123	0.098854	1.4183	
1.1511E-05	1.1507E-05	12.046	11.757	12.056	11.91	0.084641	1.4736	
1.1519E-05	1.1515E-05	11.946	11.853	12.116	11.864	1.4185	0.093604	
1.1527E-05	1.1524E-05	11.759	12.045	11.926	12.066	1.4203	0.1717	
1.1536E-05	1.1532E-05	11.861	11.947	11.871	12.117	0.081427	1.4229	
1.1544E-05	1.1540E-05	12.046	11.76	12.07	11.928	0.20324	1.4232	
1.1552E-05	1.1549E-05	11.944	11.856	12.111	11.875	1.396	0.15739	
1.1561E-05	1.1557E-05	11.758	12.044	11.92	12.062	1.3801	0.15467	
1.1569E-05	1.1565E-05	11.866	11.941	11.874	12.109	0.085443	1.408	
1.1577E-05	1.1574E-05	12.046	11.763	12.065	11.924	0.16299	1.3681	
1.1586E-05	1.1582E-05	11.935	11.867	12.106	11.883	1.4368	0.13206	
1.1594E-05	1.1590E-05	11.761	12.04	11.917	12.062	1.3224	0.18035	
1.1602E-05	1.1599E-05	11.873	11.932	11.879	12.01	0.056735	1.4178	
1.1611E-05	1.1607E-05	12.044	11.766	12.07	11.92	0.22127	1.3071	
1.1619E-05	1.1615E-05	11.922	11.883	12.101	11.887	1.4941	0.039185	
1.1628E-05	1.1624E-05	11.762	12.038	11.915	12.077	1.2947	0.32097	
1.1636E-05	1.1632E-05	11.885	11.917	11.886	12.094	0.0039408	1.4876	
1.1644E-05	1.1640E-05	12.041	11.767	12.075	11.915	0.28133	1.2647	
1.1653E-05	1.1649E-05	11.923	11.884	12.095	11.898	1.4406	0.11759	
1.1661E-05	1.1657E-05	11.767	12.037	11.912	12.072	1.2372	0.29094	

1.1669E-05	1.1665E-05	11.888	11.912	11.898	12.088	0.083392	1.4782
1.1678E-05	1.1674E-05	12.037	11.768	12.079	11.912	0.35212	1.2198
1.1686E-05	1.1682E-05	11.91	11.898	12.088	11.91	1.4985	0.1006
1.1694E-05	1.1691E-05	11.77	12.035	11.912	12.086	1.2071	0.41985
1.1703E-05	1.1699E-05	11.893	11.908	11.902	12.083	0.07371	1.4667
1.1711E-05	1.1707E-05	12.033	11.769	12.074	11.907	0.33886	1.1722
1.1720E-05	1.1715E-05	11.901	11.905	12.079	11.907	1.4972	0.017431
1.1728E-05	1.1724E-05	11.773	12.034	11.91	12.09	1.1609	0.4624
1.1736E-05	1.1732E-05	11.901	11.903	11.908	12.078	0.053033	1.467
1.1744E-05	1.1740E-05	12.03	11.771	12.078	11.905	0.40032	1.1405
1.1753E-05	1.1749E-05	11.9	11.903	12.072	11.913	1.448	0.082944
1.1761E-05	1.1757E-05	11.775	12.031	11.905	12.086	1.1038	0.45291
1.1769E-05	1.1765E-05	11.911	11.896	11.915	12.073	0.032437	1.487
1.1778E-05	1.1774E-05	12.029	11.775	12.087	11.905	0.48351	1.1056
1.1786E-05	1.1782E-05	11.891	11.909	12.066	11.925	1.4734	0.13988
1.1794E-05	1.1791E-05	11.776	12.029	11.902	12.09	1.0692	0.50892
1.1803E-05	1.1799E-05	11.918	11.89	11.922	12.067	0.030995	1.4837
1.1811E-05	1.1807E-05	12.028	11.778	12.09	11.903	0.51392	1.067
1.1820E-05	1.1816E-05	11.878	11.922	12.061	11.931	1.5406	0.078679
1.1828E-05	1.1824E-05	11.776	12.026	11.896	12.087	1.0211	0.59647
1.1836E-05	1.1832E-05	11.929	11.879	11.925	12.06	-0.032091	1.5293
1.1845E-05	1.1841E-05	12.029	11.779	12.092	11.9	0.5258	1.0227
1.1853E-05	1.1849E-05	11.878	11.924	12.057	11.93	1.5118	0.053611
1.1861E-05	1.1858E-05	11.776	12.024	11.895	12.094	1.0046	0.58318
1.1870E-05	1.1866E-05	11.934	11.871	11.931	12.054	-0.026306	1.5387
1.1878E-05	1.1874E-05	12.029	11.78	12.098	11.897	0.57437	0.99134
1.1886E-05	1.1883E-05	11.867	11.938	12.053	11.945	1.5704	0.060071
1.1895E-05	1.1891E-05	11.777	12.024	11.891	12.097	0.9658	0.60277
1.1903E-05	1.1899E-05	11.94	11.862	11.934	12.048	-0.053	1.5665
1.1912E-05	1.1908E-05	12.026	11.783	12.101	11.892	0.62195	0.92517
1.1920E-05	1.1916E-05	11.862	11.944	12.048	11.953	1.5665	0.083327
1.1928E-05	1.1924E-05	11.779	12.023	11.89	12.105	0.93581	0.68071
1.1936E-05	1.1933E-05	11.945	11.856	11.944	12.043	-0.010936	1.5777
1.1945E-05	1.1941E-05	12.024	11.78	12.102	11.885	0.64567	0.88964
1.1953E-05	1.1949E-05	11.854	11.953	12.042	11.953	1.5894	-0.0011131
1.1961E-05	1.1958E-05	11.78	12.026	11.886	12.11	0.89824	0.6968
1.1970E-05	1.1966E-05	11.955	11.847	11.952	12.039	-0.025388	1.6195
1.1978E-05	1.1974E-05	12.022	11.781	12.108	11.881	0.70932	0.8515
1.1987E-05	1.1983E-05	11.846	11.957	12.035	11.961	1.594	0.027917
1.1995E-05	1.1991E-05	11.784	12.024	11.88	12.112	0.81491	0.72932
1.2000E-05	1.1999E-05	11.983	12.033	11.956	12.035	-0.23053	0.013674

Fig5.12_Exactan72_sqrLO



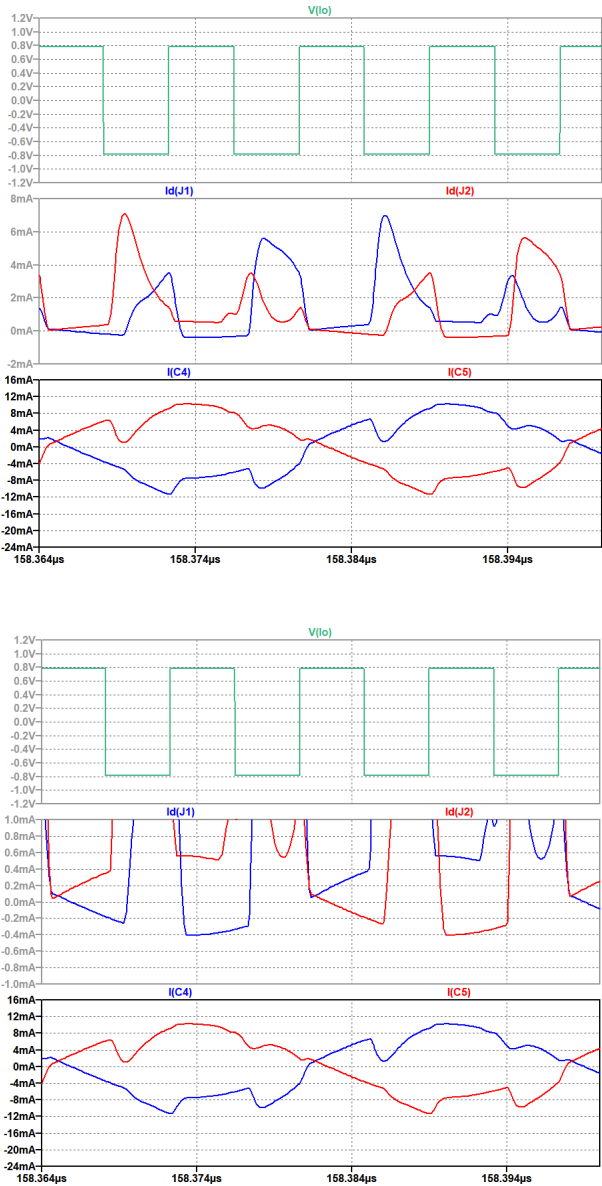
max discharge of CAP1		-13.528
max discharge of CAP2		-13.464
max discahrge of CAP1 and CAP2		-13.528

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0000E-05	1.0004E-05	10.461	13.289	9.8595	14.273	-5.7527	7.4004
1.0008E-05	1.0013E-05	9.983	13.851	11.798	12.408	18.18	-10.417
1.0017E-05	1.0021E-05	13.347	10.41	14.298	9.8508	7.1255	-5.3703
1.0025E-05	1.0029E-05	13.828	10.014	12.355	11.851	-10.649	18.339
1.0033E-05	1.0038E-05	10.353	13.393	9.8332	14.309	-5.0216	6.8398
1.0042E-05	1.0046E-05	10.043	13.794	11.906	12.301	18.549	-10.822
1.0050E-05	1.0054E-05	13.452	10.303	14.33	9.8248	6.5253	-4.6396
1.0058E-05	1.0063E-05	13.765	10.073	12.243	11.957	-11.058	18.701
1.0067E-05	1.0071E-05	10.245	13.494	9.8105	14.339	-4.2405	6.2628
1.0075E-05	1.0079E-05	10.108	13.73	12.017	12.191	18.882	-11.206
1.0083E-05	1.0088E-05	13.556	10.197	14.359	9.8052	5.9217	-3.8463
1.0092E-05	1.0096E-05	13.697	10.14	12.128	12.066	-11.453	18.994
1.0100E-05	1.0104E-05	10.139	13.594	9.7912	14.364	-3.4256	5.6589
1.0109E-05	1.0113E-05	10.178	13.659	12.13	12.077	19.172	-11.579
1.0117E-05	1.0121E-05	13.658	10.093	14.383	9.7913	5.3054	-2.9889
1.0125E-05	1.0129E-05	13.623	10.213	12.012	12.179	-11.823	19.252
1.0134E-05	1.0138E-05	10.036	13.695	9.779	14.384	-2.5604	5.0358
1.0142E-05	1.0146E-05	10.257	13.581	12.243	11.959	19.372	-11.942
1.0150E-05	1.0154E-05	13.757	9.9911	14.399	9.782	4.6721	-2.0925
1.0159E-05	1.0163E-05	13.54	10.293	11.893	12.295	-12.165	19.447
1.0167E-05	1.0171E-05	9.937	13.793	9.7744	14.4	-1.6356	4.4039
1.0175E-05	1.0179E-05	10.342	13.496	12.36	11.839	19.516	-12.282
1.0184E-05	1.0188E-05	13.852	9.8928	14.409	9.7785	4.0198	-1.1554
1.0192E-05	1.0196E-05	13.45	10.381	11.77	12.412	-12.491	19.566
1.0200E-05	1.0205E-05	9.8419	13.887	9.7761	14.409	-0.66791	3.7531
1.0209E-05	1.0213E-05	10.435	13.405	12.48	11.718	19.599	-12.586
1.0217E-05	1.0221E-05	13.945	9.7997	14.412	9.7836	3.3494	-0.16427
1.0225E-05	1.0230E-05	13.352	10.475	11.646	12.529	-12.783	19.605
1.0234E-05	1.0238E-05	9.7513	13.977	9.784	14.407	0.33556	3.0769
1.0242E-05	1.0246E-05	10.535	13.305	12.6	11.594	19.605	-12.857
1.0250E-05	1.0255E-05	14.033	9.7151	14.407	9.7981	2.6692	0.85479
1.0259E-05	1.0263E-05	13.247	10.579	11.52	12.65	-13.042	19.578
1.0267E-05	1.0271E-05	9.6677	14.061	9.8006	14.396	1.3752	2.3817
1.0275E-05	1.0280E-05	10.641	13.195	12.72	11.468	19.533	-13.088
1.0284E-05	1.0288E-05	14.114	9.6374	14.392	9.8215	1.9703	1.911
1.0292E-05	1.0296E-05	13.135	10.691	11.395	12.772	-13.25	19.461
1.0301E-05	1.0305E-05	9.5939	14.139	9.8282	14.375	2.4427	1.6688
1.0309E-05	1.0313E-05	10.755	13.077	12.839	11.342	19.38	-13.267
1.0317E-05	1.0321E-05	14.187	9.5671	14.365	9.854	1.2537	2.9984
1.0326E-05	1.0330E-05	13.015	10.811	11.271	12.893	-13.404	19.26
1.0334E-05	1.0338E-05	9.5315	14.21	9.8671	14.343	3.5208	0.94093
1.0342E-05	1.0346E-05	10.876	12.953	12.957	11.218	19.134	-13.397
1.0351E-05	1.0355E-05	14.248	9.5084	14.325	9.8968	0.53617	4.0856
1.0359E-05	1.0363E-05	12.887	10.935	11.148	13.01	-13.494	18.983
1.0367E-05	1.0371E-05	9.4798	14.269	9.9164	14.3	4.6056	0.21388
1.0376E-05	1.0380E-05	11.005	12.824	13.073	11.098	18.796	-13.464
1.0384E-05	1.0388E-05	14.302	9.4626	14.274	9.9509	-0.19573	5.1602
1.0392E-05	1.0397E-05	12.752	11.064	11.028	13.124	-13.52	18.622
1.0401E-05	1.0405E-05	9.4384	14.316	9.9761	14.244	5.6972	-0.50563
1.0409E-05	1.0413E-05	11.137	12.69	13.186	10.982	18.392	-13.46
1.0417E-05	1.0422E-05	14.344	9.4302	14.212	10.016	-0.92477	6.2111
1.0426E-05	1.0430E-05	12.615	11.199	10.913	13.234	-13.492	18.167
1.0434E-05	1.0438E-05	9.4091	14.351	10.045	14.176	6.7585	-1.2221
1.0442E-05	1.0447E-05	11.272	12.55	13.293	10.87	17.928	-13.383
1.0451E-05	1.0455E-05	14.375	9.4096	14.14	10.092	-1.6295	7.2467
1.0459E-05	1.0463E-05	12.475	11.338	10.804	13.338	-13.395	17.643
1.0467E-05	1.0472E-05	9.3933	14.376	10.123	14.097	7.7662	-1.9359
1.0476E-05	1.0480E-05	11.409	12.407	13.393	10.763	17.382	-13.249
1.0484E-05	1.0488E-05	14.391	9.3985	14.058	10.175	-2.3139	8.2517
1.0492E-05	1.0497E-05	12.333	11.448	10.703	13.438	-13.218	17.076
1.0501E-05	1.0505E-05	9.3897	14.389	10.211	14.011	8.7421	-2.625
1.0509E-05	1.0513E-05	11.548	12.265	13.487	10.663	16.79	-13.058
1.0518E-05	1.0522E-05	14.397	9.4008	13.966	10.265	-2.9889	9.1911
1.0526E-05	1.0530E-05	12.189	11.618	10.608	13.53	-12.97	16.458
1.0534E-05	1.0538E-05	9.3975	14.389	10.306	13.917	9.6707	-3.2807
1.0543E-05	1.0547E-05	11.687	12.123	13.576	10.571	16.159	-12.803
1.0551E-05	1.0555E-05	14.392	9.4135	13.868	10.361	-3.6419	10.069
1.0559E-05	1.0563E-05	12.048	11.754	10.521	13.612	-12.682	15.805
1.0568E-05	1.0572E-05	9.4147	14.379	10.407	13.816	10.538	-3.9124
1.0576E-05	1.0580E-05	11.824	11.983	13.655	10.489	15.485	-12.464
1.0584E-05	1.0588E-05	14.377	9.4365	13.764	10.465	-4.2631	10.894
1.0593E-05	1.0597E-05	11.909	11.89	10.44	13.687	-12.334	15.114
1.0601E-05	1.0605E-05	9.4398	14.358	10.51	13.709	11.338	-4.5241
1.0609E-05	1.0614E-05	11.958	11.846	13.729	10.414	14.804	-12.088
1.0618E-05	1.0622E-05	14.355	9.4686	13.658	10.573	-4.8532	11.66
1.0626E-05	1.0630E-05	11.773	12.023	10.369	13.756	-11.931	14.41
1.0634E-05	1.0639E-05	9.4724	14.329	10.617	13.597	12.078	-5.11
1.0643E-05	1.0647E-05	12.088	11.711	13.793	10.345	14.105	-11.662
1.0651E-05	1.0655E-05	14.324	9.5059	13.548	10.682	-5.4159	12.371
1.0659E-05	1.0664E-05	11.643	12.153	10.307	13.819	-11.482	13.702
1.0668E-05	1.0672E-05	9.5125	14.296	10.726	13.486	12.76	-5.6888
1.0676E-05	1.0680E-05	12.213	11.579	13.85	10.282	13.4	-11.198
1.0684E-05	1.0689E-05	14.286	9.5461	13.436	10.79	-5.9515	13.036
1.0693E-05	1.0697E-05	11.516	12.279	10.25	13.875	-10.998	13.003
1.0701E-05	1.0705E-05	9.5682	14.259	10.838	13.375	13.389	-6.2037
1.0710E-05	1.0714E-05	12.337	11.454	13.903	10.227	12.698	-10.711
1.0718E-05	1.0722E-05	14.244	9.5892	13.323	10.899	-6.4681	13.657
1.0726E-05	1.0730E-05	11.391	12.398	10.197	13.925	-10.482	12.323
1.0735E-05	1.0739E-05	9.6049	14.218	10.949	13.264	13.991	-6.7091
1.0743E-05	1.0747E-05	12.457	11.333	13.953	10.178	12.003	-10.199
1.0751E-05	1.0755E-05	14.202	9.6362	13.212	11.007	-6.9733	14.225
1.0760E-05	1.0764E-05	11.269	12.513	10.147	13.971	-9.9527	11.654
1.0768E-05	1.0772E-05	9.8503	14.174	11.057	13.155	14.577	-7.1902
1.0776E-05	1.0780E-05	12.573	11.215	14	10.132	11.346	-9.8625
1.0785E-05	1.0789E-05	14.161	9.6846	13.104	11.115	-7.4628	14.767
1.0793E-05	1.0797E-05	11.152	12.626	10.101	14.014	-9.4245	10.992
1.0801E-05	1.0806E-05	9.6952	14.129	11.163	13.045	15.137	-7.6689
1.0810E-05	1.0814E-05	12.684	11.098	14.044	10.088	10.721	-9.108
1.0818E-05	1.0822E-05	14.119	9.731	13	11.221	-7.9268	15.311

1.0826E-05	1.0831E-05	11.039	12.738	10.058	14.057	-8.8846	10.358
1.0835E-05	1.0839E-05	9.7409	14.087	11.265	12.294	15.646	-8.138
1.0843E-05	1.0847E-05	12.793	10.983	14.086	10.043	10.107	-8.56
1.0851E-05	1.0856E-05	14.076	9.7742	12.895	11.325	-8.3867	15.868
1.0860E-05	1.0864E-05	10.926	12.847	10.017	14.101	-8.3193	9.7651
1.0868E-05	1.0872E-05	9.7864	14.046	11.368	12.838	16.16	-8.5988
1.0876E-05	1.0881E-05	12.901	10.871	14.127	9.9998	9.5045	-8.0144
1.0885E-05	1.0889E-05	14.033	9.8159	12.793	11.423	-8.8371	16.376
1.0893E-05	1.0897E-05	10.814	12.953	9.9767	14.144	-7.7412	9.1965
1.0902E-05	1.0906E-05	9.8307	14.005	11.471	12.739	16.682	-9.0411
1.0910E-05	1.0914E-05	13.009	10.761	14.17	9.9596	8.9269	-7.4461
1.0918E-05	1.0922E-05	13.991	9.8578	12.69	11.522	-9.2957	16.88
1.0927E-05	1.0931E-05	10.702	13.057	9.9356	14.185	-7.1588	8.6353
1.0935E-05	1.0939E-05	9.8747	13.962	11.572	12.639	17.193	-9.4764
1.0943E-05	1.0947E-05	13.116	10.651	14.214	9.9226	8.3678	-6.842
1.0952E-05	1.0956E-05	13.946	9.9021	12.588	11.622	-9.7373	17.37
1.0960E-05	1.0964E-05	10.59	13.161	9.8969	14.225	-6.5456	8.079
1.0968E-05	1.0972E-05	9.9205	13.914	11.674	12.536	17.674	-9.9065
1.0977E-05	1.0981E-05	13.223	10.543	14.256	9.8888	7.8077	-6.2008
1.0985E-05	1.0989E-05	13.897	9.9509	12.484	11.725	-10.164	17.831
1.0993E-05	1.0998E-05	10.48	13.267	9.8643	14.264	-5.8742	7.5152
1.1002E-05	1.1006E-05	9.9713	13.861	11.777	12.429	18.111	-10.327
1.1010E-05	1.1014E-05	13.328	10.433	14.292	9.8579	7.2378	-5.515

1.1661E-05	1.1665E-05	9.5048	14.304	10.705	13.509	12.626	-5.5578
1.1669E-05	1.1674E-05	12.189	11.606	13.84	10.296	13.54	-11.292
1.1678E-05	1.1682E-05	14.294	9.5378	13.458	10.769	-5.8459	12.906
1.1686E-05	1.1690E-05	11.54	12.253	10.26	13.863	-11.096	13.144
1.1694E-05	1.1699E-05	9.5482	14.266	10.815	13.396	13.268	-6.0973
1.1703E-05	1.1707E-05	12.313	11.479	13.893	10.238	12.837	-10.811
1.1711E-05	1.1715E-05	14.254	9.5819	13.346	10.878	-6.3682	13.527
1.1720E-05	1.1724E-05	11.416	12.374	10.207	13.915	-10.588	12.456
1.1728E-05	1.1732E-05	9.5942	14.225	10.926	13.285	13.879	-6.6057
1.1736E-05	1.1740E-05	12.432	11.356	13.943	10.187	12.15	-10.3
1.1745E-05	1.1749E-05	14.211	9.6277	13.235	10.986	-6.8733	14.109
1.1753E-05	1.1757E-05	11.295	12.491	10.158	13.962	-10.066	11.778
1.1761E-05	1.1765E-05	9.6414	14.182	11.035	13.176	14.454	-7.0975
1.1770E-05	1.1774E-05	12.549	11.238	13.99	10.14	11.483	-9.7659
1.1778E-05	1.1782E-05	14.168	9.6741	13.126	11.093	-7.3573	14.671
1.1786E-05	1.1790E-05	11.176	12.604	10.111	14.006	-9.5301	11.122
1.1795E-05	1.1799E-05	9.6879	14.139	11.141	13.068	15.004	-7.5769
1.1803E-05	1.1807E-05	12.662	11.122	14.034	10.096	10.838	-9.2273
1.1811E-05	1.1816E-05	14.126	9.7205	13.02	11.199	-7.8299	15.21
1.1820E-05	1.1824E-05	11.061	12.715	10.067	14.049	-8.9815	10.495
1.1828E-05	1.1832E-05	9.7326	14.096	11.245	12.962	15.544	-8.0406
1.1836E-05	1.1841E-05	12.772	11.008	14.077	10.052	10.219	-8.6796
1.1845E-05	1.1849E-05	14.085	9.7658	12.916	11.302	-8.2961	15.733
1.1853E-05	1.1857E-05	10.948	12.824	10.025	14.091	-8.4311	9.8859
1.1861E-05	1.1866E-05	9.7766	14.053	11.348	12.859	16.073	-8.4967
1.1870E-05	1.1874E-05	12.88	10.894	14.12	10.01	9.6283	-8.1186
1.1878E-05	1.1882E-05	14.043	9.8088	12.814	11.404	-8.7516	16.259
1.1886E-05	1.1891E-05	10.837	12.931	9.9836	14.134	-7.871	9.3001
1.1895E-05	1.1899E-05	9.8208	14.012	11.449	12.758	16.58	-8.9522
1.1903E-05	1.1907E-05	12.986	10.783	14.162	9.9684	9.0528	-7.5504
1.1912E-05	1.1916E-05	14	9.8499	12.713	11.503	-9.1969	16.786
1.1920E-05	1.1924E-05	10.725	13.037	9.9439	14.177	-7.2837	8.7431
1.1928E-05	1.1932E-05	9.8656	13.971	11.551	12.658	17.079	-9.3986
1.1937E-05	1.1941E-05	13.094	10.673	14.204	9.9287	8.4788	-6.9695
1.1945E-05	1.1949E-05	13.955	9.8926	12.609	11.602	-9.6428	17.283
1.1953E-05	1.1957E-05	10.613	13.141	9.9058	14.218	-6.864	8.1978
1.1962E-05	1.1966E-05	9.9116	13.925	11.654	12.557	17.576	-9.8229
1.1970E-05	1.1974E-05	13.201	10.564	14.246	9.894	7.9134	-6.3432
1.1978E-05	1.1982E-05	13.906	9.9398	12.504	11.703	-10.082	17.74
1.1987E-05	1.1991E-05	10.503	13.245	9.8711	14.257	-6.0135	7.638
1.1995E-05	1.1999E-05	9.9614	13.873	11.758	12.452	18.031	-10.238

Fig5.13_Exactan72_sqrLO_6dBLow



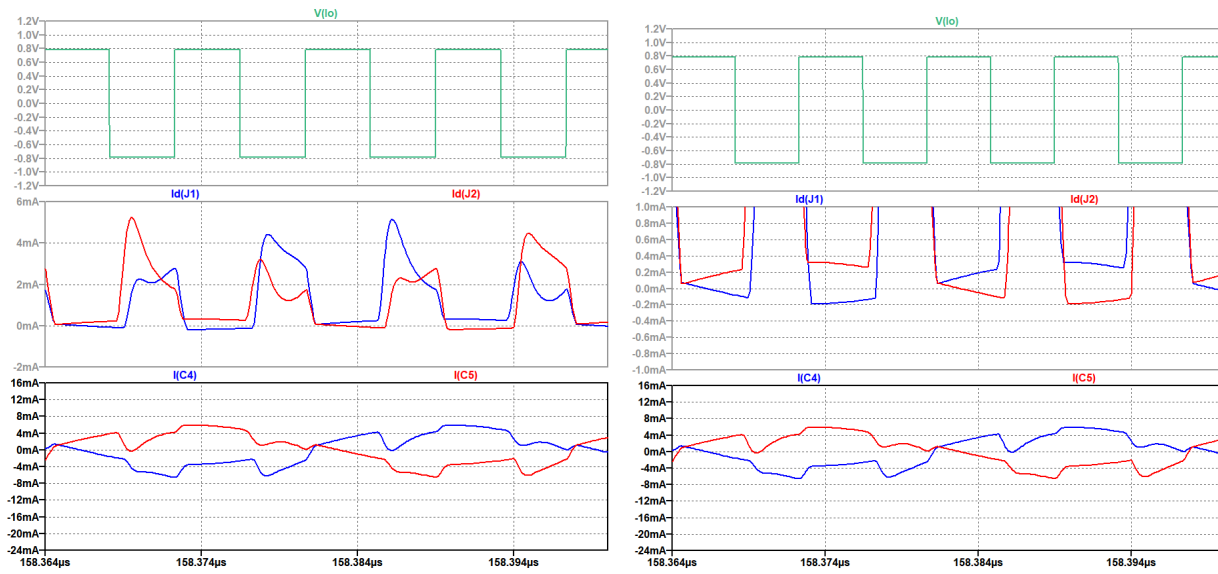
max discharge of CAP1		-8.5123
max discharge of CAP2		-8.4723
max discahrge of CAP1 and CAP2		-8.5123

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0000E-05	1.0004E-05	10.976	12.837	10.726	13.396	-2.2768	4.3549
1.0008E-05	1.0013E-05	10.846	13.004	12.004	12.149	10.68	-6.5776
1.0017E-05	1.0021E-05	12.875	10.945	13.413	10.72	4.1804	-2.0555
1.0025E-05	1.0029E-05	12.992	10.863	12.117	12.038	-6.7383	10.819
1.0033E-05	1.0038E-05	10.907	12.904	10.703	13.421	-1.8698	4.0092
1.0042E-05	1.0046E-05	10.876	12.973	12.07	12.084	10.972	-6.8508
1.0050E-05	1.0054E-05	12.943	10.876	13.438	10.697	3.8213	-1.6438
1.0058E-05	1.0063E-05	12.96	10.895	12.05	12.104	-7.0242	11.104
1.0067E-05	1.0071E-05	10.838	12.971	10.681	13.445	-1.4443	3.6481
1.0075E-05	1.0079E-05	10.91	12.939	12.139	12.016	11.261	-7.1277
1.0083E-05	1.0088E-05	13.012	10.807	13.461	10.677	3.4543	-1.2005
1.0092E-05	1.0096E-05	12.924	10.93	11.98	12.173	-7.3001	11.372
1.0100E-05	1.0104E-05	10.768	13.039	10.662	13.466	-0.99304	3.2711
1.0109E-05	1.0113E-05	10.948	12.09	12.209	11.946	11.517	-7.3969
1.0117E-05	1.0121E-05	13.08	10.738	13.482	10.66	3.0702	-0.72892
1.0125E-05	1.0129E-05	12.883	10.97	11.909	12.245	-7.5614	11.617
1.0134E-05	1.0138E-05	10.701	13.107	10.646	13.484	-0.50838	2.8803
1.0142E-05	1.0146E-05	10.991	12.856	12.281	11.873	11.739	-7.6497
1.0150E-05	1.0154E-05	13.147	10.671	13.497	10.647	2.6653	-0.22991
1.0159E-05	1.0163E-05	12.836	11.016	11.834	12.318	-7.8057	11.823
1.0167E-05	1.0171E-05	10.635	13.173	10.636	13.498	0.012055	2.4701
1.0175E-05	1.0179E-05	11.039	12.807	12.356	11.797	11.924	-7.8805
1.0184E-05	1.0188E-05	13.211	10.607	13.507	10.639	2.2415	0.30259
1.0192E-05	1.0196E-05	12.782	11.068	11.757	12.393	-8.0214	11.977
1.0200E-05	1.0205E-05	10.573	13.235	10.632	13.505	0.6173	2.0379
1.0209E-05	1.0213E-05	11.095	12.751	12.432	11.72	12.056	-8.0807
1.0217E-05	1.0221E-05	13.272	10.547	13.511	10.639	1.8008	0.86498
1.0225E-05	1.0230E-05	12.722	11.125	11.678	12.469	-8.2069	12.084
1.0234E-05	1.0238E-05	10.515	13.293	10.635	13.505	1.138	1.59
1.0242E-05	1.0246E-05	11.156	12.688	12.509	11.642	12.129	-8.2488
1.0250E-05	1.0255E-05	13.328	10.493	13.507	10.646	1.3398	1.4525
1.0259E-05	1.0263E-05	12.656	11.189	11.599	12.547	-8.3554	12.136
1.0267E-05	1.0271E-05	10.464	13.346	10.646	13.496	1.7409	1.1249
1.0275E-05	1.0280E-05	11.224	12.619	12.587	11.562	12.143	-8.3705
1.0284E-05	1.0288E-05	13.378	10.446	13.494	10.661	0.86479	2.0618
1.0292E-05	1.0296E-05	12.584	11.26	11.519	12.624	-8.459	12.113
1.0301E-05	1.0305E-05	10.42	13.393	10.665	13.479	2.3536	0.64631
1.0309E-05	1.0313E-05	11.297	12.543	12.663	11.484	12.093	-8.4455
1.0317E-05	1.0321E-05	13.42	10.405	13.472	10.685	0.38232	2.6876
1.0326E-05	1.0330E-05	12.505	11.337	11.441	12.7	-8.5101	12.027
1.0334E-05	1.0338E-05	10.384	13.432	10.694	13.453	2.9782	0.15551
1.0342E-05	1.0346E-05	11.377	12.462	12.738	11.406	11.969	-8.4723
1.0351E-05	1.0355E-05	13.455	10.573	13.44	10.717	-0.10781	3.3161
1.0359E-05	1.0363E-05	12.421	11.418	11.365	12.74	-8.5049	11.878
1.0367E-05	1.0371E-05	10.357	13.462	10.731	13.417	3.6096	-0.33457
1.0376E-05	1.0380E-05	11.461	12.377	12.811	11.332	11.781	-8.4445
1.0384E-05	1.0388E-05	13.481	10.351	13.399	10.758	-0.60224	3.9347
1.0392E-05	1.0397E-05	13.333	11.504	11.292	12.844	-8.4436	11.655
1.0401E-05	1.0405E-05	10.339	13.458	10.776	13.373	4.2336	-0.81992
1.0409E-05	1.0413E-05	11.548	12.288	12.88	11.262	11.535	-8.3556
1.0417E-05	1.0422E-05	13.497	10.338	13.351	10.808	-1.0877	4.541
1.0426E-05	1.0430E-05	12.243	11.591	11.223	12.91	-8.3363	11.377
1.0434E-05	1.0438E-05	10.33	13.495	10.829	13.32	4.833	-1.2993
1.0442E-05	1.0447E-05	11.637	12.197	12.944	11.196	11.231	-8.2111
1.0451E-05	1.0455E-05	13.504	10.334	13.294	10.864	-1.5558	5.1289
1.0459E-05	1.0463E-05	12.152	11.681	11.159	12.972	-8.1665	11.046
1.0467E-05	1.0472E-05	10.331	13.498	10.888	13.26	5.3994	-1.7637
1.0476E-05	1.0480E-05	11.727	12.106	13.002	11.135	10.874	-8.0175
1.0484E-05	1.0488E-05	13.502	10.34	13.231	10.927	-2.0078	5.6793
1.0492E-05	1.0497E-05	12.06	11.771	11.102	13.027	-7.9418	10.671
1.0501E-05	1.0505E-05	10.34	13.492	10.954	13.194	5.9366	-2.2062
1.0509E-05	1.0513E-05	11.817	12.015	13.054	11.081	10.476	-7.7731
1.0518E-05	1.0522E-05	13.491	10.354	13.162	10.994	-2.4383	6.1892
1.0526E-05	1.0530E-05	11.97	11.86	11.051	13.076	-7.6718	10.256
1.0534E-05	1.0538E-05	10.358	13.477	11.024	13.124	6.4315	-2.6215
1.0543E-05	1.0547E-05	11.904	11.926	13.101	11.034	10.047	-7.481
1.0551E-05	1.0555E-05	13.472	10.375	13.09	11.066	-2.8401	6.6584
1.0559E-05	1.0563E-05	11.882	11.947	11.007	13.119	-7.3617	9.8108
1.0568E-05	1.0572E-05	10.383	13.455	11.097	13.05	6.8744	-3.01
1.0576E-05	1.0580E-05	11.989	11.84	13.14	10.993	9.5949	-7.152
1.0584E-05	1.0588E-05	13.447	10.403	13.015	11.14	-3.21	7.0844
1.0593E-05	1.0597E-05	11.798	12.03	10.97	13.155	-7.0136	9.3501
1.0601E-05	1.0605E-05	10.414	13.426	11.172	12.974	7.2769	-3.3705
1.0609E-05	1.0614E-05	12.071	11.757	13.173	10.959	9.1247	-6.7949
1.0618E-05	1.0622E-05	13.415	10.437	12.938	11.215	-3.5521	7.4635
1.0626E-05	1.0630E-05	11.717	12.11	10.94	13.185	-6.6373	8.879
1.0634E-05	1.0639E-05	10.45	13.392	11.248	12.897	7.6389	-3.6978
1.0643E-05	1.0647E-05	12.149	11.679	13.199	10.93	8.65	-6.413
1.0651E-05	1.0655E-05	13.379	10.474	12.862	11.291	-3.8652	7.798
1.0659E-05	1.0664E-05	11.641	12.185	10.914	13.209	-6.245	8.4033
1.0668E-05	1.0672E-05	10.489	13.355	13.124	12.821	7.9577	-3.9964
1.0676E-05	1.0680E-05	12.222	11.605	13.222	10.907	8.178	-6.0138
1.0684E-05	1.0689E-05	13.34	10.514	12.786	11.365	-4.1505	8.1
1.0693E-05	1.0697E-05	11.569	12.257	10.893	13.229	-5.8413	7.9351
1.0701E-05	1.0705E-05	10.53	13.316	11.398	12.747	8.2416	-4.2724
1.0710E-05	1.0714E-05	12.292	11.535	13.24	10.888	7.7123	-5.6094
1.0718E-05	1.0722E-05	13.299	10.555	12.712	11.438	-4.4139	8.3727
1.0726E-05	1.0730E-05	11.5	12.324	10.876	13.246	-5.4292	7.4782
1.0735E-05	1.0739E-05	10.571	13.275	11.471	12.674	8.5051	-4.5267
1.0743E-05	1.0747E-05	12.359	11.469	13.256	10.872	7.2605	-5.2043
1.0751E-05	1.0755E-05	13.259	10.596	12.641	11.509	-4.6631	8.6215
1.0760E-05	1.0764E-05	11.435	12.389	10.86	13.261	-5.0233	7.0371
1.0768E-05	1.0772E-05	10.612	13.235	11.541	12.604	8.7549	-4.7684
1.0776E-05	1.0780E-05	12.422	11.405	13.271	10.857	6.8313	-4.8006
1.0785E-05	1.0789E-05	13.22	10.636	12.572	11.578	-4.902	8.8617
1.0793E-05	1.0797E-05	11.372	12.451	10.845	13.275	-4.6273	6.6151
1.0801E-05	1.0806E-05	10.651	13.197	11.609	12.537	8.9945	-5.0023
1.0810E-05	1.0814E-05	12.484	11.342	13.285	10.843	6.4211	-4.4048
1.0818E-05	1.0822E-05	13.183	10.673	12.506	11.645	-5.1344	9.1056

1.0826E-05	1.0831E-05	11.31	12.512	10.83	13.289	-4.2361	6.2133
1.0835E-05	1.0839E-05	10.687	13.161	11.674	12.472	9.2357	-5.2379
1.0843E-05	1.0847E-05	12.545	11.281	13.301	10.827	6.0265	-4.0215
1.0851E-05	1.0856E-05	13.148	10.708	12.442	11.71	-5.3709	9.3527
1.0860E-05	1.0864E-05	11.248	12.572	10.814	13.306	-3.8524	5.8337
1.0868E-05	1.0872E-05	10.721	13.127	11.738	12.409	9.4889	-5.4739
1.0876E-05	1.0881E-05	12.605	11.219	13.318	10.81	5.6519	-3.6446
1.0885E-05	1.0889E-05	13.116	10.741	12.379	11.773	-5.6158	9.608
1.0893E-05	1.0897E-05	11.186	12.633	10.796	13.324	-3.4804	5.4668
1.0902E-05	1.0906E-05	10.752	13.096	11.802	12.347	9.758	-5.7203
1.0910E-05	1.0914E-05	12.667	11.156	13.338	10.791	5.2943	-3.2708
1.0918E-05	1.0922E-05	13.086	10.771	12.318	11.835	-5.868	9.8819
1.0927E-05	1.0931E-05	11.122	12.695	10.776	13.344	-3.1108	5.1134
1.0935E-05	1.0939E-05	10.782	13.067	11.864	12.286	10.03	-5.9771
1.0943E-05	1.0947E-05	12.73	11.092	13.36	10.77	4.9442	-2.9005
1.0952E-05	1.0956E-05	13.057	10.8	12.256	11.898	-6.1302	10.168
1.0960E-05	1.0964E-05	11.056	12.758	10.754	13.367	-2.7357	4.77
1.0968E-05	1.0972E-05	10.811	13.038	11.927	12.224	10.326	-6.2452
1.0977E-05	1.0981E-05	12.795	11.026	13.383	10.748	4.5966	-2.525
1.0985E-05	1.0989E-05	13.028	10.828	12.194	11.951	-6.4052	10.46
1.0993E-05	1.0998E-05	10.989	12.824	10.731	13.391	-2.3521	4.4259
1.1002E-05	1.1006E-05	10.839	13.009	11.991	12.161	10.627	-6.5182
1.1010E-05	1.1014E-05	12.861	10.959	13.408	10.725	4.251	-2.1339

1.1661E-05	1.1665E-05	10.481	13.363	11.309	12.836	7.8965	-3.9403
1.1669E-05	1.1674E-05	12.208	11.62	13.218	10.911	8.2702	-6.0951
1.1678E-05	1.1682E-05	13.348	10.506	12.801	11.351	-4.096	8.043
1.1686E-05	1.1690E-05	11.583	12.243	10.897	13.226	-5.92	8.0283
1.1694E-05	1.1699E-05	10.522	13.323	11.383	12.761	8.1892	-4.2171
1.1703E-05	1.1707E-05	12.279	11.549	13.237	10.891	7.804	-5.6906
1.1711E-05	1.1715E-05	13.308	10.547	12.727	11.424	-4.3651	8.3183
1.1720E-05	1.1724E-05	11.514	12.311	10.879	13.243	-5.5127	7.5665
1.1728E-05	1.1732E-05	10.563	13.283	11.456	12.688	8.4563	-4.4772
1.1736E-05	1.1740E-05	12.345	11.481	13.253	10.875	7.352	-5.2823
1.1745E-05	1.1749E-05	13.267	10.588	12.655	11.496	-4.6141	8.5752
1.1753E-05	1.1757E-05	11.448	12.377	10.863	13.258	-5.1063	7.1227
1.1761E-05	1.1765E-05	10.604	13.243	11.527	12.618	8.703	-4.7224
1.1770E-05	1.1774E-05	12.41	11.417	13.268	10.86	6.9152	-4.8803
1.1778E-05	1.1782E-05	13.227	10.627	12.585	11.565	-4.8525	8.8188
1.1786E-05	1.1790E-05	11.384	12.439	10.848	13.272	-4.7047	6.7015
1.1795E-05	1.1799E-05	10.643	13.205	11.596	12.55	8.9456	-4.9574
1.1803E-05	1.1807E-05	12.472	11.355	13.282	10.845	6.4973	-4.4865
1.1811E-05	1.1816E-05	13.19	10.666	12.519	11.632	-5.0897	9.056
1.1820E-05	1.1824E-05	11.321	12.5	10.833	13.286	-4.3101	6.295
1.1828E-05	1.1832E-05	10.68	13.168	11.662	12.485	9.1931	-5.1862
1.1836E-05	1.1841E-05	12.533	11.293	13.296	10.83	6.1029	-4.0971
1.1845E-05	1.1849E-05	13.155	10.702	12.454	11.697	-5.3274	9.2992
1.1853E-05	1.1857E-05	11.26	12.56	10.817	13.302	-3.9307	5.9052
1.1861E-05	1.1866E-05	10.714	13.134	11.726	12.421	9.4409	-5.4254
1.1870E-05	1.1874E-05	12.593	11.231	13.315	10.814	5.7288	-3.7146
1.1878E-05	1.1882E-05	13.122	10.735	12.392	11.761	-5.5659	9.5582
1.1886E-05	1.1891E-05	11.198	12.622	10.8	13.32	-3.5539	5.5333
1.1895E-05	1.1899E-05	10.746	13.102	11.789	12.359	9.7028	-5.6754
1.1903E-05	1.1907E-05	12.655	11.168	13.333	10.795	5.3648	-3.3444
1.1912E-05	1.1916E-05	13.091	10.765	12.33	11.823	-5.8143	9.8304
1.1920E-05	1.1924E-05	11.135	12.683	10.781	13.34	-3.1817	5.1848
1.1928E-05	1.1932E-05	10.777	13.073	11.852	12.298	9.9784	-5.9295
1.1937E-05	1.1941E-05	12.718	11.105	13.355	10.774	5.0099	-2.9774
1.1945E-05	1.1949E-05	13.062	10.794	12.268	11.885	-6.079	10.111
1.1953E-05	1.1957E-05	11.069	12.746	10.759	13.363	-2.8074	4.8395
1.1962E-05	1.1966E-05	10.805	13.044	11.915	12.237	10.269	-6.1894
1.1970E-05	1.1974E-05	12.782	11.039	13.379	10.752	4.6649	-2.6006
1.1978E-05	1.1982E-05	13.034	10.822	12.206	11.948	-6.3526	10.4
1.1987E-05	1.1991E-05	11.003	12.81	10.735	13.386	-2.4303	4.4925
1.1995E-05	1.1999E-05	10.834	13.015	11.979	12.174	10.569	-6.4631

Fig5.14_Exactan72_sqrLO_12dBLow



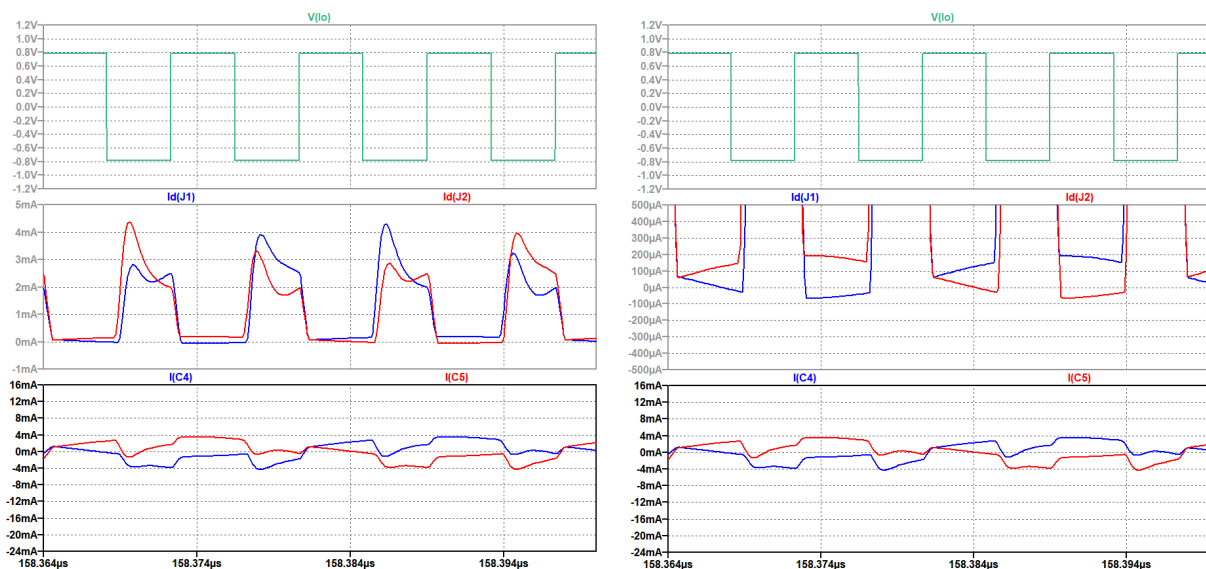
max discharge of CAP1		-4.1055
max discharge of CAP2		-4.0792
max discharge of CAP1 and CAP2		-4.1055

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0000E-05	1.0004E-05	11.431	12.408	11.376	12.742	-0.47525	2.6961
1.0008E-05	1.0013E-05	11.385	12.464	12.043	12.086	5.7781	-3.0354
1.0017E-05	1.0021E-05	12.429	11.415	12.75	11.373	2.586	-0.35927
1.0025E-05	1.0029E-05	12.458	11.394	12.067	12.061	-3.1334	5.8596
1.0033E-05	1.0038E-05	11.394	12.444	11.364	12.755	-0.26516	2.4999
1.0042E-05	1.0046E-05	11.402	12.447	12.079	12.051	5.9394	-3.1884
1.0050E-05	1.0054E-05	12.466	11.377	12.764	11.361	2.3868	-0.14322
1.0058E-05	1.0063E-05	12.44	11.411	12.031	12.097	-3.2893	6.0192
1.0067E-05	1.0071E-05	11.356	12.481	11.351	12.768	-0.044961	2.2951
1.0075E-05	1.0079E-05	11.419	12.429	12.116	12.014	6.0979	-3.3441
1.0083E-05	1.0088E-05	12.504	11.339	12.776	11.349	2.1781	0.085024
1.0092E-05	1.0096E-05	12.421	11.429	11.994	12.135	-3.4441	6.1766
1.0100E-05	1.0104E-05	11.318	12.519	11.34	12.78	0.19025	2.0808
1.0109E-05	1.0113E-05	11.439	12.409	12.154	11.975	6.2498	-3.4969
1.0117E-05	1.0121E-05	12.542	11.301	12.788	11.338	1.957	0.32735
1.0125E-05	1.0129E-05	12.4	11.451	11.954	12.175	-3.593	6.3238
1.0134E-05	1.0138E-05	11.28	12.557	11.33	12.79	0.4414	1.8553
1.0142E-05	1.0146E-05	11.462	12.386	12.195	11.935	6.3902	-3.6409
1.0150E-05	1.0154E-05	12.58	11.264	12.797	11.329	1.7247	0.58556
1.0159E-05	1.0163E-05	12.375	11.475	11.913	12.216	-3.7322	6.4556
1.0167E-05	1.0171E-05	11.243	12.595	11.323	12.798	0.70789	1.6172
1.0175E-05	1.0179E-05	11.488	12.36	12.236	11.893	6.5117	-3.7728
1.0184E-05	1.0188E-05	12.616	11.227	12.803	11.324	1.4805	0.85979
1.0192E-05	1.0196E-05	12.346	11.503	11.87	12.258	-3.8555	6.5666
1.0200E-05	1.0205E-05	11.208	12.63	11.319	12.803	0.9909	1.3676
1.0209E-05	1.0213E-05	11.518	12.33	12.279	11.851	6.6086	-3.8871
1.0217E-05	1.0221E-05	12.651	11.193	12.806	11.322	1.2245	1.1478
1.0225E-05	1.0230E-05	12.315	11.534	11.827	12.301	-3.9592	6.6521
1.0234E-05	1.0238E-05	11.175	12.663	11.319	12.804	1.2859	1.109
1.0242E-05	1.0246E-05	11.551	12.296	12.322	11.807	6.677	-3.978
1.0250E-05	1.0255E-05	12.682	11.163	12.804	11.324	0.96021	1.4477
1.0259E-05	1.0263E-05	12.279	11.568	11.784	12.343	-4.0379	6.7023
1.0267E-05	1.0271E-05	11.146	12.693	11.324	12.8	1.5912	0.84234
1.0275E-05	1.0280E-05	11.587	12.259	12.365	11.764	6.7135	-0.0411
1.0284E-05	1.0288E-05	12.71	11.135	12.798	11.331	0.69099	1.7552
1.0292E-05	1.0296E-05	12.241	11.606	11.74	12.386	-4.0884	6.7188
1.0301E-05	1.0305E-05	11.121	12.719	11.333	12.791	1.901	0.56918
1.0309E-05	1.0313E-05	11.627	12.219	12.407	11.721	6.7122	-4.0753
1.0317E-05	1.0321E-05	12.733	11.113	12.767	11.343	0.41878	2.0709
1.0326E-05	1.0330E-05	12.199	11.647	11.698	12.427	-4.1053	6.7
1.0334E-05	1.0338E-05	11.101	12.74	11.347	12.777	2.2132	0.29576
1.0342E-05	1.0346E-05	11.669	12.176	12.447	11.68	6.6715	-4.0778
1.0351E-05	1.0355E-05	12.751	11.096	12.77	11.36	0.1464	2.3814
1.0359E-05	1.0363E-05	12.155	11.69	11.658	12.467	-4.0885	6.6427
1.0367E-05	1.0371E-05	11.087	12.755	11.367	12.758	2.5236	0.026679
1.0376E-05	1.0380E-05	11.713	12.132	12.486	11.641	6.5943	-0.0445
1.0384E-05	1.0388E-05	12.764	11.084	12.748	11.381	-0.12179	2.6851
1.0392E-05	1.0397E-05	12.109	11.735	11.62	12.503	-4.0384	6.5467
1.0401E-05	1.0405E-05	11.078	12.765	11.391	12.735	2.8238	-0.23626
1.0409E-05	1.0413E-05	11.759	12.086	12.521	11.605	6.4813	-3.9762
1.0417E-05	1.0422E-05	12.771	11.078	12.722	11.408	-0.3803	2.9789
1.0426E-05	1.0430E-05	12.063	11.781	11.586	12.537	-3.9538	6.4151
1.0434E-05	1.0438E-05	11.075	12.769	11.419	12.706	3.1093	-0.48971
1.0442E-05	1.0447E-05	11.806	12.039	12.553	11.572	6.3331	-3.8747
1.0451E-05	1.0455E-05	12.772	11.078	12.692	11.438	-0.62533	3.2554
1.0459E-05	1.0463E-05	12.016	11.828	11.555	12.567	-3.8352	6.2523
1.0467E-05	1.0472E-05	11.077	12.767	11.451	12.674	3.377	-0.72747
1.0476E-05	1.0480E-05	11.852	11.992	12.581	11.544	6.1548	-3.7417
1.0484E-05	1.0488E-05	12.767	11.083	12.658	11.472	-0.85619	3.5114
1.0492E-05	1.0497E-05	11.97	11.874	11.528	12.593	-3.6872	6.0608
1.0501E-05	1.0505E-05	11.085	12.76	11.487	12.639	3.6234	-0.94982
1.0509E-05	1.0513E-05	11.897	11.946	12.605	11.519	5.9513	-3.58
1.0518E-05	1.0522E-05	12.757	11.093	12.621	11.509	-1.0691	3.7457
1.0526E-05	1.0530E-05	11.924	11.919	11.505	12.615	-3.5125	5.8462
1.0534E-05	1.0538E-05	11.098	12.748	11.525	12.601	3.8456	-1.1538
1.0543E-05	1.0547E-05	11.942	11.902	12.626	11.498	5.7266	-3.3946
1.0551E-05	1.0555E-05	12.743	11.108	12.582	11.547	-1.2628	3.9545
1.0559E-05	1.0563E-05	11.88	11.962	11.487	12.634	-3.3145	5.6146
1.0568E-05	1.0572E-05	11.115	12.732	11.594	12.561	4.0445	-1.339
1.0576E-05	1.0580E-05	11.985	11.86	12.642	11.481	5.4862	-3.319
1.0584E-05	1.0588E-05	12.725	11.126	12.542	11.587	-1.4403	4.1417
1.0593E-05	1.0597E-05	11.839	12.003	11.472	12.648	-3.0999	5.3708
1.0601E-05	1.0605E-05	11.135	12.712	11.605	12.521	4.2213	-1.5037
1.0609E-05	1.0614E-05	12.025	11.82	12.655	11.469	5.2383	-2.9696
1.0618E-05	1.0622E-05	12.704	11.148	12.501	11.628	-1.5988	4.3034
1.0626E-05	1.0630E-05	11.799	12.042	11.46	12.659	-2.8757	5.1184
1.0634E-05	1.0639E-05	11.157	12.69	11.645	12.48	4.3752	-1.6524
1.0643E-05	1.0647E-05	12.063	11.781	12.665	11.459	4.9878	-2.7388
1.0651E-05	1.0655E-05	12.681	11.171	12.46	11.668	-1.739	4.448
1.0659E-05	1.0664E-05	11.763	12.08	11.451	12.667	-2.6444	4.8651
1.0668E-05	1.0672E-05	11.181	12.666	11.686	12.44	4.5088	-1.7877
1.0676E-05	1.0680E-05	12.099	11.745	12.672	11.451	4.7359	-2.5061
1.0684E-05	1.0689E-05	12.657	11.195	12.42	11.708	-1.8654	4.5773
1.0693E-05	1.0697E-05	11.728	12.114	11.445	12.674	-2.4083	4.6171
1.0701E-05	1.0705E-05	11.206	12.642	11.725	12.4	4.6291	-1.9102
1.0710E-05	1.0714E-05	12.133	11.711	12.677	11.445	4.4872	-2.2741
1.0718E-05	1.0722E-05	12.632	11.22	12.381	11.746	-1.9829	4.691
1.0726E-05	1.0730E-05	11.694	12.147	11.44	12.679	-2.1755	4.3754
1.0735E-05	1.0739E-05	11.231	12.618	11.763	12.363	4.7423	-2.0212
1.0743E-05	1.0747E-05	12.165	11.679	12.682	11.441	4.2489	-2.0458
1.0751E-05	1.0755E-05	12.608	11.244	12.344	11.783	-2.0941	4.7972
1.0760E-05	1.0764E-05	11.663	12.179	11.435	12.683	-1.9501	4.1405
1.0768E-05	1.0772E-05	11.254	12.594	11.8	12.326	4.8489	-2.1286
1.0776E-05	1.0780E-05	12.196	11.648	12.687	11.436	4.0215	-1.8213
1.0785E-05	1.0789E-05	12.585	11.267	12.308	11.82	-2.2012	4.902
1.0793E-05	1.0797E-05	11.632	12.209	11.43	12.687	-1.7314	3.9159
1.0801E-05	1.0806E-05	11.276	12.572	11.835	12.29	4.9535	-2.2366
1.0810E-05	1.0814E-05	12.226	11.618	12.691	11.431	3.803	-1.6056
1.0818E-05	1.0822E-05	12.564	11.289	12.274	11.855	-2.3087	5.0118

1.0826E-05	1.0831E-05	11.602	12.239	11.425	12.692	-1.5192	3.7024
1.0835E-05	1.0839E-05	11.297	12.551	11.869	12.256	5.0622	-2.3473
1.0843E-05	1.0847E-05	12.256	11.587	12.697	11.425	3.5939	-1.3978
1.0851E-05	1.0856E-05	12.544	11.309	12.24	11.888	-2.4202	5.1247
1.0860E-05	1.0864E-05	11.571	12.27	11.419	12.699	-1.313	3.4993
1.0868E-05	1.0872E-05	11.317	12.532	11.903	12.224	5.1794	-2.4625
1.0876E-05	1.0881E-05	12.287	11.556	12.704	11.418	3.393	-1.1966
1.0885E-05	1.0889E-05	12.525	11.326	12.207	11.921	-2.5395	5.2462
1.0893E-05	1.0897E-05	11.54	12.301	11.411	12.707	-1.1123	3.3044
1.0902E-05	1.0906E-05	11.334	12.515	11.936	12.191	5.3063	-2.5853
1.0910E-05	1.0914E-05	12.319	11.525	12.713	11.41	3.1982	-0.99973
1.0918E-05	1.0922E-05	12.508	11.343	12.175	11.953	-2.6678	5.3773
1.0927E-05	1.0931E-05	11.507	12.332	11.402	12.716	-0.9147	3.1143
1.0935E-05	1.0939E-05	11.351	12.499	11.969	12.159	5.4443	-2.7161
1.0943E-05	1.0947E-05	12.352	11.492	12.723	11.4	3.0078	-0.80367
1.0952E-05	1.0956E-05	12.493	11.359	12.142	11.986	-2.8058	5.5177
1.0960E-05	1.0964E-05	11.473	12.365	11.391	12.727	-0.71839	2.9247
1.0968E-05	1.0972E-05	11.366	12.483	12.002	12.126	5.5928	-2.8555
1.0977E-05	1.0981E-05	12.386	11.458	12.735	11.389	2.8197	-0.60376
1.0985E-05	1.0989E-05	12.477	11.375	12.109	12.02	-2.9509	5.6692
1.0993E-05	1.0998E-05	11.438	12.401	11.379	12.739	-0.51872	2.733
1.1002E-05	1.1006E-05	11.382	12.467	12.036	12.092	5.7467	-3.0048
1.1010E-05	1.1014E-05	12.421	11.422	12.748	11.376	2.6278	-0.38994
1.1018E-05	1.1023E-05	12.461	11.39	12.075	12.054	-3.1011	5.829
1.1027E-05	1.1031E-05	11.401	12.437	11.366	12.753	-0.30678	2.5371
1.1035E-05	1.1039E-05	11.398	12.451	12.071	12.058	5.9048	-3.1597
1.1043E-05	1.1048E-05	12.458	11.385	12.761	11.363	2.4273	-0.17337
1.1052E-05	1.1056E-05	12.444	11.407	12.039	12.09	-3.2561	5.9899
1.1060E-05	1.1064E-05	11.364	12.474	11.354	12.766	-0.088291	2.3383
1.1068E-05	1.1073E-05	11.416	12.433	12.108	12.021	6.0653	-3.3142
1.1077E-05	1.1081E-05	12.496	11.347	12.774	11.351	2.2184	0.050783
1.1085E-05	1.1089E-05	12.425	11.426	12.001	12.127	-3.4119	6.1436
1.1093E-05	1.1098E-05	11.325	12.512	11.342	12.778	0.14411	2.1262
1.1102E-05	1.1106E-05	11.435	12.413	12.147	11.983	6.2222	-3.465
1.1110E-05	1.1114E-05	12.535	11.309	12.786	11.34	2.0016	0.2702
1.1119E-05	1.1123E-05	12.404	11.446	11.962	12.167	-3.5659	6.2329
1.1127E-05	1.1131E-05	11.287	12.55	11.331	12.788	0.38888	1.9002
1.1135E-05	1.1139E-05	11.457	12.391	12.187	11.943	6.365	-3.5147
1.1144E-05	1.1148E-05	12.572	11.271	12.795	11.331	1.774	0.53459
1.1152E-05	1.1156E-05	12.38	11.47	11.921	12.208	-3.7063	6.4315
1.1160E-05	1.1164E-05	11.251	12.587	11.324	12.797	0.65129	1.6844
1.1169E-05	1.1173E-05	11.483	12.365	12.228	11.901	6.4879	-3.7488
1.1177E-05	1.1181E-05	12.609	11.234	12.802	11.325	1.531	0.80443
1.1185E-05	1.1189E-05	12.353	11.497	11.879	12.25	-3.9308	6.5479
1.1194E-05	1.1198E-05	11.215	12.624	11.32	12.803	0.93447	1.4187
1.1202E-05	1.1206E-05	11.512	12.336	12.27	11.859	6.5903	-3.8668
1.1210E-05	1.1215E-05	12.644	11.2	12.805	11.322	1.2757	1.0862
1.1219E-05	1.1223E-05	12.321	11.527	11.836	12.292	-3.9394	6.6366
1.1227E-05	1.1231E-05	11.182	12.657	11.319	12.804	1.2269	1.1623
1.1235E-05	1.1240E-05	11.544	12.303	12.314	11.816	6.6662	-3.9613
1.1244E-05	1.1248E-05	12.676	11.168	12.805	11.323	1.1013	1.3869
1.1252E-05	1.1256E-05	12.286	11.561	11.792	12.335	-4.0247	6.6943
1.1260E-05	1.1265E-05	11.152	12.687	11.322	12.801	1.53	0.89597
1.1269E-05	1.1273E-05	11.58	12.267	12.357	11.773	6.7092	-4.0305
1.1277E-05	1.1281E-05	12.705	11.41	12.8	11.33	0.74444	1.6949
1.1285E-05	1.1290E-05	12.249	11.598	11.749	12.377	-4.081	6.7186
1.1294E-05	1.1298E-05	11.126	12.714	11.33	12.793	1.8393	0.62429
1.1302E-05	1.1306E-05	11.618	12.277	12.399	11.73	6.7159	-4.0708
1.1311E-05	1.1315E-05	12.729	11.117	12.789	11.34	0.47265	2.0076
1.1319E-05	1.1323E-05	12.208	11.639	11.707	12.419	-4.1055	6.7061
1.1327E-05	1.1331E-05	11.105	12.736	11.344	12.78	2.1509	0.35042
1.1336E-05	1.1340E-05	11.66	12.185	12.439	11.688	6.6842	-4.0792
1.1344E-05	1.1348E-05	12.748	11.099	12.774	11.356	0.20128	2.3205
1.1352E-05	1.1356E-05	12.164	11.682	11.666	12.459	-4.0955	6.6564
1.1361E-05	1.1365E-05	11.09	12.753	11.362	12.763	2.4604	0.078587
1.1369E-05	1.1373E-05	11.704	12.141	12.478	11.648	6.6128	-4.0543
1.1377E-05	1.1381E-05	12.762	11.085	12.753	11.377	-0.067279	2.627
1.1386E-05	1.1390E-05	12.119	11.726	11.628	12.496	-4.05	6.5703
1.1394E-05	1.1398E-05	11.08	12.764	11.396	12.74	2.7638	-0.18516
1.1402E-05	1.1407E-05	11.75	12.085	12.514	11.612	6.5047	-3.9947
1.1411E-05	1.1415E-05	12.77	11.078	12.728	11.402	-0.33004	2.9207
1.1419E-05	1.1423E-05	12.072	11.772	11.592	12.531	-3.9719	6.4662
1.1427E-05	1.1432E-05	11.075	12.768	11.413	12.713	3.0557	-0.43819
1.1436E-05	1.1440E-05	11.796	12.048	12.547	11.579	6.3948	-3.8982
1.1444E-05	1.1448E-05	12.772	11.077	12.698	11.432	-0.57957	3.1992
1.1452E-05	1.1457E-05	12.025	11.818	11.561	12.561	-3.8627	6.2863
1.1461E-05	1.1465E-05	11.076	12.768	11.445	12.681	3.3268	-0.67997
1.1469E-05	1.1473E-05	11.843	12.002	12.576	11.549	6.1948	-3.7689
1.1477E-05	1.1482E-05	12.769	11.082	12.665	11.465	-0.81147	3.4621
1.1486E-05	1.1490E-05	11.979	11.865	11.533	12.588	-3.7211	6.0992
1.1494E-05	1.1498E-05	11.083	12.762	11.479	12.646	3.5744	-0.90751
1.1503E-05	1.1507E-05	11.888	11.955	12.601	11.523	5.9848	-3.6137
1.1511E-05	1.1515E-05	12.76	11.091	12.629	11.501	-1.0261	3.7073
1.1519E-05	1.1523E-05	11.933	11.91	11.51	12.609	-3.549	5.8913
1.1528E-05	1.1532E-05	11.095	12.751	11.517	12.699	3.8016	-1.1157
1.1536E-05	1.1540E-05	11.933	11.911	12.622	11.502	5.7717	-3.435
1.1544E-05	1.1548E-05	12.746	11.044	12.59	11.539	-1.2259	3.9166
1.1553E-05	1.1557E-05	11.889	11.953	11.49	12.63	-3.3544	5.6638
1.1561E-05	1.1565E-05	11.111	12.736	11.557	12.57	4.0075	-3.3025
1.1569E-05	1.1573E-05	11.976	11.868	12.639	11.484	5.5347	-2.3232
1.1578E-05	1.1582E-05	12.729	11.122	12.55	11.579	-1.4072	4.1048
1.1586E-05	1.1590E-05	11.847	11.995	11.474	12.645	-3.1446	5.2405
1.1594E-05	1.1599E-05	11.131	12.716	11.597	12.529	4.1884	-1.0471
1.1603E-05	1.1607E-05	12.017	11.828	12.653	11.471	5.2895	-3.0142
1.1611E-05	1.1615E-05	12.708	11.143	12.509	11.619	-1.5685	4.2766
1.1619E-05	1.1624E-05	11.807	12.035	11.462	12.657	-2.9224	5.1199
1.1628E-05	1.1632E-05	11.153	12.694	11.637	12.488	4.3454	-1.2843
1.1636E-05	1.1640E-05	12.056	11.789	12.663	11.46	5.0386	-2.6627
1.1644E-05	1.1649E-05	12.686	11.167	12.469	11.66	-1.712	4.2028
1.1653E-05	1.1657E-05	11.77	12.072	11.453	12.666	-2.691	4.9164

1.1661E-05	1.1665E-05	11.176	12.671	11.677	12.448	4.4837	-1.7617
1.1666E-05	1.1674E-05	12.092	11.752	12.671	11.572	4.7862	-2.5534
1.1667E-05	1.1682E-05	12.662	11.191	12.428	11.7	-1.8414	4.552
1.1668E-05	1.1690E-05	11.735	12.108	11.446	12.673	-2.456	4.6661
1.1694E-05	1.1699E-05	11.201	12.647	11.717	12.408	4.6061	-1.886
1.1703E-05	1.1707E-05	12.126	11.718	12.676	11.446	4.5378	-3.202
1.1711E-05	1.1715E-05	12.637	11.215	12.389	11.739	-1.9596	4.6691
1.1720E-05	1.1724E-05	11.701	12.141	11.441	12.678	-2.223	4.4227
1.1728E-05	1.1732E-05	11.226	12.622	11.756	12.37	4.7188	-1.9994
1.1736E-05	1.1740E-05	12.159	11.686	12.681	11.441	4.2963	-2.0916
1.1745E-05	1.1749E-05	11.613	11.239	12.351	11.776	-2.071	4.7769
1.1753E-05	1.1757E-05	11.669	12.172	11.436	12.682	-1.9942	4.1882
1.1761E-05	1.1765E-05	11.225	12.599	11.793	12.333	4.8272	-2.1067
1.1770E-05	1.1774E-05	12.19	11.655	12.686	11.437	4.0632	-1.8674
1.1778E-05	1.1782E-05	12.59	11.263	12.315	11.812	-2.1803	4.8901
1.1786E-05	1.1790E-05	11.638	12.203	11.431	12.686	-1.7736	3.9618
1.1795E-05	1.1799E-05	11.272	12.576	11.828	12.298	4.9341	-2.2135
1.1803E-05	1.1807E-05	12.221	11.624	12.691	11.433	3.846	-1.6484
1.1811E-05	1.1816E-05	12.568	11.285	12.281	11.847	-2.2884	4.6988
1.1820E-05	1.1824E-05	11.608	12.233	11.426	12.691	-1.5623	3.7438
1.1828E-05	1.1832E-05	11.293	12.655	11.862	12.263	5.0418	-2.3236
1.1836E-05	1.1841E-05	12.25	11.593	12.696	11.427	3.6371	-1.4371
1.1845E-05	1.1849E-05	12.548	11.305	12.247	11.882	-2.3974	5.1014
1.1853E-05	1.1857E-05	11.577	12.264	11.42	12.698	-1.3559	3.5377
1.1861E-05	1.1866E-05	11.313	12.536	11.896	12.23	5.1545	-2.4403
1.1870E-05	1.1874E-05	12.281	11.562	12.702	11.42	3.4336	-1.2396
1.1878E-05	1.1882E-05	12.529	11.323	12.214	11.914	-2.5137	5.2232
1.1886E-05	1.1891E-05	11.546	12.294	11.413	12.706	-1.1517	3.3432
1.1895E-05	1.1899E-05	11.331	12.518	11.929	12.198	5.279	-2.5615
1.1903E-05	1.1907E-05	12.312	11.531	12.711	11.411	3.2387	-1.0401
1.1912E-05	1.1916E-05	12.512	11.34	12.181	11.947	-2.6414	5.3508
1.1920E-05	1.1924E-05	11.514	12.326	11.404	12.715	-0.95253	3.153
1.1928E-05	1.1932E-05	11.348	12.502	11.962	12.166	5.4167	-2.6988
1.1937E-05	1.1941E-05	12.345	11.499	12.721	11.402	3.045	-0.84341
1.1945E-05	1.1949E-05	12.496	11.356	12.148	11.979	-2.7785	5.4882
1.1953E-05	1.1957E-05	11.48	12.359	11.393	12.725	-0.75761	2.9623
1.1962E-05	1.1966E-05	11.363	12.486	11.995	12.133	5.5632	-2.8266
1.1970E-05	1.1974E-05	12.379	11.465	12.733	11.391	2.8576	-0.64339
1.1978E-05	1.1982E-05	12.48	11.372	12.116	12.013	-2.9216	5.6385
1.1987E-05	1.1991E-05	11.445	12.393	11.381	12.737	-0.55923	2.7712
1.1995E-05	1.1999E-05	11.379	12.47	12.029	12.099	5.7153	-2.9747

Fig5.15_Exactan72_sqrLO_18dBLow



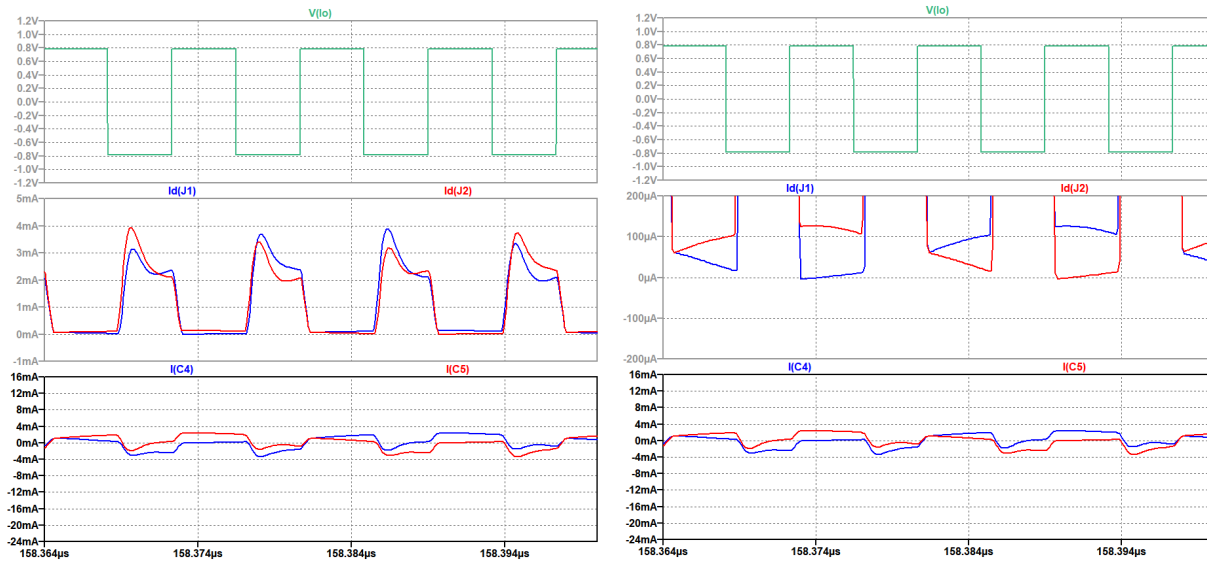
max discharge of CAP1		-1.5555
max discharge of CAP2		-1.5395
max discahrge of CAP1 and CAP2		-1.5555

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0000E-05	1.0004E-05	11.676	12.169	11.716	12.402	0.34001	1.9137
1.0008E-05	1.0013E-05	11.655	12.194	12.052	12.07	3.4012	-1.0139
1.0017E-05	1.0021E-05	12.181	11.668	12.406	11.715	1.8506	0.40472
1.0025E-05	1.0029E-05	12.191	11.659	12.06	12.061	-1.0714	3.448
1.0033E-05	1.0038E-05	11.658	12.188	11.71	12.409	0.44451	1.8117
1.0042E-05	1.0046E-05	11.663	12.185	12.07	12.052	3.4825	-1.0924
1.0050E-05	1.0054E-05	12.199	11.649	12.413	11.709	1.7481	0.51297
1.0058E-05	1.0063E-05	12.182	11.668	12.042	12.08	-1.1512	3.5288
1.0067E-05	1.0071E-05	11.639	12.207	11.703	12.415	0.55367	1.7051
1.0075E-05	1.0079E-05	11.672	12.176	12.088	12.033	3.5622	-1.173
1.0083E-05	1.0088E-05	12.219	11.63	12.419	11.703	1.6402	0.62674
1.0092E-05	1.0096E-05	12.173	11.677	12.023	12.099	-1.2294	3.61
1.0100E-05	1.0104E-05	11.619	12.227	11.697	12.421	0.6707	1.5943
1.0109E-05	1.0113E-05	11.683	12.166	12.108	12.014	3.6396	-1.2521
1.0117E-05	1.0121E-05	12.238	11.61	12.425	11.697	1.5245	0.74596
1.0125E-05	1.0129E-05	12.162	11.688	12.003	12.119	-1.3057	3.6857
1.0134E-05	1.0138E-05	11.6	12.246	11.692	12.427	0.79531	1.4778
1.0142E-05	1.0146E-05	11.694	12.155	12.128	11.993	3.7128	-1.3255
1.0150E-05	1.0154E-05	12.257	11.591	12.429	11.692	1.4033	0.87259
1.0159E-05	1.0163E-05	12.149	11.7	11.982	12.14	-1.377	3.7549
1.0167E-05	1.0171E-05	11.581	12.265	11.688	12.431	0.92677	1.3547
1.0175E-05	1.0179E-05	11.707	12.142	12.15	11.973	3.7779	-1.3918
1.0184E-05	1.0188E-05	12.276	11.573	12.433	11.689	1.2763	1.0069
1.0192E-05	1.0196E-05	12.135	11.714	11.96	12.161	-1.4403	3.8131
1.0200E-05	1.0205E-05	11.563	12.283	11.686	12.433	1.0641	1.2243
1.0209E-05	1.0213E-05	11.722	12.127	12.171	11.951	3.8314	-1.4486
1.0217E-05	1.0221E-05	12.294	11.555	12.435	11.688	1.1444	1.1485
1.0225E-05	1.0230E-05	12.119	11.73	11.939	12.183	-1.4917	3.8594
1.0234E-05	1.0238E-05	11.546	12.3	11.685	12.434	1.2067	1.0888
1.0242E-05	1.0246E-05	11.739	12.11	12.193	11.929	3.8704	-1.4936
1.0250E-05	1.0255E-05	12.31	11.539	12.434	11.689	1.0079	1.2952
1.0259E-05	1.0263E-05	12.102	11.748	11.917	12.205	-1.5291	3.891
1.0267E-05	1.0271E-05	11.531	12.315	11.688	12.432	1.3551	0.9486
1.0275E-05	1.0280E-05	11.757	12.091	12.215	11.907	3.8927	-1.5245
1.0284E-05	1.0288E-05	12.323	11.525	12.43	11.692	0.86855	1.445
1.0292E-05	1.0296E-05	12.083	11.766	11.895	12.226	-1.5506	3.9063
1.0301E-05	1.0305E-05	11.519	12.328	11.692	12.428	1.506	0.80937
1.0309E-05	1.0313E-05	11.777	12.071	12.236	11.886	3.8966	-1.5395
1.0317E-05	1.0321E-05	12.335	11.514	12.425	11.697	0.72641	1.5952
1.0326E-05	1.0330E-05	12.061	11.787	11.874	12.247	-1.5552	3.903
1.0334E-05	1.0338E-05	11.509	12.338	11.699	12.421	1.6588	0.66971
1.0342E-05	1.0346E-05	11.798	12.05	12.257	11.865	3.8828	-1.5358
1.0351E-05	1.0355E-05	12.344	11.505	12.416	11.706	0.84649	1.7438
1.0359E-05	1.0363E-05	12.039	11.808	11.854	12.266	-1.5435	3.8785
1.0367E-05	1.0371E-05	11.501	12.346	11.709	12.411	1.8089	0.53155
1.0376E-05	1.0380E-05	11.821	12.028	12.276	11.846	3.8515	-1.5122
1.0384E-05	1.0388E-05	12.351	11.5	12.406	11.717	0.44739	1.8909
1.0392E-05	1.0397E-05	12.017	11.831	11.835	12.285	-1.5141	3.8343
1.0401E-05	1.0405E-05	11.496	12.35	11.721	12.399	1.9522	0.39505
1.0409E-05	1.0413E-05	11.843	12.005	12.293	11.828	3.8007	-1.4714
1.0417E-05	1.0422E-05	12.354	11.497	12.393	11.73	0.31674	2.0338
1.0426E-05	1.0430E-05	11.994	11.855	11.818	12.302	-1.4647	3.774
1.0434E-05	1.0438E-05	11.495	12.352	11.735	12.385	2.0882	0.26444
1.0442E-05	1.0447E-05	11.867	11.981	12.309	11.812	3.7299	-1.4152
1.0451E-05	1.0455E-05	12.354	11.496	12.377	11.746	0.91966	2.1682
1.0459E-05	1.0463E-05	11.97	11.878	11.803	12.317	-1.3966	3.6988
1.0467E-05	1.0472E-05	11.497	12.351	11.752	12.369	2.2177	0.14336
1.0476E-05	1.0480E-05	11.89	11.958	12.323	11.797	3.6429	-1.3431
1.0484E-05	1.0488E-05	12.351	11.499	12.36	11.762	0.072837	2.2902
1.0492E-05	1.0497E-05	11.947	11.901	11.79	12.33	-1.315	3.6069
1.0501E-05	1.0505E-05	11.501	12.347	11.77	12.351	2.3382	0.03248
1.0509E-05	1.0513E-05	11.913	11.935	12.335	11.786	3.545	-1.2542
1.0518E-05	1.0522E-05	12.345	11.505	12.341	11.781	-0.036229	2.4025
1.0526E-05	1.0530E-05	11.924	11.923	11.778	12.341	-1.2217	3.5013
1.0534E-05	1.0538E-05	11.508	12.34	11.789	12.331	2.446	-0.070495
1.0543E-05	1.0547E-05	11.935	11.913	12.345	11.776	3.4362	-1.1532
1.0551E-05	1.0555E-05	12.338	11.513	12.321	11.801	-0.13393	2.5051
1.0559E-05	1.0563E-05	11.902	11.945	11.769	12.349	-1.1169	3.3886
1.0568E-05	1.0572E-05	11.516	12.331	11.809	12.311	2.542	-0.16433
1.0576E-05	1.0580E-05	11.957	11.882	12.353	11.768	3.3183	-1.0438
1.0584E-05	1.0588E-05	12.328	11.522	12.301	11.821	-0.22147	2.5962
1.0593E-05	1.0597E-05	11.882	11.966	11.762	12.357	-1.0035	3.266
1.0601E-05	1.0605E-05	11.527	12.321	11.83	12.291	2.6269	-0.24774
1.0609E-05	1.0614E-05	11.977	11.871	12.359	11.761	3.1949	-0.92811
1.0618E-05	1.0622E-05	12.317	11.533	12.28	11.842	-0.29891	2.6768
1.0626E-05	1.0630E-05	11.862	11.966	11.757	12.362	-0.84498	3.1416
1.0634E-05	1.0639E-05	11.539	12.31	11.85	12.27	2.7014	-0.32221
1.0643E-05	1.0647E-05	11.996	11.852	12.364	11.756	3.0691	-0.80857
1.0651E-05	1.0655E-05	12.305	11.545	12.26	11.862	-0.36988	2.7475
1.0659E-05	1.0664E-05	11.843	12.004	11.753	12.366	-0.76308	3.0183
1.0668E-05	1.0672E-05	11.551	12.298	11.871	12.25	2.7687	-0.3885
1.0676E-05	1.0680E-05	12.014	11.834	12.367	11.753	2.9418	-0.68843
1.0684E-05	1.0689E-05	12.293	11.558	12.239	11.882	-0.43333	2.8094
1.0693E-05	1.0697E-05	11.826	12.021	11.75	12.369	-0.64103	2.8922
1.0701E-05	1.0705E-05	11.564	12.285	11.891	12.23	2.829	-0.44759
1.0710E-05	1.0714E-05	12.031	11.818	12.37	11.751	2.8185	-0.56783
1.0718E-05	1.0722E-05	12.28	11.57	12.22	11.902	-0.49239	2.865
1.0726E-05	1.0730E-05	11.809	12.038	11.747	12.371	-0.5228	2.7689
1.0735E-05	1.0739E-05	11.576	12.272	11.91	12.211	2.8858	-0.50229
1.0743E-05	1.0747E-05	12.047	11.801	12.372	11.748	2.6994	-0.44857
1.0751E-05	1.0755E-05	12.268	11.583	12.201	11.921	-0.5464	2.919
1.0760E-05	1.0764E-05	11.793	12.054	11.745	12.373	-0.40793	2.6488
1.0768E-05	1.0772E-05	11.588	12.26	11.929	12.192	2.9369	-0.5568
1.0776E-05	1.0780E-05	12.063	11.786	12.374	11.746	2.5843	-0.33378
1.0785E-05	1.0789E-05	12.256	11.595	12.183	11.939	-0.59794	2.9729
1.0793E-05	1.0797E-05	11.778	12.069	11.743	12.375	-0.29477	2.5388
1.0801E-05	1.0806E-05	11.6	12.249	11.946	12.174	2.9882	-0.61125
1.0810E-05	1.0814E-05	12.078	11.77	12.376	11.744	2.472	-0.22508
1.0818E-05	1.0822E-05	12.245	11.605	12.165	11.957	-0.65119	3.0272

1.0826E-05	1.0831E-05	11.763	12.084	11.741	12.378	-0.18465	2.4308
1.0835E-05	1.0839E-05	11.611	12.238	11.964	12.157	3.0441	-0.66533
1.0843E-05	1.0847E-05	12.093	11.755	12.379	11.741	2.3648	-0.12044
1.0851E-05	1.0856E-05	12.235	11.616	12.148	11.973	-0.70883	3.0817
1.0860E-05	1.0864E-05	11.747	12.099	11.738	12.381	-0.080547	2.3266
1.0868E-05	1.0872E-05	11.62	12.229	11.981	12.141	3.1036	-0.72143
1.0876E-05	1.0881E-05	12.109	11.74	12.383	11.738	2.2636	-0.071087
1.0885E-05	1.0889E-05	12.225	11.625	12.131	11.99	-0.76993	3.1411
1.0893E-05	1.0897E-05	11.731	12.115	11.734	12.384	0.019423	2.2252
1.0902E-05	1.0906E-05	11.629	12.22	11.997	12.124	3.1665	-0.78385
1.0910E-05	1.0914E-05	12.125	11.724	12.387	11.734	2.1658	0.084183
1.0918E-05	1.0922E-05	12.217	11.634	12.115	12.007	-0.83384	3.2074
1.0927E-05	1.0931E-05	11.715	12.131	11.729	12.389	0.11807	2.1268
1.0935E-05	1.0939E-05	11.637	12.211	12.014	12.107	3.2339	-0.85156
1.0943E-05	1.0947E-05	12.141	11.707	12.392	11.729	2.0687	0.1832
1.0952E-05	1.0956E-05	12.209	11.642	12.099	12.024	-0.90263	3.2784
1.0960E-05	1.0964E-05	11.698	12.148	11.724	12.395	0.21755	2.0303
1.0968E-05	1.0972E-05	11.645	12.203	12.031	12.091	3.3069	-0.92325
1.0977E-05	1.0981E-05	12.158	11.69	12.398	11.723	1.971	0.2824
1.0985E-05	1.0989E-05	12.201	11.65	12.082	12.04	-0.97671	3.3538
1.0993E-05	1.0998E-05	11.68	12.166	11.718	12.401	0.31838	1.9326
1.1002E-05	1.1006E-05	11.654	12.195	12.048	12.074	3.3844	-0.99904
1.1010E-05	1.1014E-05	12.177	11.672	12.405	11.716	1.8716	0.38434
1.1018E-05	1.1023E-05	12.193	11.657	12.064	12.058	-1.0542	3.4332
1.1027E-05	1.1031E-05	11.662	12.184	11.711	12.408	0.42317	1.8326
1.1035E-05	1.1039E-05	11.662	12.187	12.066	12.056	3.4648	-1.0777
1.1043E-05	1.1048E-05	12.196	11.653	12.411	11.71	1.782	0.48973
1.1052E-05	1.1056E-05	12.184	11.666	12.046	12.076	-1.1342	3.5117
1.1060E-05	1.1064E-05	11.642	12.203	11.704	12.414	0.53233	1.7285
1.1068E-05	1.1073E-05	11.671	12.178	12.084	12.037	3.5464	-1.1565
1.1077E-05	1.1081E-05	12.215	11.634	12.418	11.704	1.6615	0.60177
1.1085E-05	1.1089E-05	12.175	11.675	12.027	12.095	-1.2148	3.5926
1.1093E-05	1.1098E-05	11.623	12.222	11.698	12.42	0.64675	1.6178
1.1102E-05	1.1106E-05	11.68	12.168	12.104	12.018	3.6258	-1.2348
1.1110E-05	1.1114E-05	12.234	11.614	12.424	11.698	1.549	0.72175
1.1119E-05	1.1123E-05	12.164	11.686	12.007	12.115	-1.2919	3.6699
1.1127E-05	1.1131E-05	11.604	12.242	11.693	12.426	0.76798	1.5004
1.1135E-05	1.1139E-05	11.692	12.157	12.124	11.998	3.699	-1.311
1.1144E-05	1.1148E-05	12.254	11.595	12.429	11.693	1.4299	0.84812
1.1152E-05	1.1156E-05	12.152	11.698	11.986	12.136	-1.3623	3.7428
1.1160E-05	1.1164E-05	11.585	12.261	11.689	12.43	0.88882	1.3792
1.1169E-05	1.1173E-05	11.705	12.144	12.145	11.977	3.7642	-1.3807
1.1177E-05	1.1181E-05	12.272	11.576	12.432	11.689	1.3022	0.98789
1.1185E-05	1.1189E-05	12.136	11.711	11.965	12.157	-1.4272	3.8203
1.1194E-05	1.1198E-05	11.566	12.279	11.686	12.433	1.0366	1.2526
1.1202E-05	1.1206E-05	11.719	12.13	12.167	11.955	3.8213	-1.4386
1.1210E-05	1.1215E-05	12.29	11.559	12.434	11.688	1.1701	1.1183
1.1219E-05	1.1223E-05	12.123	11.727	11.943	12.178	-1.4829	3.8508
1.1227E-05	1.1231E-05	11.549	12.296	11.685	12.434	1.1789	1.1171
1.1235E-05	1.1240E-05	11.735	12.113	12.189	11.933	3.8647	-1.4848
1.1244E-05	1.1248E-05	12.307	11.542	12.434	11.689	1.0355	1.2684
1.1252E-05	1.1256E-05	12.106	11.744	11.921	12.2	-1.5236	3.8853
1.1260E-05	1.1265E-05	11.534	12.312	11.687	12.432	1.3248	0.97752
1.1269E-05	1.1273E-05	11.753	12.095	12.21	11.911	3.89	-1.5193
1.1277E-05	1.1281E-05	12.321	11.528	12.432	11.691	0.9869	1.4154
1.1285E-05	1.1290E-05	12.087	11.763	11.9	12.222	-1.5476	3.9047
1.1294E-05	1.1298E-05	11.521	12.325	11.691	12.429	1.4755	0.87321
1.1302E-05	1.1306E-05	11.773	12.075	12.232	11.89	3.8973	-1.538
1.1311E-05	1.1315E-05	12.333	11.516	12.426	11.696	0.75461	1.5656
1.1319E-05	1.1323E-05	12.066	11.783	11.878	12.243	-1.5555	3.9057
1.1327E-05	1.1331E-05	11.51	12.337	11.698	12.423	1.6287	0.69783
1.1335E-05	1.1340E-05	11.794	12.055	12.253	11.869	3.8872	-1.5381
1.1344E-05	1.1348E-05	12.343	11.507	12.418	11.704	0.61269	1.7142
1.1352E-05	1.1356E-05	12.044	11.804	11.858	12.262	-1.5476	3.8849
1.1361E-05	1.1365E-05	11.502	12.344	11.707	12.413	1.7797	0.58886
1.1369E-05	1.1373E-05	11.816	12.033	12.272	11.85	3.8592	-1.5185
1.1377E-05	1.1381E-05	12.35	11.5	12.408	11.715	0.47466	1.8622
1.1386E-05	1.1390E-05	12.021	11.826	11.838	12.281	-1.521	3.8452
1.1394E-05	1.1398E-05	11.497	12.349	11.718	12.402	1.9242	0.422
1.1402E-05	1.1407E-05	11.839	12.009	12.29	11.831	3.8118	-1.4816
1.1411E-05	1.1415E-05	12.353	11.497	12.396	11.728	0.94719	2.0471
1.1419E-05	1.1423E-05	11.998	11.85	11.821	12.299	-1.4758	3.7859
1.1427E-05	1.1432E-05	11.495	12.352	11.732	12.388	2.0628	0.29115
1.1436E-05	1.1440E-05	11.862	11.986	12.306	11.815	3.7461	-1.4274
1.1444E-05	1.1448E-05	12.354	11.496	12.381	11.742	0.21525	2.1411
1.1452E-05	1.1457E-05	11.975	11.873	11.806	12.314	-1.4131	3.7137
1.1461E-05	1.1465E-05	11.496	12.351	11.748	12.372	2.1925	0.1668
1.1469E-05	1.1473E-05	11.885	11.962	12.321	11.8	3.6632	-1.3574
1.1477E-05	1.1482E-05	12.352	11.498	12.363	11.759	0.096977	2.2678
1.1486E-05	1.1490E-05	11.952	11.896	11.792	12.328	-1.3333	3.6256
1.1494E-05	1.1498E-05	11.5	12.348	11.766	12.354	2.3332	0.052241
1.1503E-05	1.1507E-05	11.908	11.94	12.333	11.788	3.5652	-1.2736
1.1511E-05	1.1515E-05	12.347	11.503	12.345	11.777	-0.013909	2.8286
1.1519E-05	1.1523E-05	11.929	11.919	11.781	12.339	-1.2399	3.5248
1.1528E-05	1.1532E-05	11.506	12.342	11.785	12.346	2.4249	-0.051183
1.1536E-05	1.1540E-05	11.931	11.918	12.344	11.777	3.457	-1.176
1.1544E-05	1.1548E-05	12.34	11.511	12.325	11.797	-0.11593	2.4849
1.1553E-05	1.1557E-05	11.906	11.94	11.771	12.348	-1.1374	3.3481
1.1561E-05	1.1565E-05	11.514	12.333	11.805	12.316	2.5253	-0.145
1.1569E-05	1.1573E-05	11.953	11.896	12.352	11.769	3.3422	-1.0665
1.1578E-05	1.1582E-05	12.331	11.52	12.305	11.817	-0.20616	2.5773
1.1586E-05	1.1590E-05	11.886	11.962	11.763	12.355	-1.0276	3.2998
1.1594E-05	1.1599E-05	11.524	12.323	11.825	12.295	2.6117	-0.23101
1.1603E-05	1.1607E-05	11.973	11.875	12.358	11.762	3.2212	-0.95047
1.1611E-05	1.1615E-05	12.32	11.531	12.285	11.838	-0.28473	3.6611
1.1619E-05	1.1624E-05	11.866	11.982	11.758	12.361	-0.90999	3.2657
1.1628E-05	1.1632E-05	11.536	12.312	11.846	12.274	2.6868	-0.30855
1.1636E-05	1.1640E-05	11.992	11.856	12.363	11.757	3.0947	-0.83236
1.1644E-05	1.1649E-05	12.308	11.543	12.264	11.858	-0.3559	2.7345
1.1653E-05	1.1657E-05	11.847	12.12	11.754	12.365	-0.78727	3.0416
1.1661E-05	1.1665E-05	11.549	12.3	11.867	12.254	2.7556	-0.37616
1.1669E-05	1.1674E-05	12.01	11.838	12.367	11.753	2.9667	-0.71287
1.1678E-05	1.1682E-05	12.295	11.555	12.243	11.878	-0.42106	2.7977
1.1686E-05	1.1690E-05	11.829	12.018	11.75	12.368	-0.66528	2.9167

1.1694E-05	1.1699E-05	11.561	12.288	11.887	12.234	2.8172	-0.43611
1.1703E-05	1.1707E-05	12.028	11.821	12.37	11.751	2.8433	-0.59163
1.1711E-05	1.1715E-05	12.283	11.568	12.224	11.898	-0.48073	2.8542
1.1720E-05	1.1724E-05	11.812	12.034	11.748	12.371	-0.54638	2.7933
1.1728E-05	1.1732E-05	11.574	12.275	11.906	12.215	2.8743	-0.49192
1.1736E-05	1.1740E-05	12.044	11.805	12.372	11.749	2.7226	-0.47262
1.1745E-05	1.1749E-05	12.27	11.58	12.205	11.917	-0.53534	2.9088
1.1753E-05	1.1757E-05	11.796	12.05	11.746	12.373	-0.42977	2.6738
1.1761E-05	1.1765E-05	11.586	12.263	11.925	12.196	2.9271	-0.54576
1.1770E-05	1.1774E-05	12.06	11.789	12.374	11.747	2.6062	-0.35705
1.1778E-05	1.1782E-05	12.258	11.592	12.186	11.936	-0.58853	2.961
1.1786E-05	1.1790E-05	11.781	12.066	11.744	12.375	-0.31659	2.5594
1.1795E-05	1.1799E-05	11.597	12.251	11.943	12.178	2.9787	-0.59943
1.1803E-05	1.1807E-05	12.075	11.773	12.376	11.744	2.4947	-0.24574
1.1811E-05	1.1816E-05	12.247	11.603	12.169	11.953	-0.64128	3.0154
1.1820E-05	1.1824E-05	11.766	12.081	11.741	12.377	-0.20782	2.4499
1.1828E-05	1.1832E-05	11.608	12.24	11.96	12.16	3.0327	-0.65443
1.1836E-05	1.1841E-05	12.09	11.758	12.379	11.742	2.3871	-0.13972
1.1845E-05	1.1849E-05	12.237	11.614	12.151	11.97	-0.6861	3.0717
1.1853E-05	1.1857E-05	11.75	12.096	11.738	12.38	-0.1018	2.3463
1.1861E-05	1.1866E-05	11.619	12.231	11.978	12.144	3.0899	-0.71142
1.1870E-05	1.1874E-05	12.106	11.743	12.382	11.738	2.2831	-0.037923
1.1878E-05	1.1882E-05	12.227	11.623	12.135	11.987	-0.75624	3.1303
1.1886E-05	1.1891E-05	11.734	12.112	11.735	12.384	0.00086613	2.2465
1.1895E-05	1.1899E-05	11.628	12.222	11.994	12.127	3.1531	-0.77148
1.1903E-05	1.1907E-05	12.122	11.727	12.386	11.734	2.1838	0.062581
1.1912E-05	1.1916E-05	12.219	11.632	12.118	12.003	-0.82144	3.1931
1.1920E-05	1.1924E-05	11.718	12.128	11.73	12.388	0.099274	2.1473
1.1928E-05	1.1932E-05	11.636	12.213	12.011	12.111	3.2213	-0.83642
1.1937E-05	1.1941E-05	12.138	11.711	12.391	11.73	2.088	0.16351
1.1945E-05	1.1949E-05	12.21	11.64	12.102	12.02	-0.88974	3.2627
1.1953E-05	1.1957E-05	11.702	12.145	11.725	12.394	0.19666	2.0488
1.1962E-05	1.1966E-05	11.644	12.205	12.027	12.094	3.2921	-0.90899
1.1970E-05	1.1974E-05	12.155	11.693	12.397	11.724	1.9921	0.26388
1.1978E-05	1.1982E-05	12.203	11.648	12.085	12.037	-0.96121	3.3389
1.1987E-05	1.1991E-05	11.684	12.162	11.719	12.4	0.29689	1.9513
1.1995E-05	1.1999E-05	11.652	12.197	12.044	12.077	3.3676	-0.98473

Fig5.16_Exactan72_sqrLO_24dBLow



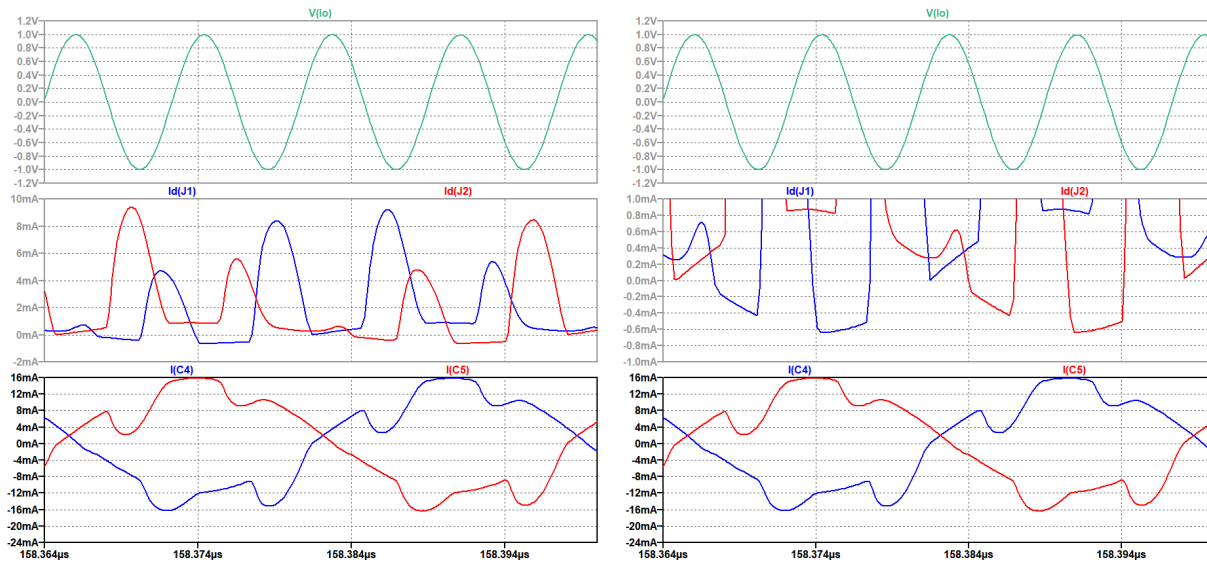
max discharge of CAP1		-0.22903
max discharge of CAP2		-0.21417
max discahrge of CAP1 and CAP2		-0.22903

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0000E-05	1.0004E-05	11.801	12.047	11.888	12.231	0.73663	1.5274
1.0008E-05	1.0013E-05	11.79	12.059	12.055	12.065	2.2498	0.047057
1.0017E-05	1.0021E-05	12.053	11.796	12.233	11.887	1.4878	0.77397
1.0025E-05	1.0029E-05	12.058	11.792	12.059	12.061	0.010928	2.279
1.0033E-05	1.0038E-05	11.791	12.057	11.884	12.234	0.78727	1.4746
1.0042E-05	1.0046E-05	11.794	12.055	12.064	12.056	2.2906	0.0076295
1.0050E-05	1.0054E-05	12.063	11.787	12.236	11.884	1.4364	0.8284
1.0058E-05	1.0063E-05	12.054	11.796	12.05	12.07	-0.029074	2.3197
1.0067E-05	1.0071E-05	11.782	12.066	11.881	12.238	0.84113	1.42
1.0075E-05	1.0079E-05	11.799	12.05	12.074	12.046	2.3301	-0.033446
1.0083E-05	1.0088E-05	12.072	11.777	12.239	11.881	1.3817	0.88475
1.0092E-05	1.0096E-05	12.049	11.801	12.041	12.08	-0.068001	2.3607
1.0100E-05	1.0104E-05	11.772	12.076	11.878	12.241	0.89942	1.3641
1.0109E-05	1.0113E-05	11.804	12.045	12.083	12.036	2.3688	-0.073267
1.0117E-05	1.0121E-05	12.082	11.767	12.242	11.878	1.3229	0.94336
1.0125E-05	1.0129E-05	12.043	11.806	12.03	12.09	-0.10647	2.3989
1.0134E-05	1.0138E-05	11.762	12.086	11.875	12.244	0.96122	1.3051
1.0142E-05	1.0146E-05	11.81	12.039	12.094	12.026	2.406	-0.10996
1.0150E-05	1.0154E-05	12.092	11.757	12.244	11.876	1.2614	1.0066
1.0159E-05	1.0163E-05	12.037	11.812	12.02	12.1	-0.14219	2.4338
1.0167E-05	1.0171E-05	11.753	12.095	11.873	12.246	1.0261	1.2425
1.0175E-05	1.0179E-05	11.816	12.033	12.105	12.016	2.4391	-0.14322
1.0184E-05	1.0188E-05	12.101	11.748	12.246	11.874	1.1967	1.0722
1.0192E-05	1.0196E-05	12.03	11.819	12.009	12.111	-0.17369	2.4636
1.0200E-05	1.0205E-05	11.744	12.104	11.872	12.247	1.0941	1.1765
1.0209E-05	1.0213E-05	11.824	12.025	12.115	12.005	2.4667	-0.17128
1.0217E-05	1.0221E-05	12.11	11.74	12.247	11.874	1.1294	1.1418
1.0225E-05	1.0230E-05	12.022	11.827	11.998	12.122	-0.19862	2.488
1.0234E-05	1.0238E-05	11.735	12.113	11.872	12.247	1.1643	1.1071
1.0242E-05	1.0246E-05	11.832	12.017	12.126	11.994	2.4891	-0.19145
1.0250E-05	1.0255E-05	12.118	11.732	12.247	11.874	1.0595	1.2138
1.0259E-05	1.0263E-05	12.013	11.836	11.987	12.132	-0.21766	2.504
1.0267E-05	1.0271E-05	11.728	12.12	11.873	12.246	1.2378	1.037
1.0275E-05	1.0280E-05	11.841	12.008	12.137	11.983	2.5001	-0.20741
1.0284E-05	1.0288E-05	12.125	11.724	12.245	11.876	0.98895	1.2882
1.0292E-05	1.0296E-05	12.004	11.846	11.976	12.143	-0.2278	2.5126
1.0301E-05	1.0305E-05	11.721	12.127	11.875	12.244	1.3115	0.96473
1.0309E-05	1.0313E-05	11.851	11.998	12.148	11.972	2.5032	-0.21417
1.0317E-05	1.0321E-05	12.131	11.719	12.242	11.878	0.91705	1.3626
1.0326E-05	1.0330E-05	11.993	11.856	11.966	12.154	-0.2286	2.5126
1.0334E-05	1.0338E-05	11.716	12.132	11.879	12.241	1.3863	0.88949
1.0342E-05	1.0346E-05	11.862	11.987	12.158	11.962	2.4971	-0.21163
1.0351E-05	1.0355E-05	12.135	11.714	12.238	11.882	0.84481	1.4357
1.0359E-05	1.0363E-05	11.982	11.867	11.956	12.164	-0.22103	2.5021
1.0367E-05	1.0371E-05	11.713	12.136	11.884	12.236	1.4603	0.82341
1.0376E-05	1.0380E-05	11.873	11.976	12.168	11.952	2.4826	-0.19862
1.0384E-05	1.0388E-05	12.138	11.711	12.233	11.888	0.77486	1.5078
1.0392E-05	1.0397E-05	11.971	11.878	11.946	12.173	-0.20467	2.4816
1.0401E-05	1.0405E-05	11.71	12.138	11.89	12.23	1.531	0.75437
1.0409E-05	1.0413E-05	11.885	11.964	12.177	11.943	2.4584	-0.17672
1.0417E-05	1.0422E-05	12.14	11.71	12.226	11.895	0.70814	1.5779
1.0426E-05	1.0430E-05	11.959	11.89	11.938	12.181	-0.17837	2.4528
1.0434E-05	1.0438E-05	11.71	12.139	11.897	12.222	1.5983	0.68833
1.0442E-05	1.0447E-05	11.896	11.953	12.185	11.935	2.4244	-0.14689
1.0451E-05	1.0455E-05	12.14	11.71	12.218	11.902	0.64443	1.6435
1.0459E-05	1.0463E-05	11.948	11.901	11.93	12.189	-0.14314	2.4316
1.0467E-05	1.0472E-05	11.71	12.138	11.905	12.214	1.6622	0.62725
1.0476E-05	1.0480E-05	11.908	11.941	12.192	11.928	2.3827	-0.10863
1.0484E-05	1.0488E-05	12.139	11.711	12.209	11.911	0.58436	1.7038
1.0492E-05	1.0497E-05	11.936	11.913	11.924	12.195	-0.1013	2.3707
1.0501E-05	1.0505E-05	11.713	12.136	11.914	12.205	1.7212	0.5707
1.0509E-05	1.0513E-05	11.919	11.93	12.198	11.922	2.335	-0.062419
1.0518E-05	1.0522E-05	12.136	11.714	12.2	11.92	0.5299	1.7597
1.0526E-05	1.0530E-05	11.925	11.924	11.918	12.201	-0.052914	2.3188
1.0534E-05	1.0538E-05	11.716	12.133	11.924	12.196	1.7739	0.51845
1.0543E-05	1.0547E-05	11.931	11.919	12.203	11.917	2.2817	-0.010516
1.0551E-05	1.0555E-05	12.132	11.718	12.19	11.93	0.48055	1.8101
1.0559E-05	1.0563E-05	11.914	11.935	11.914	12.205	0.0015512	2.2631
1.0568E-05	1.0572E-05	11.72	12.128	11.934	12.186	1.8216	0.47162
1.0576E-05	1.0580E-05	11.941	11.908	12.207	11.913	2.2227	0.044792
1.0584E-05	1.0588E-05	12.127	11.723	12.18	11.94	0.43656	1.8553
1.0593E-05	1.0597E-05	11.903	11.946	11.91	12.209	0.059487	2.2035
1.0601E-05	1.0605E-05	11.726	12.123	11.944	12.175	1.864	0.42982
1.0609E-05	1.0614E-05	11.951	11.898	12.21	11.91	2.1617	1.0414
1.0618E-05	1.0622E-05	12.121	11.728	12.17	11.951	0.39717	1.895
1.0626E-05	1.0630E-05	11.893	11.955	11.908	12.211	0.11986	2.1417
1.0634E-05	1.0639E-05	11.732	12.117	11.955	12.165	1.901	0.39257
1.0643E-05	1.0647E-05	11.961	11.888	12.212	11.908	2.099	0.16498
1.0651E-05	1.0655E-05	12.115	11.734	12.159	11.961	0.36223	1.9301
1.0659E-05	1.0664E-05	11.884	11.965	11.906	12.213	0.18177	2.0795
1.0668E-05	1.0672E-05	11.738	12.111	11.965	12.155	1.9344	0.3598
1.0676E-05	1.0680E-05	11.97	11.879	12.214	11.906	2.0357	0.22581
1.0684E-05	1.0689E-05	12.109	11.741	12.149	11.971	0.33025	1.9586
1.0693E-05	1.0697E-05	11.875	11.973	11.904	12.215	0.2435	2.0176
1.0701E-05	1.0705E-05	11.744	12.105	11.975	12.145	1.9644	0.33033
1.0710E-05	1.0714E-05	11.979	11.871	12.215	11.905	1.9746	0.2874
1.0718E-05	1.0722E-05	12.103	11.747	12.139	11.981	0.301	1.9885
1.0726E-05	1.0730E-05	11.867	11.981	11.903	12.216	0.30278	1.9556
1.0735E-05	1.0739E-05	11.75	12.098	11.984	12.135	1.9928	0.30311
1.0743E-05	1.0747E-05	11.986	11.863	12.216	11.904	1.9153	0.34767
1.0751E-05	1.0755E-05	11.897	11.753	12.13	11.99	0.27482	2.0162
1.0760E-05	1.0764E-05	12.059	11.99	11.902	12.217	0.36058	1.8953
1.0768E-05	1.0772E-05	11.756	12.092	11.994	12.126	2.0179	0.27544
1.0776E-05	1.0780E-05	11.994	11.855	12.217	11.903	1.8571	0.40505
1.0785E-05	1.0789E-05	12.091	11.759	12.121	12	0.24921	2.0432
1.0793E-05	1.0797E-05	11.851	11.997	11.901	12.218	0.41895	1.841
1.0801E-05	1.0806E-05	11.762	12.087	12.003	12.117	2.0439	0.24865
1.0810E-05	1.0814E-05	12.002	11.847	12.218	11.902	1.8003	0.45904
1.0818E-05	1.0822E-05	12.085	11.765	12.112	12.008	0.22201	2.0694

1.0826E-05	1.0831E-05	11.844	12.005	11.9	12.219	0.47346	1.7867
1.0835E-05	1.0839E-05	11.768	12.081	12.012	12.108	2.0727	0.22274
1.0843E-05	1.0847E-05	12.01	11.84	12.219	11.901	1.7471	0.51217
1.0851E-05	1.0856E-05	12.08	11.77	12.103	12.017	0.1927	2.0962
1.0860E-05	1.0864E-05	11.836	12.012	11.898	12.22	0.525	1.7339
1.0868E-05	1.0872E-05	11.772	12.076	12.02	12.1	2.1023	0.19448
1.0876E-05	1.0881E-05	12.017	11.832	12.221	11.899	1.6971	0.56475
1.0885E-05	1.0889E-05	12.075	11.775	12.095	12.025	0.16268	2.1263
1.0893E-05	1.0897E-05	11.828	12.02	11.896	12.222	0.57457	1.6825
1.0902E-05	1.0906E-05	11.777	12.072	12.028	12.091	2.1322	0.16219
1.0910E-05	1.0914E-05	12.025	11.824	12.223	11.897	1.6481	0.61532
1.0918E-05	1.0922E-05	12.071	11.779	12.087	12.034	0.1314	2.1599
1.0927E-05	1.0931E-05	11.82	12.028	11.894	12.225	0.62423	1.6334
1.0935E-05	1.0939E-05	11.781	12.068	12.036	12.083	2.1656	0.12797
1.0943E-05	1.0947E-05	12.033	11.816	12.226	11.894	1.5982	0.6638
1.0952E-05	1.0956E-05	12.067	11.783	12.078	12.042	0.09683	2.1955
1.0960E-05	1.0964E-05	11.812	12.037	11.891	12.228	0.67469	1.5855
1.0968E-05	1.0972E-05	11.785	12.064	12.045	12.075	2.2023	0.092246
1.0977E-05	1.0981E-05	12.042	11.807	12.229	11.891	1.5484	0.71284
1.0985E-05	1.0989E-05	12.063	11.787	12.07	12.05	0.05904	2.2325
1.0993E-05	1.0998E-05	11.803	12.046	11.888	12.231	0.72512	1.5362
1.1002E-05	1.1006E-05	11.789	12.06	12.054	12.067	2.2415	0.064

1.1661E-05	1.1665E-05	11.737	12.113	11.963	12.157	1.9276	0.36564
1.1669E-05	1.1674E-05	11.968	11.881	12.213	11.906	2.048	0.21332
1.1678E-05	1.1682E-05	12.11	11.739	12.151	11.969	0.33674	1.9552
1.1686E-05	1.1690E-05	11.877	11.972	11.905	12.215	0.23146	2.0301
1.1694E-05	1.1699E-05	11.743	12.106	11.973	12.147	1.9587	0.33603
1.1703E-05	1.1707E-05	11.977	11.873	12.215	11.905	1.9866	0.27501
1.1711E-05	1.1715E-05	12.104	11.746	12.141	11.979	0.30673	1.9833
1.1720E-05	1.1724E-05	11.869	11.98	11.903	12.216	0.29137	1.9682
1.1728E-05	1.1732E-05	11.749	12.1	11.983	12.137	1.9872	0.3084
1.1736E-05	1.1740E-05	11.985	11.865	12.216	11.904	1.9264	0.33505
1.1745E-05	1.1749E-05	12.098	11.752	12.132	11.988	0.2798	2.0106
1.1753E-05	1.1757E-05	11.861	11.988	11.902	12.216	0.34962	1.9076
1.1761E-05	1.1765E-05	11.755	12.093	11.992	12.128	2.0137	0.28173
1.1770E-05	1.1774E-05	11.993	11.857	12.217	11.903	1.8682	0.39335
1.1778E-05	1.1782E-05	12.092	11.758	12.122	11.998	0.25312	2.0364
1.1786E-05	1.1790E-05	11.853	11.996	11.901	12.218	0.40717	1.8515
1.1795E-05	1.1799E-05	11.761	12.088	12.001	12.119	2.0397	0.25507
1.1803E-05	1.1807E-05	12	11.849	12.218	11.902	1.8126	0.44942
1.1811E-05	1.1816E-05	12.086	11.764	12.114	12.007	0.22711	2.0637
1.1820E-05	1.1824E-05	11.845	12.003	11.9	12.219	0.46097	1.7956
1.1828E-05	1.1832E-05	11.767	12.082	12.01	12.11	2.0663	0.22746
1.1836E-05	1.1841E-05	12.008	11.841	12.219	11.901	1.7588	0.5028
1.1845E-05	1.1849E-05	12.081	11.769	12.105	12.015	0.20008	2.0921
1.1853E-05	1.1857E-05	11.838	12.011	11.899	12.22	0.51455	1.7441
1.1861E-05	1.1866E-05	11.772	12.078	12.018	12.102	2.0946	0.19878
1.1870E-05	1.1874E-05	12.016	11.834	12.221	11.899	1.7062	0.55355
1.1878E-05	1.1882E-05	12.076	11.774	12.097	12.023	0.16983	2.1211
1.1886E-05	1.1891E-05	11.83	12.019	11.897	12.222	0.56612	1.6941
1.1895E-05	1.1899E-05	11.776	12.073	12.026	12.093	2.1256	0.16848
1.1903E-05	1.1907E-05	12.024	11.826	12.223	11.897	1.6568	0.60414
1.1912E-05	1.1916E-05	12.072	11.778	12.088	12.032	0.13701	2.1521
1.1920E-05	1.1924E-05	11.822	12.027	11.894	12.224	0.61478	1.6437
1.1928E-05	1.1932E-05	11.78	12.068	12.035	12.085	2.1599	0.13609
1.1937E-05	1.1941E-05	12.032	11.817	12.225	11.895	1.6084	0.65434
1.1945E-05	1.1949E-05	12.068	11.782	12.08	12.04	0.10317	2.1874
1.1953E-05	1.1957E-05	11.813	12.035	11.892	12.227	0.66358	1.5943
1.1962E-05	1.1966E-05	11.784	12.065	12.043	12.077	2.1949	0.099682
1.1970E-05	1.1974E-05	12.04	11.809	12.228	11.892	1.5599	0.70435
1.1978E-05	1.1982E-05	12.064	11.786	12.072	12.048	0.067131	2.2254
1.1987E-05	1.1991E-05	11.804	12.044	11.889	12.23	0.71449	1.5458
1.1995E-05	1.1999E-05	11.788	12.061	12.052	12.068	2.233	0.061591

Fig5.17_Exactan72_SinLO



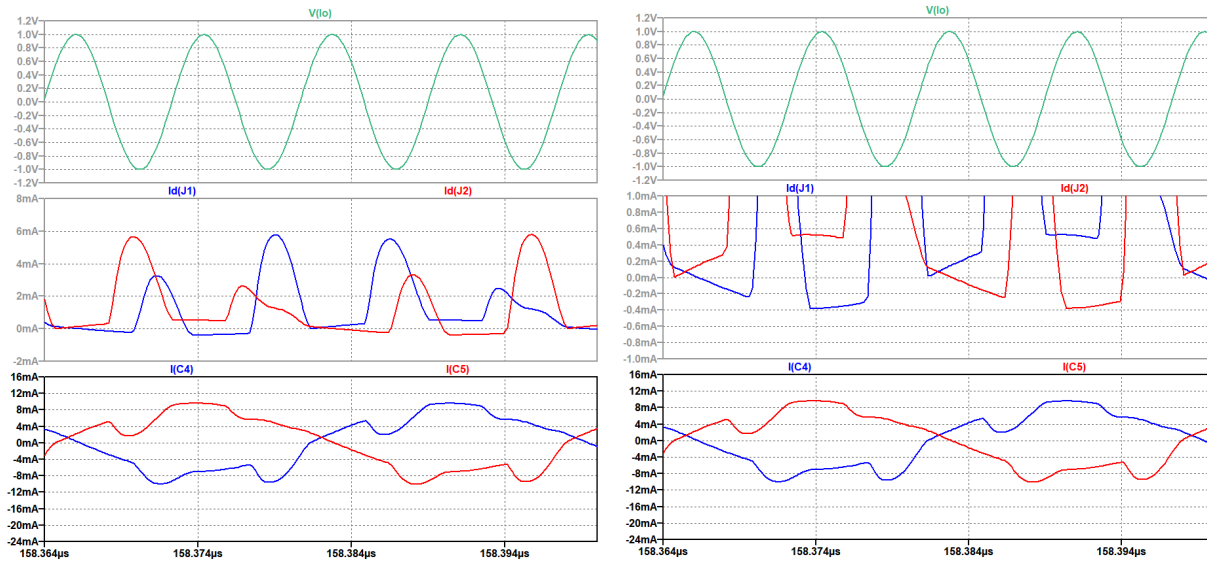
max discharge of CAP1		-11.493
max discharge of CAP2		-11.354
max discahrge of CAP1 and CAP2		-11.493

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0008E-05	1.0004E-05	9.9659	13.851	9.992	14.17	0.26236	2.3062
1.0017E-05	1.0013E-05	13.178	10.583	11.725	12.45	-11.022	17.638
1.0025E-05	1.0021E-05	13.802	10.031	14.211	9.9929	2.9608	-0.37717
1.0033E-05	1.0029E-05	10.644	13.117	12.371	11.799	16.224	-10.054
1.0042E-05	1.0038E-05	10.025	13.793	9.9647	14.211	-0.98939	3.031
1.0050E-05	1.0046E-05	13.191	10.577	11.815	12.355	-10.437	16.81
1.0058E-05	1.0054E-05	13.747	10.081	14.239	9.9576	3.5827	-1.2238
1.0066E-05	1.0063E-05	10.519	13.24	12.281	11.886	16.75	-10.231
1.0075E-05	1.0071E-05	10.084	13.738	9.9431	14.252	-1.3975	3.7448
1.0083E-05	1.0079E-05	13.326	10.436	11.942	12.222	-10.387	17.112
1.0092E-05	1.0088E-05	13.713	10.107	14.277	9.9397	4.1128	-1.6523
1.0100E-05	1.0096E-05	10.444	13.318	12.178	11.978	16.605	-10.061
1.0108E-05	1.0104E-05	10.143	13.683	9.9125	14.285	-2.2749	4.3945
1.0117E-05	1.0113E-05	13.481	10.278	12.026	12.144	-10.791	18.155
1.0125E-05	1.0121E-05	13.611	10.204	14.307	9.9157	5.1134	-2.8236
1.0133E-05	1.0130E-05	10.19	13.546	12.018	12.119	17.935	-10.536
1.0142E-05	1.0138E-05	10.221	13.606	9.8856	14.314	-3.2784	5.2051
1.0150E-05	1.0146E-05	13.581	10.183	12.164	11.999	-10.436	17.631
1.0158E-05	1.0155E-05	13.592	10.224	14.336	9.8967	5.4682	-3.1991
1.0167E-05	1.0163E-05	10.17	13.573	11.89	12.24	16.913	-9.8422
1.0175E-05	1.0171E-05	10.289	13.531	9.8752	14.339	-4.025	5.969
1.0183E-05	1.0180E-05	13.694	10.069	12.294	11.856	-10.226	17.947
1.0192E-05	1.0188E-05	13.518	10.301	14.356	9.897	6.2019	-3.7247
1.0200E-05	1.0196E-05	10.066	13.68	11.825	12.312	17.466	-10.002
1.0209E-05	1.0205E-05	10.333	13.485	9.8596	14.36	-4.5801	6.4868
1.0217E-05	1.0213E-05	13.809	9.947	12.403	11.738	-10.186	18.007
1.0225E-05	1.0221E-05	13.462	10.356	14.373	9.8692	6.7619	-4.7034
1.0234E-05	1.0230E-05	9.9323	13.816	11.697	12.435	17.763	-9.9945
1.0242E-05	1.0238E-05	10.423	13.397	9.8647	14.373	-5.3594	7.2881
1.0250E-05	1.0246E-05	13.893	9.8629	12.527	11.608	-9.8323	17.697
1.0259E-05	1.0255E-05	13.365	10.446	14.374	9.8787	7.5466	-5.4296
1.0267E-05	1.0263E-05	9.8429	13.908	11.541	12.578	17.249	-9.565
1.0275E-05	1.0271E-05	10.583	13.239	9.8786	14.375	-6.6591	8.5823
1.0284E-05	1.0280E-05	13.989	9.7714	12.646	11.489	-9.6041	17.755
1.0292E-05	1.0288E-05	13.259	10.546	14.371	9.8874	8.3854	-6.247
1.0300E-05	1.0296E-05	9.7092	14.035	11.407	12.701	17.482	-9.5037
1.0309E-05	1.0305E-05	10.644	13.18	9.8814	14.371	-7.1641	9.0393
1.0317E-05	1.0313E-05	14.099	9.6963	12.764	11.37	-9.4687	17.59
1.0325E-05	1.0321E-05	13.09	10.712	14.354	9.9189	9.6528	-7.4026
1.0334E-05	1.0330E-05	9.6758	14.072	11.295	12.807	16.736	-8.9882
1.0342E-05	1.0338E-05	10.718	13.1	9.9115	14.346	-7.5284	9.5111
1.0351E-05	1.0346E-05	14.175	9.5993	12.885	11.244	-9.1032	17.132
1.0359E-05	1.0355E-05	13.009	10.8	14.335	9.9437	10.194	-7.926
1.0367E-05	1.0363E-05	9.6316	14.127	11.164	12.937	15.91	-8.4233
1.0375E-05	1.0372E-05	10.829	12.982	9.9644	14.301	-7.9845	10.16
1.0384E-05	1.0380E-05	14.231	9.5448	12.995	11.123	-8.6813	16.534
1.0392E-05	1.0388E-05	12.828	10.977	14.306	9.9702	11.528	-9.1755
1.0401E-05	1.0397E-05	9.5134	14.249	11.052	13.052	16.169	-8.3962
1.0409E-05	1.0405E-05	10.942	12.868	9.9918	14.271	-8.6688	10.907
1.0417E-05	1.0413E-05	14.291	9.4866	13.136	10.973	-8.0852	15.668
1.0426E-05	1.0422E-05	12.694	11.105	14.24	10.038	12.179	-9.6097
1.0434E-05	1.0430E-05	9.4807	14.291	10.949	13.154	15.487	-7.9571
1.0442E-05	1.0438E-05	11.136	12.67	10.06	14.211	-9.6612	12.162
1.0451E-05	1.0447E-05	14.335	9.4508	13.238	10.872	-7.6523	15.041
1.0459E-05	1.0455E-05	12.569	11.225	14.163	10.112	12.682	-9.9098
1.0467E-05	1.0463E-05	9.46	14.316	10.799	13.295	14.158	-7.133
1.0476E-05	1.0472E-05	11.178	12.636	10.126	14.142	-9.4103	11.923
1.0484E-05	1.0480E-05	14.361	9.4359	13.327	10.788	-7.2016	14.335
1.0492E-05	1.0488E-05	12.436	11.354	14.1	10.172	13.384	-10.416
1.0501E-05	1.0497E-05	9.4262	14.351	10.723	13.368	13.756	-6.8508
1.0509E-05	1.0505E-05	11.391	12.41	10.188	14.067	-10.556	13.354
1.0517E-05	1.0513E-05	14.361	9.4484	13.437	10.679	-6.4311	13.02
1.0526E-05	1.0522E-05	12.338	11.457	14.027	10.244	13.685	-10.58
1.0534E-05	1.0530E-05	9.421	14.361	10.631	13.464	12.838	-6.252
1.0542E-05	1.0538E-05	11.499	12.295	10.266	13.979	-10.726	13.697
1.0551E-05	1.0547E-05	14.375	9.4395	13.506	10.604	-6.0437	12.336
1.0559E-05	1.0555E-05	12.259	11.544	13.924	10.344	13.579	-10.389
1.0567E-05	1.0564E-05	9.4496	14.348	10.556	13.545	11.713	-5.596
1.0576E-05	1.0572E-05	11.536	12.262	10.396	13.876	-10.147	13.162
1.0584E-05	1.0580E-05	14.365	9.4502	13.565	10.539	-5.5653	11.521
1.0592E-05	1.0588E-05	12.172	11.632	13.821	10.434	13.552	-10.298
1.0601E-05	1.0597E-05	9.4608	14.346	10.49	13.614	10.874	-5.1003
1.0609E-05	1.0605E-05	11.711	12.085	10.483	13.76	-10.491	13.866
1.0618E-05	1.0614E-05	14.34	9.4778	13.64	10.467	-4.8787	10.441
1.0626E-05	1.0622E-05	11.929	11.854	13.725	10.517	15.054	-11.28
1.0634E-05	1.0630E-05	9.4872	14.323	10.433	13.666	9.9661	-4.5859
1.0642E-05	1.0639E-05	11.758	12.053	10.598	13.64	-9.8659	13.169
1.0651E-05	1.0647E-05	14.311	9.5159	13.705	10.41	-4.2358	9.3948
1.0659E-05	1.0655E-05	11.809	11.97	13.589	10.649	15.081	-11.036
1.0668E-05	1.0664E-05	9.519	14.288	10.359	13.738	8.8238	-3.6464
1.0676E-05	1.0672E-05	11.964	11.833	10.689	13.539	-10.661	14.419
1.0684E-05	1.0680E-05	14.29	9.553	13.758	10.361	-3.723	8.462
1.0693E-05	1.0689E-05	11.705	12.077	13.492	10.745	15.262	-11.029
1.0701E-05	1.0697E-05	9.554	14.256	10.296	13.807	7.7701	-3.1524
1.0709E-05	1.0705E-05	12.118	11.666	10.77	13.445	-11.126	15.257
1.0718E-05	1.0714E-05	14.251	9.5915	13.828	10.295	-2.9648	7.3303
1.0726E-05	1.0722E-05	11.613	12.176	13.363	10.871	15.071	-10.717
1.0734E-05	1.0730E-05	9.5994	14.216	10.284	13.819	7.1309	-2.7928
1.0743E-05	1.0739E-05	12.28	11.493	10.869	13.34	-11.493	16.071
1.0751E-05	1.0747E-05	14.22	9.6225	13.872	10.248	-2.45	6.5043
1.0759E-05	1.0756E-05	11.51	12.277	13.267	10.959	15.266	-10.74
1.0768E-05	1.0764E-05	9.6376	14.191	10.222	13.899	6.0691	-2.0549
1.0776E-05	1.0772E-05	12.366	11.412	10.985	13.224	-11.161	15.887
1.0784E-05	1.0781E-05	14.155	9.6777	13.903	10.216	-1.7839	5.563
1.0793E-05	1.0789E-05	11.384	12.393	13.185	11.029	15.815	-11.007
1.0801E-05	1.0797E-05	9.6783	14.151	10.204	13.909	5.4305	-1.7088
1.0810E-05	1.0806E-05	12.465	11.318	11.08	13.132	-11.109	16.02
1.0818E-05	1.0814E-05	14.106	9.7302	13.932	10.192	-1.2323	4.7424
1.0826E-05	1.0822E-05	11.342	12.436	13.053	11.151	15.086	-10.328

1.0835E-05	1.0831E-05	9.7506	14.07	10.149	13.975	4.0837	-0.67703
1.0843E-05	1.0839E-05	12.601	11.179	11.208	12.997	-11.055	16.261
1.0851E-05	1.0847E-05	14.107	9.7404	13.986	10.154	-0.8558	4.2491
1.0859E-05	1.0856E-05	11.256	12.524	12.964	11.241	15.181	-10.246
1.0868E-05	1.0864E-05	9.7572	14.06	10.119	14.005	3.7058	-0.39551
1.0876E-05	1.0872E-05	12.572	11.218	11.277	12.917	-10.302	15.15
1.0885E-05	1.0881E-05	14.018	9.8257	14.027	10.12	0.066475	2.9942
1.0893E-05	1.0889E-05	11.028	12.738	12.846	11.359	16.485	-10.828
1.0901E-05	1.0898E-05	9.8408	13.975	10.089	14.053	2.5212	0.55592
1.0910E-05	1.0906E-05	12.722	11.053	11.397	12.788	-10.41	15.69
1.0918E-05	1.0914E-05	13.986	9.8527	14.064	10.084	0.55809	2.3443
1.0926E-05	1.0922E-05	10.93	12.837	12.738	11.459	16.539	-10.732
1.0935E-05	1.0931E-05	9.8831	13.939	10.066	14.077	1.8507	0.9895
1.0943E-05	1.0939E-05	12.941	10.819	11.493	12.694	-11.192	17.334
1.0951E-05	1.0948E-05	13.955	9.8759	14.12	10.049	1.1838	1.7526
1.0960E-05	1.0956E-05	10.791	12.966	12.612	11.57	16.877	-10.773
1.0968E-05	1.0964E-05	9.8895	13.938	10.033	14.116	1.4544	1.2765
1.0977E-05	1.0973E-05	13.031	10.735	11.614	12.572	-10.874	17.113
1.0985E-05	1.0981E-05	13.898	9.9287	14.142	10.02	1.756	0.92311
1.0993E-05	1.0989E-05	10.663	13.081	12.55	11.627	17.692	-11.122
1.1001E-05	1.0998E-05	9.9364	13.887	9.9967	14.151	0.60736	1.8979
1.1010E-05	1.1006E-05	13.076	10.702	11.696	12.489	-10.558	16.696
1.1018E-05	1.1014E-05	13.816	10.015	14.199	9.9963	2.7278	-0.18771</

1.1669E-05	1.1665E-05	11.888	11.918	10.673	13.563	-10.217	13.806
1.1678E-05	1.1674E-05	14.286	9.5416	13.772	10.348	-3.604	8.4503
1.1686E-05	1.1682E-05	11.752	12.027	13.532	10.696	15.147	-11.069
1.1694E-05	1.1691E-05	9.5494	14.265	10.3	13.803	7.8575	-3.2356
1.1703E-05	1.1699E-05	12.149	11.64	10.764	13.461	-11.406	15.648
1.1711E-05	1.1707E-05	14.257	9.5838	13.822	10.306	-3.0501	7.5305
1.1719E-05	1.1715E-05	11.584	12.19	13.396	10.834	15.639	-11.121
1.1727E-05	1.1724E-05	9.5831	14.232	10.266	13.835	7.1304	-2.7881
1.1736E-05	1.1732E-05	12.223	11.56	10.873	13.338	-11.05	15.381
1.1744E-05	1.1741E-05	14.231	9.6202	13.867	10.261	-2.5582	6.6604
1.1753E-05	1.1749E-05	11.521	12.265	13.28	10.951	15.268	-10.713
1.1761E-05	1.1757E-05	9.6299	14.185	10.252	13.851	6.4626	-2.3508
1.1769E-05	1.1766E-05	12.236	11.55	10.994	13.209	-10.148	14.362
1.1778E-05	1.1774E-05	14.166	9.6738	13.887	10.23	-1.9694	5.7539
1.1786E-05	1.1782E-05	11.409	12.377	13.21	11.013	15.781	-11.018
1.1794E-05	1.1791E-05	9.6715	14.155	10.213	13.902	5.598	-1.789
1.1803E-05	1.1799E-05	12.317	11.473	11.066	13.139	-10.157	14.519
1.1811E-05	1.1807E-05	14.144	9.6925	13.921	10.195	-1.5749	5.1882
1.1820E-05	1.1816E-05	11.292	12.484	13.068	11.141	15.726	-10.757
1.1828E-05	1.1824E-05	9.7504	14.078	10.177	13.938	4.3805	-0.99101
1.1836E-05	1.1832E-05	12.579	11.198	11.195	13.011	-11.004	16.187
1.1845E-05	1.1841E-05	14.085	9.7486	13.971	10.159	-0.81159	4.2075
1.1853E-05	1.1849E-05	11.246	12.527	12.97	11.23	15.334	-10.359
1.1861E-05	1.1857E-05	9.7671	14.056	10.126	14.003	3.6727	-0.37415
1.1870E-05	1.1866E-05	12.649	11.135	11.263	12.941	-10.956	16.216
1.1878E-05	1.1874E-05	14.052	9.7906	14.031	10.122	-0.14298	3.3803
1.1886E-05	1.1882E-05	11.075	12.688	12.864	11.334	16.156	-10.669
1.1895E-05	1.1891E-05	9.8201	13.994	10.099	14.023	2.8351	0.20369
1.1903E-05	1.1899E-05	12.681	11.105	11.395	12.794	-10.138	15.211
1.1912E-05	1.1907E-05	13.971	9.8727	14.057	10.095	0.61378	2.254
1.1920E-05	1.1916E-05	10.957	12.808	12.769	11.431	16.533	-10.752
1.1928E-05	1.1924E-05	9.8857	13.93	10.066	14.074	1.8243	1.0334
1.1937E-05	1.1932E-05	12.922	10.838	11.472	12.71	-11.223	17.274
1.1945E-05	1.1941E-05	13.954	9.8838	14.088	10.061	0.95721	1.7922
1.1953E-05	1.1949E-05	10.777	12.982	12.69	11.508	17.748	-11.352
1.1961E-05	1.1958E-05	9.8796	13.943	10.039	14.113	1.6117	1.2194
1.1970E-05	1.1966E-05	13.016	10.743	11.553	12.63	-11.24	17.563
1.1978E-05	1.1974E-05	13.913	9.9161	14.136	10.024	1.605	1.0914
1.1987E-05	1.1983E-05	10.708	13.047	12.567	11.616	17.356	-10.965
1.1995E-05	1.1991E-05	9.9313	13.895	10.009	14.157	0.78221	1.8879
1.2000E-05	1.1999E-05	11.863	12.275	11.68	12.503	-1.5491	1.8644

Fig5.18_Exactan72_SinLO_6dBlo



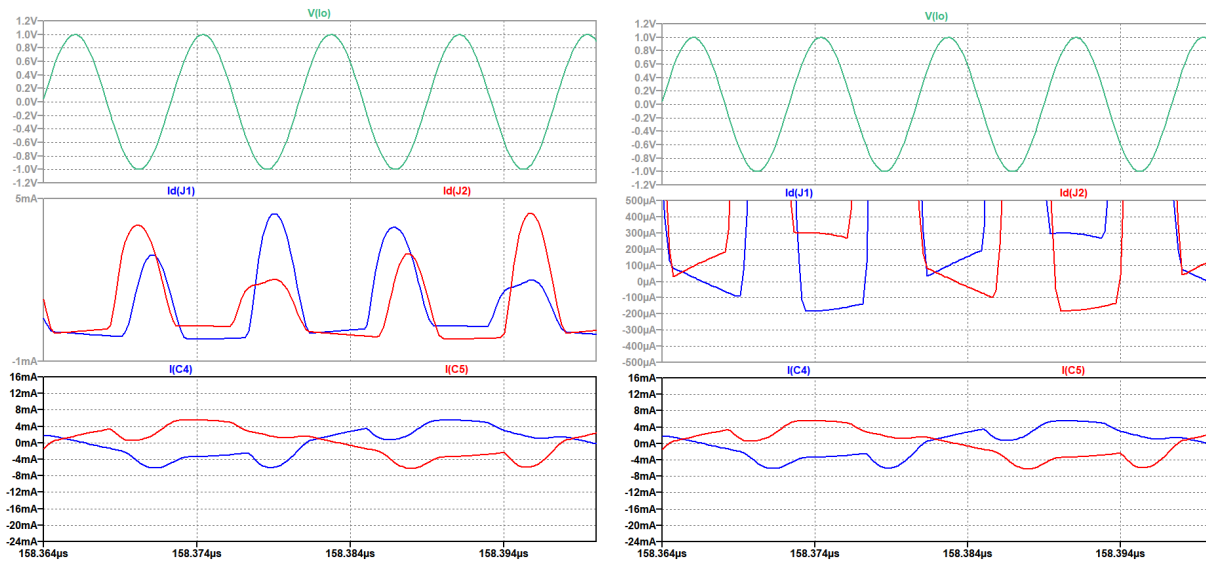
max discharge of CAP1		-6.5393
max discharge of CAP2		-6.4871
max discahrge of CAP1 and CAP2		-6.5393

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0008E-05	1.0004E-05	10.819	13.024	10.807	13.308	-0.11446	2.1804
1.0017E-05	1.0013E-05	12.699	11.109	11.89	12.252	-6.3717	10.286
1.0025E-05	1.0021E-05	13.017	10.834	13.331	10.801	2.4149	-0.30313
1.0033E-05	1.0029E-05	11.07	12.733	12.196	11.952	10.165	-6.1311
1.0042E-05	1.0038E-05	10.825	13.022	10.78	13.338	-0.41719	2.4275
1.0050E-05	1.0046E-05	12.785	11.023	11.966	12.179	-6.4074	10.486
1.0058E-05	1.0054E-05	12.991	10.866	13.358	10.772	2.8245	-0.76847
1.0067E-05	1.0063E-05	10.981	12.818	12.155	11.886	10.694	-6.4871
1.0075E-05	1.0071E-05	10.87	12.976	10.756	13.368	-1.0504	3.0209
1.0083E-05	1.0079E-05	12.852	10.96	12.022	12.123	-6.4508	10.615
1.0092E-05	1.0088E-05	12.971	10.875	13.391	10.768	3.2402	-0.98696
1.0100E-05	1.0096E-05	10.912	12.884	12.059	12.078	10.517	-6.2569
1.0108E-05	1.0104E-05	10.881	12.962	10.734	13.393	-1.3512	3.3245
1.0117E-05	1.0113E-05	12.886	10.931	12.107	12.038	-6.0453	10.13
1.0125E-05	1.0121E-05	12.949	10.898	13.413	10.742	3.5818	-1.4303
1.0133E-05	1.0130E-05	10.857	12.94	11.999	12.137	10.521	-6.2057
1.0142E-05	1.0138E-05	10.922	12.916	10.715	13.414	-1.8981	3.8466
1.0150E-05	1.0146E-05	12.992	10.819	12.155	11.983	-6.4404	10.755
1.0158E-05	1.0154E-05	12.911	10.935	13.431	10.719	4.0313	-1.9736
1.0167E-05	1.0163E-05	10.804	12.998	11.944	12.193	10.55	-6.1899
1.0175E-05	1.0171E-05	10.963	12.874	10.702	13.432	-2.3827	4.3395
1.0184E-05	1.0180E-05	13.045	10.766	12.223	13.911	-6.3021	10.639
1.0192E-05	1.0188E-05	12.847	10.994	13.443	10.708	4.6368	-2.6027
1.0200E-05	1.0196E-05	10.724	13.079	11.871	12.263	10.691	-6.2431
1.0208E-05	1.0205E-05	10.992	12.847	10.703	13.444	-2.6366	4.6483
1.0217E-05	1.0213E-05	13.095	10.717	12.291	11.842	-6.1414	10.497
1.0225E-05	1.0221E-05	12.797	11.039	13.445	10.721	5.0557	-2.8782
1.0234E-05	1.0230E-05	10.67	13.134	11.78	12.347	10.405	-5.9887
1.0242E-05	1.0238E-05	11.09	12.748	10.703	13.448	-3.4924	5.4902
1.0250E-05	1.0246E-05	13.163	10.653	12.36	11.773	-6.0994	10.515
1.0259E-05	1.0255E-05	12.71	11.123	13.442	10.731	5.7612	-3.5207
1.0267E-05	1.0263E-05	10.607	13.195	11.726	12.396	10.545	-6.0568
1.0275E-05	1.0271E-05	11.147	12.689	10.706	13.443	-3.9512	5.9462
1.0284E-05	1.0280E-05	13.205	10.617	12.474	11.669	-5.5334	9.806
1.0292E-05	1.0288E-05	12.668	11.166	13.443	10.722	6.1172	-3.9713
1.0300E-05	1.0297E-05	10.561	13.242	11.603	12.519	9.8674	-5.4616
1.0309E-05	1.0305E-05	11.221	12.609	10.734	13.424	-4.3423	6.4687
1.0317E-05	1.0313E-05	13.271	10.551	12.541	11.587	-5.5042	9.8269
1.0326E-05	1.0322E-05	12.573	11.262	13.412	10.769	6.6797	-4.3719
1.0334E-05	1.0330E-05	10.529	13.28	11.532	12.591	9.525	-5.1914
1.0342E-05	1.0338E-05	11.286	12.541	10.757	13.404	-4.6917	6.882
1.0350E-05	1.0347E-05	13.289	10.534	12.612	11.512	-5.0909	9.284
1.0359E-05	1.0355E-05	12.506	11.326	13.396	10.774	7.1216	-4.8693
1.0367E-05	1.0363E-05	10.507	13.31	11.469	12.653	9.1638	-4.9374
1.0376E-05	1.0371E-05	11.34	12.49	10.771	13.385	-5.0197	7.1689
1.0384E-05	1.0380E-05	13.336	10.486	12.661	11.46	-5.0584	9.2853
1.0392E-05	1.0388E-05	12.412	11.413	13.348	10.829	7.5404	-5.1205
1.0401E-05	1.0397E-05	10.469	13.349	11.4	12.719	8.8931	-4.7168
1.0409E-05	1.0405E-05	11.439	12.392	10.827	13.339	-5.3476	7.6408
1.0417E-05	1.0413E-05	13.367	10.461	12.761	11.365	-4.5316	8.6418
1.0426E-05	1.0422E-05	12.33	11.492	13.312	10.86	7.9626	-5.5016
1.0434E-05	1.0430E-05	10.452	13.365	11.338	12.776	8.4793	-4.4116
1.0442E-05	1.0438E-05	11.47	12.364	10.865	13.297	-5.2756	7.5472
1.0451E-05	1.0447E-05	13.38	10.453	12.819	11.308	-4.1981	8.179
1.0459E-05	1.0455E-05	12.253	11.569	13.271	10.899	8.3006	-5.7398
1.0467E-05	1.0463E-05	10.456	13.363	11.28	12.83	7.88	-3.9908
1.0475E-05	1.0472E-05	11.533	12.299	10.924	13.236	-5.2804	7.6192
1.0484E-05	1.0480E-05	13.383	10.454	12.871	11.254	-3.8252	7.6482
1.0492E-05	1.0488E-05	12.189	11.637	13.225	10.942	8.5021	-5.9703
1.0501E-05	1.0497E-05	10.449	13.373	11.207	12.909	7.2526	-3.4656
1.0509E-05	1.0505E-05	11.701	12.12	10.962	13.188	-6.3104	8.8144
1.0517E-05	1.0513E-05	13.371	10.471	12.918	11.201	-3.3872	6.9772
1.0526E-05	1.0522E-05	12.111	11.717	13.151	11.021	8.5986	-5.94
1.0534E-05	1.0530E-05	10.459	13.369	11.16	12.961	6.701	-3.0511
1.0542E-05	1.0538E-05	13.368	12.083	11.034	13.12	-5.9976	8.5824
1.0551E-05	1.0547E-05	11.798	10.47	12.973	11.145	-2.9562	6.4535
1.0559E-05	1.0555E-05	12.049	11.777	13.089	11.075	8.6304	-5.9635
1.0567E-05	1.0564E-05	10.479	13.355	11.13	12.987	6.2126	-2.7545
1.0576E-05	1.0572E-05	11.831	11.991	11.104	13.053	-6.1448	8.8601
1.0584E-05	1.0580E-05	13.349	10.49	13.019	11.102	-2.4711	5.8397
1.0592E-05	1.0588E-05	11.963	11.859	13.032	11.123	8.9343	-6.2043
1.0601E-05	1.0597E-05	10.499	13.336	11.086	13.03	5.5853	-2.2965
1.0609E-05	1.0605E-05	11.903	11.922	11.154	12.998	-6.2911	9.0175
1.0618E-05	1.0614E-05	13.328	10.515	13.051	11.073	-2.0775	5.3013
1.0626E-05	1.0622E-05	11.86	11.957	12.941	11.221	9.1108	-6.1522
1.0634E-05	1.0630E-05	10.524	13.31	11.058	13.052	5.0707	-1.9358
1.0643E-05	1.0639E-05	11.974	11.851	11.221	12.927	-6.2907	9.0816
1.0651E-05	1.0647E-05	13.306	10.543	13.076	11.047	-1.7263	4.7755
1.0659E-05	1.0655E-05	11.787	12.031	12.89	11.267	9.3557	-6.3473
1.0668E-05	1.0664E-05	10.555	13.279	11.038	13.068	4.5793	-1.5859
1.0676E-05	1.0672E-05	12.067	11.752	11.29	12.855	-6.4386	9.3852
1.0684E-05	1.0681E-05	13.276	10.573	13.109	11.016	-1.2589	4.1831
1.0693E-05	1.0689E-05	11.763	12.062	12.821	11.336	8.9945	-6.0194
1.0701E-05	1.0697E-05	10.581	13.26	11.012	13.099	4.0715	-1.2103
1.0709E-05	1.0705E-05	12.143	11.673	11.369	12.779	-6.3737	9.4742
1.0718E-05	1.0714E-05	13.25	10.599	13.127	10.995	-0.93481	3.7407
1.0726E-05	1.0722E-05	11.673	12.147	12.749	11.405	9.2233	-6.1124
1.0734E-05	1.0730E-05	10.612	13.235	10.988	13.126	3.5513	-0.82079
1.0743E-05	1.0739E-05	12.216	11.602	11.432	12.717	-6.4183	9.6103
1.0751E-05	1.0747E-05	13.211	10.635	13.132	10.984	-0.60103	3.2766
1.0759E-05	1.0755E-05	11.596	12.218	12.696	11.451	9.4913	-6.283
1.0768E-05	1.0764E-05	10.637	13.212	10.97	13.141	3.1347	-0.53771
1.0776E-05	1.0772E-05	12.27	11.551	11.512	12.641	-6.173	9.4356
1.0784E-05	1.0781E-05	13.189	10.662	13.148	10.968	-0.30874	2.8671
1.0793E-05	1.0789E-05	11.547	12.266	12.611	11.54	9.2177	-5.9174
1.0801E-05	1.0797E-05	10.675	13.166	10.951	13.156	2.5851	-0.076244
1.0809E-05	1.0806E-05	12.256	11.573	11.561	12.589	-5.674	8.7227
1.0818E-05	1.0814E-05	13.158	10.695	13.18	10.946	0.16499	2.3418
1.0826E-05	1.0822E-05	11.489	12.325	12.55	11.604	9.2317	-5.8499

1.0835E-05	1.0831E-05	10.704	13.137	10.931	13.176	2.1201	0.29798
1.0843E-05	1.0839E-05	12.344	11.476	11.606	12.538	-5.9789	9.2554
1.0851E-05	1.0847E-05	13.136	10.718	13.208	10.924	0.54491	1.9239
1.0860E-05	1.0856E-05	11.439	12.377	12.496	11.658	9.2472	-5.8074
1.0868E-05	1.0864E-05	10.703	13.147	10.912	13.196	1.9547	0.37087
1.0876E-05	1.0872E-05	12.4	11.419	11.671	12.474	-5.8756	9.2353
1.0884E-05	1.0881E-05	13.14	10.718	13.213	10.906	0.55086	1.751
1.0893E-05	1.0889E-05	11.327	12.482	12.457	11.693	9.9756	-6.3184
1.0901E-05	1.0897E-05	10.747	13.099	10.891	13.222	1.3389	0.93828
1.0910E-05	1.0906E-05	12.52	11.292	11.72	12.426	-6.3903	10.043
1.0918E-05	1.0914E-05	13.104	10.749	13.246	10.881	1.0832	1.2314
1.0926E-05	1.0922E-05	11.316	12.495	12.404	11.742	9.6107	-6.0217
1.0935E-05	1.0931E-05	10.767	13.079	10.866	13.242	0.92167	1.2447
1.0943E-05	1.0939E-05	12.523	11.296	11.776	12.372	-5.9631	9.5268
1.0951E-05	1.0948E-05	13.101	10.755	13.277	10.86	1.3481	0.97635
1.0960E-05	1.0956E-05	11.213	12.59	12.316	11.832	9.8372	-6.0222
1.0968E-05	1.0964E-05	10.769	13.079	10.839	13.274	0.64999	1.4893
1.0977E-05	1.0972E-05	12.627	11.187	11.829	12.318	-6.3165	10.111
1.0985E-05	1.0981E-05	13.044	10.809	13.295	10.833	1.9213	0.22313
1.0993E-05	1.0989E-05	11.131	12.668	12.268	11.88	10.21	-6.2188
1.1002E-05	1.0998E-05	10.806	13.038	10.811	13.301	0.050106	2.0148
1.1010E-05	1.1006E-05	12.645	11.174	11.894	12.252	-5.9417	9.6397
1.1018E-05	1.1014E-05	13.026	10.828	13.322	10.805	2.2718	-6.2203
1.1027E-05	1.1023E-05	11.074	12.726	12.228	11.919	10.424	-6.4403
1.1035E-05	1.1031E-05	10.839	13.003	10.786	13.332	-0.48953	2.5307
1.1043E-05	1.1039E-05	12.77	11.039	11.935	12.207	-6.5393	10.5083
1.1052E-05	1.1048E-05	13	10.852	13.353	10.779	2.7126	-6.07578
1.1060E-05	1.1056E-05	11.021	12.782	12.168	11.977	10.406	-6.296
1.1068E-05	1.1064E-05	10.852	12.991	10.761	13.362	-0.87326	2.8544
1.1077E-05	1.1073E-05	12.795	11.017	12.017	12.126	-6.0683	10.063
1.1085E-05	1.1081E-05	12.976	10.87	13.381	10.756	3.1192	-1.0513
1.1093E-05	1.1089E-05	10.928	12.872	12.076	12.066	10.507	-6.2667
1.1102E-05	1.1098E-05	10.902	12.943	10.74	13.39	-1.4789	3.4507
1.1110E-05	1.1106E-05	12.864	10.951	12.084	12.059	-6.062	10.12
1.1118E-05	1.1115E-05	12.945	10.898	13.407	10.742	3.568	-1.4361
1.1127E-05	1.1123E-05	10.879	12.92	12.018	12.119	10.468	-6.2004
1.1135E-05	1.1131E-05	10.938	12.905	10.719	13.412	-1.9991	3.9256
1.1143E-05	1.1139E-05	12.93	10.888	12.136	12.006	-6.1441	10.284
1.1152E-05	1.1148E-05	12.895	10.947	13.425	10.739	4.1145	-1.8962
1.1160E-05	1.1156E-05	10.982	12.978	11.965	12.167	10.583	-6.2555
1.1169E-05	1.1164E-05	10.968	12.871	10.707	13.429	-2.3738	4.3345
1.1177E-05	1.1173E-05	13.002	10.817	12.224	11.916	-5.9844	10.163
1.1185E-05	1.1181E-05	12.862	10.98	13.44	10.727	4.4905	-2.3036
1.1194E-05	1.1190E-05	10.74	13.059	11.886	12.244	10.674	-6.2409
1.1202E-05	1.1198E-05	10.996	12.84	10.697	13.44	-2.7142	4.6741
1.1210E-05	1.1206E-05	13.088	10.727	12.279	11.855	-6.1775	10.513
1.1219E-05	1.1215E-05	12.81	11.031	13.446	10.726	4.9641	-2.7614
1.1227E-05	1.1223E-05	10.684	13.119	11.797	12.334	10.417	-5.9822
1.1235E-05	1.1231E-05	11.078	12.756	10.699	13.446	-3.4256	10.5163
1.1244E-05	1.1240E-05	13.147	10.668	12.344	11.785	-6.1023	10.468
1.1252E-05	1.1248E-05	12.725	11.112	13.445	10.726	5.665	-3.4684
1.1260E-05	1.1256E-05	10.65	13.158	11.737	12.39	10.214	-5.836
1.1269E-05	1.1265E-05	11.134	12.699	10.705	13.446	-3.8609	9.7079
1.1277E-05	1.1273E-05	13.197	10.62	12.469	11.671	-5.5859	9.8896
1.1285E-05	1.1281E-05	12.679	11.154	13.442	10.72	6.0199	-3.8969
1.1294E-05	1.1290E-05	10.572	13.236	11.615	12.508	9.874	-5.965
1.1302E-05	1.1298E-05	11.192	12.642	10.72	13.435	-4.2155	6.2751
1.1310E-05	1.1306E-05	13.26	10.599	12.526	11.604	-5.5361	9.9011
1.1319E-05	1.1315E-05	12.584	11.246	13.414	10.765	6.5988	-4.2767
1.1327E-05	1.1323E-05	10.531	13.277	11.546	12.575	9.6513	-5.9295
1.1335E-05	1.1331E-05	11.267	12.565	10.744	13.414	-4.647	6.7535
1.1344E-05	1.1340E-05	13.306	10.517	12.592	11.536	-5.3679	9.6896
1.1352E-05	1.1348E-05	12.519	11.31	13.41	10.755	7.1137	-4.9408
1.1360E-05	1.1357E-05	10.506	13.305	11.483	12.635	9.3048	-5.0294
1.1369E-05	1.1365E-05	11.286	12.548	10.781	13.381	-4.4774	6.6394
1.1377E-05	1.1373E-05	13.316	10.512	12.641	11.482	-5.0745	9.2278
1.1386E-05	1.1382E-05	12.45	11.38	13.373	10.796	7.4145	-5.126
1.1394E-05	1.1390E-05	10.482	13.333	11.415	12.704	8.9001	-4.7178
1.1402E-05	1.1398E-05	11.413	12.414	10.809	13.351	-5.2968	7.5458
1.1410E-05	1.1407E-05	13.341	10.489	12.745	11.379	-4.4651	8.8967
1.1419E-05	1.1415E-05	12.346	11.48	13.321	10.854	7.8933	-5.4522
1.1427E-05	1.1423E-05	10.454	13.365	11.342	12.776	8.4922	-4.0599
1.1435E-05	1.1432E-05	11.45	12.382	10.857	13.305	-5.1787	7.4557
1.1444E-05	1.1440E-05	13.376	10.453	12.805	11.318	-4.2845	8.2761
1.1452E-05	1.1448E-05	12.31	11.515	13.28	10.888	7.7615	-5.4447
1.1461E-05	1.1457E-05	10.455	13.367	11.301	12.812	8.0862	-4.1536
1.1469E-05	1.1465E-05	11.596	12.231	10.907	13.254	-5.9468	8.3623
1.1477E-05	1.1473E-05	13.379	10.456	12.854	11.269	-3.9294	7.7806
1.1486E-05	1.1482E-05	12.214	11.608	12.324	10.93	8.3499	-5.8457
1.1494E-05	1.1490E-05	10.447	13.374	11.232	12.88	7.5115	-6.9323
1.1502E-05	1.1498E-05	11.686	12.138	10.95	13.203	-6.2939	8.772
1.1511E-05	1.1507E-05	13.382	10.458	12.91	11.213	-3.5234	7.2166
1.1519E-05	1.1515E-05	12.099	11.725	13.167	11.002	8.831	-6.1637
1.1527E-05	1.1523E-05	10.463	13.364	11.197	12.912	7.0119	-3.7674
1.1536E-05	1.1532E-05	11.766	12.054	11.026	13.129	-6.2834	8.9211
1.1544E-05	1.1540E-05	13.366	10.478	12.962	11.164	-3.0704	6.5437
1.1553E-05	1.1549E-05	12.01	11.814	13.102	11.066	9.0931	-6.3315
1.1561E-05	1.1557E-05	10.475	13.357	11.13	12.988	6.2523	-2.7609
1.1569E-05	1.1565E-05	11.832	11.967	11.09	13.064	-6.2633	8.9616
1.1578E-05	1.1573E-05	13.353	10.485	12.982	11.13	-2.7786	6.1524
1.1586E-05	1.1582E-05	11.996	11.83	13.044	11.116	8.7295	-6.0337
1.1594E-05	1.1590E-05	10.497	13.341	11.094	13.025	5.6914	-2.0378
1.1603E-05	1.1599E-05	11.895	11.928	11.179	12.982	-6.0194	8.8376
1.1611E-05	1.1607E-05	13.331	10.509	13.039	11.08	-2.1924	5.4284
1.1619E-05	1.1615E-05	11.871	11.947	12.951	11.21	9.1024	-2.0669
1.1627E-05	1.1624E-05	10.521	13.321	11.064	13.05	5.1614	-2.1365
1.1636E-05	1.1632E-05	11.943	11.884	11.213	12.94	-6.1161	8.884
1.1644E-05	1.1640E-05	13.31	10.536	13.06	11.058	-1.8744	4.9558
1.1653E-05	1.1649E-05	11.798	12.018	12.903	11.25	9.3625	-3.658
1.1661E-05	1.1657E-05	10.545	13.295	11.041	13.066	4.7016	-1.7255

1.1669E-05	1.1665E-05	11.982	11.85	11.301	12.853	-5.6805	8.4668
1.1678E-05	1.1674E-05	13.282	10.567	13.076	11.04	-1.5507	4.4776
1.1686E-05	1.1682E-05	11.77	12.051	12.833	11.323	9.0369	-6.0449
1.1694E-05	1.1690E-05	10.573	13.27	11.02	13.084	4.2287	-1.3952
1.1703E-05	1.1699E-05	12.13	11.689	11.358	12.79	-6.3611	9.4162
1.1711E-05	1.1707E-05	13.256	10.595	13.122	11.002	-1.0175	3.8392
1.1719E-05	1.1715E-05	11.68	12.139	12.761	11.396	9.2597	-6.1197
1.1728E-05	1.1724E-05	10.602	13.241	10.994	13.117	3.6938	-0.93641
1.1736E-05	1.1732E-05	12.196	11.621	11.416	12.73	-6.3965	9.5443
1.1744E-05	1.1740E-05	13.235	10.62	13.123	10.99	-0.85024	3.4869
1.1753E-05	1.1749E-05	11.622	12.197	12.698	11.455	9.2617	-6.0828
1.1761E-05	1.1757E-05	10.63	13.219	10.977	13.134	3.2632	-0.64404
1.1770E-05	1.1765E-05	12.252	11.564	11.466	12.679	-6.4195	9.6349
1.1778E-05	1.1774E-05	13.206	10.647	13.139	10.972	-0.50686	3.0553
1.1786E-05	1.1782E-05	11.56	12.256	12.623	11.529	9.2026	-5.9358
1.1795E-05	1.1791E-05	10.673	13.172	10.956	13.154	2.6541	-0.13732
1.1803E-05	1.1799E-05	12.32	11.499	11.551	12.6	-6.2367	9.5741
1.1811E-05	1.1807E-05	13.163	10.687	13.168	10.95	0.044626	2.4689
1.1820E-05	1.1816E-05	11.5	12.312	12.561	11.59	9.223	-5.8609
1.1828E-05	1.1824E-05	10.705	13.138	10.935	13.174	2.1458	0.27421
1.1836E-05	1.1832E-05	12.33	11.494	11.598	12.549	-5.9371	9.1809
1.1845E-05	1.1841E-05	13.139	10.714	13.181	10.935	0.31669	2.0608
1.1853E-05	1.1849E-05	11.449	12.363	12.505	11.647	9.2277	-5.7956
1.1861E-05	1.1857E-05	10.702	13.144	10.915	13.191	1.9934	0.35843
1.1870E-05	1.1866E-05	12.399	11.421	11.655	12.49	-5.9996	9.3653
1.1878E-05	1.1874E-05	13.139	10.72	13.211	10.911	0.54473	1.7817
1.1886E-05	1.1882E-05	11.337	12.472	12.466	11.684	9.9636	-6.3125
1.1895E-05	1.1891E-05	10.737	13.106	10.895	13.21	1.4688	0.79255
1.1903E-05	1.1899E-05	12.432	11.389	11.71	12.434	-5.8049	9.1791
1.1911E-05	1.1908E-05	13.11	10.746	13.243	10.887	1.0175	1.3163
1.1920E-05	1.1916E-05	11.299	12.511	12.416	11.734	9.8868	-6.214
1.1928E-05	1.1924E-05	10.763	13.083	10.871	13.238	1.011	1.1827
1.1937E-05	1.1932E-05	12.563	11.246	11.759	12.385	-6.4024	10.127
1.1945E-05	1.1941E-05	13.1	10.754	13.269	10.863	1.2869	1.0145
1.1953E-05	1.1949E-05	11.252	12.557	12.327	11.824	9.5509	-5.8359
1.1961E-05	1.1957E-05	10.769	13.081	10.846	13.267	0.71715	1.4166
1.1970E-05	1.1966E-05	12.611	11.201	11.821	12.327	-6.272	10.054
1.1978E-05	1.1974E-05	13.046	10.804	13.286	10.836	1.8421	0.29396
1.1986E-05	1.1983E-05	11.179	12.624	12.277	11.868	9.8262	-5.9831
1.1995E-05	1.1991E-05	10.795	13.052	10.818	13.297	0.21171	1.8775
1.2000E-05	1.1999E-05	12.026	12.116	11.891	12.26	-1.1255	1.1906

Fig5.19_Exactan72_SinLO_12dBlo



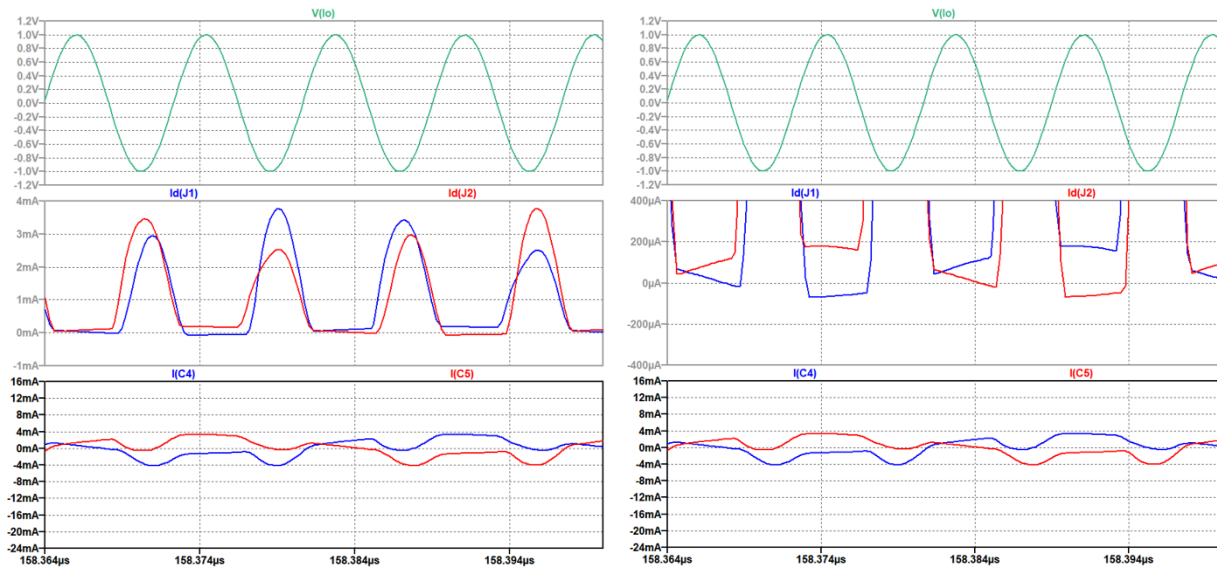
max discharge of CAP1		-3.0766
max discharge of CAP2		-3.0392
max discharge of CAP1 and CAP2		-3.0766

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0008E-05	1.0004E-05	11.36	12.487	11.41	12.709	0.44247	1.782
1.0016E-05	1.0013E-05	12.333	11.508	11.992	12.132	-2.7591	5.423
1.0025E-05	1.0021E-05	12.475	11.372	12.714	11.402	1.9131	0.26248
1.0033E-05	1.0029E-05	11.488	12.344	12.116	12.005	5.4625	-2.7465
1.0042E-05	1.0038E-05	11.374	12.47	11.391	12.719	0.15037	1.9967
1.0050E-05	1.0046E-05	12.364	11.478	12.037	12.091	-2.6398	5.3375
1.0058E-05	1.0054E-05	12.466	11.383	12.73	11.389	2.1131	0.050587
1.0067E-05	1.0063E-05	11.434	12.395	12.076	12.049	5.6195	-2.7958
1.0075E-05	1.0071E-05	11.391	12.452	11.376	12.733	-0.1328	2.2529
1.0083E-05	1.0079E-05	12.429	11.404	12.051	12.069	-3.0402	5.8275
1.0092E-05	1.0088E-05	12.455	11.394	12.744	11.376	2.3214	-0.15574
1.0100E-05	1.0096E-05	11.413	12.421	12.047	12.077	5.551	-2.7688
1.0108E-05	1.0104E-05	11.404	12.441	11.361	12.747	-0.3741	2.4572
1.0117E-05	1.0113E-05	12.441	11.397	12.111	12.018	-2.6564	5.4453
1.0125E-05	1.0121E-05	12.439	11.407	12.757	11.366	2.5533	-0.3604
1.0134E-05	1.0129E-05	11.349	12.479	12.017	12.102	5.8825	-3.0228
1.0142E-05	1.0138E-05	11.424	12.422	11.356	12.761	-0.59212	2.735
1.0150E-05	1.0146E-05	12.486	11.352	12.149	11.98	-2.6969	5.5365
1.0159E-05	1.0155E-05	12.415	11.431	12.768	11.357	2.8457	-0.64137
1.0167E-05	1.0163E-05	11.335	12.497	11.979	12.138	5.6846	-2.8714
1.0175E-05	1.0171E-05	11.444	12.4	11.346	12.771	-0.85843	2.9911
1.0184E-05	1.0180E-05	12.53	11.307	12.168	11.956	-2.8907	5.7383
1.0192E-05	1.0188E-05	12.404	11.443	12.776	11.358	3.0007	-0.74188
1.0200E-05	1.0196E-05	11.284	12.545	11.917	12.21	5.6105	-2.6687
1.0209E-05	1.0205E-05	11.45	12.394	11.332	12.777	-1.0362	3.091
1.0217E-05	1.0213E-05	12.571	11.266	12.209	11.914	-2.8746	5.7529
1.0225E-05	1.0221E-05	12.362	11.483	12.783	11.336	3.4064	-1.2838
1.0234E-05	1.0230E-05	11.254	12.577	11.883	12.242	5.5925	-2.6615
1.0242E-05	1.0238E-05	11.489	12.353	11.34	12.779	-1.2958	3.4483
1.0250E-05	1.0246E-05	12.601	11.236	12.266	11.86	-2.6534	5.558
1.0259E-05	1.0255E-05	12.33	11.513	12.784	11.338	3.676	-1.5251
1.0267E-05	1.0263E-05	11.224	12.607	11.842	12.283	5.5016	-2.5695
1.0275E-05	1.0271E-05	11.503	12.342	11.336	12.78	-1.454	3.5531
1.0284E-05	1.0280E-05	12.632	11.205	12.296	11.827	-2.6604	5.5506
1.0292E-05	1.0288E-05	12.296	11.547	12.778	11.348	3.9201	-2.7193
1.0300E-05	1.0296E-05	11.199	12.634	11.802	12.32	5.3913	-2.4881
1.0309E-05	1.0305E-05	11.569	12.272	11.34	12.775	-1.9742	4.0975
1.0317E-05	1.0313E-05	12.647	11.194	12.326	11.794	-2.5404	5.3597
1.0325E-05	1.0322E-05	12.26	11.581	12.765	11.371	4.115	-1.8105
1.0334E-05	1.0330E-05	11.169	12.663	11.759	12.362	5.2794	-2.3722
1.0342E-05	1.0338E-05	11.589	12.252	11.366	12.759	-1.925	4.1344
1.0351E-05	1.0347E-05	12.675	11.166	12.385	11.741	-2.2861	5.1538
1.0359E-05	1.0355E-05	12.23	11.611	12.751	11.387	4.2585	-1.9309
1.0367E-05	1.0363E-05	11.153	12.68	11.721	12.4	5.0911	-2.2036
1.0376E-05	1.0372E-05	11.639	12.2	11.389	12.74	-2.1461	4.4192
1.0384E-05	1.0380E-05	12.688	11.155	12.424	11.701	-2.0838	4.8997
1.0392E-05	1.0388E-05	12.193	11.649	12.735	11.398	4.4487	-2.1599
1.0401E-05	1.0397E-05	11.14	12.694	11.685	12.435	4.891	-2.035
1.0409E-05	1.0405E-05	11.645	12.199	11.407	12.72	-2.0476	4.2733
1.0417E-05	1.0413E-05	12.697	11.147	12.457	11.666	-1.893	4.6613
1.0426E-05	1.0422E-05	12.16	11.684	12.717	11.409	4.5793	-2.3538
1.0434E-05	1.0430E-05	11.141	12.698	11.649	12.472	4.5594	-1.7795
1.0442E-05	1.0438E-05	11.736	12.101	11.413	12.704	-2.7462	4.9777
1.0451E-05	1.0447E-05	12.708	11.134	12.488	11.634	-1.7245	4.4927
1.0459E-05	1.0455E-05	12.088	11.75	12.686	11.444	4.9433	-2.6098
1.0467E-05	1.0463E-05	11.14	12.702	11.626	12.488	4.3598	-1.679
1.0476E-05	1.0472E-05	11.774	12.065	11.44	12.676	-2.8294	5.0688
1.0484E-05	1.0480E-05	12.705	11.14	12.518	11.604	-1.4717	4.1719
1.0492E-05	1.0488E-05	12.036	11.8	12.657	11.469	5.1579	-2.8041
1.0501E-05	1.0497E-05	11.14	12.701	11.599	12.513	4.1202	-1.4794
1.0509E-05	1.0505E-05	11.815	12.023	11.475	12.643	-2.8762	5.1547
1.0517E-05	1.0514E-05	12.704	11.142	12.546	11.578	-1.2375	3.9072
1.0526E-05	1.0522E-05	12.032	11.81	12.627	11.496	4.9461	-2.6548
1.0534E-05	1.0530E-05	11.144	12.696	11.574	12.536	3.8605	-1.2577
1.0542E-05	1.0539E-05	11.851	11.987	11.521	12.603	-2.7857	5.1387
1.0551E-05	1.0547E-05	12.696	11.154	12.555	11.562	-1.1045	3.6557
1.0559E-05	1.0555E-05	11.967	11.871	12.587	11.541	5.1772	-2.7805
1.0567E-05	1.0563E-05	11.155	12.686	11.554	12.552	3.579	-1.0581
1.0576E-05	1.0572E-05	11.888	11.95	11.557	12.566	-2.7772	5.1485
1.0584E-05	1.0580E-05	12.684	11.164	12.571	11.544	-0.8899	3.4045
1.0592E-05	1.0588E-05	11.95	11.893	12.552	11.575	5.0378	-2.6704
1.0601E-05	1.0597E-05	11.169	12.672	11.529	12.588	3.2264	-0.66695
1.0609E-05	1.0605E-05	11.911	11.932	11.581	12.536	-2.7695	5.0627
1.0617E-05	1.0614E-05	12.671	11.18	12.575	11.531	-0.75604	3.1454
1.0626E-05	1.0622E-05	11.892	11.946	12.519	11.602	5.2689	-2.877
1.0634E-05	1.0630E-05	11.185	12.658	11.521	12.587	3.0062	-0.56173
1.0642E-05	1.0639E-05	11.948	11.895	11.615	12.501	-2.7889	5.0923
1.0651E-05	1.0647E-05	12.65	11.196	12.612	11.509	-0.30033	2.7992
1.0659E-05	1.0655E-05	11.864	11.975	12.468	11.661	5.0824	-2.6256
1.0668E-05	1.0664E-05	11.203	12.641	11.502	12.617	2.6673	-0.19025
1.0676E-05	1.0672E-05	11.991	11.851	11.661	12.46	-2.76	5.1365
1.0684E-05	1.0680E-05	12.632	11.214	12.619	11.501	-0.10252	2.558
1.0693E-05	1.0689E-05	11.814	12.021	12.445	11.673	5.335	-2.8969
1.0701E-05	1.0697E-05	11.222	12.621	11.497	12.607	2.4534	-0.11309
1.0709E-05	1.0705E-05	12.032	11.809	11.7	12.421	-2.7625	5.1796
1.0718E-05	1.0714E-05	12.62	11.231	12.616	11.496	-0.033822	2.3586
1.0726E-05	1.0722E-05	11.776	12.059	12.41	11.708	5.3812	-2.9053
1.0734E-05	1.0731E-05	11.238	12.607	11.484	12.624	2.189	0.2194
1.0743E-05	1.0739E-05	12.061	11.78	11.733	12.386	-2.727	5.1413
1.0751E-05	1.0747E-05	12.605	11.249	12.619	11.489	0.10744	2.1285
1.0759E-05	1.0756E-05	11.751	12.086	12.358	11.773	5.1725	-2.5927
1.0768E-05	1.0764E-05	11.259	12.583	11.478	12.641	1.9442	0.46229
1.0776E-05	1.0772E-05	12.1	11.738	11.779	12.346	-2.6585	5.1745
1.0785E-05	1.0781E-05	12.576	11.272	12.644	11.478	0.54508	1.8248
1.0793E-05	1.0789E-05	11.728	12.111	12.333	11.792	5.1587	-2.6356
1.0801E-05	1.0797E-05	11.278	12.567	11.472	12.647	1.7251	0.63807
1.0809E-05	1.0806E-05	12.129	11.71	11.813	12.312	-2.6038	5.1419
1.0818E-05	1.0814E-05	12.56	11.287	12.648	11.472	0.70262	1.6332
1.0826E-05	1.0822E-05	11.692	12.144	12.305	11.816	5.2377	-2.7005

1.0834E-05	1.0831E-05	11.288	12.56	11.465	12.652	1.5643	0.73301
1.0843E-05	1.0839E-05	12.156	11.686	11.836	12.286	-2.6312	5.1329
1.0851E-05	1.0847E-05	12.553	11.297	12.653	11.464	0.79584	1.4771
1.0860E-05	1.0856E-05	11.658	12.176	12.268	11.857	5.2331	-2.6253
1.0868E-05	1.0864E-05	11.31	12.533	11.457	12.659	1.2955	1.0013
1.0876E-05	1.0872E-05	12.216	11.621	11.856	12.262	-2.9437	5.5124
1.0885E-05	1.0881E-05	12.527	11.322	12.655	11.454	1.0203	1.1653
1.0893E-05	1.0889E-05	11.633	12.204	12.243	11.879	5.2479	-2.6601
1.0901E-05	1.0898E-05	11.316	12.53	11.448	12.67	1.1648	1.1177
1.0910E-05	1.0906E-05	12.219	11.621	11.903	12.222	-2.5866	5.17
1.0918E-05	1.0914E-05	12.533	11.32	12.674	11.445	1.1245	1.101
1.0926E-05	1.0922E-05	11.598	12.238	12.209	11.916	5.2742	-2.6338
1.0935E-05	1.0931E-05	11.336	12.508	11.435	12.674	0.86736	1.3288
1.0943E-05	1.0939E-05	12.281	11.553	11.915	12.203	-2.9812	5.6208
1.0951E-05	1.0947E-05	12.521	11.331	12.68	11.431	1.2654	0.88363
1.0960E-05	1.0956E-05	11.566	12.27	12.186	11.936	5.3619	-2.721
1.0968E-05	1.0964E-05	11.351	12.494	11.424	12.692	0.64605	1.5792
1.0977E-05	1.0972E-05	12.306	11.529	11.944	12.173	-2.9408	5.5924
1.0985E-05	1.0981E-05	12.496	11.352	12.692	11.416	1.5705	0.58676
1.0993E-05	1.0989E-05	11.528	12.306	12.159	11.959	5.4765	-2.816
1.1002E-05	1.0998E-05	11.353	12.493	11.408	12.7	0.48371	1.6589
1.1010E-05	1.1006E-05	12.323	11.516	11.983	12.139	-2.7603	5.409
1.1018E-05	1.1014E-05	12.479	11.369	12.71	11.404	1.849	0.30588
1.1026E-05	1.1023E-05	11.495	12.338	12.11	11.016	5.351	-2.6091
1.1035E-05	1.1031E-05	11.376	12.469	11.395	12.717	0.17185	1.9846
1.1043E-05	1.1039E-05	12.359	11.481	12.01	11.211	-2.825	5.1494
1.1052E-05	1.1048E-05	12.468	11.381	12.725	11.391	2.0685	0.089264
1.1060E-05	1.1056E-05	11.439	12.39	12.083	12.043	5.6245	-2.8017
1.1068E-05	1.1064E-05	11.387	12.457	11.382	12.731	-0.049665	2.1995
1.1077E-05	1.1073E-05	12.423	11.412	12.042	12.077	-3.0634	5.8338
1.1085E-05	1.1081E-05	12.457	11.391	12.741	11.379	2.282	-0.10473
1.1093E-05	1.1089E-05	11.418	12.415	12.053	12.071	5.5629	-2.7653
1.1102E-05	1.1098E-05	11.401	12.444	11.365	12.744	-0.31882	2.4174
1.1110E-05	1.1106E-05	12.434	11.406	12.104	12.025	-2.6501	5.427
1.1118E-05	1.1115E-05	12.443	11.404	12.755	11.368	2.5022	-0.31342
1.1127E-05	1.1123E-05	11.361	12.468	12.024	12.095	5.8385	-2.9912
1.1135E-05	1.1131E-05	11.405	12.44	11.36	12.759	-0.39129	2.5631
1.1143E-05	1.1139E-05	12.487	11.349	12.119	12.004	-2.9487	5.4735
1.1152E-05	1.1148E-05	12.429	11.419	12.767	11.368	2.7227	-0.44286
1.1160E-05	1.1156E-05	11.322	12.507	11.973	12.151	5.7505	-2.8421
1.1168E-05	1.1165E-05	11.438	12.405	11.351	12.769	-0.76152	2.9307
1.1177E-05	1.1173E-05	12.522	11.314	12.15	11.969	-2.9712	5.7561
1.1185E-05	1.1181E-05	12.402	11.444	12.775	11.358	3.0119	-0.75384
1.1194E-05	1.1190E-05	11.293	12.537	11.936	12.189	5.6956	-2.7819
1.1202E-05	1.1198E-05	11.451	12.394	11.351	12.775	-0.8746	3.0789
1.1210E-05	1.1206E-05	12.562	11.273	12.205	11.918	-2.8419	5.7212
1.1219E-05	1.1215E-05	12.369	11.475	12.781	11.335	3.3329	-2.1291
1.1227E-05	1.1223E-05	11.26	12.57	11.891	12.234	5.6075	-2.6768
1.1235E-05	1.1231E-05	11.49	12.353	11.343	12.78	-1.2861	3.4576
1.1244E-05	1.1240E-05	12.598	11.239	12.236	11.885	-2.8769	5.7495
1.1252E-05	1.1248E-05	12.336	11.507	12.783	11.338	3.6209	-1.4684
1.1260E-05	1.1256E-05	11.229	12.601	11.85	12.773	5.5281	-2.6064
1.1269E-05	1.1265E-05	11.499	12.345	11.333	12.781	-1.4459	3.5275
1.1277E-05	1.1273E-05	12.627	11.211	12.287	11.838	-2.6963	5.9918
1.1285E-05	1.1281E-05	12.304	11.539	12.78	11.347	3.8673	-1.6624
1.1294E-05	1.1290E-05	11.208	12.625	11.81	12.311	5.3742	-2.484
1.1302E-05	1.1298E-05	11.543	12.299	11.349	12.772	-1.6757	3.8553
1.1310E-05	1.1306E-05	12.642	11.199	12.33	11.794	-2.4715	5.8117
1.1319E-05	1.1315E-05	12.268	11.574	12.768	11.37	4.0725	-1.7633
1.1327E-05	1.1323E-05	11.182	12.651	11.764	12.361	5.2076	-2.2948
1.1336E-05	1.1331E-05	11.595	12.244	11.349	12.766	-2.1277	4.2618
1.1344E-05	1.1340E-05	12.665	11.178	12.35	11.765	-2.4802	5.5202
1.1352E-05	1.1348E-05	12.259	11.587	12.76	11.367	4.0857	-1.8956
1.1361E-05	1.1357E-05	11.158	12.676	11.73	12.393	5.1234	-2.2635
1.1369E-05	1.1365E-05	11.613	12.227	11.37	12.75	-2.0922	4.2721
1.1377E-05	1.1373E-05	12.688	11.152	12.393	11.723	-2.3233	5.1201
1.1385E-05	1.1382E-05	12.204	11.639	12.739	11.393	4.3794	-2.1126
1.1394E-05	1.1390E-05	11.147	12.689	11.695	12.424	4.9152	-0.0874
1.1402E-05	1.1398E-05	11.648	12.195	11.386	12.732	-2.2457	4.7007
1.1411E-05	1.1407E-05	12.695	11.147	12.544	11.671	-1.8993	4.4005
1.1419E-05	1.1415E-05	12.164	11.677	12.72	11.407	4.5719	-2.3187
1.1427E-05	1.1423E-05	11.141	12.697	11.655	12.466	4.611	-1.8204
1.1436E-05	1.1432E-05	11.729	12.11	11.407	12.71	-2.7492	4.9547
1.1444E-05	1.1440E-05	12.708	11.135	12.484	11.64	1.7605	4.5373
1.1452E-05	1.1448E-05	12.096	11.741	12.691	11.439	-1.9155	-2.5724
1.1461E-05	1.1457E-05	11.133	12.704	11.638	12.471	4.5369	-1.983
1.1469E-05	1.1465E-05	11.765	12.073	11.449	12.675	-2.1131	4.8894
1.1477E-05	1.1473E-05	12.706	11.14	12.513	11.61	-1.5174	4.2159
1.1486E-05	1.1482E-05	12.053	11.786	12.663	11.464	5.0681	-2.7289
1.1494E-05	1.1490E-05	11.139	12.701	11.603	12.51	4.1612	-1.5052
1.1502E-05	1.1498E-05	11.805	12.032	11.469	12.649	-2.8424	5.1252
1.1511E-05	1.1507E-05	12.704	11.143	12.538	11.585	-1.3073	3.9631
1.1519E-05	1.1515E-05	12.041	11.802	12.633	11.492	4.912	-2.6222
1.1527E-05	1.1523E-05	11.142	12.698	11.578	12.533	3.9115	-1.2961
1.1536E-05	1.1532E-05	11.841	11.996	11.514	12.609	-2.765	5.1112
1.1544E-05	1.1540E-05	12.696	11.15	12.555	11.563	-1.1102	3.704
1.1553E-05	1.1549E-05	11.956	11.881	12.601	11.52	5.3969	-0.3032
1.1561E-05	1.1557E-05	11.153	12.689	11.596	12.556	3.6159	-1.0471
1.1569E-05	1.1565E-05	11.876	11.964	11.549	12.574	-2.7483	5.0995
1.1577E-05	1.1574E-05	12.686	11.162	12.568	11.547	-0.93577	3.4668
1.1586E-05	1.1582E-05	11.933	11.904	12.557	11.57	5.2284	-2.8089
1.1594E-05	1.1590E-05	11.166	12.676	11.539	12.589	3.3477	-0.84557
1.1603E-05	1.1599E-05	11.937	11.901	11.57	12.547	-3.0766	5.4274
1.1611E-05	1.1607E-05	12.674	11.177	12.581	11.532	-0.73707	3.1784
1.1619E-05	1.1615E-05	11.897	11.94	12.524	11.597	5.2685	-2.8726
1.1628E-05	1.1624E-05	11.182	12.66	11.52	11.591	3.0263	-0.5474
1.1636E-05	1.1632E-05	11.942	11.902	11.609	12.508	-2.787	5.0901
1.1644E-05	1.1640E-05	12.654	11.193	12.611	11.512	-0.33376	2.6438
1.1653E-05	1.1649E-05	11.867	11.972	12.475	11.656	5.1283	-2.6364
1.1661E-05	1.1657E-05	11.199	12.643	11.502	12.617	2.7092	-0.21121

1.1669E-05	1.1665E-05	11.976	11.869	11.65	12.468	-2.7246	5.0466
1.1678E-05	1.1674E-05	12.634	11.212	12.617	11.503	-0.1356	2.5919
1.1686E-05	1.1682E-05	11.81	12.026	12.445	11.682	5.3774	-2.8587
1.1694E-05	1.1691E-05	11.217	12.627	11.495	12.622	2.4822	-0.046494
1.1703E-05	1.1699E-05	12.017	11.825	11.686	12.431	-2.7611	5.1269
1.1711E-05	1.1707E-05	12.618	11.23	12.627	11.493	0.070631	2.3447
1.1719E-05	1.1716E-05	11.783	12.053	12.399	11.734	5.2251	-2.6533
1.1728E-05	1.1724E-05	11.235	12.609	11.486	12.635	2.2304	0.20092
1.1736E-05	1.1732E-05	12.063	11.776	11.73	12.392	-2.7598	5.2267
1.1744E-05	1.1740E-05	12.606	11.245	12.619	11.489	0.10382	2.1715
1.1753E-05	1.1749E-05	11.755	12.082	12.364	11.766	5.1846	-2.6133
1.1761E-05	1.1757E-05	11.259	12.585	11.483	12.621	1.9868	0.29085
1.1769E-05	1.1766E-05	12.095	11.745	11.776	12.351	-2.6312	5.1571
1.1778E-05	1.1774E-05	12.578	11.269	12.644	11.48	0.52547	1.8698
1.1786E-05	1.1782E-05	11.701	12.132	12.338	11.787	5.4413	-2.8419
1.1795E-05	1.1791E-05	11.276	12.568	11.473	12.647	1.7431	0.63285
1.1803E-05	1.1799E-05	12.144	11.693	11.788	12.33	-2.9383	5.4425
1.1811E-05	1.1807E-05	12.573	11.279	12.64	11.474	0.53226	1.7301
1.1820E-05	1.1816E-05	11.694	12.141	12.303	11.824	5.2043	-2.6071
1.1828E-05	1.1824E-05	11.288	12.556	11.466	12.651	1.5796	0.75793
1.1836E-05	1.1832E-05	12.151	11.691	11.837	12.288	-2.5826	5.1073
1.1845E-05	1.1841E-05	12.557	11.295	12.653	11.466	0.76455	1.5094
1.1853E-05	1.1849E-05	11.664	12.171	12.274	11.851	5.2272	-2.6268
1.1861E-05	1.1857E-05	11.304	12.539	11.458	12.658	1.364	0.95029
1.1870E-05	1.1866E-05	12.183	11.656	11.872	12.255	-2.5549	5.1316
1.1878E-05	1.1874E-05	12.544	11.308	12.657	11.457	0.89792	1.3149
1.1886E-05	1.1882E-05	11.637	12.2	12.245	11.88	5.2262	-2.6176
1.1895E-05	1.1891E-05	11.314	12.531	11.45	12.67	1.1979	1.1045
1.1903E-05	1.1899E-05	12.215	11.623	11.898	12.226	-2.596	5.188
1.1911E-05	1.1908E-05	12.533	11.318	12.673	11.447	1.1091	1.1407
1.1920E-05	1.1916E-05	11.609	12.228	12.209	11.921	5.1704	-2.5157
1.1928E-05	1.1924E-05	11.335	12.51	11.438	12.674	0.90818	1.3158
1.1937E-05	1.1932E-05	12.272	11.563	11.914	12.206	-2.9202	5.5619
1.1945E-05	1.1941E-05	12.522	11.329	12.678	11.433	1.2399	0.92055
1.1953E-05	1.1949E-05	11.571	12.263	12.189	11.934	5.3346	-2.6888
1.1962E-05	1.1958E-05	11.347	12.498	11.428	12.691	0.71166	1.5437
1.1970E-05	1.1966E-05	12.302	11.534	11.939	12.18	-2.9506	5.6078
1.1978E-05	1.1974E-05	12.501	11.348	12.7	11.426	1.5973	0.69063
1.1986E-05	1.1983E-05	11.536	12.298	12.144	11.985	5.2705	-2.5399
1.1995E-05	1.1991E-05	11.354	12.492	11.412	12.699	0.51312	1.6583
1.2000E-05	1.1999E-05	12.062	12.083	11.98	12.144	-0.67246	0.50182

Fig5.20_Exactan72_SinLO_18dBlo



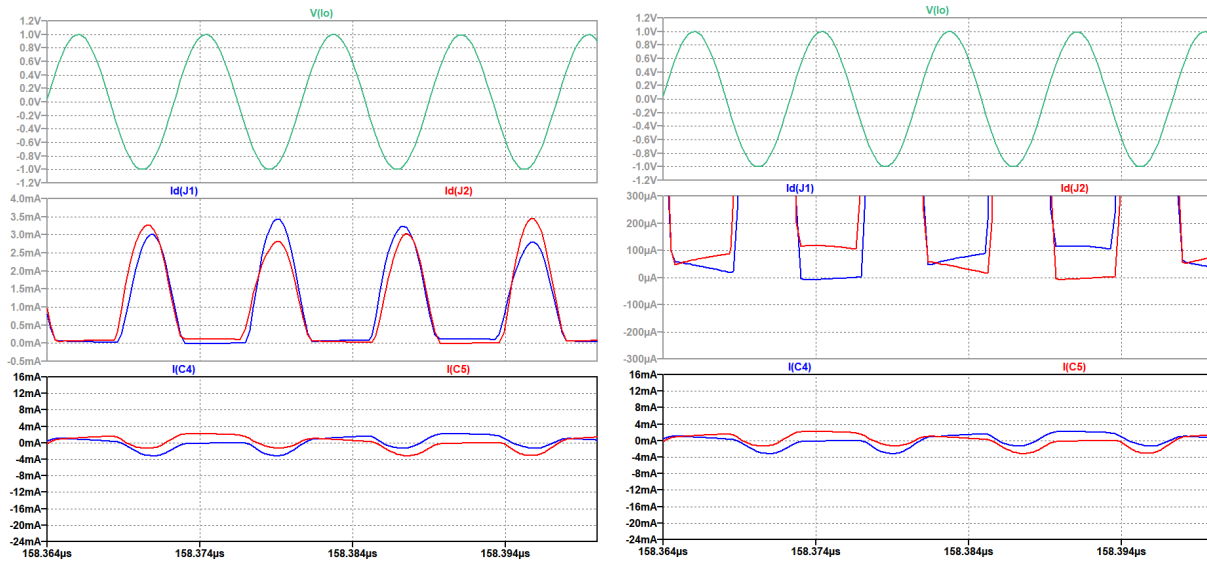
max discharge of CAP1		-1.0377
max discharge of CAP2		-1.0484
max discahrge of CAP1 and CAP2		-1.0484

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0008E-05	1.0004E-05	11.637	12.205	11.73	12.386	0.80275	1.4796
1.0016E-05	1.0013E-05	12.129	11.715	12.018	12.089	-0.91476	3.1936
1.0025E-05	1.0021E-05	12.209	11.639	12.385	11.725	1.4482	0.73504
1.0033E-05	1.0029E-05	11.691	12.152	12.077	12.048	3.2978	-0.85453
1.0042E-05	1.0038E-05	11.647	12.199	11.726	12.395	0.67615	1.6133
1.0050E-05	1.0046E-05	12.154	11.688	12.032	12.075	-0.99714	3.3092
1.0058E-05	1.0054E-05	12.192	11.65	12.393	11.717	1.6468	0.58125
1.0067E-05	1.0063E-05	11.68	12.162	12.056	12.068	3.222	-0.77275
1.0075E-05	1.0071E-05	11.654	12.194	11.722	12.404	0.58912	1.7217
1.0083E-05	1.0079E-05	12.182	11.662	12.069	12.053	-0.92783	3.3589
1.0092E-05	1.0088E-05	12.187	11.656	12.402	11.712	1.7579	0.47958
1.0100E-05	1.0096E-05	11.653	12.183	12.046	12.059	3.3705	-1.0202
1.0108E-05	1.0104E-05	11.659	12.186	11.706	12.405	0.39762	1.7966
1.0117E-05	1.0113E-05	12.192	11.659	12.093	12.033	-0.81299	3.2137
1.0125E-05	1.0121E-05	12.182	11.665	12.411	11.708	1.8806	0.3696
1.0133E-05	1.0129E-05	11.635	12.203	12.029	12.078	3.388	-1.0267
1.0142E-05	1.0138E-05	11.665	12.178	11.697	12.41	0.28121	1.9006
1.0150E-05	1.0146E-05	12.211	11.636	12.111	12.012	-0.822	3.2325
1.0158E-05	1.0154E-05	12.175	11.674	12.415	11.699	1.9776	0.2108
1.0167E-05	1.0163E-05	11.627	12.218	12.007	12.112	3.2681	-0.87015
1.0175E-05	1.0171E-05	11.674	12.169	11.693	12.415	0.16068	2.0248
1.0183E-05	1.0179E-05	12.233	11.609	12.108	11.998	-1.0213	3.3537
1.0192E-05	1.0188E-05	12.163	11.684	12.42	11.698	2.1149	0.1168
1.0200E-05	1.0196E-05	11.597	12.245	11.99	12.122	3.3947	-1.0047
1.0209E-05	1.0205E-05	11.687	12.159	11.697	12.422	0.087409	2.1695
1.0217E-05	1.0213E-05	12.251	11.591	12.127	11.98	-1.0121	3.354
1.0225E-05	1.0221E-05	12.15	11.694	12.421	11.694	2.2272	-0.0030279
1.0234E-05	1.0230E-05	11.586	12.258	11.961	12.159	3.2414	-0.80737
1.0242E-05	1.0238E-05	11.712	12.134	11.696	12.424	-0.13986	2.3924
1.0250E-05	1.0246E-05	12.269	11.575	12.15	11.961	-0.96978	3.3303
1.0259E-05	1.0255E-05	12.136	11.707	12.421	11.691	2.3506	-0.14217
1.0267E-05	1.0263E-05	11.56	12.278	11.943	12.168	3.3124	-0.91073
1.0275E-05	1.0271E-05	11.724	12.122	11.692	12.422	-0.27568	2.47
1.0284E-05	1.0280E-05	12.285	11.562	12.177	11.938	-0.88238	3.2505
1.0292E-05	1.0288E-05	12.125	11.722	12.422	11.704	2.4477	-0.1498
1.0300E-05	1.0296E-05	11.553	12.286	11.923	12.187	3.1989	-0.80575
1.0309E-05	1.0305E-05	11.74	12.103	11.689	12.417	-0.43439	2.5955
1.0317E-05	1.0313E-05	12.299	11.548	12.19	11.918	-0.88749	3.2047
1.0325E-05	1.0322E-05	12.099	11.748	12.418	11.706	2.632	-0.36109
1.0334E-05	1.0330E-05	11.544	12.299	11.904	12.207	3.1201	-0.74343
1.0342E-05	1.0338E-05	11.758	12.083	11.71	12.411	-0.41309	2.7099
1.0350E-05	1.0347E-05	12.308	11.536	12.23	11.889	-0.63339	3.156
1.0359E-05	1.0355E-05	12.079	11.768	12.409	11.711	2.7336	-0.48218
1.0367E-05	1.0363E-05	11.53	12.314	11.887	12.221	3.101	-0.75188
1.0375E-05	1.0372E-05	11.772	12.074	11.715	12.405	-0.48007	2.742
1.0384E-05	1.0380E-05	12.318	11.523	12.238	11.874	-0.64481	3.0448
1.0392E-05	1.0388E-05	12.058	11.786	12.399	11.713	2.8347	-0.62315
1.0401E-05	1.0397E-05	11.525	12.319	11.86	12.261	2.909	-0.47379
1.0409E-05	1.0405E-05	11.792	12.058	11.724	12.395	-0.5773	2.7958
1.0417E-05	1.0413E-05	12.322	11.523	12.272	11.852	-0.40647	2.8633
1.0426E-05	1.0422E-05	12.028	11.812	12.387	11.728	2.9892	-0.71732
1.0434E-05	1.0430E-05	11.521	12.321	11.844	12.272	2.8034	-0.39992
1.0442E-05	1.0438E-05	11.812	12.039	11.732	12.382	-0.67731	2.852
1.0451E-05	1.0447E-05	12.328	11.519	12.289	11.837	-0.31674	2.765
1.0459E-05	1.0455E-05	12.007	11.835	12.374	11.743	3.0594	-0.77712
1.0467E-05	1.0463E-05	11.52	12.322	11.827	12.288	2.6711	-0.27396
1.0475E-05	1.0472E-05	11.832	12.016	11.743	12.367	-0.7585	2.9206
1.0484E-05	1.0480E-05	12.327	11.52	12.286	11.827	-0.33477	2.6649
1.0492E-05	1.0488E-05	11.989	11.857	12.362	11.75	3.1129	-0.90185
1.0501E-05	1.0497E-05	11.522	12.322	11.816	12.297	2.5491	-0.19846
1.0509E-05	1.0505E-05	11.858	11.986	11.756	12.351	-0.86175	3.0392
1.0517E-05	1.0513E-05	12.323	11.522	12.293	11.813	-0.24187	2.5325
1.0526E-05	1.0522E-05	11.969	11.876	12.344	11.77	3.1295	-0.8954
1.0534E-05	1.0530E-05	11.567	12.32	11.804	12.315	2.4099	-0.0361
1.0542E-05	1.0538E-05	11.886	11.957	11.773	12.334	-0.95071	3.1515
1.0551E-05	1.0547E-05	12.317	11.528	12.315	11.799	-0.020705	2.3582
1.0559E-05	1.0555E-05	11.954	11.891	12.325	11.782	3.1026	-0.92096
1.0567E-05	1.0564E-05	11.534	12.315	11.795	12.322	2.2616	0.056951
1.0576E-05	1.0572E-05	11.905	11.942	11.802	12.315	-0.86454	3.1263
1.0584E-05	1.0580E-05	12.311	11.535	12.32	11.792	0.072854	2.2318
1.0593E-05	1.0589E-05	11.914	11.926	12.304	11.809	3.2719	-0.98507
1.0601E-05	1.0597E-05	11.54	12.307	11.784	12.34	2.1163	0.26613
1.0609E-05	1.0605E-05	11.937	11.908	11.824	12.295	-0.94393	3.2526
1.0617E-05	1.0614E-05	12.305	11.545	12.334	11.786	0.23401	2.0849
1.0626E-05	1.0622E-05	11.895	11.945	12.287	11.825	3.2915	-1.0087
1.0634E-05	1.0631E-05	11.547	12.298	11.777	12.342	1.9914	0.35893
1.0643E-05	1.0639E-05	11.954	11.889	11.839	12.275	-0.96408	3.2446
1.0651E-05	1.0647E-05	12.297	11.555	12.343	11.78	0.37353	1.9474
1.0659E-05	1.0655E-05	11.876	11.967	12.269	11.843	3.3163	-1.0315
1.0668E-05	1.0664E-05	11.556	12.285	11.774	12.336	1.8882	0.41305
1.0676E-05	1.0672E-05	11.964	11.879	11.849	12.257	-0.96211	3.1854
1.0684E-05	1.0680E-05	12.284	11.563	12.337	11.774	0.43218	1.8206
1.0693E-05	1.0689E-05	11.859	11.985	12.251	11.86	3.3055	-1.0484
1.0701E-05	1.0697E-05	11.567	12.278	11.771	12.343	1.765	0.52341
1.0709E-05	1.0705E-05	11.983	11.858	11.866	12.24	-0.97753	3.2206
1.0718E-05	1.0714E-05	12.273	11.572	12.342	11.769	0.56191	1.7058
1.0726E-05	1.0722E-05	11.857	11.899	12.23	11.878	3.146	-0.92074
1.0734E-05	1.0731E-05	11.578	12.272	11.768	12.346	1.6357	0.60568
1.0743E-05	1.0739E-05	11.995	11.853	11.908	12.217	-0.72722	3.0743
1.0751E-05	1.0747E-05	12.264	11.581	12.342	11.768	0.63206	1.6021
1.0759E-05	1.0755E-05	11.845	12	12.211	11.898	3.0929	-0.85491
1.0768E-05	1.0764E-05	11.887	12.261	11.764	12.349	1.5221	0.71374
1.0776E-05	1.0772E-05	12.017	11.832	11.925	12.2	-0.75854	3.1115
1.0784E-05	1.0780E-05	12.255	11.591	12.344	11.764	0.72406	1.4882
1.0793E-05	1.0789E-05	11.816	12.023	12.19	11.931	3.1593	-0.76653
1.0801E-05	1.0797E-05	11.597	12.244	11.761	12.358	1.4197	0.93371
1.0810E-05	1.0806E-05	12.044	11.801	11.934	12.184	-0.90668	3.2486
1.0818E-05	1.0814E-05	12.247	11.603	12.358	11.763	0.90792	1.3831
1.0826E-05	1.0823E-05	11.795	12.046	12.172	11.957	3.1936	-0.732

1.0835E-05	1.0831E-05	11.605	12.234	11.755	12.351	1.2872	0.95247
1.0843E-05	1.0839E-05	12.056	11.785	11.948	12.167	-0.89404	3.2435
1.0851E-05	1.0847E-05	12.241	11.609	12.355	11.756	0.92989	1.2684
1.0860E-05	1.0856E-05	11.786	12.059	12.159	11.965	3.1674	-0.77378
1.0868E-05	1.0864E-05	11.611	12.234	11.756	12.366	1.2529	1.0814
1.0876E-05	1.0872E-05	12.057	11.787	11.954	12.154	-0.85914	3.1123
1.0885E-05	1.0881E-05	12.233	11.614	12.36	11.752	1.0419	1.1854
1.0893E-05	1.0889E-05	11.764	12.079	12.142	11.984	3.2132	-0.78394
1.0901E-05	1.0897E-05	11.623	12.223	11.749	12.363	1.0808	1.1499
1.0910E-05	1.0906E-05	12.089	11.752	11.989	12.134	-0.82851	3.2526
1.0918E-05	1.0914E-05	12.226	11.62	12.362	11.745	1.1107	1.0743
1.0926E-05	1.0923E-05	11.747	12.092	12.126	11.995	3.2236	-0.80378
1.0935E-05	1.0931E-05	11.627	12.219	11.742	12.366	0.98183	1.2048
1.0943E-05	1.0939E-05	12.105	11.739	12.004	12.121	-0.83509	3.2547
1.0951E-05	1.0947E-05	12.225	11.625	12.369	11.74	1.1835	0.98827
1.0960E-05	1.0956E-05	11.731	12.107	12.11	12.01	3.2275	-0.80456
1.0968E-05	1.0964E-05	11.628	12.22	11.741	12.381	0.97413	1.3136
1.0976E-05	1.0973E-05	12.113	11.734	12.009	12.108	-0.86263	3.1886
1.0985E-05	1.0981E-05	12.211	11.636	12.383	11.74	1.4131	0.88915
1.0993E-05	1.0989E-05	11.726	12.117	12.101	12.008	3.1955	-0.89538
1.1001E-05	1.0998E-05	11.634	12.211	11.727	12.379	0.80439	1.3793
1.1010E-05	1.1006E-05	12.13	11.716	12.021	12.091	-0.90181	3.2089
1.1018E-05	1.1014E-05	12.21	11.639	12.386	11.728	1.4417	0.76395
1.1027E-05	1.1023E-05	11.695	12.145	12.081	12.043	3.2937	-0.83875
1.1035E-05	1.1031E-05	11.644	12.198	11.725	12.391	0.6923	1.5872
1.1043E-05	1.1039E-05	12.146	11.7	12.028	12.077	-0.96604	3.2026
1.1052E-05	1.1048E-05	12.196	11.651	12.392	11.72	1.6133	0.58828
1.1060E-05	1.1056E-05	11.685	12.59	12.061	12.067	3.2198	-0.76069
1.1068E-05	1.1065E-05	11.651	12.193	11.724	12.403	0.62554	1.7194
1.1077E-05	1.1073E-05	11.718	11.662	12.065	12.055	-0.92971	3.3698
1.1085E-05	1.1081E-05	12.189	11.655	12.4	11.712	1.7258	0.48942
1.1093E-05	1.1089E-05	11.659	12.183	12.051	12.058	3.2616	-1.0183
1.1102E-05	1.1098E-05	11.659	12.188	11.708	12.404	0.42528	1.7779
1.1110E-05	1.1106E-05	12.186	11.662	12.088	12.036	-0.80226	3.2126
1.1118E-05	1.1115E-05	12.181	11.662	12.408	11.708	1.8621	0.39509
1.1127E-05	1.1123E-05	11.638	12.201	12.031	12.078	3.3798	-1.0111
1.1135E-05	1.1131E-05	11.665	12.182	11.701	12.41	0.30034	1.8575
1.1143E-05	1.1140E-05	12.208	11.64	12.109	12.017	-0.81374	3.2394
1.1152E-05	1.1148E-05	12.176	11.669	12.413	11.697	1.9405	0.23779
1.1160E-05	1.1156E-05	11.627	12.214	12.007	12.109	3.2758	-0.85463
1.1168E-05	1.1165E-05	11.674	12.17	11.695	12.415	0.18332	2.0102
1.1177E-05	1.1173E-05	12.229	11.618	12.129	11.96	-0.81943	3.2569
1.1185E-05	1.1181E-05	12.165	11.683	12.42	11.7	2.1029	0.14435
1.1194E-05	1.1190E-05	11.597	12.241	11.99	12.125	3.3896	-0.95119
1.1202E-05	1.1198E-05	11.689	12.153	11.699	12.42	0.089115	2.2027
1.1210E-05	1.1206E-05	12.244	11.602	12.138	11.979	-0.86944	3.2461
1.1219E-05	1.1215E-05	12.152	11.695	12.423	11.701	2.2308	0.046327
1.1227E-05	1.1223E-05	11.583	12.259	11.974	12.136	3.3758	-1.0006
1.1235E-05	1.1231E-05	11.696	12.15	11.695	12.422	-0.008573	2.2453
1.1243E-05	1.1240E-05	12.261	11.583	12.165	11.955	-0.78414	3.2091
1.1252E-05	1.1248E-05	12.14	11.705	12.422	11.69	2.3204	-0.13314
1.1260E-05	1.1256E-05	11.577	12.269	11.949	12.165	3.2204	-0.85093
1.1269E-05	1.1265E-05	11.721	12.125	11.696	12.422	-0.29547	2.4536
1.1277E-05	1.1273E-05	12.282	11.561	12.172	11.94	-0.89427	2.8234
1.1285E-05	1.1281E-05	12.119	11.724	12.42	11.697	2.4872	-0.27251
1.1294E-05	1.1290E-05	11.55	12.289	11.924	12.192	3.2351	-0.78587
1.1302E-05	1.1298E-05	11.728	12.122	11.701	12.42	-0.22611	2.4598
1.1310E-05	1.1306E-05	12.297	11.549	12.188	11.923	-0.88138	3.2337
1.1319E-05	1.1315E-05	12.101	11.743	12.417	11.704	2.6167	-0.33208
1.1327E-05	1.1323E-05	11.546	12.296	11.906	12.204	3.1164	-0.74703
1.1335E-05	1.1331E-05	11.756	12.088	11.693	12.414	-0.53186	2.693
1.1344E-05	1.1340E-05	12.308	11.539	12.228	11.895	-0.64855	3.0879
1.1352E-05	1.1348E-05	12.082	11.763	12.412	11.711	2.7291	-0.44557
1.1361E-05	1.1356E-05	11.528	12.311	11.889	12.217	3.1287	-0.76026
1.1369E-05	1.1365E-05	11.77	12.074	11.713	12.405	-0.4819	2.7381
1.1377E-05	1.1373E-05	12.314	11.535	12.237	11.877	-0.62199	2.9685
1.1385E-05	1.1382E-05	12.064	11.783	12.403	11.711	2.8144	-0.60693
1.1394E-05	1.1390E-05	11.527	12.316	11.865	12.257	2.9342	-0.48318
1.1402E-05	1.1398E-05	11.784	12.063	11.714	12.396	-0.59791	2.7647
1.1411E-05	1.1407E-05	12.321	11.523	12.243	11.862	-0.63707	2.9422
1.1419E-05	1.1415E-05	12.028	11.815	12.39	11.727	3.0067	-0.74266
1.1427E-05	1.1423E-05	11.523	12.322	11.849	12.27	2.8225	-0.42171
1.1435E-05	1.1432E-05	11.807	12.042	11.73	12.385	-0.65079	2.8511
1.1444E-05	1.1440E-05	12.324	11.52	12.282	11.839	-0.33776	2.7565
1.1452E-05	1.1448E-05	12.012	11.83	12.376	11.74	3.0266	-0.7698
1.1461E-05	1.1457E-05	11.522	12.324	11.832	12.283	2.6897	-0.32556
1.1469E-05	1.1465E-05	11.83	12.021	11.742	12.371	-0.73964	2.9138
1.1477E-05	1.1473E-05	12.326	11.518	12.284	11.829	-0.34435	2.7037
1.1486E-05	1.1482E-05	11.99	11.851	12.363	11.748	3.1142	-0.87403
1.1494E-05	1.1490E-05	11.52	12.322	11.818	12.395	2.5855	-0.21742
1.1502E-05	1.1498E-05	11.861	11.985	11.756	12.354	-0.88714	3.0842
1.1511E-05	1.1507E-05	12.324	11.523	12.305	11.814	-0.15899	2.5254
1.1519E-05	1.1515E-05	11.978	11.867	12.347	11.766	3.0807	-0.84867
1.1527E-05	1.1524E-05	11.526	12.319	11.806	12.306	2.429	-0.10464
1.1536E-05	1.1532E-05	11.876	11.97	11.768	12.338	-0.91205	3.0694
1.1544E-05	1.1540E-05	12.32	11.529	12.32	11.802	0.0023624	2.9368
1.1552E-05	1.1548E-05	11.959	11.889	12.33	11.78	3.1055	-0.21261
1.1561E-05	1.1557E-05	11.529	12.314	11.795	12.323	2.3041	0.076748
1.1569E-05	1.1565E-05	11.91	11.93	11.788	12.319	-1.0233	3.2568
1.1577E-05	1.1574E-05	12.313	11.534	12.322	11.793	0.076472	2.4944
1.1586E-05	1.1582E-05	11.943	11.906	12.309	11.808	3.0624	-0.82271
1.1594E-05	1.1590E-05	11.537	12.307	11.789	12.319	2.1842	0.092899
1.1603E-05	1.1599E-05	11.93	11.913	11.806	12.301	-1.0377	3.2609
1.1611E-05	1.1607E-05	12.304	11.541	12.336	11.785	0.25842	2.1802
1.1619E-05	1.1615E-05	11.898	11.943	12.29	11.822	2.3934	-1.0138
1.1627E-05	1.1624E-05	11.547	12.301	11.78	12.344	2.0185	0.35249
1.1636E-05	1.1632E-05	11.951	11.893	11.837	12.28	-0.9527	3.2489
1.1644E-05	1.1640E-05	12.298	11.552	12.341	11.779	0.35267	1.9731
1.1653E-05	1.1649E-05	11.877	11.963	12.271	11.838	3.3156	-1.0426
1.1661E-05	1.1657E-05	11.555	12.288	11.775	12.338	1.9069	0.39997

1.1669E-05	1.1666E-05	11.972	11.871	11.864	12.258	-0.90152	3.2606
1.1678E-05	1.1674E-05	12.289	11.562	12.345	11.776	0.45664	1.8504
1.1686E-05	1.1682E-05	11.867	11.975	12.247	11.878	3.1971	-0.81082
1.1694E-05	1.1691E-05	11.564	12.28	11.771	12.35	1.783	0.56896
1.1703E-05	1.1699E-05	11.982	11.861	11.863	12.243	-0.99407	3.2226
1.1711E-05	1.1707E-05	12.276	11.571	12.344	11.772	0.5536	1.7321
1.1719E-05	1.1716E-05	11.845	11.997	12.228	11.9	3.2324	-0.80822
1.1728E-05	1.1724E-05	11.575	12.272	11.767	12.341	1.6609	0.56407
1.1736E-05	1.1732E-05	11.994	11.85	11.906	12.218	-0.73699	3.0991
1.1744E-05	1.1740E-05	12.267	11.581	12.343	11.767	0.61602	1.611
1.1753E-05	1.1749E-05	11.83	12.013	12.21	11.919	3.2104	-0.77804
1.1761E-05	1.1757E-05	11.587	12.256	11.764	12.343	1.5304	0.71466
1.1769E-05	1.1766E-05	12.006	11.842	11.92	12.202	-0.71912	3.0419
1.1778E-05	1.1774E-05	12.258	11.589	12.341	11.763	0.68087	1.4984
1.1786E-05	1.1782E-05	11.814	12.028	12.191	11.937	3.185	-0.75357
1.1794E-05	1.1791E-05	11.594	12.254	11.762	12.352	1.4465	0.79915
1.1803E-05	1.1799E-05	12.036	11.806	11.938	12.186	-0.81609	3.2179
1.1811E-05	1.1807E-05	12.249	11.598	12.352	11.761	0.84458	1.41
1.1820E-05	1.1816E-05	11.796	12.044	12.173	11.953	3.2007	-0.75297
1.1828E-05	1.1824E-05	11.603	12.243	11.758	12.366	1.3354	0.92187
1.1836E-05	1.1832E-05	12.043	11.805	11.943	12.173	-0.83183	3.117
1.1845E-05	1.1841E-05	12.242	11.607	12.353	11.758	0.90738	1.3027
1.1853E-05	1.1849E-05	11.795	12.048	12.162	11.958	3.1108	-0.74138
1.1861E-05	1.1858E-05	11.612	12.229	11.755	12.363	1.2363	1.0967
1.1870E-05	1.1866E-05	12.058	11.789	11.958	12.156	-0.83332	3.1146
1.1878E-05	1.1874E-05	12.238	11.614	12.367	11.757	1.054	1.2311
1.1886E-05	1.1882E-05	11.773	12.07	12.147	11.975	3.1829	-0.78726
1.1895E-05	1.1891E-05	11.618	12.222	11.746	12.356	1.098	1.0952
1.1903E-05	1.1899E-05	12.081	11.759	11.979	12.138	-0.84427	3.2209
1.1911E-05	1.1907E-05	12.229	11.62	12.361	11.746	1.0813	1.083
1.1920E-05	1.1916E-05	11.752	12.092	12.13	11.995	3.2221	-0.79955
1.1928E-05	1.1924E-05	11.627	12.217	11.743	12.366	1.0026	1.2198
1.1937E-05	1.1933E-05	12.101	11.738	12	12.122	-0.83396	3.2692
1.1945E-05	1.1941E-05	12.223	11.624	12.367	11.74	1.1806	0.99607
1.1953E-05	1.1949E-05	11.736	12.106	12.115	12.005	3.2311	-0.83174
1.1961E-05	1.1958E-05	11.629	12.221	11.744	12.362	0.96511	1.314
1.1970E-05	1.1966E-05	12.11	11.735	12.007	12.111	-0.85217	3.2001
1.1978E-05	1.1974E-05	12.209	11.633	12.38	11.738	1.3954	0.90429
1.1986E-05	1.1983E-05	11.729	12.114	12.103	12.006	3.1891	-0.88482
1.1995E-05	1.1991E-05	11.636	12.21	11.731	12.381	0.81342	1.3999
1.2000E-05	1.1999E-05	12.062	12.082	12.012	12.099	-0.41405	0.14599

Fig5.21_Exactan72_SinLO_24dBlo



max discharge of CAP1		-0.33246
max discharge of CAP2		0.011489
max discharge of CAP1 and CAP2		-0.33246

t0	t1	Vcap1(t0)	Vcap2(t0)	Vcap1(t1)	Vcap2(t1)	percentageCAP1	percentageCAP2
1.0008E-05	1.0004E-05	11.777	12.064	11.89	12.219	0.95874	1.2784
1.0017E-05	1.0013E-05	12.032	11.808	12.037	12.07	0.046479	2.2138
1.0025E-05	1.0021E-05	12.066	11.782	12.222	11.892	1.2874	0.93321
1.0033E-05	1.0029E-05	11.807	12.04	12.069	12.058	2.2167	0.14825
1.0042E-05	1.0038E-05	11.785	12.059	11.889	12.225	0.88284	1.3776
1.0050E-05	1.0046E-05	12.038	11.803	12.047	12.062	0.071726	2.1935
1.0058E-05	1.0054E-05	12.056	11.785	12.223	11.886	1.389	0.85277
1.0067E-05	1.0063E-05	11.804	12.043	12.058	12.049	2.1535	0.045417
1.0075E-05	1.0071E-05	11.789	12.059	11.882	12.226	0.78614	1.381
1.0083E-05	1.0079E-05	12.05	11.796	12.063	12.056	0.10565	2.2049
1.0092E-05	1.0088E-05	12.053	11.787	12.228	11.883	1.4446	0.81449
1.0100E-05	1.0096E-05	11.789	12.052	12.047	12.076	2.1831	0.20144
1.0108E-05	1.0104E-05	11.792	12.055	11.88	12.23	0.74005	1.4529
1.0117E-05	1.0113E-05	12.063	11.787	12.072	12.048	0.078373	2.2217
1.0125E-05	1.0121E-05	12.05	11.793	12.235	11.884	1.5306	0.76901
1.0133E-05	1.0130E-05	11.783	12.059	12.038	12.087	2.1602	0.22999
1.0142E-05	1.0138E-05	11.794	12.049	11.879	12.234	0.72209	1.5404
1.0150E-05	1.0146E-05	12.071	11.778	12.078	12.037	0.080707	2.1961
1.0159E-05	1.0155E-05	12.048	11.8	12.239	11.882	1.5838	0.69501
1.0167E-05	1.0163E-05	11.766	12.075	12.031	12.093	2.2481	0.1505
1.0175E-05	1.0171E-05	11.799	12.04	11.872	12.235	0.62218	1.6114
1.0184E-05	1.0180E-05	12.081	11.761	12.079	12.024	-0.017257	2.2367
1.0192E-05	1.0188E-05	12.044	11.804	12.24	11.879	1.6248	0.63492
1.0200E-05	1.0196E-05	11.761	12.085	12.022	12.106	2.217	0.16996
1.0209E-05	1.0205E-05	11.805	12.038	11.871	12.238	0.55848	1.6637
1.0217E-05	1.0213E-05	12.086	11.755	12.107	12.013	0.17386	2.1962
1.0225E-05	1.0221E-05	12.034	11.809	12.238	11.875	1.6924	0.55293
1.0234E-05	1.0230E-05	11.75	12.096	12.01	12.12	2.207	0.19507
1.0242E-05	1.0238E-05	11.814	12.036	11.877	12.243	0.53247	1.7181
1.0250E-05	1.0246E-05	12.096	11.747	12.114	12.006	0.14631	2.2
1.0259E-05	1.0255E-05	12.028	11.813	12.238	11.875	1.7466	0.52773
1.0267E-05	1.0263E-05	11.747	12.098	11.997	12.104	2.1254	0.051066
1.0275E-05	1.0271E-05	11.822	12.03	11.876	12.241	0.4571	1.7544
1.0284E-05	1.0280E-05	12.107	11.742	12.129	11.997	0.17728	2.1709
1.0292E-05	1.0288E-05	12.022	11.822	12.239	11.877	1.8103	0.46117
1.0300E-05	1.0297E-05	11.734	12.104	11.985	12.136	2.1405	0.2686
1.0309E-05	1.0305E-05	11.827	12.02	11.874	12.236	0.39498	1.8048
1.0317E-05	1.0313E-05	12.114	11.739	12.141	11.986	0.21944	2.0978
1.0325E-05	1.0321E-05	12.014	11.836	12.238	11.875	1.859	0.33508
1.0334E-05	1.0330E-05	11.732	12.111	11.978	12.151	2.0963	0.33161
1.0342E-05	1.0338E-05	11.833	12.009	11.874	12.232	0.34544	1.8552
1.0350E-05	1.0347E-05	12.117	11.728	12.145	11.973	0.2283	2.0867
1.0359E-05	1.0355E-05	12.004	11.847	12.235	11.885	1.9227	0.31822
1.0367E-05	1.0363E-05	11.728	12.12	11.97	12.148	2.0674	0.23487
1.0375E-05	1.0372E-05	11.847	11.965	11.885	12.232	0.32184	1.9719
1.0384E-05	1.0380E-05	12.118	11.723	12.147	11.962	0.23583	2.0385
1.0392E-05	1.0388E-05	11.991	11.855	12.226	11.881	1.9601	0.22177
1.0400E-05	1.0397E-05	11.727	12.124	11.961	12.157	1.9926	0.26723
1.0409E-05	1.0405E-05	11.861	11.988	11.891	12.228	0.25024	2.0069
1.0417E-05	1.0413E-05	12.122	11.718	12.16	11.955	0.30894	2.0193
1.0426E-05	1.0422E-05	11.971	11.867	12.22	11.89	2.0752	0.19529
1.0434E-05	1.0430E-05	11.722	12.123	11.949	12.159	1.9313	0.29553
1.0442E-05	1.0438E-05	11.875	11.976	11.897	12.222	0.18567	2.0486
1.0451E-05	1.0447E-05	12.127	11.722	12.173	11.95	0.38304	1.9448
1.0459E-05	1.0455E-05	11.965	11.875	12.214	11.898	2.0805	0.18758
1.0467E-05	1.0464E-05	11.717	12.121	11.94	12.178	1.9023	0.46501
1.0476E-05	1.0472E-05	11.885	11.961	11.894	12.21	0.082319	2.0829
1.0484E-05	1.0480E-05	12.128	11.725	12.17	11.942	0.34485	1.8555
1.0492E-05	1.0488E-05	11.963	11.887	12.209	11.904	2.0594	0.14509
1.0501E-05	1.0497E-05	11.72	12.121	11.934	12.175	1.8258	0.44083
1.0509E-05	1.0505E-05	11.89	11.952	11.904	12.2	0.11578	2.0738
1.0517E-05	1.0514E-05	12.125	11.723	12.189	11.935	0.53045	1.8023
1.0526E-05	1.0522E-05	11.954	11.899	12.201	11.91	2.0673	0.093669
1.0534E-05	1.0530E-05	11.725	12.123	11.932	12.185	1.7639	0.51633
1.0542E-05	1.0538E-05	11.903	11.938	11.913	12.193	0.086175	2.1411
1.0551E-05	1.0547E-05	12.119	11.721	12.175	11.924	0.45901	1.7293
1.0559E-05	1.0555E-05	11.944	11.908	12.189	11.918	2.0498	0.091118
1.0567E-05	1.0564E-05	11.73	12.122	11.927	12.192	1.6847	0.57796
1.0576E-05	1.0572E-05	11.914	11.934	11.925	12.187	0.091977	2.121
1.0584E-05	1.0580E-05	12.116	11.726	12.181	11.921	0.53247	1.6666
1.0593E-05	1.0589E-05	11.919	11.921	12.177	11.929	2.1649	0.064082
1.0601E-05	1.0597E-05	11.732	12.117	11.92	12.193	1.6051	0.62882
1.0609E-05	1.0605E-05	11.927	11.927	11.934	12.178	0.059306	2.1062
1.0618E-05	1.0614E-05	12.115	11.733	12.199	11.923	0.6955	1.6246
1.0626E-05	1.0622E-05	11.909	11.929	12.169	11.938	2.1764	0.072721
1.0634E-05	1.0630E-05	11.733	12.108	11.914	12.191	1.5454	0.68296
1.0643E-05	1.0639E-05	11.941	11.906	11.939	12.165	-0.018457	2.1771
1.0651E-05	1.0647E-05	12.114	11.741	12.195	11.92	0.67281	1.5219
1.0659E-05	1.0655E-05	11.905	11.939	12.162	11.947	2.1548	0.06505
1.0668E-05	1.0664E-05	11.737	12.104	11.916	12.205	1.5232	0.83816
1.0676E-05	1.0672E-05	11.943	11.888	11.96	12.154	0.13531	2.1484
1.0684E-05	1.0681E-05	12.108	11.745	12.207	11.919	0.81625	1.4813
1.0693E-05	1.0689E-05	11.898	11.952	12.155	11.975	2.155	0.19108
1.0701E-05	1.0697E-05	11.745	12.102	11.913	12.197	1.4295	0.78532
1.0709E-05	1.0706E-05	11.953	11.884	11.974	12.145	0.18006	2.2
1.0718E-05	1.0714E-05	12.098	11.745	12.203	11.912	0.86553	1.4263
1.0726E-05	1.0722E-05	11.888	11.961	12.142	11.968	2.1377	0.059967
1.0734E-05	1.0731E-05	11.753	12.098	11.918	12.214	1.4058	0.95794
1.0743E-05	1.0739E-05	11.966	11.876	11.97	12.139	0.032872	2.2159
1.0751E-05	1.0747E-05	12.091	11.748	12.206	11.912	0.95196	1.4008
1.0759E-05	1.0755E-05	11.879	11.963	12.13	11.974	2.1113	0.092996
1.0768E-05	1.0764E-05	11.757	12.093	11.912	12.207	1.319	0.94024
1.0776E-05	1.0772E-05	11.978	11.873	11.98	12.133	0.021097	2.187
1.0784E-05	1.0781E-05	12.09	11.756	12.211	11.915	1.0042	1.3539
1.0793E-05	1.0789E-05	11.867	11.97	12.122	11.989	2.1477	0.15575
1.0801E-05	1.0797E-05	11.757	12.086	11.903	12.198	1.2397	0.93137
1.0810E-05	1.0806E-05	11.981	11.869	11.985	12.122	0.029447	2.1317
1.0818E-05	1.0814E-05	12.089	11.764	12.206	11.91	0.964	1.2449
1.0826E-05	1.0822E-05	11.865	11.98	12.117	11.994	2.1254	0.12168

1.0834E-05	1.0831E-05	11.76	12.081	11.907	12.211	1.2579	1.0767
1.0843E-05	1.0839E-05	11.988	11.854	11.993	12.11	0.045405	2.1646
1.0851E-05	1.0847E-05	12.084	11.768	12.206	11.907	1.0062	1.1832
1.0860E-05	1.0856E-05	11.856	11.993	12.112	12.027	2.162	0.28314
1.0868E-05	1.0864E-05	11.765	12.078	11.906	12.21	1.1938	1.0943
1.0876E-05	1.0872E-05	11.989	11.855	12.001	12.102	0.089304	2.0837
1.0885E-05	1.0881E-05	12.078	11.768	12.206	11.902	1.055	1.1379
1.0893E-05	1.0889E-05	11.845	12.003	12.102	12.009	2.1692	0.0503
1.0901E-05	1.0898E-05	11.771	12.077	11.906	12.215	1.1453	1.1495
1.0910E-05	1.0906E-05	12	11.843	12.011	12.097	0.089987	2.1463
1.0918E-05	1.0914E-05	12.069	11.771	12.21	11.901	1.169	1.1044
1.0926E-05	1.0923E-05	11.837	12.007	12.091	12.023	2.1478	0.13798
1.0935E-05	1.0931E-05	11.776	12.073	11.901	12.215	1.0612	1.1696
1.0943E-05	1.0939E-05	12.012	11.835	12.021	12.092	0.074374	2.1674
1.0951E-05	1.0948E-05	12.072	11.772	12.217	11.902	1.2059	1.1005
1.0960E-05	1.0956E-05	11.829	12.012	12.082	12.039	2.1416	0.22401
1.0968E-05	1.0964E-05	11.777	12.071	11.891	12.21	0.97089	1.1523
1.0977E-05	1.0973E-05	12.024	11.825	12.033	12.084	0.074844	2.1919
1.0985E-05	1.0981E-05	12.066	11.779	12.22	11.899	1.2806	1.0129
1.0993E-05	1.0989E-05	11.817	12.022	12.076	12.039	2.1935	0.14162
1.1001E-05	1.0997E-05	11.777	12.068	11.886	12.213	0.92518	1.2011
1.1010E-05	1.1006E-05	12.032	11.814	12.037	12.073	0.041382	2.1958
1.1018E-05	1.1014E-05	12.07	11.782	12.22	11.891	1.237	0.92469
1.1027E-05	1.1023E-05	11.814	12.031	12.07	12.054	2.1668	0.18725
1.1035E-05	1.1031E-05	11.782	12.057	11.887	12.222	0.89119	1.3648
1.1043E-05	1.1039E-05	12.036	11.808	12.044	12.063	0.064276	2.1637
1.1052E-05	1.1048E-05	12.06	11.787	12.225	11.889	1.3678	0.85918
1.1060E-05	1.1056E-05	11.8	12.046	12.062	12.064	2.2159	0.14921
1.1068E-05	1.1064E-05	11.786	12.057	11.883	12.226	0.82242	1.3964
1.1077E-05	1.1073E-05	12.045	11.796	12.058	12.055	0.10306	2.2016
1.1085E-05	1.1081E-05	12.055	11.787	12.227	11.883	1.4237	0.81289
1.1093E-05	1.1090E-05	11.792	12.054	12.051	12.077	2.1985	0.18519
1.1102E-05	1.1098E-05	11.794	12.054	11.888	12.236	0.79614	1.5051
1.1110E-05	1.1106E-05	12.058	11.786	12.066	12.048	0.06131	2.2283
1.1118E-05	1.1115E-05	12.049	11.79	12.232	11.882	1.5118	0.77295
1.1127E-05	1.1123E-05	11.787	12.058	12.04	12.062	2.1521	0.031316
1.1135E-05	1.1131E-05	11.796	12.052	11.883	12.237	0.73464	1.5316
1.1143E-05	1.1140E-05	12.07	11.781	12.079	12.04	0.075363	2.2012
1.1152E-05	1.1148E-05	12.047	11.797	12.236	11.88	1.5757	0.7082
1.1160E-05	1.1156E-05	11.77	12.068	12.03	12.086	2.2104	0.14408
1.1168E-05	1.1165E-05	11.798	12.044	11.873	12.234	0.63172	1.5761
1.1177E-05	1.1173E-05	12.08	11.767	12.078	12.029	-0.020618	2.2245
1.1185E-05	1.1181E-05	12.041	11.807	12.241	11.881	1.6574	0.62882
1.1194E-05	1.1190E-05	11.759	12.083	12.022	12.12	2.239	0.15549
1.1202E-05	1.1198E-05	11.804	12.035	11.87	12.236	0.55195	1.6684
1.1210E-05	1.1206E-05	12.085	11.76	12.099	12.016	0.11374	2.1764
1.1219E-05	1.1215E-05	12.037	11.811	12.24	11.877	1.6891	0.56213
1.1227E-05	1.1223E-05	11.758	12.09	12.013	12.098	2.1686	0.060579
1.1235E-05	1.1231E-05	11.81	12.036	11.876	12.241	0.56045	1.7044
1.1243E-05	1.1240E-05	12.093	11.752	12.109	12.006	0.1288	2.1542
1.1252E-05	1.1248E-05	12.032	11.814	12.237	11.871	1.7088	0.48201
1.1260E-05	1.1256E-05	11.745	12.1	12.002	12.106	2.1874	0.04895
1.1269E-05	1.1265E-05	11.82	12.028	11.883	12.244	0.53655	1.7941
1.1277E-05	1.1273E-05	12.103	11.741	12.114	11.997	0.088852	2.1792
1.1285E-05	1.1281E-05	12.024	11.82	12.238	11.874	1.7794	0.45797
1.1294E-05	1.1290E-05	11.735	12.107	11.989	12.136	2.1672	0.2352
1.1302E-05	1.1298E-05	11.826	12.024	11.875	12.239	0.41109	1.7857
1.1310E-05	1.1307E-05	12.111	11.74	12.136	11.988	0.21064	2.1118
1.1319E-05	1.1315E-05	12.013	11.831	12.235	11.873	1.8493	0.34941
1.1327E-05	1.1323E-05	11.732	12.11	11.978	12.148	2.096	0.31309
1.1336E-05	1.1332E-05	11.842	12.002	11.875	12.234	0.27934	1.9399
1.1344E-05	1.1340E-05	12.118	11.729	12.146	11.977	0.22579	2.1175
1.1352E-05	1.1348E-05	11.999	11.846	12.237	11.887	1.9772	0.3393
1.1361E-05	1.1357E-05	11.723	12.117	11.97	12.156	2.1014	0.19398
1.1369E-05	1.1365E-05	11.843	12.004	11.877	12.23	0.29251	1.8819
1.1377E-05	1.1373E-05	12.121	11.726	12.138	11.965	0.14194	2.0366
1.1385E-05	1.1382E-05	11.995	11.854	12.229	11.882	1.9567	0.23773
1.1394E-05	1.1390E-05	11.725	12.121	11.962	12.154	0.2043	0.2715
1.1402E-05	1.1398E-05	11.856	11.988	11.888	12.227	0.27248	1.9903
1.1411E-05	1.1407E-05	12.122	12.121	12.153	11.956	0.25493	0.25493
1.1419E-05	1.1415E-05	11.985	11.862	12.222	11.889	1.9854	0.22151
1.1427E-05	1.1423E-05	11.723	12.124	11.953	12.16	1.9578	0.29778
1.1436E-05	1.1432E-05	11.869	11.978	11.888	12.221	0.161	2.0337
1.1444E-05	1.1440E-05	12.124	11.72	12.169	11.949	0.37407	1.9574
1.1452E-05	1.1448E-05	11.967	11.875	12.115	11.894	2.0713	0.16655
1.1461E-05	1.1457E-05	11.719	12.125	11.944	12.18	1.9149	0.46002
1.1469E-05	1.1465E-05	11.883	11.964	11.895	12.214	0.099468	2.0845
1.1477E-05	1.1473E-05	12.126	11.721	12.165	11.947	0.32528	1.882
1.1486E-05	1.1482E-05	11.961	11.883	12.208	11.901	2.06241	0.15235
1.1494E-05	1.1490E-05	11.72	12.122	11.935	12.172	1.8318	0.41272
1.1502E-05	1.1498E-05	11.891	11.958	11.899	12.204	0.072495	2.0587
1.1511E-05	1.1507E-05	12.126	11.724	12.119	11.937	0.52724	1.824
1.1519E-05	1.1515E-05	11.953	11.895	12.201	11.908	2.0722	0.10702
1.1527E-05	1.1524E-05	11.722	12.121	11.93	12.182	1.7768	0.50617
1.1536E-05	1.1532E-05	11.901	11.942	11.912	12.195	0.092612	2.1231
1.1544E-05	1.1540E-05	12.122	12.124	12.191	11.93	0.56351	1.762
1.1553E-05	1.1548E-05	11.933	11.913	12.192	11.919	2.1706	0.043142
1.1561E-05	1.1557E-05	11.728	12.121	11.926	12.184	1.6855	0.52042
1.1569E-05	1.1565E-05	11.911	11.932	11.92	12.186	0.075087	2.1259
1.1577E-05	1.1574E-05	12.118	11.726	12.183	11.923	0.54367	1.6778
1.1586E-05	1.1582E-05	11.923	11.922	12.182	11.931	2.1731	0.07487
1.1594E-05	1.1590E-05	11.733	12.119	11.924	12.198	1.6281	0.65285
1.1602E-05	1.1599E-05	11.922	11.926	11.929	12.178	0.062053	2.1086
1.1611E-05	1.1607E-05	12.114	11.713	12.201	11.922	0.71718	1.6393
1.1619E-05	1.1615E-05	11.91	11.931	12.171	11.936	1.5896	0.039953
1.1628E-05	1.1624E-05	11.734	12.112	11.917	12.188	2.1535	0.62524
1.1636E-05	1.1632E-05	11.933	11.917	11.939	12.169	0.048964	2.118
1.1644E-05	1.1640E-05	12.111	11.736	12.198	11.919	0.72041	1.5575
1.1653E-05	1.1649E-05	11.901	11.939	12.161	11.942	2.1792	0.026955
1.1661E-05	1.1657E-05	11.737	12.105	11.914	12.196	1.5045	0.75250

1.1669E-05	1.1665E-05	11.943	11.907	11.95	12.159	0.061463	2.1129
1.1678E-05	1.1674E-05	12.108	11.743	12.193	11.916	0.7014	1.4723
1.1686E-05	1.1682E-05	11.894	11.948	12.153	11.953	2.1744	0.036789
1.1694E-05	1.1690E-05	11.741	12.098	11.912	12.2	1.4533	0.84019
1.1703E-05	1.1699E-05	11.954	11.889	11.962	12.147	0.074324	2.1733
1.1711E-05	1.1707E-05	12.102	11.747	12.205	11.916	0.85398	1.4392
1.1719E-05	1.1715E-05	11.887	11.959	12.146	11.969	2.1788	0.078799
1.1728E-05	1.1724E-05	11.747	12.094	11.912	12.203	1.404	0.90124
1.1736E-05	1.1732E-05	11.962	11.878	11.966	12.138	0.029254	2.1901
1.1744E-05	1.1741E-05	12.095	11.75	12.207	11.914	0.92761	1.3935
1.1753E-05	1.1749E-05	11.877	11.969	12.136	11.98	2.1799	0.086752
1.1761E-05	1.1757E-05	11.754	12.093	11.916	12.213	1.3721	0.98271
1.1770E-05	1.1766E-05	11.969	11.873	11.978	12.131	0.073213	2.1762
1.1778E-05	1.1774E-05	12.089	11.754	12.197	11.906	0.88671	1.3001
1.1786E-05	1.1782E-05	11.868	11.975	12.125	11.988	2.1622	0.11002
1.1794E-05	1.1791E-05	11.76	12.09	11.909	12.205	1.271	0.95665
1.1803E-05	1.1799E-05	11.976	11.874	11.984	12.124	0.06819	2.1035
1.1811E-05	1.1807E-05	12.084	11.759	12.204	11.909	0.99128	1.2745
1.1820E-05	1.1816E-05	11.857	11.982	12.116	11.992	2.1803	0.088289
1.1828E-05	1.1824E-05	11.762	12.083	11.907	12.208	1.2355	1.6327
1.1836E-05	1.1832E-05	11.984	11.87	11.994	12.115	0.080343	2.0657
1.1845E-05	1.1841E-05	12.082	11.766	12.211	11.911	1.0639	1.2313
1.1853E-05	1.1849E-05	11.853	11.988	12.11	12.004	2.1695	0.13456
1.1861E-05	1.1857E-05	11.764	12.077	11.904	12.208	1.1963	1.0883
1.1870E-05	1.1866E-05	11.993	11.852	12.001	12.105	0.064017	2.136
1.1878E-05	1.1874E-05	12.08	11.77	12.207	11.905	1.0564	1.1393
1.1886E-05	1.1882E-05	11.845	12	12.104	12.015	2.183	0.12166
1.1895E-05	1.1891E-05	11.768	12.073	11.904	12.212	1.158	1.1551
1.1903E-05	1.1899E-05	12.002	11.837	12.009	12.096	0.057443	2.1879
1.1911E-05	1.1907E-05	12.076	11.772	12.208	11.9	1.0937	1.0939
1.1920E-05	1.1916E-05	11.843	12.007	12.096	12.013	2.1366	0.055628
1.1928E-05	1.1924E-05	11.773	12.074	11.899	12.211	1.0679	1.1343
1.1936E-05	1.1932E-05	12.005	11.841	12.016	12.09	0.097025	2.1039
1.1945E-05	1.1941E-05	12.071	11.772	12.21	11.896	1.1469	1.0574
1.1953E-05	1.1949E-05	11.832	12.013	12.086	12.04	2.1475	0.22533
1.1961E-05	1.1957E-05	11.778	12.073	11.895	12.213	0.9912	1.1563
1.1970E-05	1.1966E-05	12.017	11.833	12.029	12.085	0.10302	2.1291
1.1978E-05	1.1974E-05	12.064	11.776	12.216	11.896	1.2608	1.014
1.1986E-05	1.1983E-05	11.826	12.018	12.076	12.04	2.1148	0.18553
1.1995E-05	1.1991E-05	11.781	12.065	11.894	12.22	0.95956	1.2852
1.2000E-05	1.1999E-05	12.076	12.076	12.036	12.077	-0.33246	0.011489