

EXHIBIT C

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
SOUTHERN DISTRICT

HID GLOBAL CORPORATION, a
Delaware corporation; ASSA ABLOY AB, a
Swedish Limited Liability Company; and
DESTRON FEARING CORPORATION, a
Delaware corporation,

Plaintiffs,

vs.

FARPOINTE DATA, INC., a California
corporation,

Defendant.

Case No.: SACV 10-01954 JVS (RNBx)

**FARPOINTE DATA, INC.'S
EXPERT REPORT OF
ROGER G. STEWART**

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I. INTRODUCTION

I, Roger Stewart, am retained by Defendant, Farpointe Data, Inc. and I submit this report on behalf of Farpointe Data, Inc.

A. General Background

1. I am currently working full time as President of Sourland Mountain Associates LLP, a small independent company that provides technical and patent consulting in the field of RFID tags and readers. My curriculum vita is attached as **Exhibit 1** to this report along with a list of my 94 published papers and 110 issued U.S. patents. I may testify with respect to my responsibilities, my experiences, and the information listed in **Exhibit 1**.
2. Prior to my full-time employment at Sourland, I served as VP of Engineering at Applied Wireless Identifications designing RFID readers in Morgan Hill, California between 2005 and 2006. Before that I was a Founder and the Chief Technical Officer at the Intellex Corporation in San Jose, California from 2003-2005 designing long-range RFID readers and tags; VP Engineering & CTO at Alien Technology Corporation in Morgan Hill, California from 1999-2002; and served as a Laboratory Director at RCA Laboratories/Sarnoff Corporation in Princeton, N.J. between 1973 and 1999.
3. My education includes receiving a BS-EE from Johns Hopkins University in Baltimore, Md., and a MS-EE from Lehigh University in Bethlehem, Pa. My studies included semiconductors and solid state circuits, with a strong minor in physics.
4. I am currently an active member of the Institute of Electrical & Electronic Engineers ("IEEE"), the Society of Information Display ("SID"), and the Eta Kappa Nu (EE Honor Society). In 1997, I was elected as a Fellow of the IEEE and was also designated a Fellow of SID in 2009. I have served as Chairman of the IEEE SOS Workshop, ISSCC Technical Committee from 1986-1989, SID Technical Committee 1989 to the present, and most recently served as a co-organizer and Technical Session Chairman of the IEEE RFID 2010 Conference.
5. I am being compensated for my work in connection with this matter at my standard rate of \$400/hour for all work including testifying at trial and deposition. This Compensation is unrelated to the outcome of this matter.
6. I have 15 years' experience as an expert witness in the subject areas of AMLCDs, semiconductors, solid-state circuits, and radio frequency identification ("RFID"). I have provided more than 100 hours of expert testimony at numerous depositions and recently provided expert testimony at trial in the LG Philips LCD., Ltd. v. Chunghwa Picture Tubes patent case and three ITC trials between Samsung and Sharp in Washington, D.C.

7. I have been retained by Farpointe Data, Inc. and have been asked to provide my opinion with respect to the infringement and validity of United States Patents No. 5,952,935 (the “935 Patent”) (claims 17, 18 and 19) and No. 7,439,862 (claims 1, 2, 3, 4, 5, 6, 9, 10, 13, 14, 16, 17, 18, 19, 20, 21 and 22). The ‘935 Patent is attached to this Report as **Exhibit 2**. The ‘862 Patent is attached to this Report as **Exhibit 3**. In general I understand that my task is to review materials and to provide technical teaching and opinions regarding the alleged infringement by Farpointe Data, Inc. (“Farpointe”) of claims of the patents asserted by HID Global Corp. (“HID”).
8. I expect to testify at trial regarding the ‘935 and ‘862 patents, their invalidity, and whether the Accused Products infringe the asserted claims in this case, including the matters discussed in this expert and in any supplemental reports or declarations that I may prepare for this litigation. I also expect to testify about the context of ‘935 and ‘862 patents, the history of the technology preceding and following the invention, and the state of the art both before and after the filing of the ‘935 and ‘862 patents. I also expect to testify at trial with respect to matters addressed by any expert testifying on behalf of HID Global Corp. I may also testify on other matters relevant to this case, if asked by the Court or by the parties’ counsel.
9. In arriving at my opinions in this case, I have considered a number of different sources of information that are identified below in the attached exhibits. In addition, I have reviewed the ‘935 patent and its file history, the ‘862 patent and its file history, Judge Selna’s Markman order dated 11/17/2011 clarifying the court’s construction of the meaning of certain terms used in the patents. I understand and agree that all of my opinions both within this report and in any testimony I may present at trial will be consistent with Judge Selna’s court order dated 11/17/2011. A non-exhaustive list of these materials is provided below. I understand that in addition to the materials specifically identified below, I may provide further exhibits to be used as a summary of or support for my opinions.

B. Documents Reviewed

1. HID’s complaint for Injunction and Damages against Farpointe dated 12/22/2010;
2. Plaintiffs’ Disclosure of Asserted Claims and Infringement Contentions dated 5/2/2011;
3. Stipulated Protective Order dated 5/3/2011;
4. Invalidity Contentions of Defendant (Farpointe Data) dated 6/16/2011;
5. Nixon Peabody Technology Tutorial dated 11/3/2011;
6. Asserted US Patent 5,952,93;

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7. '935 Prosecution History;
8. '935 Prior Art Patent "Beigel" 5,235,326;
9. '935 Prior Art Patent: "Carroll" 5,347,263;
10. Documentation, and photos of Datamars ISOMax III RFID reader and prior art product;
11. Personal examination, documentation, and photos of HID Multi-Prox RFID reader and prior art product;
12. Personal examination, documentation, and photos of Farpointe Accused Products;
13. Asserted US Patent 7,439,862;
14. '862 Prosecution History;
15. Personal examination, documentation, and photos of Dynasys RFID reader and prior art product;
16. Personal examination, documentation, and photos of TI RFID reader and prior art product;
17. Personal examination, documentation, and photos of XceedID RFID reader and prior art product;
18. Personal examination, documentation, and photos of Indala RFID antenna and prior art product;
19. The final deposition transcripts of Scott Lindley taken on November 22 & 23;
20. All exhibits attached hereto; and
21. Any other documents mentioned herein.
22. Note that I have not yet considered documents not yet produced by Plaintiffs or documents currently held as privileged. If and when these documents become available, I reserve the right to amend this report.

II. MY UNDERSTANDING OF THE LAW OF PATENT INFRINGEMENT

A. Direct Infringement

1. I have been informed by counsel, and I understand, that the determination of infringement is a two-step process that first requires a determination of the meaning of a claim, and second, determining whether the accused products or processes practice the elements of the claim.
2. I have been informed and understand that a product literally infringes a patent claim if each and every element of the claim is present in the accused product. I understand that if a product is missing one requirement of an asserted claim, then it does not literally infringe that claim. I understand that the patentee must prove infringement by a preponderance of the evidence.
3. I understand that words and phrases in a claim should be afforded their ordinary meaning, as one of ordinary skill in the art would understand the terms, in light of the specification and the prosecution history of the patent. I understand that “intrinsic evidence”, including the claims, the specification, the art considered by the Examiner, and the prosecution history, are afforded more weight in determining the meaning of the claims than “extrinsic evidence.”

B. The Doctrine Of Equivalents (“DOE”)

I further understand that where a product does not literally infringe a patent claim, it may still infringe under the Doctrine of Equivalents. I have been instructed by counsel, and understand, that there is infringement under the Doctrine of Equivalents if the element asserted to be equivalent “performs substantially the same function, in substantially the same way, to obtain substantially the same result” as the one asserted in the claimed invention and the “equivalent subject matter” was not surrendered during patent prosecution. Stated alternatively, the Doctrine of Equivalents applies when the differences between the claimed invention and the element asserted to be equivalent are insubstantial.

C. Indirect Infringement

I have read and understand 35 271§ (b-c), which states:

- (b) Whoever actively induces infringement of a patent shall be liable as an infringer.
- (c) Whoever offers to sell or sells within the United States or imports into the United States a component of a patented machine, manufacture, combination, or composition, or a material or Apparatus for use in practicing the patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or

commodity of commerce suitable for substantial non-infringing use, shall be liable as a contributory infringer.

III. MY UNDERSTANDING OF THE LAW OF INVALIDITY

I understand that a patent claim is invalid if the claimed invention is not new.

Specifically, under 35 U.S.C. § 102, a claim is invalid if all of its requirements existed in a single device or method that predates the claimed invention, or have been described in a single previous publication or patent that predates the claimed invention (collectively referred to as “prior art”). I understand that the written reference does not have to be in the same words as the claim, but all of the requirements of the claim must be there, either stated or necessarily implied, so that someone of ordinary skill in the field of RFID looking at that one reference would be able to make and use the claimed invention. In this case the claim is said to be “anticipated” by the prior art. In order to be anticipated, each and every element of the claim must be disclosed in a single reference and that reference must enable a person having ordinary skill in the art to make and use the claimed invention.

Alternatively, I understand that a claim can be rendered obvious, under 35 U.S.C. § 103, by one or more prior art references. A patent claim is invalid if the claimed invention would have been obvious to a person of ordinary skill in the field of the art. I understand to determine obviousness, I consider the level of ordinary skill in the field that someone would have had at the time of the claimed invention was made. I consider the scope and content of the prior art, the differences between the claimed invention and the prior art, and any secondary considerations. These secondary considerations include:

- (1) the invention’s commercial success
- (2) long felt but unresolved need
- (3) the failure of others
- (4) skepticism by experts
- (5) praise from others
- (6) teaching away by others
- (7) recognition of a problem
- (8) copying of the invention by competitors; and
- (9) other relevant factors tending to show obviousness.

IV. SUMMARY OF OPINIONS

1. I have been asked by Nixon Peabody LLP, the law firm representing Defendant Farpointe Data, Inc. (“Farpointe” or “Defendant”), for my expert opinion and testimony

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regarding whether the accused instrumentalities (“accused products”) infringe the asserted patents and whether the asserted patents are invalid in view of prior art.

2. Based upon the materials I have reviewed, it is my opinion that none of the accused products infringe the asserted ‘935 patent. Further, the accused products do not infringe any of the asserted claims of the ‘862 patent either. I also believe that all of the asserted claims from both the ‘935 and ‘862 patents are invalid in view of prior art.

3. Those accused products alleged to infringe the asserted patent claims that I have determined to be invalid are also not infringed because one cannot infringe an invalid claim.

4. I have come to an understanding of the meaning of the asserted claims using Judge Selna’s claim construction order attached hereto as **Exhibit 5**. To assess infringement, I evaluated the accused instrumentalities (“Farpointe’s accused products”) in view of the claim construction and the asserted patents. In addition, I used data sheets, product descriptions, and assembly drawings.

V. SUMMARY OF ASSERTED CLAIMS AND ACCUSED INSTRUMENTALITIES

HID asserts that Farpointe infringes two patents: U.S. Patent No. 5,952,935 (“‘935 patent”) and U.S. Patent No. 7,439,862 (“‘862 patent”) (collectively “the asserted patents”). Specifically, HID asserts claims 17-19 of the ‘935 patent and claims 1-6, 9, 10, 13, 14, 16, 17, 18, 19, 20, 21, 22 (collectively “the asserted claims”) as set out in Plaintiffs’ Amended Disclosure of Asserted Claims and Infringement Contentions attached hereto in **Exhibit 5**.

A. Farpointe’s Accused Products

1. Pyramid Card Readers - Single Frequency, Single Antenna Card Readers

a) P-300



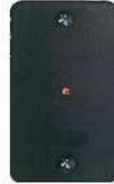
b) P-400



c) P-403



d) P-405



e) P-410



f) P-453



g) P-455



h) P-500



i) P-530



j) P-600



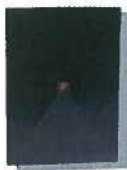
k) P-610



l) P-640



m) P-700



n) P-710



o) P-900

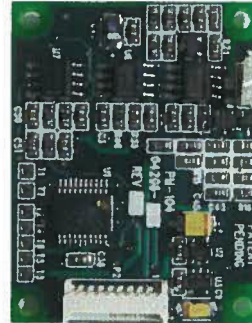


2. OEM Modules – Single Frequency, No Antenna Component for a Card Reader

a) PM-103



b) PM-104



3. Delta Card Readers - Dual Frequency, Dual Antenna Card Reader

a) Delta 3



b) Delta 5



c) Delta 5.3



d) Delta 6.4



4. CoG1000 Card Programmer



VI. LEVEL OF ORDINARY SKILL IN THE ART

One skilled in the art relevant to the patents-in-suit asserted patents would have at least a Bachelors of Science degree in electrical engineering with at least five years of direct work in the field in radio frequency identification (“RFID”), or a Masters of Science degree with at least 3 years’ experience. My opinion is based on 40 years of experience in the electronics and RFID industry, as well as my experience solving problems in the art and studying problems in the art solved by others, my reading of and writing technical literature related to RFID, and my participation in professional activities related to RFID. My direct experience includes the design and application of both RFID tags and RFID readers.

VII. LEGAL PRINCIPLES OF INFRINGEMENT

I understand that to decide whether a product literally infringes a claim of the patents-in-suit, I compare the product with the patent claim and determine whether every requirement of the claim is included in that product. If so, the product literally infringes the claim. If, however, the product does not have every requirement in the patent claim, the product does not literally infringe that claim. I decide literal infringement for each asserted claim separately.

If the product does not itself include every requirement in the patent claim, the alleged infringer cannot be liable for infringement merely because other parties supplied the missing elements, unless the accused infringer directed or controlled the acts of those parties.

If I decided that the product does not literally infringe an asserted patent claim, I then may have to decide whether that product infringes the asserted claim under what is called the “doctrine of equivalents,” if alleged. Under the doctrine of equivalents, the product can infringe an asserted patent claim if it includes parts that are identical or equivalent to the requirements of the claim. If the product is missing an identical or equivalent part to even one requirement of the asserted patent claim, the product cannot infringe the claim under the doctrine of equivalents. A part of a product is equivalent to a requirement of an asserted claim if a person

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of ordinary skill in the field would think that the differences between the part and the requirement were not substantial as of the time of the alleged infringement.

I may not use the doctrine of equivalents to find infringement if I find the product is the same as what was in the prior art before the application for the patents-in-suit or what would have been obvious to persons of ordinary skill in the field in light of what was in the prior art.

I understand that a dependent claim includes all of the requirements of a particular independent claim, plus additional requirements of its own. As a result, if I find that an independent claim is not infringed, I must also find that its dependent claims are not infringed. On the other hand, if you find that an independent claim has been infringed, I must still separately decide whether the additional requirements of its dependent claims have also been infringed.

VIII. OPINIONS ON INFRINGEMENT AND VALIDITY OF THE '935 PATENT

A. Summary Of Patent

The '935 patent describes a multichannel reader designed to interrogate a transponder that is attached to an article to be identified, such as an animal. The multichannel reader in the '935 patent is adapted to determine identification information from a variety of transponders. The multichannel reader described in the '935 patent has a processor connected to a memory device that programs the processor to identify the different signals from the different transponders.

B. Farpointe's Accused Products Do Not Infringe The '935 Patent Because The Products Do Not Include Each And Every Element Of The Asserted Claims.

Claim 17: A programmable interrogator for use with a plurality of transponders attached to an article to be identified, the interrogator for transmitting an interrogation signal for interrogating one of the plurality of transponders that respond to an interrogation signal by transmitting an identification signal having different frequencies, **different methods of modulation**, and at least one identification component, said one of the plurality of transponders receiving said interrogation signal from the interrogator and responding to said received interrogation signal with an identification signal, said interrogator comprising:

- an antenna assembly for transmitting the interrogation signal from the interrogator to said transponder and for receiving said identification signal from said transponder;
- a processor for processing said identification signal received by said transponder antenna assembly and creating an output signal substantially corresponding to said identification component of said identification signal; and
- a programmer connected to said processor for programming the specific types of identification signals of the different transponders to process.

Opinion 1: *The accused products do not have the type of “programmer” that is required in claim 17 for programming the specific types of identification signals of the different transponders to process.*

The Court has construed the term “programmable interrogator” to mean an interrogator that is capable of being programmed on site by reprogramming the interrogator software. To reprogram the interrogator software it must change the software of the interrogator that performs the “processing of the identification signals” that are received from the transponders. Furthermore, “on site reprogramming” means reprogramming at the customer’s facility without the types of equipment available in the factory. While “on site reprogramming” might entail using some portable test and calibration equipment, it would not include extraordinary means such as disassembly or re-fabrication of the reader itself.

My understanding of claim 17 is that it requires a specific kind of “processor” that performs at least two distinct functions:

- a. Processing the identification signal received from the transponder; and
- b. Creating an output signal substantially corresponding to the identification component of the identification signal.

While the Farpointe readers do have a set of test points to adjust its software to affect “processing of the identification of the identification signals” as required in claim 17, the Farpointe products that I observed were designed to only do this in the factory -- not as part of any “on site reprogramming” as required by claim 17. The test point connections therefore do not constitute a means for “on site reprogramming” as required by claim 17.

Farpointe also uses wireless “Control Cards” to select which output signals that are to be transmitted to the host controller. Even if any these “Control Cards” were used “on site”, they never would cause either the software or hardware within the reader to change the “processing of the identification signals” in any way.

As I understand the patent, Claim 17 requires a very specific type of programmer. “Programmer” for purposes of claim 17 and the ‘935 patent is limited to a programmer that controls specifically the first of the two distinct functions that are described earlier in claim 17, namely “for programming the specific types of identification signals of the different transponders to process.” Therefore, while a “Control Card” might modify the functionality of the interrogator by changing the LED output or changing which ID to output, such a device is not a “programmer” for purposes of claim 17 because the device does not affect the “specific types of identification signals ... to process.”

The Pyramid Card readers and OEM modules do not have a device or instrument that allows on-site modification or change of the interrogator software that performs processing of the identification signals. On the contrary, the software of the Pyramid Card Readers for processing identification signals is programmed into the unit at the time of manufacture and it cannot be reprogrammed at a customer’s site except through extreme measures involving

detaching and uncoupling the unit, powering off the system, disassembly and reconstruction of the unit.

The Pyramid Card Readers and OEM modules always process all identification signals in the same manner. The functionality of processing the identification signals cannot be reprogrammed except at the Farpointe manufacturing site.

Finally, the control cards are not “connected to” the processor as required by claim 17. The control cards are primarily used by Farpointe to configure specific units in the factory according to a customer’s request or occasionally by a Farpointe reseller for configuration of units to be sold to customers of the reseller. Control cards are not sold to, and are not given to, end users for configuration “on site” at the location of the end user.

The Delta Card Readers operate in the same fashion as the Pyramid Card Readers; that is, they are programmed at the factory to process identification signals from Farpointe, AWID and HID transponders and that software cannot be changed or modified on-site with a control card or otherwise.

Farpointe also sells CoG 1000 Card Programmers. However these CoG 1000 Card Programmers are not a programmable interrogator as called for in claim 17 “for use with a plurality of transponders attached to an article to be identified.” but are used only to install an identification component within the transponder itself.

To the extent that the CoG 1000 interacts with transponders, it does so for the purpose of installing identification data that the transponder will then send to a Pyramid or Delta reader when prompted. Furthermore, the CoG 1000 does not have a “programmer” for purposes of claim 17 for all the same reasons set forth above for the Pyramid and Delta readers. In fact, not only does the CoG 1000 not *have* a Programmer, it *is* a programmer – but for programming cards, not readers.

In any case, because none of these accused Farpointe readers or “Card Programmers” has the kind of “programmer” required in claim 17, they do not literally infringe claim 17. The accused Delta Card Readers and CoG1000 Card Programmer also do not have the kind of “programmer” that claim 17 requires under Doctrine of Equivalents.

Opinion 2: *The accused products are not for use with a plurality of transponders attached to an article to be identified.*

In drafting claim 17, the patentee was clear to limit the type of programmable interrogator being taught as one for use with transponders attached to articles to be identified. A review of the specification confirms the patentee’s limitation of the invention. It is noteworthy that the patentee did not claim only “for use with a plurality of transponders” or “for use with a plurality of transponders to be presented for access”. Instead, the patentee chose a very specific limitation as to the type of interrogator being claimed: an interrogator to be used with transponders ***attached*** to the article to be identified. The reason for the limitation is obvious

when referenced to the specification – the ‘935 patent was intended and written as an animal identification invention.

One of ordinary skill in the art would attribute meaning to the patentee’s words, “attached to an article to be identified” because, consistent with good practices and legal rules of patent construction, every word of a patent’s claims should be given meaning and none treated as surplusage. If the phrase “attached to an article to be identified” is disregarded, that would do violence to the plain meaning of the patentee’s claim and violate rules of patent construction.

Giving full credit to the phrase “attached to an article to be identified,” the programmable interrogator described in claim 17 is for use with transponders that are **attached**. Attached means: 1. To fasten, secure, or join. 2. To connect as an adjunct or associated condition or part. 3. To affix or append; add. *Free Online Dictionary*. No Farpointe product is for use with a transponder to be “attached” to an article to be identified as that term is commonly understood. The transponders described in claim 17 must be fastened to, secured to, or affixed to the article to be identified.

Unlike the ‘935 patent, the accused products are not intended for use in identifying the person possessing and presenting the transponder. Instead they are typically designed to either allow or deny access to people based -- not on who they *are* -- but on whether or not they *possess* the proper card. Therefore one doesn’t need to “attach” the card to one’s person in order to make the system work. Unlike the animal tags taught in the ‘935 patent, Farpointe readers work equally well whether the transponder is attached, just held in the hand, or stored in a pocket.

Nor is it reasonable to construe the term “attached” so broadly as to include “carried” or “held” because such a construction would stand the limitation on its head because *every* transponder for presentation to a reader must be carried or held -- cards cannot present themselves to the reader. The patentee chose his words carefully in claim 17 and he did not use such transient concepts as “held” or “carried” since his purpose was not to identify the card per se, but instead to identify the animal and/or object to which it was to be “attached”. He used a descriptive limitation that expresses a degree of permanence: that the transponder has to be **attached** to the article to be identified.

The concept of attachment has further meaning in the context of the ‘935 patent. The ‘935 patent discloses an invention for use in animal identification. The key is that animals do not carry transponders for access to restricted areas; rather, the animal is attached to the transponder (and vice versa) such that reading the transponder identifies the animal to which it is attached. By disclosing the invention as one for reading cards that are attached to something, the reader is able to identify *the article* to which it is attached because the transponder is not transferrable or transient. On the contrary, Farpointe readers are for use with transponders that are freely transferrable among people and cannot identify the “article” (e.g., the person) who presents it to the reader.

In short, the patentee chose to limit claim 17, and the plain language of the claim is limited to interrogators for use with transponders that are **attached** to articles to be **identified**.

None of the accused products are for use with transponders attached to an article to be identified. Therefore, none of the accused products literally infringe claim 17.

Opinion 3: *The accused products do not transmit an interrogation signal for interrogating one of a plurality of transponders that respond to an interrogation signal by transmitting an identification signal having different frequencies, and different methods of modulation, and at least an identification component. Instead the accused products use a single frequency and a single method of modulation.*

The Court has construed “transmitting an identification signal having different frequencies, different methods of modulation, and at least an identification component” as that phrase is used in claim 17. Consistent with the Court’s construction and the plain language of claim 17, the claim requires that: (1) at least one of the transponders in the plurality that is interrogated must respond with an identification signal having a different “frequency or frequencies” than the identification signal from another transponder in the plurality; and (2) at least one of the transponders in the plurality that is interrogated must respond with an identification signal having a different “method of modulation” than the identification signal from another transponder in the plurality; and (3) the identification signal must have an identification component. In other words, if the interrogator/transponder interface operates at a **single frequency** or if the interrogator/transponder interface uses only with a **single method of modulation**, then the interrogator/transponder system does **not** practice the art of claim 17 because claim 17 requires identification signals from transponders within the plurality to be at different frequency or frequencies **and** different methods of modulation.

The Court has defined “methods of modulation” to mean, “...a method of changing the amplitude, frequency, and/or phase of an **interrogation** signal.” All accused products (Pyramid, Delta, CoG, OEM Modules) use only amplitude modulated interrogation signals.

Farpointe’s Pyramid Card Readers operate only at a single frequency (125 kHz). That has been the case since the inception of Farpointe in 2003. The Pyramid Card Reader generates an interrogation signal only at 125kHz. Any transponder that is interrogated responds in kind.

Furthermore, Pyramid Card Readers will only operate with a transponder that transmit an identification signal using FSK rf/8, rf/10 encoding. If a transponder responds with an identification signal using PSK or ASK or BP, the Pyramid Card Reader will not read the card. Likewise, if the transponder sends an identification signal using bit encoding method other than rf/8, rf/10, the Pyramid Card Reader will not read the card.

In summary, the Farpointe Pyramid Card Readers generate an interrogation signal only at a single frequency and read identification signals using a single method of modulation (FSK rf/8, rf/10). Therefore, none of the Pyramid Card readers can literally infringe claim 17.

Opinion 4: Since none of Farpointe’s products infringe claim 17 for reasons cited above, then none of Farpointe’s products can infringe claim 18 either since claim 18 depends on claim 17.

Opinion 5: Since none of Farpointe's products infringe either claim 17 or 18 for reasons cited above, then none of Farpointe's products can infringe claim 19 either since it depends on claim 17. However, none of Farpointe's products can infringe claim 19 for the additional reason that none of them incorporate a "mixer" of the kind required in claim 19.

IX. INVALIDITY

It is my opinion that several pieces of prior art disclose each and every element of the asserted claims of the '935 Patent.

A. Asserted '935 Claims

Claims 17, 18, and 19 are asserted in this case. Claim 17 of the '935 patent requires:

First Requirement ("R1"): A programmable interrogator for use with a plurality of transponders attached to an article to be identified, the interrogator for transmitting an interrogation signal for interrogating one of the plurality of transponders that respond to an interrogation signal by transmitting an identification signal having different frequencies, different methods of modulation, and at least an identification component, said one of the plurality of transponders receiving said interrogation signal from the interrogator and responding to said received interrogation signal with an identification signal, said interrogator comprising:

Second Requirement ("R2"): an antenna assembly for transmitting the interrogation signal from the interrogator to said transponder and for receiving said identification signal from said transponder;

Third Requirement ("R3"): a processor for processing said identification signal received by said transponder antenna assembly and creating an output signal substantially corresponding to said identification component of said identification signal; and

Fourth Requirement ("R4"): a programmer connected to said processor for programming the specific types of identification signals of the different transponders to process.

B. Prior Art Patent: 5,235,326 Beigel

I reviewed US Patent 5,235,326 titled "Multi-Mode Identification System" ("Beigel"). Beigel was filed in August 15, 1991, almost 5 years prior to the Priority Date of the '935 patent that is asserted in this case. Based on my analysis, I have determined that all of the requirements of claim 17 are described in enough detail in Beigel to enable one skilled in the art to practice all of claim 17.

Opinion 1: The Beigel patent anticipates Requirement 1 ("R1") of Claim 17: *A programmable interrogator for use with a plurality of transponders attached to an article to be identified, the interrogator for transmitting an interrogation signal for interrogating one of the plurality of transponders that respond to an interrogation signal by transmitting an identification signal having different frequencies, different methods of modulation, and at least an identification component, said one of the plurality of transponders receiving said*

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interrogation signal from the interrogator and responding to said received interrogation signal with an identification signal, said interrogator comprising:

The Beigel patent describes a software programmable multi-mode reader that can communicate with many transponders despite differences among the transponders in their various operating frequency protocols, protocols and modulation techniques.

Specifically Fig 1 of Beigel shows a programmable interrogator similar to the one claimed in claim 17. Within Fig. 1 is shown a “microprocessor” controller (170) connected via 197 to a “computer” (195) that serves as its “programmer”. “An external digital computer 195 can exercise control over and exchange data with the microprocessor 170 by means of the standard RS-232 data link 197” Col. 10:20-22. And “The microprocessor, during operation 902, obtains all necessary mode data from the mode data read-only memory necessary to configure the reader 170 to read the tags it is *authorized* to read” Col. 18:23-28.

Beigel’s object was “to provide a general-purpose reader than can produce responses from a variety of tags of different designs and that can recognize and decode the responses from these differently-designed tags.” Col. 4:13-17. Beigel notes that “Among the parameters than can be controlled by mode control data are operating frequency, demodulation protocols, error control protocols, tag classes” Col. 3:38-41.

Like the ‘935, Beigel also teaches that the tag’s “response consists of an identification code unique to the tag” Col. 2:10-11. Note that “a unique identification code is programmed into the non-volatile memory of each tag.

Beigel also notes that “In many cases it is desirable to permanently attach the tag to the object” Col. 1:21-25 “for identifying fish, birds, animals, or inanimate objects such as credit cards. Col. 1:18-19. Also “The tags are attached to or implanted in the objects of interest” Col. 19:6-8.

Opinion 2: The Beigel patent anticipates R2 of Claim 17: *an antenna assembly for transmitting the interrogation signal from the interrogator to said transponder and for receiving said identification signal from said transponder;*

The reader coil (110) shown in Fig 1 is physically exactly the same thing as the “antenna assembly” described and claimed in the ‘935 patent. It is well known in the art that all 125 KHz readers and tags (like both the ‘935 and Beigel devices) communicate through a shared magnetic field like a transformer does. Both Beigel and the ‘935 send and receive signals in “near-field mode” through coils of wire which sometimes are also referred to as “antennas”. Quoting from Beigel: “The communication capability of the reader 100 and the tag 200 are critically dependent on the characteristics of the reader *coil* 110 and the tag *coil* 210.” Col. 6:44-46. “The tag 200, when in the proximity of and inductively-coupled to the reader 100, extracts power from the alternating magnetic field 10 established by the reader *coil* 110. Col. 6:26-29.

That the “antenna assembly” of ‘935 is the same as the “reader coil” of Beigel can also be confirmed by examination of Fig. 3 and Fig. 4 of the ‘935 patent itself. The ‘935 text also confirms this “As shown in Figs 3 and 4, reader 10 consists of separate transmit antenna 38 and

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receiver antennas 40, 42 ... More specifically scanner 13 includes a *coil* assembly 30, disposed in reader 10.”

The claim 17 limitation of “transmitting the interrogation signal from the interrogator to said transponder” is also met in Beigel. Quoting Beigel “The reader turns on again and performs another interrogation (of the tags)” Col. 4:1-4 and “The determination by the reader that a tag ... is responding occurs within a specific period of time ... after the reader begins to transmit.” Col. 3:64-68.

Finally, the claim 17 limitation of “receiving said identification signal from said transponder” is also met in Beigel. Quoting Beigel “In searching an object for a tag, the reader is moved over the surface of the object until either a tag response is received or the surface ... has been completely scanned.” and “the reader either interrogates all classes simultaneously or proceeds from one class to the next in sequence” Col. 3:56-58.

Opinion 3: The prior art Beigel patent anticipates R3 of Claim 17: *a processor for processing said identification signal received by said transponder antenna assembly and creating an output signal substantially corresponding to said identification component of said identification signal;*

The “processor” required in R3 of claim 17 and shown in Figure 5 of the ‘935 patent as a “microprocessor”; is the same as the Beigel microprocessor shown in Beigel Fig. 1 as item 170.

The next element “processing said identification signal received by said (transponder) antenna assembly” is also described in Beigel in a sequence of statements “The reader is thereby able to extract information from the power absorption signal as soon as the tag begins transmitting” Col. 7:26-28. “The A/D converter 165 samples the input waveform ... producing 10-bit digital representations of the input samples ... which simplifies subsequent *processing* operations.” Col. 9:41-49. “the microprocessor 170 obtains the samples digitized by the A/D converter 165 as soon as they are available and stores them in memory. The *tag identification* data that derives from this information together with the operational information is visually displayed” Col. 10:4-9.

Finally the claim 17 requirement for “creating an output signal substantially corresponding to said identification component of said identification signal” is satisfied by Beigel’s teaching that “The tag identification data that derives from this information ... is visually displayed on alphanumeric display 17. This same information is made available audibly to the user”

Opinion 4: The prior art Beigel patent anticipates R4 of claim 17: *a programmer connected to said processor for programming the specific types of identification signals of the different transponders to process.*

The “programmer” required in claim 17 is shown as a “computer” (item 195) in Fig.1 of the Beigel patent. Beigel provides more details about this computer programmer in its Specification as follows “external digital computer 195 can exercise control over and exchange data with the microprocessor 170 (the “controller”) by means of the standard RS-232 data link

197.” Col. 10:20-22. Beigel thus shows us that the programmer and controller are also “connected” as required via the RS-232 data link 197. Claim 21 in the Beigel patent confirms that the controller is in fact “programmed” or “reprogrammed” by the external digital computer when it claims that the “means for mode control is a reprogrammable memory device” Col. 22:41-42.

Finally note that the purpose for the programmable controller of claim 17, namely that of *programming the specific types of identification signals of the different transponders to process*, is also taught in Beigel. Beigel calls these specific-types-of-identification-signals-of-the-different-transponders-to-process “modes”. “The reader can be configured to operate in a variety of *modes* by means of hardware and firmware (“software”) switches actuated by mode control data contained in a read-only memory within the reader. Among the parameters that can be controlled by mode control data are operating frequency, demodulation protocols, (and) tag classes” “to provide a general-purpose reader than can produce responses from a variety of tags of different designs” Col. 3:35-40, Col. 4:13-15.

In summary it is my opinion that each and every element of claim 17 is anticipated and taught by the Beigel prior art patent, and that therefore claim 17 is invalid.

Opinion 5: Dependent claim 18 of the ‘935 patent requires: *The programmable interrogator of claim 17, wherein said programmer includes an EEPROM coupled to a microprocessor, said EEPROM being programmed by an external computer.*

As noted previously in Opinion 4, the “external computer” required by claim 18 is shown in Fig. 1 as item 195 and described in the specification as “An external digital computer 195” pg10:20. I understand that ‘935 requirement for “said EEPROM being programmed by an external computer” was construed by the Court on November 17, 2011 to mean “said EEPROM programmed by a computer external to the programmable interrogator”. The claim 18 requirement that requires “an EEPROM coupled to a microprocessor” is provided in Beigel Fig. 1 (item 170) in combination with the Beigel language of claim 21 that teaches that “means for mode control is a *reprogrammable memory device*” which is a type of EEPROM.

It is therefore my opinion that each and every element of claim 18 is anticipated and taught by the Beigel prior art patent, and that therefore claim 18 is invalid.

C. Prior Art Patent: 5,347,263 Carroll

I reviewed U.S. Patent 5,347,263 titled “Electronic Identifier Apparatus and Method Utilizing a Single Chip Microcontroller and an Antenna Coil” (“Carroll Patent”). The Carroll Patent was filed over three years before the ‘935 Patent on February 5, 1993 and issued September 13, 1994. After my analysis of the ‘263 Patent I determined all the requirements of claim 17 are described in enough detail to enable one skilled in the art to practice claim 17.

The Carroll Patent describes an electronic identifier apparatus that interrogates transponders. Col. 2:23-26. Specifically, the Carroll Patent described an electronic identifier that includes (1) an antenna coil; (2) a single chip microcontroller connected directly to the

antenna coil; (3) A peak detection circuit connected to the antenna coil; (3) a peak detection circuit connected to the antenna coil; (4) a band pass amplifier connected to the demodulator circuit; and (5) interface circuit connected to the single chip microcontroller including a memory circuit wherein a control program is stored and a multiplicity of I/O pins through which data or control signals may be transferred into and out of the single chip microcontroller.

Opinion 1: The Carroll Patent anticipates R1 of Claim 17. Using the construction of the court, as discussed above, R1 is described in the Carroll Patent in at least the abstract; Col. 2:23-37 and Col. 7:7-15. For example the Carroll Patent in its Abstract describes:

“Low cost, compact electronic identifier apparatus interrogates a ... transponder. ... In response to being interrogated, the transponder sends back identification (ID) data” that is processed to recover ID data. This electronic identifier can be configured such that “a variety of manufacturer's products can be read due to the different return frequencies used.” Col. 10: 47-52. In addition, Carroll describes that “Software changes or modifications can also accommodate various data rates and formats.” Col. 10:47-52.

Carroll further describes that “The type of identification signal coming from the transponder 27 may be modulated in various ways, e.g., AM (amplitude modulation), FSK (frequency shift keyed) modulation or PSK (phase shift keyed) modulation. Advantageously, the type of modulation used by the transponder makes little difference to the identifier of the present invention.”

Thus, one skilled in the art would understand that Carroll Patent describes and enables R1 of claim 17.

Opinion 2: Carroll Patent describes R2 of Claim 17. If the antenna assembly is not interpreted in view of the '935 patent to require two receive antennas and an exciter antenna as required by the patent but is just an antenna coil, the Carroll Patent describes an antenna coil as claim 17 requires. Specifically, the Carroll Patent as illustrated in Fig. 2 describes an antenna coil for transmitting and receiving as R2 requires. For example, Carroll describes “the received signal from the transponder 44 (signal 15 in Fig. 1) is recovered from the power carrier signal . . . transmitted by the antenna coil 43.” Col. 9:39-42. Further, Carroll describes “the combined signal present at the antenna coil 43 comprises the combination of the power carrier signal 12 and the received signal 15.” Thus, one skilled in the art would understand that Carroll Patent describes and enables requirement 2 of claim 17.

Opinion 3: Carroll Patent describes R3 of claim 17. Using the construction of the court and the ordinary meaning as understood by one skilled in the art, the Carroll Patent describes and enables one skilled in the art to practice R3 as illustrated in Fig. 3, 7 and described in the Carroll Patent. One example description in the Carroll Patent describes:

The single chip microcontroller ... is configured by the control program to
(a) generate a power output signal that is applied to the antenna coil

through the plurality of parallel-connected I/O pins, (b) decode any ID carrier signal that is received through the band pass amplifier, and (c) produce at least one control signal responsive to the receipt, demodulation and decoding of a particular ID carrier signal. 3:22-30.

Based on the description above, the Carroll Patent describes and enables one skilled in the art to practice R3 of claim 17.

Opinion 4: The Carroll Patent describes R4 of Claim 17. Using the construction of the court and in view of the ordinary meaning as understood by those skilled in the art, R4 is anticipated by the Carroll Patent. Specifically in the abstract; Col. 2:23-37 and Col. 7:7-15. For example, the Carroll Patent at claim Col. 7:7-15 describes:

The single chip microcontroller includes a memory circuit wherein a control program is stored, and a multiplicity of I/O pins through which data or control signals may be transferred into and out of the single chip microcontroller. Col. 3:10-14.

In addition, the Carroll Patent describes:

By using a microcontroller 42 as the main element in the identifier 40, for example, and by making minor changes in software used to control the microcontroller 42, the identifier 40 can be configured to read Amplitude Modulation (AM), frequency Shift Keyed (FSK) or Phase Shift Keyed (PSK) modulation. Similarly, by making minor changes to the band pass amplifier circuit 46, a variety of manufacturer's products can be read due to the different return frequencies used. Software changes or modifications can also accommodate various data rates and formats. Col. 10:39-52

Thus, one skilled in the art would understand that Carroll anticipates R1 of claim 17. Because each and every requirement of claim 17 is anticipated by the Carroll Patent that was filed prior to the '935 Patent, claim 17 of the '935 Patent is invalid.

D. Prior Art Product: HID MultiProx RFID Reader

I analyzed the HID Multiprox System that includes a MultiProx Controller and MultiProx Reader. In addition, I reviewed the Installation Manual – 6000-900 Ref F for the MultiProx Controller, which describes in detail the operation of the MultiProx System. Based on this review the HID Multiprox System was on sale more than a year before the invention date of the '935 Patent and includes all the requirements of claim 17. FAR016578 - **Exhibit 8** (indicating copyright date as early as 1994), FAR016599 (indicating date of installation instructions as Nov. 7 1995). Specifically, the Multiprox system includes a “controller that scans readers for HID or Schlage/Westinghouse (SE) access control cards,” each of type of access control cards operate at different frequencies and modulation types. FAR016574, FAR01658 - **Exhibit 8**. Specific details with regard the HID Multiprox System including each and every requirement of claim 17 follow below.

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Opinion 1: The HID MultiProx System anticipates R1 of the '935 Patent. Using the construction of the court, as discussed above, R1 is found in the Multiprox System. Specifically, the installation manual 6000-900 Rev F for the MultiProx Controller – 6000A describes that the system reads 1) HID ProxCard II Cards operating at 125 kHz which transmits its Manchester-encoded data and 2) Schlage/Westinghouse cards operating at a frequency range of 2 to 27 MHz that resonate at their tuned frequency. (FAR016581 - **Exhibit 8**). As such, the Multiprox System interrogates a plurality of transponders that respond with an identification signal having different frequencies, different method of modulation and at least an identification component as claim 17 requires. The Multiprox System is reprogrammable on site through dip switches. FAR016587 - **Exhibit 8**.

Opinion 2: The HID MultiProx System anticipates R2 of the '935 Patent. If the antenna assembly required by claim 17 is not interpreted in view of the '935 patent to require two receive antennas and an exciter antenna as described by the patent, but is just an antenna coil, the HID MultiProx System includes an antenna coil as claim 17 requires. I observed the antenna of the MultiProx System and the operation of which is described in the Multiprox System Installation Manual copied below:

MultiProx Reader Operation

The MultiProx Reader accepts commands from the controller to change the read mode and to signal changes to the LED and beeper. While in the HID "Prox mode", the reader detects HID proximity cards by generating a 125kHz low power field that energizes the card and allows it to transmit its manchester-encoded data. While in the "sweep mode", the Reader detects Schlage/Westinghouse (SE) command keys by outputting an RF field in the frequency range of 2 to 27 megahertz. This signal is swept from high to low frequencies. The SE command keys are a set of tuned L/C (tank) circuits that resonate at their tuned frequency. As the L/C circuits resonate, they generate an interference in the swept frequency range. This interference pulse is detected by the reader and transmitted to the Controller via the coax cable. The Controller determines the frequencies of a command key and matches the set of frequencies to a card number.

FAR016581.

As such, the Multiprox System anticipates R2 of claim 17.

Opinion 3: The HID MultiProx System anticipates R3 of the '935 Patent. As observed upon my inspection of the Multiprox Controller and as described in the installation Manual – 6000-900 Rev F attached hereto as **Exhibit 8**, the Multiprox Controller consists of a microprocessor, RF filters, and communications and interface electronics. FAR016580 - **Exhibit 8**. Specifically, the Installation Manual – 6000-900 Rev F explains:

MultiProx Controller Operation

The MultiProx Controller is the main processing unit of the MultiProx system. The Controller consists of a microprocessor, RF filters, and communications and interface electronics. It is the task master that schedules the reading of HID proximity card, SE command cards, communications for control of the LEDs and Beeper on the Reader, communication with the HSMs, converting/calculating card numbers and facility code, Wiegand message building and Wiegand message output. The Controller uses a polling scheme to divide its time between each of the eight Reader channels. At each channel, the Controller will enable the HID read sequence, the SE sequence and communicate with the HSMs. The Controller polls channel one through eight until a card or HSM status change occurs.

The MultiProx Controller reads HID proximity cards and SE command keys by sending commands that tell the Reader to alternate between the two reading modes. Once the HID proximity cards or Schlage cards are energized, a signal that corresponds to the encoding of the card is sent to the Controller. The Controller interprets

the signal and outputs the data over the Wiegand interface to an access control panel. The HID proximity card data is sent in the exact format that was programmed on the card. For example, a card encoded with the standard 26 bit format will be read and outputs as the standard 26 bit format. This would be the same for another ProxCARD II programmed card, no matter what the format type is or number of bits 32, 34, 27, etc. The SE command key data is decoded, converted to the card number that is printed on the card and output to the access control panel as Wiegand data.

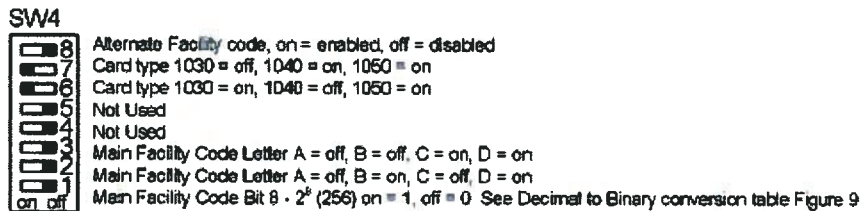
MultiProx Reader Operation

The MultiProx Reader accepts commands from the controller to change the read mode and to signal changes to the LED and beeper. While in the HID "Prox mode", the reader detects HID proximity cards by generating a 125kHz low power field that energizes the card and allows it to transmit its manchester-encoded data. While in the "sweep mode", the Reader detects Schlage/Westinghouse (SE) command keys by outputting an RF field in the frequency range of 2 to 27 megahertz. This signal is swept from high to low frequencies. The SE command keys are a set of tuned L/C (tank) circuits that resonate at their tuned frequency. As the L/C circuits resonate, they generate an interference in the swept frequency range. This interference pulse is detected by the reader and transmitted to the Controller via the coax cable. The Controller determines the frequencies of a command key and matches the set of frequencies to a card number.

FAR016580-81 – Exhibit 8.

As such, the Multiprox System anticipates R3 of the '935 patent.

Opinion 4: The HID MultiProx System anticipates R4 of the '935 Patent. The MultiProx System includes a programmer as required by claim 17 because the system includes dip switches that are a form of the "firmware" or "software" to program the specific types of identification signals of the different transponders to process.



FAR016597 – Exhibit 8.

4. Configure the DIP switches SW1 SW2, SW3 and SW4

Note: Following each change of dip switch settings for SW1, SW2, SW3 or SW4, the unit must be reset by powering down then up again before the new switch setting will take affect.

- 4a. See the **Schlage/Westinghouse Card description diagram - Figure 2**. To identify the card type, count the number of digits printed on the SE card. 5 digit card numbers are 1030's, 6 digit cards are 1040's, and 8 digit are 1050's. Select **Card Type** on SW4, switch 6 and 7 for either 1030, 1040 or 1050. 1050 is the default setting. See the **MultiProx Switch settings - Figure 3**.
- 4b. If the card type is 1050, ignore the Main facility, Alternate facility and Card letter switch settings and go to paragraph (4d). If the type of card is a 1030 or 1040, set the **Main Facility Code Letter** on SW4 switch 2 and 3 and **Main Facility Code Number** on SW4 switch 1 and SW3 switch 1-8. The switches are to be set for the binary representation of the facility code number printed on the cards. See the **MultiProx Switch settings Figure 3** and the **Decimal to Binary Conversion Chart - Figure 9**.

FAR016575 – **Exhibit 8**.

Specifically, the dip switches program the MultiProx System for processing a four L/C circuit card or a five L/C circuit card. FAR016581 – **Exhibit 8**. As such, the MultiProx System anticipates R3 of the '935 Patent.

Because each and every requirement of claim 17 is anticipated by the MultiProx System that was sold before the invention date of the asserted claims of the '935 Patent, claim 17 of the '935 patent is invalid.

E. Prior Art Product: Datamars ISO MAX III RFID Reader Product

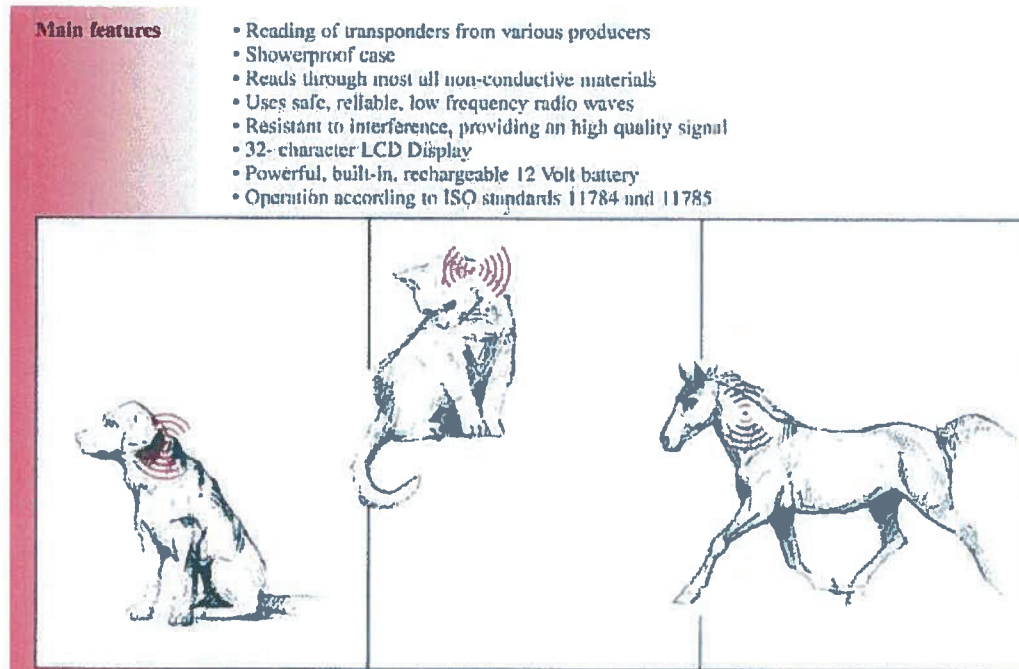
Opinion 1: I analyzed a Datamars ISO MAX III device ("Datamars device") and reviewed information available on the Datamars datasheet (attached hereto as **Exhibit 11**, FAR015833-4) and a Datamars pricelist (attached hereto as **Exhibit 10**), which provide details on Datamars products. Based on this review, I believe the Datamars ISO MAXIII was sold before the '935 Patent. FAR015835-6 (commercial offer for sale dated May 1995). Specifically, the Datamars ISO MAX III device is an RFID interrogator that interrogates transponders manufactured by various producers, such as those indicated in the '935 Patent. FAR015833-4 (**Exhibit 11**), FAR015835 (**Exhibit 10**). Specific details with regard the Datamars ISO MAX III including each and every requirement of claim 17 follow below.



The Datamars device anticipates R1 of the '935 patent. Using the construction of the court and as understood by one skilled in the art, R1 is found in the Datamars device.

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Specifically, the Datamars device is a programmable interrogator as construed by the Court for use with plurality of transponders attached to animals because the datasheet describes the ability the Datamars device as a “multitag-capability” device as shown below.



FAR015834 – Exhibit 11.

MAX III	Lightweight Portable RF-Reader	650.00
R-PO 8050	Multitag-Capability for Reading of FDX-B (ISO) as well as Backwards-Compatible for DATAMARS, Destron, Petrac (Avid), Trovan Contains Memory for 1.000 codes The Package includes: Rechargeable Batteries, Battery Charger + RS 232 + Connector-Cable for Computer, Software-Disk for Transmission of Data to IBM-Compatible Computers	

FAR015835 – Exhibit 11.

As is known in the art and explained in the ‘935 patent and included in TABLE 1 of the ‘935 patent, the plurality of transponders described above are transponders that respond to an interrogation signal by transmitting an identification signal having different frequencies, different methods of modulation, and at least an identification component, said one of the plurality of transponders receiving said interrogation signal from the interrogator and responding to said received interrogation signal with an identification signal as claim 17 requires.

TABLE 1

TYPE	TX Frequency	Modulation	BIT Encoding	Data Encoding	Bit Rate	Data Encryption
Destron	125 kHz	AM	FSK	Manchester	2500 BPS	No
FECABA			$f_c/8, f_c/10$			
Avid-USA	125 kHz	AM	FSK	NRZ	2500 BPS	Yes
			$f_c/8, f_c/10$			
Trovan	128 kHz	AM	FSK	BP	8 K BPS	No
			$f_c/2$ -Phase			
Datamars	125 kHz	AM	FSK	Manchester	2500 BPS	No
			$f_c/9$ -Phase			
FDX-B	134.2 kHz	AM	PSK	MDBP	4.4 K BPS	No
HDX	134.2 kHz	None	FSK	NRZ	8.39 K BPS	No
Half Duplex			124.2 kHz and 134.2 kHz			

FAR002027 – Exhibit 2.

Opinion 2: The Datamars device anticipates R2 of the '935 Patent. If antenna assembly is not interpreted in view of the '935 patent to require two receive antennas and an exciter antenna as required defined by the patent but is just an antenna coil, the Datamars device includes an antenna coil as claim 17 requires. Specifically, the antenna coil of the Datamars device is shown in the photograph below as the black coil of wire. This antenna is for transmitting and receiving an identification signal from a transponder as requirement 2 recites.



Opinion 3: The Datamars Device anticipates R3 of the '935 Patent. As I understand R3 in view of the Court's construction and as one skilled in the art, the Datamars device includes R3 of claim 17. Specifically, a processor for processing an identification signal received as claim 17 requires, as evidenced in the picture below.

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In addition, the processor of the Datamars product creates an output signal as the claim requires evidenced by the display of the identification number of a tag on the display. I observed the device process such an identification signal and create an output signal as claim 17 **required**, as evidenced by displaying the identification component of the identification signal on the display.

Opinion 4: The Datamars product anticipates R4 of the '935 Patent. As I understand R4 in view of the Court's construction and as one skilled in the art would understand it, the Datamars product includes R4 of claim 17. Specifically, the Datamars device includes a programmer connected to a processor as claim 17 requires, as evidenced in the picture below.



The programmer includes at least the EEPROM memory package that is inserted into its socket. The socket adds cost and a failure element to the design over simply soldering the EEPROM memory directly to the board, but is added to make the product on site “programmable”. The addition of the socket for the EEPROM memory makes it possible to remove the EEPROM memory on site to update the software for programming the specific types of identification signals of the different transponders for the Datamars device to process.

Because the Datamars device, that was sold before the filing of the ‘935 patent, includes and anticipates all of the elements of claim 17 of the ‘935 patent, my opinion is that claim 17 is invalid.

F. The Asserted Claims are Indefinite under 35 USC 112 paragraph 2

Specifically, claim 17 requires:

A programmable interrogator for use with a plurality of transponders attached to an article to be identified, the interrogator for transmitting an interrogation signal for interrogating one of the plurality of transponders that respond to an interrogation signal by transmitting an identification signal having different frequencies, different methods of modulation, and at least one identification component, said one of the plurality of transponders receiving said interrogation signal from the interrogator and responding to said received interrogation signal with an identification signal, said interrogator comprising. (emphasis added).

The Court reasoned that methods of modulation includes FSK and PSK to be types of modulation. Court’s Claim Construction pg. 9, **Exhibit 4**. I agree that one skilled in the art would likely understand methods of modulation to included FSK and PSK. However, this

definition is inconsistent with the definition given by the patentee of the '935 patent. The patent does not expressly define the term "method of modulation," but reference to the patentee's use of the term "modulation" in relation to the identification signal is informative. For instance, in claim 9, the patentee claims, "The interrogator of claim 8, wherein said *unmodulated identification signal is a frequency-shift-keyed [FSK] identification signal*." Because the referenced identification is described by the patentee is both unmodulated and FSK, then FSK cannot be a "method of modulation." Furthermore, in the '935 specification at column 7, lines 51-54, the patentee describes a transponder signal that is not modulated but is FSK-encoded, as follows, "Due to this type of operation of the transponder, the signal is *not modulated*. The binary bits *are FSK (frequency shift keying) encoded* only, with 124.2 kHz and 134.2 kHz." Again, because the patentee describes the transponder signal as being both *unmodulated and FSK encoded*, then FSK encoding cannot be a "method of modulation" as that term is used by the patentee.

Because of the inconsistent use of the term "methods of modulation" in the patent as construed, one of ordinary skill in the art would not be able to determine the scope of claim 17. As such, the claim is indefinite. Similarly, because claim 18 and 19 include all the requirements of claim 17, these claims are also indefinite for the same reason. Thus, claims 17-19 are invalid.

X. OPINIONS ON INFRINGEMENT OF THE '862 PATENT

A. Background

The '862 patent relates to antenna arrangements for transmitting and receiving low frequency and high frequency signals. All of the independent claims require an RFID reader having a first antenna tuned to operate at a high frequency and a second antenna tuned to operate at a low frequency. The other elements of the independent claims cover different arrangements of the first and second antennas. Examples of these arrangements may be seen in Figs. 2-6 of the '862 patent.

B. Key Terms

The term "*first and second antenna are oriented along axes that are substantially parallel to one another*" has been construed by the Court as the "first and second antennas are oriented along longitudinal axes substantially equidistant from each other".

The term "*first and second antennas are arranged in at least a partially overlapping arrangement on proximate adjacent planes*" has been construed by the Court to mean "the first and second antennas arranged so that one antenna may be brought into contact with the other antenna at some point of rotation if one (or both) antenna (antennas) were rotated about its (their) respective center (centers) of mass, the antennas contained within respective planes before rotation in the fixed positions that are near, close, or contiguous"

The term "*first and second antennas are arranged in an opposing magnetic flux arrangement*" has been construed by the Court to mean "arrangement where the magnetic flux generated by one reader antenna passes through the other reader antenna in an opposing manner

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(i.e. both positive and negative magnetic flux from one reader antenna passes through the other reader antenna); positive magnetic flux is magnetic flux which induces a positive voltage across an antenna coil and negative magnetic flux is magnetic flux which induces negative voltage across an antenna coil”.

The term “*a portion of the first area in the first plane overlaps a portion of the second area in the second plane*” has been construed by the Court to mean “a portion of the area enclosed by the first reader loop antenna covers or is covered by a portion of the area enclosed by the second reader loop antenna as viewed along the longitudinal axis”

C. Non-Infringement

Opinion 1: Farpointe’s Delta and Cog1000 accused products do not infringe asserted claims 5, 6, 17, 18, 19, 20, 21, and 22. All 8 of the ‘862 patent claims listed above require antennas in a plurality of planes, yet all of the accused Delta-series products and the Cog1000-series products have are co-planar antennas that exist within a single plane.

Opinion 2: Many of Farpointe’s Delta and Cog1000 accused products do not infringe asserted claims 1, 2, 3, 4, 14, and 16 because all 6 of these claims require more than one axis of orientation. Except for the Delta 3, Delta 5, Delta 6.4, and Cog1000 products, other Farpointe are co-planar and therefore have only a single axis of orientation.

Opinion 3: The accused products do not infringe the asserted claims because all the claims require:

A first [] antenna . . . enabling data communications with a first transponder transmitting data signals . . . and

A second [] antenna . . . enabling data communications with a second transponder transmitting data signals.

As such, the claims require enabling data communications with a first transponder and a second transponder **simultaneously**. I understand the accused products are not capable of enabling data communications simultaneously with two transponders transmitting data signals. Thus, the accused products do not infringe the asserted claims of the ‘862 patent.

XI. OPINIONS ON THE VALIDITY OF THE CLAIMS OF THE ‘862 PATENT

A. Summary Of ‘862 Patent And Asserted Claims

The ‘862 patent discloses a RFID reader antenna assembly containing overlapping low-frequency and high-frequency antennas. A total of 17 claims are asserted, 6 of which are independent claims. The asserted claims include claims 1, 2, 3, 4, 5, 6, 9, 10, 13, 14, 16, 17, 18, 19, 20, 21, and 22.

B. Opinion 4: The Dynasys Dual Frequency Product Invalidates The Asserted Claims Of The '862 Patent Because Dynasys Dual Frequency Product Includes Each And Every Requirement Of The Claims

I examined a Dynasys Dual Frequency RFID device ("Dynasys device") including its internal components. I understand the Dynasys device was offered for sale or sold prior the invention date of each claim asserted. After my analysis of the Dynasys device in view of the asserted claims of the '862 patent, I believe the Dynasys device anticipates all the asserted claims of the '862 patent.

1. **Claim 1**

Requirement 1: An antenna array for an RFID reader.

The Dynasys Device Includes Requirement 1 of Claim 1:

Dual Band Evaluation Kit
[P-8382]

Mfg. Sug. Price
\$795.00
Call For DISCOUNT

The Dynasys Dual Band Evaluation Kit contains everything required to allow you to evaluate both High Frequency (13.56 MHz) and Low Frequency (134 kHz) Radio Frequency Identification (RFID) technologies.



This kit contains:

Hardware:

- Dual Band Reader with built in antennas
- Power Supply with AC Adapters
- Serial Cable

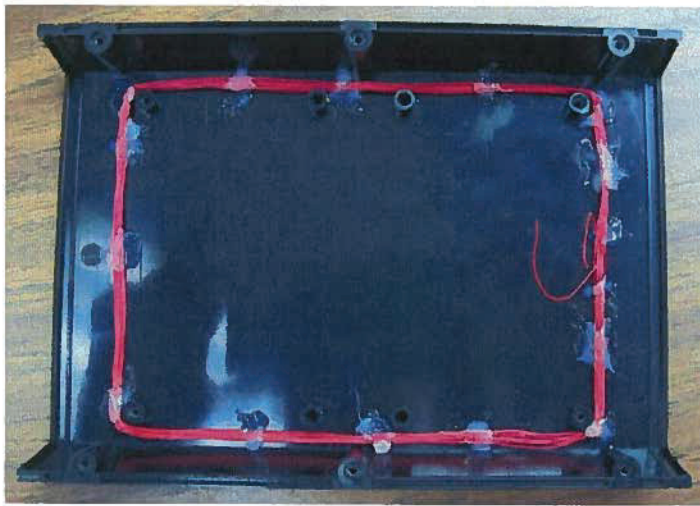
FAR001115 – Exhibit 6.

The Dynasys device is an RFID reader that includes two antennas, as such, one skilled in the art would understand the Dynasys device to include an antenna array for an RFID reader.

Requirement 2: A first reader antenna tuned to operate at a first low carrier frequency enabling data communication with a first transponder transmitting data signals at said first low carrier frequency.

The Dynasys Device Includes Requirement 2 of Claim 1 because the Dynasys device includes a first reader antenna as claim 1 requires:

The Dynasys device includes a first reader antenna tuned to operate at a first low carrier frequency as indicated in marketing material attached hereto in **Exhibit 6**, FAR001115.



I also inspected a physical unit and observed a first reader antenna tuned to operate at a first low carrier frequency as the claim requires. This first reader antenna is the red antenna coil shown in the picture above.

As indicated in the Dynasys marketing material (attached hereto as **Exhibit 6**) the Dynasys device first reader antenna is enabling data communication with a first transponder transmitting data signals at said first low carrier frequency as claim 1 requires. Specifically, Dynasys describes that:

It allows the execution of the reader's supported commands such as writing and reading information to and from Tag-It HF, Tag-It HF-I (ISO Compatible), and LF transponders. The application displays and logs transponder data in both hexadecimal and ASCII formats and also displays the data that is sent from the PC to the reader and the data sent from the reader to the PC. The application can be employed to perform reader setup, tuning, diagnosis, and can be used in the initial experimentation and testing of a HF and LF RFID system.

FAR001115 – **Exhibit 6**.

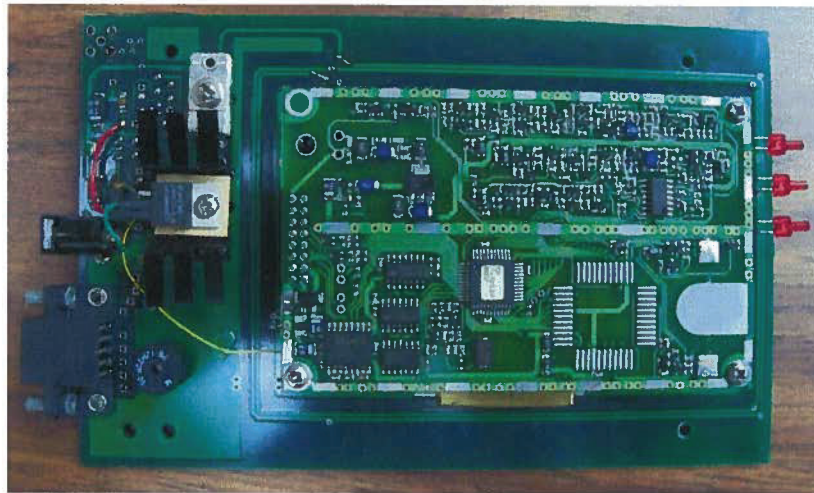
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For at least the above reasons, the Dynasys device includes requirement 2 of claim 1.

Requirement 3: A second reader antenna tuned to operate at a second high carrier frequency different from said first low carrier frequency enabling data communication with a second transponder transmitting data signals at said second high carrier frequency.

The Dynasys Device Includes Requirement 3 of Claim 1 because the Dynasys device includes a second reader antenna as claim 1 requires:

The Dynasys device also includes a second reader antenna tuned to operate at a second high carrier frequency different from the first low carrier frequency different from said first low carrier frequency as evidence by the marketing material discussed above. In addition, I observed the second reader antenna in my analysis of the Dynasys unit. The second reader antenna is the strip around the PCB in the photo below.



Requirement 4: Wherein the first and second antennas are oriented along axes that are substantially parallel to one another.

The Dynasys Device Includes Requirement 4 of Claim 1 because the Dynasys device includes a first and second antennas oriented along axes that are substantially parallel to one another as claim 1 requires:

The first and second antennas included in the Dynasys device are oriented along axes that are substantially parallel to one another as defined in the Claim Construction Order (attached hereto to **Exhibit 4**). Specifically, the first antenna of the Dynasys device is attached to the lid of the enclosure of the Dynasys device (see above photo 1 of first antenna) which is positioned over the printed circuit board that includes the second antenna (see above photo 2 of second antenna). As such, the first and second antennas are oriented along longitudinal axes substantially equidistant from each other as claim 1 requires. Thus, the Dynasys device includes Requirement 4 of claim 1.

Because the Dynasys device includes requirements 1, 2, 3, and 4 of claim 1, the Dynasys device anticipates claim 1.

2. **Claim 2**

Requirement: The antenna array of claim 1, wherein said first low carrier frequency is nominally 125 kHz.

As discussed above, the Dynasys device includes all the requirements of claim 1. In addition, the Dynasys device includes all the requirements in Claim 2. The Dynasys device includes an antenna tuned to operate at a first low carrier frequency of 134 kHz. FAR001115 – **Exhibit 6**. The specification indicates that “nominally 125 kHz” as used in claim 2 includes “a carrier frequency within a range of 100 to 150 kHz.” Col. 2:8-14. Because the antenna in the Dynasys device is tuned to operate at a first low carrier frequency that falls within the range of 100 to 150 kHz, the Dynasys device includes “said first low carrier frequency is nominally 125 kHz” as Claim 2 requires.

3. **Claim 3**

Requirement: The antenna array of claim 2, wherein said second high carrier frequency is about 13.56 MHz.

As discussed above, the Dynasys device includes all the requirements of claim 2. In addition, the Dynasys device includes all the requirements in claim 3. The Dynasys device includes an antenna tuned to operate at a second high carrier frequency of 13.56 MHz. FAR001115. Because the antenna in the Dynasys device is tuned to operate at a second high carrier frequency of 13.56 MHz, the Dynasys device includes “said second high carrier frequency is about 13.56 MHz” as claim 3 requires.

4. **Claim 4**

Requirement: The antenna array of claim 1, further comprising a reader housing containing said first and second antennas.

As discussed above, the Dynasys device includes all the requirements of claim 1. In addition, the Dynasys device includes a reader housing containing the first and second antennas.

5. **Claim 5**

Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader antenna tuned to operate at a first carrier frequency enabling data communication with a first transponder transmitting data signals at said first carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second carrier frequency different from said first carrier frequency enabling data communication with a second transponder transmitting data signals at said second carrier frequency.

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Requirement 4: Wherein said first and second antennas are arranged in at least a partially overlapping arrangement on proximate adjacent planes.

Dynasys Device Includes Requirements 1, 2, and 3:

Requirements 1, 2, and 3 of claim 5 are similar to those of claim 1. As such, the Dynasys device includes requirements 1, 2, and 3 of claim 5 for at least the reasons discussed above.

Dynasys Device Includes Requirement 4:

The Dynasys device includes requirement 4 of claim 5 because the Dynasys device includes two antennas in at least an overlapping arrangement as required by claim 5. Specifically, the Dynasys device includes first and second antennas arranged in at least a partially overlapping arrangement on proximate adjacent planes. As discussed above, the Dynasys device includes a first antenna attached to the lid of the device, which resides above the second antenna on the PCB below. As such, the first and second antennas are arranged so that one antenna may be brought into contact with the other antenna at some point of rotation if one (or both) antenna (antennas) were rotated about its (their) respective center (centers) of mass, the antennas contained within respective planes before rotation in their fixed positions that are near close, or contiguous. Thus, the Dynasys device includes Requirement 4 as claim 5 recites.

Because the Dynasys device includes requirements 1, 2, 3, and 4 as recited in claim 5, the Dynasys device anticipates claim 5.

6. **Claim 6**

Requirement: The antenna array of claim 5, further comprising a reader housing containing said first and second antennas.

The Dynasys device includes all Requirements of claim 5 for at least the reasons discussed above. In addition, the Dynasys device includes a reader housing as shown in the above photos.

7. **Claim 9**

Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader antenna tuned to operate at a first carrier frequency enabling data communication with a first transponder transmitting data signals at said first carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second carrier frequency different from said first carrier frequency enabling data communication with a second transponder transmitting data signals at said second carrier frequency.

Requirement 4: Wherein said first and second antennas are arranged in an opposing magnetic flux arrangement.

Dynasys Device Includes Requirements 1, 2, and 3:

Requirements 1, 2, and 3 of claim 9 are similar to those of claim 1. As such, the Dynasys device includes requirements 1, 2, and 3 of claim 9 for at least the reasons discussed above.

Dynasys Device Includes Requirement 4 of Claim 9:

The Dynasys device includes requirement 4 of claim 9 because the two reader antennas are arranged in an opposing magnetic flux arrangement as required by claim 9. As discussed above, the Dynasys device includes a first reader antenna attached to the lid of the device, which resides above the second reader antenna on the PCB below in an arrangement. As such, the magnetic flux generated by one reader antenna passes through the other reader antenna in an opposing manner (i.e., both positive and negative magnetic flux from one reader antenna passes through the other reader antenna). Thus, the Dynasys device includes requirement 4 of claim 9.

Because the Dynasys device includes requirements 1, 2, 3, and 4 of claim 9, the Dynasys device anticipates claim 9.

8. Claim 10

Requirement: The antenna array of claim 9, further comprising a reader housing containing said first and second antennas.

The Dynasys device includes all requirements of claim 9 for at least the reasons discussed above. In addition, the Dynasys device includes a reader housing as shown in the above photos.

9. Claim 13

Requirement: The antenna array of claim 9, wherein said first and second reader antennas are arranged in an overlapping arrangement simultaneous with said opposing magnetic flux arrangement.

As discussed above, the Dynasys device includes all the requirements of claim 9. Further, the first and second reader antennas of the Dynasys device are arranged in an overlapping arrangement for at least the reasons discussed above with regard to requirement 5 of claim 5. As such, the Dynasys device includes a first and second reader antennas arranged in an overlapping arrangement simultaneous with said opposing magnetic flux arrangement as claim 13 requires. Thus, the Dynasys device anticipates claim 13.

10. Claim 14

Requirement 1: An RFID reader for an RFID system.

Requirement 2: An antenna array including a first reader antenna tuned to operate at a first low carrier frequency enabling data communication with a first transponder transmitting data signals at said first low carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second high carrier frequency different from said first low carrier frequency enabling data communication with a second transponder transmitting data signals at said second high carrier frequency.

Requirement 4: Wherein the first and second antennas are oriented along axes that are substantially parallel to one another.

Requirement 5: A signal generator coupled with said first and second reader antennas.

Dynasys Device Includes Requirement 1:

The Dynasys device includes requirement 1 because the device is an RFID reader for an RFID system as the device reads RFID tags and logs and displays transponder data.

It allows the execution of the reader's supported commands such as writing and reading information to and from Tag-it HF, Tag-it HF-I (ISO Compatible), and LF transponders. The application displays and logs transponder data in both hexadecimal and ASCII formats and also displays the data that is sent from the PC to the reader and the data sent from the reader to the PC. The application can be employed to perform reader setup, tuning, diagnosis, and can be used in the initial experimentation and testing of a HF and LF RFID system.

FAR00115 – Exhibit 6

Dynasys Device Includes Requirements 2 and 3:

The Dynasys device includes an antenna array including a first reader antenna and a second reader antenna are similar requirements as requirements 1, 2, and 3 of claim 1. As such, the requirements 1, 2, and 3 of claim 14 are included in the Dynasys device for at least similar reasons as discussed above with regard to requirements 1, 2, and 3 of claim 1.

Dynasys Device Includes Requirement 4 of Claim 14:

Requirement 4 of claim 14 is similar to claim requirement 4 of claim 1. As such, the Dynasys unit includes requirement 4 of claim 14 for at least similar reasons discussed above for claim 1.

Dynasys Device Includes Requirement 5 of Claim 14:

The Dynasys device includes requirement 5 of claim 14 because the device interrogates transponders. Such interrogation of transponders requires the generation of a signal that is transmitted to a transponder by way of the reader antennas.

The included application software is a Windows compatible application that provides a means to fully demonstrate the functional and performance capabilities of the Dual Band RFID interrogator using both HF and LF transponders.

FAR001115 – Exhibit 6.

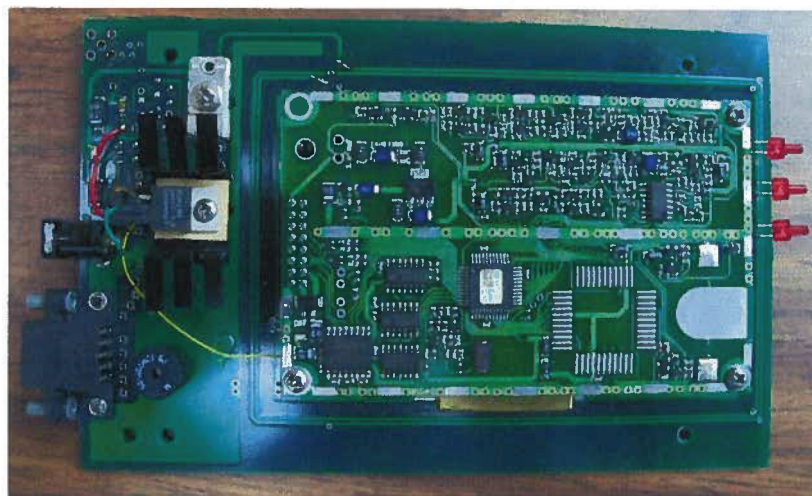
As such, the Dynasys device includes a signal generator as necessary for interrogating tags and this signal generator is coupled to the reader antennas. Thus, the Dynasys device includes a signal generator coupled with said first and second reader antennas as requirement 5 recites.

Because the Dynasys device includes requirements 1, 2, 3, 4 and 5, the Dynasys device anticipates claim 14.

11. **Claim 16**

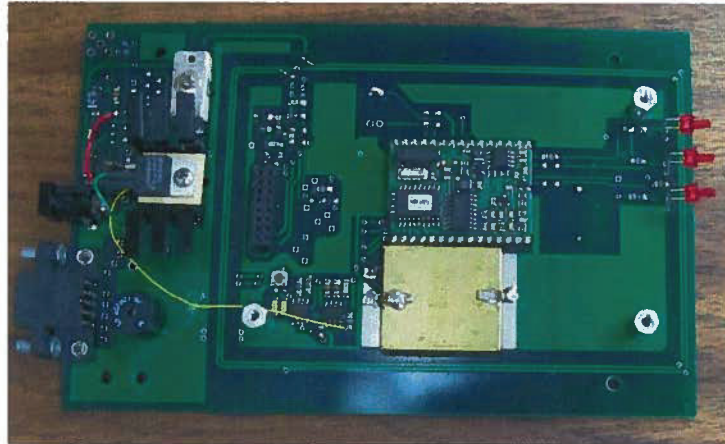
Requirement: The RFID reader of claim 14, wherein said signal generator includes a discrete first signal generator coupled with said first reader antenna for generating signals for transmission from said first reader antenna and a discrete second signal generator coupled with said second reader antenna separate from said discrete first signal generator for generating signals for transmission from said second reader antenna.

As discussed above, the Dynasys device includes all the requirements of claim 14. In addition, the Dynasys device includes all the requirements of claim 16. As discussed above, the Dynasys device includes a signal generator for producing an interrogation signal as required to read to transponders. As the photo of a circuit for reading a first transponder below demonstrates, the circuit for reading includes many discrete components including a signal generator that includes a discrete first signal generator for generating signals for transmission from said first reader antenna as indicated by discrete components used for reading a first transponder.



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Similarly, the photo below is a circuit for reading a second transponder. This circuit for reading a second transponder includes many discrete components including a signal generator that includes a discrete second signal generator for generating signals for transmission from said first reader antenna as indicated by discrete components used for reading a second transponder.



The discrete first signal generator is coupled with the first reader antenna because the device transmits an interrogation signal to read a first transponder by way of a first reader antenna. Similarly, the discrete second signal generator is coupled with the second reader antenna because the device transmits an interrogation signal to read a first transponder by way of a second reader antenna. In addition, as demonstrated in the photos above, the discrete first signal generator and the discrete second generator are on separate portions of the Dynasys device. As such the second signal generator is separate from the discrete first signal generator as claim 16 requires.

For at least the above reasons the Dynasys device includes all the requirements of claim 16. Thus, the Dynasys device anticipates claim 16.

12. **Claim 17**

Requirement 1: An RFID reader for an RFID system.

Requirement 2: An antenna array including a first reader antenna tuned to operate at a first low carrier frequency enabling data communication with a first transponder transmitting data signals at said first low carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second high carrier frequency different from said first low carrier frequency enabling data communication with a second transponder transmitting data signals at said second high carrier frequency.

Requirement 4: Wherein the first and second antennas are arranged in at least a partially overlapping arrangement along proximate adjacent planes.

Requirement 5: Receiver electronics coupled with said first and second reader antennas.

Dynasys Device Includes Requirements 1, 2, and 3 of Claim 17:

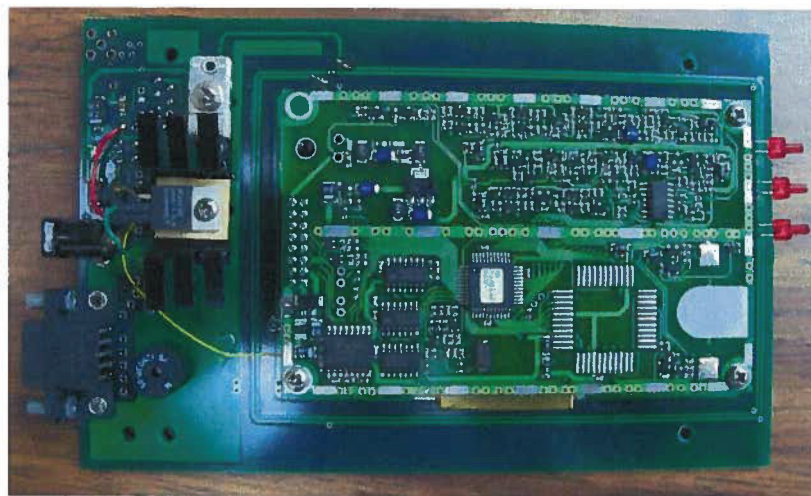
Requirements 1, 2, and 3 of claim 17 are similar to requirements 1, 2, and 3 of claim 14. As such, the Dynasys device includes requirement 1 for at least similar reasons as discussed above with regard to requirement 1 of claim 14.

Dynasys Device Includes Requirement 4 of Claim 17:

Requirement 4 of claim 17 is similar to requirement 4 of claim 5. As such, the Dynasys device includes requirement 4 of claim 17 for at least similar reasons as discussed above with regard to requirement 4 of claim 5.

Dynasys Device Includes Requirement 5 of Claim 17:

The Dynasys device includes requirement 5 of claim 17 because the device receives signals from transponders. As such, the Dynasys device requires receiver electronics coupled to the first and second reader antennas to receive the signals from transponders. The photos below illustrate the electronics used in the Dynasys device which include the receiver electronics as claim 17 requires.

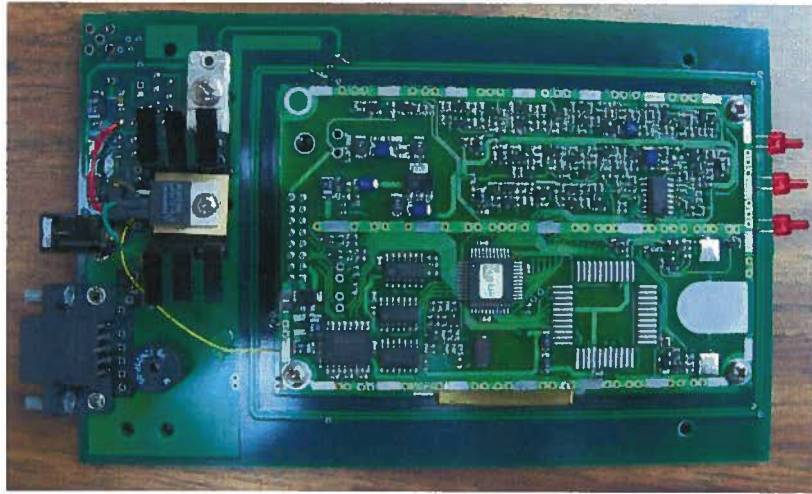


Because the Dynasys device includes requirements 1, 2, 3, 4, and 5 of claim 17, the Dynasys device anticipates claim 17.

13. **Claim 19**

Requirement: The RFID reader of claim 17, wherein said receiver electronics includes discrete first receiver electronics coupled with said first reader antenna for conditioning signals received by said first reader antenna and discrete second receiver electronics coupled with said second reader antenna separate from said discrete first receiver electronics for conditioning signals received by said second reader antenna.

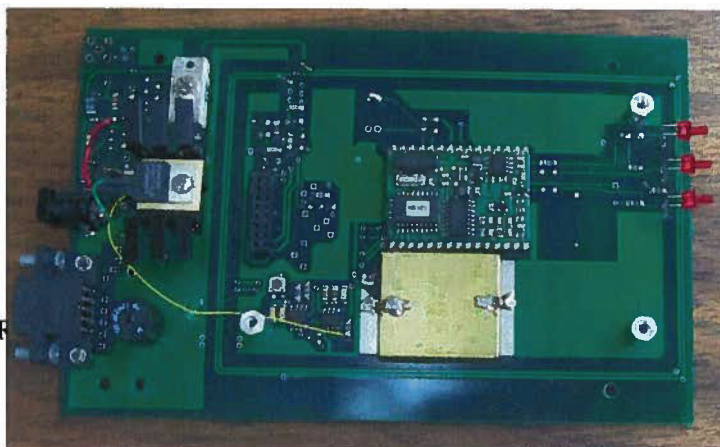
As discussed above, the Dynasys device includes all the requirements of claim 17. In addition, the Dynasys device includes receiver electronics that include discrete first receiver electronics coupled with said first reader antenna for conditioning signals received by said first reader antenna. The Dynasys device includes the receiver electronics to receive a signal from a first transponder. These receiver electronics are shown in the photo below, which include discrete first receiver electronics.



For the Dynasys device to receive the signal from the first transponder the discrete first receiver electronics are coupled with the first reader antenna. Further, the first receiver electronics are for conditioning signals received as required to put the received signals in a form for processing by other electronics required to read the signal for the first transponder.

Similarly, the Dynasys device includes discrete second reader electronics to receive a signal from a second transponder. These receiver electronics are shown in the photo below, which include discrete second receiver electronics.

For the Dynasys device to receive the signal from the second transponder the discrete second receiver electronics are coupled with the second reader antenna. Further, the second receiver electronics are for conditioning signals received as required to put the received signals in a form for processing by other electronics required to read the signal for the second transponder.



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As the discrete first receiver electronics and the discrete second receiver electronics are located on separate portions of the Dynasys device, the discrete second receiver electronics are separate from said discrete first receiver electronics as claim 19 requires.

For at least the above reasons, the Dynasys device includes all the requirements of claim 19. Thus, the Dynasys device anticipates claim 19.

14. **Claim 20**

Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader loop antenna having a first loop and tuned to operate at a first carrier frequency enabling data communication with a first transponder transmitting data signals at said first carrier frequency.

Requirement 3: A second reader loop antenna having a second loop and tuned to operate at a second carrier frequency different from said first carrier frequency enabling data communication with a second transponder transmitting data signals at said second carrier frequency.

Requirement 4: Wherein a first plane defined by the first area is substantially orthogonal to a direction of magnetic flux created through the first antenna.

Requirement 5: Wherein a second plan defined by the second area is substantially orthogonal to a direction of magnetic flux created through the second antenna.

Requirement 6: Wherein said first and second loops are arranged relative to one another such that a portion of the first area in the first plane overlaps a portion of the second area in the second plane.

Dynasys Device Includes Requirement 1 of Claim 20:

Requirement 1 of claim 20 is similar to requirement 1 of claim 5. As such, the Dynasys device includes requirement 1 of claim 20 for at least similar reasons as discussed with respect to claim 5.

Dynasys Device Includes Requirement 2 of Claim 20:

The Dynasys device includes a first reader loop antenna having a first loop as demonstrated in the photos above that include the antenna. The rest of the language recited in requirement 2 of claim 20 is similar to the language in requirement 2 of claim 5. As such, the Dynasys device includes the additional language in requirement 2 for at least reasons stated above with regard to requirement 2 of claim 5.

Dynasys Device Includes Requirement 3 of Claim 20:

The Dynasys device includes a second reader loop antenna having a second loop as demonstrated in the photos above that include the antenna. The rest of the language recited in requirement 3 is similar to the language in requirement 3 of claim 20. As such, the Dynasys device includes the additional language in requirement 3 for at least reasons stated above with regard to requirement 3 of claim 5.

Dynasys Device Includes Requirement 4 of Claim 20:

For the purpose of determining infringement, I determined that the meaning of the phrase “wherein a first plane defined by the first area” to mean a first plane defined by the first area enclosed by the first reader loop antenna. This construction is consistent with the Court’s construction of requirement 6 that included the term “the first area in the first plane.”

Based on the above interpretation, the Dynasys device includes a first plane defined by the first area because the Dynasys device includes an antenna attached to the lid of the device that is on a first plane and the antenna encloses a first area. Further, when the antenna is active it would generate magnetic flux through the antenna such that the first plane would be substantially orthogonal to some portion of magnetic flux created by the active antenna. As such, the Dynasys device includes requirement 4 of claim 20.

Dynasys Device Includes Requirement 5 of Claim 20:

For the purpose of determining infringement, I determined that the meaning of the phrase “wherein a second plane defined by the second area” to mean a second plane defined by the second area enclosed by the second reader loop antenna. This construction is consistent with the Court’s construction of requirement 6 that included the term “the second area in the second plane.”

Based on the above interpretation, the Dynasys device includes a second plane defined by the second area because the Dynasys device includes an antenna on a printed circuit board, as photos above illustrate, that is on a second plane, a plane distinct from the plane of the antenna attached to the lid. In addition, this antenna encloses a second area. Further, when the antenna is active it would generate magnetic flux through the antenna such that the second plane would be substantially orthogonal to some portion of magnetic flux created by the active antenna. As such, the Dynasys device includes requirement 5 of claim 20.

Dynasys Device Includes Requirement 6 of Claim 20:

I understand requirement 6 in view of the Court’s construction of the term “a portion of the first area in the first plane overlaps a portion of the second area in the second plan.” Based on this construction, the Dynasys device includes requirement 6 of claim 20. Specifically, the Dynasys device includes two antennas, as illustrated in photos above that are of different sizes. As discussed above, these antennas are arranged such that antenna attached to the lid of the device resides above the second antenna on the PCB below (when viewed from the longitudinal

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axis as explained in the Court's construction order). Because of the different sizes of the two antennas and the fact that one resides above the other, the antennas are arranged relative to one another such that a portion of the area enclosed by the first reader loop antenna covers or is covered by a portion of the area enclosed by the second reader loop antenna as viewed along the longitudinal axis. As such, the Dynasys device includes requirement 6 of claim 20.

15. **Claim 21**

Requirement: The antenna array of claim 20, wherein the directions of magnetic flux created through the first and second antennas are not orthogonal.

As discussed above, the Dynasys device includes all requirements of claim 20. In addition, the Dynasys device includes the requirements of claim 21 because the planes defined by the area enclosed by each reader loop antenna, as discussed above with regard to claim 20, are substantially parallel. As such, when both antennas are active and thus generating magnetic flux, the direction of the magnetic flux created through the first and second antennas are not orthogonal. As such, the Dynasys device includes the requirements of claim 21.

16. **Claim 22**

Requirement: The antenna array of claim 20, wherein said first and second loops have a parallel orientation and are arranged relative one another such that a size of the portion of the first area aligning with the portion of the second area is less than at least one of a size of the first area and a size of the second area.

As discussed above, the Dynasys device includes all the requirements of claim 20. In addition, the Dynasys device includes first and second loops that have a parallel orientation because the antennas are on separate planes as illustrated in the above photo. Further, the portion of the first area aligning with the portion of the second area is less than at least the one of a size of the first area and the size of the second area. Thus, the Dynasys device includes the requirements of claim 22.

C. **Opinion 5: The Multiprox Reader Invalidates The Asserted Claims Of The '862 Patent Because The Multiprox Reader, Alone And In Combination With Another RFID Reader, Includes Each And Every Requirement Of The Claims**

I examined a Multiprox System ("Multiprox") including its internal components. I understand the Multiprox was offered for sale or sold prior to the date of invention of each claim asserted. After my analysis of the Multiprox in view of the asserted claims of the '862 patent, I believe the Multiprox unit anticipates all asserted claims.

1. **Claim 1**

Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader antenna tuned to operate at a first low carrier frequency enabling data communication with a first transponder transmitting data signals at said first low carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second high carrier frequency different from said first low carrier frequency enabling data communication with a second transponder transmitting data signals at said second high carrier frequency.

Requirement 4: Wherein the first and second antennas are oriented along axes that are substantially parallel to one another.

The Multiprox Includes Requirement 1 of Claim 1:



The Multiprox is an RFID reader that includes two antennas, as such, one skilled in the art would understand the Multiprox to include an antenna array for an RFID reader as required by claim 1.

The Multiprox Includes Requirement 2 of Claim 1 because the Multiprox includes a first reader antenna as claim 1 requires:

The Multiprox includes a first reader antenna tuned to operate at a first low carrier frequency as indicated in Installation Manual – 6000-900 Rev F attached hereto in **Exhibit 8**, FAR016580-81.

MultiProx Reader Operation

The MultiProx Reader accepts commands from the controller to change the read mode and to signal changes to the LED and beeper. While in the HID "Prox mode", the reader detects HID proximity cards by generating a 125kHz low power field that energizes the card and allows it to transmit its manchester-encoded data. While in the "sweep mode", the Reader detects Schlage/Westinghouse (SE) command keys by outputting an RF field in the frequency range of 2 to 27 megahertz. This signal is swept from high to low frequencies. The SE command keys are a set of tuned L/C (tank) circuits that resonate at their tuned frequency. As the L/C circuits resonate, they generate an interference in the swept frequency range. This interference pulse is detected by the reader and transmitted to the Controller via the coax cable. The Controller determines the frequencies of a command key and matches the set of frequencies to a card number.

I also inspected the physical unit and observed a first reader antenna tuned to operate at a first low carrier frequency as the claim requires. This first reader antenna is the gold-colored coil shown in the picture above.

As indicated in the above cite (attached hereto as **Exhibit 8**) the Multiprox first reader antenna is enabling data communication with a first transponder transmitting data signals at said first low carrier frequency as claim 1 requires. Specifically, Multiprox describes that:

For at least the above reasons, the Multiprox includes requirement 2 of claim 1.

The Multiprox Includes Requirement 3 of Claim 1 because the Multiprox includes a second reader antenna as claim 1 requires:

The Multiprox also includes a second reader antenna tuned to operate at a second high carrier frequency different from the first low carrier frequency different from said first low carrier frequency as evidence by the marketing material discussed above. In addition, I observed the second reader antenna in my analysis of the Multiprox. The second reader antenna is the strip around the printed circuit board ("PCB") in the photo above.

The Multiprox Includes Requirement 4 of Claim 1 because the Multiprox includes a first and second antennas oriented along axes that are substantially parallel to one another as claim 1 requires:

The first and second antennas included in the Multiprox are oriented along axes that are substantially parallel to one another as defined in the Claim Construction Order (attached hereto to **Exhibit 4**). Specifically, the first antenna of the Multiprox is raised off the PCB such that the antenna is positioned over the PCB board that includes the second antenna (see above photo). As such, the first and second antennas are oriented along longitudinal axes substantially equidistant from each other as claim 1 requires. Thus, the Multiprox includes requirement 4 of claim 1.

Because the Multiprox includes requirements 1, 2, 3, and 4 of claim 1, the Multiprox anticipates claim 1.

2. Claim 2

Requirement: The antenna array of claim 1, wherein said first low carrier frequency is nominally 125 kHz.

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As discussed above, the Multiprox includes all the requirements of claim 1. In addition, the Multiprox includes all the requirements in claim 2. The Multiprox includes a first low carrier frequency that is nominally 125 kHz as indicated below. FAR016601 – **Exhibit 16**.

Specifications for the MultiProx Reader

Operating Limits

Operating voltage range..... 14 - 28.5VDC Supplied
by the Controller
Absolute maximum voltage.....28.5VDC

Environmental

Enclosure rating..... Outdoor rated to NEMA 4X
Enclosure material..... Polycarbonate
Weight..... 15 oz.
Operating temperature range..... -40 to 65°C (-40 to 150°F)
Storage temperature..... -40 to 85°C (-40 to 185°F)
Operating humidity range..... 5 to 95% Non-condensing
Operating vibration limit..... .04 G/Hz 20 - 2000Hz
Operating shock limit..... 30g, 11mS half sine

Operating parameters

Read distance/ProxCard II 2.5 - 4 inches over operating
limits, 3.0 inches typical
Read distance/Schlage 1050..... 0.75 - 3 inches over operating
limits, 1.75 inches typical
Read distance/Schlage1030/1040..... 1.0 - 3.5 inches over operating
limits, 2.0 inches typical
Excitation frequency 125kHz generated internally
(Prox mode)
Excitation frequency 2-30MHz generated on the
(Sweep mode) controller

For at least the above reasons, the Multiprox anticipates claim 2.

3. **Claim 3**

Requirement: The antenna array of claim 2, wherein said second high carrier frequency is about 13.56 MHz.

As discussed above, the Multiprox includes all the requirements of claim 2. In addition, the Multiprox includes all the requirements in claim 3. The Multiprox includes an antenna tuned to operate at a second high carrier frequency including the frequency of 13.56 MHz (see operating parameters above). FAR016601 – **Exhibit 16**. Because the antenna in the Multiprox is tuned to operate at a second high carrier frequency including 13.56 MHz, the Multiprox includes “said second high carrier frequency is about 13.56 MHz” as claim 3 requires.

4. **Claim 4**

Requirement: The antenna array of claim 1, further comprising a reader housing containing said first and second antennas.

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As discussed above, the Multiprox includes all the requirements of claim 1. In addition, the Multiprox includes a reader housing containing the first and second antennas (portion of which is shown in the above).

5. **Claim 5**

Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader antenna tuned to operate at a first carrier frequency enabling data communication with a first transponder transmitting data signals at said first carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second carrier frequency different from said first carrier frequency enabling data communication with a second transponder transmitting data signals at said second carrier frequency.

Requirement 4: Wherein said first and second antennas are arranged in at least a partially overlapping arrangement on proximate adjacent planes.

Multiprox Includes Requirements 1, 2, and 3:

Requirements 1, 2, and 3 of claim 5 are similar to those of claim 1. As such, the Multiprox includes requirements 1, 2, and 3 of claim 5 for at least the reasons discussed above.

Multiprox Includes Requirement 4:

Based on my current understanding, the Multiprox does not include requirement 4 of claim, although, the Dynasys device includes first and second antennas arranged in at least a partially overlapping arrangement on proximate adjacent planes as discussed above. Because the Dynasys device is an RFID reader with two antennas, as is the Multiprox, it would be obvious to one skilled in the art at the time of the patent to use the antenna arrangement from the Dynasys device in combination with the Multiprox. As such, requirement 4 is obvious in view of the Multiprox and the Dynasys device.

Because the combination of the Multiprox and the Dynasys device includes all the requirements 1, 2, 3, and 4 as recited in claim 5, the combination renders claim 5 obvious.

6. **Claim 6**

Requirement: The antenna array of claim 5, further comprising a reader housing containing said first and second antennas.

The combination of the Multiprox and the Dynasys device includes all requirements of claim 5 for at least the reasons discussed above. In addition, the Multiprox includes a reader housing, a portion of which is shown in the above photo.

As such, the combination of the Multiprox and the Dynasys device renders claim 6 obvious.

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7. **Claim 9**

Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader antenna tuned to operate at a first carrier frequency enabling data communication with a first transponder transmitting data signals at said first carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second carrier frequency different from said first carrier frequency enabling data communication with a second transponder transmitting data signals at said second carrier frequency.

Requirement 4: Wherein said first and second antennas are arranged in an opposing magnetic flux arrangement.

Multiprox Includes Requirements 1, 2, and 3:

Requirements 1, 2, and 3 of claim 9 are similar to those of claim 1. As such, the Multiprox device includes requirements 1, 2, and 3 of claim 9 for at least the reasons discussed above.

Multiprox Includes Requirement 4 of Claim 9:

The Multiprox includes requirement 4 of claim 9 because the two reader antennas are arranged in an opposing magnetic flux arrangement as required by claim 9. As discussed above, the Multiprox includes a first reader antenna that resides above the second reader antenna on the PCB below in an arrangement. As such, the magnetic flux generated by one reader antenna passes through the other reader antenna in an opposing manner (i.e., both positive and negative magnetic flux from one reader antenna passes through the other reader antenna). Thus, the Multiprox device includes requirement 4 of claim 9.

Because the Multiprox device includes requirements 1, 2, 3, and 4 of claim 9, the Multiprox device anticipates claim 9.

8. **Claim 10**

Requirement: The antenna array of claim 9, further comprising a reader housing containing said first and second antennas.

The Multiprox includes all requirements of claim 9 for at least the reasons discussed above. In addition, the Multiprox device includes a reader housing.

9. **Claim 13**

Requirement: The antenna array of claim 9, wherein said first and second reader antennas are arranged in an overlapping arrangement simultaneous with said opposing magnetic flux arrangement.

As discussed above, the Multiprox includes all the requirements of claim 9. Further, the combination of the Multiprox and the Dynasys device includes first and second reader antennas arranged in an overlapping arrangement for at least the reasons discussed above with regard to requirement 4 of claim 5. As such, the combination of the Multiprox and the Dynasys device includes a first and second reader antennas arranged in an overlapping arrangement simultaneous with said opposing magnetic flux arrangement as claim 13 requires. Thus, the combination of the Multiprox and the Dynasys device renders claim 13 obvious to one skilled in the art.

10. **Claim 14**

Requirement 1: An RFID reader for an RFID system.

Requirement 2: An antenna array including a first reader antenna tuned to operate at a first low carrier frequency enabling data communication with a first transponder transmitting data signals at said first low carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second high carrier frequency different from said first low carrier frequency enabling data communication with a second transponder transmitting data signals at said second high carrier frequency.

Requirement 4: Wherein the first and second antennas are oriented along axes that are substantially parallel to one another.

Requirement 5: A signal generator coupled with said first and second reader antennas.

Multiprox Includes Requirement 1:

The Multiprox includes requirement 1 because it is an RFID reader for an RFID system as the Multiprox reads RFID cards as described below.

MultiProx Reader Operation

The MultiProx Reader accepts commands from the controller to change the read mode and to signal changes to the LED and beeper. While in the HID "Prox mode", the reader detects HID proximity cards by generating a 125kHz low power field that energizes the card and allows it to transmit its manchester-encoded data. While in the "sweep mode", the Reader detects Schlage/Westinghouse (SE) command keys by outputting an RF field in the frequency range of 2 to 27 megahertz. This signal is swept from high to low frequencies. The SE command keys are a set of tuned L/C (tank) circuits that resonate at their tuned frequency. As the L/C circuits resonate, they generate an interference in the swept frequency range. This interference pulse is detected by the reader and transmitted to the Controller via the coax cable. The Controller determines the frequencies of a command key and matches the set of frequencies to a card number.

FAR016581 – Exhibit 8.

Multiprox Includes Requirements 2 and 3:

The Multiprox includes an antenna array including a first reader antenna and a second reader antenna are similar requirements as requirements 1, 2, and 3 of claim 1. As such, the requirements 1, 2, and 3 of claim 14 are included in the Multiprox for at least similar reasons as discussed above with regard to requirements 1, 2, and 3 of claim 1.

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Multiprox Includes Requirement 4 of Claim 14:

Requirement 4 of claim 14 is similar to claim requirement 4 of claim 1. As such, the Multiprox includes requirement 4 of claim 14 for at least similar reasons discussed above for claim 1.

Multiprox Includes Requirement 5 of Claim 14:

The Multiprox includes requirement 5 of claim 14 because the device interrogates transponders. Such interrogation of transponders requires the generation of a signal that is transmitted to a transponder by way of the reader antennas as described below.

MultiProx Reader Operation

The MultiProx Reader accepts commands from the controller to change the read mode and to signal changes to the LED and beeper. While in the HID "Prox mode", the reader detects HID proximity cards by generating a 125kHz low power field that energizes the card and allows it to transmit its manchester-encoded data. While in the "sweep mode", the Reader detects Schlage/Westinghouse (SE) command keys by outputting an RF field in the frequency range of 2 to 27 megahertz. This signal is swept from high to low frequencies. The SE command keys are a set of tuned L/C (tank) circuits that resonate at their tuned frequency. As the L/C circuits resonate, they generate an interference in the swept frequency range. This interference pulse is detected by the reader and transmitted to the Controller via the coax cable. The Controller determines the frequencies of a command key and matches the set of frequencies to a card number.

FAR016581 – Exhibit 8.

As such, the Multiprox includes a signal generator as necessary for interrogating tags and this signal generator is coupled to the reader antennas. Thus, the Multiprox includes a signal generator coupled with said first and second reader antennas as requirement 5 recites.

Because the Multiprox includes requirements 1, 2, 3, 4 and 5, the Multiprox anticipates claim 14.

11. Claim 16

Requirement: The RFID reader of claim 14, wherein said signal generator includes a discrete first signal generator coupled with said first reader antenna for generating signals for transmission from said first reader antenna and a discrete second signal generator coupled with said second reader antenna separate from said discrete first signal generator for generating signals for transmission from said second reader antenna.

As discussed above, the Multiprox includes all the requirements of claim 14. In addition, the Multiprox includes all the requirements of claim 16. As discussed above, the Multiprox includes a signal generator for producing an interrogation signal as required to read to transponders. As the photo above illustrates and the sections of the Installation Manual below indicate, the circuit for reading includes many discrete components including a signal generator that includes a discrete first signal generator for generating signals for transmission from said first reader antenna as indicated by discrete components used for reading a first transponder. Similarly, the Multiprox includes many discrete components including a signal generator that

includes a discrete second signal generator for generating signals for transmission from said first reader antenna as indicated by discrete components used for reading a second transponder.

MultiProx Reader Operation

The MultiProx Reader accepts commands from the controller to change the read mode and to signal changes to the LED and beeper. While in the HID "Prox mode", the reader detects HID proximity cards by generating a 125kHz low power field that energizes the card and allows it to transmit its manchester-encoded data. While in the "sweep mode", the Reader detects Schlage/Westinghouse (SE) command keys by outputting an RF field in the frequency range of 2 to 27 megahertz. This signal is swept from high to low frequencies. The SE command keys are a set of tuned L/C (tank) circuits that resonate at their tuned frequency. As the L/C circuits resonate, they generate an interference in the swept frequency range. This interference pulse is detected by the reader and transmitted to the Controller via the coax cable. The Controller determines the frequencies of a command key and matches the set of frequencies to a card number.

MultiProx Controller Operation

The MultiProx Controller is the main processing unit of the MultiProx system. The Controller consists of a microprocessor, RF filters, and communications and interface electronics. It is the task master that schedules the reading of HID proximity card, SE command cards, communications for control of the LEDs and Beeper on the Reader, communication with the HSMs, converting/calculating card numbers and facility code, Wiegand message building and Wiegand message output. The Controller uses a polling scheme to divide its time between each of the eight Reader channels. At each channel, the Controller will enable the HID read sequence, the SE sequence and communicate with the HSMs. The Controller polls channel one through eight until a card or HSM status change occurs.

FAR016580-1 – Exhibit 8.

The discrete first signal generator is coupled with the first reader antenna because the device transmits an interrogation signal to read a first transponder by way of a first reader antenna, as indicated by the cites above. Similarly, the discrete second signal generator is coupled with the second reader antenna because the Multiprox transmits an interrogation signal to read a second transponder by way of a second reader antenna. As such the second signal generator is separate from the discrete first signal generator as claim 16 requires.

For at least the above reasons the Multiprox includes all the requirements of claim 16. Thus, the Multiprox anticipates claim 16.

12. Claim 17

Requirement 1: An RFID reader for an RFID system.

Requirement 2: An antenna array including a first reader antenna tuned to operate at a first low carrier frequency enabling data communication with a first transponder transmitting data signals at said first low carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second high carrier frequency different from said first low carrier frequency enabling data communication with a second transponder transmitting data signals at said second high carrier frequency.

Requirement 4: Wherein the first and second antennas are arranged in at least a partially overlapping arrangement along proximate adjacent planes.

Requirement 5: Receiver electronics coupled with said first and second reader antennas.

Multiprox Includes Requirements 1, 2, and 3 of Claim 17:

Requirements 1, 2, and 3 of claim 17 are similar to requirements 1, 2, and 3 of claim 14. As such, the Multiprox includes requirement 1 for at least similar reasons as discussed above with regard to requirement 1 of claim 14.

Multiprox Includes Requirement 4 of Claim 17:

Requirement 4 of claim 17 is similar to requirement 4 of claim 5. As such, the combination of the Multiprox and the Dynasys device includes requirement 4 of claim 17 for at least similar reasons as discussed above with regard to requirement 4 of claim 5.

Multiprox Includes Requirement 5 of Claim 17:

The Multiprox device includes requirement 5 of claim 17 because the device receives signals from transponders. As such, the Multiprox requires receiver electronics coupled to the first and second reader antennas to receive the signals from transponders. The photos above and sections of the Installation manual cited above make clear that the electronics used in the Multiprox include the receiver electronics as claim 17 requires.

Because the combination of the Multiprox and the Dynasys device includes requirements 1, 2, 3, 4, and 5 of claim 17, the combination of the Multiprox and the Dynasys device renders claim 17 obvious to one skilled in the art.

13. **Claim 19**

Requirement: The RFID reader of claim 17, wherein said receiver electronics includes discrete first receiver electronics coupled with said first reader antenna for conditioning signals received by said first reader antenna and discrete second receiver electronics coupled with said second reader antenna separate from said discrete first receiver electronics for conditioning signals received by said second reader antenna.

As discussed above, the Multiprox includes all the requirements of claim 17. In addition, the Multiprox includes first receiver electronics that include discrete first receiver electronics coupled with said first reader antenna for conditioning signals received by said first reader antenna. The Multiprox includes the second receiver electronics coupled with second reader antenna. These receiver electronics include discrete first receiver electronics as shown in the photo above and referred to in the Installation Manual as cited above.

For the Multiprox to receive the signal from the first transponder the discrete first receiver electronics are coupled with the first reader antenna. Further, the first receiver electronics are for conditioning signals received as required to put the received signals in a form for processing by other electronics required to read the signal for the first transponder.

Similarly, the Multiprox includes discrete second reader electronics coupled with a second reader antenna to receive a signal from a second transponder as would be required to operate as described and as referred to in the Installation Manual as discussed above.

For the Multiprox to receive the signal from the second transponder the discrete second receiver electronics are coupled with the second reader antenna. Further, the second receiver electronics are for conditioning signals received as required to put the received signals in a form for processing by other electronics required to read the signal for the second transponder.

As the discrete first receiver electronics and the discrete second receiver electronics are required to operate a different range of frequencies, the discrete second receiver electronics are separate from said discrete first receiver electronics as claim 19 requires.

For at least the above reasons, the Multiprox includes all the requirements of claim 19. Thus, the Multiprox anticipates claim 19.

14. **Claim 20**

Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader loop antenna having a first loop and tuned to operate at a first carrier frequency enabling data communication with a first transponder transmitting data signals at said first carrier frequency.

Requirement 3: A second reader loop antenna having a second loop and tuned to operate at a second carrier frequency different from said first carrier frequency enabling data communication with a second transponder transmitting data signals at said second carrier frequency.

Requirement 4: Wherein a first plane defined by the first area is substantially orthogonal to a direction of magnetic flux created through the first antenna.

Requirement 5: Wherein a second plan defined by the second area is substantially orthogonal to a direction of magnetic flux created through the second antenna.

Requirement 6: Wherein said first and second loops are arranged relative to one another such that a portion of the first area in the first plane overlaps a portion of the second area in the second plane.

Multiprox Includes Requirement 1 of Claim 20:

Requirement 1 of claim 20 is similar to requirement 1 of claim 5. As such, the Multiprox includes requirement 1 of claim 20 for at least similar reasons as discussed with respect to claim 5.

Multiprox Includes Requirement 2 of Claim 20:

The Multiprox includes a first reader loop antenna having a first loop as demonstrated in the photos above that include the antenna. The rest of the language recited in requirement 2 of claim 20 is similar to the language in requirement 2 of claim 5. As such, the Multiprox includes the additional language in requirement 2 for at least reasons stated above with regard to requirement 2 of claim 5.

Multiprox Includes Requirement 3 of Claim 20:

The Multiprox includes a second reader loop antenna having a second loop as demonstrated in the photos above that include the antenna. The rest of the language recited in requirement 3 is similar to the language in requirement 3 of claim 5. As such, the Multiprox includes the additional language in requirement 3 for at least reasons stated above with regard to requirement 3 of claim 5.

Multiprox Includes Requirement 4 of Claim 20:

For the purpose of determining infringement, I determined that the meaning of the phrase “wherein a first plane defined by the first area” to mean a first plane defined by the first area enclosed by the first reader loop antenna. This construction is consistent with the Court’s construction of requirement 6 that included the term “the first area in the first plane.”

Based on the above interpretation, the Multiprox includes a first plane defined by the first area because the Multiprox includes an antenna mounted above the PCB that is on a first plane and the antenna encloses a first area. Further, when the antenna is active it would generate magnetic flux through the antenna such that the first plane would be substantially orthogonal to some portion of magnetic flux created by the active antenna. As such, the Multiprox includes requirement 4 of claim 20.

Multiprox Includes Requirement 5 of Claim 20:

For the purpose of determining infringement, I determined that the meaning of the phrase “wherein a second plane defined by the second area” to mean a second plane defined by the second area enclosed by the second reader loop antenna. This construction is consistent with the Court’s construction of requirement 6 that included the term “the second area in the second plane.”

Based on the above interpretation, the Multiprox includes a second plane defined by the second area because the Multiprox includes an antenna on a PCB, as photos above illustrate, that is on a second plane, a plane distinct from the plane of the antenna mounted above the PCB. In addition, this antenna encloses a second area. Further, when the antenna is active it would generate magnetic flux through the antenna such that the second plane would be substantially orthogonal to some portion of magnetic flux created by the active antenna. As such, the Multiprox includes requirement 5 of claim 20.

Multiprox Includes Requirement 6 of Claim 20:

I understand requirement 6 in view of the Court's construction of the term "a portion of the first area in the first plane overlaps a portion of the second area in the second plane." Based on this construction, the Multiprox includes requirement 6 of claim 20. Specifically, the Multiprox includes two antennas, as illustrated in photos above that are of different sizes. As discussed above, these antennas are arranged such that antenna mounted above the PCB of the device resides above the second antenna on the PCB below (when viewed from the longitudinal axis as explained in the Court's construction order). Because of the different sizes of the two antennas and the fact that one resides above the other, the antennas are arranged relative to one another such that a portion of the area enclosed by the first reader loop antenna covers or is covered by a portion of the area enclosed by the second reader loop antenna as viewed along the longitudinal axis. As such, the Multiprox includes requirement 6 of claim 20.

15. **Claim 21**

Requirement: The antenna array of claim 20, wherein the directions of magnetic flux created through the first and second antennas are not orthogonal.

As discussed above, the Multiprox includes all requirements of claim 20. In addition, the Multiprox includes the requirements of claim 21 because the planes defined by the area enclosed by each reader loop antenna, as discussed above with regard to claim 20, are substantially parallel. As such, when both antennas are active and thus generating magnetic flux, the direction of the magnetic flux created through the first and second antennas are not orthogonal. As such, the Multiprox includes the requirements of claim 21.

16. **Claim 22**

Requirement: The antenna array of claim 20, wherein said first and second loops have a parallel orientation and are arranged relative one another such that a size of the portion of the first area aligning with the portion of the second area is less than at least one of a size of the first area and a size of the second area.

As discussed above, the Multiprox includes all the requirements of claim 20. As discussed above, the Multiprox includes all the requirements of claim 20. In addition, the Multiprox includes first and second loops that have a parallel orientation because the antennas are on separate planes as illustrated in the above photo. Further, the portion of the first area aligning with the portion of the second area is less than at least the one of a size of the first area and the size of the second area. Thus, the Multiprox includes the requirements of claim 22.

D. Opinion 6: The TI S4110R Invalidates The Asserted Claims Of The '862 Patent Because The TI S4110R Includes Each And Every Requirement Of The Claims

I examined a TI S4110R ("TI device") including its internal components. I understand the TI device was offered for sale, sold, or in public use prior to the invention date of each claim

asserted. Based on my analysis of the TI device in view of the asserted claims of the '862 patent, I believe the TI device unit anticipates all asserted claims.

1. **Claim 1**

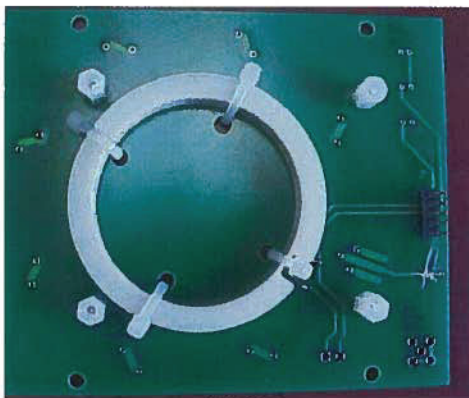
Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader antenna tuned to operate at a first low carrier frequency enabling data communication with a first transponder transmitting data signals at said first low carrier frequency.

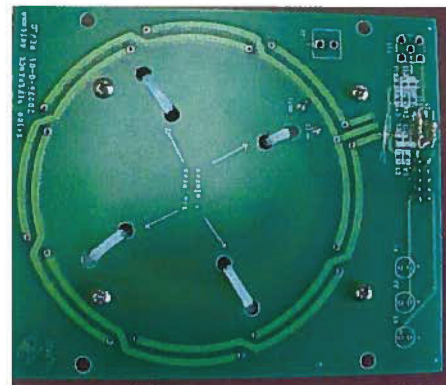
Requirement 3: A second reader antenna tuned to operate at a second high carrier frequency different from said first low carrier frequency enabling data communication with a second transponder transmitting data signals at said second high carrier frequency.

Requirement 4: Wherein the first and second antennas are oriented along axes that are substantially parallel to one another.

The TI Device Includes Requirement 1 of Claim 1:



Antenna 1 – Exhibit 13



Antenna 2 – Exhibit 13

The TI device is an RFID reader that includes two antennas, as such, one skilled in the art would understand the TI device to include an antenna array for an RFID reader as required by claim 1.

The TI Device Includes Requirement 2 of Claim 1 because the TI device includes a first reader antenna as claim 1 requires:

The TI device includes a first reader antenna tuned to operate at a first low carrier frequency as indicated in the FCC Report for MFR based Reader Evaluation Kit attached hereto in **Exhibit 12**, FAR000869-904.

Applicant name & address	Texas Instruments RFID 6550 Chase Oaks Blvd. Plano, TX 75023
Contact info	Mr. Steve Lazar
Model No. Part No.	Model No: S4110R Part No: 001
FCC Identifier	A92S4110R
Operating Frequency	13.560 MHz & 134.4 kHz
Number of Channels	1 channel
Operating Temperature	-20°C to +70°C
Antenna	Integral antenna, loop type,

FAR000872 – Exhibit 12.

I also inspected the physical unit and observed a first reader antenna tuned to operate at a first low carrier frequency as the claim requires. This first reader antenna is shown in the picture above.

The TI device is an RFID reader. As such, first reader antenna is enabling data communication with a first transponder transmitting data signals at said first low carrier frequency as claim 1 requires.

For at least the above reasons, the TI device includes requirement 2 of claim 1.

The TI Device Includes Requirement 3 of Claim 1 because the TI device includes a second reader antenna as claim 1 requires:

The TI device also includes a second reader antenna tuned to operate at a second high carrier frequency different from said first low carrier frequency as evidence by photo above. In addition, I observed the second reader antenna in my analysis of the TI device. The second reader antenna is the strip around the printed circuit board (“PCB”) in the photo above.

The TI Device Includes Requirement 4 of Claim 1 because the TI device includes a first and second antennas oriented along axes that are substantially parallel to one another as claim 1 requires:

The first and second antennas included in the TI device are oriented along axes that are substantially parallel to one another as defined in the Claim Construction Order (attached hereto to **Exhibit 14**). Specifically, the first antenna of the TI device attached to a first side of the PCB (see above photo). As such, the first and second antennas are oriented along longitudinal axes substantially equidistant from each other as claim 1 requires. Thus, the TI device includes requirement 4 of claim 1.

Because the TI device includes requirements 1, 2, 3, and 4 of claim 1, the TI device anticipates claim 1.

2. **Claim 2**

Requirement: The antenna array of claim 1, wherein said first low carrier frequency is nominally 125 kHz.

As discussed above, the TI device includes all the requirements of claim 1. In addition, the TI device includes all the requirements in claim 2. The TI device includes an antenna tuned to operate at a first low carrier frequency of 134 kHz. FAR000872. The specification indicates that “nominally 125 kHz” as used in claim 2 includes “a carrier frequency within a range of 100 to 150 kHz.” 2:8-14. Because the antenna in the TI device is tuned to operate at a first low carrier frequency that falls within the range of 100 to 150 kHz, the TI device includes “said first low carrier frequency is nominally 125 kHz” as claim 2 requires.

For at least the above reasons, the TI device anticipates claim 2.

3. **Claim 3**

Requirement: The antenna array of claim 2, wherein said second high carrier frequency is about 13.56 MHz.

As discussed above, the TI device includes all the requirements of claim 2. In addition, the TI device includes all the requirements in claim 3. The TI device includes an antenna tuned to operate at a second high carrier frequency including the frequency of 13.56 MHz. FAR000872 – **Exhibit 12**. Because the antenna in the TI device is tuned to operate at a second high carrier frequency, the TI device includes “said second high carrier frequency is about 13.56 MHz” as claim 3 requires.

4. **Claim 4**

Requirement: The antenna array of claim 1, further comprising a reader housing containing said first and second antennas.

As discussed above, the TI device includes all the requirements of claim 1. In addition, the TI device includes a reader housing containing the first and second antennas.

5. **Claim 5**

Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader antenna tuned to operate at a first carrier frequency enabling data communication with a first transponder transmitting data signals at said first carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second carrier frequency different from said first carrier frequency enabling data communication with a second transponder transmitting data signals at said second carrier frequency.

Requirement 4: Wherein said first and second antennas are arranged in at least a partially overlapping arrangement on proximate adjacent planes.

TI Device Includes Requirements 1, 2, and 3:

Requirements 1, 2, and 3 of claim 5 are similar to those of claim 1. As such, the TI device includes requirements 1, 2, and 3 of claim 5 for at least the reasons discussed above.

TI Device Includes Requirement 4:

The TI device includes requirement 4 of claim 5 because the TI device includes two antennas in at least an overlapping arrangement as required by claim 5. Specifically, the TI device includes first and second antennas arranged in at least a partially overlapping arrangement on proximate adjacent planes. As discussed above, the TI device includes a first antenna, silver-colored coil, which resides above the second antenna on the PCB below. As such, the first and second antennas are arranged so that one antenna may be brought into contact with the other antenna at some point of rotation if one (or both) antenna (antennas) were rotated about its (their) respective center (centers) of mass, the antennas contained within respective planes before rotation in their fixed positions that are near, close, or contiguous. Thus, the TI device includes requirement 4 as claim 5 recites.

Because the TI device includes requirements 1, 2, 3, and 4 as recited in claim 5, the TI device anticipates claim 5.

6. **Claim 6**

Requirement: The antenna array of claim 5, further comprising a reader housing containing said first and second antennas.

The TI device includes all requirements of claim 5 for at least the reasons discussed above. In addition, the TI device includes a reader housing, a portion of which is shown in the above photo.

7. **Claim 9**

Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader antenna tuned to operate at a first carrier frequency enabling data communication with a first transponder transmitting data signals at said first carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second carrier frequency different from said first carrier frequency enabling data communication with a second transponder transmitting data signals at said second carrier frequency.

Requirement 4: Wherein said first and second antennas are arranged in an opposing magnetic flux arrangement.

TI Device Includes Requirements 1, 2, and 3:

Requirements 1, 2, and 3 of claim 9 are similar to those of claim 1. As such, the TI device includes requirements 1, 2, and 3 of claim 9 for at least the reasons discussed above.

TI Device Includes Requirement 4 of Claim 9:

The TI device includes requirement 4 of claim 9 because the two reader antennas are arranged in an opposing magnetic flux arrangement as required by claim 9. As discussed above, the TI device includes a first reader antenna attached to a first side of the PCB and a second antenna on a second side of the PCB, as illustrated above. As such, the magnetic flux generated by one reader antenna passes through the other reader antenna in an opposing manner (i.e., both positive and negative magnetic flux from one reader antenna passes through the other reader antenna). Thus, the TI device includes requirement 4 of claim 9.

Because the TI device includes requirements 1, 2, 3, and 4 of claim 9, the TI device anticipates claim 9.

8. **Claim 10**

Requirement: The antenna array of claim 9, further comprising a reader housing containing said first and second antennas.

The TI device includes all requirements of claim 9 for at least the reasons discussed above. In addition, the TI device includes a reader housing.

9. **Claim 13**

Requirement: The antenna array of claim 9, wherein said first and second reader antennas are arranged in an overlapping arrangement simultaneous with said opposing magnetic flux arrangement.

As discussed above, the TI device includes all the requirements of claim 9. Further, the first and second reader antennas of the TI device are arranged in an overlapping arrangement for at least the reasons discussed above with regard to requirement 5 of claim 5. As such, the TI device includes a first and second reader antennas arranged in an overlapping arrangement simultaneous with said opposing magnetic flux arrangement as claim 13 requires. Thus, the TI device anticipates claim 13.

10. **Claim 14**

Requirement 1: An RFID reader for an RFID system.

Requirement 2: An antenna array including a first reader antenna tuned to operate at a first low carrier frequency enabling data communication with a first transponder transmitting data signals at said first low carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second high carrier frequency different from said first low carrier frequency enabling data communication with a second transponder transmitting data signals at said second high carrier frequency.

Requirement 4: Wherein the first and second antennas are oriented along axes that are substantially parallel to one another.

Requirement 5: A signal generator coupled with said first and second reader antennas.

TI Device Includes Requirement 1:

The TI device includes requirement 1 because it is an RFID reader for an RFID system as the TI device reads RFID cards.

TI Device Includes Requirements 2 and 3:

The TI device includes an antenna array including a first reader antenna and a second reader antenna are similar requirements as requirements 1, 2, and 3 of claim 1. As such, the requirements 1, 2, and 3 of claim 14 are included in the TI device for at least similar reasons as discussed above with regard to requirements 1, 2, and 3 of claim 1.

TI Device Includes Requirement 4 of Claim 14:

Requirement 4 of claim 14 is similar to claim requirement 4 of claim 1. As such, the TI device includes requirement 4 of claim 14 for at least similar reasons discussed above for claim 1.

TI Device Includes Requirement 5 of Claim 14:

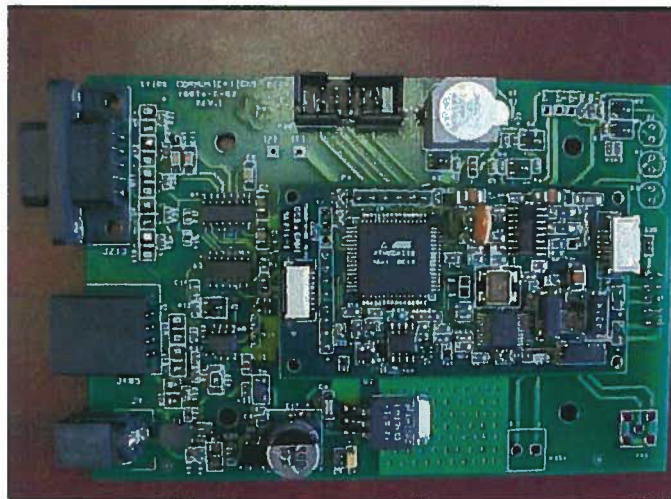
The TI device includes requirement 5 of claim 14 because the device interrogates transponders. Such interrogation of transponders requires the generation of a signal that is transmitted to a transponder by way of the reader antennas. As such, the TI device includes a signal generator as necessary for interrogating tags and this signal generator is coupled to the reader antennas. Thus, the TI device includes a signal generator coupled with said first and second reader antennas as requirement 5 recites.

Because the TI device includes requirements 1, 2, 3, 4 and 5, the TI device anticipates claim 14.

11. **Claim 16**

Requirement: The RFID reader of claim 14, wherein said signal generator includes a discrete first signal generator coupled with said first reader antenna for generating signals for transmission from said first reader antenna and a discrete second signal generator coupled with said second reader antenna separate from said discrete first signal generator for generating signals for transmission from said second reader antenna.

As discussed above, the TI device includes all the requirements of claim 14. In addition, the TI device includes all the requirements of claim 16. As discussed above, the TI device includes a signal generator for producing an interrogation signal as required to read to transponders. As the photo below illustrates, the circuit for reading includes many discrete components including a signal generator that includes a discrete first signal generator for generating signals for transmission from said first reader antenna as indicated by discrete components used for reading a first transponder. Similarly, the TI device includes many discrete components including a signal generator that includes a discrete second signal generator for generating signals for transmission from said first reader antenna as indicated by discrete components used for reading a second transponder.



FAR000866 – **Exhibit 13.**

The discrete first signal generator is coupled with the first reader antenna because the device transmits an interrogation signal to read a first transponder by way of a first reader antenna, as indicated by the cites above. Similarly, the discrete second signal generator is coupled with the second reader antenna because the TI device transmits an interrogation signal to read a second transponder by way of a second reader antenna. As such the second signal generator is separate from the discrete first signal generator as claim 16 requires.

For at least the above reasons the TI device includes all the requirements of claim 16. Thus, the TI device anticipates claim 16.

12. **Claim 17**

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Requirement 1: An RFID reader for an RFID system.

Requirement 2: An antenna array including a first reader antenna tuned to operate at a first low carrier frequency enabling data communication with a first transponder transmitting data signals at said first low carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second high carrier frequency different from said first low carrier frequency enabling data communication with a second transponder transmitting data signals at said second high carrier frequency.

Requirement 4: Wherein the first and second antennas are arranged in at least a partially overlapping arrangement along proximate adjacent planes.

Requirement 5: Receiver electronics coupled with said first and second reader antennas.

TI Device Includes Requirements 1, 2, and 3 of Claim 17:

Requirements 1, 2, and 3 of claim 17 are similar to requirements 1, 2, and 3 of claim 14. As such, the TI device includes requirement 1 for at least similar reasons as discussed above with regard to requirement 1 of claim 14.

TI Device Includes Requirement 4 of Claim 17:

Requirement 4 of claim 17 is similar to requirement 4 of claim 5. As such, the TI device includes requirement 4 of claim 17 for at least similar reasons as discussed above with regard to requirement 4 of claim 5.

TI Device Includes Requirement 5 of Claim 17:

The TI device includes requirement 5 of claim 17 because the device receives signals from transponders. As such, the TI device requires receiver electronics coupled to the first and second reader antennas to receive the signals from transponders. The photos above make clear that the electronics used in the TI device include the receiver electronics as claim 17 requires.

Because the TI device includes requirements 1, 2, 3, 4, and 5 of claim 17, the TI device anticipates claim 17.

13. **Claim 19**

Requirement: The RFID reader of claim 17, wherein said receiver electronics includes discrete first receiver electronics coupled with said first reader antenna for conditioning signals received by said first reader antenna and discrete second receiver electronics coupled with said second reader antenna separate from said discrete first receiver electronics for conditioning signals received by said second reader antenna.

As discussed above, the TI device includes all the requirements of claim 17. In addition, the TI device includes receiver electronics that include discrete first receiver electronics coupled with said first reader antenna for conditioning signals received by said first reader antenna. The

TI device includes the receiver electronics to receive a signal from a first transponder. These receiver electronics include discrete first receiver electronics as shown in the photo above.

For the TI device to receive the signal from the first transponder the discrete first receiver electronics are coupled with the first reader antenna. Further, the first receiver electronics are for conditioning signals received as required to put the received signals in a form for processing by other electronics required to read the signal for the first transponder.

Similarly, the TI device includes discrete second reader electronics to receive a signal from a second transponder. Some of which are illustrated in the photo above.

For the TI device to receive the signal from the second transponder the discrete second receiver electronics are coupled with the second reader antenna. Further, the second receiver electronics are for conditioning signals received as required to put the received signals in a form for processing by other electronics required to read the signal for the second transponder.

As the discrete first receiver electronics and the discrete second receiver electronics are required to operate a different range of frequencies, the discrete second receiver electronics are separate from said discrete first receiver electronics as claim 19 requires.

For at least the above reasons, the TI device includes all the requirements of claim 19. Thus, the TI device anticipates claim 19.

14. **Claim 20**

Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader loop antenna having a first loop and tuned to operate at a first carrier frequency enabling data communication with a first transponder transmitting data signals at said first carrier frequency.

Requirement 3: A second reader loop antenna having a second loop and tuned to operate at a second carrier frequency different from said first carrier frequency enabling data communication with a second transponder transmitting data signals at said second carrier frequency.

Requirement 4: Wherein a first plane defined by the first area is substantially orthogonal to a direction of magnetic flux created through the first antenna.

Requirement 5: Wherein a second plan defined by the second area is substantially orthogonal to a direction of magnetic flux created through the second antenna.

Requirement 6: Wherein said first and second loops are arranged relative to one another such that a portion of the first area in the first plane overlaps a portion of the second area in the second plane.

TI Device Includes Requirement 1 of Claim 20:

Requirement 1 of claim 20 is similar to requirement 1 of claim 5. As such, the TI device includes requirement 1 of claim 20 for at least similar reasons as discussed with respect to claim 5.

TI Device Includes Requirement 2 of Claim 20:

The TI device includes a first reader loop antenna having a first loop as demonstrated in the photos above that include the antenna. The rest of the language recited in requirement 2 of claim 20 is similar to the language in requirement 2 of claim 5. As such, the TI device includes the additional language in requirement 2 for at least reasons stated above with regard to requirement 2 of claim 5.

TI Device Includes Requirement 3 of Claim 20:

The TI device includes a second reader loop antenna having a second loop as demonstrated in the photos above that include the antenna. The rest of the language recited in requirement 3 is similar to the language in requirement 3 of claim 20. As such, the TI device includes the additional language in requirement 3 for at least reasons stated above with regard to requirement 3 of claim 5.

TI Device Includes Requirement 4 of Claim 20:

For the purpose of determining infringement, I determined that the meaning of the phrase “wherein a first plane defined by the first area” to mean a first plane defined by the first area enclosed by the first reader loop antenna. This construction is consistent with the Court’s construction of requirement 6 that included the term “the first area in the first plane.”

Based on the above interpretation, the TI device includes a first plane defined by the first area because the TI device includes an antenna attached to a first side of the PCB and the antenna encloses a first area. Further, when the antenna is active it would generate magnetic flux through the antenna such that the first plane would be substantially orthogonal to some portion of magnetic flux created by the active antenna. As such, the TI device includes requirement 4 of claim 20.

TI Device Includes Requirement 5 of Claim 20:

For the purpose of determining infringement, I determined that the meaning of the phrase “wherein a second plane defined by the second area” to mean a second plane defined by the second area enclosed by the second reader loop antenna. This construction is consistent with the Court’s construction of requirement 6 that included the term “the second area in the second plane.”

Based on the above interpretation, the TI device includes a second plane defined by the second area because the TI device includes an antenna on a PCB, as photos above illustrate, that is on a second plane, a plane distinct from the plane of the antenna on the first side of the PCB. In addition, this antenna encloses a second area. Further, when the antenna is active it would generate magnetic flux through the antenna such that the second plane would be substantially

orthogonal to some portion of magnetic flux created by the active antenna. As such, the TI device includes requirement 5 of claim 20.

TI Device Includes Requirement 6 of Claim 20:

I understand requirement 6 in view of the Court's construction of the term "a portion of the first area in the first plane overlaps a portion of the second area in the second plane." Based on this construction, the TI device includes requirement 6 of claim 20. Specifically, the TI device includes two antennas, as illustrated in photos above that are of different sizes. As discussed above, these antennas are arranged such that antenna attached to a first side of the PCB of the device is above the second antenna on the second side of the PCB (when viewed from the longitudinal axis as explained in the Court's construction order). Because of the different sizes of the two antennas and the fact that one resides above the other, the antennas are arranged relative to one another such that a portion of the area enclosed by the first reader loop antenna covers or is covered by a portion of the area enclosed by the second reader loop antenna as viewed along the longitudinal axis. As such, the TI device includes requirement 6 of claim 20.

15. **Claim 21**

Requirement: The antenna array of claim 20, wherein the directions of magnetic flux created through the first and second antennas are not orthogonal.

As discussed above, the TI device includes all requirements of claim 20. In addition, the TI device includes the requirements of claim 21 because the planes defined by the area enclosed by each reader loop antenna, as discussed above with regard to claim 20, are substantially parallel. As such, when both antennas are active and thus generating magnetic flux, the direction of the magnetic flux created through the first and second antennas are not orthogonal. As such, the TI device includes the requirements of claim 21.

16. **Claim 22**

Requirement: The antenna array of claim 20, wherein said first and second loops have a parallel orientation and are arranged relative one another such that a size of the portion of the first area aligning with the portion of the second area is less than at least one of a size of the first area and a size of the second area.

As discussed above, the TI device includes all the requirements of claim 20. As discussed above, the TI device includes all the requirements of claim 20. In addition, the TI device includes first and second loops that have a parallel orientation because the antennas are on separate planes as illustrated in the above photo. Further, the portion of the first area aligning with the portion of the second area is less than at least the one of a size of the first area and the size of the second area. Thus, the TI device includes the requirements of claim 22.

E. Opinion 7: The XceedID Reader XF1100 Invalidates The Asserted Claims of The '862 Patent Because The XceedID Reader Includes Each And Every Requirement Of The Claims

I examined an XceedID Reader XF1100 ("XceedID device") and reviewed documentation related to the XceedID device. I understand the XceedID device was offered for sale, sold, in public use, or otherwise disclosed prior to the invention date of each claim asserted. After my analysis of the XceedID device in view of the asserted claims of the '862 patent, I believe the XceedID device unit anticipates all asserted claims.

1. Claim 1

Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader antenna tuned to operate at a first low carrier frequency enabling data communication with a first transponder transmitting data signals at said first low carrier frequency.

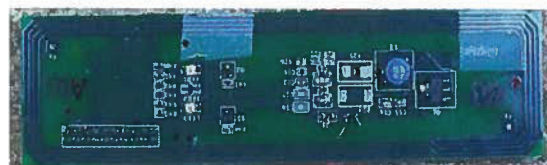
Requirement 3: A second reader antenna tuned to operate at a second high carrier frequency different from said first low carrier frequency enabling data communication with a second transponder transmitting data signals at said second high carrier frequency.

Requirement 4: Wherein the first and second antennas are oriented along axes that are substantially parallel to one another.

The XceedID Device Includes Requirement 1 of Claim 1:



**Antenna 1 – FAR000824
Exhibit 14**



**Antenna 2 – FAR000825
Exhibit 14**

The XceedID device is an RFID reader that includes two antennas, as such, one skilled in the art would understand the XceedID device to include an antenna array for an RFID reader as required by claim 1.

The XceedID Device Includes Requirement 2 of Claim 1 because the XceedID device includes a first reader antenna as claim 1 requires:

The XceedID device includes a first reader antenna tuned to operate at a first low carrier frequency as indicated in the Addendum to XceedID Test Report FC04-033 for the Reader, XF1100 attached hereto in **Exhibit 14**, FAR000826-864.

COMMENTS: EUT is a Card Reader with an operating frequency of 13.56 MHz and 125 kHz. 12VDC power supplied via support DC power supply. EUT is a fixed wall mount device. Preliminary testing of 3 orthogonal positions indicated the worst case orthogonal was vertical. Frequency Range Investigated: 150 kHz to 30 MHz.

FAR000833 – Exhibit 14.

As indicated above, the XceedID device is an RFID card reader. As such, first reader antenna is enabling data communication with a first transponder transmitting data signals at said first low carrier frequency as claim 1 requires.

For at least the above reasons, the XceedID device includes requirement 2 of claim 1.

The XceedID Device Includes Requirement 3 of Claim 1 because the XceedID device includes a second reader antenna as claim 1 requires:

The XceedID device also includes a second reader antenna tuned to operate at a second high carrier frequency different from the first low carrier frequency different from said first low carrier frequency as evidence by the photo above. The second reader antenna is the strip around the printed circuit board (“PCB”) in the photo above.

The XceedID Device Includes Requirement 4 of Claim 1 because the XceedID device includes a first and second antennas oriented along axes that are substantially parallel to one another as claim 1 requires:

The first and second antennas included in the XceedID device are oriented along axes that are substantially parallel to one another as defined in the Claim Construction Order (attached hereto to **Exhibit 4**). Specifically, the first antenna of the XceedID device attached to a first side of the PCB (see above photo). As such, the first and second antennas are oriented along longitudinal axes substantially equidistant from each other as claim 1 requires. Thus, the XceedID device includes requirement 4 of claim 1.

Because the XceedID device includes requirements 1, 2, 3, and 4 of claim 1, the XceedID device anticipates claim 1.

2. **Claim 2**

Requirement: The antenna array of claim 1, wherein said first low carrier frequency is nominally 125 kHz.

As discussed above, the XceedID device includes all the requirements of claim 1. In addition, the XceedID device includes all the requirements in claim 2. As indicated above the XceedID device operates at 125 kHz. As such, XceedID device includes “said first low carrier frequency is nominally 125 kHz” as claim 2 requires.

For at least the above reasons, the XceedID device anticipates claim 2.

3. **Claim 3**

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Requirement: The antenna array of claim 2, wherein said second high carrier frequency is about 13.56 MHz.

As discussed above, the XceedID device includes all the requirements of claim 2. In addition, the XceedID device includes all the requirements in claim 3. The XceedID device includes an antenna tuned to operate at a second high carrier frequency including the frequency of 13.56 MHz, as indicates above. Because the antenna in the XceedID device is tuned to operate at a second high carrier frequency, the XceedID device includes “said second high carrier frequency is about 13.56 MHz” as claim 3 requires.

4. **Claim 4**

Requirement: The antenna array of claim 1, further comprising a reader housing containing said first and second antennas.

As discussed above, the XceedID device includes all the requirements of claim 1. In addition, the XceedID device includes a reader housing containing the first and second antennas.

5. **Claim 5**

Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader antenna tuned to operate at a first carrier frequency enabling data communication with a first transponder transmitting data signals at said first carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second carrier frequency different from said first carrier frequency enabling data communication with a second transponder transmitting data signals at said second carrier frequency.

Requirement 4: Wherein said first and second antennas are arranged in at least a partially overlapping arrangement on proximate adjacent planes.

XceedID Device Includes Requirements 1, 2, and 3:

Requirements 1, 2, and 3 of claim 5 are similar to those of claim 1. As such, the XceedID device includes requirements 1, 2, and 3 of claim 5 for at least the reasons discussed above.

XceedID Device Includes Requirement 4:

The XceedID includes requirement 4 of claim 5 because the XceedID includes two antennas in at least an overlapping arrangement as required by claim 5. Specifically, the XceedID Reader includes first and second antennas arranged in at least a partially overlapping arrangement on proximate adjacent planes. As discussed above, the XceedID includes a first antenna, red coil, which resides above the second antenna on the PCB when viewed from above. As such, the first and second antennas are arranged so that one antenna may be brought into

contact with the other antenna at some point of rotation if one (or both) antenna (antennas) were rotated about its (their) respective center (centers) of mass, the antennas contained within respective planes before rotation in their fixed positions that are near, close, or contiguous. Thus, the XceedID includes requirement 4 as claim 5 recites.

Because the XceedID device includes requirements 1, 2, 3, and 4 as recited in claim 5, the XceedID device anticipates claim 5.

6. **Claim 6**

Requirement: The antenna array of claim 5, further comprising a reader housing containing said first and second antennas.

The XceedID device includes all requirements of claim 5 for at least the reasons discussed above. In addition, the XceedID device includes a reader housing, a portion of which is shown in the above photo.

7. **Claim 9**

Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader antenna tuned to operate at a first carrier frequency enabling data communication with a first transponder transmitting data signals at said first carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second carrier frequency different from said first carrier frequency enabling data communication with a second transponder transmitting data signals at said second carrier frequency.

Requirement 4: Wherein said first and second antennas are arranged in an opposing magnetic flux arrangement.

XceedID Device Includes Requirements 1, 2, and 3:

Requirements 1, 2, and 3 of claim 9 are similar to those of claim 1. As such, the XceedID device includes requirements 1, 2, and 3 of claim 9 for at least the reasons discussed above.

XceedID Device Includes Requirement 4 of Claim 9:

The XceedID device includes requirement 4 of claim 9 because the two reader antennas are arranged in an opposing magnetic flux arrangement as required by claim 9. As discussed above, the XceedID device includes a first reader antenna attached to a first side of the PCB and a second antenna on a second side of the PCB, as illustrated above. As such, the magnetic flux generated by one reader antenna passes through the other reader antenna in an opposing manner

(i.e., both positive and negative magnetic flux from one reader antenna passes through the other reader antenna). Thus, the XceedID device includes requirement 4 of claim 9.

Because the XceedID device includes requirements 1, 2, 3, and 4 of claim 9, the XceedID device anticipates claim 9.

8. **Claim 10**

Requirement: The antenna array of claim 9, further comprising a reader housing containing said first and second antennas.

The XceedID device includes all requirements of claim 9 for at least the reasons discussed above. In addition, the XceedID device includes a reader housing.

9. **Claim 13**

Requirement: The antenna array of claim 9, wherein said first and second reader antennas are arranged in an overlapping arrangement simultaneous with said opposing magnetic flux arrangement.

As discussed above, the XceedID device includes all the requirements of claim 9. Further, the first and second reader antennas of the XceedID device are arranged in an overlapping arrangement for at least the reasons discussed above with regard to requirement 5 of claim 5. As such, the XceedID device includes a first and second reader antennas arranged in an overlapping arrangement simultaneous with said opposing magnetic flux arrangement as claim 13 requires. Thus, the XceedID device anticipates claim 13.

10. **Claim 14**

Requirement 1: An RFID reader for an RFID system.

Requirement 2: An antenna array including a first reader antenna tuned to operate at a first low carrier frequency enabling data communication with a first transponder transmitting data signals at said first low carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second high carrier frequency different from said first low carrier frequency enabling data communication with a second transponder transmitting data signals at said second high carrier frequency.

Requirement 4: Wherein the first and second antennas are oriented along axes that are substantially parallel to one another.

Requirement 5: A signal generator coupled with said first and second reader antennas.

XceedID Device Includes Requirement 1:

The XceedID device includes requirement 1 because it is an RFID card reader for an RFID system as the XceedID device reads RFID cards.

XceedID Device Includes Requirements 2 and 3:

The XceedID device includes an antenna array including a first reader antenna and a second reader antenna are similar requirements as requirements 1, 2, and 3 of claim 1. As such, the requirements 1, 2, and 3 of claim 14 are included in the XceedID device for at least similar reasons as discussed above with regard to requirements 1, 2, and 3 of claim 1.

XceedID Device Includes Requirement 4 of Claim 14:

Requirement 4 of claim 14 is similar to claim requirement 4 of claim 1. As such, the XceedID device includes requirement 4 of claim 14 for at least similar reasons discussed above for claim 1.

XceedID Device Includes Requirement 5 of Claim 14:

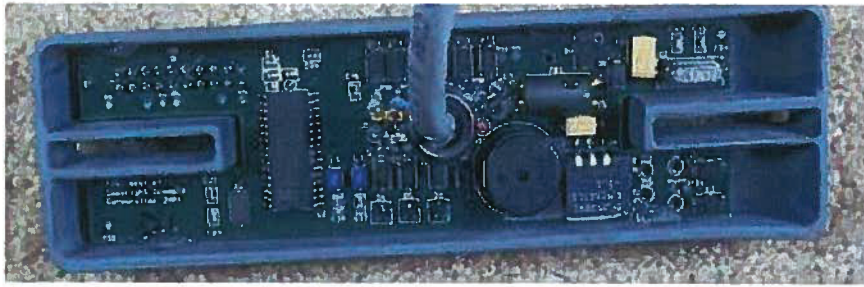
The XceedID device includes requirement 5 of claim 14 because the device interrogates transponders. Such interrogation of transponders requires the generation of a signal that is transmitted to a transponder by way of the reader antennas. As such, the XceedID device includes a signal generator as necessary for interrogating tags and this signal generator is coupled to the reader antennas. Thus, the XceedID device includes a signal generator coupled with said first and second reader antennas as requirement 5 recites.

Because the XceedID device includes requirements 1, 2, 3, 4 and 5, the XceedID device anticipates claim 14.

11. **Claim 16**

Requirement: The RFID reader of claim 14, wherein said signal generator includes a discrete first signal generator coupled with said first reader antenna for generating signals for transmission from said first reader antenna and a discrete second signal generator coupled with said second reader antenna separate from said discrete first signal generator for generating signals for transmission from said second reader antenna.

As discussed above, the XceedID device includes all the requirements of claim 14. In addition, the XceedID device includes all the requirements of claim 16. As discussed above, the XceedID device includes a signal generator for producing an interrogation signal as required to read to transponders. As the photo below illustrates, the circuit for reading includes many discrete components including a signal generator that includes a discrete first signal generator for generating signals for transmission from said first reader antenna as indicated by discrete components used for reading a first transponder. Similarly, the XceedID device includes many discrete components including a signal generator that includes a discrete second signal generator for generating signals for transmission from said first reader antenna as indicated by discrete components used for reading a second transponder.



FAR000822 – **Exhibit 14.**

The discrete first signal generator is coupled with the first reader antenna because the device transmits an interrogation signal to read a first transponder by way of a first reader antenna, as indicated by the cites above. Similarly, the discrete second signal generator is coupled with the second reader antenna because the XceedID device transmits an interrogation signal to read a second transponder by way of a second reader antenna. As such the second signal generator is separate from the discrete first signal generator as claim 16 requires.

For at least the above reasons the XceedID device includes all the requirements of claim 16. Thus, the XceedID device anticipates claim 16.

12. **Claim 17**

Requirement 1: An RFID reader for an RFID system.

Requirement 2: An antenna array including a first reader antenna tuned to operate at a first low carrier frequency enabling data communication with a first transponder transmitting data signals at said first low carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second high carrier frequency different from said first low carrier frequency enabling data communication with a second transponder transmitting data signals at said second high carrier frequency.

Requirement 4: Wherein the first and second antennas are arranged in at least a partially overlapping arrangement along proximate adjacent planes.

Requirement 5: Receiver electronics coupled with said first and second reader antennas.

XceedID Device Includes Requirements 1, 2, and 3 of Claim 17:

Requirements 1, 2, and 3 of claim 17 are similar to requirements 1, 2, and 3 of claim 14. As such, the XceedID device includes requirement 1 for at least similar reasons as discussed above with regard to requirement 1 of claim 14.

XceedID Device Includes Requirement 4 of Claim 17:

Requirement 4 of claim 17 is similar to requirement 4 of claim 5. As such, the XceedID device includes requirement 4 of claim 17 for at least similar reasons as discussed above with regard to requirement 4 of claim 5.

XceedID Device Includes Requirement 5 of Claim 17:

The XceedID device includes requirement 5 of claim 17 because the device receives signals from transponders. As such, the XceedID device requires receiver electronics coupled to the first and second reader antennas to receive the signals from transponders. The photos above make clear that the electronics used in the XceedID device include the receiver electronics as claim 17 requires.

Because the XceedID device includes requirements 1, 2, 3, 4, and 5 of claim 17, the XceedID device anticipates claim 17.

13. **Claim 19**

Requirement: The RFID reader of claim 17, wherein said receiver electronics includes discrete first receiver electronics coupled with said first reader antenna for conditioning signals received by said first reader antenna and discrete second receiver electronics coupled with said second reader antenna separate from said discrete first receiver electronics for conditioning signals received by said second reader antenna.

As discussed above, the XceedID device includes all the requirements of claim 17. In addition, the XceedID device includes receiver electronics that include discrete first receiver electronics coupled with said first reader antenna for conditioning signals received by said first reader antenna. The XceedID device includes the receiver electronics to receive a signal from a first transponder. These receiver electronics include discrete first receiver electronics as shown in the photo above.

For the XceedID device to receive the signal from the first transponder the discrete first receiver electronics are coupled with the first reader antenna. Further, the first receiver electronics are for conditioning signals received as required to put the received signals in a form for processing by other electronics required to read the signal for the first transponder.

Similarly, the XceedID device includes discrete second reader electronics to receive a signal from a second transponder. Some of which are illustrated in the photo above.

For the XceedID device to receive the signal from the second transponder the discrete second receiver electronics are coupled with the second reader antenna. Further, the second receiver electronics are for conditioning signals received as required to put the received signals in a form for processing by other electronics required to read the signal for the second transponder.

As the discrete first receiver electronics and the discrete second receiver electronics are required to operate a different range of frequencies, the discrete second receiver electronics are separate from said discrete first receiver electronics as claim 19 requires.

For at least the above reasons, the XceedID device includes all the requirements of claim 19. Thus, the XceedID device anticipates claim 19.

14. **Claim 20**

Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader loop antenna having a first loop and tuned to operate at a first carrier frequency enabling data communication with a first transponder transmitting data signals at said first carrier frequency.

Requirement 3: A second reader loop antenna having a second loop and tuned to operate at a second carrier frequency different from said first carrier frequency enabling data communication with a second transponder transmitting data signals at said second carrier frequency.

Requirement 4: Wherein a first plane defined by the first area is substantially orthogonal to a direction of magnetic flux created through the first antenna.

Requirement 5: Wherein a second plan defined by the second area is substantially orthogonal to a direction of magnetic flux created through the second antenna.

Requirement 6: Wherein said first and second loops are arranged relative to one another such that a portion of the first area in the first plane overlaps a portion of the second area in the second plane.

XceedID Device Includes Requirement 1 of Claim 20:

Requirement 1 of claim 20 is similar to requirement 1 of claim 5. As such, the XceedID device includes requirement 1 of claim 20 for at least similar reasons as discussed with respect to claim 5.

XceedID Device Includes Requirement 2 of Claim 20:

The XceedID device includes a first reader loop antenna having a first loop as demonstrated in the photos above that include the antenna. The rest of the language recited in requirement 2 of claim 20 is similar to the language in requirement 2 of claim 5. As such, the XceedID device includes the additional language in requirement 2 for at least reasons stated above with regard to requirement 2 of claim 5.

XceedID Device Includes Requirement 3 of Claim 20:

The XceedID device includes a second reader loop antenna having a second loop as demonstrated in the photos above that include the antenna. The rest of the language recited in requirement 3 is similar to the language in requirement 3 of claim 20. As such, the XceedID device includes the additional language in requirement 3 for at least reasons stated above with regard to requirement 3 of claim 5.

XceedID Device Includes Requirement 4 of Claim 20:

For the purpose of determining infringement, I determined that the meaning of the phrase “wherein a first plane defined by the first area” to mean a first plane defined by the first area enclosed by the first reader loop antenna. This construction is consistent with the Court’s construction of requirement 6 that included the term “the first area in the first plane.”

Based on the above interpretation, the XceedID device includes a first plane defined by the first area because the XceedID device includes an antenna attached to a first side of the PCB and the antenna encloses a first area. Further, when the antenna is active it would generate magnetic flux through the antenna such that the first plane would be substantially orthogonal to some portion of magnetic flux created by the active antenna. As such, the XceedID device includes requirement 4 of claim 20.

XceedID Device Includes Requirement 5 of Claim 20:

For the purpose of determining infringement, I determined that the meaning of the phrase “wherein a second plane defined by the second area” to mean a second plane defined by the second area enclosed by the second reader loop antenna. This construction is consistent with the Court’s construction of requirement 6 that included the term “the second area in the second plane.”

Based on the above interpretation, the XceedID device includes a second plane defined by the second area because the XceedID device includes an antenna on a PCB, as photos above illustrate, that is on a second plane, a plane distinct from the plane of the antenna on the first side of the PCB. In addition, this antenna encloses a second area. Further, when the antenna is active it would generate magnetic flux through the antenna such that the second plane would be substantially orthogonal to some portion of magnetic flux created by the active antenna. As such, the XceedID device includes requirement 5 of claim 20.

XceedID Device Includes Requirement 6 of Claim 20:

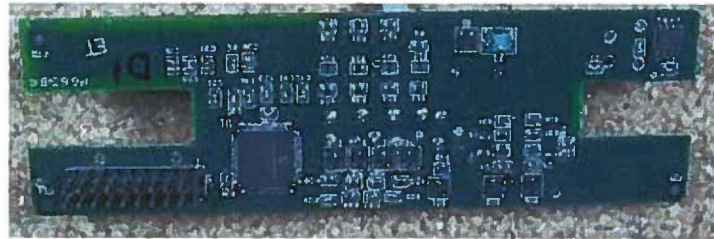
I understand requirement 6 in view of the Court’s construction of the term “a portion of the first area in the first plane overlaps a portion of the second area in the second plan.” Based on this construction, the XceedID device includes requirement 6 of claim 20. Specifically, the XceedID device includes two antennas, as illustrated in photos above that are of different sizes. As discussed above, these antennas are arranged such that antenna attached to a first side of the PCB of the device is above the second antenna on the second side of the PCB (when viewed from the longitudinal axis as explained in the Court’s construction order). Because of the different sizes of the two antennas and the fact that one resides above the other, the antennas are arranged relative to one another such that a portion of the area enclosed by the first reader loop

antenna covers or is covered by a portion of the area enclosed by the second reader loop antenna as viewed along the longitudinal axis. As such, the XceedID device includes requirement 6 of claim 20.

15. **Claim 21**

Requirement: The antenna array of claim 20, wherein the directions of magnetic flux created through the first and second antennas are not orthogonal.

As discussed above, the XceedID device includes all requirements of claim 20. In addition, the XceedID device includes the requirements of claim 21 because the planes defined by the area enclosed by each reader loop antenna, as discussed above with regard to claim 20, are substantially parallel. As such, when both antennas are active and thus generating magnetic flux, the direction of the magnetic flux created through the first and second antennas are not orthogonal. As such, the XceedID device includes the requirements of claim 21.



16. **Claim 22**

Requirement: The antenna array of claim 20, wherein said first and second loops have a parallel orientation and are arranged relative one another such that a size of the portion of the first area aligning with the portion of the second area is less than at least one of a size of the first area and a size of the second area.

As discussed above, the XceedID device includes all the requirements of claim 20. As discussed above, the XceedID device includes all the requirements of claim 20. In addition, the XceedID device includes first and second loops that have a parallel orientation because the antennas are on separate planes as illustrated in the above photos. Further, the portion of the first area aligning with the portion of the second area is less than at least the one of a size of the first area and the size of the second area. Thus, the XceedID device includes the requirements of claim 22.

F. **Opinion 8: The Deister Devices Invalidate The Asserted Claims Of The '862 Patent Because The Deister Devices Include Each and Every Requirement Of The Claims**

I examined information regarding RFID readers designed and/or manufactured by Deister. I understand that one or more of RFID readers designed and/or manufactured by Deister were offered for sale, sold, in public use, or otherwise disclosed prior to the invention date of each claim asserted. After my analysis of the Deister devices in view of the asserted claims of the '862 patent, I believe the Deister devices anticipate all asserted claims.

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The Deister Devices used herein will refer to one or more of the following devices:

Deister Electronics USA PRD5/2
Deister Electronics USA Model 240
Deister Electronics USA Model 240E
Deister Electronics USA Model 245
Deister Electronics USA Model 260
GE-2000 manufactured by Deister Electronics USA
SWH-4100 manufactured by Deister Electronics USA
SWH-4200 manufactured by Deister Electronics USA
SWH-3100 manufactured by Deister Electronics USA
SWH-3000 manufactured by Deister Electronics USA

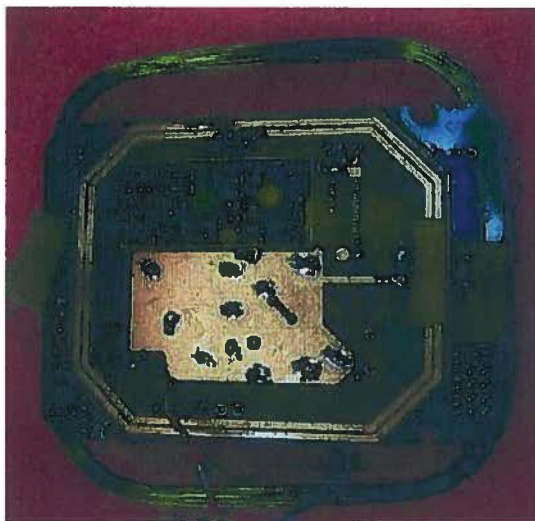
1. **Claim 1**

Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader antenna tuned to operate at a first low carrier frequency enabling data communication with a first transponder transmitting data signals at said first low carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second high carrier frequency different from said first low carrier frequency enabling data communication with a second transponder transmitting data signals at said second high carrier frequency.

Requirement 4: Wherein the first and second antennas are oriented along axes that are substantially parallel to one another.



DEI000171 – Exhibit 9

The Deister Devices Includes Requirement 1 of Claim 1:

The Deister Devices device is an RFID reader that includes two antennas, as such, one skilled in the art would understand the Deister Devices to include an antenna array for an RFID reader as required by claim 1.

The Deister Devices Includes Requirement 2 of Claim 1 because the Deister Devices includes a first reader antenna as claim 1 requires:

The Deister Devices device includes a first reader antenna tuned to operate at a first low carrier frequency as indicated the Software House RFID Product Line Portfolio Summary attached hereto in **Exhibit 9**, DEI000826-864.

SOFTWARE HOUSE	
	Model SWH-4100
	Description Flexible Multi-Frequency (125 KHz & 13.56 MHz) Multi-Protocol (HID, FSK, ASK, Mifare, ISO 15693) Reader for Technology Transition Applications

DEI000156 – Exhibit 9.

As indicated above, the Deister devices are an RFID card reader. As such, first reader antenna is enabling data communication with a first transponder transmitting data signals at said first low carrier frequency as claim 1 requires.

For at least the above reasons, the Deister devices includes requirement 2 of claim 1.

The Deister Devices Includes Requirement 3 of Claim 1 because the Deister devices include a second reader antenna as claim 1 requires:

The Deister devices also includes a second reader antenna tuned to operate at a second high carrier frequency different from the first low carrier frequency different from said first low carrier frequency as evidence by the photo above.

The Deister Devices Includes Requirement 4 of Claim 1 because the Deister devices include a first and second antennas oriented along axes that are substantially parallel to one another as claim 1 requires:

The first and second antennas included in the Deister devices are oriented along axes that are substantially parallel to one another as defined in the Claim Construction Order (attached hereto to **Exhibit 4**). Specifically, the first antenna of the Deister devices an outer coil seen in the photo above and the second antenna is a coil on the PCB. As shown in the photo above, the first and second antennas are oriented along longitudinal axes substantially equidistant from each other as claim 1 requires. Thus, the Deister devices include requirement 4 of claim 1.

Because the Deister devices include requirements 1, 2, 3, and 4 of claim 1, the Deister devices anticipate claim 1.

2. **Claim 2**

Requirement: The antenna array of claim 1, wherein said first low carrier frequency is nominally 125 kHz.

As discussed above, the Deister devices include all the requirements of claim 1. In addition, the Deister devices include all the requirements in claim 2. As indicated above the Deister devices operate at 125 kHz. As such, Deister devices include “said first low carrier frequency is nominally 125 kHz” as claim 2 requires.

For at least the above reasons, the Deister devices anticipate claim 2.

3. **Claim 3**

Requirement: The antenna array of claim 2, wherein said second high carrier frequency is about 13.56 MHz.

As discussed above, the Deister devices include all the requirements of claim 2. In addition, the Deister devices include all the requirements in claim 3. The Deister devices include an antenna tuned to operate at a second high carrier frequency including the frequency of 13.56 MHz, as indicated above. Because the antenna in the Deister devices are tuned to operate at a

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second high carrier frequency, the Deister devices include “said second high carrier frequency is about 13.56 MHz” as claim 3 requires.

4. **Claim 4**

Requirement: The antenna array of claim 1, further comprising a reader housing containing said first and second antennas.

As discussed above, the Deister devices include all the requirements of claim 1. In addition, the Deister devices include a reader housing containing the first and second antennas.

5. **Claim 5**

Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader antenna tuned to operate at a first carrier frequency enabling data communication with a first transponder transmitting data signals at said first carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second carrier frequency different from said first carrier frequency enabling data communication with a second transponder transmitting data signals at said second carrier frequency.

Requirement 4: Wherein said first and second antennas are arranged in at least a partially overlapping arrangement on proximate adjacent planes.

Deister Devices Include Requirements 1, 2, and 3:

Requirements 1, 2, and 3 of claim 5 are similar to those of claim 1. As such, the Deister devices include requirements 1, 2, and 3 of claim 5 for at least the reasons discussed above.

Deister Devices Includes Requirement 4:

The Deister devices include requirement 4 of claim 5 because the Deister devices include two antennas in at least an overlapping arrangement as required by claim 5. Specifically, the Deister devices include first and second antennas arranged in at least a partially overlapping arrangement on proximate adjacent planes. Based on information for at least one of the above Deister devices, the Deister devices, such the one illustrated in the photos below, include a first antenna, which resides below the second antenna on the PCB when viewed from above. As such, the first and second antennas are arranged so that one antenna may be brought into contact with the other antenna at some point of rotation if one (or both) antenna (antennas) were rotated about its (their) respective center (centers) of mass, the antennas contained within respective planes before rotation in their fixed positions that are near, close, or contiguous. Thus, the Deister devices include requirement 4 as claim 5 recites.

Because the Deister devices include requirements 1, 2, 3, and 4 as recited in claim 5, the Deister devices anticipate claim 5.



**First Antenna - FAR312777
Exhibit 9**



**Second Antenna - FAR312774
Exhibit 9**

6. Claim 6

Requirement: The antenna array of claim 5, further comprising a reader housing containing said first and second antennas.

The Deister devices include all requirements of claim 5 for at least the reasons discussed above. In addition, the Deister devices include a reader housing, a portion of which is shown in the above photo.

7. Claim 9

Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader antenna tuned to operate at a first carrier frequency enabling data communication with a first transponder transmitting data signals at said first carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second carrier frequency different from said first carrier frequency enabling data communication with a second transponder transmitting data signals at said second carrier frequency.

Requirement 4: Wherein said first and second antennas are arranged in an opposing magnetic flux arrangement.

Deister Devices Include Requirements 1, 2, and 3:

Requirements 1, 2, and 3 of claim 9 are similar to those of claim 1. As such, the Deister devices include requirements 1, 2, and 3 of claim 9 for at least the reasons discussed above.

Deister Devices Include Requirement 4 of Claim 9:

The Deister devices include requirement 4 of claim 9 because the two reader antennas are arranged in an opposing magnetic flux arrangement as required by claim 9. As discussed above, the Deister devices include a first reader antenna below a PCB including a second antenna, as illustrated above. As such, the magnetic flux generated by one reader antenna passes through the other reader antenna in an opposing manner (i.e., both positive and negative magnetic flux from one reader antenna passes through the other reader antenna). Thus, the Deister devices include requirement 4 of claim 9.

Because the Deister devices include requirements 1, 2, 3, and 4 of claim 9, the Deister devices anticipate claim 9.

8. Claim 10

Requirement: The antenna array of claim 9, further comprising a reader housing containing said first and second antennas.

The Deister devices include all requirements of claim 9 for at least the reasons discussed above. In addition, the Deister devices include a reader housing.

9. Claim 13

Requirement: The antenna array of claim 9, wherein said first and second reader antennas are arranged in an overlapping arrangement simultaneous with said opposing magnetic flux arrangement.

As discussed above, the Deister devices include all the requirements of claim 9. Further, the first and second reader antennas of the Deister devices are arranged in an overlapping arrangement for at least the reasons discussed above with regard to requirement 5 of claim 5. As such, the Deister devices include a first and second reader antennas arranged in an overlapping arrangement simultaneous with said opposing magnetic flux arrangement as claim 13 requires. Thus, the Deister devices anticipate claim 13.

10. Claim 14

Requirement 1: An RFID reader for an RFID system.

Requirement 2: An antenna array including a first reader antenna tuned to operate at a first low carrier frequency enabling data communication with a first transponder transmitting data signals at said first low carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second high carrier frequency different from said first low carrier frequency enabling data communication with a second transponder transmitting data signals at said second high carrier frequency.

Requirement 4: Wherein the first and second antennas are oriented along axes that are substantially parallel to one another.

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Requirement 5: A signal generator coupled with said first and second reader antennas.

Deister Devices Include Requirement 1:

The Deister devices include requirement 1 because it is an RFID card reader for an RFID system as the Deister devices read RFID cards.

Deister Devices Include Requirements 2 and 3:

The Deister devices include an antenna array including a first reader antenna and a second reader antenna are similar requirements as requirements 1, 2, and 3 of claim 1. As such, the requirements 1, 2, and 3 of claim 14 are included in the Deister devices for at least similar reasons as discussed above with regard to requirements 1, 2, and 3 of claim 1.

Deister Devices Includes Requirements 4 of Claim 14:

Requirement 4 of claim 14 is similar to claim requirement 4 of claim 1. As such, the Deister devices include requirement 4 of claim 14 for at least similar reasons discussed above for claim 1.

Deister Devices Include Requirement 5 of Claim 14:

The Deister devices include requirement 5 of claim 14 because the device interrogates transponders. Such interrogation of transponders requires the generation of a signal that is transmitted to a transponder by way of the reader antennas. As such, the Deister devices include a signal generator as necessary for interrogating tags and this signal generator is coupled to the reader antennas. Thus, the Deister devices include a signal generator coupled with said first and second reader antennas as requirement 5 recites.

Because the Deister devices include requirements 1, 2, 3, 4 and 5, the Deister devices anticipate claim 14.

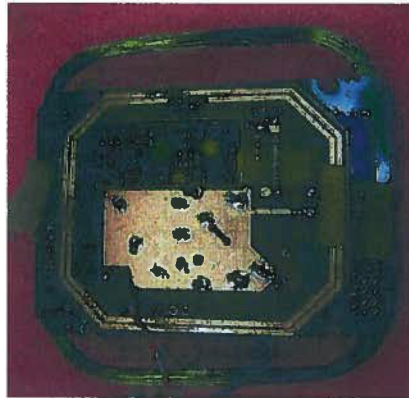
11. **Claim 16**

Requirement: The RFID reader of claim 14, wherein said signal generator includes a discrete first signal generator coupled with said first reader antenna for generating signals for transmission from said first reader antenna and a discrete second signal generator coupled with said second reader antenna separate from said discrete first signal generator for generating signals for transmission from said second reader antenna.

As discussed above, the Deister devices include all the requirements of claim 14. In addition, the Deister devices include all the requirements of claim 16. As discussed above, the Deister devices include a signal generator for producing an interrogation signal as required to read to transponders. As the photo below illustrates, the circuit for reading includes many discrete components including a signal generator that includes a discrete first signal generator for generating signals for transmission from said first reader antenna as indicated by discrete components used for reading a first transponder. Similarly, the Deister devices include many discrete components including a signal generator that includes a discrete second signal generator

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for generating signals for transmission from said first reader antenna as indicated by discrete components used for reading a second transponder.



DEI000171 – **Exhibit 9.**

The discrete first signal generator is coupled with the first reader antenna because the device transmits an interrogation signal to read a first transponder by way of a first reader antenna, as indicated by the cites above. Similarly, the discrete second signal generator is coupled with the second reader antenna because the Deister devices transmit an interrogation signal to read a second transponder by way of a second reader antenna. As such the second signal generator is separate from the discrete first signal generator as claim 16 requires.

For at least the above reasons the Deister devices include all the requirements of claim 16. Thus, the Deister devices anticipate claim 16.

12. **Claim 17**

Requirement 1: An RFID reader for an RFID system.

Requirement 2: An antenna array including a first reader antenna tuned to operate at a first low carrier frequency enabling data communication with a first transponder transmitting data signals at said first low carrier frequency.

Requirement 3: A second reader antenna tuned to operate at a second high carrier frequency different from said first low carrier frequency enabling data communication with a second transponder transmitting data signals at said second high carrier frequency.

Requirement 4: Wherein the first and second antennas are arranged in at least a partially overlapping arrangement along proximate adjacent planes.

Requirement 5: Receiver electronics coupled with said first and second reader antennas.

Deister Devices Include Requirements 1, 2, and 3 of Claim 17:

Requirements 1, 2, and 3 of claim 17 are similar to requirements 1, 2, and 3 of claim 14. As such, the Deister devices include requirement 1 for at least similar reasons as discussed above with regard to requirement 1 of claim 14.

Deister Devices Include Requirement 4 of Claim 17:

Requirement 4 of claim 17 is similar to requirement 4 of claim 5. As such, the Deister devices include requirement 4 of claim 17 for at least similar reasons as discussed above with regard to requirement 4 of claim 5.

Deister Devices Include Requirement 5 of Claim 17:

The Deister devices include requirement 5 of claim 17 because the device receives signals from transponders. As such, the Deister devices require receiver electronics coupled to the first and second reader antennas to receive the signals from transponders. The photos above make clear that the electronics used in the Deister devices include the receiver electronics as claim 17 requires.

Because the Deister devices include requirements 1, 2, 3, 4, and 5 of claim 17, the Deister devices anticipate claim 17.

13. **Claim 19**

Requirement: The RFID reader of claim 17, wherein said receiver electronics includes discrete first receiver electronics coupled with said first reader antenna for conditioning signals received by said first reader antenna and discrete second receiver electronics coupled with said second reader antenna separate from said discrete first receiver electronics for conditioning signals received by said second reader antenna.

As discussed above, the Deister devices include all the requirements of claim 17. In addition, the Deister devices include receiver electronics that include discrete first receiver electronics coupled with said first reader antenna for conditioning signals received by said first reader antenna. The Deister devices include the receiver electronics to receive a signal from a first transponder. These receiver electronics include discrete first receiver electronics as shown in the photo above.

For the Deister devices to receive the signal from the first transponder the discrete first receiver electronics are coupled with the first reader antenna. Further, the first receiver electronics are for conditioning signals received as required to put the received signals in a form for processing by other electronics required to read the signal for the first transponder.

Similarly, the Deister devices include discrete second reader electronics to receive a signal from a second transponder. Some of which are illustrated in the photo above.

For the Deister devices to receive the signal from the second transponder the discrete second receiver electronics are coupled with the second reader antenna. Further, the second receiver electronics are for conditioning signals received as required to put the received signals in a form for processing by other electronics required to read the signal for the second transponder.

As the discrete first receiver electronics and the discrete second receiver electronics are required to operate a different range of frequencies, the discrete second receiver electronics are separate from said discrete first receiver electronics as claim 19 requires.

For at least the above reasons, the Deister devices include all the requirements of claim 19. Thus, the Deister devices anticipate claim 19.

14. **Claim 20**

Requirement 1: An antenna array for an RFID reader.

Requirement 2: A first reader loop antenna having a first loop and tuned to operate at a first carrier frequency enabling data communication with a first transponder transmitting data signals at said first carrier frequency.

Requirement 3: A second reader loop antenna having a second loop and tuned to operate at a second carrier frequency different from said first carrier frequency enabling data communication with a second transponder transmitting data signals at said second carrier frequency.

Requirement 4: Wherein a first plane defined by the first area is substantially orthogonal to a direction of magnetic flux created through the first antenna.

Requirement 5: Wherein a second plan defined by the second area is substantially orthogonal to a direction of magnetic flux created through the second antenna.

Requirement 6: Wherein said first and second loops are arranged relative to one another such that a portion of the first area in the first plane overlaps a portion of the second area in the second plane.

Deister Devices Include Requirement 1 of Claim 20:

Requirement 1 of claim 20 is similar to requirement 1 of claim 5. As such, the Deister devices include requirement 1 of claim 20 for at least similar reasons as discussed with respect to claim 5.

Deister Devices Include Requirement 2 of Claim 20:

The Deister devices include a first reader loop antenna having a first loop as demonstrated in the photos above that include the antenna. The rest of the language recited in requirement 2 of claim 20 is similar to the language in requirement 2 of claim 5. As such, the

Deister devices include the additional language in requirement 2 for at least reasons stated above with regard to requirement 2 of claim 5.

Deister Devices Include Requirement 3 of Claim 20:

The Deister devices include a second reader loop antenna having a second loop as demonstrated in the photos above that include the antenna. The rest of the language recited in requirement 3 is similar to the language in requirement 3 of claim 20. As such, the Deister devices include the additional language in requirement 3 for at least reasons stated above with regard to requirement 3 of claim 5.

Deister Devices Include Requirement 4 of Claim 20:

For the purpose of determining infringement, I determined that the meaning of the phrase “wherein a first plane defined by the first area” to mean a first plane defined by the first area enclosed by the first reader loop antenna. This construction is consistent with the Court’s construction of requirement 6 that included the term “the first area in the first plane.”

Based on the above interpretation, the Deister devices include a first plane defined by the first area because the Deister devices include an antenna illustrated as an outer coil in the photo above and the antenna encloses a first area. Further, when the antenna is active it would generate magnetic flux through the antenna such that the first plane would be substantially orthogonal to some portion of magnetic flux created by the active antenna. As such, the Deister devices include requirement 4 of claim 20.

Deister Devices Includes Requirement 5 of Claim 20:

For the purpose of determining infringement, I determined that the meaning of the phrase “wherein a second plane defined by the second area” to mean a second plane defined by the second area enclosed by the second reader loop antenna. This construction is consistent with the Court’s construction of requirement 6 that included the term “the second area in the second plane.”

Based on the above interpretation, the Deister devices include a second plane defined by the second area because the Deister devices include an antenna on a PCB, as photos above illustrate, that is on a second plane, a plane distinct from the plane of other antenna. In addition, this antenna encloses a second area. Further, when the antenna is active it would generate magnetic flux through the antenna such that the second plane would be substantially orthogonal to some portion of magnetic flux created by the active antenna. As such, the Deister devices include requirement 5 of claim 20.

Deister Devices Include Requirement 6 of Claim 20:

I understand requirement 6 in view of the Court’s construction of the term “a portion of the first area in the first plane overlaps a portion of the second area in the second plan.” Based on this construction, the Deister devices include requirement 6 of claim 20. Specifically, the Deister devices include two antennas, as illustrated in photos above that are of different sizes. As discussed above, these antennas are arranged such that antenna illustrated as the outer coil in Expert Report of Roger G. Stewart

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the photo above is below the second antenna on the PCB (when viewed from the longitudinal axis as explained in the Court's construction order). Because of the different sizes of the two antennas and the fact that one resides above the other, the antennas are arranged relative to one another such that a portion of the area enclosed by the first reader loop antenna covers or is covered by a portion of the area enclosed by the second reader loop antenna as viewed along the longitudinal axis. As such, the Deister devices include requirement 6 of claim 20.

15. **Claim 21**

Requirement: The antenna array of claim 20, wherein the directions of magnetic flux created through the first and second antennas are not orthogonal.

As discussed above, the Deister devices include all requirements of claim 20. In addition, the Deister devices include the requirements of claim 21 because the planes defined by the area enclosed by each reader loop antenna, as discussed above with regard to claim 20, are substantially parallel. As such, when both antennas are active and thus generating magnetic flux, the direction of the magnetic flux created through the first and second antennas are not orthogonal. As such, the Deister devices include the requirements of claim 21.

16. **Claim 22**

Requirement: The antenna array of claim 20, wherein said first and second loops have a parallel orientation and are arranged relative one another such that a size of the portion of the first area aligning with the portion of the second area is less than at least one of a size of the first area and a size of the second area.

As discussed above, the Deister devices include all the requirements of claim 20. In addition, the Deister devices include first and second loops that have a parallel orientation because the antennas are on separate planes as illustrated in the above photos. Further, the portion of the first area aligning with the portion of the second area is less than at least the one of a size of the first area and the size of the second area. Thus, the Deister devices include the requirements of claim 22.

G. The Asserted Claims Of The '862 Patent Are Invalid Under 35 U.S.C. § 112, Paragraph 2 Because The Claims Recite Both A System OR APPARATUS And The Method For Using That System OR APPARATUS.

I understand that a claim is invalid under 35 U.S.C. § 112, paragraph 2 when they do not apprise a person of ordinary skill in the art of the claim scope, e.g., because the claim recites *both* a system and a method for using that system.

The asserted system claims all contain a requirement that the system be in use. Specifically, the asserted system claims all include similar requirements such as:

- a first reader antenna tuned to operate at a first [] frequency *enabling data communication with a first transponder transmitting data signals* at said first [] frequency; and

- a second reader antenna tuned to operate at a second high carrier frequency different from said first low carrier frequency *enabling data communication with a second transponder transmitting data signals at said second high carrier frequency.*

As such, it is unclear whether to infringe:

1. One must construct a system (a) having a first reader antenna with a *capability* of communicating with a first transponder on a first low carrier frequency when that transponder transmits at the first low carrier frequency; and (b) having the second reader antenna with a *capability* of communicating with a second transponder on a second high carrier frequency when that transponder transmits on the second high carrier frequency;
2. One must construct a system (a) having a first reader antenna with a *capability* of communicating with a first transponder on a first low carrier frequency when that transponder transmits at the first low carrier frequency; (b) having the second reader antenna with a *capability* of communicating with a second transponder on a second high carrier frequency when that transponder transmits on the second high carrier frequency; and (c) having actively transmitting first and second transponders (i.e., there is no infringement without both of the transponders transmitting);
3. One must construct a system having (a) having a first reader antenna with a *capability* of communicating with a first transponder on a first low carrier frequency when that transponder transmits at the first low carrier frequency; (b) having the second reader antenna with a *capability* of communicating with a second transponder on a second high carrier frequency when that transponder transmits on the second high carrier frequency; and (c) having at least one actively transmitting first or second transponders (i.e., there is no infringement without at least one of the transponders transmitting); or
4. Some combination of one or more of the above.

Because one skilled in the art would not know the scope of the claim and thus could not determine under what specific conditions infringement occurs, the asserted claims are invalid.

H. Claims Of The '862 Patent Are Invalid for Failure to Enable the Invention Claimed

I understand that a patent claim is invalid if the patent at the time it was originally filed did not contain a description of the claimed invention that is sufficiently full and clear to enable a person of ordinary skill in the field at the time to make and use the full scope of the invention.

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I understand that the former CTO, Peter Lowe, at deposition testified that some or all of the aspects of the invention disclosed in the '862 patent was known to the inventor to be ineffective at the time of filing the patent application. Because the invention was not effective at the time of filing of the patent application, the application does not describe the claimed invention in a sufficiently full and clear manner to enable a person of ordinary skill in the field to make and use the full scope of the invention. As such, some or all the claims are not enabled as required. Thus, some or all of the claims are invalid.

1. Claim 22 is invalid under 35 U.S.C. § 112, paragraph 2.

I understand that a claim is invalid under 35 U.S.C. § 112, paragraph 2 when it does not apprise a person of ordinary skill in the art of the claim scope.

Claim 22 requires:

The antenna array of claim 20, wherein said first and second loops have a parallel orientation and are arranged relative one another such that a size of the portion of the first area aligning with the portion of the second area is less than at least one of a size of the first area and a size of the second area.

Based on the above language read in view of the specification one skilled in the art is not apprised of the claim scope because the language "arranged **relative one another** such that a size of the portion of the first area aligning with the portion of the second area **is less than at least one of a size of the first area and a size of the second area**" is ambiguous. (emphasis added). The unclear language would not have been understood by one skilled in the art what type of antenna arrangement is claimed. As such, the claim is invalid.

I submit this Report, dated December 16, 2011.


Roger G. Stewart

EXHIBIT 1

ROGER G. STEWART

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Summary

Expert technical and business knowledge of solid state devices & circuits, Flat Panel Displays and RFID. Patent expert. Executive level experience at three successful start-up companies.

Professional Experience

- 2006-present President of Sourland Mountain Associates, Hillsborough, NJ
- Technical & patent consulting in flat panel displays, semiconductors, and RFID.
 - Experience in drafting thousands of patent claims and conducting hundreds of detailed patent evaluations.
 - Patent litigation experience includes Markman hearings, depositions, expert reports, and testifying as an expert technical witness in three international patent trials. My technical opinion has prevailed with the Judge and/or Jury in all of the five patents in which I have offered an opinion to the court. (A detailed list of litigation experience is available upon request.)
 - Extensive experience in writing successful technical and government proposals.
- 2005-2006 VP of Engineering, Applied Wireless ID, Morgan Hill, CA
- Responsible for patents, developing advanced reader architectures based on international standards, and integrating these architectures into monolithic chips.
 - Led industry-wide role in developing international standards for RFID tags & readers. Elected as a Founding Member of the EPCglobal Architectural Review Committee.
- 2003-2005 Founder, Chief Technology Officer, Member Board of Directors, Intellex Corporation, San Jose, CA
- Responsible for engineering, product development, and manufacturing of high-performance RFID tags with associated flexible and signage displays.
- 1999 - 2002 VP of Engineering, Chief Technology Officer -- Alien Technology Corporation, Morgan Hill, CA
- Managed three technical Directors with regular participation in meetings of the Board of Directors. Directed IC design, IC foundry relationships, trademarks, licensing agreements, patents, and other legal matters.
 - Rapidly developed five state-of-the-art mixed-signal custom IC chips for Alien's flexible displays, signage displays, and RFID products. Assembled a world class IC development team within 6 months and rapidly completed all five chips - including Alien's first RFID chip - each one working with first silicon.
 - Represented Alien in the international RFID standards setting process including presentations to US Government, Universities, Venture Capitalist meetings, and other companies. Led the MIT Auto ID Center's effort to develop a new, low-cost RFID tag specification based on Alien's design, that was subsequently adopted in June'01 by all three RFID international standards-setting organizations.
 - Expanded Alien's patent portfolio from only 4 patents in 1999 to 79 patents by the end of 2002.

1981 - 1999 Laboratory Director -- Sarnoff Corporation, Princeton NJ

- As Director of the Solid State Display Laboratory my responsibilities included funding and managing a 6 M\$ annual budget for 20-30 persons in the field of Active Matrix LCDs, Active Matrix OLEDs, video walls, electronic signage, and other flat panel display devices.
- Successfully negotiated numerous patent licensing and technology development contracts including several multi-million dollar agreements in France, Korea, and Japan.
- Founded Sarnoff "spin-out" corporation, SARIF Corporation, Inc., with initial funding of 10 M\$.
- Developed the first polysilicon AMLCDs in 1986 and the world's first self-scanned amorphous silicon AMLCDs (SASID) in 1995.

< 1981 Before 1981, pioneered development of semiconductor memories and non-volatile memory products.

- Designed and transferred into high-volume commercial production a CMOS microprocessor, two CMOS ROM chips, three CMOS static RAM chips, two EEPROM chips, and a 256 MHz ultra-high-speed shift register chip.
- Patents currently used in over 85% of all DRAM and RAM manufactured worldwide. Patent 4,344,005 "Power Gated Decoding" and Patent 4,558,240 "Multi Mode Amplifier" have generated over \$100M in royalties for the Harris Semiconductor Corporation.

Awards

- Author of 94 papers and published presentations.
- Holds 110 Issued USA Patents, 22 published USA patent applications, and 60 foreign patents.
- Elected in 1997 as a Fellow of the Institute of Electrical and Electronic Engineers ("IEEE")
- Elected in 2010 as a Fellow of the Society of Information Display ("SID")
- Received numerous awards, including the "David Sarnoff Award for Outstanding Technical Achievement" - the highest award offer made by either RCA or Sarnoff - for founding a new display company called "SARIF Inc." in 1994.
- Taught courses on solid state circuits and flat panel display technology for Boeing, RCA, the IEEE, the Society of Information Display, and the University of California.
- Chairman of the 1977 IEEE SOS Workshop, VLSI Workshop Committee 1984-1986, the ISSCC Committee from 1986-1989, Member or Chairman of the AMLCD Technical Program Sub-Committee for SID from 1989 to the present.
- Founding member of the RFID Standards Working Group at MIT in 2002.
- Elected as a Founding Member of the EPCglobal Architectural Review Committee in 2004.

Education

BS-EE John Hopkins University, Baltimore, Md.
MS-EE Lehigh University, Bethlehem, Pa.

Patents and Publications

Lists of patents and publications are attached below.