

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

THETA IP, LLC.,

Plaintiff,

v.

SAMSUNG ELECTRONICS CO., LTD.,
and SAMSUNG ELECTRONICS
AMERICA, INC.

Defendants.

Civil Action No.: WA:20-CV-00160-ADA

JURY TRIAL DEMANDED

PLAINTIFF THETA IP, LLC.'S CLAIM CONSTRUCTION REPLY BRIEF

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EXHIBIT LIST

Exhibit 1 (Theta)	U.S. Patent No. 9,838,962
Exhibit 2 (Theta)	U.S. Patent No.10,129,825
Exhibit 3 (Theta)	U.S. Patent No. 10,524,202
Exhibit 4 (Theta)	File History for U.S. Patent No. 9,838,962
Exhibit 5 (Theta)	File History for U.S. Patent No.10,129,825
Exhibit 6 (Theta)	File History for U.S. Patent No. 10,524,202
Exhibit 7 (Theta)	U.S. Patent No. 5,001,776 (“Clark”)
Exhibit 8 (Theta)	Claim Construction Hearing Transcript, Dkt. 91, in <i>Theta v. Samsung</i> , Case No. 2:16-cv-00527-JRG-RSP) (<i>Theta I</i>)
Exhibit 9 (Theta)	Order and Memorandum on Claim Construction, Dkt. 86, in <i>Theta v. Samsung</i> , Case No. 2:16-cv-00527-JRG-RSP) (<i>Theta I</i>)
Exhibit 10 (Theta)	Samsung’s Objections to the Magistrate’s Claim Construction Order, Dkt. 92, in <i>Theta v. Samsung</i> , Case No. 2:16-cv-00527-JRG-RSP) (<i>Theta I</i>)
Exhibit 11 (Theta)	Order Overruling Samsung’s Objections to Magistrate’s Claim Construction Order, Dkt. 96, in <i>Theta v. Samsung</i> , Case No. 2:16-cv-00527-JRG-RSP) (<i>Theta I</i>)
Exhibit 12 (Samsung)	Theta’s Reply Claim Construction Brief, Dkt. 71, in <i>Theta v. Samsung</i> , Case No. 2:16-cv-00527-JRG-RSP) (<i>Theta I</i>)
Exhibit 13 (Samsung)	Declaration of Dr. Sayfe Kiaei
Exhibit 14 (Samsung)	Modern Dictionary of Electronics, 7th Ed. (Rudolf F. Graf., ed., 1999) at 364

Exhibit 15 (Samsung)	Moore Industries, Power Transducer User's Guide (1991)
Exhibit 16 (Samsung)	Radio Shack Unabridged Dictionary of Electronics (Rudolf F. Graf, ed., 1978) at 349
Exhibit 17 (Samsung)	Dugald C. Jackson, "Fundamental Ideas of Alternating Currents," 5 Science and Industry 271 at 276 (Colliery Engineer Co., 1900)
Exhibit 18 (Samsung)	Dugald C. Jackson, "Fundamental Ideas of Alternating Currents, Part 2," 26 Western Electrician 112 at 112 (1900)
Exhibit 19 (Samsung)	James H. Cormick, "Alternating Current as Applied to Signaling," 4 The Signal Engineer 112 at 112 (1911)
Exhibit 20 (Samsung)	CRC Corp., The Electrical Engineering Handbook, 2nd Ed. (Richard C. Dorf, ed. 1997) at 30
Exhibit 21 (Theta)	U.S. Patent No. 7,010,330
Exhibit 22 (Theta)	U.S. Patent No. 9,331,728
Exhibit 23 (Theta)	Samsung's Responsive Claim Construction Brief, Dkt. 69, in <i>Theta v. Samsung</i> , Case No. 2:16-cv-00527-JRG-RSP
Exhibit 24 (Theta)	U.S. Patent No. 6,870,425 ("Leifso")
Exhibit 25 (Theta)	U.S. Patent No. 6,311,048 ("Loke")
Exhibit 26 (Theta)	U.S. Patent No. 6,397,090
Exhibit 27 (Theta)	U.S. Pat. Pub. No. 2004/0038657
Exhibit 28 (Theta)	Declaration of Dr. Steven Goldberg

I. INTRODUCTION

The asserted claims of the patents at issue are directed to optimizing the power drain of a wireless transceiver based on monitoring of the interferer signal levels and the desired signal levels to optimize dynamic changes in gain, bias and impedance of the devices and circuits in the receiver path of the of the RF signal. The patents represent significant advances over prior art.

Samsung uses the methods of the asserted claims to maximize battery life in its phones.¹ Samsung's claim construction positions are a transparent attempt to try to avoid an infringement via several technical defenses that find no basis in law or fact.

First, Samsung seeks to impose a disclaimer on each of the “dynamically adjusting” and “varying” terms, such that any use of a signal strength threshold in the context of the accused system will give rise to a noninfringement case. These arguments can best be described as opportunistic. There was no disclaimer in the patents at issue in *Theta I* (as Judge Payne already held), and there was no disclaimer as to the asserted claims here, which already contain limitations that make the negative limitation Samsung seeks to impose superfluous. But even if there is a basis to add a negative limitation, the parties dispute the meaning of the negative limitation added in *Theta I* and thus, at a minimum, clarification is required here.

Second, Samsung remarkably asserts that twenty-six different terms are indefinite based on eight pages of expert analysis that boils down to Samsung's legal contention that terms of degree are indefinite. Yet, the prior art that allegedly gives rise to the disclaimers uses the same terms of degree, as do Samsung's own articles and patent applications. On this basis alone, Samsung cannot meet its burden of proving by clear and convincing evidence that the claims are

¹ Theta disputes Samsung's characterization of the expert testimony in *Theta I* testimony, but it is irrelevant because previously asserted claims were different; they required specific measurements to be made of specific nodes and specific adjustments (*see, e.g.*, Exhibits 21 (cl. 29) and 22 (cl. 1)).

indefinite. Moreover, whether a POSITA would understand these terms of degree is disputed. Even the correct definition of a POSITA is disputed. Samsung's contention that the claims are indefinite should be summarily denied.

Samsung now also seeks to add improper limitations to the definition of impedance, a definition to which it previously agreed. The Court should not reward this litigation bait-and-switch. Each of Samsung's claim construction positions should be rejected.

II. CONSTRUCTION OF DISPUTED CLAIM TERMS

A. “dynamically adjusting,” Group C, “dynamically decreased”²

Theta Construction	Samsung Construction
“adjusting during operation [<i>but not by selecting between two predetermined modes in reliance on signal strength thresholds</i>]” Or Plain and ordinary meaning.	“adjusting during operation without reliance upon a signal strength threshold” “[decreasing / reducing / increased] during operation without reliance upon a signal strength threshold” For claim 11, indefinite or “decreasing during operation without reliance upon a signal strength threshold”

Theta's proposed construction of the “dynamically adjusting” terms is consistent with the intrinsic record and the *Theta I* construction. Theta does not seek to avoid any prior statements; Theta instead contends further construction is necessary because the parties dispute the meaning of the prior construction. *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008). Samsung will argue that construction means that no thresholds of any kind can be used in a system practicing the asserted claims. Theta, on the other hand, posits that the construction means (and is limited to) exactly what the patentee said during prosecution, which is effectively: not the static system of Clark. Thus, either the scope of the negative limitation needs to be clarified to be consistent with what was actually “disclaimed” or eliminated in favor of the

² Theta's constructions have been modified from the joint claim construction statement in response to Samsung's arguments and in further consideration of the intrinsic record.

plain and ordinary meaning of the claims as discussed below.

i. At most, the patentee only disclaimed what is disclosed in Clark.

The phrase “without reliance on a signal strength threshold” was included in the prior claim construction based on statements made during prosecution to distinguish the claims of the parent application over Clark. Clark discloses a system that can operate in only two predetermined modes: (1) a high current mode and (2) a low current mode. Ex. 7 at 1:63-2:9. Clark selects the high or low mode based on specified criteria (the “thresholds” of the claim construction). *Id.* Put simply, nothing about the Clark system is dynamic; it cannot be adapted in any way during operation. The criteria (thresholds) for switching from high to low current mode cannot change, and the operating conditions of the high and low current mode are fixed—they operate in the same manner each time either of the modes is activated. There is no variability, and the disclosure of Clark is not in dispute.³

The “dynamically adjusting,” “dynamically increasing,” and “dynamically decreasing” of the Tsivdis patents (as well as the varying limitations discussed below) are the antithesis of Clark. This is set forth succinctly in the ’202 Patent Office Action on which Samsung relies:

“In embodiments of the present invention, the aim is the ***optimization of the power drain*** from the battery based on the relationship between the strength of the interferer and the strength of the desired signal in the radio frequency section of the transceiver. The ***adjustment is a dynamic change that is based on the continuous monitoring of the interferer signal levels and desired signal levels to optimize the changes in gain, bias and impedance of the devices and circuits in the receiver path of the of the RF signal.***”

Ex. 6 at 231.⁴ It is Theta’s position that the claim limitations fully capture the “dynamic” nature of the inventions both in terms of monitoring the desired and interferer signals and dynamically

³ Samsung’s failure to discuss Clark and instead rely only on snippets from the file history is a tell that Samsung intends to expand the distinctions over Clark beyond their actual meaning.

⁴ The specification is in accord. The summary of the invention begins “embodiments of the present invention use bias current reduction, impedance scaling, gain, and other ***dynamic changes*** either separately or in combination to reduce power dissipation.” Ex. 3 (’202 Patent) at 1:60-63. Figures 2 and 3 (described at 5:33-6:52) depict potential scenarios for the relationship between the desired

changing the operating characteristics of various devices and circuits in the receiver path depending on the signals being monitored. These limitations are sufficient to capture the applicant's distinctions over Clark.

Critically, even if Samsung is right that there is some sort of disclaimer that requires a negative limitation, which Theta disputes, whatever the negative limitation “without reliance on a threshold” means, it can only mean *not Clark*.⁵ This is what Judge Payne understood, this is what Theta said during prosecution, this is what various examiners have understood, and this is consistent with the asserted claims as issued.

ii. Judge Payne understood Theta used “dynamically” to distinguish over the static nature of Clark.

Samsung suggests that the Court in *Theta I* found a disclaimer in the prosecution history. Samsung Br. at 4 (“the district court relied on the fact that . . . Theta . . . had clearly and unmistakably distinguished a prior art reference”). But the Court in *Theta I* found no such disclaimer; in fact, the dispute in *Theta I* did not even involve whether the applicant disclaimed thresholds; it instead involved whether the patentee disclaimed anything but continuous adjustments.⁶ Ex. 9 at 12-15.

The *Theta I* order demonstrates that the Court understood of the specification, Clark, and

signal and the interferer signals. Figure 4 (described at 5:53-7:12) describes exemplary circuits for measuring the desired and interferer signals. Figures 5, 6, and 7 (described at 7:29-8:16) describe ways in which scaling bias, impedance and gain in response to monitoring the desired and interferer signals impacts current and thus power consumption. Figures 8, 9, 10 and 11 (described at 8:25-10:61) depict examples of dynamic changes that can be made to the gain, impedance, and bias depending on the strength of the interferer and the desired signal. Figure 13 depicts the results of these dynamic changes, which for example, depict six different power levels over seven different time periods depending on the monitoring of the desired signal and the interferer and how they change over time. See Theta Br. at 11-14.

⁵ In sur-reply, Samsung will predictably cite cases that say that the scope of a disclaimer can be broader than what the patentee needed to give up to obtain the claims. But these cases are irrelevant; there was no disclaimer, much less one broader than what was disclosed in Clark.

⁶ Judge Payne rejected Samsung's contention that “dynamic” required “continuous” change due to disclaimer. See Ex. 9 at 13-14.

Theta's statements about it, consistently with Theta's position here. As to the claim language then in dispute, Judge Payne observed that: "[s]urrounding claim language thus provides context suggesting that "dynamically" refers to adjustment being responsive to the "first signal strength" that is determined by an indicator circuit coupled to the signal path. Ex. 9 at 10. Judge Payne also noted, for example, how the "specification contrasts 'dynamic' with 'fix[ed]'" when describing Figure 13," a discussion Theta relied on and cited in its opening brief. *Id.*; Theta Br. at 11-14.

As to the applicant's statements regarding Clark, and Clark itself, Judge Payne said:

Even when the prosecution history of the '728 Patent is considered, however, the patentee distinguished the "Clark" reference on the basis that "dynamic" adjustment "uses no threshold" and occurs "as SNR [(signal-to-noise ratio)] varies":

Clark in US patent 5,001,776 (hereinafter "Clark") is teaching a system with a "High current mode" and a "Low current mode". This is shown in his Fig. 2. Also, Column 2, line 7 discusses a "threshold" which is always necessary in any so called "two-level" system. This is also discussed in the Abstract, stating that when the quality of the desired signal is low and the strength of all received signals is also low, or *when the quality of the desired signal is above a threshold*, the receiver operates in a lower current mode to conserve power and maximize battery lifetime. By contrast, *Tsividis uses no threshold*; rather, the control adjusts *dynamically* the power dissipation *as the received external signal's SNR varies* as set forth in all independent claims in the case as now amended.

Aug. 27, 2014 Amendment [Dkt. # 69-10] at 8 (emphasis modified). The patentee thus used "dynamically" with reference to a *varying signal-to-noise ratio* as contrasted with merely evaluating whether the quality of the desired signal exceeded a threshold. A review of Clark itself further reinforces that the patentee was distinguishing Clark as disclosing a *signal quality threshold* rather than dynamic adjustments based on signal strength ratios. *See, e.g.,*

Further, after quoting the following distinction that the applicant made over Clark:

Applicant disagrees with Examiner's assertion that Clark teaches dynamically adjust [*sic*, adjusting] impedance in the signal path as Clark teaches away therefrom. In fact Clark teaches an on/off solution that is based on a threshold and therefore Clark does not dynamically respond but rather responds when a threshold is crossed. In other words, Clark does not teach a *continuous behavior, commonly characterized as dynamic*, and rather teaches away therefrom by teaching a[] two-state solution, or discrete at best.

Judge Payne commented that the patentee "appears to have used dynamically to refer to during operation. Such a reading is also consistent with other portions of the prosecution history." Ex. 9

at 14. Judge Payne further noted “the patentee in another portion of the prosecution history distinguished Clark as “seem[ing] to teach adaptation between a *lower current mode and a higher current mode* (see Col. 3 lines 26–57), which therefore reaches [*sic*, teaches] away from *dynamically varying an impedance . . .*” *Id.* (emphasis in original). Judge Payne understood Clark’s teachings, and that applicant distinguished his invention from those teachings because Clark is not dynamic (it is static) in terms of the criteria (thresholds) used to switch between two predetermined modes (high and low).

Ultimately, based on a statement Theta made in its reply brief, Judge Payne included the “without reliance on a signal strength threshold” in the claim construction without finding disclaimer. Ex. 9 at 14-15. But as detailed above, this negative limitation, at best, tells only half of the story. The applicant’s arguments to overcome Clark were really based on all of the static aspects of Clark: that system selects between two predetermined modes based on preset criteria or “thresholds.” Thus, if a disclaimer is found based on the above statements about Clark, and this Court determines that a negative limitation is appropriate, it should adopt a construction that tells the whole story: “adjusting during operation *but not by selecting between two predetermined modes in reliance on a signal strength threshold.*” Doing anything less allows Samsung to argue that the use of *any signal strength thresholds for any reason are precluded* and therefore that it does not infringe. Such an argument is simply not supported by the prior claim construction order, or anything in the intrinsic record.

iii. No negative limitation should be included in the “dynamically adjusting” claims at issue here.

The asserted claims already contain limitations that distinguish over Clark such that no negative limitations are necessary here. For example, Claim 1 includes the following elements:

determining a strength of the desired signal;

determining a strength of the interferer signal;
comparing the strength of the desired signal to the strength of the interfere signal;
 and dynamically adjusting at least one of an impedance, a bias or a gain of at least one of the amplifier, filter or mixer in the receiver signal path, ***responsive to the comparing.***⁷

Ex. 3: at Col. 13:13-19 (emphasis added). There is no need to add “without reliance on a signal strength threshold” because the claim already specifies what gets dynamically adjusted and what the adjustment is in response to. Claims 2 and 5 (and others) go further. Both claims recite dynamically decreasing bias; this happens in the claim 2 when “the strength of the interferer decreases over time, and the strength of the desired signal is low,” and in claim 5 “when the interferer is weak, and the desired signal is low, and the strength of the desired signal increases over time.” There is simply no need to add “without reliance on a signal strength threshold” or even “during operation” to any of these claims because the limitations are clear on their face.

The file history of the '202 Patent confirms that the claims were distinguished based on the exemplary limitations discussed above, not based on the “without reliance on a threshold” construction that Samsung opportunistically seeks to impose. Theta, as it was required to do, made the USPTO aware of the “dynamically adjusting” construction in *Theta I*, but the merits of Samsung’s position end there. Theta did not rest on this definition to distinguish over Clark. Instead, Theta made distinctions over Clark based on the limitations of the claims asserted here.

As an introductory matter, prior to setting forth the *Theta I* construction, Theta said: “None of the cited prior art teach or suggest dynamically adjusting, dynamically decreasing, or dynamically increasing one or more of a bias, a gain or one or more circuits in the receiver path,” precisely what the claims already state. Ex. 6 at 227. Then, as to Claim 1 (pending claim 21), the applicant did not rest on “no thresholds;” instead, the applicant distinguished claim 21 over Clark based on the each of its elements. See Ex. 6 at 229-30. Significantly, Theta also pointed out that

⁷ The last elements in claims 7, 11,19, and 21 are in accord. See, e.g, Ex. 3 at Col. 14:8-14.

“[t]he presently pending claims do not rely on a comparison of the desired and undesired (interferer) signals to thresholds; instead, the method requires dynamically adjusting impedance or bias based on the relative comparison of the desired signal strength to the interferer strength. ***This allows for the receiver to operate at more than two operating mode currents . . .***” *Id.* at 230-231.

Ultimately, Theta’s description of the differences over Clark confirm Judge Payne’s read of “dynamically adjusting” and the claim construction advanced here:

This is completely different from what is described and claimed in the present application. In embodiments of the present invention, the aim is optimization of the power drain from the battery based on the relationship between the strength of the interferer and the strength of the desired signal in the radio frequency section of the transceiver. The adjustment is a dynamic chance that is based on continuous monitoring of the interfere signal levels and the desired signal levels to optimize the changes in gain, bias and impedance of the devices and circuits in the receiver path of the RF signal.

Id. at 231. Finally, and notably, in this Office Action response, Theta also distinguished cited references for a number of additional reasons that are tied to claim language, including limitations other than “dynamically adjusting.” *Id.* at 227-236. Because the claims are clear on their face, they should be construed in accord with their plain and ordinary meaning. Alternatively, any negative limitation should be complete and consistent with the intrinsic record.

Finally, it is significant to note that all of the various assessments described in the claims (“weak,” “low,” “increases,” “decreases”) could be based on what Samsung will later say is a “threshold”: for example, depending on the standard and implementation, a desired signal may be considered low if it is within a particular range or below a particular number. It would be nonsensical to adopt a construction that made it impossible to practice the claims. And, in any event, use of such a “threshold” would not implicate Clark or any statements in the prosecution history because the claims don’t cover changing between two predetermined modes based on predetermined thresholds. Simply because a signal might be determined to be, for example, “low,”