

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF TEXAS
WACO DIVISION**

PARKERVISION, INC.,

Plaintiff,

v.

MEDIATEK INC. AND MEDIATEK USA
INC.,

Defendants.

Case No. 6:23-cv-00732-ADA

JURY TRIAL DEMANDED

**PLAINTIFF PARKERVISION, INC.'S
SUR-REPLY CLAIM CONSTRUCTION BRIEF**

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I. INTRODUCTION

Without any way to substantively respond to ParkerVision’s arguments, MediaTek is forced to rely on red-herrings. As discussed below, however, MediaTek’s assertions are meritless.

II. DISPUTED CLAIM TERMS.

A. “string of multiple pulses” (’508 patent, claim 11)

ParkerVision’s Construction	MediaTek’s Construction
Plain and ordinary meaning	“a sequence of pulses containing at least $n+1$ pulses for every cycle of said string of pulses”

MediaTek now asserts that ParkerVision’s construction would render “string of pulses” and “string of multiple pulses” redundant. MediaTek Reply Brief (“Reply Br.”) at 2. Not so. As ParkerVision demonstrated in its Responsive brief, though both terms refer to signals containing pulses, the claim language makes clear that a first *string of pulses* is shaped from a reference signal, and a *string of multiple pulses* (the disputed term) is then generated from that first string. *See* ParkerVision Resp. Br. at 10-11. The term “string of multiple pulses” simply refers to the signal derived from the first string of pulses—it does not impose a specific pulse-per-cycle ratio, as MediaTek’s construction attempts to do. Consistent with this Court’s prior construction, the term is straightforward and should be given its plain and ordinary meaning.

Here, MediaTek is not seeking to properly construe the term but, instead, is attempting to limit the term to an *embodiment* set forth in the specification. To do so, MediaTek asserts that “string of multiple pulses” is a “coined term” that must be limited to what the specification supposedly defines. Not so.

MediaTek asserts—without specification support—that pulse train 8002 is “merely a string of pulses.” *See* Reply Br. at 7. To support its position, MediaTek relies on a single sentence from the specification, which states:

When string of pulses 7804 and first through nth delayed strings of pulses 7906(a)-7906(n) are combined by “NOR” gate 7904, string of multiple pulses 7808 is created having $n+1$ pulses for every cycle of string of pulses 7804.

’508 patent, at 50:1–5. But this sentence is not a definition. It simply describes an exemplary embodiment— shown in Figure 79—that uses multiple aperture generation module 7806 with NOR gate 7904 and delays 7902(a)-7906(n). Notably, MediaTek ignores the paragraph proceeding the sentence, which makes it clear that this embodiment is *non-limiting*.

For ease of discussion, and not meant to be limiting, oscillating signal 7810 is routed through a pulse shaper 7812 to create a string of pulses 7804. String of pulses 7804 is routed to a multiple aperture generation module 7806. The output of multiple aperture generation module 7806 is a string of multiple pulses 7808.

’508 patent, at 49:47-53.

Importantly, the same string of pulses 7804 is used both in the Figure 79 embodiment and to generate the pulse trains shown in Figure 80—including pulse train 8002. The specification states, for instance, that “pulse train 8002 [] is one pulse per cycle *of string of pulses 7804*. ...” ’508 patent, at 50:6-7. The specification treats pulse train 8002 no differently than the other “string of multiple pulses” (pulse trains 8004, 8006, 8008, 8010) generated from string of pulses 7804. Pulse train 8002 therefore falls squarely within the scope of the disputed term.

MediaTek attempts to distance its construction from the specific embodiment by pointing to its use of “*at least* $n+1$ pulses,” rather than “ $n+1$ pulses” as recited in the specification. Reply Br., 3-4. But MediaTek fails to explain why it modified the quoted language or why a POSITA would interpret the term to include “at least.” MediaTek also notably glosses over the fact that it copied its proposed language—“for every cycle of [said] string of pulses”—verbatim from the preferred embodiment. This selective borrowing underscores MediaTek’s actual intent: to improperly import limitations from a single embodiment in order to exclude others.

MediaTek’s argument is not new. Just like Intel before it, MediaTek asserts that the

“string of multiple pulses” must contain more pulses than the string of pulses. But the claims impose no such requirement, and this Court has already rejected that interpretation. MediaTek attempts to distinguish its position by arguing Intel’s use of the phrase “multiple the number of pulses,” might have implied whole number multiples. *See* Reply Br., 5, n.1. But that is a distinction without a difference. Both constructions rely on the same flawed premise: that out of all the disclosed pulse trains, only pulse train 8002 is excluded. That cannot be correct. A “string of multiple pulses” can include one pulse per cycle of the string of pulses—that is, a multiplier of one, as shown in pulse train 8002.

Finally, MediaTek misrepresents the record by asserting that ParkerVision “‘understands’ that ‘n’ [in MediaTek’s construction] refers to the number of ‘cycles’ of said string of pulses,” as is readily understood from the specification.” Reply Br., 8. That is simply not true. ParkerVision never made such a statement. And as shown above, the “n” referenced in the specification corresponds to the n th delayed string of pulses 7906(n) in Figure 79. *See* ’508 patent, 50:1–5. In that embodiment, “n” refers to the number of delayed inputs combined by the NOR gate—not to the number of cycles.¹ If anything, MediaTek’s failure to properly define “n” in its own construction highlights the ambiguity its construction would introduce.

For the foregoing reasons, MediaTek’s attempt to rewrite the claims based on a single embodiment, misread the intrinsic record, and inject ambiguity into an otherwise straightforward term should be rejected.

¹ If “n” in MediaTek’s construction refers to the number of delayed inputs—as it does in the patent—then n could be zero, meaning that a signal with one pulse per cycle (like pulse train 8002) would satisfy MediaTek’s construction. But that contradicts MediaTek’s position that 8002 should be excluded.

B. “the first control signal and the second control signal are configured to improve energy transfer to a desired harmonic” (’638 patent, claim 17)

ParkerVision’s Construction	MediaTek’s Construction
Plain and ordinary meaning	Indefinite

In its Responsive brief, ParkerVision cites the specification, which explains the meaning of the disputed term, and provides a detailed technical explanation—including mathematical equations, design guidance, and concrete examples. *See* ParkerVision Resp. Br. at 13-17. Recognizing that it has a problem, MediaTek attempts to *shift the focus* away from the substantive disclosure—ignoring ParkerVision’s explanation and instead feigning confusion while mischaracterizing ParkerVision’s actual position. But, as ParkerVision explained in its Responsive brief, the ’638 patent provides explicit, quantifiable guidance for configuring control signals to “improve energy transfer.” *See id.*

Having no substantive technical response, MediaTek fixates on semantics. MediaTek argues that ParkerVision’s citations relate only to “maximizing” the amplitude of a signal at a desired harmonic, which, MediaTek asserts, is not the same as “improving energy transfer.” Reply Br., 4-5. But ParkerVision never equated the two. Rather, ParkerVision explained that a POSITA would understand “improving energy transfer” to encompass at least two approaches: (1) directing more energy to the desired harmonic and/or (2) wasting less energy at undesired harmonics. Both concepts are well-supported in the intrinsic record. *See, e.g.,* ’638 patent at 42:65-43:6; 44:45-46:14.

Taken out of context, MediaTek’s semantic parsing might seem relevant. But the specification eliminates any real ambiguity. The patent explains that the pulse width (T_A) of the control signal determines how much energy is distributed across harmonics. For example, the patent states:

The relative amplitude of the frequency images 7950 are generally a function of the harmonic number and the pulse width T_A . As such, the relative amplitude of a particular harmonic 7950 can be increased (or decreased) by adjusting the pulse width T_A of the control signal 7123. In general, shorter pulse widths of T_A shift more energy into the higher frequency harmonics, and longer pulse widths of T_A shift energy into the lower frequency harmonics, as described by equations 1-4 above.

'638 patent, 47:36-45.

The patent further explains that signal amplitude of any harmonic n can be increased—or even maximized—by setting the sampling aperture to $T_A = \frac{1}{2}$ the period of the desired harmonic. *Id.* at 45:44-47. For example, to direct energy to the fifth harmonic (1 GHz), the aperture T_A should be set to 500 picoseconds. *See id.* at 45:40-54. No guesswork or subjectivity required. A POSITA would understand that maximizing the amplitude at a desired harmonic is one way to improve energy transfer.

MediaTek also argues that “wasting less energy at undesired harmonics” is not equivalent to improving energy transfer. But again, MediaTek ignores both the specification and misrepresents ParkerVision’s explanation. The intrinsic record describes reduced energy waste as an indicator of improved energy transfer. Using Figure 72J as an example: two control signals yield similar amplitude at the 1 GHz harmonic (the target), but one configuration (7218) wastes significantly less energy at undesired frequencies like 200 MHz. The specification concludes:

[A]t 200 MHZ, the frequency spectrum 7218 a has a much lower amplitude than the frequency spectrum 7220 a, and therefore the frequency spectrum 7218 is more efficient than the frequency spectrum 7220, assuming the desired harmonic is the 5th harmonic. In other words, assuming 1 Ghz is the desired harmonic, the frequency spectrum 7218 wastes less energy at the 200 MHZ fundamental than does the frequency spectrum 7218.

'638 patent, 46:6-13.

A POSITA would readily understand that “more efficient” operation—i.e., delivering the same energy at the desired harmonic while wasting less elsewhere—constitutes an improvement

in energy transfer.

It is irrelevant that the patent uses terms such as “increase,” “optimize,” or “maximize” instead of “improve.” The key question is whether the patent provides sufficient guidance for a skilled artisan to understand and apply the claim language. It does.

MediaTek’s argument that the specification “provides no objective baseline or method” for determining whether energy has been directed to the desired harmonic is also unfounded. The specification discloses Fourier-based equations that quantify spectral energy at each harmonic. A POSITA can use those equations to objectively assess whether a control signal configuration directs more energy to a desired harmonic or reduces energy at undesired harmonics.

MediaTek’s suggestion that ParkerVision merely “handwaves” its explanation is also baseless. Unlike MediaTek, ParkerVision cites specific equations, figures, and disclosures from the patent to support its position. And MediaTek’s reliance on case law fares no better because the specification is clear.

Finally, MediaTek argues that “improving energy transfer” is context-dependent and therefore indefinite. But context-dependence does not render a term indefinite. All engineering design involves context. What matters is whether the patent provides enough guidance for a skilled artisan to apply the term. It does. The ’638 patent teaches a POSITA how to configure control signals to direct more energy to a desired harmonic and/or reduce wasted energy at others, using explicit mathematical formulas and concrete design examples. That is precisely how to improve energy transfer.

Because the claim/specification “inform[s] those skilled in the art about the scope of the invention with reasonable certainty,” MediaTek fails to demonstrate indefiniteness. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014); see *Sonix Tech. Co. v. Publ’ns Int’l, Ltd.*,

844 F.3d 1370, 1377 (Fed. Cir. 2017) (“Indefiniteness must be proven by clear and convincing evidence.”).

- C. **“a pulse width of the first control signal and the second control signal is configured to improve energy transfer to a desired harmonic”** (‘638 patent, claim 18)

ParkerVision’s Construction	MediaTek’s Construction
Plain and ordinary meaning	Indefinite

For the same reasons set forth in Section II.B above, MediaTek’s indefiniteness arguments should be rejected and the Court should give this term its plain and ordinary meaning.

- D. **“wherein the relative amplitude of a particular harmonic image of said plurality of harmonic images can be adjusted by adjusting a pulse width of the first control signal and the second control signal”** (‘638 patent, claim 20)

ParkerVision’s Construction	MediaTek’s Construction
Plain and ordinary meaning	“the wherein clause is not limiting” Alternatively, indefinite.

In its Responsive Brief, ParkerVision explained that the “wherein” clause in claim 20 specifies a technical relationship between control signal pulse widths and harmonic amplitudes—namely, adjusting the pulse widths of the two control signals results in adjusting the amplitude of a harmonic image.

MediaTek attempts to avoid engaging with the underlying technical disclosure by reframing the issue as a semantic dispute over whether “can be” is “permissive.” But that misses the point. Even if “can be” is linguistically permissive in isolation, in the context of this claim and its supporting disclosure, the phrase is not a merely optional or an intended outcome. It is a direct consequence of performing the method, and it is limiting.

MediaTek’s fallback argument—that the term is indefinite—is equally flawed. MediaTek argues that because the specification discusses “maximizing” harmonic amplitudes, it fails to provide “‘reasonable certainty’ about when ‘can be adjusted’ is satisfied and when it is

not.” Reply Br., 9 But this misreads the law and the disclosure. The claim does not require the adjustment to result in a specific value or degree of change. Rather, the claim simply states that the amplitude “can be adjusted”—i.e., changed—by modifying the pulse width. As explained in Section II.B above, and in ParkerVision’s Responsive brief, the patent gives both the mathematical foundation and practical examples to support that understanding and how to configure the circuit for it to behave in such a way.

Accordingly, the “wherein” clause is limiting, technically supported, and definite. MediaTek fails to carry its burden to prove otherwise by clear and convincing evidence.

E. “power efficiency” (’593 patent, claim 9)

ParkerVision’s Construction	MediaTek’s Construction
Plain and ordinary meaning	“the output power of the power supply compared to its input power”

Nowhere in MediaTek’s construction is there any mention of “current,” “voltage,” or “indirect measurements.” Yet, MediaTek now improperly urges the Court to adopt its language in order to capture those ideas.

MediaTek argues that its construction should be adopted *because* it supports indirect measurements—despite the fact that its construction says no such thing. This disconnect reveals MediaTek’s real aim: to insert implementation-specific concepts into the claim that are neither reflected in the claim language nor recited in MediaTek’s own construction. That is not a proper basis for construing the term.

MediaTek also misrepresents ParkerVision’s position, arguing that ParkerVision seeks to exclude a preferred embodiment. Reply Br., 11. Not so. As ParkerVision has explained, the term “power efficiency” is used in the specification according to its ordinary technical meaning. ParkerVision Resp. Br. at 19-22. Nothing in the intrinsic record redefines that term, nor does it

equate “power efficiency” with voltage or current standing alone. To the contrary, the specification distinguishes between the terms. ’593 patent at 1:29–39, 4:35–43.

MediaTek’s reliance on certain embodiments using voltage comparisons is also misplaced. Those disclosures relate to how a switching decision might be implemented—not how “power efficiency” is defined. MediaTek’s reliance on claim differentiation is equally unavailing. Claim 12 recites a particular embodiment in which a switching decision is based on a voltage comparison. That does not alter the scope or plain meaning of “power efficiency” in independent claim 9. It simply reflects one way of implementing the broader claim limitation.

Accordingly, the Court should apply the plain and ordinary meaning of “power efficiency” and reject MediaTek’s attempt to import extraneous limitations that neither the claim language nor MediaTek’s construction supports.

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Respectfully submitted,

/s/ Jason S. Charkow

Raymond W. Mort, III
Texas State Bar No. 00791308
raymort@austinlaw.com
THE MORT LAW FIRM, PLLC
111 Congress Avenue, Suite 500
Austin, Texas 78701
Tel/Fax: 512-865-7950

Of Counsel:

Ronald M. Daignault (*pro hac vice*)*
Chandran B. Iyer (*pro hac vice*)
Jason S. Charkow (*pro hac vice*)*
Scott R. Samay (*pro hac vice*)*
Stephanie R. Mandir (*pro hac vice*)
rdaignault@daignaultiyer.com
cbiyer@daignaultiyer.com
jcharkow@daignaultiyer.com
ssamay@daignaultiyer.com
smandir@daignaultiyer.com
DAIGNAULT IYER LLP
8229 Boone Boulevard - Suite 450
Vienna, VA 22182
**Not admitted in Virginia*

Attorneys for ParkerVision, Inc.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the foregoing document was served to counsel of record for Defendant via electronic mail on June 3, 2025.

/s/ Jason S. Charkow
Jason S. Charkow