UNITED STATES PATENT AND TRADEMARK OFFICE
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BEFORE THE PATENT TRIAL AND APPEAL BOARD
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CISCO SYSTEMS, INC., DISH NETWORK, LLC,
COMCAST CABLE COMMUNICATIONS, LLC,
COX COMMUNICATIONS, INC.,
TIME WARNER CABLE ENTERPRISES LLC,
VERIZON SERVICES CORP., and ARRIS GROUP, INC.,
Petitioner,

v.

TQ DELTA, LLC,
Patent Owner.
_____

Case IPR2016-01020[1]
Patent 9,014,243 B2
_____

Before SALLY C. MEDLEY, TREVOR M. JEFFERSON, and
MATTHEW R. CLEMENTS, *Administrative Patent Judges*.

CLEMENTS, *Administrative Patent Judge*.

DECISION
Request for Rehearing
37 C.F.R. § 42.71

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[1] DISH Network, LLC, who filed IPR2017-00254, and Comcast Cable
Communications, LLC, Cox Communications, Inc., Time Warner Cable
Enterprises LLC, Verizon Services Corp., and ARRIS Group, Inc., who filed
IPR2017-00418, have been joined in this proceeding. Paper 14; Paper 15.

I.   INTRODUCTION

Pursuant to 37 C.F.R. § 42.71(d), TQ Delta, LLC ("Patent Owner") request rehearing of our Final Written Decision (Paper 41, "Dec."). Paper 42 ("Req. Reh'g"). Specifically, Patent Owner submits that our construction of "scrambling . . . a plurality of carrier phases" misapprehends or overlooks certain evidence, that Stopler[2] does not disclose "scrambling . . . a plurality of carrier phases," that we misapprehended or overlooked certain testimony, and that we misapprehended that Shively[3] would not have an increased or high PAR. Req. Reh'g *passim*.

For the reasons set forth below, Patent Owner's Request for Rehearing is *denied*.

II. STANDARD OF REVIEW

A party requesting rehearing bears the burden of showing that the decision should be modified. 37 C.F.R. § 42.71(d). The party must identify specifically all matters we misapprehended or overlooked, and the place where each matter was addressed previously in a motion, an opposition, or a reply. *Id.* With this in mind, we address the arguments presented by Patent Owner.

III. ANALYSIS

A. *"scrambling . . . a plurality of carrier phases"*

Independent claim 1 recites "scrambling . . . a plurality of carrier phases." Independent claim 7 similarly recites "scramble a plurality of

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[2] U.S. Patent No. 6,625,219 B1; issued Sept. 23, 2003 (Ex. 1012, "Stopler").
[3] U.S. Patent No. 6,144,696 B1; issued Nov. 7, 2000 (Ex. 1011, "Shively").

carrier phases." Independent claims 13 and 20 similarly recite "scramble[s] a plurality of phases." We adopted Patent Owner's proposed construction in part by construing "scrambling . . . a plurality of carrier phases" to mean "adjusting the phases of a plurality of carriers in a single multicarrier symbol." Dec. 6–9. We did not add to that construction "by pseudo-randomly varying amounts" because Patent Owner did not show why that additional language should be included for the broadest reasonable construction of the term "scrambling . . . a plurality of carrier phases." *Id.* Patent Owner argues that our construction is overly broad because it encompasses adjusting the phases of every carrier in the single multicarrier symbol by the same amount. Req. Reh'g. 1–2. Such an adjustment, according to Patent Owner, would not reduce peak-to-average power ratio ("PAR"), which the parties and the panel all agree scrambling must do. *Id.* at 3–5. "The FWD misapprehends or overlooks that, under any proper construction, there must at a minimum be *varying amounts* by which the phases are adjusted within a single multicarrier symbol (*i.e.*, *from carrier-to-carrier*) such that PAR is reduced." *Id.* at 2.

Patent Owner presents arguments not presented previously. We could not have overlooked or misapprehended those arguments presented for the first time in the rehearing request. Importantly, Patent Owner argues now for the first time that for any proper construction "there must at a minimum be varying amounts by which the phases are adjusted within a single multicarrier symbol (i.e., from carrier-to-carrier) such that PAR is reduced." *Id.* at 2. This proposed construction differs from Patent Owner's original proposed construction which included "by pseudo-randomly varying

amounts." Absent from the new proposed construction is the term "pseudo-randomly."

In any event, it is clear from the Decision that we construed the totality of each claim as requiring varying the amount by which the phase of each carrier is adjusted. *See, e.g.,* Dec. 21–24. Accordingly, even if we were to adopt Patent Owner's new proposed construction, it would not change the way we applied the prior art to the claim language as a whole.

B. Stopler's Single-Carrier Embodiment

Patent Owner argues that Stopler's QAM Mapper and Phase Scrambler 82 "must be compatible with single-carrier CDMA" because Stopler teaches that its output can, in one embodiment, be provided to a CDMA modulator. Req. Reh'g. 6. Patent Owner concludes that Stopler's phase scrambling "must have a different purpose than the claimed phase scrambling because [it] . . . cannot reduce PAR." *Id.* at 7.

We addressed this argument and found it unpersuasive. Dec. 18–22. Mere disagreement with the Board's conclusion is not a proper basis for rehearing. It is not an abuse of discretion to have made a conclusion with which a party disagrees.

C. Allegedly Misapprehended or Overlooked Testimony

Patent Owner quotes page 21 of our Decision and argues that "there are several inaccuracies." Req. Reh'g 8–12. These arguments are based, in part, on a mischaracterization of our claim construction as *requiring* the same amount of rotation of the phase of each of the QAM symbols in a DMT symbol. *See, e.g., id.* at 8 ("First, a DMT symbol cannot be phase scrambled as that term is used in the claims by having its component QAM symbols rotated by the *same* amount."), 9 ("as interpreted in the FWD ('i.e.,

rotates by the same amount, the phase of a plurality of QAM symbols.').").

Our construction of "scrambling . . . a plurality of carrier phases" does not
require rotating by the same amount. And as we applied the prior art, to the
totality of the claim language, it is clear that we construed the totality of the
claim language to require the phases of the carriers of the multi-carrier
signal be rotated by varying amounts. For example, our Decision states

> Stopler further teaches that, "a phase scrambling sequence is
> applied to the output symbols," including "all symbols, not just
> the overhead symbols." *Id*. at 12:25–28. Patent Owner's expert,
> Dr. Short, agreed that Stopler is referring to phase scrambling
> QAM symbols. Reply 16–17 (citing Ex. 1027 (Tellado Dep.),
> 54:17–55:3, 55:19–24, 58:6–8, 59:9–12, 60:15–22). Stopler
> further teaches that a "scrambling sequence may be generated by
> a pseudorandom generator" that generates pairs whose sum "is
> used to select the amount of rotation to be applied to the symbol,"
> singular; not "symbols" plural. Ex. 1012, 12:28–36. Thus, the
> most intuitive reading of Stopler supports Petitioner's contention
> that QAM Mapper and Phase Scrambler 82 determines an
> amount of rotation and rotates the phase of a single QAM symbol
> by that amount.

Dec. 21–22.

Patent Owner also objects to our characterization of Dr. Short's
testimony as "admit[ing] that Stopler does not describe phase scrambling
DMT symbols" (Dec. 21 (citing Ex. 1027, 60:11–14)). Req. Reh'g 9
(regarding Ex. 1027, 60:11–14). That testimony is as follows:

> Q. Well, you would agree with me that [Stopler] doesn't
> expressly teach applying the phase scrambler to the DMT as a
> whole?
>
> A. I would agree with that.

Ex. 1027, 60:11–14. We acknowledge that Dr. Short testified that he
understands Stopler to be rotating all of the QAM symbols within a

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