Filed on behalf of TQ Delta, LLC
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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 No. IPR2016-01020 (Patent No. 9,014,243)[1]
Case No. IPR2016-01021 (Patent No. 8,718,158)[2]
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**PATENT OWNER'S MOTION FOR DISCOVERY FILED
UNDER 37 C.F.R. § 42.51(b)**

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[1] DISH Network, L.L.C., who filed a Petition in IPR2017-00254, and Comcast Cable Communications, L.L.C., Cox Communications, Inc., Time Warner Cable Enterprises L.L.C., Verizon Services Corp., and ARRIS Group, Inc., who filed a Petition in IPR2017-00418, have been joined in this proceeding.

[2] DISH Network, L.L.C., who filed a Petition in IPR2017-00255, and Comcast Cable Communications, L.L.C., Cox Communications, Inc., Time Warner Cable Enterprises L.L.C., Verizon Services Corp., and ARRIS Group, Inc., who filed a Petition in IPR2017-00417, have been joined in this proceeding.

Patent Owner requests that the Board issue an order compelling Petitioner to serve, within two business days, the documents identified in Ex. 2015.

The Patent Owner Response, and supporting expert declaration of Dr. Short, demonstrated that a POSITA would not recognize Shively's transmitter as suffering from a problematic increase in peak-to-average power ratio ("PAR") and, thus, there is no basis for Petitioner's asserted motivation to combine Shively with Stopler. Petitioner's Reply, based on the testimony of Dr. Tellado, contends that Dr. Short's analysis of Shively is wrong. Dr. Tellado's testimony relied on two Matlab simulations—an "18,000 foot" simulation (*see* Ex. 2013 at 45:23–47:18)[3] and a "12,000 foot" simulation (*see* Ex. 1026 at ¶¶ 43-52). Petitioner only served Patent Owner records for the 12,000 foot simulation. Undoubtedly, Petitioner withheld the 18,000 foot simulation because it would support Dr. Short and be inconsistent with Petitioner's obviousness challenge.

Because Petitioner's expert relied on the 18,000 foot simulation, and it is inconsistent with Petitioner's assertions, records of the 18,000 foot simulation are discoverable under 37 C.F.R. § 42.51(b)(1) or 37 C.F.R. § 42.51(b)(2).

I.   **BACKGROUND OF THE CASE**

The Board instituted this IPR in reliance on Petitioner's assertions that

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[3] For this jointly captioned brief, all citations are to IPR2016-01020.

"Shively's transmitter would suffer from an increased peak-to-average power ratio[,]" and "that a [POSITA] 'would have sought out an approach to reduce the [(peak-to-average power ratio)] PAR of Shively's transmitter' and 'Stopler provides a solution for reducing the PAR of a multicarrier transmitter.'" Paper 7 at 11–12. The purported problem of increased PAR is the sole motivation proffered by Petitioner to combine Shively and Stopler. Paper 2 at 15 ("Combining Stopler's phase scrambler into Shively's transmitter would have been a relatively simple and obvious solution to reduce Shively's PAR.").

Patent Owner Response: Patent Owner, relying on Dr. Short's declaration, rebutted Petitioner's bald conclusion that "the PAR of Shively's transmitter" presented a problem that a POSITA would seek to remedy. Paper 12 at 48. Dr. Short explained "why any arguable 'increase' in PAR due to Shively's 'spreading' scheme is trivial in view of Shively's drastic reduction in transmission signal power (which virtually eliminates clipping)." *Id*. (citing Ex. 2003 at ¶¶ 61–67).

Dr. Short analyzed an 18,000 foot loop because Shively is expressly directed to "long loop systems, where the length of cable … is at least 18,000 feet." Ex. 2003 at ¶ 44 (citing Shively at 9:63–10:2 and 11:11–12)). Dr. Short explained that multicarrier systems are designed to accommodate significant PAR, and increased PAR is problematic only if it causes clipping at rate greater than allowed by the

relevant communication standard. Ex. 2003 at ¶¶ 23–32. He explained that per

Shively's teachings "more than half of the carrier cannot be used at all." *Id.* at ¶ 58.

Dr. Short continued, "While Shively's 'spreading' idea will cause a small uptick in

clipping probability, any increase is negated many times over by the enormous

reduction in clipping achieved by reducing signal power by more than half" (*id.* at

¶ 63) and concluded that Shively does not cause a PAR problem . *Id.* at ¶¶ 62–67.

Petitioner's Reply: Petitioner defended its flawed and conclusory

obviousness rationale by disparaging Dr. Short's analysis of an 18,000 foot loop

and claiming that Dr. Short's "results are unreliable." Paper 17 at 31. Petitioner

and Dr. Tellado assert that quantifying the increase in PAR "would have called for

running numerical simulations." Paper 17 at 34; Ex. 1026 at ¶ 43. "In order to

quantify the increase in PAR, [Dr. Tellado] designed and wrote a simulation of an

ADSL transmitter that calculates the clipping probability of a DMT symbol for

different values of PAR under different simulation conditions." Ex. 1026 at ¶ 43.

Nevertheless, despite that (1) Shively is directed to "long loop systems … of the

order 18,000 feet or more," (2) Dr. Short analyzed an 18,000 foot loop, and (3) Dr.

Tellado and Petitioner assert that quantifying any PAR problem with Shively

called for a simulation, Petitioner only served Patent Owner with code for a 12,000

foot simulation (Ex. 1034) and the results (Graph 2 of Ex. 1026 at ¶ 48).

Cross-examination: Dr. Tellado testified that he performed a simulation on an 18,000 foot loop. Ex. 2013 at 45:23–47:18. Further, when asked what he had determined from it, Dr. Tellado answered: "That Dr. Short's approximation of a Gaussian approximation was poor. It was worse than – than Dr. Short said." *Id.* at 46:24–47:1.

Existence of records of the 18,000 foot simulation: Petitioner does not deny that it has or at least *had* the 18,000 foot simulation code and results. When asked by the Panel whether "there [is] a simulation or some information Dr. Tellado performed that has not been provided to Patent Owner," Cisco's counsel provided only a self-serving non-answer: "[W]e don't believe that there is anything Dr. Tellado has relied on for his analysis that's not been provided to the Patent Owner." Ex. 2016 at 20:4–13. Dr. Tellado was also evasive about the 18,000 foot simulation code and results, saying he did not "recall" whether he saved them or shared them with anyone (Ex. 2013 at 57:1–25) and refusing to state whether the results supported Dr. Short (*id.* at 53:25–56:21, 64:11–18, and 111:14–114:16).

II. THE 18,000 FOOT SIMULATION IS "ROUTINE DISCOVERY"

A. Petitioner and Its Expert Relied on the 18,000 Foot Simulation

Dr. Tellado testified that he ran an 18,000 foot simulation. Ex. 2013 at 45:23–47:11. Importantly, Petitioner and Dr. Tellado asserted that a POSITA would have to do a simulation to quantify whether a PAR problem is created on a

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