

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)
)
Kyma Medical Technologies)
Waiver of Part 15 of the Commission’s Rules) ET Docket No. 15-119
Applicable for Ultra-Wideband Devices)
)

REPLY COMMENTS OF THE GPS INNOVATION ALLIANCE

The GPS Innovation Alliance (“GPSIA”) hereby submits these reply comments in connection with the above-captioned petition (“Petition”) for a waiver filed by Kyma Medical Technologies Ltd. (“Kyma”). GPSIA specifically directs this reply to the Comments of Robert Bosch, LLC (“Bosch”) filed in response to the Petition.

The Petition seeks a waiver of Sections 15.503(d), 15.513(a), 15.521(d) and 15.525 of the Commission’s Rules (“Waiver”) to enable Kyma to market an ultra-wideband (“UWB”) medical imaging and diagnostic device identified as the uCor 3.0 (“uCor Device”).¹ As discussed in its Comments to the Kyma Petition, GPSIA strongly supports advances in medical technology, but urges the Commission to ensure that implementation of such advances do not in any way diminish the safeguards against UWB device interference to Global Positioning System (“GPS”) Radio Navigation Satellite Service (“RNSS”) signals. Given the diversity of

¹ *Kyma Medical Technologies Ltd Waiver of Part 15 of the Commission’s Rules Applicable to Ultra-Wideband Devices*, ET Docket No. 15-119, Public Notice: Office of Engineering and Technology Declares the Kyma Medical Technologies Ltd Request for Waiver of Part 15 Ultra-Wideband Rules for a Medical Imaging System to be a “Permit-but-Disclose” Proceeding, FCC 15-605 (rel. May 20, 2015) (“Notice”); see also *Kyma Medical Technologies Ltd Waiver of Part 15 of the Commission’s Rules Applicable to Ultra-Wideband Devices*, Request for Waiver, filed May 14, 2015 (“Waiver”); see also 47 CFR §§ 15.503(d), 15.513(a), 15.521(d) and 15.525.

GPS use, including safety of life functions, the Commission should carefully scrutinize any request to depart from the various operational requirements on UWB devices, including emission limits, that protect GPS. In that regard, GPSIA identified several concerns raised by the Petition and urged the Commission to seek clarification and additional information from Kyma and ensure that adequate protections to co-channel GPS operations are put in place.²

In its Comments, Bosch urges the Commission to act well beyond the specific rule waiver requested by Kyma by providing “broad relief” that would effect a change to the Part 15 definition of UWB signals.³ Bosch argues that the Commission should now modify Section 15.503(d) of the Commission’s Rules which contains the requirement that UWB devices meet a fractional bandwidth minimum of 0.20 or 500 megahertz “at any point in time.” According to Bosch, the rule “is unnecessarily preclusive, confusing in its wording and interpretation.” Seeking waivers of the rule, according to Bosch, is “expensive and cumbersome and ... substantially delays the marketing of UWB products...” Bosch concludes that this proceeding “offers the opportunity” essentially to redefine Section 15.503(d), not only for Kyma but for other manufacturers and those interested in UWB applications” and requests that the Commission not only grant Kyma’s Petition, but the take broader action to “re-interpret” Section 15.503(d) definition of minimum bandwidth, focusing on the - 10 dB requirement and the fractional bandwidth requirement, and to apply the “at any point in time” provision to mean that

² In particular, GPSIA recommended that Kyma submit additional clarification and information responding to questions about its test measurement procedures, assumptions and resulting data for the uCor device, request a waiver of Section 15.209 for intentional emissions in 470-806 MHz, and otherwise ensure that the Kyma device operations adequately protect co-channel GPS including adopting a limit on the transmission time of the uCor device in the GPS/GNSS bands. *See* GPSIA Comments in ET Docket 15-119 (filed June 19, 2015).

³ *See generally* Comments of Robert Bosch, LLC (“Bosch”), ET Docket 15-119 (filed June 19, 2015) (“Bosch Comments”).

the minimum bandwidth must be complied with at all times during the normal operating cycle of the emission being utilized by a UWB device.

I. Bosch's Request for Rule Modification Is Beyond the Scope of Kyma's Waiver Petition and Should be Dismissed

Bosch's request for a comprehensive rule change calls for Commission action far outside the scope of the requested waiver and should therefore be dismissed.

The question presented by Kyma's Petition is limited to whether good cause exists to waive the rule in the specific circumstances relevant to Kyma's specific device. In ruling on the Petition, the Commission must assess whether (1) the underlying purpose of the rule(s) would not be served or would be frustrated if applied to Kyma's particular technology, and whether grant of the waiver would be in the public interest; or (2) in light of unique or unusual factual circumstances, application of the rule(s) would be inequitable, unduly burdensome or contrary to the public interest, or the applicant has no reasonable alternative.⁴ The Commission rightfully takes a conservative approach when applying these waiver standards to petitioners seeking to operate equipment co-channel with incumbent operations, placing a heavy burden on the petitioner to demonstrate how it will provide adequate protection from interference.⁵ When a petitioner does not adequately demonstrate how it will avoid creating interference, the Commission has denied the waiver request.⁶

⁴ See 47 C.F.R. § 1.925. The seminal *WAIT Radio* case provides clear guidance: a waiver may be granted in a particular case only where the particular facts make strict compliance inconsistent with the public interest, and the relief requested would not undermine the policy objective of the rule in question and would otherwise serve the public interest. *WAIT Radio v. FCC*, 418 F.2d 1153, 1157 (1969).

⁵ See, e.g., *Request by Itron, Inc. for Waivers of the Commission's Rules*, Opinion, 30 FCC Rcd 137 (Jan., 13, 2015) ("*Itron Denial*").

⁶ See *id.*

Regardless of whether Kyma has met this burden in connection with its requested device-specific waiver -- and GPSIA has set forth reasons in its Comments why it has not yet done so -- it is clear that the Petition does not seek a comprehensive and permanent modification to the Part 15 UWB rules applicable to *all* UWB devices in *all* circumstances. In considering waiver requests, the Commission is obligated to follow long-established Commission precedent regarding the limited circumstances in which it is appropriate to depart from rules established in notice and comment rulemaking procedures that are mandated by the Administrative Procedures Act (“APA”)⁷ and Communications Act.⁸ The waiver process is to be used sparingly and is not appropriate in situations where actions have widespread ramifications⁹ or affect a change in general policy.¹⁰ The Petition follows this precedent but Bosch’s comments do not.

The UWB rules were adopted after ample public input and Commission consideration of a full record of the issues developed in a notice and comment rulemaking. The FCC first initiated the UWB rulemaking proceeding in 2000 with a Notice of Proposed Rulemaking

⁷ 5 U.S.C. §§ 551 *et seq.* (2011).

⁸ 47 U.S.C. §§ 151 *et seq.* (2011).

⁹ *See In re Applications of Capital Cities/ABC, Inc. (Transferor) and The Walt Disney Company (Transferee) for Consent to the Transfer of Control Licenses*, Memorandum Opinion and Order, 11 FCC Rcd 5841 at ¶ 87 (1996) (refusing to amend the Commission’s permanent waiver rules due to the “broad application” of the rules and the restricted nature of a waiver proceeding).

¹⁰ *See In re Office of Cable Television, State of New Jersey*, Memorandum Opinion and Order, 68 F.C.C.2d 1431 at ¶ 38 (1978) (finding a waiver proceeding the improper forum for a change to the Commission’s “general policy” of preserving local television service). *See also In the Matters of Rulemaking to Amend Part 1 and Part 21 of the Commission’s Rules to Redesignate the 27.5-29.5 GHz Frequency Band and to Establish Rules and Policies for Local Multipoint Distribution Service; Applications for Waiver of the Commission’s Common Carrier Point-to-Point Microwave Radio Service Rules; Suite 12 Group Petition for Pioneer’s Preference; University of Texas-Pan American Petition for Reconsideration of Pioneer’s Preference Request Denial*, Notice of Proposed Rulemaking, Order, Tentative Decision and Order on Reconsideration, 8 FCC Rcd 557 at ¶ 53 (1993) (denying applications for waiver on ground that grant would “amount to a de facto reallocation of the 28 GHz band”), *aff’d*, *Melcher v. FCC*, 134 F.3d 1143, 1164 (1998)(“the waivers raised common policy questions, involving both the best use of the 28 GHz band and the additional rules that would be needed to govern new uses of that band, questions that would best be addressed in a rulemaking proceeding”).

seeking input on how UWB devices could operate without causing interference to existing services, including GPS and other safety of life operations.^{11/} The Notice prompted an extensive public response providing technical, legal and policy analysis of the complex issues raised. GPS interests explained the potential for UWB transmissions to raise the noise floor and decrease the value and reliability of existing services.^{12/} Based on this extensive record, the Commission adopted rules in 2002 for unlicensed UWB device operations, including emission limits and associated measurement procedures to protect GPS.^{13/} In later phases of the rulemaking, after full notice and public comment, the Commission modified the UWB rules but preserved the protections to GPS.^{14/}

If Bosch (or any other party) wishes to advocate for the amendment of these rules, the Petition is not the forum to do so. As noted above, precedent limits the scope of Commission consideration of waiver requests and Bosch's request goes well beyond those limits. New interpretations of agency rules in conflict with prior definitive interpretations require notice and comment.^{15/} In the event the Commission considers a proposed change to those previously adopted rules, the APA and sound principles of policymaking require that it separately invite public comment. Adhering to this well-established (and legally required) process will ensure

^{11/} See *Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems*, Notice of Proposed Rulemaking, 65 Fed. Reg. 37332 (2000) ("*UWB NPRM*"); see also *Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems*, Notice of Inquiry, 63 Fed. Reg. 50184 (1998).

^{12/} See Comments of the U.S. GPS Industry Council, ET Docket No. 98-153, at 3 (filed Sept. 12, 2000).

^{13/} See *Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems*, First Report and Order, 17 FCC Rcd. 7435 (2002).

^{14/} See *Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems*, First Report and Order, 19 FCC Rcd. 24558 (2004).

^{15/} See *In re: Calvary Chapel of Costa Mesa, Inc.*, 23 FCC Rcd 9971 at p. 3 (2008) (citing *Syncor Int'l Corp. v. Shalala*, 127 F.3d 90, 94 (D.C. Cir. 1997) for proposition that "new interpretation of an agency rule in conflict with prior definitive interpretation requires notice and comment").

that the Commission's rules adopted through notice and comment procedures are not eviscerated through a waiver process.

II. Bosch's Proposed Rule Modification Would Risk UWB Device Interference to Existing Services

Bosch's proposed rule change should be dismissed not only due to the fatal procedural flaws discussed above, but also because it fails for important technical reasons, including those related to interference management policies. Bosch argues that UWB operations with a fractional bandwidth of less than .20 or 500 MHz need not be reviewed on a case-by-case basis and, therefore, should not be subject to the waiver process.¹⁶ However, the proposed process conflicts with the fundamental approach of the Commission's UWB rules which requires that the Commission examine on a case-by-case basis specific proposals to share spectrum under terms and conditions that depart from the agreed-upon limits. Unlike rules applicable to most other radio operations, the Commission's UWB rules do not use spectral separation to prevent interference with existing services. Instead, the UWB rules depend on low spectral density and low transmit duty cycles to prevent degradation of the services whose frequencies are being shared. As such, case-by-case analysis is required to determine how the modulation and protocols of the proposed service will affect incumbent operations.

As noted above, Bosch argues that the requirement to meet a fractional bandwidth minimum of 0.20 or 500 megahertz "at any point in time" for UWB devices is "unnecessarily preclusive, confusing in its wording and interpretation, ... with no concomitant benefit . . ."¹⁷ GPSIA disagrees with this statement because the existing definition ensures that the interference generated by a UWB device appears as additive white Gaussian noise ("AWGN"), to the extent

¹⁶ Bosch Comments at 7-9.

¹⁷ *Id.* at 2.

possible, to the co-channel incumbent operator. Narrower bandwidth signals, whether swept, swept in steps, hopped, pulsed, or modulated, will have different effects on the performance of incumbent operator devices.

In lieu of the existing definition of a UWB device, Bosch advocates that the requirement that a bandwidth minimum be met “at any point in time” must be read to mean “in the normal operating mode of the device.”¹⁸ According to Bosch, absent such a modified interpretation, *no* UWB device would, at all times during its transmit cycle, meet the minimum bandwidth requirement and *every* UWB device would require a waiver from the Commission. However, Bosch’s proposed “reinterpretation,” which, as discussed above, is actually a modification of the existing rules, opens up the potential that nearly *any* device could be considered a UWB device, simply by constructing an opportune definition of what constitutes the “normal operating mode of the device.” Bosch’s proposed rule modification, on its face, would create a hollow interference protection requirement easily manipulated to show satisfactory results for any UWB device without meaningful safeguards.

Bosch also argues that the limit on emission levels (and particularly the limit on spectral power density) is the safeguard that primarily controls interference potential, not whether the minimum bandwidth is met “at all times.”¹⁹ That is not necessarily true for all devices across different scenarios. Instead, in considering a waiver request, the Commission must assess, among other things, the impact of aggregate noise with multiple users – especially for mass market devices. Accordingly, as presented, Bosch’s proposed rule change would increase the potential for interference to a diversity of users and should not be considered further at this time.

¹⁸ *Id.* at 8.

¹⁹ *Id.* at 7-8.

Conclusion

For these reasons, GPSIA recommends that the Commission follow well-established and legally required procedures in considering the Kyma Petition and disregard Bosch's request to use this Petition as a vehicle to make broad-based, and, GPSIA submits, ill-advised modifications to the UWB rules.

Respectfully Submitted,

/electronically signed/

Mark N. Lewellen
GPS INNOVATION ALLIANCE

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