



**GRANTED**

*for the reasons stated herein*  
*sent to 5/25/17*

Federal Communications Commission  
1270 Fairfield Rd.  
Gettysburg, PA 17325-7245

April 11, 2017

RECEIVED & INSPECTED

APR 14 2017

FCC-GBG MAILROOM

Attn: Daniel McCleary

Re: Request for Waiver of Section 90.207(i) to Permit QAM Modulation in XetaWave XETA Radio Platform

WAIVER—EXPEDITED ACTION REQUESTED

To: FCC

XetaWave has developed the XETA series of innovative radio transceiver products for narrowband industrial data transmission, control, and telemetry applications. These digitally-modulated radios are capable of a variety of modulations and bandwidths in several frequency bands that are regulated under Part 90. XetaWave has developed MSK, nFSK, nPSK, and nQAM modulations that comply with the technical requirements of Part 90; however, the General Technical Standards (47 C.F.R. 90, Subpart I) currently do not permit QAM modulation types for telemetry because the emission designator that would apply to QAM modulation (emission designator D1D) is prohibited under Paragraph 90.207(i): "For telemetry operations, when specifically authorized under this part, only A1D, A2D, F1D, or F2D emissions will be authorized."

A goal of recent "narrowbanding" efforts by the FCC has been to encourage greater bandwidth efficiency in congested frequency bands (150-174 MHz and 421-512 MHz) by requiring new Part 90 equipment certifications to meet minimum bandwidth efficiency requirements (4800 bps per 6.25 KHz, reference: section 90.203(j)(4) and 90.203(j)(5)), as well as requiring certain users to migrate from 25 KHz bandwidth to 12.5 KHz bandwidth equipment. The XETA platform of radio products is compliant with the bandwidth efficiency requirements, but the maximum bandwidth efficiency is achieved when using the QAM modulation types. For example, XetaWave's 64QAM modulation is capable of data rates of up to 68000 bps in a 12.5 KHz channel, while MSK achieves 9650 bps in a 12.5 KHz channel. If the QAM modulation types are permitted, they can help to further reduce congestion in these frequency bands through greater bandwidth efficiency.

Other companies which supply competitive radio products have been granted waivers of the restriction on QAM emission designators for their radio platforms. These orders include DA 14-368, which applies to 4RF Limited's Aprisa SR+





radio platform, and DA 15-593, which applies to GE MDS LLC's Orbit radio platform. XetaWave is seeking an equivalent waiver so that the XETA platform of radio products can compete with these products on a level playing field. Increased competition is in the public interest since it generally results in lower cost, better performance, greater choice of features, and better value. The XETA platform includes the following products which have existing Part 90 certifications, with additional products planned or in development:

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- XETA1 (FCC ID: PEJ9382010), 150.8-173.4 MHz
- XETA2 (FCC ID: PEJ-XETA2), 217-220 MHz and 220-222 MHz
- XETA4 (FCC ID: PEJ-93824-XETA4HP), 450-470 MHz

All of these products comply with the technical requirements in Part 90 (including QAM modulation types). XetaWave requests a waiver of Section 90.207(i) to apply to the XETA series of products since all of these products are based on similar technology.

In summary, XetaWave LLC requests a waiver of the emission designator limitations in Section 90.207(i) to allow the use of the D1D emission designator for QAM modulations in the XETA series of radio products. This serves the public interest by promoting efficient use of limited spectrum through greater bandwidth efficiency. In addition, precedent exists for this waiver, which has been previously granted to competing radio platforms with similar justification. Additional competition serves the public interest by reducing cost, encouraging improvements in technology and performance, and better satisfaction of users' requirements.

XetaWave has spent a considerable amount of resources to design and manufacture digitally modulated radios. These narrowband telemetry radios utilize dynamic modulations that automatically optimize parameters and shape the spectrum to safeguard against interference. They also ensure required throughput, given available channel sizes and environmental noise. This advanced and proprietary technology enables end user effectiveness in supporting critical infrastructure and is in the best interest of the public.

Moreover, granting this request fosters free competition in the market place. In DA 15-593 and DA 14-368, the FCC granted waivers allowing for the use of the DID emissions designator in similar telemetry devices. Granting the same access to the D1D and G1D emissions designators, and/or updating the regulations ensures consistent application of the rules, efficient use of FCC and TCB resources and does not favor those who file individual requests. Specifically cited in the approval of DA 15-593, the FCC noted "*Allowing licensees to utilize the*





*D1D emissions will promote the efficient use of limited spectrum resources, and can improve the effectiveness of critical infrastructure operations that protect life, property, and the environment. 10 Based on the information before us, we conclude that grant of a waiver would not frustrate the underlying purposes of the emission designator rules and would serve the public interest. 11. (10 See GE Request at 2-3. 11 See 4RF Limited, Order, WT Docket No. 13-188, 29 FCC Rcd 2898, 2899 ¶ 5 (WTB MD 2014) (granting waive to permit D1D emission for telemetry equipment utilizing linear modulation methods to address spectrum efficiency) (citing Lojack Corporation, Order, 20 FCC Rcd 20497, 20499 ¶ 7 (WTB PSCID 2005) (granting waiver to permit D1D emission on frequency on which 47 C.F.R. § 90.20(e)(6) permitted only F1D and F2D, on the grounds that allowing greater efficiency was in the public interest and would not frustrate the rule's underlying purpose)).*

Furthermore, in granting DA 12-1659, the FCC stated, "7. Conclusion. We grant 4RF's request as set forth above. We agree with 4RF that Section 90.207(i) already permits G1D emissions for telemetry operations". Section 90.207(i), is outdated and does not recognize advances in technology that employ advanced QAM modulation schemes. Currently, there is no blanket acceptance of the DID, amplitude- and angle- modulated emissions designator. This denies XetaWave of the full use of our technology and frustrates the efficient use of limited spectrum resources.

For the above reasons, XetaWave, LLC request for waiver of section 90.207(i) of the Commission's Rules, to allow the use of QAM type emission designator D1D for all XETA WAVE XETA platform of products.

We look forward to a favorable and timely response.

Sincerely,

A handwritten signature in black ink, appearing to read "Jonathan Sawyer", is written over a horizontal line.

Jonathan Sawyer  
CEO, XETA WAVE LLC