Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Emission Mask Requirements for Digital Technologies on 800 MHz NPSPAC Channels; Analog FM Capability on Mutual Aid and Interoperability Channels	))))	PS Docket No. 13-209 RM-11663

To: The Commission

COMMENTS OF POWERTRUNK, INC.

PowerTrunk submits these comments in response to the Notice of Proposed Rulemaking, FCC 13-117, released August 27, 2013 (the "NPRM").[1]

The NPRM seeks comments on a requirement that digital technologies to be used in the NPSPAC band comply with emission Mask H. In addition, it asks whether a common modulation scheme, namely analog FM, should be required for public safety radios in the 800 MHz, VHF, and UHF bands.

With respect to the Mask H issue, it should first be noted that emission masks are used to prevent emissions from one channel causing interference in an adjacent channel. However neither emission Mask B nor emission Mask H are effective at eliminating interference in the NPSPAC frequencies due to the fact that NPSPAC 20 KHz bandwidth channels are spaced only 12.5KHz apart. By implementing 12.5 KHz spacing, but allowing 20 KHz bandwidth equipment[2], the Commission has recognized that frequency coordination is required to minimize

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[1] In the Matter of Emission Mask Requirements for Digital Technologies on 800 MHz NPSPAC Channels; Analog FM Capability on Mutual Aid and Interoperability Channels, PS Docket No. 13-209, RM-11663, Notice of Proposed rulemaking, FCC 13-117 (re. Aug. 27, 2013).

[2] 47 C.F.R. § 90.209

unacceptable interference. Importantly, however, the use of emission masks without taking into account the spectral efficiency of the equipment may actually increase the number of required channels and thus increase the frequency coordination burden.

Furthermore, application of Mask H does not cure the interference concern. Attached hereto is an Exhibit showing four different LMR technologies, all of which exceed the Adjacent Channel Power Ratio ("ACPR") limit of 50dB specified by TIA. That is, all of them cause "interference" into adjacent channels. Indeed, this is the case notwithstanding the compliance with either Mask H or Mask B.[3] In other words, neither emission masks nor ACPR limits provide meaningful limits on interference in the NPSPAC band unless the Commission adopts the TIA limit of ACPR >50dB to prevent any interference to occur in an adjacent channel.

Traditionally, the Regional Planning Committees ("RPCs") approve or reject specific radio system designs on a case by case basis using criteria that account for the spectrum efficiency of the equipment and the topography of the specific geographic region. In view of the above, PowerTrunk believes that changing existing Rule 90.210 would provide no meaningful benefit, but would encroach on the traditional role that RPCs have long fulfilled to manage acceptable interference.

However, should the Commission remain inclined to modify the Rule, it should consider inclusion of a new criterion, namely data throughput versus occupied bandwidth, especially for data-centric applications. For example, PowerTrunk's TI D-LMR offers a raw bit stream of 36 Kbit/s versus OpenSky's 19.2 Kbit/s, although as shown in Exhibit A OpenSky provides ACPR >20dB compared to TI D-LMR ACPR>8dB.[4] In this circumstance, insistence on compliance

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[3] Based on TIA-603-C, Section 3.2.14, specifying that ACPR > 50 dB is required. See Exhibit A.

[4] Using FM 4 KHz receiver filter at 12.5 KHz offset according to TSB-88.1-C.

with one mask versus another risks depriving public safety licensees of technology solutions which are more efficient from both a spectrum and financial standpoint. This would seem to be unwise as a matter of public policy especially where there is an interference-avoidance mechanism in place in the form of the RPCs.

PowerTrunk appreciates the complexity of defining rules that limit interference while simultaneously encouraging spectral efficiency. But this counsels against a one-size-fits-all solution which handicaps the discretion entrusted to the RPCs.

With respect to the modulation scheme issue, the NPRM takes note that PowerTrunk had registered its intention to include a capability for generating FM signals in its equipment. PowerTrunk's recently issued certificates for multi-mode equipment fulfill its prior commitment, and are concrete evidence that combined TETRA/TI-DLMR-analog FM radios are not only possible, but real.[5]

In view of the factors discussed above, it is PowerTrunk's view that the Commission's freeze on acceptance of applications for certification or operating licenses for NPSPAC band digital equipment that does not comply with Mask H or have analog FM capability, is inequitable. PowerTrunk's equipment has been certificated in full compliance with currently applicable rules, and that compliance was confirmed by prior staff correspondence.[6] Moreover, the freeze does not properly consider the impact to vendors like PowerTrunk from this change of Commission position. PowerTrunk's multi-mode equipment certificated prior to the issue of the NPRM has been the subject of commercial offers and thus the imposition of the freeze has

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[5] FCC Identifier: WT7PTMDT500760B, granted April 15, 2013, Exhibit B.

[6] The FCC's stated example of the "narrowbanding" mandate as precedent for a rule change that can make certified equipment no longer permissible in certain bands is not on point, as the narrowbanding mandate was years in the making and did not impose a freeze on previously authorized equipment prior to implementation of the rule change.

created an unexpected hardship on PowerTrunk. This is especially the case given that the freeze appears to have been prompted by unsubstantiated claims of interference caused by TI D-LMR, interference which is also present in all current LMR technology authorized on the NPSPAC channels as illustrated in Exhibit A. If the Commission believes that such claims justify a freeze of PowerTrunk's equipment, equity demands that all LMR technology that exceeds the FCC's ACP limits should likewise be subject to the freeze.

Respectfully submitted,

POWERTRUNK, INC.

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Its Counsel

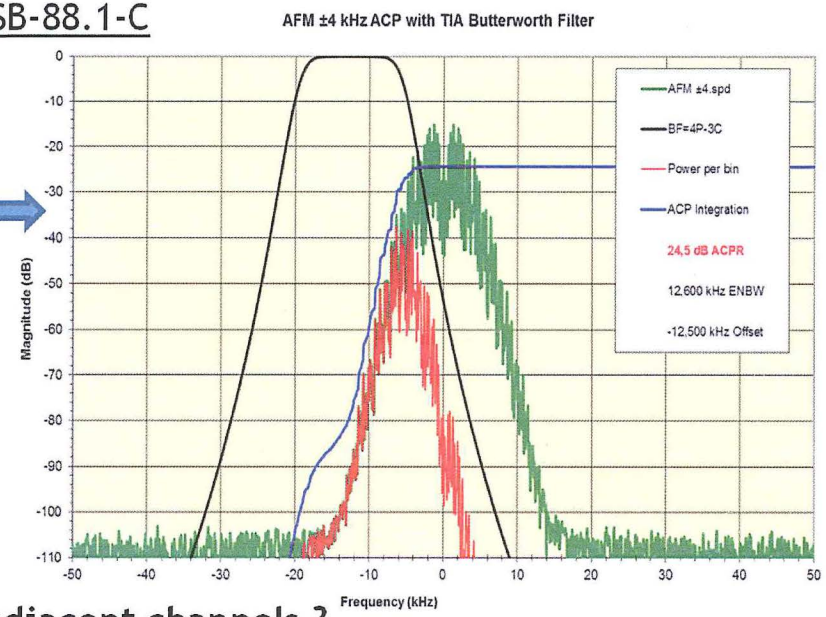
November 14, 2013

EXHIBIT A

EXHIBIT A: NPSPAC - Interference & Frequency Coordination

ACPR (Adjacent Channel Power Ratio) analysis based on TSB-88.1-C

Victim Receiver	Channel Spacing	Technology / Transmitter	ACPR (dB)
Analog FM (4KHz) ENBW = 12,.KHz	12.5KHz	Analog FM (5KHz)	≈ 19
		Analog FM (4KHz)	≈ 24
		F4GFSK (OpenSky)	≈ 20
		D-LMR PowerTrunk	≈ 8
	25 KHz	Analog FM (5KHz)	≈ 82
		Analog FM (4KHz)	≈ 82
		F4GFSK (OpenSky)	≈ 62
		D-LMR PowerTrunk	≈ 71



What ACPR is required to avoid potential interference in adjacent channels ?

Example: pursuant TIA-603-C Section 3.2.14 for f_0 > 512 MHz and BW=12.5 KHz, **ACPR > 50 dB** is required.

the following specified channel bandwidths:

Table 30 - Adjacent Channel Power Ratio

Channel Bandwidth	Measurement Bandwidth	Fixed Station (dB)	Mobile Station (dB)	Portable Station (dB)
≥ 25.0 kHz	16 kHz	70 if < 512 MHz 60 if > 512 MHz	70 if < 512 MHz 60 if > 512 MHz	70 if < 512 MHz 60 if > 512 MHz
20.0 kHz	14 kHz	70 if < 512 MHz 60 if > 512 MHz	70 if < 512 MHz 60 if > 512 MHz	70 if < 512 MHz 60 if > 512 MHz
15.0 kHz	8.5 kHz	70 dB	70	70
12.5 kHz	8.5 kHz	60 if < 512 MHz 50 if > 512 MHz	60 if < 512 MHz 50 if > 512 MHz	60 if < 512 MHz 50 if > 512 MHz

EXHIBIT B

TCB

GRANT OF EQUIPMENT AUTHORIZATION

TCB

Certification
Issued Under the Authority of the
Federal Communications Commission
By:

Bay Area Compliance Laboratory Corp.
1274 Anvilwood Avenue
Sunnyvale, CA 94089

Date of Grant: 04/15/2013
Application Dated: 04/15/2013

Teltronic S.A.U.
Poligono Malpica Calie F
Parceia 12
Zaragoza, 50057
Spain

Attention: Jose Roman

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER: WT7PTMDT500760B
Name of Grantee: Teltronic S.A.U.
Equipment Class: Licensed Non-Broadcast Station Transmitter
Notes: Land-Mobile and/or Fixed Radio Transmitter and Receiver

Grant Notes	FCC Rule Parts	Frequency Range (MHZ)	Output Watts	Frequency Tolerance	Emission Designator
	90	769.0 - 775.0	1.0	1.0 PM	20K0D7W
	90	769.0 - 775.0	1.0	1.0 PM	20K0D7E
	90	769.0 - 775.0	1.0	1.0 PM	20K0D7D
	90	769.0 - 775.0	1.0	1.0 PM	20K0Q7W
	90	769.0 - 775.0	1.0	1.0 PM	20K0Q7E
	90	769.0 - 775.0	1.0	1.0 PM	20K0Q7D
	90	769.0 - 775.0	1.0	1.0 PM	8K10F1E
	90	769.0 - 775.0	1.0	1.0 PM	8K10F1D
	90	769.0 - 775.0	1.0	1.0 PM	8K10F1W
	90	799.0 - 805.0	1.0	1.0 PM	20K0D7W
	90	799.0 - 805.0	1.0	1.0 PM	20K0D7E
	90	799.0 - 805.0	1.0	1.0 PM	20K0D7D
	90	799.0 - 805.0	1.0	1.0 PM	20K0Q7W
	90	799.0 - 805.0	1.0	1.0 PM	20K0Q7E
	90	799.0 - 805.0	1.0	1.0 PM	20K0Q7D
	90	799.0 - 805.0	1.0	1.0 PM	8K10F1E
	90	799.0 - 805.0	1.0	1.0 PM	8K10F1D
	90	799.0 - 805.0	1.0	1.0 PM	8K10F1W
	90	806.0 - 824.0	1.0	1.0 PM	20K0D7W
	90	806.0 - 824.0	1.0	1.0 PM	20K0D7E
	90	806.0 - 824.0	1.0	1.0 PM	20K0D7D

90	806.0 - 824.0	1.0	1.0 PM	20K0Q7W
90	806.0 - 824.0	1.0	1.0 PM	20K0Q7E
90	806.0 - 824.0	1.0	1.0 PM	20K0Q7D
90	806.0 - 824.0	1.0	1.0 PM	14K0F3E
90	806.0 - 824.0	1.0	1.0 PM	16K0F3E
90	851.0 - 869.0	1.0	1.0 PM	20K0D7W
90	851.0 - 869.0	1.0	1.0 PM	20K0D7E
90	851.0 - 869.0	1.0	1.0 PM	20K0D7D
90	851.0 - 869.0	1.0	1.0 PM	20K0Q7W
90	851.0 - 869.0	1.0	1.0 PM	20K0Q7E
90	851.0 - 869.0	1.0	1.0 PM	20K0Q7D
90	851.0 - 869.0	1.0	1.0 PM	14K0F3E
90	851.0 - 869.0	1.0	1.0 PM	16K0F3E
90	809.0 - 824.0	1.0	1.0 PM	22K0D7W
90	809.0 - 824.0	1.0	1.0 PM	22K0D7E
90	809.0 - 824.0	1.0	1.0 PM	22K0D7D
90	809.0 - 824.0	1.0	1.0 PM	22K0Q7W
90	809.0 - 824.0	1.0	1.0 PM	22K0Q7E
90	809.0 - 824.0	1.0	1.0 PM	22K0Q7D
90	854.0 - 869.0	1.0	1.0 PM	22K0D7W
90	854.0 - 869.0	1.0	1.0 PM	22K0D7E
90	854.0 - 869.0	1.0	1.0 PM	22K0D7D
90	854.0 - 869.0	1.0	1.0 PM	22K0Q7W
90	854.0 - 869.0	1.0	1.0 PM	22K0Q7E
90	854.0 - 869.0	1.0	1.0 PM	22K0Q7D

Power listed is conducted. This device must be restricted to work related operations in an Occupational/Controlled RF exposure Environment. End-Users must be provided with the specific training information. A label, as described in this filing must be displayed on the device to direct users to the specific training information required for meeting RF exposure requirements. The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 35cm from all persons. RF exposure compliance may be addressed at the time of licensing, as required by the responsible FCC Bureau(s), including antenna co-location requirements of Section 1.1307(b)(3).

Power output is variable from the value listed down to 0.03 watts or 0.31 watts, depending on the occupied bandwidth. Certification is approved pursuant to the Report and Order FCC 12-114.