

Date: September 11, 2013

To: Randy Clark

From: Fred Cleveland

Re: Revised FCC Grant Specification Lines

This regards the specification lines on our Permissive Change Type II applications. Our first *draft* grants had specification lines like the following:

FCC Rule Parts	Frequency Range	Output	Frequency	Emission
	Range	Watts	Tolerance	Designator
80,90	217.6125 – 221.9875	51.05	1.5 PM	17K8DXW

The FCC examiner made these objections to our first applications:

In general these filings need to be consistent with:

- KDB 634817 grant frequencies policy, i.e. frequencies listed for each line must be allocated and licensable for that rule;***
- KDB 149672 multi-rule devices, which means where rule parts and bands overlap, compliance must addressed for worst-case limits / requirements.***

a) In 80.385(a)(2) we note coast station operations in 217.6125-217.9875 MHz, and 219.0125-219.9875 MHz for ship and/or mobile-to-mobile stations; please amend filing to explain inclusion of 218-219 MHz for part 80 listing and/or please apply KDB 634817 procedures.

b) Per 2.106 and part 80, it appears that 220-222 MHz is not allocated nor licensable for part 80; please amend filing to explain inclusion of part 80 for 220-222 MHz listing and/or please apply KDB 634817 procedures.

Understanding KDB634817 is the key to why our original specification lines were incorrect. Since we are not applying for authorization of the Part 95 frequencies in the gap between 218 to 219 MHz, we should have split 217.6-220 MHz into two lines. Our original 220-222 MHz grant is shown in the third line. These are repeated to cover two power levels and two necessary bandwidths for a total of 12 lines except for the Wayside which has six lines.

FCC OET inquiry #790768 (appended here) dealt with the power and emission designator issues. The multiple part lines are used to justify the emission designator because Part 80.207 lists only F1B, F2B, F2C, F3C.

I believe the grant specification lines should read as follows:

Locomotive FCC ID: BIB63020:

FCC Rule Parts	Frequency Range	Output Watts	Frequency Tolerance	Emission Designator
80,90	217.6125 – 217.9875	51.05	1.0 PM	17K8DXW
80,90	219.0125 – 219.9875	51.05	1.0 PM	17K8DXW
90	220.0125 – 221.9875	51.05	1.5 PM	17K8DXW
80,90	217.6125 – 217.9875	51.05	1.0 PM	8K90DXW
80,90	219.0125 – 219.9875	51.05	1.0 PM	8K90DXW
90	220.0125 – 221.9875	51.05	1.5 PM	8K90DXW
80,90	217.6125 – 217.9875	14.03	1.0 PM	17K8DXW
80,90	219.0125 – 219.9875	14.03	1.0 PM	17K8DXW
90	220.0125 – 221.9875	14.03	1.5 PM	17K8DXW
80,90	217.6125 – 217.9875	14.03	1.0 PM	8K90DXW
80,90	219.0125 – 219.9875	14.03	1.0 PM	8K90DXW
90	220.0125 – 221.9875	14.03	1.5 PM	8K90DXW

Base 24V FCC ID: BIB63030-24:

FCC Rule Parts	Frequency Range	Output Watts	Frequency Tolerance	Emission Designator
80,90	217.6125 – 217.9875	75.0	0.1 PM	17K8DXW
80,90	219.0125 – 219.9875	75.0	0.1 PM	17K8DXW
90	220.0125 – 221.9875	75.0	0.1 PM	17K8DXW
80,90	217.6125 – 217.9875	75.0	0.1 PM	8K90DXW
80,90	219.0125 – 219.9875	75.0	0.1 PM	8K90DXW
90	220.0125 – 221.9875	75.0	0.1 PM	8K90DXW
80,90	217.6125 – 217.9875	10.0	0.1 PM	17K8DXW
80,90	219.0125 – 219.9875	10.0	0.1 PM	17K8DXW
90	220.0125 – 221.9875	10.0	0.1 PM	17K8DXW
80,90	217.6125 – 217.9875	10.0	0.1 PM	8K90DXW
80,90	219.0125 – 219.9875	10.0	0.1 PM	8K90DXW
90	220.0125 – 221.9875	10.0	0.1 PM	8K90DXW

Base 48V FCC ID: BIB63030-48:

FCC Rule Parts	Frequency Range	Output Watts	Frequency Tolerance	Emission Designator
80,90	217.6125 – 217.9875	76.3	0.1 PM	17K8DXW
80,90	219.0125 – 219.9875	76.3	0.1 PM	17K8DXW
90	220.0125 – 221.9875	76.3	0.1 PM	17K8DXW
80,90	217.6125 – 217.9875	76.3	0.1 PM	8K90DXW
80,90	219.0125 – 219.9875	76.3	0.1 PM	8K90DXW
90	220.0125 – 221.9875	76.3	0.1 PM	8K90DXW
80,90	217.6125 – 217.9875	10.0	0.1 PM	17K8DXW
80,90	219.0125 – 219.9875	10.0	0.1 PM	17K8DXW
90	220.0125 – 221.9875	10.0	0.1 PM	17K8DXW
80,90	217.6125 – 217.9875	10.0	0.1 PM	8K90DXW
80,90	219.0125 – 219.9875	10.0	0.1 PM	8K90DXW
90	220.0125 – 221.9875	10.0	0.1 PM	8K90DXW

Wayside FCC ID: BIB63010:

FCC Rule Parts	Frequency Range	Output Watts	Frequency Tolerance	Emission Designator
80,90	217.6125 – 217.9875	30.55	1.0 PM	8K90DXW
80,90	219.0125 – 219.9875	30.55	1.0 PM	8K90DXW
90	220.0125 – 221.9875	30.55	1.5 PM	8K90DXW
80,90	217.6125 – 217.9875	7.53	1.0 PM	8K90DXW
80,90	219.0125 – 219.9875	7.53	1.0 PM	8K90DXW
90	220.0125 – 221.9875	7.53	1.5 PM	8K90DXW

Supplementary information:

FREQUENCIES

Our frequency ranges comply with the table of frequency allocations:

1. 47CFR§2.106 Table of Frequency Allocations
 - a. Region 2 – 216-220MHz – FIXED, MARITIME MOBILE
 - i) Non-Government - 216-219 MHz, FIXED, MOBILE
FCC Rule Parts: Maritime (80), Private Land Mobile (90), Personal (95)
 - ii) Non-Government – 219-220 MHz, FIXED, MOBILE, Amateur
FCC Rule Parts: Maritime (80), Private Land Mobile (90), Amateur (97)
 - b. Region 2 – 220-225 MHz AMATEUR, FIXED, MOBILE
Non-Government - 220-222 MHz, FIXED, LAND MOBILE
FCC Rule Parts: Private Land Mobile (90)
2. 47CFR § 80.385 216-218 and 219-220 MHz -- Automated Maritime Telecommunications System (AMTS).
3. 47CFR§90.35 216-217 MHz -- Base or mobile, 217-220 MHz Base, mobile, or operational fixed
4. MCC radio frequency design limits: 217.6125 – 221.9875 MHz

FREQUENCY TOLERANCE

MCC radios comply with the 1 ppm limit between 216 and 220 MHz. This complies with the policy in KDB149672.

1. 47CFR§80.209 -- 216-220 MHz -- ± 5 ppm
2. 47CFR§90.213 -- 216-220 MHz -- ± 1 ppm
3. 47CFR§90.213 – 220-222 MHz -- ± 1.5 ppm

FCC OET Inquiry #790678

FCC OET Inquiry #790678 was posed by MCC counsel on 12/10/2012 and answered on 12/18/2012 regarding emission designators and transmitter power relevant to this application:

Inquiry Details on 12/10/2012:

First category: Radio Service Rules

Second category: Part 80 Maritime

Third category:

Subject: Compliance with Power Limitations and Equipment Designators

Inquiry: Section 2.1033(c)(7) of the Commission's rules stipulates that an application for equipment certification must specify a maximum power rating as defined in the applicable part of the Commission's rules. Section 80.215 sets forth a maximum transmitter output of 50 watts for fixed stations and 25 watts for ship stations (subject to an increase to 50 watts if the unit is operating pursuant to external radio commands). I notice, however, that equipment has been certificated for operation in Part 80 services at power levels of 100 watts. For example, the following certifications have issued for equipment operating at 110 or 100 watts, as indicated:

OKRMX800FFV - Spectra Engineering, 11/17/2011, 110W, 217-218MHz

YMN-UTR1300 - Utility Communications, 8/12/2010, 100W, 217-218MHz

CASTBA9C0 - Tait Communications, 11/11/2005, 100W, 216-222MHz

Do these certifications indicate that equipment may be certified for power levels in excess of those set forth in Part 80? Specifically, can an applicant obtain certification for equipment that operates at a higher power than allowed under Part 80, which would then have the effect of requiring the Part 80 licensee to set the power to the limits specified in Part 80 or to obtain a power waiver? Alternatively, is it possible for an applicant for equipment certification to obtain an equipment waiver for the purpose of certifying equipment beyond the power limits of the service rules? This would provide the ability to certify equipment for power levels that might be permitted under a user waiver granted after the equipment certification grant.

I also have a second question. Is it possible for an applicant for equipment certification to obtain a certification that specifies an emission designator that is not explicitly permitted in the Part of the rules for which the equipment is being certified, such that the operator of the equipment, in its role as licensee, would be required to obtain a waiver of the rules so as to permit it to use that form of emission in order to be in

compliance with the rules? In the case that I have in mind, the equipment currently is certificated under Part 90 and the emission designator is DXW, a designator that is not contemplated in Part 80. The applicant for equipment certification wishes to use that same form of emissions in the Part 80 service in the expectation that the Part 80 licensee would be required to obtain a waiver to permit it to use that form of emissions.

Thank you for your assistance.

FCC Response on 12/18/2012:

I am not permitted to comment on specific Grants in this forum so I am speaking in general terms.

Grants are for equipment authorization and do not necessarily reflect the power setting needed for licensing. The license will specify the appropriate power permitted. Waivers are used for exceptions that do not meet the rules. If you want a higher power than the rules specify, you must have a waiver.

In the case where there are multiple rule parts listed in a line item (ie: 80 and 90) the emission designator must apply to at least one of the Rules. If the line item is only for Part 80, it must list a Part 80 emission designator.