Thomson Broadcast & Multimedia, Inc.
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Southwick, MA 01077-9350

April 28, 2008

Federal Communications Commission
Equipment Approval Services
P.O. Box 358315
Pittsburgh, PA 15251-5315

RE: CHPAFF2k050800

Dear Technical Reviewer,

Pursuant to FCC Section 2.1043, please accept this letter as a permissive change request to the grant dated 08/13/2007 for the above mentioned equipment.

Thomson previously submitted data to certify its UHF digital transmitter to FCC CFR Title 47, part 27. We would now like to submit data that will amend our current certification to permit use of an outdoor equipment enclosure to complement the indoor version previously authorized. Upon receiving the commissions acceptance, Thomson could then supply this transmitter system tailored for either indoor or outdoor application solely based on the enclosure type supplied.

Our current product is certified using an indoor style enclosure, brand APC 48RU SX Netshelter enclosure with perforated front and rear doors. The outdoor version will use a weatherproof NEMA 4X rated equipment enclosure with side mounted HVAC system for internal environmental regulation. Either equipment shelter solution whether indoor or outdoor houses the exact same transmitter components. Therefore reverification was limited[1] to "FIELD STRENGTH OF SPURIOUS RADIATION" using the proposed outdoor enclosure.

Radiated emission data in accordance with Title 47 Sections 2.1053, 2.1057 (a)(1) (b) (c) has been retaken for the outdoor version and is enclosed with this letter as Appendix A. It yields performance criteria indistinguishable to the previous submittal of our indoor model(s).

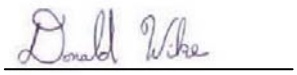
Therefore, Thomson desires to amend it's existing equipment grant under FCC ID: CHPAFF2k050800 which currently covers the Affinity™ family of indoor low power transmitters including models: ***AFF2k100ADDBUA4AA,*** ***AFF2k200ADDBUA4AA,*** ***AFF2k400ADDBUA4AA,*** and ***AFF2k800ADDBUA4AA***; by adding the following outdoor models: ***AFF2k100ADDBUA4BA, AFF2k200ADDBUA4BA, AFF2k400ADDBUA4BA,*** and ***AFF2k800ADDBUA4BA.***

[1] ***All other transmitter performances are the same regardless of equipment enclosure type.***

Photographs depicting proposed FCC ID label location and transmitter front and rear views as mounted in the outdoor enclosure are included in Appendix B. Please refer to form 731; confirmation# EA815589 for all other pertinent information.

If you require any additional information to complete the ammendment of this product grant, to allow a supplementary outdoor enclosure, please let me know.

Thank you,



Donald Wike
Manager, LP Product Development

Appendix A – Radiated Emissions Data (using the outdoor equipment enclosure):

The setup for conducting radiated emissions test is shown in Figure 1. The transmitter (DUT) is mounted in an equipment rack and operated at full rated power into a 50-ohm terminating load, while half-wave dipole antenna was connected to the spectrum analyzer and used to measure radiated emissions at a distance of 10-meters away from the transmitter on all sides. The transmitter was rotated 360 degrees so the emissions could be maximized with each frequency scan.

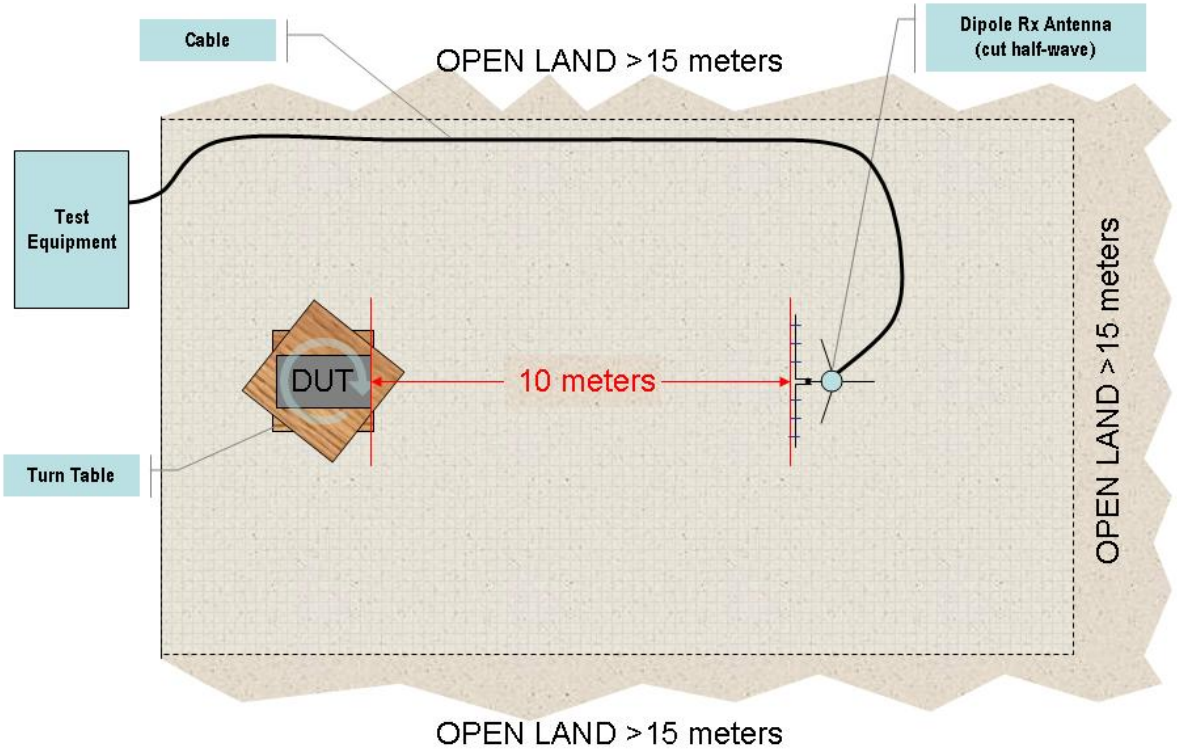


Figure 1: Test setup for radiated emissions measurement

Average Output Power:	800 watts
Type Modulation:	Media FLO COFDM w/QPSK
Spectrum Analyzer Settings:	A spectrum analyzer used to measure the spurious emissions at a distance of 10 meters from the transmitter was set as follows:

Reference Level:	0 dBm
Attenuation:	10 dB
Frequency Span:	1.5 MHz per division
Center Frequency:	Adjusted continuously from 10 MHz to 3 GHz
Resolution Bandwidth:	120 kHz
Video Bandwidth:	300 kHz
Video Average:	ON
Analyzer Noise Threshold:	<-77 dBm

Method of Measurement:

An open field test site was used for radiated emissions testing. The antenna was placed at a distance of 10 meters from the transmitter. A turn table allowed the Device Under Test (DUT) to be rotated 360 degrees in order to maximize emissions. Also, the antenna mast allows height variations between 1 and 3 meters with horizontal and vertical antenna positioning. At each reading, the DUT was rotated 360 degrees and the antenna height and polarization was varied. Absolute power of the spurious radiation was measured on a spectrum analyzer and the highest emission level was recorded in a spreadsheet; taking into account the antenna gain and cable loss over the frequency bands of interest.

The analyzer was used to capture the highest emission level with each successive frequency scan. The frequency span was narrowed during preliminary investigations as deemed necessary to distinguish between emissions from the DUT and any ambients.

The presence of ambient signals was verified by turning off the DUT and observing that the signal remains. In cases where ambient signals were observed the measurement bandwidth was temporarily reduced to verify that an adjacent peak did not exist. This method ensured that the ambient signal did not mask any emission from the DUT.

The relative levels of the received spurious signals were calculated with respect to the absolute power level of the received transmitter's output. The radiation was received with a half-wave dipole antenna (gain = 2.15 dB) and measured as an absolute power level; therefore, all measurements include the dipole gain. The relative levels of the received spurious signals were calculated with respect to the absolute power level of the received transmitter's output with a dipole at 10 meters. The received power level was calculated as shown:

System Parameters	RX Antenna feed loss	-5.5	dB
	TX Antenna feed loss	0.5	dB
	Operating Frequency	719	MHz
	Transmit Antenna Gain	2.15	dBi
	Transmitter Output Power	59	dBm
	Receive Antenna Gain	2.15	dBi
Link Parameters	Link Distance	0.01	Km
Constants	Speed of light	3.00E+08	m/s
Link Calculation			
Transmitted ERP Calculation	Transmitted Signal Power	59	dBm
	Antenna Feed Loss	0.5	dB
	TX Antenna Gain	2.15	dB
	Effective Radiated Power(ERP)	60.65	dBm
Path Loss Calculation	Link Frequency	719	MHz
	Link Distance	0.01	Km
	Path Loss *(for line of sight with no fade)*	-49.58	dB
Received Power Calculation	Receiver Antenna Gain	2.15	dBi
	Antenna Feed Loss	-5.5	dB
	Received Signal Power	7.72	dBm

The dipole receiving antenna is set to measure each of the following internally generated frequencies: intermediate frequency(s), local oscillator(s), carrier frequency, and 2nd and 3rd harmonics of the 800W UHF transmitter.

The measurement results are presented in Table 1.

Spurious Radiation:

The following measurements of radiation were taken and are given in terms of absolute and relative dBm to the average digital signal power.

Table 1: Radiated Emission verification with outdoor equipment enclosure.

FCC Part 27 Measurements with Worst Case Polarization					
Frequency (MHz)	**Antenna Factor (dB/1/m)**	**Field Strength Meas (dBµV/m)**	**Power (dBm)**	**Received Power of the Fundamental (dBm)**	**Ratio to the Fundamental (dB)**
30.0	12.4	25.5	-93.9	7.7	**101.6**
49.4	12.2	36.7	-82.5	7.7	**90.2**
52.3	12.2	34.5	-84.7	7.7	**92.4**
61.5	10.1	39.0	-78.1	7.7	**85.8**
77.3	7.6	36.0	-78.6	7.7	**96.3**
79.3	6.5	35.7	-77.8	7.7	**95.5**
89.5	6.5	34.9	-78.6	7.7	**96.3**
91.9	8.8	40.1	-75.7	7.7	**83.4**
97.4	9.8	37.6	-79.2	7.7	**96.9**
107.9	9.8	29.9	-86.9	7.7	**94.6**
111.8	13.2	26.3	-93.9	7.7	**101.6**
137.9	12.7	30.6	-89.1	7.7	**96.8**
163.3	12.7	34.7	-85.0	7.7	**92.7**
210.9	15.9	28.0	-94.9	7.7	**102.6**
281.6	18.1	31.5	-93.6	7.7	**101.3**
315	13.6	31.6	-89.0	7.7	**96.7**
405	16.2	29.3	-93.9	7.7	**101.6**
422	16.2	31.9	-91.3	7.7	**99.0**
607	21.3	42.4	-85.9	7.7	**93.6**
746.5	21.3	42.2	-86.1	7.7	**93.8**
825	21.9	41.8	-87.1	7.7	**94.8**
882	21.9	41.2	-87.7	7.7	**95.4**
894	23.1	38.9	-91.2	7.7	**98.9**
944	23.1	34.2	-95.9	7.7	**103.6**
982	23.1	31.1	-99.0	7.7	**106.7**
1050	25.0	31.8	-100.2	7.7	**107.9**
1120	25.0	35.5	-96.5	7.7	**104.2**
1300	25.0	36.2	-95.8	7.7	**103.5**
1390	25.0	35.2	-96.8	7.7	**104.5**
1438	25.0	39.0	-93.0	7.7	**100.7**
1839	25.0	40.2	-91.8	7.7	**99.5**
2157	29.4	42.2	-94.2	7.7	**101.9**
2318	29.4	44.4	-92.0	7.7	**99.7**
2876	30.6	41.4	-96.2	7.7	**103.9**
2977	30.6	44.4	-93.2	7.7	**100.9**

Conclusion:

The use of either the indoor or outdoor enclosure results in margins sufficient for compliance with FCC radiated emissions limits. This ample margin ensures conformity despite normal manufacturing variation.

Appendix B – Photographs of the equipment (outdoor version)

Photograhs

Figure 2 Photo of transmitter front view

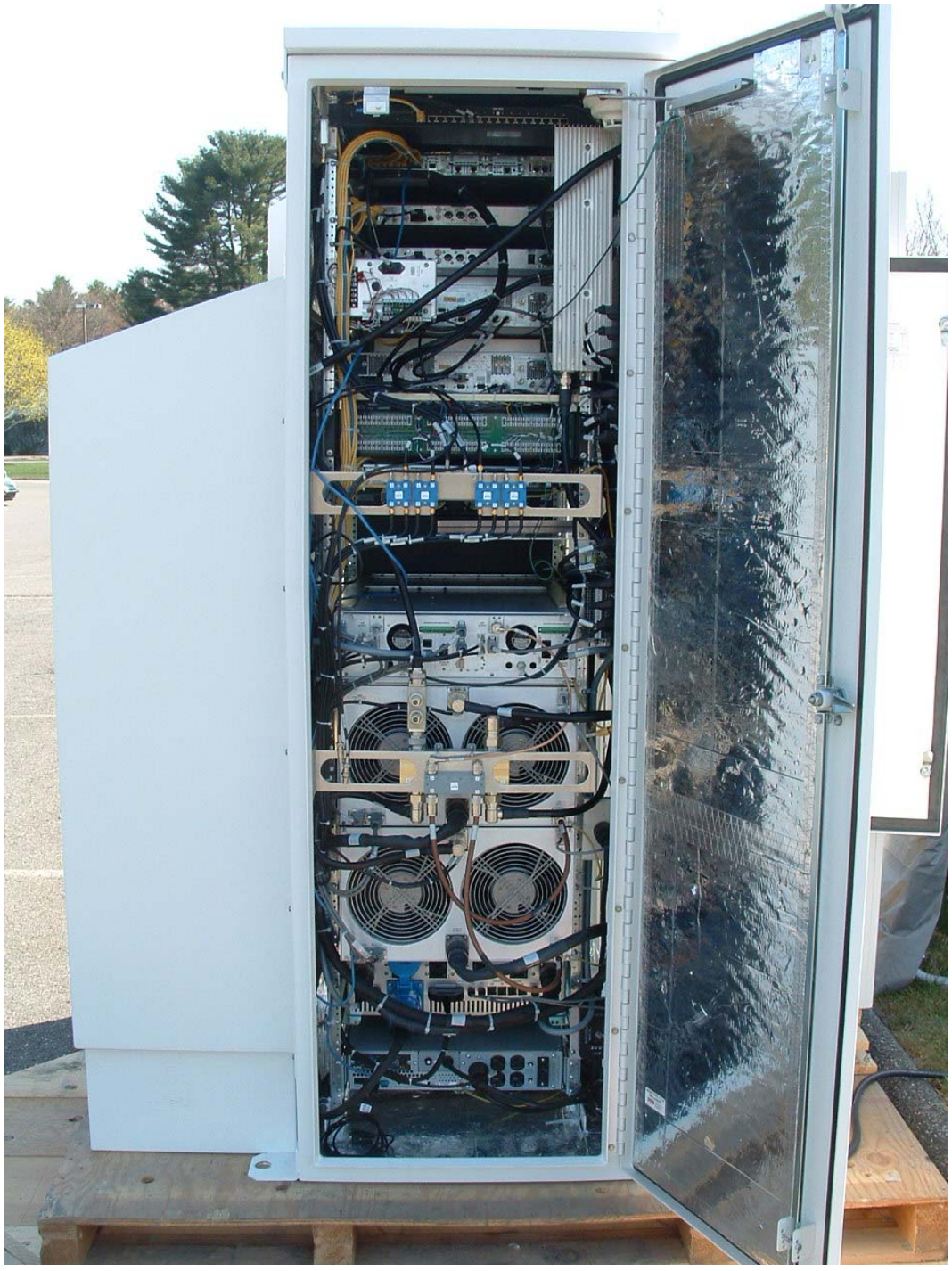


Figure 3 Photo of transmitter rear view

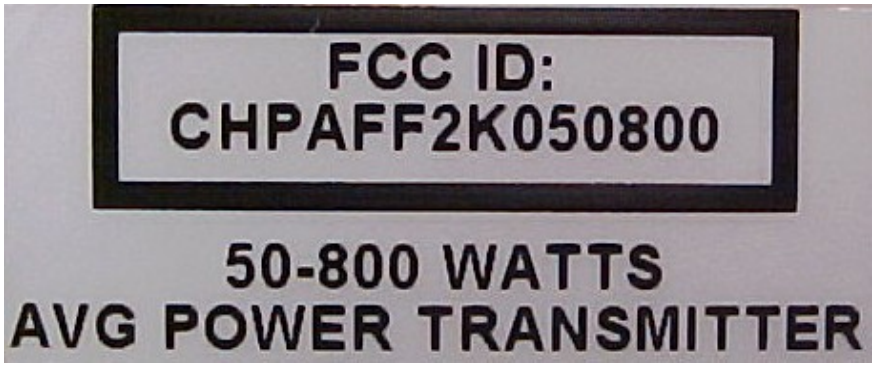


Figure 4 FCC ID Label

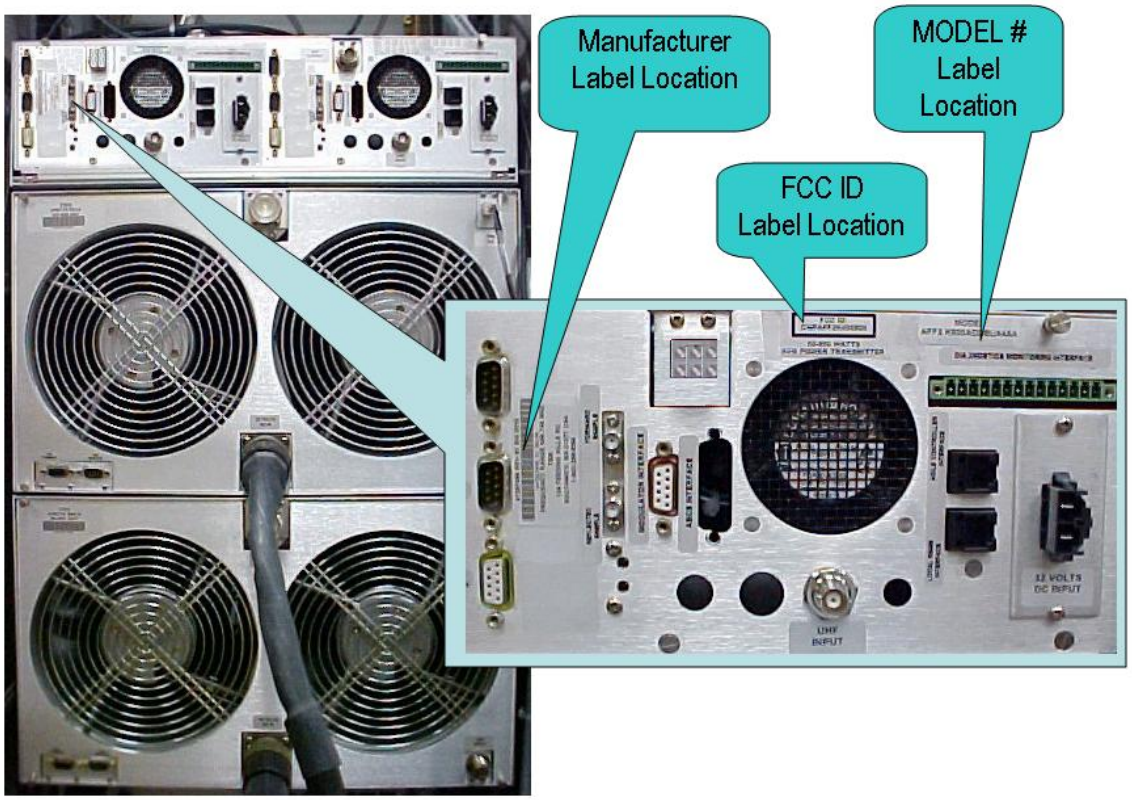


Figure 5 FCC ID label location on rear panel of transmitter