

Measurement Procedure & Test Equipment Used

Except where otherwise stated, all measurements are made following the Electronic Industries Association (EIA) Minimum Standard for Portable/Personal Land Mobile Communications FM or PM Equipment 25-1000 MHz-(EIA/TIA-603-D).

This exhibit presents a brief summary of how the measurements were made, the required limits, and the test equipment used.

The following procedures are presented with this application.

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| 1. Test Equipment List | <u>X</u> |
| 2. RF Output Power | <u>X</u> |
| 3. Conducted Spurious Emissions | <u>X</u> |
| 4. Radiated Spurious Emissions | <u>X</u> |

1. Test Equipment List**Measurement Equipment List-** Pursuant To FCC Rules 2.947 (d)

Device	Model	S/N	Due Date
Computer	HP EliteBook 8570w	5CB238199F	Cal Not Required
PSA Series Spectrum Analyzer	Rhode & Schwarz, ESI 26	827769/009	5/2/2014
Power Supply	HP 6623A	3542A12712	12/19/2014
Power Meter	Agilent E4416A	GB41292319	3/3/2014
Power Sensor (with 30DB Pad)	Agilent E9301B	MY41495324	25/8/2014
Dual Directional Coupler	HP 778D	14163	Cal Not Required
NHP-300 + High Pass Filter 50 ohm	Mini Circuits	8724 14	Cal Not Required
30 dB attenuator	Aeroflex/Weinschel, model 23-30-34, 10W	N/A	Cal Not Required
50 Ohms terminating load	MCE/Weinschel 1429-4	N/A	Cal Not Required
Antennas, DRG Horn Freq. 700MHZ-18GHZ	SAS-571	512	9/5/2014
Antennas, DRG Horn Freq. 700MHZ-18GHZ	SAS-571	511	6/13/2014
Antennas, Bilog Antenna 30MHz to 2GHz	CBL 6112D	36015	9/4/2014
Antennas, Biconilog. Freq. 30MHZ-2GHZ	3141	9703-1047	4/30/2014
Antenna, Bilog Antenna 30MHz to 2GHz	CBL 6112D	30991	9/26/2014
EMI Test Receiver	ESI 26	100017	9/4/2014
System controller	SC99V	110901-1	No Cal. Required
Turntable. Flush Mount 2M Part# 15284	FM2011VS	60811	No Cal. Required
Spectrum Analyzers	ESI 26	827769/009	5/2/2014
Signal Generators	SMP22	100015	6/3/2014

Table 1: List of equipment used

Test Name	FCC Rules Part (47 CFR)	IC Rules
RF Power Output Data	2.1046(a), 2.1033(c)(6), 2.1033(c)(7) and 2.1033(c)(8) * 90.545(b)(4) (700MHz) * 22.565(f) (VHF & UHF), * 24D (900MHz)	RSS-Gen Sec 4.8, RSS-119 Sec 5.4.1, * RSS 134 (900MHz)
* TX Audio Frequency Response	2.1047 and 2.1033(c)(13)	-
* TX Audio Low Pass Filter Response	2.1047	-
* Modulation Limiting	2.1047	-
* Occupied Bandwidth	2.1049, 90.210, * 90.691 (800MHz), * 22.359 (b) (VHF & UHF), * 24D (900MHz)	RSS GEN Sec 4.6, RSS 119 Sec 5.5, * RSS 134 (900MHz)
TX Conducted Spurious Emissions	2.1051, 90.210, * 22.359(a) (VHF & UHF), * 24D (900MHz) * 80 (VHF)	* RSS GEN Sec 6.2, * RSS 119, * RSS 134 (900MHz) * RSS 182 (VHF)
TX Radiated Spurious Emissions	2.1053, 90.210, * 22.359(a) (VHF & UHF), * 24D (900MHz)	* RSS GEN Sec 4.9, * RSS 119 Sec 4.2, 5.8, * RSS 134 (900MHz)
* Frequency Stability (Temp / Supply Voltage)	2.1055, 90.213, * 22.355 * 90.539 (700MHz)	* RSS GEN Sec 4.7, * RSS 119 Sec 5.3

Table 2: List of FCC and IC reference

** Note: Not Applicable for this filing*

2. RF Output Power

The transmitter under test is connected to Power Meter using the forward port of 30 dB attenuator and power sensor appropriate calibration offsets, derived from a traceable RF attenuator, which has been precision characterized by an outside testing laboratory, are entered into the wattmeter to calibrate for the use of the coupler.

The transmitter is operated under normal conditions at the specified nominal DC input voltage. The DC supply path to the final stage only (or to the RF power amplifier module, if the final stage only is not accessible) is interrupted to allow insertion of a DC ammeter in series with the DC supply. The DC voltage drop of the ammeter is negligible. A DC voltmeter is used to measure the DC voltage applied to the final stage. The DC input power to the final stage (in watts) is computed as the product of the DC current (in amperes) times the DC voltage (in volts). This measurement is performed at the lowest, the middle, and the highest operating frequencies of the operating bandwidth of the equipment.

The calibration of the power meter, power sensor and attenuator pads is verified on an annual basis. Other power measurement systems that may be used are correlated with this calibrated reference system before measurements are performed, and calibration factors are adjusted as necessary to obtain precise correlation.

3. Conducted Spurious Emissions

The output of the transmitter is connected, via a suitable attenuator, to the input of the Spectrum Analyzer. This data is measured at the upper and lower frequency limits of the frequency range. If transmit power is adjusted, the measurement is repeated at various power levels including minimum and maximum.

Note:

For part 90, RBW setting is adjusted to 10 kHz for spurious emissions below 1 GHz and 1 MHz for spurious emissions above 1 GHz.

4. Radiated Spurious Emissions

Radiated spurious emissions were measured by Motorola Plantation EMC Lab. Measurements were made at an approved open field test site constructed in accordance with Appendix B, FCC/OST 55 (1982), and were performed in accordance with the Code of Federal Regulations, Title 47, Part 2, paragraph 2.1053. The data is plotted as "Radiated Spurious Emissions" on the graphs. The specification limit corresponding to a level of 50 dB + 10log (Pout) for 12.5 kHz Channel Spacing below the fundamental carrier power of the transmitter as indicated on each graph for reference.