

REPORT

FCC/ IC Class II Permissive Change

Applicant Name:

JVC KENWOOD Corporation

Address:

1-16-2, Hakusan, Midori-ku, Yokohama-shi, Kanagawa, 226-8525 Japan

Date of Issue:

October 08, 2014

Location:

HCT CO., LTD., 105-1, Jangam-ri, Majang-Myeon, Icheon-si, Kyunggi-Do, Korea

Test Report No.: HCT-R-1410-F002**HCT FRN:** 0005866421**IC Recognition No.:** 5944A-3**FCC ID:****K44431501****IC:****282F-431501****APPLICANT:****JVC KENWOOD Corporation****FCC Model(s):**

NX-5300-K5, NX-5300-K6, NX-5300-F5, NX-5300-F6

IC Model(s):

NX-5300-K5, NX-5300-K6

EUT Type:

UHF DIGITAL TRANSCEIVER

Frequency Range:

FCC : 406.1 MHz - 470 MHz

IC : 406.1 MHz - 430 MHz and 450 MHz - 470 MHz

FCC Rule Part(s):

Part 90 and Part 2

IC Rule:

RSS- Gen Issue 3, RSS-119 Issue 11

The measurements shown in this report were made in accordance with the procedures specified in §2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998, 21 U.S.C. 853(a)



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Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-R-1410-F002	October 08, 2014	- First Approval Report

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1. GENERAL INFORMATION

Applicant: JVC KENWOOD Corporation
Address: 1-16-2, Hakusan, Midori-ku, Yokohama-shi, Kanagawa, 226-8525 Japan
FCC ID: K44431501
IC: 282F-431501
Application Type: FCC Class II Permissive Change
EUT Type: UHF DIGITAL TRANSCEIVER
FCC Model name(s): NX-5300-K5, NX-5300-K6, NX-5300-F5, NX-5300-F6
IC Model name(s): NX-5300-K5, NX-5300-K6
Date(s) of Tests: September 20, 2014 ~ September 25, 2014
Place of Tests: HCT Co., Ltd.
74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea
(IC Recognition No. : 5944A-3)

2. EUT DESCRIPTION

EUT Type	UHF DIGITAL TRANSCEIVER
FCC Model Name	NX-5300-K5, NX-5300-K6, NX-5300-F5, NX-5300-F6
IC Model Name	NX-5300-K5, NX-5300-K6
Power Supply	DC 7.5 V
Battery type	Li-ion Battery (KNB-L1, KNB-L2, KNB-L3)
Channel Bandwidth	FCC : 12.5 kHz / 6.25 kHz, IC : 25 kHz / 12.5 kHz / 6.25 kHz
Frequency Range	FCC : 406.1 MHz - 470 MHz IC : 406.1 MHz – 430 MHz and 450 MHz – 470 MHz

3. TEST METHODOLOGY

TIA-603-D dated June 24, 2010 entitled "Land Mobile FM or PM Communications Equipment Measurement and Performance Standards" were used in the measurement.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the FCC Rules Part 2 and Part 90.

3.3 GENERAL TEST PROCEDURES

Radiated Emissions

Radiated emission measurements are performed in the Fully-anechoic chamber. The equipment under test is placed on a non-conductive table 3-meters away from the receive antenna in accordance with ANSI/TIA-603-D-2010 Clause 2.2.17. The turntable is rotated through 360 degrees, and the receiving antenna scans in order to determine the level of the maximized emission. The level and position of the maximized emission is recorded with the spectrum analyzer using a positive peak detector.

A half wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated.

The power is calculated by the following formula;

$$P_{d(dBm)} = P_{g(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dB)}$$

Where: P_d is the dipole equivalent power and P_g is the generator output power into the substitution antenna.

The maximum EIRP is calculated by adding the forward power to the calibrated source plus its appropriate gain value. These steps are repeated with the receiving antenna in both vertical and horizontal polarization. the difference between the gain of the horn and an isotropic antenna are taken into consideration

3.4 DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting is programmed.

3.5 TYPE OF EMISSION

16K0F3E	(Analogue)
11K0F3E	(Analogue)
8K10F1E, 8K10F1D	(P25 phase1)
8K10F1W	(P25 phase 2, TDMA)
8K30F1E, 8K30F1D, 8K30F7W	(NXDN)
4K00F1E, 4K00F1D, 4K00F7W	(NXDN)
4K00F2D	(CWID) : Use only low power

4. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipments, which is traceable to recognized national standards.

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

The Fully-anechoic chamber and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea.

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements. Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

6. SUMMARY TEST OF RESULTS

Test Description	FCC Part Section(s)	IC Part Section(s)	Test Limit	Test Condition	Test Result
Field Strength of Spurious Radiation	§2.1053	RSS119-i11(5.8)	Varies	RADIATED	PASS
Receiver Spurious Emissions	§15.109(a)	RSS119-i11(5.11) RSS-Gen	cf. Section 7.2		PASS

7. TEST RESULT

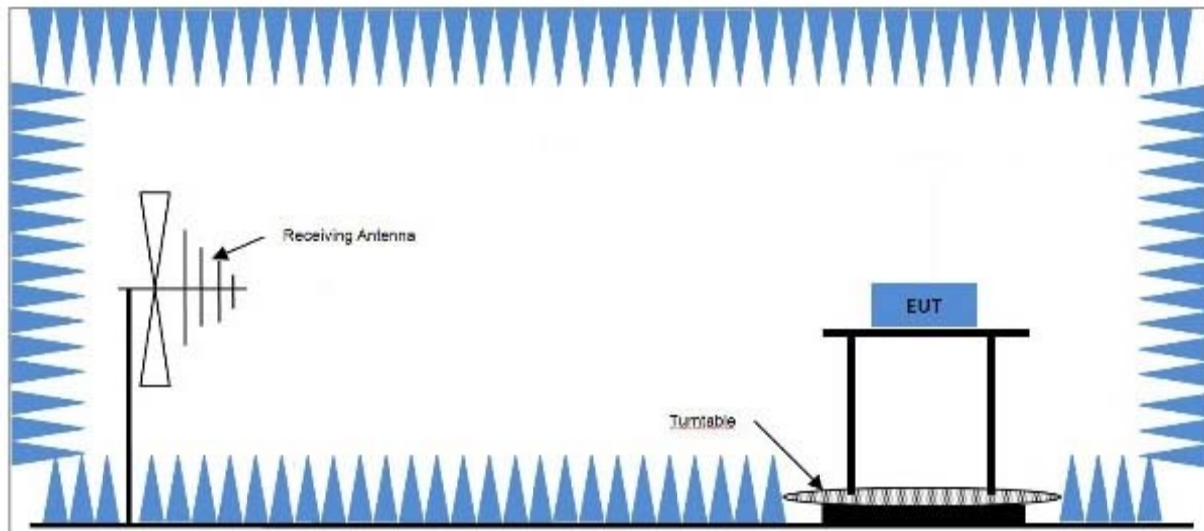
7.1 UNWANTED EMISSIONS : RADIATED SPURIOUS EMISSION

■ Definition

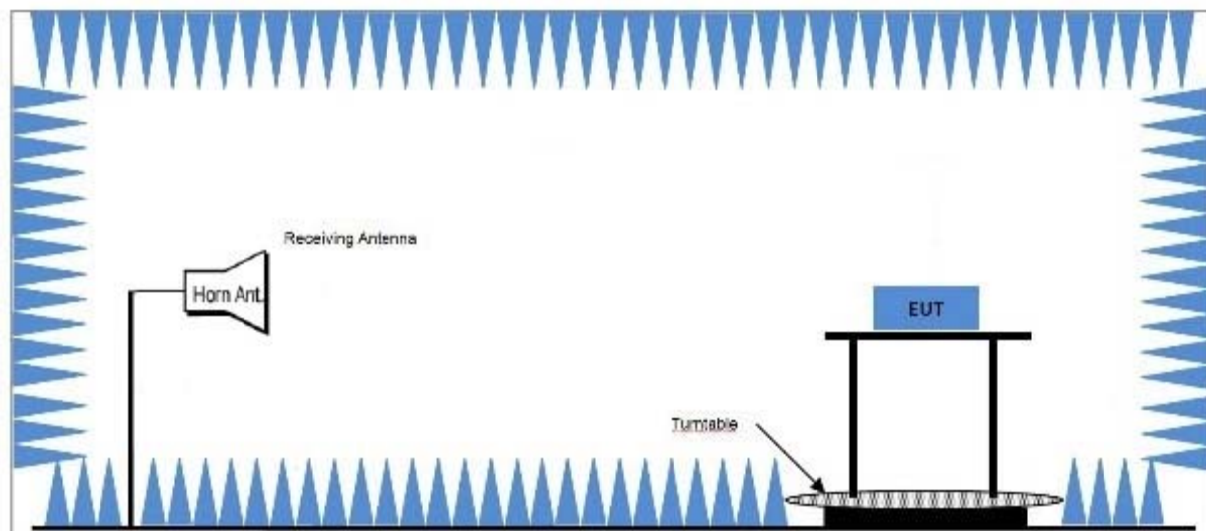
Radiated spurious emissions are emissions from the equipment when transmitting into a non-radiating load on a frequency or frequencies that are outside an occupied band sufficient to ensure transmission of information of required quality for the class of communications desired.

■ TEST CONFIGURATION

Below 30 MHz



Above 1 GHz



TEST PROCEDURE USED

According to 2.2.12 in TIA-603-D Standard.

- Connect the equipment as illustrated.
- Adjust the spectrum analyzer for the following settings:

- 1) Resolution Bandwidth = 10 kHz for spurious emissions below 1 GHz, and 1 MHz for spurious emissions above 1GHz.
- 2) Video Bandwidth = 300 kHz for spurious emissions below 1 GHz, and 3 MHz for spurious emissions above 1 GHz.
- 3) Sweep Speed slow enough to maintain measurement calibration.
- 4) Detector Mode = Positive Peak.
- c) Place the transmitter to be tested on the turntable in the standard test site, or an FCC listed site compliant with ANSI C63.4-2001 clause 5.4. The transmitter is transmitting into a nonradiating load that is placed on the turntable. The RF cable to this load should be of minimum length. For transmitters with integral antennas, the tests are to be run with the unit operating into the integral antenna.
- d) For each spurious measurement the test antenna should be adjusted to the correct length for the frequency involved. This length may be determined from a calibration ruler supplied with the equipment. Measurements shall be made from the lowest radio frequency generated in the equipment to the tenth harmonic of the carrier, except for the region close to the carrier equal to $\pm$ the test bandwidth (see 1.3.4.4).
- e) Key the transmitter.
- f) For each spurious frequency, raise and lower the test antenna from 1 m to 4 m to obtain a maximum reading on the spectrum analyzer with the test antenna at horizontal polarity. Then the turntable should be rotated 360° to determine the maximum reading.
Repeat this procedure to obtain the highest possible reading. Record this maximum reading.
- g) Repeat step f) for each spurious frequency with the test antenna polarized vertically.
- h) Reconnect the equipment as illustrated.
- i) Keep the spectrum analyzer adjusted as in step b).
- j) Remove the transmitter and replace it with a substitution antenna (the antenna should be half-wavelength for each frequency involved). The center of the substitution antenna should be approximately at the same location as the center of the transmitter. At the lower frequencies, where the substitution antenna is very long, this will be impossible to achieve when the antenna is polarized vertically. In such case the lower end of the antenna should be 0.3 m above the ground.
- k) Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a nonradiating cable. With the antennas at both ends horizontally polarized, and with the signal generator tuned to a particular spurious frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.
- l) Repeat step k) with both antennas vertically polarized for each spurious frequency.

- m) Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps k) and l) by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula:

$$Pd(\text{dBm}) = Pg(\text{dBm}) - \text{cable loss (dB)} + \text{antenna gain (dB)}$$

where:

Pd is the dipole equivalent power and

Pg is the generator output power into the substitution antenna.

- n) The Pd levels record in step m) are the absolute levels of radiated spurious emissions in dBm.

The radiated spurious emissions in dB can be calculated by the following:

Radiated spurious emissions (dB) =

$$10 \cdot \log_{10}(\text{TX power in watts}/0.001) - \text{the levels in step m)}$$

NOTE: It is permissible to use other antennas provided they can be referenced to a dipole.

■ Operating Mode

EUT Type	Antenna Name
Stand alone	KRA29
	KRA42(M)
	KRA42(M3)
EUT with KMC49	KRA29
	KRA42(M)
	KRA42(M3)

Note : We performed stand alone and EUT with KMC49. And worst case is stand alone.

This report is attached only stand alone result.

TEST RESULTS For FCC

11K0F3E

Frequency [MHz] : 406.15
Battery : EX-4621 KRA29(No.1)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
406.15	8.7	27.25	35.95	X-H	0.00		
812.3	-81.57	33.7	-47.87	Y-V	83.82	55.95	27.87
1218.45	-46.92	0.96	-45.96	Y-H	81.91	55.95	25.96
1624.6	-41.99	1.53	-40.46	X-V	76.41	55.95	20.46
2030.75	-47.92	2.77	-45.15	X-V	81.10	55.95	25.15
2436.9	-56.22	4.9	-51.32	X-V	87.27	55.95	31.32
2843.05	-50.6	6.09	-44.51	Y-H	80.46	55.95	24.51
3249.2	-51.17	6.33	-44.84	Y-H	80.79	55.95	24.84
3655.35	-54.82	7.59	-47.23	X-V	83.18	55.95	27.23
4061.5	-51.27	8.51	-42.76	X-V	78.71	55.95	22.76

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 406.15

Battery : EX-4622 Antenna : KRA29(No.1)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
406.15	9.27	27.25	36.52	X-H	0.00		
812.3	-81.06	33.7	-47.36	Y-V	83.88	56.52	27.36
1218.45	-46.97	0.96	-46.01	Y-H	82.53	56.52	26.01
1624.6	-40.42	1.53	-38.89	X-V	75.41	56.52	18.89
2030.75	-46.65	2.77	-43.88	X-V	80.40	56.52	23.88
2436.9	-53.21	4.9	-48.31	X-V	84.83	56.52	28.31
2843.05	-48.29	6.09	-42.20	X-V	78.72	56.52	22.20
3249.2	-49.6	6.33	-43.27	Y-H	79.79	56.52	23.27
3655.35	-51.15	7.59	-43.56	Y-H	80.08	56.52	23.56
4061.5	-50.06	8.51	-41.55	X-V	78.07	56.52	21.55

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 406.15

Battery : EX-4623 Antenna : KRA29(No.1)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
406.15	9.03	27.25	36.28	X-H	0.00		
812.3	-78.57	33.7	-44.87	Y-V	81.15	56.28	24.87
1218.45	-45.79	0.96	-44.83	X-H	81.11	56.28	24.83
1624.6	-43.38	1.53	-41.85	X-V	78.13	56.28	21.85
2030.75	-41.79	2.77	-39.02	Y-H	75.30	56.28	19.02
2436.9	-57.53	4.9	-52.63	X-V	88.91	56.28	32.63
2843.05	-49.87	6.09	-43.78	X-V	80.06	56.28	23.78
3249.2	-54.66	6.33	-48.33	Y-H	84.61	56.28	28.33
3655.35	-54.27	7.59	-46.68	X-H	82.96	56.28	26.68
4061.5	-51.38	8.51	-42.87	X-V	79.15	56.28	22.87

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 429.95

Battery : EX-4621 Antenna : KRA29(No.1)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
429.95	7.1	28.01	35.11	X-H	0.00	-	-
859.9	-82.1	33.71	-48.39	Y-V	83.50	55.11	28.39
1289.85	-50.04	1.74	-48.30	Y-H	83.41	55.11	28.30
1719.8	-50.29	1.75	-48.54	X-V	83.65	55.11	28.54
2149.75	-51.15	4.53	-46.62	X-V	81.73	55.11	26.62
2579.7	-57.25	4.85	-52.40	X-V	87.51	55.11	32.40
3009.65	-53.19	6.36	-46.83	Y-H	81.94	55.11	26.83
3439.6	-53.71	6.61	-47.10	Y-H	82.21	55.11	27.10
3869.55	-55.37	8.25	-47.12	Y-H	82.23	55.11	27.12
4299.5	-54.3	9.4	-44.90	Y-V	80.01	55.11	24.90

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 429.95

Battery : EX-4622 Antenna : KRA29(No.1)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
429.95	7.69	28.01	35.70	X-H	0.00	-	-
859.9	-82.12	33.71	-48.41	Y-V	84.11	55.70	28.41
1289.85	-49.22	1.74	-47.48	X-V	83.18	55.70	27.48
1719.8	-48.98	1.75	-47.23	Y-H	82.93	55.70	27.23
2149.75	-49.88	4.53	-45.35	Y-H	81.05	55.70	25.35
2579.7	-51.55	4.85	-46.70	Y-H	82.40	55.70	26.70
3009.65	-51.5	6.36	-45.14	Y-H	80.84	55.70	25.14
3439.6	-51.02	6.61	-44.41	Y-H	80.11	55.70	24.41
3869.55	-52.24	8.25	-43.99	Y-H	79.69	55.70	23.99
4299.5	-50.99	9.4	-41.59	Y-V	77.29	55.70	21.59

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 429.95

Battery : EX-4623 Antenna : KRA29(No.1)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
429.95	7.35	28.01	35.36	X-H	0.00	-	-
859.9	-77.88	33.71	-44.17	Y-V	79.53	55.36	24.17
1289.85	-48.95	1.74	-47.21	Y-H	82.57	55.36	27.21
1719.8	-48.63	1.75	-46.88	X-V	82.24	55.36	26.88
2149.75	-51.32	4.53	-46.79	Y-H	82.15	55.36	26.79
2579.7	-56.9	4.85	-52.05	Y-H	87.41	55.36	32.05
3009.65	-55.14	6.36	-48.78	Y-H	84.14	55.36	28.78
3439.6	-54.31	6.61	-47.70	Y-H	83.06	55.36	27.70
3869.55	-54.29	8.25	-46.04	X-V	81.40	55.36	26.04
4299.5	-54.81	9.4	-45.41	Y-H	80.77	55.36	25.41

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 469.95

Battery : EX-4621 Antenna : KRA42(M)(No.1)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
469.95	5.63	28.67	34.30	Y-V	0.00	-	-
939.9	-78.96	35.69	-43.27	Y-V	77.57	54.30	23.27
1409.85	-50.46	2.53	-47.93	X-V	82.23	54.30	27.93
1879.8	-40.83	2.17	-38.66	X-V	72.96	54.30	18.66
2349.75	-50.42	4.76	-45.66	Y-H	79.96	54.30	25.66
2819.7	-54.47	5.65	-48.82	X-V	83.12	54.30	28.82
3289.65	-53.45	5.69	-47.76	X-V	82.06	54.30	27.76
3759.6	-52.92	7.92	-45.00	X-V	79.30	54.30	25.00
4229.55	-53.79	9.02	-44.77	Y-H	79.07	54.30	24.77
4699.5	-55.48	11.89	-43.59	X-V	77.89	54.30	23.59

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 469.95 Battery : EX-4622 Antenna : KRA42(M)(No.1)							
Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
469.95	5.96	28.67	34.63	Y-V	0.00	-	-
939.9	-78.48	35.69	-42.79	Y-V	77.42	54.63	22.79
1409.85	-46.56	2.53	-44.03	Y-V	78.66	54.63	24.03
1879.8	-46.62	2.17	-44.45	Y-V	79.08	54.63	24.45
2349.75	-53.85	4.76	-49.09	X-V	83.72	54.63	29.09
2819.7	-52.03	5.65	-46.38	X-V	81.01	54.63	26.38
3289.65	-56.58	5.69	-50.89	X-V	85.52	54.63	30.89
3759.6	-52.78	7.92	-44.86	X-V	79.49	54.63	24.86
4229.55	-56.21	9.02	-47.19	X-V	81.82	54.63	27.19
4699.5	-53.1	11.89	-41.21	X-V	75.84	54.63	21.21

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 469.95

Battery : EX-4623

Antenna : KRA42(M)(No.1)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
469.95	5.89	28.67	34.56	Y-V	0.00	-	-
939.9	-75.01	35.69	-39.32	Y-V	73.88	54.56	19.32
1409.85	-45.03	2.53	-42.50	Y-V	77.06	54.56	22.50
1879.8	-39.22	2.17	-37.05	Y-V	71.61	54.56	17.05
2349.75	-53.17	4.76	-48.41	X-V	82.97	54.56	28.41
2819.7	-51.69	5.65	-46.04	X-V	80.60	54.56	26.04
3289.65	-55.81	5.69	-50.12	X-V	84.68	54.56	30.12
3759.6	-50.87	7.92	-42.95	X-V	77.51	54.56	22.95
4229.55	-57.05	9.02	-48.03	X-V	82.59	54.56	28.03
4699.5	-53.94	11.89	-42.05	X-V	76.61	54.56	22.05

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 406.15

Battery : EX-4621 Antenna : KRA42(M)(No.3)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
406.15	5.01	27.25	32.26	X-H	0.00	-	-
812.3	-78.86	33.7	-45.16	Y-V	77.42	52.26	25.16
1218.45	-47.25	1	-46.25	X-V	78.51	52.26	26.25
1624.6	-42.83	1.53	-41.30	X-V	73.56	52.26	21.30
2030.75	-48.04	2.77	-45.27	X-V	77.53	52.26	25.27
2436.9	-56.96	4.9	-52.06	X-V	84.32	52.26	32.06
2843.05	-50.85	6.05	-44.80	Y-V	77.06	52.26	24.80
3249.2	-52.17	6.33	-45.84	Y-H	78.10	52.26	25.84
3655.35	-56.36	7.59	-48.77	Y-V	81.03	52.26	28.77
4061.5	-52.2	8.51	-43.69	X-V	75.95	52.26	23.69

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 406.15

Battery : EX-4622 Antenna : KRA42(M)(No.3)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
406.15	4.98	27.25	32.23	X-H	0.00	-	-
812.3	-78.85	33.7	-45.15	Y-V	77.38	52.23	25.15
1218.45	-47.97	1	-46.97	X-V	79.20	52.23	26.97
1624.6	-41.63	1.53	-40.10	X-V	72.33	52.23	20.10
2030.75	-47.05	2.77	-44.28	X-V	76.51	52.23	24.28
2436.9	-58.52	4.9	-53.62	X-V	85.85	52.23	33.62
2843.05	-52.91	6.05	-46.86	Y-V	79.09	52.23	26.86
3249.2	-55.52	6.33	-49.19	X-V	81.42	52.23	29.19
3655.35	-56.11	7.59	-48.52	Y-V	80.75	52.23	28.52
4061.5	-52.66	8.51	-44.15	X-V	76.38	52.23	24.15

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 406.15 Battery : EX-4623 Antenna : KRA42(M)(No.3)							
Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
406.15	4.97	27.25	32.22	X-H	0.00	-	-
812.3	-75.2	33.7	-41.50	Y-V	73.72	52.22	21.50
1218.45	-48.42	1	-47.42	Y-V	79.64	52.22	27.42
1624.6	-42.18	1.53	-40.65	X-V	72.87	52.22	20.65
2030.75	-46.05	2.77	-43.28	X-V	75.50	52.22	23.28
2436.9	-58	4.9	-53.10	X-V	85.32	52.22	33.10
2843.05	-50.44	6.05	-44.39	X-V	76.61	52.22	24.39
3249.2	-55.17	6.33	-48.84	X-V	81.06	52.22	28.84
3655.35	-53.69	7.59	-46.10	X-V	78.32	52.22	26.10
4061.5	-51.07	8.51	-42.56	X-V	74.78	52.22	22.56

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 429.95

Battery : EX-4621 Antenna : KRA42(M)(No.3)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
429.95	6.65	28.01	34.66	Y-V	0.00	-	-
859.9	-76.87	33.71	-43.16	Y-V	77.82	54.66	23.16
1289.85	-53.12	1.74	-51.38	X-H	86.04	54.66	31.38
1719.8	-41.31	1.75	-39.56	Y-H	74.22	54.66	19.56
2149.75	-49.99	4.53	-45.46	X-V	80.12	54.66	25.46
2579.7	-49.35	4.85	-44.50	X-V	79.16	54.66	24.50
3009.65	-52.28	6.36	-45.92	Y-H	80.58	54.66	25.92
3439.6	-44.9	6.61	-38.29	X-V	72.95	54.66	18.29
3869.55	-43.59	8.25	-35.34	Y-H	70.00	54.66	15.34
4299.5	-40.79	9.4	-31.39	Y-H	66.05	54.66	11.39

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 429.95

Battery : EX-4622

Antenna : KRA42(M)(No.3)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
429.95	7.11	28.01	35.12	Y-V	0.00	-	-
859.9	-71.88	33.71	-38.17	Y-V	73.29	55.12	18.17
1289.85	-54.56	1.74	-52.82	Y-H	87.94	55.12	32.82
1719.8	-42.81	1.75	-41.06	Y-H	76.18	55.12	21.06
2149.75	-54.4	4.53	-49.87	Y-H	84.99	55.12	29.87
2579.7	-51.72	4.85	-46.87	Y-H	81.99	55.12	26.87
3009.65	-52.58	6.36	-46.22	Y-H	81.34	55.12	26.22
3439.6	-48.52	6.61	-41.91	X-V	77.03	55.12	21.91
3869.55	-44.66	8.25	-36.41	Y-H	71.53	55.12	16.41
4299.5	-42.82	9.4	-33.42	X-V	68.54	55.12	13.42

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 429.95

Battery : EX-4623

Antenna : KRA42(M)(No.3)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
429.95	7.32	28.01	35.33	Y-V	0.00	-	-
859.9	-73.21	33.71	-39.50	Y-V	74.83	55.33	19.50
1289.85	-53.98	1.74	-52.24	Y-H	87.57	55.33	32.24
1719.8	-42.2	1.75	-40.45	X-V	75.78	55.33	20.45
2149.75	-51.16	4.53	-46.63	Y-H	81.96	55.33	26.63
2579.7	-51.08	4.85	-46.23	Y-H	81.56	55.33	26.23
3009.65	-53.1	6.36	-46.74	X-V	82.07	55.33	26.74
3439.6	-49.05	6.61	-42.44	X-V	77.77	55.33	22.44
3869.55	-45.35	8.25	-37.10	Y-H	72.43	55.33	17.10
4299.5	-42.93	9.4	-33.53	Y-H	68.86	55.33	13.53

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

TEST RESULTS For IC

11K0F3E

Frequency [MHz] : 418.05

Battery : EX-4621 Antenna : KRA29(No.1)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
418.05	8.34	27.5	35.84	X-H	0.00	-	-
836.1	-81.71	33.97	-47.74	Y-V	83.58	55.84	27.74
1254.15	-49.52	1.64	-47.88	X-V	83.72	55.84	27.88
1672.2	-46.95	1.5	-45.45	X-V	81.29	55.84	25.45
2090.25	-49.07	3.83	-45.24	Y-V	81.08	55.84	25.24
2508.3	-55.36	4.57	-50.79	X-V	86.63	55.84	30.79
2926.35	-53.03	6.44	-46.59	X-V	82.43	55.84	26.59
3344.4	-54.13	6.09	-48.04	X-V	83.88	55.84	28.04
3762.45	-54.64	7.95	-46.69	X-V	82.53	55.84	26.69
4180.5	-54.36	9.24	-45.12	X-V	80.96	55.84	25.12

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 418.05

Battery : EX-4622 Antenna : KRA29(No.1)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
418.05	8.62	27.5	36.12	X-H	0.00	-	-
836.1	-81.72	33.97	-47.75	Y-V	83.87	56.12	27.75
1254.15	-48.1	1.64	-46.46	Y-V	82.58	56.12	26.46
1672.2	-42.39	1.5	-40.89	X-V	77.01	56.12	20.89
2090.25	-48.48	3.83	-44.65	X-V	80.77	56.12	24.65
2508.3	-53	4.57	-48.43	X-V	84.55	56.12	28.43
2926.35	-49.74	6.44	-43.30	X-V	79.42	56.12	23.30
3344.4	-51.2	6.09	-45.11	X-V	81.23	56.12	25.11
3762.45	-51.56	7.95	-43.61	X-V	79.73	56.12	23.61
4180.5	-50.16	9.24	-40.92	X-V	77.04	56.12	20.92

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 418.05

Battery : EX-4623 Antenna : KRA29(No.1)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
418.05	8.48	27.5	35.98	X-H	0.00	-	-
836.1	-79.7	33.97	-45.73	Y-V	81.71	55.98	25.73
1254.15	-49.69	1.64	-48.05	X-V	84.03	55.98	28.05
1672.2	-44.44	1.5	-42.94	X-V	78.92	55.98	22.94
2090.25	-47.76	3.83	-43.93	X-V	79.91	55.98	23.93
2508.3	-57.5	4.57	-52.93	X-V	88.91	55.98	32.93
2926.35	-52.78	6.44	-46.34	X-V	82.32	55.98	26.34
3344.4	-52.55	6.09	-46.46	X-V	82.44	55.98	26.46
3762.45	-52.95	7.95	-45.00	X-V	80.98	55.98	25.00
4180.5	-53.48	9.24	-44.24	X-V	80.22	55.98	24.24

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 450.05 Battery : EX-4621 Antenna : KRA42(M)(No.1)							
Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
450.05	7.06	28.84	35.90	Y-V	0.00	-	-
900.1	-68.08	34.68	-33.40	Y-V	69.30	55.90	13.40
1350.15	-50.25	2.43	-47.82	Y-H	83.72	53.96	29.76
1800.2	-42.96	1.78	-41.18	Y-H	77.08	55.90	21.18
2250.25	-51.21	5.1	-46.11	Y-H	82.01	54.96	27.05
2700.3	-49.05	5.01	-44.04	Y-H	79.94	55.90	24.04
3150.35	-51.83	6.68	-45.15	Y-H	81.05	55.96	25.09
3600.4	-50.63	7.62	-43.01	Y-H	78.91	55.90	23.01
4050.45	-47.14	8.43	-38.71	Y-H	74.61	56.96	17.65
4500.5	-45.7	10.45	-35.25	Y-H	71.15	55.90	15.25

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 450.05 Battery : EX-4622 Antenna : KRA42(M)(No.1)							
Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
450.05	7.56	28.84	36.40	Y-V	0.00	-	-
900.1	-66.33	34.68	-31.65	Y-V	68.05	56.40	11.65
1350.15	-51.31	2.43	-48.88	Y-H	85.28	56.40	28.88
1800.2	-44.71	1.78	-42.93	Y-H	79.33	56.40	22.93
2250.25	-49.07	5.1	-43.97	Y-H	80.37	56.40	23.97
2700.3	-48.13	5.01	-43.12	Y-H	79.52	56.40	23.12
3150.35	-50.93	6.68	-44.25	Y-H	80.65	56.40	24.25
3600.4	-51.15	7.62	-43.53	Y-H	79.93	56.40	23.53
4050.45	-45.34	8.43	-36.91	Y-H	73.31	56.40	16.91
4500.5	-48.98	10.45	-38.53	Y-H	74.93	56.40	18.53

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 450.05

Battery : EX-4623

Antenna : KRA42(M)(No.1)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
450.05	7.63	28.84	36.47	Y-V	0.00	-	-
900.1	-67.7	34.68	-33.02	Y-V	69.49	56.47	13.02
1350.15	-52.78	2.43	-50.35	Y-H	86.82	56.47	30.35
1800.2	-45.81	1.78	-44.03	Y-H	80.50	56.47	24.03
2250.25	-52.7	5.1	-47.60	Y-H	84.07	56.47	27.60
2700.3	-49.61	5.01	-44.60	Y-H	81.07	56.47	24.60
3150.35	-55	6.68	-48.32	Y-H	84.79	56.47	28.32
3600.4	-50.74	7.62	-43.12	Y-H	79.59	56.47	23.12
4050.45	-46.38	8.43	-37.95	Y-H	74.42	56.47	17.95
4500.5	-50.85	10.45	-40.40	Y-H	76.87	56.47	20.40

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 460.05 Battery : EX-4621 Antenna : KRA42(M)(No.1)							
Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
460.05	6.38	28.83	35.21	Y-V	0.00	-	-
920.1	-75.12	35.27	-39.85	Y-V	75.06	55.21	19.85
1380.15	-48.11	2.18	-45.93	X-V	81.14	55.21	25.93
1840.2	-41.26	1.7	-39.56	X-V	74.77	55.21	19.56
2300.25	-51.22	4.86	-46.36	X-V	81.57	55.21	26.36
2760.3	-51.18	5.44	-45.74	X-V	80.95	55.21	25.74
3220.35	-48.70	6.53	-42.17	X-V	77.38	55.21	22.17
3680.4	-50.03	7.77	-42.26	X-V	77.47	55.21	22.26
4140.45	-47.00	8.79	-38.21	Y-H	73.42	55.21	18.21
4600.5	-51.03	11.16	-39.87	Y-H	75.08	55.21	19.87

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 460.05 Battery : EX-4622 Antenna : KRA42(M)(No.1)							
Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
460.05	6.83	28.83	35.66	Y-V	0.00	-	-
920.1	-75.68	35.27	-40.41	Y-V	76.07	55.66	20.41
1380.15	-48.07	2.18	-45.89	X-V	81.55	55.66	25.89
1840.2	-42.85	1.7	-41.15	Y-H	76.81	55.66	21.15
2300.25	-50.82	4.86	-45.96	Y-H	81.62	55.66	25.96
2760.3	-51.22	5.44	-45.78	Y-H	81.44	55.66	25.78
3220.35	-50.7	6.53	-44.17	X-V	79.83	55.66	24.17
3680.4	-51.62	7.77	-43.85	X-V	79.51	55.66	23.85
4140.45	-48.96	8.79	-40.17	Y-H	75.83	55.66	20.17
4600.5	-50.62	11.16	-39.46	Y-H	75.12	55.66	19.46

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 460.05 Battery : EX-4623 Antenna : KRA42(M)(No.1)							
Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
460.05	6.93	28.83	35.76	Y-V	0.00	-	-
920.1	-80.61	35.27	-45.34	Y-V	81.10	55.76	25.34
1380.15	-49.19	2.18	-47.01	X-V	82.77	55.76	27.01
1840.2	-40.83	1.7	-39.13	X-V	74.89	55.76	19.13
2300.25	-50.17	4.86	-45.31	X-V	81.07	55.76	25.31
2760.3	-50.95	5.44	-45.51	Y-H	81.27	55.76	25.51
3220.35	-49.6	6.53	-43.07	X-V	78.83	55.76	23.07
3680.4	-50.24	7.77	-42.47	X-V	78.23	55.76	22.47
4140.45	-47.1	8.79	-38.31	Y-H	74.07	55.76	18.31
4600.5	-51.3	11.16	-40.14	Y-H	75.90	55.76	20.14

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 418.05

Battery : EX-4621

Antenna : KRA42(M)(No.3)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
418.05	7.79	27.5	35.29	X-H	0.00		
836.1	-76.73	33.98	-42.75	Y-V	78.04	55.29	22.75
1254.15	-50.58	1.61	-48.97	Y-H	84.26	55.29	28.97
1672.2	-45.66	1.5	-44.16	X-V	79.45	55.29	24.16
2090.25	-49.56	3.83	-45.73	Y-H	81.02	55.29	25.73
2508.3	-57.94	4.6	-53.34	Y-V	88.63	55.29	33.34
2926.35	-52.71	6.44	-46.27	X-V	81.56	55.29	26.27
3344.4	-55.17	6.09	-49.08	X-V	84.37	55.29	29.08
3762.45	-55.18	7.92	-47.26	X-H	82.55	55.29	27.26
4180.5	-55.41	9.24	-46.17	X-V	81.46	55.29	26.17

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 418.05 Battery : EX-4622 Antenna : KRA42(M)(No.3)							
Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
418.05	7.87	27.5	35.37	X-H	0.00		
836.1	-75.88	33.98	-41.90	Y-V	77.27	55.37	21.90
1254.15	-48.54	1.61	-46.93	Y-V	82.30	55.37	26.93
1672.2	-43.3	1.5	-41.80	X-V	77.17	55.37	21.80
2090.25	-49.52	3.83	-45.69	X-V	81.06	55.37	25.69
2508.3	-56.73	4.6	-52.13	X-V	87.50	55.37	32.13
2926.35	-52.44	6.44	-46.00	X-V	81.37	55.37	26.00
3344.4	-55.43	6.09	-49.34	X-V	84.71	55.37	29.34
3762.45	-56.38	7.92	-48.46	X-V	83.83	55.37	28.46
4180.5	-52.65	9.24	-43.41	X-V	78.78	55.37	23.41

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

11K0F3E

Frequency [MHz] : 418.05

Battery : EX-4623

Antenna : KRA42(M)(No.3)

Freq (MHz)	Reading [dBm]	Factor (dBm)	Reading+Factor [dBm]	Pol	Result (dB)	Limit (dB)	Margin (dB)
418.05	7.86	27.5	35.36	X-H	0.00		
836.1	-73.02	33.98	-39.04	Y-V	74.40	55.36	19.04
1254.15	-50.27	1.61	-48.66	X-V	84.02	55.36	28.66
1672.2	-40.29	1.5	-38.79	X-V	74.15	55.36	18.79
2090.25	-47.97	3.83	-44.14	X-V	79.50	55.36	24.14
2508.3	-56.96	4.6	-52.36	X-V	87.72	55.36	32.36
2926.35	-53.12	6.44	-46.68	X-V	82.04	55.36	26.68
3344.4	-53.32	6.09	-47.23	X-V	82.59	55.36	27.23
3762.45	-53.62	7.92	-45.70	X-V	81.06	55.36	25.70
4180.5	-53.68	9.24	-44.44	X-V	79.80	55.36	24.44

*Note :

1. Worst Case is 11K0F3E all of the modulation.
2. Limit = Reading+Factor-(P-50+10*log(P))

7.2 UNWANTED EMISSIONS : RECEIVER RADIATED SPURIOUS EMISSION

IC Rule(s) RSS-GEN
Test Requirements: Blow the table
Operating conditions: Under normal test conditions
Method of testing: Radiated

S/A. Settings: F < 1 GHz: RBW: 120 kHz, VBW: 300 kHz (Quasi Peak)
 F > 1 GHz: RBW: 1 MHz, VBW: 1 MHz (Peak)
Mode of operation: Receive

Frequency (MHz)	Field Strength (microvolts/m at 3 meters)
30 – 88	100
88 - 216	150
216 – 960	200
Above 960	500

Operation Mode: Receive:

30 MHz ~ 1 GHz

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dB μ V	dB /m	dB	(H/V)	dB μ V/m	dB μ V/m	dB
No Critical peaks found							

Above 1 GHz

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dB μ V	dB /m	dB	(H/V)	dB μ V/m	dB μ V/m	dB
No Critical peaks found							

8. LIST OF TEST EQUIPMENT (Radiated Test)

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Calibration Due	Serial No.
Agilent	N9020A/ SIGNAL ANALYZER	07/01/2014	Annual	07/01/2015	MY51110085
Agilent	N1911A/Power Meter	01/24/2014	Annual	01/24/2015	MY45100523
Agilent	N1921A /POWER SENSOR	07/09/2014	Annual	07/09/2015	MY45241059
Hewlett Packard	8903B/Audio Analyzer	12/21/2013	Annual	12/21/2014	3413A13913
Hewlett Packard	8901B/Modulation Analyzer	04/10/2014	Annual	04/10/2015	2406A00169
Tektronix	RSA3303B/Real Time Spectrum Analyzer	05/20/2014	Annual	05/20/2015	B010208
Agilent	8498A/30 dB Attenuator	11/05/2013	Annual	11/05/2014	51162
EAGLE	230NFNM/Tuneable Notch Filter	10/17/2013	Annual	10/17/2014	H00564-10
Korea Engineering	KR-1005L / Temperature Chamber	10/30/2013	Annual	10/30/2014	KRAB05063-3CH
MITEQ	AMF-6D-001180-35-20P/AMP	09/12/2013	Annual	09/12/2014	1081666
Wainwright	WHK1.2/15G-10EF/H.P.F	06/17/2014	Annual	06/17/2015	4
Schwarzbeck	UHAP/ Dipole Antenna	03/05/2013	Biennial	03/05/2015	557
Schwarzbeck	UHAP/ Dipole Antenna	05/03/2013	Biennial	05/03/2015	558
Schwarzbeck	BBHA 9120D/ Horn Antenna	12/03/2013	Biennial	12/03/2015	1191
Schwarzbeck	BBHA 9120D/ Horn Antenna	10/05/2013	Biennial	10/05/2015	1151
REOHDE&SCHWARZ	FSV40/Spectrum Analyzer	06/09/2014	Annual	06/09/2015	1307.9002K40- 100931-NK
Inn-co GmbH	CT 0800/Turn table	N/A	N/A	N/A	AS2000P/034/9740 305
Inn-co GmbH	DE 3260/Ant. Mast	N/A	N/A	N/A	DE3260/005/78605 04/L
Schwarzbeck	VULB 9160/ TRILOG Antenna	12/17/2012	Biennial	12/17/2014	3150