TEST REPORT

1. Applicant

Name	:	Neo Reflection
Address	:	1 Floor, Bongmyung-Dong, Yoosung-Gu, Daejeon, South Korea

2. Products

Name	:	Neo Mouse Receiver
Model/Type	:	NM930308001U
Manufacturer	:	Neo Reflection
3. Test Standard	:	47 CFR FCC Part 15 Subpart C 15.249
4. Test Method	:	ANSI C63.4-2009
5. Test Result	:	Positive
6.Date of receipt	:	November 25, 2010
7. Date of Issue	:	November 16, 2010

Tested by

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Test Engineer:

Approved by

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Compliance Engineer:

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Testing Laboratories for EMC and Safety Compliance
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TABLE OF CONTENTS

1. GENERAL.....4

2. TEST SITE.....4
2.1 Location.....4
2.2 Test Date.....4
2.3 Test Environment.....4

3. DESCRIPTION OF THE EQUIPMENT UNDER TEST.....5
3.1 Rating and Physical Characteristics.....5
3.2 Equipment Modifications.....5
3.3 Submitted Documents.....5

4. MEASUREMENT CONDITIONS.....6
4.1 Description of test configuration.....6
4.2 List of Peripherals.....6
4.3 Type of Used Cables.....6

5. TEST AND MEASUREMENT.....7
5.1 ANTENNA REQUIREMENT.....7
5.1.1 Regulation.....7
5.1.2 Result.....7

5.2. 20dB BANDWIDTH.....8
5.2.1 Regulation.....8
5.2.2 Test Condition.....8
5.2.3 Test result.....8
Table 1 : Measured values of the 20dB Bandwidth.....8
Figure 1 Plot of the 20dB Channel Bandwidth.....9

5.3. SPURIOUS EMISSIONS, BAND EDGE, AND RESTRICTED BANDS.....11
5.3.1 Regulation.....11
5.3.2 Test Setup Layout.....12
5.3.2.1 Radiated Emission Test Set-Up, Frequency Below 1000MHz.....12
5.3.2.2 Radiated Emission Test Set-UP Frequency Over 1000MHz.....12
5.3.3 Test Procedure.....13
5.3.4 Test Results.....15
Table 2 : Measured values of the Field strength of fundamental & harmonics.....15
Table 3 : Measured values of the Field strength of spurious emission (Transmit mode).....16
Figure 2 : Plot of the Band Edge (Conducted).....17

Figure 3 : Plot of the Band Edge (Radiated).....18
Figure 4 : Plot of the Spurious RF conducted emissions.....20

5.4 AC POWER LINE CONDUCTED EMISSIONS.....21
5.4.1 Regulation.....21
5.4.2 Test Procedure.....24
5.4.3 Test Results.....22
Table 4 : Measured values of the Receiver Spurious Emissions.....22
Figure 5. Plot of the AC Power Line Conducted Emissions.....23

5.5 RECEIVER SPURIOUS EMISSIONS.....24
5.5.1 Regulation.....24
5.5.2 Test Results.....25
Table5 : Measured values of the Receiver Spurious Emissions.....25

6. TEST EQUIPMENTS.....26
** APPENDIXS
1. EUT photo

1. GENERAL

These tests were performed using the test procedure outlined in ANSI C63.4, 2003 for intentional radiators, and in accordance with the limits set forth in FCC Part 15.247
The EUT (Equipment Under Test) has been shown to be capable of compliance with the applicable technical standards.

We attest to the accuracy of data. All measurements reported herein were performed by Korea Standard Quality Laboratories and were made under Chief Engineer''s supervision.
We assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

2. TEST SITE

Korea Standard Quality Laboratories

2.1 Location

#102, Jangduk Dong, Hwasung City, Kyunggi Do, South Korea
(FCC Registered Test Site Number: 100384)

This test site is in compliance with ISO/IEC 17025 for general requirements for the competence of testing and calibration laboratories.

2.2 Test Date

Date of Test: November 22, 2010 ~ November 23, 2010

2.3 Test Environment

See each test item''s description.

3. DESCRIPTION OF THE EQUIPMENT UNDER TEST

The product specification described herein was obtained from the product data sheet or user''s manual.

3.1 Rating and Physical Characteristics

Power source	DC 5.0 V
Transmit Frequency	2402 ~ 2482 MHz (81 channels)
X-tal or Oscillator	X-tal: 16 MHz
Antenna Type	Integral (Chip Antenna, Gain: 2.9 dBi max.)
Type of Modulation	GFSK

3.2 Equipment Modifications

None.

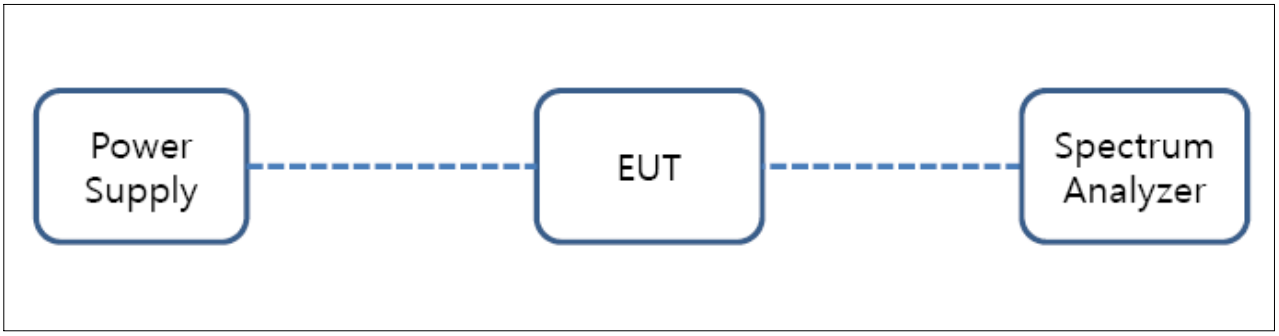
3.3 Submitted Documents

Block diagram
Schematic diagram
Antenna Specification
External photos
Test setup photos
Part List
Operational Description
Label Location
User manual

4. MEASUREMENT CONDITIONS

4.1 Description of test configuration

The measurements were taken in continuous transmitting mode using the TEST MODE. For controlling the EUT as TEST MODE, the test program and the cable assembly were provided by the applicant.



[System Block Diagram of Test Configuration]

4.2 List of Peripherals

Equipment Type	Manufacturer	Model	S/N
-	-	-	-
-	-	-	-

** For control of the RF module in the EUT. For radiated spurious emission measurements, setting the EUT to TEST MODE.

4.3 Type of Used Cables

#	START		END		CABLE	
	NAME	I/O PORT	NAME	I/O PORT	LENGTH(m)	SHIELDED
1	-	-	-	-	-	-
2						

5. TEST AND MEASUREMENT

Summary of Test Reaults

Requirement	CFR 47 Section	Report Section	Test Result
Antenna Requirement	15.203	5.1	PASS
20dB Bandwidth	15.215(c)	5.2	PASS
Spurious Emission, Band Edge, and Restricted bands	15.249(a) (d), 15.205(a), 15.209(a)	5.3	PASS
Conducted Emissions	15.207(a)	5.4	PASS
Receiver Spurious Emissions	-	5.5	PASS

5.1 ANTENNA REQUIREMENT

5.1.1 Regulation

According to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

5.1.2 Result : PASS

The transmitter has an integral Chip antenna. The directional gain of the antenna is 2.9 dBi.

5.2. 20dB BANDWIDTH

5.2.1 Regulation

According to §15.215(c), Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Sub-part E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equip-ment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emis-sion within the specified frequency band includes the effects from fre-quency sweeping, frequency hopping and other modulation techniques that may be employed as well as the fre-quency stability of the transmitter over expected variations in tempera-ture and supply voltage. If a frequency stability is not specified in the regula-tions, it is recommended that the fun-damental emission be kept within at least the central 80% of the permitted band in order to minimize the possi-bility of out-of-band operation.

5.2.2. Test Condition

- Set RBW of Spectrum analyzer to 10 kHz, Span=3MHz, Sweep=auto
- The 20dB bandwidth is defined as the frequency range where the power is higher than the peak power minus 20dB . Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater

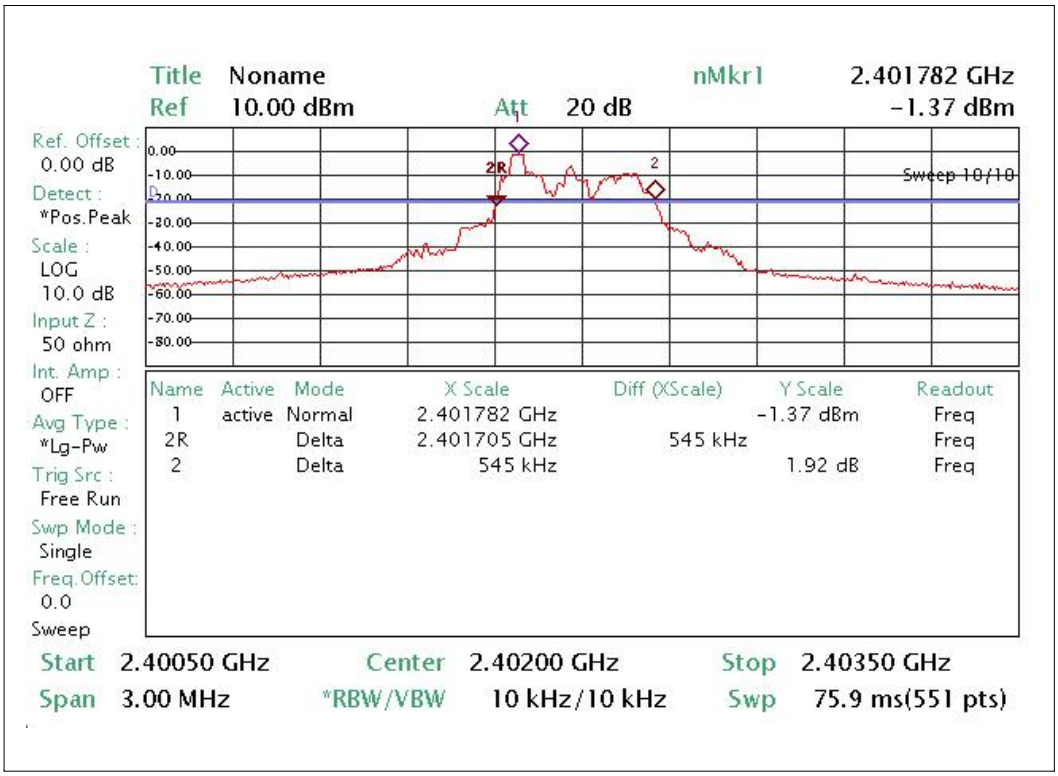
5.2.3. Test result : PASS

Table 1 : Measured values of the 20dB Bandwidth

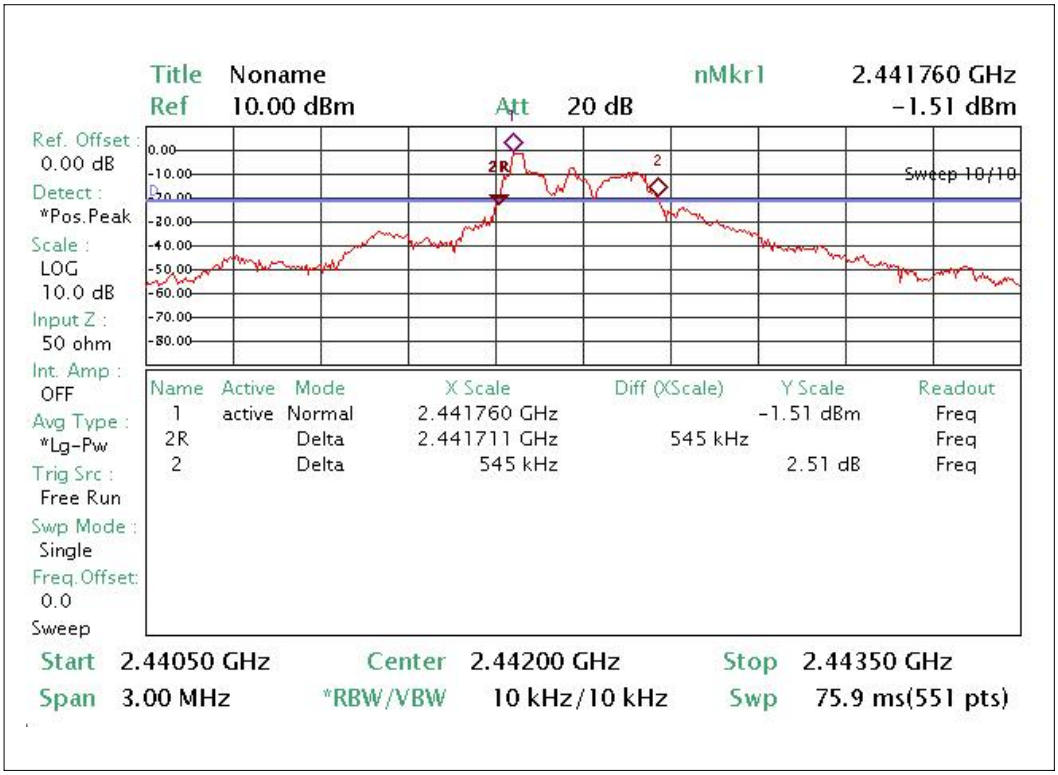
Modulation	Frequency (MHz)	Result (kHz)	Verdict
GFSK	2402	545	Pass
	2442	545	Pass
	2482	556	Pass

Figure 1. Plot of the 20dB Channel Bandwidth

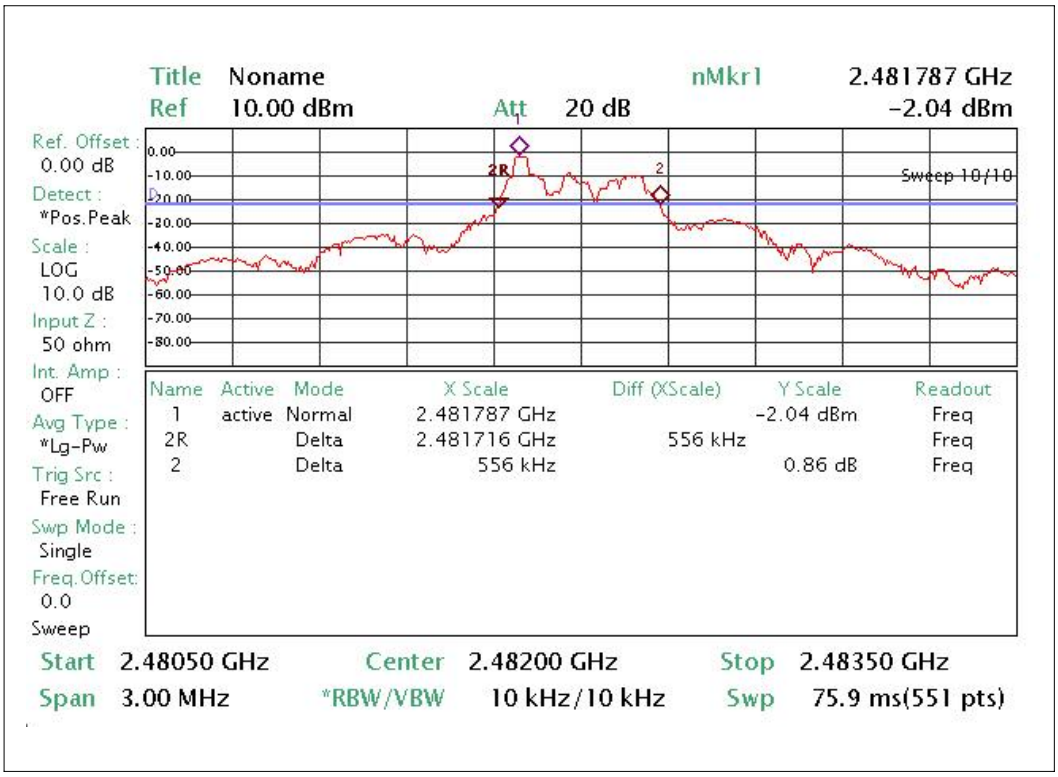
Lowest Channel (2402 MHz)



Middle Channel (2442 MHz)



Highest Channel (2482 MHz)



5.3 SPURIOUS EMISSIONS, BAND EDGE, AND RESTRICTED BANDS

5.3.1 Regulation

According to §15.249(a) (d), (a) Except as provided in paragraph.
(b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency(MHz)	Field strength of fundamental (millivolts/ meter)	Field strength of harmonics (microvolts/ meter)
902–928	50	500
2400–2483.5	50	500
5725–5875	50	500
24.0–24.25	250	2500

(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the funda-mental or to the general radiated emis-sion limits in §15.209, whichever is the lesser attenuation.
According to §15.209(a), for an intentional device, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the following values:

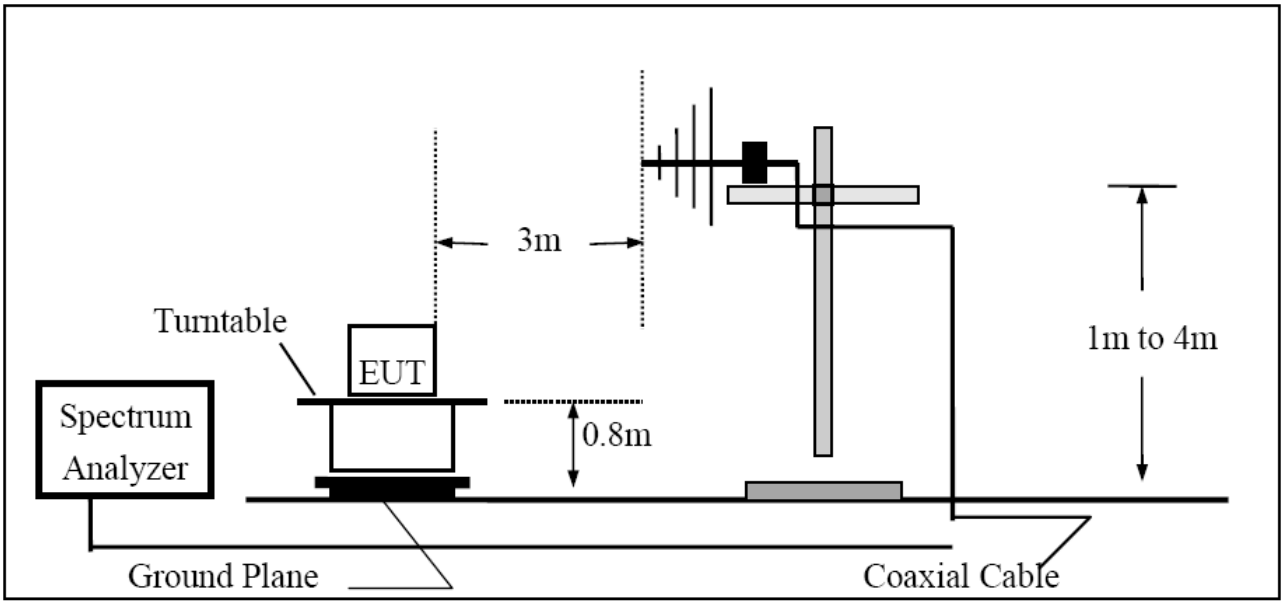
Frequency (MHz)	Field strength (μV/m @ 3m)	Field strength (dBμV/m @ 3m)
30–88	100	40.0
88–216	150	43.5
216–960	200	46.0
Above 960	500	54.0

According to §15.109(a), for an unintentional device, except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the above table.

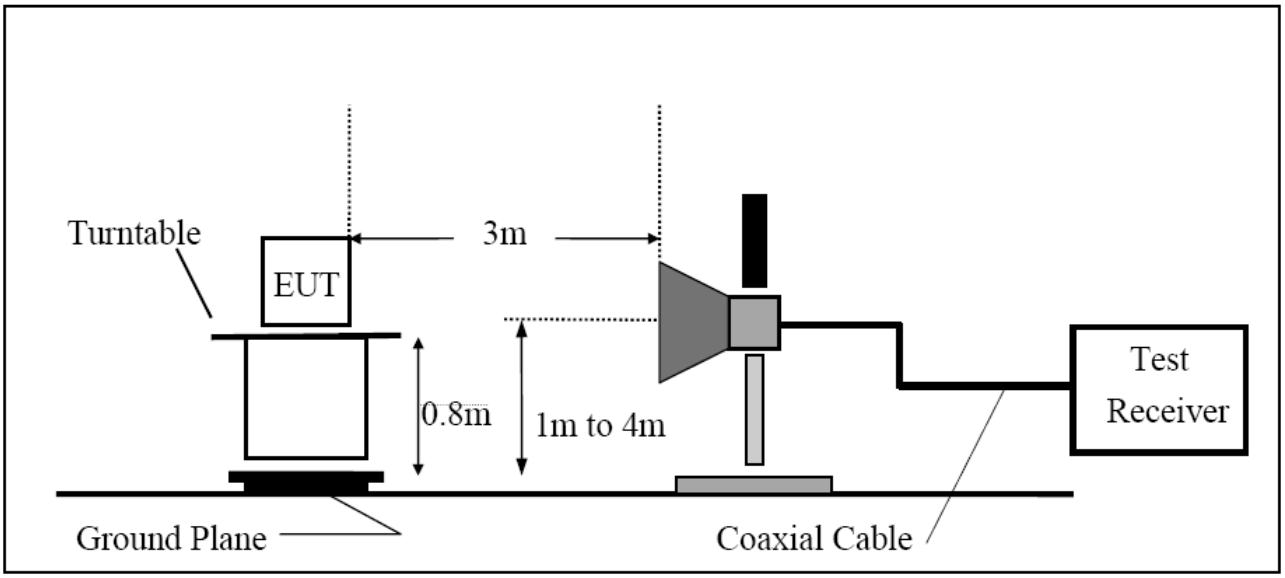
** The emission limits shown in the above table are based on measurement instrumentation employing a CISPR quasi-peak detector and above 1000 MHz are based on the average value of measured emissions.

5.3.2 Test Setup Layout

5.3.2.1 Radiated Emission Test Set-Up, Frequency Below 1000MHz



5.3.2.2 Radiated Emission Test Set-UP Frequency Over 1000MHz



5.3.3 Test Procedure

1) Band-edge Compliance of RF Conducted Emissions

1. Set the spectrum analyzer as follows:

Span = wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation

RBW ≥ 1% of the span

VBW ≥ RBW

Sweep = auto

Detector function = peak

Trace = max hold

2. Allow the trace to stabilize. Set the marker on the emission at the band-edge, or on the highest modulation product outside of the band, if this level is greater than that at the band-edge. Enable the marker-delta function, and then use the marker-to-peak function to move the marker to the peak of the in-band emission.
3. Now, using the same instrument settings, enable the hopping function of the EUT. Allow the trace to stabilize. Follow the same procedure listed above to determine if any spurious emissions caused by the hopping function also comply with the specified limit.

2) Spurious RF Conducted Emissions:

1. Set the spectrum analyzer as follows:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.

RBW = 100 kHz

VBW ≥ RBW

Sweep = auto

Detector function = peak

Trace = max hold

2. Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded.

3) Spurious Radiated Emissions:

1. The preliminary radiated measurements were performed to determine the frequency producing the maximum emissions in an anechoic chamber at a distance of 3 meters for above 30 MHz, and at 1 meter distance for below 30 MHz.
2. The EUT was placed on the top of the 0.8-meter height, 1 × 1.5 meter non-metallic table. To find the maximum emission levels, the height of a measuring antenna was changed and the turntable was rotated 360°.

3. The antenna polarization was also changed from vertical to horizontal. The spectrum was scanned from 9 kHz to 30 MHz using the loop antenna, from 30 to 1000 MHz using the Trilog broadband antenna, and from 1 GHz to tenth harmonic of the highest fundamental frequency using the horn antenna.
4. To obtain the final measurement data, the EUT was arranged on a turntable situated on a 4 × 4 meter at the Open Area Test Site. The EUT was tested at a distance 3 meters.
5. Each frequency found during preliminary measurements was re-examined and investigated. The test-receiver system was set up to average, peak, and quasi-peak detector function with specified bandwidth.
6. The EUT is situated in three orthogonal planes (if appropriate)
7. The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT.
8. If the emission on which a radiated measurement must be made is located at the edge of the authorized band of operation, then the alternative “marker-delta” method may be employed.

4) Marker-Delta Method at the edge of the authorized band of operation:

1. Perform an in-band field strength measurement of the fundamental emission using the RBW and detector function as the above Spurious Radiated Emissions test procedure.
2. Choose a spectrum analyzer span that encompasses both the peak of the fundamental emission and the band-edge emission under investigation. Set the analyzer RBW to 1% of the total span (but never less than 30 kHz) with a video bandwidth equal to or greater than the RBW. Record the peak levels of the fundamental emission and the relevant band-edge emission (i.e., run several sweeps in peak hold mode). Observe the stored trace and measure the amplitude delta between the peak of the fundamental and the peak of the band-edge emission. This is not a field strength measurement; it is only a relative measurement to determine the amount by which the emission drops at the band-edge relative to the highest fundamental emission level.
3. Subtract the delta measured in step (2) from the field strengths measured in step (1). The resultant field strengths (CISPR QP, average, or peak, as appropriate) are then used to determine band-edge compliance as required by Section 15.205.
4. The above "delta" measurement technique may be used for measuring emissions that are up to two "standard" bandwidths away from the band-edge, where a "standard" bandwidth is the bandwidth specified by C63.4 for the frequency being measured. For example, for band-edge measurements in the restricted band that begins at 2483.5 MHz, C63.4 specifies a measurement bandwidth of at least 1 MHz. Therefore you may use the "delta" technique for measuring emissions up to 2 MHz removed from the band-edge. Radiated emissions that are removed by more than two “standard” bandwidths must be measured as the above Spurious Radiated Emissions test procedure.

5.3.4 Test Results: **PASS**

Table 2 : Measured values of the Field strength of fundamental & harmonics

Frequency (MHz)	Detect Mode	Polarization (V/H)	Measured Value (dBμV)	Antenna Factor + Cable Loss (dB/m)	Amplifier Gain (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2402	Peak	V	79.25	35.6	-23.2	91.65	114	22.35
	Average	V	22.18	35.6	-23.2	34.58	94	59.42
	Peak	H	79.07	35.6	-23.2	91.47	114	22.53
	Average	H	22.11	35.6	-23.2	34.51	94	59.49
2442	Peak	V	79.31	36.7	-23.2	92.81	114	21.19
	Average	V	22.12	36.7	-23.2	35.62	94	58.38
	Peak	H	78.93	36.7	-23.2	92.43	114	21.57
	Average	H	22.09	36.7	-23.2	35.59	94	58.41
2482	Peak	V	79.35	37.4	-23.2	93.55	114	20.45
	Average	V	22.04	37.4	-23.2	36.24	94	57.76
	Peak	H	79.05	37.4	-23.2	93.25	114	20.75
	Average	H	22.03	37.4	-23.2	36.23	94	57.77

Band-edge compliance of RF conducted/radiated emissions was shown in the Figure 2 and Figure 3

NOTE: We took the insertion loss of the cable loss into consideration within the measuring instrument.

Spurious RF conducted emissions were shown in the Figure 4

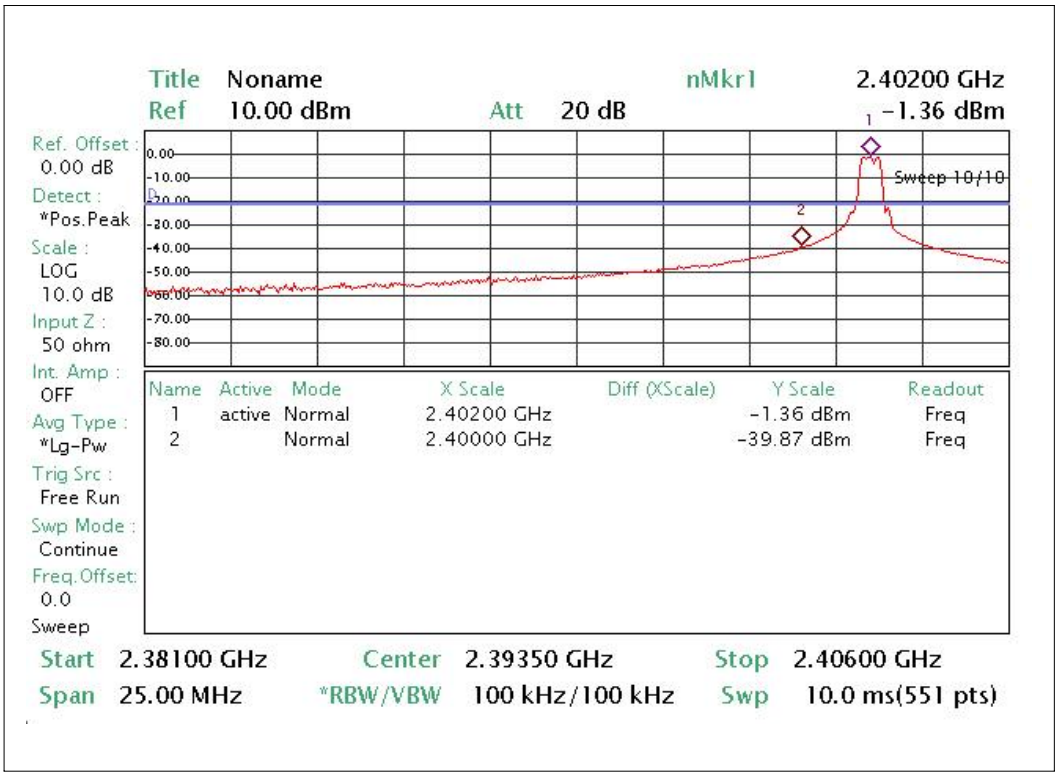
NOTE: We took the insertion loss of the cable loss into consideration within the measuring instrument.

Table 3 : Measured values of the Field strength of spurious emission (Transmit mode)										
Frequency (MHz)		Detect Mode	Polarization (V/H)	Turn Table (degree)	Measured Value (dBμV)	Antenna Factor + Cable Loss (dB/m)	Amplifier Gain (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Average/Peak/Quasi-peak data, emissions below 30 MHz										
			No Spurious Radiated Emissions Found							
Quasi-peak data, emissions below 1000 MHz										
			No Spurious Radiated Emissions Found							
Peak/Average data, emissions above 1000 MHz										
CH 0 (2402MHz)	4804	Peak	V	83	27.87	40.3	-23.2	44.97	74	29.03
	4804	Average	V	83	21.36	40.3	-23.2	38.46	54	15.54
	4804	Peak	H	47	27.58	40.3	-23.2	44.68	74	29.32
	4804	Average	H	47	20.55	40.3	-23.2	37.65	54	16.35
CH 39 (2442MHz)	4884	Peak	V	96	26.86	40.7	-23.2	44.36	74	29.64
	4884	Average	V	96	21.25	40.7	-23.2	38.75	54	15.25
	4884	Peak	H	23	28.64	40.7	-23.2	46.14	74	27.86
	4884	Average	H	23	19.78	40.7	-23.2	37.28	54	16.72
CH 78 (2482MHz)	4964	Peak	V	254	28.33	41.2	-23.2	46.33	74	27.67
	4964	Average	V	254	19.92	41.2	-23.2	37.92	54	16.08
	4964	Peak	H	167	27.18	41.2	-23.2	45.18	74	28.82
	4964	Average	H	167	20.54	41.2	-23.2	38.54	54	15.46

1. Margin (dB) = Limit − Emission Level
2. H = Horizontal, V = Vertical Polarization

Figure 2. Plot of the Band Edge (Conducted)

Lowest Channel (2402 MHz)



Middle Channel (2482 MHz)

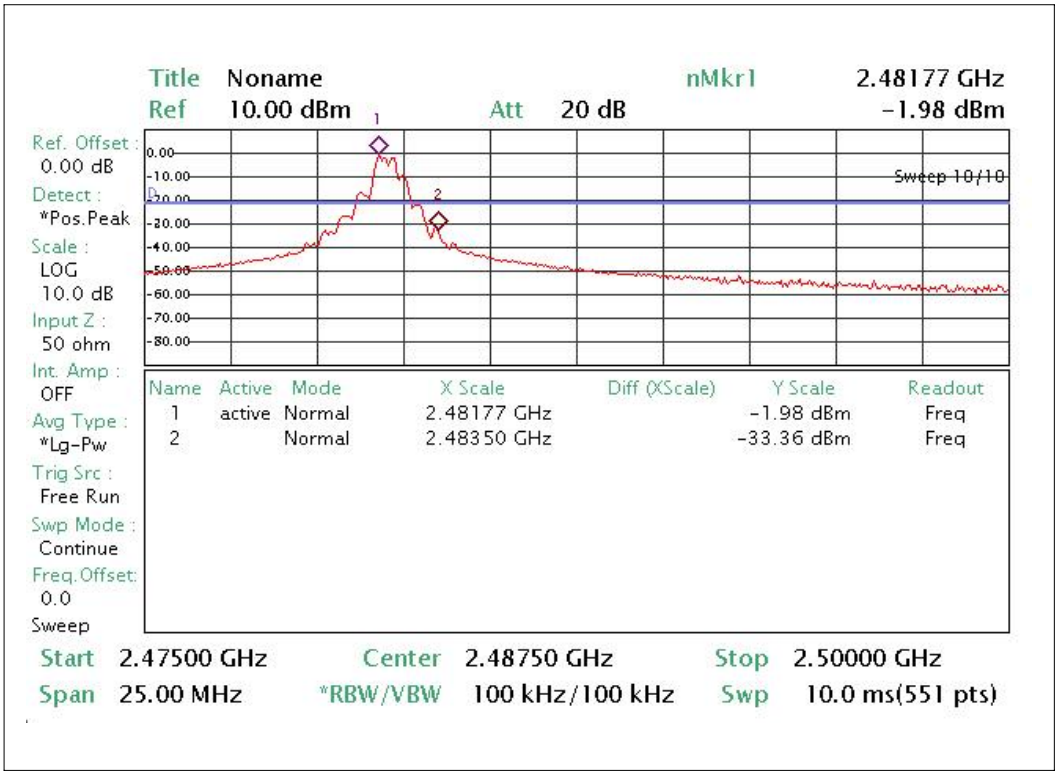
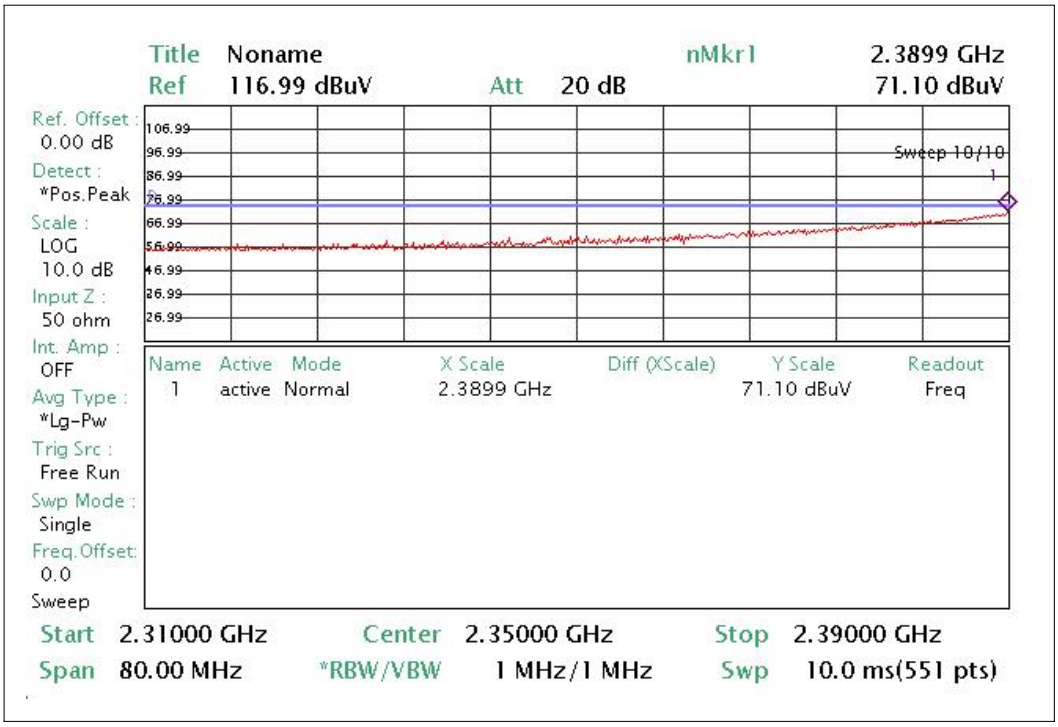
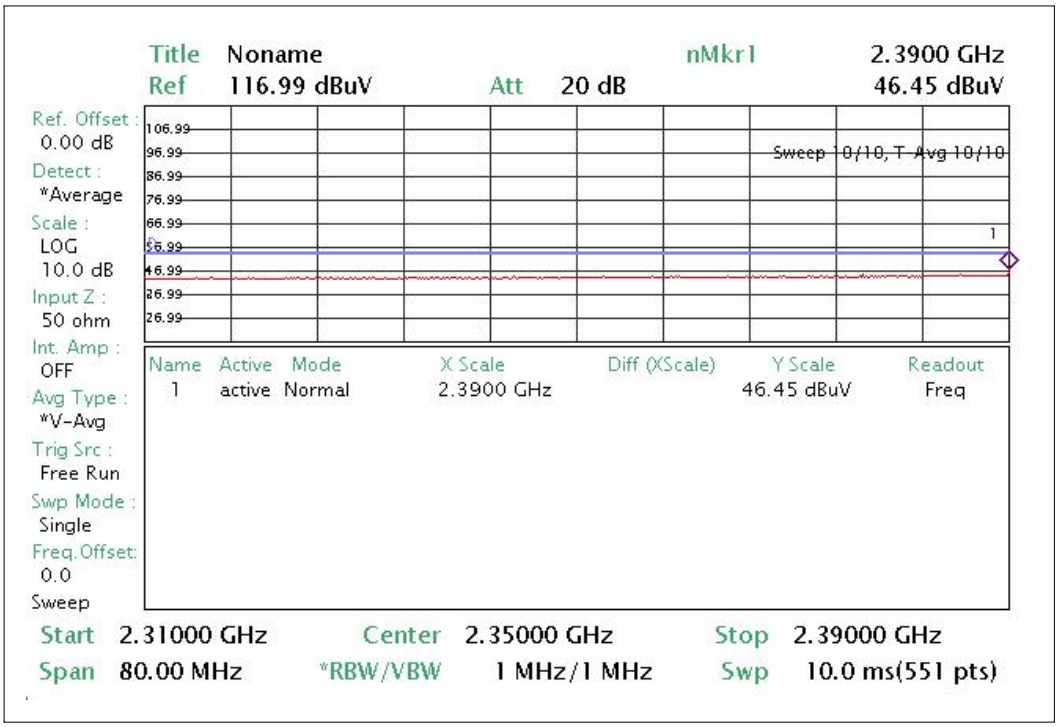


Figure 3. Plot of the Band Edge (Radiated)

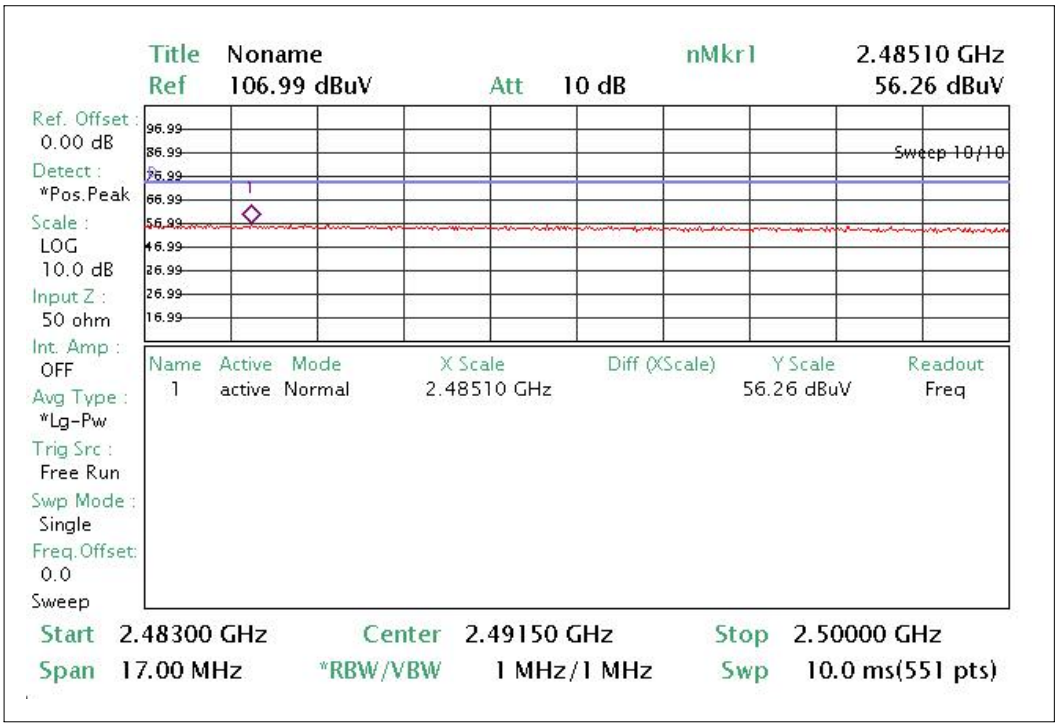
Lowest Channel (2402 MHz)-Peak



Lowest Channel (2402 MHz)-Average



Highest Channel (2482 MHz)-Peak



Highest Channel (2482 MHz)-Average

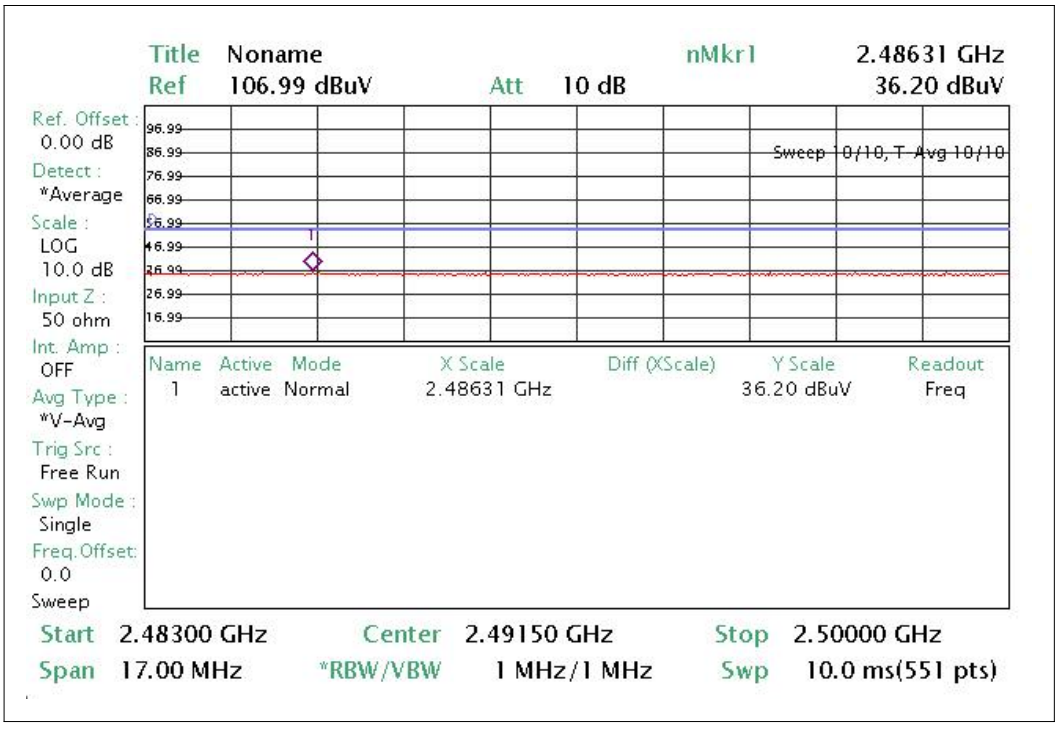
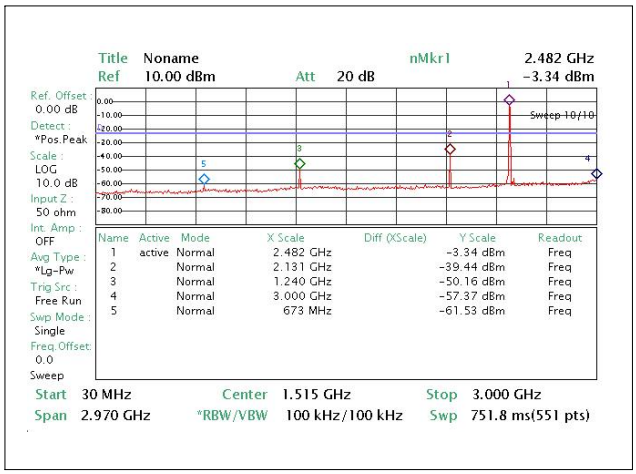
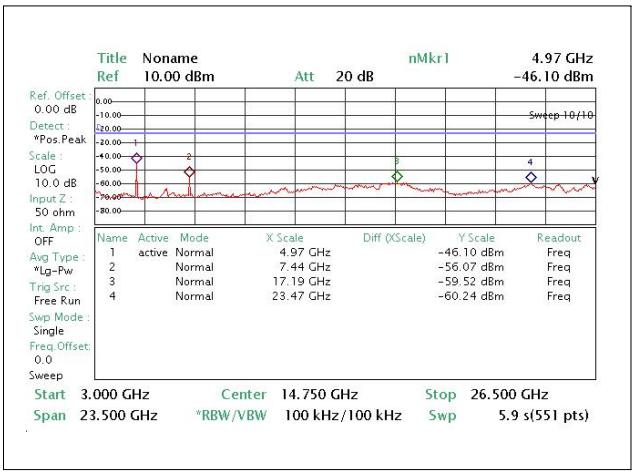


Figure 4. Plot of the Spurious RF conducted emissions

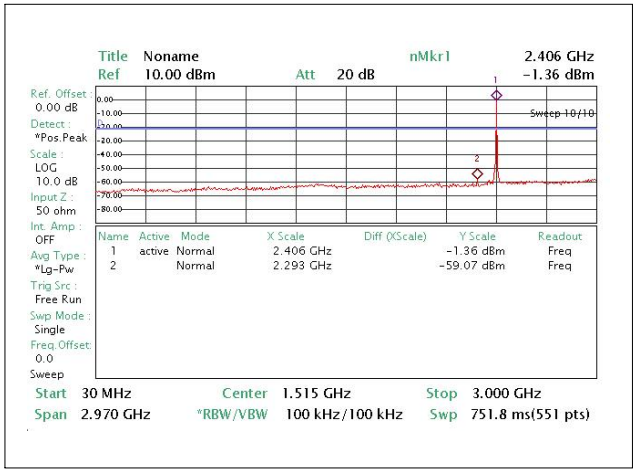
Lowest Channel (2402 MHz) : 30MHz ~ 3GHz



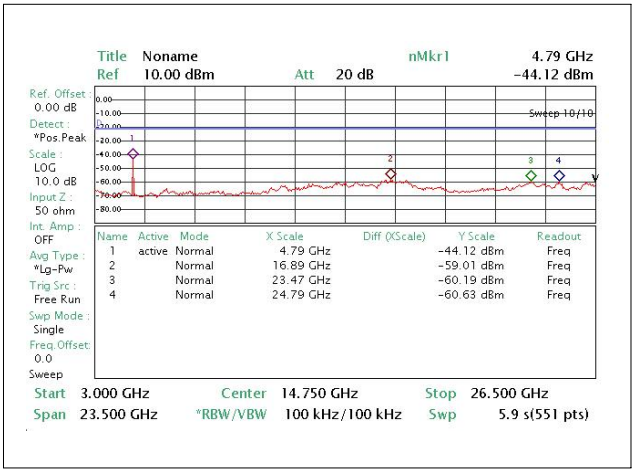
Lowest Channel (2402 MHz) : 3GHz ~ 26.5GHz



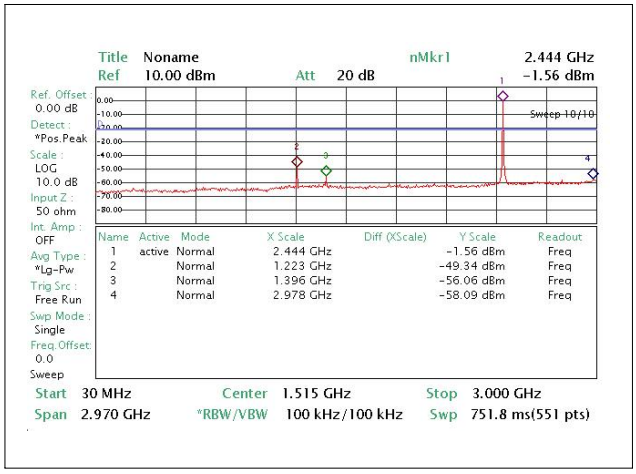
Middle Channel (2442 MHz) : 30MHz ~ 3GHz



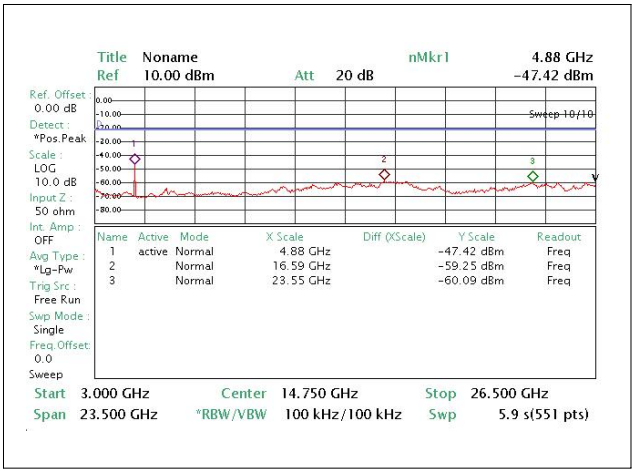
Middle Channel (2442 MHz) : 3GHz ~ 26.5GHz



Highest Channel (2482 MHz) : 30MHz ~ 3GHz



Highest Channel (2482 MHz) : 3GHz ~ 26.5GHz



5.4 AC POWER LINE CONDUCTED EMISSIONS

5.4.1 Regulation

According to §15.207(a), for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Qausi-peak	Average
0.15 – 0.5	66 to 56 *	56 to 46 *
0.5 – 5	56	46
5 – 30	60	50

* Decreases with the logarithm of the frequency.

According to §15.107(a), for unintentional device, except for Class A digital devices, line conducted emission limits are the same as the above table.

5.4.2 Test Procedure

1. The EUT was placed on a wooden table of size, 1 m by 1.5 m, raised 80 cm in which is located 40 cm away from the vertical wall and 1.5m away from the side wall of the shielded room.
2. Each current-carrying conductor of the EUT power cord was individually connected through a 50Ω/50μH LISN, which is an input transducer to a Spectrum Analyzer or an EMI/Field Intensity Meter, to the input power source.
3. Exploratory measurements were made to identify the frequency of the emission that had the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable position, and with a typical system equipment configuration and arrangement. Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that had produced the emission with the highest amplitude relative to the limit was selected for the final measurement.
4. The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment is the system) was then performed over the frequency range of 0.15 MHz to 30 MHz.
5. The measurements were made with the detector set to PEAK amplitude within a bandwidth of 10 kHz or to QUASI-PEAK and AVERAGE within a bandwidth of 9 kHz. The EUT was in transmitting mode during the measurements.

5.4.3 Test Results: **PASS**

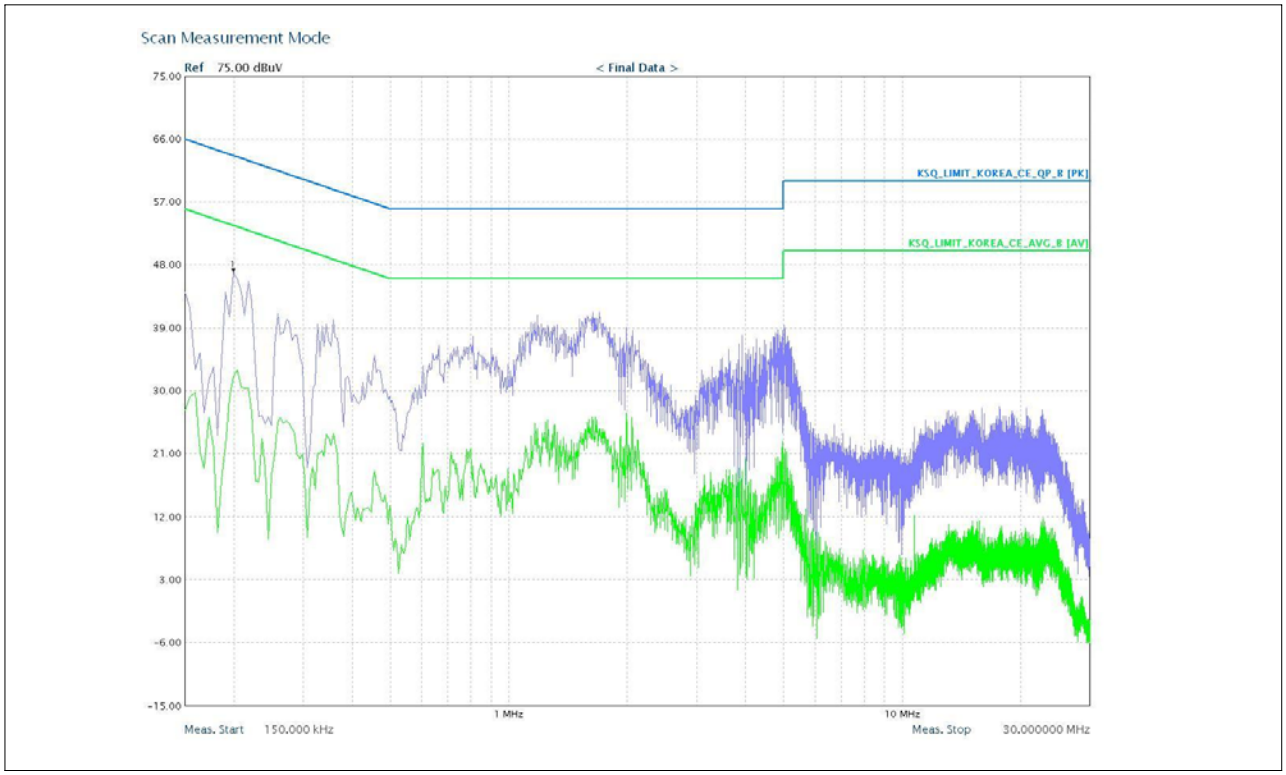
Table 4 : Measured values of the Conducted Emissions

Line Conducted Emission						
Frequency (MHz)	Amplitude (dBuV)	Phase Hot/Neutral	Detector QP/AV/PK	Applicable Limit		Quasi-peak Margin (dB)
				Quasi-peak (dBuV)	Average (dBuV)	
0.19	40.73	H	QP	64.03	54.03	23.30
0.20	40.15	N	QP	63.61	53.61	23.46
0.26	34.60	H	QP	61.43	51.43	26.83
0.27	40.11	N	QP	61.11	51.11	21.00
0.36	33.19	H	QP	58.72	48.72	25.53
0.41	36.85	N	QP	57.64	47.64	20.79
0.79	30.34	H	QP	56.00	46.00	25.66
0.89	38.24	N	QP	56.00	46.00	17.76
1.44	40.58	N	QP	56.00	46.00	15.42
1.69	34.17	H	QP	56.00	46.00	21.83
3.63	33.07	N	QP	56.00	46.00	22.93
3.91	29.26	H	QP	56.00	46.00	26.74
5.01	35.16	N	QP	60.00	50.00	24.84
5.02	31.46	H	QP	60.00	50.00	28.54
10.74	19.89	H	QP	60.00	50.00	40.11
10.90	20.66	N	QP	60.00	50.00	39.34
16.94	21.69	N	QP	60.00	50.00	38.31
22.84	20.27	H	QP	60.00	50.00	39.73

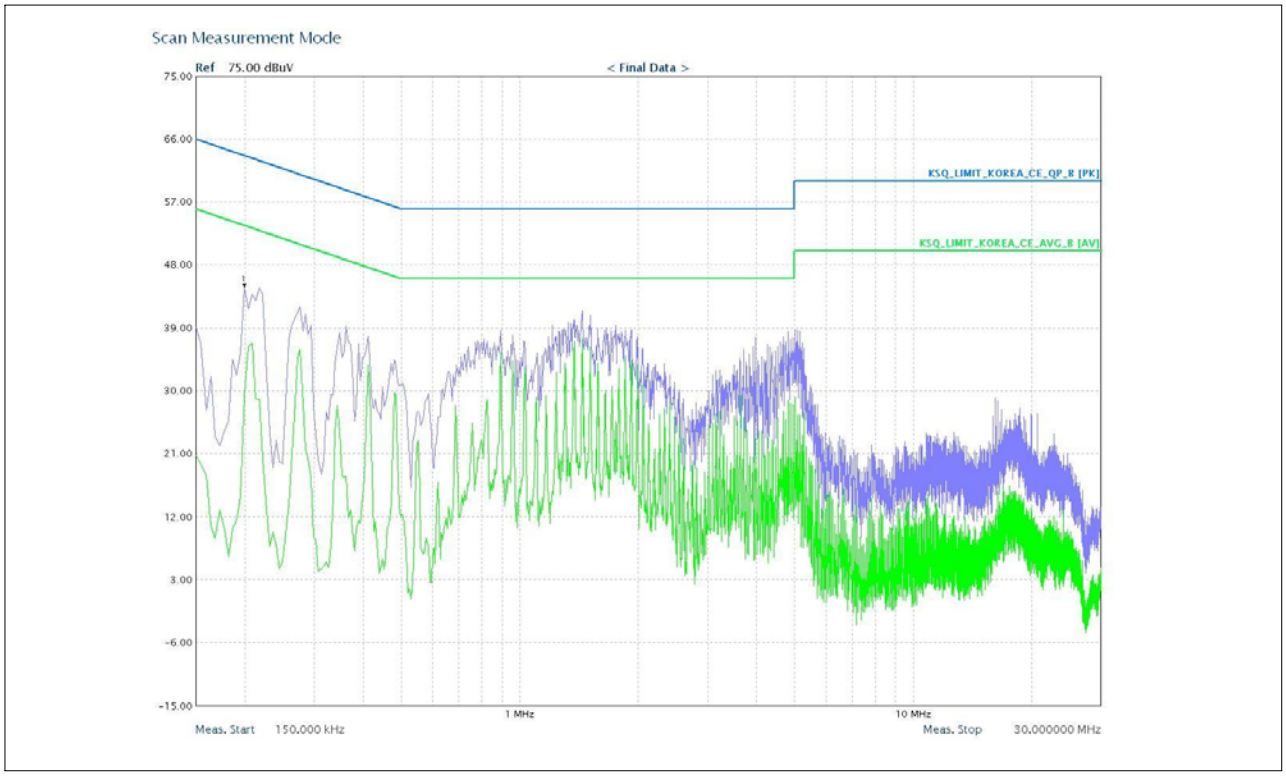
PK = Peak; QP = Quasi-peak; AV = Average

Figure 5. Plot of the AC Power Line Conducted Emissions

Line − PE(Peak and Average detector used)



Neutral − PE(Peak and Average detector used)



5.5 RECEIVER SPURIOUS EMISSIONS

5.5.1 Regulation

The following receiver spurious emission limits shall be complied with:

(a) If a radiated measurement is made, all spurious emissions shall comply with the limits of Table 1. The resolution bandwidth of the spectrum analyzer shall be 100 kHz for spurious emission measurements below 1.0 GHz, and 1.0 MHz for measurements above 1.0 GHz.

Spurious Emission Limit for Receivers

Frequency (MHz)	Field strength (μV/m @ 3m)	Field strength (dBμV/m @ 3m)
30–88	100	40.0
88–216	150	43.5
216–960	200	46.0
Above 960	500	54.0

* Use quasi-peak below 1000 MHz and averaging meter above 1000 MHz.

5.5.2 Test Results: **PASS**

Table 5 : Measured values of the Receiver Spurious Emissions

Frequency (MHz)	Detect Mode	Polarization (V/H)	Turn Table (degree)	Measured Value (dBμV)	Antenna Factor + Cable Loss (dB/m)	Amplifier Gain (dB)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
Quasi-peak data, emissions below 1000 MHz									
			No Spurious Radiated Emissions Found						
Peak/Average data, emissions above 1000 MHz									
CH 0 (2402MHz)	2403.5	Peak	V	116	36.45	35.6	-23.2	48.85	74	25.15
	2403.5	Average	V	116	24.11	35.6	-23.2	36.51	54	17.49
	2403.5	Peak	H	84	35.69	35.6	-23.2	48.09	74	25.91
	2403.5	Average	H	84	25.25	35.6	-23.2	37.65	54	16.35
CH 39 (2442MHz)	2443.5	Peak	V	325	35.87	36.7	-23.2	49.37	74	24.63
	2443.5	Average	V	325	24.36	36.7	-23.2	37.86	54	16.14
	2443.5	Peak	H	136	35.71	36.7	-23.2	49.21	74	24.49
	2443.5	Average	H	136	24.88	36.7	-23.2	38.38	54	15.62
CH 78 (2482MHz)	2483.5	Peak	V	69	36.21	37.4	-23.2	50.41	74	23.59
	2483.5	Average	V	69	25.39	37.4	-23.2	39.59	54	14.41
	2483.5	Peak	H	297	35.76	37.4	-23.2	49.96	74	24.04
	2483.5	Average	H	297	25.08	37.4	-23.2	39.28	54	14.72

1. Margin (dB) = Limit − Emission Level
2. H = Horizontal, V = Vertical Polarization

APPENDIX

TEST EQUIPMENT USED FOR TESTS

No.	Description	Manufacturer	Model No.	Specifications	Next Cal. Data	Used equipment
1	EMI Test Receiver	LIG Nex1	LSA-265	3Hz~26.5GHz	10.12.18	■
2	Dipole ANT	ElectroMetrics	TDA-30/1-4	30~1GHz	12.03.23	□
3	Biconical ANT	ElectroMetrics	BIA-30S	30~300MHz	12.03.23	■
4	Log periodic ANT	ElectroMetrics	LPA-30	0.2~1GHz	12.03.23	■
5	Bilog Antenna	Schaffner-Chase EMC Ltd.	CBL6140A	50V, 5A	12.05.07	■
6	Turn Table	KEI	KEI-TURN	1500×1000×800	N/A	□
7	Turn Table	KEI	KEI-TURN	1500×1000×800	N/A	■
8	Loop ANT.	Com-Power	AL-130	9kHz~30MHz	11.03.24	□
9	Spectrum Analyzer	LIG Nex1	ISA-265	1kHz~26.5GHz	11.05.20	■
10	Function Generator	Agilent	33120A	15MHz sine&square	11.06.09	□
11	Frequency Counter	HP	5350B	10Hz~20GHz	11.06.09	□
12	Modulation Analyzer	Agilent	8901B	10MHz~1.3GHz	11.06.09	□
13	Audio Analyaer	Agilent	8903B	20Hz~100kHz	11.06.09	□
14	Attenuator	Agilent	8494B	0~11dB, 18GHz	11.06.09	□
15	Attenuator	Agilent	8496B	0~110dB, 18GHz	11.06.09	□
16	Attenuator	Agilent	8495B	0~70dB, 18GHz	11.06.09	□
17	Attenuator	TAE SUNG	SMA-1	6dB	11.09.02	□
18	Attenuator	TAE SUNG	SMA-2	6dB	11.09.02	□
19	Power Meter	Agilent	E4418B	100kHz~110GHz, 0.0001uW~25100mW	11.06.09	■
20	Power Sensor	HP	8485A	50MHz~26.5GHz	11.06.09	■
21	Vibration Tester	Gana	GNV-400	10~60Hz, 0~4mm	11.09.09	□
22	RF Cable	Gigalane	SMS-LL280-SMS -1.5M	1.5m	N/A	■
23	Temp & Humidity Chamber	Seoksan Tech	SE-CT-02	-40~150℃, 30~98%	11.06.09	■
24	Signal Generator	Leader Electronics	3220	100kHz~1.3GHz	11.06.09	■
25	Oscilloscope	Tektronix	TDS-350	200MHz	11.09.02	□
26	Drop Tester	Self-made	KSQ-01	150cm	N/A	□
27	Pre Amplifier	GTC	GA-1825A	0.1~18GHz	11.06.09	■
28	Continuous operation tester	GTC	CT-100	Local Control	N/A	□
29	CW Generator	HP	83711B	1~20GHz	11.06.09	■
30	POWER DIVIDER	Agilent	11636B	26.5GHz	11.06.09	□
31	Power Sensor	Agilent	8482B	100kHz ~ 4.2GHz	11.06.09	□
32	Attenuator	Winswell	53-30-33	dc-2.5GHz, 500W	11.06.09	□
33	DC Power Supply	Hanil	HPS-505A	50V, 5A	11.09.02	□
34	Slidacs	Hanchang	5KV	5kW, 300V	11.09.02	□
35	Termination	Kwang Yeok	KYTE-NJ-150W	150W	11.09.02	□
36	Band-limited filter	MITECH	KSQ-02	600Ω	11.09.02	□
37	Signal Generator	WILTRON	6759B	10MHz ~ 26.5GHz	11.09.02	□
38	Digital Multimeter	DONG HWA	DM-300A	AC/DC 500V Max,320mA Max	11.09.02	■
39	Horn ANT.	SCHWARZBECK	BBHA 9120D	700MHz ~ 18GHz	11.09.23	■
40	DC Power Supply	ALINCO	DM-340MW	15V, 30A	11.09.02	■

APPENDIX

1. EUT photo