FCC TEST REPORT
FCC ID: RAKRCV-110R

Product：	2.4G Wireless Receiver
Trade Name：	N/A
Model Number：	RCV-110R, RCV-2.4GXY ,RCV-100R , RCV-110XY , RCV-120XY ,RCV-130XY, RCV-140XY , RCV-150XY, RCV-160XY , RCV-170XY
Report No.：	NTEK-2013NT041149E

Prepared for

ADESSO TECHNOLOGIES INC.

Room 501,Block2,9 9th Gaoxin South Road,Vision Business Park,Hi Tech Industrial Park,Nashan District,Shenzhen,China

Prepared by

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Website: www.ntek.org.cn

TEST RESULT CERTIFICATION

Applicant's name	:	ADESSO TECHNOLOGIES INC.
Address	:	Room 501,Block2,9 9th Gaoxin South Road,Vision Business Park,Hi Tech Industrial Park,Nashan District,Shenzhen,China
Manufacturer's Name	:	ADESSO TECHNOLOGIES INC.
Address	:	Room 501,Block2,9 9th Gaoxin South Road,Vision Business Park,Hi Tech Industrial Park,Nashan District,Shenzhen,China

Product description

Product name	:	2.4G Wireless Receiver
Model and/or type reference	:	RCV-110R, RCV-2.4GXY , RCV-100R , RCV-110XY RCV-120XY , RCV-130XY,RCV-140XY , RCV-150XY RCV-160XY , RCV-170XY
Standards	:	FCC Part15B:2012 ANSI C63.4:2009

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with Part 15 of FCC Rules. And it is applicable only to the tested sample identified in the report.

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Date of Test	:	
Date (s) of performance of tests	:	26 Sep. 2012 ~10 Oct. 2012
Date of Issue	:	11 Oct. 2012
Test Result	:	**Pass**

Testing Engineer : Apple Huang

(Apple Huang)

Technical Manager : Jim He

(Jim He)

Authorized Signatory : Bovey Yang

(Bovey Yang)

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1. TEST SUMMARY

Test procedures according to the technical standards:

FCC Part15B:2010				
Standard	Test Item	Limit	Judgment	Remark
FCC Part15B:2010 ANSI C63.4: 2009	Conducted Emission	Class B	PASS	
	Radiated Emission	Class B	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

1.1 TEST FACILITY

NTEK Testing Technology Co., Ltd.
Add. : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.
FCC FRN Registration Number:238937; IC Registration Number:9270A-1
CNAS Registration Number:L5516

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y ± U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
NTEKC01	ANSI	150 KHz ~ 30MHz	3.2	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
NTEKA01	ANSI	30MHz ~ 1000MHz	4.7	
		1GHz ~6GHz	5.0	

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Equipment</td><td>2.4G Wireless Receiver</td></tr>
<tr><td>Brand Name</td><td>N/A</td></tr>
<tr><td>Model Name.</td><td>RCV-110R</td></tr>
<tr><td>Serial No</td><td>RCV-2.4GXY , RCV-100R , RCV-110XY , RCV-120XY , RCV-130XYRCV-140XY , RCV-150XY , RCV-160XY , RCV-170XY</td></tr>
<tr><td>Model Difference</td><td>All the same,model name is different</td></tr>
<tr><td>Product Description</td><td>The EUT is a 2.4G Wireless Receiver..
<table><tr><td>Receive frequency:</td><td>2.402GHz-2.480GHz (It’s only Receiver, isn’t transmitter)</td></tr><tr><td>Connecting I/O port:</td><td>USB port</td></tr></table>Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.</td></tr>
<tr><td>Power Source</td><td>DC 5V by PC</td></tr>
<tr><td>Battery</td><td>N/A</td></tr>
<tr><td>Adapter</td><td>N/A</td></tr>
</table>

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

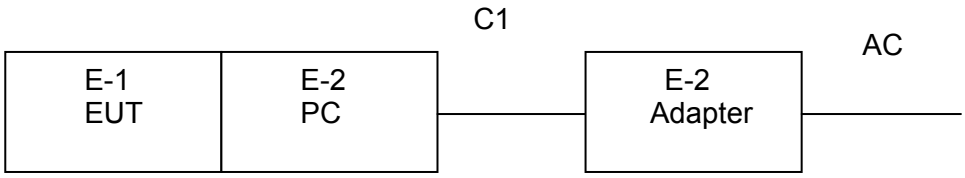
Pretest Mode	Description
Mode 1	USB Mode

For Conducted Test	
Final Test Mode	Description
Mode 1	USB Mode

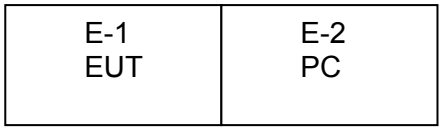
For Radiated Test	
Final Test Mode	Description
Mode 1	USB Mode

2.3 DESCRIPTION OF TEST SETUP

Conducted Emission Test



Radiated Spurious Emission Test



2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	2.4G Wireless Receiver	N/A	RCV-110R	N/A	EUT
E-2	Notebook computer	IBM	2366	N/A	
E-3	Adapter	IBM	08K8202	N/A	

Item	Shielded Type	Ferrite Core	Length	Note

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.
(3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.

2.5 MEASUREMENT INSTRUMENTS LIST

Radiation Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY45108040	2012.07.06	2013.07.05	1 year
2	Test Receiver	R&S	ESPI	101318	2012.06.07	2013.06.06	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2012.07.06	2013.07.05	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2012.06.07	2013.06.06	1 year
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	2012.06.07	2013.06.06	1 year
6	Horn Antenna	EM	EM-AH-10180	2011071402	2012.07.06	2013.07.05	1 year
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2012.07.06	2013.07.05	1 year
8	Amplifier	EM	EM-30180	060538	2012.12.22	2013.12.21	1 year
9	Loop Antenna	ARA	PLA-1030/B	1029	2012.06.08	2013.06.07	1 year
10	Power Meter	R&S	NRVS	100696	2012.07.06	2013.07.05	1 year
11	Power Sensor	R&S	URV5-Z4	0395.1619.05	2012.07.06	2013.07.05	1 year

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2012.06.06	2013.06.05	1 year
2	LISN	R&S	ENV216	101313	2012.08.24	2013.08.23	1 year
3	LISN	EMCO	3816/2	00042990	2012.08.24	2013.08.23	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2012.06.07	2013.06.06	1 year
5	Passive Voltage Probe	R&S	ESH2-Z3	100196	2012.06.07	2013.06.06	1 year
6	Absorbing clamp	R&S	MOS-21	100423	2012.06.08	2013.06.07	1 year

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

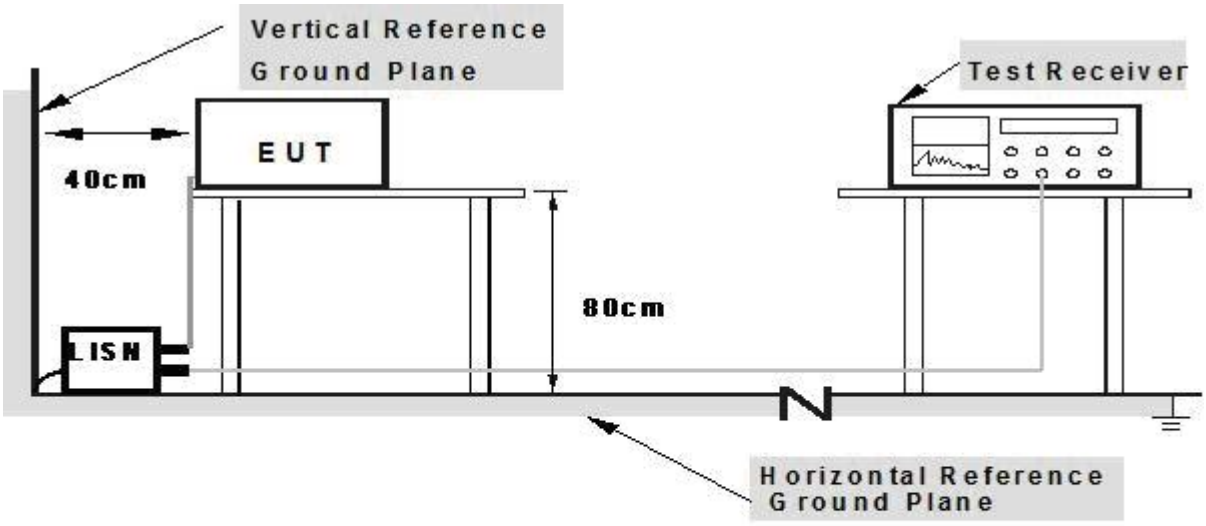
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

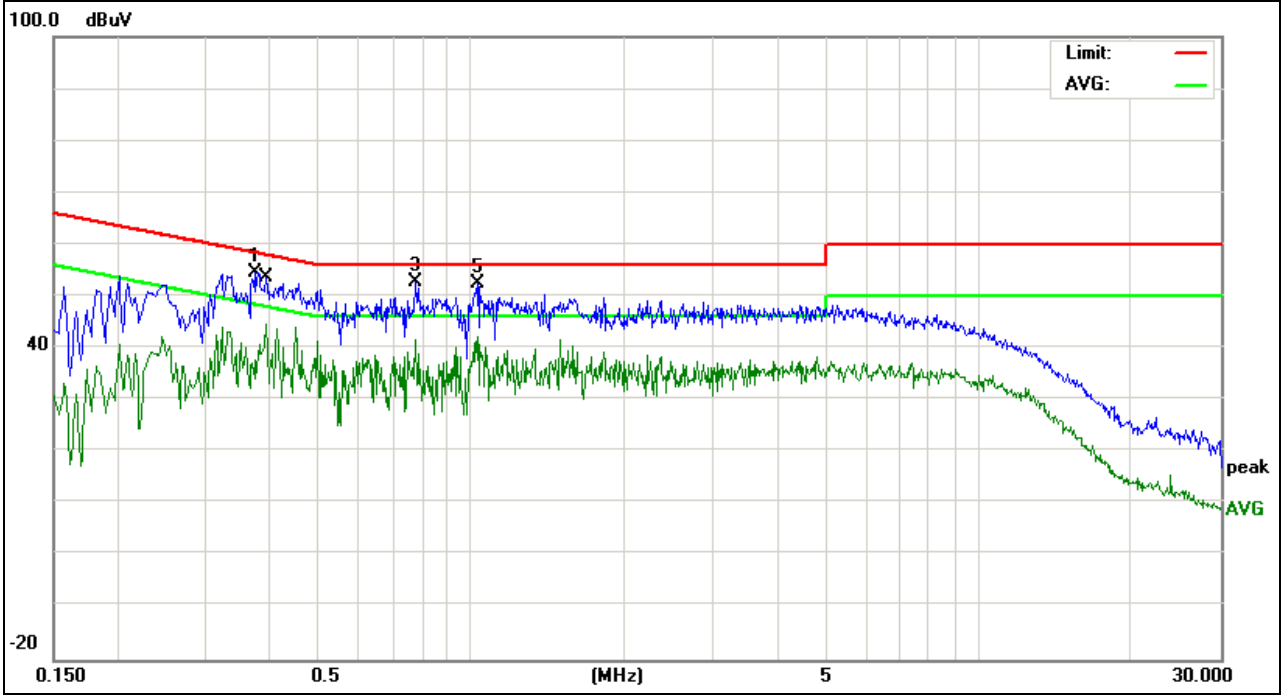
3.1.5 TEST RESULTS

EUT：	2.4G Wireless Receiver	Model Name ：	RCV-110R
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Phase：	L
Test Voltage ：	DC 5.0V from PC AC 120V/60Hz	Test Mode：	Mode 1

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.3738	44.18	10.42	54.6	58.41	-3.81	QP
0.394	34.28	10.42	44.7	47.98	-3.28	AVG
0.778	42.34	10.41	52.75	56	-3.25	QP
0.778	31.27	10.41	41.68	46	-4.32	AVG
1.03	42.06	10.45	52.51	56	-3.49	QP
1.03	31.65	10.45	42.1	46	-3.9	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

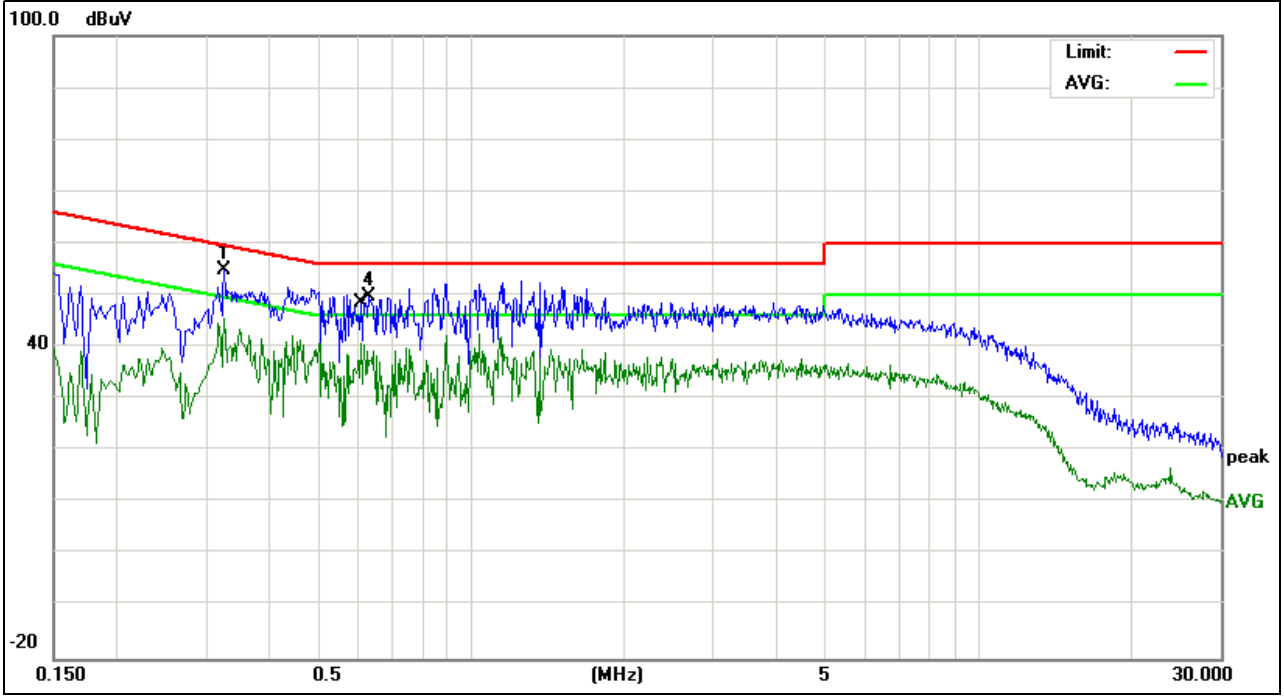


EUT：	2.4G Wireless Receiver	Model Name ：	RCV-110R
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Phase：	N
Test Voltage ：	DC 5.0V from PC AC 120V/60Hz	Test Mode：	Mode 1

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.326	44.32	10.42	54.74	59.55	-4.81	QP
0.326	35.19	10.42	45.61	49.55	-3.94	AVG
0.6059	30.23	10.41	40.64	46	-5.36	AVG
0.63	39.2	10.41	49.61	56	-6.39	QP

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. '*' means the worst case



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 3m)
	dBuV/m	dBuV/m
30 ~ 88	39.0	40.0
88 ~ 216	43.5	43.5
216 ~ 960	46.5	46.0
Above 960	49.5	54.0

Notes:

(1) The limit for radiated test was performed according to as following: FCC PART 15B /ICES-003.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

3.2.2 TEST PROCEDURE

a. The measuring distance of at 10 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.

b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

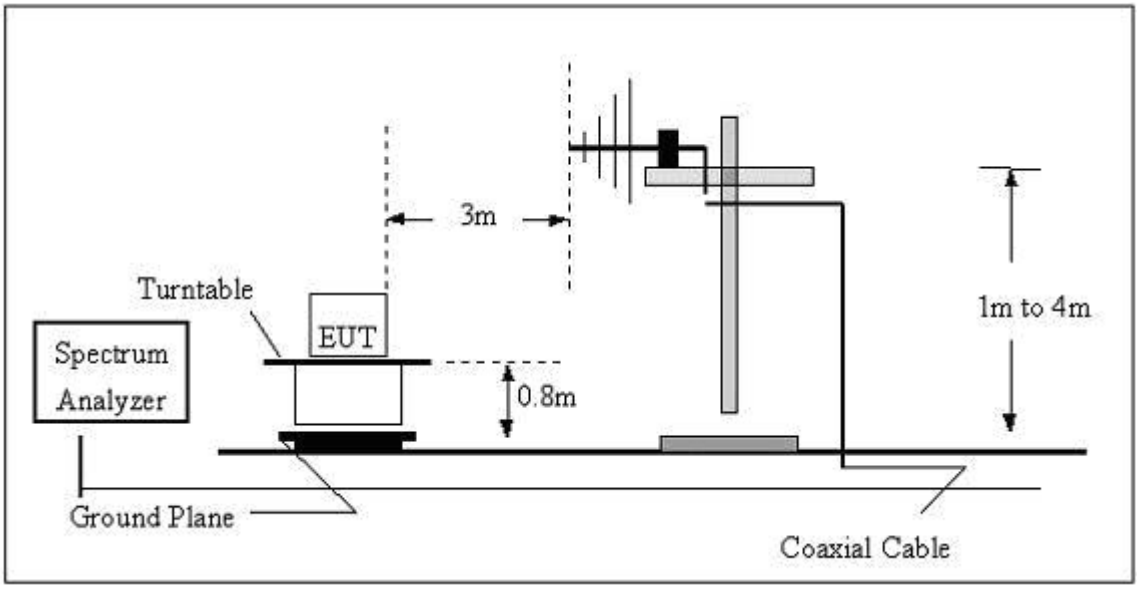
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured, above 1G Average detector mode will be instead.

e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP(AV) Limits and then no additional QP Mode measurement performed.

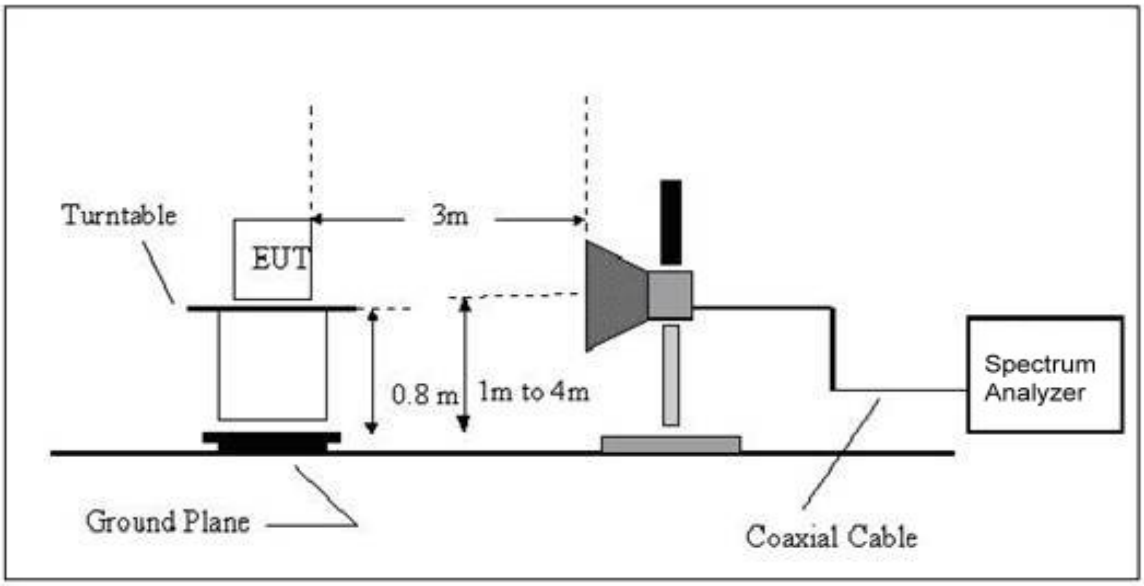
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.2.3 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1GHz



3.2.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.5 TEST RESULTS(Below 30MHZ)

EUT：	2.4G Wireless Receiver	Model Name ：	RCV-110R
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 5.0V
Test Mode ：	Mode 1	Polarization :	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	N/A
--	--	--	--	N/A

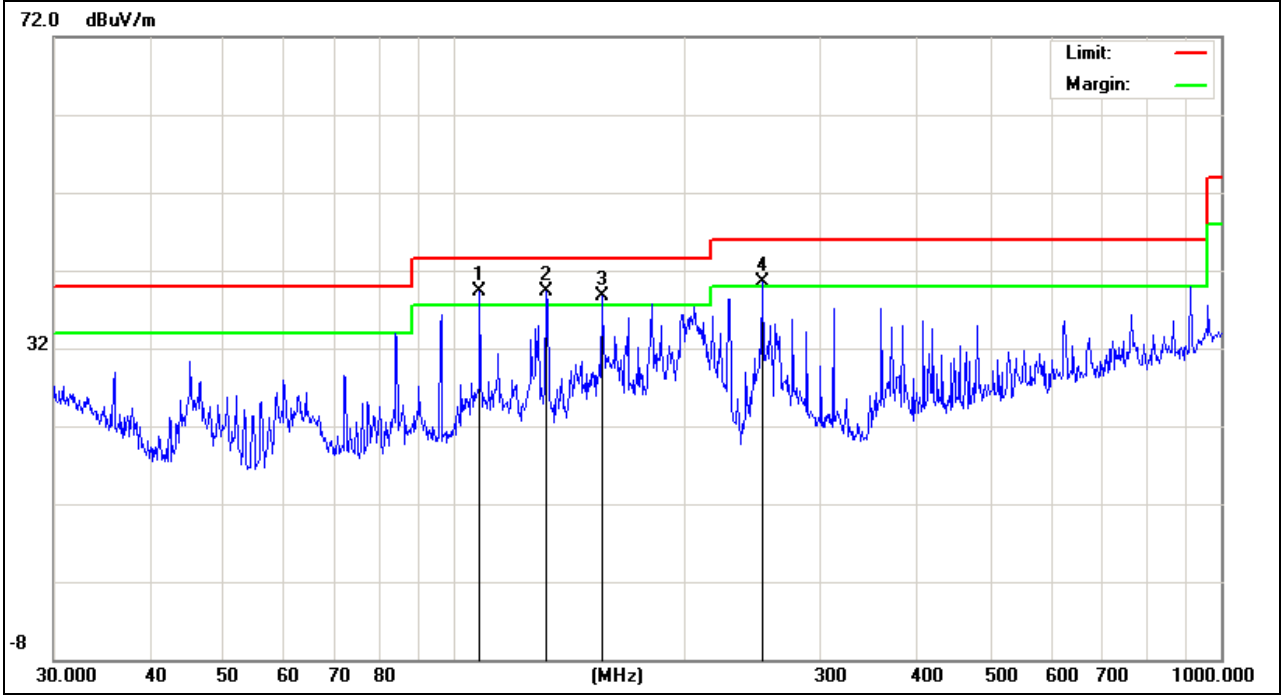
NOTE:
Radiated measurement below 30MHz is not required for FCC Part 15 B part

3.2.6 TEST RESULTS(30MHZ-1GHZ)

EUT：	2.4G Wireless Receiver	Model Name ：	RCV-110R
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 5.0V
Test Mode ：	Mode 1	Polarization：	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
107.8876	28.16	11.21	39.37	43.5	-4.13	QP
131.7576	27.38	11.94	39.32	43.5	-4.18	QP
155.91	27.47	11.19	38.66	43.5	-4.84	QP
252.0627	27.23	13.33	40.56	46	-5.44	QP

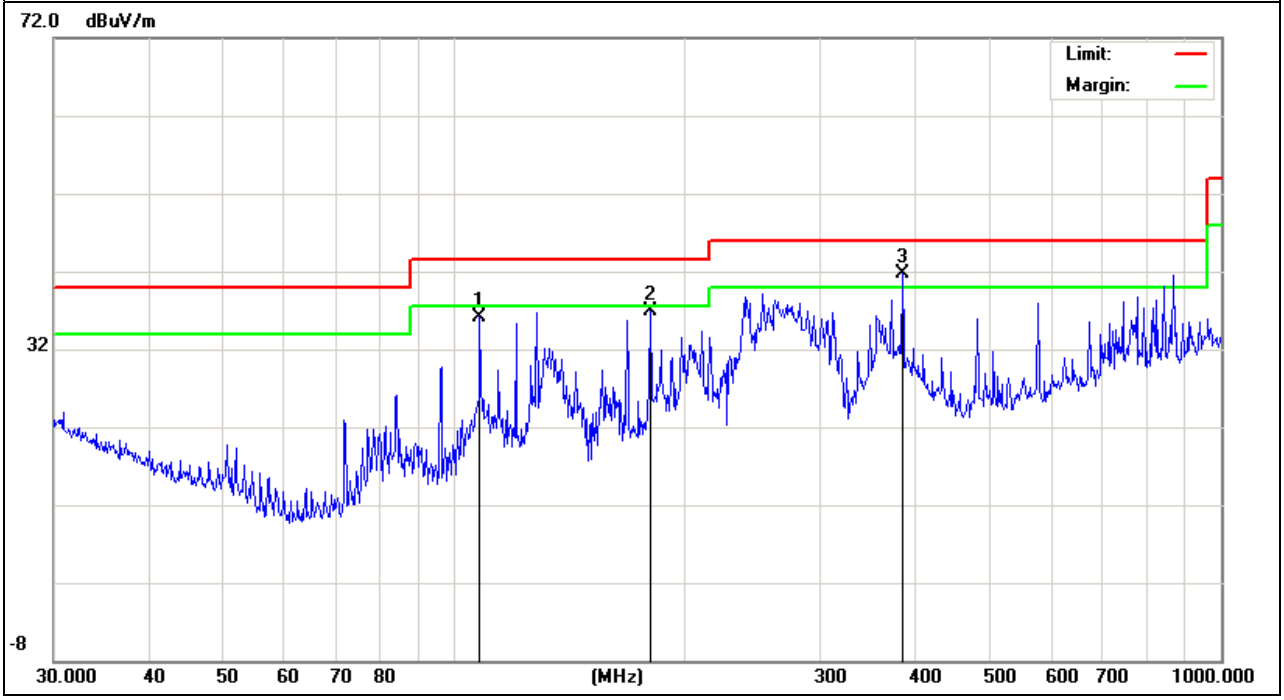
Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	2.4G Wireless Receiver	Model Name ：	RCV-110R
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 5.0V
Test Mode ：	Mode 1	Polarization：	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
107.8876	24.99	11.21	36.2	43.5	-7.3	QP
180.0165	27.15	9.67	36.82	43.5	-6.68	QP
383.9318	25.19	16.6	41.79	46	-4.21	QP

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

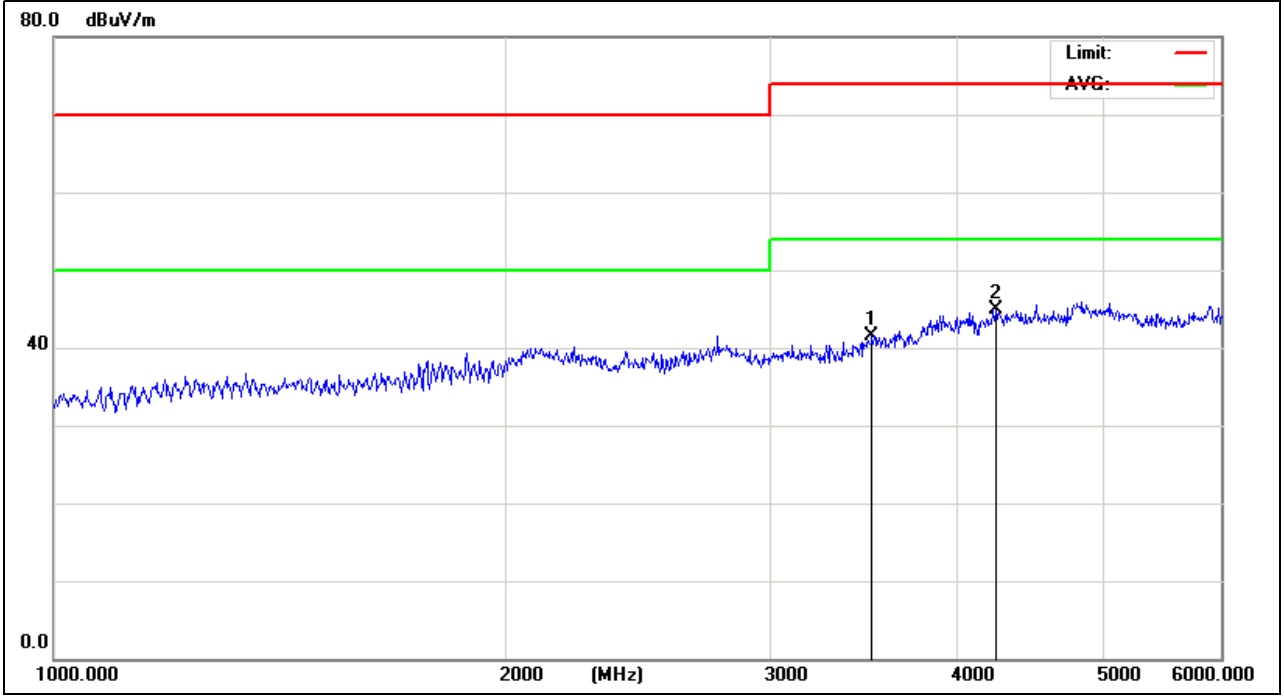


3.2.7 TEST RESULTS(Above 1GHz)

EUT：	2.4G Wireless Receiver	Model Name ：	RCV-110R
Temperature：	24 ℃	Relative Humidity：	54 %
Pressure：	1010 hPa	Polarization：	Horizontal
Test Power ：	DC 5.0V by PC	Test Mode ：	Mode 1

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
3511.43	50.9	-9.36	41.54	74	-32.46	peak
4245.883	50.64	-5.71	44.93	74	-29.07	peak

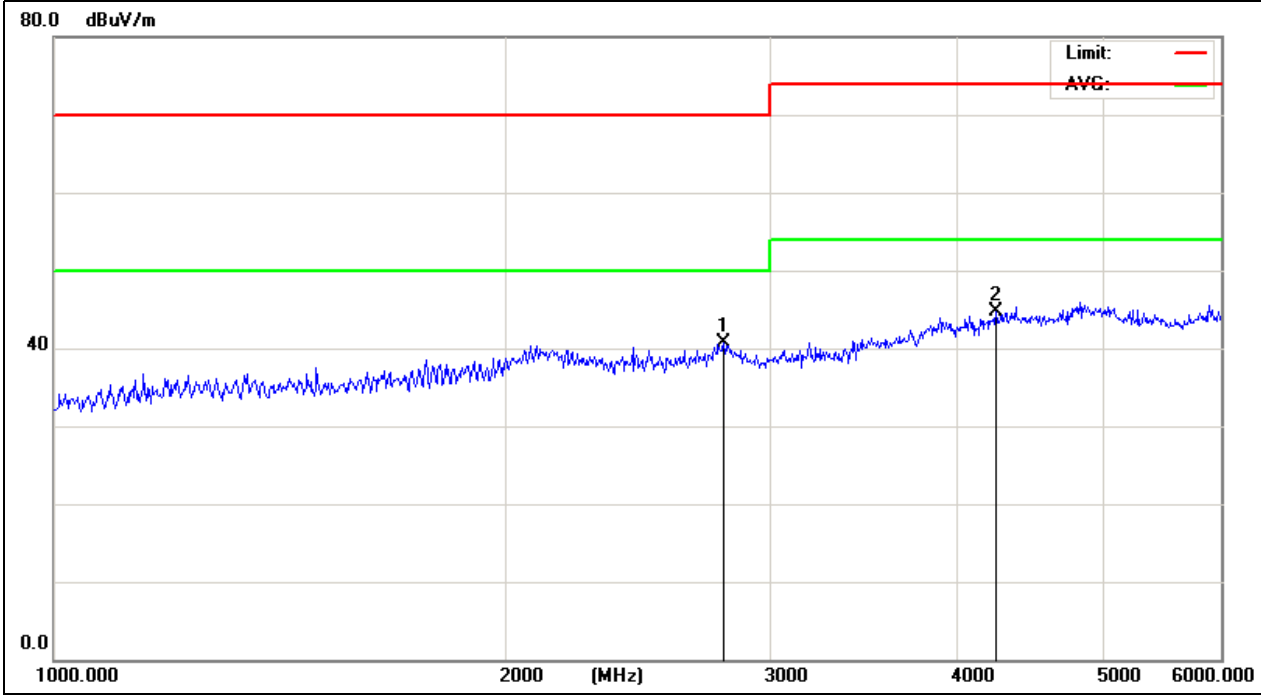
Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	2.4G Wireless Receiver	Model Name ：	RCV-110R
Temperature：	24 ℃	Relative Humidity：	54 %
Pressure：	1010 hPa	Polarization：	Vertical
Test Power ：	DC 5.0V by PC	Test Mode ：	Mode 1

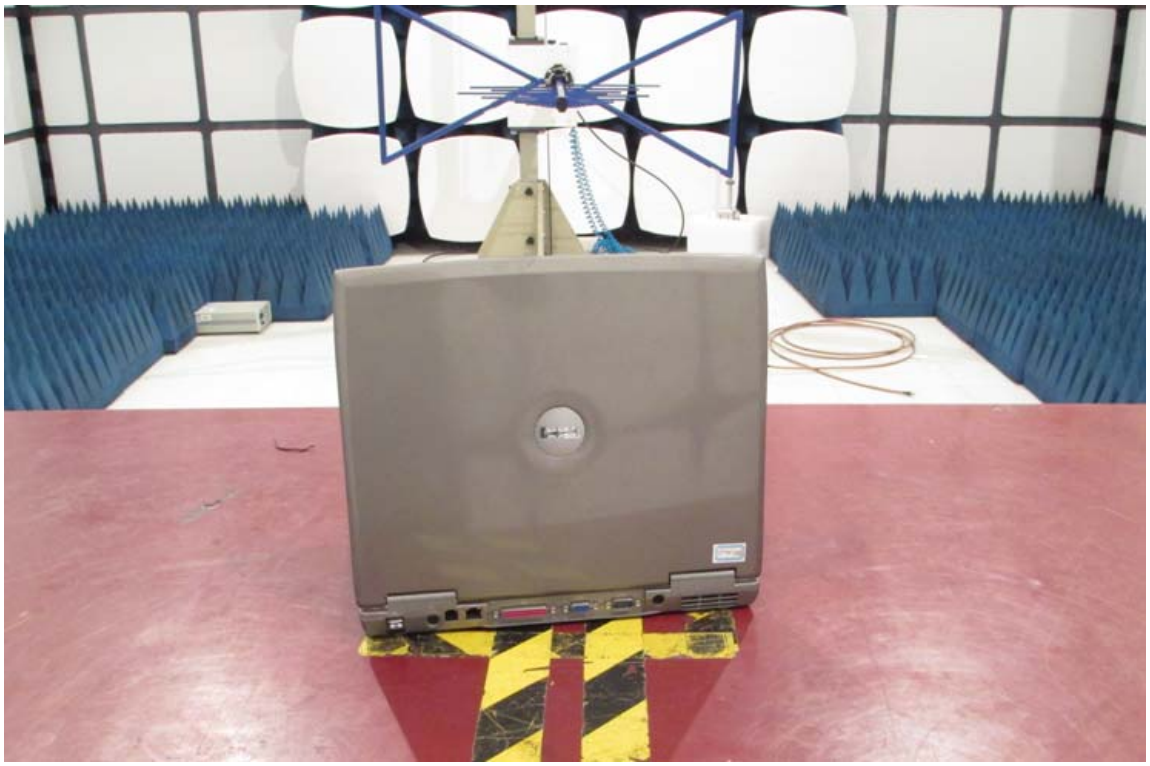
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2796.783	52.33	-11.67	40.66	70	-29.34	peak
4245.883	50.34	-5.71	44.63	74	-29.37	peak

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



4. EUT TEST PHOTO

Radiated Measurement Photos



Conducted Measurement Photos