ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
INTENTIONAL RADIATOR CERTIFICATION TO
FCC PART 15 SUBPART B &C REQUIREMENT

OF

ESL Wirless Basestation

MODEL No.: DB308

FCC ID: N6K-WB-DB308

REPORT NO: KAN120627048E

ISSUE DATE: August 29, 2012

Prepared for
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VERIFICATION OF COMPLIANCE

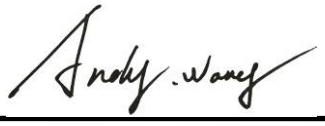
Applicant:	HANGZHOU CENTURY CO., LTD #1418-25 Moganshan Road Hangzhou, Zhejiang, P.R.China
Product Description:	ESL Wirless Basestation
Model Number:	DB308
File Number:	KAN120627048E
Date of Test:	July 2, 2012 to July 30, 2012

We hereby certify that:

The above equipment was tested by NINGBO EMTEK CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2009) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.249.

The test results of this report relate only to the tested sample identified in this report.

Approved By



Andy.wang/Manager
NINGBO EMTEK CO., LTD.

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1. GENERAL INFORMATION

1.1.Product Description

The EUT is a short range, lower power, Details of technical specification, refers to the description in follows:

a. Operation Frequency: 2404.210MHz
b. Number of Channel: 1
c. Modulation Mode: GFSK
d. Antenna Gain: 7dBi
e. Rated RF Output Power: 10dBm (Max)
f. Power Supply: Input: 100-240VAC~ 50/60Hz, Output: 12VDC/1.25A

1.2.Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: N6K-WB-DB308 filing to comply with Section 15.249 of the FCC Part 15 Subpart C Rules.

1.3.Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4 -2009. Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4.Special Accessories

Not available for this EUT intended for grant.

1.5.Equipment Modifications

Not available for this EUT intended for grant.

1.6.Test Facility

Site Description		
EMC Lab.	:	Accredited by FCC, June 14, 2011 The Certificate Registration Number is 463622. Accredited by Industry Canada, May 2, 2011 The Certificate Registration Number is 46405-9469..
Name of Firm	:	NINGBO EMTEK CO., LTD.
Site Location	:	1F Building 4, 1177#, Lingyun Road, National Hi-Tech Zone, Ningbo, Zhejiang, China

30MHz~26GHz Radiated emission item Subcontracted in Shenzhen Emtek:

EMC Lab.		The Certificate Registration Number is 406365.
Name of Firm	:	SHENZHEN EMTEK CO., LTD.
Site Location	:	Bldg 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China

1.7.Measurement Uncertainty

Conducted Emission Uncertainty	:	2.8dB
Radiated Emission Uncertainty (3m Chamber)	:	3.7dB (30M~26GHz Polarize: H) 3.6dB (30M~26GHz Polarize: V)

2. SYSTEM TEST CONFIGURATION

2.1.EUT Configuration

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

2.2.EUT Exercise

The EUT (ESL Wirless Basestation) has been tested under Normal Operating and standby condition. No software used to control the EUT for staying in continuous transmitting and receiving mode for testing.

2.3.Requirement for Compliance

2.3.1.Conducted Emissions

According to §15.207, For intentional radiator device 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 50 μH/50 ohms 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.

Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50
Note: 1. The lower limit shall apply at the transition frequencies 2.The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.		

2.3.2.Radiated Emissions

(a) FCC Part 15, Subpart C Section 15.209 limit of radiated emission for frequency below 1000GHz. The emissions from an intentional radiator shall not exceed the field strength level specified in the following table:

Frequency (MHz)	Field strength μV/m	Distance(m)	Field strength at 3m dBμV/m
30-88	100	3	40
88-216	150	3	43.5
216-960	200	3	46
Above 960	500	3	54
Remark: 1. Emission level in dBuV/m=20 log (uV/m) 2. Measurement was performed at an antenna to the closed point of EUT distance of meters.			

(b) FCC Part 15, Section 15.35(b) limit of radiated emission for frequency above 1000MHz

Frequency(MHz)	dBμV/m(at 3m)	
	PEAK	AVERAGE
Above 1000	74.0	54.0

(c) FCC Part 15, Subpart C Section 15.249(a). The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Frequency(MHz)	Filed Strength of Fundamental(at 3m)		Filed Strength of Harmonics (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
902-928	114	94	74.0	54.0
2400-2483.5	114	94	74.0	54.0
5725-5875	114	94	74.0	54.0
24000-24250	128	108	88.0	68.0

(d) Band edge

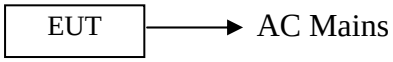
Emission radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in section 15.209, whichever is the lesser attenuation.

Frequency Range(MHz)	Limit(dBuV/m)	
	Peak	AV
902-928	74	54
2400-2483.5		
5725-5850		
24000-24250		

2.3.3.Antenna Requirement

For intentional device, 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.

2.4.Configuration of Tested System



2.5.Description of support units

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.	FCC ID	Series No.	Note
1.	ESL Wirless Basestation	CENTURY	DB308	N6K-WB-DB308	N/A	EUT
Note: Unless otherwise denoted as EUT in『Remark』column , device(s) used in tested system is a support equipment.						

3. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§ 15.207	Conducted Emission	Compliant
§ 15.249(a), § 15.249(d) § 15.249(e), § 15.209	Radiated Emission	Compliant
§15.249	Band Edge	Compliant
§ 15.203	Antenna Requirement	Compliant

4. DESCRIPTION OF TEST MODES

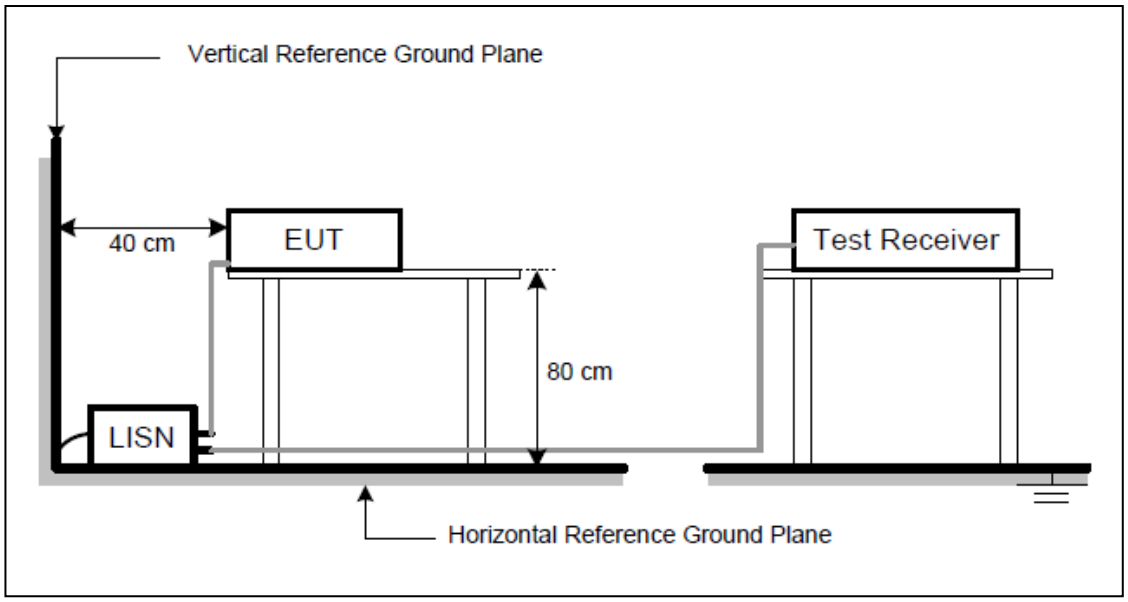
Test Mode	Frequency(MHz)
TX	2404.210

5. CONDUCTED EMISSIONS TEST

5.1.Measurement Procedure:

a. The EUT was placed 0.8 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.

5.2.Test SET-UP



5.3.Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Test Receiver	Rohde & Schwarz	ESCI	101108	05/29/2012	05/28/2013
L.I.S.N	Rohde & Schwarz	ENV216	101193	05/29/2012	05/28/2013
L.I.S.N	Schwarzbeck	NSLK 8126	8126-462	05/29/2012	05/28/2013
Pulse Limiter	MTS-systemtechnik	IMP-136	2611115-001-0 033	05/29/2012	05/28/2013

5.4.Measurement Result:

Date of Test:	July 26, 2012	Temperature:	22℃
Frequency Detector:	0.15~30MHz	Humidity:	55%
Test Result:	PASS	Test Mode:	TX

Test Line	Frequency MHz	Emission Level QP dB(μV)	Emission Level AV dB(μV)	Limits QP dB(μV)	Limits AV dB(μV)	Margin QP dB(μV)	Margin AV dB(μV)
Neutral	0.154	54.50	34.10	65.78	55.78	-11.28	-21.68
	0.158	54.50	34.10	65.57	55.57	-11.07	-21.47
	0.178	49.60	31.20	64.58	54.58	-14.98	-23.38
	0.186	50.90	32.20	64.21	54.21	-13.31	-22.01
	0.198	48.20	30.20	63.69	53.69	-15.49	-23.49
	0.366	41.20	31.7	58.59	48.59	-17.39	-16.89
Line	0.154	53.40	33.70	65.78	55.78	-12.38	-22.08
	0.162	52.60	32.70	65.36	55.36	-12.76	-22.66
	0.165	51.20	31.60	65.21	55.21	-14.01	-23.61
	0.182	49.50	31.40	64.39	54.39	-14.89	-22.99
	0.194	49.10	31.30	63.86	53.86	-14.76	-22.56
	0.366	41.80	29.80	58.59	48.59	-16.79	-18.79

5.5.Conducted Measurement Photos:

6. RADIATED EMISSION TEST

6.1.Measurement Procedure

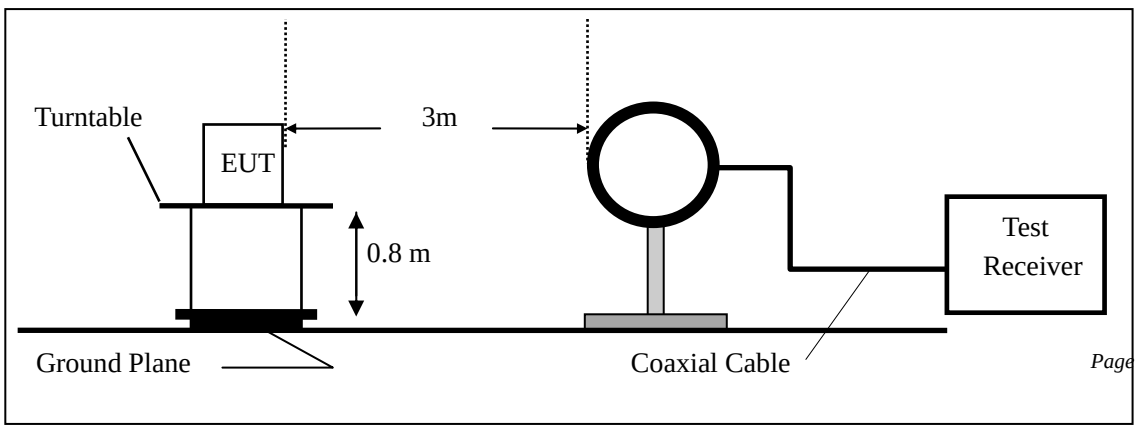
a. All measurements were made at 3 meters.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna 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.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

6.2.Measurement Equipment Used:

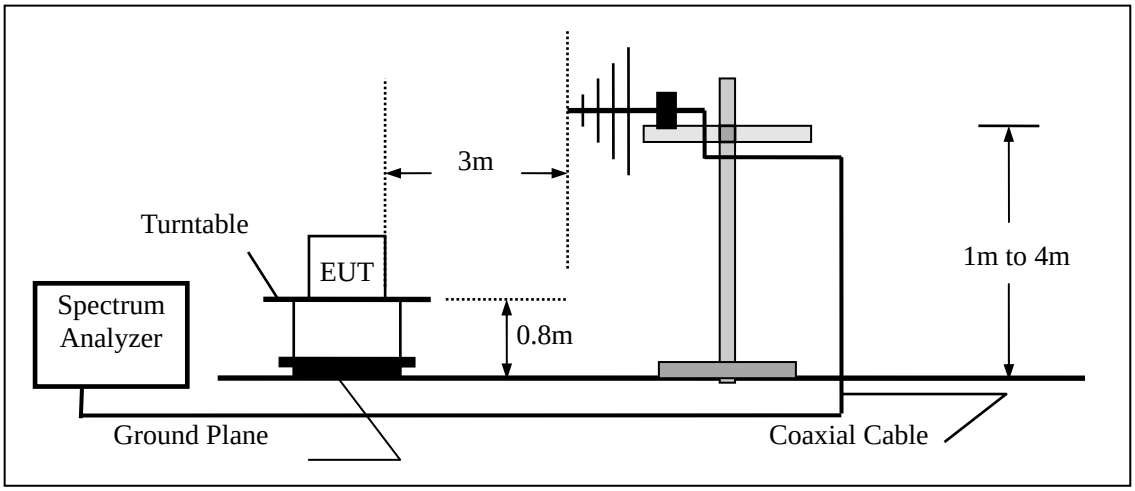
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Rohde & Schwarz	ESU	1302.6005.26	05/29/2012	05/28/2013
EMI Test Receiver	Rohde & Schwarz	ESU	1302.6005.26	05/29/2012	05/28/2013
Pre-Amplifier	HP	8447D	2944A07999	05/29/2012	05/28/2013
Bilog Antenna	Schwarzbeck	VULB9163	142	05/29/2012	05/28/2013
Loop Antenna	ARA	PLA-1030/B	1029	05/29/2012	05/28/2013
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170399	05/29/2012	05/28/2013
Horn Antenna	Schwarzbeck	BBHA 9120	D143	05/29/2012	05/28/2013

6.3.Test SET-UP

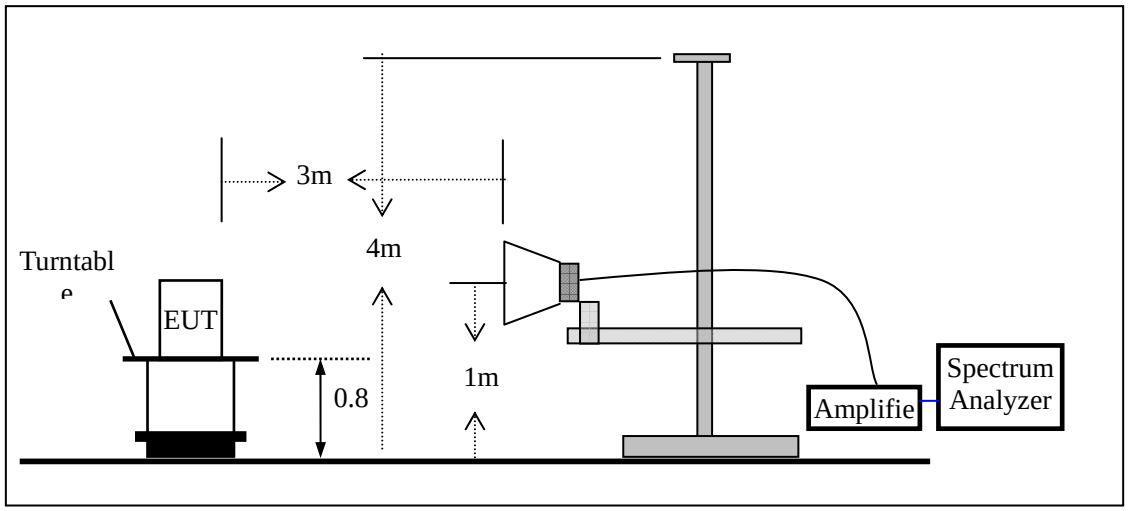
(a) Radiated Emission Test Set-Up, Frequency Below 30MHz



(b) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(c) Radiated Emission Test Set-Up, Frequency Above 1000MHz



6.4.Radiated Measurement Result

Operation Mode:	TX	Test Date :	July 28, 2012
Frequency Range:	30~1000MHz	Temperature :	22 ℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	King

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV)	Limit 3m (dBuV/m)	Margin (dB)	Note
51.762	V	36.10	40.00	-3.90	QP
124.823	V	39.20	43.50	-4.30	QP
174.567	V	39.00	43.50	-4.50	QP
199.439	V	38.40	43.50	-5.10	QP
224.311	V	41.90	46.00	-4.10	QP
325.352	V	40.80	46.00	-5.20	QP
124.823	H	38.50	43.50	-5.00	QP
149.695	H	39.30	43.50	-4.20	QP
174.567	H	39.50	43.50	-4.00	QP
199.439	H	39.00	43.50	-4.50	QP
224.311	H	41.50	46.00	-4.50	QP
325.352	H	39.70	46.00	-6.30	QP

Note: (1) All Readings are Peak Value.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) The average measurement was not performed when the peak measured data under the limit of average detection.

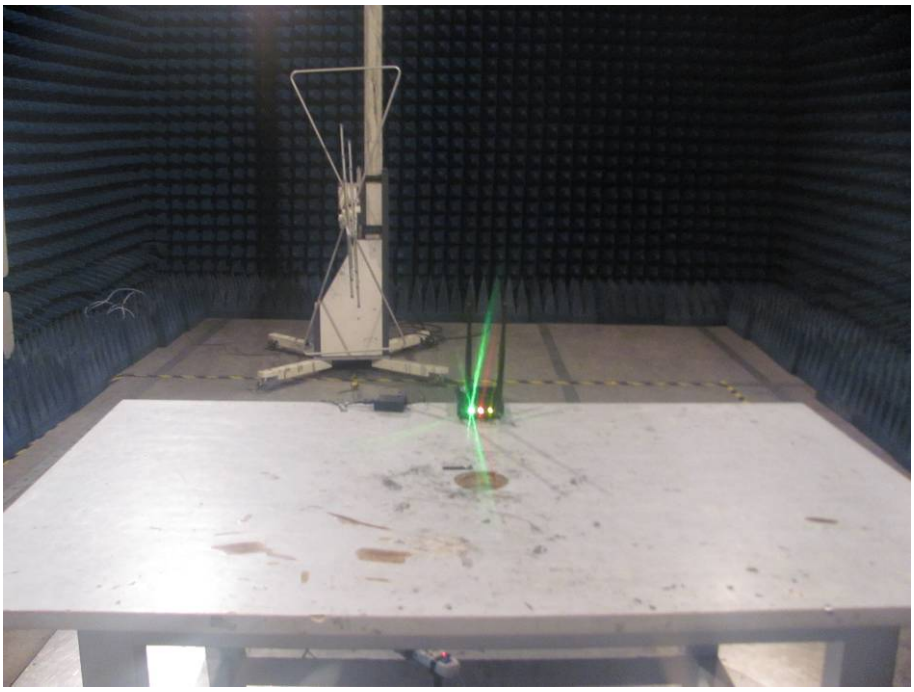
Operation Mode:	TX	Test Date :	July 28, 2012
Frequency Range:	1-25GHz	Temperature :	22 ℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	King

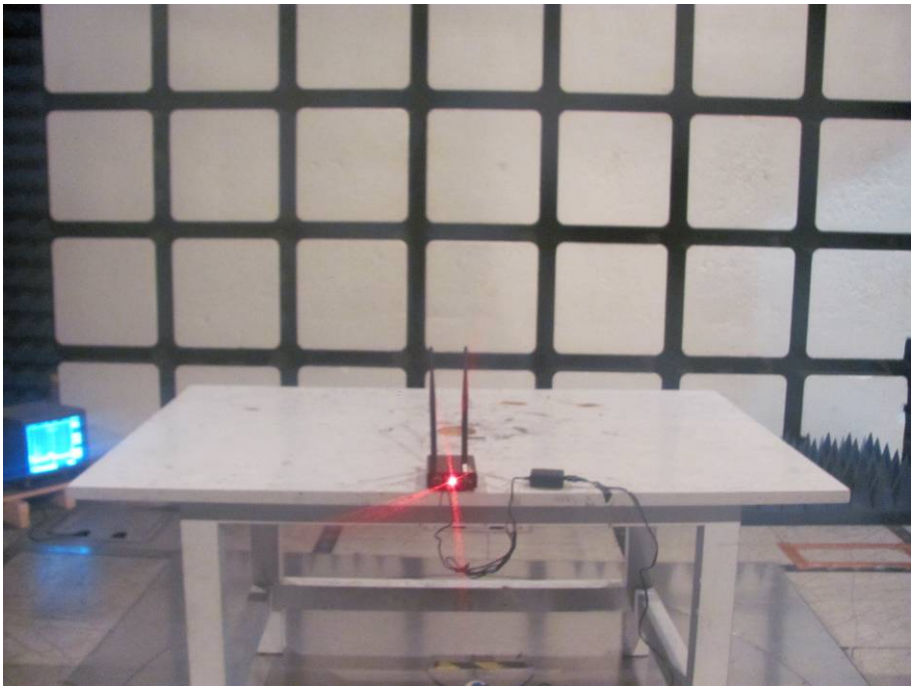
Freq. (MHz)	Ant.Pol.	Emission Level (dBuV)		Limit 3m (dBuV/m)		Margin(dB)	
	H/V	PK	AV	PK	AV	PK	AV
1926.282	V	66.35	25.40	74.00	54.00	-7.65	-28.60
2144.231	V	60.72	30.18	74.00	54.00	-13.28	-23.82
2404.210	V	93.60	68.35	114.00	94.00	-20.40	-25.65
2634.615	V	63.96	26.58	74.00	54.00	-10.04	-27.42
4808.420	V	67.75	40.10	74.00	54.00	-6.25	-13.90
7212.630	V	60.68	40.95	74.00	54.00	-13.32	-13.05
--	--	--	--	--	--	--	--
1435.897	H	56.34	21.80	74.00	54.00	-17.66	-32.20
1681.090	H	63.39	21.94	74.00	54.00	-10.61	-32.06
1926.282	H	65.62	22.98	74.00	54.00	-8.38	-31.02
2404.210	H	91.94	67.55	114.00	94.00	-22.06	-26.45
4808.420	H	54.15	32.20	74.00	54.00	-19.85	-21.80
7212.630	H	50.63	38.76	74.00	54.00	-23.37	-15.24
--	--	--	--	--	--	--	--

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level+Probe Factor +Cable Loss
(3) The average measurement was not performed when the peak measured data under the limit of average detection.
(4)Data of measurement within this frequency range shown " --" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured

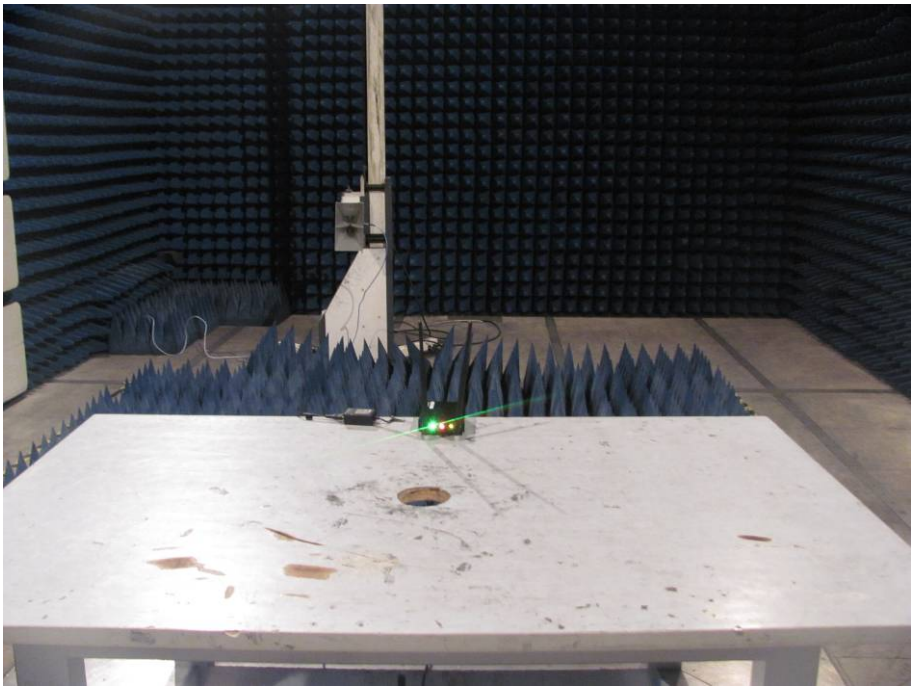
6.5.Radiated Measurement Photos:

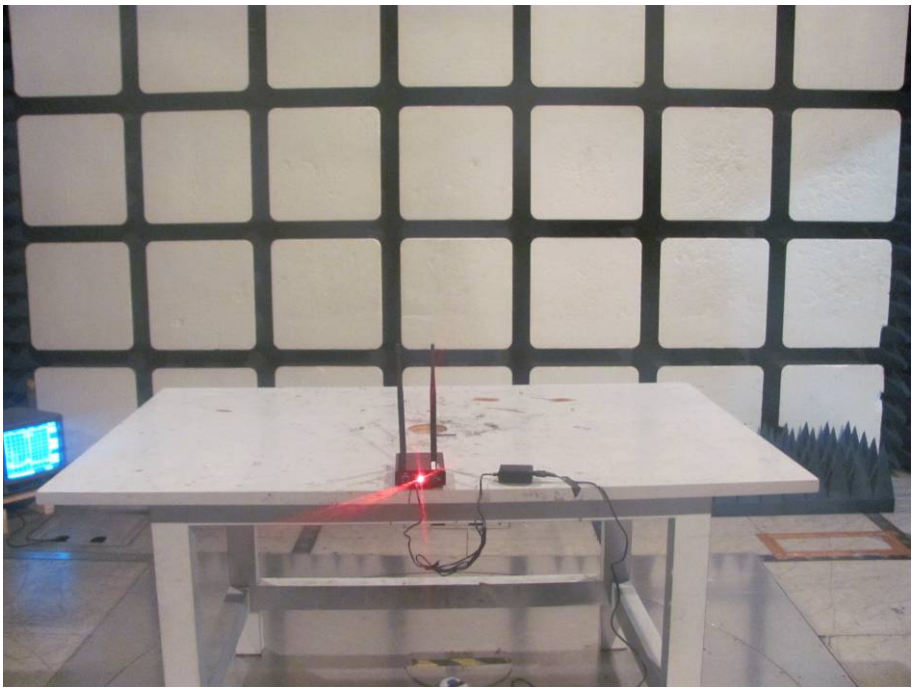
30M~1000MHz:





Above 1000MHz:





7. BAND EDGES MEASUREMENT

7.1.Standard Applicable

According to 15.249(d), out band emission except for harmonics shall be comply with §15.209 or at least attenuated by 50 dB below the level of the fundamental.

7.2.Measurement Procedure

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = AUTO.

7.3.Measurement Equipment

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Rohde & Schwarz	ESU	1302.6005.26	05/29/2012	05/28/2013
EMI Test Receiver	Rohde & Schwarz	ESU	1302.6005.26	05/29/2012	05/28/2013
Pre-Amplifier	HP	8447D	2944A07999	05/29/2012	05/28/2013
Bilog Antenna	Schwarzbeck	VULB9163	142	05/29/2012	05/28/2013
Loop Antenna	ARA	PLA-1030/B	1029	05/29/2012	05/28/2013
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170399	05/29/2012	05/28/2013
Horn Antenna	Schwarzbeck	BBHA 9120	D143	05/29/2012	05/28/2013

7.4.Test Setup

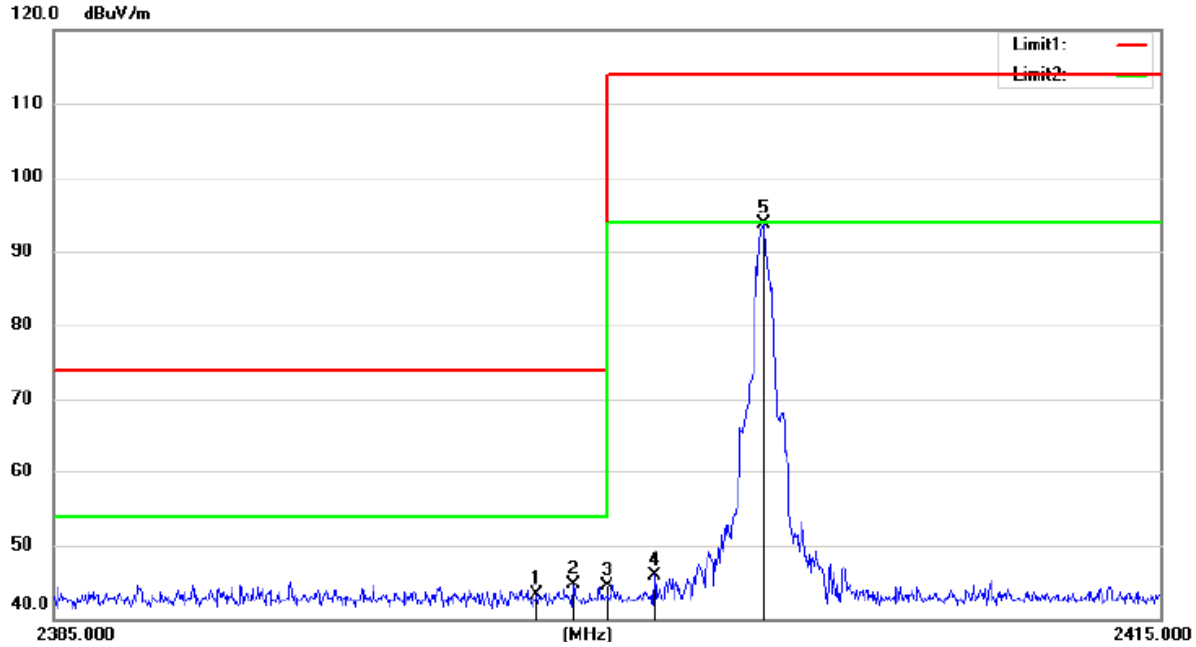
Same as 6.3 Radiated Emission Measurement.

7.5.Test Results

Pass

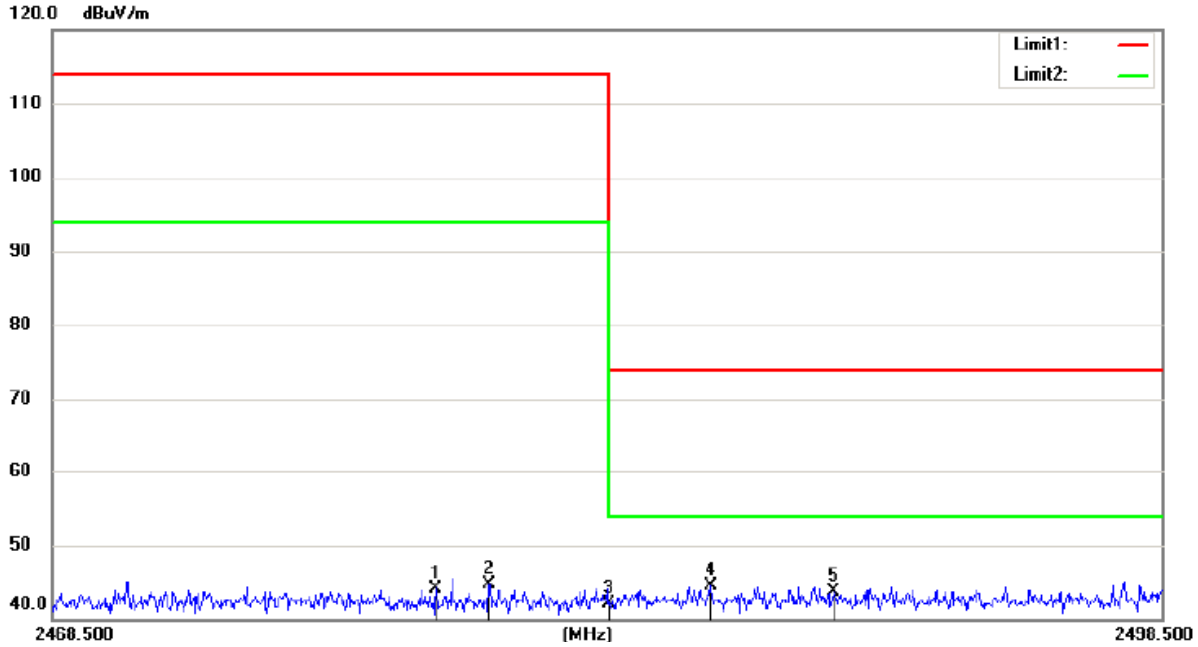
The test plots as following:

Lower band edge (Peak)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2398.080	31.90	11.31	43.21	73.90	-30.69	peak			
2		2399.070	33.30	11.32	44.62	73.90	-29.28	peak			
3		2400.000	33.20	11.33	44.53	73.90	-29.37	peak			
4		2401.260	34.60	11.34	45.94	113.90	-67.96	peak			
5	*	2404.210	82.31	11.38	93.69	113.90	-20.21	peak			

Upper band edge (Peak)



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2478.850	32.10	12.08	44.18	113.90	-69.72	peak			
2		2480.290	32.50	12.10	44.60	113.90	-69.30	peak			
3		2483.500	30.00	12.13	42.13	73.90	-31.77	peak			
4	*	2486.290	32.30	12.15	44.45	73.90	-29.45	peak			
5		2489.620	31.50	12.19	43.69	73.90	-30.21	peak			

8. ANTENNA APPLICATION

8.1.Standard Applicable

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.

Antenna requirement must meet at least one of the following:

a) Antenna must be permanently attached to the device.
b) Antenna must use a unique type of connector to attach to the device.
c) Device must be professionally installed. Installer shall be responsible for ensuring that the correct antenna is employed with the device.

8.2.Antenna Construction

Antenna used a reverse SMA type of connector to attach to the device.

8.3.Result

Compliance.