



FCC 47 CFR PART 15 SUBPART C

for

900MHz Wireless Speaker

Model: SP4790A

Test Report Number:

C120924Z01-RP1

Issued for

Uni-Art Precise Products Ltd

**11-12/F, Yue Xiu Industrial Building,
87 Hung To Road, Kowloon, Hong Kong**

Issued by:

COMPLIANCE CERTIFICATION SERVICES (SHENZHEN) INC.

**No10-1, Mingkeda Logistics Park, No.18 Huanguan South RD. Guan lan Town,
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Issued Date: October 15, 2012



TESTING CERT #2861.01

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Revision History

Rev.	Issue No.	Revisions	Effect Page	Revised By
00	C120924Z01-RP1	Initial Issue	ALL	Anna Liu



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1 TEST CERTIFICATION

Product: 900MHz Wireless Speaker
Model: SP4790A
Brand: ARKON
Tested: September 24~October 15, 2012
Applicant: **Uni-Art Precise Products Ltd**
11-12/F, Yue Xiu Industrial Building, 87 Hung To Road, Kowloon, Hong Kong
Manufacturer: **Uni-Art Precise Products Ltd**
11-12/F, Yue Xiu Industrial Building, 87 Hung To Road, Kowloon, Hong Kong

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 15 Subpart C	No non-compliance noted
DEVIATION FROM APPLICABLE STANDARD	
None	

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. 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 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.249.

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

Approved by:

Reviewed by:

Tom Gan
Supervisor of EMC Dept.
Compliance Certification Service Inc.

Aven Zhou
Supervisor of Report Dept.
Compliance Certification Service Inc.

**2 EUT DESCRIPTION**

Product	900MHz Wireless Speaker
Trade Name	SP4790A
Model Number	ARKON
Model Discrepancy	N/A
Serial Number	C120924Z01-RP1
EUT Power Rating	DC5.1V powered by the adapter or DC6V powered by the battery
Adapter manufacturer/model No	Dongguan Ylnil Electronics Co., Ltd. /YLS0151-T051230 AC input: AC100-240V,50/60Hz 0.6A DC output: DC5.1V 2.3A DC output cable: Unshielded, 1.80m
Frequency Range	912.0 MHz, 912.5 MHz, 913.0 MHz
Transmit Power	88.31dBuV/m (Peak Max.)
Modulation Technique	FM
Number of Channels	3 Channel
Antenna Specification	Linear antenna with 0 dBi gain (Max)

Note: 1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.

2. This submittal(s) (test report) is intended for **FCC ID: MVASP4791A1-001T** filing to comply with Section 15.207, 15.209 and 15.249 of the FCC Part 15, Subpart C Rules.



3 TEST METHODOLOGY

3.1. DESCRIPTION OF TEST MODES

The EUT had been tested under operating condition.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz, which worst case was in normal link(powered by the adapter) mode only, and powerline conducted emission below 30MHz, which worst case was in normal link mode with charging only.

Channel 1 (912.0MHz), Channel 2 (912.5MHz) and Channel 3 (913.0MHz) were chosen for the final testing.



4 TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4:2003 and FCC CFR 47 15.207, 15.209 and 15.249.

4.1. 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 Section 15.207, 15.209, 15.249 under the FCC Rules Part 15 Subpart C.

4.2. FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

- (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	(²)
13.36 - 13.41	322 - 335.4		

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

- (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.



5 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 equipment, which is traceable to recognized national standards.

6 SETUP OF EQUIPMENT UNDER TEST

6.1. 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.

No.	Equipment	Model No.	Serial No.	FCC ID	Trade Name	Data Cable	Power Cord
1	IPOD	A1285	YM908BYU3QX	N/A	ipod	N/A	N/A
2	Wireless 900MHz Speaker (Receiver)	SP4790A	N/A	MVASP4792A-001R	Arkon	N/A	Unshielded 1.80m

Note:

- 1) All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2) Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

6.2. CONFIGURATION OF SYSTEM UNDER TEST

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.



7 FACILITIES AND ACCREDITATIONS

7.1. FACILITIES

All measurement facilities used to collect the measurement data are located at
☒ **No10-1, Mingkeda Logistics Park, No.18 Huanguan South RD. Guan lan Town, Baoan District, Shenzhen China**

The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

7.2. ACCREDITATIONS

Our laboratories are accredited and approved by the following accreditation body according to ISO/IEC 17025.

USA	A2LA
China	CNAS

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

USA	FCC
Japan	VCCI(C-3478, R-3135, T-652)
Canada	INDUSTRY CANADA
Taiwan	BSMI
Norway	Nemko

Copies of granted accreditation certificates are available for downloading from our web site, <http://www.ccsrf.com>

7.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Uncertainty
Conducted emissions	9kHz~30MHz	+/- 3.18dB
Radiated emissions	30MHz ~ 200MHz	+/- 3.79dB
	200MHz ~1000MHz	+/- 3.62dB
	Above 1000MHz	+/- 5.04dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

The measured result is above (below) the specification limit by a margin less than the measurement uncertainty; it is therefore not possible to state compliance based on the 95% level of confidence. However, the result indicates that compliance (non-compliance) is more probable than non-compliance) with the specification limit.



8 FCC PART 15.249 REQUIREMENTS

8.1. BAND EDGES MEASUREMENT

LIMIT

1. In the above emission table, the tighter limit applies at the band edges.

Frequency (Hz)	Field Strength ($\mu\text{V/m}$ at 3-meter)	Field Strength (dB $\mu\text{V/m}$ at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

2. As shown in Section 15.35(b), for frequencies above 1000 MHz, the above field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.
3. As shown in Section 15.249(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 fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

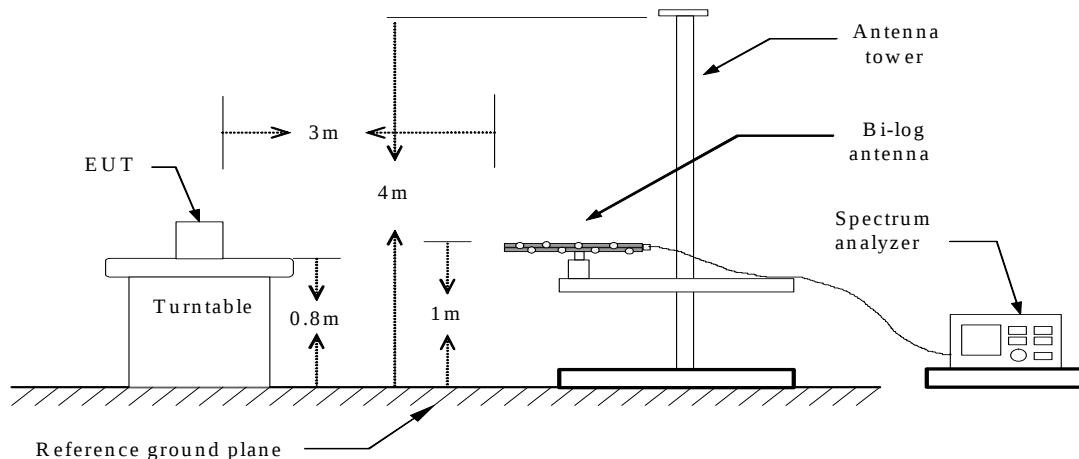
MEASUREMENT EQUIPMENT USED

Radiated Emission Test Site 966 (2)					
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
PSA Series Spectrum Analyzer	Agilent	E4446A	US44300399	03/19/2012	03/19/2013
ESCI EMI TEST RECEIVER.ESCI	ROHDE&SCHWARZ	ESCI	100783	03/17/2012	03/17/2013
Amplifier	MITEQ	AM-1604-3000	1123808	03/18/2012	03/18/2013
Turn Table	EMCO	2081-1.21	N/A	N.C.R	N.C.R
Controller	CT	N/A	N/A	N.C.R	N.C.R
High Noise Amplifier	Agilent	8449B	3008A01838	03/18/2012	03/18/2013
Bilog Antenna	SCHAFFNER	CBL6143	5082	03/17/2012	03/17/2013
Horn Antenna	SCHWARZBECK	BBHA9120	D286	03/17/2012	03/17/2013
Loop Antenna	A、R、A	PLA-1030/B	1029	03/23/2012	03/23/2013
Temp. / Humidity Meter	VICTOR	VC230	N/A	03/19/2012	03/19/2013
Antenna Tower	SUNOL	TLT2	N/A	N.C.R	N.C.R
Test S/W	FARAD	LZ-RF / CCS-SZ-3A2			

Remark: Each piece of equipment is scheduled for calibration once a year.



TEST CONFIGURATION



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
PEAK: RBW=100kHz,VBW=300kHz / Sweep=AUTO
5. Limit for Out of Band Emissions [Section 15.249 (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 fundamental or to the general radiated emission limits in section 15.209, whichever is the lesser attenuation.

TEST RESULTS

Refer to attach spectrum analyzer data chart. The lower and higher edge of the specified frequency bands fulfill the general radiated emission limits in section 15.209. Therefore, the EUT meets the requirement of section 15.249(d).



Test Data

Band Edges (TX / CH 1 912.0MHz)

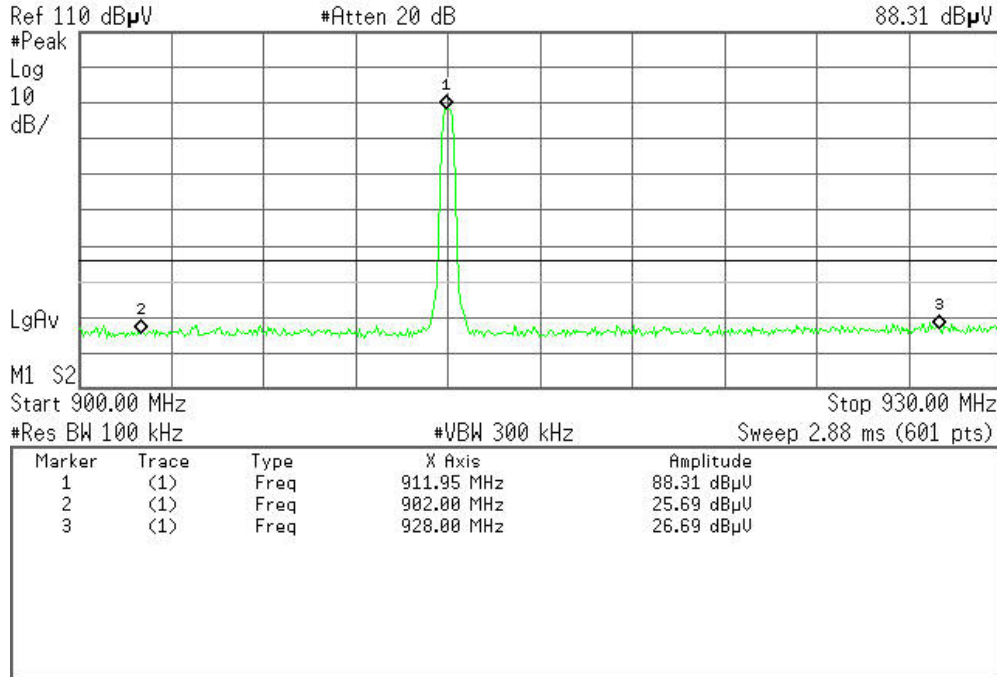
Detector mode: Peak

Polarity: Vertical

Agilent

R T

Mkr1 911.95 MHz
88.31 dBμV



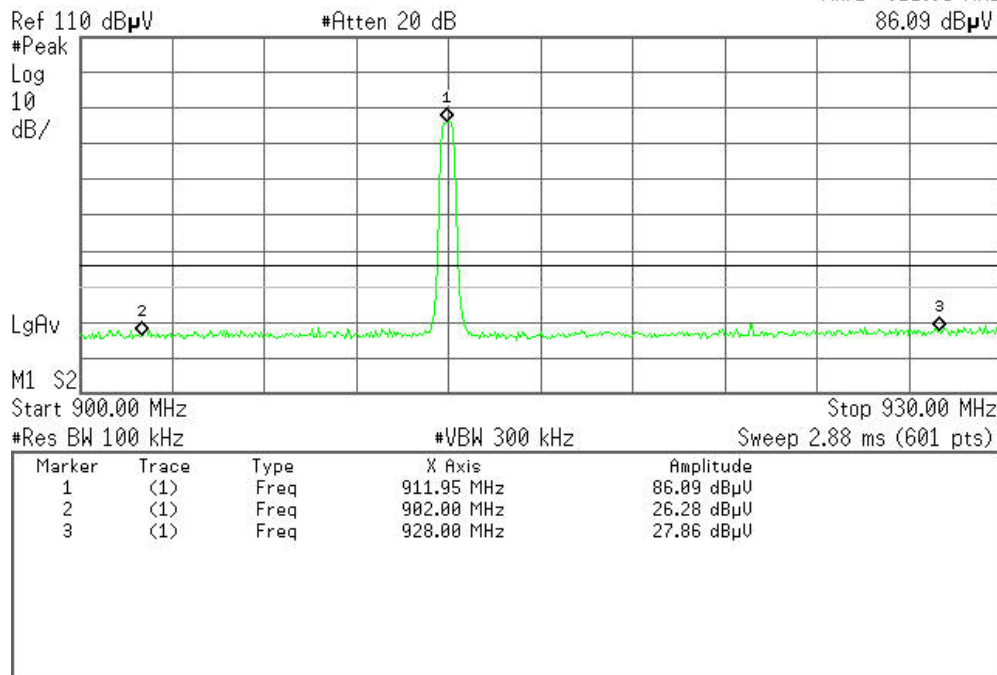
Detector mode: Peak

Polarity: Horizontal

Agilent

R T

Mkr1 911.95 MHz
86.09 dBμV





Band Edges (TX / CH 2 912.5MHz)

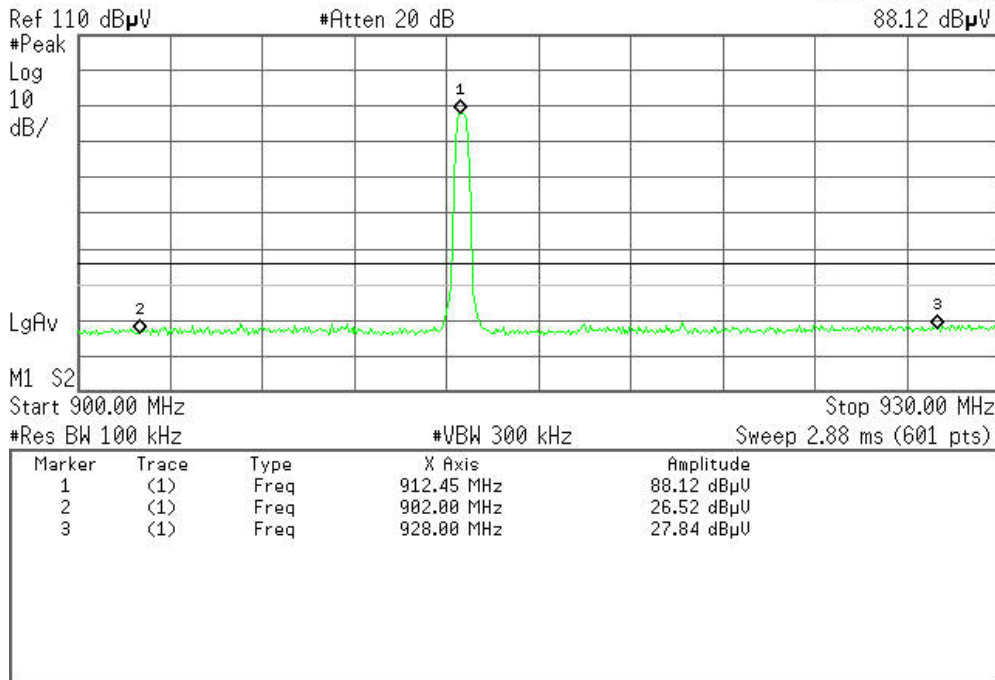
Detector mode: Peak

Polarity: Vertical

Agilent

R T

Mkr1 912.45 MHz
88.12 dBμV



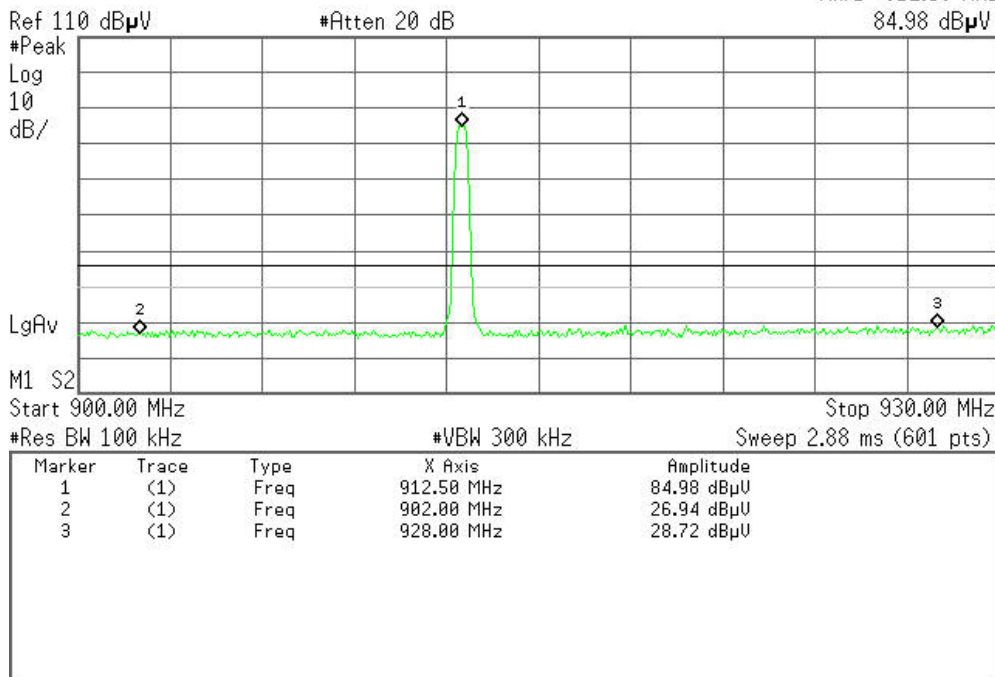
Detector mode: Peak

Polarity: Horizontal

Agilent

R T

Mkr1 912.50 MHz
84.98 dBμV





Band Edges (TX / CH 3 913.0MHz)

Detector mode: Peak

Polarity: Vertical

Agilent

R T

Mkr1 913.00 MHz

88.24 dB μ V

Ref 110 dB μ V

#Atten 20 dB

#Peak

Log

10

dB/

LgAv

M1 S2

Start 900.00 MHz

Stop 930.00 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.88 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	913.00 MHz	88.24 dB μ V
2	(1)	Freq	902.00 MHz	26.27 dB μ V
3	(1)	Freq	928.00 MHz	27.23 dB μ V

Detector mode: Peak

Polarity: Horizontal

Agilent

R T

Mkr1 913.00 MHz

84.73 dB μ V

Ref 110 dB μ V

#Atten 20 dB

#Peak

Log

10

dB/

LgAv

M1 S2

Start 900.00 MHz

Stop 930.00 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.88 ms (601 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	913.00 MHz	84.73 dB μ V
2	(1)	Freq	902.00 MHz	26.41 dB μ V
3	(1)	Freq	928.00 MHz	27.94 dB μ V



8.2. POWER LINE CONDUCTED EMISSIONS MEASUREMENT

8.2.1. LIMITS OF CONDUCTED EMISSIONS MEASUREMENT

According to §15.207(a), except as shown in paragraphs (b) and (c) of this section, 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 50 μ H/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. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46
0.50 to 5	56	46
5 to 30	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 0.50 MHz.
- (3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

TEST INSTRUMENTS

Conducted Emission Test Site					
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
ESCI EMI TEST RECEIVER.ESCI	ROHDE&SCHWARZ	ESCI	100783	03/17/2012	03/17/2013
LISN(EUT)	SCHAFFNER	NNB42	2001/001	03/19/2012	03/19/2013
LISN	EMCO	3825/2	8901-1459	03/19/2012	03/19/2013
Temp. / Humidity Meter	VICTOR	VC230	N/A	03/20/2012	03/20/2013
Test S/W	FARAD	EZ-EMC/ CCS-3A1-CE			

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R = No Calibration Request.

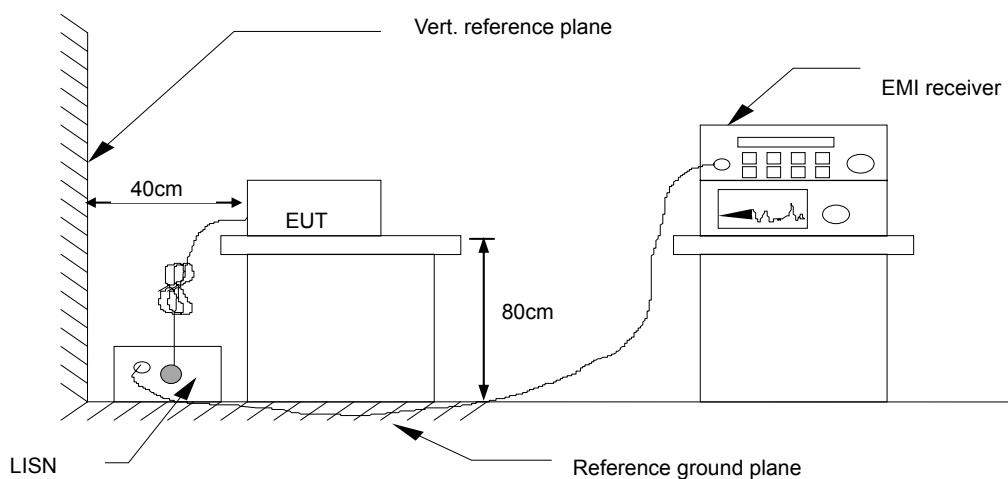


8.2.2. TEST PROCEDURES (please refer to measurement standard)

- The EUT and Support equipment, if needed, was placed on a non-conducted table, which is 0.8m above the ground plane and 0.4m away from the conducted wall.
- The test equipment EUT installed received AC main power, through a Line Impedance Stabilization Network (LISN), which supplied power source and was grounded to the ground plane. All support equipment power received from a second LISN. The two LISNS provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- The EUT test program was started. Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.
- The frequency range from 150 kHz to 30 MHz was searched. The test data of the worst-case condition(s) was recorded. Emission levels under limit 20dB were not recorded.



8.2.3. TEST SETUP



- For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

8.2.4. DADA SAMPLE

Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XXXX	32.69	25.65	11.52	44.21	37.17	65.78	55.79	-21.57	-18.62	Pass

Factor = Insertion loss of LISN + Cable Loss
Result = Quasi-peak Reading/ Average Reading + Factor
Limit = Limit stated in standard
Margin = Result (dBuV) – Limit (dBuV)

**8.2.5. TEST RESULTS**

Model No.	SP4790A	RBW,VBW	9 kHz
Environmental Conditions	22°C, 45% RH	Test Mode	Mode 1
Tested by	Viking Yuan	Line	L1

(The chart below shows the highest readings taken from the final data.)

Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
0.1900	53.77	31.61	0.35	54.12	31.96	64.03	54.04	-9.91	-22.08	Pass
0.2540	44.55	22.60	0.32	44.87	22.92	61.62	51.63	-16.75	-28.71	Pass
0.3260	40.09	18.25	0.34	40.43	18.59	59.55	49.55	-19.12	-30.96	Pass
0.3860	34.75	19.22	0.35	35.10	19.57	58.15	48.15	-23.05	-28.58	Pass
2.0500	31.99	16.38	0.46	32.45	16.84	56.00	46.00	-23.55	-29.16	Pass
7.6820	32.37	17.10	0.57	32.94	17.67	60.00	50.00	-27.06	-32.33	Pass

REMARKS: L1 = Line One (Live Line)



Model No.	SP4790A	RBW,VBW	9 kHz
Environmental Conditions	22°C, 45% RH	Test Mode	Mode 1
Tested by	Viking Yuan	Line	L2

(The chart below shows the highest readings taken from the final data.)

Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
0.1940	55.26	33.17	0.49	55.75	33.66	63.86	53.86	-8.11	-20.20	Pass
0.2540	44.86	24.38	0.51	45.37	24.89	61.62	51.63	-16.25	-26.74	Pass
3.1140	32.36	15.81	0.65	33.01	16.46	56.00	46.00	-22.99	-29.54	Pass
8.3540	30.80	15.27	0.52	31.32	15.79	60.00	50.00	-28.68	-34.21	Pass
17.5459	29.90	14.78	0.67	30.57	15.45	60.00	50.00	-29.43	-34.55	Pass
29.6980	32.59	18.91	0.50	33.09	19.41	60.00	50.00	-26.91	-30.59	Pass

REMARKS: L2 = Line Two (Neutral Line)

**8.3. SPURIOUS EMISSIONS MEASUREMENT****8.3.1. LIMITS OF RADIATED EMISSIONS MEASUREMENT**

1. In the section 15.249(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	Field Strength of Fundamental Field Strength (mV/m)	Field Strength of Harmonics (μV/m)
902-928 MHz	50	500
2400 - 2483.5 MHz	50	500
5725 - 5875 MHz	50	500
24.0 - 24.25 GHz	250	2500

2. Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

Remark: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

3. In the above emission table, the tighter limit applies at the band edges.

Frequency (Hz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

**8.3.2. TEST INSTRUMENTS**

Radiated Emission Test Site 966 (2)					
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
PSA Series Spectrum Analyzer	Agilent	E4446A	US44300399	03/19/2012	03/19/2013
ESCI EMI TEST RECEIVER.ESCI	ROHDE&SCHWARZ	ESCI	100783	03/17/2012	03/17/2013
Amplifier	MITEQ	AM-1604-3000	1123808	03/18/2012	03/18/2013
Turn Table	EMCO	2081-1.21	N/A	N.C.R	N.C.R
Controller	CT	N/A	N/A	N.C.R	N.C.R
High Noise Amplifier	Agilent	8449B	3008A01838	03/18/2012	03/18/2013
Bilog Antenna	SCHAFFNER	CBL6143	5082	03/17/2012	03/17/2013
Horn Antenna	SCHWARZBECK	BBHA9120	D286	03/17/2012	03/17/2013
Loop Antenna	A、R、A	PLA-1030/B	1029	03/23/2012	03/23/2013
Temp. / Humidity Meter	VICTOR	VC230	N/A	03/19/2012	03/19/2013
Antenna Tower	SUNOL	TLT2	N/A	N.C.R	N.C.R
ESCI EMI TEST RECEIVER.ESCI	ROHDE&SCHWARZ	ESCI	100783	03/17/2012	03/17/2013
Test S/W	FARAD	LZ-RF / CCS-SZ-3A2			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. N.C.R = No Calibration Required.

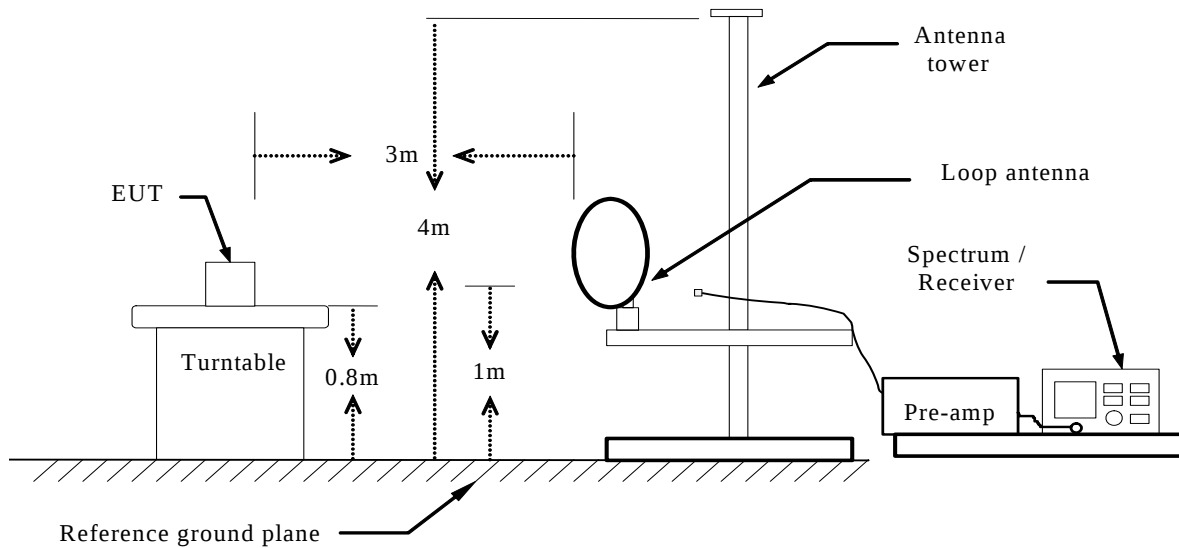
8.3.3 TEST PROCEDURE (please refer to measurement standard)

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:
Below 1GHz:
RBW=100kHz / VBW=300kHz / Sweep=AUTO
Above 1GHz:
(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.

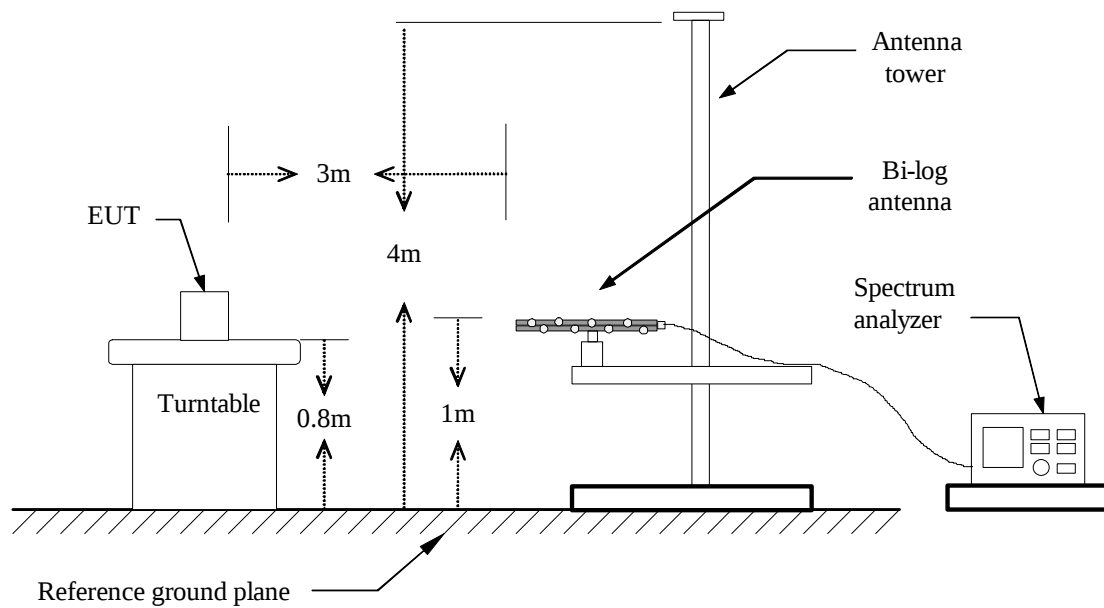


8.3.2.1. TEST SETUP

Below 30 MHz

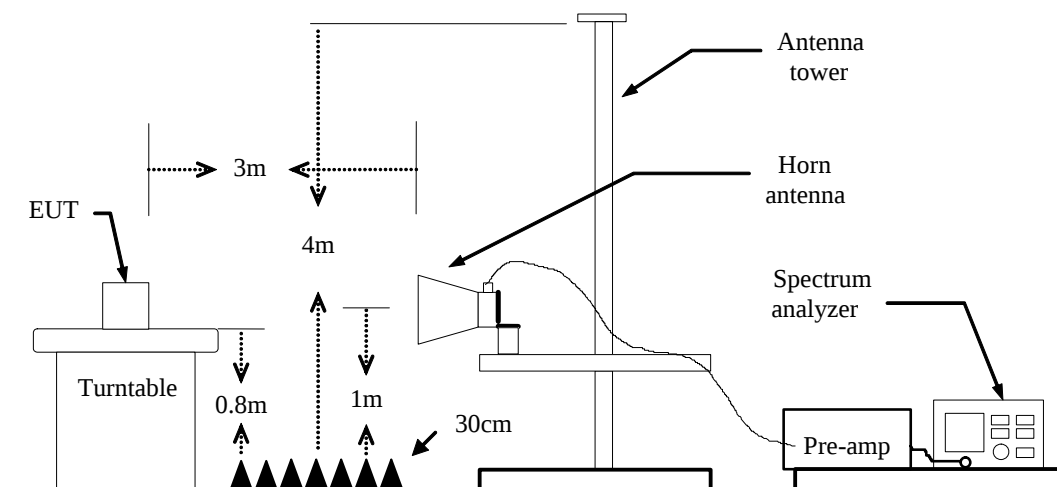


Below 1 GHz





Above 1 GHz



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

8.3.2.2. DADA SAMPLE

Below 1 GHz

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
XXX.XXXX	37.47	-16.41	21.06	40.00	-18.94	V	QP

Above 1 GHz

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
XXXX.XXXX	55.54	4.56	60.10	74.00	-13.90	V	Peak
XXXX.XXXX	29.66	4.56	34.22	54.00	-19.78	V	AVG

Frequency (MHz)	= Emission frequency in MHz
Ant. Pol. (H/V)	= Antenna polarization
Reading (dBuV)	= Uncorrected Analyzer / Receiver reading
Correction Factor (dB/m)	= Antenna factor + Cable loss – Amplifier gain
Result (dBuV/m)	= Reading (dBuV) + Correction Factor (dB/m)
Limit (dBuV/m)	= Limit stated in standard
Margin (dB)	= Remark Result (dBuV/m) – Limit (dBuV/m)
Peak	= Peak Reading
QP	= Quasi-peak Reading
AVG	= Average Reading

**8.3.2.3. TEST RESULTS****Below 1 GHz****Operation Mode:** TX / CH 1 (912.0MHz)**Test Date:** September 27,2012**Temperature:** 24°C**Tested by:** Leevin Li**Humidity:** 52 % RH**Polarity:** Ver. / Hor.**Fundamental**

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
912.0000	98.03	-9.72	88.31	114.00	-25.69	V	Peak
912.0000	94.92	-9.72	85.20	94.00	-8.80	V	AVG
912.0000	95.78	-9.72	86.06	114.00	-27.94	H	Peak
912.0000	93.87	-9.72	84.15	94.00	-9.85	H	AVG

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
97.9000	54.66	-22.56	32.10	43.50	-11.40	V	QP
266.0333	42.01	-18.44	23.57	46.00	-22.43	V	QP
335.5500	41.28	-17.51	23.77	46.00	-22.23	V	QP
377.5833	40.70	-16.85	23.85	46.00	-22.15	V	QP
492.3667	37.25	-14.69	22.56	46.00	-23.44	V	QP
620.0833	35.55	-12.65	22.90	46.00	-23.10	V	QP
96.2833	53.25	-22.49	30.76	43.50	-12.74	H	QP
384.0500	43.43	-16.70	26.73	46.00	-19.27	H	QP
421.2333	41.70	-15.17	26.53	46.00	-19.47	H	QP
532.7833	44.12	-14.53	29.59	46.00	-16.41	H	QP
642.7167	40.00	-12.82	27.18	46.00	-18.82	H	QP
827.0167	36.77	-10.55	26.22	46.00	-19.78	H	QP

**Operation Mode:** TX / CH 2 (912.5MHz)**Test Date:** October 12, 2012**Temperature:** 24°C**Tested by:** Leevin Li**Humidity:** 52 % RH**Polarity:** Ver. / Hor.**Fundamental**

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
912.5000	97.84	-9.72	88.12	114.00	-25.88	V	Peak
912.5000	95.96	-9.72	86.24	94.00	-7.76	V	AVG
912.5000	94.70	-9.72	84.98	114.00	-29.02	H	Peak
912.5000	92.17	-9.72	82.45	94.00	-11.55	H	AVG

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
84.9666	51.86	-23.87	27.99	40.00	-12.01	V	QP
227.2333	35.82	-18.07	17.75	46.00	-28.25	V	QP
338.7833	34.17	-17.54	16.63	46.00	-29.37	V	QP
532.7833	32.25	-14.53	17.72	46.00	-28.28	V	QP
671.8167	32.31	-11.05	21.26	46.00	-24.74	V	QP
767.2000	32.80	-10.92	21.88	46.00	-24.12	V	QP
178.7332	44.82	-18.74	26.08	43.50	-17.42	H	QP
345.2500	37.54	-17.09	20.45	46.00	-25.55	H	QP
455.1833	38.10	-15.21	22.89	46.00	-23.11	H	QP
532.7833	41.81	-14.53	27.28	46.00	-18.72	H	QP
642.7167	36.26	-12.82	23.44	46.00	-22.56	H	QP
731.6332	34.23	-10.68	23.55	46.00	-22.45	H	QP

**Operation Mode:** TX / CH 3 (913.0MHz)**Test Date:** October 12, 2012**Temperature:** 24°C**Tested by:** Leevin Li**Humidity:** 52 % RH**Polarity:** Ver. / Hor.**Fundamental**

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
913.0000	97.96	-9.72	88.24	114.00	-25.76	V	Peak
913.0000	96.07	-9.72	86.35	94.00	-7.65	V	AVG
913.0000	94.45	-9.72	84.73	114.00	-29.27	H	Peak
913.0000	91.98	-9.72	82.26	94.00	-11.74	H	AVG

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
83.3500	51.11	-24.00	27.11	40.00	-12.89	V	QP
177.1167	37.39	-18.75	18.64	43.50	-24.86	V	QP
335.5500	33.50	-17.51	15.99	46.00	-30.01	V	QP
474.5833	32.98	-14.59	18.39	46.00	-27.61	V	QP
558.6500	32.01	-13.70	18.31	46.00	-27.69	V	QP
613.6167	32.48	-12.40	20.08	46.00	-25.92	V	QP
177.1167	45.42	-18.75	26.67	43.50	-16.83	H	QP
345.2500	36.49	-17.09	19.40	46.00	-26.60	H	QP
456.8000	36.37	-15.16	21.21	46.00	-24.79	H	QP
532.7833	40.13	-14.53	25.60	46.00	-20.40	H	QP
687.9833	37.48	-11.11	26.37	46.00	-19.63	H	QP
825.4000	37.92	-10.63	27.29	46.00	-18.71	H	QP

****Note:** No emission found between lowest internal used/generated frequency to 30 MHz.**REMARKS:**

1. Radiated emissions measured in frequency range from 9kHz to 1GHz were made with an instrument using peak/quasi-peak detector mode.
2. Quasi-peak test would be performed if the peak result were greater than the quasi-peak limit or as required by the applicant.
3. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
4. $\text{Margin (dB)} = \text{Remark result (dBuV/m)} - \text{Quasi-peak limit (dBuV/m)}$

**Above 1 GHz****Operation Mode:** TX / CH 1 (912.0MHz)**Test Date:** October 12, 2012**Temperature:** 24°C**Tested by:** Leevin Li**Humidity:** 52 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1333.3333	49.67	-8.13	41.54	74.00	-32.46	V	Peak
1626.6667	49.29	-8.78	40.51	74.00	-33.49	V	Peak
2733.3333	49.00	-5.31	43.69	74.00	-30.31	V	Peak
3306.6667	47.46	-4.04	43.42	74.00	-30.58	V	Peak
3613.3333	46.94	-2.98	43.96	74.00	-30.04	V	Peak
4300.0000	45.78	-1.20	44.58	74.00	-29.42	V	Peak
1333.3333	49.46	-8.13	41.33	74.00	-32.67	H	Peak
2733.3333	49.81	-5.31	44.50	74.00	-29.50	H	Peak
3000.0000	47.16	-4.24	42.92	74.00	-31.08	H	Peak
3540.0000	45.99	-3.31	42.68	74.00	-31.32	H	Peak
4040.0000	46.84	-2.34	44.50	74.00	-29.50	H	Peak
4266.6667	45.68	-1.33	44.35	74.00	-29.65	H	Peak

REMARKS:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
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.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** TX / CH 2 (912.5MHz)**Test Date:** October 12, 2012**Temperature:** 24°C**Tested by:** Leevin Li**Humidity:** 52 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1826.6667	50.55	-9.69	40.86	74.00	-33.14	V	Peak
2740.0000	48.81	-5.28	43.53	74.00	-30.47	V	Peak
2986.6667	46.95	-4.29	42.66	74.00	-31.34	V	Peak
3653.3333	46.53	-2.87	43.66	74.00	-30.34	V	Peak
4133.3333	46.37	-1.90	44.47	74.00	-29.53	V	Peak
4560.0000	45.69	-0.53	45.16	74.00	-28.84	V	Peak
1440.0000	49.62	-8.00	41.62	74.00	-32.38	H	Peak
1580.0000	49.07	-8.59	40.48	74.00	-33.52	H	Peak
2506.6667	47.54	-6.16	41.38	74.00	-32.62	H	Peak
2740.0000	49.78	-5.28	44.50	74.00	-29.50	H	Peak
3033.3333	47.26	-4.21	43.05	74.00	-30.95	H	Peak
3766.6667	46.19	-2.58	43.61	74.00	-30.39	H	Peak

REMARKS:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
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.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** TX / CH 3 (913.0MHz)**Test Date:** October 12, 2012**Temperature:** 24°C**Tested by:** Leevin Li**Humidity:** 52 % RH**Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBUV)	Correction Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1326.6667	48.44	-8.16	40.28	74.00	-33.72	V	Peak
1826.6667	49.75	-9.69	40.06	74.00	-33.94	V	Peak
2820.0000	47.53	-4.96	42.57	74.00	-31.43	V	Peak
3266.6667	46.44	-4.06	42.38	74.00	-31.62	V	Peak
3500.0000	46.09	-3.50	42.59	74.00	-31.41	V	Peak
3840.0000	45.73	-2.50	43.23	74.00	-30.77	V	Peak
1386.6667	48.82	-7.89	40.93	74.00	-33.07	H	Peak
2740.0000	49.51	-5.28	44.23	74.00	-29.77	H	Peak
3606.6667	46.16	-2.99	43.17	74.00	-30.83	H	Peak
3873.3333	47.16	-2.50	44.66	74.00	-29.34	H	Peak
4220.0000	46.13	-1.50	44.63	74.00	-29.37	H	Peak
4806.6667	46.12	0.44	46.56	74.00	-27.44	H	Peak

REMARKS:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
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.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBUV/m) – Average limit (dBUV/m).