



FCC 47 CFR PART 15 SUBPART C

for

900MHz Wireless Headphone

Model: HP4590

Brand: ARKON

Test Report Number:
C131029Z03-RP1

Issued for:

Uni-Art Precise Electronics (Shenzhen) Ltd
No.8 XinSha Road, Shajing Town, Baoan District 518125 Shenzhen City,
Guangdong PEOPLE' S REPUBLIC OF CHINA

Issued by:

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Issued Date: November 11, 2013



TESTING CERT #2861.01

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Revision History

Rev.	Issue No.	Revisions	Effect Page	Revised By
00	C131029Z03-RP1	Initial Issue	ALL	Nancy Fu



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1 TEST CERTIFICATION

Product	900MHz Wireless Headphone
Model	HP4590
Brand	ARKON
Tested	October 29~ November 11, 2013
Applicant	Uni-Art Precise Electronics(Shenzhen) Ltd No.8 XinSha Road, Shajing Town, Baoan District 518125 Shenzhen City, Guangdong PEOPLE' S REPUBLIC OF CHINA
Manufacturer	Uni-Art Precise Electronics(Shenzhen) Ltd No.8 XinSha Road, Shajing Town, Baoan District 518125 Shenzhen City, Guangdong PEOPLE' S REPUBLIC OF CHINA

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.

Ruby Zhang
Supervisor of Report Dept.
Compliance Certification Service Inc.



2 EUT DESCRIPTION

Product	900MHz Wireless Headphone
Model Number	HP4590
Brand Name	ARKON
Model Discrepancy	N/A
Identify Number	C131029Z03-RP1
EUT Power Rating	DC8V supplied by the adapter
Adapter Manufacturer / Model No.	SUV-005-080-020-A2 Input: 100-240V,50/60Hz, 150mA Output: DC8.0V, 200mA DC output cable: Un-shielded, 1.75m
Audio In Cable (TX)	Unshielded, 2.10m & Unshielded, 0.10m
Frequency Range	912.0 MHz, 912.5 MHz, 913.0 MHz
Transmit Power	peak: 86.23 dBuV/m (Max.) AVG: 85.13dBuV/m (Max.)
Modulation Technique	FM
Number of Channels	3 Channel
Antenna Specification	Linear antenna with 0 dBi gain (Max)
Temperature Range	0 ~ +55°C

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: MVAHP4591-001T** 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 has been tested under operating condition.

Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

The following test mode(s) were scanned during the preliminary test below 1G:

Test Item	Test mode	Worse mode
Conducted Emission	Mode 1: Play music	☒
	Mode 2: Charge	☐
Radiated Emission	Mode 1: TX	☒

Above 1G, 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	Brand	Data Cable	Power Cord
1	IPOD	A1238	JQ8070LBVMV	N/A	APPLE	N/A	N/A
2	900MHz Wireless Headphone (RX)	HP4590	N/A	MVAHP5092 A-001R	ARKON	N/A	N/A

Note:

- 1) 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
☒ **No.10-1, 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, G-624)
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:

Parameter	Uncertainty
Radiated Emission, 30 to 200 MHz Test Site : 966(2)	+/-3.6880dB
Radiated Emission, 200 to 1000 MHz Test Site : 966(2)	+/-3.6695dB
Radiated Emission, 1 to 8 GHz	+/-5.1782dB
Radiated Emission, 8 to 18 GHz	+/-5.2173dB
Conducted Emissions	+/-3.6836dB
Band Width	178kHz
Peak Output Power MU	+/-1.906dB
Band Edge MU	+/-0.182dB
Channel Separation MU	416.178Hz
Duty Cycle MU	0.054ms
Frequency Stability MU	226Hz

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 ($\mu\text{V}/\text{m}$ at 3-meter)	Field Strength (dB $\mu\text{V}/\text{m}$ 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.

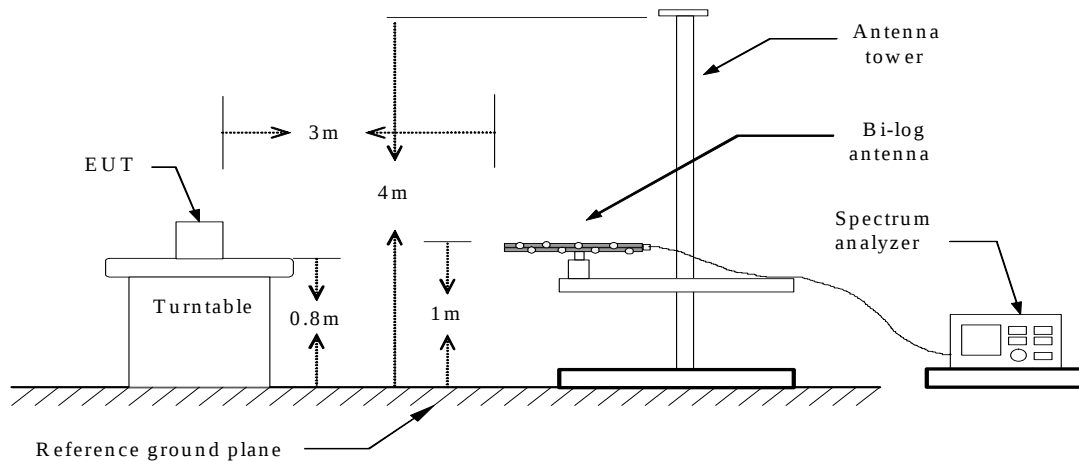
MEASUREMENT EQUIPMENT USED

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	03/09/2013	03/08/2014
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100783	03/09/2013	03/08/2014
Amplifier	MITEQ	AM-1604-3000	1123808	03/18/2013	03/18/2014
High Noise Amplifier	Agilent	8449B	3008A01838	03/18/2013	03/18/2014
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170-497	06/21/2013	06/21/2014
Bilog Antenna	SCHAFFNER	CBL6143	5082	03/02/2013	03/01/2014
Horn Antenna	SCHWARZBECK	BBHA9120	D286	03/02/2013	03/01/2014
Loop Antenna	A、R、A	PLA-1030/B	1029	03/19/2013	03/18/2014
Turn Table	N/A	N/A	N/A	N.C.R	N.C.R
Controller	Sunol Sciences	SC104V	022310-1	N.C.R	N.C.R
Controller	CT	N/A	N/A	N.C.R	N.C.R
Temp. / Humidity Meter	Anymetre	JR913	N/A	03/04/2013	03/03/2014
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:
(a) PEAK: RBW=100kHz / VBW=300kHz / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

TEST RESULTS

Refer to attach spectrum analyzer data chart.



Test Data

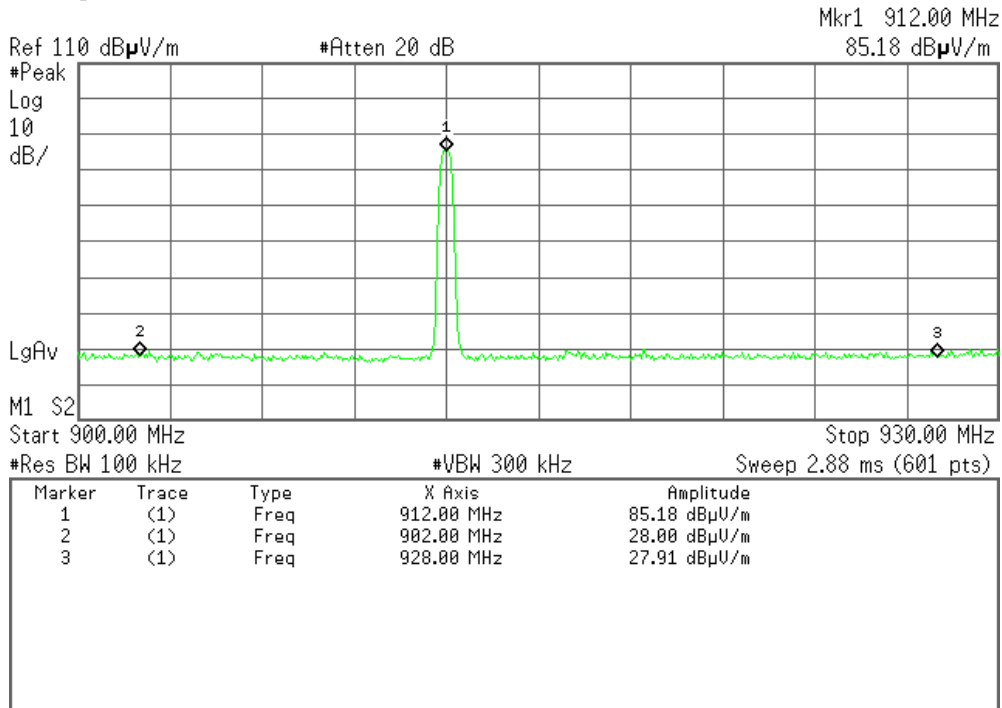
Band Edges (TX / CH 1 912.0MHz)

Detector mode: Peak

Polarity: Vertical

Agilent

R T

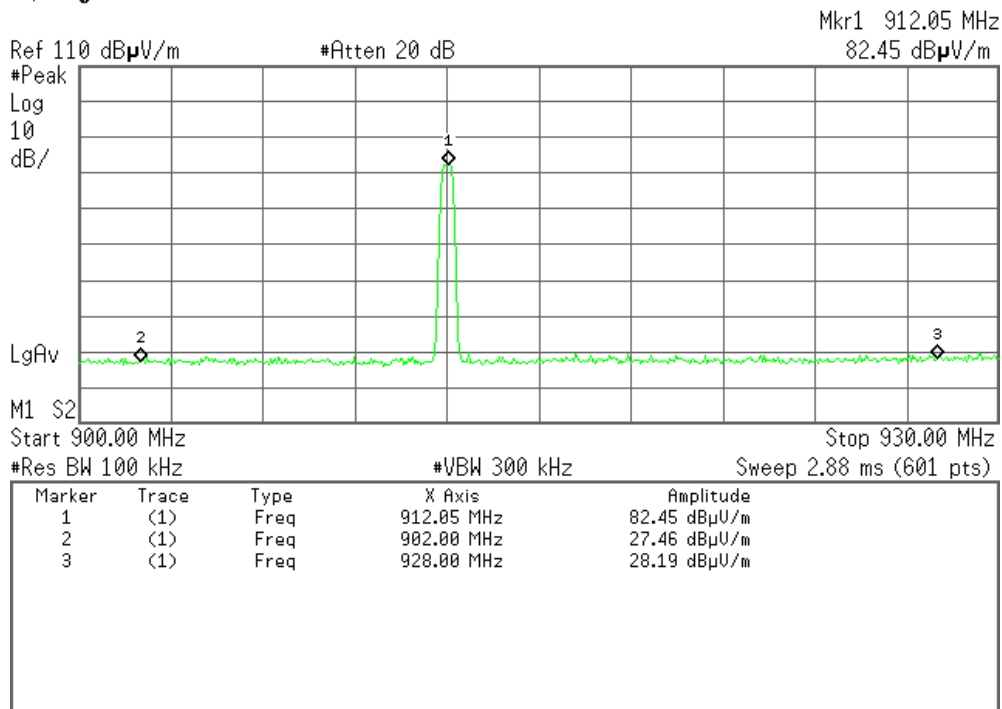


Detector mode: Peak

Polarity: Horizontal

Agilent

R T





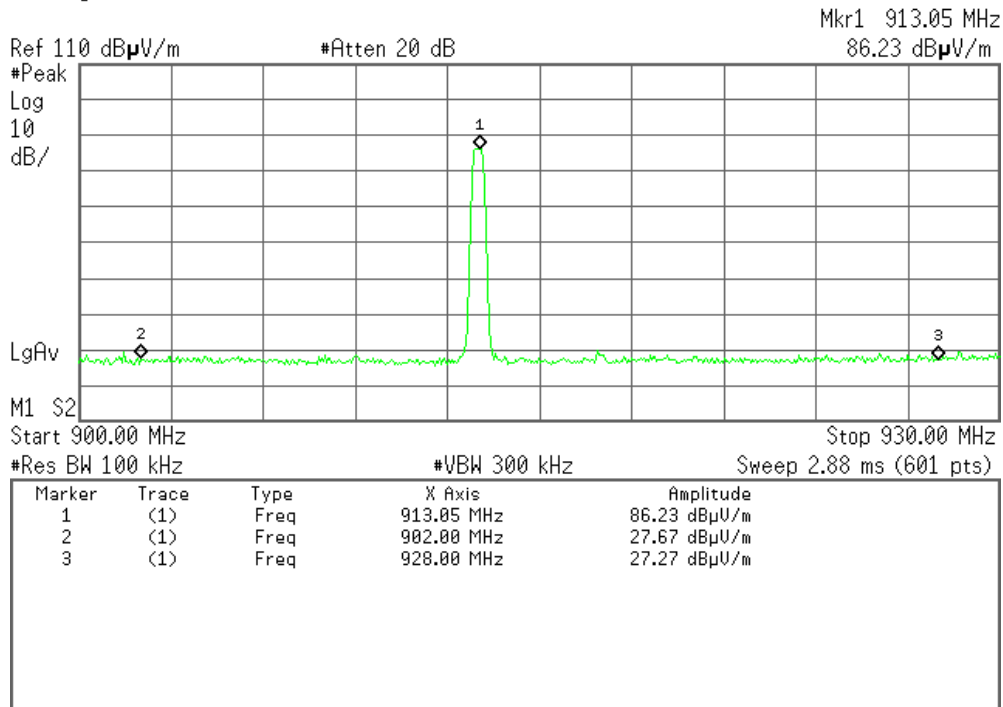
Band Edges (TX / CH 3 913.0MHz)

Detector mode: Peak

Polarity: Vertical

Agilent

R T

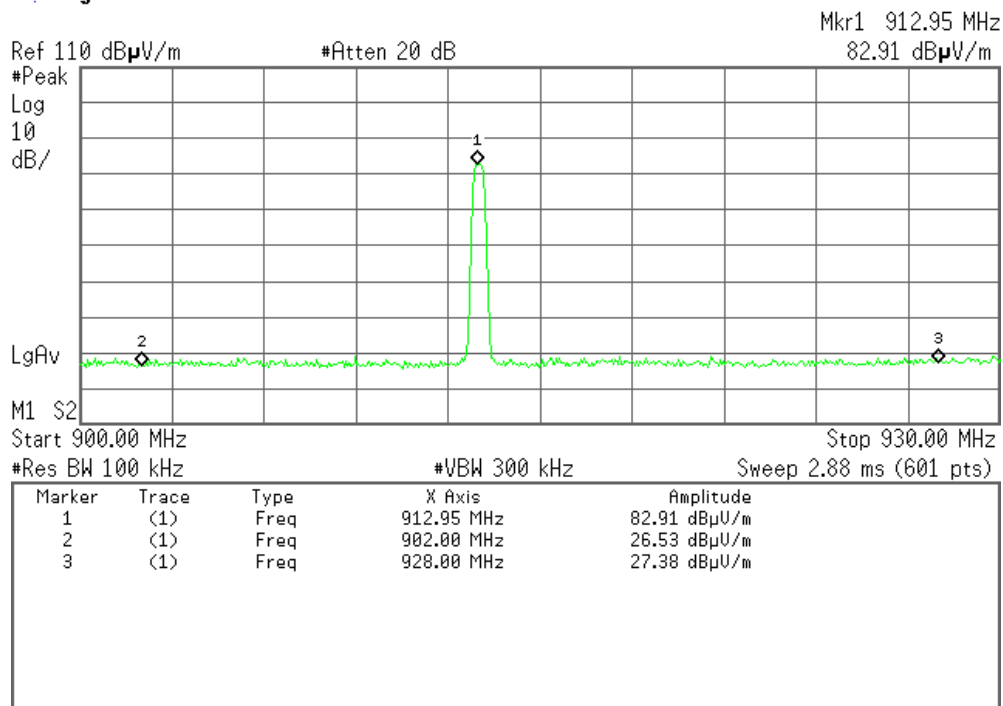


Detector mode: Peak

Polarity: Horizontal

Agilent

R T





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
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100783	03/09/2013	03/08/2014
LISN(EUT)	ROHDE&SCHWARZ	ENV216	101543-WX	04/20/2013	04/19/2014
LISN	EMCO	3825/2	8901-1459	03/09/2013	03/08/2014
Temp. / Humidity Meter	VICTOR	HTC-1	N/A	03/04/2013	03/03/2014
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.

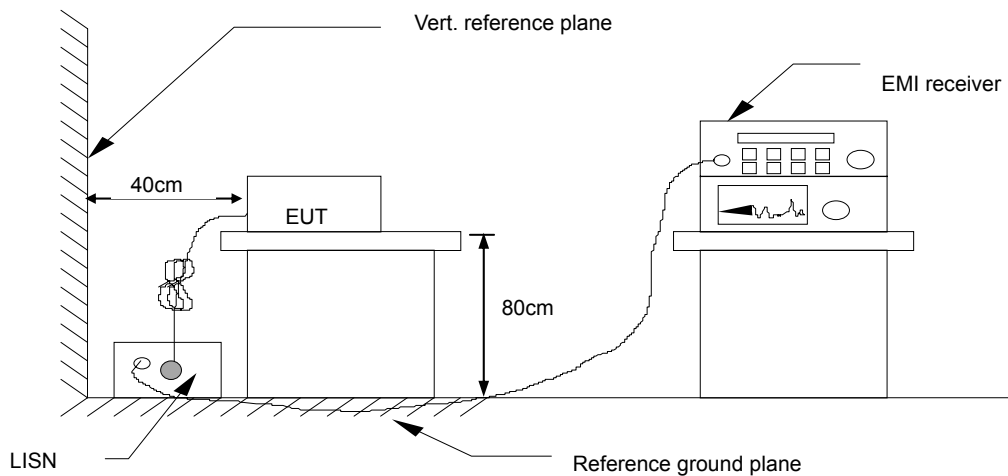


8.2.2. TEST PROCEDURES (please refer to measurement standard)

- 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. DATA SAMPLE

FREQ MHz	PEAK RAW dBuV	Q.P. RAW dBuV	AVG RAW dBuV	Q.P. Limit dBuV	AVG Limit dBuV	Q.P. Margin dB	AVG Margin dB	Note
x.xx	50.27	49.16	48.17	65.47	55.47	-16.31	-7.30	L1

Freq. = Emission frequency in MHz
RAW dBuV = Uncorrected Analyzer/Received Reading +INSERTION LOSS of LISN+CABLE LOSS+pulse limiter loss
Q.P. Limit dBuV = Limit stated in standard
AVG Limit dBuV = Limit stated in standard
Q.P. Margin dB = Q.P. RAW (dBuV) –Q.P. Limit (dBuV)
AVG Margin dB = AVG RAW (dBuV) –AVG Limit (dBuV)
Note = Current carrying line of reading
Q.P.: =Quasi-Peak

**8.2.5. TEST RESULTS**

Model No.	HP4590	RBW,VBW	9 kHz
Environmental Conditions	22°C, 45% RH	Test Mode	Mode 1
Tested by	Mack Li	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)
0.4780	33.15	15.34	9.69	42.84	25.03	56.37	46.37	-13.53	-21.34	Pass
0.5740	42.36	21.61	9.68	52.04	31.29	56.00	46.00	-3.96	-14.71	Pass
0.6700	40.98	19.77	9.69	50.67	29.46	56.00	46.00	-5.33	-16.54	Pass
1.3380	42.91	22.38	9.79	52.70	32.17	56.00	46.00	-3.30	-13.83	Pass
2.2180	37.11	16.55	9.73	46.84	26.28	56.00	46.00	-9.16	-19.72	Pass
6.2060	39.68	21.35	9.78	49.46	31.13	60.00	50.00	-10.54	-18.87	Pass

NOTE: L1 = Line One (Live Line)



Model No.	HP4590	RBW,VBW	9 kHz
Environmental Conditions	22°C, 45% RH	Test Mode	Mode 1
Tested by	Mack Li	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)
0.2860	39.29	13.25	9.76	49.05	23.01	60.64	50.64	-11.59	-27.63	Pass
0.3820	38.19	15.82	9.72	47.91	25.54	58.23	48.24	-10.32	-22.70	Pass
0.4780	39.69	13.47	9.69	49.38	23.16	56.37	46.37	-6.99	-23.21	Pass
0.5740	37.56	10.66	9.68	47.24	20.34	56.00	46.00	-8.76	-25.66	Pass
1.2380	37.48	12.21	9.79	47.27	22.00	56.00	46.00	-8.73	-24.00	Pass
6.0260	35.76	17.65	9.78	45.54	27.43	60.00	50.00	-14.46	-22.57	Pass

NOTE: 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 (MHz)	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	03/09/2013	03/08/2014
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100783	03/09/2013	03/08/2014
Amplifier	MITEQ	AM-1604-3000	1123808	03/18/2013	03/18/2014
High Noise Amplifier	Agilent	8449B	3008A01838	03/18/2013	03/18/2014
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170-497	06/21/2013	06/21/2014
Bilog Antenna	SCHAFFNER	CBL6143	5082	03/02/2013	03/01/2014
Horn Antenna	SCHWARZBECK	BBHA9120	D286	03/02/2013	03/01/2014
Loop Antenna	A、R、A	PLA-1030/B	1029	03/19/2013	03/18/2014
Turn Table	N/A	N/A	N/A	N.C.R	N.C.R
Controller	Sunol Sciences	SC104V	022310-1	N.C.R	N.C.R
Controller	CT	N/A	N/A	N.C.R	N.C.R
Temp. / Humidity Meter	Anymetre	JR913	N/A	03/04/2013	03/03/2014
Antenna Tower	SUNOL	TLT2	N/A	N.C.R	N.C.R
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.

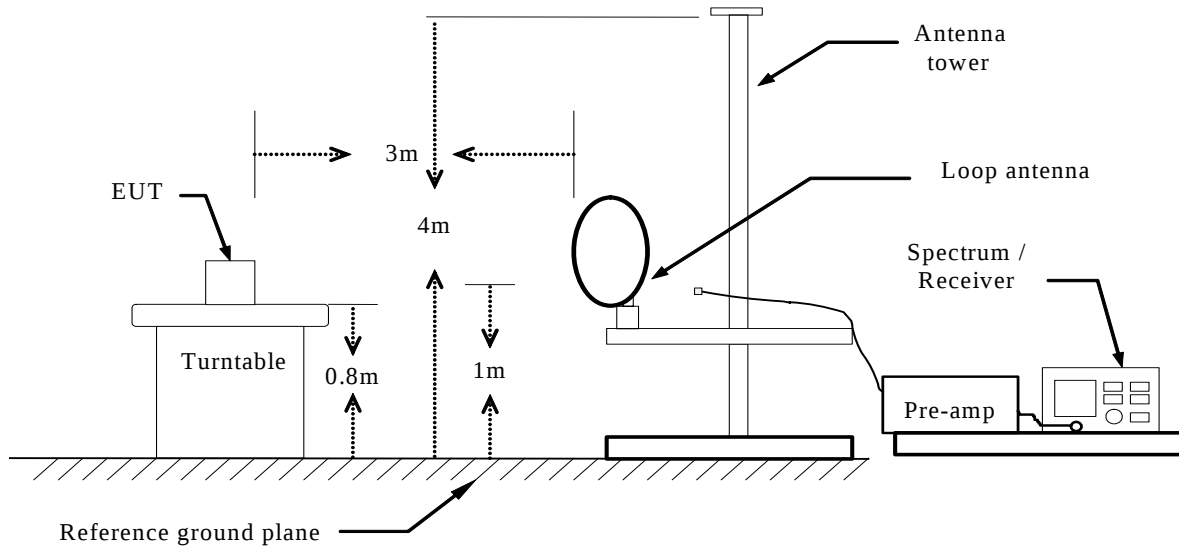
8.3.3 TEST PROCEDURE (please refer to measurement standard)

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.

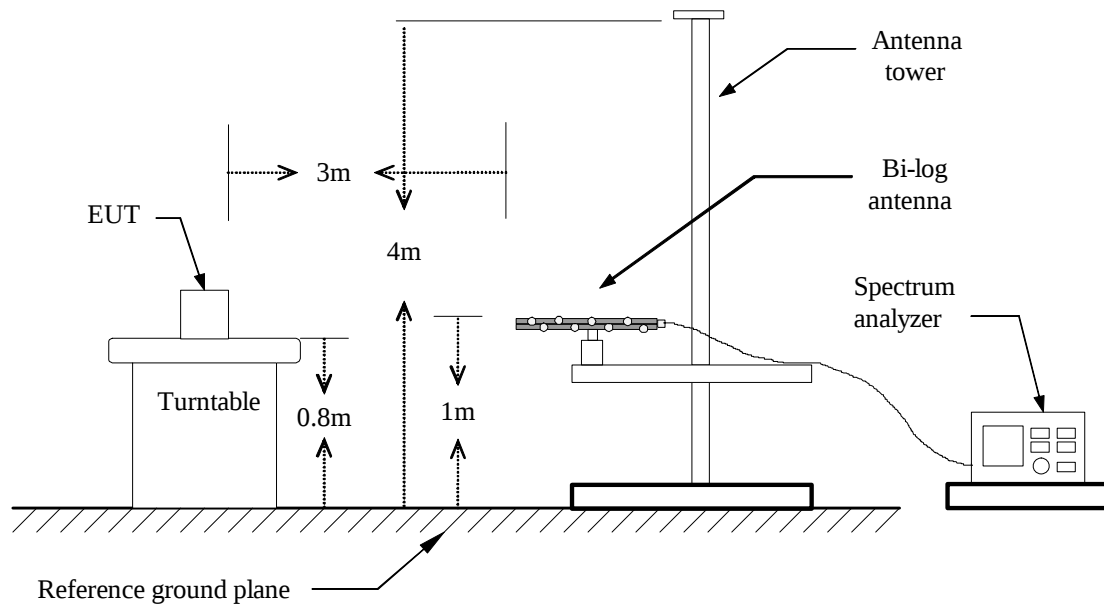


8.3.2.1. TEST SETUP

Below 30 MHz

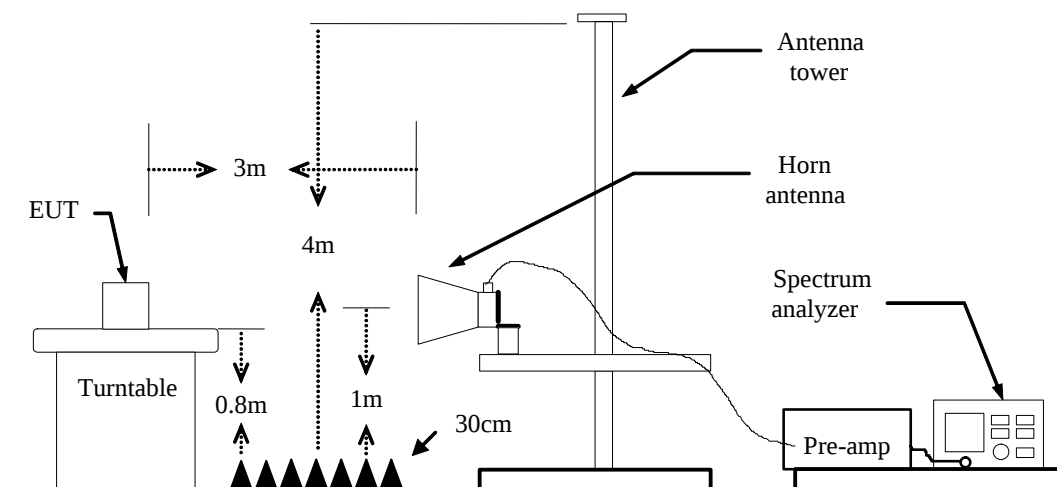


Below 1 GHz





Above 1 GHz



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

8.3.2.2. DATA SAMPLE

Below 1 GHz

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Remark) (dBuV)	Correction Factor (dB/m)	Result (Remark) (dBuV/m)	Limit (Peak) (dBuV/m)	Margin (dB)	Remark
xxx	V	12.12	10.21	22.33	40.00	-17.67	Peak

Above 1 GHz

Frequency (MHz)	Ant.Pol. (H/V)	Reading (Peak) (dBuV)	Reading (Average) (dBuV)	Correction Factor (dB/m)	Result (Peak) (dBuV/m)	Result (Average) (dBuV/m)	Limit (Peak) (dBuV/m)	Limit (Average) (dBuV/m)	Margin (dB)	Remark
xxx	V	65.45	63.00	-11.12	54.33	51.88	74.00	54.00	-2.12	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:** November 6, 2013**Temperature:** 24°C **Tested by:** Mack Li**Humidity:** 52 % RH **Polarity:** Ver. / Hor.**Fundamental**

Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
912.00	88.93	-3.75	85.18	94.00	-8.82	V	QP
912.00	86.20	-3.75	82.45	94.00	-11.55	H	QP

Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
227.2333	36.13	-18.07	18.06	46.00	-27.94	V	QP
361.4167	32.52	-16.78	15.74	46.00	-30.26	V	QP
468.1167	32.83	-14.83	18.00	46.00	-28.00	V	QP
581.2833	34.47	-12.93	21.54	46.00	-24.46	V	QP
689.6000	31.97	-11.14	20.83	46.00	-25.17	V	QP
865.8167	33.12	-9.47	23.65	46.00	-22.35	V	QP
146.4000	44.93	-18.98	25.95	43.50	-17.55	H	QP
202.9833	36.38	-18.43	17.95	43.50	-25.55	H	QP
466.5000	38.90	-14.88	24.02	46.00	-21.98	H	QP
576.4333	39.29	-13.33	25.96	46.00	-20.04	H	QP
717.0833	32.45	-10.93	21.52	46.00	-24.48	H	QP
815.7000	34.63	-10.87	23.76	46.00	-22.24	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. Margin (dB) = Remark result (dBuV/m) – Quasi-peak limit (dBuV/m)



Operation Mode: TX / CH 2 (912.5MHz) **Test Date:** November 6, 2013
Temperature: 24°C **Tested by:** Mack Li
Humidity: 52 % RH **Polarity:** Ver. / Hor.

Fundamental

Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
912.50	89.48	-3.75	85.73	94.00	-8.27	V	QP
912.50	86.68	-3.75	82.93	94.00	-11.07	H	QP

Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
227.2333	35.70	-18.07	17.63	46.00	-28.37	V	QP
385.6667	33.26	-16.62	16.64	46.00	-29.36	V	QP
435.7833	31.93	-14.91	17.02	46.00	-28.98	V	QP
560.2667	34.63	-13.67	20.96	46.00	-25.04	V	QP
694.4500	31.50	-10.78	20.72	46.00	-25.28	V	QP
814.0833	32.77	-10.86	21.91	46.00	-24.09	V	QP
204.6000	36.63	-18.26	18.37	43.50	-25.13	H	QP
468.1167	39.47	-14.83	24.64	46.00	-21.36	H	QP
568.3500	38.94	-13.90	25.04	46.00	-20.96	H	QP
689.6000	32.21	-11.14	21.07	46.00	-24.93	H	QP
794.6833	34.23	-10.67	23.56	46.00	-22.44	H	QP
870.6667	34.72	-9.63	25.09	46.00	-20.91	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. Margin (dB) = Remark result (dBuV/m) – Quasi-peak limit (dBuV/m)



Operation Mode: TX / CH 3 (913.0MHz) **Test Date:** November 6, 2013
Temperature: 24°C **Tested by:** Mack Li
Humidity: 52 % RH **Polarity:** Ver. / Hor.

Fundamental

Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
913.00	89.98	-3.75	86.23	94.00	-7.77	V	QP
913.00	86.66	-3.75	82.91	94.00	-11.09	H	QP

Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
227.2333	35.73	-18.07	17.66	46.00	-28.34	V	QP
434.1667	32.60	-14.86	17.74	46.00	-28.26	V	QP
573.2000	35.15	-13.64	21.51	46.00	-24.49	V	QP
671.8167	31.70	-11.05	20.65	46.00	-25.35	V	QP
699.3000	31.76	-10.37	21.39	46.00	-24.61	V	QP
783.3667	32.55	-11.29	21.26	46.00	-24.74	V	QP
173.8833	37.27	-18.73	18.54	43.50	-24.96	H	QP
466.5000	38.05	-14.88	23.17	46.00	-22.83	H	QP
578.0500	38.39	-13.17	25.22	46.00	-20.78	H	QP
733.2500	32.43	-10.71	21.72	46.00	-24.28	H	QP
817.3167	34.20	-10.88	23.32	46.00	-22.68	H	QP
869.0500	34.43	-9.57	24.86	46.00	-21.14	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. Margin (dB) = Remark result (dBuV/m) – Quasi-peak limit (dBuV/m)

**Above 1 GHz**

Operation Mode: TX / CH 1 (912.0MHz) **Test Date:** November 6, 2013
Temperature: 24°C **Tested by:** Mack Li
Humidity: 52% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1440.0000	47.99	-8.00	39.99	74.00	-34.01	V	peak
2306.6667	46.68	-7.20	39.48	74.00	-34.52	V	peak
2620.0000	46.37	-5.76	40.61	74.00	-33.39	V	peak
2840.0000	46.61	-4.88	41.73	74.00	-32.27	V	peak
3180.0000	46.69	-4.10	42.59	74.00	-31.41	V	peak
3693.3333	46.23	-2.77	43.46	74.00	-30.54	V	peak
1346.6667	47.93	-8.07	39.86	74.00	-34.14	H	peak
2420.0000	46.58	-6.46	40.12	74.00	-33.88	H	peak
2733.3333	46.63	-5.31	41.32	74.00	-32.68	H	peak
3100.0000	46.65	-4.17	42.48	74.00	-31.52	H	peak
3906.6667	45.15	-2.51	42.64	74.00	-31.36	H	peak
4446.6667	46.29	-0.74	45.55	74.00	-28.45	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:** November 6, 2013
Temperature: 24°C **Tested by:** Mack Li
Humidity: 52% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1353.3333	48.48	-8.04	40.44	74.00	-33.56	V	peak
2740.0000	46.94	-5.28	41.66	74.00	-32.34	V	peak
3020.0000	46.56	-4.23	42.33	74.00	-31.67	V	peak
3646.6667	46.21	-2.89	43.32	74.00	-30.68	V	peak
3893.3333	46.31	-2.51	43.80	74.00	-30.20	V	peak
4560.0000	45.67	-0.53	45.14	74.00	-28.86	V	peak
1160.0000	48.92	-9.05	39.87	74.00	-34.13	H	peak
1666.6667	47.94	-8.93	39.01	74.00	-34.99	H	peak
2740.0000	48.19	-5.28	42.91	74.00	-31.09	H	peak
2993.3333	46.47	-4.27	42.20	74.00	-31.80	H	peak
3266.6667	46.38	-4.06	42.32	74.00	-31.68	H	peak
3946.6667	45.46	-2.52	42.94	74.00	-31.06	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:** November 6, 2013
Temperature: 24°C **Tested by:** Mack Li
Humidity: 52% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Reading (dBμV)	Correction Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1053.3333	50.47	-9.90	40.57	74.00	-33.43	V	peak
1466.6667	48.68	-8.11	40.57	74.00	-33.43	V	peak
2740.0000	47.19	-5.28	41.91	74.00	-32.09	V	peak
3226.6667	46.55	-4.08	42.47	74.00	-31.53	V	peak
3806.6667	45.74	-2.49	43.25	74.00	-30.75	V	peak
4193.3333	46.12	-1.61	44.51	74.00	-29.49	V	peak
1273.3333	48.43	-8.40	40.03	74.00	-33.97	H	peak
1686.6667	47.72	-9.01	38.71	74.00	-35.29	H	peak
2620.0000	47.26	-5.76	41.50	74.00	-32.50	H	peak
3040.0000	47.38	-4.21	43.17	74.00	-30.83	H	peak
3666.6667	45.46	-2.84	42.62	74.00	-31.38	H	peak
4466.6667	45.77	-0.70	45.07	74.00	-28.93	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).