



Report No.: 160831043GZU-002
Issued: 2016-11-22

TEST REPORT

Applicant Name & : INNOPLAY LIMITED
Address : 402A, 4/F Shing Chuen Industrial Centre, 25-27 Shing Wan Road, Shatin NT,
Hong Kong

Sample Description

Product : Electronic Photography precision device-IPano360
FCC ID : 2AJ2QIPANO360MARK1
Model No. : IPANO360 MARK1
Electrical Rating : 3.7Vdc (Recharged batteries) or 5Vdc supplied by adaptor

Date Received : 31 August 2016
Date Test Conducted : 31 August 2016 –17 November 2016
Test standards : **47 CFR PART 15 Subpart C: 2015 section 15.249**

Test Result : Pass

Conclusion : The submitted samples complied with the above rules/standards.

Remark : None.

*****End of Page*****

Prepared and Checked By:

Approved By:

Daniel He
Daniel He
Project Engineer
Intertek Guangzhou

Helen Ma *Signature*
Helen Ma
Team Leader
Intertek Guangzhou
22 November 2016 *Date*

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program. The test report only allows to be revised within three years from its original issued date unless further standard or the requirement was noticed.

Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD Guangzhou, China
Tel / Fax: 86-20-8213 9688/86-20-3205 7538
© 2016 Intertek



Report No.: 160831043GZU-002
Issued: 2016-11-22

CONTENT

TEST REPORT	1
CONTENT	2
1.0 Summary of Test	3
2.0 General Description	4
2.1 Product Description	4
2.2 Related Submittal(s) Grants	5
2.3 Test Methodology	5
2.4 Test Facility	5
3.0 System Test Configuration	6
3.1 Justification	6
3.2 EUT Exercising Software	7
3.3 Special Accessories	7
3.4 Measurement Uncertainty	7
3.5 Equipment Modification	7
3.6 Support Equipment List and Description	7
4.0 Measurement Results	8
4.1 Antenna Requirement:	8
4.2 Occupied Bandwidth:	9
4.7 Radiated Emission	11
4.8 Band Edges Requirement	21
4.9 Conducted Emission Test	23
5.0 Test Equipment List	26

1.0 Summary of Test

TEST	TEST REQUIREMENT	TEST METHOD	RESULT
Antenna Requirement	FCC PART 15 C Section 15.203	FCC PART 15 C Section 15.203	PASS
Occupied Bandwidth	FCC PART 15 C section 15.215(c)	ANSI C63.10: Clause 6.9	PASS
Radiated Emission	FCC PART 15 C section 15.249 (a), (d)	ANSI C63.10: Clause 6.4, 6.5 & 6.6	PASS
Band Edges Measurement	FCC PART 15 C section 15.249 (d)	ANSI C63.10: Clause 6.10	PASS
Conducted Emissions at Mains Terminals	FCC PART 15 C section 15.207	ANSI C63.10: Clause 6.2	PASS
Remark :			
<p>N/A: not applicable. Refer to the relative section for the details. EUT: In this whole report EUT means Equipment Under Test. Tx: In this whole report Tx (or tx) means Transmitter. Rx: In this whole report Rx (or rx) means Receiver. RF: In this whole report RF means Radio Frequency. ANSI C63.10: the detail version is ANSI C63.10:2013 in the whole report.</p>			



Report No.: 160831043GZU-002
Issued: 2016-11-22

2.0 General Description

2.1 Product Description

Operating Frequency	2450MHz
Type of Modulation:	GFSK
Number of Channels	1 Channel
Channel Separation:	None
Antenna Type	Wire
Antenna gain:	0 dBi
Power Supply:	3.7Vdc (Recharged batteries) or 5Vdc supplied by adaptor



Report No.: 160831043GZU-002
Issued: 2016-11-22

2.2 Related Submittal(s) Grants

This is an application for certification of:
Part 15 Low Power Communications Device Transmitter

2.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10:2013. Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans and final tests were performed in the semi-anechoic chamber to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise.

2.4 Test Facility

All of the tests are performed at:
Intertek Testing Services Shenzhen Ltd. Guangzhou Branch.
Located at Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD Guangzhou, 510663, China. This test facility and site measurement data have been fully placed on file with the FCC, test firm registration number is 549654.

3.0 System Test Configuration

3.1 Justification

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. It was powered by 3.7Vdc (Recharged batteries) or 5Vdc supplied by adaptor.

The signal is maximized through rotation and placement in the three orthogonal axes; the antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. The spurious emissions more than 20 dB below the permissible value are not reported.

For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in the following table:

Frequency range of radiated emission measurements

Lowest frequency generated in the device	Upper frequency range of measurement
9 kHz to below 10 GHz	10th harmonic of highest fundamental frequency or to 40 GHz, whichever is lower
At or above 10 GHz to below 30 GHz	5th harmonic of highest fundamental frequency or to 100 GHz, whichever is lower
At or above 30 GHz	5th harmonic of highest fundamental frequency or to 200 GHz, whichever is lower, unless otherwise specified

Number of fundamental frequencies to be tested in EUT transmit band

Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
1 MHz or less	1	Middle
1 MHz to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle and 1 near bottom

3.2 EUT Exercising Software

No special exercising software

3.3 Special Accessories

No special accessories used.

3.4 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Occupied Channel Bandwidth	2.3%
2	Spurious Emission (TX)-Radiated	4.7 dB (25 MHz-1 GHz)
		4.8 dB (1 GHz-18 GHz)
3	Temperature	0.5 °C
4	Conducted Emissions at Mains Terminals	2.58dB
5	Humidity	0.4 %
6	Time	1.2%

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

Uncertainty and Compliance – Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

3.5 Equipment Modification

Any modifications installed previous to testing by INNOPLAY LIMITED, will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Guangzhou Branch.

3.6 Support Equipment List and Description

Supplied by Intertek:

Description	Manufacturer	Model No.	SN/Certificate NO
USB Power Adaptor	Apple	A1401	/

Remark:

1. The adaptor is not a part of system and won't be sold together, which supplied by Intertek.
2. The client make a continuous transmit sample for test, in actual use will with duty cycle (detail information can refer to page 12)

4.0 Measurement Results

4.1 Antenna Requirement:

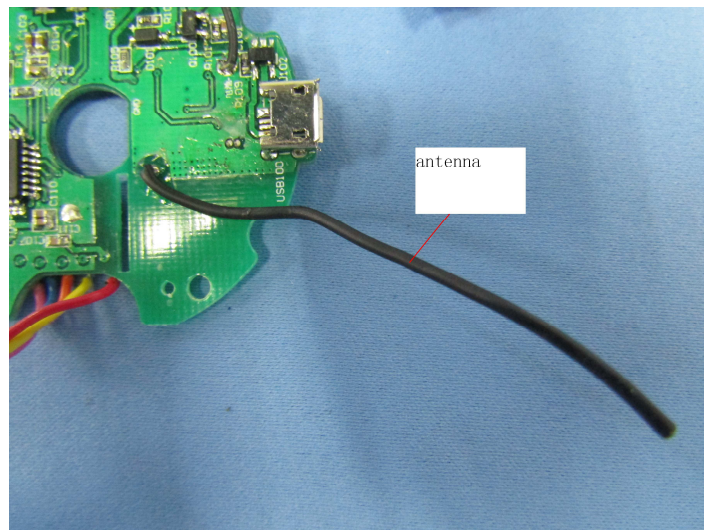
Standard requirement

15.203 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.

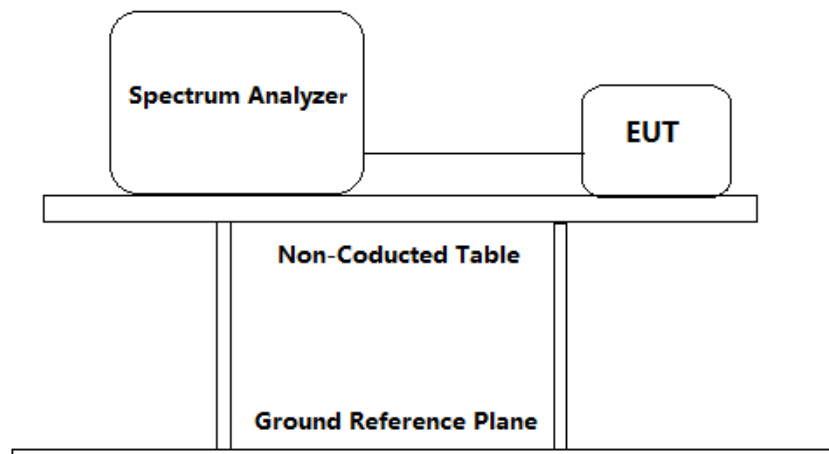
EUT Antenna

The antenna is an integral antenna and no consideration of replacement. The best case gain of the antenna is 0 dBi.



4.2 Occupied Bandwidth:

Test Requirement:	FCC PART 15 C section 15.215(c) (c) Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated
Test Method:	ANSI C63.10: Clause 6.9
Test Status:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Pre-test the EUT supplied by AC mode and B/O mode, find worse case in B/O mode.
Test Configuration:	



Test Procedure:

The transmitter was operated at its maximum carrier power measured under normal test conditions.

- The instrument center frequency was set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer was between 1.5 times and 5.0 times the OBW(20 dB Bandwidth).
- The nominal IF filter bandwidth (3 dB RBW) was in the range of 1% to 5% of the OBW, and VBW was approximately three times the RBW.

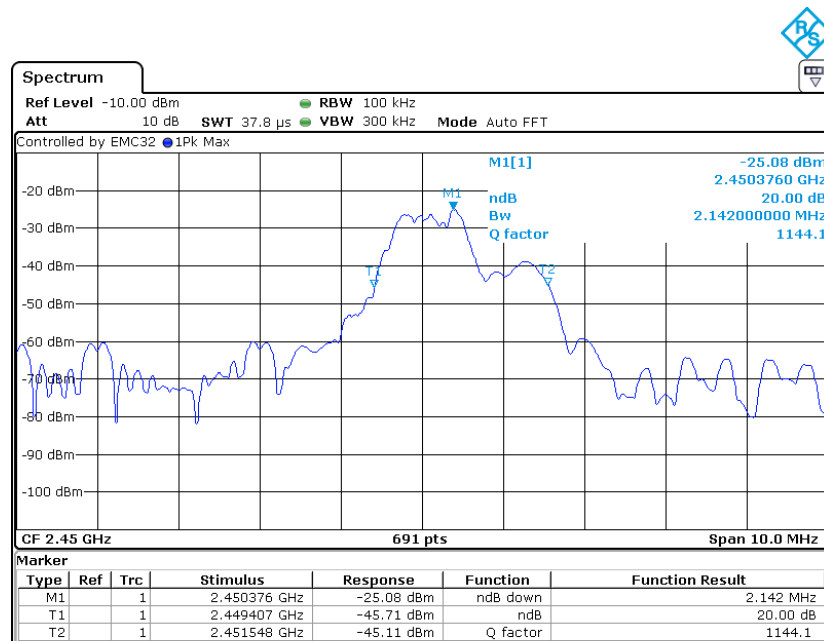
- c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope was more than $[10 \log (OBW/RBW)]$ below the reference level.
- d) Step a) through step c) might require iteration to adjust within the specified range.
- e) The dynamic range of the instrument at the selected RBW was more than 10 dB below the target “-20 dB down” requirement; that is, if the requirement calls for measuring the -20 dB OBW, the instrument noise floor at the selected RBW was at least 30 dB below the reference value.
- f) Peak detection and max hold mode (until the trace stabilizes) was used.
- g) Used the 20dB bandwidth function of the instrument and reported the measured bandwidth.
- h) The occupied bandwidth was reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division was clearly labeled. Tabular data was reported in addition to the plot(s).

20 dB bandwidth:

Frequency (MHz)	Measured 20 dB bandwidth (MHz)	Limit (MHz)	Result
2450	2.142	/	Pass

20dB bandwidth:

Result plot as follows:



4.7 Radiated Emission

Test Requirement:

FCC PART 15 C section 15.249 (a), (d)

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

Fundamental Frequency (MHz)	Field Strength of Fundamental (dBμV/m @ 3m)	Field Strength of Harmonics (dBμV/m @ 3m)
902 to 928	94.0	54.0
2400 to 2483.5	94.0	54.0
5725 to 5875	94.0	54.0

Note: The limits shown in the above table are based on measurements using an average detector, except for the fundamental emission in the frequency band 902-928 MHz, which is based on measurements using a CISPR quasi-peak detector.

(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 § 15.209, whichever is the lesser attenuation.

Test Method:

ANSI C63.10: Clause 6.4, 6.5 and 6.6

Test Status:

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Pre-test the EUT supplied by AC mode and B/O mode, find worse case in B/O mode.

Test site:

Measurement Distance: 3m (Semi-Anechoic Chamber)

Limit:

The field strength of radiated emission outside of the specified frequency bands, except for harmonics at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Field Strength (dBμV/m @ 3m)
30-88	40.0
88-216	43.5
216-960	46.0
Above 960	54.0

Detector:

For Peak and Quasi-Peak value:
200 Hz for 9 kHz to 150 kHz

9 kHz for 150 kHz to 30 MHz

120 kHz for 30 MHz to 1GHz

RBW = 1 MHz for $f \geq 1$ GHzVBW \geq RBW

Sweep = auto

Detector function = peak for $f \geq 1$ GHz, QP for $f < 1$ GHz

Trace = max hold

According 15.35(c), when the field strength (or envelope power) is not constant or it is in pulses, and an average detector is specified to be used, the value of field strength or power shall be determined by averaging over one complete pulse train, including blanking intervals within the pulse train, as long as the pulse train does not exceed 0.1 seconds. In cases where the pulse train exceeds 0.1 second, the average value of field strength or output power shall be determined during a 0.1 second interval during which the field strength or power is at its maximum value.

The average correction factor was computed by analyzing the on time in 100ms over one complete pulse train. Analysis of the remote transmitter on time in one complete pulse train, therefore the average value of fundamental frequency was: Average = Peak value + $20\log$ (Duty cycle), where the duty factor is calculated from following formula:

The duration of one cycle $> 100\text{ms}$

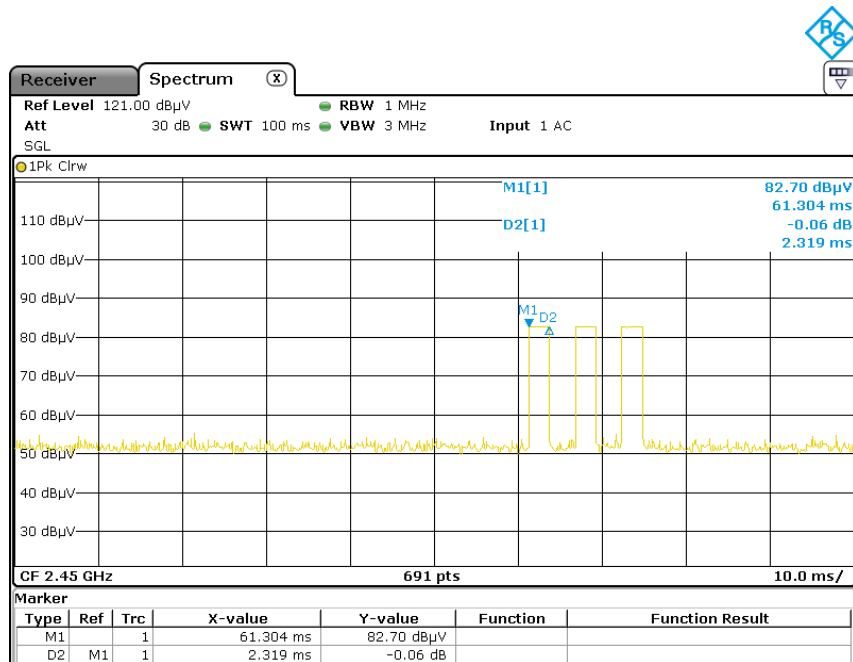
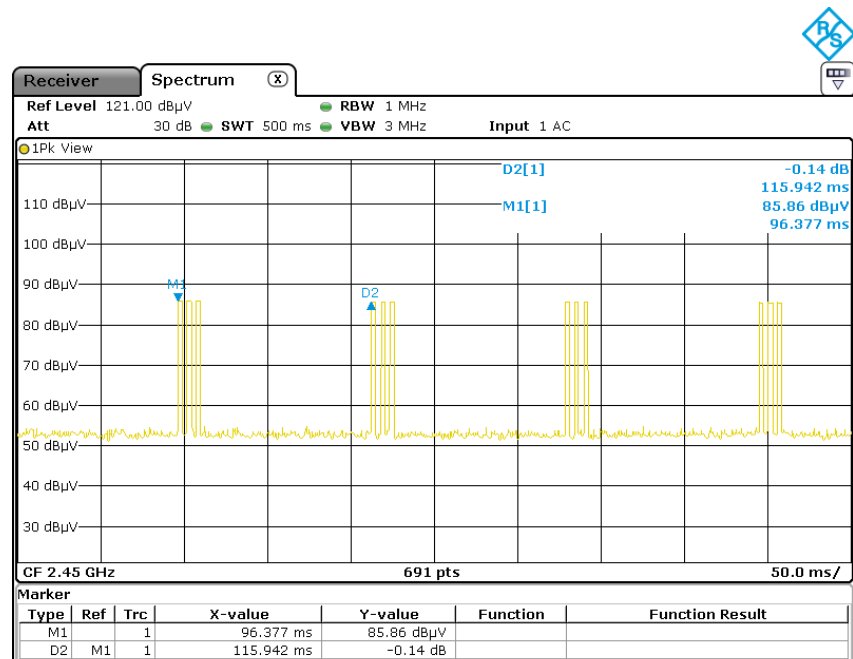
Effective period of the cycle $= 2.319 \times 3 = 6.957$ ms

DC $= 6.957/100 = 0.06957$ or 6.957%

Therefore, the averaging factor is found by $20\lg 0.06957 = -23.15$

Please refer to below plots for more details.

The duration of one cycle >100ms:





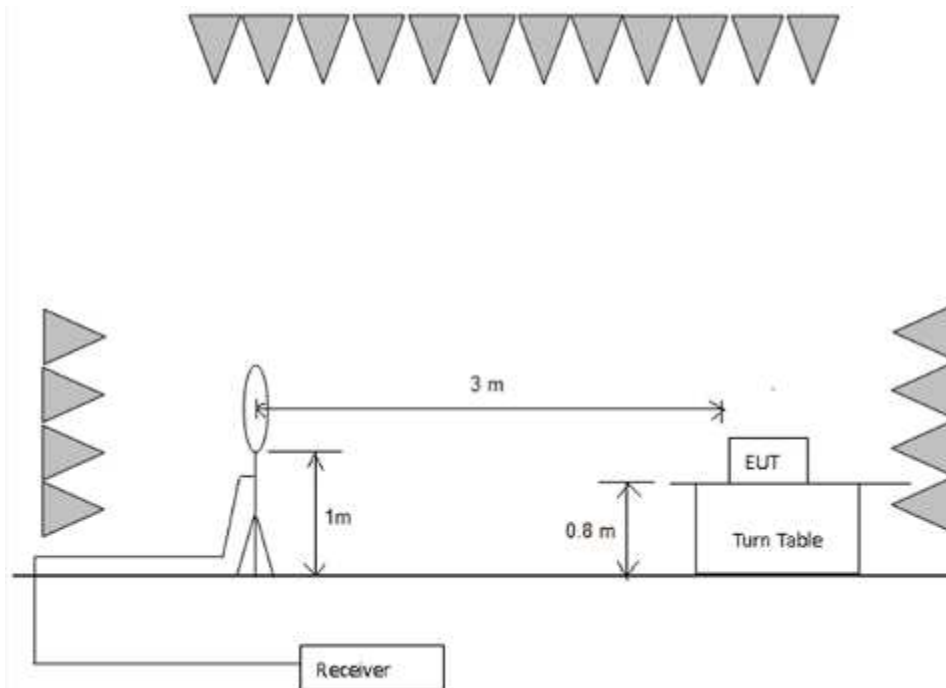
Report No.: 160831043GZU-002
Issued: 2016-11-22

Section 15.205 Restricted bands of operation.

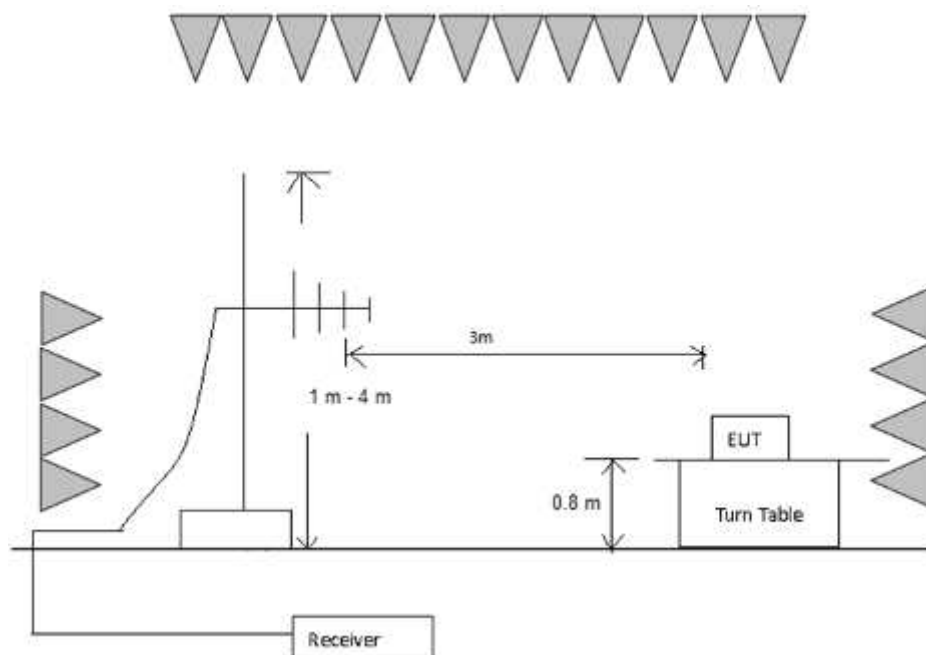
MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 -	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.69525	960 - 1240	7.25 - 7.75
4.125 - 4.128	16.80425 -	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	16.80475	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	25.5 - 25.67	1645.5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

Test Configuration:

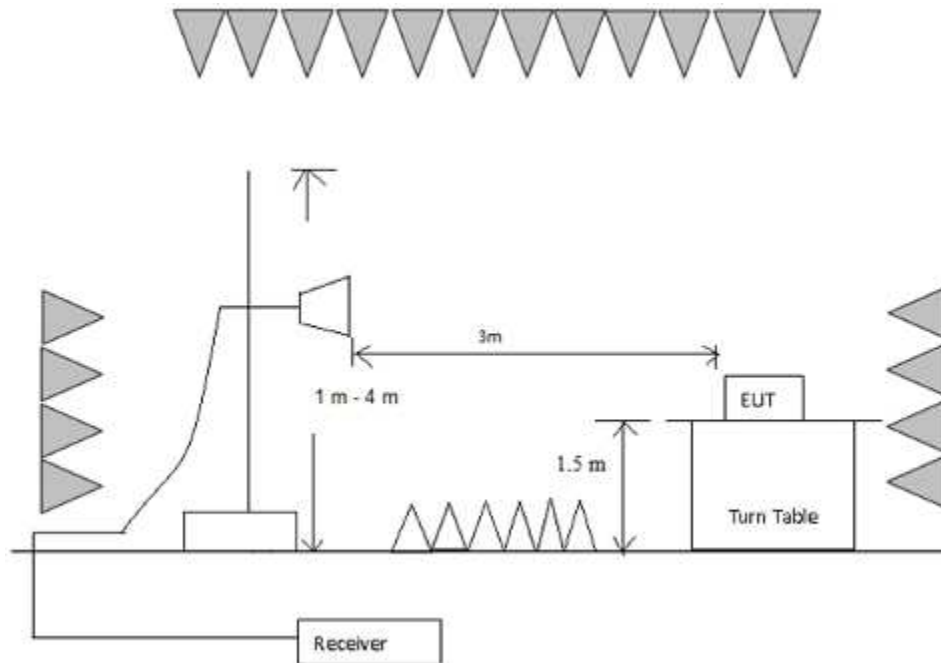
1) 9 kHz to 30 MHz emissions:



2) 30 MHz to 1 GHz emissions:



3) 1 GHz to 25 GHz emissions:



Test Procedure:

1) 9 kHz to 30 MHz emissions:

For testing performed with the loop antenna. The centre of the loop was positioned 1 m above the ground and positioned with its plane vertical at the special distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

2) 30 MHz to 1 GHz emissions:

For testing performed with the bi-log type antenna. The measurement is performed with the EUT rotated 360°, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

3) 1 GHz to 25 GHz emissions:

Test site with RF absorbing material covering the ground plane that met the site validation criterion called out in CISPR 16-1-4:2010 was used to perform radiated emission test above 1 GHz.

For testing performed with the horn antenna. The measurement is performed with the EUT rotated 360°, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

4) The receiver was scanned from 9 kHz to 25 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak



Report No.: 160831043GZU-002

Issued: 2016-11-22

detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

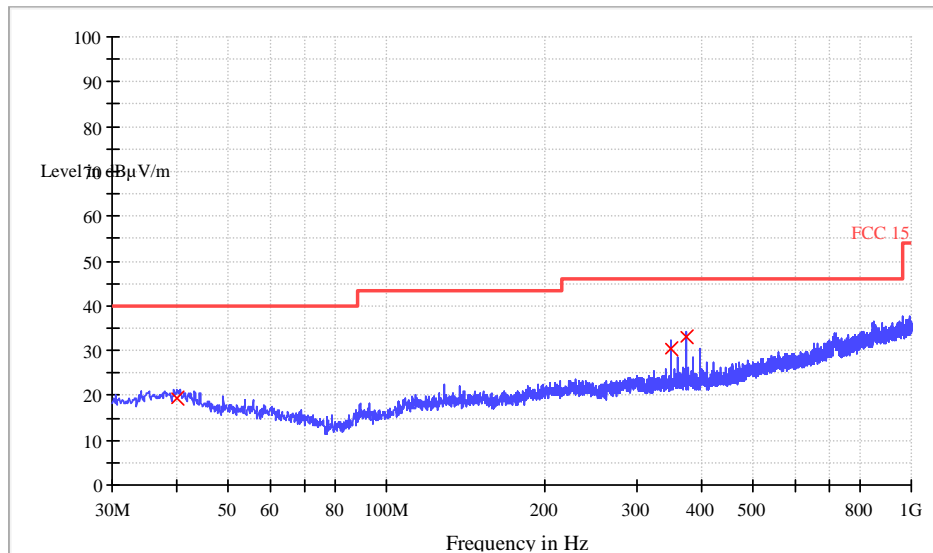
9 kHz~30 MHz Field Strength of Unwanted Emissions. Quasi-Peak Measurement

The measurements with active loop antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

Radiated Emissions (Below 1GHz)

Test Curve and test data

Horizontal:



Quasi-peak measurement:

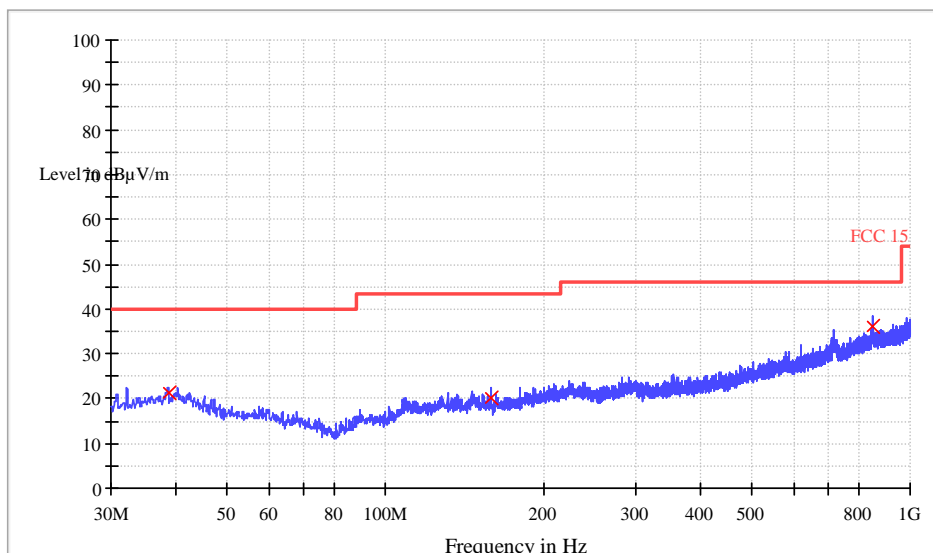
Frequency (MHz)	Receiver Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)
39.920000	3.4	16.0	19.4	40.0
347.960000	12.3	18.1	30.4	46.0
372.000000	14.5	18.5	33.0	46.0

Remark:

Final Test Level = Receiver Reading + Correction Factor

Correction Factor = Antenna Factor + Cable Loss.

Vertical:



Quasi-peak measurement:

Frequency (MHz)	Receiver Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)
38.560000	5.1	16.0	21.1	40.0
158.800000	2.2	18.1	20.3	43.5
845.600000	17.6	18.5	36.1	46.0

Remark:

Final Test Level = Receiver Reading + Correction Factor

Correction Factor = Antenna Factor + Cable Loss.

Radiated Emissions (Above 1GHz)

Polarization	Frequency (MHz)	Reading (dBμV)	Correction Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	2450.000	98.1	-7.2	90.9	114.0	-23.1
Horizontal	4900.000	66.6	-0.5	66.1	74.0	-7.9
Horizontal	7350.000	59.0	3.9	62.9	74.0	-11.1
Vertical	2450.000	103.0	-7.2	95.8	114.0	-18.2
Vertical	4900.000	70.8	-0.5	70.3	74.0	-3.7
Vertical	7350.000	62.8	3.9	66.7	74.0	-7.3

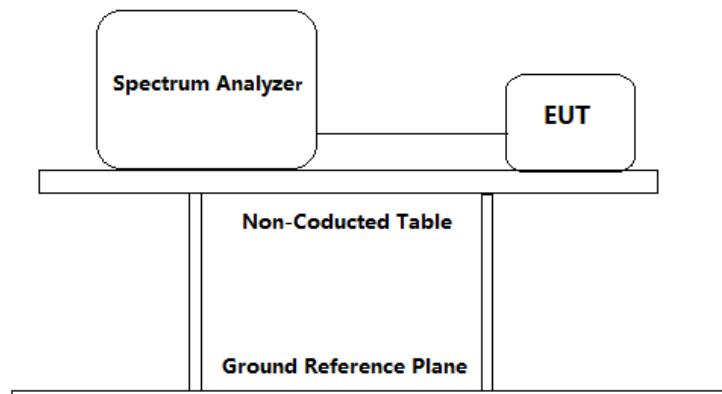
Polarization	Frequency (MHz)	Peak Value (dBμV)	Average Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	2450.000	90.9	-23.2	67.7	94.0	-26.3
Horizontal	4900.000	66.1	-23.2	42.9	54.0	-11.1
Horizontal	7350.000	62.9	-23.2	39.7	54.0	-14.3
Vertical	2450.000	95.8	-23.2	72.6	94.0	-21.4
Vertical	4900.000	70.3	-23.2	47.1	54.0	-6.9
Vertical	7350.000	66.7	-23.2	43.5	54.0	-10.5

Notes:

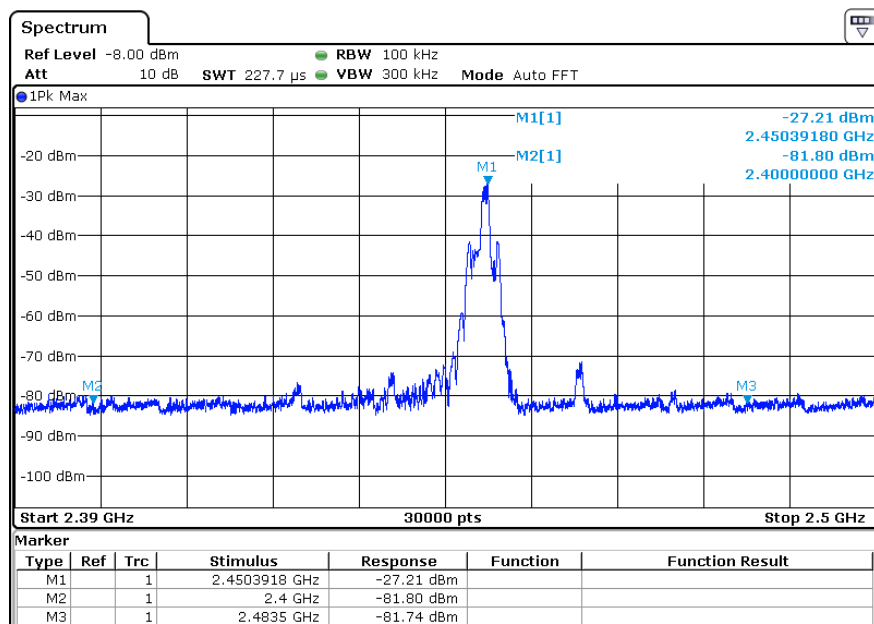
1. AT frequencies equal to or less than 1000MHz, quasi-peak detector was used, above 1000MHz, Peak detector was used.
2. All measurements were made at 3 meter.
3. Horn antenna is used for the emission over 1000MHz.
4. Final Test Level =Receiver Reading + Correction Factor
Correction Factor = Antenna Factor + Cable Loss –Preamplifier Factor.
5. Final Test Level (AV) =PK + Average Factor
6. When Peak emission level was below AV limit, the AV emission level did not be recorded.

4.8 Band Edges Requirement

Test Requirement:	FCC PART 15 C section 15.249 (d) (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 § 15.209, whichever is the lesser attenuation.
Frequency Band:	2400 MHz to 2483.5 MHz
Test Method:	ANSI C63.10: Clause 6.10
Test Status:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Pre-test the EUT supplied by AC mode and B/O mode, find worse case in B/O mode.
Test Configuration:	



Result plot as follows:



Peak Measurement

Band-edge compliance is determined by applying marker-delta method, i.e (Band-edge Plot).

(i) Lower band-edge:

Peak Resultant field strength

=Fundamental emissions (peak value) – delta from the band-edge plot

= 95.80dB μ v/m – 54.59dB

= 41.21dB μ v/m

(ii) Upper band-edge:

Peak Resultant field strength

=Fundamental emissions (peak value) – delta from the band-edge plot

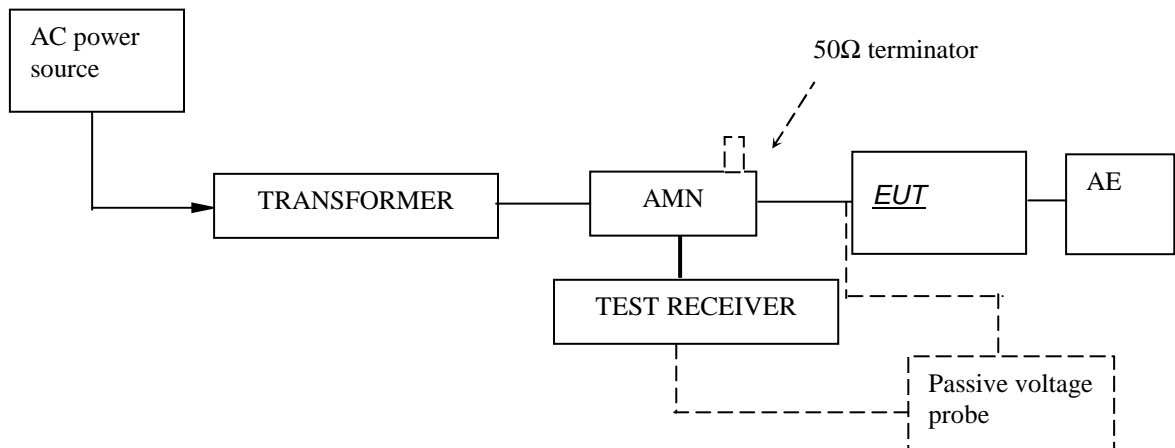
= 95.80dB μ v/m – 54.53dB

= 41.27dB μ v/m

The Peak resultant field strength meets the general radiated emission AV limit 54dB μ v/m, so it complies with the requirement.

4.9 Conducted Emission Test

Test Configuration:



Test Setup and Procedure

Test was performed according to ANSI C63.10 Clause 6.2. The EUT was set to achieve the maximum emission level. The mains terminal disturbance voltage was measured with the EUT in a shielded room. The EUT was connected to AC power source through an Artificial Mains Network which provides a 50Ω linear impedance. Artificial hand is used if appropriate (for handheld apparatus). The load/control terminal disturbance voltage was measured with passive voltage probe if appropriate.

The table-top EUT was placed on a 0.8m high non-metallic table above earthed ground plane (Ground Reference Plane). And for floor standing EUT, was placed on a 0.1m high non-metallic supported on GRP. The EUT keeps a distance of at least 0.8m from any other of the metallic surface. The Artificial Mains Network is situated at a distance of 0.8m from the EUT.

During the test, mains lead of EUT excess 0.8m was folded back and forth parallel to the lead so as to form a horizontal bundle with a length between 0.3m and 0.4m.

The bandwidth of test receiver was set at 9 kHz. The frequency range from 150 kHz to 30MHz was checked.

Test Data

At main terminal: Pass

Tested Wire: Live

Operation Mode: transmitting at 2450MHz

EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCC15QP			
Trace2:	FCC15AV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB	
1 Quasi Peak	270 kHz	43.80 L1	-17.31	
1 Quasi Peak	410 kHz	34.10 L1	-23.54	
2 Average	538 kHz	26.66 L1	-19.34	
1 Quasi Peak	918 kHz	33.65 L1	-22.34	
2 Average	938 kHz	26.26 L1	-19.74	

Tested Wire: Neutral

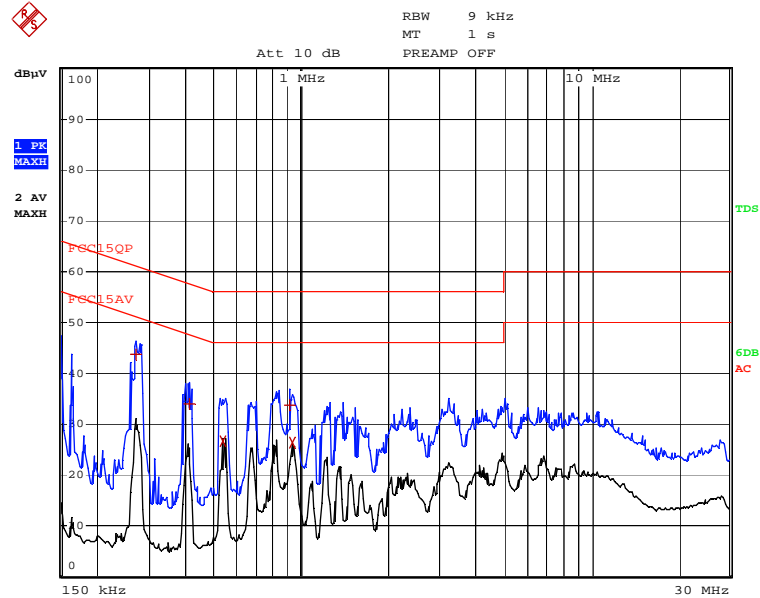
Operation Mode: transmitting at 2450MHz

EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCC15QP			
Trace2:	FCC15AV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB	
1 Quasi Peak	270 kHz	43.22 L1	-17.89	
2 Average	270 kHz	32.21 L1	-18.90	
2 Average	538 kHz	29.58 L1	-16.41	
1 Quasi Peak	842 kHz	34.52 L1	-21.47	
1 Quasi Peak	918 kHz	36.79 L1	-19.20	
2 Average	938 kHz	29.22 L1	-16.77	
1 Quasi Peak	2.35 MHz	27.71 L1	-28.28	

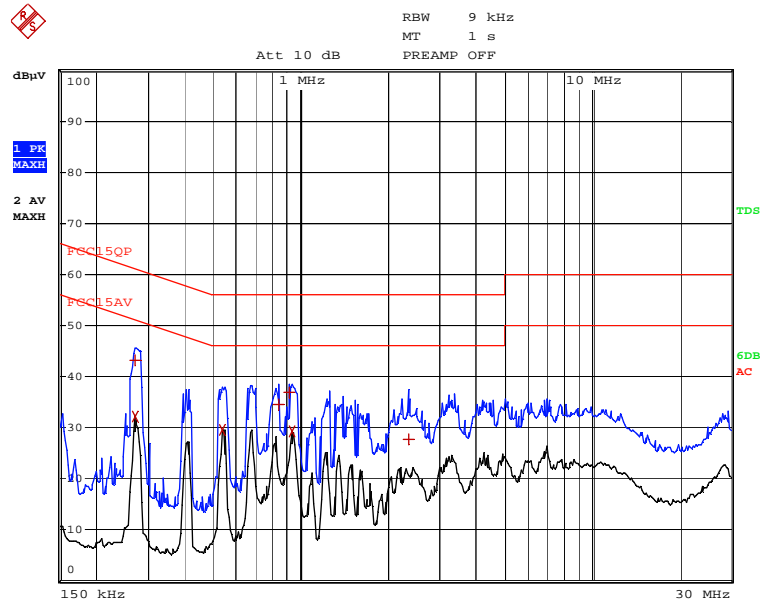


Report No.: 160831043GZU-002
Issued: 2016-11-22

Emission Curve Tested Wire: Live



Tested Wire: Neutral





Report No.: 160831043GZU-002
Issued: 2016-11-22

5.0 Test Equipment List

Radiated Emission

Equipment No.	Equipment	Model	Manufacturer	Cal. Due date (YYYY-MM-DD)	Calibration Interval
EM030-04	3m Semi-Anechoic Chamber	9×6×6 m ³	ETS•LINDGRE N	2017/5/9	1Y
EM031-02	EMI Test Receiver (9 kHz~7 GHz)	R&S ESR7	R&S	2017/6/7	1Y
EM031-03	Signal and Spectrum Analyzer (10 Hz~40 GHz)	R&S FSV40	R&S	2017/6/3	1Y
EM011-04	Loop antenna (9 kHz-30 MHz)	HFH2-Z2	R&S	2017/6/6	1Y
EM061-03	TRILOG Super Broadband test Antenna (30 MHz-1.5 GHz) (TX)	VULB 9161	SCHWARZBECK	2017/6/6	1Y
EM033-01	TRILOG Super Broadband test Antenna(30 MHz-3 GHz) (RX)	VULB 9163	SCHWARZBECK	2017/9/8	1Y
EM033-02	Bouble-Ridged Waveguide Horn Antenna (800 MHz-18 GHz)(RX)	R&S HF907	R&S	2017/6/6	1Y
EM033-03	High Frequency Antenna & preamplifier(18 GHz~26.5 GHz) (RX)	R&S SCU-26	R&S	2017/4/1	1Y
EM033-04	High Frequency Antenna & preamplifier (26 GHz-40 GHz)	R&S SCU-40	R&S	2017/4/1	1Y
EM031-02-01	Coaxial cable(9 kHz-1 GHz)	N/A	R&S	2017/5/30	1Y
EM033-02-02	Coaxial cable(1 GHz-18 GHz)	N/A	R&S	2017/5/30	1Y
EM033-04-02	Coaxial cable(18 GHz~40 GHz)	N/A	R&S	2017/4/1	1Y
EM031-01	Signal Generator (9 kHz~6 GHz)	SMB100A	R&S	2017/6/11	1Y
SZ180-10	Signal Generator (10MHz-40GHz)	68369B	Wiltron	2017/5/23	1Y
EM040-01	Band Reject/Notch Filter	WRHFV	Wainwright	N/A	1Y
EM040-02	Band Reject/Notch Filter	WRCGV	Wainwright	N/A	1Y
EM040-03	Band Reject/Notch Filter	WRCGV	Wainwright	N/A	1Y
EM022-03	2.45 GHz Filter	BRM50702	Micro-Tronics	2017/5/9	1Y
SA016-16	Programmable Temperature & Humidity Test Chamber	MHU-800LJ	TERCHY	2017/10/21	1Y
SA012-74	Digital Multimeter	FLUKE175	FLUKE	2017/10/13	1Y
EM010-01	Regulated DC Power supply	PAB-3003A	GUANHUA	N/A	1Y
SA040-22	Regulated DC Power supply	IT6721	ITECH	2017/9/18	1Y
EM084-06	Audio Analyzer	8903B	HP	2017/3/29	1Y
EM084-07	Modulation Analyzer	8901B	HP	2017/6/5	1Y

Conducted emission at the mains terminals

Equipment No.	Equipment	Model	Manufacturer	Cal. Due date (YYYY-MM-DD)	Calibration Interval
EM080-05	EMI receiver	ESCI	R&S	2017/7/26	1Y
EM006-05	LISN	ENV216	R&S	2017/9/18	1Y
EM006-06	LISN	ENV216	R&S	2017/9/18	1Y
EM006-06-01	Coaxial cable	/	R&S	2017/4/11	1Y
EM004-04	EMC shield Room	8m×3m×3m	Zhongyu	2017/1/25	1Y