

EMC TEST REPORT

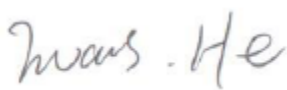
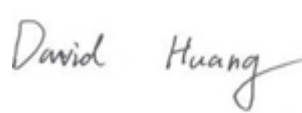
Applicant:	Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd
Address:	Building B, Boton Science Park, Chaguang Road, Xili Town, Nanshan District, Shenzhen

Manufacturer or Supplier	Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd
Address	Building B, Boton Science Park, Chaguang Road, Xili Town, Nanshan District, Shenzhen
Product	Feature phone
Brand Name	coolpad
Model Name	Coolpad 3312A
FCC ID	R38YL3312A
Date of tests	Oct. 12, 2018 ~ Nov. 21, 2018

The submitted sample of the above equipment has been tested for according to the requirements of the following standards:

- ☒ FCC Part 15, Subpart B, Class B
- ☒ ANSI C63.4:2014

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Issued by Evans He Engineer / Mobile Department	Approved by David Huang Manager / Mobile Department
	
Date: Nov. 21, 2018	Date: Nov. 21, 2018

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Test Report No.: FV181011N013

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FV181011N013	Original release	Nov.21, 2018

Remark: The previous versions shall be replaced by latest revised version.



1 GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Feature phone	
BRAND NAME	coolpad	
MODEL NAME	Coolpad 3312A	
NOMINAL VOLTAGE	5.0Vdc (adapter or host equipment) 3.7Vdc (Li-ion, ion battery)	
BATTERY	Model Name: CPLD-194 Power Rating: DC 3.7V, 1390mAh, Li-ion, ion battery	
MODULATION TYPE	WLAN	CCK, DQPSK, DBPSK for DSSS 16QAM, QPSK, BPSK for OFDM
	BT_LE	DTS
	Bluetooth	GFSK, $\pi/4$ -DQPSK, 8DPSK
	GPS	C/A code
	FM	FSK
	GSM/GPRS/EDGE	GMSK, 8PSK
	CDMA	GMSK
	LTE	QPSK/16QAM
OPERATING FREQUENCY	WLAN	2412 ~ 2462MHz for 11b/g/n(HT20)
	Bluetooth/BT_LE	2402MHz ~ 2480MHz
	GPS	1575.42MHz
	FM	98MHz
	GSM/EDGE	824.2MHz ~ 848.8MHz (FOR GSM 850) 1850.2MHz ~ 1909.8MHz (FOR GSM 1900)
	CDMA	824.7MHz ~ 848.31MHz(FOR BC0) 1851.25MHz ~1908.75MHz(FOR BC1) 817.9MHz ~ 823.10MHz(FOR BC10)
	LTE	1850.7MHz ~ 1909.3MHz (FOR LTE Band2) 1710.7MHz ~ 1754.3MHz (FOR LTE Band4) 824.7MHz ~ 848.3MHz (FOR LTE Band5) 699.7MHz ~ 715.3MHz (FOR LTE Band12) 779.5MHz ~ 784.5MHz (FOR LTE Band13) 1850.7MHz ~ 1914.3MHz (FOR LTE Band25) 814.7MHz ~ 823.3MHz (FOR LTE Band26)



		2502.5MHz ~ 2567.5MHz (FOR LTE Band41)
HW VERSION	P1	
SW VERSION	3312A.SPRINT.181214.0D	
I/O PORTS	Refer to user's manual	
CABLE	USB cable: non-shielded, detachable, 1.0m Earphone cable: non-shielded, detachable, 1.2m	
ACCESSORY DEVICES	Refer to note as below	

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT was powered by the following adapter:

ADAPTER	
BRAND:	N/A
MODEL:	RD0501000-USBA-18MG
INPUT:	AC 100-240V~50/60Hz, 0.25A MAX
OUTPUT:	DC 5V,1000mA

3. The EUT matched the following USB cable:

USB CABLE	
BRAND:	N/A
MODEL:	N/A
SIGNAL LINE:	1.0 METER

4. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

1.2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart B			
Standard Section	Test Item	Result	Remark
FCC Part 15, Subpart B, Class B ANSI C63.4:2014	Conducted Test	PASS	Meets limits minimum passing margin is 13.23dB at 0.5322 MHz.
	Radiated Emission Test (30MHz ~ 1GHz)	PASS	Meets Class B Limit Minimum passing margin is -2.55dB at 63.9828 MHz
	Radiated Emission Test (Above 1GHz)	PASS	Meets Class B Limit Minimum passing margin is -24.47dB at 3097.06MHz

NOTE: Test Lab Information:

Lab: Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch

Test Lab Address: Zone A, Floor 1, Building 2 Wan Ye Long Technology Park
South Side of Zhoushi Road, Bao'an District Shenzhen, Guangdong, 518108,
People's Republic of China

1.3 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:

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz ~ 30MHz	+/-3.11 dB
Radiated emissions	30MHz ~ 1GHz	+/-5.12dB
	1GHz ~ 18GHz	+/-5.34dB



DESCRIPTION OF TEST MODES

Test Mode	Test Condition
Radiated emission test	
1	GSM850 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx
2	GSM1900 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx
3	CDMA BC0 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx
4	CDMA BC1 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx
5	CDMA BC10 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx
6	LTE B2 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx+ FM RX
7	LTE B4 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx+ Front camera on
8	LTE B5 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx+ Back camera on
9	LTE B12 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx+ MPEG4
10	LTE B13 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx+ MPEG4
11	LTE B25 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx+ MPEG4
12	LTE B26 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx+ MPEG4
13	LTE B41 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx+ MPEG4
Conducted emission test	
1	GSM850 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx
2	GSM1900 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx
3	CDMA BC0 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx
4	CDMA BC1 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx
5	CDMA BC10 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx
6	LTE B2 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx+ FM RX
7	LTE B4 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx+ Front camera on
8	LTE B5 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx+ Back camera on
9	LTE B12 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx+ MPEG4
10	LTE B13 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx+ MPEG4
11	LTE B25 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx+ MPEG4
12	LTE B26 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx+ MPEG4
13	LTE B41 Idle+ Adapter+ Earphone+ USB cable+ BT Idle+ WIFI Idle(2.4G)+ GPS Rx+ MPEG4

NOTE:

- For conducted emission test, test mode 1 was the worst case and only this mode was presented in this report.
- For radiated emission test, test mode 6 was the worst case and only this mode was presented in this report

1.4 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.

FOR EMISSION TESTS

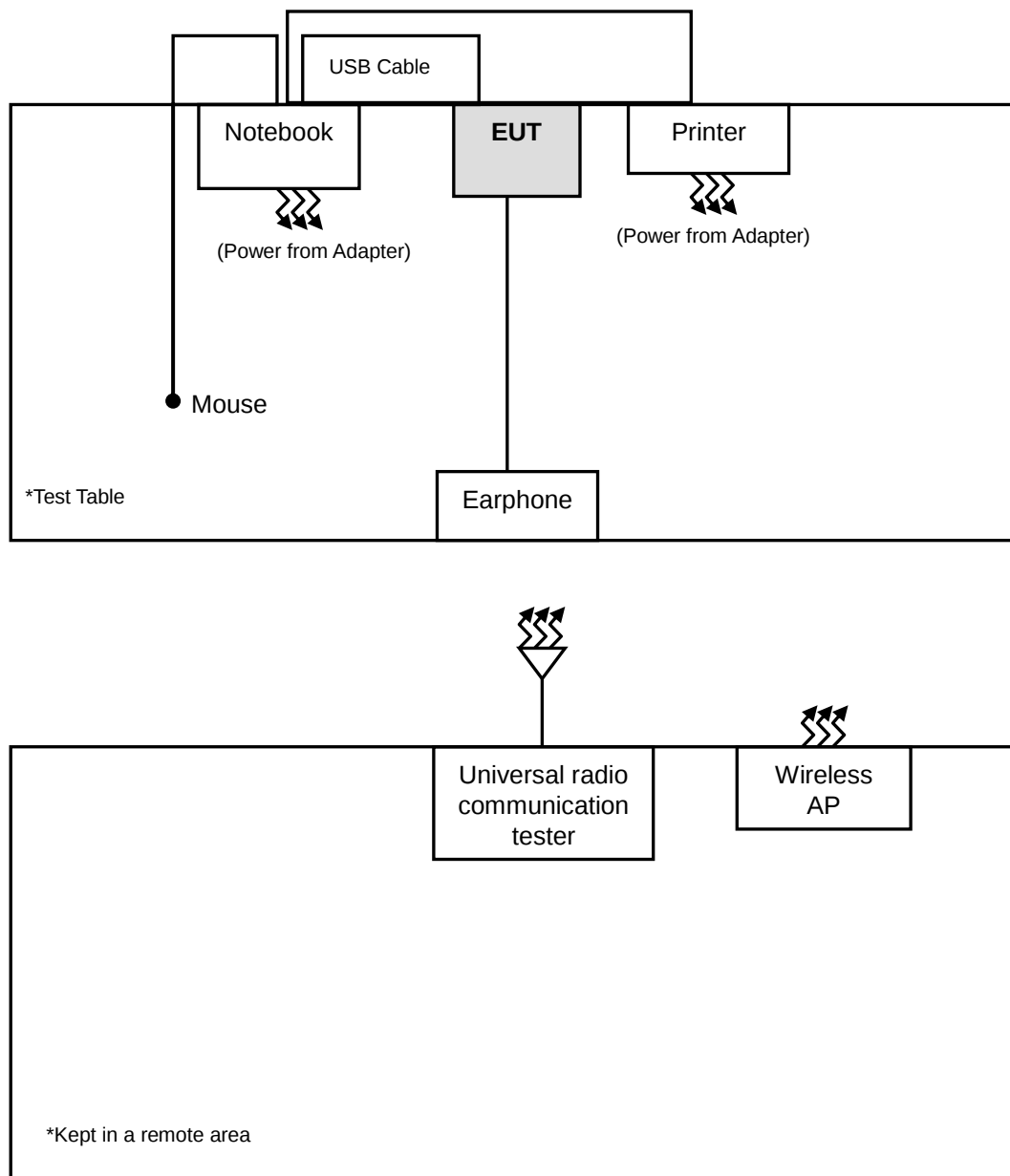
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Laptop	Lenovo	E40	LR-1EHRX	N/A
2	Router	GOLDWEB	R102	1202032094	N/A
3	AC Adapter	Lenovo	42T4416	21D9JU	N/A
4	Printer	HP	VCVRA-1003	CN36M19JWX	N/A
5	Mouse	DELL	E100	912NMTUT41481	N/A
6	Socket	BULL	GN-403	GN201203	N/A
7	Earphone	Verykool	N/A	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	Router Power Line: Shielded, Detachable 2 m;
2	DC Line: Unshielded, Undetachable, 2.0m
3	USB Line: Shielded, Detachable 1.5m;
4	USB Line: Unshielded, Undetachable 1.8m;
5	RJ45 Line: Shielded, Detachable 2 m;
6	Printer Power Line: Shielded, Detachable 2 m;

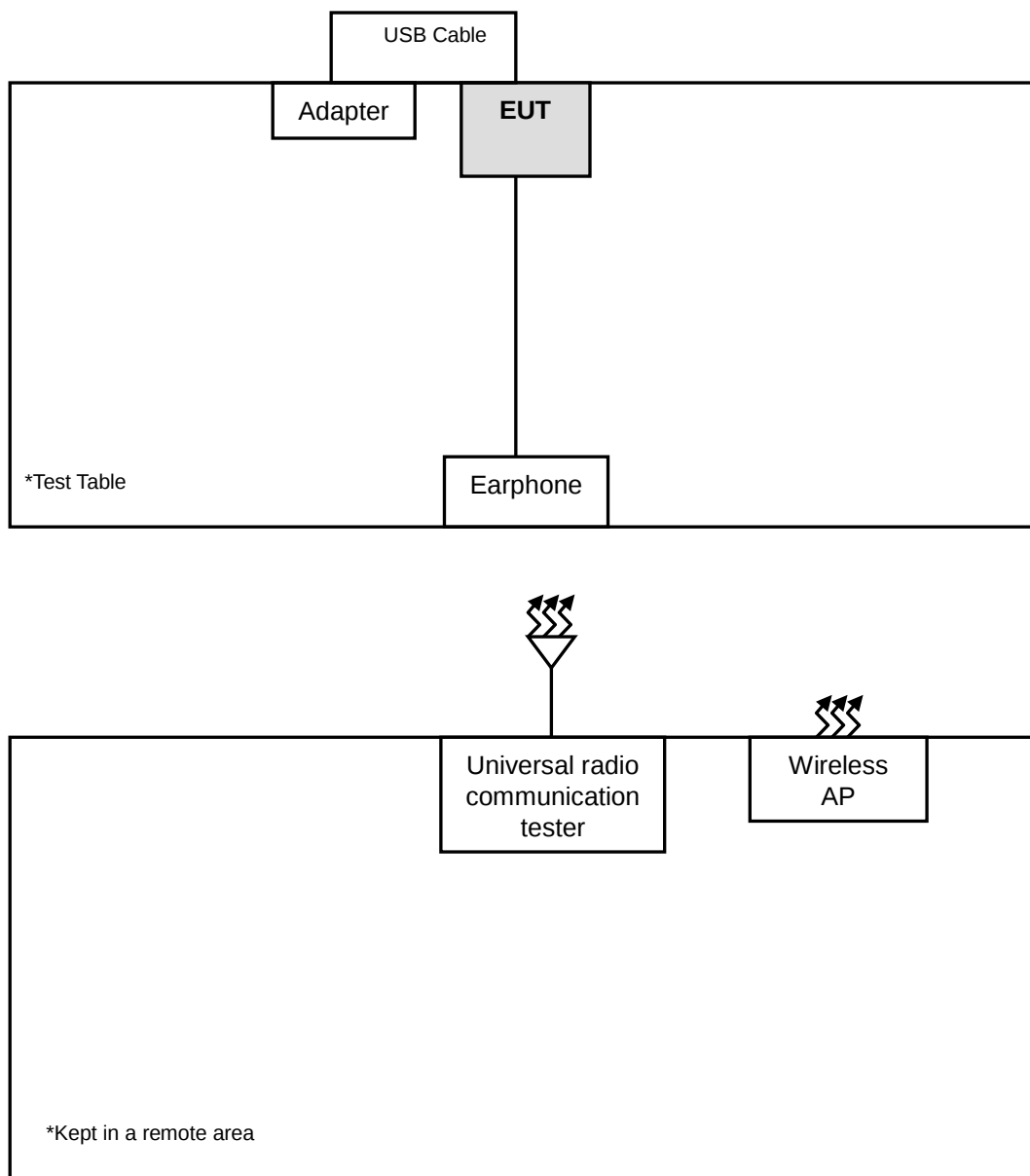


1.5 CONFIGURATION OF SYSTEM UNDER TEST

Test configuration 1



Test configuration 2



2 EMISSION TEST

2.1 CONDUCTED EMISSION MEASUREMENT

2.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

TEST STANDARD: FCC Part 15, Subpart B (Section: 15.107)

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 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 0.50MHz.
 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.

2.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESCS30	8471241027	Jan. 05,18	Jan. 04,19
Artificial Mains Network	SCHWARZBECK	8127	8127713	Jan. 05,18	Jan. 04,19
ISN	Com-Power	ISN T800	34373	Jan. 05,18	Jan. 04,19
Test software	EZ-EMC	ICP-03A1	N/A	N/A	N/A

- NOTE:**
1. The test was performed in CE shielded room.
 2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

2.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150 kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

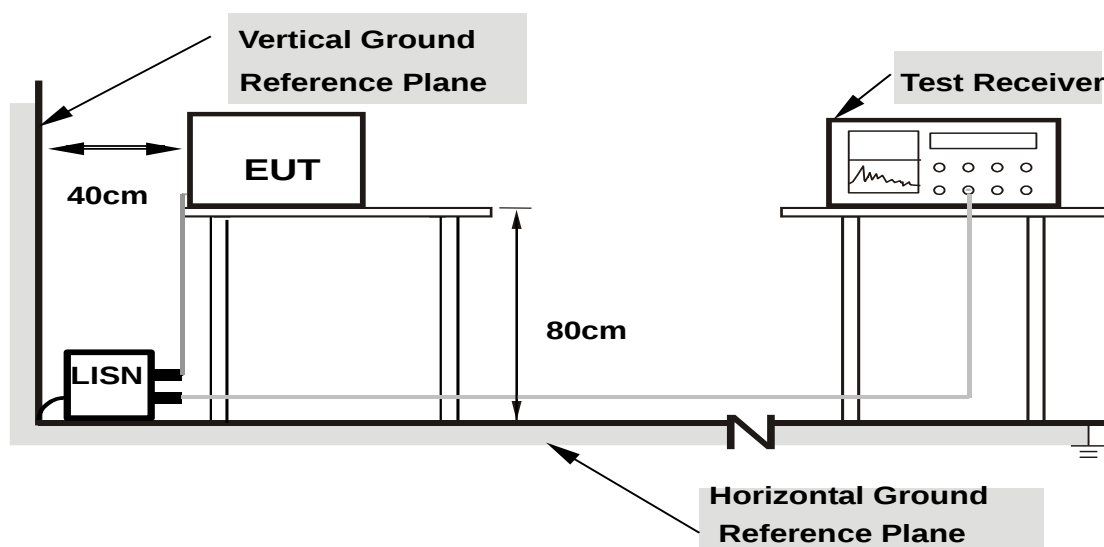
NOTE: All modes of operation were investigated and the worst-case emissions are reported.

2.1.4 DEVIATION FROM TEST STANDARD

No deviation.



2.1.5 TEST SETUP



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

For the actual test configuration, please refer to the attached file (Test Setup Photo).

2.1.6 EUT OPERATING CONDITIONS

- a. Turned on the power and connected of all equipment.
- b. EUT was operated according to the use type described in the manufacturer's specifications or the user's manual.

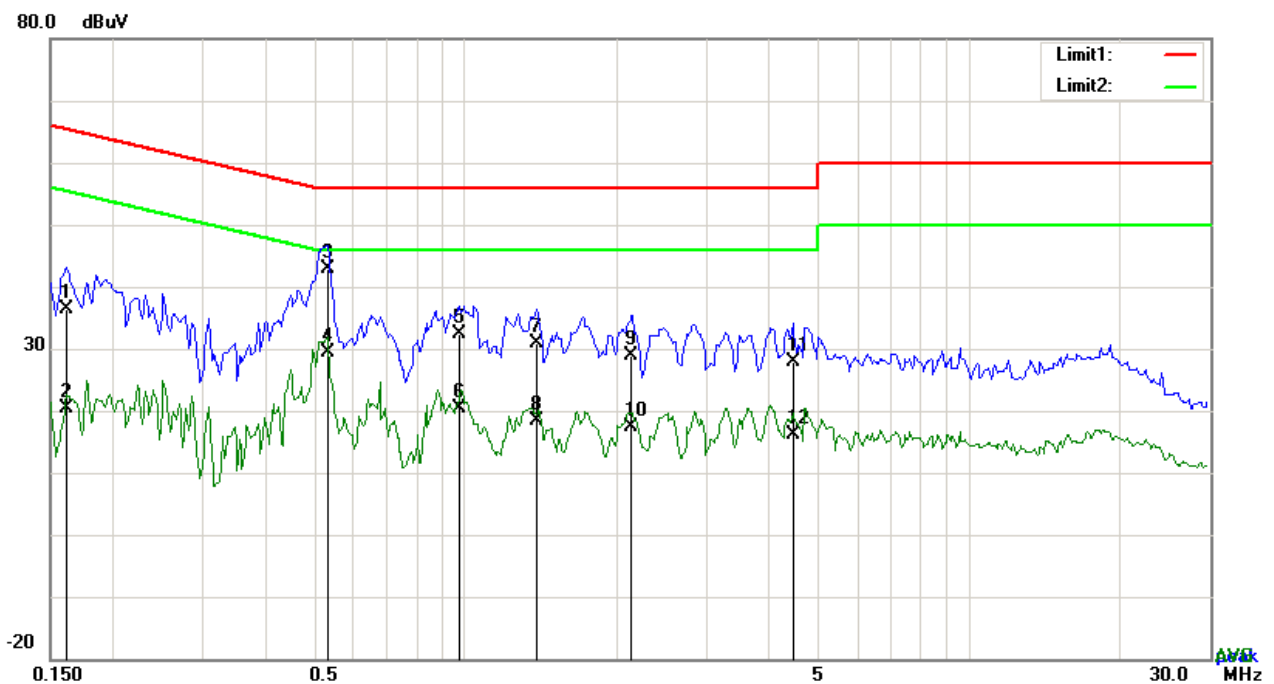


2.1.7 TEST RESULTS

TEST VOLTAGE	DC 5.0V From Adapter Input 120 Vac, 60 Hz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
ENVIRONMENTAL CONDITIONS	27.9deg. C, 59RH	TESTED BY	Evans He

No.	P/L	Frequency (MHz)	Reading (dBuV)	Detector	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	L1	0.1617	26.43	QP	10.03	36.46	65.38	-28.92
2	L1	0.1617	10.31	AVG	10.03	20.34	55.38	-35.04
3	L1	0.5322	32.74	QP	10.03	42.77	56.00	-13.23
4	L1	0.5322	19.23	AVG	10.03	29.26	46.00	-16.74
5	L1	0.9690	22.40	QP	10.03	32.43	56.00	-23.57
6	L1	0.9690	10.24	AVG	10.03	20.27	46.00	-25.73
7	L1	1.3824	20.94	QP	10.03	30.97	56.00	-25.03
8	L1	1.3824	8.40	AVG	10.03	18.43	46.00	-27.57
9	L1	2.1429	18.95	QP	10.04	28.99	56.00	-27.01
10	L1	2.1429	7.26	AVG	10.04	17.30	46.00	-28.70
11	L1	4.4547	17.69	QP	10.07	27.76	56.00	-28.24
12	L1	4.4547	6.15	AVG	10.07	16.22	46.00	-29.78

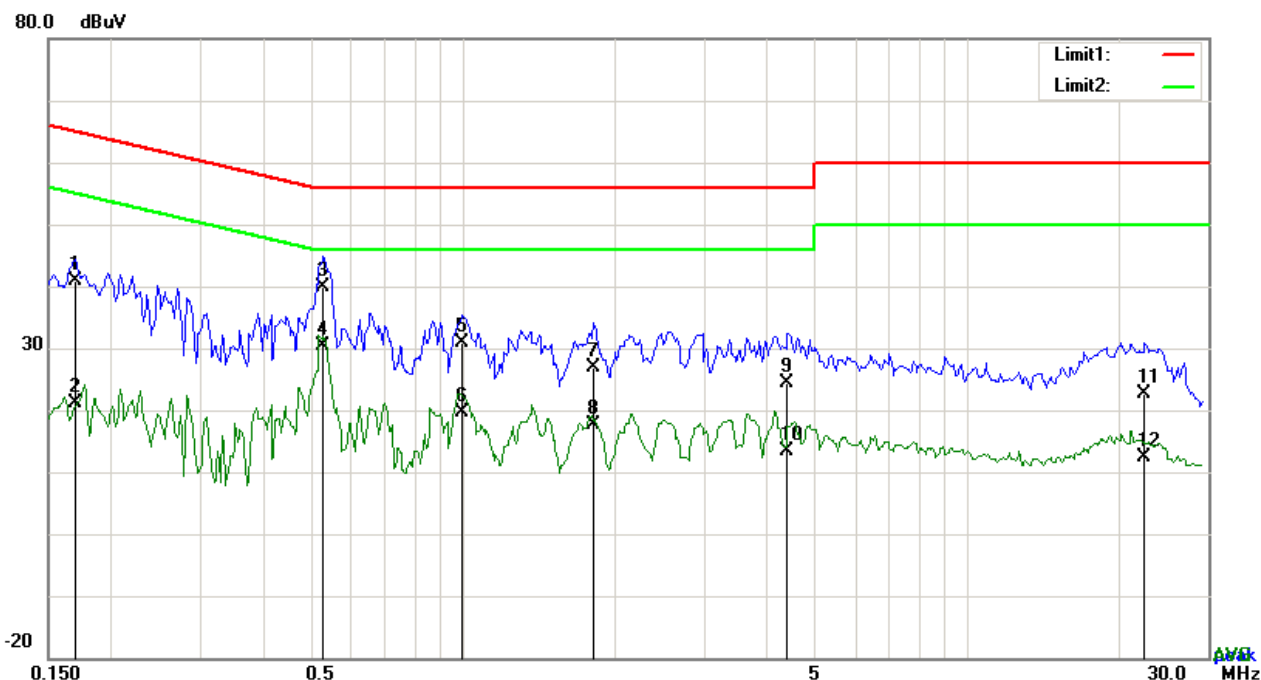
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



TEST VOLTAGE	DC 5.0V From Adapter Input 120 Vac, 60 Hz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
ENVIRONMENTAL CONDITIONS	27.9deg. C, 59RH	TESTED BY	Evans He

No.	P/L	Frequency (MHz)	Reading (dBuV)	Detector	Corrected (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	N	0.1695	30.92	QP	10.02	40.94	64.98	-24.04
2	N	0.1695	11.11	AVG	10.02	21.13	54.98	-33.85
3	N	0.5283	29.96	QP	10.02	39.98	56.00	-16.02
4	N	0.5283	20.37	AVG	10.02	30.39	46.00	-15.61
5	N	0.9963	20.78	QP	10.03	30.81	56.00	-25.19
6	N	0.9963	9.63	AVG	10.03	19.66	46.00	-26.34
7	N	1.8153	16.79	QP	10.04	26.83	56.00	-29.17
8	N	1.8153	7.66	AVG	10.04	17.70	46.00	-28.30
9	N	4.4001	14.36	QP	10.06	24.42	56.00	-31.58
10	N	4.4001	3.44	AVG	10.06	13.50	46.00	-32.50
11	N	22.4532	12.43	QP	10.30	22.73	60.00	-37.27
12	N	22.4532	2.07	AVG	10.30	12.37	50.00	-37.63

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



2.2 RADIATED EMISSION MEASUREMENT

2.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

TEST STANDARD: FCC Part 15, Subpart B (Section: 15.109)

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

Radiated Emissions Limits at 10 meters (dBμV/m)				
Frequencies (MHz)	FCC 15B/ ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	39	29.5	40	30
88-216	43.5	33.1		
216-230	46.4	35.6		
230-960			47	37
960-1000	49.5	43.5		
1000-3000	Avg: 49.5	Avg: 43.5	Not defined	Not defined
3000+	Peak: 69.5	Peak: 63.5	Not defined	Not defined

Radiated Emissions Limits at 3 meters (dBμV/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	49.5	40	50.5	40.5
88-216	54	43.5		
216-230	56.9	46		
230-960				
960-1000	60	54	57.5	47.5
1000-3000	Avg: 60 Peak: 80	Avg: 54 Peak: 74	Avg: 56 Peak: 76	Avg: 50 Peak: 70
3000+			Avg: 60 Peak: 80	Avg: 54 Peak: 74

Frequency Range (For unintentional radiators)

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705-108	1000
108-500	2000
500-1000	5000
Above 1000	5 th harmonic of the highest frequency or 40GHz, whichever is lower

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
 3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
 4. QP detector shall be applied if not specified.

2.2.2 TEST INSTRUMENTS

Frequency range below 1GHz

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESL6	1300.5001K06-100262-eQ	Jan. 05, 18	Jan. 04, 19
Bilog Antenna	Sunol Sciences	JB6	A110712	Feb. 08, 18	Feb. 07, 19
Active Antenna	CMO-POWER	AL-130	121031	Feb. 08, 18	Feb. 07, 19
Signal Amplifier	HP	8447E	443008	Jan. 25, 18	Jan. 24, 19
3m Semi-anechoic Chamber	SAEMC	9m*6m*6m	N/A	Oct. 19, 17	Oct. 18, 18
3m Semi-anechoic Chamber	SAEMC	9m*6m*6m	N/A	Oct. 18, 18	Oct. 17, 19
Test Software	EZ-EMC	ICP-03A1	N/A	N/A	N/A

Frequency range above 1GHz

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESL6	1300.5001K06-100262-eQ	Jan. 05, 18	Jan. 04, 19
MXA signal analyzer	Agilent	N9020A	MY49100060	Jan. 05, 18	Jan. 04, 19
Horn Antenna	COM-POWER	HAH-118	71259	Jan. 26, 18	Jan. 25, 19
Horn Antenna	COM-POWER	HAH-118	71283	Feb. 02, 18	Feb. 01, 19
AMPLIFIER	EM Electornic Corporation	EM01G26G	60613	Jan. 25, 18	Jan. 24, 19
AMPLIFIER	Emc Instruments Corporation	Emc012645	980077	Jan. 05, 18	Jan. 04, 19
3m Semi-anechoic Chamber	SAEMC	9m*6m*6m	N/A	Oct. 19, 17	Oct. 18, 18
3m Semi-anechoic Chamber	SAEMC	9m*6m*6m	N/A	Oct. 18, 18	Oct. 17, 19
Test Software	EZ-EMC	ICP-03A1	N/A	N/A	N/A

- NOTE:** 1. The test was performed in 3m chamber.
2. The calibration interval of the above test instruments is 12 months or 24 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
3. The FCC Site Registration No. is 535293.



2.2.3 TEST PROCEDURE

<Frequency Range below 1GHz>

The basic test procedure was in accordance with ANSI C63.4:2014 (section 12).

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.

NOTE:

1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. $\text{Emission level(dBuV/m)} = \text{Raw Value(dBuV)} + \text{Correction Factor(dB/m)}$
3. $\text{Correction Factor(dB/m)} = \text{Antenna Factor (dB/m)} + \text{Cable Factor (dB)}$ (if the raw value not contains the amplifier);
4. $\text{Correction Factor(dB/m)} = \text{Antenna Factor (dB/m)} + \text{Cable Factor (dB)} - \text{Amplifier Gain(dB)}$ (if the raw value contains the amplifier).
5. $\text{Margin value} = \text{Emission level} - \text{Limit value}$.

<Frequency Range above 1GHz>

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter fully-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. The bore sight should be used during the test above 1GHz.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz

NOTE:

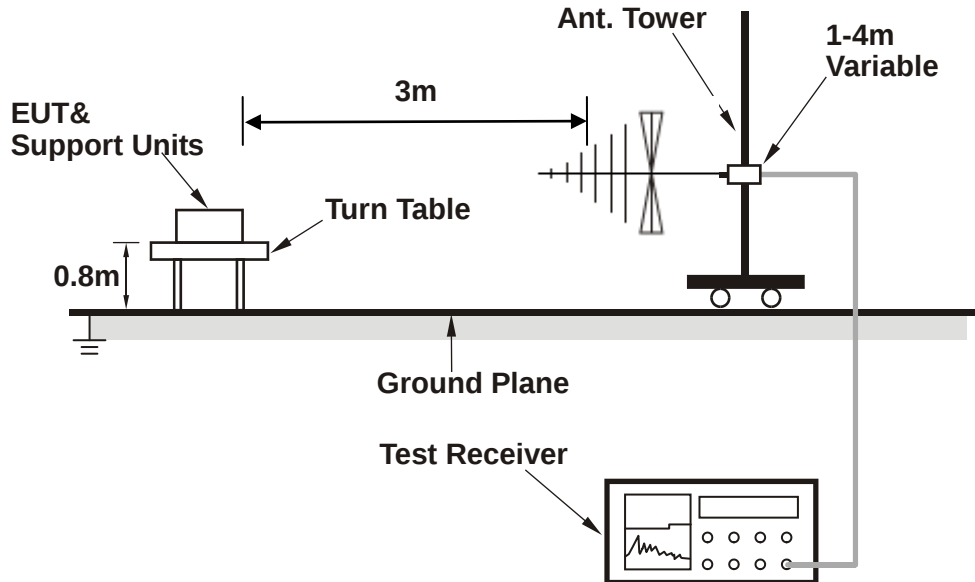
1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth of test receiver/spectrum analyzer is 10Hz for Average detection (AV) at frequency above 1GHz.
3. For measurement of frequency above 1000 MHz, the EUT was set 3 meters away from the receiver antenna.
4. $\text{Emission level(dBuV/m)} = \text{Raw Value(dBuV)} + \text{Correction Factor(dB/m)}$
5. $\text{Correction Factor(dB/m)} = \text{Antenna Factor (dB/m)} + \text{Cable Factor (dB)}$ (if the raw value not contains the amplifier);
6. $\text{Correction Factor(dB/m)} = \text{Antenna Factor (dB/m)} + \text{Cable Factor (dB)} - \text{Amplifier Gain(dB)}$ (if the raw value contains the amplifier)
7. $\text{Margin value} = \text{Emission level} - \text{Limit value}$.

2.2.4 DEVIATION FROM TEST STANDARD

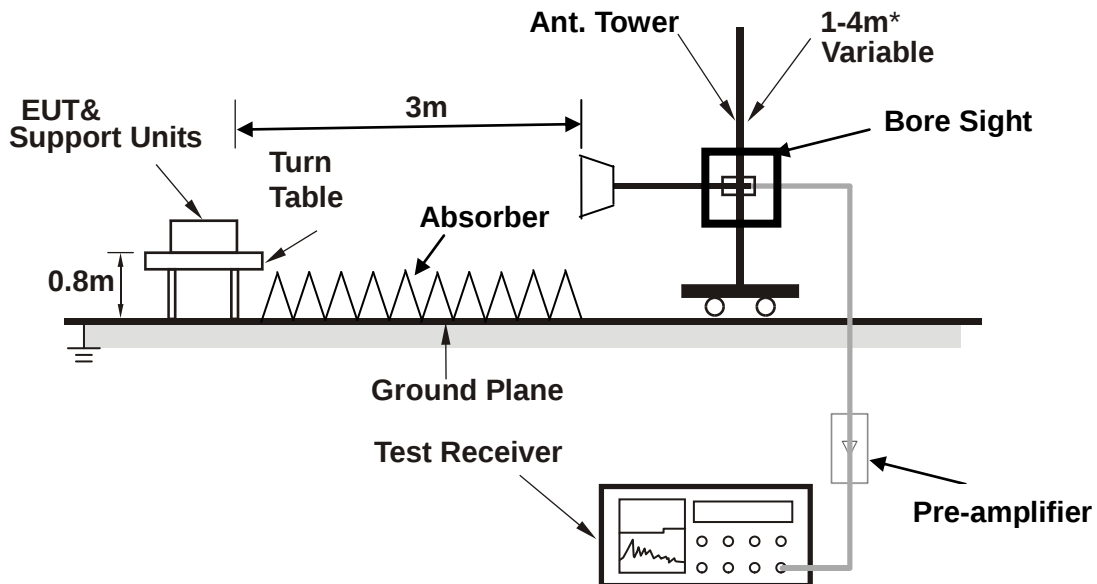
No deviation.

2.2.5 TEST SETUP

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



* : depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

2.2.6 EUT OPERATING CONDITIONS

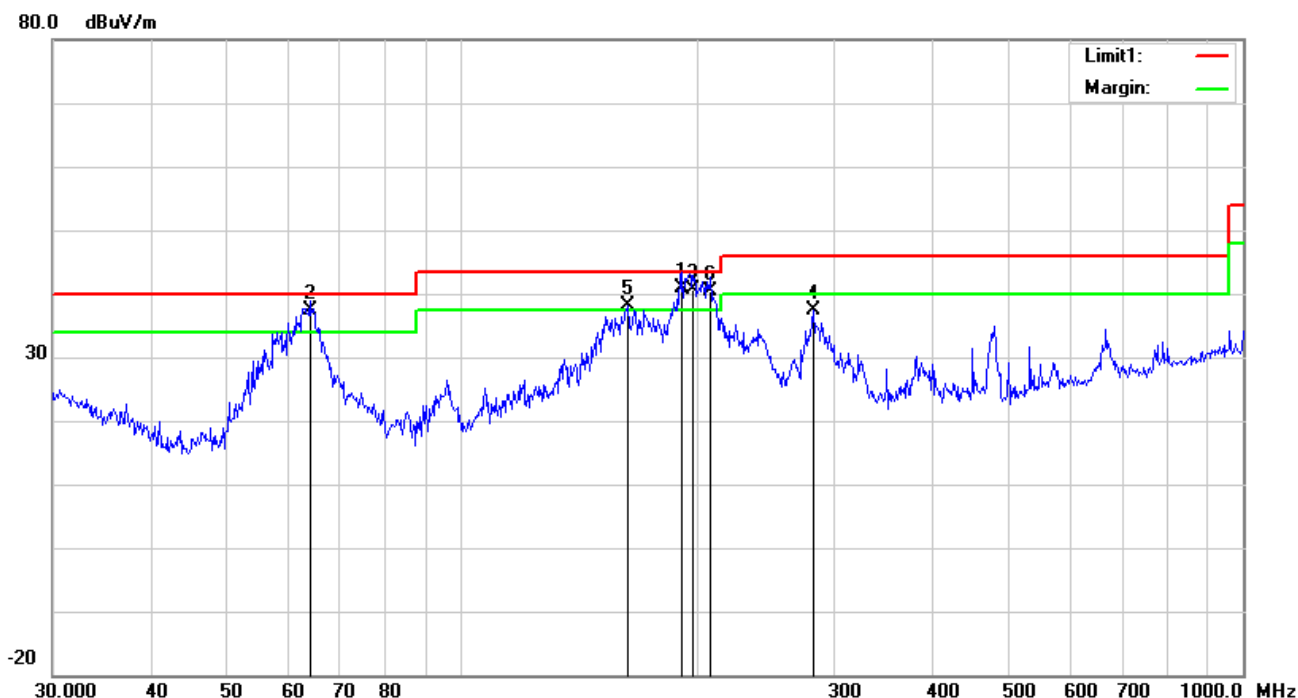
Same as item 2.1.6.

2.2.7 TEST RESULTS

TEST VOLTAGE	DC 5.0V From Adapter(with battery 1) Input 120 Vac, 60 Hz	FREQUENCY RANGE	30-1000 MHz
ENVIRONMENTAL CONDITIONS	26.5deg. C, 58 %RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120 kHz
TESTED BY	Evans He		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
No.	Frequency	Reading	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degree
	(MHz)	(dBuV/m)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	191.0738	50.04	11.61	22.32	1.54	40.87	43.50	-2.63	100	276
2	63.9828	51.50	7.50	22.40	0.85	37.45	40.00	-2.55	100	289
3	197.8928	49.42	11.98	22.37	1.54	40.57	43.50	-2.93	100	139
4	281.9946	45.20	12.81	22.29	1.76	37.48	46.00	-8.52	100	91
5	163.1818	46.70	12.35	22.27	1.38	38.16	43.50	-5.34	100	215
6	208.5803	49.08	11.98	22.36	1.57	40.27	43.50	-3.23	100	254

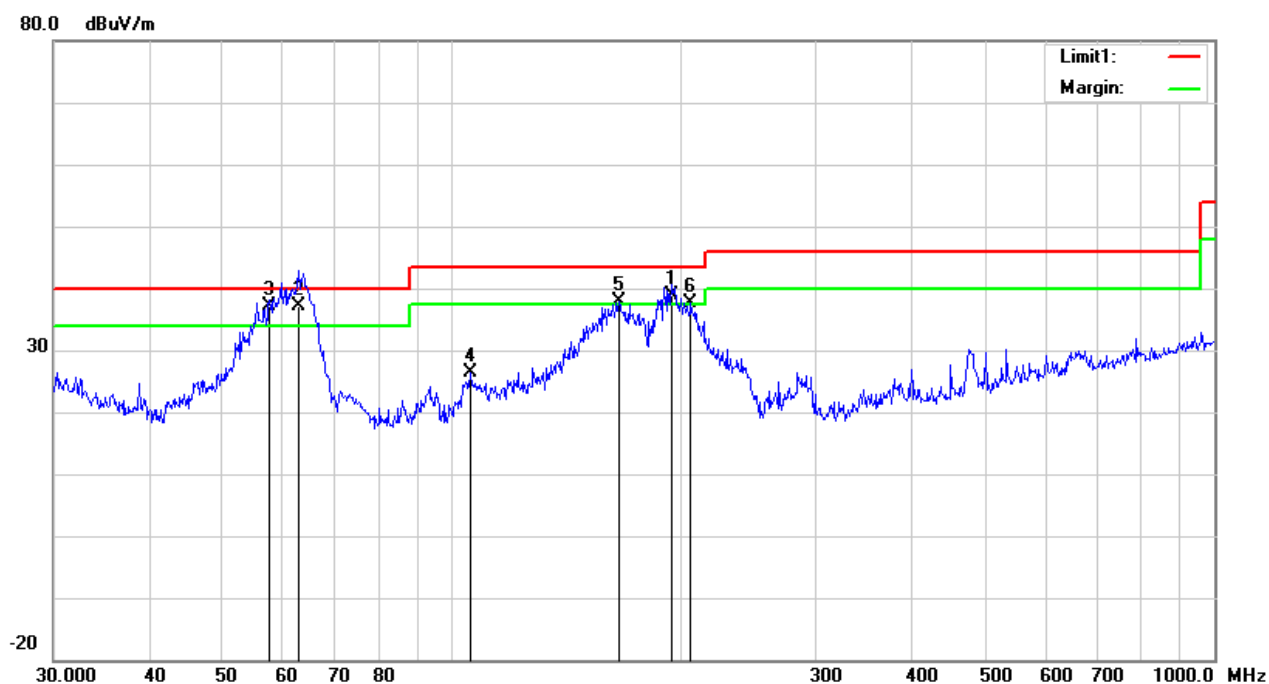
- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 30MHz to 1000MHz.
 4. Only emissions significantly above equipment noise floor are reported.



TEST VOLTAGE	DC 5.0V From Adapter(with battery 1) Input 120 Vac, 60 Hz	FREQUENCY RANGE	30-1000 MHz
ENVIRONMENTAL CONDITIONS	26.5deg. C, 58 %RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120 kHz
TESTED BY	Evans He		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
No.	Frequency (MHz)	Reading (dBuV/m)	Ant_F (dB/m)	PA_G (dB)	Cab_L (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)
1	193.7728	47.94	11.76	22.34	1.54	38.90	43.50	-4.60	100	21
2	62.8708	51.34	7.44	22.40	0.82	37.20	40.00	-2.80	100	357
3	57.5939	51.18	7.56	22.40	0.76	37.10	40.00	-2.90	100	128
4	105.6415	36.10	11.39	22.33	1.15	26.31	43.50	-17.19	100	76
5	165.4867	46.66	12.16	22.26	1.37	37.93	43.50	-5.57	100	308
6	205.6751	46.33	12.02	22.37	1.56	37.54	43.50	-5.96	100	210

- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 30MHz to 1000MHz.
 4. Only emissions significantly above equipment noise floor are reported.





**BUREAU
VERITAS**

Test Report No.: FV181011N013

TEST VOLTAGE	DC 5.0V From Adapter(with battery 1) Input 120 Vac, 60 Hz	FREQUENCY RANGE	1-18 GHz
ENVIRONMENTAL CONDITIONS	26.5deg. C, 58 %RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Peak/Average, 1 MHz
TESTED BY	Evans He		

Frequency (MHz)	Read_level (dBμV/m)	Azimuth	Height (cm)	Polarity (H/V)	Factors (dB)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector (PK/AV)
3097.06	62.97	38	100	V	-13.44	49.53	74	-24.47	PK
1557.73	65.36	67	100	V	-18.07	47.29	74	-26.71	PK
1067.42	66.96	107	100	V	-19.74	47.22	74	-26.78	PK
1079.68	64.92	30	100	H	-20.15	44.77	74	-29.23	PK
3704.56	60.25	278	100	H	-11.72	48.53	74	-25.47	PK
1041.11	68	288	100	H	-20.44	47.56	74	-26.44	PK

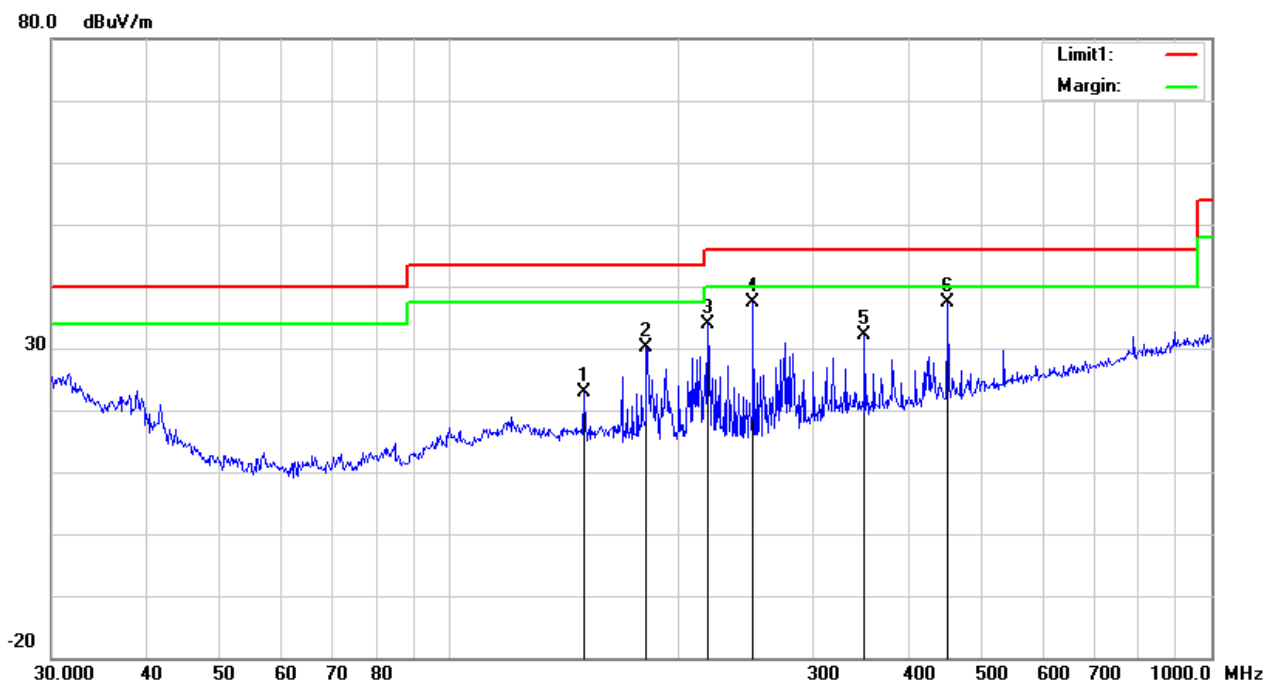
REMARKS:

1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 1GHz to 18GHz.
4. Only emissions significantly above equipment noise floor are reported.

TEST VOLTAGE	DC 5.0V From Adapter(with battery 2) Input 120 Vac, 60 Hz	FREQUENCY RANGE	30-1000 MHz
ENVIRONMENTAL CONDITIONS	26.5deg. C, 58 %RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120 kHz
TESTED BY	Evans He		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
No.	Frequency	Reading	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degree
	(MHz)	(dBuV/m)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	150.0108	31.32	12.60	22.34	1.34	22.92	43.50	-20.58	100	27
2	181.2834	39.87	11.07	22.26	1.38	30.06	43.50	-13.44	100	20
3	218.3085	42.72	11.84	22.35	1.60	33.81	46.00	-12.19	200	28
4	250.3012	46.58	11.41	22.29	1.70	37.40	46.00	-8.60	100	287
5	350.4768	37.49	14.66	22.15	2.04	32.04	46.00	-13.96	100	82
6	451.1350	40.55	16.72	21.91	2.14	37.50	46.00	-8.50	100	145

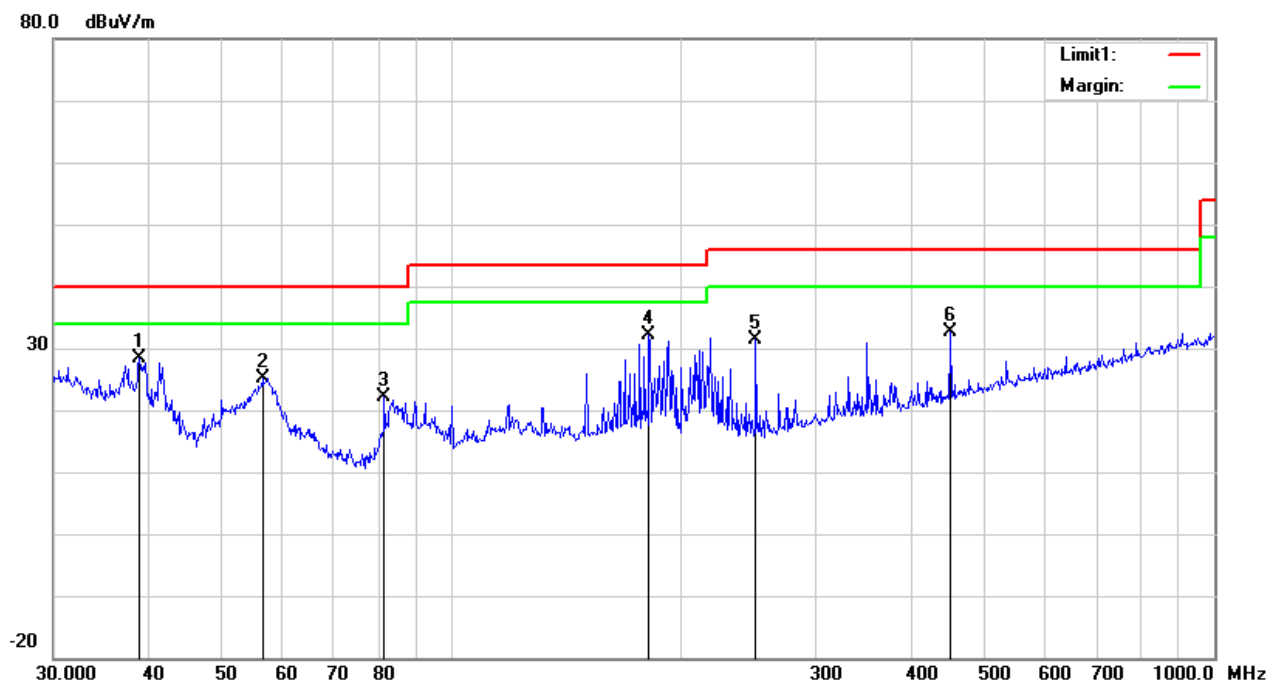
- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 30MHz to 1000MHz.
 4. Only emissions significantly above equipment noise floor are reported.



TEST VOLTAGE	DC 5.0V From Adapter(with battery 2) Input 120 Vac, 60 Hz	FREQUENCY RANGE	30-1000 MHz
ENVIRONMENTAL CONDITIONS	26.5deg. C, 58 %RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120 kHz
TESTED BY	Evans He		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
No.	Frequency (MHz)	Reading (dBuV/m)	Ant_F (dB/m)	PA_G (dB)	Cab_L (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)
1	38.8879	35.06	14.71	22.27	0.78	28.28	40.00	-11.72	100	329
2	56.3948	39.04	7.70	22.40	0.77	25.11	40.00	-14.89	100	201
3	81.4970	35.76	7.66	22.41	1.06	22.07	40.00	-17.93	100	253
4	181.2834	41.93	11.07	22.26	1.38	32.12	43.50	-11.38	100	313
5	250.3012	40.60	11.41	22.29	1.70	31.42	46.00	-14.58	100	342
6	451.1350	35.67	16.72	21.91	2.14	32.62	46.00	-13.38	100	24

- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 30MHz to 1000MHz.
 4. Only emissions significantly above equipment noise floor are reported.





Test Report No.: FV181011N013

3 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications were made to the EUT by the lab during the test.

---END---