



FCC TEST REPORT

Test report On Behalf of XINCI ELECTRONICS SHENZHEN CO.,LTD.

For

Home theater speaker

Model No.: KM-10, R-80,R-750,AX-78,AX-76,AX-86,AX-88, EA-78, EA-76

FCC ID: 2AMP4-KM10

Prepared for: XINCI ELECTRONICS SHENZHEN CO.,LTD.

3F,2nd Building,AoXin Rd.,NO.92,HengGang Town,Longgang District,Shenzhen

Prepared By: Shenzhen HUAK Testing Technology Co., Ltd.

F1-008, Tai Yi Building, No.1, Haicheng West Road, Xixiang Street, Bao'an

District, Shenzhen City, China

Date of Test: June 21, 2017 ~ June 28, 2017

Date of Report: June 28, 2017 Report Number: HK170621083-E



TEST RESULT CERTIFICATION

Report No.: HK170621083-E

Applicant's name:	XINCI EL	ECTRONICS SHENZHEN CO.,LTD.						
Address:	3F,2nd Bu District,SI	uilding,AoXin Rd.,NO.92,HengGang Town,Longgang nenzhen						
Manufacture's Name:	XINCI EL	ECTRONICS SHENZHEN CO.,LTD.						
Address:	3F,2nd Bu	uilding,AoXin Rd.,NO.92,HengGang Town,Longgang nenzhen						
Product description								
Trade Mark:	1							
Product name:	Home the	eater speaker						
Model and/or type reference : KM-10, R-80,R-750,AX-78,AX-76,AX-86,AX-88, EA-78, EA-76 Standards								
Standards:		·						
	for dama	Testing Technology Co., Ltd. takes no responsibility for ges resulting from the reader's interpretation of the and context. June 21, 2017 ~ June 28, 2017 June 28, 2017						
Test Result	:	Pass						
Testing Engine	eer :	Zm Xie						
		(Eric Xie)						
Technical Man	ager :	Dota Qin						
		(Dora Qin)						

(Kait Chen)

Authorized Signatory:

24



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8.2 Conducted Emission



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1. TEST SUMMARY

1.1 TEST PROCEDURES AND RESULTS

DESCRIPTION OF TEST

CONDUCTED EMISSIONS TEST

RADIATED EMISSION TEST

BAND EDGE

OCCUPIED BANDWIDTH MEASUREMENT

ANTENNA REQUIREMENT

RESULT

COMPLIANT

COMPLIANT

COMPLIANT

COMPLIANT

1.2 TEST FACILITY

Test Firm : QTC Certification & Testing Co., Ltd.

Certificated by FCC, Registration No.: 588523

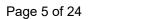
Address 2nd Floor,B1 Building,Fengyeyuan Industrial Plant, Liuxian 2st. Road,

Xin'an Street, Bao'an District, Shenzhen, China

1.3 MEASUREMENT UNCERTAINTY

Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2 Radiated emission expanded uncertainty(9kHz-30MHz) = 3.08dB, k=2 Radiated emission expanded uncertainty(30MHz-1000MHz) = 4.42dB, k=2 Radiated emission expanded uncertainty(Above 1GHz) = 4.06dB, k=2





2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Home theater speaker
Model Name	KM-10
Serial Model	R-80,R-750,AX-78,AX-76,AX-86,AX-88, EA-78, EA-76
Model Difference	All model's the function, software and electric circuit are the same, only with a product color and model named different. Test sample model: KM-10.
FCC ID	2AMP4-KM10
Antenna Type	PCB antenna
Antenna Gain	1 dBi
Operation frequency	2402-2480Mhz
Number of Channels	79CH
Modulation Type	GFSK
Power Source	AC Source
Power Rating	AC 120V/60Hz





2.1.1 Carrier Frequency of Channels

		Chann	el List		
Channel	Frequency	Channel	Frequency	Channel	Frequency
Onamoi	(MHz)	Onamio	(MHz)	Ondrinoi	(MHz)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

2.2 Operation of EUT during testing

Operating Mode

The mode is used: Transmitting mode

Low Channel: 2402MHz Middle Channel: 2441MHz High Channel: 2480MHz

2.3 DESCRIPTION OF TEST SETUP

Operation of EUT during and below 1GHz Radiation and conducted testing:







2.4 MEASUREMENT INSTRUMENTS LIST

2. LISN SchwarzBeck NSLK 8126 8126377 Feb. 18, 2017 Feb. 17, 2 3. RF Switching Unit Compliance Direction Self-triangle	Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
3. RF Switching Unit Compliance Direction RSU-M2 Direction 38303 Feb. 18, 2017 1 Year 4. EMI Test Software ES-K1 Rohde & Schwarz N/A N/A N/A N/A 5. EMI Test Receiver ES-K1 Rohde & Schwarz ESCI 100627 Feb. 18, 2017 Feb. 17, 2 6. Trilog Broadband Antenna Schwarzbeck VULB9163 YULB 9163-289 Feb. 18, 2017 Feb. 17, 2 7. Pre-amplifier Compliance Direction PAP-0203 22008 Feb. 18, 2017 Feb. 17, 2 8. EMI Test Software EZ-EMC SHURPLE N/A N/A N/A N/A 9. EMI Receiver Rohde & Schwarz ESCI 100627 Feb. 18, 2017 Feb. 17, 2 10. LISN SchwarzBeck NSLK 8126 8126377 Feb. 18, 2017 Feb. 17, 2 11. RF Switching Unit Compliance Direction RSU-M2 38303 Feb. 18, 2017 Feb. 17, 2 12. EMI Receiver Rohde & Schwarz ESCI 100627	1.	EMI Receiver	Rohde & Schwarz	ESCI	100627	Feb. 18, 2017	Feb. 17, 2018
Bell Test Software ES-K1 Rohde & Schwarz ESCI 100627 Feb. 18, 2017 Feb. 17, 2 Feb. 17, 2 Feb. 18, 2017 Feb. 19, 2017 Feb. 1	2.	LISN	SchwarzBeck	NSLK 8126	8126377	Feb. 18, 2017	Feb. 17, 2018
ES-K1 Rohde & Schwarz Rohde & Schwarz ESCI 100627 Feb. 18, 2017 Feb. 17, 2 Feb. 18, 201	3.	3		RSU-M2	38303	Feb. 18, 2017	1 Year
6. Trilog Broadband Antenna 7. Pre-amplifier Compliance Direction 8. EMI Test Software EZ-EMC 9. EMI Receiver Rohde & Schwarz ESCI 100627 Feb. 18, 2017 Feb. 17, 2 10. LISN SchwarzBeck NSLK 8126 8126377 Feb. 18, 2017 Feb. 17, 2 11. RF Switching Unit Compliance Direction 12. EMI Receiver Rohde & Schwarz ESCI 100627 Feb. 18, 2017 Feb. 17, 2 13. EMI Receiver Rohde & Schwarz ESCI 100627 Feb. 18, 2017 Feb. 17, 2 14. EMI Receiver Rohde & Schwarz ESCI 100627 Feb. 18, 2017 Feb. 17, 2 15. LISN SchwarzBeck NSLK 8126 8126377 Feb. 18, 2017 Feb. 17, 2 16. RF Switching Unit Compliance Direction 17. EMI Receiver Rohde & Schwarz ESCI 100627 Feb. 18, 2017 Feb. 17, 2 16. RF Switching Unit Compliance Direction 17. EMI Test Software ES-K1 Rohde & Schwarz N/A N/A N/A N/A N/A N/A N/A 18. Power Meter R&S NRVD SEL0069 Feb. 18, 2017 Feb. 17, 2 19. Power Sensor R&S URV5-22 SEL0071 Feb. 18, 2017 Feb. 17, 2 20. Power Sensor R&S URV5-22 SEL0072 Feb. 18, 2017 Feb. 17, 2 21. Software R&S EMC32-S SEL0082 N/A N/A N/A 22. Log-periodic Antenna Schwarz beck FMZB 1516 9773 Feb. 18, 2017 Feb. 17, 2 24. Broadband Antenna Schwarz beck VULB9163 9163-333 Feb. 18, 2017 Feb. 17, 2 25. Horn Antenna Schwarz beck Selacora Peb. 18, 2017 Feb. 17, 2 26. Horn Antenna Schwarz beck BBHA9170 BBHA91705 Feb. 18, 2017 Feb. 17, 2 27. Antenna Tripod Reasearch APT1.580 REL0075 Feb. 18, 2017 Feb. 17, 2 28. High Gain Horn Amplifier Reasearch APT1000A RY9911004 Research APT1000A RY9911004 Research APT1000A RY9911004 Reasearch APT1000A RY9911004 Reasearch APT1000A RY9911004 Research APT1000A RY9911004 Reasearch APT1000A RY9911004 Research APT1000A RY9911004 Reasearch APT1000A RY9911004 RY9911004 Reasearch APT1000A RY9911004 RY9911004 RY9911004 RY9911004 RY991100	4.	ES-K1		N/A	N/A	N/A	N/A
Antenna 9163-289 Feb. 18, 2017 Feb. 17, 2 7. Pre-amplifier Compliance Direction PAP-0203 22008 Feb. 18, 2017 Feb. 17, 2 8. EMI Test Software EZ-EMC SHURPLE N/A N/A N/A N/A 9. EMI Receiver Rohde & Schwarz ESCI 100627 Feb. 18, 2017 Feb. 17, 2 10. LISN SchwarzBeck NSLK 8126 8126377 Feb. 18, 2017 Feb. 17, 2 11. RF Switching Unit Compliance Direction RSU-M2 38303 Feb. 18, 2017 Feb. 17, 2 12. EMI Test Software ES-K1 Rohde & Schwarz ESCI 100627 Feb. 18, 2017 Feb. 17, 2 14. EMI Receiver Rohde & Schwarz ESCI 100627 Feb. 18, 2017 Feb. 17, 2 15. LISN SchwarzBeck NSLK 8126 8126377 Feb. 18, 2017 Feb. 17, 2 16. RF Switching Unit Compliance Direction NSLK 8126 8126377 Feb. 18, 2017 Feb. 17, 2 17. <td>5.</td> <td>EMI Test Receiver</td> <td>Rohde & Schwarz</td> <td>ESCI</td> <td></td> <td>Feb. 18, 2017</td> <td>Feb. 17, 2018</td>	5.	EMI Test Receiver	Rohde & Schwarz	ESCI		Feb. 18, 2017	Feb. 17, 2018
B. EMI Test Software EZ-EMC SHURPLE N/A N/A N/A N/A 9. EMI Receiver Rohde & Schwarz ESCI 100627 Feb. 18, 2017 Feb. 17, 2 10. LISN SchwarzBeck NSLK 8126 8126377 Feb. 18, 2017 Feb. 17, 2 11. RF Switching Unit ES-K1 Compliance Direction RSU-M2 38303 Feb. 18, 2017 Feb. 17, 2 12. EMI Test Software ES-K1 Rohde & Schwarz ESCI 100627 Feb. 18, 2017 Feb. 17, 2 13. EMI Receiver Rohde & Schwarz ESCI 100627 Feb. 18, 2017 Feb. 17, 2 14. EMI Receiver Rohde & Schwarz ESCI 100627 Feb. 18, 2017 Feb. 17, 2 15. LISN SchwarzBeck NSLK 8126 8126377 Feb. 18, 2017 Feb. 17, 2 16. RF Switching Unit Compliance Direction RSU-M2 38303 Feb. 18, 2017 Feb. 17, 2 17. EMI Test Software ES-K1 Rohde & Schwarz N/A N/A N/A <td>6.</td> <td>Antenna</td> <td></td> <td></td> <td>9163-289</td> <td>Feb. 18, 2017</td> <td>Feb. 17, 2018</td>	6.	Antenna			9163-289	Feb. 18, 2017	Feb. 17, 2018
EZ-EMC SHURPLE N/A N/A N/A N/A N/A N/A 9.	7.	•		PAP-0203	22008	Feb. 18, 2017	Feb. 17, 2018
10. LISN SchwarzBeck NSLK 8126 8126377 Feb. 18, 2017 Feb. 17, 2	8.	EZ-EMC		N/A	N/A	N/A	N/A
11. RF Switching Unit	9.	EMI Receiver	Rohde & Schwarz	ESCI	100627	Feb. 18, 2017	Feb. 17, 2018
Direction Peb. 18, 2017 Peb. 17, 2	10.	LISN	SchwarzBeck		8126377	Feb. 18, 2017	Feb. 17, 2018
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14. EMI Receiver Rohde & Schwarz ESCI 100627 Feb. 18, 2017 Feb. 17, 2 15. LISN SchwarzBeck NSLK 8126 8126377 Feb. 18, 2017 Feb. 17, 2 16. RF Switching Unit Compliance Direction RSU-M2 38303 Feb. 18, 2017 Feb. 17, 2 17. EMI Test Software ES-K1 Rohde & Schwarz N/A N/A N/A N/A 18. Power Meter R&S NRVD SEL0069 Feb. 18, 2017 Feb. 17, 2 19. Power Sensor R&S URV5-Z2 SEL0071 Feb. 18, 2017 Feb. 17, 2 20. Power Sensor R&S URV5-Z2 SEL0072 Feb. 18, 2017 Feb. 17, 2 21. Software EMC32 EMC32-S SEL0082 N/A N/A 22. Log-periodic Antenna Amplifier Reasearch APT1.580 SEL0073 Feb. 18, 2017 Feb. 17, 2 23. Loop Antenna Schwarz beck VULB9163 9163-333 Feb. 18, 2017 Feb. 17, 2	12.	ES-K1		N/A	N/A	N/A	N/A
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16. RF Switching Unit Compliance Direction RSU-M2 Direction 38303 Feb. 18, 2017 Feb. 17, 2 17. EMI Test Software ES-K1 Rohde & Schwarz N/A N/A N/A N/A 18. Power Meter R&S NRVD SEL0069 Feb. 18, 2017 Feb. 17, 2 19. Power Sensor R&S URV5-Z2 SEL0071 Feb. 18, 2017 Feb. 17, 2 20. Power Sensor R&S URV5-Z2 SEL0072 Feb. 18, 2017 Feb. 17, 2 21. Software EMC32 R&S EMC32-S SEL0082 N/A N/A 22. Log-periodic Antenna Amplifier Reasearch APT1.580 SEL0073 Feb. 18, 2017 Feb. 17, 2 23. Loop Antenna Schwarz beck FMZB 1516 9773 Feb. 18, 2017 Feb. 17, 2 24. Broadband Antenna Schwarz beck VULB9163 9163-333 Feb. 18, 2017 Feb. 17, 2 25. Horn Antenna ETS 3117 00086197 Feb. 18, 2017 Feb. 17, 2	14.	EMI Receiver	Rohde & Schwarz	ESCI	100627	Feb. 18, 2017	Feb. 17, 2018
Direction Feb. 18, 2017 Feb. 17, 2	15.	LISN	SchwarzBeck	NSLK 8126	8126377	Feb. 18, 2017	Feb. 17, 2018
Ronde & Schwarz N/A N/A N/A N/A N/A N/A	16.	RF Switching Unit		RSU-M2	38303	Feb. 18, 2017	Feb. 17, 2018
19. Power Sensor R&S URV5-Z2 SEL0071 Feb. 18, 2017 Feb. 17, 2 20. Power Sensor R&S URV5-Z2 SEL0072 Feb. 18, 2017 Feb. 17, 2 21. Software EMC32 R&S EMC32-S SEL0082 N/A N/A 22. Log-periodic Antenna Amplifier Reasearch APT1.580 SEL0073 Feb. 18, 2017 Feb. 17, 2 23. Loop Antenna Schwarz beck FMZB 1516 9773 Feb. 18, 2017 Feb. 17, 2 24. Broadband Antenna Schwarz beck VULB9163 9163-333 Feb. 18, 2017 Feb. 17, 2 25. Horn Antenna ETS 3117 00086197 Feb. 18, 2017 Feb. 17, 2 26. Horn Antenna Schwarzbeck BBHA9170 BBHA91705 Feb. 18, 2017 Feb. 17, 2 27. Antenna Tripod Amplifier Reasearch TP1000A SEL0074 Feb. 18, 2017 Feb. 17, 2 28. High Gain Horn Antenna Amplifier Reasearch AT4002A SEL0075 Feb. 18, 2017<	17.	ES-K1	Rohde & Schwarz		N/A	N/A	N/A
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Zer. Antenna Schwarz beck VOLB9163 Feb. 17, 2 25. Horn Antenna ETS 3117 00086197 Feb. 18, 2017 Feb. 17, 2 26. Horn Antenna Schwarzbeck BBHA9170 BBHA91705 Feb. 18, 2017 Feb. 17, 2 27. Antenna Tripod Amplifier Reasearch TP1000A SEL0074 Feb. 18, 2017 Feb. 17, 2 28. High Gain Horn Antenna Amplifier Reasearch AT4002A SEL0075 Feb. 18, 2017 Feb. 17, 2 29. Spectrum analyzer Agilent N9020A MY49911004 8 Feb. 18, 2017 Feb. 17, 2	23.	Loop Antenna	Schwarz beck	FMZB 1516	9773	Feb. 18, 2017	Feb. 17, 2018
26. Horn Antenna Schwarzbeck BBHA9170 BBHA91705 Feb. 18, 2017 Feb. 17, 2 27. Antenna Tripod Amplifier Reasearch TP1000A SEL0074 Feb. 18, 2017 Feb. 17, 2 28. High Gain Horn Antenna Amplifier Reasearch AT4002A SEL0075 Feb. 18, 2017 Feb. 17, 2 29. Spectrum analyzer Agilent N9020A MY49911004 8 Feb. 18, 2017 Feb. 17, 2	24.		Schwarz beck	VULB9163	9163-333	Feb. 18, 2017	Feb. 17, 2018
27. Antenna Tripod Amplifier Reasearch TP1000A SEL0074 Feb. 18, 2017 Feb. 17, 2 28. High Gain Horn Antenna Amplifier Reasearch AT4002A SEL0075 Feb. 18, 2017 Feb. 17, 2 29. Spectrum analyzer Agilent N9020A MY49911004 8 Feb. 18, 2017 Feb. 17, 2	25.	Horn Antenna	ETS	3117	00086197	Feb. 18, 2017	Feb. 17, 2018
27. Antenna Tripod Amplifier Reasearch TP1000A SEL0074 Feb. 18, 2017 Feb. 17, 2 28. High Gain Horn Antenna Amplifier Reasearch AT4002A SEL0075 Feb. 18, 2017 Feb. 17, 2 29. Spectrum analyzer Agilent N9020A MY49911004 8 Feb. 18, 2017 Feb. 17, 2	26.	Horn Antenna	Schwarzbeck	BBHA9170		Feb. 18, 2017	Feb. 17, 2018
29. Spectrum analyzer Agilent N9020A MY49911004 Feb. 18, 2017 Feb. 17, 2	27.	Antenna Tripod		TP1000A		Feb. 18, 2017	Feb. 17, 2018
Spectrum analyzer Aglient N9020A 8 Feb. 18, 2017 Feb. 17, 2	28.	•	•	AT4002A	SEL0075	Feb. 18, 2017	Feb. 17, 2018
20 Spectrum analyzer Agilopt - MAYAGAGAGAG Fob 40 2047 Fob 47 2047	29.	Spectrum analyzer	Agilent	N9020A		Feb. 18, 2017	Feb. 17, 2018
30. 3733333 Agiletit E4407B WIY40184320 Feb. 18, 2017 Feb. 17, 2	30.	Spectrum analyzer	Agilent	E4407B	MY46184326	Feb. 18, 2017	Feb. 17, 2018
31. Spectrum analyzer R&S FSP30 836079/035 Feb. 18, 2017 Feb. 17, 2	31.	Spectrum analyzer	R&S	FSP30	836079/035	Feb. 18, 2017	Feb. 17, 2018



3. CONDUCTED EMISSIONS TEST

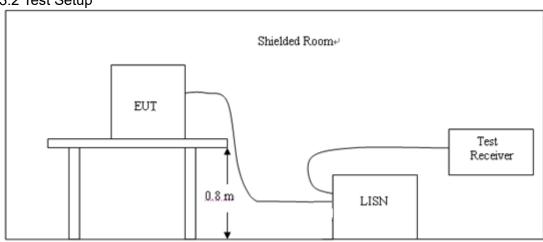
3.1 Conducted Power Line Emission Limit

For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following

Eroguenev	M	Maximum RF Line Voltage (dBμV)							
Frequency (MHz)	CLAS	SS A	CLASS B						
(11112)	Q.P.	Ave.	Q.P.	Ave.					
0.15 - 0.50	79	66	66-56*	56-46*					
0.50 - 5.00	73	60	56	46					
5.00 - 30.0	73	60	60	50					

^{*} Decreasing linearly with the logarithm of the frequency
For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

3.2 Test Setup



3.3 Test Procedure

- 1, The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.1 meters is used and is placed on the ground plane as per ANSI C63.10.
- 2, Support equipment, if needed, was placed as per ANSI C63.10.
- 3, All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4, If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5, All support equipments received AC power from a second LISN, if any.
- 6, The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7, Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.

3.4 Test Result

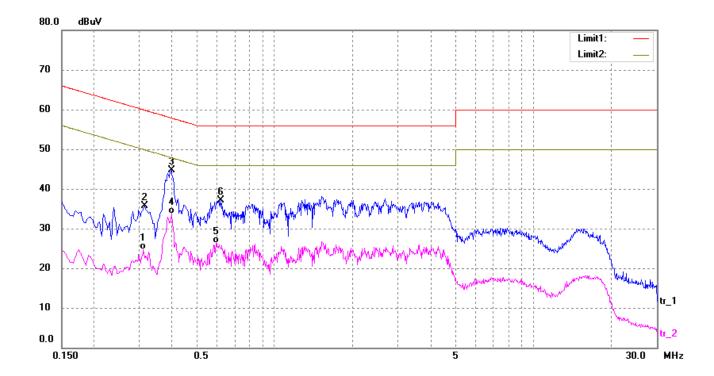
PASS

All the test modes completed for test.





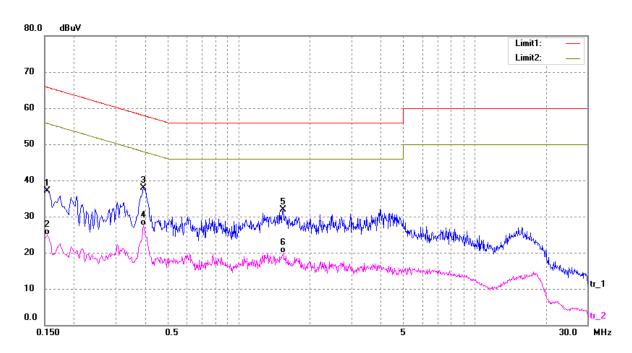
Test Specification: Line



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.3100	18.91	5.80	24.71	49.97	-25.26	AVG
2	0.3140	29.87	5.80	35.67	59.86	-24.19	peak
3*	0.3980	38.92	5.80	44.72	57.90	-13.18	peak
4	0.3980	27.86	5.80	33.66	47.90	-14.24	AVG
5	0.5940	20.52	5.79	26.31	46.00	-19.69	AVG
6	0.6180	31.37	5.79	37.16	56.00	-18.84	peak



Test Specification: Neutral



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(MHz) (dBuV) (dB/r	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1540	31.32	5.85	37.17	65.78	-28.61	peak
2	0.1540	18.97	5.85	24.82	55.78	-30.96	AVG
3*	0.3940	32.09	5.80	37.89	57.98	-20.09	peak
4	0.3940	21.80	5.80	27.60	47.98	-20.38	AVG
5	1.5380	26.24	5.75	31.99	56.00	-24.01	peak
6	1.5380	14.12	5.75	19.87	46.00	-26.13	AVG





4 RADIATED EMISSION TEST

4.1 Radiation Limit

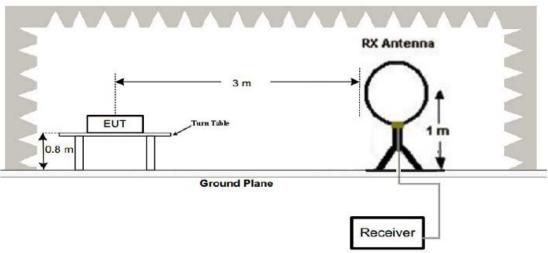
For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance (Meters)	Radiated (dBµV/m)	Radiated (µV/m)
30-88	3	40	100
88-216	3	43.5	150
216-960	3	46	200
Above 960	3	54	500

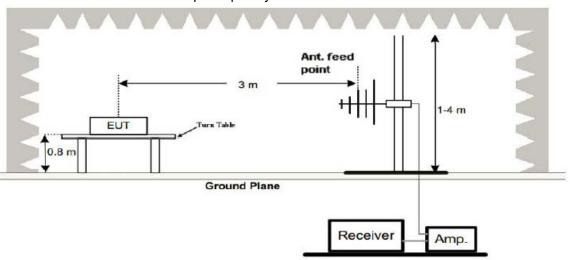
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

4.2 Test Setup

(1) Radiated Emission Test-Up Frequency Below 30MHz

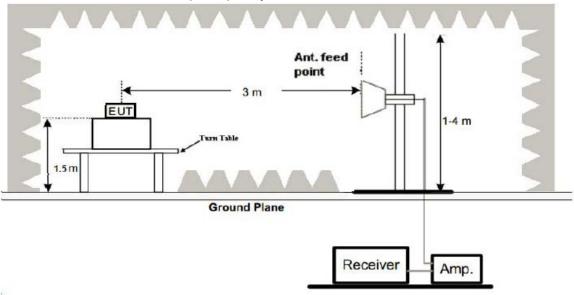


(2) Radiated Emission Test-Up Frequency 30MHz~1GHz





(3) Radiated Emission Test-Up Frequency Above 1GHz



4.3 Test Procedure

- 1. Below 1GHz measurement the EUT is placed on turntable which is 0.1m above ground plane. And above 1GHz measurement EUT was placed on low permittivity and low tangent turn table which is 1.5m 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. Repeat above procedures until the measurements for all frequencies are complete.
- 7. The test frequency range from 9KHz to 25GHz per FCC PART 15.33(a).

Note

For battery operated equipment, the equipment tests shall be performed using a new battery.

4.4 Test Result

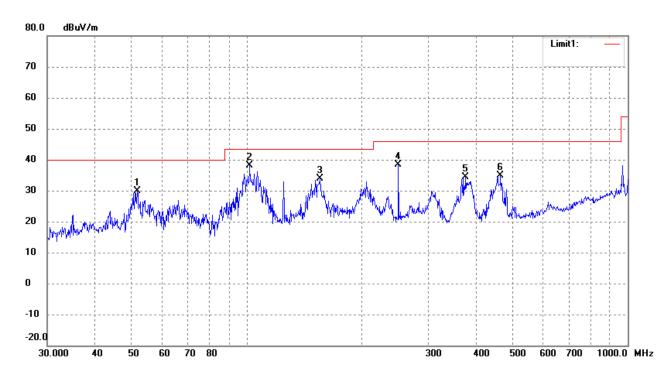
PASS

All the test modes completed for test. The worst case of Radiated Emission; the test data of this mode was reported.



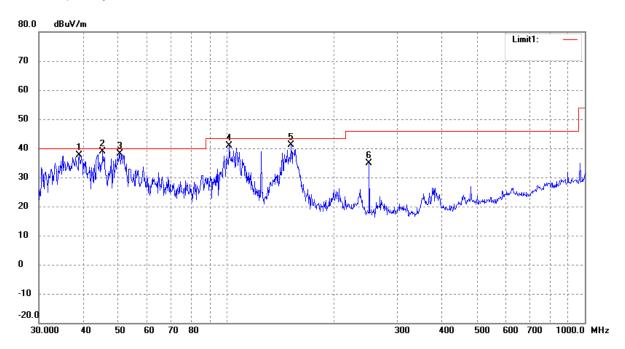
Below 1GHz Test Results:

Antenna polarity: H



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	$d\mathbf{B}/\mathbf{m}$	(dBuV/m)	(dBuV/m)	(dB)	()	(cm)	
1	51.6616	40.80	-10.88	29.92	40.00	-10.08	337	100	peak
2	102.0014	49.74	-11.63	38.11	43.50	-5.39	338	100	peak
3	155.9101	48.87	-15.00	33.87	43.50	-9.63	81	100	peak
4	250.3012	48.78	-10.49	38.29	46.00	-7.71	290	100	peak
5	375.9385	41.58	-7.18	34.40	46.00	-11.60	115	100	peak
6	463.9696	41.42	-6.49	34.93	46.00	-11.07	200	100	peak

Antenna polarity: V



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz) (dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(dB) ()			
1	38.8879	48.38	-10.66	37.72	40.00	-2.28	52	100	peak
2	45.2166	49.35	-10.45	38.90	40.00	-1.10	145	100	peak
3	50.4089	48.56	-10.53	38.03	40.00	-1.97	126	100	peak
4	102.0014	52.45	-11.63	40.82	43.50	-2.68	147	100	peak
5	151.5972	56.04	-14.96	41.08	43.50	-2.42	191	100	peak
6	250.3012	45.40	-10.49	34.91	46.00	-11.09	254	100	peak

Remark:

- (1) Measuring frequencies from 9 KHz to the 1 GHz, Radiated emission test from 9KHz to 30MHz was verified, and no any emission was found except system noise floor.
- (2) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (3) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.



Above 1 GHz Test Results:

CH Low (2402MHz) Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	5			
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type			
2402	113.14	-5.84	107.3	114	-6.7	peak			
2402	83.16	-5.84	77.32	94	-16.68	AVG			
4804	56.28	-3.64	52.64	74	-21.36	peak			
4804	43.17	-3.64	39.53	54	-14.47	AVG			
7206	53.42	-0.95	52.47	74	-21.53	peak			
7206	43.19	-0.95	42.24	54	-11.76	AVG			
Remark: Fact	temark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.								

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2402	112.29	-5.84	106.45	114	-7.55	peak
2402	82.17	-5.84	76.33	94	-17.67	AVG
4804	55.28	-3.64	51.64	74	-22.36	peak
4804	44.75	-3.64	41.11	54	-12.89	AVG
7206	53.24	-0.95	52.29	74	-21.71	peak
7206	37.19	-0.95	36.24	54	-17.76	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



CH Middle (2441MHz) Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	5		
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type		
2441	109.18	-5.71	103.47	114	-10.53	peak		
2441	85.39	-5.71	79.68	94	-14.32	AVG		
4882	54.17	-3.51	50.66	74	-23.34	peak		
4882	46.38	-3.51	42.87	54	-11.13	AVG		
7323	52.14	-0.82	51.32	74	-22.68	peak		
7323	36.63	-0.82	35.81	54	-18.19	AVG		
Remark: Fact	Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.							

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	D-44
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2441	108.16	-5.71	102.45	114	-11.55	peak
2441	83.26	-5.71	77.55	94	-16.45	AVG
4882	53.85	-3.51	50.34	74	-23.66	peak
4882	44.17	-3.51	40.66	54	-13.34	AVG
7323	52.29	-0.82	51.47	74	-22.53	peak
7323	36.47	-0.82	35.65	54	-18.35	AVG





CH High (2480MHz)

Horizontal:

Meter Reading	Factor	Emission Level	Limits	Margin	Detector	
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type	
107.07	-5.65	101.42	114	-12.58	peak	
83.28	-5.65	77.63	94	-16.37	AVG	
53.15	-3.43	49.72	74	-24.28	peak	
43.62	-3.43	40.19	54	-13.81	AVG	
51.37	-0.75	50.62	74	-23.38	peak	
35.96	-0.75	35.21	54	-18.79	AVG	
	107.07 83.28 53.15 43.62 51.37 35.96	107.07 -5.65 83.28 -5.65 53.15 -3.43 43.62 -3.43 51.37 -0.75 35.96 -0.75	107.07 -5.65 101.42 83.28 -5.65 77.63 53.15 -3.43 49.72 43.62 -3.43 40.19 51.37 -0.75 50.62 35.96 -0.75 35.21	107.07 -5.65 101.42 114 83.28 -5.65 77.63 94 53.15 -3.43 49.72 74 43.62 -3.43 40.19 54 51.37 -0.75 50.62 74 35.96 -0.75 35.21 54	107.07 -5.65 101.42 114 -12.58 83.28 -5.65 77.63 94 -16.37 53.15 -3.43 49.72 74 -24.28 43.62 -3.43 40.19 54 -13.81 51.37 -0.75 50.62 74 -23.38 35.96 -0.75 35.21 54 -18.79	

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	5
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
2480	106.29	-5.65	100.64	114	-13.36	peak
2480	81.67	-5.65	76.02	94	-17.98	AVG
4960	53.26	-3.43	49.83	74	-24.17	peak
4960	42.25	-3.43	38.82	54	-15.18	AVG
7440	54.18	-0.75	53.43	74	-20.57	peak
7440	37.69	-0.75	36.94	54	-17.06	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark:

- (1) Measuring frequencies from 1 GHz to the 25 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (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) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.





5 BAND EDGE

5.1 Limits

FCC PART 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 §15.209, whichever is the lesser attenuation.

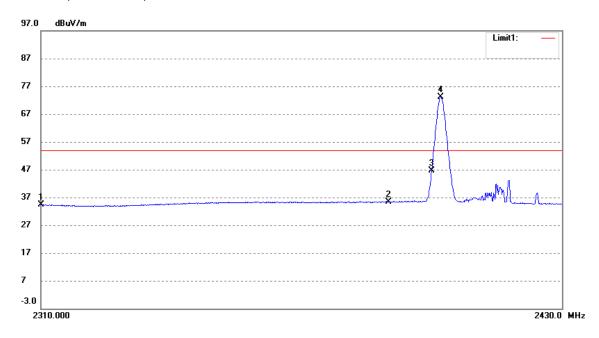
5.2 Test Procedure

The band edge compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW to 100KHz and VBM to 300KHz to measure the peak field strength and set RBW to 1MHz and VBW to 10Hz to measure the average radiated field strength. The conducted RF band edge was measured by using a spectrum analyzer. Set span wide enough to capture the highest in-band emission and the emission at the band edge. Set RBW to 100 KHz and VBW to 300 KHz, to measure the conducted peak band edge.

5.3 Test Result

PASS

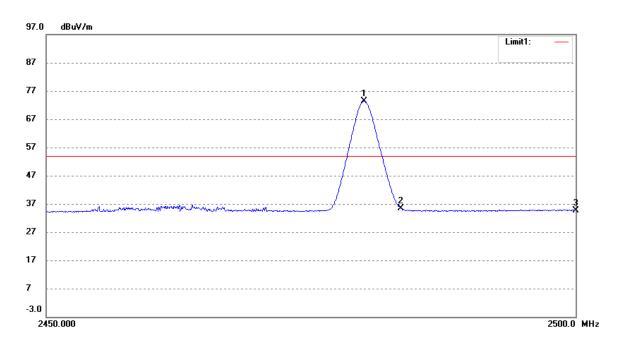
Restricted Bandedge (Radiated) Lowest Bandedge Vertical (Worst case)



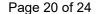
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.00	35.41	-1.00	34.41	54.00	-19.59	Average Detector
	2310.00	48.89	-1.00	47.89	74.00	-26.11	Peak Detector
2	2390.00	36.28	-0.88	35.40	54.00	-18.60	Average Detector
	2390.00	48.00	-0.88	47.12	74.00	-26.88	Peak Detector
3	2400.00	47.56	-0.86	46.70	54.00	-7.30	Average Detector
	2400.00	52.22	-0.86	51.36	74.00	-22.64	Peak Detector
4	2402.04	74.02	-0.86	73.16	/	/	Average Detector
	2402.04	73.86	-0.86	73.00	/	/	Peak Detector



Highest Bandedge Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2480.00	74.05	-0.73	73.32	/	/	Average Detector
	2480.00	74.77	-0.73	74.04	/	/	Peak Detector
2	2483.50	36.16	-0.73	35.43	54.00	-18.57	Average Detector
	2483.50	47.81	-0.73	47.08	74.00	-26.92	Peak Detector
3	2500.00	35.42	-0.70	34.72	54.00	-19.28	Average Detector
	2500.00	48.14	-0.70	47.44	74.00	-26.56	Peak Detector





6 OCCUPIED BANDWIDTH MEASUREMENT

6.1 Test Setup

Same as Radiated Emission Measurement

6.2 Test Procedure

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. Set EUT as normal operation.
- 3. Based on FCC Part15 C Section 15.249(a): RBW= 30KHz. VBW= 300 KHz, Span=3MHz.
- 4. The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector.

6.3 Measurement Equipment Used

Same as Radiated Emission Measurement

6.4 Test Result

PASS

Frequency	20dB Bandwidth (MHz)	Result
2402 MHz	3.083	PASS
2441 MHz	2.314	PASS
2480 MHz	2.400	PASS

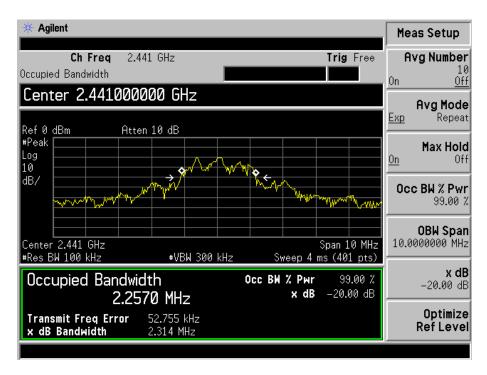
CH: 2402MHz



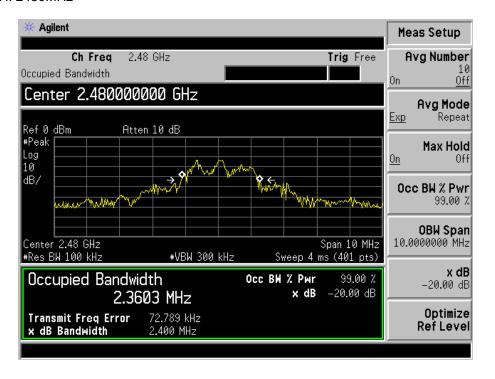




CH: 2441MHz



CH: 2480MHz







7 ANTENNA REQUIREMENT

Standard Applicable

For intentional device, according to FCC 47 CFR Section 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. And according to FCC 47 CFR Section 15.249, if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

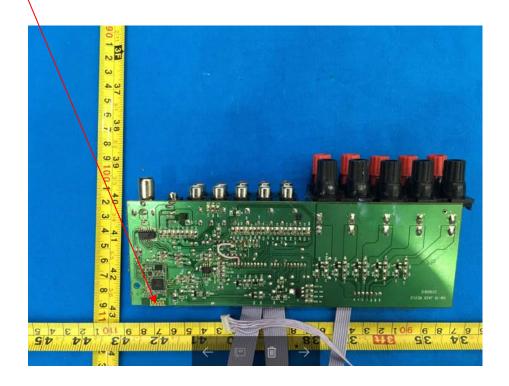
Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Antenna Connected Construction

The antenna used in this product is a PCB antenna, The directional gains of antenna used for transmitting is 1dBi.

ANTENNA

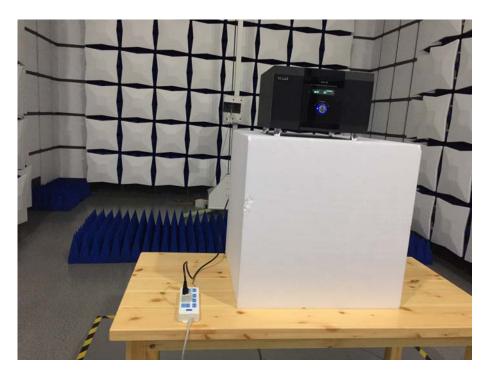




8 PHOTOGRAPH OF TEST

8.1 Radiated Emission







8.2 Conducted Emission

