

Test Report

Client Information:

Applicant: AURUM ELECTRONICS CORP.
Applicant add.: NO.160.Dayong Rd. YongKang City.Tainan Hsien.710, Taiwan

EUT Information:

EUT Name: Digital Wireless TV receiver
Model No.: AEC-707C
Brand Name: N/A
FCC ID: VQXAEC707C

Prepared By:

Asia Institute Technology (Dongguan) Limited
Add. : No.6 Binhe Road, Tianxin Village, Huangjiang,
Dongguan, Guangdong, China.

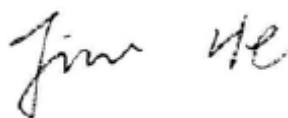
Date of Receipt: Jun 23, 2010 Date of Test: Jun 24-28, 2010
Date of Issue: Jun 29, 2010 Test Result: **Pass**

Test procedure used: ANSI C63.4-2003

This device described above has been tested by Asia Institute Technology (Dongguan) Limited, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

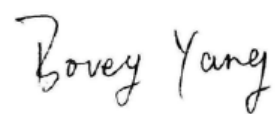
*This test report must not be used by the client to claim product endorsement by any agency of the U.S. government.

Reviewed by:



Test director

Approved by:



Technical director

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2 Test Summary

2.1 Compliance with FCC Part 15 subpart C

Test	FCC rule part	Result
Antenna requirement	Section 15.203	PASS
Conduction Emissions	Section 15.207	N/A
Radiated Emissions	Section 15.249(a) Section 15.249(d)	PASS
Band edges	Section 15.249(d)	PASS
Occupied Bandwidth	Section 15.215	PASS

2.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, The following measurements uncertainty Level have estimated based on ANSI C63.4:2003, the maximum value of the uncertainty as below

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 1.38\text{dB}$
2	Radiated Emission Test	$\pm 3.57\text{dB}$

3 Test Facility

The test facility is recognized, certified or accredited by the following organizations:

.FCC- Registration No: 248337

The 3m Semi-Anechoic Chamber, 3m/10m Open Area Test Site and Shielding Room of Asia Institute Technology (Dong guan) Limited have been registered by Federal Communications Commission (FCC) on Dec.07, 2006.

.Industry Canada(IC)-Registration No: IC6819A-1 & IC6819A-2

The 3m Semi-Anechoic Chamber and 3m/10m Open Area Test Site of Asia Institute Technology (Dongguan) Limited have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing on Nov.07, 2006.

.VCCI- Registration No: R-2482 & C-2730

The 3m/10m Open Area Test Site and Shielding Room of Asia Institute Technology (Dongguan) Limited have been registered by Voluntary Control Council for Interference on Jan.24, 2007.

.TUV Rhineland

Asia Institute Technology (Dongguan) Limited has been assessed on Jan.16, 2007 that it can carry out EMC tests by order and under supervision of TUV Rhineland.

.ITS- Registration No: TMPSHA031

Asia Institute Technology (Dongguan) Limited has been assessed and included in Intertek Shanghai TMP Program regarding Laboratory facilities and test equipment on Nov.10, 2006.

3.1 Deviation from standard

None

3.2 Abnormalities from standard conditions

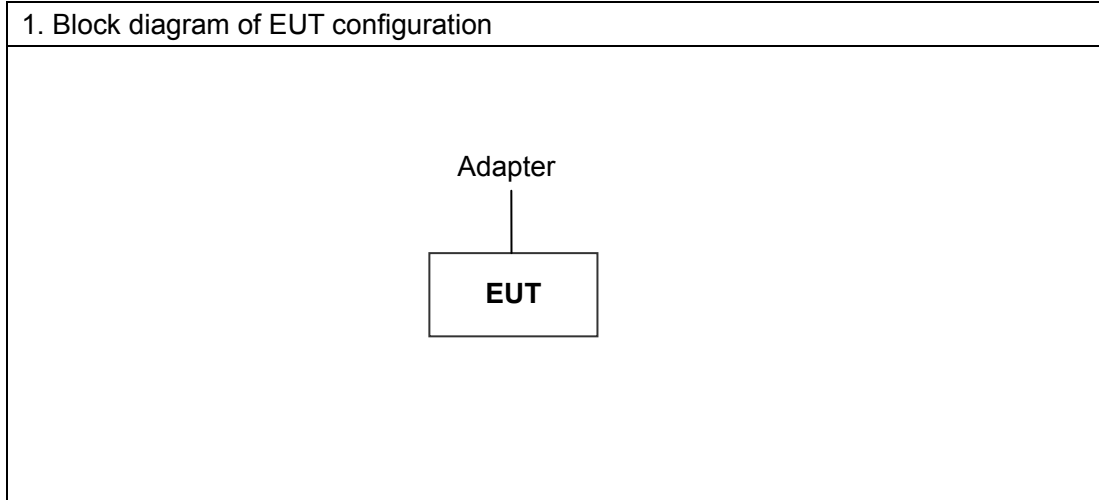
4 General Information

4.1 General Description of EUT

Manufacturer:		Aurum Electronics Corp.					
Manufacturer Address:		4th industrial area Her-Shoei-Ming Street.GuangMing Xin District Shenzhen City Guangdong Province. China					
EUT Name:		Digital Wireless TV receiver					
Model No:		AEC-707C					
Operation frequency:		2402 MHz to 2480MHz					
Channel Number:		40					
Modulation Technology:		GFSK					
Antenna Type:		extended wire lay on PCB					
Brand Name:		N/A					
Serial No:		N/A					
Power Supply Range:		DC 6V from adapter AC 120V/60Hz					
Power Supply:		DC 6V from adapter AC 120V/60Hz					
Power Cord:		DC Line: 1.5m/ Unshielded/ Undetachable/ Without Ferrite Core					
Model description: N/A							
Description of Channel:							
channel	Frequency (MHz)	channel	Frequency (MHz)	channel	Frequency (MHz)	channel	Frequency (MHz)
1	2402	11	2422	21	2442	31	2462
2	2404	12	2424	22	2444	32	2464
3	2406	13	2426	23	2446	33	2466
4	2408	14	2428	24	2448	34	2468
5	2410	15	2430	25	2450	35	2470
6	2412	16	2432	26	2452	36	2472
7	2414	17	2434	27	2454	37	2474
8	2416	18	2436	28	2456	38	2476
9	2418	19	2438	29	2458	39	2478
10	2420	20	2440	30	2460	40	2480

4.2 Description of Test conditions

- (1) EUT was tested in normal configuration (Please See following Block diagram)



- (2) E.U.T. test conditions:

15.31(e): 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. For battery operated equipment, the equipment tests shall be performed using a new battery.

- (3) Test frequencies:

According to the 15.31(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and, if required. Reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

Frequency range over which device operates	Number of frequencies	Location in the range of operation
1 MHz or less	1	Middle
1 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

- (4) Frequency range of radiated measurements:

According to the 15.33, the test range will be up to the tenth harmonic of the highest fundamental frequency

4.3 Peripheral List

No.	Equipment	Manufacturer	Model No.	Serial No.	Power cord	signal cable
1	AC Adapter	Elemeni	HORIZON-7948u	J08102003R	DC Line/unshielded/ Undetachable/ Without Ferrite Core	N/A

5 Equipments List for All Test Items

No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	Spectrum Analyzer	ADVANTEST	R3182	150900201	2010.04.17	2011.04.16
2	EMI Measuring Receiver	Schaffner	SCR3501	235	2010.04.07	2011.04.06
3	Low Noise Pre Amplifier	Tsj	MLA-10K01-B01-27	1205323	2010.03.07	2010.09.06
4	Low Noise Pre Amplifier	Tsj	MLA-0120-A02-34	2648A04738	2010.04.08	2011.04.07
5	TRILOG Super Broadband test Antenna	SCHWARZBECK	VULB9160	9160-3206	2010.07.02	2011.07.01
6	Broadband Horn Antenna	SCHWARZBECK	BBHA9120A	451	2009.07.15	2010.07.14
7	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2010.03.07	2010.09.06
8	EMI Test Receiver	R&S	ESCI	100124	2009.12.28	2010.12.27
9	LISN	Kyoritsu	KNW-242	8-837-4	2010.04.07	2011.04.06
10	LISN	Kyoritsu	KNW-407	8-1789-3	2010.04.07	2011.04.06
11	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2010.03.07	2010.09.06

6 Test Result

6.1 Antenna requirement

6.1.1 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.

6.1.2 EUT Antenna

The antenna is integrated on the main PCB and no consideration of replacement.

6.2 Conduction Emissions Measurement

6.2.1 limit

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

Note:Decreases with the logarithm of the frequency.

6.2.2 Test procedure

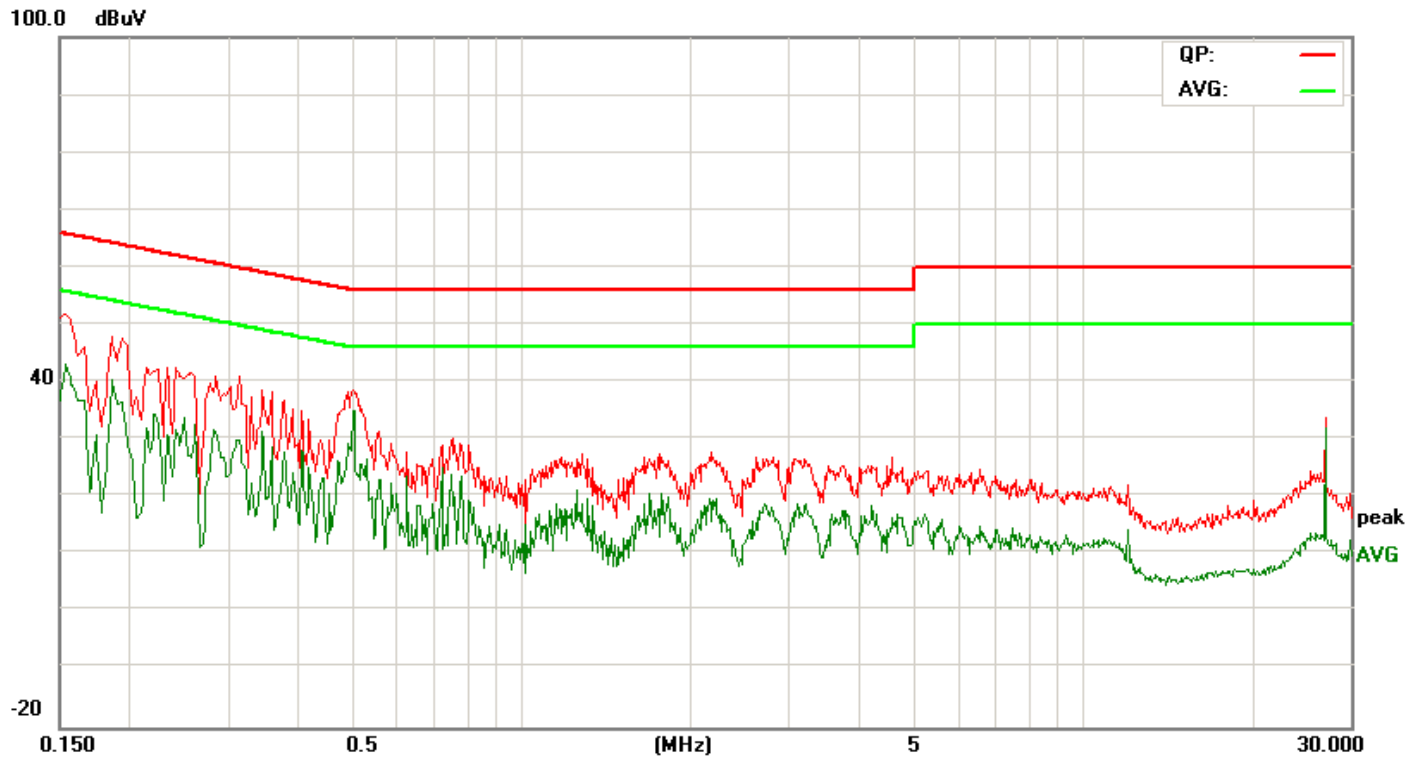
EUT was placed upon a wooden test table 0.8m above the horizontal metal reference plane and 0.4m from the vertical ground plane, and it was connected to an AMN. The closest distance between the boundary of the EUT and the surface of the AMN is 0.8m. All peripherals were connected to another AMN, and placed at a distance of 10cm from each other. A spectrum and receiver was connected to the RF output port of the AMN. Both average and quasi-peak value were detected.

6.2.3 Test result

Test Data: 2010-6-25

Operating Environment: 22.5°C, 50% RH, 102 Kpa

Line --Operating mode: running



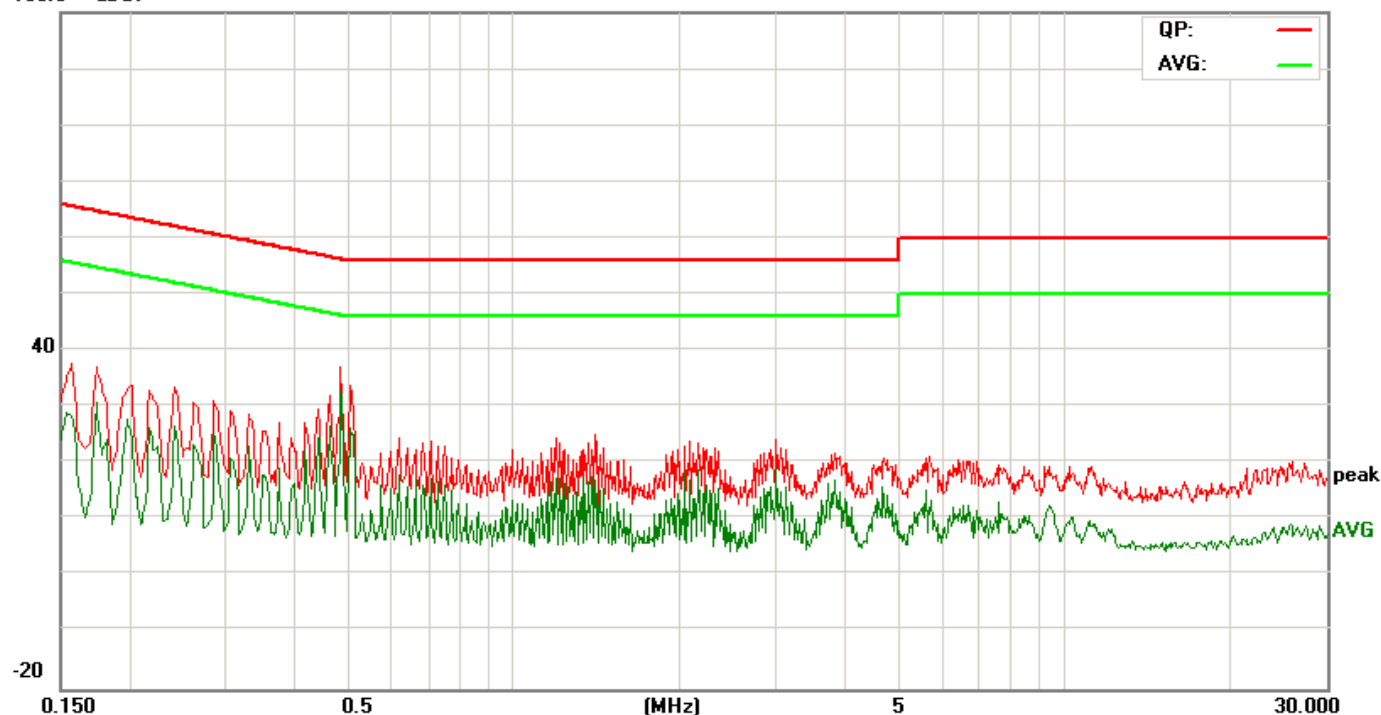
Line

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
*0.1556	39.43	11.81	51.24	65.70	-14.46	QP
0.1986	32.44	11.16	43.60	63.67	-20.07	QP
0.2468	30.05	10.90	40.95	61.86	-20.91	QP
0.3140	30.49	10.71	41.20	59.86	-18.66	QP
0.3791	21.96	10.57	32.53	58.30	-25.77	QP
0.5100	27.59	10.34	37.93	56.00	-18.07	QP

Frequency (MHz)	Regtading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
*0.1548	30.46	11.83	42.29	55.74	-13.45	AVG
0.1965	21.01	11.18	32.19	53.76	-21.57	AVG
0.2468	19.11	10.90	30.01	51.86	-21.85	AVG
0.3180	15.29	10.69	25.98	49.76	-23.78	AVG
0.3791	14.65	10.57	25.22	48.30	-23.08	AVG
0.5100	13.75	10.34	24.09	46.00	-21.91	AVG

Neutral --Operating mode: running

100.0 dBuV



Neutral

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
0.1580	25.96	11.75	37.71	65.57	-27.86	QP
0.1758	24.06	11.45	35.51	64.68	-29.17	QP
0.2008	22.58	11.13	33.71	63.58	-29.87	QP
0.2430	21.65	10.91	32.56	61.99	-29.43	QP
0.2878	19.19	10.77	29.96	60.59	-30.63	QP
*0.4860	26.68	10.38	37.06	56.24	-19.18	QP

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
0.1580	16.57	11.75	28.32	55.57	-27.25	AVG
0.1758	15.20	11.45	26.65	54.68	-28.03	AVG
0.1997	15.37	11.14	26.51	53.62	-27.11	AVG
0.2430	14.52	10.91	25.43	51.99	-26.56	AVG
0.2863	13.95	10.77	24.72	50.63	-25.91	AVG
*0.4860	22.45	10.38	32.83	46.24	-13.41	AVG

Note: '*' means the worst case

Quasi peak/Average = Reading Level + Factor

Factor= Cable Loss + LISN insertion loss

6.3 Radiated Emissions Measurement

6.3.1 Limit

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:

Frequency of Emission (MHz)	Field Strength of fundamental (dB μ V/m)	Field Strength of Harmonics(dB μ V/m)
902-928	94	54
2400-2483.5	94	54
5725-5875	94	54
24000-24250	108	68

Note: Field strength limits are specified at a distance of 3 meters. the above field strength limits in paragraphs 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.

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.

Frequency of Emission (MHz)	Field Strength		Measurement Distance (meters)
	μ V/m	dB μ V/m	
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

6.3.2 Test procedure

EUT was placed upon a wooden test table which was placed on the turn table 0.8m above the horizontal metal ground plane, and operating in the mode as mentioned above. A receiving antenna was placed 3m away from the EUT. During testing, turn around the turn table and move the antenna from 1m to 4m to find the maximum field-strength reading. All peripherals were placed at a distance of 10cm between each other. Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

6.3.3 Test Result

Test Data: 2010-6-26

Frequency Range: 30MHz to 1GHz

RBW/VBW: 100KHz/300KHz for spectrum, RBW=120KHz for receiver

Measurement Distance: 3 m

Operating Environment: 25.3°C, 55% RH, 102 Kpa

(a) Antenna polarization: Horizontal

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
51.340	14.010	2.386	16.396	-23.604	40.000	QUASIPeAK
62.010	14.220	3.450	17.670	-22.330	40.000	QUASIPeAK
143.490	16.140	3.613	19.753	-23.747	43.500	QUASIPeAK
*203.630	13.590	9.972	23.562	-19.938	43.500	QUASIPeAK
305.480	17.270	5.464	22.734	-23.266	46.000	QUASIPeAK
414.120	20.220	3.552	23.772	-22.228	46.000	QUASIPeAK

(b) Antenna polarization: vertical

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
34.850	13.630	8.333	21.963	-18.037	40.000	QUASIPeAK
*53.280	13.980	15.469	29.449	-10.551	40.000	QUASIPeAK
61.040	14.260	14.499	28.759	-11.241	40.000	QUASIPeAK
143.490	16.140	7.234	23.374	-20.126	43.500	QUASIPeAK
199.750	13.510	7.677	21.187	-22.313	43.500	QUASIPeAK
431.580	20.750	4.929	25.679	-20.321	46.000	QUASIPeAK

Note: '*' means the worst case

Measurement Level = Reading Level + Factor

Factor=Ant Factor + Cable Loss

Test Data: 2010-6-26

Frequency Range: 1GHz to 25GHz

RBW/VBW: 1MHz/1MHz for Peak, 1MHz/10Hz for Average

Measurement Distance: 3 m

Operating Environment: 25.3°C, 58% RH, 102 Kpa

(a) Antenna polarization: Horizontal

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1200.000	29.280	33.223	62.503	-11.497	74.000	PEAK
*1201.180	29.280	23.377	52.657	-1.343	54.000	AVERAGE
2400.000	31.669	15.235	46.904	-27.096	74.000	PEAK
2400.000	31.669	6.287	37.956	-16.044	54.000	AVERAGE
2402.000	33.897	56.731	90.628	-23.372	114.000	PEAK
2402.430	33.897	54.768	88.665	-5.335	94.000	AVERAGE
3975.000	37.698	2.881	40.817	-13.183	54.000	PEAK
4804.000	39.910	6.587	46.589	-27.411	74.000	PEAK

(b) Antenna polarization: vertical

Frequency (MHz)	Correct Factor (Db)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (Db)	Limit (dBuV/m)	Detector Type
2035.000	31.877	10.578	42.475	-31.528	74.000	PEAK
2400.000	33.897	12.561	46.450	-27.542	74.000	PEAK
2400.000	33.897	8.642	42.539	-11.461	54.000	PEAK
2402.000	33.900	56.731	90.628	-23.372	114.000	PEAK
*2402.000	33.900	54.765	88.665	-5.335	94.000	AVERAGE
4804.250	40.010	8.235	48.245	-25.755	74.000	PEAK

Note: "*" means the worst case

Measurement Level = Reading Level + Factor

Factor=Ant Factor + Cable Loss

Low Channel:2402 MHz

(a) Antenna polarization: Horizontal

Frequency (MHz)	Correct Factor (Db)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (Db)	Limit (dBuV/m)	Detector Type
1200.000	29.280	25.934	55.214	-18.786	74.000	PEAK
1544.000	29.877	6.587	36.464	-37.536	74.000	PEAK
2440.000	34.015	46.651	90.666	-23.334	114.000	PEAK
*2440.400	34.015	54.465	88.480	-5.520	94.000	AVERAGE
2935.000	35.725	15.253	50.978	-23.022	74.000	PEAK
4880.760	40.125	10.895	51.020	-22.98	74.000	PEAK

(b) Antenna polarization: vertical

Frequency (MHz)	Correct Factor (Db)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (Db)	Limit (dBuV/m)	Detector Type
1202.000	29.288	22.152	51.440	-22.560	74.000	PEAK
1544.000	29.877	6.587	36.464	-37.536	74.000	PEAK
2440.000	34.005	56.520	90.525	-23.475	114.000	PEAK
*2440.430	34.011	55.499	89.510	-4.490	94.000	AVERAGE
3180.000	36.126	12.564	48.690	-25.310	74.000	PEAK
4880.458	40.005	8.689	48.694	-25.306	74.000	PEAK

Note: “*” means the worst case

Measurement Level = Reading Level + Factor

Factor=Ant Factor + Cable Loss

Middle Channel :2440 MHz

(a)Antenna polarization: Horizontal

Frequency (MHz)	Correct Factor (Db)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (Db)	Limit (dBuV/m)	Detector Type
1200.000	29.280	26.028	55.308	-18.692	74.000	PEAK
1200.000	29.280	15.542	44.822	-9.178	54.000	AVERAGE
2480.000	34.117	56.430	90.547	-23.453	114.000	PEAK
*2480.440	34.117	55.826	89.943	-4.057	94.000	AVERAGE
2483.500	34.135	12.842	46.977	-27.023	74.000	PEAK
2483.500	34.135	5.568	39.703	-14.297	54.000	AVERAGE
496.000	40.263	9.871	50.134	-23.866	74.000	PEAK

(b) Antenna polarization: vertical

Frequency (MHz)	Correct Factor (Db)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (Db)	Limit (dBuV/m)	Detector Type
1200.000	29.280	21.825	51.105	-22.895	74.000	PEAK
2305.000	33.391	13.821	47.212	-26.788	74.000	PEAK
2480.000	34.117	56.375	90.492	-23.508	114.000	PEAK
*2480.400	34.117	53.976	88.093	-5.907	94.000	AVERAGE
2483.500	34.135	10.563	44.698	-29.302	74.000	PEAK
2483.500	33.135	8.526	41.676	-12.324	54.000	AVERAGE
4960.000	40.353	5.687	46.04	-27.960	74.000	PEAK

Note: '*' means the worst case

Measurement Level = Reading Level + Factor

Factor=Ant Factor + Cable Loss

High Channel :2480MHz

6.4 Band edges

6.4.1 Limit

Fcc part15.249 (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.

6.4.2 Test procedure

- (1) Connected the antenna port to the Spectrum Analyzer, set the Spectrum Analyzer as RBW=100kHz, VBW \geq RBW, Sweep time=Auto, Detector Function=Peak
- (2) The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission.
- (3) The above procedure shall be repeated at the lowest, and the highest frequency of the stated frequency range.

6.4.3 Test Result

Please refer to report section 6.3.2 which met the requirement of limits in 15.209

6.5 Occupied Bandwidth

6.5.1 Limit

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. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band. Test procedure

6.5.2 Test procedure

- (1) Connected the antenna port to the Spectrum Analyzer, set the Spectrum Analyzer as RBW=100kHz, VBW \geq RBW, Sweep time=Auto, Detector Function=Peak
- (2) The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 20 dB down one side of the emission.
- (3) The above procedure shall be repeated at the lowest, the middle, and the highest frequency of the stated frequency range with modulated mode. also shall be performed at different modes of operation

6.5.3 Test Result

channel	Channel frequency (MHz)	20dB bandwidth (KHz)	Limit (KHz)	Conclusion
Low	2402	1620	N/A	Pass
Mid	2440	1690	N/A	Pass
High	2480	1600	N/A	Pass

Low: 2402MHz



Mid: 2440MHz



High: 2480MHz

