



FCC Test Report (BLE)

FCC ID : 2AEH7-EM12

Applicant : KNOWCK Co., Ltd.

#1114-2 R&D Tower, Nuritkum Square, 1605, Sangam-dong, Mapo-gu,
Seoul, 121-795, Korea

Sample Description

Product Name : Smart TV Box

Model No. : CASTBOX-CSN2, EM12

Trademark : N/A

Receipt Date : 2015-03-25

Test Date : 2015-03-26 to 2015-03-30

Issue Date : 2015-03-30

Test Standard(s) : FCC CFR Title 47 Part 15 Subpart C Section 15.247

Conclusions : PASSED*

*In the configuration tested, the EUT complied with the standards specified above.

Test/Witness Engineer :

Jason Deng

Approved & Authorized :

Frank Zhang

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.



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1. General Information

1.1. Client Information

Applicant	:	KNOWCK Co., Ltd.
Address	:	#1114-2 R&D Tower, Nuritkum Square, 1605, Sangam-dong, Mapo-gu, Seoul, 121-795, Korea
Manufacturer	:	ENY TECHNOLOGY CO.,LTD
Address	:	5C, Building A, MinLe Industrial Park , Meiban Road, LongHua District, ShenZhen, China

1.2. General Description of EUT (Equipment Under Test)

Product Name	:	Smart TV Box	
Models No.	:	CASTBOX-CSN2, EM12	
Trademark	:	N/A	
Remark: All above models are identical in schematic, structure and critical components except for different model number and appearance; We choose CASTBOX-CSN2 for test.			
Product Description	:	Operation Frequency:	2402MHz~2480MHz
		Transfer Rate:	1 Mbits/s
		Number of Channel:	40 Channels
		Modulation Type:	GFSK
		Modulation Technology:	FHSS
		Antenna Type:	External Antenna
		Antenna Gain:	2.0dBi
Power Supply	:	INPUT: AC 100-240V 50/60Hz 0.4A OUTPUT: DC 5V 2A	

Note:

(1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

(2) Channel List:



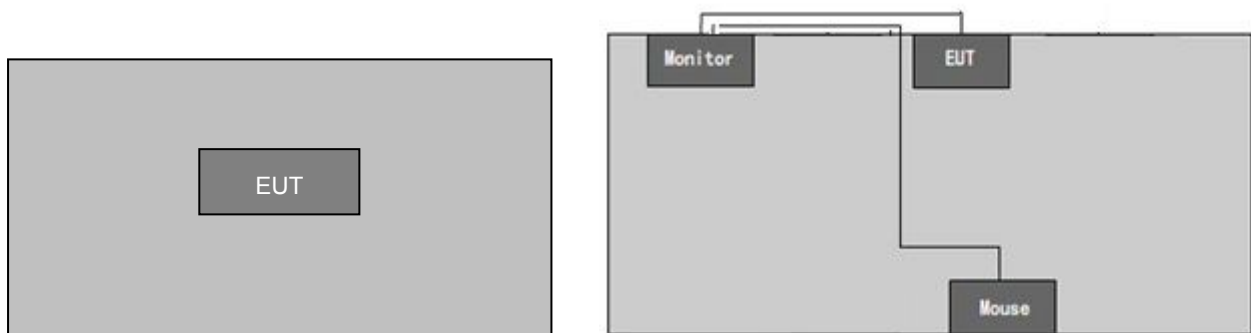
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Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	14	2430	28	2458
01	2404	15	2432	29	2460
02	2406	16	2434	30	2462
03	2408	17	2436	31	2464
04	2410	18	2438	32	2466
05	2412	19	2440	33	2468
06	2414	20	2442	34	2470
07	2416	21	2444	35	2472
08	2418	22	2446	36	2474
09	2420	23	2448	37	2476
10	2422	24	2450	38	2478
11	2424	25	2452	39	2480
12	2426	26	2454		
13	2428	27	2456		
Remark: Channel 0, 20 & 39 selected for GFSK.					

1.3. Block Diagram Showing The Configuration of System Tested



1.4. Description of Support Units

Name	Model	Serial Number	Manufacturer
LCD Monitor	G205HV	10306738385	ACER
Mouse	MS.11200.014	M-UAY-ACR2	ACER
Adapter	TRAVEL	N/A	N/A



1.5. External I/O Cable

Cable Description	Length(m)	From/ Port	To
Shielding Detachable USB Cable	1.5	Host PC	Mouse
Shielding Detachable VGA Cable	1.5	Host PC	LCD Monitor

1.6. Description of Test Mode

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follows was evaluated respectively.

Test Mode	Description
Charging & BT mode	Keep the EUT in Charging & BT mode
Transmitting mode	Keep the EUT in Transmitting mode

Remark: The sample was placed 0.8m above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

1.7. Test Instruments List

Item	Test Equipment	Manufacturer	Model No.	Cal. Date	Cal. Due date
1	Bilog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	May 24, 2014	May 23, 2015
2	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	May 29, 2014	May 28, 2015
3	Coaxial Cable	N/A	N/A	Mar. 31, 2014	Mar. 30, 2015
4	Coaxial Cable	N/A	N/A	Mar. 31, 2014	Mar. 30, 2015
5	Coaxial cable	N/A	N/A	Mar. 31, 2014	Mar. 30, 2015
6	Coaxial Cable	N/A	N/A	Mar. 31, 2014	Mar. 30, 2015
7	Coaxial Cable	N/A	N/A	Mar. 31, 2014	Mar. 30, 2015



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8	Amplifier (10kHz-1.3GHz)	HP	8447D	Mar. 31, 2014	Mar. 30, 2015
9	Amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	Jun. 08, 2014	Jun. 07, 2015
10	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFCASTBOX-C SN23-18002 650-30-8P-44	Mar. 31, 2014	Mar. 30, 2015
11	Horn Antenna	ETS-LINDGREN	3160	Mar. 29, 2014	Mar. 28, 2015
12	Positioning Controller	UC	UC3000	N/A	N/A
13	Spectrum analyzer 9kHz-30GHz	Rohde & Schwarz	FSP	May 28, 2014	May 27, 2015
14	EMI Test Receiver	Rohde & Schwarz	ESPI	Mar. 31, 2014	Mar. 30, 2015
15	Loop antenna	Laplace instrument	RF300	May 24,, 2014	May 23, 2015
16	Universal radio communication tester	Rhode & Schwarz	CMU200	May 28, 2014	May 27, 2015
17	Signal Analyzer	Rohde & Schwarz	FSIQ3	May 28, 2014	May 27, 2015
18	L.I.S.N.#1	Rohde & Schwarz	NSLK8126	May 28, 2014	May 27, 2015
19	L.I.S.N.#2	Rohde & Schwarz	ENV216	May 28, 2014	May 27, 2015
20	Power Meter	Anritsu	ML2487A	May 28, 2014	May 27, 2015
21	Power sensor	Anritsu	MA2491A	May 28, 2014	May 27, 2015

1.8. Laboratory Location

Shenzhen TOBY technology Co.,Ltd

Address: 1 A/F., Bldg.6, Yusheng Industrial Zone The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, 518057, China

At the time of testing, the Laboratory is accredited. It is listed in the United States of American Federal Communications Commission (FCC), and the registration number is 811562.

Tel:0086-755-26509301 Fax: 0086-755-26509195



2. Test Summary

Standard Section	Test Item	Judgment
15.203/15.247(c)	Antenna Requirement	PASSED
15.207	Conducted Emission	PASSED
15.247(b)(3)	Conducted Peak Output Power	PASSED
15.247(a)(2)	6dB Occupied Bandwidth	PASSED
15.247(e)	Power Spectral Density	PASSED
15.205/15.209	Spurious Emission	PASSED
15.247(d)	Band Edge	PASSED
Remark: "N/A" is an abbreviation for Not Applicable.		



3. Antenna Requirement

3.1. Standard Requirement

3.1.1 Test standard

FCC Part15 Section 15.203 /247(c)

3.1.2 Requirement

1) 15.203 requirement:

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

2) 15.247(c) (1)(i) requirement:

Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

3.2. Antenna Connected Construction

The Bluetooth antenna is an External Antenna which permanently attached, and the best case gain of the antenna is 2.0dBi. It complies with the standard requirement.

4. Conducted Emission Test

4.1. Test Standard and Limit

4.1.1 Test Standard

FCC Part15 Section 15.207

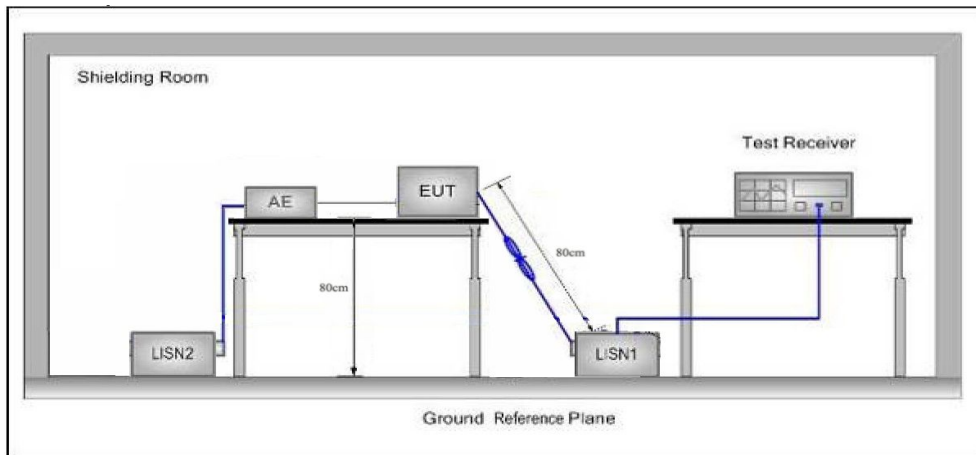
4.1.2 Test Limit

Conducted Emission Test Limit

Frequency	Maximum RF Line Voltage (dB μ V)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Remark: (1) *Decreasing linearly with logarithm of the frequency.
(2) The lower limit shall apply at the transition frequencies.

4.2. Test Setup



4.3. Test Procedure

1) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50 \Omega / 50 \mu\text{H} + 5 \Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

2) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane.



And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.

The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

The Test Receiver setup: RBW=9kHz, VBW=30kHz, Sweep time= auto

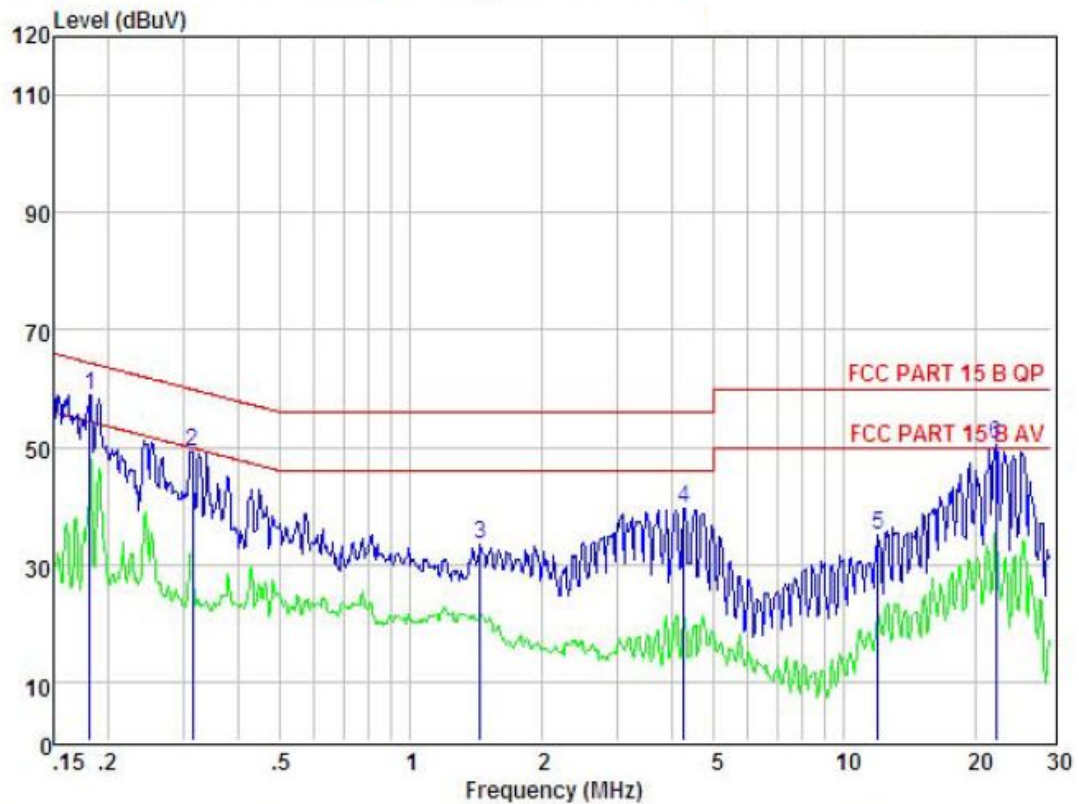
4.4. Test Data

Please to see the following pages



Conducted Emission Test Data

EUT: Smart TV Box M/N: CASTBOX-CSN2
Operating Condition: Charging & BT mode
Test Site: Shielded room
Operator: Jason
Test Specification: AC120V/60Hz
Polarization: Line
Note Tem:25°C Hum:50%



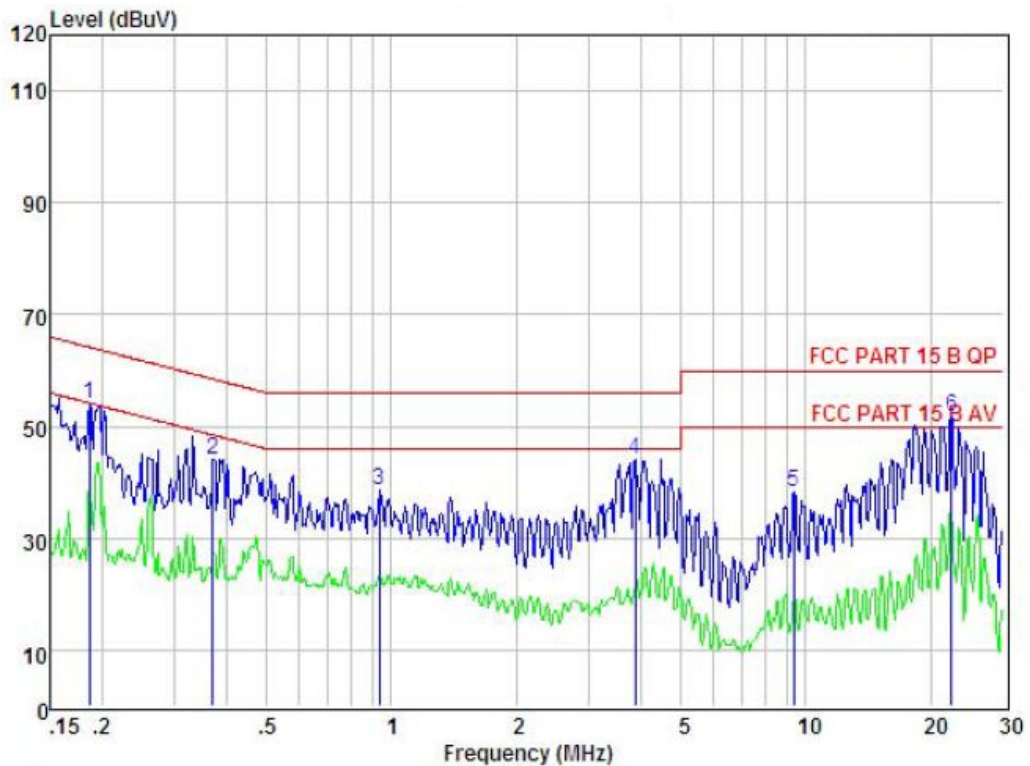
Item	Freq MHz	Read dBuV	LISN Factor dB	Preamp Factor dB	Cable Loss dB	Level dBuV	Limit dBuV	Margin dBuV	Remark
1	0.182	49.16	0.03	-9.72	0.10	59.01	64.42	-5.41	Peak
2	0.313	39.43	0.03	-9.72	0.10	49.28	59.88	-10.60	Peak
3	1.449	23.49	0.05	-9.71	0.10	33.35	56.00	-22.65	Peak
4	4.269	29.53	0.08	-9.69	0.12	39.42	56.00	-16.58	Peak
5	11.996	25.27	0.26	-9.46	0.22	35.21	60.00	-24.79	Peak
6	22.416	40.31	0.40	-9.54	0.41	50.66	60.00	-9.34	Peak

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss



Conducted Emission Test Data

EUT: Smart TV Box M/N: CASTBOX-CSN2
Operating Condition: Charging & BT mode
Test Site: Shielded room
Operator: Jason
Test Specification: AC 120V/60Hz
Polarization: Neutral
Note Tem:25°C Hum:50%



Item	Freq MHz	Read dBuV	LISN Factor dB	Preamp Factor dB	Cable Loss dB	Level dBuV	Limit dBuV	Margin dBuV	Remark
1	0.186	44.17	0.03	-9.72	0.10	54.02	64.20	-10.18	Peak
2	0.371	34.24	0.03	-9.72	0.10	44.09	58.47	-14.38	Peak
3	0.933	28.68	0.04	-9.71	0.10	38.53	56.00	-17.47	Peak
4	3.881	34.03	0.08	-9.69	0.12	43.92	56.00	-12.08	Peak
5	9.352	28.50	0.17	-9.38	0.19	38.24	60.00	-21.76	Peak
6	22.535	41.37	0.41	-9.54	0.41	51.73	60.00	-8.27	Peak

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss



5. Conducted Peak Output Power Test

5.1. Test Standard and Limit

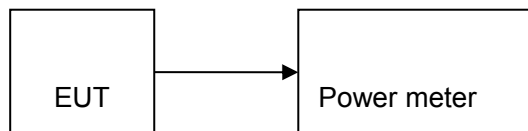
5.1.1 Test Standard

FCC Part15 C Section 15.247 (b)(3); KDB558074

5.1.2 Test Limit

FCC Part 15 Subpart C(15.247)		
Test Item	Limit	Frequency Range (MHz)
Peak Output Power	30dBm	2400~2483.5

5.2. Test Setup



5.3. Test Procedure

- (1) The EUT was directly connected to peak power meter and antenna output port as show in the block diagram above.
- (2) Measure out each mode and each bands peak output power of EUT.
- (3) The EUT was set to continuously transmitting in the max power during the test.

5.4. Test Data

Channel Number	Channel Frequency (MHz)	Test Result (dBm)	Limit (dBm)	Judgment
CH 00	2402	-7.82	30	PASSED
CH 20	2442	-5.42	30	PASSED
CH 39	2480	-4.97	30	PASSED



6. Occupy Bandwidth Test

6.1. Test Standard and Limit

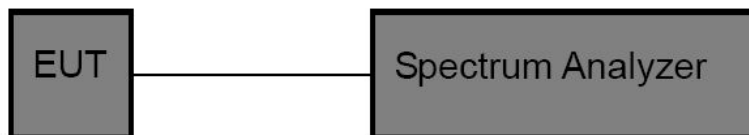
6.1.1 Test Standard

FCC Part15 C Section 15.247 (a)(2); KDB558074

6.1.2 Test Limit

FCC Part 15 Subpart C(15.247)		
Test Item	Limit	Frequency Range (MHz)
Bandwidth	>500kHz	2400~2483.5

6.2. Test Setup



6.3. Test Procedure

Refer to KDB558074 v03r01 (DTS Measure Guidance) Section 8.0

6.4. Test Data

Channel Number	Channel Frequency	6dB Bandwidth (MHz)	Limit(kHz)	Judgment
CH 00	2402(MHz)	0.697	>500	PASSED
CH 20	2442(MHz)	0.701	>500	PASSED
CH 39	2480(MHz)	0.694	>500	PASSED
Remark: Test plot as follows				



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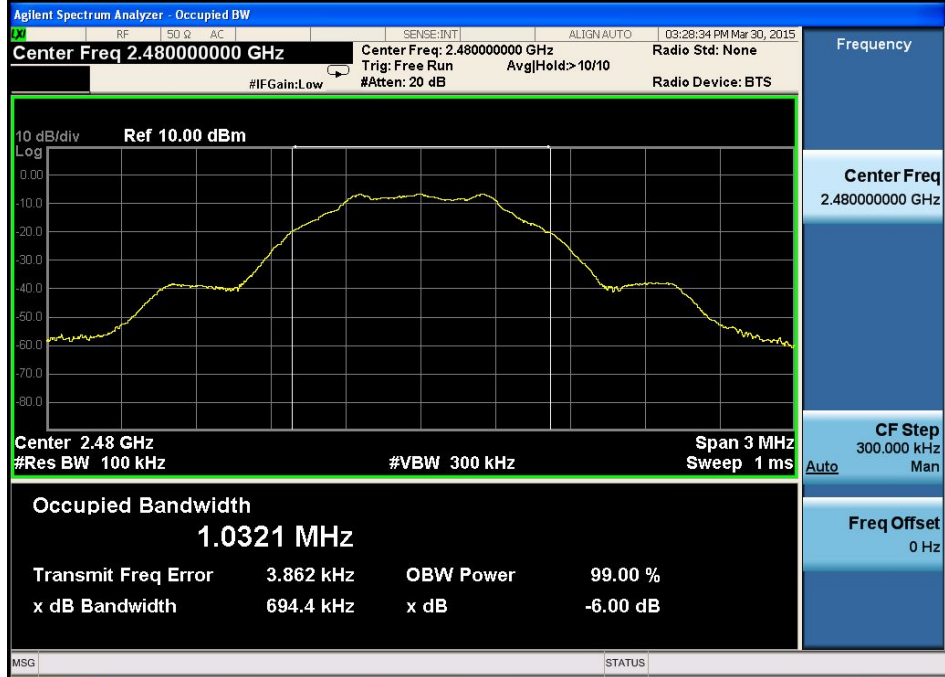


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2480MHz





7. Power Spectral Density Test

7.1. Test Standard and Limit

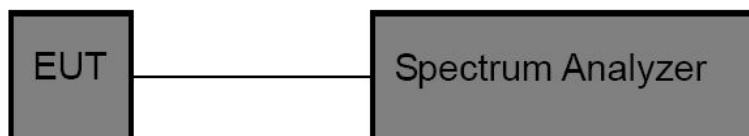
7.1.1 Test Standard

FCC Part15 C Section 15.247 (e); KDB558074

7.1.2 Test Limit

FCC Part 15 Subpart C(15.247)		
Section	Test Item	Limit
15.247(e)	Power Spectral Density Test	8dBm

7.2. Test Setup



7.3. Test Procedure

Refer to KDB558074 v03r01 (DTS Measure Guidance) Section 10.0

7.4. Test Data

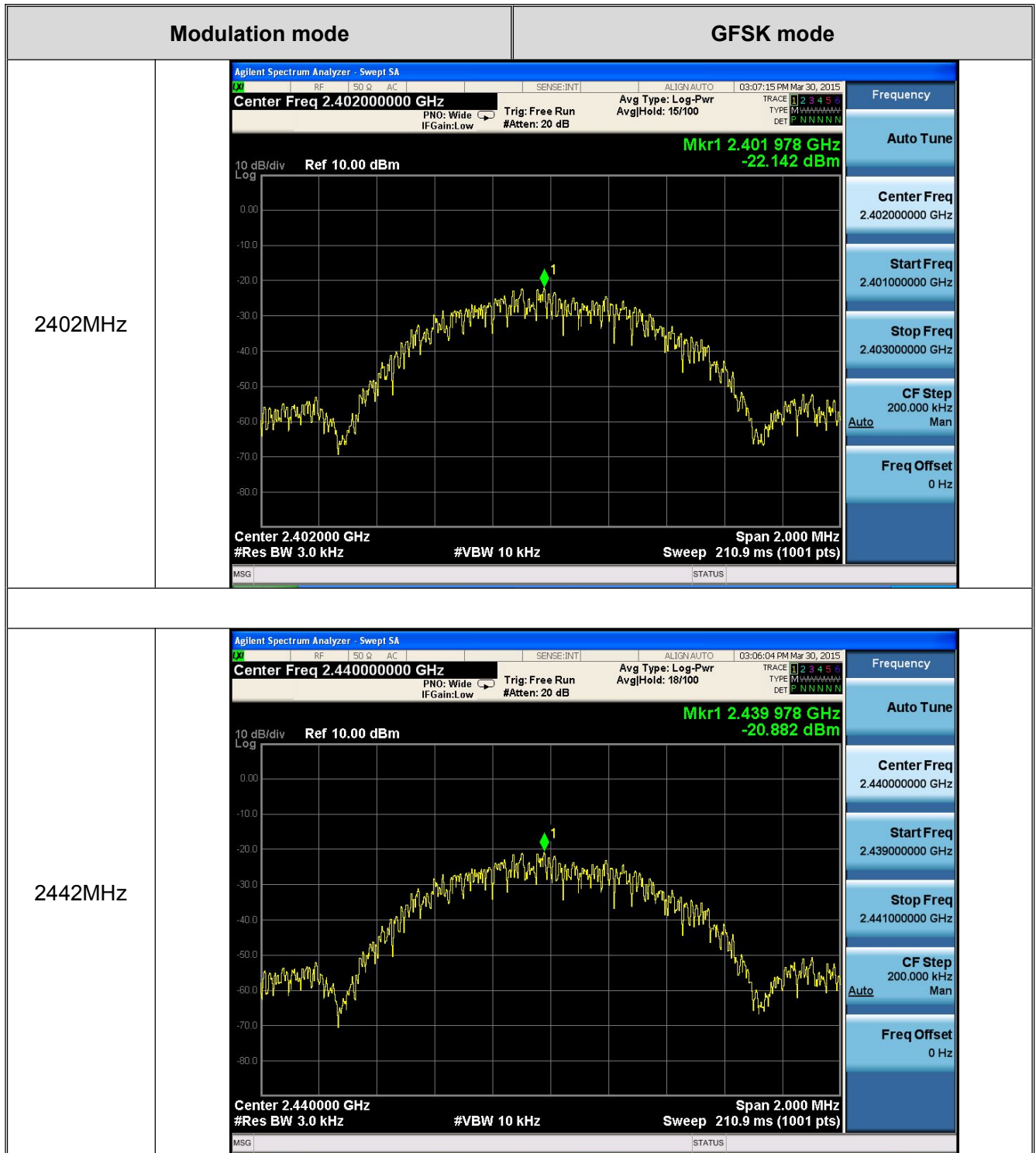
Channel Number	Channel Frequency	Power Spectral Density (dBm/3KHz)	Limit (dBm/KHz)	Judgment
CH 00	2402(MHz)	-22.142	8.0	PASSED
CH 20	2442(MHz)	-20.882	8.0	PASSED
CH 39	2480(MHz)	-20.324	8.0	PASSED
Remark: Test plot as follows				



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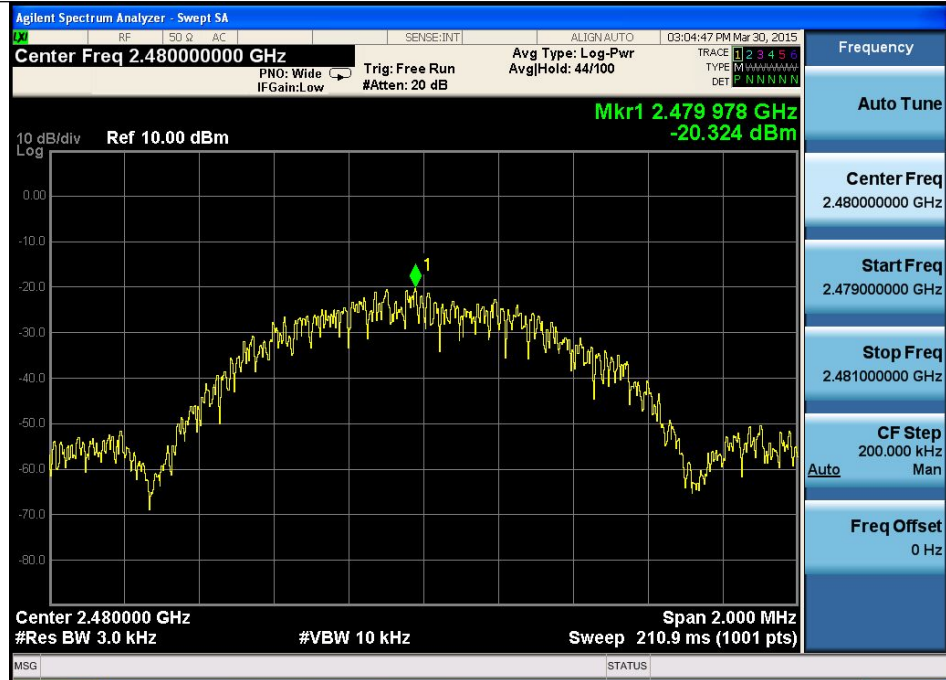


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2480MHz





8. Band Edge Requirement (Conducted Emission Method)

8.1. Test Standard and Limit

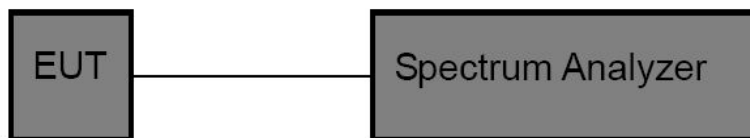
8.1.1 Test Standard

FCC Part15 C Section 15.247 (d); KDB558074

8.1.2 Test Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

8.2. Test Setup



8.3. Test Procedure

Refer to KDB558074 v03r01 (DTS Measure Guidance) Section 12.0

8.4. Test Data

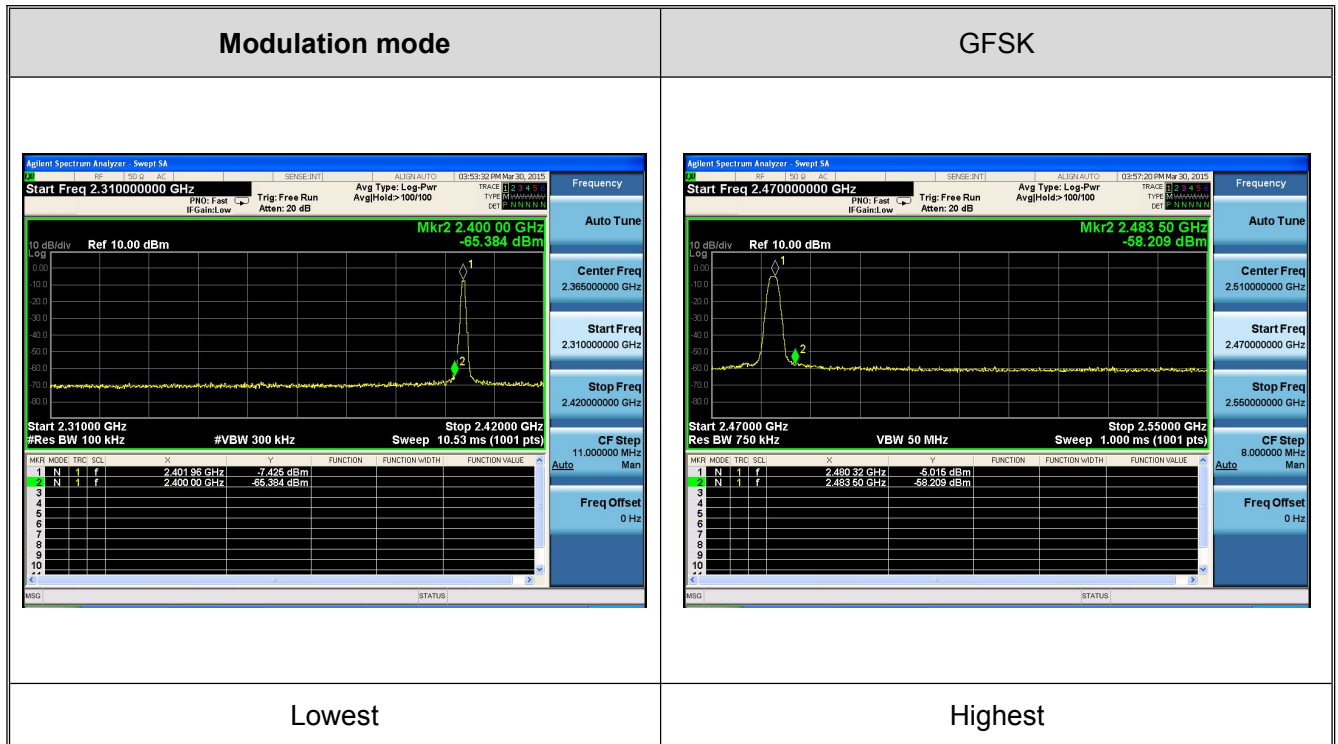
Test plot as follows



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9. Band Edge Requirement (Radiated Emission Method)

9.1. Test Standard and Limit

9.1.1 Test Standard

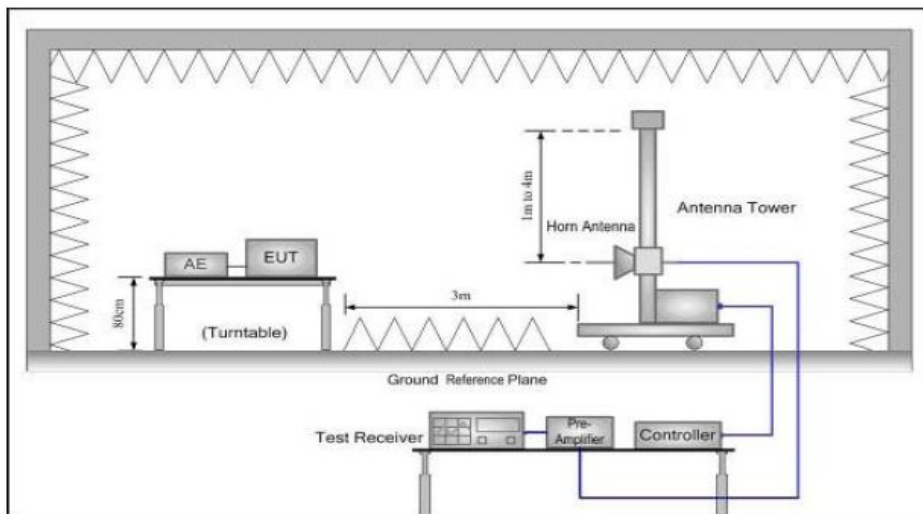
FCC Part15 C Section 15.209 and 15.205

9.1.2 Test Limit

Radiated Emission Test Limit

Frequency	Limit (dB μ V/m @3m)	Remark
Above 1GHz	54.00	Average value
	74.00	Peak value

9.2. Test Setup



9.3. Test Procedure

- 1) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- 2) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 3) The antenna height 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.



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- 4) 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.
- 5) The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. Peak Value: RBW=1MHz, VBW=3MHz; Average value: RBW=1MHz, VBW=10Hz
- 6) If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

9.4. Test Data

Remark:

1. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case.

Test mode: GFSK					Test channel: Lowest				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Level
2400.00	24.32	27.58	5.67	0	57.57	74	-16.43	H	PEAK
2400.00	25.13	27.58	5.67	0	58.38	74	-15.62	V	PEAK
2400.00	14.71	27.58	5.67	0	47.96	54	-6.04	H	AVG.
2400.00	14.87	27.58	5.67	0	48.12	54	-5.88	V	AVG.
Test mode: GFSK					Test channel: Highest				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Level
2483.50	25.87	27.52	5.7	0	59.09	74	-14.91	H	PEAK
2483.50	25.00	27.52	5.7	0	58.22	74	-15.78	V	PEAK
2483.50	17.73	27.52	5.7	0	50.95	54	-3.05	H	AVG.
2483.50	17.01	27.52	5.7	0	50.23	54	-3.77	V	AVG.

Remark:

1. Final Level = Read Level + Antenna Factor + Cable Loss - Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.



10. Spurious Emission

10.1. Test Standard and Limit

10.1.1 Test Standard

FCC Part15 C Section 15.209 and 15.205

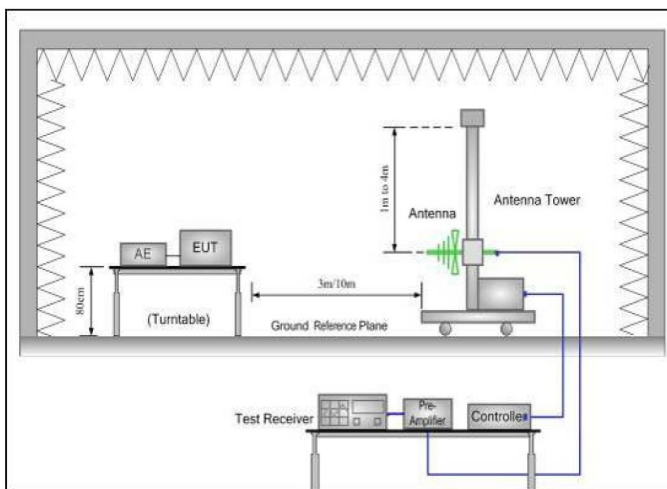
10.1.2 Test Limit

Frequency (MHz)	Limit (dB μ V/m)	
	At 3m Distance	
30MHz~88MHz	40	Quasi-peak
88MHz~216MHz	43.5	Quasi-peak
216MHz~960MHz	46	Quasi-peak
960MHz~1000MHz	54	Quasi-peak
Above 1000MHz	54	Average
	74	Peak

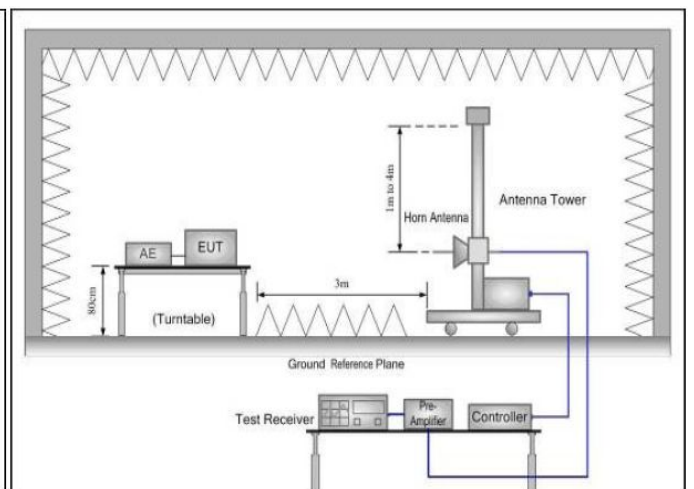
Remark: 1. The lower limit shall apply at the transition frequency.

10.2. Test Setup

Below 1GHz



Above 1GHz



10.3. Test Procedure

- 1) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.



- 2) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 3) The antenna height 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.
- 4) 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.
- 5) The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
Peak value: RBW=1MHz, VBW=3MHz;
Average value: RBW=1MHz, VBW=10Hz;
QP Value: RBW=120kHz, VBW=300kHz
- 6) If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

10.4. Test Data

Remark:

1. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case.
2. 9 kHz to 30 MHz is noise floor, so only shows the data of above 30MHz in this report.



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Radiated Emission Test Data (Below 1GHz)

EUT: Smart TV Box M/N: CASTBOX-CSN2

Operating Condition: Bluetooth TX mode

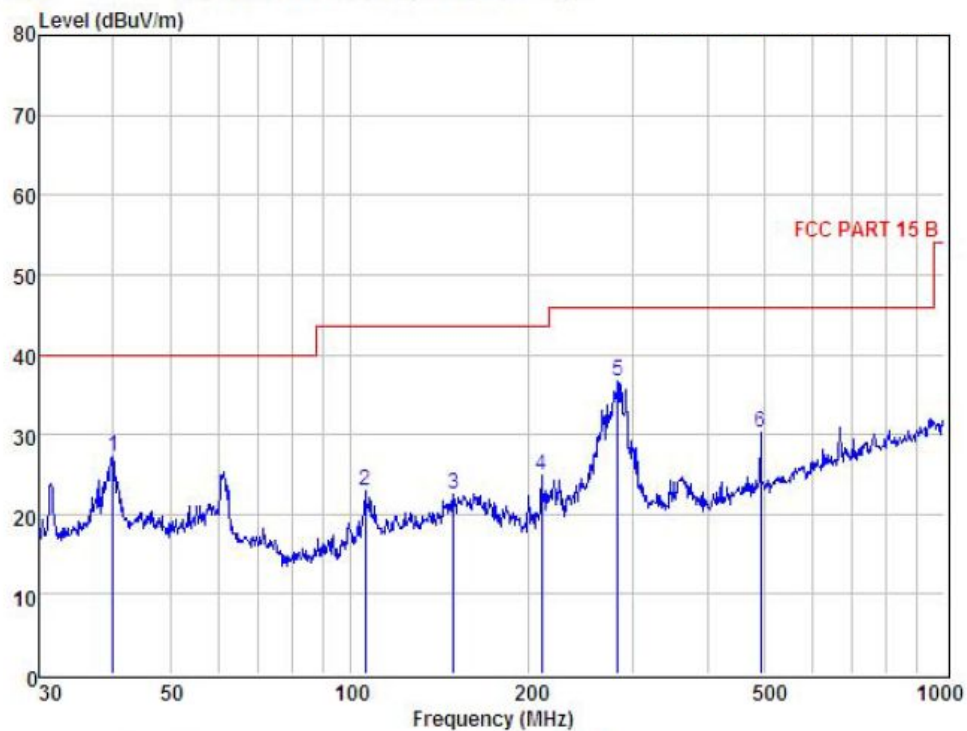
Test Site: 3m chamber

Operator: Jason

Test Specification: AC120V/60Hz

Polarization: Horizontal

Note Tem:23°C Hum:50%



Item	Freq MHz	Read Level dBuV	Antenna Factor dB	Preamp Factor dB	Cable Loss dB	Level dBuV	Limit dBuV	Margin dBuV	Remark
1	39.99	45.78	14.07	32.88	0.17	27.14	40.00	-12.86	QP
2	106.39	44.36	10.93	32.76	0.42	22.95	43.50	-20.55	QP
3	149.49	40.99	14.03	32.82	0.35	22.55	43.50	-20.95	QP
4	210.05	46.87	10.07	32.73	0.62	24.83	43.50	-18.67	QP
5	281.99	56.40	12.41	32.69	0.47	36.59	46.00	-9.41	QP
6	490.74	44.55	16.41	31.74	1.08	30.30	46.00	-15.70	QP

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss



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Radiated Emission Test Data (Below 1GHz)

EUT: Smart TV Box M/N: CASTBOX-CSN2

Operating Condition: Bluetooth TX mode

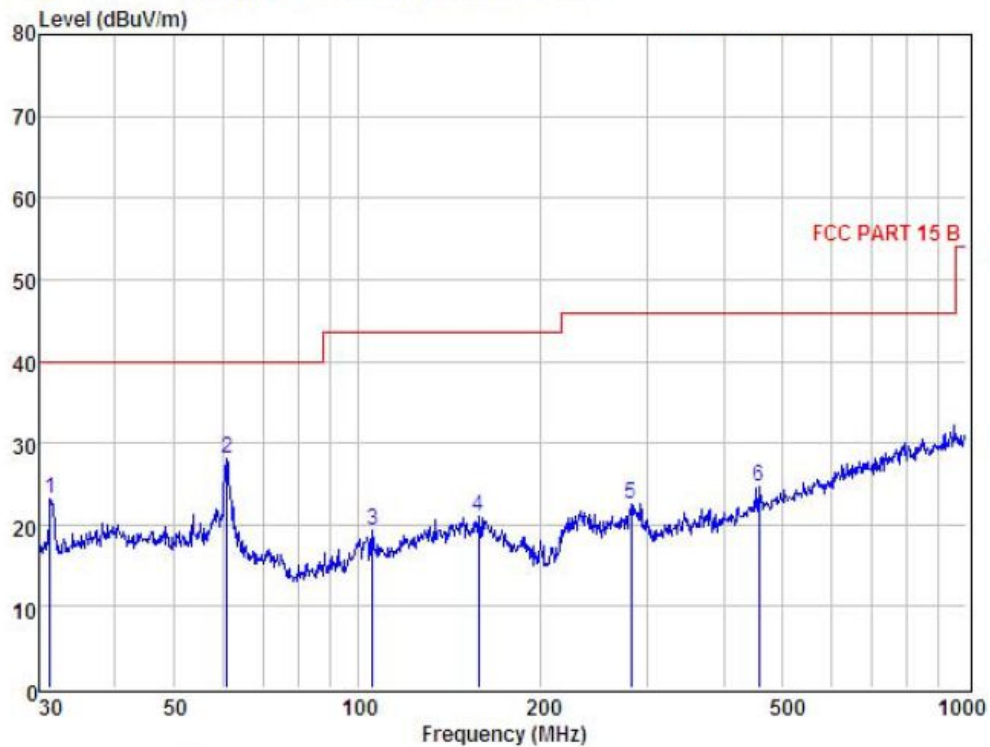
Test Site: 3m chamber

Operator: Jason

Test Specification: AC120V/60Hz

Polarization: Vertical

Note Tem:23°C Hum:50%



Item	Freq MHz	Read Level dBuV	Antenna Factor dB	Preamplifier Factor dB	Cable Loss dB	Level dBuV	Limit dBuV	Margin dBuV	Remark
1	31.29	42.58	13.28	32.75	0.07	23.18	40.00	-16.82	QP
2	61.13	48.20	12.36	32.70	0.17	28.03	40.00	-11.97	QP
3	106.01	40.87	10.74	32.76	0.40	19.25	43.50	-24.25	QP
4	158.11	39.20	14.14	32.81	0.39	20.92	43.50	-22.58	QP
5	281.01	42.33	12.41	32.69	0.53	22.58	46.00	-23.42	QP
6	455.91	39.41	16.02	32.03	1.21	24.61	46.00	-21.39	QP

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss



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Radiated Emission Test Data (Above 1GHz)

Test mode: GFSK					Test channel: Lowest				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Level
4804.00	58.13	31.53	8.9	40.24	58.32	74.00	-15.68	V	PEAK
7206.00	49.84	36.47	10.59	41.24	55.66	74.00	-18.34	V	PEAK
9608.00	*					74.00		V	PEAK
12010.00	*					74.00		V	PEAK
14412.00	*					74.00		V	PEAK
16814.00	*					74.00		V	PEAK
4804.00	57.63	31.53	8.9	40.24	57.82	74.00	-16.18	H	PEAK
7206.00	50.73	36.47	10.59	41.24	56.55	74.00	-17.45	H	PEAK
9608.00	*					74.00		H	PEAK
12010.00	*					74.00		H	PEAK
14412.00	*					74.00		H	PEAK
16814.00	*					74.00		H	PEAK
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Level
4804.00	46.77	31.53	8.9	40.24	46.96	54.00	-7.04	V	AVG.
7206.00	38.92	36.47	10.59	41.24	44.74	54.00	-9.26	V	AVG.
9608.00	*					54.00		V	AVG.
12010.00	*					54.00		V	AVG.
14412.00	*					54.00		V	AVG.
16814.00	*					54.00		V	AVG.
4804.00	45.17	31.53	8.9	40.24	45.36	54.00	-8.64	H	AVG.
7206.00	38.29	36.47	10.59	41.24	44.11	54.00	-9.89	H	AVG.
9608.00	*					54.00		H	AVG.
12010.00	*					54.00		H	AVG.
14412.00	*					54.00		H	AVG.
16814.00	*					54.00		H	AVG.

Remark:

1. Final Level = Read Level + Antenna Factor + Cable Loss – Preamplifier Factor
2. “*”, means this data is the too weak instrument of signal is unable to test.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.



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Radiated Emission Test Data (Above 1GHz)

Test mode: GFSK					Test channel: Middle				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Level
4884.00	55.18	31.58	8.98	40.15	55.59	74.00	-18.41	V	PEAK
7326.00	50.65	36.47	10.69	41.15	56.66	74.00	-17.34	V	PEAK
9768.00	*					74.00		V	PEAK
12210.00	*					74.00		V	PEAK
14652.00	*					74.00		V	PEAK
17094.00	*					74.00		V	PEAK
4884.00	56.82	31.58	8.98	40.15	57.23	74.00	-16.77	H	PEAK
7326.00	51.39	36.47	10.69	41.15	57.4	74.00	-16.6	H	PEAK
9768.00	*					74.00		H	PEAK
12210.00	*					74.00		H	PEAK
14652.00	*					74.00		H	PEAK
17094.00	*					74.00		H	PEAK
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Level
4884.00	44.34	31.58	8.98	40.15	44.75	54.00	-9.25	V	AVG.
7326.00	41.56	36.47	10.69	41.15	47.57	54.00	-6.43	V	AVG.
9768.00	*					54.00		V	AVG.
12210.00	*					54.00		V	AVG.
14652.00	*					54.00		V	AVG.
17094.00	*					54.00		V	AVG.
4884.00	45.82	31.58	8.98	40.15	46.23	54.00	-7.77	H	AVG.
7326.00	40.92	36.47	10.69	41.15	46.93	54.00	-7.07	H	AVG.
9768.00	*					54.00		H	AVG.
12210.00	*					54.00		H	AVG.
14652.00	*					54.00		H	AVG.
17094.00	*					54.00		H	AVG.

Remark:

- Final Level = Read Level + Antenna Factor + Cable Loss – Preamplifier Factor
- “*”, means this data is the too weak instrument of signal is unable to test.
- The emission levels of other frequencies are very lower than the limit and not show in test report



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Radiated Emission Test Data (Above 1GHz)

Test mode: GFSK					Test channel: Highest				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Level
4960.00	56.82	31.69	9.08	40.03	57.56	74.00	-16.44	V	PEAK
7440.00	48.27	36.6	10.8	41.05	54.62	74.00	-19.38	V	PEAK
9920.00	*					74.00		V	PEAK
12400.00	*					74.00		V	PEAK
14880.00	*					74.00		V	PEAK
17360.00	*					74.00		V	PEAK
4960.00	56.24	31.69	9.08	40.03	56.98	74.00	-17.02	H	PEAK
7440.00	47.73	36.6	10.8	41.05	54.08	74.00	-19.92	H	PEAK
9920.00						74.00		H	PEAK
12400.00	*					74.00		H	PEAK
14880.00	*					74.00		H	PEAK
17360.00	*					74.00		H	PEAK
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Pol.	Level
4960.00	46.82	31.69	9.08	40.03	47.56	54.00	-6.44	V	AVG.
7440.00	38.84	36.6	10.8	41.05	45.19	54.00	-8.81	V	AVG.
9920.00	*					54.00		V	AVG.
12400.00	*					54.00		V	AVG.
14880.00	*					54.00		V	AVG.
17360.00	*					54.00		V	AVG.
4960.00	47.28	31.69	9.08	40.03	48.02	54.00	-5.98	H	AVG.
7440.00	36.28	36.6	10.8	41.05	42.63	54.00	-11.37	H	AVG.
9920.00	*					54.00		H	AVG.
12400.00	*					54.00		H	AVG.
14880.00	*					54.00		H	AVG.
17360.00	*					54.00		H	AVG.

Remark:

- Final Level = Read Level + Antenna Factor + Cable Loss – Preamplifier Factor
- “*”, means this data is the too weak instrument of signal is unable to test.
- The emission levels of other frequencies are very lower than the limit and not show in test report.