



TEST REPORT

FCC ID: 2AKRP-BVS-ZR215

For

SHENZHEN BVISION TECHNOLOGY CO.,LTD

All in one PCS

Model No. : See in Annex I and Annex II.

Trade Name : N/A

Prepared for : SHENZHEN BVISION TECHNOLOGY CO.,LTD

Address : Floor 4, Buliding A, Hongqiao Industry Park, No. 547, Nanhuan Road,
Shajing, Baoan, Shenzhen, China, 518104

Prepared by : Shenzhen Alpha Product Testing Co., Ltd.

Address : Building B, East Area of Nanchang Second, Industrial Zone, Gushu 2nd Road,
Bao'an, Shenzhen, China

Report No. : T1862248 08

Date of Receipt : November 09, 2016

Date of Test : November 09-December 17, 2016

Date of Report : December 17, 2016

Version Number : REV0

Contents

1. General Information.....	5
1.1. Description of Device (EUT)	5
1.2. Accessories of device (EUT)	6
1.3. Test Lab information	6
2. Summary of test	7
2.1. Summary of test result	7
2.2. Assistant equipment used for test.....	7
2.3. Block Diagram	8
2.4. Test mode	8
2.5. Test Conditions.....	9
2.6. Measurement Uncertainty (95% confidence levels, k=2).....	9
2.7. Test Equipment.....	10
3. Maximum Peak Output power	11
3.1. Limit.....	11
3.2. Test Procedure.....	11
3.3. Test Setup	11
3.4. Test Result	11
4. Bandwidth	12
4.1. Limit.....	12
4.2. Test Procedure	12
4.3. Test Result	12
5. Carrier Frequency Separation.....	18
5.1. Limit.....	18
5.2. Test Procedure.....	18
5.3. Test Result	18
6. Number Of Hopping Channel	21
6.1. Limit.....	21
6.2. Test Procedure	21
6.3. Test Result	21
7. Dwell Time.....	24
7.1. Test limit	24
7.2. Test Procedure.....	24
7.3. Test Results	24
8. Radiated emissions.....	31
8.1. Limit.....	31
8.2. Block Diagram of Test setup	32
8.3. Test Procedure	33
8.4. Test Result	33
9. Band Edge Compliance	45
9.1. Block Diagram of Test Setup	45
9.2. Limit.....	45
9.3. Test Procedure	45
9.4. Test Result	45

10. Power Line Conducted Emissions	64
10.1. Block Diagram of Test Setup	64
10.2. Limit.....	64
10.3. Test Procedure.....	64
10.4. Test Result.....	65
11. Antenna Requirements.....	67
11.1. Limit.....	67
11.2. Result.....	67
12. Test setup photo	68
12.1. Photos of Radiated emission	68
12.2. Photos of Conducted Emission test.....	69
13. Photos of EUT	70

DECLARATION

Applicant : SHENZHEN BVISION TECHNOLOGY CO.,LTD
Manufacturer : SHENZHEN BVISION TECHNOLOGY CO.,LTD
Product : All in one PCS
(A) Model No. : See in Annex I and Annex II.
(B) Trade Name : N/A
(C) Power supply : DC 12V From Adapter with AC 120V/60Hz

Measurement Standard Used:

**FCC Rules and Regulations Part 15 Subpart C Section 15.247: 2016,
ANSI C63.4:2014; ANSI C63.10:2013**

The device described above is tested by Shenzhen Alpha Product Testing Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits both conducted and radiated emissions. The test results are contained in this test report and Shenzhen Alpha Product Testing Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After the test, our opinion is that EUT compliance with the requirement of the above standards.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen Alpha Product Testing Co., Ltd.

Tested by (name + signature).....:

Reak Yang
Test Engineer

Approved by (name + signature).....:

Simple Guan
Project Manager

Date of issue.....

December 17, 2016

1. General Information

1.1. Description of Device (EUT)

EUT : All in one PCS

Model No. : See in Annex I and Annex II.

DIFF. : There is no difference between all the models, except the appearance and model name, so this report performs the model BVS-ZR215.

Trade mark : N/A

Power supply : DC 12V From Adapter with AC 120V/60Hz

Radio Technology : Bluetooth 3.0 + EDR

Operation frequency : 2402-2480MHz

Modulation : GFSK, $\pi/4$ DQPSK, 8- DPSK

Antenna Type : Integral Antenna, max gain 0dBi.

Software version N/A

Hardware version Ver 4.1

Applicant : SHENZHEN BVISION TECHNOLOGY CO.,LTD

Address : Floor 4, Buliding A, Hongqiao Industry Park, No. 547, Nanhu Road, Shajing, Baoan, Shenzhen, China, 518104

Manufacturer : SHENZHEN BVISION TECHNOLOGY CO.,LTD

Address : Floor 4, Buliding A, Hongqiao Industry Park, No. 547, Nanhu Road, Shajing, Baoan, Shenzhen, China, 518104

Adapter : Input: AC100-240V, 1.0A, 50/60Hz
Output: DC 12V/3.0A
Model: ZL-D036WB1203000

1.2. Accessories of device (EUT)

Accessories : N/A

Type : N/A

1.3. Test Lab information

Shenzhen Alpha Product Testing Co., Ltd.

2F, Building B, East Area of Nanchang Second Industrial Zone,
Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China

FCC Registered No.: 203110

2. Summary of test

2.1. Summary of test result

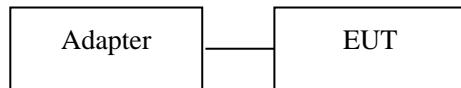
Description of Test Item	Standard	Results
Maximum Peak Output Power	FCC Part 15: 15.247(b)(1) ANSI C63.4 :2014	PASS
Bandwidth	FCC Part 15: 15.215 ANSI C63.4 :2014	PASS
Carrier Frequency Separation	FCC Part 15: 15.247(a)(1) ANSI C63.4 :2014	PASS
Number Of Hopping Channel	FCC Part 15: 15.247(a)(1)(iii) ANSI C63.4 :2014	PASS
Dwell Time	FCC Part 15: 15.247(a)(1)(iii) ANSI C63.4 :2014	PASS
Radiated Emission	FCC Part 15: 15.209 FCC Part 15: 15.247(d) ANSI C63.4 :2014	PASS
Band Edge Compliance	FCC Part 15: 15.247(d) ANSI C63.4 :2014	PASS
Power Line Conducted Emissions	FCC Part 15: 15.207 ANSI C63.4 :2014	PASS
Antenna requirement	FCC Part 15: 15.203	PASS
Note: Test with the test procedure Blue tool.		

2.2. Assistant equipment used for test

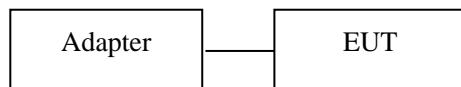
Description	:	Adapter
Manufacturer	:	UPRITE
Model No.	:	ZL-D036WB1203000

2.3. Block Diagram

1, For radiated emissions test: EUT was placed on a turn table, which is 0.8 meter high above ground for below 1GHz, 1.5 meter high above ground for above 1GHz. EUT was set into BT test mode by software before test.



2, For Power Line Conducted Emissions Test



2.4. Test mode

The test software was used to control EUT work in Continuous TX mode, and select test channel, wireless mode.

Tested mode, channel, and data rate information		
Mode	Channel	Frequency (MHz)
GFSK	Low :CH1	2402
	Middle: CH40	2441
	High: CH79	2480

Tested mode, channel, and data rate information		
Mode	Channel	Frequency (MHz)
$\pi /4$ DQPSK	Low :CH1	2402
	Middle: CH40	2441
	High: CH79	2480

Tested mode, channel, and data rate information		
Mode	Channel	Frequency (MHz)
8- DPSK	Low :CH1	2402
	Middle: CH40	2441
	High: CH79	2480

2.5. Test Conditions

Temperature range	21-25°C
Humidity range	40-75%
Pressure range	86-106kPa

2.6. Measurement Uncertainty (95% confidence levels, k=2)

Item	MU	Remark
Uncertainty for Conducted Emissions Test	2.71dB	
Uncertainty for Radiation Emission test in 3m chamber (below 30MHz)	2.13 dB	Polarize: V
	2.57dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.90dB	Polarize: V
	3.92dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz)	4.28dB	Polarize: H
	4.26dB	Polarize: V
Uncertainty for radio frequency	1×10^{-9}	
Uncertainty for conducted RF Power	0.16dB	
Uncertainty for temperature	0.2°C	
Uncertainty for humidity	1%	
Uncertainty for DC and low frequency voltages	0.06%	

2.7. Test Equipment

Equipment	Manufacture	Model No.	Serial No.	Due cal.	Cal Interval
3m Semi-Anechoic	CHENYU	N/A	N/A	2018.01.18	2Year
Spectrum analyzer	Agilent	E4407B	MY46185649	2017.01.16	1Year
Receiver	R&S	ESPI	101873	2017.01.16	1Year
Receiver	R&S	ESCI	101165	2017.01.16	1Year
Bilog Antenna	SCHWARZBECK	VULB 9168	VULB9168-438	2018.01.18	2Year
Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D(1201)	2018.01.20	2Year
L.I.S.N.#1	Schwarzbeck	NSLK8126	8126466	2017.01.16	1 Year
L.I.S.N.#2	ROHDE&SCHWA RZ	ENV216	101043	2017.01.16	1 Year
Cable	Resenberger	N/A	No.1	2017.01.16	1Year
Cable	SCHWARZBECK	N/A	No.2	2017.01.16	1Year
Cable	SCHWARZBECK	N/A	No.3	2017.01.16	1Year
Pre-amplifier	HP	HP8347A	2834A00455	2017.01.18	1Year
Pre-amplifier	Agilent	8449B	3008A02664	2017.01.18	1Year
vector Signal Generator	Agilent	N5182A	MY49060042	2017.11.16	1 Year
vector Signal Generator	Agilent	E4438C	US44271917	2017.11.16	1 Year
X-series USB Peak and Average Power Sensor	Agilent	U2021XA	MY54080020	2017.11.16	1 Year
X-series USB Peak and Average Power Sensor	Agilent	U2021XA	MY54110001	2017.11.16	1 Year
Signal Analyzer	Agilent	N9020A	MY48030494	2017.11.16	1 Year

3. Maximum Peak Output power

3.1. Limit

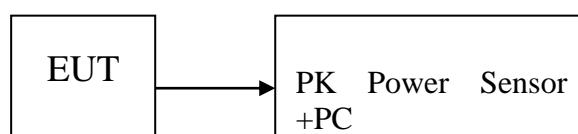
Please refer section 15.247.

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts, the e.i.r.p shall not exceed 4W

3.2. Test Procedure

The transmitter output is connected to the RF Power Meter. The RF Power Meter is set to the peak power detection.

3.3. Test Setup



3.4. Test Result

EUT: All in one PCS		M/N: BVS-ZR215			
Test date: 2016-12-14		Test site: RF site		Tested by: Reak	
Mode	Freq (MHz)	PK Output Power (dBm)	PK Output Power (mW)	Limit (dBm)	Margin (dB)
GFSK	2402	3.14	2.061	21	17.860
	2441	3.02	2.004	21	17.980
	2480	2.82	1.914	21	18.180
$\pi/4$ DQPSK,	2402	2.87	1.936	21	18.130
	2441	2.79	1.901	21	18.210
	2480	2.65	1.841	21	18.350
8- DPSK	2402	2.71	1.866	21	18.290
	2441	2.65	1.841	21	18.350
	2480	2.55	1.799	21	18.450
Conclusion: PASS					

4. Bandwidth

4.1. 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.

4.2. Test Procedure

The transmitter output was coupled to a spectrum analyzer via a antenna. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

4.3. Test Result

EUT: All in one PCS		M/N: BVS-ZR215		
Test date: 2016-12-14		Test site: RF site	Tested by: Reak	
Mode	Freq (MHz)	20dB Bandwidth (KHz)	Limit (kHz)	Conclusion
GFSK	2402	834.9	/	PASS
	2441	834.7	/	PASS
	2480	834.6	/	PASS
$\pi / 4$ DQPSK	2402	1117	/	PASS
	2441	1117	/	PASS
	2480	1118	/	PASS
8- DPSK	2402	1164	/	PASS
	2441	1165	/	PASS
	2480	1166	/	PASS

Orginal Test data For 20dB bandwidth

GFSK:





$\pi/4$ DQPSK:





8- DPSK:





5. Carrier Frequency Separation

5.1. Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW

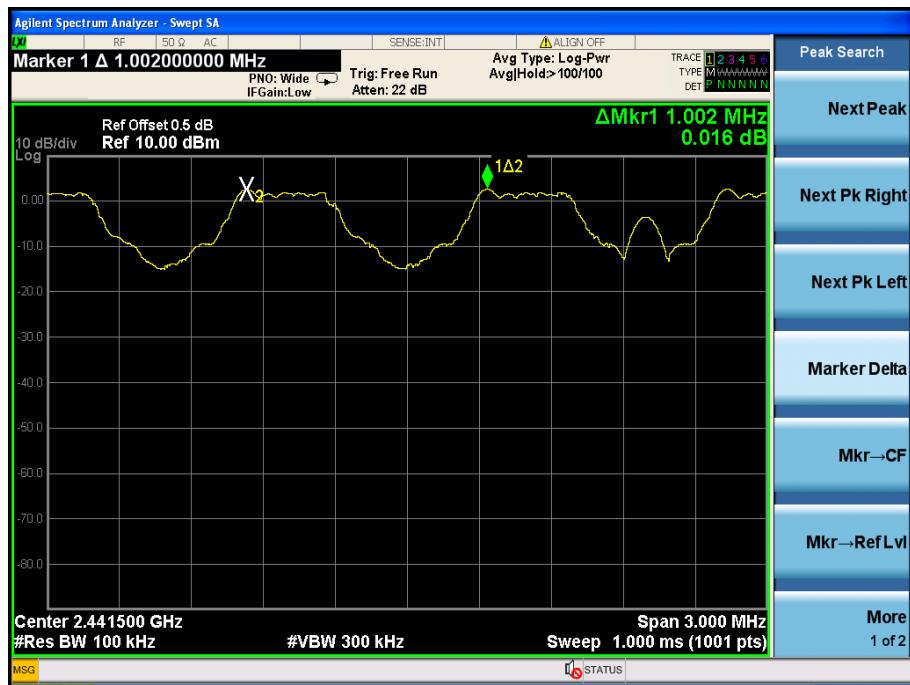
5.2. Test Procedure

The transmitter output was coupled to a spectrum analyzer via a antenna. The carrier frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW.

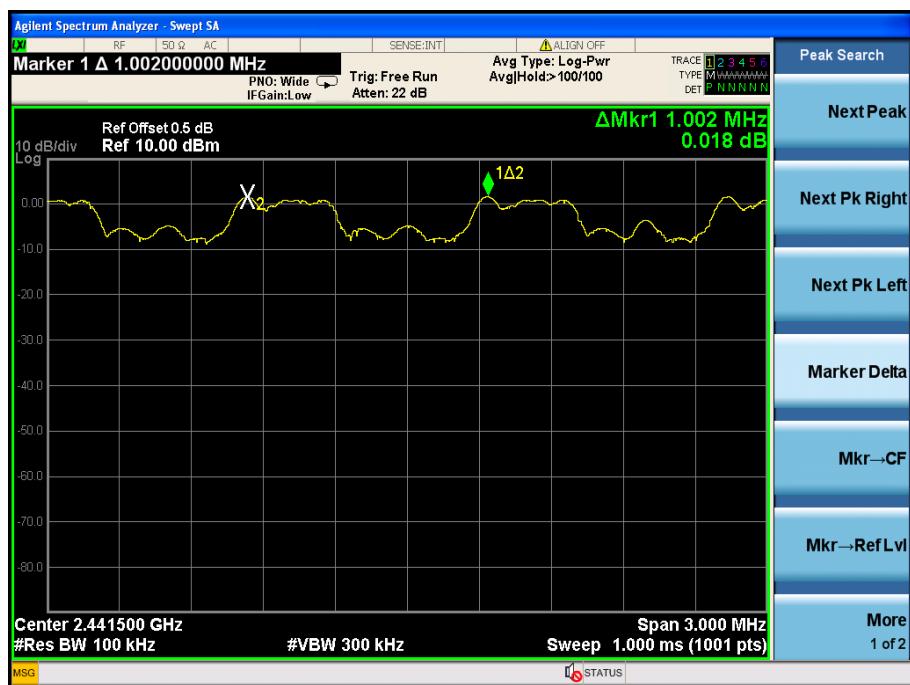
5.3. Test Result

EUT: All in one PCS M/N: BVS-ZR215				
Test date: 2016-12-14	Test site: RF site	Tested by: Reak		
Mode/Channel	Channel separation (MHz)	20dB Bandwidth (KHz)	Limit (KHz) 2/3 20dB bandwidth	Conclusion
GFSK	1.002	834.9	556.6	PASS
$\pi/4$ DQPSK	1.002	1118	745.333	PASS
8- DPSK	1.002	1166	777.333	PASS

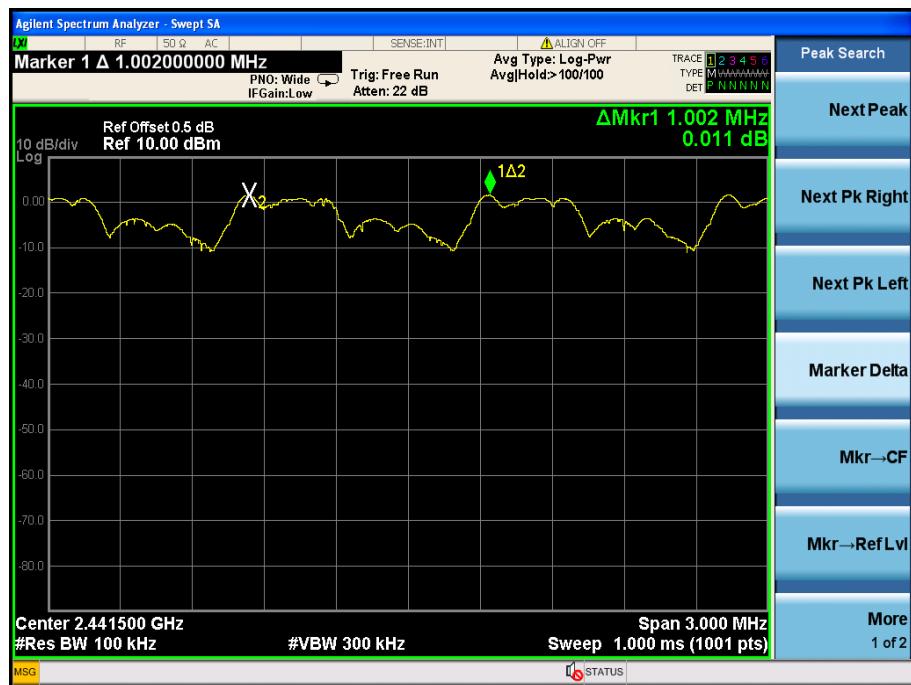
Orginal test data for channel separation
GFSK



$\pi/4$ DQPSK



8- DPSK:



6. Number Of Hopping Channel

6.1. Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels

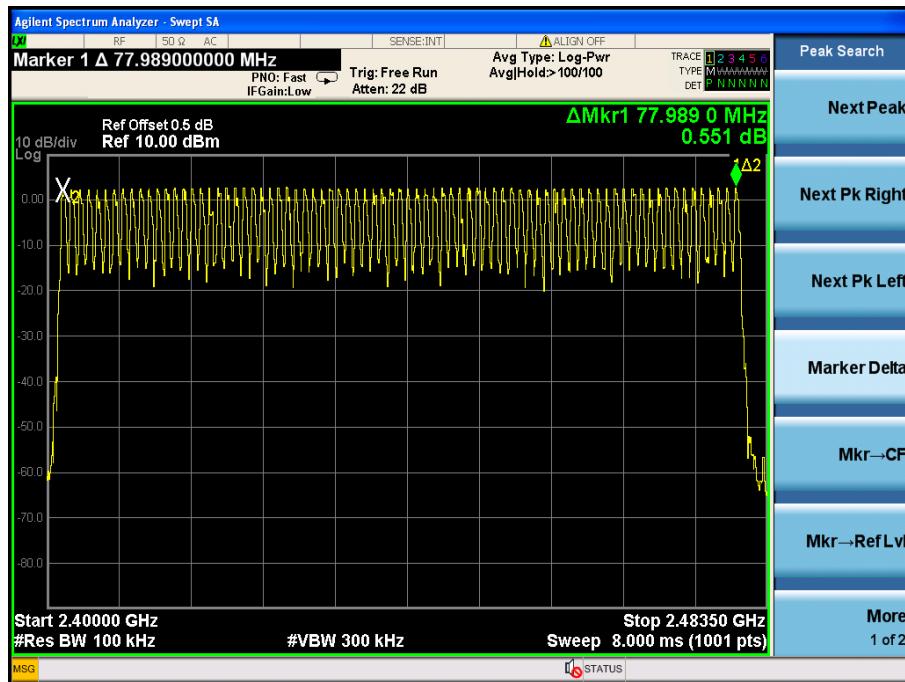
6.2. Test Procedure

The transmitter output was coupled to a spectrum analyzer via a antenna. The number of hopping channel was measured by spectrum analyzer with 300kHz RBW and 1MHz VBW.

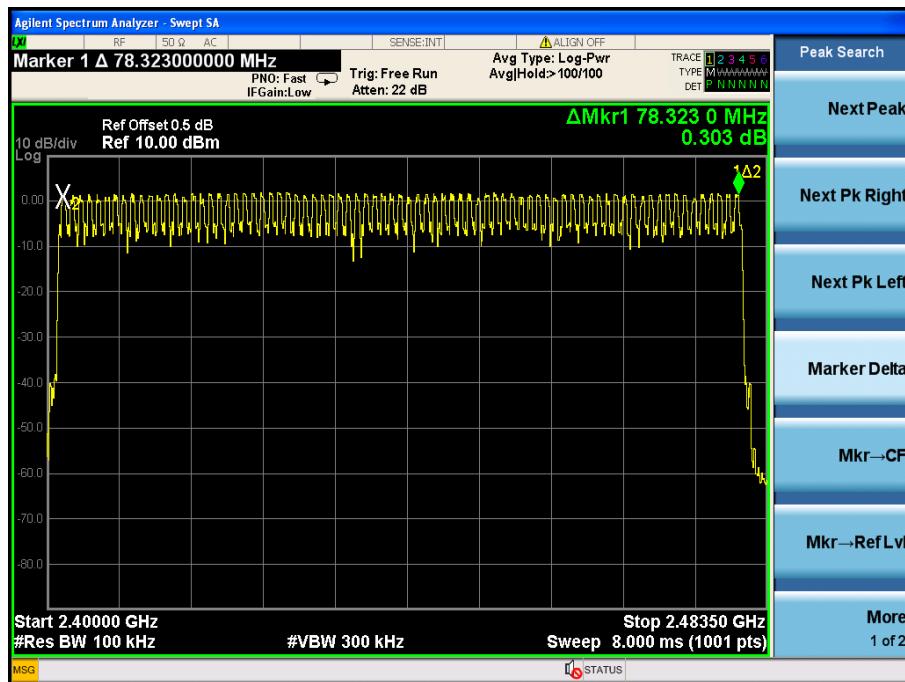
6.3. Test Result

EUT: All in one PCS		M/N: BVS-ZR215	
Test date: 2016-12-14		Test site: RF site	Tested by: Reak
Mode	Number of hopping channel	Limit	Conclusion
GFSK	79	>15	PASS
$\pi /4$ DQPSK	79	>15	PASS
8- DPSK	79	>15	PASS

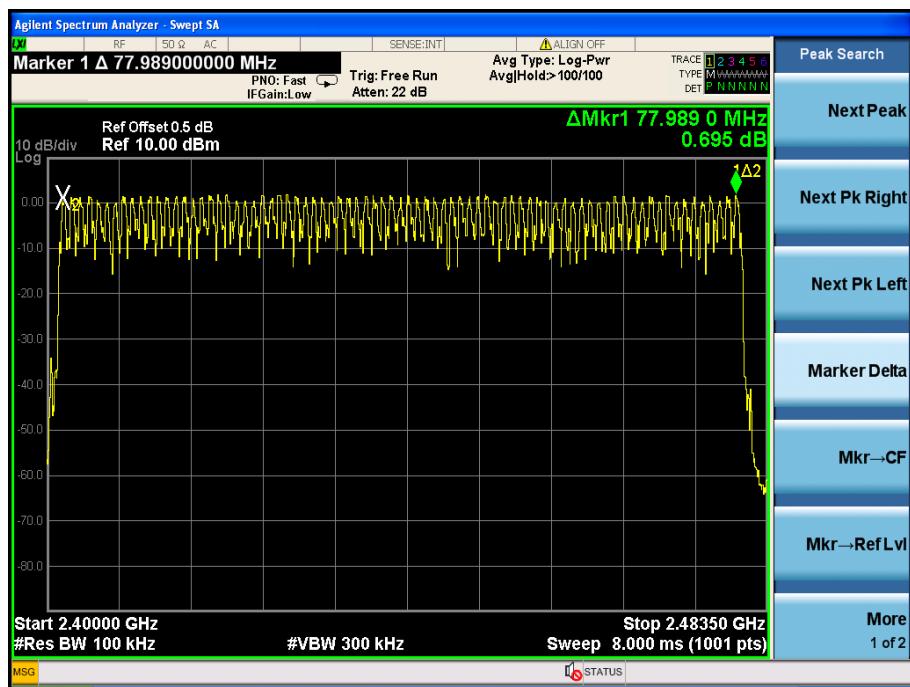
Original test data for hopping channel number
GFSK



$\pi/4$ DQPSK



8- DPSK:



7. Dwell Time

7.1. Test limit

Please refer section 15.247

According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz. The average time of occupancy on any frequency shall not greater than 0.4 s within period of 0.4 seconds multiplied by the number of hopping channel employed.

7.2. Test Procedure

7.2.1. Place the EUT on the table and set it in transmitting mode.

7.2.2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

7.2.3. Set center frequency of spectrum analyzer = operating frequency.

7.2.4. Set the spectrum analyzer as RBW, VBW=1MHz, Span = 0Hz, Sweep = auto.

7.2.5. Repeat above procedures until all frequency measured were complete.

7.3. Test Results

PASS.

Detailed information please see the following page.

EUT: All in one PCS M/N: BVS-ZR215						
Test date: 2016-12-14		Test site: RF site		Tested by: Reak		
Mode	Data Packet	Frequency (MHz)	Pulse Duration (ms)	Dwell Time (s)	Limit (s)	Conclusion
GFSK	DH1	2441	0.363	0.232	<0.4	PASS
	DH3	2441	1.619	0.345	<0.4	PASS
	DH5	2441	2.865	0.367	<0.4	PASS
$\pi/4$ DQPSK	DH1	2441	0.369	0.236	<0.4	PASS
	DH3	2441	1.622	0.346	<0.4	PASS
	DH5	2441	2.87	0.367	<0.4	PASS
8- DPSK	DH1	2441	0.373	0.239	<0.4	PASS
	DH3	2441	1.616	0.345	<0.4	PASS
	DH5	2441	2.868	0.367	<0.4	PASS

Note: 1 A period time = 0.4 (s) * 79 = 31.6(s)

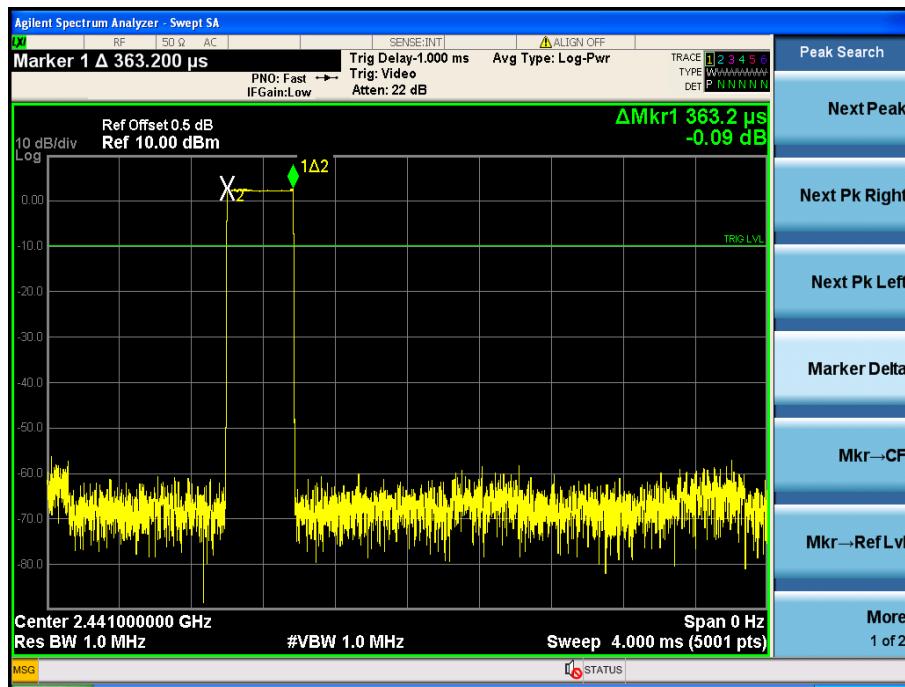
2 DH1 time slot = Pulse Duration * (1600/(1*79)) * A period time/1000

DH3 time slot = Pulse Duration * (1600/(3*79)) * A period time/1000

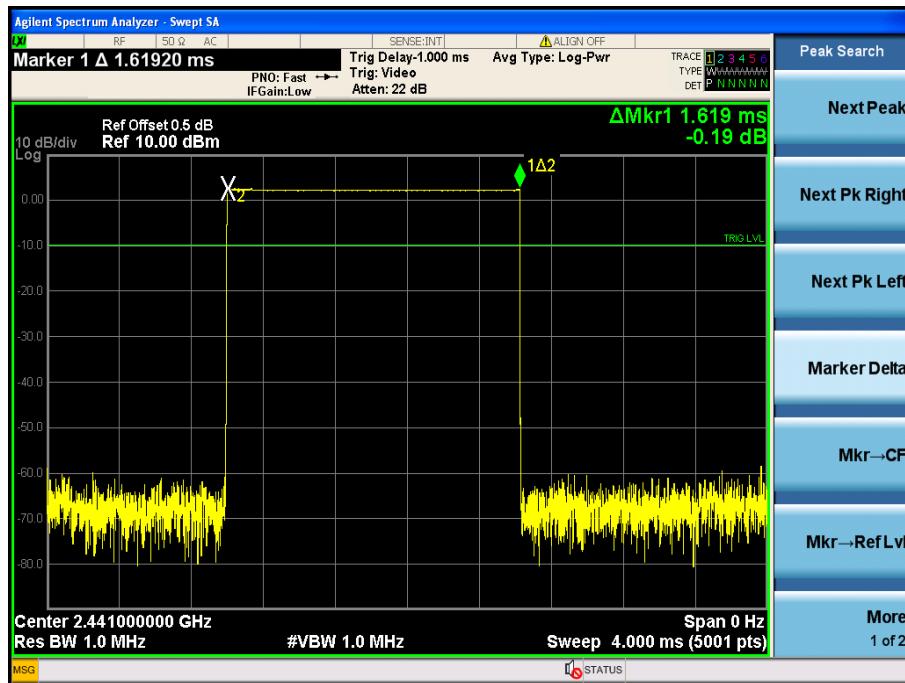
DH5 time slot = Pulse Duration * (1600/(5*79)) * A period time/1000

GFSK

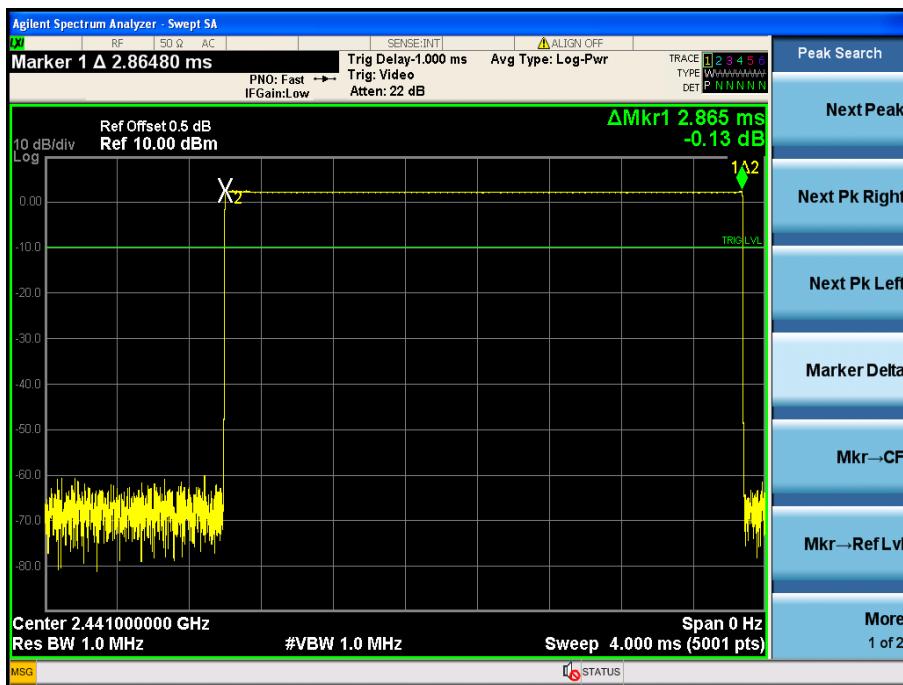
DH1:



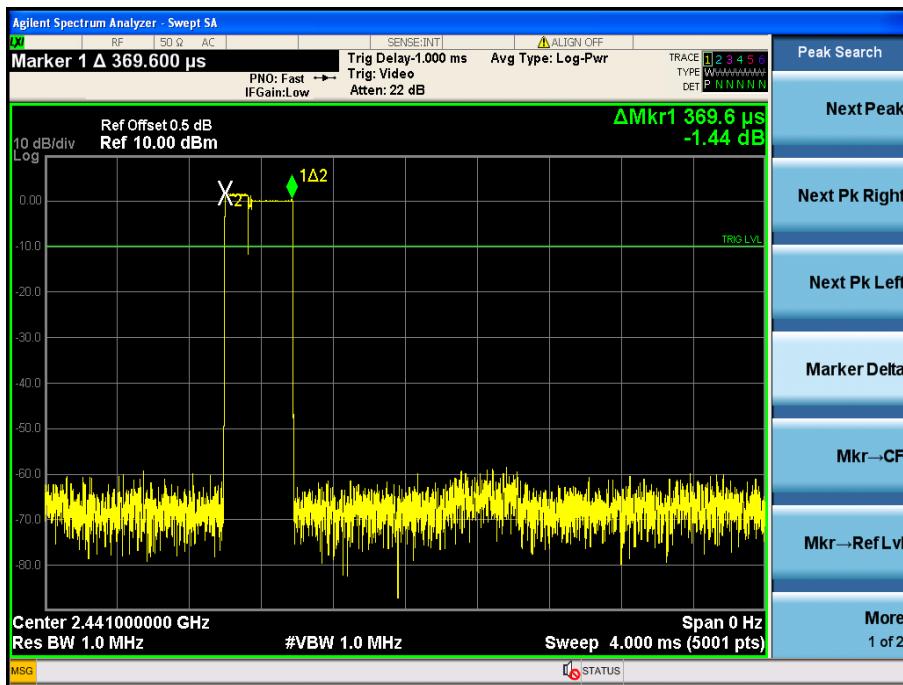
DH3:



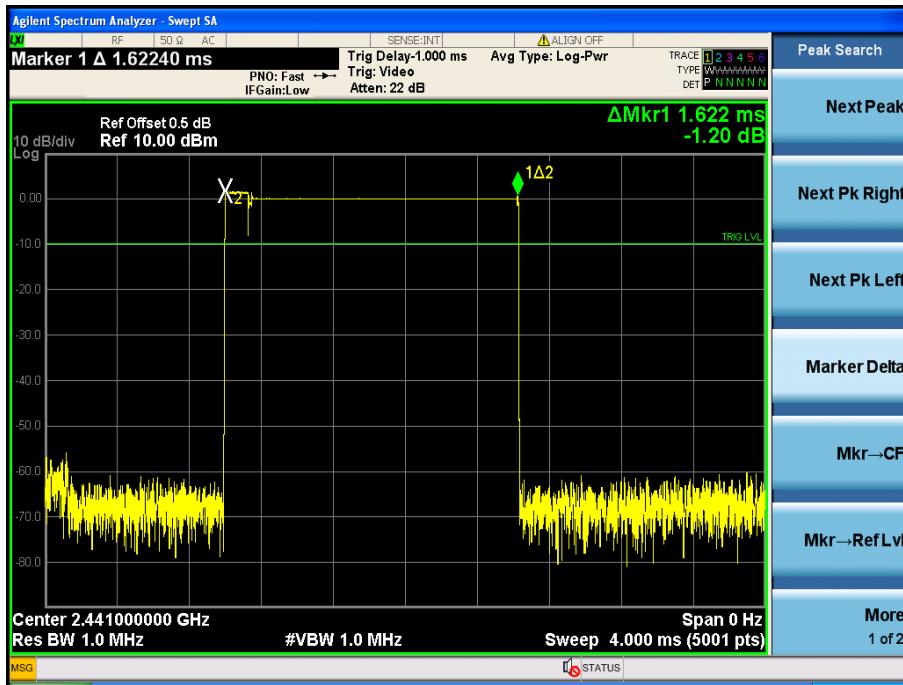
DH5

 $\pi/4$ DQPSK

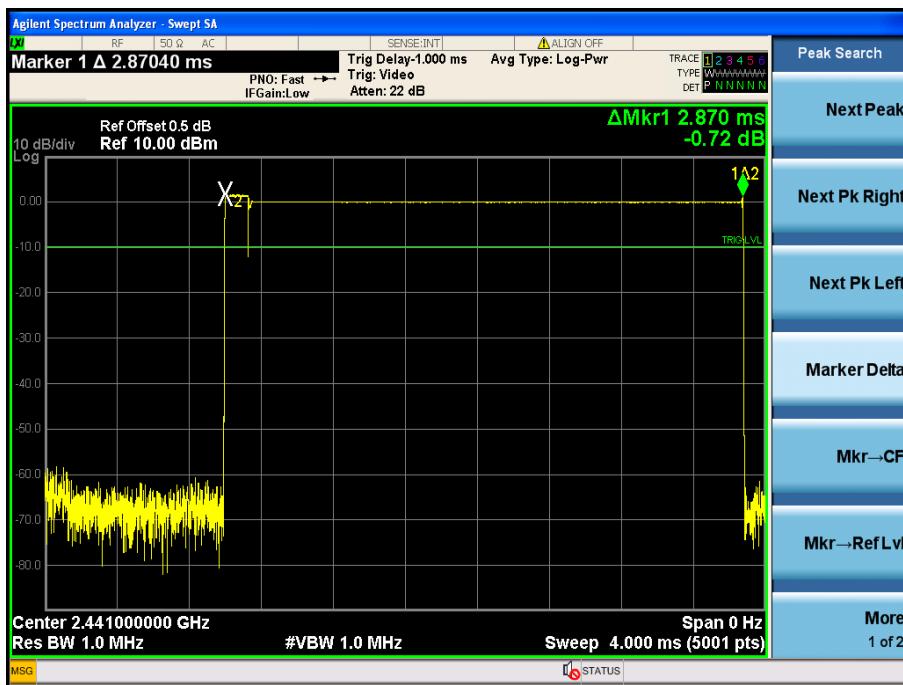
DH1



DH3

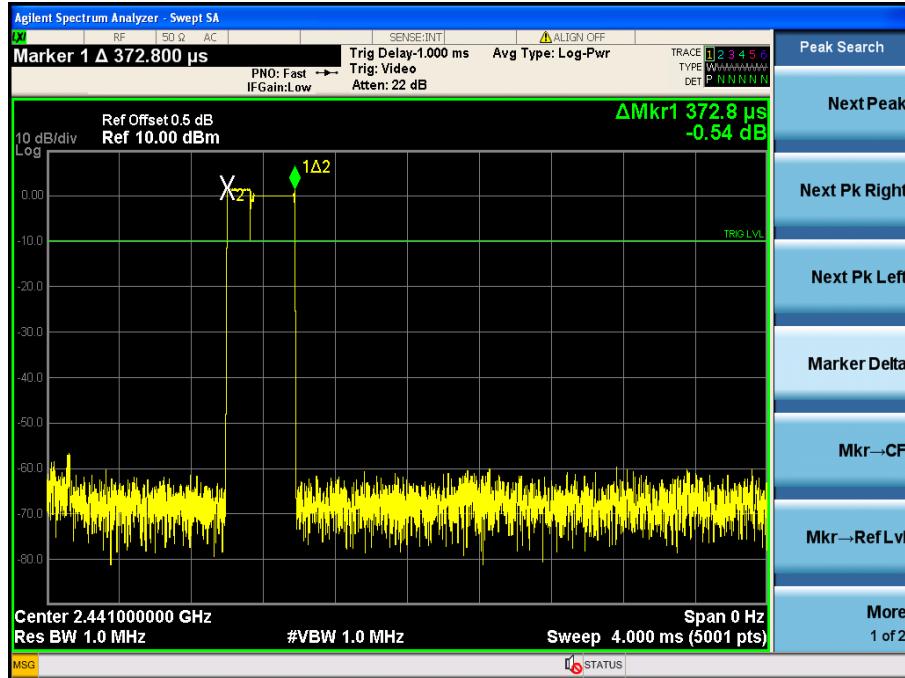


DH5

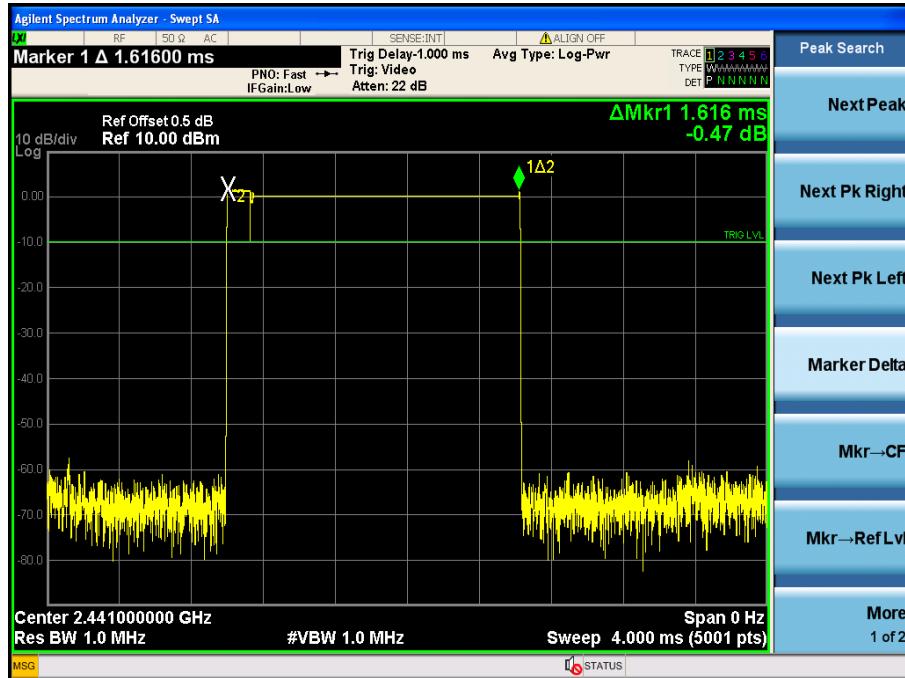


8- DPSK:

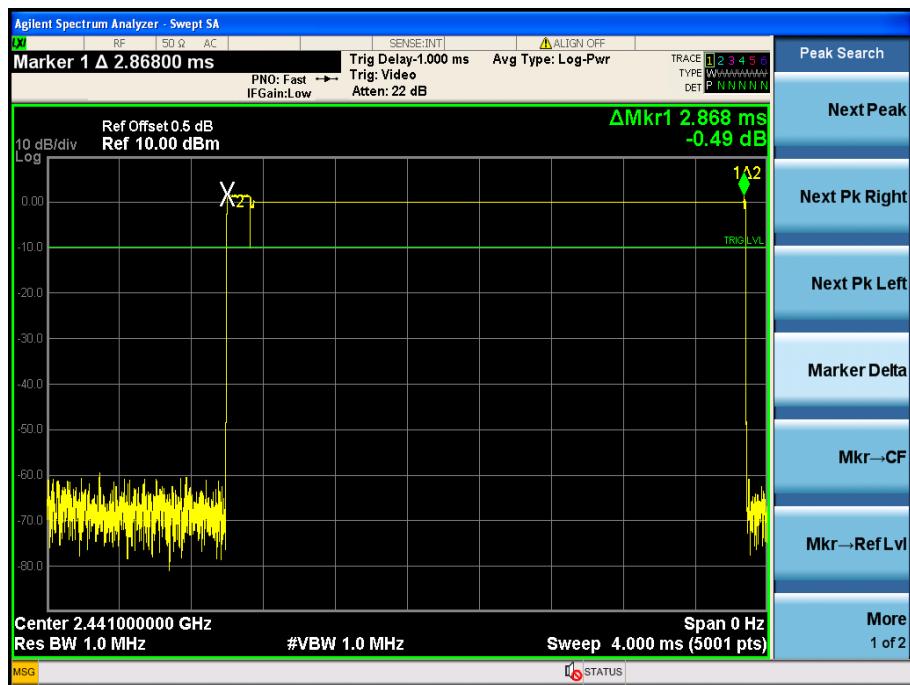
DH1:



DH3:



DH5:



8. Radiated emissions

8.1. Limit

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

15.205 Restricted frequency band

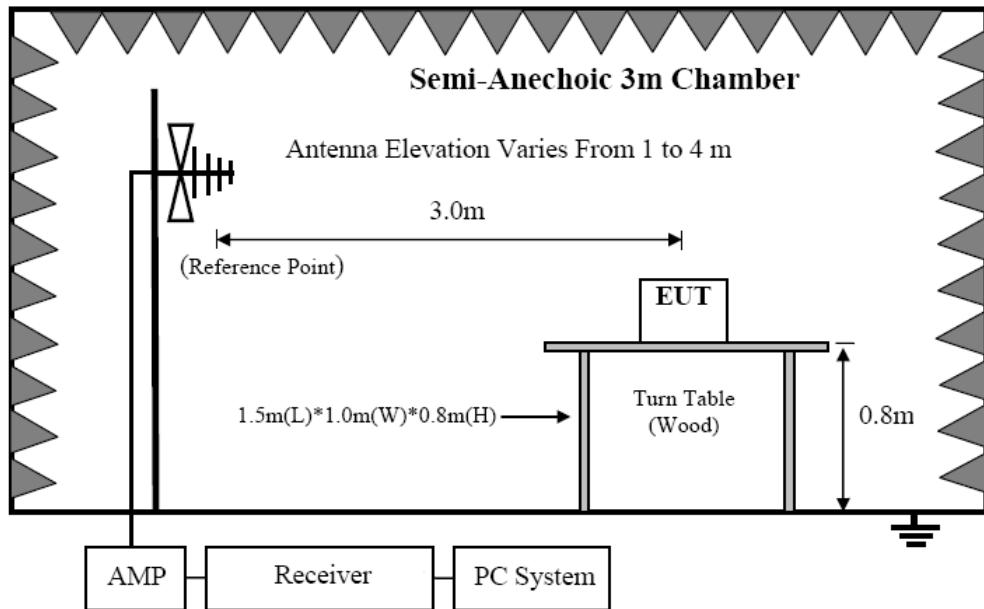
MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)

15.209 Limit

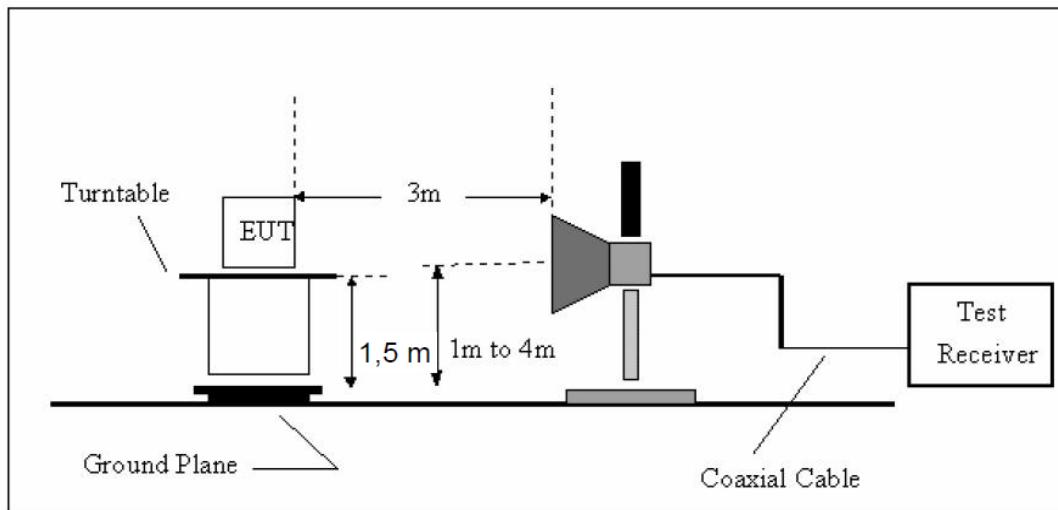
FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		µV/m	dB(µV)/m
0.009-0.490	300	2400/F(KHz)	/
0.490-1.705	30	24000/F(KHz)	/
1.705-30	30	30	29.5
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above	1000	74.0 dB(µV)/m (Peak) 54.0 dB(µV)/m (Average)	

8.2. Block Diagram of Test setup

8.2.1 In 3m Anechoic Chamber Test Setup Diagram for below 1GHz



8.2.2 In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz



Note: For harmonic emissions test a appropriate high pass filter was inserted in the input port of AMP.

8.3. Test Procedure

- (1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.
- (2) Setup EUT and simulator as shown in section 1.4 and 6.1
- (3) Test antenna was located 3m from the EUT on an adjustable mast. Below pre-scan procedure was first performed in order to find prominent radiated emissions.
 - (a) Change work frequency or channel of device if practicable.
 - (b) Change modulation type of device if practicable.
 - (c) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions
- (4) Spectrum frequency from 9KHz to 25GHz (tenth harmonic of fundamental frequency) was investigated
- (5) For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4 :2014 on Radiated Emission test.
- (6) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1MHz, VBW is set at 3MHz for Peak measure; RBW is set at 1MHz, VBW is set at 10Hz for Average measure, Peak detector is for both.

8.4. Test Result

We have scanned the 10th harmonic from 9KHz to the EUT's highest frequency.. Detailed information please see the following page.

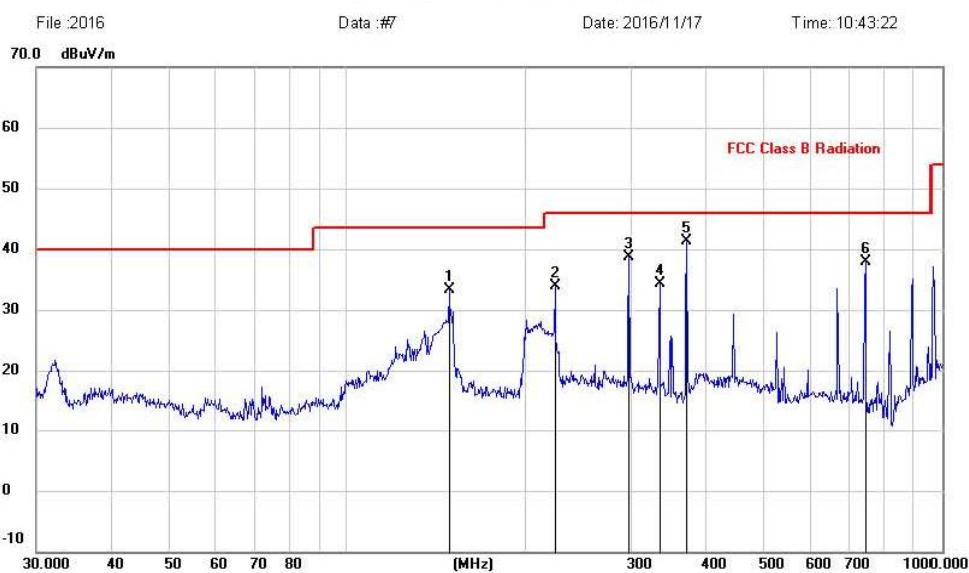
From 9KHz to 30MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

From 30MHz to 1000MHz: Conclusion: PASS

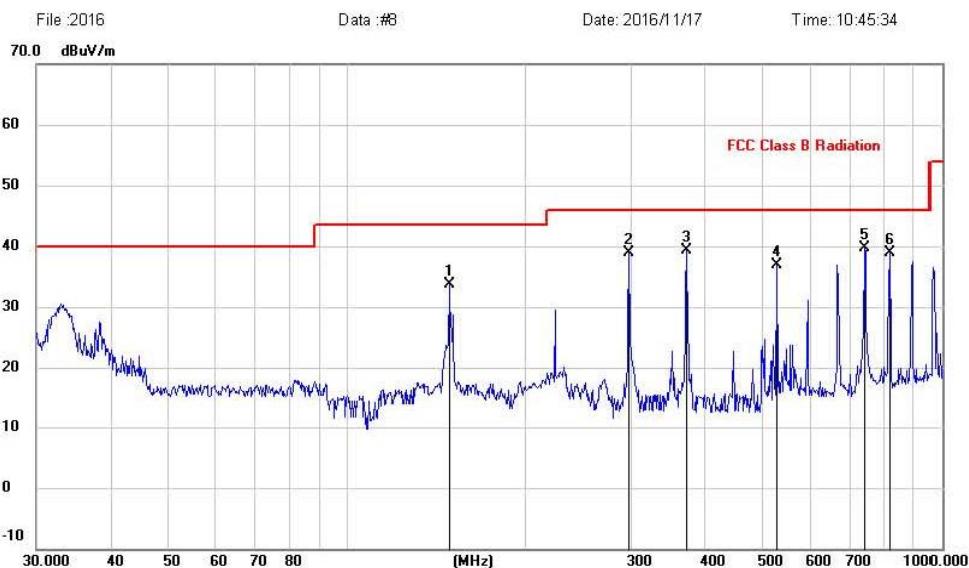
H:

Radiated Emission Measurement



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		148.4410	18.96	14.44	33.40	43.50	-10.10	peak		
2		222.9500	22.51	11.45	33.96	46.00	-12.04	peak		
3		297.2241	25.38	13.39	38.77	46.00	-7.23	peak		
4		336.0350	20.03	14.37	34.40	46.00	-11.60	peak		
5	*	372.0045	26.17	15.23	41.40	46.00	-4.60	peak		
6		747.4823	16.73	21.27	38.00	46.00	-8.00	peak		

V:

Radiated Emission Measurement

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin	Antenna Height	Table Degree		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		148.4410	19.32	14.44	33.76	43.50	-9.74	peak			
2		297.2241	25.53	13.39	38.92	46.00	-7.08	peak			
3		372.0045	24.08	15.23	39.31	46.00	-6.69	peak			
4		528.2458	18.74	18.11	36.85	46.00	-9.15	peak			
5	*	742.2586	18.60	21.19	39.79	46.00	-6.21	peak			
6		818.8341	17.00	21.86	38.86	46.00	-7.14	peak			

Remark: All modes have been tested, and only worst data of GFSK mode, Channel 2402MHz was listed in this report.

1GHz—25GHz Radiated emission Test result																	
EUT: All in one PCS		M/N: BVS-ZR215															
Power: DC 12V From Adapter with AC 120V/60Hz																	
Test date: 2016-12-12 Test site: 3m Chamber Tested by: Reak																	
Test mode: $\pi/4$ DQPSK Tx CH1 2402MHz																	
Antenna polarity: Vertical																	
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark								
1	4804	44.24	33.95	10.18	34.26	54.11	74	19.89	PK								
2	4804	35.52	33.95	10.18	34.26	45.39	54	8.61	AV								
3	7206	/															
4	9608	/															
5	12010	/															
Antenna Polarity: Horizontal																	
1	4804	46.71	33.95	10.18	34.26	56.58	74	17.42	PK								
2	4804	37.63	33.95	10.18	34.26	47.5	54	6.5	AV								
3	7206	/															
4	9608	/															
5	12010	/															

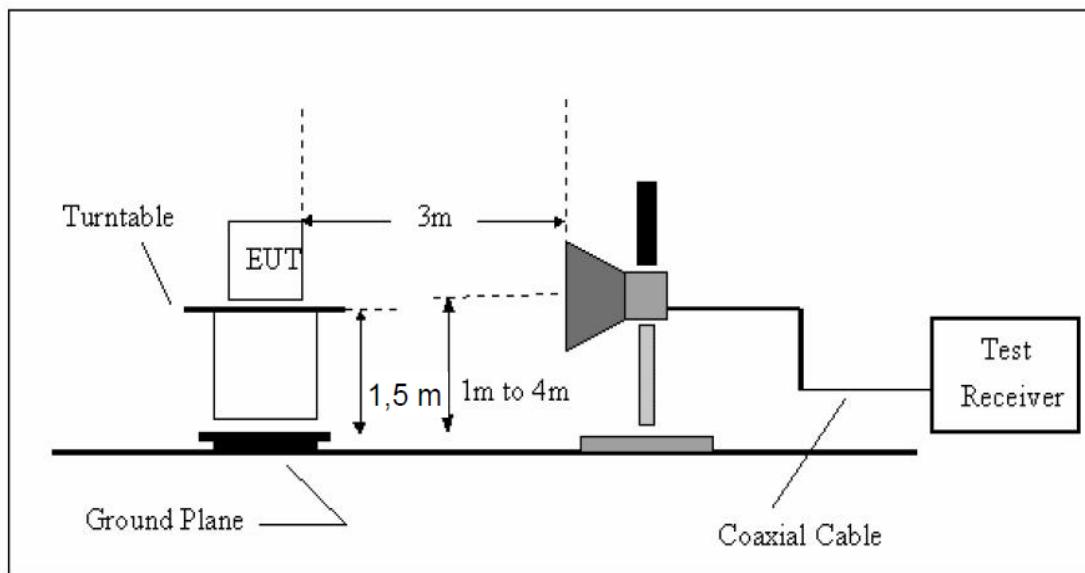
1GHz—25GHz Radiated emission Test result																	
EUT: All in one PCS		M/N: BVS-ZR215															
Power: DC 12V From Adapter with AC 120V/60Hz																	
Test date: 2016-12-12 Test site: 3m Chamber Tested by: Reak																	
Test mode: $\pi/4$ DQPSK Tx CH79 2480MHz																	
Antenna polarity: Vertical																	
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark								
1	4960	43.61	33.98	10.22	34.25	53.56	74	20.44	PK								
2	4960	34.35	33.98	10.22	34.25	44.3	54	9.7	AV								
3	7440	/															
4	9920	/															
5	12400	/															
Antenna Polarity: Horizontal																	
1	4960	46.49	33.98	10.22	34.25	56.44	74	17.56	PK								
2	4960	37.83	33.98	10.22	34.25	47.78	54	6.22	AV								
3	7440	/															
4	9920	/															
5	12400	/															

1GHz—25GHz Radiated emission Test result															
EUT: All in one PCS			M/N: BVS-ZR215												
Power: DC 12V From Adapter with AC 120V/60Hz															
Test date: 2016-12-12				Test site: 3m Chamber		Tested by: Reak									
Test mode: 8- DQPSK Tx CH1 2402MHz															
Antenna polarity: Vertical															
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark						
1	4804	43.12	33.95	10.18	34.26	52.99	74	21.01	PK						
2	4804	34.86	33.95	10.18	34.26	44.73	54	9.27	AV						
3	7206	/													
4	9608	/													
5	12010	/													
Antenna Polarity: Horizontal															
1	4804	41.62	33.95	10.18	34.26	51.49	74	22.51	PK						
2	4804	31.03	33.95	10.18	34.26	40.9	54	13.1	AV						
3	7206	/													
4	9608	/													
5	12010	/													

1GHz—25GHz Radiated emission Test result																	
EUT: All in one PCS		M/N: BVS-ZR215															
Power: DC 12V From Adapter with AC 120V/60Hz																	
Test date: 2016-12-12 Test site: 3m Chamber Tested by: Reak																	
Test mode: 8- DQPSK Tx CH40 2441MHz																	
Antenna polarity: Vertical																	
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark								
1	4882	42.79	33.93	10.2	34.29	52.63	74	21.37	PK								
2	4882	32.17	33.93	10.2	34.29	42.01	54	11.99	AV								
3	7323	/															
4	9764	/															
5	12205	/															
Antenna Polarity: Horizontal																	
1	4882	41.48	33.93	10.2	34.29	51.32	74	22.68	41.48								
2	4882	31.09	33.93	10.2	34.29	40.93	54	13.07	31.09								
3	7323	/															
4	9764	/															
5	12205	/															

9. Band Edge Compliance

9.1. Block Diagram of Test Setup



9.2. Limit

All the lower and upper band-edges emissions appearing within restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

9.3. Test Procedure

All restriction band and non-restriction band have been tested, only worse case is reported.

9.4. Test Result

PASS. (See below detailed test data)

Radiated Method

GFSK (CH Low)

GFSK (CH High)

GFSK (Hopping Low)

GFSK (Hopping High)

$\pi/4$ DQPSK (CH Low)

$\pi/4$ DQPSK (CH High)

$\pi/4$ DQPSK (Hopping Low)

$\pi/4$ DQPSK (Hopping High)

8- DPSK (CH Low)

8- DPSK (CH High)

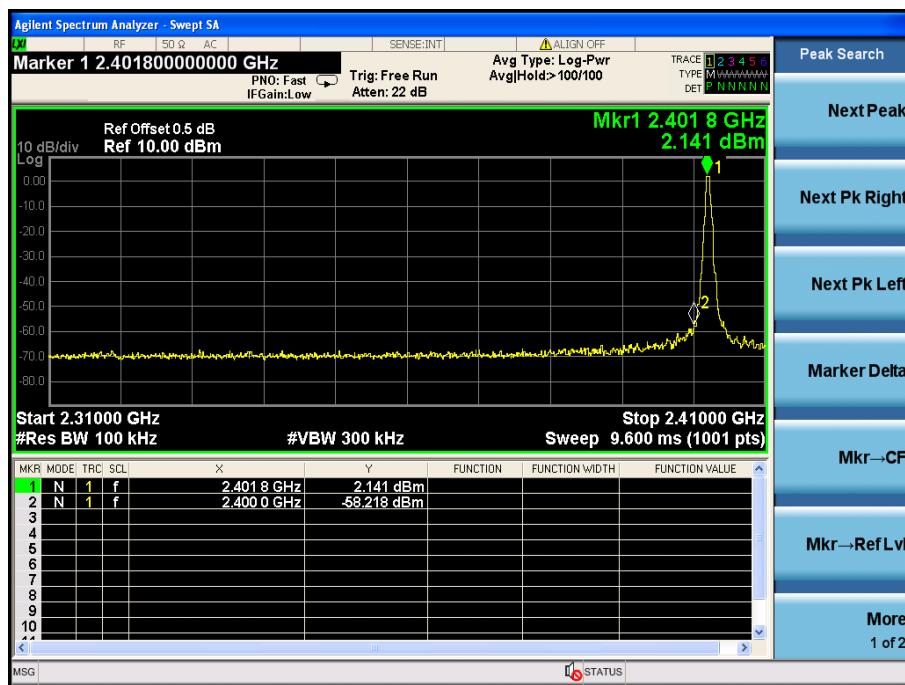
8- DPSK (Hopping Low)

8- DPSK (Hopping High)

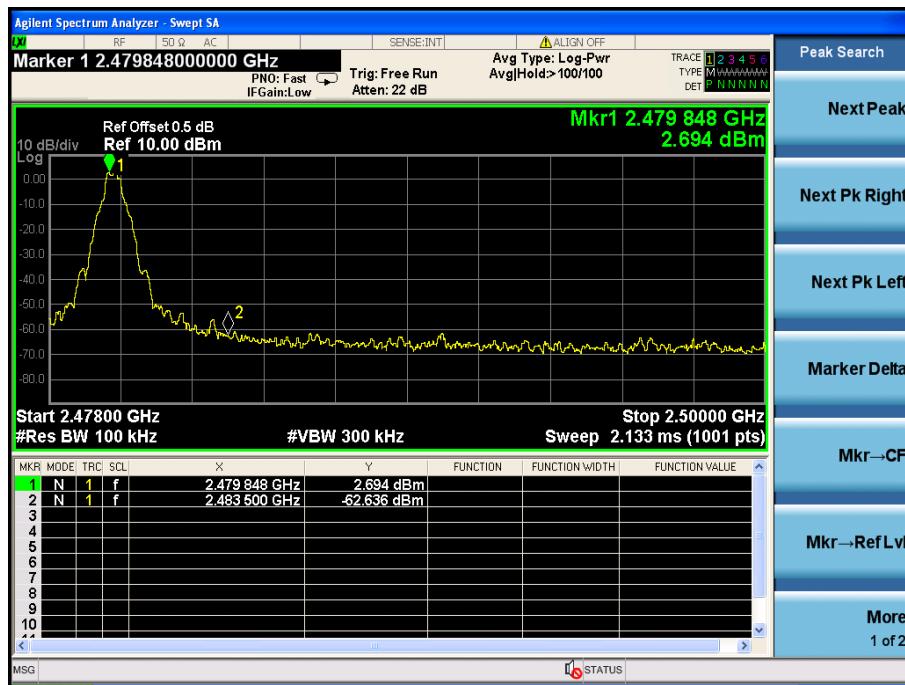
Conducted Method

GFSK

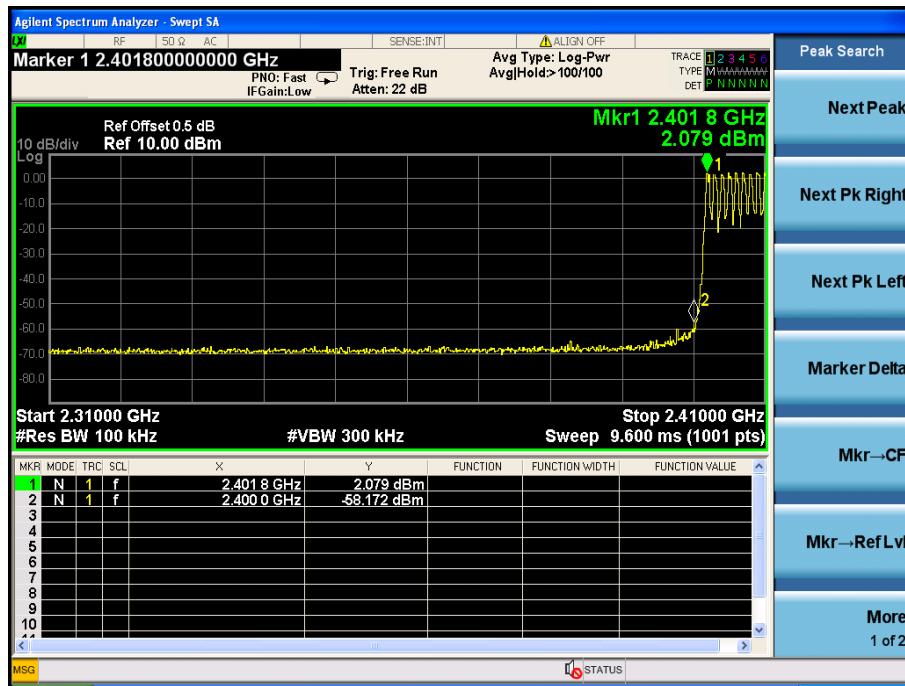
CH LOW :



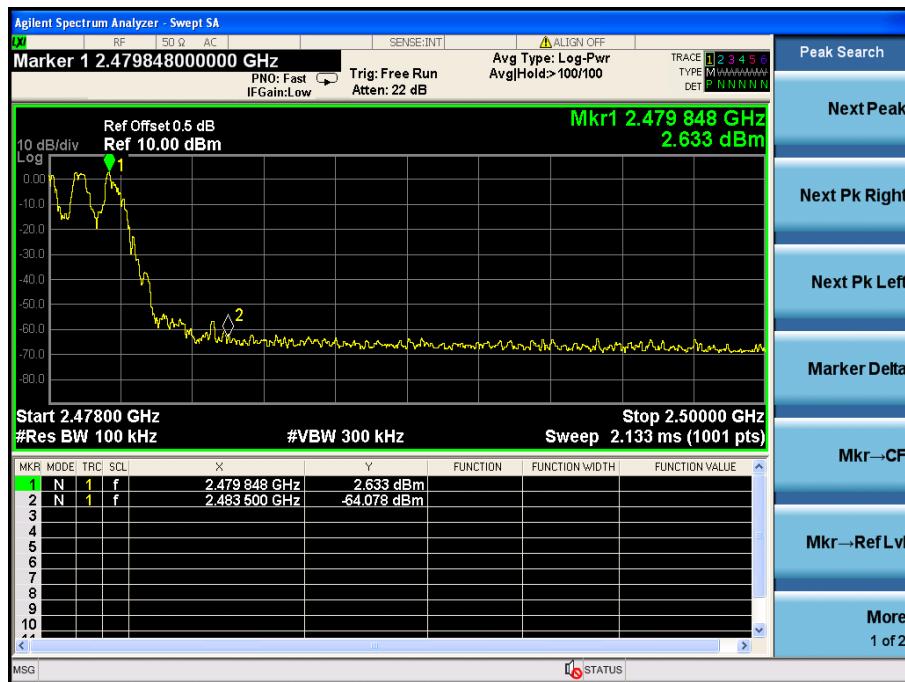
CH High :



Hopping Low

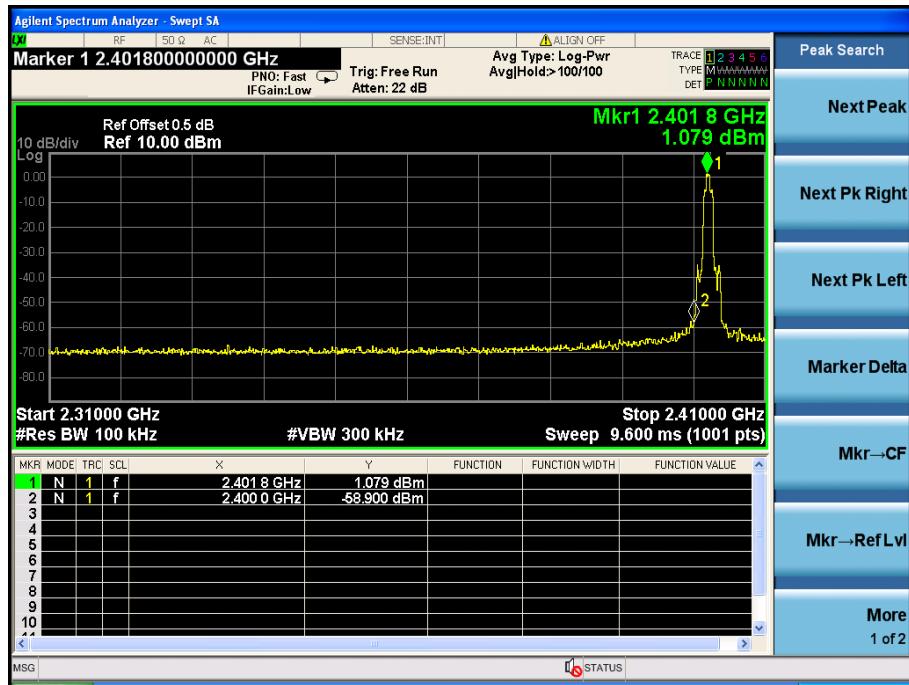


High

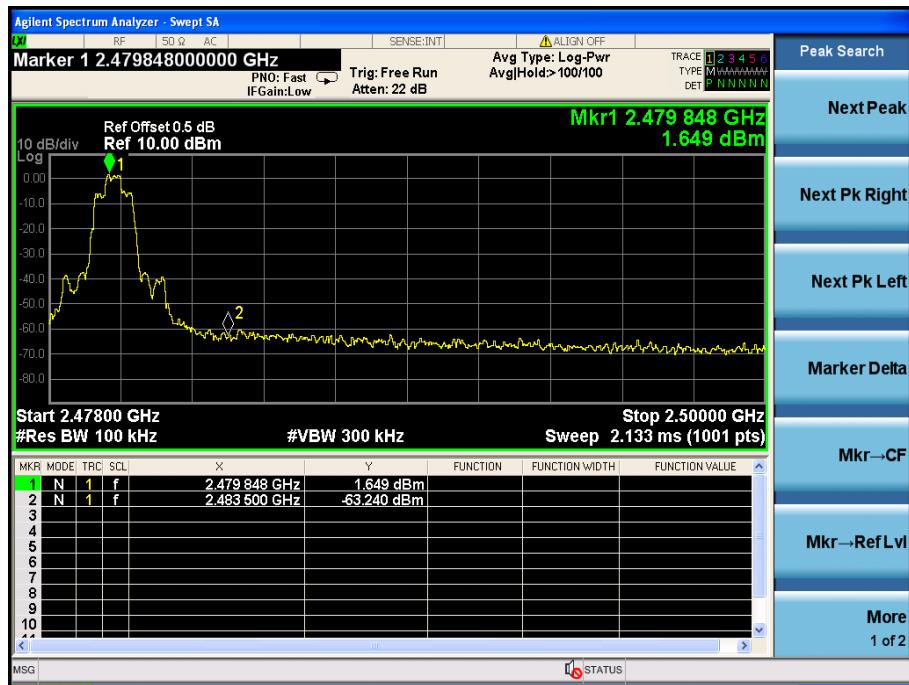


$\pi/4$ DQPSK

Low

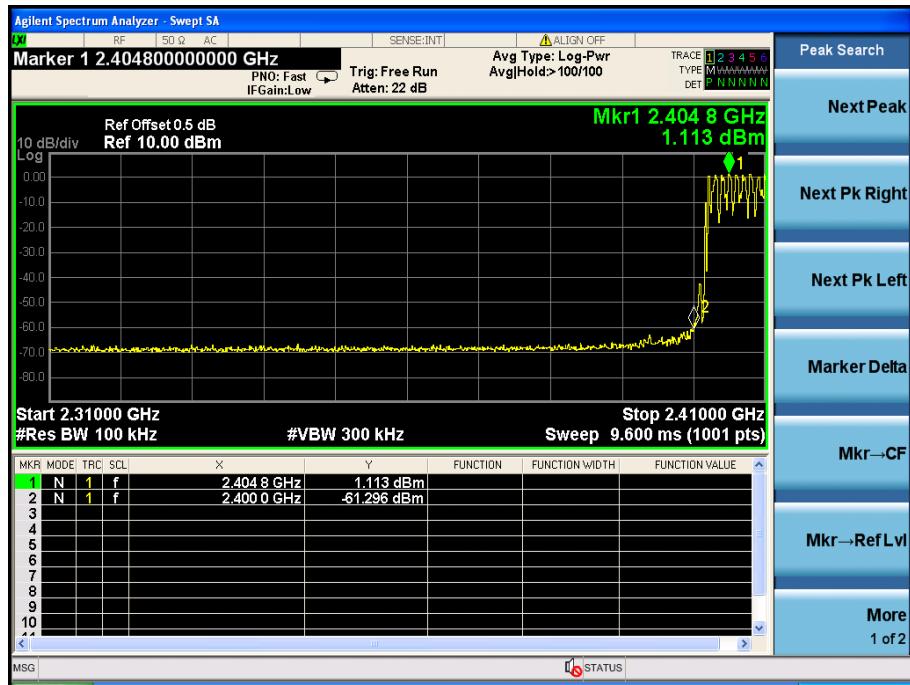


High



Hopping

Low

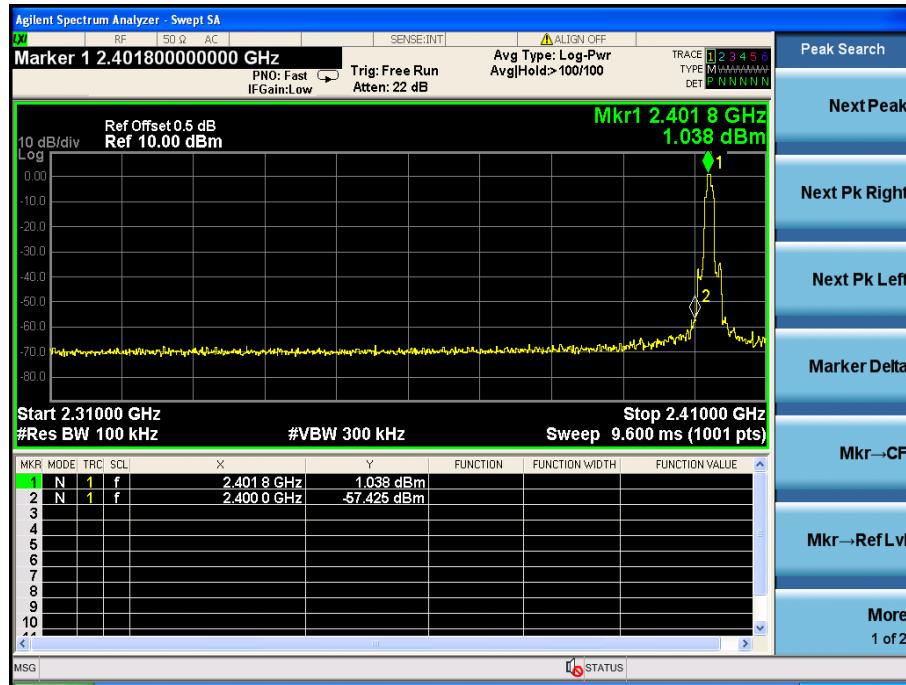


High



8- DPSK:

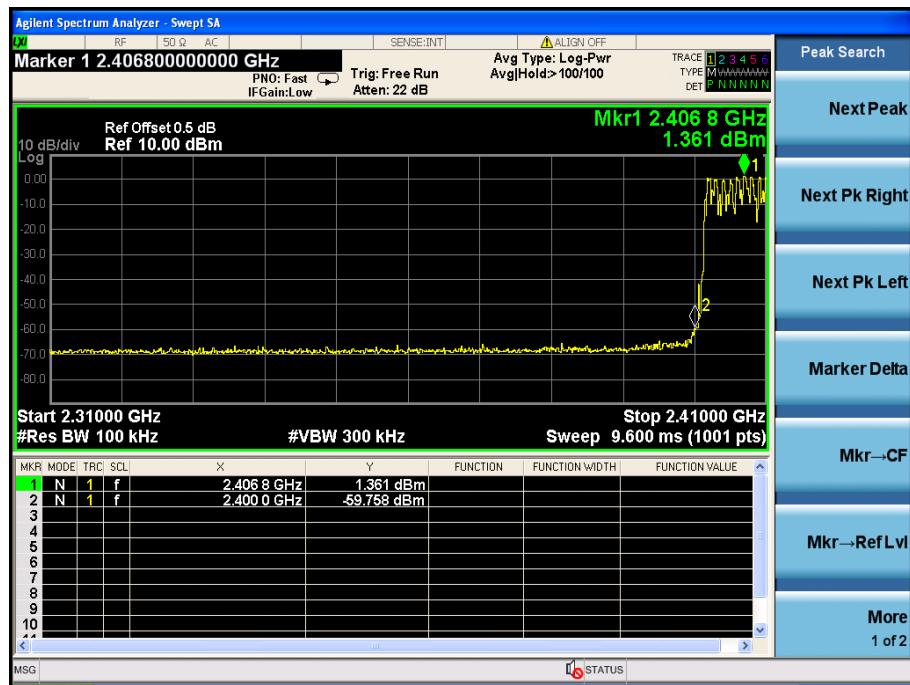
Low



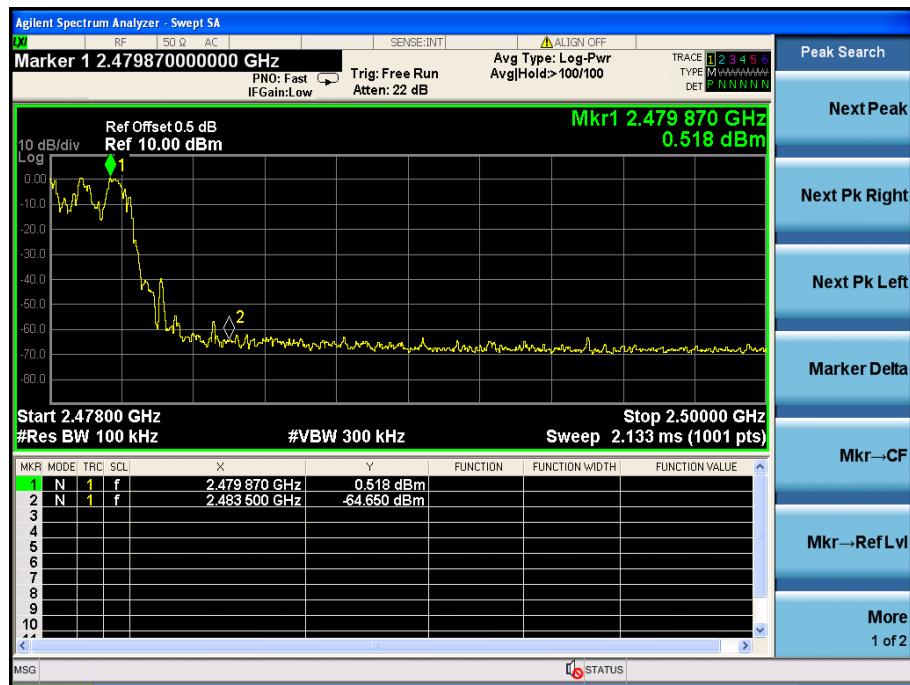
High



Hopping
Low

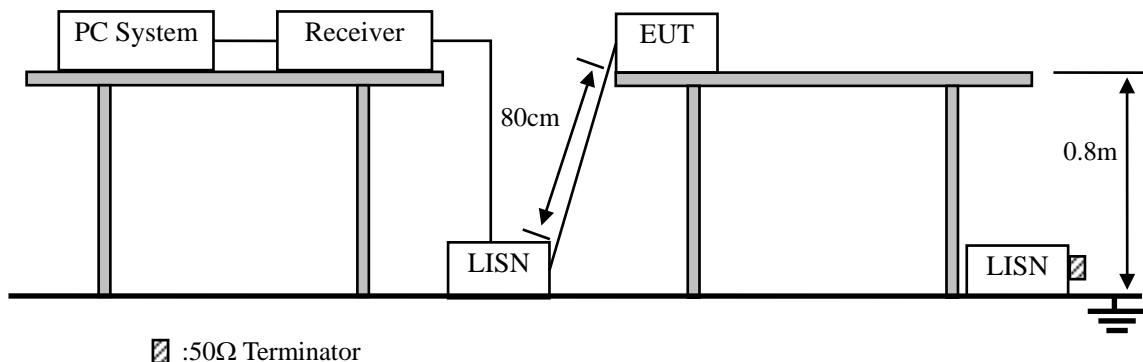


High



10. Power Line Conducted Emissions

10.1. Block Diagram of Test Setup



10.2. Limit

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

Notes: 1. * Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

10.3. Test Procedure

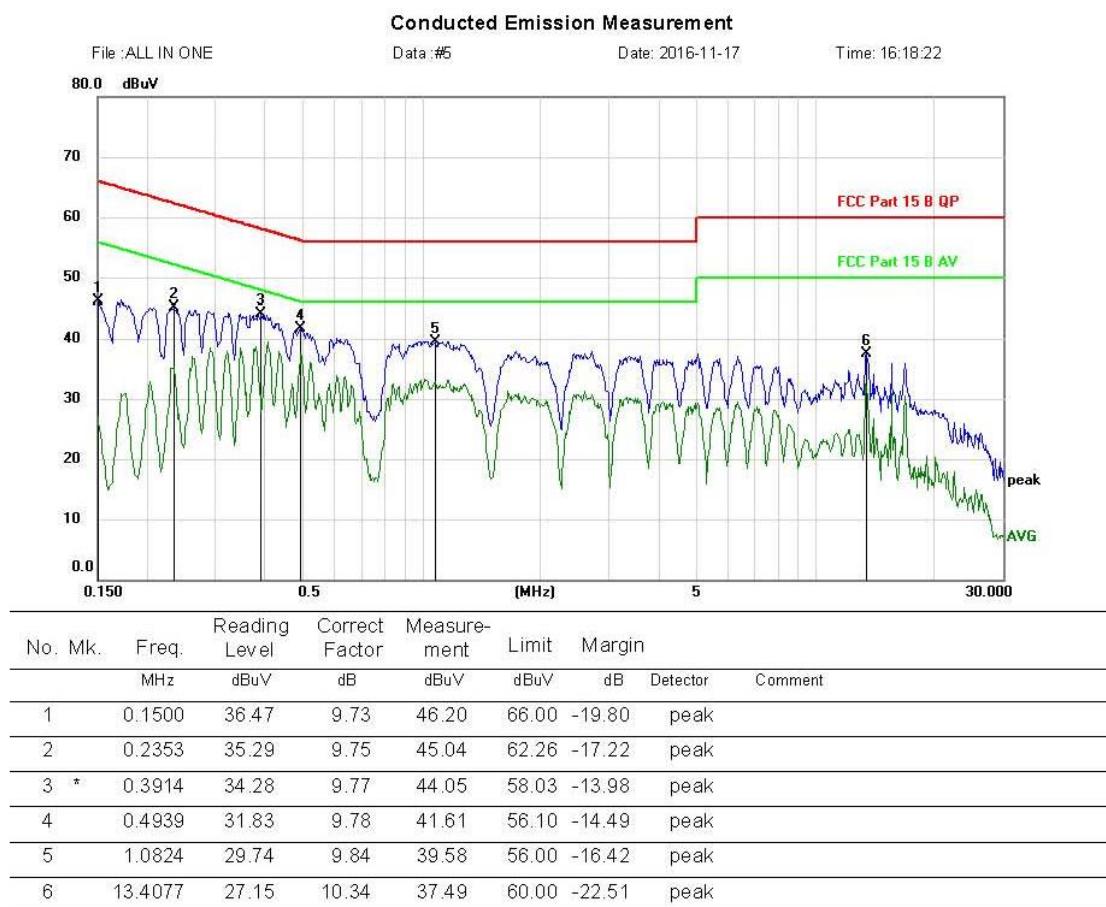
- (1) The EUT was placed on a non-metallic table, 80cm above the ground plane.
- (2) Setup the EUT and simulator as shown in 10.1
- (3) The EUT Power connected to the power mains through a power adapter and a line impedance stabilization network (L.I.S.N1). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N2), this provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4 :2014 on conducted Emission test.
- (4) The bandwidth of test receiver is set at 10KHz.
- (5) The frequency range from 150 KHz to 30MHz is checked.

10.4. Test Result

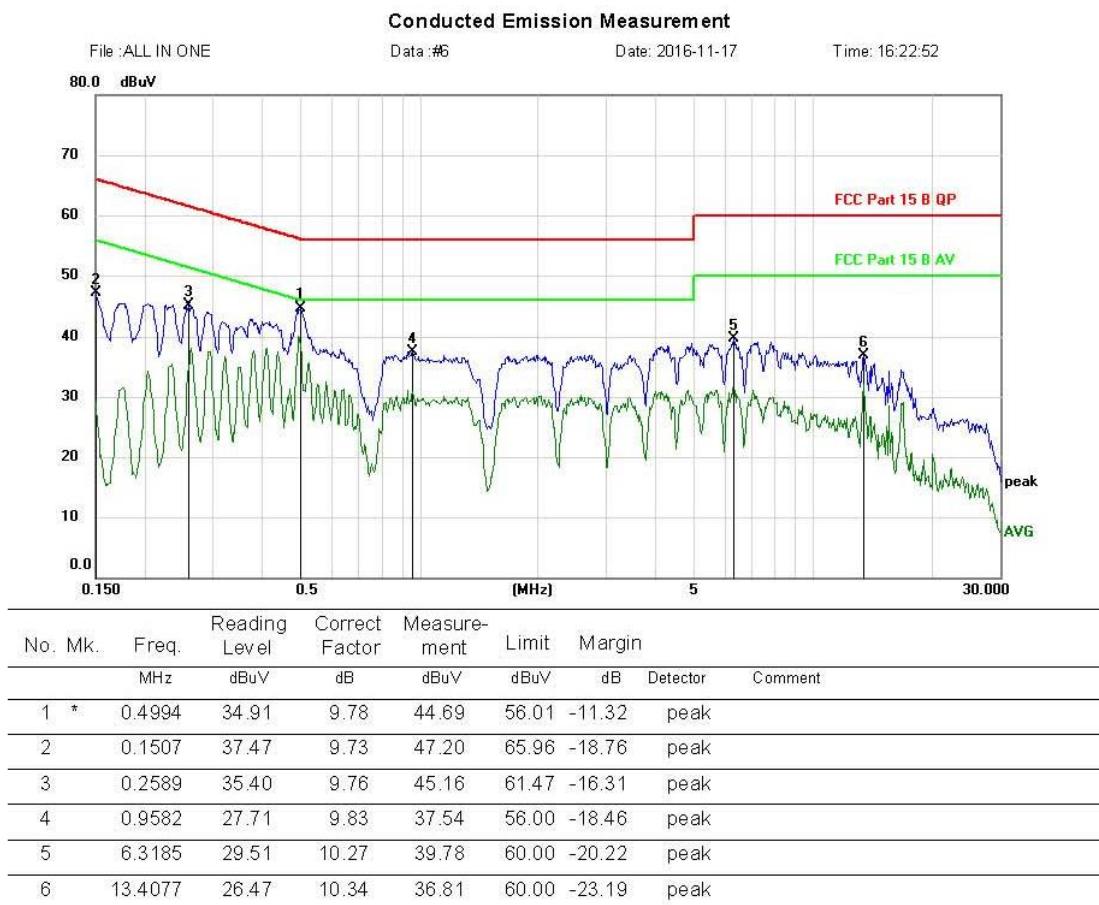
PASS. (See below detailed test data)

Note: If QP Result comply with AV limit, AV Result is deemed to comply with AV limit

L:



N:



11. Antenna Requirements

11.1. Limit

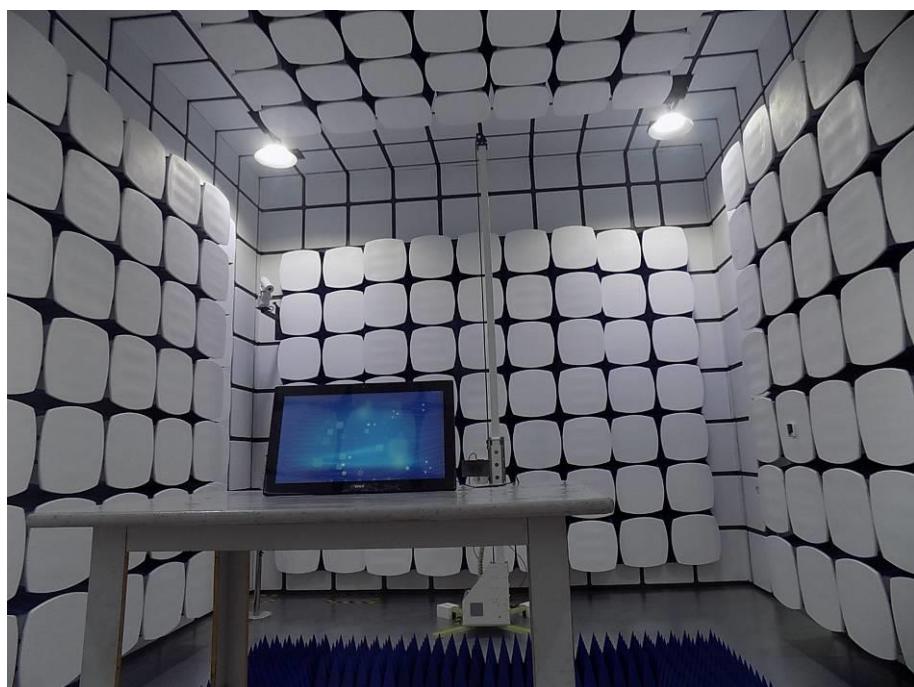
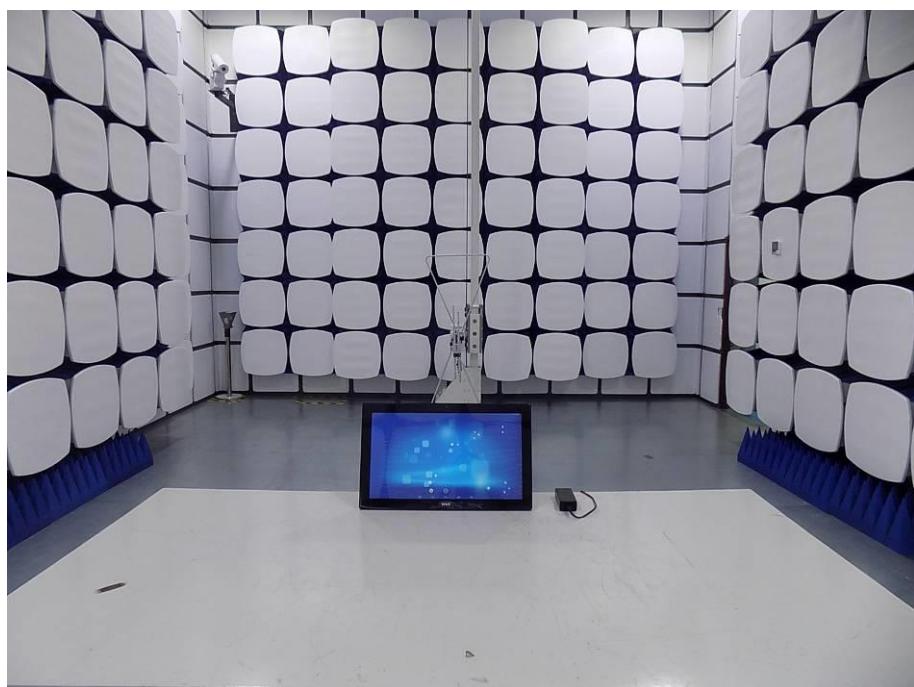
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional 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.

11.2. Result

The antennas used for this product are PCB Antenna for Bluetooth, no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 0dBi for Bluetooth.

12. Test setup photo

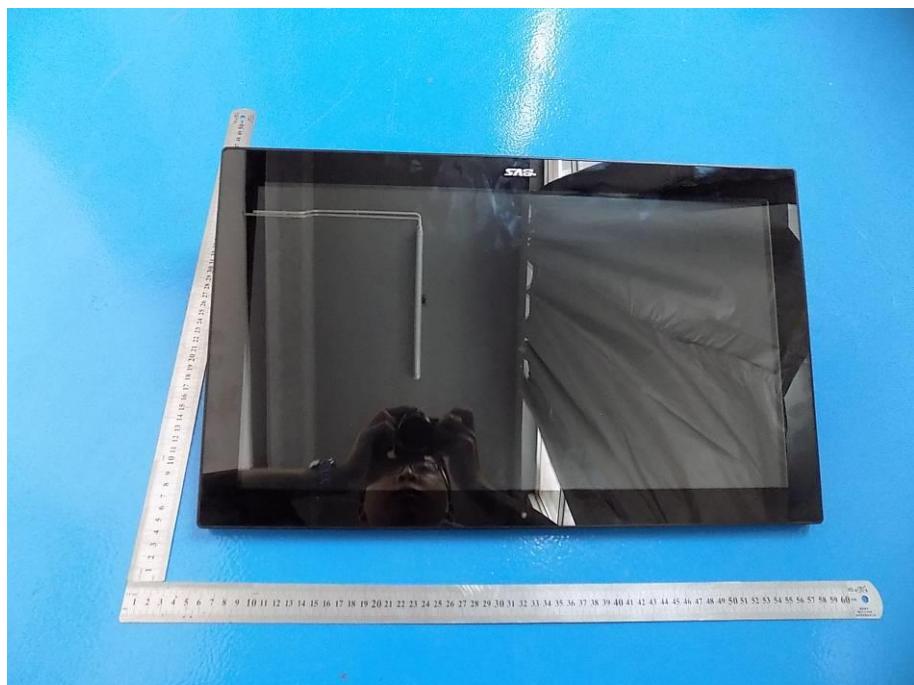
12.1. Photos of Radiated emission



12.2.Photos of Conducted Emission test



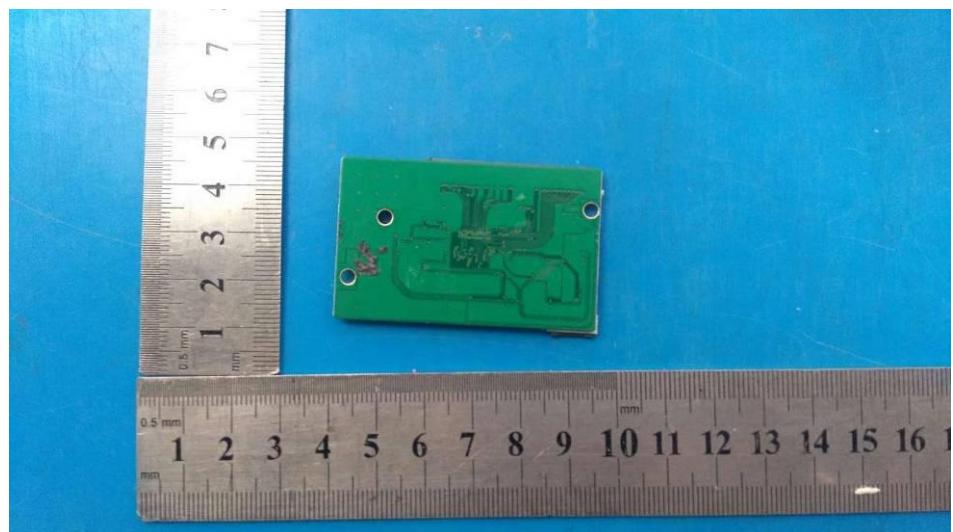
13.Photos of EUT

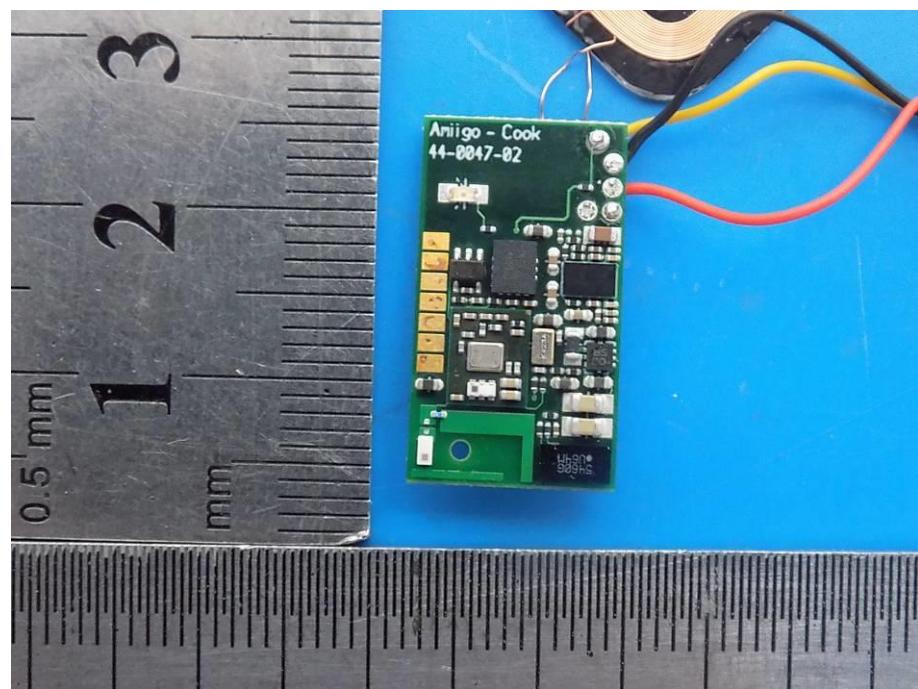


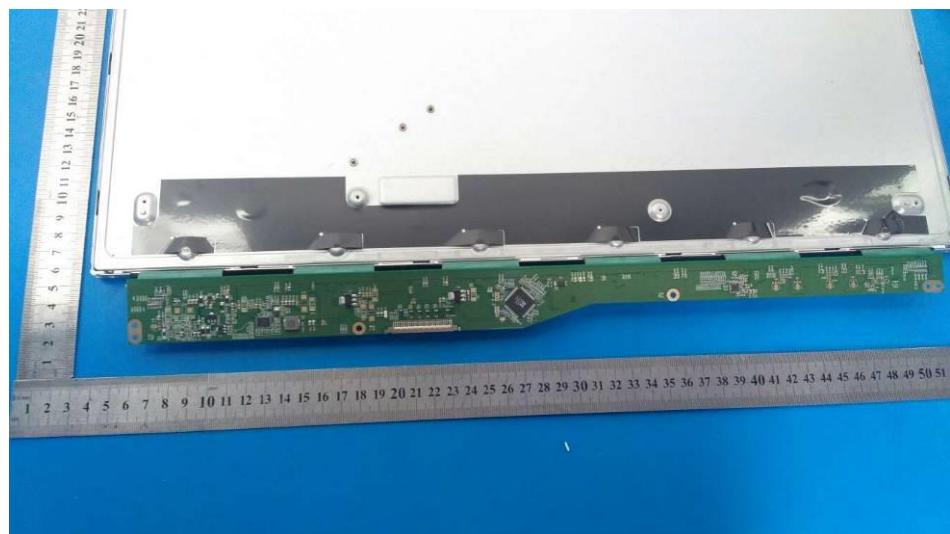
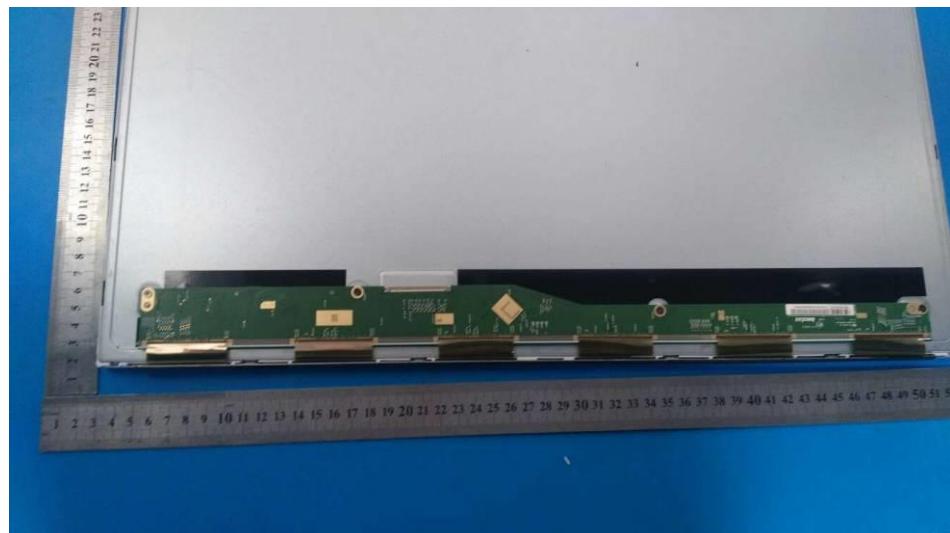


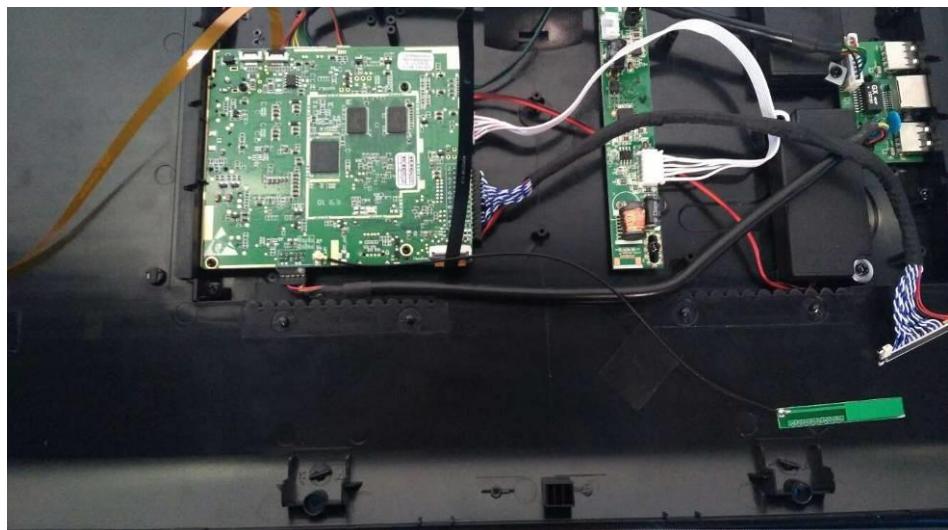


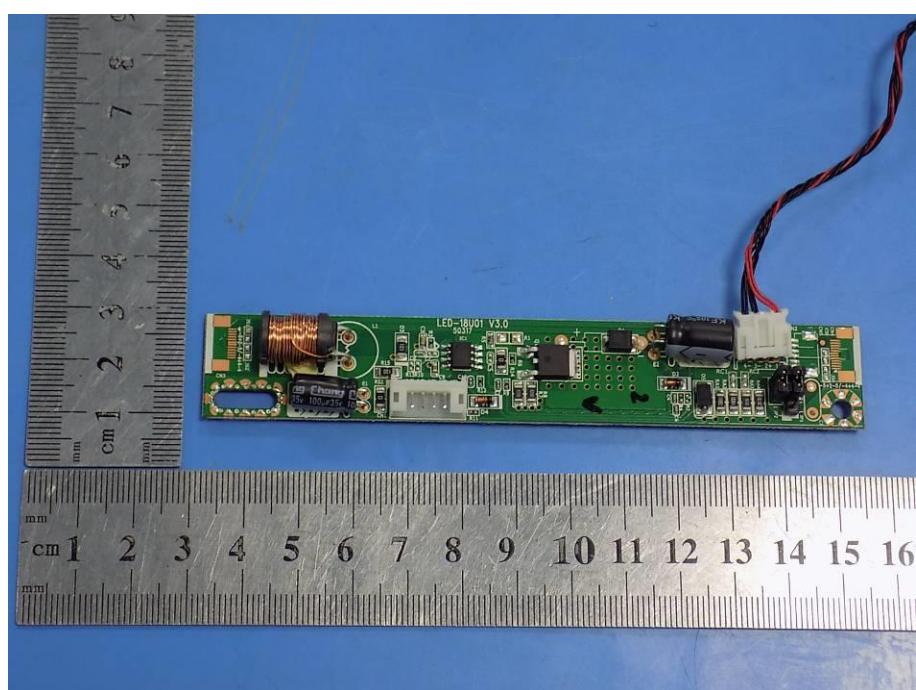
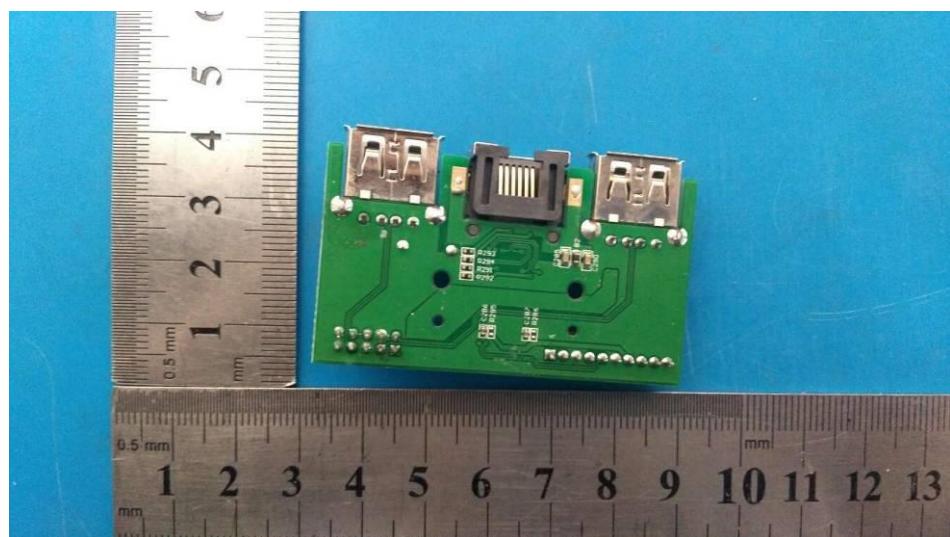


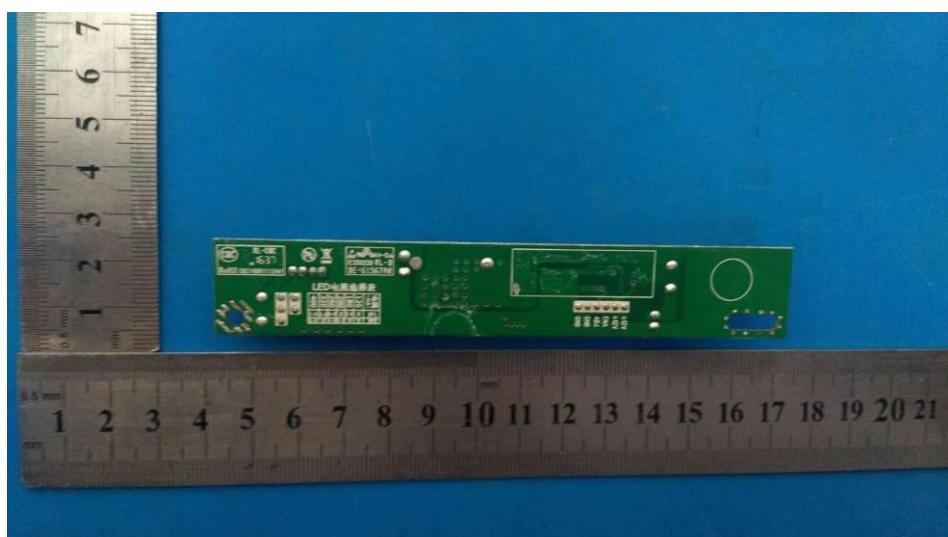
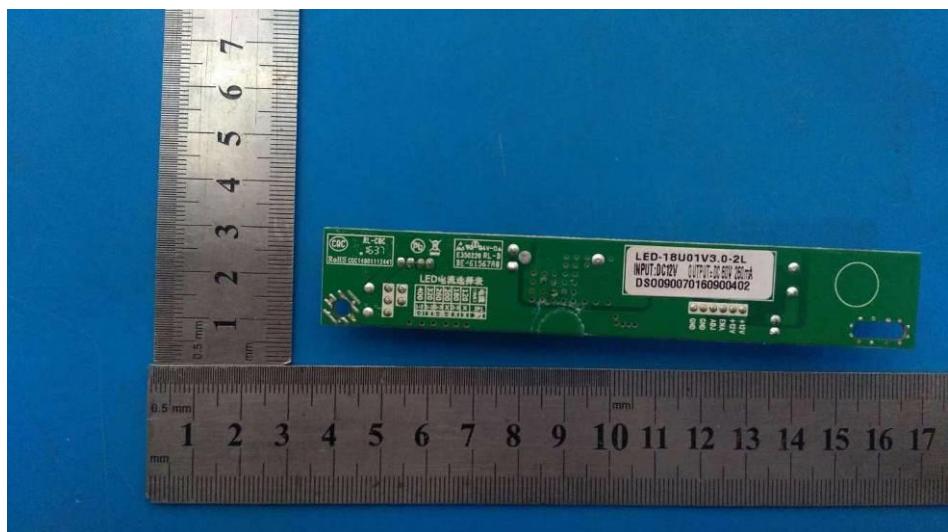




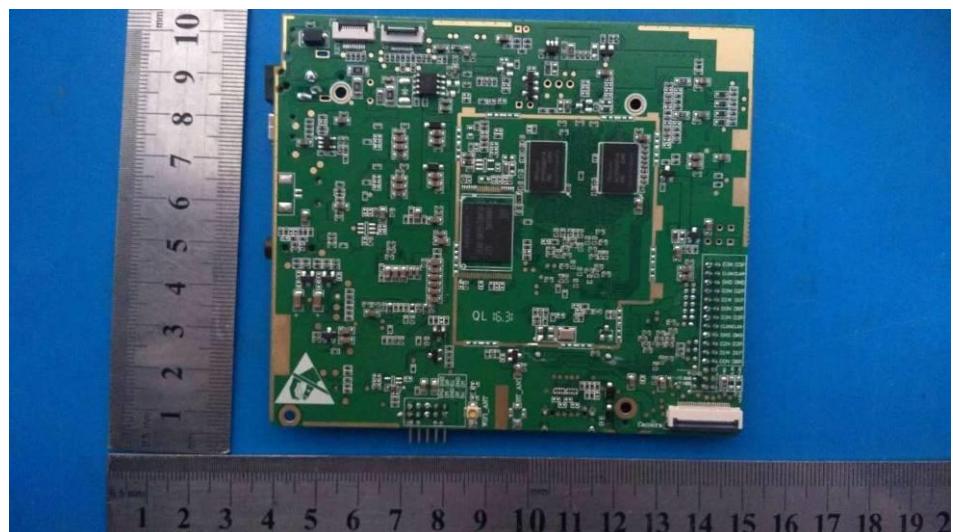












Annex I

BVS-SA070	BVS-SA080	BVS-SA970	BVS-SA102
BVS-YA101	BVS-YA101-3G	BVS-YA101-IPS	BVS-YR101-IPS
BVS-SA126	BVS-ZA133	BVS-ZR133	BVS-ZA140
BVS-ZR140	BVS-ZA156	BVS-ZR156	BVS-SA156
BVS-SR156	BVS-PR156	BVS-PW156	BVS-ZA185
BVS-ZR185	BVS-PR185	BVS-PW185	BVS-AC185
BVS-PR19	BVS-PW19	BVS-YR215	BVS-ZR215
BVS-PR215	BVS-PW215	BVS-AC215	BVS-ZPR215
BVS-PR22	BVS-PW22	BVS-ZR236	BVS-ZR270
BVS-ZR320	BVS-GR370	BVS-GW370	BVS-GR40
BVS-GW40	BVS-GR420	BVS-GW420	BVS-GR460
BVS-GW460	BVS-GR470	BVS-GW470	BVS-GR490
BVS-GW490	BVS-GR50	BVS-GW50	BVS-GR60
BVS-GW60	BVS-GR650	BVS-GW650	BVS-GR70
BVS-GW7	BVS-GR75	BVS-GW75	BVS-GR80
BVS-GW80	BVS-GR82	BVS-GW82	BVS-GR85
BVS-GW85	BVS-GR86	BVS-GW86	BVS-056D
BVS-070M1	BVS-070M1T	BVS-070M2	BVS-070M2T
BVS-070M3	BVS-070M3T	BVS-070M4	BVS-070M4T
BVS-070M5	BVS-070M5T	BVS-070M6	BVS-070M6T
BVS-070M7	BVS-070M7T	BVS-070M8	BVS-070M8T
BVS-070A9	BVS-080A1	BVS-080A2	BVS-080A5
BVS-080M1	BVS-080M1T	BVS-080M2	BVS-080M2T
BVS-080M3	BVS-080M3T	BVS-080M4	BVS-080M4T
BVS-080M5	BVS-080M5T	BVS-080M6	BVS-080M6T
BVS-080M7	BVS-080M7T	BVS-080M8	BVS-080M8T
BVS-080M9	BVS-080M9T	BVS-080M9	BVS-080M9
TBVS-080M10	BVS-080M10T	BVS-080M11	BVS-080M11T

Annex II

BVS-080M12	BVS-080M12T	BVS-080A1	BVS-080A2
BVS-080A3	BVS-080A5	BVS-080A6	BVS-080A8
BVS-080A9	BVS-10M1	BVS-10M1T	BVS-10M2
BVS-10M2T	BVS-10M3	BVS-10M3T	BVS-10M4
BVS-10M4T	BVS-10M5	BVS-10M5T	BVS-10M6
BVS-10M6T	BVS-10M7	BVS-10M7T	BVS-10M9
BVS-10M9T	BVS-12A1	BVS-12A2	BVS-12A3
BVS-12A4	BVS-12A5	BVS-12A6	BVS-12A7
BVS-12A8	BVS-121M1	BVS-121M1T	BVS-121M2
BVS-121M2T	BVS-121M3	BVS-121M3T	BVS-121M4U
BVS-15M1	BVS-15M1T	BVS-15M2	BVS-15M2T
BVS-15M3	BVS-15M3T	BVS-15M5	BVS-15M5T
BVS-17A2	BVS-17M1	BVS-17M1T	BVS-17M2
BVS-17M2T	BVS-19A1	BVS-19A2	BVS-19M1
BVS-19M1T	BVS-19M2	BVS-19M2T	BVS-19M3
BVS-19M3T	BVS-19M5	BVS-19M5T	BVS-215M1
BVS-215M1T	BVS-YR121	BVS-YR125	BVS-YR133
BVS-YR140	BVS-YR156	BVS-YR185	BVS-YR19
BVS-YR22	BVS-YR236	BVS-YR270	BVS-YR320
BVS-YRM101	BVS-YRM121	BVS-YRM125	BVS-YRM133
BVS-YRM140	BVS-YRM156	BVS-YRM185	BVS-YRM215
BVS-YRM236	BVS-YRM27	BVS-YRM32	BVS-M080
BVS-M101	BVS-M104	BVS-M121	BVS-M125
BVS-M133	BVS-M140	BVS-M150	BVS-M156
BVS-M170	BVS-M185	BVS-M190	BVS-M19.5
BVS-M215	BVS-M220	BVS-M230	BVS-M236
BVS-M240	BVS-M270		

-----END OF REPORT-----