



TEST REPORT

FCC Rules and Regulations Part 15 Subpart C Section 15.247

ANSI C63.10: 2013

RSS-GEN: Issue 5

RSS-247: Issue 2

**Test report
On Behalf of
Anker Innovations Limited
For
Soundcore Icon Mini
Model No.: A3121**

FCC ID: 2AOKB-A3121

IC: 23451-A3121

Prepared for : Anker Innovations Limited
Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon,
Hongkong

Prepared By : Shenzhen HUAKE Testing Technology Co., Ltd.
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Date of Test: Dec. 10, 2018 ~ Dec. 18, 2018

Date of Report: Dec. 18, 2018

Report Number: HK1812071828E



TEST RESULT CERTIFICATION

Applicant's name: Anker Innovations Limited
 Address.....: Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, Hongkong

Manufacture's Name.....: Anker Innovations Limited
 Address.....: Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, Hongkong

Product description

Trade Mark: Soundcore
 Product Name.....: Soundcore Icon Mini
 Model and/or type reference...: A3121
 FCC Rules and Regulations Part 15 Subpart C Section 15.247
 ANSI C63.10: 2013
Standards.....: RSS-GEN: Issue 5
 RSS-247: Issue 2

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Date of Test..... :
 Date (s) of performance of tests.....: Dec. 10, 2018 ~ Dec. 18, 2018
 Date of Issue.....: Dec. 18, 2018
 Test Result.....: **Pass**

Testing Engineer : Gary Qian
 (Gary Qian)

Technical Manager : Eden Hu
 (Eden Hu)

Authorized Signatory : Jason Zhou
 (Jason Zhou)



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1. TEST SUMMARY

1.1. TEST PROCEDURES AND RESULTS

DESCRIPTION OF TEST	RESULT
Peak Output Power	Compliant
20 dB Bandwidth	Compliant
Conducted Spurious Emission	Compliant
Radiated Emission	Compliant
Band Edges	Compliant
Number of hopping frequency	Compliant
Time of Occupancy	Compliant
Frequency Separation	Compliant
Line conduction Emission	Compliant

1.2. TEST FACILITY

1.2.1 Address of the test laboratory

Shenzhen HUAKE Testing Technology Co., Ltd.

Add.:1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park,Heping Community, Fuhai Street, Bao'an District, Shenzhen, China

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4 and CISPR 32/EN 55032 requirements.

1.2.2 Laboratory accreditation

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

IC Registration No.: 21210

The 3m alternate test site of Shenzhen HUAKE Testing Technology Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration No.: 21210 on May 24, 2016.

FCC Registration No.: CN1229

Test Firm Registration Number : 616276

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

Operation Frequency	2.402 GHz to 2.480GHz
RF Output Power	0.990dBm(Max)
Bluetooth Version	V4.2
Modulation	BR <input checked="" type="checkbox"/> GFSK, EDR <input checked="" type="checkbox"/> π /4-DQPSK, <input checked="" type="checkbox"/> 8DPSK BLE <input type="checkbox"/> GFSK
Number of channels	79 for BR/EDR
Hardware Version	A3121-01-AOD
Software Version	V2.8
Antenna Designation	PCB Antenna
Antenna Gain	3.73dBi
Power Supply	DC 3.7V by battery
Note: The USB port only used for charging and can't be used to transfer data with PC.	



2.2. CARRIER FREQUENCY OF CHANNELS

BR/EDR Channel List

Frequency Band	Channel Number	Frequency
2400~2483.5MHz	0	2402MHz
	1	2403MHz
	:	:
	38	2440 MHz
	39	2441 MHz
	40	2442 MHz
	:	:
	77	2479 MHz
	78	2480 MHz

2.3. OPERATION OF EUT DURING TESTING

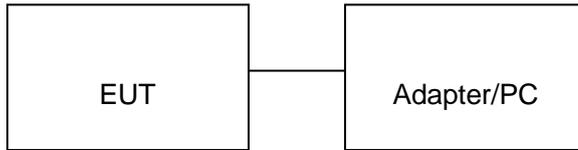
NO.	TEST MODE DESCRIPTION
1	Low channel GFSK
2	Middle channel GFSK
3	High channel GFSK
4	Low channel $\pi/4$ -DQPSK
5	Middle channel $\pi/4$ -DQPSK
6	High channel $\pi/4$ -DQPSK
7	Low channel 8DPSK
8	Middle channel 8DPSK
9	High channel 8DPSK
10	BT Link with charging
11	BT Link(Hopping mode)

Note:

1. All the test modes can be supply by battery, only the result of the worst case was recorded in the report, if no other cases.
2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
3. The EUT used fully-charged battery when tested.

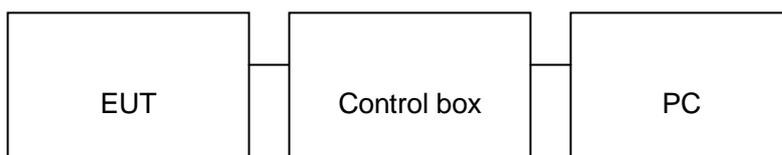
2.4. DESCRIPTION OF TEST SETUP

Configure 1: (Normal hopping)



Note: Owing to the EUT has own battery, and testing may be performed while adapter or PC removed.

Configure 2: (Control continuous TX)



2.5. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Mfr/Brand	Model/Type No.	Remark
1	Soundcore Icon Mini	Soundcore	A3121	EUT
2	Battery	FT	FT503450P	Accessory
3	PC	APPLE	A1465	A.E
4	IPOD	APPLE	A1367	A.E
5	Control box	DOFLY	N/A	A.E
6	Adapter	IPRO	NTR-S01	A.E
7	USB Cable	N/A	0.6m unshielded	Accessory
8	AUX in Cable	N/A	1.0m unshielded	A.E
9	Mobile phone	HUAWEI	V9	A.E
10	Temporary Antenna Connector	T10	N/A	A.E

Note: The temporary antenna connector is a RF SMA connector with fifty ohm resistor, which is welded to the PCB board or module.

**2.6. MEASUREMENT INSTRUMENTS LIST****TEST EQUIPMENT OF CONDUCTED EMISSION TEST**

Item	Equipment	Manufacturer	Model No.	Lab Equipment No.	Last Cal.	Cal. Interval
1.	L.I.S.N. Artificial Mains Network	R&S	ENV216	HKE-002	Dec. 28, 2017	1 Year
2.	Receiver	R&S	ESCI 7	HKE-010	Dec. 28, 2017	1 Year

TEST EQUIPMENT OF RADIATED EMISSION TEST

Item	Equipment	Manufacturer	Model No.	Lab Equipment No.	Last Cal.	Cal. Interval
1.	Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 28, 2017	1 Year
2.	Preamplifier	Schwarzbeck	BBV 9743	HKE-006	Dec. 28, 2017	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESCI 7	HKE-010	Dec. 28, 2017	1 Year
4.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	HKE-012	Dec. 28, 2017	1 Year
5.	Loop Antenna	Schwarzbeck	FMZB 1519 B	HKE-014	Dec. 28, 2017	1 Year
6.	Horn Antenna	Schwarzbeck	9120D	HKE-013	Dec. 28, 2017	1 Year
7.	Broad-band Horn Antenna	A-INFOMW	LB-180400-KF	HKE-031	Dec. 28, 2017	1 Year
8.	Pre-amplifier	EMCI	EMC051845SE	HKE-015	Dec. 28, 2017	1 Year
9.	Pre-amplifier	Agilent	83051A	HKE-016	Dec. 28, 2017	1 Year
10.	Radiation Cable 1	MXT	HK1	R05	N/A	N/A
11.	Radiation Cable 2	MXT	HK1	R06	N/A	N/A



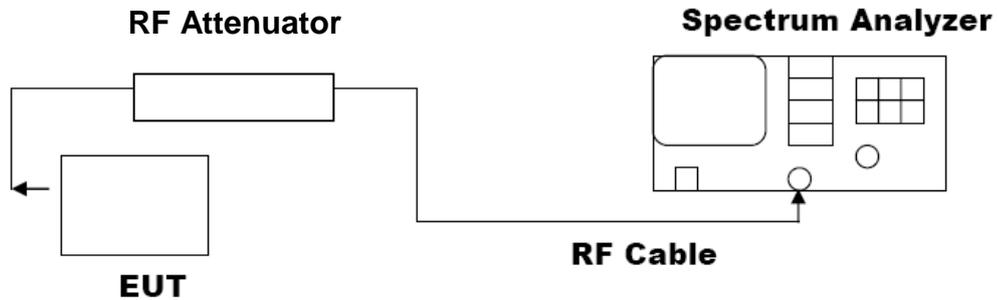
3. PEAK OUTPUT POWER

3.1. MEASUREMENT PROCEDURE

For peak power test:

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, middle and the bottom operation frequency individually.
3. $RBW >$ the 20 dB bandwidth of the emission being measured, $VBW \geq RBW$.
4. Record the maximum power from the Spectrum Analyzer.
5. The maximum peak power shall be less 1W (30dBm).

3.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)





3.3. LIMITS AND MEASUREMENT RESULT

PEAK OUTPUT POWER MEASUREMENT RESULT FOR GFSK MOUDULATION			
Frequency (GHz)	Peak Power (dBm)	Applicable Limits (dBm)	Pass or Fail
2.402	-4.852	30	Pass
2.441	-3.301	30	Pass
2.480	-1.998	30	Pass

CH0





CH39



CH78





PEAK OUTPUT POWER MEASUREMENT RESULT FOR Π /4-DQPSK MODULATION			
Frequency (GHz)	Peak Power (dBm)	Applicable Limits (dBm)	Pass or Fail
2.402	-2.129	30	Pass
2.441	-0.579	30	Pass
2.480	0.719	30	Pass

CH0





CH39



CH78





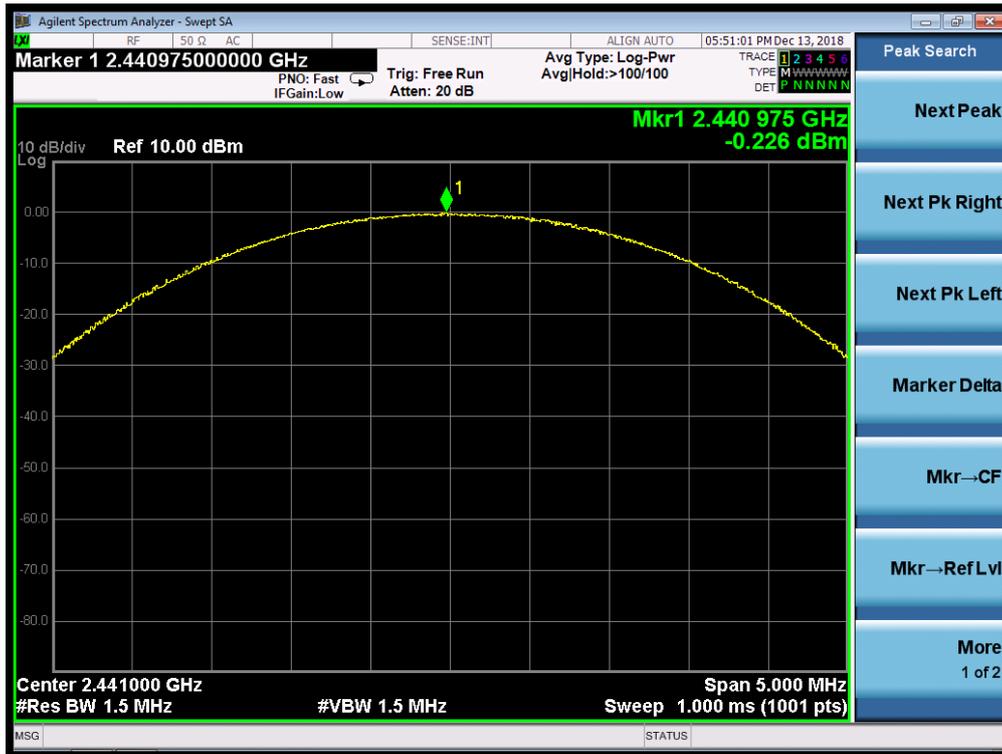
PEAK OUTPUT POWER MEASUREMENT RESULT FOR 8DPSK MODULATION			
Frequency (GHz)	Peak Power (dBm)	Applicable Limits (dBm)	Pass or Fail
2.402	-1.844	30	Pass
2.441	-0.226	30	Pass
2.480	0.990	30	Pass

CH0

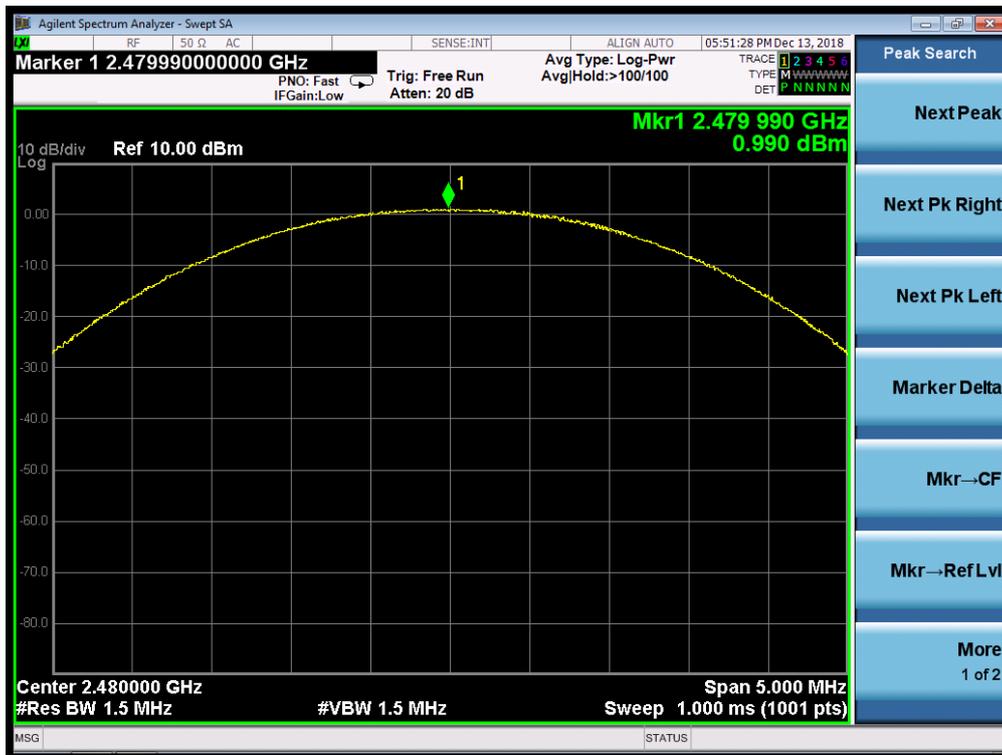




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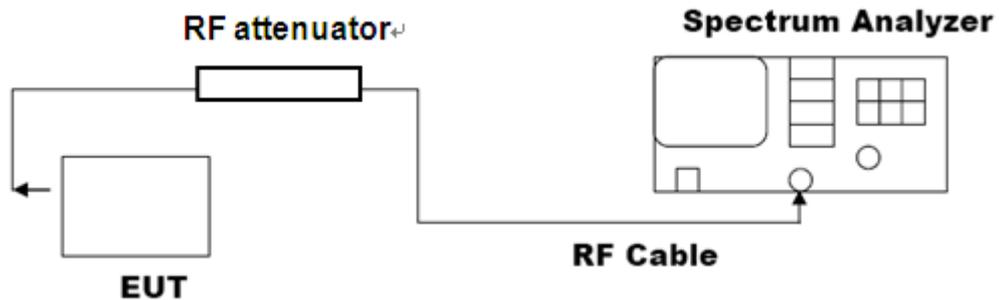


4. BANDWIDTH

4.1. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hoping channel
RBW \geq 1% of the 20 dB bandwidth, VBW \geq 3RBW; Sweep = auto; Detector function = peak
4. Set SPA Trace 1 Max hold, then View.

4.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



Note: The EUT has been used temporary antenna connector for testing.

4.3. LIMITS AND MEASUREMENT RESULTS

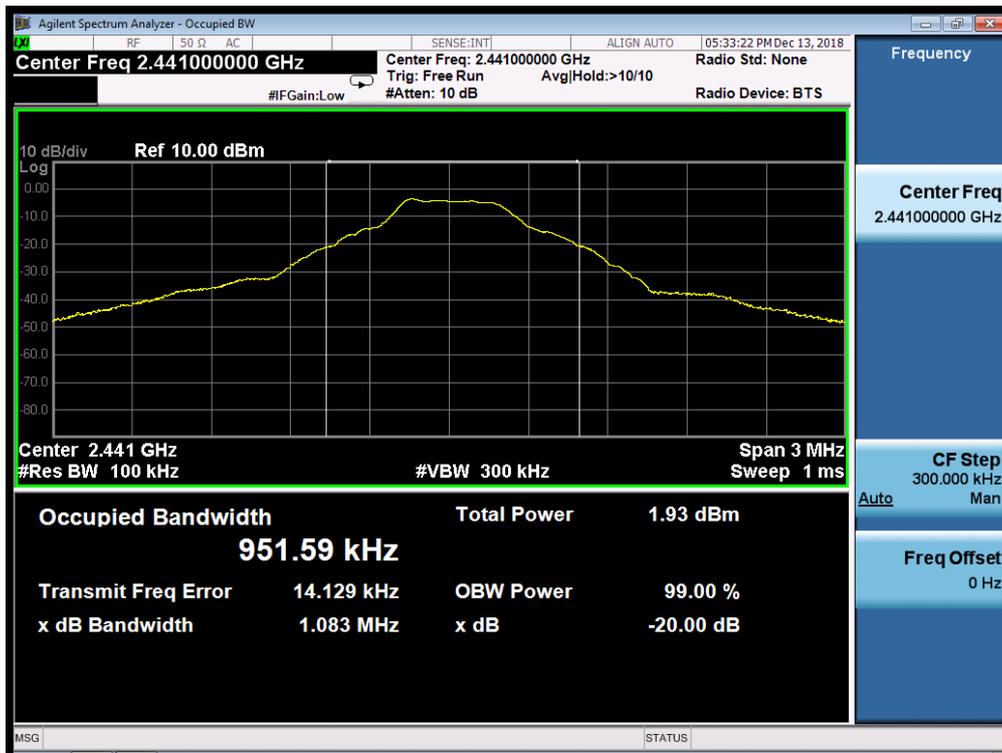
BLUETOOTH 1MBPS LIMITS AND MEASUREMENT RESULT				
Applicable Limits	Measurement Result			
	Test Data (MHz)			Result
		99%OBW (MHz)	-20dB BW(MHz)	
N/A	Low Channel	0.953	1.084	PASS
	Middle Channel	0.952	1.083	PASS
	High Channel	0.951	1.082	PASS



TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL





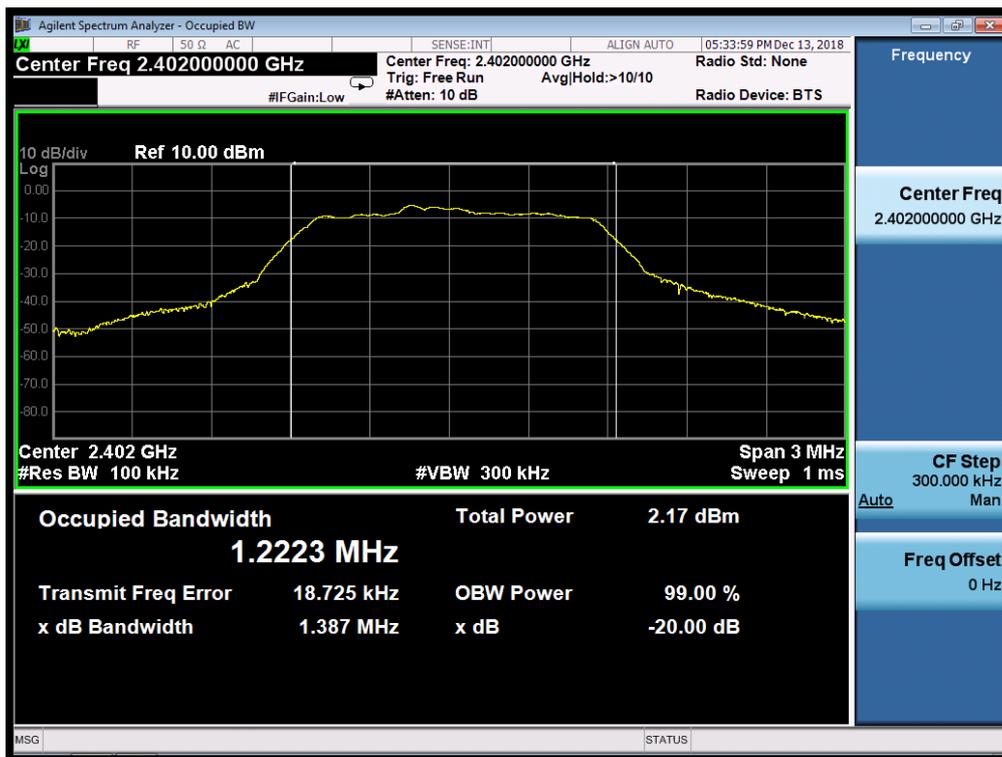
TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL





BLUETOOTH 2MBPS LIMITS AND MEASUREMENT RESULT				
Applicable Limits	Measurement Result			
	Test Data (MHz)			Result
		99%OBW (MHz)	-20dB BW(MHz)	
N/A	Low Channel	1.222	1.387	PASS
	Middle Channel	1.224	1.389	PASS
	High Channel	1.224	1.391	PASS

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL





TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL





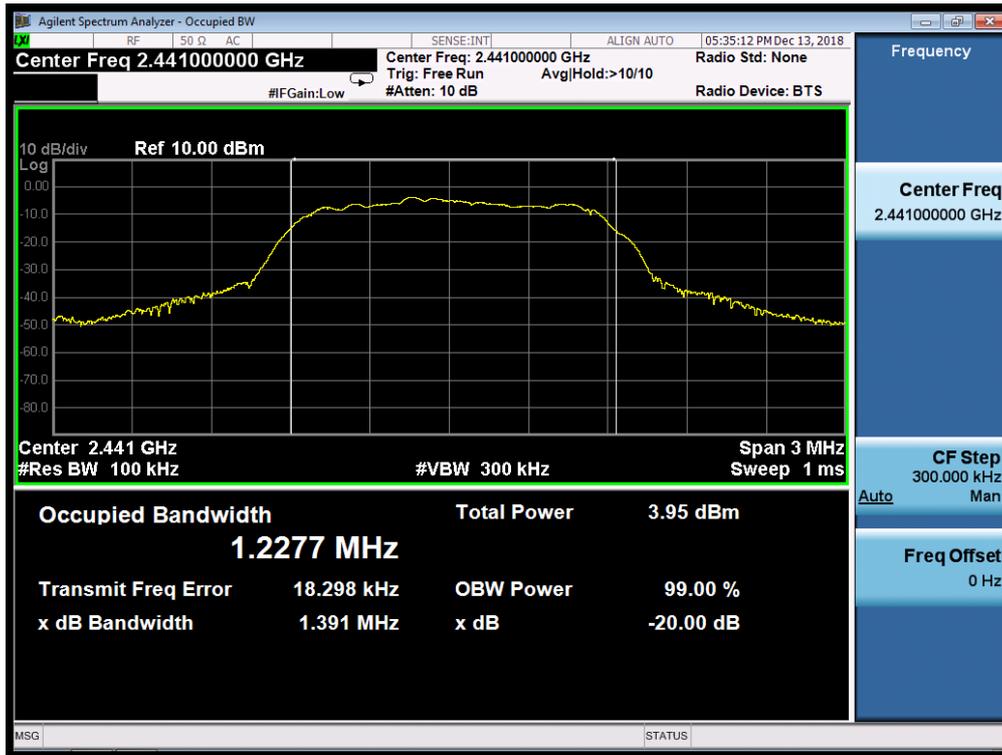
BLUETOOTH 3MBPS LIMITS AND MEASUREMENT RESULT				
Applicable Limits	Measurement Result			
	Test Data (MHz)			Result
		99%OBW (MHz)	-20dB BW(MHz)	
N/A	Low Channel	1.227	1.389	PASS
	Middle Channel	1.228	1.391	PASS
	High Channel	1.229	1.388	PASS

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL





TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

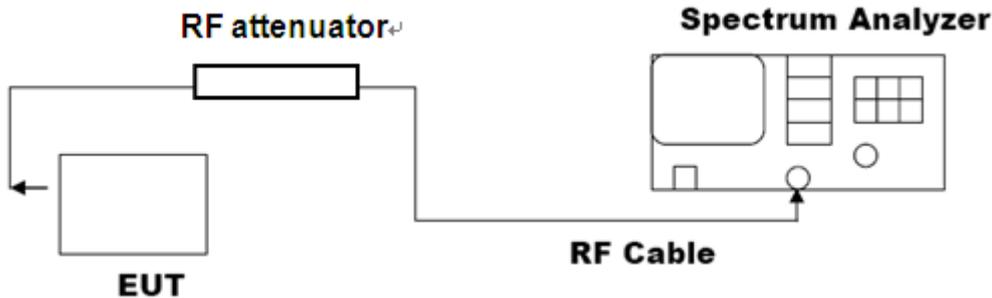


5. CONDUCTED SPURIOUS EMISSION

5.1. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the Middle and the bottom operation frequency individually.
3. Set the Span = wide enough to capture the peak level of the in-band emission and all spurious emissions from the lowest frequency generated in the EUT up through the 10th harmonic.
RBW = 100 kHz; VBW = 300kHz; Sweep = auto; Detector function = peak.
4. Set SPA Trace 1 Max hold, then View.

5.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

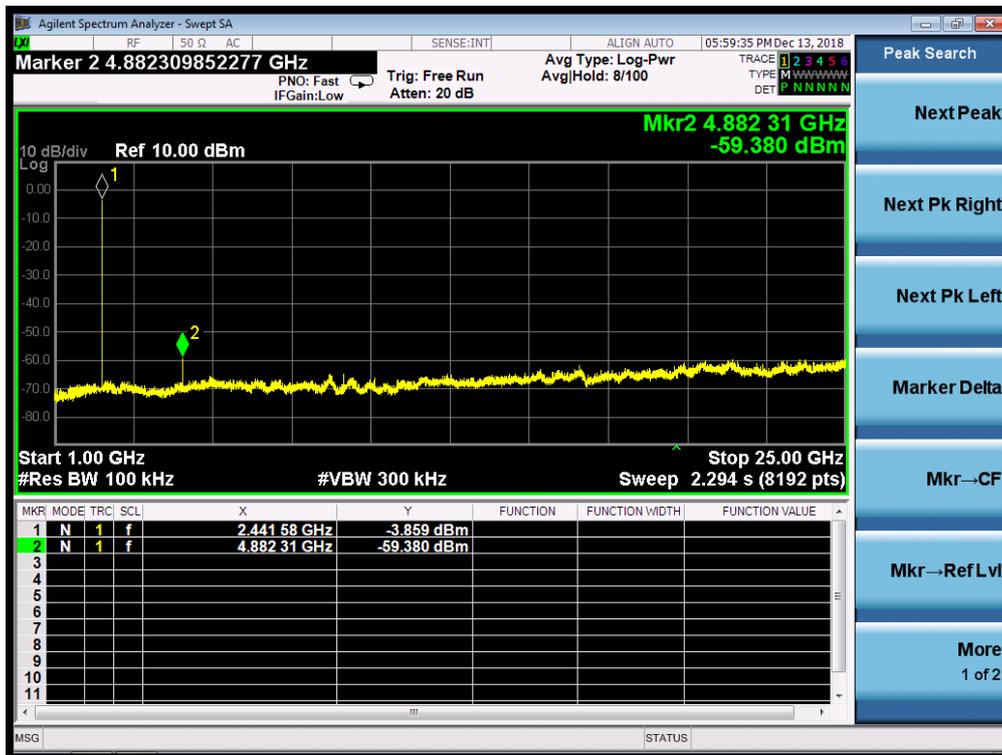
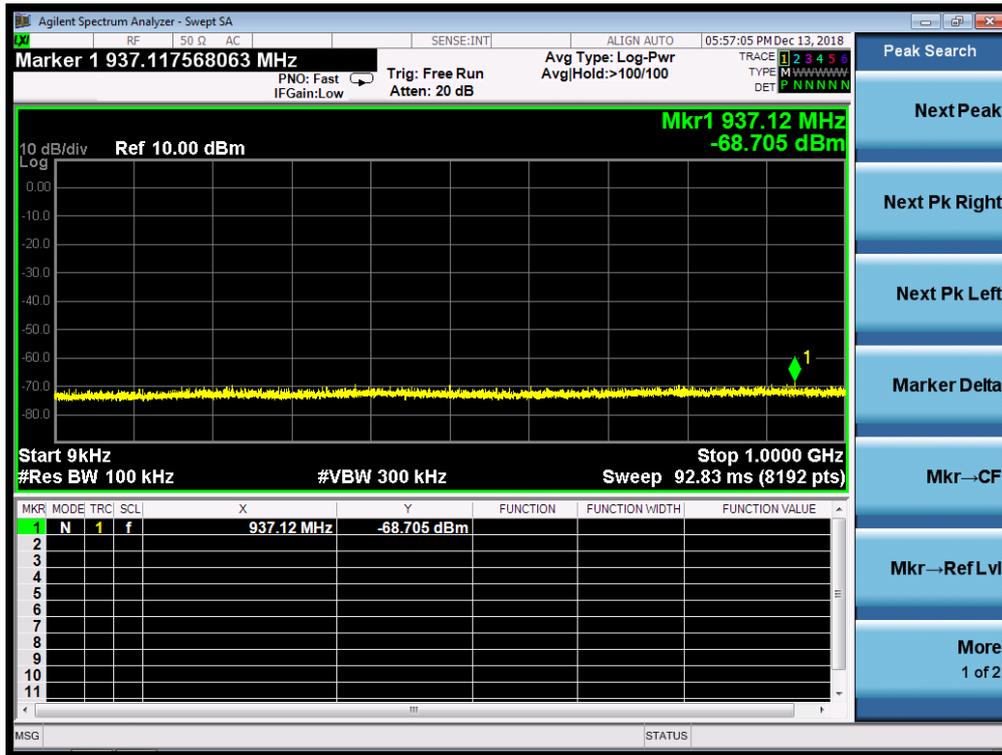


5.3. LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT		
Applicable Limits	Measurement Result	
	Test Data	Result
<p>In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.</p>	At least -20dBc than the limit Specified on the BOTTOM Channel	PASS
	At least -20dBc than the limit Specified on the TOP Channel	PASS



TEST PLOT OF OUT OF BAND EMISSIONS OF 8DPSK MODULATION IN MIDDLE CHANNEL





6. RADIATED EMISSION

6.1. MEASUREMENT PROCEDURE

1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground. EUT is placed in the middle of the desk, and opposite the horn antenna.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. For the radiated emission test above 1GHz:
Place the measurement antenna away from each area of the EUT determined to be a source of emission at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4m above the ground or reference ground plane.
6. All readings are Peak mode value unless otherwise stated AVG in column of Note. If the Peak mode measured value compliance with the Peak limits and lower than AVG Limits, the EUT shall be deemed to meet Peak&AVG limits and then only Peak mode was measured, but AVG mode didn't perform.(Above 1GHz)



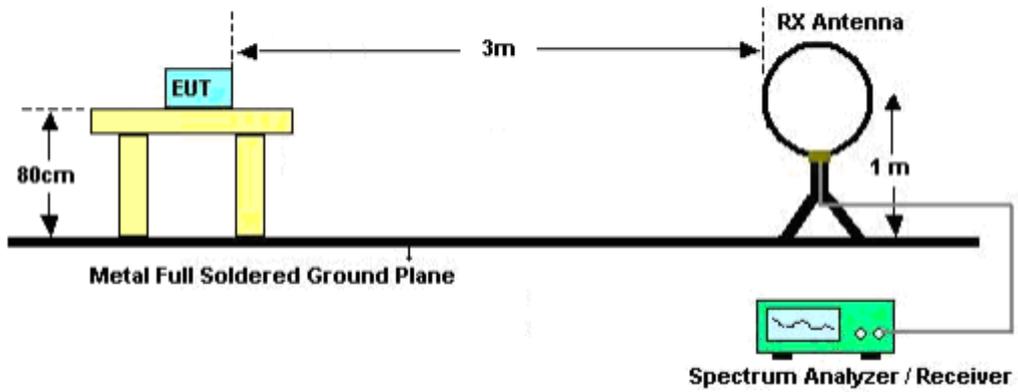
The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
Start ~Stop Frequency	1GHz~26.5GHz RBW 1MHz/ VBW 3MHz for Peak, RBW 1MHz/ VBW 10Hz for Average

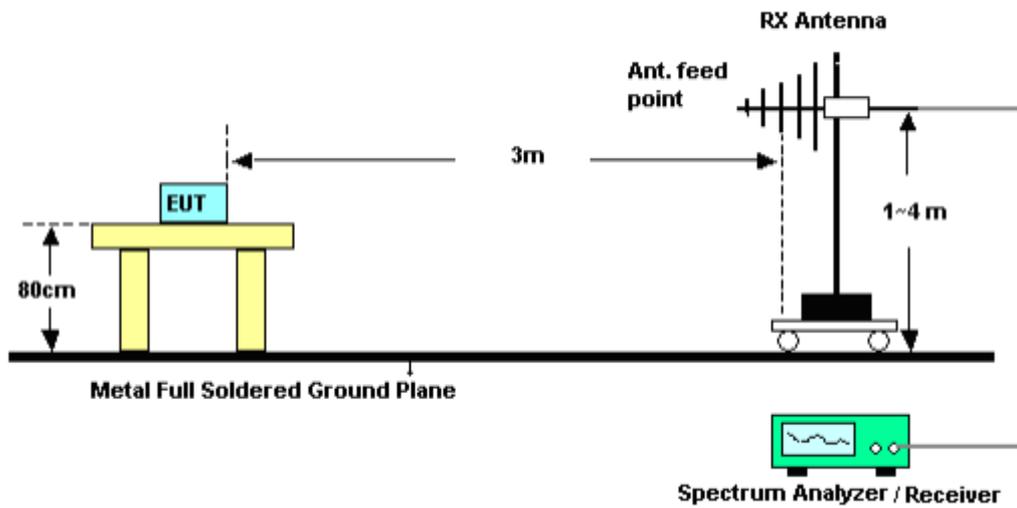
Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

6.2. TEST SETUP

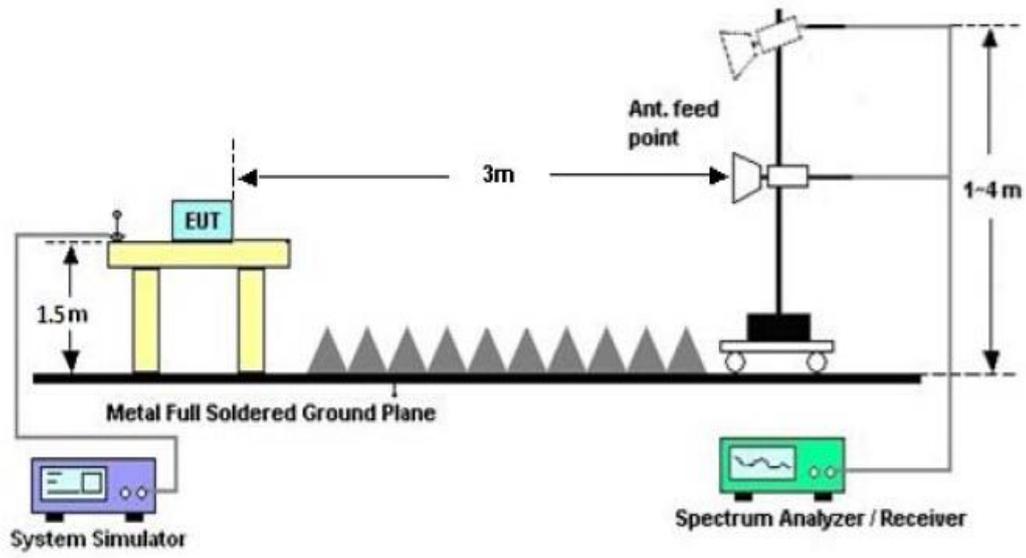
RADIATED EMISSION TEST SETUP BELOW 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz





6.. TEST RESULT

(Worst Modulation: 8DPSK)

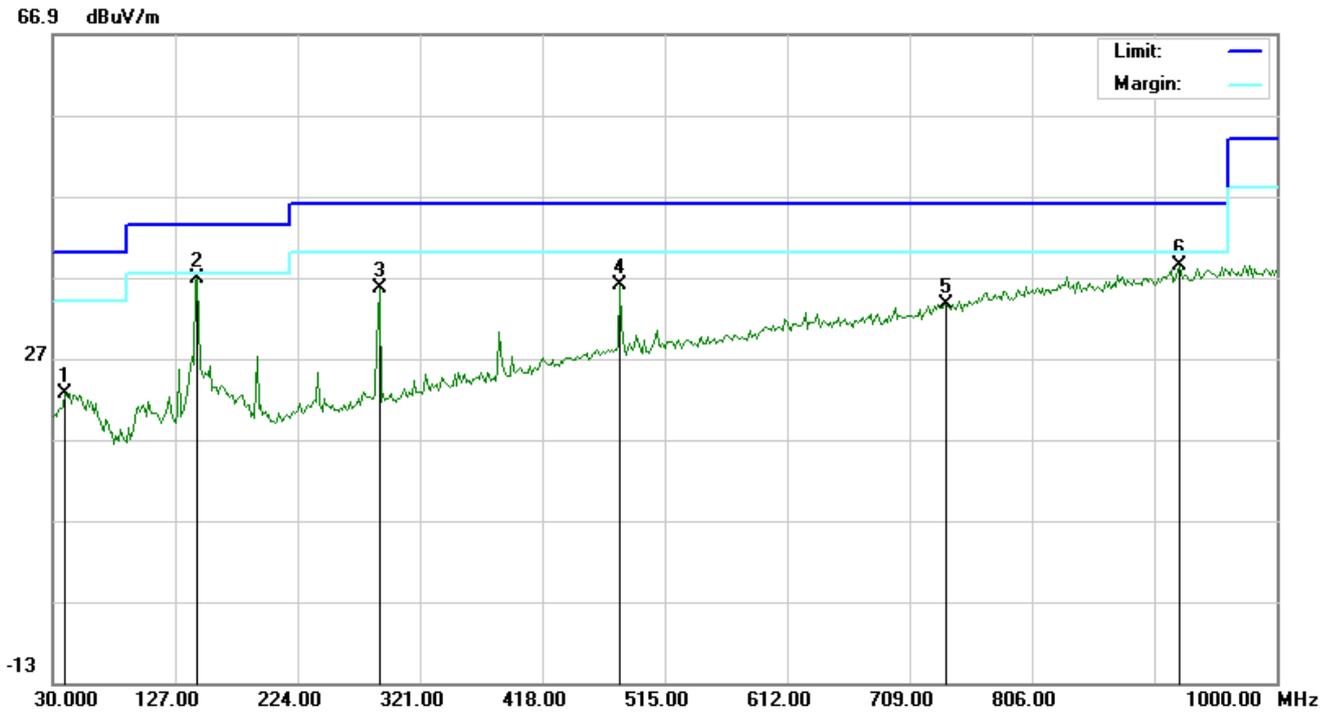
RADIATED EMISSION BELOW 30MHz

No emission found between lowest internal used/generated frequencies to 30MHz.



RADIATED EMISSION BELOW 1GHz

RADIATED EMISSION TEST- (30MHz-1GHz)-LOW CHANNEL-HORIZONTAL

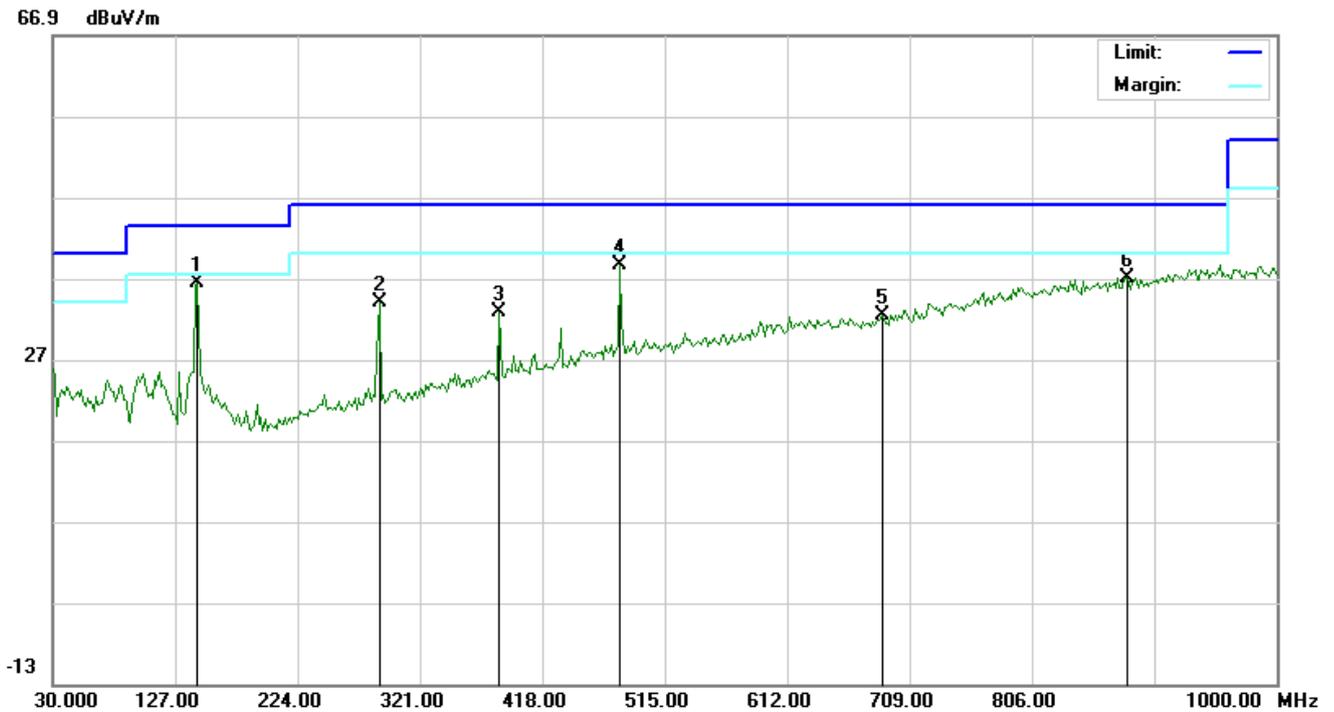


No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna	Table	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		Height	Degree	
									cm	degree	
1		39.7000	1.13	21.51	22.64	40.00	-17.36	peak			
2	*	144.7831	16.64	20.24	36.88	43.50	-6.62	peak			
3		288.6666	14.27	21.29	35.56	46.00	-10.44	peak			
4		479.4332	9.31	26.67	35.98	46.00	-10.02	peak			
5		738.1000	1.98	31.67	33.65	46.00	-12.35	peak			
6		922.3999	3.47	34.89	38.36	46.00	-7.64	peak			

RESULT: PASS



RADIATED EMISSION TEST - (30MHz-1GHz)-LOW CHANNEL -VERTICAL



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	144.7831	16.26	20.24	36.50	43.50	-7.00	peak			
2		288.6666	12.62	21.29	33.91	46.00	-12.09	peak			
3		384.0500	8.65	24.25	32.90	46.00	-13.10	peak			
4		479.4333	12.00	26.67	38.67	46.00	-7.33	peak			
5		687.9833	1.80	30.56	32.36	46.00	-13.64	peak			
6		881.9833	2.66	34.40	37.06	46.00	-8.94	peak			

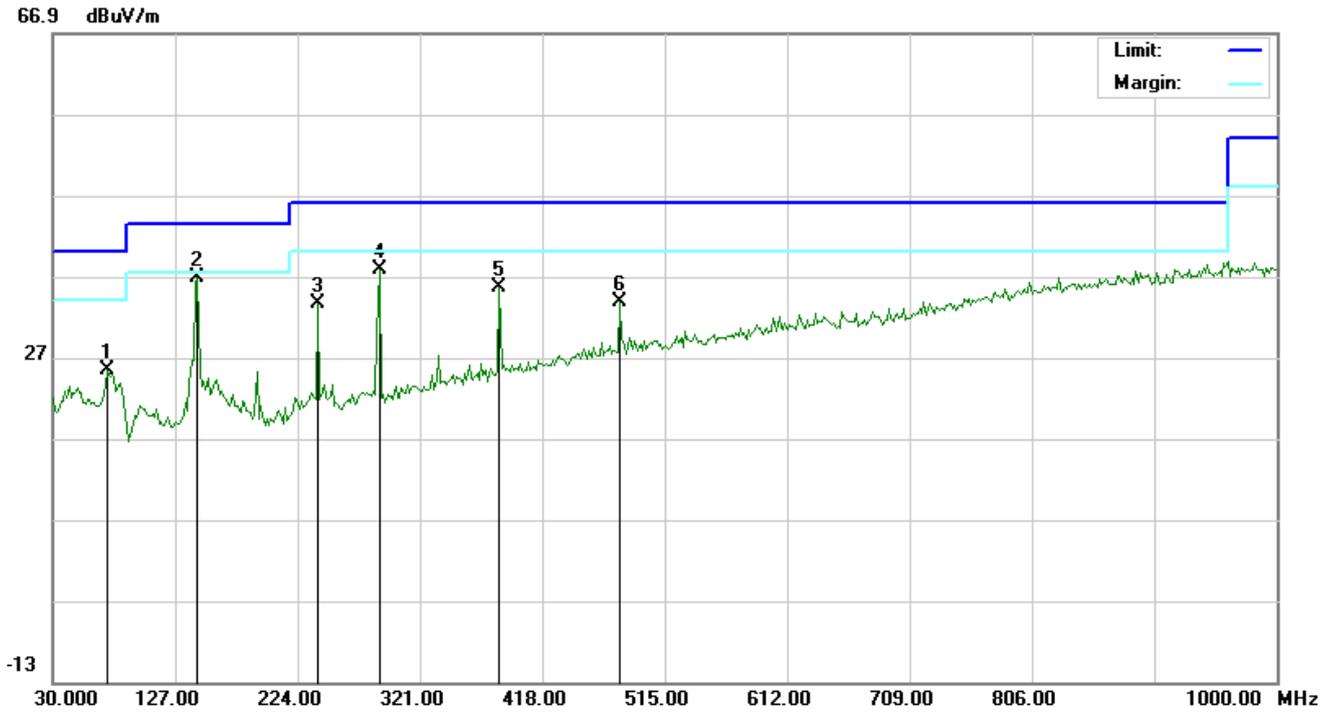
RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.



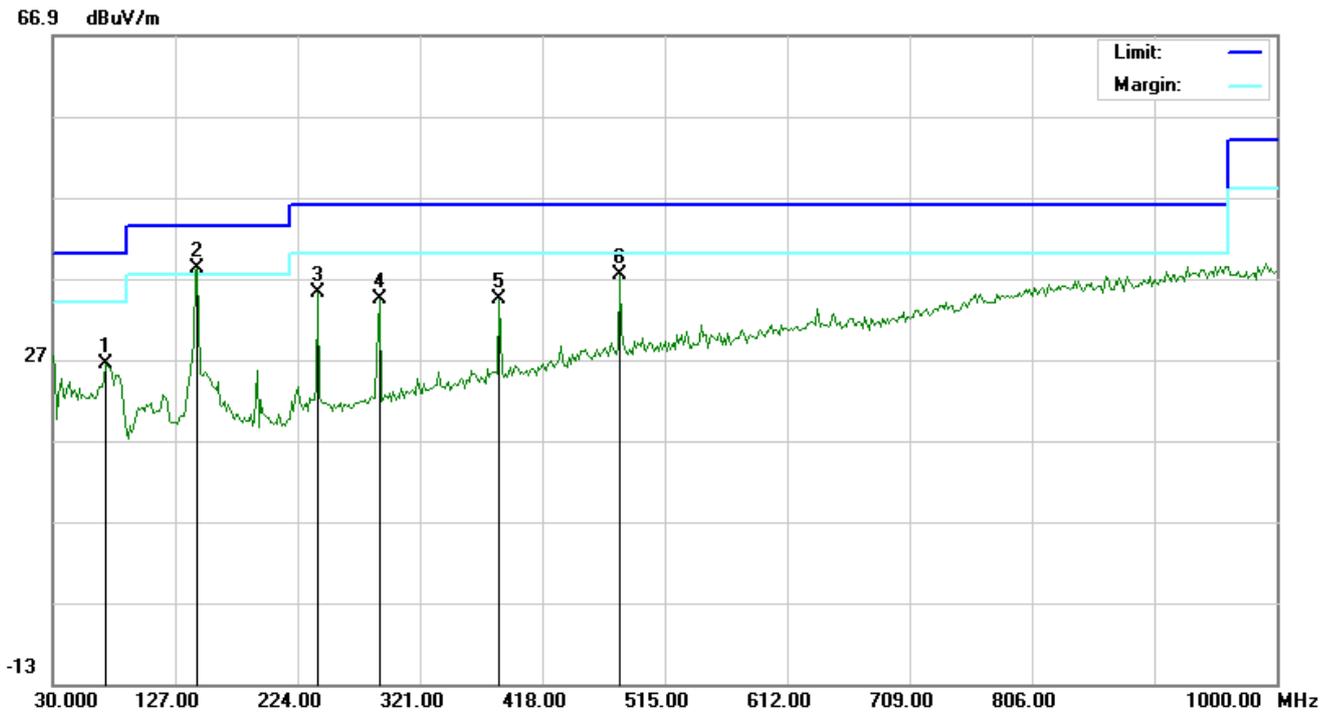
RADIATED EMISSION TEST- (30MHz-1GHz)-MIDDLE CHANNEL-HORIZONTAL



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		73.6500	8.33	17.06	25.39	40.00	-14.61	peak			
2	*	144.7831	16.58	20.24	36.82	43.50	-6.68	peak			
3		240.1666	13.45	20.11	33.56	46.00	-12.44	peak			
4		288.6666	16.58	21.29	37.87	46.00	-8.13	peak			
5		384.0500	11.38	24.25	35.63	46.00	-10.37	peak			
6		479.4332	7.13	26.67	33.80	46.00	-12.20	peak			



RADIATED EMISSION TEST- (30MHz-1GHz)- MIDDLE CHANNEL -VERTICAL



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		72.0332	8.92	17.41	26.33	40.00	-13.67	peak			
2	*	144.7833	18.05	20.24	38.29	43.50	-5.21	peak			
3		240.1667	15.02	20.11	35.13	46.00	-10.87	peak			
4		288.6666	13.18	21.29	34.47	46.00	-11.53	peak			
5		384.0500	10.11	24.25	34.36	46.00	-11.64	peak			
6		479.4333	10.79	26.67	37.46	46.00	-8.54	peak			

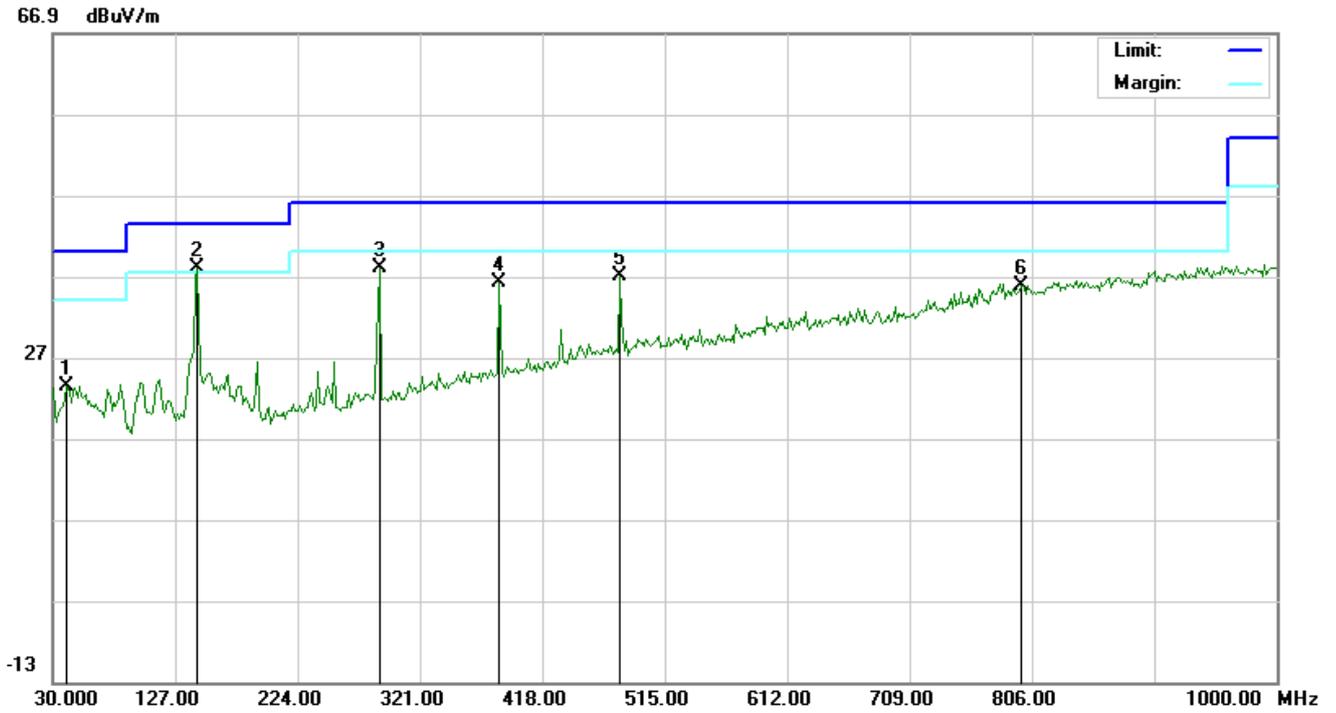
RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.



RADIATED EMISSION TEST- (30MHz-1GHz)-HIGH CHANNEL-HORIZONTAL

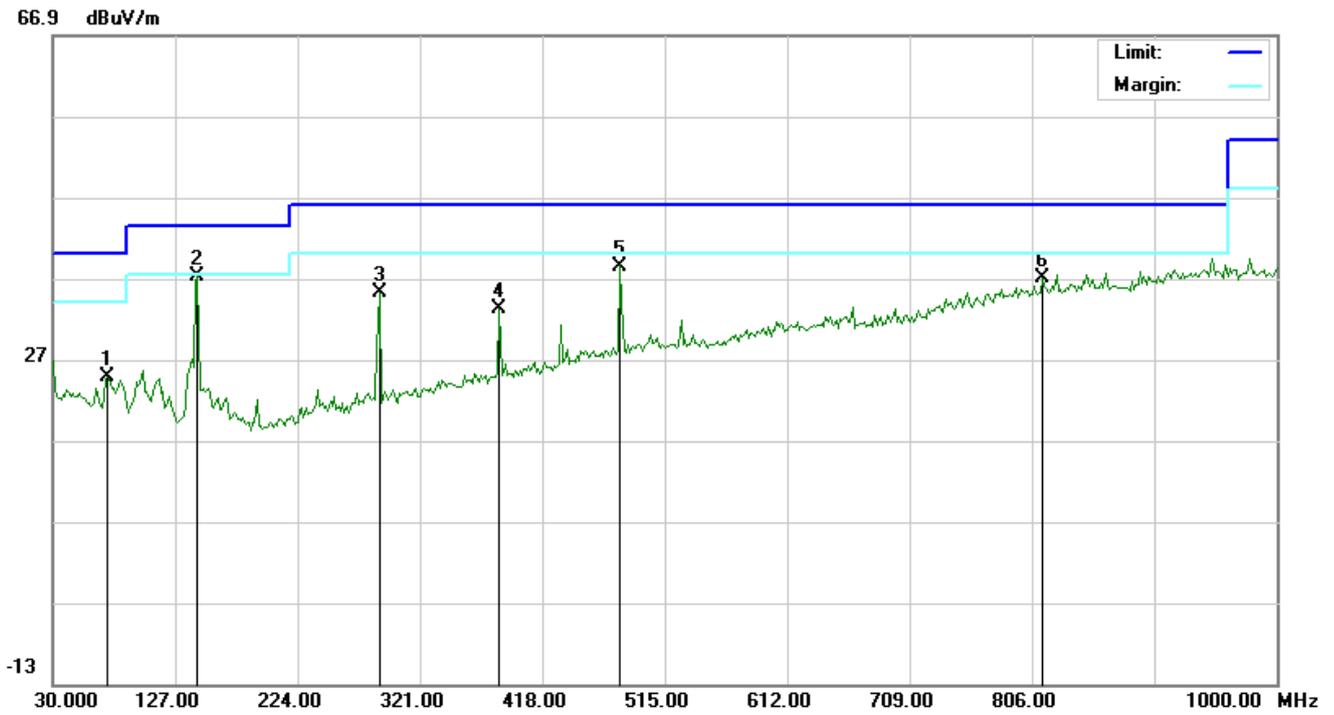


No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		41.3166	1.82	21.60	23.42	40.00	-16.58	peak			
2	*	144.7831	17.78	20.24	38.02	43.50	-5.48	peak			
3		288.6666	16.68	21.29	37.97	46.00	-8.03	peak			
4		384.0500	11.89	24.25	36.14	46.00	-9.86	peak			
5		479.4332	10.27	26.67	36.94	46.00	-9.06	peak			
6		797.9166	2.71	33.12	35.83	46.00	-10.17	peak			

RESULT: PASS



RADIATED EMISSION TEST- (30MHz-1GHz)-HIGH CHANNEL -VERTICAL



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		73.6500	7.75	17.06	24.81	40.00	-15.19	peak			
2	*	144.7833	17.03	20.24	37.27	43.50	-6.23	peak			
3		288.6666	13.99	21.29	35.28	46.00	-10.72	peak			
4		384.0500	9.00	24.25	33.25	46.00	-12.75	peak			
5		479.4333	11.83	26.67	38.50	46.00	-7.50	peak			
6		814.0833	3.64	33.38	37.02	46.00	-8.98	peak			

RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

**RADIATED EMISSION ABOVE 1GHz**

EUT :	Soundcore Icon Mini	Model Name. :	A3121
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	Mode 7	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
4804.026	42.22	7.12	49.34	74	-24.66	peak
4804.026	39.44	7.12	46.56	54	-7.44	AVG
7206.039	37.39	9.84	47.23	74	-26.77	peak
7206.039	34.41	9.84	44.25	54	-9.75	AVG

Remark:

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

EUT :	Soundcore Icon Mini	Model Name. :	A3121
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	Mode 7	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
4804.026	41.78	7.12	48.9	74	-25.1	peak
4804.026	38.36	7.12	45.48	54	-8.52	AVG
7206.039	36.69	9.84	46.53	74	-27.47	peak
7206.039	33.21	9.84	43.05	54	-10.95	AVG

Remark:

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



EUT :	Soundcore Icon Mini	Model Name. :	A3121
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	Mode 8	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
4882.032	42.25	7.12	49.37	74	-24.63	peak
4882.032	39.17	7.12	46.29	54	-7.71	AVG
7323.048	37.13	9.84	46.97	74	-27.03	peak
7323.048	34.09	9.84	43.93	54	-10.07	AVG

Remark:

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

EUT :	Soundcore Icon Mini	Model Name. :	A3121
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	Mode 8	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
4882.032	41.79	7.12	48.91	74	-25.09	peak
4882.032	38.58	7.12	45.7	54	-8.3	AVG
7323.048	38.49	9.84	48.33	74	-25.67	peak
7323.048	35.25	9.84	45.09	54	-8.91	AVG

Remark:

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



EUT :	Soundcore Icon Mini	Model Name. :	A3121
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	Mode 9	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
4960.042	43.17	7.12	50.29	74	-23.71	peak
4960.042	39.89	7.12	47.01	54	-6.99	AVG
7440.063	38.38	9.84	48.22	74	-25.78	peak
7440.063	35.04	9.84	44.88	54	-9.12	AVG

Remark:

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

EUT :	Soundcore Icon Mini	Model Name. :	A3121
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	Mode 9	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
4960.042	42.75	7.12	49.87	74	-24.13	peak
4960.042	38.69	7.12	45.81	54	-8.19	AVG
7440.063	37.48	9.84	47.32	74	-26.68	peak
7440.063	34.16	9.84	44	54	-10	AVG

Remark:

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

Note: 6~25GHz at least have 20dB margin. No recording in the test report.

Factor=Antenna Factor+ Cable loss-Amplifier gain, Margin=Measurement-Limit.

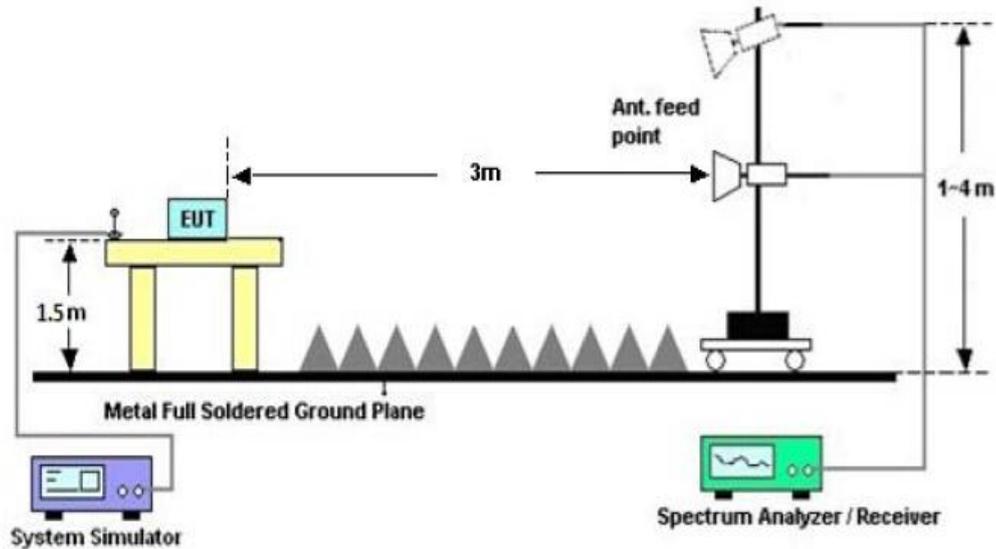
The “Factor” value can be calculated automatically by software of measurement system.

7. BAND EDGE EMISSION

7.1. MEASUREMENT PROCEDURE

1. Set the EUT Work on the top, the bottom operation frequency individually.
2. Set SPA Start or Stop Frequency=Operation Frequency,
For unrestricted band: RBW=100kHz, VBW=300kHz
For restricted band: RBW=1MHz, VBW=3*RBW
Center frequency =Operation frequency
3. The band edges was measured and recorded.

7.2. TEST SET-UP

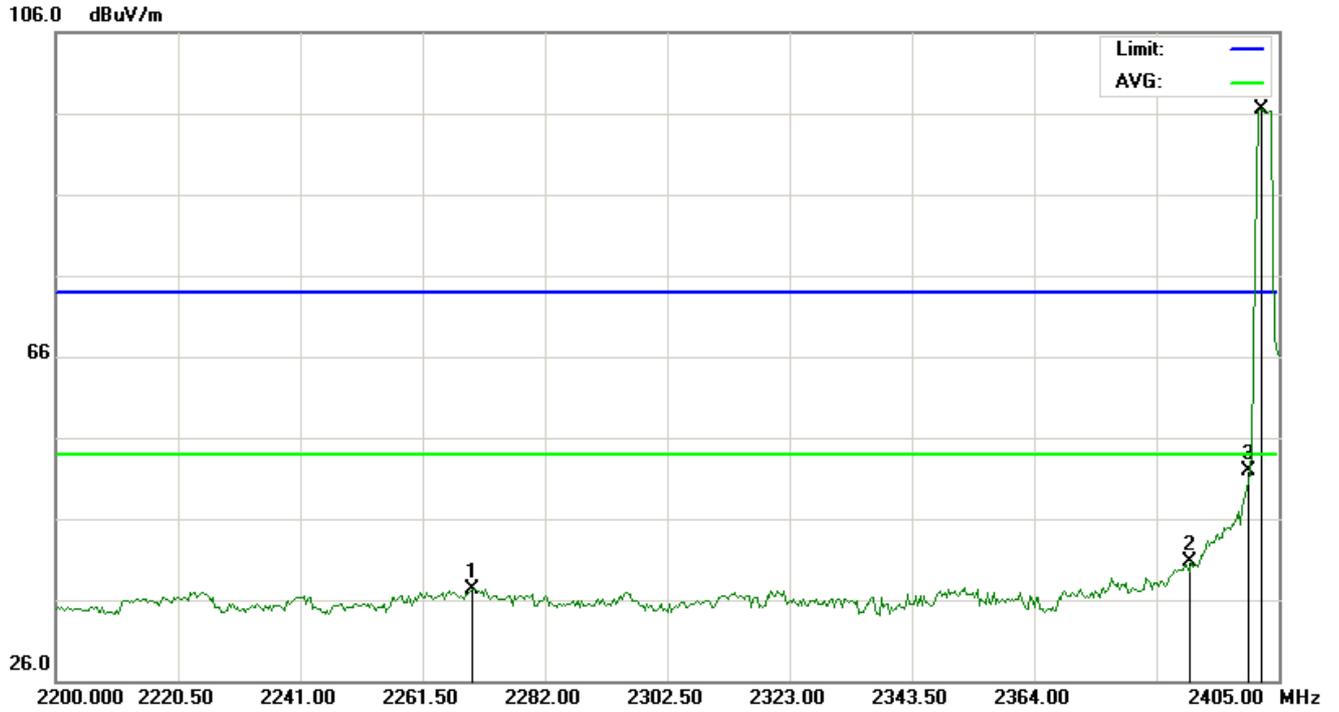




7.3. TEST RESULT

(Worst Modulation: 8DPSK)

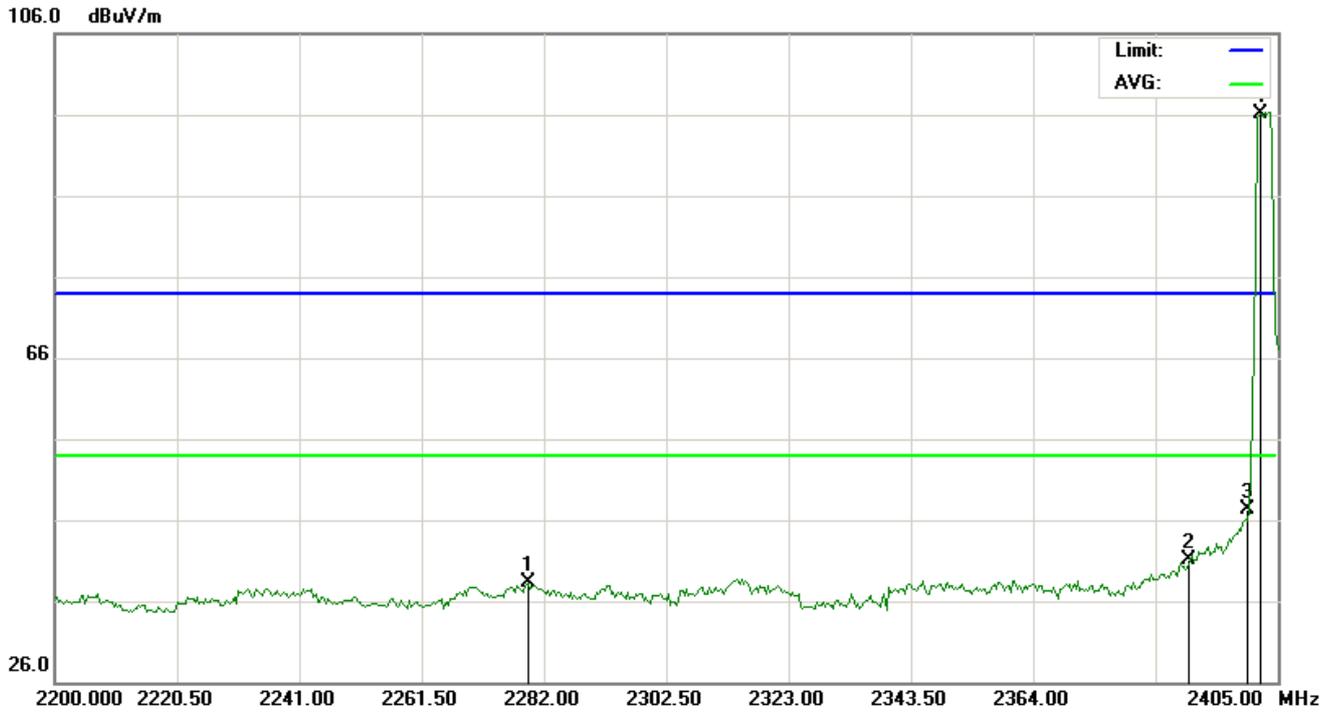
TEST PLOT OF BAND EDGE FOR LOW CHANNEL (3Mbps)-Horizontal



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna	Table	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		Height	Degree	
									cm	degree	
1		2269.700	23.81	13.45	37.26	74.00	-36.74	peak			
2		2390.000	27.17	13.46	40.63	74.00	-33.37	peak			
3		2400.000	38.44	13.46	51.90	74.00	-22.10	peak			
4	*	2402.000	83.05	13.46	96.51	74.00	22.51	peak			



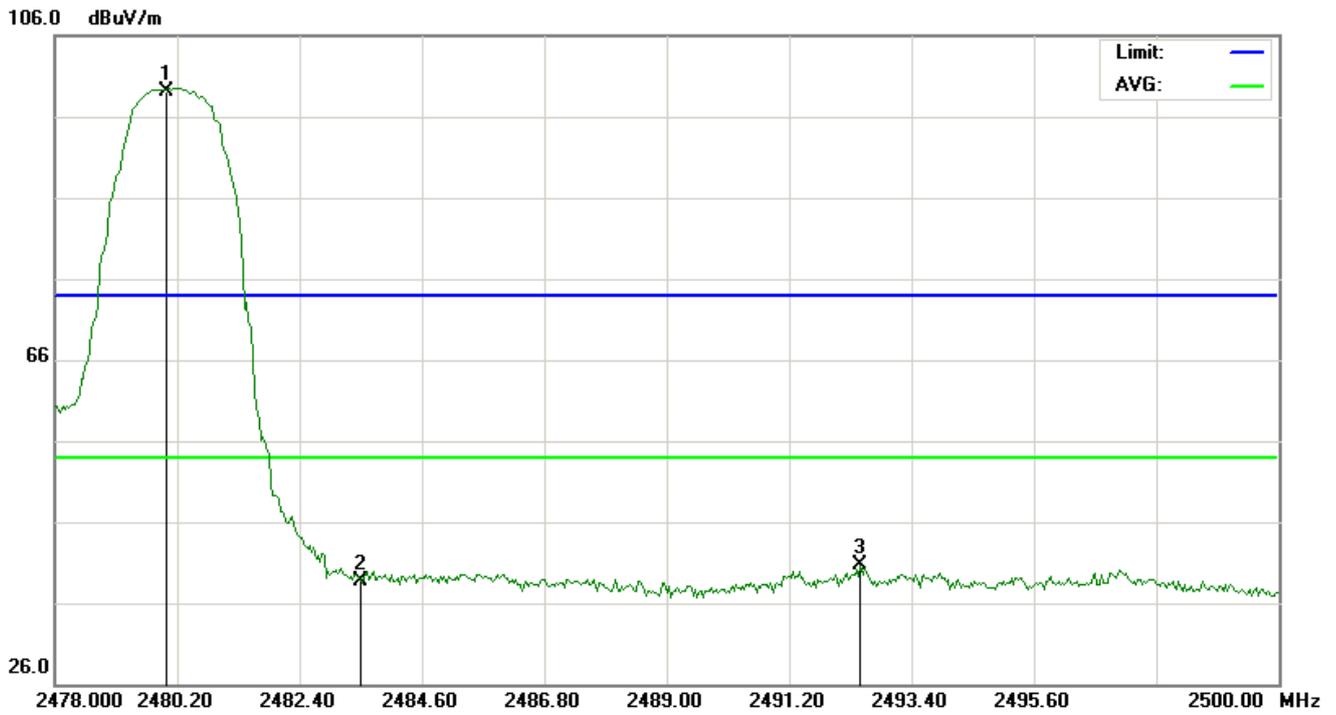
TEST PLOT OF BAND EDGE FOR LOW CHANNEL (3Mbps)-Vertical



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2279.267	24.76	13.45	38.21	74.00	-35.79	peak			
2		2390.000	27.67	13.46	41.13	74.00	-32.87	peak			
3		2400.000	33.94	13.46	47.40	74.00	-26.60	peak			
4	*	2402.000	82.65	13.46	96.11	74.00	22.11	peak			



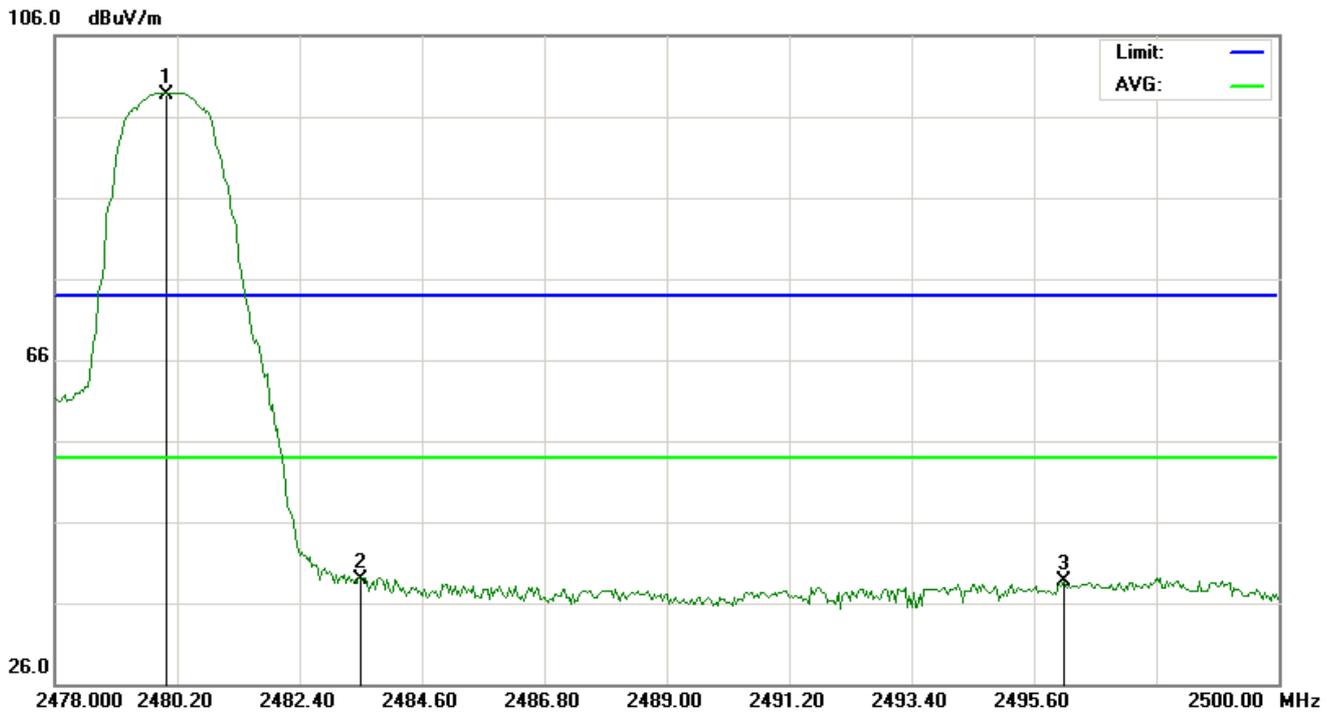
TEST PLOT OF BAND EDGE FOR HIGH CHANNEL (3Mbps)-Horizontal



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2480.000	84.91	14.11	99.02	74.00	25.02	peak			
2		2483.500	24.66	14.13	38.79	74.00	-35.21	peak			
3		2492.483	26.53	14.18	40.71	74.00	-33.29	peak			



TEST PLOT OF BAND EDGE FOR HIGH CHANNEL (3Mbps)-Vertical



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2480.000	84.50	14.11	98.61	74.00	24.61	peak			
2		2483.500	24.72	14.13	38.85	74.00	-35.15	peak			
3		2496.150	24.49	14.21	38.70	74.00	-35.30	peak			

RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

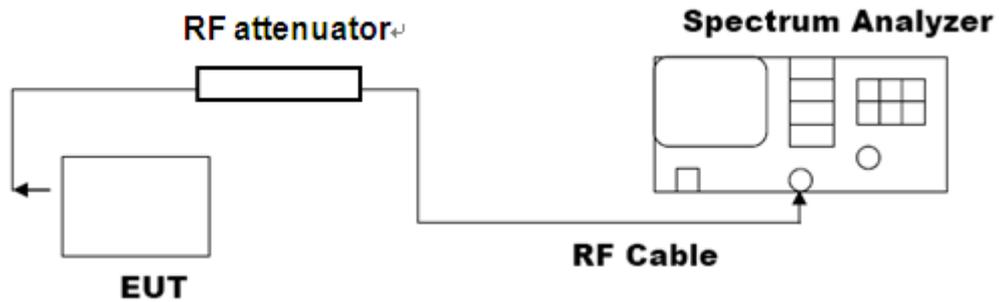
- 2. The "Factor" value can be calculated automatically by software of measurement system.
- 3. Hopping off and Hopping on have been tested and only worst case recorded

8. NUMBER OF HOPPING FREQUENCY

8.1. MEASUREMENT PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer Start = 2.4GHz Stop = 2.4835GHz
4. Set the Spectrum Analyzer as RBW \geq 1%span, VBW \geq 3RBW.

8.2. TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)



8.3. LIMITS AND MEASUREMENT RESULT

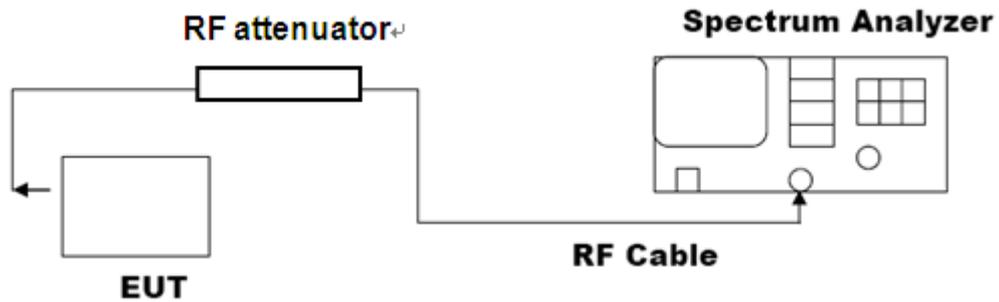
TOTAL NO. OF HOPPING CHANNEL	LIMIT (NO. OF CH)	MEASUREMENT (NO. OF CH)	RESULT
	≥ 15	79	PASS

9. TIME OF OCCUPANCY (DWELL TIME)

9.1. MEASUREMENT PROCEDURE

1. Place the EUT on the table and set it in transmitting mode
2. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum analyzer.
3. Set Span = zero span, centered on a hopping channel
4. Set the spectrum analyzer as RBW=1MHz, VBW>=RBW, Span = 0 Hz

9.2. TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)



9.3. LIMITS AND MEASUREMENT RESULT

The Worst Case (3Mbps)

Channel	Time of Pulse for DH5 (ms)	Period Time (s)	Sweep Time (ms)	Limit (ms)
Low	2.933	31.6	312.85	400
Middle	2.917	31.6	311.15	400
High	2.917	31.6	311.15	400

Low Channel Time

$$2.933 * (1600/6) / 79 * 31.6 = 312.85 \text{ms}$$

Middle Channel Time

$$2.917 * (1600/6) / 79 * 31.6 = 311.15 \text{ms}$$

High Channel Time

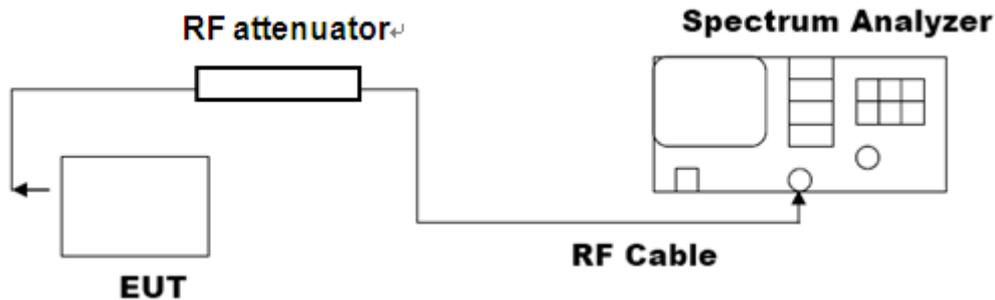
$$2.917 * (1600/6) / 79 * 31.6 = 311.15 \text{ms}$$

10. FREQUENCY SEPARATION

10.1. MEASUREMENT PROCEDURE

1. Place the EUT on the table and set it in transmitting mode
2. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum analyzer
3. Set Span = wide enough to capture the peaks of two adjacent channels Resolution (or IF) Bandwidth (RBW) \geq 1% of the span Video (or Average) Bandwidth (VBW) \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold

10.2. TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)



10.3. LIMITS AND MEASUREMENT RESULT

CHANNEL	CHANNEL SEPARATION	LIMIT	RESULT
	KHz	KHz	
CH00-CH01	1000	≥ 25 KHz or 2/3 20 dB BW	Pass

11. LINE CONDUCTED EMISSION TEST

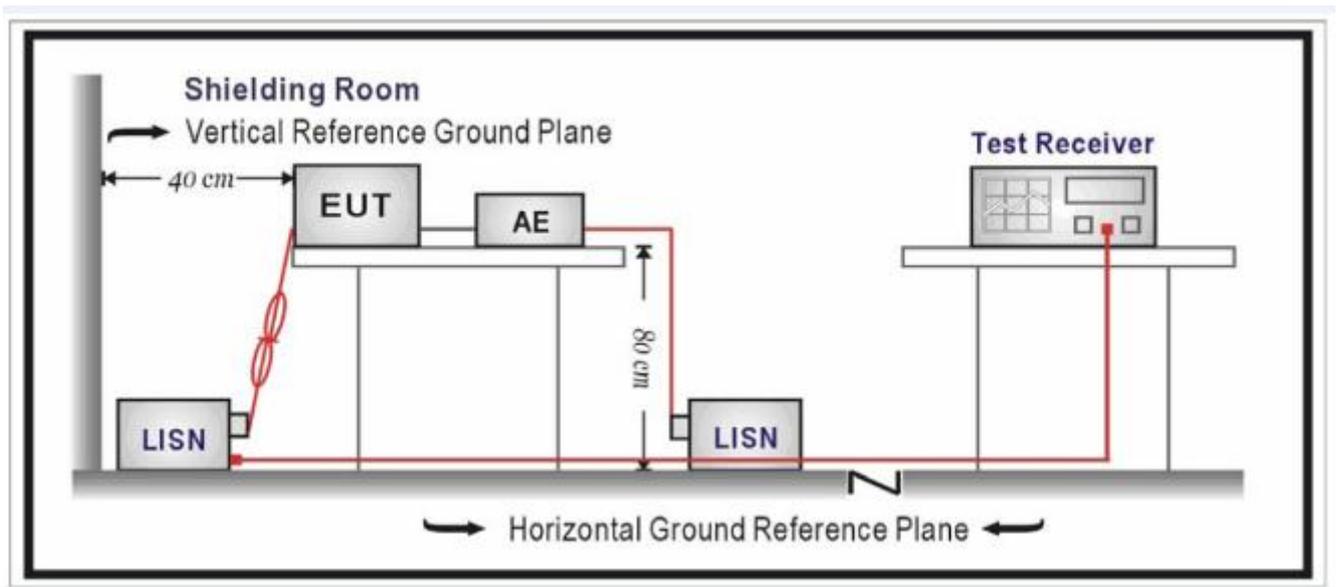
11.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Note:

1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

11.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST





11.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
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. All support equipments received AC120V/60Hz power from a LISN, if any.
5. The EUT received DC charging voltage by adapter which received 120V/60Hz power by a LISN.
6. The 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.
8. During the above scans, the emissions were maximized by cable manipulation.
9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

11.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less -2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
3. The test data of the worst case condition(s) was reported on the Summary Data page.

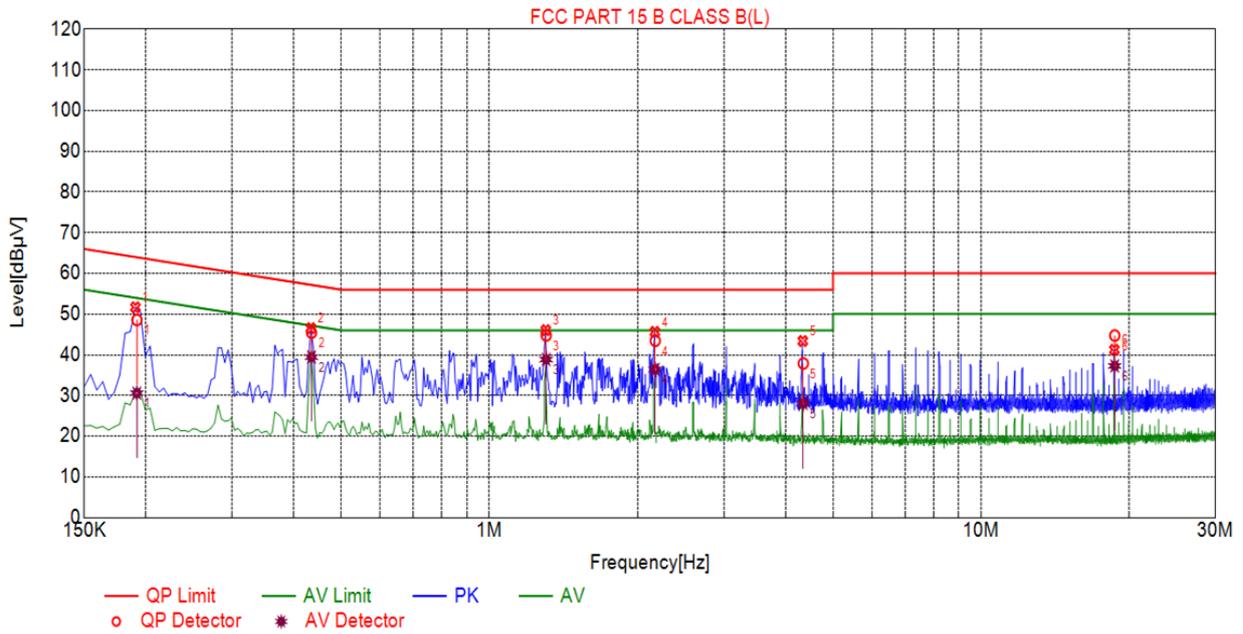


11.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

By adapter (worst case)

FOR BR/EDR

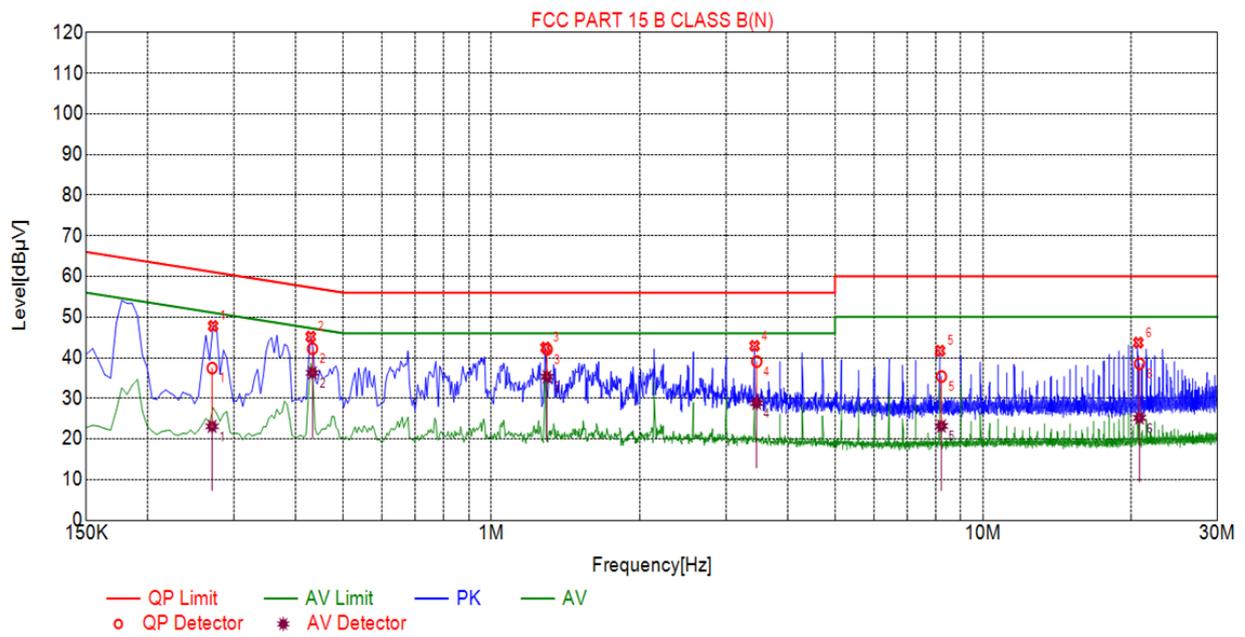
Line Conducted Emission Test Line 1-L



Final Data List								
NO.	Freq [MHz]	Factor [dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]
1	0.1918	10.04	48.56	63.96	15.40	30.58	53.96	23.38
2	0.4346	10.05	45.45	57.16	11.71	39.45	47.16	7.71
3	1.3043	10.10	44.77	56.00	11.23	38.84	46.00	7.16
4	2.1736	10.16	43.47	56.00	12.53	36.39	46.00	9.61
5	4.3494	10.25	37.88	56.00	18.12	28.04	46.00	17.96
6	18.7046	10.06	44.74	60.00	15.26	37.27	50.00	12.73



Line Conducted Emission Test Line 2-N



Final Data List								
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]
1	0.2703	10.03	37.45	61.11	23.66	23.11	51.11	28.00
2	0.4324	10.05	42.22	57.21	14.99	36.27	47.21	10.94
3	1.2977	10.10	42.07	56.00	13.93	35.31	46.00	10.69
4	3.4648	10.25	39.05	56.00	16.95	28.82	46.00	17.18
5	8.2289	10.14	35.37	60.00	24.63	23.19	50.00	26.81
6	20.8132	10.13	38.51	60.00	21.49	25.19	50.00	24.81



12. ANTENNA REQUIREMENT

Standard Applicable

For intentional device, according to RSS-GEN, 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.

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.



APPENDIX A: PHOTOGRAPH OF TEST

Refer to Attached file(appendix I)

APPENDIX B: PHOTOGRAPHS OF EUT

Refer to Attached file(appendix I)

----END OF REPORT----