



RF TEST REPORT

Report No.: SET2018-04682

Product Name: Mobile Data Terminal

FCC ID: 2AC6AC3000

Model No. : C3000

Applicant: ShenZhen Chainway Information Technology Co.,Ltd.

Address: 6F,Building A,Tsinghua Information Harbor, Hi-tech& Industrial Park, Nanshan, Shenzhen, Guangdong, China

Dates of Testing: 04/13/2018 — 05/03/2018

Issued by: CCIC-SET

Lab Location: Building 28/29, East of Shigu Xili Industrial Zone, Nanshan District Shenzhen, Guangdong 518055, China

Tel: 86 755 26627338 **Fax:** 86 755 26627238

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Test Report

Product Name: Mobile Data Terminal

Brand Name: CHAINWAY

Trade Name: CHAINWAY

Applicant: ShenZhen Chainway Information Technology Co.,Ltd.

Applicant Address: 6F,Building A,Tsinghua Information Harbor, Hi-tech& Industrial Park, Nanshan, Shenzhen, Guangdong, China

Manufacturer: ShenZhen Chainway Information Technology Co.,Ltd.

Manufacturer Address: 6F,Building A,Tsinghua Information Harbor, Hi-tech& Industrial Park, Nanshan, Shenzhen, Guangdong, China

Test Standards: 47 CFR Part 15 Subpart C: Radio Frequency Devices
ANSI C63.10:2013: American National Standard for Testing Unlicensed Wireless Devices
DA 00-705: Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems

Test Result: PASS

Tested by: Fly Fan
Fly Fan, Test Engineer 2018.05.03

Reviewed by: Zhu Qi
Zhu Qi, Senior Engineer 2018.05.03

Approved by: Smart Li
Smart Li, Manager 2018.05.03



Table of contents

RF TEST REPORT1

1. GENERAL INFORMATION4

1.1. EUT Description4

1.2. Test Standards and Results5

1.3. Description of Test Mode6

1.4. Facilities and Accreditations7

2. 47 CFR PART 15C REQUIREMENTS8

2.1. Antenna requirement8

2.2. Number of Hopping Frequency9

2.3. Peak Output Power11

2.4. Bandwidth12

2.5. Carried Frequency Separation16

2.6. Dwell time19

2.7. Conducted Spurious Emissions24

2.8. Conducted Band Edge28

2.9. Conducted Emission30

2.10. Radiated Band Edges and Spurious Emission34

3. LIST OF MEASURING EQUIPMENT41

Change History		
Issue	Date	Reason for change
1.0	2018.05.03	First edition

1. General Information

1.1. EUT Description

EUT Type	Mobile Data Terminal
Hardware Version	N/A
Software Version	N/A
Power Supply	5.0Vdc(adapter or host equipment) 3.7Vdc(Li-ion battery)
Frequency Range	902MHz~928MHz
Operating Range	902.75MHz~927.25MHz
Number of channel	50
Modulation Type	PR-ASK
Antenna Type	PATCH Antenna
Antenna Gain	1.8dBi

1.2. Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart C (ISM band radiators) for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 15 Subpart C 2017	Radio Frequency Devices
2	ANSI C63.10 2013	American National Standard for Testing Unlicensed Wireless Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Standard(s) Section	Description	Result
	FCC		
1	15.203	Antenna Requirement	PASS
2	15.247(a)	Number of Hopping Frequency	PASS
3	15.247(b)	Peak Output Power	PASS
4	15.247(a)	Bandwidth	PASS
5	15.247(a)	Carrier Frequency Separation	PASS
6	15.247(a)	Time of Occupancy (Dwell time)	PASS
7	15.247(d)	Conducted Spurious Emission	PASS
8	15.247(d)	Conducted Band Edge	PASS
9	15.207	Conducted Emission	PASS
10	15.209 15.247(c)	Radiated Band Edges and Spurious Emission	PASS

Note 1: The test of Radiated Emission was performed according to the method of measurements prescribed in ANSI C63.10 2013.

1.3. Description of Test Mode

Channel	Frequency(MHz)	Channel	Frequency(MHz)
1	902.75	26	915.25
2	903.25	27	915.75
3	903.75	28	916.25
4	904.25	29	916.75
5	904.75	30	917.25
6	905.25	31	917.75
7	905.75	32	918.25
8	906.25	33	918.75
9	906.75	34	919.25
10	907.25	35	919.75
11	907.75	36	920.25
12	908.25	37	920.75
13	908.75	38	921.25
14	909.25	39	921.75
15	909.75	40	922.25
16	910.25	41	922.75
17	910.75	42	923.25
18	911.25	43	923.75
19	911.75	44	924.25
20	912.25	45	924.75
21	912.75	46	925.25
22	913.25	47	925.75
23	913.75	48	926.25
24	914.25	49	926.75
25	914.75	50	927.25

Test channel: 1channel, 26 channel, 50channel



1.4. Facilities and Accreditations

1.4.1. Facilities

NVLAP Lab Code: 201008-0

CCIC-SET is a third party testing organization accredited by NVLAP according to ISO/IEC 17025. The accreditation certificate number is 201008-0.

FCC- Designation Number: CN5031

CCIC Southern Electronic Product Testing (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Designation Number: CN5031, valid time is until December 31, 2018.

ISED Registration: 11185A-1

CCIC Southern Electronic Product Testing (Shenzhen) Co., Ltd. EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 11185A-1 on Aug. 04, 2016, valid time is until Aug. 03, 2019

Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15 - 35
Relative Humidity (%):	30 -60
Atmospheric Pressure (kPa):	86KPa-106KPa

2. 47 CFR Part 15C Requirements

2.1. Antenna requirement

2.1.1. Applicable Standard

According to FCC 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

And according to FCC 47 CFR Section 15.247(c), 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.

2.1.2. Antenna Information

Antenna Category: PATCH Antenna

A PATCH Antenna was soldered to the antenna port of EUT via an adaptor cable, can't be removed.

Antenna General Information:

No.	EUT	Ant. Type	Gain(dBi)
1	Mobile Data Terminal	PATCH Antenna	1.8

2.1.3. Result: comply

The EUT has a permanently and irreplaceable attached antenna. Please refer to the EUT internal photos.

2.2. Number of Hopping Frequency

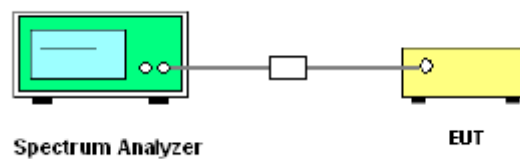
2.2.1. Limit of Number of Hopping Frequency

Frequency hopping systems operating in the 902MHz to 928MHz bands shall use at least 50 hopping frequencies.

2.2.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.2.3. Test Setup



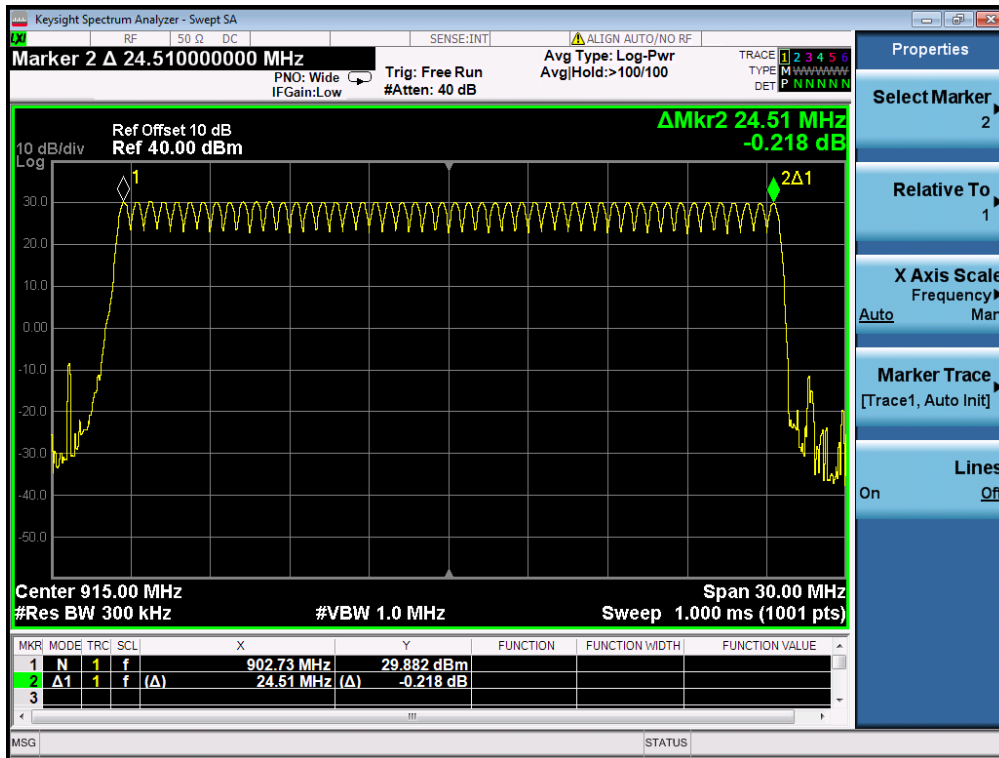
2.2.4. Test Procedure

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Enable the EUT hopping function.
5. Use the following spectrum analyzer settings: Span = the frequency band of operation;
RBW \geq 100KHz; VBW \geq RBW; Sweep = auto; Detector function = peak;
Trace = max hold.
6. The number of hopping frequency used is defined as the number of total channel.
7. Record the measurement data derived from spectrum analyzer.

2.2.5. Test Results of Number of Hopping Frequency

Frequency (MHz)	Measured Channel Numbers	Min. Limit	Verdict
902 - 928	50	50	PASS

2.2.6. Test Results (plots) of Number of Hopping Frequency



2.3. Peak Output Power

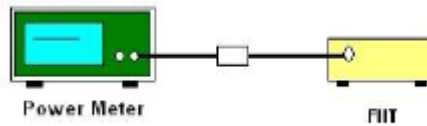
2.3.1. Limit of Peak Output Power

Section 15.247 (B)(2) For frequency hopping systems operating in the 902~928MHz band: 1 watt for systems employing at least 50 hopping channels.

2.3.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.3.3. Test Setup



2.3.4. Test Procedures

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power with cable loss and record the results in the test report.
5. Measure and record the results in the test report.

2.3.5. Test Result of Output Power

Channel	Frequency (MHz)	Measured Output Peak Power (dBm)	Limit (dBm)	Verdict
1	902.75	29.556	30	PASS
26	915.25	29.105		PASS
50	927.25	28.779		PASS

2.4. Bandwidth

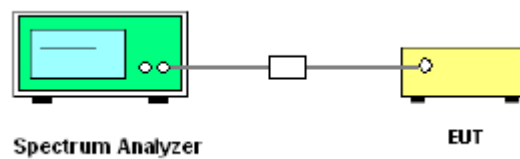
2.4.1. Definition

According to FCC §15.247(a)(1), the 20dB bandwidth is known as the 99% emission bandwidth, or 20dB bandwidth ($10 \cdot \log 1\% = 20\text{dB}$) taking the total RF output power.

2.4.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.4.3. Test Setup



2.4.4. Test Procedure

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Use the following spectrum analyzer settings for 20dB Bandwidth measurement.

Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel;

RBW \geq 1% of the 20 dB bandwidth; VBW \geq RBW; Sweep = auto; Detector function = peak;

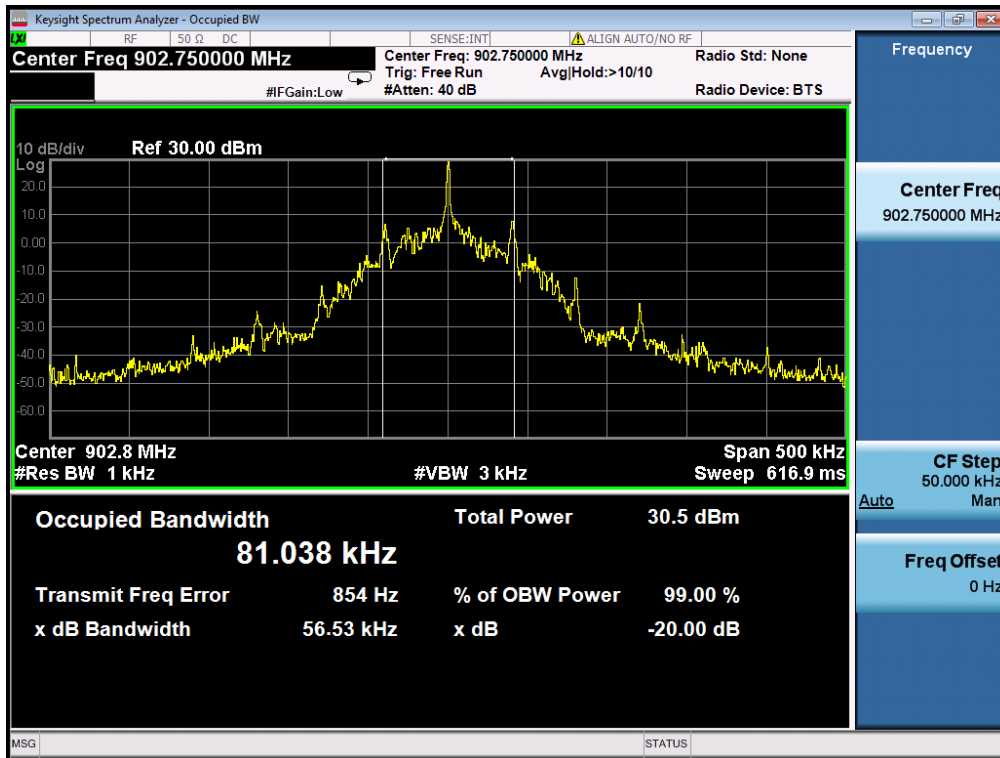
Trace = max hold.
5. Measure and record the results in the test report.



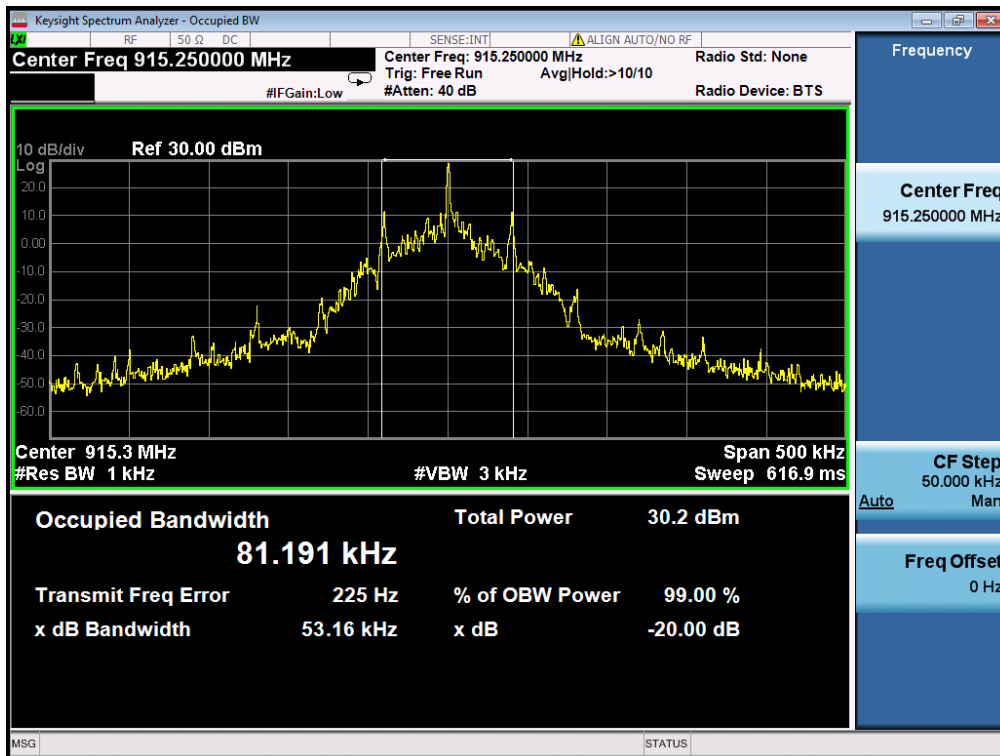
2.4.5. Test Results of 20dB Bandwidth

Channel	Frequency (MHz)	20dB Bandwidth (kHz)	99% bandwidth (kHz)
1	902.75	56.53	81.038
26	915.25	53.16	81.191
50	927.25	53.63	80.920

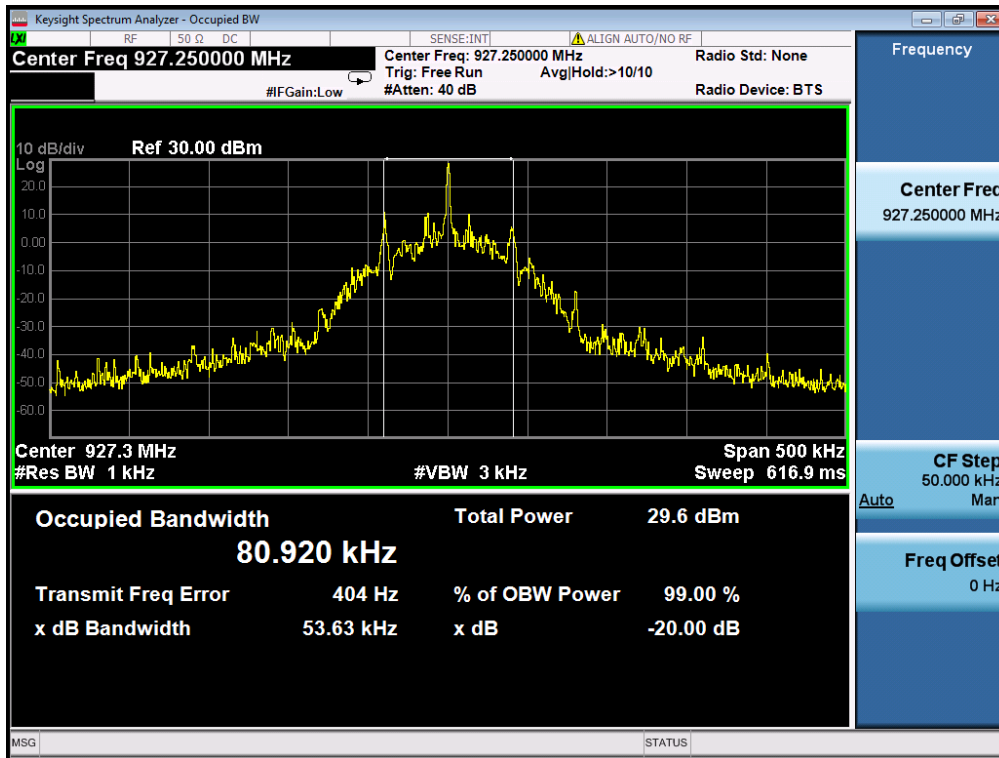
2.4.6. Test Results (plots) of Bandwidth



1 channel



26 channel



50 channel

2.5. Carried Frequency Separation

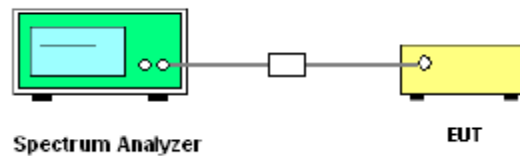
2.5.1. Limit of Carried Frequency Separation

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater.

2.5.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.5.3. Test Setup



2.5.4. Test Procedure

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Enable the EUT hopping function.
5. Use the following spectrum analyzer settings:

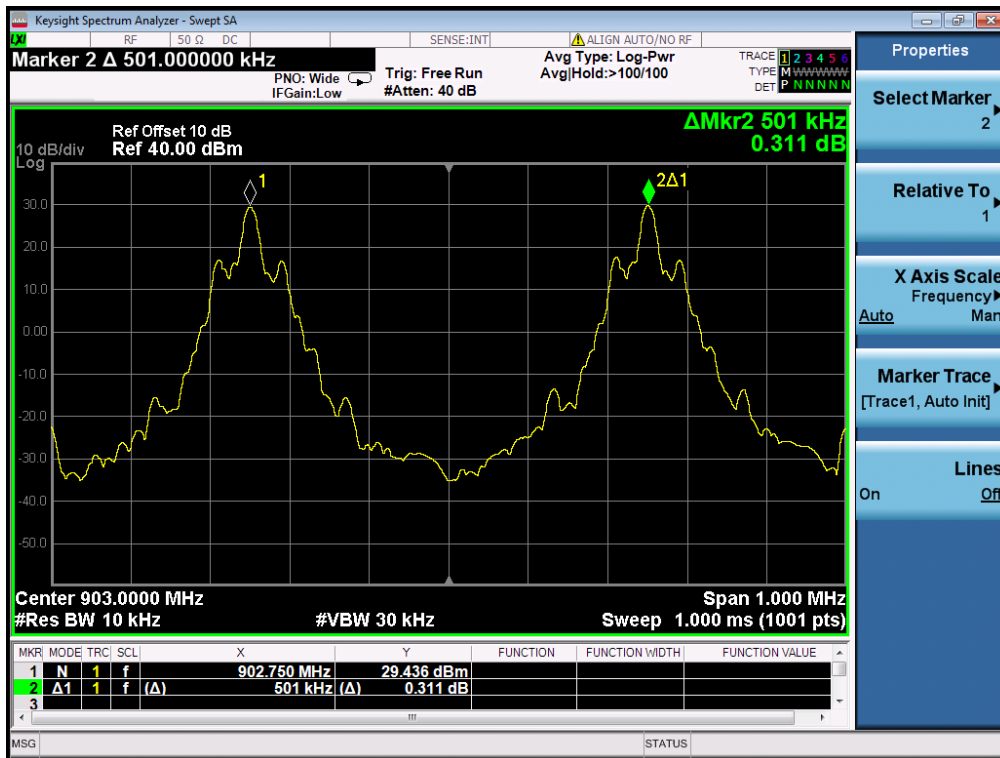
Span = wide enough to capture the peaks of two adjacent channels; $RBW \geq 1\%$ of the span;

 $VBW \geq RBW$; Sweep = auto; Detector function = peak; Trace = max hold.
6. Measure and record the results in the test report.

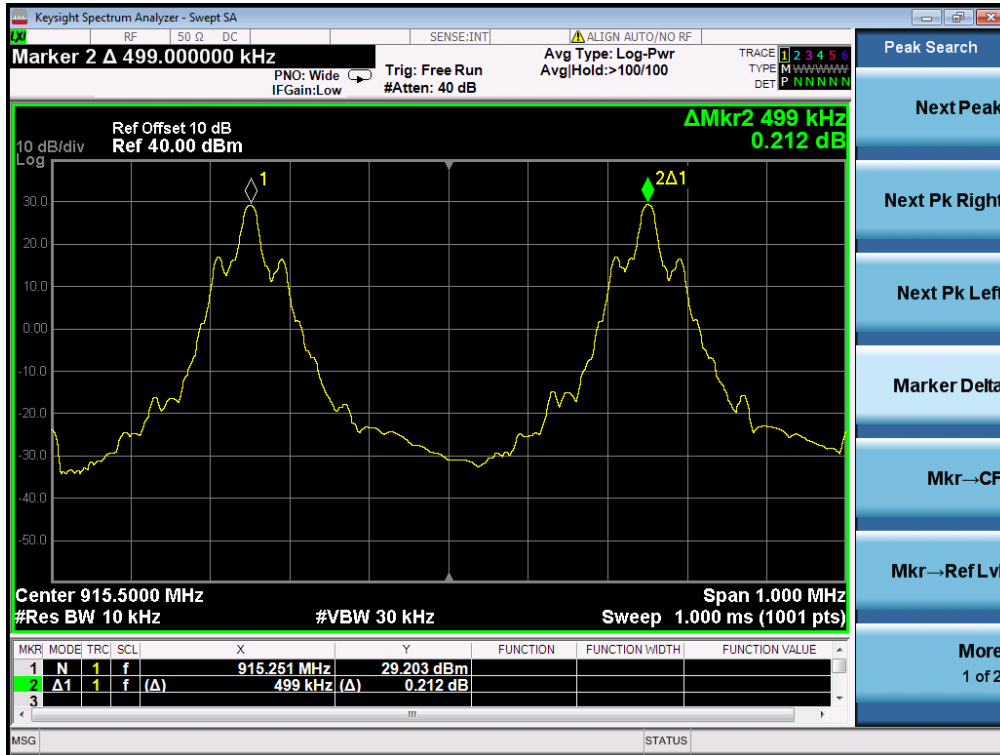
2.5.5. Test Results of Carried Frequency Separation

Frequency Separation(kHz)	(2/3 of 20dB BW) Limits (kHz)	Verdict
501	37.75	PASS
499	35.44	PASS
500	35.75	PASS

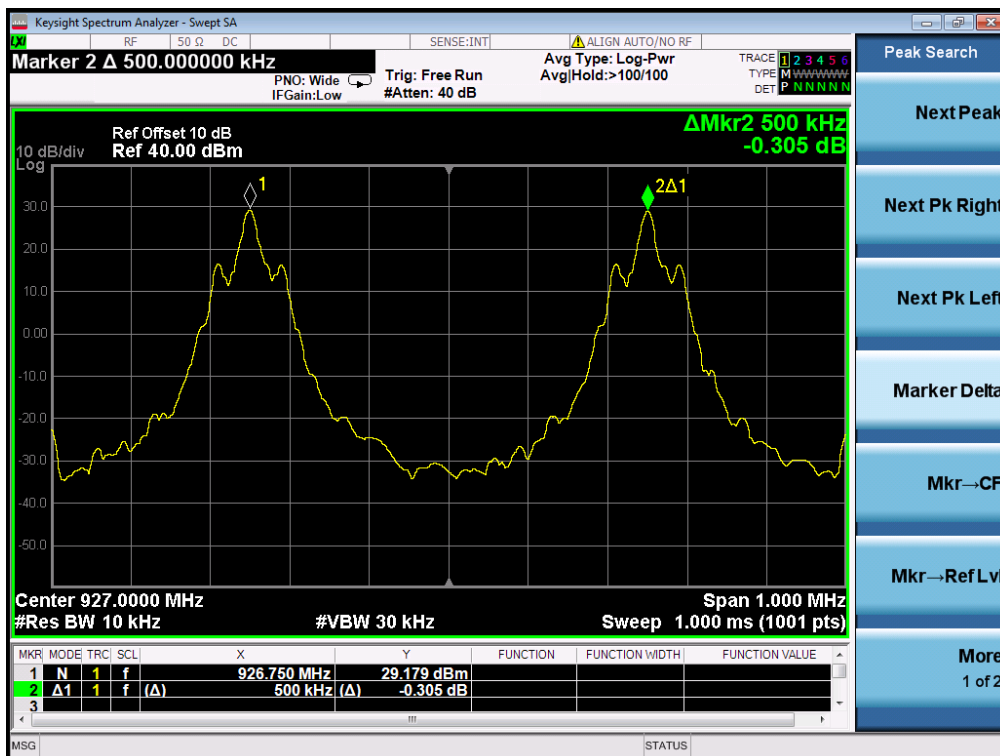
2.5.6. Test Results (plots) of Carried Frequency Separation



L channel



M channel



H channel

2.6. Dwell time

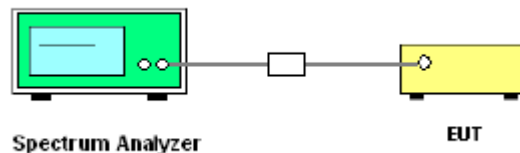
2.6.1. Limit of Dwell Time

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

2.6.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.6.3. Test Setup



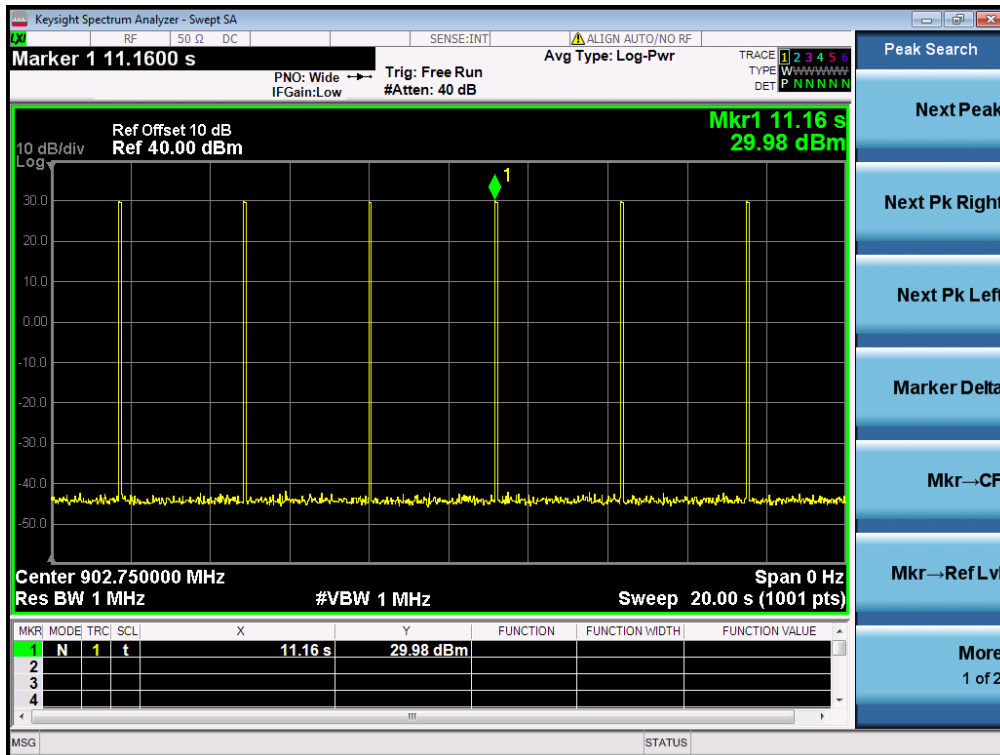
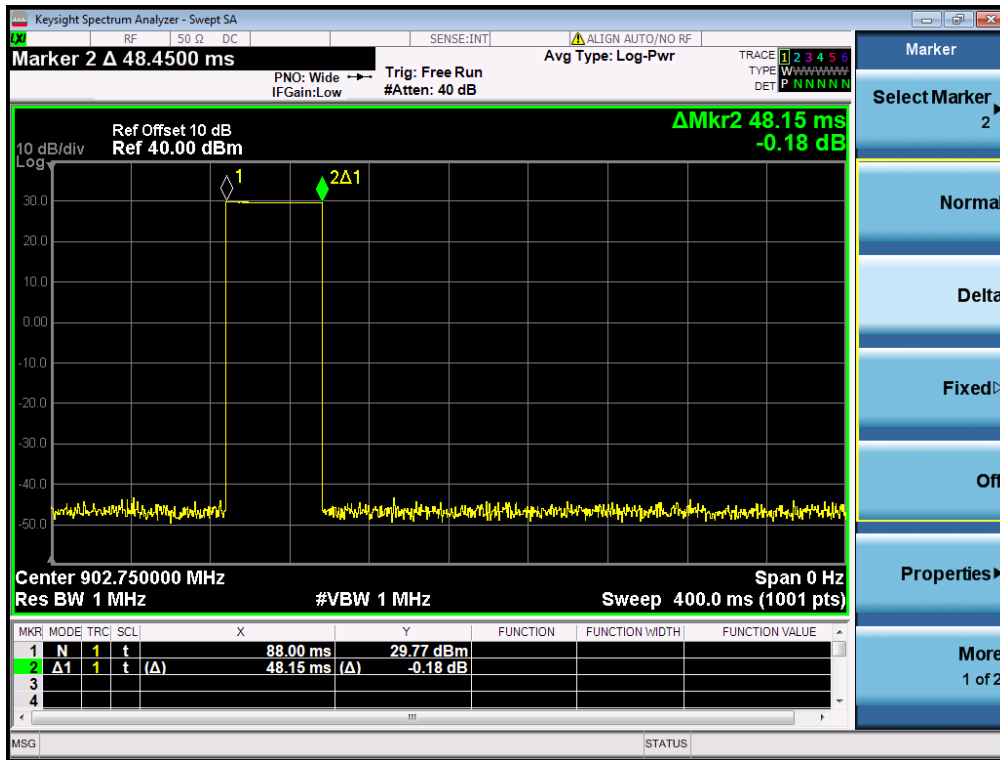
2.6.4. Test Procedure

1. The testing follows FCC Public Notice DA 00-705 Measurement Guidelines.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.
The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Enable the EUT hopping function.
5. Use the following spectrum analyzer settings: Span = zero span, centered on a hopping channel; RBW = 1 MHz; VBW \geq RBW; Sweep = as necessary to capture the entire dwell time per hopping channel (0.4*50s=20s) ; Detector function = peak; Trace = max hold.
6. Measure and record the results in the test report.

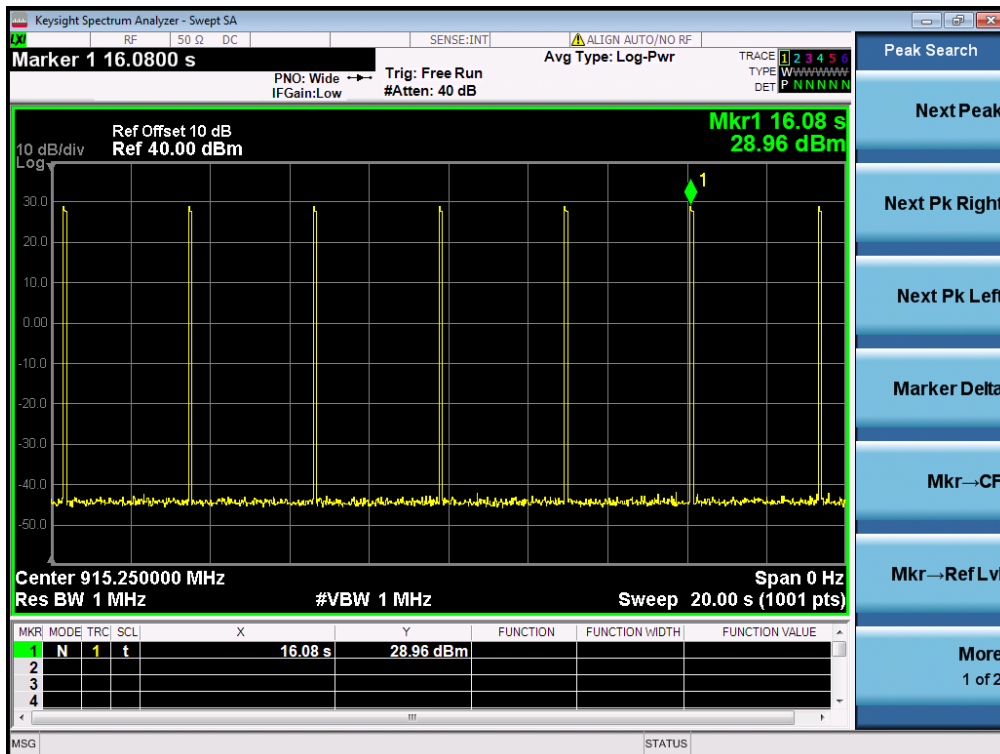
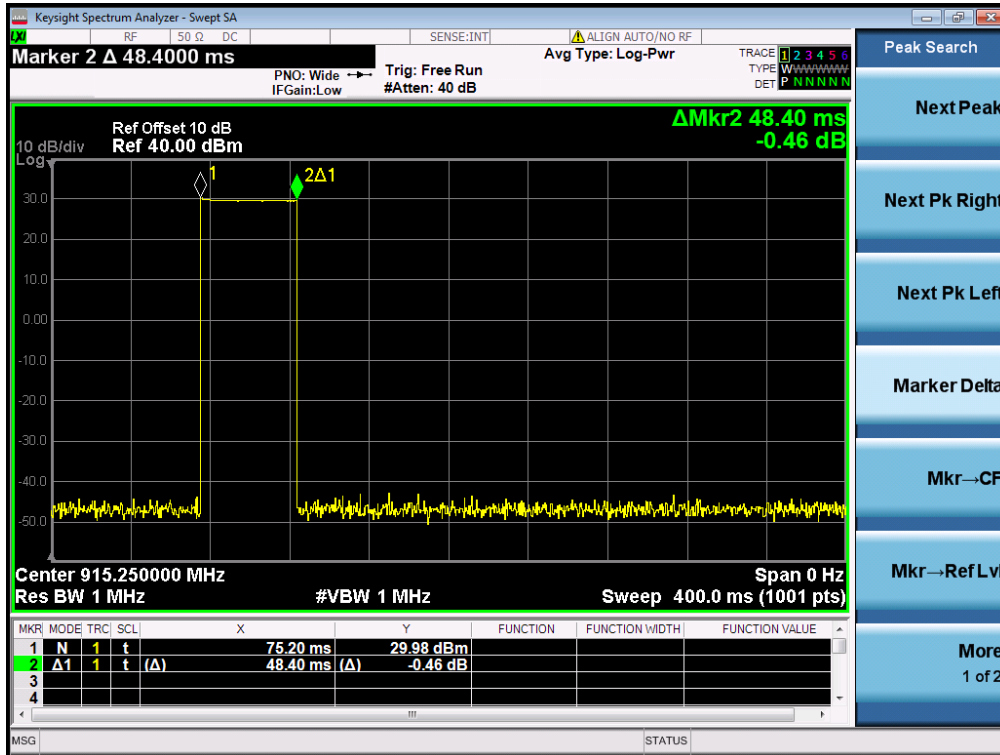
**2.6.5. Test Results of Dwell Time**

Frequency (MHz)	Length (ms)	Number	Dwell Time (ms)	Limit (ms)	Verdict
902.75	48.15	6	288.90	400	PASS
915.25	48.40	7	338.80		PASS
927.25	48.02	7	336.14		PASS

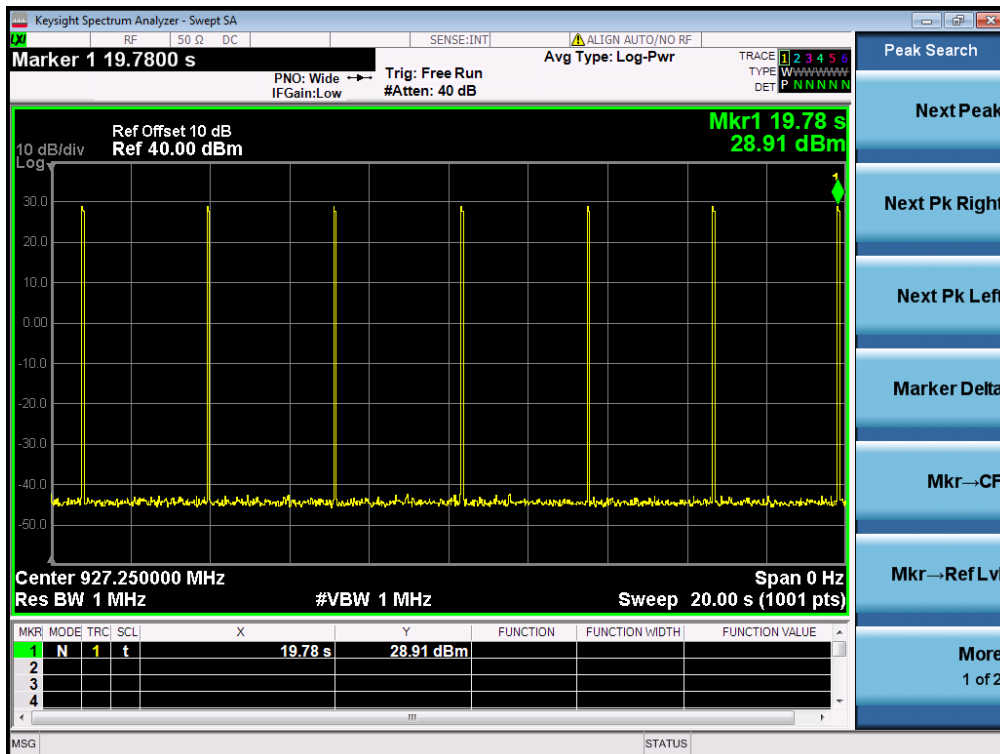
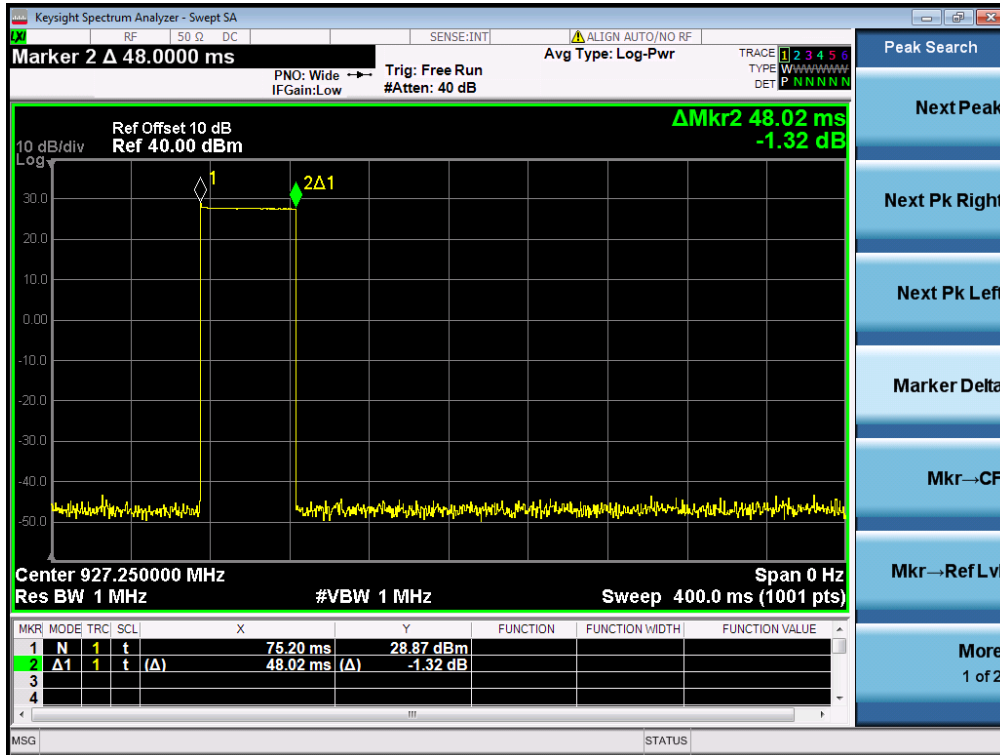
2.6.6. Test Results (plots) of Dwell Time



L channel



M channel



H channel

2.7. Conducted Spurious Emissions

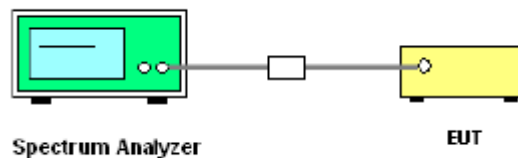
2.7.1. Limit of Spurious Emission

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

2.7.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

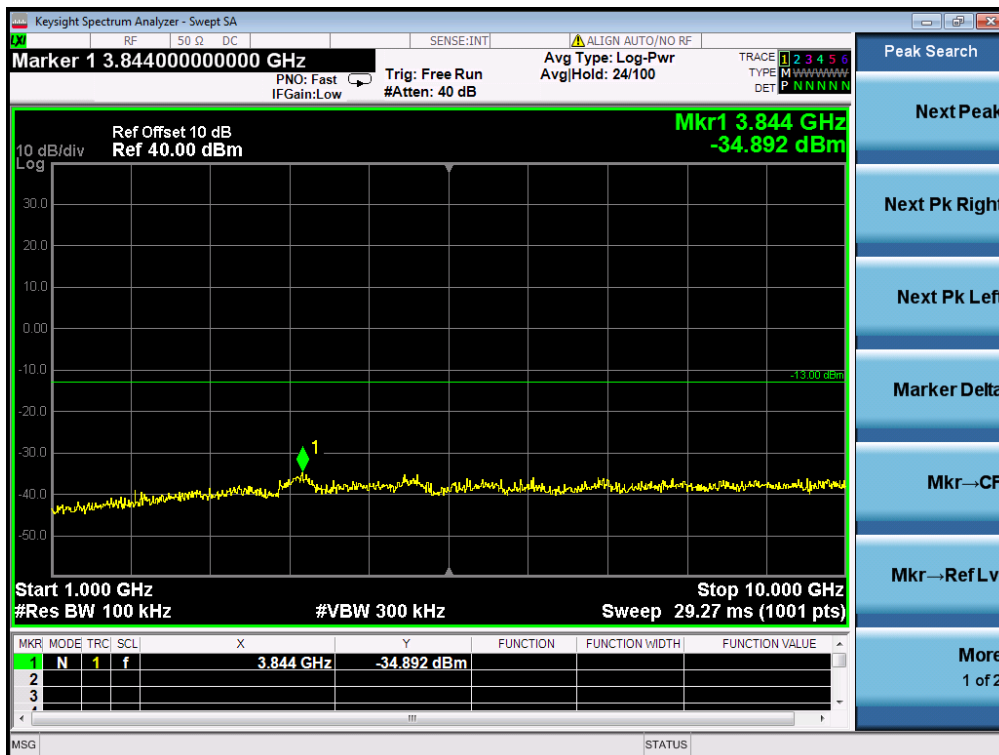
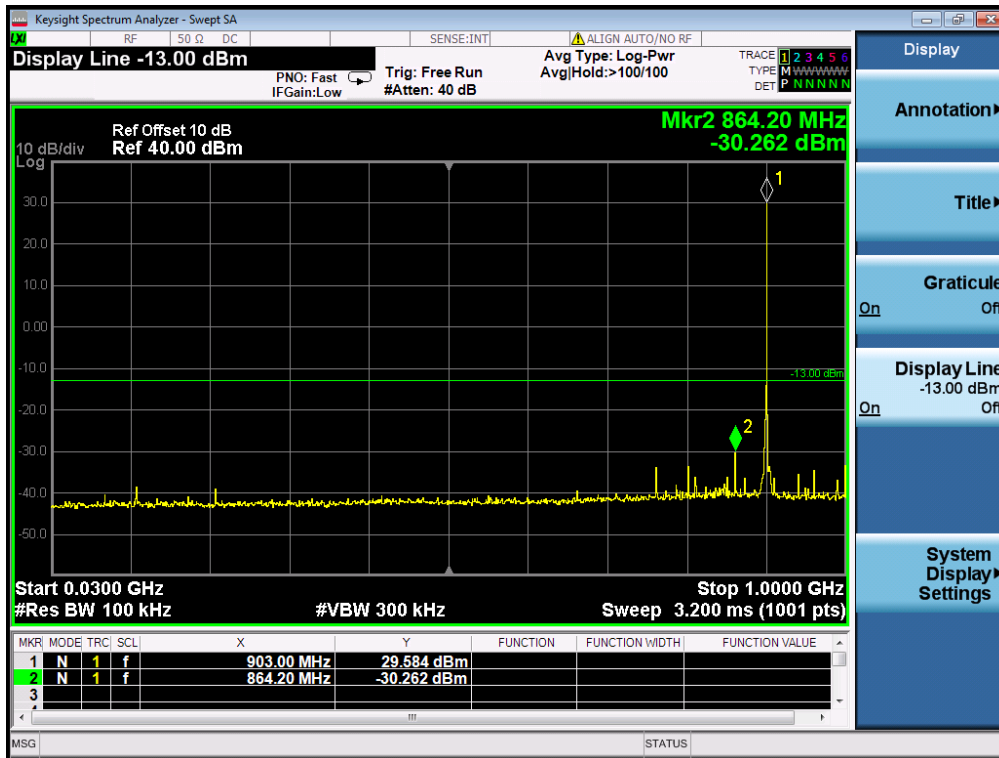
2.7.3. Test Setup



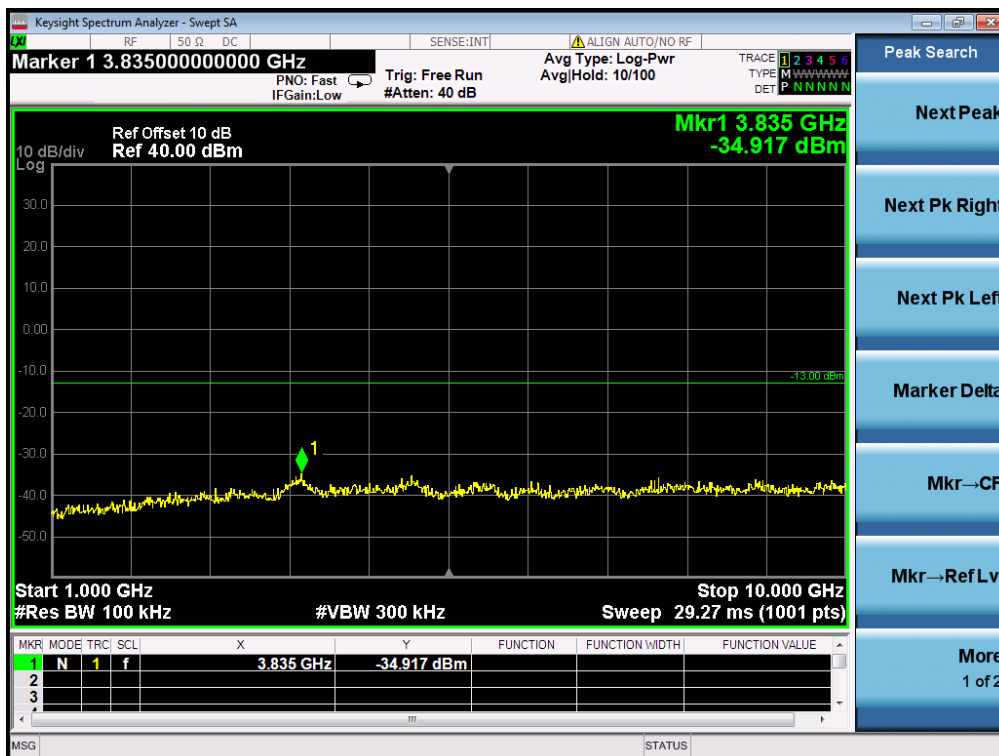
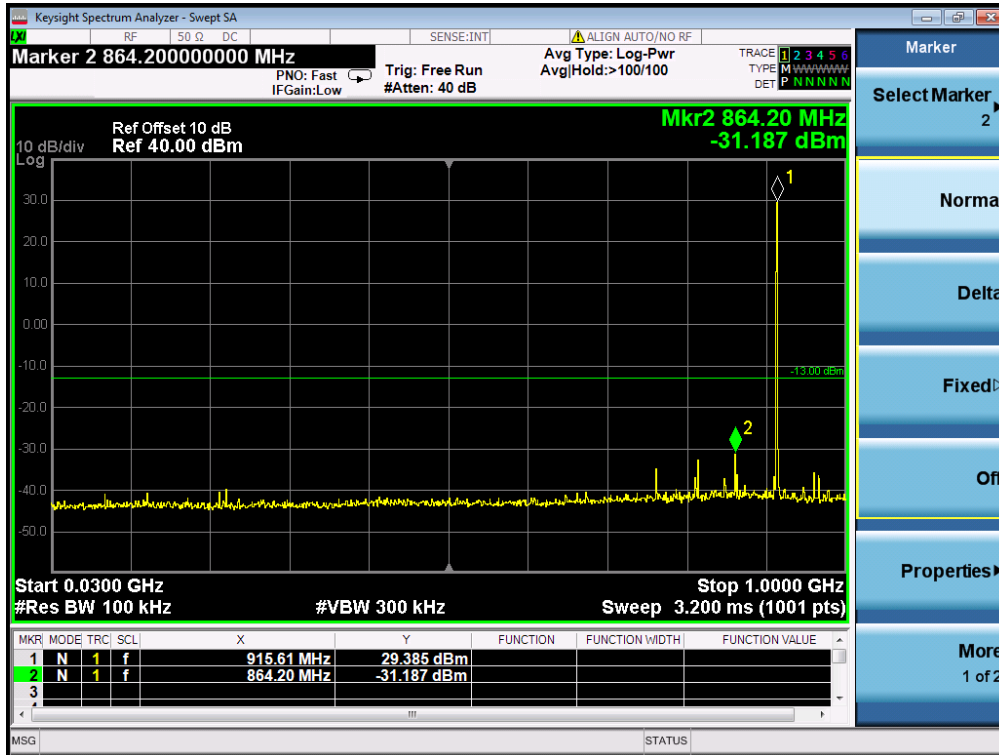
2.7.4. Test Procedure

1. The testing follows the guidelines in Spurious RF Conducted Emissions of FCC Public Notice DA 00-705 Measurement Guidelines
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW = 300 kHz, scan up through 10th harmonic. All harmonics / spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

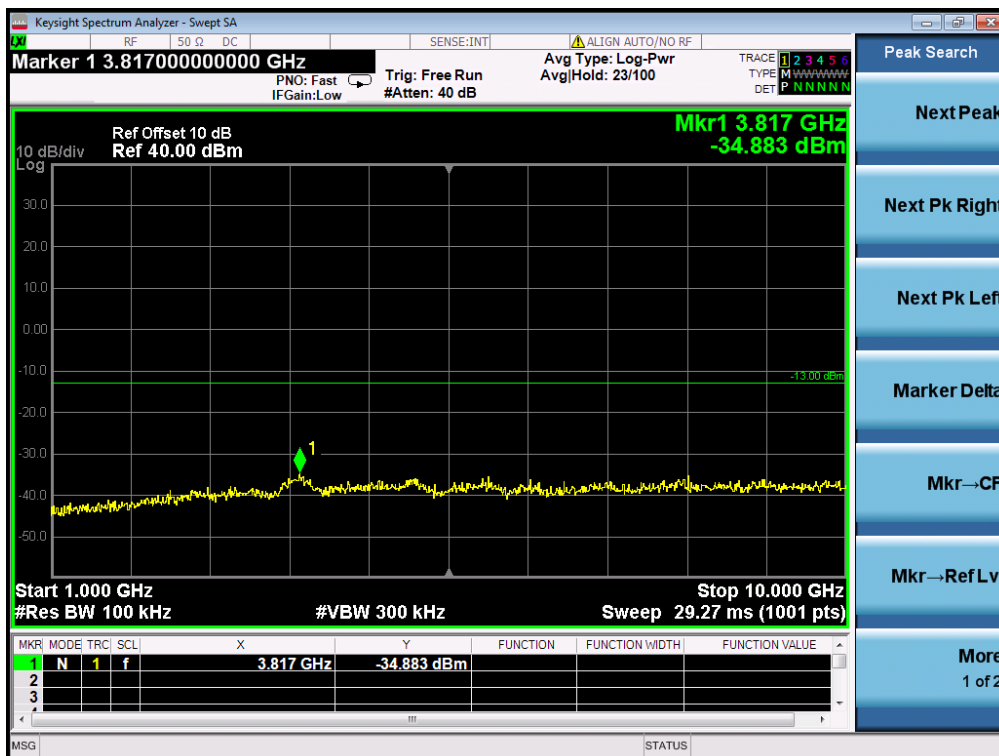
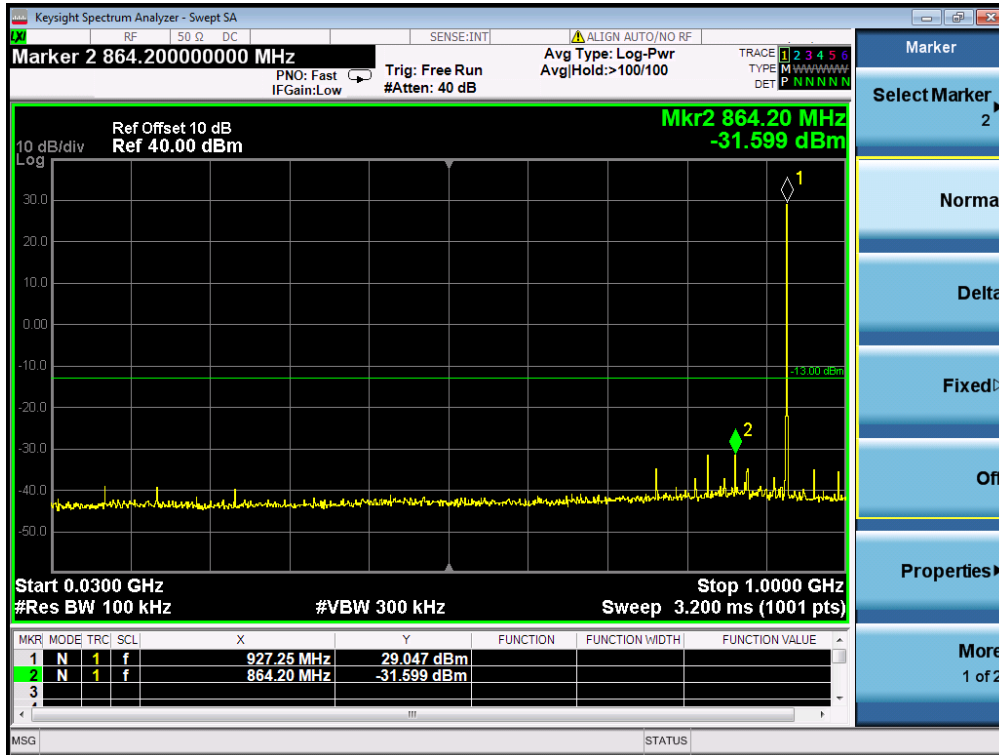
2.7.5. Test Results of Conducted Spurious Emissions



L channel



M channel



H channel

2.8. Conducted Band Edge

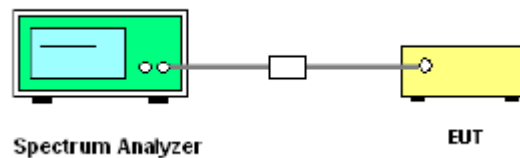
2.8.1. Limit of Band Edges

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

2.8.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

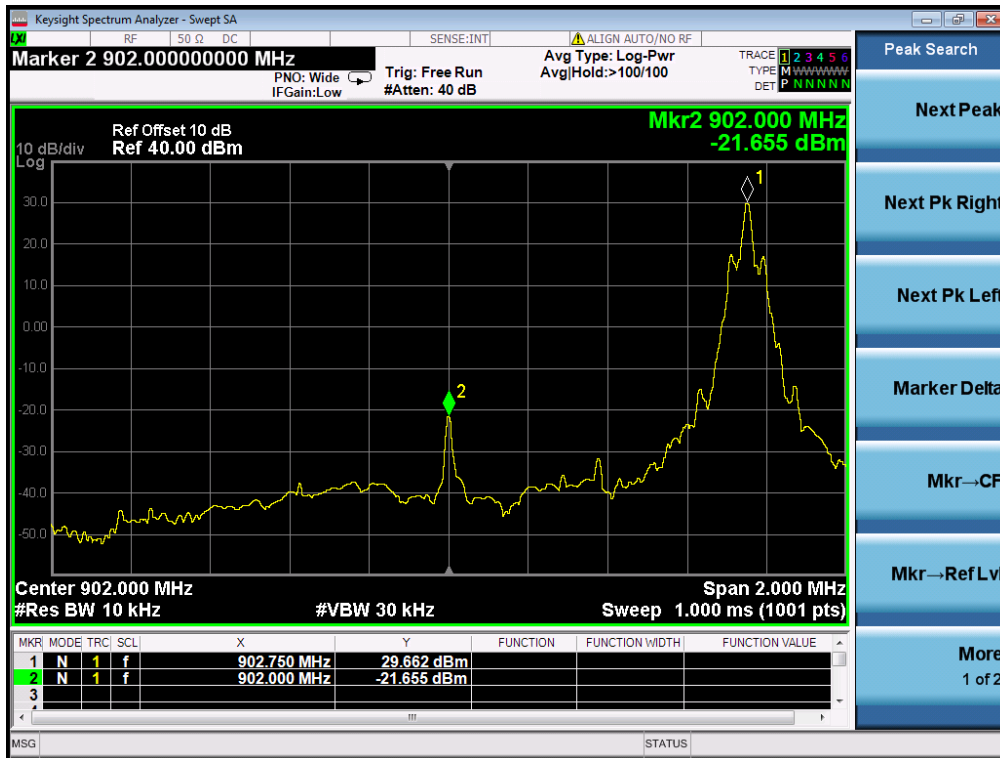
2.8.3. Test Setup



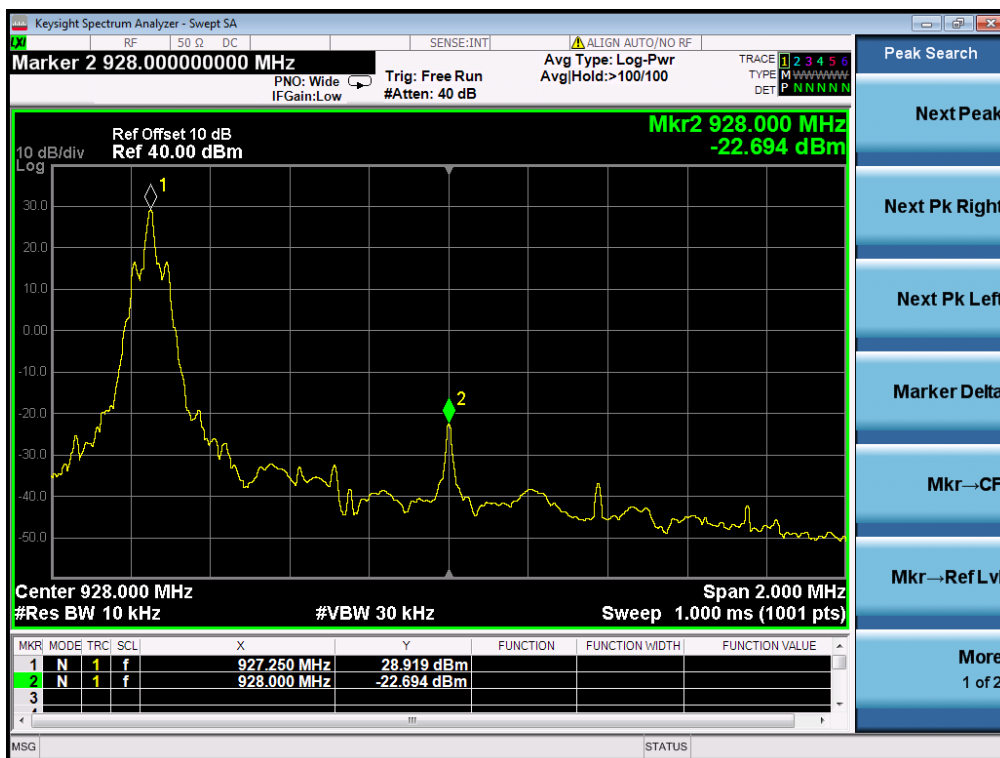
2.8.1. Test Procedure

1. The testing follows the guidelines in Band-edge Compliance of RF Conducted Emissions of FCC Public Notice DA 00-705 Measurement Guidelines.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Set $RBW = 100\text{kHz}$ ($\geq 1\%$ span=10MHz), $VBW = 300\text{kHz}$ ($\geq RBW$). Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100kHz RBW. The attenuation shall be 30 dB instead of 20 dB when RMS conducted output power procedure is used.
4. Enable hopping function of the EUT and then repeat step 2. and 3.
5. Measure and record the results in the test report.

2.8.2. Test Results of Conducted Band Edge



L channel



H channel

2.9. Conducted Emission

2.9.1. Limit of Conducted Emission

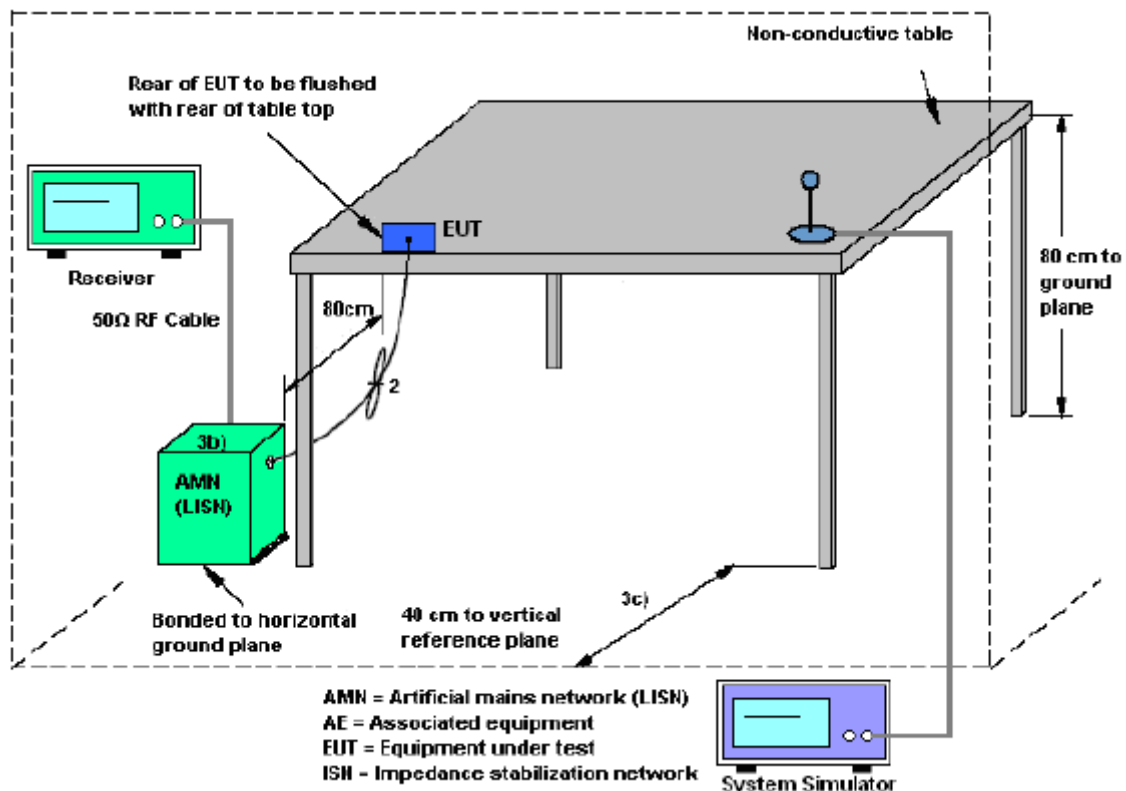
For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency range (MHz)	Conducted Limit (dB μ V)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 30	60	50

2.9.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

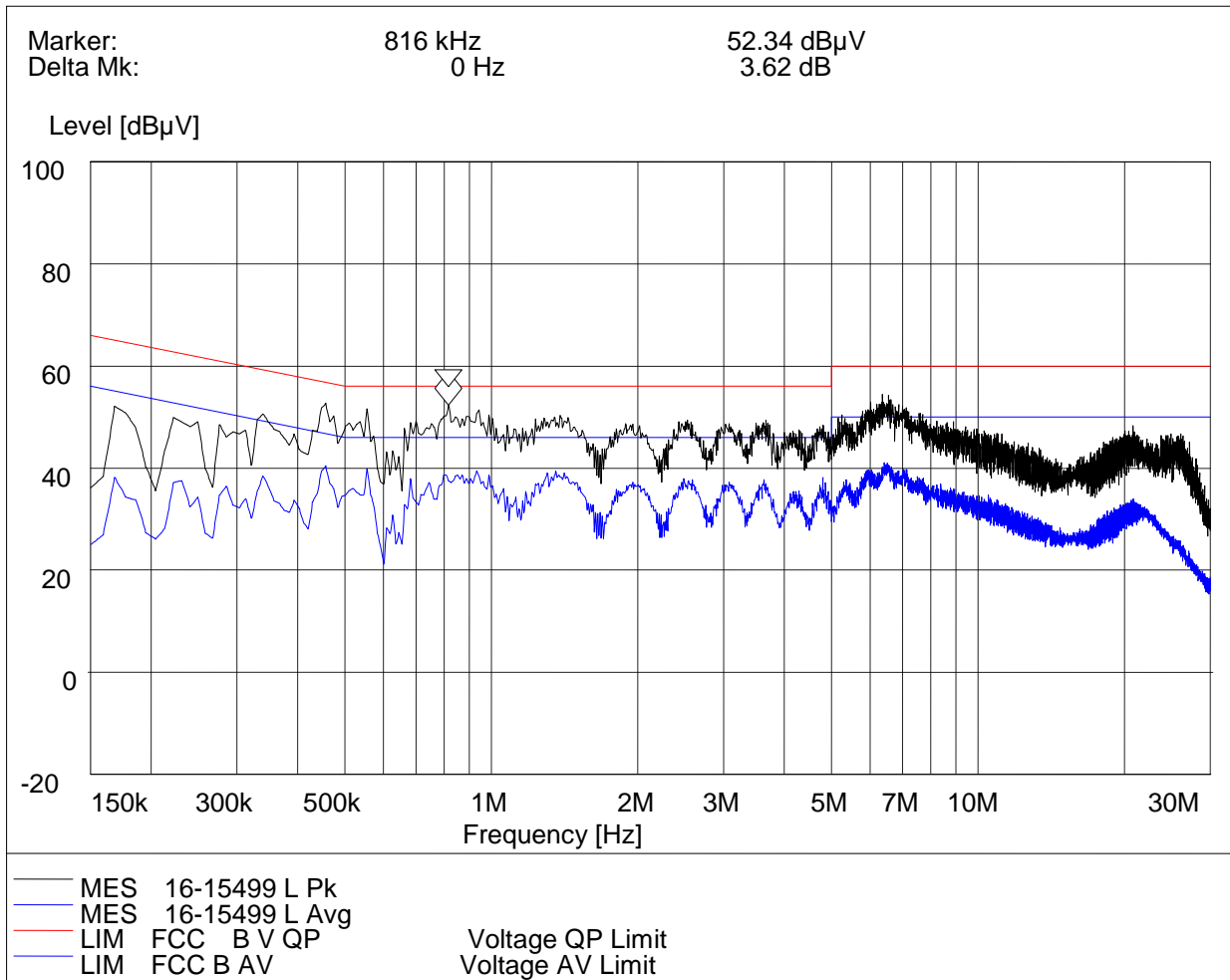
2.9.3. Test Setup



2.9.4. Test Procedures

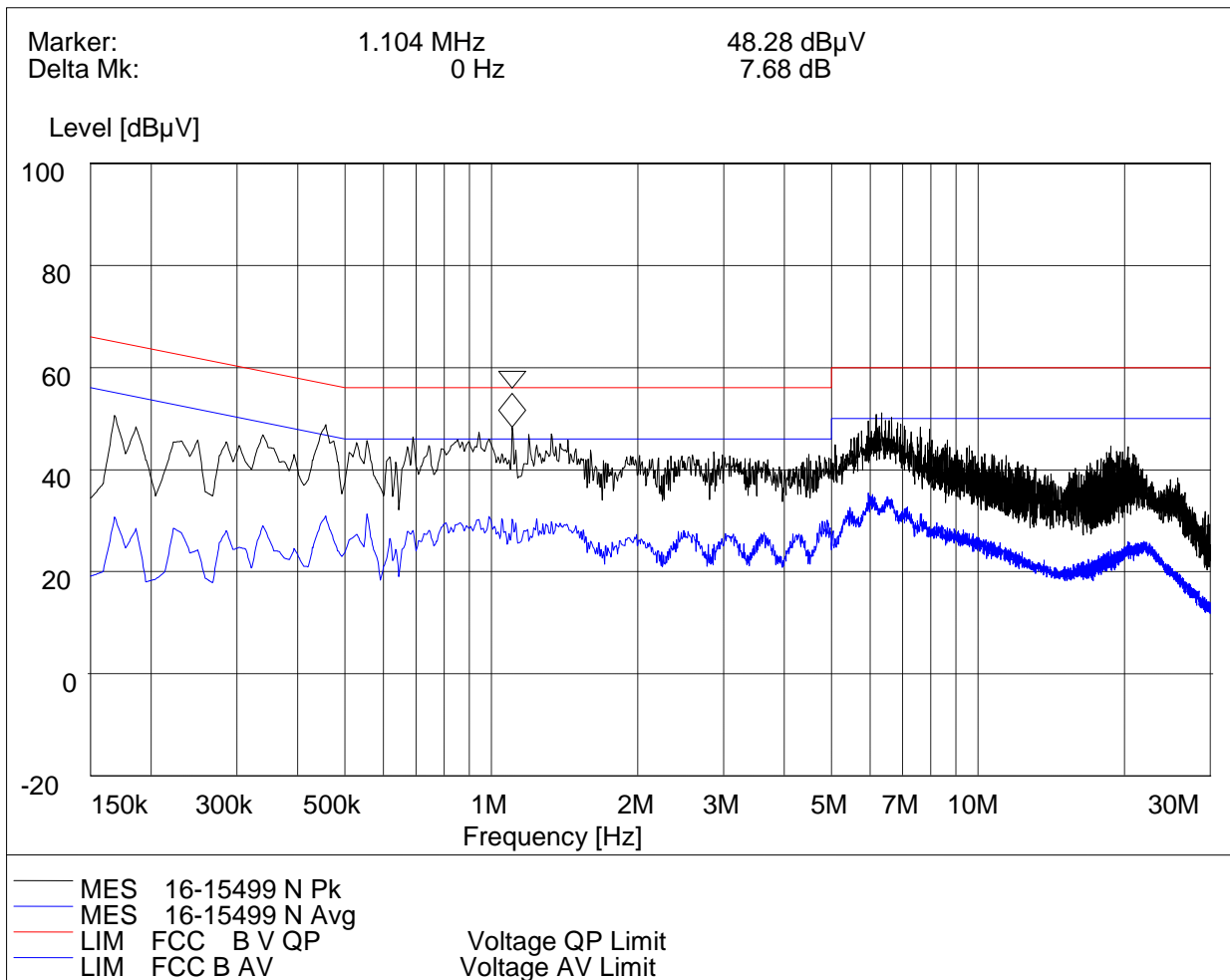
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 micrometry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

2.9.3. Test Results of Conducted Emission



(Plot A: L Phase)

Conducted Disturbance at Mains Terminals					
L Test Data					
QP			AV		
Frequency (MHz)	Limits (dB μ V)	Measurement Value (dB μ V)	Frequency (MHz)	Limits (dB μ V)	Measurement Value (dB μ V)
0.456	56.80	50.59	0.456	46.80	40.36
0.555	56.00	49.65	0.555	46.00	39.84
0.816	56.00	50.24	0.816	46.00	37.47



(Plot B: N Phase)

Conducted Disturbance at Mains Terminals					
N Test Data					
QP			AV		
Frequency (MHz)	Limits (dB μ V)	Measurement Value (dB μ V)	Frequency (MHz)	Limits (dB μ V)	Measurement Value (dB μ V)
0.456	56.90	46.65	0.456	46.80	30.76
0.942	56.00	45.34	0.942	46.00	30.17
1.104	56.00	45.85	1.104	46.00	30.25

Test Result: PASS

2.10. Radiated Band Edges and Spurious Emission

2.10.1. Limit of Radiated Band Edges and Spurious Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

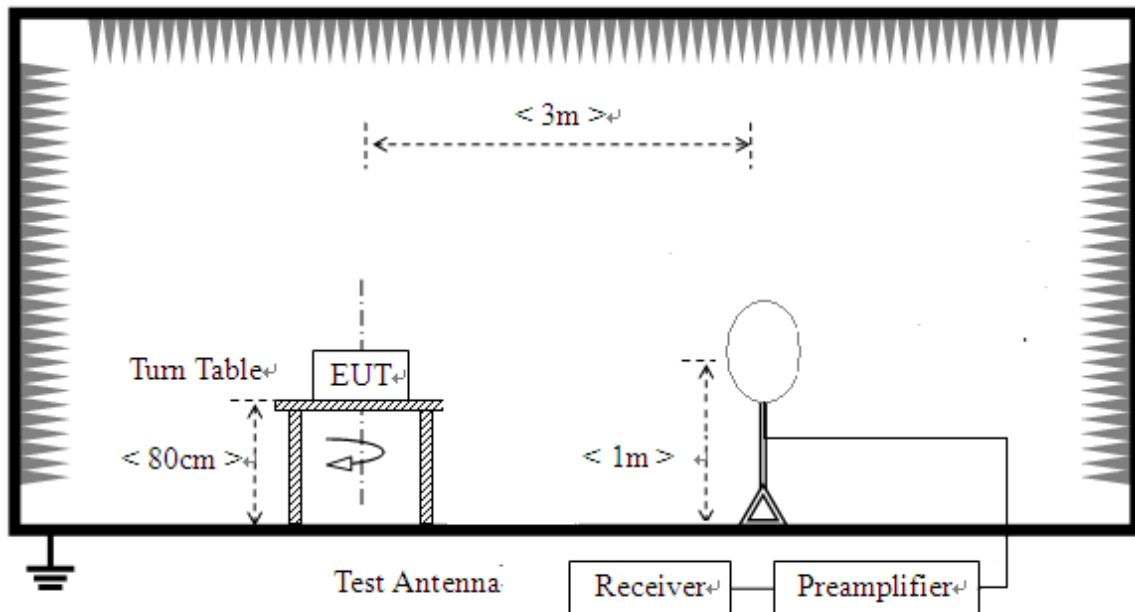
Frequency (MHz)	Field Strength ($\mu\text{V}/\text{m}$)	Measurement Distance (m)
0.009 - 0.490	$2400/F(\text{kHz})$	300
0.490 - 1.705	$24000/F(\text{kHz})$	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

2.10.2. Measuring Instruments

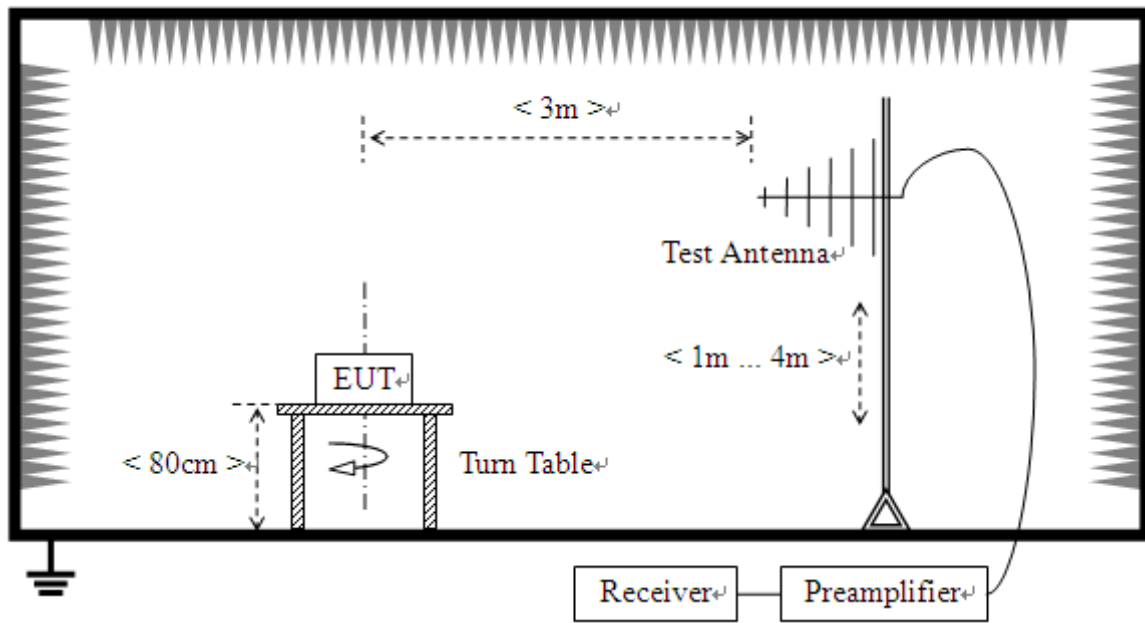
The measuring equipment is listed in the section 3 of this test report.

2.10.3. Test Setup

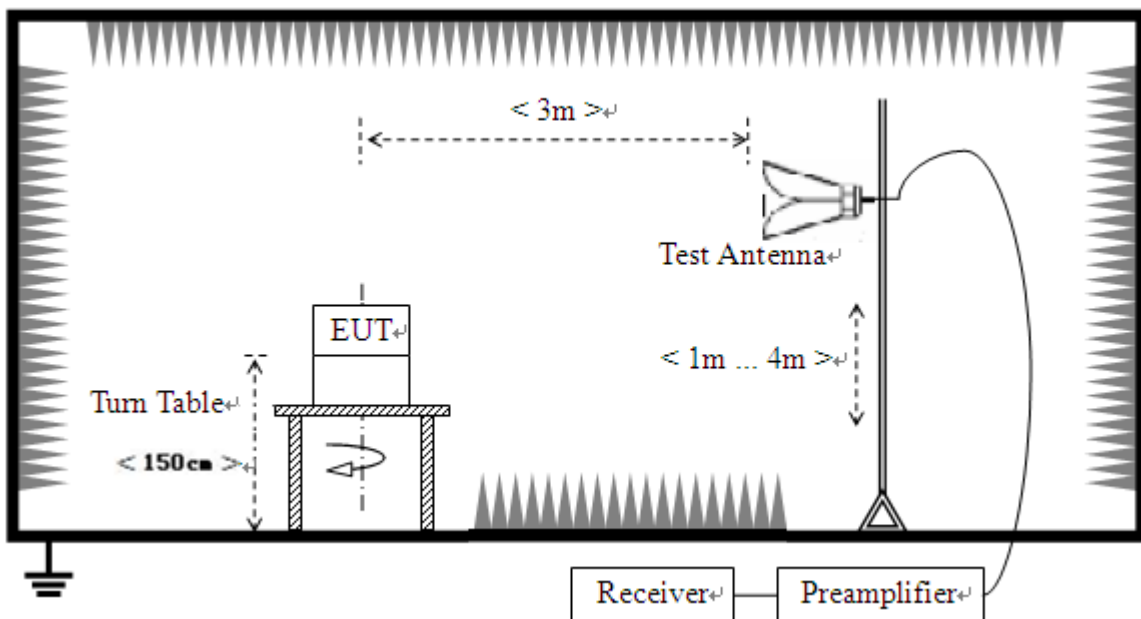
- 1) For radiated emissions from 9kHz to 30MHz



2) For radiated emissions from 30MHz to 1GHz



3) For radiated emissions above 1GHz



2.10.4. Test Procedure

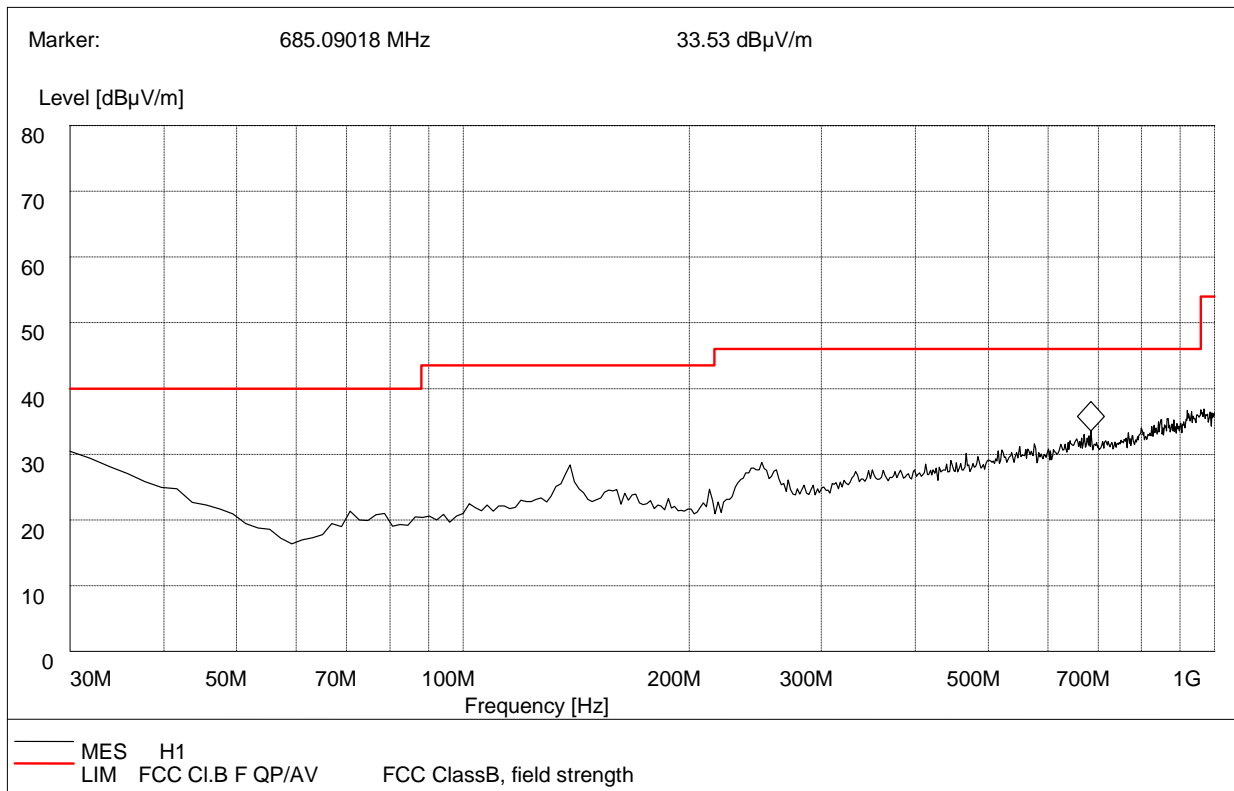
1. The testing follows the guidelines in Spurious Radiated Emissions of FCC Public Notice DA 00-705 Measurement Guidelines.
2. The EUT was placed on a turntable with 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
4. 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.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW=100 kHz for $f < 1$ GHz, RBW=1MHz for $f > 1$ GHz ; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold for peak
 - (3) For average measurement: use duty cycle correction factor method per 15.35(c).
Duty cycle = On time/100 milliseconds
On time = $N_1 * L_1 + N_2 * L_2 + \dots + N_{n-1} * L_{N_{n-1}} + N_n * L_n$
Where N_1 is number of type 1 pulses, L_1 is length of type 1 pulses, etc.
Average Emission Level = Peak Emission Level + 20*log(Duty cycle)
7. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
8. Device under transmit mode and filter the fundamental .

2.10.5. Test Results of Radiated Band Edge and Spurious Emission

For 9 KHz to 30MHz

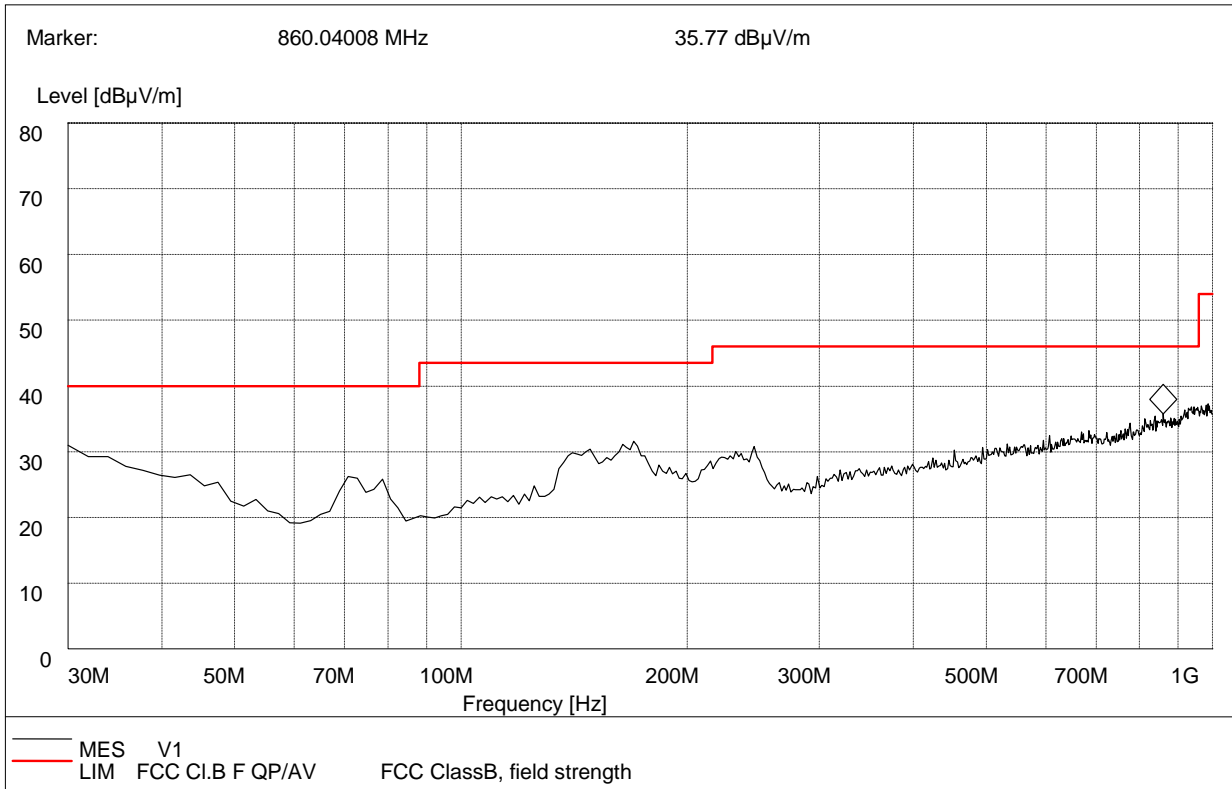
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

For 30MHz to 1000MHz



Frequency (MHz)	QuasiPeak (dBµ V/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dBµ V/m)	Antenna	Verdict
138.85	28.33	120.000	100.0	43.5	Horizontal	Pass
249.66	28.77	120.000	100.0	46.0	Horizontal	Pass
685.09	33.53	120.000	100.0	46.0	Horizontal	Pass

(30MHz to 1GHz, Antenna Horizontal)



Frequency (MHz)	QuasiPeak (dB μ V/m)	Bandwidth (kHz)	Antenna height (cm)	Limit (dB μ V/m)	Antenna	Verdict
71.34	25.63	120.000	100.0	40.0	Vertical	Pass
170.35	29.37	120.000	100.0	43.5	Vertical	Pass
860.64	34.62	120.000	100.0	46.0	Vertical	Pass

(30MHz to 1GHz, Antenna Vertical)

**Above 1GHz Data:****ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (1CH_902.75MHz)**

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	1805.5	54.43	PK	74.0	-19.57	1.52 H	22	54.93	-0.5
2	1805.5	41.20	AV	54.0	-12.8	1.55 H	20	41.7	-0.5
3	3402.00	49.44	PK	74.0	-24.56	1.38 H	42	44.59	4.85
4	3402.00	37.20	AV	54.0	-16.8	1.49 H	37	32.35	4.85

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (1CH_902.75MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	1805.5	53.95	PK	74.0	-20.05	1.44 V	29	54.45	-0.5
2	1805.5	40.75	AV	54.0	-13.25	1.49 V	27	41.25	-0.5
3	3402.00	47.26	PK	74.0	-26.74	1.08 V	41	42.41	4.85
4	3402.00	35.78	AV	54.0	-18.22	1.12 V	40	30.93	4.85

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (26CH_915.25MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	1830.5	55.43	PK	74.0	-18.57	1.45 H	33	55.93	-0.5
2	1830.5	42.28	AV	54.0	-11.72	1.41 H	28	42.78	-0.5
3	3411.00	49.88	PK	74.0	-24.12	1.35 H	40	45.03	4.85
4	3411.00	37.62	AV	54.0	-16.38	1.38 H	18	32.77	4.85

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (26CH_915.25MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	1830.5	52.32	PK	74.0	-21.68	1.45 V	120	52.82	-0.5
2	1830.5	41.71	AV	54.0	-12.29	1.51 V	105	42.21	-0.5
3	3411.00	48.27	PK	74.0	-25.73	1.50 V	26	43.42	4.85
4	3411.00	36.11	AV	54.0	-17.89	1.50 V	29	31.26	4.85

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (50CH_927.25MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	1854.5	48.43	PK	74.0	-25.57	1.50 H	102	48.93	-0.5
2	1854.5	35.28	AV	54.0	-18.72	1.52 H	104	35.78	-0.5
3	3612.00	46.48	PK	74.0	-27.52	1.56 H	22	41.63	4.85
4	3612.00	33.24	AV	54.0	-20.76	1.48 H	42	28.39	4.85

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (50CH_927.25MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV/m)	Correction Factor (dB/m)
1	1854.5	47.95	PK	74.0	-26.05	1.58 V	118	48.45	-0.5
2	1854.5	34.75	AV	54.0	-19.25	1.55 V	109	35.25	-0.5
3	3612.00	45.79	PK	74.0	-28.21	1.49 V	49	40.94	4.85
4	3612.00	32.55	AV	54.0	-21.45	1.39 V	245	27.7	4.85

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. This device tested in a engineer 'steady-state' CW mode.

3. List of measuring equipment

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI TEST RECEIVER	Rohde&Schwarz	ESI 26	100009	2017/11/02
2	RF TEST PANEL	Rohde&Schwarz	TS / RSP	335015/ 0017	N/A
3	EMI TEST SOFTWARE	Rohde&Schwarz	ESK1	N/A	N/A
4	Ultra-Broadband Antenna	ShwarzBeck	VULB9163	538	2017/11/08
5	HORN ANTENNA	ShwarzBeck	9120D	1011	2017/11/08
6	Loop Antenna	Rohde&Schwarz	HZ-9	838622\013	2017/11/08
7	Pre-amplifer	ShwarzBeck	BBV 9743	9743-0022	2017/11/02
8	TURNTABLE	MATURO	TT2.0	N/A	N/A
9	ANTENNA MAST	MATURO	TAM-4.0-P	N/A	N/A
10	EMI TEST SOFTWARE	Audix	E3	N/A	N/A
11	Test cable	Siva Cables Italy	RG 58A/U	W14.02	2017/12/05
12	Climate Chamber	ESPEC	EL-10KA	05107008	2017/11/02
13	Spectrum Analyzer	Kysight	N9030A	ATO-67098	2017/07/19
14	Power Meter	Rohde&Schwarz	NRP2	1020.1809.02	2017.06.02
15	Power Sensor	Rohde&Schwarz	NRP-Z81	823.3618.03	2017.06.02

** END OF REPORT **