



RF TEST REPORT

Report No.: SET2020-13917

Product Name: Handheld Data Terminal

FCC ID: SWSRFDT50

Model No. : RFDT50

Applicant: UROVO TECHNOLOGY CO., LTD.

Address: 36F, High-Tech Zone Union Tower, No.63, Xuefu Road, Nanshan District, Shenzhen, Guangdong, China

Dates of Testing: 11/01/2020 — 11/18/2020

Issued by: CCIC Southern Testing Co., Ltd.

Lab Location: Electronic Testing Building, No. 43 Shahe Road, Xili Street, Nanshan District, Shenzhen, Guangdong, China.

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Test Report

Product Name: Handheld Data Terminal

Brand Name: UROVO

Trade Name: UROVO

Applicant.....: UROVO TECHNOLOGY CO., LTD.

Applicant Address.....: 36F,High-Tech Zone Union Tower,No.63,Xuefu Road,
Nanshan District, Shenzhen, Guangdong, China

Manufacturer: UROVO TECHNOLOGY CO., LTD.

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Nanshan District, 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

Test Result: PASS

Tested by: Vincent 2020.11.18
Vincent, Test Engineer

Reviewed by: Chris You 2020.11.18
Chris You, Senior Engineer

Approved by: Shuangwen Zhang 2020.11.18
Shuangwen Zhang, Manager

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Change History		
Issue	Date	Reason for change
1.0	2020.11.18	First edition

1. General Information

1.1. EUT Description

EUT Type	Handheld Data Terminal
Power Supply	DC 3.7V from lithium battery
Frequency Range	902MHz~928MHz
Operating Range	902.75MHz~927.25MHz
Number of channel	50
Modulation Type	DSB-ASK
Antenna Type	Internal Antenna
Antenna Gain	0dBi

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	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
11	15.247(g)	Frequency hopping spread spectrum system requirement	PASS
12	15.247 (h)	FHSS Intelligence	Pass ^{Note2}

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

2. The EUT does not coordinate transmission with any other FHSS to avoid simultaneous occupation of hopping frequencies.

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

Note: Test channel: 1, 26, 50. Powersetting: 28

1.4. Facilities and Accreditations

1.4.1. Facilities

FCC-Registration No.: CN5031

CCIC Southern Testing 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. DesignationNumber: CN5031, valid time is until December 31, 2020.

ISED Registration: 11185A-1

CAB identifier:CN0064

CCIC Southern Testing 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 Dec. 31, 2020.

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.

1.4.2. 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: Internal Antenna

Antenna General Information:

No.	EUT	Ant. Type	Gain(dBi)
1	Handheld Data Terminal	Internal Antenna	0

2.1.3. Result: comply

The EUT has a permanent antenna. Please refer to the EUT internal photos.

2.2. Number of Hopping Frequency

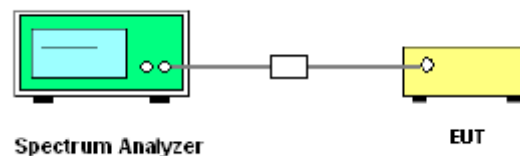
2.2.1. Limit of Number of Hopping Frequency

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system 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



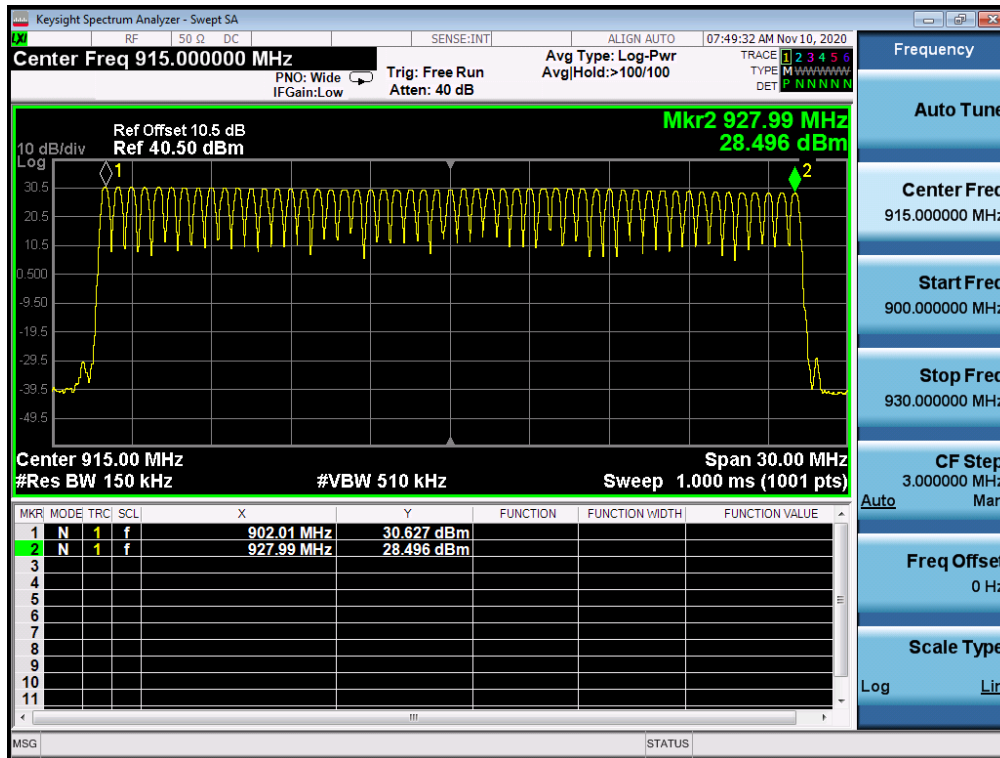
2.2.4. Test Procedure

1. The testing follows ANSI C63.10-2013 Clause 7.8.3
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; Set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller. $VBW \geq RBW$, Trace = max hold Sweep=auto, Detector function=peak.
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

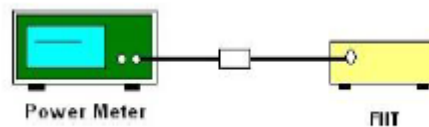
2.3.1. Limit of Peak Output Power

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 ANSI C63.10-2013 Clause 7.8.5
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	28.624	30	PASS
26	915.25	27.566		PASS
50	927.25	26.334		PASS

2.4. Bandwidth

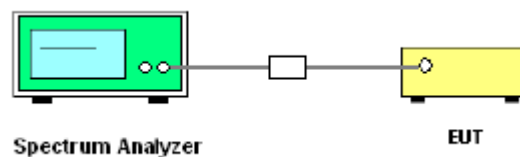
2.4.1. Definition

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 ANSI C63.10-2013 Clause 6.9.2
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 5 times the OBW, centered on a hopping channel;

RBW $\geq$ 1% to 5% of the OBW; VBW shall be approximately three times 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)
1	902.75	50.13
26	915.25	49.28
50	927.25	49.67

2.4.6. Test Results (plots) of Bandwidth



1 channel



26 channel



50 channel

2.5. Carried Frequency Separation

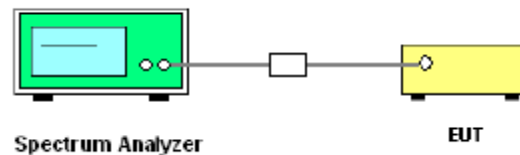
2.5.1. Limit of Carried Frequency Separation

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25kHz or 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 ANSI C63.10-2013 Clause 7.8.2.

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: Start with the RBW set to approximately 30% of the channel spacing;

VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold.

6. Measure and record the results in the test report.

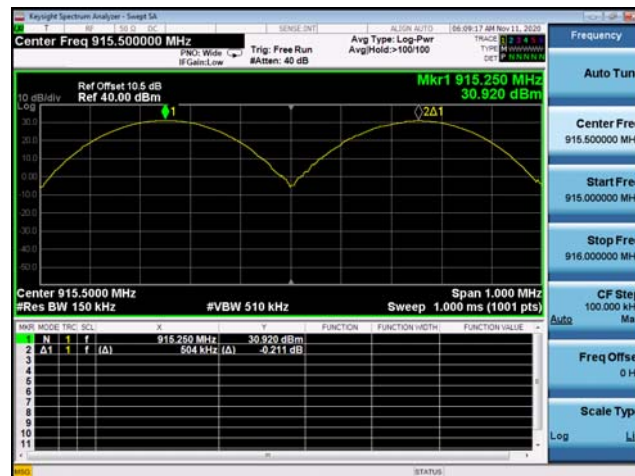
2.5.5. Test Results of Carried Frequency Separation

Frequency Separation(kHz)	(20dB BW) Limits (kHz)	Verdict
490	50.13	PASS
504	49.28	PASS
503	49.67	PASS

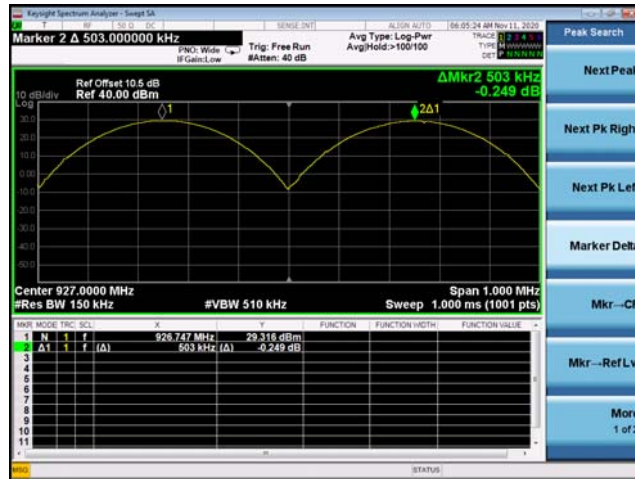
2.5.6. Test Results (plots) of Carried Frequency Separation



L channel



M channel



H channel

2.6. Dwell time

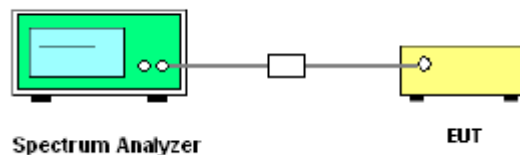
2.6.1. Limit of Dwell Time

the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period

2.6.2. Measuring Instruments

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

2.6.3. Test Setup



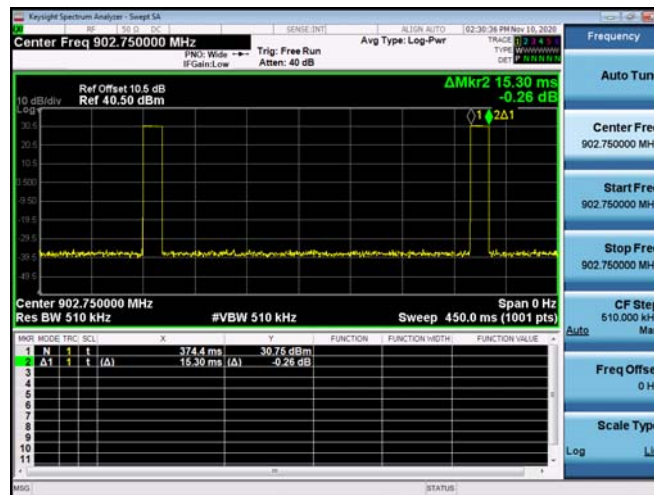
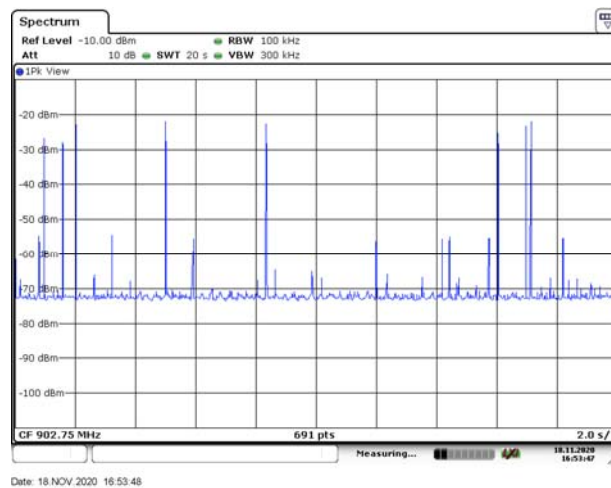
2.6.4. Test Procedure

1. The testing follows ANSI C63.10-2013 Clause 7.8.4.
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 shall be $\leq$ channel spacing and where possible RBW should be set $\gg 1 / T$, where T is the expected dwell time per channel; VBW $\geq$ RBW; Sweep = as necessary to capture the entire dwell time per hopping channel; Detector function = peak; Trace = max hold.
6. Measure and record the results in the test report.

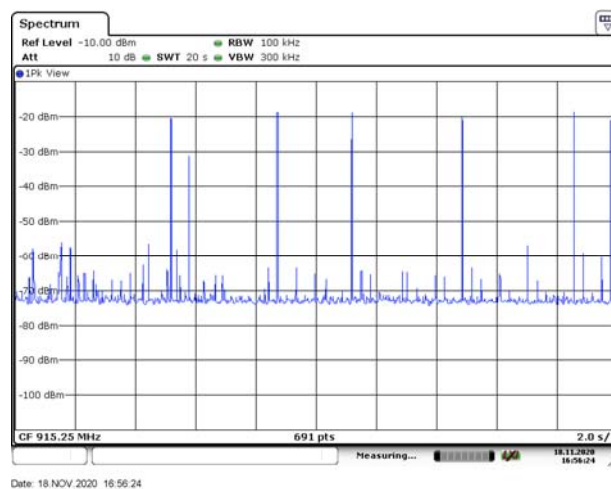
2.6.5. Test Results of Dwell Time

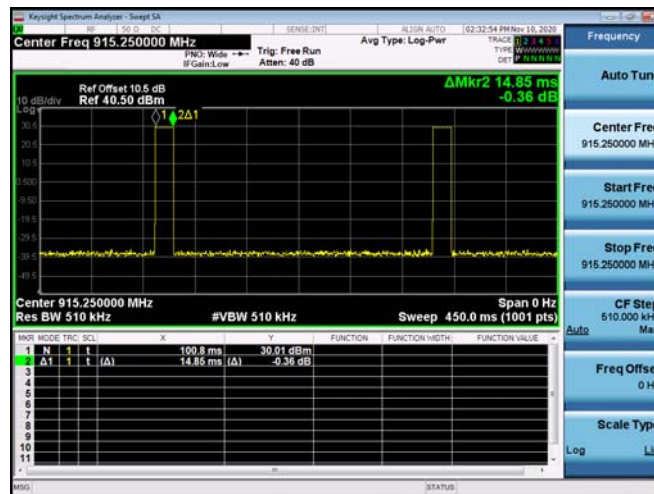
Frequency (MHz)	Length (ms)	Number	Dwell Time (ms)	Limit (ms)	Verdict
902.75	15.30	8	122.4	400	PASS
915.25	14.85	7	103.95		PASS
927.25	19.35	3	58.05		PASS

2.6.6. Test Results (plots) of Dwell Time

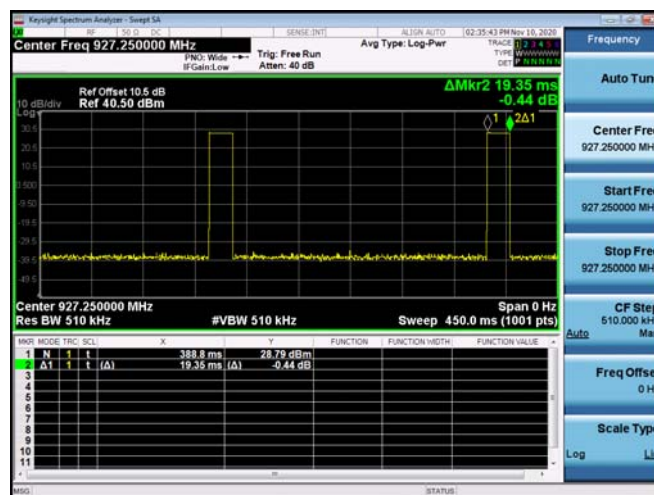
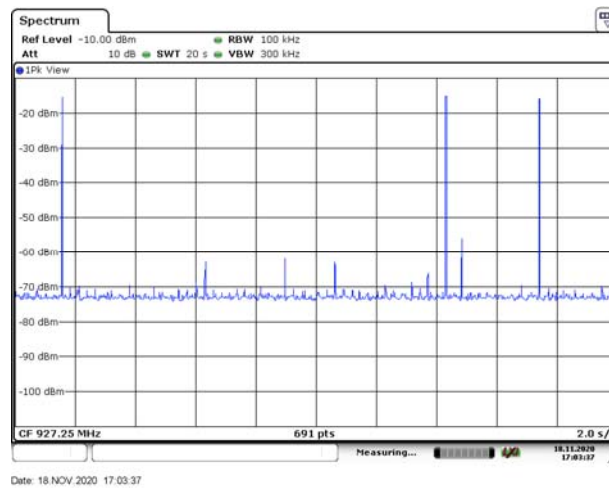


L channel





M channel



H channel

2.7. Conducted Spurious Emissions

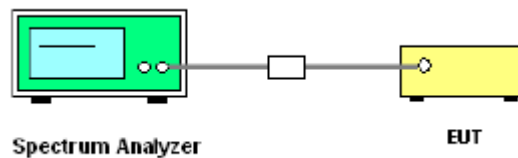
2.7.1. Limit of Spurious Emission

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.

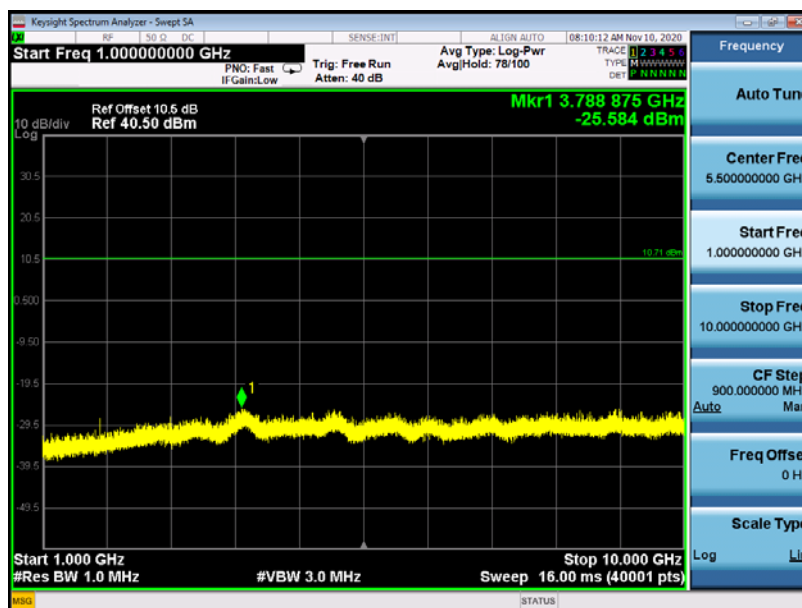
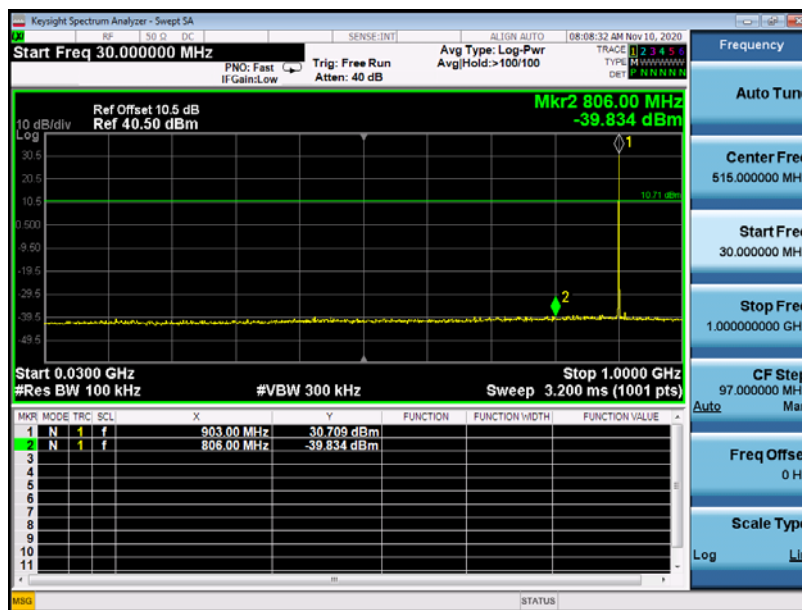
2.7.3. Test Setup



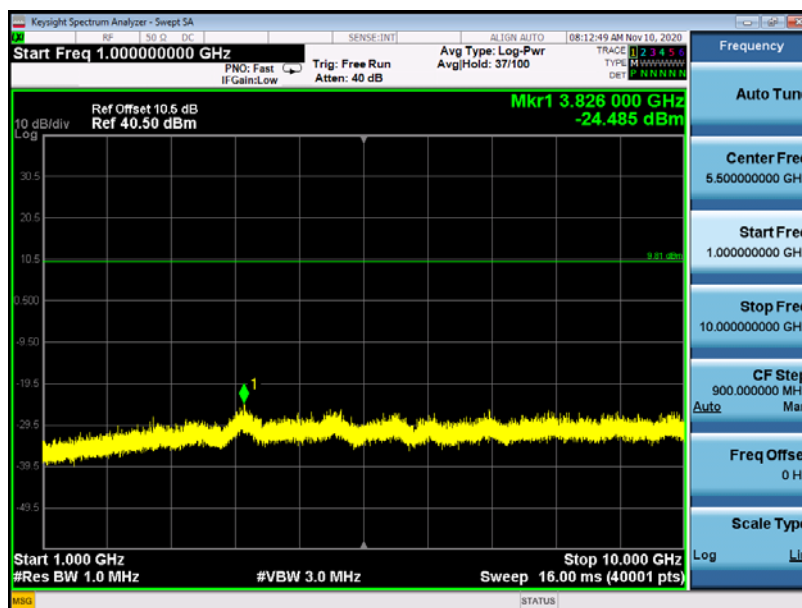
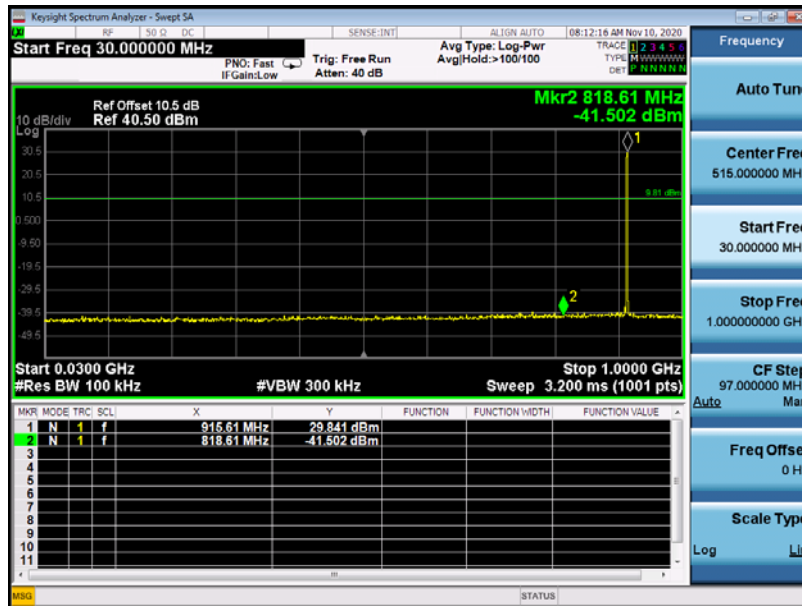
2.7.4. Test Procedure

1. The testing follows ANSI C63.10-2013 Clause 7.8.8.
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.

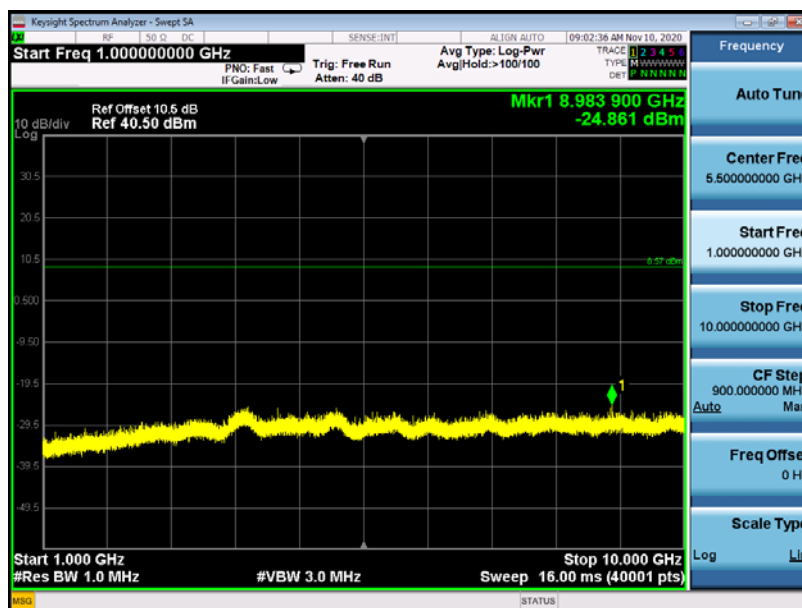
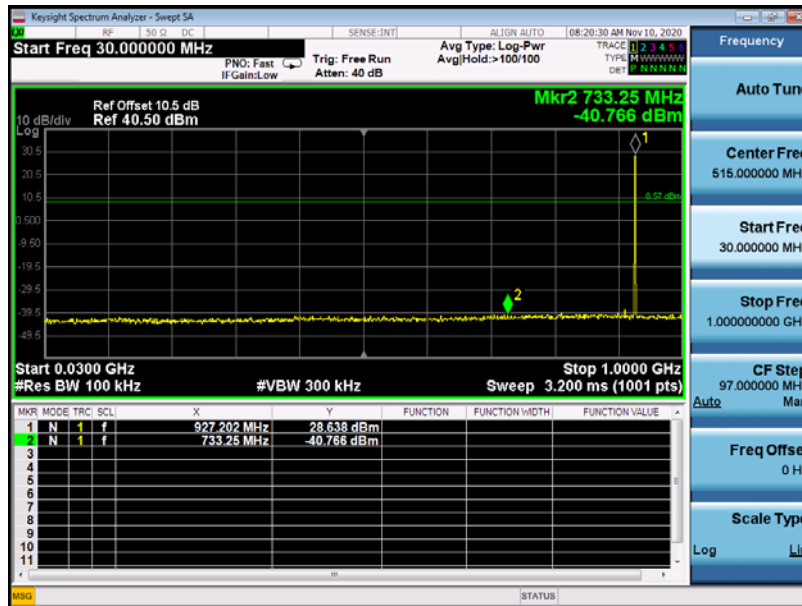
2.7.5. Test Results of Conducted Spurious Emissions



L channel



M channel



H channel

2.8. Conducted Band Edge

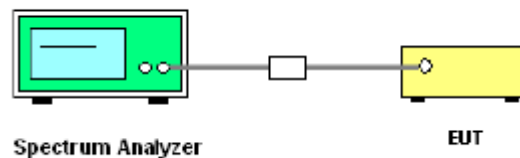
2.8.1. Limit of Band Edges

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.

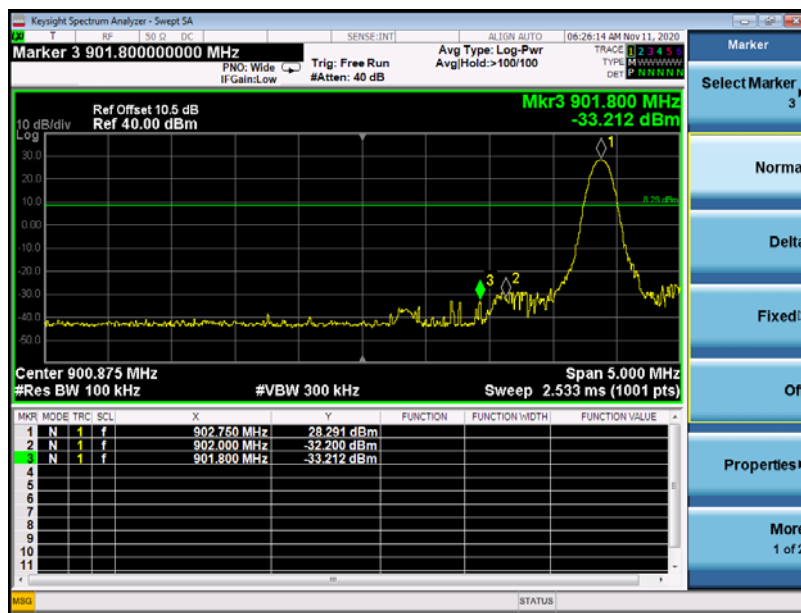
2.8.3. Test Setup



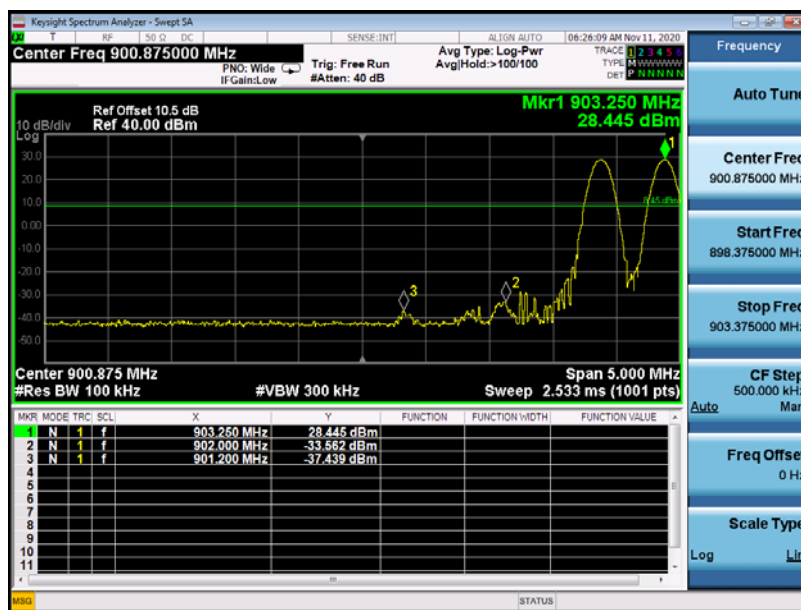
2.8.1. Test Procedure

1. The testing follows ANSI C63.10-2013 Clause 7.8.6.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Set RBW = 100kHz ($\geq 1\%$ span=5MHz), VBW = 300kHz ($\geq$ 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.

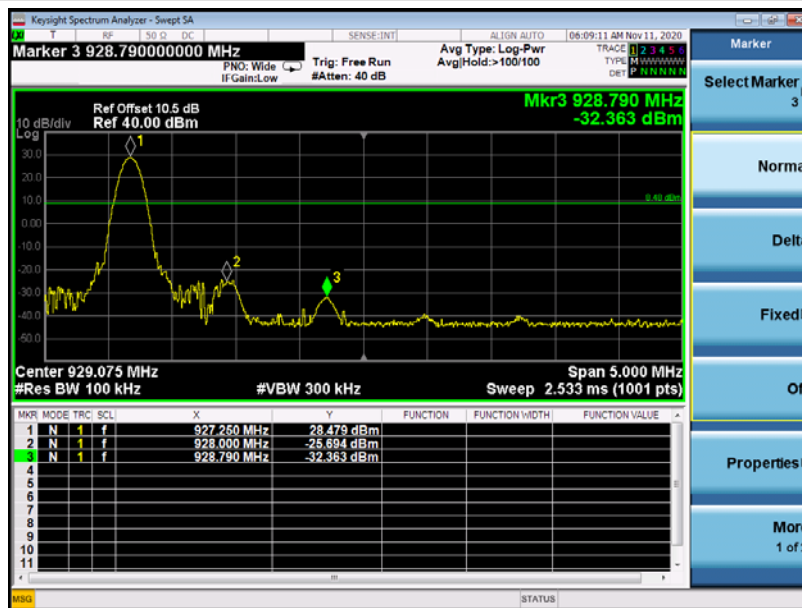
2.8.2. Test Results of Conducted Band Edge



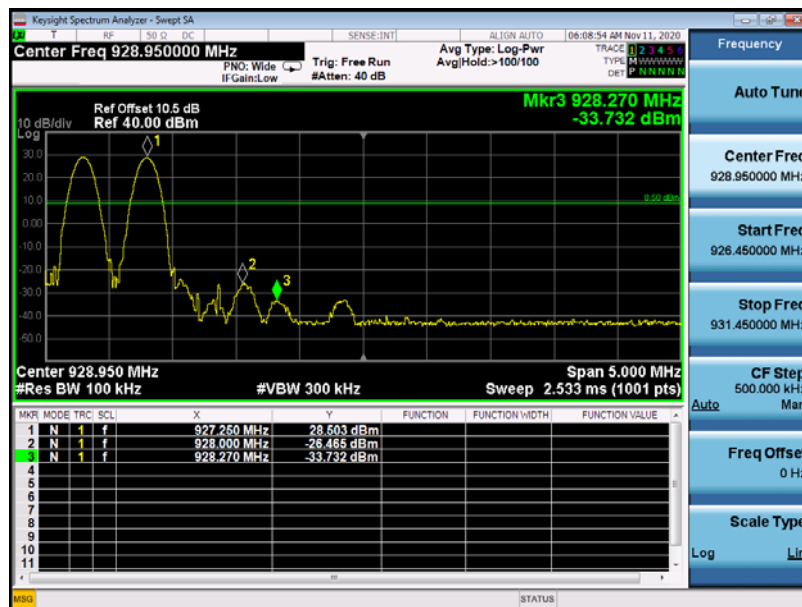
L channel



L channel Hopping Mode



H channel



H channel Hopping Mode

2.9. Conducted Emission

2.9.1. Limit of Conducted Emission

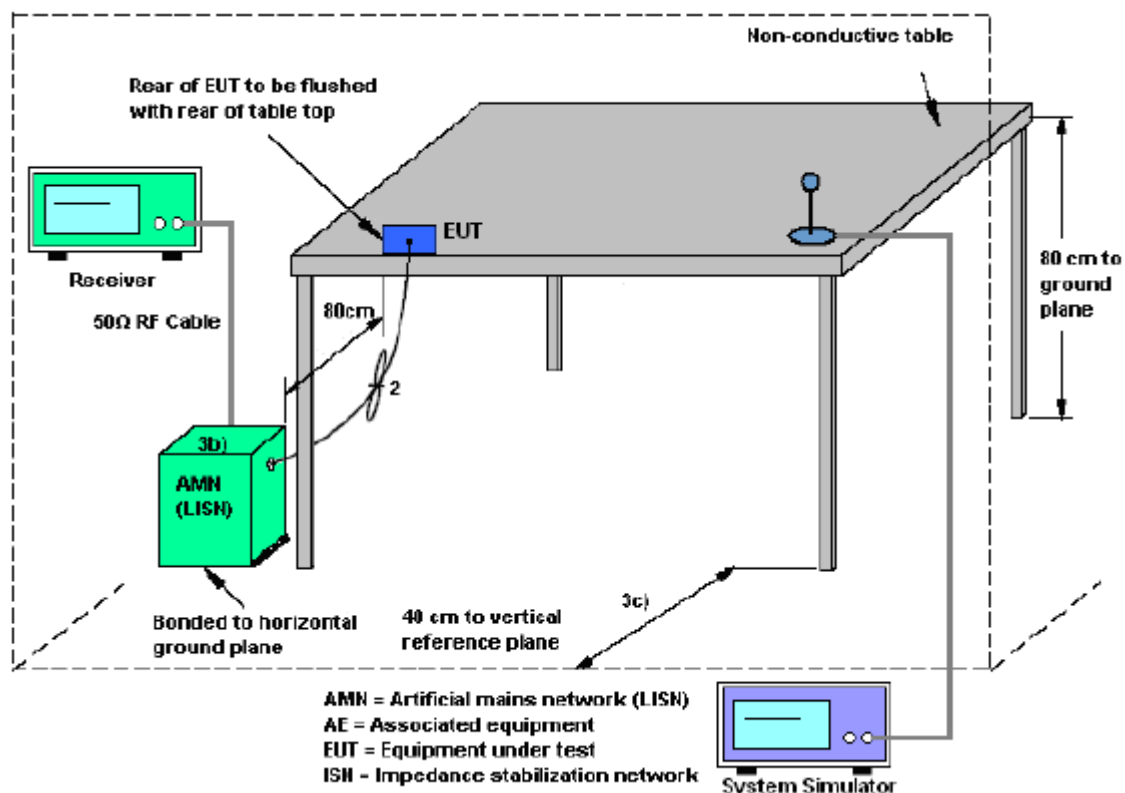
For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency range (MHz)	Conducted Limit (dBμV)	
	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.

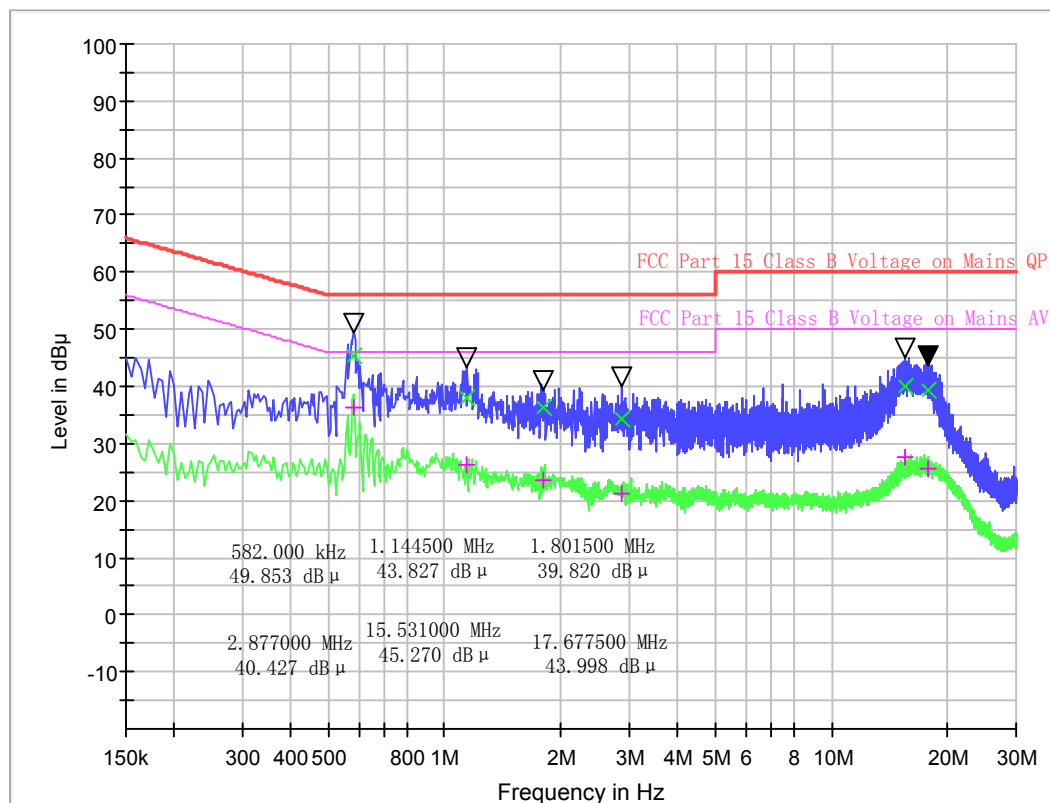
2.9.3. Test Setup



2.9.4. Test Procedures

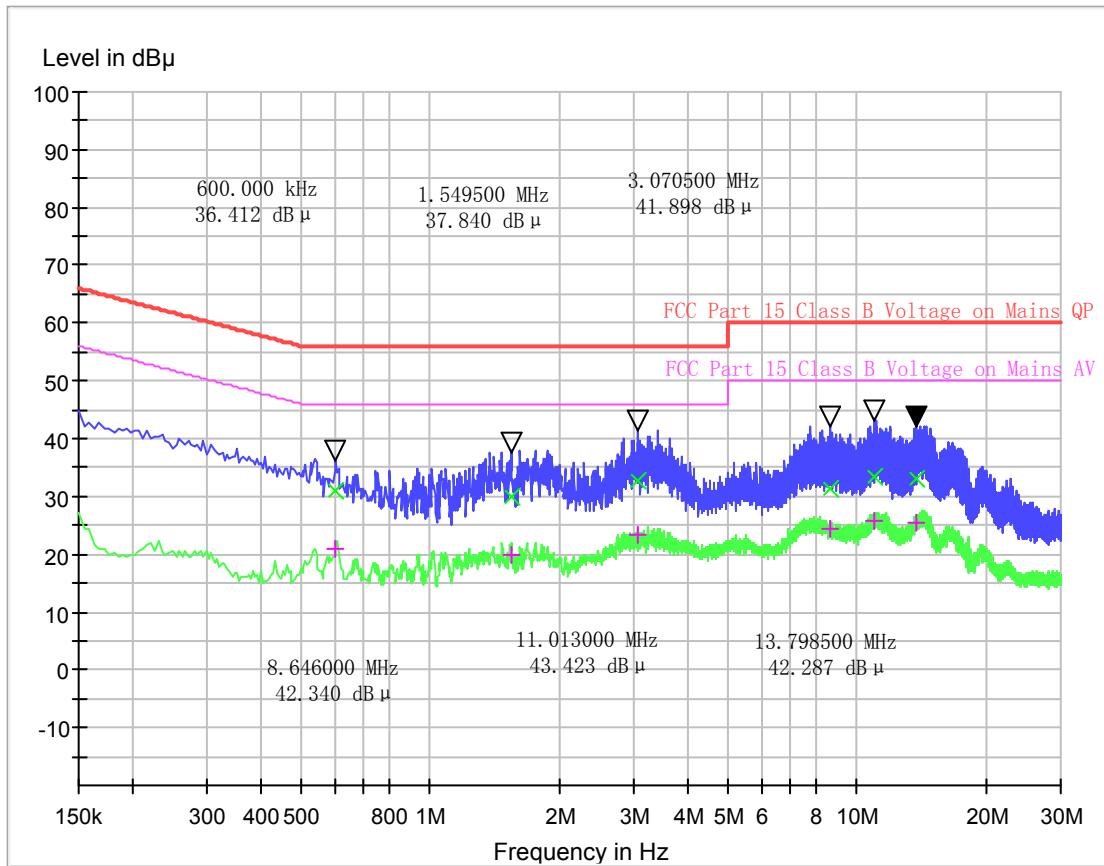
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
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)

Frequency (MHz)	QuasiPeak (dB μ V)	CAverage (dB μ V)	Cabel Loss (dB)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dB μ V)	Margin - AV (dB)	Limit - AV (dB μ V)
0.582000	45.24	36.43	0.1	10.1	10.76	56.0	9.57	46.0
1.144500	37.83	26.35	0.1	10.1	18.17	56.0	19.65	46.0
1.801500	36.29	23.52	0.6	10.6	19.71	56.0	22.48	46.0
2.877000	34.26	21.36	0.6	10.6	21.74	56.0	24.64	46.0
15.531000	40.03	27.59	0.6	10.6	19.97	60.0	22.41	50.0
17.677500	39.42	25.75	0.7	10.7	20.58	60.0	24.25	50.0



(Plot B: N Phase)

Frequency (MHz)	QuasiPeak (dB μ V)	CAverage (dB μ V)	Cabel Loss (dB)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dB μ V)	Margin - AV (dB)	Limit - AV (dB μ V)
0.204000	41.77	28.70	0.1	10.1	21.68	63.4	24.75	53.4
0.321000	38.18	31.41	0.1	10.1	21.50	59.7	18.27	49.7
0.451500	37.01	28.70	0.6	10.6	19.84	56.8	18.15	46.8
0.613500	47.76	35.98	0.6	10.6	8.24	56.0	10.02	46.0
1.212000	36.78	28.07	0.6	10.6	19.22	56.0	17.93	46.0
15.940500	42.82	24.41	0.7	10.7	17.18	60.0	25.59	50.0

Test Result: PASS

Note: Correction factor=Cabel loss+ attenuation factor
attenuation factor=10dB

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.

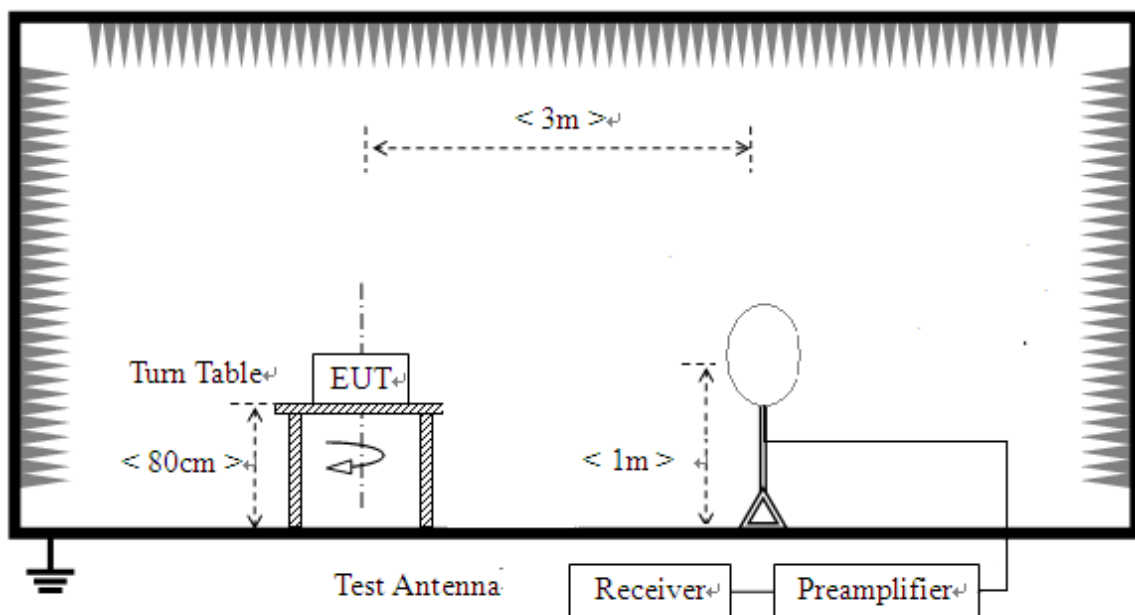
Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measurement Distance (m)
0.009 - 0.490	$2400/F(\text{kHz})$	300
0.490 - 1.705	$24000/F(\text{kHz})$	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

2.10.2. Measuring Instruments

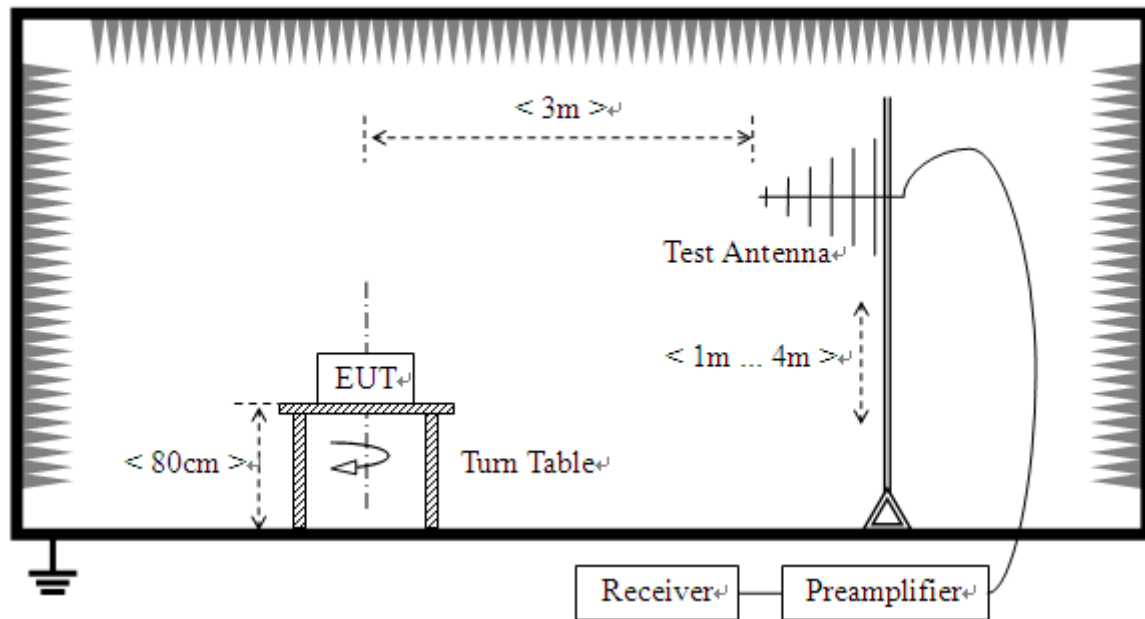
The measuring equipment is listed in the section 3 of this test report.

2.10.3. Test Setup

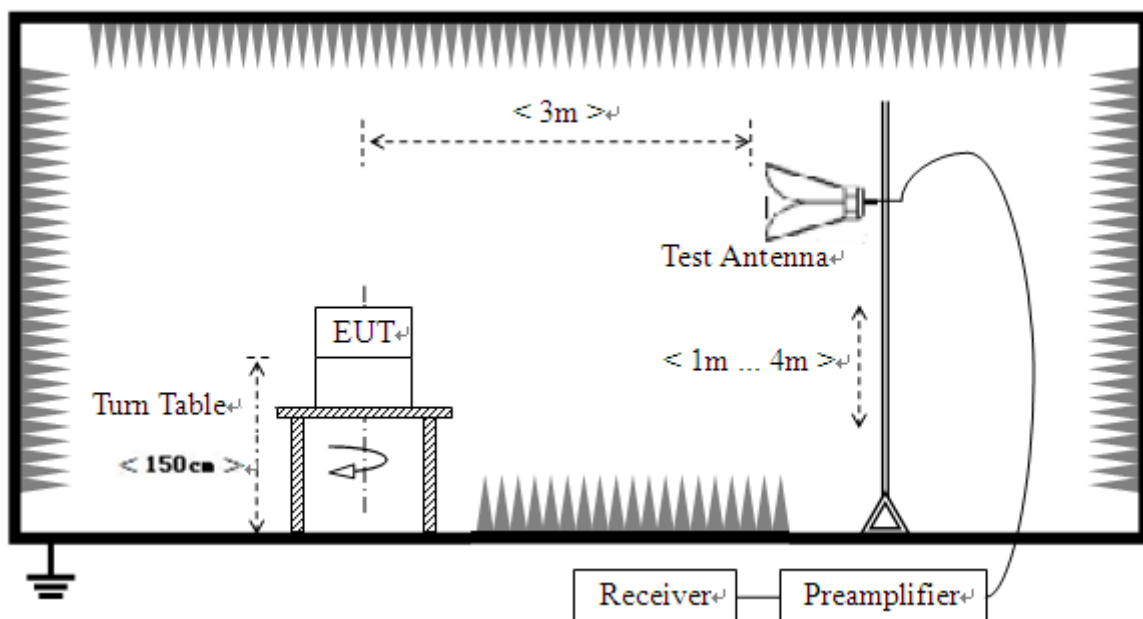
- 1) For radiated emissions from 9kHz to 30MHz



- 2) For radiated emissions from 30MHz to 1GHz



- 3) For radiated emissions above 1GHz



2.10.4. Test Procedure

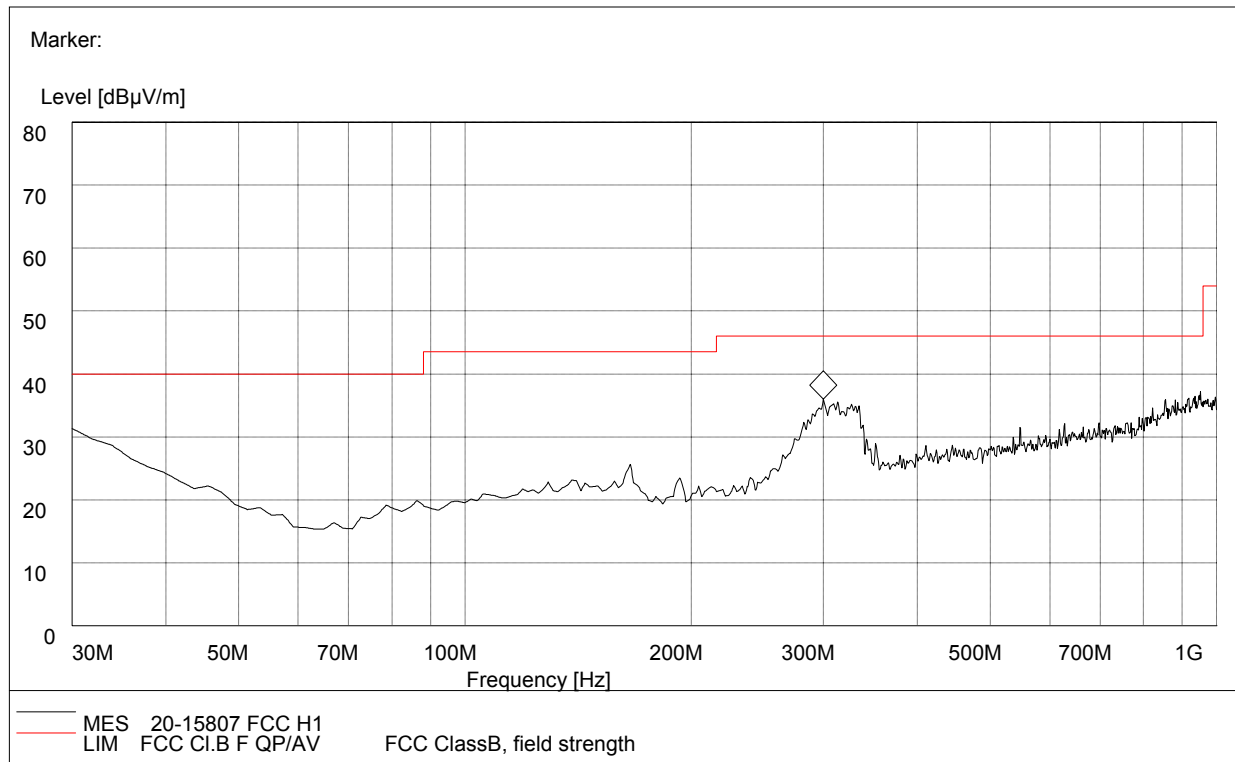
1. The EUT was placed on a turntable with 0.8m below 1GHz 1.5m above 1GHz above the ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. For each suspected emission, the EUT was arranged to its worst case and 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. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW=100 kHz for $f < 1 \text{ GHz}$, RBW=1MHz for $f > 1\text{GHz}$; 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 + $20 * \log(\text{Duty cycle})$
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
7. 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

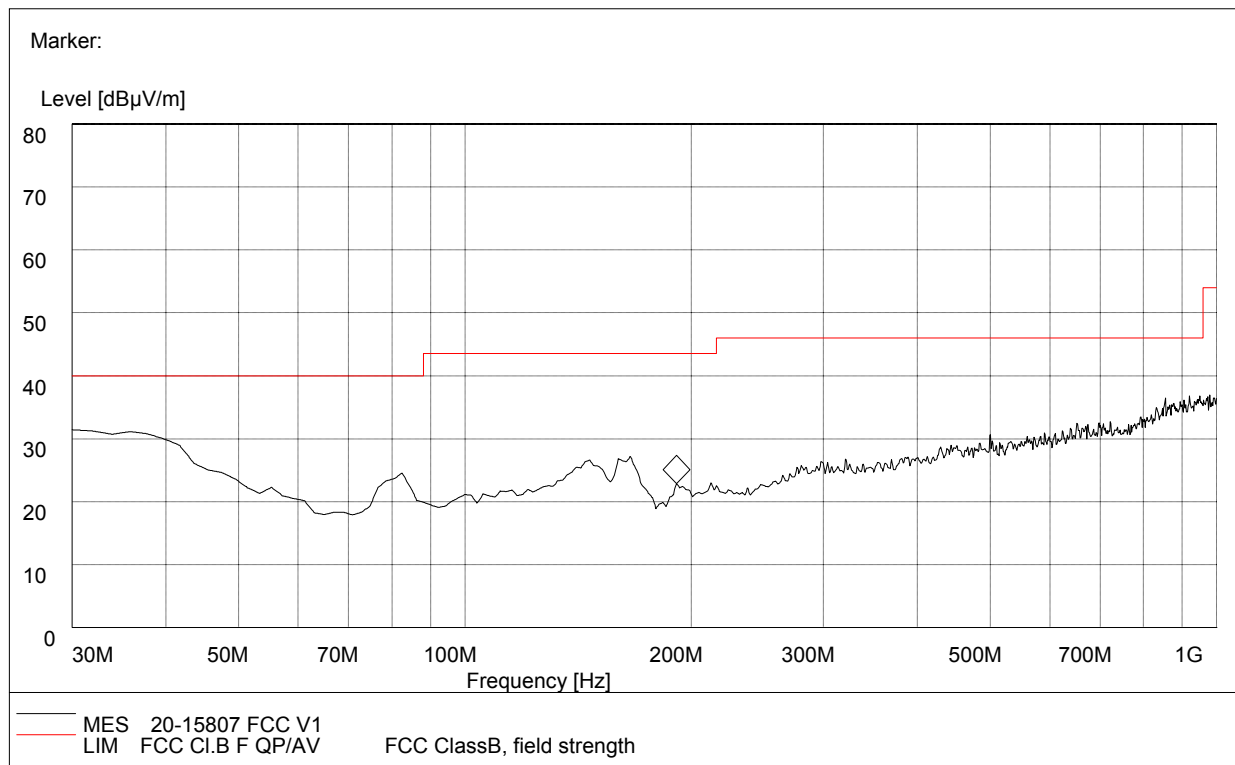
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

For 30MHz to 1000MHz



(30MHz to 1GHz, Antenna Horizontal)

Frequency (MHz)	QuasiPeak (dB μ V/m)	Bandwidth (kHz)	Corr. Factor (dB/m)	Antenna height (cm)	Limit (dB μ V/m)	Margin	Antenna	Verdict
30.000000	29.67	120.000	17.9	100.0	40.0	10.33	Horizontal	Pass
45.520000	29.01	120.000	10.8	100.0	40.0	10.99	Horizontal	Pass
165.800000	24.67	120.000	11.2	100.0	43.5	18.83	Horizontal	Pass
192.960000	22.68	120.000	10.3	100.0	43.5	20.82	Horizontal	Pass
299.660000	35.16	120.000	13.1	100.0	46.0	10.84	Horizontal	Pass
313.240000	33.59	120.000	13.1	100.0	46.0	12.41	Horizontal	Pass



(30MHz to 1GHz, Antenna Vertical)

Frequency (MHz)	QuasiPeak (dB μ V/m)	Bandwidth (kHz)	Corr. Factor (dB μ V/m)	Antenna height (cm)	Limit (dB μ V/m)	Margin	Antenna	Verdict
30.000000	29.13	120.000	17.9	100.0	40.0	10.87	Vertical	Pass
38.82000	29.01	120.000	10.8	100.0	40.0	10.99	Vertical	Pass
55.220000	22.16	120.000	8.2	100.0	40.0	17.84	Vertical	Pass
146.400000	26.13	120.000	12.3	100.0	43.5	17.37	Vertical	Pass
165.800000	26.43	120.000	11.2	100.0	43.5	17.07	Vertical	Pass
191.030000	22.69	120.000	10.3	100.0	43.5	20.81	Vertical	Pass

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

No.	Frequency (MHz)	Emssion Level (dBUV/m)		Limit (dBUV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBUV/m)	Correction Factor (dB/m)
1	902	56.38	PK	74.00	-17.62	1.60	320.00	47.73	8.65
2	902	47.36	AV	54.00	-6.64	1.60	320.00	38.71	8.65
3	1805.5	38.47	PK	74.00	-35.53	1.60	320.00	33.65	11.17
4	1805.5	27.29	AV	54.00	-26.71	1.60	320.00	28.65	11.17
5	2708.25	41.17	PK	74.00	-32.83	1.60	320.00	39.54	16.00
6	2708.25	32.12	AV	54.00	-21.88	1.60	320.00	31.21	16.00
7	3611	45.12	PK	74.00	-28.88	1.60	320.00	38.95	19.14
8	3611	36.18	AV	54.00	-17.82	1.60	320.00	30.21	19.14

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

No.	Frequency (MHz)	Emssion Level (dBUV/m)		Limit (dBUV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBUV/m)	Correction Factor (dB/m)
1	902	55.87	PK	74.00	-18.13	1.80	180.00	47.22	8.65
2	902	46.59	AV	54.00	-7.41	1.80	180.00	37.94	8.65
3	1805.5	35.33	PK	74.00	-38.67	1.80	180.00	36.25	11.17
4	1805.5	29.38	AV	54.00	-24.62	1.80	180.00	29.14	11.17
5	2708.25	41.77	PK	74.00	-32.23	1.80	360.00	37.95	16.00
6	2708.25	33.96	AV	54.00	-20.04	1.80	360.00	29.65	16.00
7	3611	44.36	PK	74.00	-29.64	1.80	320.00	38.25	19.14
8	3611	34.45	AV	54.00	-19.55	1.80	320.00	31.26	19.14

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	34.95	PK	74.00	-39.05	1.00	100.00	33.15	10.42
2	1830.5	28.22	AV	54.00	-25.78	1.00	100.00	28.54	10.42
3	2745.75	41.41	PK	74.00	-32.59	1.00	100.00	34.65	16.40
4	2745.75	31.04	AV	54.00	-22.96	1.00	100.00	29.54	16.43
5	3661	43.19	PK	74.00	-30.81	1.00	100.00	38.50	18.12
6	3661	35.22	AV	54.00	-18.78	1.00	100.00	31.00	18.15

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	38.33	PK	74.00	-35.67	1.00	360.00	31.33	10.32
2	1830.5	27.56	AV	54.00	-26.44	1.00	360.00	28.95	10.33
3	2745.75	40.04	PK	74.00	-33.96	1.00	360.00	36.95	15.94
4	2745.75	32.35	AV	54.00	-21.65	1.00	360.00	29.12	15.98
5	3661	44.35	PK	74.00	-29.65	1.00	360.00	38.65	19.30
6	3661	35.59	AV	54.00	-18.41	1.00	360.00	30.21	19.41

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	928	55.94	PK	74.00	-18.06	1.50	40.00	47.13	8.81
2	928	46.41	AV	54.00	-7.59	1.50	40.00	37.60	8.81
3	1854.5	36.94	PK	74.00	-37.06	2.00	180.00	35.24	10.76
4	1854.5	27.69	AV	54.00	-26.31	2.00	180.00	28.98	10.79
5	2781.75	40.80	PK	74.00	-33.20	2.00	180.00	38.77	16.39
6	2781.75	32.14	AV	54.00	-21.86	2.00	180.00	31.26	16.39
7	3709	43.43	PK	74.00	-30.57	2.00	180.00	38.12	20.84
8	3709	35.90	AV	54.00	-18.10	2.00	180.00	30.11	20.86

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	928	58.57	PK	74.00	-15.43	2.00	150.00	49.76	8.81
2	928	47.65	AV	54.00	-6.35	2.00	150.00	38.84	8.81
3	1854.5	36.34	PK	74.00	-37.66	2.00	150.00	32.29	8.13
4	1854.5	27.89	AV	54.00	-26.11	2.00	150.00	28.65	8.15
5	2781.75	40.08	PK	74.00	-33.92	2.00	150.00	34.21	11.82
6	2781.75	32.52	AV	54.00	-21.48	2.00	150.00	26.21	11.88
7	3709	44.80	PK	74.00	-29.20	2.00	150.00	32.45	16.39
8	3709	35.78	AV	54.00	-18.22	2.00	150.00	24.35	16.40

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

3. List of measuring equipment

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EMI TEST RECEIVER	R&S	ESU8	A0805559	2020.04.03	2021.04.02
2	Power Meter	R&S	NRP-Z31	102872	2020.05.18	2021.05.17
3	TURNTABLE	ETS	2088	2149	N/A	N/A
4	ANTENNA MAST	ETS	2075	2346	N/A	N/A
5	EMI TEST Software	R&S	ESK1	N/A	N/A	N/A
6	Horn antenna (18GHz~26.5GHz)	AR	AT4003A	325306	2020.09.16	2022.09.15
7	Amplifier 30M~1GHz	MILMEGA	80RF1000-10004	A140101634	2020.03.24	2021.03.23
8	Amplifier 1G~18GHz	MILMEGA	AS0104R-800/400	A160302517	2020.03.24	2021.03.23
9	Horn Antenna	R&S	HF906	A0304225	2019.04.17	2022.04.16
10	Horn Antenna	R&S	ESIB7	A0501375	2020.06.24	2021.06.23
11	ULTRA-BROADBAND ANTENNA	SCHWARZBECK	VULB9160	A0805560	2019.05.24	2022.05.23
12	Passive Loop Antenna	R&S	HFH2-Z2	100047	2019.04.26	2022.04.25
13	Temperature chamber	XSM	DNF810C	A0501375	2020.05.26	2021.05.25
14	Spectrum Analyzer	KEYSIGHT	N9030A	A160702554	2020.05.18	2021.05.17
15	Power Supply	R&S	ESIB26	A0304218	2020.04.29	2021.04.28
16	LISN	R&S	ESH2-Z5	A0304221	2020.04.03	2021.04.02
17	Spectrum Analyzer	R&S	FSV40	A140801886	2020.04.29	2021.04.28

**** END OF REPORT ****