CFR 47 FCC PART 15 SUBPART C

CERTIFICATION TEST REPORT

For

Tablet

MODEL NUMBER: VT-TABLET-5082G

FCC ID: 2AAGE5081G6

REPORT NUMBER: 4789999654.1-9

ISSUE DATE: September 18, 2021

Prepared for

Chengdu Vantron Technology Co., Ltd.
No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China

Prepared by

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The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products.

Revision History

Rev.	Issue Date	Revisions	Revised By
V0	09/18/2021	Initial Issue	

Note: This is a spot check report base on 4789999654.1-1 which is issued by UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch on September 15, 2021. The old version EUT had already applied for FCC ID (2AAGE5081GB486), the new version and old version are the same except to except for one less the LTE module, so we only follow the KDB KDB484596 D01 to add the spot check in this report. For other data, please refer to the original report 4789999654.1-1.

Parent Serial Number SI07, FCC ID: 2AAGE5081GB486

Variant Serial Number SI07A , FCC ID: 2AAGE5081G6

Test Report	802.11 2.4GHz WIFI (DTS)	BLE (DTS)	Bluetooth DSS	802.11 5G WIFI UNII
old version	Report #4789999654.1-3	Report #4789999654.1-1	Report #4789999654.1-2	Report #4789999654.1-4
new version	Report #4789999654.1-10	Report #4789999654.1-9	Report 4789999654.1-8	Report #4789999654.1-11

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Summary of Test Results			
Clause	**Test Items**	**FCC Rules**	**Test Results**
1	Conducted Output Power	FCC Part 15.247 (b) (3)	Pass
2	Radiated Bandedge and Spurious Emission Spot Check	FCC Part 15.247 (d) FCC Part 15.209 FCC Part 15.205	Pass
3	Antenna Requirement	FCC Part 15.203	Pass

Note:
1.This test report is only published to and used by the applicant, and it is not for evidence purpose in China.
2. The measurement result for the sample received is <Pass> according to < CFR 47 FCC PART 15 SUBPART C >when <Accuracy Method> decision rule is applied.

Test worst case of Conducted Output Power Spot Check				
Test Mode	Frequency (MHz)	Result[dBm]	original report Result[dBm]	Deviation(dB)
LE 1M	2480	6.60	6.69	-0.09

The worst case of Radiated Bandedge and Spurious Emission Spot Check					
Test Mode	Test Item	Frequency (MHz)	Result[dBuV/m]	original report Result[dBuV/m]	Deviation(dB)
LE 2M	Band Edge	2483.5	54.29	54.75	-0.46
LE 1M	RSE	11835	51.34	52.04	-0.70

Note: Comparison of two models, upper deviation is within 3 dB range and all test results are under FCC Technical limits.

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	Chengdu Vantron Technology Co., Ltd.
Address:	No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China

Manufacturer Information

Company Name:	Chengdu Vantron Technology Co., Ltd.
Address:	No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China

EUT Information

EUT Name:	Tablet
Model:	VT-TABLET-5082G
Brand:	VANTRON
Sample Received Date:	June 23, 2021
Sample Status:	Normal
Sample ID:	4030518
Date of Tested:	June 23, 2021~ July 02,2021

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 FCC PART 15 SUBPART C	PASS

Prepared By:

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Stephen Guo
Laboratory Manager

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with KDB 558074 D01 15.247 Meas Guidance v05r02, 414788 D01 Radiated Test Site v01r01, CFR 47 FCC Part 2, CFR 47 FCC Part 15, ANSI C63.10-2013.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	**A2LA (Certificate No.: 4102.01)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA. **FCC (FCC Designation No.: CN1187)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Delcaration of Conformity (DoC) and Certification rules **ISED (Company No.: 21320)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046. **VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber D, the VCCI registration No. is G-20019 and R-20004 Shielding Room B , the VCCI registration No. is C-20012 and T-20011

Note 1: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China

Note 2: The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

Note 3: For below 30 MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30 MHz had been correlated to measurements performed on an OFS.

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4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognize national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Uncertainty
Conduction emission	3.62 dB
Radiated Emission (Included Fundamental Emission) (9 kHz ~ 30 MHz)	2.2 dB
Radiated Emission (Included Fundamental Emission) (30 MHz ~ 1 GHz)	4.00 dB
Radiated Emission (Included Fundamental Emission) (1 GHz to 26 GHz)	5.78 dB (1 GHz ~ 18 GHz)
	5.23 dB (18 GHz ~ 26 GHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of k=2.	

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name	Tablet	
Model	VT-TABLET-5082G	
Technology	*Bluetooth* - Low Energy	
Transmit Frequency Range	2402 MHz ~ 2480 MHz	
Modulation	GFSK	
Data Rate	LE	1 Mbps
	LE	2 Mbps
Rated Input	DC 5 V	
Li-ion Battery	3.8 V, 8000 mAh, 30.4Wh	

5.2. CHANNEL LIST

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	11	2424	22	2446	33	2468
1	2404	12	2426	23	2448	34	2470
2	2406	13	2428	24	2450	35	2472
3	2408	14	2430	25	2452	36	2474
4	2410	15	2432	26	2454	37	2476
5	2412	16	2434	27	2456	38	2478
6	2414	17	2436	28	2458	39	2480
7	2416	18	2438	29	2460	/	/
8	2418	19	2440	30	2462	/	/
9	2420	20	2442	31	2464	/	/
10	2422	21	2444	32	2468	/	/

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5.3. MAXIMUM PEAK OUTPUT POWER

Test Mode	Frequency (MHz)	Channel Number	Maximum Peak Output Power (dBm)	Maximum EIRP (dBm)
LE 1M	2402 ~ 2480	0-39[40]	6.60	8.80
LE 2M	2402 ~ 2480	0-39[40]	6.52	8.72

5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel	Frequency
LE 1M	CH 0(Low Channel), CH 19(MID Channel), CH 39(High Channel)	2402 MHz, 2440 MHz, 2480 MHz
LE 2M	CH 0(Low Channel), CH 19(MID Channel), CH 39(High Channel)	2402 MHz, 2440 MHz, 2480 MHz

5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter under 2402 ~ 2480MHz Band				
Test Software Version		EMI_Test_Tool		
Test Mode	Transmit Antenna Number	Test Software Setting Value		
		CH 0	CH 19	CH 39
LE 1M	1	Default	Default	Default
LE 2M	1	Default	Default	Default

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna	Frequency (MHz)	Antenna Type	MAX Antenna Gain (dBi)
1	2402-2480	Internal PIFA Antenna	2.2

Test Mode	Transmit and Receive Mode	Description
LE 1M	☒1TX, 1RX	Antenna 1 can be used as transmitting/receiving antenna.
LE 2M	☒1TX, 1RX	Antenna 1 can be used as transmitting/receiving antenna.

Note: 1. The value of the antenna gain was declared by customer.

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5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	P/N
/	/	/	/	/

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	Type C	/	1.0	/

ACCESSORIES

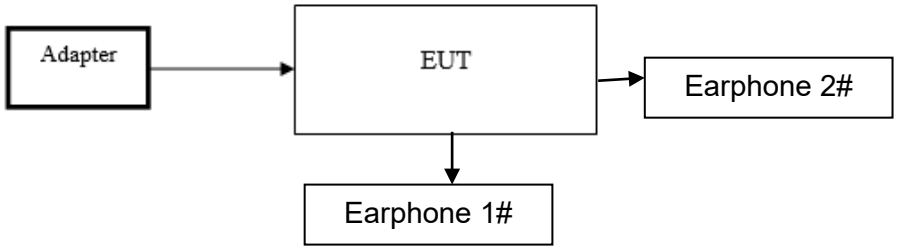
Item	Accessory	Brand Name	Model Name	Description
1	Power adapter	HUAWEI	HW-100225C00	5V2A
2	Earphone 1#	/	/	/
3	Earphone 2#	/	/	/
4	TF Card	/	/	/

TEST SETUP

The EUT can work in engineering mode with a software through a Laptop.

SETUP DIAGRAM FOR TESTS

For Conducted Emission Test for AC Power Port test:



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6. MEASURING INSTRUMENT AND SOFTWARE USED

Radiated Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Nov. 12, 2020	Nov. 11, 2021
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130959	Sept. 17, 2018	Sept. 17, 2021
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Aug. 11, 2018	Aug. 11, 2021
Preamplifier	HP	8447D	2944A09099	Nov. 12, 2020	Nov. 11, 2021
EMI Measurement Receiver	R&S	ESR26	101377	Nov. 12, 2020	Nov. 11, 2021
Horn Antenna	TDK	HRN-0118	130939	Sept. 17, 2018	Sept. 17, 2021
Preamplifier	TDK	PA-02-0118	TRS-305-00067	Nov. 20, 2020	Nov. 19, 2021
Horn Antenna	Schwarzbeck	BBHA9170	#691	Aug. 11, 2018	Aug. 11, 2021
Preamplifier	TDK	PA-02-2	TRS-307-00003	Nov. 12, 2020	Nov. 11, 2021
Preamplifier	TDK	PA-02-3	TRS-308-00002	Nov. 12, 2020	Nov. 11, 2021
Loop antenna	Schwarzbeck	1519B	00008	Jan.17, 2019	Jan.17,2022
Preamplifier	TDK	PA-02-001-3000	TRS-302-00050	Nov. 12, 2020	Nov. 11, 2021
High Pass Filter	Wi	WHKX10-2700-3000-18000-40SS	23	Nov. 12, 2020	Nov. 11, 2021
Band Reject Filter	Wainwright	WRCJV8-2350-2400-2483.5-2533.5-40SS	4	Nov. 12, 2020	Nov. 11, 2021

Software			
Description	Manufacturer	Name	Version
Test Software for Radiated Emissions	Farad	EZ-EMC	Ver. UL-3A1

Tonsend RF Test System					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
Wideband Radio Communication Tester	R&S	CMW500	155523	Nov.20,2020	Nov.19,2021
PXA Signal Analyzer	Keysight	N9030A	MY55410512	Nov.20,2020	Nov.19,2021
MXG Vector Signal Generator	Keysight	N5182B	MY56200284	Nov.20,2020	Nov.19,2021
MXG Vector Signal Generator	Keysight	N5172B	MY56200301	Nov.20,2020	Nov.19,2021

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DC power supply	Keysight	E3642A	MY55159130	Nov.24,2020	Nov.23,2021
Temperature & Humidity Chamber	SANMOOD	SG-80-CC-2	2088	Nov.20,2020	Nov.19,2021

Software			
Description	Manufacturer	Name	Version
Tonsend SRD Test System	Tonsend	JS1120-3 RF Test System	2.6.77.0518

Other Instruments					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Dual Channel Power Meter	Keysight	N1912A	MY55416024	Nov. 20, 2020	Nov. 19, 2021
Power Sensor	Keysight	USB Wideband Power Sensor	MY5100022	Nov. 20, 2020	Nov. 19, 2021

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7. ANTENNA PORT TEST RESULTS

7.1. CONDUCTED OUTPUT POWER

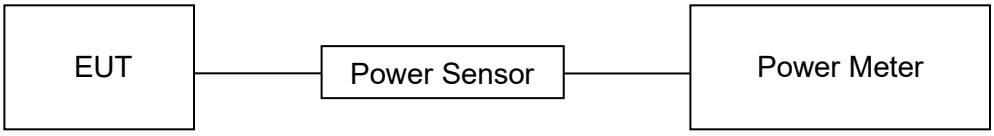
LIMITS

CFR 47 FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(b)(3)	Peak Conducted Output Power	1 watt or 30 dBm	2400-2483.5

TEST PROCEDURE

Connect the EUT to a low loss RF cable from the antenna port to the power sensor (video bandwidth is greater than the occupied bandwidth).
Measure peak emission level, the indicated level is the peak output power, after any corrections for external attenuators and cables.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.5 °C	Relative Humidity	69.5 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

RESULTS

Test Mode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	5.84	<=30	PASS
		2440	5.28	<=30	PASS
		2480	6.60	<=30	PASS
BLE_2M	Ant1	2402	5.91	<=30	PASS
		2440	5.54	<=30	PASS
		2480	6.52	<=30	PASS

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Test worst case results of Spot Check				
Test Mode	Frequency (MHz)	Result[dBm]	original report Result[dBm]	Deviation(dB)
LE 1M	2480	6.60	6.69	-0.09

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8. RADIATED TEST RESULTS

LIMITS

Please refer to CFR 47 FCC §15.205 and §15.209.

Radiation Disturbance Test Limit for FCC (Class B) (9 kHz-1 GHz)

Emissions radiated outside of the specified frequency bands above 30 MHz			
Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m	
		Quasi-Peak	
30 - 88	100	40	
88 - 216	150	43.5	
216 - 960	200	46	
Above 960	500	54	
Above 1000	500	Peak	Average
		74	54

FCC Emissions radiated outside of the specified frequency bands below 30 MHz		
Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30

FCC Restricted bands of operation refer to FCC §15.205 (a):

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

Note: [1]Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2]Above 38.6c

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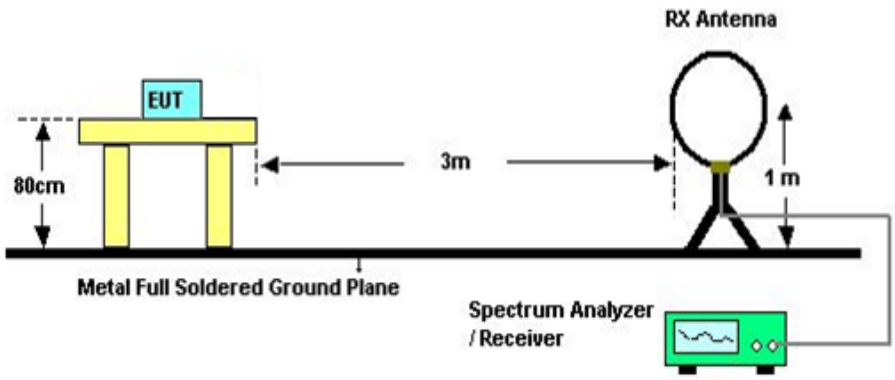
TEST SETUP AND PROCEDURE

Below 30 MHz



The setting of the spectrum analyser

RBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
VBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
Sweep	Auto
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.4.

2. The EUT was arranged to its worst case and then 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. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1 m height antenna tower.

5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak and average detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak and average detector and reported.

7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.

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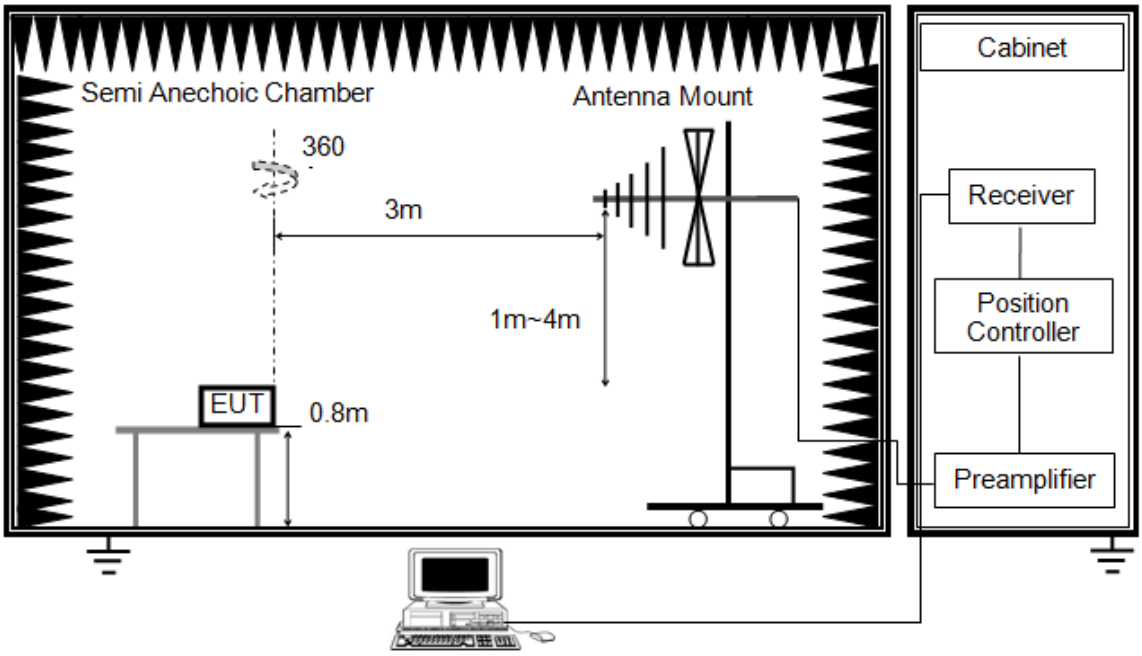
Below 1 GHz and above 30 MHz



The setting of the spectrum analyser

RBW	120 kHz
VBW	300 kHz
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.5.

2. 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. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

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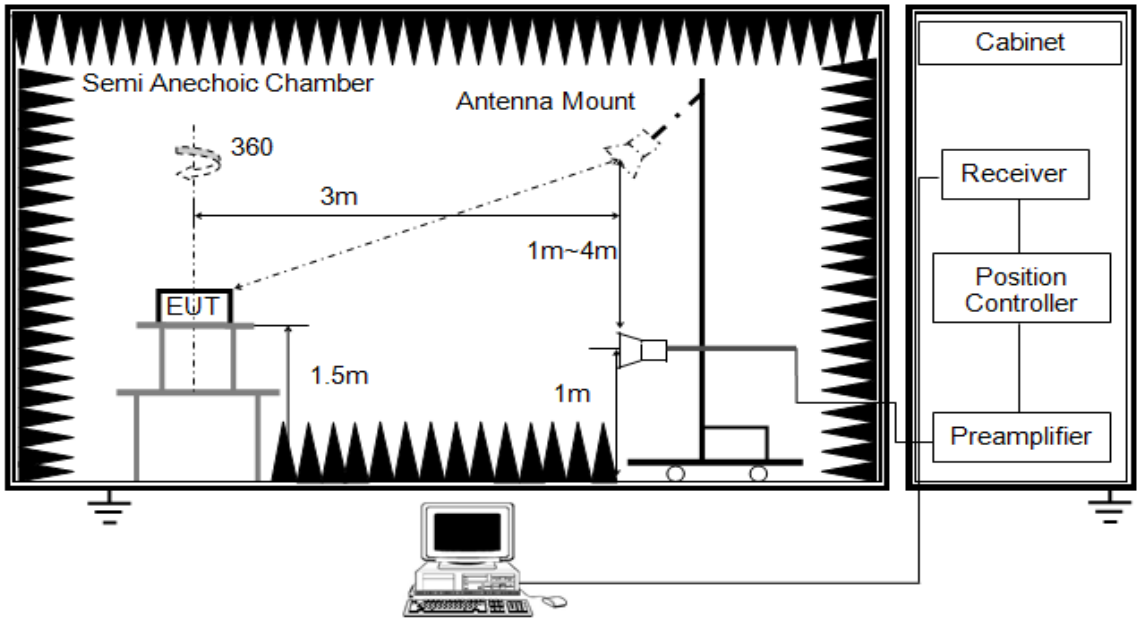
Above 1GHz



The setting of the spectrum analyser

RBW	1 MHz
VBW	PEAK: 3 MHz AVG: see note 6
Sweep	Auto
Detector	Peak
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.6.

2. The EUT was arranged to its worst case and then tune the antenna tower (1- 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. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 1.5 m above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement above 1 GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.

6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 7.1.ON TIME AND DUTY CYCLE.

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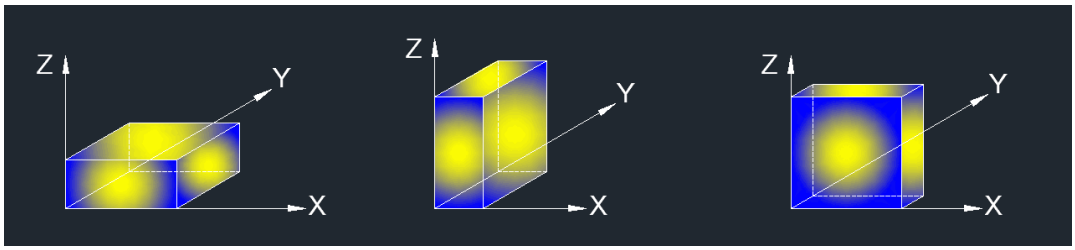
X axis, Y axis, Z axis positions:



Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

TEST ENVIRONMENT

Temperature	26.1 °C	Relative Humidity	46 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 5 V

RESULTS

Test worst case results of Spot Check					
Test Mode	Test Item	Frequency (MHz)	Result[dBuV/m]	original report Result[dBuV/m]	Deviation(dB)
LE 2M	Band Edge	2483.5	54.29	54.75	-0.46
LE 1M	RSE	11835	51.34	52.04	-0.70

Note: Comparison of two models, upper deviation is within 3 dB range and all test results are under FCC Technical limits.

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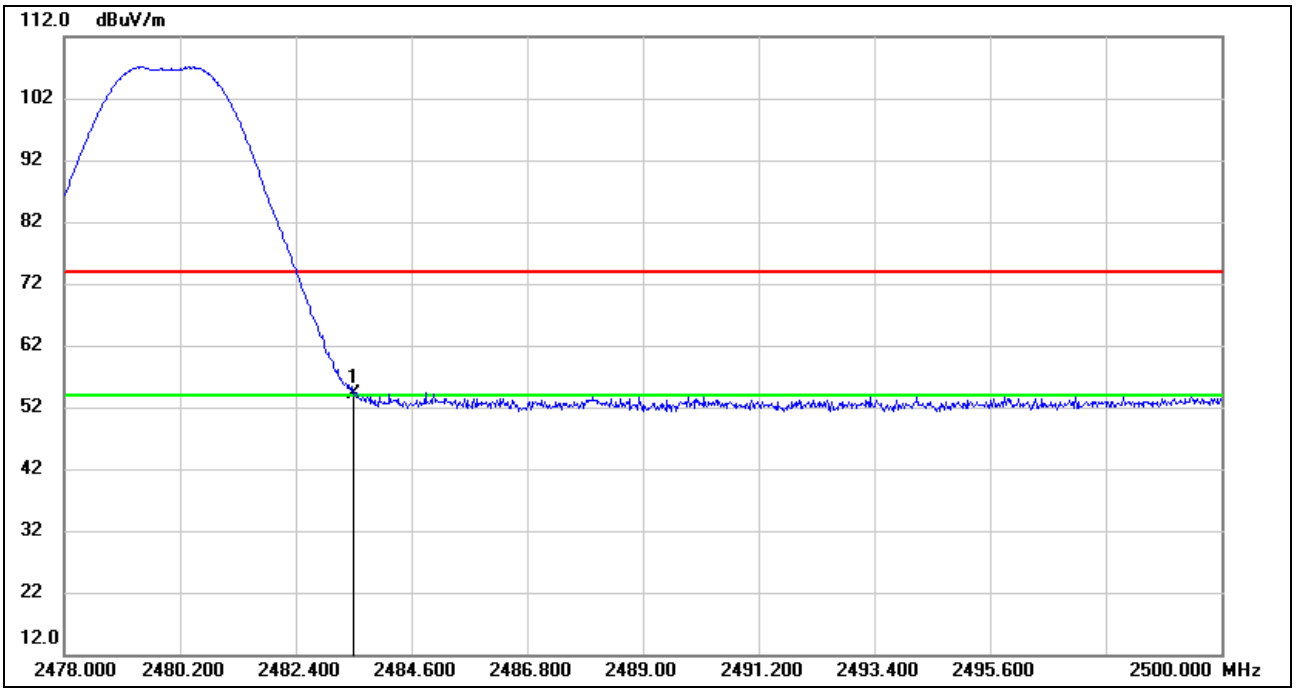
8.1. RESTRICTED BANDEDGE

8.1.1. LE 2M MODE

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	20.58	33.71	54.29	74.00	-19.71	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

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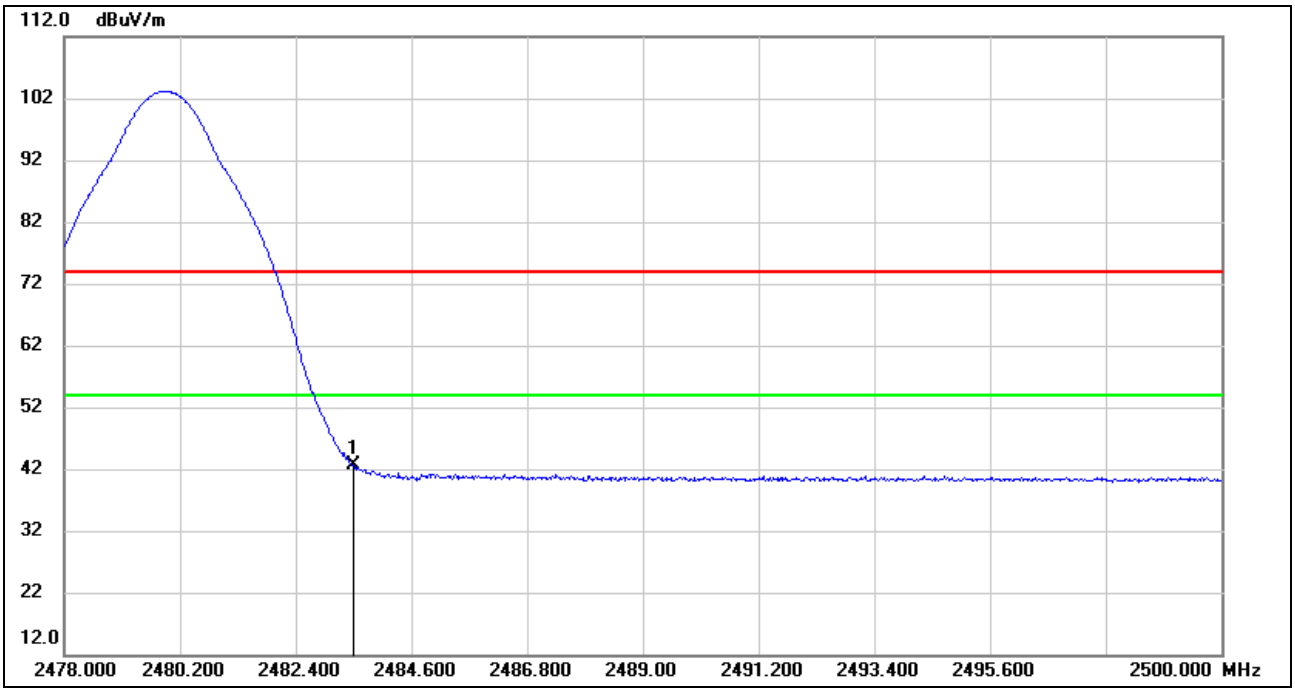
AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	8.91	33.71	42.62	74.00	-31.38	peak

Note: 1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

Note: Horizontal and Vertical have been tested, only the worst data was recorded in the report.

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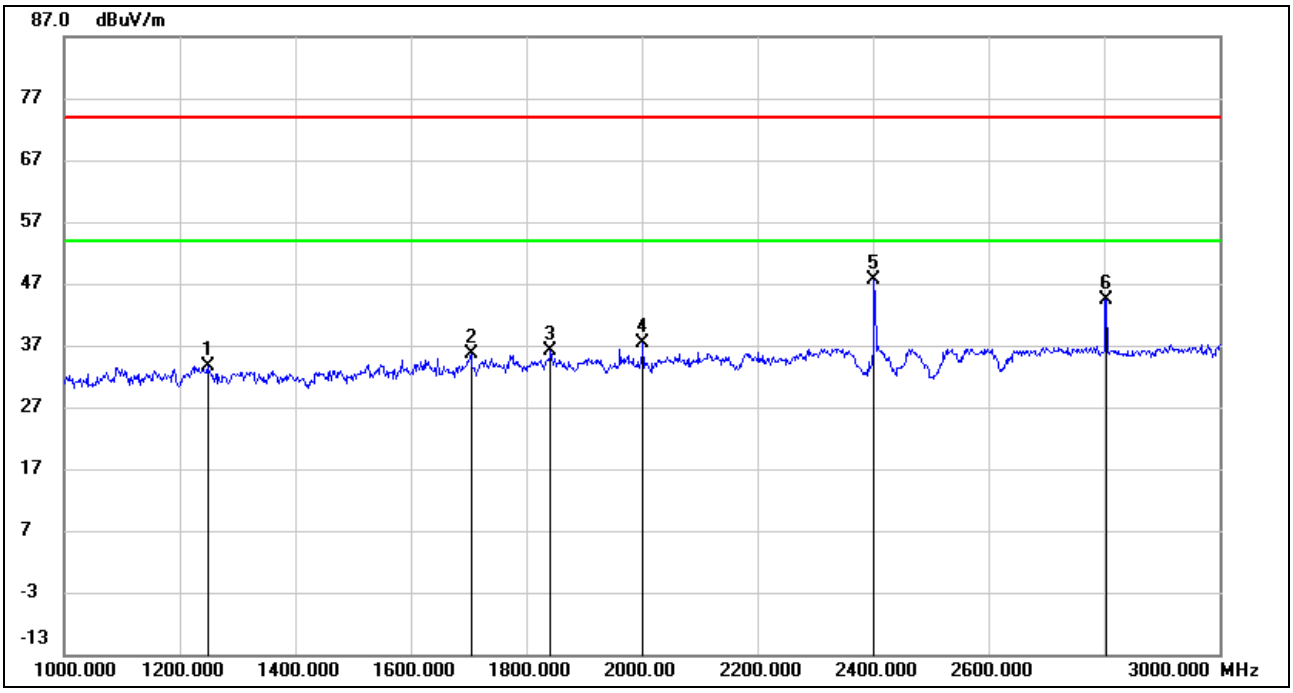
8.2. SPURIOUS EMISSIONS (1 GHz ~ 3 GHz)

8.2.1. LE 1M MODE

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1248.000	46.55	-12.92	33.63	74.00	-40.37	peak
2	1704.000	46.30	-10.77	35.53	74.00	-38.47	peak
3	1842.000	46.14	-10.08	36.06	74.00	-37.94	peak
4	2002.000	47.57	-10.18	37.39	74.00	-36.61	peak
5	2402.000	55.99	-8.39	47.60	/	/	fundamental
6	2804.000	50.95	-6.54	44.41	74.00	-29.59	peak

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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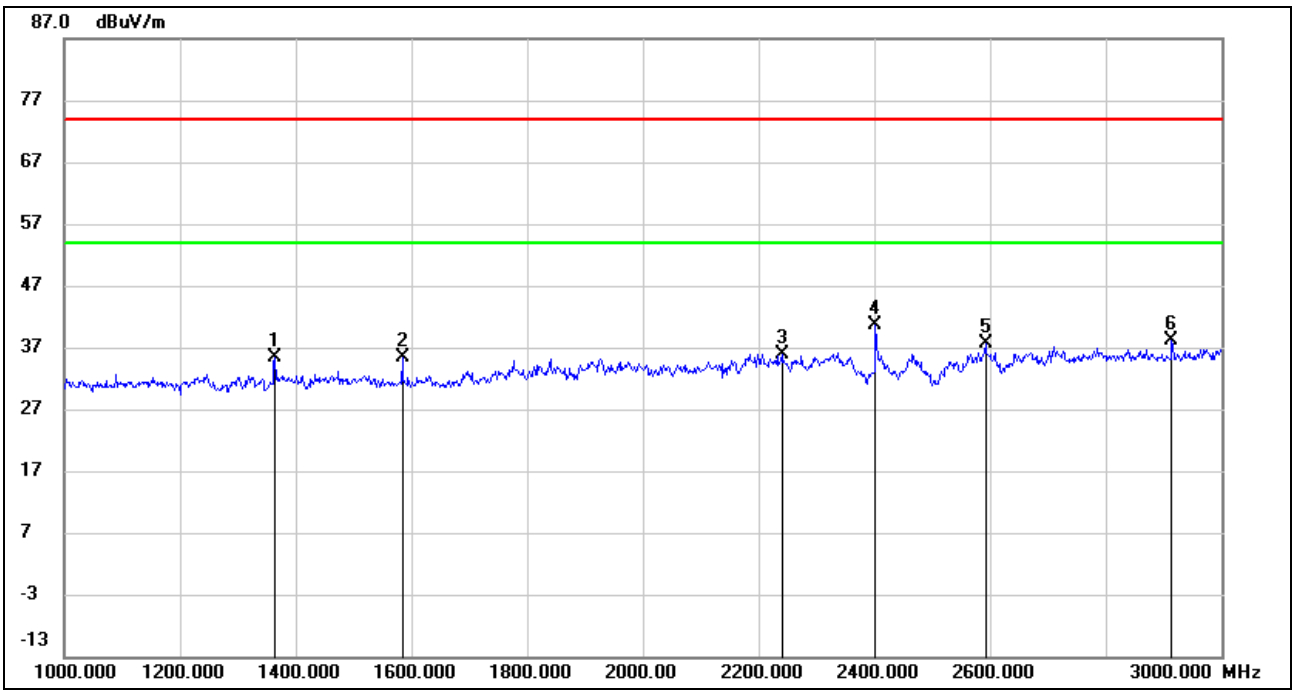
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1364.000	48.05	-12.75	35.30	74.00	-38.70	peak
2	1584.000	46.93	-11.66	35.27	74.00	-38.73	peak
3	2240.000	44.89	-8.92	35.97	74.00	-38.03	peak
4	2402.000	48.96	-8.39	40.57	/	/	fundamental
5	2592.000	45.56	-7.89	37.67	74.00	-36.33	peak
6	2914.000	44.05	-6.00	38.05	74.00	-35.95	peak

Note:
1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. The Band Reject filter loss factor already add into the correct factor.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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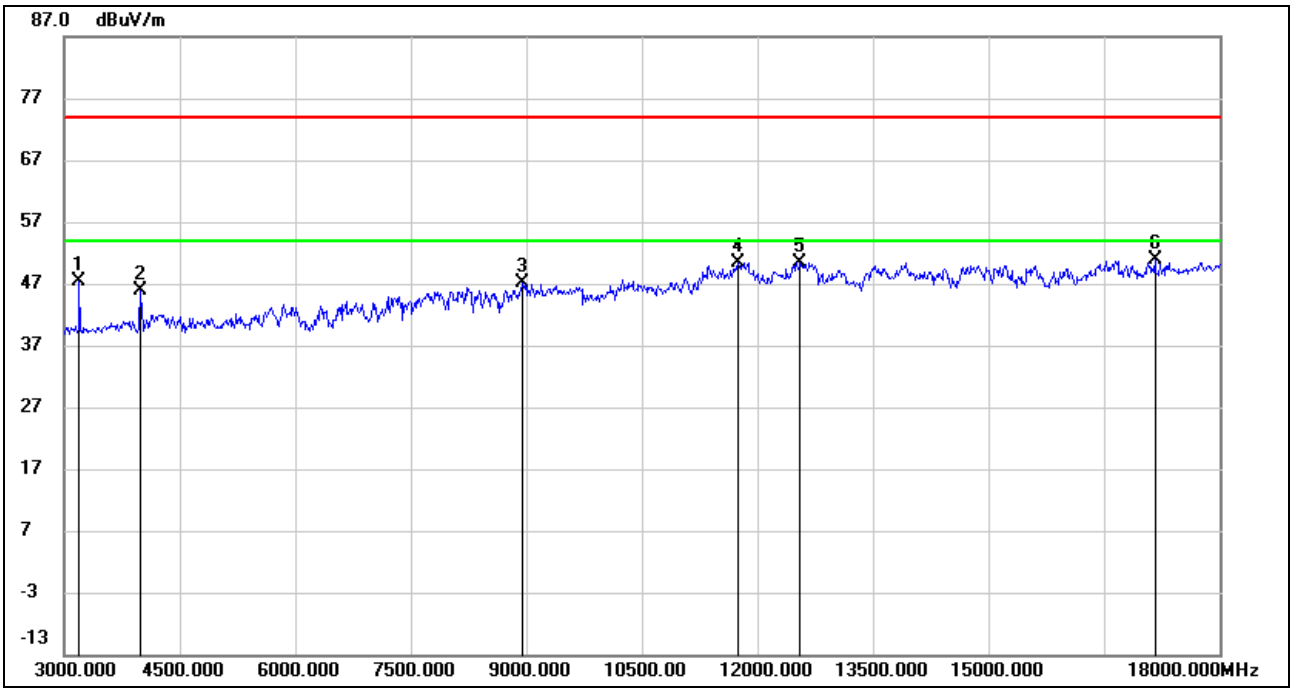
8.3. SPURIOUS EMISSIONS (3 GHz ~ 18 GHz)

8.3.1. LE 1M MODE

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3195.000	52.66	-5.25	47.41	74.00	-26.59	peak
2	3990.000	49.45	-3.59	45.86	74.00	-28.14	peak
3	8955.000	36.89	10.15	47.04	74.00	-26.96	peak
4	11745.000	34.97	15.31	50.28	74.00	-23.72	peak
5	12555.000	35.12	15.32	50.44	74.00	-23.56	peak
6	17160.000	30.04	20.88	50.92	74.00	-23.08	peak

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. The marked point was the worst results in the tested frequency range.

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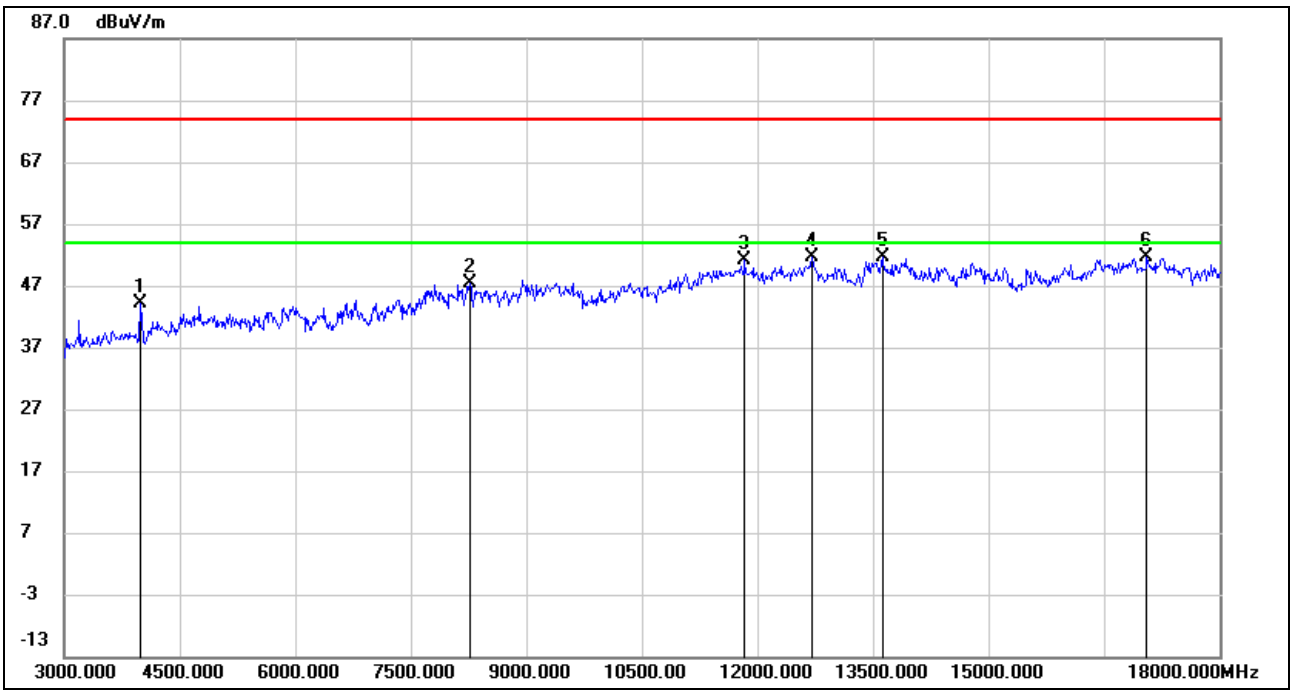
HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3990.000	47.83	-3.59	44.24	74.00	-29.76	peak
2	8265.000	38.36	9.11	47.47	74.00	-26.53	peak
3	11835.000	35.78	15.56	51.34	74.00	-22.66	peak
4	12705.000	36.15	15.48	51.63	74.00	-22.37	peak
5	13620.000	35.28	16.47	51.75	74.00	-22.25	peak
6	17055.000	31.07	20.45	51.52	74.00	-22.48	peak

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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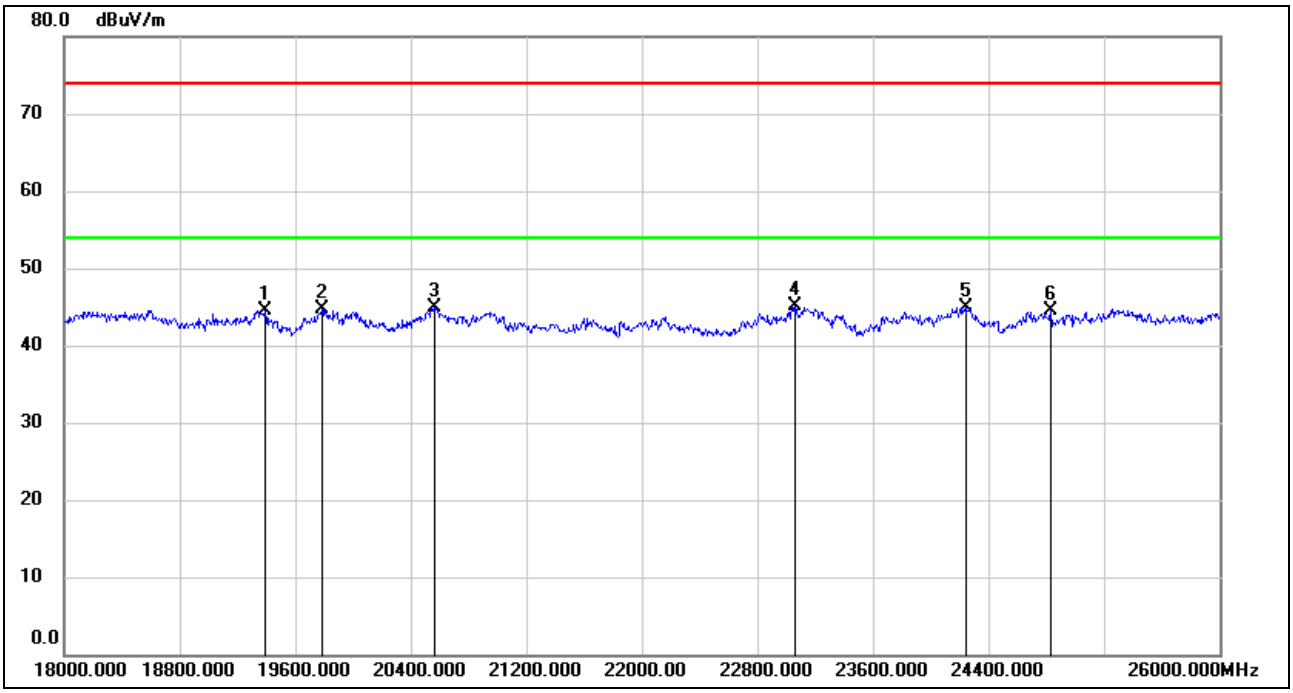
8.4. SPURIOUS EMISSIONS (18 GHz ~ 26 GHz)

8.4.1. LE 1M MODE

SPURIOUS EMISSIONS (LOW CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	19392.000	50.12	-5.57	44.55	74.00	-29.45	peak
2	19784.000	50.08	-5.28	44.80	74.00	-29.20	peak
3	20560.000	50.23	-5.30	44.93	74.00	-29.07	peak
4	23064.000	48.49	-3.42	45.07	74.00	-28.93	peak
5	24248.000	47.82	-2.83	44.99	74.00	-29.01	peak
6	24832.000	46.70	-2.24	44.46	74.00	-29.54	peak

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

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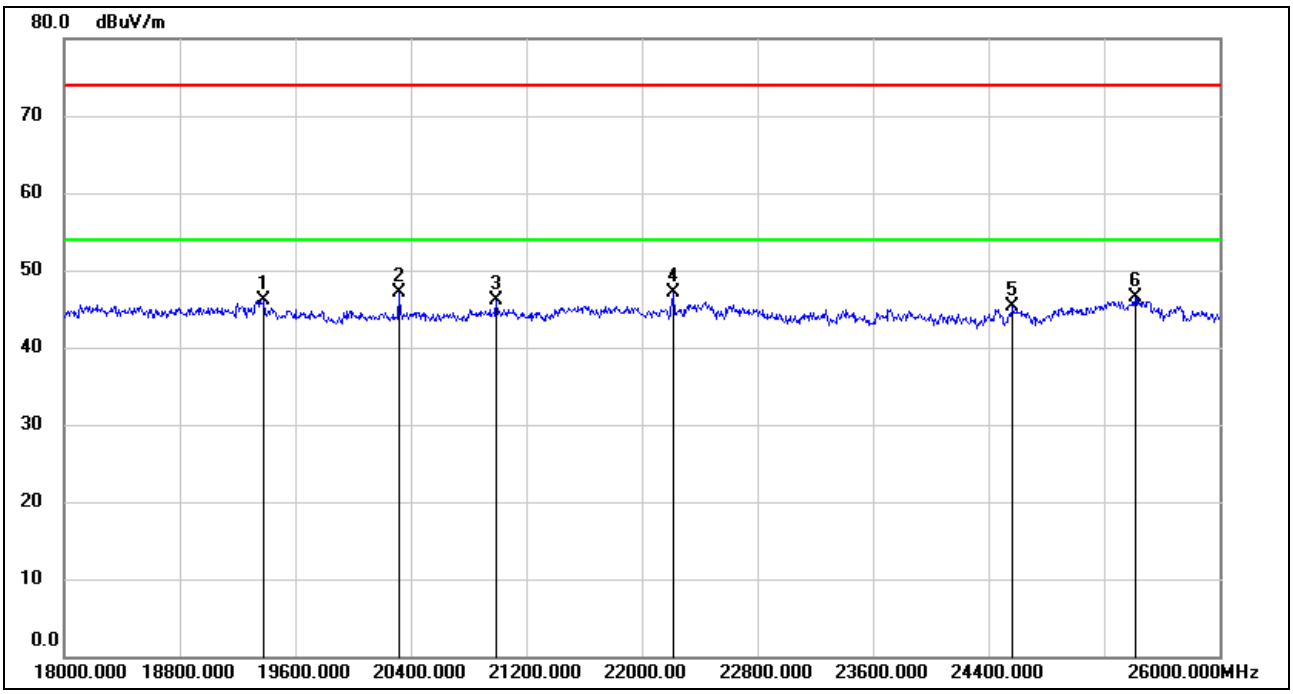
SPURIOUS EMISSIONS (LOW CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	19384.000	51.72	-5.57	46.15	74.00	-27.85	peak
2	20320.000	52.55	-5.54	47.01	74.00	-26.99	peak
3	20992.000	50.98	-4.88	46.10	74.00	-27.90	peak
4	22216.000	51.37	-4.26	47.11	74.00	-26.89	peak
5	24568.000	47.60	-2.33	45.27	74.00	-28.73	peak
6	25416.000	48.16	-1.74	46.42	74.00	-27.58	peak

Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.

Note: All the channels and modes have been tested, only the worst data was recorded in the report.

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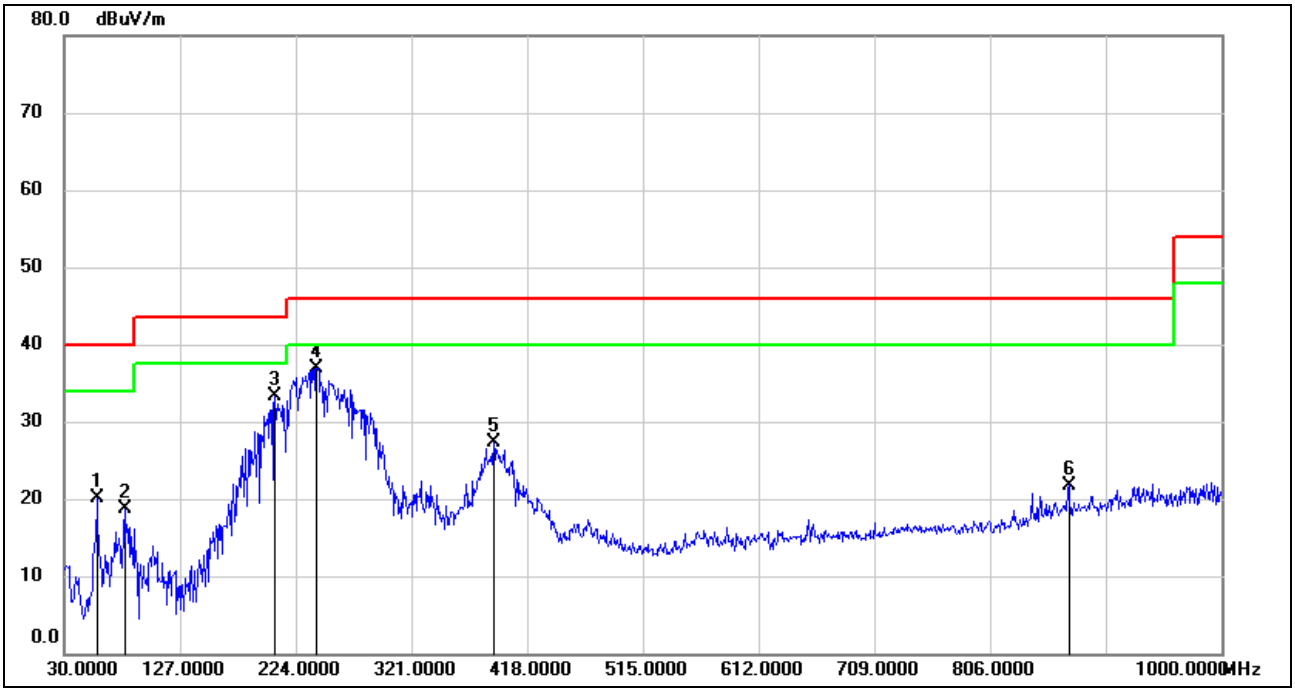
8.5. SPURIOUS EMISSIONS (30 MHz ~ 1 GHz)

8.5.1. LE 1M MODE

SPURIOUS EMISSIONS (HIGH CHANNEL, WORST-CASE CONFIGURATION, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	57.1600	40.73	-20.58	20.15	40.00	-19.85	QP
2	80.4400	40.02	-21.38	18.64	40.00	-21.36	QP
3	206.5399	50.32	-16.97	33.35	43.50	-10.15	QP
4	241.4600	55.99	-19.14	36.85	46.00	-9.15	QP
5	389.8700	40.84	-13.49	27.35	46.00	-18.65	QP
6	871.9600	27.51	-5.71	21.80	46.00	-24.20	QP

Note: 1. Result Level = Read Level + Correct Factor.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

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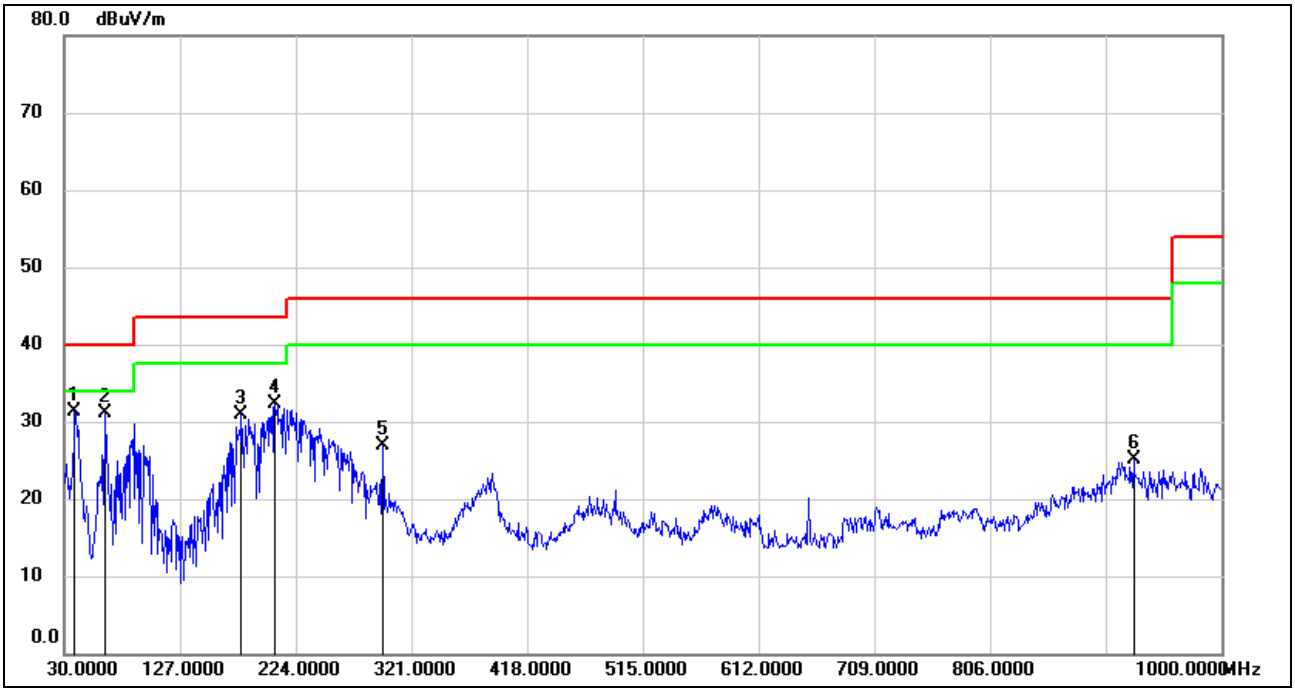
SPURIOUS EMISSIONS (HIGH CHANNEL, WORST-CASE CONFIGURATION, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	38.7300	51.02	-19.81	31.21	40.00	-8.79	QP
2	63.9500	51.58	-20.53	31.05	40.00	-8.95	QP
3	178.4100	47.87	-16.91	30.96	43.50	-12.54	QP
4	206.5399	49.27	-16.97	32.30	43.50	-11.20	QP
5	296.7500	42.35	-15.50	26.85	46.00	-19.15	QP
6	926.2800	29.83	-4.78	25.05	46.00	-20.95	QP

Note: 1. Result Level = Read Level + Correct Factor.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto

Note: All the channels and have been tested, only the worst data was recorded in the report.

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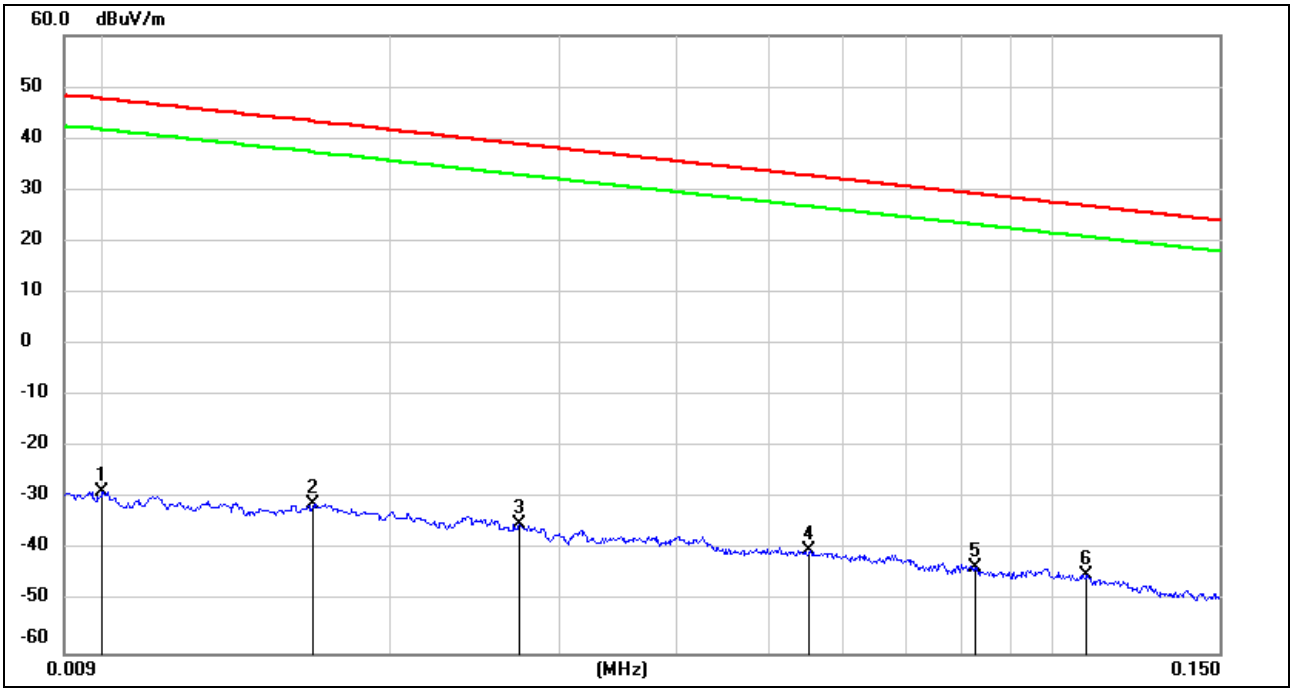
8.6. SPURIOUS EMISSIONS BELOW 30 MHz

8.6.1. LE 1M MODE

SPURIOUS EMISSIONS (HIGH CHANNEL, LOOP ANTENNA FACE ON TO THE EUT, WORST-CASE CONFIGURATION)

9 kHz~ 150 kHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.0100	72.72	-101.40	-28.68	47.60	-76.28	peak
2	0.0165	70.34	-101.37	-31.03	43.25	-74.28	peak
3	0.0273	66.49	-101.38	-34.89	38.88	-73.77	peak
4	0.0553	61.32	-101.50	-40.18	32.75	-72.93	peak
5	0.0830	58.18	-101.65	-43.47	29.22	-72.69	peak
6	0.1087	56.93	-101.78	-44.85	26.88	-71.73	peak

Note: 1. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

2. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

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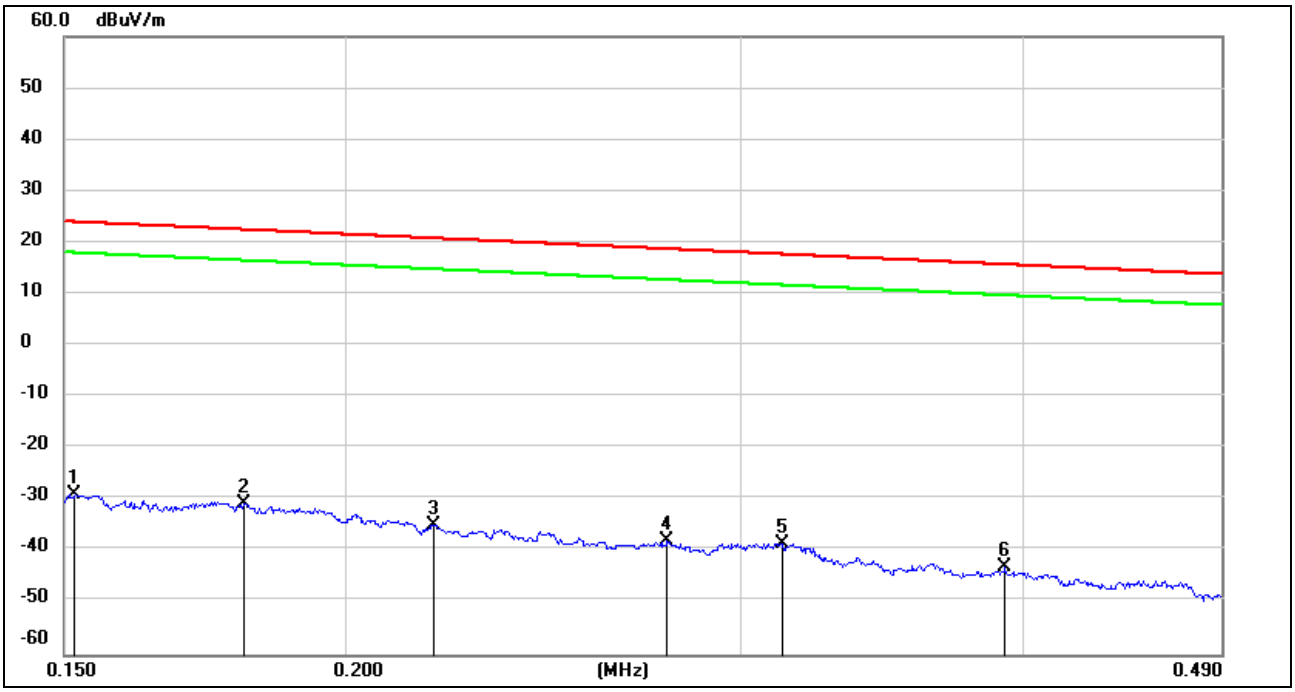
150 kHz ~ 490 kHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1517	72.75	-101.63	-28.88	23.98	-52.86	peak
2	0.1801	71.03	-101.68	-30.65	22.50	-53.15	peak
3	0.2190	66.77	-101.75	-34.98	20.79	-55.77	peak
4	0.2782	63.79	-101.83	-38.04	18.71	-56.75	peak
5	0.3129	63.44	-101.87	-38.43	17.69	-56.12	peak
6	0.3930	59.05	-101.96	-42.91	15.71	-58.62	peak

Note: 1. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

2. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

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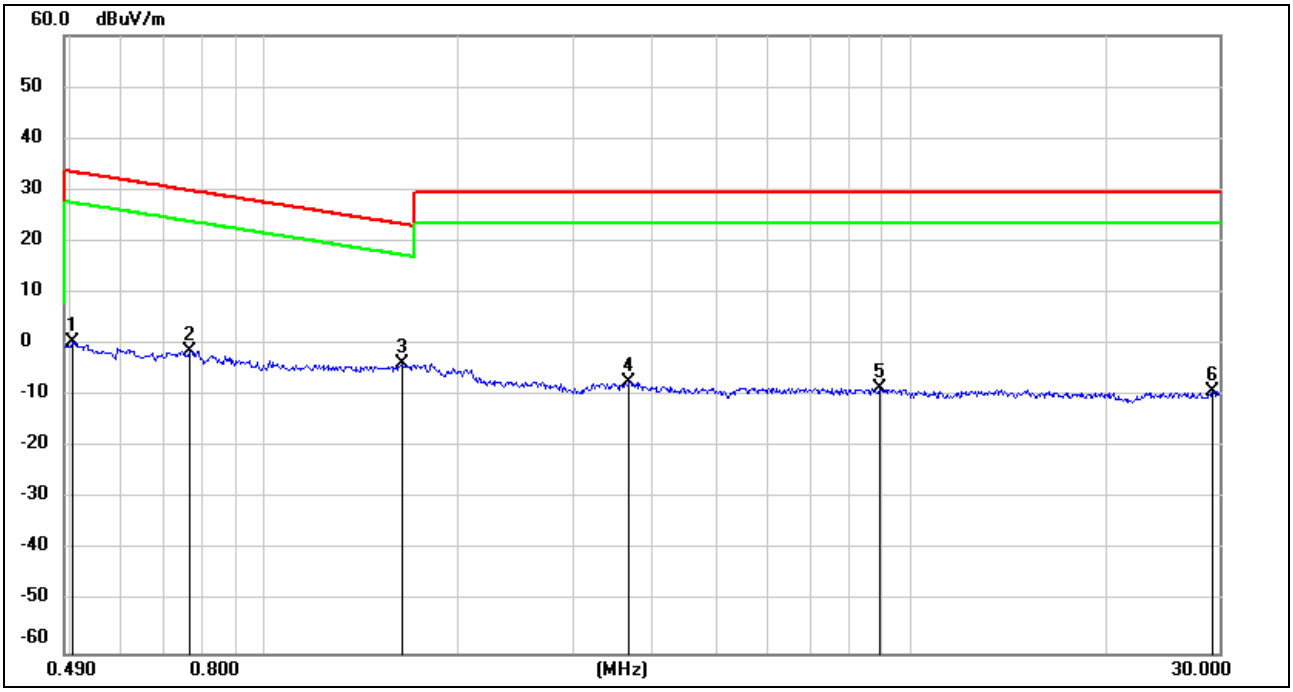
490 kHz ~ 30 MHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.5039	62.43	-62.07	0.36	33.56	-33.20	peak
2	0.7641	60.92	-62.12	-1.20	29.94	-31.14	peak
3	1.6409	58.24	-61.98	-3.74	23.30	-27.04	peak
4	3.6770	54.04	-61.41	-7.37	29.54	-36.91	peak
5	8.9594	52.42	-60.94	-8.52	29.54	-38.06	peak
6	29.3213	50.80	-60.02	-9.22	29.54	-38.76	peak

Note: 1. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
2. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

Note: All the channels and modes have been tested, only the worst data was recorded in the report.

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9. ANTENNA REQUIREMENTS

APPLICABLE REQUIREMENTS

Please refer 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. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Please refer to FCC §15.247(b)(4)
The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

RESULTS

Complies

END OF REPORT

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