



**CFR 47 FCC PART 15 SUBPART C
ISED RSS-247 ISSUE 2**

TEST REPORT

For

Two Way Radio

MODEL NUMBER:

**Tested Model: DLR110NBHLAA (HVIN: DLR110NB1)
By Similarity Model: DLR110NBHLAB (HVIN: DLR110NB2)**

REPORT NUMBER: 4790388025-2

ISSUE DATE: September 19, 2022

Prepared for

**Motorola Solutions Malaysia Sdn Bhd
Plot 2A, Medan Bayan Lepas, Mukim 12, S.W.D 11900, Bayan Lepas, Penang,
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Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	09/19/2022	Initial Issue	



Summary of Test Results			
Clause	Test Items	FCC/ISED Rules	Test Results
1	Radiated Bandedge and Spurious Emission	FCC Part 15.247 (d) FCC Part 15.209 FCC Part 15.205 RSS-247 Clause 5.5 RSS-GEN Clause 8.9	Pass
<p>Note:</p> <p>1. only above test item was performed according to manufacturer's requirement.</p> <p>2. This test report is only published to and used by the applicant, and it is not for evidence purpose in China.</p> <p>3. The measurement result for the sample received is <Pass> according to < CFR 47 FCC PART 15 SUBPART C >< ISED RSS-247 > when <Accuracy Method> decision rule is applied.</p>			



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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: Motorola Solutions Malaysia Sdn Bhd
Address: Plot 2A, Medan Bayan Lepas, Mukim 12, S.W.D 11900, Bayan Lepas, Penang, Malaysia

Manufacturer Information

Company Name: Motorola Solutions Malaysia Sdn Bhd
Address: Plot 2A, Medan Bayan Lepas, Mukim 12, S.W.D 11900, Bayan Lepas, Penang, Malaysia

EUT Information

EUT Name: Two Way Radio
Model: Tested Model: DLR110NBHLAA (HVIN: DLR110NB1)
By Similarity Model: DLR110NBHLAB (HVIN: DLR110NB2)
Sample Received Date: June 25, 2022
Sample Status: Normal
Sample ID: 5146999
Date of Tested: September 13, 2022

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
ISED RSS-247 Issue 2 Clause 5.5	PASS
CFR 47 FCC PART 15 SUBPART C FCC 15.247 (d) FCC 15.209 FCC 15.205	PASS

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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, KDB 414788 D01 Radiated Test Site v01r01, CFR 47 FCC Part 2, CFR 47 FCC Part 15, ANSI C63.10-2013, ISED RSS-247 Issue 2 and ISED RSS-GEN Issue 5.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	<p>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.</p> <p>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 Declaration of Conformity (DoC) and Certification rules</p> <p>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.</p> <p>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</p>
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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.



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 recognized 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
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.	

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name	Two Way Radio
Model	Tested Model: DLR110NBHLAA (HVIN: DLR110NB1) By Similarity Model: DLR110NBHLAB (HVIN: DLR110NB2)
FVIN	R01.01.00
Transmit Frequency Range	902 MHz ~ 928 MHz
Modulation Type	8FSK
Ratings	DC 3.7 V

5.2. TEST CHANNEL CONFIGURATION

Test Channel	Frequency
CH 1(Low Channel)	902.525 MHz
CH 21(MID Channel)	915.025 MHz
CH 50(High Channel)	927.475 MHz

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna	Frequency (MHz)	Antenna Type	MAX Antenna Gain (dBi)
1	917.025 MHz ~ 926.825 MHz	Internal Antenna	5.25

Transmit and Receive Mode	Description
<input checked="" type="checkbox"/> 1TX, 1RX	Antenna 1 can be used as transmitting/receiving antenna.

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

5.4. CHANNEL LIST

Hopset	1st Frequency (MHz)	Progression (MHz)	Last (50th) Frequency (MHz)
1	902.525	903.025, 903.525, 904.025, ...	927.025
2	902.575	903.075, 903.575, 904.075, ...	927.075
3	902.625	903.125, 903.625, 904.125, ...	927.125
4	902.675	903.175, 903.675, 904.175, ...	927.175
5	902.725	903.225, 903.725, 904.225, ...	927.225
6	902.775	903.275, 903.775, 904.275, ...	927.275
7	902.825	903.325, 903.825, 904.325, ...	927.325
8	902.875	903.375, 903.875, 904.375, ...	927.375
9	902.925	903.425, 903.925, 904.425, ...	927.425
10	902.975	903.475, 903.975, 904.475, ...	927.475

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remarks
1	Laptop	Lenovo	XIAOXIN 5000	/
2	AC Adapter	Lenovo	42T4434	Input: AC 100 ~ 240 V, 1.5 A, 50-60 Hz Output: DC 20 V, 4.5 A

I/O CABLES

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

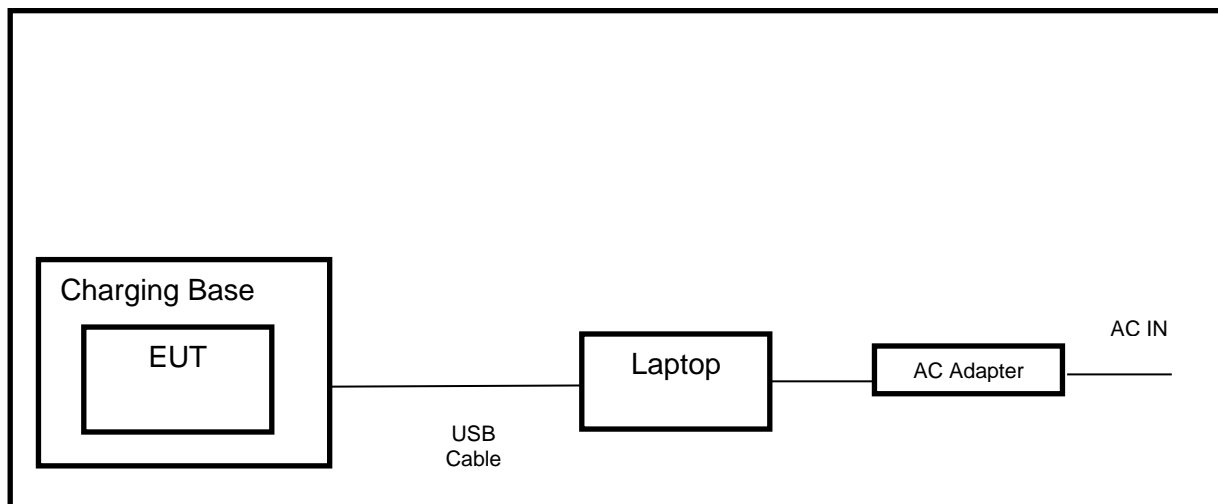
ACCESSORIES

Item	Accessory	Brand Name	Model Name	Description
1	Charging Base	MOTOROLA	/	/
2	Battery	MOTOROLA	PMNN4578A	DC 3.7 V

TEST SETUP

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

SETUP DIAGRAM FOR TESTS





6. MEASURING INSTRUMENT AND SOFTWARE USED

Radiated Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Oct.30, 2021	Oct.29, 2022
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130959	Aug.02, 2021	Aug.01, 2024
Preamplifier	HP	8447D	2944A09099	Oct.30, 2021	Oct.29, 2022
EMI Measurement Receiver	R&S	ESR26	101377	Oct.30, 2021	Oct.29, 2022
Horn Antenna	TDK	HRN-0118	130940	July 20, 2021	July 19, 2024
Preamplifier	TDK	PA-02-0118	TRS-305-00067	Oct.30, 2021	Oct.29, 2022
Horn Antenna	Schwarzbeck	BBHA9170	697	July 20, 2021	July 19, 2024
Preamplifier	TDK	PA-02-2	TRS-307-00003	Oct.31, 2021	Oct.30, 2022
Preamplifier	TDK	PA-02-3	TRS-308-00002	Oct.31, 2021	Oct.30, 2022
Loop antenna	Schwarzbeck	1519B	00008	Dec.14, 2021	Dec.13, 2024
Preamplifier	TDK	PA-02-001-3000	TRS-302-00050	Oct.31, 2021	Oct.30, 2022
Preamplifier	Mini-Circuits	ZX60-83LN-S+	SUP01201941	Oct.31, 2021	Oct.30, 2022
High Pass Filter	Wi	WHKX10-2700-3000-18000-40SS	23	Oct.31, 2021	Oct.30, 2022
Band Reject Filter	Wainwright	WRCJV8-2350-2400-2483.5-2533.5-40SS	4	Oct.31, 2021	Oct.30, 2022
Software					
Description			Manufacturer	Name	Version
Test Software for Radiated Emissions			Farad	EZ-EMC	Ver. UL-3A1



7. RADIATED TEST RESULTS

LIMITS

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

Please refer to ISSED RSS-GEN Clause 8.9 and Clause 8.10.

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

ISED General field strength limits at frequencies below 30 MHz

Table 6 – General field strength limits at frequencies below 30 MHz		
Frequency	Magnetic field strength (H-Field) (μA/m)	Measurement distance (m)
9 - 490 kHz ^{Note 1}	6.37/F (F in kHz)	300
490 - 1705 kHz	63.7/F (F in kHz)	30
1.705 - 30 MHz	0.08	30

Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.



ISED Restricted bands please refer to ISED RSS-GEN Clause 8.10

Table 7 – Restricted frequency bands ^{Note 1}		
MHz	MHz	GHz
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.52525	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 - 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 - 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 - 8500	
108 - 138		

Note 1: Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

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

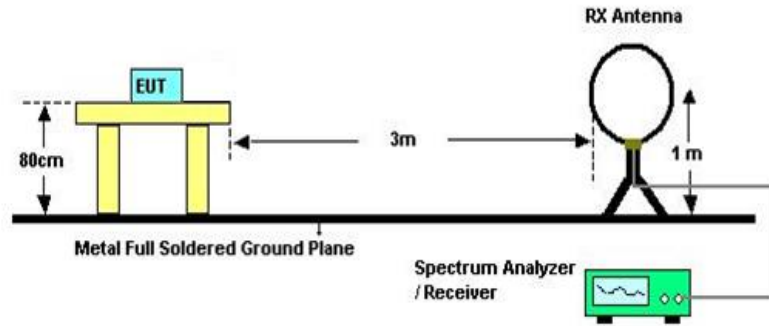
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	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: ¹Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

²Above 38.6c

TEST SETUP AND PROCEDURE

Below 30 MHz

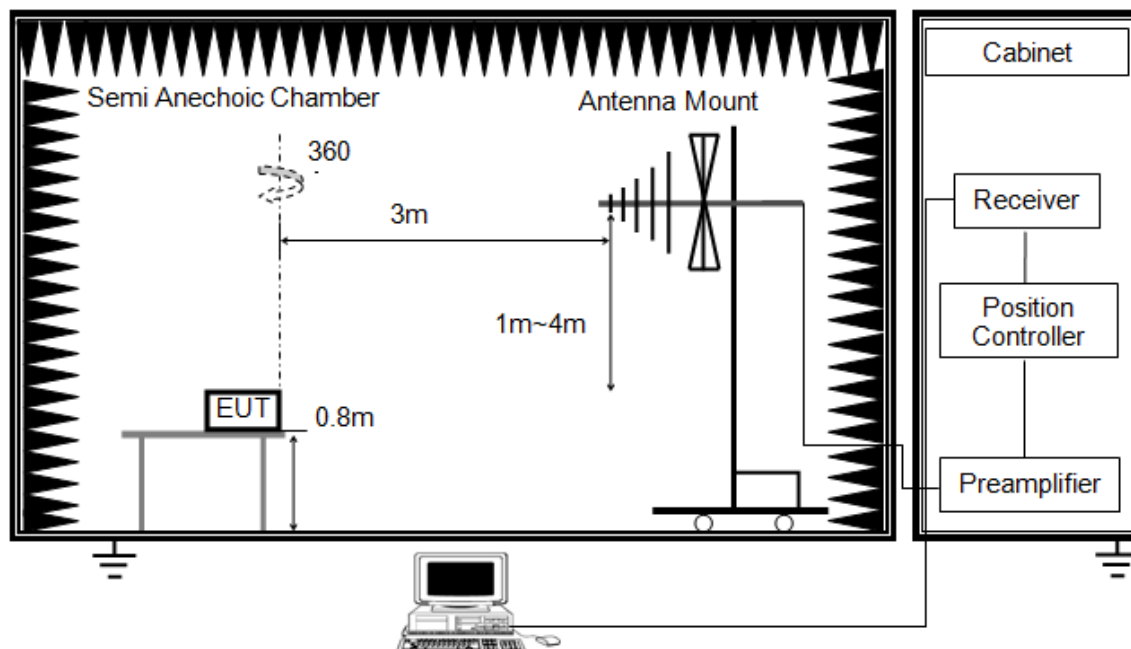


The setting of the spectrum analyser

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 11.11.
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.
8. The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377Ω ; For example, the measurement frequency X kHz resulted in a level of Y dBuV/m, which is equivalent to $Y-51.5 = Z$ dBuA/m, which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.

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.

Above 1 GHz



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 (1.5 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.

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.

Note 2: The EUT was fully exercised with external accessories during the test. In the case of multiple accessory external ports, an external accessory shall be connected to one of each type of port.

Note 3: The low frequency, which is below 30 MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

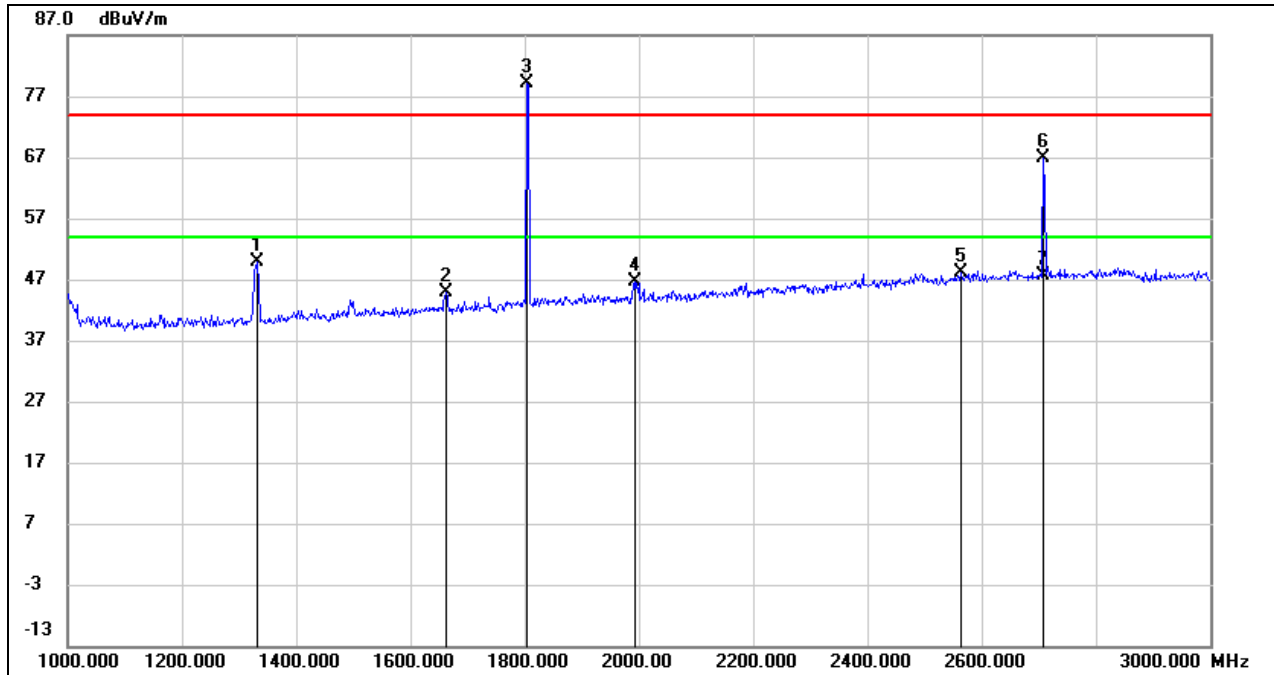
TEST ENVIRONMENT

Temperature	24.3 °C	Relative Humidity	61 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 3.7 V

RESULTS

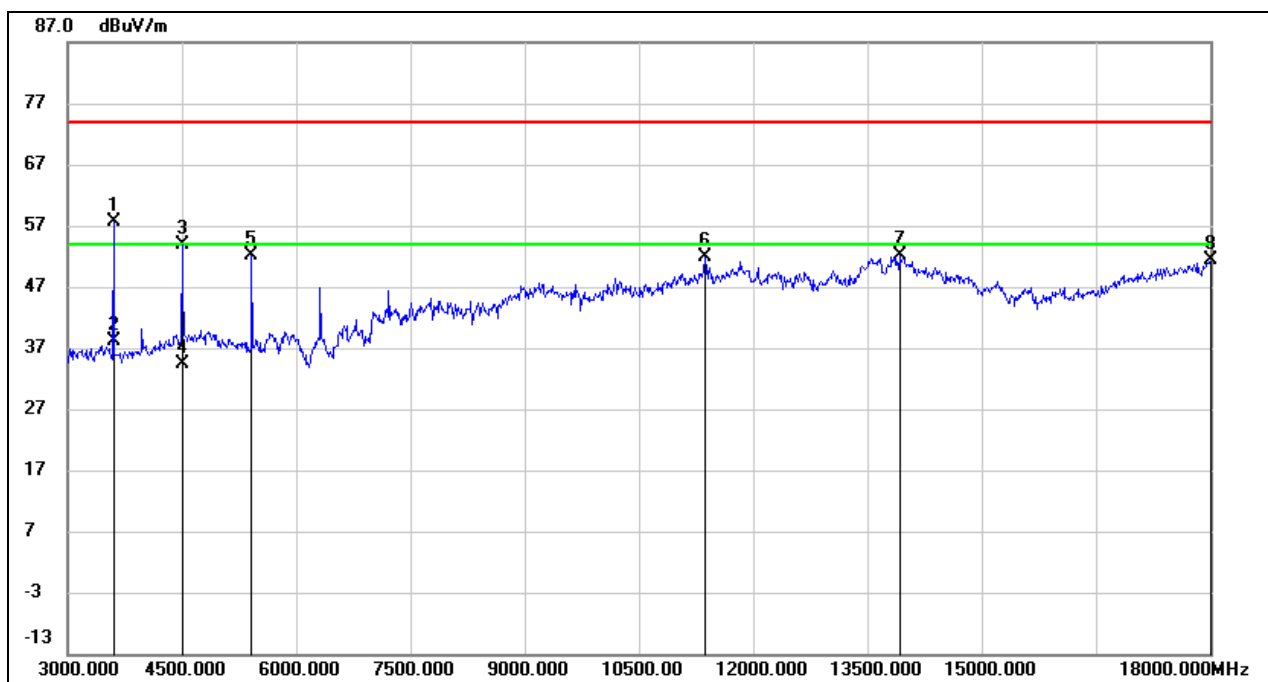
7.1. SPURIOUS EMISSIONS (ABOVE 1 GHz)

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	1332.000	21.32	28.51	49.83	74.00	-24.17	peak
2	1662.000	15.05	29.83	44.88	74.00	-29.12	peak
3	1804.000	48.82	30.29	/	/	/	Note 6
4	1994.000	15.72	30.92	46.64	74.00	-27.36	peak
5	2564.000	14.88	33.31	48.19	74.00	-25.81	peak
6	2708.000	33.31	33.64	66.95	74.00	-7.05	peak
7	2708.000	/	/	47.54	54.00	-6.46	AVG

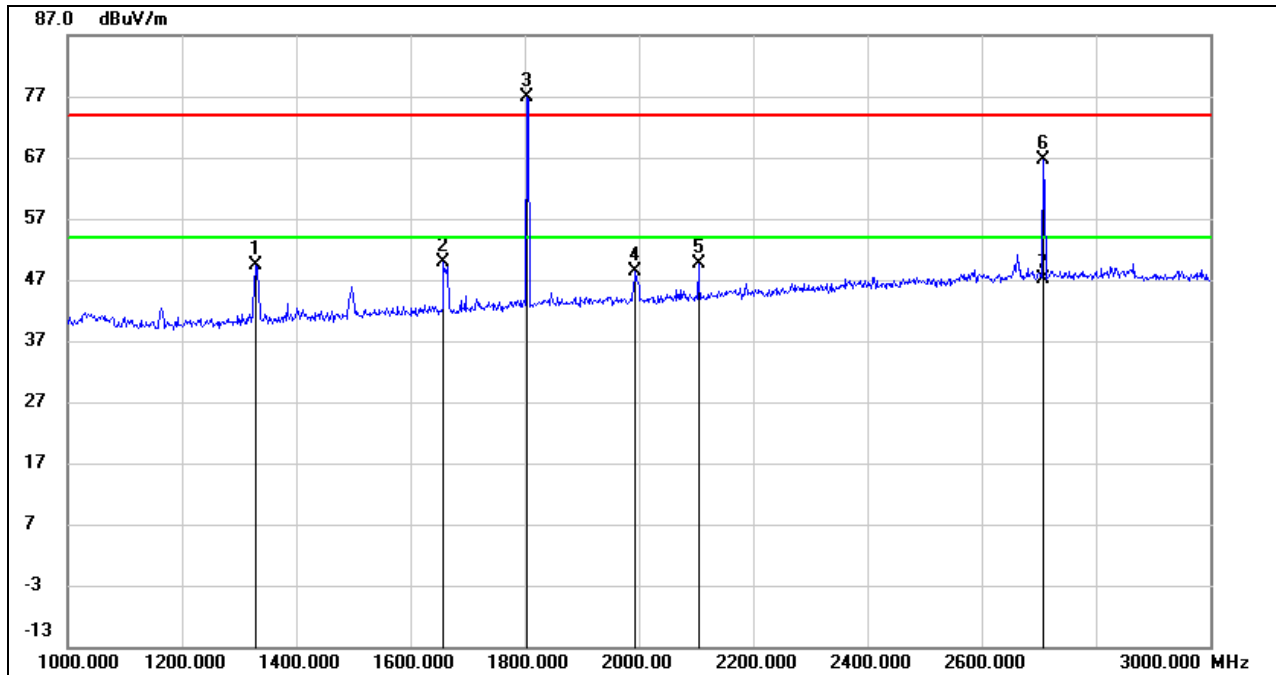
- Note: 1. Peak Result = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. AVG: AVG Result=Peak Result + Correction Factor.
5. Correction factor was calculated by the following formula (Declared by customer):
Dell time = (274 symbols)/(3200 symbols/sec)(8 frequencies) = 10.70 ms
Correction Factor = $20 \log (10.70 \text{ ms}/100 \text{ ms}) = -19.41 \text{ dB}$
6. The frequency of Make 3 does not fall in the FCC Restricted bands (FCC §15.205 (a),
7. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
8. Proper operation of the transmitter prior to adding the filter to the measurement chain.



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3600.000	62.30	-4.73	57.57	74.00	-16.43	peak
2	3600.000	/	/	38.16	54.00	-15.84	AVG
3	4500.000	55.30	-1.46	53.84	74.00	-20.16	peak
4	4500.000	/	/	34.43	54.00	-19.57	AVG
5	5415.000	51.39	0.78	52.17	74.00	-21.83	peak
6	11370.000	35.65	16.12	51.77	74.00	-22.23	peak
7	13920.000	30.35	21.79	52.14	74.00	-21.86	peak
8	18000.000	25.58	25.69	51.27	74.00	-22.73	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. AVG: AVG Result=Peak Result + Correction Factor.
5. Correction factor was calculated by the following formula (Declared by customer):
Dell time = (274 symbols)/(3200 symbols/sec)(8 frequencies) = 10.70 ms
Correction Factor = 20 log (10.70 ms/100 ms) = -19.41 dB
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

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	1330.000	20.91	28.50	49.41	74.00	-24.59	peak
2	1658.000	20.05	29.81	49.86	74.00	-24.14	peak
3	1804.000	46.65	30.29	/	/	/	Note 6
4	1994.000	17.53	30.92	48.45	74.00	-25.55	peak
5	2104.000	18.18	31.40	49.58	74.00	-24.42	peak
6	2708.000	32.92	33.64	66.56	74.00	-7.44	peak
7	2708.000	/	/	47.15	54.00	-6.85	AVG

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. AVG: AVG Result=Peak Result + Correction Factor.

5. Correction factor was calculated by the following formula (Declared by customer):

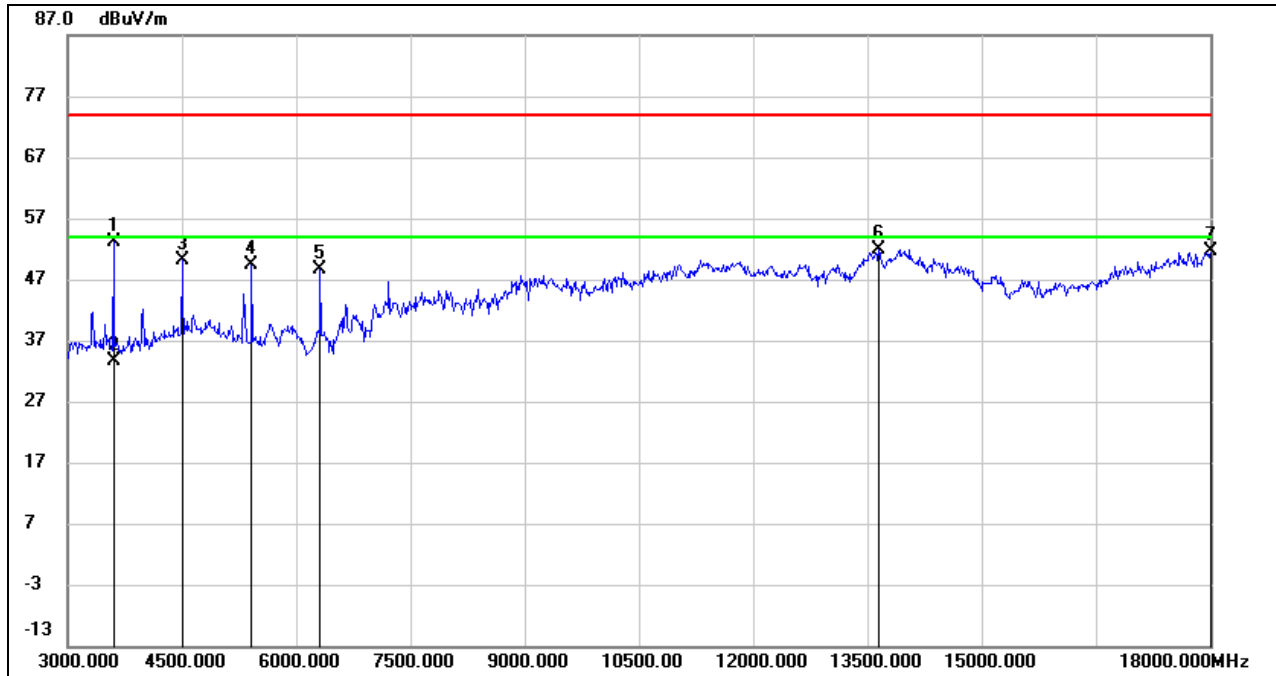
Dell time = (274 symbols)/(3200 symbols/sec)(8 frequencies) = 10.70 ms

Correction Factor = 20 log (10.70 ms/100 ms) = -19.41 dB

6. The frequency of Make 3 does not fall in the FCC Restricted bands (FCC §15.205 (a),

7. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

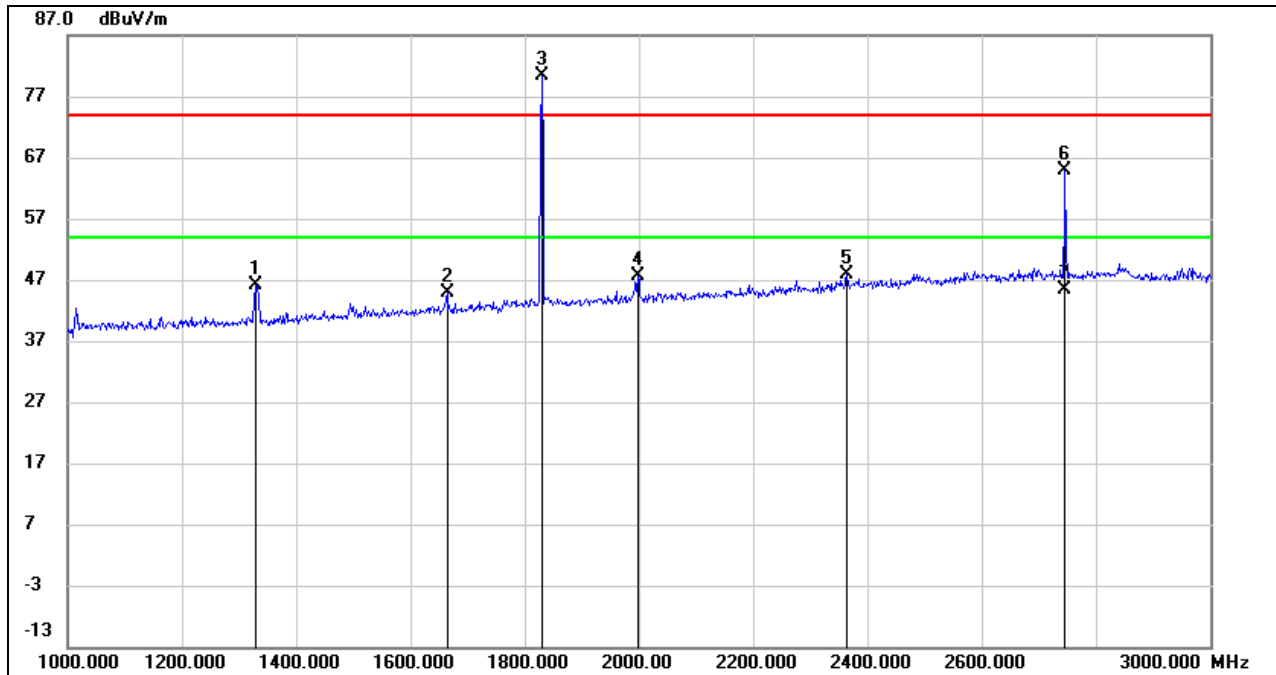
8. Proper operation of the transmitter prior to adding the filter to the measurement chain.



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3600.000	57.82	-4.73	53.09	74.00	-20.91	peak
2	3600.000	/	/	33.68	54.00	-20.32	AVG
3	4500.000	51.54	-1.46	50.08	74.00	-23.92	peak
4	5415.000	48.53	0.78	49.31	74.00	-24.69	peak
5	6315.000	45.22	3.50	48.72	74.00	-25.28	peak
6	13650.000	30.79	21.21	52.00	74.00	-22.00	peak
7	18000.000	26.02	25.69	51.71	74.00	-22.29	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. AVG: AVG Result=Peak Result + Correction Factor.
5. Correction factor was calculated by the following formula (Declared by customer):
Dell time = (274 symbols)/(3200 symbols/sec)(8 frequencies) = 10.70 ms
Correction Factor = $20 \log (10.70 \text{ ms}/100 \text{ ms}) = -19.41 \text{ dB}$
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1328.000	17.55	28.50	46.05	74.00	-27.95	peak
2	1664.000	14.98	29.83	44.81	74.00	-29.19	peak
3	1830.000	49.92	30.38	/	/	/	Note 6
4	1998.000	16.78	30.94	47.72	74.00	-26.28	peak
5	2364.000	15.43	32.56	47.99	74.00	-26.01	peak
6	2746.000	31.07	33.73	64.80	74.00	-9.20	peak
7	2746.000	/	/	45.39	54.00	-8.61	AVG

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. AVG: AVG Result=Peak Result + Correction Factor.

5. Correction factor was calculated by the following formula (Declared by customer):

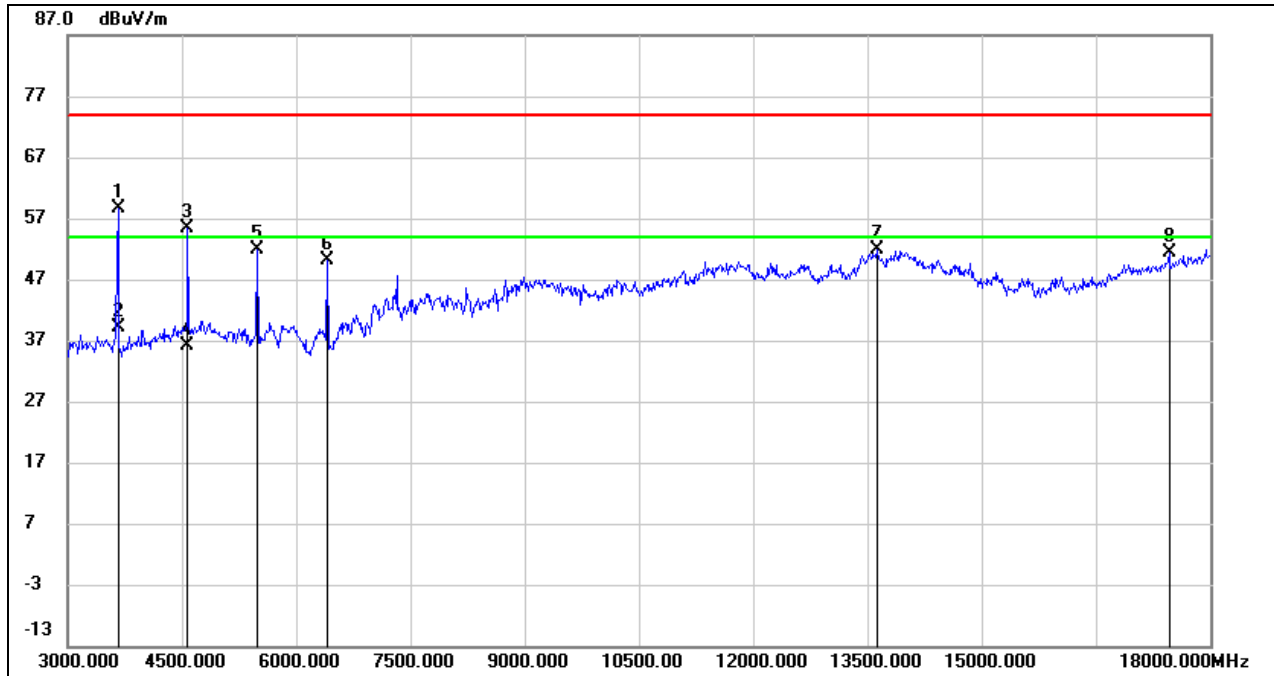
Dell time = (274 symbols)/(3200 symbols/sec)(8 frequencies) = 10.70 ms

Correction Factor = 20 log (10.70 ms/100 ms) = -19.41 dB

6. The frequency of Make 3 does not fall in the FCC Restricted bands (FCC §15.205 (a),

7. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

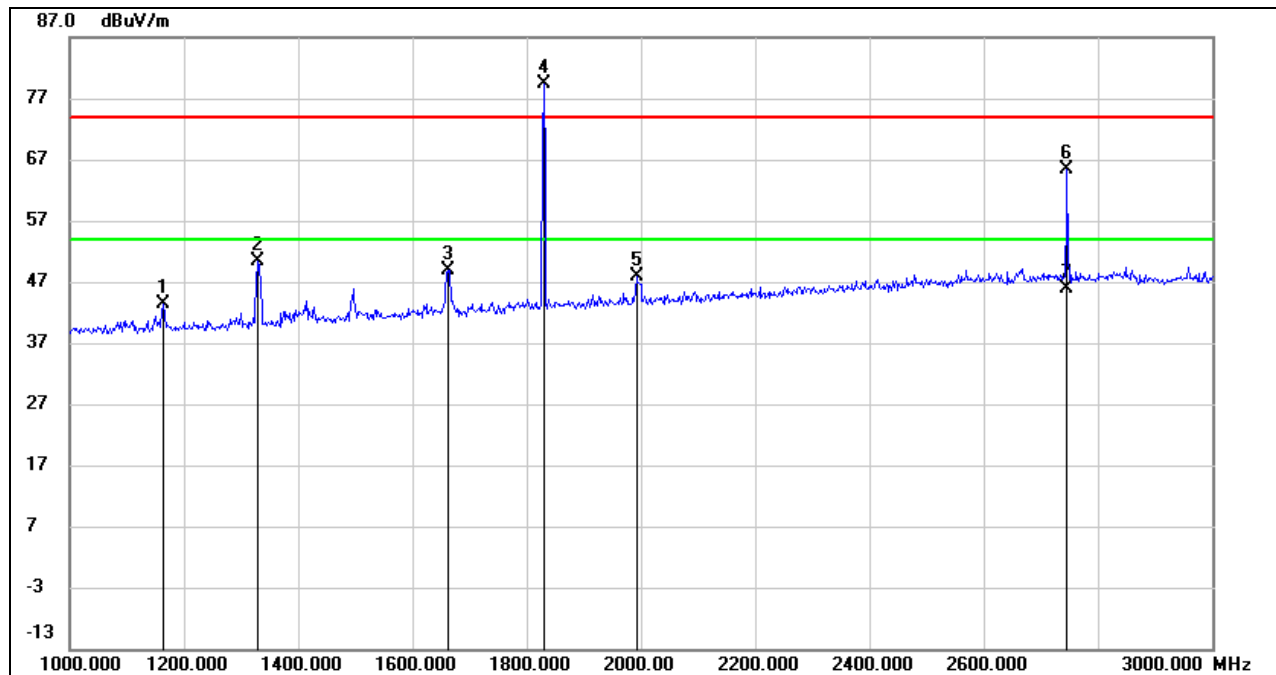
8. Proper operation of the transmitter prior to adding the filter to the measurement chain.



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3660.000	63.15	-4.59	58.56	74.00	-15.44	peak
2	3660.000	/	/	39.15	54.00	-14.85	AVG
3	4575.000	56.60	-1.17	55.43	74.00	-18.57	peak
4	4575.000	/	/	36.02	54.00	-17.98	AVG
5	5490.000	51.03	0.84	51.87	74.00	-22.13	peak
6	6405.000	46.25	3.84	50.09	74.00	-23.91	peak
7	13620.000	30.69	21.15	51.84	74.00	-22.16	peak
8	17460.000	28.89	22.58	51.47	74.00	-22.53	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. AVG: AVG Result=Peak Result + Correction Factor.
5. Correction factor was calculated by the following formula (Declared by customer):
Dell time = (274 symbols)/(3200 symbols/sec)(8 frequencies) = 10.70 ms
Correction Factor = 20 log (10.70 ms/100 ms) = -19.41 dB
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1164.000	15.70	27.73	43.43	74.00	-30.57	peak
2	1330.000	21.77	28.50	50.27	74.00	-23.73	peak
3	1662.000	19.05	29.83	48.88	74.00	-25.12	peak
4	1830.000	48.97	30.38	/	/	/	Note 6
5	1992.000	16.90	30.91	47.81	74.00	-26.19	peak
6	2746.000	31.57	33.73	65.30	74.00	-8.70	peak
7	2746.000	/	/	45.89	54.00	-8.11	AVG

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. AVG: AVG Result=Peak Result + Correction Factor.

5. Correction factor was calculated by the following formula (Declared by customer):

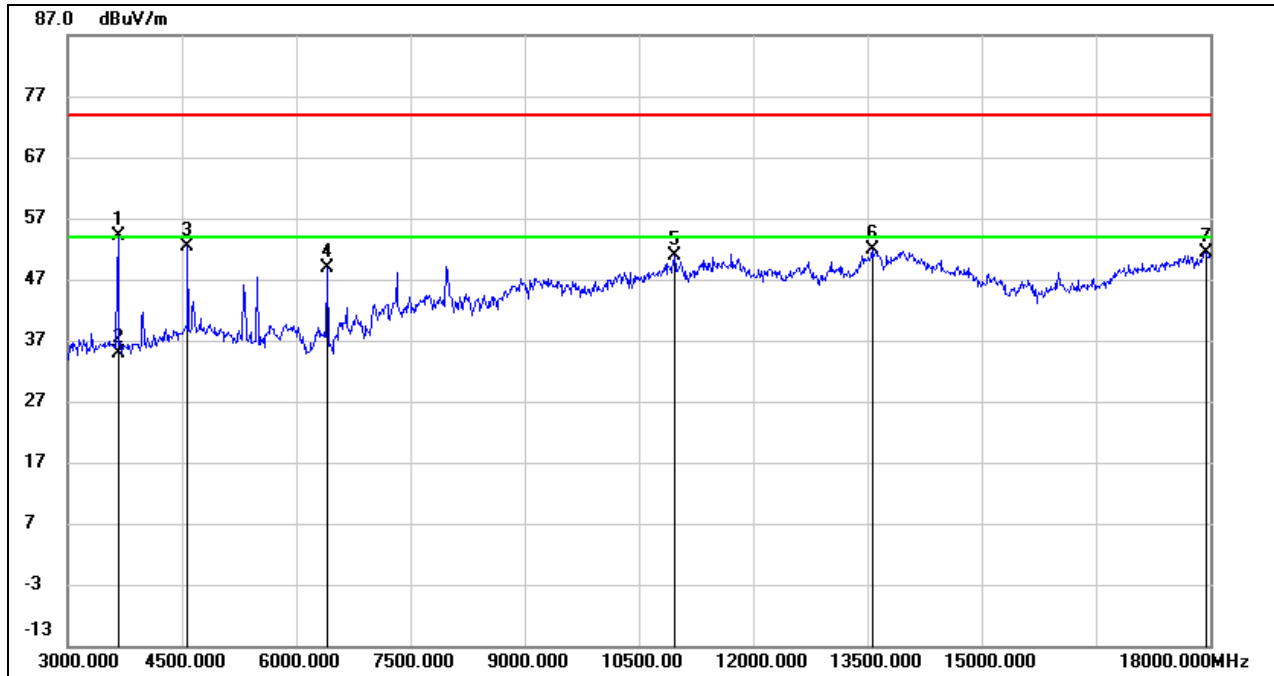
Dell time = (274 symbols)/(3200 symbols/sec)(8 frequencies) = 10.70 ms

Correction Factor = 20 log (10.70 ms/100 ms) = -19.41 dB

6. The frequency of Make 4 does not fall in the FCC Restricted bands (FCC §15.205 (a),

7. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

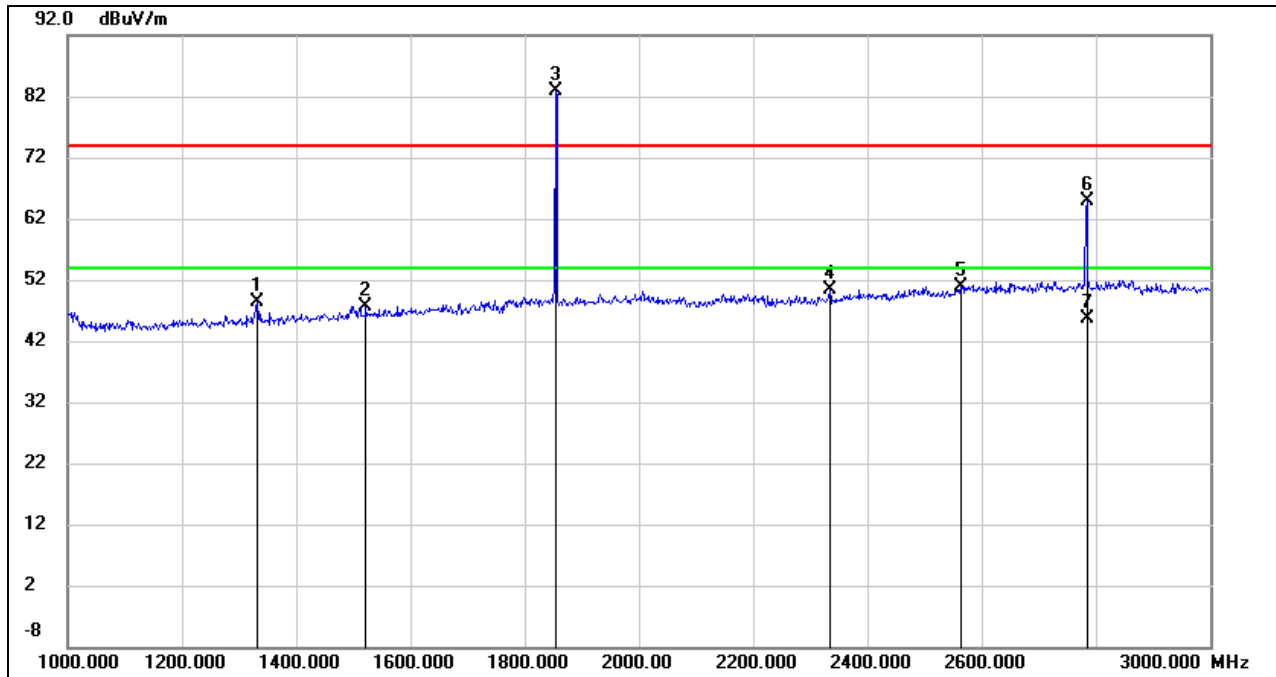
8. Proper operation of the transmitter prior to adding the filter to the measurement chain.



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3660.000	58.80	-4.59	54.21	74.00	-19.79	peak
2	3660.000	/	/	34.80	54.00	-19.20	AVG
3	4575.000	53.53	-1.17	52.36	74.00	-21.64	peak
4	6405.000	44.97	3.84	48.81	74.00	-25.19	peak
5	10965.000	36.17	14.64	50.81	74.00	-23.19	peak
6	13560.000	30.73	21.04	51.77	74.00	-22.23	peak
7	17940.000	26.10	25.34	51.44	74.00	-22.56	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. AVG: AVG Result=Peak Result + Correction Factor.
5. Correction factor was calculated by the following formula (Declared by customer):
Dell time = (274 symbols)/(3200 symbols/sec)(8 frequencies) = 10.70 ms
Correction Factor = 20 log (10.70 ms/100 ms) = -19.41 dB
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1332.000	19.79	28.51	48.30	74.00	-25.70	peak
2	1522.000	18.30	29.36	47.66	74.00	-26.34	peak
3	1854.000	52.37	30.46	/	/	/	Note 6
4	2334.000	17.88	32.42	50.30	74.00	-23.70	peak
5	2564.000	17.63	33.31	50.94	74.00	-23.06	peak
6	2784.000	31.15	33.82	64.97	74.00	-9.03	peak
7	2784.000	/	/	45.56	54.00	-8.44	AVG

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. AVG: AVG Result=Peak Result + Correction Factor.

5. Correction factor was calculated by the following formula (Declared by customer):

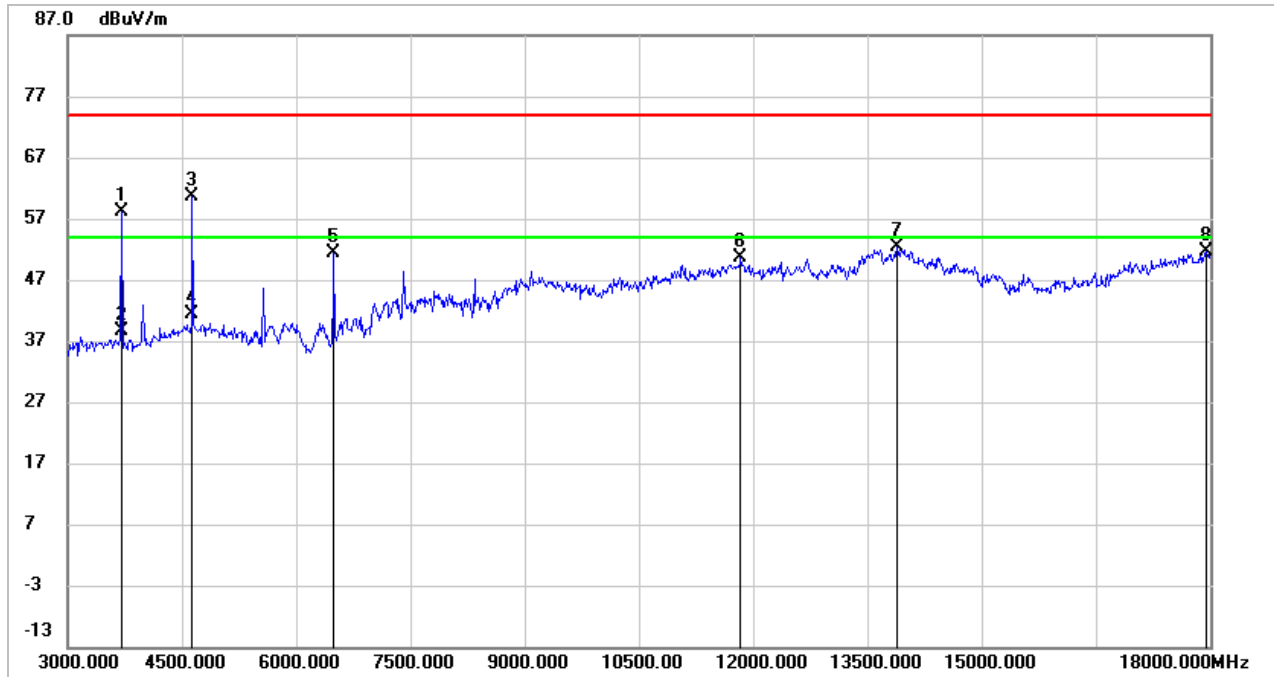
Dell time = (274 symbols)/(3200 symbols/sec)(8 frequencies) = 10.70 ms

Correction Factor = 20 log (10.70 ms/100 ms) = -19.41 dB

6. The frequency of Make 3 does not fall in the FCC Restricted bands (FCC §15.205 (a),

7. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

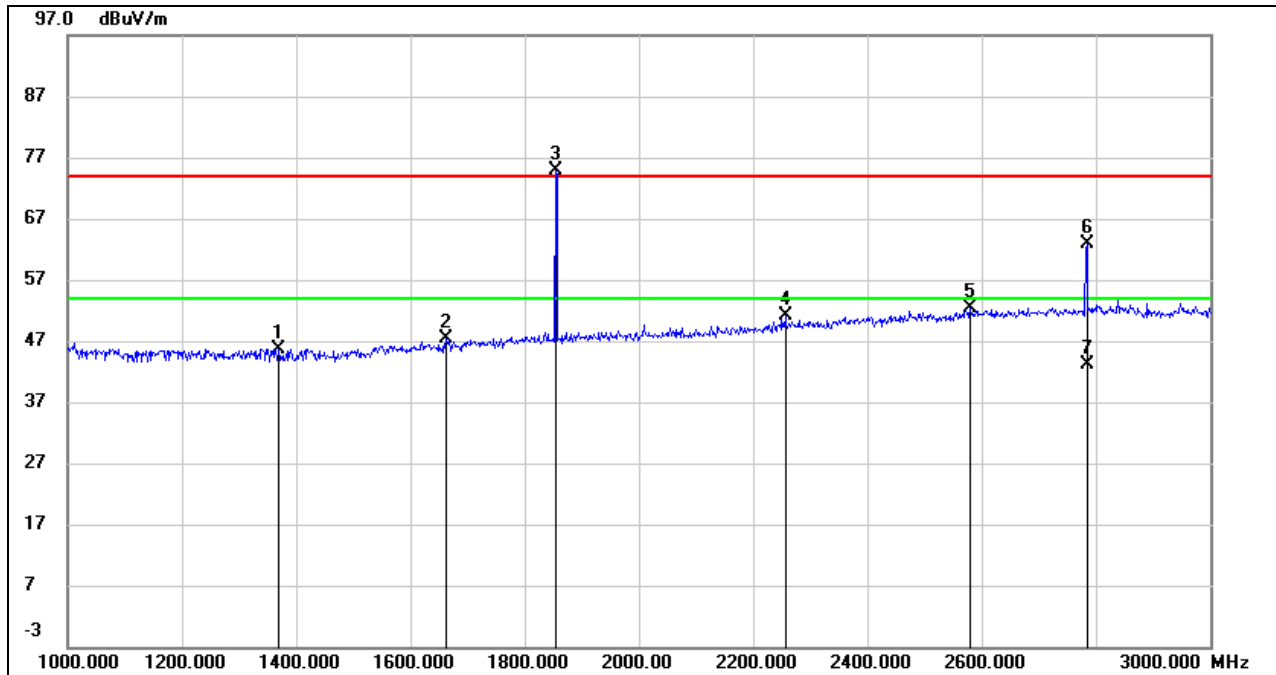
8. Proper operation of the transmitter prior to adding the filter to the measurement chain.



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3705.000	62.52	-4.48	58.04	74.00	-15.96	peak
2	3705.000	/	/	38.63	54.00	-15.37	AVG
3	4635.000	61.69	-0.95	60.74	74.00	-13.26	peak
4	4635.000	/	/	41.33	54.00	-12.67	AVG
5	6495.000	47.17	4.20	51.37	74.00	-22.63	peak
6	11835.000	33.22	17.51	50.73	74.00	-23.27	peak
7	13890.000	30.54	21.72	52.26	74.00	-21.74	peak
8	17940.000	26.24	25.34	51.58	74.00	-22.42	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. AVG: AVG Result=Peak Result + Correction Factor.
5. Correction factor was calculated by the following formula (Declared by customer):
Dell time = (274 symbols)/(3200 symbols/sec)(8 frequencies) = 10.70 ms
Correction Factor = $20 \log (10.70 \text{ ms}/100 \text{ ms}) = -19.41 \text{ dB}$
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1370.000	17.04	28.69	45.73	74.00	-28.27	peak
2	1662.000	17.51	29.83	47.34	74.00	-26.66	peak
3	1854.000	44.32	30.46	/	/	/	Note 6
4	2256.000	19.00	32.08	51.08	74.00	-22.92	peak
5	2580.000	19.11	33.34	52.45	74.00	-21.55	peak
6	2784.000	28.99	33.82	62.81	74.00	-11.19	peak
7	2784.000	/	/	43.10	54.00	-10.90	AVG

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. AVG: AVG Result=Peak Result + Correction Factor.

5. Correction factor was calculated by the following formula (Declared by customer):

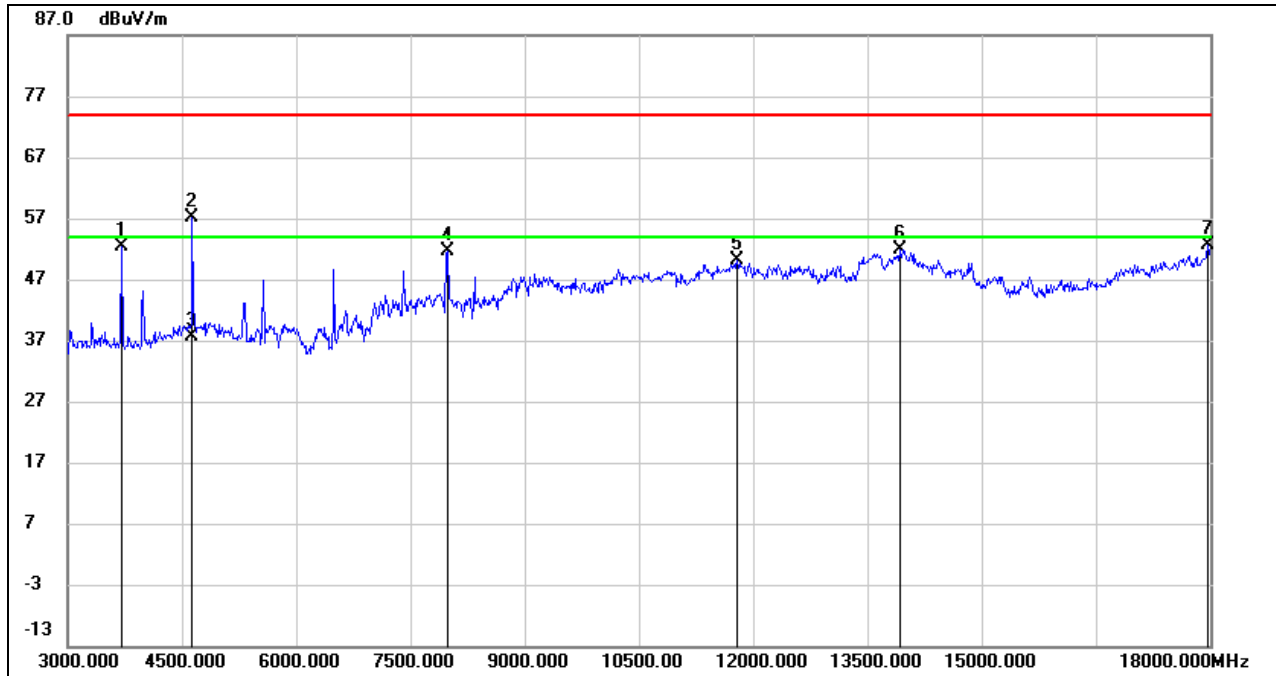
Dell time = (274 symbols)/(3200 symbols/sec)(8 frequencies) = 10.70 ms

Correction Factor = 20 log (10.70 ms/100 ms) = -19.41 dB

6. The frequency of Make 3 does not fall in the FCC Restricted bands (FCC §15.205 (a),

7. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

8. Proper operation of the transmitter prior to adding the filter to the measurement chain.

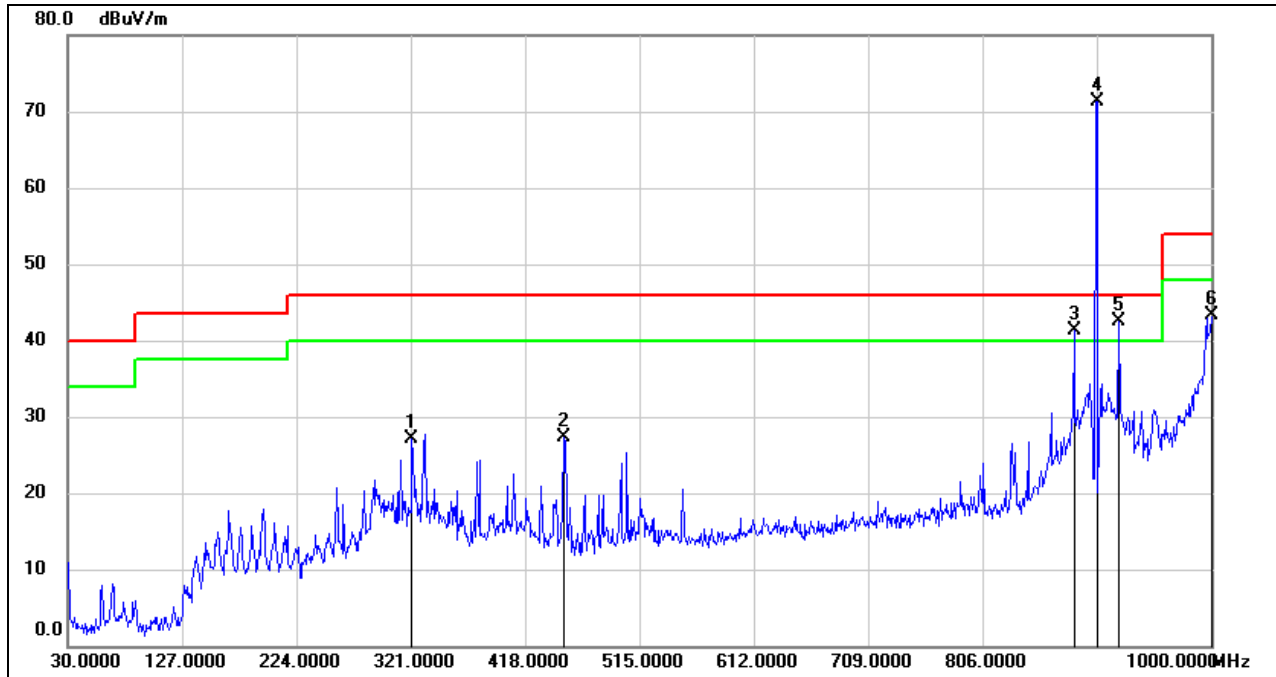


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3705.000	56.75	-4.48	52.27	74.00	-21.73	peak
2	4635.000	57.97	-0.95	57.02	74.00	-16.98	peak
3	4635.000	/	/	37.61	54.00	-16.39	AVG
4	7995.000	45.28	6.31	51.59	74.00	-22.41	peak
5	11790.000	32.67	17.38	50.05	74.00	-23.95	peak
6	13920.000	30.04	21.79	51.83	74.00	-22.17	peak
7	17970.000	27.12	25.51	52.63	74.00	-21.37	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. AVG: AVG Result=Peak Result + Correction Factor.
5. Correction factor was calculated by the following formula (Declared by customer):
Dell time = (274 symbols)/(3200 symbols/sec)(8 frequencies) = 10.70 ms
Correction Factor = 20 log (10.70 ms/100 ms) = -19.41 dB
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

7.2. SPURIOUS EMISSIONS (30 MHz ~ 1 GHz)

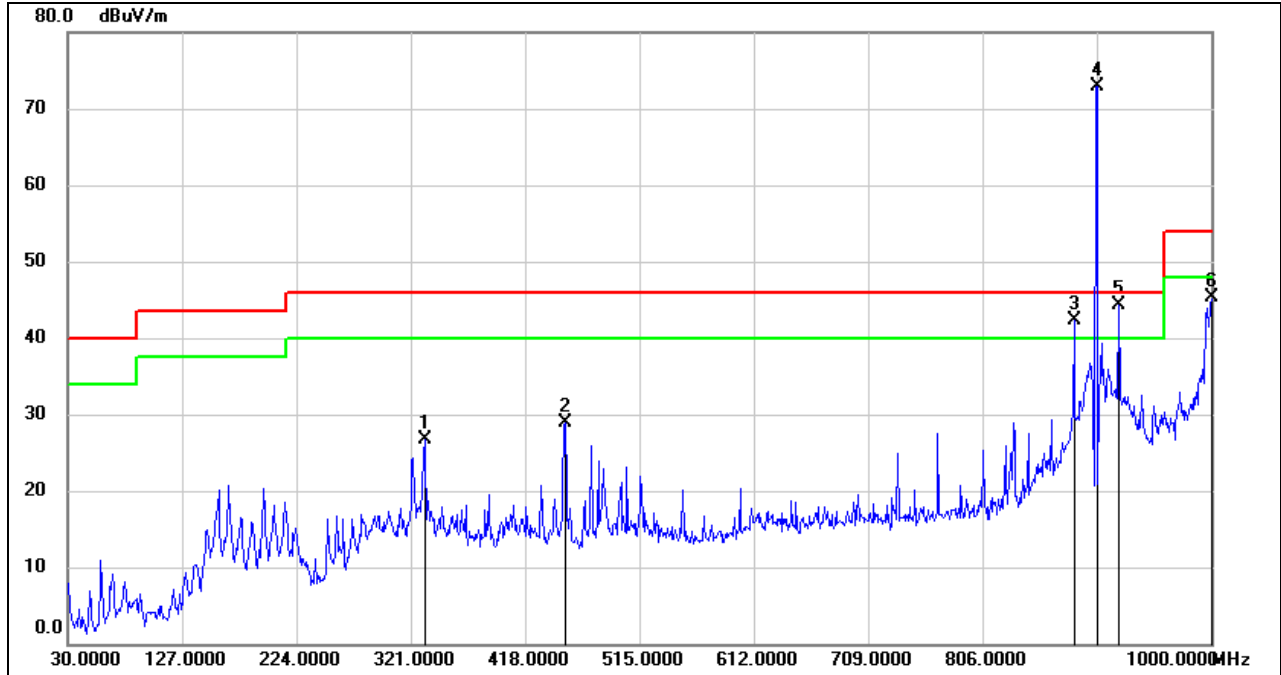
SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	321.9700	41.76	-14.75	27.01	46.00	-18.99	QP
2	450.9800	39.76	-12.45	27.31	46.00	-18.69	QP
3	883.6000	46.83	-5.43	41.40	/	/	Note 6
4	903.0000	76.50	-5.15	71.35	/	/	Fundamental
5	921.4300	47.22	-4.76	42.46	/	/	Note 6
6	1000.0000	47.43	-4.15	43.28	54.00	-10.72	QP

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
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.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. The frequency of Make 3 & 5 does not fall in the FCC Restricted bands (FCC §15.205 (a)).

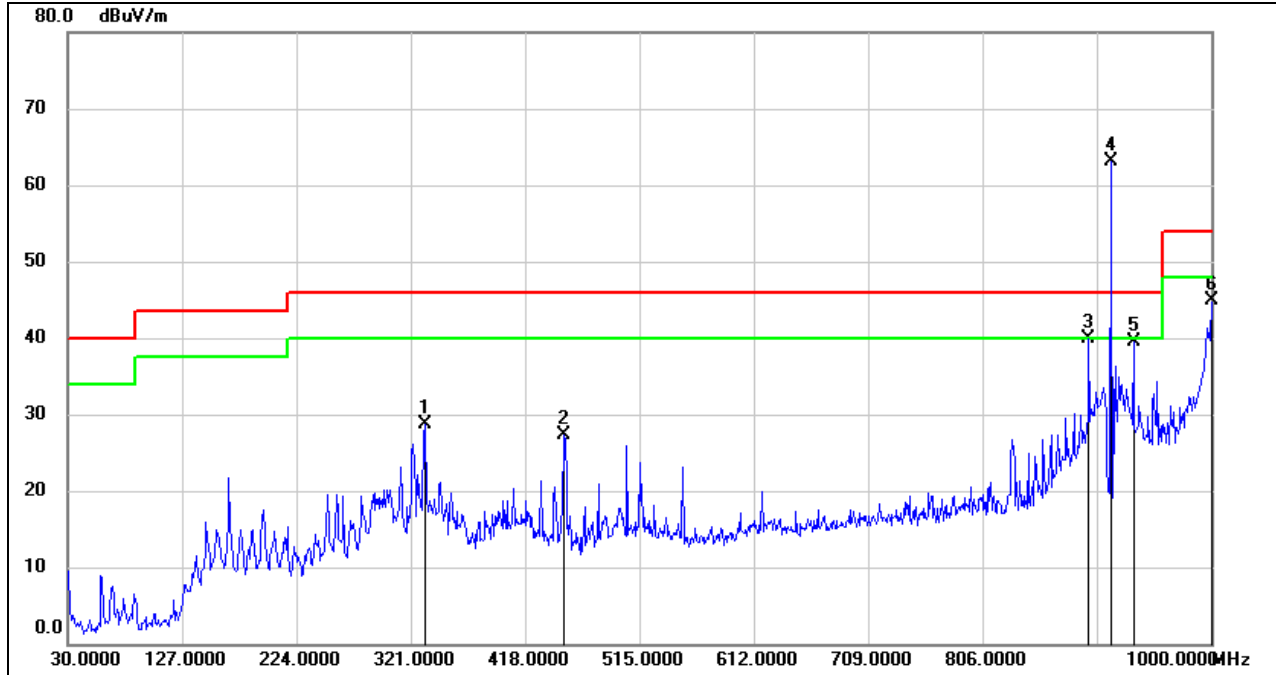
SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	332.6400	41.25	-14.62	26.63	46.00	-19.37	QP
2	451.9500	41.30	-12.42	28.88	46.00	-17.12	QP
3	883.6000	47.64	-5.43	42.21	/	/	Note 6
4	903.0000	78.05	-5.15	72.90	/	/	Fundamental
5	921.4300	48.97	-4.76	44.21	/	/	Note 6
6	1000.0000	49.54	-4.15	45.39	54.00	-8.61	QP

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
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.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. The frequency of Make 3 & 5 does not fall in the FCC Restricted bands (FCC §15.205 (a)).

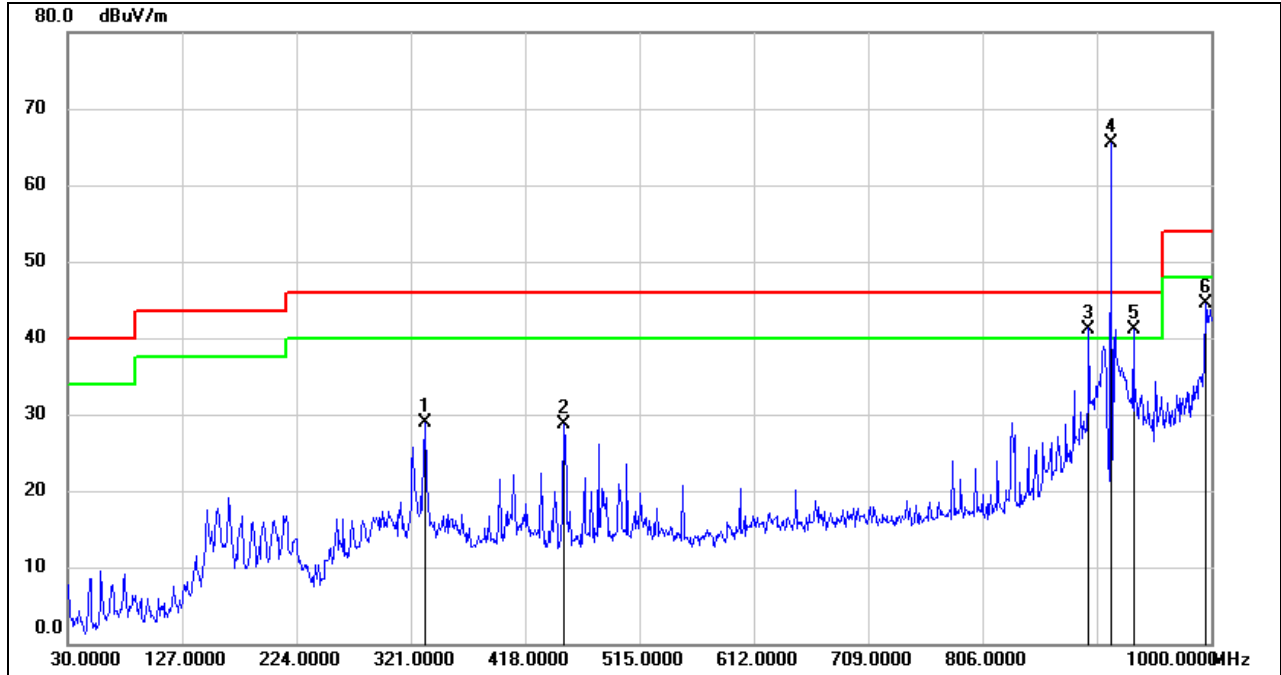
SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	333.6099	43.35	-14.59	28.76	46.00	-17.24	QP
2	450.9800	39.83	-12.45	27.38	46.00	-18.62	QP
3	896.2100	45.04	-5.23	39.81	/	/	Note 6
4	914.6400	67.99	-4.88	63.11	/	/	Fundamental
5	934.0400	44.26	-4.67	39.59	/	/	Note 6
6	1000.0000	49.15	-4.15	45.00	54.00	-9.00	QP

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
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.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. The frequency of Make 3 & 5 does not fall in the FCC Restricted bands (FCC §15.205 (a)).

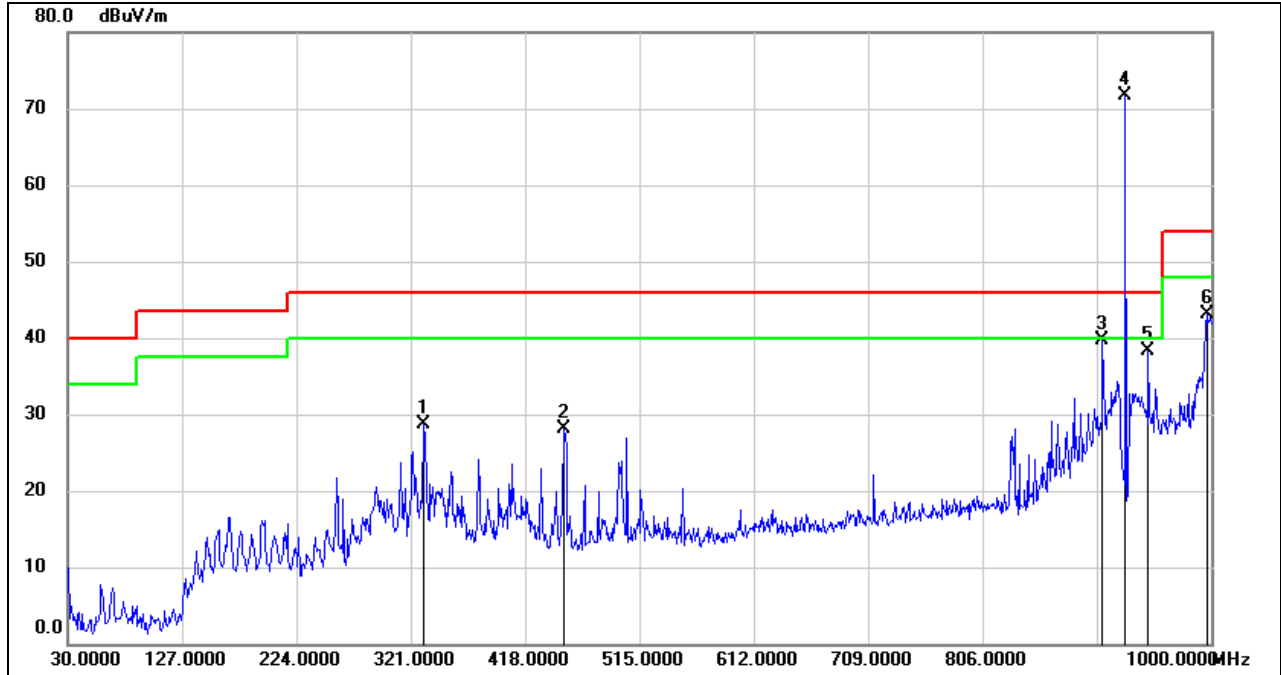
SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	333.6099	43.42	-14.59	28.83	46.00	-17.17	QP
2	450.9800	41.15	-12.45	28.70	46.00	-17.30	QP
3	896.2100	46.43	-5.23	41.20	/	/	Note 6
4	914.6400	70.35	-4.88	65.47	/	/	Fundamental
5	934.0400	45.70	-4.67	41.03	/	/	Note 6
6	995.1500	48.66	-4.20	44.46	54.00	-9.54	QP

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
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.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. The frequency of Make 3 & 5 does not fall in the FCC Restricted bands (FCC §15.205 (a)).

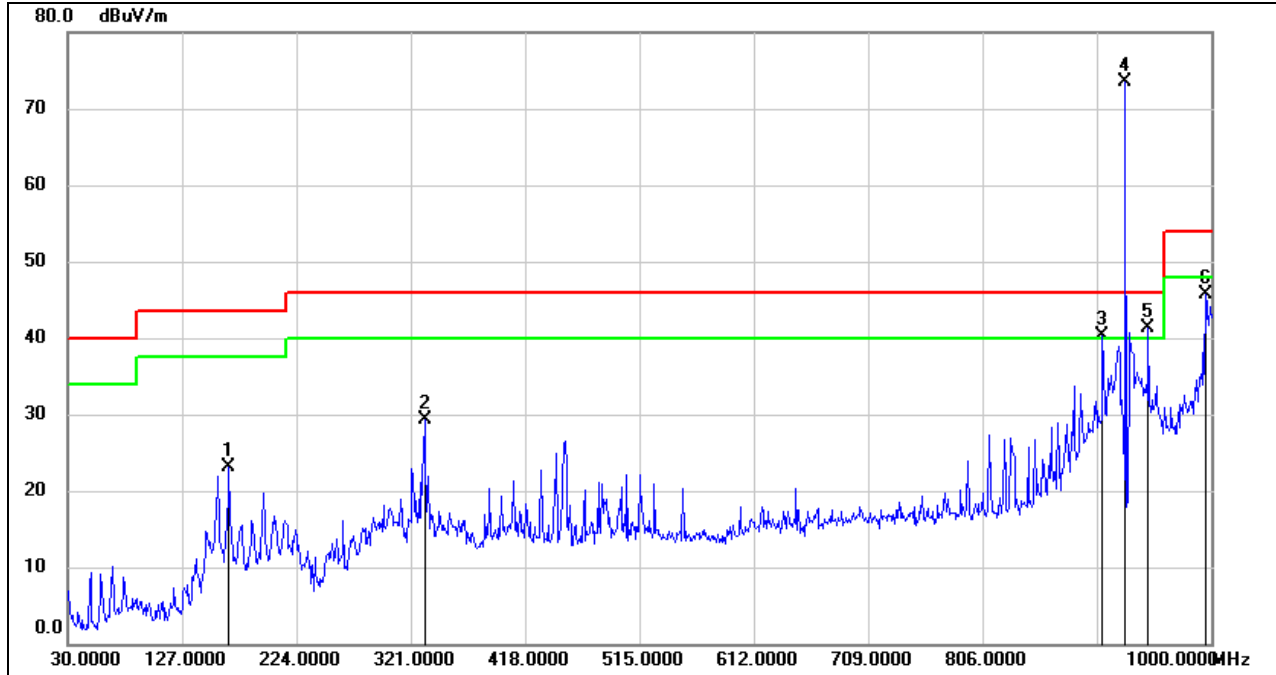
SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	331.6700	43.26	-14.64	28.62	46.00	-17.38	QP
2	450.9800	40.49	-12.45	28.04	46.00	-17.96	QP
3	907.8500	44.73	-5.03	39.70	/	/	Note 6
4	927.2500	76.41	-4.78	71.63	/	/	Fundamental
5	946.6500	42.84	-4.44	38.40	/	/	Note 6
6	996.1200	47.38	-4.20	43.18	54.00	-10.82	QP

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
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.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. The frequency of Make 3 & 5 does not fall in the FCC Restricted bands (FCC §15.205 (a)).

SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



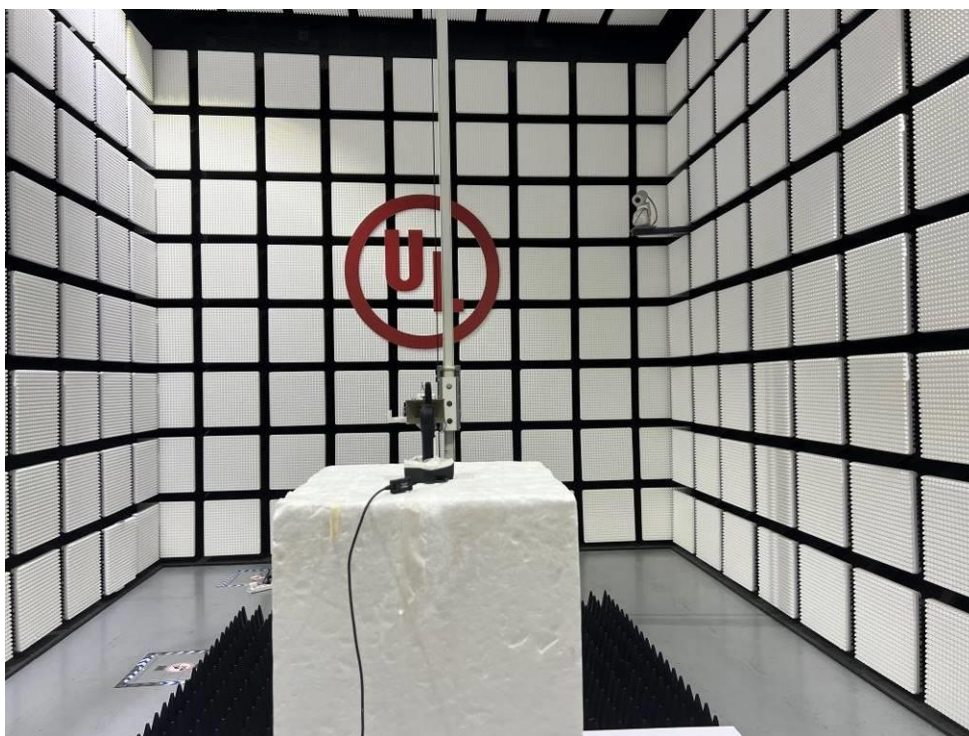
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	166.7700	40.52	-17.47	23.05	43.50	-20.45	QP
2	332.6400	43.99	-14.62	29.37	46.00	-16.63	QP
3	907.8500	45.32	-5.03	40.29	/	/	Note 6
4	927.2500	78.36	-4.78	73.58	/	/	Fundamental
5	946.6500	45.74	-4.44	41.30	/	/	Note 6
6	995.1500	49.86	-4.20	45.66	54.00	-8.34	QP

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
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.
4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
5. Proper operation of the transmitter prior to adding the filter to the measurement chain.
6. The frequency of Make 3 & 5 does not fall in the FCC Restricted bands (FCC §15.205 (a)).

RADIATED SPURIOUS EMISSION SETUP BELOW 1 GHz AND ABOVE 30 MHz



RADIATED SPURIOUS EMISSION SETUP ABOVE 1 GHz



END OF REPORT