



**CFR 47 FCC PART 15 SUBPART C
ISED RSS-210 ISSUE 9**

TEST REPORT

For

TOY Receiver

MODEL NUMBER: 3728RNRR

**FCC ID: G6D3728RNRR
IC: 9650A-3728RNRR**

REPORT NUMBER: 4789194952-1

ISSUE DATE: October 09, 2019

Prepared for

**NEW BRIGHT INDUSTRIAL CO., LTD
9/F., NEW BRIGHT BUILDING, 11 SHEUNG YUET ROAD, KOWLOON BAY,
KOWLOON, HONG KONG.**

Prepared by

**UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch
Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake
Hi-Tech Development Zone Dongguan, People's Republic of China**

Tel: +86 769 22038881

Fax: +86 769 33244054

Website: www.ul.com



Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V0	10/09/2019	Initial Issue	



Summary of Test Results			
Clause	Test Items	FCC/ISED Rules	Test Results
1	20dB Bandwidth and 99% Occupied Bandwidth	CFR 47 FCC 15.249(d) ISED RSS-Gen Clause 6.7	Pass
2	Radiated emission	CFR 47 FCC §15.249 (a)(d)(e) ISED RSS-210 Clause Annex B B.10 CFR 47 FCC §15.205 and §15.209 RSS-GEN Clause 8.9 RSS-GEN Clause 8.10	Pass
3	Conducted Emission Test For AC Power Port	FCC Part 15.207 RSS-GEN Clause 8.8	Pass
4	Antenna Requirement	FCC Part 15.203 ISED RSS-Gen Clause 6.8	Pass
Note: This test report is only published to and used by the applicant, and it is not for evidence purpose in China.			



TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	5
2. TEST METHODOLOGY	6
3. FACILITIES AND ACCREDITATION	6
4. CALIBRATION AND UNCERTAINTY	7
4.1. <i>MEASURING INSTRUMENT CALIBRATION</i>	7
4.2. <i>MEASUREMENT UNCERTAINTY</i>	7
5. EQUIPMENT UNDER TEST	8
5.1. <i>DESCRIPTION OF EUT</i>	8
5.2. <i>MAXIMUM FIELD STRENGTH</i>	8
5.3. <i>CHANNEL LIST</i>	8
5.4. <i>DESCRIPTION OF AVAILABLE ANTENNAS</i>	9
5.5. <i>TEST CHANNEL CONFIGURATION</i>	9
5.6. <i>THE WORSE CASE FIELD STRENGTH SETTING PARAMETER</i>	9
5.7. <i>TEST ENVIRONMENT</i>	9
5.8. <i>DESCRIPTION OF TEST SETUP</i>	10
5.9. <i>MEASURING INSTRUMENT AND SOFTWARE USED</i>	11
6. ANTENNA PORT TEST RESULTS	12
6.1. <i>ON TIME AND DUTY CYCLE</i>	12
6.2. <i>20 dB BANDWIDTH AND 99% OCCUPIED BANDWIDTH</i>	14
7. RADIATED TEST RESULTS	18
7.1. <i>LIMITS AND PROCEDURE</i>	18
7.2. <i>RESTRICTED BANDEDGE AND FIELD STRENGTH OF INTENTIONAL EMISSIONS</i> 25	
7.3. <i>SPURIOUS EMISSIONS (1~3GHz)</i>	31
7.4. <i>SPURIOUS EMISSIONS (3~18GHz)</i>	37
7.5. <i>SPURIOUS EMISSIONS (18~26GHz)</i>	43
7.6. <i>SPURIOUS EMISSIONS BELOW 30M</i>	45
7.7. <i>SPURIOUS EMISSIONS 30MHz - 1GHz</i>	48
8. AC POWER LINE CONDUCTED EMISSIONS	50
9. ANTENNA REQUIREMENTS	53



1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: NEW BRIGHT INDUSTRIAL CO., LTD
Address: 9/F., NEW BRIGHT BUILDING, 11 SHEUNG YUET ROAD,
KOWLOON BAY, KOWLOON,HONG KONG.

Manufacturer Information

Company Name: NEW BRIGHT INDUSTRIAL CO., LTD
Address: 9/F., NEW BRIGHT BUILDING, 11 SHEUNG YUET ROAD,
KOWLOON BAY, KOWLOON,HONG KONG.

EUT Description

EUT Name: TOY Receiver
Model: 3728RNRR
Sample Status: Normal
Sample ID: 2606077
Sample Received Date: September 19, 2019
Date of Tested: September 19, 2019~ October 08, 2019

APPLICABLE STANDARDS	
STANDARDS	TEST RESULTS
CFR 47 FCC PART 15 SUBPART C	PASS
ISED RSS-210 Issue 9	PASS
ISED RSS-GEN Issue 5	PASS

Prepared By:

Kebo Zhang
Engineer Project Associate

Checked By:

Shawn Wen
Laboratory Leader

Approved By:

Stephen Guo
Laboratory Manager



2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with KDB 414788 D01 Radiated Test Site v01r01, FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, ISED RSS-210 Issue 9 and 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.</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>
---------------------------	--

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
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.
3. For below 30MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30MHz 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 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
Conduction emission	3.62dB
Radiation Emission test(include Fundamental emission) (9KHz-30MHz)	2.2dB
Radiation Emission test(include Fundamental emission) (30MHz-1GHz)	4.00dB
Radiation Emission test (1GHz to 26GHz)(include Fundamental emission)	5.78dB (1GHz-18Gz)
	5.23dB (18GHz-26Gz)
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	TOY Receiver		
EUT Description	The EUT is a wireless remote controlled toy car.		
Model	3728RNRR		
Product Description	Operation Frequency	2410 MHz ~ 2475 MHz	
	Modulation Type	GFSK	
Battery	DC 6.4V		
DC Input	DC 5V/1A		

5.2. MAXIMUM FIELD STRENGTH

Frequency Range (MHz)	Number of Transmit Chains (NTX)	Frequency (MHz)	Channel Number	Max. field strength (dB μ V/m)
2410 ~ 2475	1	2410	1	98.11

5.3. CHANNEL LIST

Channel	Frequency (MHz)						
1	2410	21	2430	41	2450	61	2470
2	2411	22	2431	42	2451	62	2471
3	2412	23	2432	43	2452	63	2472
4	2413	24	2433	44	2453	64	2473
5	2414	25	2434	45	2454	65	2474
6	2415	26	2435	46	2455	66	2475
7	2416	27	2436	47	2456	\	\
8	2417	28	2437	48	2457	\	\
9	2418	29	2438	49	2458	\	\
10	2419	30	2439	50	2459	\	\
11	2420	31	2440	51	2460	\	\
12	2421	32	2441	52	2461	\	\
13	2422	33	2442	53	2462	\	\
14	2423	34	2443	54	2463	\	\
15	2424	35	2444	55	2464	\	\
16	2425	36	2445	56	2465	\	\
17	2426	37	2446	57	2466	\	\
18	2427	38	2447	58	2467	\	\
19	2428	39	2448	59	2468	\	\
20	2429	40	2449	60	2469	\	\



5.4. DESCRIPTION OF AVAILABLE ANTENNAS

Ant.	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
1	2410 ~ 2475	Line Antenna	1.9

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

5.5. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel	Frequency
GFSK	CH 1, CH 34, CH 66/ Low, Middle, High	2410MHz, 2443MHz, 2475MHz

5.6. THE WORSE CASE FIELD STRENGTH SETTING PARAMETER

The Worse Case Setting Parameter under 2410 MHz ~ 2475 MHz Band				
Test Software Version		/		
Modulation Type	Transmit Antenna Number	Test Channel		
		CH 1	CH 34	CH 66
GFSK	1	Default	Default	Default

5.7. TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests	
Relative Humidity	45 ~ 70%	
Atmospheric Pressure:	1003Pa	
Temperature	TN	22 ~ 28°C
Voltage :	VL	/
	VN	DC 6.4V
	VH	/

Note: VL= Lower Extreme Test Voltage
VN= Nominal Voltage
VH= Upper Extreme Test Voltage
TN= Normal Temperature

5.8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Mfr/Brand	Model/Type No.	Specification	Series No.
1	Adapter	SAMSUNG	ETA0U83CBC	5Vdc,1A	/

I/O CABLES

Item	Type of cable	Shielded Type	Ferrite Core	Specification
1	USB-DC cable	NO	NO	0.6m

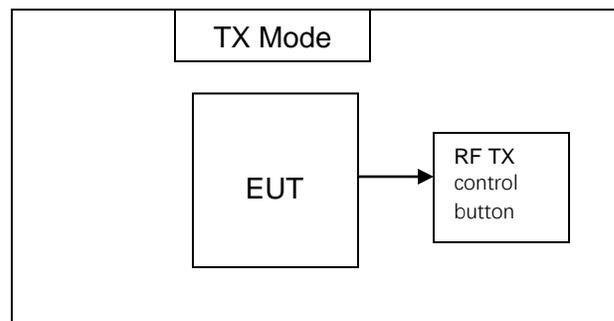
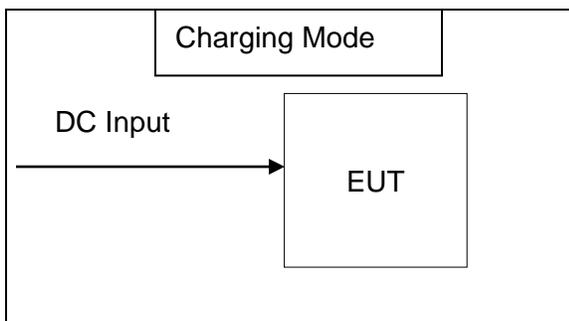
ACCESSORY

Item	Accessory	Brand Name	Model Name	Description
/	/	/	/	/

TEST SETUP

The EUT have the engineer mode inside.

SETUP DIAGRAM FOR TEST



Note: New battery was used during all tests.



5.9. MEASURING INSTRUMENT AND SOFTWARE USED

Radiated Emissions						
Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Dec.10,2018	Dec.10,2019
<input checked="" type="checkbox"/>	Hybrid Log Periodic Antenna	TDK	HLP-3003C	130960	Sep.17,2018	Sep.17,2021
<input checked="" type="checkbox"/>	Preamplifier	HP	8447D	2944A09099	Dec.10,2018	Dec.10,2019
<input checked="" type="checkbox"/>	EMI Measurement Receiver	R&S	ESR26	101377	Dec.10,2018	Dec.10,2019
<input checked="" type="checkbox"/>	Horn Antenna	TDK	HRN-0118	130939	Sep.17,2018	Sep.17,2021
<input checked="" type="checkbox"/>	High Gain Horn Antenna	Schwarzbeck	BBHA-9170	691	Aug.11, 2018	Aug.11, 2021
<input checked="" type="checkbox"/>	Preamplifier	TDK	PA-02-0118	TRS-305-00066	Dec.10,2018	Dec.10,2019
<input checked="" type="checkbox"/>	Loop antenna	Schwarzbeck	1519B	00008	Jan.17, 2019	Jan.17,2022
<input checked="" type="checkbox"/>	Preamplifier	TDK	PA-02-001-3000	TRS-302-00050	Jan.07, 2019	Jan.07, 2020
AC Power Line Conducted Emissions						
<input checked="" type="checkbox"/>	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
<input checked="" type="checkbox"/>	EMI Test Receiver	R&S	ESR3	101961	Dec.10, 2018	Dec.10, 2019
<input checked="" type="checkbox"/>	Two-Line V-Network	R&S	ENV216	101983	Dec.10, 2018	Dec.10, 2019
Software						
Used	Description	Manufacturer	Name	Version		
<input checked="" type="checkbox"/>	Test Software for Radiated disturbance	Farad	EZ-EMC	Ver. UL-3A1		
Other instruments						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
<input checked="" type="checkbox"/>	Spectrum Analyzer	Keysight	N9030A	MY55410512	Dec.10,2018	Dec.10,2019
<input checked="" type="checkbox"/>	Band Reject Filter	Wainwright	WRCJV8-2350-2400-2483.5-2533.5-40SS	4	Dec.10,2018	Dec.10,2019
<input checked="" type="checkbox"/>	High Pass Filter	Wi	WHKX10-2700-3000-18000-40SS	23	Dec.10,2018	Dec.10,2019



6. ANTENNA PORT TEST RESULTS

6.1. ON TIME AND DUTY CYCLE

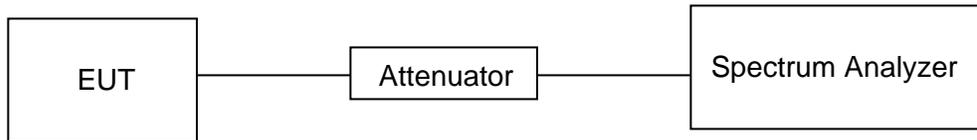
LIMITS

None; for reporting purposes only

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method

TEST SETUP



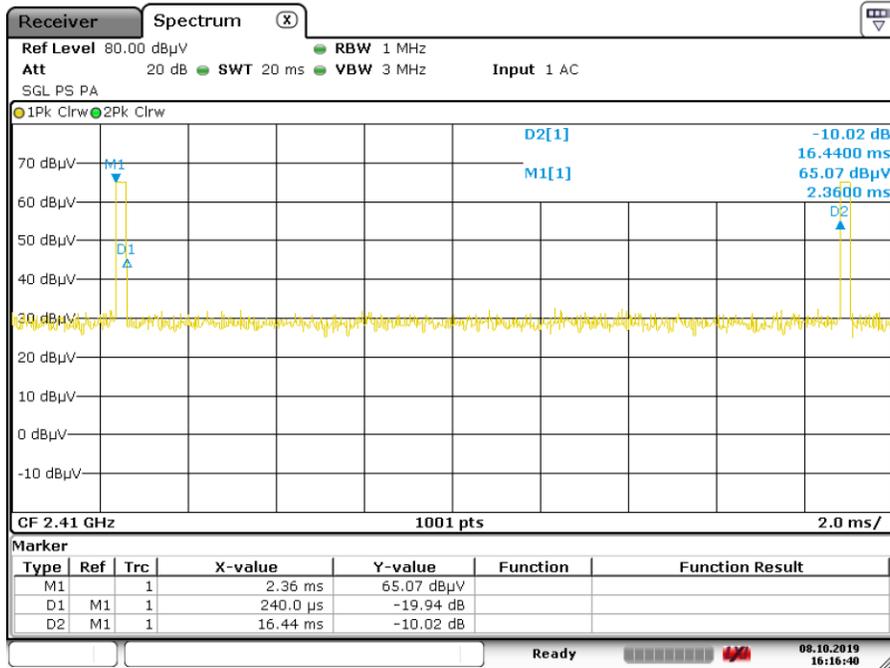
RESULTS

Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (db)
GFSK	1.68	100	0.0168	1.68	-35.49

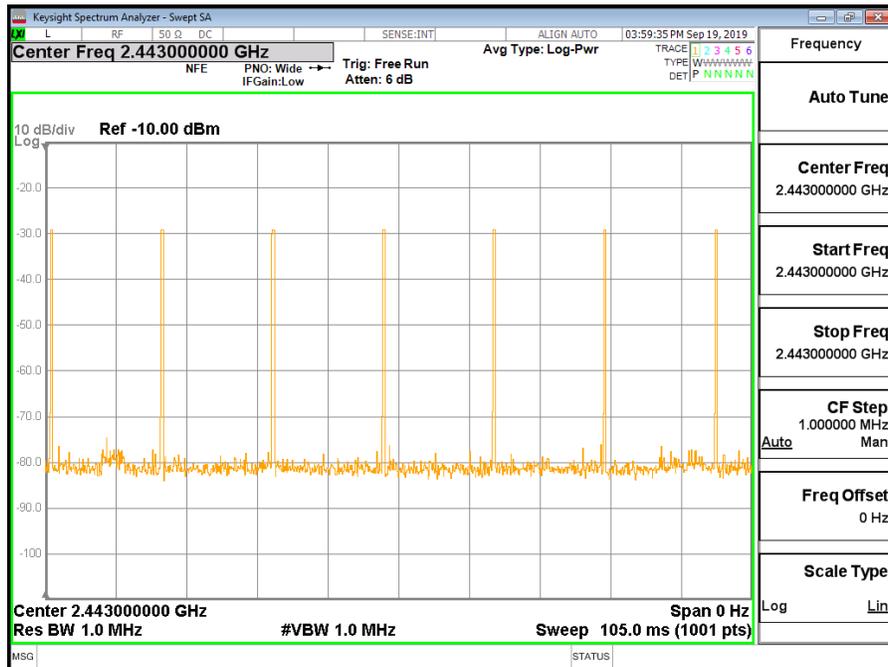
Note: Duty Cycle Correction Factor=20log(x).
Where: x is Duty Cycle



ON TIME AND DUTY CYCLE MID CH PLOT



Date: 8.OCT.2019 16:16:40



6.2. 20 dB BANDWIDTH AND 99% OCCUPIED BANDWIDTH

LIMITS

CFR 47 FCC Part15 (15.249) , Subpart C RSS-Gen Issue 5			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.249(d)	20dB Bandwidth	for reporting purposes only	2400-2483.5
ISED RSS-Gen Clause 6.7 Issue 5	99% Occupied Bandwidth	For reporting purposes only.	2400-2483.5

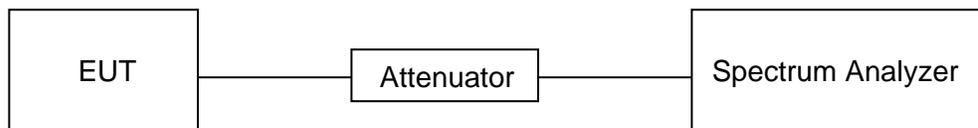
TEST PROCEDURE

Connect the UUT to the spectrum analyzer and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	1% to 5% of the occupied bandwidth
VBW	approximately 3×RBW
Trace	Max hold
Sweep	Auto couple

Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB and 99% relative to the maximum level measured in the fundamental emission.

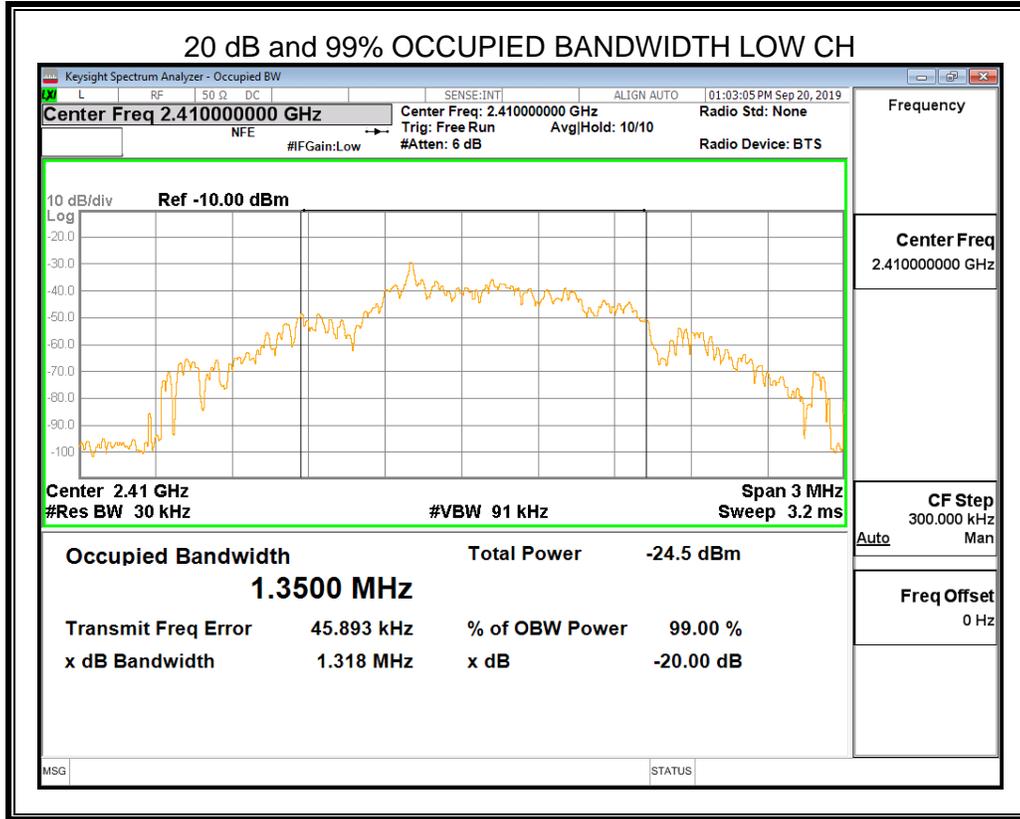
TEST SETUP





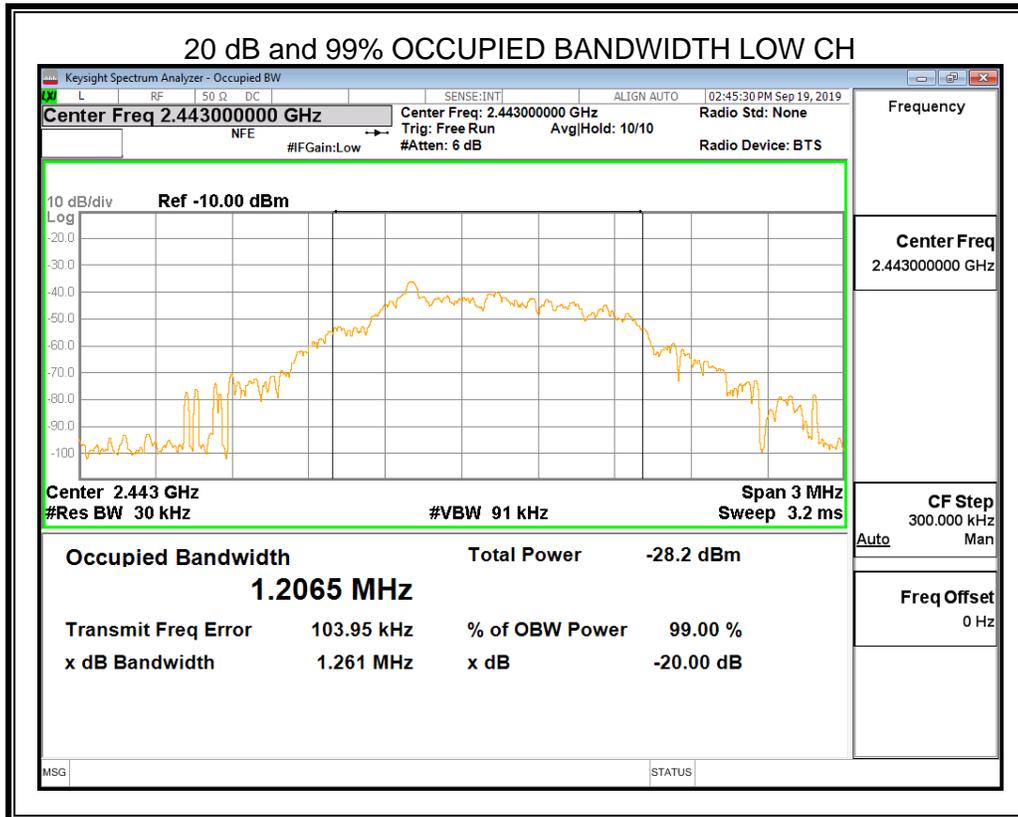
RESULTS

Frequency (MHz)	20dB bandwidth (MHz)	99% occupied bandwidth (MHz)	Result
2410	1.318	1.3500	PASS



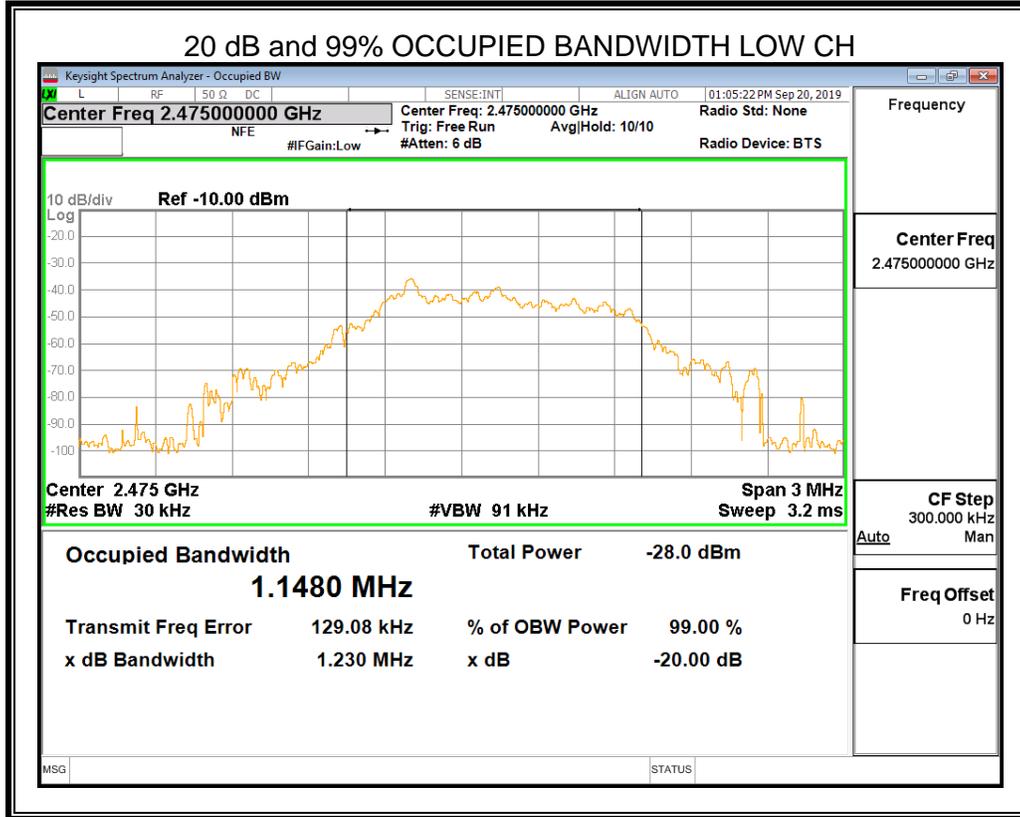


Frequency (MHz)	20dB bandwidth (MHz)	99% occupied bandwidth (MHz)	Result
2443	1.261	1.2065	PASS





Frequency (MHz)	20dB bandwidth (MHz)	99% occupied bandwidth (MHz)	Result
2475	1.230	1.1480	PASS





7. RADIATED TEST RESULTS

7.1. LIMITS AND PROCEDURE

LIMITS

CFR 47 FCC §15.205 and §15.209

CFR 47 FCC §15.249 (a)(c)(d)(e)

ISED RSS-210 Issue 9 Clause Annex B B.10

The field strength of emissions from intentional radiators operated within these frequency bands			
Frequency (MHz)	Field strength of Fundamental	Field strength of Harmonics	Distance (m)
902 - 928	50 mV/m (94dBuV/m)	500 uV/m (54dBuV/m)	3
2400 – 2483.5	50 mV/m (94dBuV/m)	500 uV/m (54dBuV/m)	3
5725 – 5875	50 mV/m (94dBuV/m)	500 uV/m (54dBuV/m)	3

Emissions radiated outside of the specified frequency bands above 30MHz			
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

Emissions radiated outside of the specified frequency bands below 30MHz		
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



IC 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:

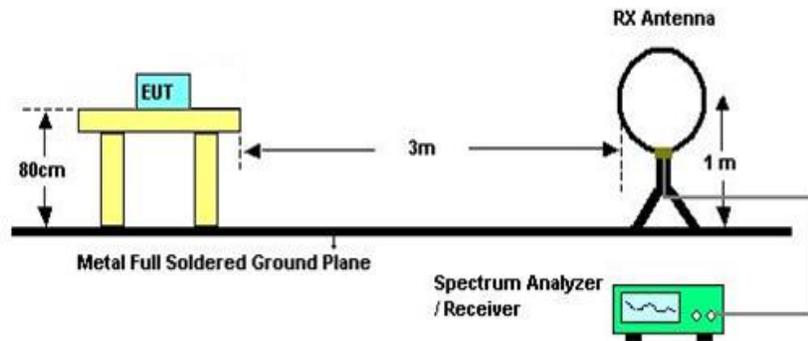
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	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 38.6

TEST SETUP AND PROCEDURE

Below 30MHz

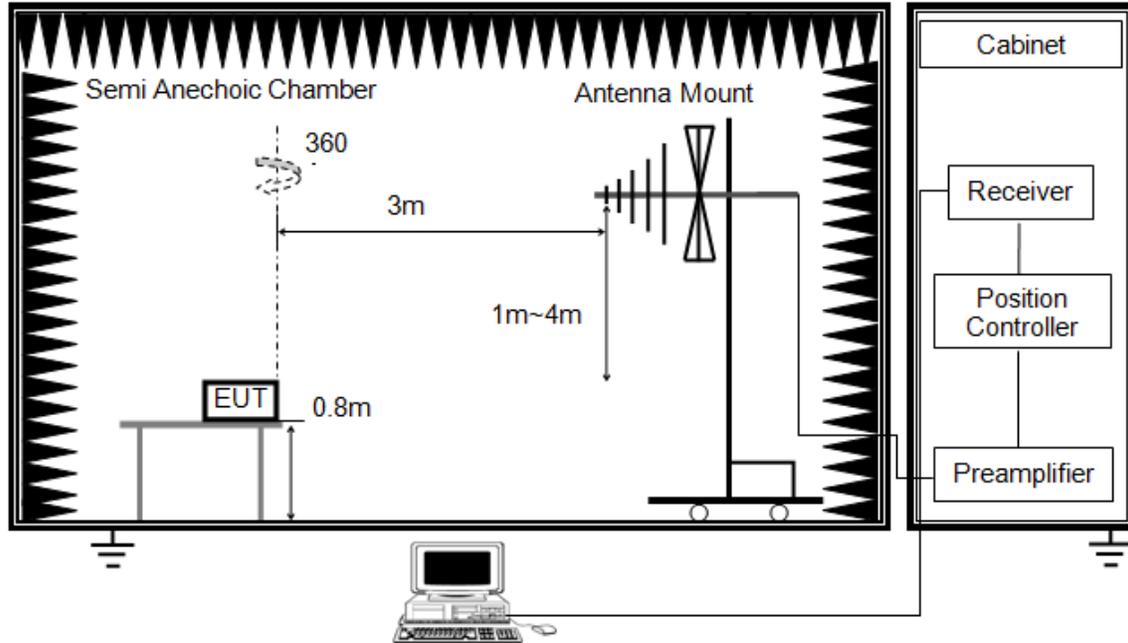


The setting of the spectrum analyzer

RBW	200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz)
VBW	200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz)
Sweep	Auto
Detector	Peak/QP/ Average
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013
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 80cm meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1m 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 1GHz, 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.
7. Although these tests were performed other than open area test 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 based on KDB 414788.

Below 1G

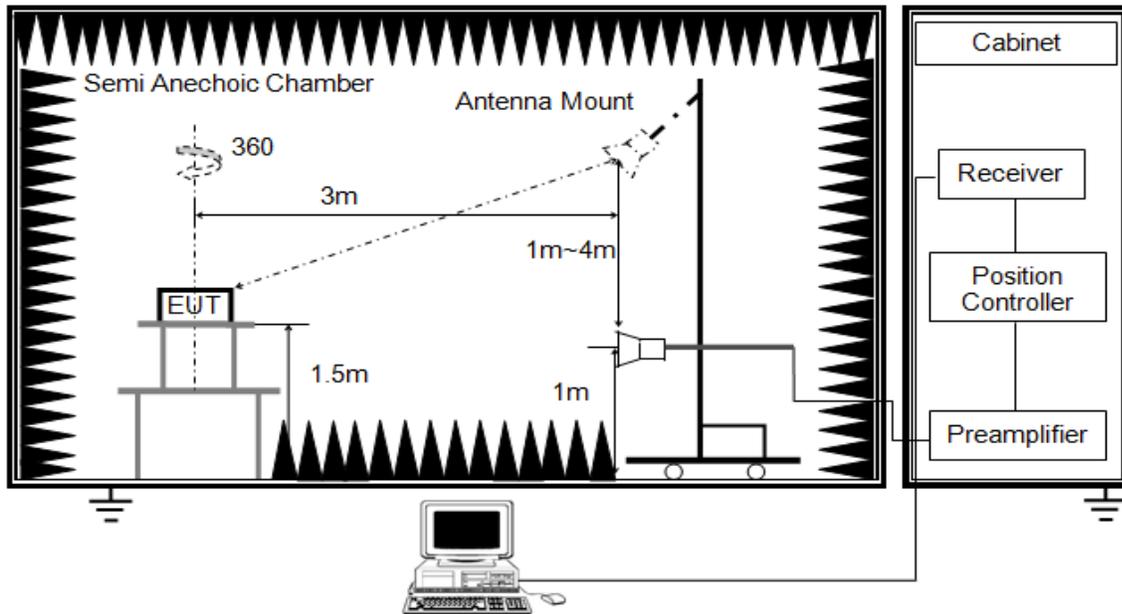


The setting of the spectrum analyzer

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

1. The testing follows the guidelines in ANSI C63.10-2013.
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 80cm 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 1GHz, 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 1G

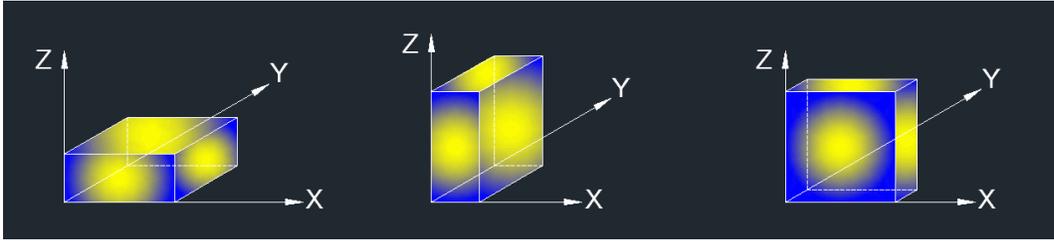


The setting of the spectrum analyzer

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

1. The testing follows the guidelines in ANSI C63.10-2013.
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 80cm 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 1GHz, 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. Where necessary, average emission are determined by applying the Duty Cycle Correction Factor to the peak measurements. For the Duty Cycle and Correction Factor please refer to clause 6.1.ON TIME AND DUTY CYCLE.

X axis, Y axis, Z axis positions:

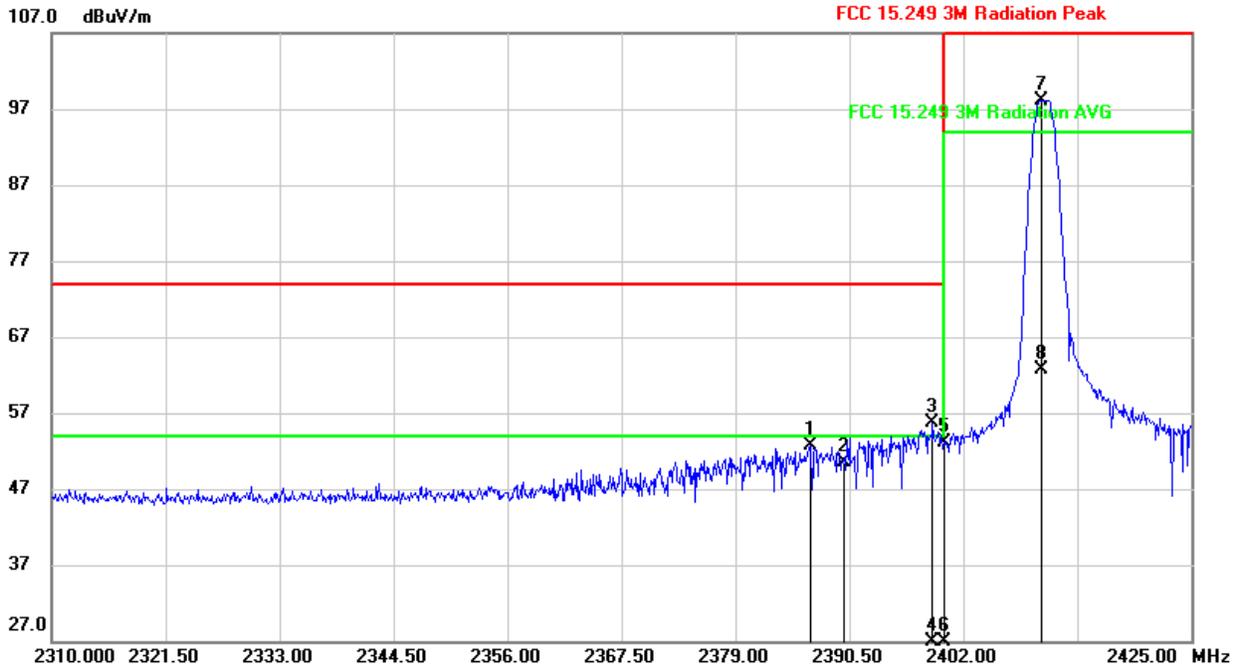


Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.



7.2. RESTRICTED BANDEDGE AND FIELD STRENGTH OF INTENTIONAL EMISSIONS

RESTRICTED BANDEDGE AND FIELD STRENGTH OF INTENTIONAL EMISSIONS (LOW CHANNEL, HORIZONTAL)

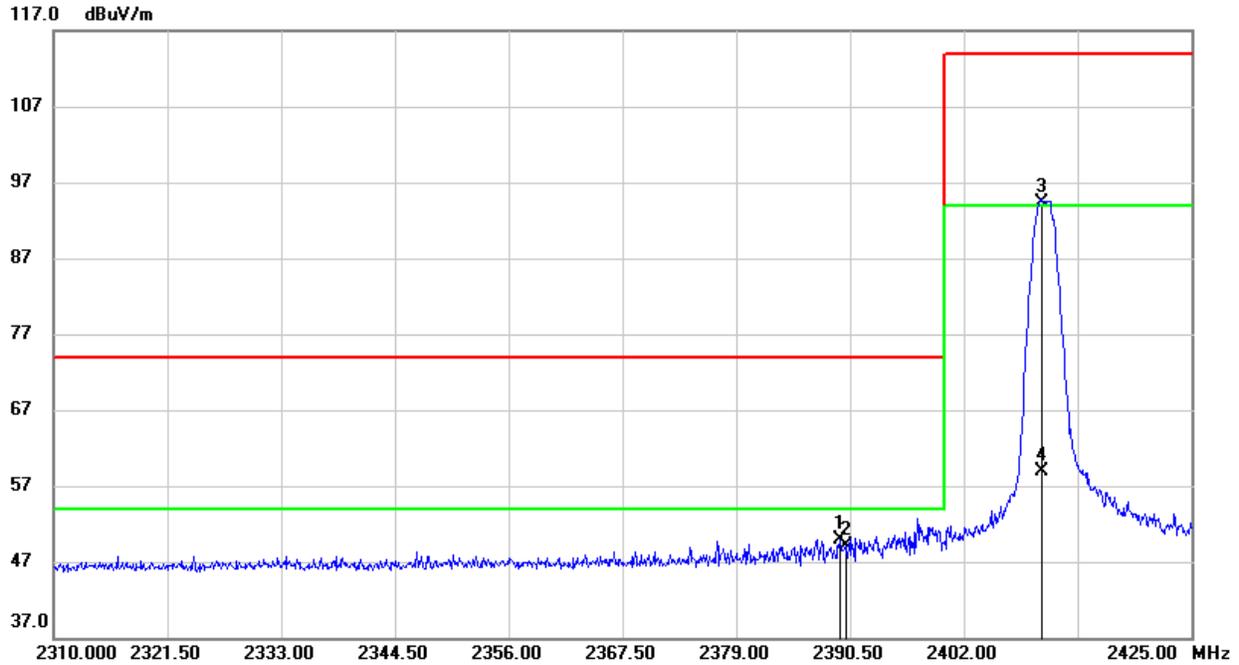


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2386.590	19.74	32.94	52.68	74.00	-21.32	peak
2	2390.000	17.49	32.94	50.43	74.00	-23.57	peak
3	2398.895	22.66	32.98	55.64	74.00	-18.36	peak
4	2398.895	-12.83	32.98	20.15	54.00	-33.85	AVG
5	2400.000	20.19	32.98	53.17	74.00	-20.83	peak
6	2400.000	-15.30	32.98	17.68	54.00	-36.32	AVG
7	2410.000	65.06	33.05	98.11	114.00	-15.89	peak
8	2410.000	29.57	33.05	62.62	94.00	-31.38	AVG

- 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. AVG Result=Peak Result + Duty Correction Factor.
 5. For the Duty Cycle and Correction Factor, please refer to clause 6.1.
 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



RESTRICTED BANDEDGE AND FIELD STRENGTH OF INTENTIONAL EMISSIONS (LOW CHANNEL, VERTICAL)

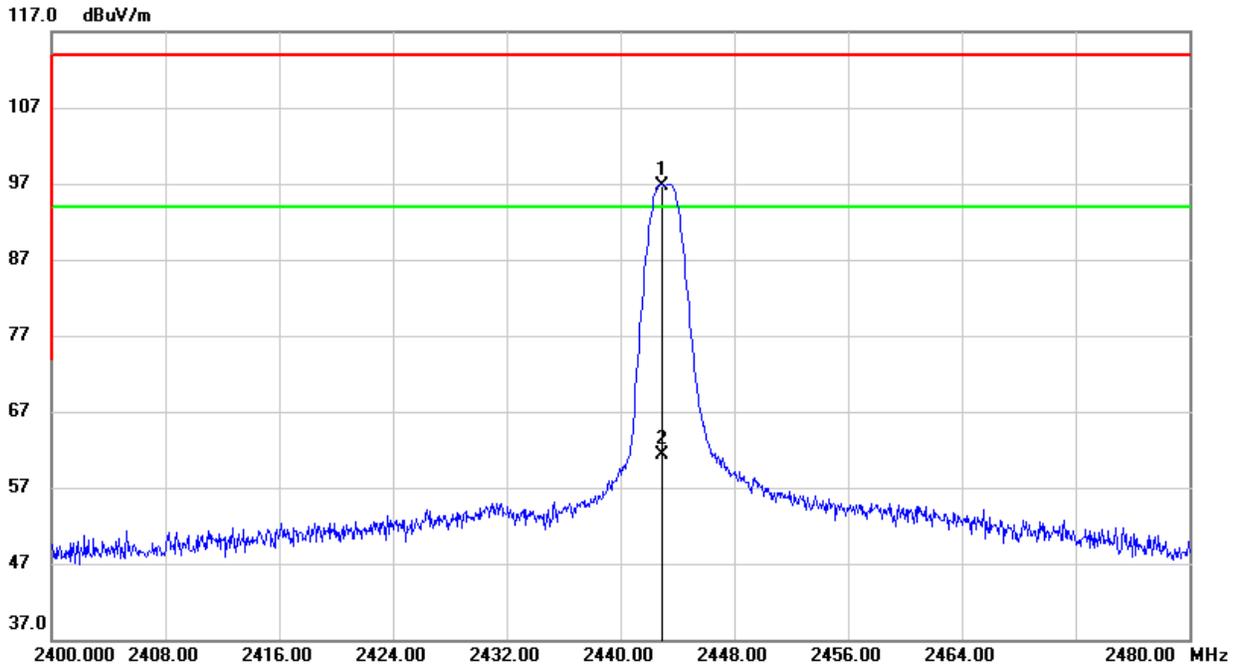


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.465	17.02	32.94	49.96	74.00	-24.04	peak
2	2390.000	16.20	32.94	49.14	74.00	-24.86	peak
3	2410.000	61.25	33.05	94.30	114.00	-19.70	peak
4	2410.000	25.76	33.05	58.81	94.00	-35.19	AVG

- 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. AVG Result=Peak Result + Duty Correction Factor.
 5. For the Duty Cycle and Correction Factor, please refer to clause 6.1.
 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



FIELD STRENGTH OF INTENTIONAL EMISSIONS (MIDDLE CHANNEL, HORIZONTAL)

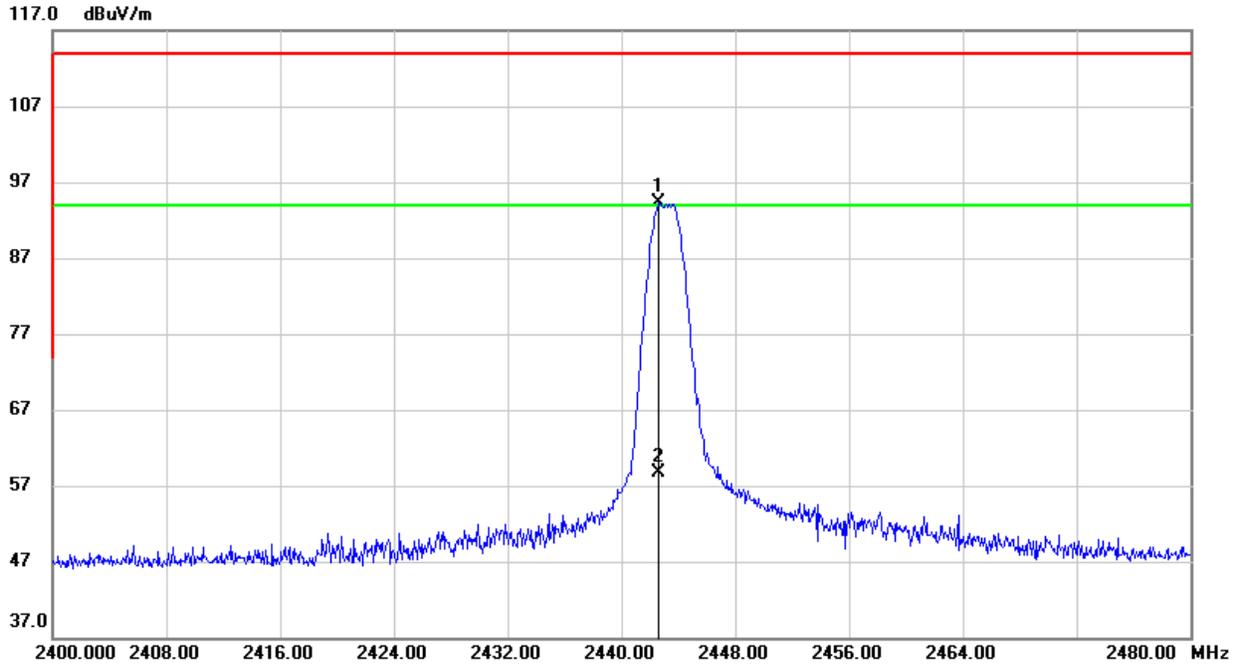


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2443.000	63.51	33.29	96.80	114.00	-17.20	peak
2	2443.000	28.02	33.29	61.31	94.00	-32.69	AVG

- 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. AVG Result=Peak Result + Duty Correction Factor.
 5. For the Duty Cycle and Correction Factor, please refer to clause 6.1.
 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



FIELD STRENGTH OF INTENTIONAL EMISSIONS (MIDDLE CHANNEL, VERTICAL)

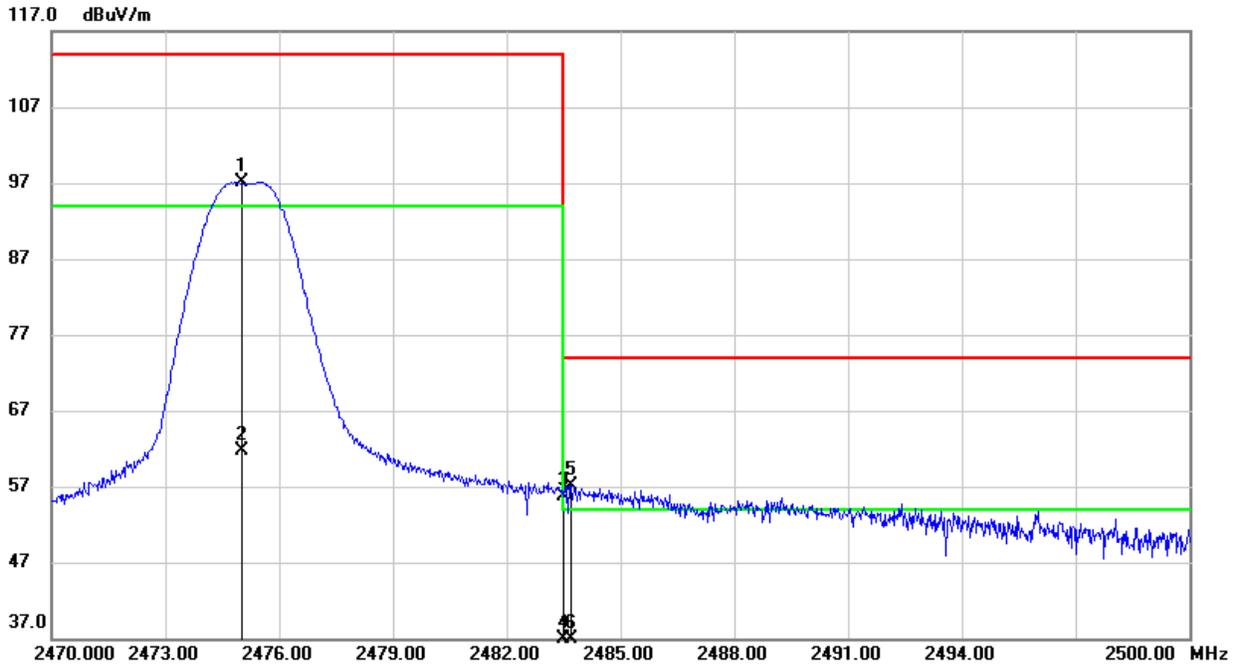


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2442.640	60.95	33.29	94.24	114.00	-19.76	peak
2	2442.640	25.46	33.29	58.75	94.00	-35.25	AVG

- 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. AVG Result=Peak Result + Duty Correction Factor.
 5. For the Duty Cycle and Correction Factor, please refer to clause 6.1.
 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



RESTRICTED BANDEDGE AND FIELD STRENGTH OF INTENTIONAL EMISSIONS (HIGH CHANNEL, HORIZONTAL)

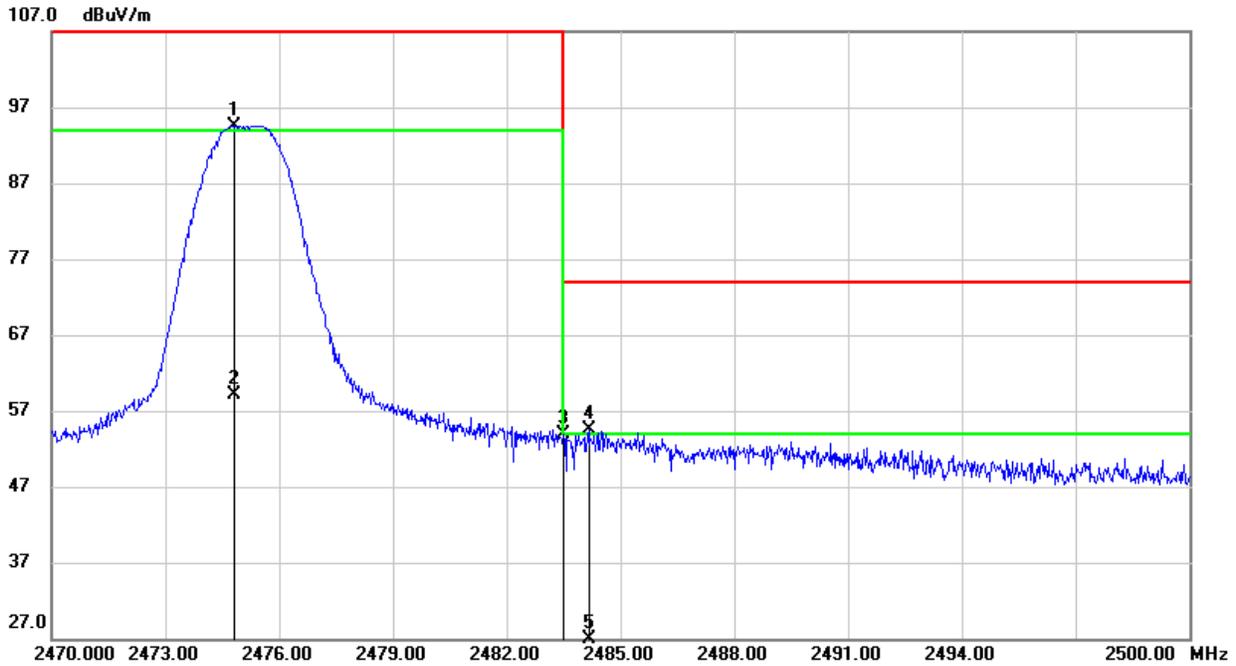


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2475.010	63.61	33.51	97.12	114.00	-16.88	peak
2	2475.010	28.12	33.51	61.63	94.00	-32.37	AVG
3	2483.500	22.09	33.58	55.67	74.00	-18.33	peak
4	2483.500	-13.40	33.58	20.18	54.00	-33.82	AVG
5	2483.710	23.60	33.58	57.18	74.00	-16.82	peak
6	2483.710	-11.89	33.58	21.69	54.00	-32.31	AVG

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. AVG Result=Peak Result + Duty Correction Factor.
 5. For the Duty Cycle and Correction Factor, please refer to clause 6.1.
 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



RESTRICTED BANDEDGE AND FIELD STRENGTH OF INTENTIONAL EMISSIONS (HIGH CHANNEL, VERTICAL)



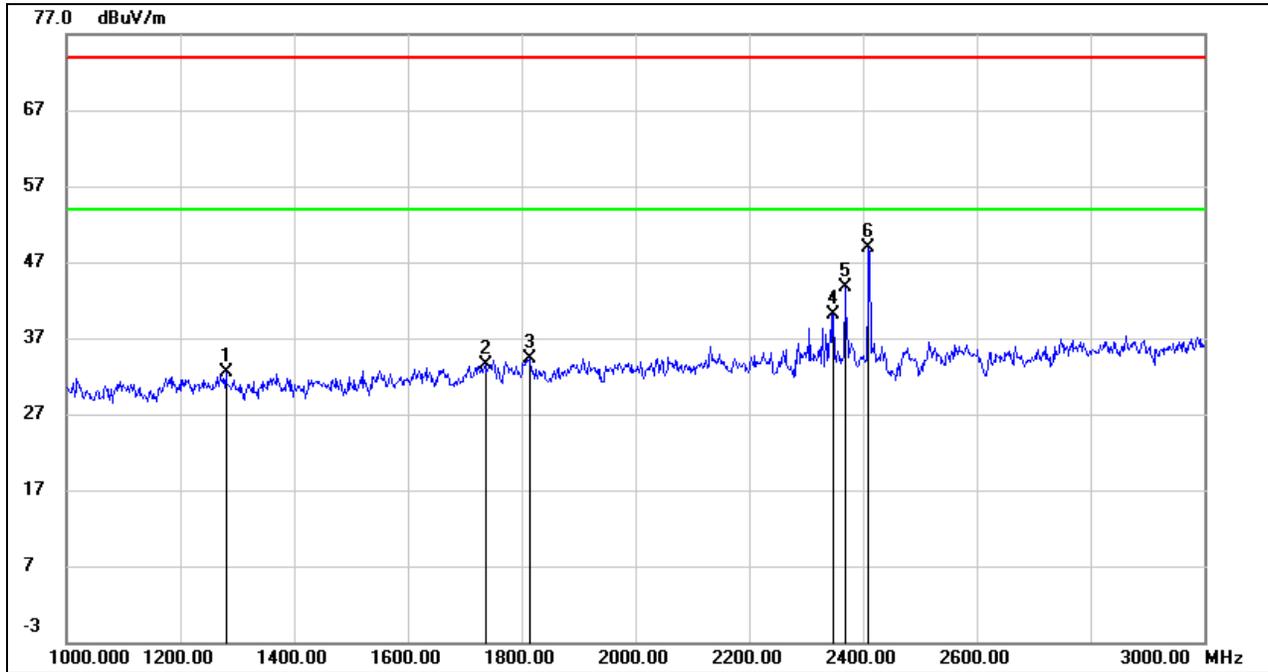
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2474.830	61.08	33.51	94.59	114.00	-19.41	peak
2	2474.830	25.59	33.51	59.10	94.00	-34.90	AVG
3	2483.500	20.35	33.58	53.93	74.00	-20.07	peak
4	2484.160	20.84	33.58	54.42	74.00	-19.58	peak
5	2484.160	-14.65	33.58	18.93	54.00	-35.07	AVG

- 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. AVG Result=Peak Result + Duty Correction Factor.
 5. For the Duty Cycle and Correction Factor, please refer to clause 6.1.
 6. Only the worst case emission was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.



7.3. SPURIOUS EMISSIONS (1~3GHz)

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)

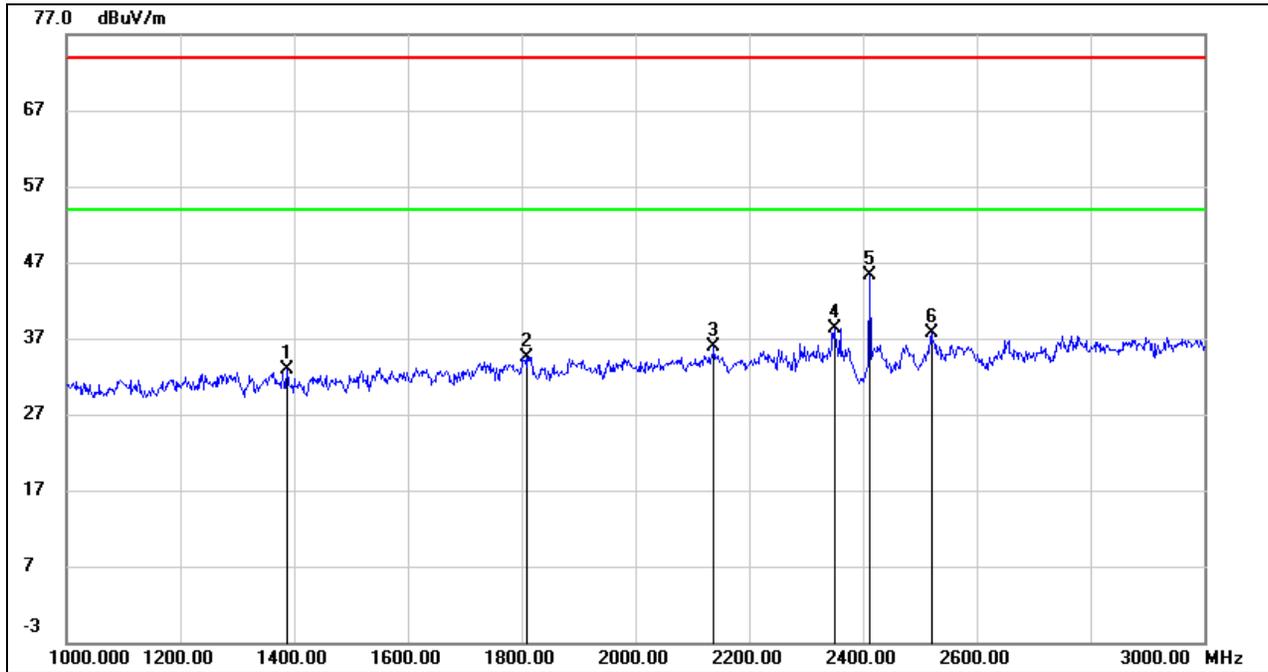


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1280.000	45.18	-12.65	32.53	74.00	-41.47	peak
2	1736.000	44.28	-10.74	33.54	74.00	-40.46	peak
3	1814.000	44.38	-10.12	34.26	74.00	-39.74	peak
4	2348.000	48.31	-8.14	40.17	74.00	-33.83	peak
5	2368.000	51.80	-8.07	43.73	74.00	-30.27	peak
6	2410.000	56.86	-7.88	48.98	/	/	fundamental

- 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 then spurious frequency bands and the authorized band was not corrected for BRF losses.
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.



HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)

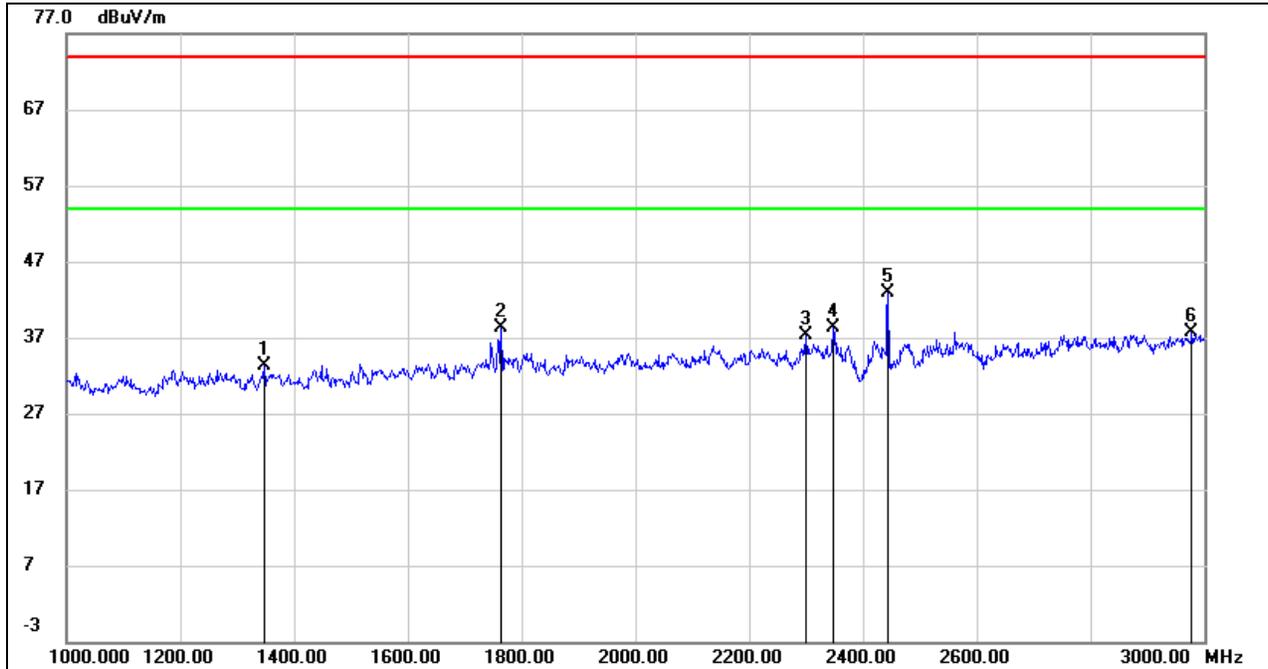


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1388.000	45.52	-12.61	32.91	74.00	-41.09	peak
2	1810.000	44.66	-10.11	34.55	74.00	-39.45	peak
3	2138.000	45.00	-9.12	35.88	74.00	-38.12	peak
4	2350.000	46.37	-8.13	38.24	74.00	-35.76	peak
5	2410.000	53.26	-7.87	45.39	/	/	fundamental
6	2520.000	45.07	-7.35	37.72	74.00	-36.28	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 then spurious frequency bands and the authorized band was not corrected for BRF losses.
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.



HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)

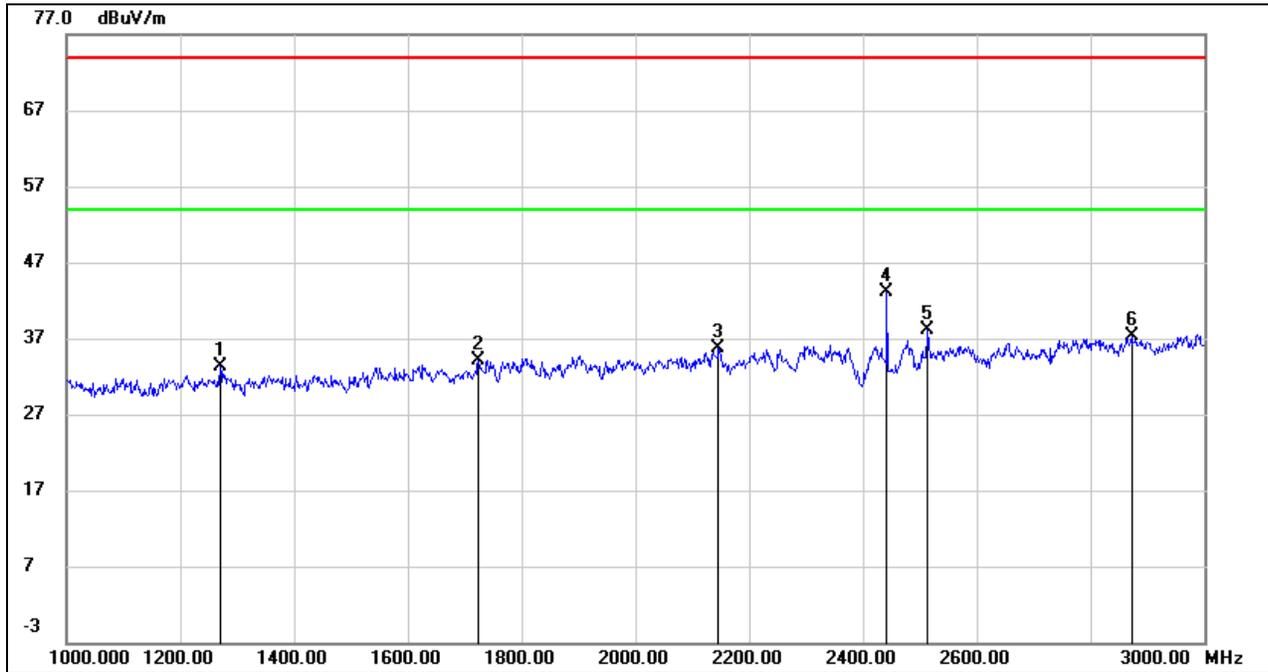


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1348.000	45.98	-12.59	33.39	74.00	-40.61	peak
2	1764.000	48.73	-10.48	38.25	74.00	-35.75	peak
3	2300.000	45.52	-8.31	37.21	74.00	-36.79	peak
4	2348.000	46.46	-8.14	38.32	74.00	-35.68	peak
5	2443.000	50.55	-7.65	42.90	/	/	fundamental
6	2978.000	43.09	-5.34	37.75	74.00	-36.25	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 then spurious frequency bands and the authorized band was not corrected for BRF losses.
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.



HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)

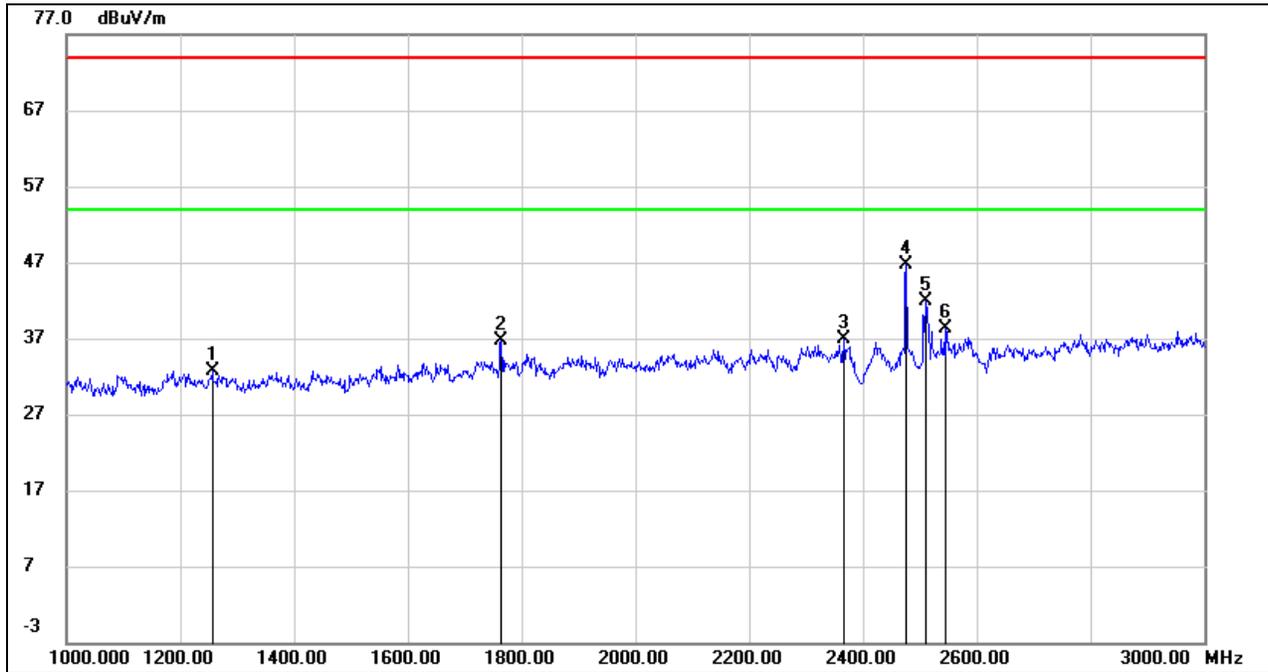


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1270.000	45.94	-12.68	33.26	74.00	-40.74	peak
2	1724.000	45.01	-10.87	34.14	74.00	-39.86	peak
3	2146.000	44.72	-9.08	35.64	74.00	-38.36	peak
4	2443.000	50.77	-7.66	43.11	/	/	fundamental
5	2514.000	45.38	-7.31	38.07	74.00	-35.93	peak
6	2872.000	42.94	-5.67	37.27	74.00	-36.73	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. Filter losses were only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.



HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)

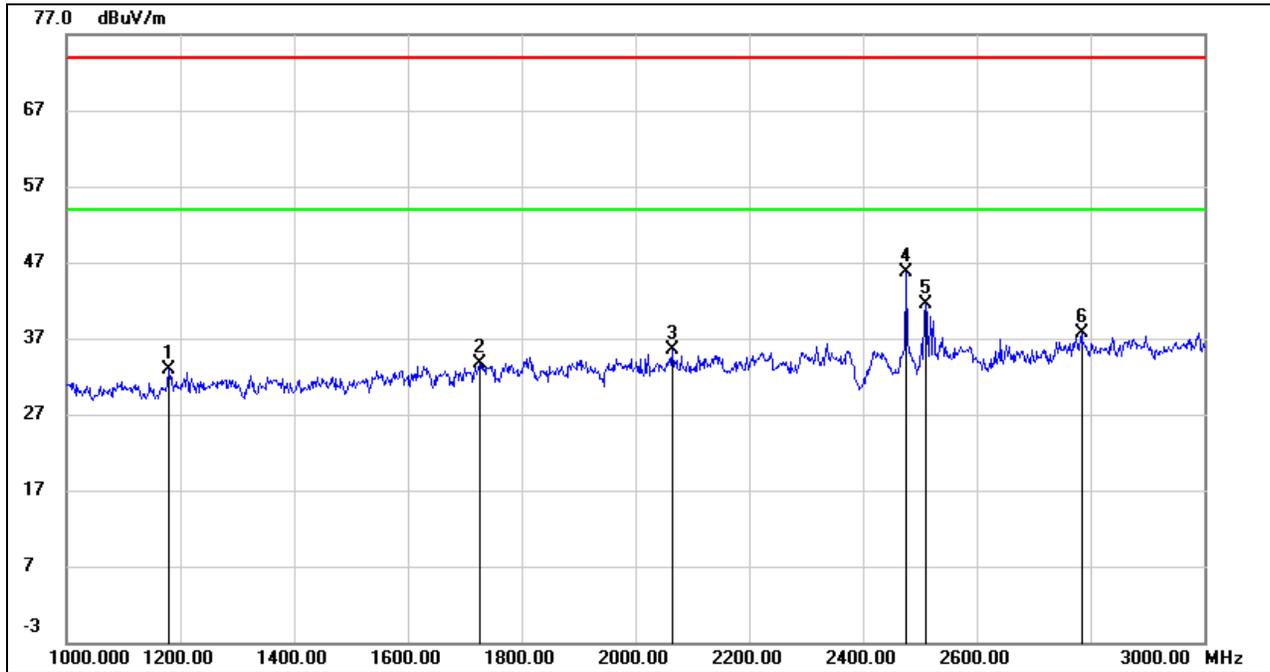


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1256.000	45.52	-12.73	32.79	74.00	-41.21	peak
2	1764.000	47.15	-10.48	36.67	74.00	-37.33	peak
3	2366.000	45.04	-8.07	36.97	74.00	-37.03	peak
4	2475.000	54.20	-7.41	46.79	/	/	fundamental
5	2510.000	49.11	-7.29	41.82	74.00	-32.18	peak
6	2544.000	45.78	-7.47	38.31	74.00	-35.69	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 then spurious frequency bands and the authorized band was not corrected for BRF losses.
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.



HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



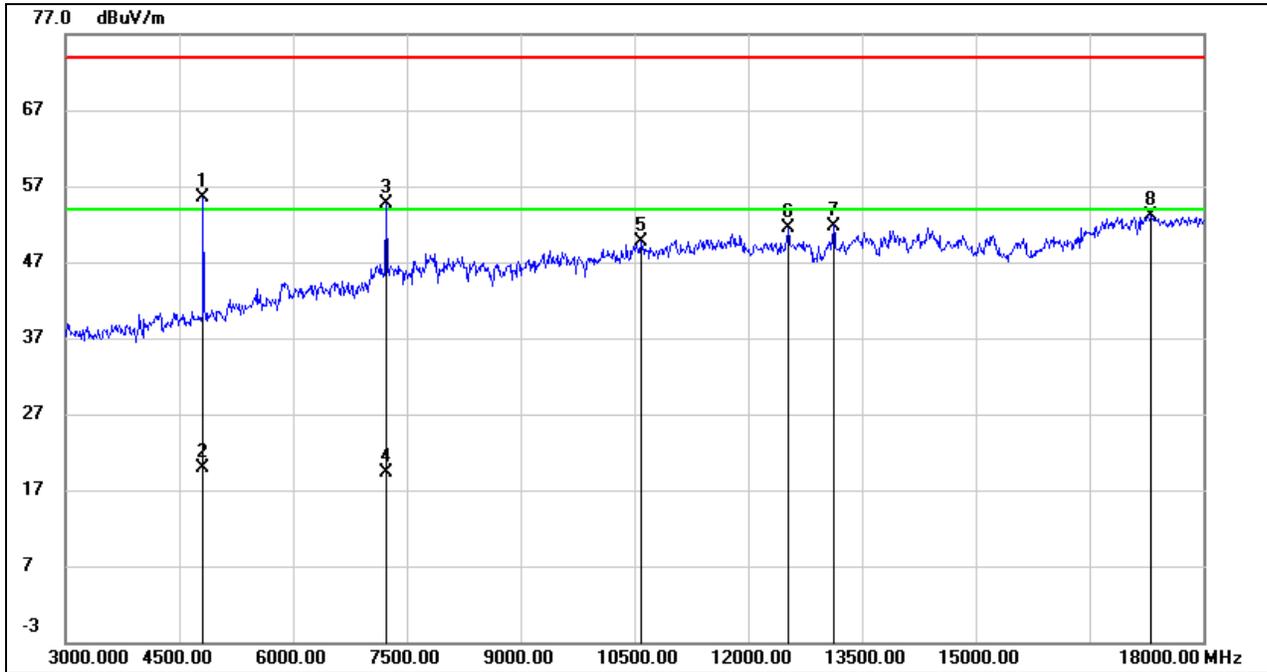
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1180.000	46.01	-13.10	32.91	74.00	-41.09	peak
2	1726.000	44.47	-10.85	33.62	74.00	-40.38	peak
3	2064.000	45.12	-9.55	35.57	74.00	-38.43	peak
4	2475.000	53.05	-7.41	45.64	/	/	fundamental
5	2510.000	48.73	-7.29	41.44	74.00	-32.56	peak
6	2784.000	44.01	-6.26	37.75	74.00	-36.25	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 then spurious frequency bands and the authorized band was not corrected for BRF losses.
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.



7.4. SPURIOUS EMISSIONS (3~18GHz)

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)

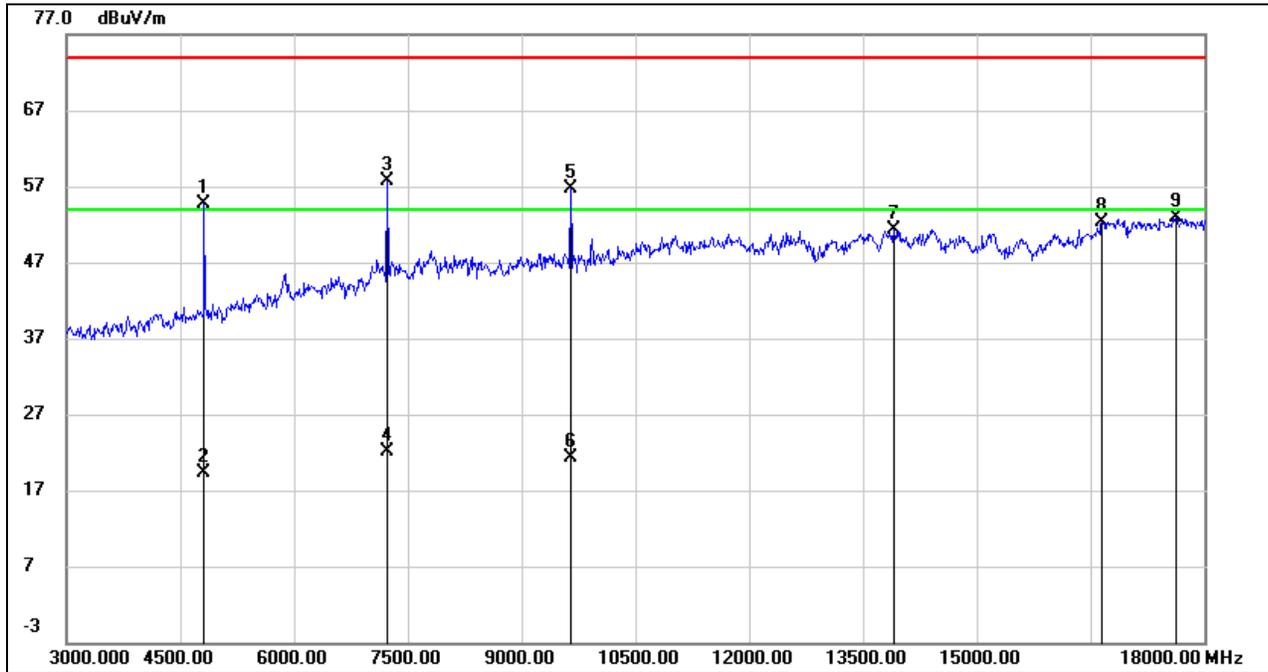


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4815.000	55.53	-0.10	55.43	74.00	-18.57	peak
2	4815.000	20.04	-0.10	19.94	54.00	-34.06	AVG
3	7230.000	47.66	7.13	54.79	74.00	-19.21	peak
4	7230.000	12.17	7.13	19.30	54.00	-34.70	AVG
5	10590.000	36.82	12.83	49.65	74.00	-24.35	peak
6	12525.000	36.43	14.98	51.41	74.00	-22.59	peak
7	13125.000	36.52	15.28	51.80	74.00	-22.20	peak
8	17310.000	31.08	22.01	53.09	74.00	-20.91	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. AVG Result=Peak Result + Duty Cycle Correction Factor.
 5. For the Duty Cycle and Correction Factor, please refer to clause 6.1.
 6. High pass filter was only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.



HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)

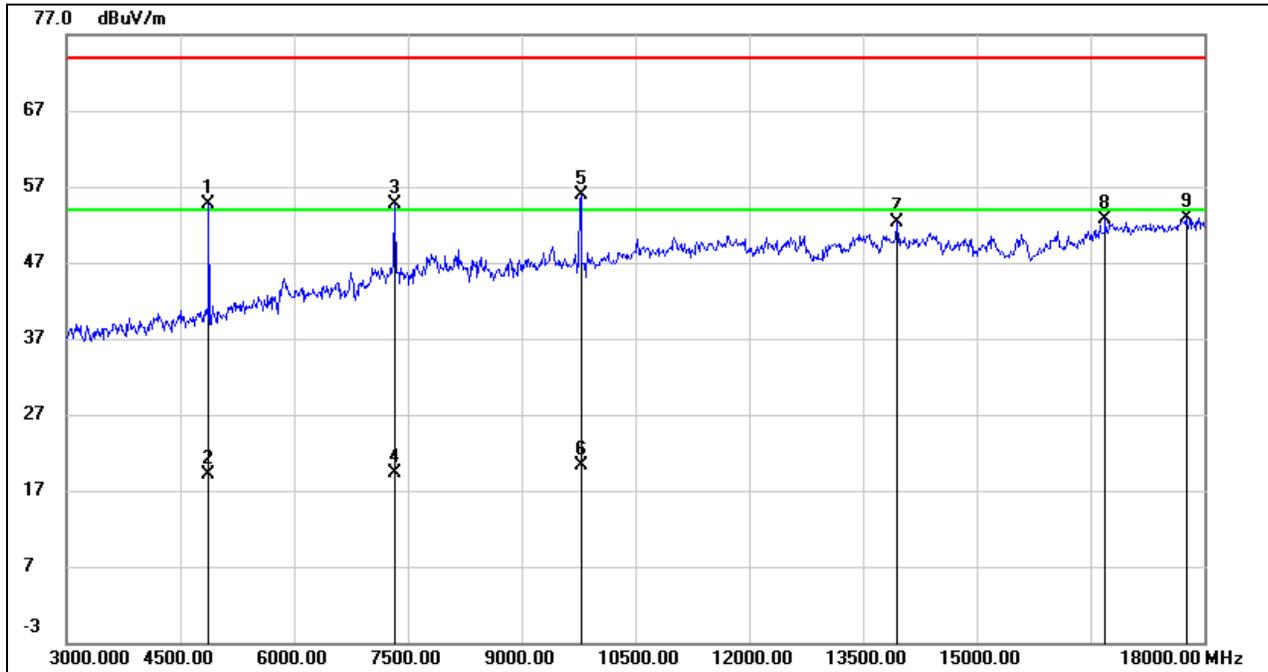


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4815.000	54.81	-0.10	54.71	74.00	-19.29	peak
2	4815.000	19.32	-0.10	19.22	54.00	-34.78	AVG
3	7230.000	50.51	7.13	57.64	74.00	-16.36	peak
4	7230.000	15.02	7.13	22.15	54.00	-31.85	AVG
5	9645.000	46.12	10.61	56.73	74.00	-17.27	peak
6	9645.000	10.63	10.61	21.24	54.00	-32.76	AVG
7	13905.000	34.57	16.76	51.33	74.00	-22.67	peak
8	16650.000	32.28	19.97	52.25	74.00	-21.75	peak
9	17625.000	30.87	22.08	52.95	74.00	-21.05	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. AVG Result=Peak Result + Duty Cycle Correction Factor.
 5. For the Duty Cycle and Correction Factor, please refer to clause 6.1.
 6. High pass filter was only considered in then spurious frequency bands and the authorized band was not corrected for BRf losses.
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.



HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, HORIZONTAL)

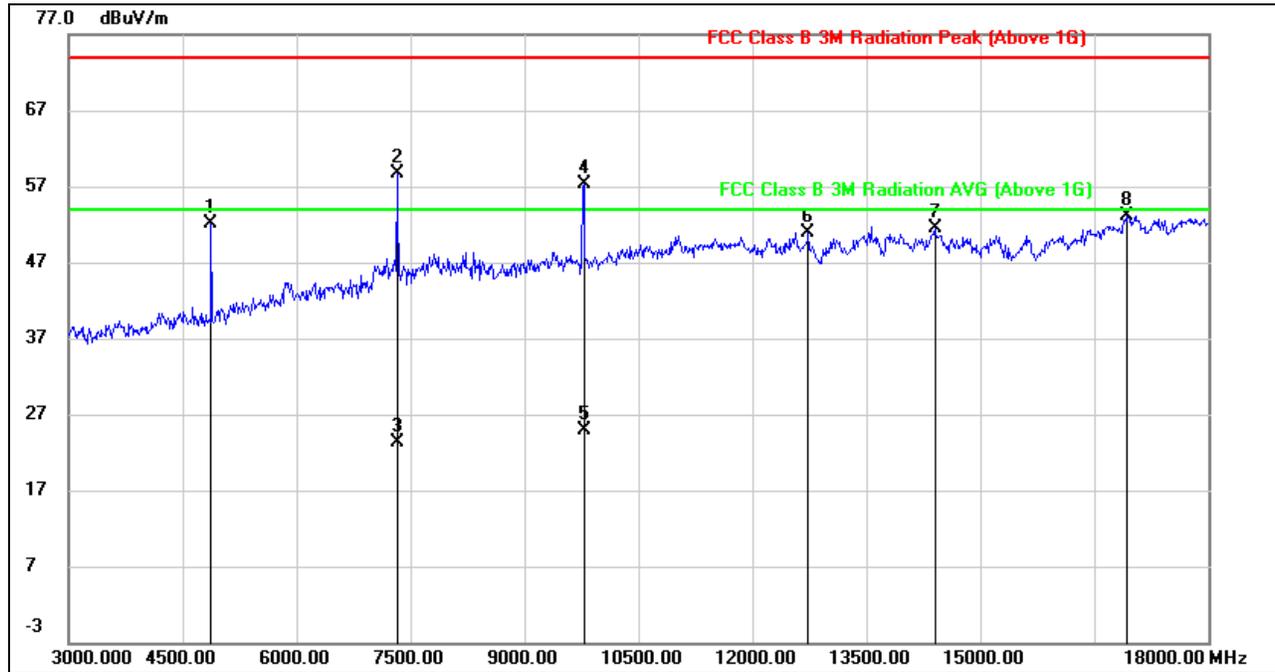


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4875.000	54.55	0.10	54.65	74.00	-19.35	peak
2	4875.000	19.06	0.10	19.16	54.00	-34.84	AVG
3	7320.000	47.28	7.42	54.70	74.00	-19.30	peak
4	7320.000	11.79	7.42	19.21	54.00	-34.79	AVG
5	9780.000	45.23	10.62	55.85	74.00	-18.15	peak
6	9780.000	9.74	10.62	20.36	54.00	-33.64	AVG
7	13950.000	35.61	16.69	52.30	74.00	-21.70	peak
8	16695.000	32.53	20.21	52.74	74.00	-21.26	peak
9	17760.000	29.98	23.01	52.99	74.00	-21.01	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. AVG Result=Peak Result + Duty Cycle Correction Factor.
 5. For the Duty Cycle and Correction Factor, please refer to clause 6.1.
 6. High pass filter was only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.



HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, VERTICAL)

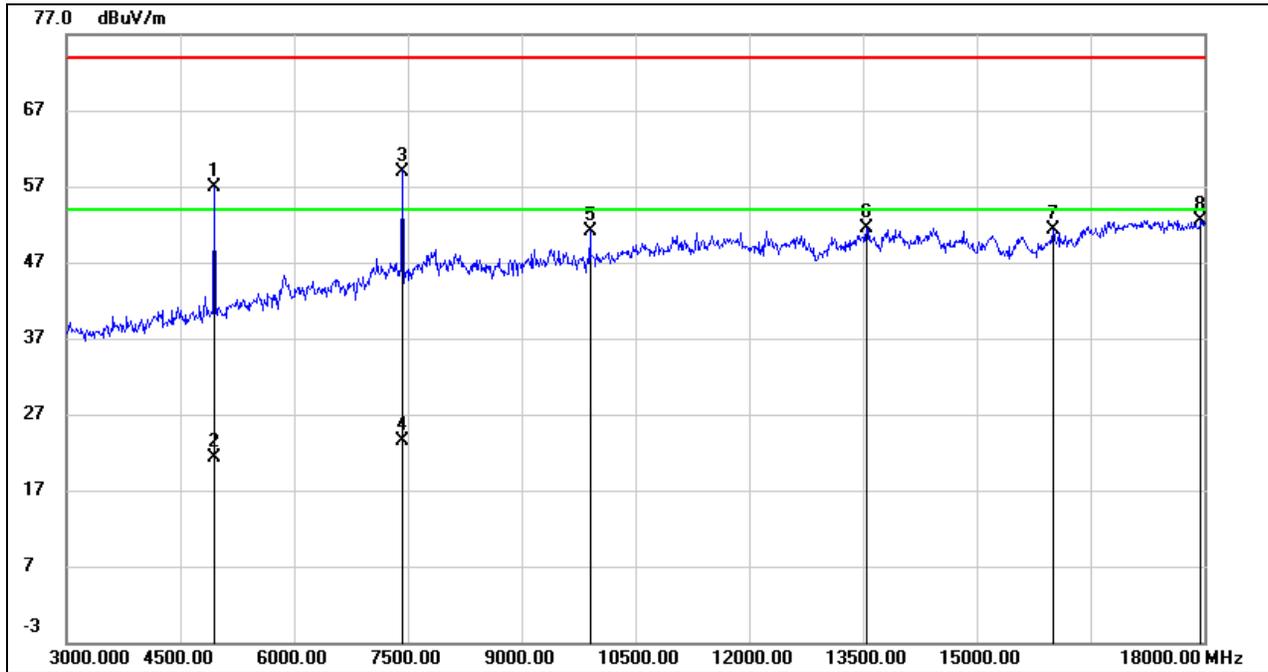


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4875.000	51.91	0.10	52.01	74.00	-21.99	peak
2	7320.000	51.29	7.42	58.71	74.00	-15.29	peak
3	7320.000	15.80	7.42	23.22	54.00	-30.78	AVG
4	9780.000	46.74	10.62	57.36	74.00	-16.64	peak
5	9780.000	14.25	10.62	21.87	54.00	-32.13	AVG
6	12735.000	35.78	15.10	50.88	74.00	-23.12	peak
7	14400.000	34.87	16.68	51.55	74.00	-22.45	peak
8	16920.000	32.70	20.46	53.16	74.00	-20.84	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. AVG Result=Peak Result + Duty Cycle Correction Factor.
 5. For the Duty Cycle and Correction Factor, please refer to clause 6.1.
 6. High pass filter was only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.



HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)

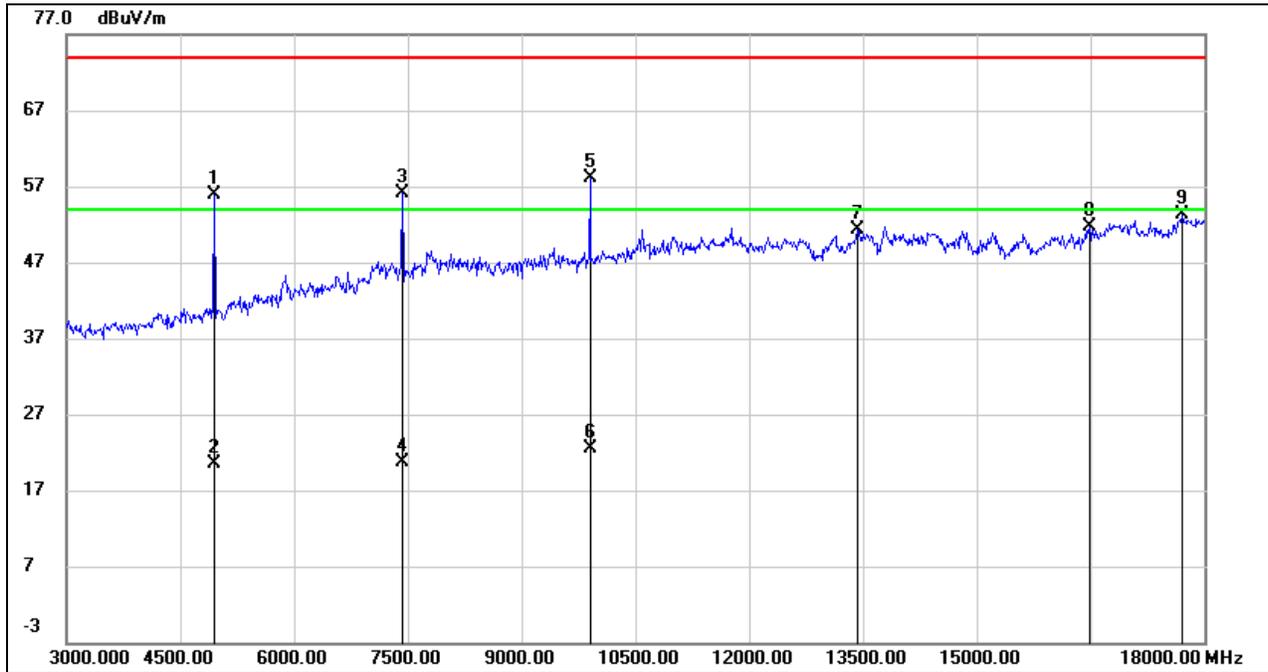


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4950.000	56.47	0.40	56.87	74.00	-17.13	peak
2	4950.000	20.98	0.40	21.38	54.00	-32.62	AVG
3	7425.000	51.29	7.71	59.00	74.00	-15.00	peak
4	7425.000	15.80	7.71	23.51	54.00	-30.49	AVG
5	9900.000	40.18	10.95	51.13	74.00	-22.87	peak
6	13545.000	35.20	16.24	51.44	74.00	-22.56	peak
7	16005.000	33.62	17.63	51.25	74.00	-22.75	peak
8	17955.000	29.21	23.38	52.59	74.00	-21.41	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. AVG Result=Peak Result + Duty Cycle Correction Factor.
 5. For the Duty Cycle and Correction Factor, please refer to clause 6.1.
 6. High pass filter was only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.



HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)



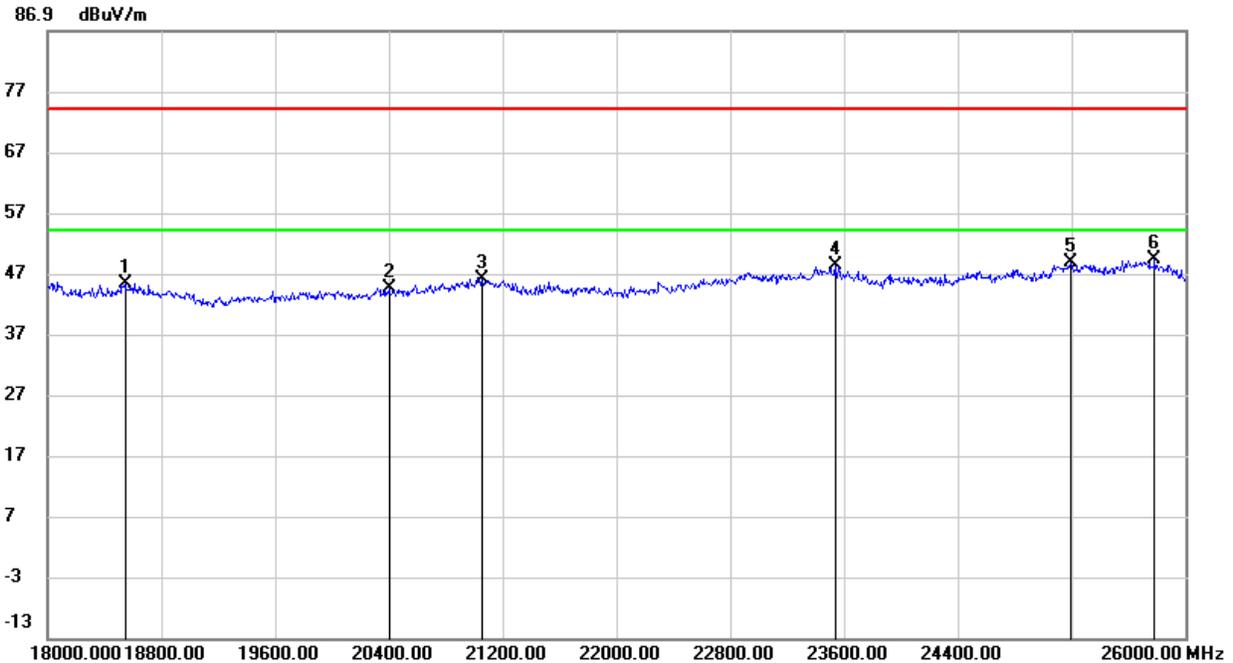
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4950.000	55.51	0.40	55.91	74.00	-18.09	peak
2	4950.000	20.02	0.40	20.42	54.00	-33.58	AVG
3	7425.000	48.39	7.71	56.10	74.00	-17.90	peak
4	7425.000	12.90	7.71	20.61	54.00	-33.39	AVG
5	9900.000	47.11	10.95	58.06	74.00	-15.94	peak
6	9900.000	11.62	10.95	22.57	54.00	-31.43	AVG
7	13425.000	34.97	16.31	51.28	74.00	-22.72	peak
8	16485.000	32.46	19.30	51.76	74.00	-22.24	peak
9	17715.000	30.57	22.65	53.22	74.00	-20.78	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. AVG Result=Peak Result + Duty Cycle Correction Factor.
 5. For the Duty Cycle and Correction Factor, please refer to clause 6.1.
 6. High pass filter was only considered in then spurious frequency bands and the authorized band was not corrected for BRF losses.
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.



7.5. SPURIOUS EMISSIONS (18~26GHz)

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

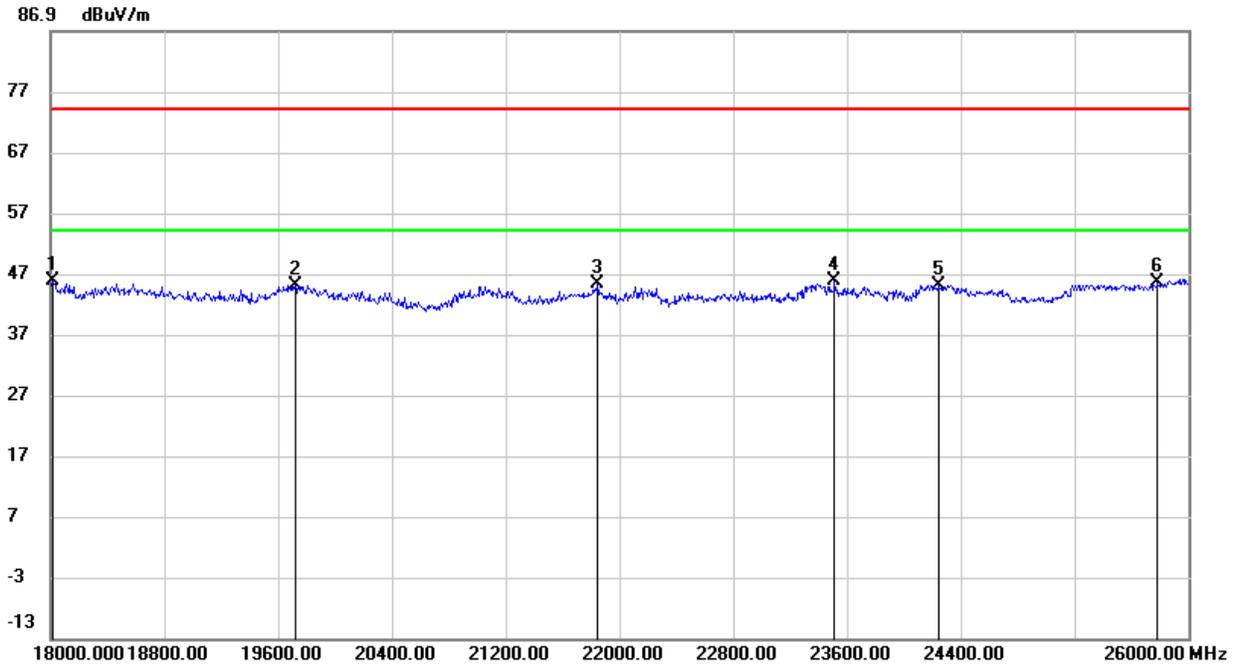


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18544.000	49.76	-4.46	45.30	74.00	-28.70	peak
2	20400.000	49.46	-4.93	44.53	74.00	-29.47	peak
3	21056.000	51.32	-5.33	45.99	74.00	-28.01	peak
4	23536.000	52.96	-4.74	48.22	74.00	-25.78	peak
5	25192.000	49.99	-1.16	48.83	74.00	-25.17	peak
6	25784.000	50.73	-1.49	49.24	74.00	-24.76	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.



HARMONICS AND 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	18016.000	49.58	-3.90	45.68	74.00	-28.32	peak
2	19720.000	49.50	-4.39	45.11	74.00	-28.89	peak
3	21848.000	51.26	-5.95	45.31	74.00	-28.69	peak
4	23512.000	50.51	-4.76	45.75	74.00	-28.25	peak
5	24240.000	48.75	-3.61	45.14	74.00	-28.86	peak
6	25784.000	47.08	-1.49	45.59	74.00	-28.41	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.

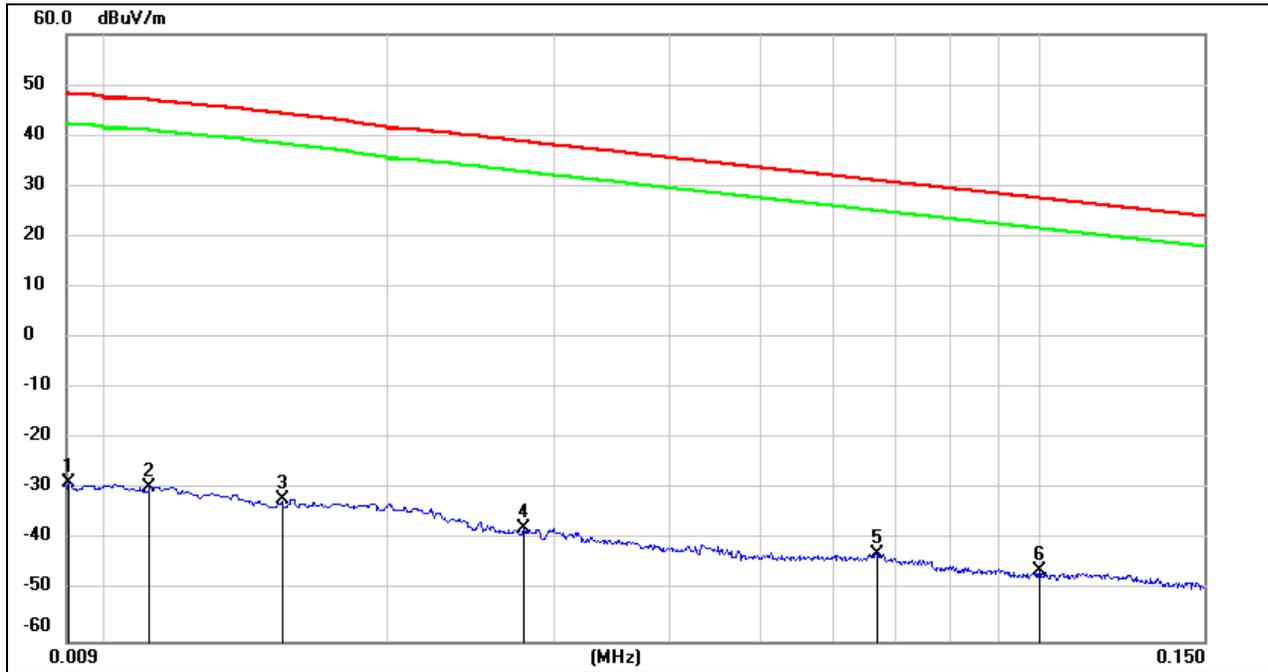
Note: All test mode has been tested, only the worst data record in the report.



7.6. SPURIOUS EMISSIONS BELOW 30M

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

9kHz~150kHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0091	72.79	-101.33	-28.54	48.29	-76.83	peak
2	0.0111	71.95	-101.39	-29.44	46.94	-76.38	peak
3	0.0154	69.44	-101.37	-31.93	44.35	-76.28	peak
4	0.0279	63.67	-101.38	-37.71	38.80	-76.51	peak
5	0.0666	58.93	-101.55	-42.62	31.16	-73.78	peak
6	0.1000	55.67	-101.80	-46.13	27.60	-73.73	peak

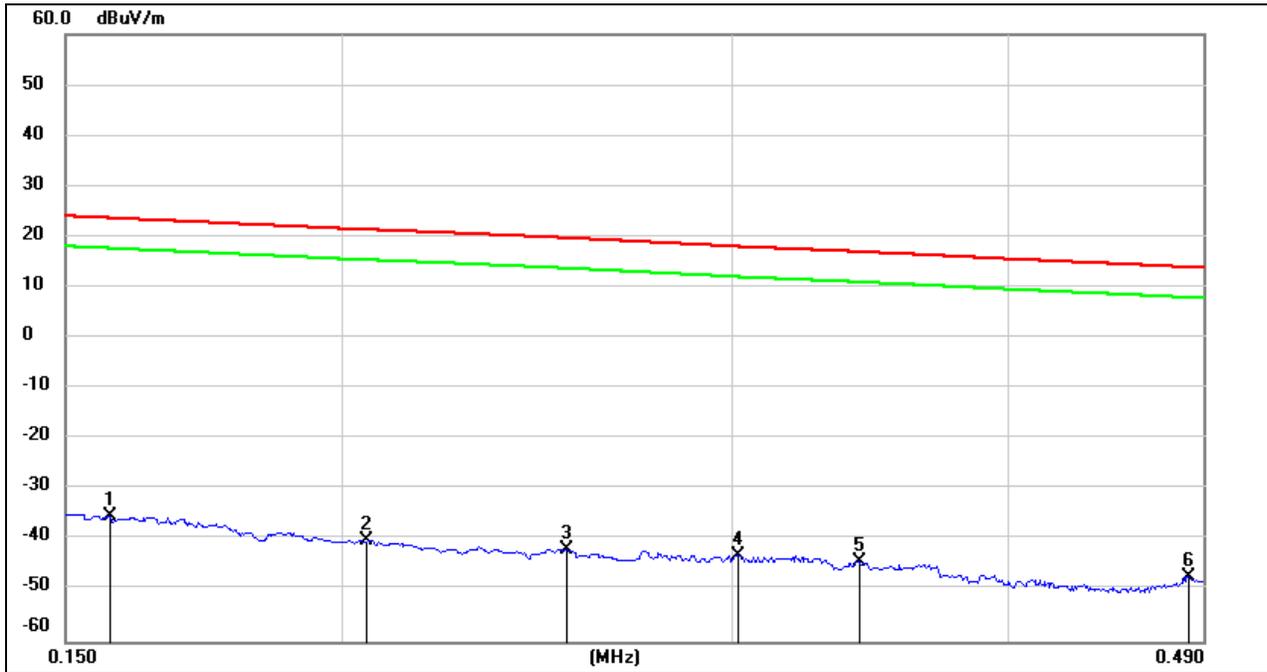
Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

3. 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.



150kHz ~ 490kHz

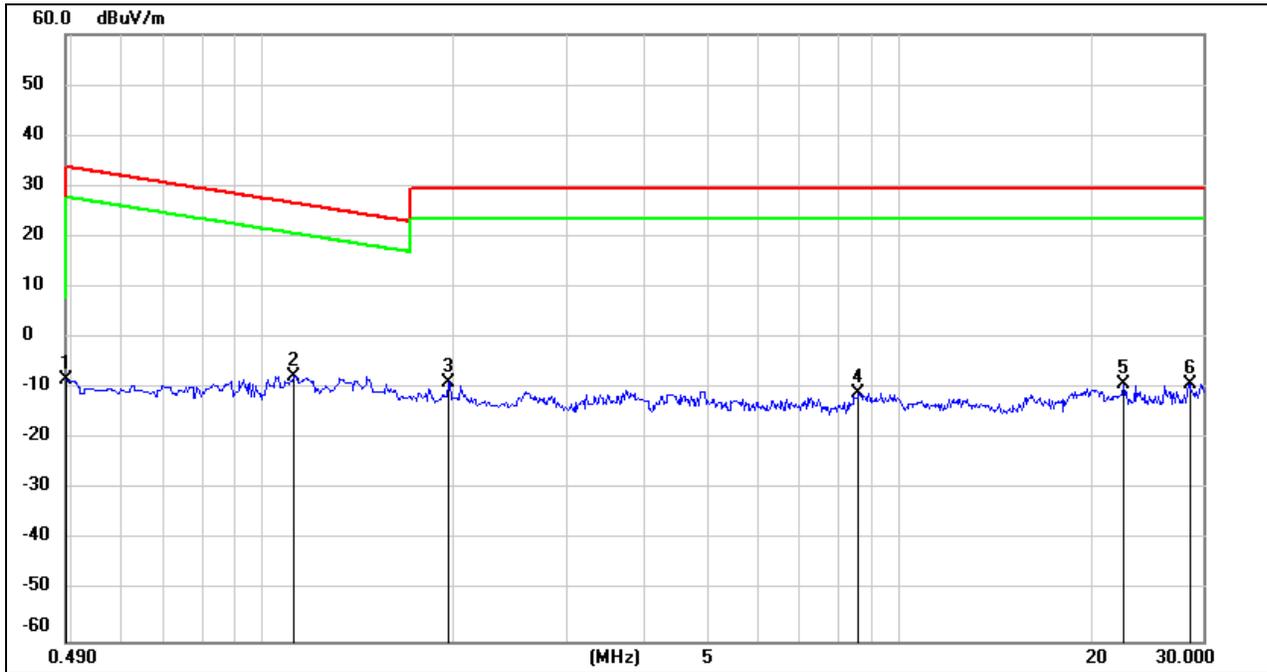


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1570	66.53	-101.65	-35.12	23.69	-58.81	peak
2	0.2053	61.79	-101.73	-39.94	21.39	-61.33	peak
3	0.2530	60.09	-101.80	-41.71	19.71	-61.42	peak
4	0.3019	58.93	-101.85	-42.92	18.01	-60.93	peak
5	0.3427	57.58	-101.90	-44.32	16.99	-61.31	peak
6	0.4823	54.69	-102.04	-47.35	13.95	-61.30	peak

Note: 1. Measurement = Reading Level + Correct Factor.
 2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
 3. 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.



490kHz ~ 30MHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.4900	53.72	-62.06	-8.34	13.80	-22.14	peak
2	1.1153	54.72	-62.22	-7.50	26.66	-34.16	peak
3	1.9521	53.11	-61.84	-8.73	29.54	-38.27	peak
4	8.6348	50.10	-60.99	-10.89	29.54	-40.43	peak
5	22.5045	51.38	-60.64	-9.26	29.54	-38.80	peak
6	28.6128	50.87	-60.10	-9.23	29.54	-38.77	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

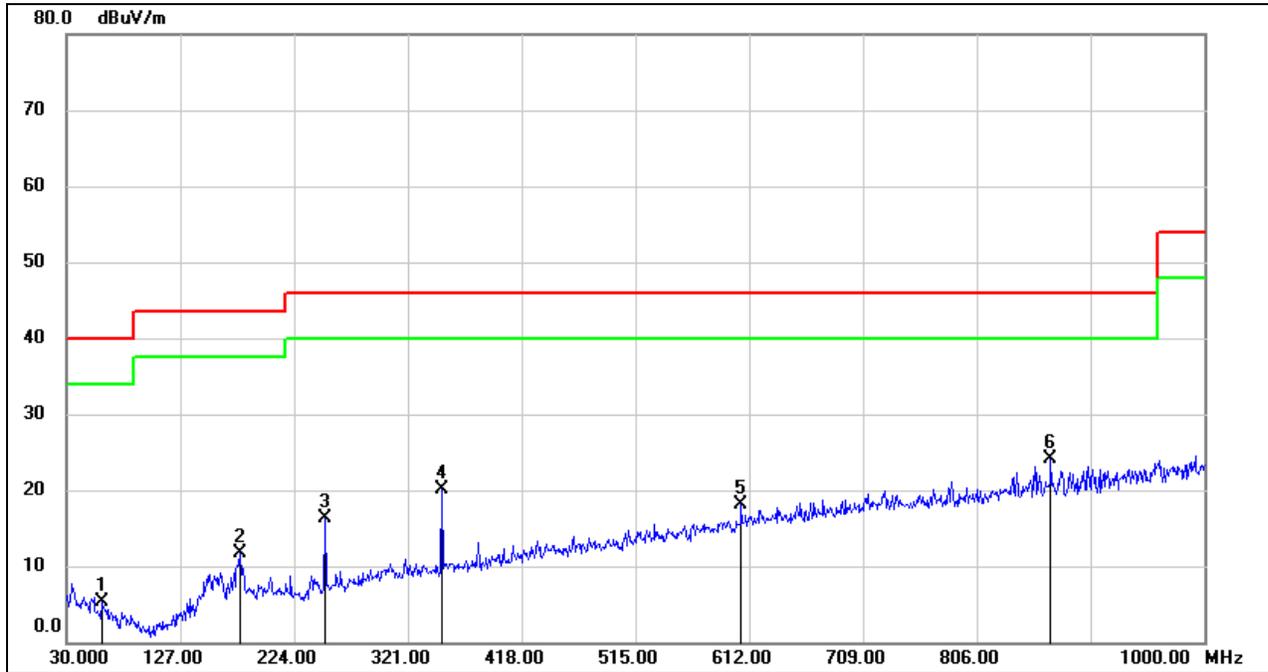
3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

Note: All the modes have been tested, only the worst data record in the report.



7.7. SPURIOUS EMISSIONS 30MHz - 1GHz

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

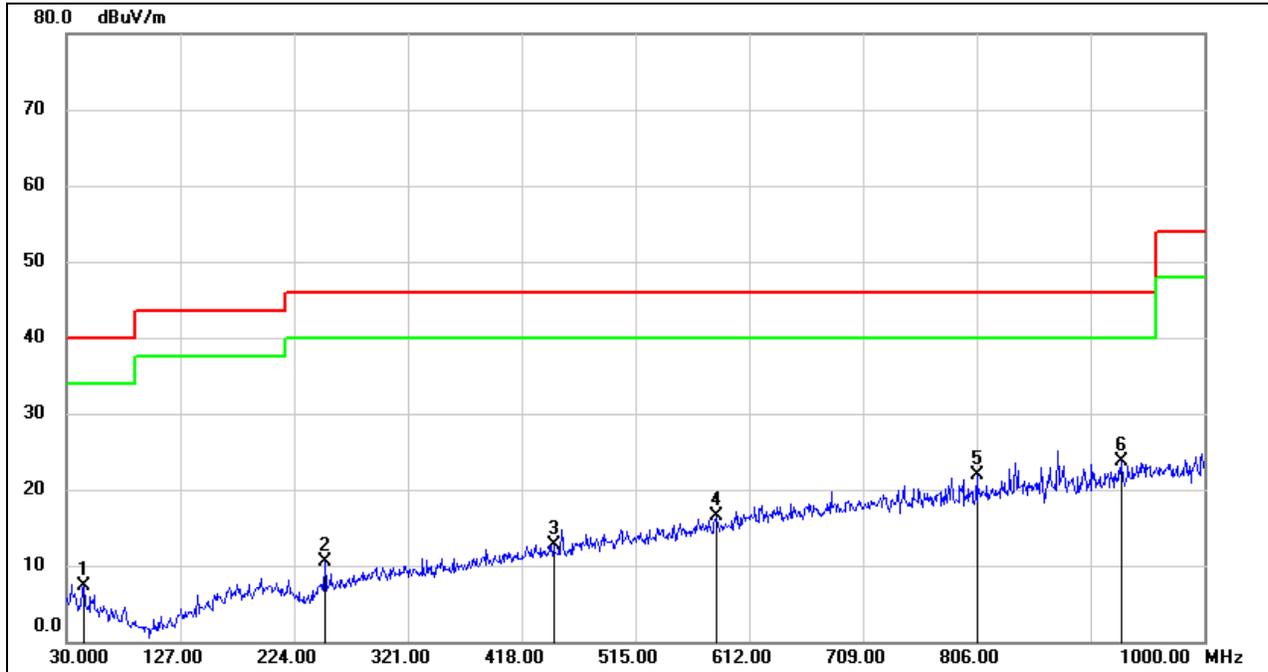


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	60.0700	24.70	-19.46	5.24	40.00	-34.76	QP
2	177.4400	28.79	-17.03	11.76	43.50	-31.74	QP
3	250.1900	32.41	-16.12	16.29	46.00	-29.71	QP
4	350.1000	33.34	-13.16	20.18	46.00	-25.82	QP
5	605.2100	26.50	-8.35	18.15	46.00	-27.85	QP
6	869.0500	28.54	-4.47	24.07	46.00	-21.93	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.



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	44.5500	25.28	-18.05	7.23	40.00	-32.77	QP
2	250.1900	26.58	-16.12	10.46	46.00	-35.54	QP
3	445.1600	24.25	-11.50	12.75	46.00	-33.25	QP
4	583.8700	25.24	-8.68	16.56	46.00	-29.44	QP
5	806.0000	27.20	-5.26	21.94	46.00	-24.06	QP
6	929.1900	27.37	-3.68	23.69	46.00	-22.31	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 test mode has been tested, only the worst data record in the report.

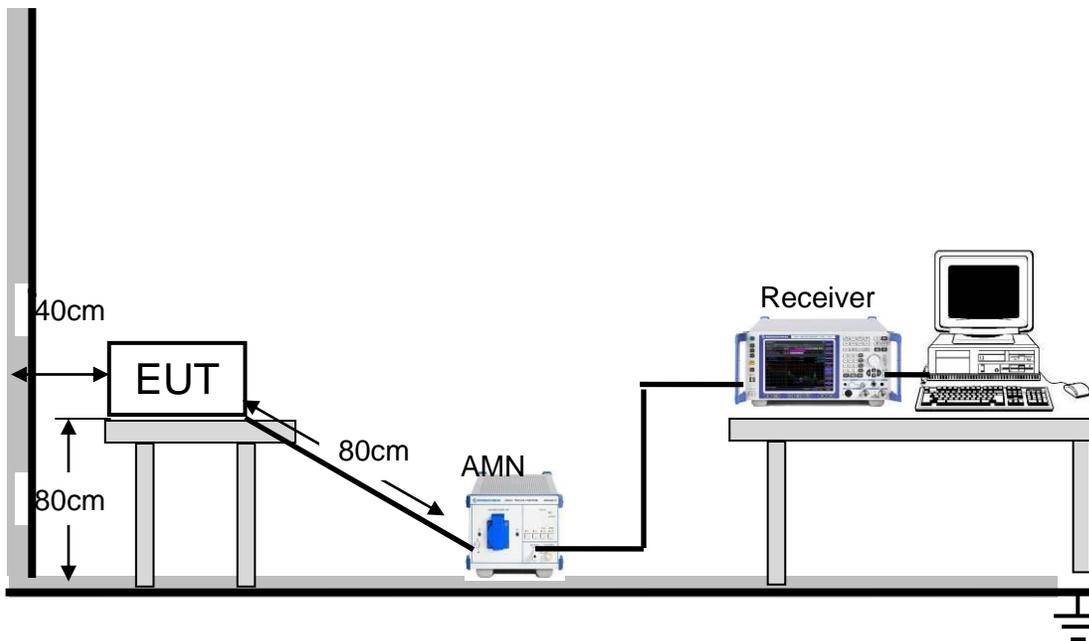
8. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

Please refer to CFR 47 FCC §15.207 (a) and ISED RSS-Gen Clause 8.8

FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

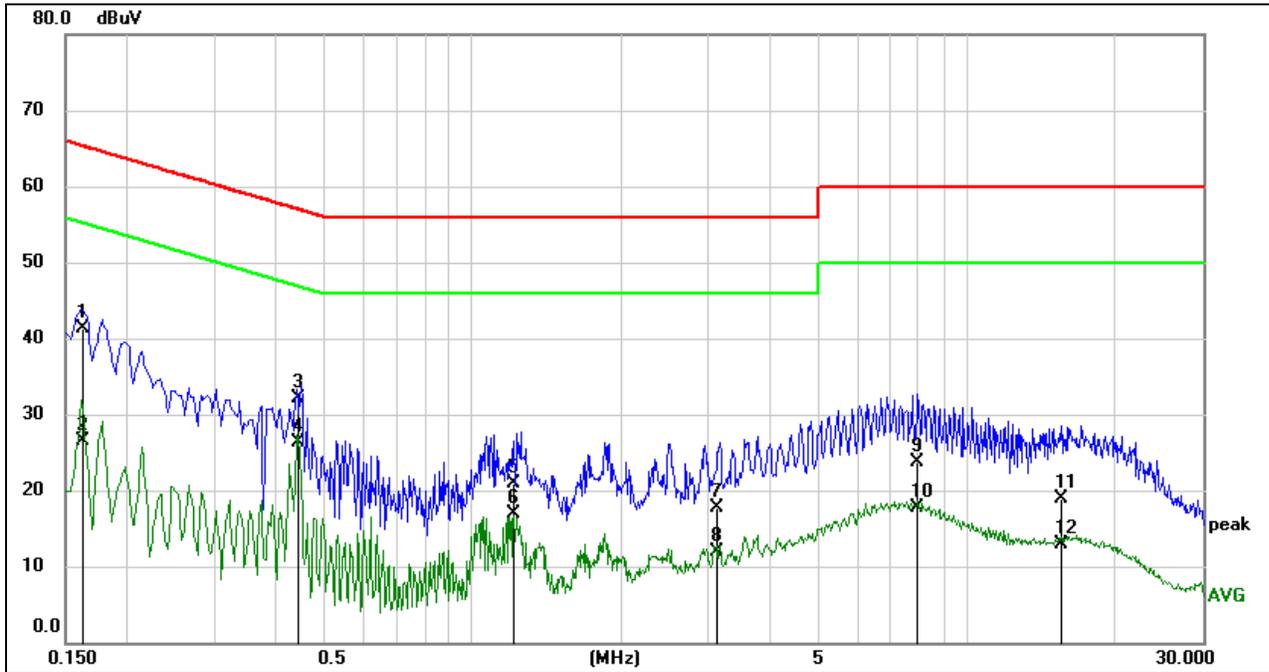
TEST SETUP AND PROCEDURE



The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9kHz. The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.



LINE L RESULTS (LOW CHANNEL, WORST-CASE CONFIGURATION)

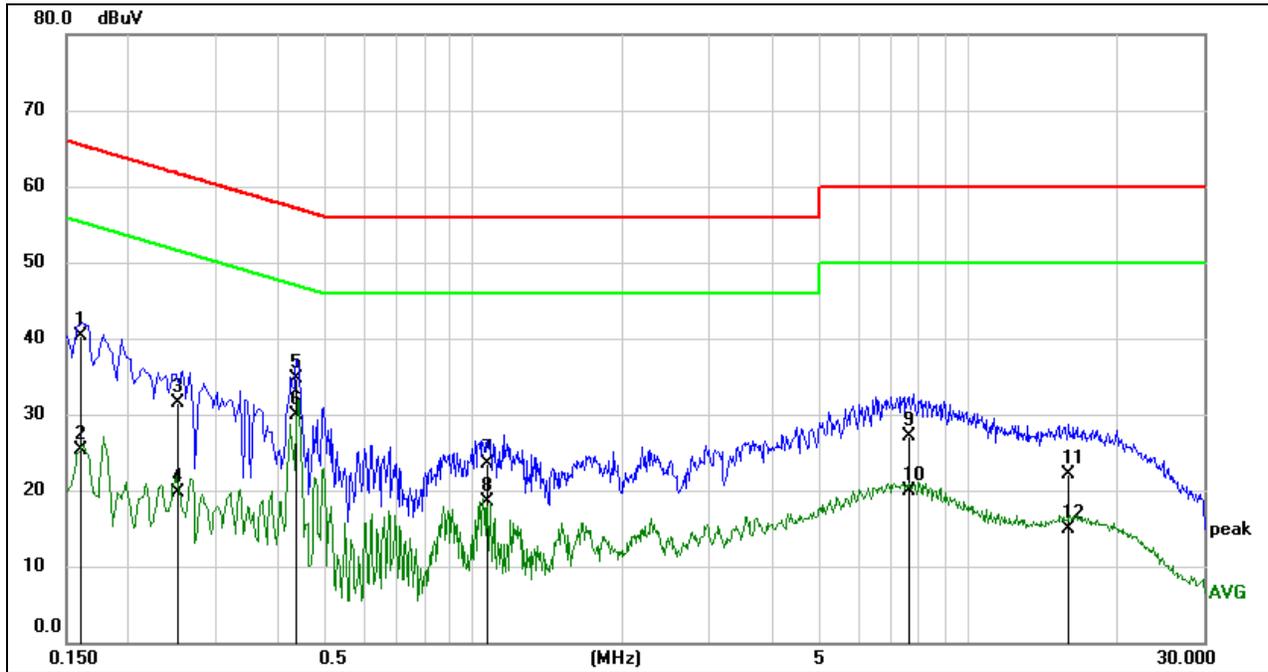


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1625	31.64	9.61	41.25	65.34	-24.09	QP
2	0.1625	16.97	9.61	26.58	55.34	-28.76	AVG
3	0.4456	22.59	9.60	32.19	56.96	-24.77	QP
4	0.4456	16.77	9.60	26.37	46.96	-20.59	AVG
5	1.2085	11.34	9.61	20.95	56.00	-35.05	QP
6	1.2085	7.23	9.61	16.84	46.00	-29.16	AVG
7	3.1182	8.04	9.64	17.68	56.00	-38.32	QP
8	3.1182	2.30	9.64	11.94	46.00	-34.06	AVG
9	7.9371	14.02	9.72	23.74	60.00	-36.26	QP
10	7.9371	7.94	9.72	17.66	50.00	-32.34	AVG
11	15.5100	9.03	9.88	18.91	60.00	-41.09	QP
12	15.5100	3.10	9.88	12.98	50.00	-37.02	AVG

- Note: 1. Result = Reading +Correct Factor.
 2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
 4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.



LINE N RESULTS (LOW CHANNEL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1597	30.64	9.60	40.24	65.48	-25.24	QP
2	0.1597	15.72	9.60	25.32	55.48	-30.16	AVG
3	0.2530	21.95	9.60	31.55	61.66	-30.11	QP
4	0.2530	10.17	9.60	19.77	51.66	-31.89	AVG
5	0.4391	25.06	9.60	34.66	57.08	-22.42	QP
6	0.4391	20.24	9.60	29.84	47.08	-17.24	AVG
7	1.0642	13.92	9.61	23.53	56.00	-32.47	QP
8	1.0642	8.92	9.61	18.53	46.00	-27.47	AVG
9	7.5520	17.34	9.72	27.06	60.00	-32.94	QP
10	7.5520	10.28	9.72	20.00	50.00	-30.00	AVG
11	15.9813	12.05	9.96	22.01	60.00	-37.99	QP
12	15.9813	5.03	9.96	14.99	50.00	-35.01	AVG

- Note: 1. Result = Reading +Correct Factor.
 2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
 3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
 4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

Note: All test mode has been tested, only the worst data record in the report



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