

CFR 47 FCC PART 15 SUBPART C

TEST REPORT

For

REMOTE CONTROL

MODEL NUMBER: ZNYK01-01, ZNYK01-02

REPORT NUMBER: 4790588962-RF-1

ISSUE DATE: March 21, 2023

FCC ID: 2BACM-ZNYK01

Prepared for

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Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	March 21, 2023	Initial Issue	

Summary of Test Results			
Clause	Test Items	FCC Rules	Test Results
1	20dB Bandwidth and 99% Occupied Bandwidth	CFR 47 FCC §15.215 (c)	Pass
2	Radiated Emission	CFR 47 FCC §15.249 (a)(d)(e) CFR 47 FCC §15.205 and §15.209	Pass
3	Conducted Emission Test for AC Power Port	CFR 47 FCC §15.207	Not Applicable (Note 2)
4	Antenna Requirement	CFR 47 FCC §15.203	Pass

Note 1: This test report is only published to and used by the applicant, and it is not for evidence purpose in China.
 Note 2: The EUT is powered by battery.
 Note 3: The measurement result for the sample received is <Pass> according to < CFR 47 FCC PART 15 SUBPART C> when <Accuracy Method> decision rule is applied.

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: XIAMEN OLT CO.,LTD.
Address: Room 501, Building 1, No. 950, Tonglong 2nd Road, Xiamen Torch High-tech Zone (Xiang'an) Industrial Zone, Xiamen City, China.

Manufacturer Information

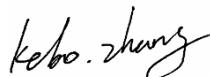
Company Name: XIAMEN OLT CO.,LTD.
Address: Room 501, Building 1, No. 950, Tonglong 2nd Road, Xiamen Torch High-tech Zone (Xiang'an) Industrial Zone, Xiamen City, China.

EUT Information

EUT Name: REMOTE CONTROL
Model: ZNYK01-01, ZNYK01-02
Model difference: Only the name and appearance are different.
Brand Name: TCK
Sample Received Date: March 15, 2023
Sample Status: Normal
Sample ID: 5883077
Date of Tested: March 15, 2023 to March 21, 2023

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

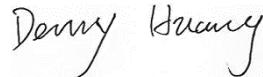
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2. TEST METHODOLOGY

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.

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.</p> <p>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, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, 523808, People's Republic of 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
Conduction emission	3.62 dB
Radiated Emission (Included Fundamental Emission) (9 kHz ~ 30 MHz)	2.2 dB
Radiated Emission (Included Fundamental Emission) (30 MHz ~ 1 GHz)	4.00 dB
Radiated Emission (Included Fundamental Emission) (1 GHz to 26 GHz)	5.78 dB (1 GHz ~ 18 GHz)
	5.23 dB (18 GHz ~ 26 GHz)
Duty Cycle	±0.028%
DTS and 99% Occupied Bandwidth	±0.0196%

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		REMOTE CONTROL					
Model:		ZNYK01-01, ZNYK01-02					
Model difference:		Only the name and appearance are different.					
Product Description	Operation Frequency			2408 MHz ~ 2479 MHz			
	Modulation Type			GFSK			
Battery	DC 3 V						

5.2. CHANNEL LIST

Channel	Frequency (MHz)						
1	2408	2	2443	3	2479	/	/

5.3. MAXIMUM FIELD STRENGTH

Test Mode	Frequency (MHz)	Channel Number	Max Peak field strength (dB μ V/m)
GFSK	2408 ~ 2479	1-3 [3]	75.84

5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel	Frequency
GFSK	CH 1(Low Channel), CH 2(MID Channel), CH 3(High Channel)	2408 MHz, 2443 MHz, 2479 MHz

5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter under 2408 MHz ~ 2479 MHz Band				
Test Software Version		/		
Modulation Type	Transmit Antenna Number	Test Channel		
		CH 1	CH 2	CH 3
GFSK	1	Default	Default	Default

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna	Frequency (MHz)	Antenna Type	Maximum Antenna Gain (dBi)
1	2408 ~ 2479	PCB Antenna	-0.85

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

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

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

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

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
/	/	/	/	/	/

ACCESSORY

Item	Equipment	Mfr/Brand	Model/Type No.	Specification	Series No.
/	/	/	/	/	/

TEST SETUP

The EUT have the engineer mode inside.

SETUP DIAGRAM FOR TEST



Note: New battery was used during all tests.

6. MEASURING EQUIPMENT AND SOFTWARE USED

Tonsend RF Test System					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
Wireless Connectivity Tester	R&S	CMW270	1201.0002N75-102	Sep.28, 2022	Sep.27, 2023
Attenuator	Agilent	8495B	2814a12853	Oct.18, 2022	Oct.17, 2023
Software					
Description	Manufacturer	Name		Version	
Tonsend SRD Test System	Tonsend	JS1120-3 RF Test System		2.6.77.0518	

Radiated Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Oct.17, 2022	Oct.16, 2023
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130959	Aug.02, 2021	Aug.01, 2024
Preamplifier	HP	8447D	2944A09099	Oct.17, 2022	Oct.16, 2023
EMI Measurement Receiver	R&S	ESR26	101377	Oct.17, 2022	Oct.16, 2023
Horn Antenna	TDK	HRN-0118	130940	July 20, 2021	July 19, 2024
Preamplifier	TDK	PA-02-0118	TRS-305-00067	Oct.17, 2022	Oct.16, 2023
Horn Antenna	Schwarzbeck	BBHA9170	697	July 20, 2021	July 19, 2024
Preamplifier	TDK	PA-02-2	TRS-307-00003	Oct.17, 2022	Oct.16, 2023
Preamplifier	TDK	PA-02-3	TRS-308-00002	Oct.17, 2022	Oct.16, 2023
Loop antenna	Schwarzbeck	1519B	00008	Dec.14, 2021	Dec.13, 2024
Preamplifier	TDK	PA-02-001-3000	TRS-302-00050	Oct.17, 2022	Oct.16, 2023
High Pass Filter	Wi	WHKX10-2700-3000-18000-40SS	23	/	/
Band Reject Filter	Wainwright	WRCJV8-2350-2400-2483.5-2533.5-40SS	4	/	/
Software					
Description	Manufacturer	Name		Version	
Test Software for Radiated Emissions	Farad	EZ-EMC		Ver. UL-3A1	

7. ANTENNA PORT TEST RESULTS

7.1. 20DB BANDWIDTH AND 99% OCCUPIED BANDWIDTH

LIMITS

CFR 47 FCC Part15 (15.249) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC §15.215 (c)	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

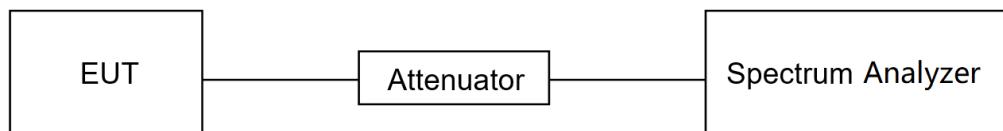
TEST PROCEDURE

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 3xRBW
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/99% relative to the maximum level measured in the fundamental emission.

TEST SETUP



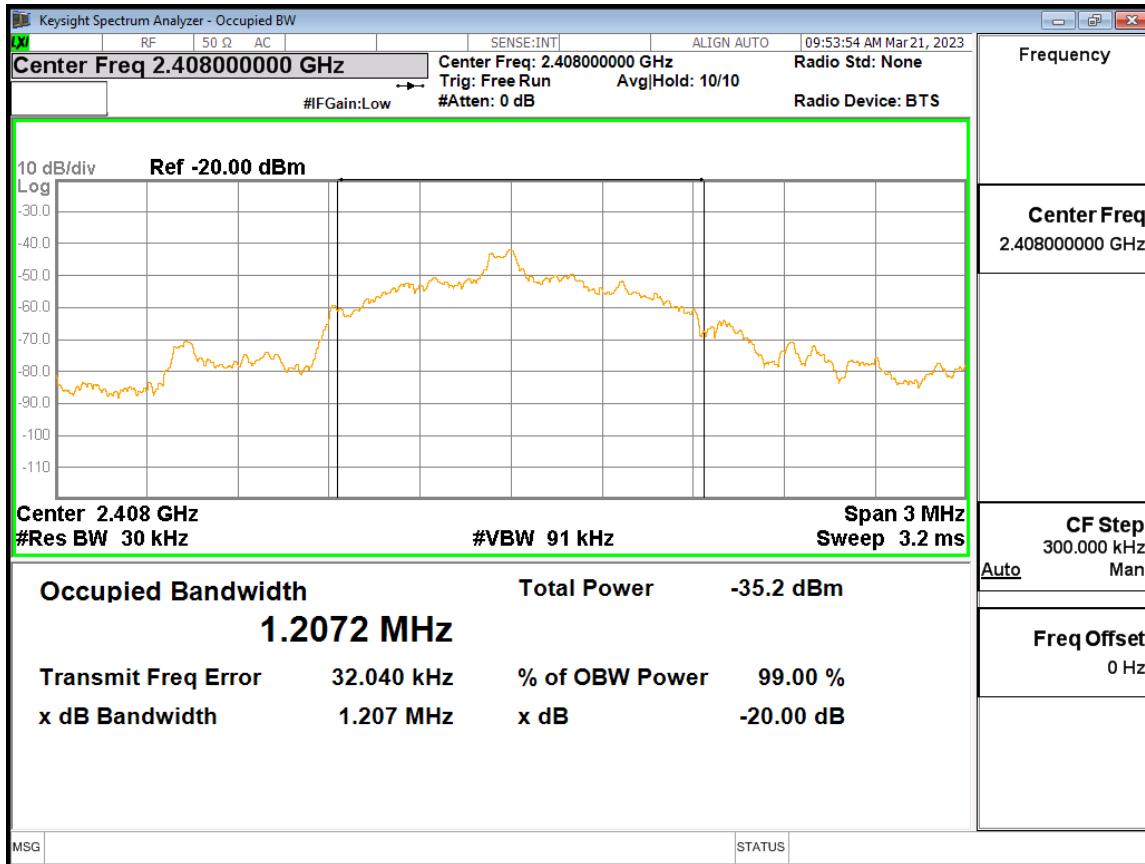
TEST ENVIRONMENT

Temperature	22.6 °C	Relative Humidity	53 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 3 V

TEST RESULTS

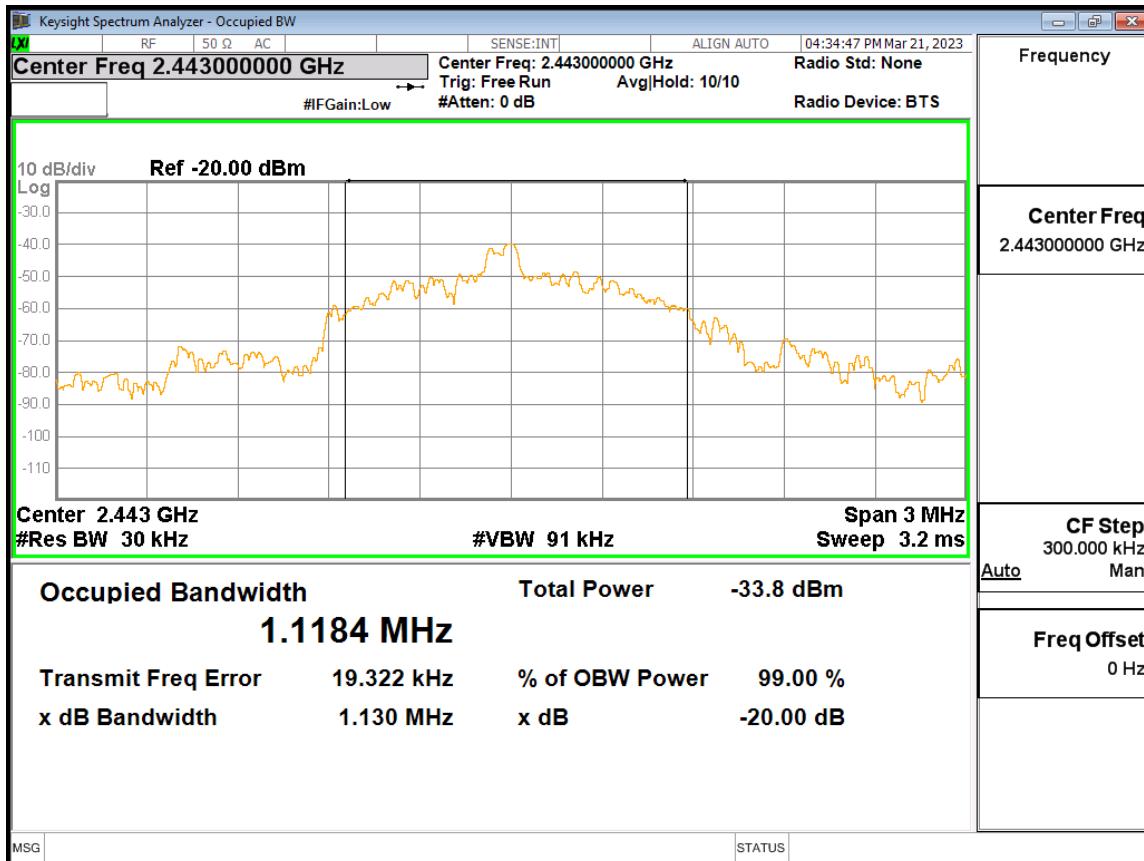
Frequency (MHz)	99% Bandwidth (MHz)	20dB Bandwidth (MHz)	Result
2408	1.2072	1.207	PASS

20 dB BANDWIDTH AND 99% OCCUPIED BANDWIDTH LOW CH



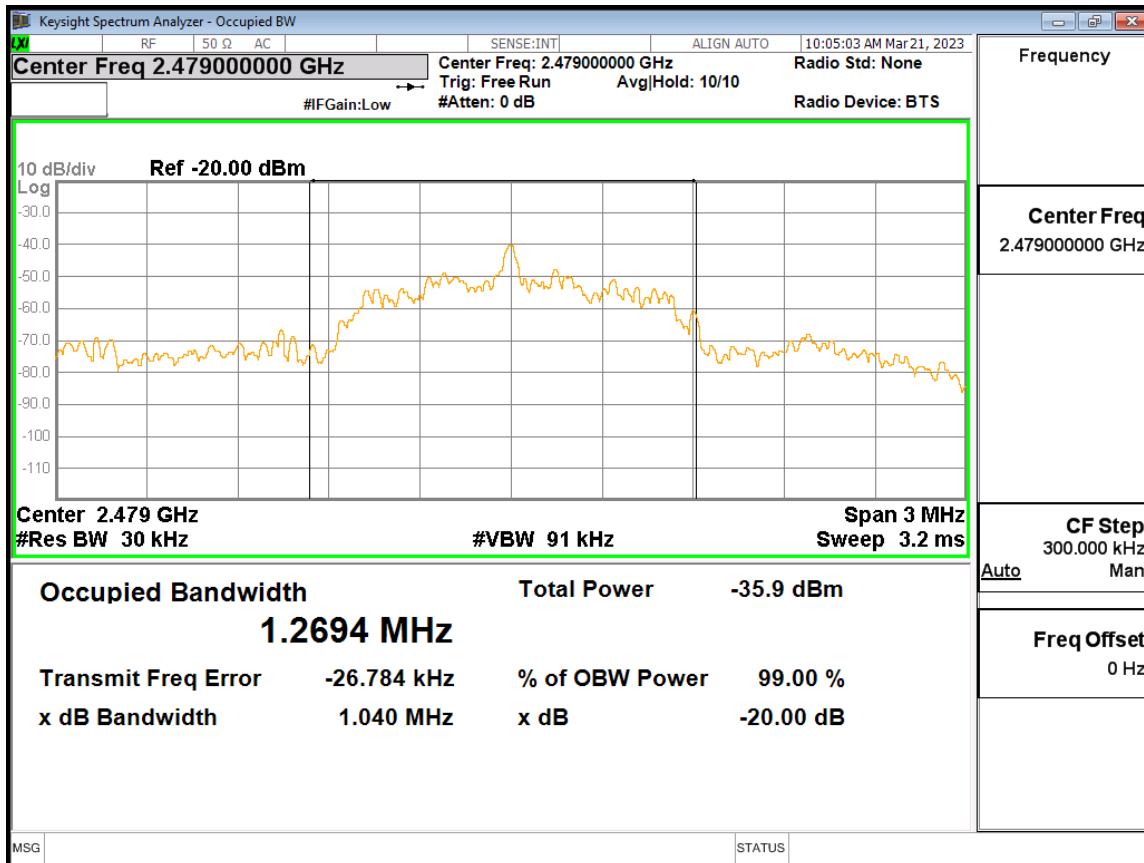
Frequency (MHz)	99% Bandwidth (MHz)	20dB Bandwidth (MHz)	Result
2443	1.1184	1.130	PASS

20 dB BANDWIDTH AND 99% OCCUPIED BANDWIDTH MIDDLE CH



Frequency (MHz)	20dB bandwidth (MHz)	99% bandwidth (MHz)	Result
2479	1.2694	1.040	PASS

20 dB BANDWIDTH AND 99% OCCUPIED BANDWIDTH HIGH CH



7.2. DUTY CYCLE

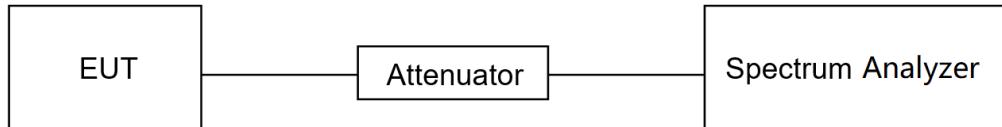
LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.6 Zero – Span Spectrum Analyzer method.

TEST SETUP



TEST ENVIRONMENT

Temperature	22.6 °C	Relative Humidity	53 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 3 V

TEST RESULTS

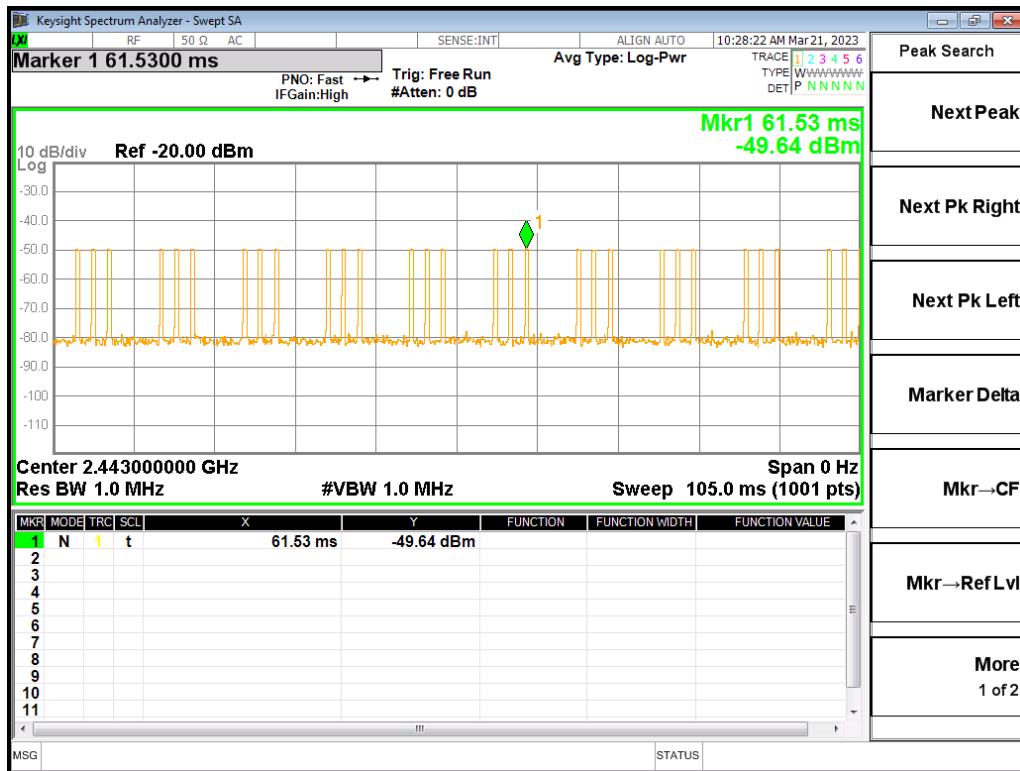
Mode	Burst (msec)	Number of Burst	On Time (msec)	Period (msec)	Duty Cycle \times (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (db)
GFSK	0.41	30	12.3	100	0.123	12.3	-18.20

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

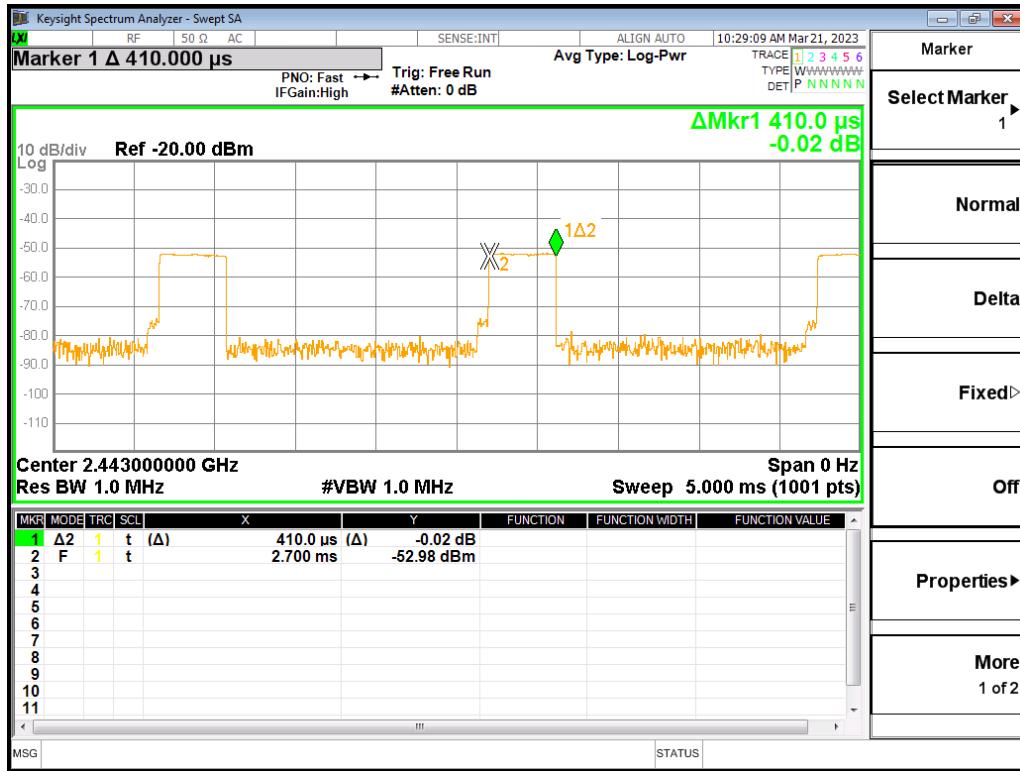
Where: x is Duty Cycle

On Time=Burst* Number of Burst

ON TIME AND DUTY CYCLE MID CH PLOT



ON TIME AND DUTY CYCLE MID CH PLOT-2



Note: All the modes had been tested, but only the worst duty cycle recorded in the report.

8. RADIATED TEST RESULTS

LIMITS

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

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

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

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

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

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

Note: ¹Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

²Above 38.6c

TEST PROCEDURE

Below 30 MHz

The setting of the spectrum analyzer

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

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.4.
2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 80 cm above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1 m height antenna tower.
5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz Radiated emission limits in these three bands are based on measurements employing an average detector.
6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak and average detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak and average detector and reported.

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

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 analyzer

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.

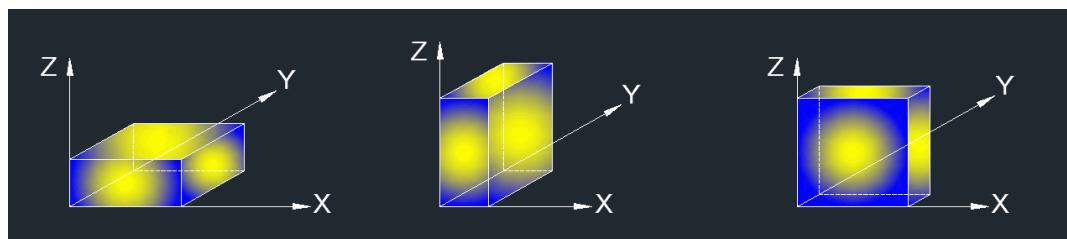
Above 1 GHz

The setting of the spectrum analyzer

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 (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 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 7.2. 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.

For Restricted Bandedge:

Note:

1. Measurement = Reading Level + Correct Factor.
2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.
3. Peak: Peak detector.
4. AVG Result=Peak Result + Duty Cycle Correction Factor.
5. For the transmitting duration, please refer to clause 7.2.
6. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.
7. Both horizontal and vertical have been tested, only the worst data was recorded in the report.
8. All modes and channels have been tested, only the worst data was recorded in the report.

For Radiate Spurious emission (9 kHz ~ 30 MHz):

Note:

1. Measurement = Reading Level + Correct Factor.
2. If the peak values are less than the QP limit, the QP result is deemed to comply with QP 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.
4. All modes and channels have been tested, only the worst data was recorded in the report.

For Radiate Spurious Emission (30 MHz ~ 1 GHz):

Note:

1. Result Level = Read Level + Correct Factor.
2. If the peak values are less than the QP limit, the QP result is deemed to comply with QP limit.
3. All modes and channels have been tested, only the worst data was recorded in the report.

For Radiate Spurious Emission (1 GHz ~ 3 GHz):

1. Measurement = Reading Level + Correct Factor.
2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.
3. Peak: Peak detector.
4. AVG Result=Peak Result + Duty Cycle Correction Factor.
5. For the transmitting duration, please refer to clause 7.2.
6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.
7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
8. All modes and channels have been tested, only the worst data was recorded in the report.

For Radiate Spurious Emission (3 GHz ~ 18 GHz):

Note:

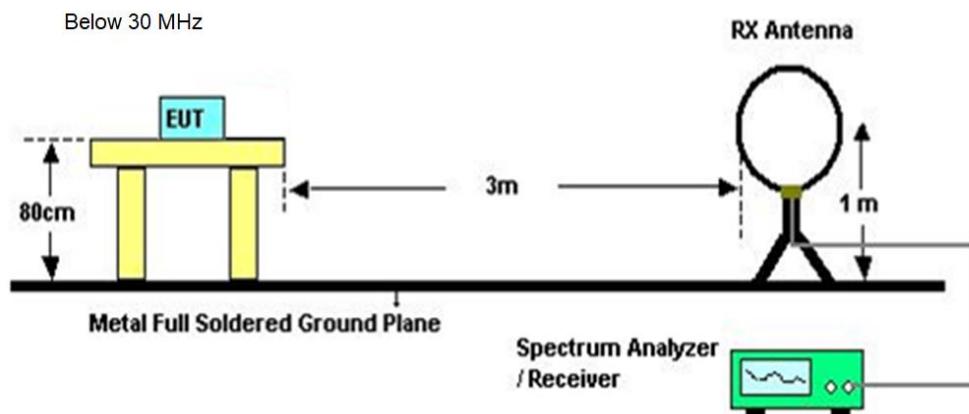
1. Peak Result = Reading Level + Correct Factor.
2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.
3. Peak: Peak detector.
4. AVG Result=Peak Result + Duty Cycle Correction Factor.
5. For the transmitting duration, please refer to clause 7.2.
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.
8. All modes and channels have been tested, only the worst data was recorded in the report.

For Radiate Spurious emission (18 GHz ~ 26 GHz):

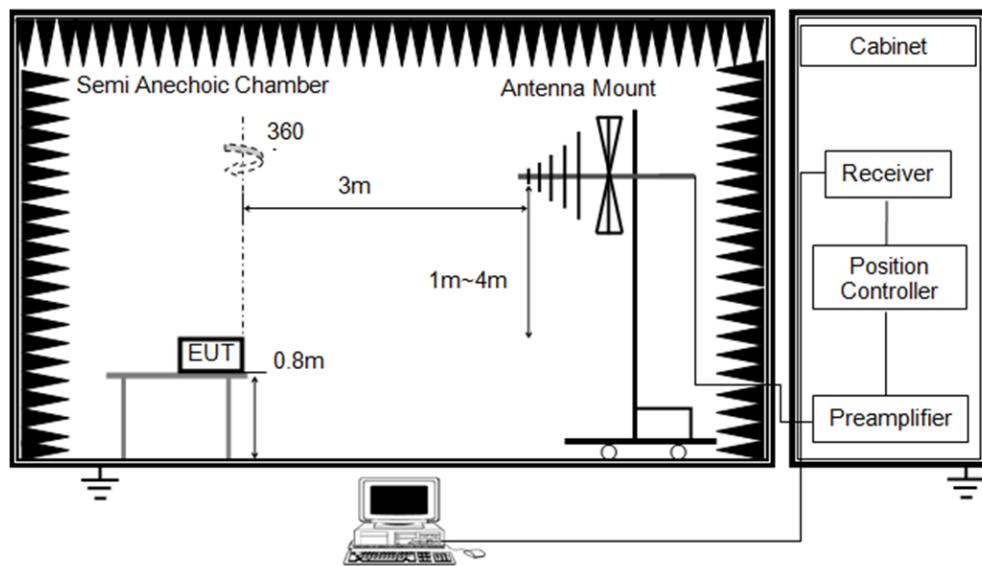
Note:

1. Measurement = Reading Level + Correct Factor.
2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.
3. Peak: Peak detector.
4. All modes and channels have been tested, only the worst data was recorded in the report.

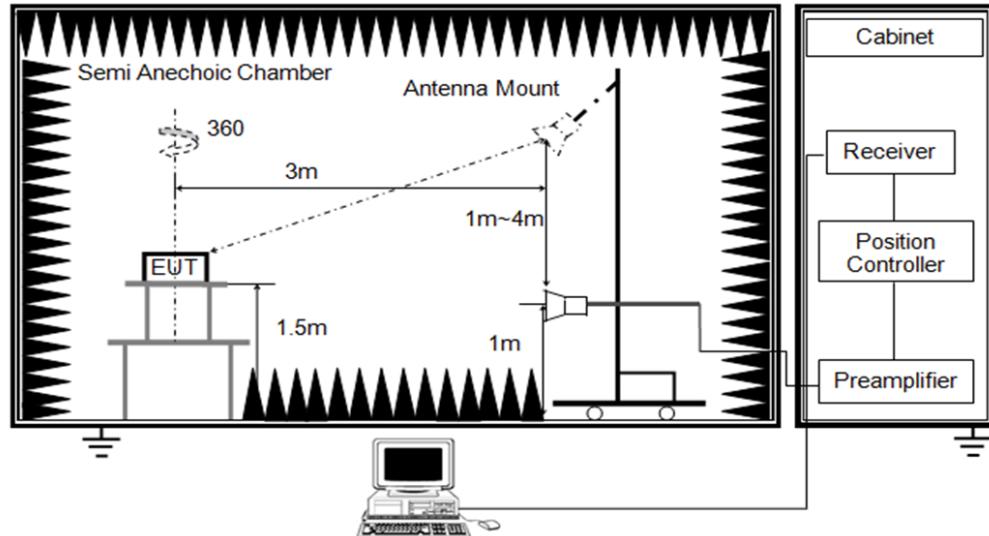
TEST SETUP



Below 1 GHz and above 30 MHz



Above 1 GHz



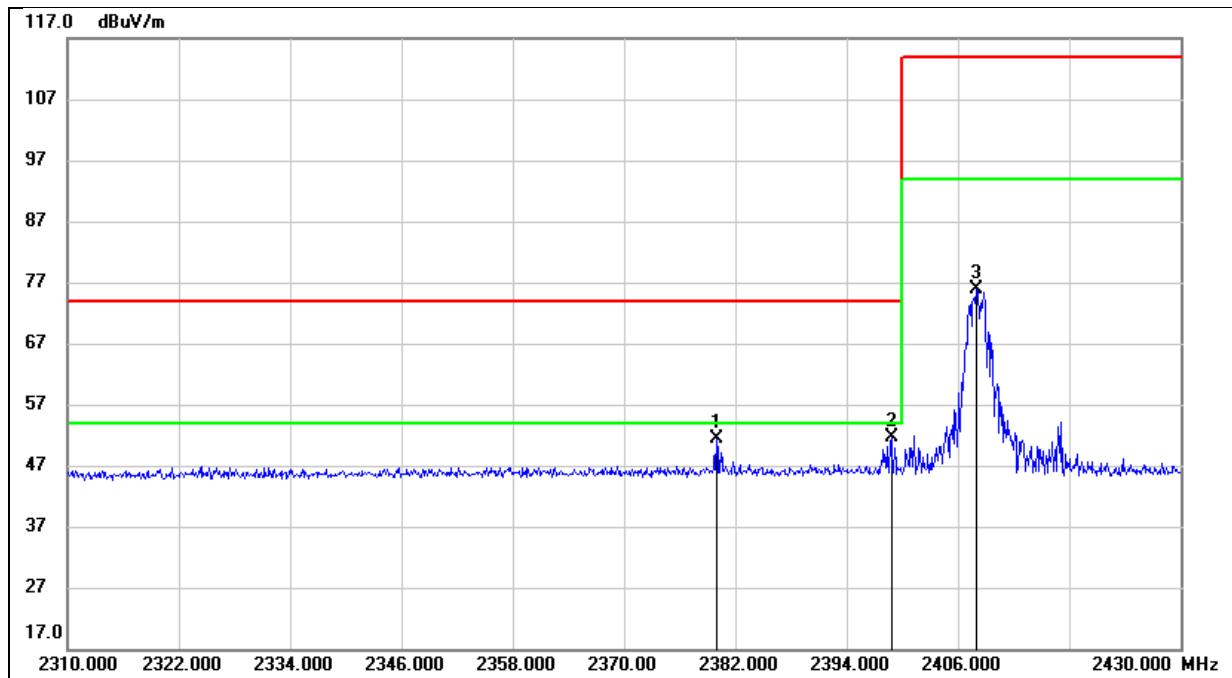
TEST ENVIRONMENT

Temperature	24.3 °C	Relative Humidity	61 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 3 V

TEST RESULTS

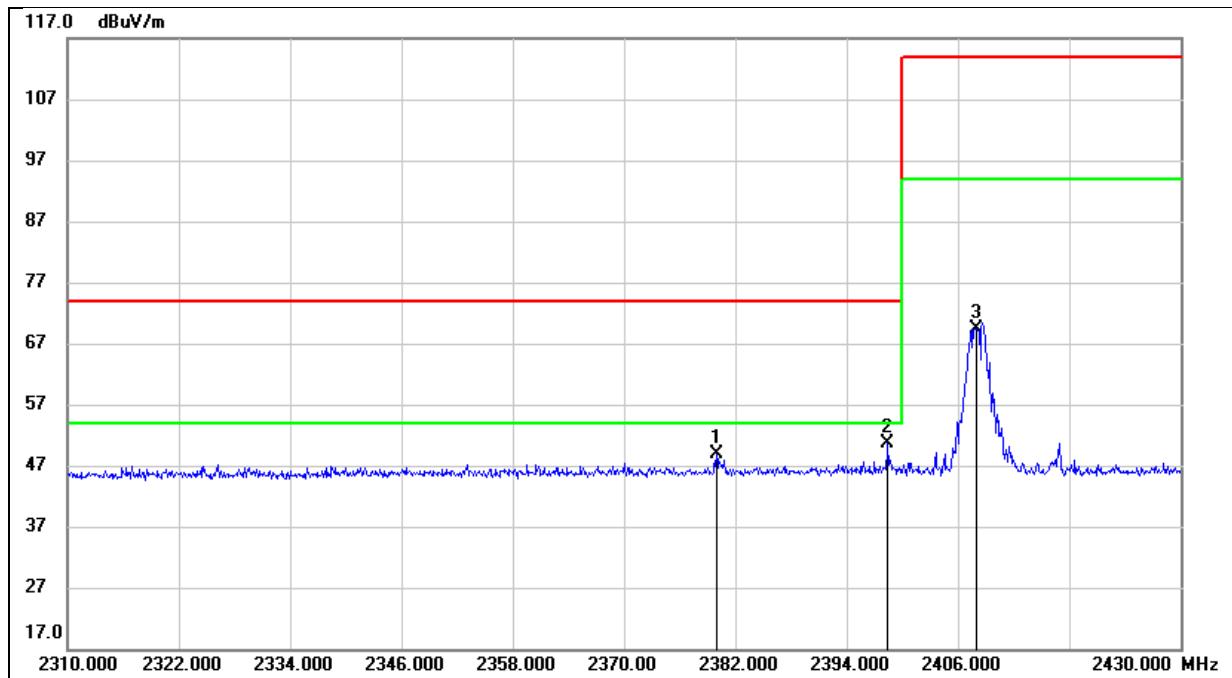
8.1. RESTRICTED BANDEDGE

Test Mode:	GFSK Peak	Channel:	2408 MHz
Polarity:	Horizontal	Test Voltage:	DC 3 V



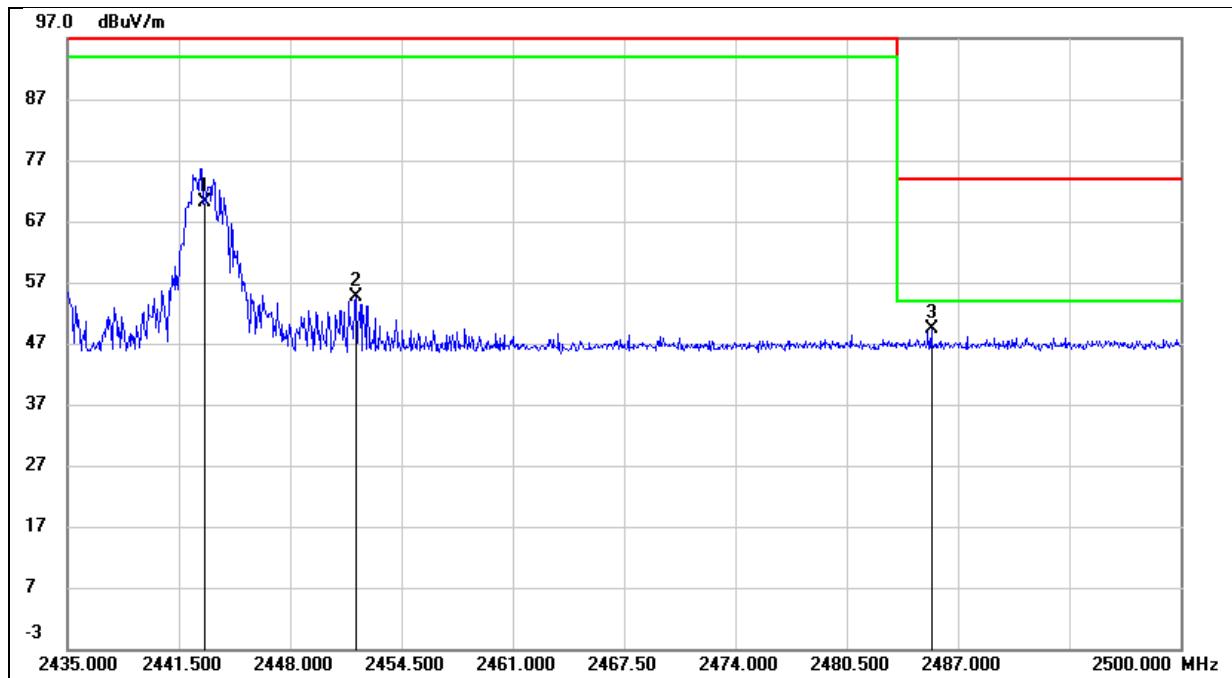
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2379.960	19.25	32.13	51.38	74.00	-22.62	peak
2	2398.800	19.50	32.19	51.69	74.00	-22.31	peak
3	2408.000	43.63	32.21	75.84	114.00	-38.16	Peak-Fundamental

Test Mode:	GFSK Peak	Channel:	2408 MHz
Polarity:	Vertical	Test Voltage:	DC 3 V



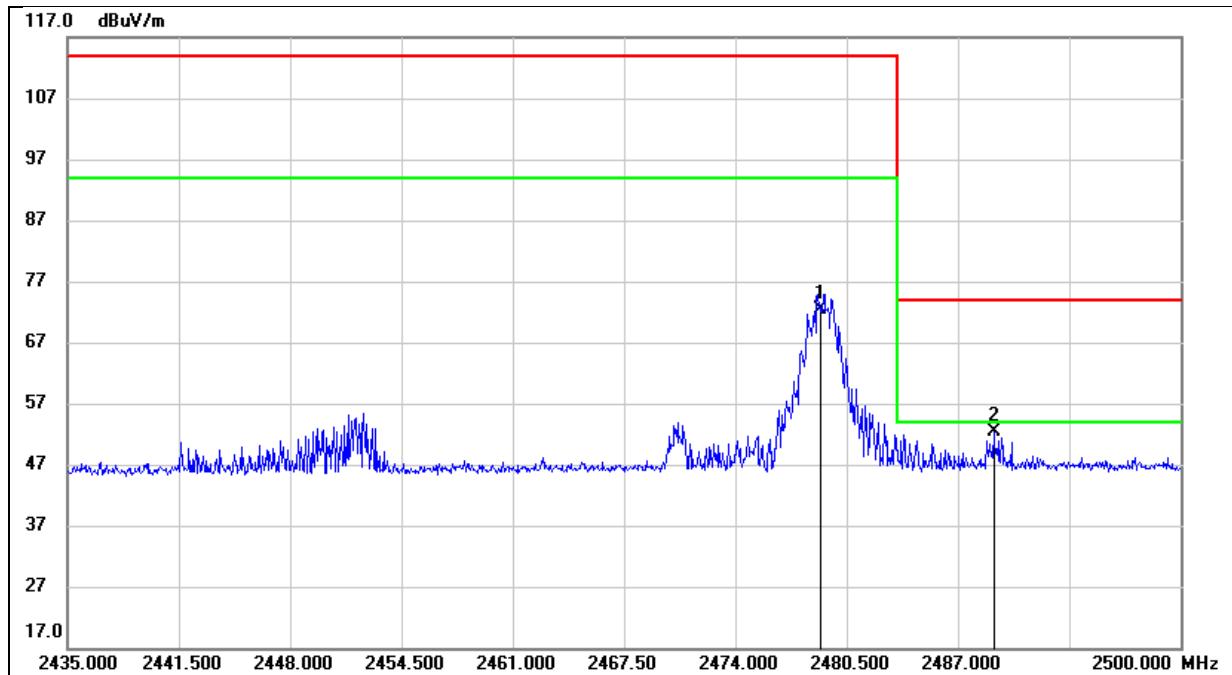
No.	Frequency (MHz)	Reading (dB _{UV})	Correct (dB/m)	Result (dB _{UV} /m)	Limit (dB _{UV} /m)	Margin (dB)	Remark
1	2379.960	16.63	32.13	48.76	74.00	-25.24	peak
2	2398.440	18.51	32.19	50.70	74.00	-23.30	peak
3	2408.000	37.28	32.21	69.49	114.00	-44.51	Peak-Fundamental

Test Mode:	GFSK Peak	Channel:	2443 MHz
Polarity:	Horizontal	Test Voltage:	DC 3 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2443.000	37.92	32.32	70.24	114.00	-43.76	Peak-Fundamental
2	2451.835	22.22	32.34	54.56	114.00	-59.44	peak
3	2485.440	16.95	32.44	49.39	74.00	-24.61	peak

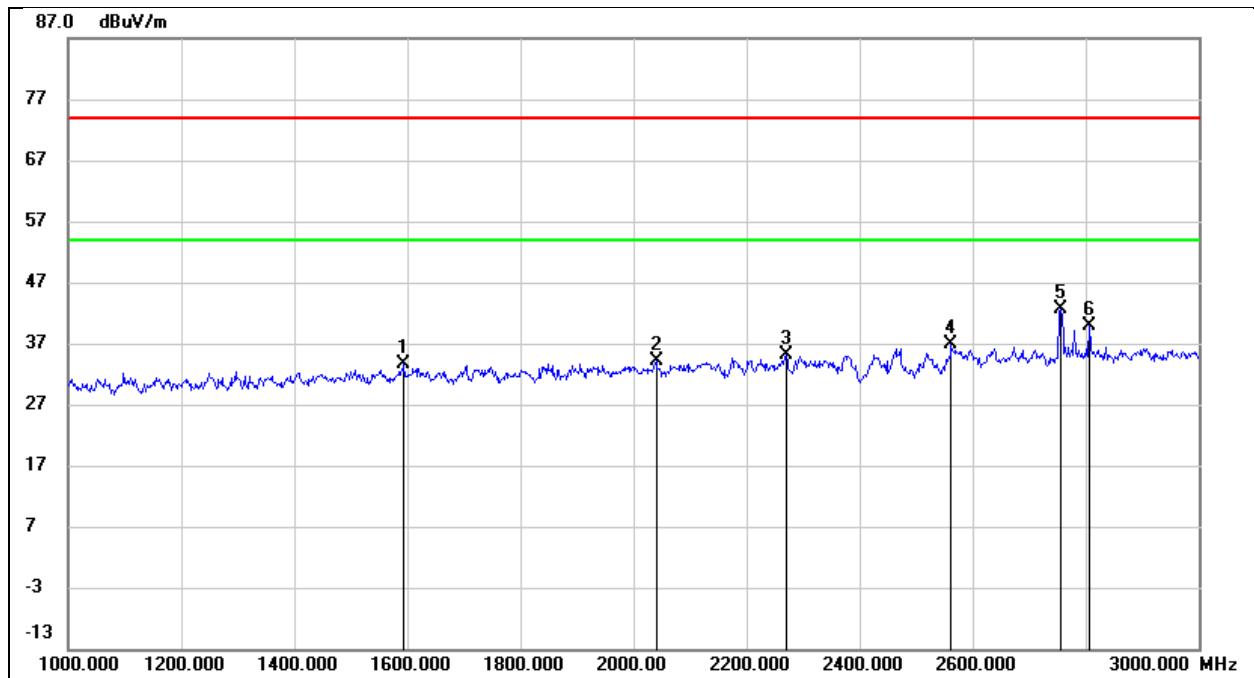
Test Mode:	GFSK Peak	Channel:	2479 MHz
Polarity:	Horizontal	Test Voltage:	DC 3 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2479.000	39.98	32.43	72.41	114.00	-41.59	Peak-Fundamental
2	2489.080	19.98	32.46	52.44	74.00	-21.56	peak

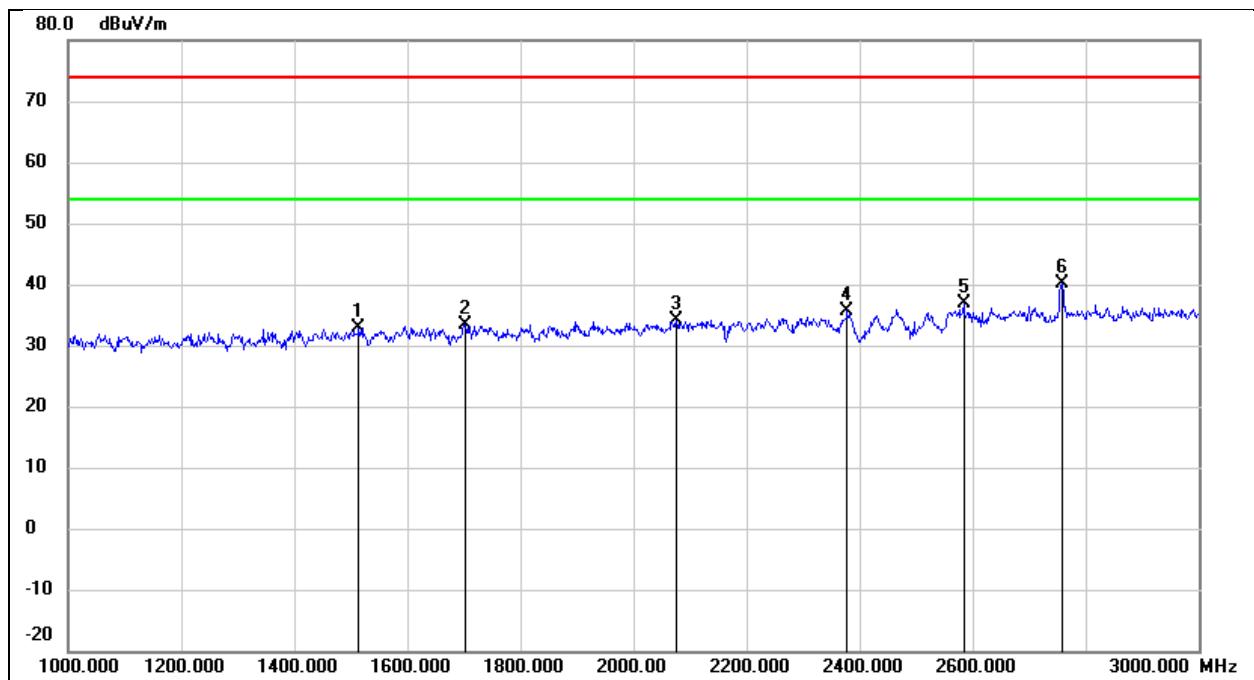
8.2. SPURIOUS EMISSIONS (1 GHZ ~ 3 GHZ)

Test Mode:	GFSK	Channel:	2408 MHz
Polarity:	Horizontal	Test Voltage:	DC 3 V



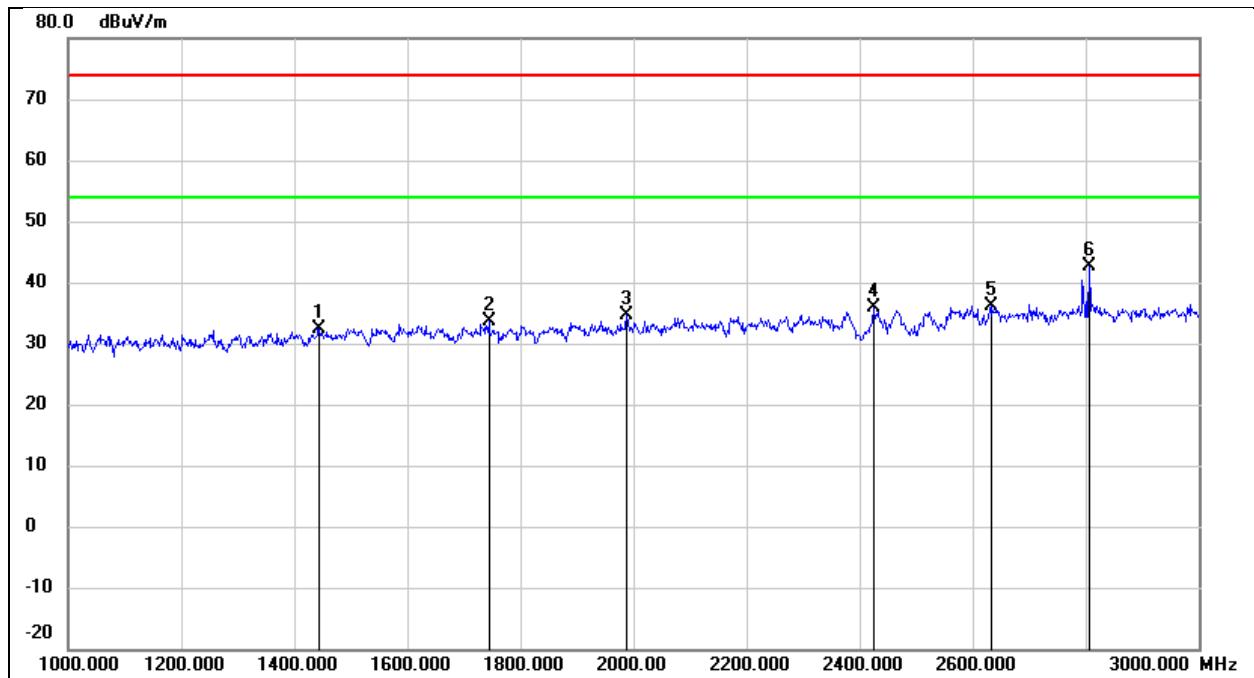
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1594.000	45.92	-12.40	33.52	74.00	-40.48	peak
2	2040.000	44.93	-10.86	34.07	74.00	-39.93	peak
3	2270.000	44.72	-9.67	35.05	74.00	-38.95	peak
4	2562.000	45.07	-8.31	36.76	74.00	-37.24	peak
5	2756.000	50.35	-7.72	42.63	74.00	-31.37	peak
6	2806.000	47.48	-7.57	39.91	74.00	-34.09	peak

Test Mode:	GFSK	Channel:	2408 MHz
Polarity:	Vertical	Test Voltage:	DC 3 V



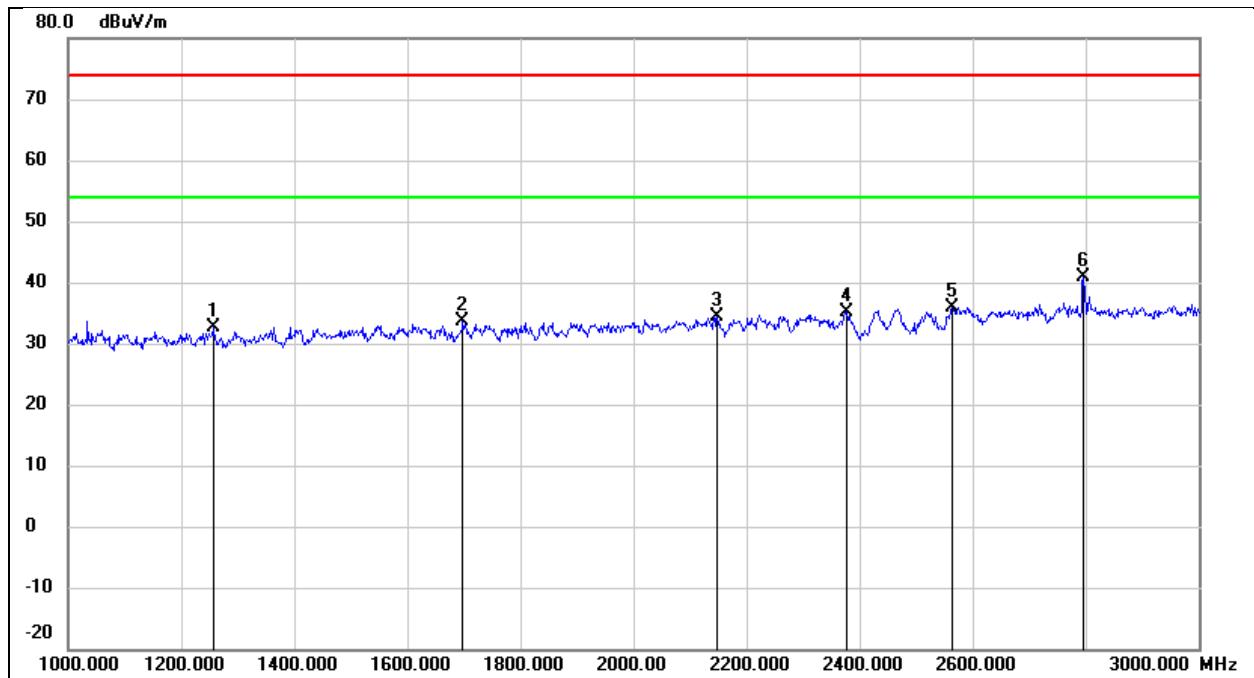
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1514.000	45.57	-12.67	32.90	74.00	-41.10	peak
2	1702.000	45.35	-12.05	33.30	74.00	-40.70	peak
3	2076.000	44.78	-10.67	34.11	74.00	-39.89	peak
4	2378.000	44.74	-9.12	35.62	74.00	-38.38	peak
5	2584.000	45.20	-8.24	36.96	74.00	-37.04	peak
6	2758.000	47.78	-7.72	40.06	74.00	-33.94	peak

Test Mode:	GFSK	Channel:	2443 MHz
Polarity:	Horizontal	Test Voltage:	DC 3 V



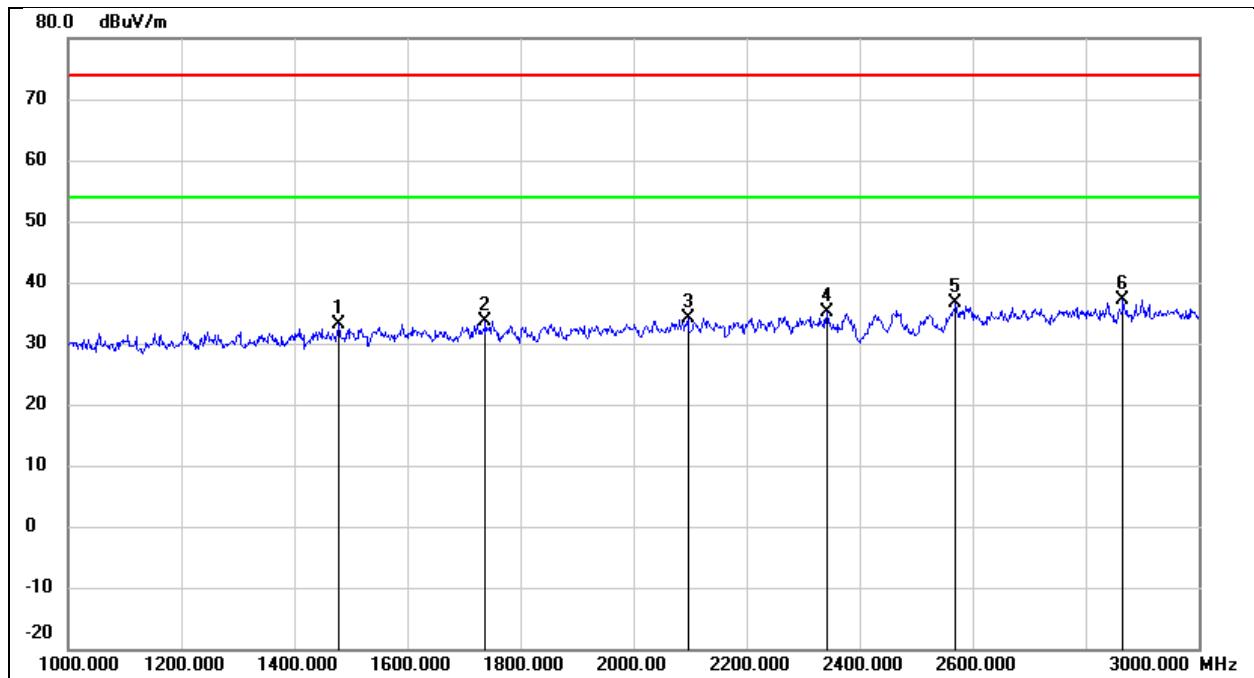
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1444.000	45.43	-12.97	32.46	74.00	-41.54	peak
2	1744.000	45.49	-11.90	33.59	74.00	-40.41	peak
3	1988.000	45.77	-11.10	34.67	74.00	-39.33	peak
4	2424.000	44.82	-8.88	35.94	74.00	-38.06	peak
5	2632.000	44.29	-8.09	36.20	74.00	-37.80	peak
6	2806.000	50.13	-7.57	42.56	74.00	-31.44	peak

Test Mode:	GFSK	Channel:	2443 MHz
Polarity:	Vertical	Test Voltage:	DC 3 V



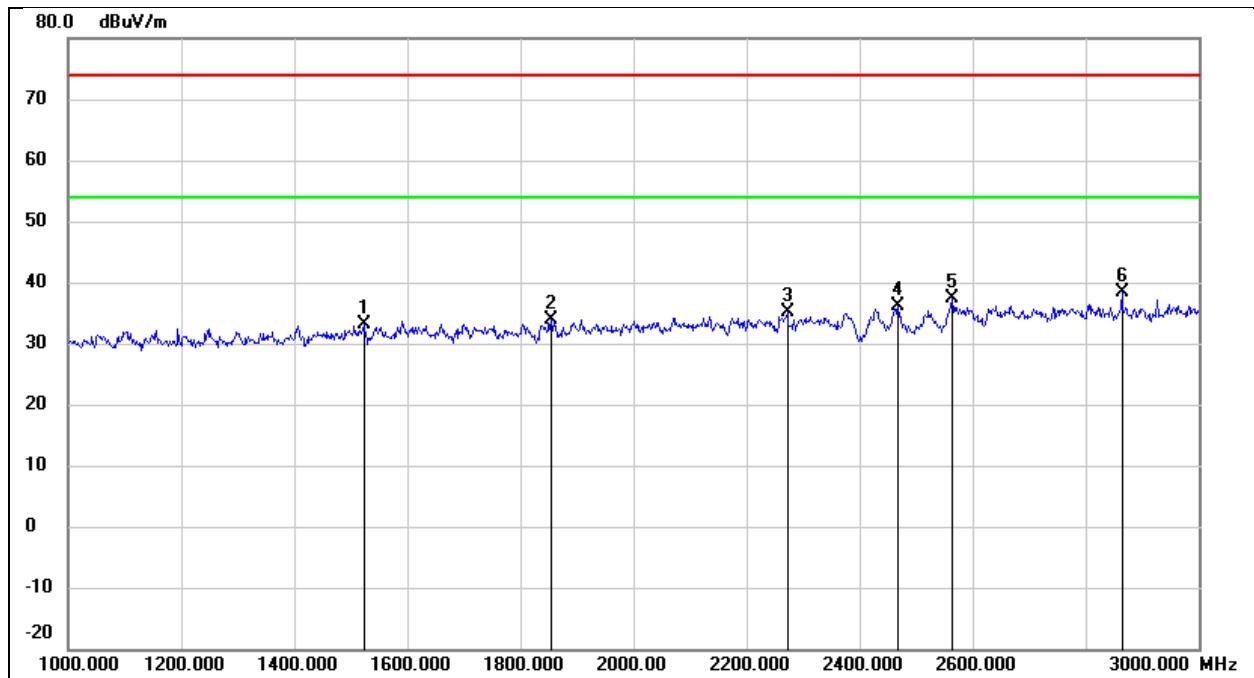
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1256.000	46.47	-13.84	32.63	74.00	-41.37	peak
2	1698.000	45.62	-12.05	33.57	74.00	-40.43	peak
3	2148.000	44.78	-10.31	34.47	74.00	-39.53	peak
4	2378.000	44.34	-9.12	35.22	74.00	-38.78	peak
5	2564.000	44.13	-8.30	35.83	74.00	-38.17	peak
6	2796.000	48.37	-7.60	40.77	74.00	-33.23	peak

Test Mode:	GFSK	Channel:	2479 MHz
Polarity:	Horizontal	Test Voltage:	DC 3 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1478.000	45.83	-12.81	33.02	74.00	-40.98	peak
2	1738.000	45.65	-11.93	33.72	74.00	-40.28	peak
3	2096.000	44.62	-10.56	34.06	74.00	-39.94	peak
4	2342.000	44.35	-9.30	35.05	74.00	-38.95	peak
5	2570.000	44.83	-8.27	36.56	74.00	-37.44	peak
6	2866.000	44.53	-7.38	37.15	74.00	-36.85	peak

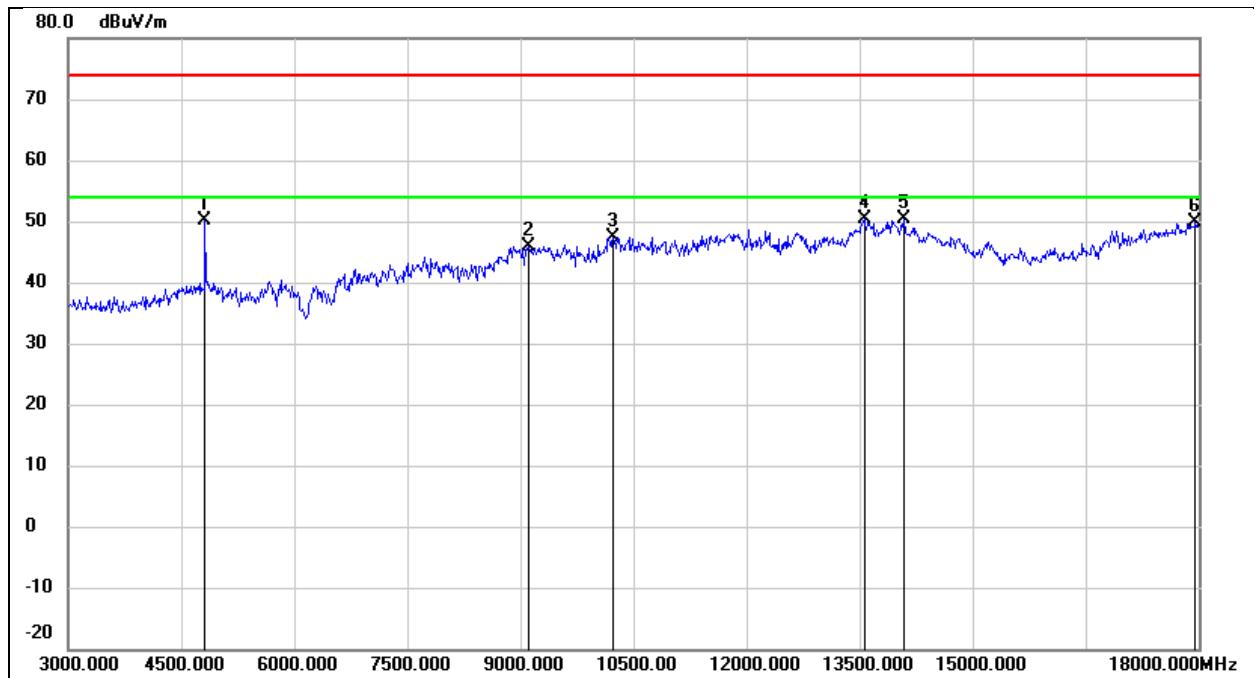
Test Mode:	GFSK	Channel:	2479 MHz
Polarity:	Vertical	Test Voltage:	DC 3 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1524.000	45.79	-12.63	33.16	74.00	-40.84	peak
2	1854.000	45.37	-11.54	33.83	74.00	-40.17	peak
3	2272.000	44.89	-9.66	35.23	74.00	-38.77	peak
4	2468.000	44.82	-8.65	36.17	74.00	-37.83	peak
5	2564.000	45.65	-8.30	37.35	74.00	-36.65	peak
6	2864.000	45.75	-7.39	38.36	74.00	-35.64	peak

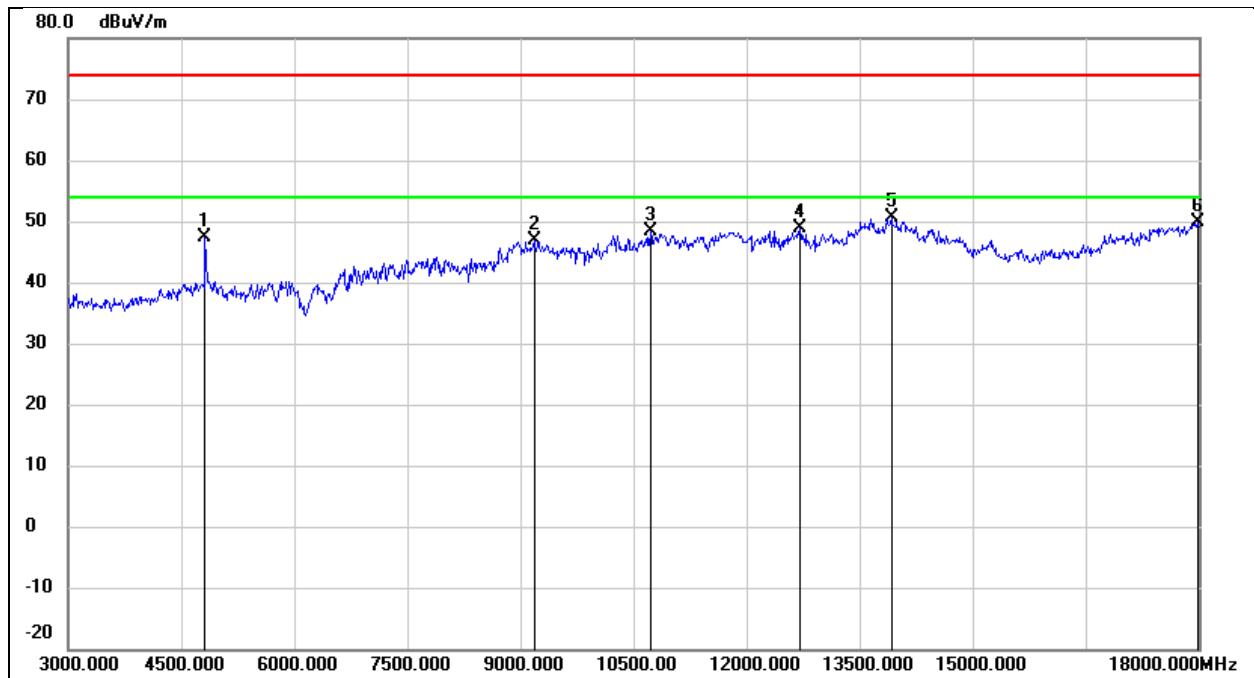
8.3. SPURIOUS EMISSIONS (3 GHZ ~ 18 GHZ)

Test Mode:	GFSK	Channel:	2408 MHz
Polarity:	Horizontal	Test Voltage:	DC 3 V



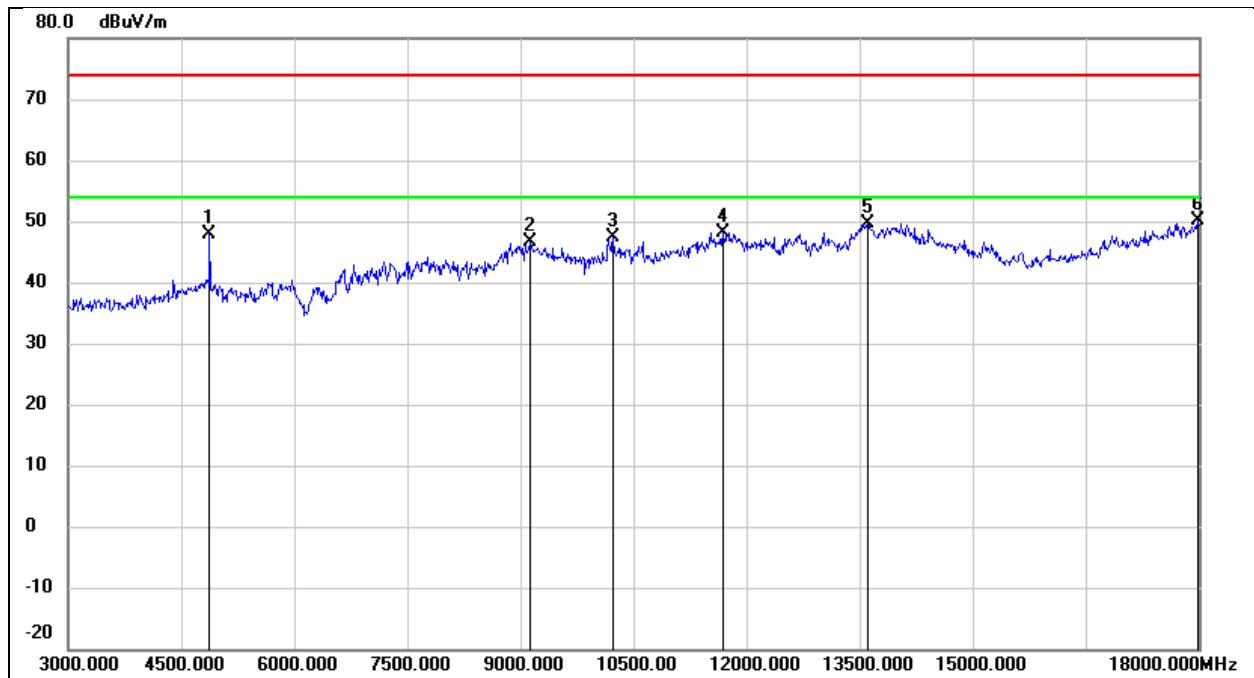
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4815.000	50.45	-0.26	50.19	74.00	-23.81	peak
2	9105.000	35.47	10.53	46.00	74.00	-28.00	peak
3	10230.000	35.01	12.46	47.47	74.00	-26.53	peak
4	13560.000	29.26	21.04	50.30	74.00	-23.70	peak
5	14085.000	28.65	21.61	50.26	74.00	-23.74	peak
6	17955.000	24.48	25.42	49.90	74.00	-24.10	peak

Test Mode:	GFSK	Channel:	2408 MHz
Polarity:	Vertical	Test Voltage:	DC 3 V



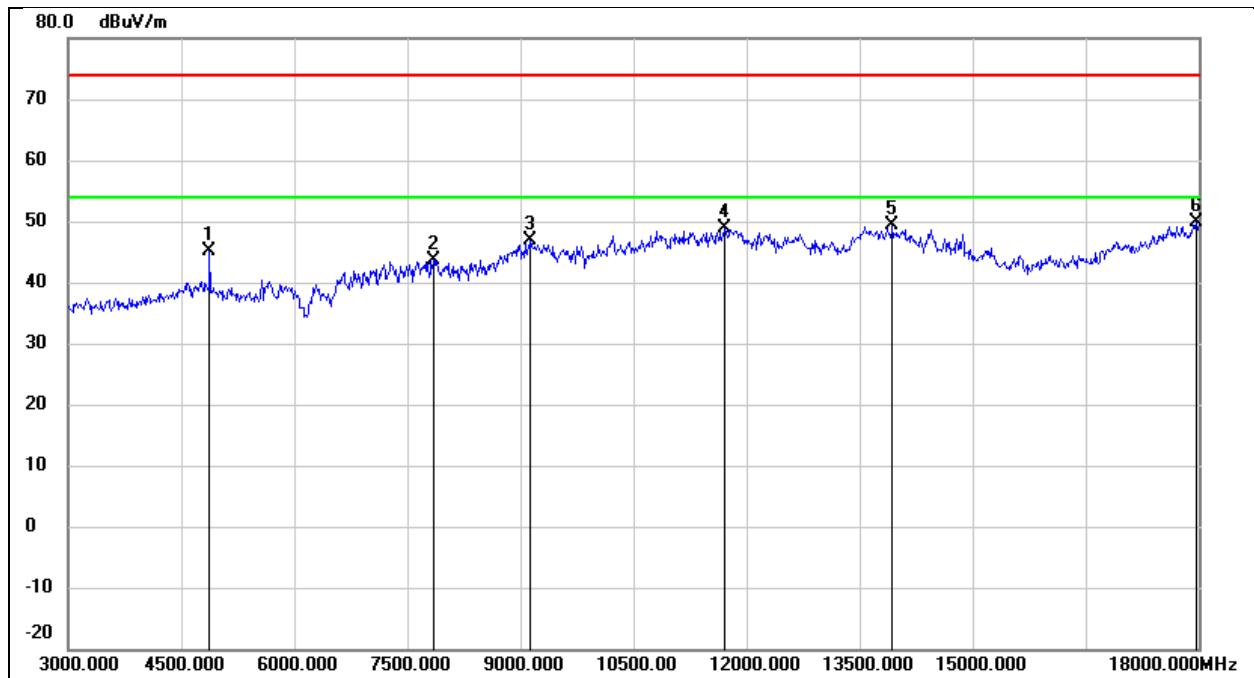
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4815.000	47.54	-0.26	47.28	74.00	-26.72	peak
2	9180.000	36.32	10.56	46.88	74.00	-27.12	peak
3	10725.000	34.49	13.79	48.28	74.00	-25.72	peak
4	12705.000	30.78	18.06	48.84	74.00	-25.16	peak
5	13920.000	28.81	21.79	50.60	74.00	-23.40	peak
6	17985.000	24.16	25.60	49.76	74.00	-24.24	peak

Test Mode:	GFSK	Channel:	2443 MHz
Polarity:	Horizontal	Test Voltage:	DC 3 V



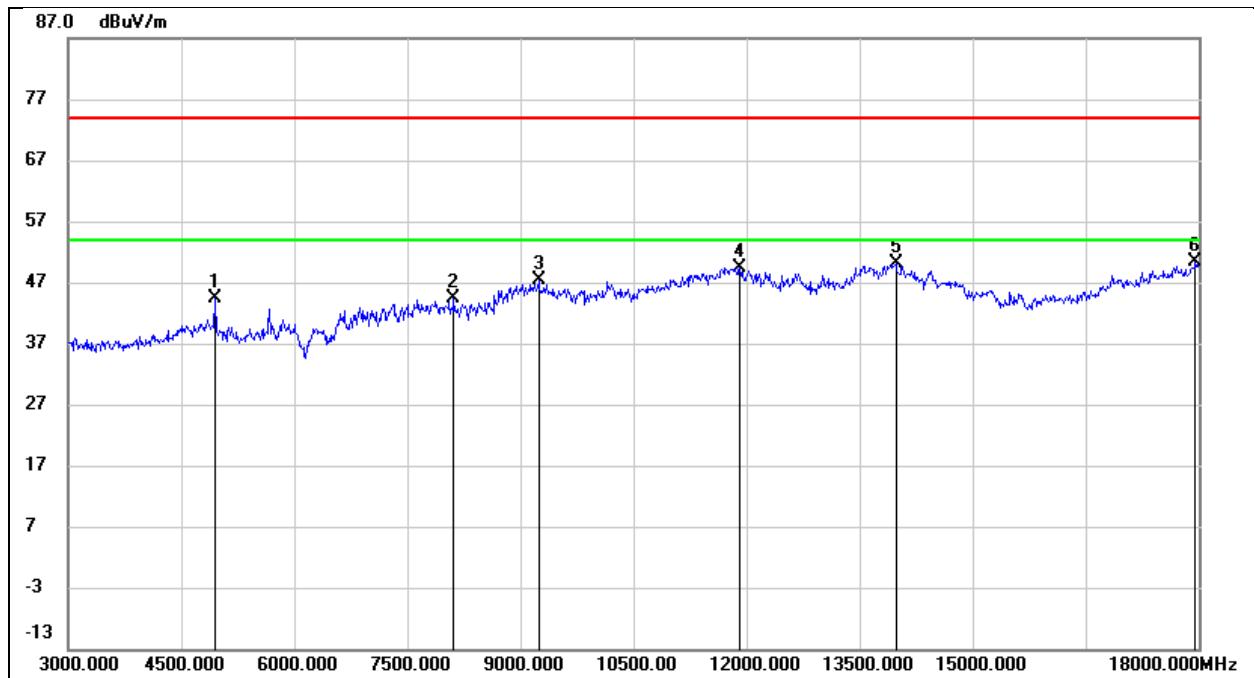
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4875.000	48.00	-0.03	47.97	74.00	-26.03	peak
2	9135.000	36.14	10.55	46.69	74.00	-27.31	peak
3	10230.000	34.81	12.46	47.27	74.00	-26.73	peak
4	11685.000	31.05	17.10	48.15	74.00	-25.85	peak
5	13605.000	28.50	21.12	49.62	74.00	-24.38	peak
6	17985.000	24.41	25.60	50.01	74.00	-23.99	peak

Test Mode:	GFSK	Channel:	2443 MHz
Polarity:	Vertical	Test Voltage:	DC 3 V



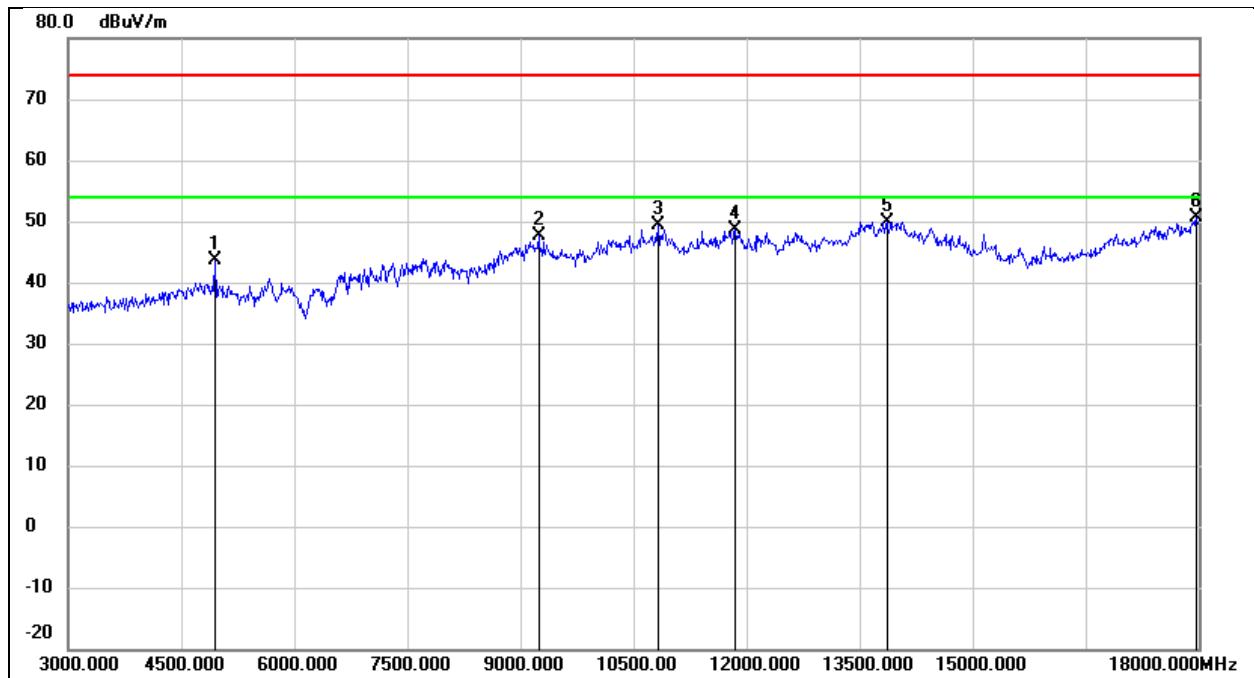
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4875.000	45.08	-0.03	45.05	74.00	-28.95	peak
2	7845.000	37.31	6.32	43.63	74.00	-30.37	peak
3	9135.000	36.23	10.55	46.78	74.00	-27.22	peak
4	11715.000	31.77	17.19	48.96	74.00	-25.04	peak
5	13935.000	27.55	21.82	49.37	74.00	-24.63	peak
6	17970.000	24.34	25.51	49.85	74.00	-24.15	peak

Test Mode:	GFSK	Channel:	2479 MHz
Polarity:	Horizontal	Test Voltage:	DC 3 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4950.000	44.10	0.26	44.36	74.00	-29.64	peak
2	8115.000	37.84	6.43	44.27	74.00	-29.73	peak
3	9240.000	36.75	10.58	47.33	74.00	-26.67	peak
4	11910.000	31.66	17.72	49.38	74.00	-24.62	peak
5	13980.000	28.20	21.92	50.12	74.00	-23.88	peak
6	17955.000	25.01	25.42	50.43	74.00	-23.57	peak

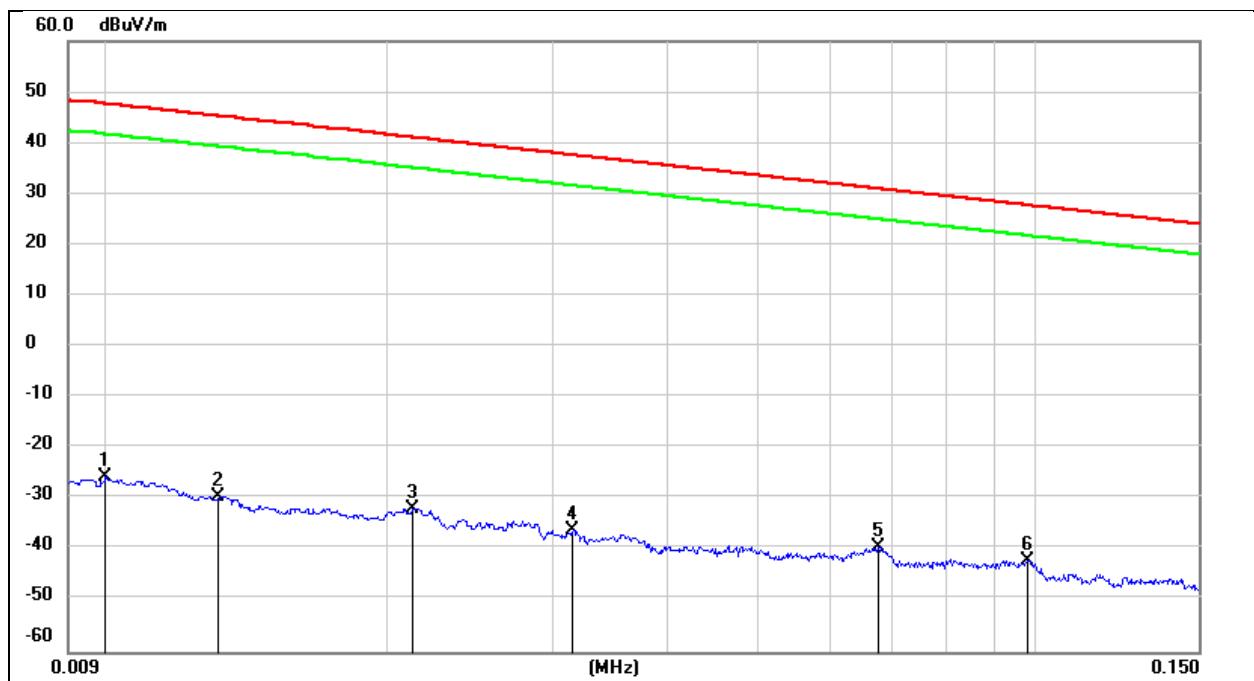
Test Mode:	GFSK	Channel:	2479 MHz
Polarity:	Vertical	Test Voltage:	DC 3 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4950.000	43.43	0.26	43.69	74.00	-30.31	peak
2	9240.000	37.02	10.58	47.60	74.00	-26.40	peak
3	10830.000	35.22	14.16	49.38	74.00	-24.62	peak
4	11850.000	31.03	17.56	48.59	74.00	-25.41	peak
5	13860.000	28.27	21.67	49.94	74.00	-24.06	peak
6	17970.000	25.22	25.51	50.73	74.00	-23.27	peak

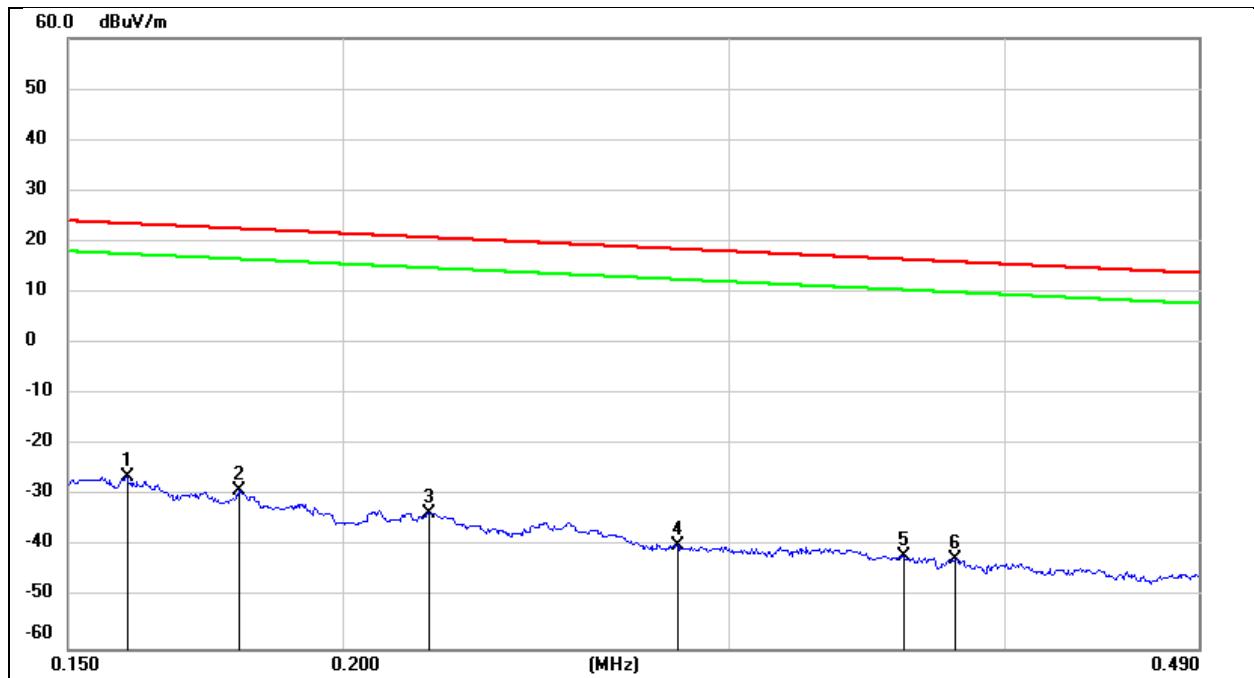
8.4. SPURIOUS EMISSIONS (9 KHZ ~ 30 MHZ)

Test Mode:	GFSK	Channel:	2408 MHz
Polarity:	Loop Antenna Face On To The EUT	Test Voltage	DC 3.0 V



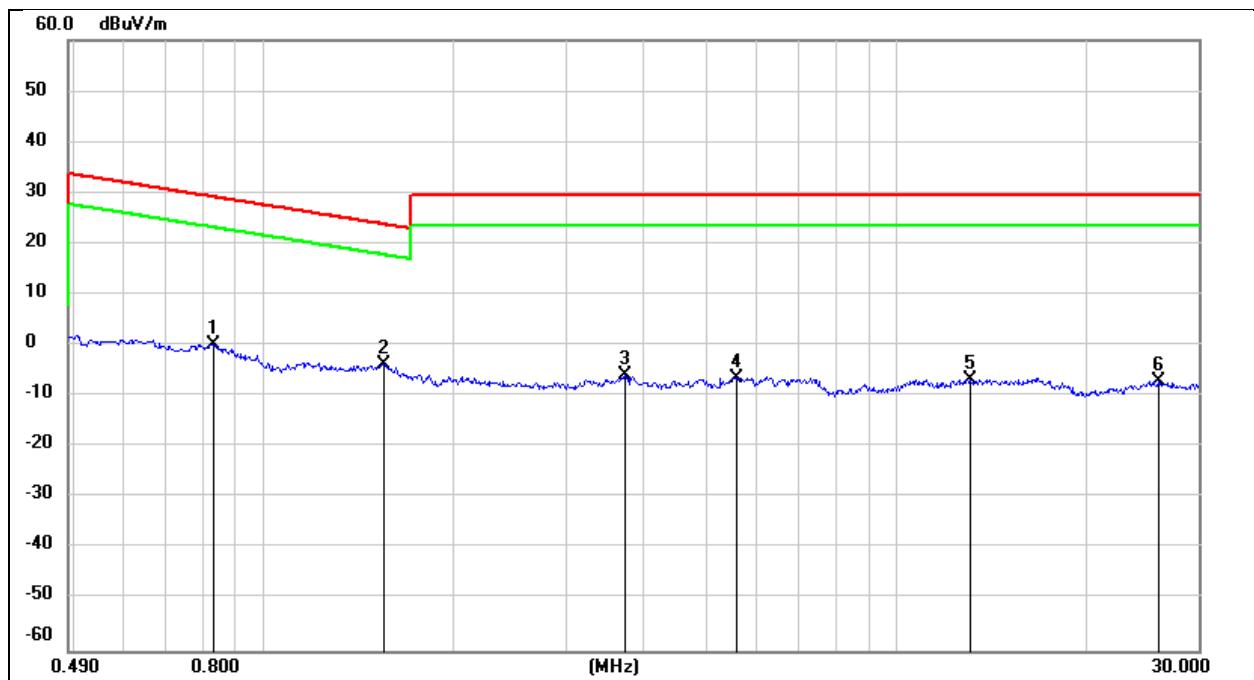
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)	Remark
1	0.0100	75.72	-101.40	-25.68	47.6	-73.28	peak
2	0.0131	71.97	-101.38	-29.41	45.25	-74.66	peak
3	0.0212	69.54	-101.35	-31.81	41.07	-72.88	peak
4	0.0316	65.24	-101.40	-36.16	37.61	-73.77	peak
5	0.0675	62.14	-101.56	-39.42	31.02	-70.44	peak
6	0.0981	59.77	-101.78	-42.01	27.77	-69.78	peak

Test Mode:	GFSK	Channel:	2408 MHz
Polarity:	Loop Antenna Face On To The EUT	Test Voltage	DC 3.0 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)	Remark
1	0.1595	75.36	-101.65	-26.29	23.55	-49.84	peak
2	0.1794	72.77	-101.68	-28.91	22.53	-51.44	peak
3	0.2190	68.27	-101.75	-33.48	20.79	-54.27	peak
4	0.2837	62.22	-101.83	-39.61	18.54	-58.15	peak
5	0.3600	60.01	-101.91	-41.9	16.48	-58.38	peak
6	0.3800	59.52	-101.94	-42.42	16.01	-58.43	peak

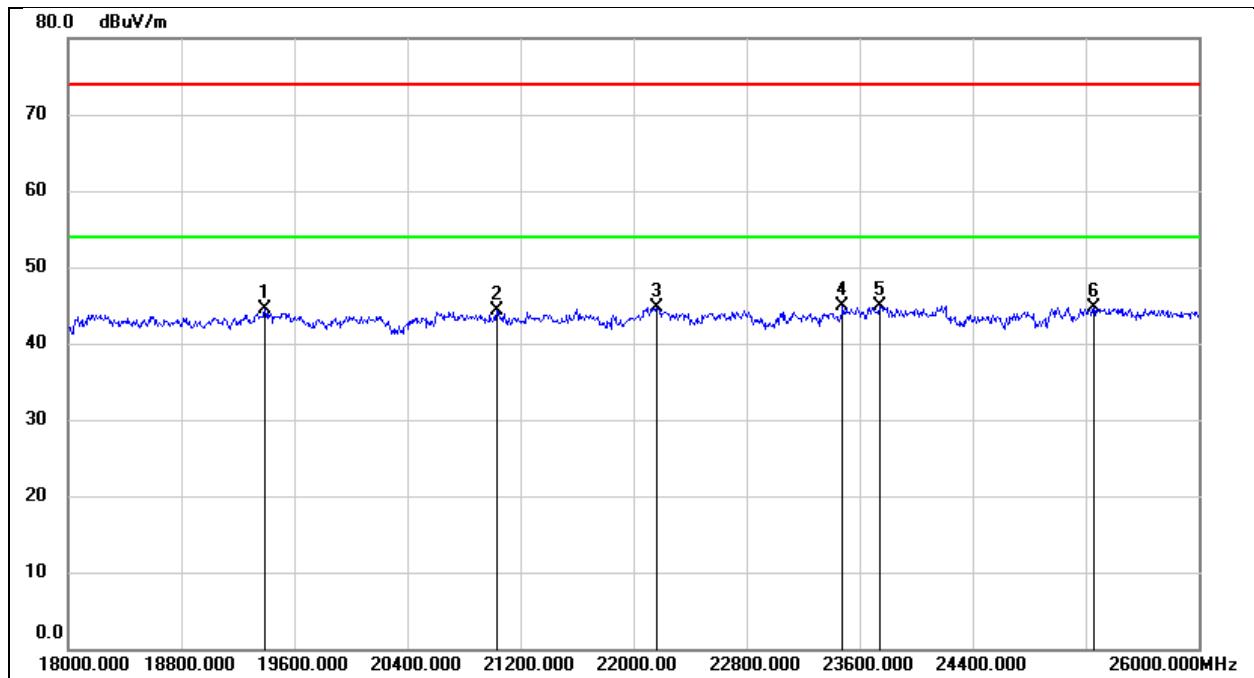
Test Mode:	GFSK	Channel:	2408 MHz
Polarity:	Loop Antenna Face On To The EUT	Test Voltage	DC 3.0 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)	Remark
1	0.8296	62.44	-62.17	0.27	29.23	-28.96	peak
2	1.5443	58.35	-62.03	-3.68	23.83	-27.51	peak
3	3.7100	55.70	-61.41	-5.71	29.54	-35.25	peak
4	5.5952	55.05	-61.41	-6.36	29.54	-35.90	peak
5	13.0907	54.13	-60.93	-6.8	29.54	-36.34	peak
6	25.8978	53.26	-60.36	-7.1	29.54	-36.64	peak

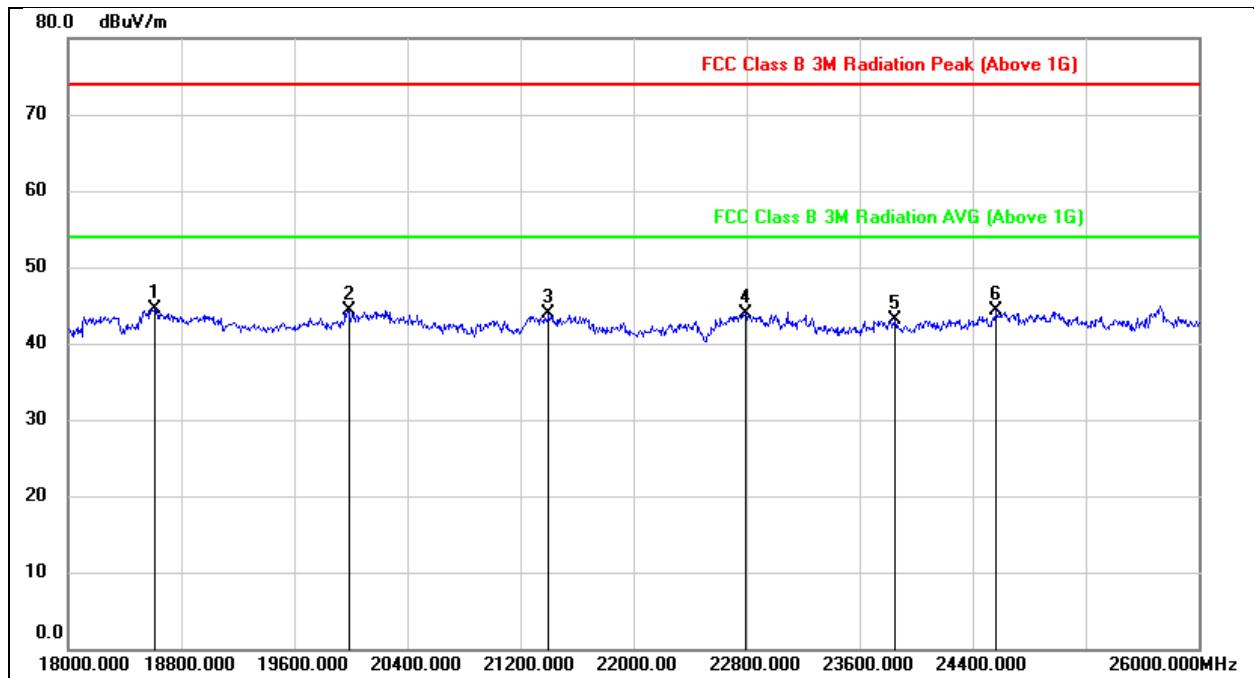
8.5. SPURIOUS EMISSIONS (18 GHZ ~ 26 GHZ)

Test Mode:	GFSK	Channel:	2408 MHz
Polarity:	Horizontal	Test Voltage	DC 3.0 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	19392.000	50.12	-5.57	44.55	74.00	-29.45	peak
2	21032.000	49.15	-4.87	44.28	74.00	-29.72	peak
3	22160.000	49.08	-4.31	44.77	74.00	-29.23	peak
4	23480.000	48.04	-3.16	44.88	74.00	-29.12	peak
5	23744.000	48.15	-3.20	44.95	74.00	-29.05	peak
6	25256.000	46.29	-1.67	44.62	74.00	-29.38	peak

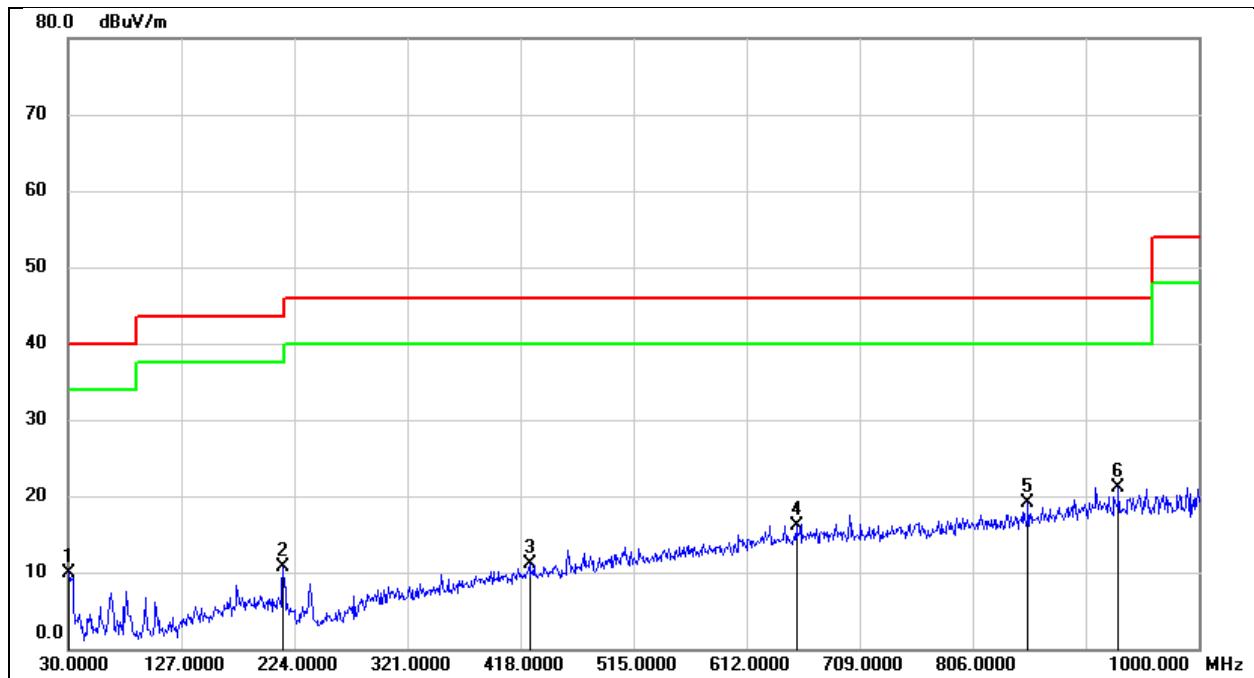
Test Mode:	GFSK	Channel:	2408 MHz
Polarity:	Vertical	Test Voltage	DC 3.0 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18616.000	49.89	-5.34	44.55	74.00	-29.45	peak
2	19984.000	49.71	-5.44	44.27	74.00	-29.73	peak
3	21400.000	48.54	-4.72	43.82	74.00	-30.18	peak
4	22792.000	47.61	-3.65	43.96	74.00	-30.04	peak
5	23848.000	46.18	-3.03	43.15	74.00	-30.85	peak
6	24568.000	46.60	-2.33	44.27	74.00	-29.73	peak

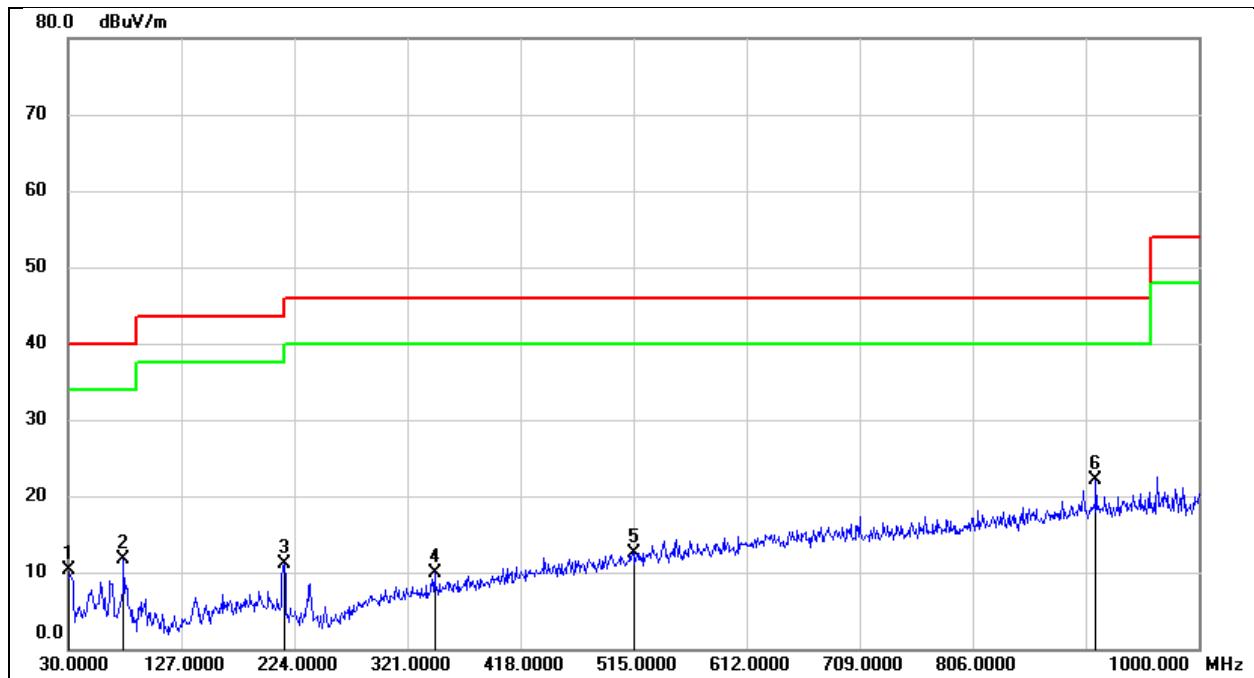
8.6. SPURIOUS EMISSIONS (30 MHZ ~ 1 GHZ)

Test Mode:	GFSK	Channel:	2408 MHz
Polarity:	Horizontal	Test Voltage	DC 3.0 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.9700	28.91	-19.04	9.87	40.00	-30.13	QP
2	214.3000	28.38	-17.66	10.72	43.50	-32.78	QP
3	425.7600	23.87	-12.83	11.04	46.00	-34.96	QP
4	654.6800	25.06	-8.88	16.18	46.00	-29.82	QP
5	853.5300	25.29	-6.18	19.11	46.00	-26.89	QP
6	931.1300	25.85	-4.76	21.09	46.00	-24.91	QP

Test Mode:	GFSK	Channel:	2408 MHz
Polarity:	Vertical	Test Voltage	DC 3.0 V



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.0000	29.29	-18.94	10.35	40.00	-29.65	QP
2	77.5300	32.86	-21.14	11.72	40.00	-28.28	QP
3	215.2700	28.91	-17.76	11.15	43.50	-32.35	QP
4	344.2800	24.28	-14.39	9.89	46.00	-36.11	QP
5	515.0000	23.69	-11.17	12.52	46.00	-33.48	QP
6	911.7300	27.13	-4.93	22.20	46.00	-23.80	QP

9. ANTENNA REQUIREMENT

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