FCC Radio Test Report

FCC ID: XRSTIMOMWAN201

This report concerns (check one): ☒**Original Grant** ☐**Class I Change** ☐**Class II Change**

Project No.	:	1808C117A
Equipment	:	Radio module with 2.4GHz SRD
Test Model	:	Mira MWA-N2
Series Model	:	N/A
Applicant	:	LumenRadio AB
Address	:	Svangatan 2B, 41668 Gothenburg, Sweden

Date of Receipt	:	Apr. 24, 2019
Date of Test	:	Apr. 25, 2019 ~ May 30, 2019
Issued Date	:	Jun. 14, 2019
Tested by	:	BTL Inc.

Testing Engineer : Welly zhou
(Welly Zhou)

Technical Manager : Steven Lu
(Steven Lu)

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BTL INC.

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Certificate #5123.02

Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

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BTL's laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.
Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	Jun. 14, 2019

1. GENERAL SUMMARY

Equipment	:	Radio module with 2.4GHz SRD
Brand Name	:	Mira
Test Model	:	Mira MWA-N2
Series Model	:	N/A
Applicant	:	LumenRadio AB
Manufacturer	:	LumenRadio AB
Address	:	Svangatan 2B, 41668 Gothenburg, Sweden
Factory	:	Orbit One
Address	:	Box 170, 372 22 Ronneby, Sweden; Visiting address: Fridhemsvägen 15, 37238 Ronneby, Sweden
Date of Test	:	Apr. 25, 2019 ~ May 30, 2019
Test Sample	:	Engineering Sample No.: D190404199
Standard(s)	:	FCC Part15, Subpart C (15.247) ANSI C63.10-2013

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-1-1808C117A) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of A2LA according to the ISO/IEC 17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part15, Subpart C (15.247)			
Standard(s) Section	Test Item	Judgment	Remark
15.207	AC Power Line Conducted Emissions	PASS	
15.247(d)	Antenna Conducted Spurious Emission	PASS	
15.247 (a)(1)	Hopping Channel Separation	PASS	
15.247(a)(1)	Bandwidth	PASS	
15.247 (a)(1)	Maximum Output Power	PASS	
15.247(d) 15.209(a) 15.205(a)	Radiated Spurious Emission	PASS	
15.247 (a)(1)(iii)	Number of Hopping Frequency	PASS	
15.203	Antenna Requirement	PASS	

Note:

(1) “N/A” denotes test is not applicable in this test report

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China
BTL's test firm number for FCC: 357015
BTL's designation number for FCC: CN1240

2.2 MEASUREMENT UNCERTAINTY

The measurement uncertainty figures shall be calculated according the methods described in the ETSI TR 100 028 and shall correspond to an expansion factor (coverage factor) k=1.96 or k=2(which provide confidence levels of respectively 90% and 95.45% in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)). Measurement Uncertainty for a Level of Confidence of 95 %, U=2xUc(y).

The BTL measurement uncertainty as below table:

A. AC power line conducted emissions test:

Test Site	Method	Measurement Frequency Range	U, (dB)
DG-C02	CISPR	150 kHz ~ 30 MHz	2.32

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)
DG-CB03	CISPR	9 kHz ~ 30 MHz	V	3.79
		9 kHz ~ 30 MHz	H	3.57
		30 MHz ~ 200 MHz	V	3.82
		30 MHz ~ 200 MHz	H	3.78
		200 MHz ~ 1,000 MHz	V	4.10
		200 MHz ~ 1,000 MHz	H	4.06
		1 GHz ~ 18 GHz	V	3.12
		1 GHz ~ 18 GHz	H	3.68
		18 GHz ~ 40 GHz	V	4.15
		18 GHz ~ 40 GHz	H	4.14

C. Other Measurement:

Test Item	Uncertainty
Conducted Spurious Emission	2.67 dB
Hopping Channel Separation	53.46 MHz
Output Power	0.95 dB
Number of Hopping Frequency	53.46 MHz
Temperature	0.08 °C
Humidity	1.5%

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Radio module with 2.4GHz SRD	
Brand Name	Mira	
Test Model	Mira MWA-N2	
Series Model	N/A	
Model Difference(s)	N/A	
Product Description	Operation Frequency	2402 MHz ~2480 MHz
	Modulation Technology	GFSK
	Bit Rate of Transmitter	1Mbps
	Output Power Max.	18.63 dBm
Power Source	1# DC voltage supplied from AC/DC adapter(support unit).	
Power Rating	1# I/P: 100-240V~ 50/60Hz 0.5A Max O/P: 5.0V ⎓ 1.0A 2# DC 5V	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2402	28	2429	55	2456
02	2403	29	2430	56	2457
03	2404	30	2431	57	2458
04	2405	31	2432	58	2459
05	2406	32	2433	59	2460
06	2407	33	2434	60	2461
07	2408	34	2435	61	2462
08	2409	35	2436	62	2463
09	2410	36	2437	63	2464
10	2411	37	2438	64	2465
11	2412	38	2439	65	2466
12	2413	39	2440	66	2467
13	2414	40	2441	67	2468
14	2415	41	2442	68	2469
15	2416	42	2443	69	2470
16	2417	43	2444	70	2471
17	2418	44	2445	71	2472
18	2419	45	2446	72	2473
19	2420	46	2447	73	2474
20	2421	47	2448	74	2475
21	2422	48	2449	75	2476
22	2423	49	2450	76	2477
23	2424	50	2451	77	2478
24	2425	51	2452	78	2479
25	2426	52	2453	79	2480
26	2427	53	2454		
27	2428	54	2455		

3. Table for Filed Antenna:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	PCB	N/A	3.20
2	N/A	N/A	Dipole	N/A	2.15

Note:
The EUT supports the PCB and Dipole antenna. Both Ant. 1 and Ant. 2 support transmit and receive functions, but only one of them will be used at one time.

3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	TX Mode **Note (1)**
Mode 2	TX 2402 MHz _CH01_1Mbps

The EUT system operated these modes were found to be the worst case during the pre-scanning test as following:

AC power line conducted emissions test	
Final Test Mode	Description
Mode 2	TX 2402 MHz _CH01_1Mbps

Radiated Emission - Below 1GHz	
Final Test Mode	Description
Mode 2	TX 2402 MHz _CH01_1Mbps

Radiated Emission – Above 1GHz	
Final Test Mode	Description
Mode 1	TX Mode **Note (1)**

Conducted Emission	
Final Test Mode	Description
Mode 1	TX Mode **Note (1)**

Note:

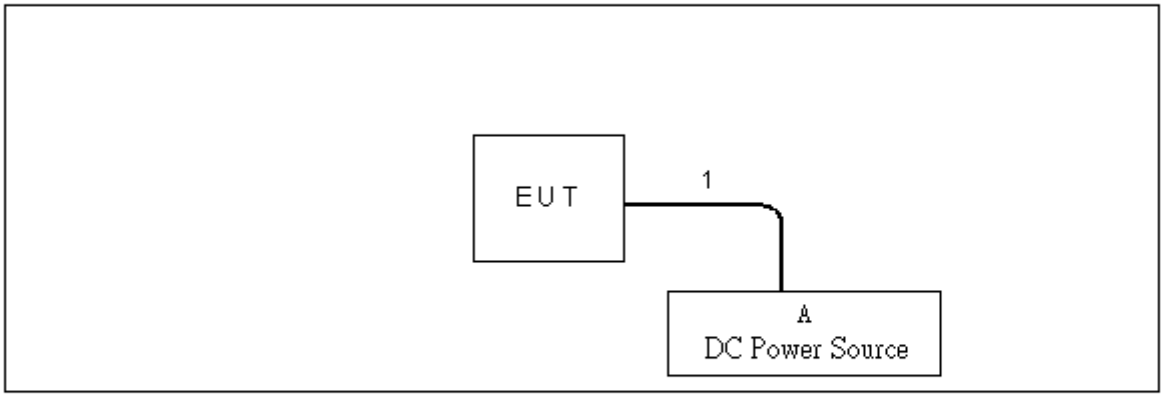
(1) The measurements are performed at the high, middle, low available channels.

3.3 TABLE OF PARAMETERS OF TEST SOFTWARE SETTING

During testing, channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of FHSS

Test Software Version	N/A		
Frequency (MHz)	2402	2440	2480
Power Parameters (1Mbps)	N/A	N/A	N/A

3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Brand	Model No.	Series No.
A	DC Power Source	TRUE-POWER	GPC30300N	NA

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	NO	NO	0.8m

4. EMC EMISSION TEST

4.1 AC POWER LINE CONDUCTED EMISSIONS TEST

4.1.1 POWER LINE CONDUCTED EMISSION LIMITS (Frequency Range 150 kHz-30 MHz)

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56*	56 to 46*
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note:

(1) The limit of " * " decreases with the logarithm of the frequency

(2) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)
Margin Level = Measurement Value - Limit Value

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

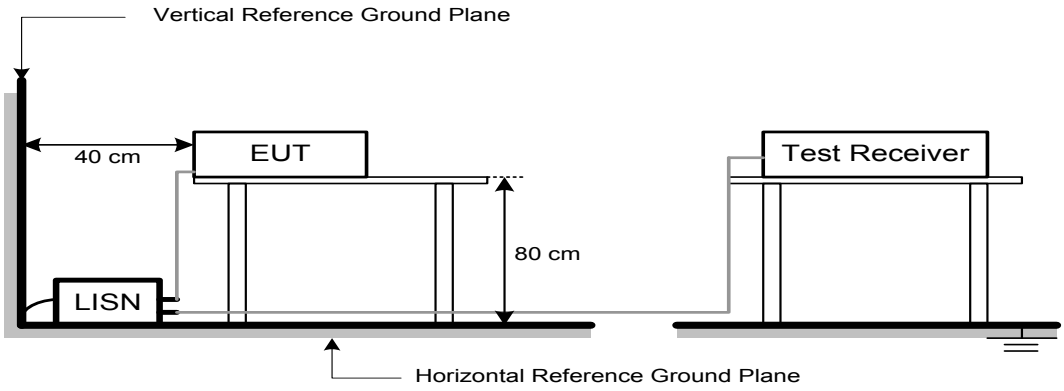
4.1.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 TEST SETUP



4.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical function (as a customer would normally use it), EUT was programmed to be in continuously transmitting/receiving data or hopping on mode.

4.1.6 EUT TEST CONDITIONS

Temperature: 25°C Relative Humidity: 53% Test Voltage: AC 120V/60Hz

4.1.7 TEST RESULTS

Please refer to the Appendix A.

Remark:

(1) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform in this case, a "*" marked in AVG Mode column of Interference Voltage Measured.

(2) Measuring frequency range from 150 kHz to 30 MHz.

4.2 RADIATED EMISSION MEASUREMENT

4.2.1 RADIATED EMISSION LIMITS

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

LIMITS OF RADIATED EMISSION MEASUREMENT (9 kHz-1000 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
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000 MHz)

Frequency (MHz)	(dBuV/m) (at 3 meters)	
	Peak	Average
Above 1000	74	54

Note:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Spectrum Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector
Start ~ Stop Frequency	30 MHz~1000 MHz for QP detector

4.2.2 TEST PROCEDURE

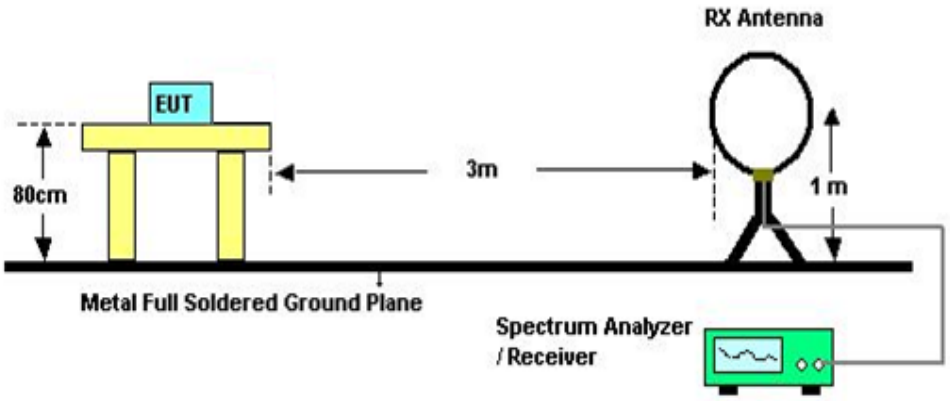
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1 GHz)
c. The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn‘t perform. (below 1 GHz)
h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn‘t perform. (above 1 GHz)
i. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.2.3 DEVIATION FROM TEST STANDARD

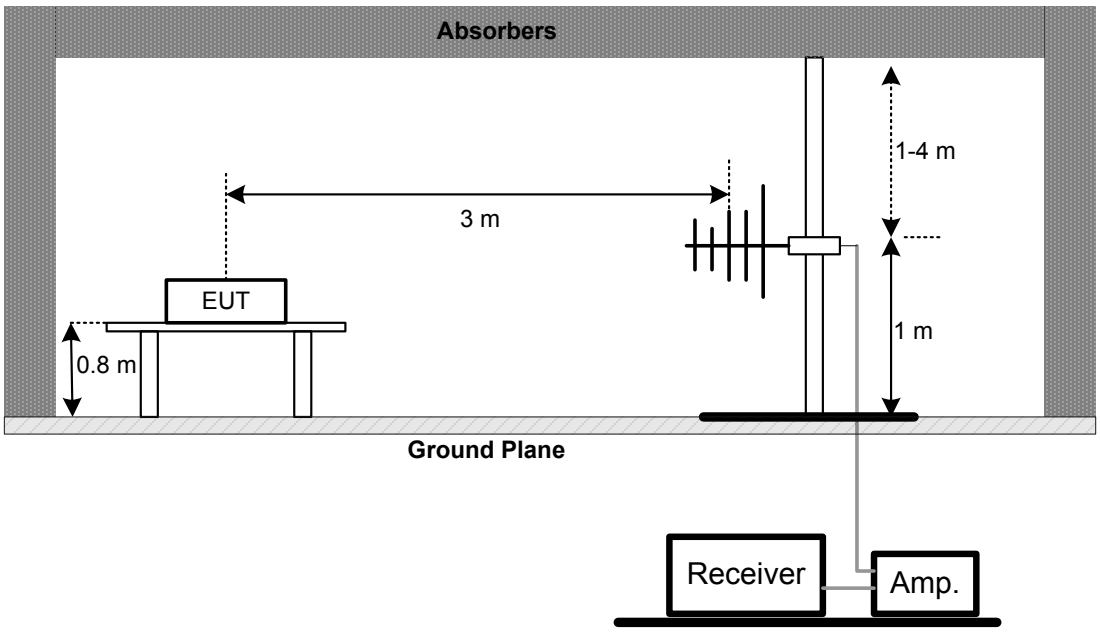
No deviation

4.2.4 TEST SETUP

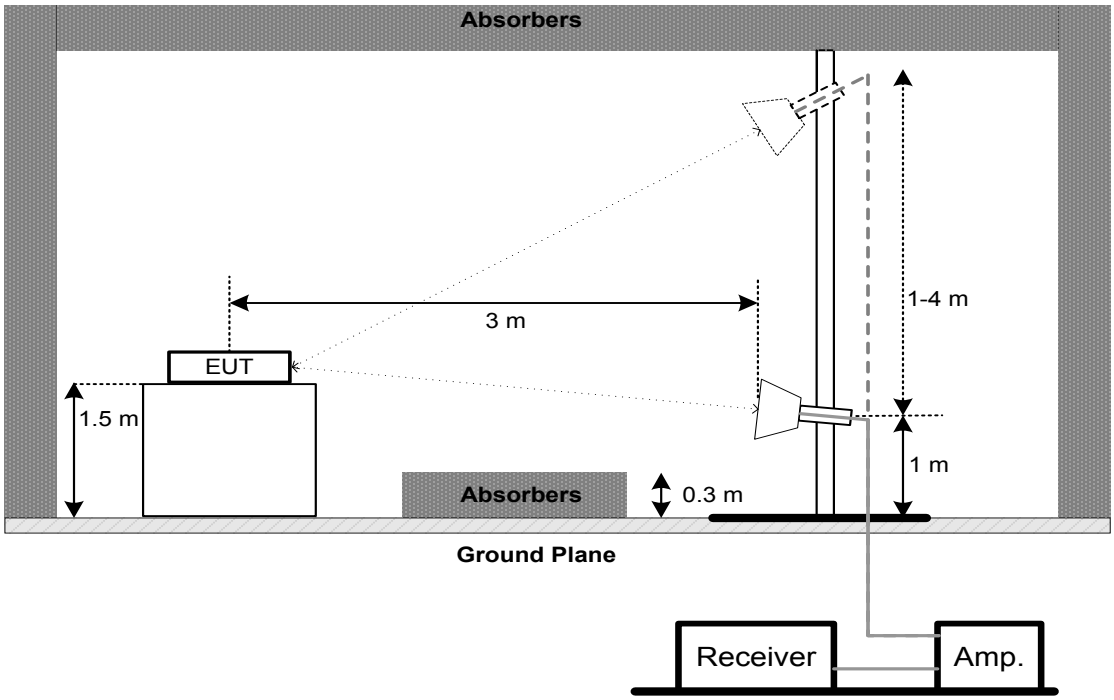
9 kHz-30 MHz



30 MHz to 1 GHz



Above 1 GHz



4.2.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.2.6 EUT TEST CONDITIONS

Temperature: 24°C Relative Humidity: 68% Test Voltage: DC 5V

4.2.7 TEST RESULTS (9 kHz TO 30 MHz)

Please refer to the Appendix B

Remark:

(1) Distance extrapolation factor = 40 log (specific distance / test distance) (dB).
(2) Limit line = specific limits (dBuV) + distance extrapolation factor.

4.2.8 TEST RESULTS (30 MHz TO 1000 MHz)

Please refer to the Appendix C.

4.2.9 TEST RESULTS (ABOVE 1000 MHz)

Please refer to the Appendix D.

Remark:

(1) No limit: This is fundamental signal, the judgment is not applicable.
For fundamental signal judgment was referred to Peak output test.

5. NUMBER OF HOPPING FREQUENCY

5.1 APPLIED PROCEDURES

FCC Part15 (15.247) , Subpart C			
Section	Test Item	Frequency Range (MHz)	Result
15.247(a)(1)(iii)	Number of Hopping Frequency	2400-2483.5	PASS

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> Operating Frequency Range
RBW	100 kHz
VBW	100 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

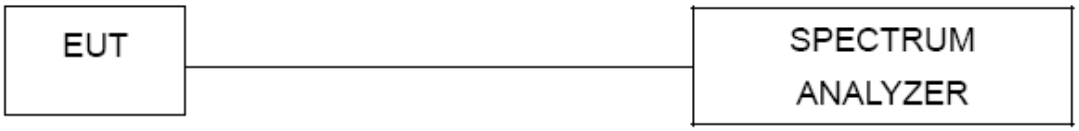
5.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. Spectrum Setting: RBW=100 kHz, VBW=100 kHz, Sweep time = Auto.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

5.1.5 EUT TEST CONDITIONS

Temperature: 24°C Relative Humidity: 60% Test Voltage: DC 5V

5.1.6 TEST RESULTS

Please refer to the Appendix E

6. HOPPING CHANNEL SEPARATION MEASUREMENT

6.1 APPLIED PROCEDURES / LIMIT

Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RBW	30 kHz
VBW	100 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

6.1.1 TEST PROCEDURE

a. The EUT must have its hopping function enabled

b. Span = wide enough to capture the peaks of two adjacent channels
Resolution (or IF) Bandwidth (RBW) ≥ 1% of the span
Video (or Average) Bandwidth (VBW) ≥ RBW
Sweep = Auto
Detector function = Peak
Trace = Max Hold

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP

6.1.4 EUT TEST CONDITIONS

Temperature: 24°C Relative Humidity: 60% Test Voltage: DC 5V

6.1.5 TEST RESULTS

Please refer to the Appendix F

7. BANDWIDTH TEST

7.1 APPLIED PROCEDURES

FCC Part15 (15.247) , Subpart C		
Section	Test Item	Frequency Range (MHz)
15.247(a)(2)	Bandwidth	2400-2483.5

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth
RBW	30 kHz
VBW	100 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

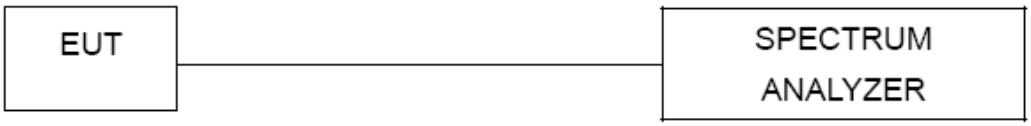
7.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. Spectrum Setting: RBW= 30 kHz, VBW=100 kHz, Sweep Time = Auto.

7.1.2 DEVIATION FROM STANDARD

No deviation.

7.1.3 TEST SETUP



7.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

7.1.5 EUT TEST CONDITIONS

Temperature: 24°C Relative Humidity: 60% Test Voltage: DC 5V

7.1.6 TEST RESULTS

Please refer to the Appendix G

8. MAXIMUM OUTPUT POWER

8.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(1)	Maximum Output Power	0.125Watt or 21dBm	2400-2483.5	PASS

Note: Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB band width of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

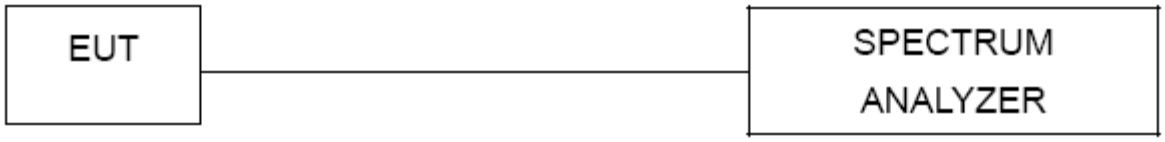
8.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. Spectrum Setting: RBW= 1 MHz/3 MHz, VBW= 1 MHz/3 MHz, Sweep time = Auto.

8.1.2 DEVIATION FROM STANDARD

No deviation.

8.1.3 TEST SETUP



8.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

8.1.5 EUT TEST CONDITIONS

Temperature: 24°C Relative Humidity: 60% Test Voltage: DC 5V

8.1.6 TEST RESULTS

Please refer to the Appendix H

9. ANTENNA CONDUCTED SPURIOUS EMISSION

9.1 APPLIED PROCEDURES / LIMIT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak Output Power limits. If the transmitter complies with the Output Power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

9.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. Spectrum Setting: RBW= 100 kHz, VBW=100 kHz, Sweep time = Auto.

9.1.2 DEVIATION FROM STANDARD

No deviation.

9.1.3 TEST SETUP

9.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

9.1.5 EUT TEST CONDITIONS

Temperature: 24°C Relative Humidity: 60% Test Voltage: DC 5V

9.1.6 TEST RESULTS

Please refer to the Appendix I

10. MEASUREMENT INSTRUMENTS LIST

AC Power Line Conducted Emissions Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI	100382	Mar. 10, 2020
2	LISN	EMCO	3816/2	52765	Mar. 10, 2020
3	50ohm Terminator	SHX	TF5-3	15041305	Mar. 10, 2020
4	Artificial-Mains Network	SCHWARZBECK	NSLK 8127	8127685	Mar. 10, 2020
5	TRANSIENT LIMITER	EM	EM-7600	772	Mar. 10, 2020
6	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
7	Cable	N/A	RG223	12m	Mar. 12, 2020

Radiated Emission Measurement - 9kHz TO 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Loop Antenna	EM	EM-6876-1	230	Jan. 15, 2020
2	Cable	N/A	RG 213/U	C-102	Jun. 01, 2019
3	EMI Test Receiver	R&S	ESCI	100895	Mar. 10, 2020
4	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Radiated Emission Measurement - 30 MHz TO 1000 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarzbeck	VULB9160	9160-3232	Mar. 09, 2020
2	Amplifier	HP	8447D	2944A09673	Aug. 11, 2019
3	Receiver	Agilent	N9038A	MY52130039	Aug. 11, 2019
4	Cable	emci	LMR-400(30MHz-1 GHz)(8m+5m)	N/A	May 24, 2020
5	Controller	CT	SC100	N/A	N/A
6	Controller	MF	MF-7802	MF780208416	N/A
7	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Radiated Emission Measurement - Above 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Double Ridged Guide Antenna	ETS	3115	75789	Mar. 09, 2020
2	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Jun. 30, 2019
3	Amplifier	Agilent	8449B	3008A02333	Mar. 10, 2020
4	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 10, 2020
5	Receiver	Agilent	N9038A	MY52130039	Aug. 11, 2019
6	Controller	CT	SC100	N/A	N/A
7	Controller	MF	MF-7802	MF780208416	N/A
8	Cable	mitron	B10-01-01-12M	18072744	Jul. 30, 2019
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Number of Hopping Channel					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 11, 2019

Hopping Channel Separation Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 11, 2019

Bandwidth					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 11, 2019

Maximum Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 11, 2019

Antenna Conducted Spurious Emission					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP40	100185	Aug. 11, 2019

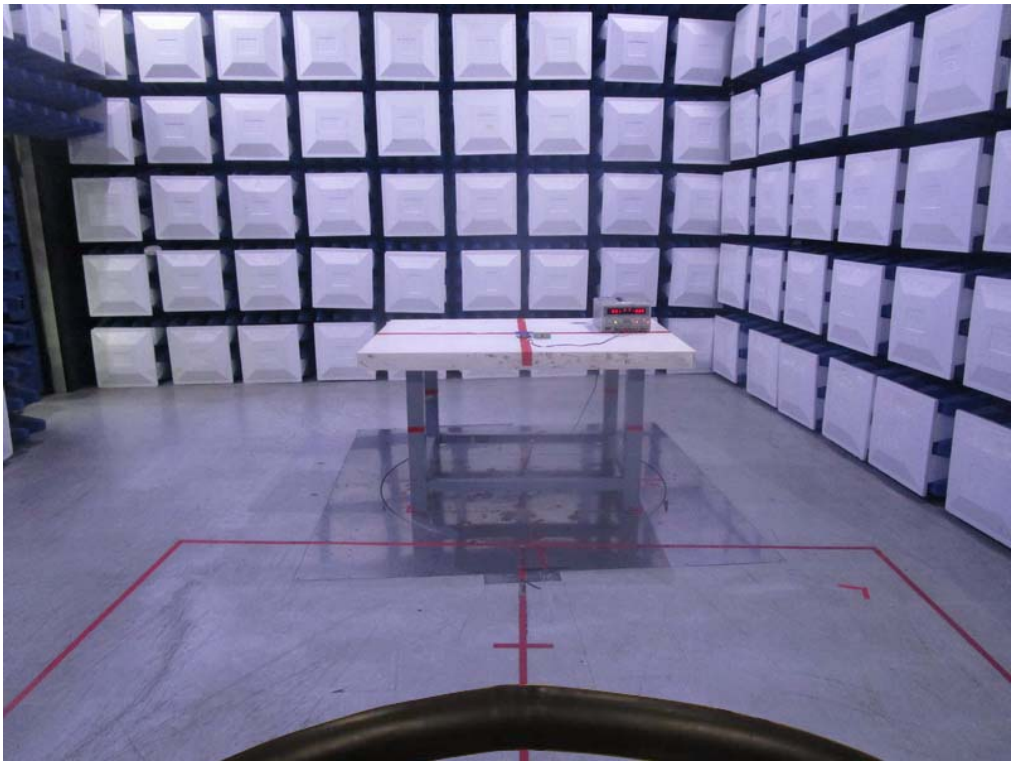
Remark "N/A" denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

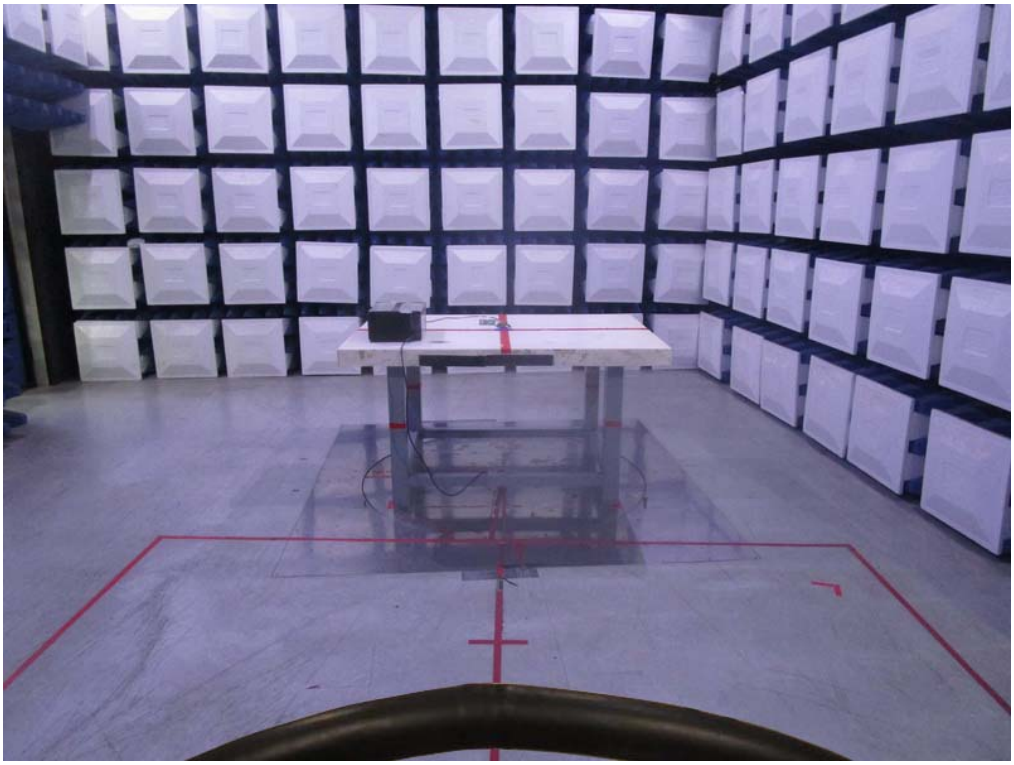
11. EUT TEST PHOTO

AC Power Line Conducted Emissions Test Photos

Radiated Emissions Test Photos

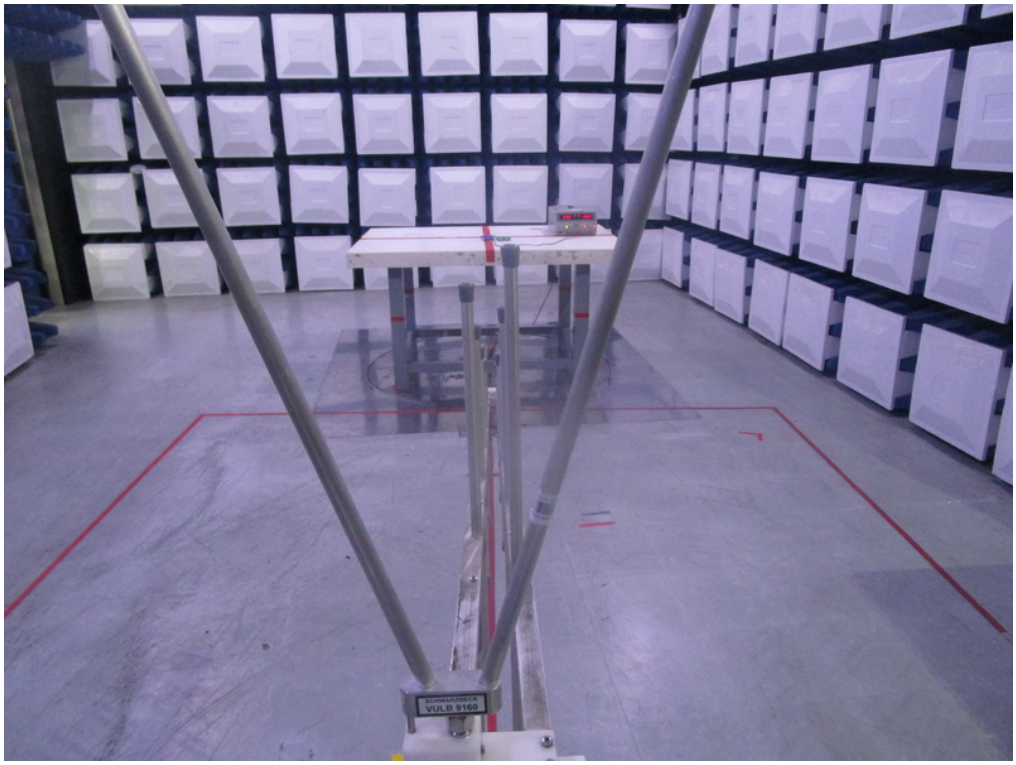
9 kHz to 30 MHz

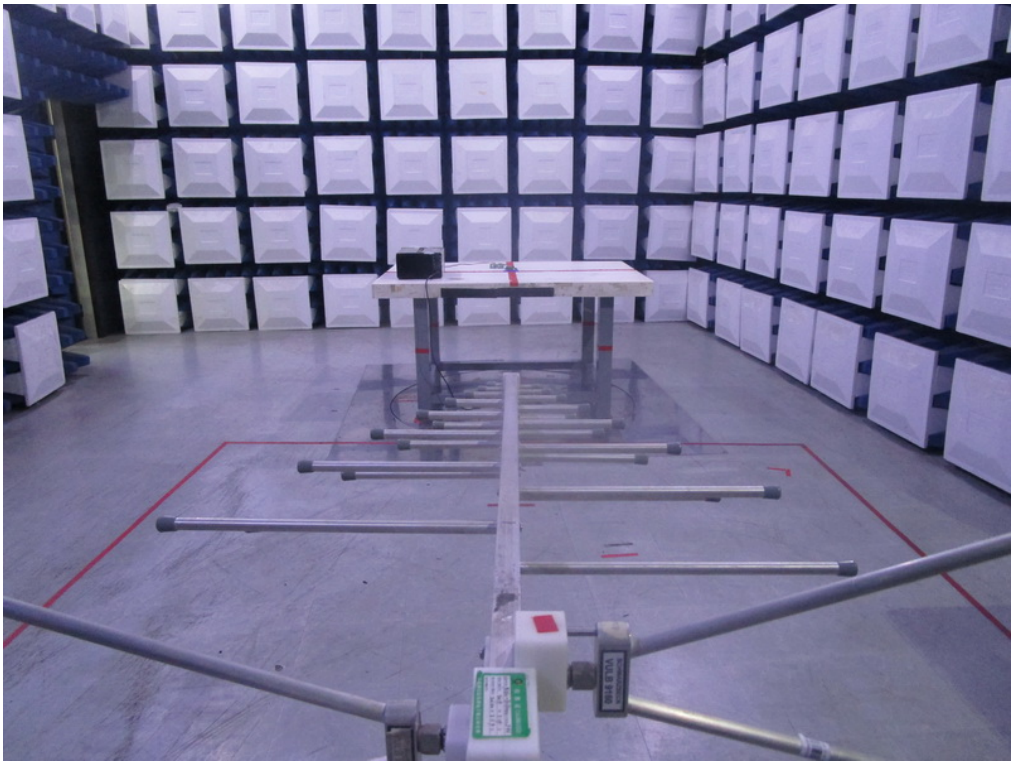




Radiated Emissions Test Photos_ANT1

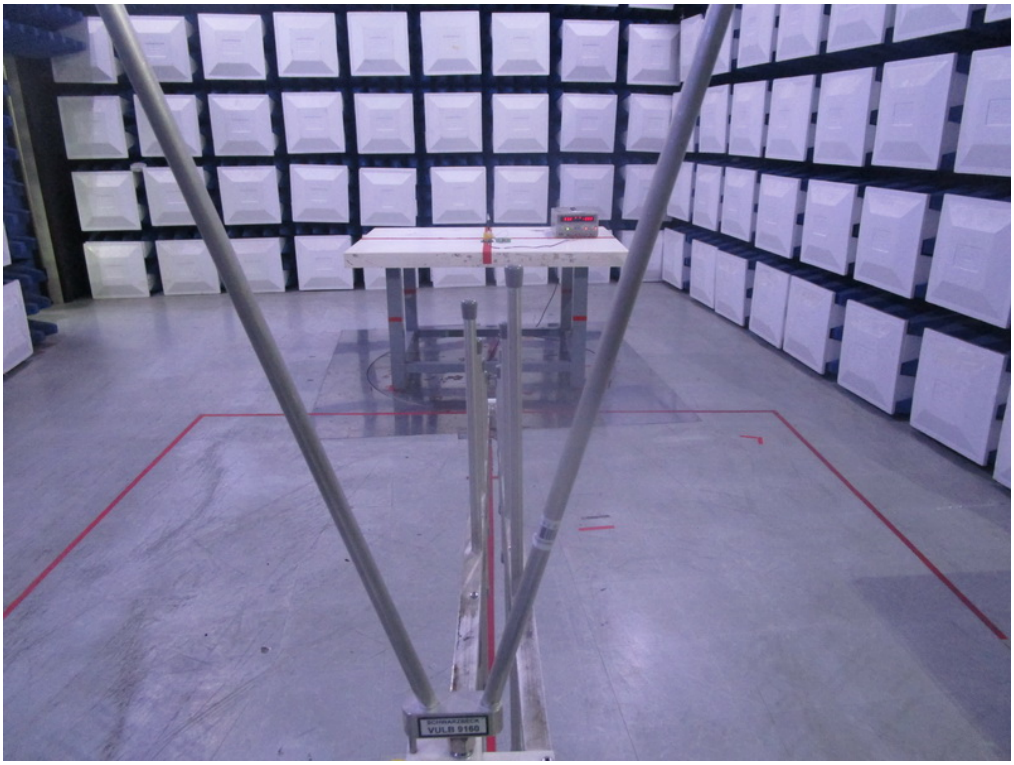
30 MHz to 1000 MHz

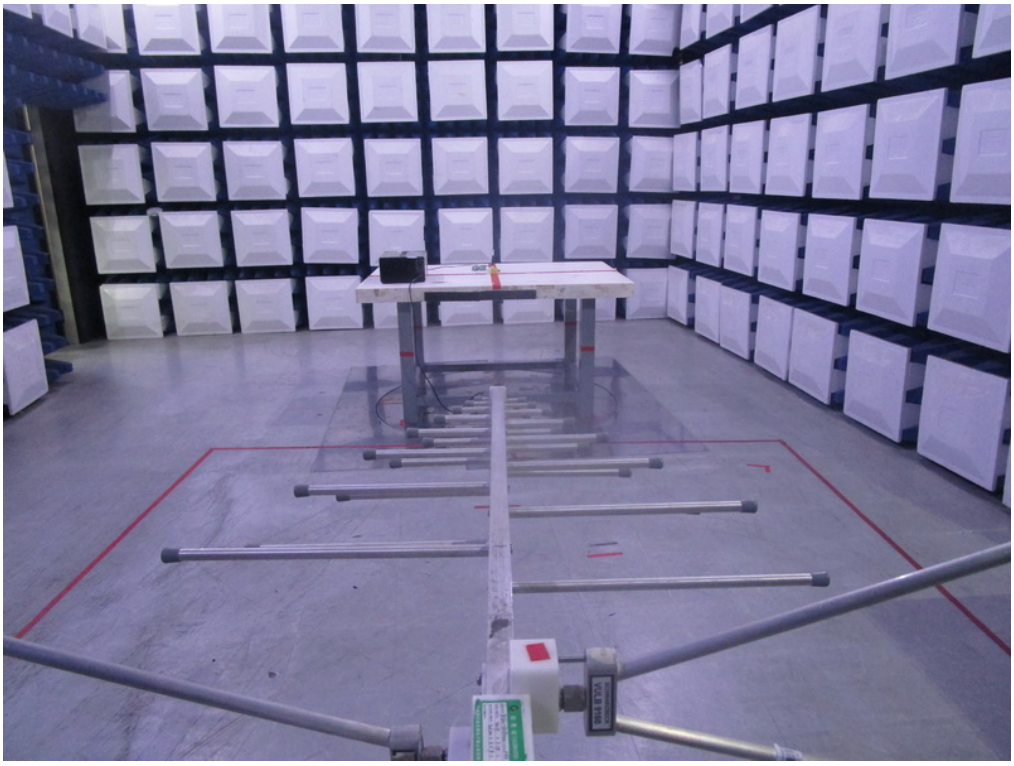




Radiated Emissions Test Photos_ANT2

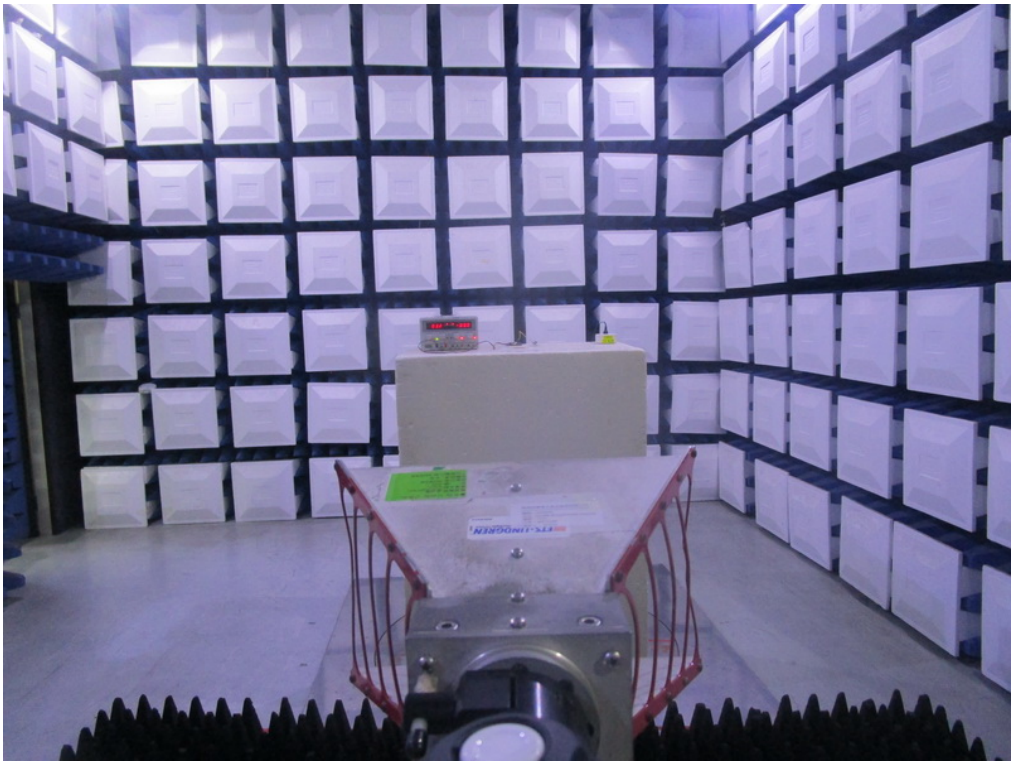
30 MHz to 1000 MHz

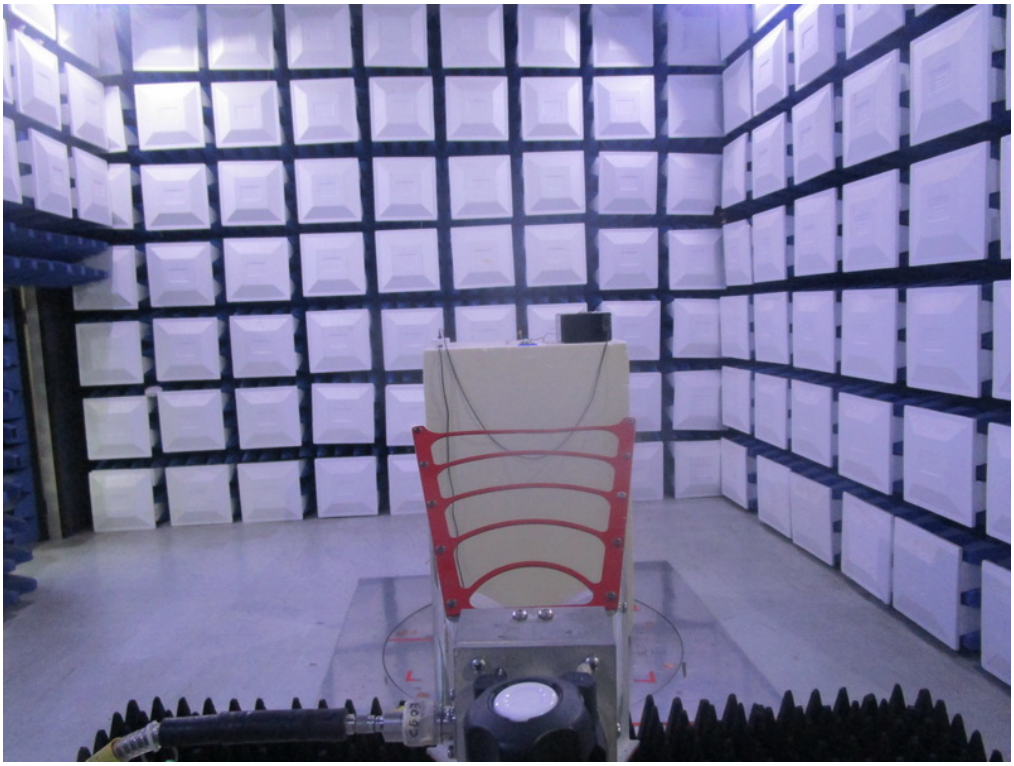




Radiated Emissions Test Photos_ANT1

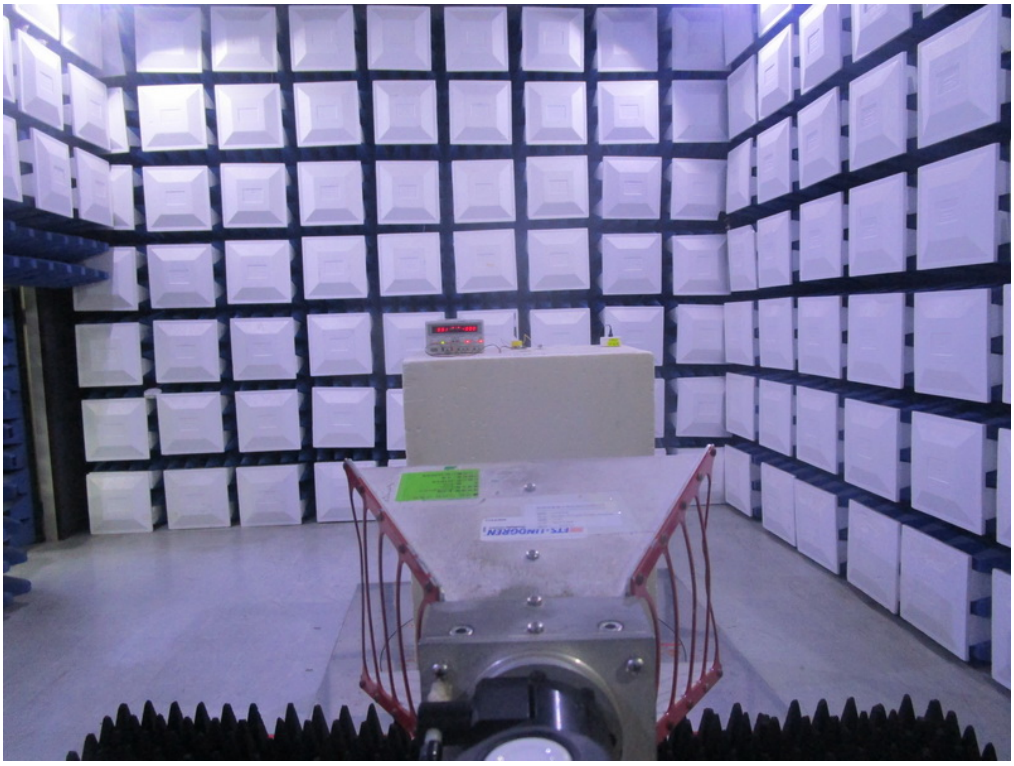
Above 1000 MHz

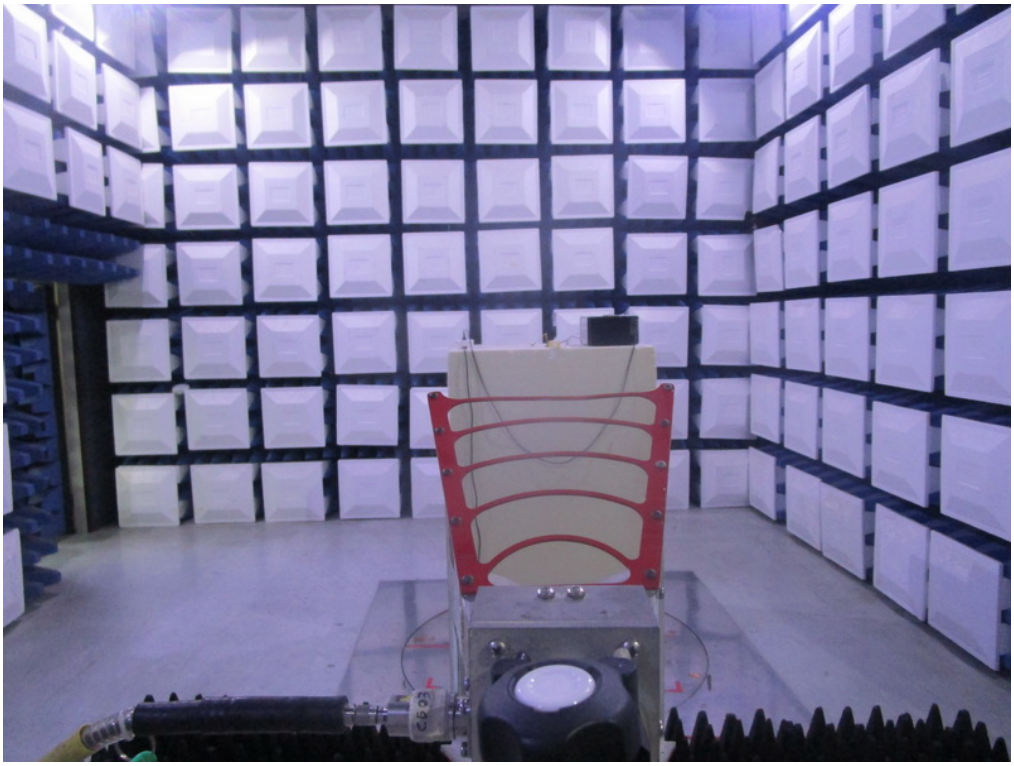




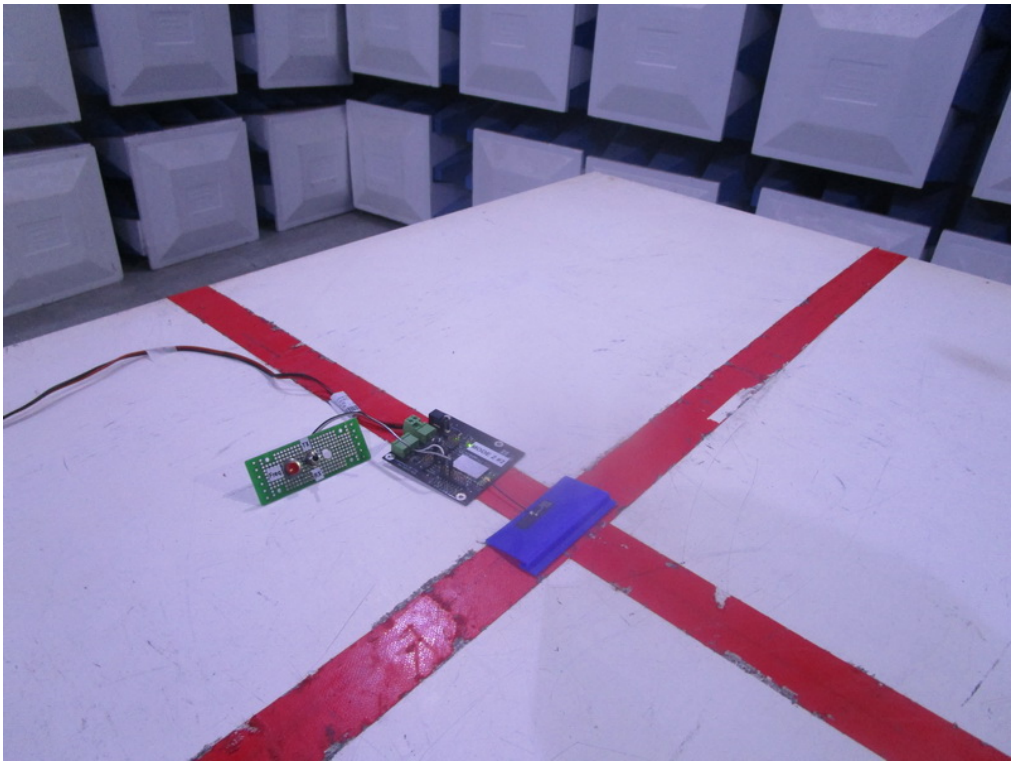
Radiated Emissions Test Photos_ANT2

Above 1000 MHz

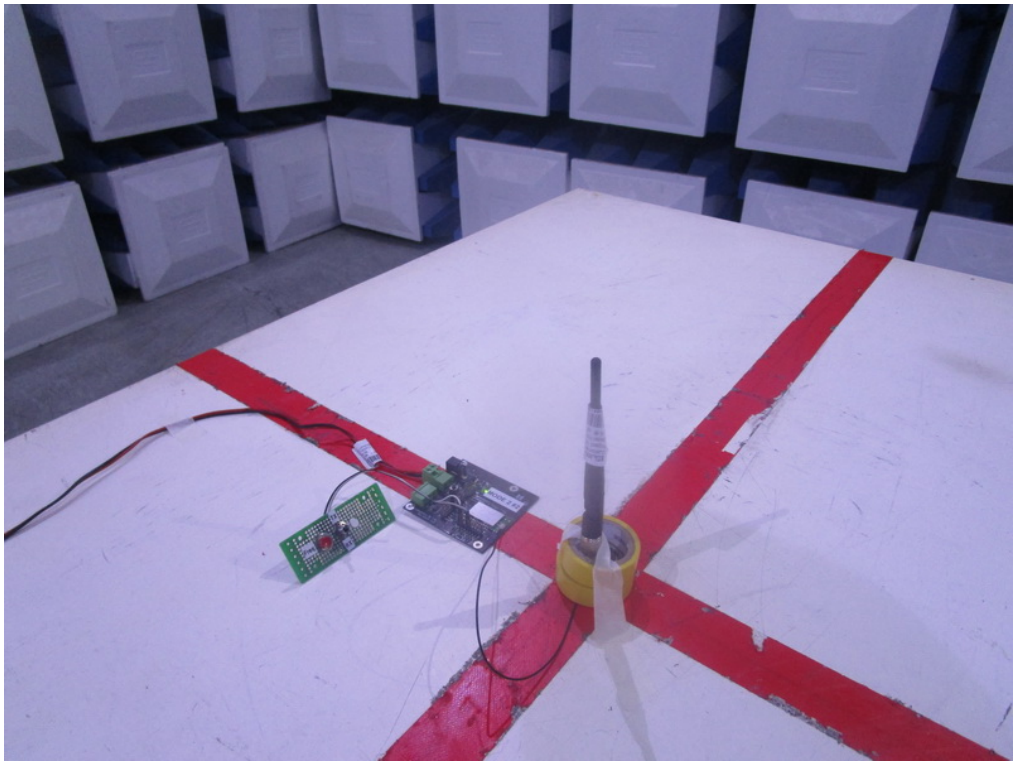




ANT1



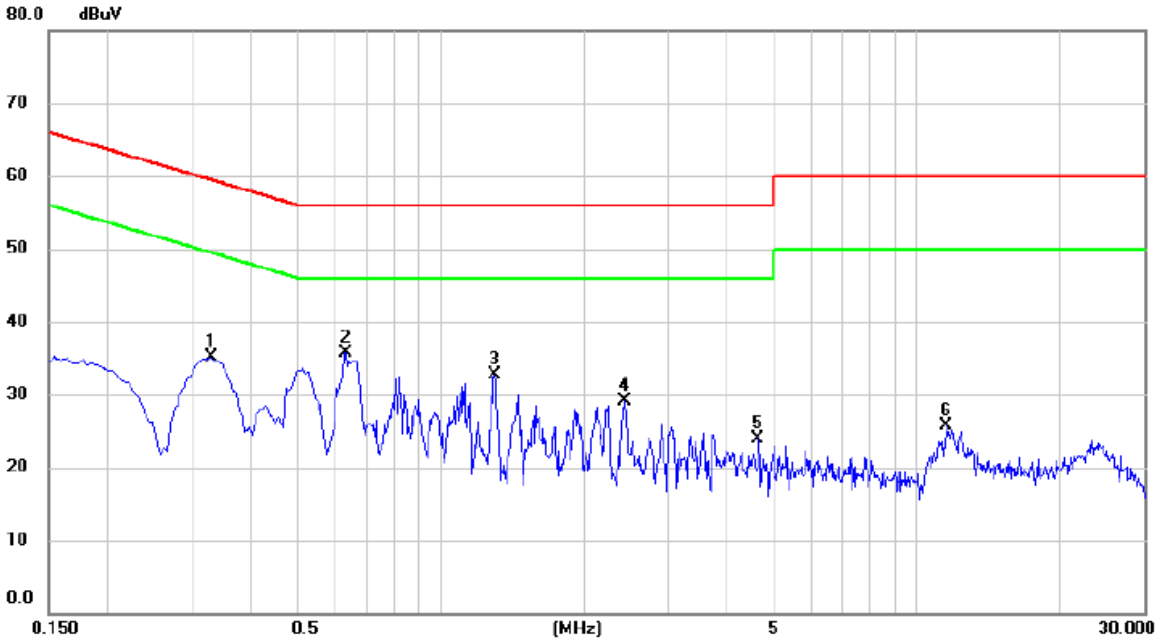
ANT2



APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

Test Mode:	TX 2402 MHz _CH01_1Mbps

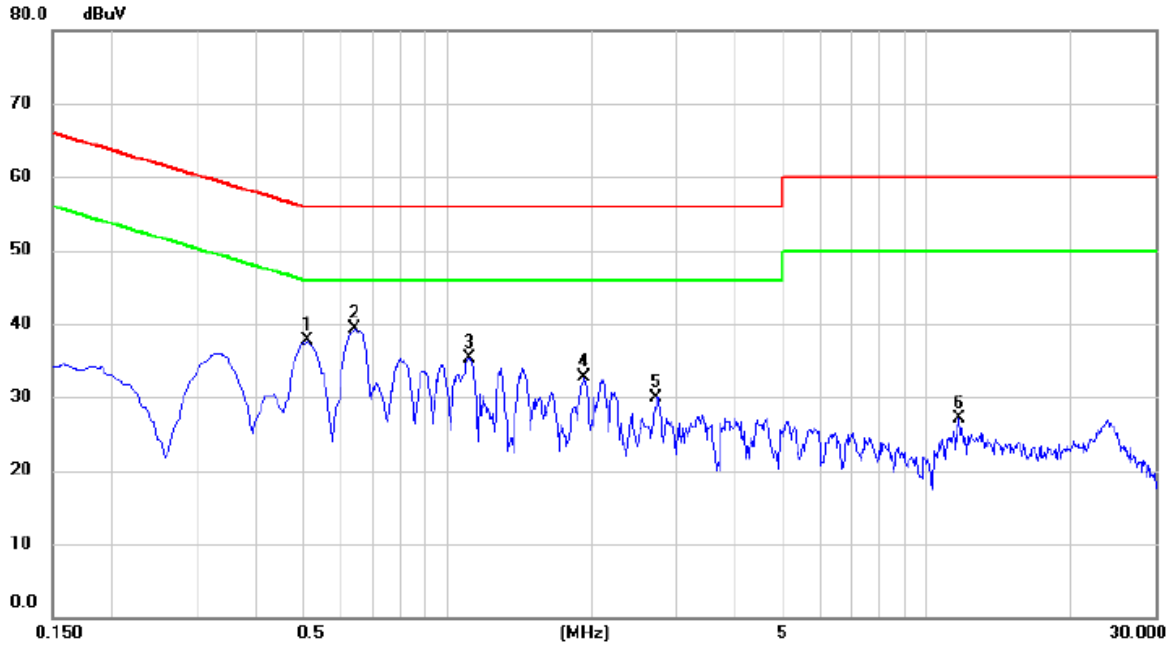
Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.3300	25.24	9.85	35.09	59.45	-24.36	peak	
2	*	0.6315	25.85	9.89	35.74	56.00	-20.26	peak	
3		1.3020	22.86	9.94	32.80	56.00	-23.20	peak	
4		2.4360	19.01	10.02	29.03	56.00	-26.97	peak	
5		4.6455	13.83	10.17	24.00	56.00	-32.00	peak	
6		11.5260	15.10	10.57	25.67	60.00	-34.33	peak	

Test Mode:	TX 2402 MHz _CH01_1Mbps

Neutral

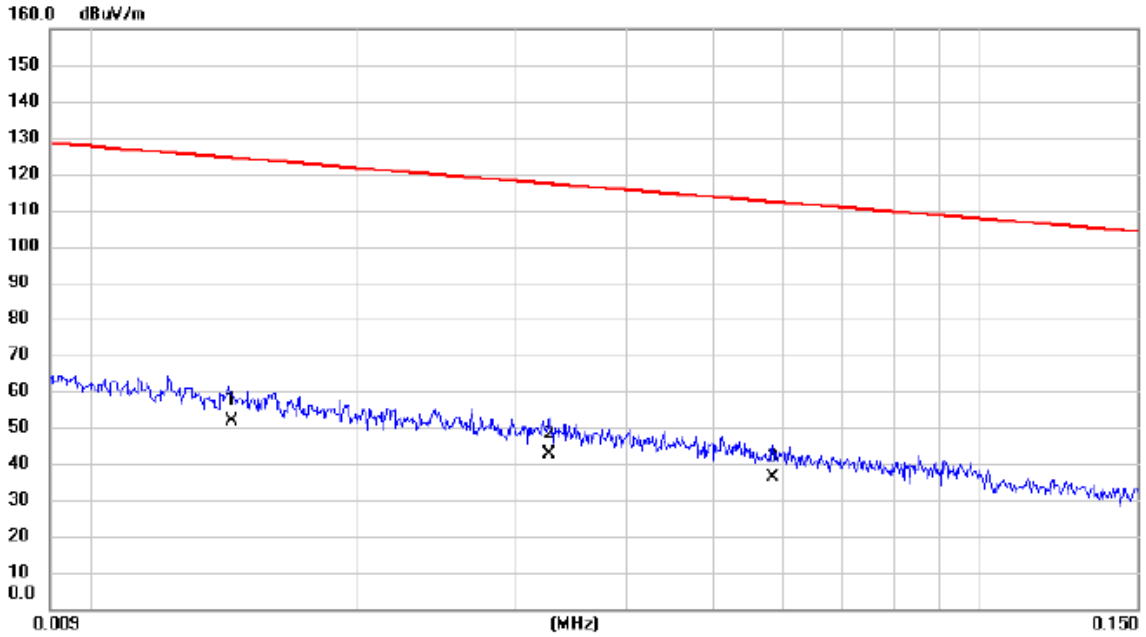


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.5100	27.67	10.03	37.70	56.00	-18.30	peak	
2	*	0.6405	29.27	10.05	39.32	56.00	-16.68	peak	
3		1.1085	25.27	10.13	35.40	56.00	-20.60	peak	
4		1.9320	22.49	10.19	32.68	56.00	-23.32	peak	
5		2.7240	19.65	10.23	29.88	56.00	-26.12	peak	
6		11.7150	16.30	10.86	27.16	60.00	-32.84	peak	

APPENDIX B - RADIATED EMISSION (9 KHZ-30 MHZ)

Test Mode:	TX 2402 MHz _CH01_1Mbps

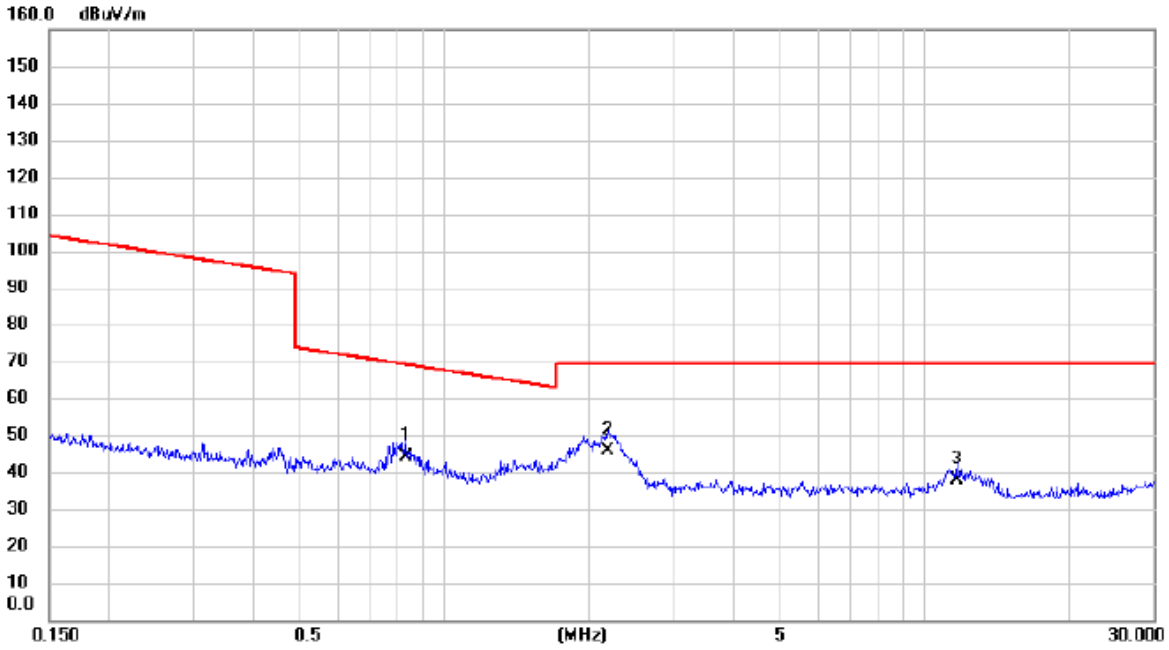
Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0144	36.20	15.50	51.70	124.44	-72.74	AVG	
2		0.0328	28.70	13.87	42.57	117.29	-74.72	AVG	
3		0.0584	22.30	13.80	36.10	112.28	-76.18	AVG	

Test Mode:	TX 2402 MHz _CH01_1Mbps

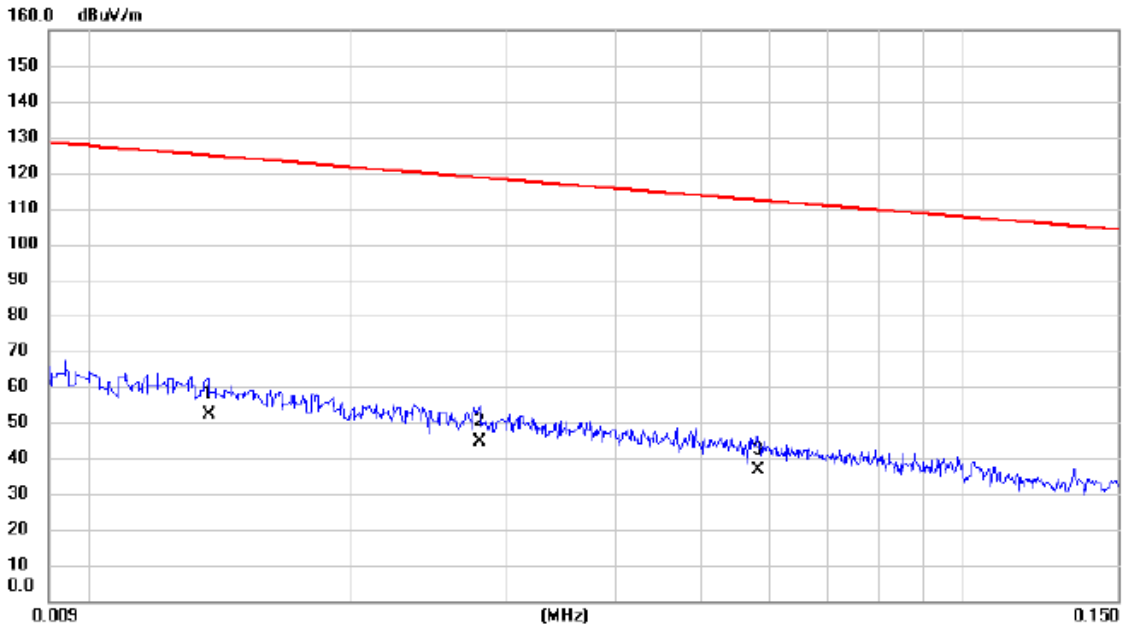
Ant 0°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.8305	31.70	12.56	44.26	69.22	-24.96	QP	
2	*	2.1898	34.20	11.71	45.91	69.54	-23.63	QP	
3		11.6826	26.10	11.62	37.72	69.54	-31.82	QP	

Test Mode:	TX 2402 MHz _CH01_1Mbps

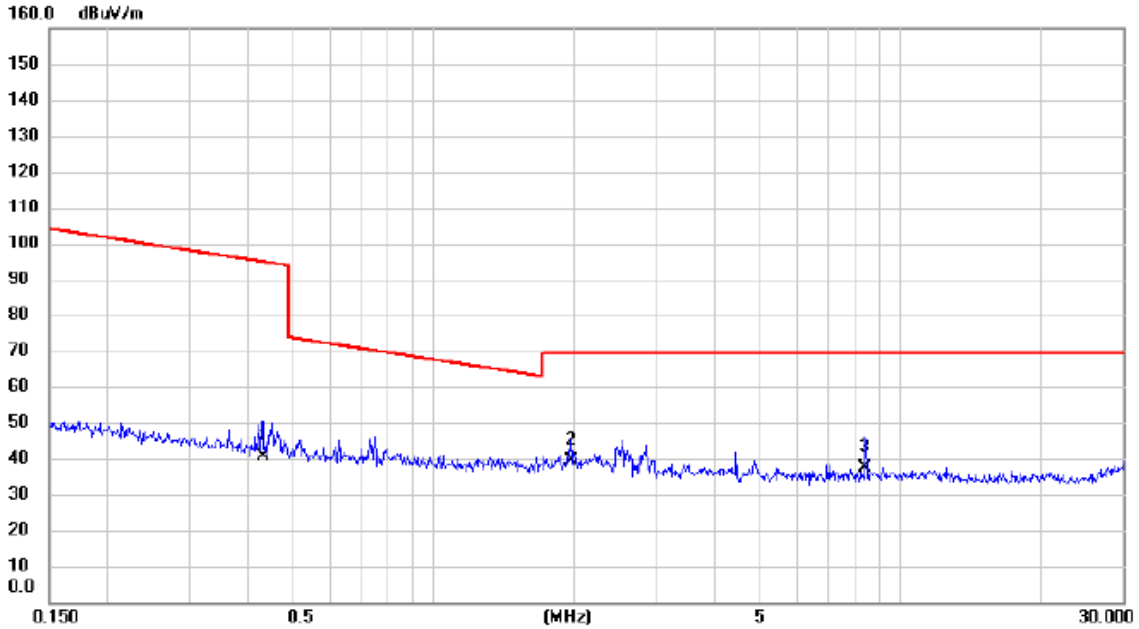
Ant 90°



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0137	36.30	15.71	52.01	124.87	-72.86	AVG	
2		0.0280	30.90	13.85	44.75	118.66	-73.91	AVG	
3		0.0581	22.80	13.80	36.60	112.32	-75.72	AVG	

Test Mode:	TX 2402 MHz _CH01_1Mbps

Ant 90°

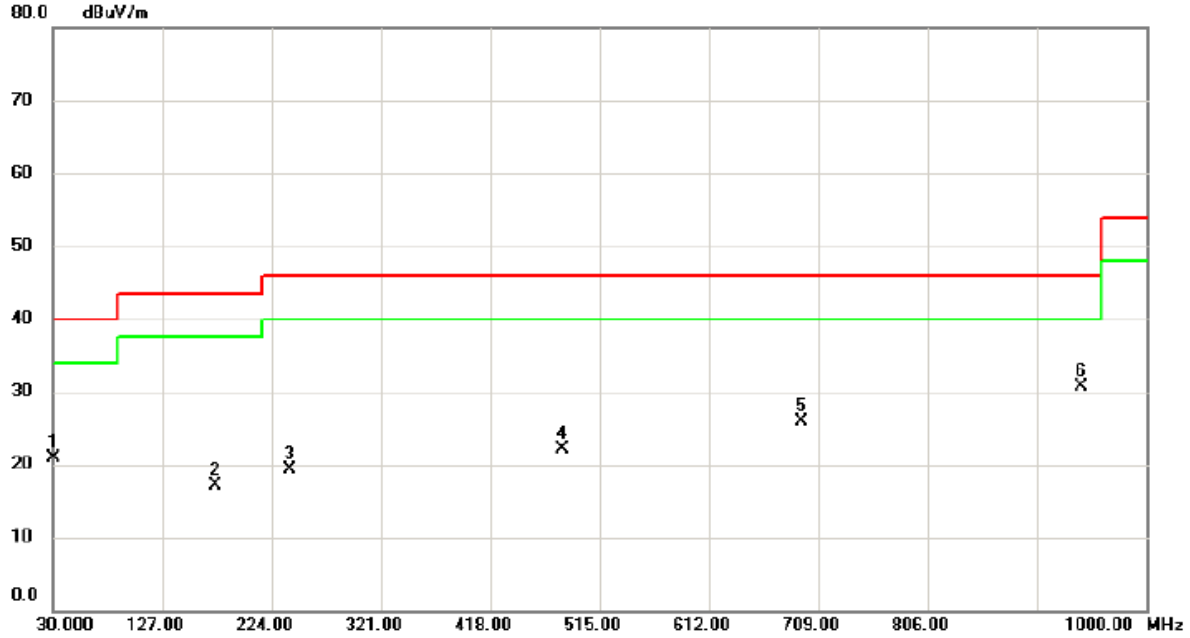


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		0.4305	27.30	13.23	40.53	94.92	-54.39	AVG	
2	*	1.9697	27.50	11.83	39.33	69.54	-30.21	QP	
3		8.4115	26.10	11.39	37.49	69.54	-32.05	QP	

APPENDIX C - RADIATED EMISSION (30 MHZ TO 1000 MHZ)

Test Mode:	TX 2402 MHz _CH01_1Mbps_ANT1

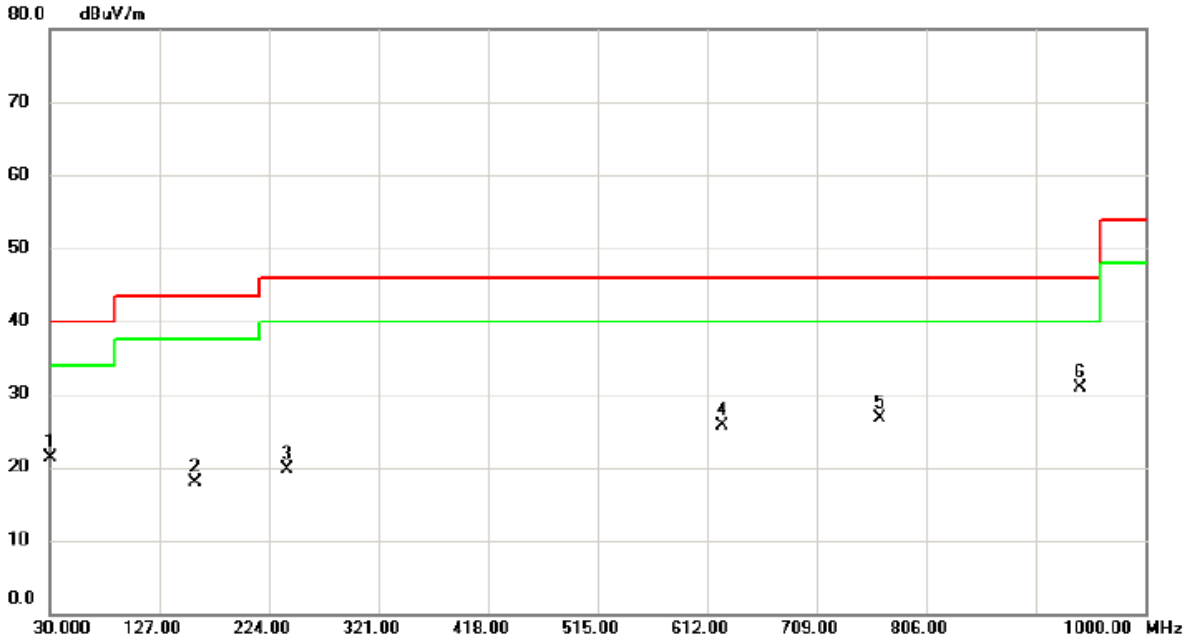
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		30.000	35.91	-15.02	20.89	40.00	-19.11	peak	
2		173.560	29.93	-12.74	17.19	43.50	-26.31	peak	
3		240.005	33.43	-14.06	19.37	46.00	-26.63	peak	
4		482.020	29.93	-7.89	22.04	46.00	-23.96	peak	
5		693.480	30.09	-4.13	25.96	46.00	-20.04	peak	
6	*	941.800	31.65	-0.90	30.75	46.00	-15.25	peak	

Test Mode:	TX 2402 MHz _CH01_1Mbps_ANT1

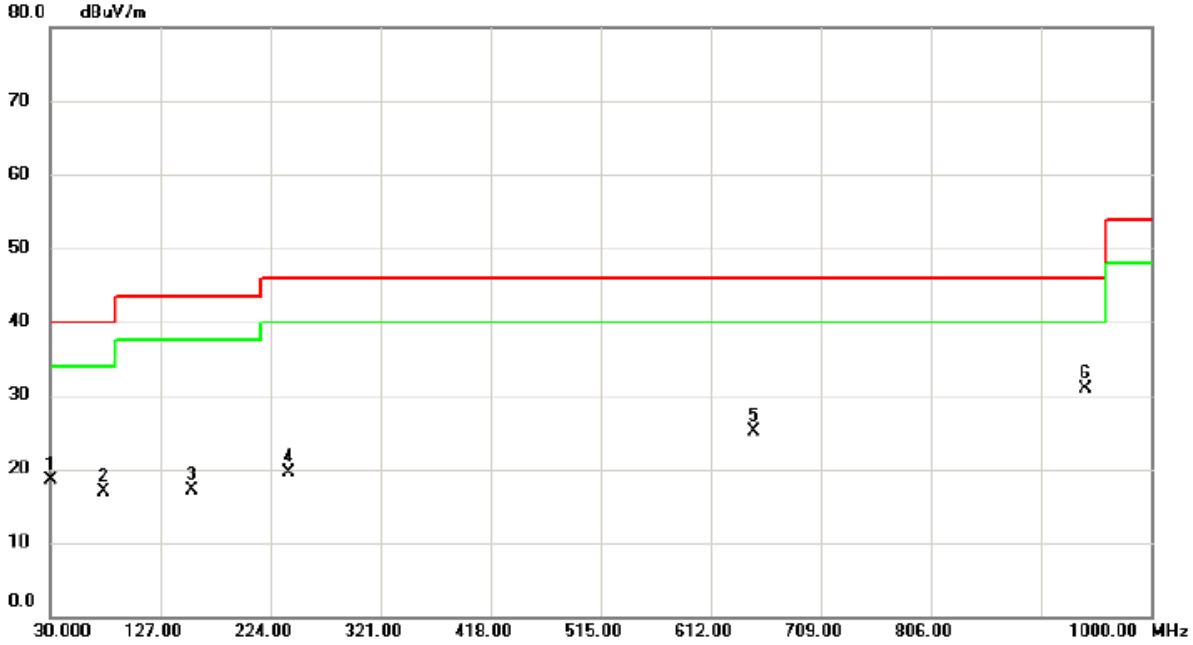
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		30.000	36.34	-15.02	21.32	40.00	-18.68	peak	
2		158.525	29.08	-11.26	17.82	43.50	-25.68	peak	
3		240.005	33.83	-14.06	19.77	46.00	-26.23	peak	
4		625.095	30.99	-5.25	25.74	46.00	-20.26	peak	
5		765.260	30.12	-3.47	26.65	46.00	-19.35	peak	
6	*	941.800	31.76	-0.90	30.86	46.00	-15.14	peak	

Test Mode:	TX 2402 MHz _CH01_1Mbps_ANT2

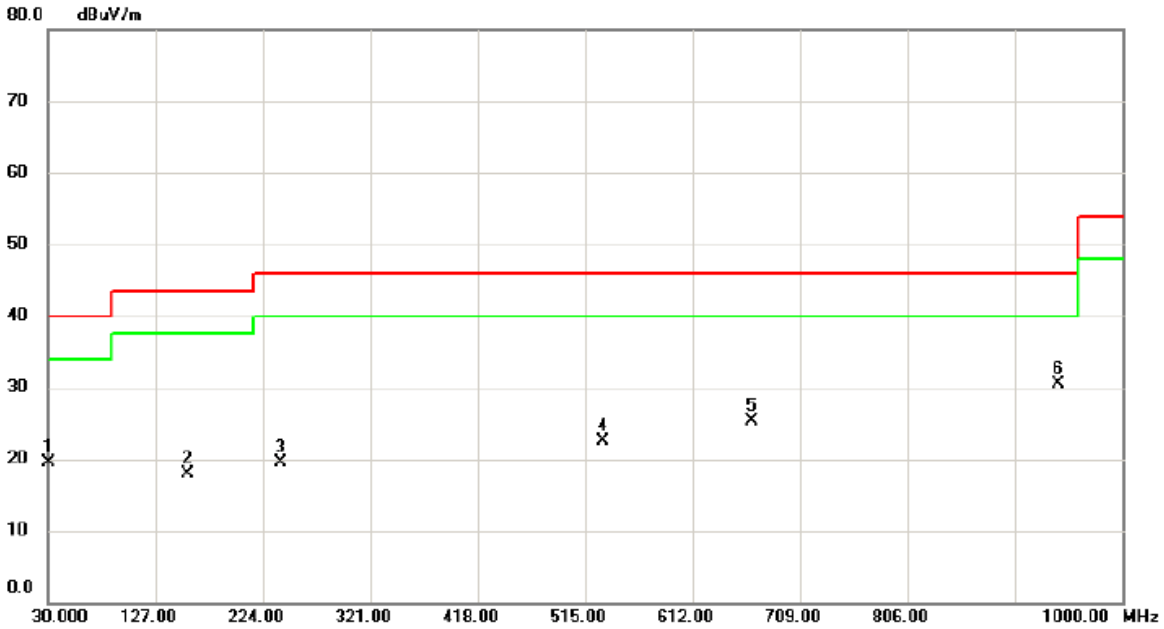
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		30.000	33.48	-15.02	18.46	40.00	-21.54	peak	
2		77.530	34.60	-17.62	16.98	40.00	-23.02	peak	
3		155.130	28.80	-11.69	17.11	43.50	-26.39	peak	
4		240.005	33.58	-14.06	19.52	46.00	-26.48	peak	
5		649.830	29.79	-4.71	25.08	46.00	-20.92	peak	
6	*	941.800	31.77	-0.90	30.87	46.00	-15.13	peak	

Test Mode:	TX 2402 MHz _CH01_1Mbps_ANT2

Horizontal

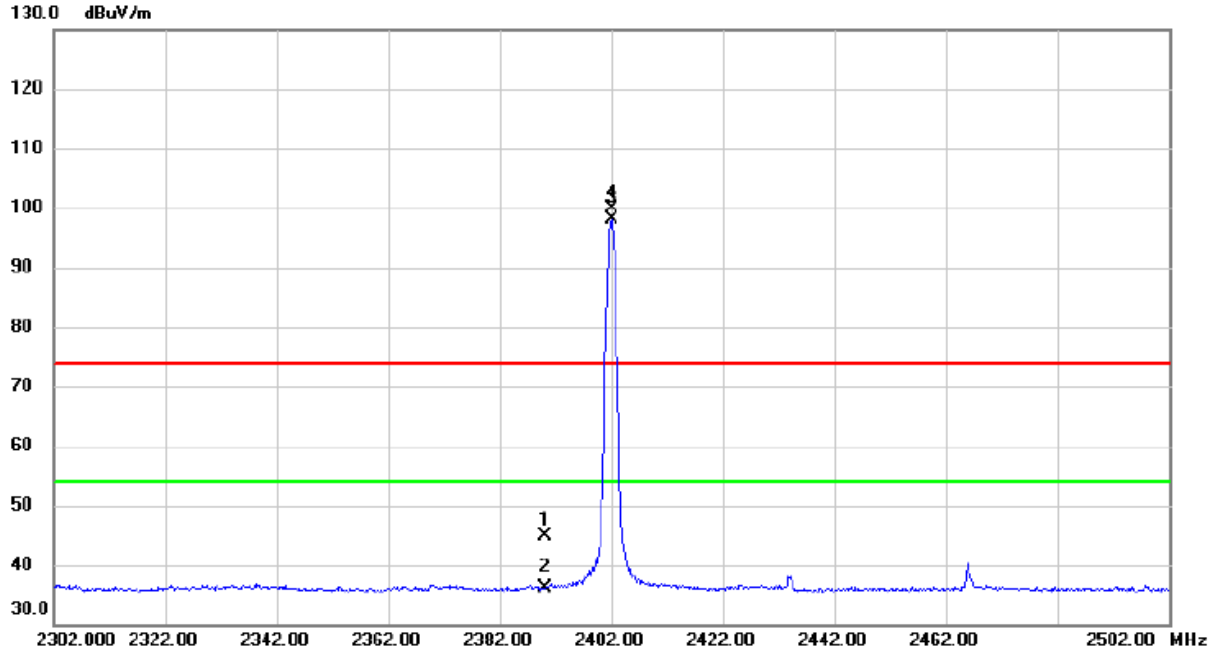


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		30.000	34.60	-15.02	19.58	40.00	-20.42	peak	
2		156.100	29.40	-11.57	17.83	43.50	-25.67	peak	
3		240.005	33.57	-14.06	19.51	46.00	-26.49	peak	
4		531.490	30.00	-7.46	22.54	46.00	-23.46	peak	
5		665.835	29.89	-4.49	25.40	46.00	-20.60	peak	
6	*	941.800	31.49	-0.90	30.59	46.00	-15.41	peak	

APPENDIX D - RADIATED EMISSION (ABOVE 1000 MHZ)

Test Mode:	TX 2402 MHz _CH01_1Mbps_ANT1

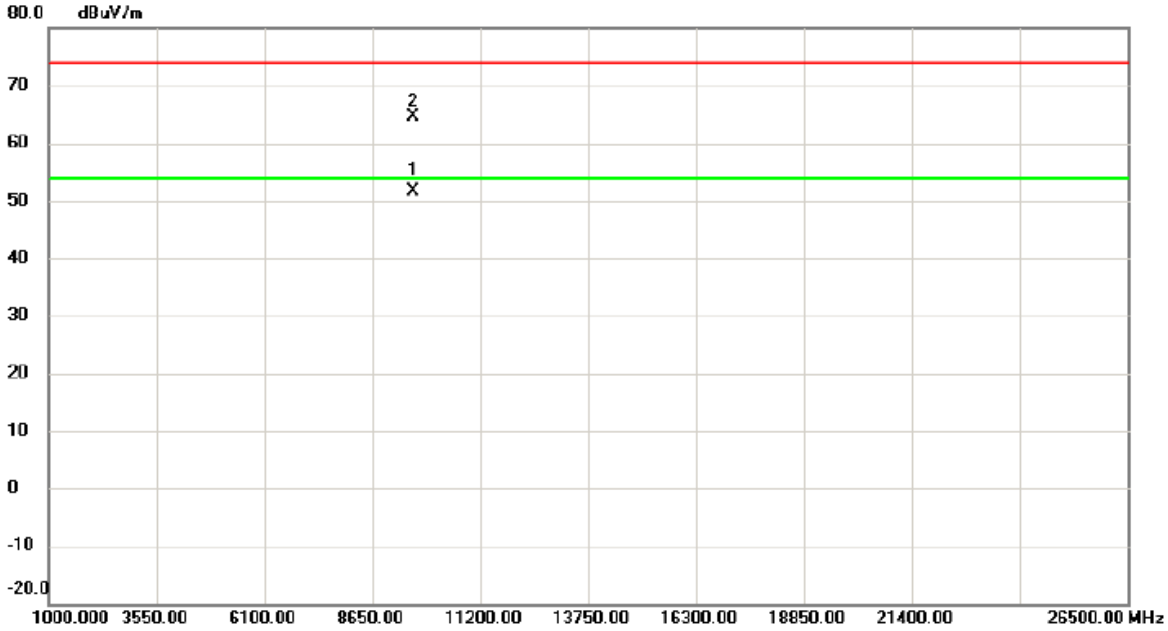
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	38.30	6.53	44.83	74.00	-29.17	peak	
2		2390.000	29.67	6.53	36.20	54.00	-17.80	AVG	
3	*	2402.000	91.67	6.52	98.19	54.00	44.19	AVG	No Limit
4	X	2402.100	93.32	6.51	99.83	74.00	25.83	peak	No Limit

Test Mode:	TX 2402 MHz _CH01_1Mbps_ANT1

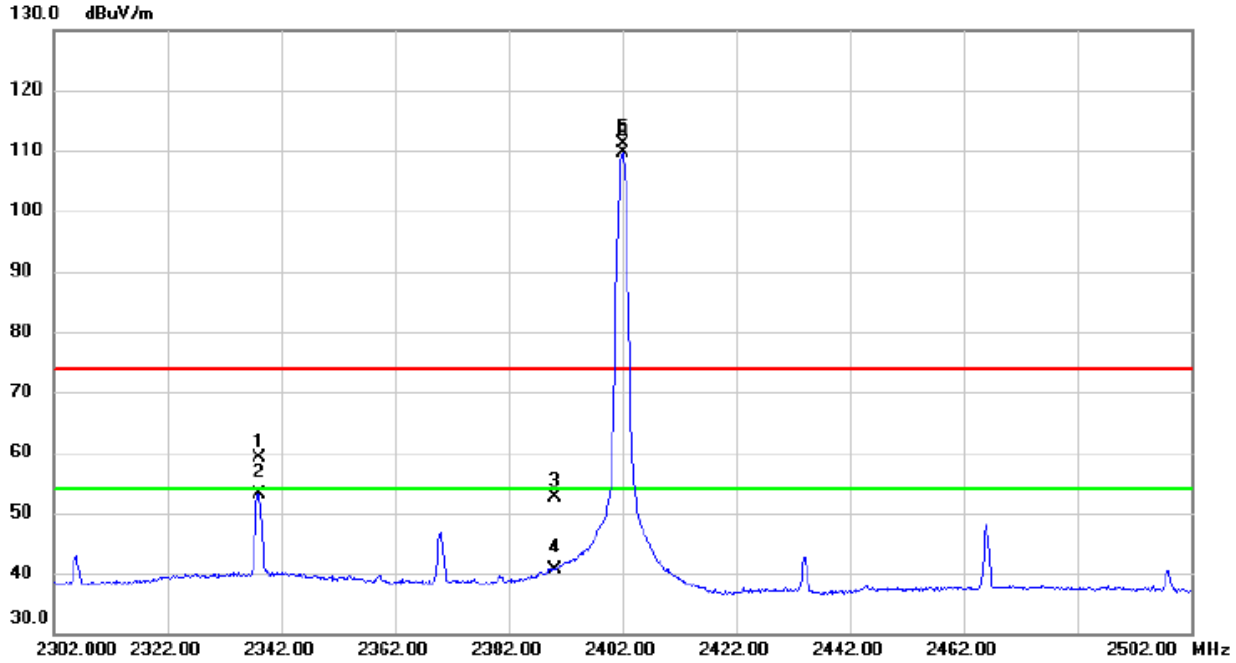
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	9607.390	40.96	10.71	51.67	54.00	-2.33	AVG	
2		9608.058	53.86	10.71	64.57	74.00	-9.43	peak	

Test Mode:	TX 2402 MHz _CH01_1Mbps_ANT1

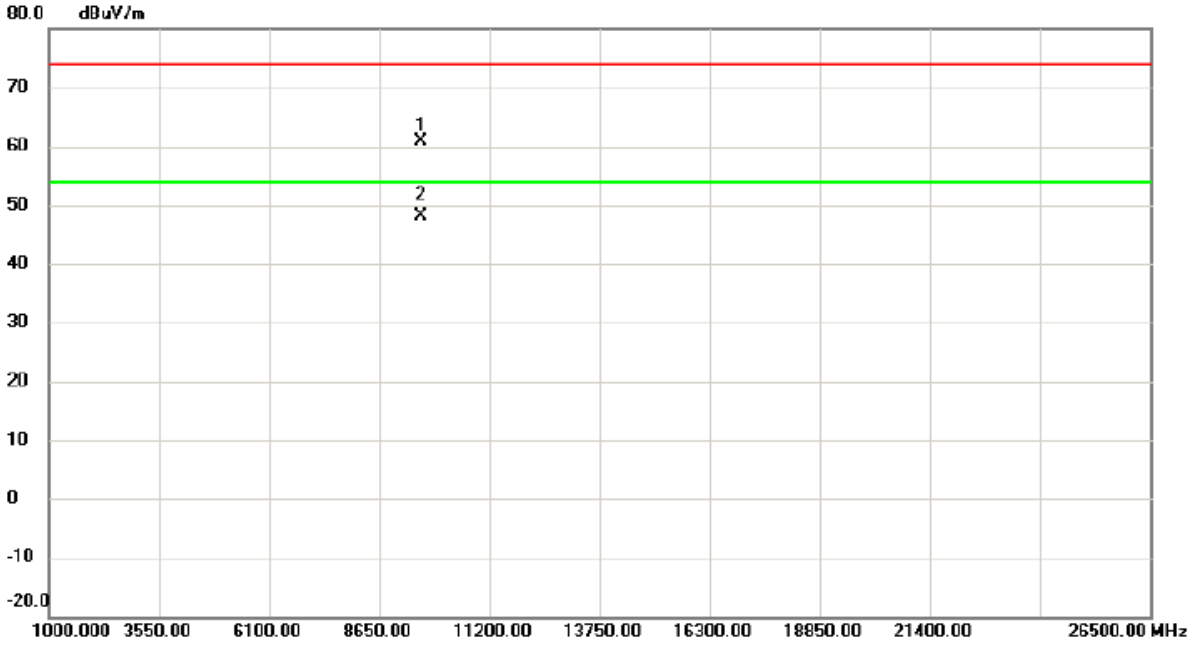
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2338.000	52.64	6.59	59.23	74.00	-14.77	peak	
2		2338.000	46.57	6.59	53.16	54.00	-0.84	AVG	
3		2390.000	46.01	6.53	52.54	74.00	-21.46	peak	
4		2390.000	34.05	6.53	40.58	54.00	-13.42	AVG	
5	X	2402.000	104.63	6.52	111.15	74.00	37.15	peak	No Limit
6	*	2402.000	102.99	6.52	109.51	54.00	55.51	AVG	No Limit

Test Mode:	TX 2402 MHz _CH01_1Mbps_ANT1

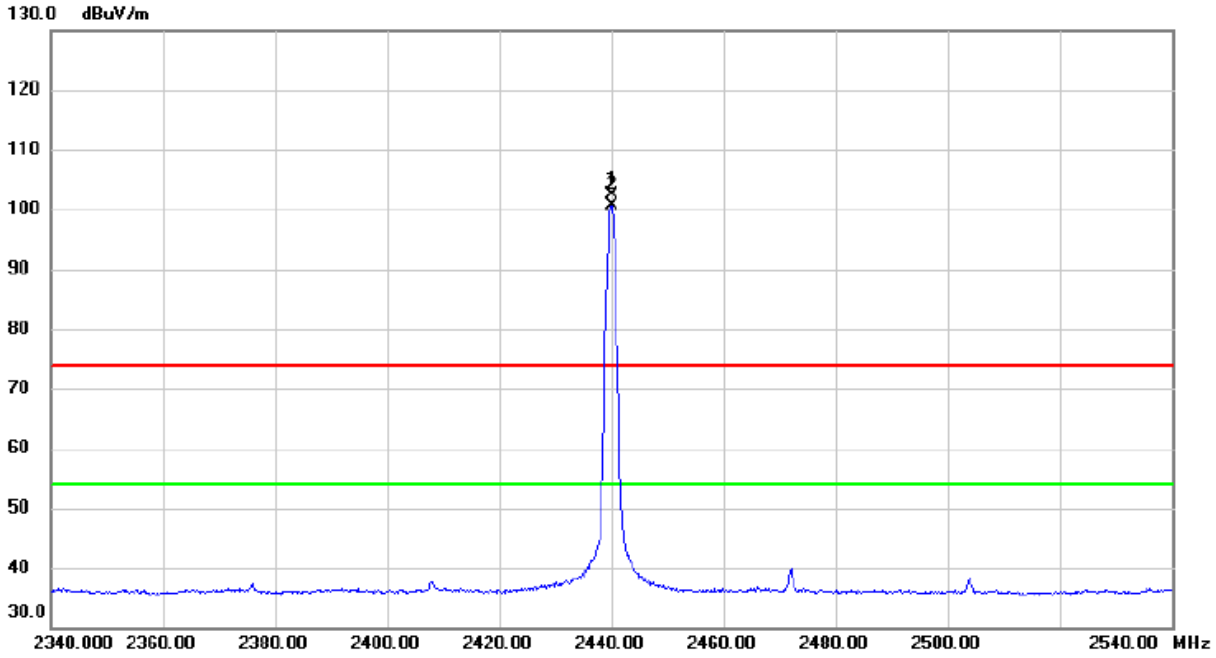
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		9607.065	50.07	10.70	60.77	74.00	-13.23	peak	
2	*	9607.270	37.51	10.71	48.22	54.00	-5.78	AVG	

Test Mode:	TX 2440 MHz _CH39_1Mbps_ANT1

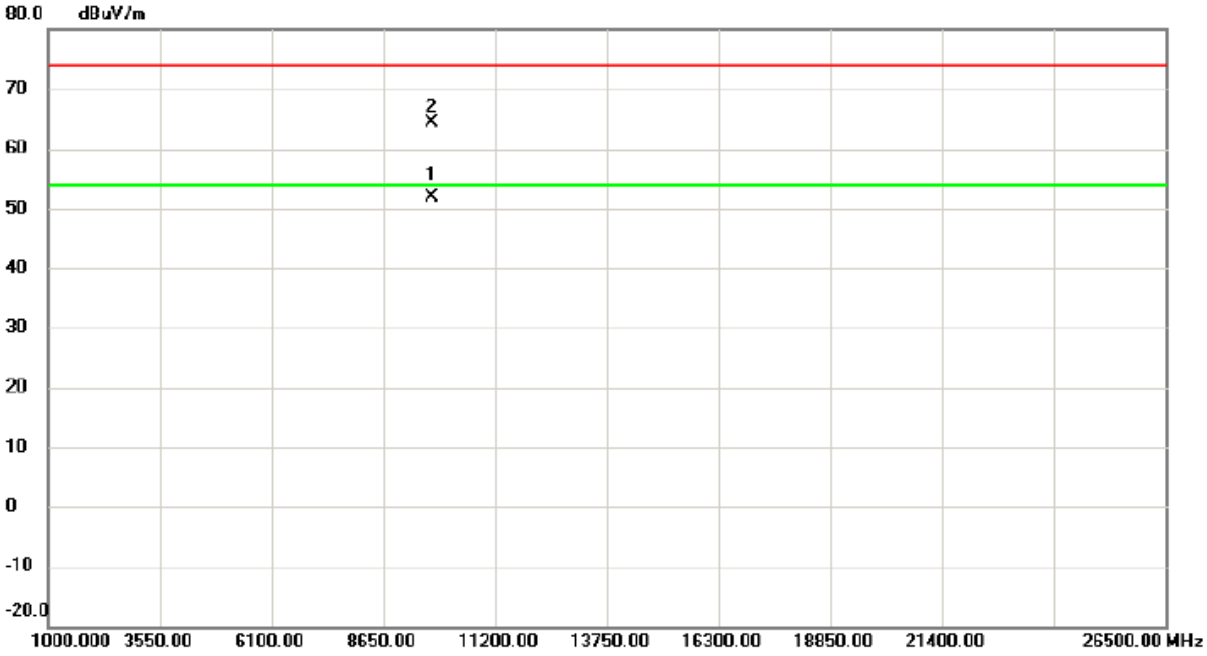
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2440.100	96.00	6.47	102.47	74.00	28.47	peak	No Limit
2	*	2440.100	94.11	6.47	100.58	54.00	46.58	AVG	No Limit

Test Mode:	TX 2440 MHz _CH39_1Mbps_ANT1

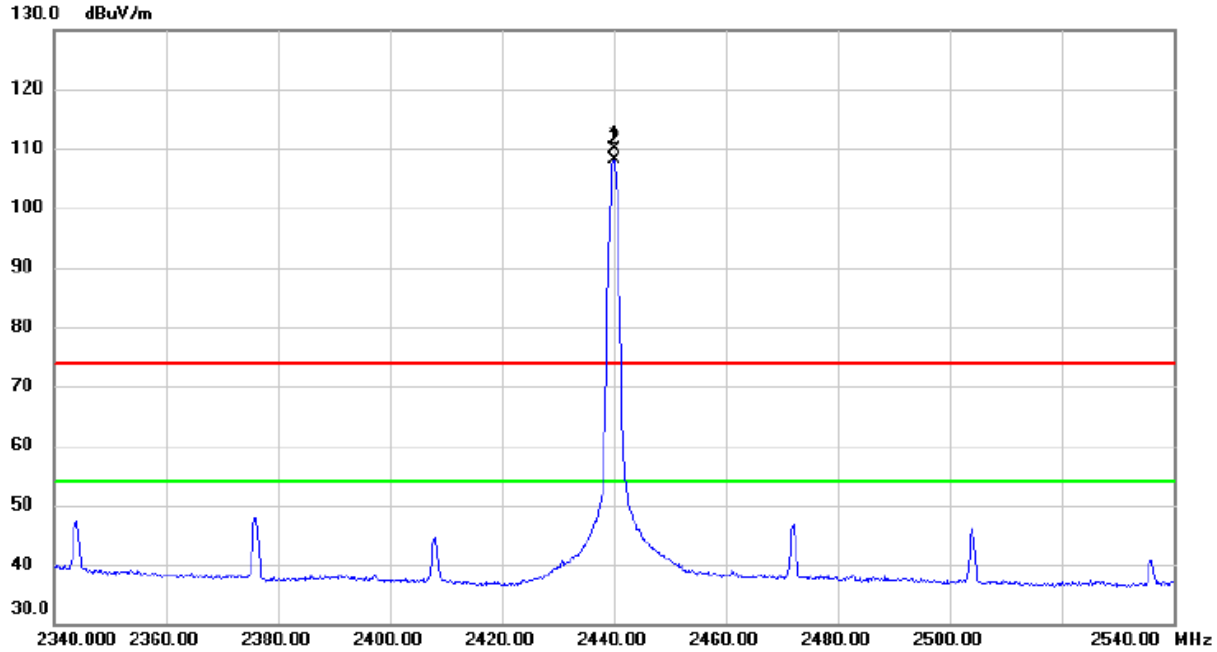
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	9759.365	41.11	10.70	51.81	54.00	-2.19	AVG	
2		9760.083	53.64	10.70	64.34	74.00	-9.66	peak	

Test Mode:	TX 2440 MHz _CH39_1Mbps_ANT1

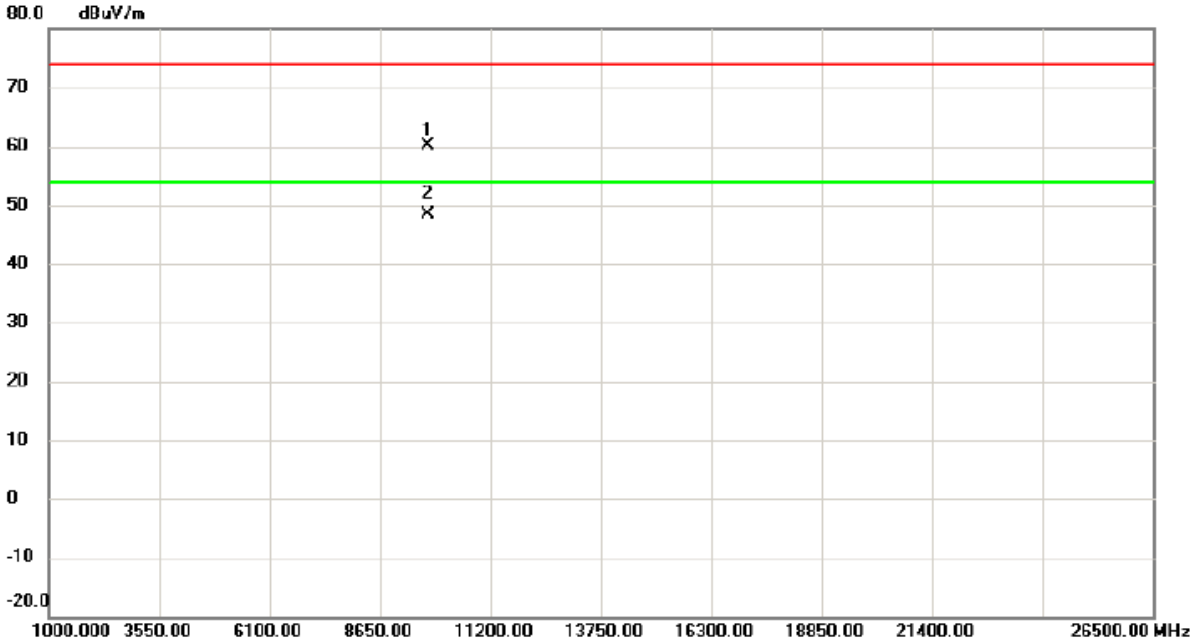
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2440.000	103.31	6.47	109.78	74.00	35.78	peak	No Limit
2	*	2440.000	101.73	6.47	108.20	54.00	54.20	AVG	No Limit

Test Mode:	TX 2440 MHz _CH39_1Mbps_ANT1

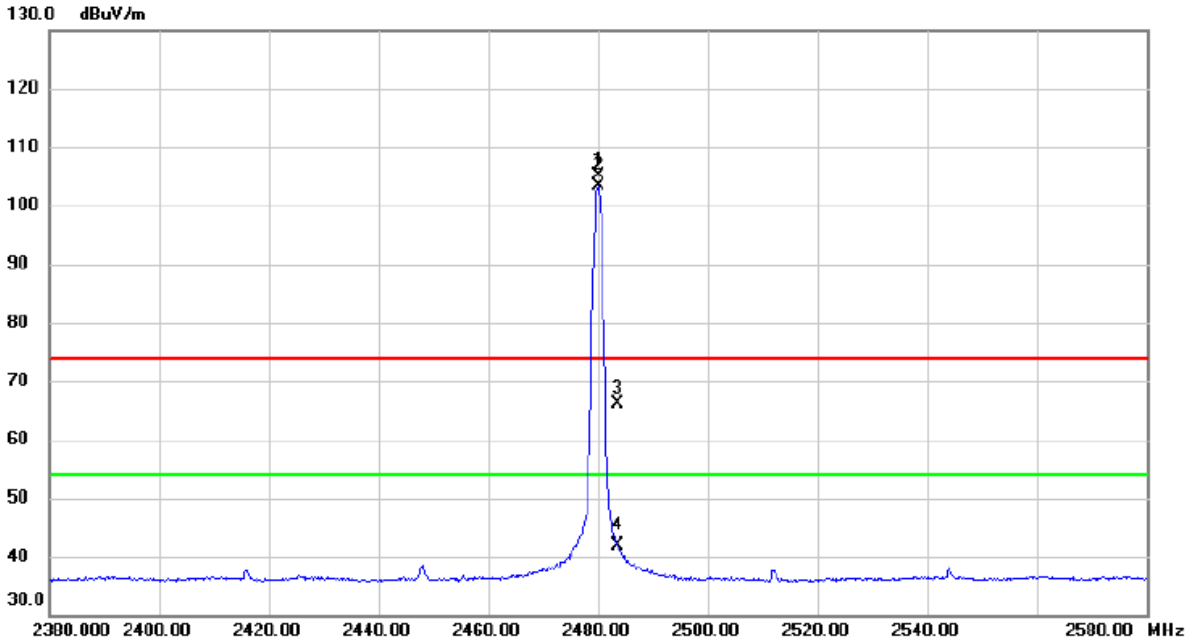
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		9759.063	49.31	10.70	60.01	74.00	-13.99	peak	
2	*	9759.375	37.64	10.70	48.34	54.00	-5.66	AVG	

Test Mode:	TX 2480 MHz _CH79_1Mbps_ANT1

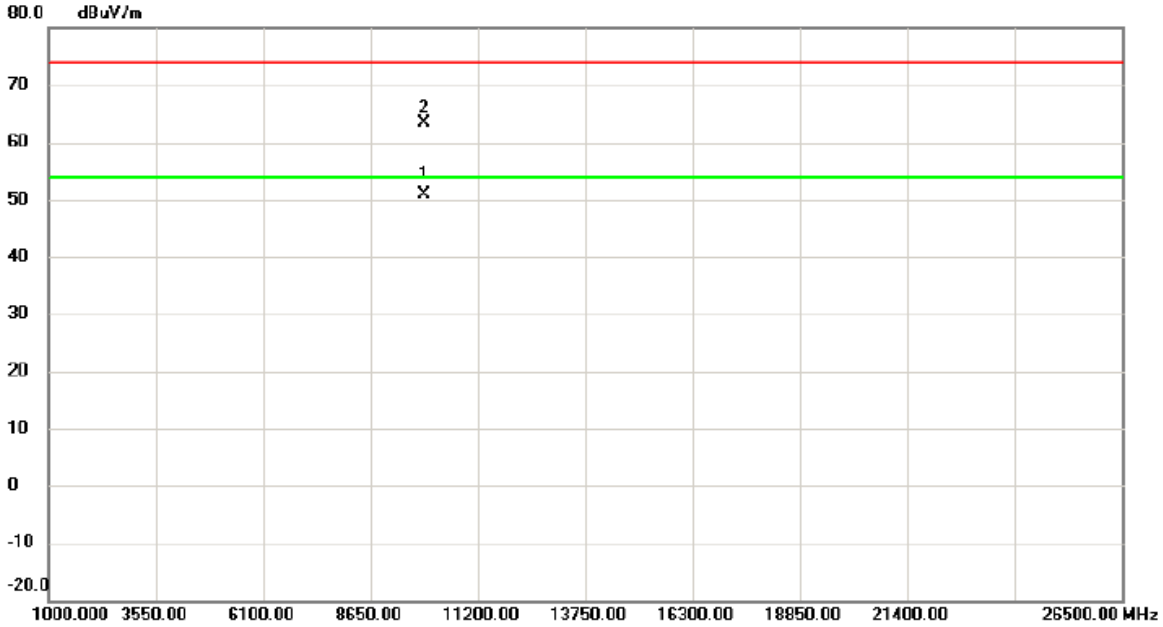
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2480.000	98.58	6.43	105.01	74.00	31.01	peak	No Limit
2	*	2480.100	96.89	6.43	103.32	54.00	49.32	AVG	No Limit
3		2483.500	59.63	6.43	66.06	74.00	-7.94	peak	
4		2483.500	35.40	6.43	41.83	54.00	-12.17	AVG	

Test Mode:	TX 2480 MHz _CH79_1Mbps_ANT1

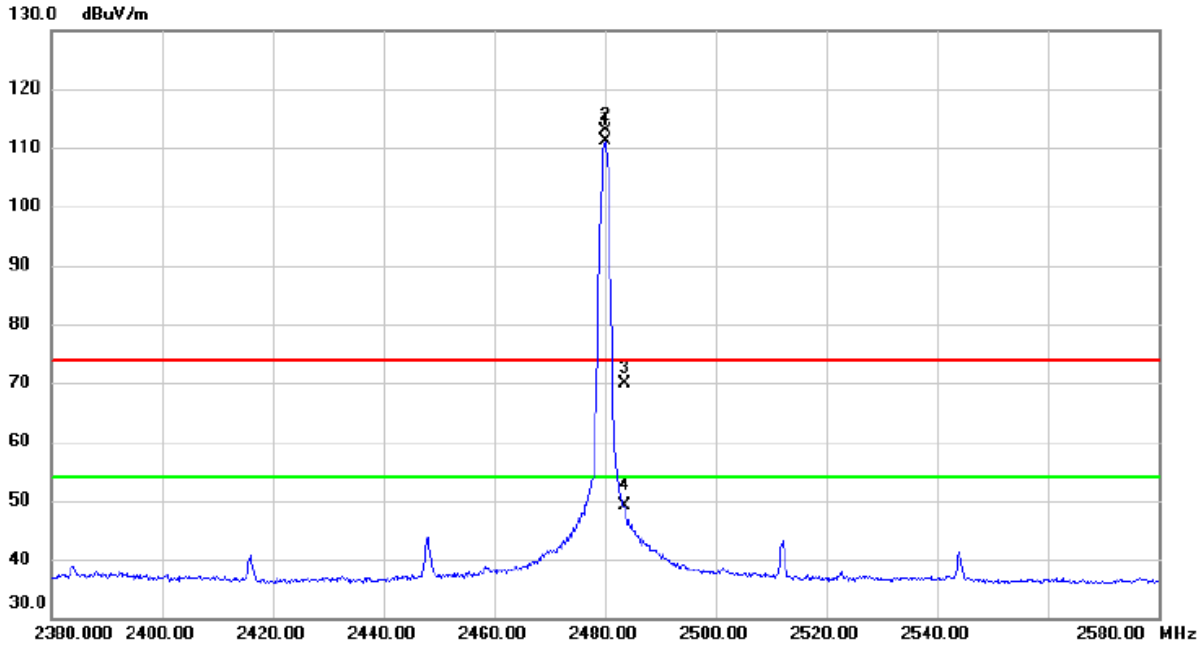
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	9919.255	40.08	10.70	50.78	54.00	-3.22	AVG	
2		9920.140	52.68	10.70	63.38	74.00	-10.62	peak	

Test Mode:	TX 2480 MHz _CH79_1Mbps_ANT1

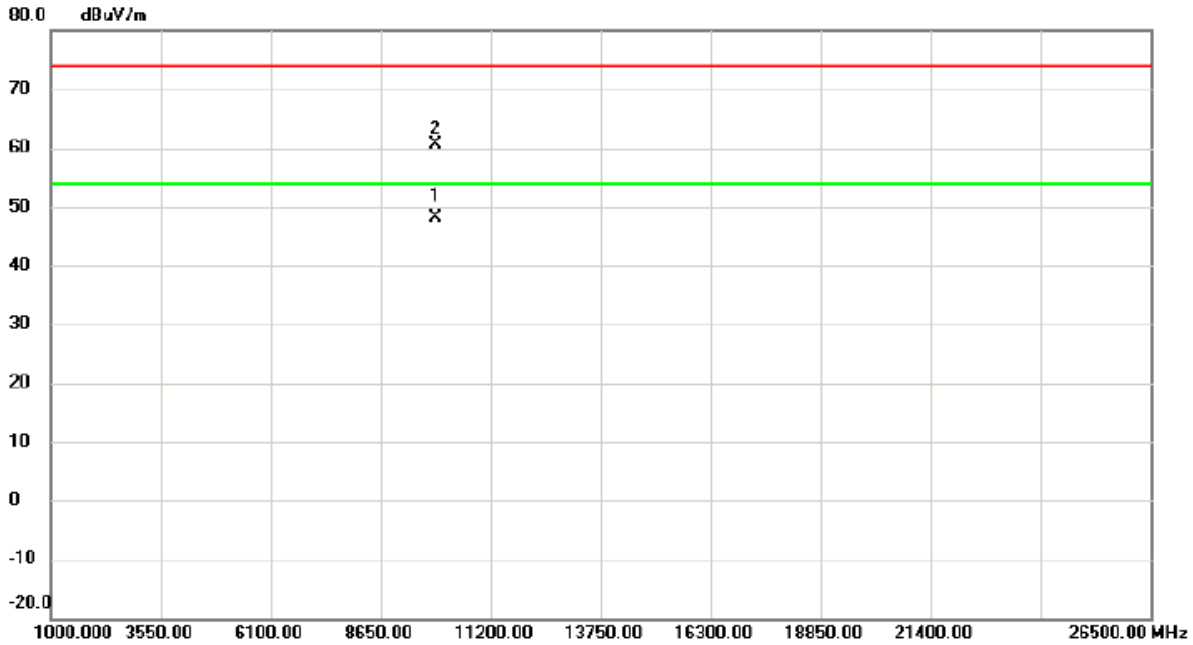
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2480.000	104.76	6.43	111.19	54.00	57.19	AVG	No Limit
2	X	2480.100	106.36	6.43	112.79	74.00	38.79	peak	No Limit
3		2483.500	63.55	6.43	69.98	74.00	-4.02	peak	
4		2483.500	42.63	6.43	49.06	54.00	-4.94	AVG	

Test Mode:	TX 2480 MHz _CH79_1Mbps_ANT1

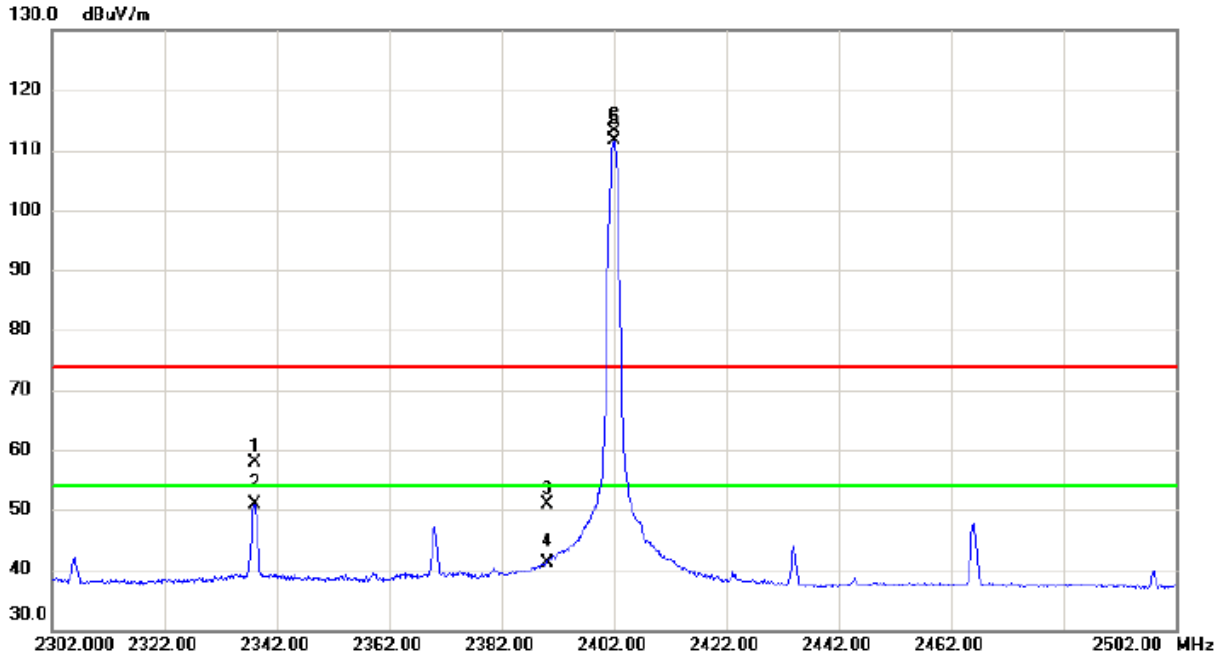
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	9919.310	37.34	10.70	48.04	54.00	-5.96	AVG	
2		9920.052	49.89	10.70	60.59	74.00	-13.41	peak	

Test Mode:	TX 2402 MHz _CH01_1Mbps_ANT2

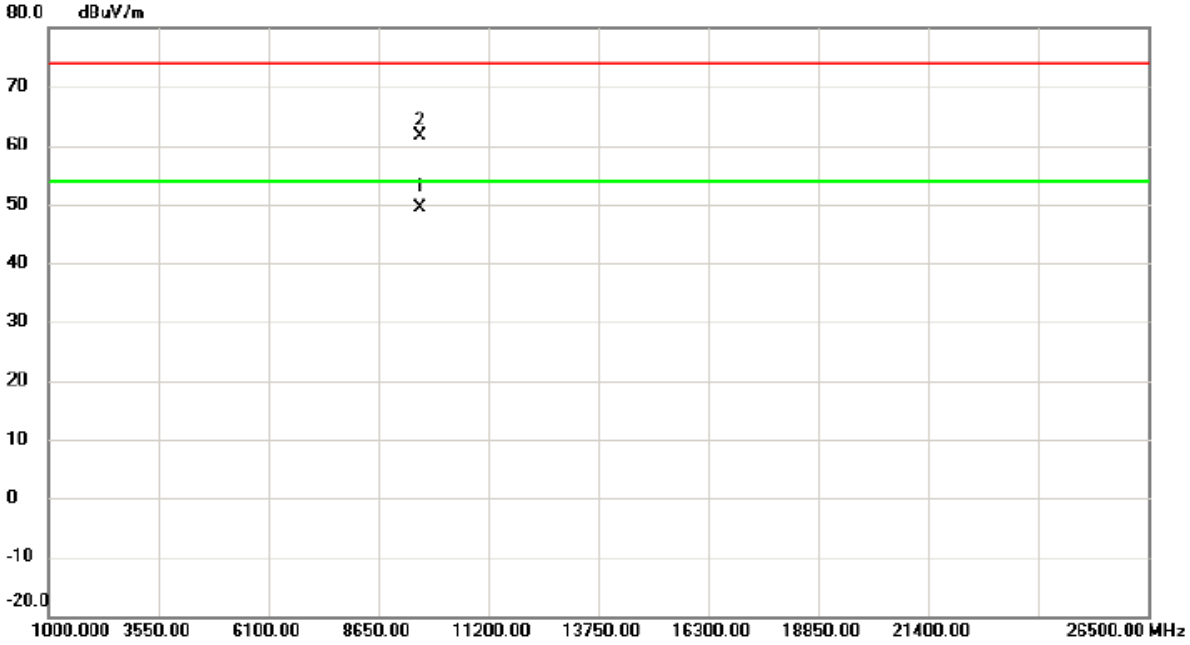
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2338.000	51.32	6.59	57.91	74.00	-16.09	peak	
2		2338.000	44.39	6.59	50.98	54.00	-3.02	AVG	
3		2390.000	44.29	6.53	50.82	74.00	-23.18	peak	
4		2390.000	34.59	6.53	41.12	54.00	-12.88	AVG	
5	*	2402.000	105.06	6.52	111.58	54.00	57.58	AVG	No Limit
6	X	2402.100	106.57	6.51	113.08	74.00	39.08	peak	No Limit

Test Mode:	TX 2402 MHz _CH01_1Mbps_ANT2

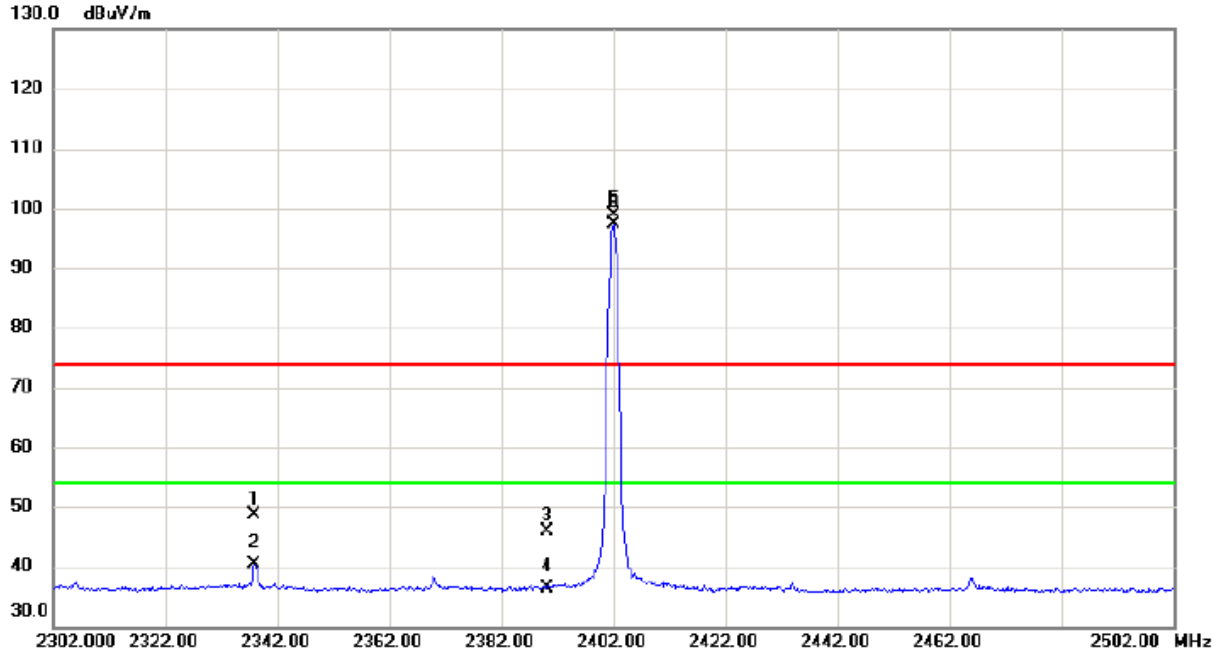
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	9607.210	38.76	10.71	49.47	54.00	-4.53	AVG	
2		9607.968	50.96	10.71	61.67	74.00	-12.33	peak	

Test Mode:	TX 2402 MHz _CH01_1Mbps_ANT2

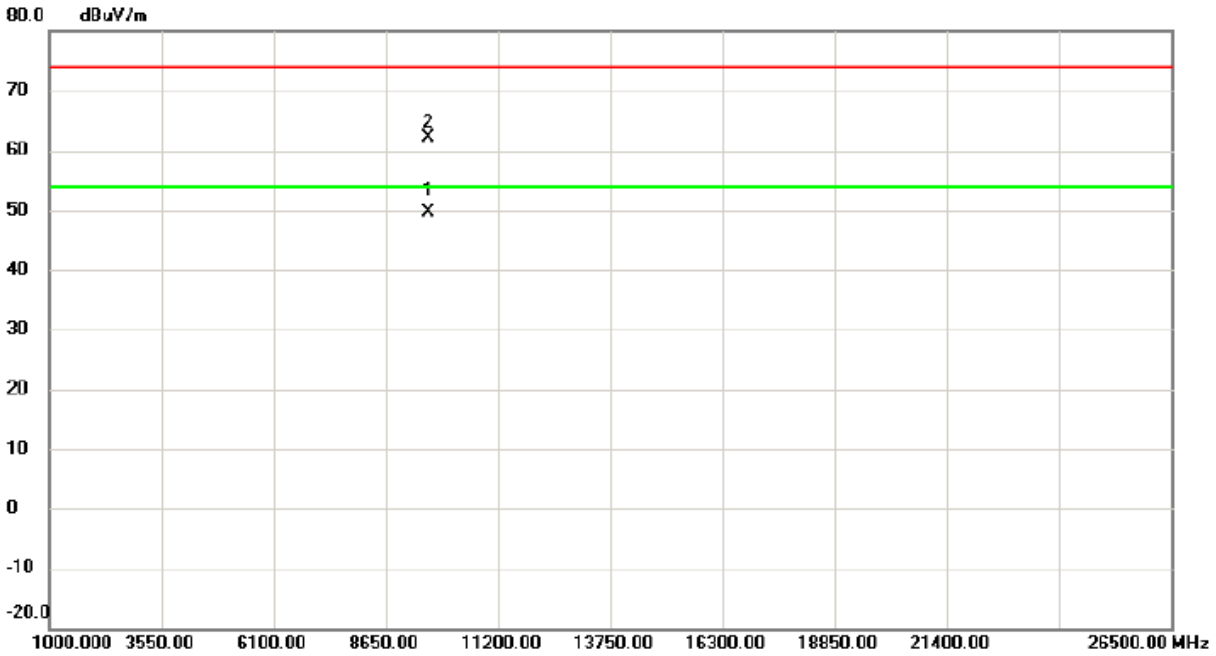
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2337.900	42.05	6.59	48.64	74.00	-25.36	peak	
2		2337.900	33.68	6.59	40.27	54.00	-13.73	AVG	
3		2390.000	39.46	6.53	45.99	74.00	-28.01	peak	
4		2390.000	29.97	6.53	36.50	54.00	-17.50	AVG	
5	X	2402.000	92.42	6.52	98.94	74.00	24.94	peak	No Limit
6	*	2402.000	90.82	6.52	97.34	54.00	43.34	AVG	No Limit

Test Mode:	TX 2402 MHz _CH01_1Mbps_ANT2

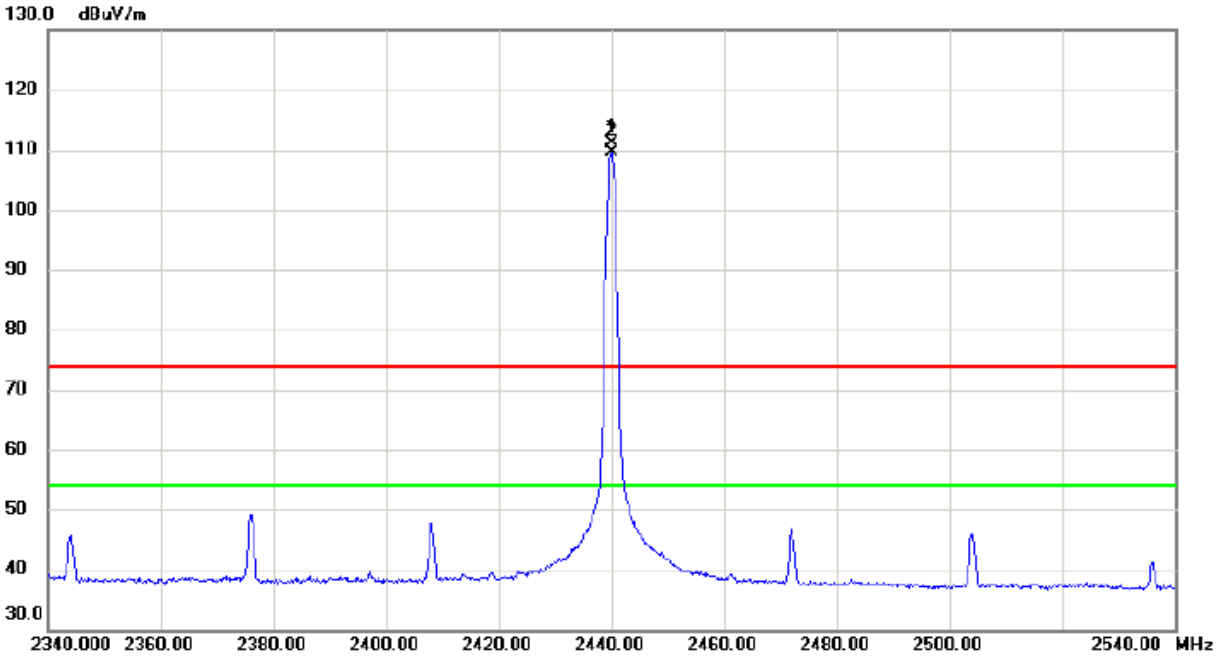
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	9607.440	38.84	10.71	49.55	54.00	-4.45	AVG	
2		9608.065	51.44	10.71	62.15	74.00	-11.85	peak	

Test Mode:	TX 2440 MHz _CH39_1Mbps_ANT2

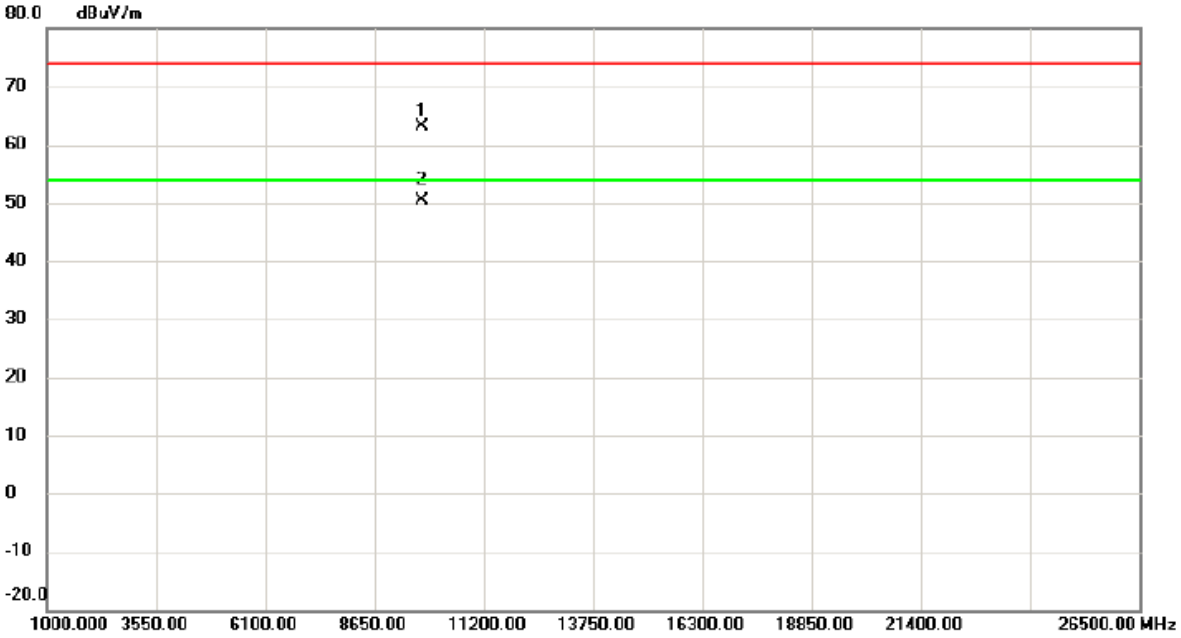
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2440.000	104.58	6.47	111.05	74.00	37.05	peak	No Limit
2	*	2440.000	103.25	6.47	109.72	54.00	55.72	AVG	No Limit

Test Mode:	TX 2440 MHz _CH39_1Mbps_ANT2

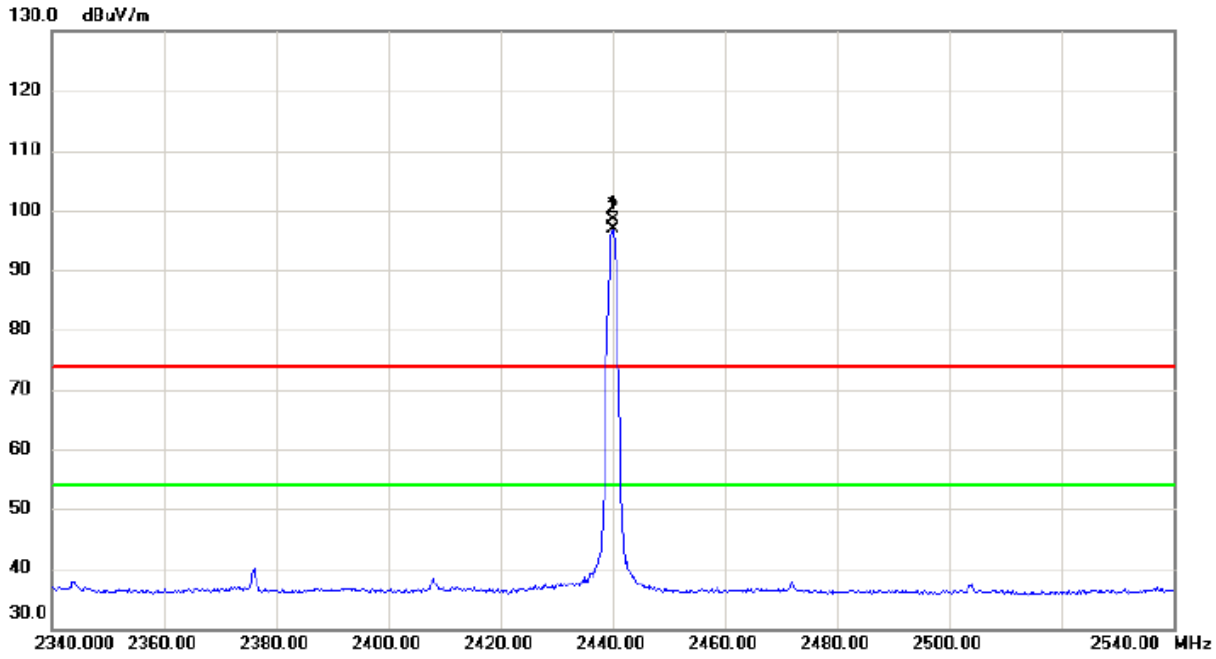
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		9759.070	52.33	10.70	63.03	74.00	-10.97	peak	
2	*	9759.333	39.77	10.70	50.47	54.00	-3.53	AVG	

Test Mode:	TX 2440 MHz _CH39_1Mbps_ANT2

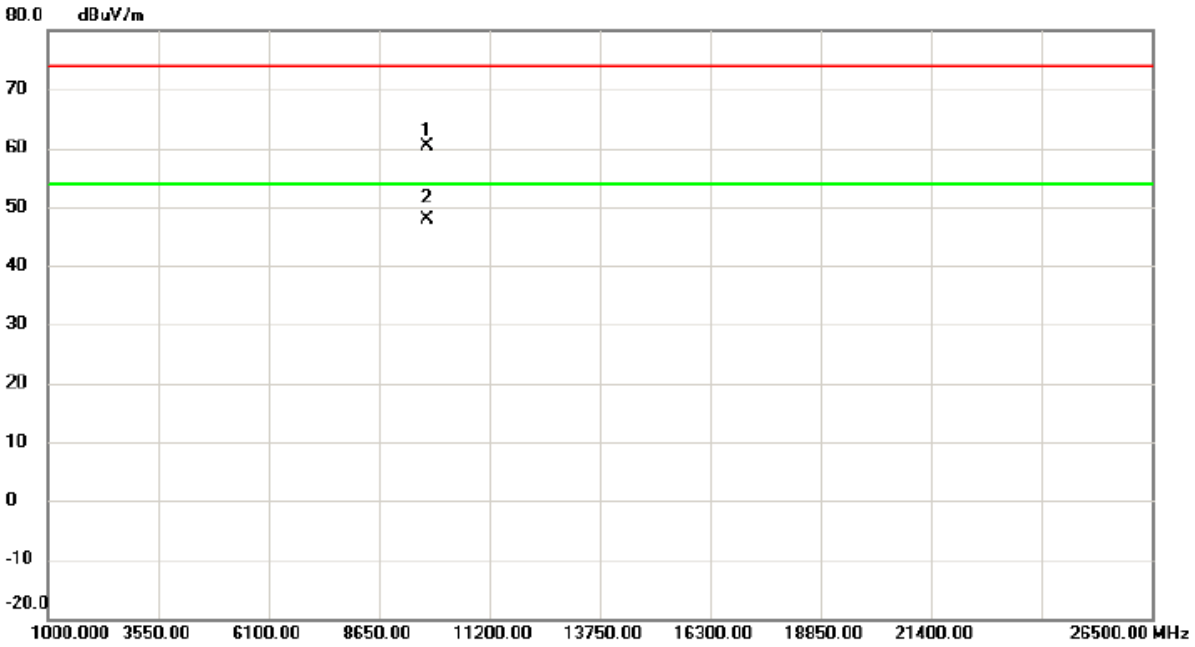
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2440.000	91.96	6.47	98.43	74.00	24.43	peak	No Limit
2	*	2440.100	90.37	6.47	96.84	54.00	42.84	AVG	No Limit

Test Mode:	TX 2440 MHz _CH39_1Mbps_ANT2

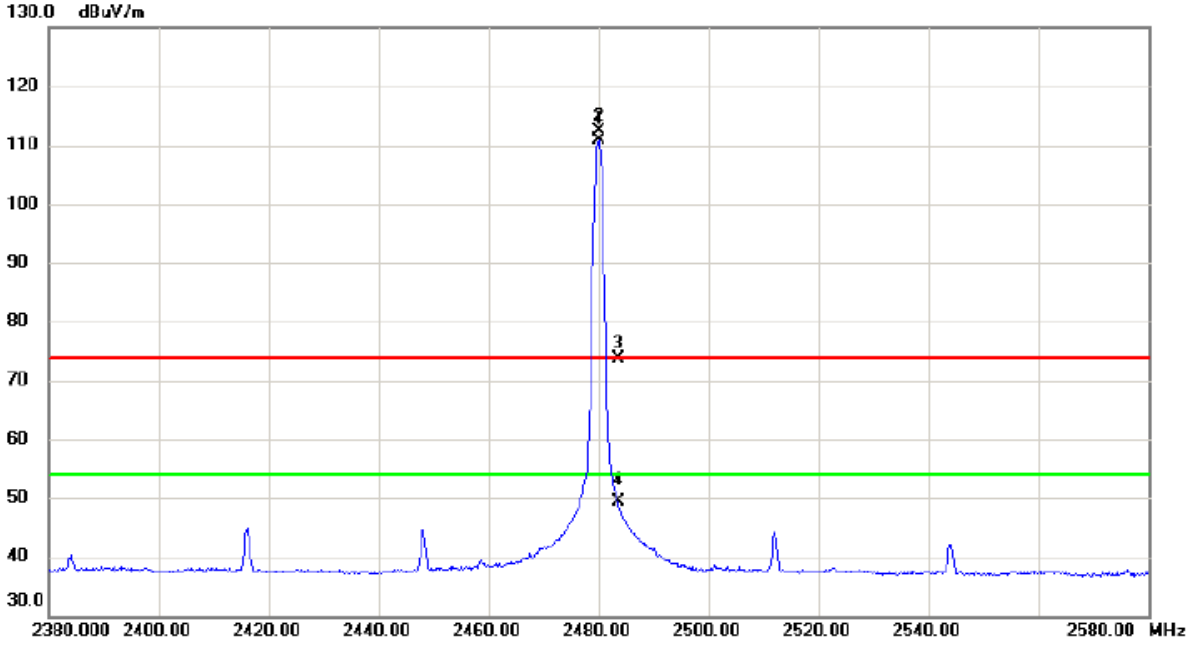
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		9759.112	49.78	10.70	60.48	74.00	-13.52	peak	
2	*	9759.327	37.30	10.70	48.00	54.00	-6.00	AVG	

Test Mode:	TX 2480 MHz _CH79_1Mbps_ANT2

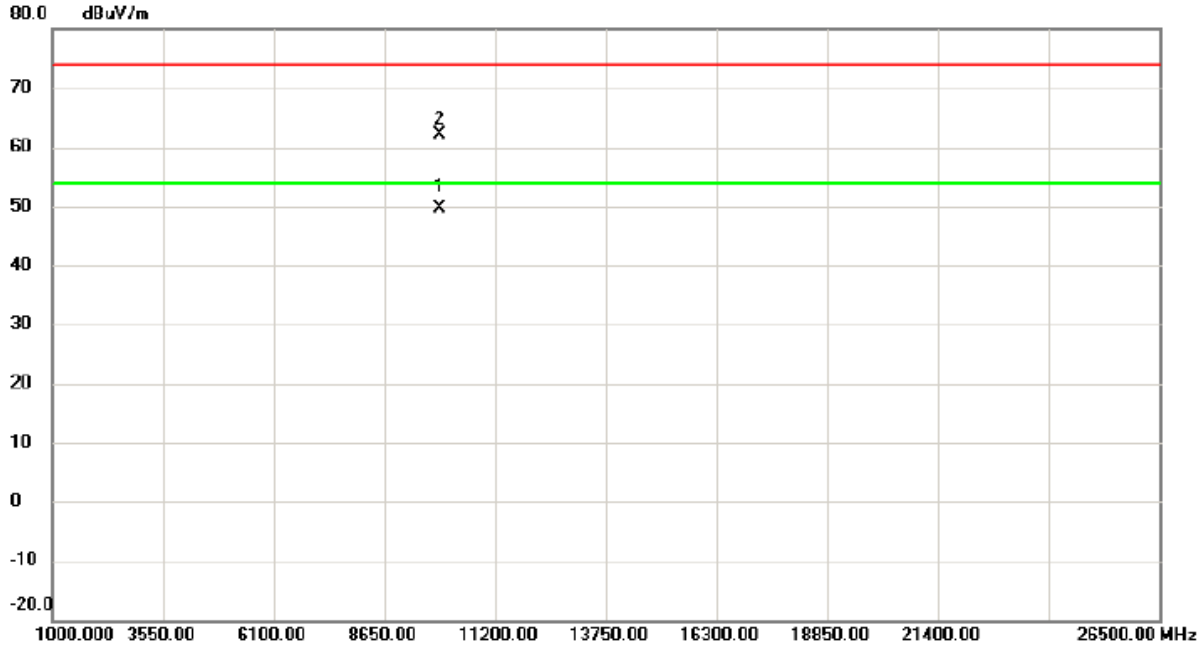
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2480.000	104.51	6.43	110.94	54.00	56.94	AVG	No Limit
2	X	2480.100	105.85	6.43	112.28	74.00	38.28	peak	No Limit
3		2483.500	67.25	6.43	73.68	74.00	-0.32	peak	
4		2483.500	42.87	6.43	49.30	54.00	-4.70	AVG	

Test Mode:	TX 2480 MHz _CH79_1Mbps_ANT2

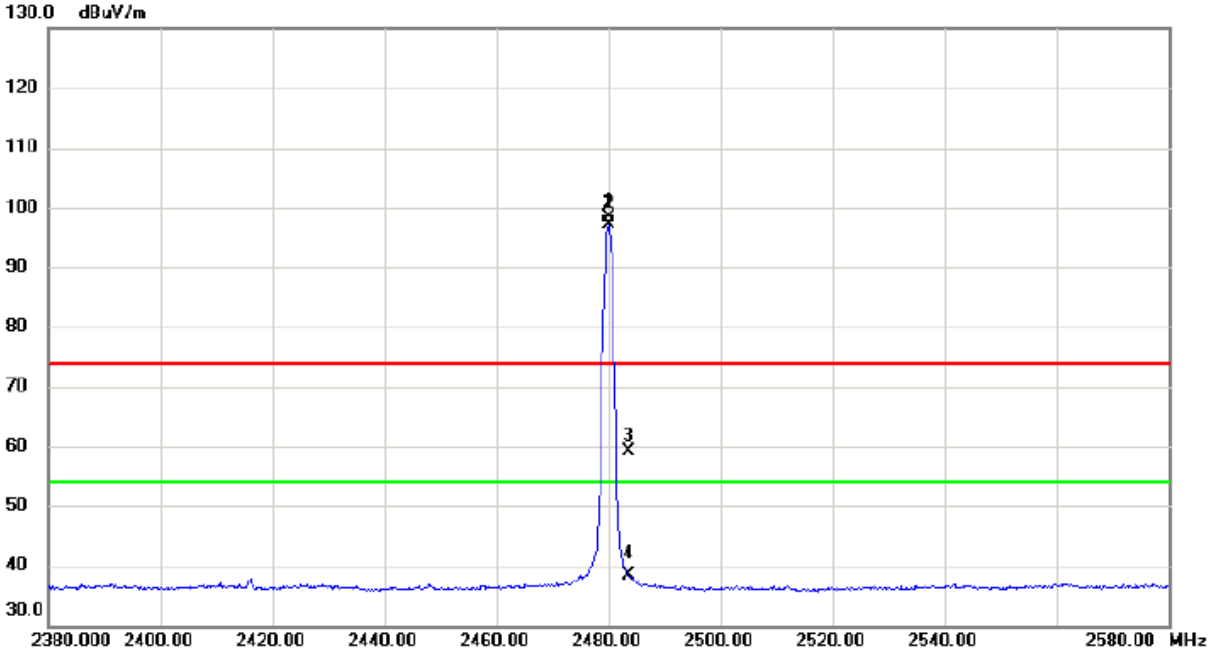
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	9919.200	38.84	10.70	49.54	54.00	-4.46	AVG	
2		9920.128	51.38	10.70	62.08	74.00	-11.92	peak	

Test Mode:	TX 2480 MHz _CH79_1Mbps_ANT2

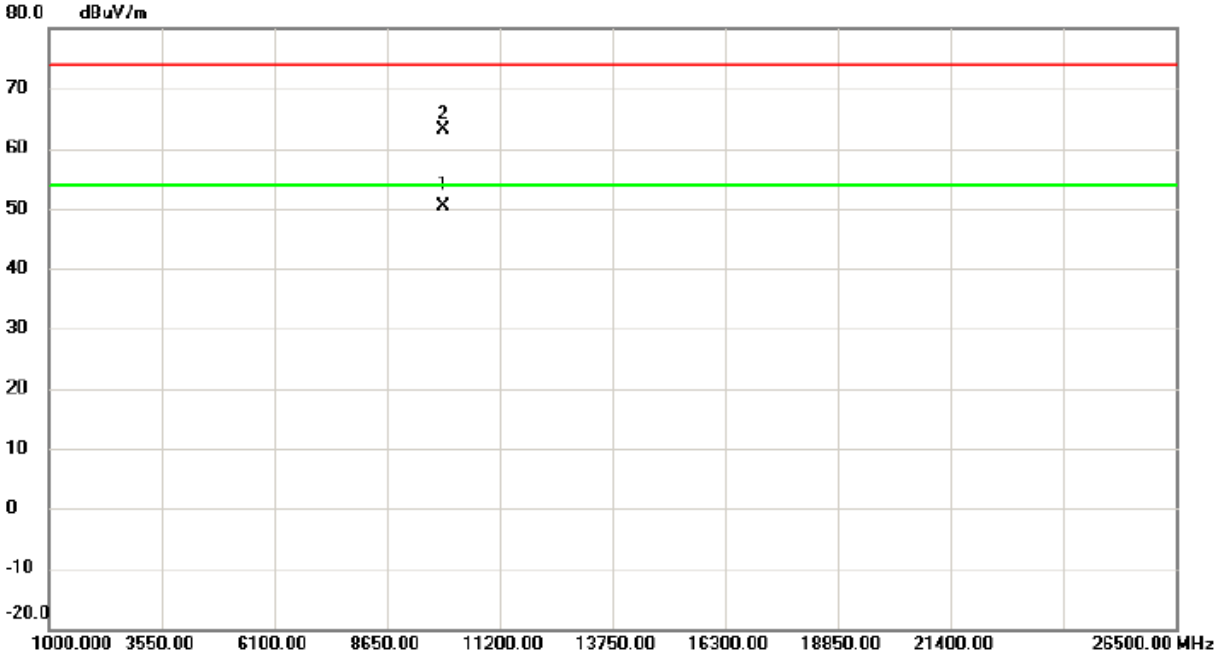
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2480.000	92.06	6.43	98.49	74.00	24.49	peak	No Limit
2	*	2480.000	90.72	6.43	97.15	54.00	43.15	AVG	No Limit
3		2483.500	52.68	6.43	59.11	74.00	-14.89	peak	
4		2483.500	32.01	6.43	38.44	54.00	-15.56	AVG	

Test Mode:	TX 2480 MHz _CH79_1Mbps_ANT2

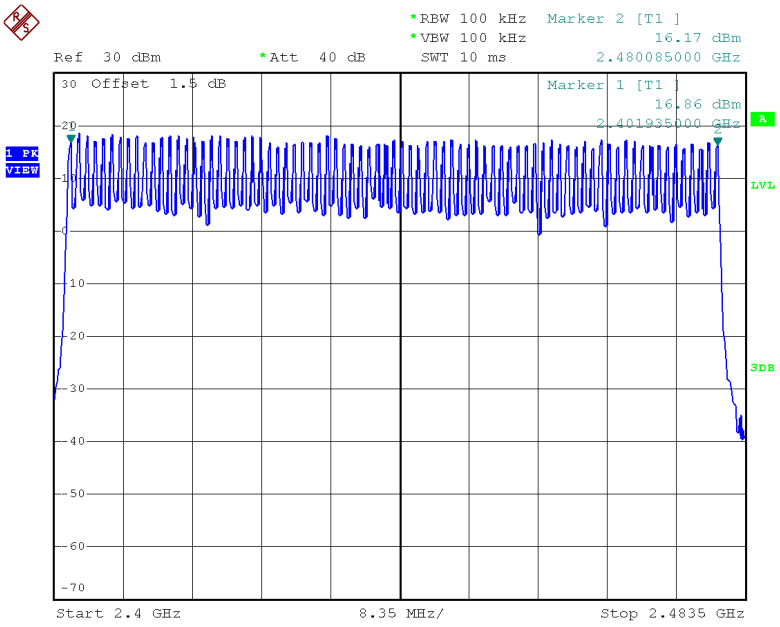
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	9919.278	39.61	10.70	50.31	54.00	-3.69	AVG	
2		9920.108	52.37	10.70	63.07	74.00	-10.93	peak	

APPENDIX E - NUMBER OF HOPPING CHANNEL

Test Mode	Hopping Mode_1Mbps
Number of Hopping Channel	79



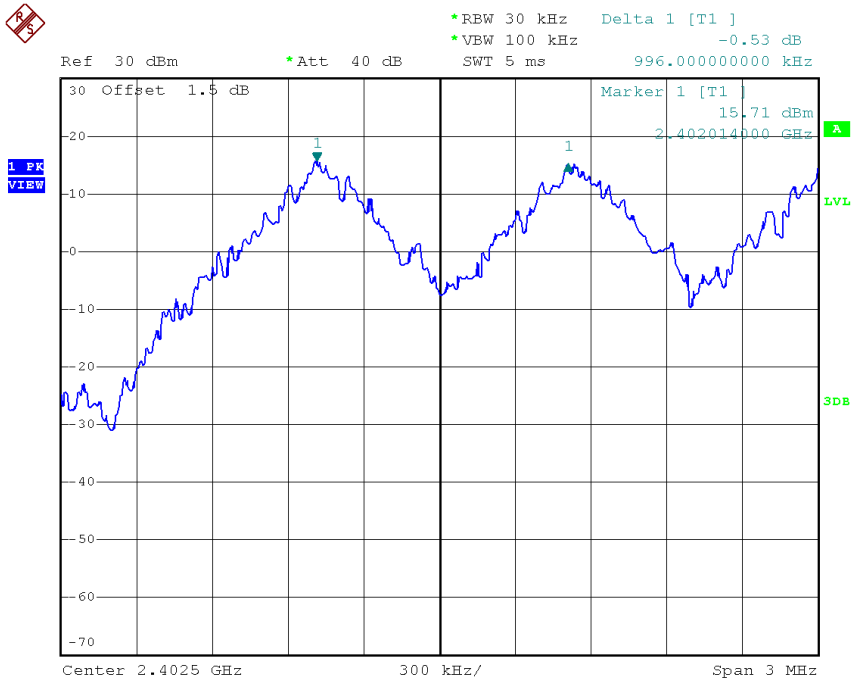
Date: 26.APR.2019 10:46:43

APPENDIX F - HOPPING CHANNEL SEPARATION MEASUREMENT

Test Mode:	Hopping on _1Mbps

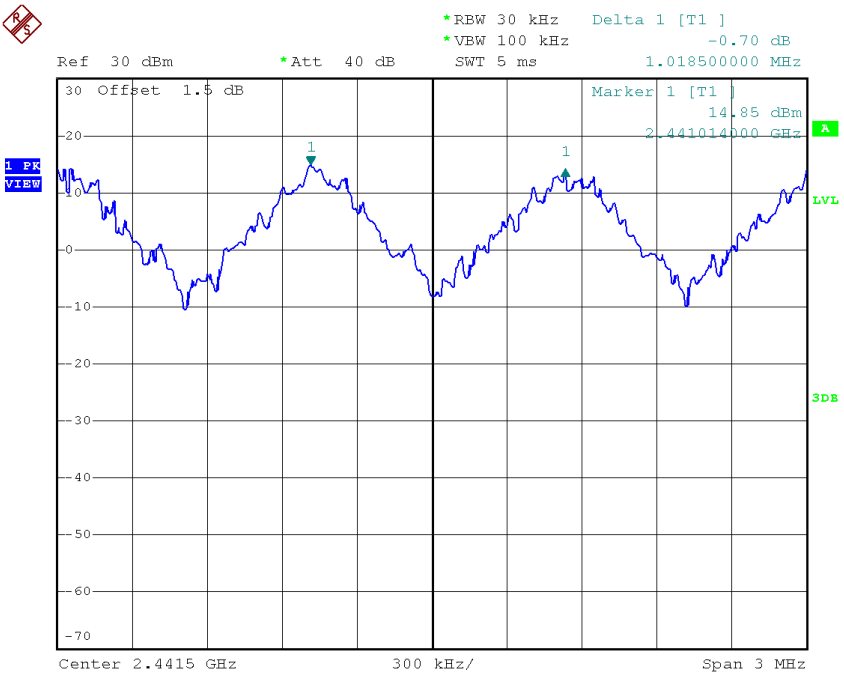
Frequency (MHz)	Channel Separation (MHz)	2/3 of 20 dB Bandwidth (MHz)	Test Result
2402	0.996	0.599	Pass
2440	1.019	0.629	Pass
2480	0.994	0.626	Pass

CH01



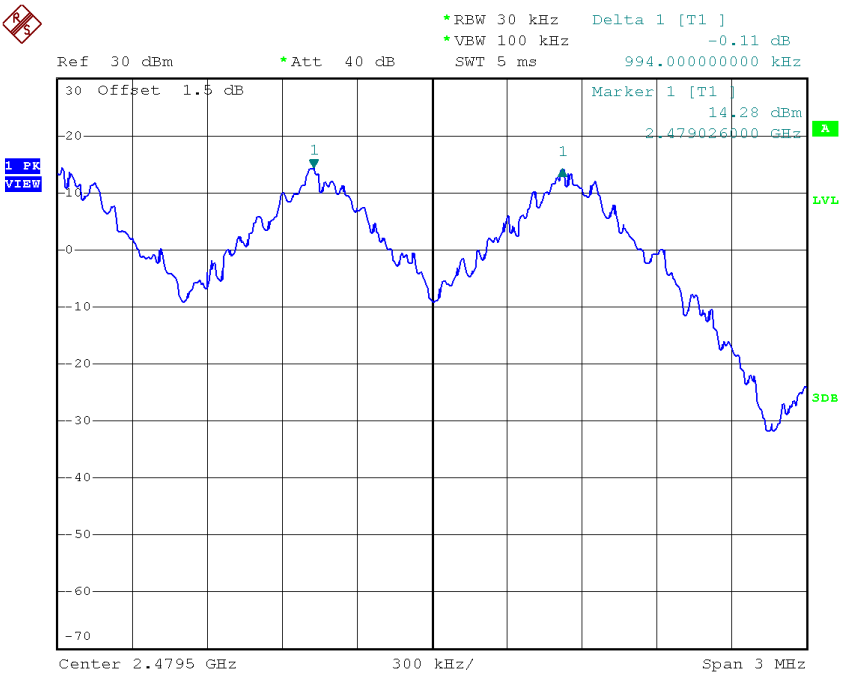
Date: 26.APR.2019 10:42:31

CH39



Date: 26.APR.2019 10:43:42

CH79



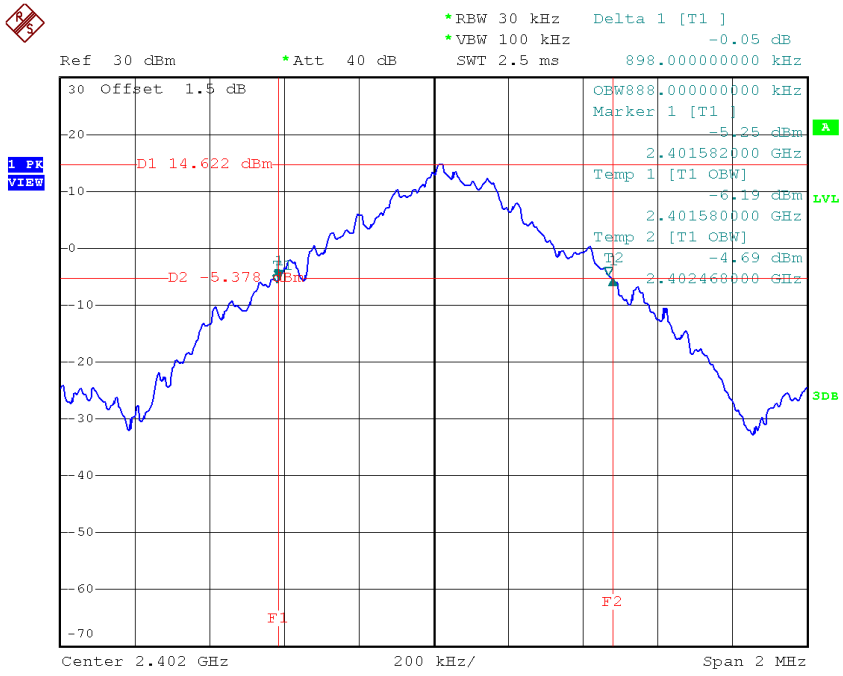
Date: 26.APR.2019 10:44:52

APPENDIX G - BANDWIDTH

Test Mode:	TX Mode _1Mbps

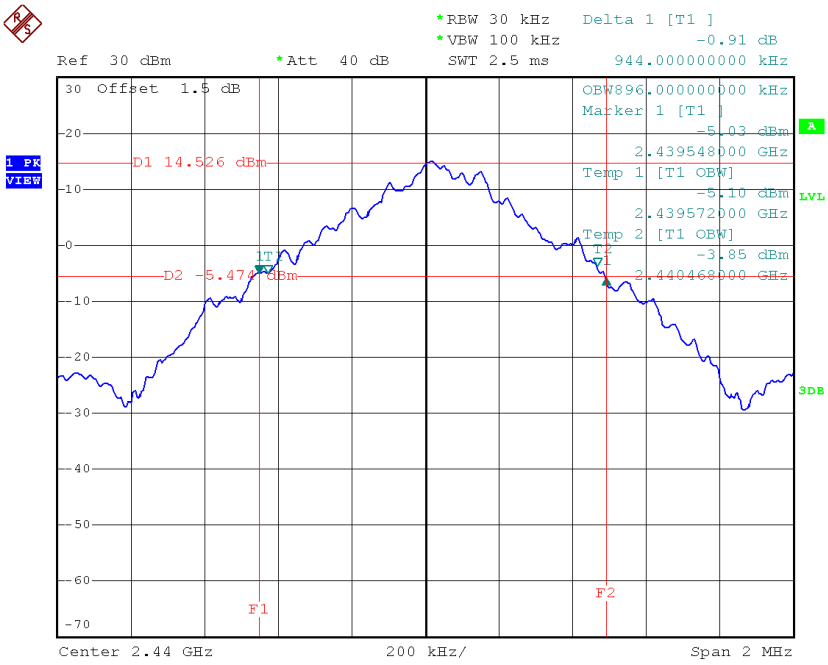
Frequency (MHz)	20 dB Bandwidth (MHz)	99% Occupied BW (MHz)	Test Result
2402	0.898	0.888	Pass
2440	0.944	0.896	Pass
2480	0.939	0.892	Pass

CH01



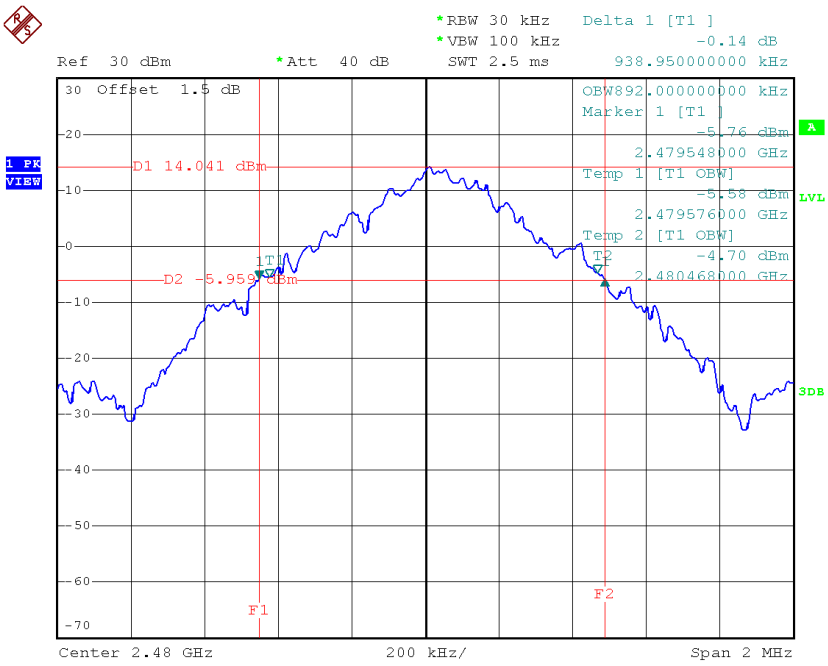
Date: 26.APR.2019 10:30:20

CH39



Date: 26.APR.2019 11:06:05

CH79



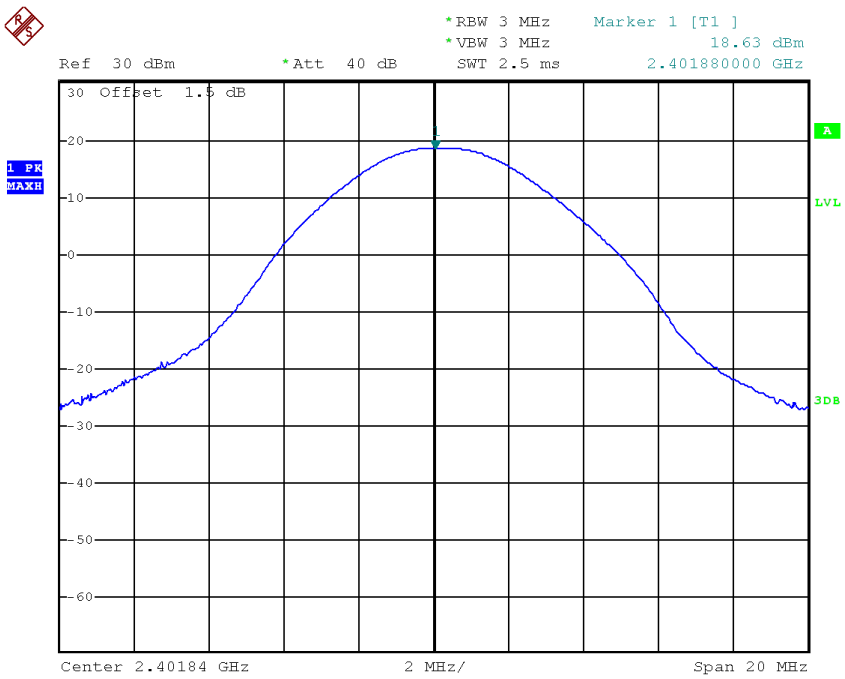
Date: 26.APR.2019 10:40:25

APPENDIX H - MAXIMUM OUTPUT POWER

Test Mode:	TX Mode _1Mbps

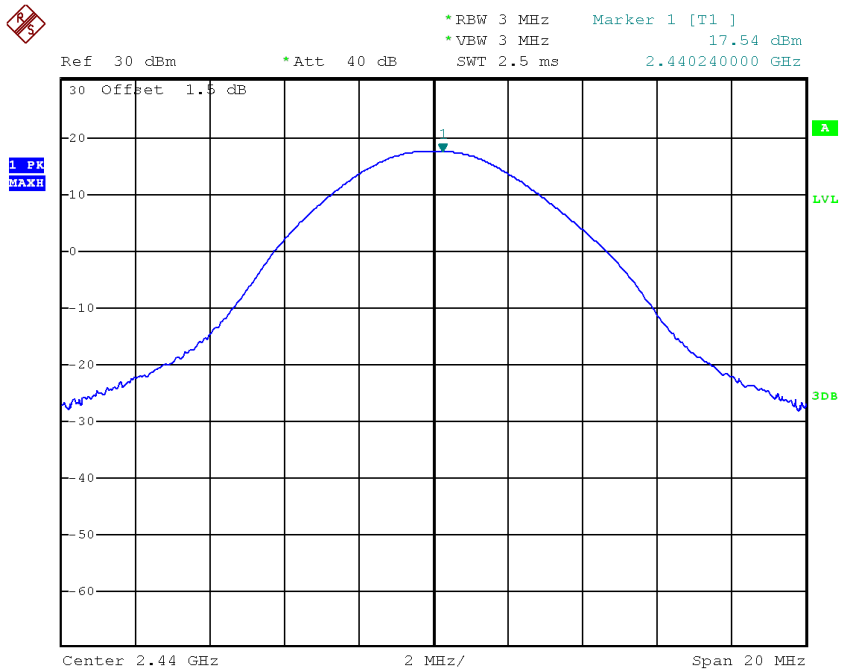
Frequency (MHz)	Output Power (dBm)	Output Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	18.63	0.0729	21.00	0.125	Pass
2440	17.54	0.0568	21.00	0.125	Pass
2480	16.69	0.0467	21.00	0.125	Pass

CH01



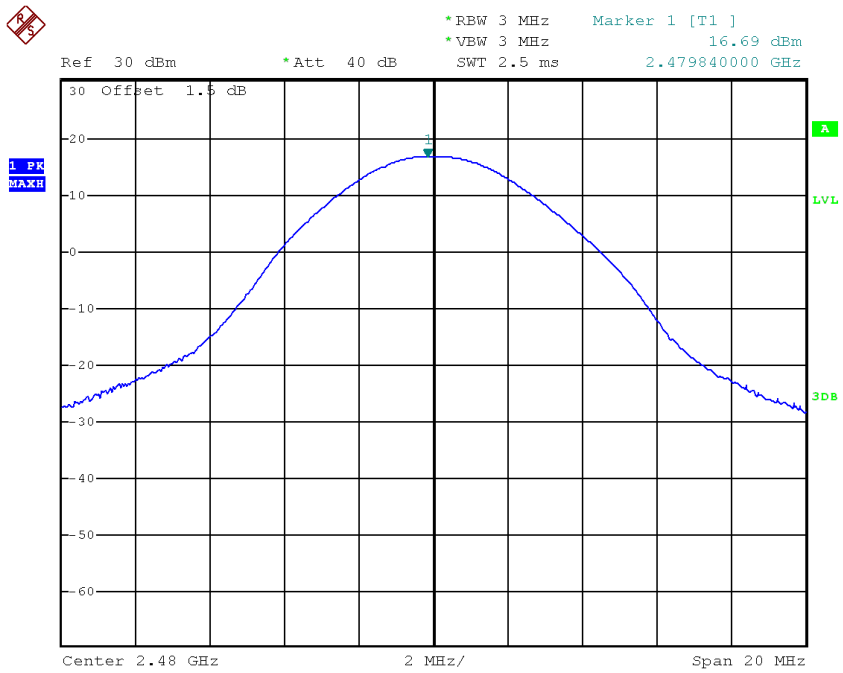
Date: 24.MAY.2019 17:01:02

CH39



Date: 24.MAY.2019 17:01:53

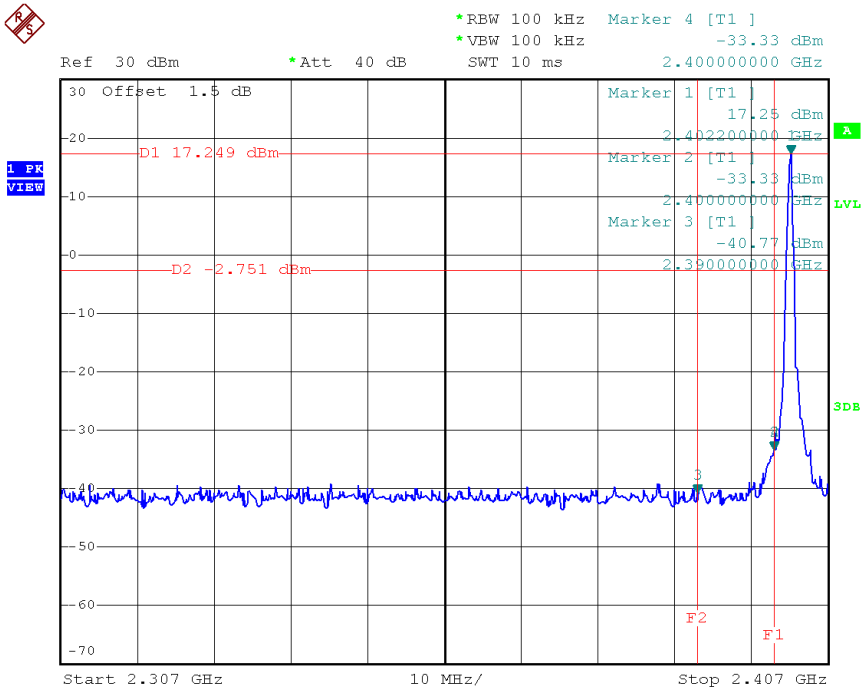
CH79



Date: 24.MAY.2019 17:02:24

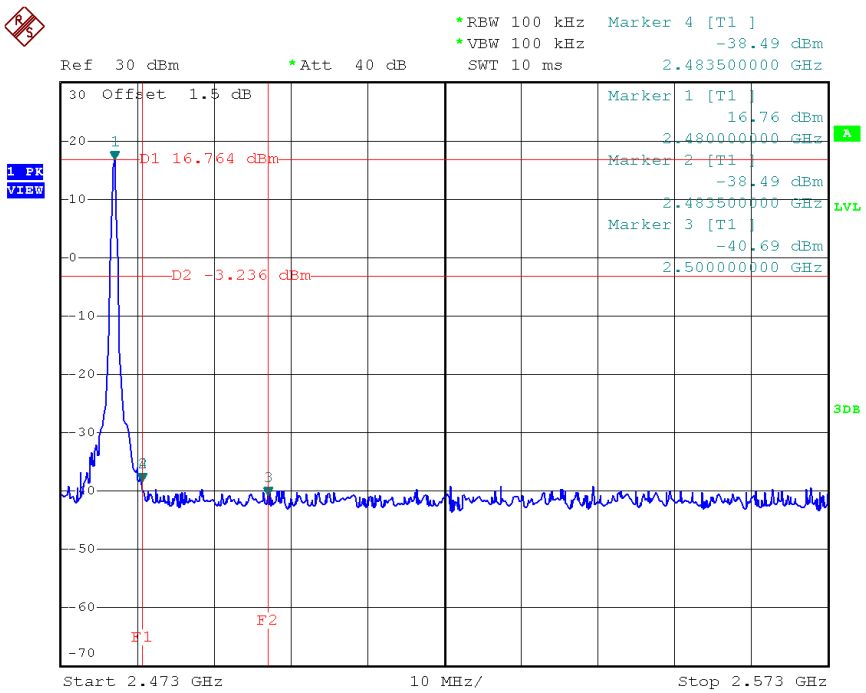
APPENDIX I - ANTENNA CONDUCTED SPURIOUS EMISSION

CH01 (Lower)_1Mbps



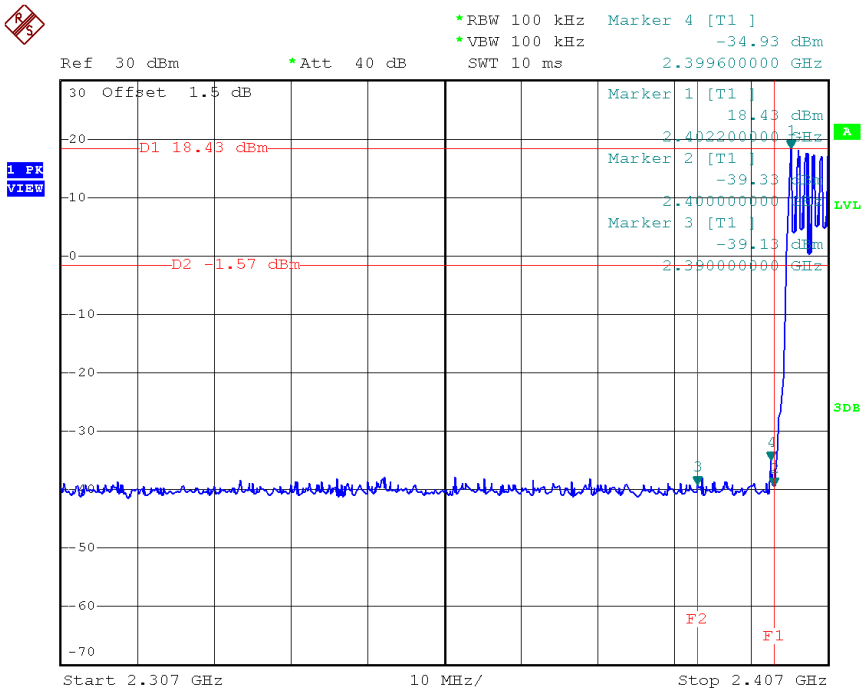
Date: 26.APR.2019 10:29:50

CH79 (Upper) _1Mbps



Date: 26.APR.2019 10:39:51

CH01 Hopping on mode (Lower)_1Mbps



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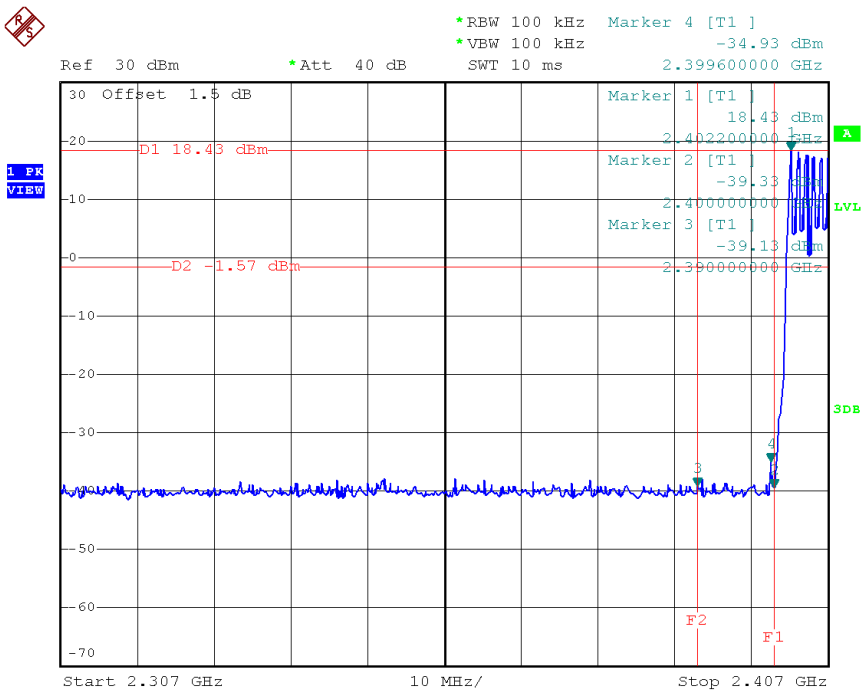
CH79 Hopping on mode (Upper) _1Mbps



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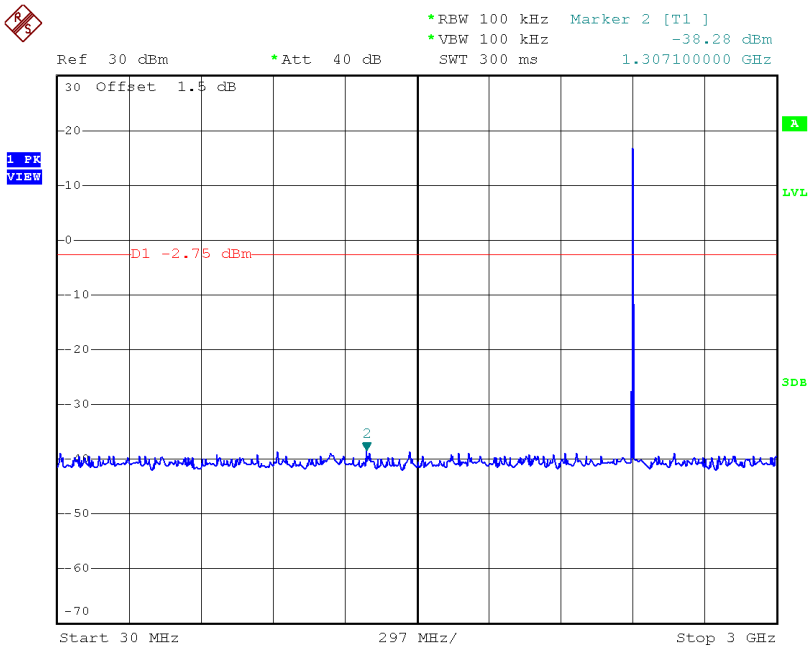
CH01 (10 Harmonic of the frequency) _1Mbps



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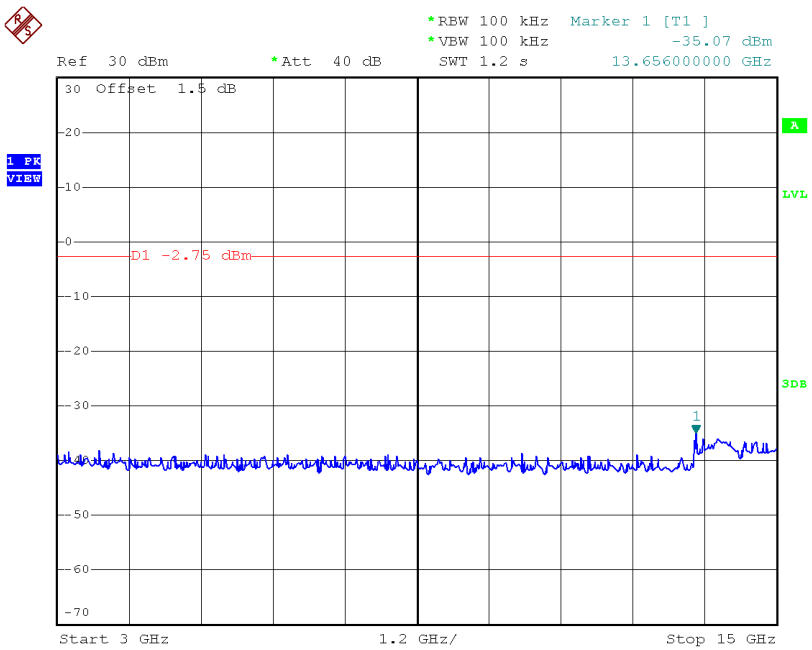
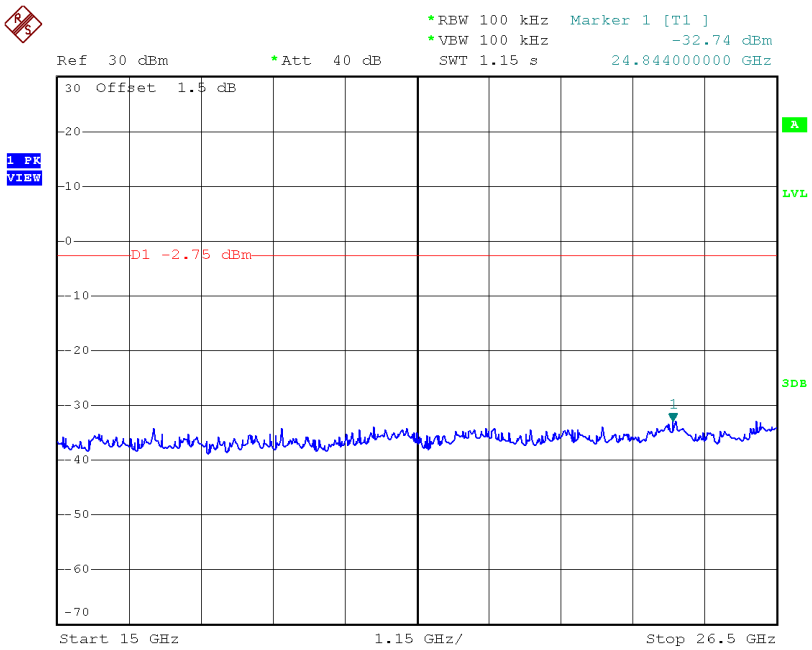


Date: 26.APR.2019 10:30:41



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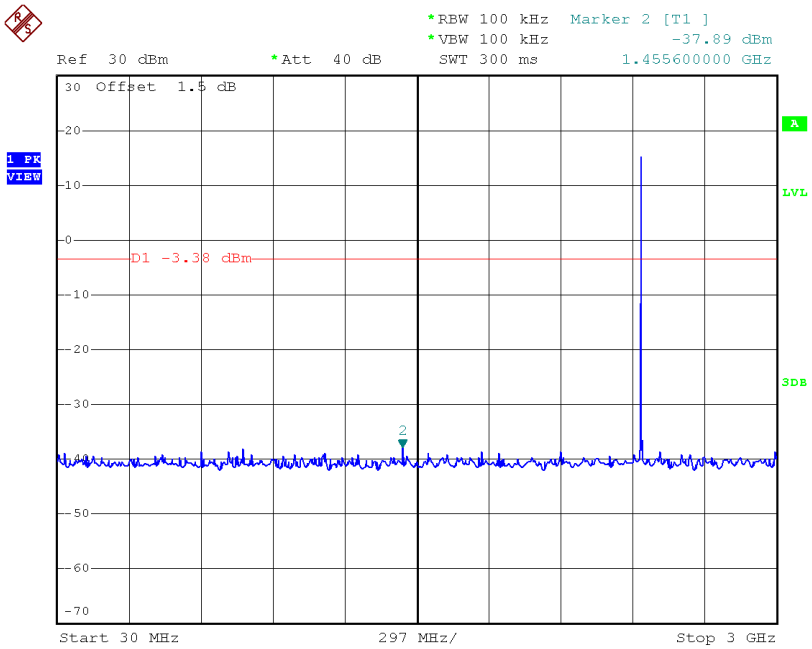
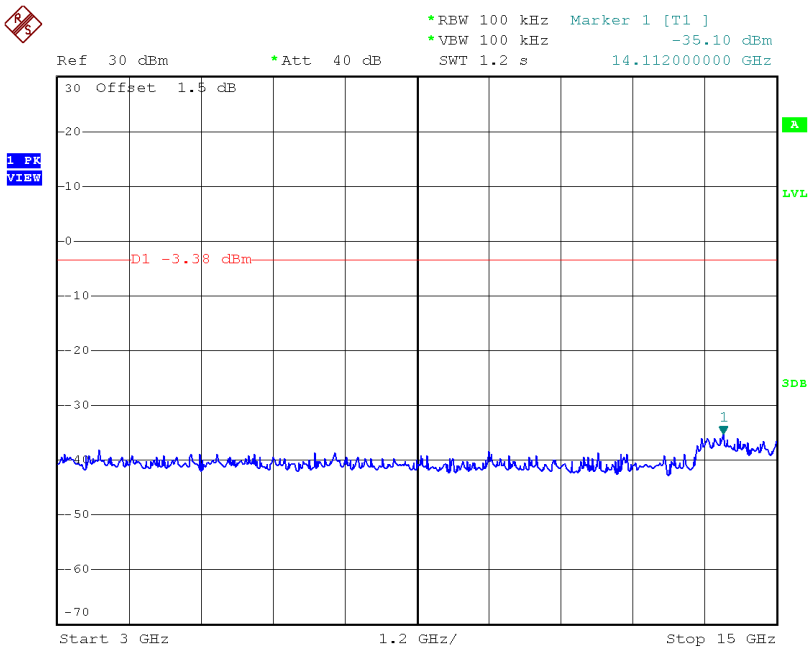
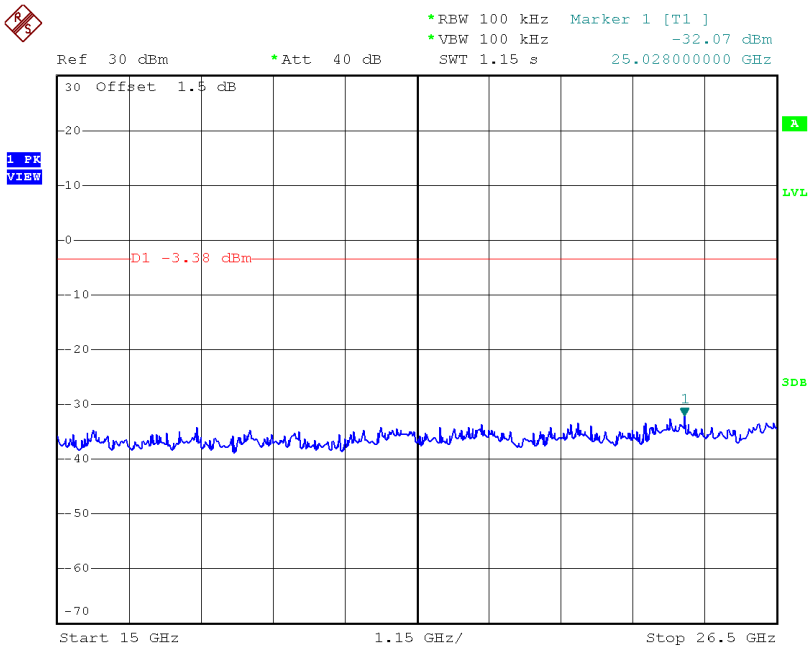
CH39 (10 Harmonic of the frequency) _1Mbps



Date: 26.APR.2019 10:31:43



Date: 26.APR.2019 10:31:51



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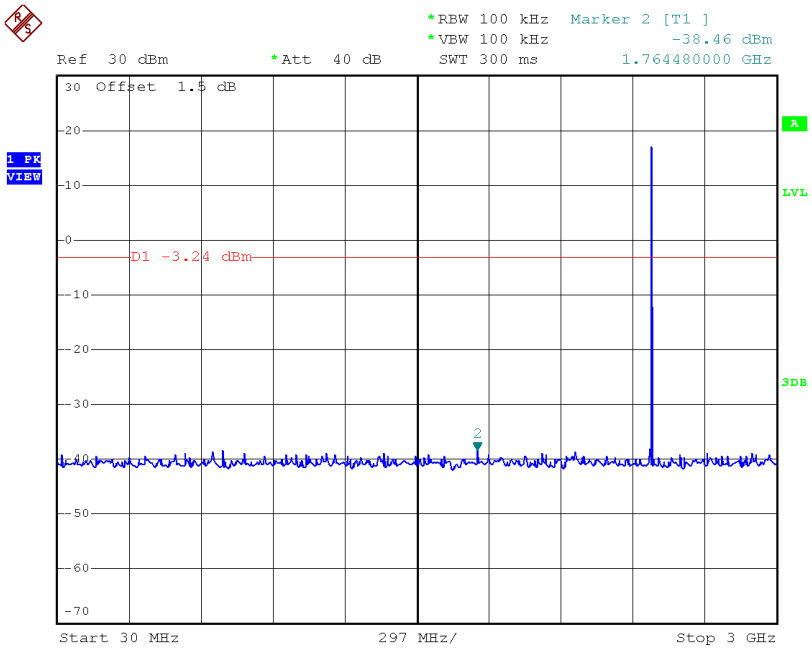
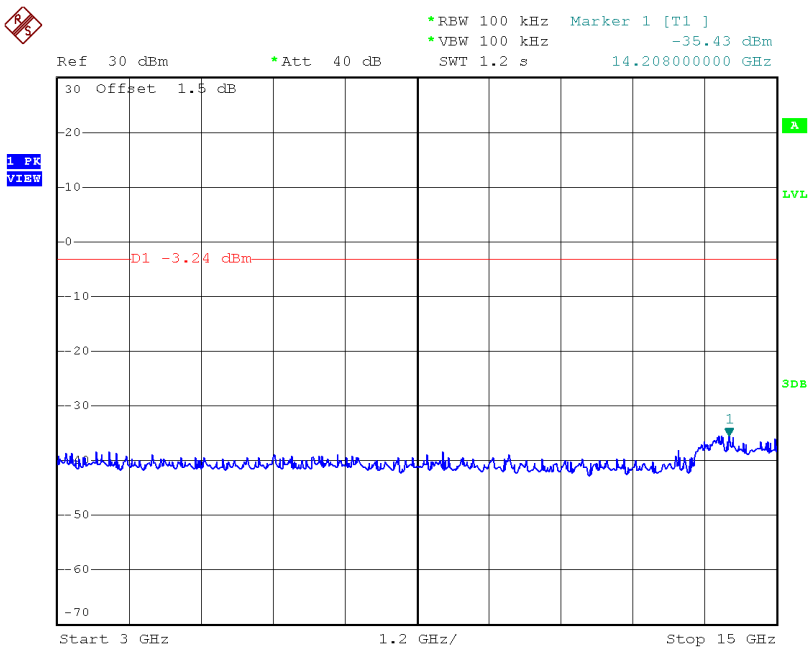
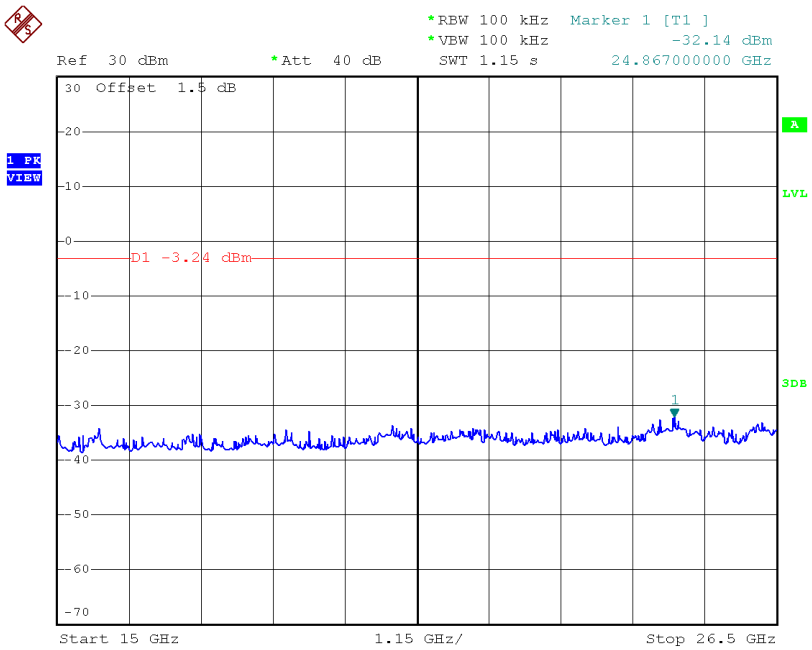
CH79 (10 Harmonic of the frequency) _1Mbps



Date: 26.APR.2019 10:40:39



Date: 26.APR.2019 10:40:48



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End of Test Report