FCC Radio Test Report

FCC ID: RWO-RZ040193

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

Project No.	:	1605C158
Equipment	:	Wireless In-Ear Headset
Model Name	:	RZ04-0193
Applicant	:	Razer Inc.
Address	:	201 3rd Street, Suite 900, San Francisco,CA 94103

Date of Receipt	:	May 19, 2016
Date of Test	:	May 19, 2016 ~ Jun. 03, 2016
Issued Date	:	Jun. 06, 2016
Tested by	:	BTL Inc.

Testing Engineer : Shawn Xiao
(Shawn Xiao)

Technical Manager : David Mao
(David Mao)

Authorized Signatory :
(Steven Lu)

BTL INC.

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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.

Table of Contents Page

Table of Contents **Page**

REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FCCP-1-1605C158	Original Issue.	Jun. 06, 2016

1. CERTIFICATION

Equipment	:	Wireless In-Ear Headset
Brand Name	:	RAZER
Model Name	:	RZ04-0193
Applicant	:	Razer Inc.
Manufacturer	:	Razer (Asia-Pacific) Pte.,Ltd.
Address	:	514 Chai Chee Lane #07-01 ~ 06 Singapore 469029, Tel: +65 6505 2188
Factory	:	RAZER TECHNOLOGY AND DEVELOPMENT (SHENZHEN) CO., LTD
Address	:	East Wing, 3rd Floor, Block 2, Phase 1 of Vision Shenzhen Business Park Keji South Road, Hi-Tech Industrial Park, Shenzhen 518057, China
Date of Test	:	May 19, 2016 ~ Jun. 03, 2016
Test Sample	:	Engineering Sample
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-1-1605C158) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

Applied Standard(s): 47 CFR Part 15, Subpart C			
Standard(s) Section	Test Item	Judgment	Remark
15.207	Conducted Emission	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(b)(1)	Peak Output Power	PASS	
15.247(d) 15.209	Radiated Spurious Emission	PASS	
15.247(a)(1)(iii)	Number of Hopping Frequency	PASS	
15.247(a)(1)(iii)	Dwell Time	PASS	
15.205	Restricted Bands	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: 319330

2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimatedfor tests performed on the EUT as specified in CISPR 16-4-2. The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2.

The reported uncertainty of measurement **y** ±**U**, where expanded uncertainty **U** is based on astandard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95**%.

A. Conducted Measurement :

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

B. Radiated Measurement :

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

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	Wireless In-Ear Headset	
Brand Name	RAZER	
Model Name	RZ04-0193	
Model Difference	NA	
Output Power (Max.)	Operation Frequency	2402~2480 MHz
	Modulation Technology	GFSK(1Mbps) π/4-DQPSK(2Mbps) 8-DPSK(3Mbps)
	Bit Rate of Transmitter	
	Output Power Max.	-0.24 dBm(1Mbps) -0.16 dBm(3Mbps)
PowerSource	1# Supplied from battery Model: FT501235P 2# Support from USB port.	
Power Rating	1# DC 3.7V 160mAh 0.592Wh 2# DC 5V 500mA	

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)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

3 Table for Filed Antenna

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Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)
1	GLEAD Electronics 佳利电子	LA31H2450_A35	Chip	N/A	0.7

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)**

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

For Conducted Emission	
Final Test Mode	Description
Mode 1	TX Mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	TXMode **Note (1)**

Note:

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

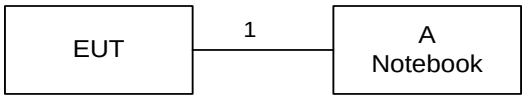
(2) The measurements for Hopping Channel Separation, Bandwidth and Peak Output Powerwere tested during 1Mbps, 2Mbps and 3Mbps, the worst case are 1Mbps and 3Mbps, onlyworst case was documented.

3.3TABLE OF PARAMETERS OF TEXT 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	Bluetest 3		
Frequency	2402 MHz	2441 MHz	2480 MHz
Parameters(1Mbps)	0.00	0.00	0.00
Parameters(3Mbps)	20.00	0.00	0.00

3.4BLOCKDIAGRAMSHOWINGTHECONFIGURATIONOFSYSTEMTESTED



3.5DESCRIPTION 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	Mfr/Brand	Model/Type No.	FCC ID	Series No.
A	Notebook	DELL	INSPIRON 1420	DOC	JX193A01SDC2

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	0.3m	USB Cable

4.EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

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

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi□pea	Average
0.15 -0.5	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

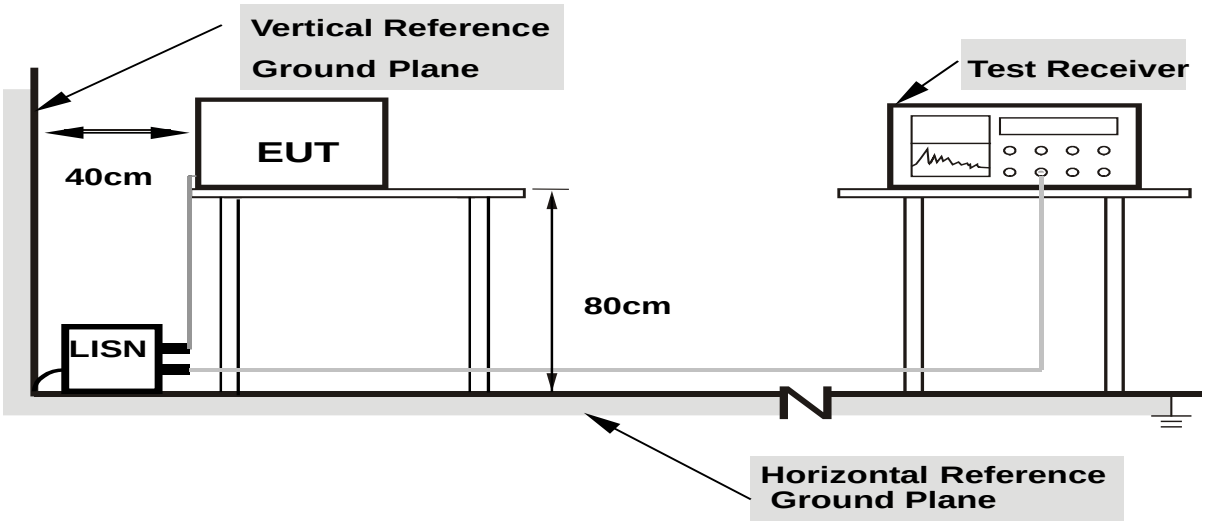
4.1.2 TEST PROCEDURE

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 equipmentspowered 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 groundplane 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.

4.1.3DEVIATIONFROMTESTSTANDARD

No deviation

4.1.4 TESTSETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

4.1.5EUT OPERATINGCONDITIONS

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

4.1.6EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: AC 120V/60Hz

4.1.7TEST RESULTS

Please refer to the Attachment 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 150KHz to 30MHz.

4.2 RADIATED EMISSION MEASUREMENT

4.2.1RADIATED EMISSION LIMITS (Frequency Range 9KHz -1000MHz)

In case the emission fall within the restricted band specified on RSS-2475.5, then the RSS-Gen limit in the table below has to be followed.

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 1000MHz)

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

Notes:

(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).

(4) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)
Margin Level = Measurement Value - Limit Value

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

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

4.2.2 TEST PROCEDURE

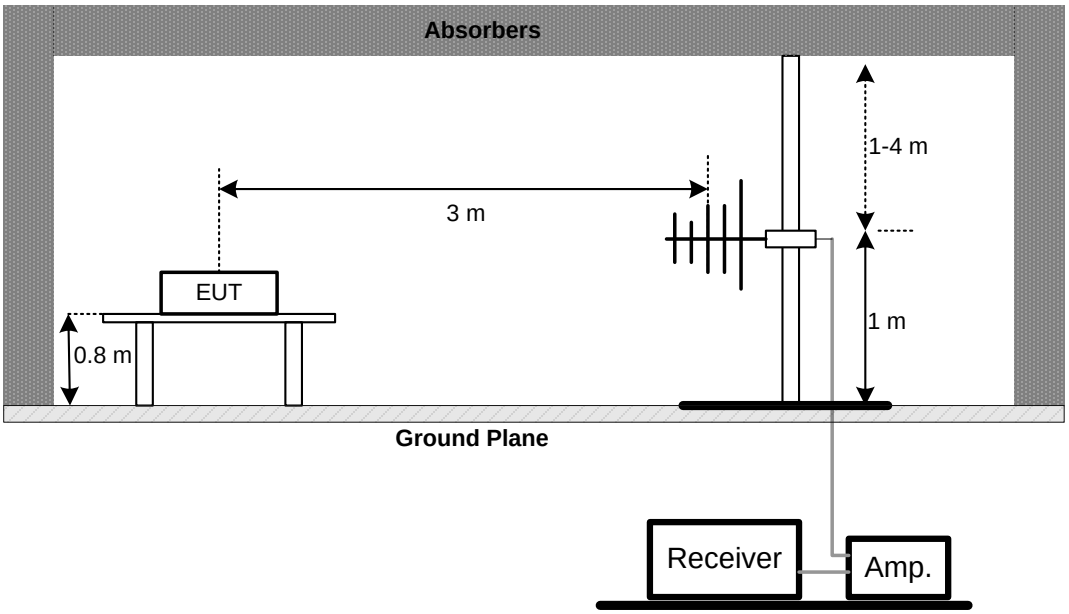
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
b. The measuring distance 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 1GHz)
c. The height of the equipment or of the substitution antenna shall be 0.8 m 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 1GHz.
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 1GHz)
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 1GHz)
i. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.2.3DEVIATIONFROMTESTSTANDARD

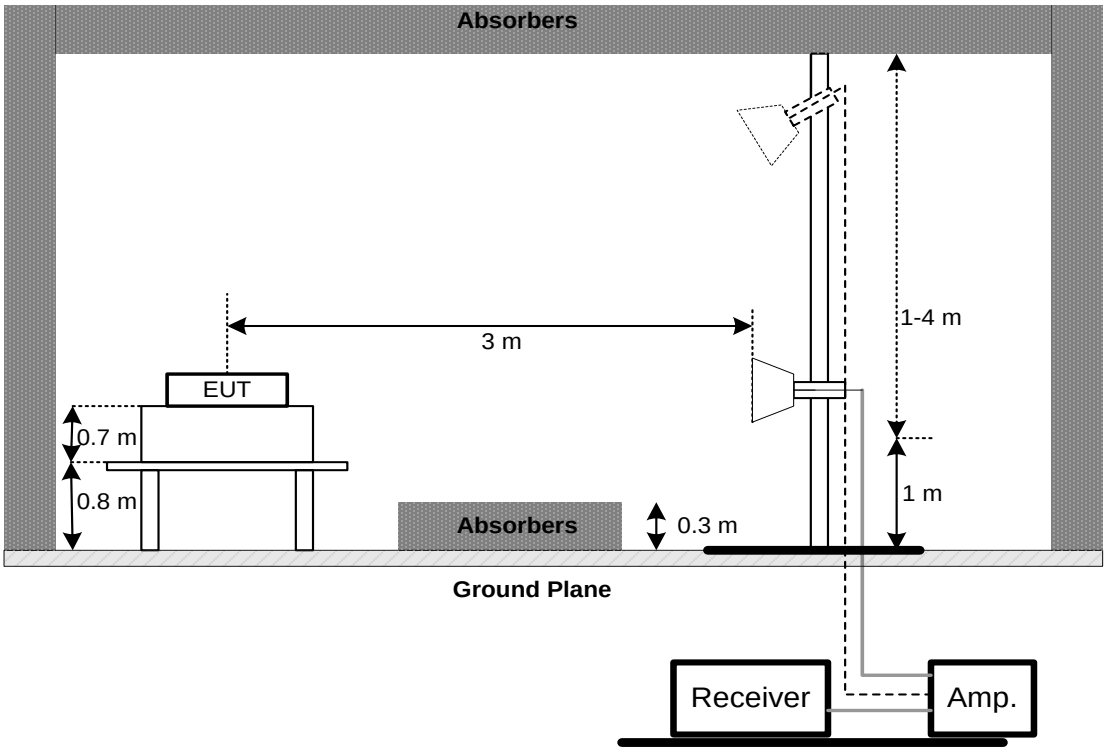
No deviation

4.2.4 TESTSETUP

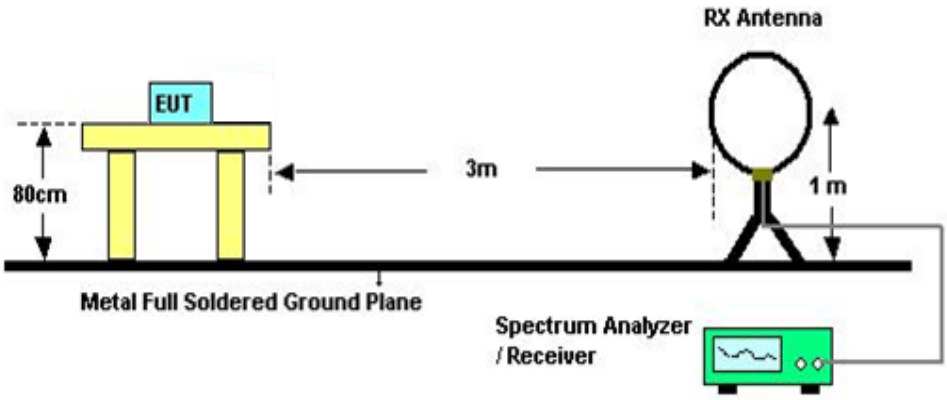
(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



(C) For Radiated Emissions Below 30MHz



4.2.5EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing

4.2.6EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: AC 120V/60Hz

4.2.7 TEST RESULTS (9KHZ TO 30MHZ)

Please refer to the Attachment B

Remark:

(1) The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
(2) Distance extrapolation factor = 40 log (specific distance / test distance) (dB).
(3) Limit line = specific limits (dBuV) + distance extrapolation factor.

4.2.8 TEST RESULTS(30MHZ TO 1000 MHZ)

Please refer to the Attachment C.

Remark:

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Modewith Detector BW=120KHz; SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz.
(2) 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.
(3) Measuring frequency range from 30MHz to 1000MHz.
(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table.

4.2.9 TEST RESULTS(ABOVE 1000 MHZ)

Please refer to the Attachment D.

Remark:

(1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission
(2) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
(3) EUT Orthogonal Axis:
"X" - denotes Laid on Table; "Y" - denotes Vertical Stand; "Z" - denotes Side Stand
(4) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
(5) 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 CHANNEL

5.1APPLIED PROCEDURES

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

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

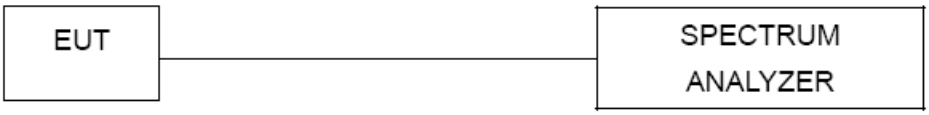
5.1.1TEST PROCEDURE

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=100KHz, VBW=100KHz, Sweep time = Auto.

5.1.2DEVIATION FROM STANDARD

No deviation.

5.1.3TEST SETUP



5.1.4EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

5.1.5EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: AC 120V/60Hz

5.1.6TEST RESULTS

Please refer to the Attachment E

6.AVERAGE TIME OF OCCUPANCY

6.1APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(1)(iii)	Average Time of Occupancy	0.4sec	2400-2483.5	PASS

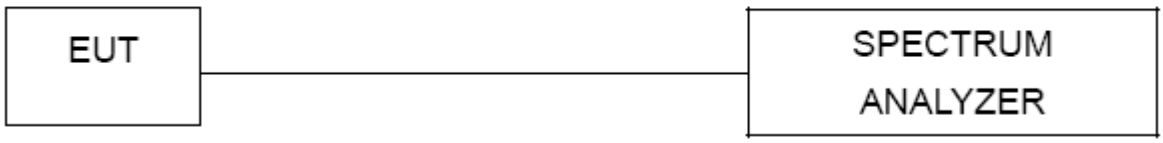
6.1.1TEST PROCEDURE

a. The transmitter output (antenna port) was connected to the spectrum analyzer
b. Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz.
c. Use a video trigger with the trigger level set to enabletriggering only on full pulses.
d. Sweep Time is more than once pulse time.
e. Set the center frequency on any frequency would be measure and set the frequency span to zero span.
f. Measure the maximum time duration of one single pulse.
g. Set the EUT for DH5, DH3 and DH1 packet transmitting.
h. Measure the maximum time duration of one single pulse.
i. DH5 Packet permit maximum 1600/ 79 / 6 = 3.37 hops per second in each channel (5 time slotsTX, 1 time slot RX).So, the dwell time is the time duration of the pulse times 3.37 x 31.6 = 106.6 within 31.6 seconds.
j. DH3 Packet permit maximum 1600 / 79 / 4 = 5.06 hops per second in each channel (3 time slotsTX, 1 time slot RX).So, the dwell time is the time duration of the pulse times 5.06 x 31.6 = 160 within 31.6 seconds.
k. DH1 Packet permit maximum 1600 / 79 /2 = 10.12 hops per second in each channel (1 time slot TX, 1 time slot RX).So, the dwell time is the time duration of the pulse times 10.12 x 31.6 = 320 within 31.6 seconds.

6.1.2DEVIATION FROM STANDARD

No deviation.

6.1.3TEST SETUP



6.1.4EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

6.1.5EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: AC 120V/60Hz

6.1.6TEST RESULTS

Please refer to the Attachment F

7.HOPPING CHANNEL SEPARATION MEASUREMENT

7.1APPLIED 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

7.1.1TEST PROCEDURE

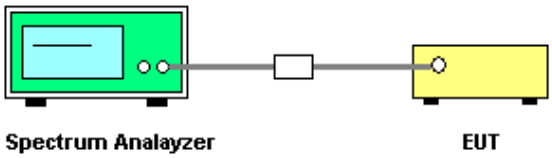
a. The EUT must have its hopping function enabled

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

7.1.2DEVIATION FROM STANDARD

No deviation.

7.1.3TEST SETUP



7.1.4EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: AC 120V/60Hz

7.1.5TEST RESULTS

Please refer to the Attachment G

8.BANDWIDTH TEST

8.1APPLIED 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 or Channel Separation
RBW	30KHz (20dB Bandwidth) / 30KHz (Channel Separation)
VBW	100KHz (20dB Bandwidth) / 100KHz (Channel Separation)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

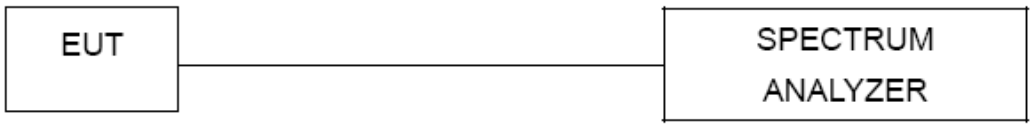
8.1.1TEST PROCEDURE

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= 30KHz, VBW=100KHz, Sweep Time = Auto.

8.1.2DEVIATION FROM STANDARD

No deviation.

8.1.3TEST SETUP



8.1.4EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

8.1.5EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: AC 120V/60Hz

8.1.6TEST RESULTS

Please refer to the Attachment H

9.PEAKOUTPUT POWER TEST

9.1APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(1)	Peak Output Power	1 Watt or 30dBm (hopping channel >75) 0.125Watt or 21dBm (hopping channel <75	2400-2483.5	PASS

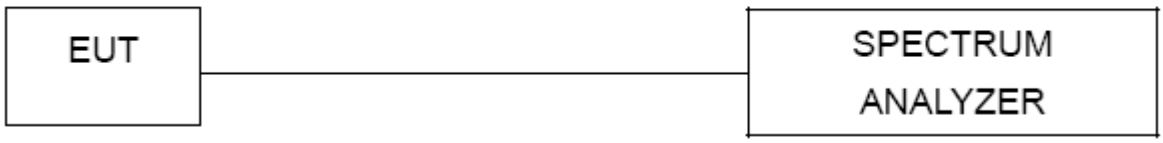
9.1.1TEST PROCEDURE

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= 1MHz/3MHz, VBW= 1MHz/3MHz, Sweep time = Auto.

9.1.2DEVIATION FROM STANDARD

No deviation.

9.1.3TEST SETUP



9.1.4EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

9.1.5EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: AC 120V/60Hz

9.1.6TEST RESULTS

Please refer to the Attachment I

10.ANTENNA CONDUCTED SPURIOUS EMISSION

10.1APPLIED PROCEDURES / LIMIT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum ordigitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band thatcontains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits.

10.1.1TEST 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= 100KHz, VBW=100KHz, Sweep time = Auto.
c. Offset=antenna gain+cable loss

10.1.2DEVIATION FROM STANDARD

No deviation.

10.1.3TEST SETUP

10.1.4EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

10.1.5EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: AC 120V/60Hz

10.1.6TEST RESULTS

Please refer to the Attachment J

11. MEASUREMENT INSTRUMENTS LIST

Conducted Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2	0052765	Mar. 27, 2017
2	LISN	R&S	ENV216	101447	Mar. 27, 2017
3	Test Cable	emci	RG223(9KHz-30 MHz)	C_17	Mar. 10, 2017
4	EMI Test Receiver	R&S	ESCI	100382	Mar. 27, 2017
5	50Ω Terminator	SHX	TF2-3G-A	08122901	Mar. 27, 2017
6	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Radiated Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	EMCO	3142C	00066462	Mar. 27, 2017
2	Antenna	EMCO	3142C	00066464	Mar. 27, 2017
3	Amplifier	Agilent	8447D	2944A11203	Oct. 11, 2016
4	Amplifier	Agilent	8447D	2944A11204	Oct. 11, 2016
5	Receiver	Agilent	N9038A	MY54450004	Nov. 20, 2016
6	Test Cable	emci	LMR-400 (30MHz-1GHz)	C-23	Dec.31, 2016
7	Test Cable	emci	LMR-400 (30MHz-1GHz)	C-22	Dec.31, 2016
8	Receiver	Agilent	N9038A	MY53220133	Jun. 24. 2016
9	Multi-Device Controller	ETS-Lindgren	2090	N/A	N/A
10	Measurement Software	Farad	EZ-EMC Ver.BTL-2ANT-1	N/A	N/A
11	Horn Antenna	EMCO	3115	9605-4803	Mar. 27, 2017
12	Amplifier	Agilent	8449B	3008A02584	Oct. 11, 2016
13	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Apr. 23, 2017
14	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 27, 2017

Number of Hopping Channel					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Oct. 11, 2016

Average Time of Occupancy					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Oct. 11, 2016

Hopping Channel Separation Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Oct. 11, 2016

Bandwidth					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Oct. 11, 2016

Peak Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Oct. 11, 2016

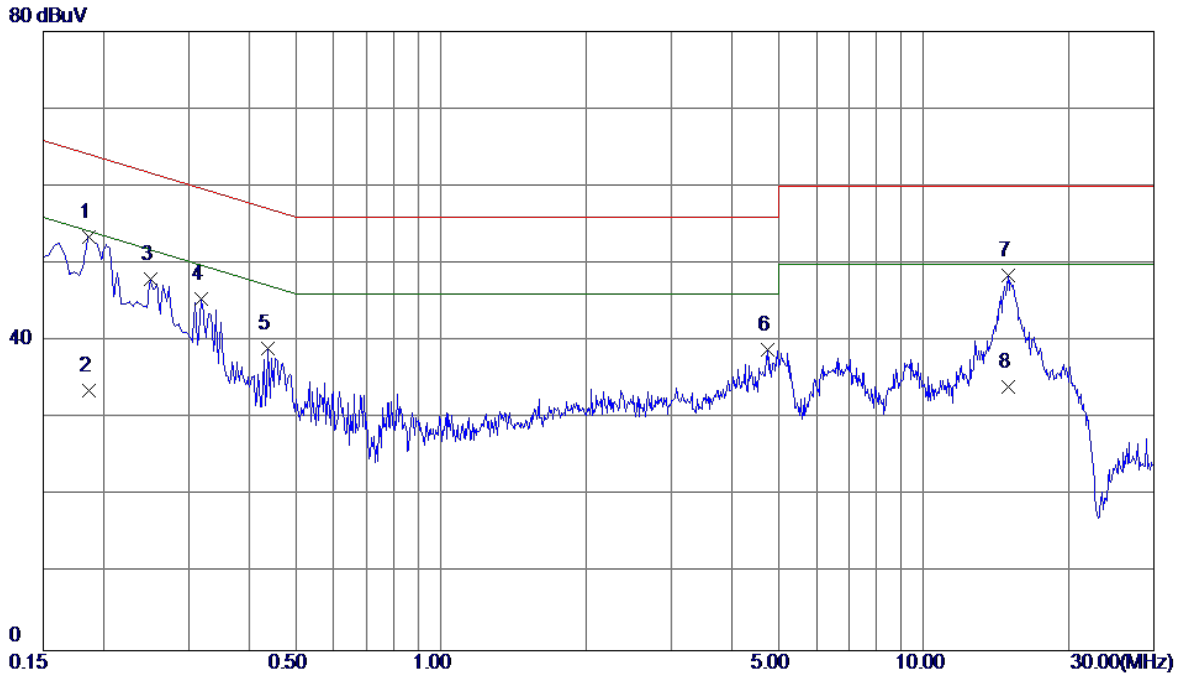
Antenna Conducted Spurious Emission					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Oct. 11, 2016

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

ATTACHMENT A - CONDUCTED EMISSION

Test Mode:	TX Mode

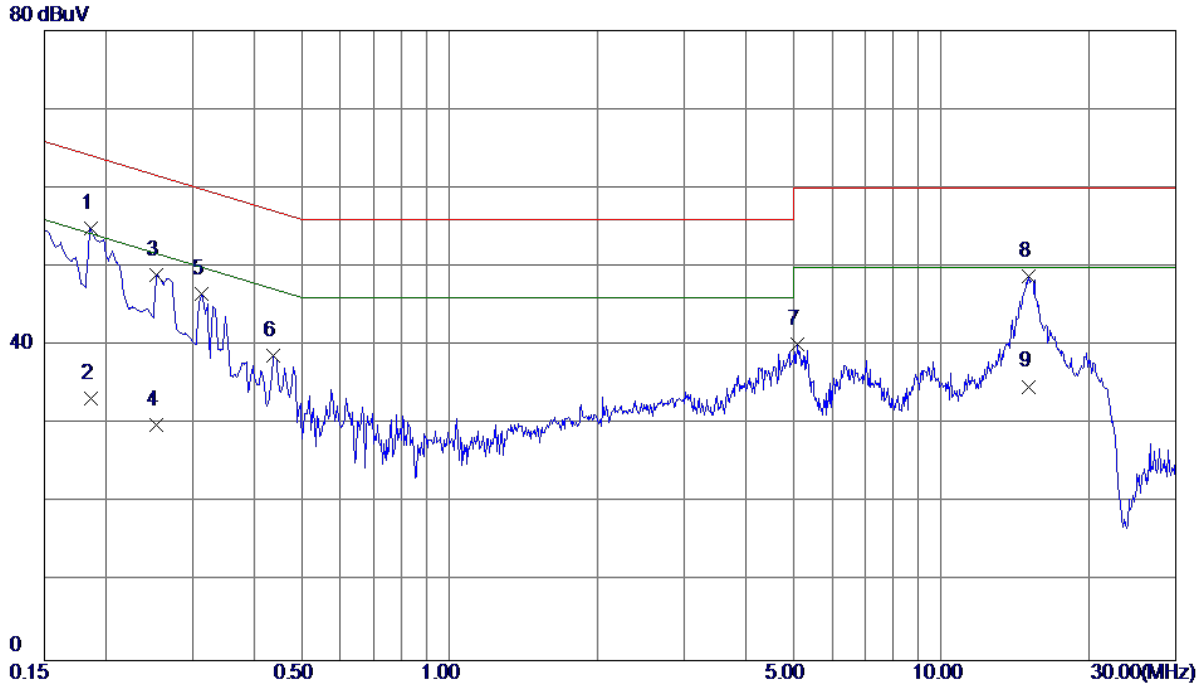
Line



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	0.1860	43.95	9.53	53.48	64.21	-10.73	Peak	
2	0.1860	24.10	9.53	33.63	54.21	-20.58	AVG	
3	0.2500	38.44	9.53	47.97	61.76	-13.79	Peak	
4	0.3180	35.95	9.53	45.48	59.76	-14.28	Peak	
5	0.4380	29.48	9.58	39.06	57.10	-18.04	Peak	
6	4.7420	28.82	10.04	38.86	56.00	-17.14	Peak	
7	14.9860	38.16	10.36	48.52	60.00	-11.48	Peak	
8	14.9860	23.70	10.36	34.06	50.00	-15.94	AVG	

Test Mode:	TX Mode

Neutral



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	0.1860	45.41	9.48	54.89	64.21	-9.32	Peak	
2	0.1860	23.79	9.48	33.27	54.21	-20.94	AVG	
3	0.2540	39.50	9.53	49.03	61.63	-12.60	Peak	
4	0.2540	20.46	9.53	29.99	51.63	-21.64	AVG	
5	0.3140	37.06	9.53	46.59	59.86	-13.27	Peak	
6	0.4380	29.32	9.44	38.76	57.10	-18.34	Peak	
7	5.0939	30.20	9.99	40.19	60.00	-19.81	Peak	
8	15.1060	38.44	10.36	48.80	60.00	-11.20	Peak	
9	15.1060	24.44	10.36	34.80	50.00	-15.20	AVG	

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

Test Mode:	TX Mode

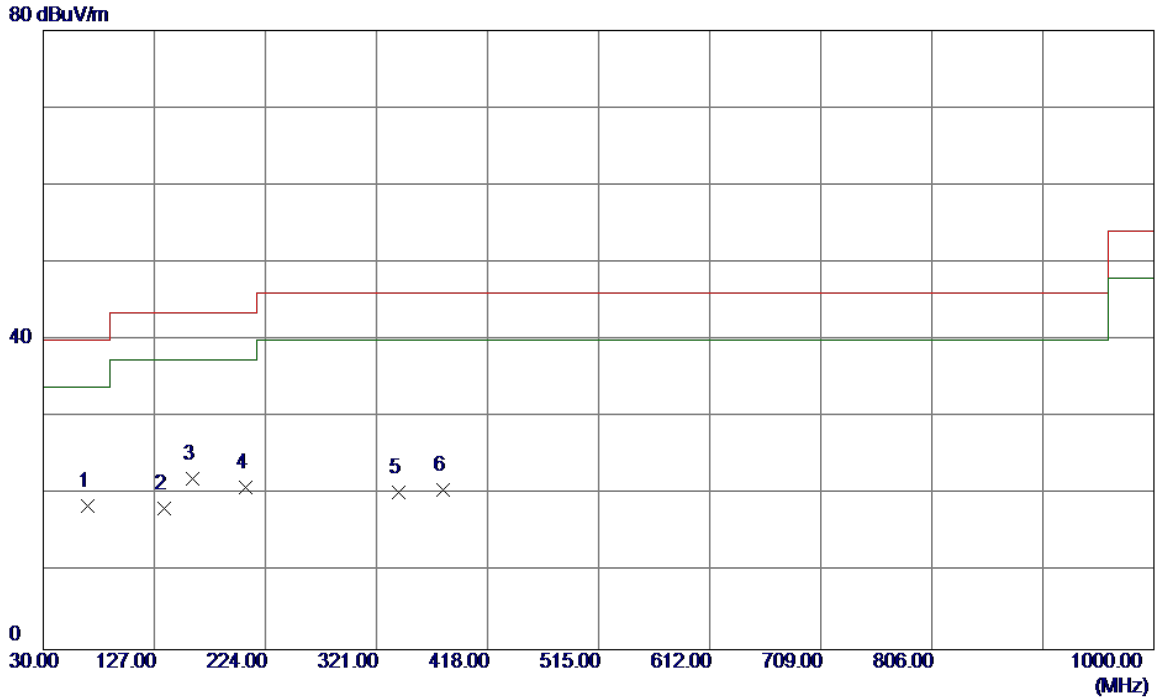
Frequency (MHz)	Ant 0°/90°	Read level dBuV/m	Factor (dB)	Measured(FS) (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Note
0.0126	0°	13.79	24.7687	38.5587	125.5968	-87.0381	AVG
0.0126	0°	14.34	24.7687	39.1087	145.5968	-106.4881	PEAK
0.0212	0°	6.53	24.2240	30.7540	121.0775	-90.3235	AVG
0.0212	0°	8.61	24.2240	32.8340	141.0775	-108.2435	PEAK
0.0367	0°	3.76	23.2423	27.0023	116.3109	-89.3086	AVG
0.0367	0°	5.28	23.2423	28.5223	136.3109	-107.7886	PEAK
0.0535	0°	1.43	22.3300	23.7600	113.0371	-89.2771	AVG
0.0535	0°	2.57	22.3300	24.9000	133.0371	-108.1371	PEAK
0.5031	0°	19.75	19.8099	39.5599	73.5711	-34.0112	QP
1.9576	0°	23.19	19.5042	42.6942	69.5400	-26.8458	QP

Frequency (MHz)	Ant 0°/90°	Read level dBuV/m	Factor (dB)	Measured(FS) (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Note
0.0113	90°	13.42	24.3000	37.7200	126.5427	-88.8227	AVG
0.0113	90°	14.32	24.3000	38.6200	146.5427	-107.9227	PEAK
0.0258	90°	7.54	23.9327	31.4727	119.3718	-87.8992	AVG
0.0258	90°	8.46	23.9327	32.3927	139.3718	-106.9792	PEAK
0.0415	90°	5.33	22.9383	28.2683	115.2433	-86.9749	AVG
0.0415	90°	6.93	22.9383	29.8683	135.2433	-105.3749	PEAK
0.0564	90°	1.79	22.2720	24.0620	112.5786	-88.5166	AVG
0.0564	90°	2.38	22.2720	24.6520	132.5786	-107.9266	PEAK
0.6238	90°	22.34	20.1962	42.5362	71.7033	-29.1672	QP
2.0525	90°	24.43	19.4685	43.8985	69.5400	-25.6415	QP

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

Test Mode:	TX 2402MHz_CH00_1Mbps

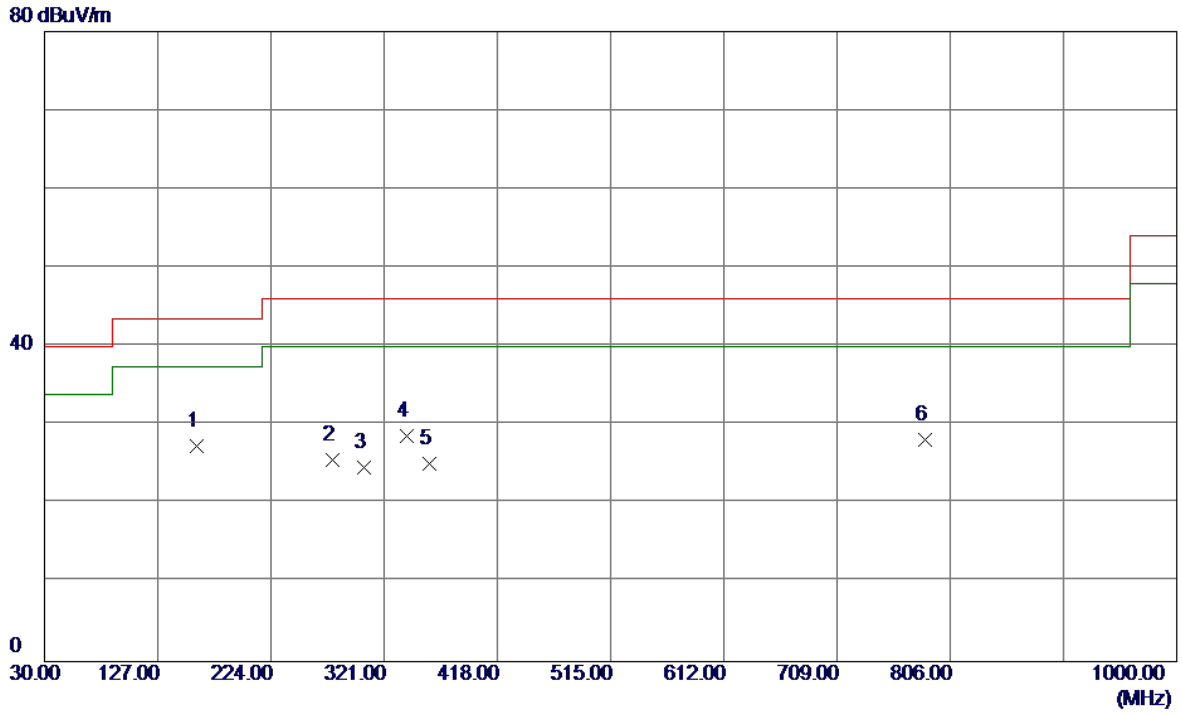
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	68.8000	34.73	-16.13	18.60	40.00	-21.40	Peak	
2	135.7300	31.40	-13.17	18.23	43.50	-25.27	Peak	
3	159.9800	34.24	-12.19	22.05	43.50	-21.45	Peak	
4	206.5399	35.63	-14.69	20.94	43.50	-22.56	Peak	
5	340.4000	31.72	-11.39	20.33	46.00	-25.67	Peak	
6	379.2000	30.28	-9.66	20.62	46.00	-25.38	Peak	

Test Mode:	TX 2402MHz_CH00_1Mbps

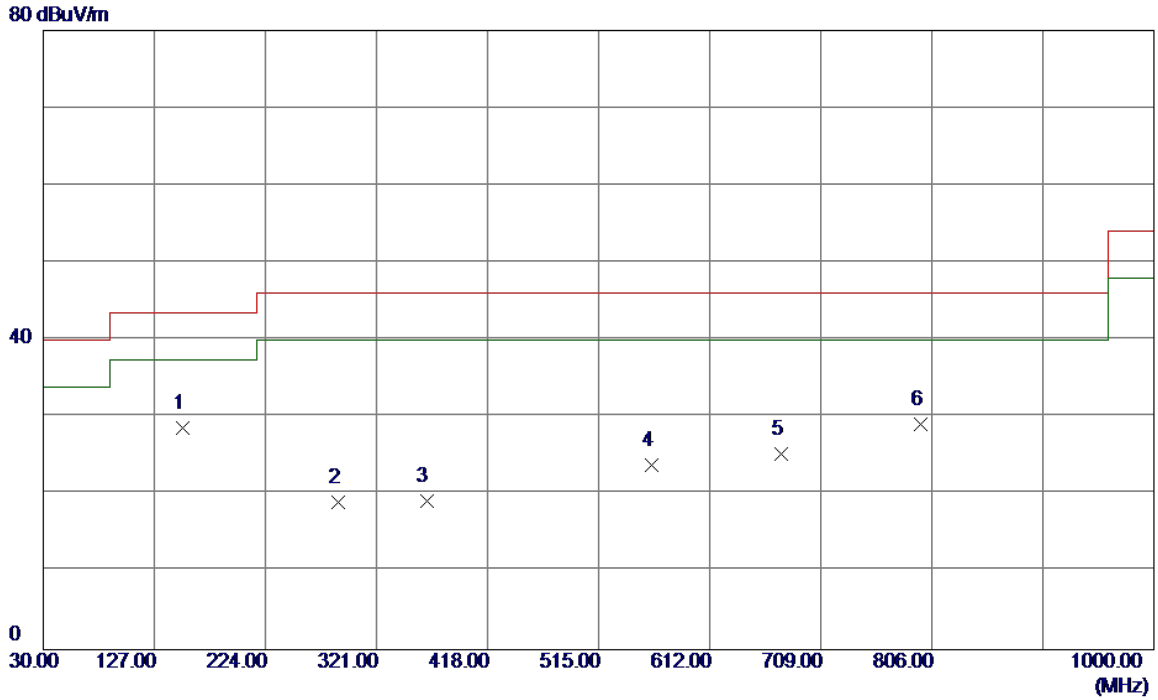
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	159.9800	39.55	-12.19	27.36	43.50	-16.14	Peak	
2	276.3800	38.38	-12.79	25.59	46.00	-20.41	Peak	
3	303.5400	35.22	-10.54	24.68	46.00	-21.32	Peak	
4	340.4000	40.05	-11.39	28.66	46.00	-17.34	Peak	
5	359.8000	36.09	-10.96	25.13	46.00	-20.87	Peak	
6	784.6599	29.63	-1.41	28.22	46.00	-17.78	Peak	

Test Mode:	TX 2441MHz_CH39_1Mbps

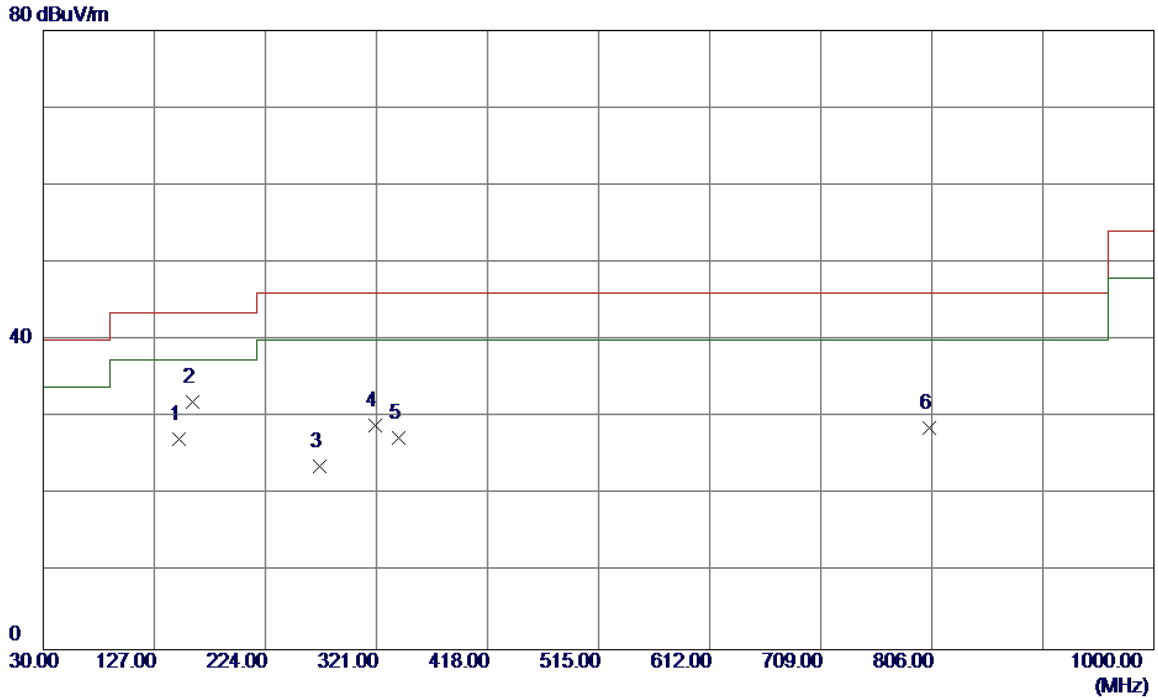
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	152.2200	41.42	-12.81	28.61	43.50	-14.89	Peak	
2	288.0200	30.68	-11.68	19.00	46.00	-27.00	Peak	
3	364.6500	29.80	-10.63	19.17	46.00	-26.83	Peak	
4	561.5600	29.70	-5.87	23.83	46.00	-22.17	Peak	
5	674.0800	29.37	-4.06	25.31	46.00	-20.69	Peak	
6	796.3000	29.97	-0.90	29.07	46.00	-16.93	Peak	

Test Mode:	TX 2441MHz_CH39_1Mbps

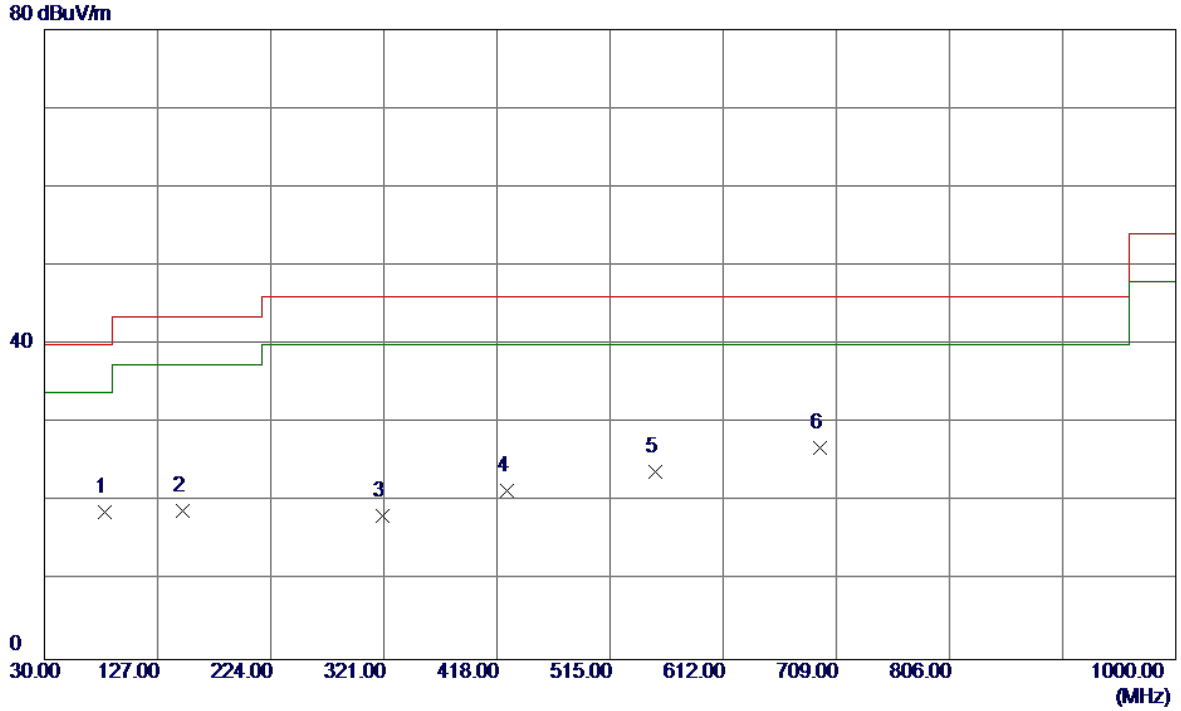
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	148.3400	40.36	-13.11	27.25	43.50	-16.25	Peak	
2 *	159.9800	44.17	-12.19	31.98	43.50	-11.52	Peak	
3	271.5300	37.19	-13.45	23.74	46.00	-22.26	Peak	
4	320.0300	39.94	-10.92	29.02	46.00	-16.98	Peak	
5	340.4000	38.70	-11.39	27.31	46.00	-18.69	Peak	
6	804.0600	29.47	-0.87	28.60	46.00	-17.40	Peak	

Test Mode:	TX 2480MHz_CH78_1Mbps

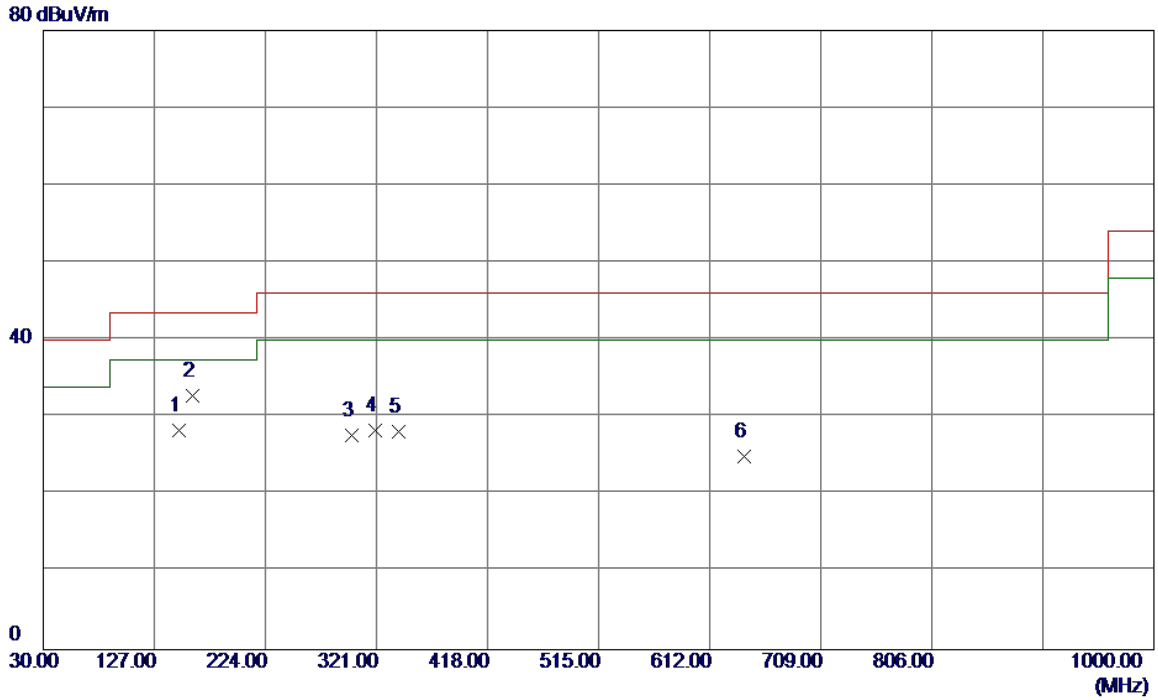
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	81.4100	35.15	-16.37	18.78	40.00	-21.22	Peak	
2	148.3400	32.05	-13.11	18.94	43.50	-24.56	Peak	
3	320.0300	29.12	-10.92	18.20	46.00	-27.80	Peak	
4	426.7300	29.88	-8.43	21.45	46.00	-24.55	Peak	
5	553.8000	29.36	-5.47	23.89	46.00	-22.11	Peak	
6 *	695.4200	30.15	-3.20	26.95	46.00	-19.05	Peak	

Test Mode:	TX 2480MHz_CH78_1Mbps

Horizontal

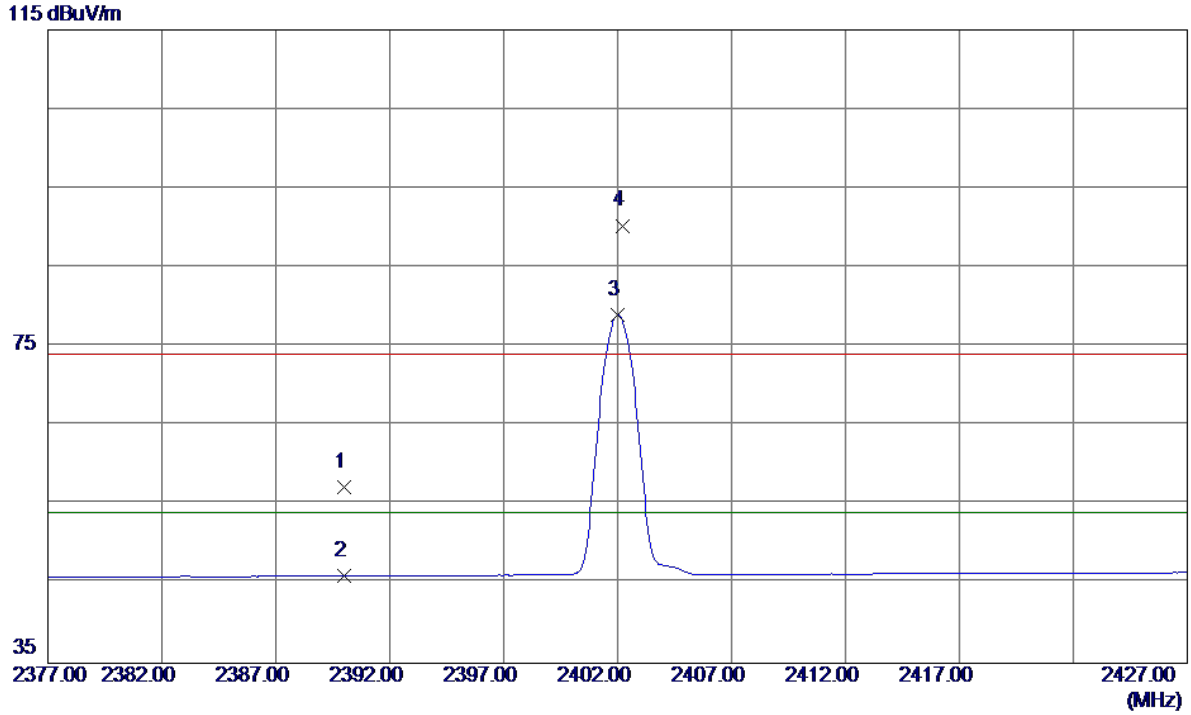


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	148.3400	41.39	-13.11	28.28	43.50	-15.22	Peak	
2 *	159.9800	44.94	-12.19	32.75	43.50	-10.75	Peak	
3	299.6600	38.19	-10.50	27.69	46.00	-18.31	Peak	
4	320.0300	39.23	-10.92	28.31	46.00	-17.69	Peak	
5	340.4000	39.56	-11.39	28.17	46.00	-17.83	Peak	
6	642.0700	30.48	-5.49	24.99	46.00	-21.01	Peak	

ATTACHMENT D - RADIATED EMISSION (ABOVE 1000MHZ)

Test Mode :	TX 2402MHz_CH00_1Mbps

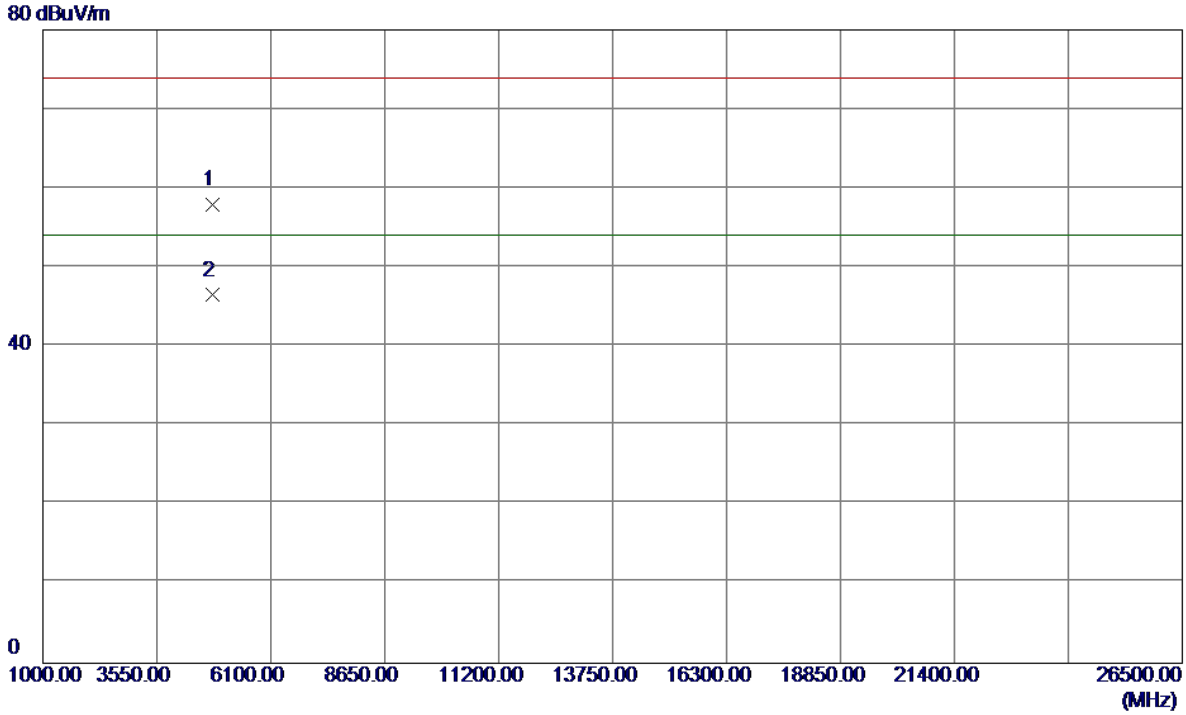
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	24.54	32.77	57.31	74.00	-16.69	Peak	
2	2390.0000	13.26	32.77	46.03	54.00	-7.97	AVG	
3 *	2402.0000	46.15	32.82	78.97	54.00	24.97	AVG	No Limit
4	2402.2000	57.46	32.82	90.28	74.00	16.28	Peak	No Limit

Test Mode :	TX 2402MHz_CH00_1Mbps

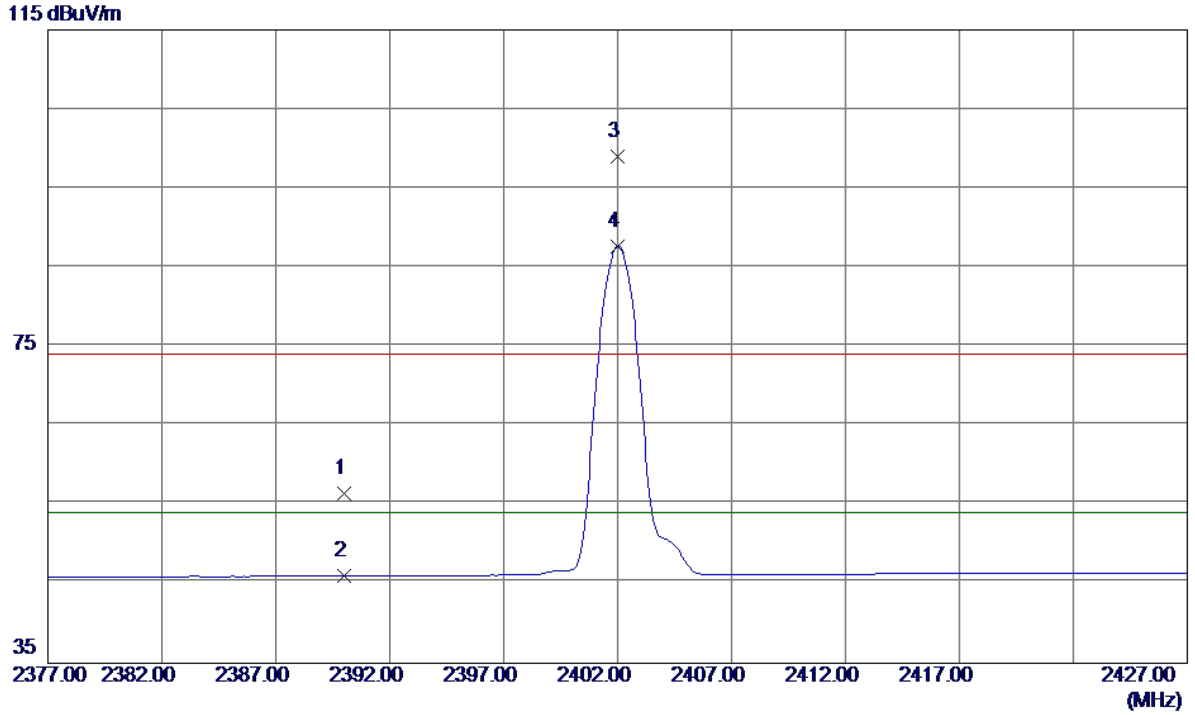
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4803.7100	53.38	4.61	57.99	74.00	-16.01	Peak	
2 *	4803.9800	41.86	4.62	46.48	54.00	-7.52	AVG	

Test Mode :	TX 2402MHz_CH00_1Mbps

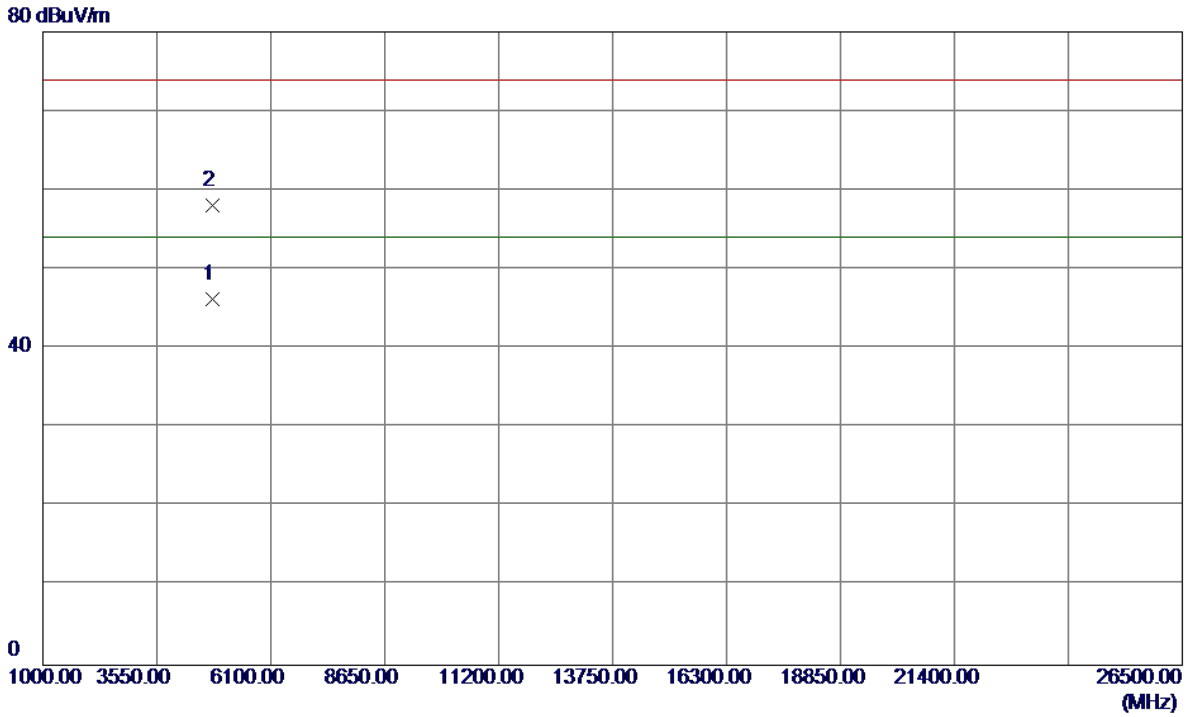
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	23.70	32.77	56.47	74.00	-17.53	Peak	
2	2390.0000	13.25	32.77	46.02	54.00	-7.98	AVG	
3	2401.9950	66.15	32.82	98.97	74.00	24.97	Peak	No Limit
4 *	2402.0000	54.87	32.82	87.69	54.00	33.69	AVG	No Limit

Test Mode :	TX 2402MHz_CH00_1Mbps

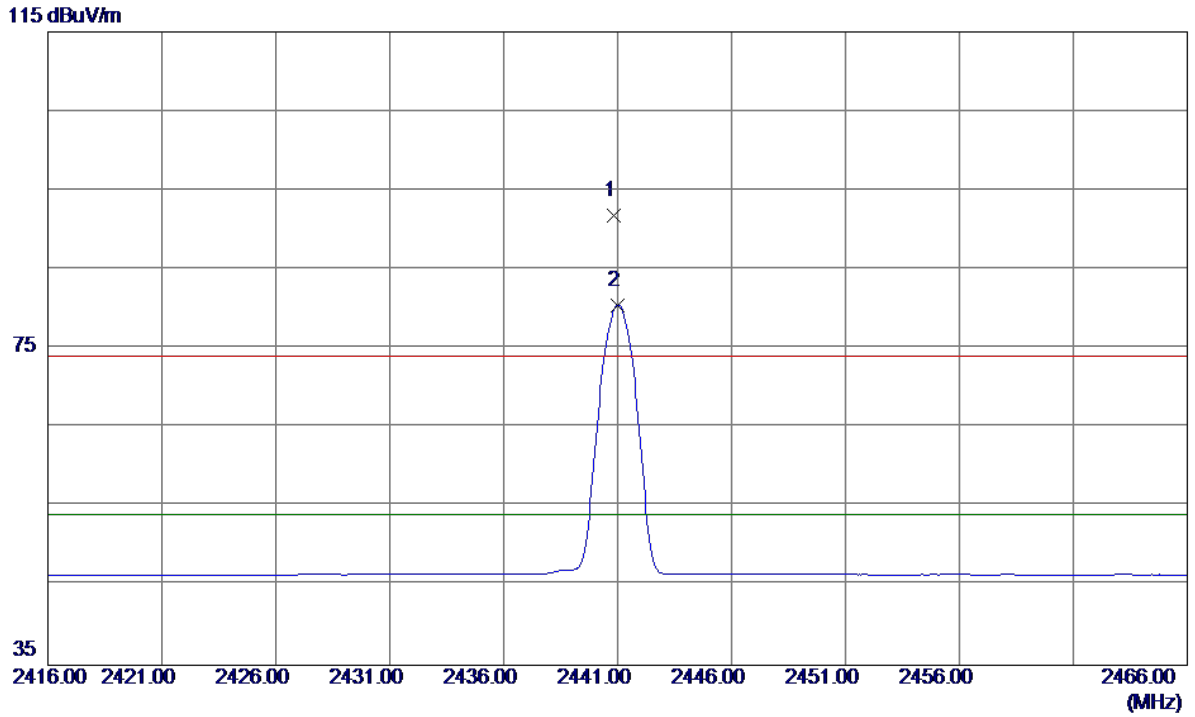
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4803.9900	41.66	4.62	46.28	54.00	-7.72	AVG	
2	4804.3400	53.41	4.62	58.03	74.00	-15.97	Peak	

Test Mode :	TX 2441MHz_CH39_1Mbps

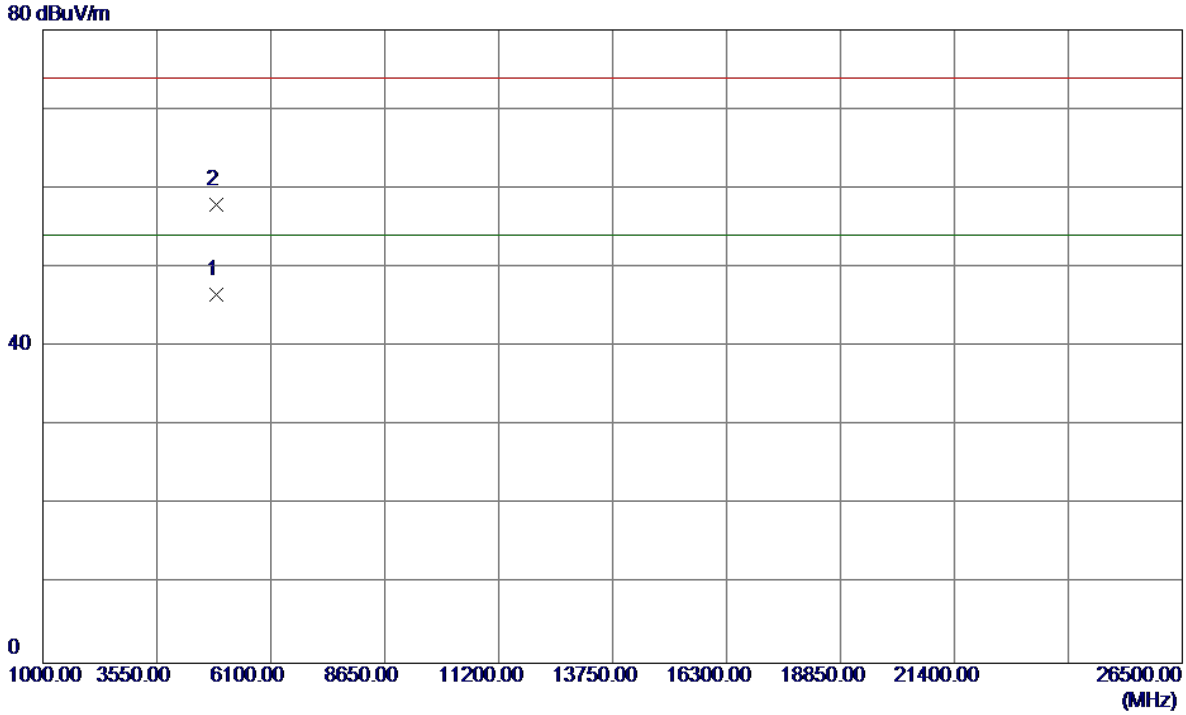
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2440.8500	58.77	32.98	91.75	74.00	17.75	Peak	No Limit
2 *	2441.0000	47.49	32.98	80.47	54.00	26.47	AVG	No Limit

Test Mode :	TX 2441MHz_CH39_1Mbps

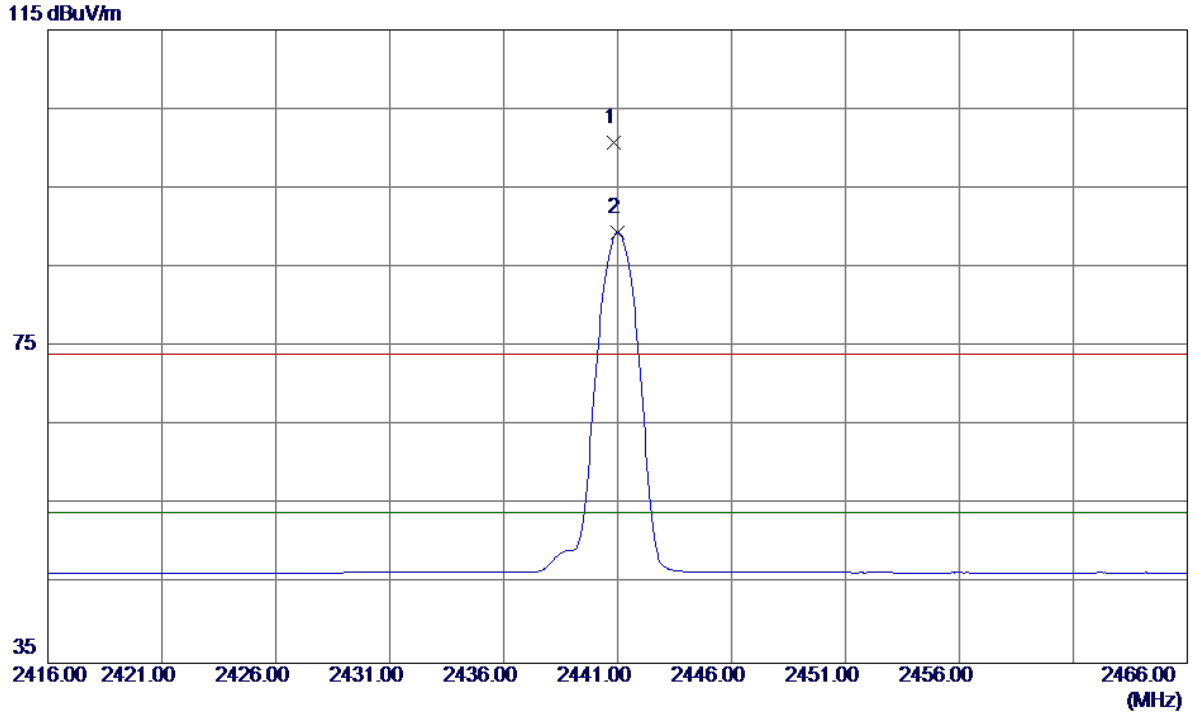
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4881.9900	41.61	4.92	46.53	54.00	-7.47	AVG	
2	4882.2799	53.03	4.92	57.95	74.00	-16.05	Peak	

Test Mode :	TX 2441MHz_CH39_1Mbps

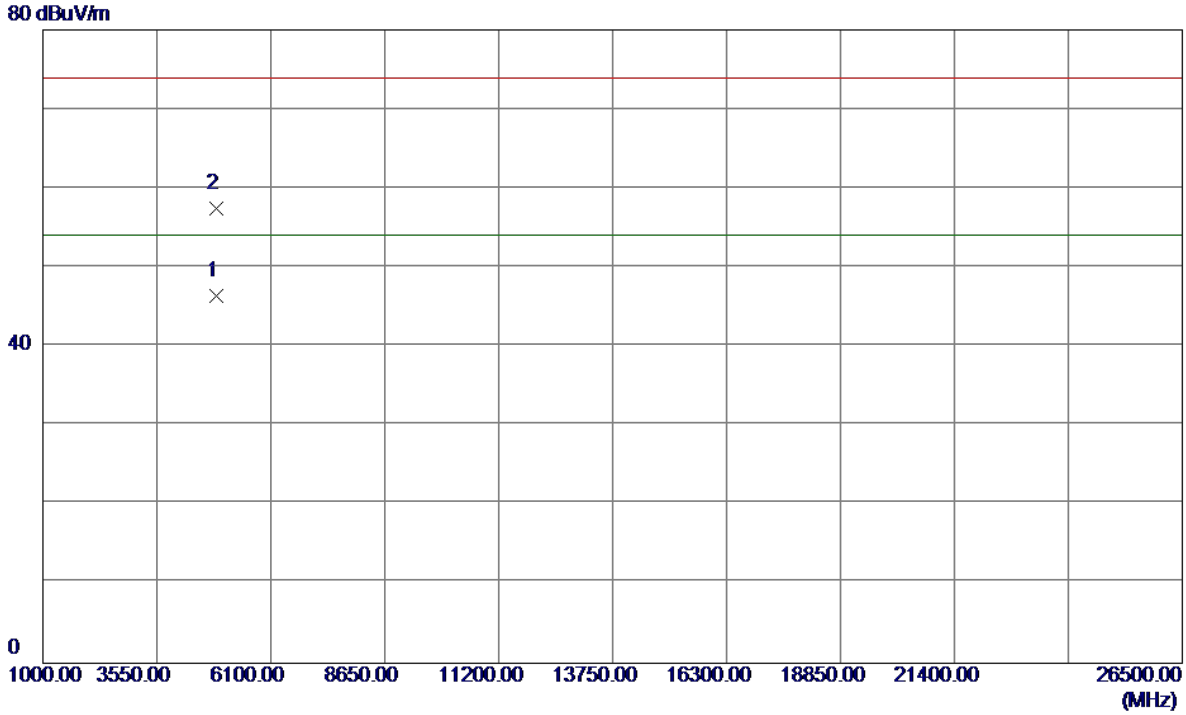
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2440.8500	67.70	32.98	100.68	74.00	26.68	Peak	No Limit
2 *	2441.0000	56.41	32.98	89.39	54.00	35.39	AVG	No Limit

Test Mode :	TX 2441MHz_CH39_1Mbps

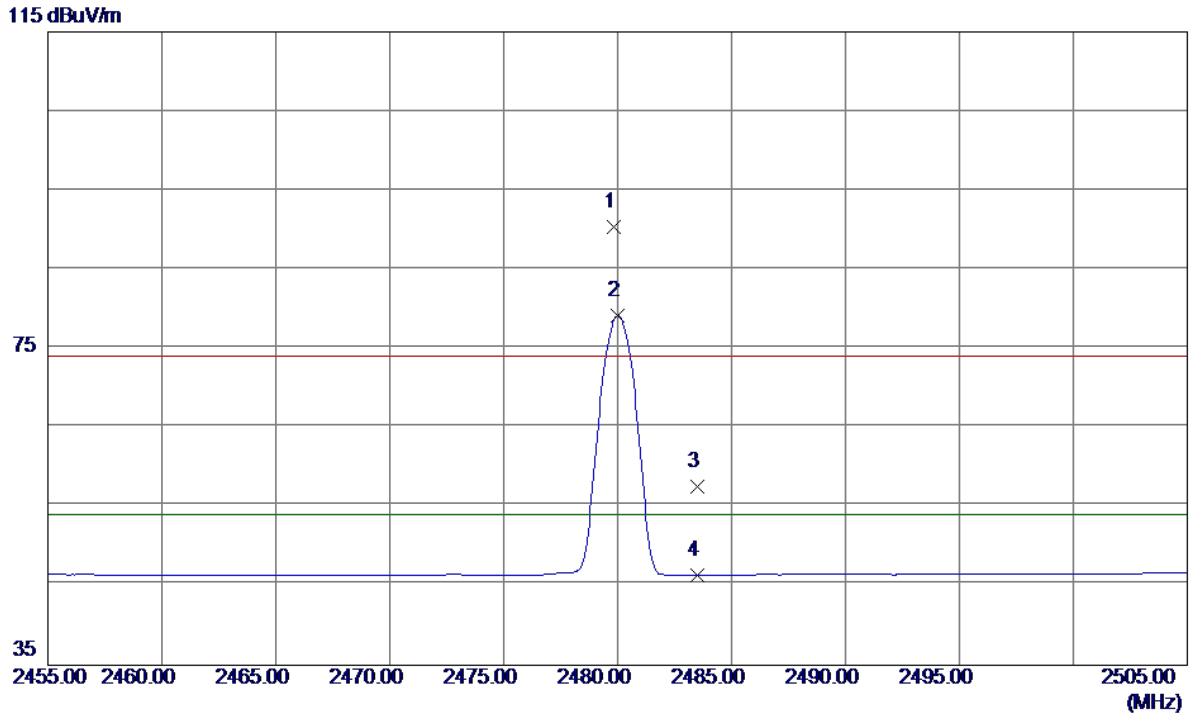
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4881.9800	41.41	4.92	46.33	54.00	-7.67	AVG	
2	4882.3000	52.57	4.92	57.49	74.00	-16.51	Peak	

Test Mode :	TX 2480MHz_CH78_1Mbps

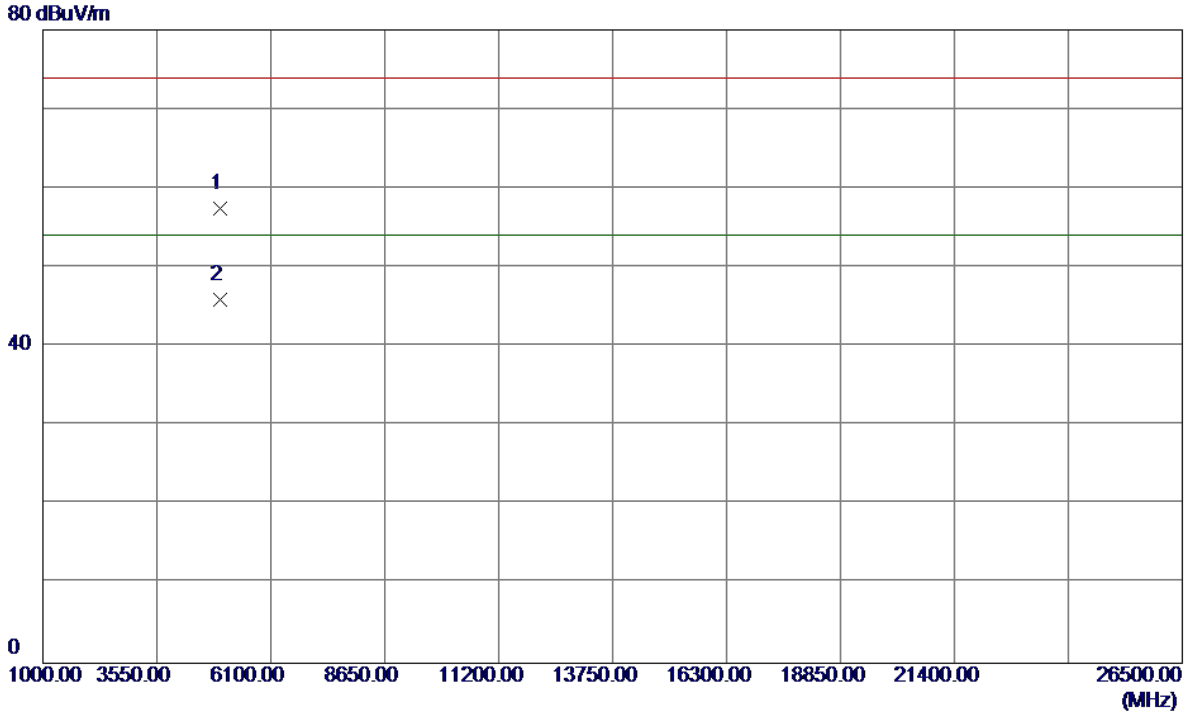
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2479.8500	57.27	33.14	90.41	74.00	16.41	Peak	No Limit
2 *	2480.0000	45.99	33.14	79.13	54.00	25.13	AVG	No Limit
3	2483.5000	24.42	33.15	57.57	74.00	-16.43	Peak	
4	2483.5000	13.26	33.15	46.41	54.00	-7.59	AVG	

Test Mode :	TX 2480MHz_CH78_1Mbps

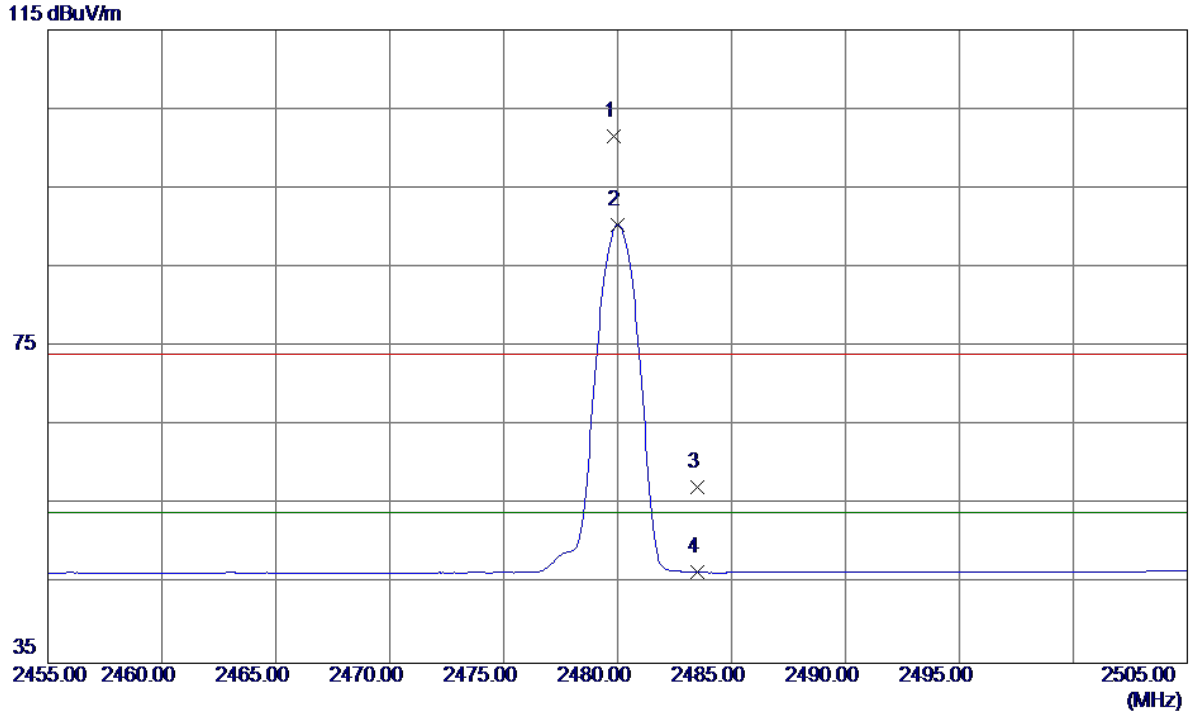
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4959.6100	52.16	5.22	57.38	74.00	-16.62	Peak	
2 *	4959.9800	40.76	5.22	45.98	54.00	-8.02	AVG	

Test Mode :	TX 2480MHz_CH78_1Mbps

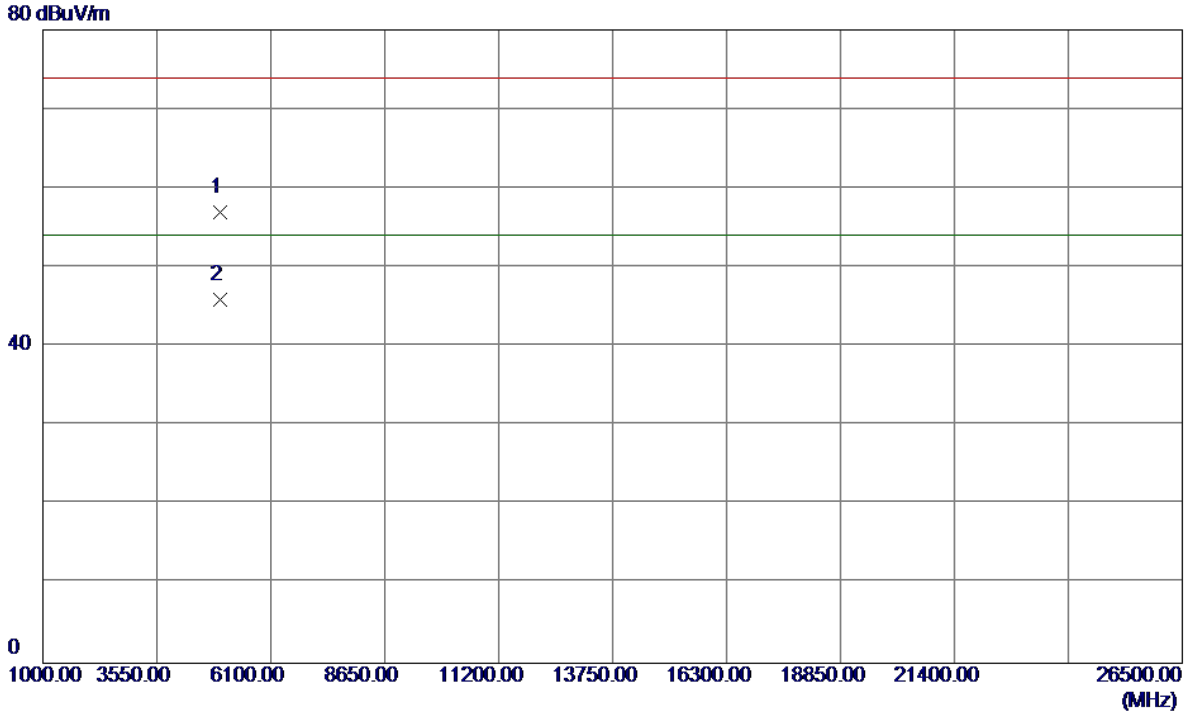
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2479.8500	68.49	33.14	101.63	74.00	27.63	Peak	No Limit
2 *	2480.0000	57.21	33.14	90.35	54.00	36.35	AVG	No Limit
3	2483.5000	24.07	33.15	57.22	74.00	-16.78	Peak	
4	2483.5000	13.30	33.15	46.45	54.00	-7.55	AVG	

Test Mode :	TX 2480MHz_CH78_1Mbps

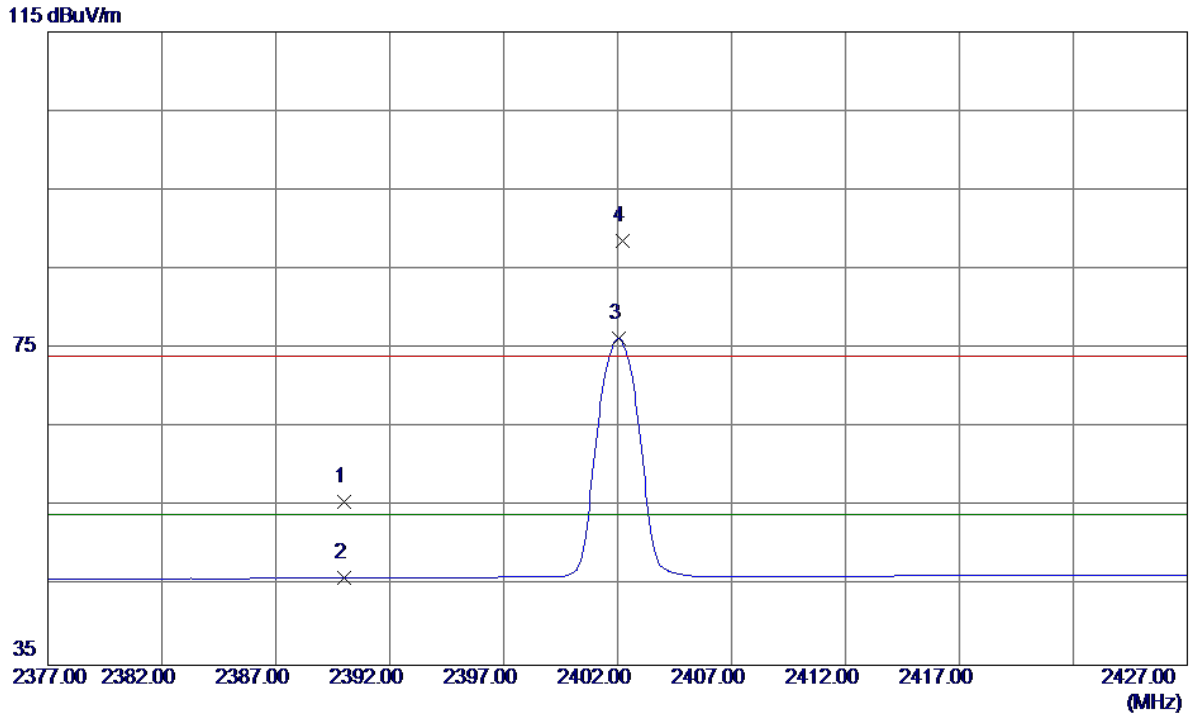
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4959.7200	51.75	5.22	56.97	74.00	-17.03	Peak	
2 *	4959.9800	40.64	5.22	45.86	54.00	-8.14	AVG	

Test Mode :	TX 2402MHz_CH00_3Mbps

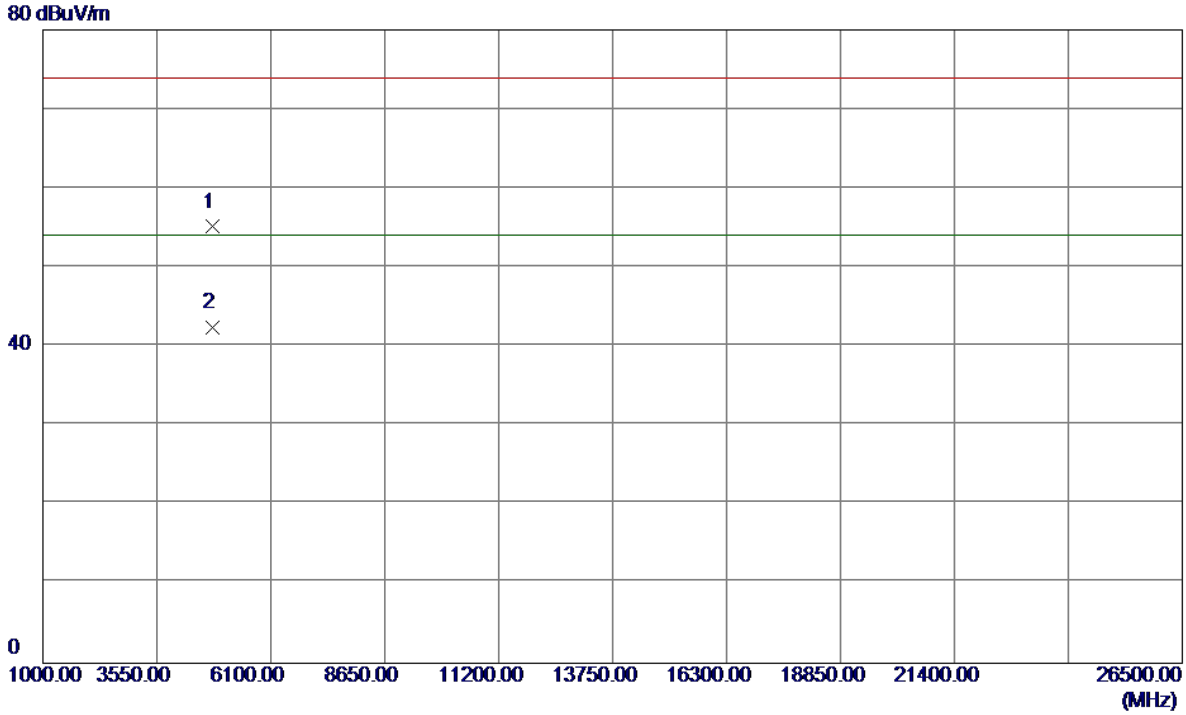
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	22.94	32.77	55.71	74.00	-18.29	Peak	
2	2390.0000	13.25	32.77	46.02	54.00	-7.98	AVG	
3 *	2402.0500	43.42	32.82	76.24	54.00	22.24	AVG	No Limit
4	2402.2000	55.73	32.82	88.55	74.00	14.55	Peak	No Limit

Test Mode :	TX 2402MHz_CH00_3Mbps

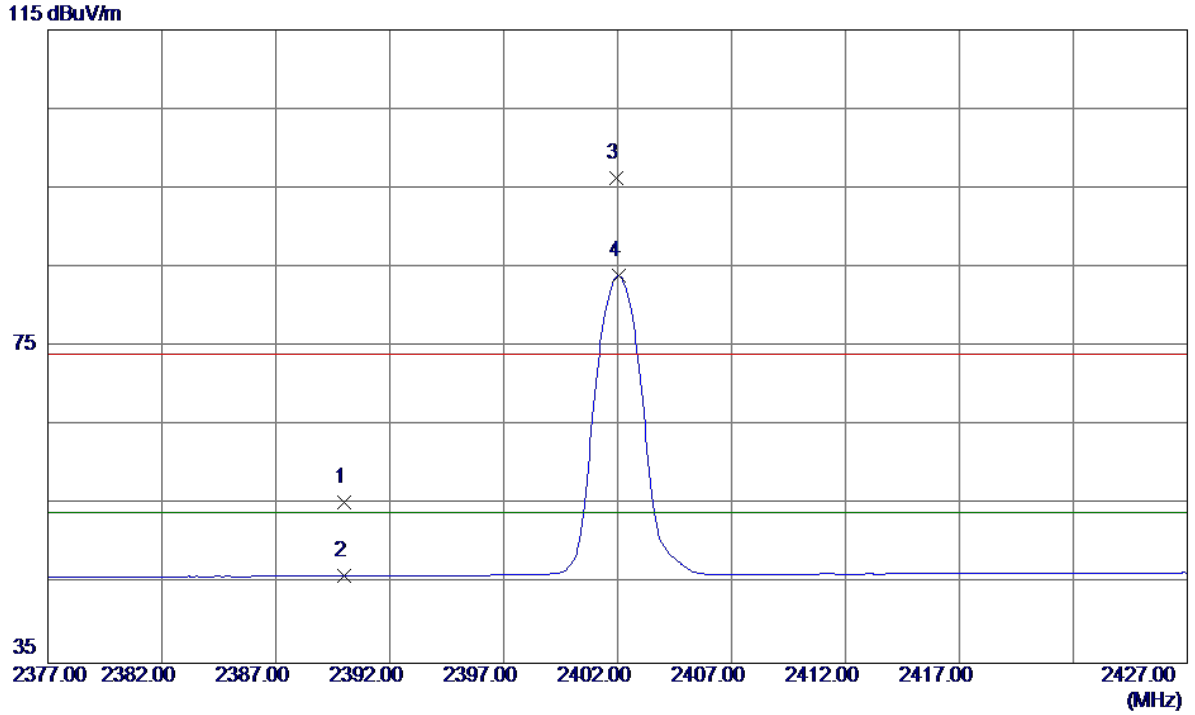
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4803.9300	50.50	4.62	55.12	74.00	-18.88	Peak	
2 *	4804.0000	37.75	4.62	42.37	54.00	-11.63	AVG	

Test Mode :	TX 2402MHz_CH00_3Mbps

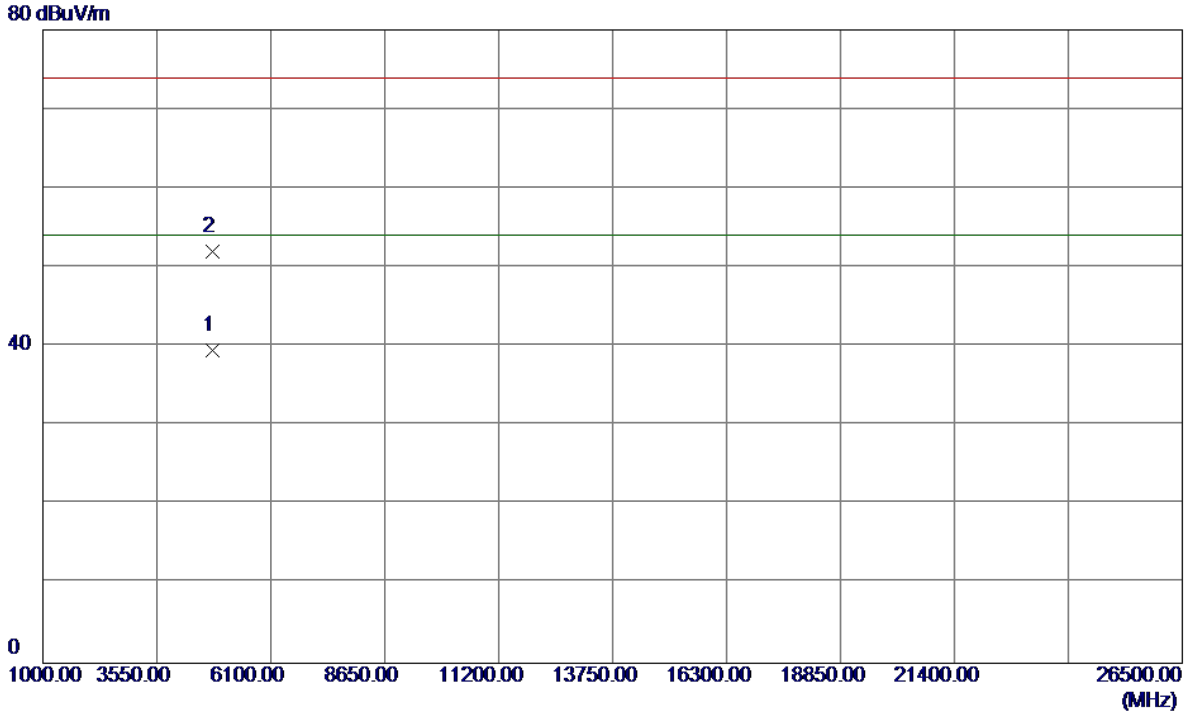
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	22.50	32.77	55.27	74.00	-18.73	Peak	
2	2390.0000	13.26	32.77	46.03	54.00	-7.97	AVG	
3	2401.9500	63.48	32.82	96.30	74.00	22.30	Peak	No Limit
4 *	2402.0500	51.08	32.82	83.90	54.00	29.90	AVG	No Limit

Test Mode :	TX 2402MHz_CH00_3Mbps

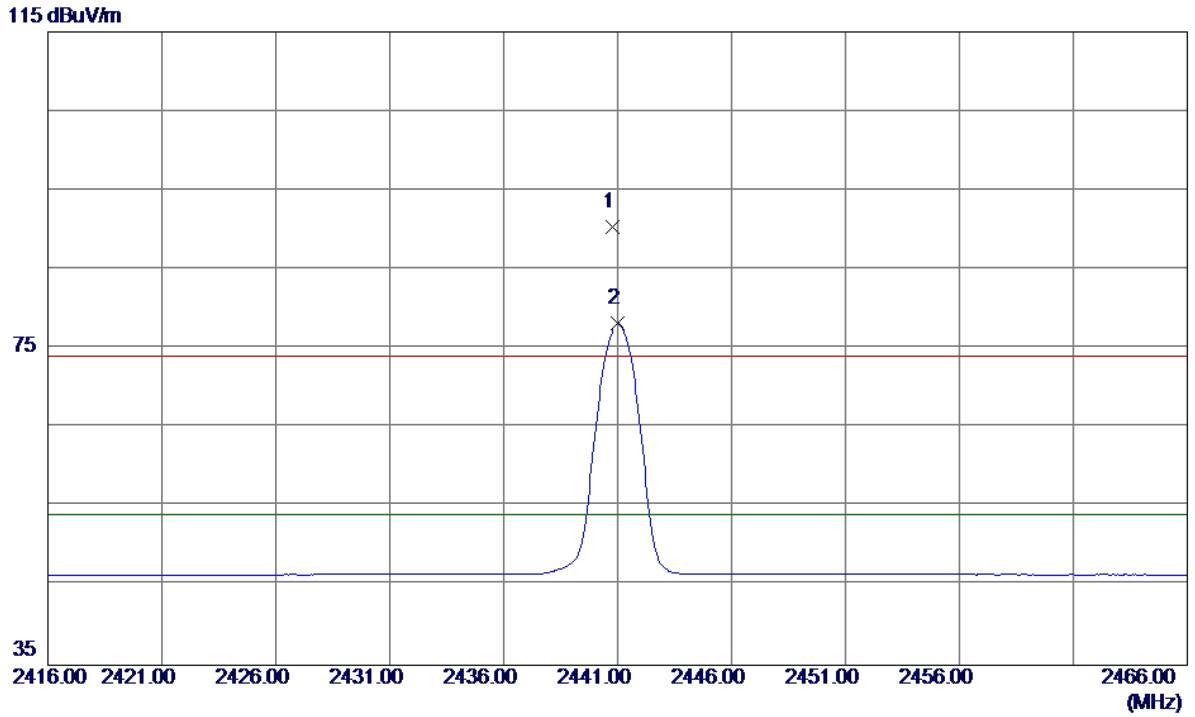
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4804.0099	34.93	4.62	39.55	54.00	-14.45	AVG	
2	4804.2799	47.36	4.62	51.98	74.00	-22.02	Peak	

Test Mode :	TX 2441MHz_CH39_3Mbps

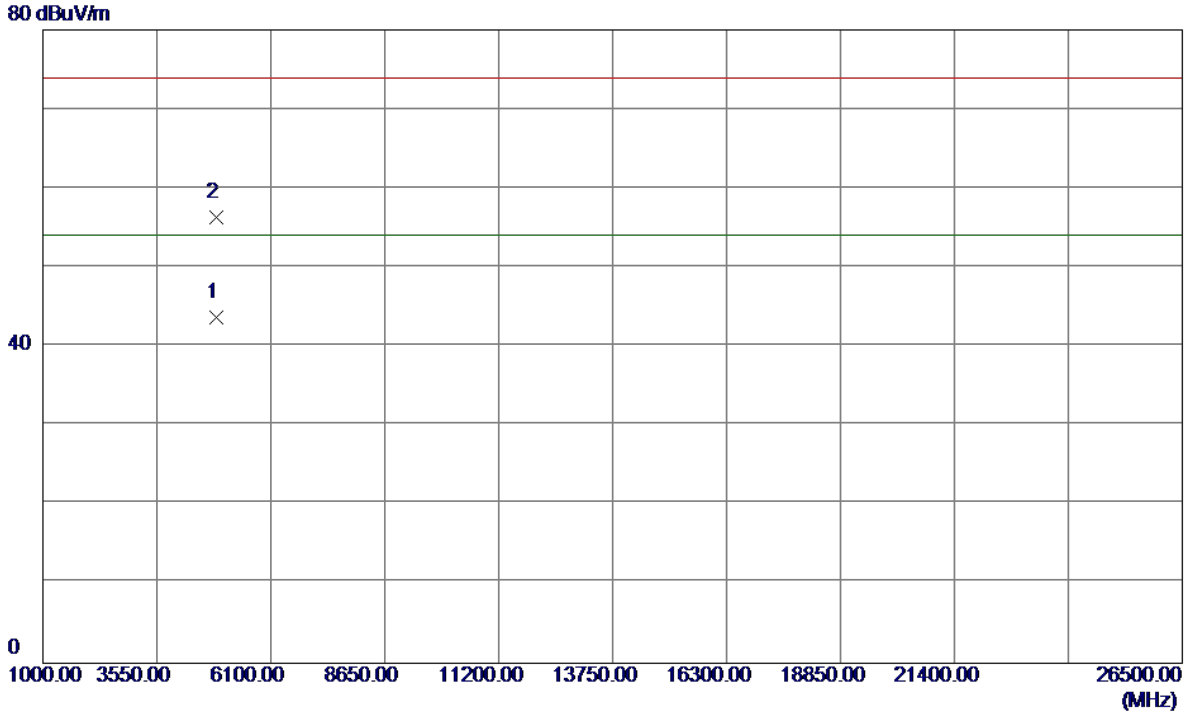
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2440.8000	57.38	32.98	90.36	74.00	16.36	Peak	No Limit
2 *	2441.0000	45.15	32.98	78.13	54.00	24.13	AVG	No Limit

Test Mode :	TX 2441MHz_CH39_3Mbps

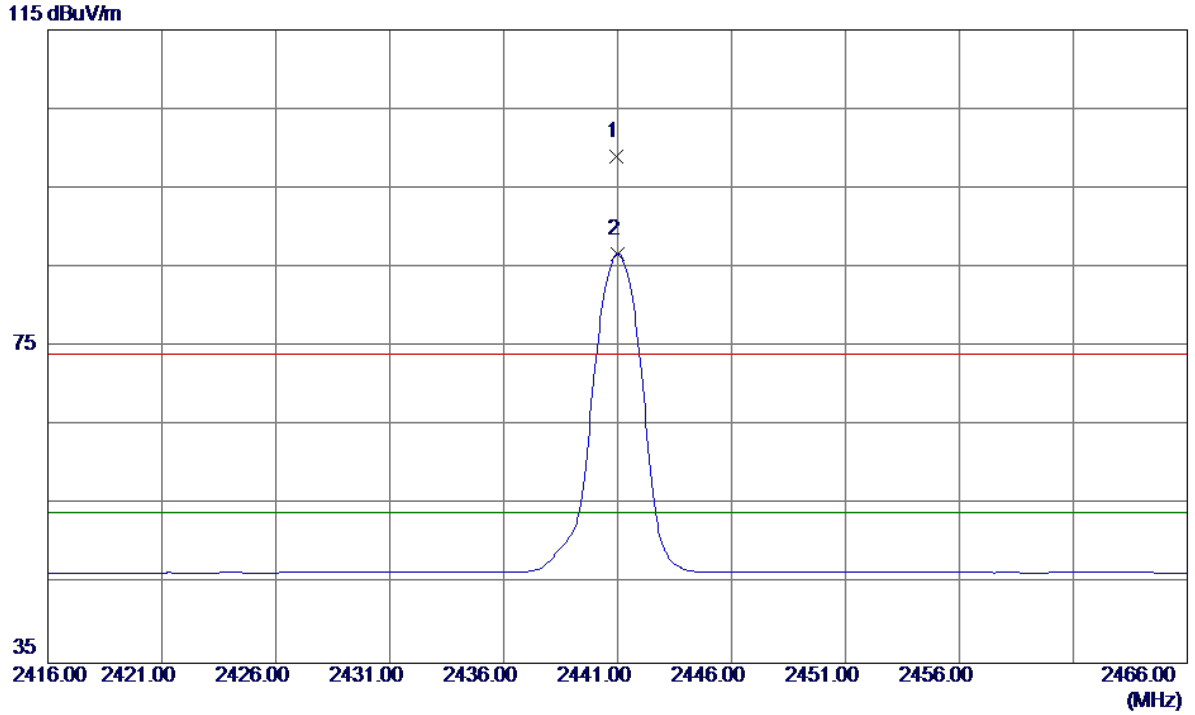
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4881.9800	38.83	4.92	43.75	54.00	-10.25	AVG	
2	4882.2900	51.41	4.92	56.33	74.00	-17.67	Peak	

Test Mode :	TX 2441MHz_CH39_3Mbps

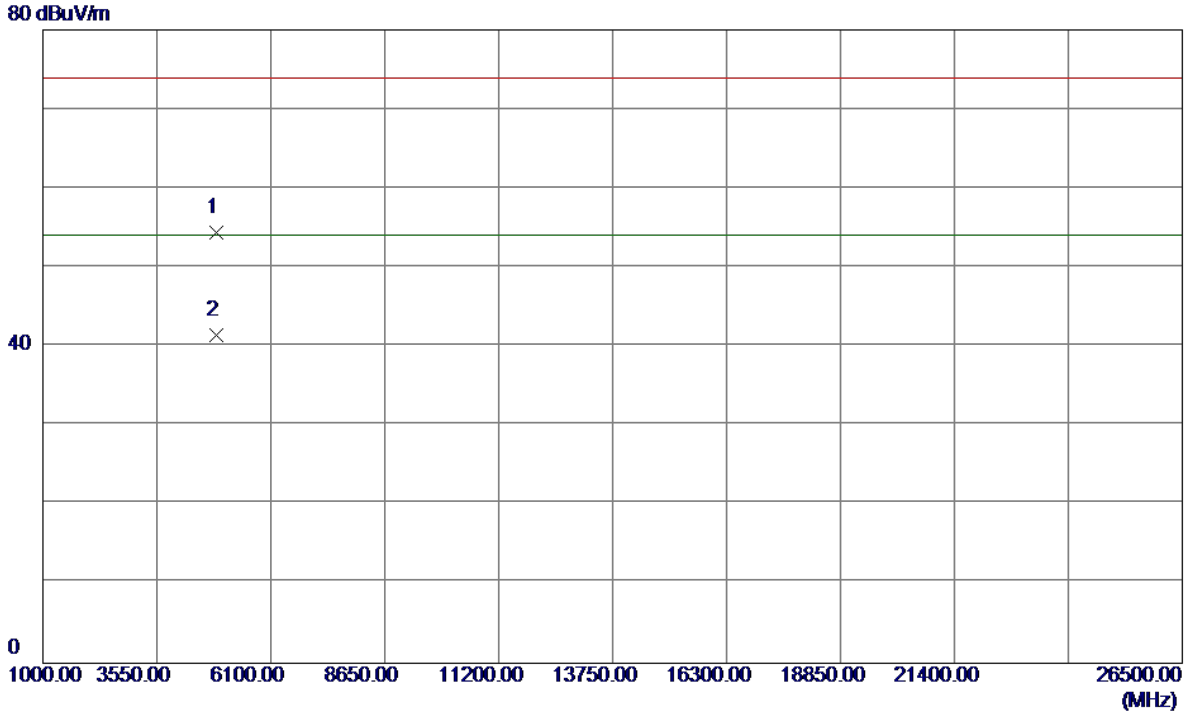
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2440.9500	66.05	32.98	99.03	74.00	25.03	Peak	No Limit
2 *	2441.0000	53.69	32.98	86.67	54.00	32.67	AVG	No Limit

Test Mode :	TX 2441MHz_CH39_3Mbps

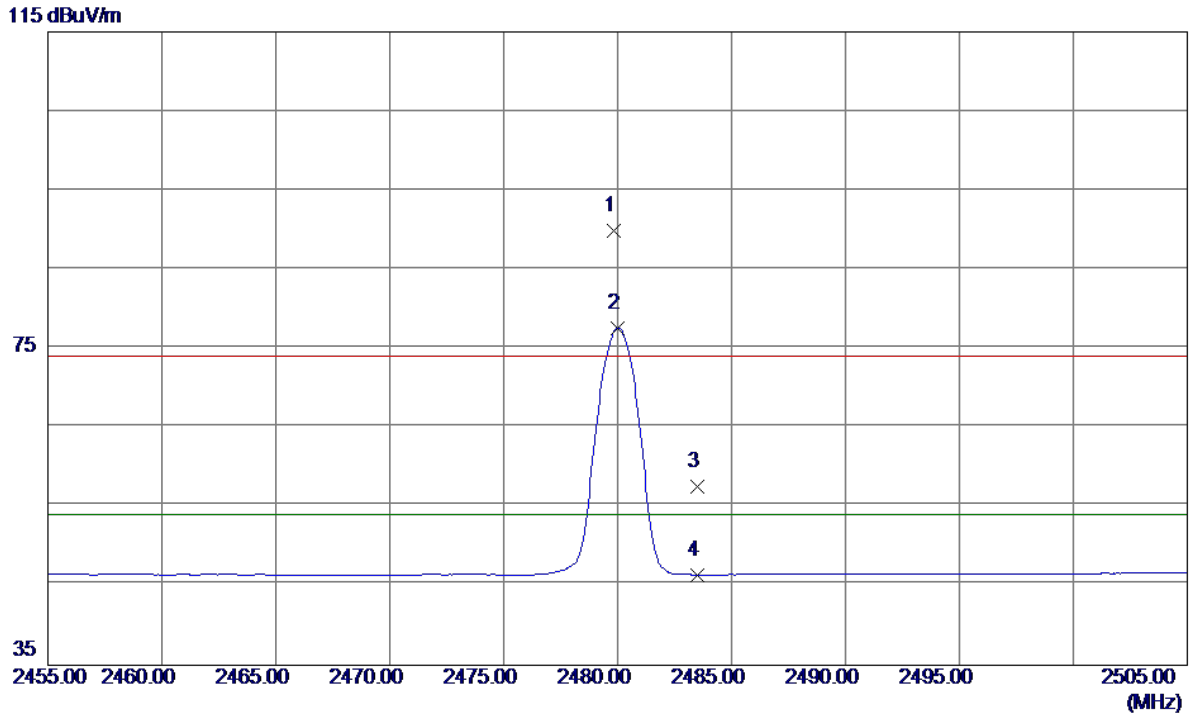
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4881.6500	49.46	4.92	54.38	74.00	-19.62	Peak	
2 *	4881.9900	36.47	4.92	41.39	54.00	-12.61	AVG	

Test Mode :	TX 2480MHz_CH78_3Mbps

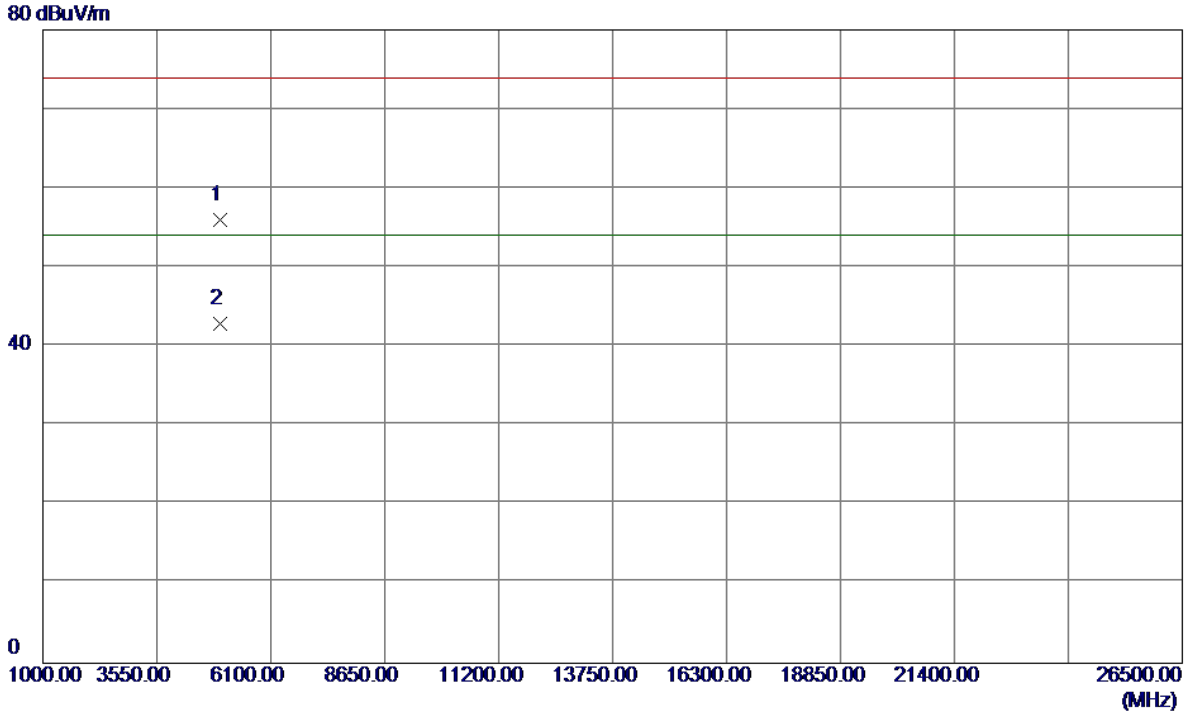
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2479.8500	56.69	33.14	89.83	74.00	15.83	Peak	No Limit
2 *	2480.0000	44.44	33.14	77.58	54.00	23.58	AVG	No Limit
3	2483.5000	24.36	33.15	57.51	74.00	-16.49	Peak	
4	2483.5000	13.28	33.15	46.43	54.00	-7.57	AVG	

Test Mode :	TX 2480MHz_CH78_3Mbps

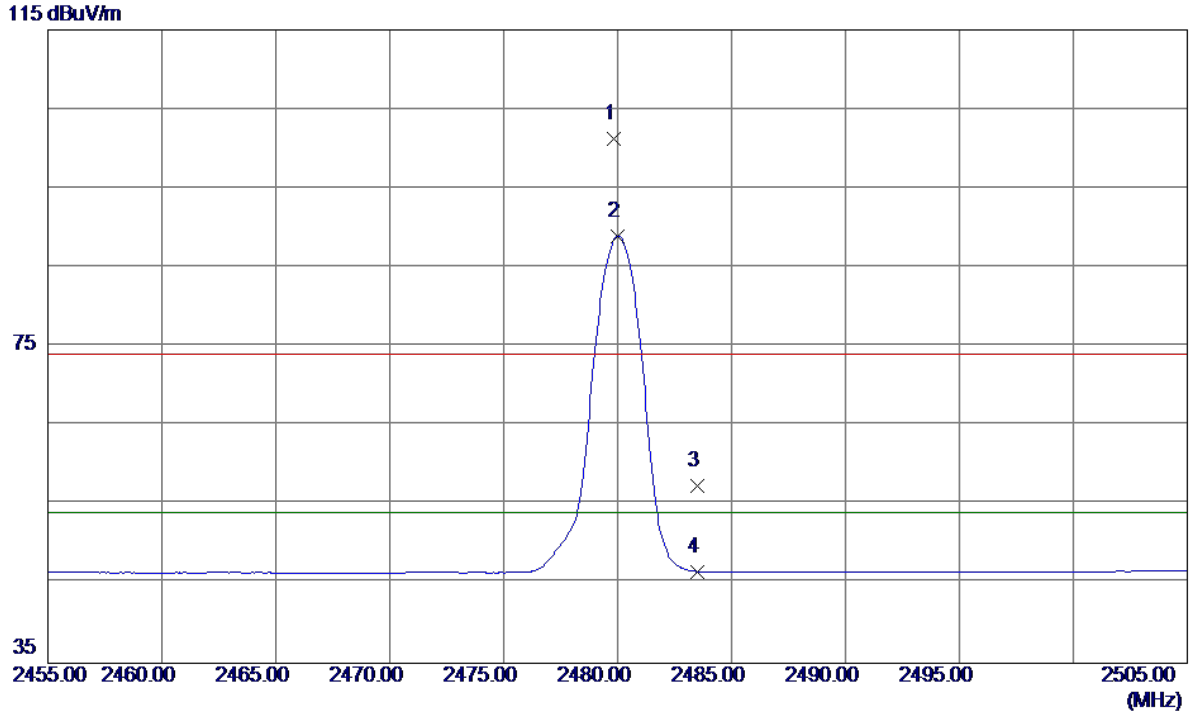
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4959.6400	50.72	5.22	55.94	74.00	-18.06	Peak	
2 *	4959.9700	37.72	5.22	42.94	54.00	-11.06	AVG	

Test Mode :	TX 2480MHz_CH78_3Mbps

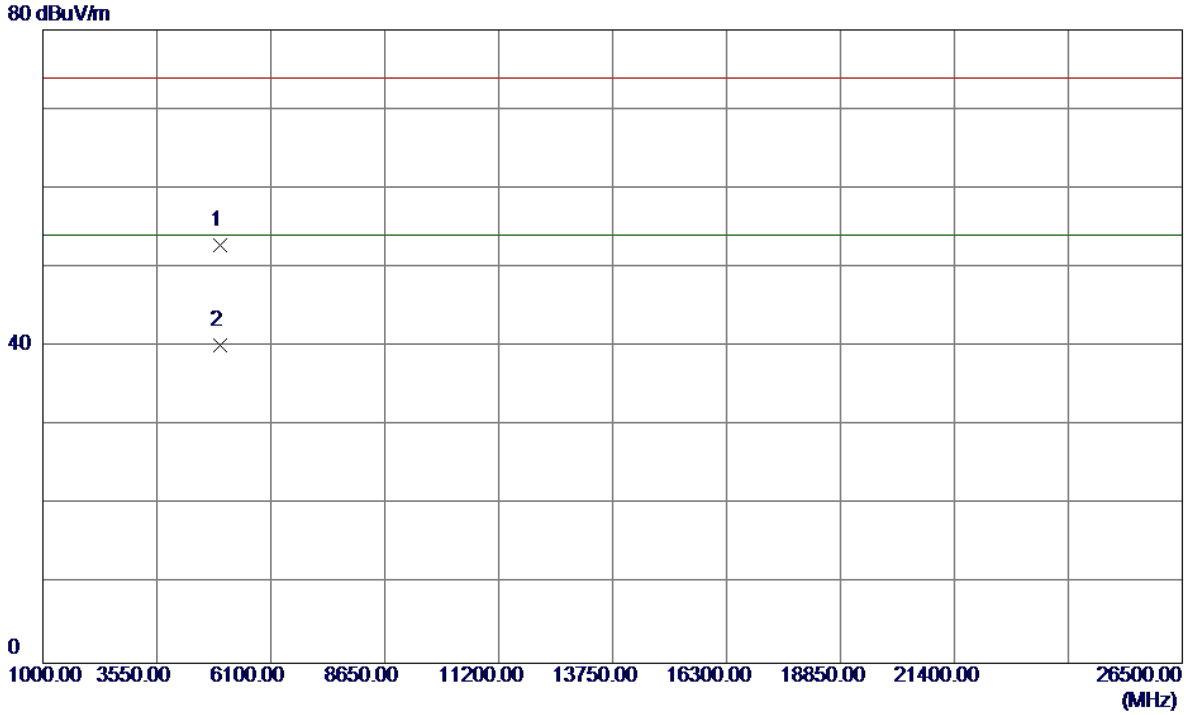
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2479.8500	68.11	33.14	101.25	74.00	27.25	Peak	No Limit
2 *	2480.0000	55.79	33.14	88.93	54.00	34.93	AVG	No Limit
3	2483.5000	24.18	33.15	57.33	74.00	-16.67	Peak	
4	2483.5000	13.43	33.15	46.58	54.00	-7.42	AVG	

Test Mode :	TX 2480MHz_CH78_3Mbps

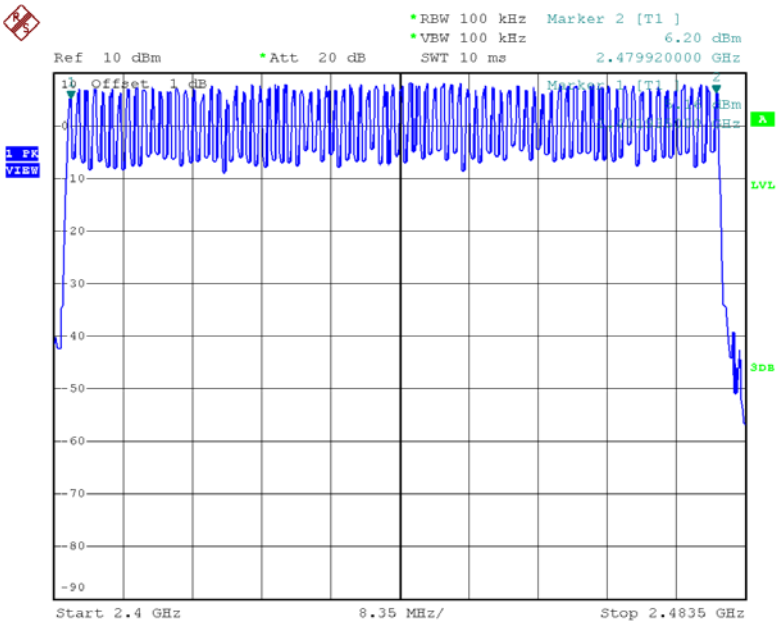
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4959.7000	47.55	5.22	52.77	74.00	-21.23	Peak	
2 *	4959.9700	34.88	5.22	40.10	54.00	-13.90	AVG	

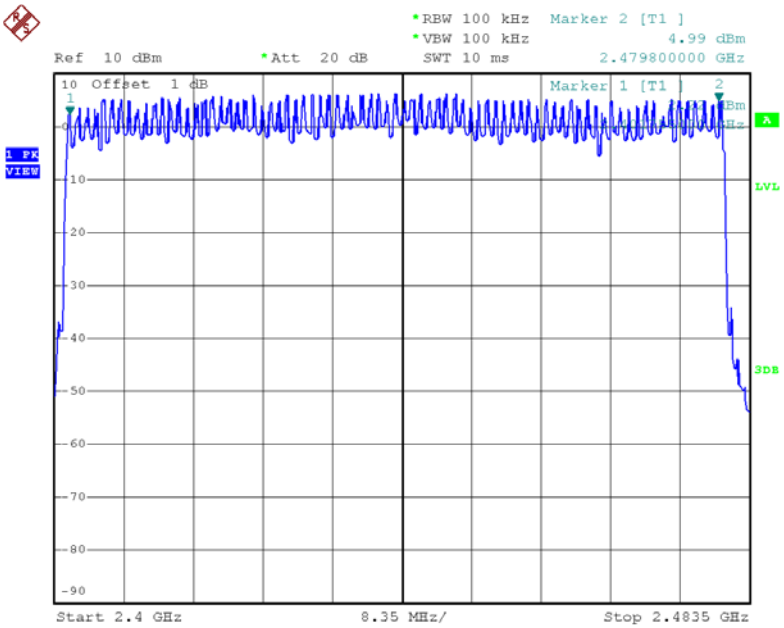
ATTACHMENT E - NUMBER OF HOPPING CHANNEL

Test Mode	Hopping Mode_1Mbps
Number of Hopping Channel	79



Date: 24.MAY.2016 15:27:19

Test Mode	Hopping Mode_3Mbps
Number of Hopping Channel	79



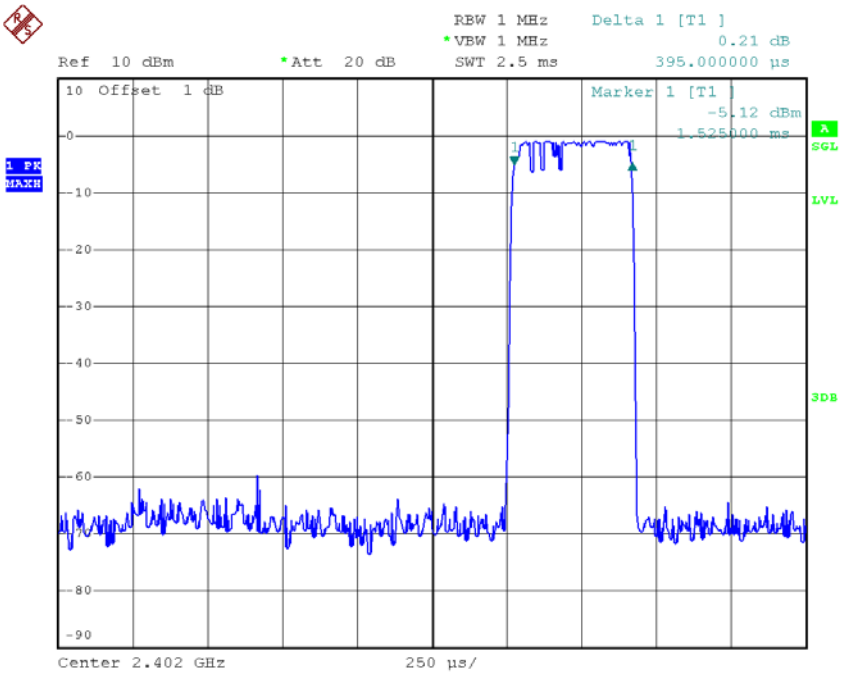
Date: 24.MAY.2016 15:56:53

ATTACHMENT F - AVERAGE TIME OF OCCUPANCY

Test Mode :	TX Mode_1Mbps

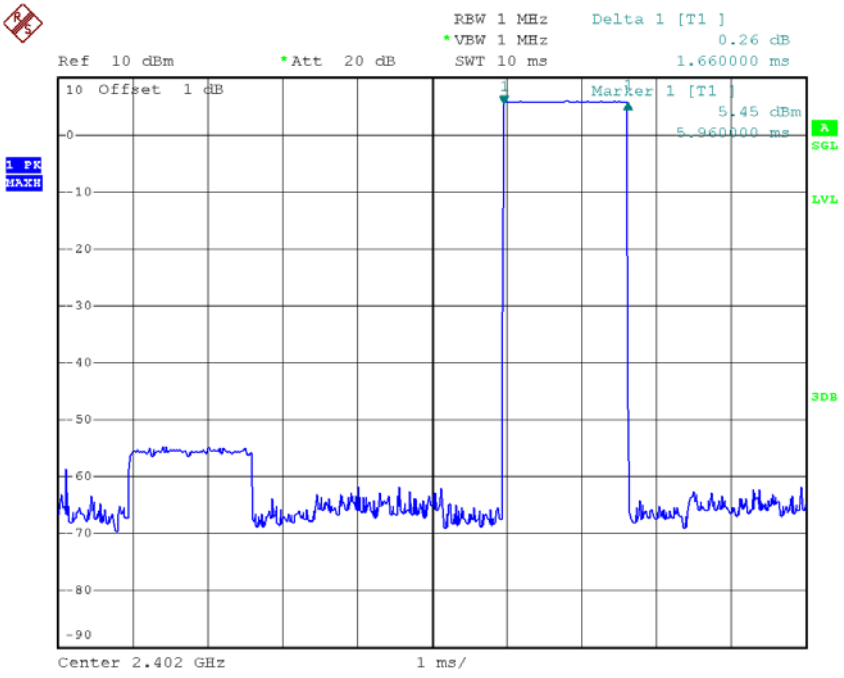
Data Packet	Frequency (MHz)	Pulse Duration (ms)	Dwell Time (s)	Limits (s)	Test Result
DH5	2402	2.9200	0.3115	0.4000	Pass
DH3	2402	1.6600	0.1771	0.4000	Pass
DH1	2402	0.3950	0.0421	0.4000	Pass
DH5	2441	2.9200	0.3115	0.4000	Pass
DH3	2441	1.6400	0.1749	0.4000	Pass
DH1	2441	0.3950	0.0421	0.4000	Pass
DH5	2480	2.9200	0.3115	0.4000	Pass
DH3	2480	1.6600	0.1771	0.4000	Pass
DH1	2480	0.3950	0.0421	0.4000	Pass

CH00-DH1



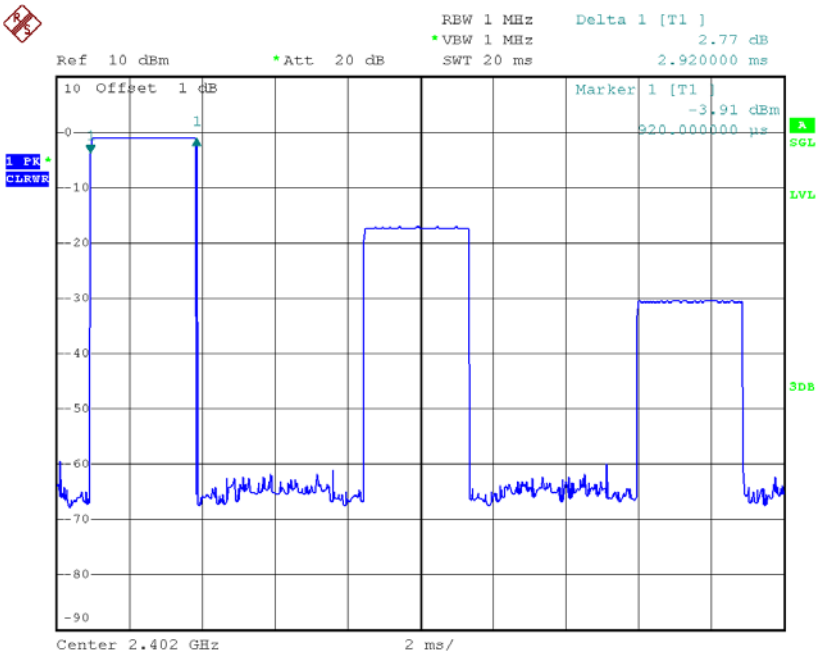
Date: 24.MAY.2016 15:21:53

CH00-DH3



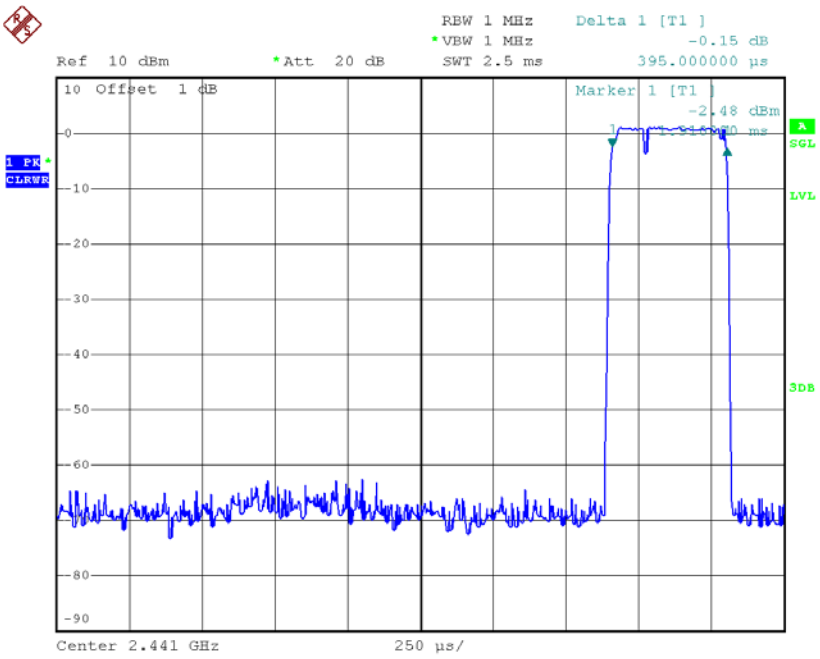
Date: 24.MAY.2016 15:44:53

CH00-DH5



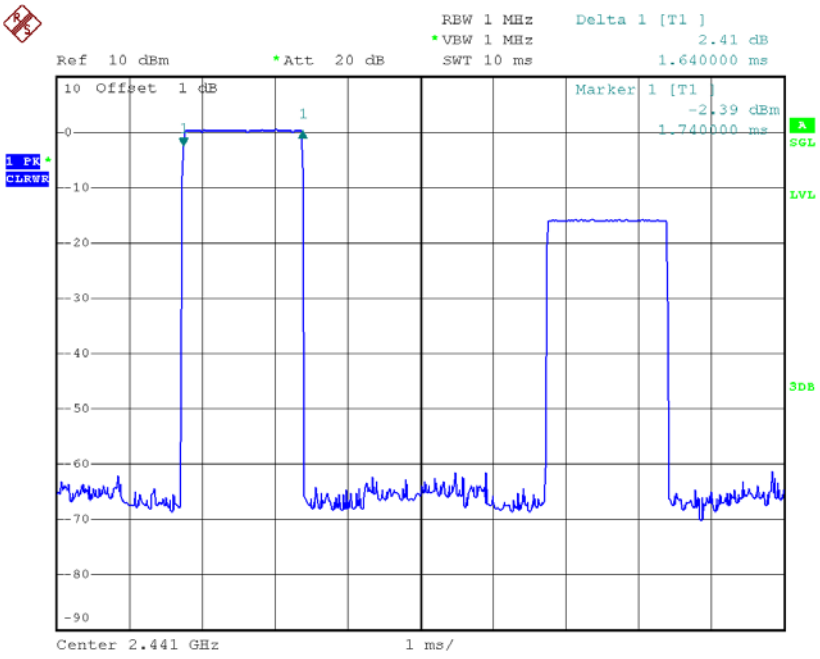
Date: 24.MAY.2016 15:45:26

CH39-DH1



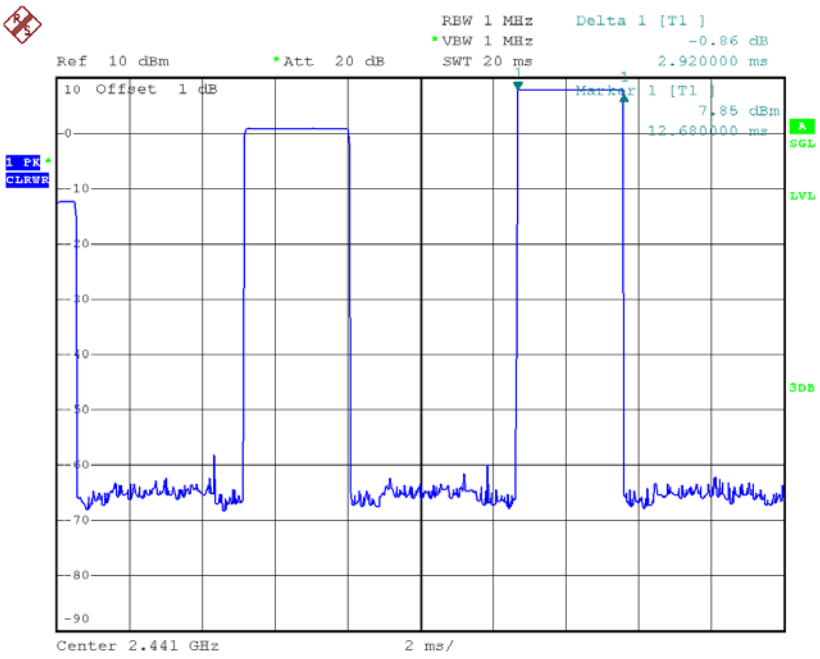
Date: 24.MAY.2016 15:21:57

CH39-DH3



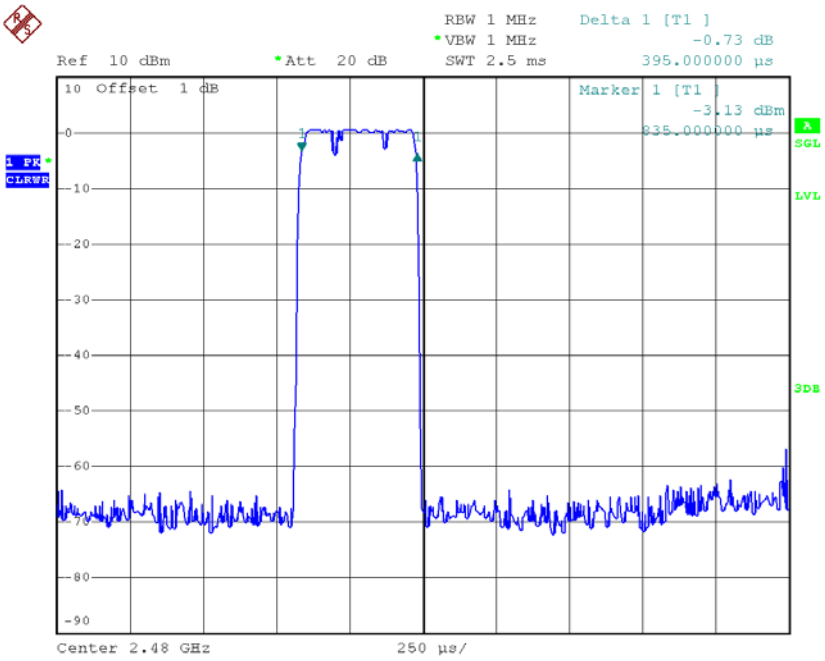
Date: 24.MAY.2016 15:44:59

CH39-DH5



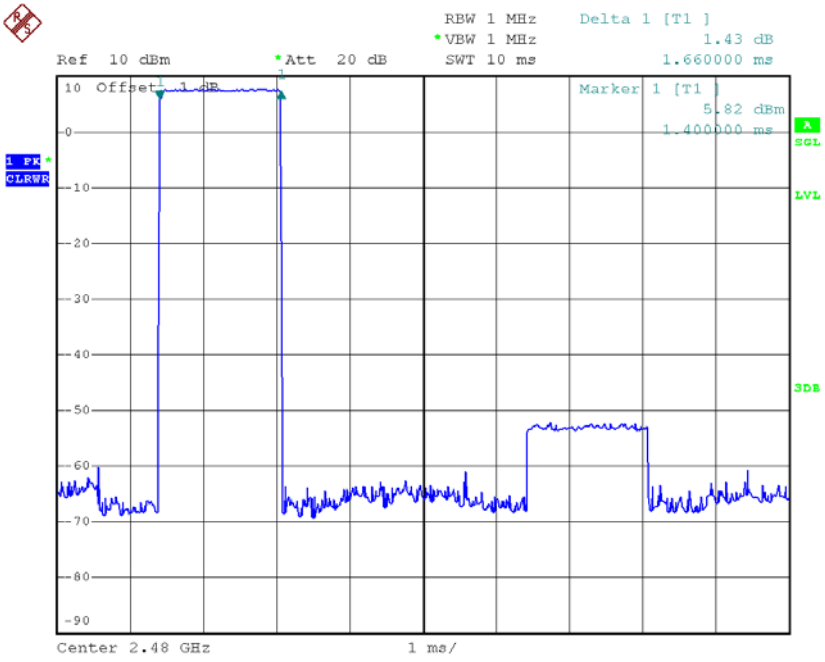
Date: 24.MAY.2016 15:45:30

CH78-DH1



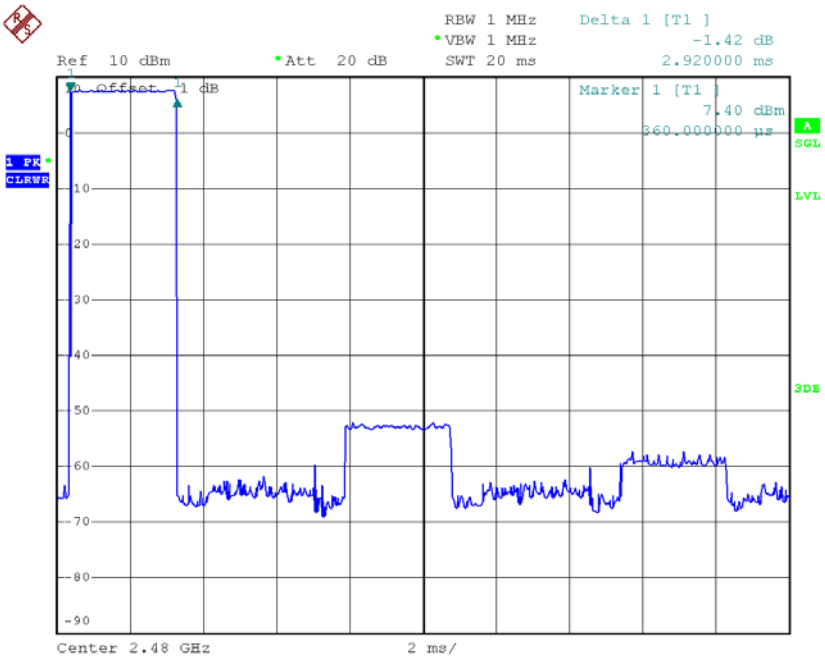
Date: 24.MAY.2016 15:22:06

CH78-DH3



Date: 24.MAY.2016 15:45:05

CH78-DH5

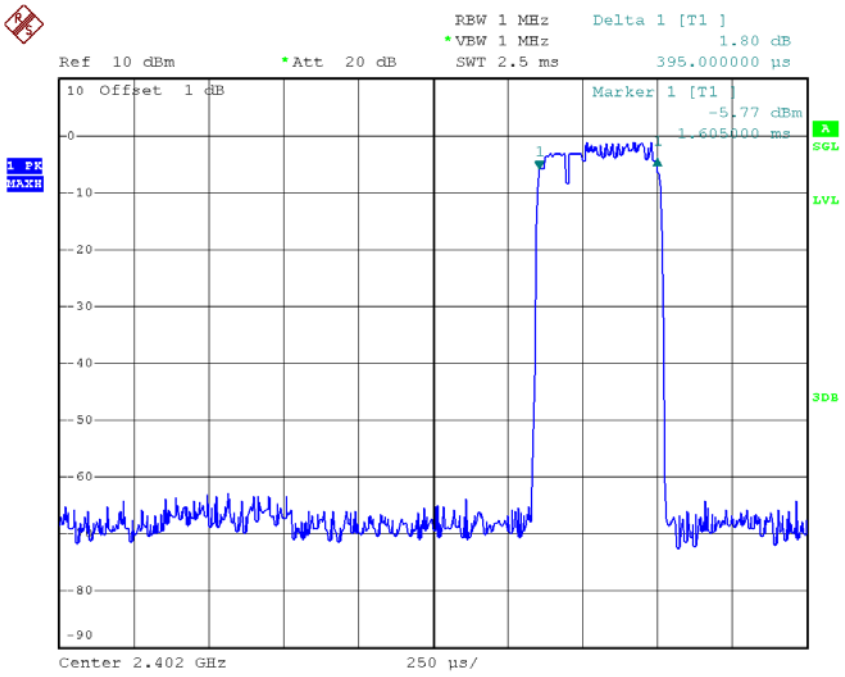


Date: 24.MAY.2016 15:45:35

Test Mode :	TX Mode_3Mbps

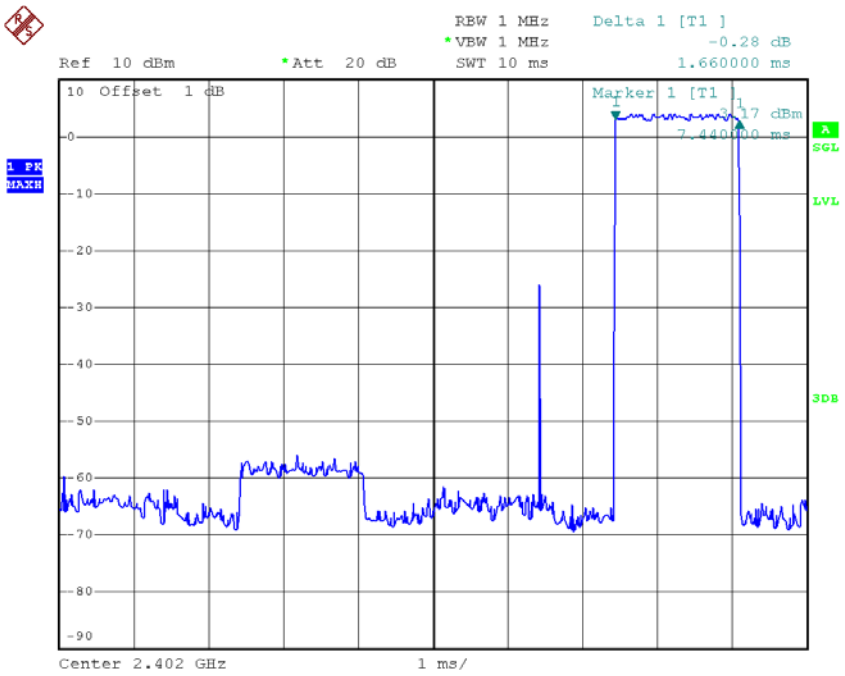
Data Packet	Frequency	Pulse Duration(ms)	Dwell Time(s)	Limits(s)	Test Result
DH5	2402	2.9200	0.3115	0.4000	Pass
DH3	2402	1.6600	0.1771	0.4000	Pass
DH1	2402	0.3950	0.0421	0.4000	Pass
DH5	2441	2.9200	0.3115	0.4000	Pass
DH3	2441	1.6600	0.1771	0.4000	Pass
DH1	2441	0.4100	0.0437	0.4000	Pass
DH5	2480	2.9200	0.3115	0.4000	Pass
DH3	2480	1.6600	0.1771	0.4000	Pass
DH1	2480	0.4100	0.0437	0.4000	Pass

CH00-DH1



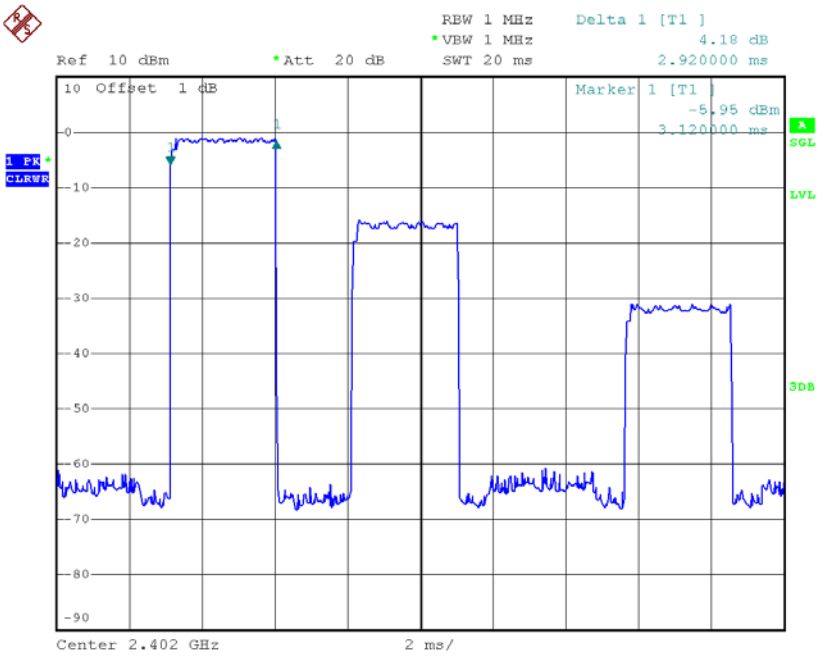
Date: 24.MAY.2016 15:50:15

CH00-DH3



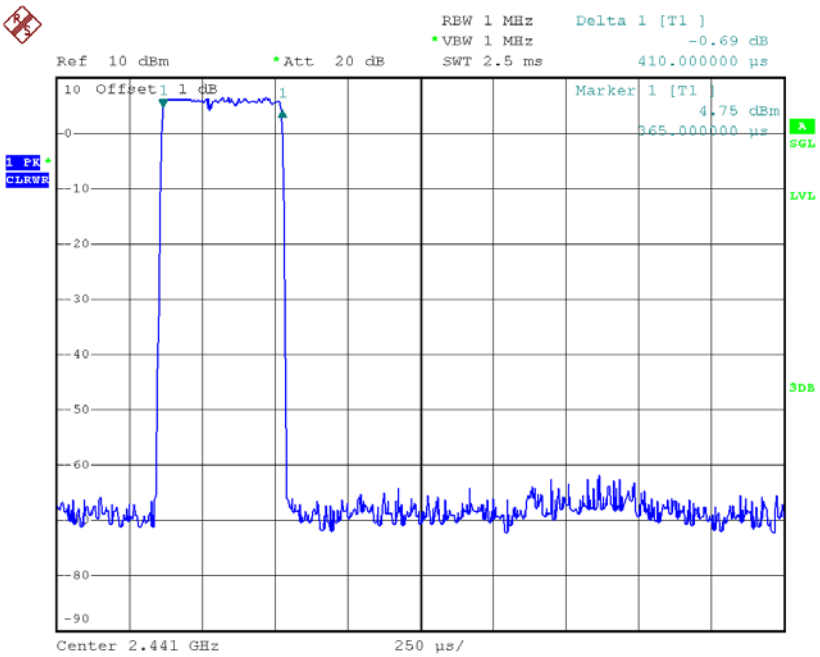
Date: 24.MAY.2016 15:58:30

CH00-DH5



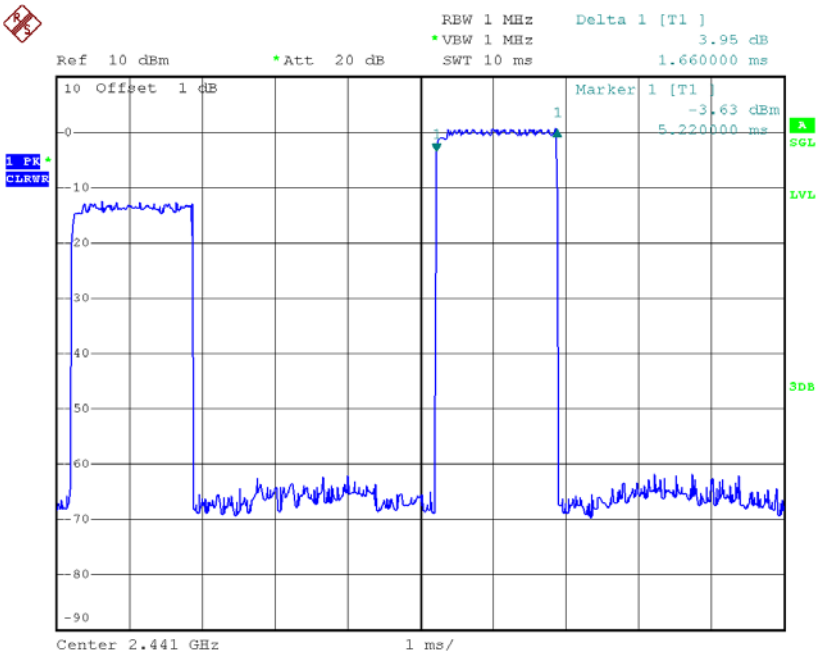
Date: 24.MAY.2016 16:00:10

CH39-DH1



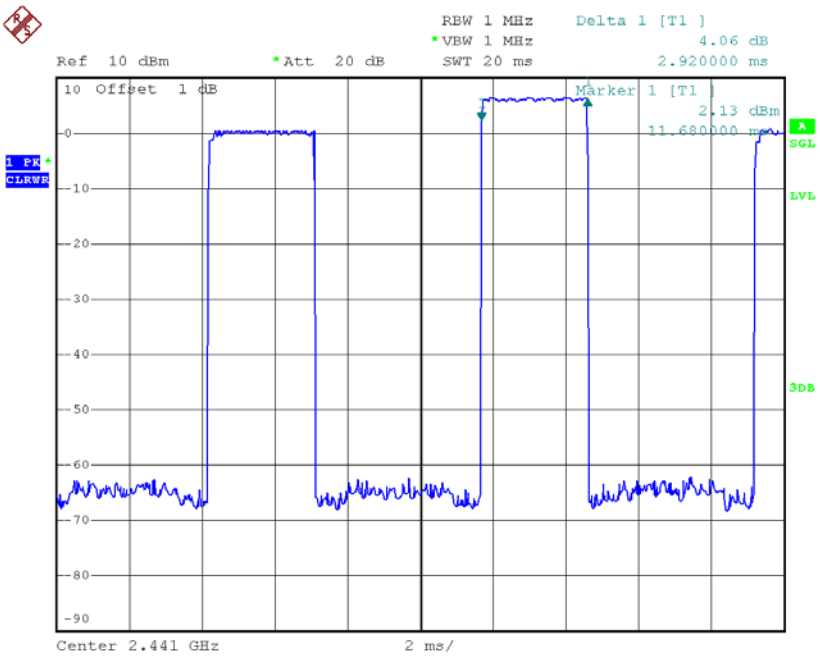
Date: 24.MAY.2016 15:50:20

CH39-DH3



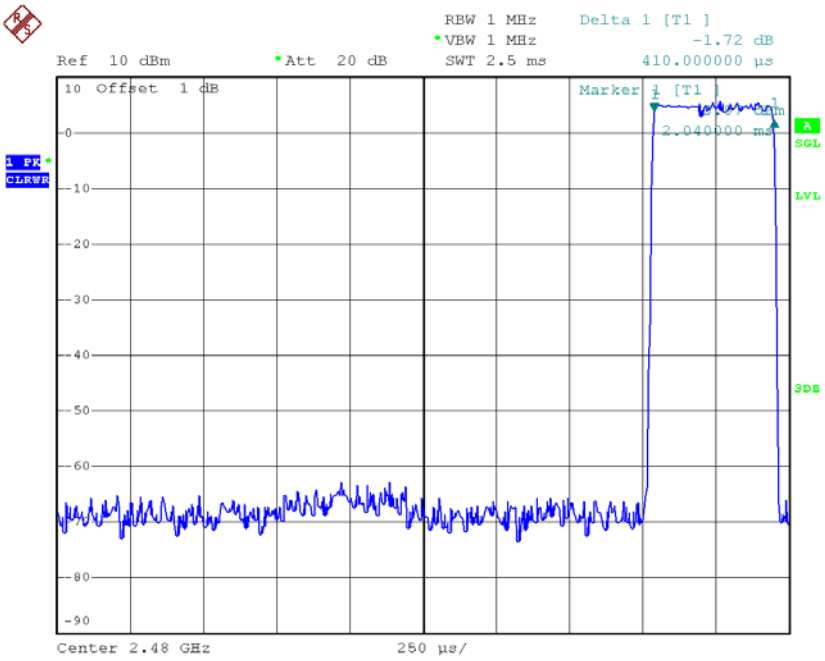
Date: 24.MAY.2016 15:58:35

CH39-DH5



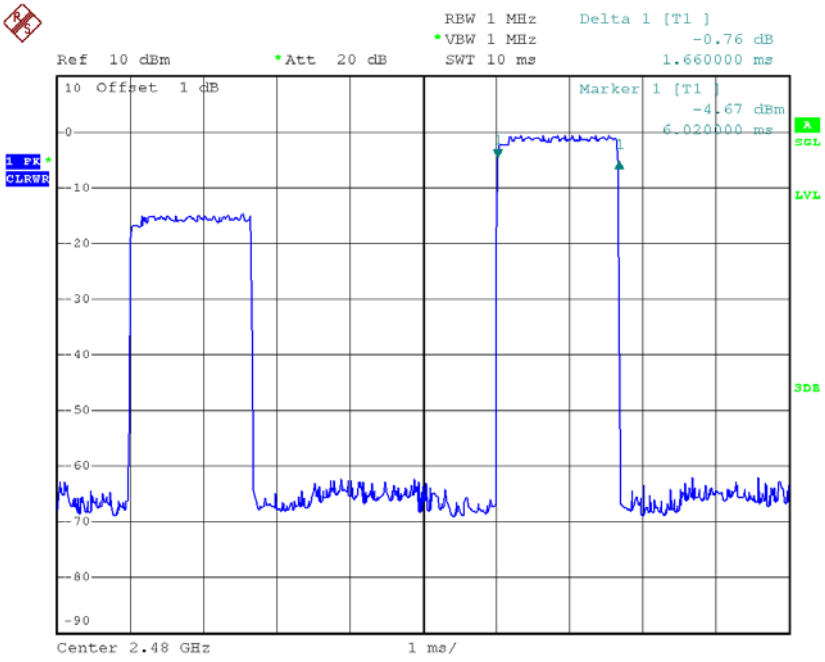
Date: 24.MAY.2016 16:00:18

CH78-DH1



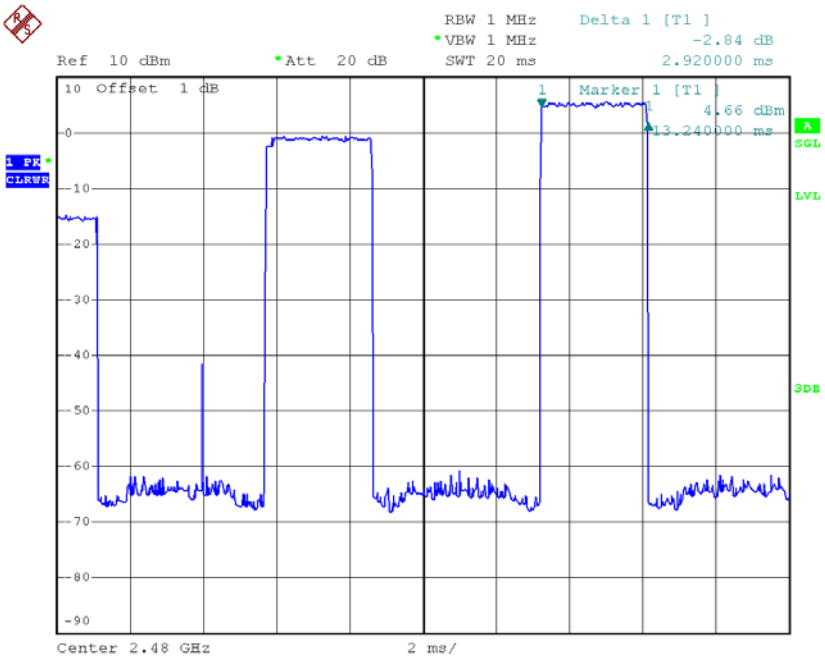
Date: 24.MAY.2016 15:50:24

CH78-DH3



Date: 24.MAY.2016 15:58:40

CH78-DH5



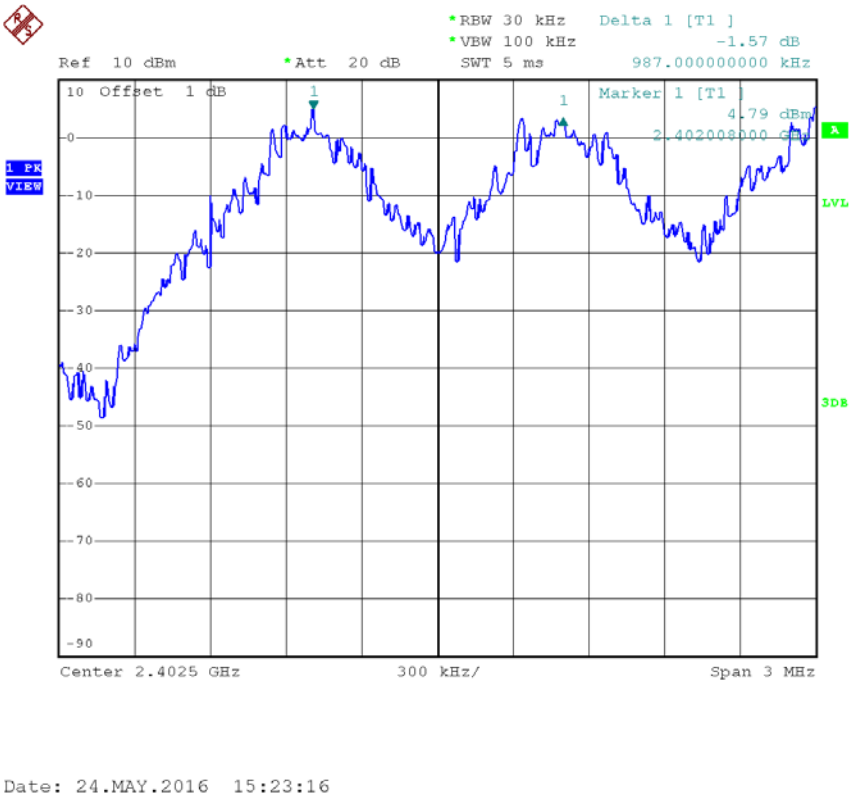
Date: 24.MAY.2016 16:00:23

ATTACHMENT G - HOPPING CHANNEL SEPARATION MEASUREMENT

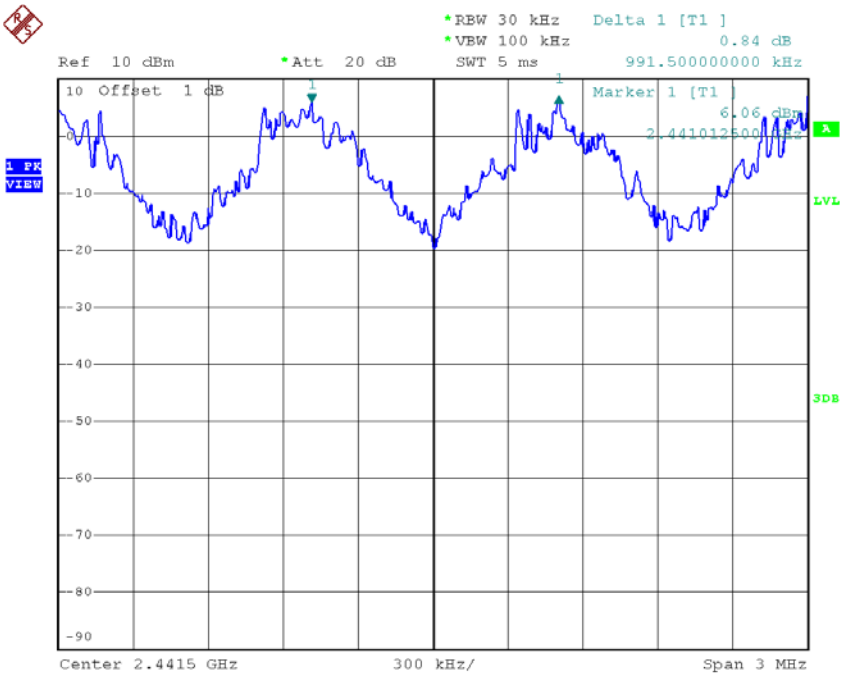
Test Mode :	Hopping on _1Mbps

Frequency (MHz)	Channel Separation (MHz)	2/3 of 20dB Bandwidth (MHz)	Test Result
2402	0.987	0.579	Pass
2441	0.992	0.628	Pass
2480	0.999	0.585	Pass

CH00

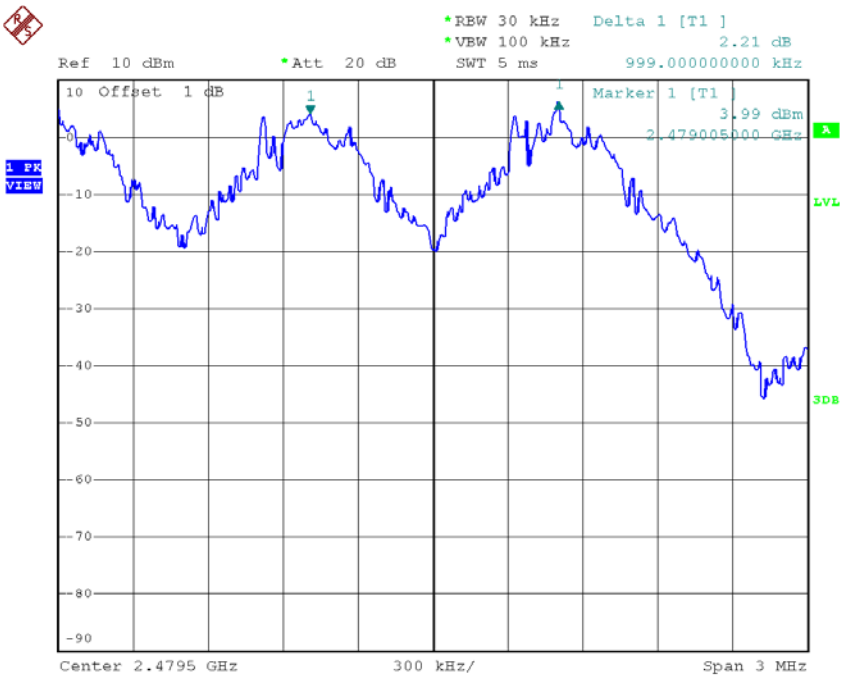


CH39



Date: 24.MAY.2016 15:24:23

CH78

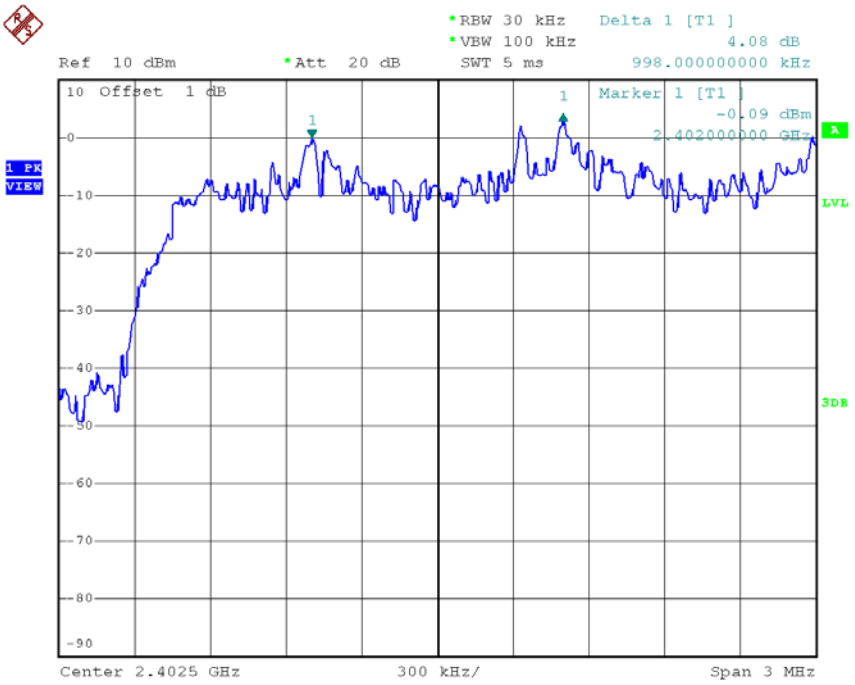


Date: 24.MAY.2016 15:25:31

Test Mode :	Hopping on _3Mbps

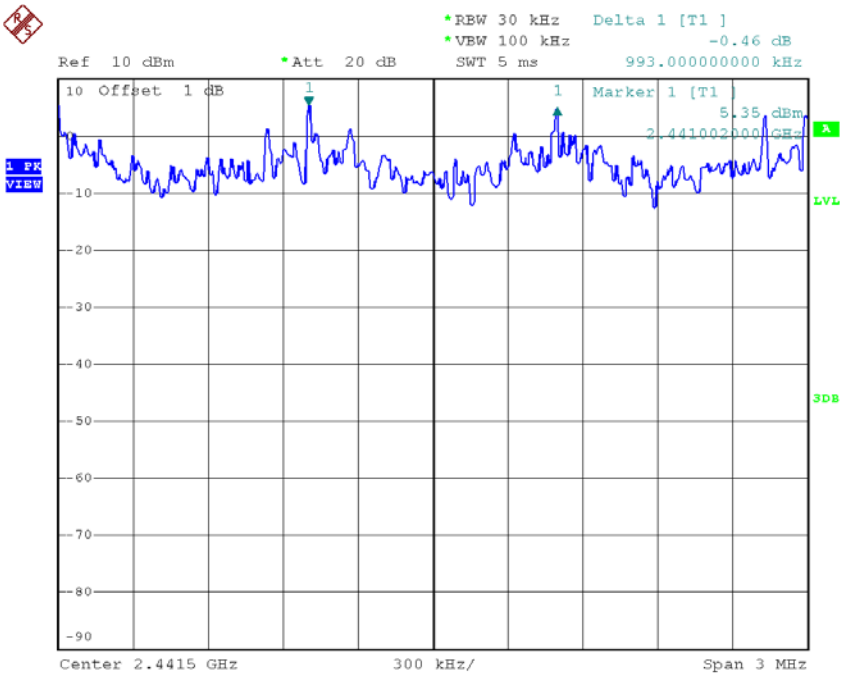
Frequency (MHz)	Channel Separation (MHz)	2/3 of 20dB Bandwidth (MHz)	Test Result
2402	0.998	0.792	Pass
2441	0.993	0.803	Pass
2480	0.986	0.820	Pass

CH00



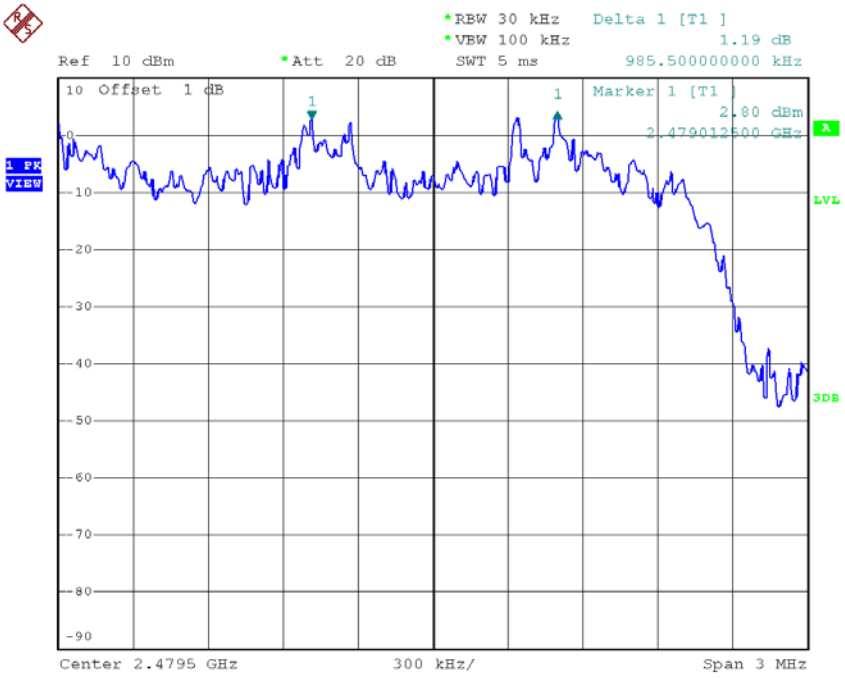
Date: 24.MAY.2016 15:52:49

CH39



Date: 24.MAY.2016 15:53:58

CH78



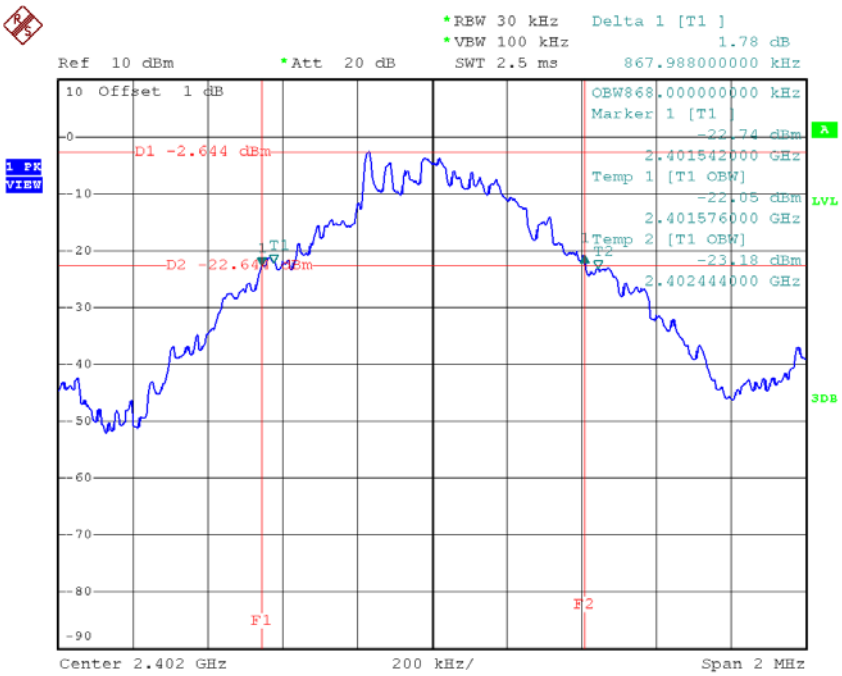
Date: 24.MAY.2016 15:55:05

ATTACHMENT H - BANDWIDTH

Test Mode :	TX Mode _1Mbps

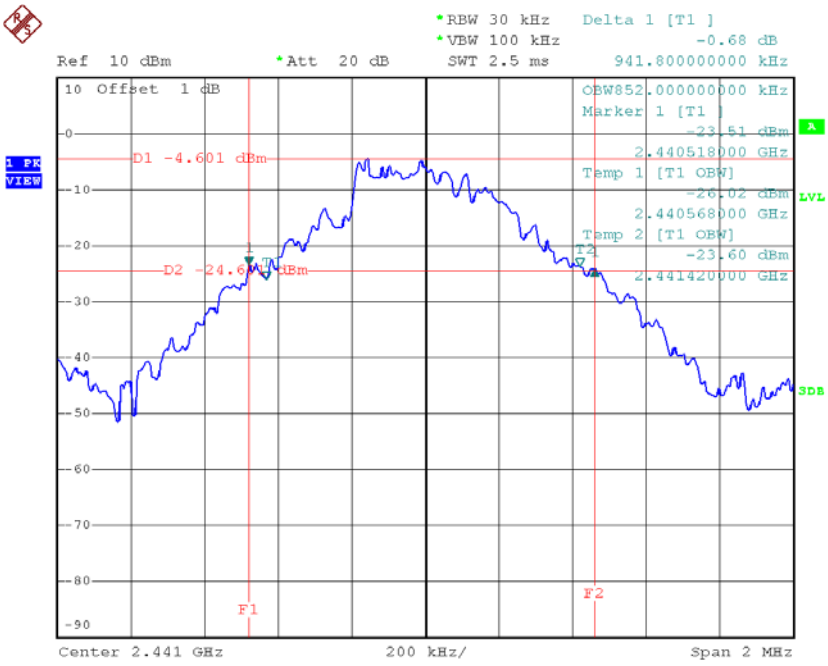
Frequency (MHz)	20dB Bandwidth (MHz)	99% Occupied BW (MHz)	Test Result
2402	0.868	0.868	Pass
2441	0.942	0.852	Pass
2480	0.878	0.828	Pass

CH00



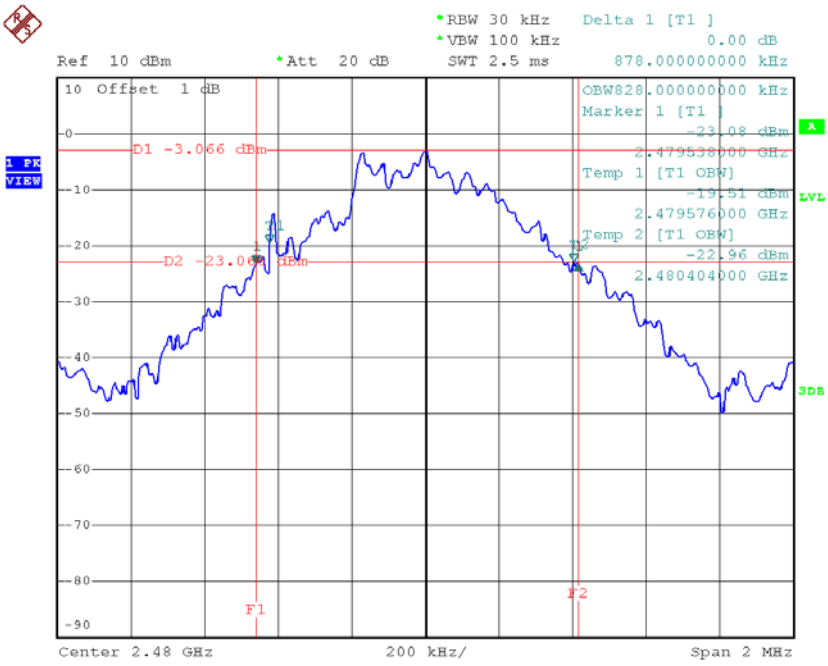
Date: 24.MAY.2016 15:06:23

CH39



Date: 24.MAY.2016 15:20:18

CH78

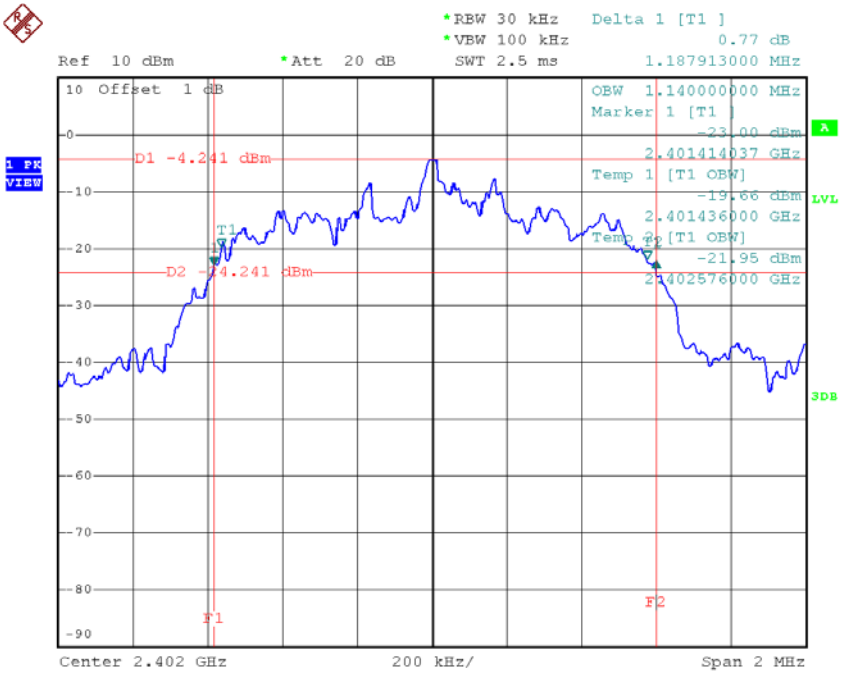


Date: 24.MAY.2016 15:21:14

Test Mode :	TX Mode _3Mbps

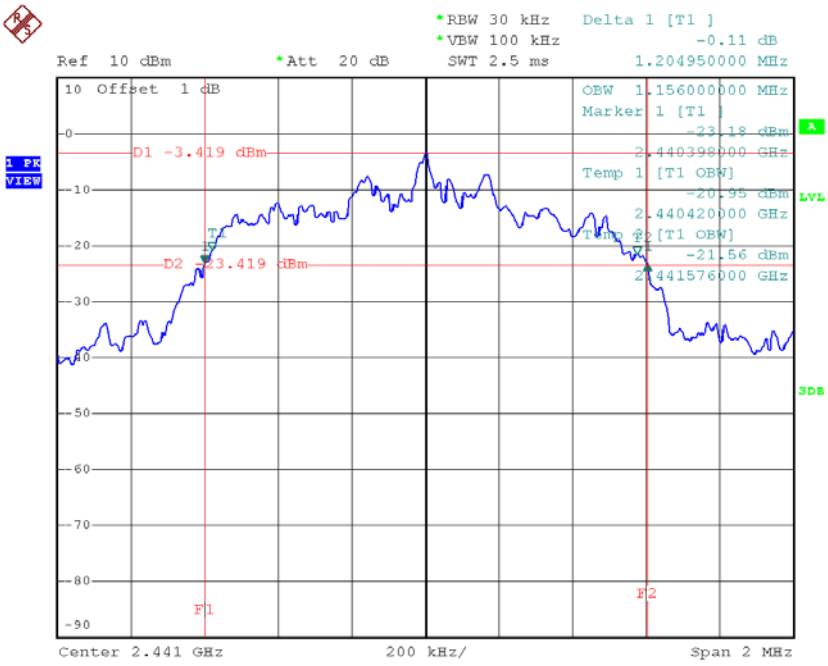
Frequency (MHz)	20dB Bandwidth (MHz)	99% Occupied BW (MHz)	Test Result
2402	1.188	1.140	Pass
2441	1.205	1.156	Pass
2480	1.230	1.172	Pass

CH00



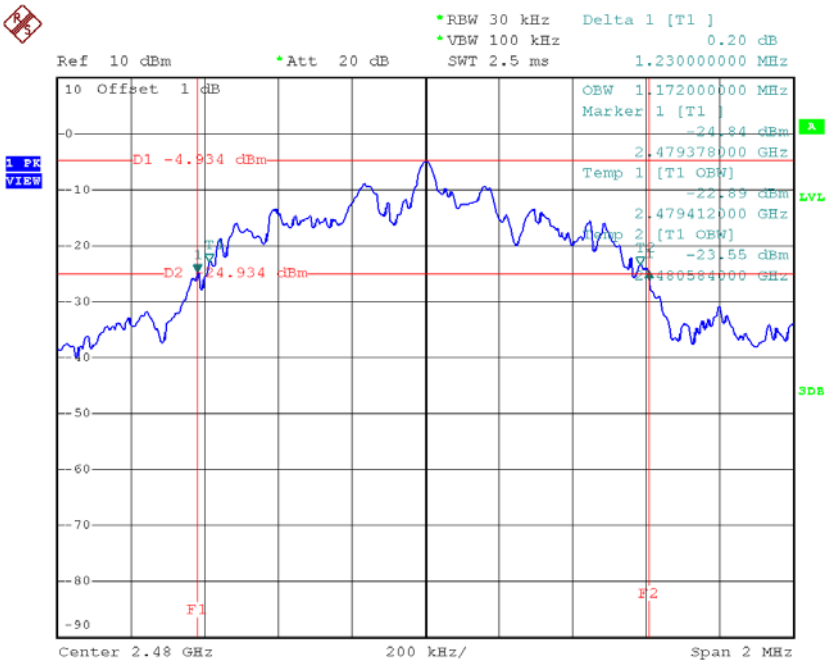
Date: 24.MAY.2016 15:47:08

CH39



Date: 24.MAY.2016 15:48:41

CH78



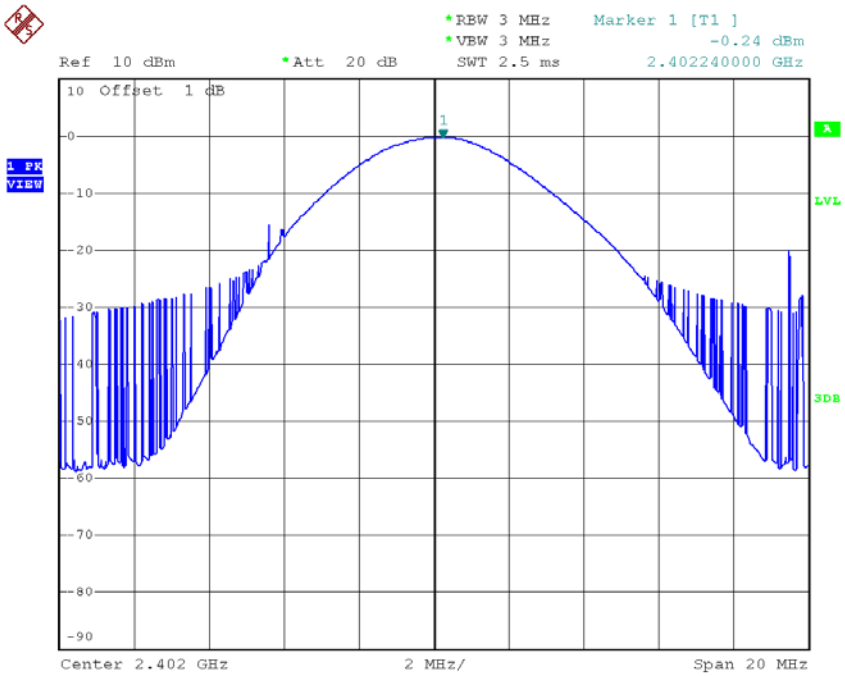
Date: 24.MAY.2016 15:49:31

ATTACHMENT I - PEAK OUTPUT POWER

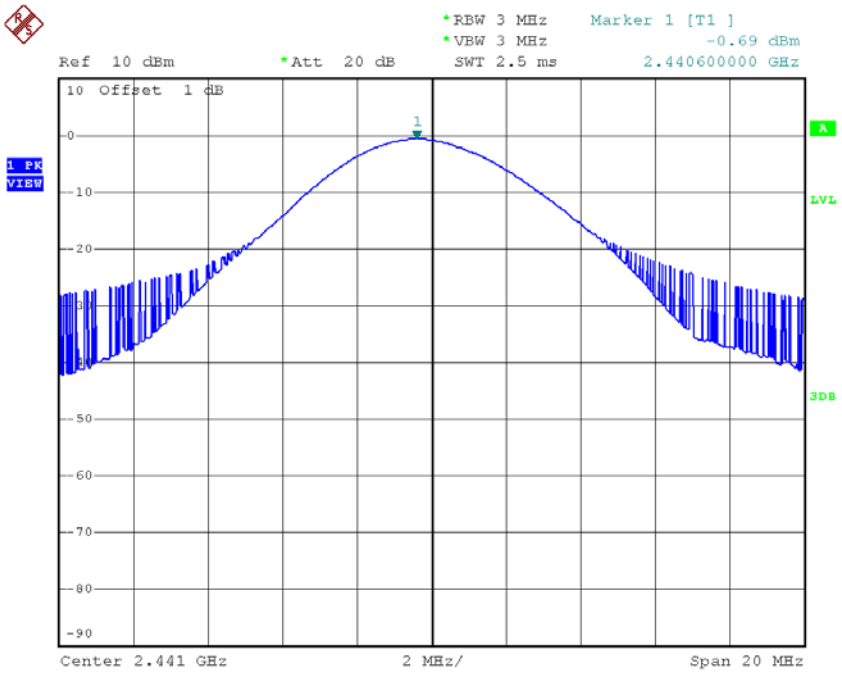
Test Mode :	TX Mode _1Mbps

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	-0.24	0.0009	30.00	1.00	Pass
2441	-0.69	0.0009	30.00	1.00	Pass
2480	-0.49	0.0009	30.00	1.00	Pass

CH00

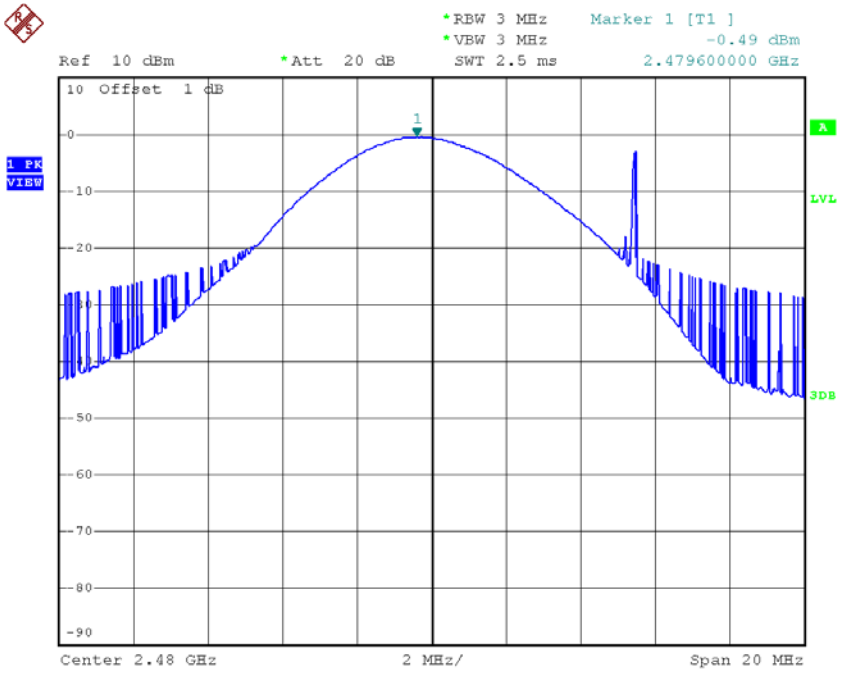


CH39



Date: 24.MAY.2016 14:56:20

CH78

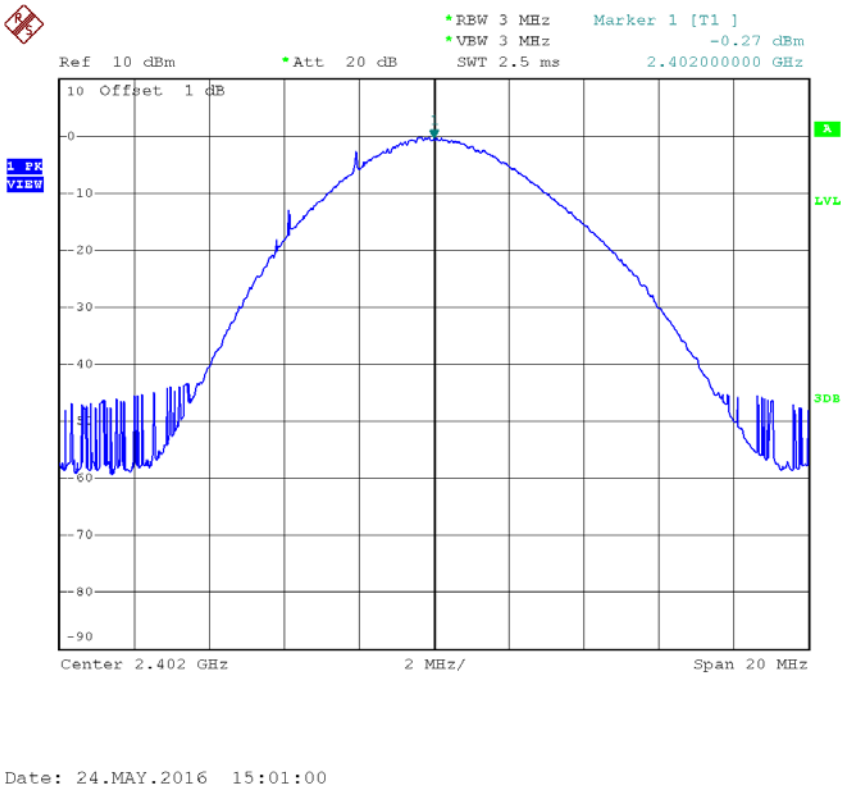


Date: 24.MAY.2016 14:57:12

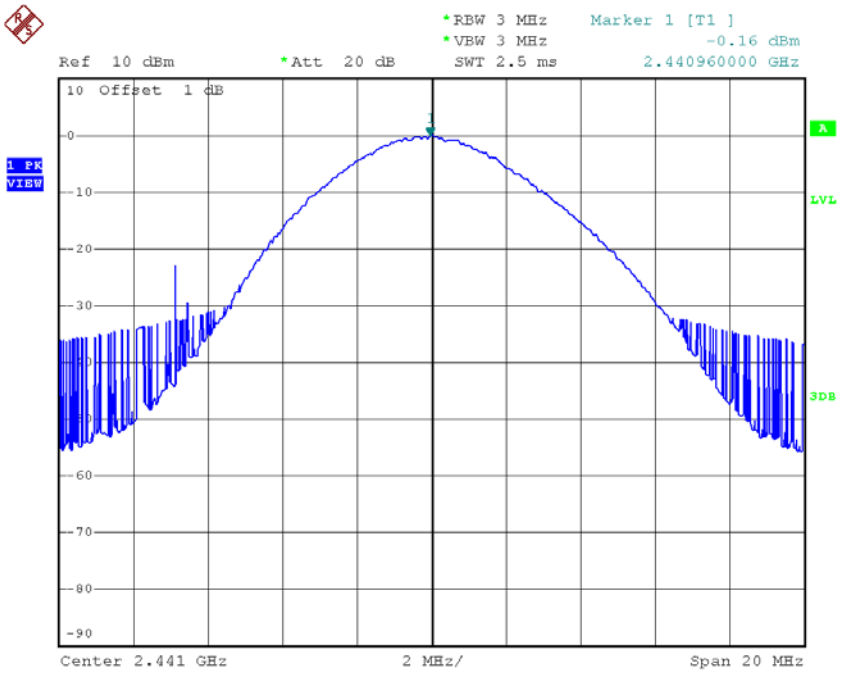
Test Mode :	TX Mode _3Mbps

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	-0.27	0.0009	30.00	1.00	Pass
2441	-0.16	0.0010	30.00	1.00	Pass
2480	-0.45	0.0009	30.00	1.00	Pass

CH00

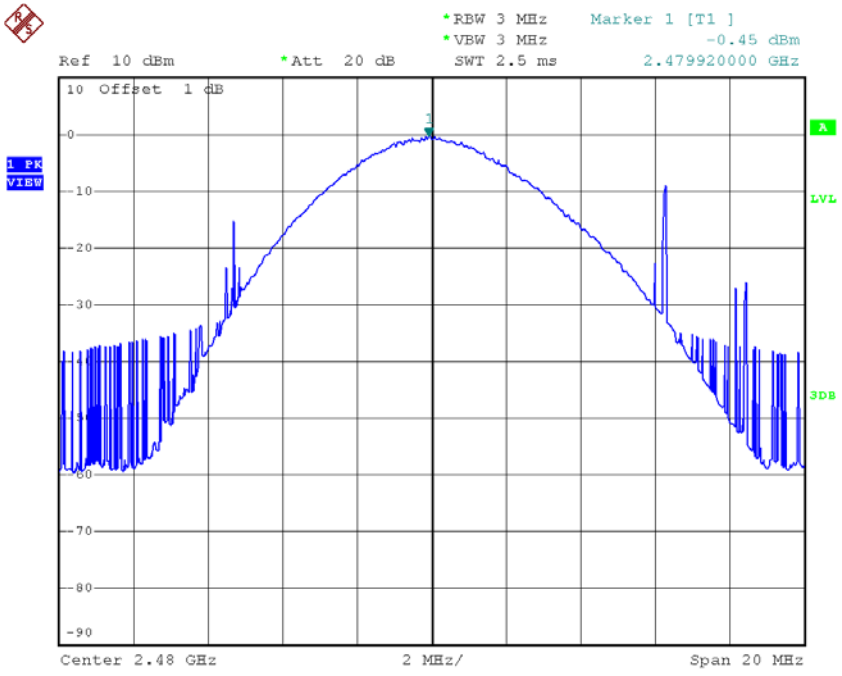


CH39



Date: 24.MAY.2016 15:01:56

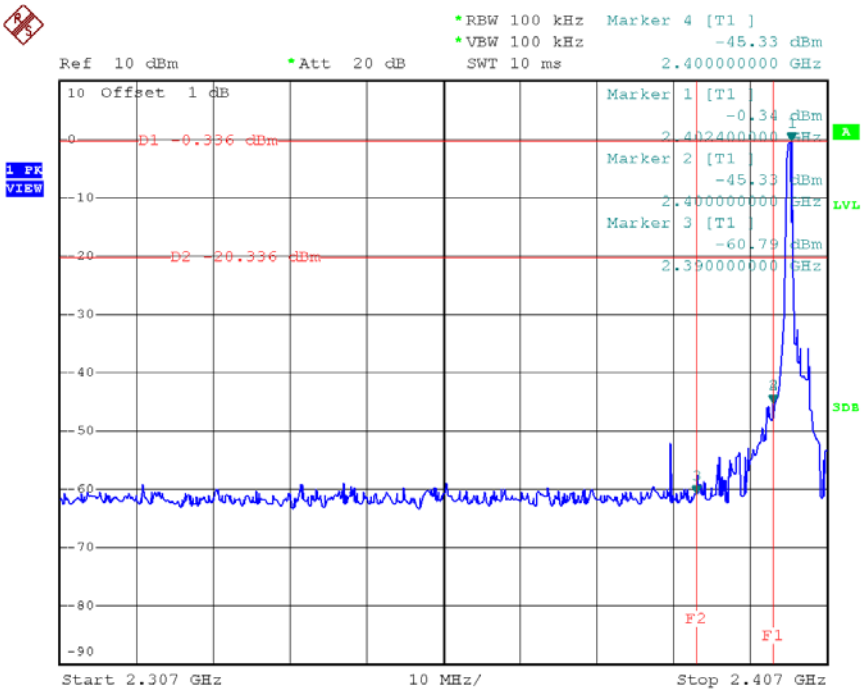
CH78



Date: 24.MAY.2016 15:03:35

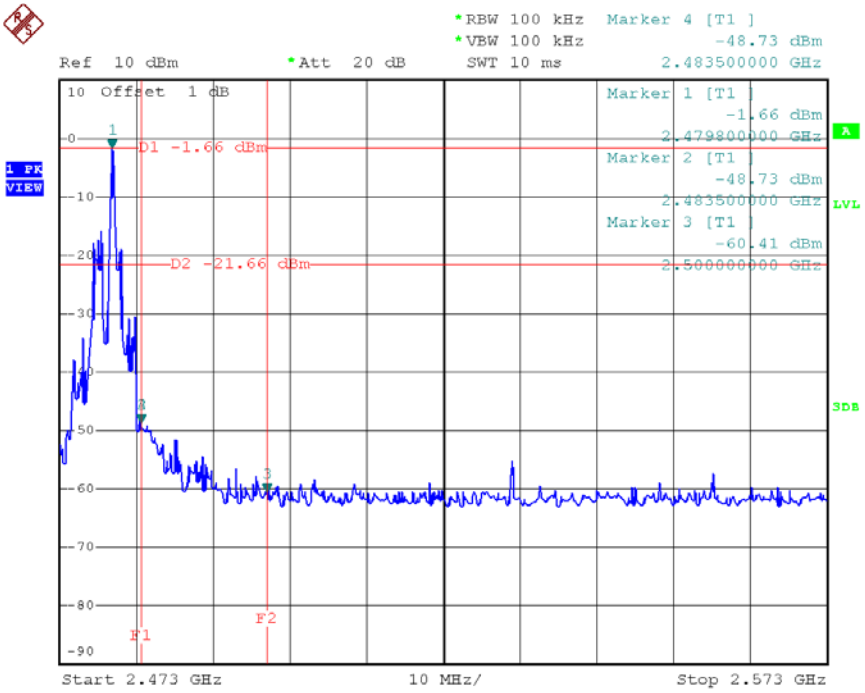
ATTACHMENT J - ANTENNA CONDUCTED SPURIOUS EMISSION

CH00 (Lower)_1Mbps



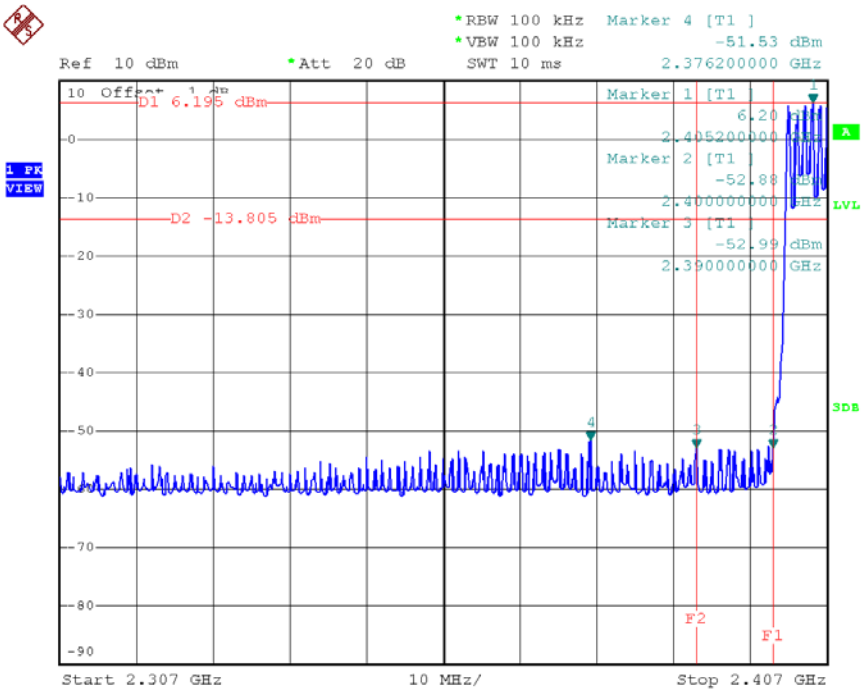
Date: 24.MAY.2016 15:04:54

CH78 (Upper) _1Mbps



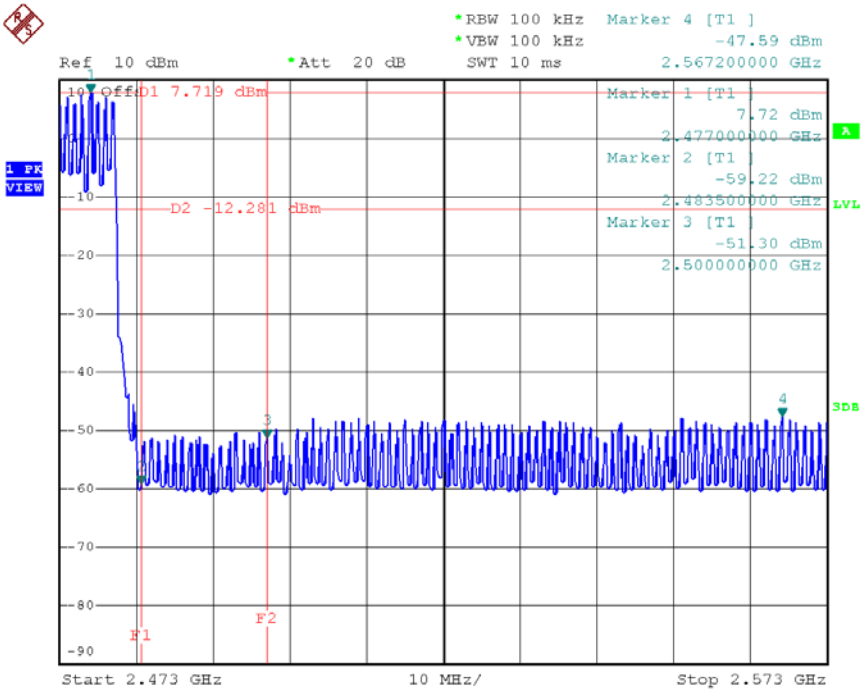
Date: 24.MAY.2016 15:20:46

CH00 Hopping on mode (Lower)_1Mbps



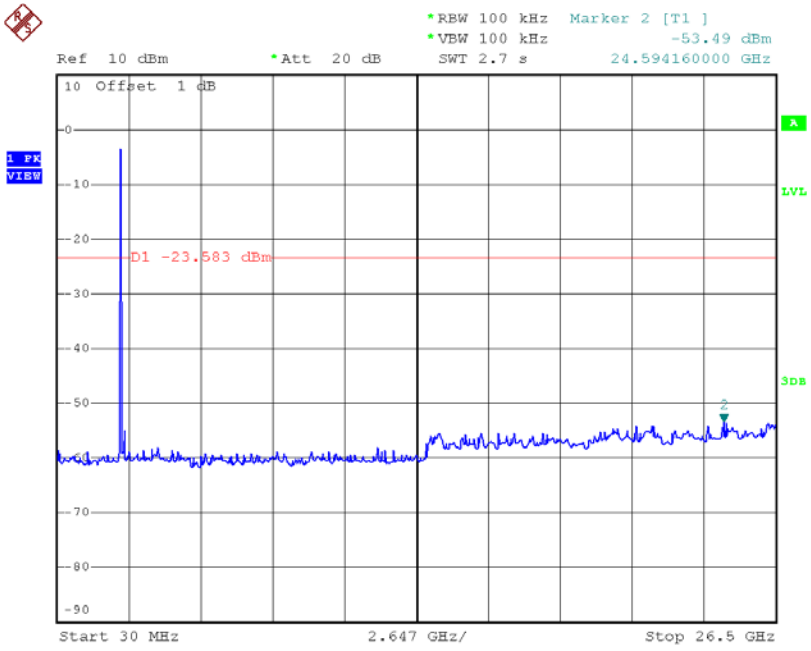
Date: 24.MAY.2016 15:27:56

CH78 Hopping on mode (Upper) _1Mbps



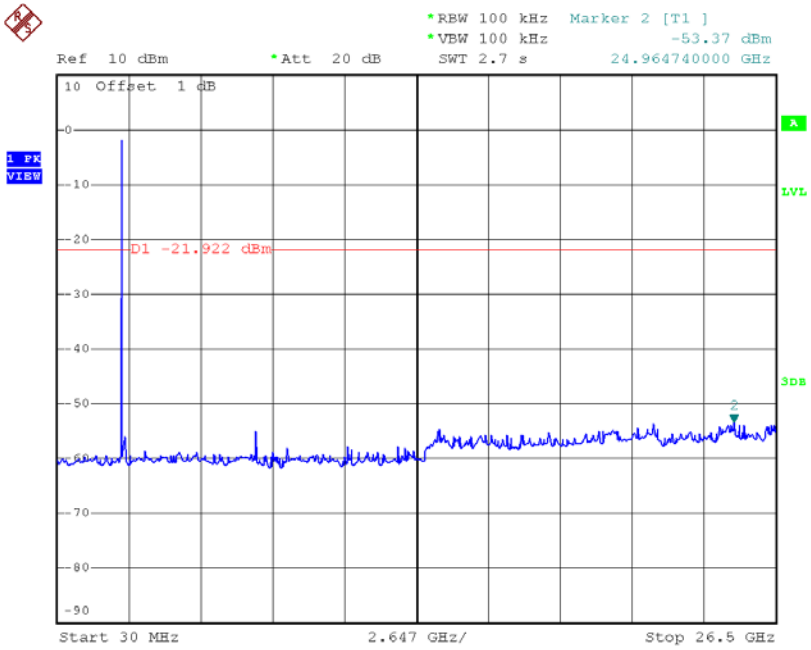
Date: 24.MAY.2016 15:42:56

CH00 (10 Harmonic of the frequency) _1Mbps



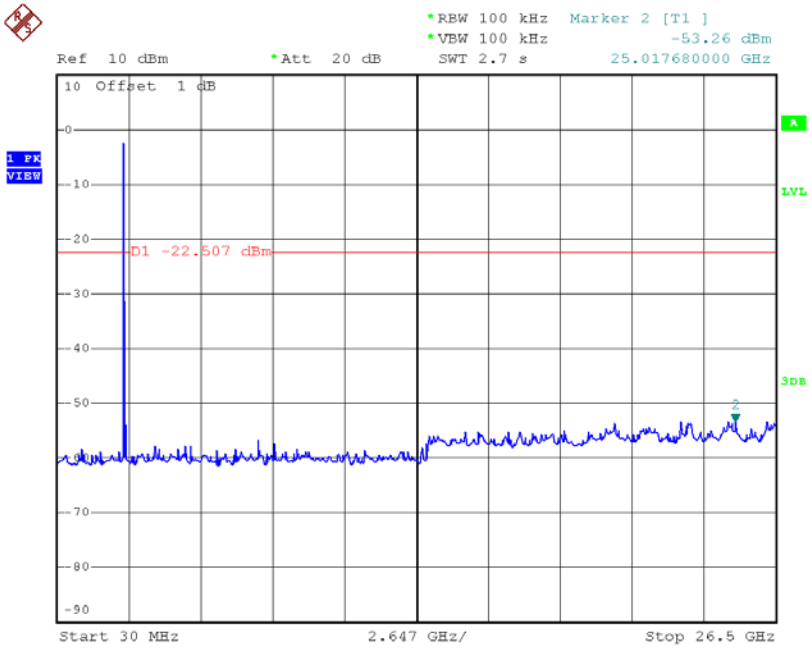
Date: 24.MAY.2016 15:06:38

CH39 (10 Harmonic of the frequency) _1Mbps



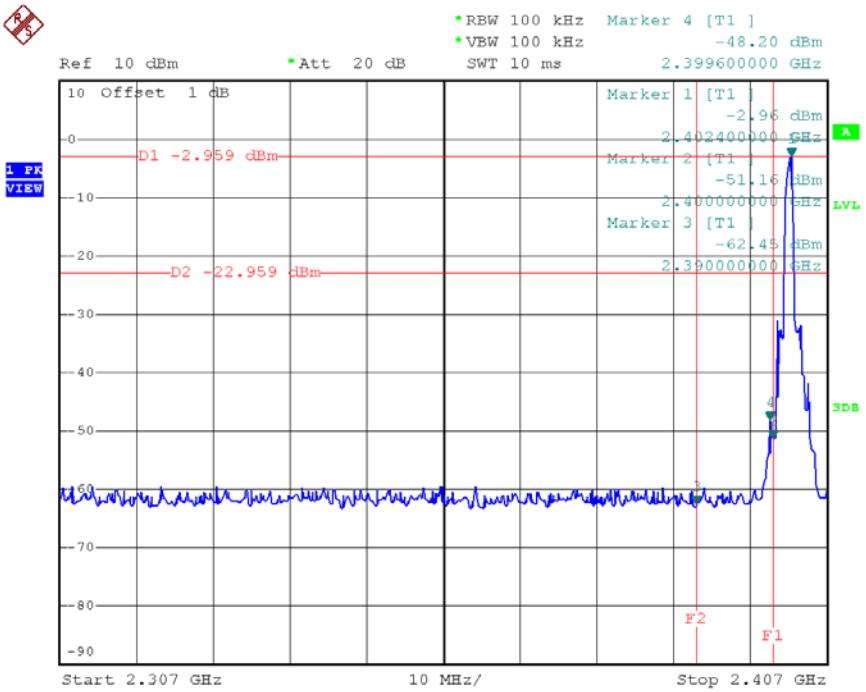
Date: 24.MAY.2016 15:07:57

CH78 (10 Harmonic of the frequency) _1Mbps



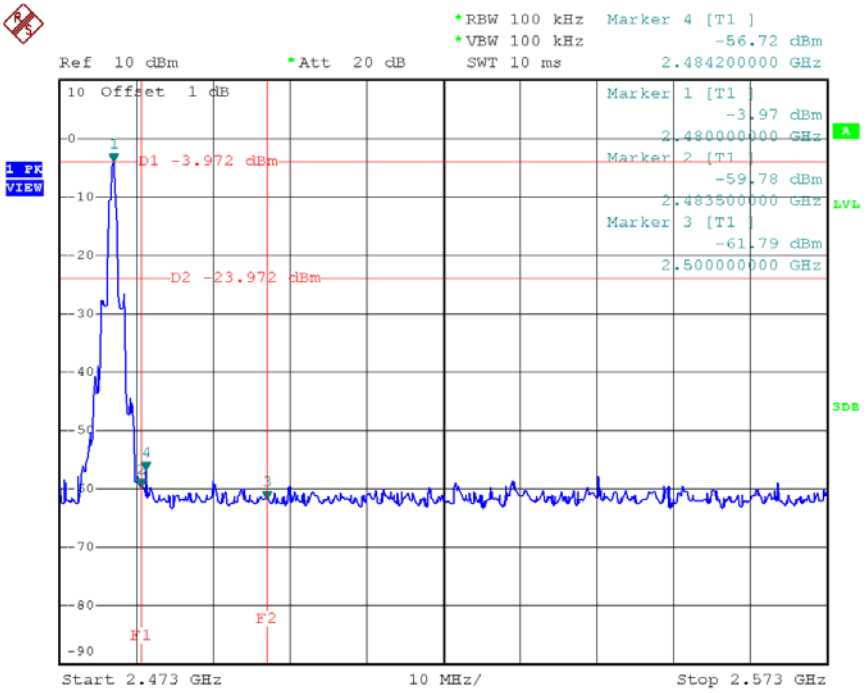
Date: 24.MAY.2016 15:21:31

CH00 (Lower) _3Mbps



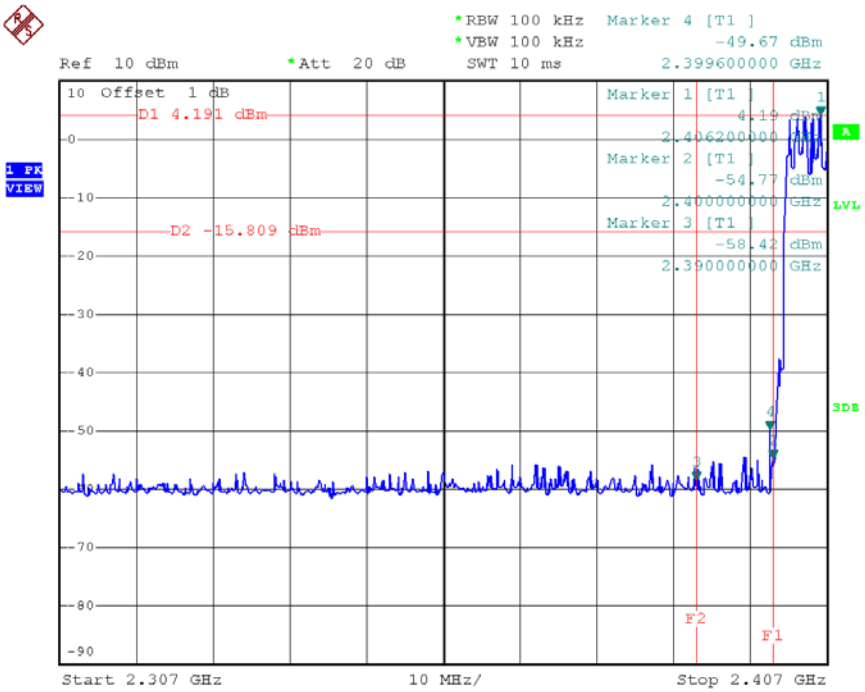
Date: 24.MAY.2016 15:46:45

CH78 (Upper) _3Mbps



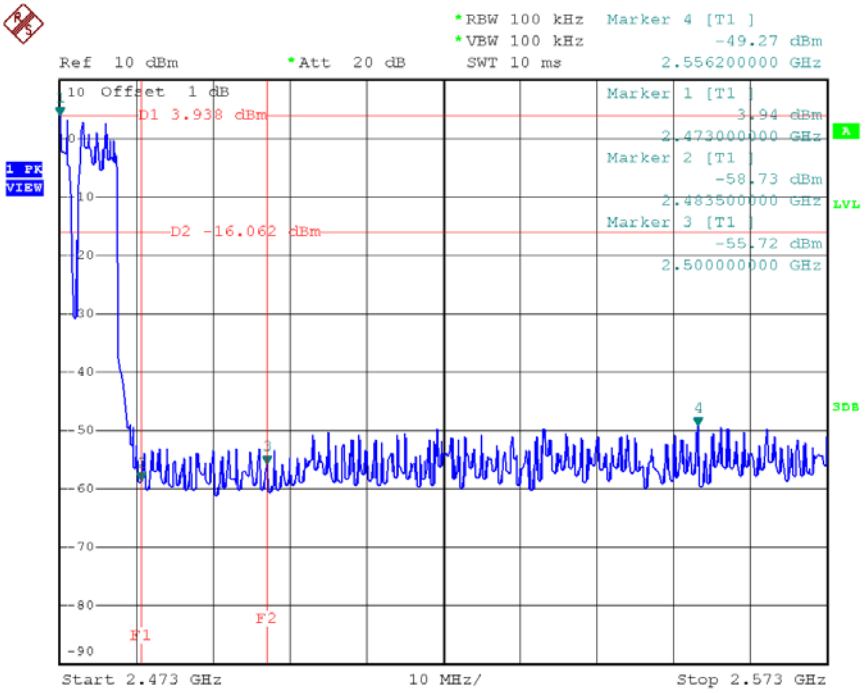
Date: 24.MAY.2016 15:49:09

CH00 Hopping on mode (Lower)_3Mbps



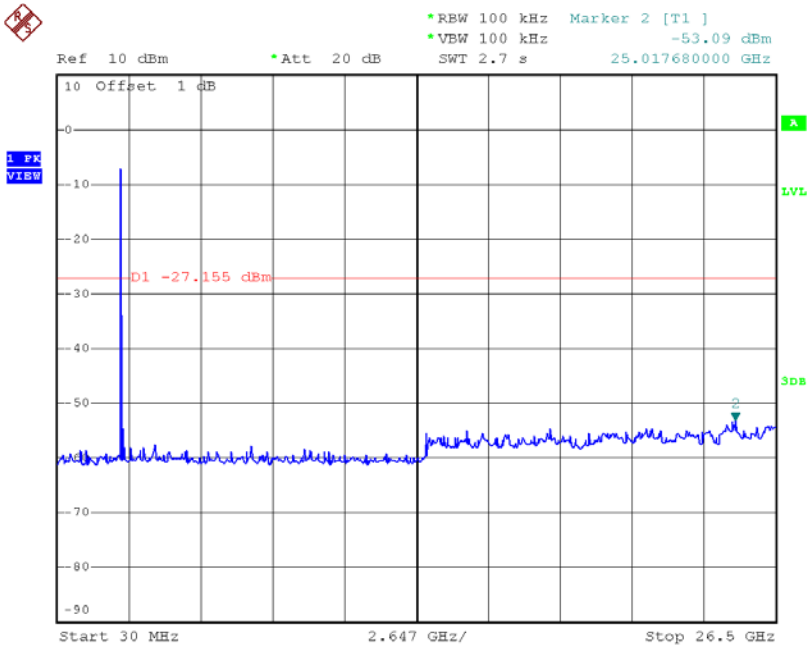
Date: 24.MAY.2016 15:57:28

CH78 Hopping on mode (Upper) _3Mbps



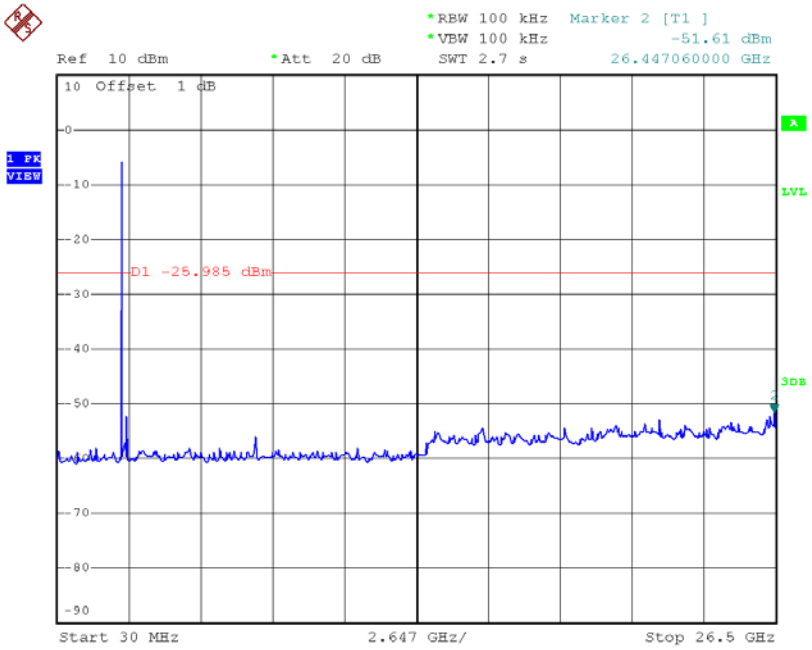
Date: 24.MAY.2016 15:58:06

CH00 (10 Harmonic of the frequency) _3Mbps



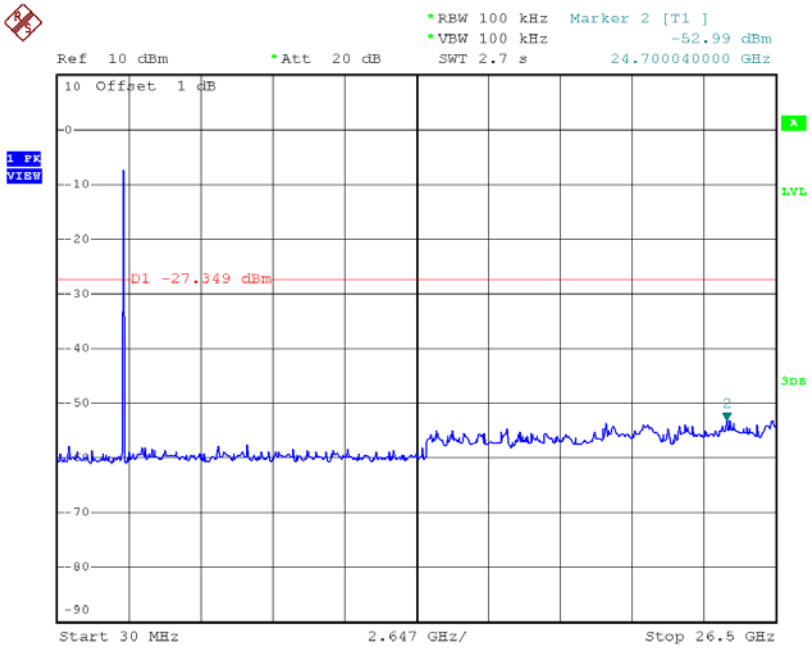
Date: 24.MAY.2016 15:47:22

CH39 (10 Harmonic of the frequency) _3Mbps



Date: 24.MAY.2016 15:48:19

CH78 (10 Harmonic of the frequency) _3Mbps



Date: 24.MAY.2016 15:49:56