FCC Radio Test Report

FCC ID: 2AFG6-RK3288

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

Project No.	:	1509C262
Equipment	:	Android Main Board
Model Name	:	B.RK3288.1
Applicant	:	Guangzhou Shirui Electronics Co.,Ltd
Address	:	192Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, Guangdong, China

Date of Receipt	:	Sep. 21, 2015
Date of Test	:	Sep. 21, 2015 ~ Nov. 17, 2015
Issued Date	:	Nov. 18, 2015
Tested by	:	BTL Inc.

Testing Engineer : Shawn xiao
(Shawn Xiao)

Technical Manager : David Mao
(David Mao)

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(Steven Lu)

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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 the standards traceable to National Measurement Laboratory (**NML**) of **CHINA**, or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

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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.

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REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FCCP-1-1509C262	Original Issue.	Nov. 18, 2015

1. CERTIFICATION

Equipment	:	Android Main Board
Brand Name	:	seewo
Model Name	:	B.RK3288.1
Applicant	:	Guangzhou Shirui Electronics Co.,Ltd
Manufacturer	:	Guangzhou Shirui Electronics Co.,Ltd
Address	:	192Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, Guangdong, China
Date of Test	:	Sep. 21, 2015 ~ Nov. 17, 2015
Test Sample	:	Engineering Sample
Standard(s)	:	FCC Part15, Subpart C : 2014 (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-1-1509C262) 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).

Test results included in this report is only for the Bluetooth part.

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

Applied Standard(s): 47 CFR Part 15, Subpart C: 2014;			
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 estimated for 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 a standard 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	Android Main Board	
Brand Name	seewo	
Model Name	B.RK3288.1	
Model Difference	N/A	
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.	1.34 dBm(1Mbps) -0.91 dBm(3Mbps)
Power Source	Supplied from system.	
Power Rating	I/P:12V~20V 1500mA	

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	N/A	N/A	Dipole	N/A	2.55

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 Mode

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 2	TX Mode

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

Note:

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

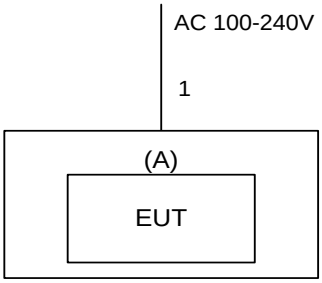
(2) The measurements for Hopping Channel Separation, Bandwidth and Peak Output Power were tested during 1Mbps, 2Mbps and 3Mbps, the worst case are 1Mbps and 3Mbps, only worst case was documented.

3.3 TABLE 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	RFTEST TOOL		
Frequency	2402 MHz	2441 MHz	2480 MHz
Parameters(1Mbps)	1.00	1.00	1.00
Parameters(3Mbps)	1.00	1.00	1.00

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	Mfr/Brand	Model/Type No.	FCC ID	Series No.
A	Android Module	seewo	SA02	N/A	N/A

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	1.8m	AC Main 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-peak	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

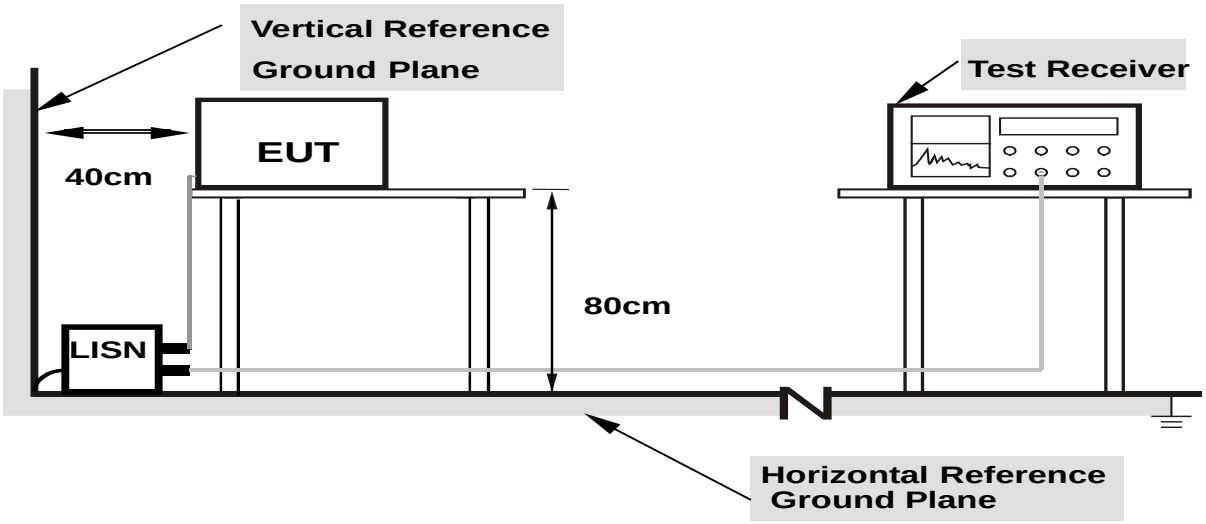
4.1.2 TEST PROCEDURE

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 equipments 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



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

4.1.5 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: 55%
Test Voltage: AC 120V/60Hz

4.1.7 TEST 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

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

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.

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)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

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

4.2.2 TEST PROCEDURE

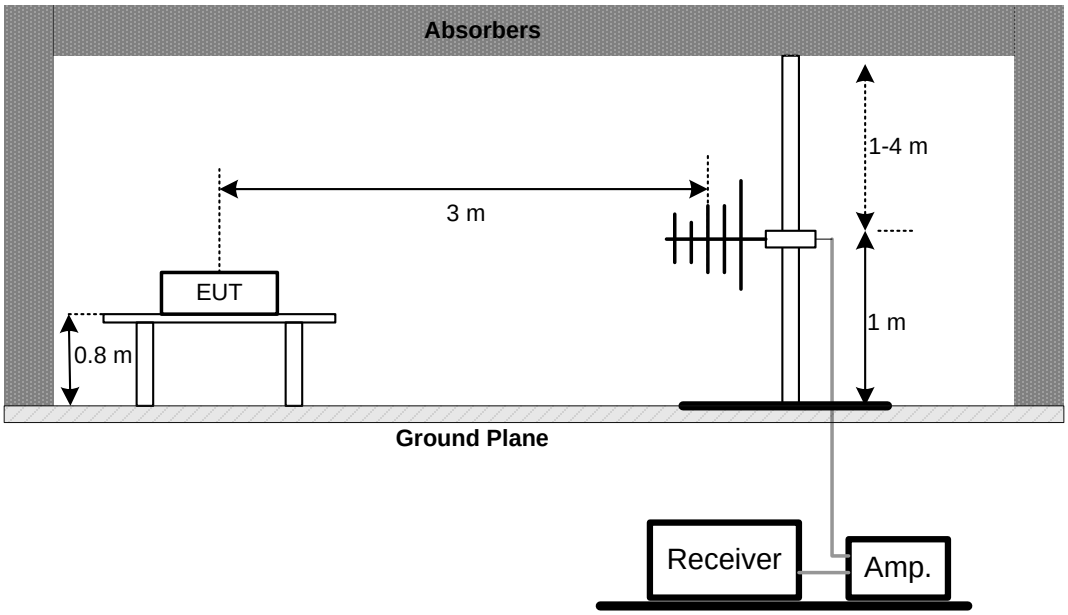
a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
b. The measuring distance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

4.2.3 DEVIATION FROM TEST STANDARD

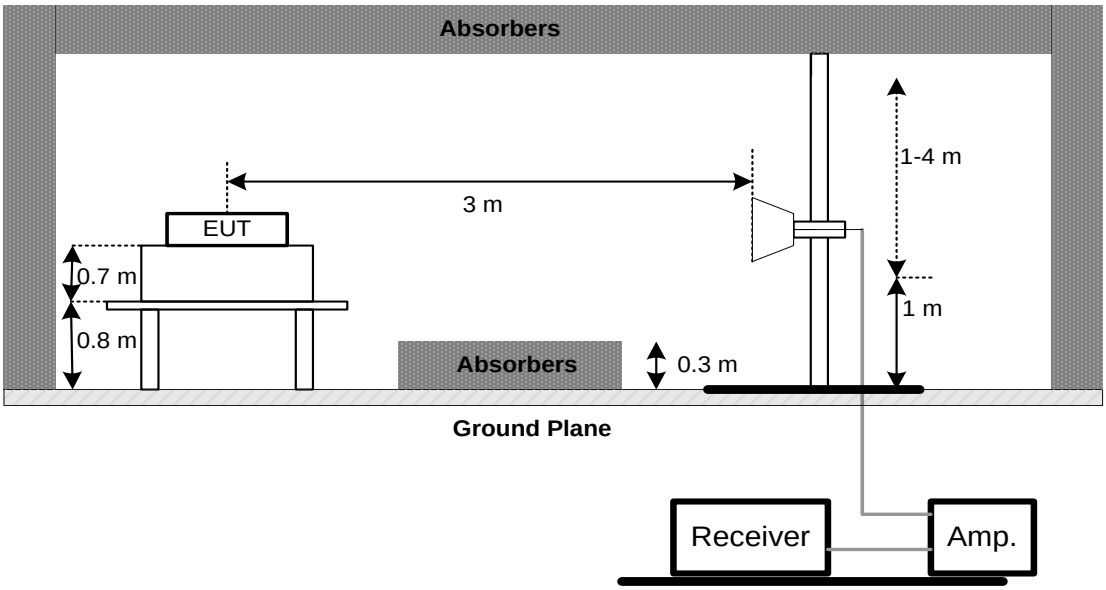
No deviation

4.2.4 TEST SETUP

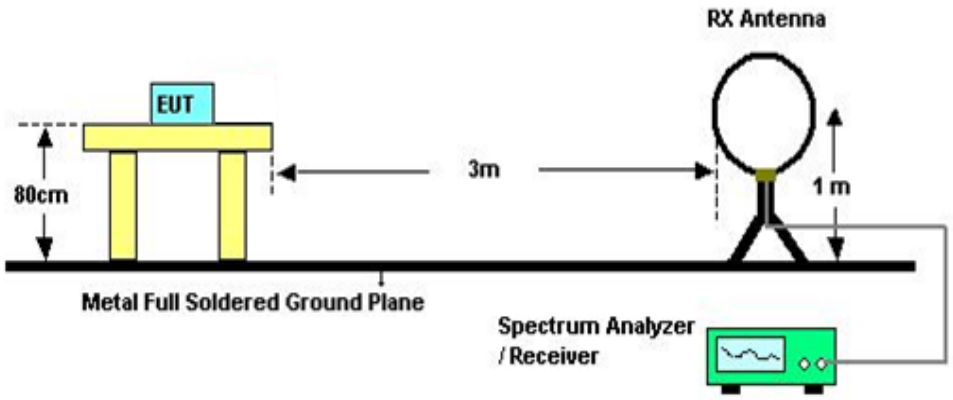
(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



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



(C) For Radiated Emissions Below 30MHz



4.2.5 EUT 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

4.2.6 EUT 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) Measuring frequency range from 30MHz to 1000MHz.
(2) 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

5.1 APPLIED 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	100 KHz
VBW	100 KHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

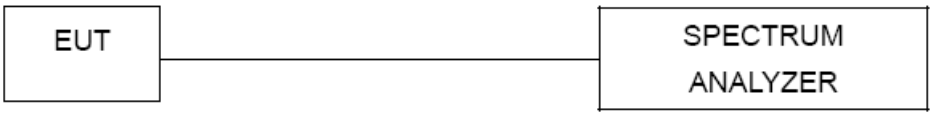
5.1.1 TEST PROCEDURE

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=100KHz, VBW=100KHz, 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 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

5.1.5 EUT TEST CONDITIONS

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

5.1.6 TEST RESULTS

Please refer to the Attachment E

6. AVERAGE TIME OF OCCUPANCY

6.1 APPLIED 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

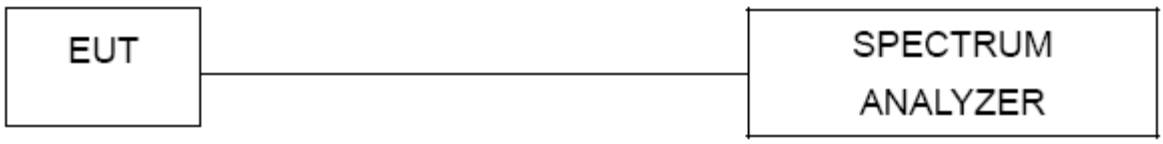
6.1.1 TEST PROCEDURE

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 enable triggering 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 slots TX, 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 slots TX, 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.

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT 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.

6.1.5 EUT TEST CONDITIONS

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

6.1.6 TEST RESULTS

Please refer to the Attachment F

7. HOPPING CHANNEL SEPARATION MEASUREMENT

7.1 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

7.1.1 TEST PROCEDURE

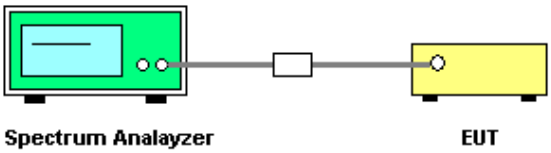
a. The EUT must have its hopping function enabled

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

7.1.2 DEVIATION FROM STANDARD

No deviation.

7.1.3 TEST SETUP



7.1.4 EUT TEST CONDITIONS

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

7.1.5 TEST RESULTS

Please refer to the Attachment G

8. BANDWIDTH TEST

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

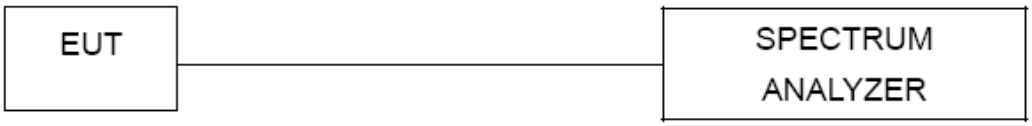
8.1.1 TEST PROCEDURE

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= 30KHz, VBW=100KHz, 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 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

8.1.5 EUT TEST CONDITIONS

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

8.1.6 TEST RESULTS

Please refer to the Attachment H

9. PEAK OUTPUT POWER TEST

9.1 APPLIED 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

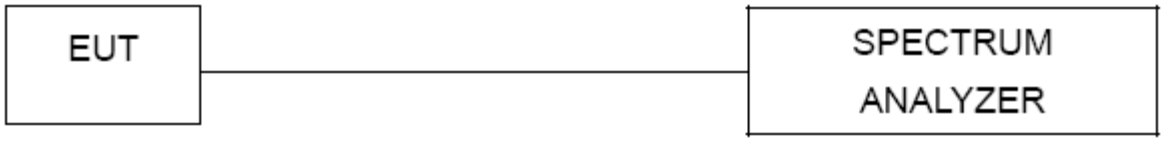
9.1.1 TEST PROCEDURE

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= 1MHz/3MHz, VBW= 1MHz/3MHz, 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 4.1.5 unless otherwise a special operating condition is specified in the follows during the testing.

9.1.5 EUT TEST CONDITIONS

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

9.1.6 TEST RESULTS

Please refer to the Attachment I

10. ANTENNA CONDUCTED SPURIOUS EMISSION

10.1 APPLIED PROCEDURES / LIMIT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally 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 that contains 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.

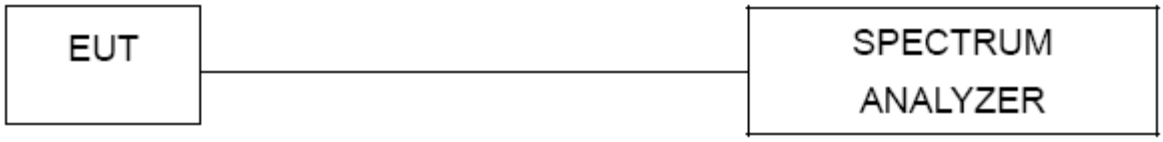
10.1.1 TEST PROCEDURE

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

10.1.2 DEVIATION FROM STANDARD

No deviation.

10.1.3 TEST SETUP



10.1.4 EUT 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.

10.1.5 EUT TEST CONDITIONS

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

10.1.6 TEST 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	699837	0052765	Mar. 28, 2016
2	LISN	R&S	ENV216	101447	Mar. 28, 2016
3	Test Cable	emci	RG223(9KHz-30 MHz)	C_17	Mar. 13, 2016
4	EMI Test Receiver	R&S	ESCS30	826547/022	Mar. 28, 2016
5	50Ω Terminator	SHX	TF2-3G-A	08122901	Mar. 28, 2016
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	Schwarbeck	VULB9160	9160-3232	Mar. 28, 2016
2	Amplifier	HP	8447D	2944A09673	Nov. 09, 2016
3	Receiver	AGILENT	N9038A	MY52130039	Oct. 11, 2016
4	Test Cable	emci	LMR-400(30MHz-1GHz)	C-01	Jun. 28, 2016
5	Controller	CT	SC100	N/A	N/A
6	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
7	Antenna	ETS	3115	00075789	Mar. 28, 2016
8	Amplifier	Agilent	8449B	3008A02274	Nov. 01, 2016
9	Receiver	AGILENT	N9038A	MY52130039	Oct. 11, 2016
10	Test Cable	emci	EMC104-SM-SM-10000(1GHz－26.5GHz)	C-68	Jun. 28, 2016
11	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Mar. 28, 2016
12	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 28, 2016
13	Active Loop Antenna	R&S	HFH2-Z2	830749/020	Sep. 07, 2016

Number of Hopping Channel					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 28, 2016

Average Time of Occupancy					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 28, 2016

Hopping Channel Separation Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 28, 2016

Bandwidth					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 28, 2016

Peak Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 28, 2016

Antenna Conducted Spurious Emission					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 28, 2016

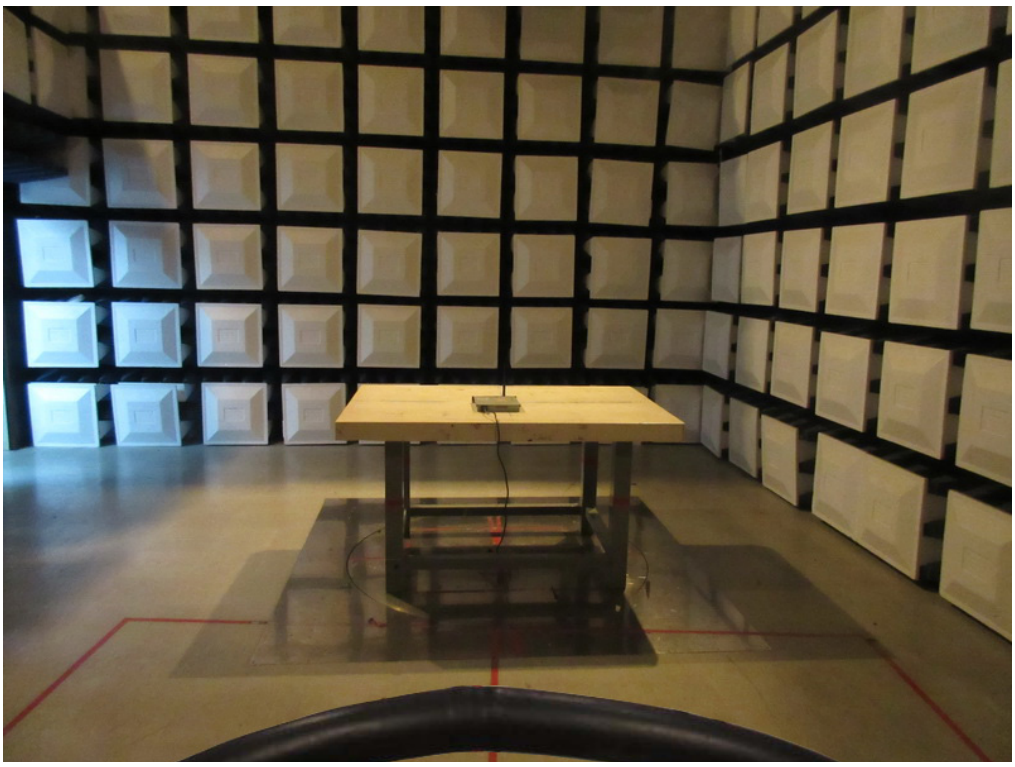
Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

12. EUT TEST PHOTO

Conducted Measurement Photos

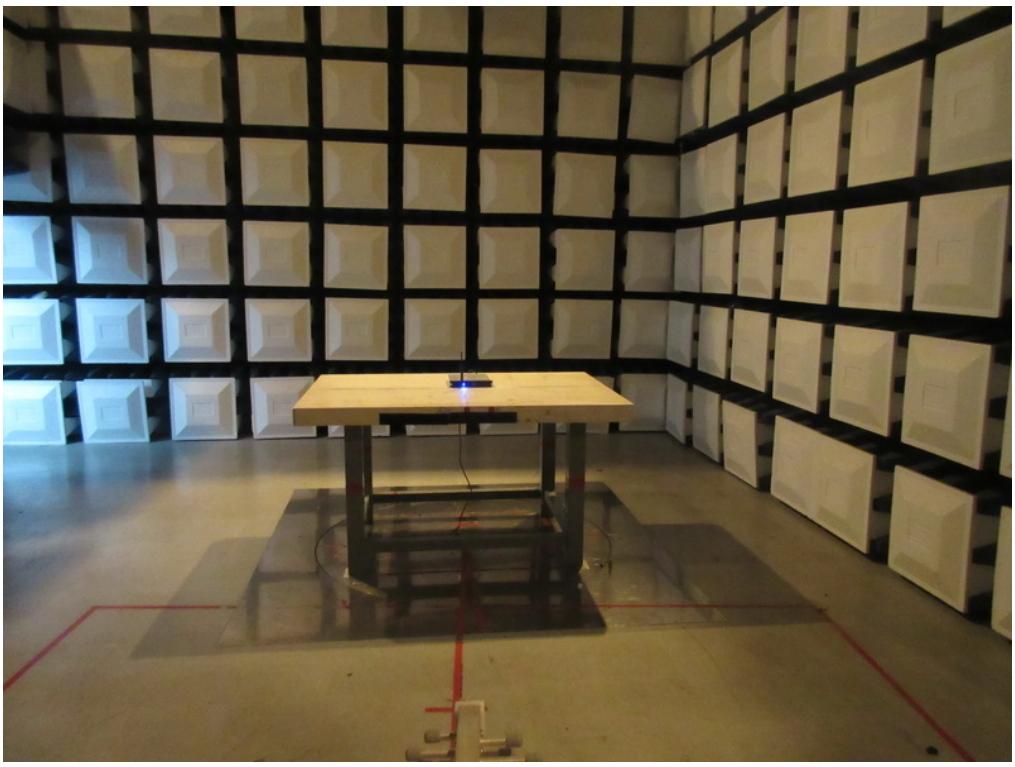
Radiated Measurement Photos

9KHz to 30MHz



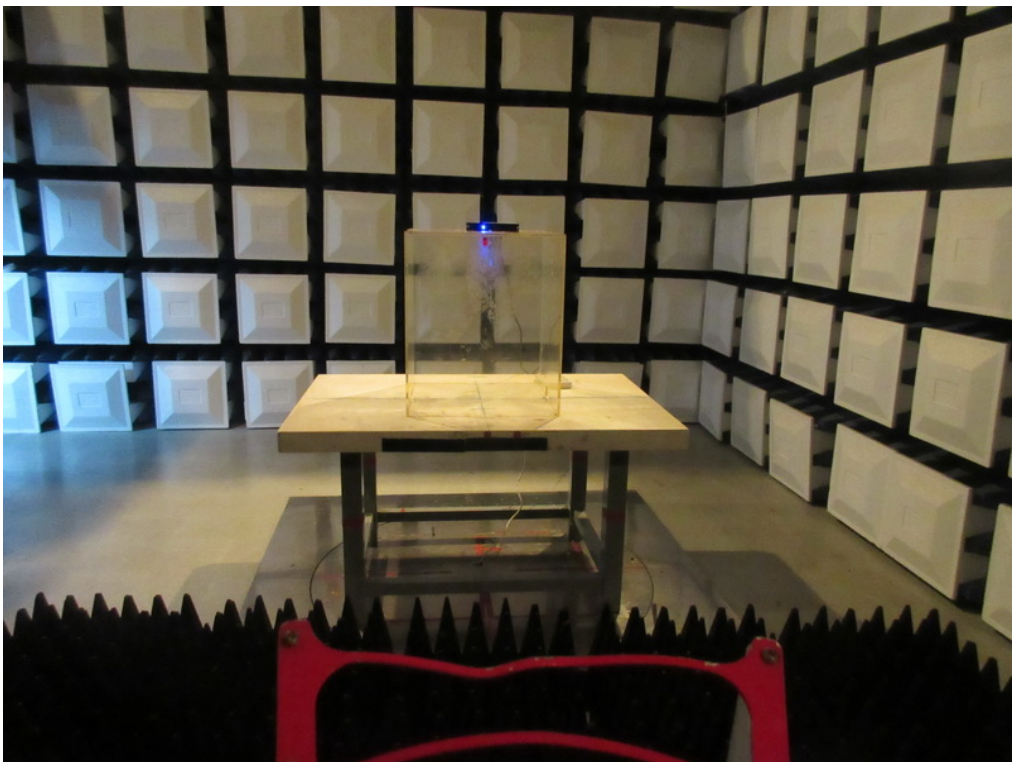
Radiated Measurement Photos

30MHz to 1000MHz



Radiated Measurement Photos

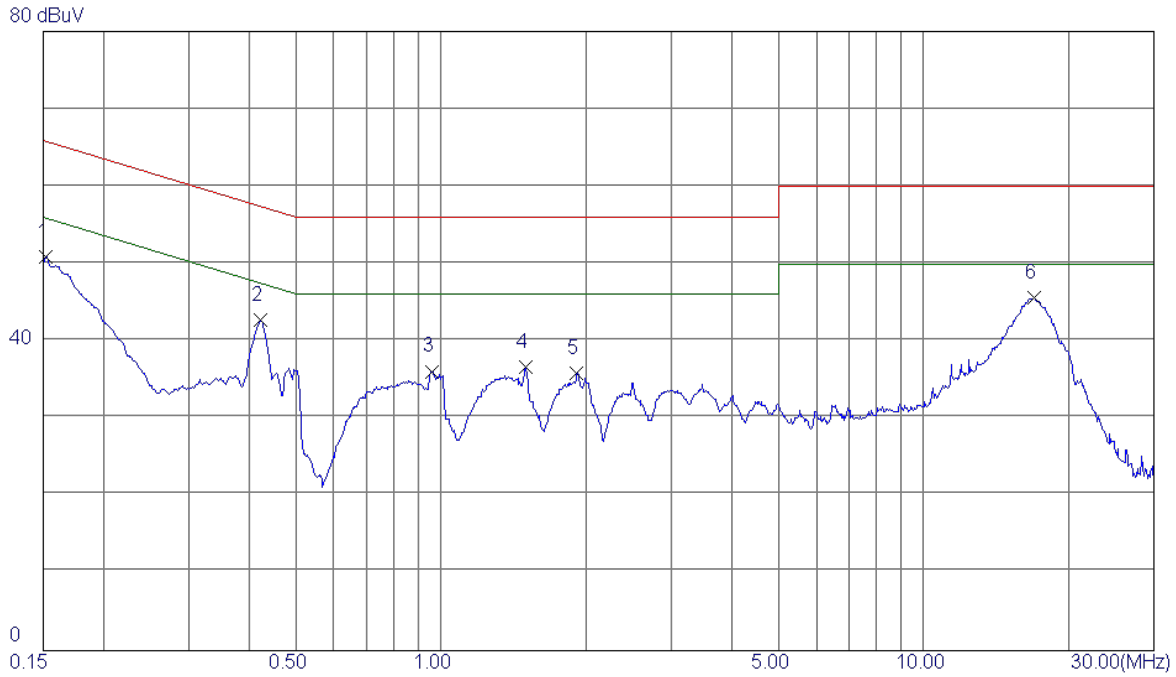
Above 1000MHz



ATTACHMENT A - CONDUCTED EMISSION

Test Mode:	TX Mode

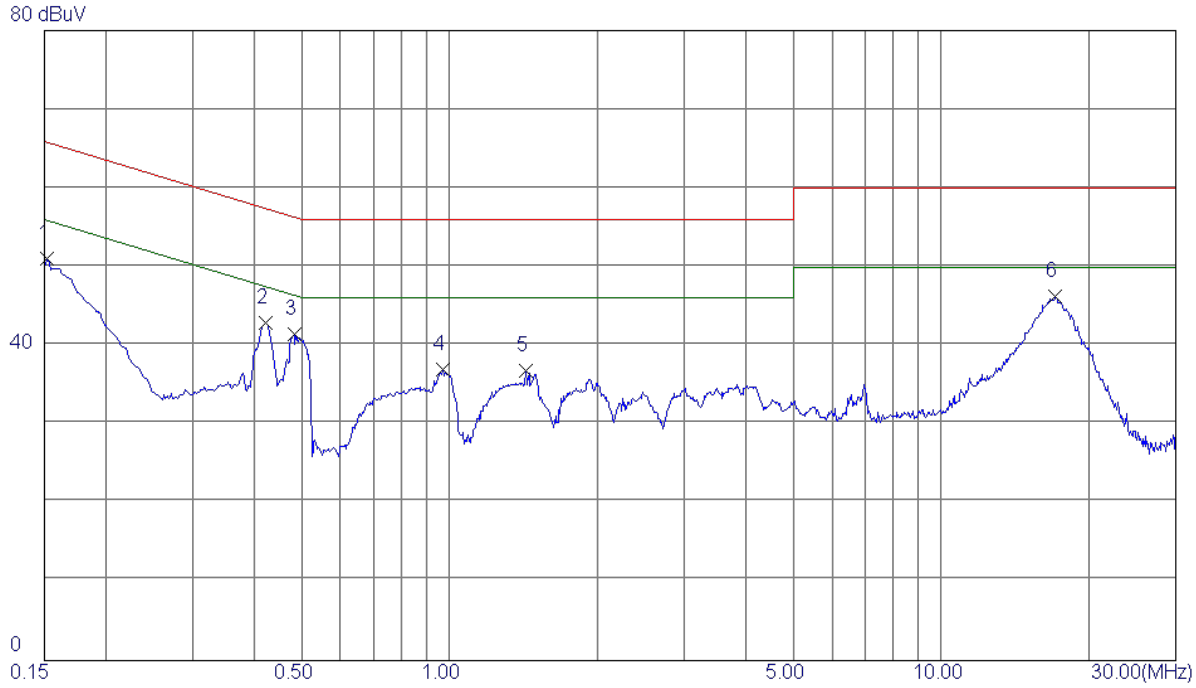
Line



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1522	41.25	9.68	50.93	65.88	-14.95	Peak	
2	0.4222	32.84	9.81	42.65	57.40	-14.75	Peak	
3	0.9577	26.11	9.97	36.08	56.00	-19.92	Peak	
4	1.4955	26.70	9.92	36.62	56.00	-19.38	Peak	
5	1.9095	25.92	9.87	35.79	56.00	-20.21	Peak	
6	16.9238	35.28	10.32	45.60	60.00	-14.40	Peak	

Test Mode:	TX Mode

Neutral



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1522	41.38	9.60	50.98	65.88	-14.90	Peak	
2	0.4222	33.20	9.63	42.83	57.40	-14.57	Peak	
3	0.4830	31.79	9.65	41.44	56.29	-14.85	Peak	
4	0.9690	27.13	9.78	36.91	56.00	-19.09	Peak	
5	1.4303	27.02	9.82	36.84	56.00	-19.16	Peak	
6	17.0633	35.96	10.27	46.23	60.00	-13.77	Peak	

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

Test Mode:	TX Mode

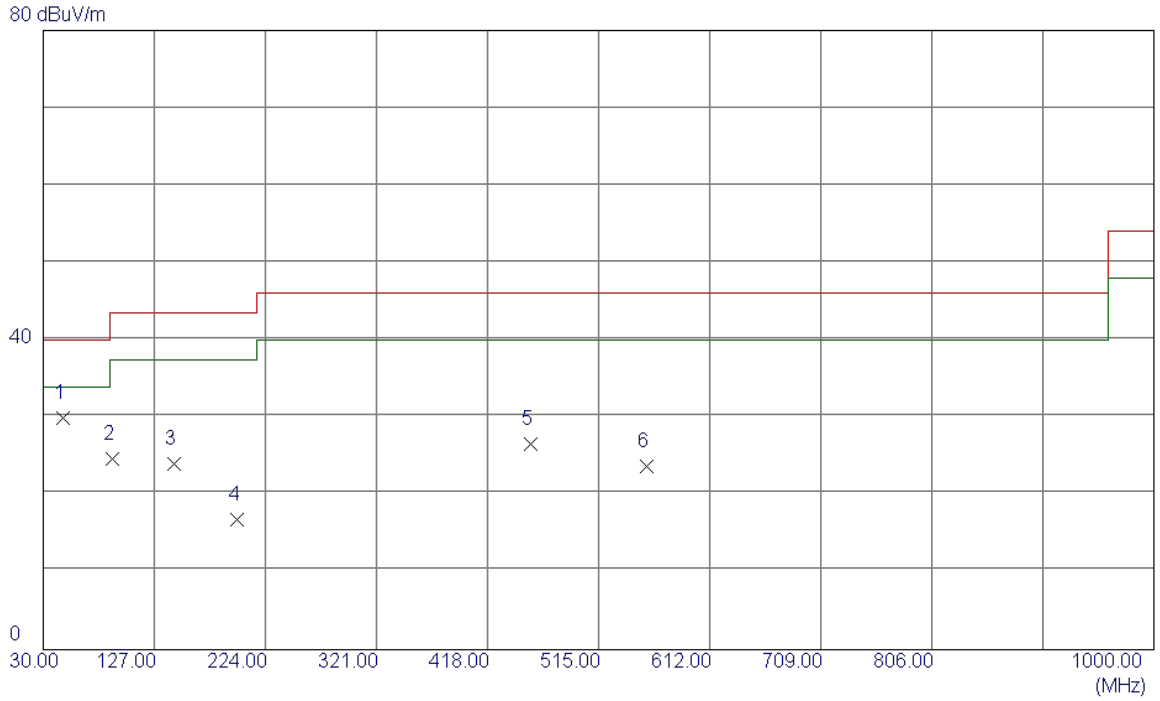
Frequency (MHz)	Ant 0°/90°	Read level dBuV/m	Factor (dB)	Measured(FS) (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Note
0.0122	0°	13.63	24.7940	38.4240	125.8770	-87.4530	AVG
0.0122	0°	14.72	24.7940	39.5140	145.8770	-106.3630	PEAK
0.0284	0°	6.89	23.7680	30.6580	118.5379	-87.8799	AVG
0.0284	0°	8.32	23.7680	32.0880	138.5379	-106.4499	PEAK
0.0362	0°	3.33	23.2740	26.6040	116.4301	-89.8261	AVG
0.0362	0°	5.64	23.2740	28.9140	136.4301	-107.5161	PEAK
0.0539	0°	1.37	22.3220	23.6920	112.9724	-89.2804	AVG
0.0539	0°	2.8	22.3220	25.1220	132.9724	-107.8504	PEAK
0.5301	0°	19.27	19.8963	39.1663	73.1171	-33.9507	QP
1.9673	0°	24.29	19.5033	43.7933	69.5400	-25.7467	QP

Frequency (MHz)	Ant 0°/90°	Read level dBuV/m	Factor (dB)	Measured(FS) (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Note
0.0142	90°	13.45	24.3000	37.7500	124.5585	-86.8085	AVG
0.0142	90°	14.87	24.3000	39.1700	144.5585	-105.3885	PEAK
0.0269	90°	7.37	23.8630	31.2330	119.0092	-87.7762	AVG
0.0269	90°	9.12	23.8630	32.9830	139.0092	-106.0262	PEAK
0.0437	90°	5.42	22.7990	28.2190	114.7946	-86.5756	AVG
0.0437	90°	6.51	22.7990	29.3090	134.7946	-105.4856	PEAK
0.0585	90°	1.67	22.2300	23.9000	112.2611	-88.3611	AVG
0.0585	90°	2.84	22.2300	25.0700	132.2611	-107.1911	PEAK
0.637	90°	22.37	20.2384	42.6084	71.5214	-28.9130	QP
2.0533	90°	24.53	19.4680	43.9980	69.5400	-25.5420	QP

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

Test Mode:	TX 2402MHz _CH00_1Mbps

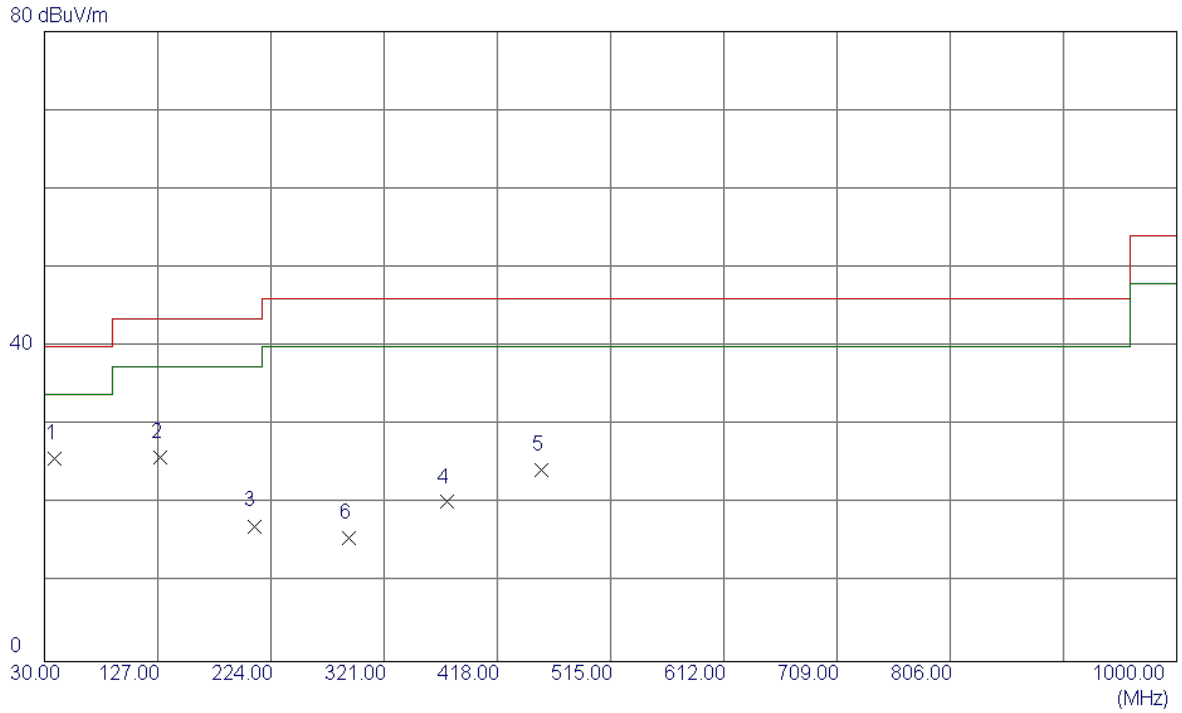
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	47.4600	43.57	-13.62	29.95	40.00	-10.05	Peak	
2	90.1400	41.43	-16.85	24.58	43.50	-18.92	Peak	
3	144.4600	37.62	-13.60	24.02	43.50	-19.48	Peak	
4	199.7500	31.92	-15.13	16.79	43.50	-26.71	Peak	
5	455.8300	34.80	-8.28	26.52	46.00	-19.48	Peak	
6	556.7100	29.19	-5.51	23.68	46.00	-22.32	Peak	

Test Mode:	TX 2402MHz _CH00_1Mbps

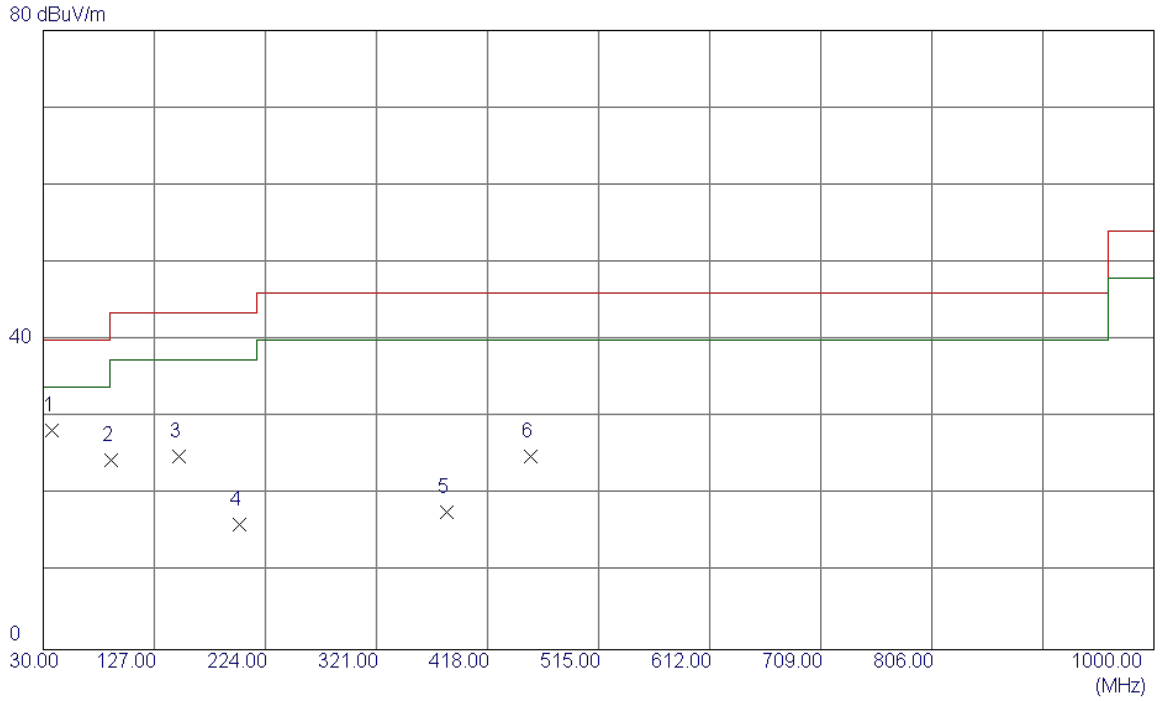
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	38.7300	39.85	-14.09	25.76	40.00	-14.24	Peak	
2	128.9400	39.10	-13.18	25.92	43.50	-17.58	Peak	
3	209.4500	32.06	-14.86	17.20	43.50	-26.30	Peak	
4	375.3200	30.56	-10.32	20.24	46.00	-25.76	Peak	
5	455.8300	32.56	-8.28	24.28	46.00	-21.72	Peak	
6	290.9300	26.58	-10.96	15.62	46.00	-30.38	Peak	

Test Mode:	TX 2441MHz _CH39_1Mbps

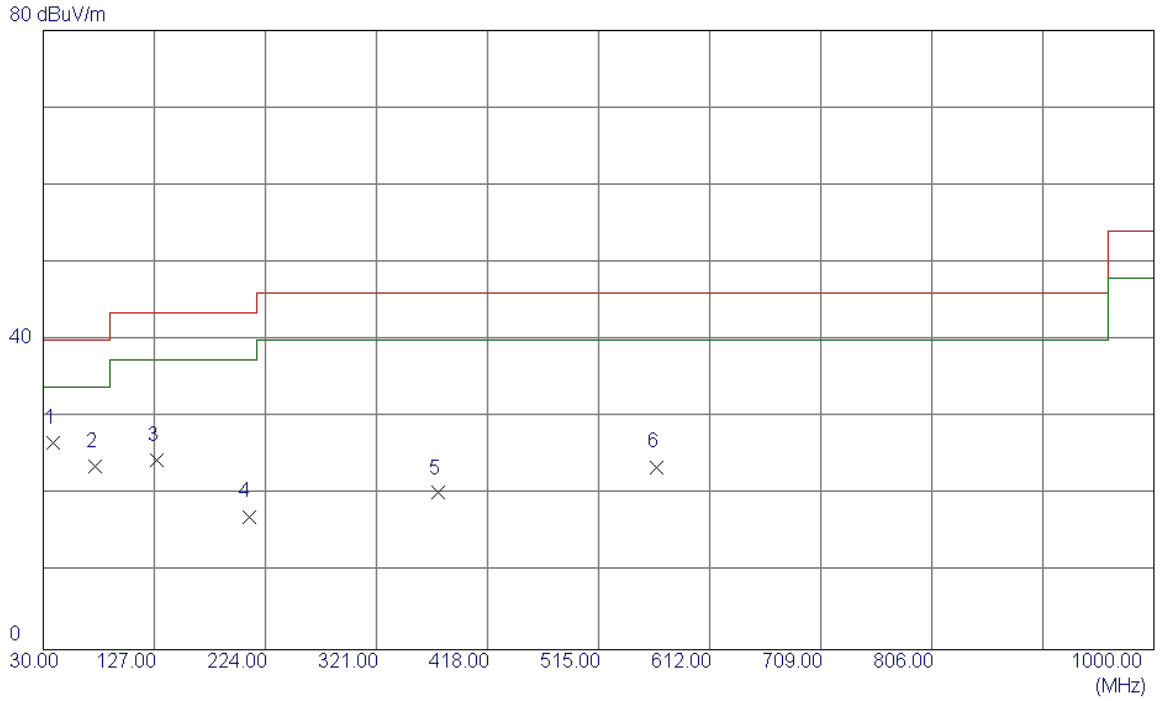
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	37.7599	42.49	-14.17	28.32	40.00	-11.68	Peak	
2	89.1700	41.30	-16.84	24.46	43.50	-19.04	Peak	
3	148.3400	38.20	-13.19	25.01	43.50	-18.49	Peak	
4	201.6900	31.28	-15.09	16.19	43.50	-27.31	Peak	
5	382.1099	27.82	-10.04	17.78	46.00	-28.22	Peak	
6	455.8300	33.30	-8.28	25.02	46.00	-20.98	Peak	

Test Mode:	TX 2441MHz _CH39_1Mbps

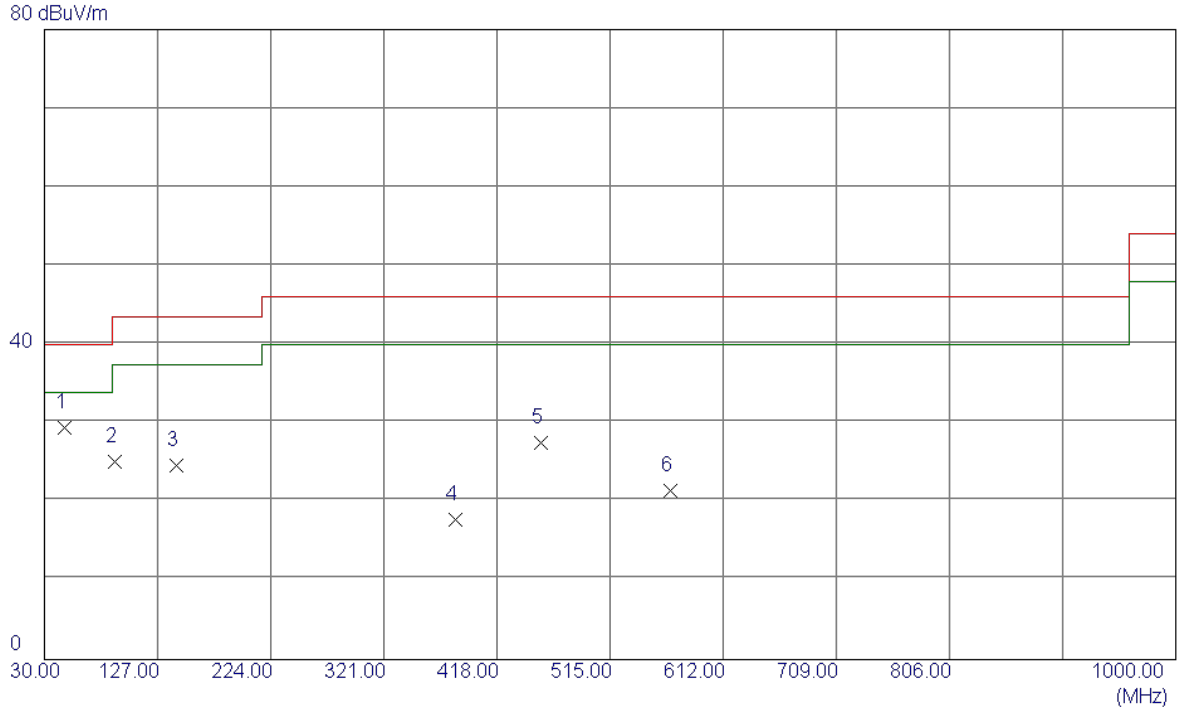
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	38.7300	40.85	-14.09	26.76	40.00	-13.24	Peak	
2	75.5899	39.93	-16.31	23.62	40.00	-16.38	Peak	
3	128.9400	37.60	-13.18	24.42	43.50	-19.08	Peak	
4	209.4500	32.06	-14.86	17.20	43.50	-26.30	Peak	
5	375.3200	30.56	-10.32	20.24	46.00	-25.76	Peak	
6	565.4400	29.58	-5.98	23.60	46.00	-22.40	Peak	

Test Mode:	TX 2480MHz _CH78_1Mbps

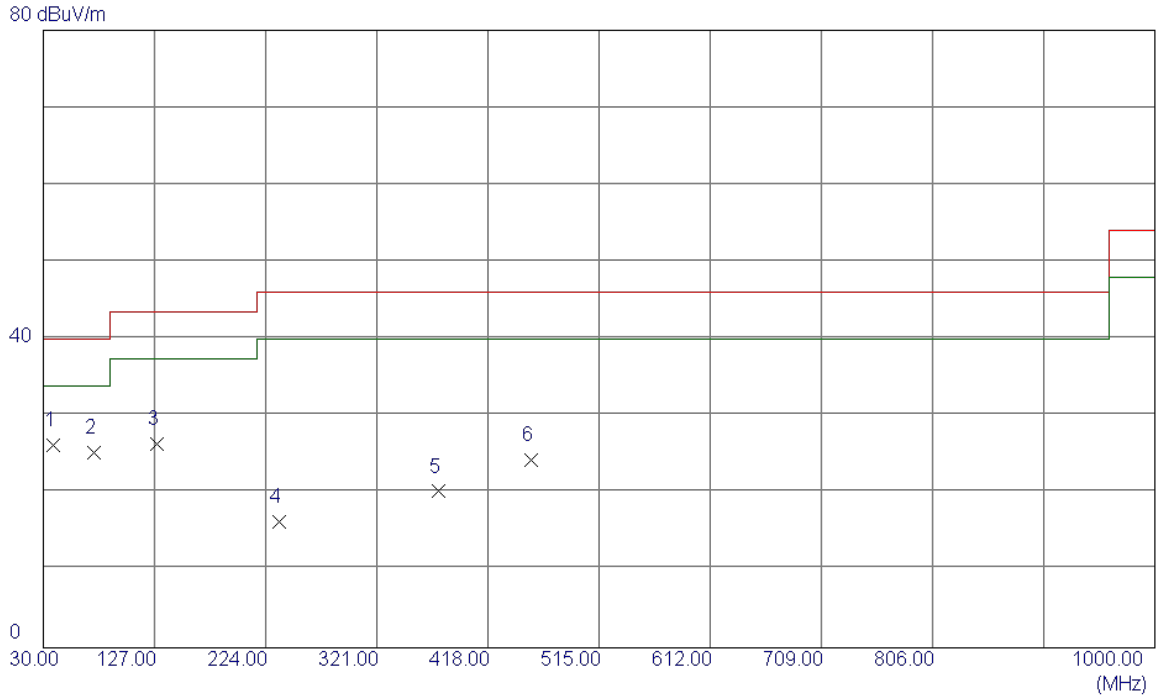
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	47.4600	43.07	-13.62	29.45	40.00	-10.55	Peak	
2	90.1400	41.93	-16.85	25.08	43.50	-18.42	Peak	
3	143.4900	38.29	-13.71	24.58	43.50	-18.92	Peak	
4	382.1099	27.82	-10.04	17.78	46.00	-28.22	Peak	
5	455.8300	35.80	-8.28	27.52	46.00	-18.48	Peak	
6	566.4099	27.42	-6.03	21.39	46.00	-24.61	Peak	

Test Mode:	TX 2480MHz _CH78_1Mbps

Horizontal

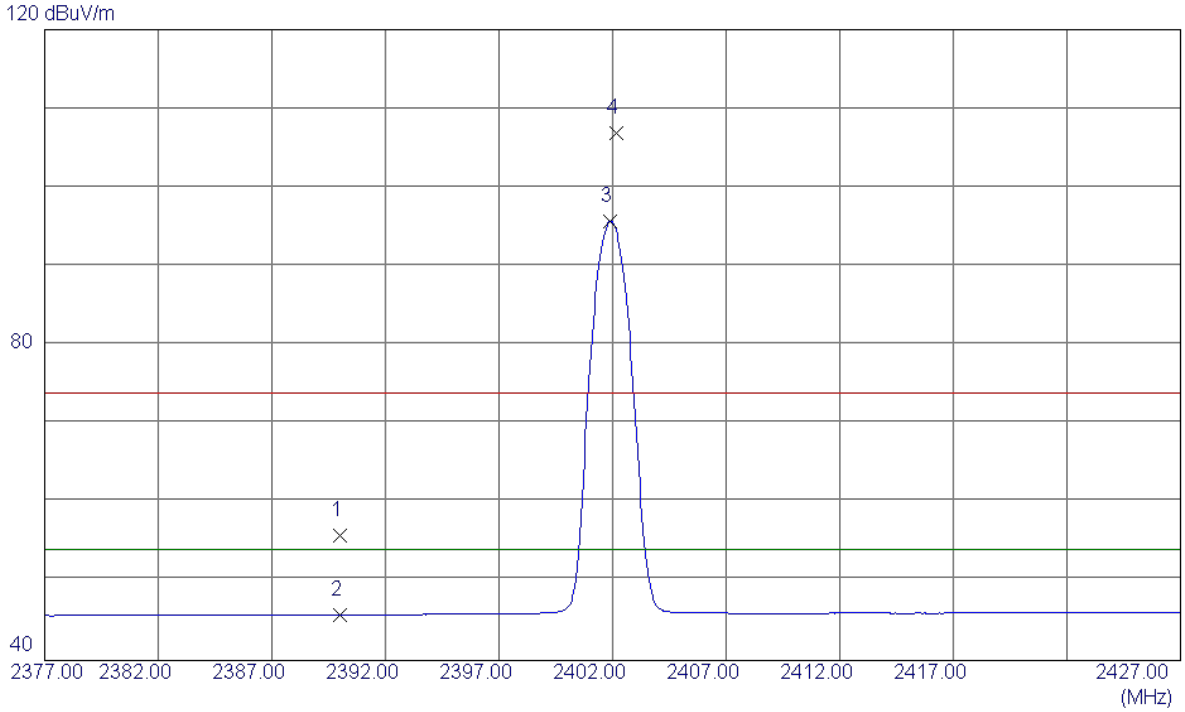


No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	38.7300	40.35	-14.09	26.26	40.00	-13.74	Peak	
2	74.6200	41.47	-16.23	25.24	40.00	-14.76	Peak	
3	128.9400	39.60	-13.18	26.42	43.50	-17.08	Peak	
4	235.6400	30.55	-14.23	16.32	46.00	-29.68	Peak	
5	375.3200	30.56	-10.32	20.24	46.00	-25.76	Peak	
6	455.8300	32.56	-8.28	24.28	46.00	-21.72	Peak	

ATTACHMENT D - RADIATED EMISSION (ABOVE 1000MHZ)

Test Mode :	TX 2402MHz _CH00_1Mbps

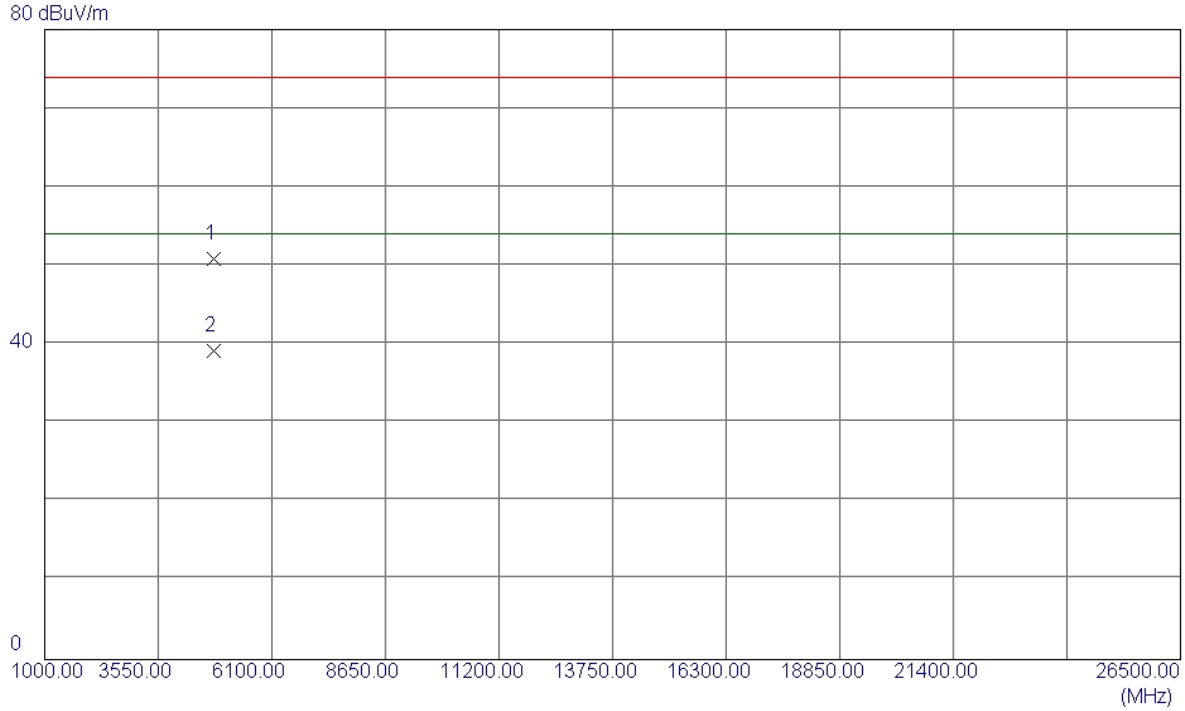
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	23.21	32.68	55.89	74.00	-18.11	Peak	
2	2390.0000	13.11	32.68	45.79	54.00	-8.21	AVG	
3	2401.9000	63.03	32.69	95.72	54.00	41.72	AVG	No Limit
4	2402.1500	74.12	32.69	106.81	74.00	32.81	Peak	No Limit

Test Mode :	TX 2402MHz _CH00_1Mbps

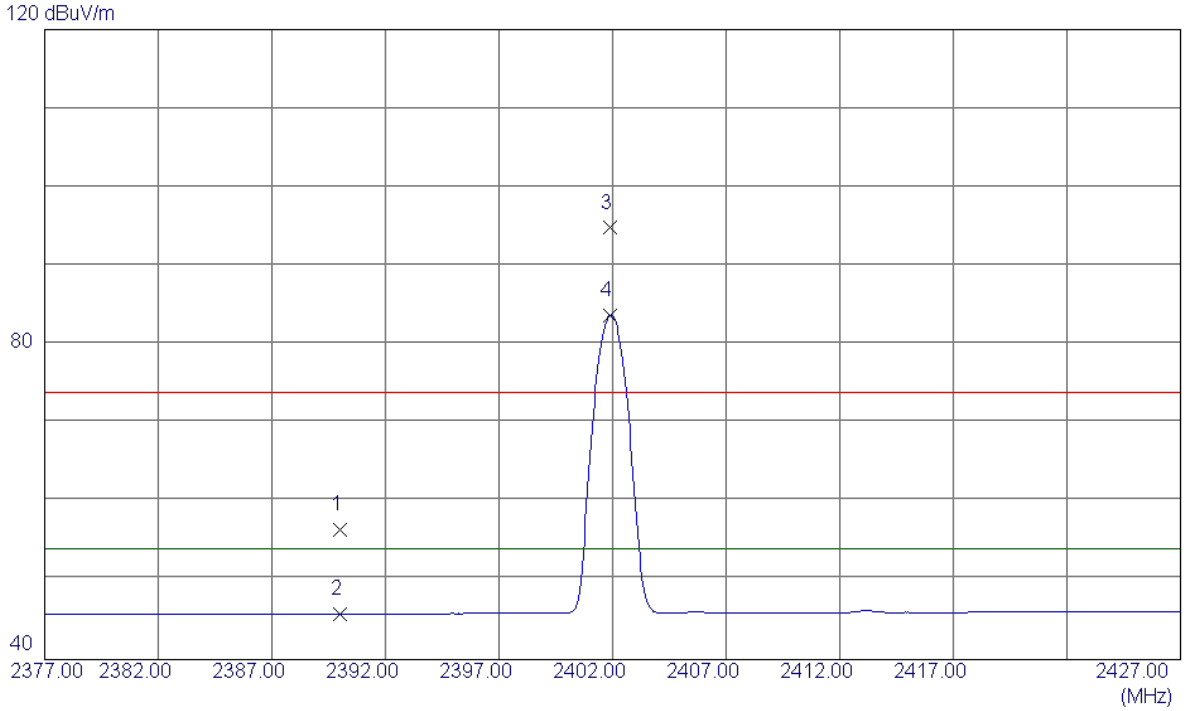
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4803.7400	45.13	5.82	50.95	74.00	-23.05	Peak	
2	4803.7799	33.45	5.82	39.27	54.00	-14.73	AVG	

Test Mode :	TX 2402MHz _CH00_1Mbps

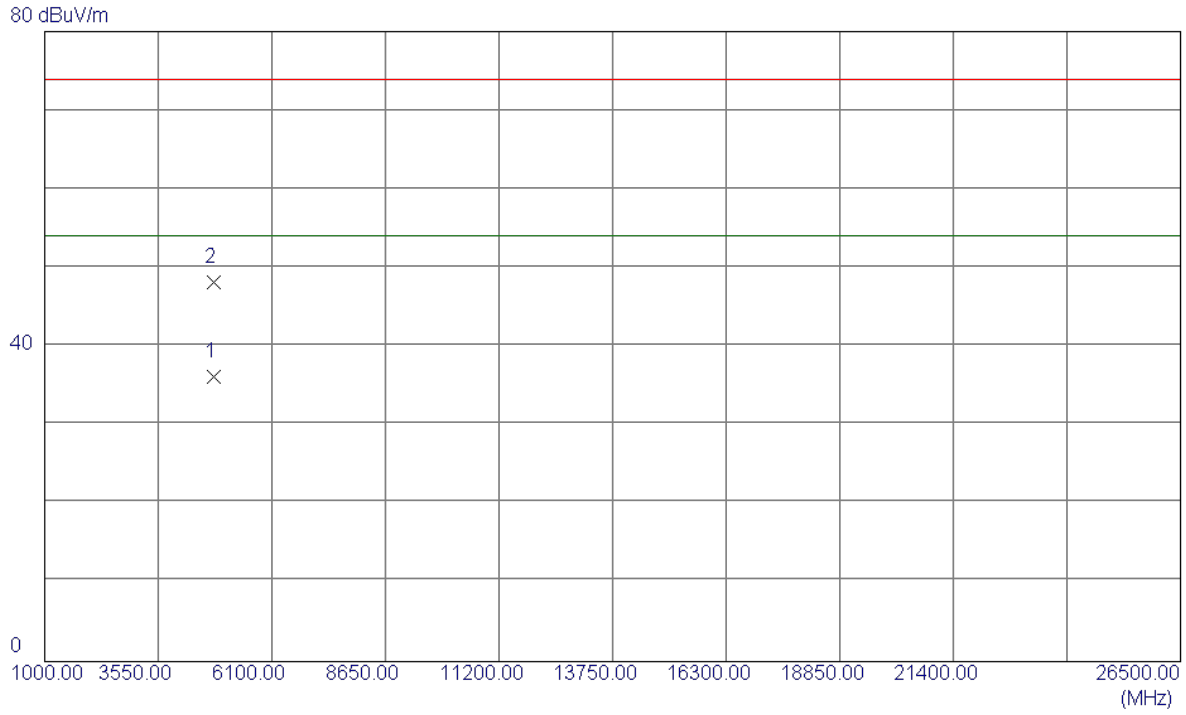
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	23.81	32.68	56.49	74.00	-17.51	Peak	
2	2390.0000	13.11	32.68	45.79	54.00	-8.21	AVG	
3	2401.9000	62.11	32.69	94.80	74.00	20.80	Peak	No Limit
4	2401.9000	51.06	32.69	83.75	54.00	29.75	AVG	No Limit

Test Mode :	TX 2402MHz _CH00_1Mbps

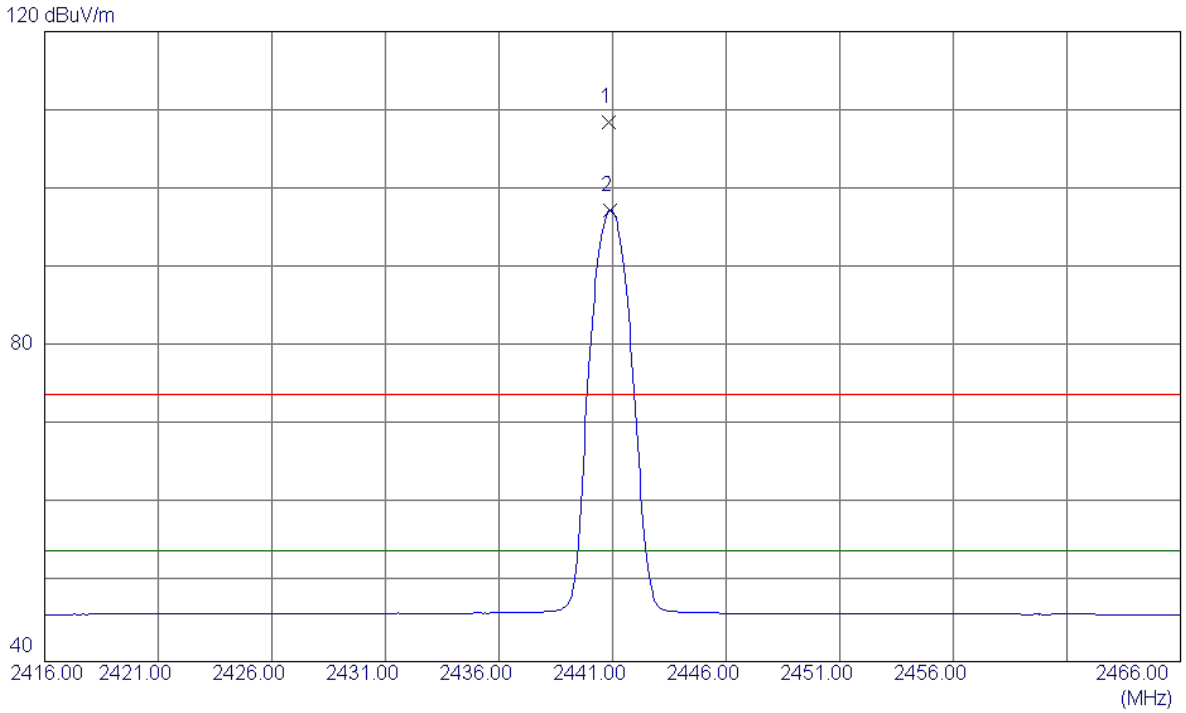
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4803.7400	30.34	5.82	36.16	54.00	-17.84	AVG	
2	4803.8800	42.36	5.82	48.18	74.00	-25.82	Peak	

Test Mode :	TX 2441MHz _CH39_1Mbps

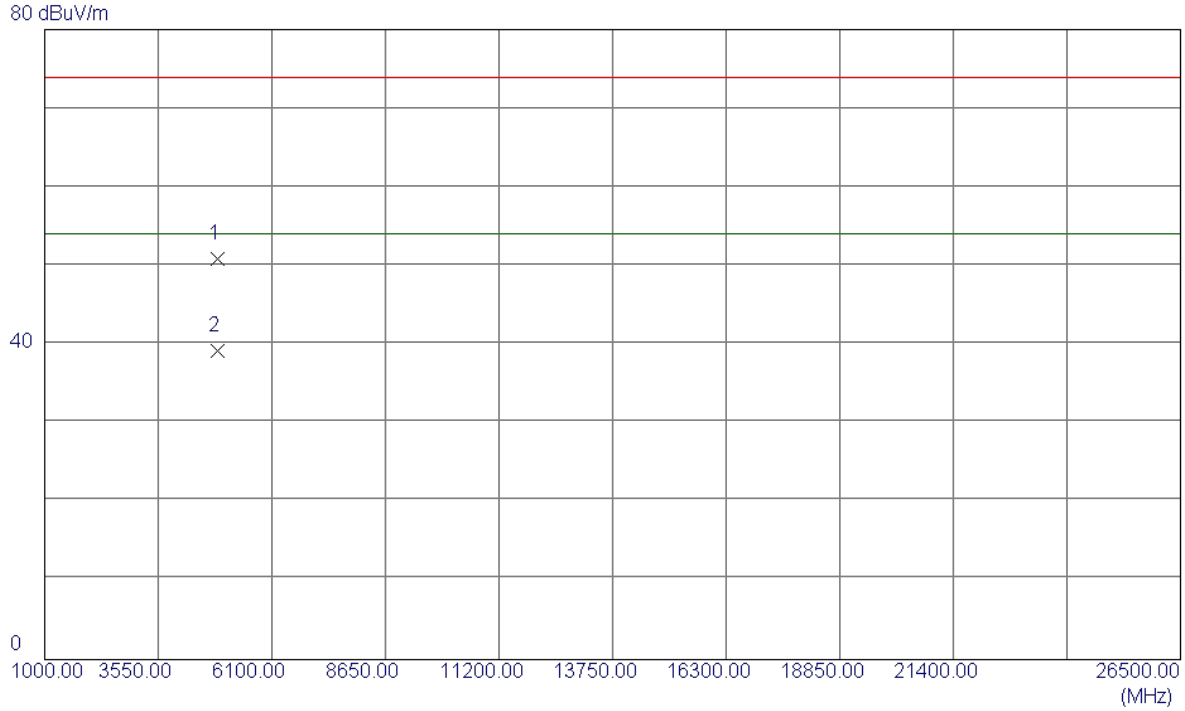
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2440.8500	75.66	32.75	108.41	74.00	34.41	Peak	No Limit
2	2440.9000	64.59	32.75	97.34	54.00	43.34	AVG	No Limit

Test Mode :	TX 2441MHz _CH39_1Mbps

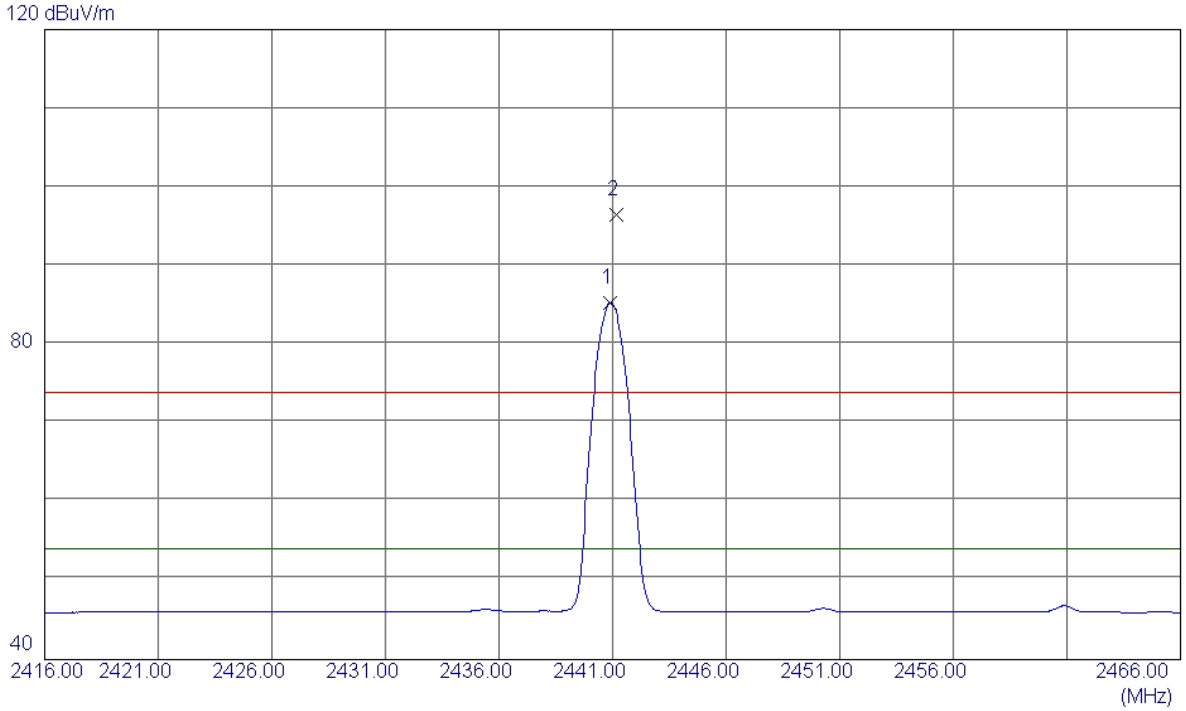
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4882.3600	44.89	6.03	50.92	74.00	-23.08	Peak	
2	4883.1200	33.24	6.03	39.27	54.00	-14.73	AVG	

Test Mode :	TX 2441MHz _CH39_1Mbps

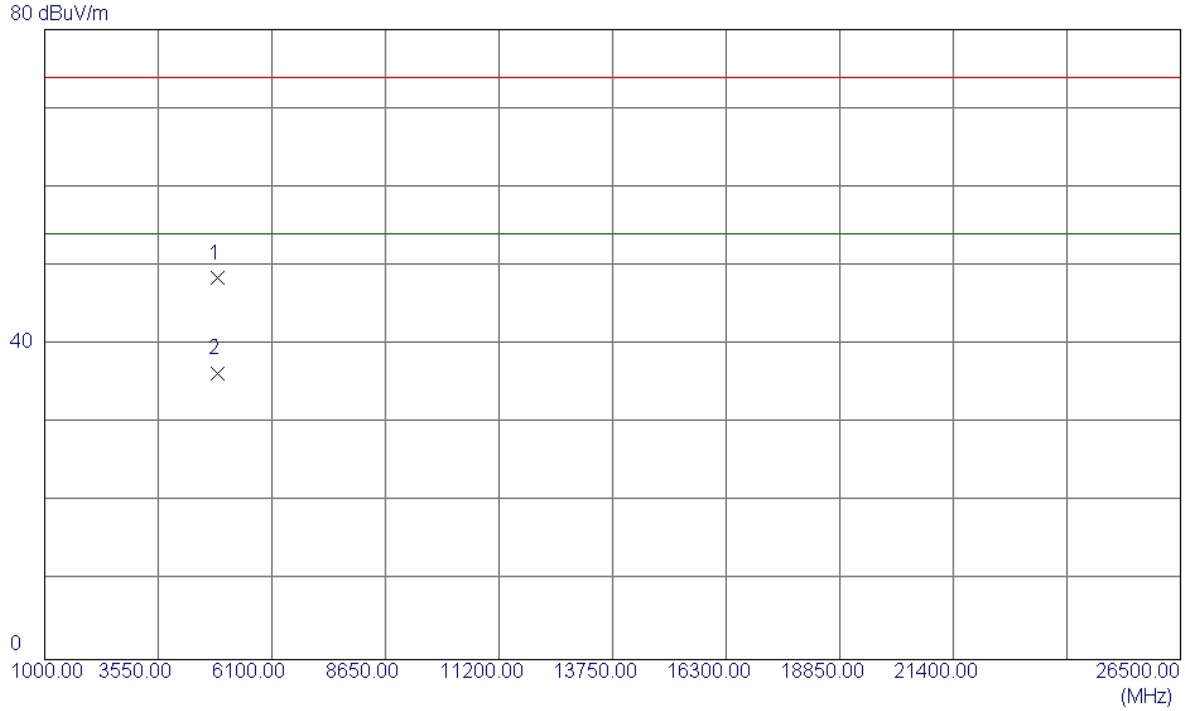
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2440.9000	52.59	32.75	85.34	54.00	31.34	AVG	No Limit
2	2441.1500	63.65	32.75	96.40	74.00	22.40	Peak	No Limit

Test Mode :	TX 2441MHz _CH39_1Mbps

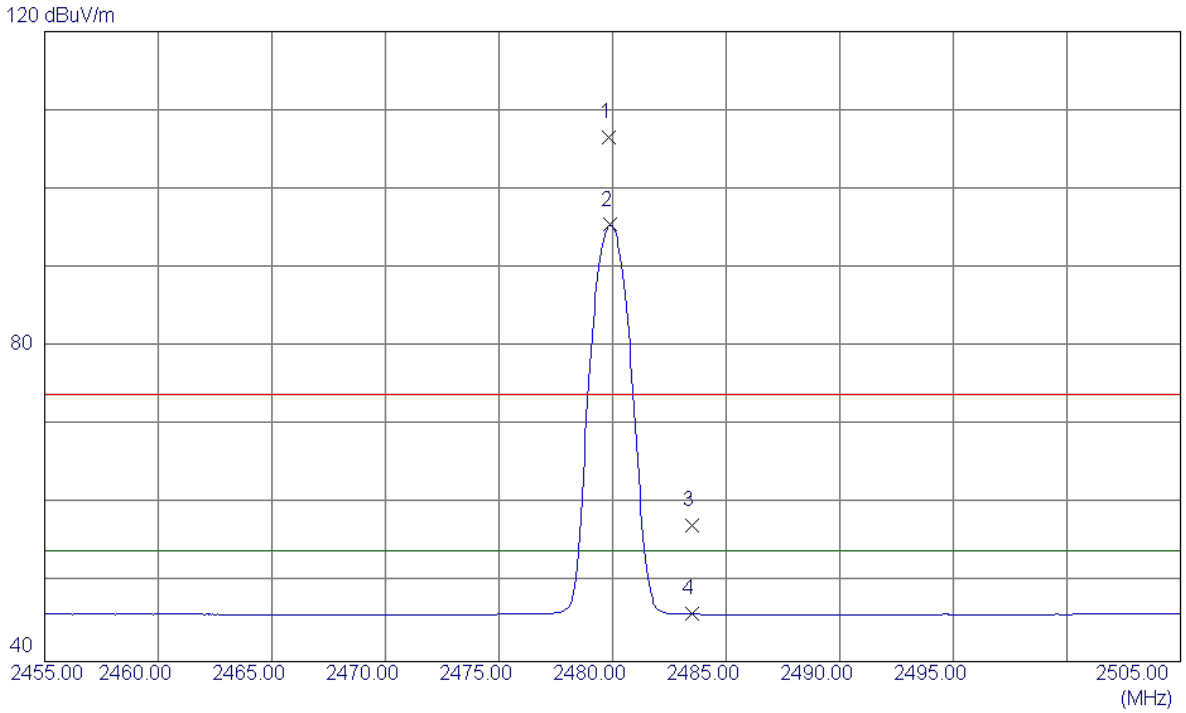
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4881.9300	42.38	6.02	48.40	74.00	-25.60	Peak	
2	4882.6800	30.25	6.03	36.28	54.00	-17.72	AVG	

Test Mode :	TX 2480MHz _CH78_1Mbps

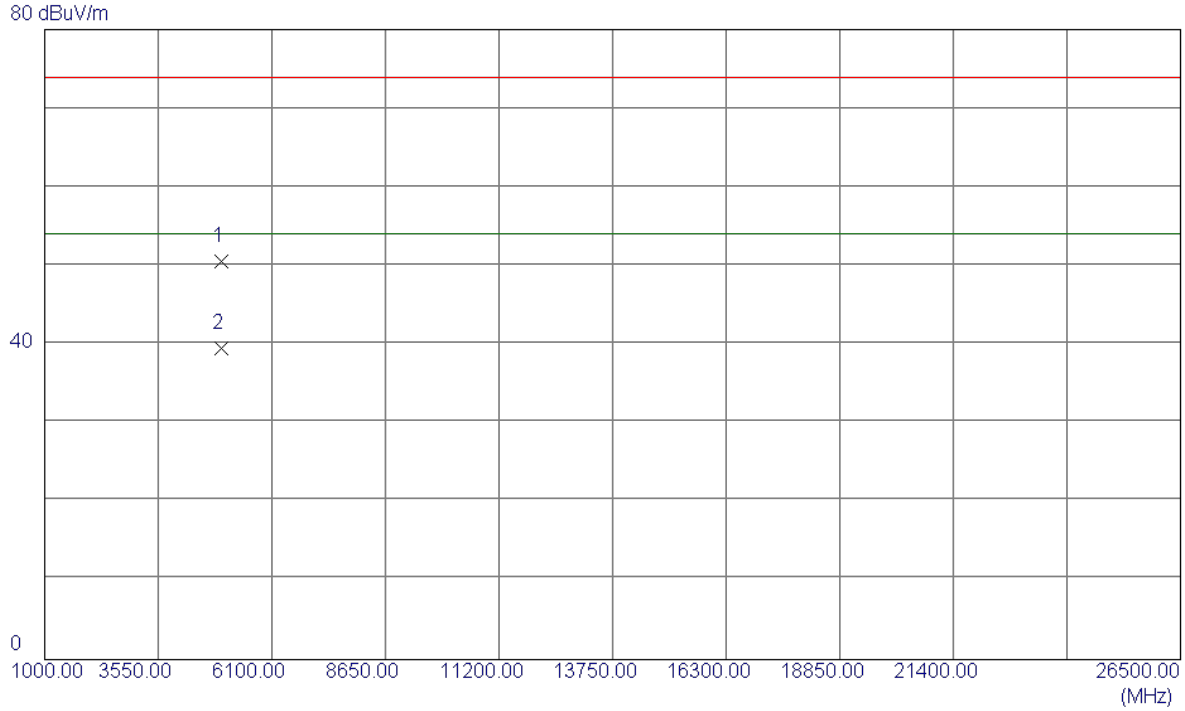
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2479.8500	73.69	32.80	106.49	74.00	32.49	Peak	No Limit
2	2479.9000	62.64	32.80	95.44	54.00	41.44	AVG	No Limit
3	2483.5000	24.44	32.81	57.25	74.00	-16.75	Peak	
4	2483.5000	13.20	32.81	46.01	54.00	-7.99	AVG	

Test Mode :	TX 2480MHz _CH78_1Mbps

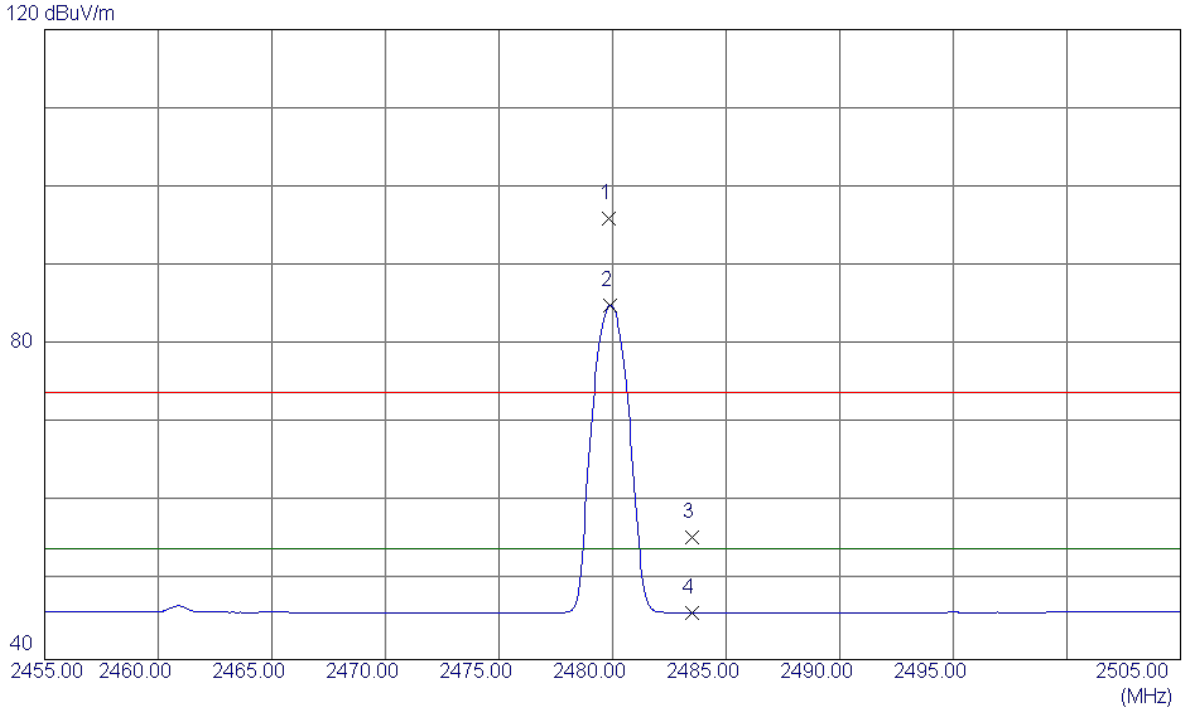
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4960.1300	44.36	6.23	50.59	74.00	-23.41	Peak	
2	4961.2799	33.25	6.24	39.49	54.00	-14.51	AVG	

Test Mode :	TX 2480MHz _CH78_1Mbps

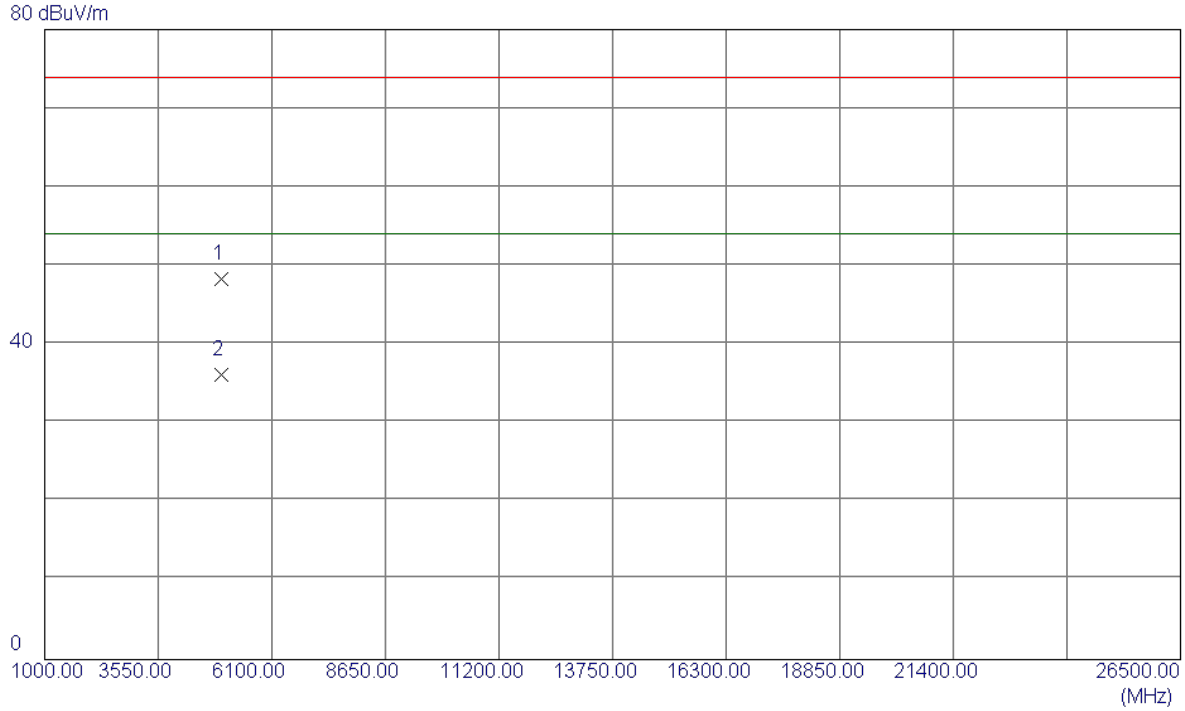
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2479.8500	63.23	32.80	96.03	74.00	22.03	Peak	No Limit
2	2479.9000	52.18	32.80	84.98	54.00	30.98	AVG	No Limit
3	2483.5000	22.67	32.81	55.48	74.00	-18.52	Peak	
4	2483.5000	13.13	32.81	45.94	54.00	-8.06	AVG	

Test Mode :	TX 2480MHz _CH78_1Mbps

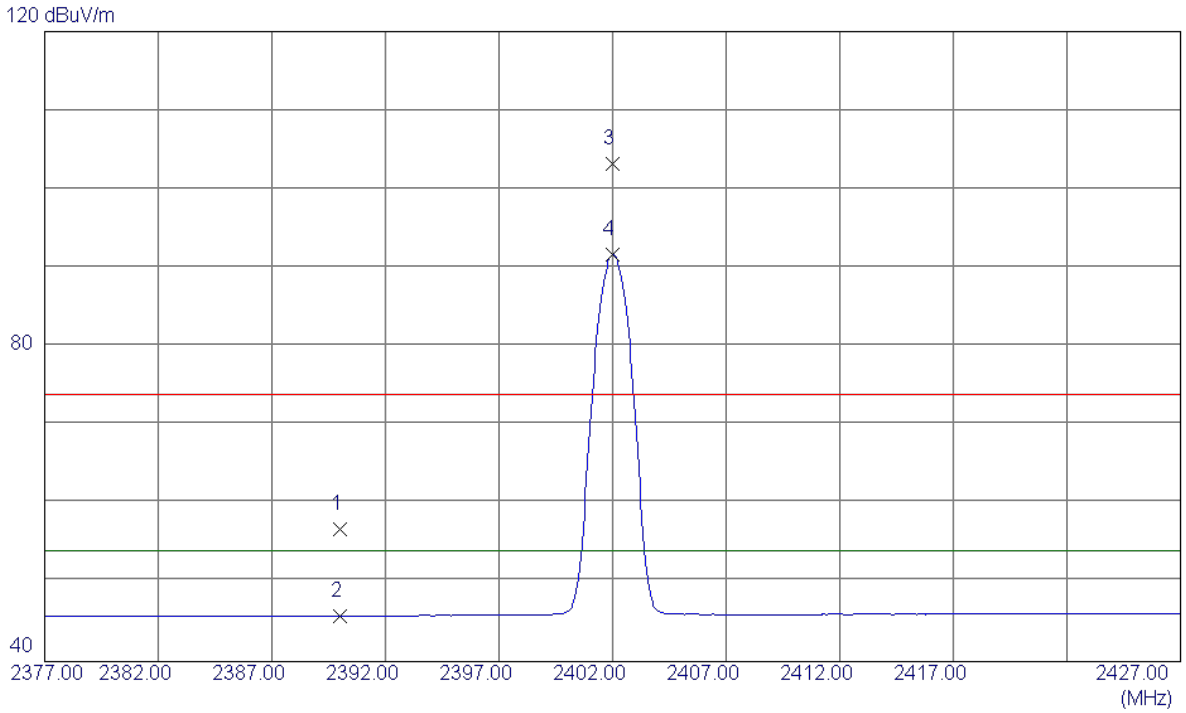
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4959.0400	42.07	6.23	48.30	74.00	-25.70	Peak	
2	4961.3700	29.94	6.24	36.18	54.00	-17.82	AVG	

Test Mode :	TX 2402MHz _CH00_3Mbps

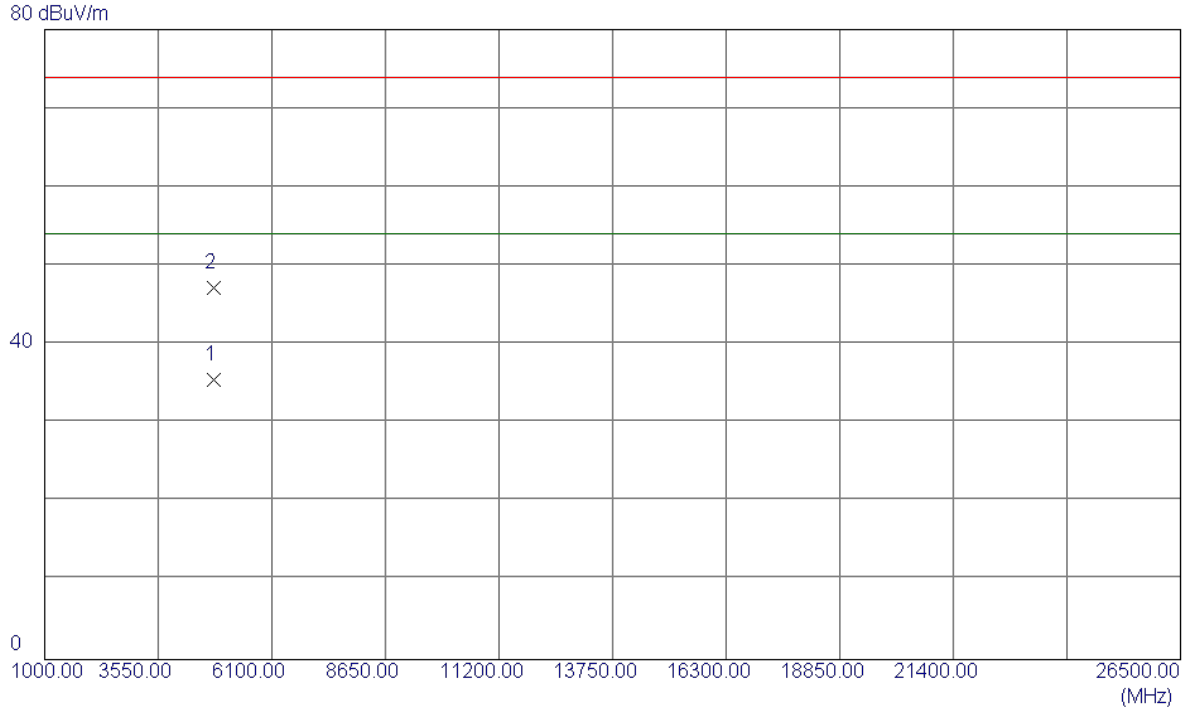
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	24.11	32.68	56.79	74.00	-17.21	Peak	
2	2390.0000	13.12	32.68	45.80	54.00	-8.20	AVG	
3	2402.0000	70.50	32.69	103.19	74.00	29.19	Peak	No Limit
4	2402.0000	58.94	32.69	91.63	54.00	37.63	AVG	No Limit

Test Mode :	TX 2402MHz _CH00_3Mbps

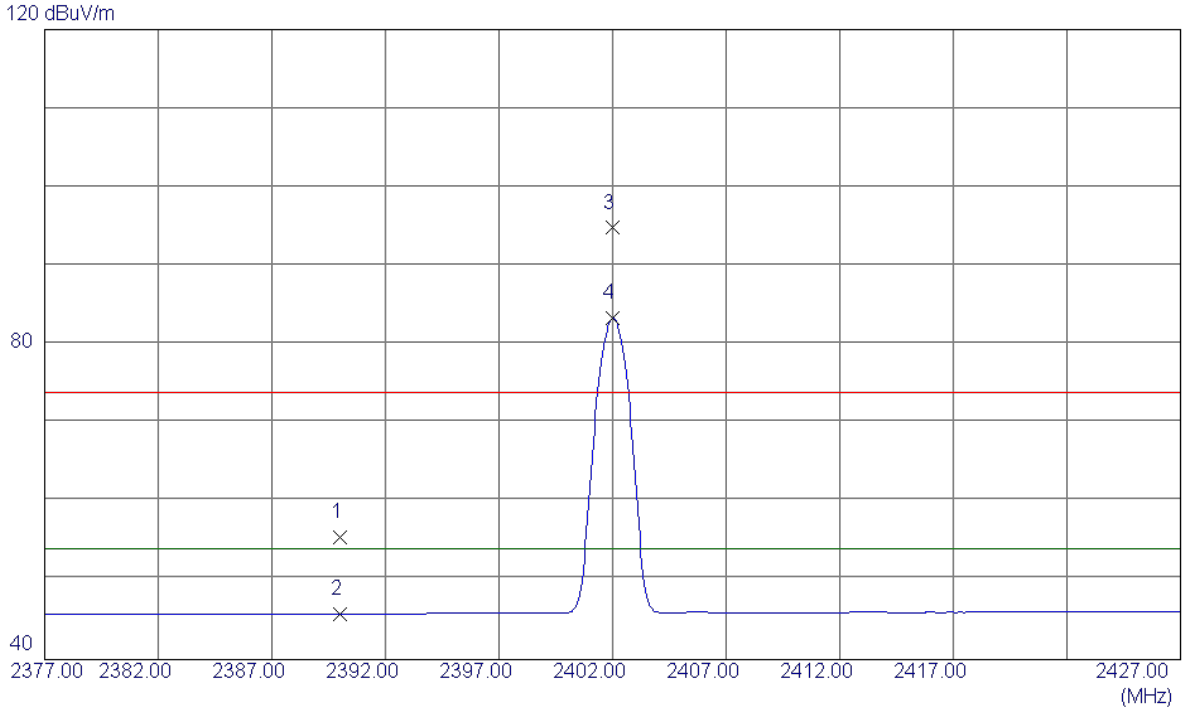
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4803.7599	29.75	5.82	35.57	54.00	-18.43	AVG	
2	4804.2700	41.42	5.82	47.24	74.00	-26.76	Peak	

Test Mode :	TX 2402MHz _CH00_3Mbps

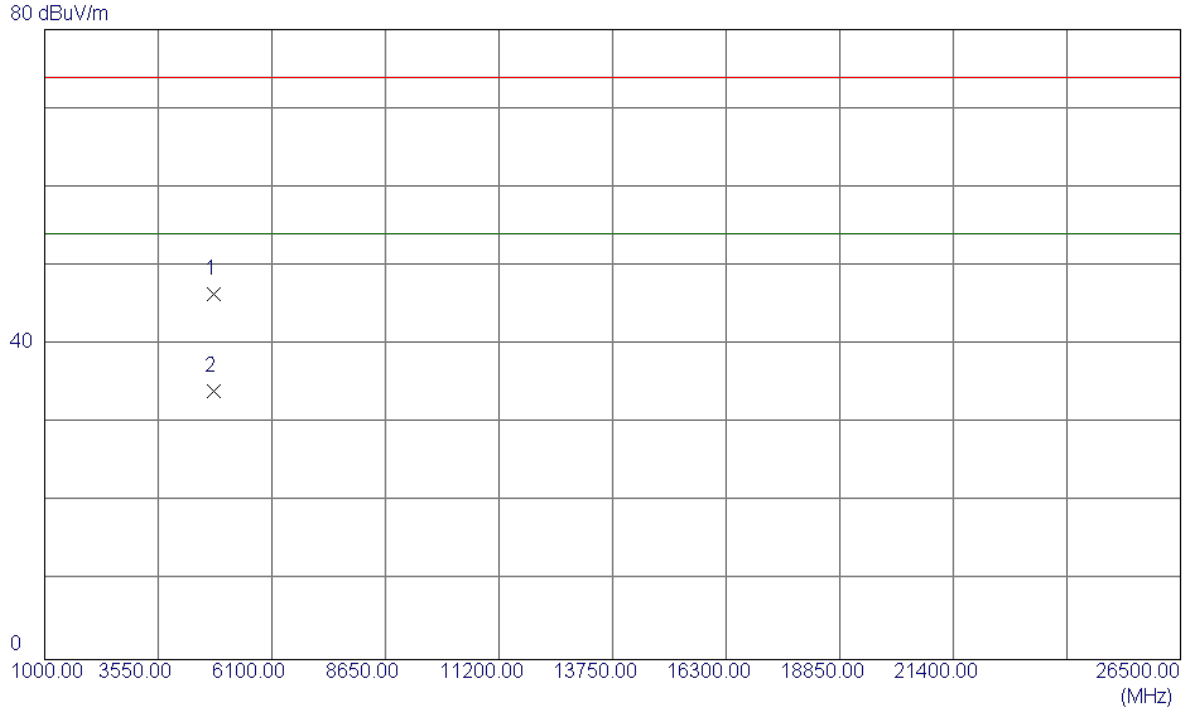
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	22.87	32.68	55.55	74.00	-18.45	Peak	
2	2390.0000	13.11	32.68	45.79	54.00	-8.21	AVG	
3	2402.0000	62.11	32.69	94.80	74.00	20.80	Peak	No Limit
4	2402.0000	50.61	32.69	83.30	54.00	29.30	AVG	No Limit

Test Mode :	TX 2402MHz _CH00_3Mbps

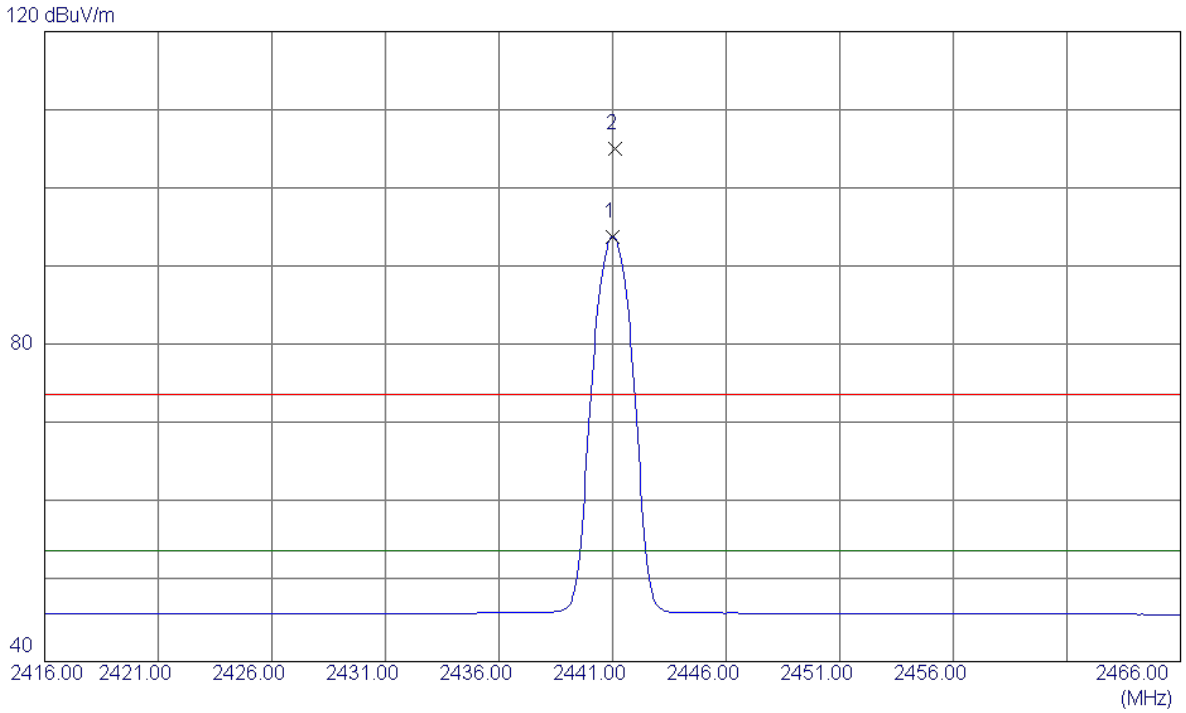
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4803.4700	40.61	5.82	46.43	74.00	-27.57	Peak	
2	4804.2400	28.32	5.82	34.14	54.00	-19.86	AVG	

Test Mode :	TX 2441MHz _CH39_3Mbps

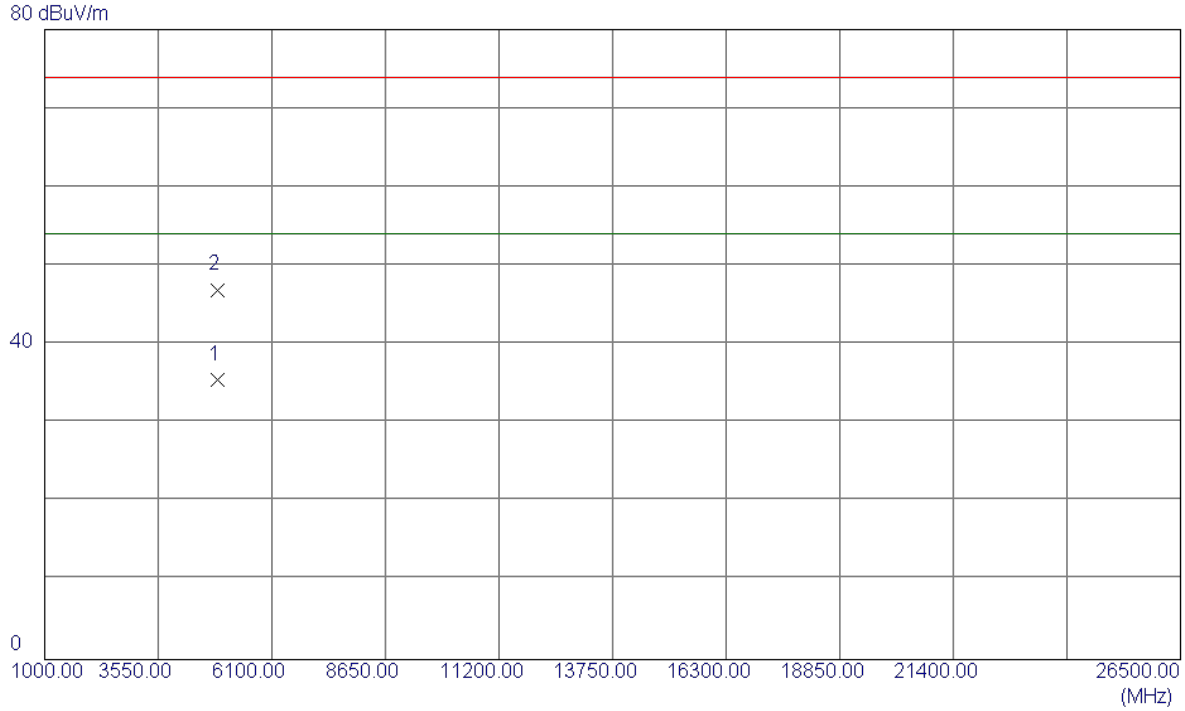
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2441.0000	61.15	32.75	93.90	54.00	39.90	AVG	No Limit
2	2441.1000	72.42	32.75	105.17	74.00	31.17	Peak	No Limit

Test Mode :	TX 2441MHz _CH39_3Mbps

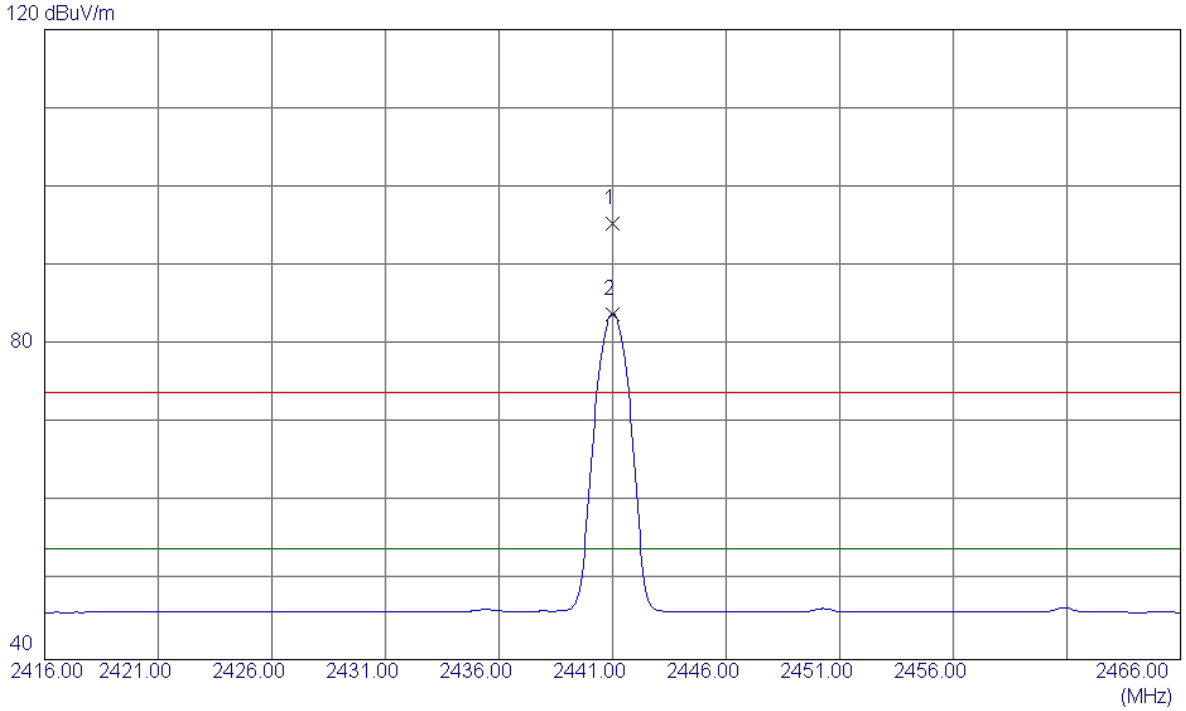
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4881.7700	29.44	6.02	35.46	54.00	-18.54	AVG	
2	4882.1300	40.93	6.03	46.96	74.00	-27.04	Peak	

Test Mode :	TX 2441MHz _CH39_3Mbps

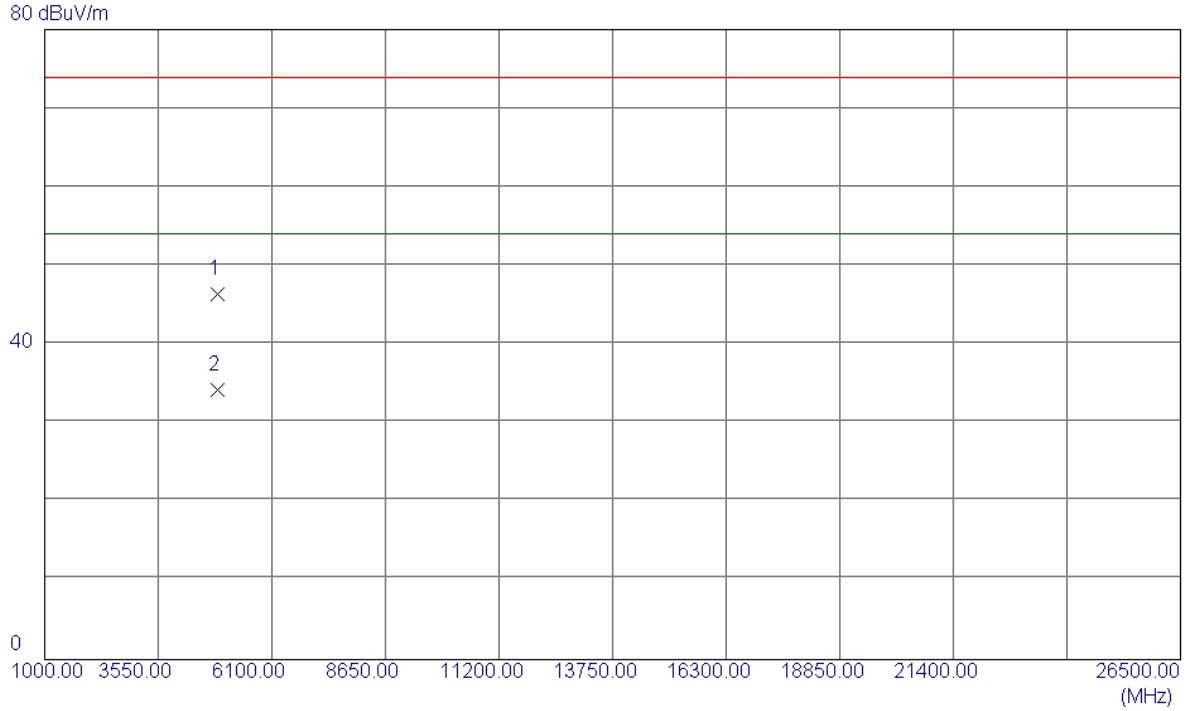
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2441.0000	62.62	32.75	95.37	74.00	21.37	Peak	No Limit
2	2441.0000	51.16	32.75	83.91	54.00	29.91	AVG	No Limit

Test Mode :	TX 2441MHz _CH39_3Mbps

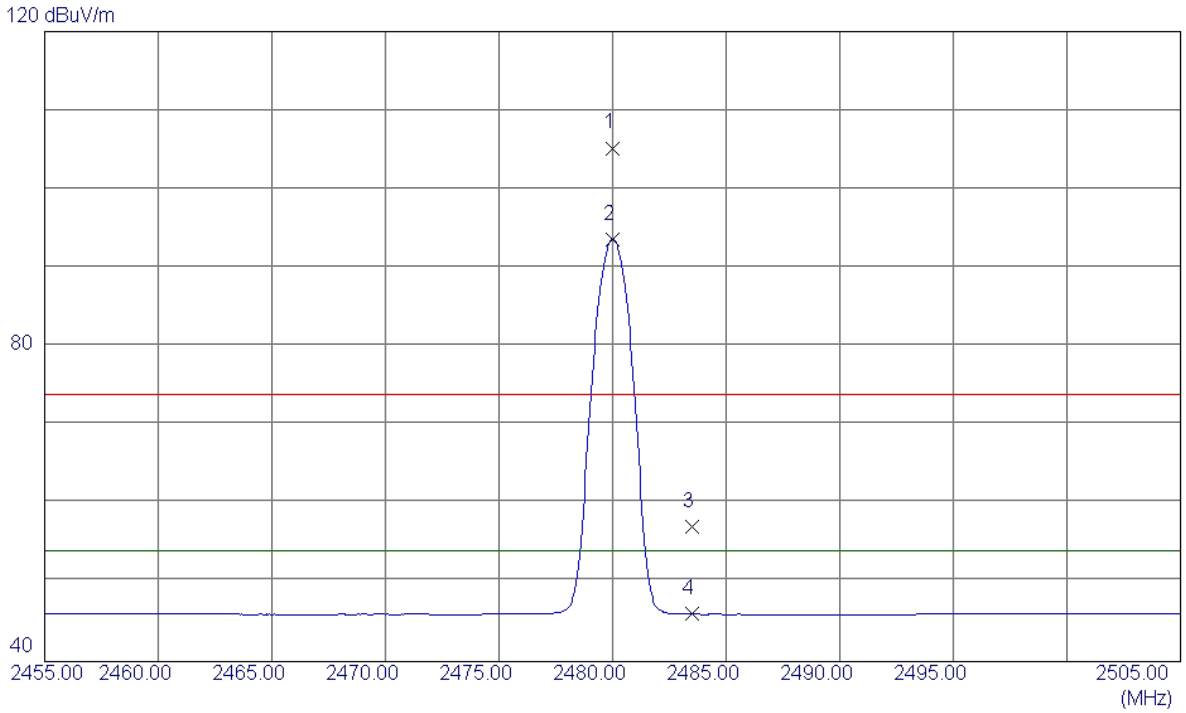
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4883.7300	40.37	6.03	46.40	74.00	-27.60	Peak	
2	4884.6300	28.27	6.03	34.30	54.00	-19.70	AVG	

Test Mode :	TX 2480MHz _CH78_3Mbps

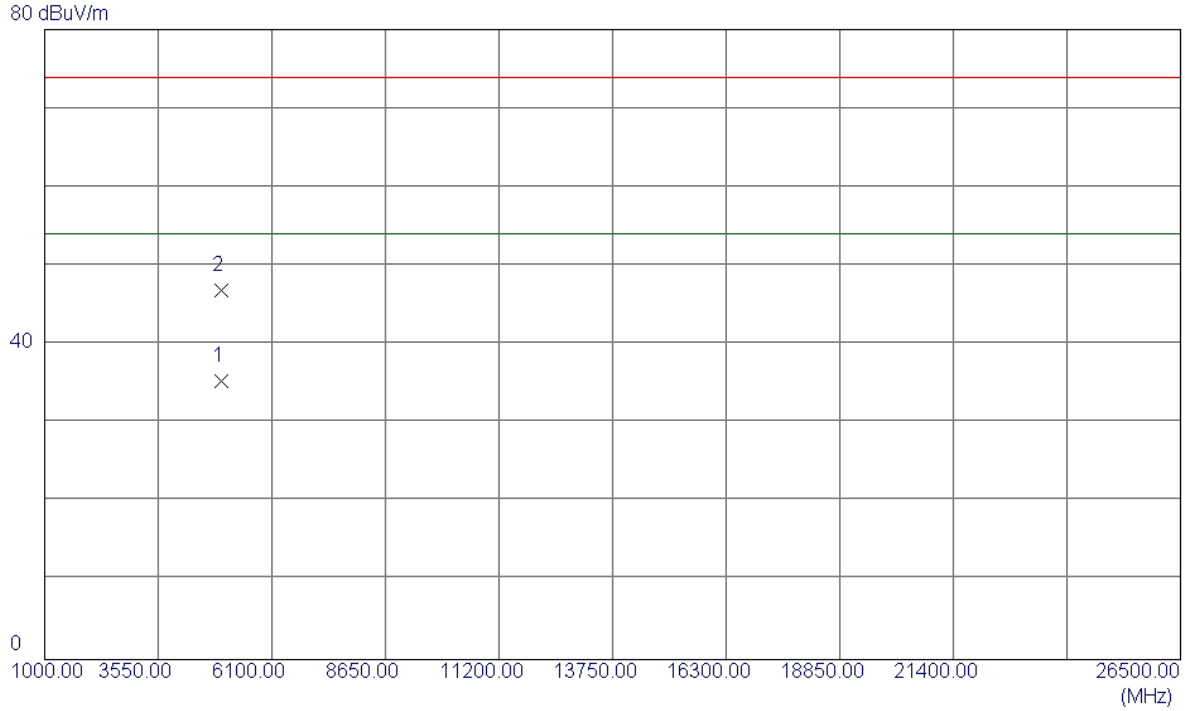
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2480.0000	72.40	32.80	105.20	74.00	31.20	Peak	No Limit
2	2480.0000	60.81	32.80	93.61	54.00	39.61	AVG	No Limit
3	2483.5000	24.36	32.81	57.17	74.00	-16.83	Peak	
4	2483.5000	13.22	32.81	46.03	54.00	-7.97	AVG	

Test Mode :	TX 2480MHz _CH78_3Mbps

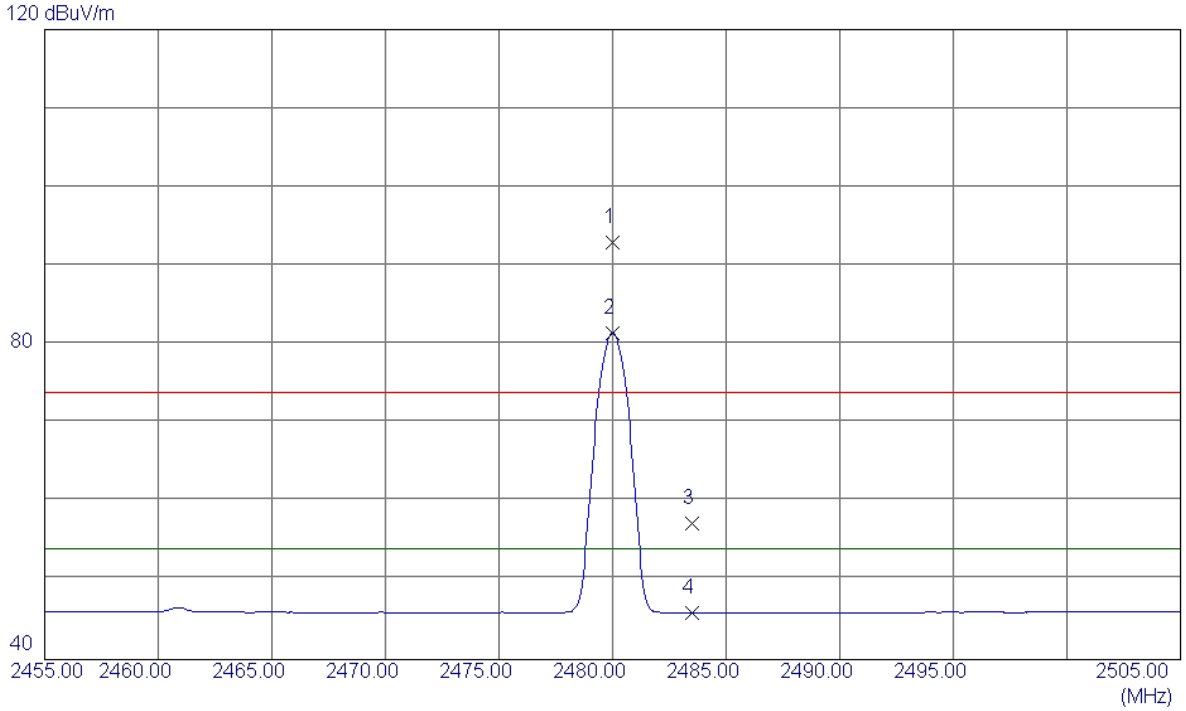
Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4959.9800	29.10	6.23	35.33	54.00	-18.67	AVG	
2	4960.0200	40.69	6.23	46.92	74.00	-27.08	Peak	

Test Mode :	TX 2480MHz _CH78_3Mbps

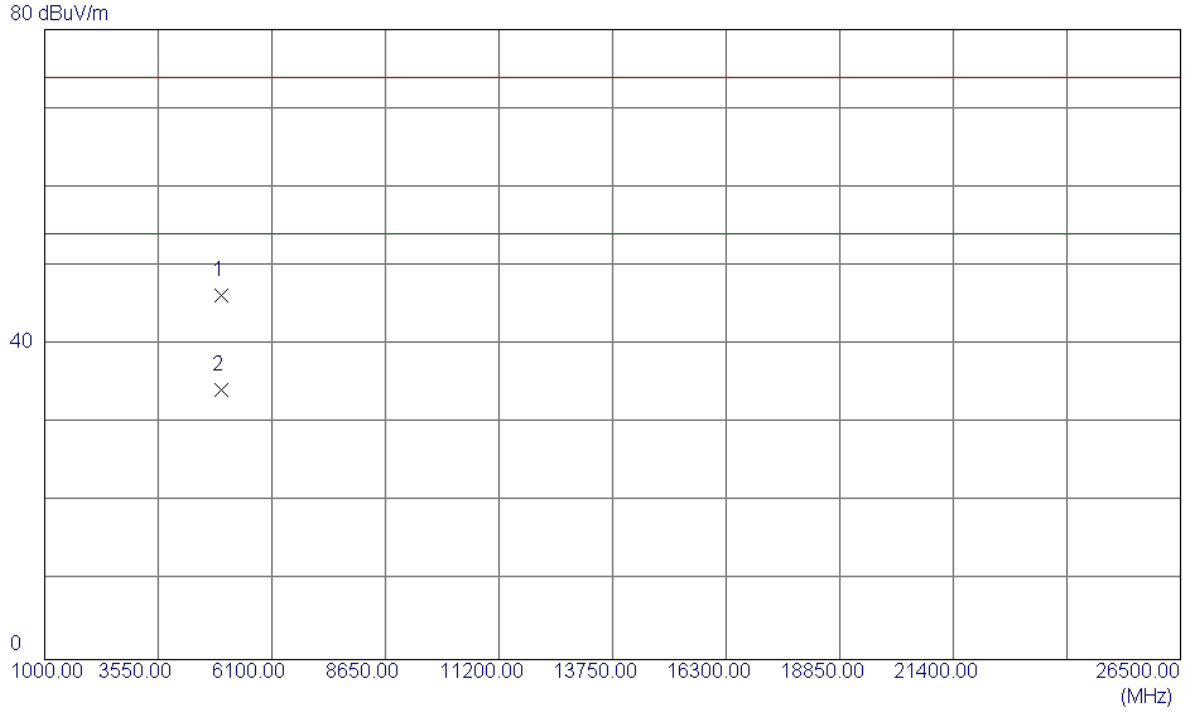
Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2480.0000	60.16	32.80	92.96	74.00	18.96	Peak	No Limit
2	2480.0000	48.60	32.80	81.40	54.00	27.40	AVG	No Limit
3	2483.5000	24.44	32.81	57.25	74.00	-16.75	Peak	
4	2483.5000	13.14	32.81	45.95	54.00	-8.05	AVG	

Test Mode :	TX 2480MHz _CH78_3Mbps

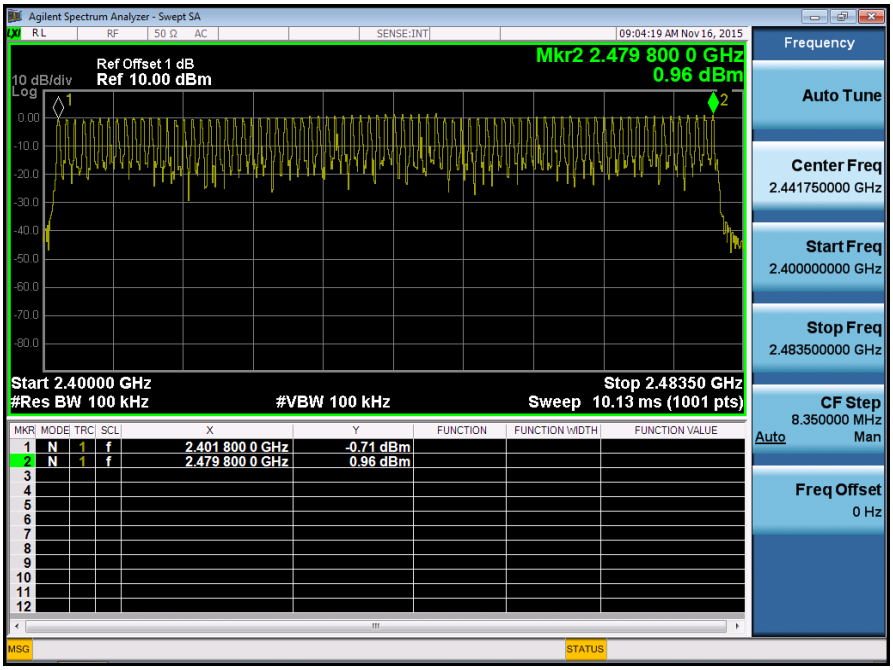
Horizontal



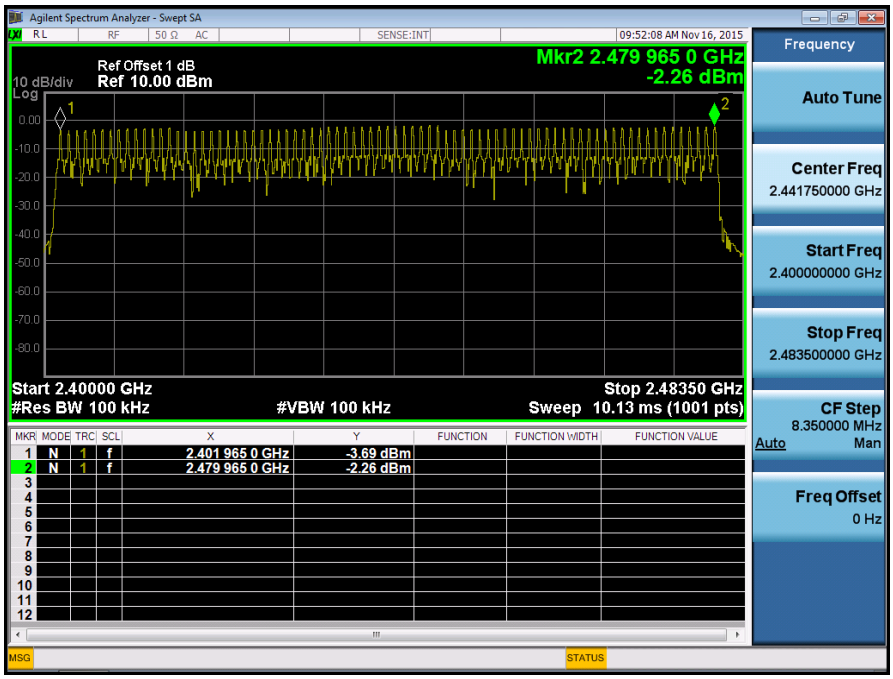
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4959.9000	39.97	6.23	46.20	74.00	-27.80	Peak	
2	4959.9600	28.07	6.23	34.30	54.00	-19.70	AVG	

ATTACHMENT E - NUMBER OF HOPPING CHANNEL

Test Mode	Hopping Mode_1Mbps
Number of Hopping Channel	79



Test Mode	Hopping Mode_3Mbps
Number of Hopping Channel	79

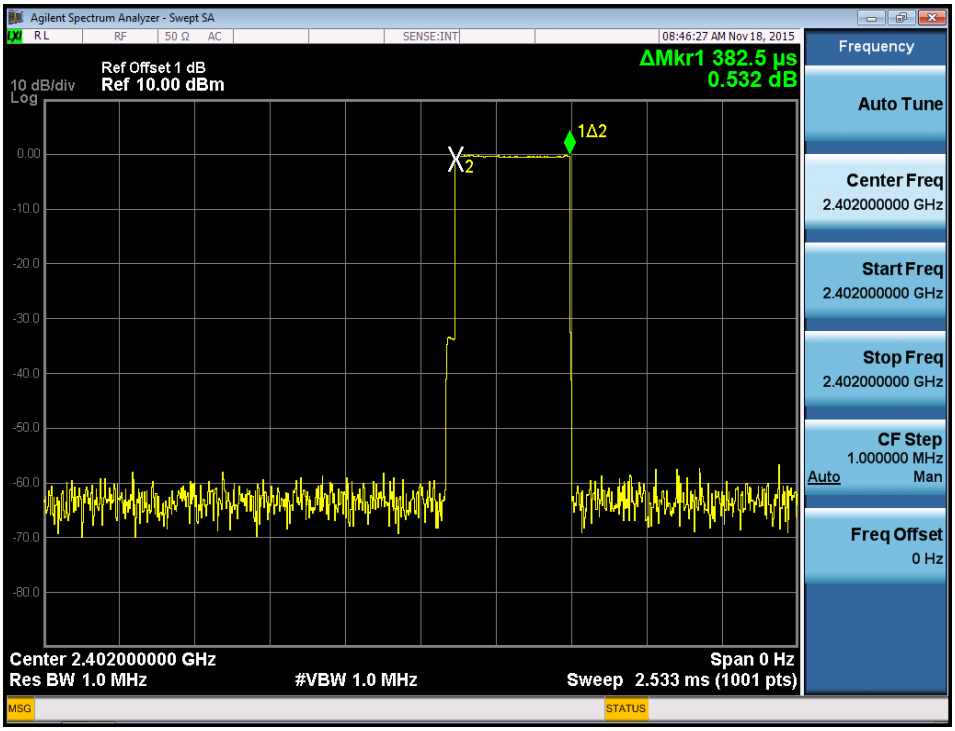


ATTACHMENT F - AVERAGE TIME OF OCCUPANCY

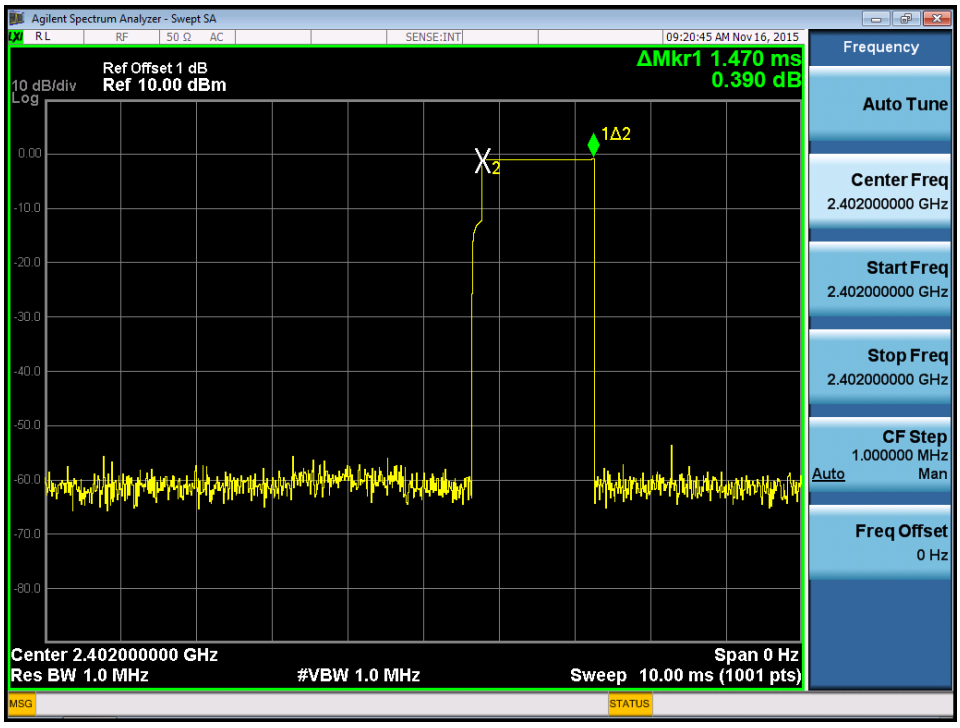
Test Mode :	TX Mode_1Mbps

Data Packet	Frequency (MHz)	Pulse Duration (ms)	Dwell Time (s)	Limits (s)	Test Result
DH5	2402	2.7200	0.2901	0.4000	Pass
DH3	2402	1.4700	0.1568	0.4000	Pass
DH1	2402	0.3825	0.0408	0.4000	Pass
DH5	2441	2.7200	0.2901	0.4000	Pass
DH3	2441	1.4700	0.1568	0.4000	Pass
DH1	2441	0.3825	0.0408	0.4000	Pass
DH5	2480	2.7200	0.2901	0.4000	Pass
DH3	2480	1.4700	0.1568	0.4000	Pass
DH1	2480	0.3800	0.0405	0.4000	Pass

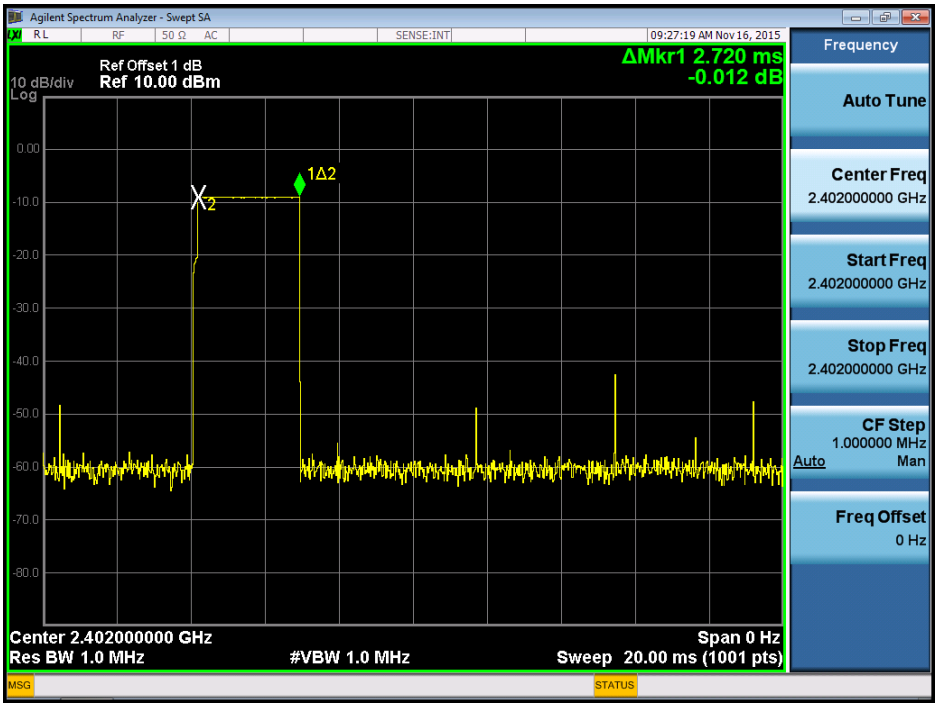
CH00-DH1



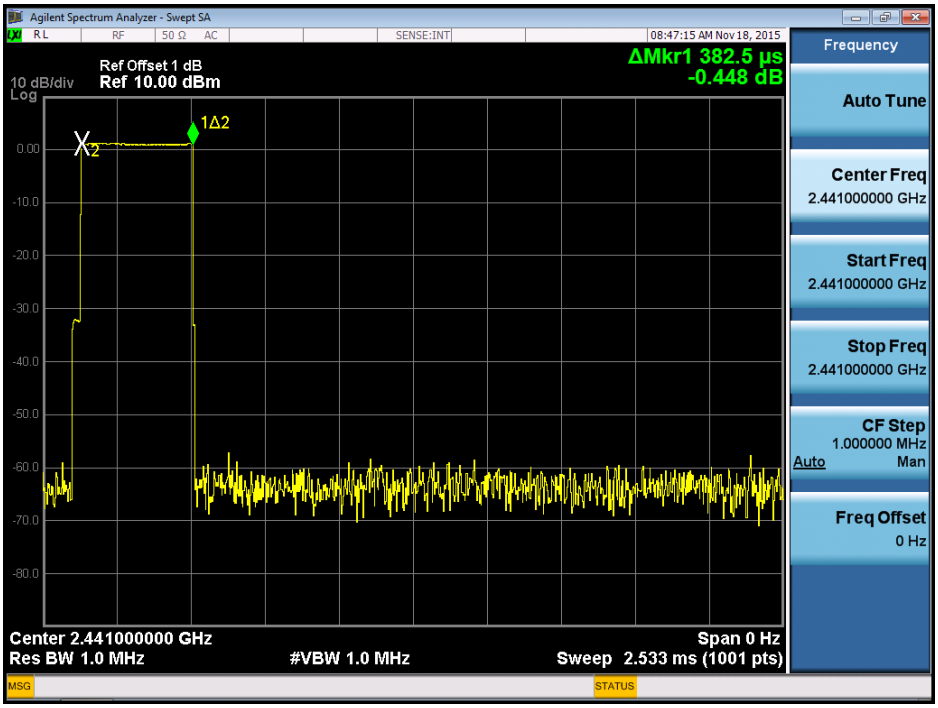
CH00-DH3



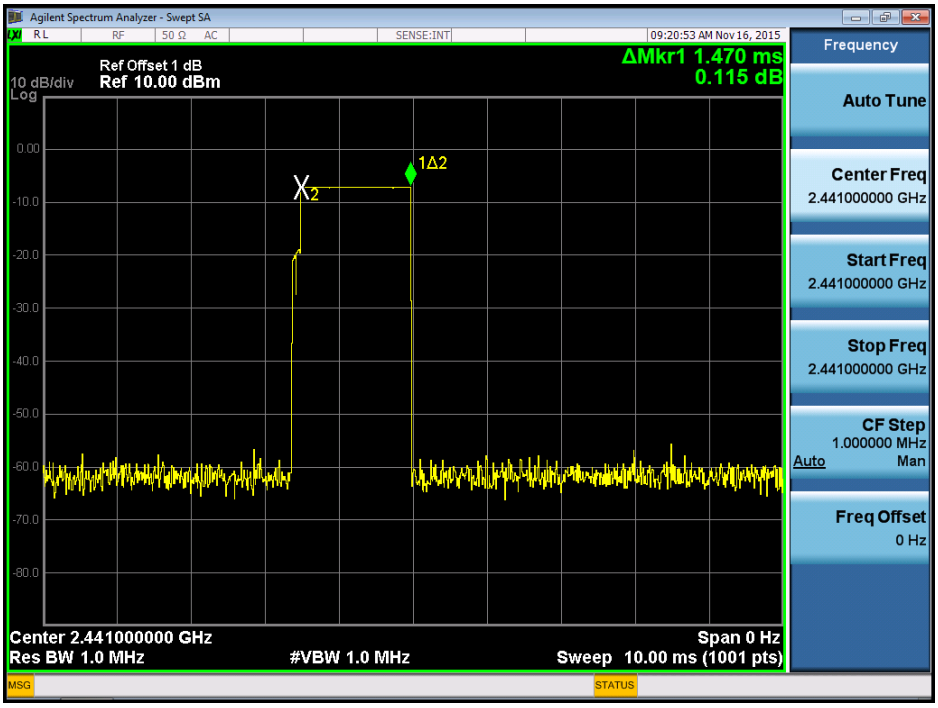
CH00-DH5



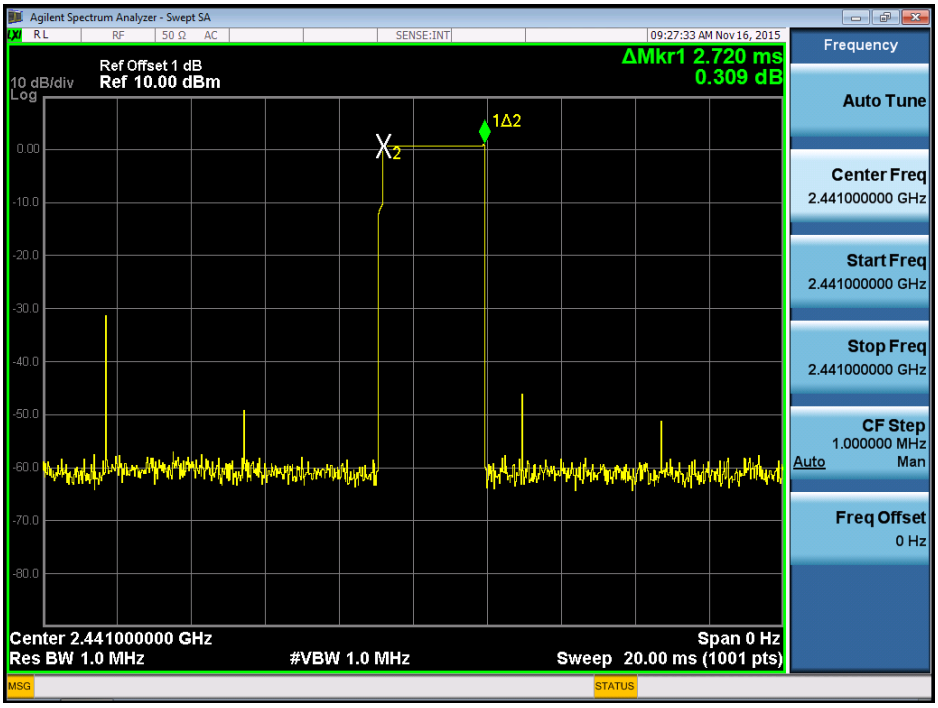
CH39-DH1



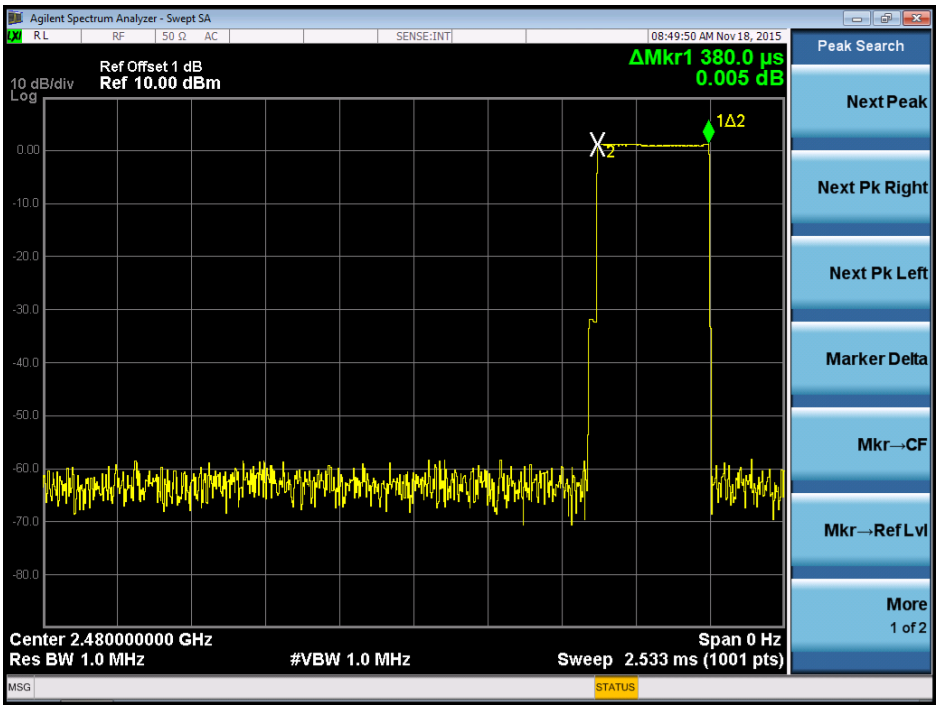
CH39-DH3



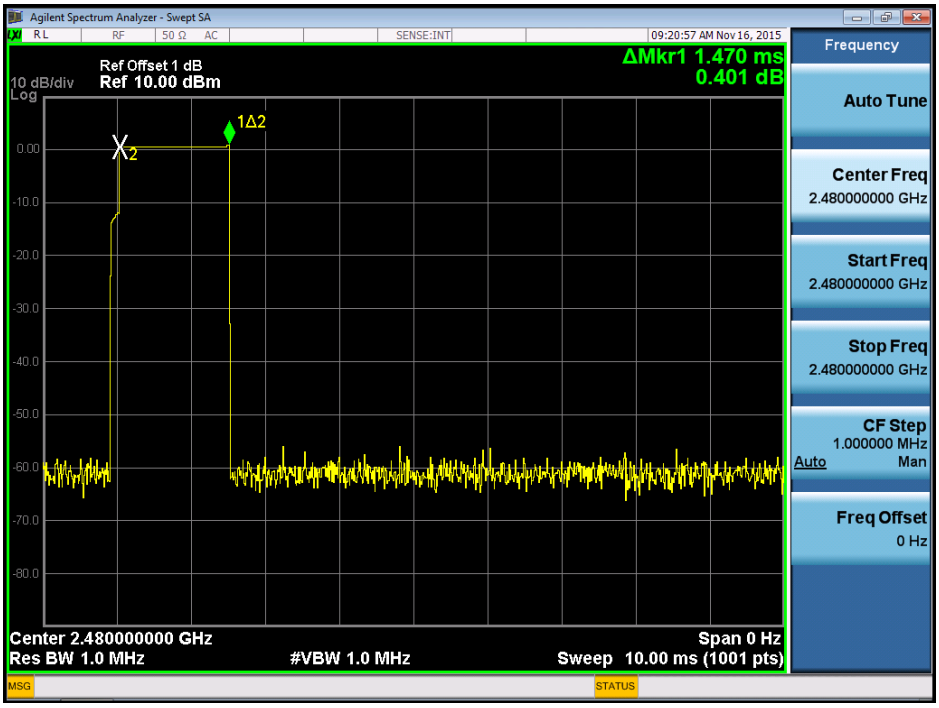
CH39-DH5



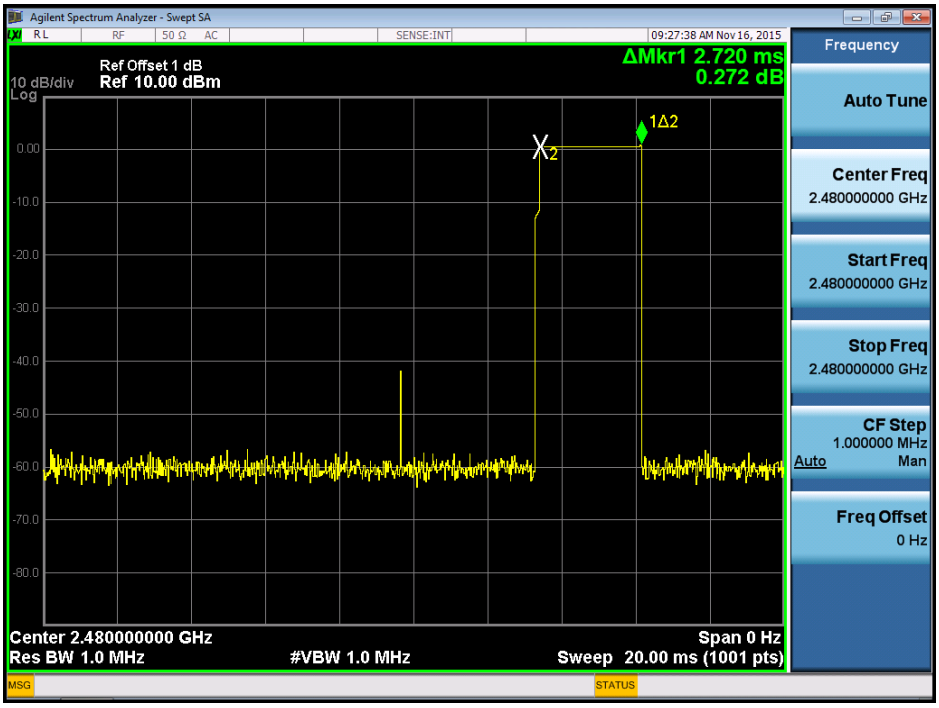
CH78-DH1



CH78-DH3



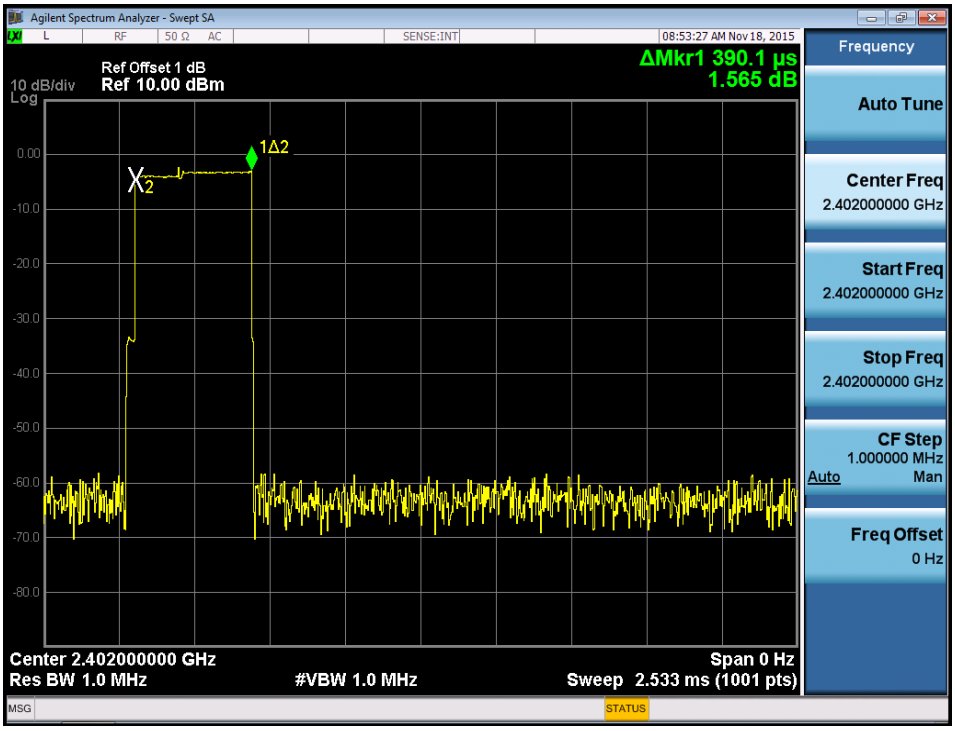
CH78-DH5


Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
09:27:38 AM Nov 16, 2015
Ref Offset 1 dB
10 dB/div Ref 10.00 dBm
Log
ΔMkr1 2.720 ms
0.272 dB
1Δ2
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 2.480000000 GHz
Res BW 1.0 MHz
#VBW 1.0 MHz
Span 0 Hz
Sweep 20.00 ms (1001 pts)
MSG
STATUS
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.480000000 GHz
Stop Freq
2.480000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz

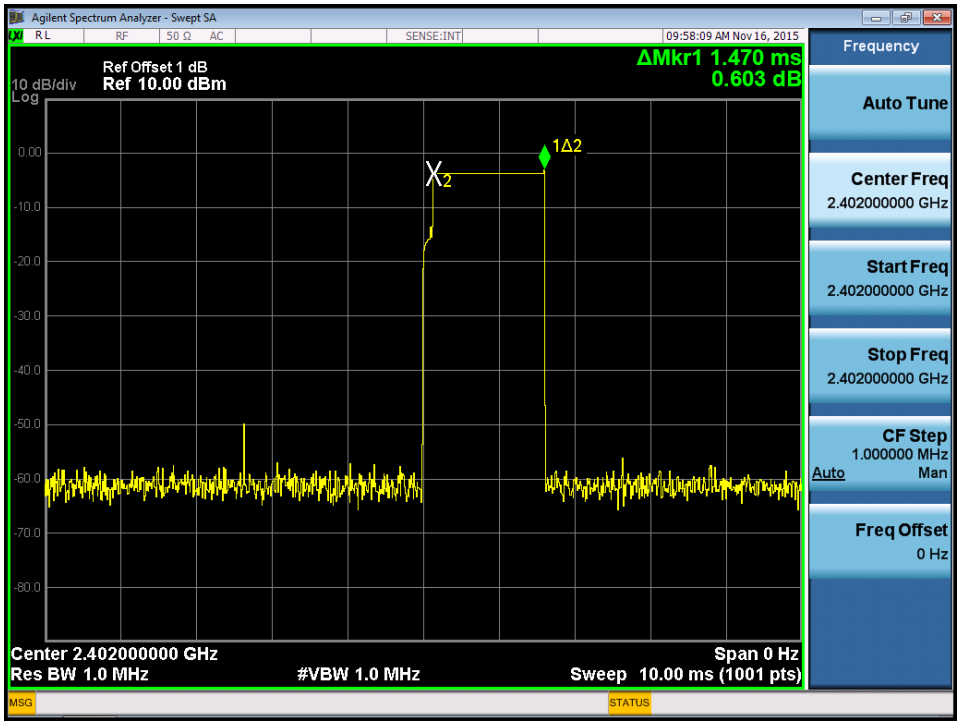
Test Mode :	TX Mode_3Mbps

Data Packet	Frequency	Pulse Duration(ms)	Dwell Time(s)	Limits(s)	Test Result
DH5	2402	2.7200	0.2901	0.4000	Pass
DH3	2402	1.4700	0.1568	0.4000	Pass
DH1	2402	0.3901	0.0416	0.4000	Pass
DH5	2441	2.7200	0.2901	0.4000	Pass
DH3	2441	1.4700	0.1568	0.4000	Pass
DH1	2441	0.3876	0.0413	0.4000	Pass
DH5	2480	2.7200	0.2901	0.4000	Pass
DH3	2480	1.4800	0.1579	0.4000	Pass
DH1	2480	0.3901	0.0416	0.4000	Pass

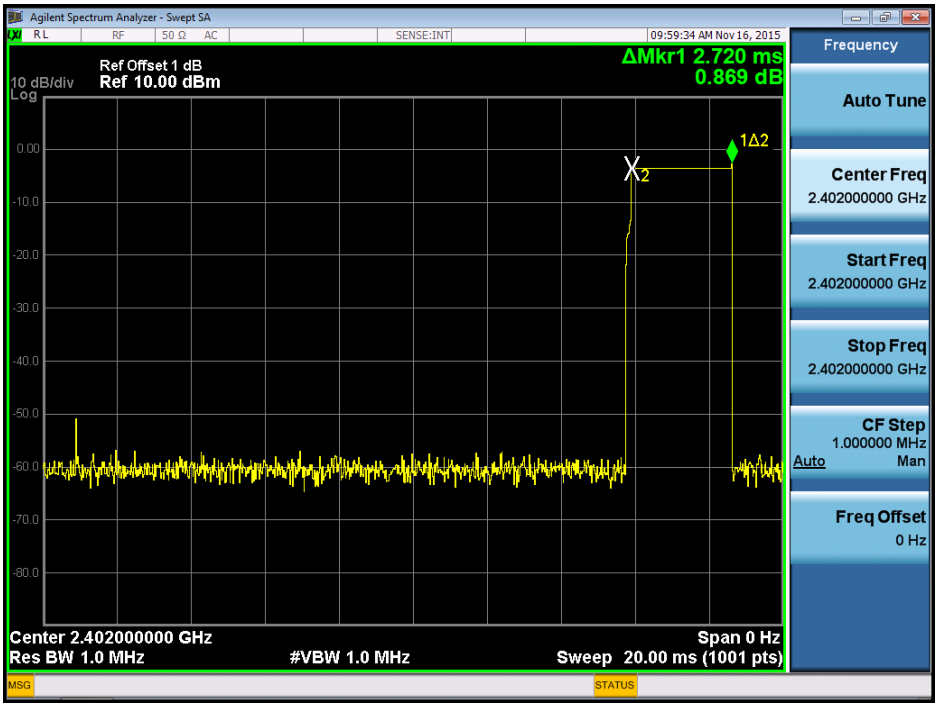
CH00-DH1



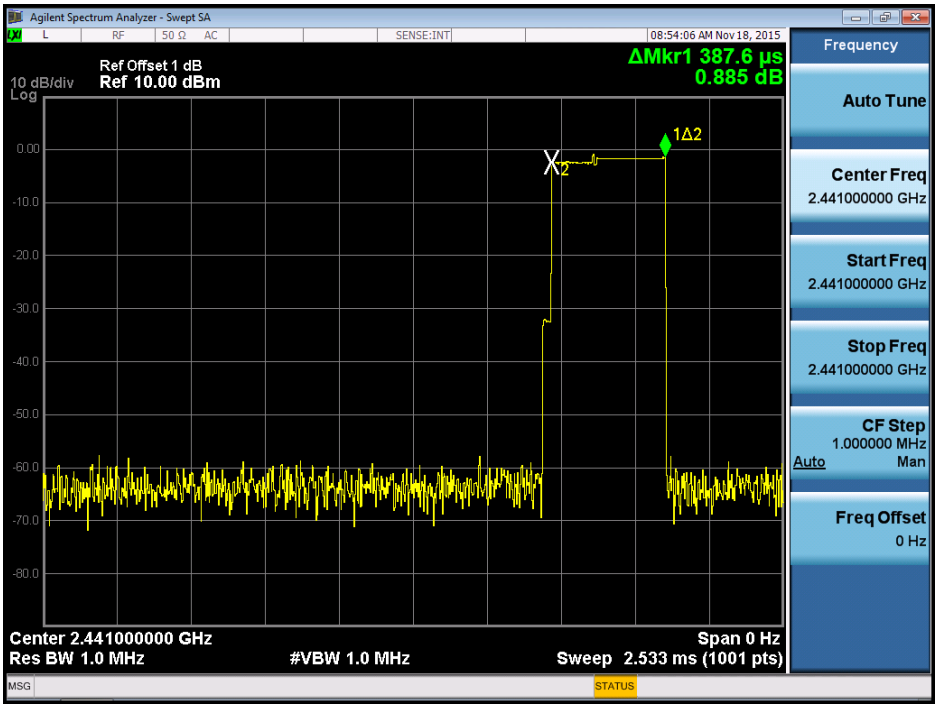
CH00-DH3



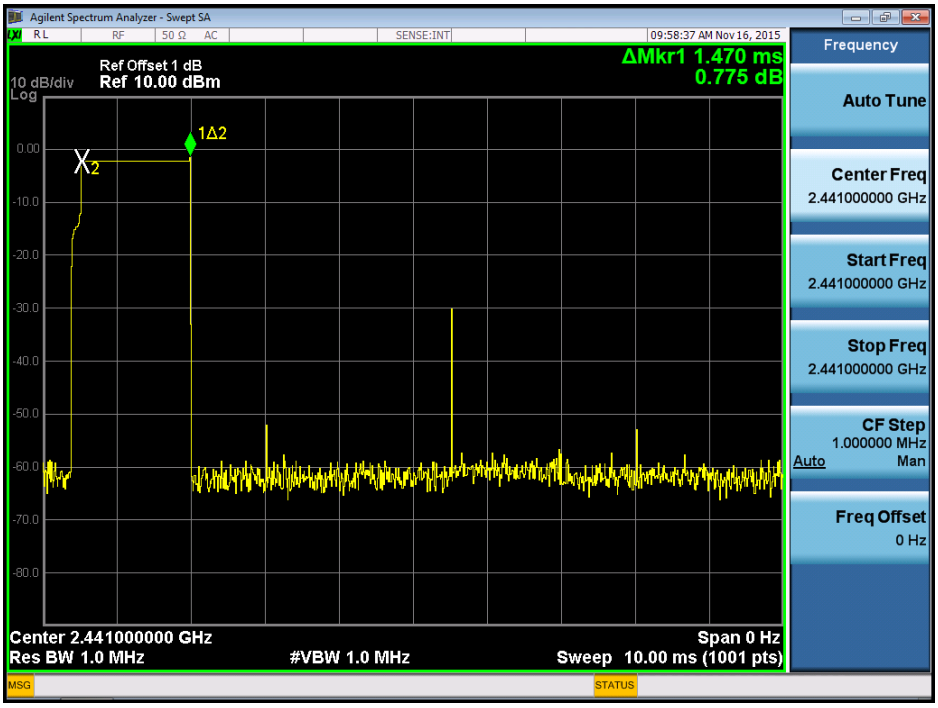
CH00-DH5



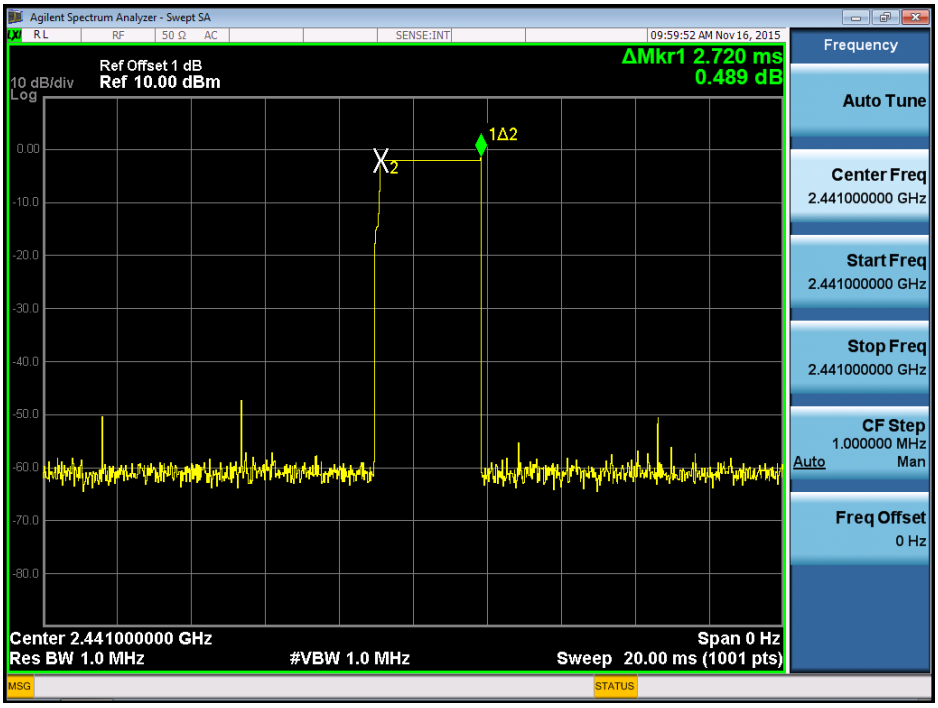
CH39-DH1



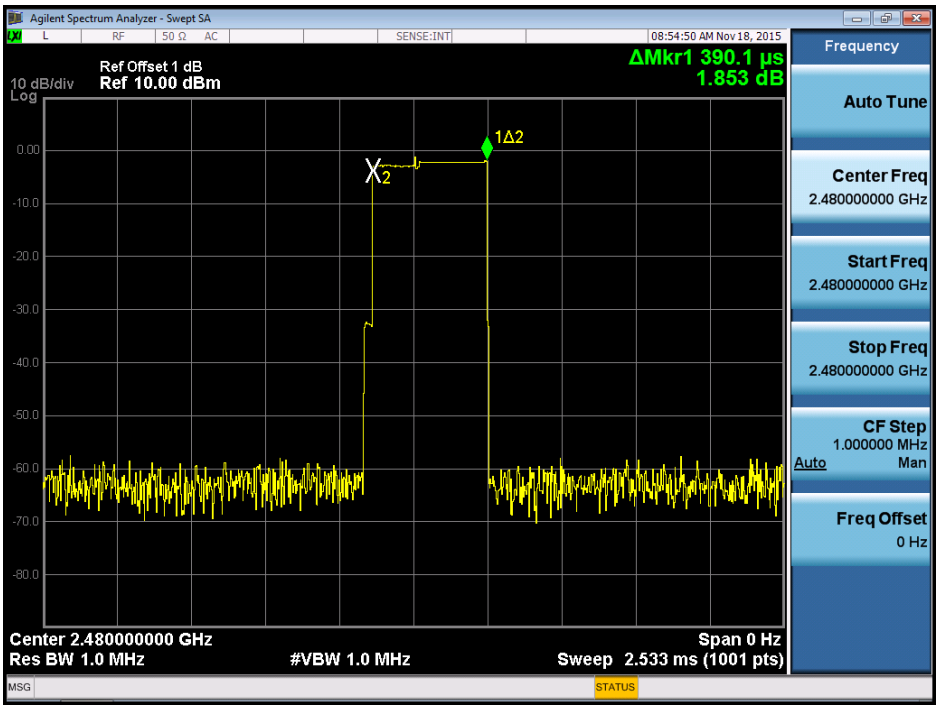
CH39-DH3



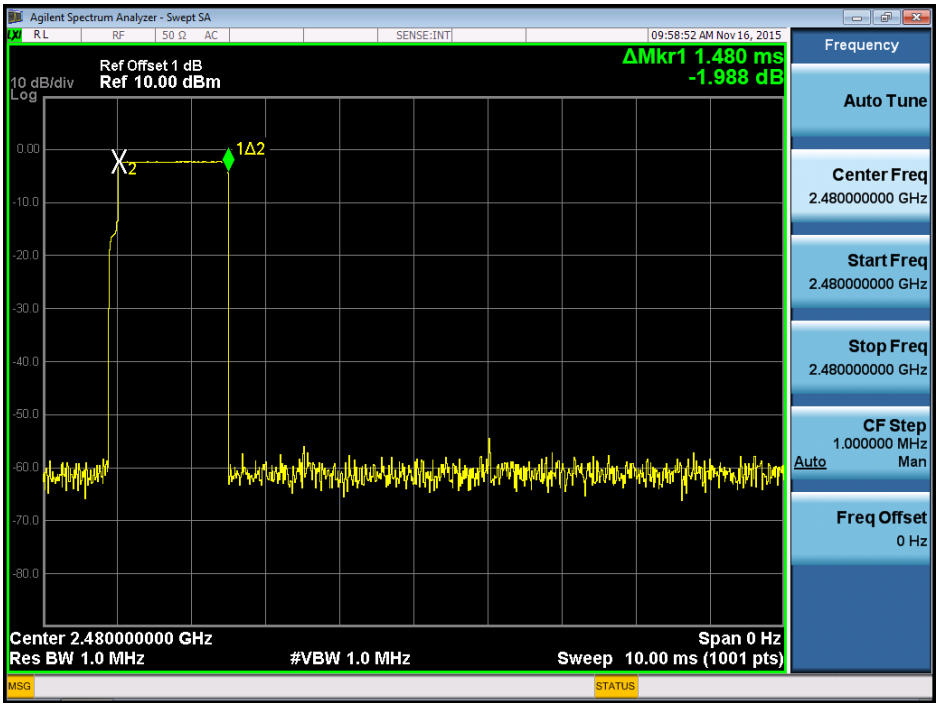
CH39-DH5



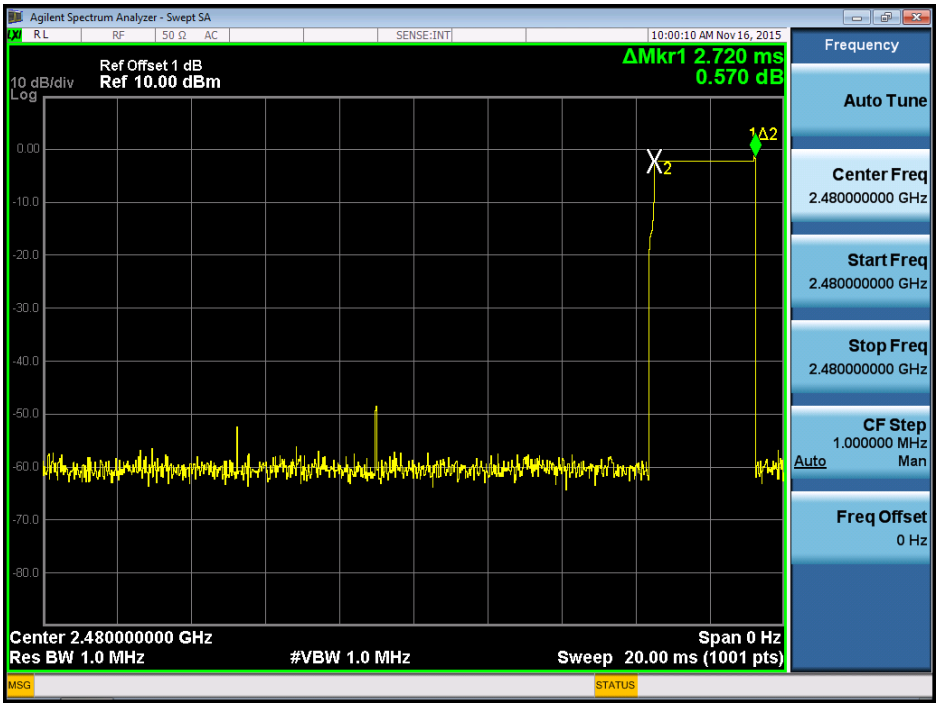
CH78-DH1



CH78-DH3



CH78-DH5


Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
10:00:10 AM Nov 16, 2015
Ref Offset 1 dB
10 dB/div Ref 10.00 dBm
Log
ΔMkr1 2.720 ms
0.570 dB
1Δ2
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 2.480000000 GHz
Res BW 1.0 MHz
#VBW 1.0 MHz
Span 0 Hz
Sweep 20.00 ms (1001 pts)
MSG
STATUS
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.480000000 GHz
Stop Freq
2.480000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz

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	1.000	0.379	Pass
2441	1.000	0.378	Pass
2480	0.999	0.378	Pass

CH00

CH39


Agilent Spectrum Analyzer - Swept SA
09:00:04 AM Nov 16, 2015
Ref Offset 1 dB
10 dB/div Ref 10.00 dBm
ΔMkr1 1.000 MHz
0.05 dB
Center 2.441500 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 3.000 MHz
Sweep 3.200 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.441500000 GHz
Start Freq
2.440000000 GHz
Stop Freq
2.443000000 GHz
CF Step
300.000 kHz
Auto
Man
Freq Offset
0 Hz

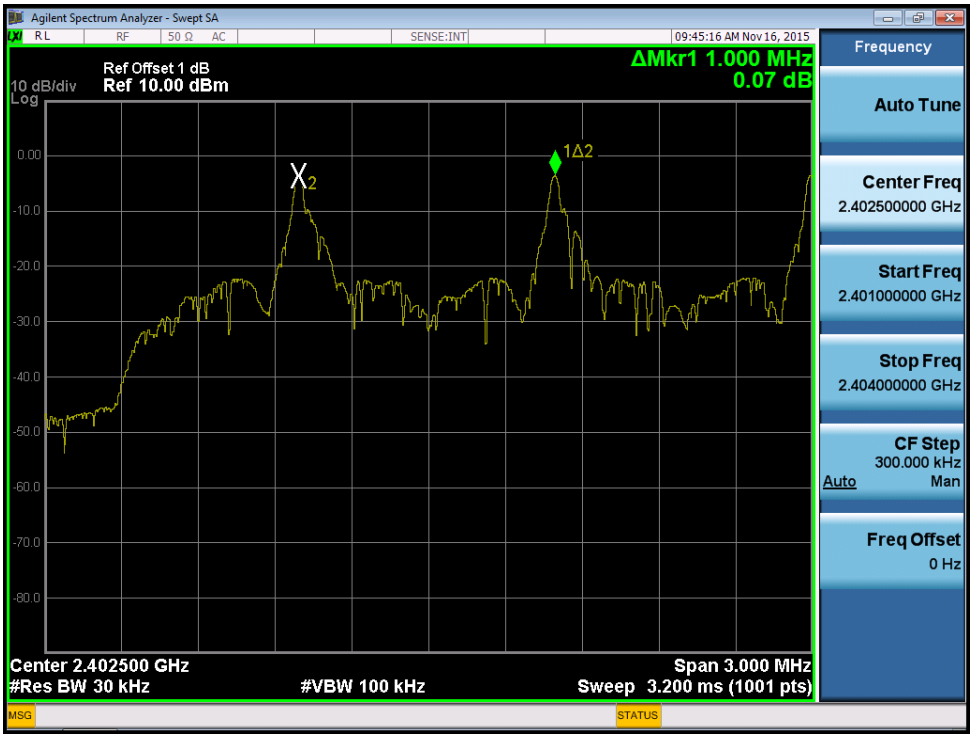
CH78


Agilent Spectrum Analyzer - Swept SA
09:01:09 AM Nov 16, 2015
Ref Offset 1 dB
10 dB/div Ref 10.00 dBm
ΔMkr1 999 kHz
0.05 dB
Center 2.479500 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 3.000 MHz
Sweep 3.200 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.479500000 GHz
Start Freq
2.478000000 GHz
Stop Freq
2.481000000 GHz
CF Step
300.000 kHz
Auto
Man
Freq Offset
0 Hz

Test Mode :	Hopping on _3Mbps

Frequency (MHz)	Channel Separation (MHz)	2/3 of 20dB Bandwidth (MHz)	Test Result
2402	1.000	0.487	Pass
2441	0.998	0.488	Pass
2480	0.999	0.488	Pass

CH00



CH39


Agilent Spectrum Analyzer - Swept SA
09:46:51 AM Nov 16, 2015
Ref Offset 1 dB
10 dB/div Ref 10.00 dBm
ΔMkr1 998 kHz
0.05 dB
Center 2.441500 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 3.000 MHz
Sweep 3.200 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.441500000 GHz
Start Freq
2.440000000 GHz
Stop Freq
2.443000000 GHz
CF Step
300.000 kHz
Auto
Man
Freq Offset
0 Hz

CH78

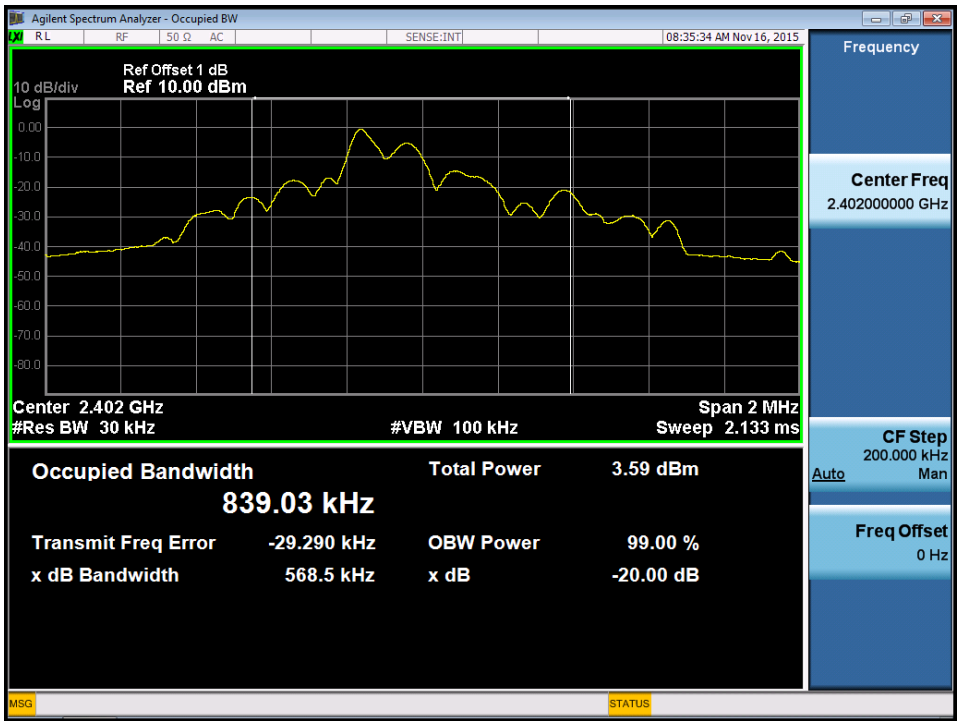

Agilent Spectrum Analyzer - Swept SA
09:48:16 AM Nov 16, 2015
Ref Offset 1 dB
10 dB/div Ref 10.00 dBm
ΔMkr1 999 kHz
0.06 dB
Center 2.479500 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 3.000 MHz
Sweep 3.200 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.479500000 GHz
Start Freq
2.478000000 GHz
Stop Freq
2.481000000 GHz
CF Step
300.000 kHz
Auto
Man
Freq Offset
0 Hz

ATTACHMENT H - BANDWIDTH

Test Mode :	TX Mode _1Mbps

Frequency (MHz)	20dB Bandwidth (MHz)	99% Occupied BW (MHz)	Test Result
2402	0.569	0.839	Pass
2441	0.568	0.836	Pass
2480	0.566	0.841	Pass

CH00



CH39


Agilent Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
SENSE:INT
08:39:16 AM Nov 16, 2015
Frequency
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 2.441 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.133 ms
Occupied Bandwidth
836.35 kHz
Total Power
5.27 dBm
Transmit Freq Error
-36.412 kHz
OBW Power
99.00 %
x dB Bandwidth
567.7 kHz
x dB
-20.00 dB
Center Freq
2.441000000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

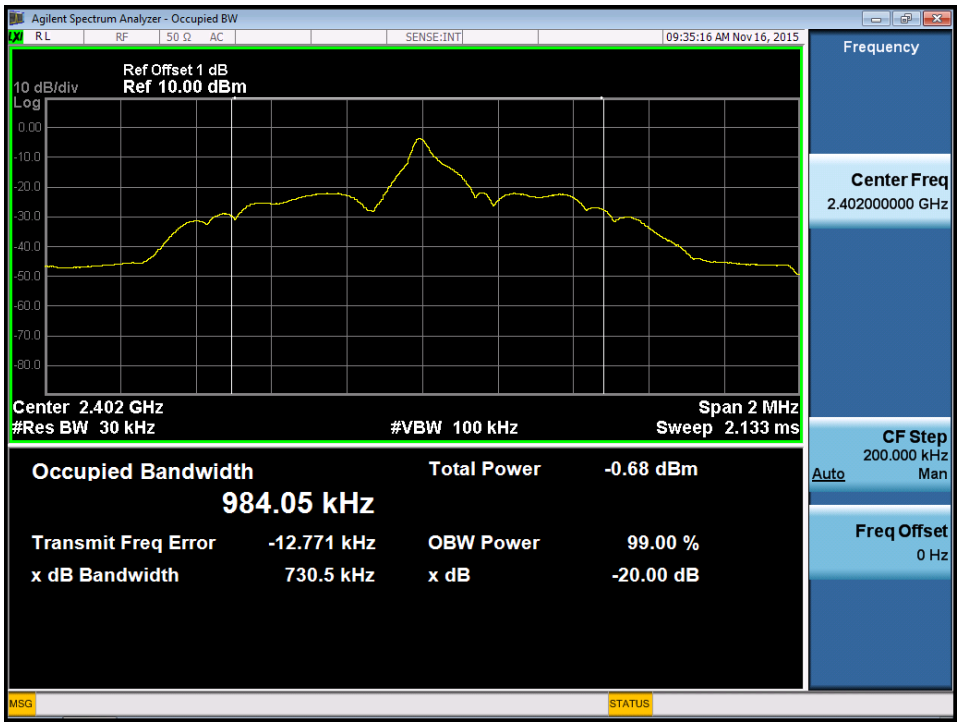
CH78


Agilent Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
SENSE:INT
08:40:53 AM Nov 16, 2015
Frequency
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 2.48 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.133 ms
Occupied Bandwidth
841.39 kHz
Total Power
5.01 dBm
Transmit Freq Error
-43.206 kHz
OBW Power
99.00 %
x dB Bandwidth
566.3 kHz
x dB
-20.00 dB
Center Freq
2.480000000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

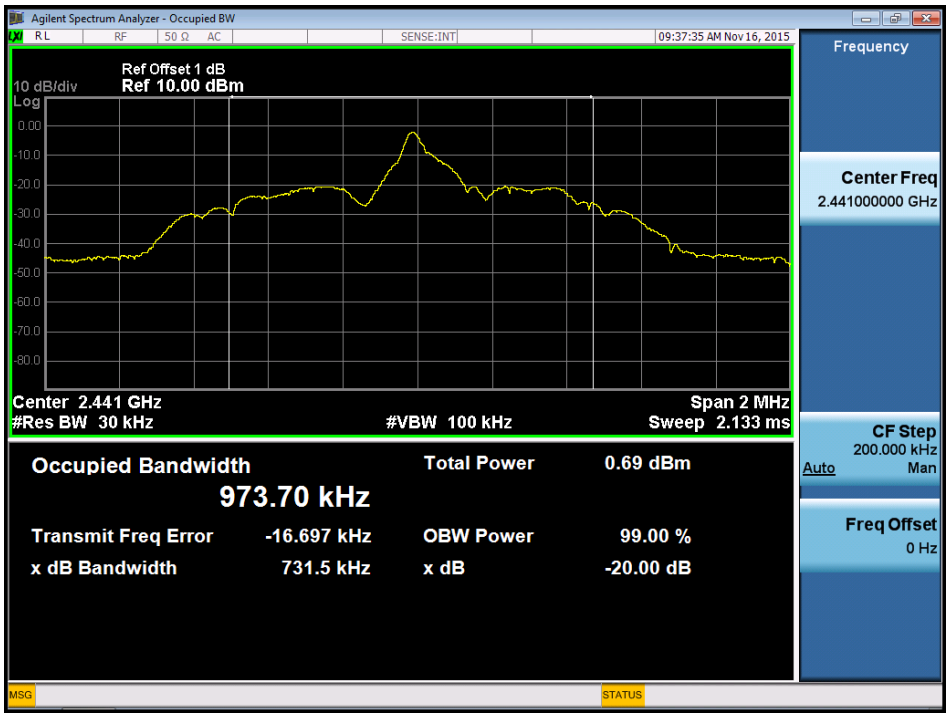
Test Mode :	TX Mode _3Mbps

Frequency (MHz)	20dB Bandwidth (MHz)	99% Occupied BW (MHz)	Test Result
2402	0.731	0.984	Pass
2441	0.732	0.974	Pass
2480	0.731	0.956	Pass

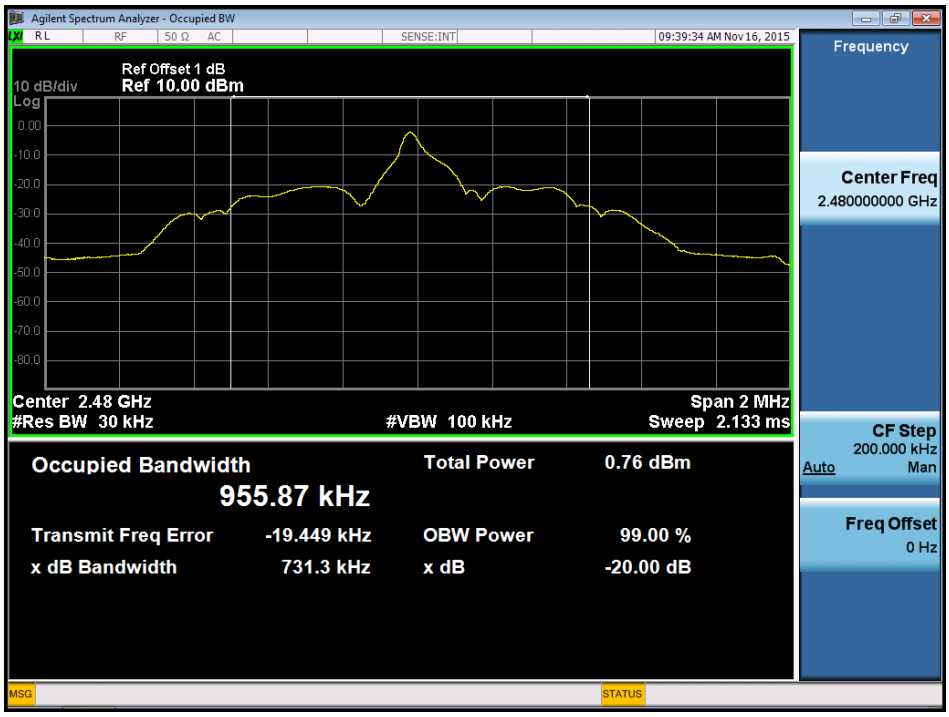
CH00



CH39


Agilent Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
SENSE:INT
09:37:35 AM Nov 16, 2015
Frequency
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 2.441 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.133 ms
Occupied Bandwidth
973.70 kHz
Total Power
0.69 dBm
Transmit Freq Error
-16.697 kHz
OBW Power
99.00 %
x dB Bandwidth
731.5 kHz
x dB
-20.00 dB
Center Freq
2.441000000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

CH78

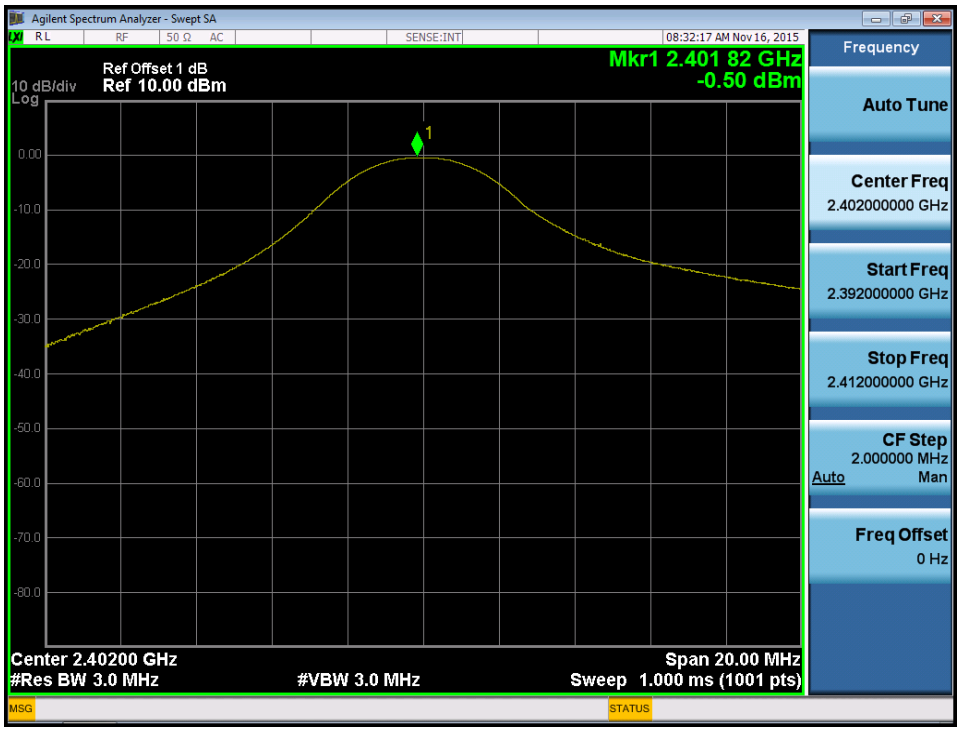

Agilent Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
SENSE:INT
09:39:34 AM Nov 16, 2015
Frequency
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 2.48 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.133 ms
Occupied Bandwidth
955.87 kHz
Total Power
0.76 dBm
Transmit Freq Error
-19.449 kHz
OBW Power
99.00 %
x dB Bandwidth
731.3 kHz
x dB
-20.00 dB
Center Freq
2.480000000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

ATTACHMENT I - PEAK OUTPUT POWER

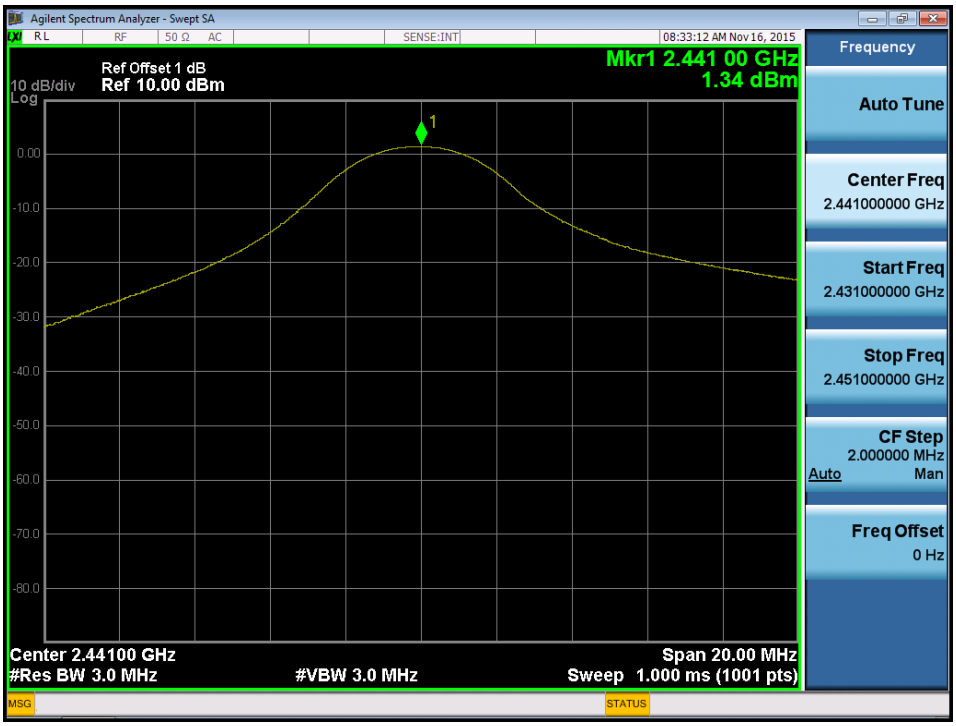
Test Mode :	TX Mode _1Mbps

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	-0.50	0.0009	30.00	1.00	Pass
2441	1.34	0.0014	30.00	1.00	Pass
2480	1.22	0.0013	30.00	1.00	Pass

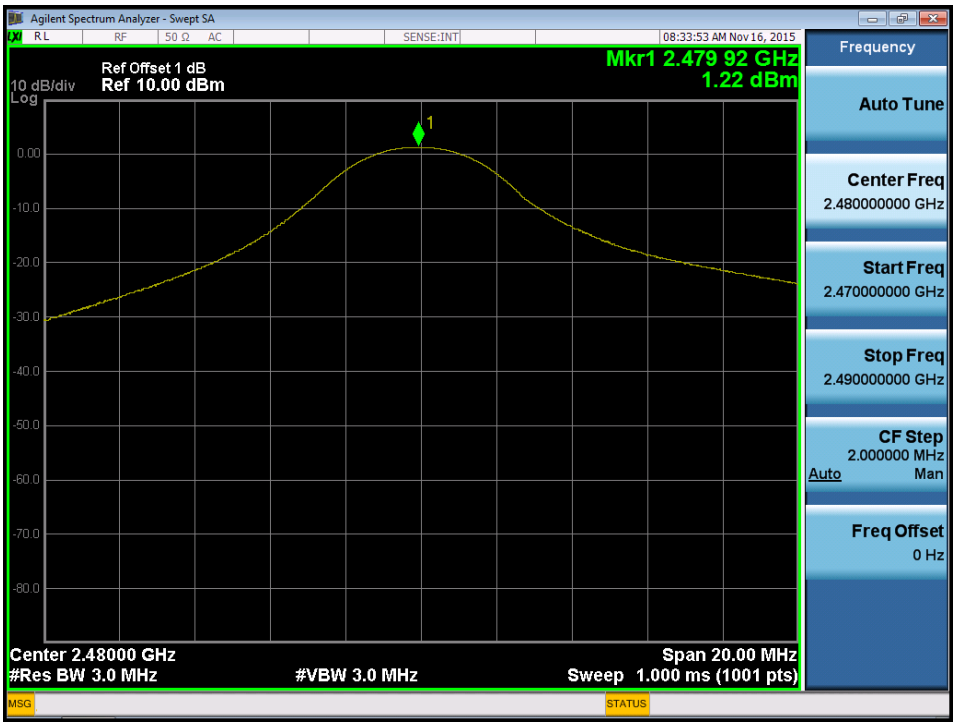
CH00



CH39


Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
08:33:12 AM Nov 16, 2015
Ref Offset 1 dB
10 dB/div Ref 10.00 dBm
Log
Mkr1 2.441 00 GHz
1.34 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 2.44100 GHz
#Res BW 3.0 MHz
#VBW 3.0 MHz
Span 20.00 MHz
Sweep 1.000 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.441000000 GHz
Start Freq
2.431000000 GHz
Stop Freq
2.451000000 GHz
CF Step
2.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

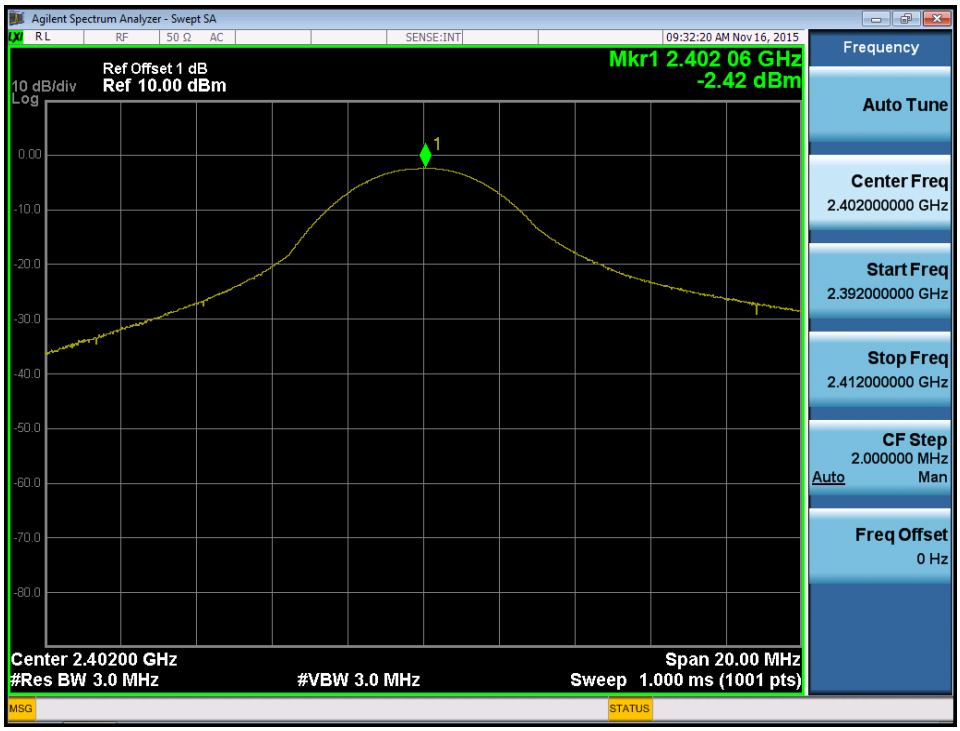
CH78


Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
08:33:53 AM Nov 16, 2015
Ref Offset 1 dB
10 dB/div Ref 10.00 dBm
Log
Mkr1 2.479 92 GHz
1.22 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 2.48000 GHz
#Res BW 3.0 MHz
#VBW 3.0 MHz
Span 20.00 MHz
Sweep 1.000 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.470000000 GHz
Stop Freq
2.490000000 GHz
CF Step
2.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

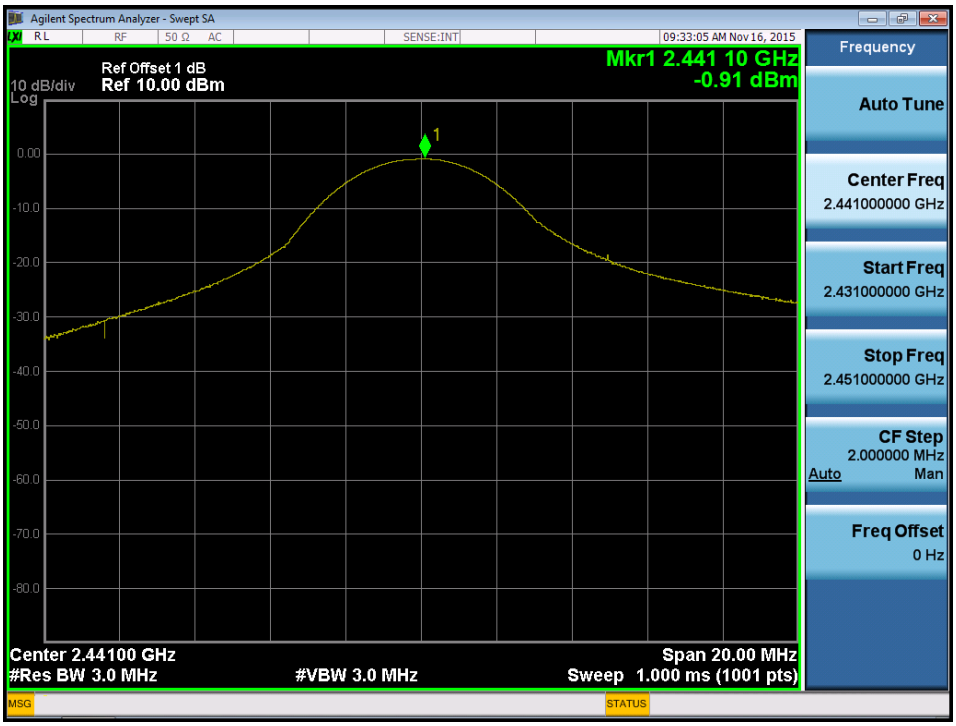
Test Mode :	TX Mode _3Mbps

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (W)	Max. Limit (dBm)	Max. Limit (W)	Test Result
2402	-2.42	0.0006	30.00	1.00	Pass
2441	-0.91	0.0008	30.00	1.00	Pass
2480	-1.04	0.0008	30.00	1.00	Pass

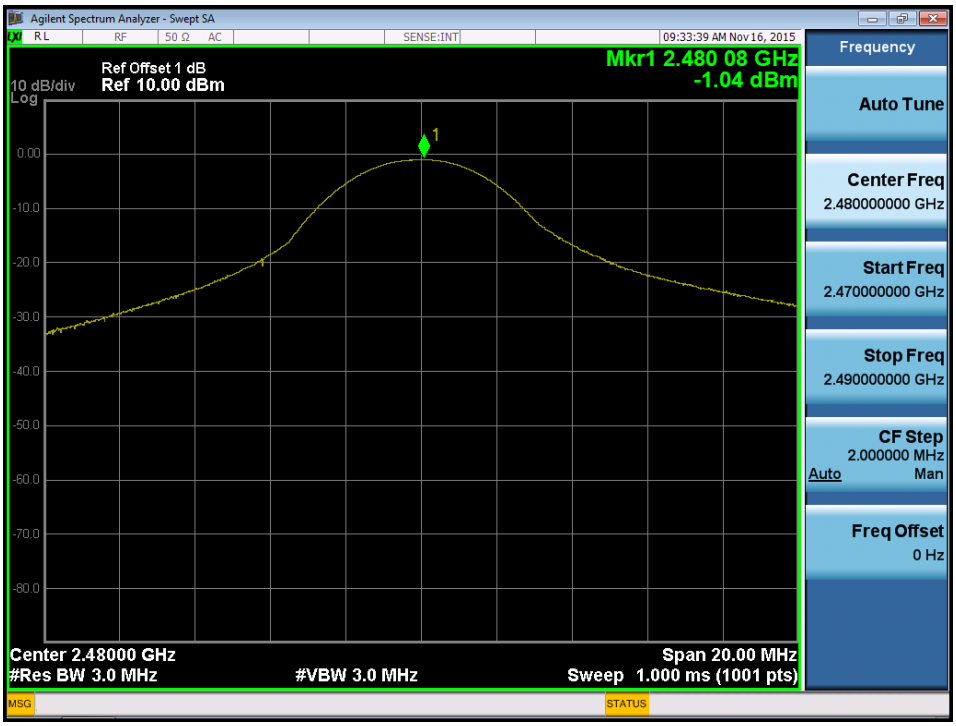
CH00



CH39

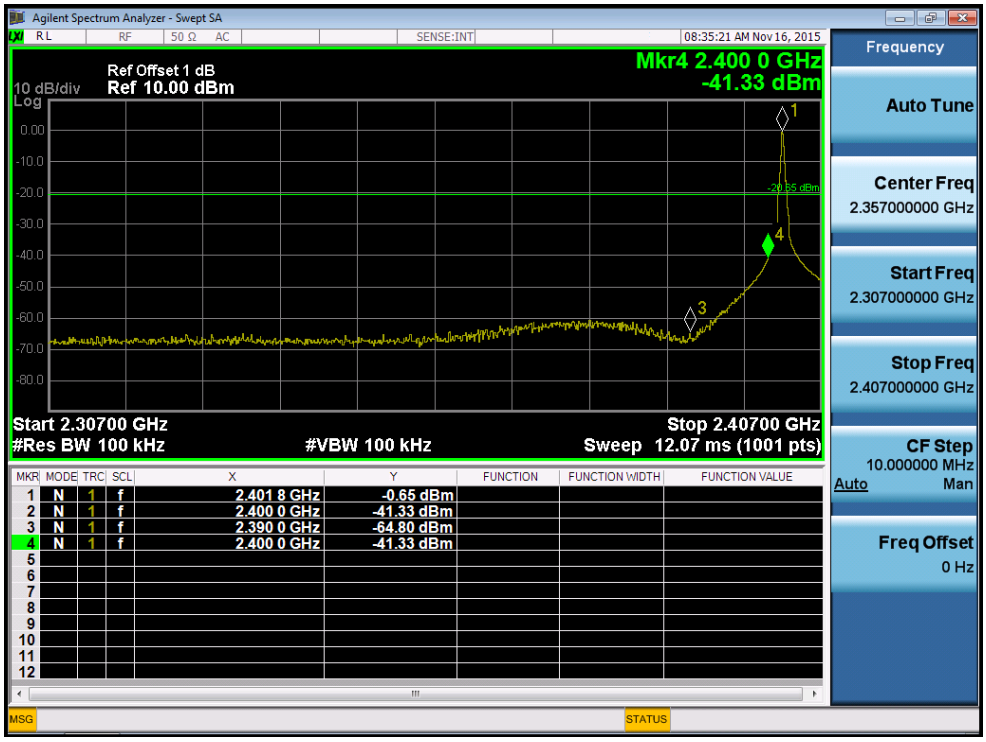

Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
09:33:05 AM Nov 16, 2015
Ref Offset 1 dB
10 dB/div Ref 10.00 dBm
Log
Mkr1 2.441 10 GHz
-0.91 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 2.44100 GHz
#Res BW 3.0 MHz
#VBW 3.0 MHz
Span 20.00 MHz
Sweep 1.000 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.441000000 GHz
Start Freq
2.431000000 GHz
Stop Freq
2.451000000 GHz
CF Step
2.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

CH78


Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
09:33:39 AM Nov 16, 2015
Ref Offset 1 dB
10 dB/div Ref 10.00 dBm
Log
Mkr1 2.480 08 GHz
-1.04 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 2.48000 GHz
#Res BW 3.0 MHz
#VBW 3.0 MHz
Span 20.00 MHz
Sweep 1.000 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.470000000 GHz
Stop Freq
2.490000000 GHz
CF Step
2.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

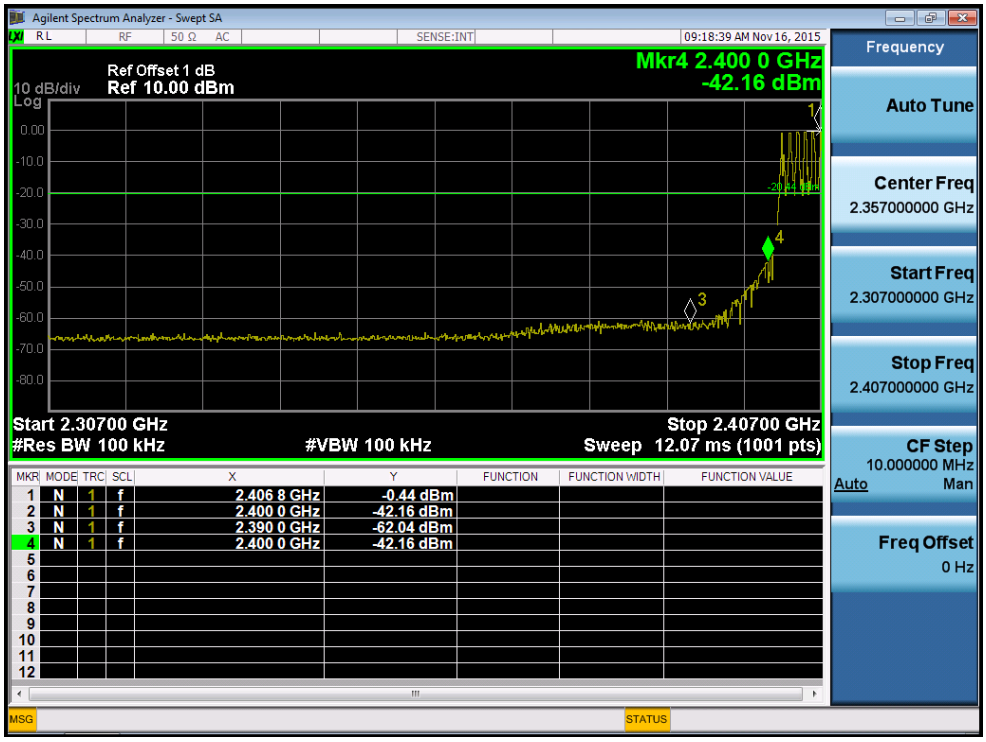
ATTACHMENT J - ANTENNA CONDUCTED SPURIOUS EMISSION

CH00 (Lower)_1Mbps

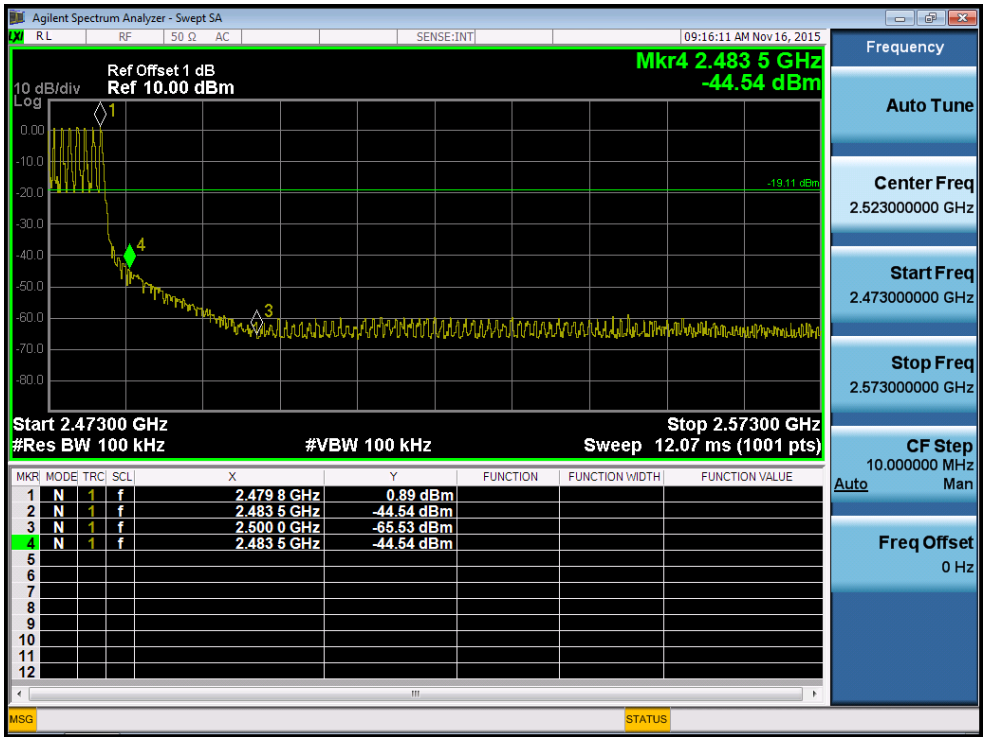


CH78 (Upper) _1Mbps

CH00 Hopping on mode (Lower)_1Mbps



CH78 Hopping on mode (Upper) _1Mbps

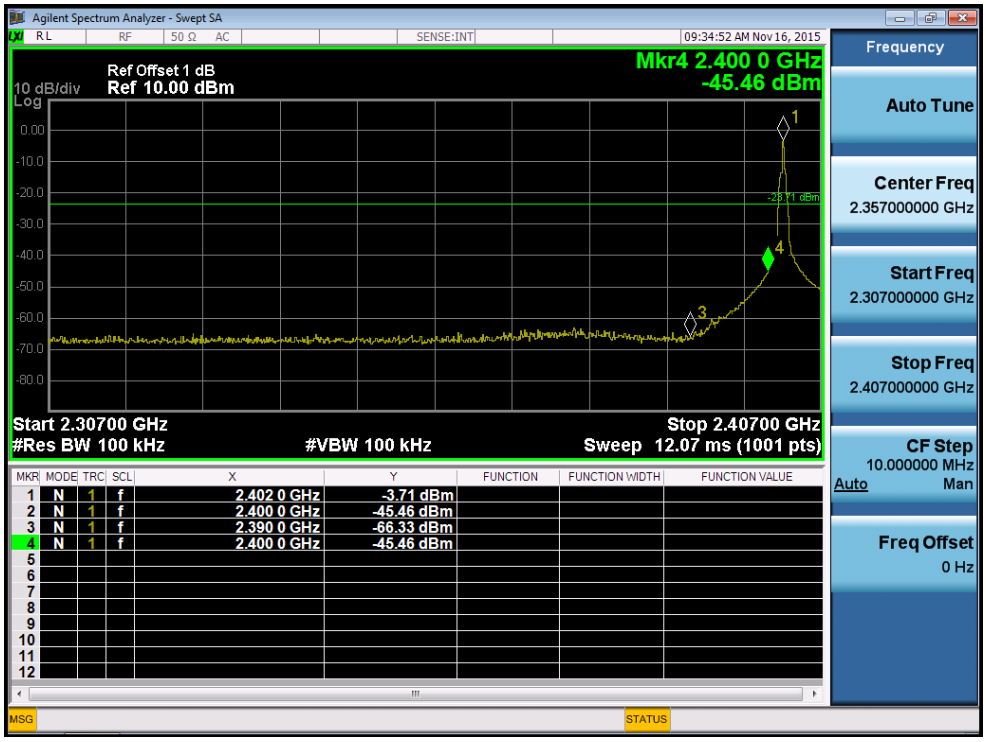


CH00 (10 Harmonic of the frequency) _1Mbps

CH39 (10 Harmonic of the frequency) _1Mbps

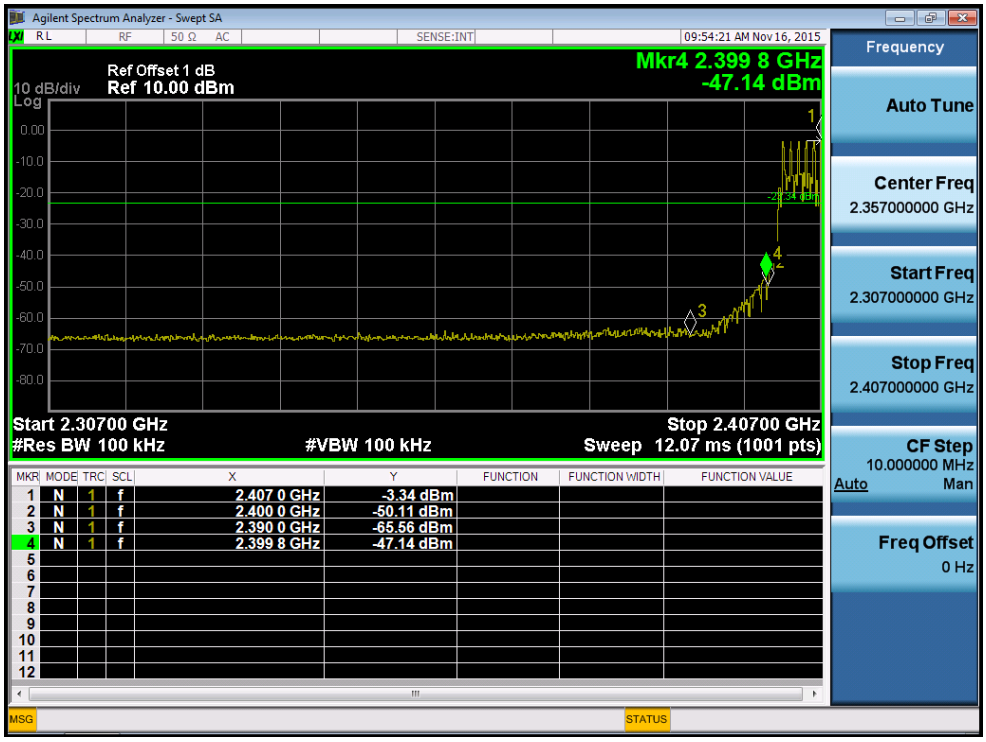
CH78 (10 Harmonic of the frequency) _1Mbps

CH00 (Lower) _3Mbps



CH78 (Upper) _3Mbps

CH00 Hopping on mode (Lower)_3Mbps



CH78 Hopping on mode (Upper) _3Mbps

CH00 (10 Harmonic of the frequency) _3Mbps

CH39 (10 Harmonic of the frequency) _3Mbps

CH78 (10 Harmonic of the frequency) _3Mbps