FCC Radio Test Report

FCC ID: YTCS810S220S580

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

Project No.	:	1502C106
Equipment	:	Bluetooth Audio Receiver/Bluetooth headset
Model Name	:	S810; BSH550; S560; S570; S580; S180B; S220B; BSH220
Applicant	:	Dart Cheng Communication Co., Ltd.
Address	:	1A04,Tower 3,Phase 1,Excellence City,NO.128 Zhongkang Road,Futian District,Shenzhen,China

Date of Receipt	:	Feb.11, 2015
Date of Test	:	Feb.11, 2015~Feb. 26, 2015
Issued Date	:	Feb. 27, 2015
Tested by	:	BTL Inc.

Testing Engineer : David Mao
(David Mao)

Technical Manager : Leo Hung
(Leo Hung)

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(Steven Lu)

B T L I N C .

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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-1-1502C106	Original Issue.	Feb. 27, 2015

1. CERTIFICATION

Equipment	:	Bluetooth Audio Receiver/Bluetooth headset
Brand Name	:	N/A
Model Name	:	S810; BSH550; S560; S570; S580; S180B; S220B; BSH220
Applicant		Dart Cheng Communication Co., Ltd.
Manufacturer	:	Dart Cheng Communication Co., Ltd.
Address	:	1A04,Tower 3,Phase 1,Excellence City,NO.128 Zhongkang Road,Futian District,Shenzhen,China
Factory	:	Dart Cheng Communication Co., Ltd.
Address	:	1F-3F, Block No.2, Zhuyuan Industrial Park, No.69 Guanlan Avenue, Baoan District, Shenzhen, China
Date of Test	:	Feb.11, 2015~Feb. 26, 2015
Test Sample	:	ENGINEERING SAMPLE
Standard(s)	:	FCC Part15, Subpart C : 2013 (15.247) / ANSI C63.4 : 2009 / FCC Public Notice DA 00-705, March 30, 2000.

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-1-1502C106) 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: 2013;			
Standard(s) Section **FCC**	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 (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) According to FCC Public Notice DA 00-705, March 30, 2000.

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **DG-C02/DG-CB03** at the location of No.3,Jinshagang 1st Road, Shixia, Dalang Town, Dong Guan, Guangdong, China.523792
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 reported uncertainty of measurement **y** ± **U**, where expended 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)	Note
DG-C02	CISPR	150 KHz ~ 30MHz	1.94	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)	Note
DG-CB03	CISPR	9KHz~30MHz	V	3.79	
		9KHz~30MHz	H	3.57	
		30MHz ~ 200MHz	V	3.82	
		30MHz ~ 200MHz	H	3.60	
		200MHz ~ 1,000MHz	V	3.86	
		200MHz ~ 1,000MHz	H	3.94	
		1GHz~18GHz	V	3.12	
		1GHz~18GHz	H	3.68	
		18GHz~40GHz	V	4.15	
		18GHz~40GHz	H	4.14	

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Bluetooth Audio Receiver/Bluetooth headset	
Brand Name	N/A	
Model Name	S810; BSH550; S560; S570; S580; S180B; S220B; BSH220	
Model Difference	Only the model No.S810 was tested, since the electrical circuit design, PCB layout, Electrical Parts and Figure are identical to the basic model, except the outer decoration.	
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.	-2.98 dBm(1Mbps) -4.00 dBm(3Mbps)
Power Source	#1 Supplied from USB port. #2 Battery supplied. #3 DC voltage supplied from AC/DC adapter. (Support unit)	
Power Rating	#1 DC 5V #2 DC 3.7V 0.444Wh #3 AC 100-240V 50/60Hz	

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:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	WTC	RFANT52201 10A0T	Chip	N/A	2.66

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	Normal Link

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	Normal Link

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

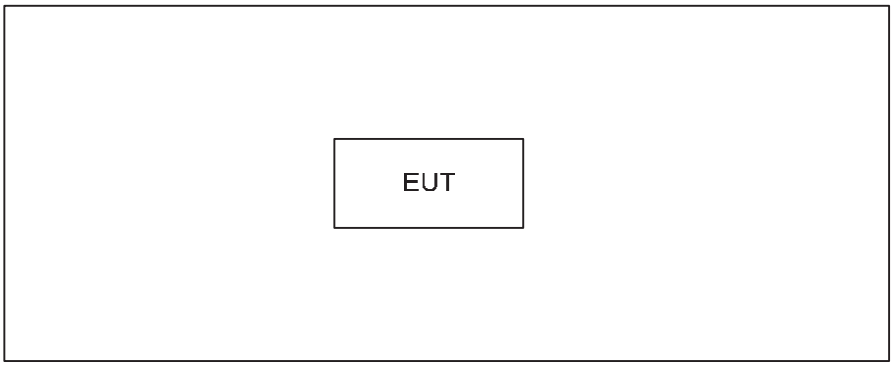
1Mbps

Test Software Version	MT8852B		
Frequency (MHz)	2402	2441	2480
Parameters	N/A	N/A	N/A

3Mbps

Test Software Version	MT8852B		
Frequency (MHz)	2402	2441	2480
Parameters	N/A	N/A	N/A

3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.5 DESCRIPTION OF SUPPORT UNITS

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

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID/IC	Series No.	Note
-	-	-	-	-	-	

Item	Shielded Type	Ferrite Core	Length	Note
-	-	-	-	

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.

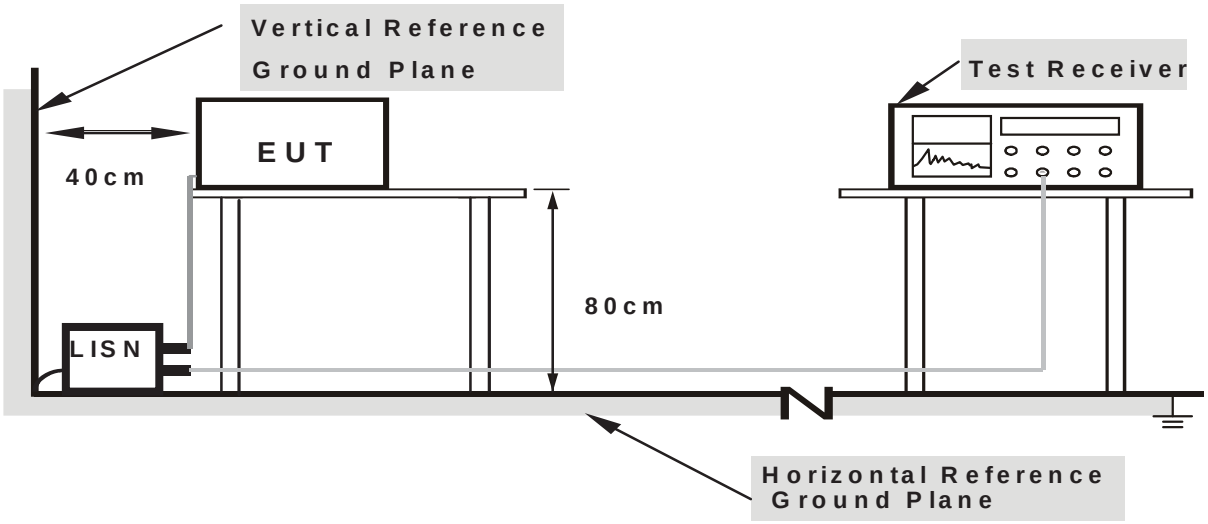
d. LISN at least 80 cm from nearest part of EUT chassis.

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)

20dB in any 100 KHz bandwidth outside the operating frequency band. 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	1MHz / 3MHz for Peak, 1MHz / 1/T 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

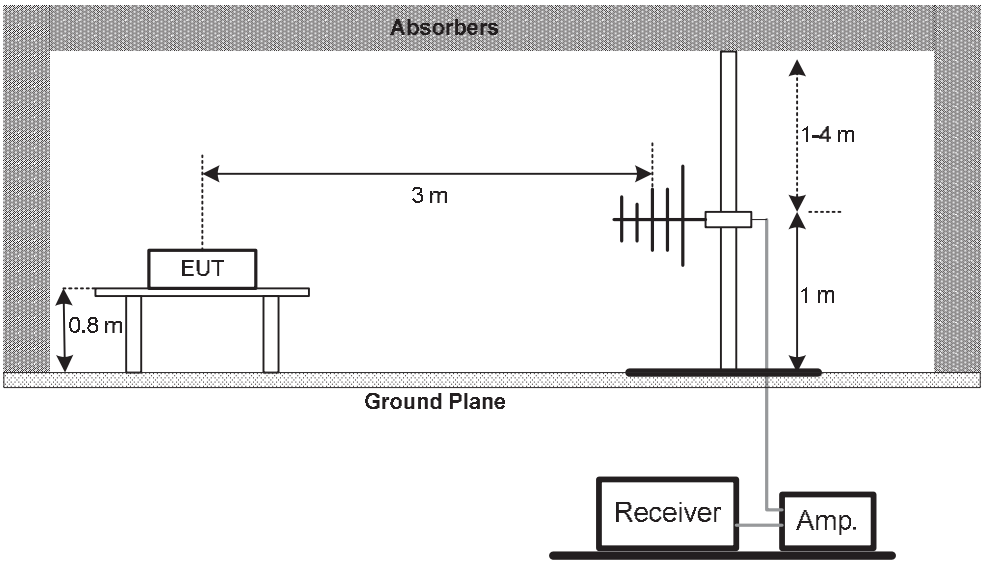
a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 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; 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 conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.2.3 DEVIATION FROM TEST STANDARD

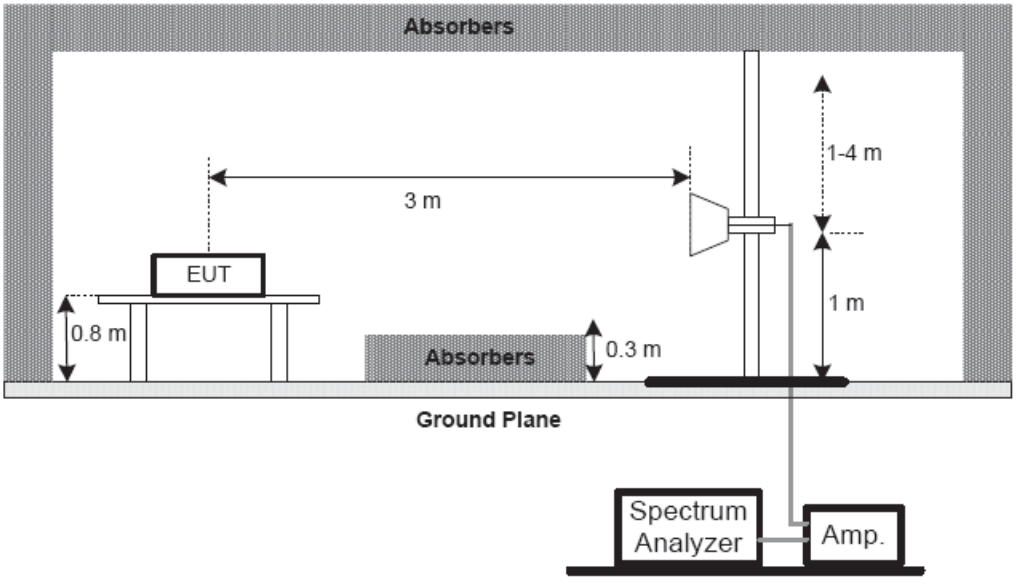
No deviation

4.2.4 TEST SETUP

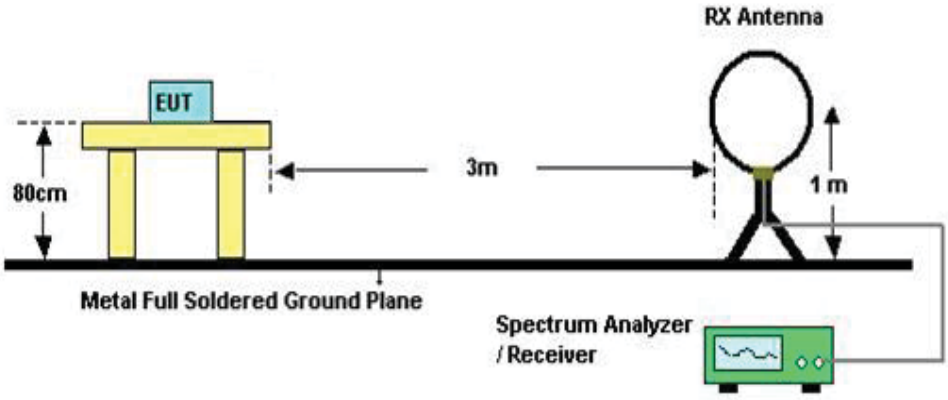
(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(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: DC 3.7V

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 (BETWEEN 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 Mode with 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

5.1 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: DC 3.7V

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: DC 3.7V

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

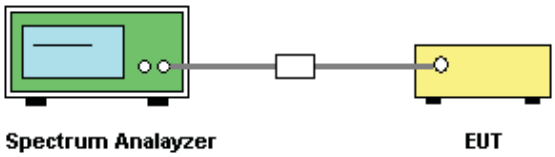
a. The EUT must have its hopping function enabled

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: DC 3.7V

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

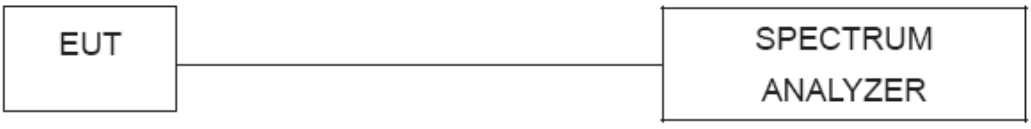
8.1.1 TEST PROCEDURE

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: DC 3.7V

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	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: DC 3.7V

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 intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted measurement, provided 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.

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: DC 3.7V

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	3816/2	00052765	Mar. 29, 2015
2	LISN	R&S	ENV216	101447	Mar. 29, 2015
3	Test Cable	N/A	C_17	N/A	Mar. 14, 2015
4	EMI TEST RECEIVER	R&S	ESCS30	833364/017	Mar. 29, 2015
5	50Ω Terminator	SHX	TF2-3G-A	08122902	Mar. 29, 2015
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. 29, 2015
2	Amplifier	HP	8447D	2944A09673	Mar. 29, 2015
3	Receiver	AGILENT	N9038A	MY52130039	Sep. 30, 2015
4	Test Cable	N/A	C-01_CB03	N/A	Jul. 01, 2015
5	Controller	CT	SC100	N/A	N/A
6	Antenna	ETS	3115	00075789	Mar. 29, 2015
7	Amplifier	Agilent	8449B	3008A02274	Mar. 29, 2015
8	Receiver	AGILENT	N9038A	MY52130039	Sep. 30, 2015
9	Test Cable	HUBER+SUHNER	C-48	N/A	Apr. 30, 2015
10	Controller	CT	SC100	N/A	N/A
11	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Mar. 27, 2015
12	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 26, 2015
13	Active Loop Antenna	R&S	HFH2-Z2	830749/020	Mar. 29, 2015
14	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Number of Hopping Channel					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 29, 2015

Average Time of Occupancy					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 29, 2015

Hopping Channel Separation Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 29, 2015

Bandwidth					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 29, 2015

Peak Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 29, 2015

Antenna Conducted Spurious Emission					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY50520044	Mar. 29, 2015

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

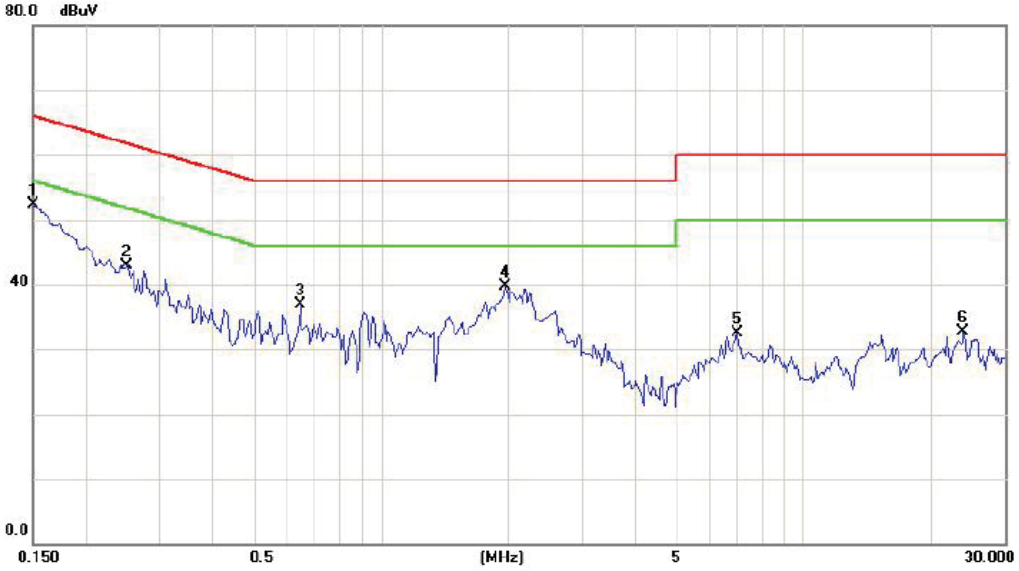
Radiated Measurement Photos

Above 1000MHz

ATTACHMENT A - CONDUCTED EMISSION

Test Mode:	Normal Link

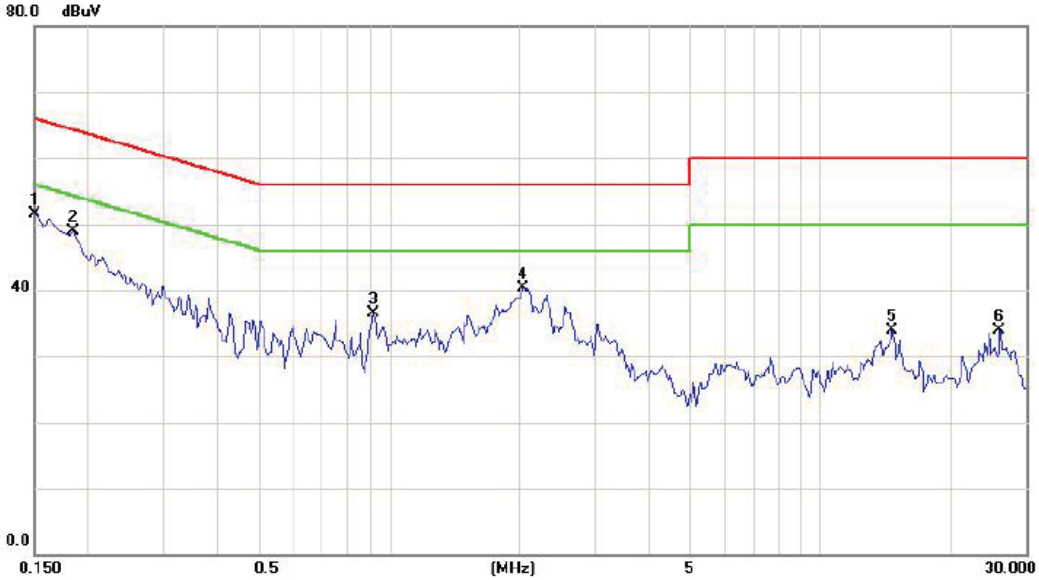
Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1500	42.78	9.48	52.26	66.00	-13.74	peak	
2		0.2516	33.46	9.52	42.98	61.70	-18.72	peak	
3		0.6461	27.39	9.57	36.96	56.00	-19.04	peak	
4		1.9781	30.03	9.60	39.63	56.00	-16.37	peak	
5		6.9727	22.82	9.75	32.57	60.00	-27.43	peak	
6		24.0000	22.56	10.09	32.65	60.00	-27.35	peak	

Test Mode:	Normal Link

Neutral



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1500	41.92	9.59	51.51	66.00	-14.49	peak	
2		0.1852	39.25	9.58	48.83	64.25	-15.42	peak	
3		0.9195	26.94	9.60	36.54	56.00	-19.46	peak	
4		2.0367	30.70	9.63	40.33	56.00	-15.67	peak	
5		14.7305	24.04	9.94	33.98	60.00	-26.02	peak	
6		26.1094	23.61	10.39	34.00	60.00	-26.00	peak	

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

Test Mode:	TX Mode

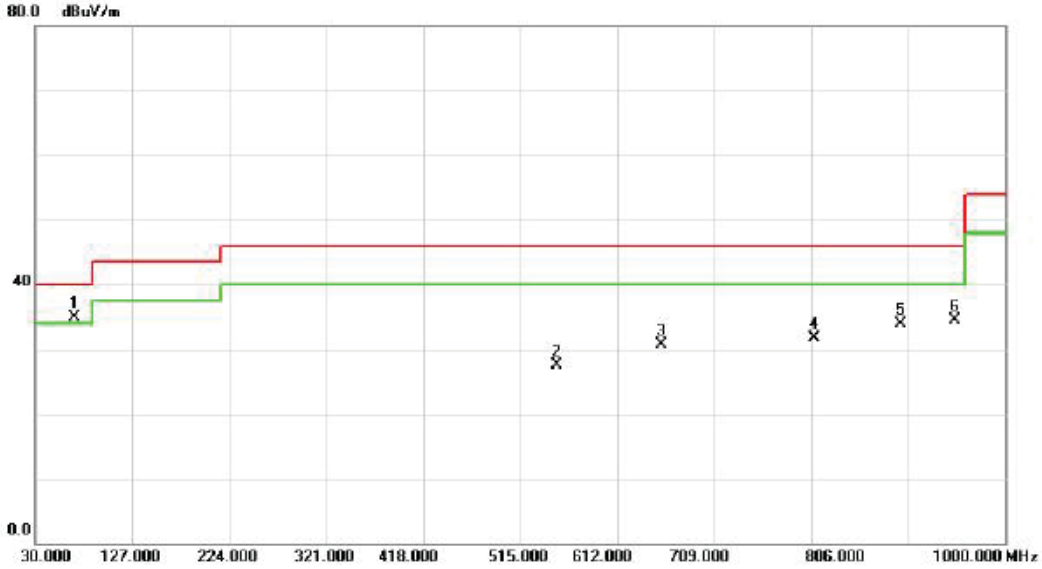
Frequency (MHz)	Ant 0°/90°	Read level dBuV/m	Factor (dB)	Measured(FS) (dBuV/m)	Limit(QP) (dBuV/m)	Margin (dB)	Note
0.0117	0°	7.36	24.30	31.66	126.24	-94.58	AVG
0.0117	0°	9.54	24.30	33.84	146.24	-112.40	PEAK
0.0125	0°	5.67	24.30	29.97	125.67	-95.70	AVG
0.0125	0°	7.81	24.30	32.11	145.67	-113.56	PEAK
0.0251	0°	5.22	23.98	29.20	119.61	-90.41	AVG
0.0251	0°	7.36	23.98	31.34	139.61	-108.27	PEAK
0.3460	0°	3.28	20.17	23.45	96.82	-73.37	AVG
0.3460	0°	5.53	20.17	25.70	116.82	-91.12	PEAK
2.0914	0°	17.86	19.45	37.31	69.54	-32.23	QP
3.4639	0°	23.11	18.95	42.06	69.54	-27.48	QP

Frequency (MHz)	Ant 0°/90°	Read level dBuV/m	Factor (dB)	Measured(FS) (dBuV/m)	Limit(QP) (dBuV/m)	Margin (dB)	Note
0.0114	90°	5.24	24.30	29.54	126.47	-96.93	AVG
0.0114	90°	7.61	24.30	31.91	146.47	-114.56	PEAK
0.0152	90°	4.53	24.30	28.83	123.97	-95.14	AVG
0.0152	90°	6.48	24.30	30.78	143.97	-113.19	PEAK
0.0261	90°	2.83	23.91	26.74	119.27	-92.53	AVG
0.0261	90°	5.25	23.91	29.16	139.27	-110.11	PEAK
0.0377	90°	0.46	23.18	23.64	116.08	-92.44	AVG
0.0377	90°	3.74	23.18	26.92	136.08	-109.16	PEAK
1.6113	90°	17.51	19.54	37.05	63.46	-26.41	QP
2.1786	90°	21.36	19.39	40.75	69.54	-28.79	QP

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

Test Mode:	TX 2402MHz _CH00_1Mbps

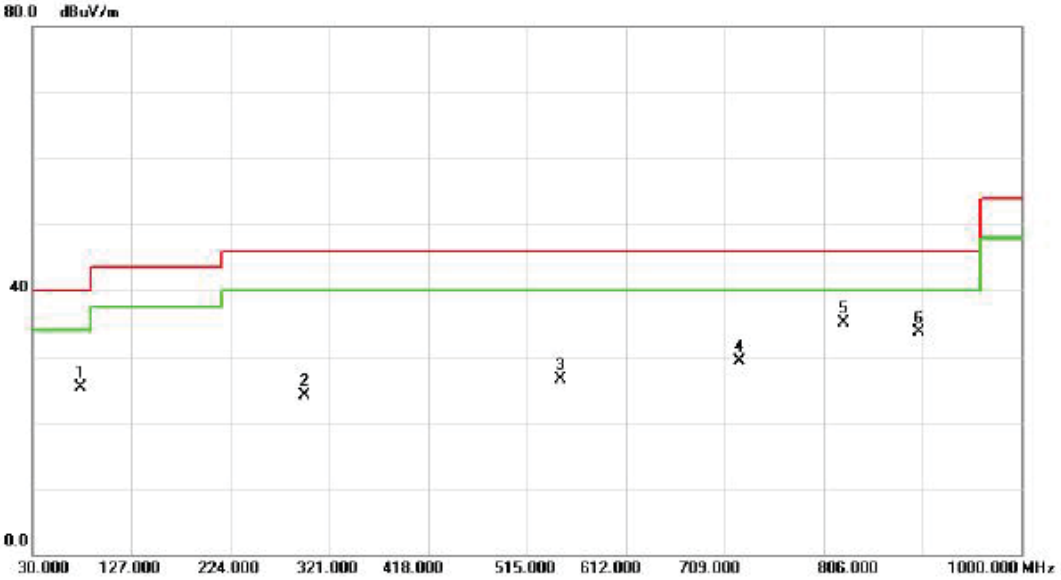
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	68.8000	49.04	-14.18	34.86	40.00	-5.14	peak	
2		551.8600	30.46	-2.95	27.51	46.00	-18.49	peak	
3		656.6200	32.38	-1.72	30.66	46.00	-15.34	peak	
4		808.9100	30.34	1.40	31.74	46.00	-14.26	peak	
5		896.2100	30.37	3.57	33.94	46.00	-12.06	peak	
6		950.5300	31.86	2.69	34.55	46.00	-11.45	peak	

Test Mode:	TX 2402MHz _CH00_1Mbps

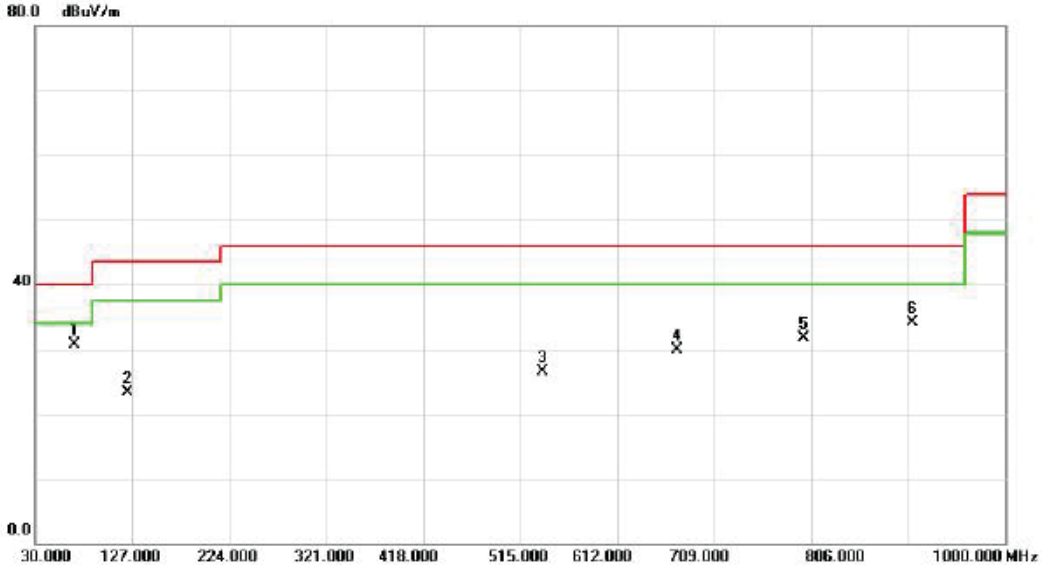
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		76.5600	40.16	-14.79	25.37	40.00	-14.63	peak	
2		296.7500	33.90	-9.70	24.20	46.00	-21.80	peak	
3		547.9800	29.51	-3.06	26.45	46.00	-19.55	peak	
4		723.5500	30.30	-0.98	29.32	46.00	-16.68	peak	
5	*	826.3700	34.61	0.54	35.15	46.00	-10.85	peak	
6		900.0900	29.84	3.91	33.75	46.00	-12.25	peak	

Test Mode:	TX 2441MHz _CH39_1Mbps

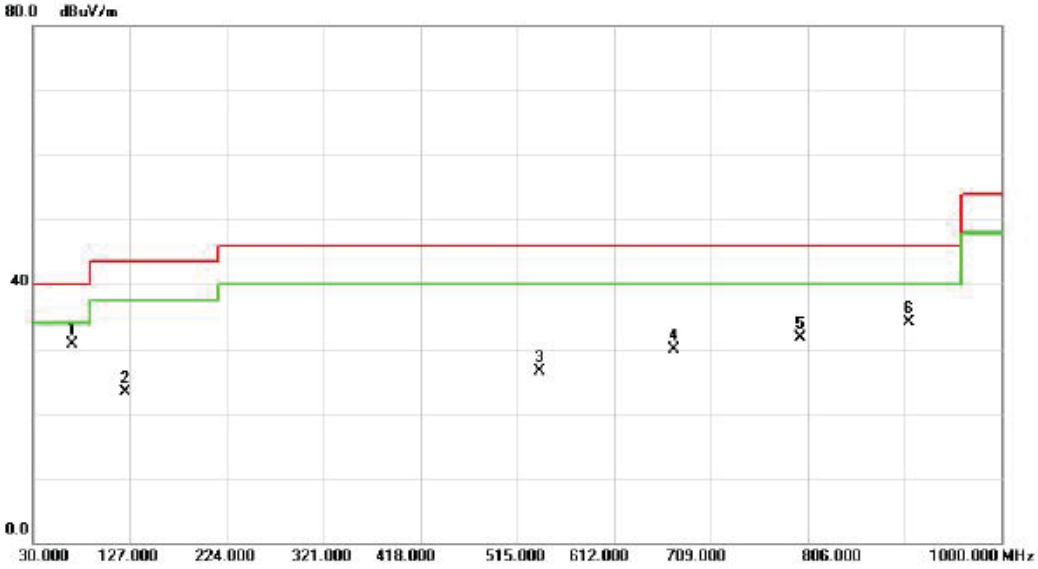
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	68.8000	44.97	-14.18	30.79	40.00	-9.21	peak	
2		122.1500	35.79	-12.43	23.36	43.50	-20.14	peak	
3		537.3100	30.54	-4.05	26.49	46.00	-19.51	peak	
4		672.1400	31.40	-1.41	29.99	46.00	-16.01	peak	
5		798.2400	29.89	1.73	31.62	46.00	-14.38	peak	
6		906.8800	30.44	3.74	34.18	46.00	-11.82	peak	

Test Mode:	TX 2441MHz _CH39_1Mbps

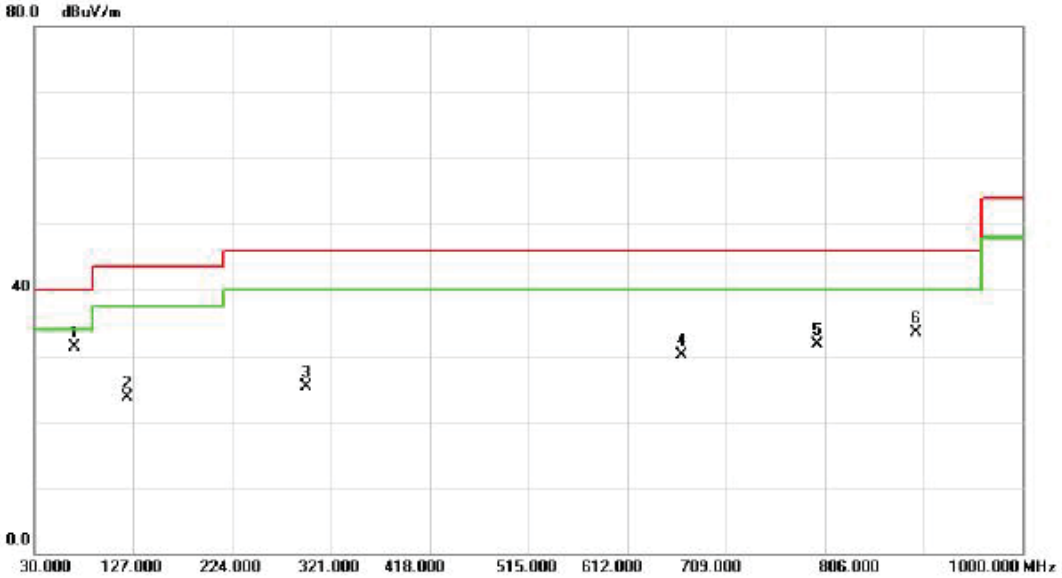
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	68.8000	44.97	-14.18	30.79	40.00	-9.21	peak	
2		122.1500	35.79	-12.43	23.36	43.50	-20.14	peak	
3		537.3100	30.54	-4.05	26.49	46.00	-19.51	peak	
4		672.1400	31.40	-1.41	29.99	46.00	-16.01	peak	
5		798.2400	29.89	1.73	31.62	46.00	-14.38	peak	
6		906.8800	30.44	3.74	34.18	46.00	-11.82	peak	

Test Mode:	TX 2480MHz _CH78_1Mbps

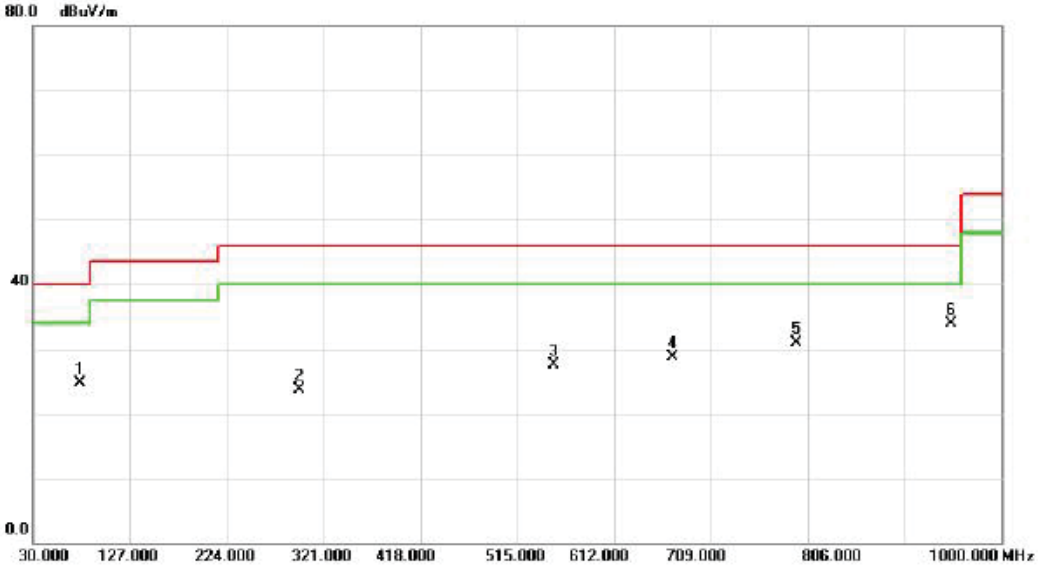
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	69.7700	45.62	-14.31	31.31	40.00	-8.69	peak	
2		121.1800	36.12	-12.49	23.63	43.50	-19.87	peak	
3		296.7500	34.93	-9.70	25.23	46.00	-20.77	peak	
4		665.3500	31.59	-1.55	30.04	46.00	-15.96	peak	
5		798.2400	29.88	1.73	31.61	46.00	-14.39	peak	
6		895.2400	29.94	3.48	33.42	46.00	-12.58	peak	

Test Mode:	TX 2480MHz _CH78_1Mbps

Horizontal

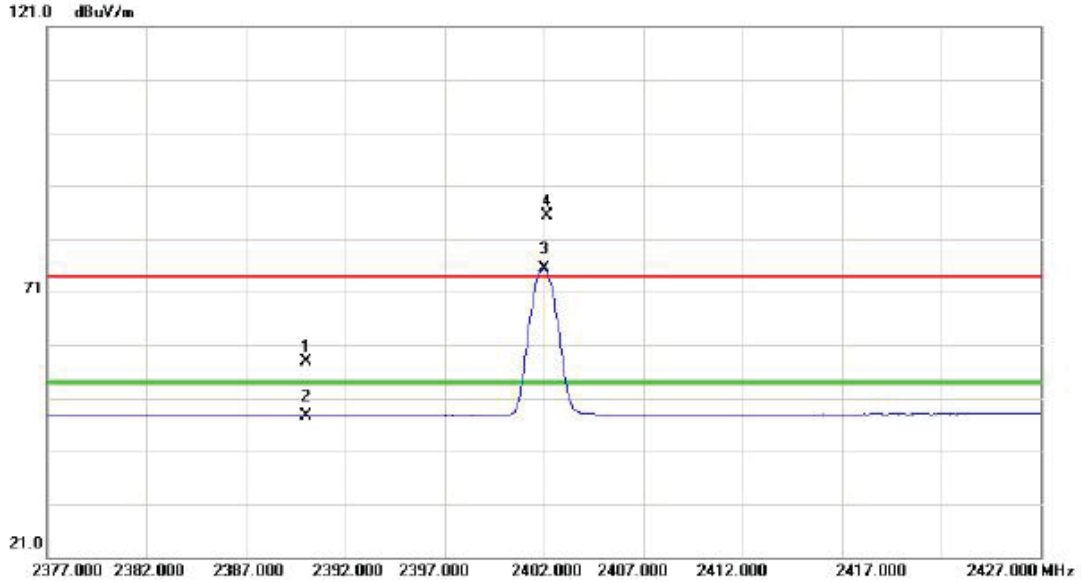


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		76.5600	39.52	-14.79	24.73	40.00	-15.27	peak	
2		296.7500	33.38	-9.70	23.68	46.00	-22.32	peak	
3		551.8600	30.54	-2.95	27.59	46.00	-18.41	peak	
4		671.1700	30.10	-1.43	28.67	46.00	-17.33	peak	
5		794.3600	29.36	1.51	30.87	46.00	-15.13	peak	
6	*	950.5300	31.16	2.69	33.85	46.00	-12.15	peak	

ATTACHMENT D - RADIATED EMISSION (ABOVE 1000MHZ)

Orthogonal Axis :	X
Test Mode :	TX 2402MHz _CH00_1Mbps

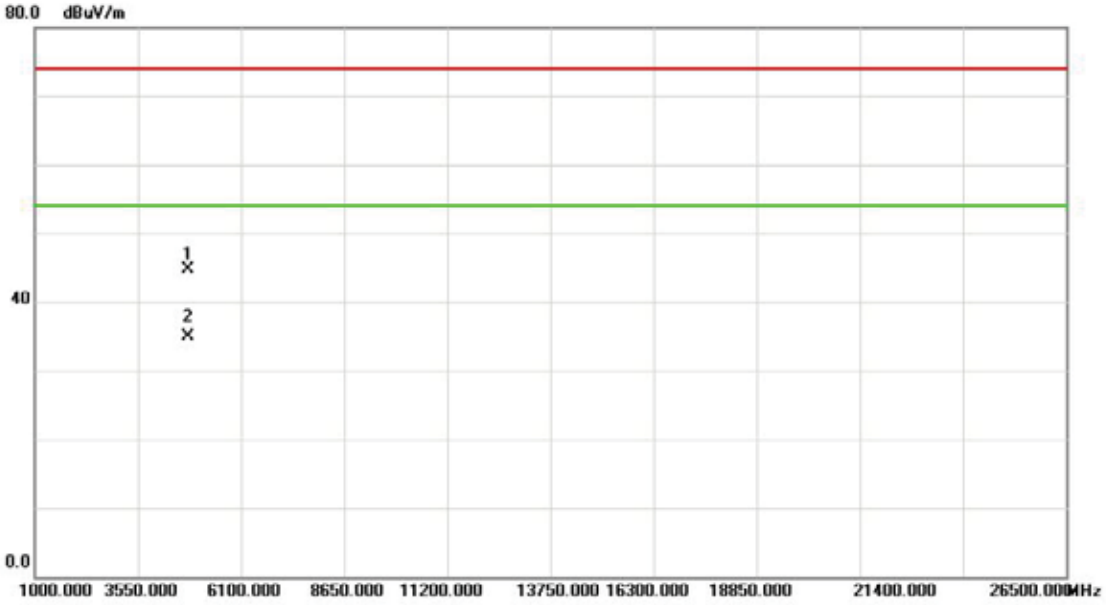
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	23.69	34.17	57.86	74.00	-16.14	peak	
2		2390.000	13.55	34.17	47.72	54.00	-6.28	AVG	
3	*	2402.000	41.12	34.19	75.31	54.00	21.31	AVG	NO LIMIT
4	X	2402.150	51.09	34.20	85.29	74.00	11.29	peak	NO LIMIT

Orthogonal Axis :	X
Test Mode :	TX 2402MHz _CH00_1Mbps

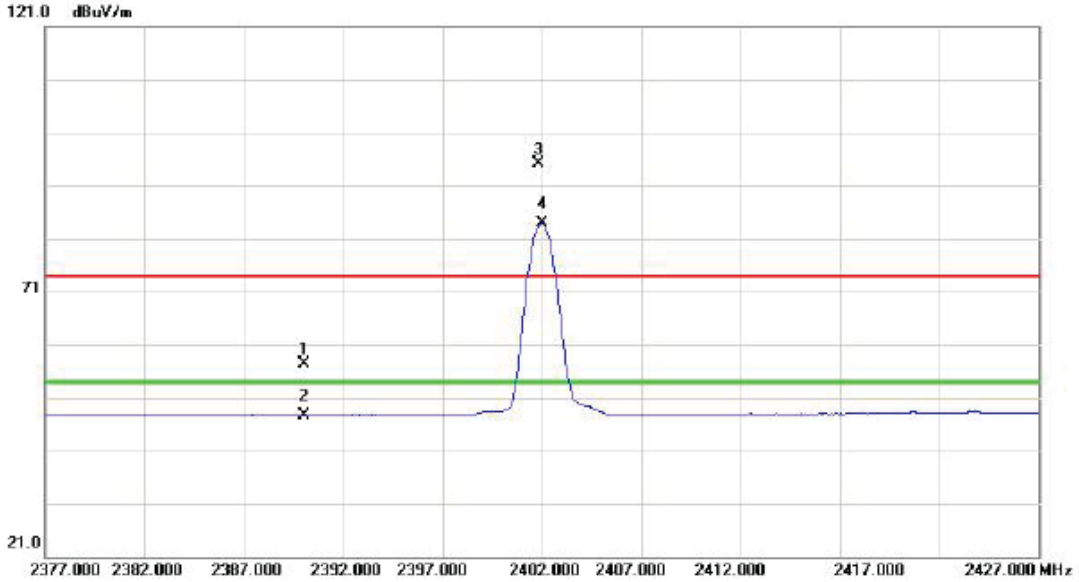
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4803.620	41.11	3.58	44.69	74.00	-29.31	peak	
2	*	4803.960	31.35	3.58	34.93	54.00	-19.07	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2402MHz _CH00_1Mbps

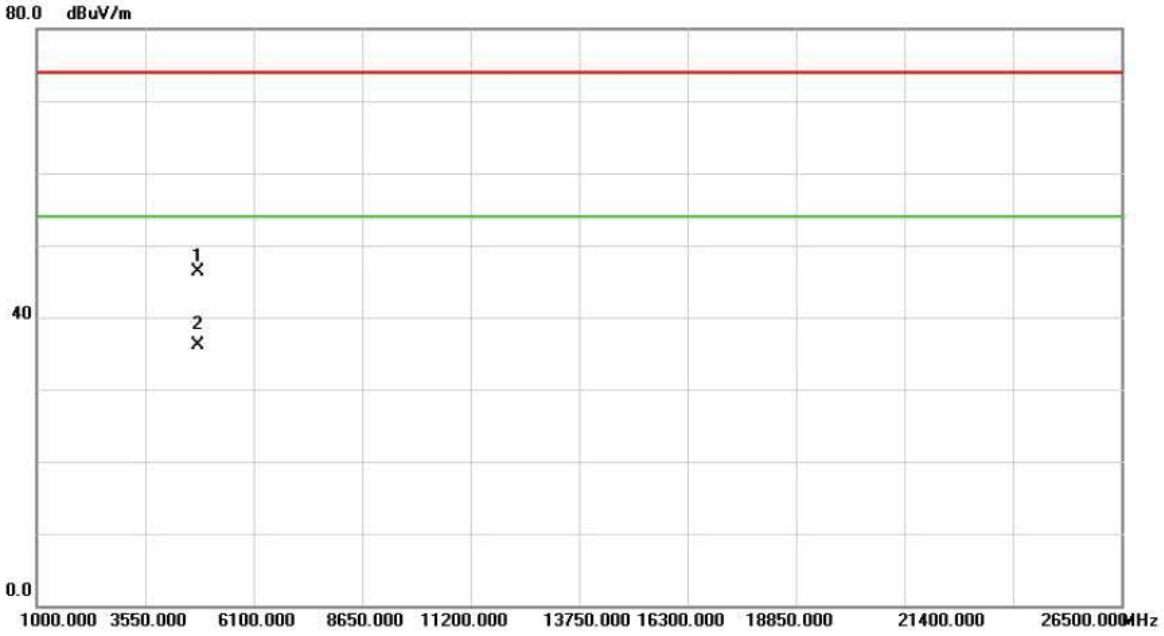
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	23.16	34.17	57.33	74.00	-16.67	peak	
2		2390.000	13.53	34.17	47.70	54.00	-6.30	AVG	
3	X	2401.850	61.04	34.19	95.23	74.00	21.23	peak	NO LIMIT
4	*	2402.000	49.62	34.19	83.81	54.00	29.81	AVG	NO LIMIT

Orthogonal Axis :	X
Test Mode :	TX 2402MHz _CH00_1Mbps

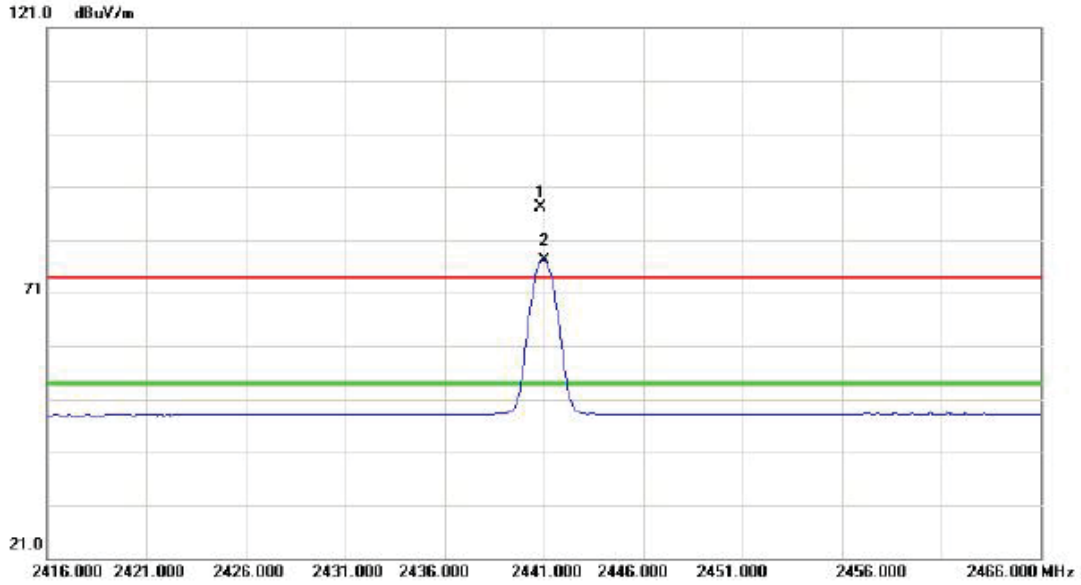
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4803.830	42.71	3.58	46.29	74.00	-27.71	peak	
2	*	4804.250	32.54	3.58	36.12	54.00	-17.88	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2441MHz _CH39_1Mbps

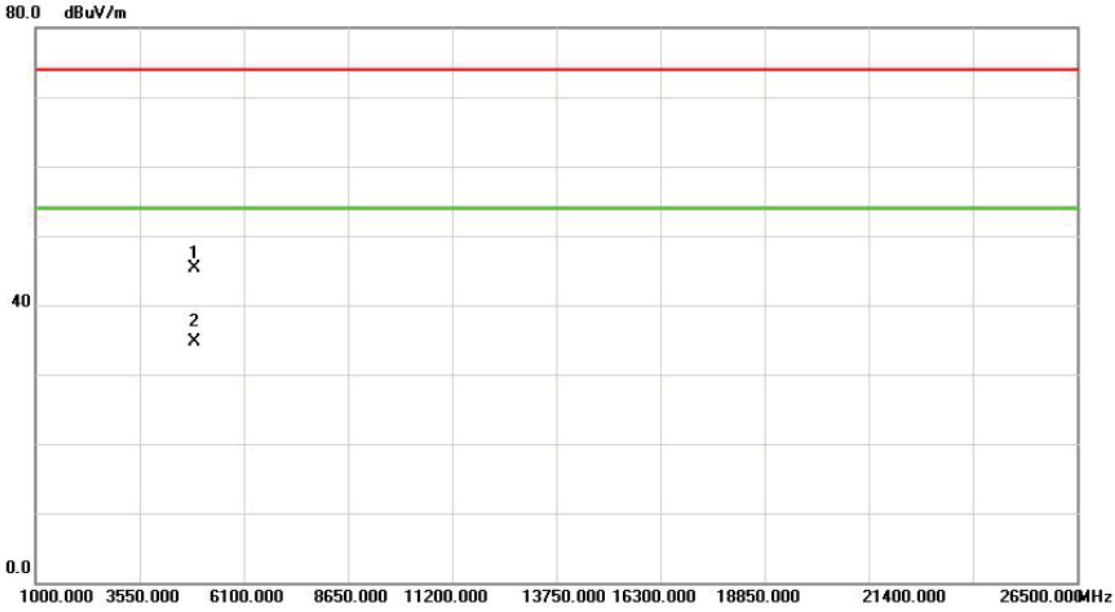
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2440.800	52.76	34.31	87.07	74.00	13.07	peak	NO LIMIT
2	*	2441.000	42.86	34.31	77.17	54.00	23.17	AVG	NO LIMIT

Orthogonal Axis :	X
Test Mode :	TX 2441MHz _CH39_1Mbps

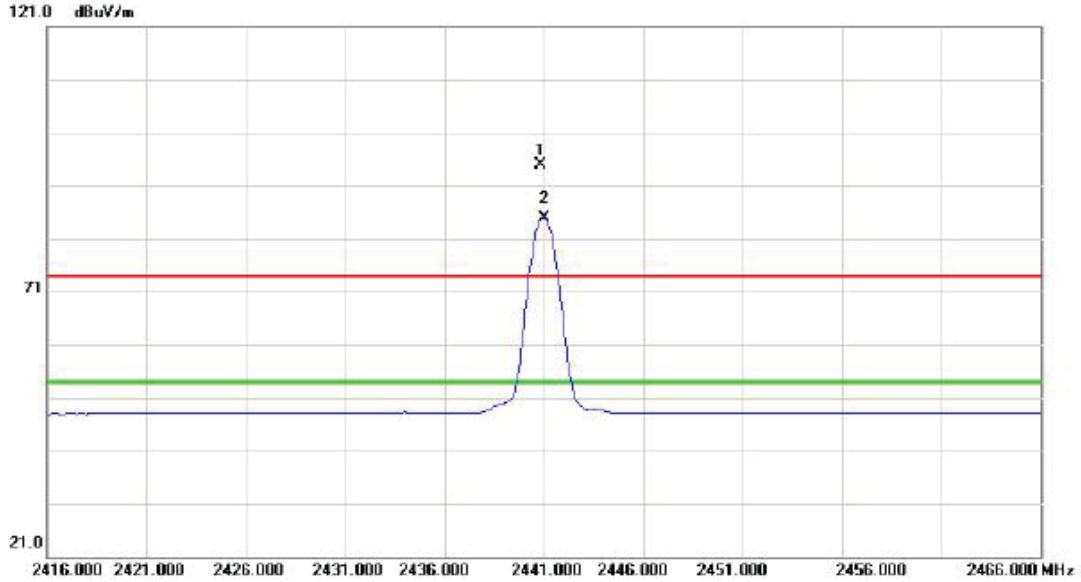
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4881.860	41.65	3.73	45.38	74.00	-28.62	peak	
2	*	4881.960	30.92	3.73	34.65	54.00	-19.35	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2441MHz _CH39_1Mbps

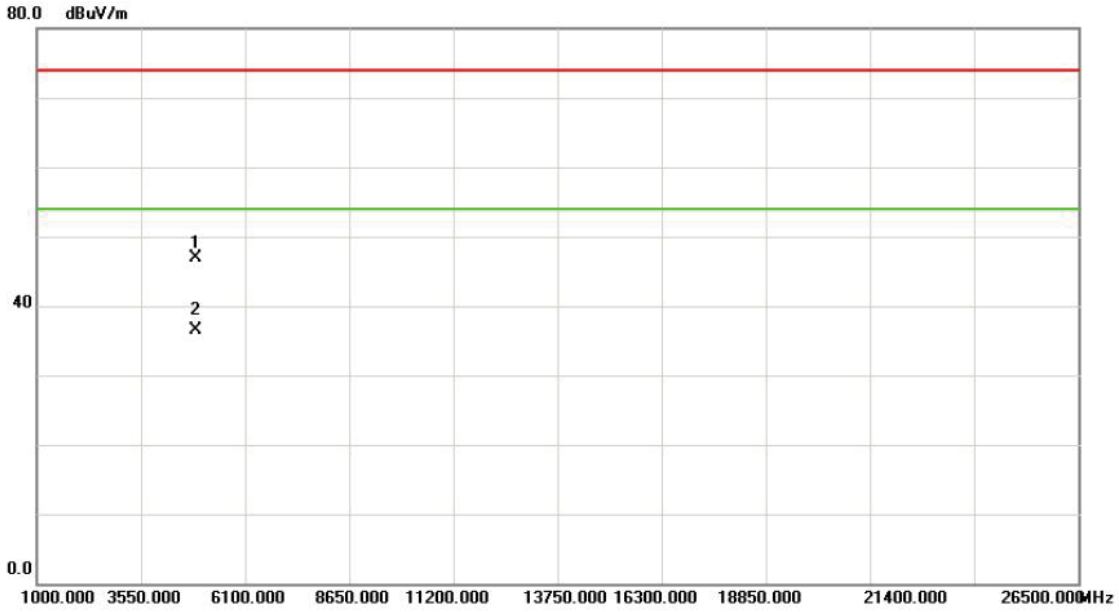
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2440.850	60.61	34.31	94.92	74.00	20.92	peak	NO LIMIT
2	*	2441.000	50.58	34.31	84.89	54.00	30.89	AVG	NO LIMIT

Orthogonal Axis :	X
Test Mode :	TX 2441MHz _CH39_1Mbps

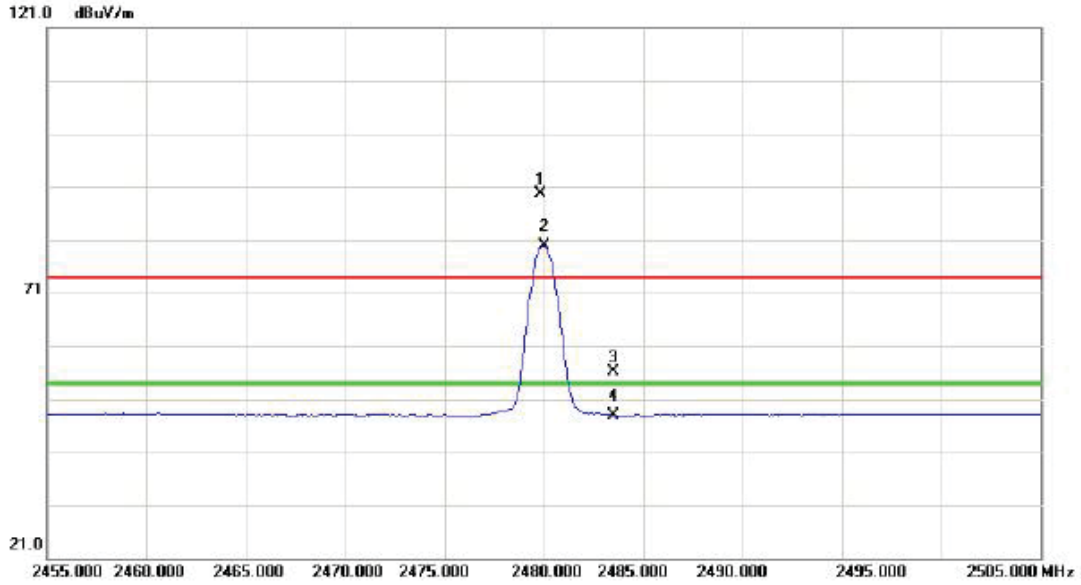
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4882.570	43.18	3.73	46.91	74.00	-27.09	peak	
2	*	4882.640	32.72	3.73	36.45	54.00	-17.55	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH78_1Mbps

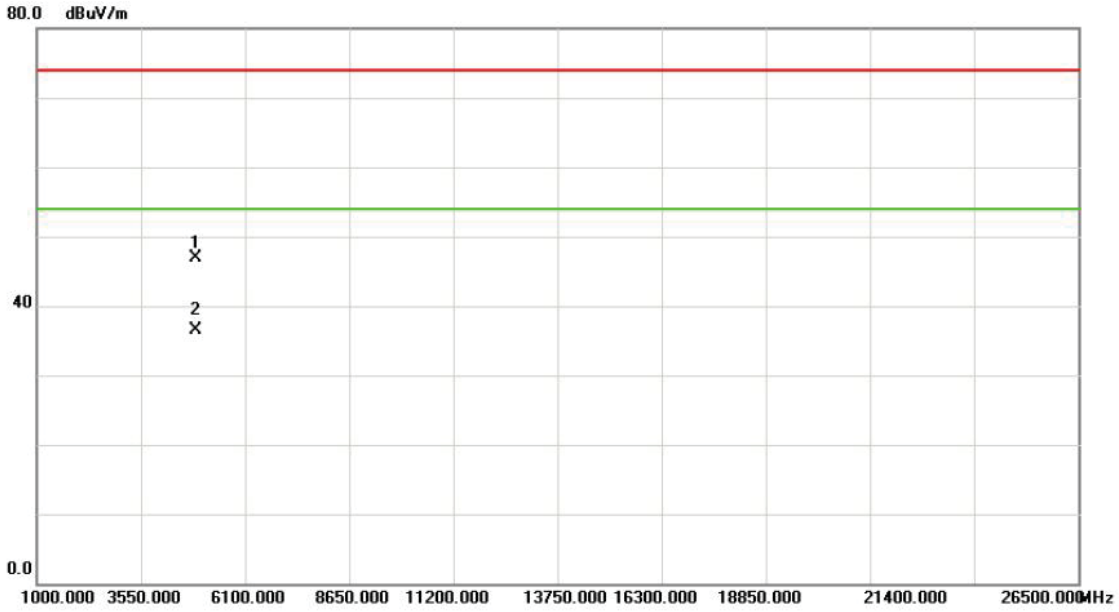
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2479.850	55.33	34.42	89.75	74.00	15.75	peak	NO LIMIT
2	*	2480.000	45.52	34.42	79.94	54.00	25.94	AVG	NO LIMIT
3		2483.500	21.74	34.43	56.17	74.00	-17.83	peak	
4		2483.500	13.53	34.43	47.96	54.00	-6.04	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH78_1Mbps

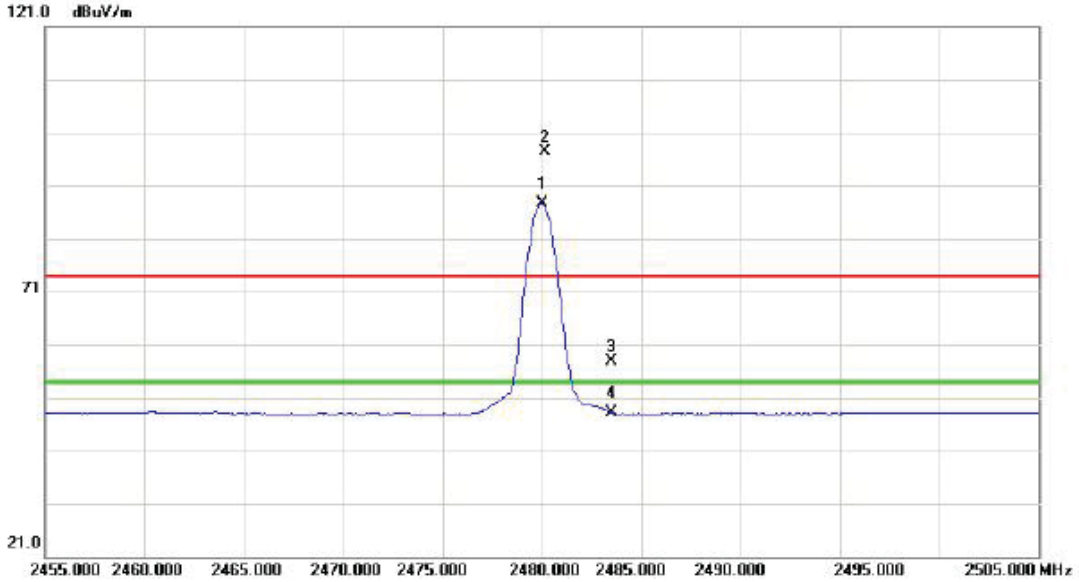
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4882.570	43.18	3.73	46.91	74.00	-27.09	peak	
2	*	4882.640	32.72	3.73	36.45	54.00	-17.55	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH78_1Mbps

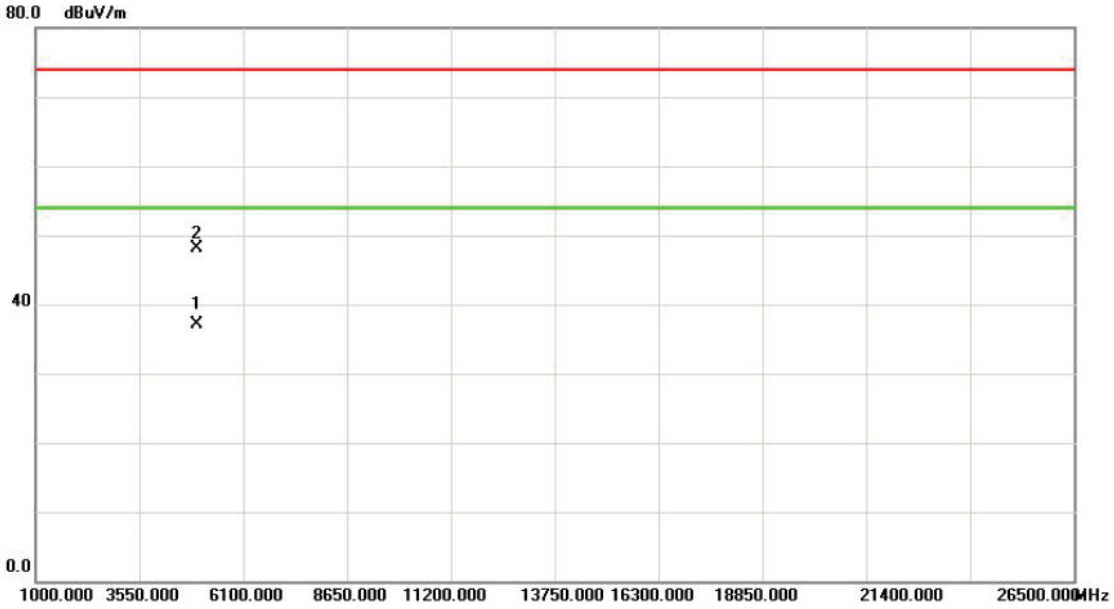
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2480.000	53.17	34.42	87.59	54.00	33.59	AVG	NO LIMIT
2	X	2480.150	63.06	34.42	97.48	74.00	23.48	peak	NO LIMIT
3		2483.500	23.48	34.43	57.91	74.00	-16.09	peak	
4		2483.500	13.69	34.43	48.12	54.00	-5.88	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH78_1Mbps

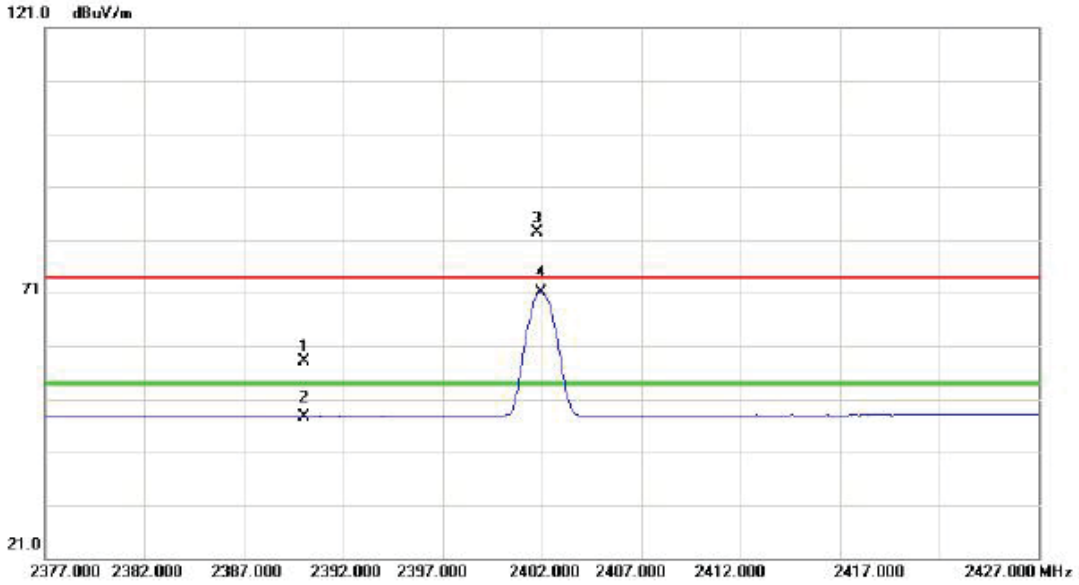
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4960.290	33.15	3.88	37.03	54.00	-16.97	AVG	
2		4960.470	44.21	3.88	48.09	74.00	-25.91	peak	

Orthogonal Axis :	X
Test Mode :	TX 2402MHz _CH00_3Mbps

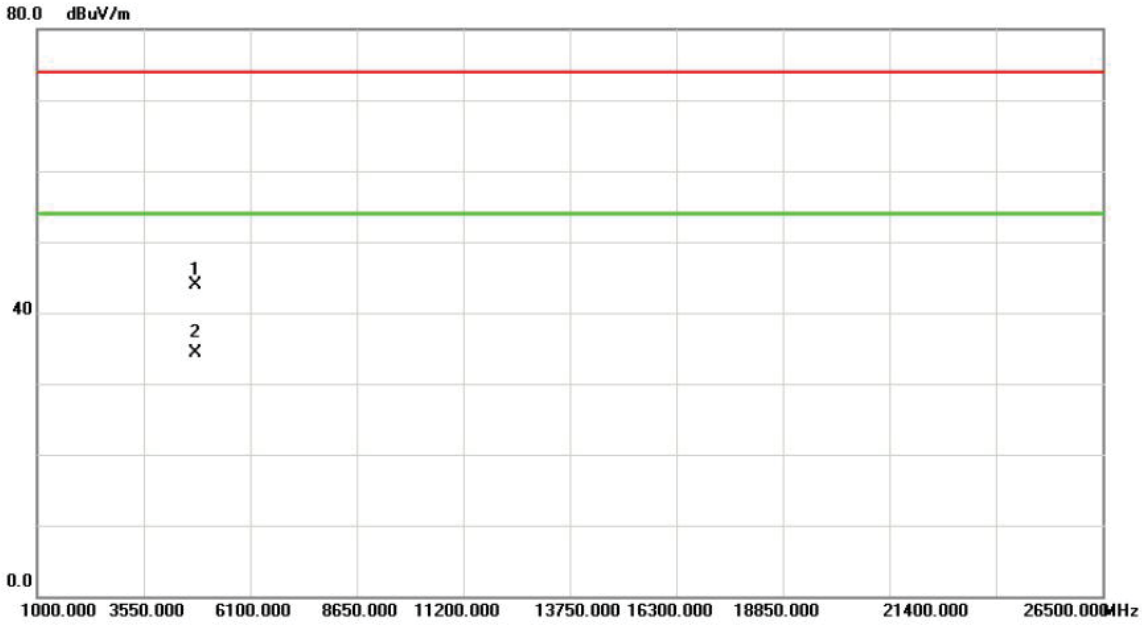
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	23.87	34.17	58.04	74.00	-15.96	peak	
2		2390.000	13.50	34.17	47.67	54.00	-6.33	AVG	
3	X	2401.750	48.21	34.19	82.40	74.00	8.40	peak	NO LIMIT
4	*	2401.950	36.99	34.19	71.18	54.00	17.18	AVG	NO LIMIT

Orthogonal Axis :	X
Test Mode :	TX 2402MHz _CH00_3Mbps

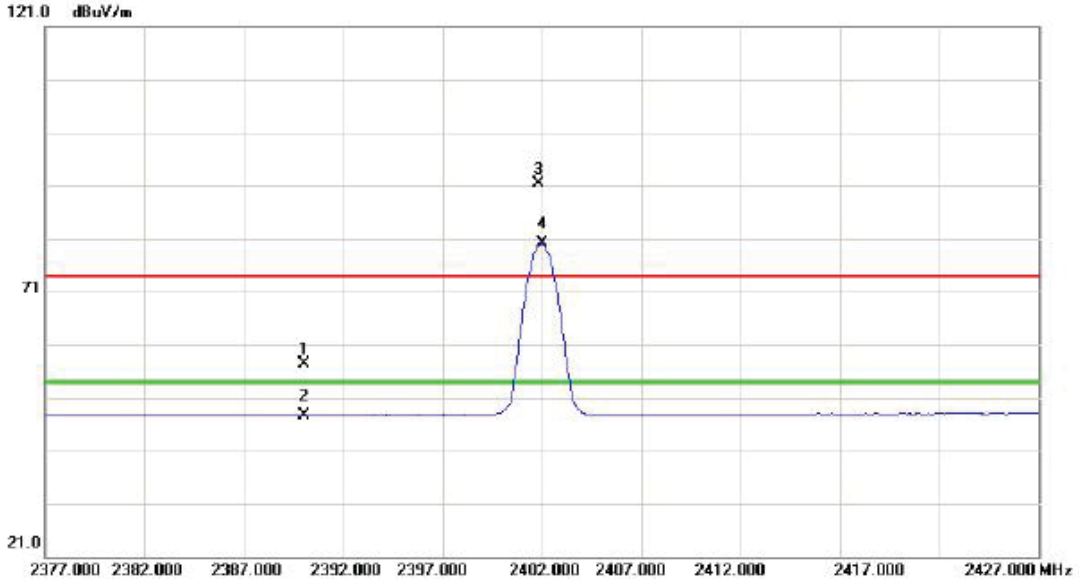
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4803.810	40.25	3.58	43.83	74.00	-30.17	peak	
2	*	4804.170	30.69	3.58	34.27	54.00	-19.73	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2402MHz _CH00_3Mbps

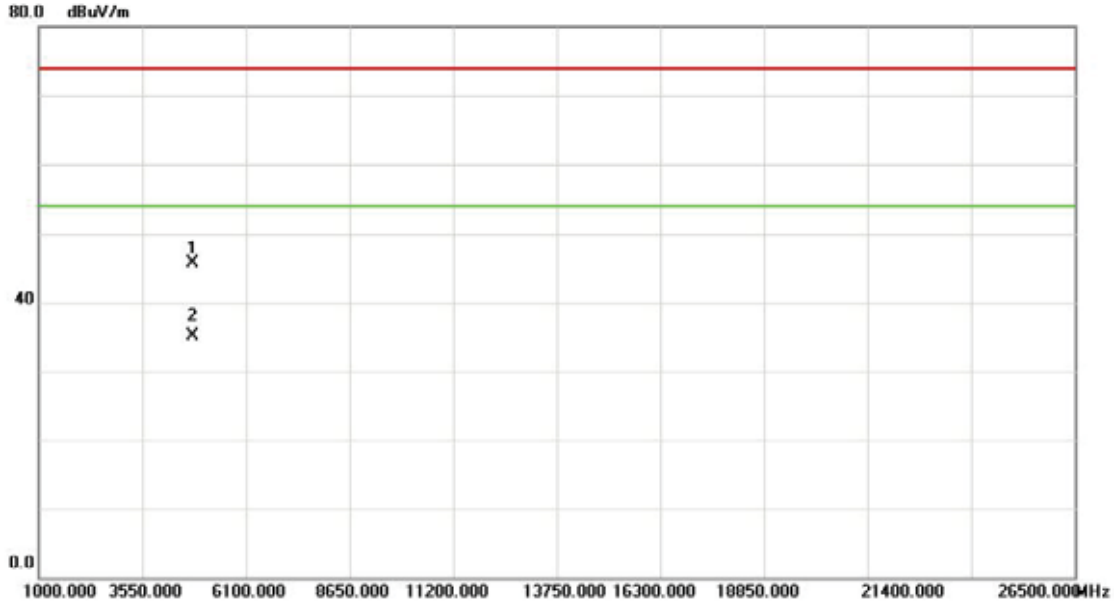
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2390.000	23.12	34.17	57.29	74.00	-16.71	peak	
2		2390.000	13.54	34.17	47.71	54.00	-6.29	AVG	
3	X	2401.850	57.10	34.19	91.29	74.00	17.29	peak	NO LIMIT
4	*	2402.000	45.84	34.19	80.03	54.00	26.03	AVG	NO LIMIT

Orthogonal Axis :	X
Test Mode :	TX 2402MHz _CH00_3Mbps

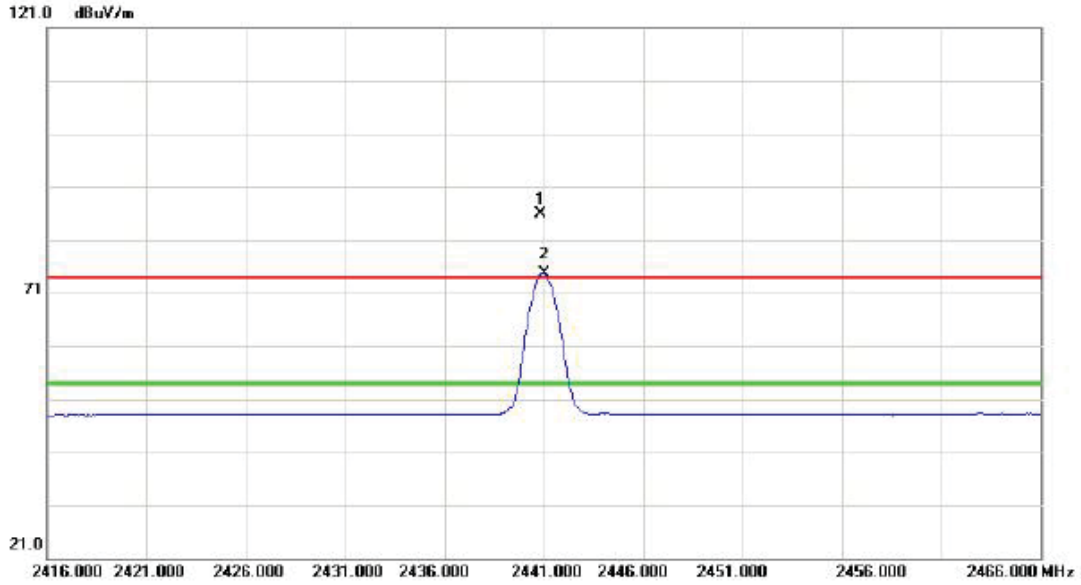
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4803.790	42.06	3.58	45.64	74.00	-28.36	peak	
2	*	4804.110	31.57	3.58	35.15	54.00	-18.85	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2441MHz _CH39_3Mbps

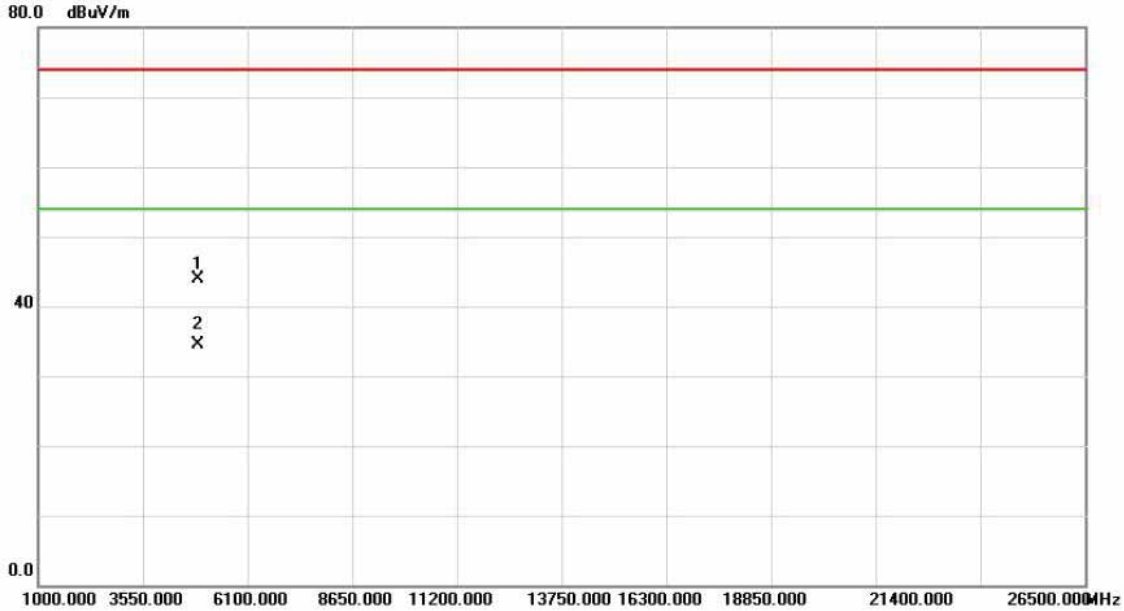
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2440.850	51.47	34.31	85.78	74.00	11.78	peak	NO LIMIT
2	*	2441.000	40.29	34.31	74.60	54.00	20.60	AVG	NO LIMIT

Orthogonal Axis :	X
Test Mode :	TX 2441MHz _CH39_3Mbps

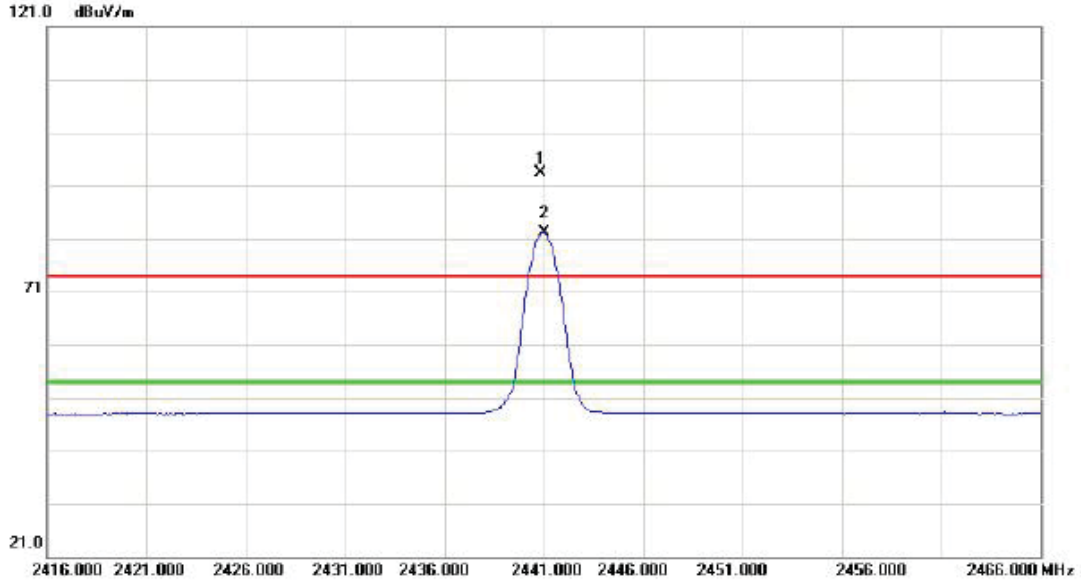
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4881.910	40.21	3.73	43.94	74.00	-30.06	peak	
2	*	4882.040	30.79	3.73	34.52	54.00	-19.48	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2441MHz _CH39_3Mbps

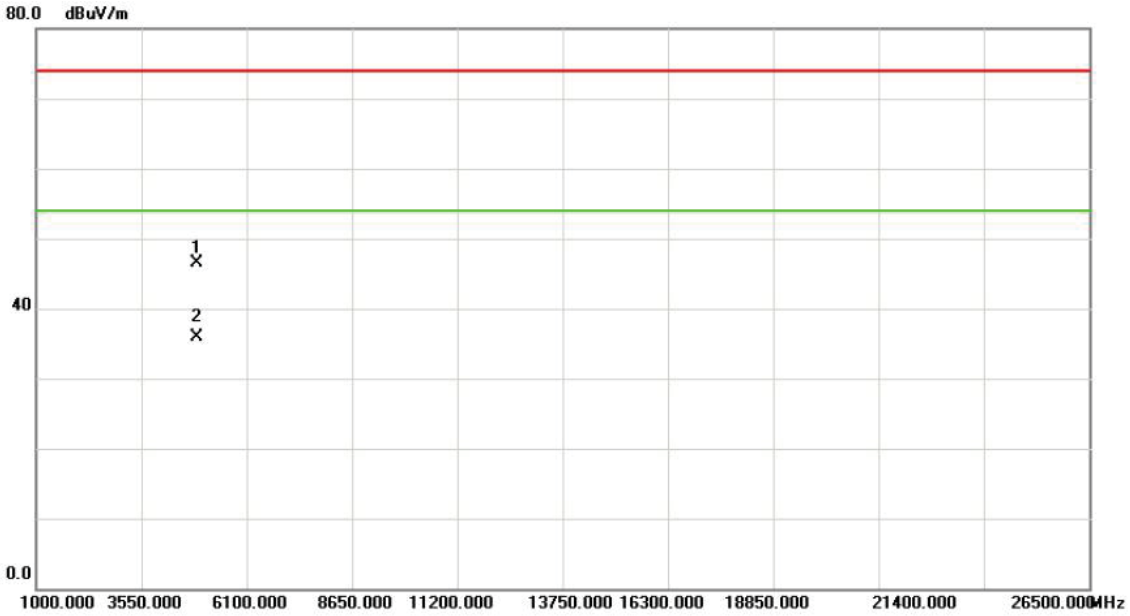
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2440.800	59.01	34.31	93.32	74.00	19.32	peak	NO LIMIT
2	*	2441.000	47.78	34.31	82.09	54.00	28.09	AVG	NO LIMIT

Orthogonal Axis :	X
Test Mode :	TX 2441MHz _CH39_3Mbps

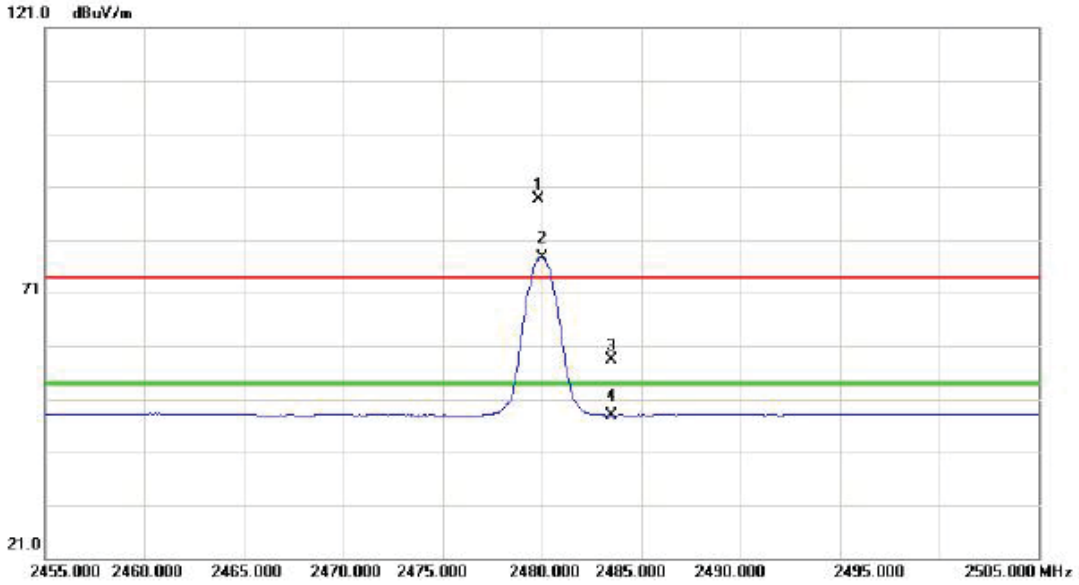
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4882.130	42.68	3.73	46.41	74.00	-27.59	peak	
2	*	4882.290	32.12	3.73	35.85	54.00	-18.15	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH78_3Mbps

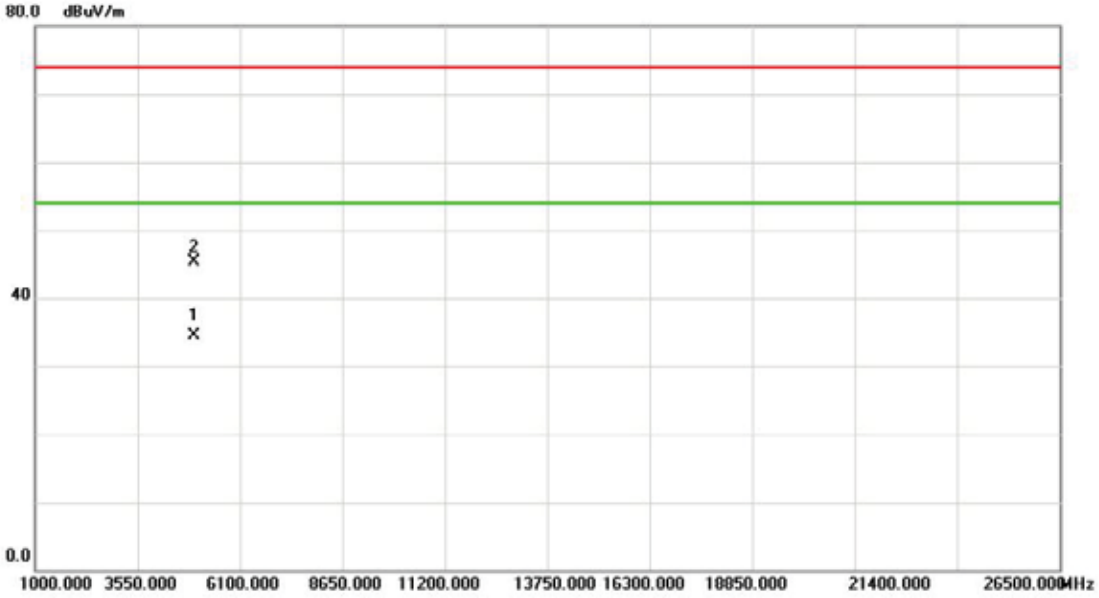
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2479.800	54.27	34.42	88.69	74.00	14.69	peak	NO LIMIT
2	*	2480.000	43.17	34.42	77.59	54.00	23.59	AVG	NO LIMIT
3		2483.500	23.89	34.43	58.32	74.00	-15.68	peak	
4		2483.500	13.54	34.43	47.97	54.00	-6.03	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH78_3Mbps

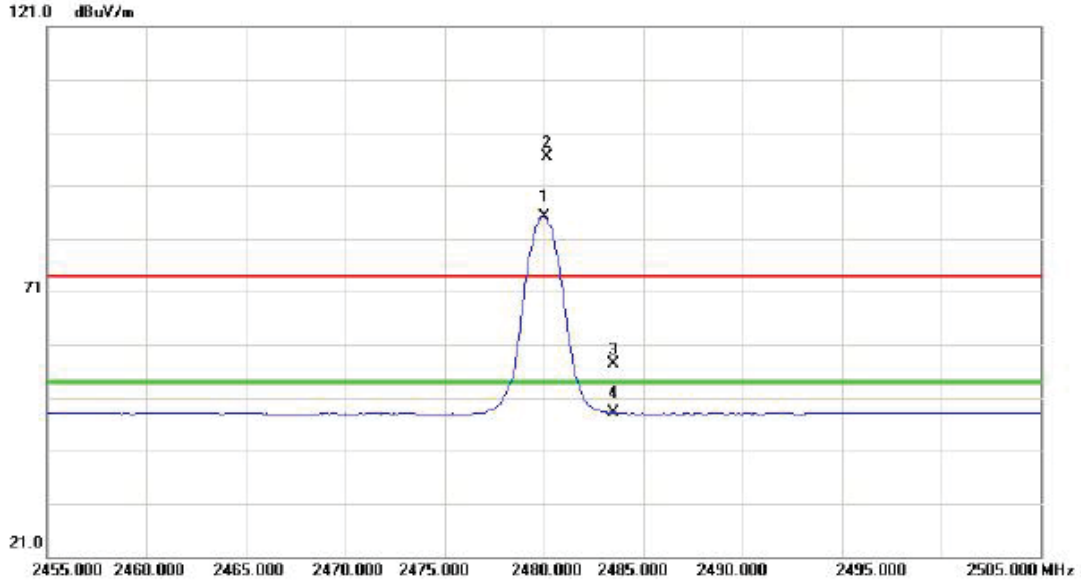
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4960.210	30.72	3.88	34.60	54.00	-19.40	AVG	
2		4960.380	41.38	3.88	45.26	74.00	-28.74	peak	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH78_3Mbps

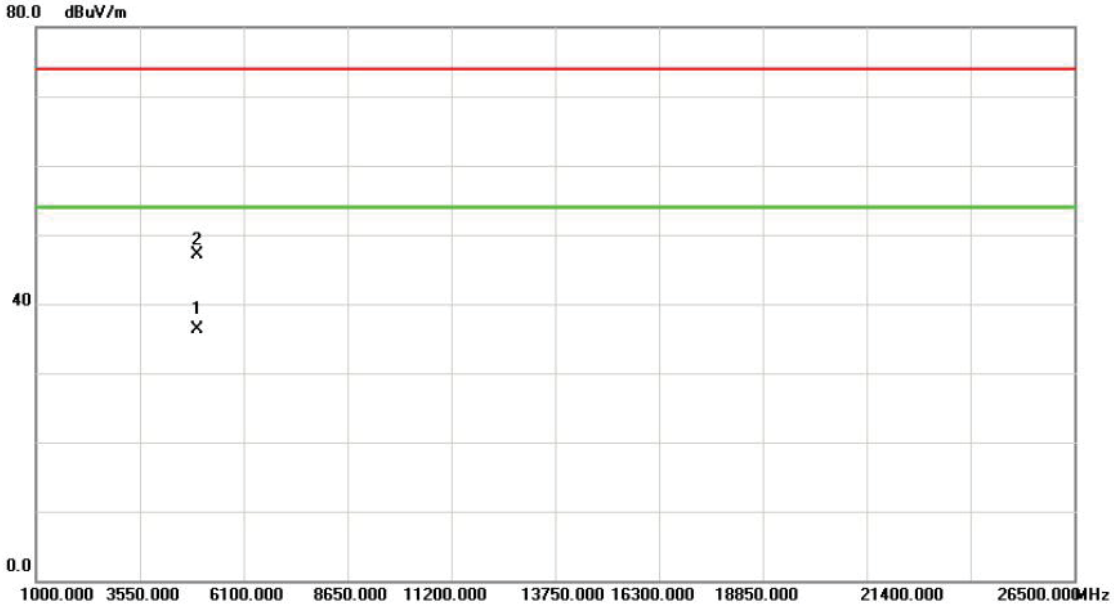
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2480.000	50.72	34.42	85.14	54.00	31.14	AVG	NO LIMIT
2	X	2480.150	61.84	34.42	96.26	74.00	22.26	peak	NO LIMIT
3		2483.500	23.06	34.43	57.49	74.00	-16.51	peak	
4		2483.500	13.65	34.43	48.08	54.00	-5.92	AVG	

Orthogonal Axis :	X
Test Mode :	TX 2480MHz _CH78_3Mbps

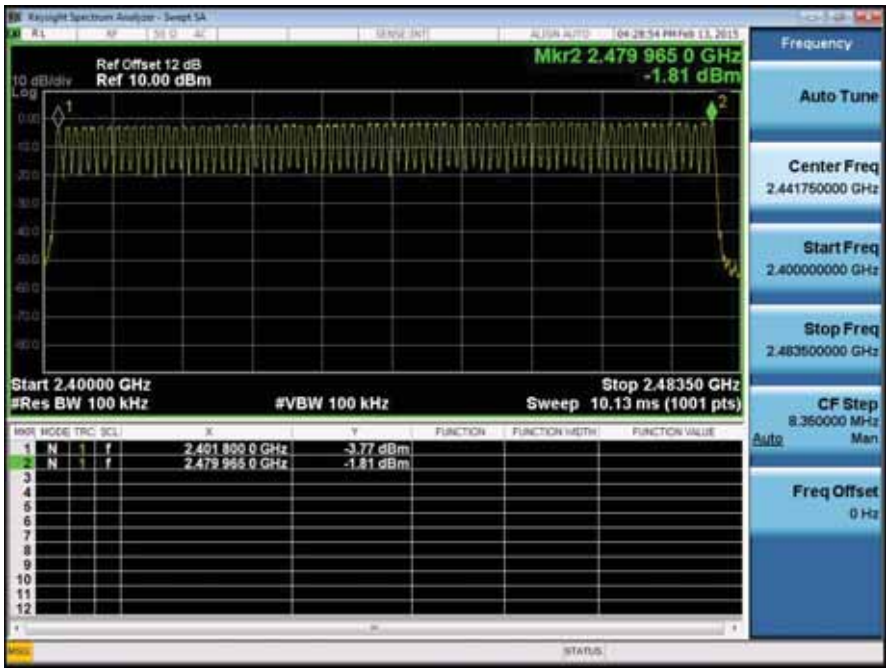
Horizontal



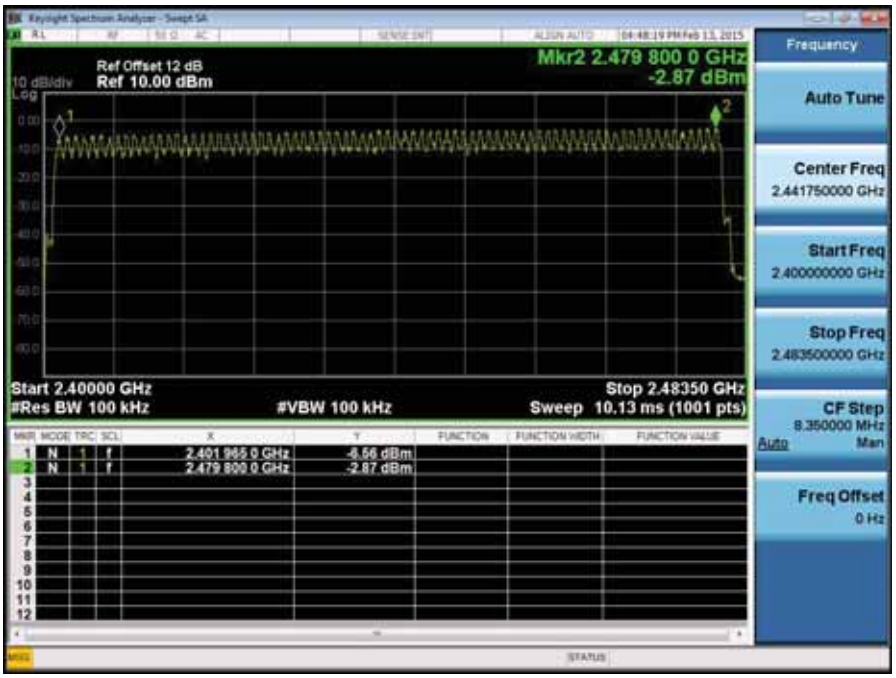
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4959.850	32.46	3.88	36.34	54.00	-17.66	AVG	
2		4959.930	43.21	3.88	47.09	74.00	-26.91	peak	

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

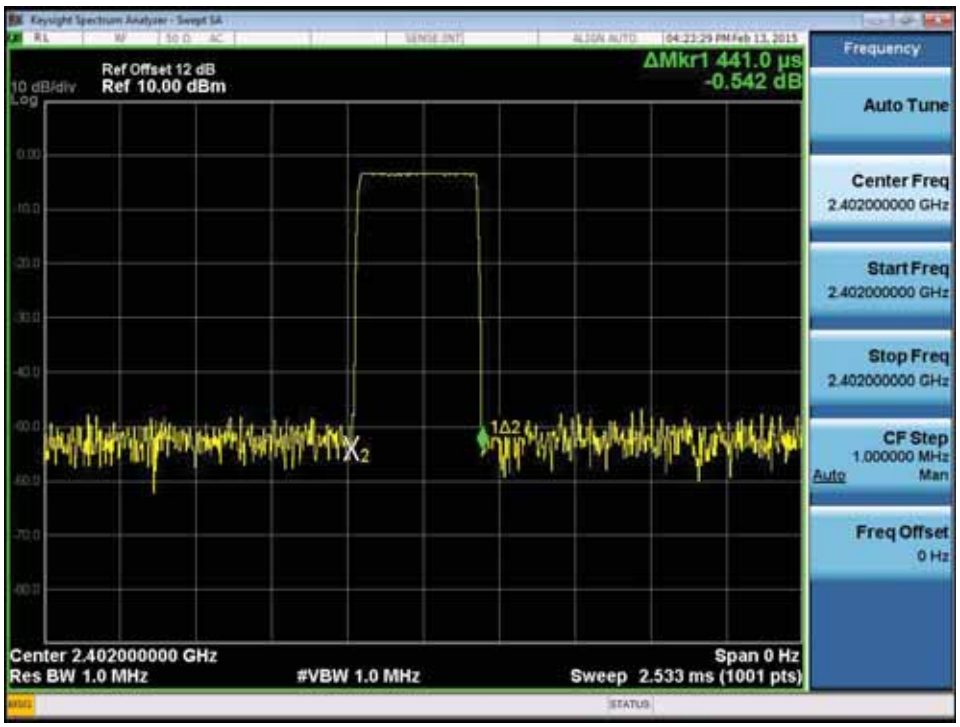


ATTACHMENT F - AVERAGE TIME OF OCCUPANCY

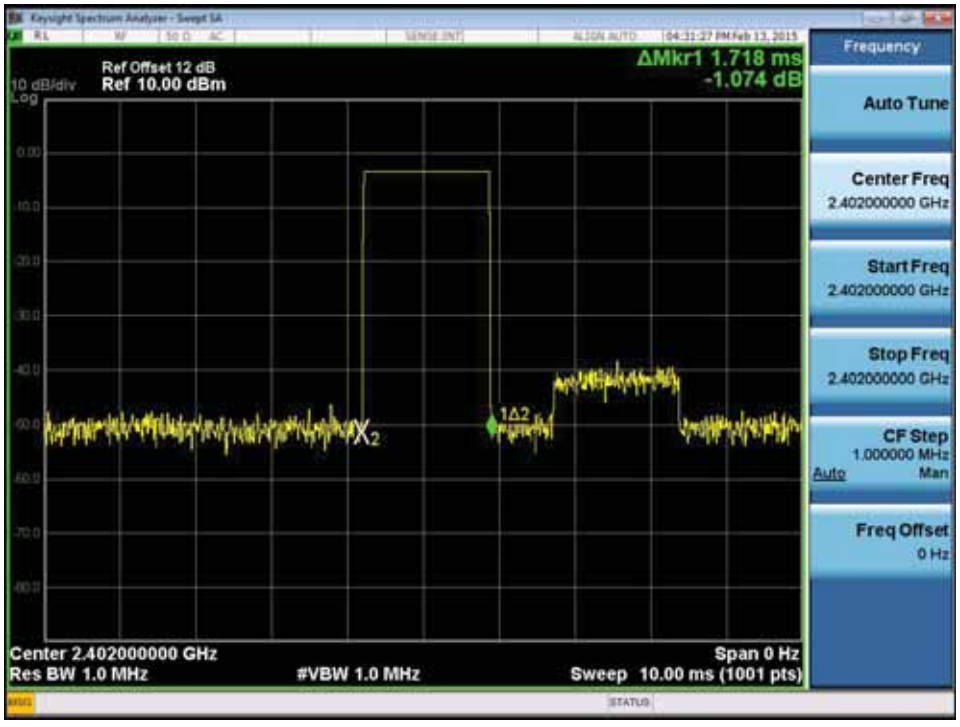
Test Mode :	TX Mode_1Mbps

Data Packet	Frequency (MHz)	Pulse Duration (ms)	Dwell Time (s)	Limits (s)	Test Result
DH5	2402	3.0390	0.3242	0.4000	Complies
DH3	2402	1.7180	0.2749	0.4000	Complies
DH1	2402	0.4410	0.1411	0.4000	Complies
DH5	2441	3.0200	0.3221	0.4000	Complies
DH3	2441	1.7600	0.2816	0.4000	Complies
DH1	2441	0.4400	0.1408	0.4000	Complies
DH5	2480	2.9990	0.3199	0.4000	Complies
DH3	2480	1.7270	0.2763	0.4000	Complies
DH1	2480	0.4330	0.1386	0.4000	Complies

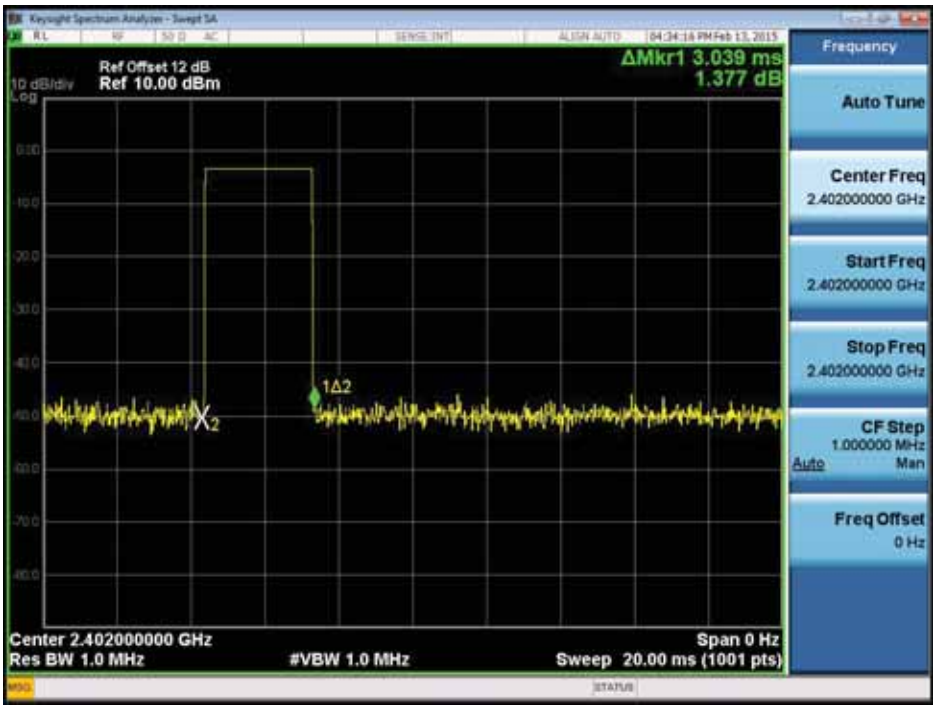
CH00-DH1



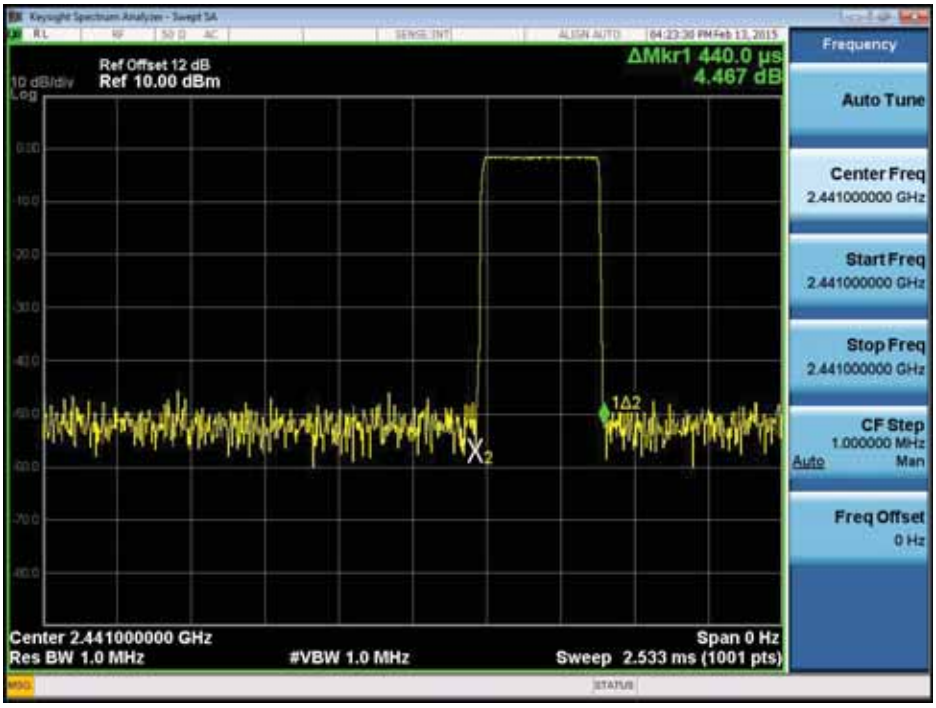
CH00-DH3



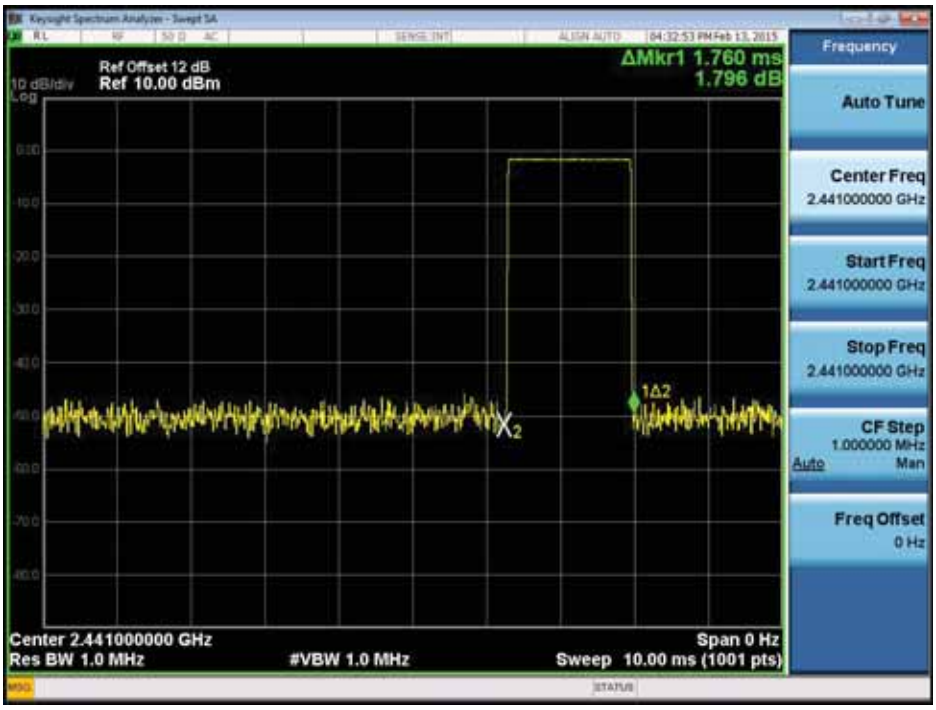
CH00-DH5



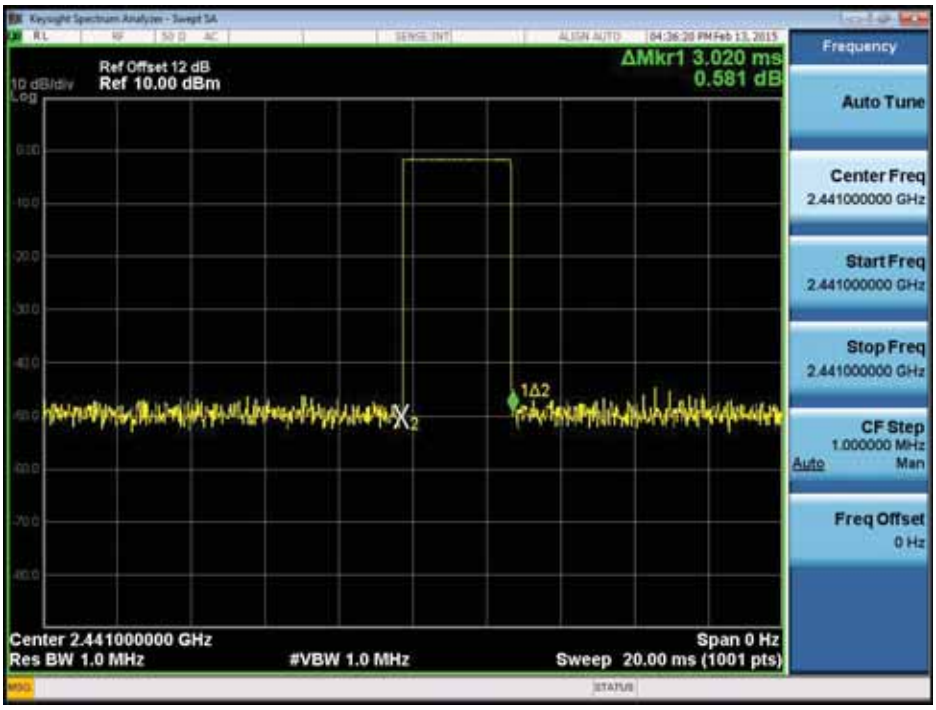
CH39-DH1



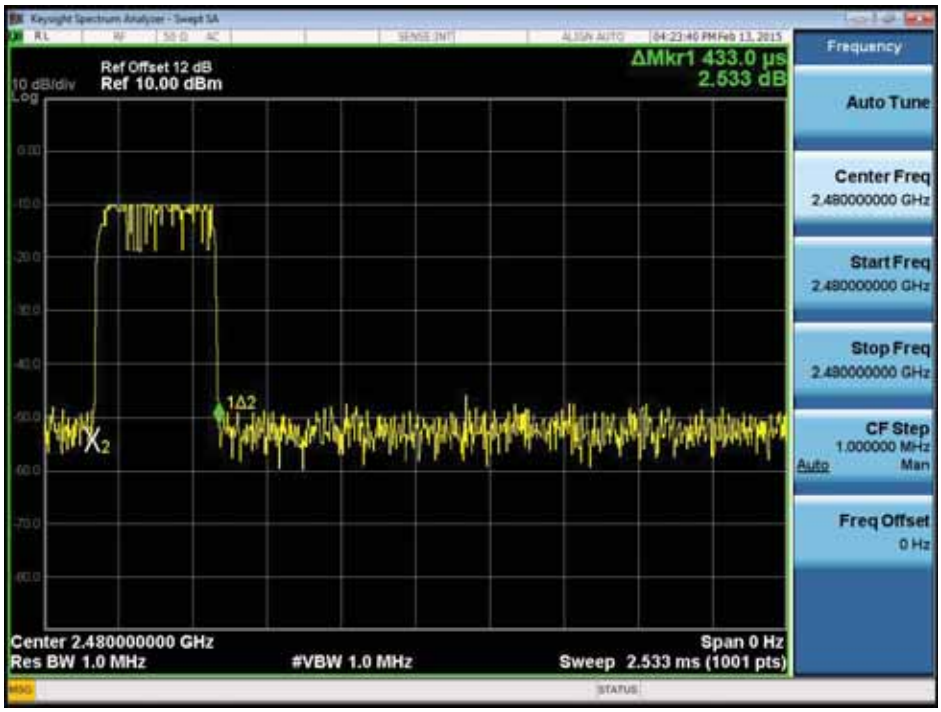
CH39-DH3



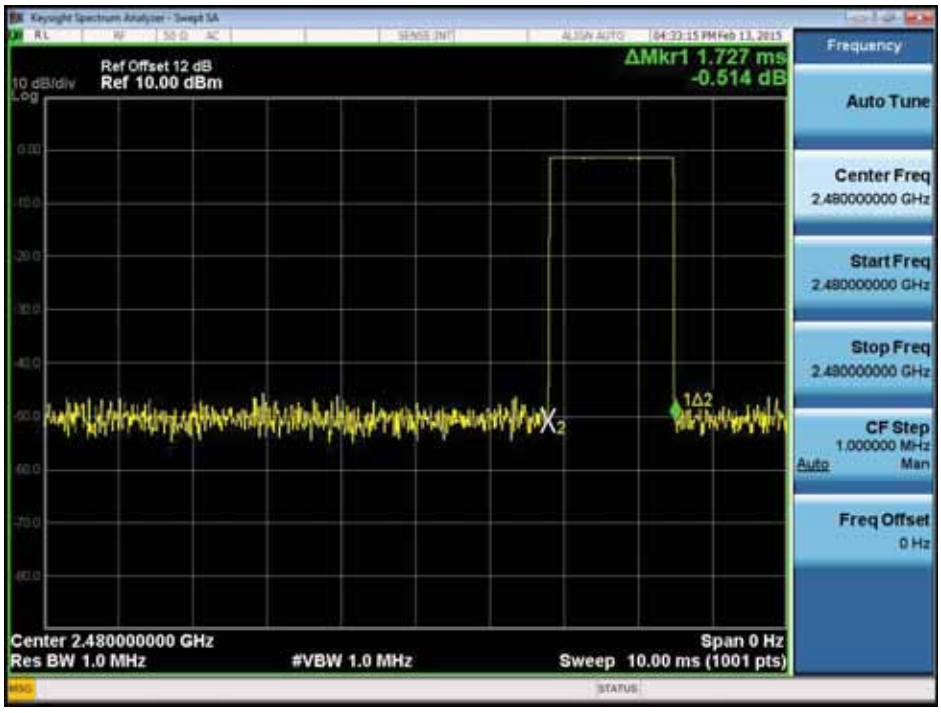
CH39-DH5



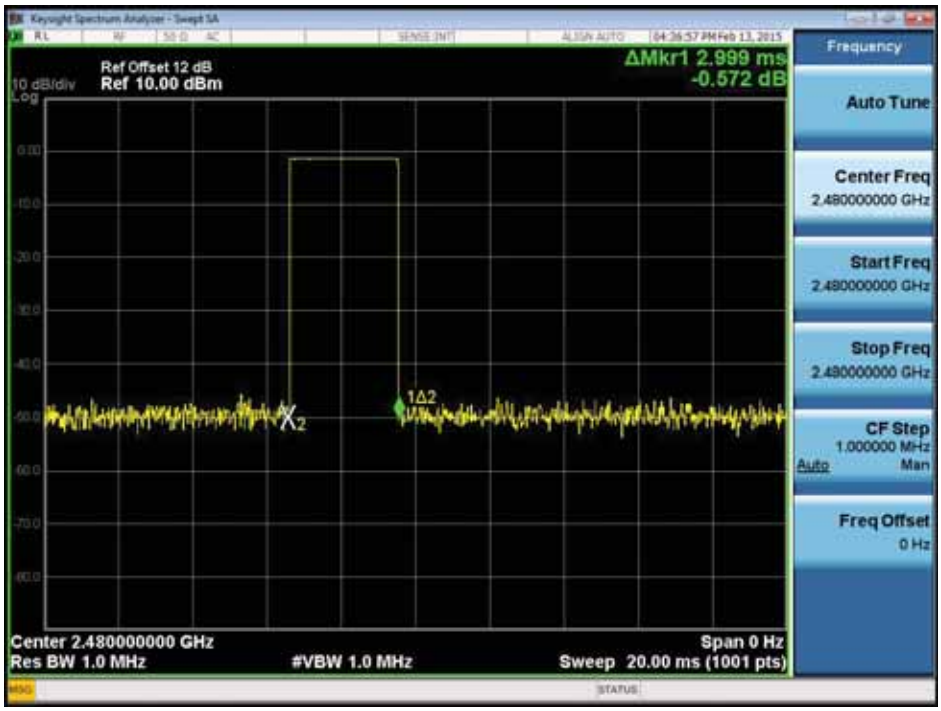
CH78-DH1



CH78-DH3



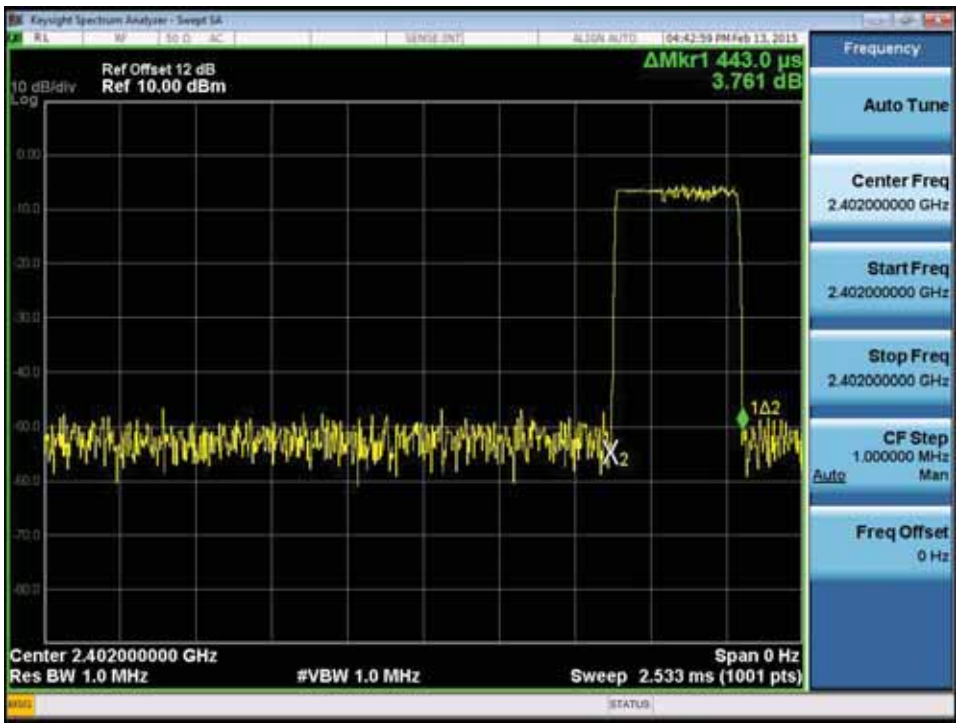
CH78-DH5


Ref Offset 12 dB
10 dB/div Ref 10.00 dBm
Log
ΔMkr1 2.999 ms
-0.572 dB
1Δ2
Center 2.480000000 GHz
Res BW 1.0 MHz
#VBW 1.0 MHz
Span 0 Hz
Sweep 20.00 ms (1001 pts)
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

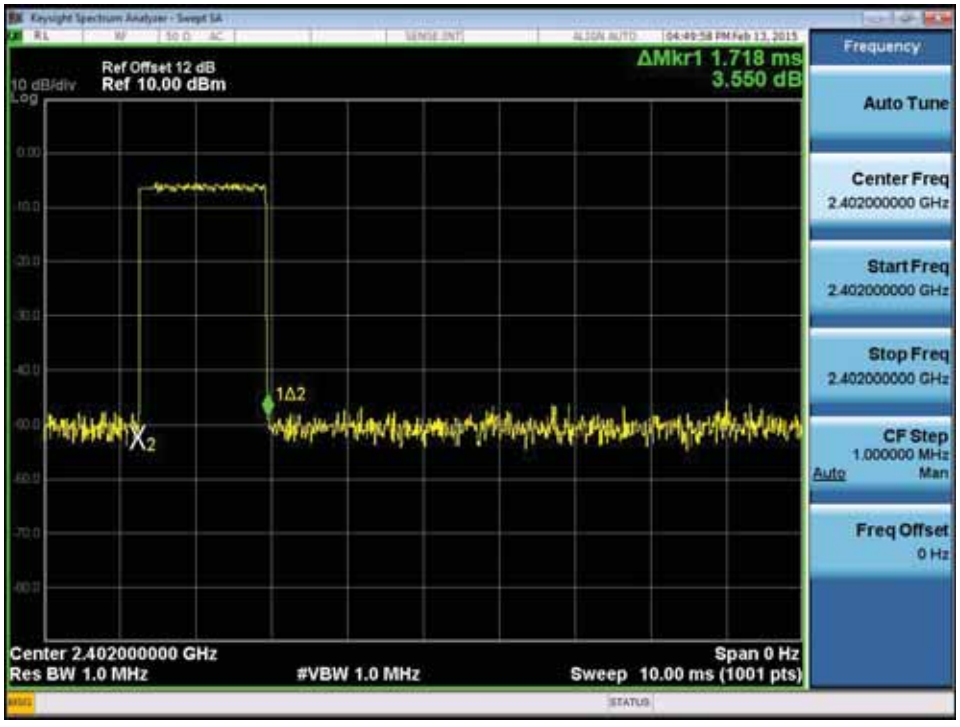
Test Mode :	TX Mode_3Mbps

Data Packet	Frequency (MHz)	Pulse Duration (ms)	Dwell Time (s)	Limits (s)	Test Result
DH5	2402	3.0570	0.3261	0.4000	Complies
DH3	2402	1.7180	0.2749	0.4000	Complies
DH1	2402	0.4430	0.1418	0.4000	Complies
DH5	2441	3.0170	0.3218	0.4000	Complies
DH3	2441	1.7390	0.2782	0.4000	Complies
DH1	2441	0.4490	0.1437	0.4000	Complies
DH5	2480	2.9980	0.3198	0.4000	Complies
DH3	2480	1.7270	0.2763	0.4000	Complies
DH1	2480	0.4440	0.1421	0.4000	Complies

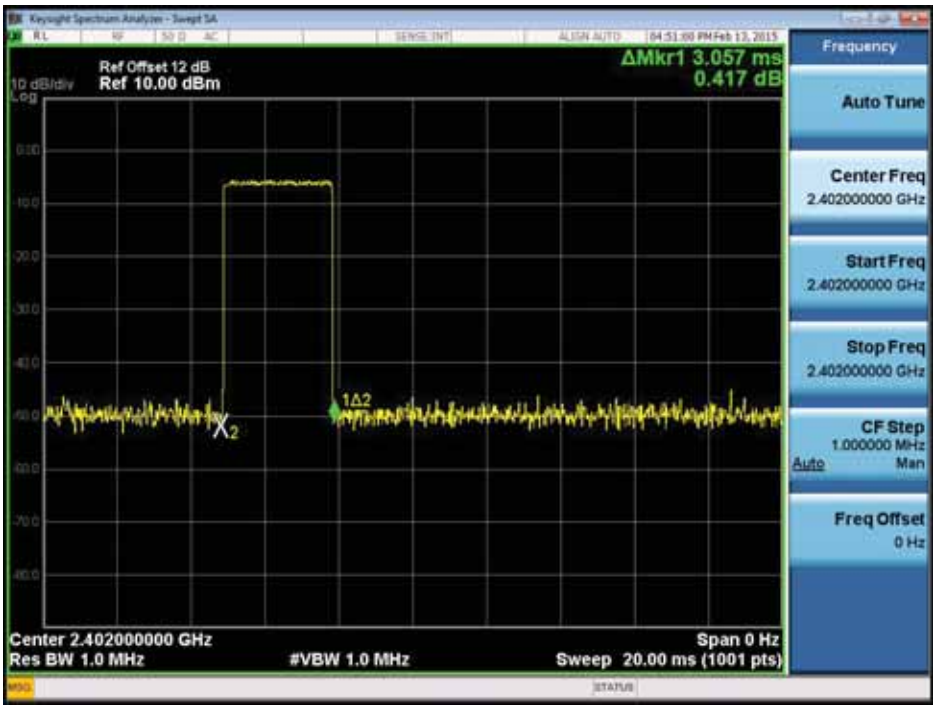
CH00-DH1



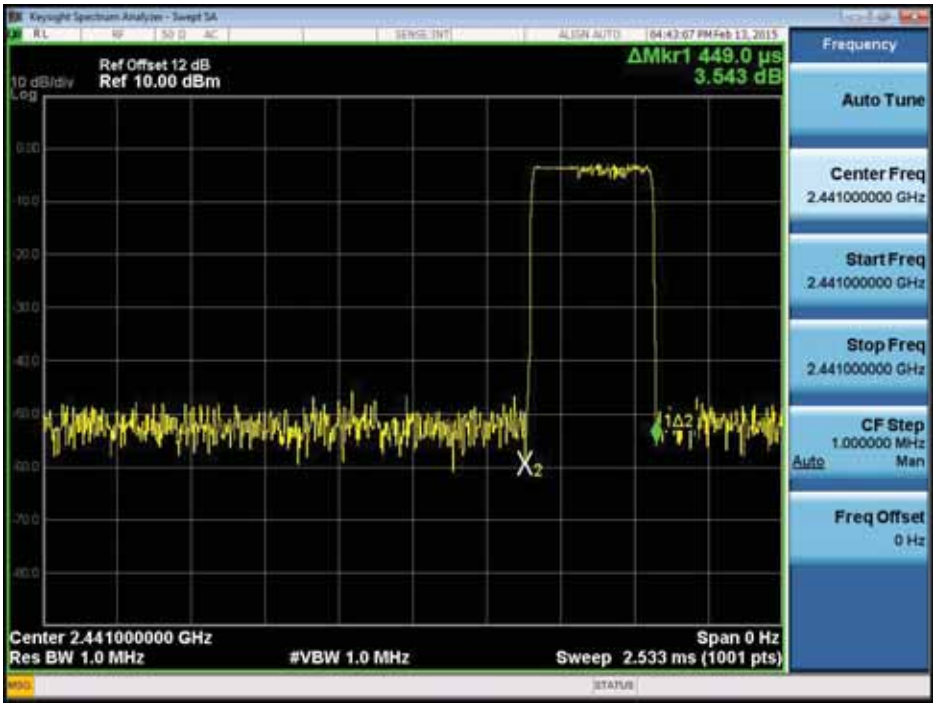
CH00-DH3



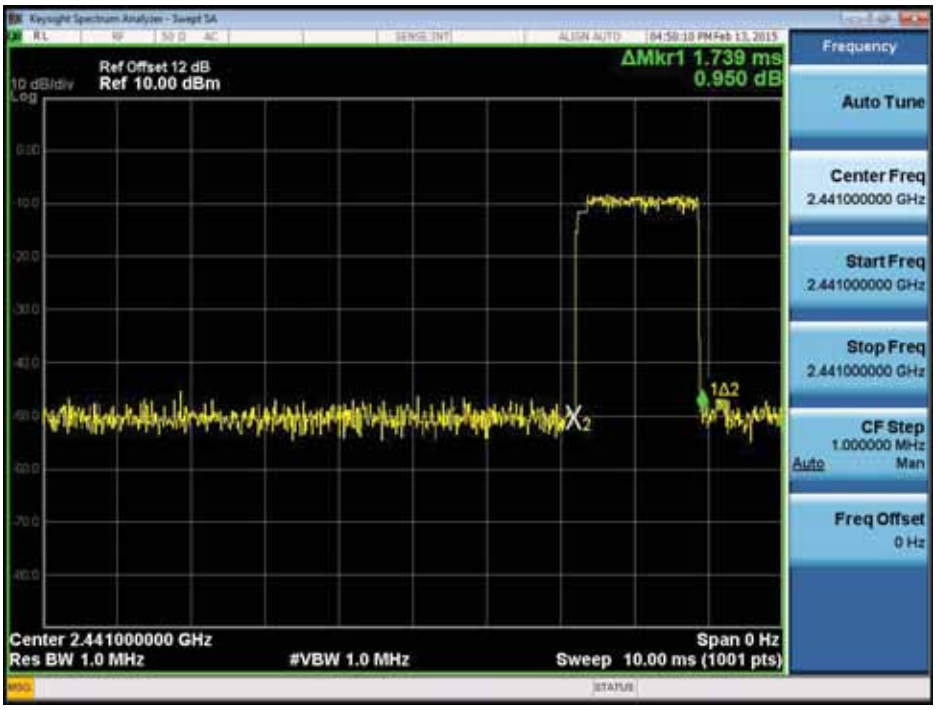
CH00-DH5



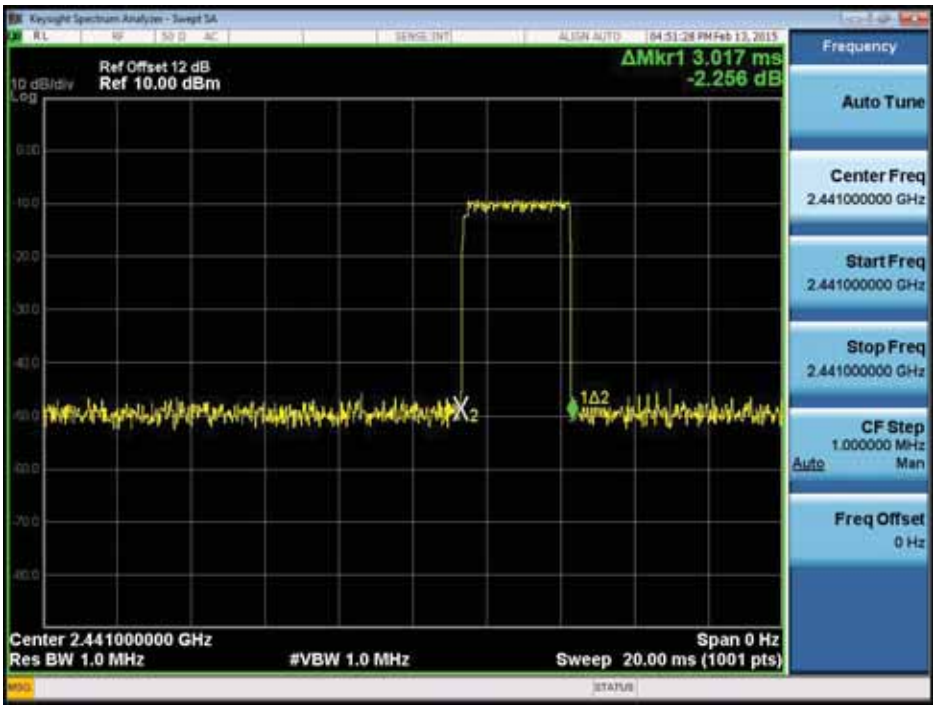
CH39-DH1



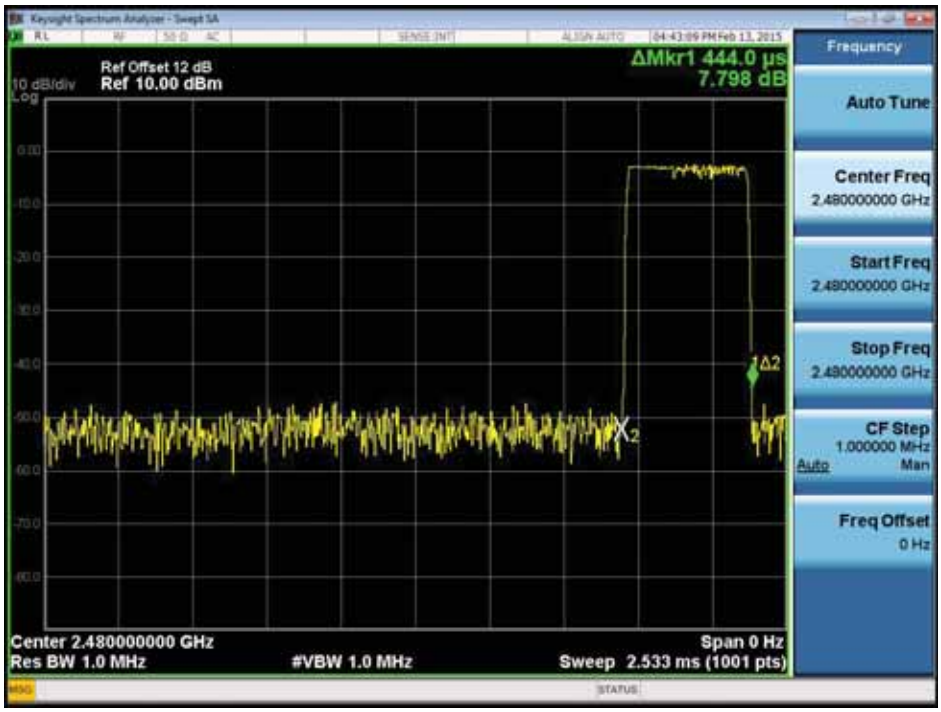
CH39-DH3



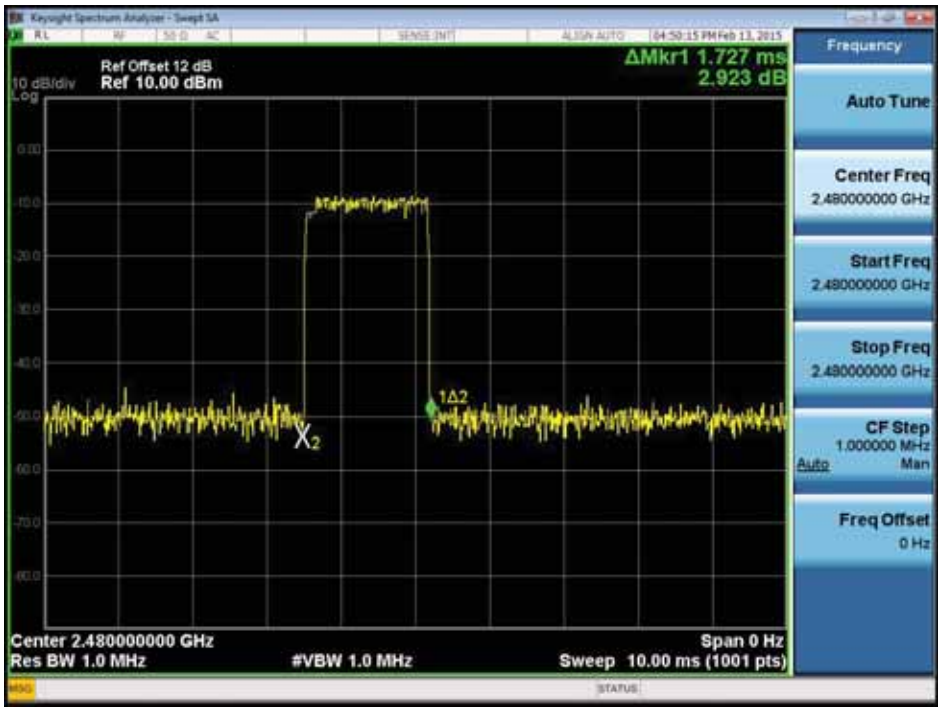
CH39-DH5



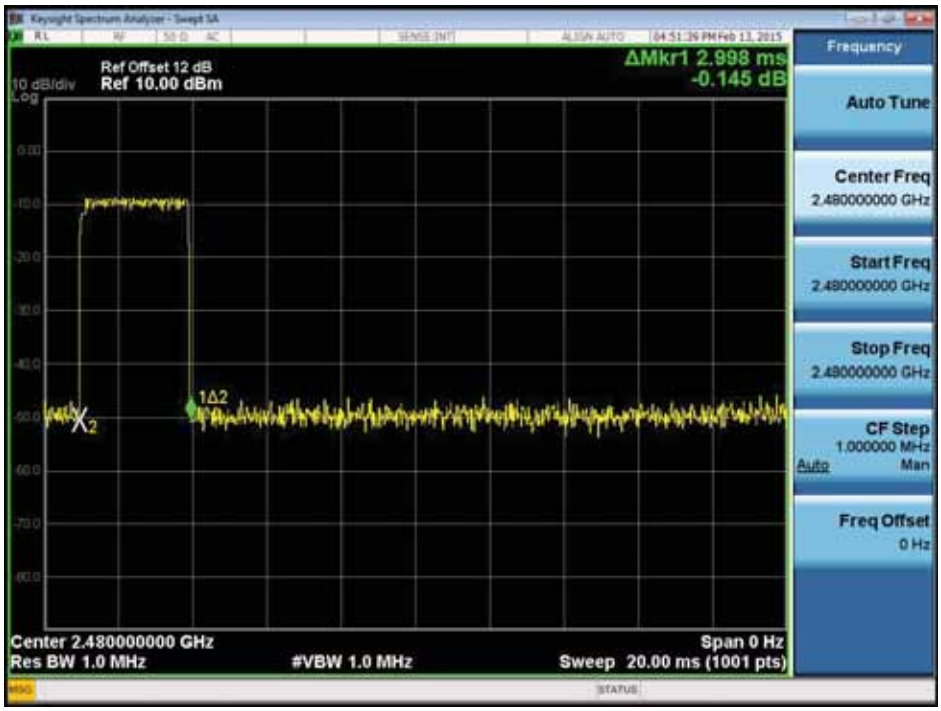
CH78-DH1



CH78-DH3



CH78-DH5

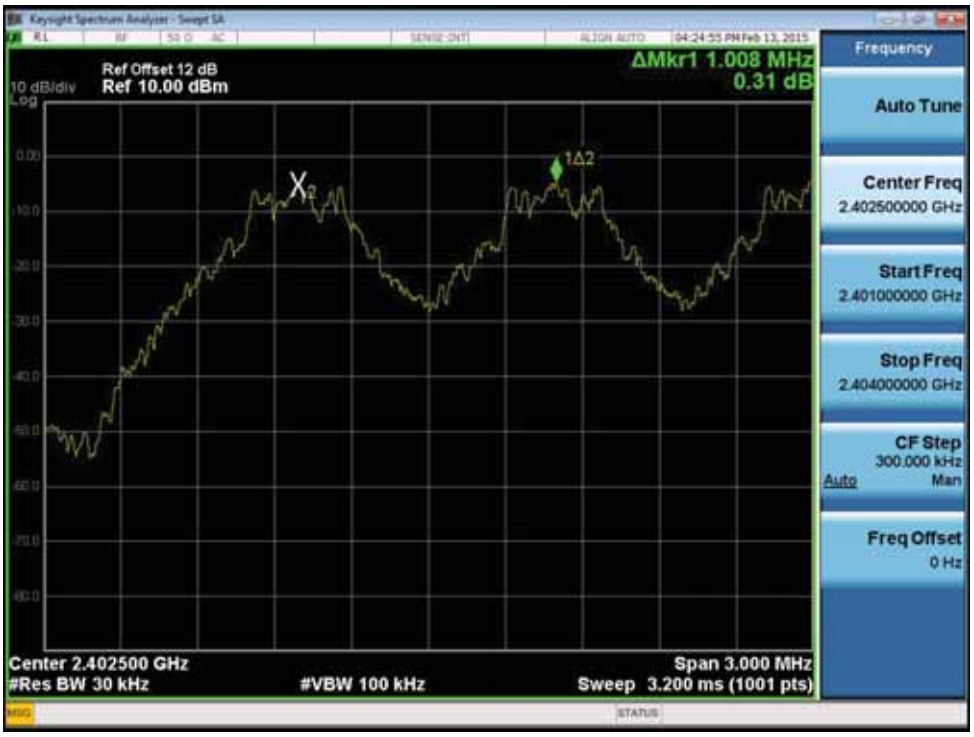

Ref Offset 12 dB
10 dB/div Ref 10.00 dBm
Log
ΔMkr1 2.998 ms
-0.145 dB
1Δ2
Center 2.480000000 GHz
Res BW 1.0 MHz
#VBW 1.0 MHz
Span 0 Hz
Sweep 20.00 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.480000000 GHz
Stop Freq
2.480000000 GHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz

ATTACHMENT G - HOPPING CHANNEL SEPARATION MEASUREMENT

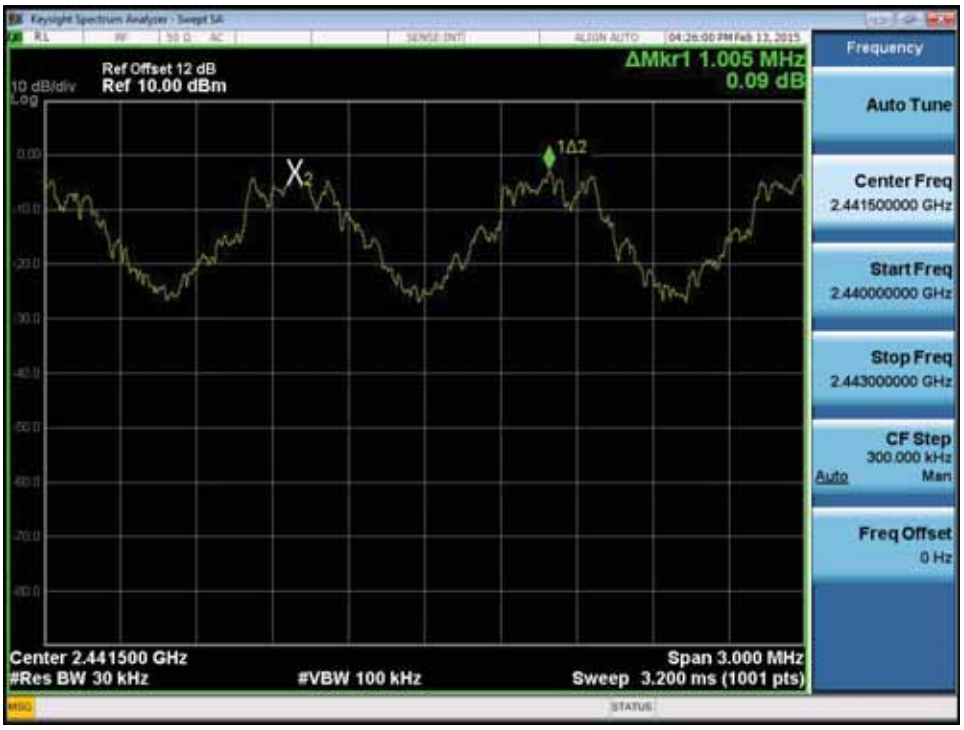
Test Mode :	Hopping on _1Mbps

Frequency (MHz)	Channel Separation (MHz)	2/3 of 20dB Bandwidth (MHz)	Test Result
2402	1.008	0.614	Complies
2441	1.005	0.581	Complies
2480	0.993	0.585	Complies

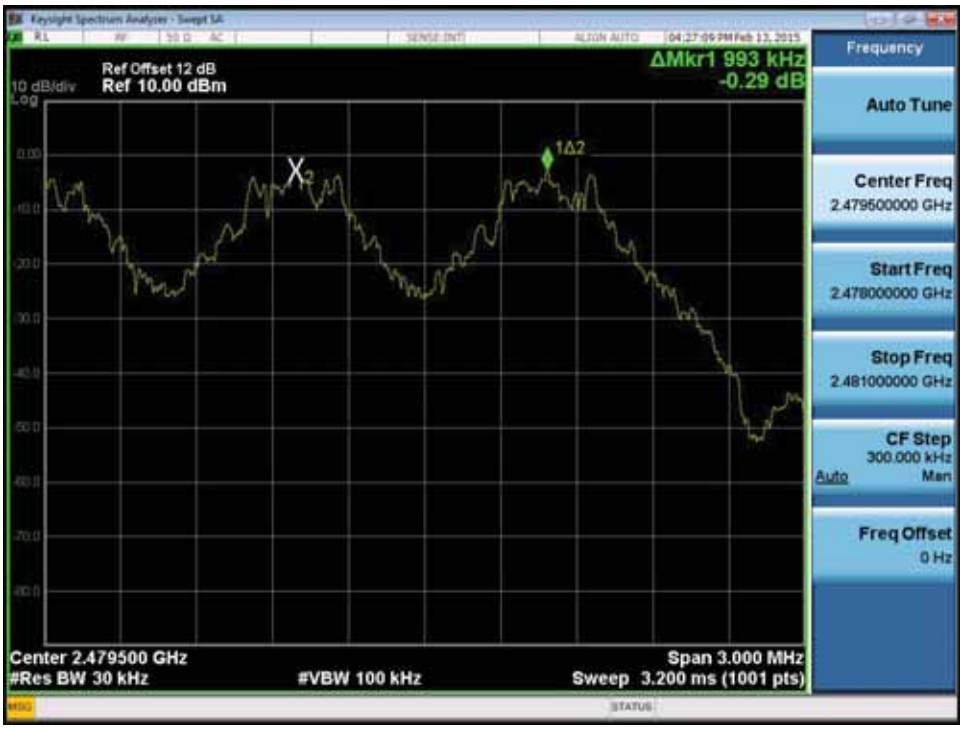
CH00



CH39


Ref Offset 12 dB
10 dB/div Ref 10.00 dBm
ΔMkr1 1.005 MHz
0.09 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


Ref Offset 12 dB
10 dB/div Ref 10.00 dBm
ΔMkr1 993 kHz
-0.29 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	0.999	0.811	Complies
2441	0.993	0.813	Complies
2480	1.008	0.812	Complies

CH00

CH39


Ref Offset 12 dB
10 dB/div Ref 10.00 dBm
ΔMkr1 993 kHz
-0.48 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


Ref Offset 12 dB
10 dB/div Ref 10.00 dBm
ΔMkr1 1.008 MHz
-0.69 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	0.922	0.826	Complies
2441	0.871	0.814	Complies
2480	0.877	0.816	Complies

CH00

CH39


Ref Offset 12 dB
10 dB/div Ref 10.00 dBm
Log
Center 2.441 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.133 ms
Occupied Bandwidth
813.85 kHz
Total Power 5.85 dBm
Transmit Freq Error -12.365 kHz
OBW Power 99.00 %
x dB Bandwidth 870.9 kHz
x dB -20.00 dB
Frequency
Center Freq
2.441000000 GHz
CF Step
200.000 kHz
Auto Man
Freq Offset
0 Hz

CH78

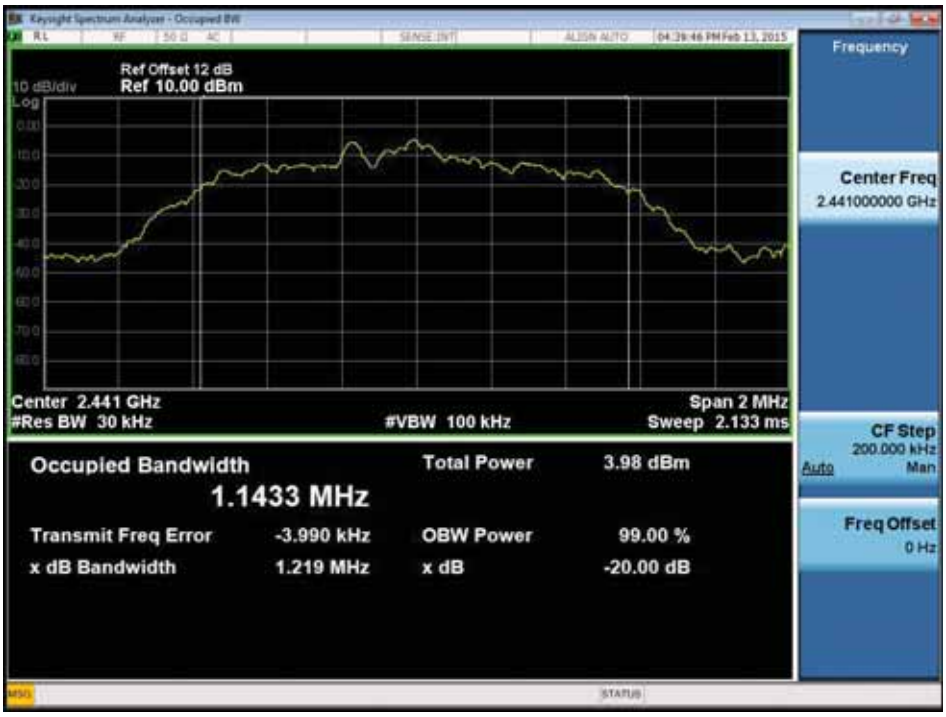

Ref Offset 12 dB
10 dB/div Ref 10.00 dBm
Log
Center 2.48 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.133 ms
Occupied Bandwidth
815.98 kHz
Total Power 6.06 dBm
Transmit Freq Error -11.211 kHz
OBW Power 99.00 %
x dB Bandwidth 877.3 kHz
x dB -20.00 dB
Frequency
Center Freq
2.480000000 GHz
CF Step
200.000 kHz
Auto Man
Freq Offset
0 Hz

Test Mode :	TX Mode _3Mbps

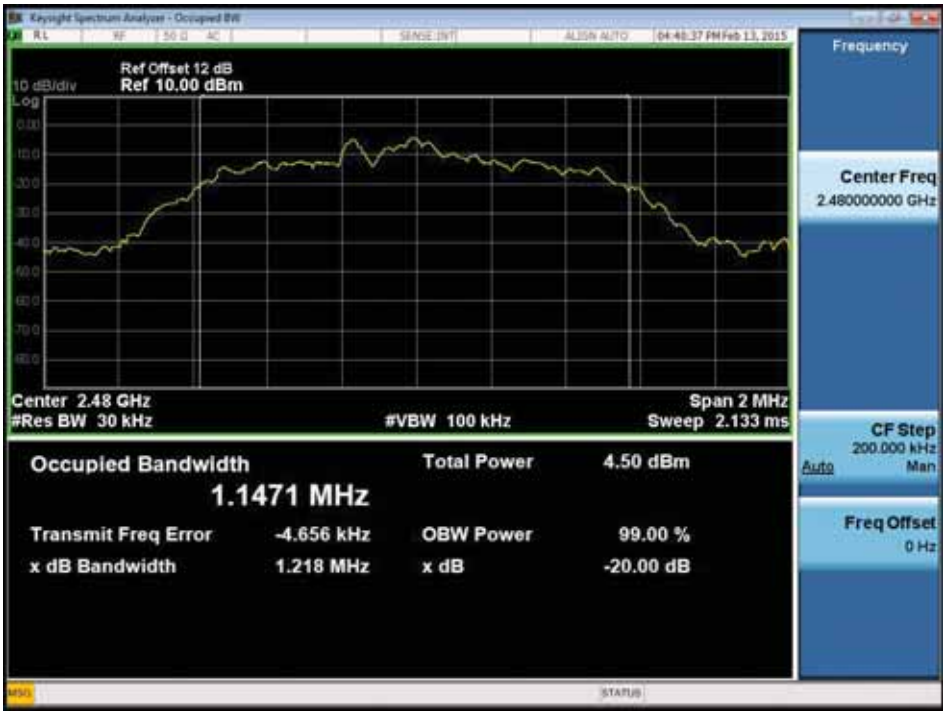
Frequency (MHz)	20dB Bandwidth (MHz)	99% Occupied BW (MHz)	Test Result
2402	1.217	1.139	Complies
2441	1.219	1.143	Complies
2480	1.218	1.147	Complies

CH00

CH39


Ref Offset 12 dB
10 dB/div Ref 10.00 dBm
Log
Center 2.441 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.133 ms
Occupied Bandwidth
1.1433 MHz
Total Power 3.98 dBm
Transmit Freq Error -3.990 kHz
OBW Power 99.00 %
x dB Bandwidth 1.219 MHz
x dB -20.00 dB
Frequency
Center Freq
2.441000000 GHz
CF Step
200.000 kHz
Auto Man
Freq Offset
0 Hz

CH78

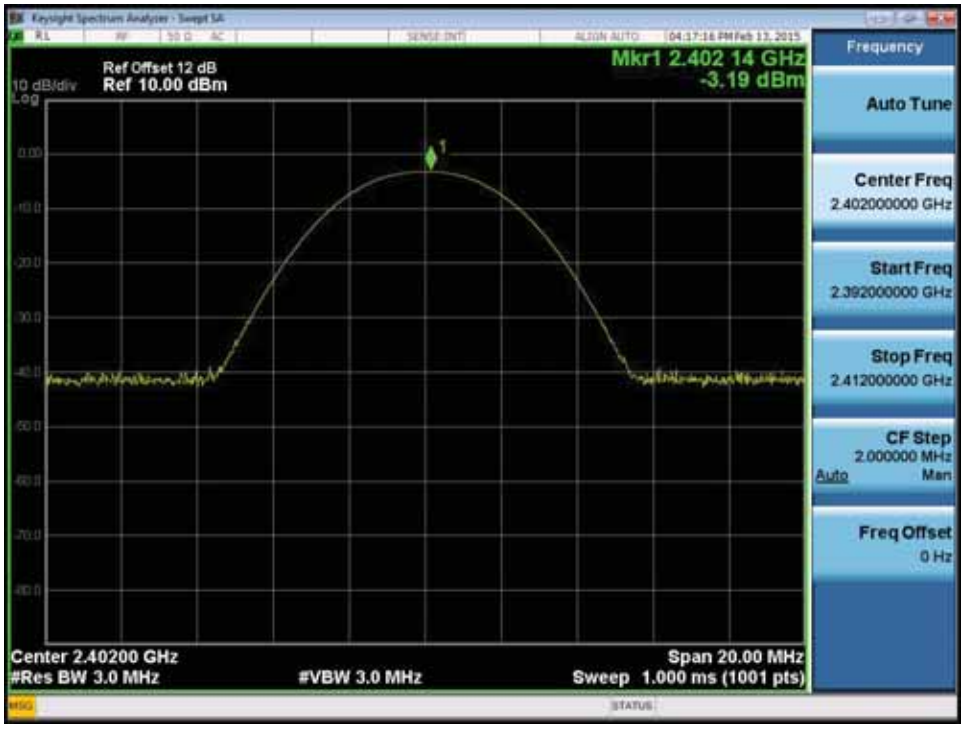

Ref Offset 12 dB
10 dB/div Ref 10.00 dBm
Log
Center 2.48 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 2 MHz
Sweep 2.133 ms
Occupied Bandwidth
1.1471 MHz
Total Power 4.50 dBm
Transmit Freq Error -4.656 kHz
OBW Power 99.00 %
x dB Bandwidth 1.218 MHz
x dB -20.00 dB
Frequency
Center Freq
2.480000000 GHz
CF Step
200.000 kHz
Auto Man
Freq Offset
0 Hz

ATTACHMENT I - PEAK OUTPUT POWER

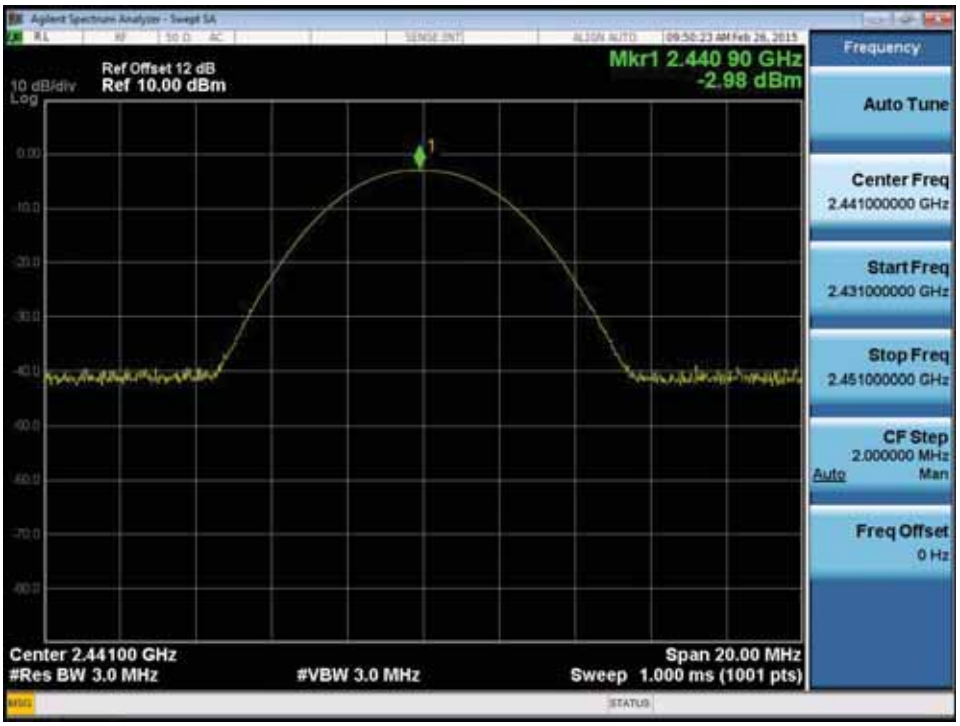
Test Mode :	TX Mode _1Mbps

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watt)	Max. Limit (dBm)	Max. Limit (Watt)	Test Result
2402	-3.19	0.0005	30.00	1.0000	Complies
2441	-2.98	0.0005	30.00	1.0000	Complies
2480	-3.05	0.0005	30.00	1.0000	Complies

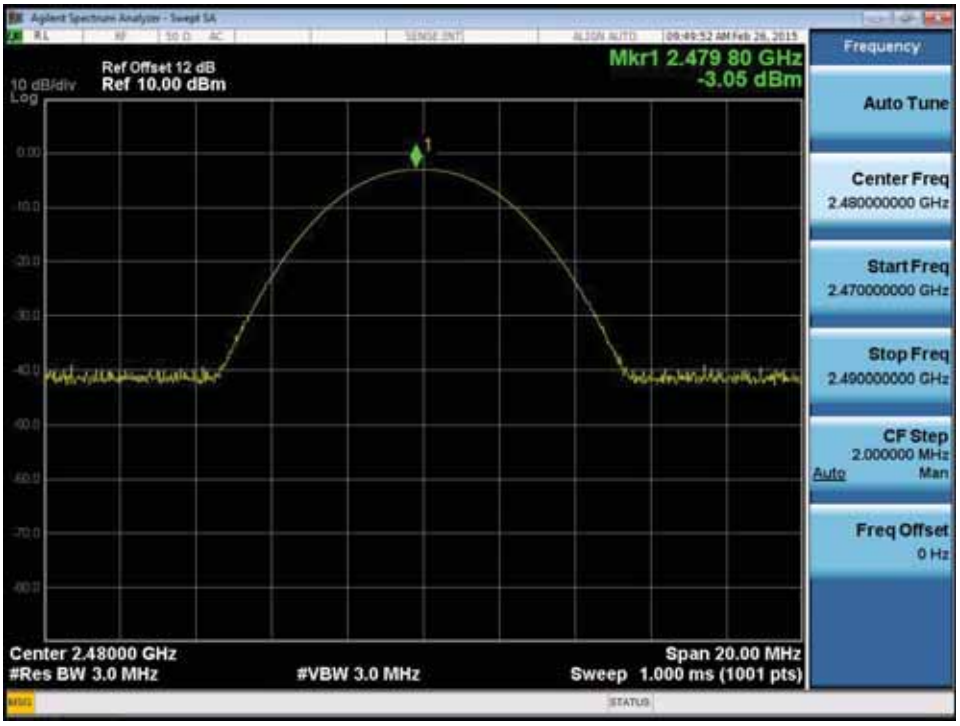
CH00



CH39


Agilent Spectrum Analyzer - Swept SA
Ref Offset 12 dB
10 dB/div Ref 10.00 dBm
Log
Mkr1 2.440 90 GHz
-2.98 dBm
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

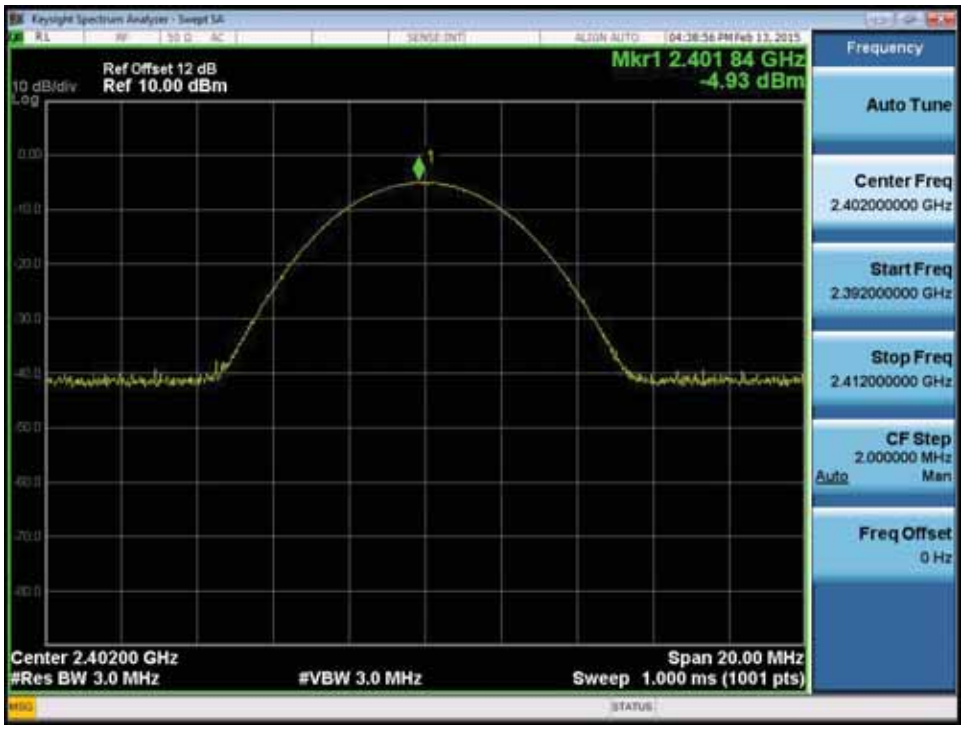
CH78


Agilent Spectrum Analyzer - Swept SA
Ref Offset 12 dB
10 dB/div Ref 10.00 dBm
Log
Mkr1 2.479 80 GHz
-3.05 dBm
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

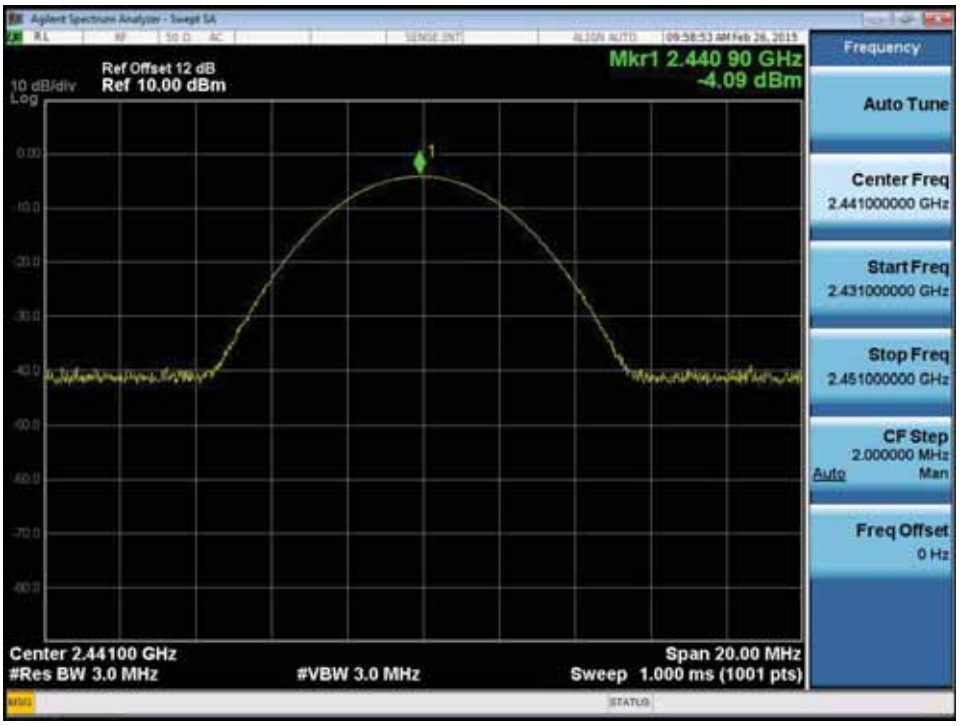
Test Mode :	TX Mode _3Mbps

Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watt)	Max. Limit (dBm)	Max. Limit (Watt)	Test Result
2402	-4.93	0.0003	30.00	1.0000	Complies
2441	-4.09	0.0004	30.00	1.0000	Complies
2480	-4.00	0.0004	30.00	1.0000	Complies

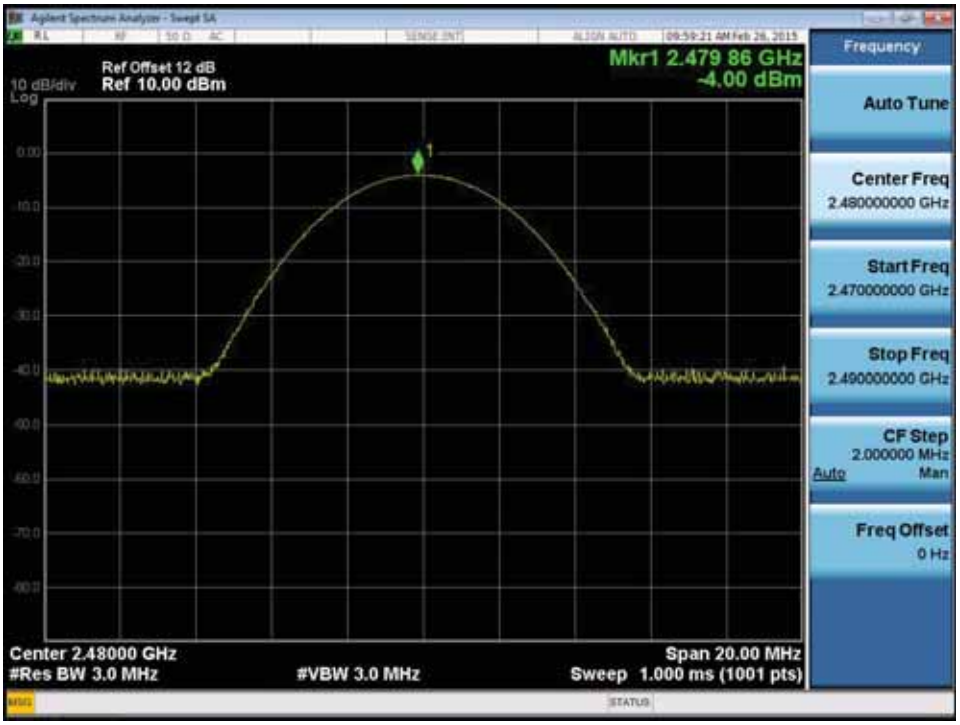
CH00



CH39

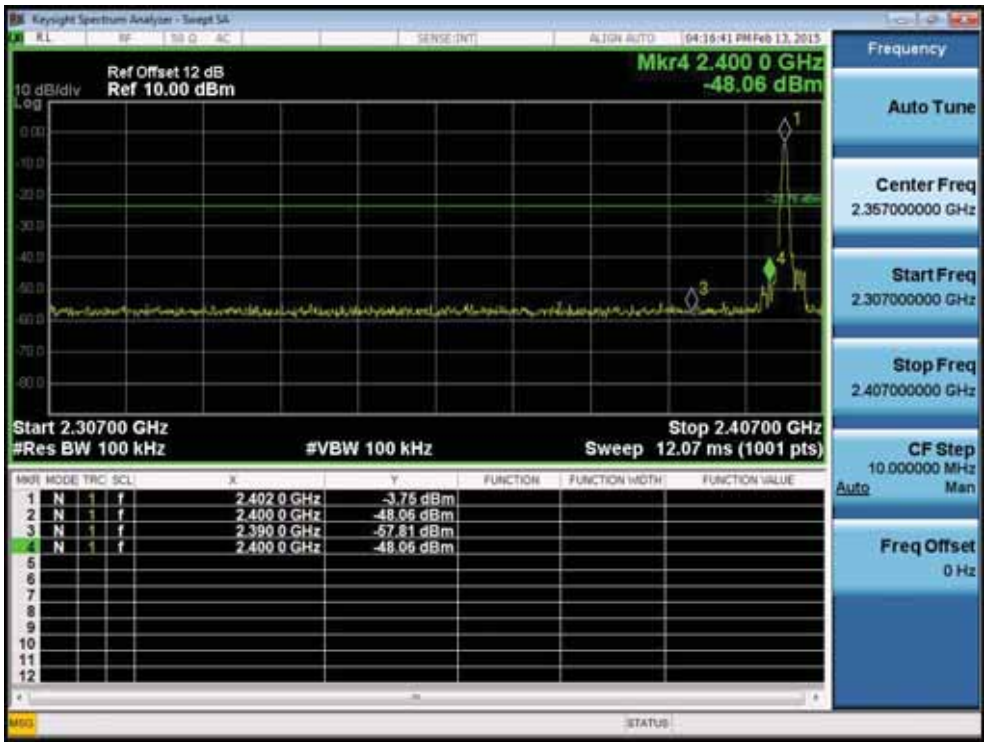

Agilent Spectrum Analyzer - Swept SA
Ref Offset 12 dB
10 dB/div Ref 10.00 dBm
Log
Mkr1 2.440 90 GHz
-4.09 dBm
Center 2.44100 GHz
#Res BW 3.0 MHz
#VBW 3.0 MHz
Span 20.00 MHz
Sweep 1.000 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.441000000 GHz
Start Freq
2.431000000 GHz
Stop Freq
2.451000000 GHz
CF Step
2.000000 MHz
Auto
Man
Freq Offset
0 Hz

CH78


Agilent Spectrum Analyzer - Swept SA
Ref Offset 12 dB
10 dB/div Ref 10.00 dBm
Log
Mkr1 2.479 86 GHz
-4.00 dBm
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

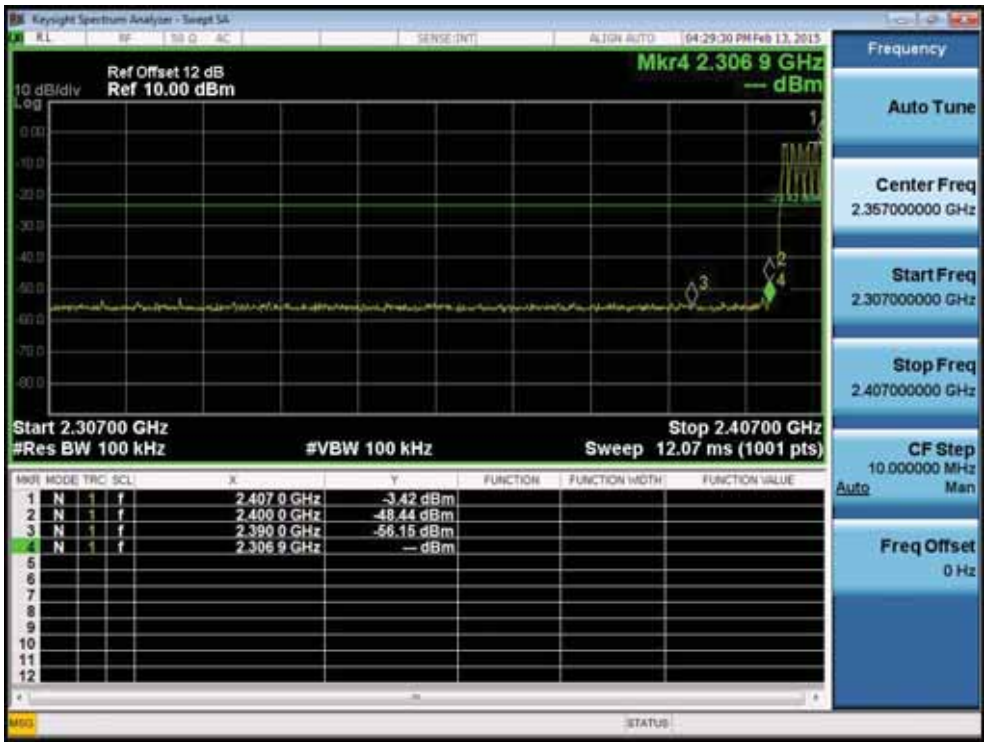
ATTACHMENT J - ANTENNA CONDUCTED SPURIOUS EMISSION

CH00 (Lower)_1Mbps

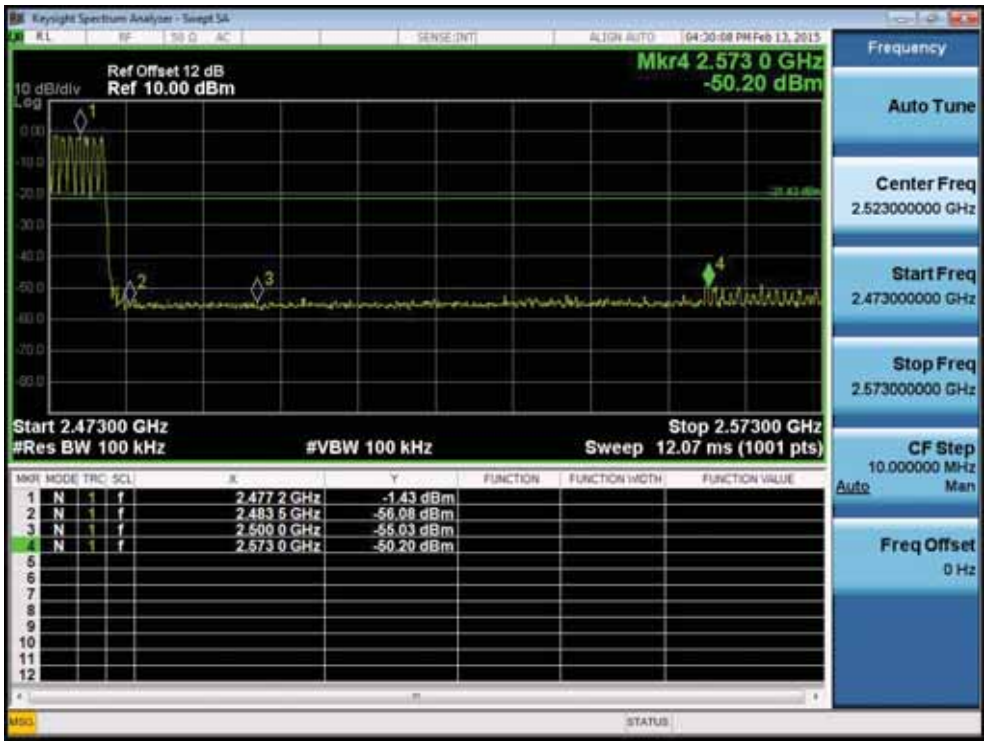


CH78 (Upper) _1Mbps

CH00 Hopping on mode (Lower)_1Mbps



CH78 Hopping on mode (Upper) _1Mbps

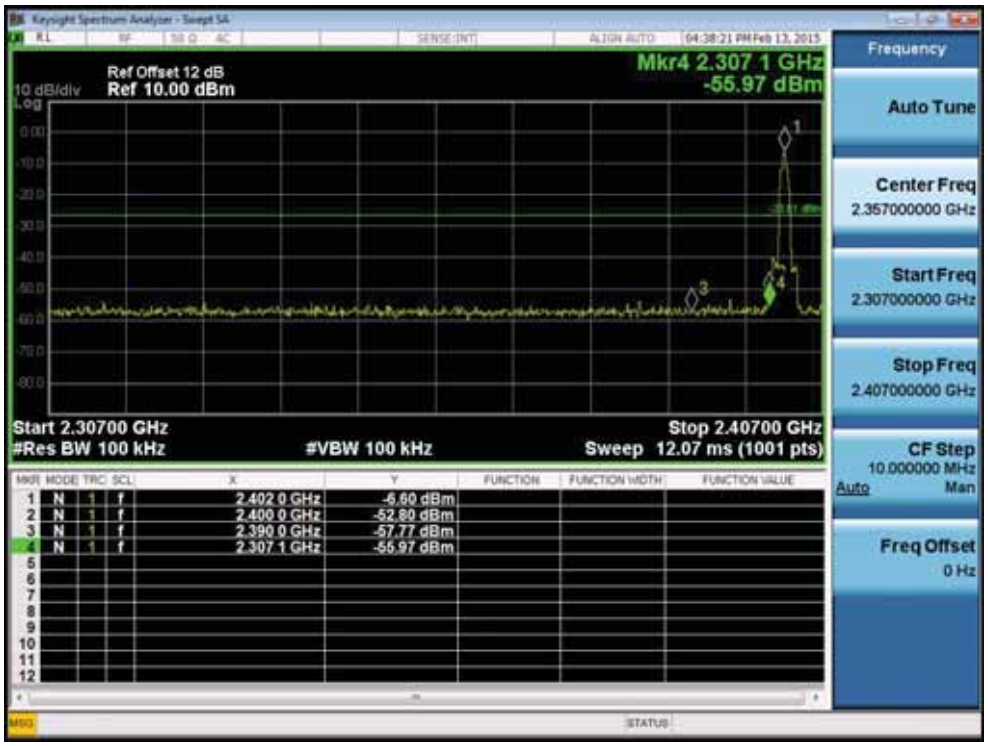


CH00 (10 Harmonic of the frequency) _1Mbps

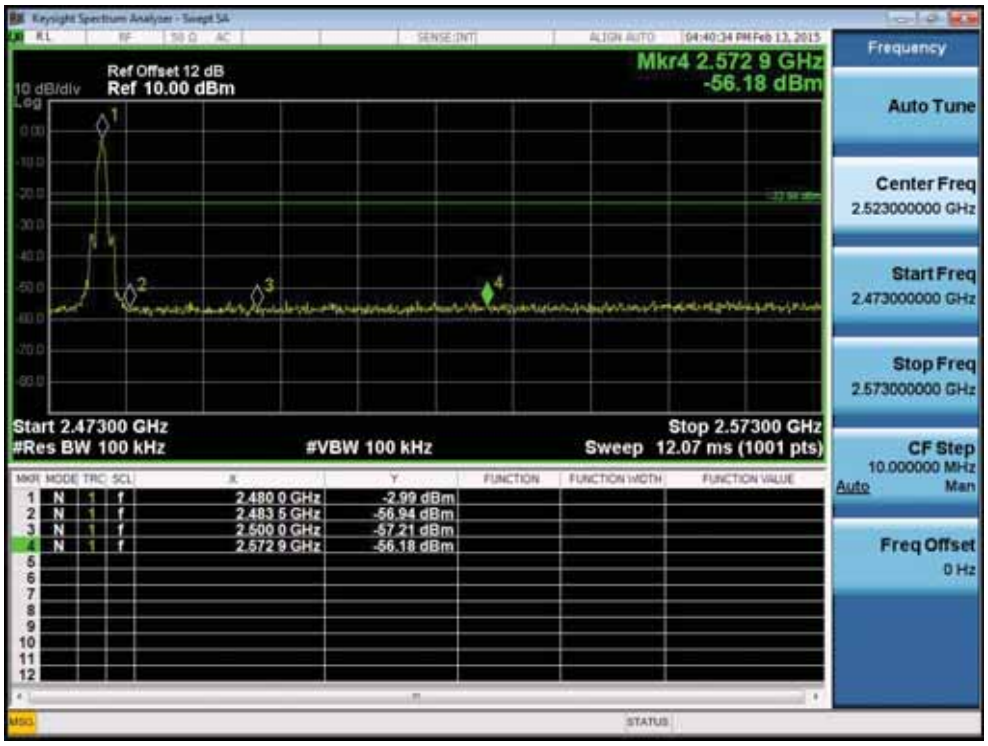
CH39 (10 Harmonic of the frequency) _1Mbps

CH78 (10 Harmonic of the frequency) _1Mbps

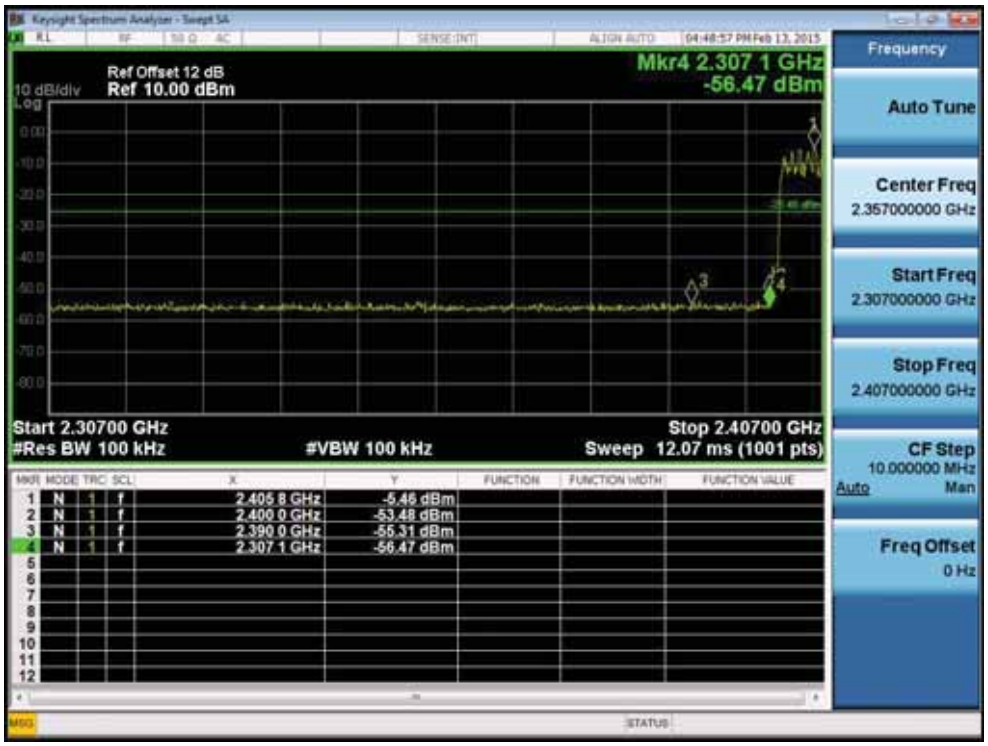
CH00 (Lower) _3Mbps



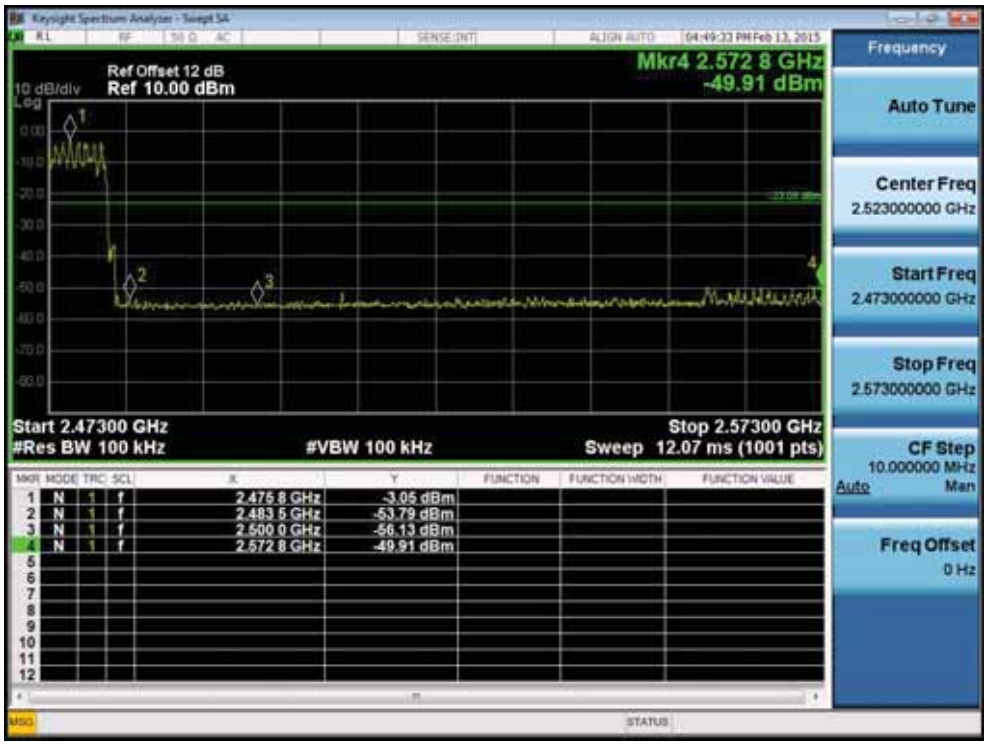
CH78 (Upper) _3Mbps



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