FCC PART 15C TEST REPORT FOR CERTIFICATION
On Behalf of

PRECENO TECHNOLOGY PTE.LTD.

WIMM One

Model Number: 330

FCC ID: ZJT-330

Prepared for : PRECENO TECHNOLOGY PTE.LTD.
No. 10 Anson Road, #15-17/18, International Plaza,
Singapore 079903

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Ke Feng Rd., 52 Block,
Shenzhen Science & Industrial Park,
Nantou, Shenzhen, Guangdong, China

Tel: (0755) 26639496

Report Number	:	ACS-F11147
Date of Test	:	Jul.11~19, 2011
Date of Report	:	Jul.19, 2011

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TEST REPORT CERTIFICATION

Applicant	:	PRECENO TECHNOLOGY PTE.LTD.
Manufacturer	:	PRECENO TECHNOLOGY PTE.LTD.
EUT Description	:	WIMM One
FCC ID	:	ZJT-330
(A) MODEL NO.	:	330
(B) SERIAL NO.	:	N/A
(C)POWER SUPPLY	:	DC 5V From Adapter Input, AC 120V/60Hz
(D)TEST VOLTAGE	:	DC 5V From Adapter Input, AC 120V/60Hz

Tested for comply with:
FCC Rules and Regulations Part 15 Subpart C:2008
Test procedure used:
ANSI C63.10:2009

The device described above is tested by AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. to confirm comply with all the FCC Part 15 Subpart C requirements.

The test results are contained in this test report and AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these tests. This report contains data that are not covered by the NVLAP accreditation. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This Report is made under FCC Part 2.1075. No modifications were required during testing to bring this product into compliance.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : Jul.11~ 19, 2011 Report of date: Jul.19, 2011

Prepared by : Blove Ye
Blove Ye/ Assistant

Reviewer by :
Sunny Lu / Senior Assistant

AUDIX® 信華科技（深圳）有限公司
Audix Technology (Shenzhen) Co., Ltd.
EMC 部門報告專用章
Stamp only for EMC Dept Report
Signature:

Approved & Authorized Signer :
Ken Lu / Manager

1. SUMMARY OF STANDARDS AND RESULTS

1.1.Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

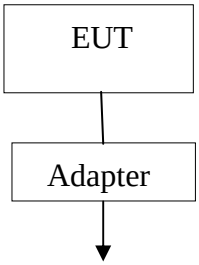
EMISSION		
Description of Test Item	**Standard**	**Results**
Power Line Conducted Emission Test	FCC Part 15: 15.207 ANSI C63.10 :2009	PASS
Radiated Emission Test	FCC Part 15: 15.209 FCC Part 15: 15.247(d) ANSI C63.10 :2009	PASS
Conducted Spurious Emissions	FCC Part 15: 15.247(a)(1) ANSI C63.10 :2009	PASS
Carrier Frequency Separation Test	FCC Part 15: 15.247(a)(1) ANSI C63.10 :2009	PASS
20dB Bandwidth Test	FCC Part 15: 15.215 ANSI C63.10 :2009	PASS
Number Of Hopping Frequency Test	FCC Part 15: 15.247(a)(1)(iii) ANSI C63.10 :2009	PASS
Dwell Time Test	FCC Part 15: 15.247(a)(1)(iii) ANSI C63.10 :2009	PASS
Maximum Peak Output Power Test	FCC Part 15: 15.247(b)(1)\ ANSI C63.10 :2009	PASS
Band Edge Compliance Test	FCC Part 15: 15.247(d) ANSI C63.10 :2009	PASS
N/A is an abbreviation for Not Applicable.		

2. GENERAL INFORMATION

2.1.Description of Device (EUT)

Product Name	:	WIMM One
Model Number	:	330
FCC ID	:	ZJT-330
Operation frequency	:	2402MHz~2480MHz
Antenna	:	IFA,- 2.20dBi PK gain
Modulation	:	GFSK, π/4 DQPSK, GFSK, 8-DPSK
Power Supply	:	DC 5V From Adapter Input, AC 120V/60Hz (Note: Batteries were full charged for all the test.)
Applicant	:	PRECENO TECHNOLOGY PTE.LTD. No. 10 Anson Road, #15-17/18, International Plaza, Singapore 079903
Manufacturer	:	PRECENO TECHNOLOGY PTE.LTD. No. 10 Anson Road, #15-17/18, International Plaza, Singapore 079903
Power Adapter	:	Model No.: K20-AM
USB Cable	:	Unshielded, Detachable, 1.1m
Date of Test	:	Jul.11~19, 2011
Date of Receipt	:	Jul.10, 2011
Sample Type	:	Prototype production

2.2. EUT Configuration and operation conditions for test.



(EUT: WIMM One)

2.3.Test Facility

Site Description

Name of Firm	:	Audix Technology (Shenzhen) Co., Ltd. No. 6, Ke Feng Rd., 52 Block, Shenzhen Science & Industrial Park,Nantou, Shenzhen, Guangdong, China
3m Anechoic Chamber	:	Certificated by FCC, USA Registration Number: 90454 Valid Date: Mar.31, 2012
3m & 10m Anechoic Chamber	:	Certificated by FCC, USA Registration Number: 794232 Valid Date: Dec.30, 2012
EMC Lab.	:	Certificated by Industry Canada Registration Number: IC 5183A-1 Valid Date: Jul. 02, 2011 Accredited by DATech, German Registration Number: DAT-P-091/99-01 Valid Date: Feb.01, 2014 Accredited by NVLAP, USA NVLAP Code: 200372-0 Valid Date: Mar.31, 2012

2.4.Measurement Uncertainty (95% confidence levels, k=2)

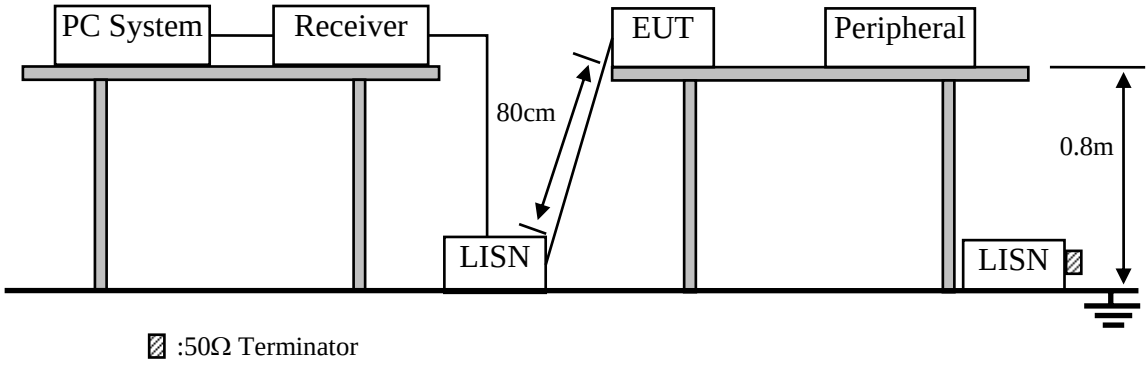
Test Item	Uncertainty
Uncertainty for Conduction emission test in No. 1 Conduction	3.2 dB(150kHz to 30MHz)
Uncertainty for Radiation Emission test in 3m chamber	3.6 dB(30~200MHz, Polarize: H)
	3.7 dB(30~200MHz, Polarize: V)
	4.0 dB(200M~1GHz, Polarize: H)
	3.7 dB(200M~1GHz, Polarize: V)
Uncertainty for Radiated Spurious Emission test in RF chamber	3.57dB
Uncertainty for Conduction Spurious emission test	2.00 dB
Uncertainty for Output power test	0.73 dB
Uncertainty for Power density test	2.00 dB
Uncertainty for Frequency range test	$7x10^{-8}$
Uncertainty for Bandwidth test	83 kHz
Uncertainty for DC power test	0.038 %
Uncertainty for test site temperature and humidity	0.6℃
	3%

3. POWER LINE CONDUCTED EMISSION TEST

3.1.Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS10	838693/001	Nov.05, 10	1 Year
2.	L.I.S.N.#1	Rohde & Schwarz	ESH2-Z5	834066/011	Nov.05, 11	1 Year
3.	Terminator	Hubersuhner	50Ω	No. 1	May.08, 11	1 Year
4.	RF Cable	Fujikura	3D-2W	LISN Cable 1#	May.08, 11	1Year
5.	Coaxial Switch	Anritsu	MP59B	M55367	May.08, 11	1 Year
6.	Passive Probe	Rohde & Schwarz	ESH2-Z3	299.7810.52	May.08, 11	1 Year
7.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100341	May.08, 11	1 Year

3.2.Block Diagram of Test Setup



▨ :50Ω Terminator

3.3.Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

3.4. Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

3.4.1. WIMM One (EUT)

Model Number : 330
Serial Number : N/A

3.4.2. Support Equipment: As Tested Supporting System Details, in Section 2.3.

3.5. Operating Condition of EUT

3.5.1. Setup the EUT and simulator as shown as Section 2.4.

3.5.2. Turned on the power of all equipment.

3.5.3. PC run test software to control EUT work in Tx mode.

3.6. Test Procedure

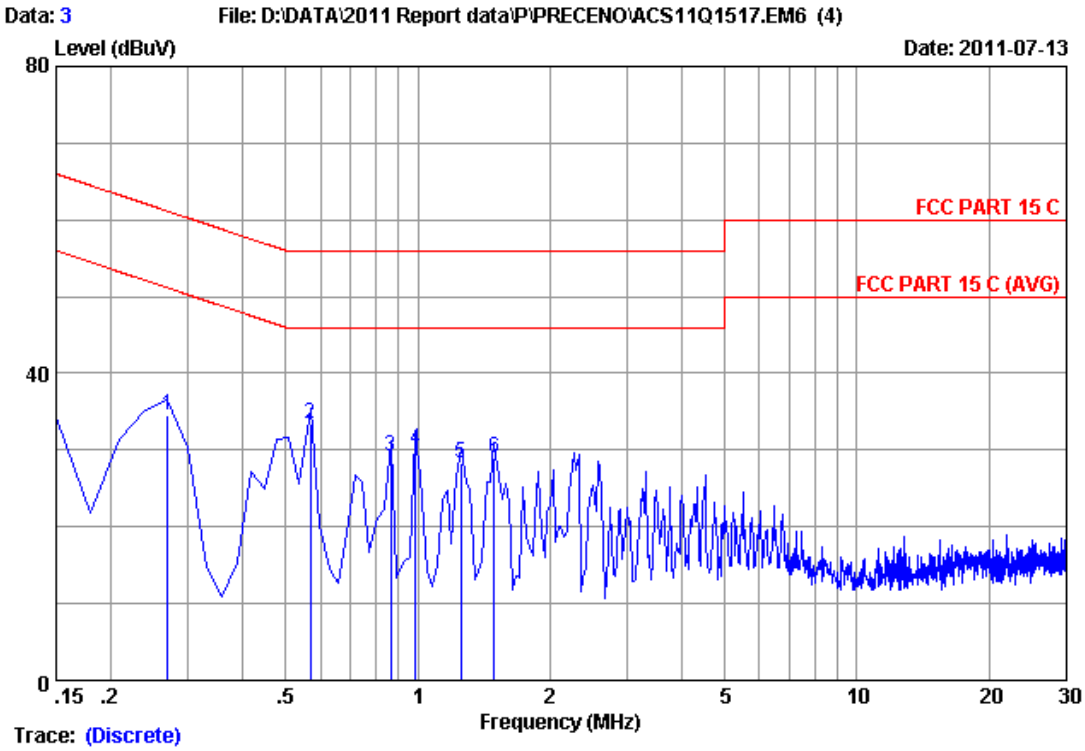
The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2009 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESHS10) is set at 10kHz.

The frequency range from 150kHz to 30MHz is checked.

3.7. Power Line Conducted Emission Test Results

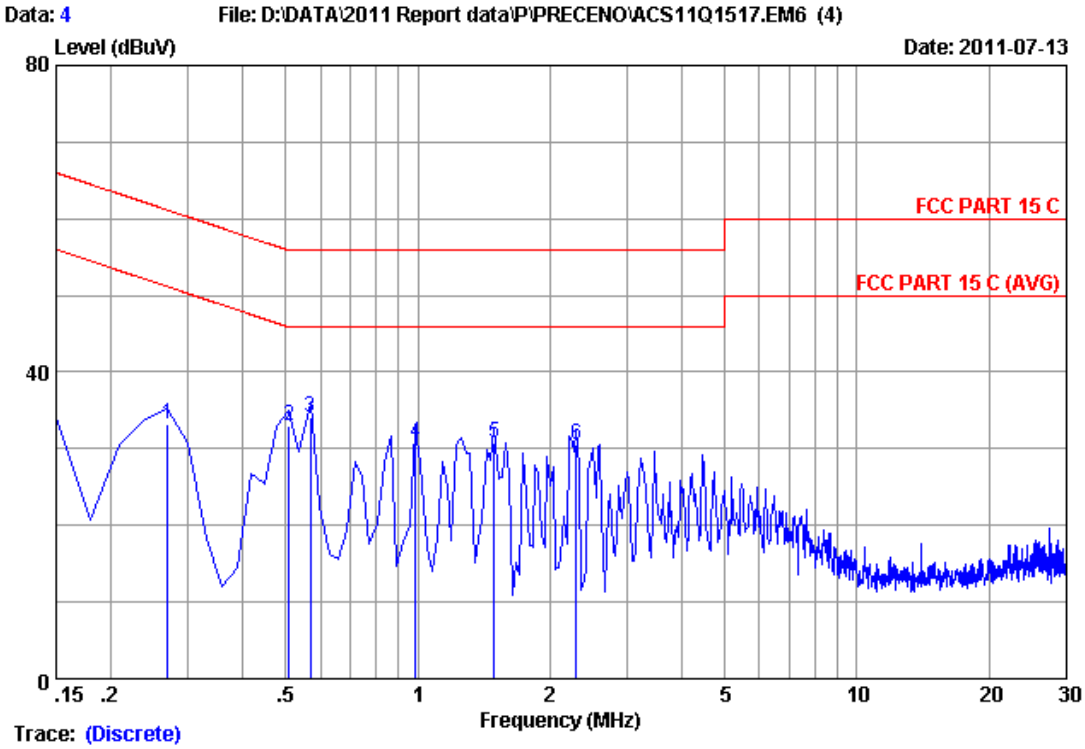
PASS. **(**All emissions not reported below are too low against the prescribed limits.)



Site no :1#conduction Data No :3
Dis./Ant. :** 2011 ESH2-Z5 LINE
Limit :FCC PART 15 C
Env./Ins. :29.5*C/55% Engineer :Leo-Li
EUT :WIMM One M/N:330
Power Rating :DC 5V From Adapter Input AC 120V/60Hz
Test Mode :Tx Mode (BT)

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.26940	0.18	9.98	24.38	34.54	61.14	26.60	QP
2	0.56790	0.19	9.98	23.29	33.46	56.00	22.54	QP
3	0.86640	0.21	9.98	19.08	29.27	56.00	26.73	QP
4	0.98580	0.23	9.98	19.77	29.98	56.00	26.02	QP
5	1.254	0.25	9.97	18.07	28.29	56.00	27.71	QP
6	1.493	0.27	9.97	18.66	28.90	56.00	27.10	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit)
+Reading.
2.If the average limit is met when useing a quasi-peak detector.
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.



Site no :1#conduction Data No :4
Dis./Ant. :** 2011 ESH2-Z5 NEUTRAL
Limit :FCC PART 15 C
Env./Ins. :29.5*C/55% Engineer :Leo-Li
EUT :WIMM One M/N:330
Power Rating :DC 5V From Adapter Input AC 120V/60Hz
Test Mode :Tx Mode (BT)

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.26940	0.21	9.98	23.07	33.26	61.14	27.88	QP
2	0.50820	0.22	9.98	22.74	32.94	56.00	23.06	QP
3	0.56790	0.22	9.98	23.83	34.03	56.00	21.97	QP
4	0.98580	0.24	9.98	20.43	30.65	56.00	25.35	QP
5	1.493	0.25	9.97	20.60	30.82	56.00	25.18	QP
6	2.299	0.28	9.96	20.24	30.48	56.00	25.52	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit)
+Reading.
2.If the average limit is met when useing a quasi-peak detector.
the EUT shall be deemed to meet both limits and measurement
with average detector is unnecessary.

4. RADIATED EMISSION TEST

4.1.Test Equipment

Frequency rang: 30~1000MHz

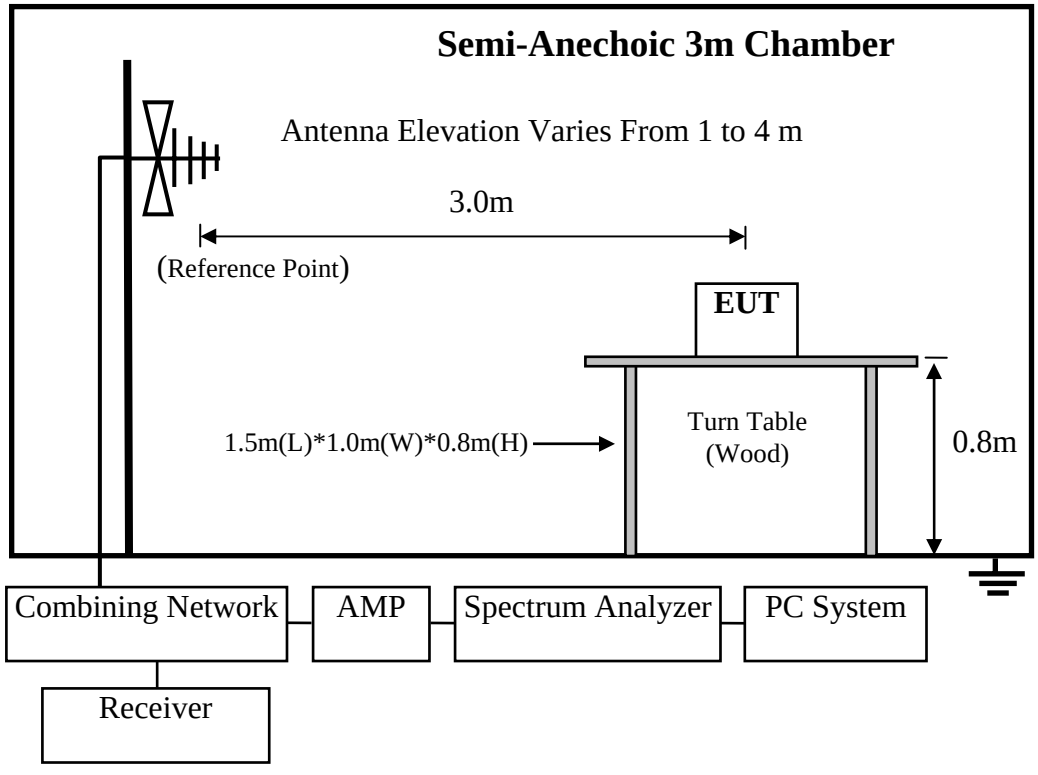
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	3#Chamber	AUDIX	N/A	N/A	Dec.06,10	1 Year
2	EMI Spectrum	Agilent	E4407B	MY41440292	May.08, 11	1 Year
3	Test Receiver	Rohde & Schwarz	ESVS10	834468/011	May.08, 11	1 Year
4	Amplifier	HP	8447D	2648A04738	May.08, 11	1 Year
5	Bilog Antenna	Schaffner	CBL6111C	2598	Oct.26, 10	1 Year
6	RF Cable	MIYAZAKI	8D-FB	3# Chamber No.1	May.08, 11	1 Year
7	Coaxial Switch	Anritsu	MP59B	M73989	May.08, 11	1 Year

Frequency rang: above 1000MHz

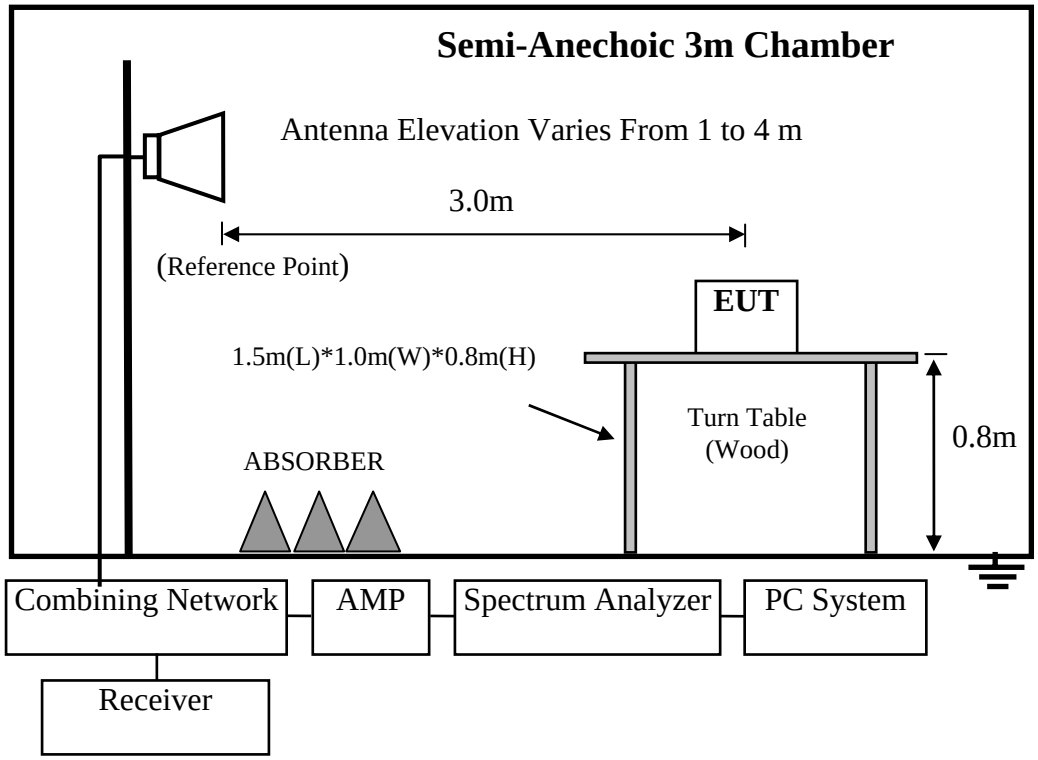
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4407B	MY41440292	May 08, 11	1 Year
2	Horn Antenna	EMCO	3115	9607-4877	May 08, 11	1.5 Year
3	Amplifier	Agilent	8449B	3008A00863	May 08, 11	1 Year
4	RF Cable	Hubersuhner	SUCOFLEX102	28622/2	May 08, 11	1 Year
5	RF Cable	Hubersuhner	SUCOFLEX102	29091/2	May 08, 11	1 Year

4.2.Block Diagram of Test Setup

For frequency range 30MHz-1000MHz



For frequency range 1GHz-6GHz



4.3. Radiated Emission Limit Standard: FCC 15.209

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000MHz	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Remark： (1) Emission level dBμV = 20 log Emission level μV/m

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

(4) The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

4.4.EUT Configuration on Test

The following equipment are installed on Radiated Emission Test to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.4.1. WIMM One (EUT)

Model Number	:	330
Serial Number	:	N/A

4.4.2. Support Equipment : As Tested Supporting System Detail, in Section 2.4

4.5. Operating Condition of EUT

4.5.1. Setup the EUT and simulator as shown as Section 4.2.

4.5.2. Turned on the power of all equipment.

4.5.3. Let EUT work in Tx mode.

4.6. Test Procedure

The EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on Test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.10-2009 on radiated emission Test.

This test was performed with EUT in X, Y, Z position, and the worse case was found when EUT in X position as the test photo indicated.

The bandwidth of the EMI test receiver (R&S ESVS10) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's RBW is set at 1MHz and VBW is set at 3MHz for peak emissions measurement above 1GHz

This device is pulse modulated, a duty cycle factor was used to calculate average level based measured peak level.

The frequency range from 30MHz to 10th harmonic (25GHz) are checked. and no any emissions were found from 18GHz to 25 GHz, So the radiated emissions from 18GHz to 25GHz were not record.

4.7.Radiated Emission Test Results

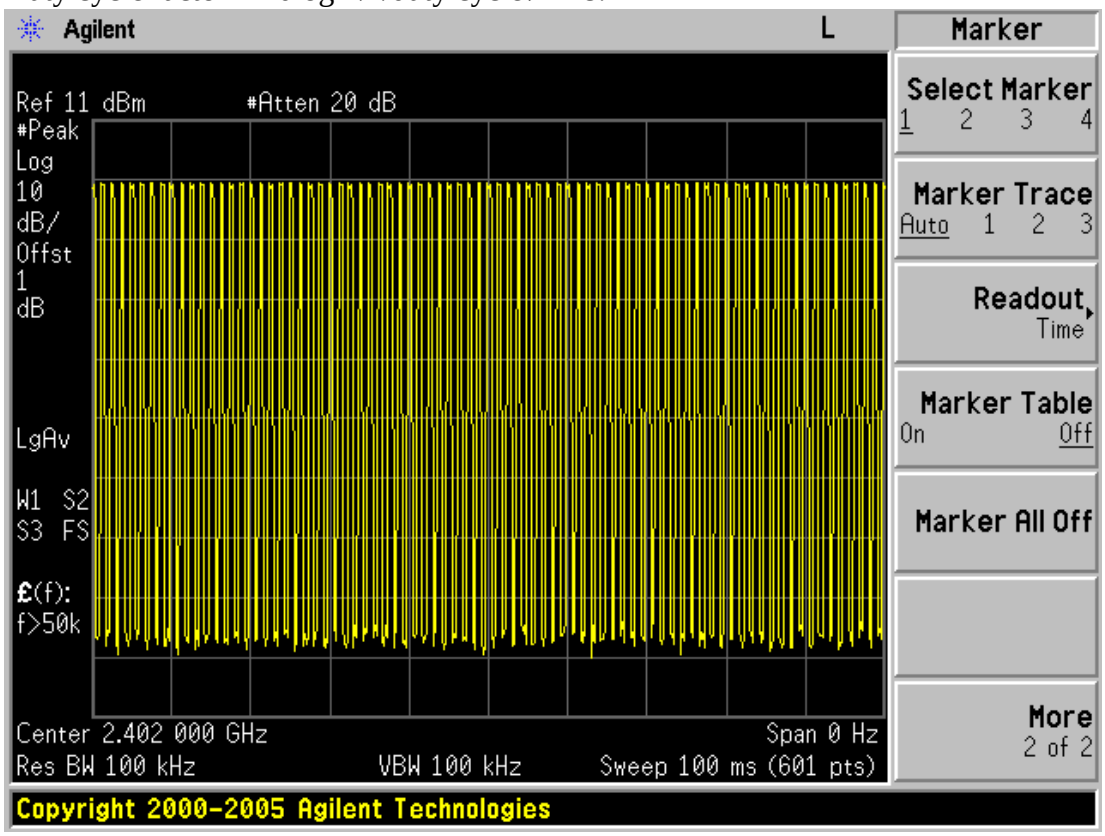
PASS.

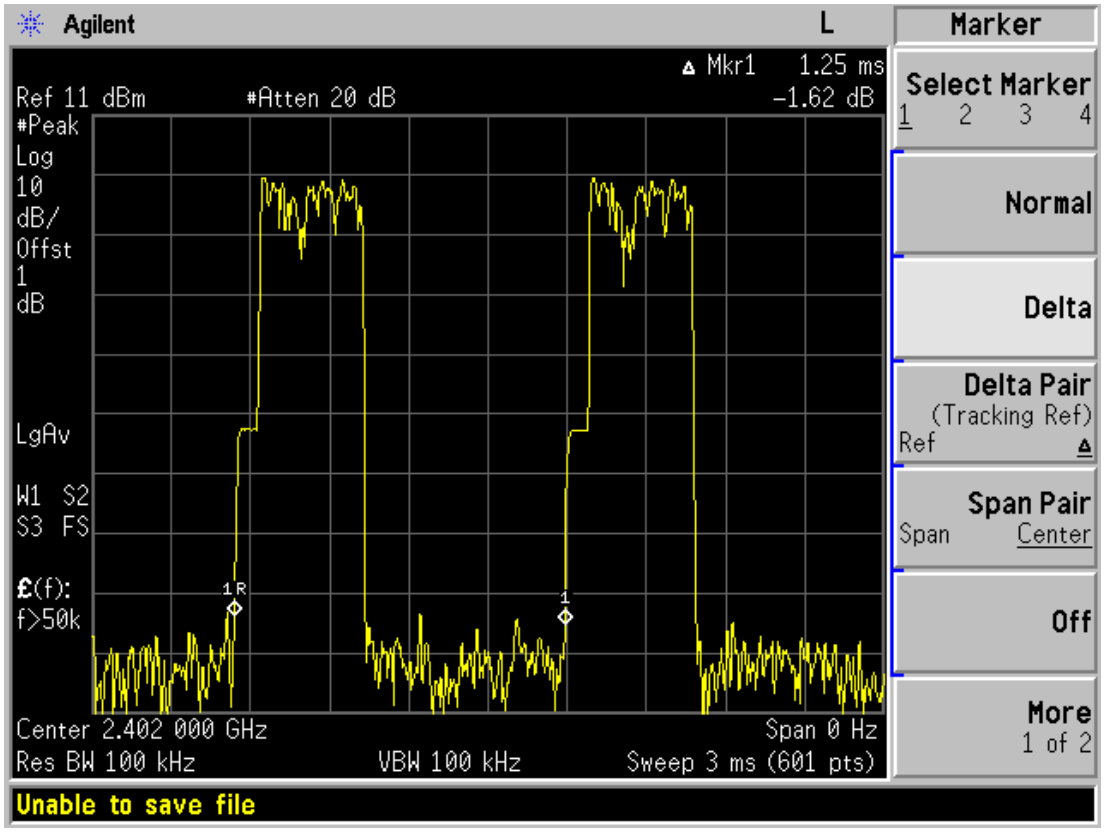
Remark: According to exploratory test. There are no obvious emission above 7GHz and cannot find obvious emission in the band 4GHz-7GHz except the second harmonics.

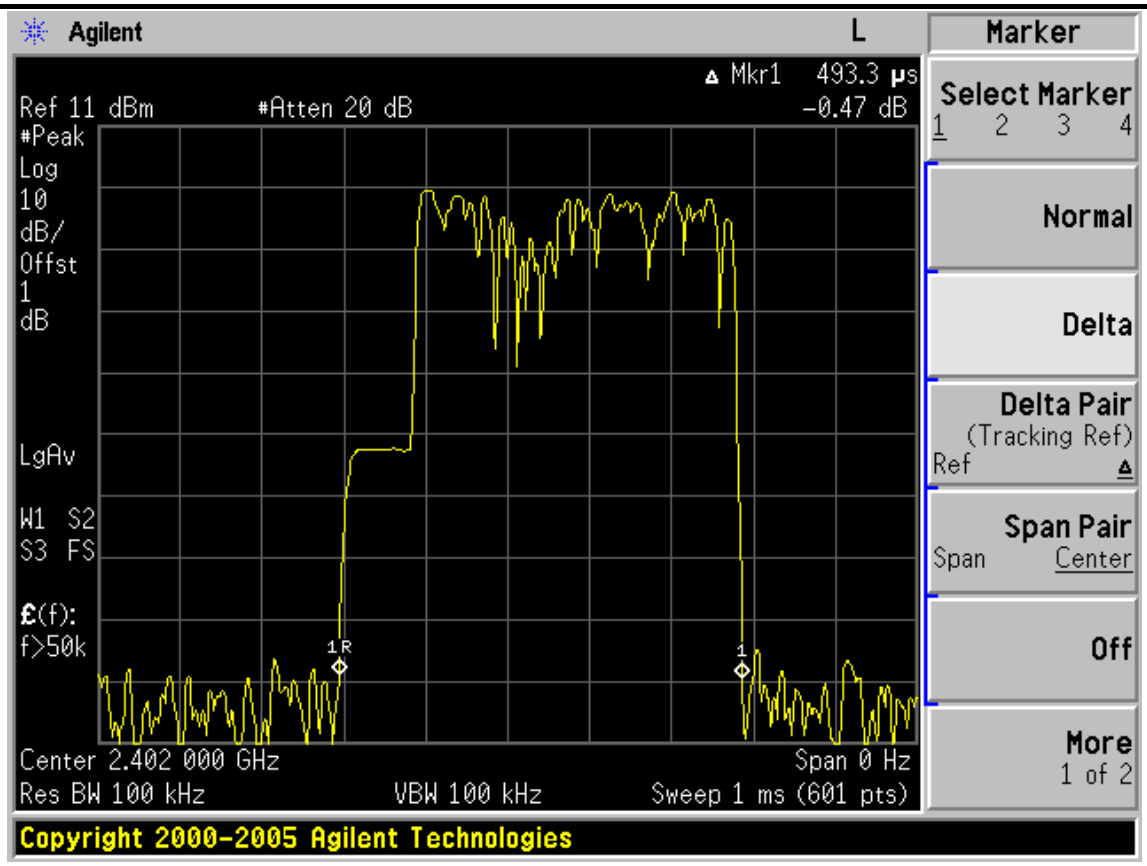
All the emissions from 30MHz to 25GHz were comply with the 15.209 Limit.

Note: The duty cycle factor for calculate average level is 8.1dB, and average limit is 20dB below peak limit, so if peak measured level comply with peak limit, the average level was deemed to comply with average limit.

Duty cycle: 493.3us /1.25ms *100% = 39.5%
Duty cycle factor = 20log（1/duty cycle）= 8.1






Agilent
L
Marker
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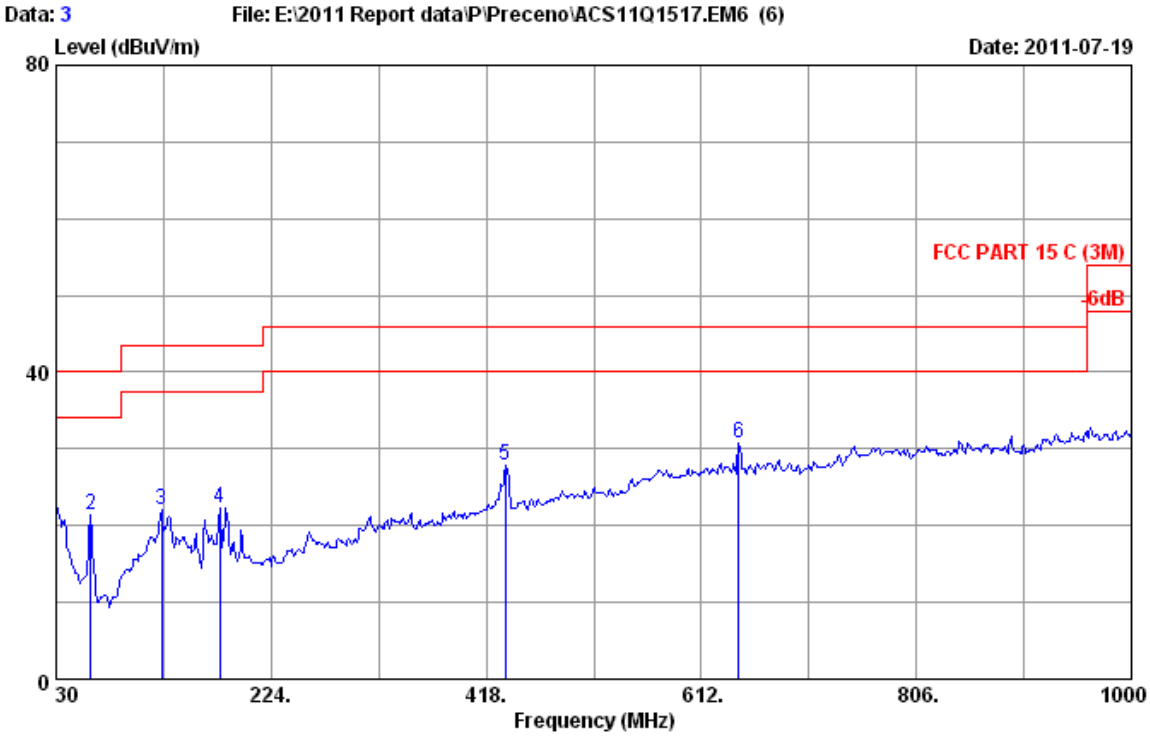
Mkr1 493.3 µs
-0.47 dB
#Peak
Log
10
dB/
Offst
1
dB
LgAv
W1 S2
S3 FS
£(f):
f>50k
1R
1
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Center 2.402 000 GHz
Span 0 Hz
Res BW 100 kHz
VBW 100 kHz
Sweep 1 ms (601 pts)
Copyright 2000-2005 Agilent Technologies

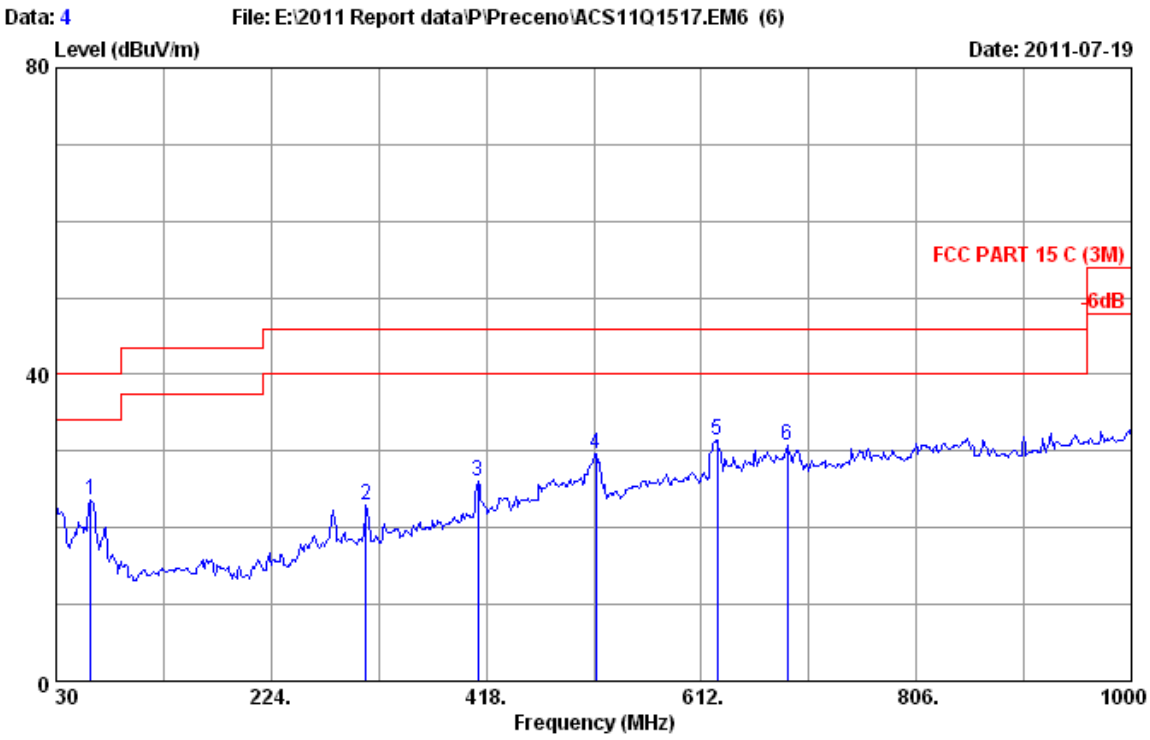
Frequency: 30MHz~1GHz



Site no. : 3m Chamber Data no. : 3
Dis. / Ant. : 3m 2010 CBL6111C 2598 Ant. pol. : HORIZONTAL
Limit : FCC PART 15 C (3M)
Env. / Ins. : 24*C/56% Engineer : Leo_Li
EUT : WIMM One M/N:330
Power rating : DC 5V From Adapter input AC 120V/60Hz
Test Mode : Tx Mode(BT)

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	30.000	20.00	0.58	2.21	22.79	40.00	17.21	QP
2	61.040	6.00	0.90	14.47	21.37	40.00	18.63	QP
3	125.060	12.10	1.34	8.64	22.08	43.50	21.42	QP
4	177.440	9.55	1.68	11.13	22.36	43.50	21.14	QP
5	435.460	17.34	3.56	6.87	27.77	46.00	18.23	QP
6	645.950	20.44	4.73	5.56	30.73	46.00	15.27	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

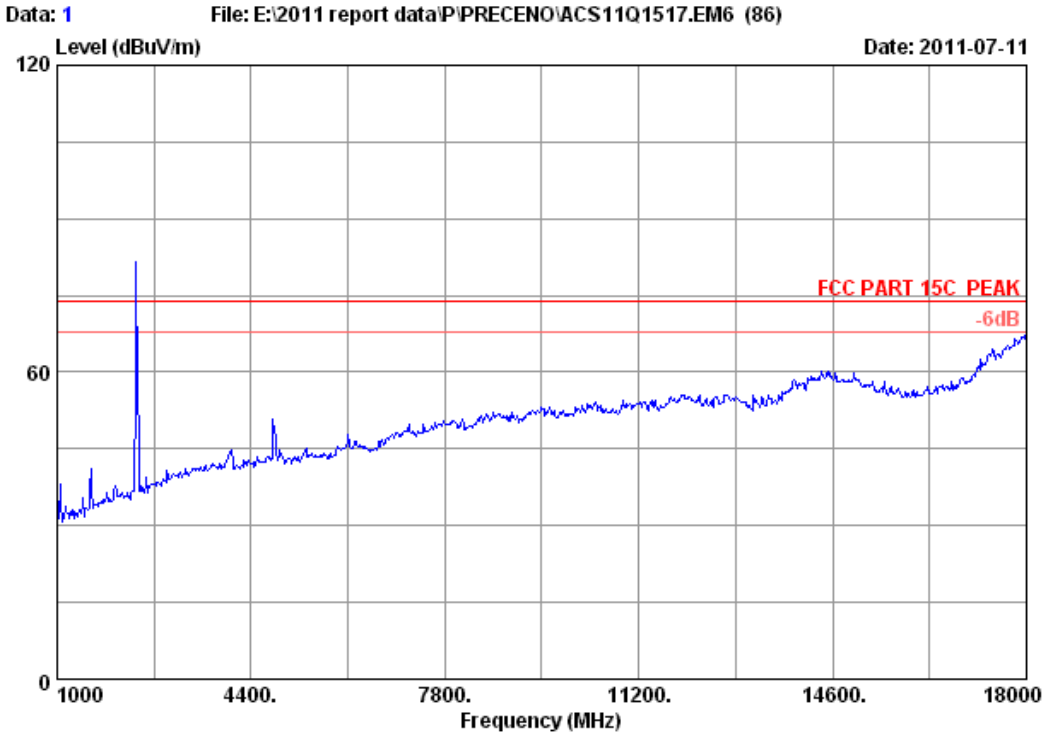


Site no. : 3m Chamber Data no. : 4
Dis. / Ant. : 3m 2010 CBL6111C 2598 Ant. pol. : VERTICAL
Limit : FCC PART 15 C (3M)
Env. / Ins. : 24*C/56% Engineer : Leo_Li
EUT : WIMM One M/N:330
Power rating : DC 5V From Adapter input AC 120V/60Hz
Test Mode : Tx Mode(BT)

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	61.040	6.00	0.90	16.69	23.59	40.00	16.41	QP
2	309.360	13.97	3.03	5.93	22.93	46.00	23.07	QP
3	410.240	16.50	3.40	6.12	26.02	46.00	19.98	QP
4	516.940	18.37	4.09	7.21	29.67	46.00	16.33	QP
5	626.550	20.13	4.64	6.61	31.38	46.00	14.62	QP
6	689.600	20.80	4.95	5.09	30.84	46.00	15.16	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency: 1GHz~18GHz

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Site no.      : 3m Chamber              Data no. :  1
Dis. / Ant.   : 3m   2011 3115 4580      Ant. pol. : VERTICAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                Engineer  : Leo-Li
EUT           : WIMM One
Power         : DC 5V From Adapter Input AC 120V/60Hz
Test mode     : GFSK    2402MHz Tx
M/N           : 330
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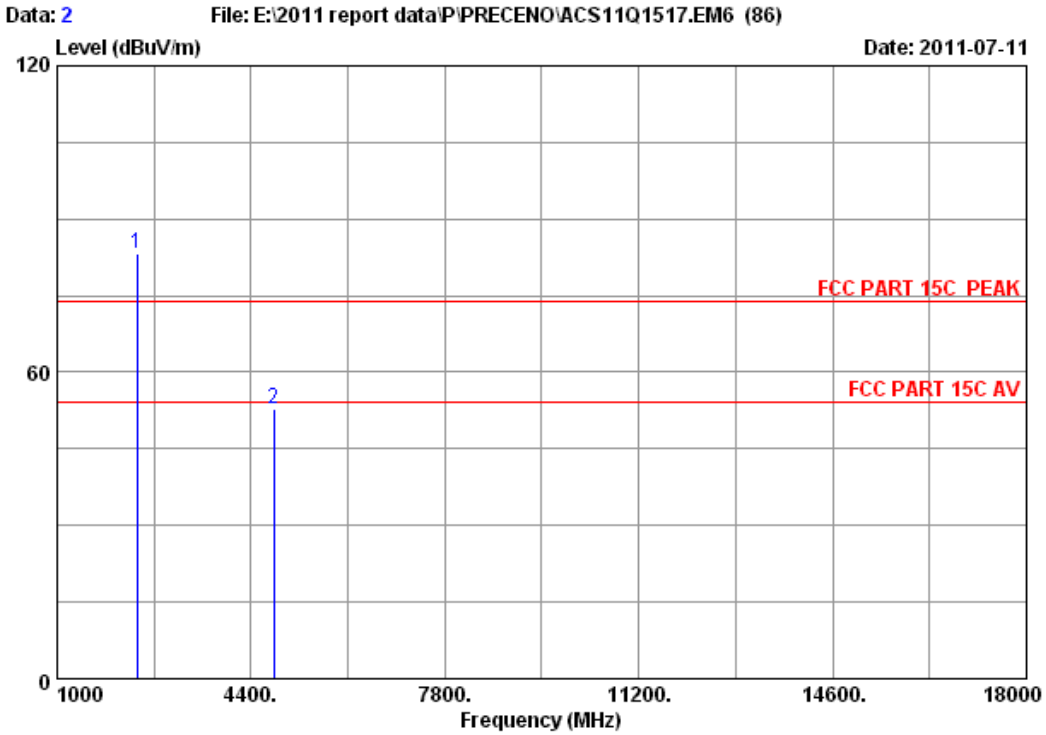
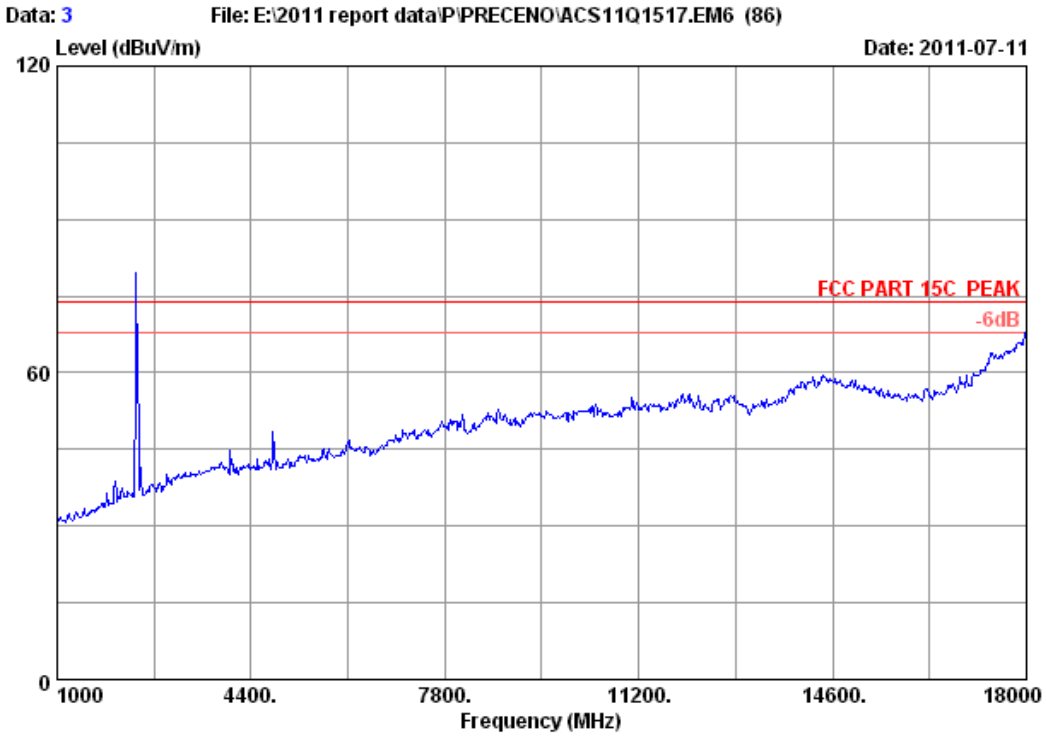


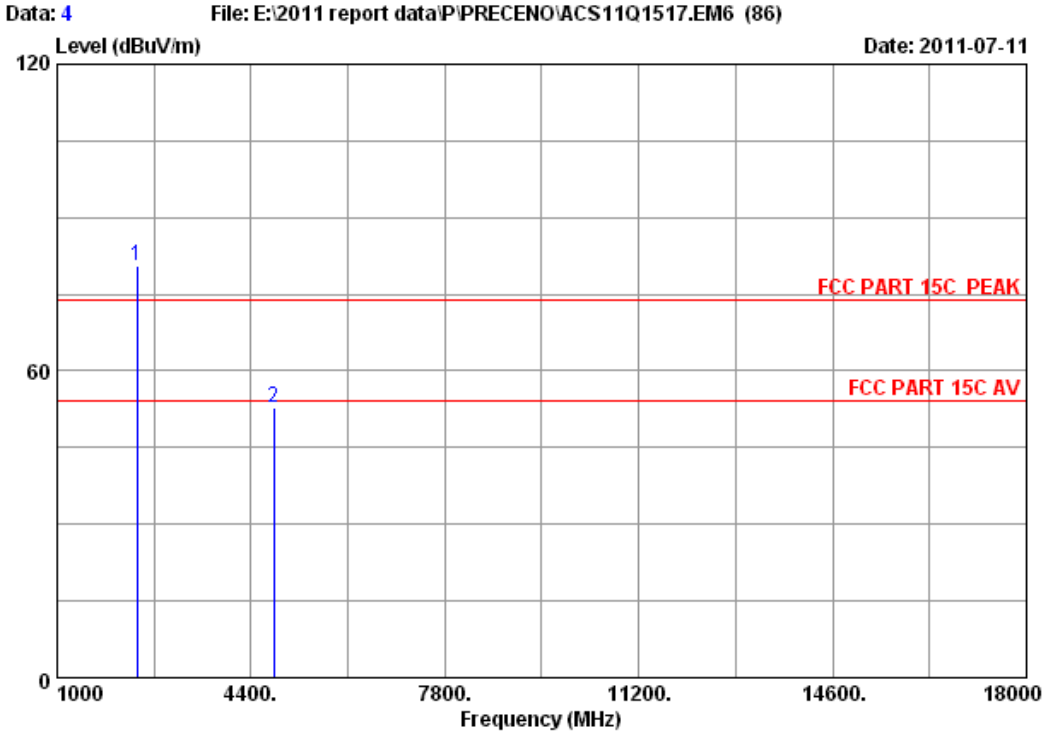
Site no. : 3m Chamber Data no. : 2
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : WIMM One
Power : DC 5V From Adapter Input AC 120V/60Hz
Test mode : GFSK 2402MHz Tx
M/N : 330

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2402.000	27.96	6.75	34.44	83.06	83.33	74.00	-9.33	Peak
2	4804.000	32.86	9.55	34.60	44.86	52.67	74.00	21.33	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



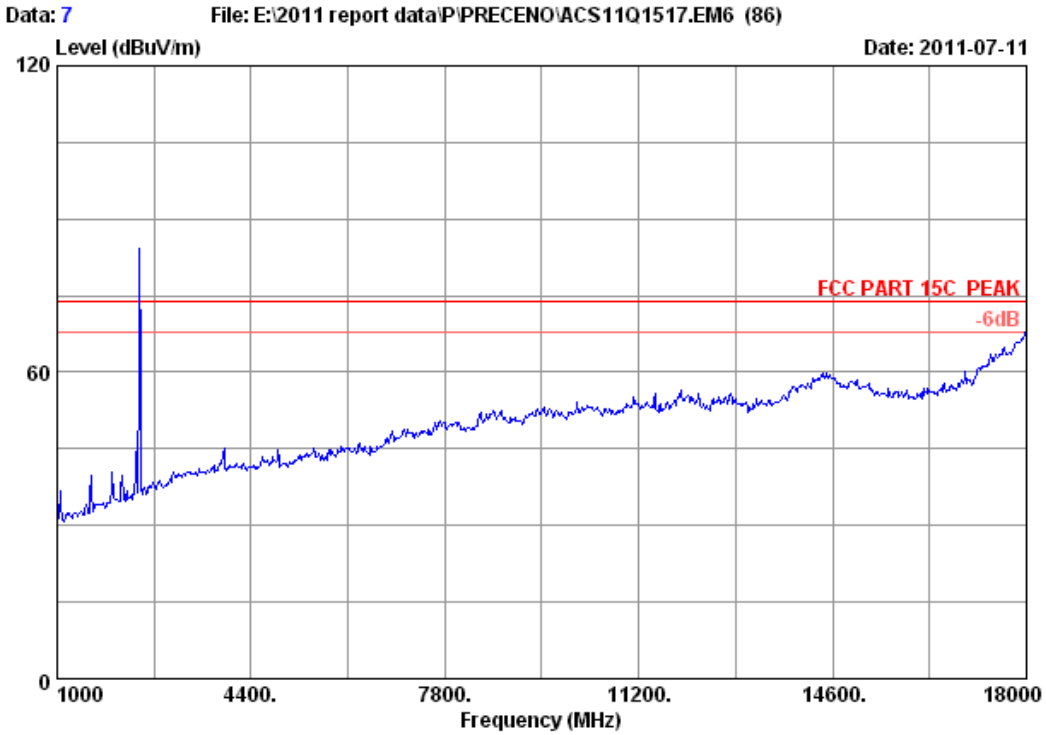

```
Site no.      : 3m Chamber              Data no. :  3
Dis. / Ant.   : 3m   2011 3115 4580      Ant. pol. : HORIZONTAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                Engineer  : Leo-Li
EUT           : WIMM One
Power         : DC 5V From Adapter Input AC 120V/60Hz
Test mode     : GFSK    2402MHz Tx
M/N           : 330
```



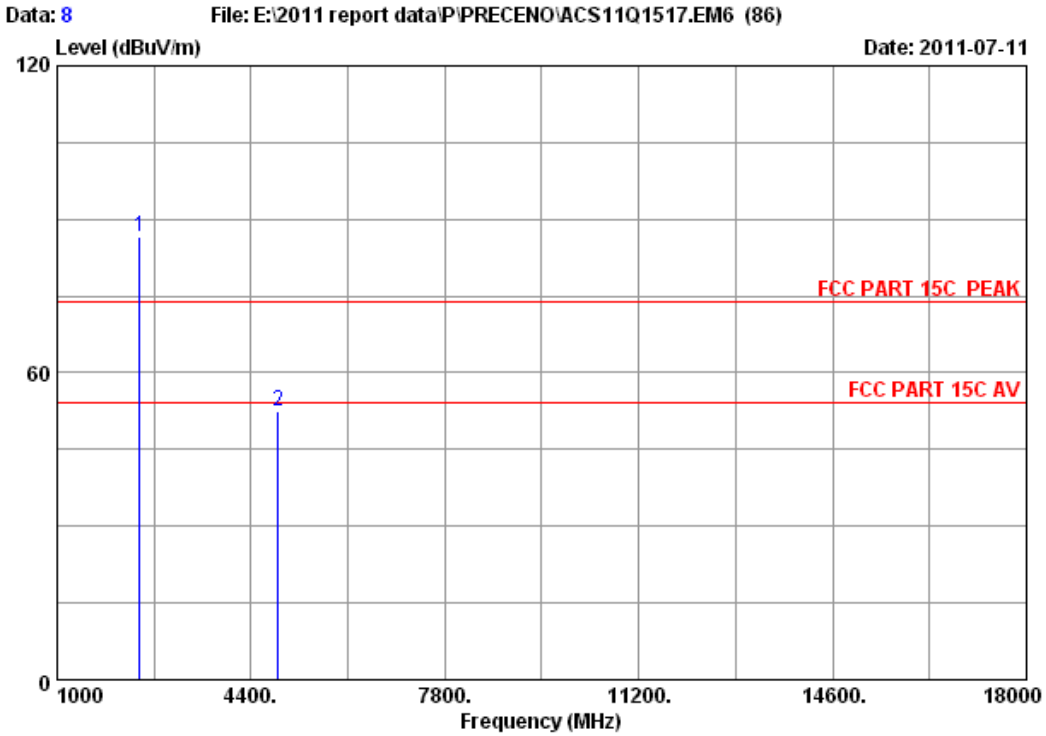
Site no. : 3m Chamber Data no. : 4
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : WIMM One
Power : DC 5V From Adapter Input AC 120V/60Hz
Test mode : GFSK 2402MHz Tx
M/N : 330

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2402.000	27.96	6.75	34.44	80.16	80.43	74.00	-6.43	Peak
2	4804.000	32.86	9.55	34.60	44.96	52.77	74.00	21.23	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



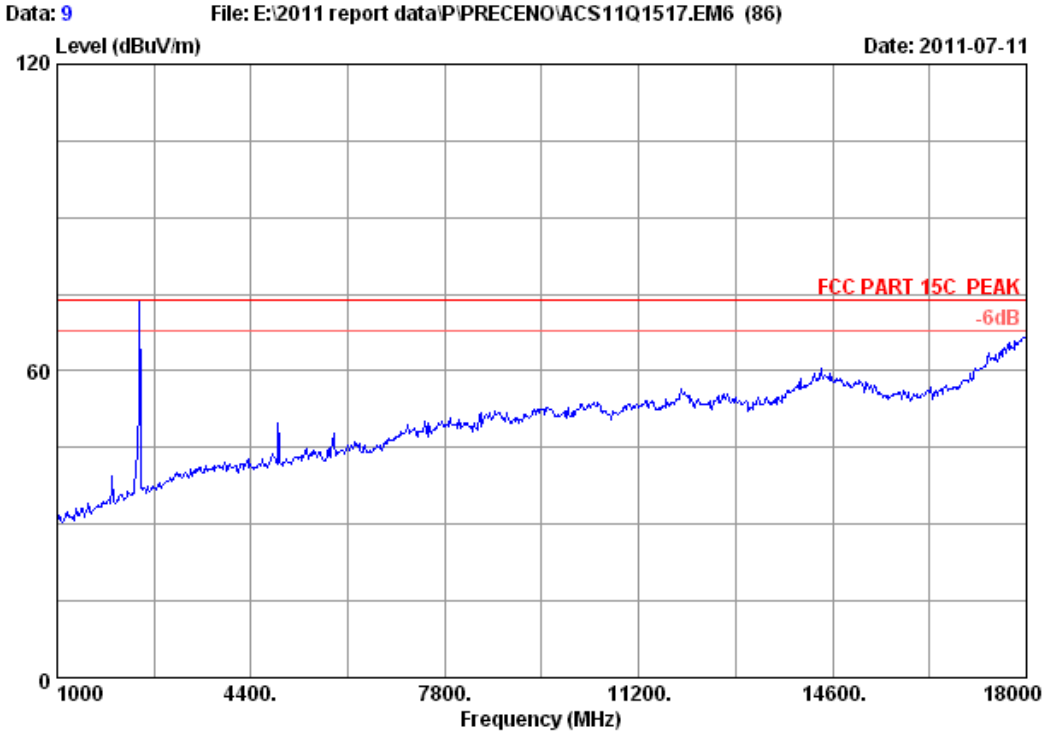

```
Site no.      : 3m Chamber              Data no. :  7
Dis. / Ant.   : 3m   2011 3115 4580      Ant. pol. : VERTICAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                Engineer  : Leo-Li
EUT           : WIMM One
Power         : DC 5V From Adapter Input AC 120V/60Hz
Test mode     : GFSK    2441MHz Tx
M/N           : 330
```



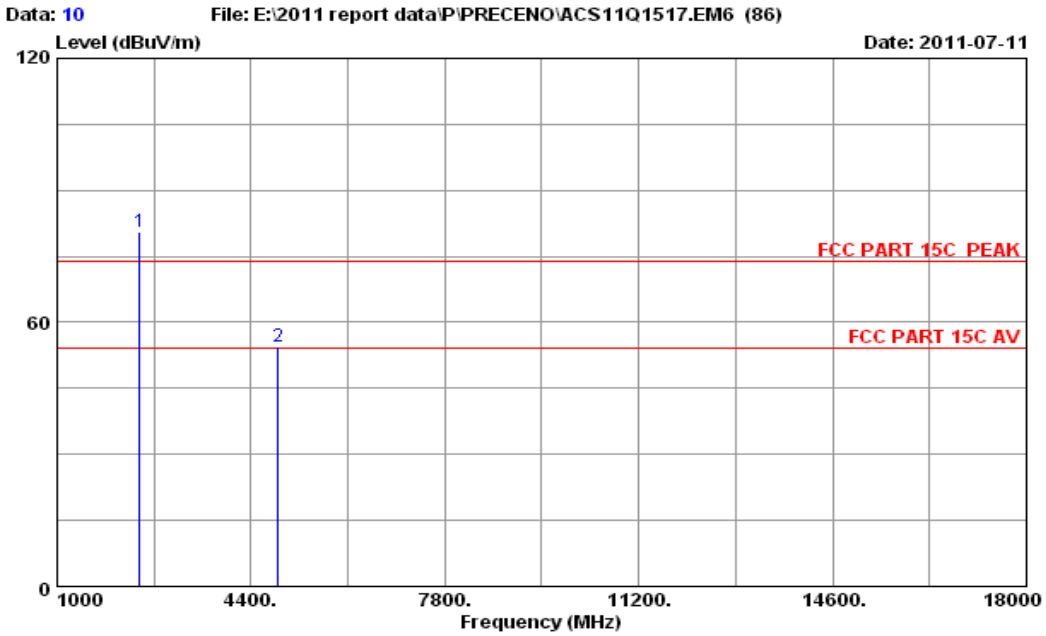
Site no. : 3m Chamber Data no. : 8
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : WIMM One
Power : DC 5V From Adapter Input AC 120V/60Hz
Test mode : GFSK 2441MHz Tx
M/N : 330

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2441.000	28.03	6.81	34.44	86.09	86.49	74.00	-12.49	Peak
2	4882.000	32.98	9.62	34.60	44.55	52.55	74.00	21.45	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




```
Site no.      : 3m Chamber              Data no. :  9
Dis. / Ant.   : 3m   2011 3115 4580      Ant. pol. : HORIZONTAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                Engineer  : Leo-Li
EUT           : WIMM One
Power         : DC 5V From Adapter Input AC 120V/60Hz
Test mode     : GFSK    2441MHz Tx
M/N           : 330
```

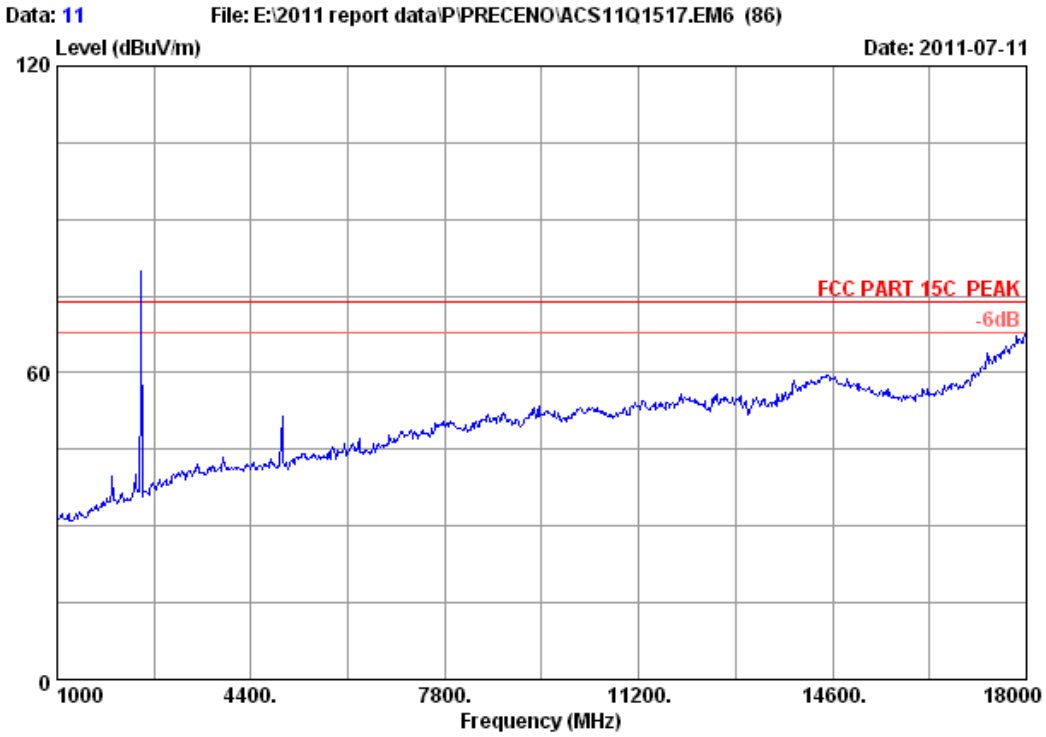


Site no. : 3m Chamber Data no. : 10
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : WIMM One
Power : DC 5V From Adapter Input AC 120V/60Hz
Test mode : GFSK 2441MHz Tx
M/N : 330

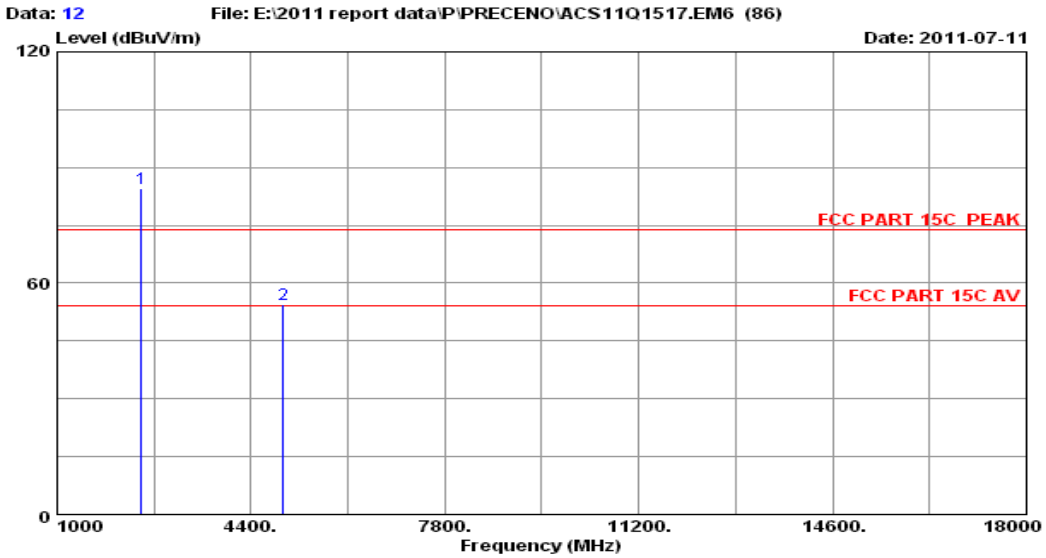
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2441.000	28.03	6.81	34.44	80.26	80.66	74.00	-6.66	Peak
2	4882.000	32.98	9.62	34.60	46.32	54.32	74.00	19.68	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency （MHz）	Peak level (dBuv/m)	Duty cycle factor	AV Level (dBuv/m)	Limit (dBuv/m)	Conclusion
4882	54.32	8.1	46.22	54	PASS




```
Site no.      : 3m Chamber              Data no. :  11
Dis. / Ant.   : 3m   2011 3115 4580      Ant. pol. : HORIZONTAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                Engineer  : Leo-Li
EUT           : WIMM One
Power         : DC 5V From Adapter Input AC 120V/60Hz
Test mode     : GFSK    2480MHz Tx
M/N           : 330
```

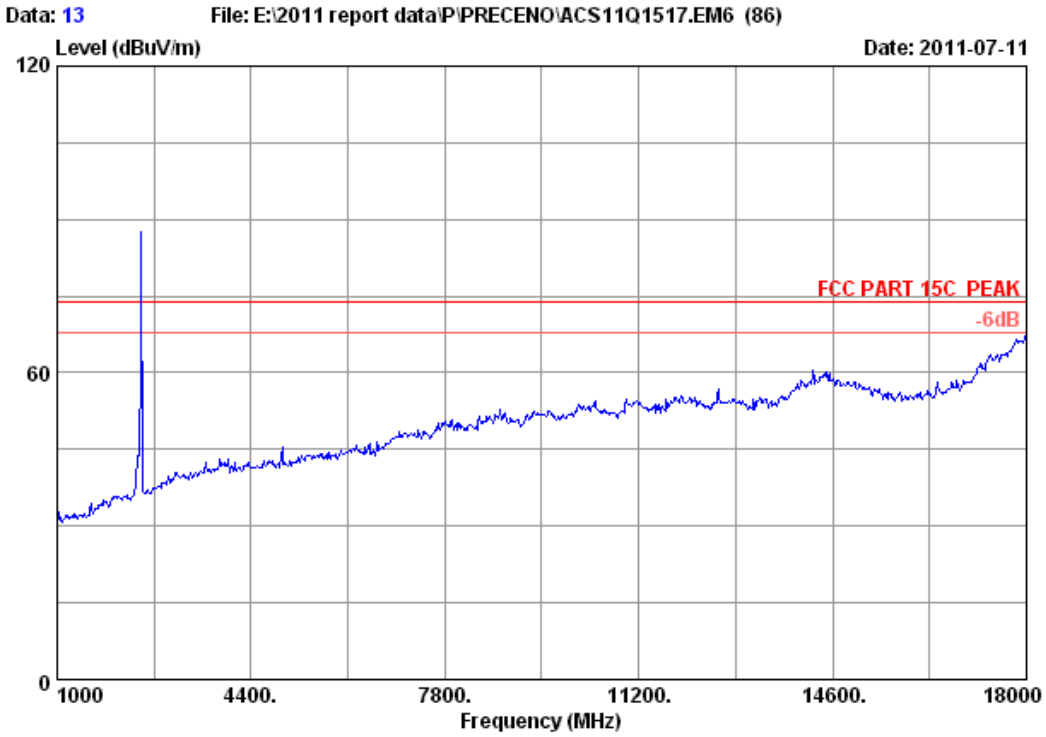



```
Site no.      : 3m Chamber              Data no. :  12
Dis. / Ant.   : 3m   2011 3115 4580      Ant. pol. : HORIZONTAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                Engineer  : Leo-Li
EUT           : WIMM One
Power         : DC 5V From Adapter Input AC 120V/60Hz
Test mode     : GFSK    2480MHz Tx
M/N           : 330
```

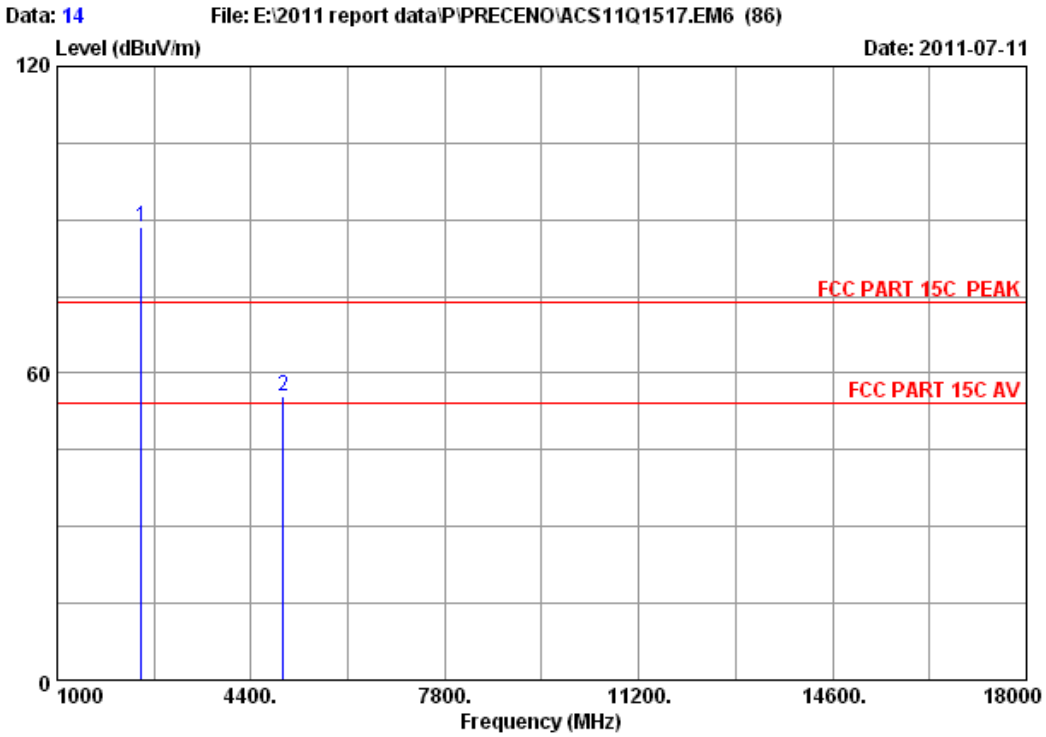
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.000	28.08	6.87	34.45	83.97	84.47	74.00	-10.47	Peak
2	4960.000	33.14	9.69	34.60	46.14	54.37	74.00	19.63	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency （MHz）	Peak level (dBuv/m)	Duty cycle factor	AV Level (dBuv/m)	Limit (dBuv/m)	Conclusion
4960	54.37	8.1	46.27	54	PASS




```
Site no.      : 3m Chamber              Data no. :  13
Dis. / Ant.   : 3m   2011 3115 4580      Ant. pol. : VERTICAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                Engineer  : Leo-Li
EUT           : WIMM One
Power         : DC 5V From Adapter Input AC 120V/60Hz
Test mode     : GFSK    2480MHz Tx
M/N           : 330
```

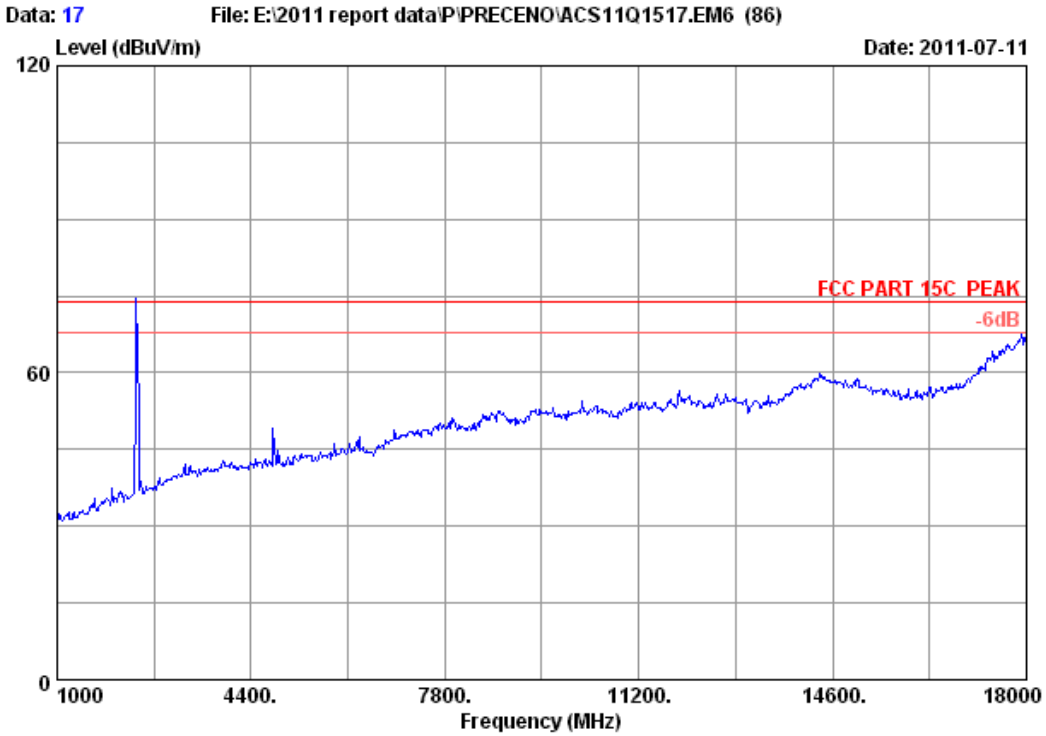


Site no. : 3m Chamber Data no. : 14
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : WIMM One
Power : DC 5V From Adapter Input AC 120V/60Hz
Test mode : GFSK 2480MHz Tx
M/N : 330

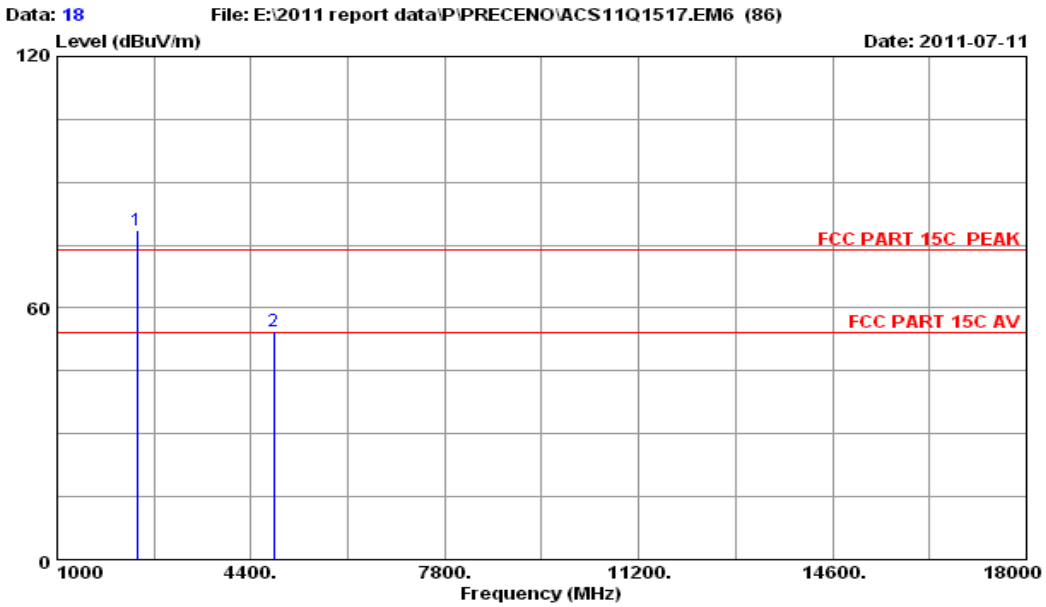
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.000	28.08	6.87	34.45	88.22	88.72	74.00	-14.72	Peak
2	4960.000	33.14	9.69	34.60	47.21	55.44	74.00	18.56	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency (MHz)	Peak level (dBuv/m)	Duty cycle factor(dB)	AV level (dBuv/m)	Limit (dBuv/m)	Conclusion
4960	55.44	8.1	47.34	54	Pass




```
Site no.      : 3m Chamber              Data no. :  17
Dis. / Ant.   : 3m   2011 3115 4580      Ant. pol. : HORIZONTAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                Engineer  : Leo-Li
EUT           : WIMM One
Power         : DC 5V From Adapter Input AC 120V/60Hz
Test mode     : 8DPSK    2402MHz Tx
M/N           : 330
```

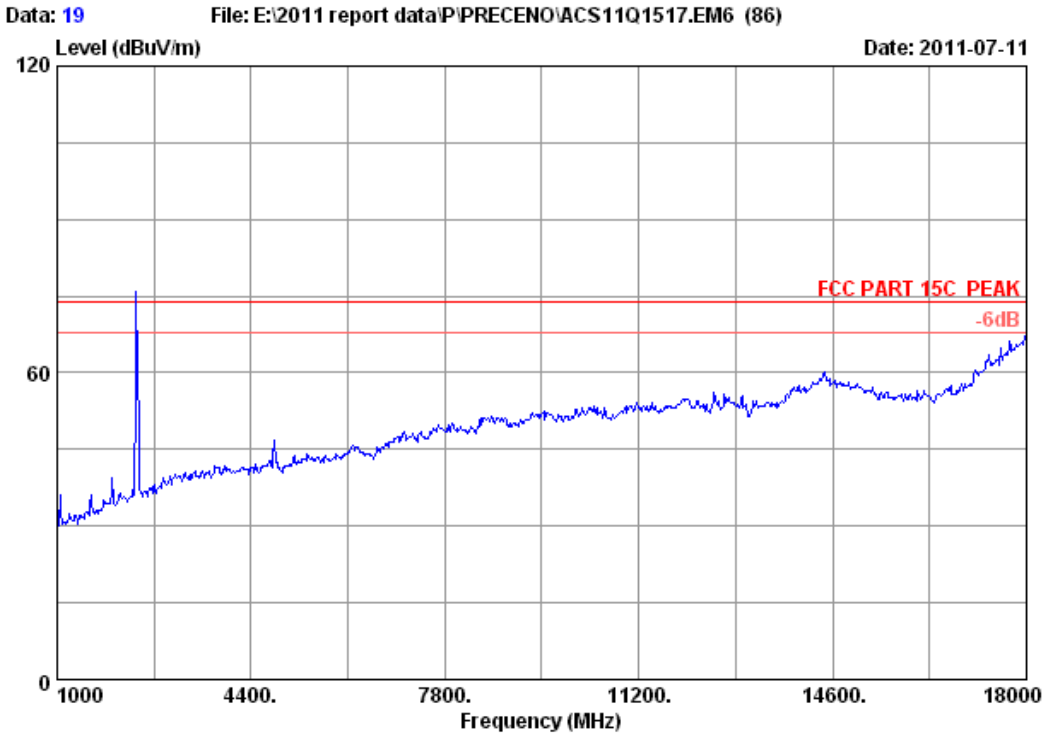



```
Site no.      : 3m Chamber              Data no. :  18
Dis. / Ant.   : 3m   2011 3115 4580      Ant. pol. : HORIZONTAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                Engineer  : Leo-Li
EUT           : WIMM One
Power         : DC 5V From Adapter Input AC 120V/60Hz
Test mode     : 8DPSK    2402MHz Tx
M/N           : 330
```

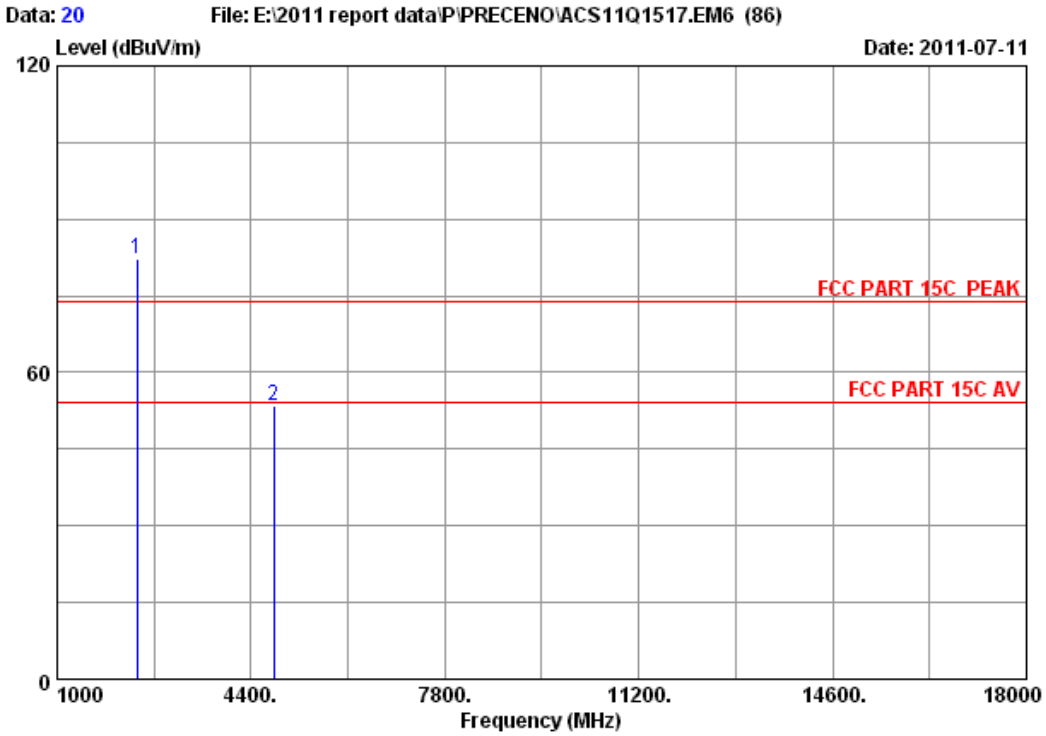
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2402.000	27.96	6.75	34.44	78.24	78.51	74.00	-4.51	Peak
2	4804.000	32.86	9.55	34.60	46.53	54.34	74.00	19.66	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency （MHz）	Peak level (dBuv/m)	Duty cycle factor	AV Level (dBuv/m)	Limit (dBuv/m)	Conclusion
4804	54.34	8.1	46.24	54	PASS



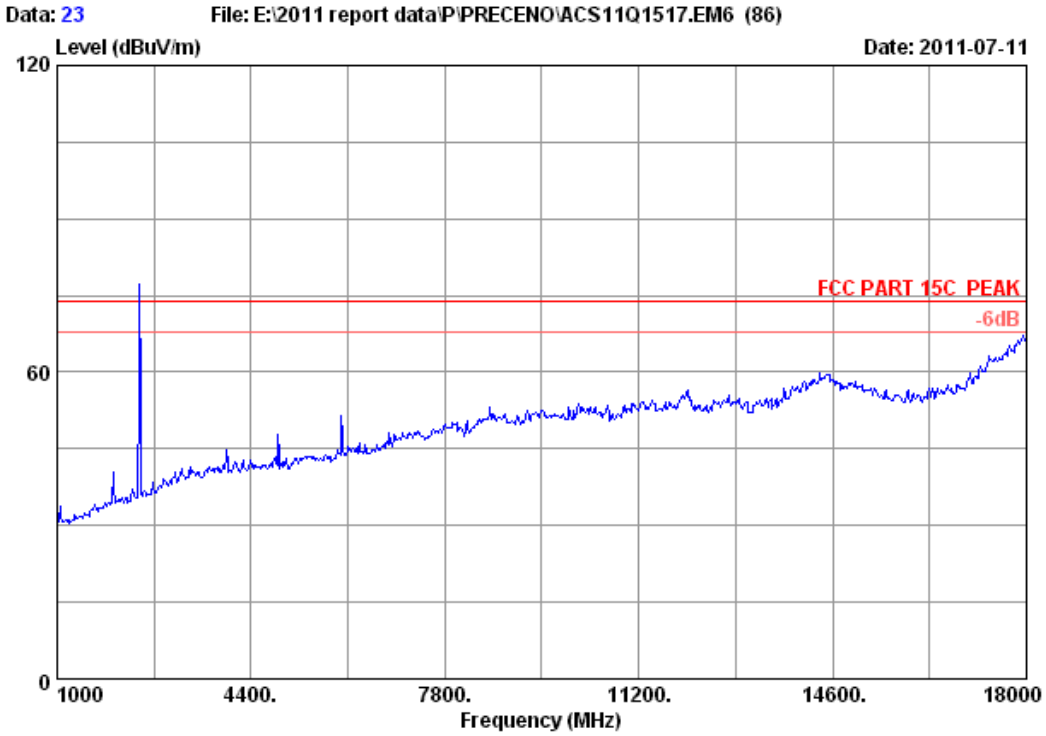

```
Site no.      : 3m Chamber              Data no. :  19
Dis. / Ant.   : 3m   2011 3115 4580      Ant. pol. : VERTICAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                Engineer  : Leo-Li
EUT           : WIMM One
Power         : DC 5V From Adapter Input AC 120V/60Hz
Test mode     : 8DPSK    2402MHz Tx
M/N           : 330
```



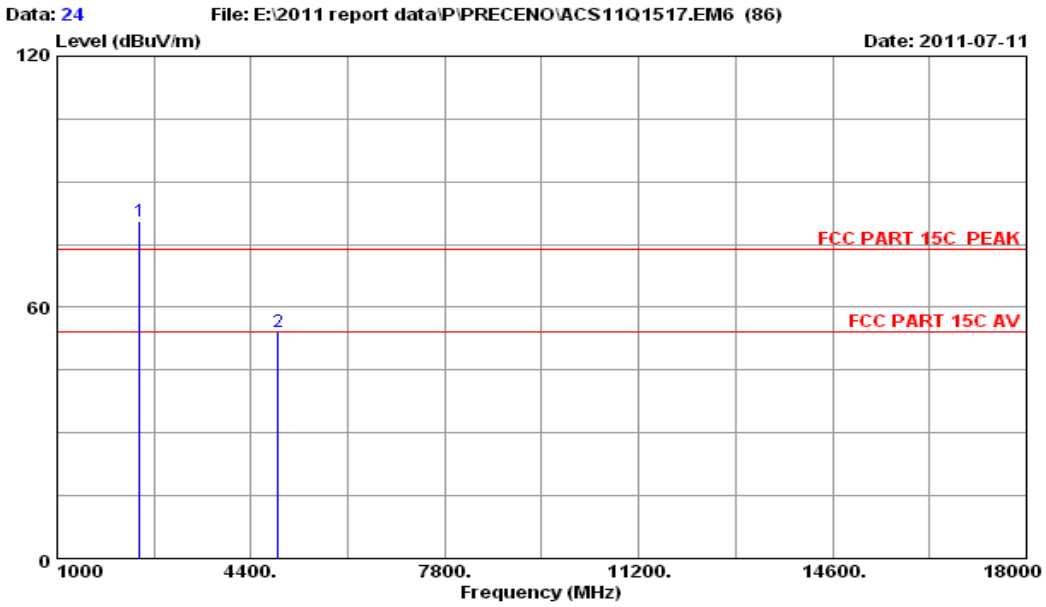
Site no. : 3m Chamber Data no. : 20
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : WIMM One
Power : DC 5V From Adapter Input AC 120V/60Hz
Test mode : 8DPSK 2402MHz Tx
M/N : 330

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2402.000	27.96	6.75	34.44	82.02	82.29	74.00	-8.29	Peak
2	4804.000	32.86	9.55	34.60	45.68	53.49	74.00	20.51	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




```
Site no.      : 3m Chamber              Data no. :  23
Dis. / Ant.   : 3m   2011 3115 4580      Ant. pol. : HORIZONTAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                Engineer  : Leo-Li
EUT           : WIMM One
Power         : DC 5V From Adapter Input AC 120V/60Hz
Test mode     : 8DPSK    2441MHz Tx
M/N           : 330
```

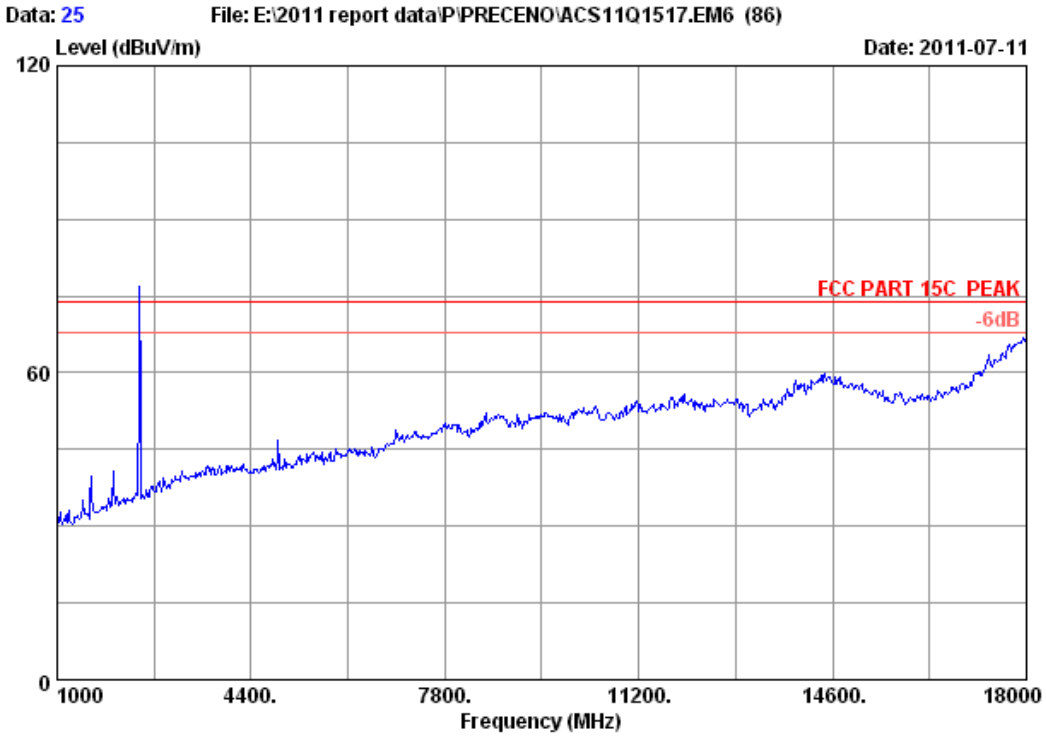


Site no. : 3m Chamber Data no. : 24
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : WIMM One
Power : DC 5V From Adapter Input AC 120V/60Hz
Test mode : 8DPSK 2441MHz Tx
M/N : 330

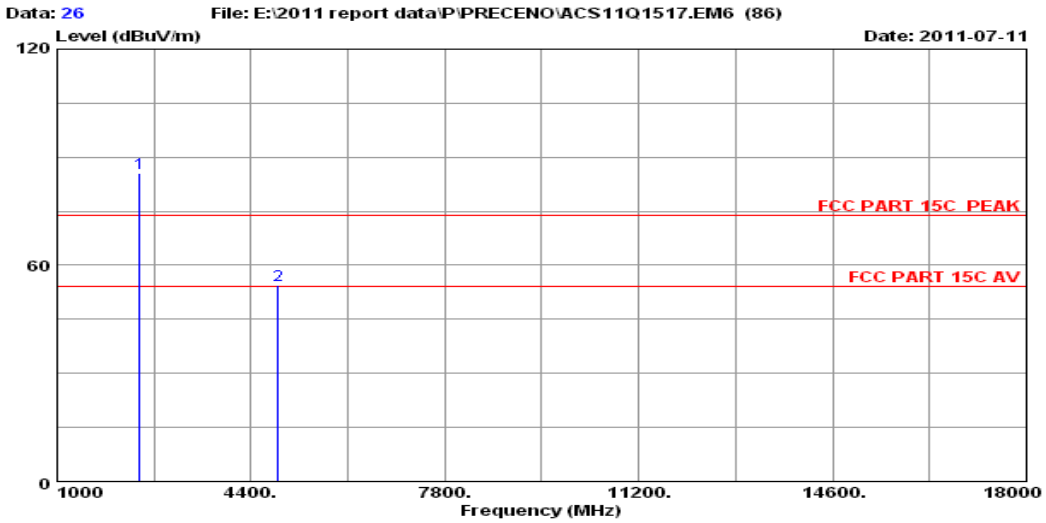
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2441.000	28.03	6.81	34.44	80.32	80.72	74.00	-6.72	Peak
2	4882.000	32.98	9.62	34.60	46.13	54.13	74.00	19.87	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency （MHz）	Peak level (dBuv/m)	Duty cycle factor	AV Level (dBuv/m)	Limit (dBuv/m)	Conclusion
4882	54.13	8.1	46.03	54	PASS




```
Site no.      : 3m Chamber              Data no. :  25
Dis. / Ant.   : 3m   2011 3115 4580      Ant. pol. : VERTICAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                Engineer  : Leo-Li
EUT           : WIMM One
Power         : DC 5V From Adapter Input AC 120V/60Hz
Test mode     : 8DPSK    2441MHz Tx
M/N           : 330
```

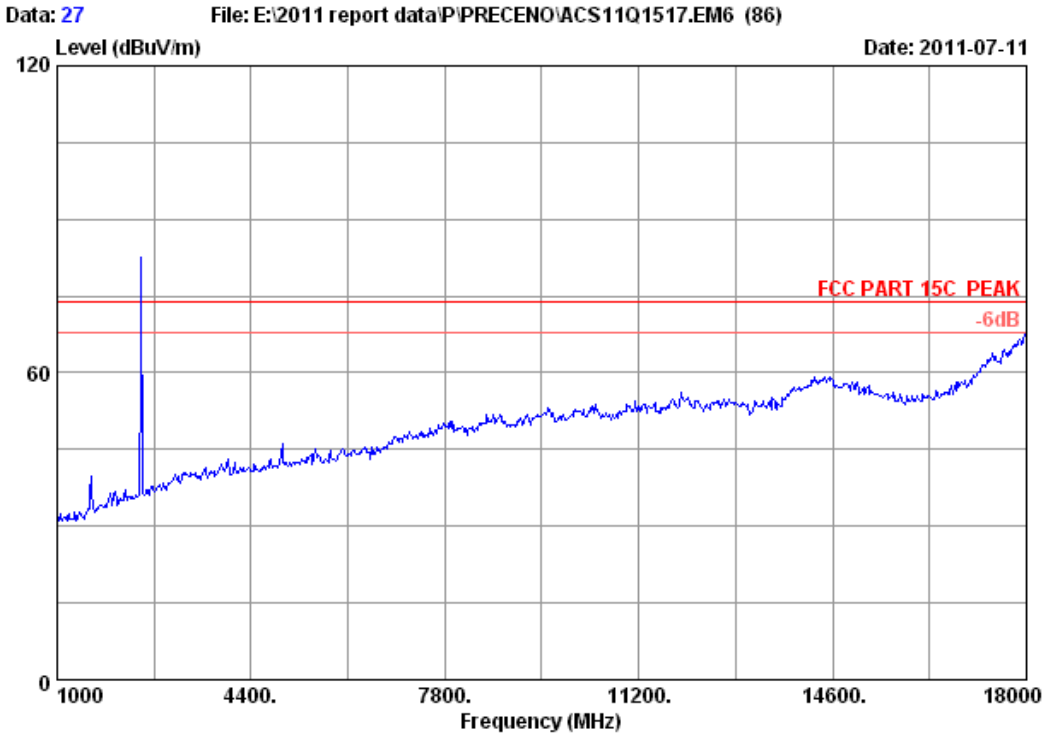



```
Site no.      : 3m Chamber              Data no. :  26
Dis. / Ant.   : 3m   2011 3115 4580      Ant. pol. : VERTICAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                Engineer  : Leo-Li
EUT           : WIMM One
Power         : DC 5V From Adapter Input AC 120V/60Hz
Test mode     : 8DPSK    2441MHz Tx
M/N           : 330
```

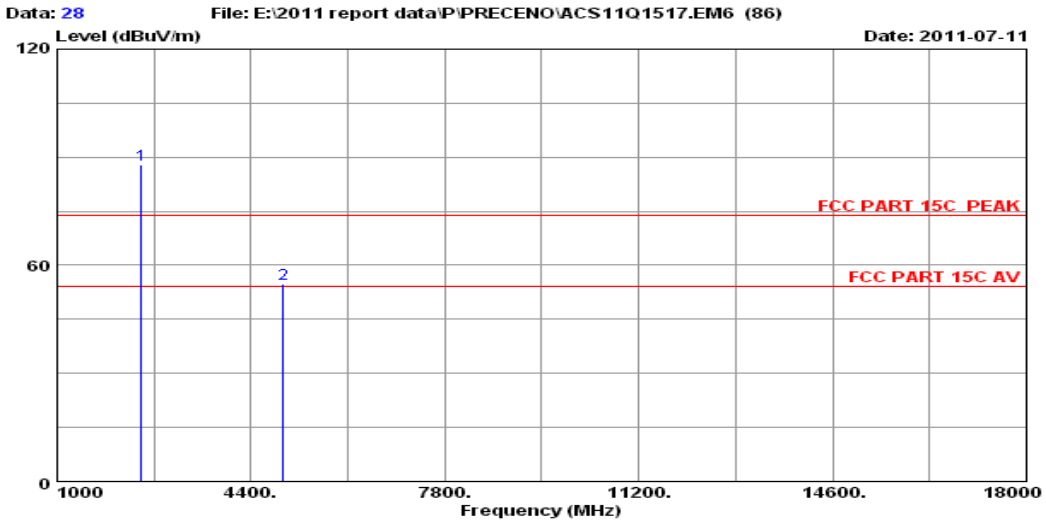
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2441.000	28.03	6.81	34.44	85.24	85.64	74.00	-11.64	Peak
2	4882.000	32.98	9.62	34.60	46.37	54.37	74.00	19.63	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency （MHz）	Peak level (dBuv/m)	Duty cycle factor	AV Level (dBuv/m)	Limit (dBuv/m)	Conclusion
4882	54.37	8.1	46.27	54	PASS




```
Site no.      : 3m Chamber              Data no. :  27
Dis. / Ant.   : 3m   2011 3115 4580      Ant. pol. : VERTICAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                Engineer  : Leo-Li
EUT           : WIMM One
Power         : DC 5V From Adapter Input AC 120V/60Hz
Test mode     : 8DPSK    2480MHz Tx
M/N           : 330
```

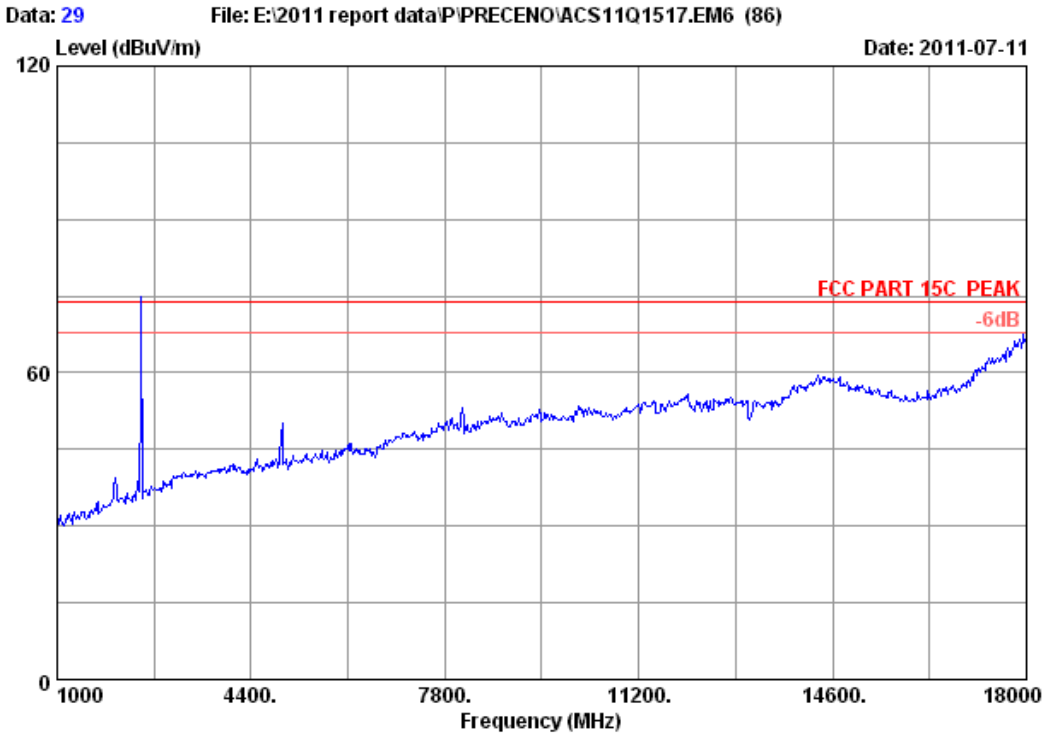



```
Site no.      : 3m Chamber              Data no. :  28
Dis. / Ant.   : 3m   2011 3115 4580      Ant. pol. : VERTICAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                Engineer  : Leo-Li
EUT           : WIMM One
Power         : DC 5V From Adapter Input AC 120V/60Hz
Test mode     : 8DPSK    2480MHz Tx
M/N           : 330
```

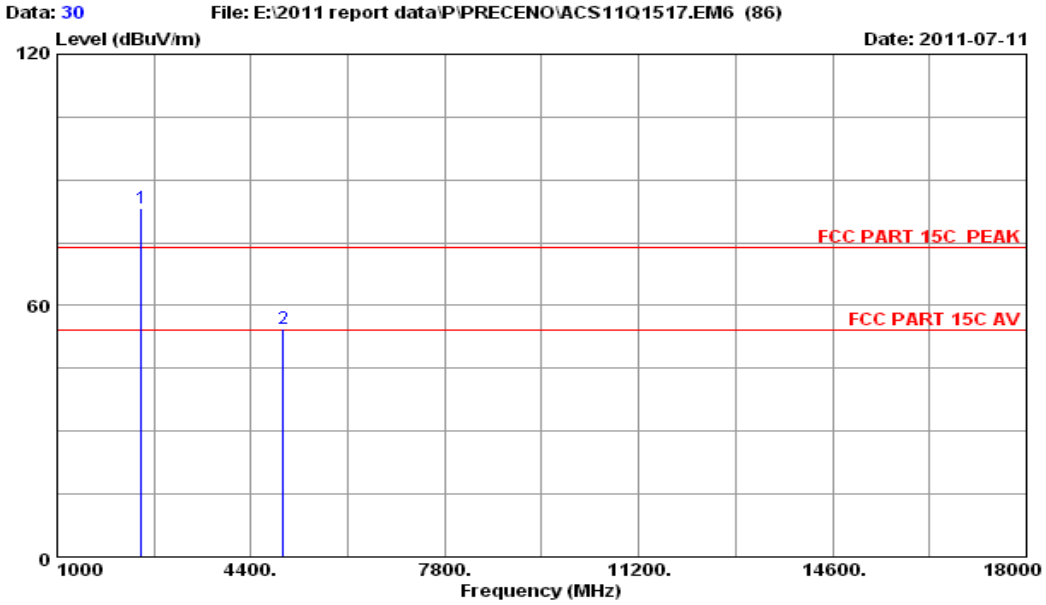
	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.000	28.08	6.87	34.45	87.29	87.79	74.00	-13.79	Peak
2	4960.000	33.14	9.69	34.60	46.56	54.79	74.00	19.21	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency （MHz）	Peak level (dBuv/m)	Duty cycle factor	AV Level (dBuv/m)	Limit (dBuv/m)	Conclusion
4960	54.79	8.1	46.69	54	PASS




```
Site no.      : 3m Chamber              Data no. :  29
Dis. / Ant.   : 3m   2011 3115 4580      Ant. pol. : HORIZONTAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 23*C/54%                Engineer  : Leo-Li
EUT           : WIMM One
Power         : DC 5V From Adapter Input AC 120V/60Hz
Test mode     : 8DPSK    2480MHz Tx
M/N           : 330
```



Site no. : 3m Chamber Data no. : 30
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : WIMM One
Power : DC 5V From Adapter Input AC 120V/60Hz
Test mode : 8DPSK 2480MHz Tx
M/N : 330

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.000	28.08	6.87	34.45	82.82	83.32	74.00	-9.32	Peak
2	4960.000	33.14	9.69	34.60	46.27	54.50	74.00	19.50	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency （MHz）	Peak level (dBuv/m)	Duty cycle factor	AV Level (dBuv/m)	Limit (dBuv/m)	Conclusion
4960	54.50	8.1	46.40	54	PASS

5. CONDUCTED SPURIOUS EMISSIONS

5.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08,11	1 Year
2.	Attenuator	Agilent	8491B	MY39262165	May.08,11	1 Year
3.	RF Cable	Hubersuhner	SUCOFLEX102	28618/2	May.08,11	1Year

5.2.Limit

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

5.3.Test Procedure

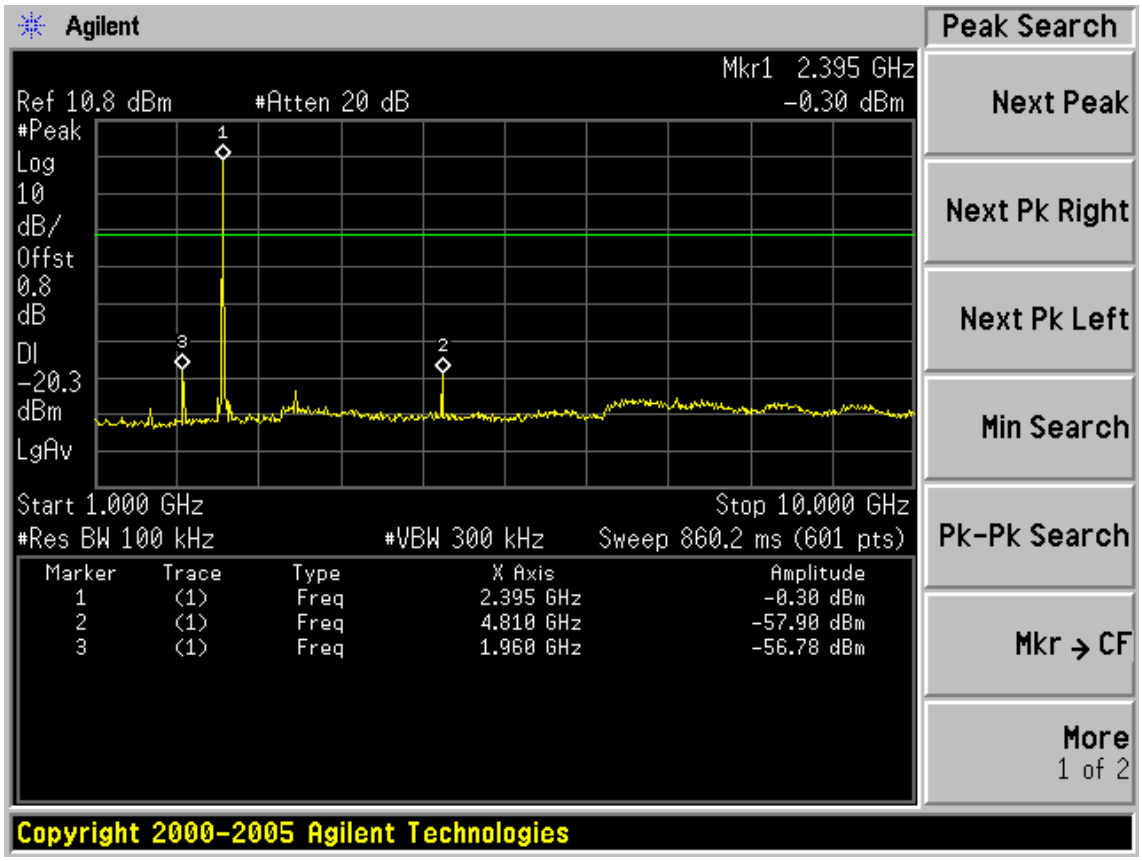
The transmitter output was connected to a spectrum analyzer, The resolution bandwidth is set to 100 kHz, The video bandwidth is set to 300 kHz and measure all the emissions detected.

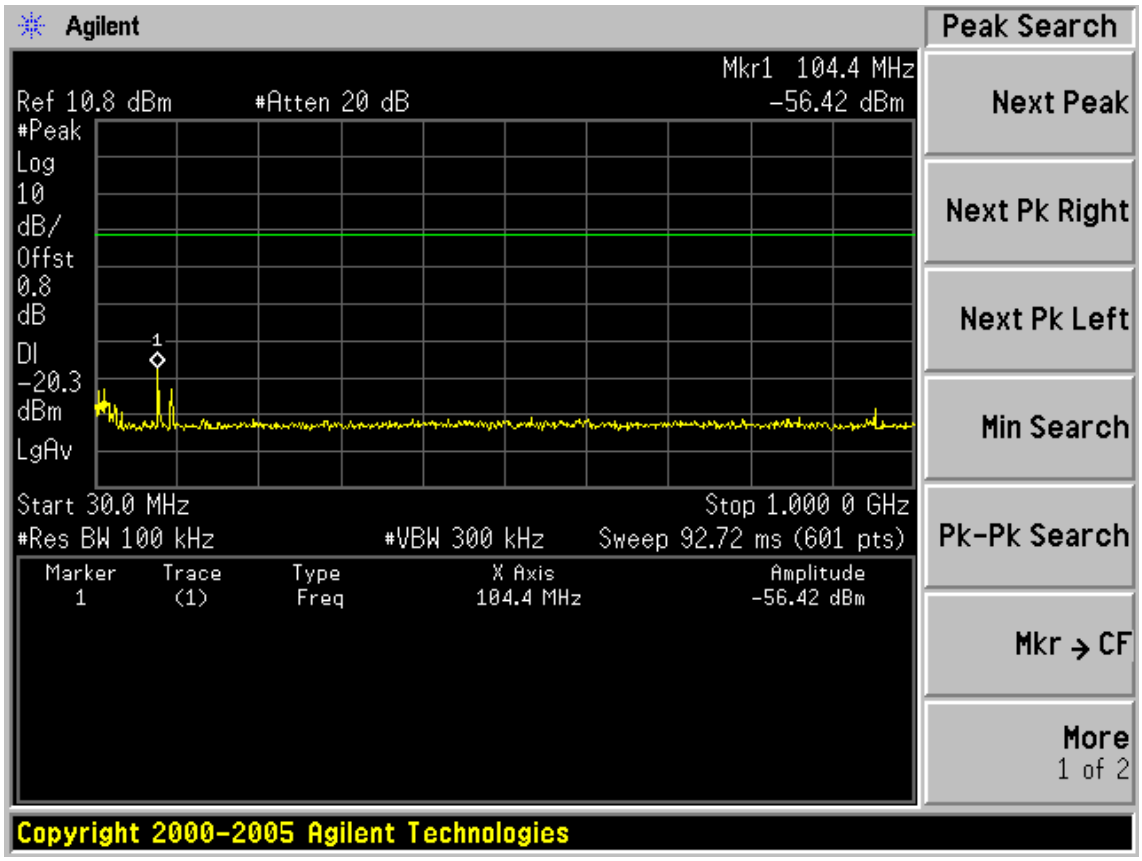
5.4.Test result

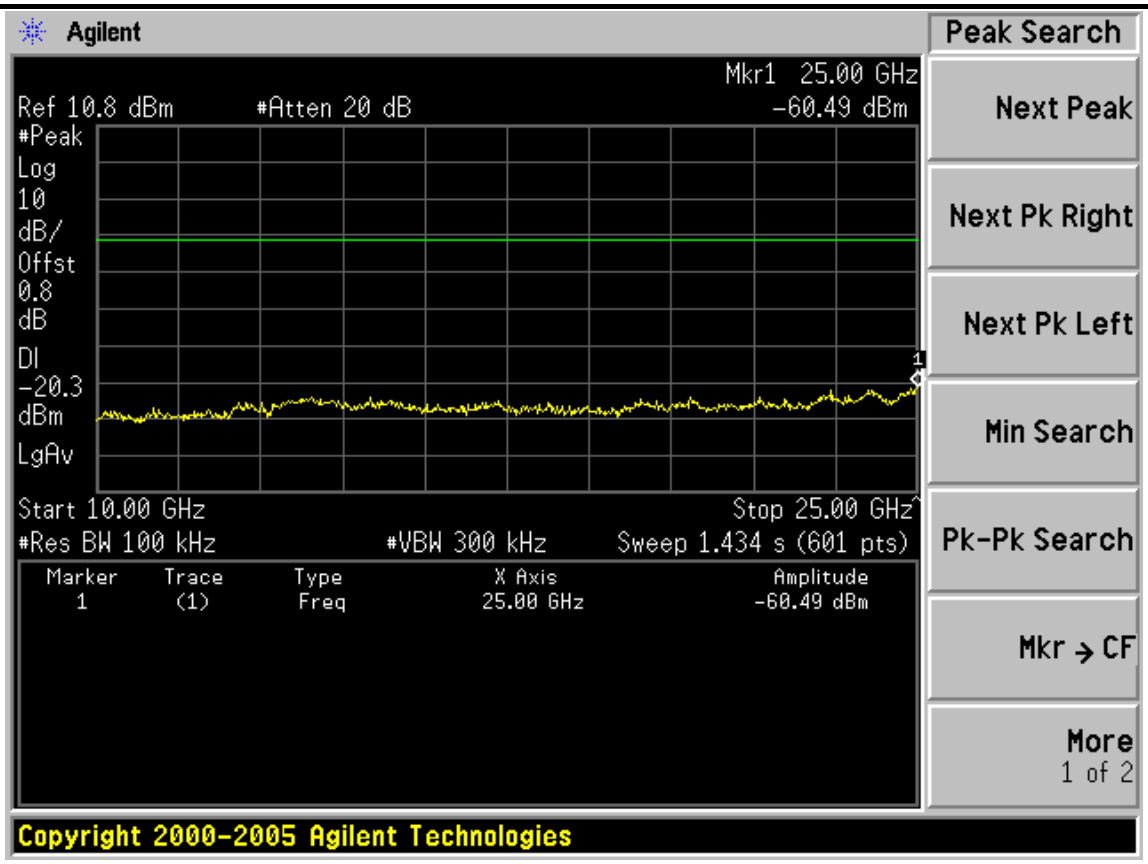
PASS (The testing data was attached in the next pages.)

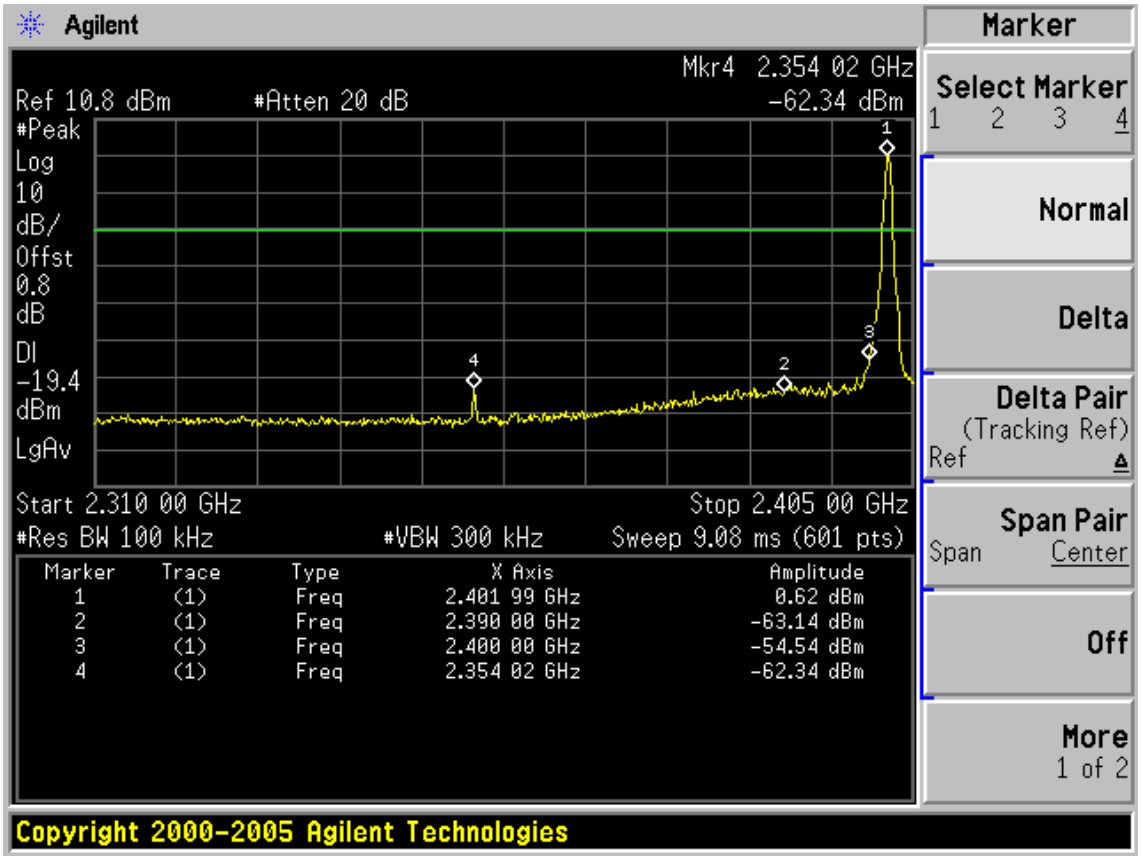
GFSK

2402MHz

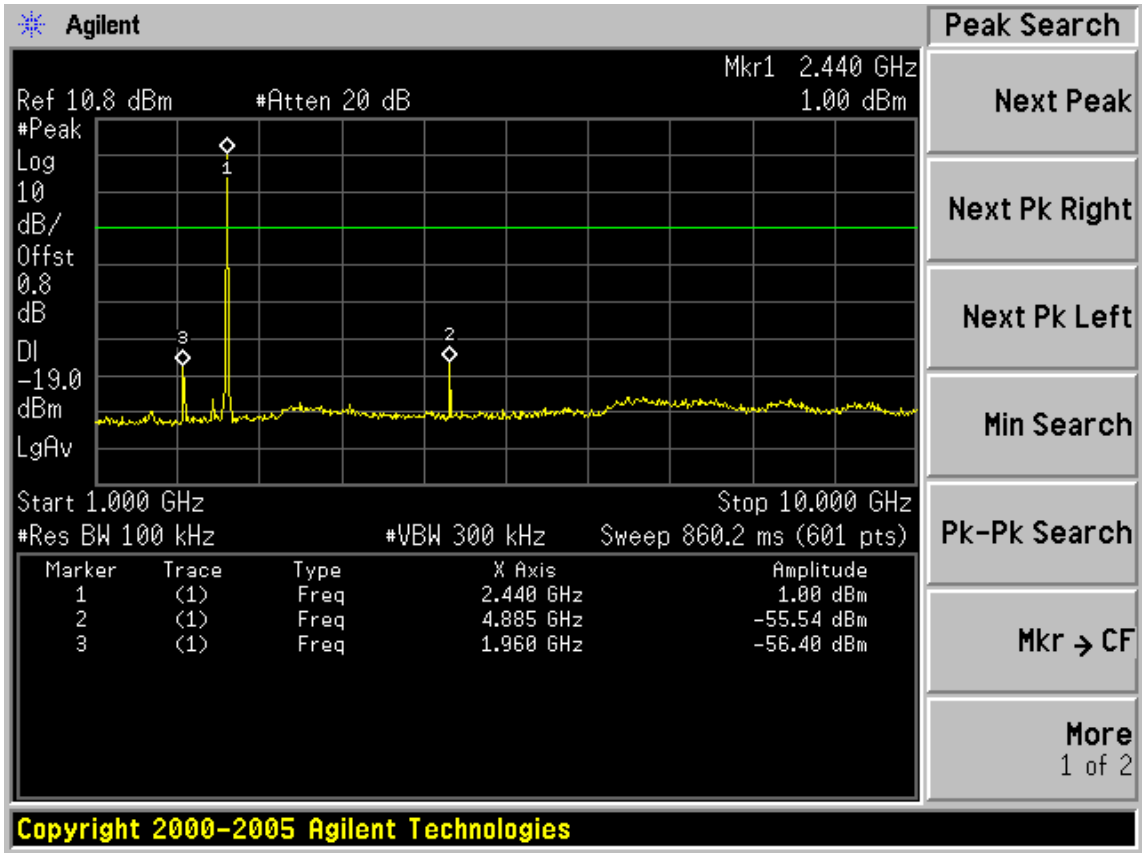


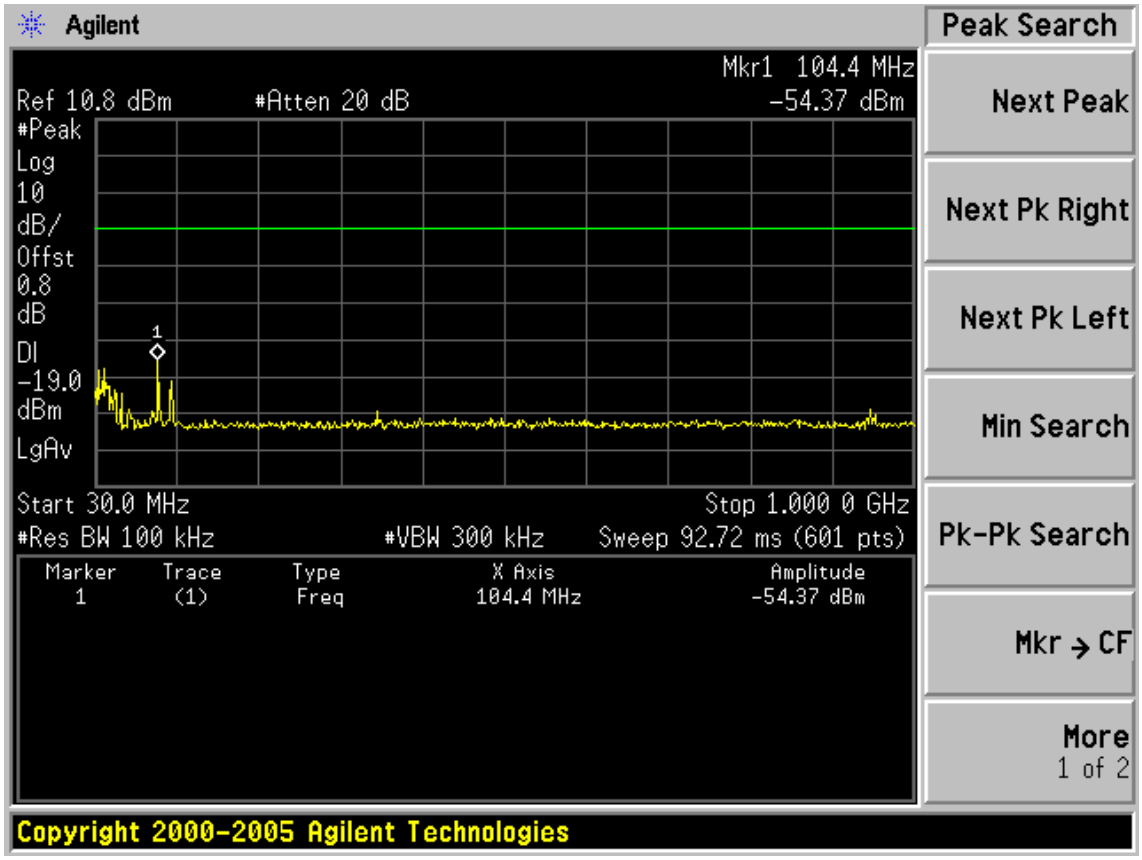


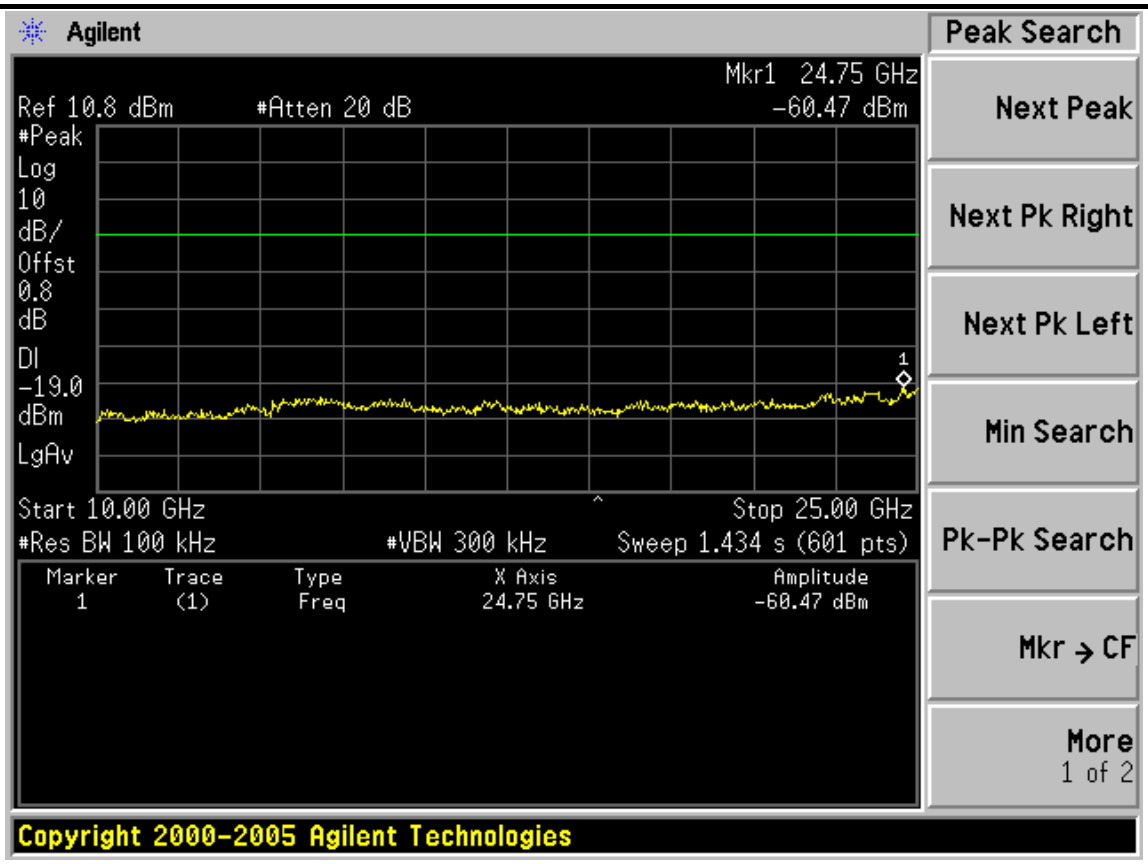

Agilent
Peak Search
Mkr1 25.00 GHz
Ref 10.8 dBm
#Atten 20 dB
-60.49 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-20.3
dBm
LgAv
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 10.00 GHz
Stop 25.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 25.00 GHz -60.49 dBm
Copyright 2000-2005 Agilent Technologies


Agilent
Marker
Mkr4 2.354 02 GHz
Ref 10.8 dBm
#Atten 20 dB
-62.34 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-19.4
dBm
LgAv
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Start 2.310 00 GHz
Stop 2.405 00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 9.08 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.401 99 GHz 0.62 dBm
2 (1) Freq 2.390 00 GHz -63.14 dBm
3 (1) Freq 2.400 00 GHz -54.54 dBm
4 (1) Freq 2.354 02 GHz -62.34 dBm
Copyright 2000-2005 Agilent Technologies

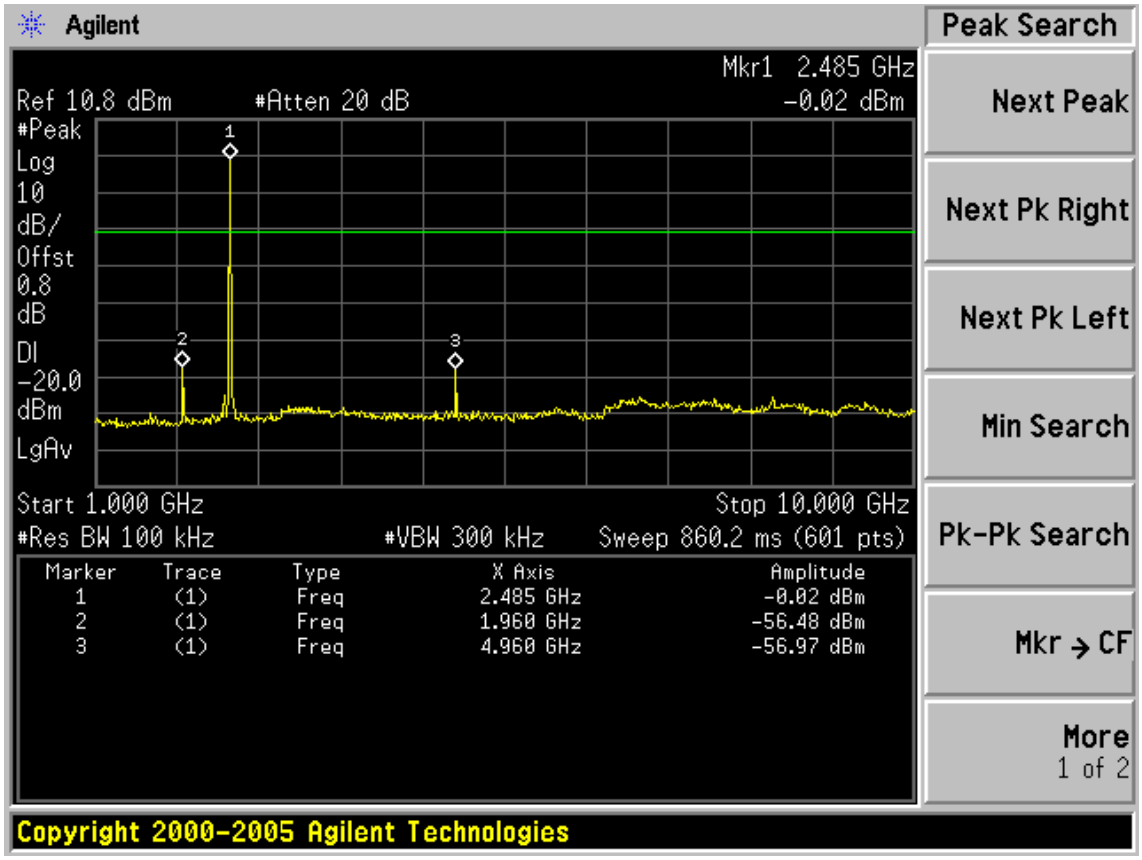
2441MHz

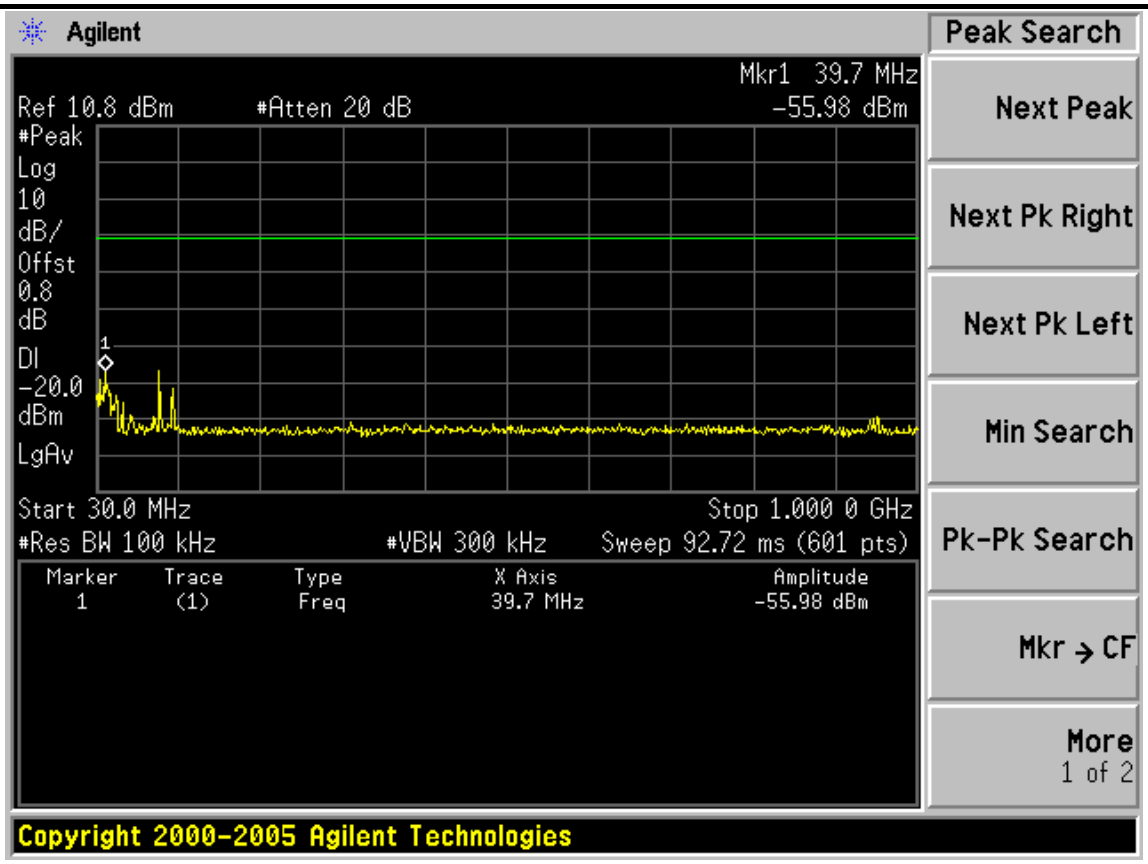

Agilent
Peak Search
Mkr1 2.440 GHz
Ref 10.8 dBm
#Atten 20 dB
1.00 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-19.0
dBm
LgAv
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 1.000 GHz
Stop 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 860.2 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.440 GHz 1.00 dBm
2 (1) Freq 4.885 GHz -55.54 dBm
3 (1) Freq 1.960 GHz -56.40 dBm
Copyright 2000-2005 Agilent Technologies

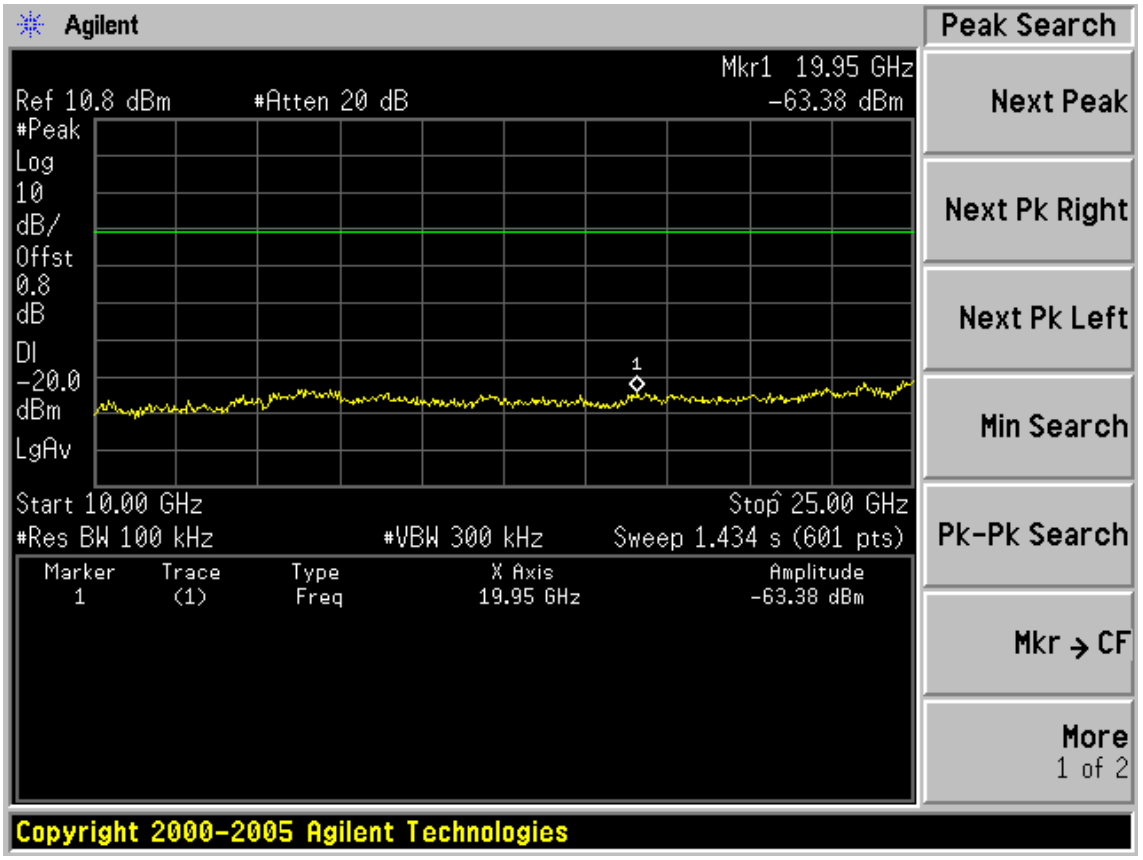

Agilent
Peak Search
Mkr1 104.4 MHz
Ref 10.8 dBm
#Atten 20 dB
-54.37 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-19.0
dBm
LgAv
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 30.0 MHz
Stop 1.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 92.72 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 104.4 MHz -54.37 dBm
Copyright 2000-2005 Agilent Technologies

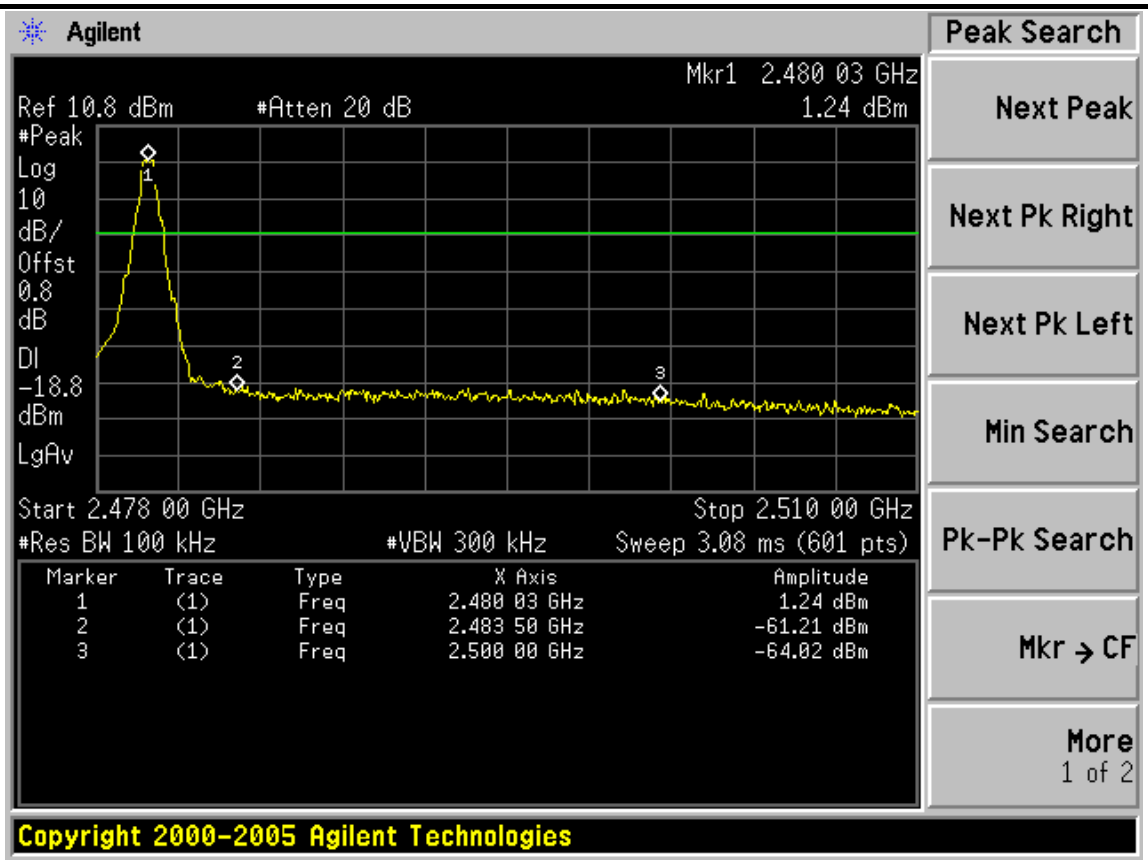

Agilent
Peak Search
Mkr1 24.75 GHz
Ref 10.8 dBm
#Atten 20 dB
-60.47 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-19.0
dBm
LgAv
1
Start 10.00 GHz
Stop 25.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 24.75 GHz -60.47 dBm
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Copyright 2000-2005 Agilent Technologies

2480MHz


Agilent
Peak Search
Mkr1 2.485 GHz
Ref 10.8 dBm
#Atten 20 dB
-0.02 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-20.0
dBm
LgAv
1
2
3
Start 1.000 GHz
Stop 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 860.2 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.485 GHz -0.02 dBm
2 (1) Freq 1.960 GHz -56.48 dBm
3 (1) Freq 4.960 GHz -56.97 dBm
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Copyright 2000-2005 Agilent Technologies

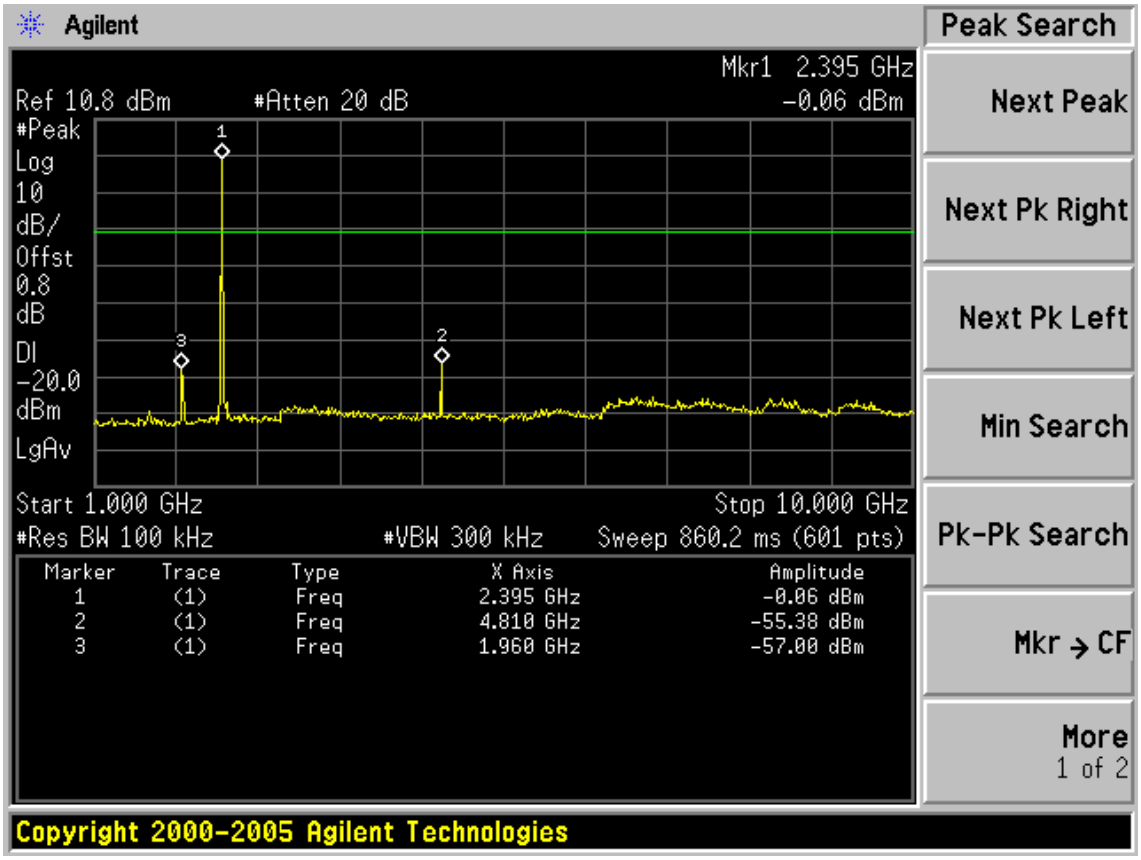

Agilent
Peak Search
Mkr1 39.7 MHz
Ref 10.8 dBm
#Atten 20 dB
-55.98 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-20.0
dBm
LgAv
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 30.0 MHz
Stop 1.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 92.72 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 39.7 MHz -55.98 dBm
Copyright 2000-2005 Agilent Technologies

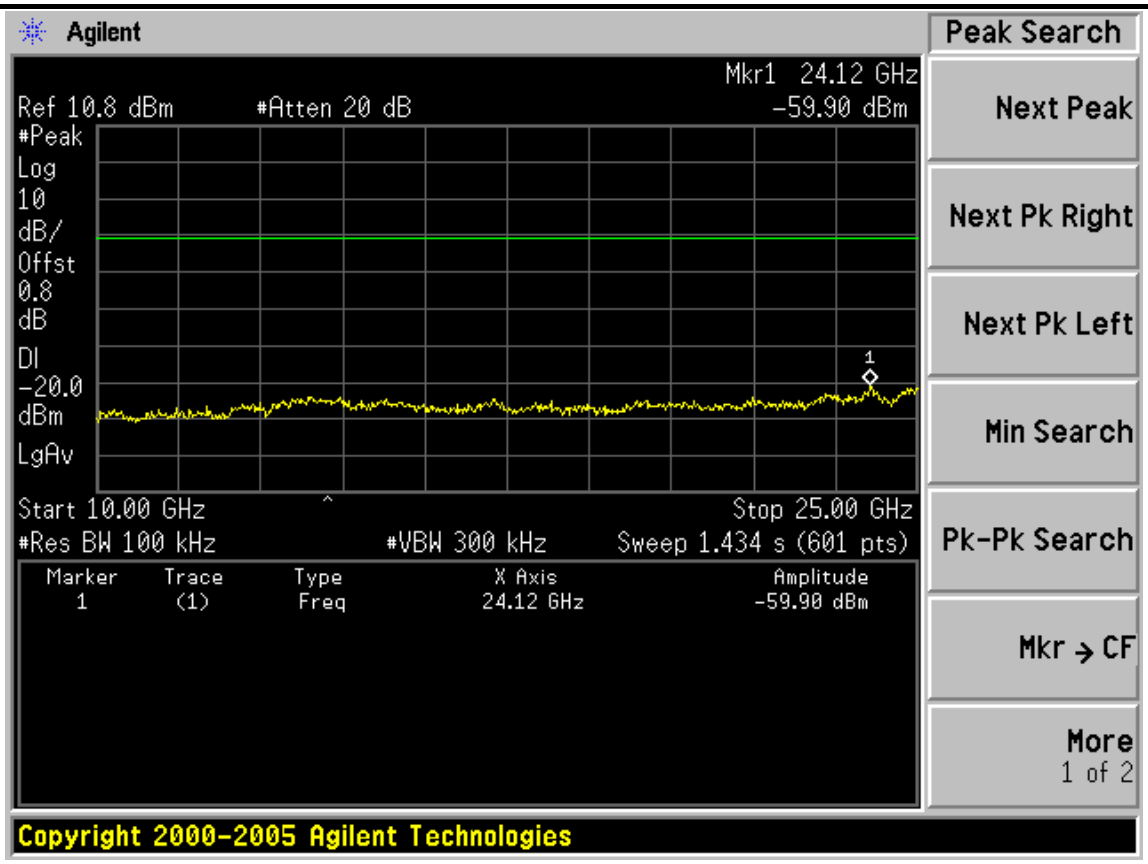

Agilent
Peak Search
Mkr1 19.95 GHz
Ref 10.8 dBm
#Atten 20 dB
-63.38 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-20.0
dBm
LgAv
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 10.00 GHz
Stop 25.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 19.95 GHz -63.38 dBm
Copyright 2000-2005 Agilent Technologies

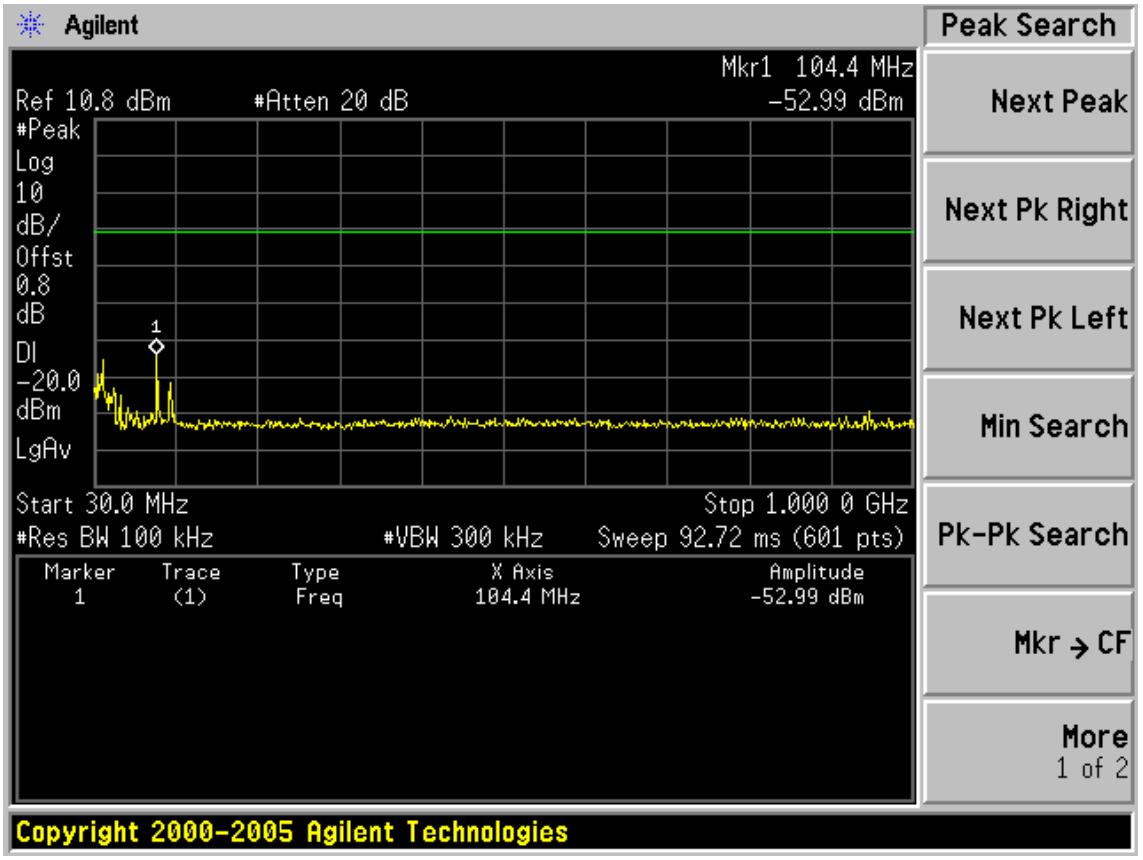


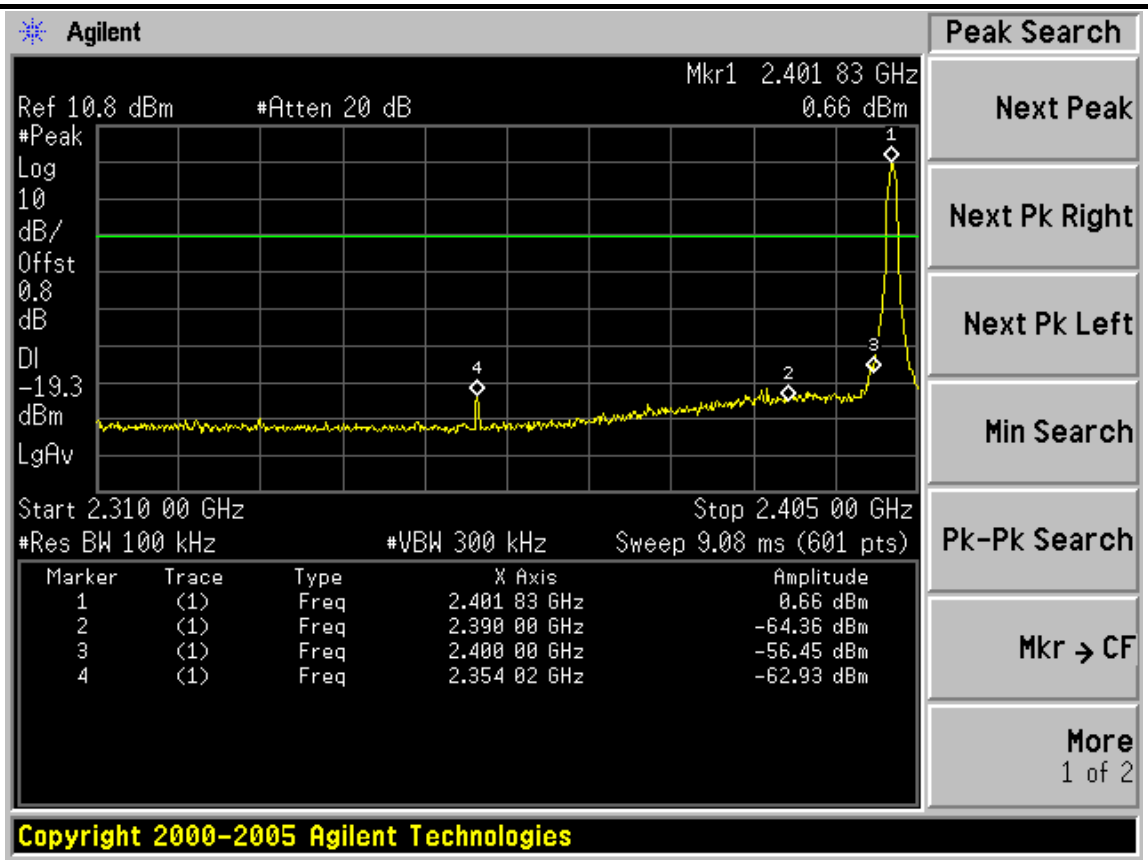
8DPSK

2402MHz

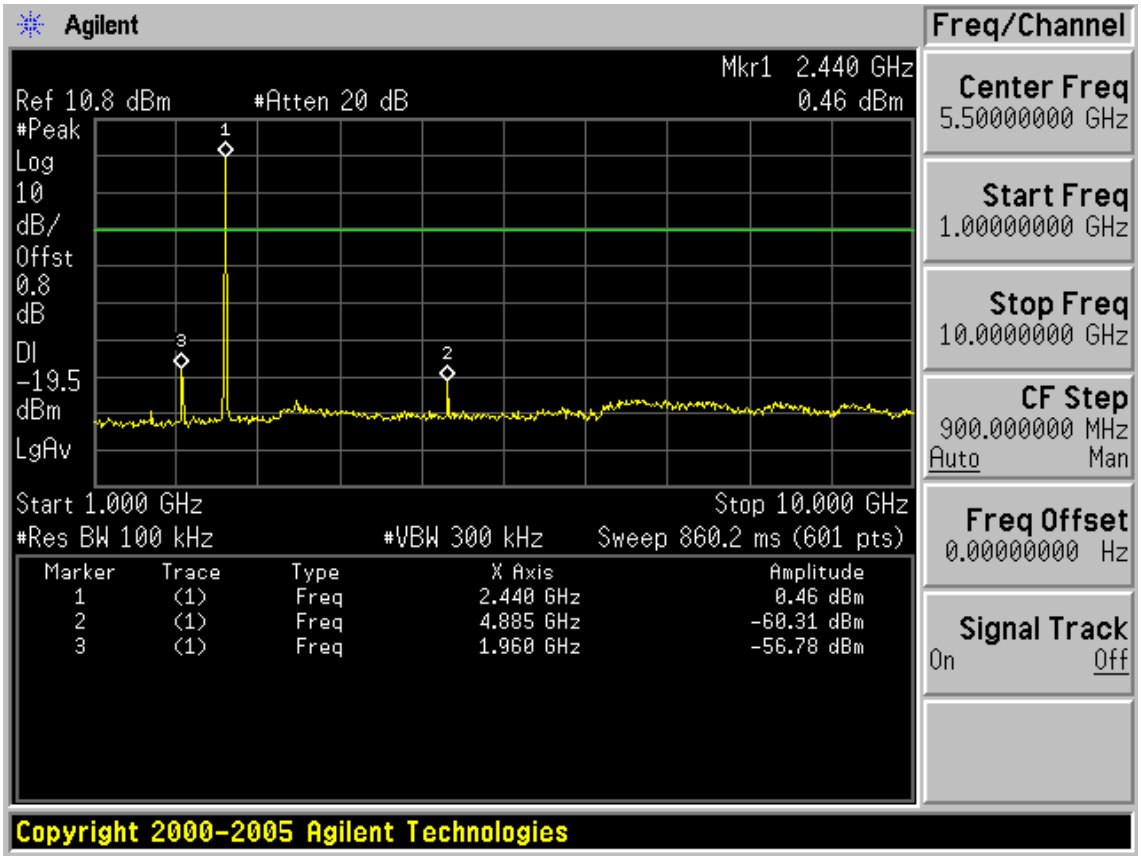


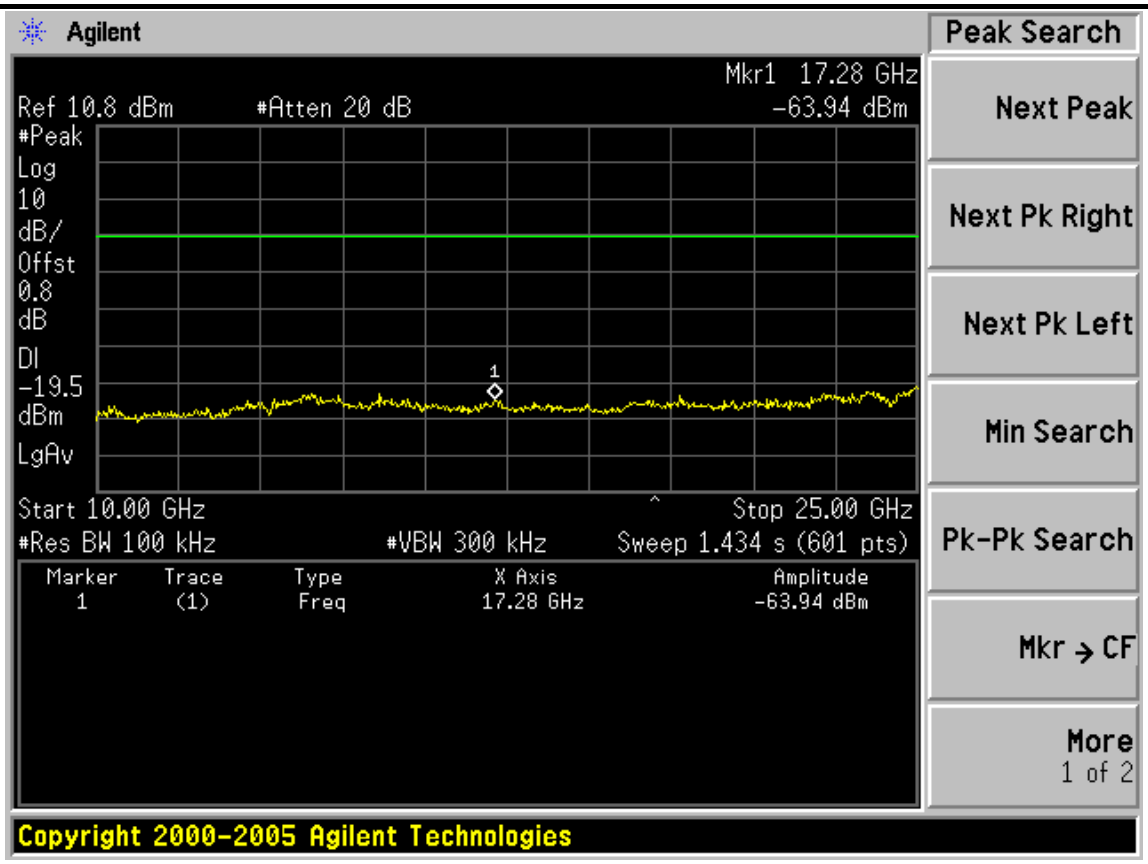

Agilent
Peak Search
Mkr1 24.12 GHz
Ref 10.8 dBm
#Atten 20 dB
-59.90 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-20.0
dBm
LgAv
1
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 10.00 GHz
Stop 25.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 24.12 GHz -59.90 dBm
Copyright 2000-2005 Agilent Technologies

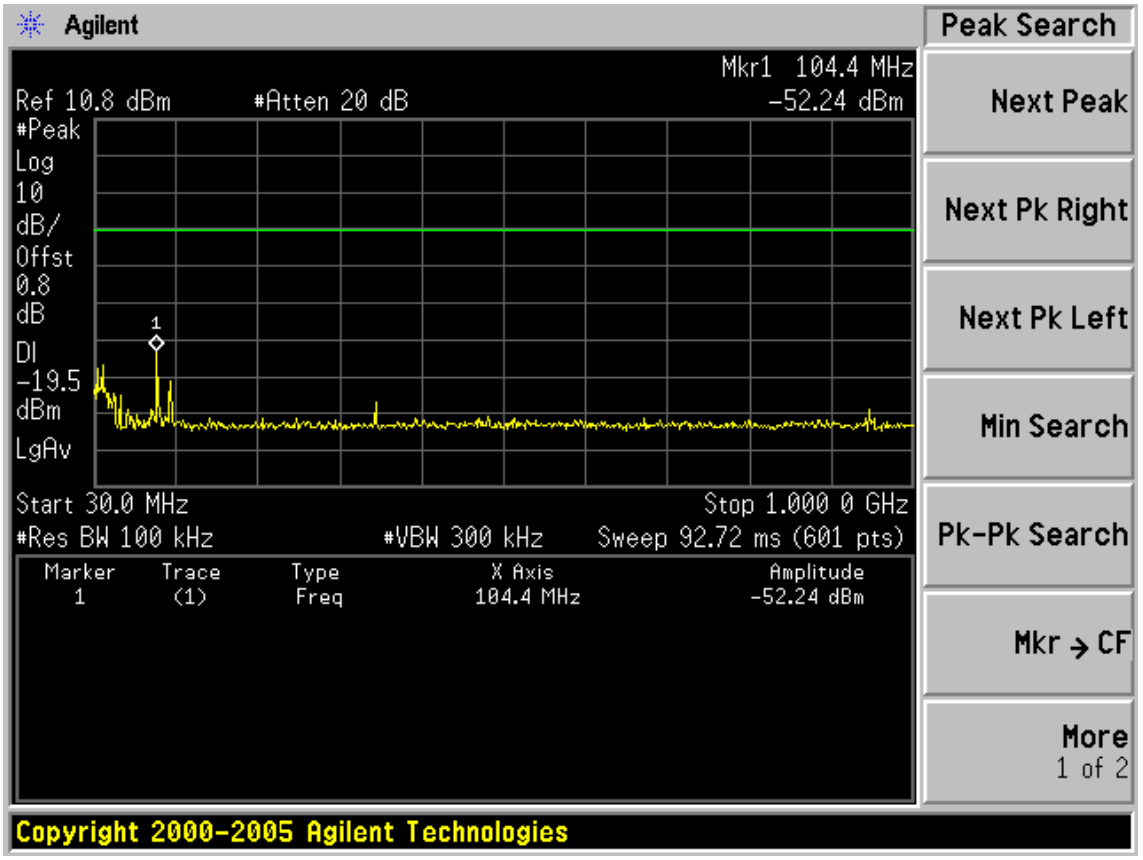

Agilent
Peak Search
Mkr1 104.4 MHz
Ref 10.8 dBm
#Atten 20 dB
-52.99 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-20.0
dBm
LgAv
1
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 30.0 MHz
Stop 1.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 92.72 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 104.4 MHz -52.99 dBm
Copyright 2000-2005 Agilent Technologies


Agilent
Peak Search
Mkr1 2.401 83 GHz
Ref 10.8 dBm
#Atten 20 dB
0.66 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-19.3
dBm
LgAv
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 2.310 00 GHz
Stop 2.405 00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 9.08 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.401 83 GHz 0.66 dBm
2 (1) Freq 2.390 00 GHz -64.36 dBm
3 (1) Freq 2.400 00 GHz -56.45 dBm
4 (1) Freq 2.354 02 GHz -62.93 dBm
Copyright 2000-2005 Agilent Technologies

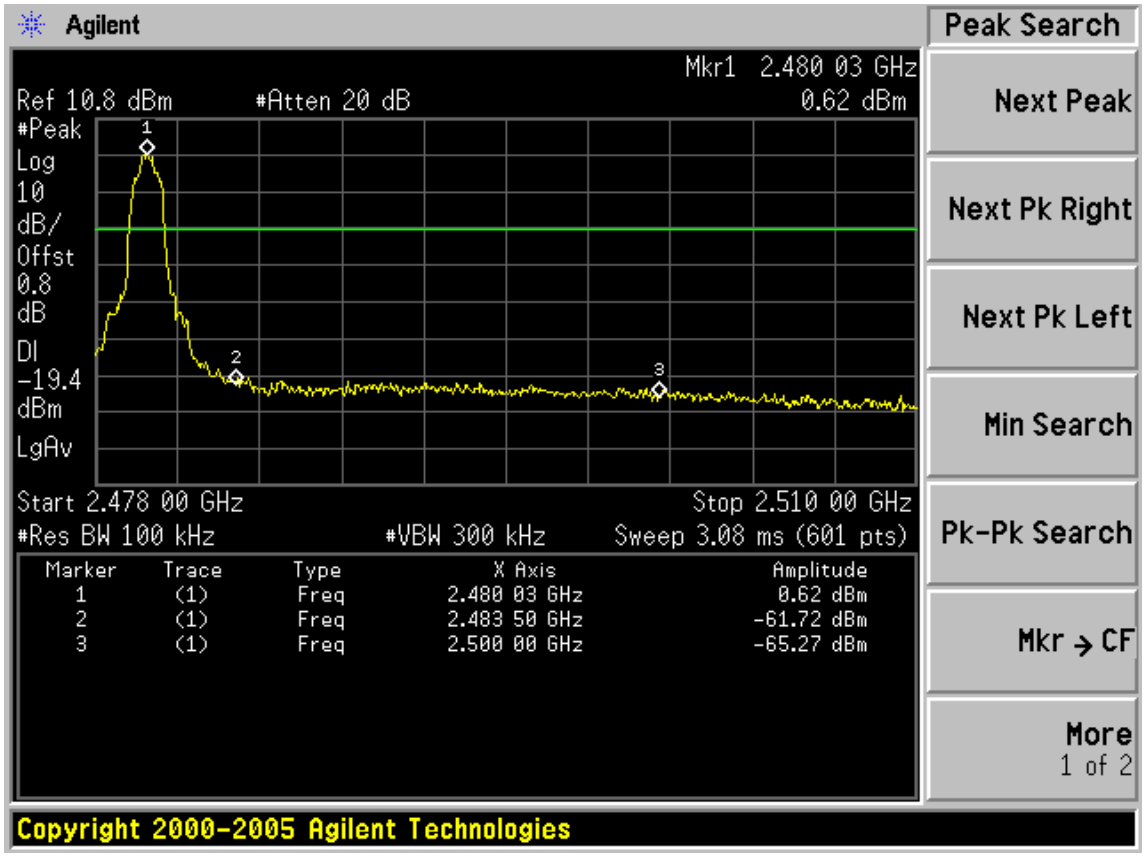
2441MHz

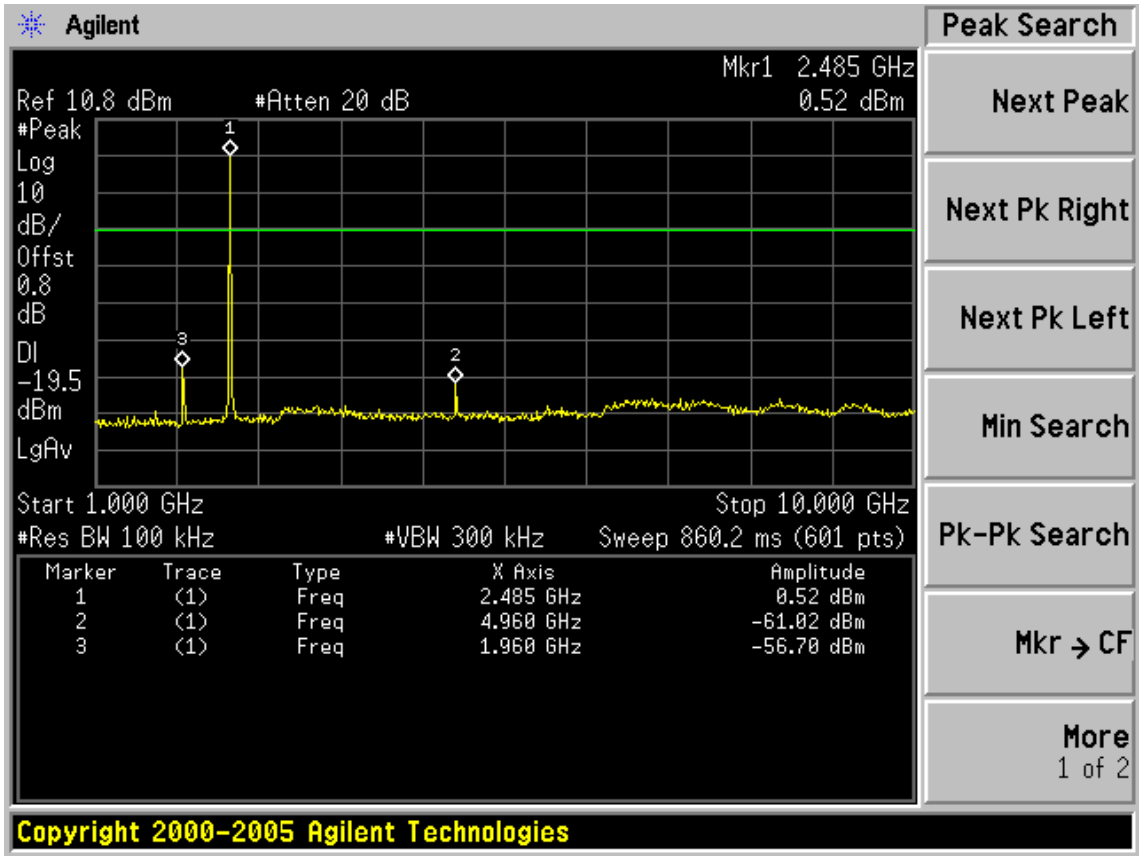

Agilent
Freq/Channel
Mkr1 2.440 GHz
Ref 10.8 dBm
#Atten 20 dB
0.46 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-19.5
dBm
LgAv
Center Freq
5.50000000 GHz
Start Freq
1.00000000 GHz
Stop Freq
10.0000000 GHz
CF Step
900.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Start 1.000 GHz
Stop 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 860.2 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.440 GHz 0.46 dBm
2 (1) Freq 4.885 GHz -60.31 dBm
3 (1) Freq 1.960 GHz -56.78 dBm
Copyright 2000-2005 Agilent Technologies

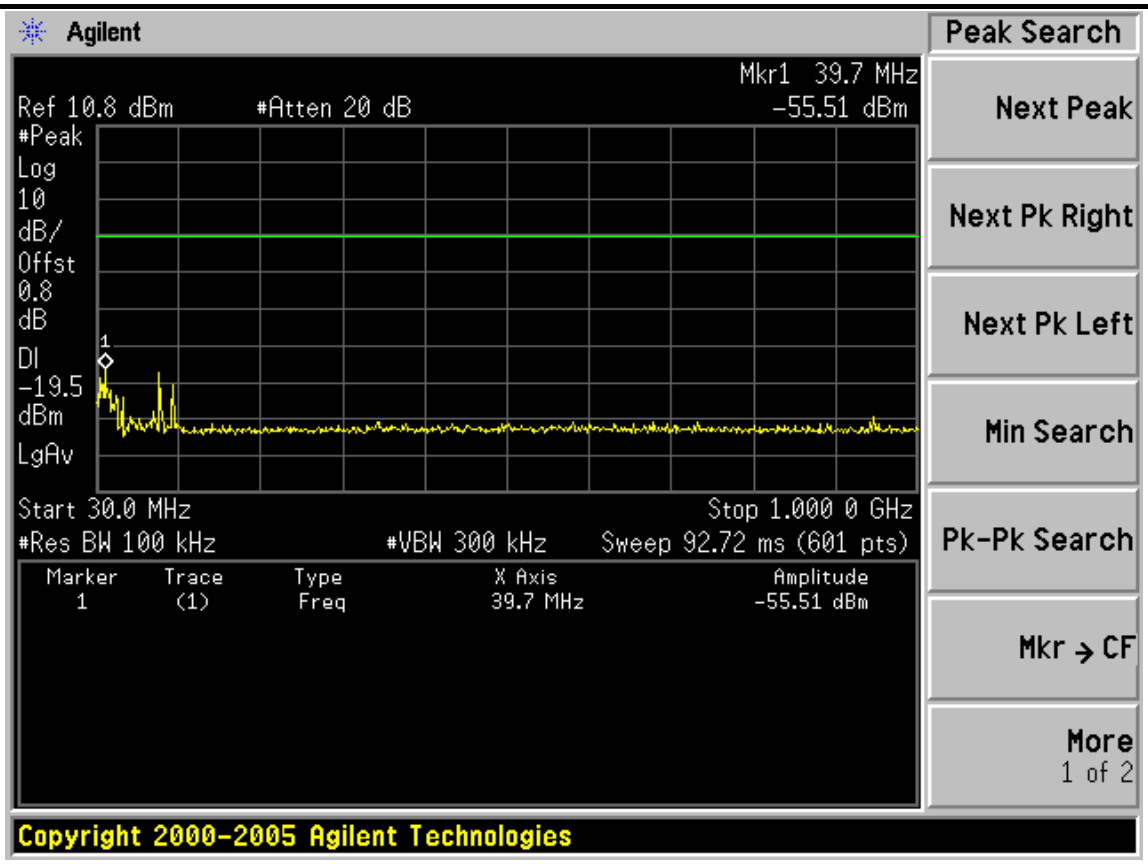

Agilent
Peak Search
Mkr1 17.28 GHz
Ref 10.8 dBm
#Atten 20 dB
-63.94 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-19.5
dBm
LgAv
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 10.00 GHz
Stop 25.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 17.28 GHz -63.94 dBm
Copyright 2000-2005 Agilent Technologies

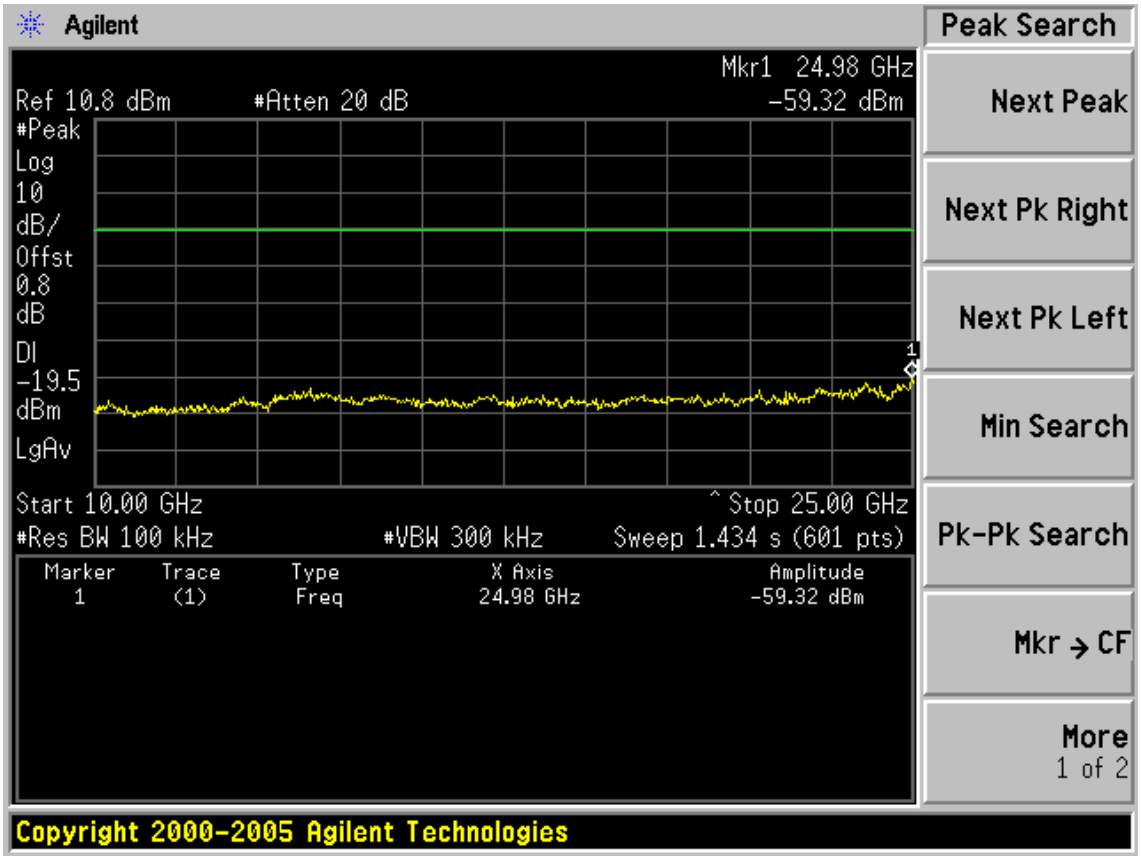

Agilent
Peak Search
Mkr1 104.4 MHz
Ref 10.8 dBm
#Atten 20 dB
-52.24 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-19.5
dBm
LgAv
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 30.0 MHz
Stop 1.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 92.72 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 104.4 MHz -52.24 dBm
Copyright 2000-2005 Agilent Technologies

2480MHz


Agilent
Peak Search
Mkr1 2.480 03 GHz
Ref 10.8 dBm
#Atten 20 dB
0.62 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-19.4
dBm
LgAv
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 2.478 00 GHz
Stop 2.510 00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 3.08 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.480 03 GHz 0.62 dBm
2 (1) Freq 2.483 50 GHz -61.72 dBm
3 (1) Freq 2.500 00 GHz -65.27 dBm
Copyright 2000-2005 Agilent Technologies


Agilent
Peak Search
Mkr1 2.485 GHz
Ref 10.8 dBm
#Atten 20 dB
0.52 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-19.5
dBm
LgAv
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 1.000 GHz
Stop 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 860.2 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.485 GHz 0.52 dBm
2 (1) Freq 4.960 GHz -61.02 dBm
3 (1) Freq 1.960 GHz -56.70 dBm
Copyright 2000-2005 Agilent Technologies


Agilent
Peak Search
Mkr1 39.7 MHz
Ref 10.8 dBm
#Atten 20 dB
-55.51 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-19.5
dBm
LgAv
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 30.0 MHz
Stop 1.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 92.72 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 39.7 MHz -55.51 dBm
Copyright 2000-2005 Agilent Technologies


Agilent
Peak Search
Mkr1 24.98 GHz
Ref 10.8 dBm
#Atten 20 dB
-59.32 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-19.5
dBm
LgAv
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 10.00 GHz
Stop 25.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 24.98 GHz -59.32 dBm
Copyright 2000-2005 Agilent Technologies

6. CARRIER FREQUENCY SEPARATION TEST

6.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 11	1 Year

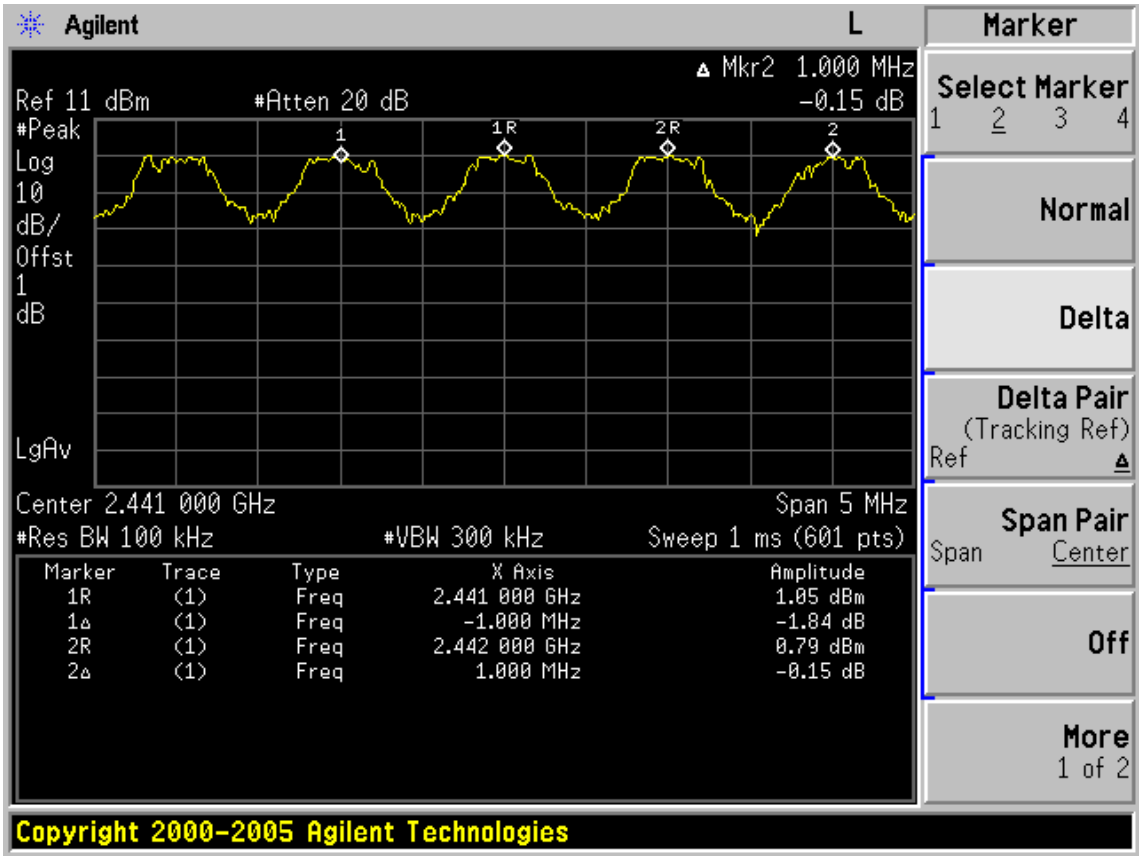
6.2.Limit

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

6.3.Test Results.

EUT: WIMM One		
M/N: 330		
Test date:2011-07-17	Pressure:100.6 kpa	Humidity:53%
Tested by: Leo-Li	Test site: RF site	Temperature:25 ℃

Channel separation	Conclusion
1.00MHz	PASS


Agilent
L
Marker
Mkr2 1.000 MHz
Ref 11 dBm
#Atten 20 dB
-0.15 dB
#Peak
Log
10
dB/
Offst
1
dB
LgAv
1
1R
2R
2
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Center 2.441 000 GHz
Span 5 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1 ms (601 pts)
Marker Trace Type X Axis Amplitude
1R (1) Freq 2.441 000 GHz 1.05 dBm
1Δ (1) Freq -1.000 MHz -1.84 dB
2R (1) Freq 2.442 000 GHz 0.79 dBm
2Δ (1) Freq 1.000 MHz -0.15 dB
Copyright 2000-2005 Agilent Technologies

7. 20 DB BANDWIDTH TEST

7.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08,11	1 Year

7.2. Limit

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

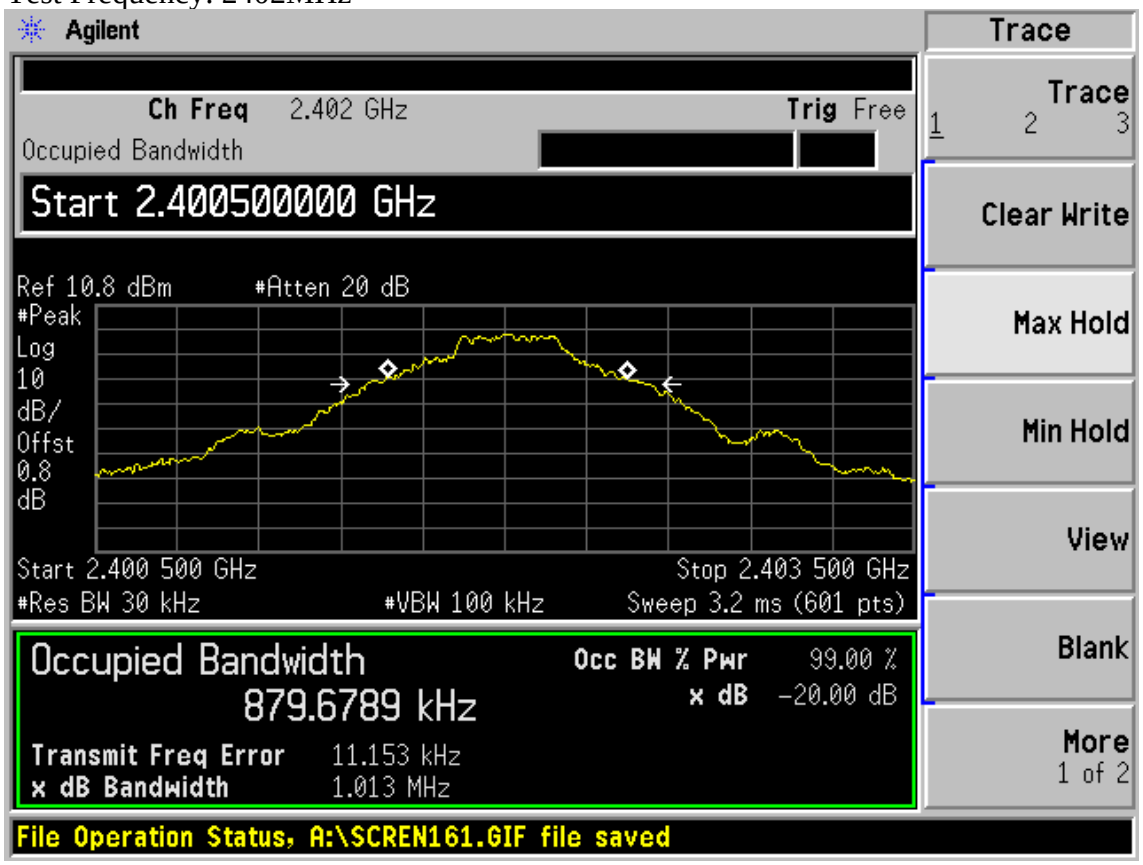
7.3. Test Results

EUT: WIMM One		
M/N:330		
Test date: 2011-07-17	Pressure: 100.7 kpa	Humidity: 52%
Tested by: Leo-Li	Test site: RF Site	Temperature：25 ℃

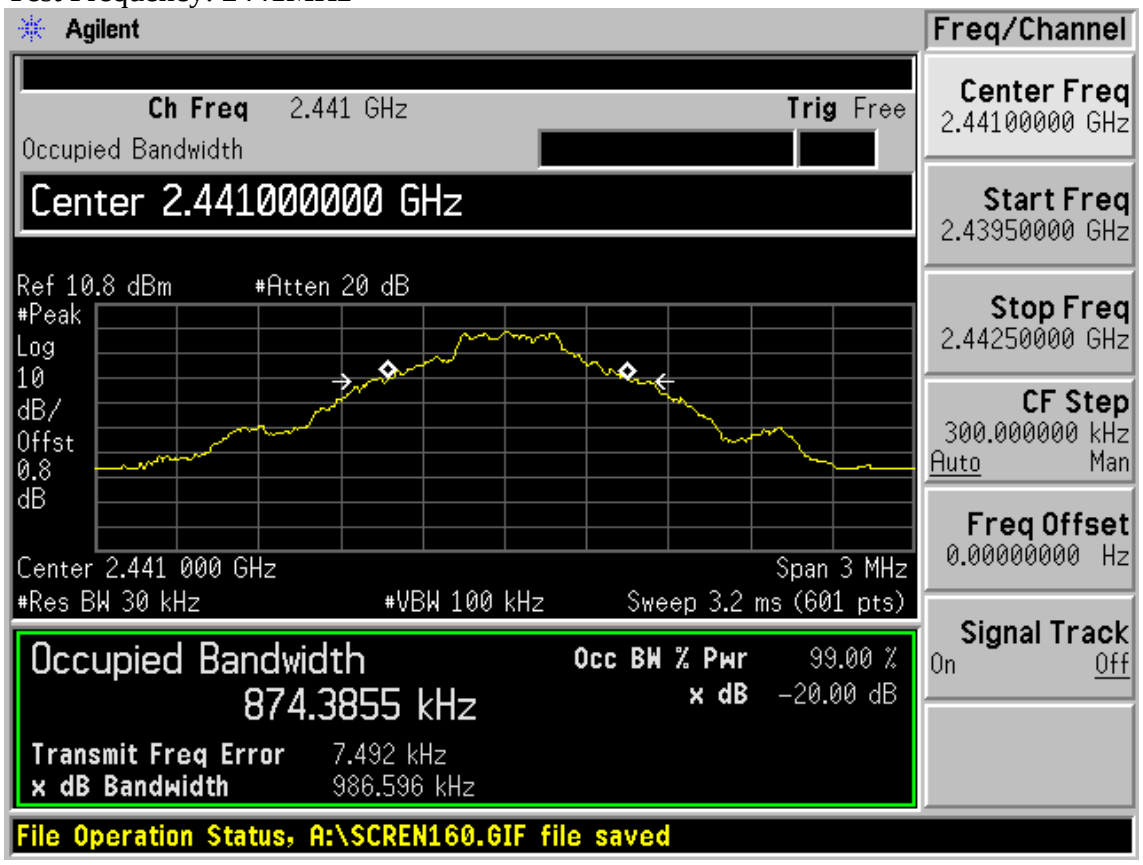
Cable loss: 0.8 dB		Attenuator loss: 20 dB	
Test Mode	CH （MHz）	20dB bandwidth （MHz）	Limit (KHz)
GFSK	2402	1.013	N/A
	2441	0.986596	N/A
	2480	1.001	N/A
8DPSK	2402	1.234	N/A
	2441	1.219	N/A
	2480	1.221	N/A
Conclusion：PASS			

GFSK

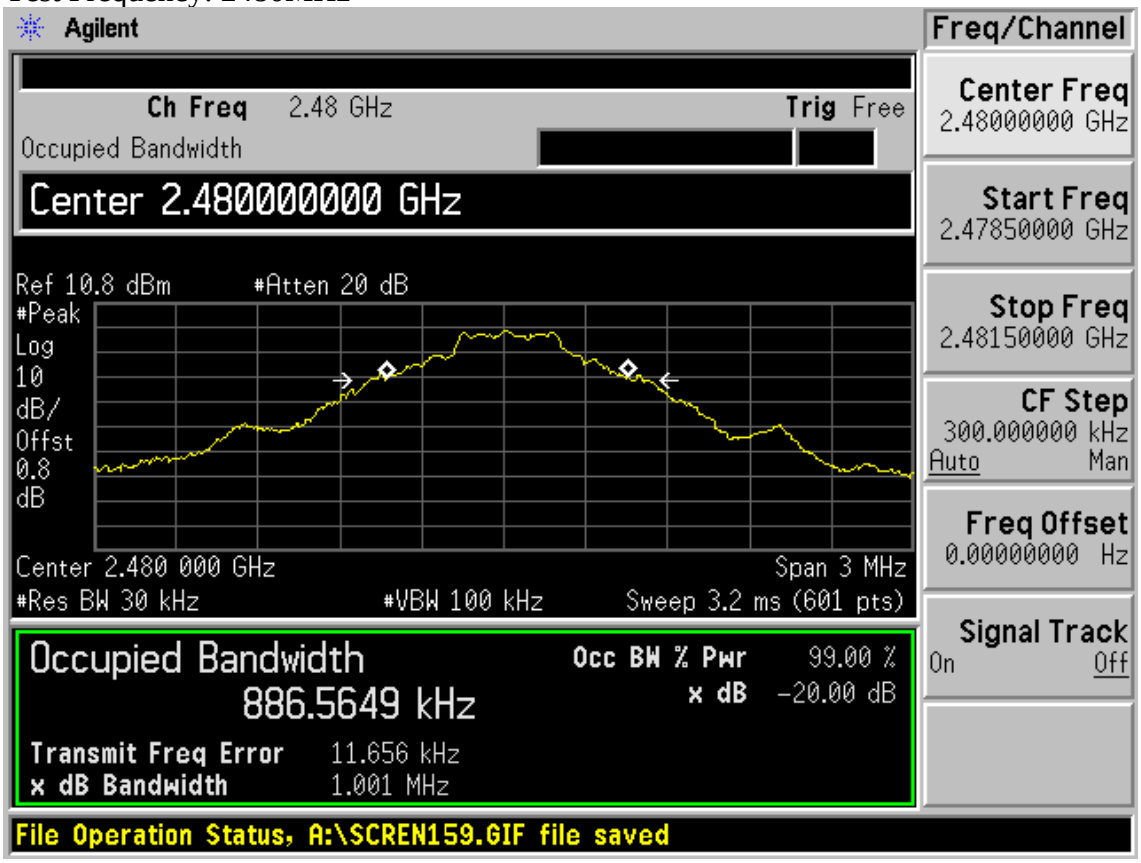
Test Frequency: 2402MHz



Test Frequency: 2441MHz

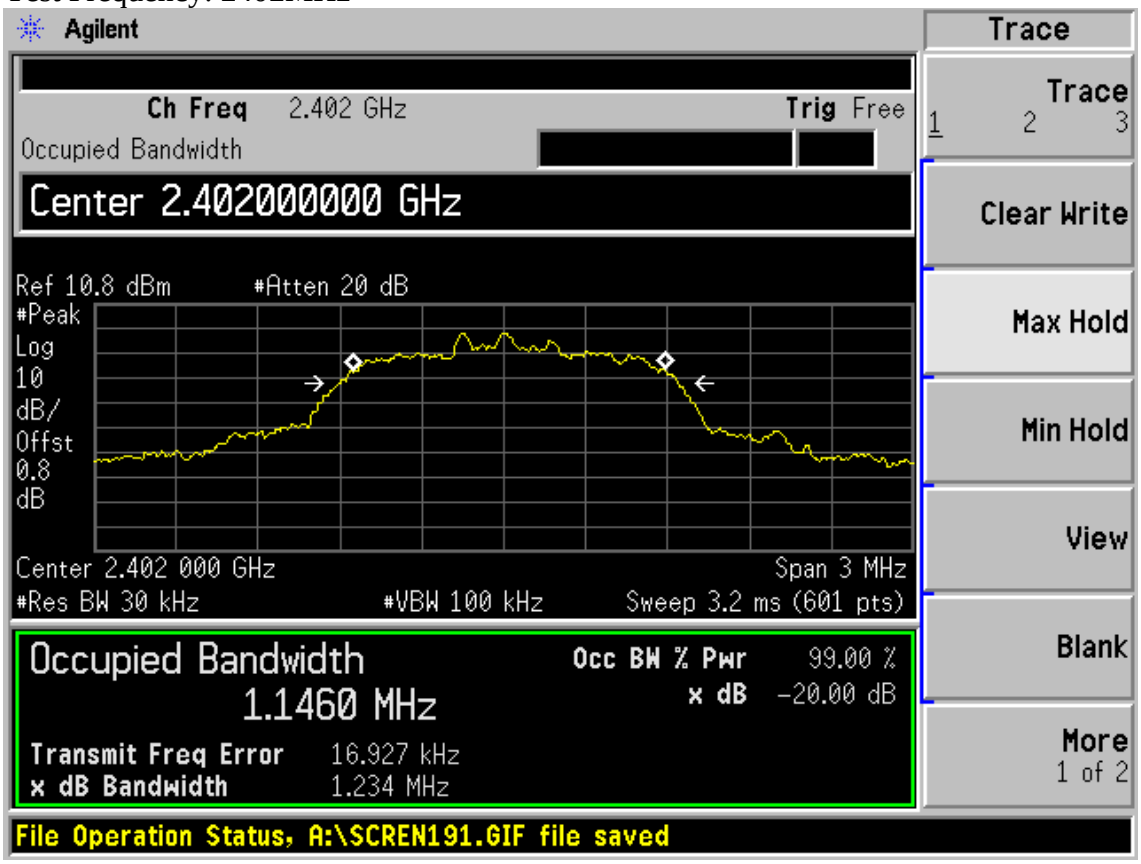


Test Frequency: 2480MHz

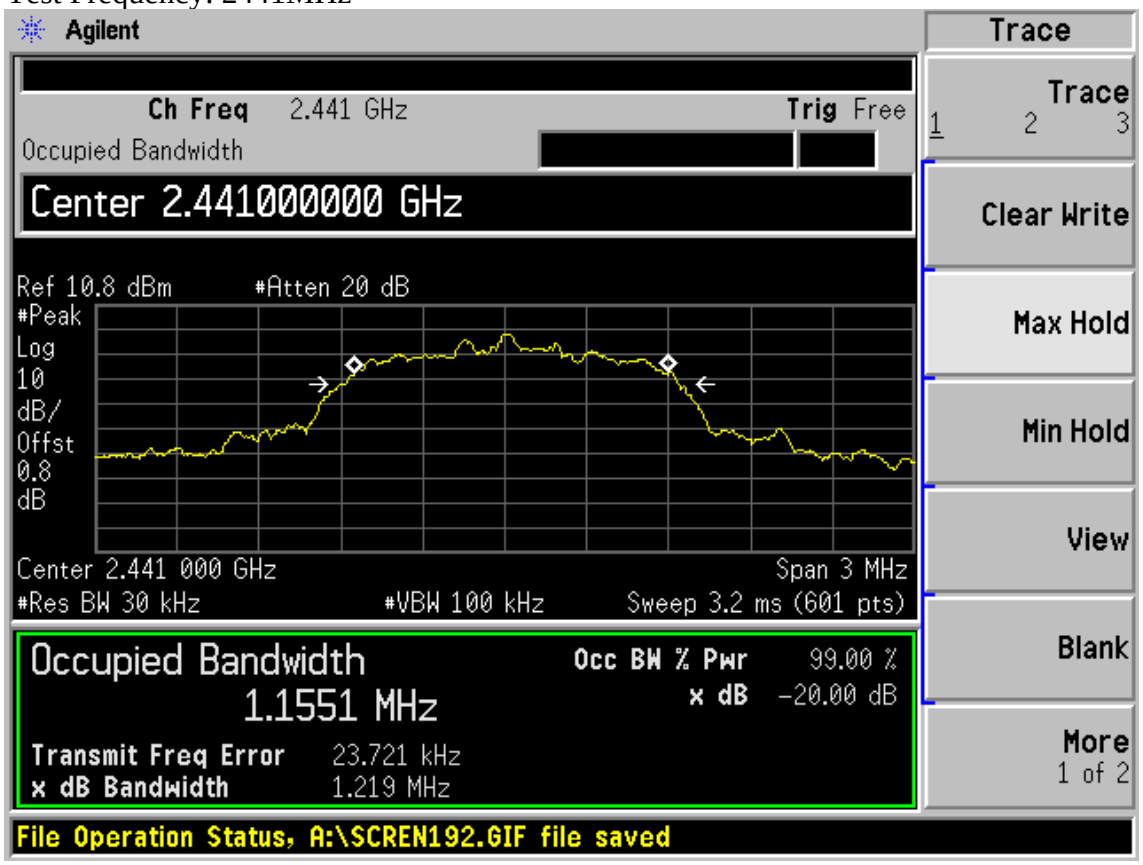


8DPSK

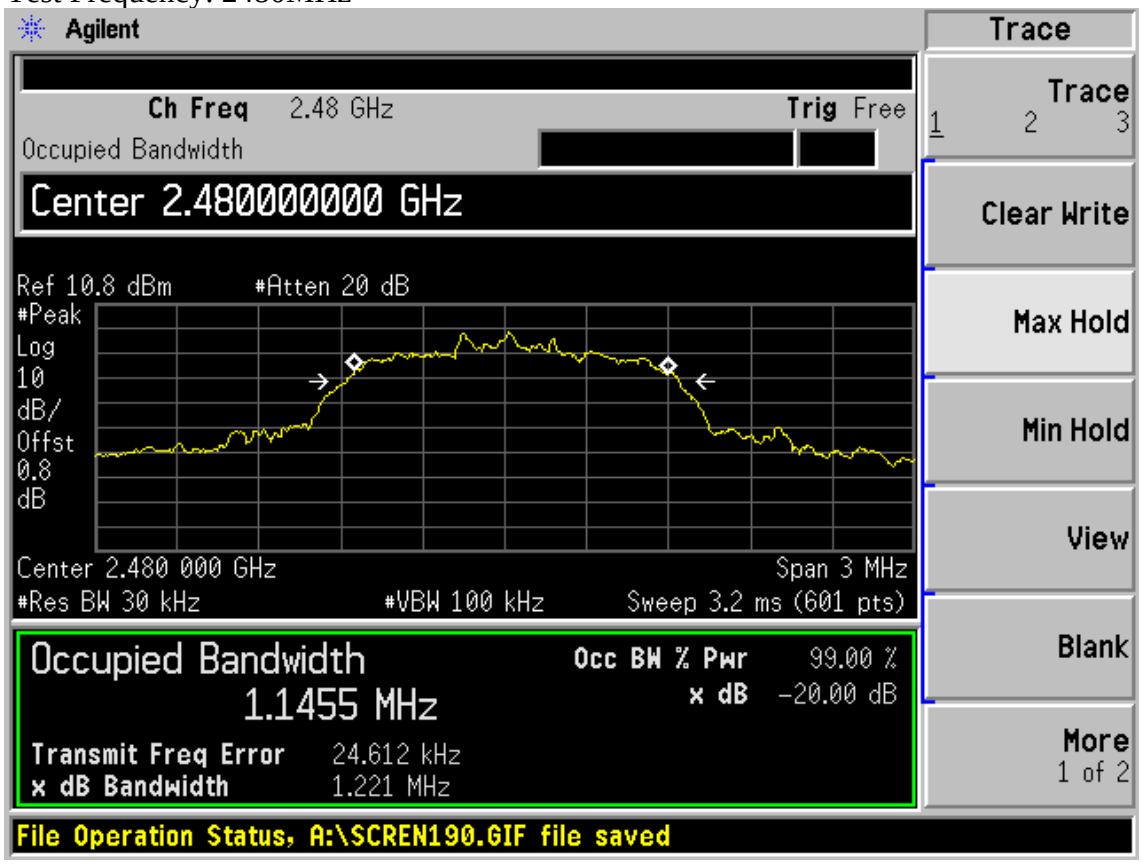
Test Frequency: 2402MHz



Test Frequency: 2441MHz



Test Frequency: 2480MHz



8. NUMBER OF HOPPING FREQUENCY TEST

8.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 11	1 Year

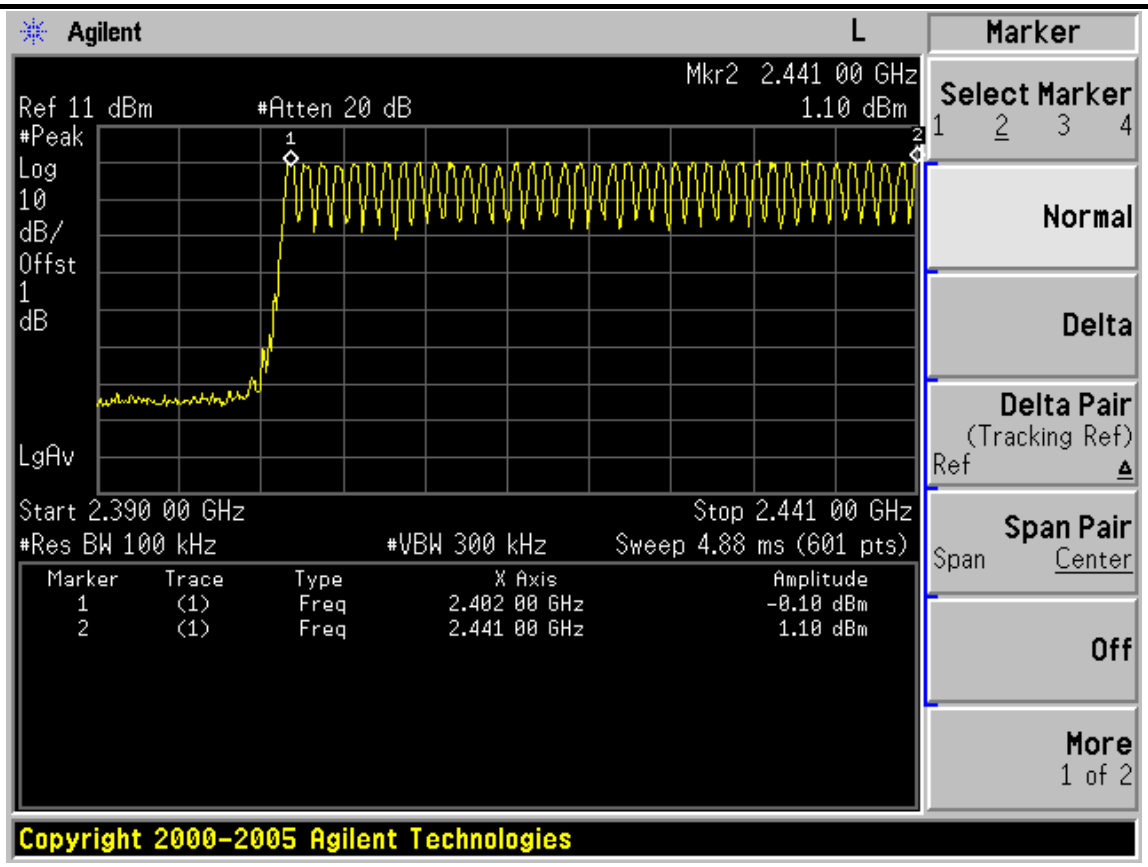
8.2.Limit

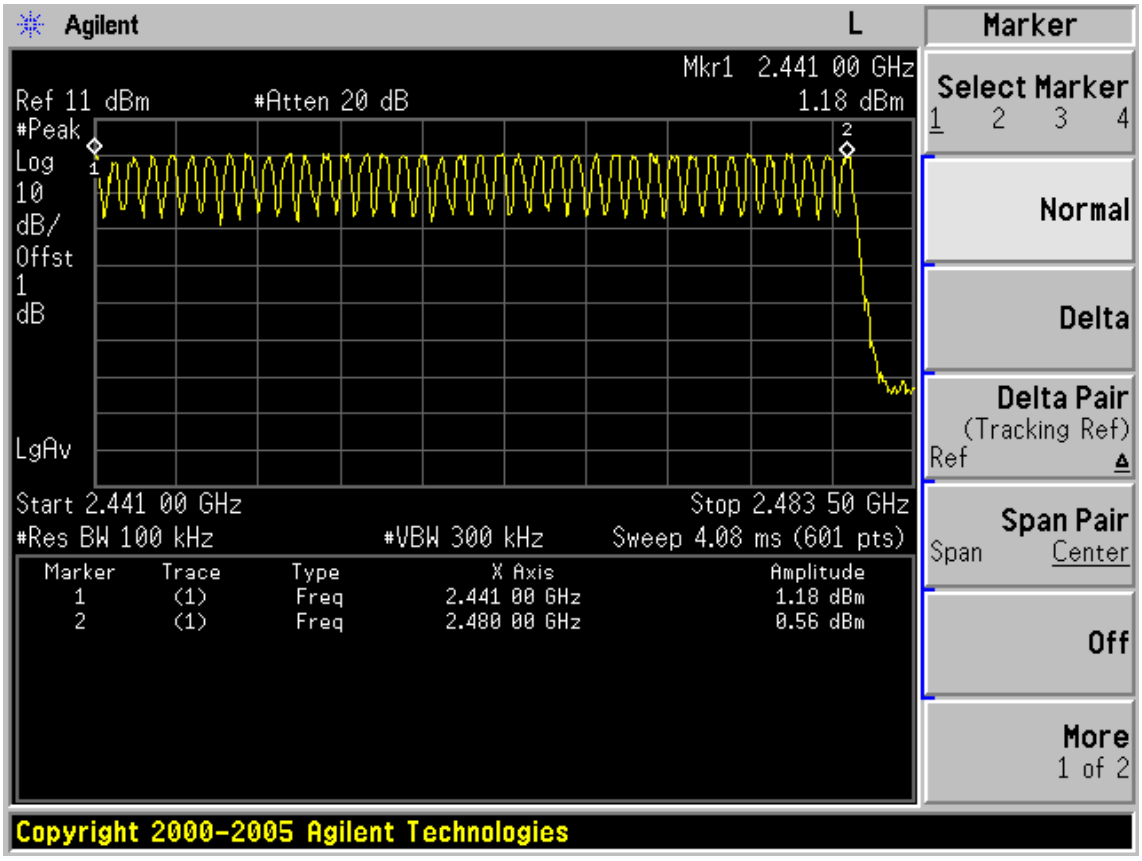
Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels

8.3.Test Results

EUT: WIMM One		
M/N: 330		
Test date:2011-07-17	Pressure:100.6 kpa	Humidity:53%
Tested by:Leo-Li	Test site: RF site	Temperature:25 ℃

Number of channel	Limit	Conclusion
79	>=15	PASS


Agilent
L
Marker
Mkr2 2.441 00 GHz
Ref 11 dBm
#Atten 20 dB
1.10 dBm
#Peak
Log
10
dB/
Offst
1
dB
LgAv
Start 2.390 00 GHz
Stop 2.441 00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.88 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.402 00 GHz -0.10 dBm
2 (1) Freq 2.441 00 GHz 1.10 dBm
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2005 Agilent Technologies


Agilent
L
Marker
Mkr1 2.441 00 GHz
Ref 11 dBm
#Atten 20 dB
1.18 dBm
#Peak
Log
10
dB/
Offst
1
dB
LgAv
Start 2.441 00 GHz
Stop 2.483 50 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.08 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.441 00 GHz 1.18 dBm
2 (1) Freq 2.480 00 GHz 0.56 dBm
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2005 Agilent Technologies

9. DWELL TIME

9.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 11	1 Year

9.2.Limit

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

9.3.Test Results

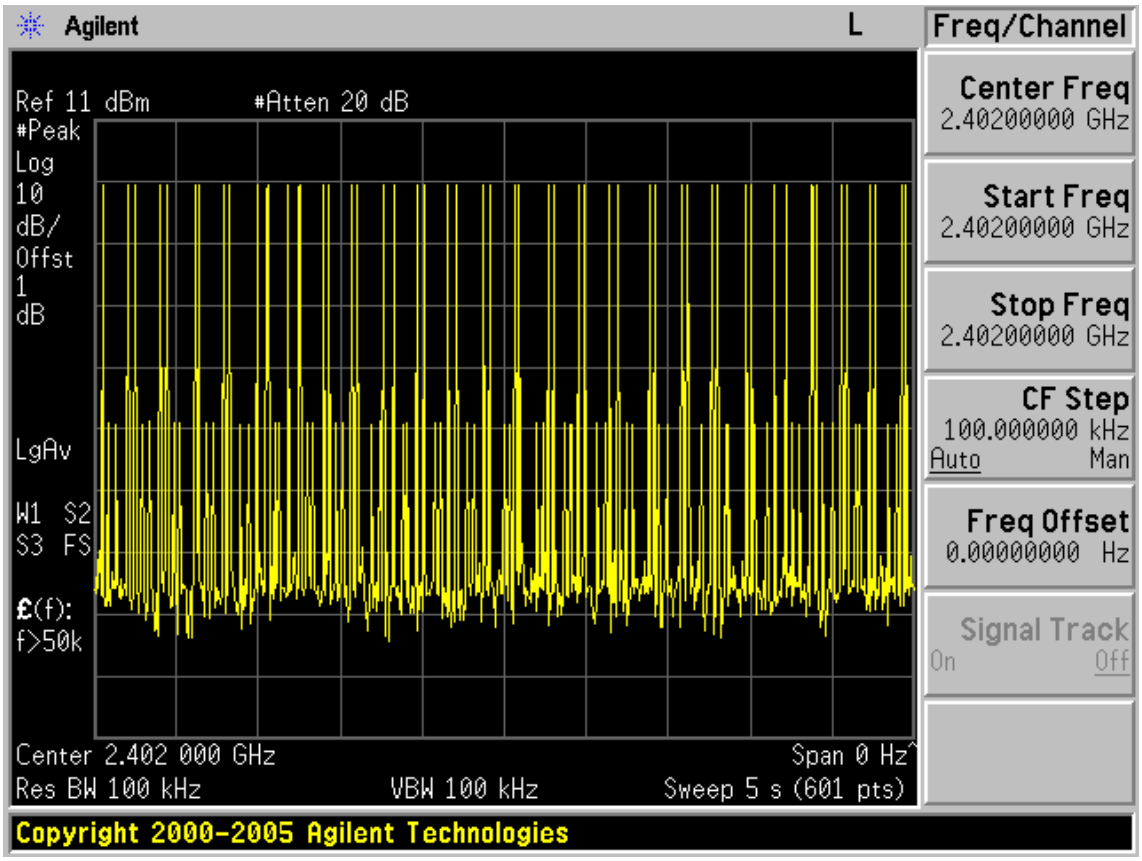
EUT: WIMM One		
M/N: 330		
Test date:2011-07-17	Pressure:100.6 kpa	Humidity:53%
Tested by:Leo-Li	Test site: RF site	Temperature:25 ℃

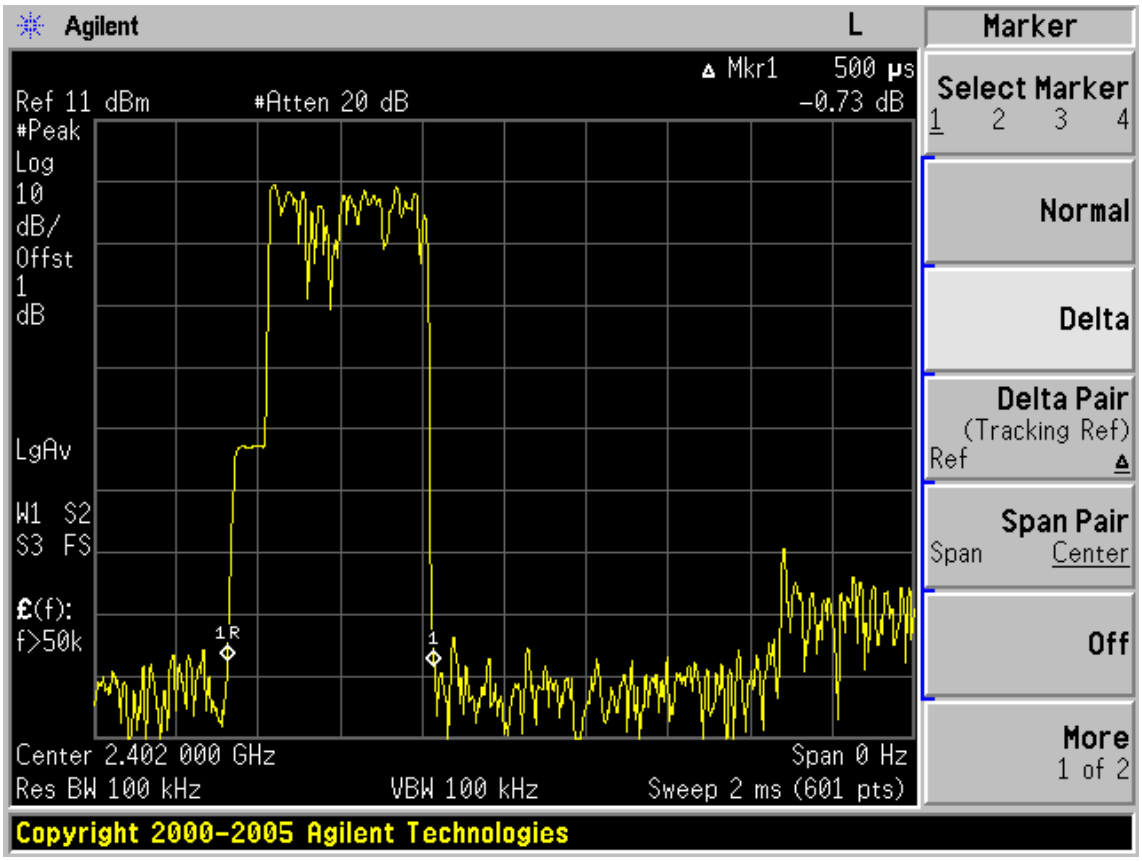
Mode		dwell time	Limit	Conclusion
GFSK	DH1	51hops/5s*0.4*79chanels*0.5ms =161.16ms	<400ms	PASS
	DH3	16hops/5s*0.4*79chanels*1.753ms =177.26ms	<400ms	PASS
	DH5	14hops/5s*0.4*79chanels*3.013ms=266.59ms	<400ms	PASS
8DPSK	DH1	45hops/5s*0.4*79chanels*0.5ms =142.20ms	<400ms	PASS
	DH3	18hops/5s*0.4*79chanels*1.75ms =199.08ms	<400ms	PASS
	DH5	13hops/5s*0.4*79chanels*3.05ms =250.59ms	<400ms	PASS

Note: All the lower levels were signal from receiver's, and should not considered in here.

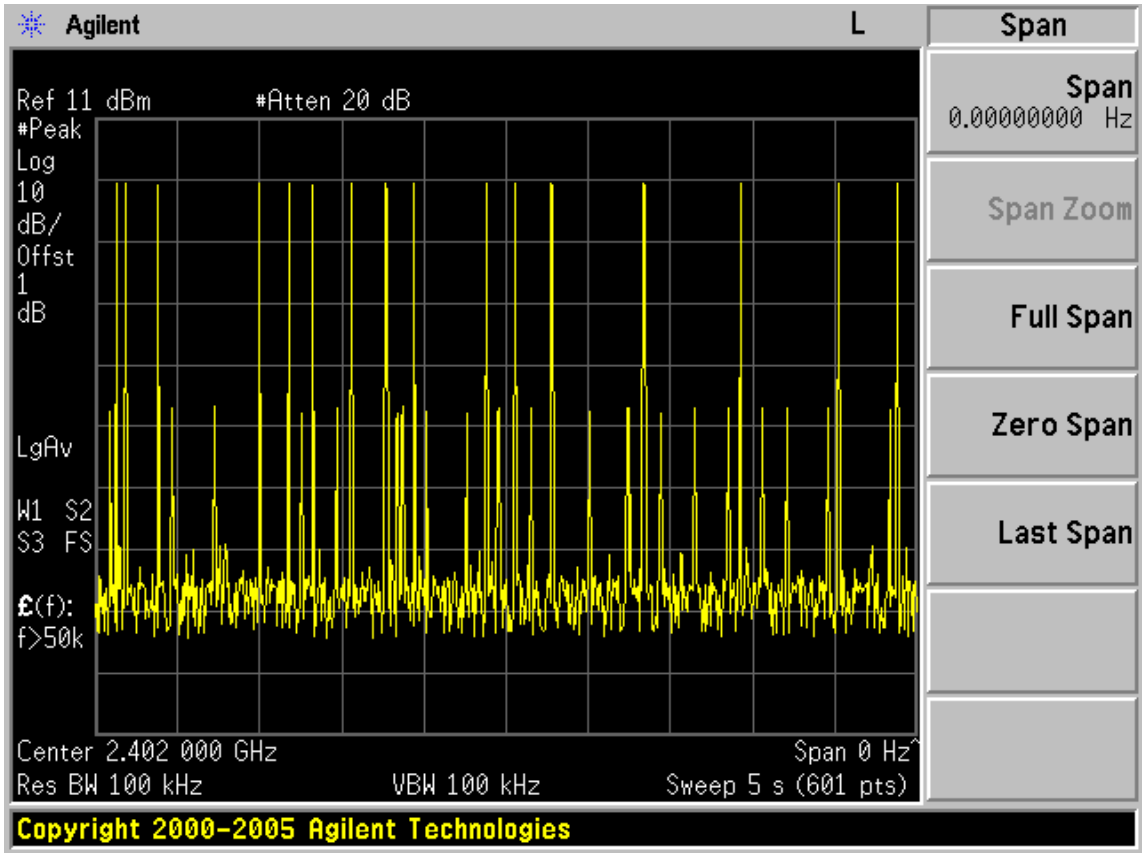
GFSK

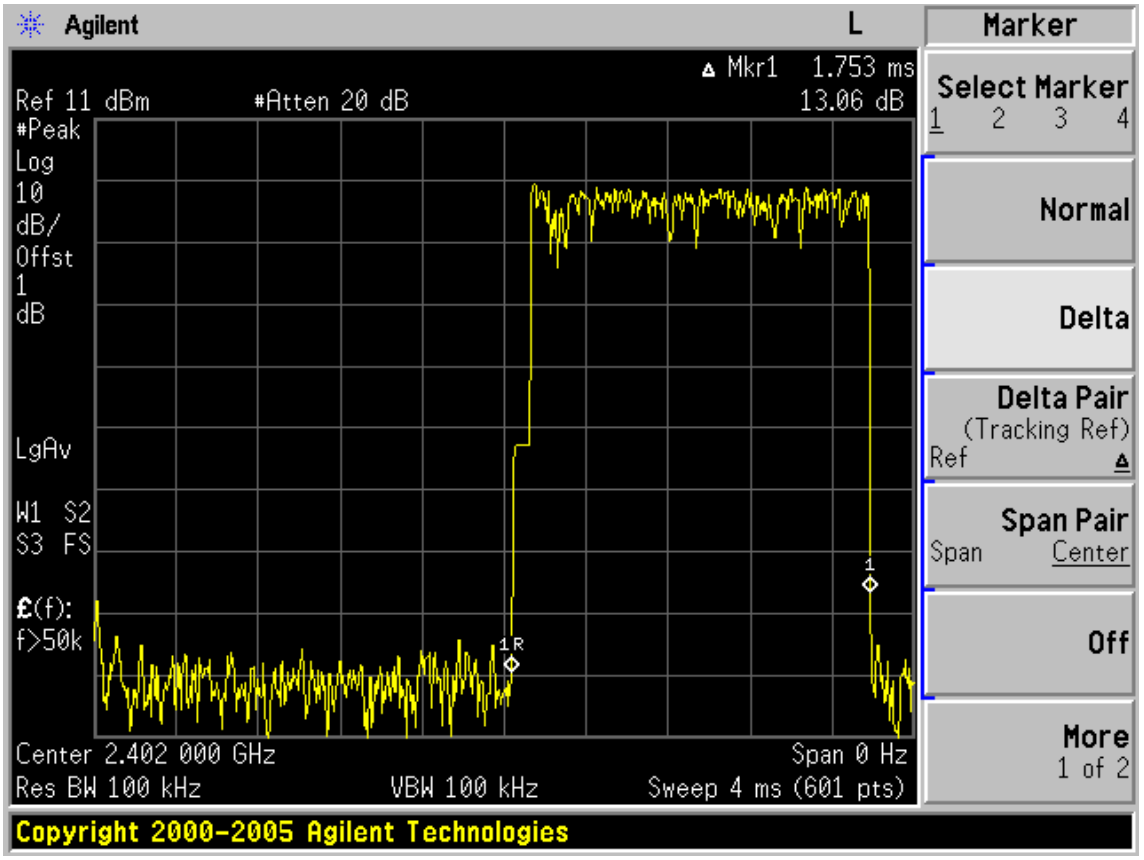
DH 1


Agilent
L
Freq/Channel
Ref 11 dBm
#Atten 20 dB
#Peak
Log
10
dB/
Offst
1
dB
LgAv
W1 S2
S3 FS
£(f):
f>50k
Center Freq
2.40200000 GHz
Start Freq
2.40200000 GHz
Stop Freq
2.40200000 GHz
CF Step
100.000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 2.402 000 GHz
Span 0 Hz
Res BW 100 kHz
VBW 100 kHz
Sweep 5 s (601 pts)
Copyright 2000-2005 Agilent Technologies

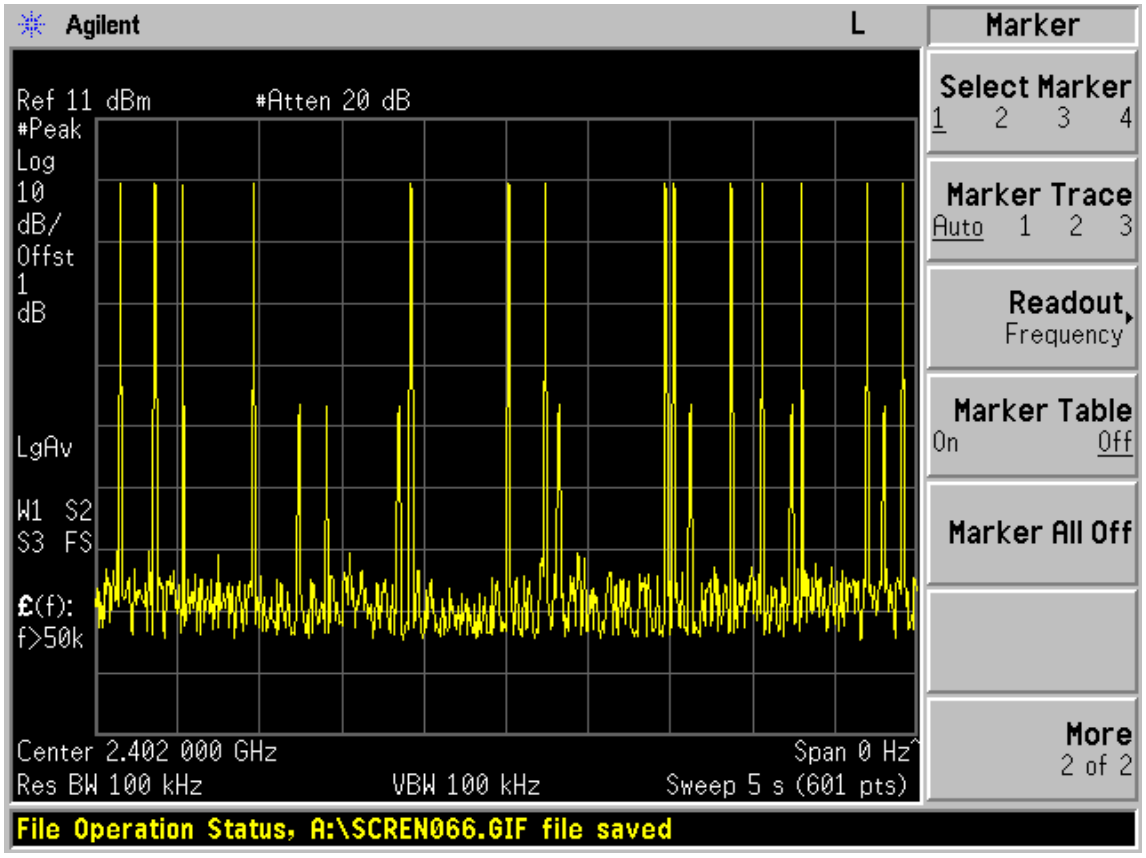

Agilent
L
Marker
Δ Mkr1 500 µs
-0.73 dB
Ref 11 dBm
#Atten 20 dB
#Peak
Log
10
dB/
Offst
1
dB
LgAv
W1 S2
S3 FS
£(f):
f>50k
1R
1
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref Δ
Span Pair
Span Center
Off
More
1 of 2
Center 2.402 000 GHz
Span 0 Hz
Res BW 100 kHz
VBW 100 kHz
Sweep 2 ms (601 pts)
Copyright 2000-2005 Agilent Technologies

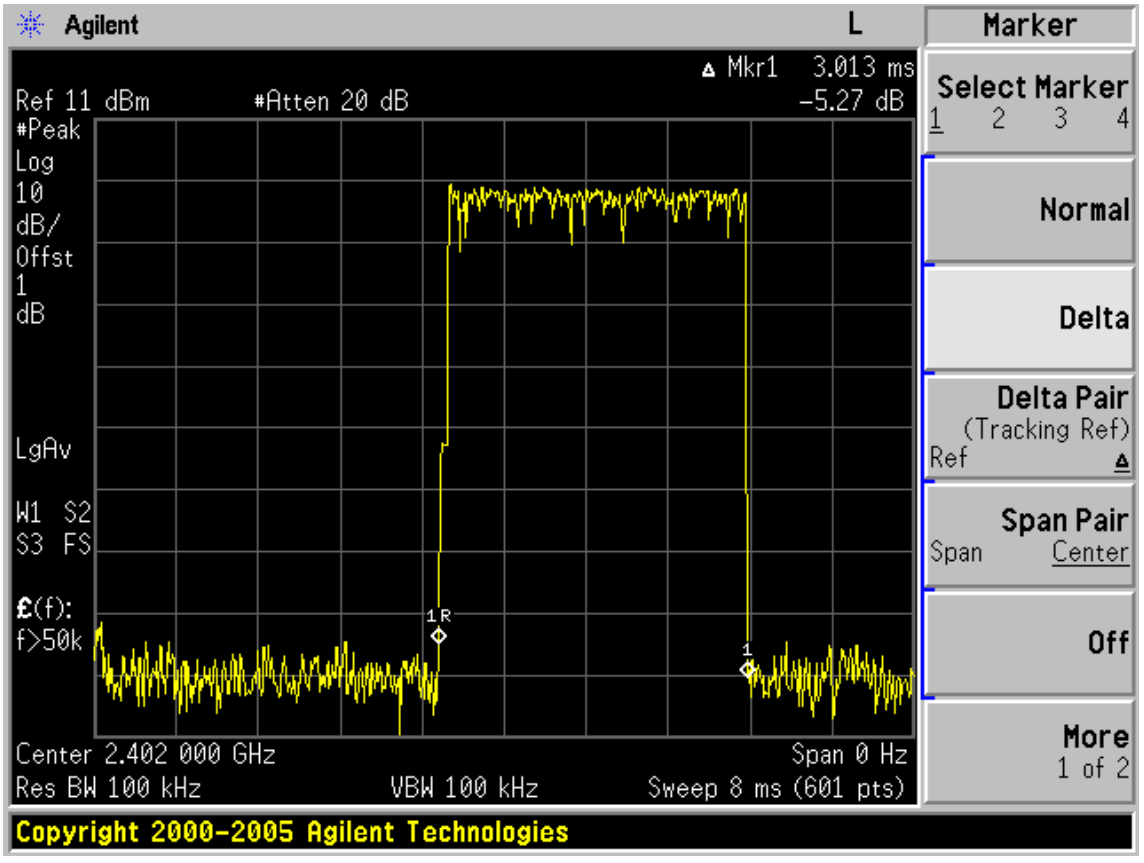
DH 3


Agilent
L
Span
Ref 11 dBm
#Atten 20 dB
#Peak
Log
10
dB/
Offst
1
dB
LgAv
W1 S2
S3 FS
£(f):
f>50k
Span
0.00000000 Hz
Span Zoom
Full Span
Zero Span
Last Span
Center 2.402 000 GHz
Span 0 Hz
Res BW 100 kHz
VBW 100 kHz
Sweep 5 s (601 pts)
Copyright 2000-2005 Agilent Technologies


Agilent
L
Marker
Δ Mkr1 1.753 ms
13.06 dB
Ref 11 dBm
#Atten 20 dB
#Peak
Log
10
dB/
Offst
1
dB
LgAv
W1 S2
S3 FS
£(f):
f>50k
1R
1
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref Δ
Span Pair
Span Center
Off
More
1 of 2
Center 2.402 000 GHz
Span 0 Hz
Res BW 100 kHz
VBW 100 kHz
Sweep 4 ms (601 pts)
Copyright 2000-2005 Agilent Technologies

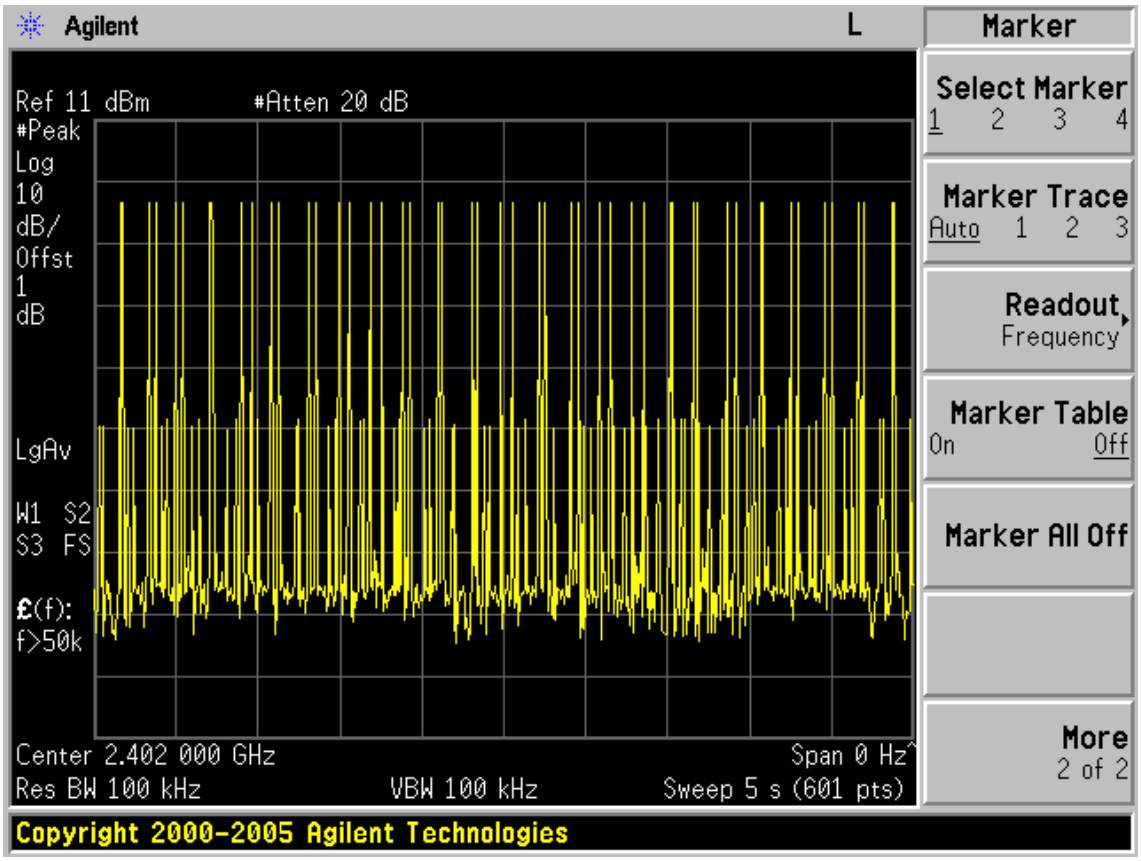
DH 5

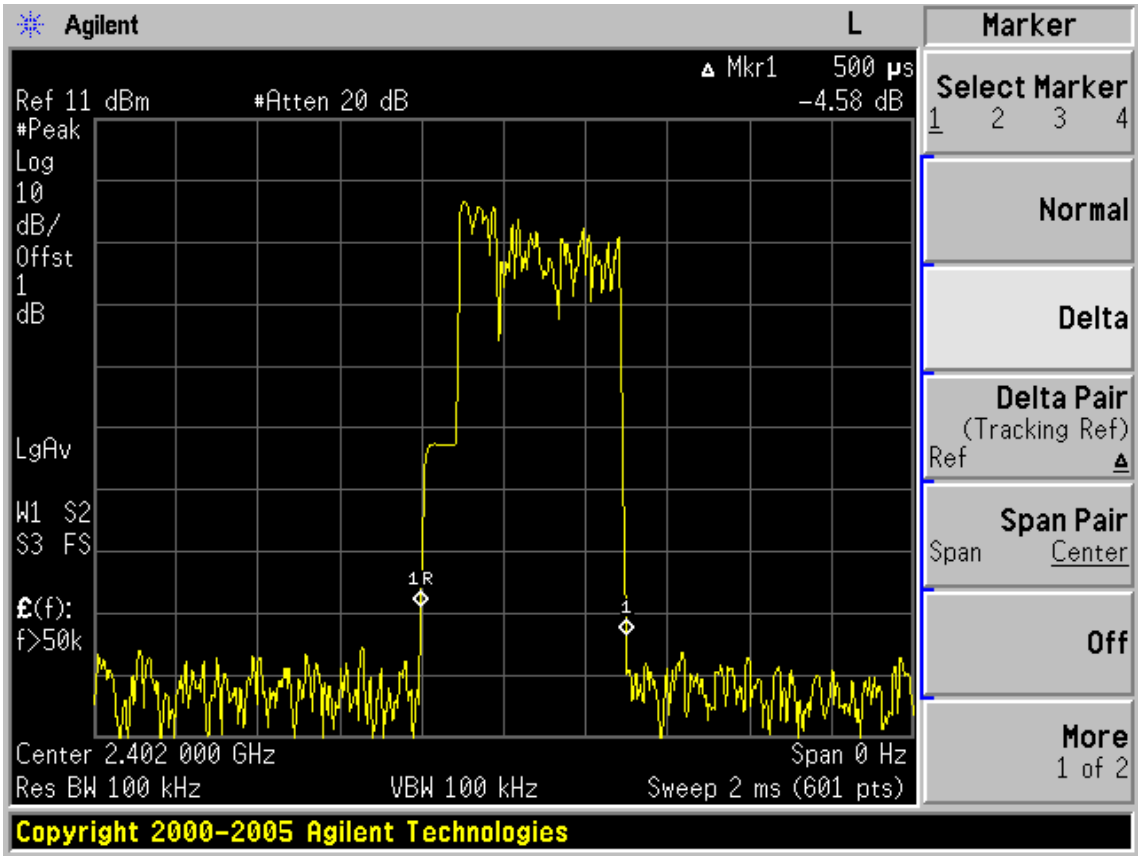

Agilent
L
Marker
Ref 11 dBm
#Atten 20 dB
#Peak
Log
10
dB/
Offst
1
dB
LgAv
W1 S2
S3 FS
£(f):
f>50k
Select Marker
1 2 3 4
Marker Trace
Auto 1 2 3
Readout
Frequency
Marker Table
On Off
Marker All Off
More
2 of 2
Center 2.402 000 GHz
Span 0 Hz
Res BW 100 kHz
VBW 100 kHz
Sweep 5 s (601 pts)
File Operation Status, A:\SCREN066.GIF file saved


Agilent
L
Marker
Δ Mkr1 3.013 ms
-5.27 dB
Ref 11 dBm
#Atten 20 dB
#Peak
Log
10
dB/
Offst
1
dB
LgAv
W1 S2
S3 FS
£(f):
f>50k
1R
1
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref Δ
Span Pair
Span Center
Off
More
1 of 2
Center 2.402 000 GHz
Span 0 Hz
Res BW 100 kHz
VBW 100 kHz
Sweep 8 ms (601 pts)
Copyright 2000-2005 Agilent Technologies

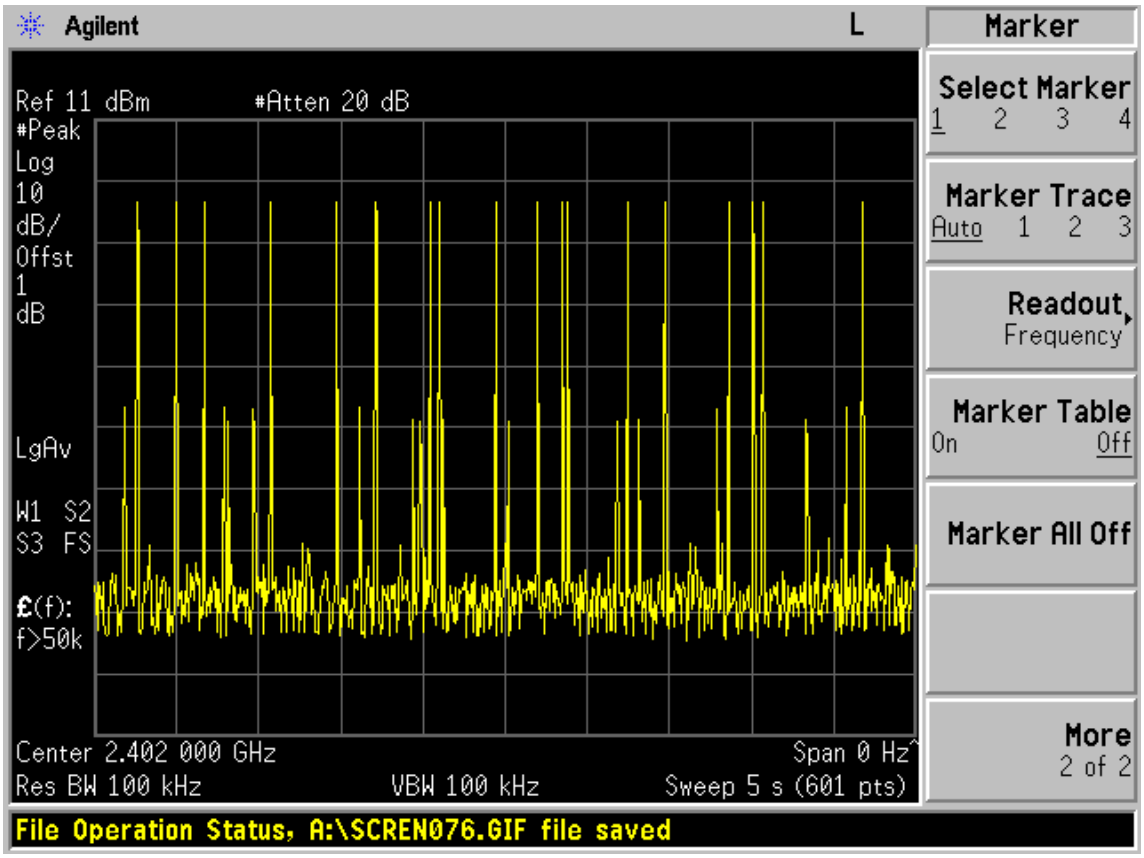
8DPSK

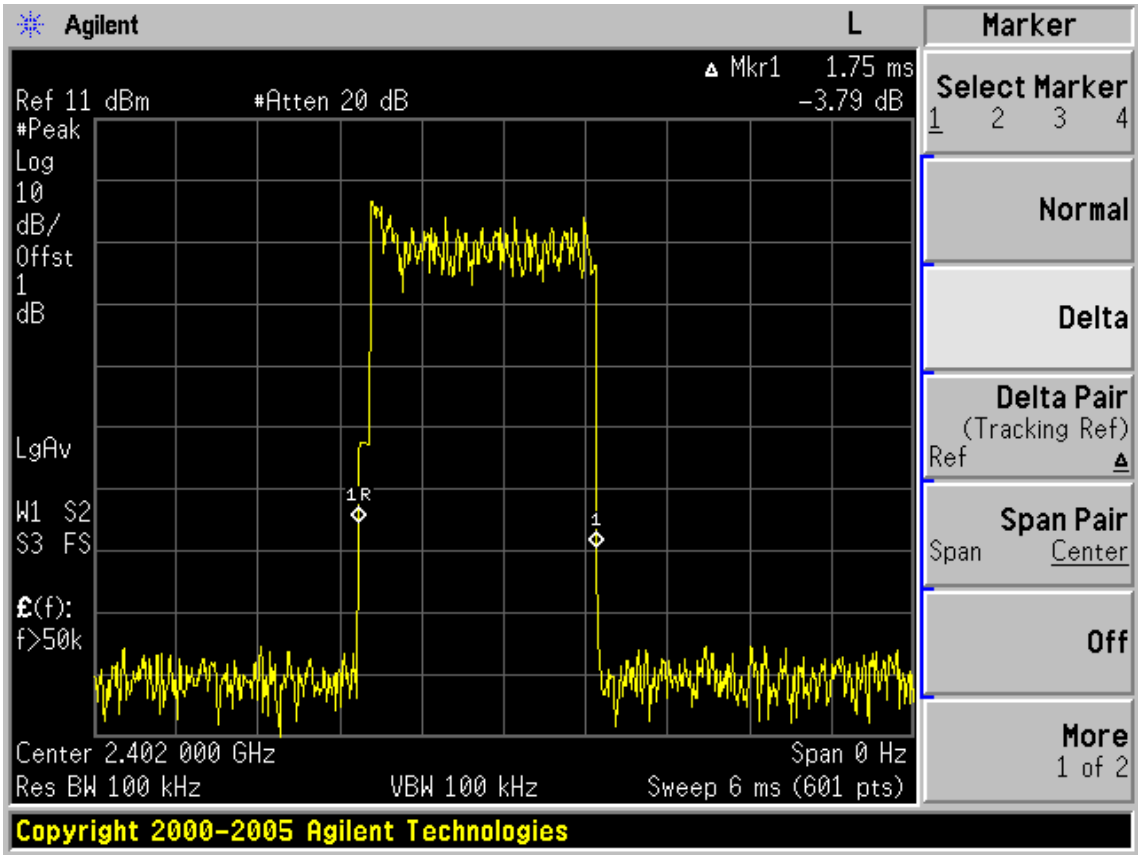
DH 1


Agilent
L
Marker
Ref 11 dBm
#Atten 20 dB
#Peak
Log
10
dB/
Offst
1
dB
LgAv
W1 S2
S3 FS
£(f):
f>50k
Select Marker
1 2 3 4
Marker Trace
Auto 1 2 3
Readout
Frequency
Marker Table
On Off
Marker All Off
More
2 of 2
Center 2.402 000 GHz
Span 0 Hz
Res BW 100 kHz
VBW 100 kHz
Sweep 5 s (601 pts)
Copyright 2000-2005 Agilent Technologies

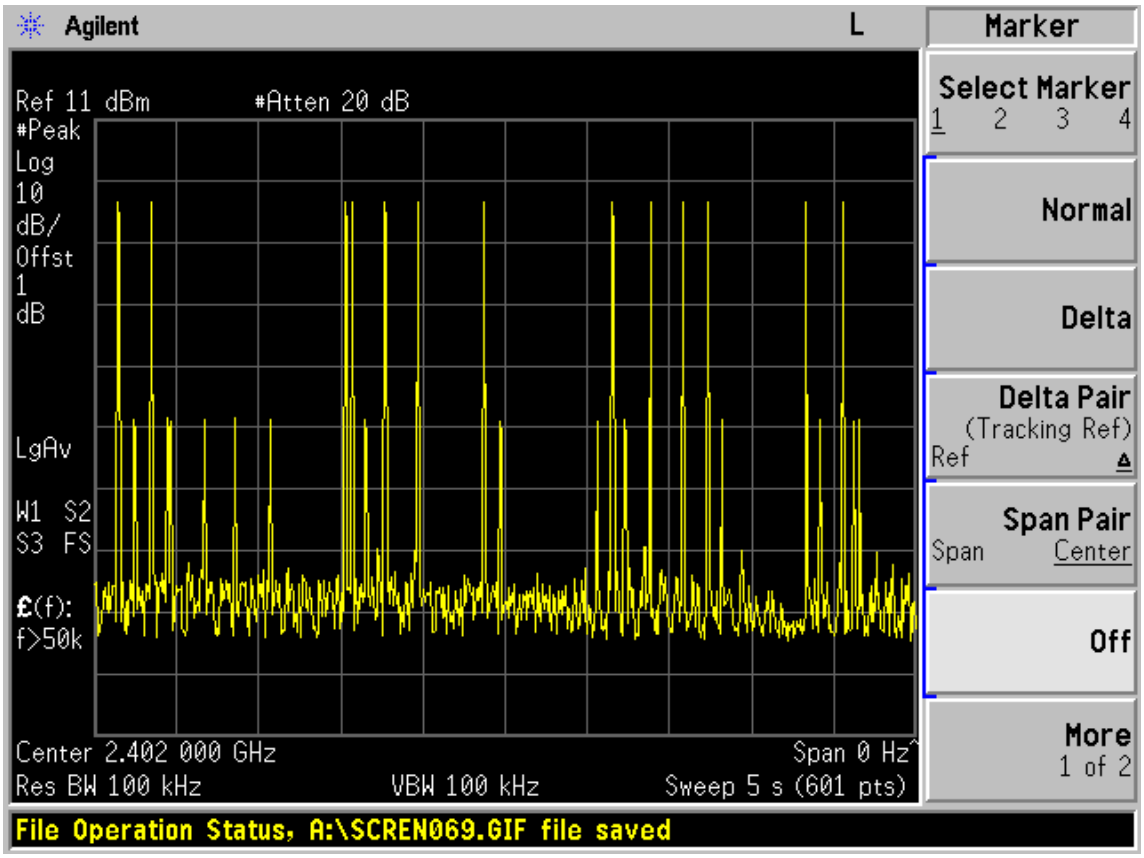

Agilent
L
Marker
Δ Mkr1 500 µs
-4.58 dB
Ref 11 dBm
#Atten 20 dB
#Peak
Log
10
dB/
Offst
1
dB
LgAv
W1 S2
S3 FS
£(f):
f>50k
1R
1
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref Δ
Span Pair
Span Center
Off
More
1 of 2
Center 2.402 000 GHz
Span 0 Hz
Res BW 100 kHz
VBW 100 kHz
Sweep 2 ms (601 pts)
Copyright 2000-2005 Agilent Technologies

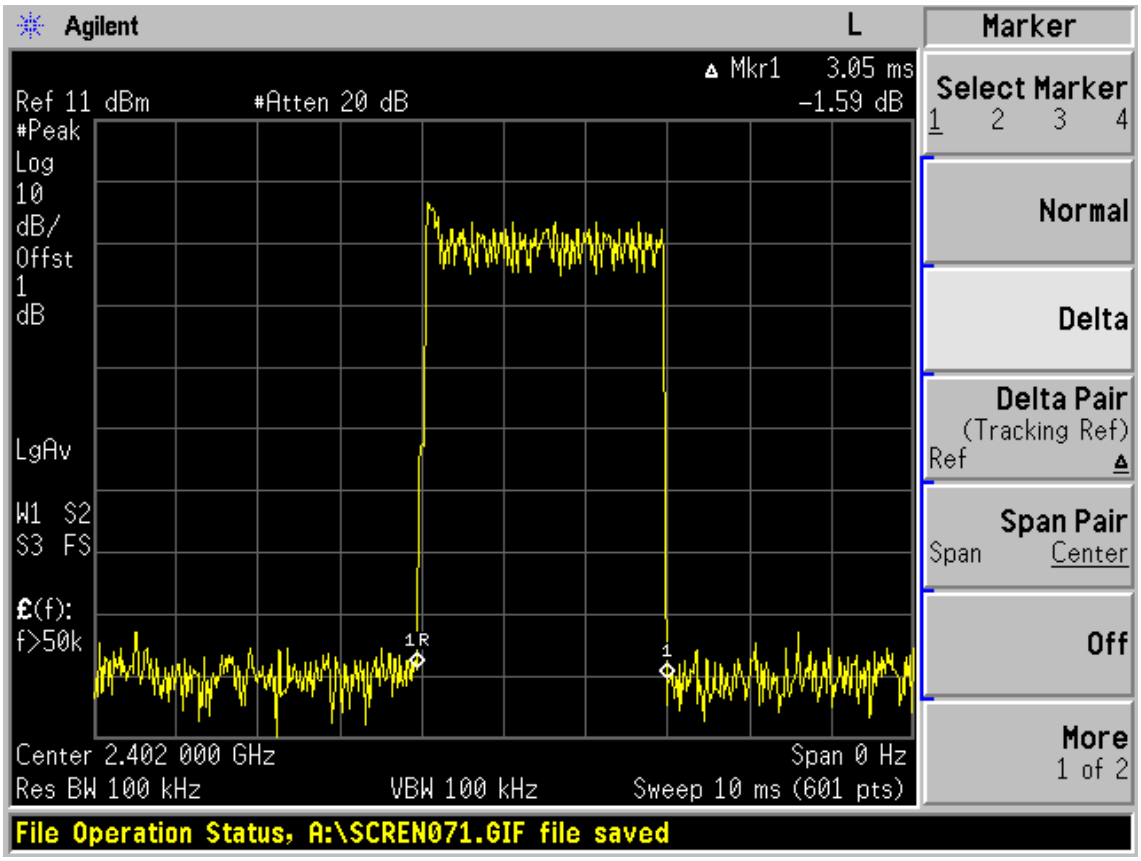
DH 3


Agilent
L
Marker
Ref 11 dBm
#Atten 20 dB
#Peak
Log
10
dB/
Offst
1
dB
LgAv
W1 S2
S3 FS
£(f):
f>50k
Center 2.402 000 GHz
Span 0 Hz
Res BW 100 kHz
VBW 100 kHz
Sweep 5 s (601 pts)
Select Marker
1 2 3 4
Marker Trace
Auto 1 2 3
Readout
Frequency
Marker Table
On Off
Marker All Off
More
2 of 2
File Operation Status, A:\SCREN076.GIF file saved


Agilent
L
Marker
Δ Mkr1 1.75 ms
-3.79 dB
Ref 11 dBm
#Atten 20 dB
#Peak
Log
10
dB/
Offst
1
dB
LgAv
W1 S2
S3 FS
£(f):
f>50k
1R
1
Center 2.402 000 GHz
Span 0 Hz
Res BW 100 kHz
VBW 100 kHz
Sweep 6 ms (601 pts)
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2005 Agilent Technologies

DH 5


Agilent
L
Marker
Ref 11 dBm
#Atten 20 dB
#Peak
Log
10
dB/
Offst
1
dB
LgAv
W1 S2
S3 FS
£(f):
f>50k
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Center 2.402 000 GHz
Span 0 Hz
Res BW 100 kHz
VBW 100 kHz
Sweep 5 s (601 pts)
File Operation Status, A:\SCREN069.GIF file saved


Agilent
L
Marker
Δ Mkr1 3.05 ms
-1.59 dB
Ref 11 dBm
#Atten 20 dB
#Peak
Log
10
dB/
Offst
1
dB
LgAv
W1 S2
S3 FS
£(f):
f>50k
1R
1
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Center 2.402 000 GHz
Span 0 Hz
Res BW 100 kHz
VBW 100 kHz
Sweep 10 ms (601 pts)
File Operation Status, A:\SCREN071.GIF file saved

10.MAXIMUM PEAK OUTPUT POWER TEST

10.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 11	1 Year
2.	Horn Antenna	EMCO	3115	9510-4580	Nov.19, 10	1.5 Year
3.	Horn Antenna	EMCO	3115	9607-4877	Nov. 25, 10	1.5 Year
4.	Signal Generator	HP	83732B	VS34490501	May.08, 11	1 Year
5.	Amplifier	Agilent	8491B	MY39262165	May.08, 11	1 Year
6.	RF Cable	Hubersuhner	SUCOFLEX 102	28620/2	May,08, 11	1 Year
7.	RF Cable	Hubersuhner	SUCOFLEX 102	271471/4	May,08, 11	1 Year
8.	RF Cable	Hubersuhner	SUCOFLEX 102	29086/2	May,08, 11	1 Year
9.	RF Cable	Hubersuhner	SUCOFLEX 102	271473/4	May,08, 11	1 Year
10.	RF Cable	Hubersuhner	SUCOFLEX 102	29091/2	May,08, 11	1 Year

10.2.Limit

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

10.3.Test Procedure

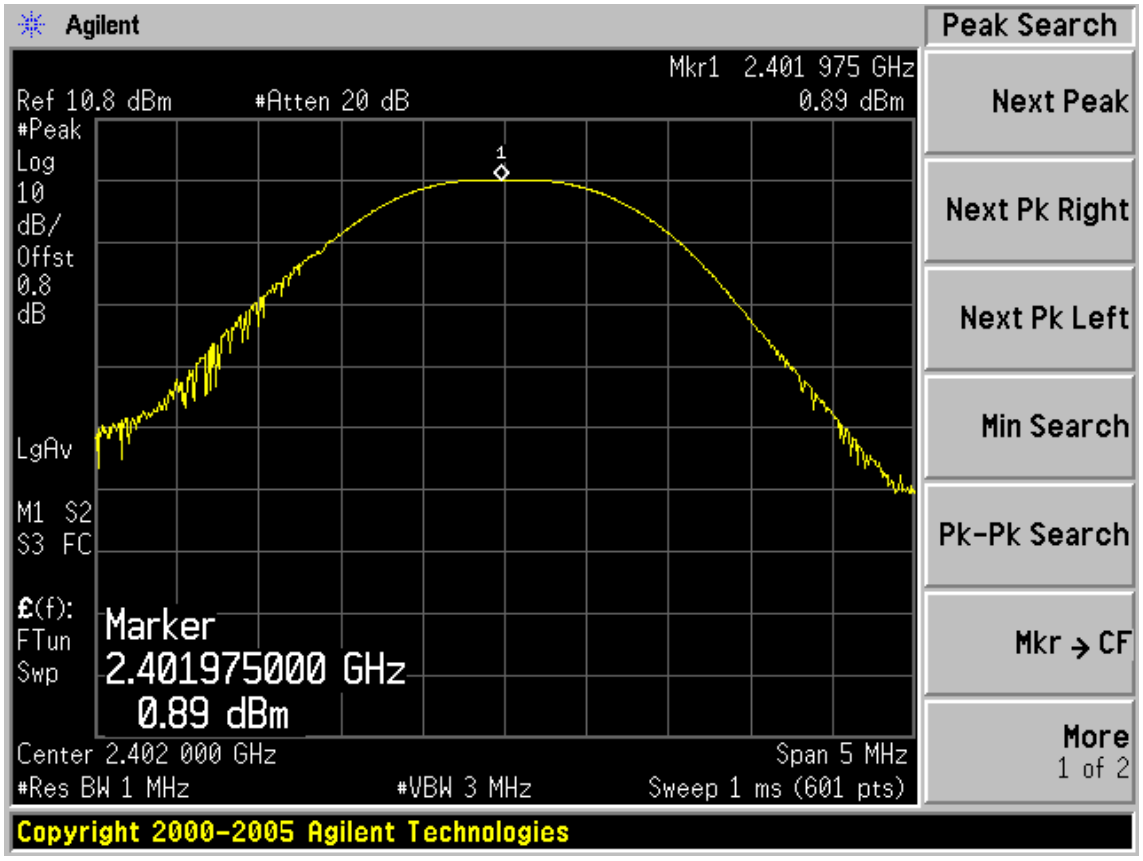
1. Connected the EUT's antenna port to spectrum analyzer.
2. Set the RBW> Bandwidth of test Frequency and put the test Frequency, Set the Span large enough to capture the entire signal
3. Use a peak detector on max hold
4. Reading the value from the Spectrum analyzer

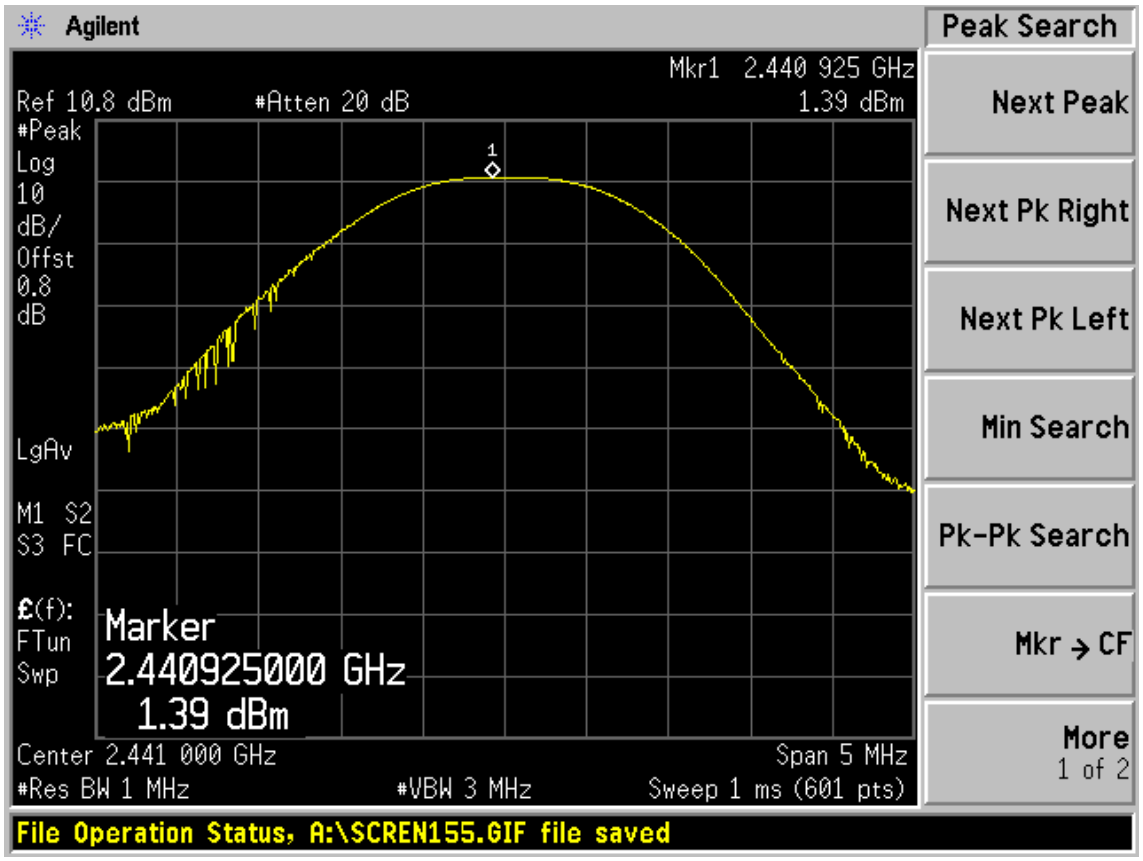
Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

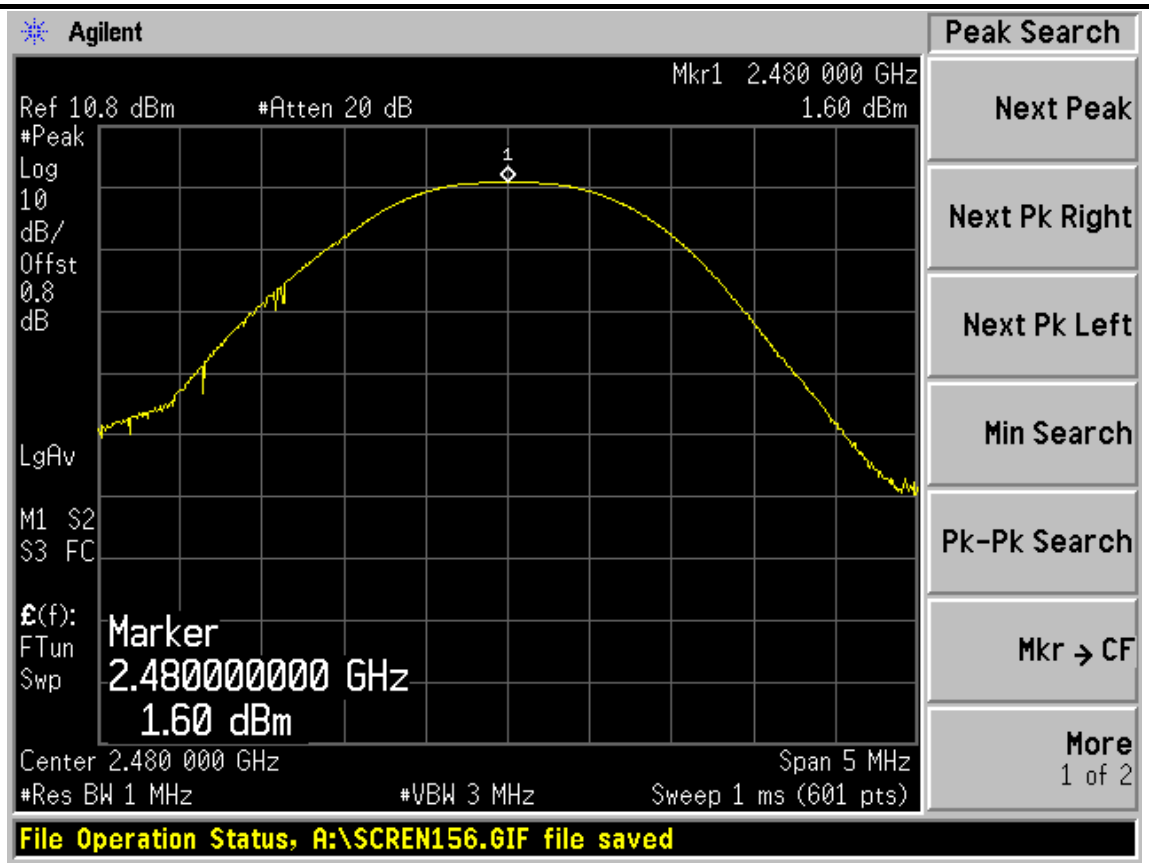
10.4.Test Results

EUT: WIMM One			
M/N: 330			
Test date: 2011-07-17	Pressure: 101.4 kpa		Humidity: 56%
Tested by: Leo-Li	Test site: RF site		Temperature: 25 ℃
Cable loss: 0.8 dB		Attenuator loss: 20 dB	
Test Mode	CH (MHz)	Peak output Power （dBm）	Limit (dBm)
8DPSK	2402	0.89	20
	2441	1.39	20
	2480	1.60	20
GFSK	2402	1.18	20
	2441	1.50	20
	2480	1.74	20
Conclusion: PASS			

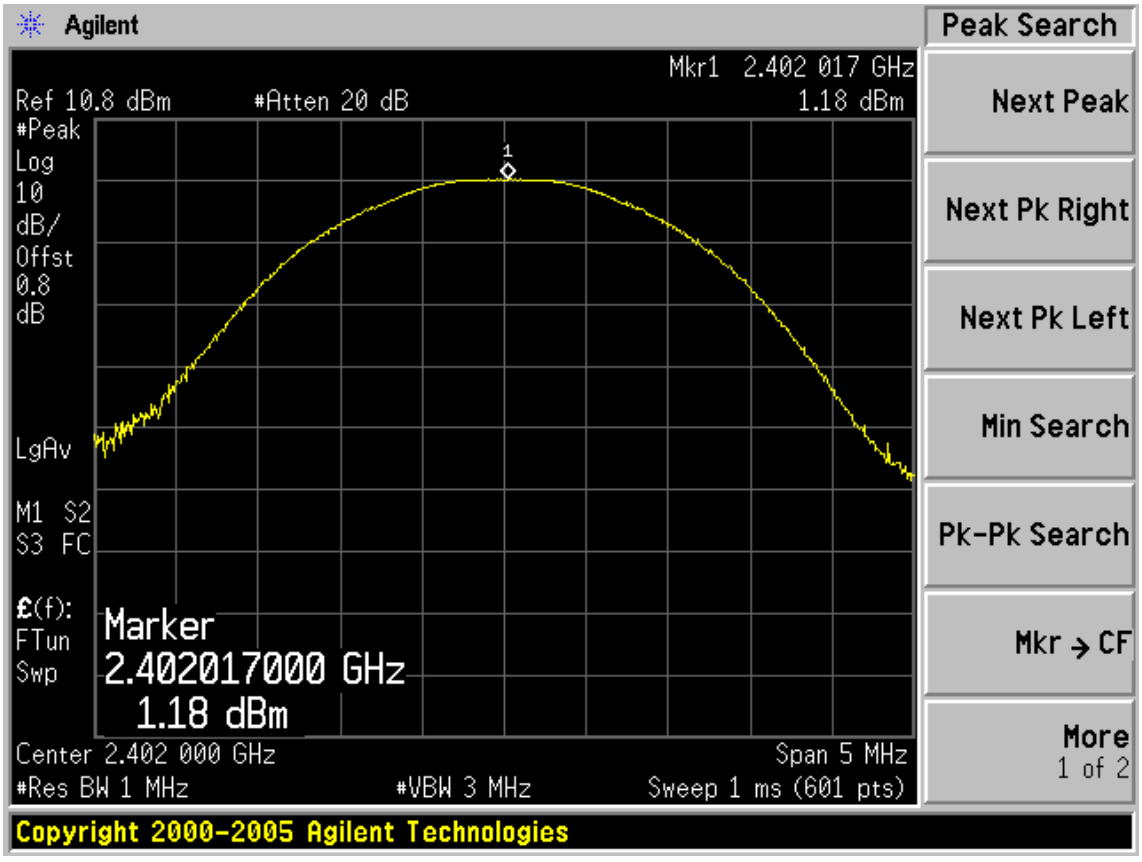
GFSK

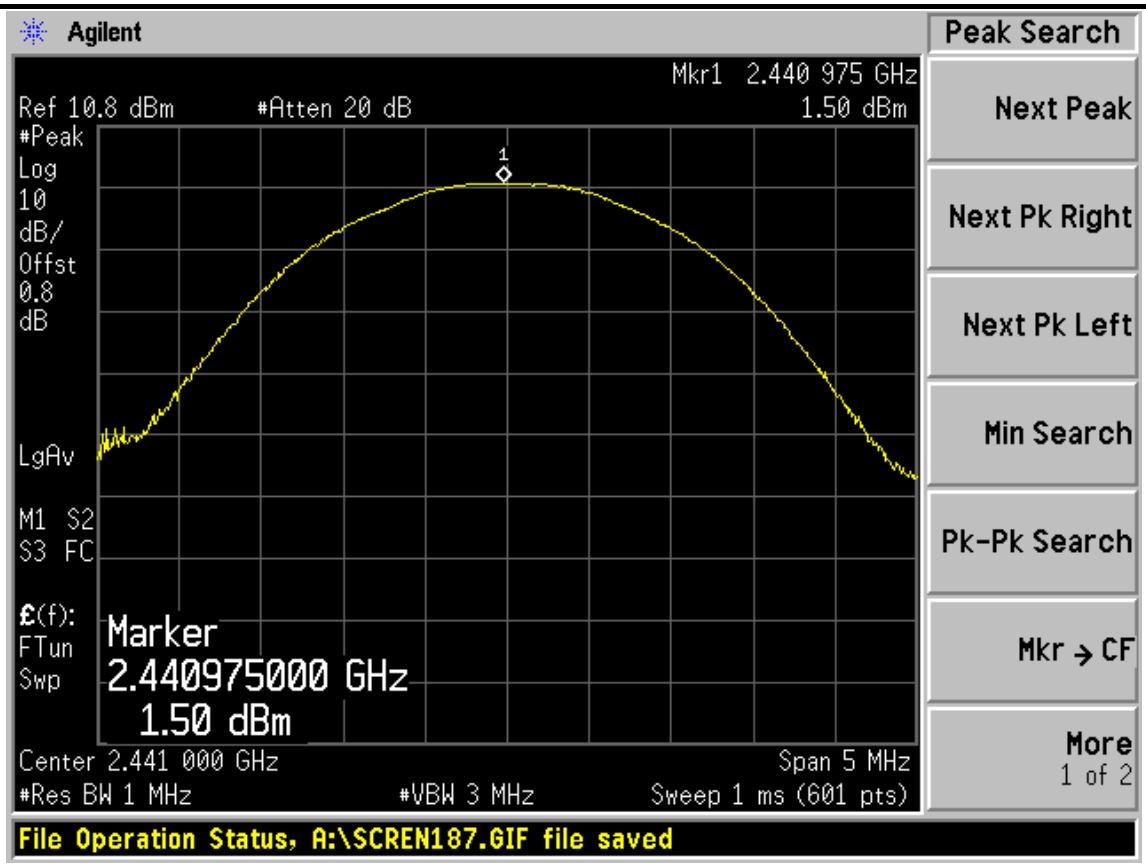

Agilent
Peak Search
Mkr1 2.401 975 GHz
Ref 10.8 dBm
#Atten 20 dB
0.89 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Marker
2.401975000 GHz
0.89 dBm
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Center 2.402 000 GHz
Span 5 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2005 Agilent Technologies

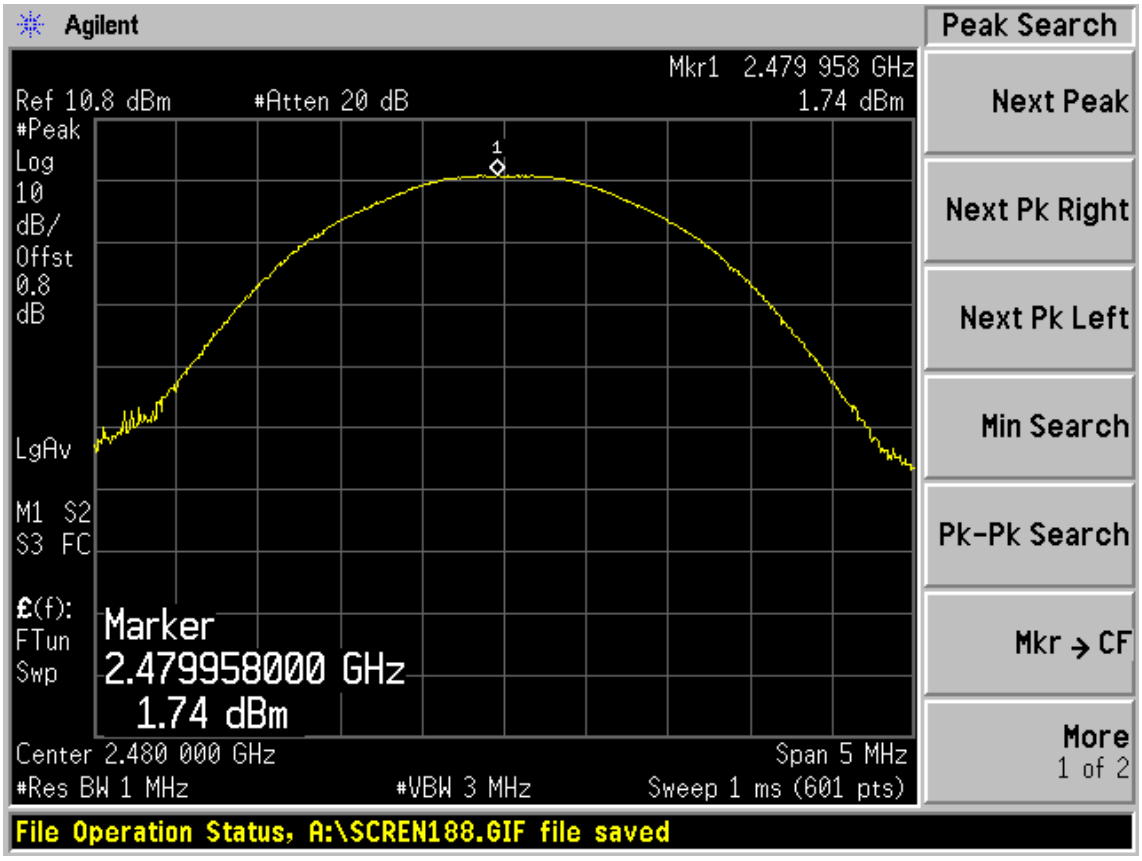

Agilent
Peak Search
Mkr1 2.440 925 GHz
Ref 10.8 dBm
#Atten 20 dB
1.39 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Marker
2.440925000 GHz
1.39 dBm
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Center 2.441 000 GHz
Span 5 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
File Operation Status, A:\SCREN155.GIF file saved


Agilent
Peak Search
Mkr1 2.480 000 GHz
Ref 10.8 dBm
#Atten 20 dB
1.60 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Marker
2.480000000 GHz
1.60 dBm
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Center 2.480 000 GHz
Span 5 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
File Operation Status, A:\SCREN156.GIF file saved

8DPSK


Agilent
Peak Search
Mkr1 2.402 017 GHz
Ref 10.8 dBm
#Atten 20 dB
1.18 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Marker
2.402017000 GHz
1.18 dBm
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Center 2.402 000 GHz
Span 5 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Copyright 2000-2005 Agilent Technologies


Agilent
Peak Search
Mkr1 2.440 975 GHz
Ref 10.8 dBm
#Atten 20 dB
1.50 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Marker
2.440975000 GHz
1.50 dBm
Center 2.441 000 GHz
Span 5 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
File Operation Status, A:\SCREN187.GIF file saved


Agilent
Peak Search
Mkr1 2.479 958 GHz
Ref 10.8 dBm
#Atten 20 dB
1.74 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Marker
2.479958000 GHz
1.74 dBm
Center 2.480 000 GHz
Span 5 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
File Operation Status, A:\SCREN188.GIF file saved

11.BAND EDGE COMPLIANCE TEST

11.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08,11	1 Year
2.	Horn Antenna	EMCO	3115	9607-4877	Nov.25, 10	1.5 Year
3.	Amplifier	Agilent	8449B	3008A02495	May.08, 11	1 Year
4.	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	May.08,11	1 Year
5.	RF Cable	Hubersuhner	SUCOFLEX102	28618/2	May.08,11	1 Year
6.	RF Cable	Hubersuhner	SUCOFLEX102	28610/2	May.08,11	1 Year

11.2.Limit

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

11.3.Test Produce

For upper band emissions that are up to two bandwidths(2MHz) away (2483.5MHz to 2485.5MHz） from the band-edge use below produce:

1. Choose a spectrum analyzer span that encompasses both the peak of the fundamental emission and the band-edge emission under investigation. Set the analyzer RBW to 100KHz and with a video bandwidth 300KHz. Record the peak levels of the fundamental emission and the relevant band-edge emission, Observe the stored trace and measure the amplitude delta between the peak of the fundamental and the peak of the band-edge emission. This is not a field strength measurement, it is only a relative measurement to determine the amount by which the emission drops at the band edge relative to the highest fundamental emission level.
2. Subtract the delta measured in step (1) from the maximum field strengths measured in clause 4 .The resultant field strengths are then used to determine band-edge compliance as required by Section 15.205

For emissions above two bandwidths away from the band-edge use below produce:

1. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upperband-edges of the emission:

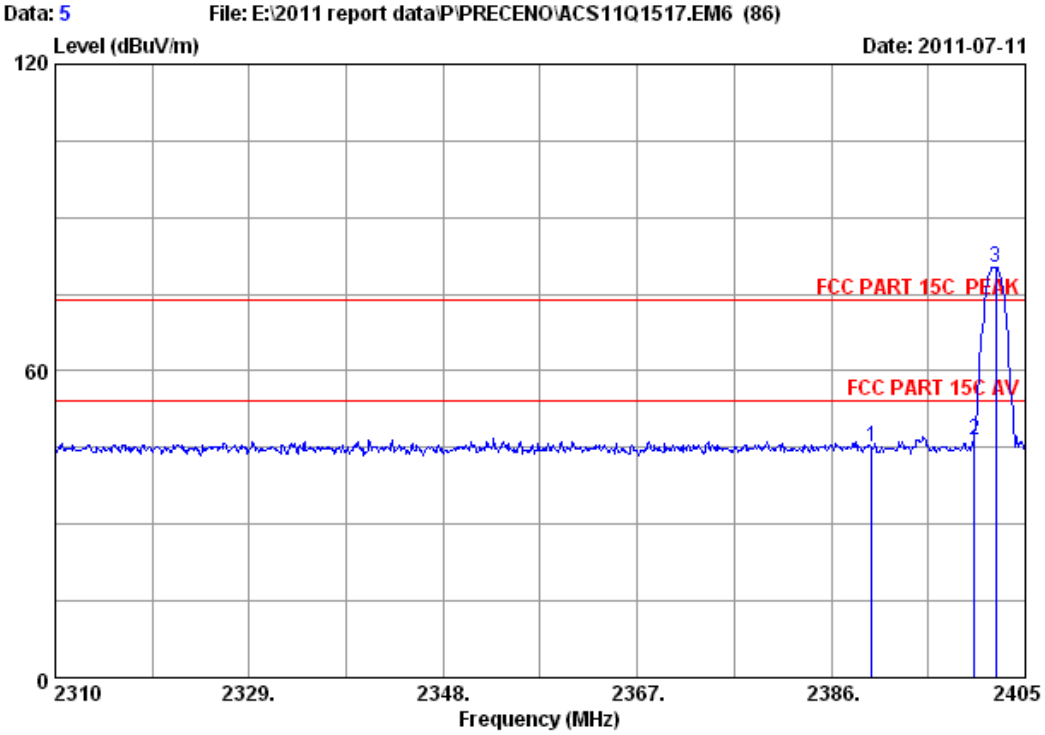
   (a) PEAK: RBW=1MHz ;VBW=3MHz, PK detector, Sweep=AUTO

   (b)This device is pulse modulated, a duty cycle factor was used to calculate average level based measured peak level

11.4.Test Results

Pass (The testing data was attached in the next pages.)

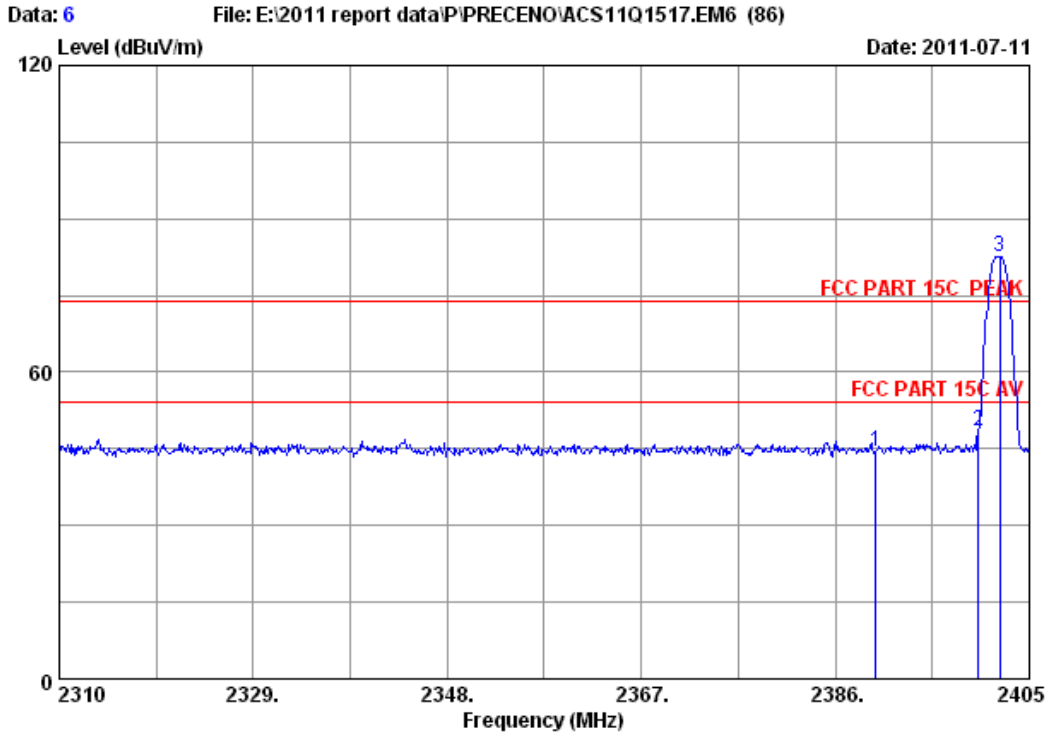
Note: If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.



Site no. : 3m Chamber Data no. : 5
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : WIMM One
Power : DC 5V From Adapter Input AC 120V/60Hz
Test mode : GFSK 2402MHz Tx
M/N : 330

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	27.96	6.72	34.44	44.72	44.96	74.00	29.04	Peak
2	2400.000	27.96	6.75	34.44	46.25	46.52	74.00	27.48	Peak
3	2402.150	27.96	6.75	34.44	79.88	80.15	74.00	-6.15	Peak

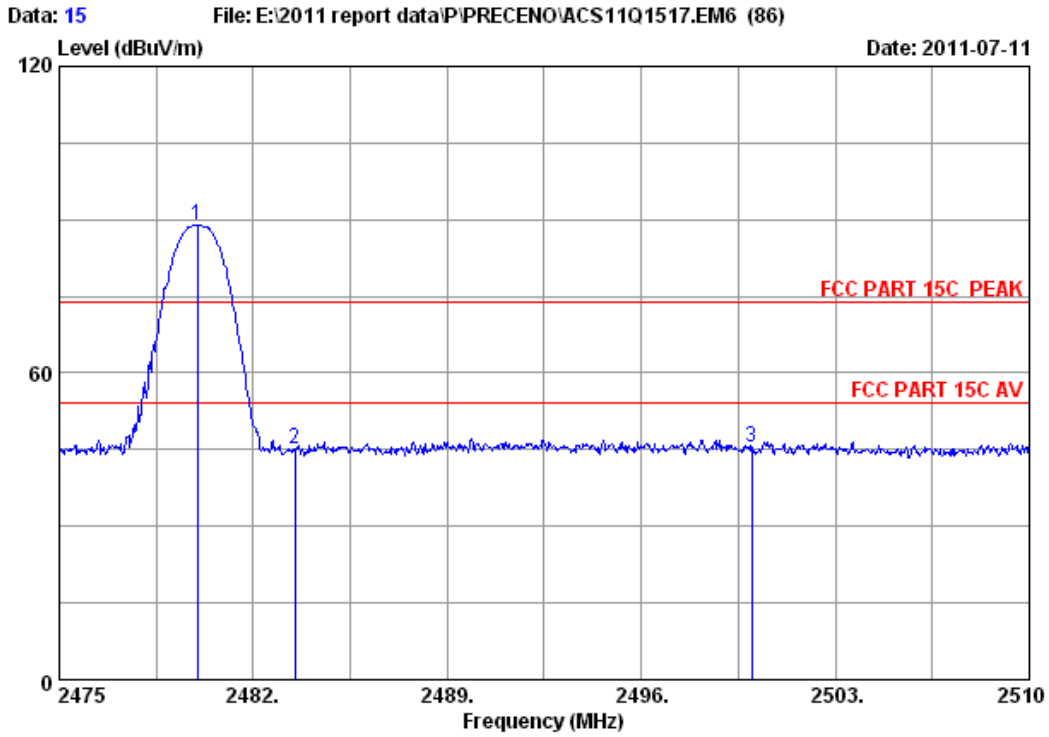
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 6
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : WIMM One
Power : DC 5V From Adapter Input AC 120V/60Hz
Test mode : GFSK 2402MHz Tx
M/N : 330

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	27.96	6.72	34.44	44.25	44.49	74.00	29.51	Peak
2	2400.000	27.96	6.75	34.44	48.32	48.59	74.00	25.41	Peak
3	2402.150	27.96	6.75	34.44	82.45	82.72	74.00	-8.72	Peak

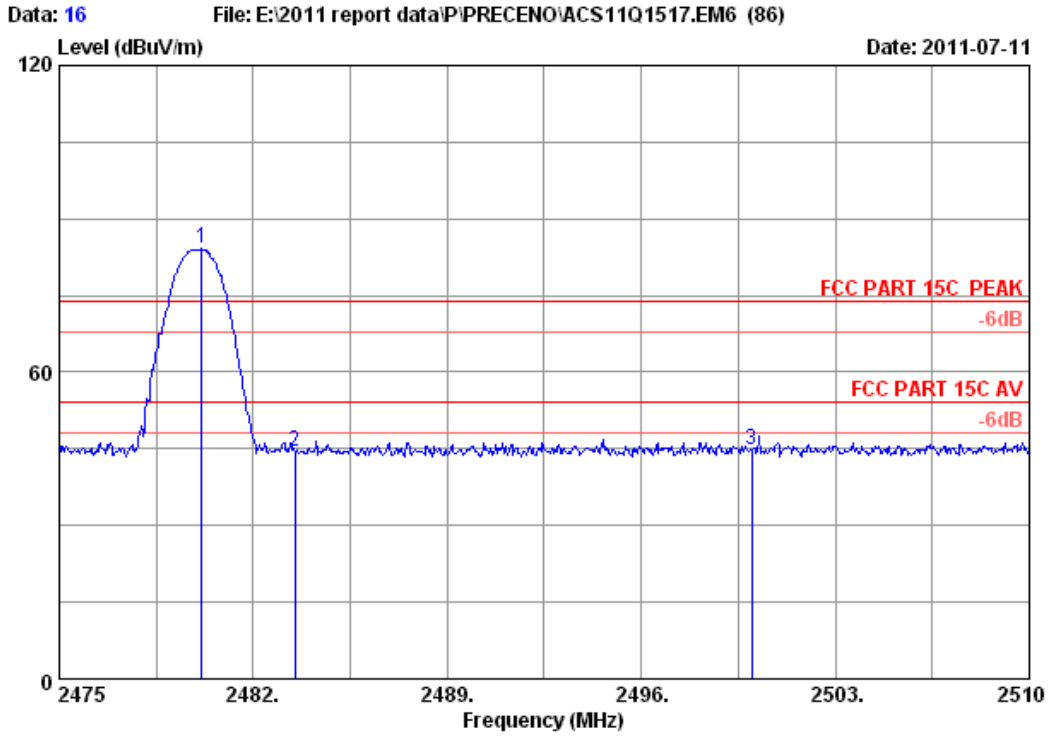
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 15
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : WIMM One
Power : DC 5V From Adapter Input AC 120V/60Hz
Test mode : GFSK 2480MHz Tx
M/N : 330

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2479.970	28.08	6.87	34.45	88.43	88.93	74.00	-14.93	Peak
2	2483.500	28.08	6.90	34.45	44.52	45.05	74.00	28.95	Peak
3	2500.000	28.10	6.90	34.45	44.89	45.44	74.00	28.56	Peak

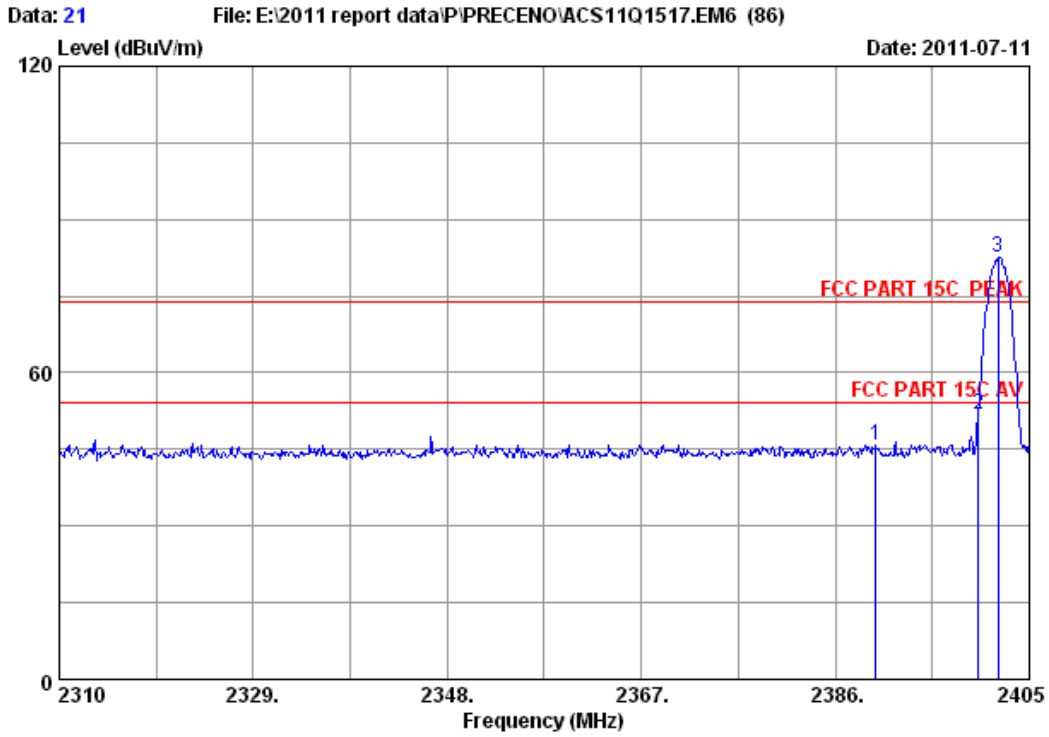
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 16
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : WIMM One
Power : DC 5V From Adapter Input AC 120V/60Hz
Test mode : GFSK 2480MHz Tx
M/N : 330

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.145	28.08	6.87	34.45	83.58	84.08	74.00	-10.08	Peak
2	2483.500	28.08	6.90	34.45	43.79	44.32	74.00	29.68	Peak
3	2500.000	28.10	6.90	34.45	44.31	44.86	74.00	29.14	Peak

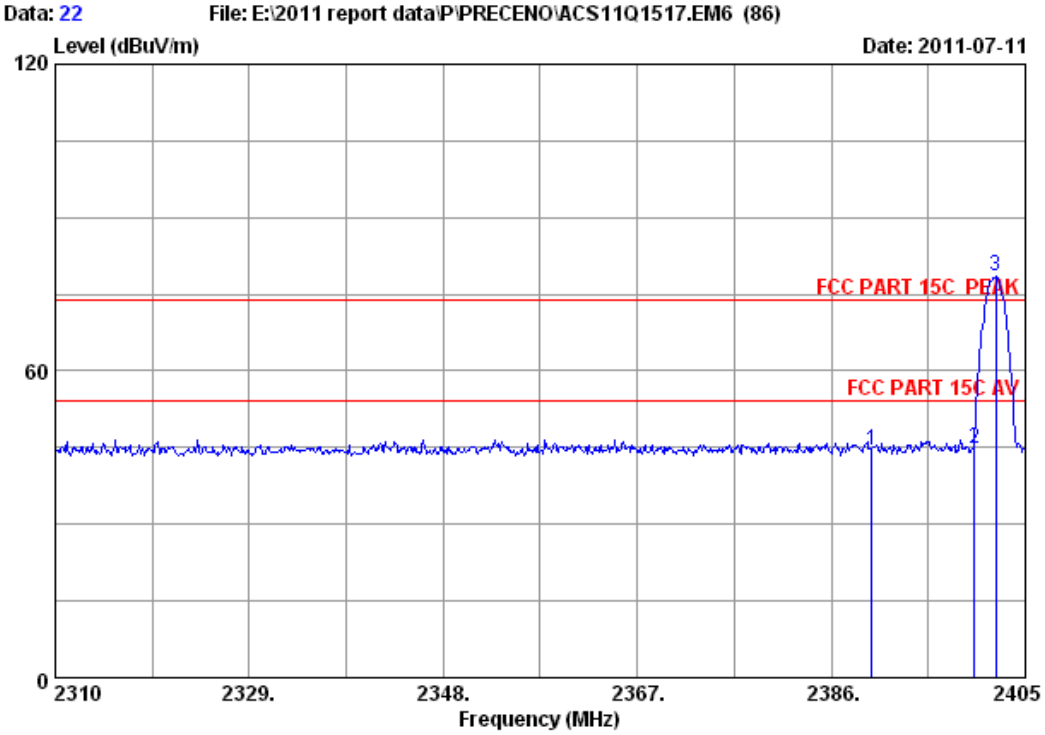
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 21
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : WIMM One
Power : DC 5V From Adapter Input AC 120V/60Hz
Test mode : 8DPSK 2402MHz Tx
M/N : 330

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	27.96	6.72	34.44	45.42	45.66	74.00	28.34	Peak
2	2400.000	27.96	6.75	34.44	51.48	51.75	74.00	22.25	Peak
3	2401.960	27.96	6.75	34.44	82.30	82.57	74.00	-8.57	Peak

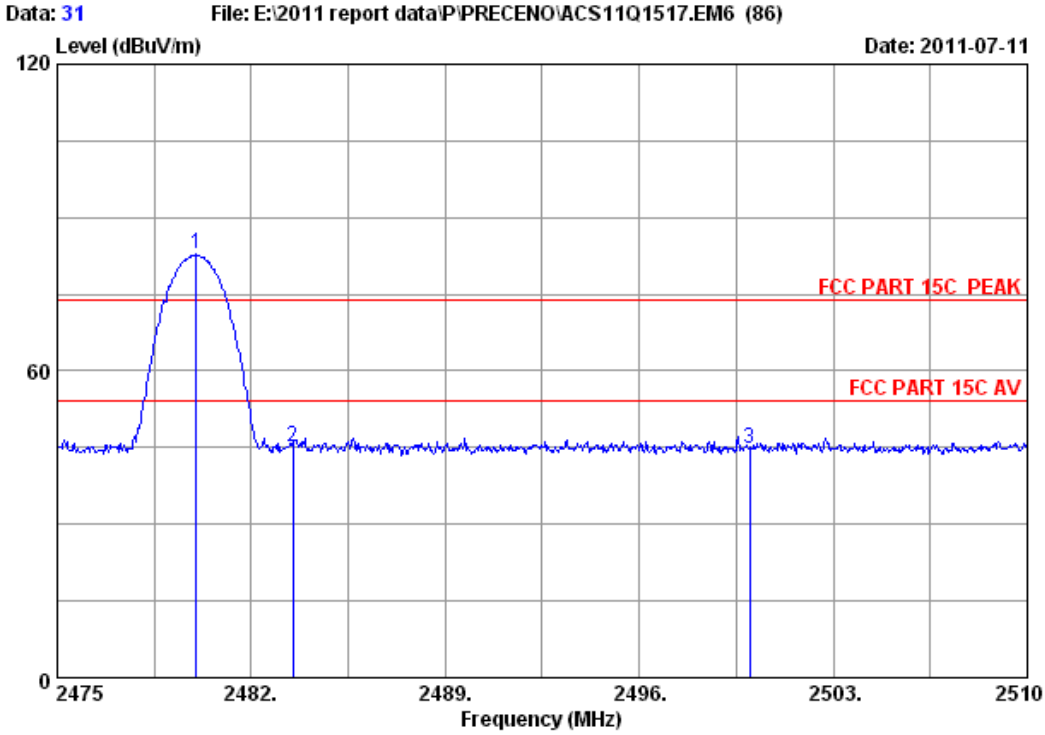
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 22
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : WIMM One
Power : DC 5V From Adapter Input AC 120V/60Hz
Test mode : 8DPSK 2402MHz Tx
M/N : 330

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	27.96	6.72	34.44	44.24	44.48	74.00	29.52	Peak
2	2400.000	27.96	6.75	34.44	44.62	44.89	74.00	29.11	Peak
3	2402.150	27.96	6.75	34.44	78.15	78.42	74.00	-4.42	Peak

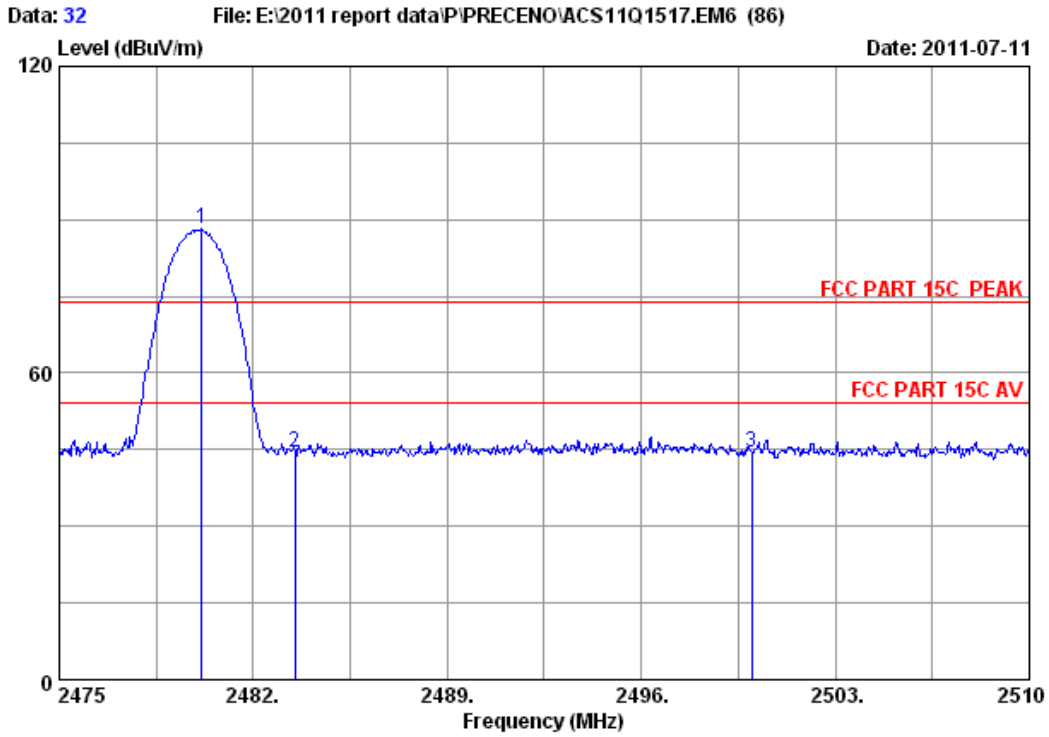
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 31
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : WIMM One
Power : DC 5V From Adapter Input AC 120V/60Hz
Test mode : 8DPSK 2480MHz Tx
M/N : 330

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.005	28.08	6.87	34.45	82.30	82.80	74.00	-8.80	Peak
2	2483.500	28.08	6.90	34.45	44.72	45.25	74.00	28.75	Peak
3	2500.000	28.10	6.90	34.45	44.37	44.92	74.00	29.08	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 32
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : WIMM One
Power : DC 5V From Adapter Input AC 120V/60Hz
Test mode : 8DPSK 2480MHz Tx
M/N : 330

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.145	28.08	6.87	34.45	87.79	88.29	74.00	-14.29	Peak
2	2483.500	28.08	6.90	34.45	43.92	44.45	74.00	29.55	Peak
3	2500.000	28.10	6.90	34.45	43.88	44.43	74.00	29.57	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

12. DEVIATION TO TEST SPECIFICATIONS

[NONE]