
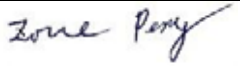
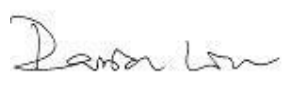


# FCC Test Report

FCC EVALUATION REPORT FOR CERTIFICATE	
Project Reference No.	239671
Product	Tablet PC
Brand Name	HANNspree
Model	HSG1279
Alternate Model	N/A
Tested according to	FCC Rules and Regulations Part 15 Subpart C 2013, 15.247 558074 D01 DTS Meas Guidance v03 ANSI C63.4-2009

Tested in period	2013-07-05 to 2013-08-02
Issued date	2013-08-02
Name and address of the Test House	 Nemko Shanghai Ltd. 9A No. 528 Ruiqing Road, PuDong New Area, Shanghai, China P.C. Phone : (+ 852) 2675 0288 Fax : (+ 852) 2675 0550
Tested by	 <div style="text-align: right;">2013-08-02</div> <div style="text-align: center;"><b>Zone Peng</b> <b>date</b></div>
Verified by	 <div style="text-align: right;">2013-08-02</div> <div style="text-align: center;"><b>Daria Liu</b> <b>date</b></div>

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## 1. Client Information

### 1.1 Applicant

Company Name: Hannstar Display Corp.  
Company Address: 4F, No.48, Wuquan Rd, Wugu Dist, New Taipei City 248, Taiwan

### 1.2 Manufacturer

Company Name: Foxda Technology Industrial(Shenzhen) Co.,Ltd  
Company Address: G/F, Block 1 and G/F to 2/F, Block 2, Foxda Industrial Park, Lanzhu Road, Foxda Industrial Zone, Pingshan New District, Shenzhen, China

### 1.3 Scope

●Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission under FCC part 15.247.



## 2. Equipment under Test (EUT)

### 2.1 Identification of EUT

Category:	IEEE 802.11b/g /n WLAN
Name:	Tablet PC
Model Name:	HSG1279
Alternate model:	N/A
Brand name:	HANNspree
	Manufacturer : Sunny Electronics Corp.
	Model: SYS1357-1305
Adapter :	Input: 1.0A, 100-240V~, 50-60Hz, Class II
	Output: 5Vdc,2.6A

### 2.2 Detail spec:

Operation Frequency: **2412 MHz -2462MHz [for 802.11b; 802.11g; 802.11n (H20)]**

Operation Frequency: **2422 MHz -2452MHz [for 802.11n (H40)]**

Type of Spectrum : **DSSS ,OFDM**

Category:**802.11b; 802.11g; 802.11n (H20); 802.11n (H40)**

Antenna Type: **Integral Antenna**

Antenna Number : **1**

Antenna gain :**2.06dBi**

Modulation type: **BPSK,QPSK,16-QAM.64-QAM**

Data rate: **up to 150Mbps**

Operation Frequency: **2412 MHz -2462MHz**

Max PK Output power : **17.46dBm**

Operation Frequency: **2422 MHz -2452MHz**

Max PK Output power : **15.91dBm**



### 2.3 Additional Information Related to Testing

For 802.11b ,g ,n(H20)

CH LOW:2412MHz

CH MID:2437MHz

CH HIGH:2462MHz

For 802.11n(H40)

CH LOW:2422MHz

CH MID:2437MHz

CH HIGH:2452MHz

IEEE 802.11b : 1Mbps data rate

IEEE 802.11g : 6Mbps data rate

IEEE 802.11n H20 : MSC0

IEEE 802.11n H40 : MSC0

Remark: Only the worse case found by prescan is listed

### 3. General Test Conditions

#### 3.1 Location

AUDIX Technology (Shenzhen) Co.,Ltd-ELA 135

No. 6, Ke Feng Rd., 52 Block, Shenzhen Science & Industrial Park, Nantou, Shenzhen, Guangdong, China

FCC Registration No.:90454

Industry Canada Registration No.: 5183

Note: all test are witnessed by NEMKO engineer

#### 3.2 Operating Environment

All tests and measurements were performed in a shielded enclosure or a controlled environment suitable for the tests conducted. The climatic conditions in the test area are automatically controlled and recorded continuously.

Parameters	Recording during test	Accepted deviation
Ambient temperature	24-25°C	15 – 35 °C
Relative humidity	50-55%	30 - 60%
Atmospheric pressure	101.2 kPa -101.3kPa	86-106kPa

#### 3.3 Operating During Test

Test mode

TM1 : 120VAC 60Hz TX MODE continuous transmitter

Remark : Input voltage have been adjusted from 85% to 115% ,no influence of Fundamental emission found .

#### 3.4 Test Equipment

The test equipments used in testing are calibrated on a regular basis. For most of the testing equipments accredited calibration is conducted once a year. For certain equipment the calibration interval is longer. Between the calibrations all test equipment are controlled and verified on a regular basis. The test equipments used are defined in each test section of this report.

### 4. Measurement Uncertainty

The Measurement Uncertainties stated were calculated in accordance with the requirements of NIST Technical Note 1297 with the confidence level of 95 %.

Conducted Emission : 0.15~30MHz	3.45dB
Radiated Emission: 30MHz~1000MHz	4.50dB
1GHz-18GHz	4.70dB



## 5. Radiated Electromagnetic Disturbances

### 5.1 Test Procedure

The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. An antenna was located 3m from the EUT on an adjustable mast.

The EUT were rotated 0 to 360 degree and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. The test result are reported as below.

For below 1GHz

RBW=120 kHz; VBW=300KHz.QP detector,The frequency range from 30MHz to 1000MHz is checked.

For above 1GHz. The frequency range from 1GHz to 25GHz(10<sup>th</sup> harmonics) is checked.

RBW=1MHz ; VBW=1MHz,PK detector for peak emissions measurement above 1GHz

RBW=1MHz ; VBW=10Hz, PK detector for average emissions measure above 1GHz

### 5.2 Measurement Equipment

For Radiation Test 30MHz-1000MHz (In 3m Anechoic Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	3#Chamber	AUDIX	N/A	N/A	Nov.24,12	1 Year
2	EMI Spectrum	Agilent	E4407B	MY41440292	May.08, 13	1 Year
3	Test Receiver	Rohde & Schwarz	ESVS10	834468/011	May.08, 13	1 Year
4	Amplifier	HP	8447D	2648A04738	May.08, 13	1 Year
5	Bilog Antenna	Schaffner	CBL6111C	2598	Dec.26, 12	2.0 Year
6	RF Cable	MIYAZAKI	CFD400-NL	3# Chamber No.1	May.08, 13	1 Year
7	Coaxial Switch	Anritsu	MP59B	M74389	May.08, 13	1 Year

For Radiated Emission Test 1GHz-25GHz (In 3m Anechoic Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	Agilent	E4407B	MY41440292	May.08, 13	1 Year
2	Horn Antenna	EMCO	3115	9510-4580	June.05, 13	1 Year
3	Amplifier	Agilent	8449B	3008A00863	May.08, 13	1 Year
4	RF Cable	Hubersuhner	SUCOFLEX106	77980/6	May.08, 13	1 Year
5	RF Cable	Hubersuhner	SUCOFLEX106	77977/6	May.08, 13	1 Year

### 5.3 Test Result

Remark: If PK value is lower than AV limit , only show PK diagram as below.

From 18GHz to 25GHz, Spurious Emission can not be found .

For restriction band test :Only list the restriction band test which there found emission.

For other restriction band: no emission found.

For Radiated emission test : The EUT have been tested at X,Y,Z axial direction, Only list the worse mode.

Mode	Freq range		Test ANT polarity	Diagram	Test Result
TX MODE	30MHz-1GHz:		H	5-1	Pass
	30MHz-1GHz:		V	5-2	Pass
Mode	Freq range	Channel	Test ANT polarity	Diagram	Test Result
802.11b	1GHz-18GHz:	CHLOW	H	5-3	Pass
	1GHz-18GHz:	CHLOW	V	5-4	Pass
	1GHz-18GHz:	CHMID	H	5-5	Pass
	1GHz-18GHz:	CHMID	V	5-6	Pass
	1GHz-18GHz:	CH HIGH	H	5-7	Pass
	1GHz-18GHz:	CH HIGH	V	5-8	Pass
Mode	Freq range	Channel	Test ANT polarity	Diagram	Test Result
802.11g	1GHz-18GHz:	CHLOW	H	5-9	Pass
	1GHz-18GHz:	CHLOW	V	5-10	Pass
	1GHz-18GHz:	CHMID	H	5-11	Pass
	1GHz-18GHz:	CHMID	V	5-12	Pass
	1GHz-18GHz:	CH HIGH	H	5-13	Pass
	1GHz-18GHz:	CH HIGH	V	5-14	Pass
Mode	Freq range	Channel	Test ANT polarity	Diagram	Test Result
802.11n (H20)	1GHz-18GHz:	CHLOW	H	5-15	Pass
	1GHz-18GHz:	CHLOW	V	5-16	Pass
	1GHz-18GHz:	CHMID	H	5-17	Pass
	1GHz-18GHz:	CHMID	V	5-18	Pass
	1GHz-18GHz:	CH HIGH	H	5-19	Pass
	1GHz-18GHz:	CH HIGH	V	5-20	Pass
Mode	Freq range	Channel	Test ANT polarity	Diagram	Test Result
802.11n (H40)	1GHz-18GHz:	CHLOW	H	5-21	Pass
	1GHz-18GHz:	CHLOW	V	5-22	Pass
	1GHz-18GHz:	CHMID	H	5-23	Pass
	1GHz-18GHz:	CHMID	V	5-24	Pass
	1GHz-18GHz:	CH HIGH	H	5-25	Pass
	1GHz-18GHz:	CH HIGH	V	5-26	Pass

# NOTES:

- 1.All modes were measured and only the worst case emission was reported.
2. H =Horizontal V=Vertical
3. Emission = Reading +Antenna Factor + Cable Loss –Amp Factor
4. Emission level dB  $\mu$  V = 20 log Emission level  $\mu$  V/m
5. The lower limit shall apply at the transition frequencies
6. All the emissions appearing within 15.205 Restricted bands shall not exceed the limits shown in (15.209 limit )#.
7. Unwanted emissions not falling within restricted frequency bands shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits;

Remark :

The limit of “ # ”of 3 meter distance is

Frequency MHz	Distance m	Field strength		Distance m	Field strength dB $\mu$ V/m(QP)
		$\mu$ V/m	dB $\mu$ V/m(QP)		
30-88	3	100	40.0	10	30.0
88-216	3	150	43.5	10	33.5
216-960	3	200	46.0	10	36.0
960-1000	3	500	54.0	10	44.0
Above 1000	3	74.0 dB $\mu$ V/m (PK) 54.0 dB $\mu$ V/m (AV)		/	/

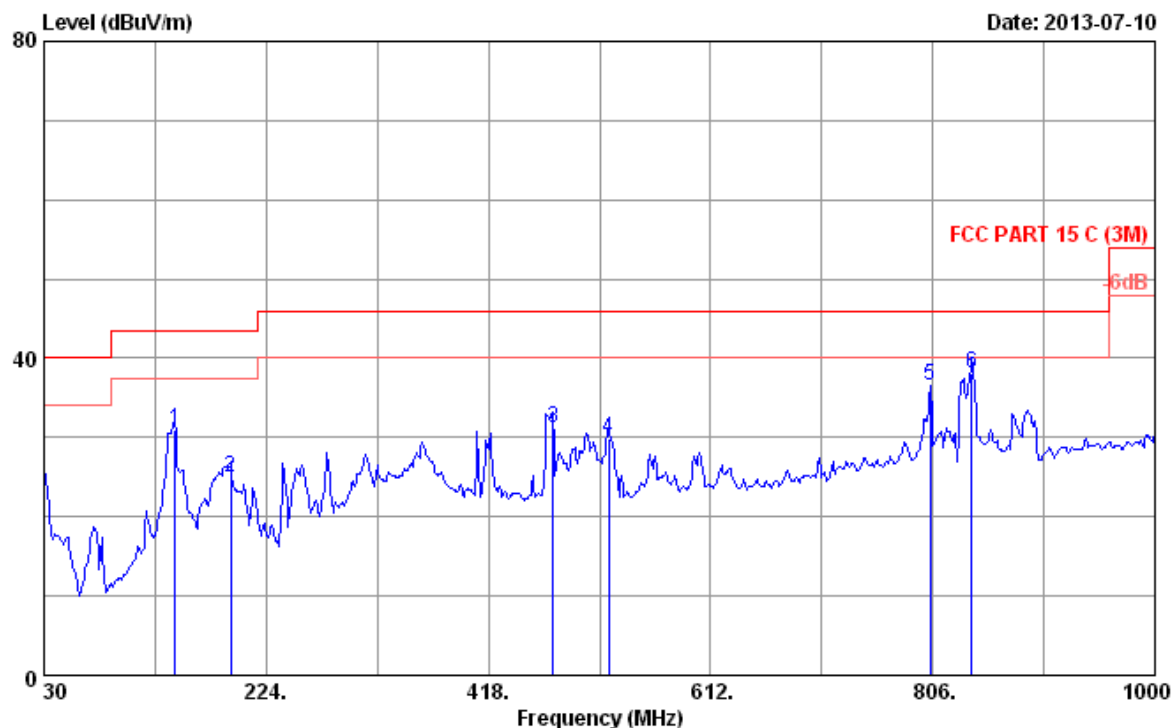
# 15.205 Restricted bands:

MHz	MHz	MHz	GHz
0.090-0.110 .....	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505 .....	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905 .....	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128 .....	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775 .....	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775 .....	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218 .....	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825 .....	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225 .....	123-138	2200-2300	14.47-14.5
8.291-8.294 .....	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366 .....	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675 .....	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475 .....	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293 .....	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025 .....	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725 .....	322-335.4	3600-4400	(2)
13.36-13.41.			

<sup>1</sup>Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup>Above 38.6

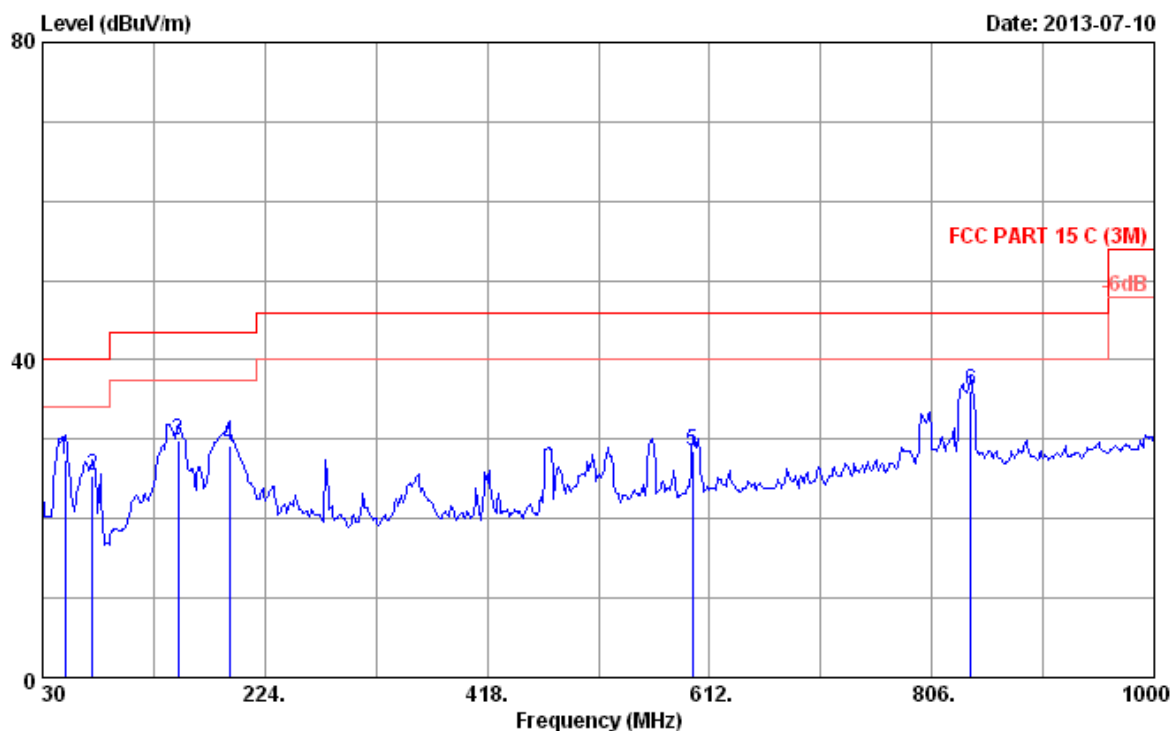
### 5.3.1 Diagram 5-1



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	144.460	12.10	1.58	17.36	31.04	43.50	12.46	QP
2	192.960	9.45	1.76	13.79	25.00	43.50	18.50	QP
3	474.260	17.59	2.68	10.83	31.10	46.00	14.90	QP
4	522.760	18.56	2.82	8.44	29.82	46.00	16.18	QP
5	804.060	22.10	3.62	10.81	36.53	46.00	9.47	QP
6	839.950	22.90	3.74	11.36	38.00	46.00	8.00	QP

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

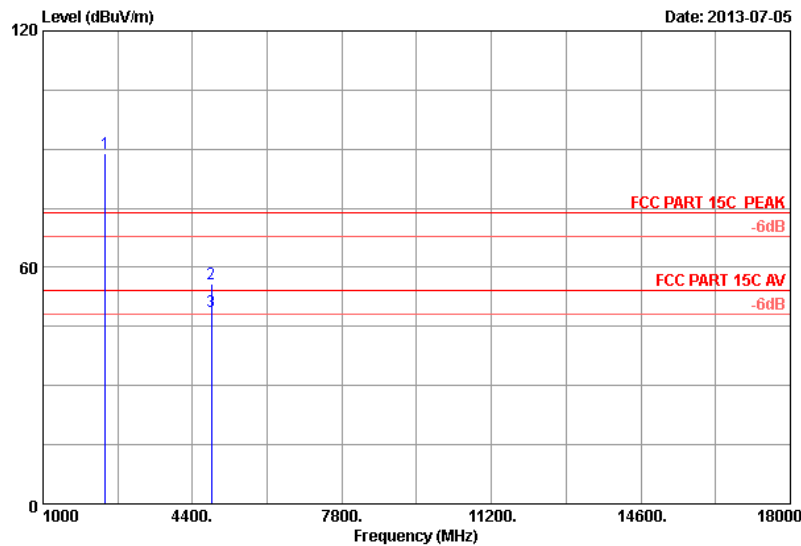
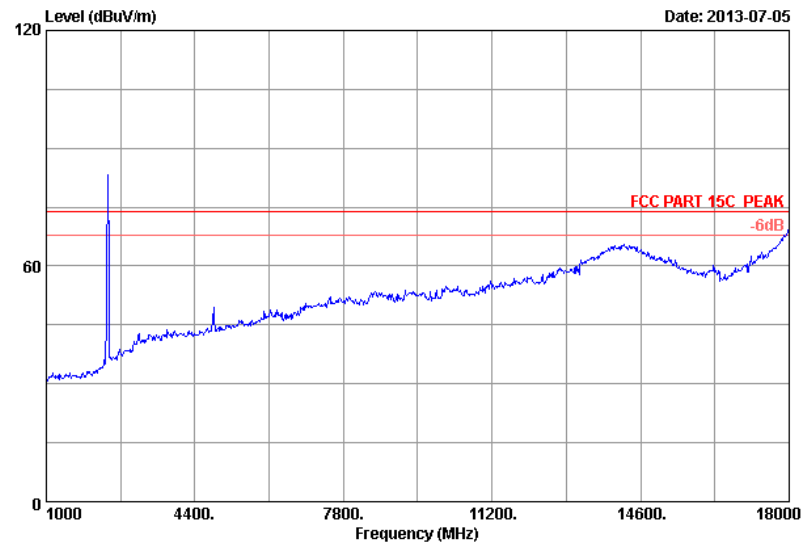
### 5.3.2 Diagram 5-2



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Emission		Limits (dBuV/m)	Margin (dB)	Remark
				Reading (dBuV)	Level (dBuV/m)			
1	49.400	9.23	1.18	17.06	27.47	40.00	12.53	QP
2	73.650	7.45	1.29	16.59	25.33	40.00	14.67	QP
3	148.340	11.88	1.59	16.42	29.89	43.50	13.61	QP
4	192.960	9.45	1.76	18.03	29.24	43.50	14.26	QP
5	597.450	19.65	3.03	5.78	28.46	46.00	17.54	QP
6	839.950	22.90	3.74	9.49	36.13	46.00	9.87	QP

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

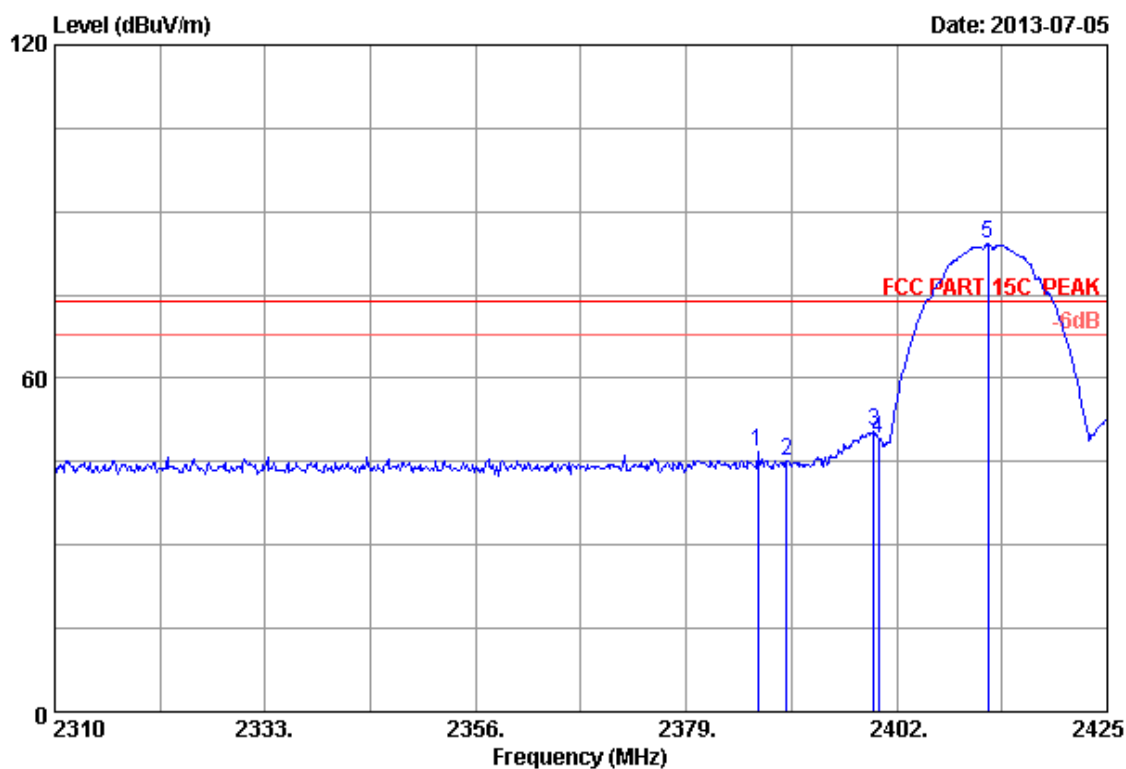
### 5.3.3 Diagram 5-3



	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	2412.000	26.84	5.81	35.70	91.88	88.83			Peak
2	4824.000	32.51	8.58	35.70	50.32	55.71	74.00	18.29	Peak
3	4824.000	32.51	8.58	35.70	43.43	48.82	54.00	5.18	Average

#### 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.

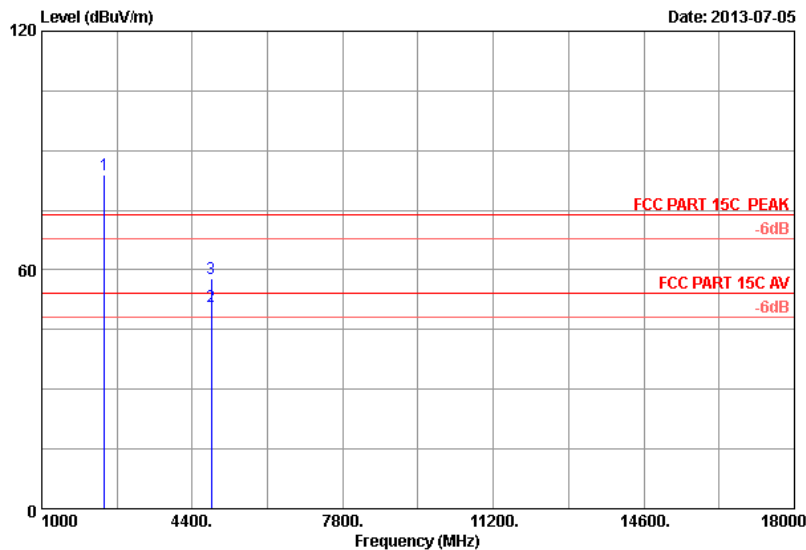
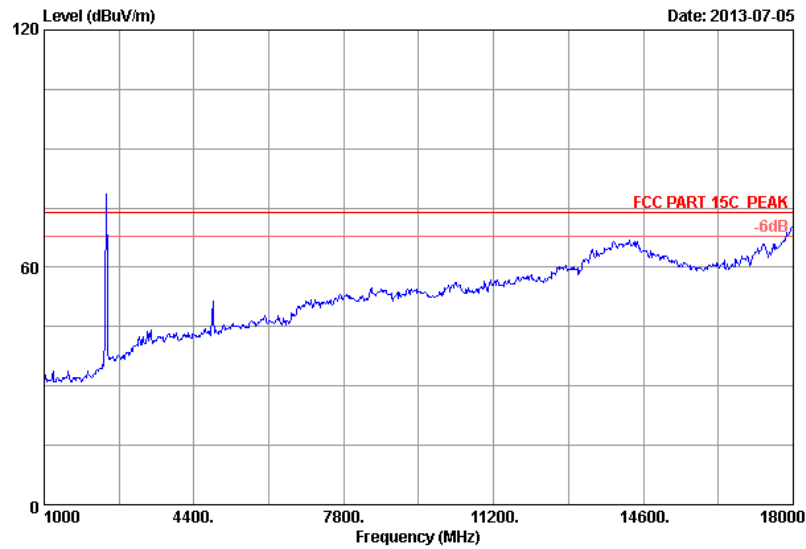


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2386.820	26.68	5.78	35.70	50.11	46.87	74.00	27.13	Peak
2	2390.000	26.70	5.78	35.70	48.38	45.16	74.00	28.84	Peak
3	2399.470	26.76	5.80	35.70	53.48	50.34	74.00	23.66	Peak
4	2400.000	26.76	5.80	35.70	52.14	49.00	74.00	25.00	Peak
5	2412.005	26.84	5.81	35.70	87.29	84.24			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.

### 5.3.4 Diagram 5-4

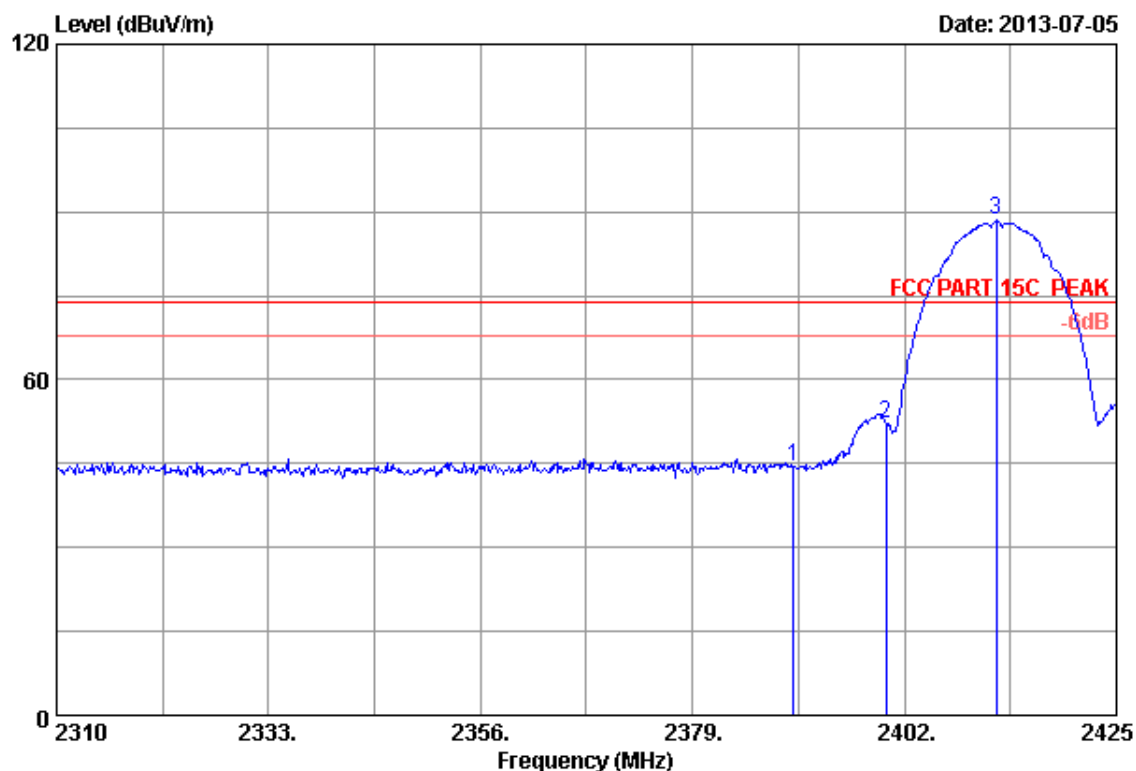


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.000	26.84	5.81	35.70	87.03	83.98			Peak
2	4824.000	32.51	8.58	35.70	45.32	50.71	54.00	3.29	Average
3	4824.000	32.51	8.58	35.70	52.39	57.78	74.00	16.22	Peak

#### 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.



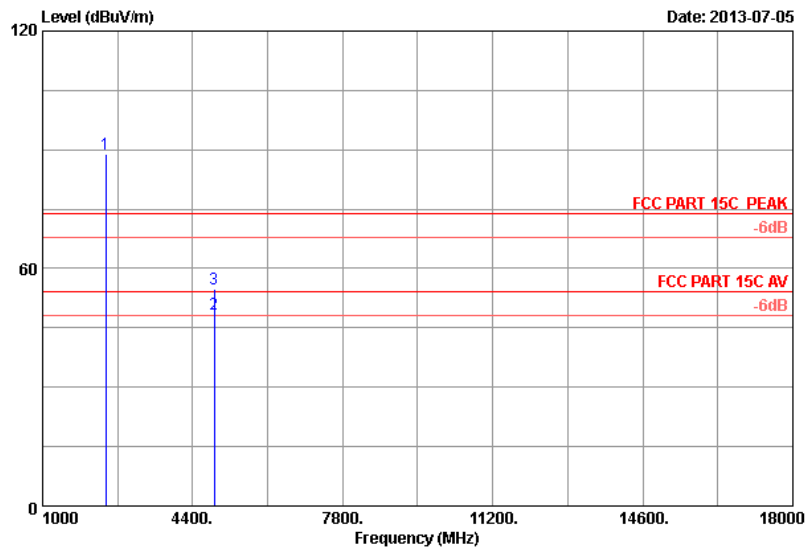
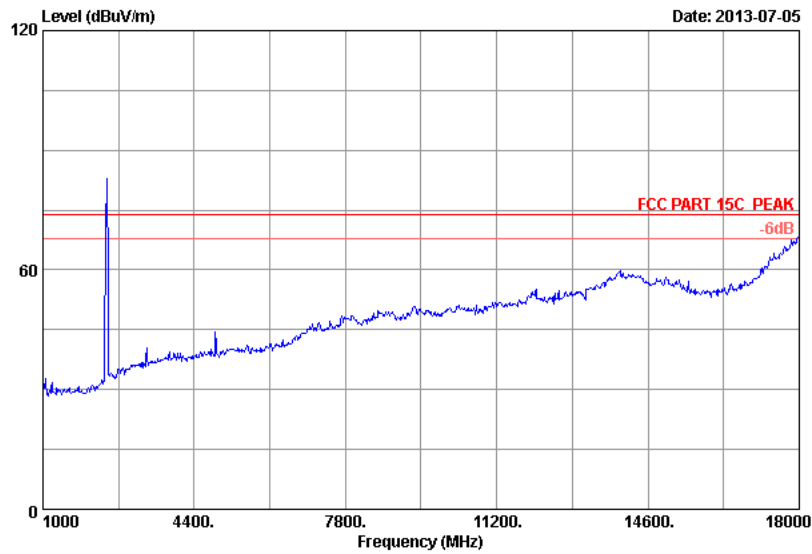


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	26.70	5.78	35.70	47.69	44.47	74.00	29.53	Peak
2	2400.000	26.76	5.80	35.70	55.31	52.17	74.00	21.83	Peak
3	2412.005	26.84	5.81	35.70	91.54	88.49			Peak

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.

### 5.3.5 Diagram 5-5

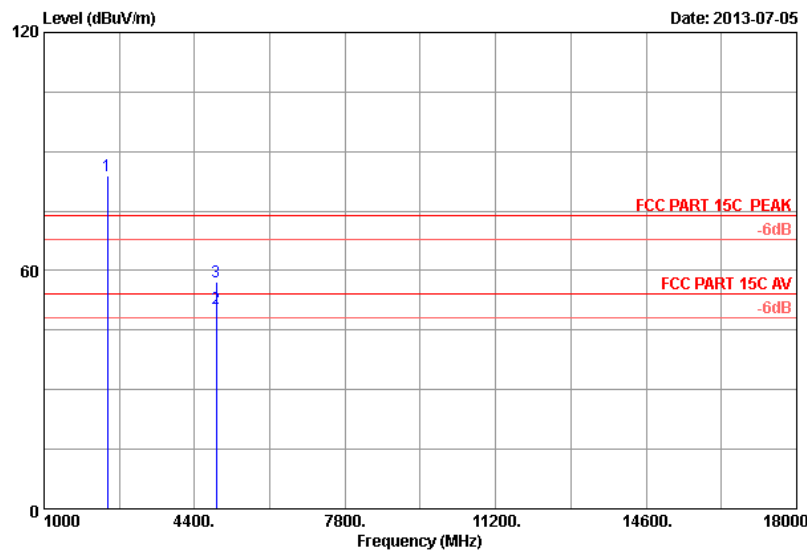
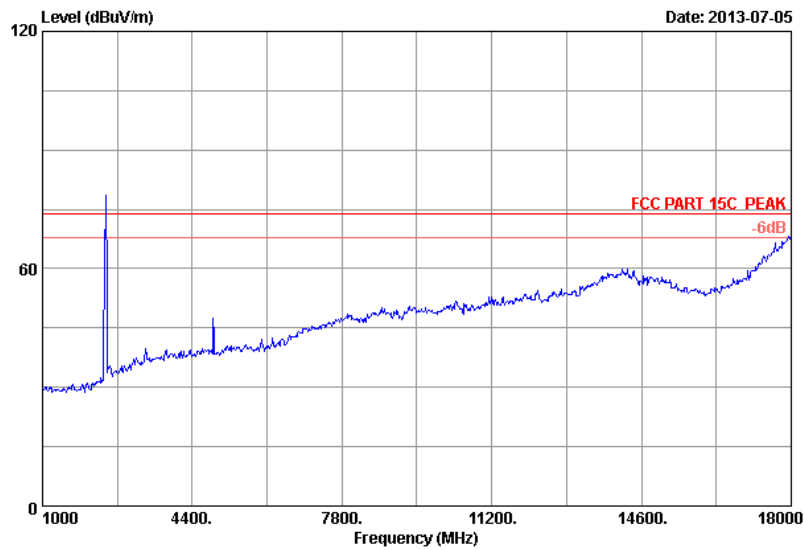


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.000	27.00	5.85	35.70	91.78	88.93			Peak
2	4887.000	32.65	8.65	35.70	43.02	48.62	54.00	5.38	Average
3	4887.000	32.65	8.65	35.70	49.34	54.94	74.00	19.06	Peak

#### 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.

### 5.3.6 Diagram 5-6

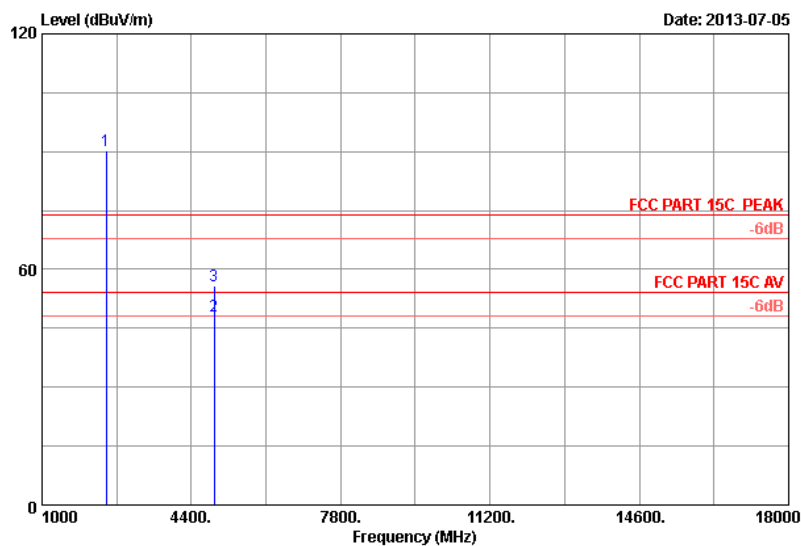
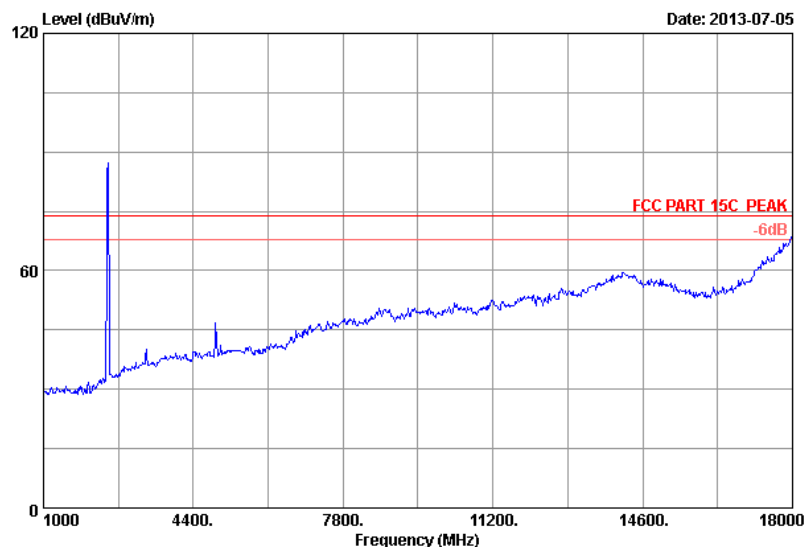


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.000	27.00	5.85	35.70	86.79	83.94			Peak
2	4884.000	32.64	8.64	35.70	44.74	50.32	54.00	3.68	Average
3	4884.000	32.64	8.64	35.70	51.50	57.08	74.00	16.92	Peak

#### 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.

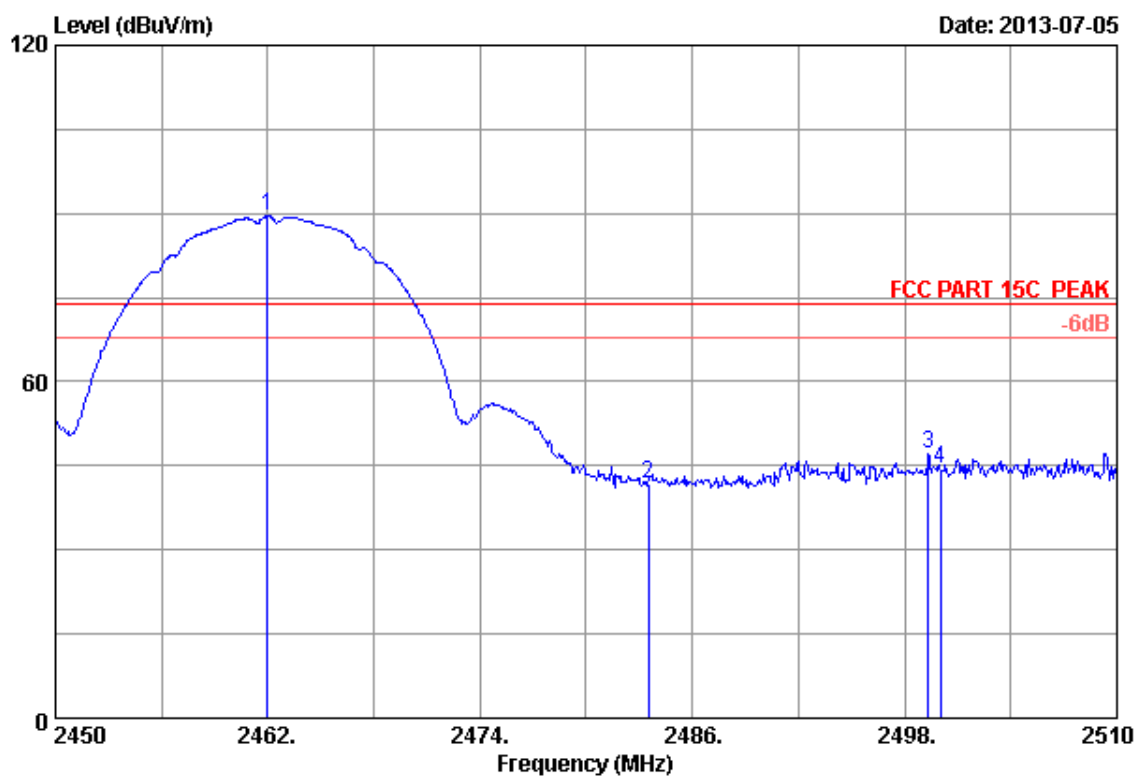
### 5.3.5 Diagram 5-7



	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	2462.000	27.16	5.89	35.70	92.97	90.32			Peak
2	4924.000	32.73	8.69	35.70	42.52	48.24	54.00	5.76	Average
3	4924.000	32.73	8.69	35.70	50.13	55.85	74.00	18.15	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.

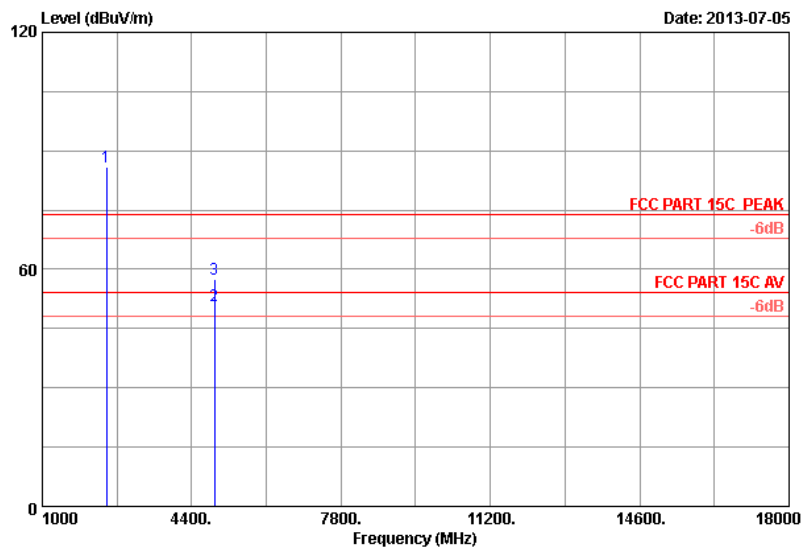
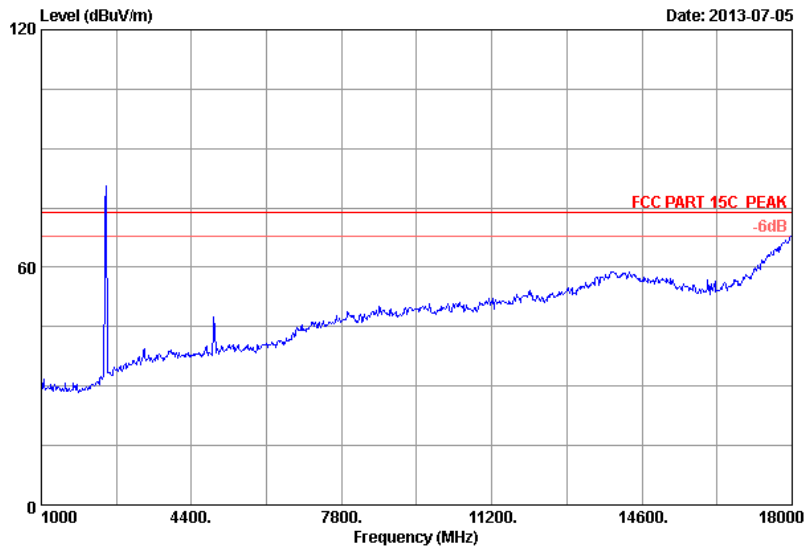


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.000	27.16	5.89	35.70	92.30	89.65			Peak
2	2483.500	27.29	5.92	35.70	44.19	41.70	74.00	32.30	Peak
3	2499.320	27.40	5.94	35.70	49.57	47.21	74.00	26.79	Peak
4	2500.000	27.40	5.94	35.70	46.88	44.52	74.00	29.48	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.

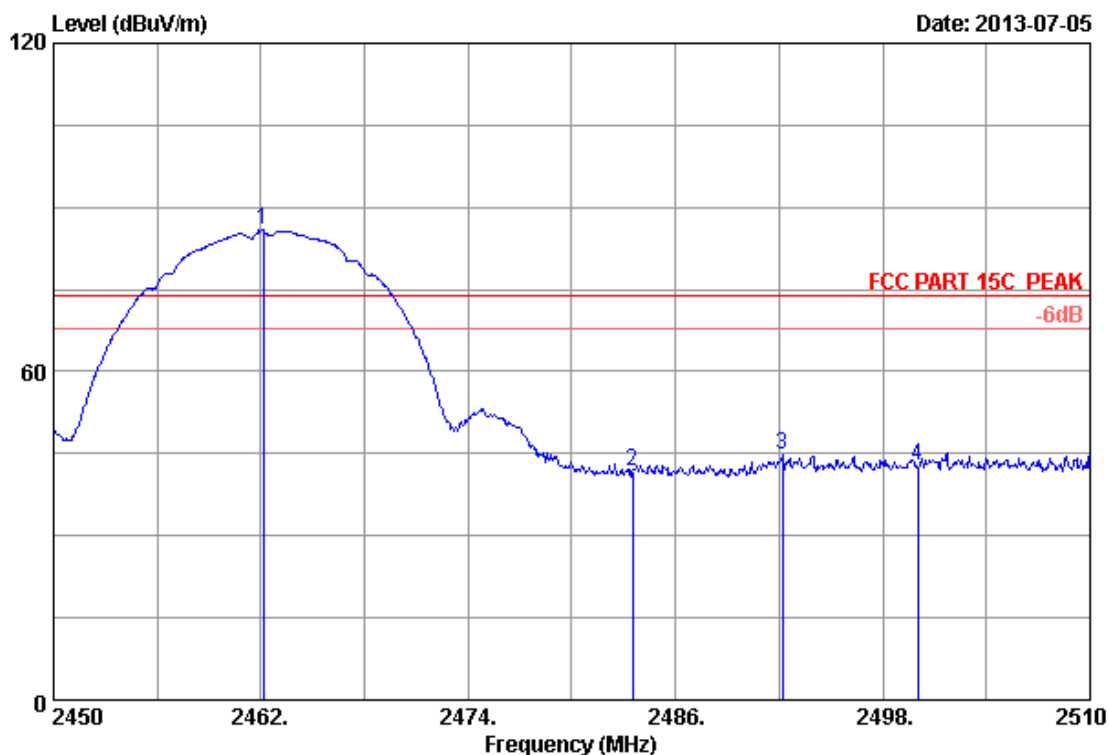
### 5.3.6 Diagram 5-8



	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	2462.000	27.16	5.89	35.70	88.66	86.01			Peak
2	4924.000	32.73	8.69	35.70	45.07	50.79	54.00	3.21	Average
3	4924.000	32.73	8.69	35.70	51.79	57.51	74.00	16.49	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.

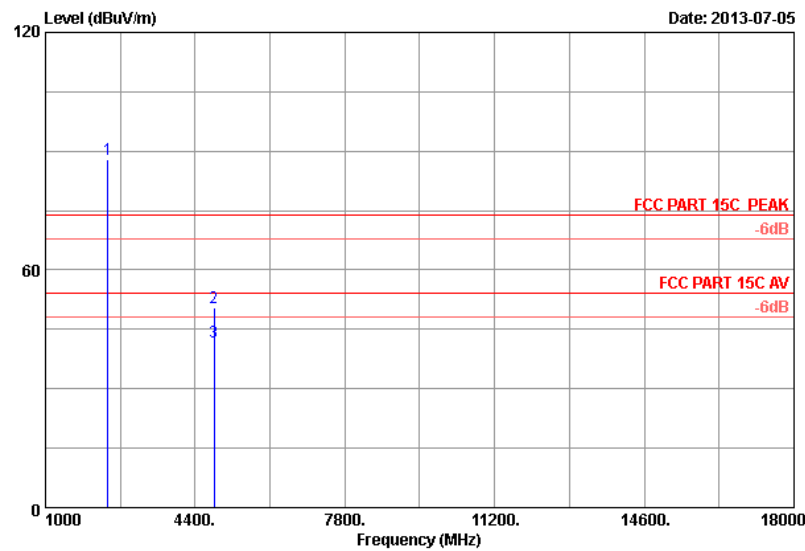
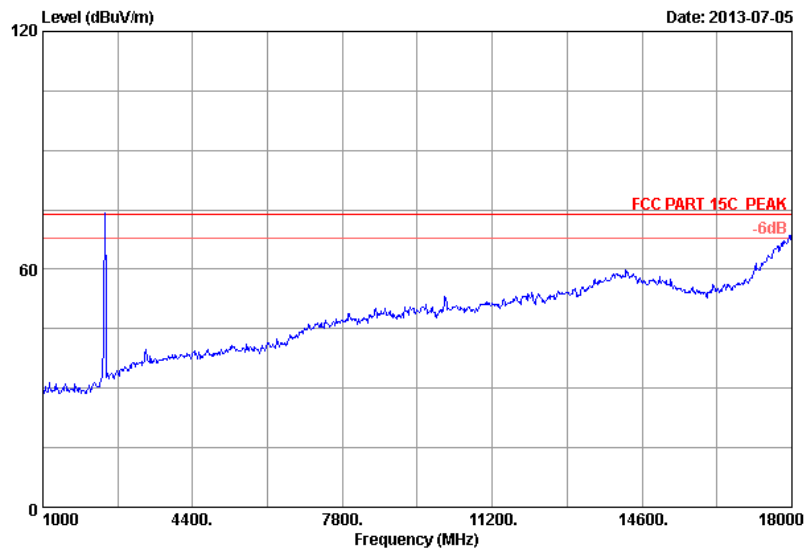


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.120	27.16	5.89	35.70	88.44	85.79			Peak
2	2483.500	27.29	5.92	35.70	44.31	41.82	74.00	32.18	Peak
3	2492.180	27.35	5.93	35.70	47.10	44.68	74.00	29.32	Peak
4	2500.000	27.40	5.94	35.70	45.10	42.74	74.00	31.26	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.

### 5.3.9 Diagram 5-9

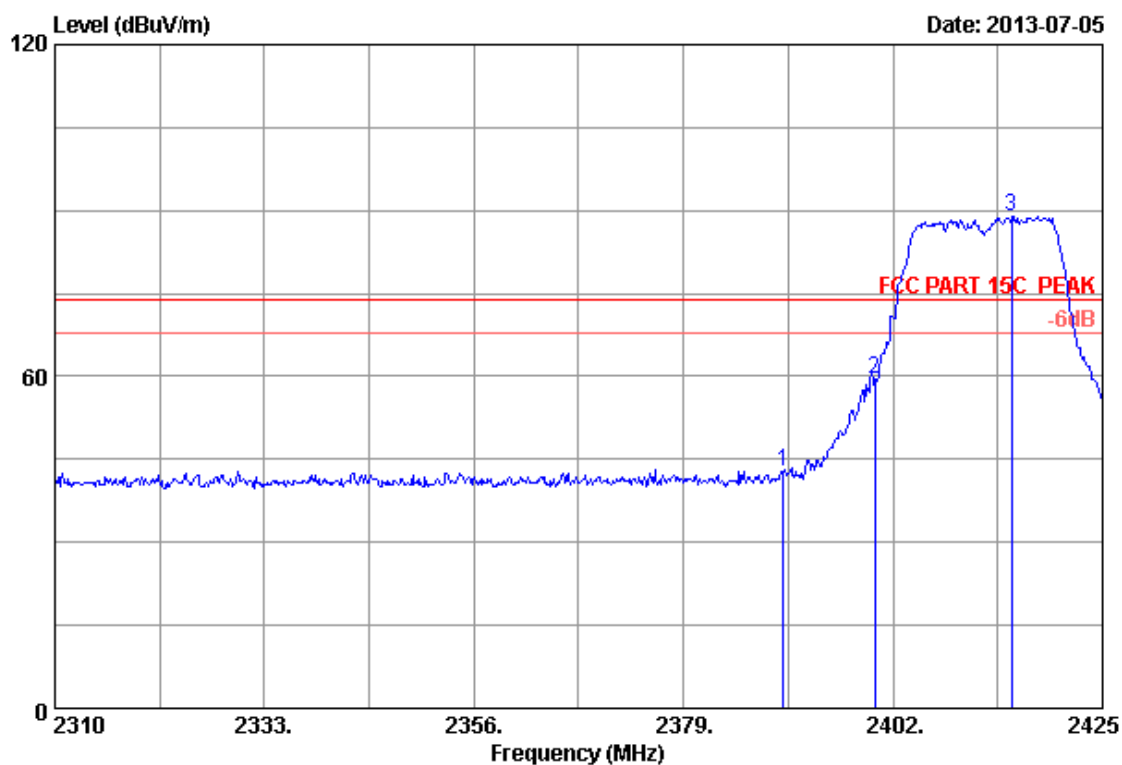


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.000	26.84	5.81	35.70	91.09	88.04			Peak
2	4824.000	32.51	8.58	35.70	45.03	50.42	74.00	23.58	Peak
3	4824.000	32.51	8.58	35.70	36.27	41.66	54.00	12.34	Average

#### 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.

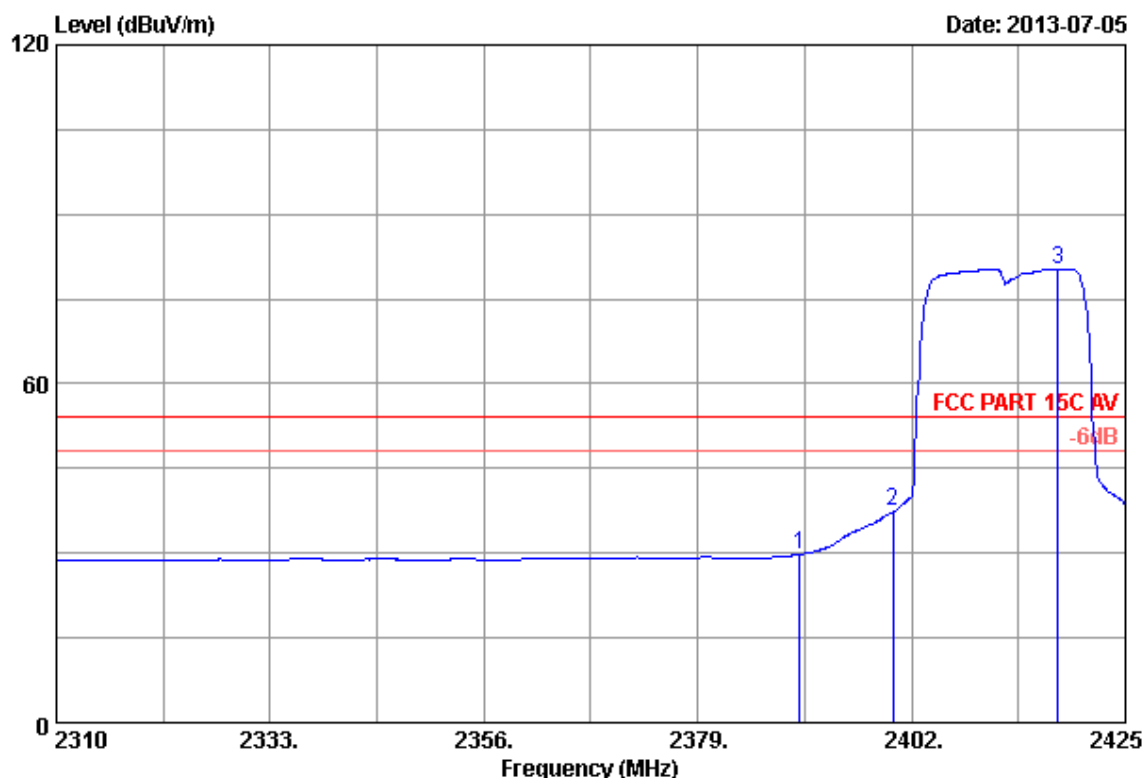




	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	26.70	5.78	35.70	46.04	42.82	74.00	31.18	Peak
2	2400.000	26.76	5.80	35.70	62.66	59.52	74.00	14.48	Peak
3	2414.995	26.86	5.82	35.70	91.90	88.88			Peak

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.

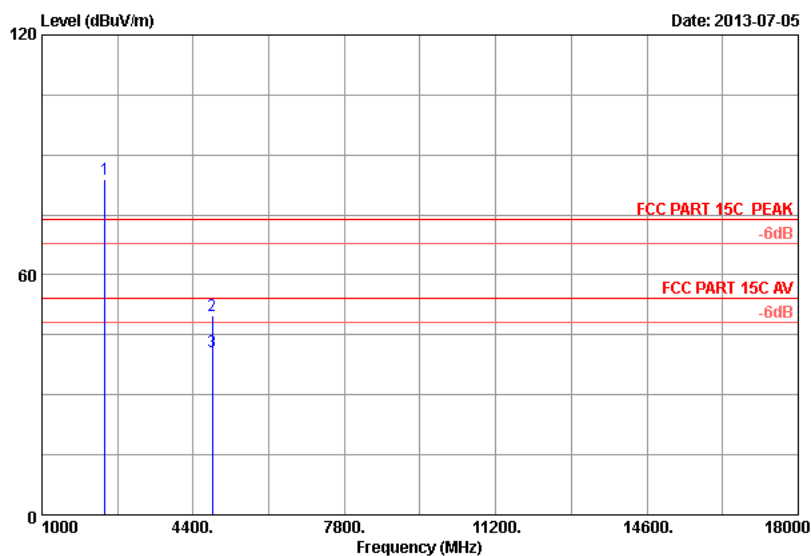
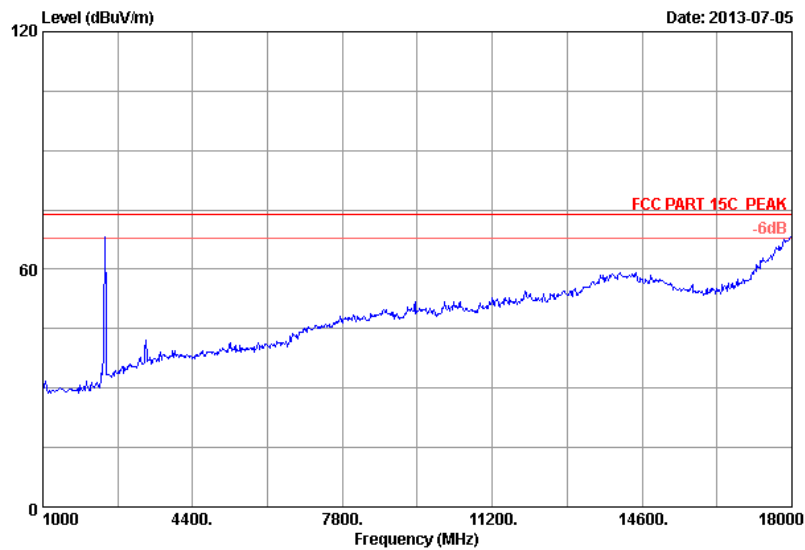


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	26.70	5.78	35.70	32.99	29.77	54.00	24.23	Average
2	2400.000	26.76	5.80	35.70	40.46	37.32	54.00	16.68	Average
3	2417.755	26.87	5.82	35.70	83.33	80.32			Average

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.

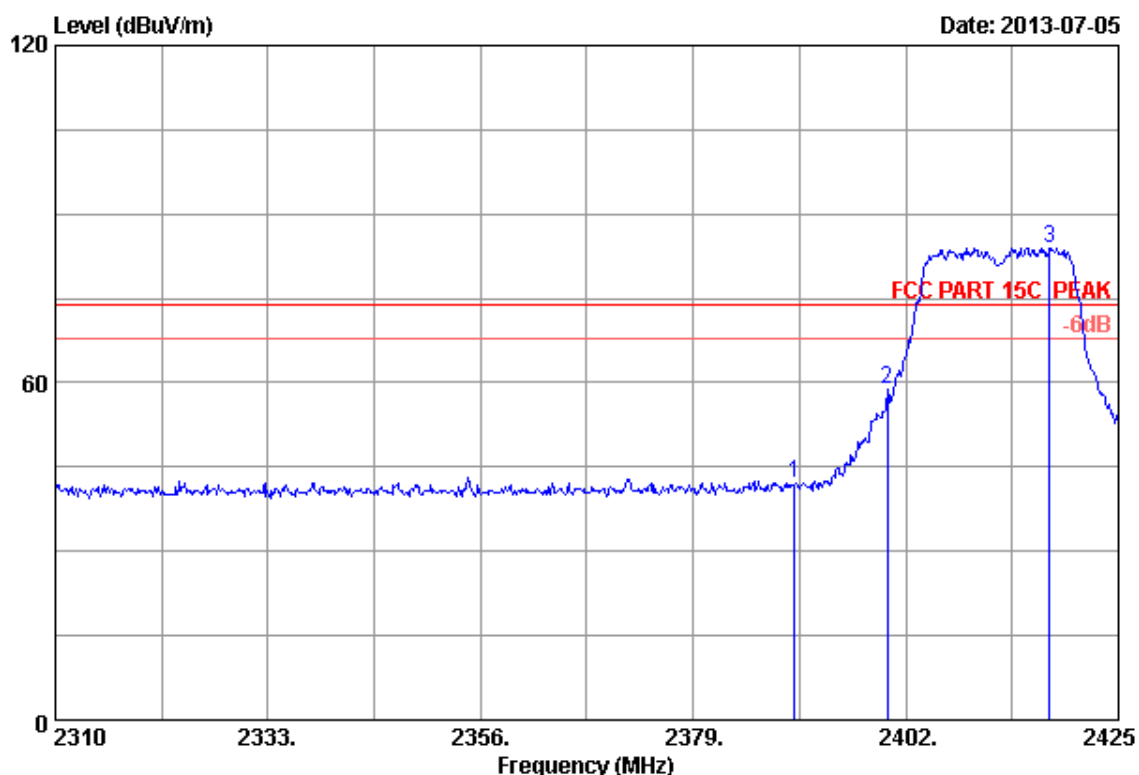
### 5.3.10 Diagram 5-10



	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	2412.000	26.84	5.81	35.70	86.97	83.92			Peak
2	4824.000	32.51	8.58	35.70	44.37	49.76	74.00	24.24	Peak
3	4824.000	32.51	8.58	35.70	35.48	40.87	54.00	13.13	Average

Remarks:

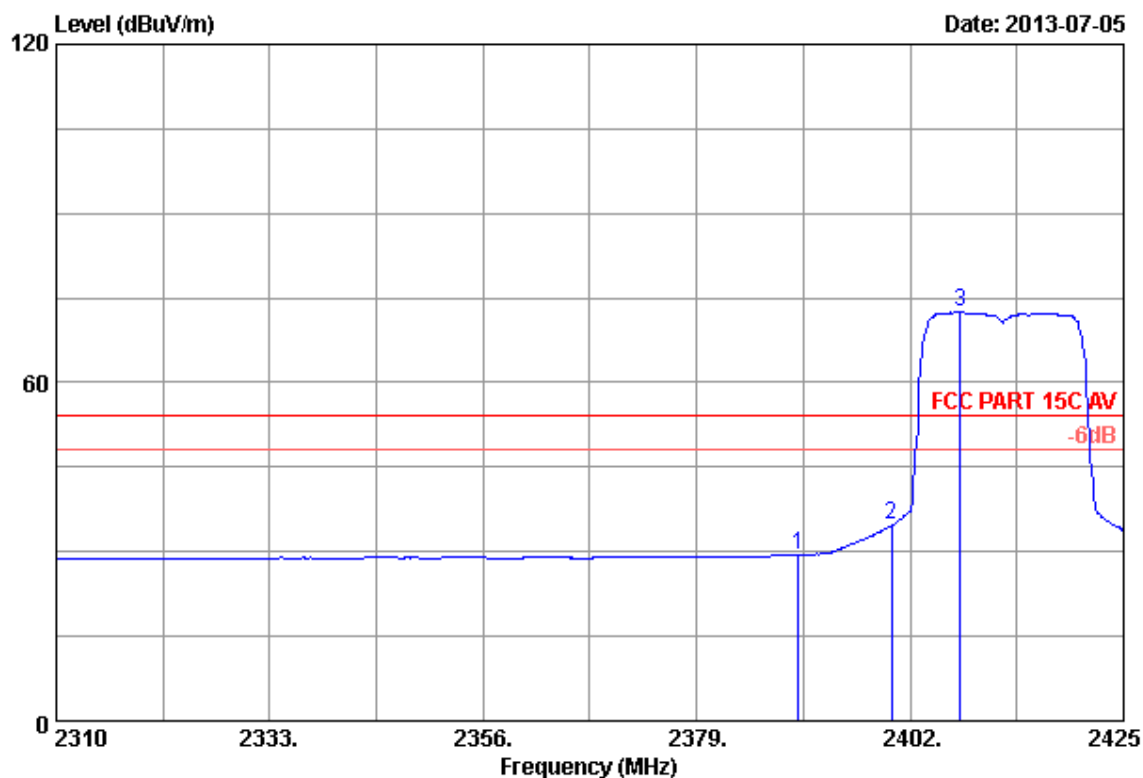
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



	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	26.70	5.78	35.70	45.31	42.09	74.00	31.91	Peak
2	2400.000	26.76	5.80	35.70	61.83	58.69	74.00	15.31	Peak
3	2417.525	26.87	5.82	35.70	86.91	83.90			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.

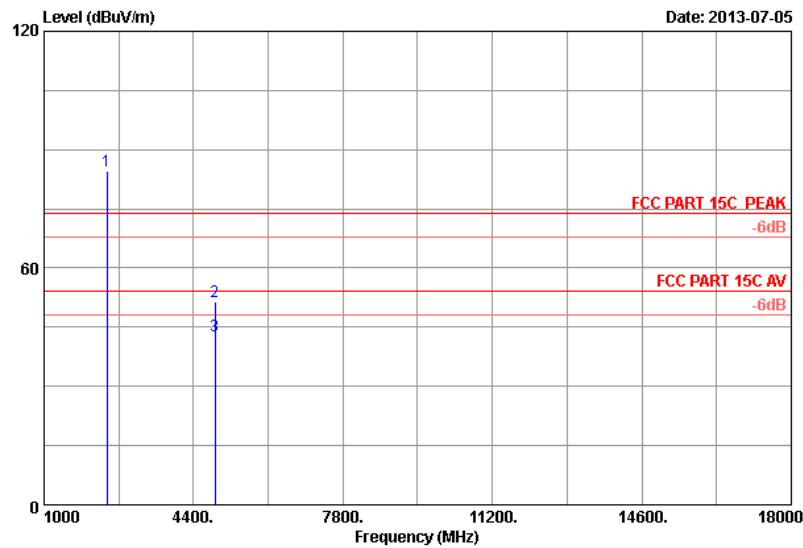
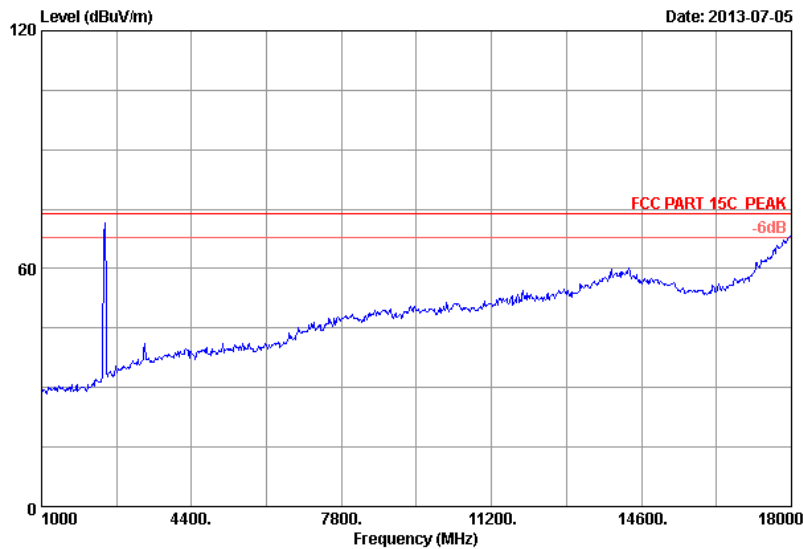


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	26.70	5.78	35.70	32.69	29.47	54.00	24.53	Average
2	2400.000	26.76	5.80	35.70	37.86	34.72	54.00	19.28	Average
3	2407.405	26.81	5.81	35.70	75.52	72.44			Average

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.

### 5.3.11 Diagram 5-11

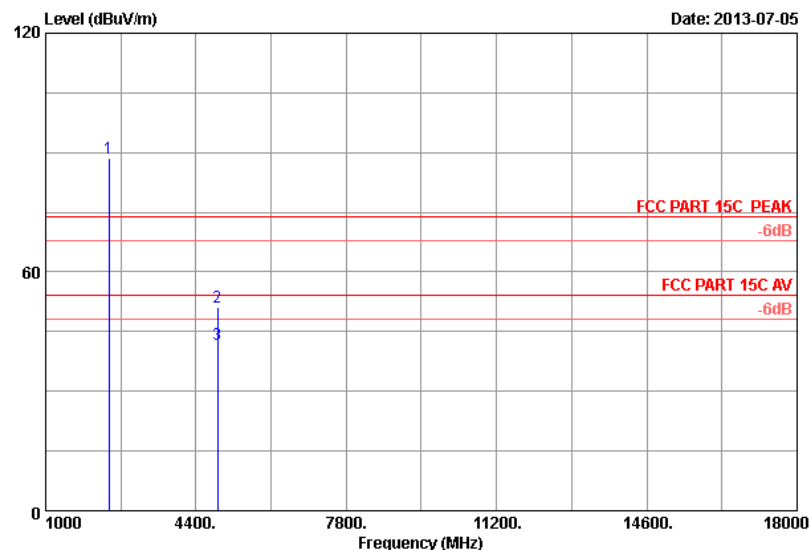
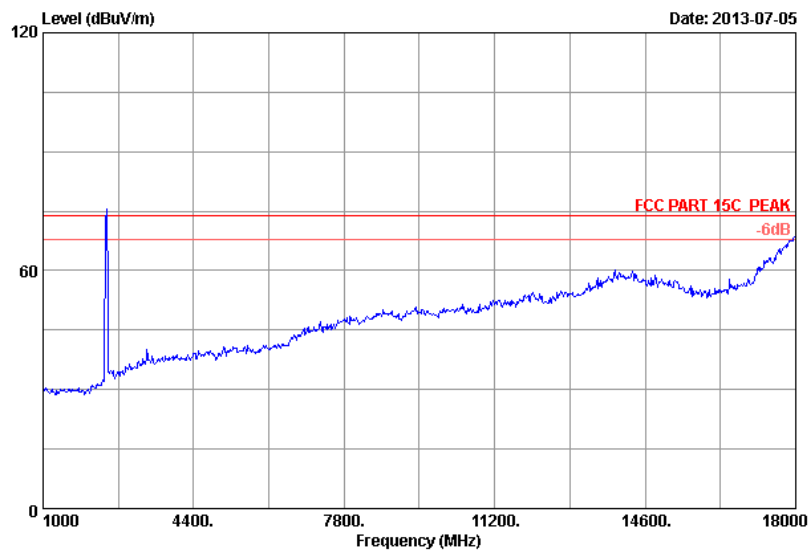


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.000	27.00	5.85	35.70	87.51	84.66			Peak
2	4884.000	32.64	8.64	35.70	45.94	51.52	74.00	22.48	Peak
3	4884.000	32.64	8.64	35.70	37.06	42.64	54.00	11.36	Average

#### 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.

### 5.3.12 Diagram 5-12

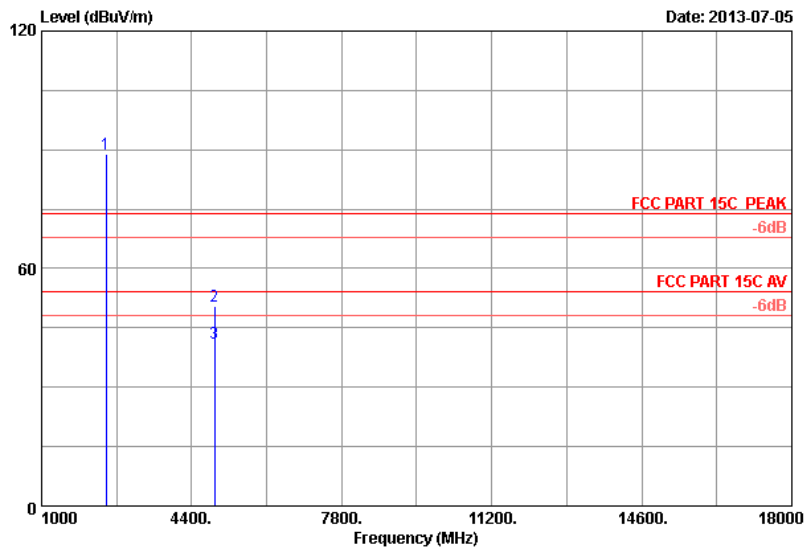
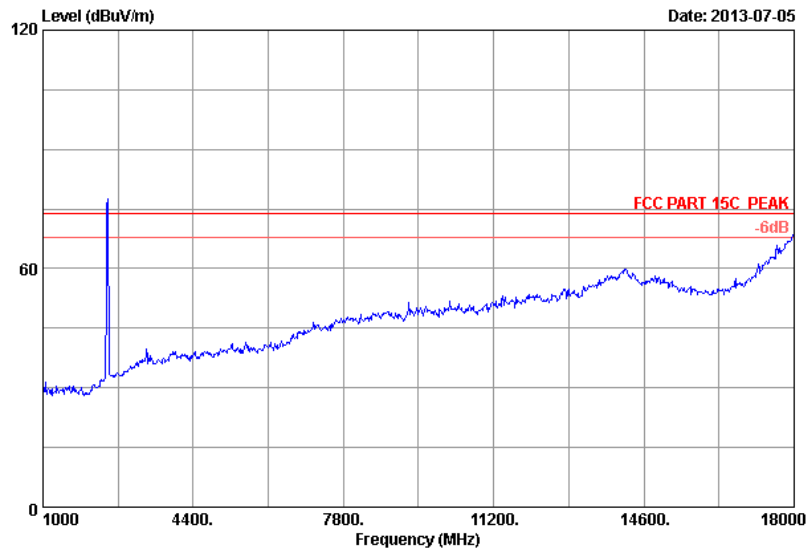


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.000	27.00	5.85	35.70	91.45	88.60			Peak
2	4884.000	32.64	8.64	35.70	45.57	51.15	74.00	22.85	Peak
3	4884.000	32.64	8.64	35.70	36.12	41.70	54.00	12.30	Average

#### 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.

### 5.3.13 Diagram 5-13

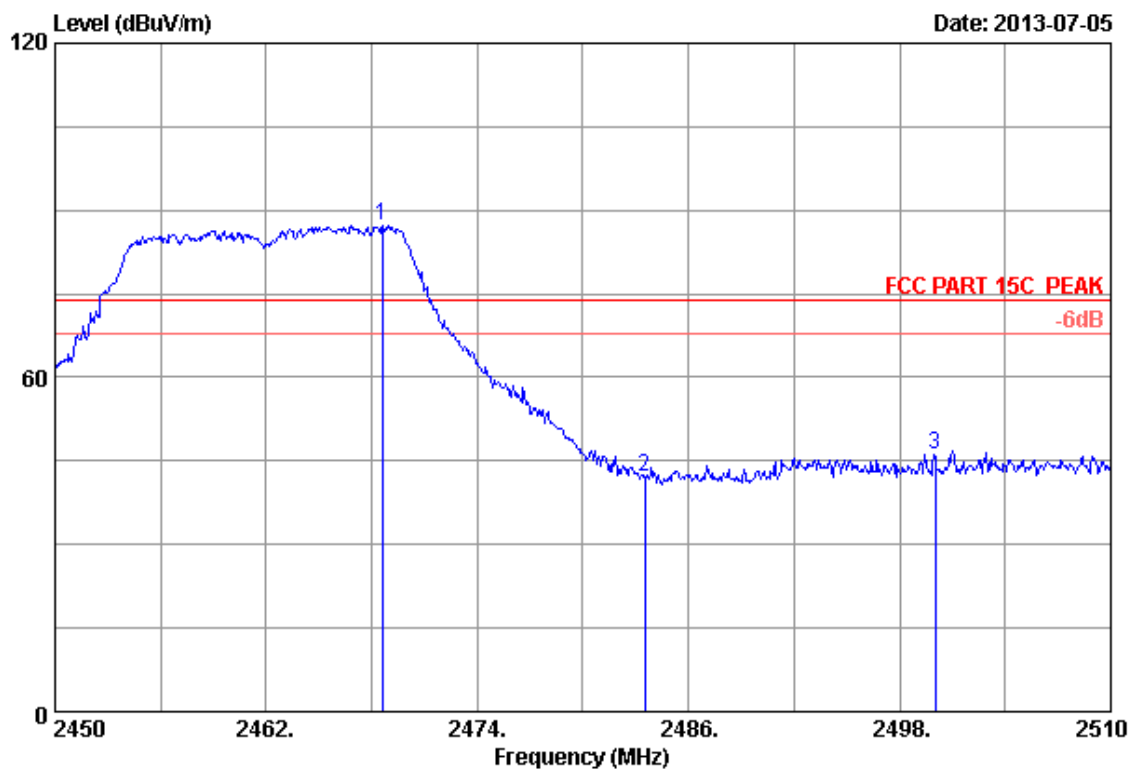


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.000	27.16	5.89	35.70	91.43	88.78			Peak
2	4924.000	32.73	8.69	35.70	44.73	50.45	74.00	23.55	Peak
3	4924.000	32.73	8.69	35.70	35.49	41.21	54.00	12.79	Average

#### 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.



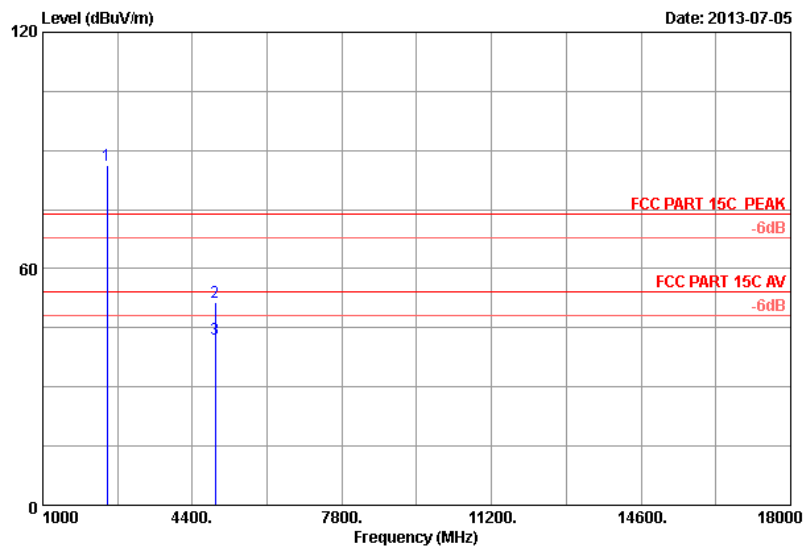
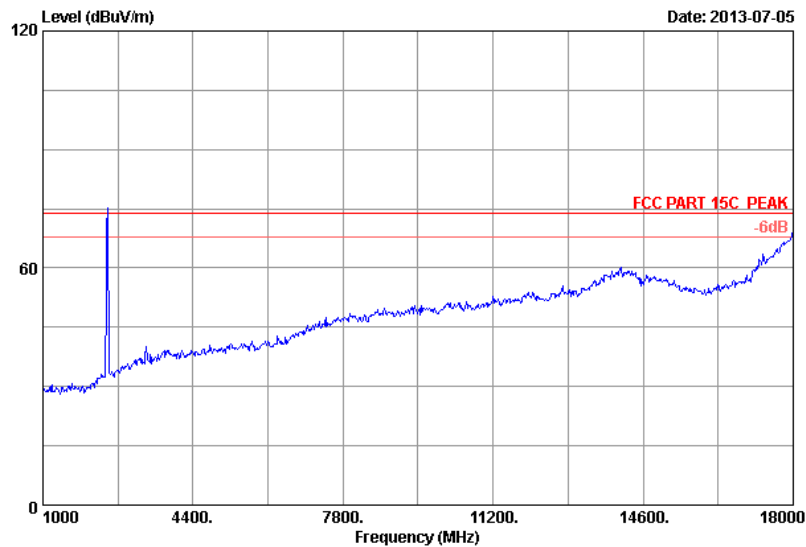


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2468.600	27.20	5.90	35.70	89.96	87.36			Peak
2	2483.500	27.29	5.92	35.70	44.45	41.96	74.00	32.04	Peak
3	2500.000	27.40	5.94	35.70	48.38	46.02	74.00	27.98	Peak

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.

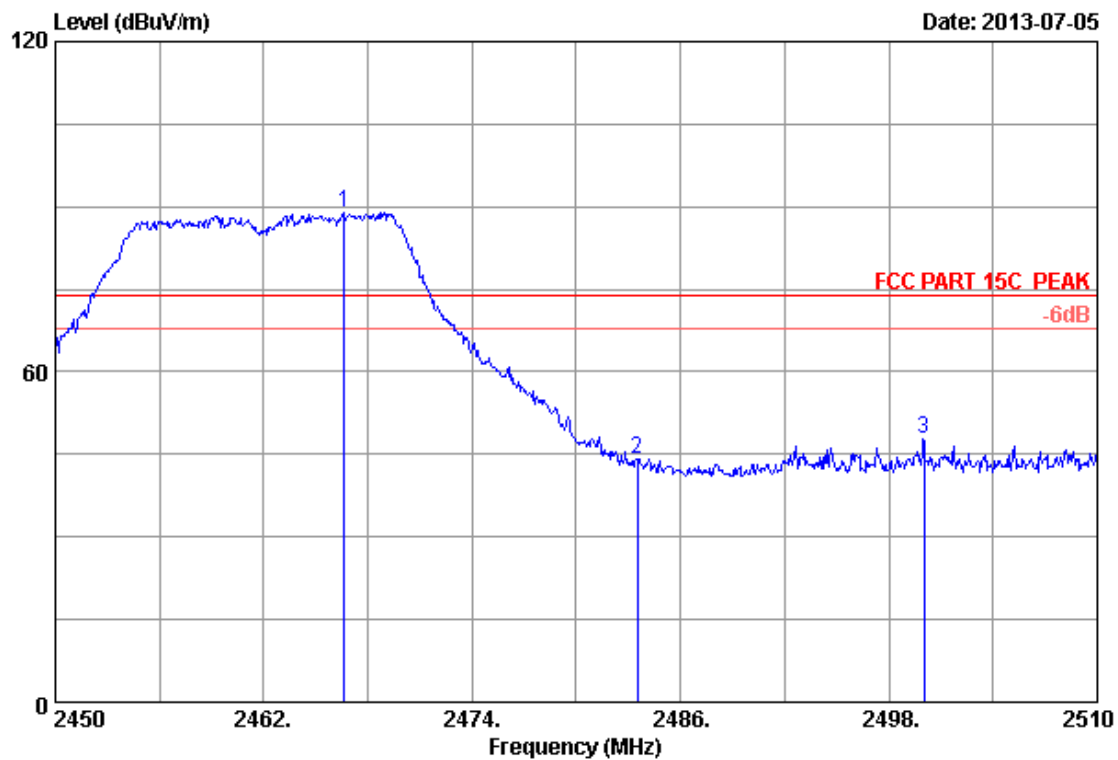
### 5.3.14 Diagram 5-14



	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	2462.000	27.16	5.89	35.70	88.75	86.10			Peak
2	4924.000	32.73	8.69	35.70	45.83	51.55	74.00	22.45	Peak
3	4924.000	32.73	8.69	35.70	36.42	42.14	54.00	11.86	Average

#### 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.

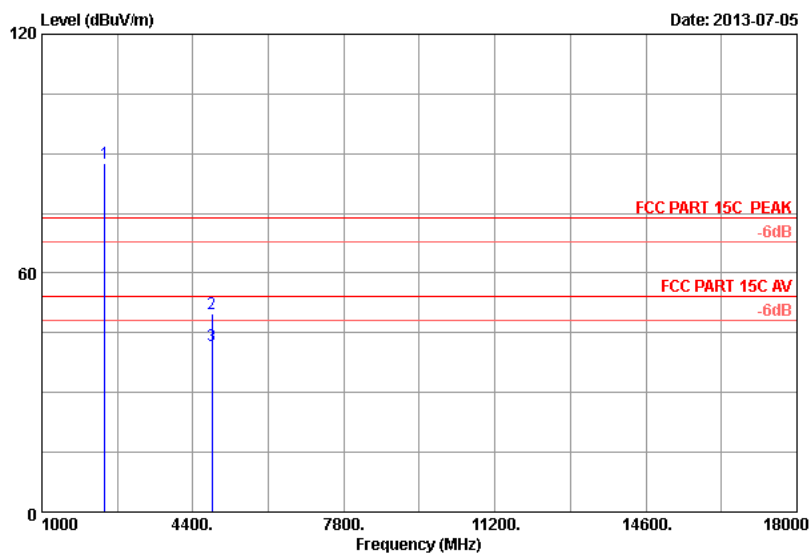
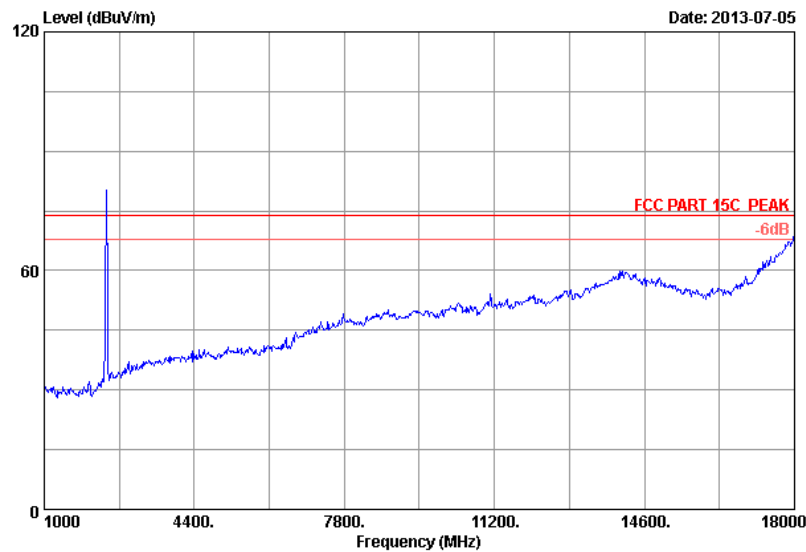


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2466.620	27.19	5.89	35.70	91.50	88.88			Peak
2	2483.500	27.29	5.92	35.70	46.59	44.10	74.00	29.90	Peak
3	2500.000	27.40	5.94	35.70	50.01	47.65	74.00	26.35	Peak

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.

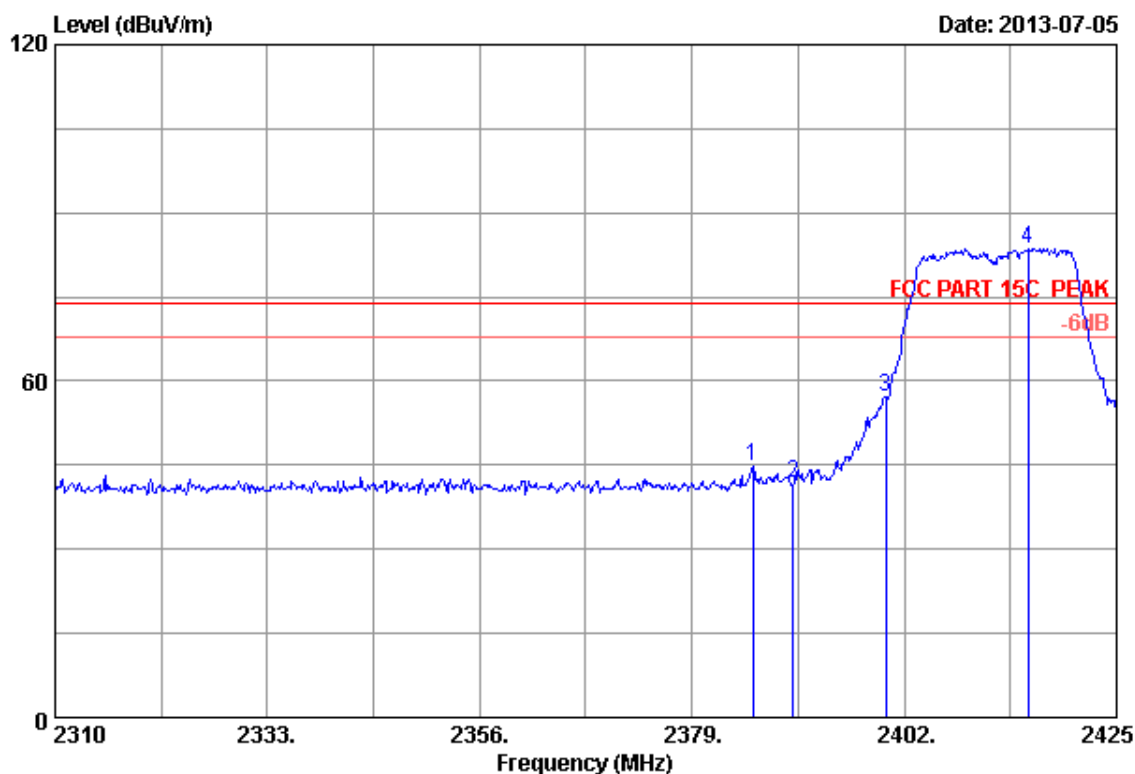
### 5.3.15 Diagram 5-15



	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	2412.000	26.84	5.81	35.70	90.56	87.51			Peak
2	4824.000	32.51	8.58	35.70	44.39	49.78	74.00	24.22	Peak
3	4824.000	32.51	8.58	35.70	36.27	41.66	54.00	12.34	Average

Remarks:

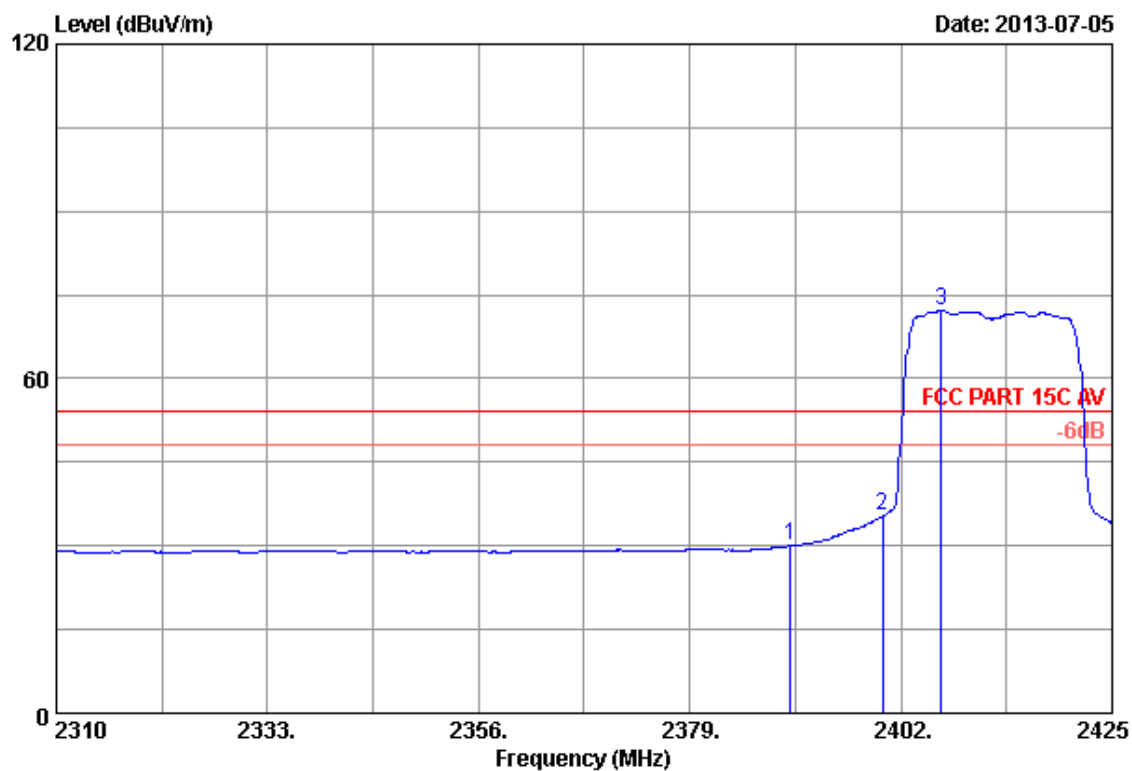
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



	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	2385.555	26.67	5.78	35.70	48.03	44.78	74.00	29.22	Peak
2	2390.000	26.70	5.78	35.70	45.13	41.91	74.00	32.09	Peak
3	2400.000	26.76	5.80	35.70	60.15	57.01	74.00	16.99	Peak
4	2415.455	26.86	5.82	35.70	86.60	83.58			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.

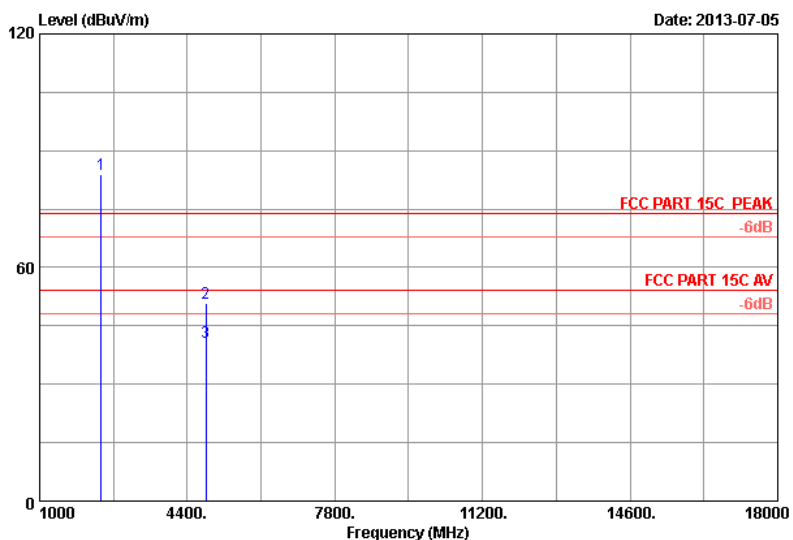
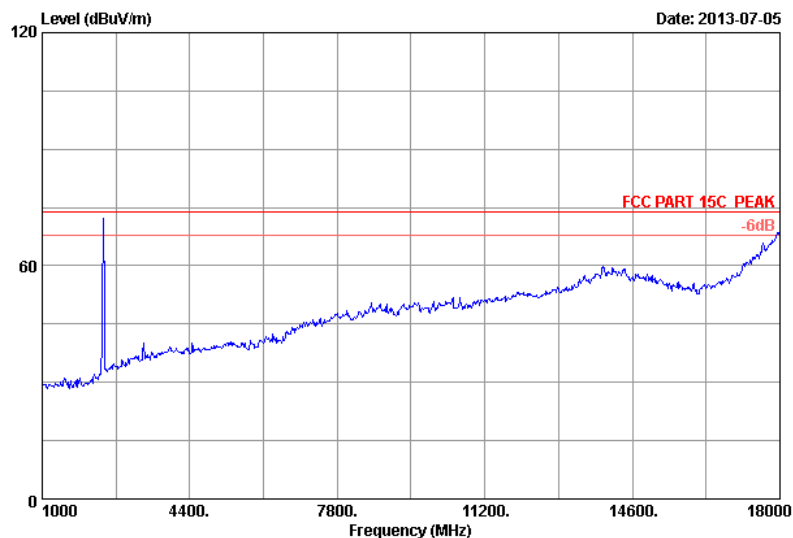


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	26.70	5.78	35.70	33.20	29.98	54.00	24.02	Average
2	2400.000	26.76	5.80	35.70	38.49	35.35	54.00	18.65	Average
3	2406.370	26.80	5.81	35.70	75.23	72.14			Average

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.

### 5.3.16 Diagram 5-16

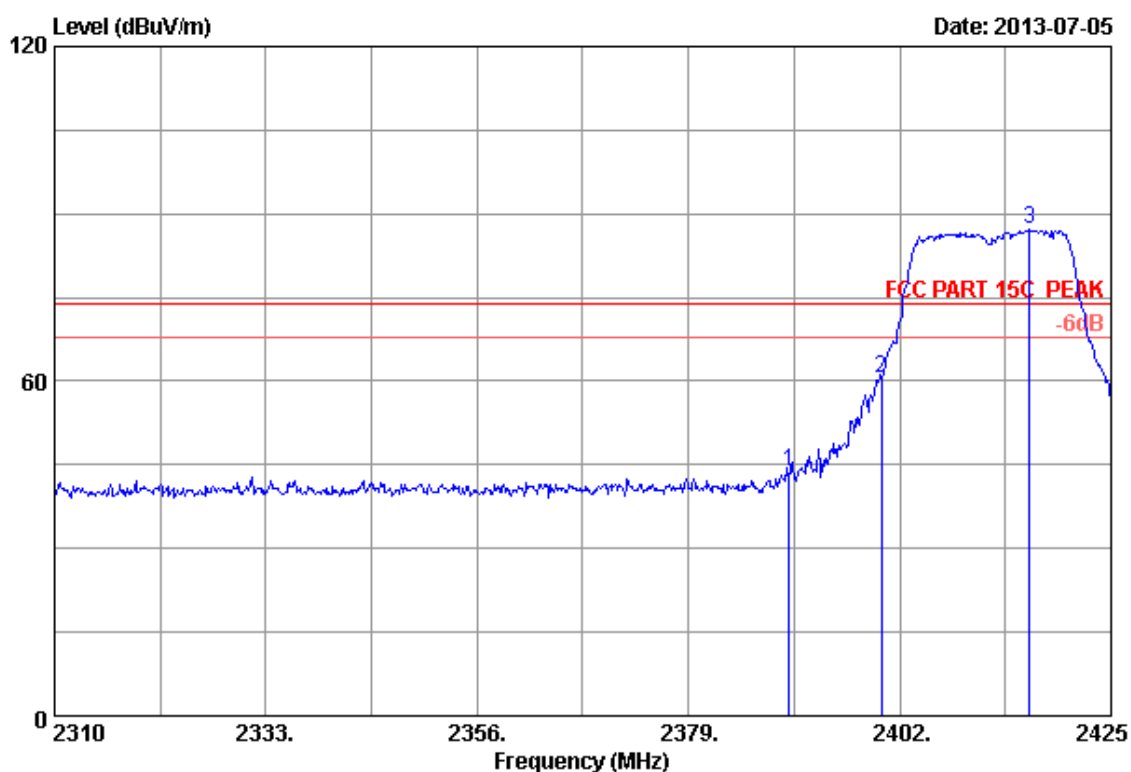


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.000	26.84	5.81	35.70	87.03	83.98			Peak
2	4824.000	32.51	8.58	35.70	45.32	50.71	74.00	23.29	Peak
3	4824.000	32.51	8.58	35.70	35.48	40.87	54.00	13.13	Average

#### 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.

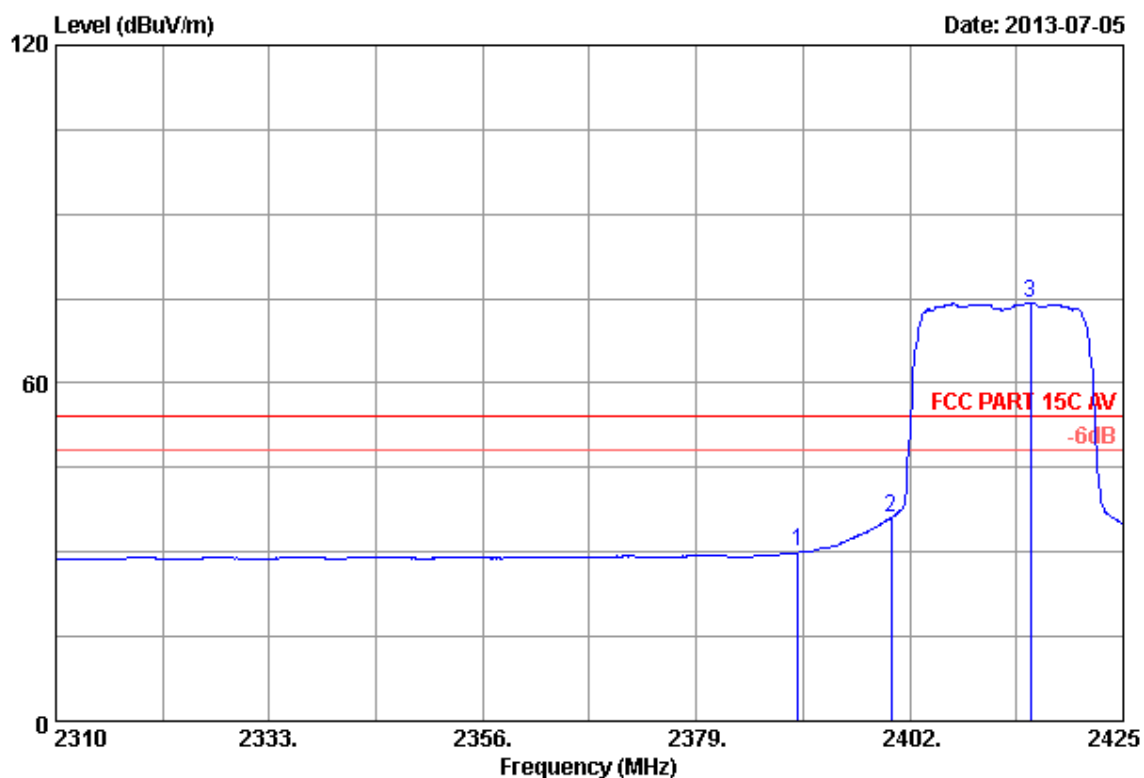


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	26.70	5.78	35.70	46.92	43.70	74.00	30.30	Peak
2	2400.000	26.76	5.80	35.70	63.55	60.41	74.00	13.59	Peak
3	2416.145	26.86	5.82	35.70	90.14	87.12			Peak

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.



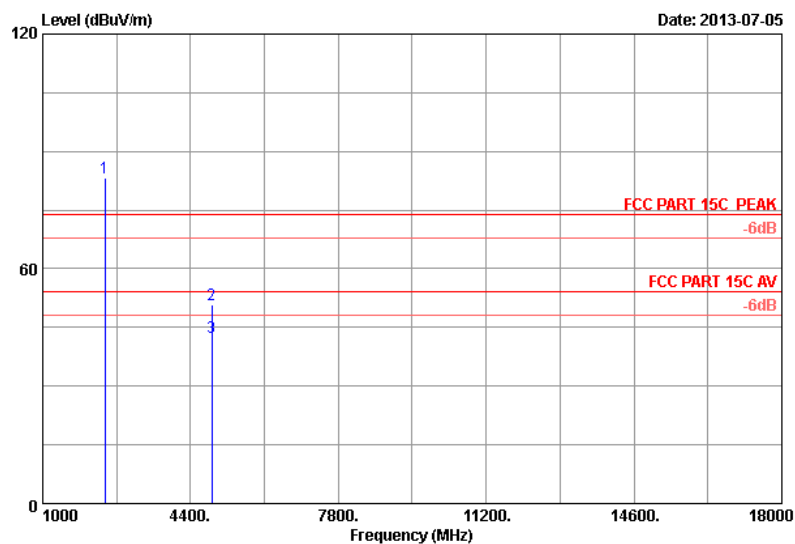
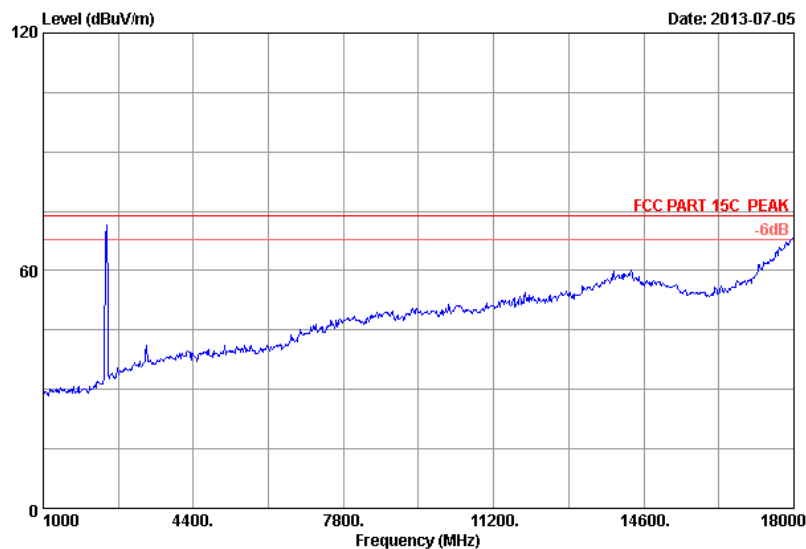


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.000	26.70	5.78	35.70	33.15	29.93	54.00	24.07	Average
2	2400.000	26.76	5.80	35.70	39.33	36.19	54.00	17.81	Average
3	2414.995	26.86	5.82	35.70	77.30	74.28			Average

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.

### 5.3.17 Diagram 5-17

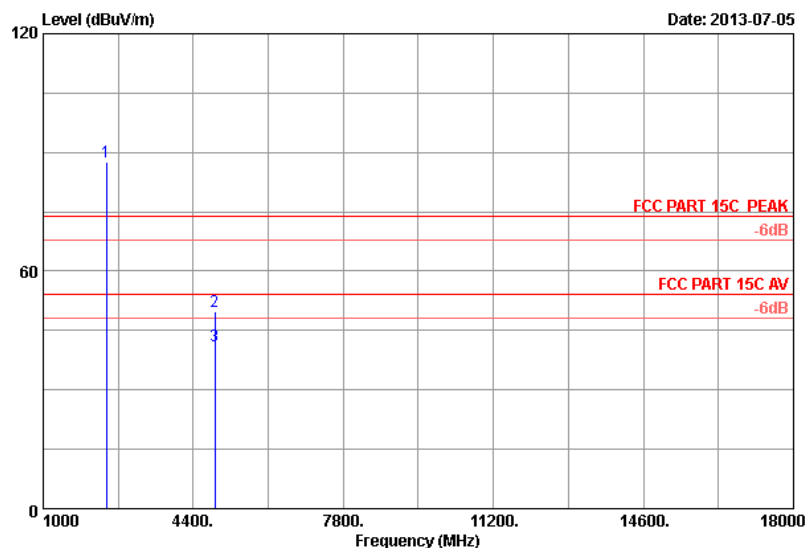
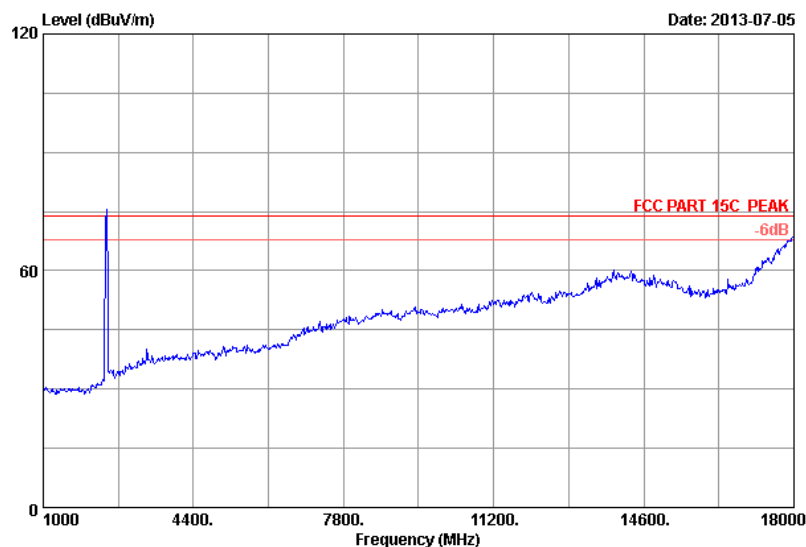


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.000	27.00	5.85	35.70	86.15	83.30			Peak
2	4884.000	32.64	8.64	35.70	45.23	50.81	74.00	23.19	Peak
3	4884.000	32.64	8.64	35.70	36.79	42.37	54.00	11.63	Average

#### 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.

### 5.3.18 Diagram 5-18

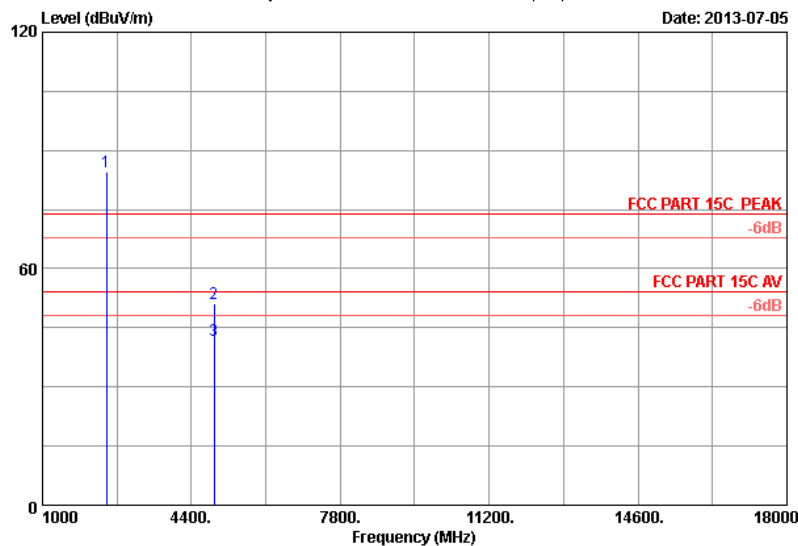
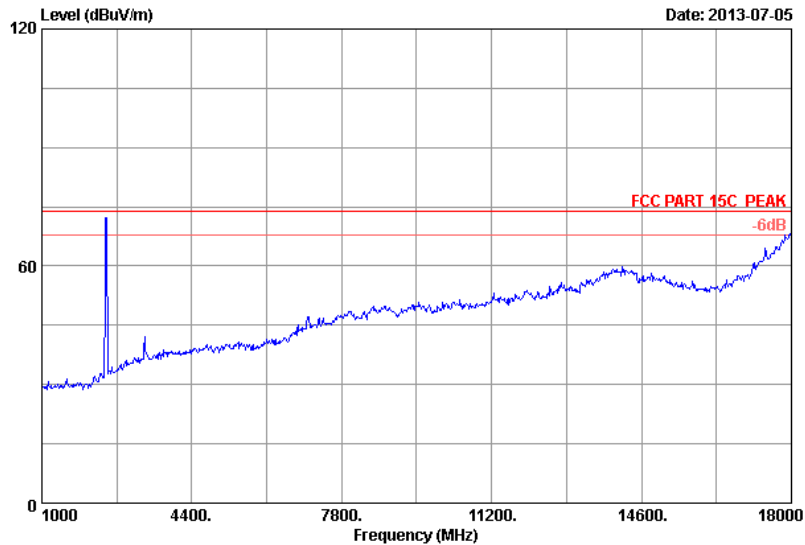


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.000	27.00	5.85	35.70	90.46	87.61			Peak
2	4884.000	32.64	8.64	35.70	44.20	49.78	74.00	24.22	Peak
3	4884.000	32.64	8.64	35.70	35.39	40.97	54.00	13.03	Average

#### 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.

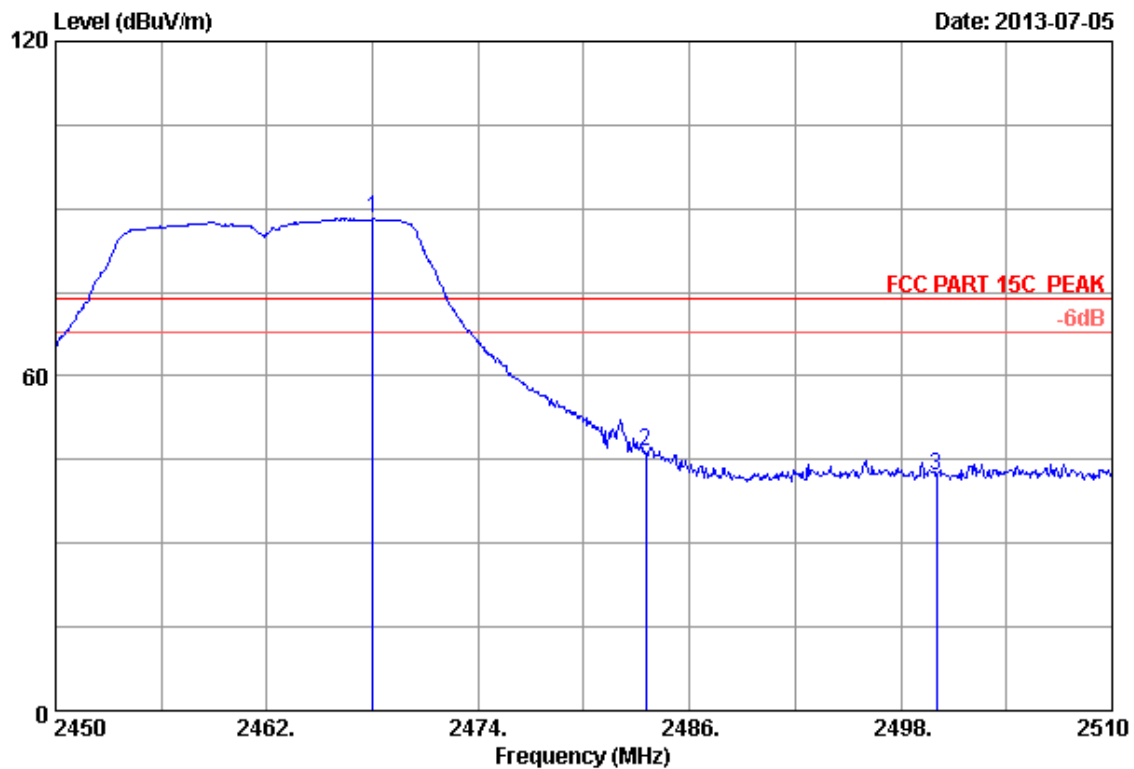
### 5.3.19 Diagram 5-19



	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	2462.000	27.16	5.89	35.70	87.34	84.69			Peak
2	4924.000	32.73	8.69	35.70	45.57	51.29	74.00	22.71	Peak
3	4924.000	32.73	8.69	35.70	36.22	41.94	54.00	12.06	Average

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.

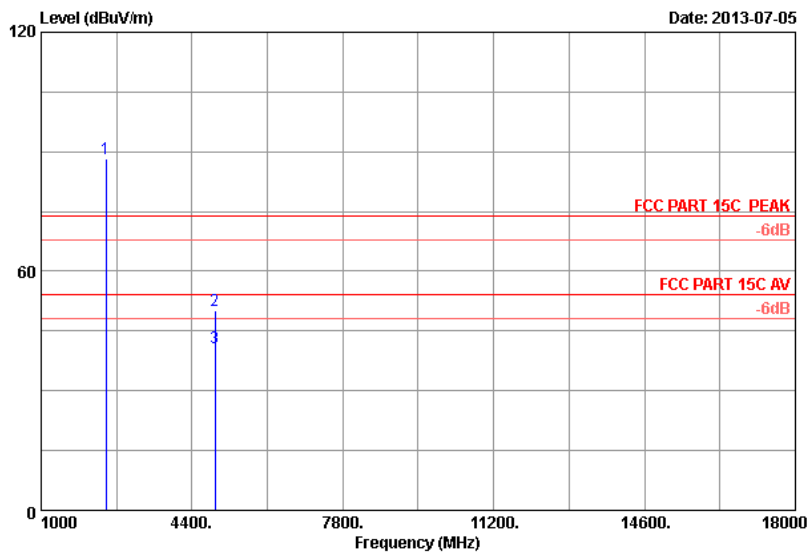
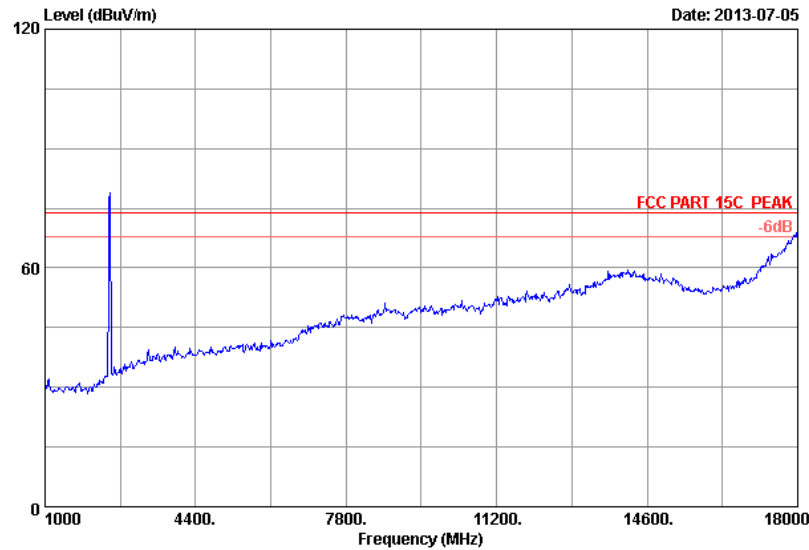


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2468.000	27.20	5.90	35.70	90.85	88.25			Peak
2	2483.500	27.29	5.92	35.70	48.86	46.37	74.00	27.63	Peak
3	2500.000	27.40	5.94	35.70	44.35	41.99	74.00	32.01	Peak

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.

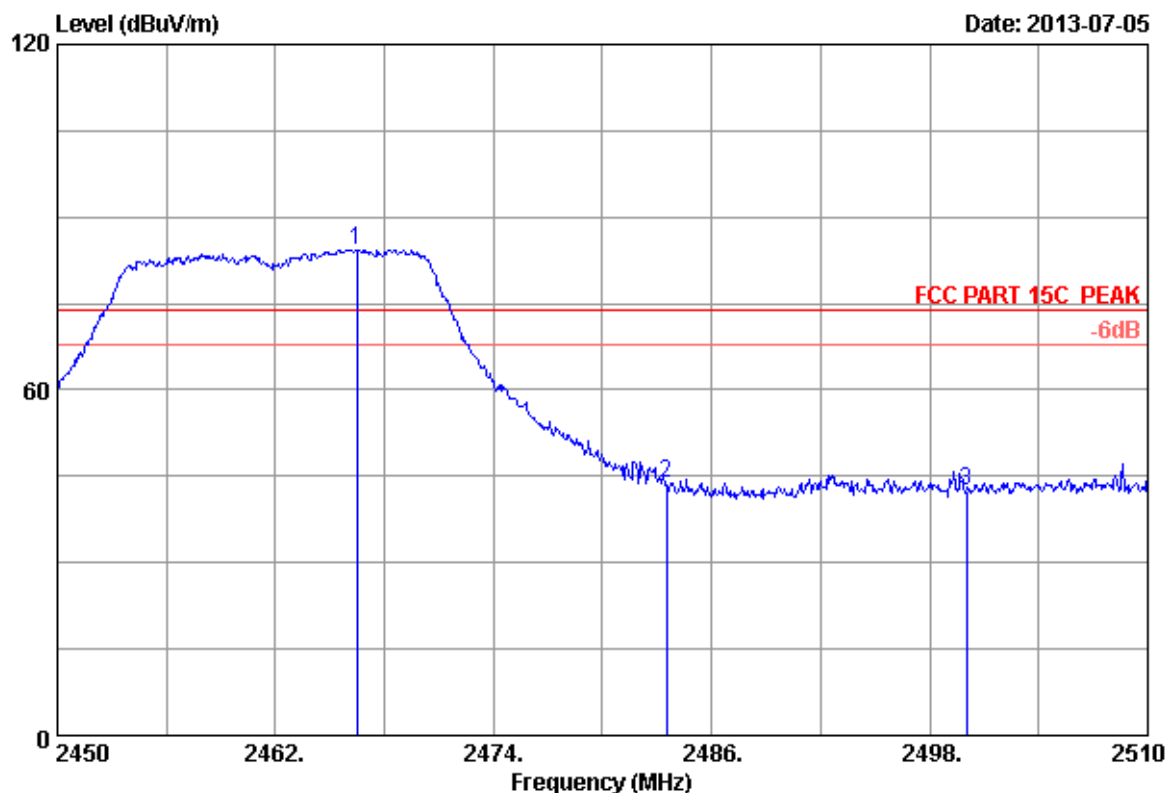
### 5.3.20 Diagram 5-20



	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	2462.000	27.16	5.89	35.70	90.92	88.27			Peak
2	4924.000	32.73	8.69	35.70	44.58	50.30	74.00	23.70	Peak
3	4924.000	32.73	8.69	35.70	34.92	40.64	54.00	13.36	Average

#### 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.

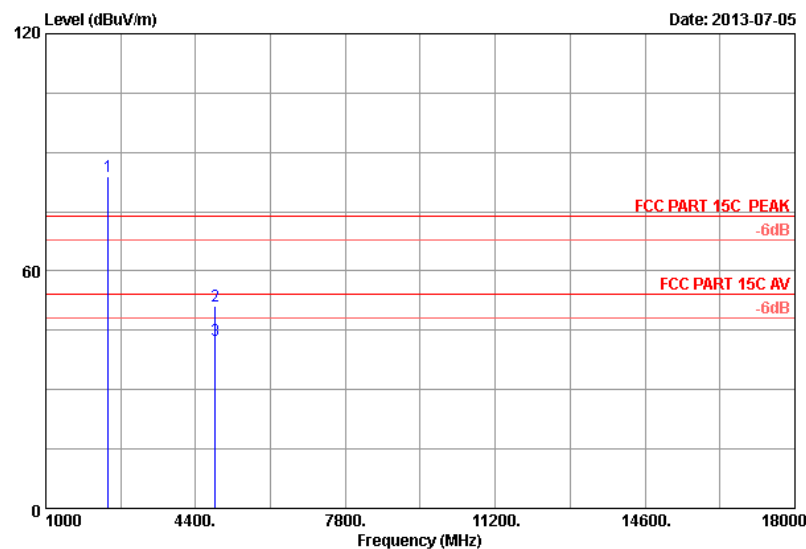
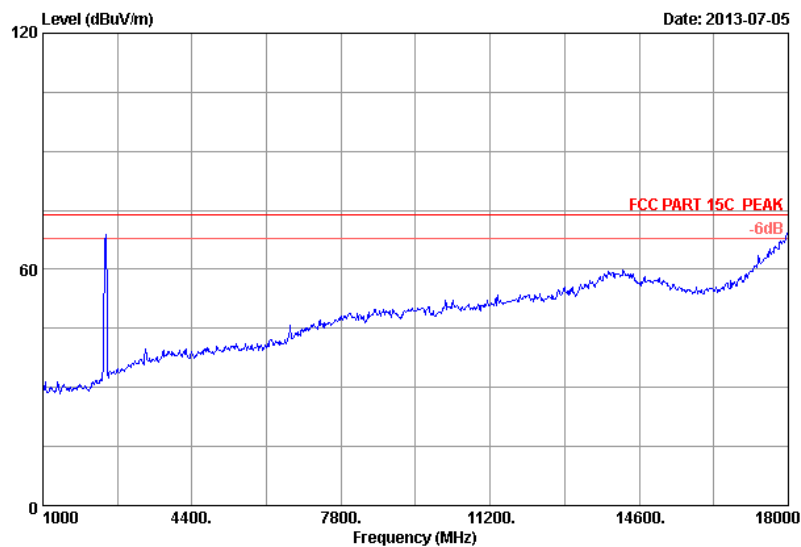


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2466.500	27.19	5.89	35.70	86.99	84.37			Peak
2	2483.500	27.29	5.92	35.70	46.18	43.69	74.00	30.31	Peak
3	2500.000	27.40	5.94	35.70	44.68	42.32	74.00	31.68	Peak

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.

### 5.3.21 Diagram 5-21

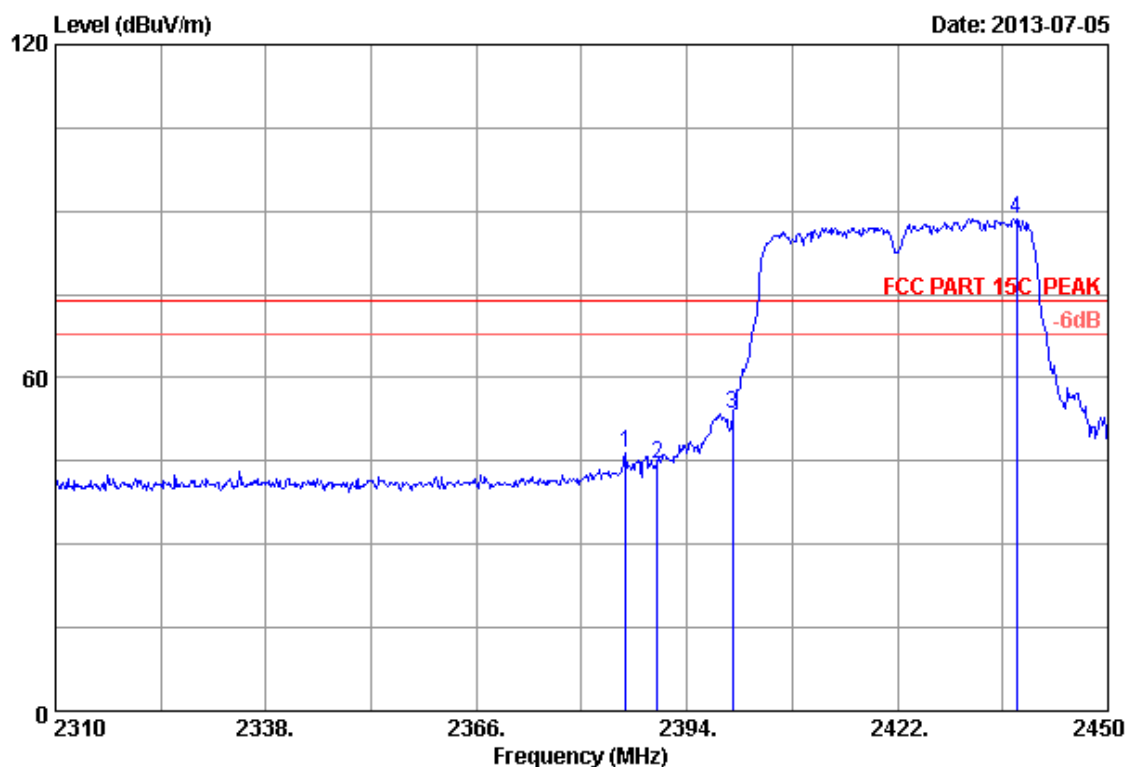


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2422.000	26.90	5.83	35.70	86.76	83.79			Peak
2	4844.000	32.56	8.60	35.70	45.58	51.04	74.00	22.96	Peak
3	4844.000	32.56	8.60	35.70	37.02	42.48	54.00	11.52	Average

#### 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.



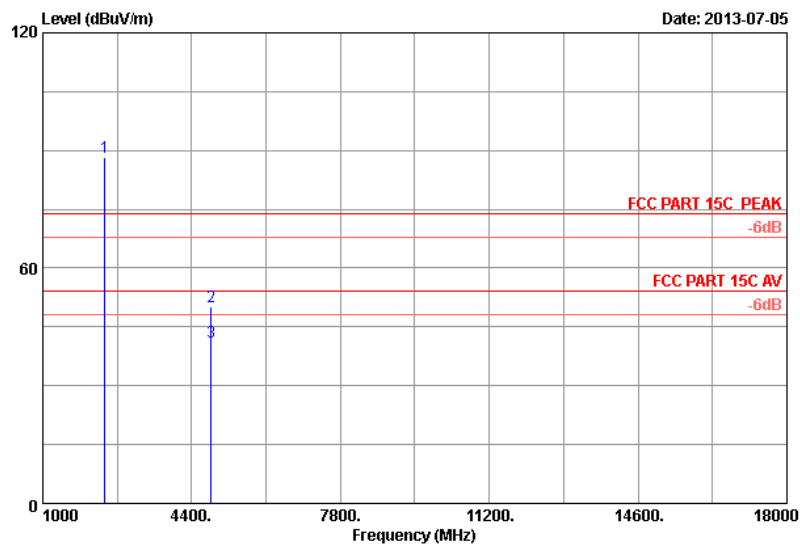
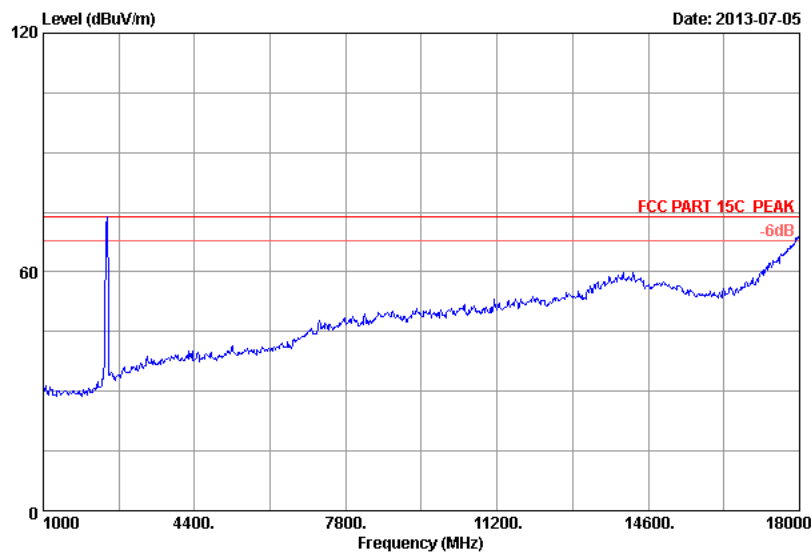


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2385.880	26.67	5.78	35.70	49.57	46.32	74.00	27.68	Peak
2	2390.000	26.70	5.78	35.70	47.59	44.37	74.00	29.63	Peak
3	2400.000	26.76	5.80	35.70	56.75	53.61	74.00	20.39	Peak
4	2437.820	27.00	5.85	35.70	91.58	88.73			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.

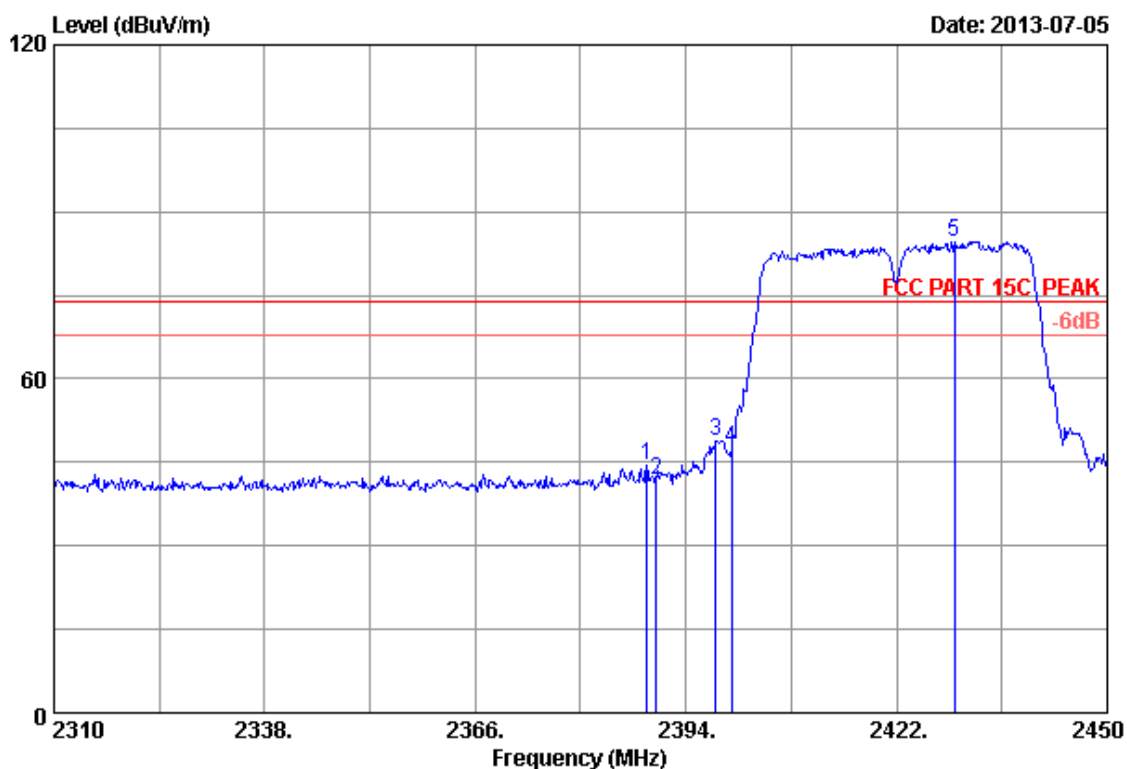
### 5.3.22 Diagram 5-22



	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	2422.000	26.90	5.83	35.70	91.22	88.25			Peak
2	4844.000	32.56	8.60	35.70	44.73	50.19	74.00	23.81	Peak
3	4844.000	32.56	8.60	35.70	35.49	40.95	54.00	13.05	Average

#### 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.

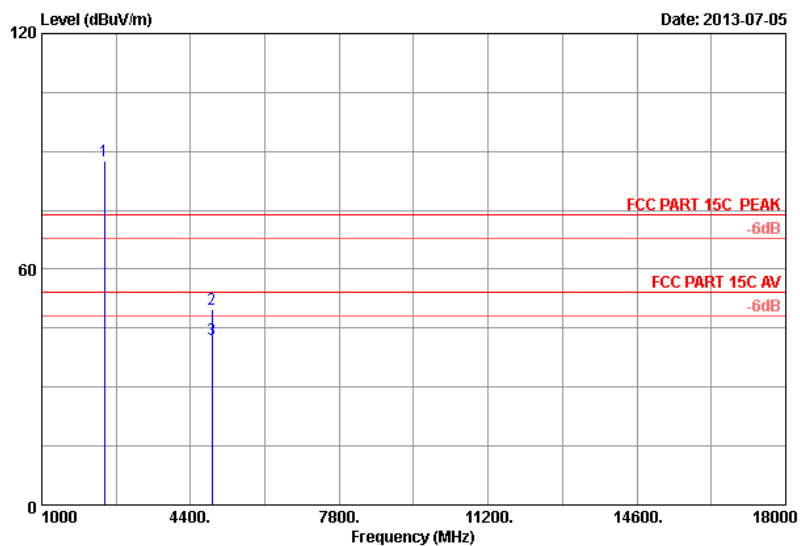
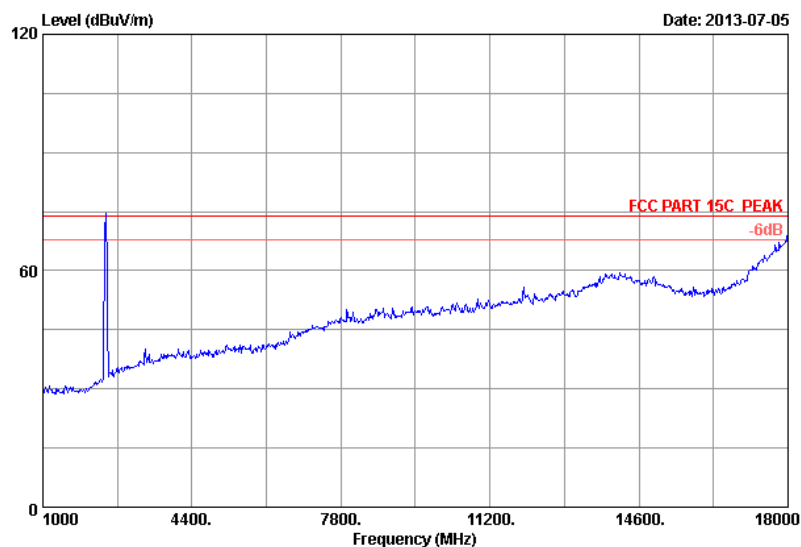


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2388.820	26.69	5.78	35.70	47.62	44.39	74.00	29.61	Peak
2	2390.000	26.70	5.78	35.70	44.84	41.62	74.00	32.38	Peak
3	2397.920	26.75	5.79	35.70	52.13	48.97	74.00	25.03	Peak
4	2400.000	26.76	5.80	35.70	50.51	47.37	74.00	26.63	Peak
5	2429.700	26.95	5.84	35.70	87.50	84.59			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.

### 5.3.23 Diagram 5-23

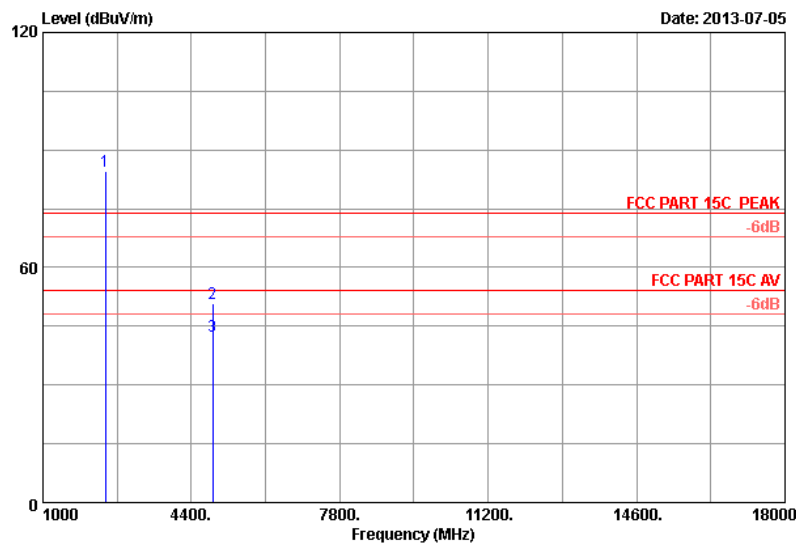
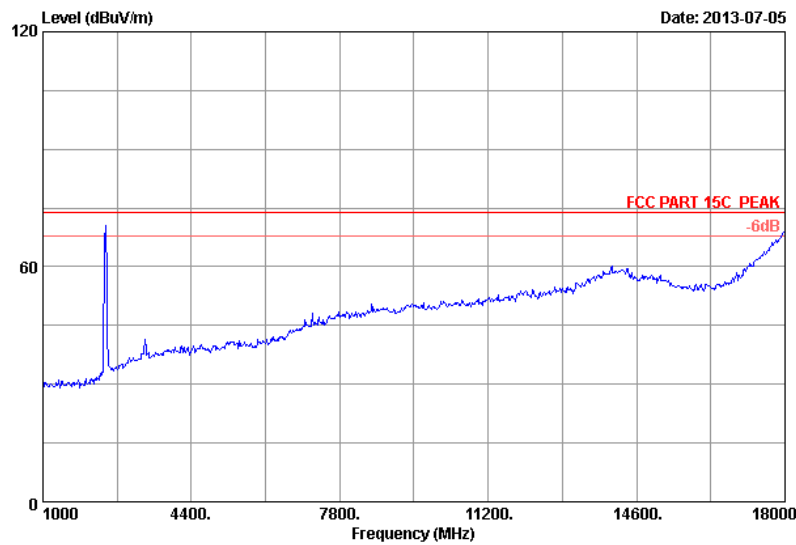


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.000	27.00	5.85	35.70	90.38	87.53			Peak
2	4884.000	32.64	8.64	35.70	44.30	49.88	74.00	24.12	Peak
3	4884.000	32.64	8.64	35.70	36.52	42.10	54.00	11.90	Average

#### 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.

### 5.3.24 Diagram 5-24

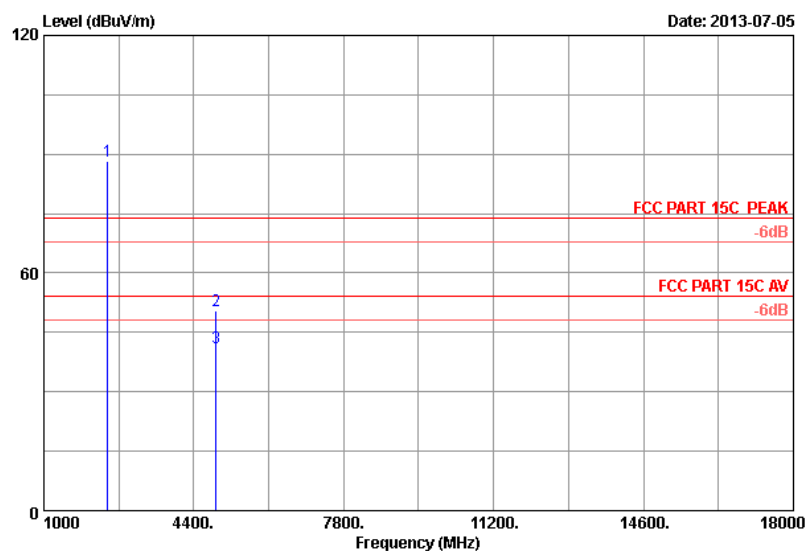
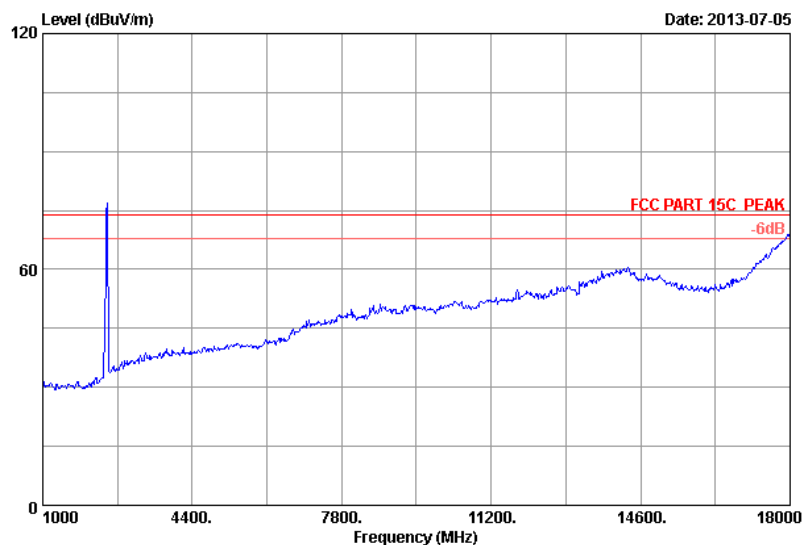


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.000	27.00	5.85	35.70	87.48	84.63			Peak
2	4884.000	32.64	8.64	35.70	45.27	50.85	74.00	23.15	Peak
3	4884.000	32.64	8.64	35.70	37.00	42.58	54.00	11.42	Average

#### 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.

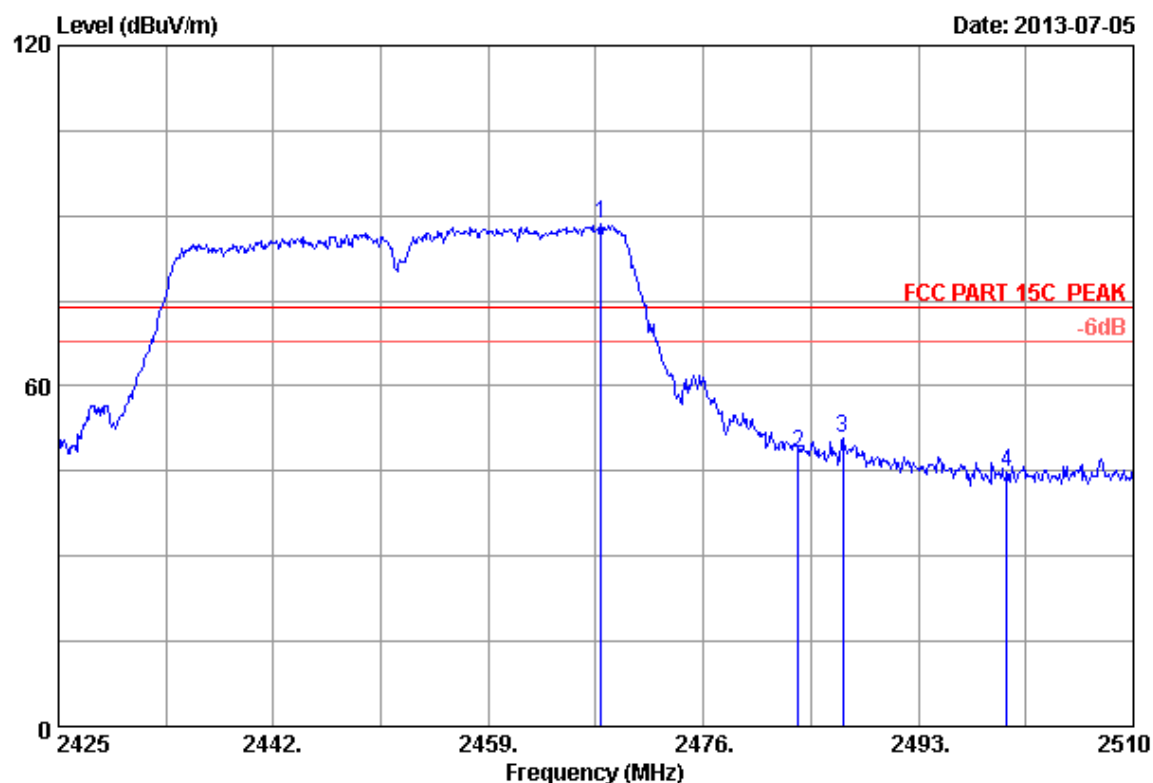
### 5.3.25 Diagram 5-25



	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	2452.000	27.09	5.87	35.70	91.14	88.40			Peak
2	4904.000	32.69	8.66	35.70	44.83	50.48	74.00	23.52	Peak
3	4904.000	32.69	8.66	35.70	35.48	41.13	54.00	12.87	Average

#### 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.

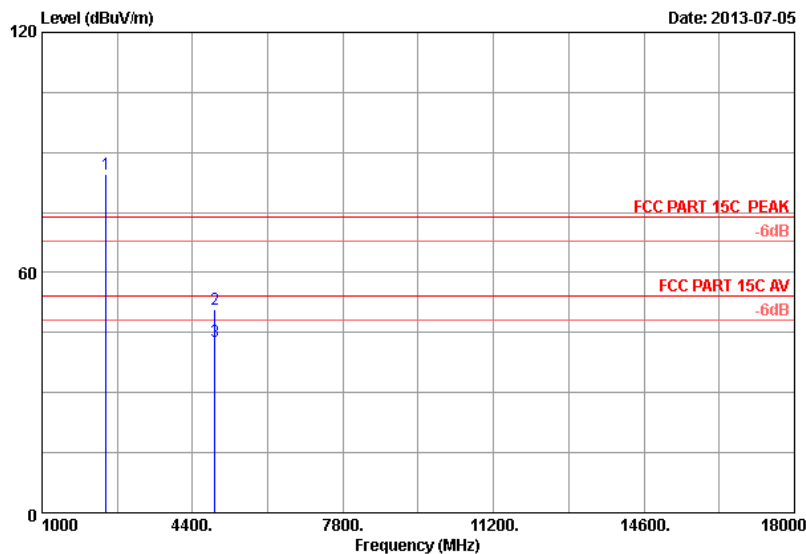
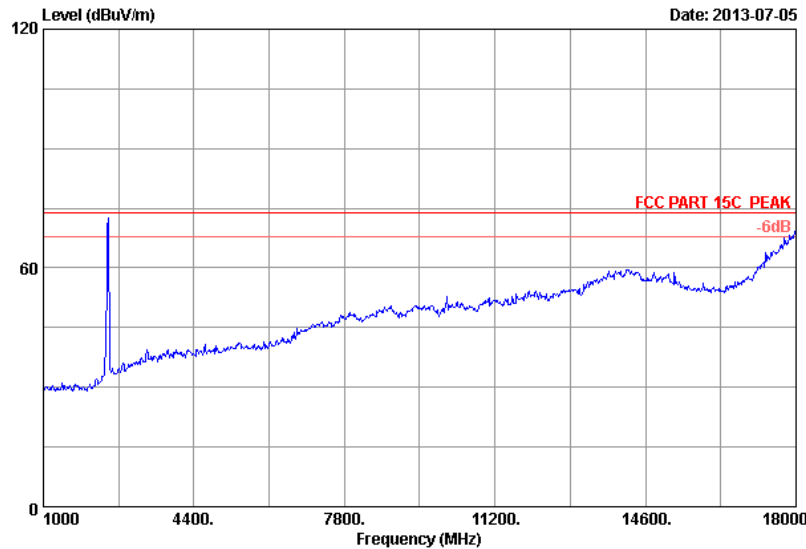


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2467.925	27.19	5.90	35.70	91.20	88.59			Peak
2	2483.500	27.29	5.92	35.70	50.62	48.13	74.00	25.87	Peak
3	2487.050	27.32	5.92	35.70	53.28	50.82	74.00	23.18	Peak
4	2500.000	27.40	5.94	35.70	47.09	44.73	74.00	29.27	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.

### 5.3.26 Diagram 5-26

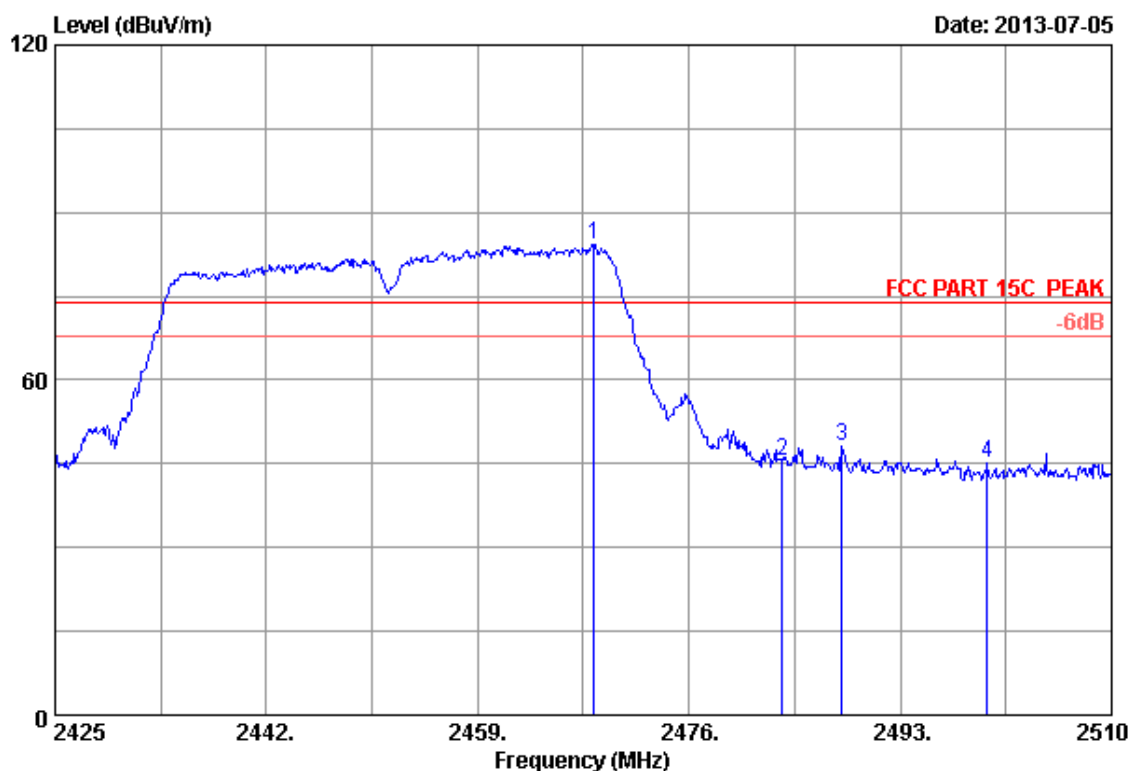


	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2452.000	27.09	5.87	35.70	87.24	84.50			Peak
2	4904.000	32.69	8.66	35.70	45.28	50.93	74.00	23.07	Peak
3	4904.000	32.69	8.66	35.70	37.03	42.68	54.00	11.32	Average

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.





	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	2468.350	27.20	5.90	35.70	87.00	84.40			Peak
2	2483.500	27.29	5.92	35.70	47.90	45.41	74.00	28.59	Peak
3	2488.325	27.33	5.93	35.70	50.64	48.20	74.00	25.80	Peak
4	2500.000	27.40	5.94	35.70	47.46	45.10	74.00	28.90	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.

## 6. 6dB Bandwidth test

### 6.1 Test Procedure

#### 6dB Bandwidth:

Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

The transmitter output was connected to a spectrum analyzer. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 KHz RBW and 300 KHz VBW. The 6dB bandwidth is defined as the total spectrum with the power of which is lower than peak power for 6dB.

1. Set resolution bandwidth (RBW) = 1-5% or DTS BW, not to exceed 100 kHz.
2. Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### 6.2 Measurement Equipment

Item	Equipment	Last Calibration	Type	Serial No.	Manufacturer
1	Spectrum	May.08, 13	E4446A	US44300459	Agilent

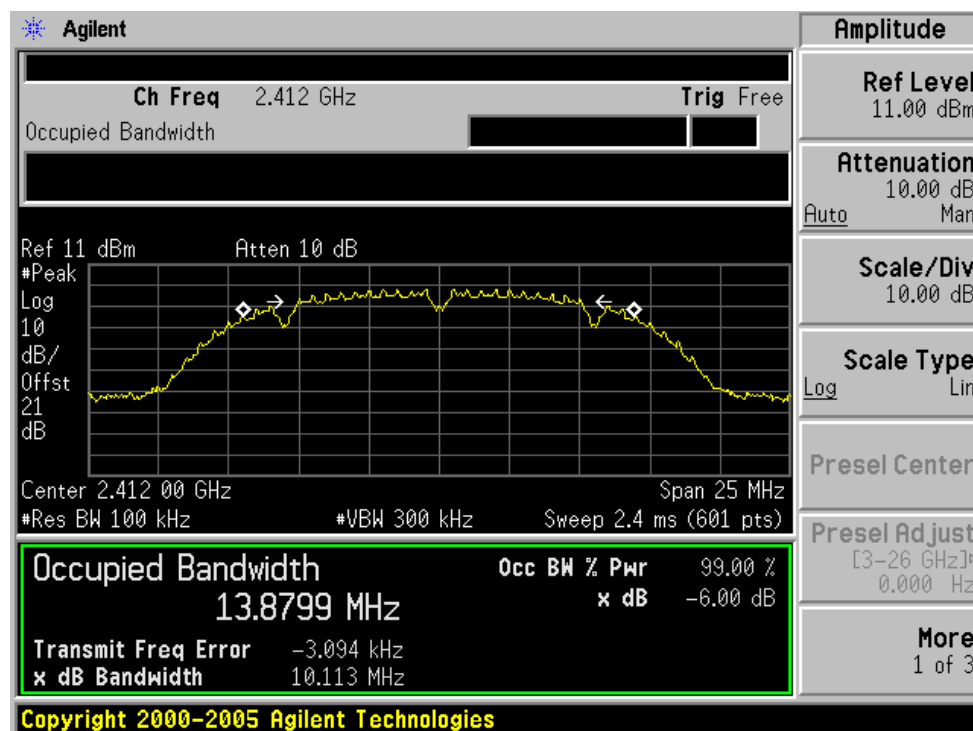
### 6.3 Test Result

Remark : Conducted measurement .

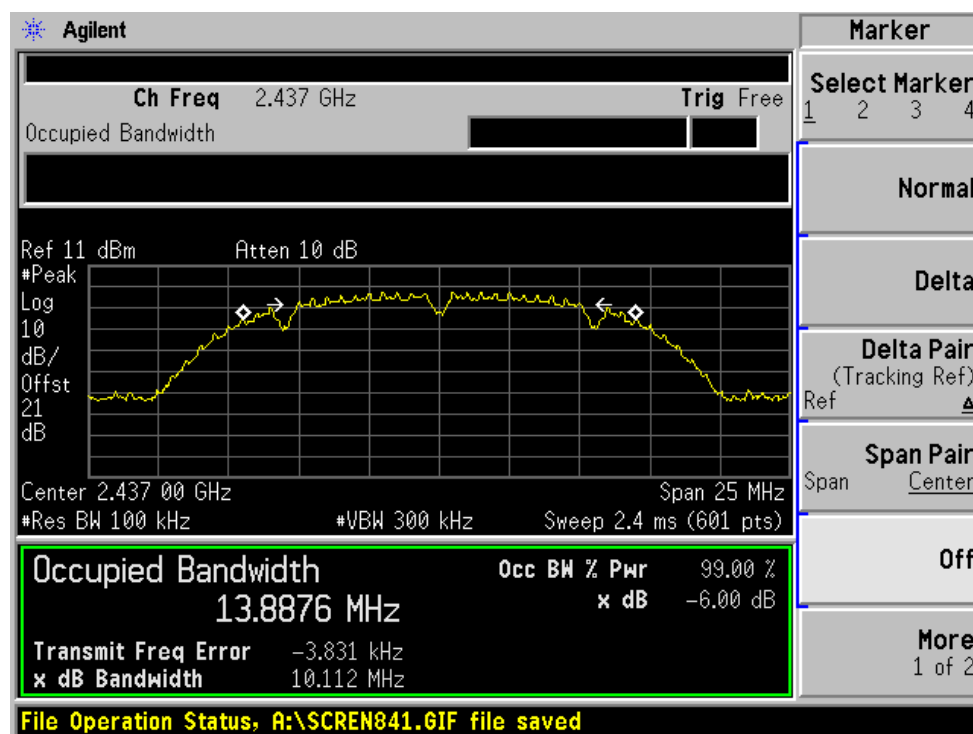
#### 6dB Bandwidth:

802.11b				
Channel	Diagram	6dB bandwidth MHz	>Limit kHz	Result
low	6-1	10.113	500	PASS
mid	6-2	10.112	500	PASS
high	6-3	10.429	500	PASS
802.11g				
Channel	Diagram	6dB bandwidth MHz	>Limit kHz	Result
low	6-4	16.392	500	PASS
mid	6-5	16.370	500	PASS
high	6-6	16.148	500	PASS
802.11n H20				
Channel	Diagram	6dB bandwidth MHz	>Limit kHz	Result
low	6-7	17.572	500	PASS
mid	6-8	17.591	500	PASS
high	6-9	17.570	500	PASS
802.11n H40				
Channel	Diagram	6dB bandwidth MHz	>Limit kHz	Result
low	6-10	36.371	500	PASS
mid	6-11	36.362	500	PASS
high	6-12	36.343	500	PASS

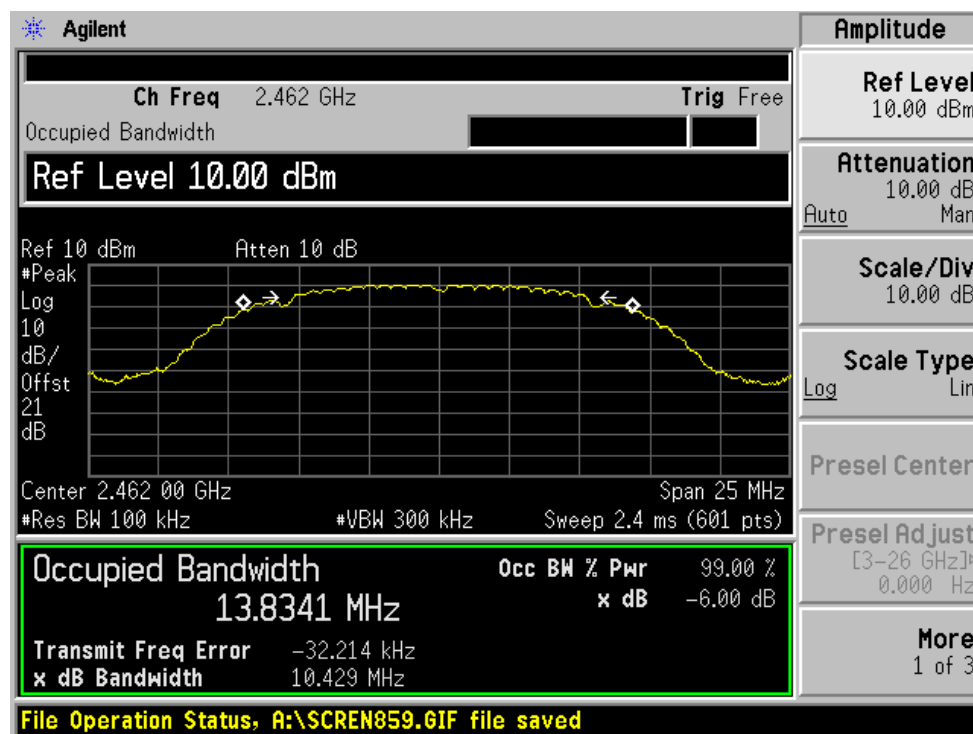
### 6.3.1 Diagram 6-1



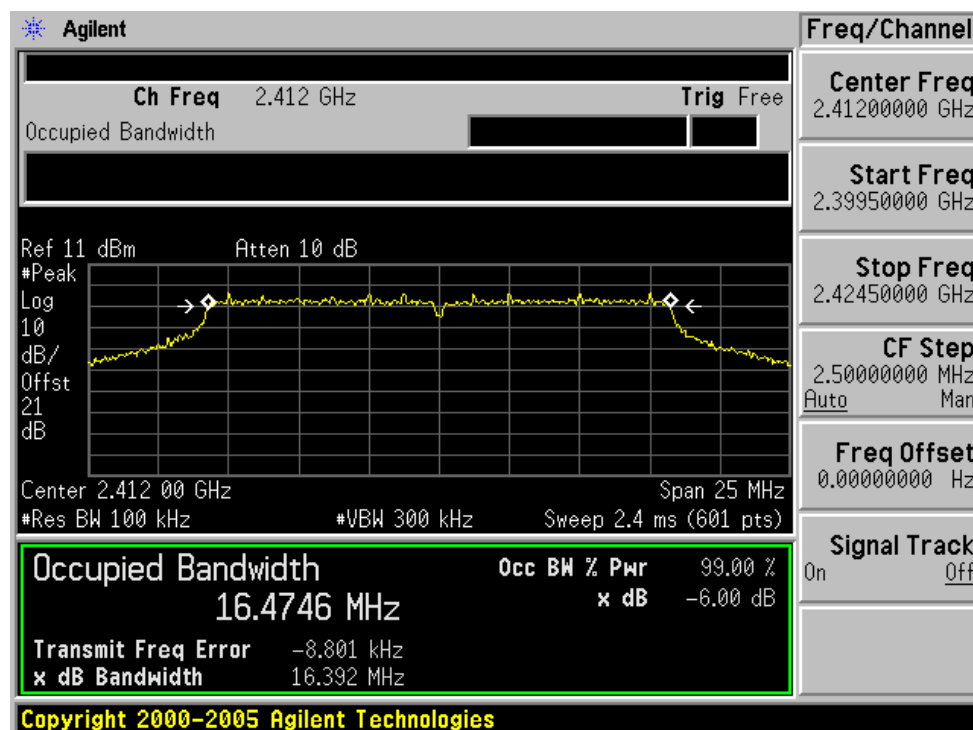
### 6.3.2 Diagram 6-2



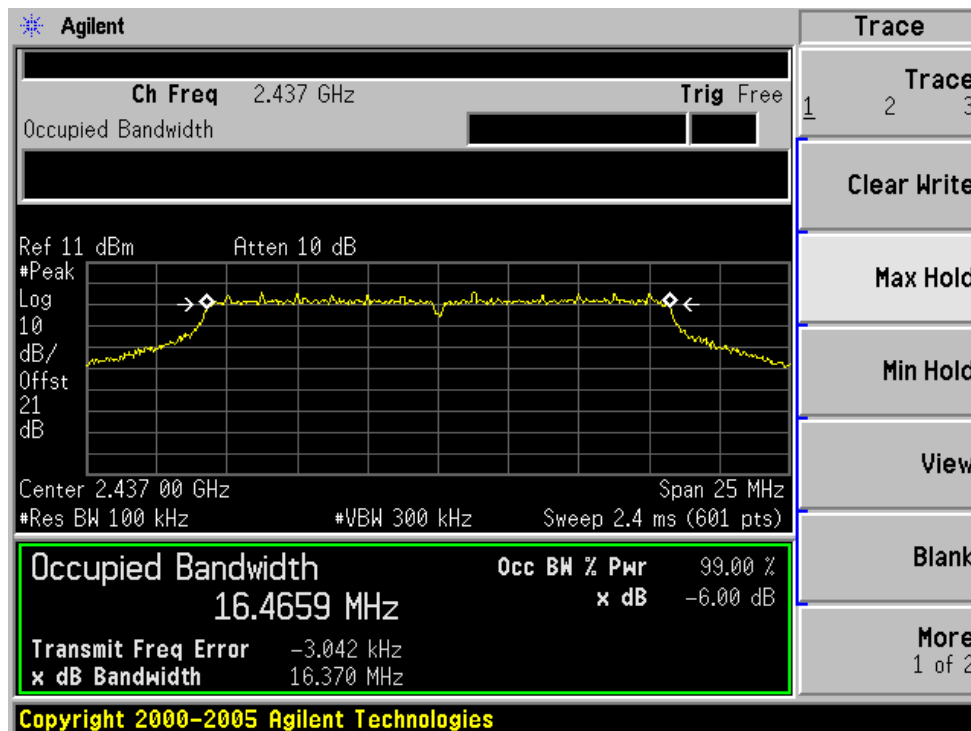
### 6.3.3 Diagram 6-3



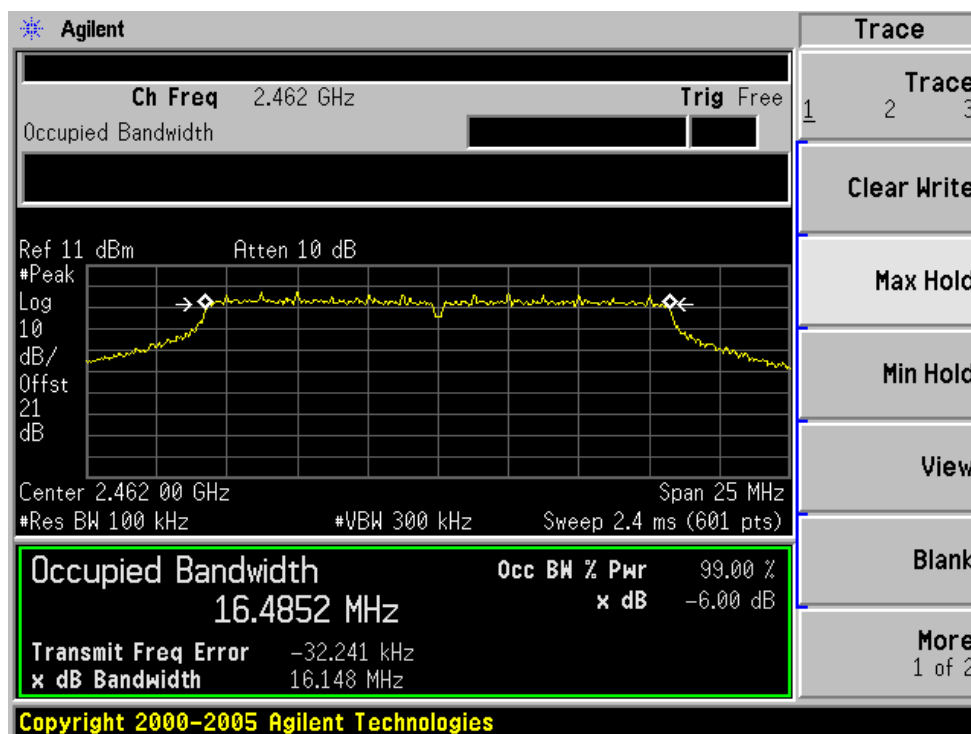
### 6.3.4 Diagram 6-4



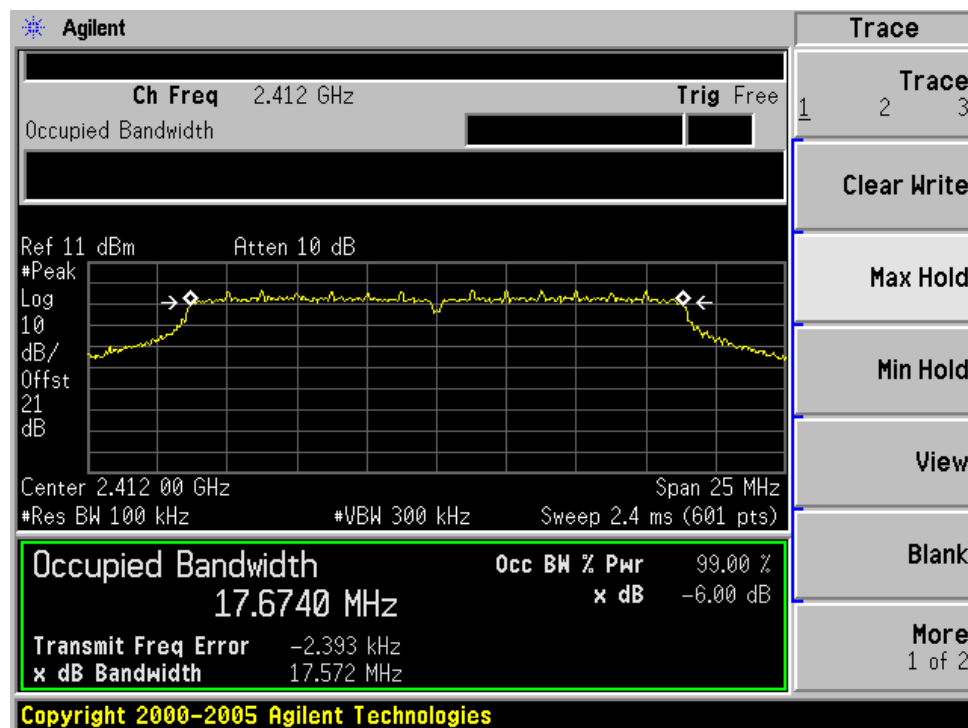
6.3.5 Diagram 6-5



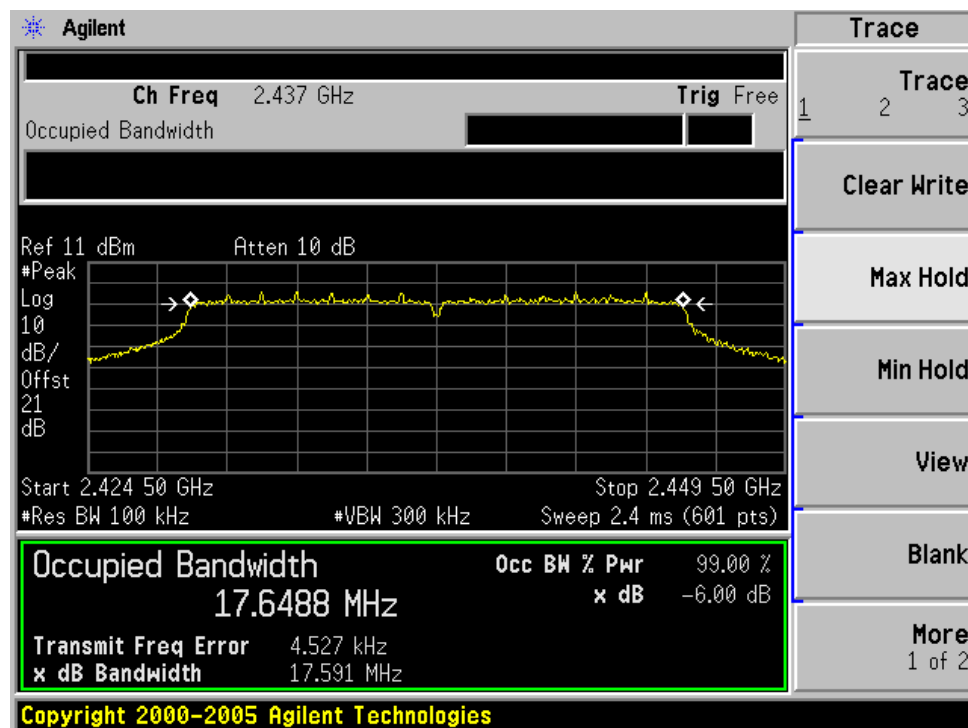
6.3.6 Diagram 6-6



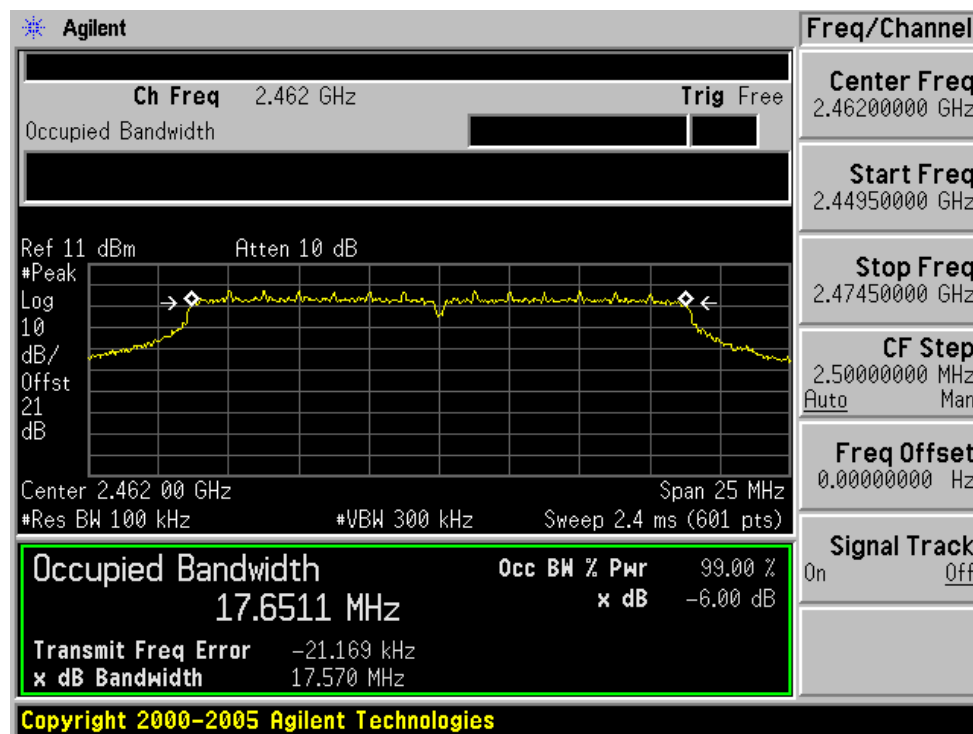
### 6.3.7 Diagram 6-7



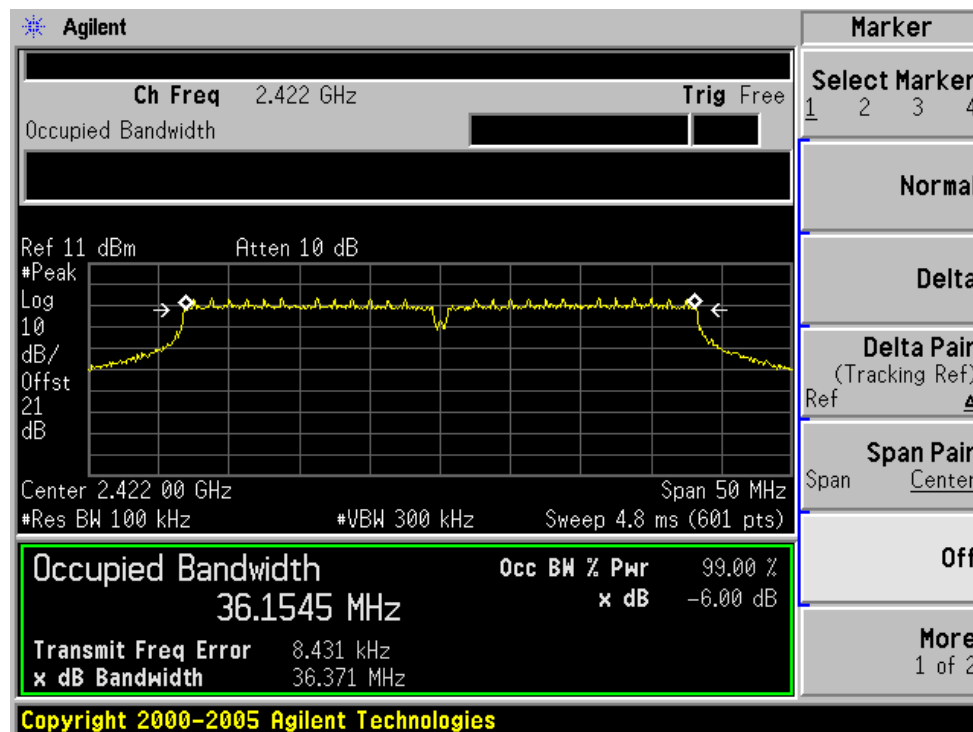
### 6.3.8 Diagram 6-8



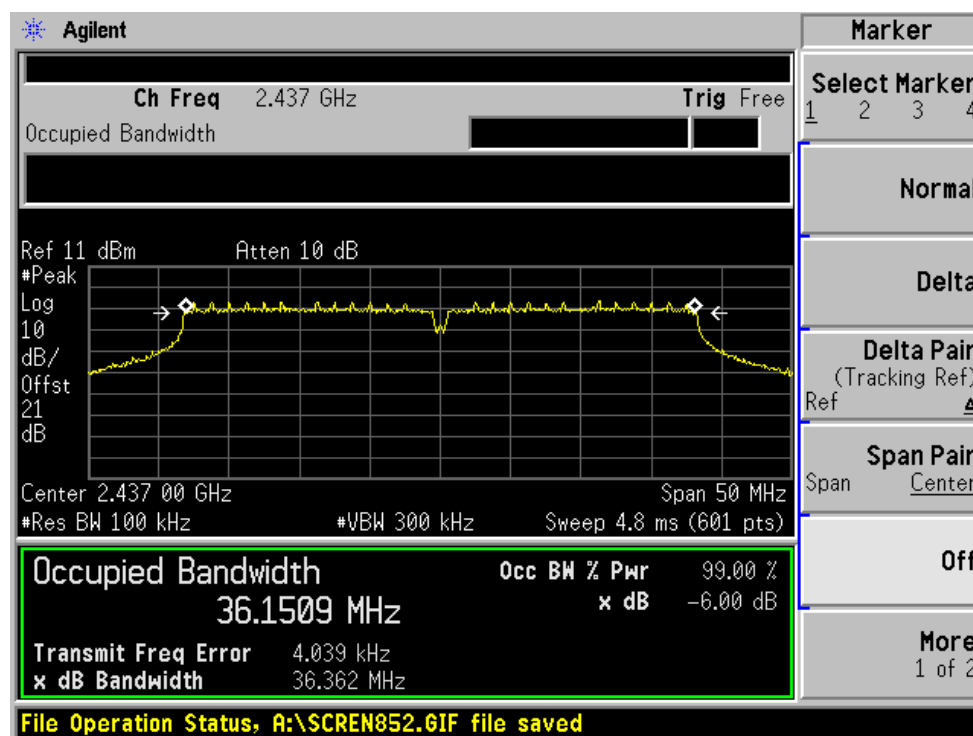
### 6.3.9 Diagram 6-9



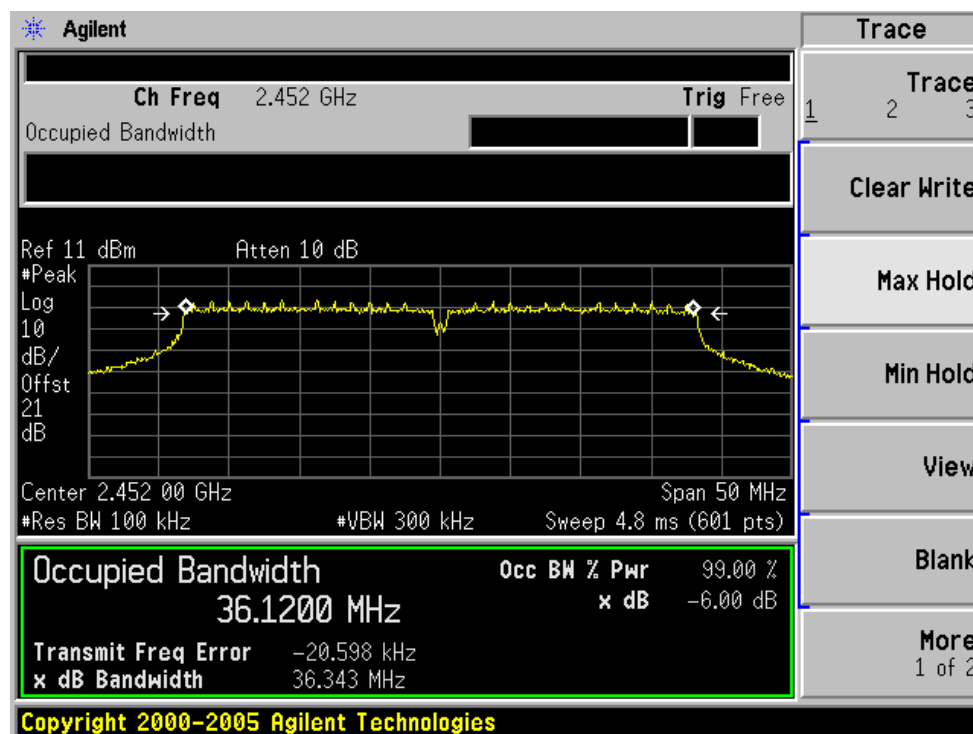
### 6.3.10 Diagram 6-10



### 6.3.11 Diagram 6-11



### 6.3.12 Diagram 6-12





## 7. Band Edge Compliance Test

### 7.1 Test Procedure

In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is 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.

### 7.2 Measurement Equipment

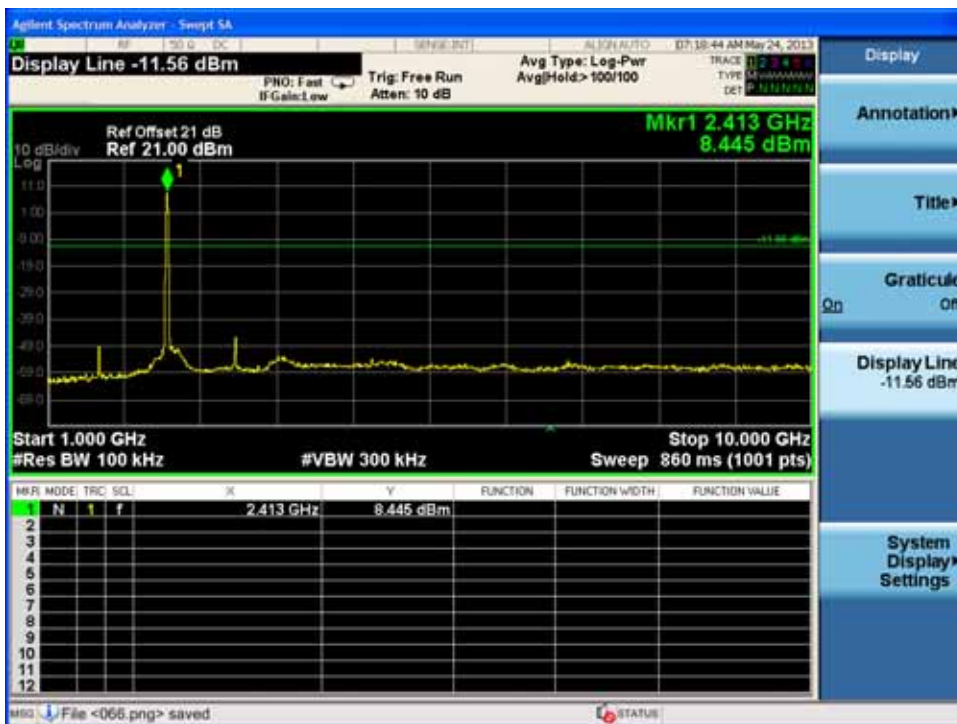
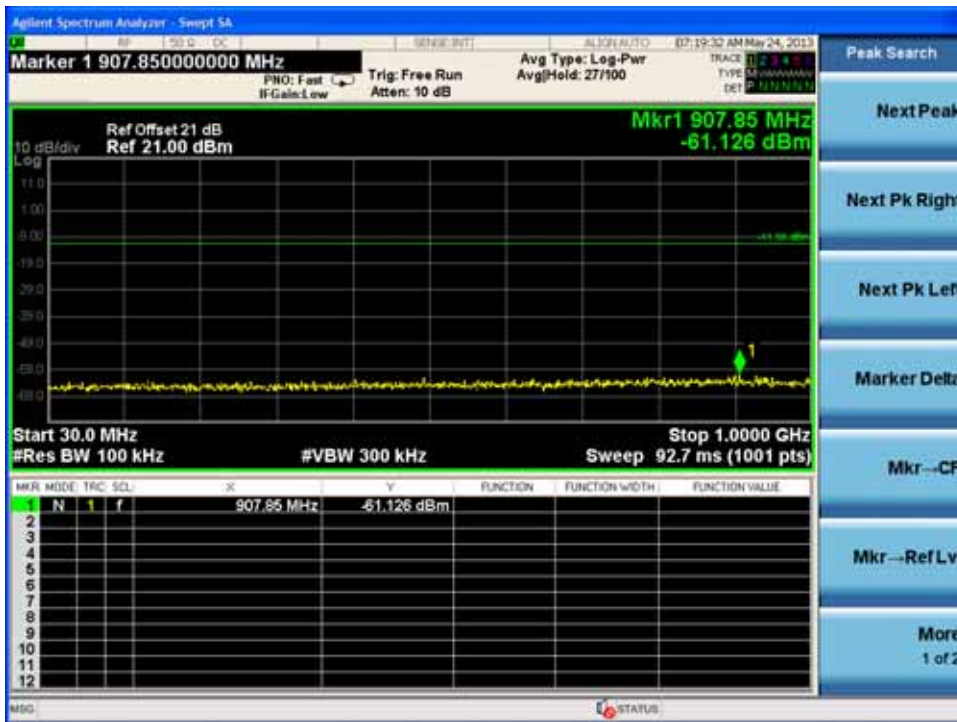
Item	Equipment	Last Calibration	Type	Serial No.	Manufacturer
1	Spectrum	May.08, 13	E4446A	US44300459	Agilent

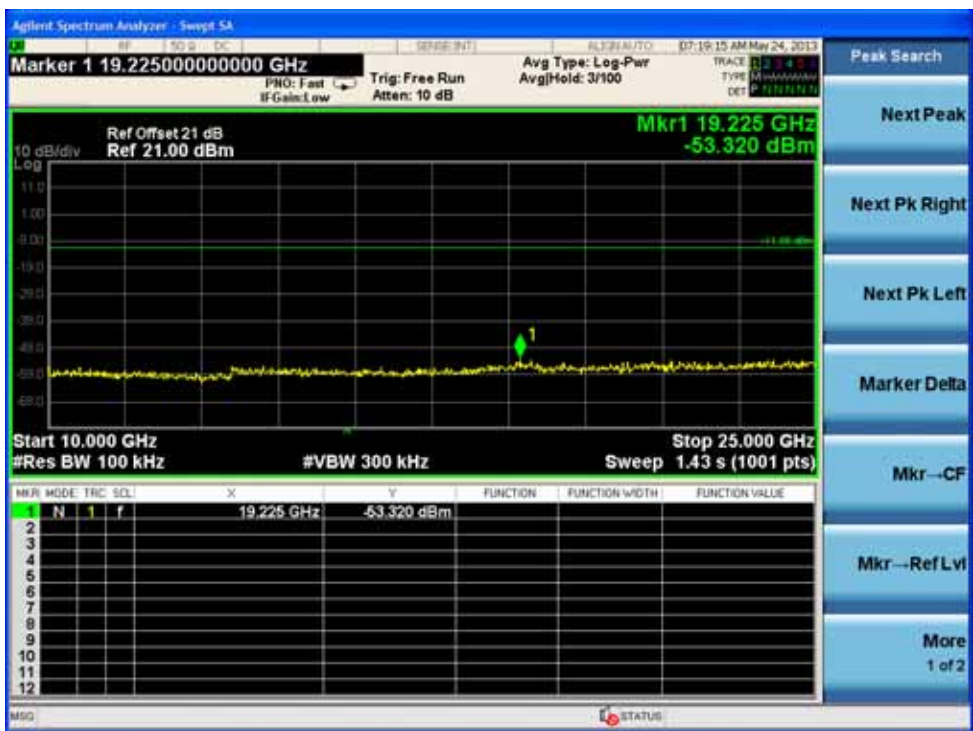
### 7.3 Test Result

Conducted measurement  
PK detector  
Max hold  
RMB100kHz VBW 300kHz

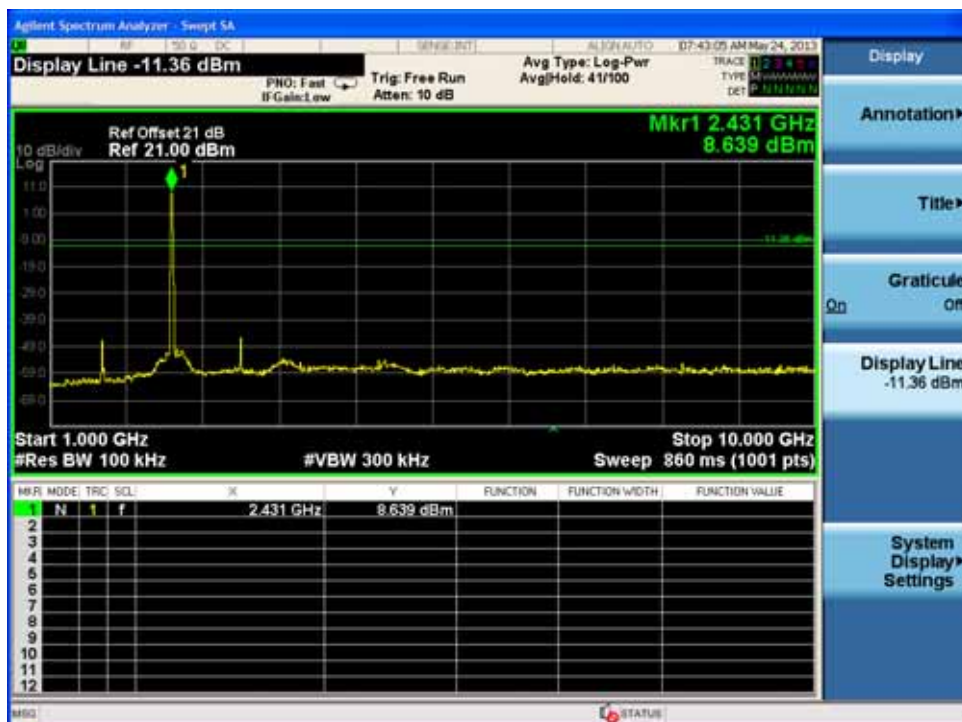
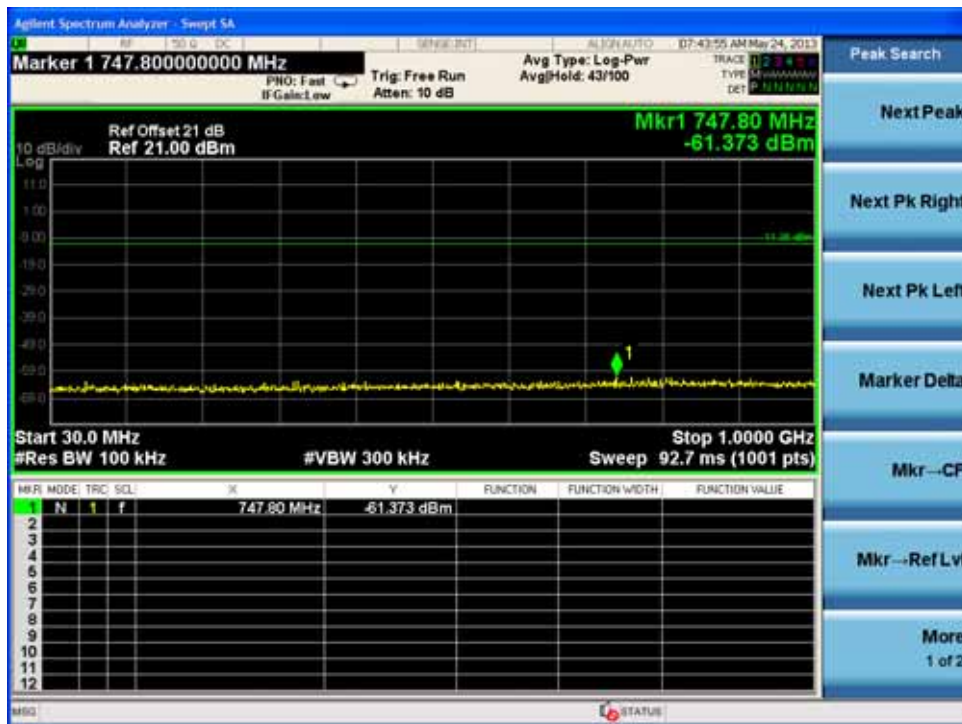
Mode	Channel	Test Data	Test Result
802.11.b	CH LOW	Diagram 7-1	Pass
	CH MID	Diagram 7-2	Pass
	CH HIGH	Diagram 7-3	Pass
802.11.g	CH LOW	Diagram 7-4	Pass
	CH MID	Diagram 7-5	Pass
	CH HIGH	Diagram 7-6	Pass
802.11.n H20	CH LOW	Diagram 7-7	Pass
	CH MID	Diagram 7-8	Pass
	CH HIGH	Diagram 7-9	Pass
802.11.n H40	CH LOW	Diagram 7-10	Pass
	CH MID	Diagram 7-11	Pass
	CH HIGH	Diagram 7-12	Pass

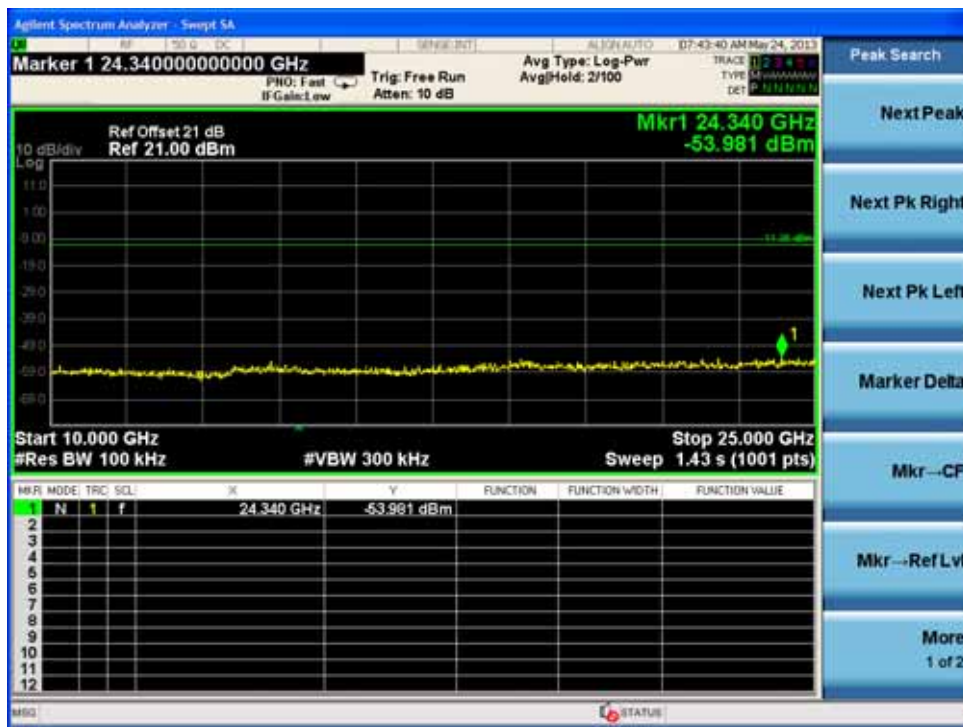
### 7.3.1 Diagram 7-1





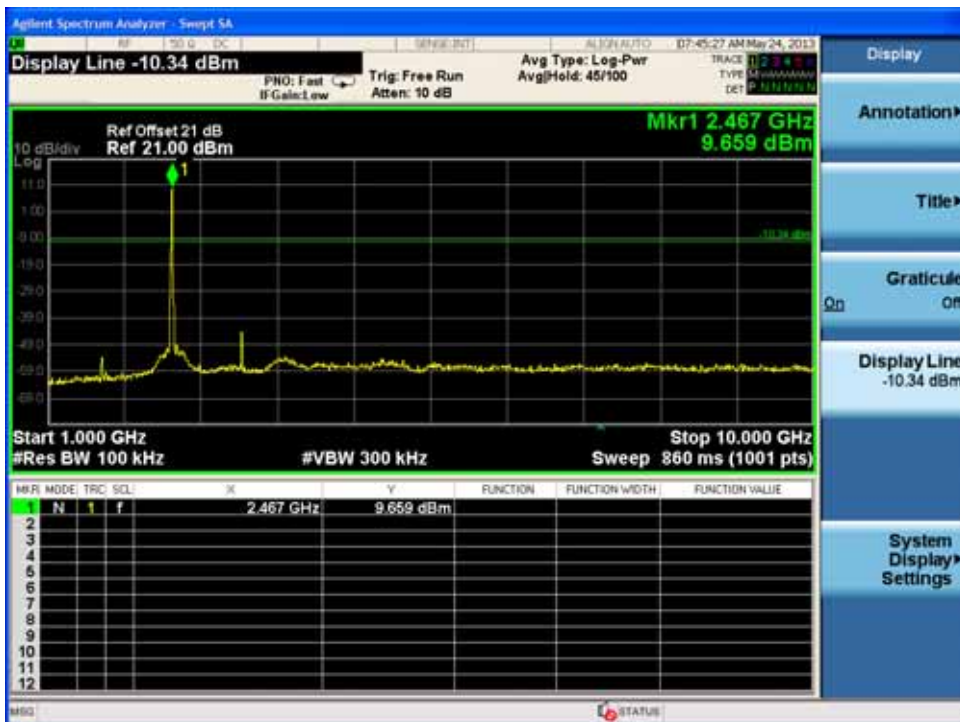
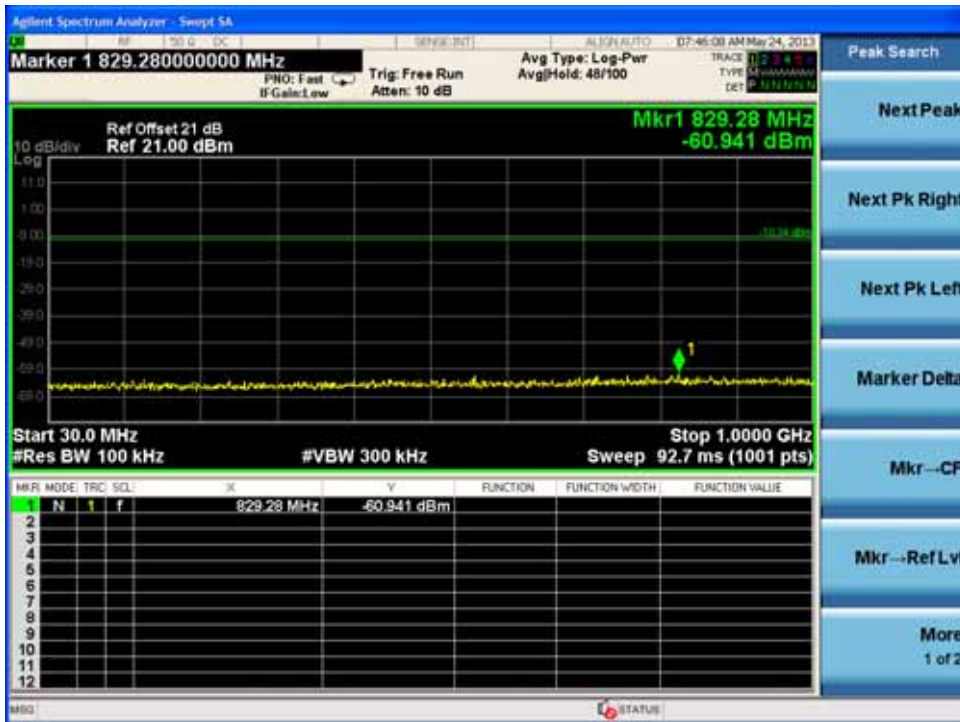
### 7.3.2 Diagram 7-2

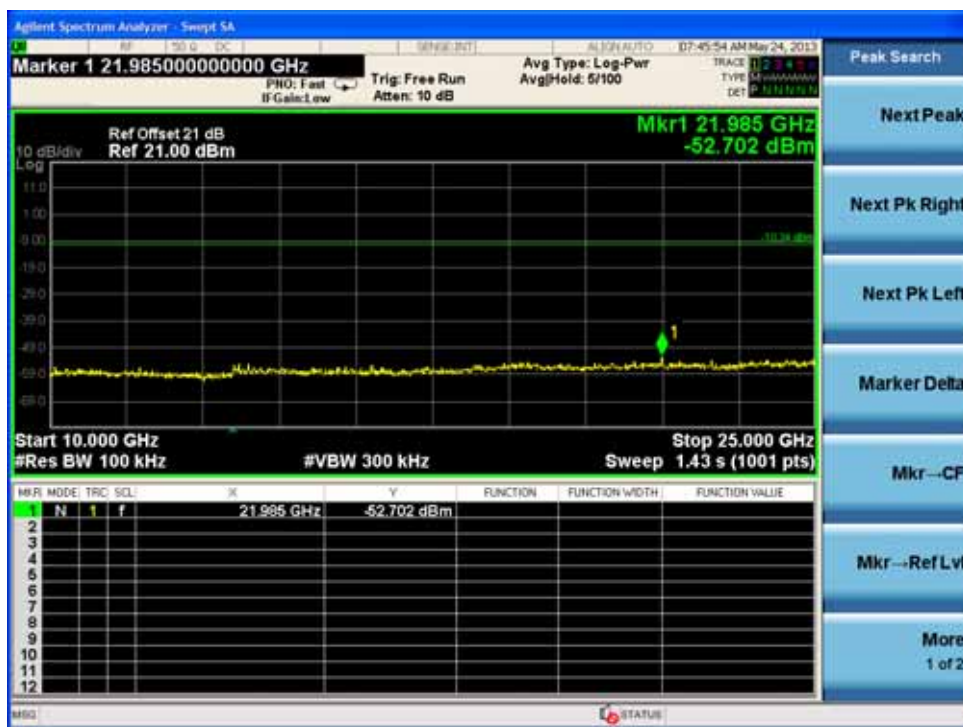




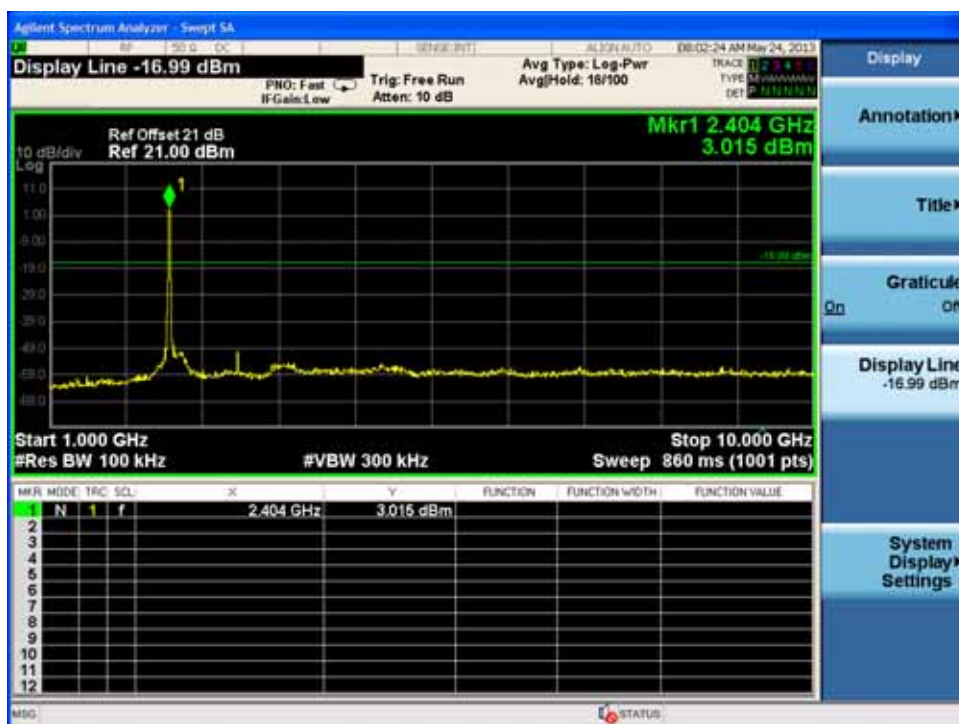
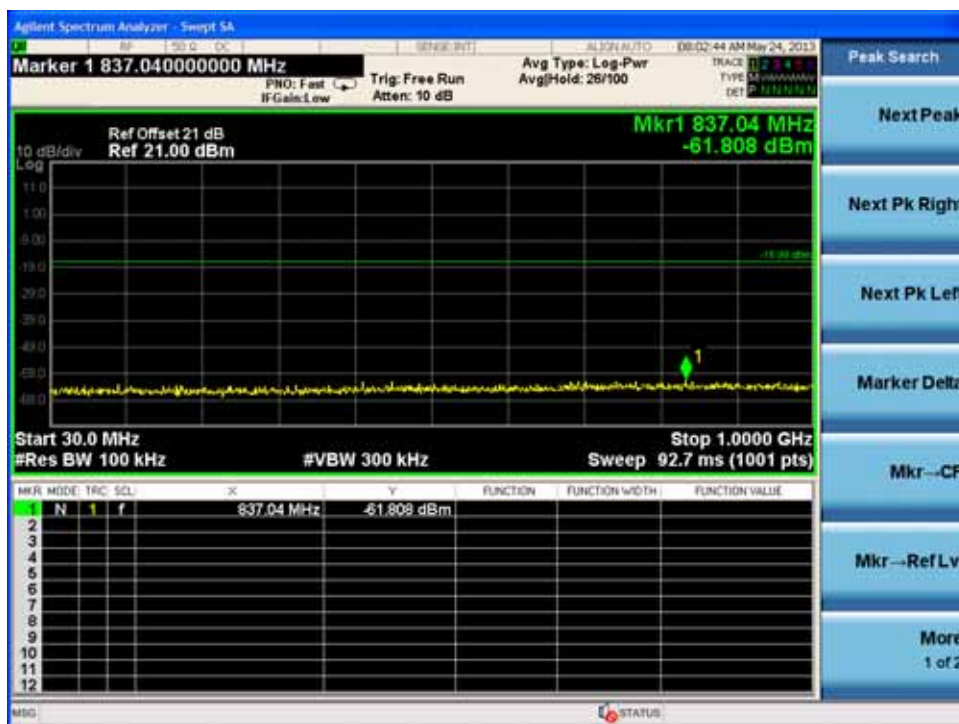


### 7.3.3 Diagram 7-3

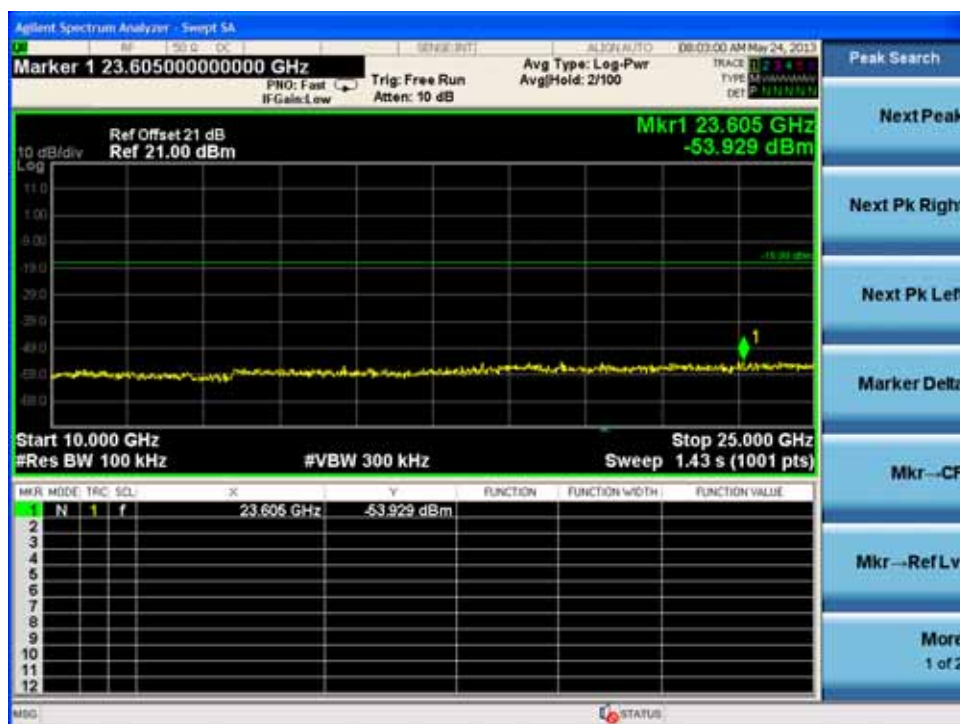




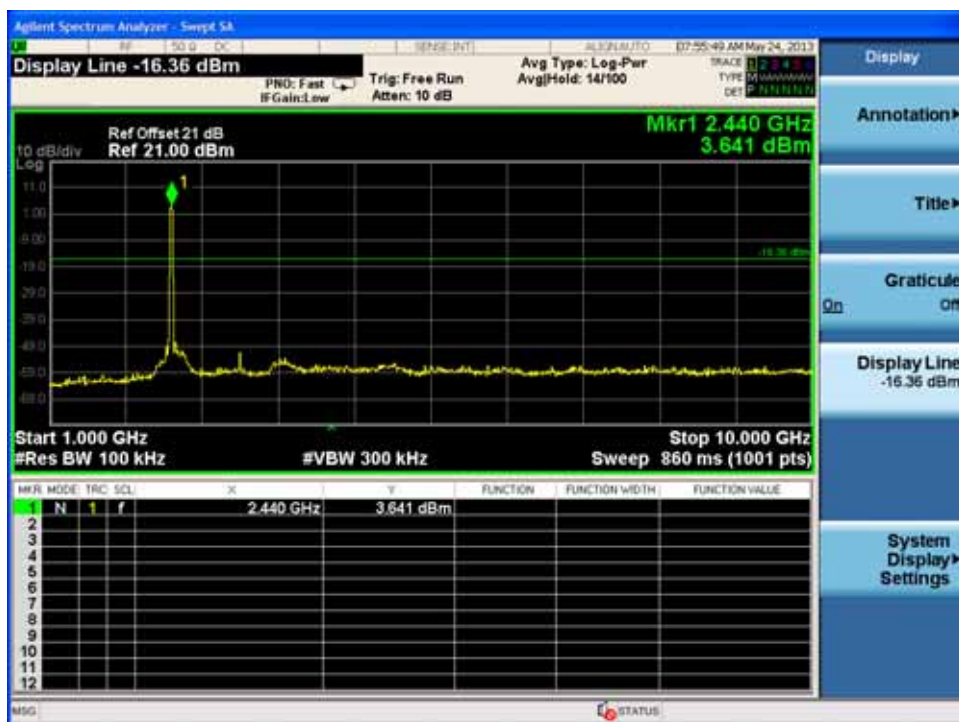
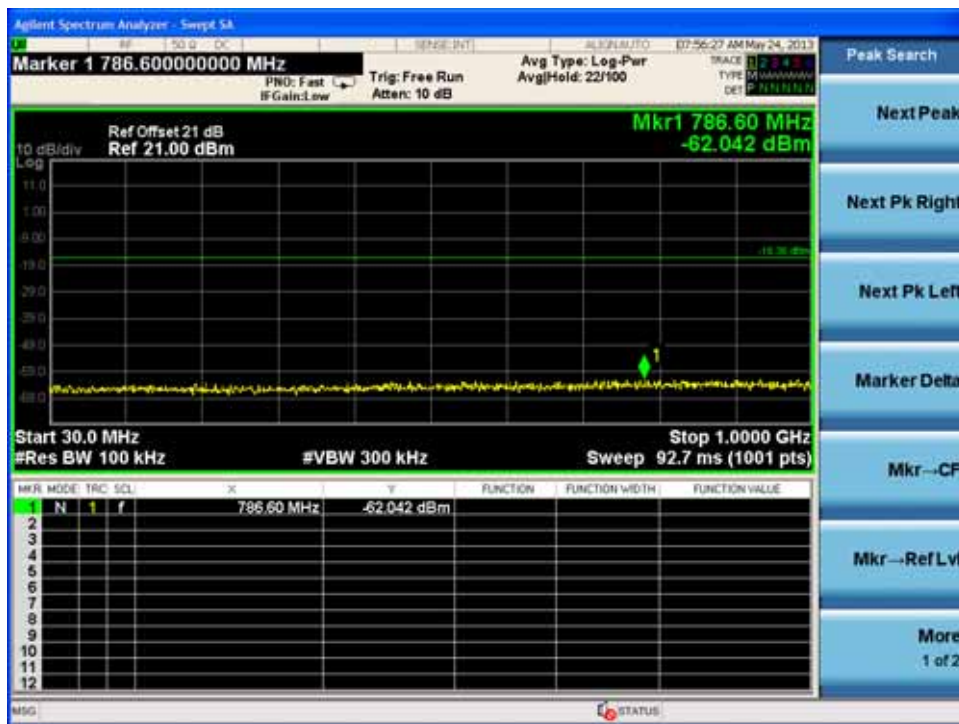
### 7.3.4 Diagram 7-4

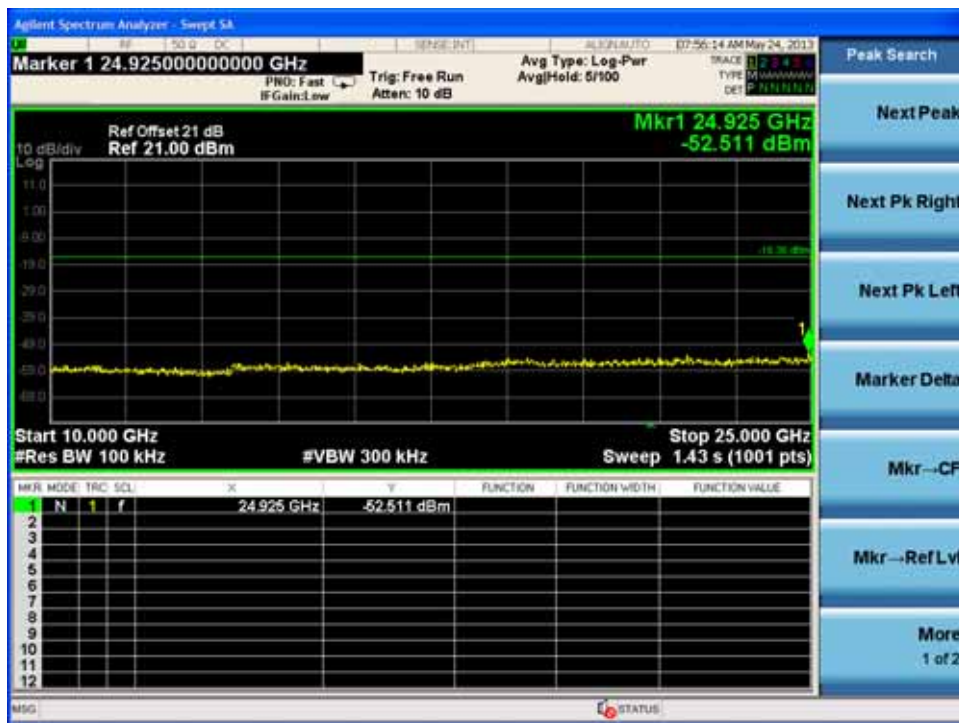




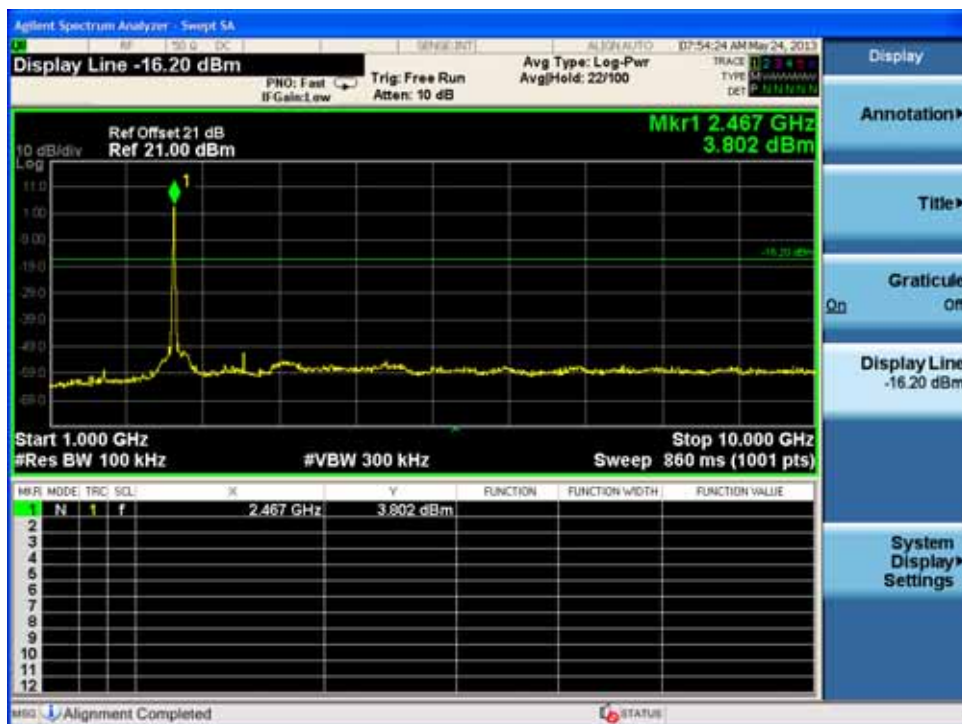
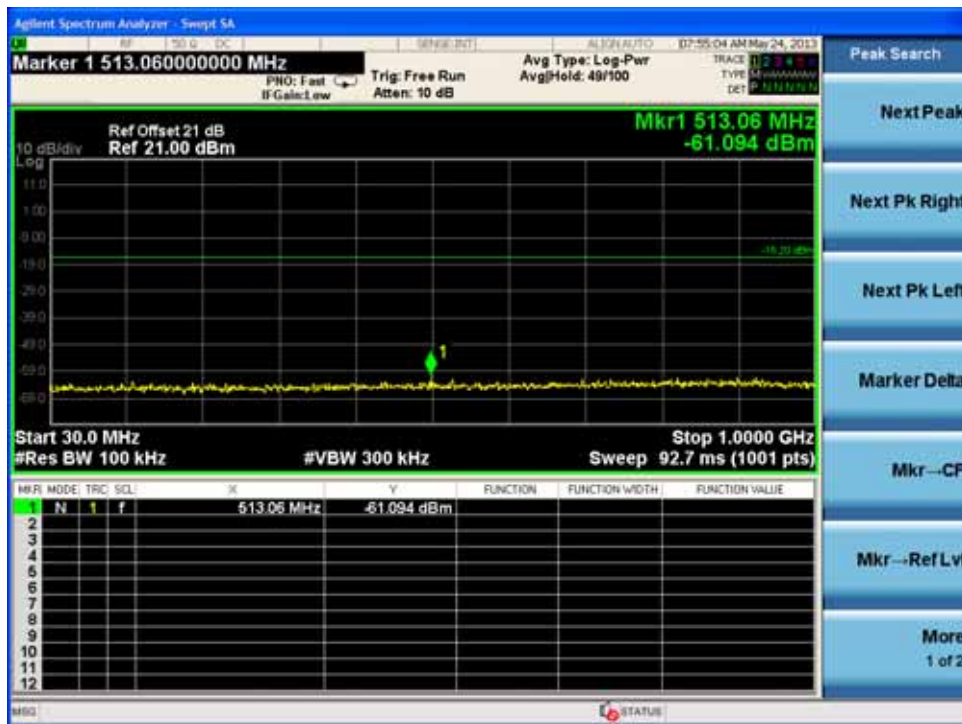


### 7.3.5 Diagram 7-5

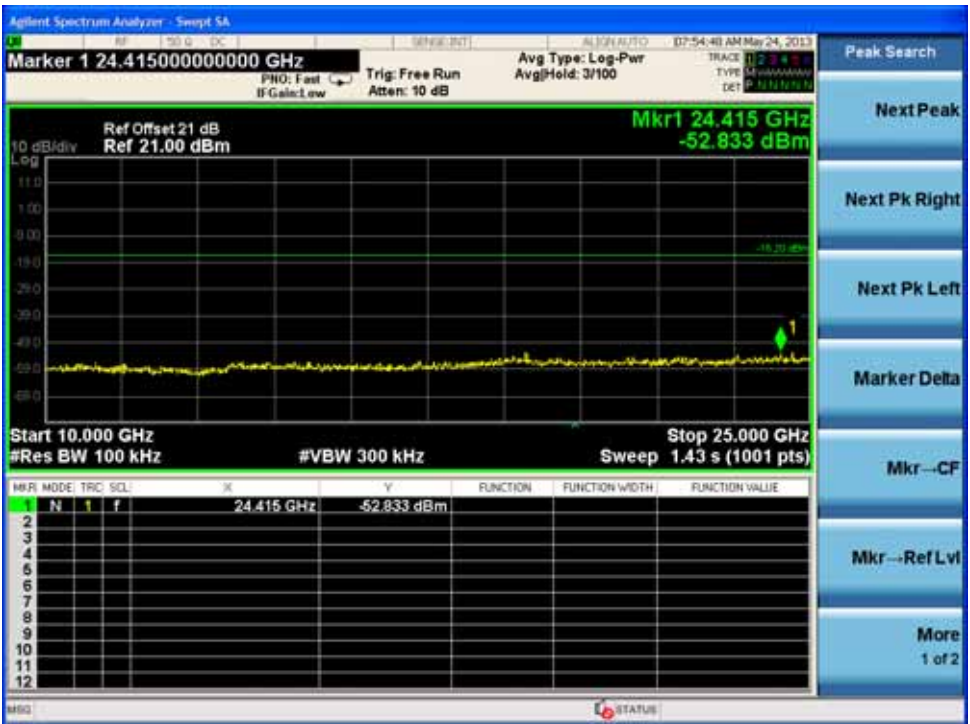




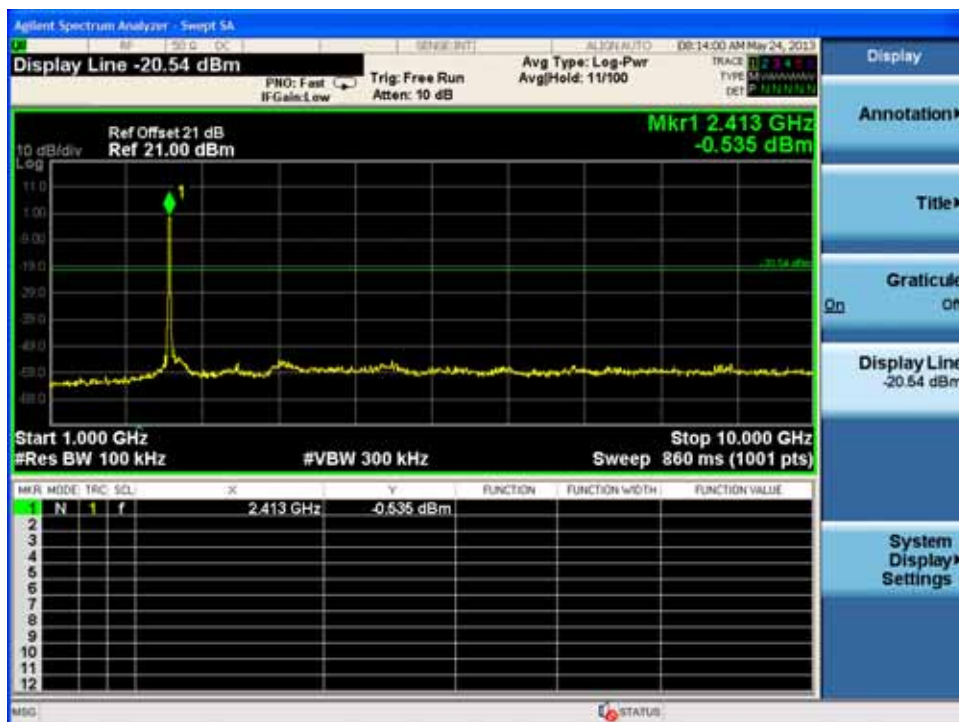
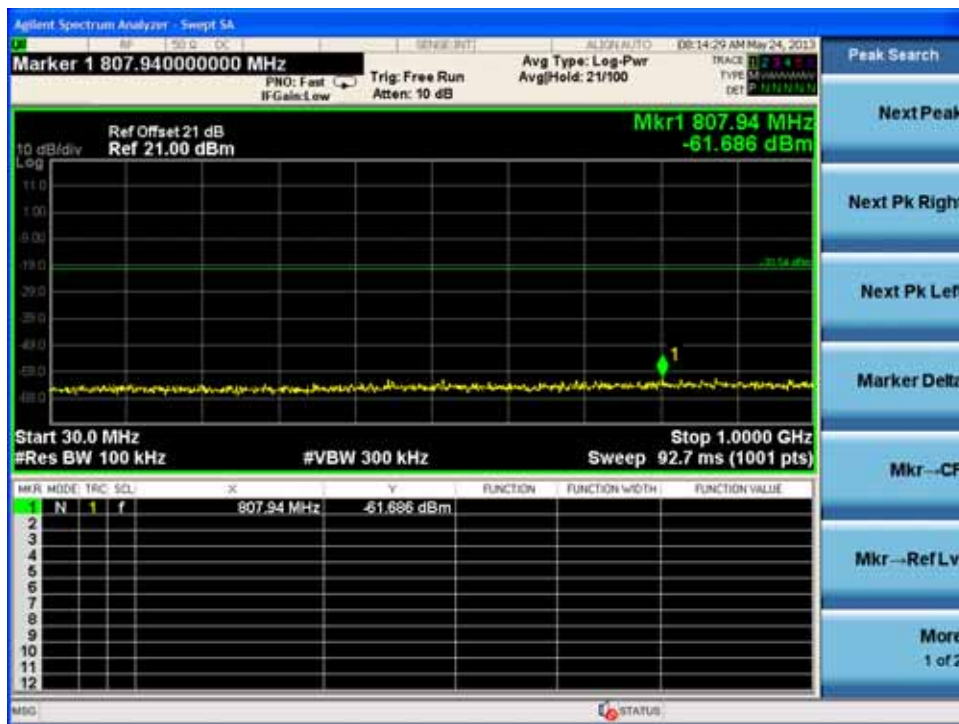
### 7.3.6 Diagram 7-6

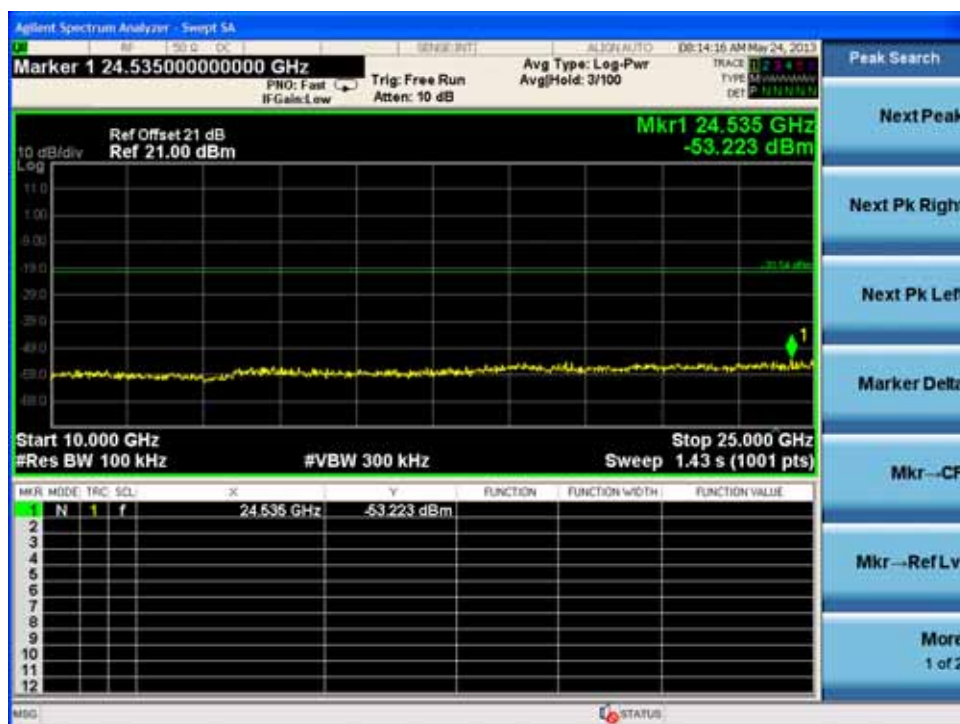




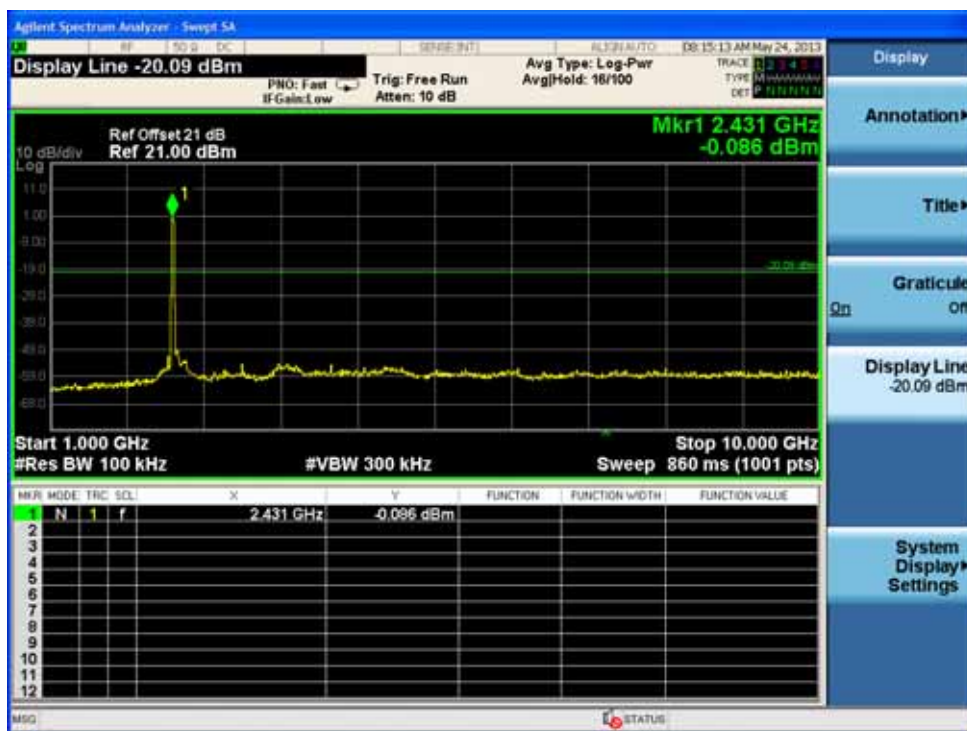
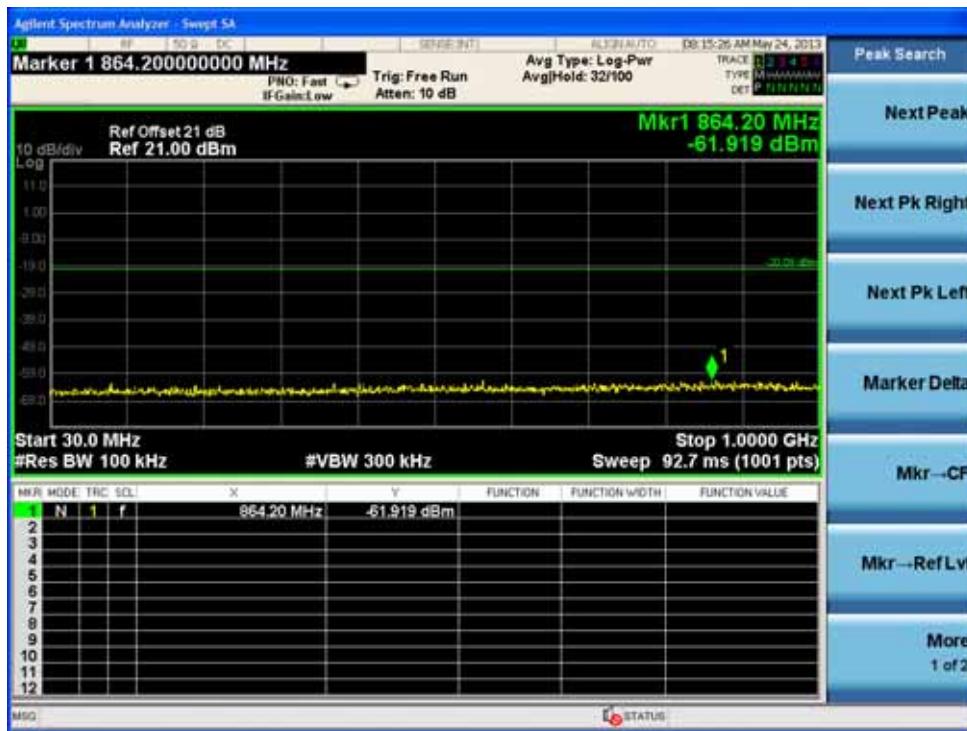


### 7.3.7 Diagram 7-7

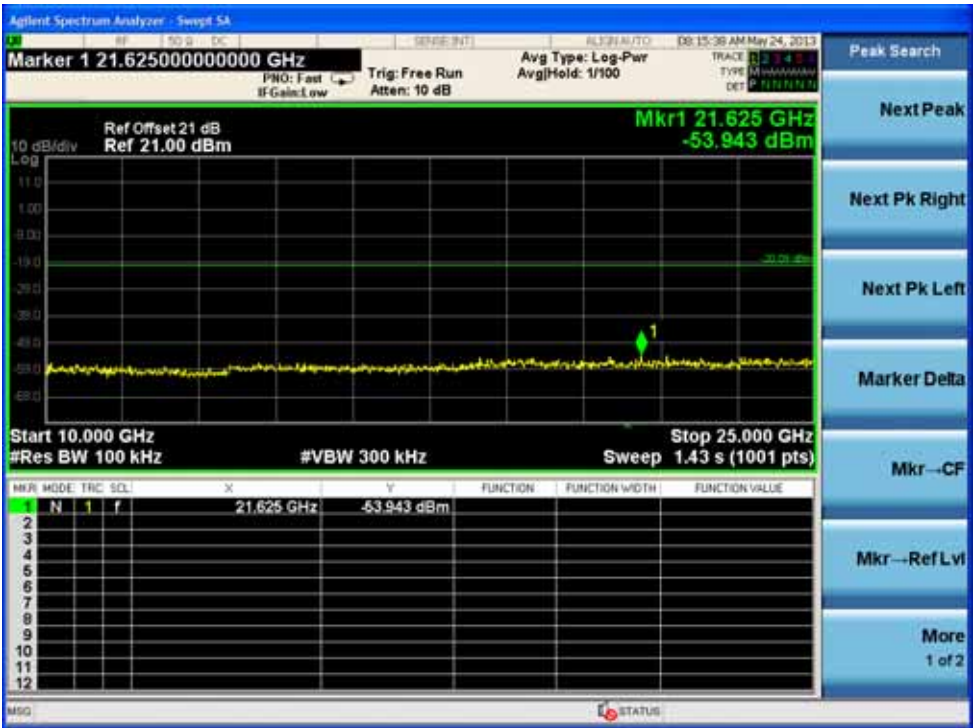




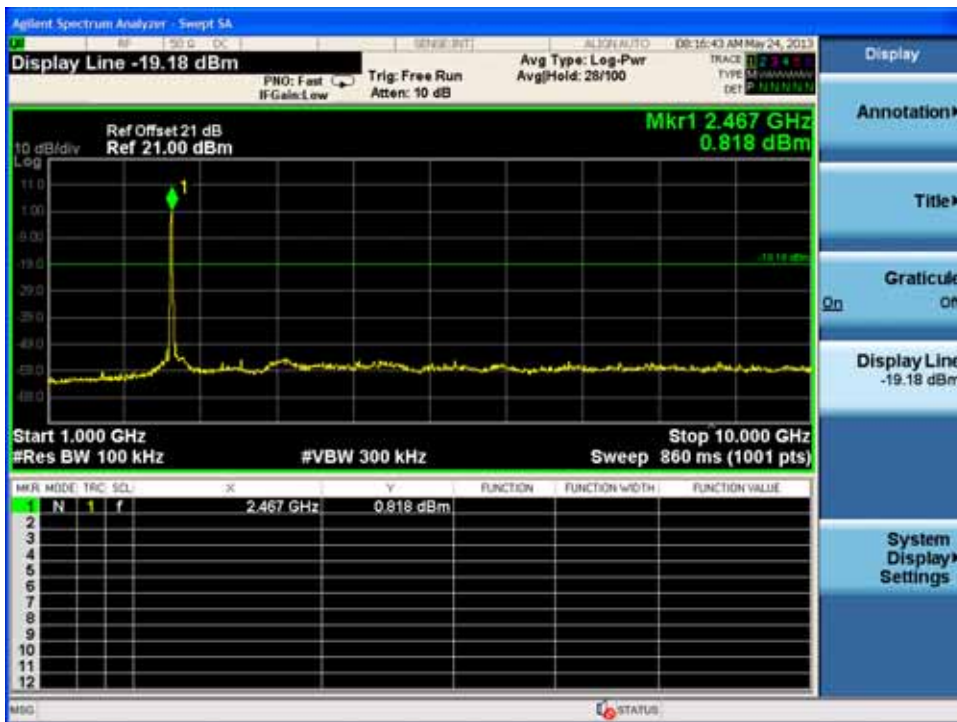
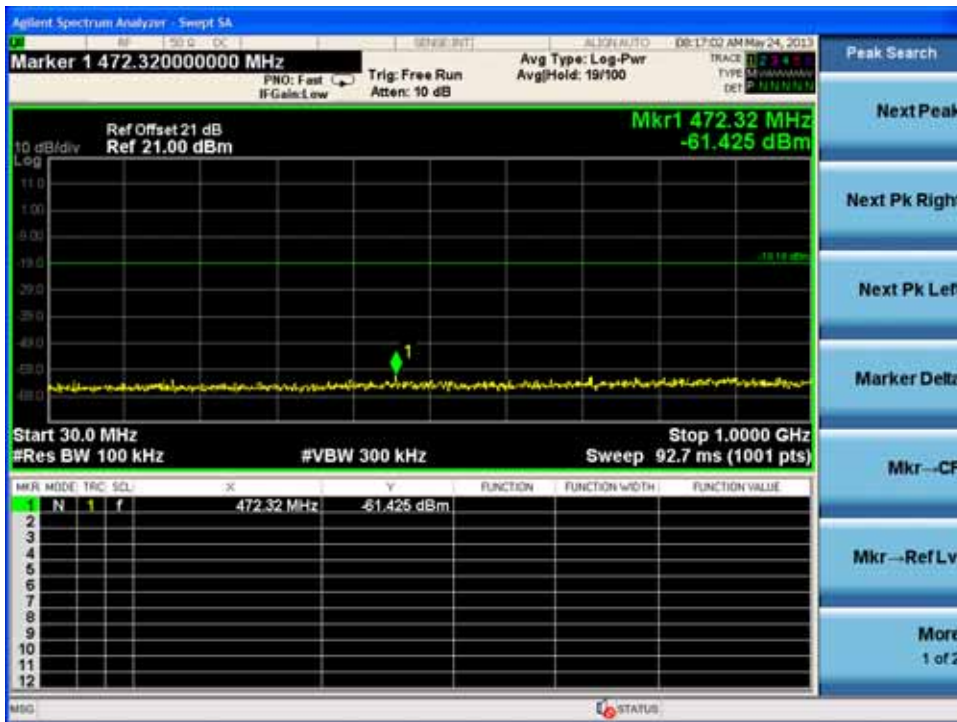
### 7.3.8 Diagram 7-8

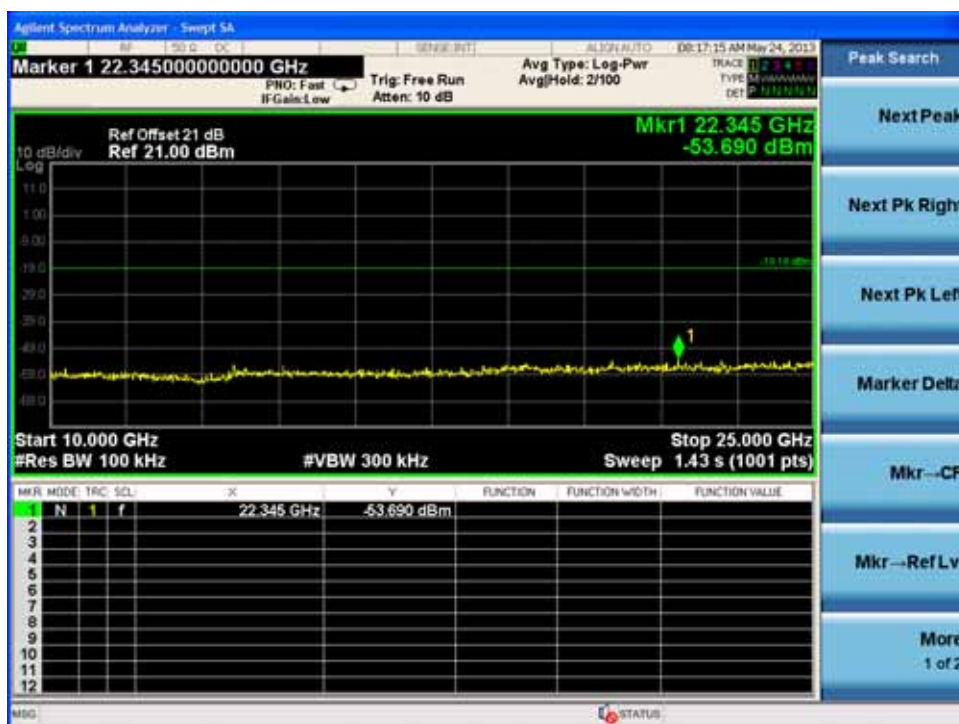




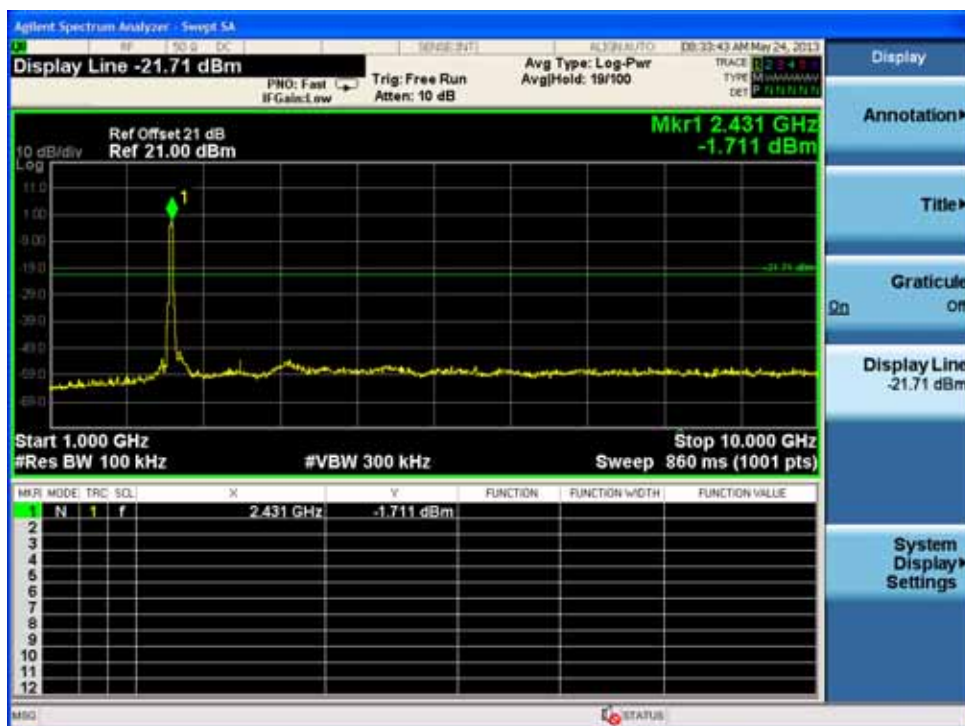
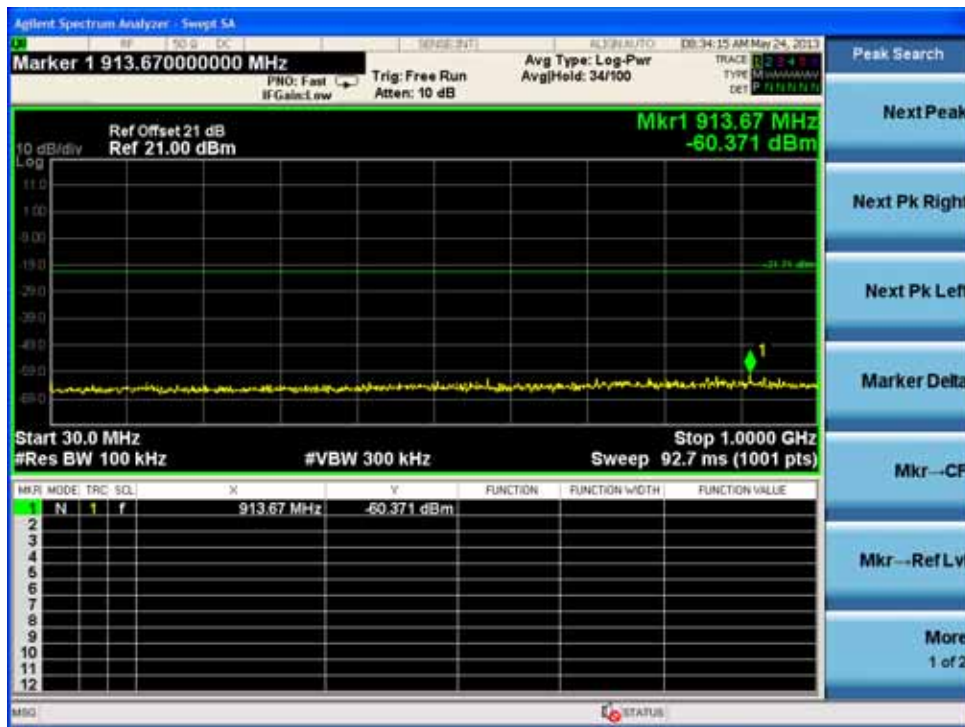


### 7.3.9 Diagram 7-9

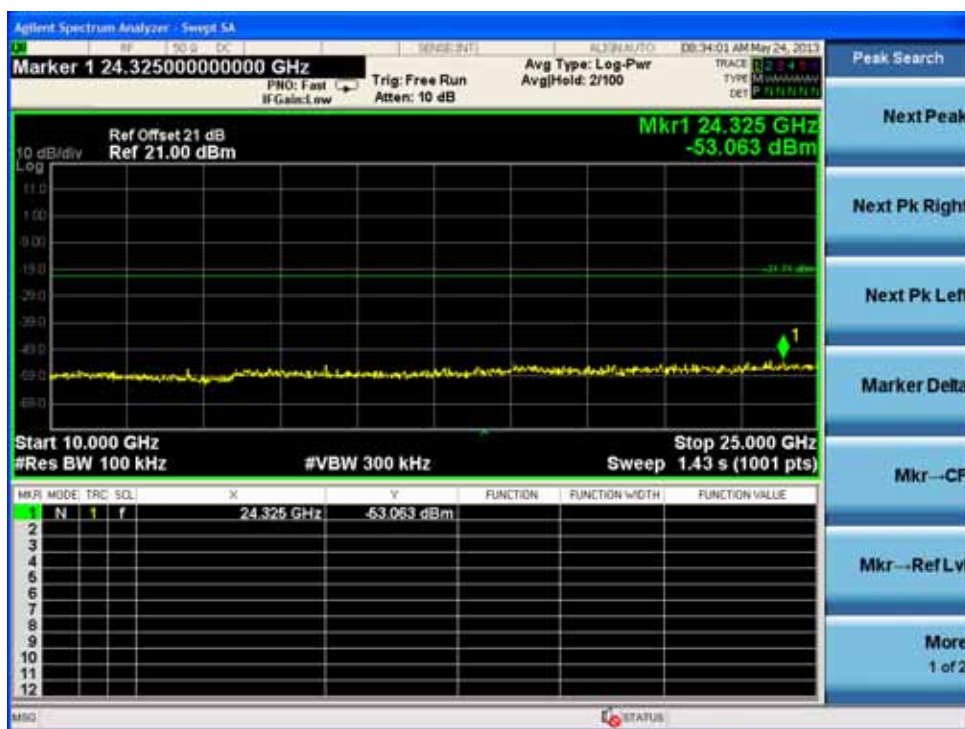




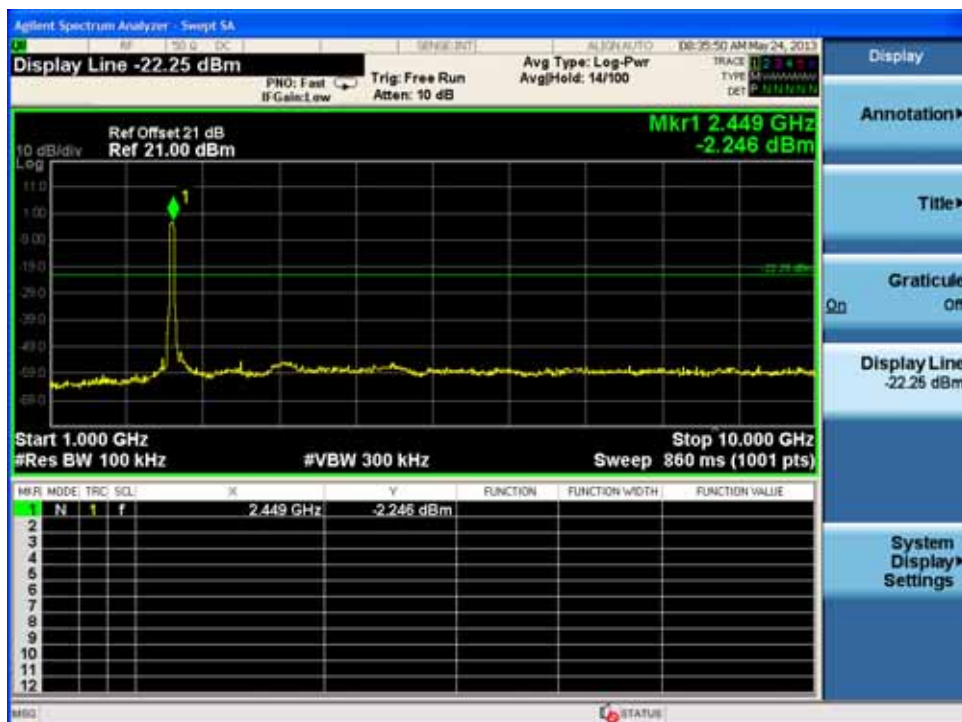
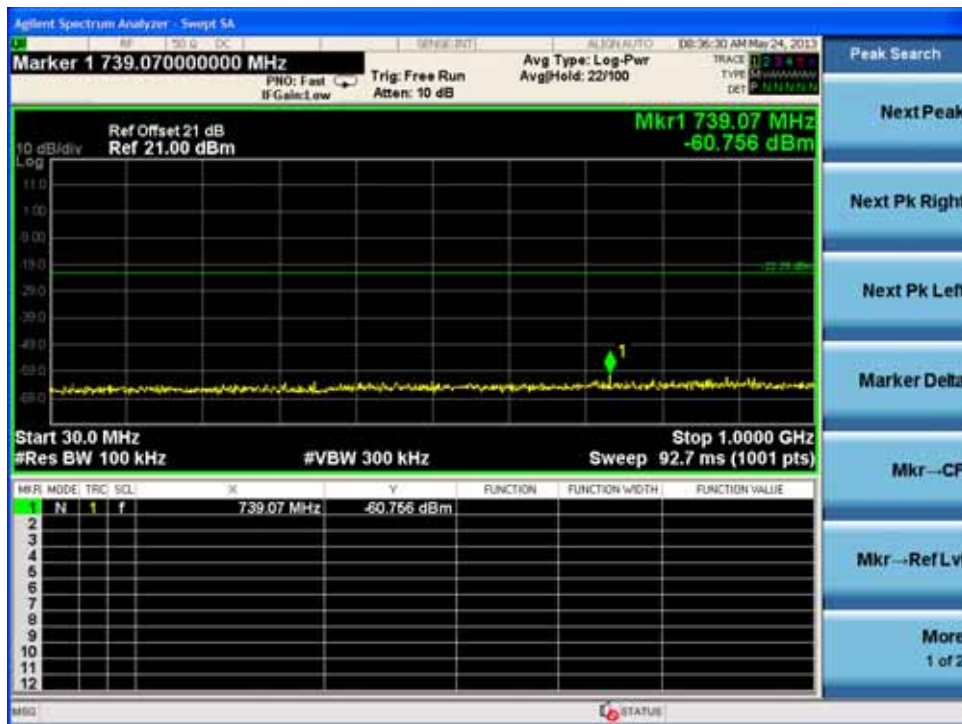
### 7.3.10 Diagram 7-10

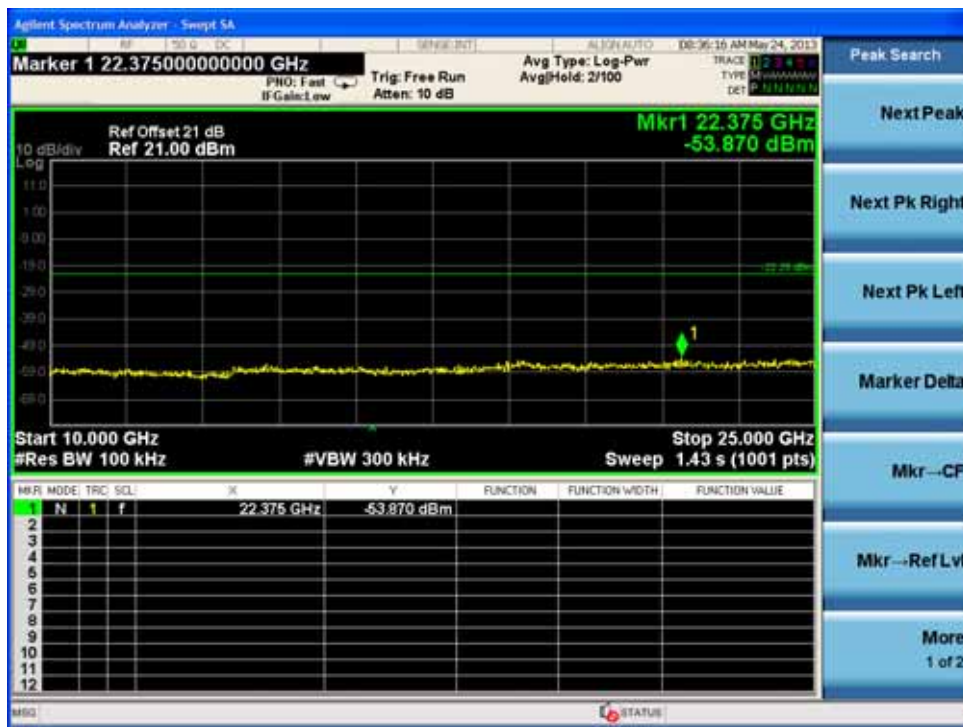




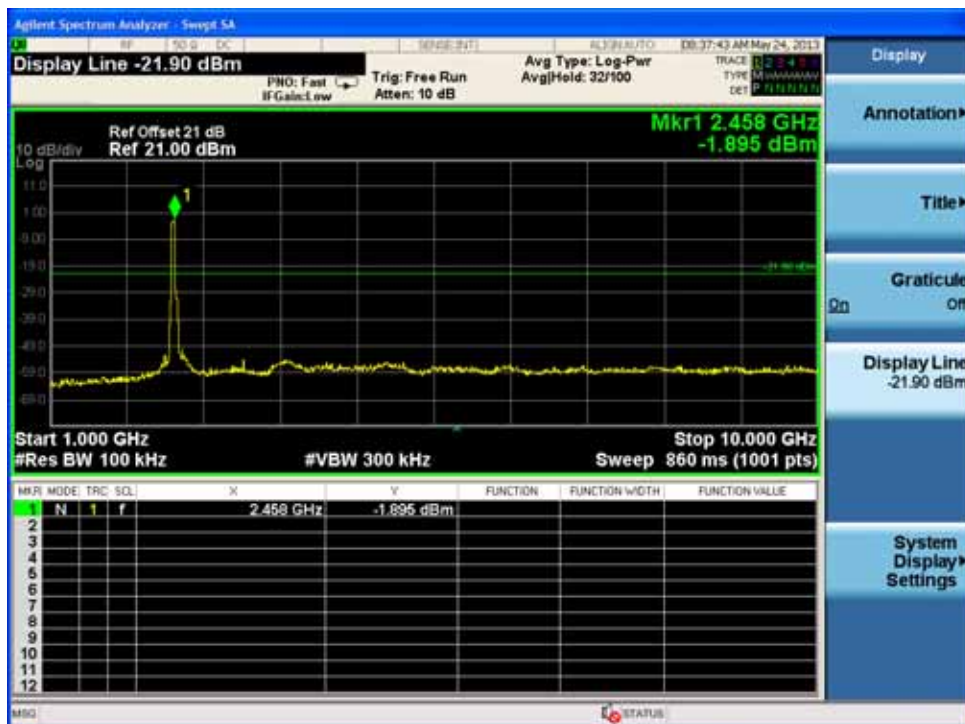
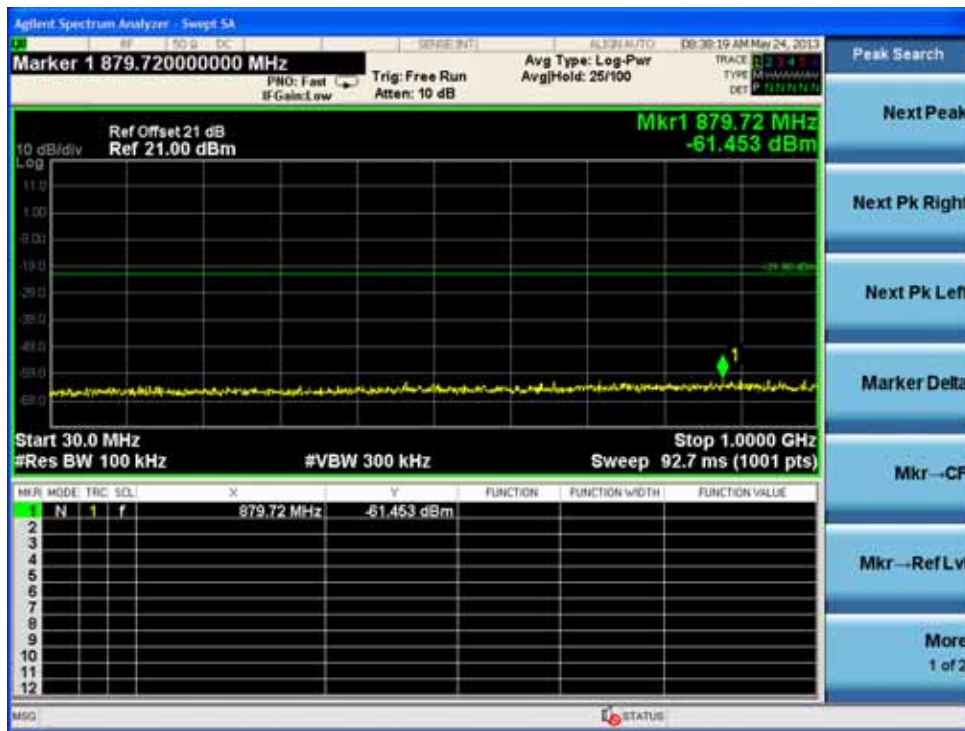


### 7.3.11 Diagram 7-11

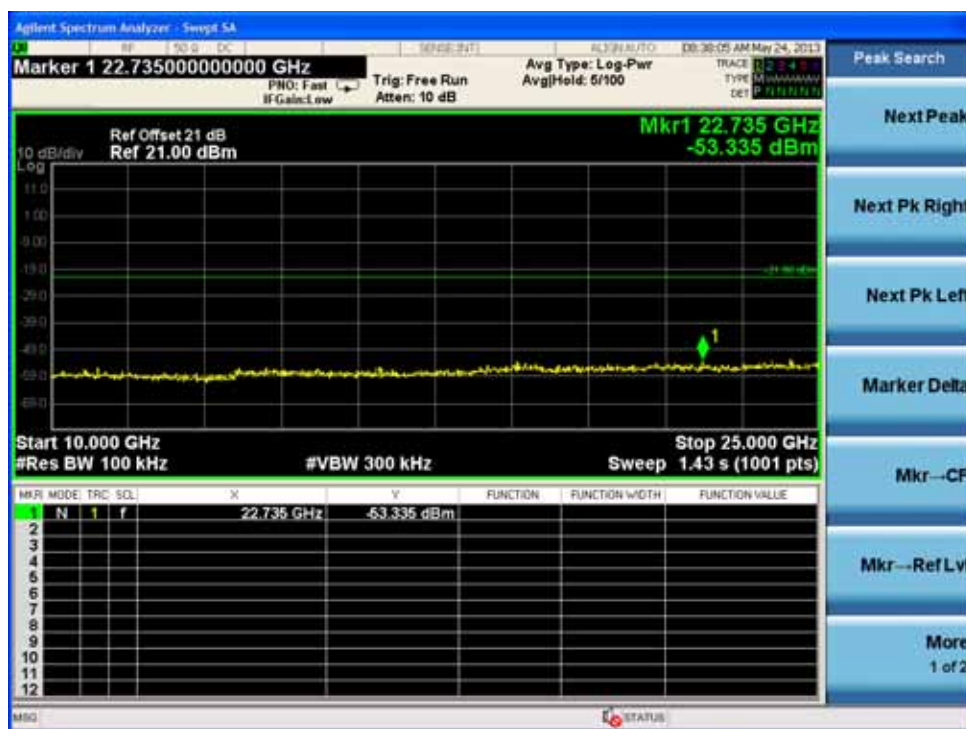




### 7.3.12 Diagram 7-12







## 8. Power Spectral Density Test

### 8.1 Test Procedure

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

The transmitter output was connected to a spectrum analyzer. The maximum power density level was measured by spectrum analyzer with RBW >3kHz and Detector: PK  
Cable loss and attenuator loss have been added in Spectrum setting offset .

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW >=3 kHz.
4. Set the VBW >= 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

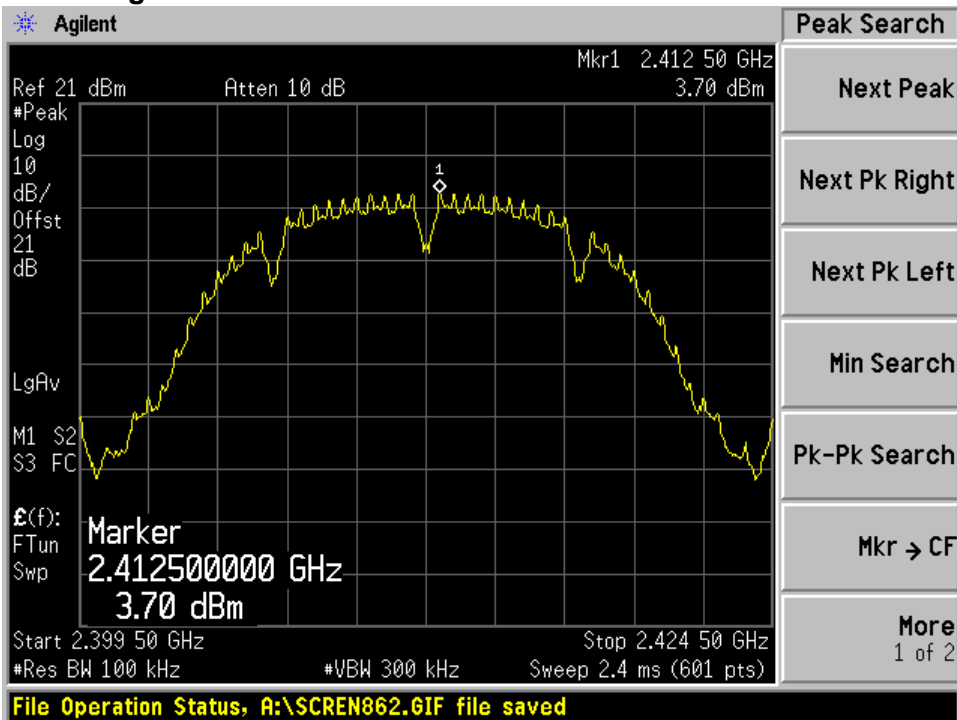
### 8.2 Measurement Equipment

Item	Equipment	Last Calibration	Type	Serial No.	Manufacturer
1	Spectrum	May.08, 13	E4446A	US44300459	Agilent

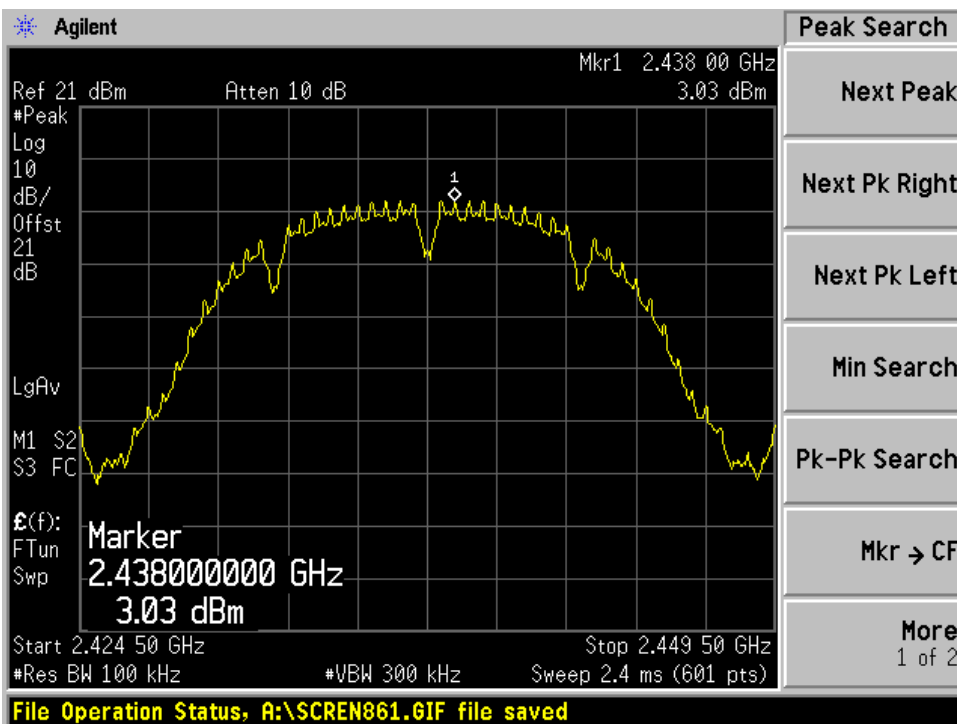
### 8.3 Test Result

Mode	Channel	Diagram	Result (dBm)	<Limit (dBm)	Result
802.11b	low	8-1	3.70	8	Pass
802.11b	mid	8-2	3.03	8	Pass
802.11b	high	8-3	4.82	8	Pass
802.11g	low	8-4	2.28	8	Pass
802.11g	mid	8-5	1.31	8	Pass
802.11g	high	8-6	3.40	8	Pass
802.11n H20	low	8-7	-0.1	8	Pass
802.11n H20	mid	8-8	-0.9	8	Pass
802.11n H20	high	8-9	0.94	8	Pass
802.11n H40	low	8-10	-2.54	8	Pass
802.11n H40	mid	8-11	-3.07	8	Pass
802.11n H40	high	8-12	-3.19	8	Pass

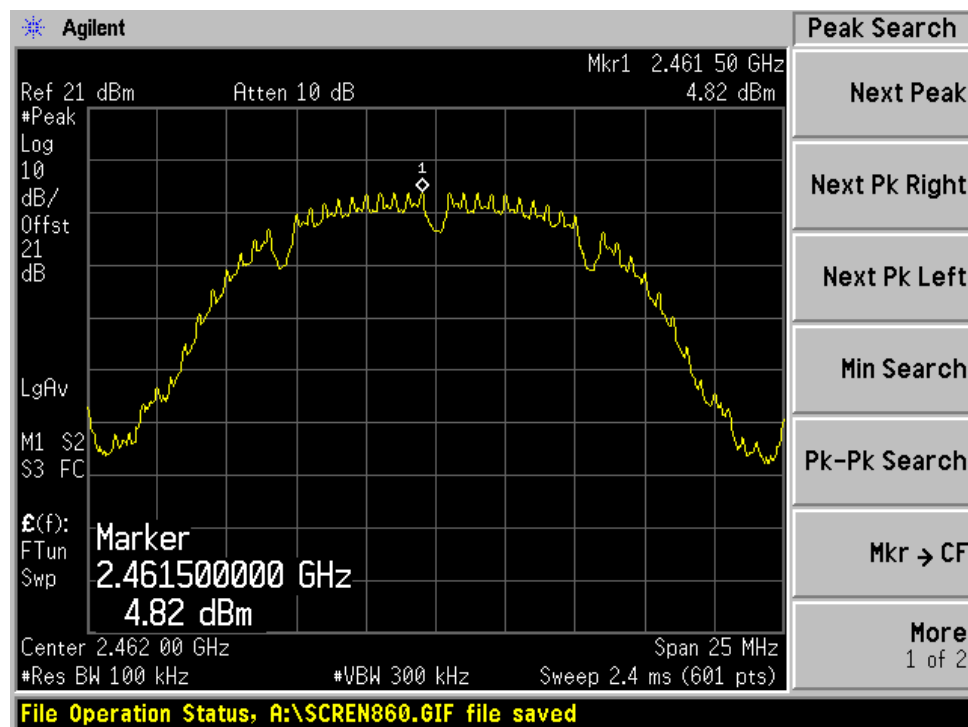
### 8.3.1 Diagram 8-1



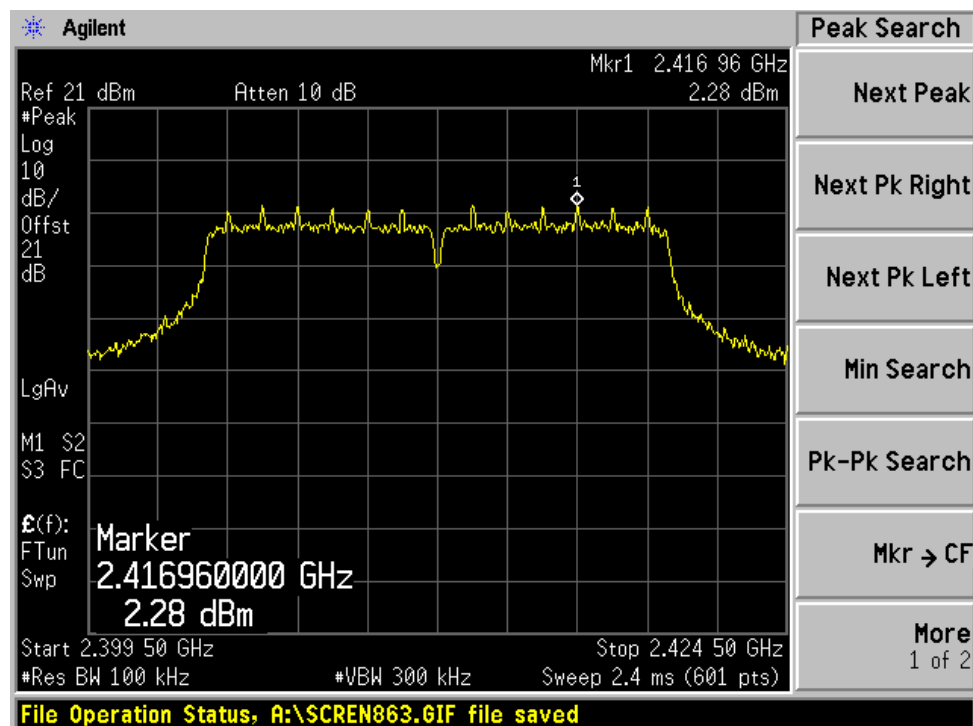
### 8.3.2 Diagram 8-2



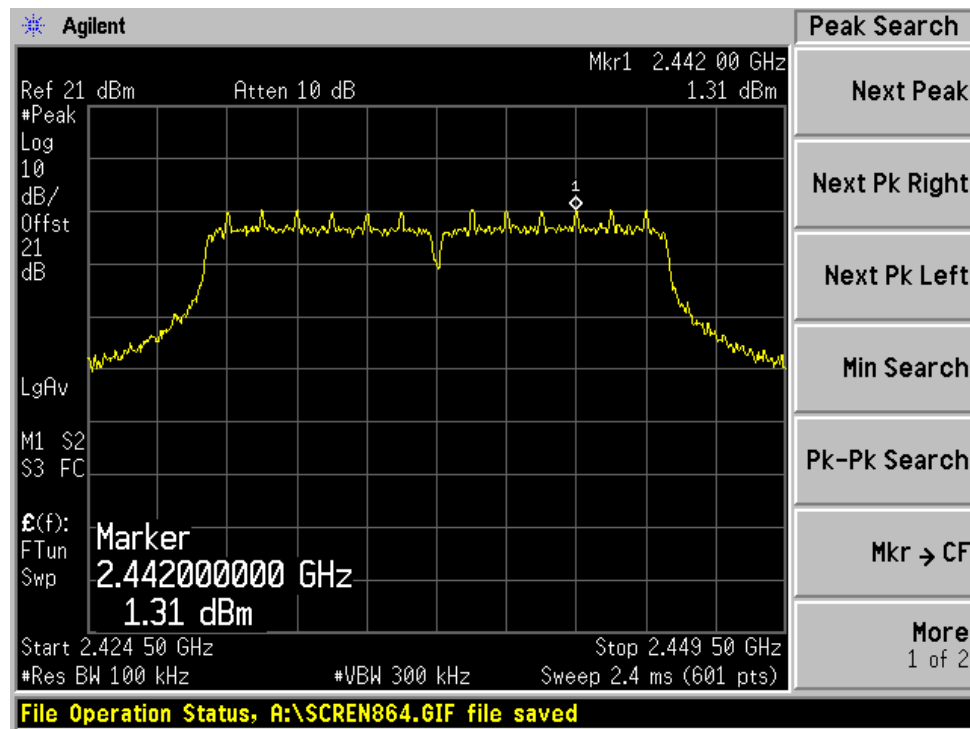
### 8.3.3 Diagram 8-3



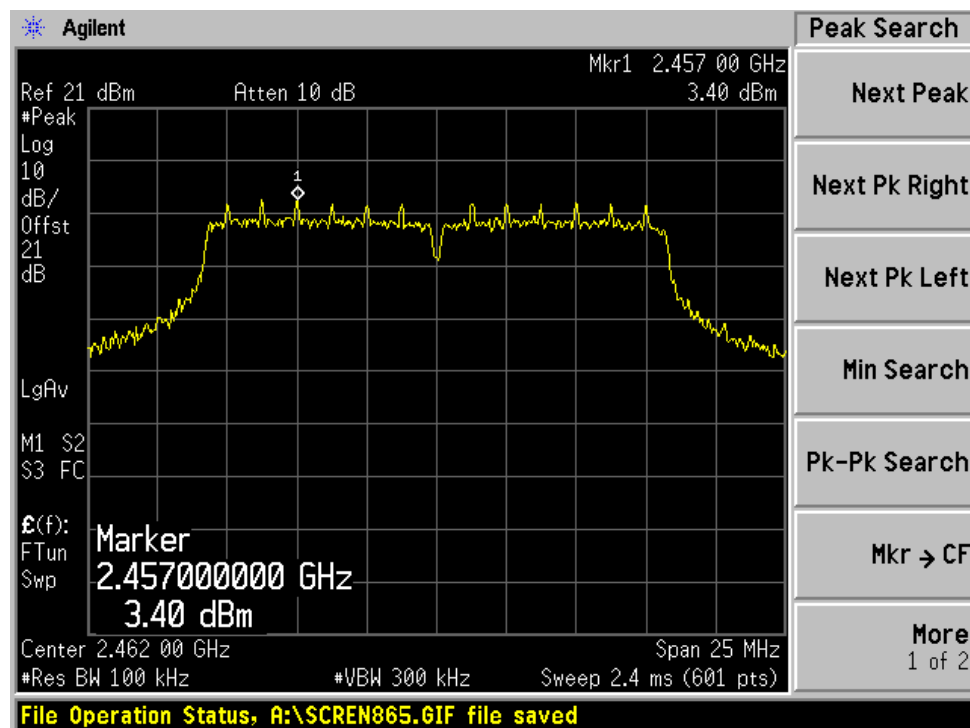
### 8.3.4 Diagram 8-4



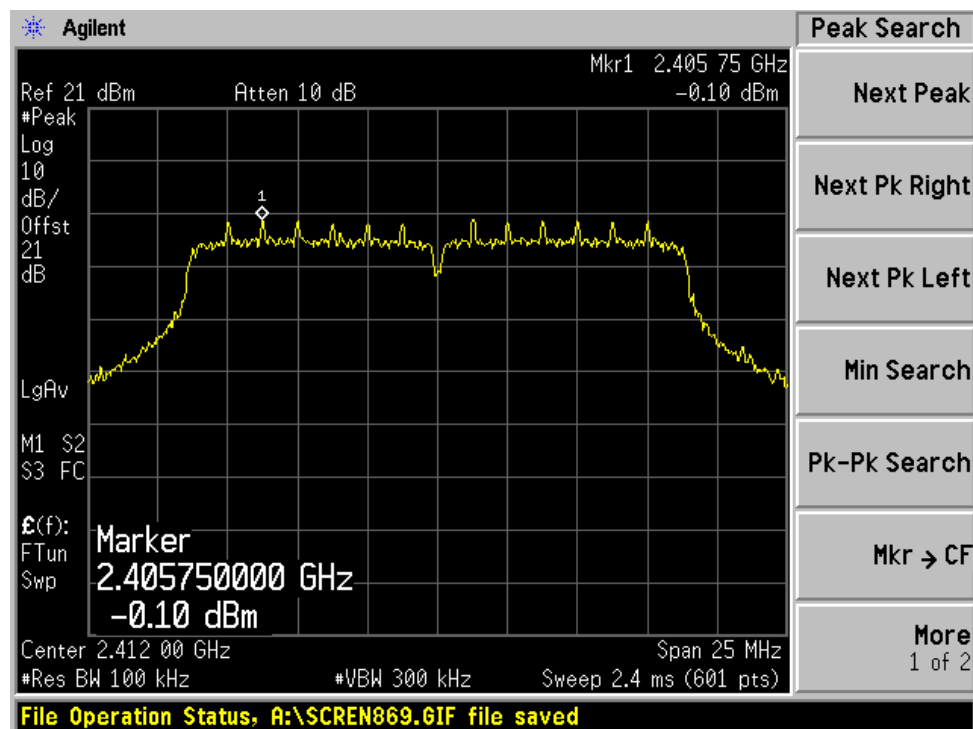
### 8.3.5 Diagram 8-5



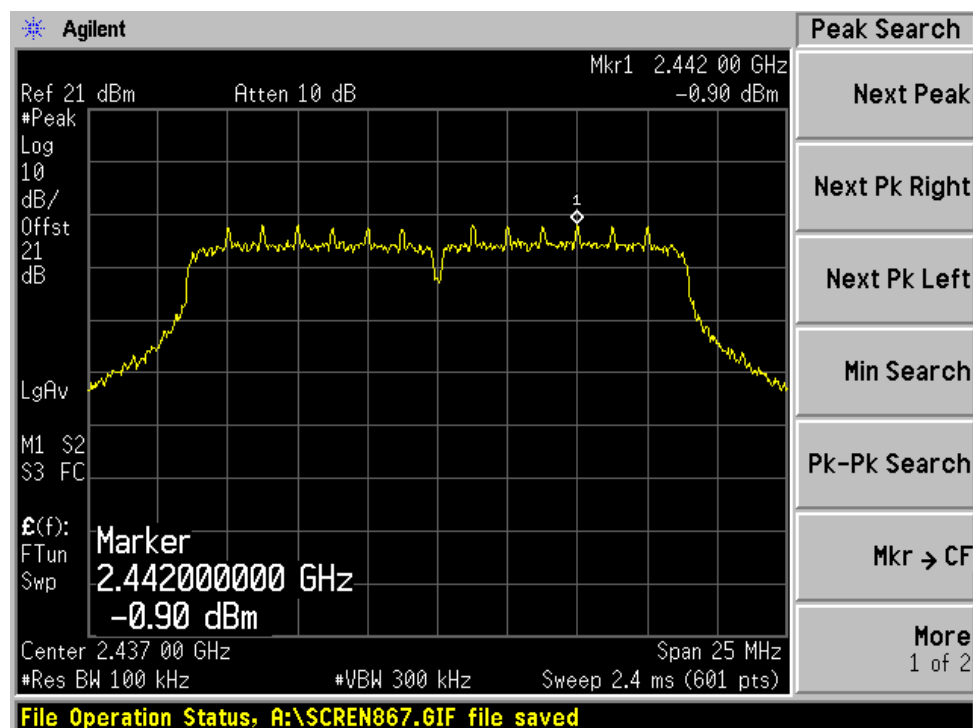
### 8.3.6 Diagram 8-6



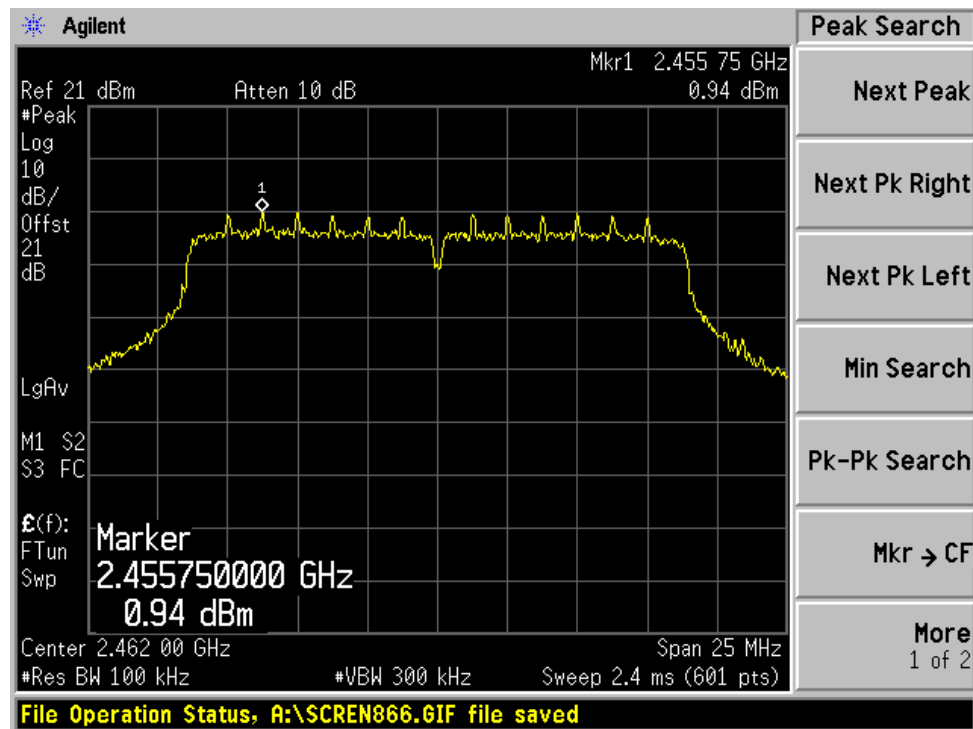
### 8.3.7 Diagram 8-7



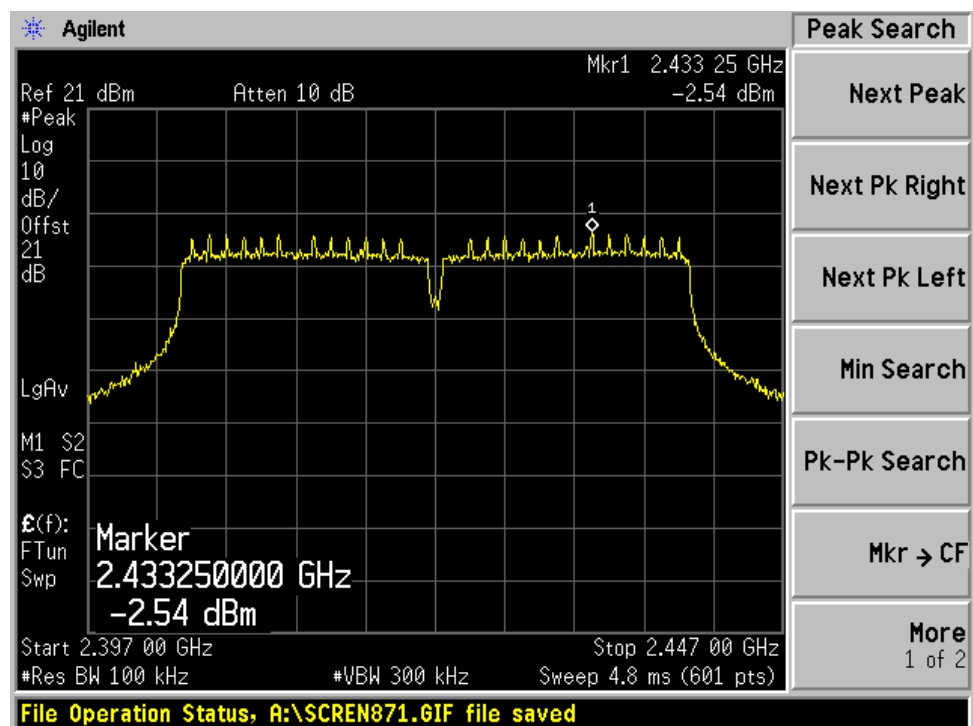
### 8.3.8 Diagram 8-8



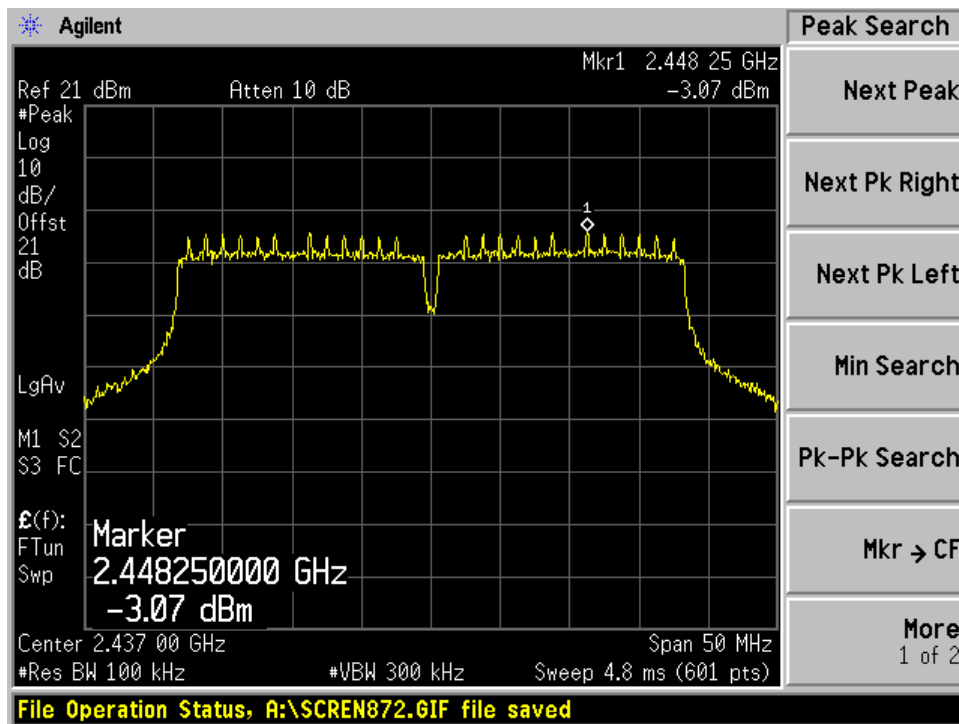
### 8.3.9 Diagram 8-9



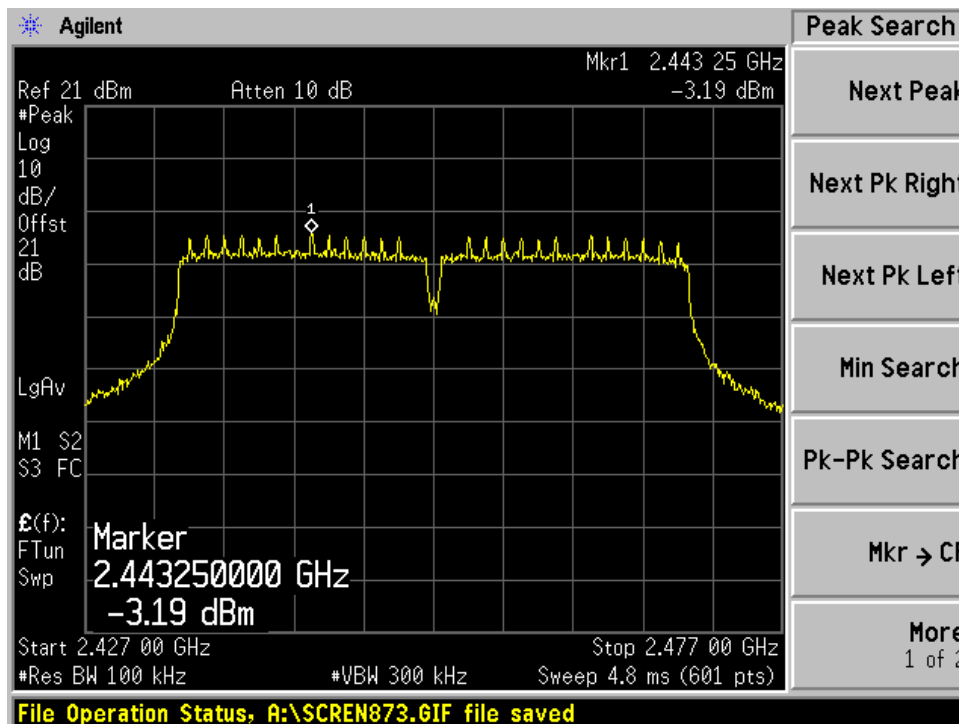
### 8.3.10 Diagram 8-10



### 8.3.11 Diagram 8-11



### 8.3.12 Diagram 8-12





## 9. Peak Output Power Test

### 9.1 Test Procedure

For systems using digital modulation in the 2400—2483.5MHz, The Peak out put power shall not exceed 1W(30dBm)

The transmitter output was connected to a PK power meter ,Cable loss have been added in power meter setting offset .

### 9.2 Measurement Equipment

	Equipment	Last Calibration	Type	Serial No.	Manufacturer
<input checked="" type="checkbox"/>	Power meter	2013-05-08	ML2487A	6k00002472	Anritsu
<input checked="" type="checkbox"/>	Power sensor	2013-05-08	MA2491A	0033005	Anritsu

### 9.3 Test Result

#### PEAK Output power : PASS

Test Mode	CH	Peak output Power (dBm)	Limit (dBm)
11b	CH1	13.43	30
	CH6	13.36	30
	CH11	13.58	30
11g	CH1	16.13	30
	CH6	16.53	30
	CH11	16.38	30
11n HT20	CH1	17.16	30
	CH6	17.42	30
	CH11	<b>17.46</b>	30
11n HT40	CH1	15.82	30
	CH4	<b>15.91</b>	30
	CH7	15.19	30

## 10 POWER LINE CONDUCTED EMISSION TEST

### 10.1 Test Procedure

An intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50  $\Omega$  line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of emission (MHz)	Conducted limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50
*-Decreases with the logarithm of the frequency.		

### 10.2 Measurement Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Test Receiver	Rohde & Schwarz	ESHS10	838693/001	Oct.31, 12	1 Year
2	L.I.S.N.#1	Rohde & Schwarz	ESH2-Z5	834066/011	Oct.31, 12	1 Year
3	L.I.S.N.#3	Kyoritsu	KNW-242C	8-1920-1	May.08, 13	1 Year
4	Terminator	Hubersuhner	50 $\Omega$	No. 1	May.08, 13	1 Year
5	Terminator	Hubersuhner	50 $\Omega$	No. 2	May.08, 13	1 Year
6	RF Cable	Fujikura	3D-2W	No.1	May.08, 13	1Year
7	Coaxial Switch	Anritsu	MP59B	M50564	May.08, 13	1 Year
8	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100341	May.08, 13	1 Year
9	Oscilloscope	Tektronix	TDS3052B	B026036	May.20, 13	1 Year

### 10.3 Test Result

The EUT was placed on a non-metallic table, 80cm above the ground plane. The other peripheral devices power cord connected to the power mains through another line impedance stabilization network. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4-2003 on conducted Emission test.

#### Preview measurements:

0.15 MHz to 30 MHz

Receiver settings: PK&AV detector

RBW:9 kHz

#### Final measurement:

0.15 MHz to 30 MHz

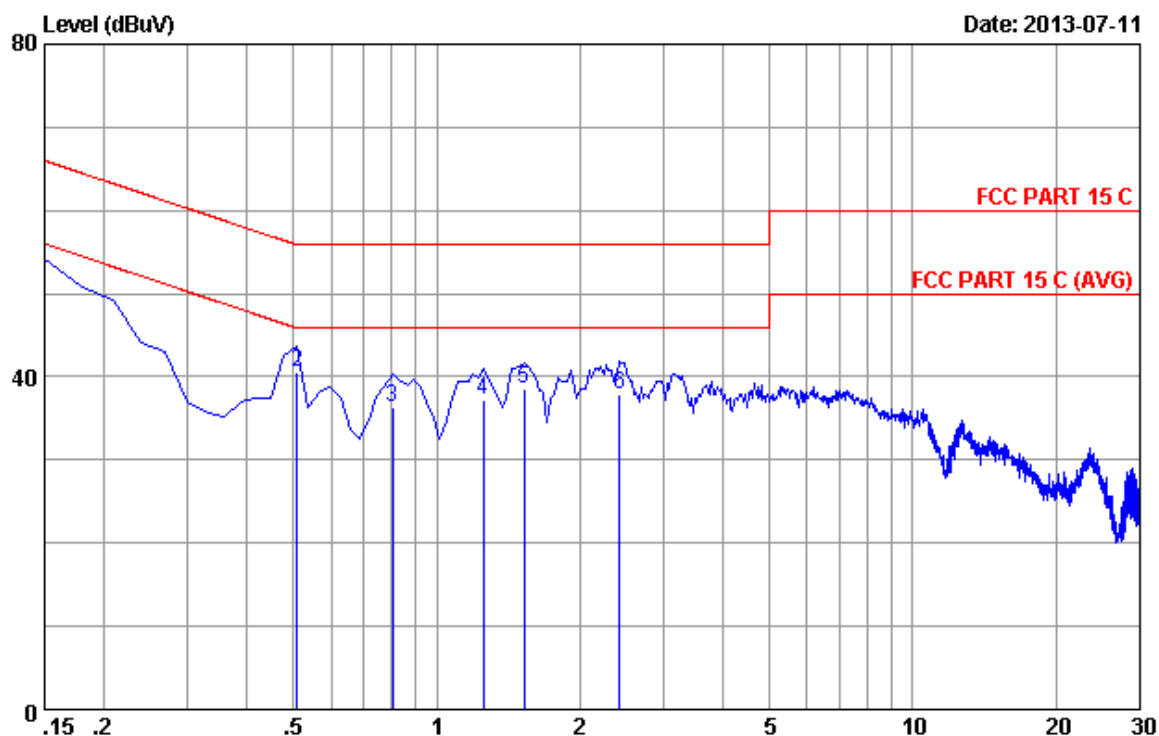
Receiver settings:QP&AV detector

Test mode	Power Line	Test Data	Test Result
TM1	Line	Diagram 10-1	Pass
	Neutral	Diagram 10-2	Pass

#### NOTES:

- Measurements using CISPR quasi-peak mode & average mode.
- All modes of operation were investigated and the worst -case emission are reported. See attached Plots.
- If PK value is lower than AV limit then QP and AV value are deemed to be complied with rules and only diagram will be shown as below.

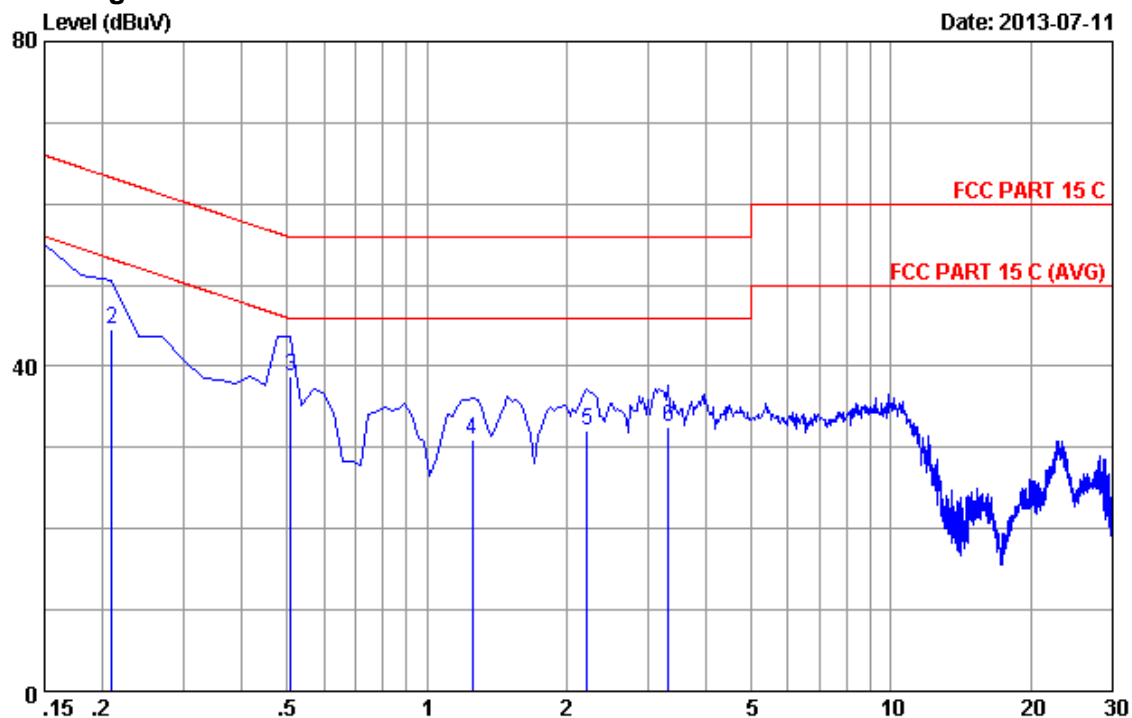
### 10.3.1 Diagram 10-1



No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.19	0.01	47.01	47.21	66.00	18.79	QP
2	0.50820	0.19	0.02	40.37	40.58	56.00	15.42	QP
3	0.80670	0.20	0.03	36.02	36.25	56.00	19.75	QP
4	1.254	0.22	0.03	36.86	37.11	56.00	18.89	QP
5	1.523	0.23	0.04	38.29	38.56	56.00	17.44	QP
6	2.419	0.25	0.04	37.56	37.85	56.00	18.15	QP

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

### 10.3.2 Diagram 10-2



No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.21	0.01	43.83	44.05	66.00	21.95	QP
2	0.20970	0.21	0.01	44.34	44.56	63.22	18.66	QP
3	0.50820	0.23	0.02	38.52	38.77	56.00	17.23	QP
4	1.254	0.25	0.03	30.79	31.07	56.00	24.93	QP
5	2.210	0.29	0.04	31.81	32.14	56.00	23.86	QP
6	3.314	0.31	0.05	32.27	32.63	56.00	23.37	QP

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

## **11. Antenna requirement**

### **11.1 Requirement**

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

### **11.2 Result**

The antenna used for this product is Internal Patch antenna that no antenna other than that furnished by the responsible party shall be used with the device, The maximum peak gain of this antenna is 2.06dBi.

**END OF REPORT**