

## 7 20dB EMISSION BANDWIDTH MEASUREMENT

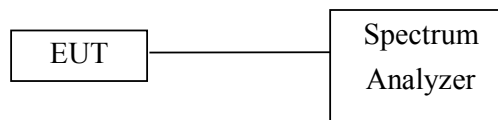
### 7.1 Standard Applicable

According to 15.247(a)(1), for frequency hopping systems, hopping channel carrier frequencies separated by a minimum of 25kHz or the 20dB bandwidth of hopping channel, whichever is greater.

### 7.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The setup of the EUT as shown in figure 4. Turn on the EUT and connect it to measurement instrument. Then set it to any convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

Figure 4: Emission bandwidth measurement configuration.



### 7.3 Measurement Equipment

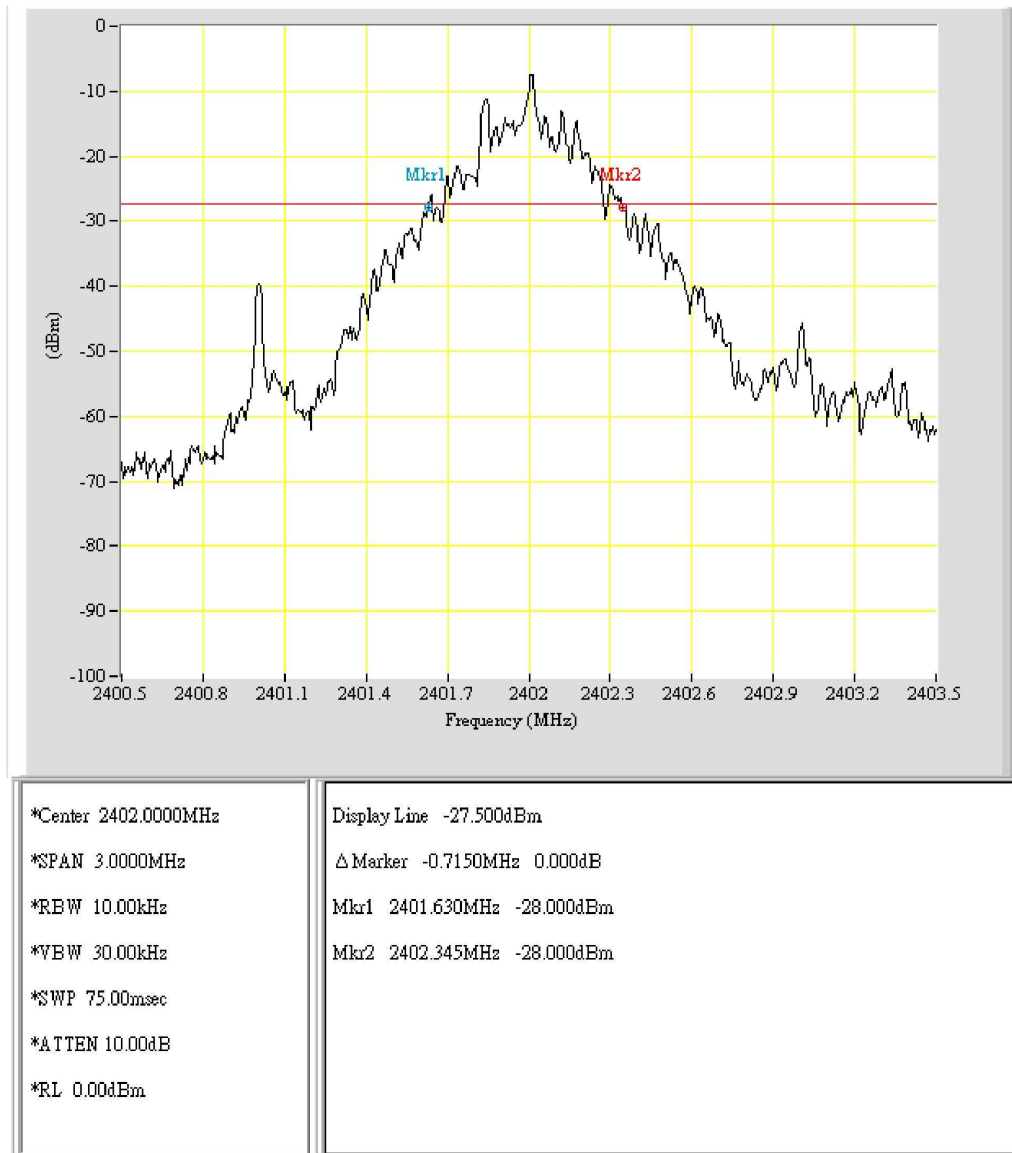
Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Hewlett-Packard	8564EC	09/16/2005

## 7.4 Measurement Data

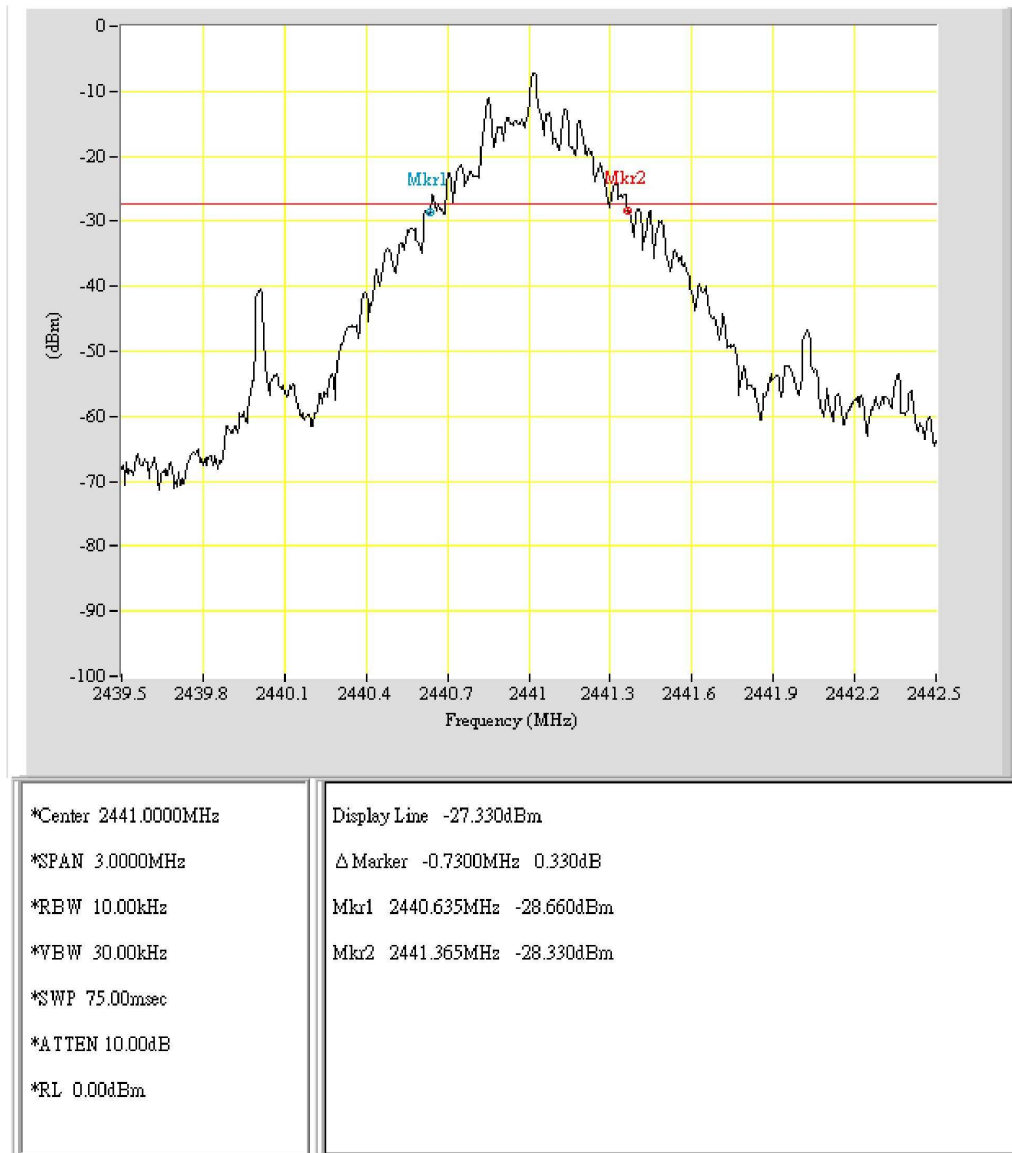
Test Date : Sep. 22, 2004Temperature : 24 °CHumidity: 69%

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)	Chart
0	2402	0.715	Page 38
39	2441	0.730	Page 39
78	2480	0.725	Page 40

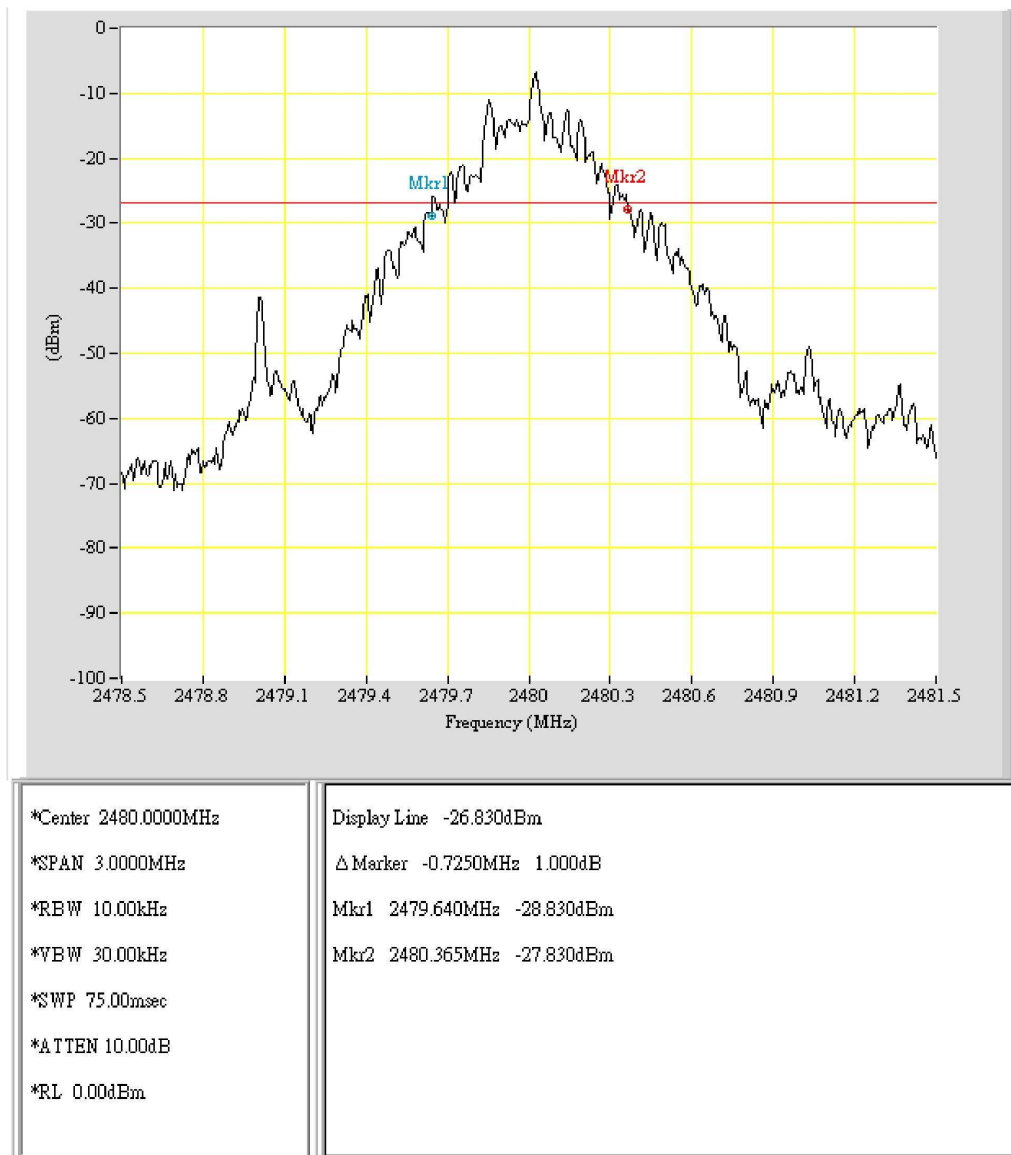
*Note: Please refer to page 38 to page 40 for chart*



EUT:  
Purpose: 20dB\_BW  
Condition: CH0  
Note:



EUT  
Purpose: 20dB\_BW  
Condition: CH39  
Note:



EUT:  
Purpose: 20dB\_BW  
Condition: CH78  
Note:

## 8 OUTPUT POWER MEASUREMENT

### 8.1 Standard Applicable

For frequency hopping system, according to 15.247(b), the maximum peak output power of the transmitter shall not exceed 1 Watt. If Receiving antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 8.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The setup of the EUT as shown in figure 4. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz and VBW to 3 MHz.
4. Measure the highest amplitude appearing on spectral display and record the level to calculate result data.
5. Repeat above procedures until all frequencies measured were complete.

### 8.3 Measurement Equipment

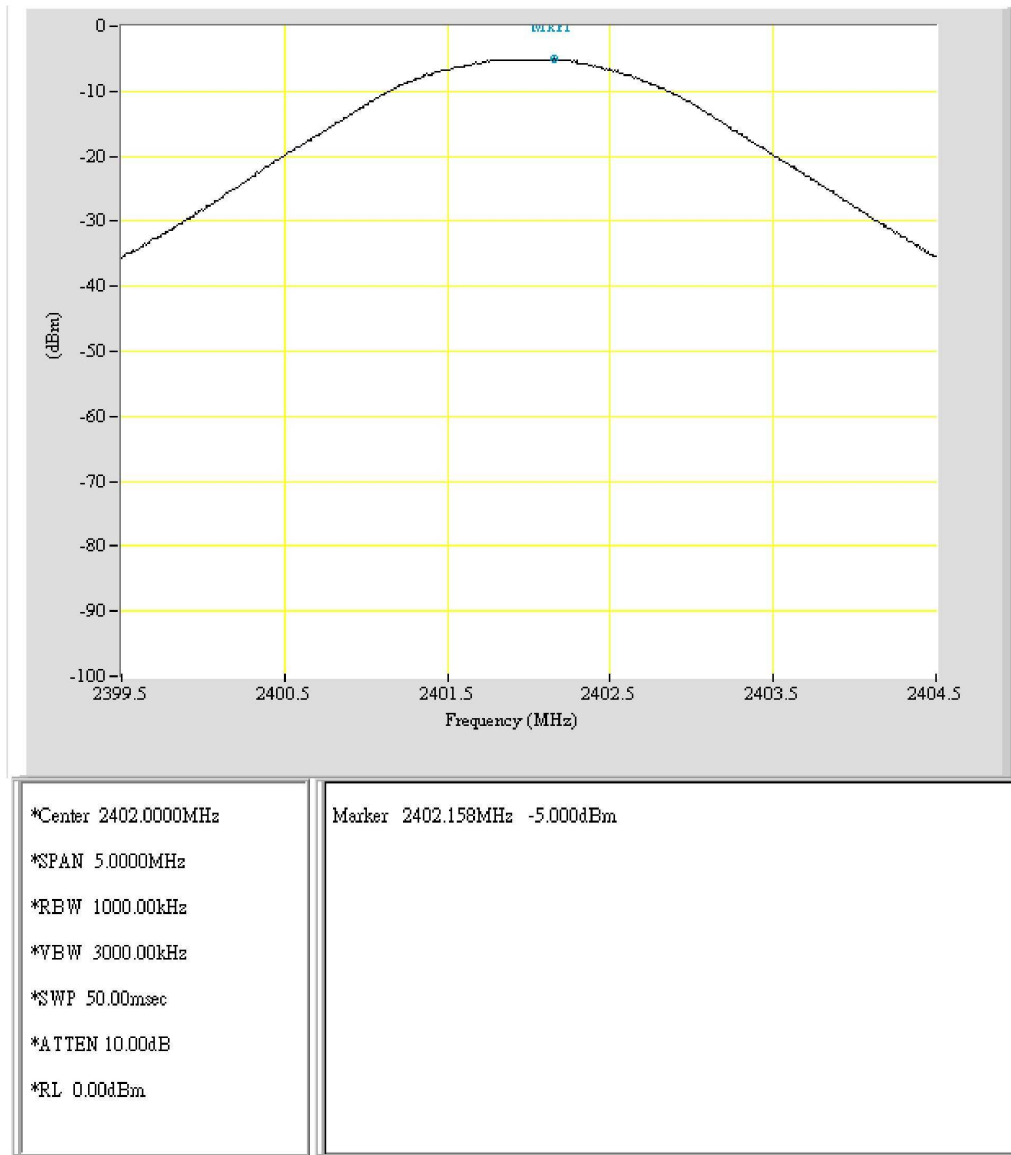
Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Hewlett-Packard	8564EC	09/16/2005

## 8.4 Measurement Data

Test Date : Sep. 22, 2004Temperature : 24 °CHumidity: 69%

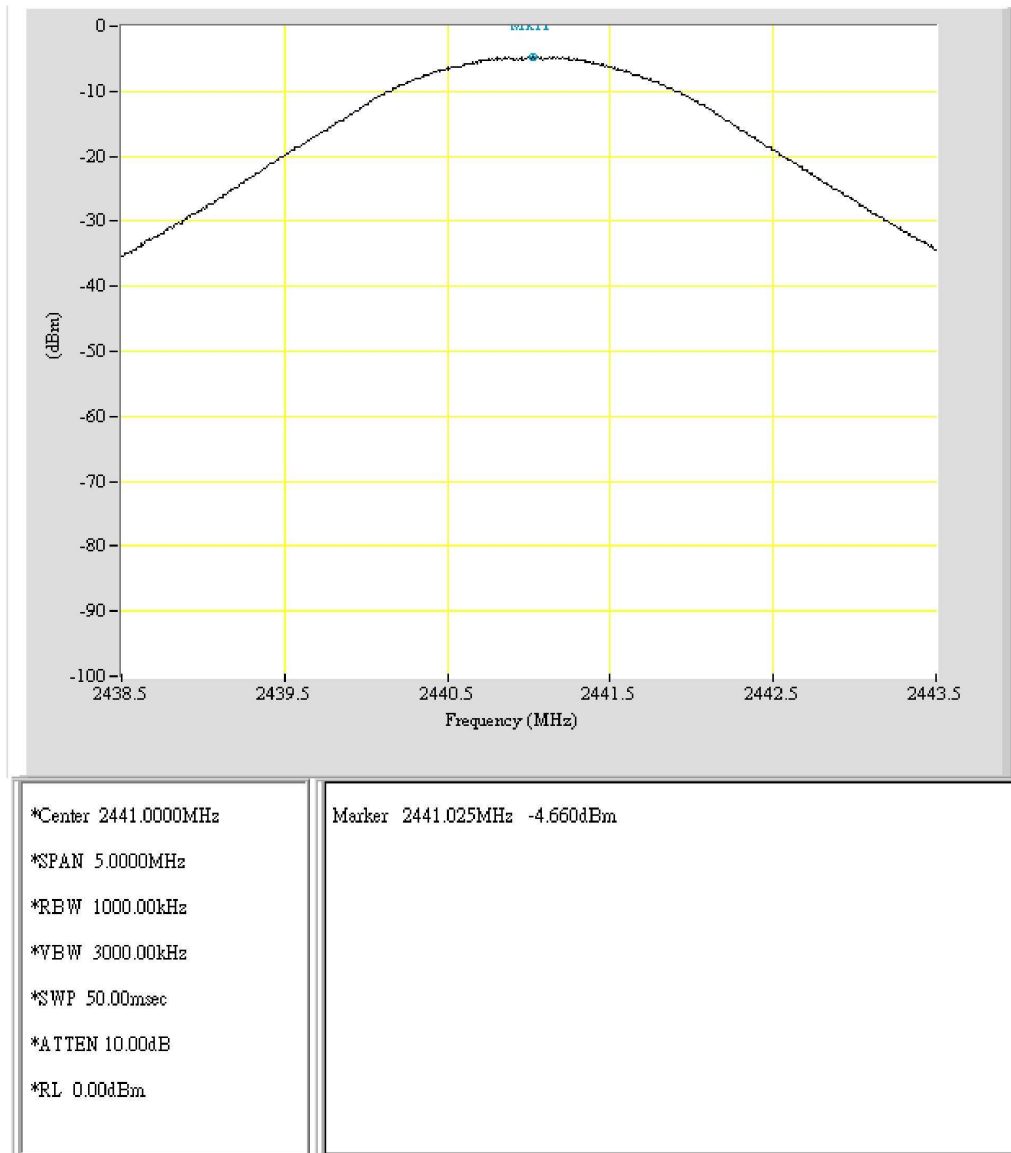
Channel	Frequency (MHz)	Reading (dBm)	Cable Loss (dB)	Maximum Peak Output Power (dBm)	Maximum Peak Output Power (mW)	FCC Limit (mW)	Chart
0	2402	-5.00	1.0	-4.00	0.40	1000	Page 43
39	2441	-4.66	1.0	-3.66	0.43	1000	Page 44
78	2480	-4.50	1.0	-3.50	0.45	1000	Page 45

***Note: Please refer to page 43 to page 45 for chart***

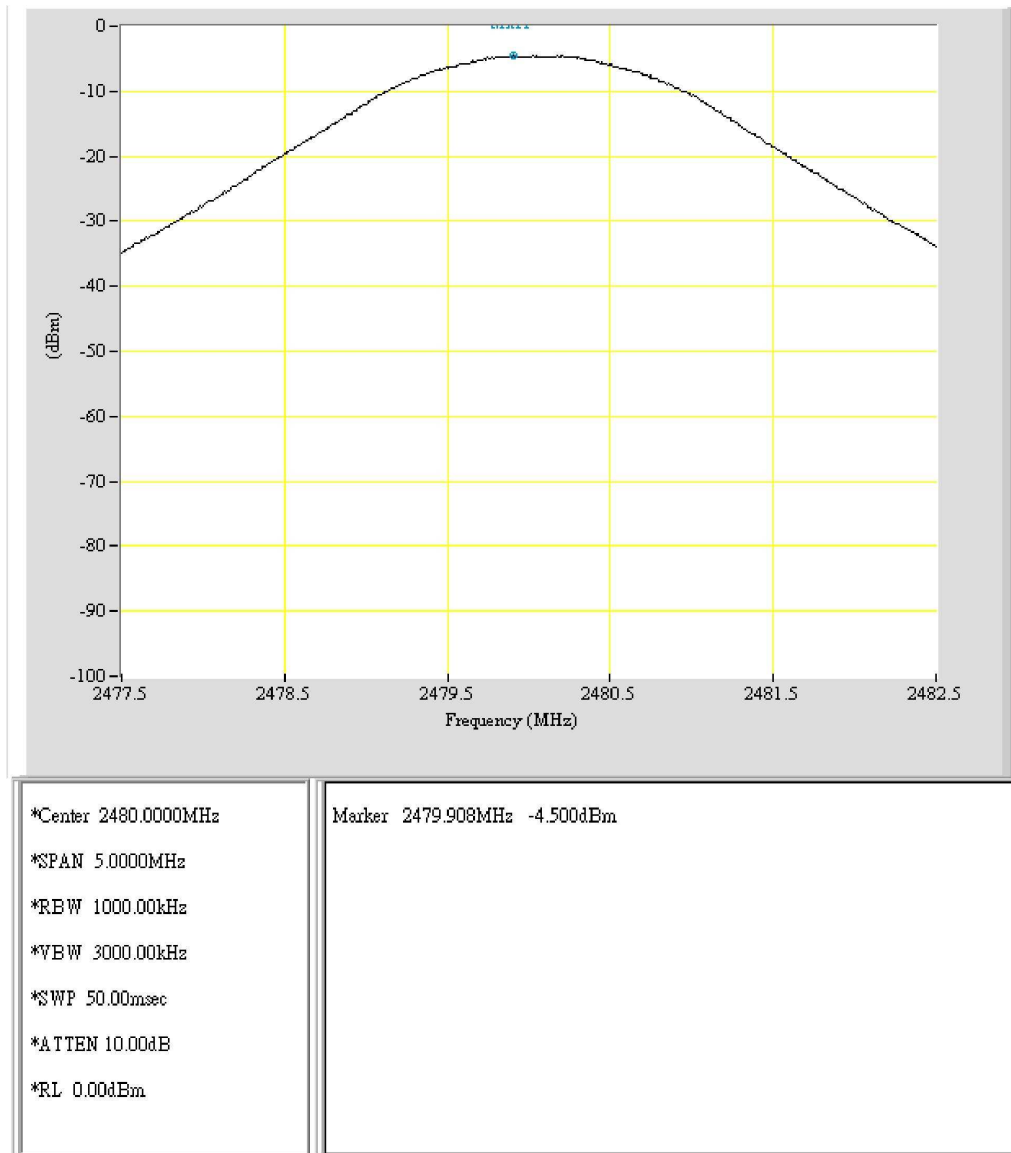


EUT: 88888888  
Purpose: Output\_Pwr  
Condition: CH0  
Note:





EUT:  
Purpose: Output\_Pwr  
Condition: CH39  
Note:



EUT:  
Purpose: Output\_Pwr  
Condition: CH78  
Note:

## 9 OUT-OF-BAND RF CONDUCTED SPURIOUS EMISSION MEASUREMENT

### 9.1 Standard Applicable

According to 15.247(c), if any 100 kHz bandwidth outside these frequency bands, the radio frequency power that is produced by the modulation products of the spreading sequence, the information sequence and the carrier frequency shall be either at least 20 dB below that in any 100 kHz bandwidth within the band that contains the highest level of the desired power or shall not exceed the general levels specified in §15.209(a), whichever results in the lesser attenuation.

### 9.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The setup of the EUT as shown in figure 4. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

### 9.3 Measurement Equipment

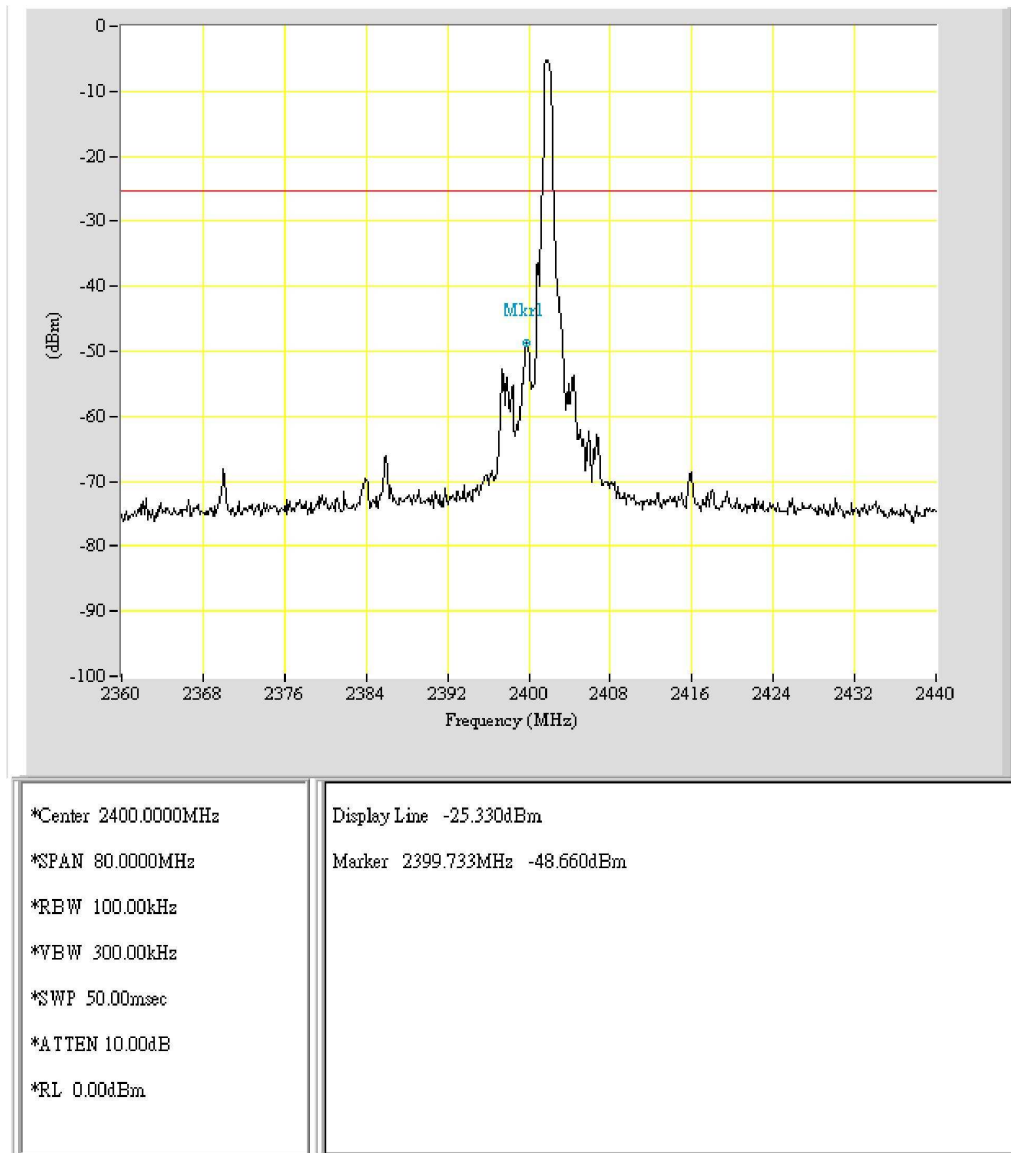
Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Hewlett-Packard	8564EC	09/16/2005

## 9.4 Measurement Data

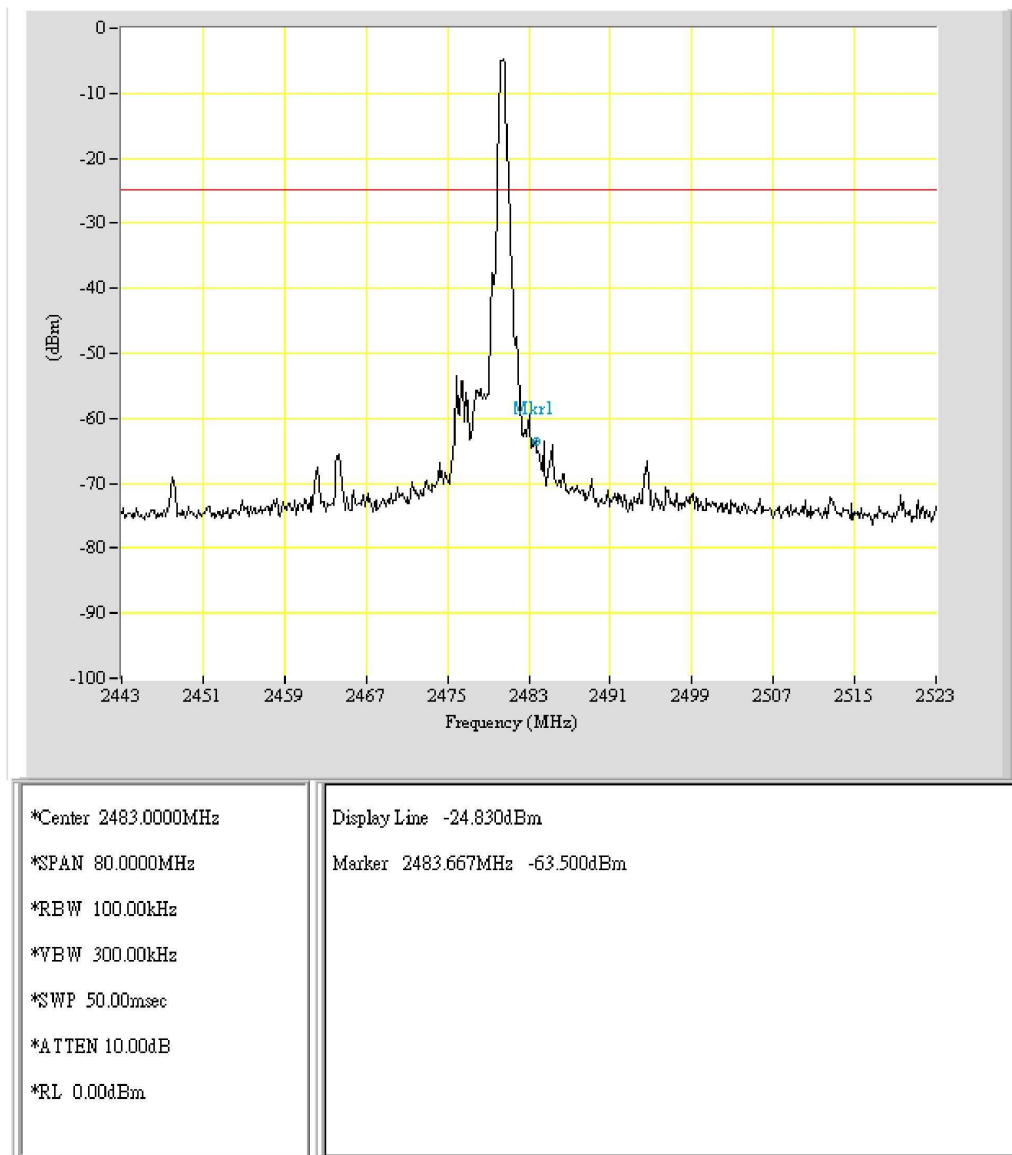
Test Date : Sep. 22, 2004Temperature : 24 °CHumidity: 69%

Channel	Test Frequency Range	Note	Chart
0	2360 MHz - 2440 MHz	Lower Band Edge	Page 48
78	2443.5 MHz - 2523.5 MHz	Upper Band Edge	Page 49
0	30 MHz - 25 GHz		Page 50
39	30 MHz - 25 GHz		Page 51
78	30 MHz - 25 GHz		Page 52

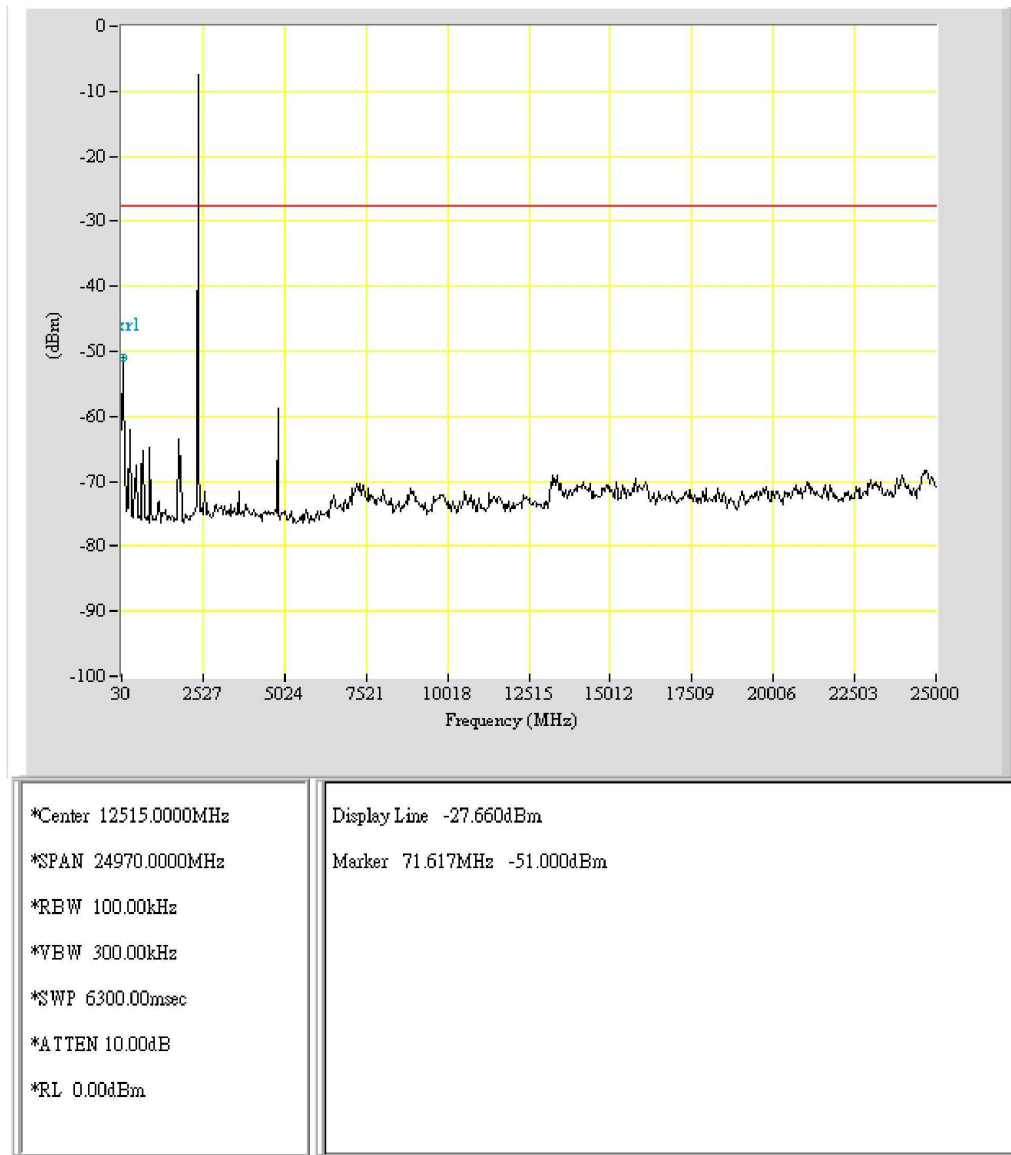
***Note: Please refer to page 48 to page 52 for chart***



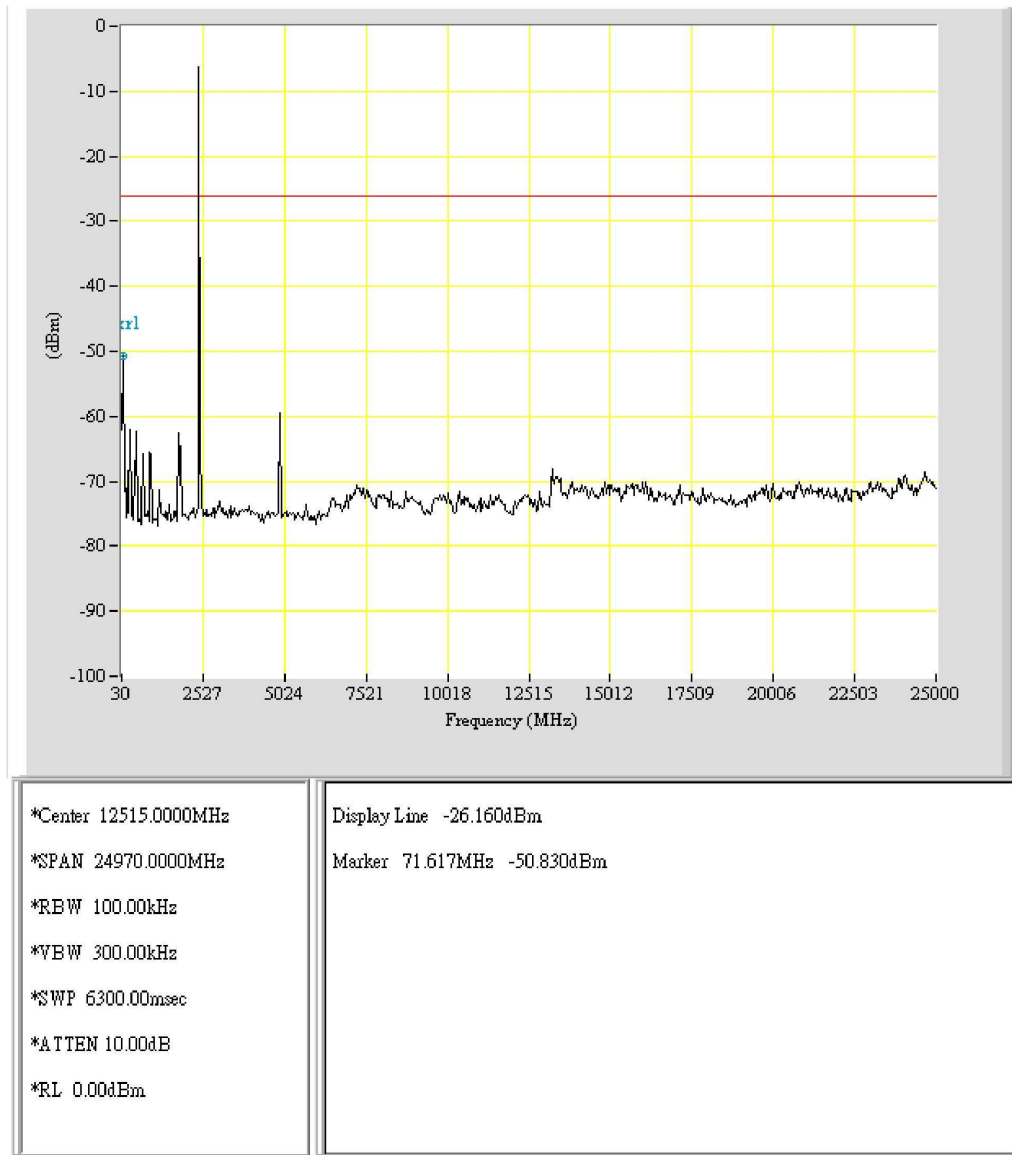
EUT:  
Purpose: Band\_Edge  
Condition: CH0  
Note:



EUT:  
Purpose: Band\_Edge  
Condition: CH78  
Note:

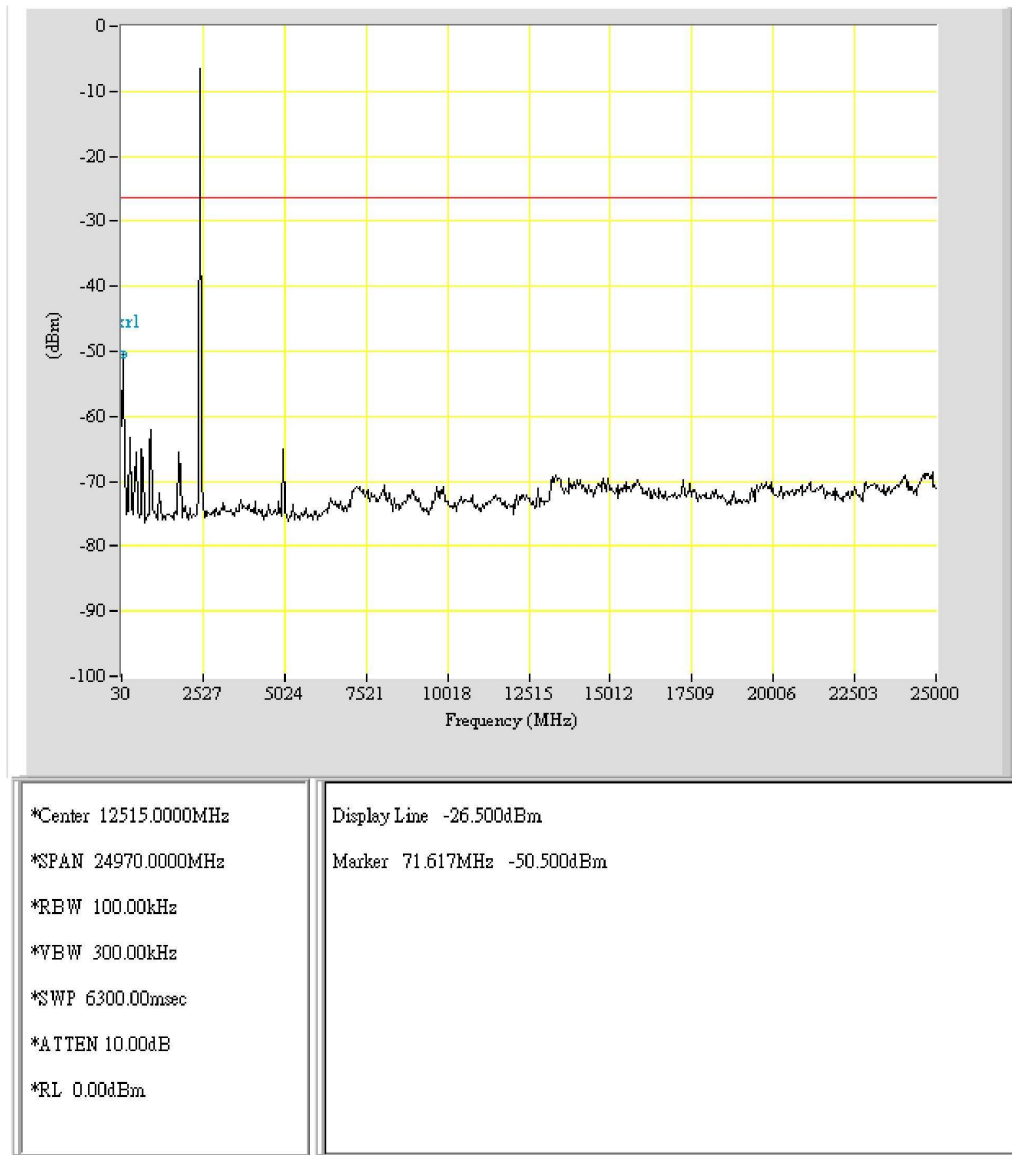


EUT:  
Purpose: Band\_Edge\_All  
Condition: CH0  
Note:



EUT:  
Purpose: Band\_Edge\_All  
Condition: CH39  
Note:





EUT:  
Purpose: Band\_Edge\_All  
Condition: CH78  
Note: