

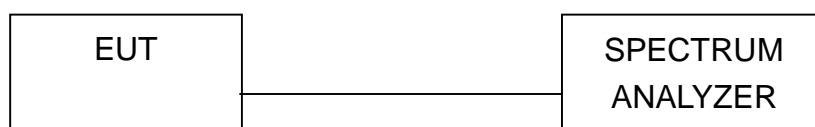
#### 4.5.3 TEST PROCEDURES

1. The transmitter output was connected to the spectrum analyzer.
2. Set RBW=1MHz, VBW=3MHz. The PPSD is the highest level found across the emission in any 1MHz band.

#### 4.5.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.5.5 TEST SETUP



#### 4.5.6 EUT OPERATING CONDITIONS

Same as 4.3.6

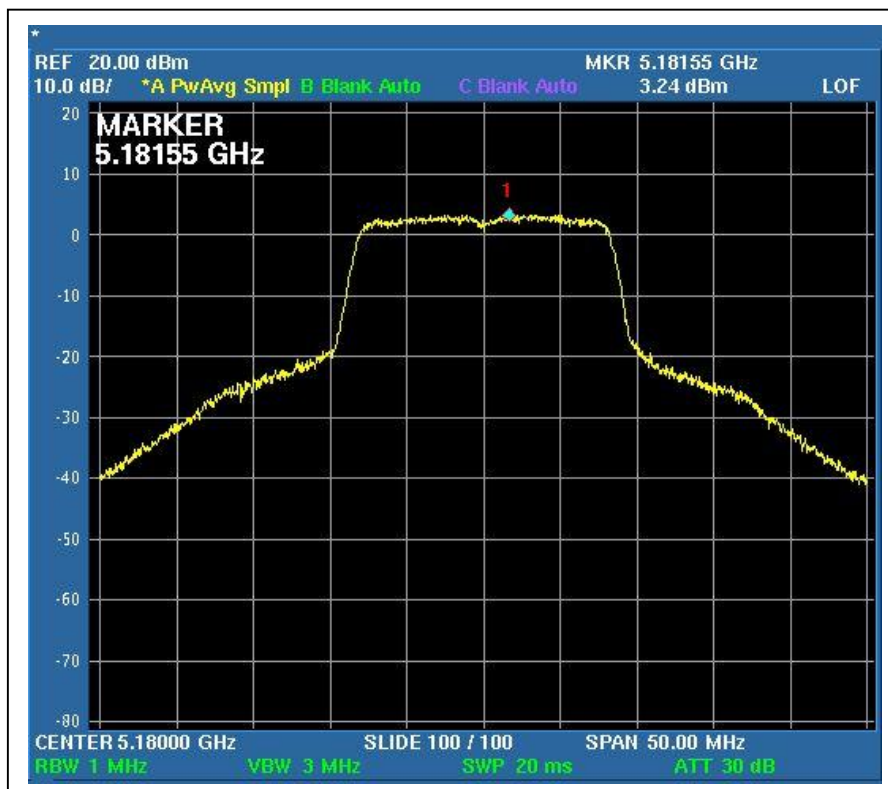
#### 4.5.7 TEST RESULTS

##### 802.11a OFDM modulation

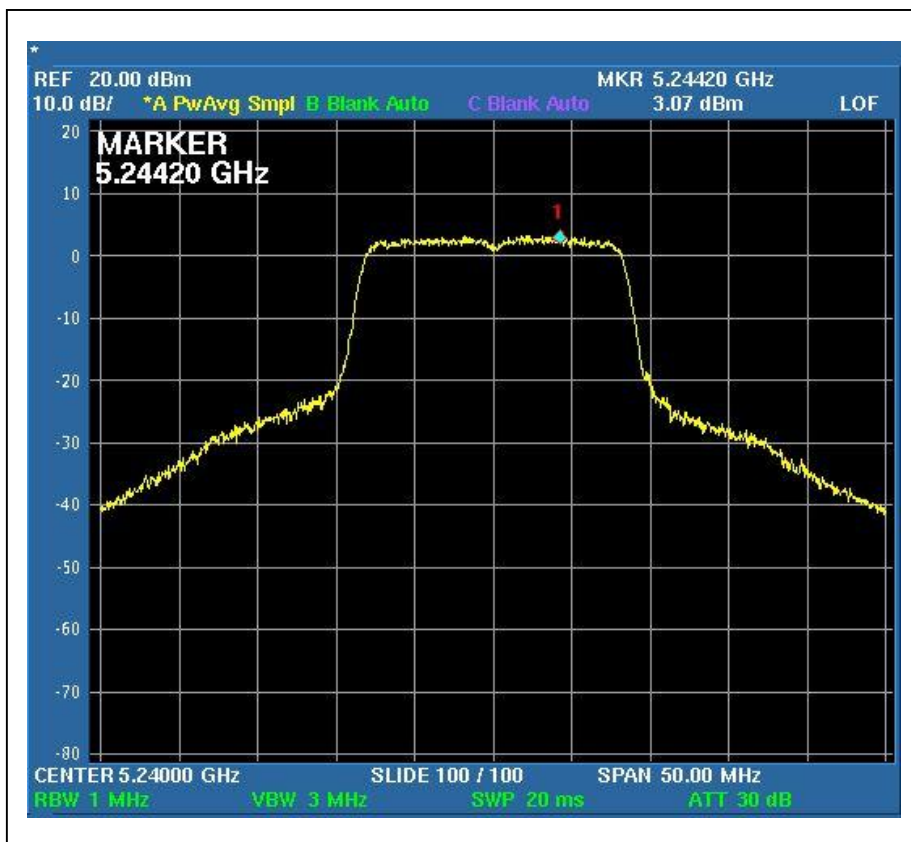
<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	6Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	27deg.C, 53%RH, 960hPa
<b>TESTED BY</b>	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	5180	3.24	4	PASS
4	5240	3.07	4	PASS
5	5260	3.48	11	PASS
8	5320	3.29	11	PASS
9	5500	5.24	11	PASS
14	5600	5.67	11	PASS
19	5700	4.41	11	PASS

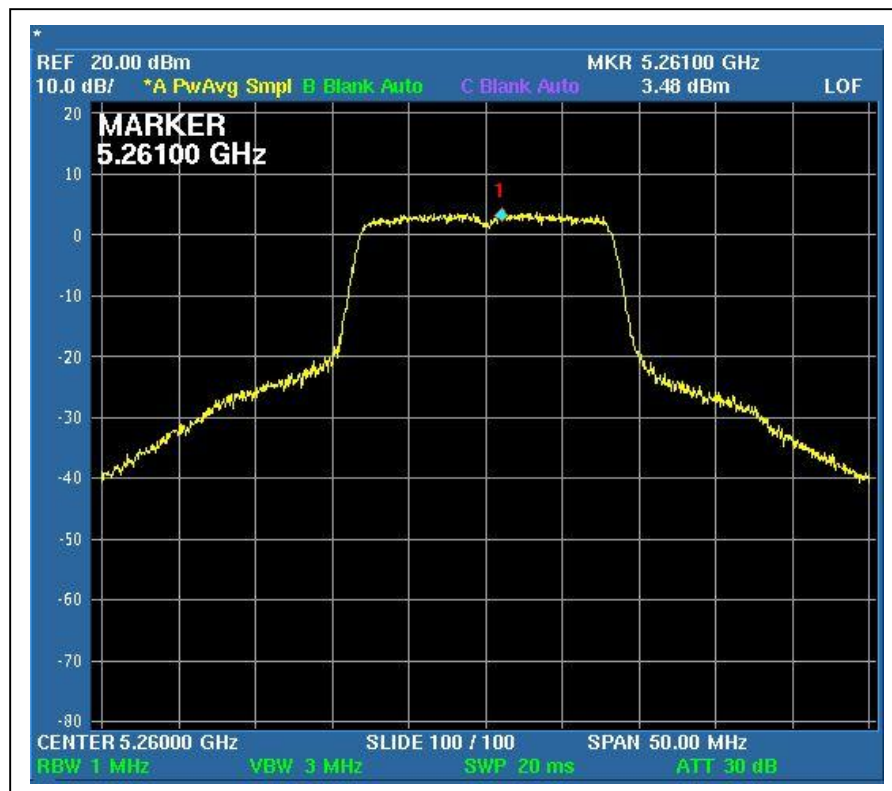
CH1



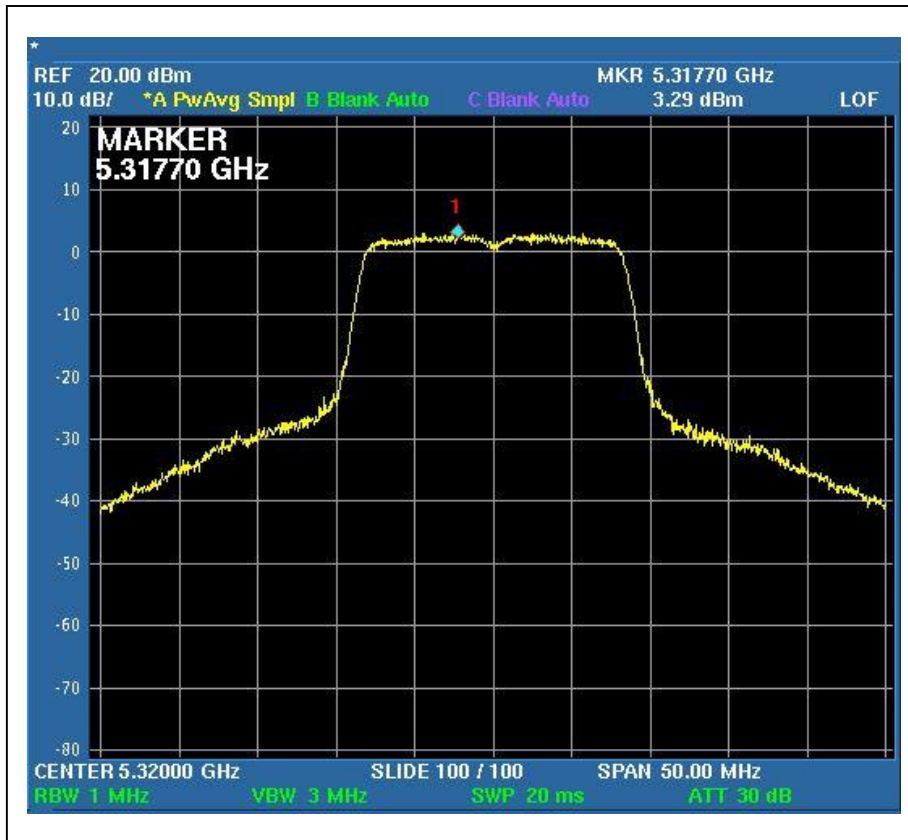
CH4



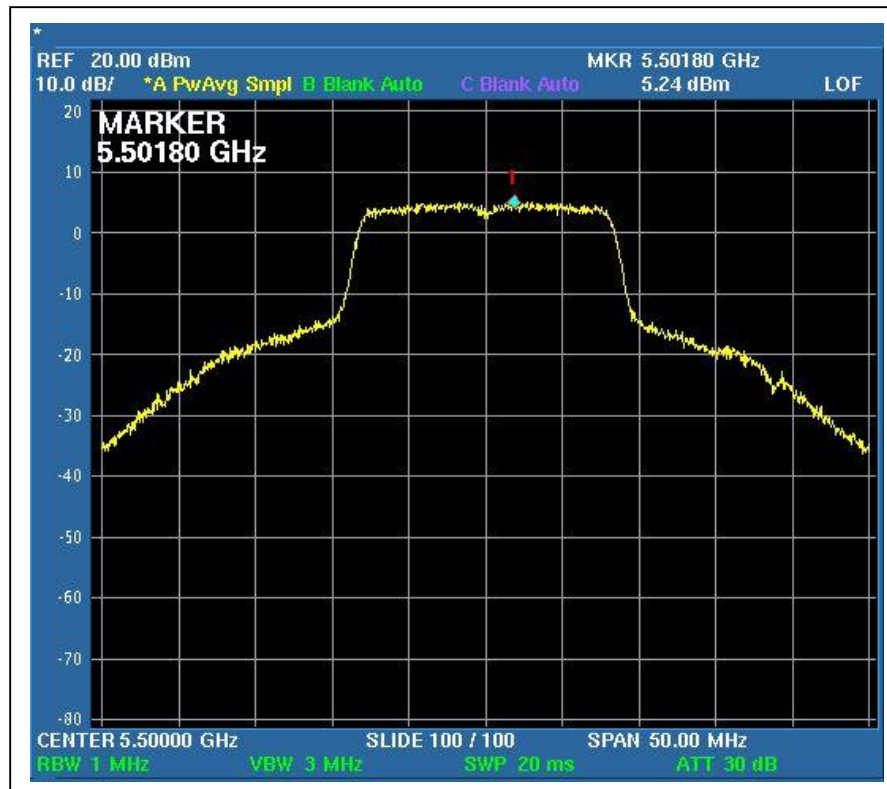
CH5



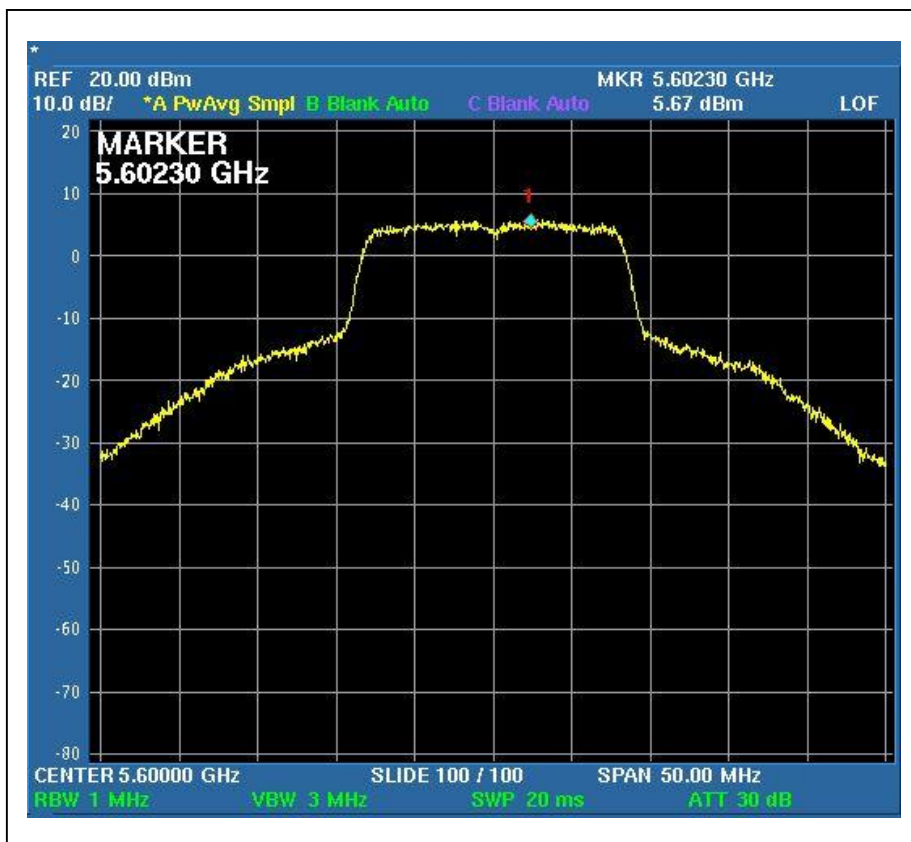
CH8



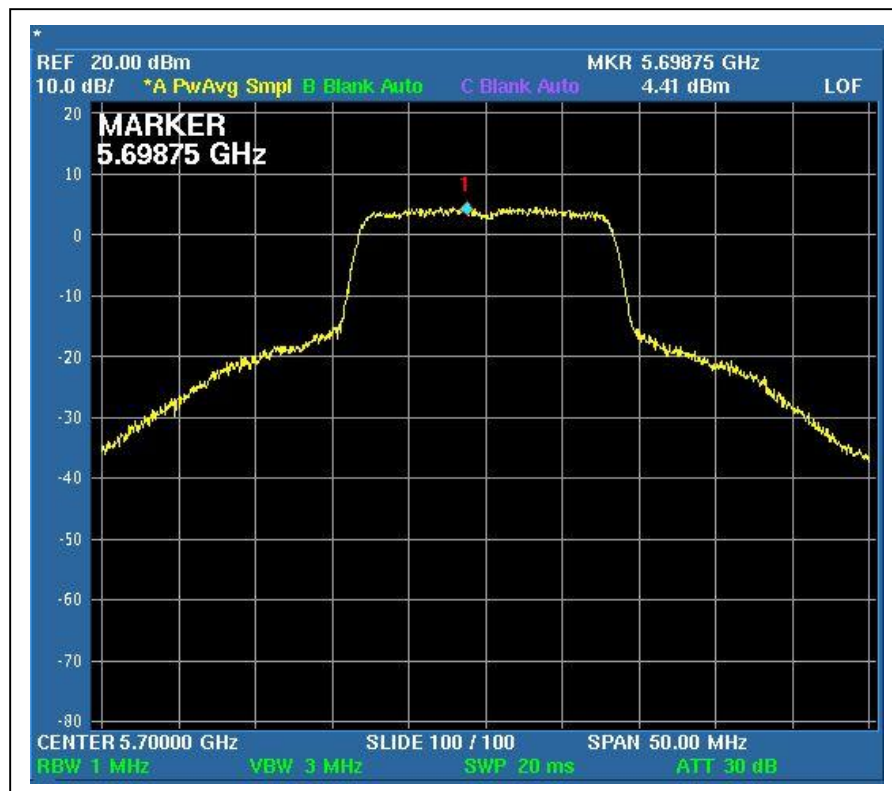
CH9



## CH14



## CH19



## 4.6 FREQUENCY STABILITY

### 4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within +/- 0.02% of the operating frequency over a temperature variation of -30 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

### 4.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 15, 2008

#### NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

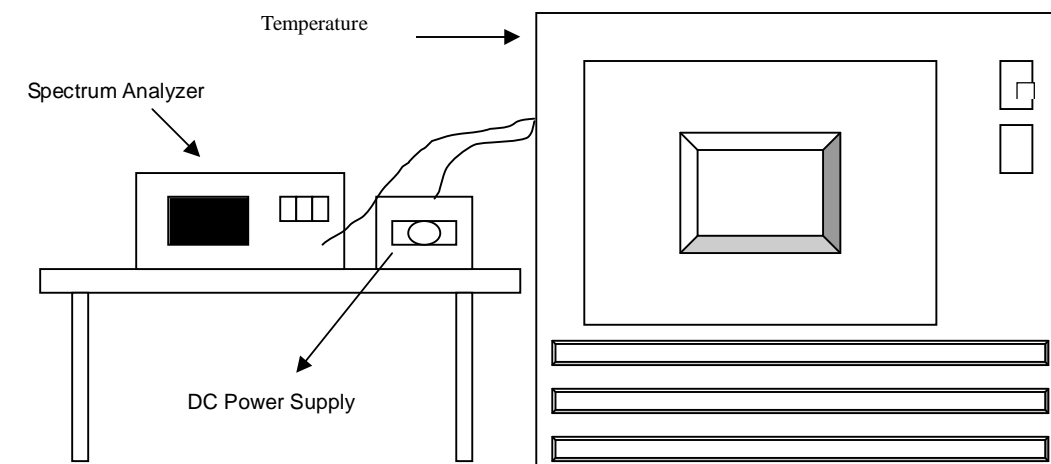
### 4.6.3 TEST PROCEDURE

1. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

#### 4.6.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.6.5 TEST SETUP



#### 4.6.6 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

#### 4.6.7 TEST RESULTS

Operating frequency: 5320MHz				Limit : $\pm 0.01\%$			
Temp. (°C)	Power supply (VAC)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	126.5	5320.0264	0.000496	5320.0250	0.000470	5320.0232	0.000436
	110	5320.0248	0.000466	5320.0236	0.000444	5320.0204	0.000383
	93.5	5320.0244	0.000459	5320.0240	0.000451	5320.0212	0.000398
40	126.5	5320.0326	0.000613	5320.0322	0.000605	5320.0316	0.000594
	110	5320.0314	0.000590	5320.0326	0.000613	5320.0344	0.000647
	93.5	5320.0318	0.000598	5320.0324	0.000609	5320.0338	0.000635
30	126.5	5320.0126	0.000237	5320.0122	0.000229	5320.0109	0.000205
	110	5320.0114	0.000214	5320.0112	0.000211	5320.0103	0.000194
	93.5	5320.0122	0.000229	5320.0118	0.000222	5320.0106	0.000199
20	126.5	5319.9862	0.000259	5319.9886	0.000214	5319.9894	0.000199
	110	5319.9872	0.000241	5319.9886	0.000214	5319.9902	0.000184
	93.5	5319.9906	0.000177	5319.9924	0.000143	5319.9933	0.000126
10	126.5	5320.0237	0.000445	5320.0218	0.000410	5320.0184	0.000346
	110	5320.0223	0.000419	5320.0241	0.000453	5320.0234	0.000440
	93.5	5320.0231	0.000434	5320.0218	0.000410	5320.0188	0.000353
0	126.5	5320.0308	0.000579	5320.0299	0.000562	5320.0277	0.000521
	110	5320.0308	0.000579	5320.0301	0.000566	5320.0292	0.000549
	93.5	5320.0284	0.000534	5320.0280	0.000526	5320.0268	0.000504
-10	126.5	5319.9932	0.000128	5319.9926	0.000139	5319.9914	0.000162
	110	5319.9944	0.000105	5319.9936	0.000120	5319.9928	0.000135
	93.5	5319.9926	0.000139	5319.9931	0.000130	5319.9946	0.000102
-20	126.5	5320.0118	0.000222	5320.0111	0.000209	5320.0105	0.000197
	110	5320.0116	0.000218	5320.0112	0.000211	5320.0103	0.000194
	93.5	5320.0124	0.000233	5320.0131	0.000246	5320.0138	0.000259
-30	126.5	5320.0095	0.000179	5320.0102	0.000192	5320.0118	0.000222
	110	5320.0072	0.000135	5320.0082	0.000154	5320.0098	0.000184
	93.5	5320.0076	0.000143	5320.0088	0.000165	5320.0096	0.000180



## 4.7 BAND EDGES MEASUREMENT

### 4.7.1 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 15, 2008

**NOTE:**

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

### 4.7.2 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 1MHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

### 4.7.3 EUT OPERATING CONDITION

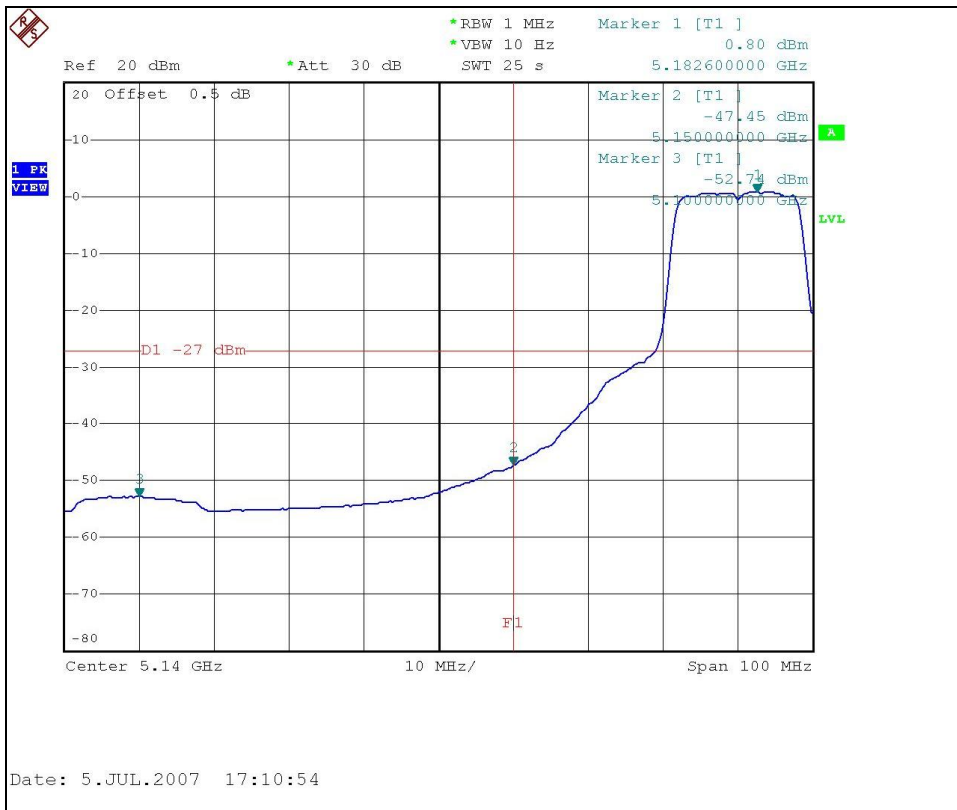
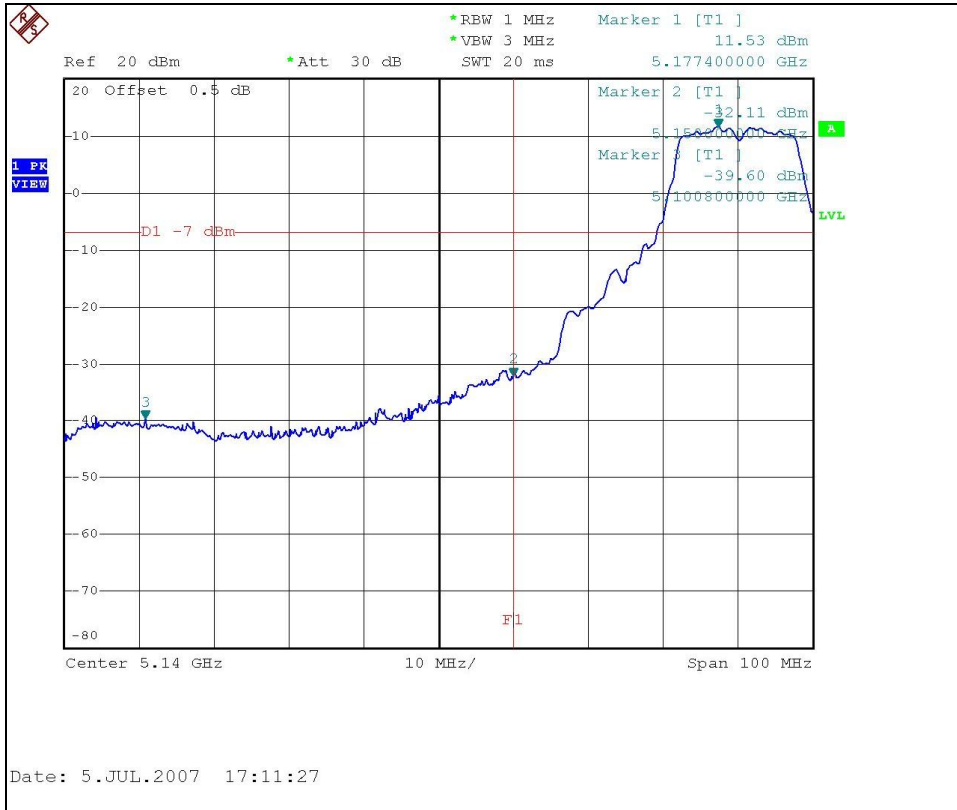
The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

#### 4.7.4 TEST RESULTS

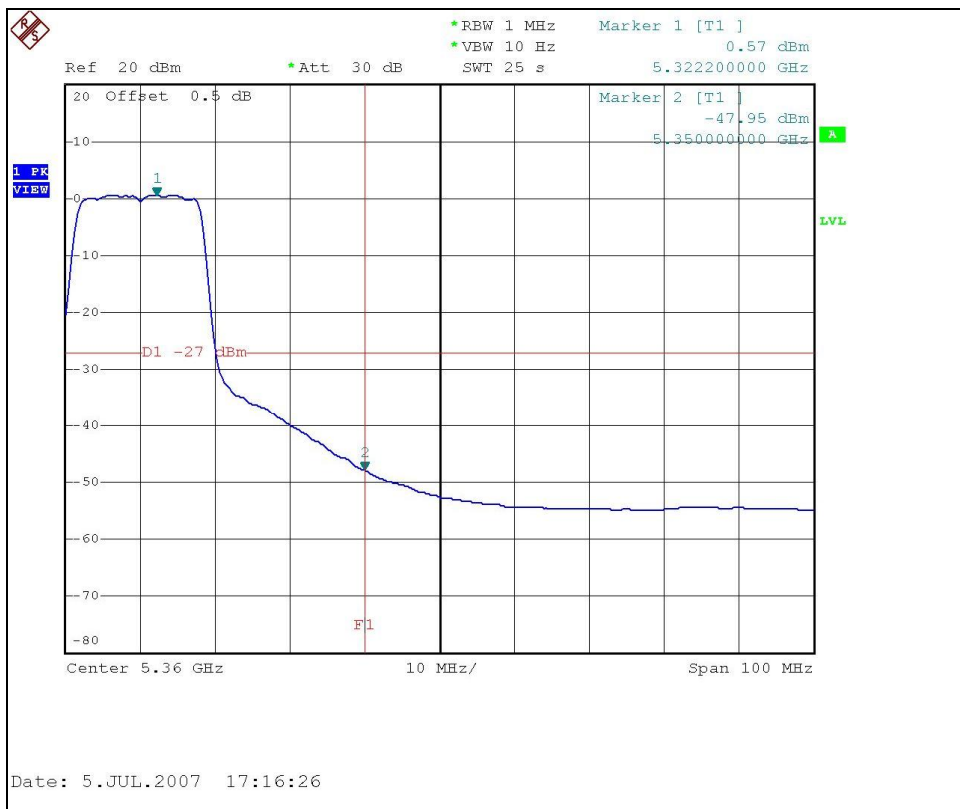
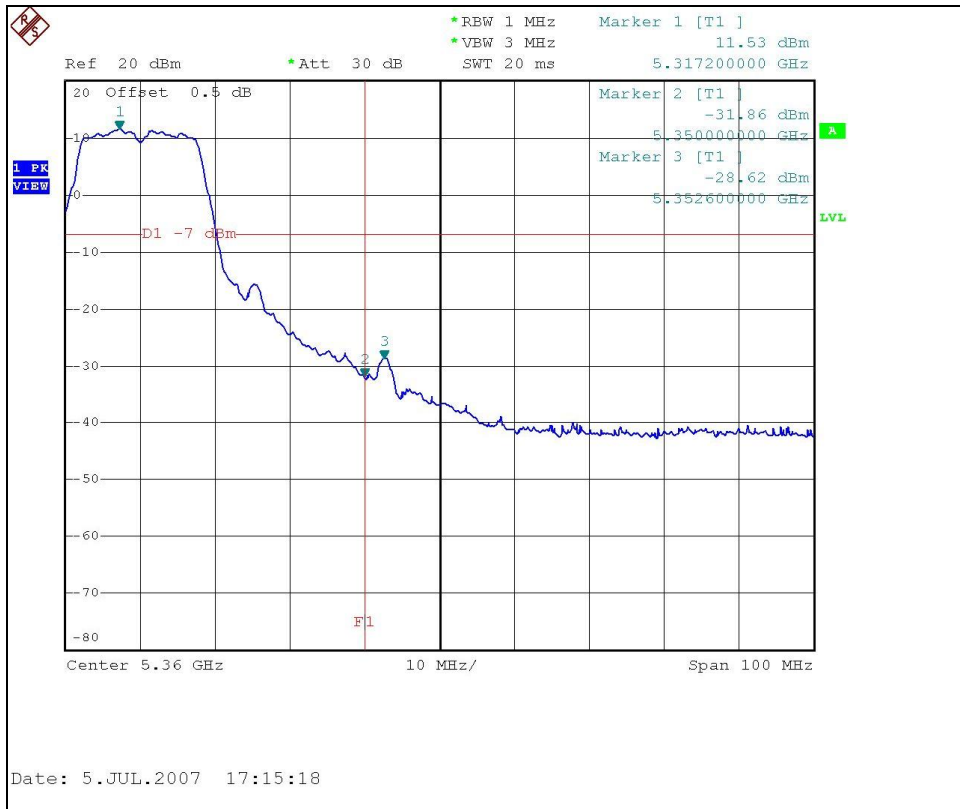
For signals in the restricted bands above and below the 5.15 to 5.35GHz allocated band a measurement was made of the amplitude of the spurious emissions with respect to the intentional signals. The relative amplitude, in dBc, was applied to the average and peak field strength of the intentional signal made on the OATS to calculate the field strength of the unintentional signals.

The spectrum plots (Peak RBW=1MHz, VBW=3MHz; Average RBW=1MHz, VBW=10Hz) are attached on the following pages.

### 802.11a OFDM modulation(CH 1: 5180MHz)

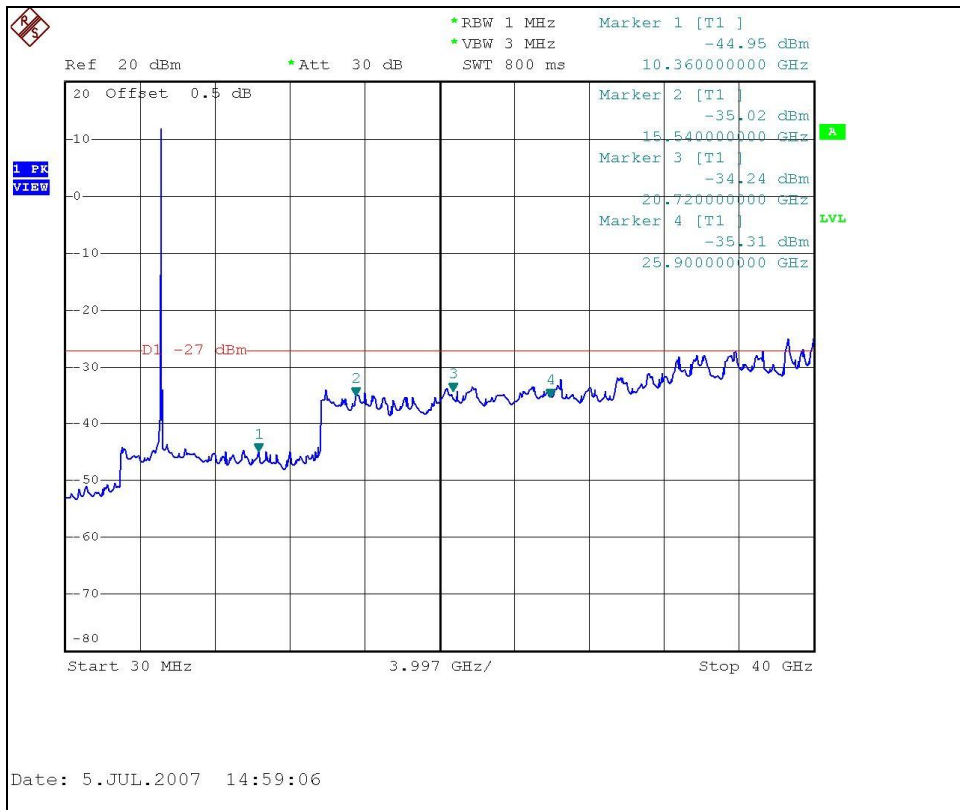


### 802.11a OFDM modulation (CH 8: 5320MHz)

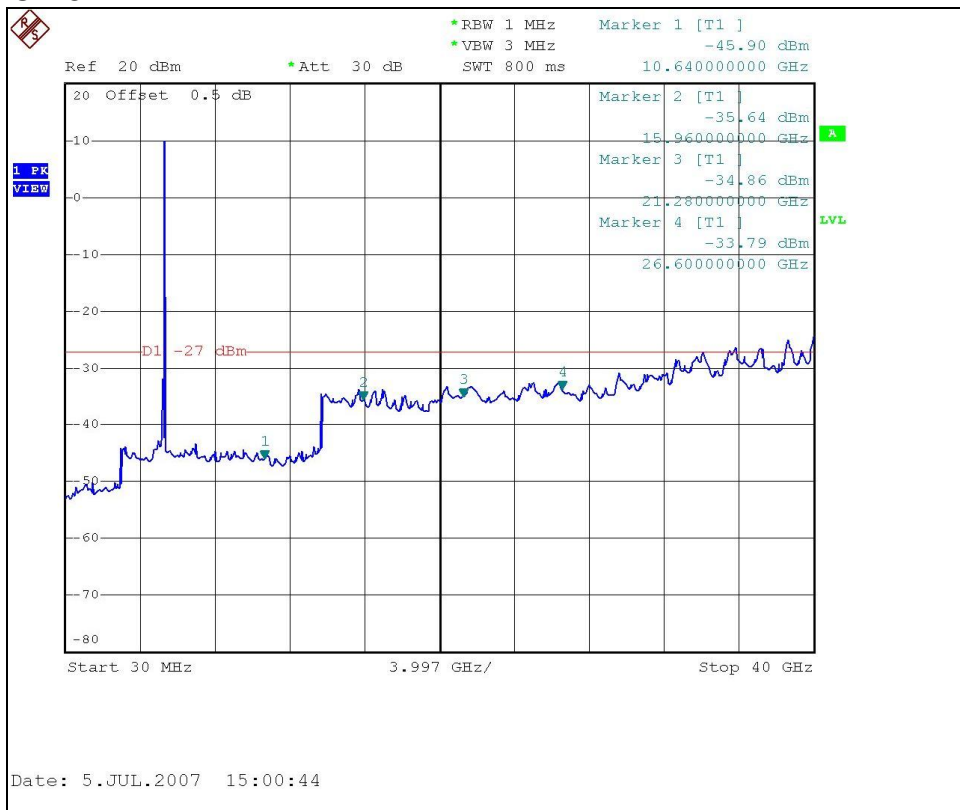


## 802.11a 10th conducted Harmonic

### CH 1



### CH 8

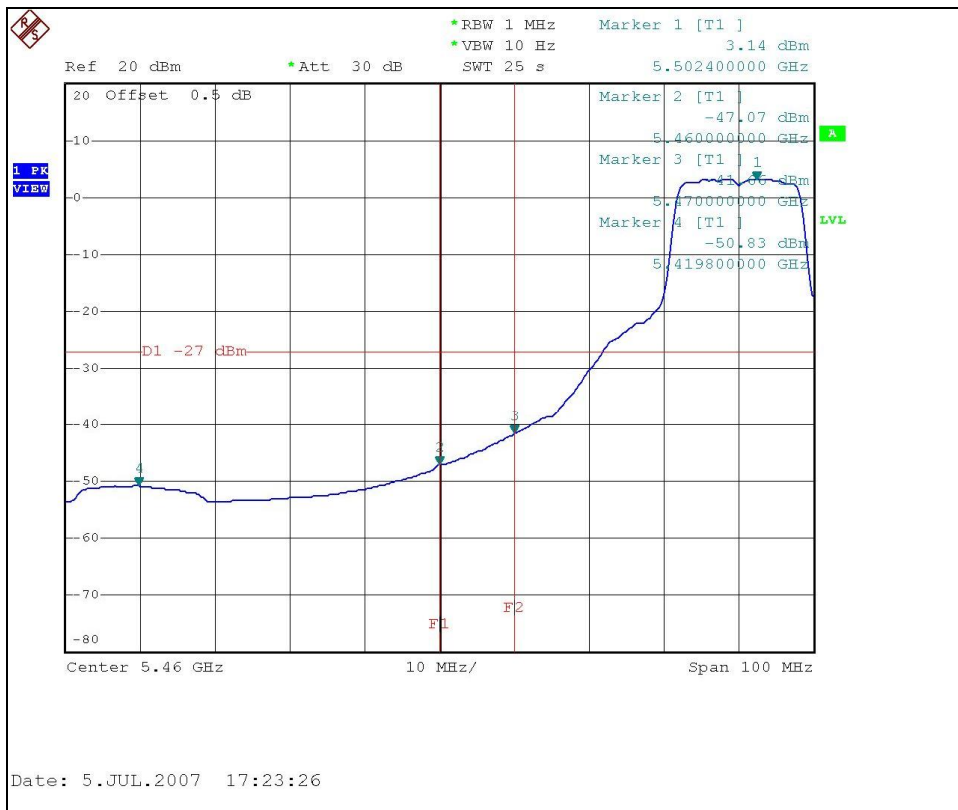
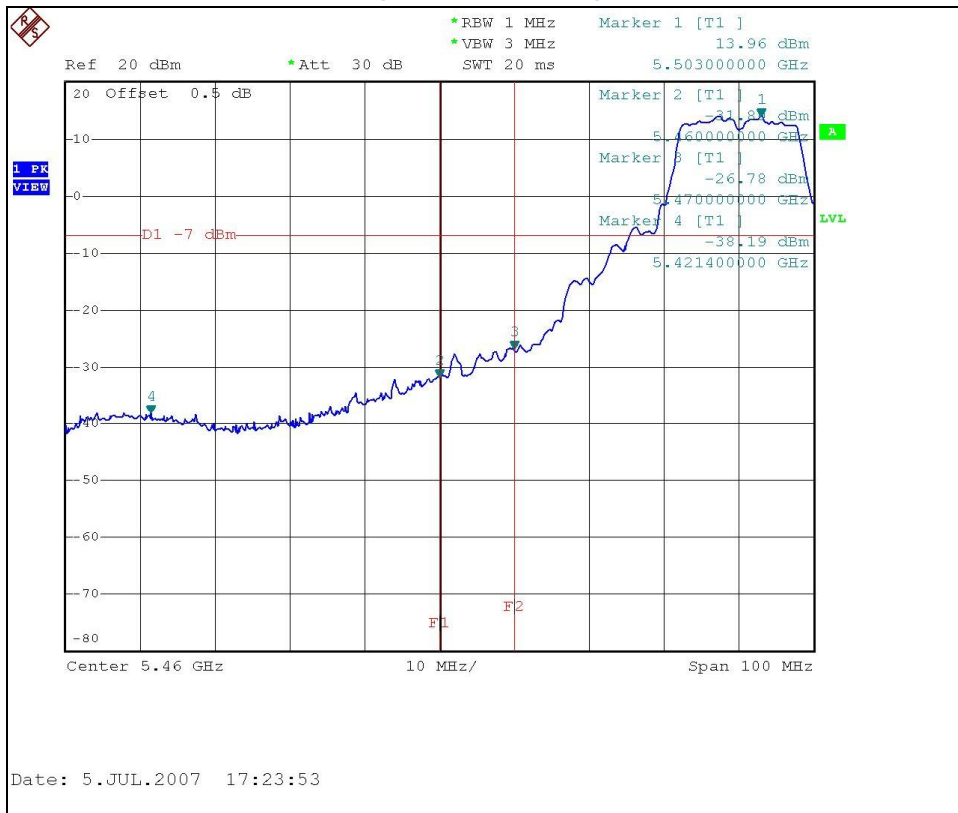




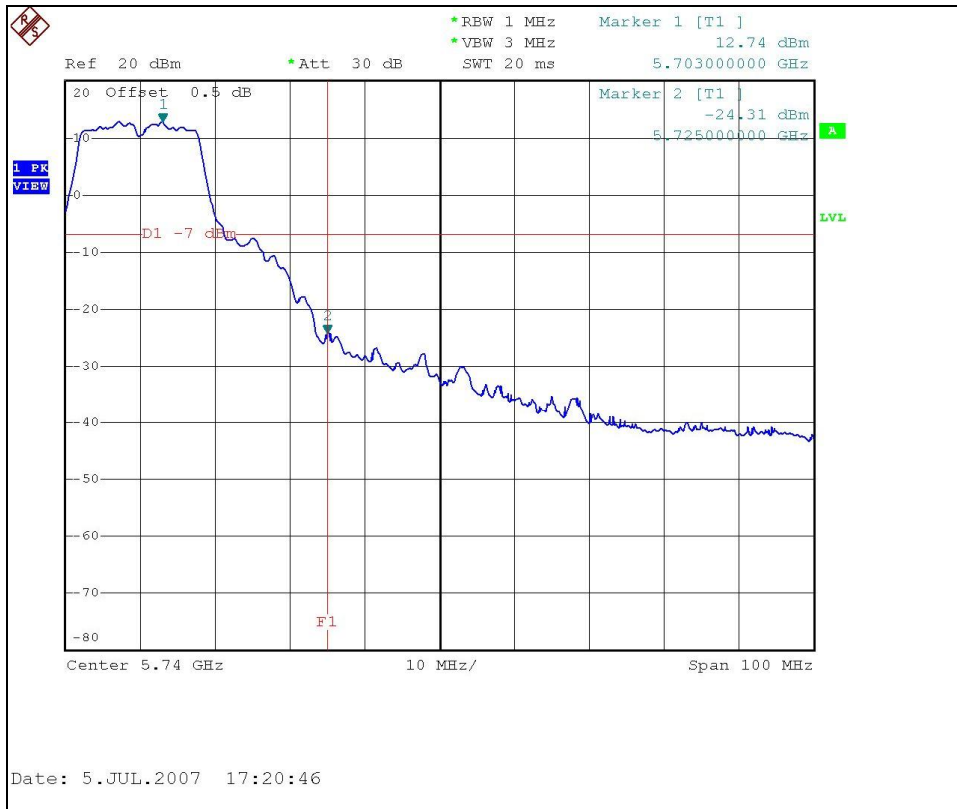
For signals in the restricted bands above and below the 5.47 to 5.725GHz allocated band a measurement was made of the amplitude of the spurious emissions with respect to the intentional signals. The relative amplitude, in dBc, was applied to the average and peak field strength of the intentional signal made on the OATS to calculate the field strength of the unintentional signals.

The spectrum plots (Peak RBW=1MHz, VBW=3MHz; Average RBW=1MHz, VBW=10Hz) are attached on the following pages.

### 802.11a OFDM modulation(CH 9: 5500MHz)



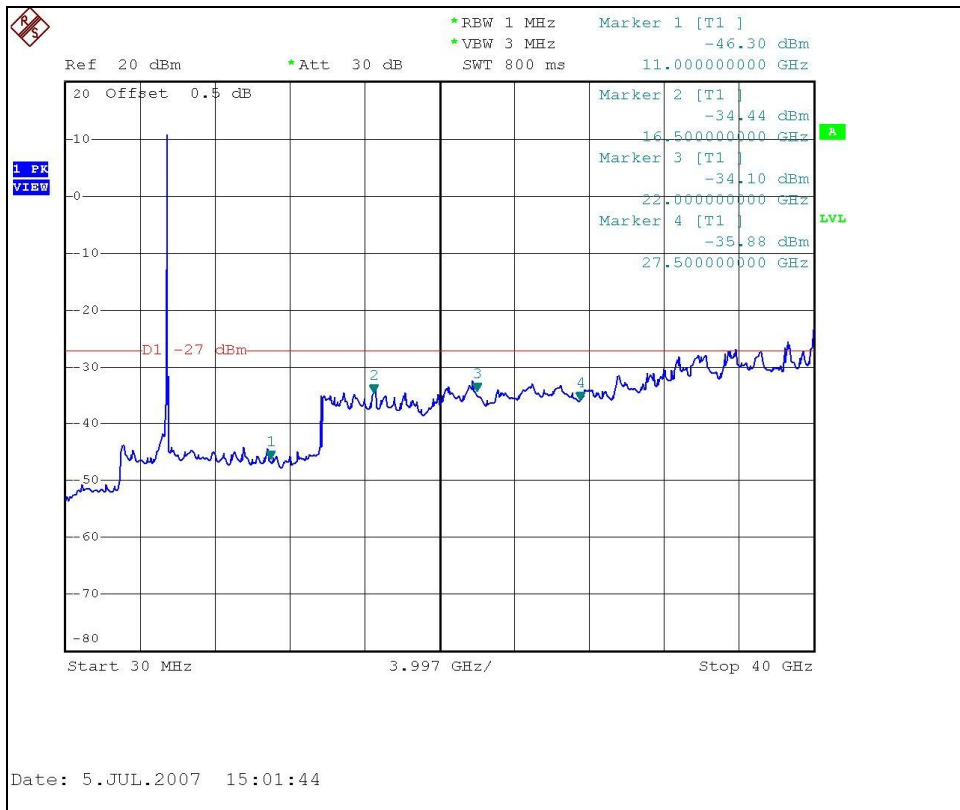
### 802.11a OFDM modulation (CH 19: 5700MHz)



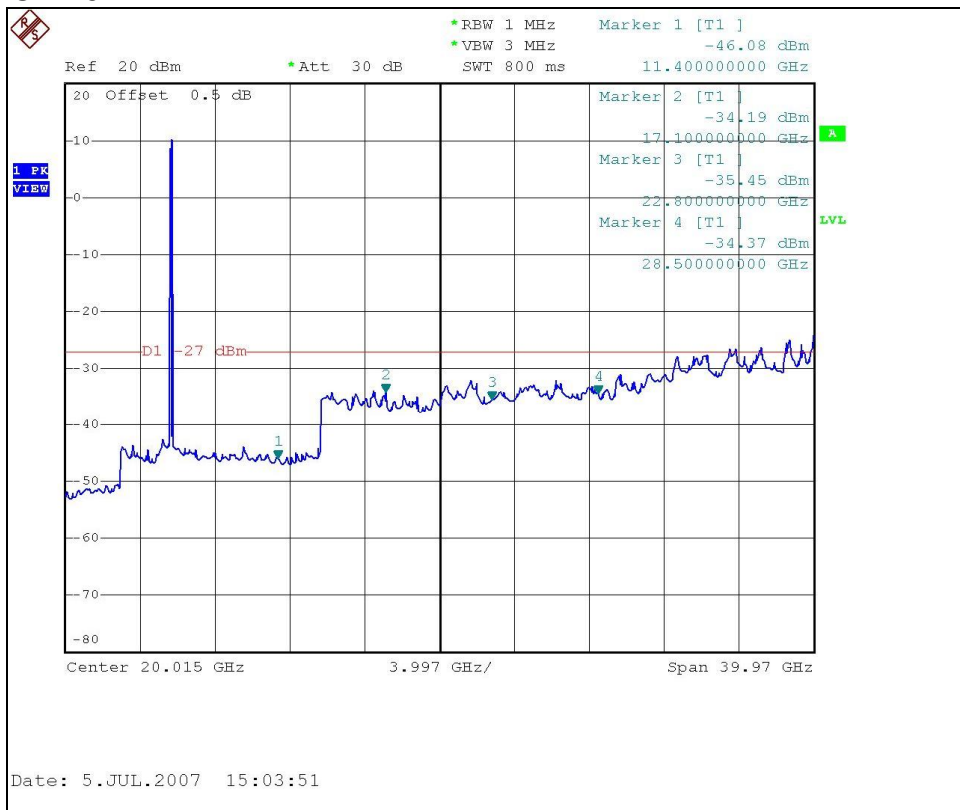


## 802.11a 10th conducted Harmonic

### CH 9



### CH 19



## 4.8 ANTENNA REQUIREMENT

### 4.8.1 STANDARD APPLICABLE

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 15.407(a), 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.

### 4.8.2 ANTENNA CONNECTED CONSTRUCTION

Brand Name	Model No.	Gain (dBi)	Antenna Type	Connector
Tyco	1513671-1	2.4GHz: 1.58 5GHz: 2.78	Printed Antenna	NA



## 5. INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025:

<b>USA</b>	FCC, UL, A2LA
<b>Germany</b>	TUV Rheinland
<b>Japan</b>	VCCI
<b>Norway</b>	NEMKO
<b>Canada</b>	INDUSTRY CANADA , CSA
<b>R.O.C.</b>	TAF, BSMI, NCC
<b>Netherlands</b>	Telefication
<b>Singapore</b>	PSB , GOST-ASIA(MOU)
<b>Russia</b>	CERTIS(MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

[www.adt.com.tw/index.5/phtml](http://www.adt.com.tw/index.5/phtml). If you have any comments, please feel free to contact us at the following:

**Linko EMC/RF Lab:**

Tel: 886-2-26052180

Fax: 886-2-26052943

**Hsin Chu EMC/RF Lab:**

Tel: 886-3-5935343

Fax: 886-3-5935342

**Hwa Ya EMC/RF/Safety Telecom Lab:**

Tel: 886-3-3183232

Fax: 886-3-3185050

**Web Site:** [www.adt.com.tw](http://www.adt.com.tw)

The address and road map of all our labs can be found in our web site also

## **6. APPENDIX-A MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB**

No any modifications are made to the EUT by the lab during the test.