

**Test Report No. 7191048238-EEC1 2/03**  
dated 04 Dec 2012



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FORMAL REPORT ON TESTING IN ACCORDANCE WITH  
47 CFR FCC Parts 15B & C : 2011  
OF AN  
INMARSAT FLEETBROADBAND SYSTEM  
[ Model : FX 250 ]  
[ FCC ID : QO4-AVIFX250BDE ]

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160581 (3m and 10m Semi-Anechoic Chamber, International Business Park)

**IND. CANADA REG. NO.** 2932I-1 (3m and 10m Semi-Anechoic Chamber, Science Park)  
2932N-1 (10m Semi-Anechoic Chamber, International Business Park)

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**QUOTATION NUMBER** 219146087 & 219150213 & 219163271

**JOB NUMBER** 7191027290 & 7191032490 & 7191048238

**TEST PERIOD** 24 Feb 2012 – 08 Jun 2012

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LA-2007-0384-G  
LA-2007-0385-E  
LA-2007-0386-C  
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**TEST SUMMARY**

The product was tested in accordance with the customer's specifications.

**Test Results Summary**

Test Standard	Description	Pass / Fail
47 CFR FCC Part 15: 2011		
15.107(a), 15.207	Conducted Emissions	Not Applicable * See Note 6
15.109(a), 15.205, 15.209	Radiated Emissions (Spurious Emissions inclusive Restricted Bands Requirement)	Pass
15.247(a)(2)	Spectrum Bandwidth (6dB Bandwidth Measurement)	Pass
15.247(b)(3)	Maximum Peak Power	Pass
15.247(d)	RF Conducted Spurious Emissions (Non-Restricted Bands)	Pass
15.247(d)	RF Conducted Spurious Emissions (Restricted Bands)	Pass
15.247(d)	Band Edge Compliance (Conducted)	Pass
15.247(d)	Band Edge Compliance (Radiated)	Pass
15.247(e)	Peak Power Spectral Density	Pass
1.1310	Maximum Permissible Exposure	Refer to page 211 for details

**TEST SUMMARY**

**Notes**

1. The channels as listed below, under the different configurations were tested for 802.11b WLAN.

Transmit Channel	Frequency (GHz)	Modulation	Data Rate
Channel 1	2.412	DBPSK	1Mbps
Channel 6	2.437	DBPSK	1Mbps
Channel 11	2.462	DBPSK	1Mbps
Channel 1	2.412	DQPSK	2Mbps
Channel 6	2.437	DQPSK	2Mbps
Channel 11	2.462	DQPSK	2Mbps
Channel 1	2.412	CCK	5.5Mbps
Channel 6	2.437	CCK	5.5Mbps
Channel 11	2.462	CCK	5.5Mbps
Channel 1	2.412	CCK	11Mbps
Channel 6	2.437	CCK	11Mbps
Channel 11	2.462	CCK	11Mbps

2. The channels as listed below, under the different configurations were tested for 802.11g WLAN.

Transmit Channel	Frequency (GHz)	Modulation	Data Rate
Channel 1	2.412	BPSK	9Mbps
Channel 6	2.437	BPSK	9Mbps
Channel 11	2.462	BPSK	9Mbps
Channel 1	2.412	QPSK	18Mbps
Channel 6	2.437	QPSK	18Mbps
Channel 11	2.462	QPSK	18Mbps
Channel 1	2.412	16QAM	36Mbps
Channel 6	2.437	16QAM	36Mbps
Channel 11	2.462	16QAM	36Mbps
Channel 1	2.412	64QAM	54Mbps
Channel 6	2.437	64QAM	54Mbps
Channel 11	2.462	64QAM	54Mbps

3. All the measurements in section 15.247 were done based on conducted measurements except:
- Transmitter Radiated Emissions (Spurious Emissions inclusive Restricted Bands Requirement)
  - Band Edge Compliance (Radiated)
  - Maximum Permissible Exposure
4. The EUT is a Class B device when in non-transmitting state and meets the 47 CFR FCC Part15B Class B requirements.
5. All test measurement procedures are according to ANSI C63.4: 2003.
6. The Equipment Under Test (EUT) is a DC operated device and contains no provision for public utility connections.

**TEST SUMMARY**

**Notes (continued)**

7. The maximum measured RF power of the Equipment Under Test is 15.5dBm.
8. The Equipment Under Test (EUT) was configured to transmit in continuous mode, ie 0 duty cycle.
9. This report 7191048238-EEC12/03 was generated from the report 7191027290-EE C12/11 based on the following declaration from Addvalue Innovation Pte Ltd:

We, Addvalue Innovation Pte Ltd, sole designer, manufacturer and supplier of the products here by declaring that both FX range & FX series products are identically same, in the aspect of design and construction, the applicable change only in product brand name , ownership and responsibility.

See below change log differentiate between the two product range:

Items	Product 1	Product 2
Brand Name	Sea Tel	Wideve
Ownership & Responsibility	Sea Tel Inc.	Addvalue Innovation Pte Ltd



**TEST SUMMARY**

**Notes (continued)**

10. See below for External photo provided by Addvalue Innovation Pte Ltd

**BDU (Below Deck Unit) +HANDSET+ANTENNA(Class: 9)**



**BDU Top view - Handset**



**TEST SUMMARY**

**Notes (continued)**

10. See below for External photo provided by Addvalue Innovation Pte Ltd

**BDU Top view**



**BDU Bottom view**



**TEST SUMMARY**

**Notes (continued)**

10. See below for External photo provided by Addvalue Innovation Pte Ltd

**BDU Front view**



**BDU Rear view**



**BDU Left side view**



**BDU Right Side view**



TEST SUMMARY

Notes (continued)

10. See below for External photo provided by Addvalue Innovation Pte Ltd

Handset Top view



Handset Bottom view



BDU Rating label close-up view



Handset Label close-up view



TEST SUMMARY

Notes (continued)

11. See below for FCC Label provided by Addvalue Innovation Pte Ltd



Modifications

No modifications were made.



**PRODUCT DESCRIPTION**

Description	: The Equipment Under Test (EUT) is an <b>INMARSAT FLEETBROADBAND SYSTEM.</b>
Applicant	: Addvalue Innovation Pte Ltd 28 Tai Seng Street, #06-02 Singapore 534106
Manufacturer	: Addvalue Innovation Pte Ltd 28 Tai Seng Street, #06-02 Singapore 534106
Factor(ies)	: Beyonics Technobgy (Senai) Sdn Bhd Lot 3627, Jalan Harmoni 1, Batu 22 81000 Kulai, Johor, Malaysia
Model Number	: FX 250
FCC ID	: QO4-AVIFX250BDE
Brand	: Wideye
Serial Number	: MB2501A120800007
Microprocessor	: OMA P5912
Operating / Transmitting Frequency	: 2412GHz (lower channel) to 2462MHz (upper channel) 11 channels.
Clock / Oscillator Frequency	: 4.912 MHz , 12 MHz , 25 MHz , 16.384 MHz , 24.192 MHz , 32.768MHz
Modulation	: TYPE OF MODULATION: DBPSK, DQPSK, CCK, BPSK, QPSK, 16QAM, 64QAM (802.11b/g)
Antenna Gain	: 0.0 dBi
Port / Connectors	: 4 RJ 45 ( 2 PoE, 2 LAN) 2 RJ11 ( 1 FAX , 1 Phone) 1 Offset latch RJ11
Rated Input Power	: 12V,15A / 24V,7.5A(180W)
Accessories	: Primary Handset, 3m DC Power Cable.

**SUPPORTING EQUIPMENT DESCRIPTION**

Equipment Description (Including Brand Name)	Model, Serial & FCC ID Number	Cable Description (List Length, Type & Purpose)
Acer Laptop PC	M/N: Travelmate 2420 S/N: XTB205106613077CFKS00 FCC ID: DoC	2.00m unshielded power cable 2.00m communication cable
Delta Electronics Power Adapter (Laptop)	M/N: SADP-65KB D S/N: 94W 0610190186 FCC ID: Verification	2.00m unshielded power cable
SeaTel Primary Handset	M/N: SAFARI-PH S/N: AVHSS1P113800071 FCC ID: Nil	1x 1m shielded telephone cord
Above Deck Unit Antenna	M/N: BGAN-FB500 S/N: 41104 FCC ID: Nil	1x 25m shielded RF cable 1x 15m shielded RF cable
Wideye Wired Telephone	M/N: SB/AH-100 S/N: Nil FCC ID: Nil	1x 1.5m telephone cable
2x12Vdc Battery	M/N: MF160G51 S/N: Nil FCC ID: Nil	2.00m unshielded battery cable

**EUT OPERATING CONDITIONS**

**47 CFR FCC Part 15**

1. Radiated Emissions (Spurious Emissions inclusive Restricted Bands Requirement)
2. Spectrum Bandwidth (6dB Bandwidth Measurement)
3. Maximum Peak Power
4. RF Conducted Spurious Emissions Emission (Non-Restricted Bands)
5. RF Conducted Spurious Emissions Emission (Restricted Bands)
6. Band Edge Compliance (Conducted)
7. Band Edge Compliance (Radiated)
8. Peak Power Spectral Density
9. Maximum Permissible Exposure

The EUT was exercised by operating in maximum continuous transmission in test mode, i.e transmitting at lower, middle and upper channels respectively at one time.



**RADIATED EMISSION TEST**

**47 CFR FCC Part 15.205 Restricted Bands**

MHz		MHz		MHz		GHz	
0.090	- 0.110	16.42	- 16.423	399.9	- 410	4.5	- 5.15
0.495	- 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	Above 38.6	
13.36	- 13.41						

**47 CFR FCC Parts 15.109(a) and 15.209 Radiated Emission Limits**

Frequency Range (MHz)	Quasi-Peak Limit Values (dBµV/m) @ 3m
30 - 88	40.0
88 - 216	43.5
216 - 960	46.0
Above 960	54.0*

\* Above 1GHz average detector was used. A peak limit of 20dB above the average limit does apply.

**47 CFR FCC Parts 15.109(a) and 15.209 Radiated Emission Test Instrumentation**

Test conducted on 09 – 16 May 2012

Instrument	Model	S/No	Cal Due Date
Rohde & Schwarz EMI Test Receiver (20Hz – 26.5GHz)	ESMI	849182/003 848926/007	16 Aug 2012
TDK RF Solutions Hybrid Log Periodic Antenna (30MHz-3GHz)	HLP-3003C	130238	19 Mar 2013
Sonoma Preamplifier (9kHz – 1GHz)	310N	270640	03 Jan 2013
Toyo MicroWave Preamplifier (1GHz - 18GHz)	TPA0188-36	1005	24 Jun 2012
EMCO Horn Antenna – H15	3115	0003-6088	20 May 2013
ETS Horn Antenna (18GHz-40GHz) (Ref)	3116	0004-2474	19 Apr 2013
Toyo Preamplifier (26.5GHz-40GHz)	HAP26-40W	00000005	19 Apr 2013
Micro-Tronics Bluetooth Notch Filter (Stopband 2.4 - 2.5GHz)	BRM50701-02	007	13 Aug 2012

**RADIATED EMISSION TEST**

**47 CFR FCC Parts 15.109(a) and 15.209 Radiated Emission Test Setup**

1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m X 1.0m X 0.8m high, non-metallic table.
2. The filtered power supply for the EUT and supporting equipment were tapped from the appropriate power sockets located on the turntable.
3. The relevant broadband antenna was set at the required test distance away from the EUT and supporting equipment boundary.

**47 CFR FCC Parts 15.109(a) and 15.209 Radiated Emission Test Method**

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. A prescan was carried out to pick the worst emission frequencies from the EUT. For EUT which is a portable device, the prescan was carried out by rotating the EUT through three orthogonal axes to determine which altitude and equipment arrangement produces such emissions.
3. The test was carried out at the selected frequency points obtained from the prescan in step 2. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:
  - a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
  - b. The EUT was then rotated to the direction that gave the maximum emission.
  - c. Finally, the antenna height was adjusted to the height that gave the maximum emission.
4. A Quasi-peak measurement was made for that frequency point if it was less than or equal to 1GHz. For frequency point that above 1GHz, both Peak and Average measurements were carried out.
5. Steps 3 and 4 were repeated for the next frequency point, until all selected frequency points were measured.
6. The frequency range covered was from 30MHz to 10<sup>th</sup> harmonics of the EUT fundamental frequency, using the Bi-log antenna for frequencies from 30MHz up to 1GHz, and the Horn antenna above 1GHz.

**Sample Calculation Example**

At 300 MHz Q-P limit (Class B) = 46.0 dB $\mu$ V/m

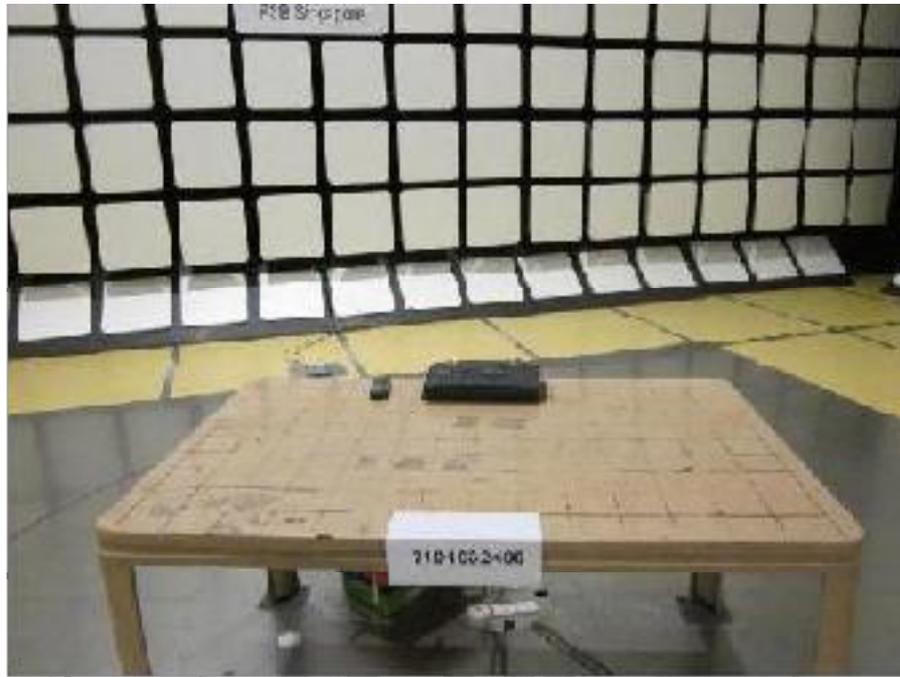
Log-periodic antenna factor & cable loss at 300 MHz = 18.5 dB

Q-P reading obtained directly from EMI Receiver = 40.0 dB $\mu$ V/m  
(Calibrated level including antenna factors & cable losses)

Therefore, Q-P margin = 46.0 - 40.0 = 6.0

i.e. 6.0 dB below Q-P limit

**RADIATED EMISSION TEST**



**Radiated Emissions Test Setup (Front View)**



**Radiated Emissions Test Setup (Rear View)**

**RADIATED EMISSION TEST**

**47 CFR FCC Parts 15.109(a), 15.205 and 15.209 Radiated Emission Results**

Operating Mode	Continuous WIFI transmit	Temperature	18°C
Test Input Power	24V dc (Worst Voltage)	Relative Humidity	58%
Test Distance	3m	Atmospheric Pressure	1030mbar
Data Rate	802.11g 54Mbps (Worst Rate)	Tested By	Kelvin Cheng, Jason Lai

Spurious Emissions ranging from 30MHz – 1GHz

Frequency (MHz)	Q-P Value (dBµV/m)	Q-P Limit (dBµV/m)	Q-P Margin (dB)	Height (cm)	Azimuth (Degrees)	PoI (H/V)	Channel
59.1350	31.7	40.0	8.3	104	20	V	1
84.0840	25.1	40.0	14.9	128	228	V	1
276.0020	35.4	46.0	10.6	102	332	H	1
327.5980	31.3	46.0	14.7	102	225	H	1
875.1070	24.4	46.0	21.6	113	325	V	1
968.7140	17.9	54.0	36.1	275	8	H	1

Spurious Emissions above 1GHz

Freq (GHz)	Peak Value (dBµV/m)	Peak Limit (dBµV/m)	Peak Margin (dB)	AV Value (dBµV/m)	AV Limit (dBµV/m)	AV Margin (dB)	Height (cm)	Azimuth (Degrees)	PoI (H/V)	Ch
8.8549	57.0	74.0	17.0	43.2	54.0	10.8	101	172	V	1
10.6729	56.4	74.0	17.6	43.0	54.0	11.0	398	13	V	1
13.5009	62.7	74.0	11.3	49.7	54.0	4.3	275	61	V	1
14.1069	63.1	74.0	10.9	49.8	54.0	4.2	101	304	H	1
16.5578	60.5	74.0	13.5	47.4	54.0	6.6	101	231	H	1
17.8910	66.9	74.0	7.1	53.8	54.0	0.2	399	28	V	1

Spurious Emissions above 1GHz

Freq (GHz)	Peak Value (dBµV/m)	Peak Limit (dBµV/m)	Peak Margin (dB)	AV Value (dBµV/m)	AV Limit (dBµV/m)	AV Margin (dB)	Height (cm)	Azimuth (Degrees)	PoI (H/V)	Ch
1.8403	45.9	74.0	28.1	35.9	54.0	18.1	137	195	V	6
1.8457	43.7	74.0	30.3	33.7	54.0	20.3	101	359	V	6
2.3326	46.6	74.0	27.4	36.6	54.0	17.4	370	336	V	6
2.5161	47.1	74.0	26.9	37.1	54.0	16.9	289	102	V	6
2.5768	48.2	74.0	25.8	38.2	54.0	15.8	203	149	V	6
4.2968	54.2	74.0	19.8	34.2	54.0	19.8	152	335	V	6

**RADIATED EMISSION TEST**

**47 CFR FCC Parts 15.109(a), 15.205 and 15.209 Radiated Emission Results**

Spurious Emissions above 1GHz

Freq (GHz)	Peak Value (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	AV Value (dBμV/m)	AV Limit (dBμV/m)	AV Margin (dB)	Height (cm)	Azimuth (Degrees)	PoI (H/V)	Ch
1.0110	41.1	74.0	32.9	31.1	54.0	22.9	101	102	H	11
1.8403	45.9	74.0	28.1	35.9	54.0	18.1	137	195	V	11
1.8457	43.7	74.0	30.3	33.7	54.0	20.3	101	359	V	11
2.3326	46.6	74.0	27.4	36.6	54.0	17.4	370	336	V	11
2.5161	47.1	74.0	26.9	37.1	54.0	16.9	289	102	V	11
2.5768	48.2	74.0	25.8	38.2	54.0	15.8	203	149	V	11

**Notes**

- All possible modes of operation were investigated. Only the worst case emissions measured, using the correct CISPR detectors, are reported. All other emissions were relatively insignificant.
- Quasi-peak measurement was used for frequency measurement up to 1GHz. Average and peak measurements were used for emissions above 1GHz. The average measurement was done by measuring the absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
- A "positive" margin indicates a PASS as it refers to the margin present below the limit line at the particular frequency. Conversely, a "negative" margin indicates a FAIL.
- EMI receiver Resolution Bandwidth (RBW) and Video Bandwidth (VBW) settings:  
30MHz - 1GHz  
 RBW: 120kHz      VBW: 1MHz  
>1GHz  
 RBW: 1MHz      VBW: 1MHz
- The upper frequency of radiated emission investigations was according to requirements stated in Section 15.33(a) for intentional radiators & Section 15.33(b) for unintentional radiators.
- The channel in the table refers to the transmit channel of the EUT.
- Radiated Emissions Measurement Uncertainty**  
 All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95%, with a coverage factor of 2, in the range 30MHz – 25GHz is ±4.0dB.

**SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST**

**47 CFR FCC Part 15.247(a)(2) Spectrum Bandwidth (6dB Bandwidth Measurement) Limits**

The EUT shows compliance to the requirements of this section, which states that the minimum bandwidth of the EUT employing digital modulation techniques shall be at least 500kHz.

**47 CFR FCC Part 15.247(a)(2) Spectrum Bandwidth (6dB Bandwidth Measurement) Test Instrumentation**

Instrument	Model	S/No	Cal Due Date
Agilent EMC Analyzer (9kHz-26.5GHz)	E7405A	US40240195	16 Mar 2013
GW Instek Programmable Power Supply	PSH-3630A	RK200168	30 Jan 2013

**47 CFR FCC Part 15.247(a)(2) Spectrum Bandwidth (6dB Bandwidth Measurement) Test Setup**

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The RF antenna connector was connected to the spectrum analyser via a low-loss coaxial cable.
4. The resolution bandwidth (RBW) and the video bandwidth (VBW) of the spectrum analyser were respectively set to the following:  
RBW = 1% - 5% of emission bandwidth (EBW)  
VBW = 3 times RBW
5. All other supporting equipment were powered separately from another filtered mains.

**47 CFR FCC Part 15.247(a)(2) Spectrum Bandwidth (6dB Bandwidth Measurement) Test Method**

1. The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode at lower channel with specified modulation and data rate.
2. The center frequency of the spectrum analyser was set to the transmitting frequency with the frequency span wide enough to capture the 6dB bandwidth of the transmitting frequency.
3. The spectrum analyser was set to max hold to capture the transmitting frequency. The signal capturing was continuous until no further changes were observed.
4. The peak of the transmitting frequency was detected with the marker peak function of the spectrum analyser. The frequencies below the 6dB peak frequency at lower ( $f_L$ ) and upper ( $f_H$ ) sides of the transmitting frequency were marked and measured by using the marker-delta function of the spectrum analyser.
5. The 6dB bandwidth of the transmitting frequency is the frequency difference between the marked lower and upper frequencies,  $|f_H - f_L|$ .
6. Repeat steps 1 to 5 with all possible modulations and data rates.
7. The steps 2 to 6 were repeated with the transmitting frequency was set to middle and upper channel respectively.

**SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST**



**Spectrum Band width (6dB Bandwidth Measurement) Test Setup**



**SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST**

**47 CFR FCC Part 15.247(a)(2) Spectrum Bandwidth (6dB Bandwidth Measurement) Results**

Test Input Power	24V dc (Worst Voltage)	Temperature	24°C
Attached Plots	1 – 12	Relative Humidity	54%
		Atmospheric Pressure	1027mbar
		Tested By	Kyaw Soe Hein

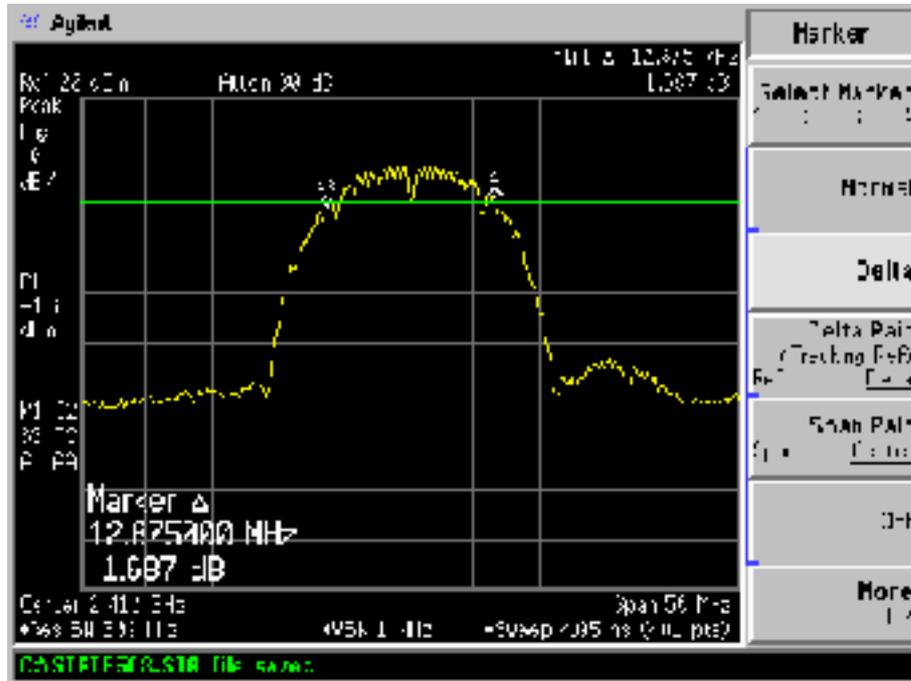
Channel	Channel Frequency (GHz)	6dB Bandwidth (MHz)	Modulation @ Data Rate
1	2.412	12875	DBPSK @ 1Mbps
		13125	DQPSK @ 2Mbps
		12625	CCK @ 5.5Mbps
		12125	CCK @ 11Mbps
6	2.437	12875	DBPSK @ 1Mbps
		13125	DQPSK @ 2Mbps
		12500	CCK @ 5.5Mbps
		12250	CCK @ 11Mbps
11	2.462	12625	DBPSK @ 1Mbps
		12875	DQPSK @ 2Mbps
		12375	CCK @ 5.5Mbps
		12375	CCK @ 11Mbps

Test Input Power	24V dc (Worst Voltage)	Temperature	24°C
Attached Plots	13 – 24	Relative Humidity	54%
		Atmospheric Pressure	1027mbar
		Tested By	Kyaw Soe Hein

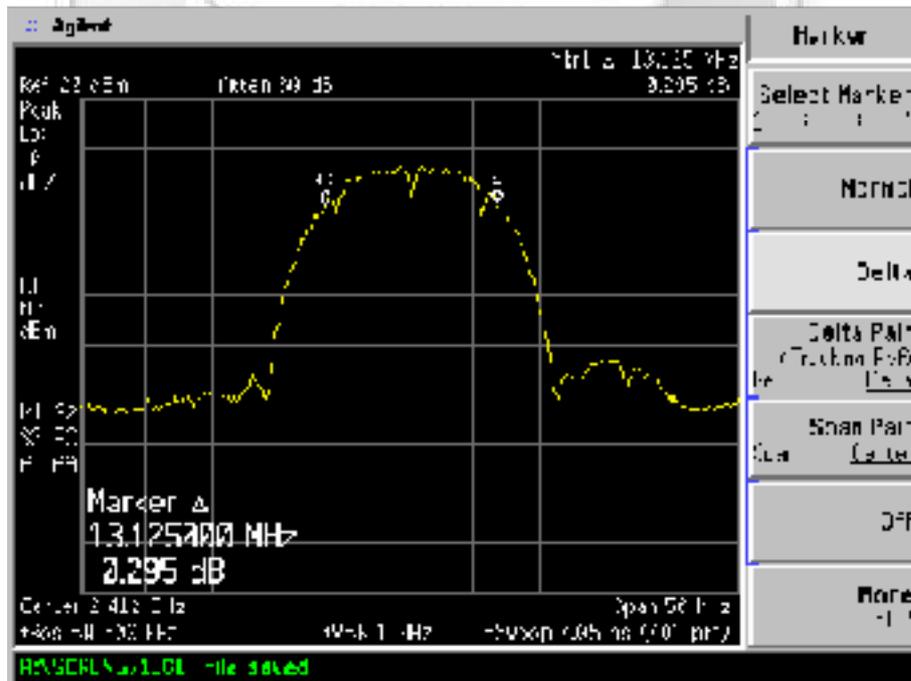
Channel	Channel Frequency (GHz)	6dB Bandwidth (MHz)	802.11g Modulation @ Data Rate
1	2.412	16625	BPSK @ 9Mbps
		16625	QPSK @ 18Mbps
		16625	16QAM @ 36Mbps
		16625	64QAM @ 54Mbps
6	2.437	16750	BPSK @ 9Mbps
		16625	QPSK @ 18Mbps
		16750	16QAM @ 36Mbps
		16875	64QAM @ 54Mbps
11	2.462	16500	BPSK @ 9Mbps
		16750	QPSK @ 18Mbps
		16750	16QAM @ 36Mbps
		16750	64QAM @ 54Mbps

**SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST**

**Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11b**



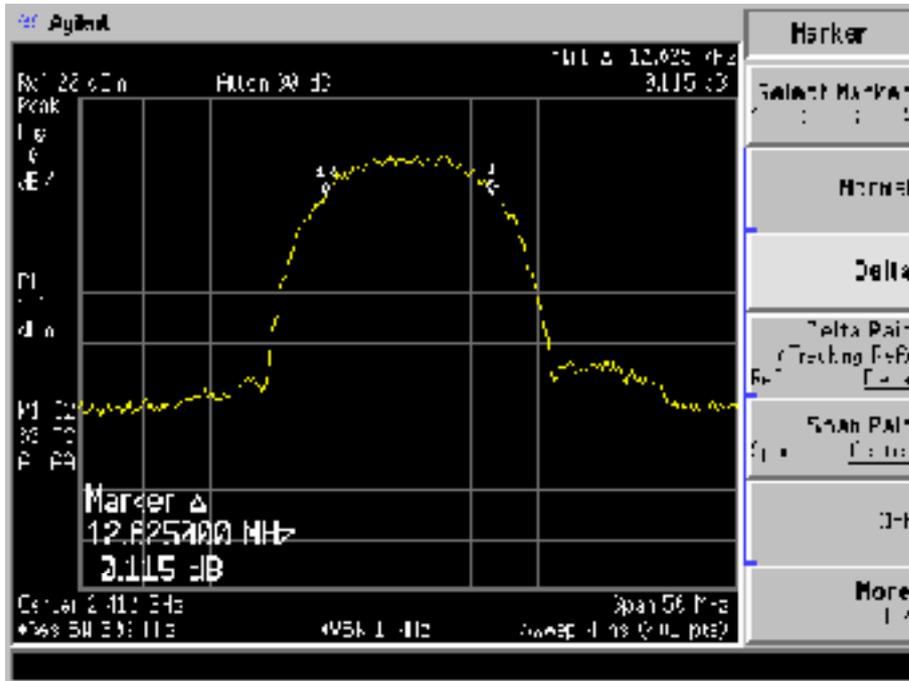
**Plot 1 - Channel 1 @ DBPSK 1Mbps**



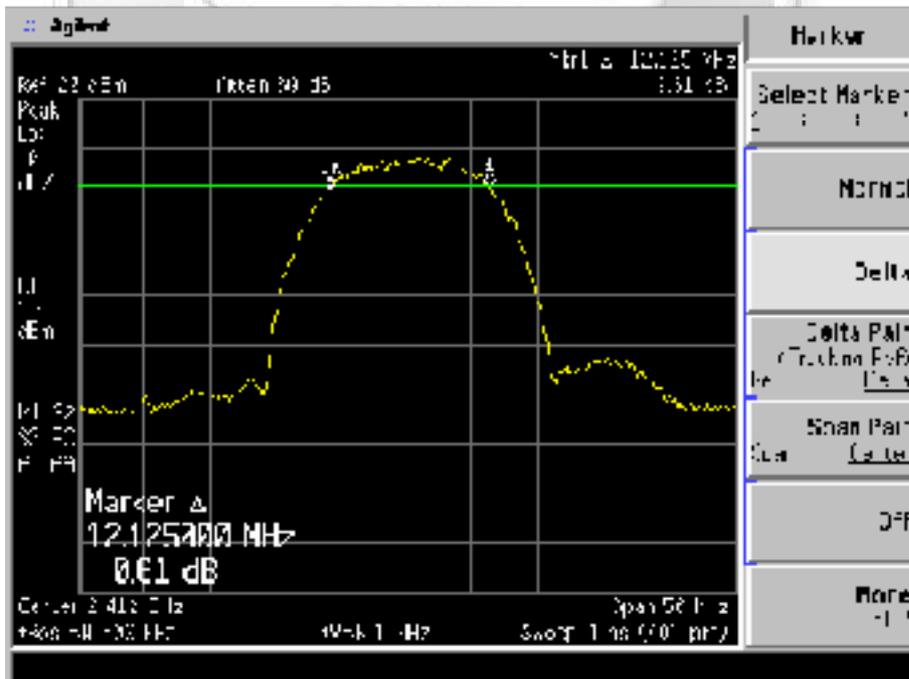
**Plot 2 - Channel 1 @ DQPSK 2Mbps**

**SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST**

**Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11b**



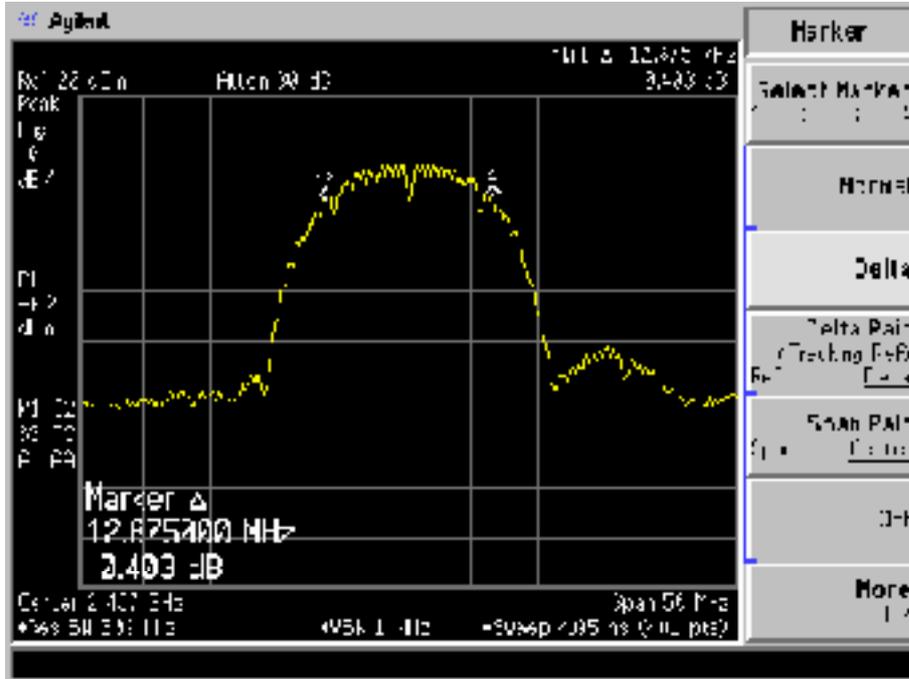
**Plot 3 - Channel 1 @ CCK 5.5Mbps**



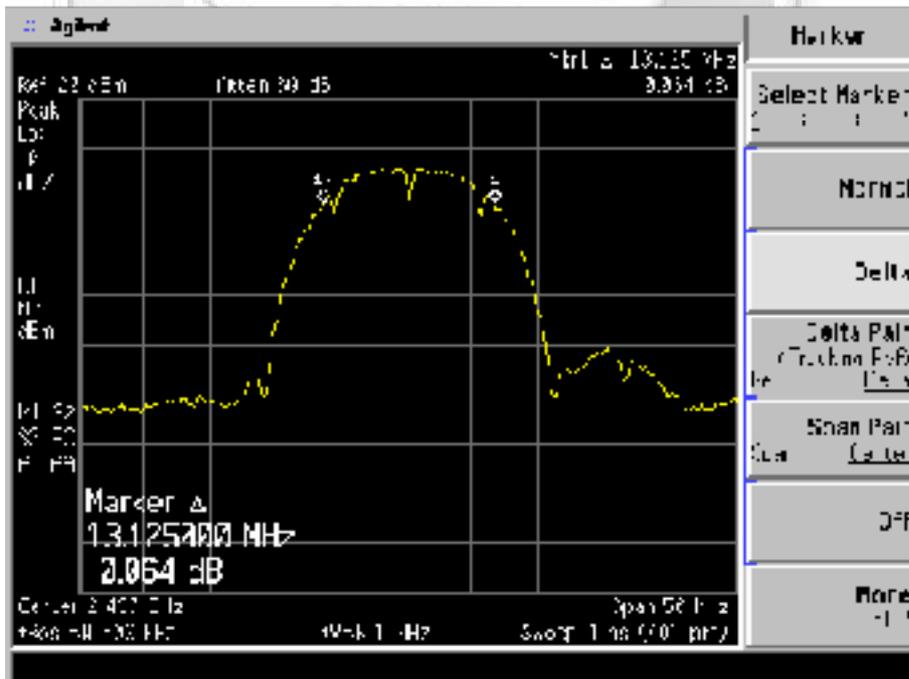
**Plot 4 - Channel 1 @ CCK 11Mbps**

**SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST**

**Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11b**



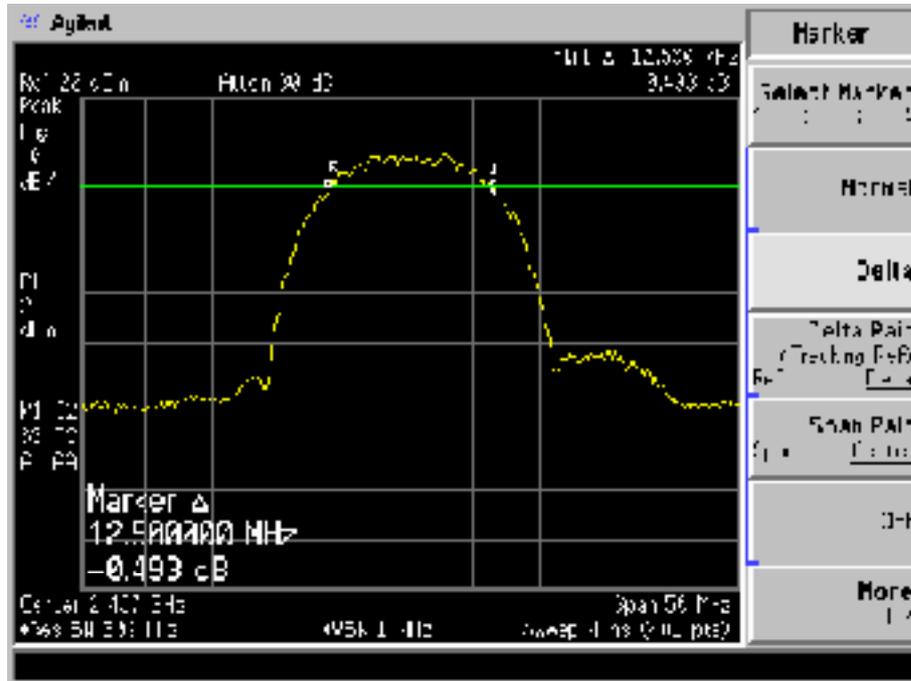
**Plot 5 - Channel 6 @ DBPSK 1Mbps**



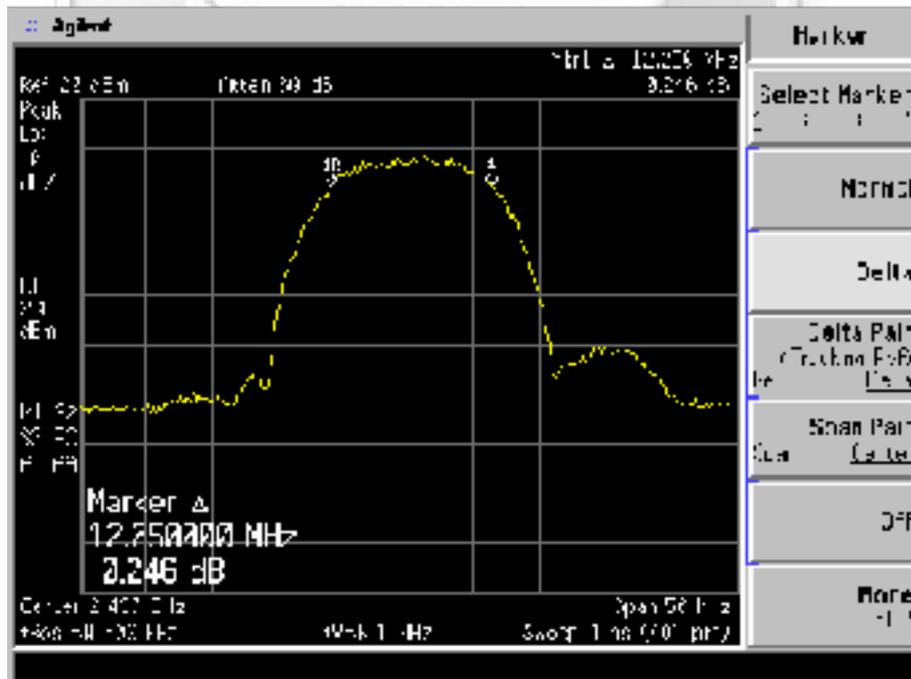
**Plot 6 - Channel 6 @ DQPSK 2Mbps**

**SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST**

**Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11b**



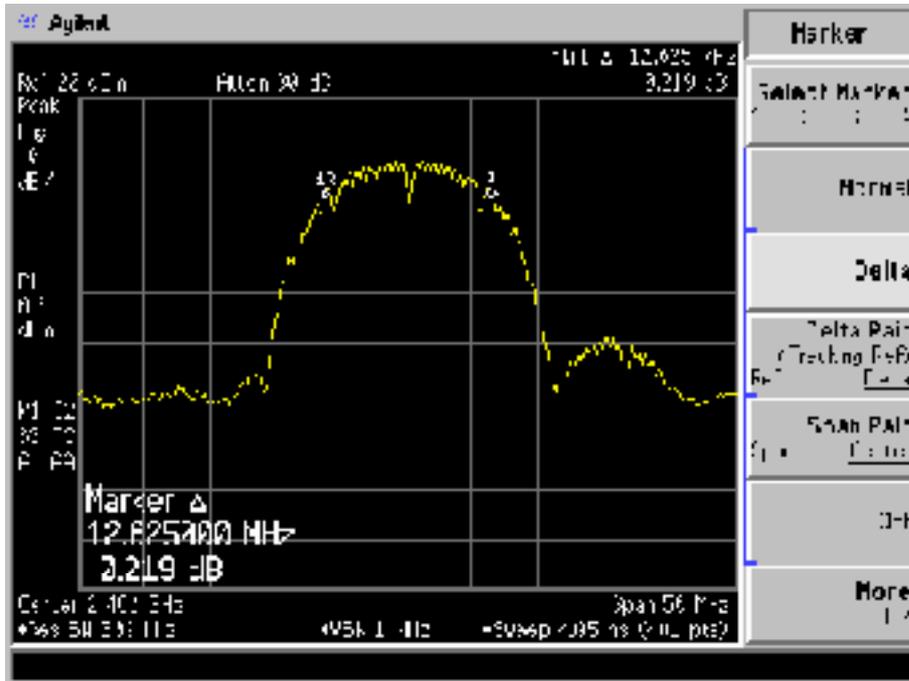
**Plot 7 - Channel 6 @ CCK 5.5Mbps**



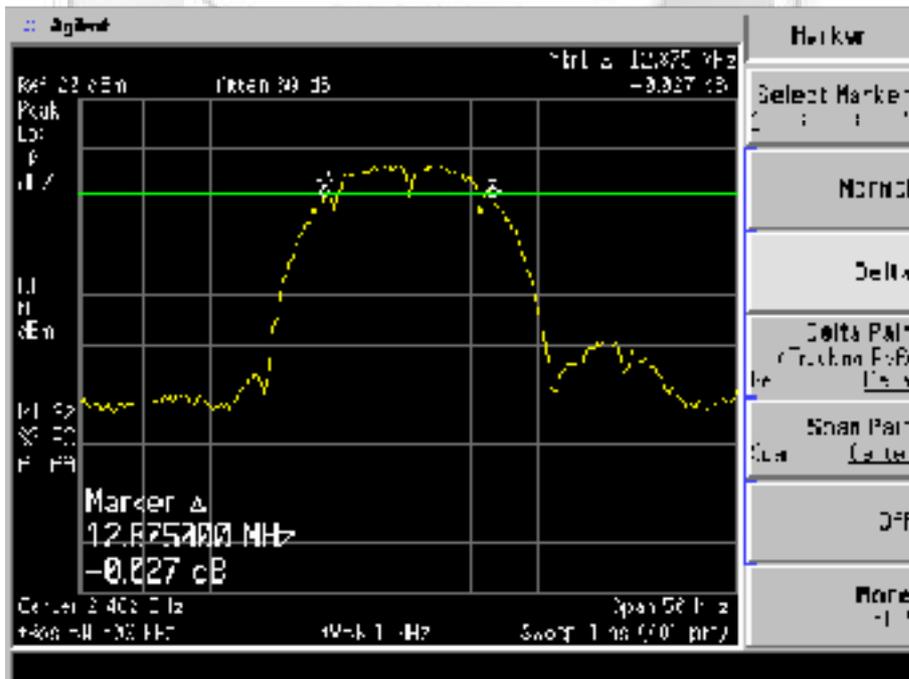
**Plot 8 - Channel 6 @ CCK 11Mbps**

**SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST**

**Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11b**



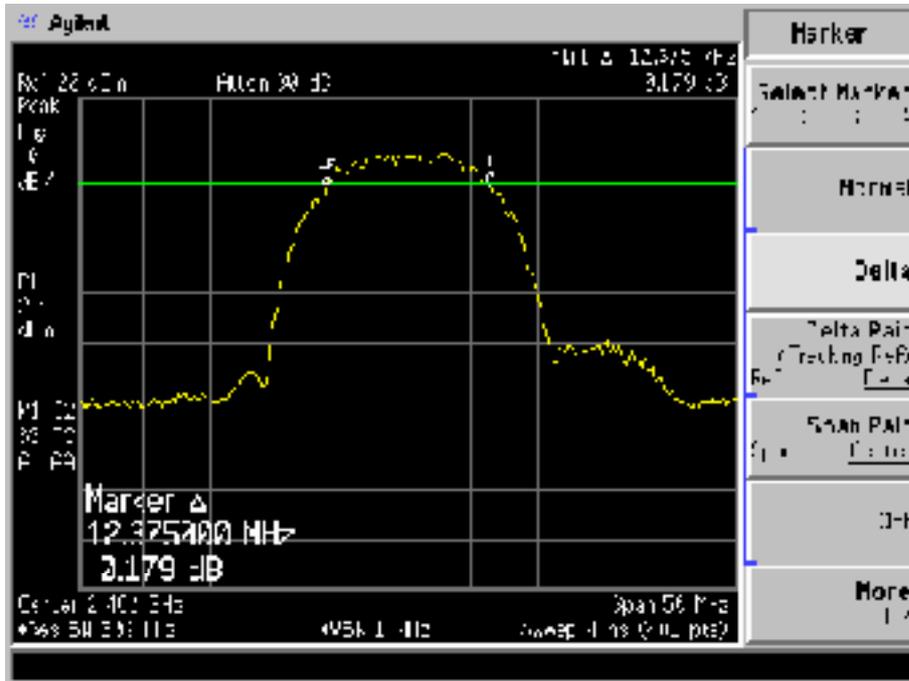
**Plot 9 - Channel 11 @ DBPSK 1Mbps**



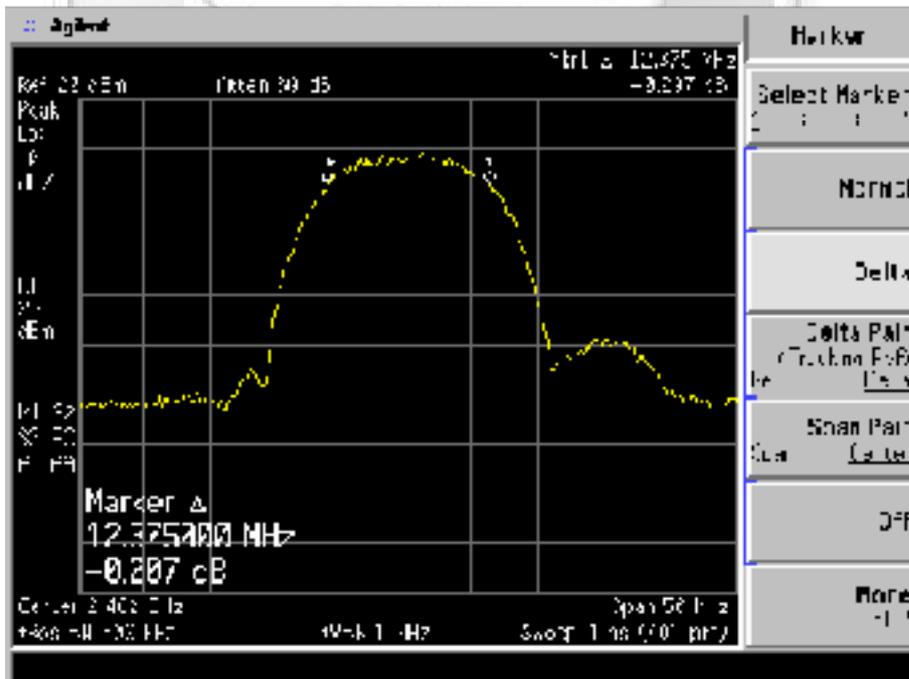
**Plot 10 - Channel 11 @ DQPSK 2Mbps**

**SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST**

**Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11b**



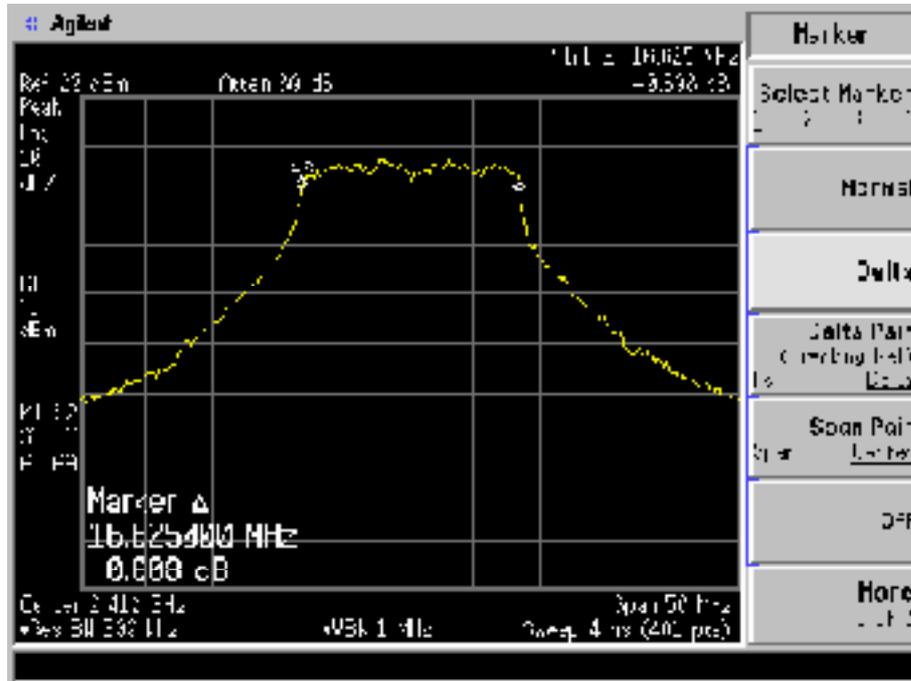
Plot 11 - Channel 11 @ CCK 5.5Mbps



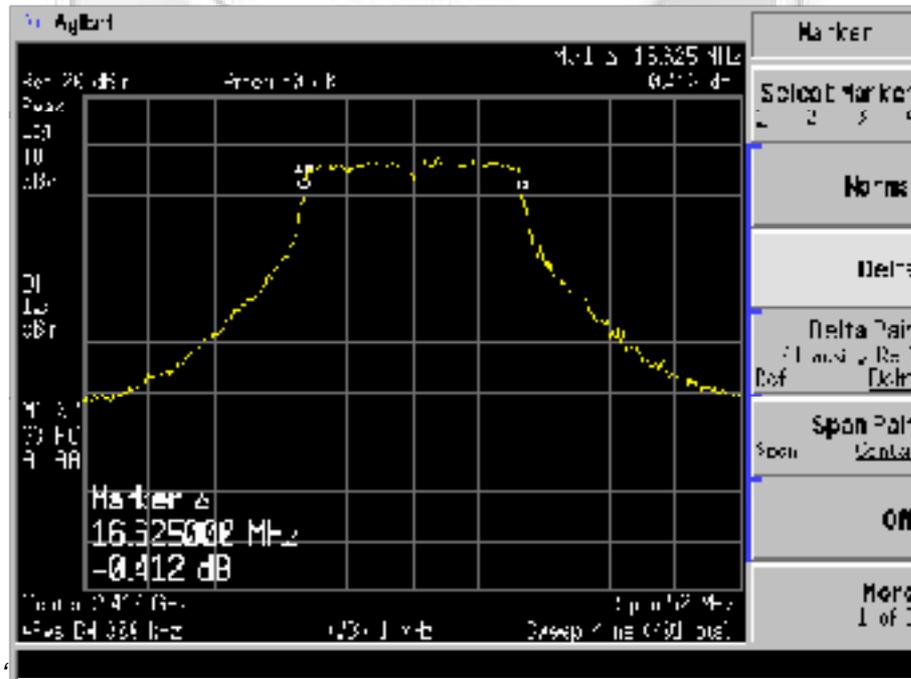
Plot 12 - Channel 11 @ CCK 11Mbps

SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST

Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11g



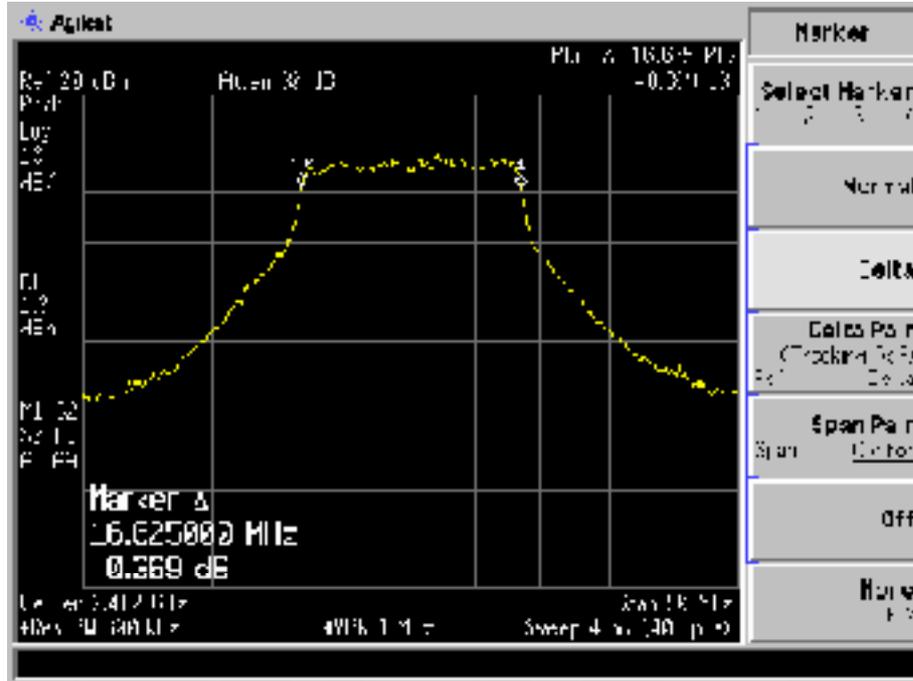
Plot 13 - Channel 1 @ BPSK 9Mbps



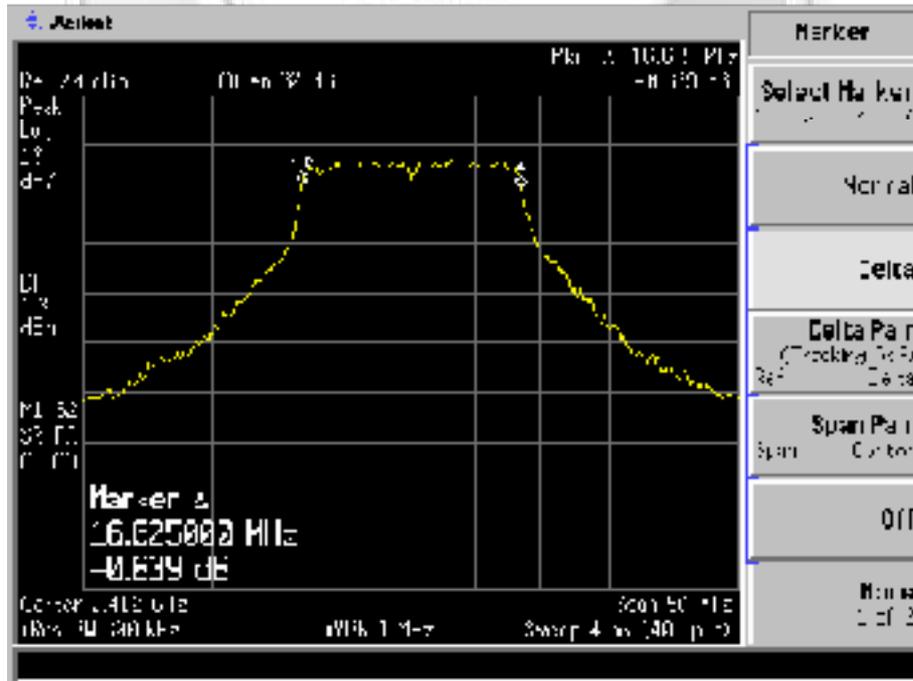
Plot 14 - Channel 1 @ QPSK 18Mbps

**SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST**

**Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11g**



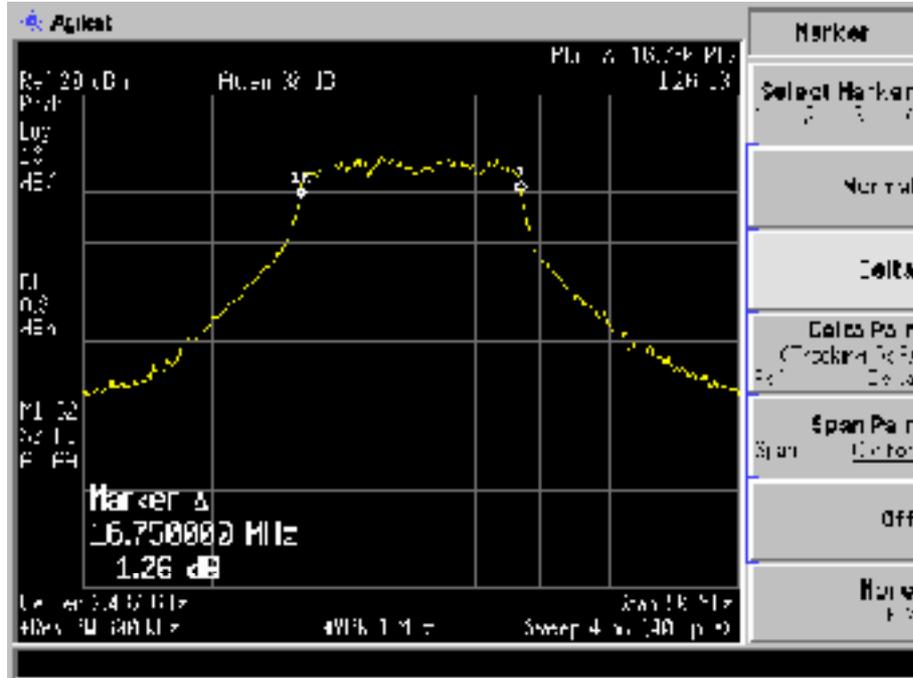
Plot 15 - Channel 1 @ 16QAM 36Mbps



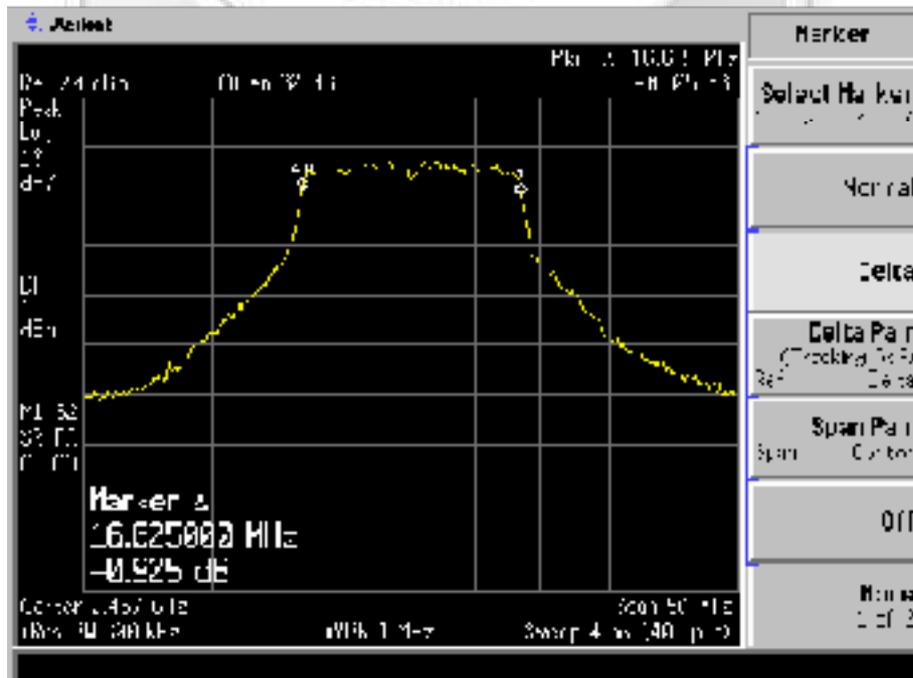
Plot 16 - Channel 1 @ 64QAM 54Mbps

**SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST**

**Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11g**



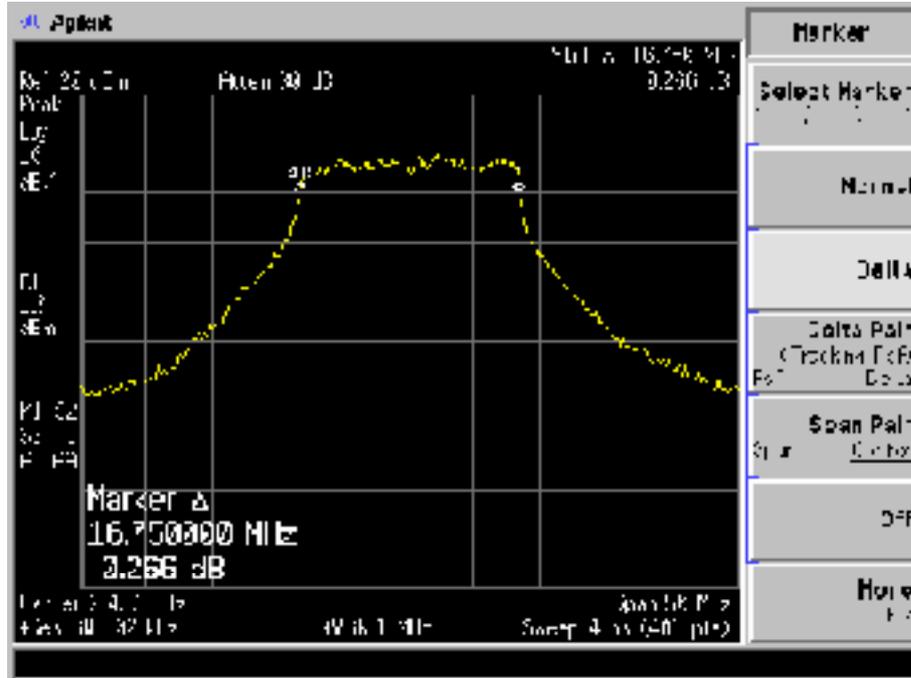
Plot 17 - Channel 6 @ BPSK 9Mbps



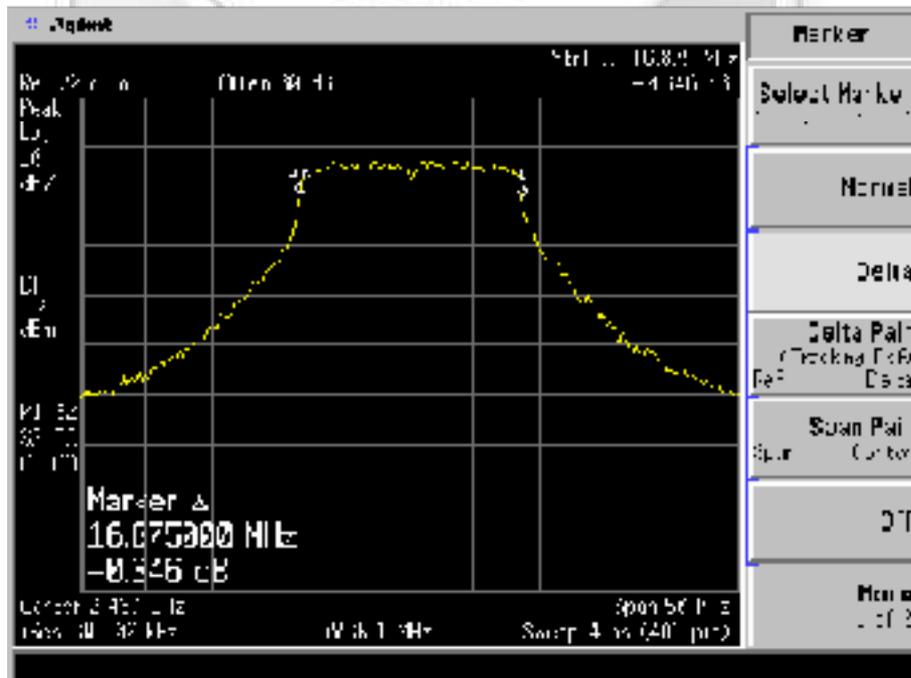
Plot 18 - Channel 6 @ QPSK 18Mbps

**SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST**

**Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11g**



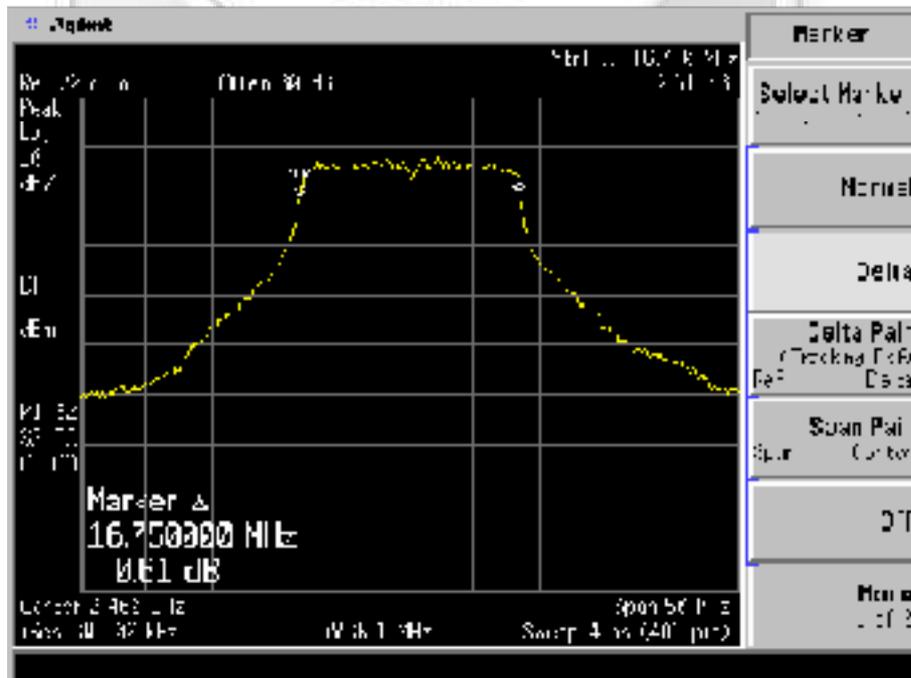
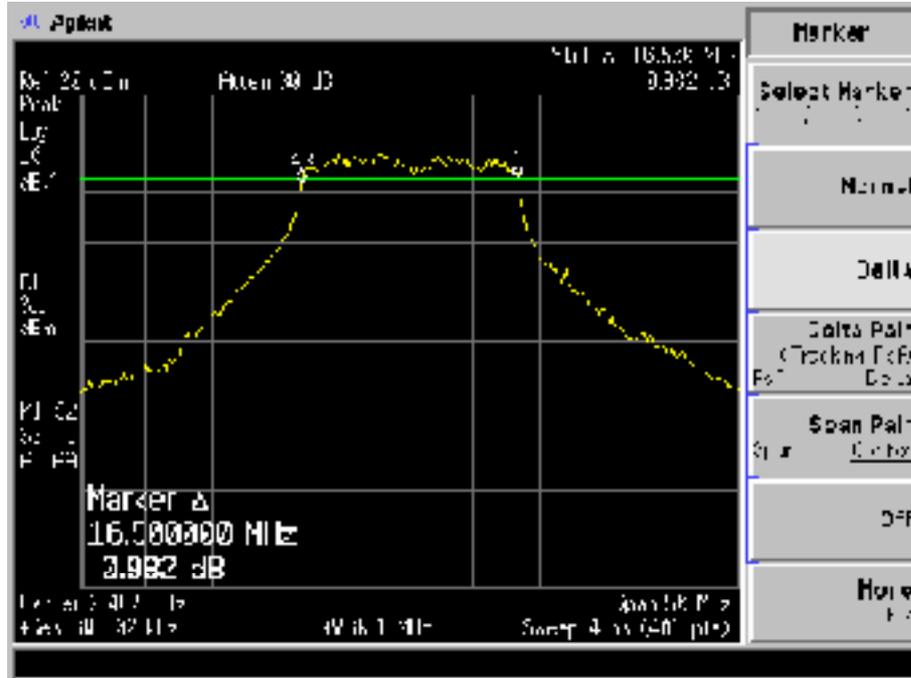
**Plot 19 - Channel 6 @16QAM 36Mbps**



**Plot 20 - Channel 6 @64QAM 54Mbps**

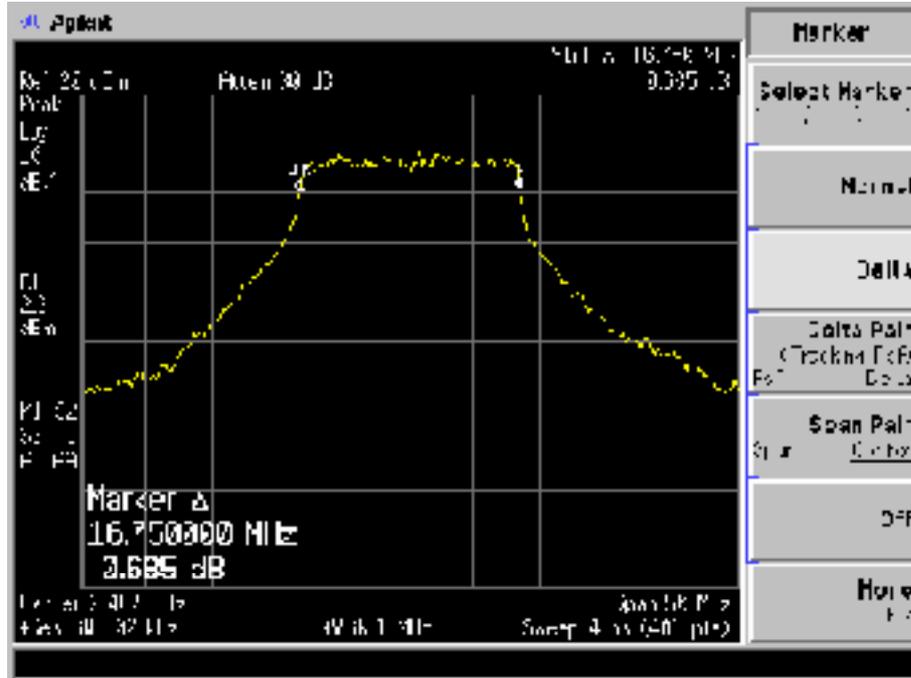
**SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST**

**Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11g**

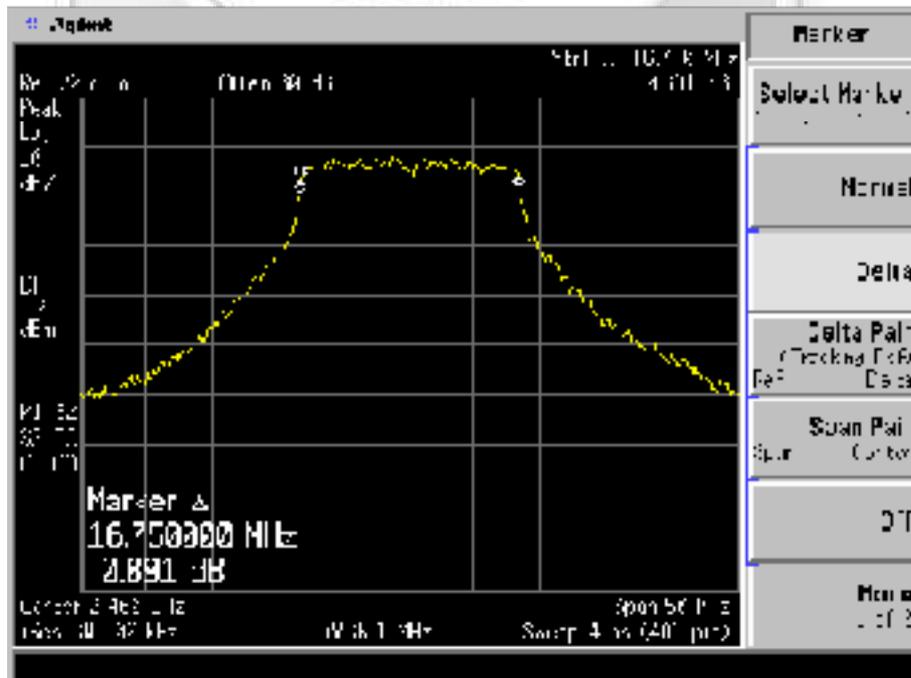


**SPECTRUM BANDWIDTH (6dB BANDWIDTH MEASUREMENT) TEST**

**Spectrum Bandwidth (6dB Bandwidth Measurement) Plots – 802.11g**



Plot 23 - Channel 11 @ 16QAM 36Mbps



Plot 24 - Channel 11 @ 64QAM 54Mbps

**MAXIMUM PEAK POWER TEST**

**47 CFR FCC Part 15.247(b)(3) Maximum Peak Power Limits**

The EUT shows compliance to the requirements of this section, which states the maximum peak power of the EUT employing digital modulation shall not exceed 1W (30dBm).

**47 CFR FCC Part 15.247(b)(3) Maximum Peak Power Test Instrumentation**

Instrument	Model	S/No	Cal Due Date
Boonton RF Power Meter	4532	72901	25 May 2013
Boonton Power Sensor	56218-S/1	1417	25 May 2013
GW Instek Programmable Power Supply	PSH-3630A	RK200168	30 Jan 2013

**47 CFR FCC Part 15.247(b)(3) Maximum Peak Power Test Setup**

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The RF antenna connector was connected to the power meter.
4. All other supporting equipment were powered separately from another filtered mains.

**47 CFR FCC Part 15.247(b)(3) Maximum Peak Power Test Method**

1. The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode at lower channel with specified modulation and data rate.
2. The maximum peak power of the transmitting frequency was detected and recorded.
3. Repeat steps 1 to 2 with all possible modulations and data rates.
4. The steps 2 to 3 were repeated with the transmitting frequency was set to middle and upper respectively.

**MAXIMUM PEAK POWER TEST**



Maximum Peak Power Test Setup



**MAXIMUM PEAK POWER TEST**

**47 CFR FCC Part 15.247(b)(3) Maximum Peak Power Results**

Test Input Power	24V dc (Worst Voltage)	Temperature	24°C
Antenna Gain	0.0 dBi	Relative Humidity	54%
		Atmospheric Pressure	1027mbar
		Tested By	Kyaw Soe Hein

Channel	Channel Frequency (GHz)	Maximum Peak Power (W)	Limit (W)	Modulation @ Data Rate
1	2.412	0.0340	1.0	DBPSK @ 1Mbps
		0.0325	1.0	DQPSK @ 2Mbps
		0.0323	1.0	CCK @ 5.5Mbps
		0.0327	1.0	CCK @ 11Mbps
6	2.437	0.0326	1.0	DBPSK @ 1Mbps
		0.0333	1.0	DQPSK @ 2Mbps
		0.0338	1.0	CCK @ 5.5Mbps
		0.0326	1.0	CCK @ 11Mbps
11	2.462	0.0305	1.0	DBPSK @ 1Mbps
		0.0312	1.0	DQPSK @ 2Mbps
		0.0331	1.0	CCK @ 5.5Mbps
		0.0320	1.0	CCK @ 11Mbps

Channel	Channel Frequency (GHz)	Maximum Peak Power (W)	Limit (W)	802.11g Modulation @ Data Rate
1	2.412	0.0340	1.0	BPSK @ 9Mbps
		0.0342	1.0	QPSK @ 18Mbps
		0.0336	1.0	16QAM @ 36Mbps
		0.0333	1.0	64QAM @ 54Mbps
6	2.437	0.0350	1.0	BPSK @ 9Mbps
		0.0347	1.0	QPSK @ 18Mbps
		0.0339	1.0	16QAM @ 36Mbps
		0.0340	1.0	64QAM @ 54Mbps
11	2.462	0.0344	1.0	BPSK @ 9Mbps
		0.0341	1.0	QPSK @ 18Mbps
		0.0333	1.0	16QAM @ 36Mbps
		0.0332	1.0	64QAM @ 54Mbps

**Notes**

1. Nil.

**RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST**

**47 CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Non-Restricted Bands) Limits**

The EUT shows compliance to the requirements of this section, which states in any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator (EUT) is operating, the radio frequency power that is produced by the EUT shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of desired power.

**47 CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Non-Restricted Bands) Test Instrumentation**

Instrument	Model	S/No	Cal Due Date
Agilent EMC Analyzer (9kHz-26.5GHz)	E7405A	US40240195	16 Mar 2013
GW Instek Programmable Power Supply	PSH-3630A	RK200168	30 Jan 2013

**47 CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Non-Restricted Bands) Test Setup**

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The RF antenna connector was connected to the spectrum analyser via a low-loss coaxial cable.
4. The resolution bandwidth (RBW) and the video bandwidth (VBW) of the spectrum analyser were respectively set to 100kHz and 300kHz.
5. All other supporting equipment were powered separately from another filtered mains.

**47 CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Non-Restricted Bands) Test Method**

1. The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode, with the transmitting frequency was set to lower channel with specified modulation and data rate.
2. The start and stop frequencies of the spectrum analyser were set to 30MHz and 10GHz.
3. The spectrum analyser was set to max hold to capture any spurious emissions within the span. The signal capturing was continuous until no further spurious emissions were detected.
4. The steps 2 to 3 were repeated with frequency span was set from 10GHz to 25GHz.
5. Repeat steps 1 to 4 with all possible modulations and data rates.
6. The steps 2 to 5 were repeated with the transmitting frequency was set to middle and upper channel respectively.

**RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST**



**RF Conducted Spurious Emissions (Non-Restricted Bands) Test Setup**

**47 CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Non-Restricted Bands) Results**

Test Input Power	24V dc (Worst Voltage)	Temperature	24°C
Attached Plots	25 – 48 (802.11b)	Relative Humidity	54%
		Atmospheric Pressure	1027mbar
		Tested By	Kyaw Soe Hein

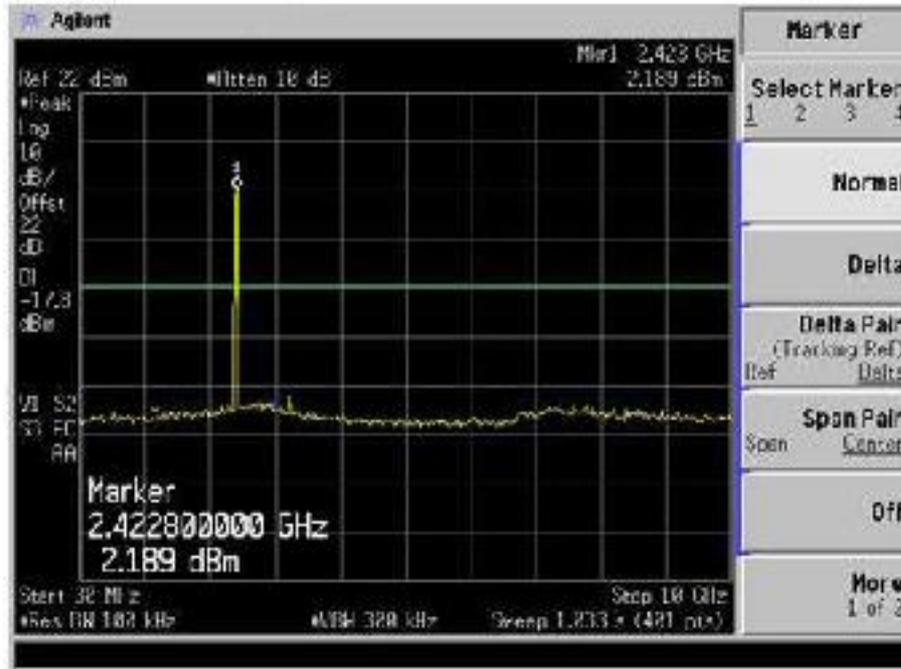
All spurious signals found were below the specified limit. Please refer to the attached plots.

Test Input Power	24V dc (Worst Voltage)	Temperature	24°C
Attached Plots	49 – 72 (802.11g)	Relative Humidity	54%
		Atmospheric Pressure	1027mbar
		Tested By	Kyaw Soe Hein

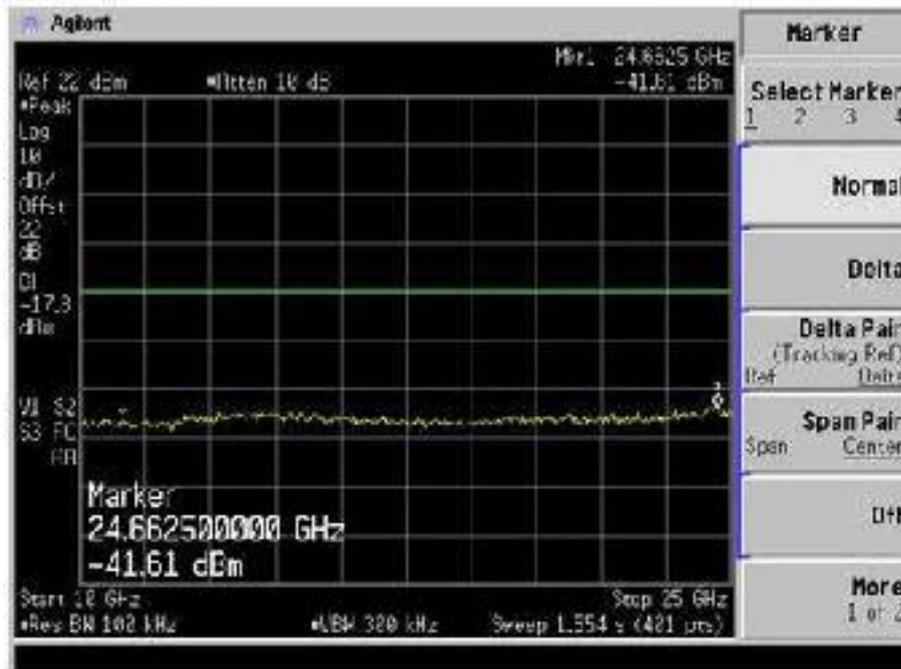
All spurious signals found were below the specified limit. Please refer to the attached plots.

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



Plot 25 – Channel 1 @ DBPSK 1Mbps

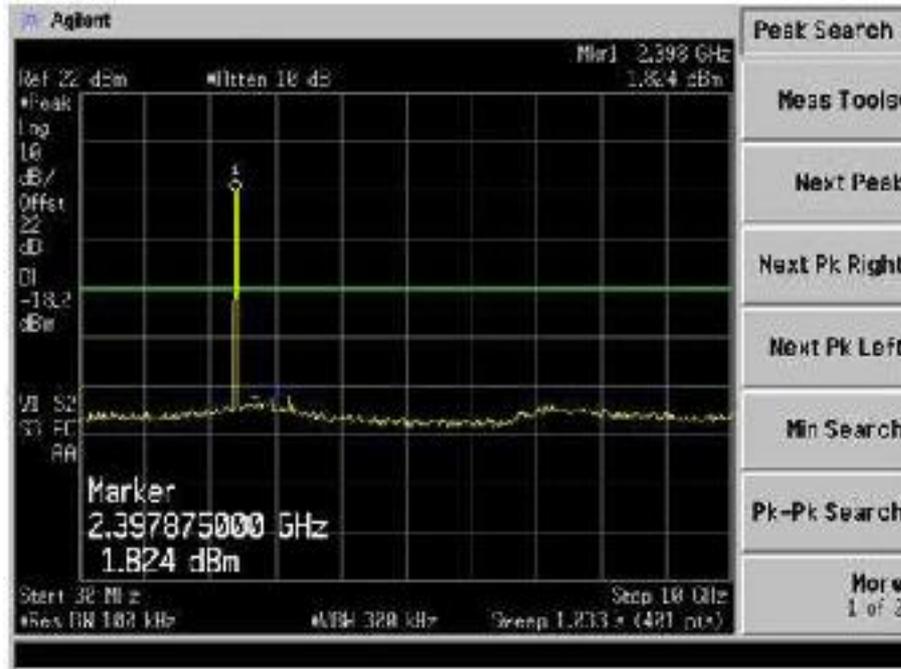


Plot 26 – Channel 1 @ DBPSK 1Mbps

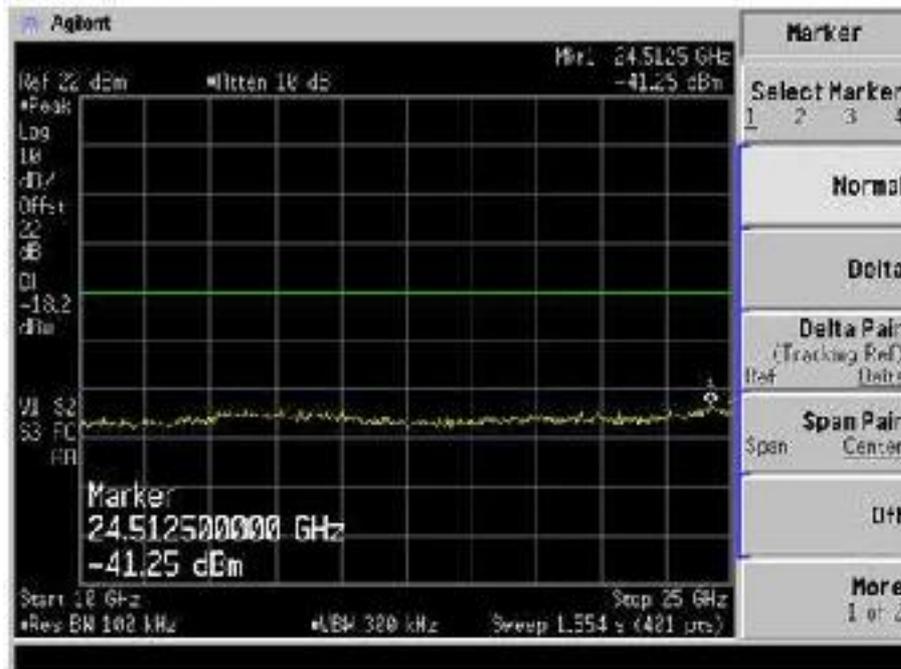


RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



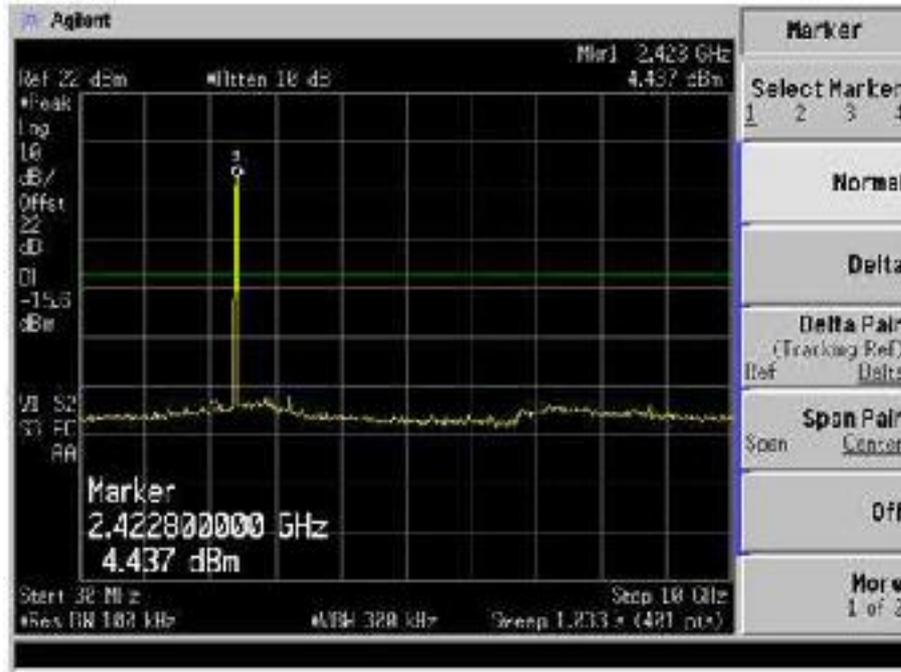
Plot 27 – Channel 1 @ DQPSK 2Mbps



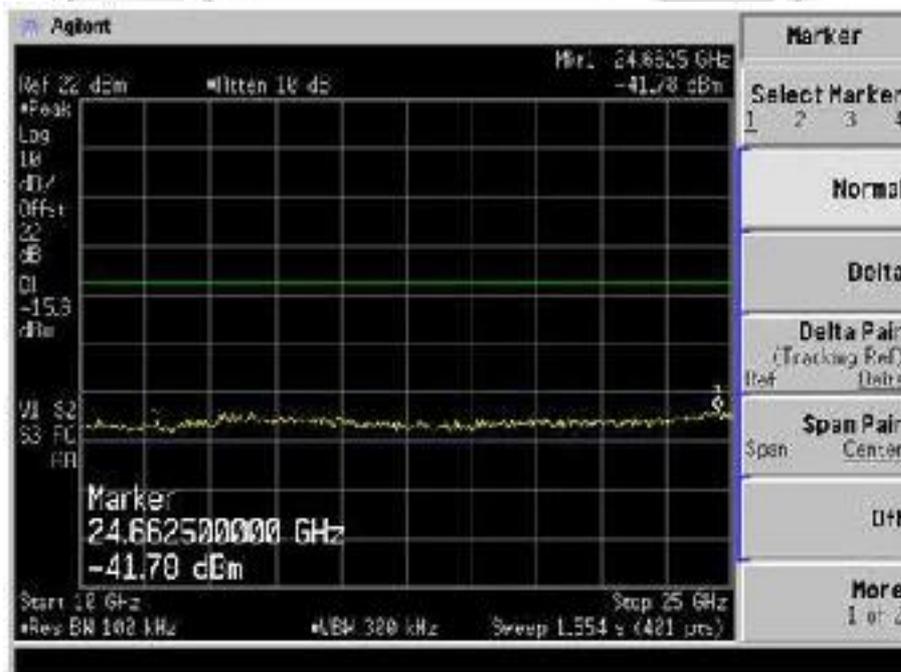
Plot 28 – Channel 1 @ DQPSK 2Mbps

**RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST**

**RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b**



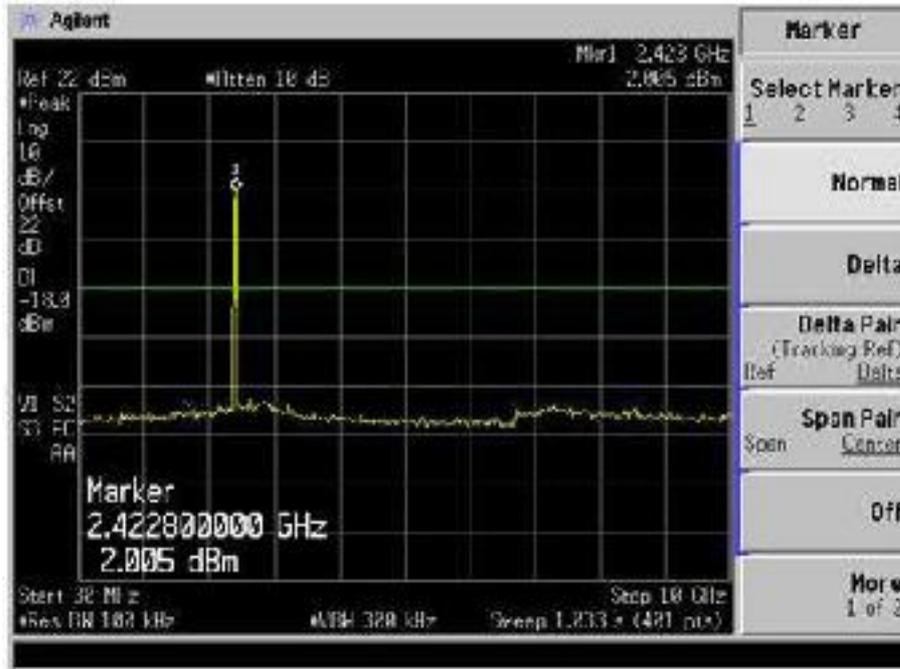
**Plot 29 – Channel 1 @ CCK 5.5Mbps**



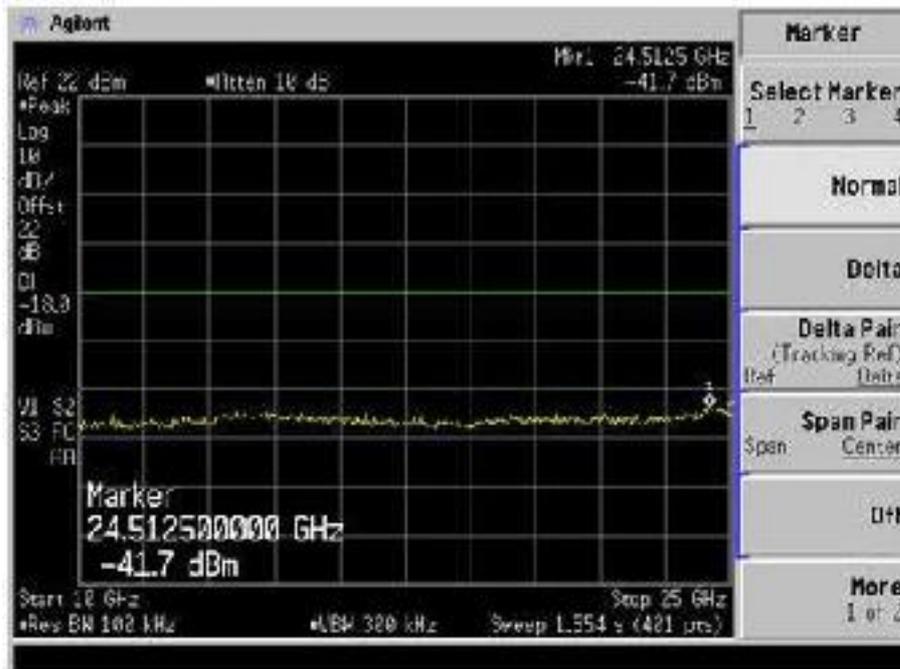
**Plot 30 – Channel 1 @ CCK 5.5Mbps**

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



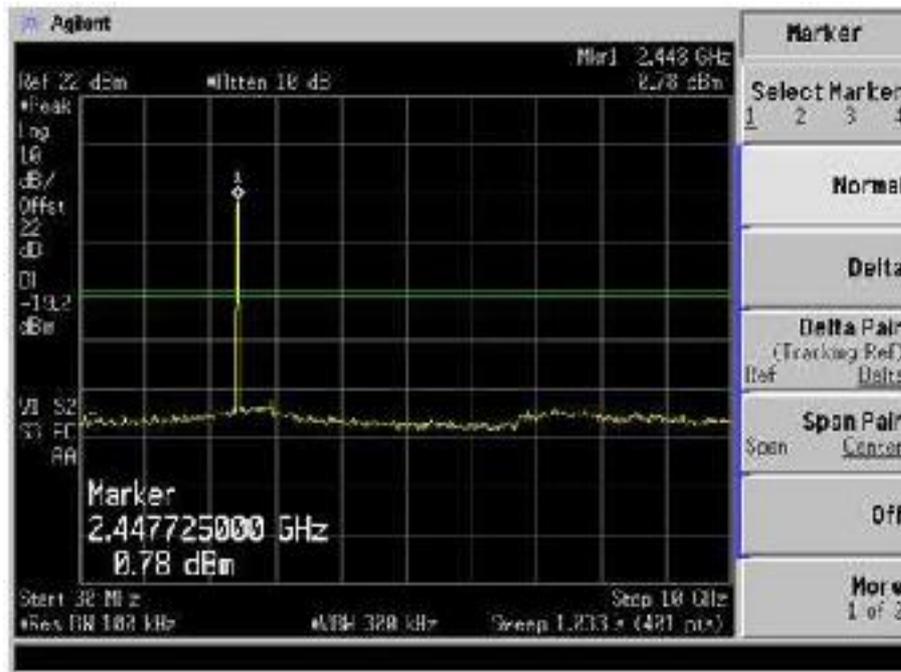
Plot 31 – Channel 1 @ CCK 11Mbps



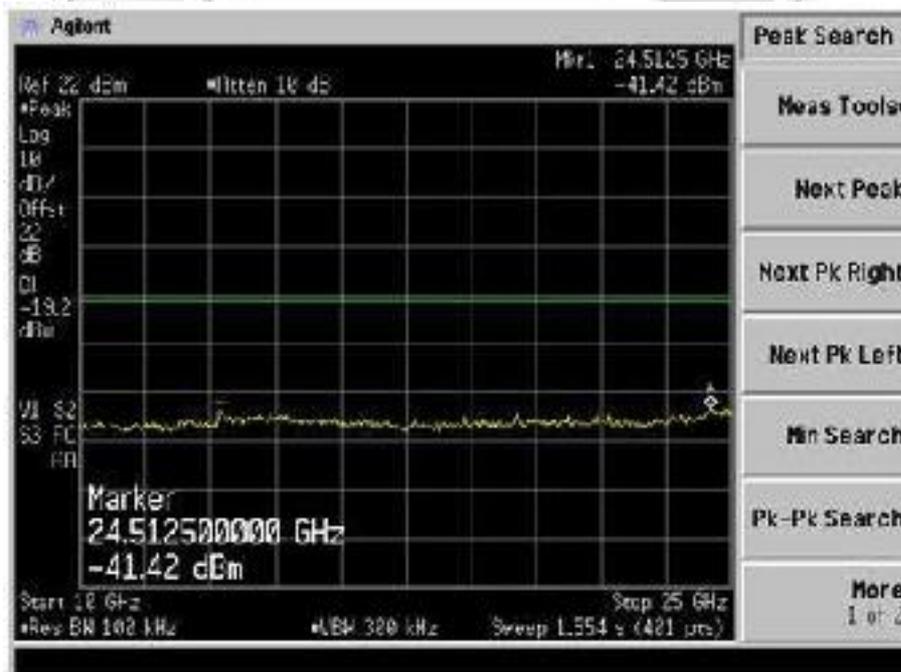
Plot 32 – Channel 1 @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



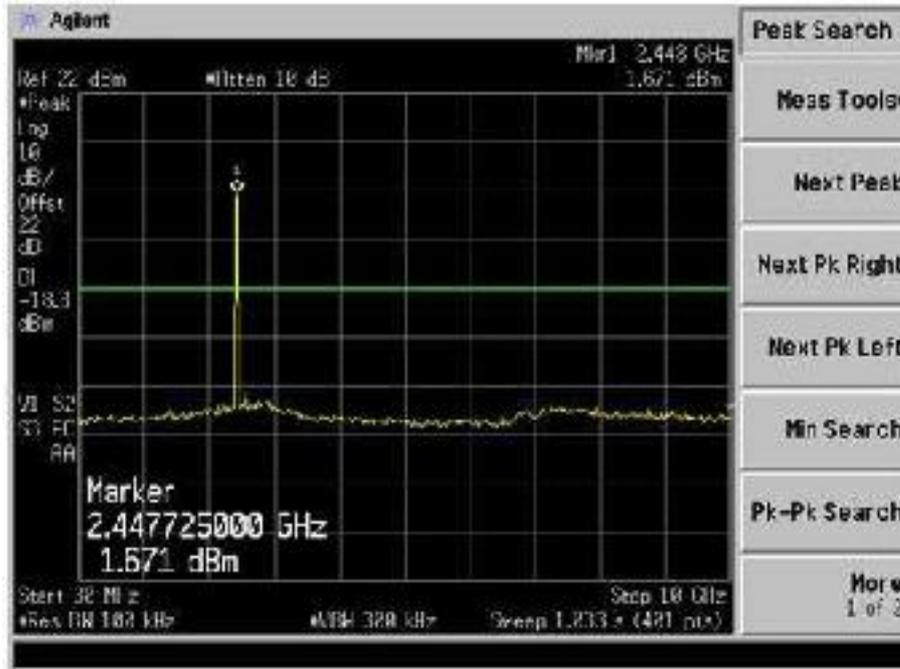
Plot 33 – Channel 6 @ DBPSK 1Mbps



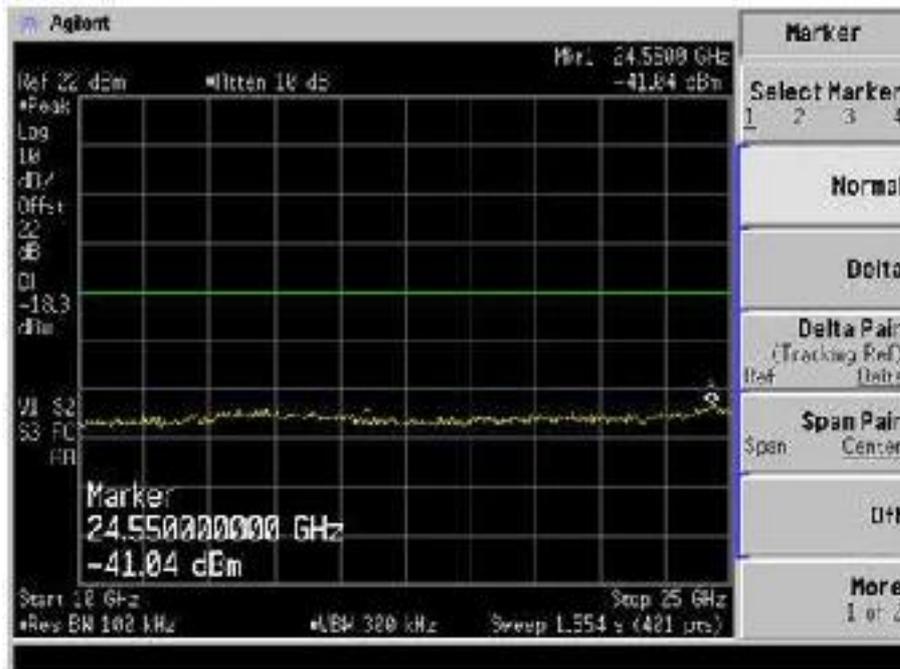
Plot 34 – Channel 6 @ DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



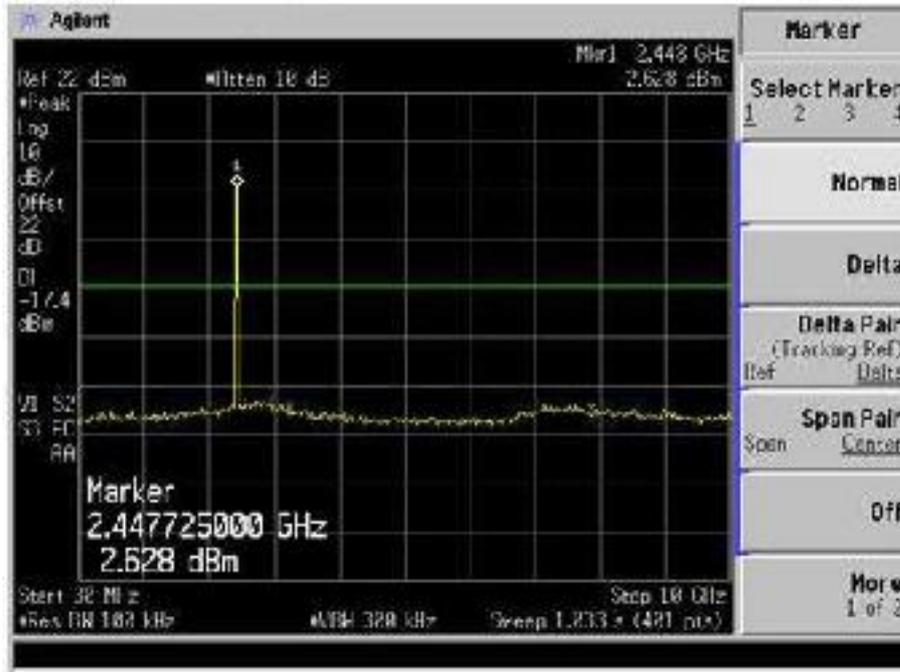
Plot 35 – Channel 6 @ DQPSK 2Mbps



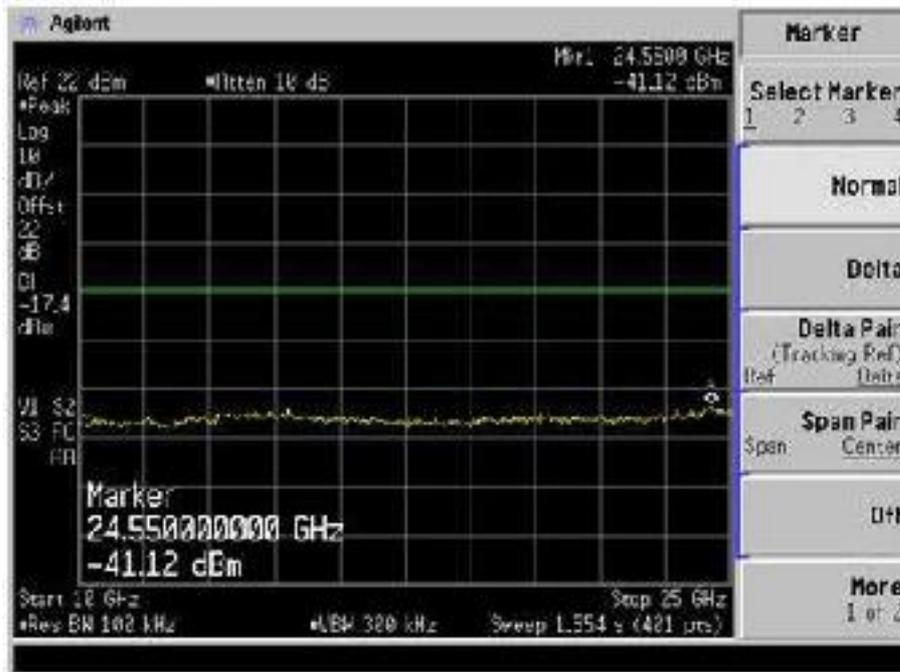
Plot 36 – Channel 6 @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



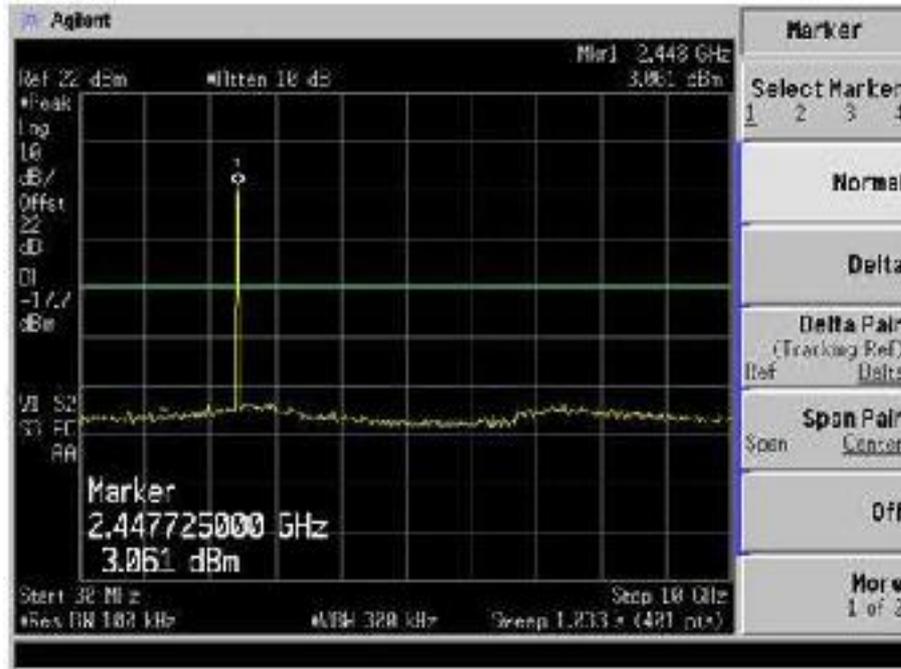
Plot 37 – Channel 6 @ CCK 5.5Mbps



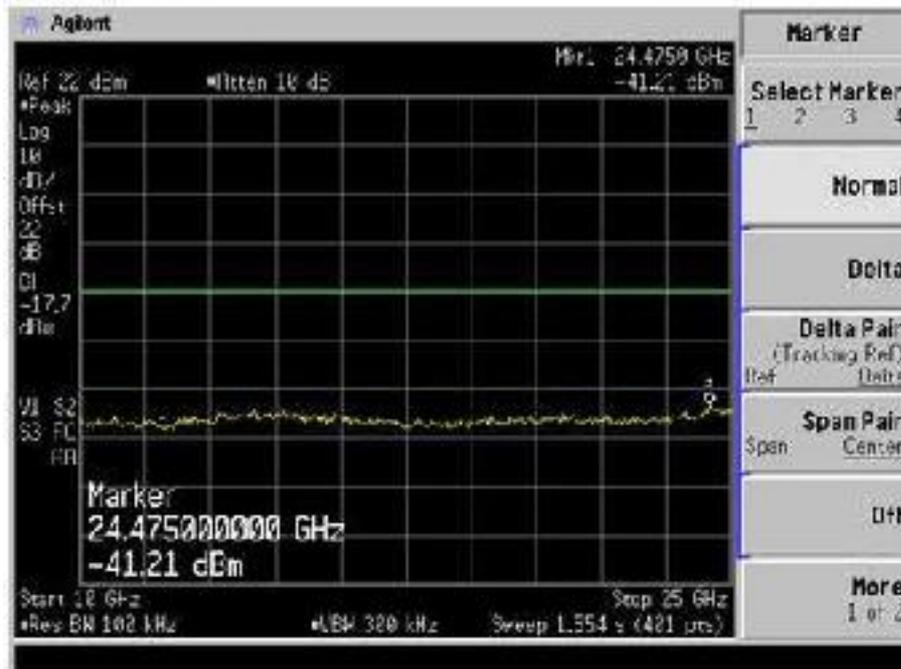
Plot 38 – Channel 6 @ CCK 5.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



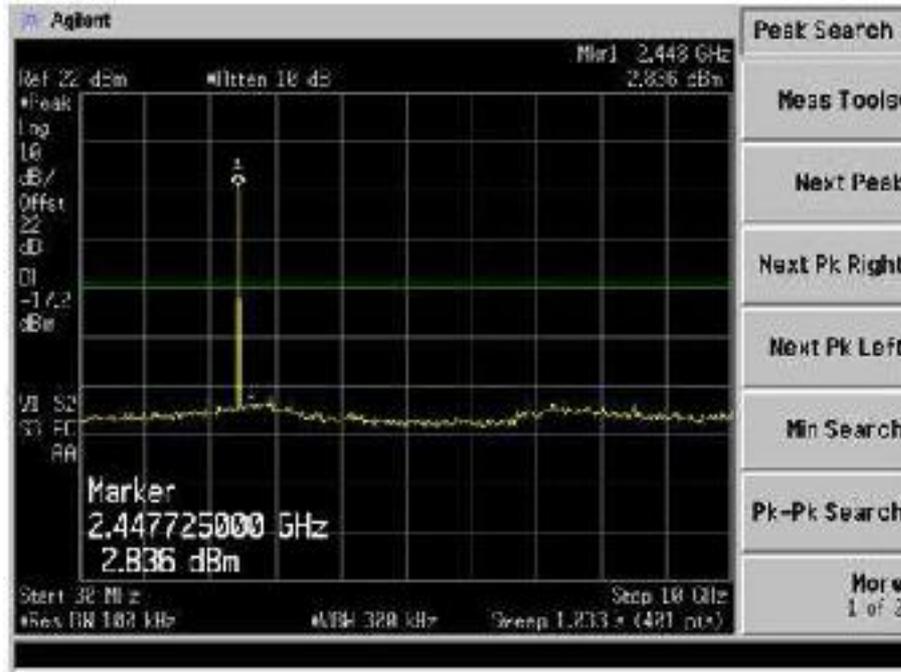
Plot 39 – Channel 6 @ CCK 11Mbps



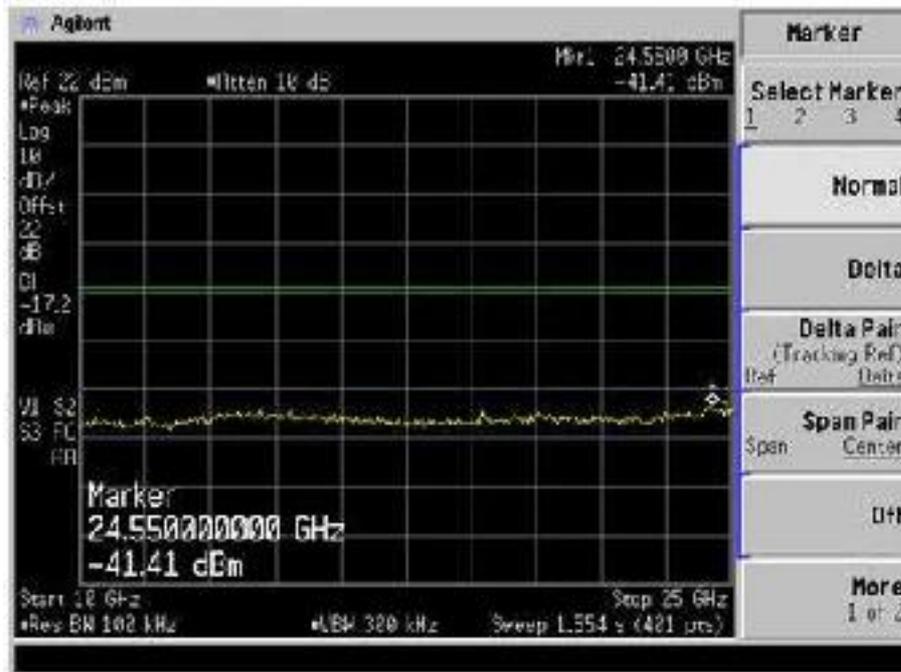
Plot 40 – Channel 6 @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



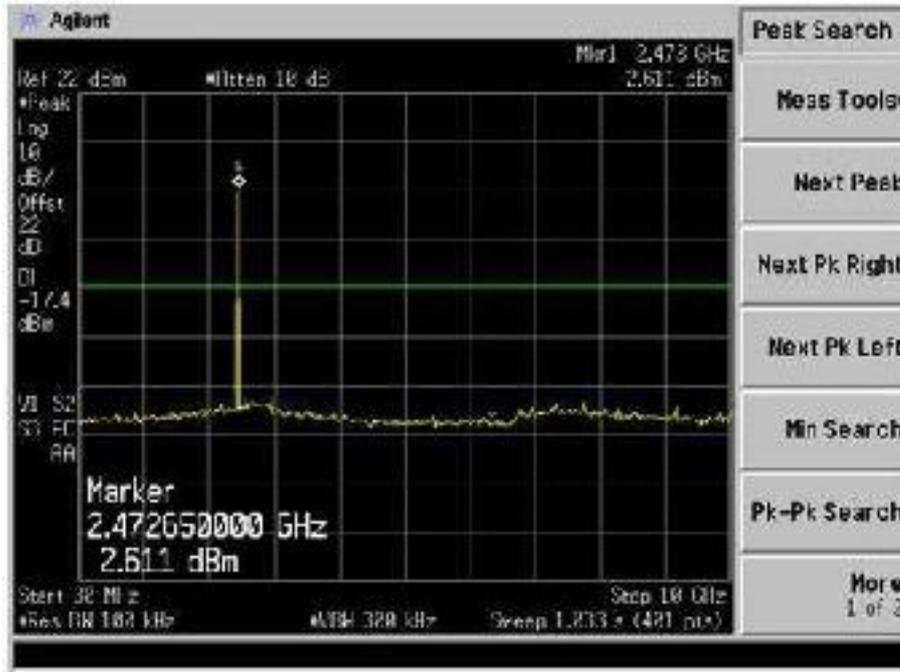
Plot 41 – Channel 11 @DBPSK 1Mbps



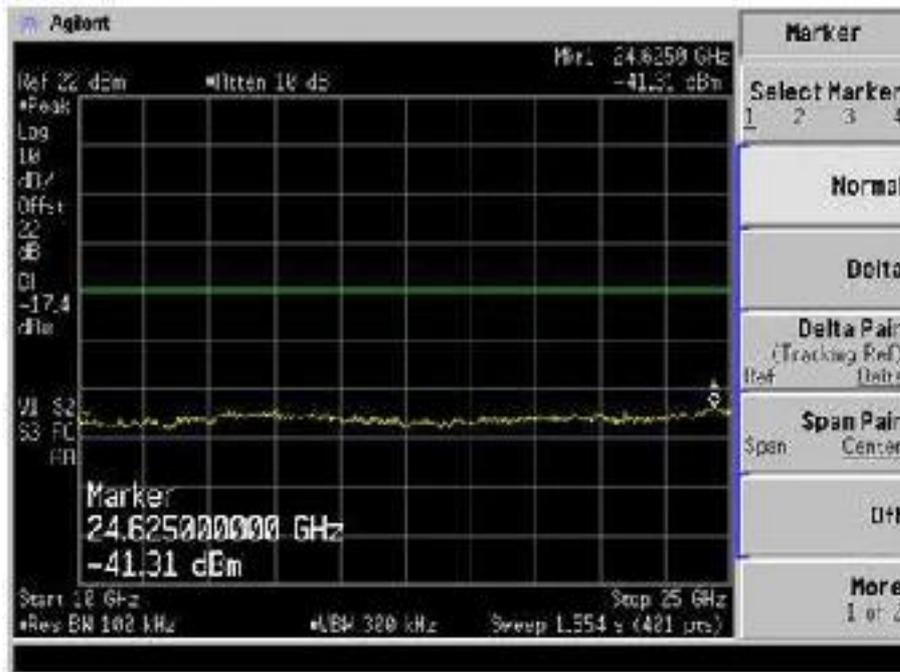
Plot 42 – Channel 11 @DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



Plot 43 – Channel 11 @ DQPSK 2Mbps

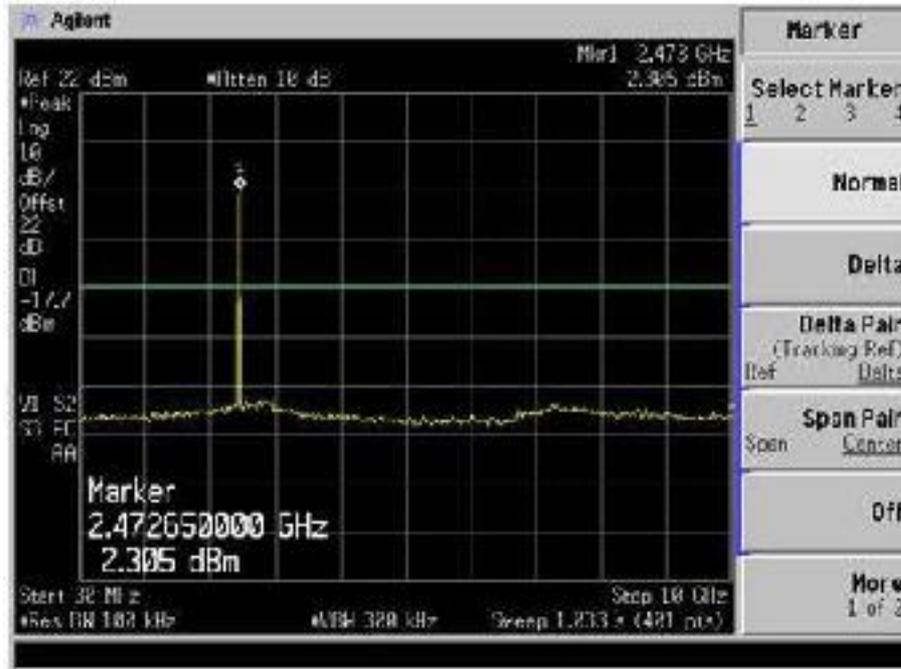


Plot 44 – Channel 11 @ DQPSK 2Mbps

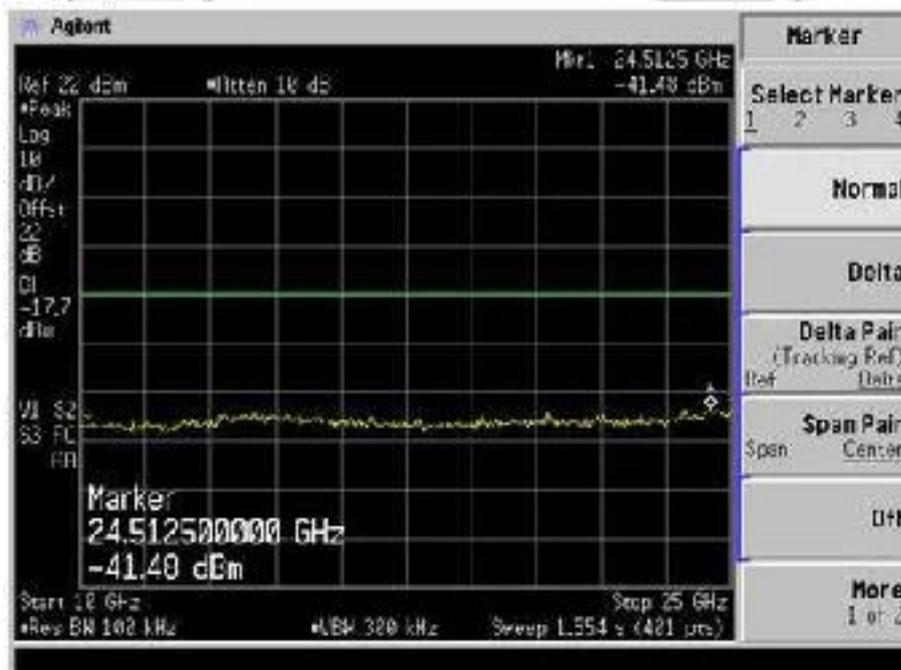


RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b



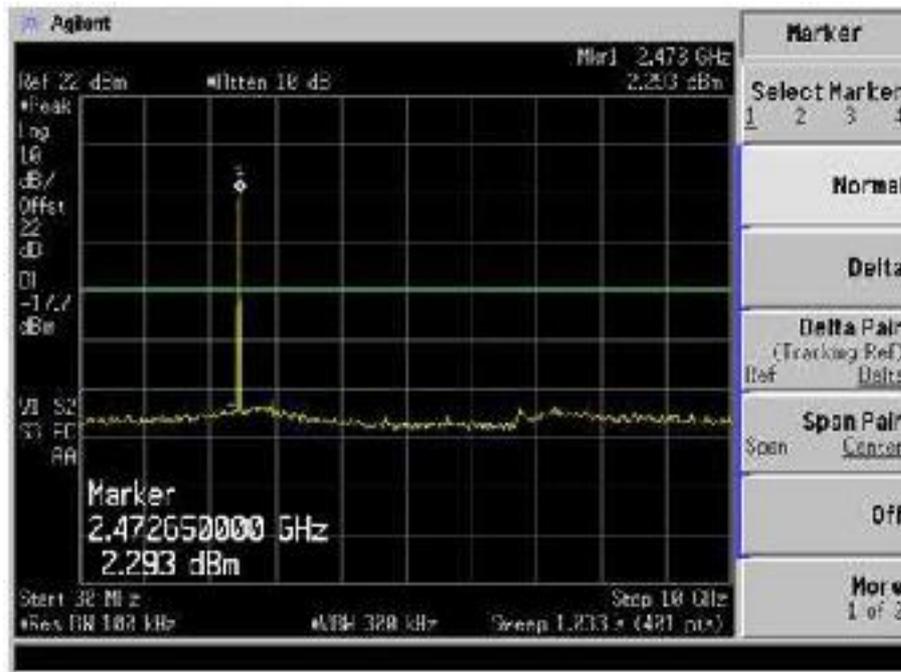
Plot 45 – Channel 11 @ CCK 5.5Mbps



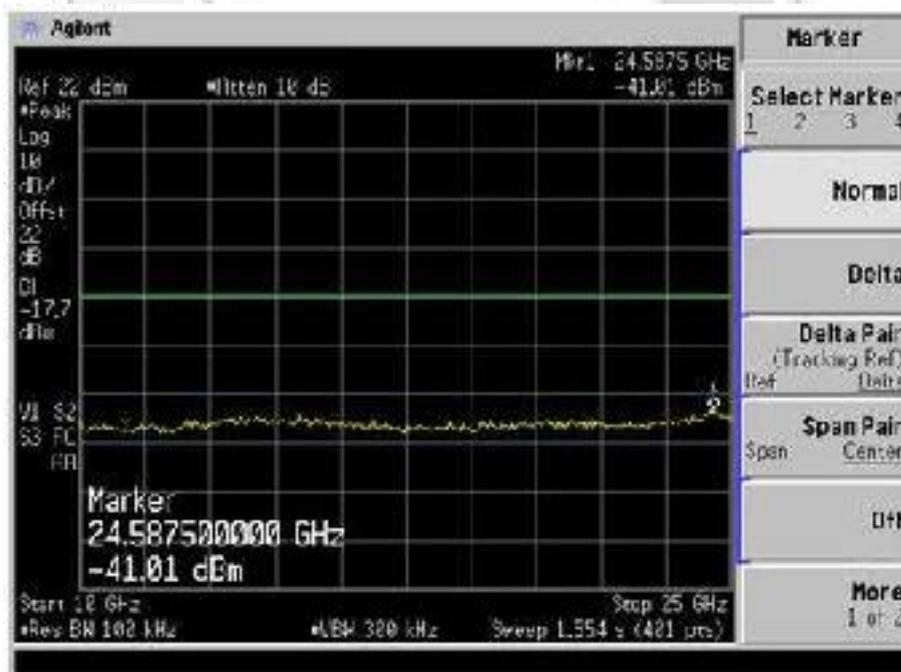
Plot 46 – Channel 11 @ CCK 5.5Mbps

**RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST**

**RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11b**



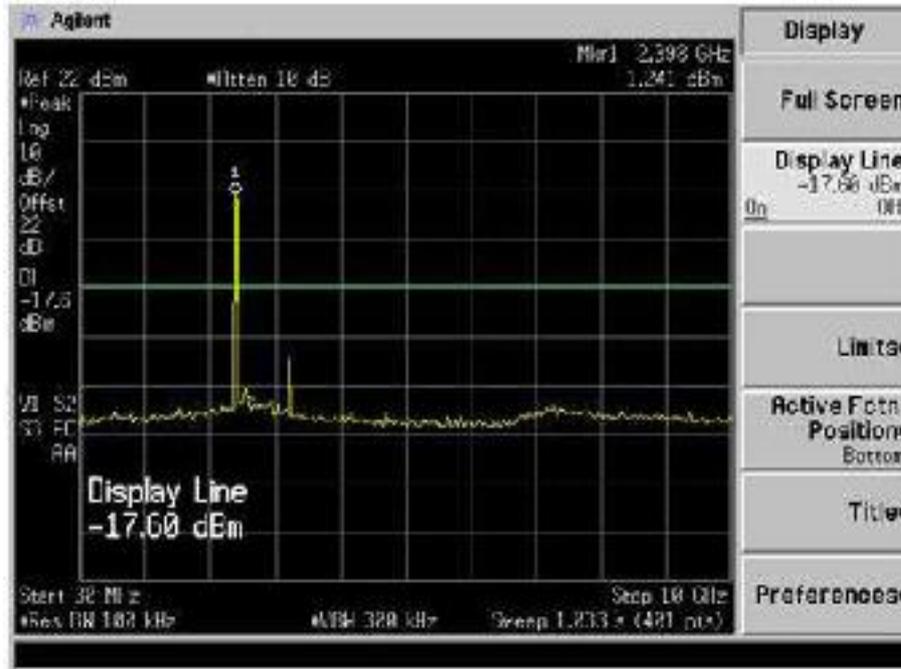
**Plot 47 – Channel 11 @ CCK 11Mbps**



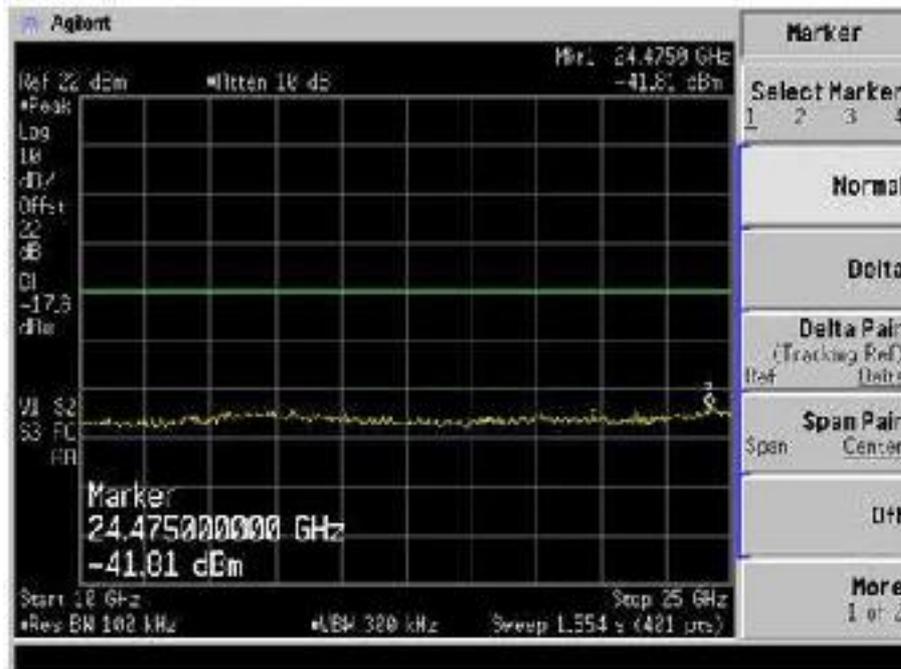
**Plot 48 – Channel 11 @ CCK 11Mbps**

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



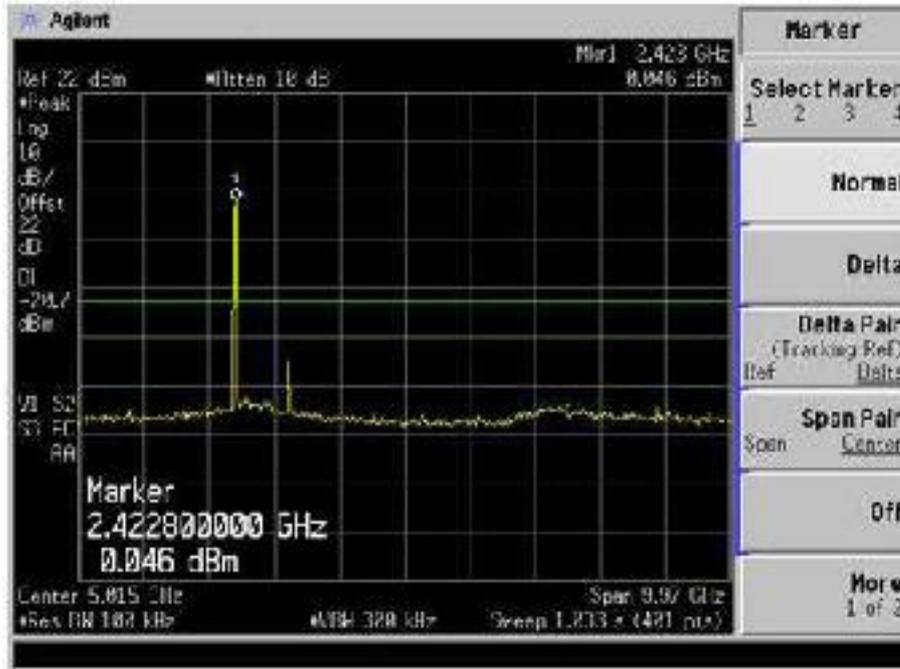
Plot 49 – Channel 1 @ BPSK 9Mbps



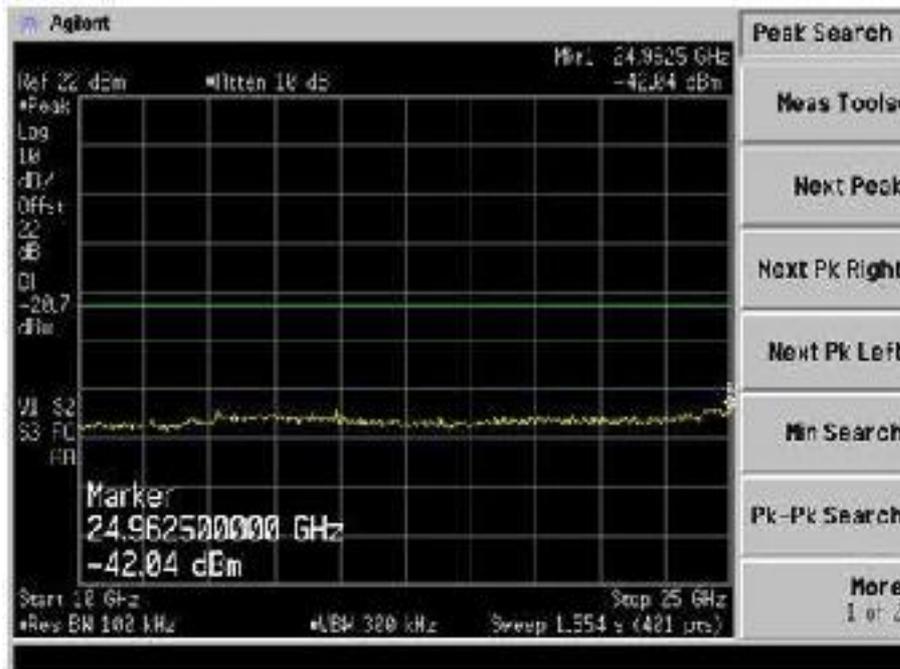
Plot 50 – Channel 1 @ BPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



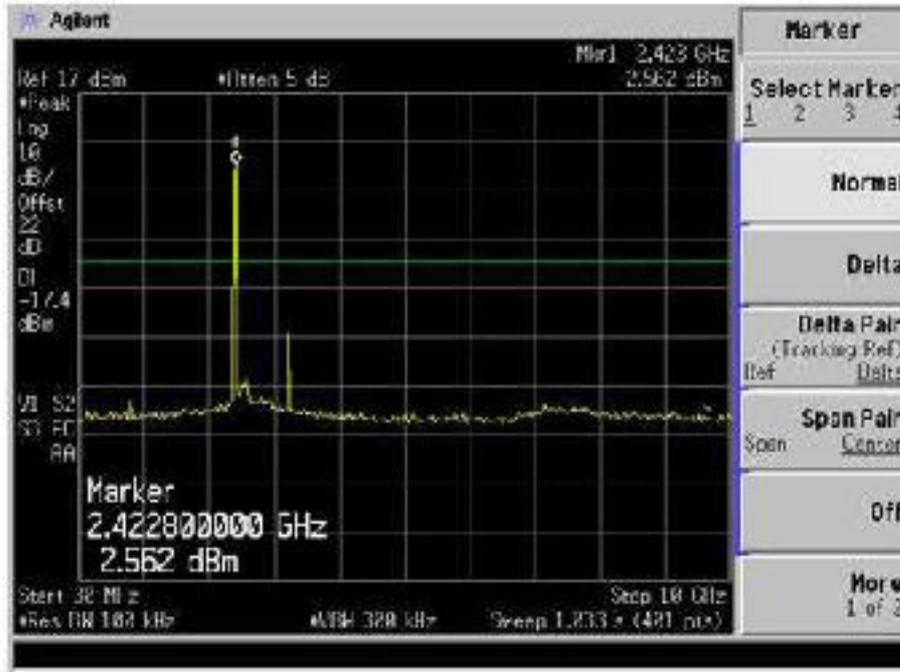
Plot 51 – Channel 1 @ QPSK 18Mbps



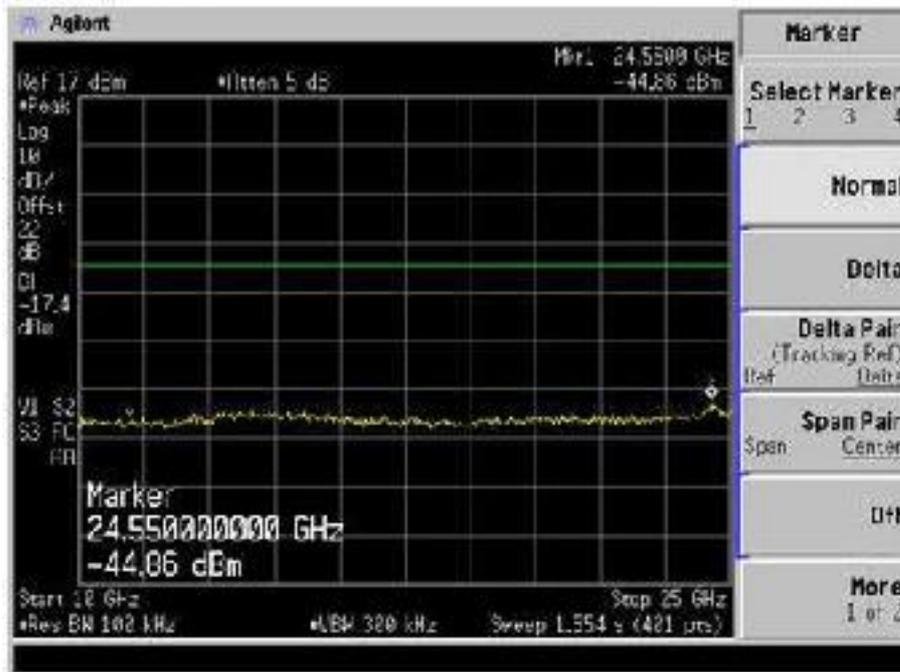
Plot 52 – Channel 1 @ QPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



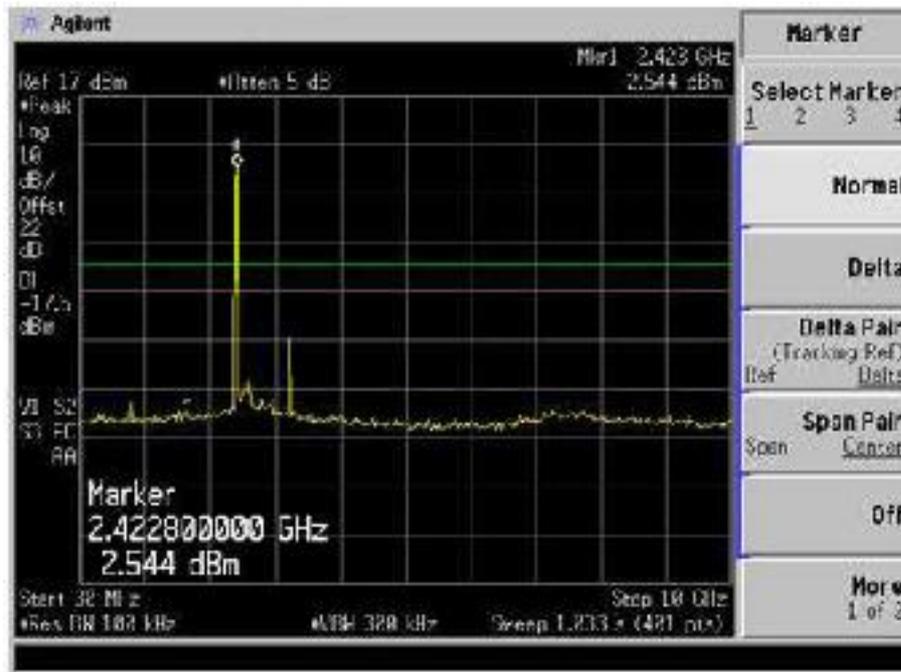
Plot 53 – Channel 1 @ 16Q AM 36Mbps



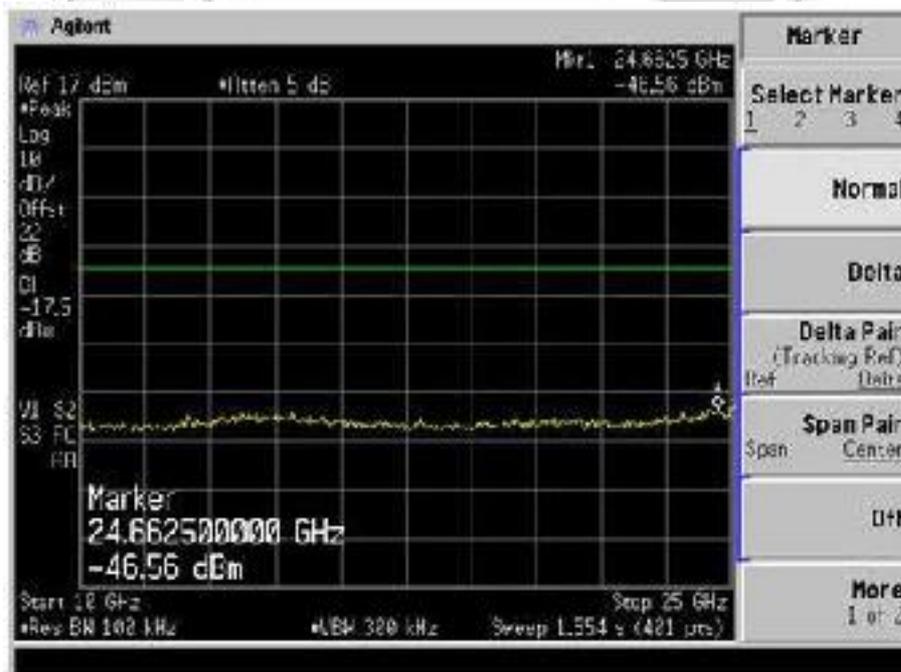
Plot 54 – Channel 1 @ 16Q AM 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



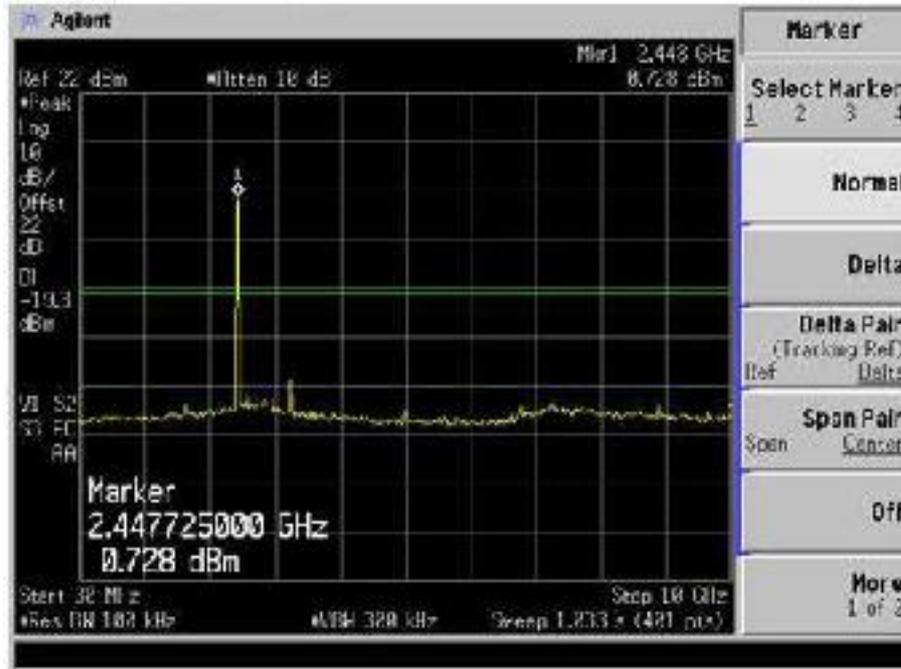
Plot 55 – Channel 1 @ 64Q AM 54Mbps



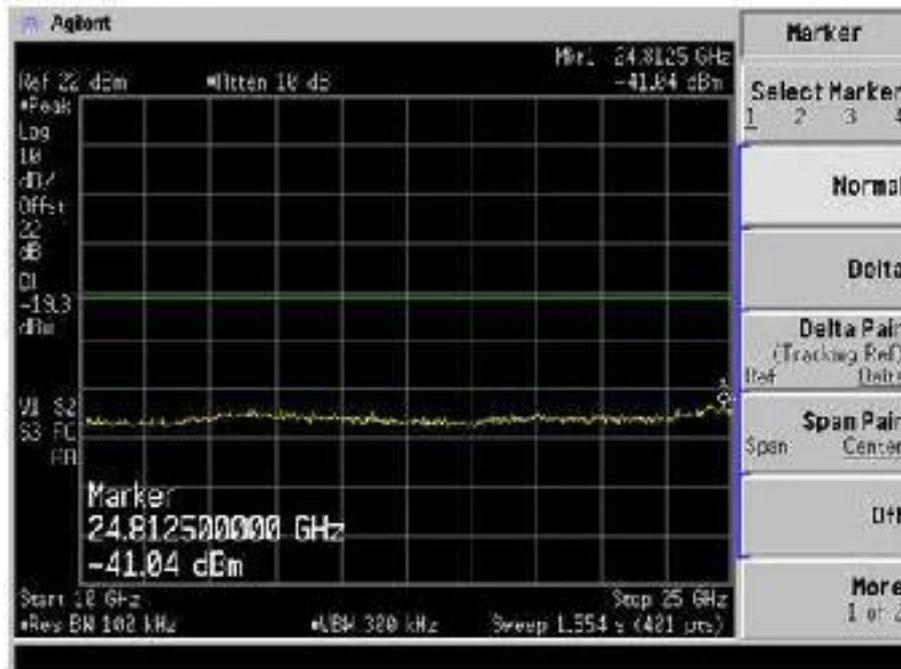
Plot 56 – Channel 1 @ 64Q AM 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



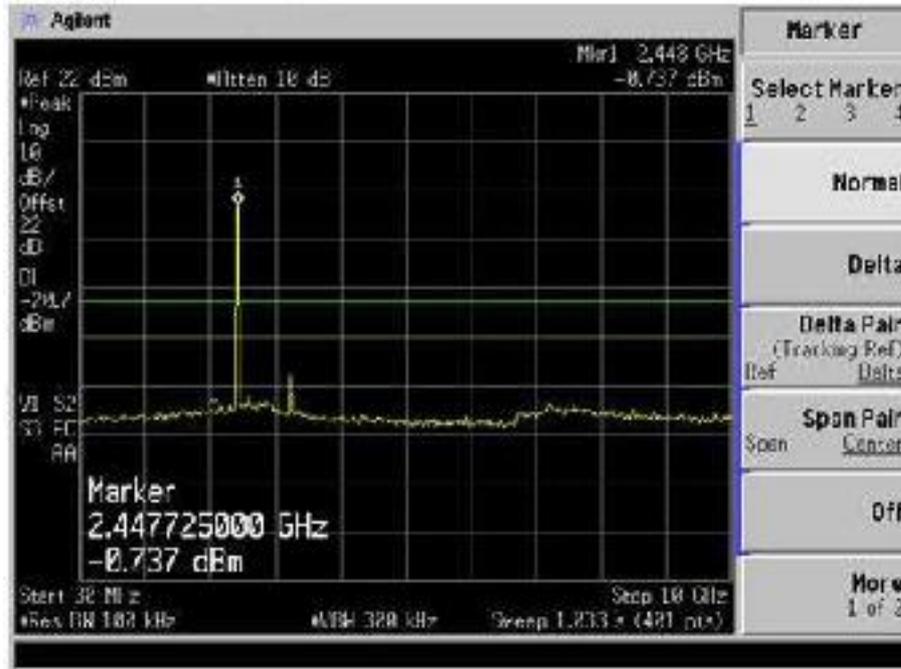
Plot 57 – Channel 6 @ BPSK 9Mbps



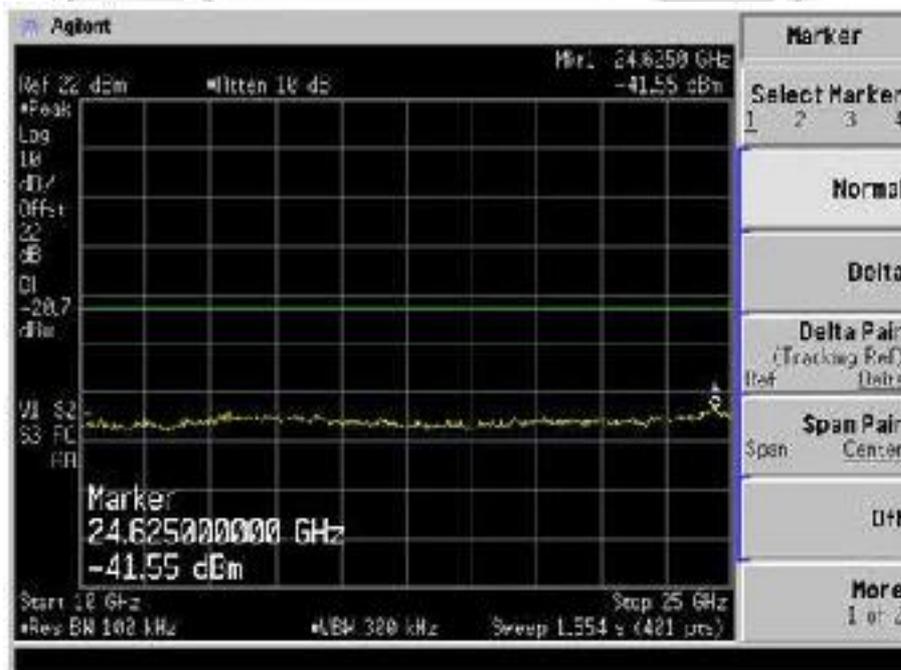
Plot 58 – Channel 6 @ BPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



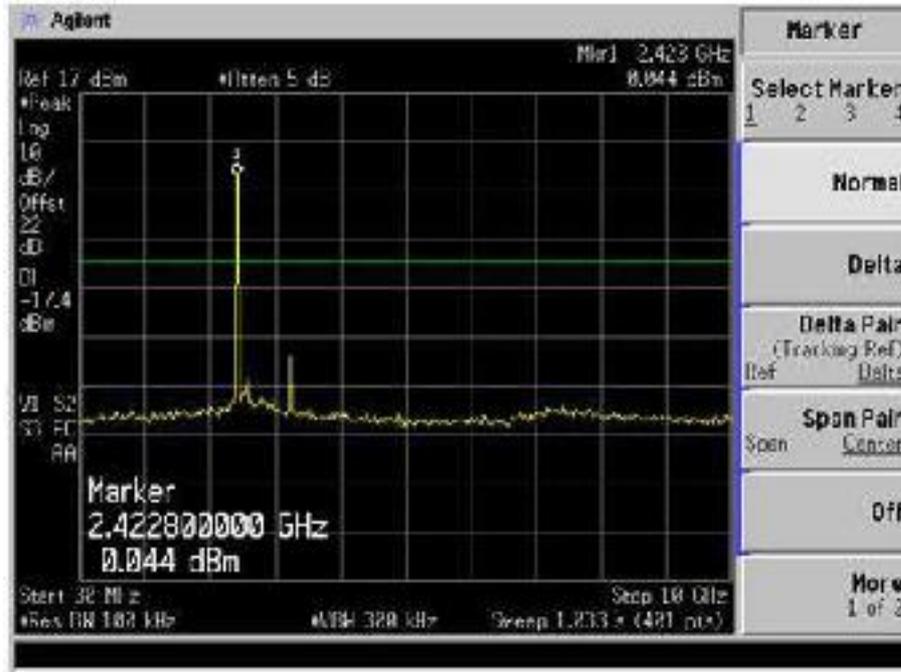
Plot 59 – Channel 6 @ QPSK 18Mbps



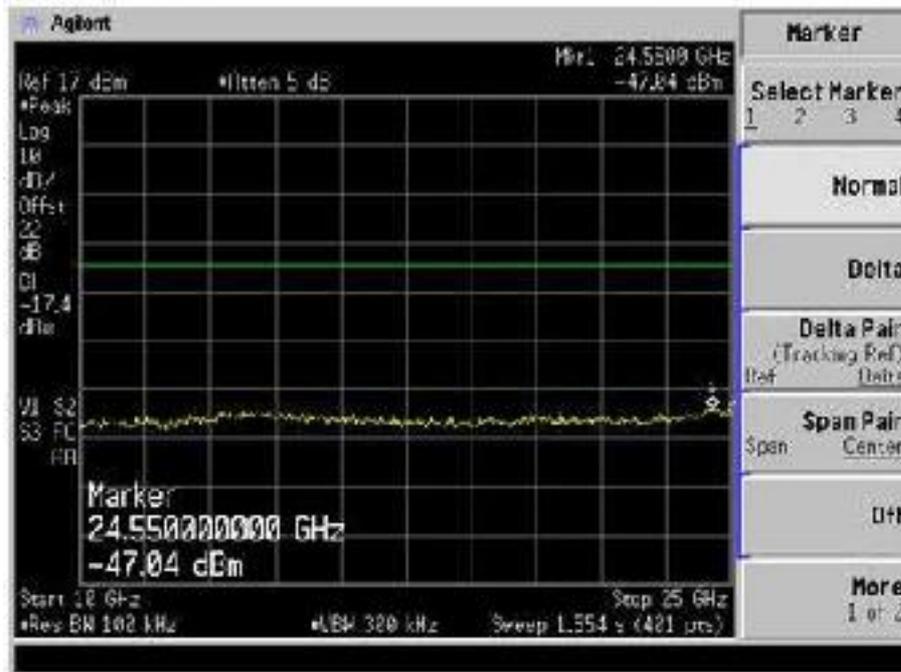
Plot 60 – Channel 6 @ QPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



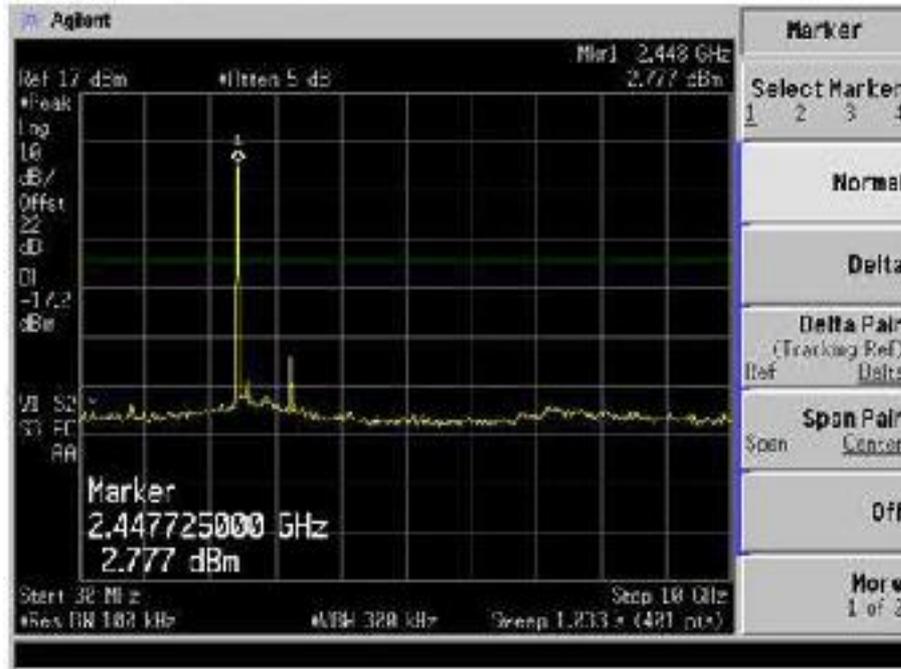
Plot 61 – Channel 6 @ 16Q AM 36Mbps



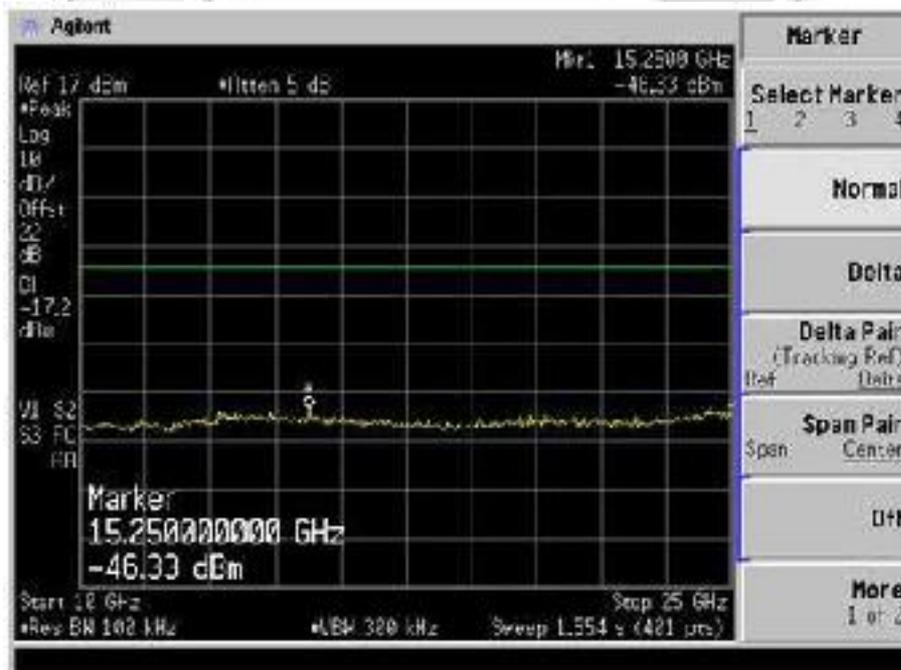
Plot 62 – Channel 6 @ 16Q AM 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



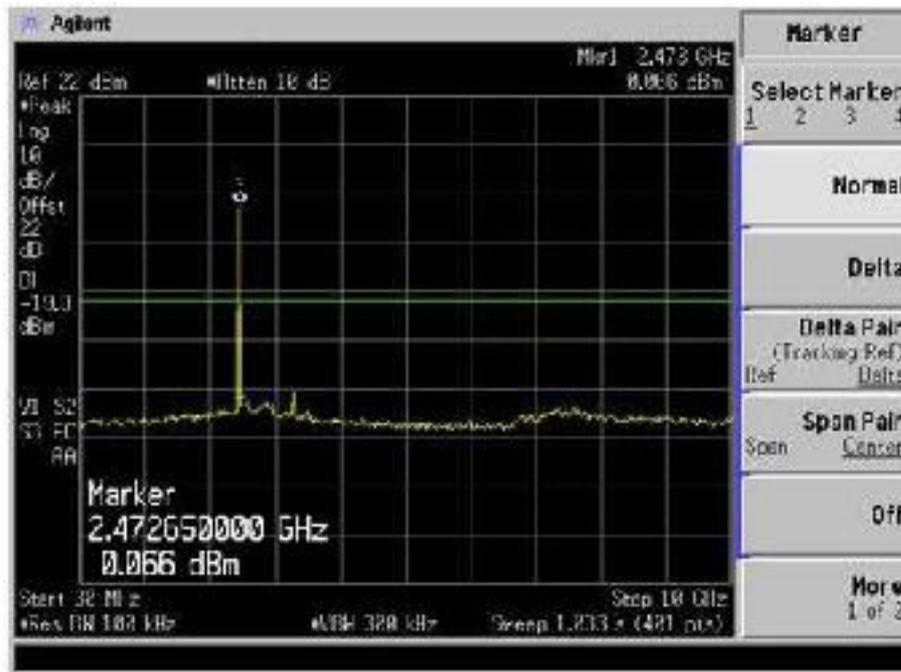
Plot 63 – Channel 6 @ 64Q AM 54Mbps



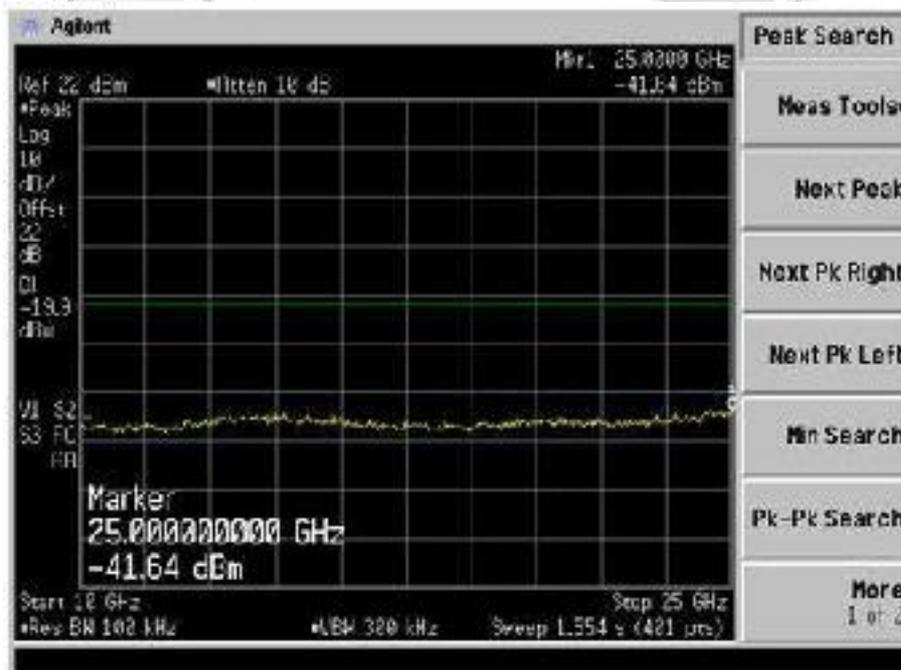
Plot 64 – Channel 6 @ 64Q AM 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



Plot 65 – Channel 11 @ BPSK 9Mbps

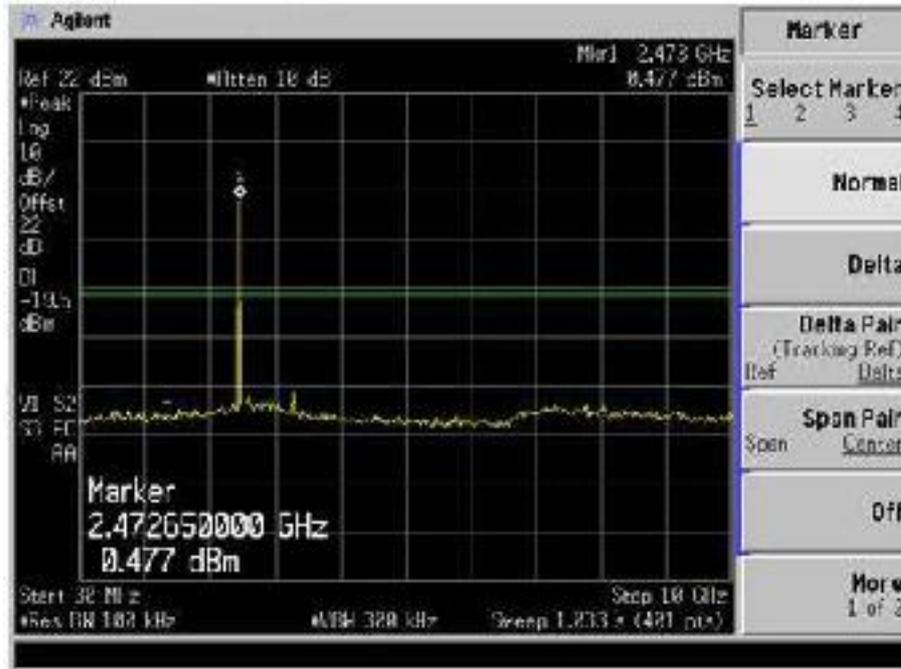


Plot 66 – Channel 11 @ BPSK 9Mbps

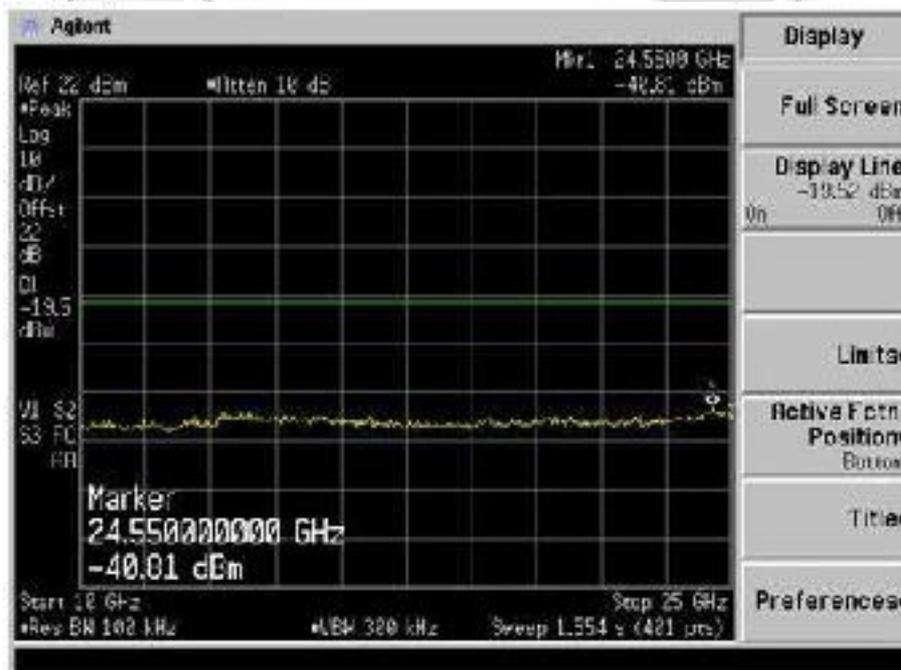


**RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST**

**RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g**



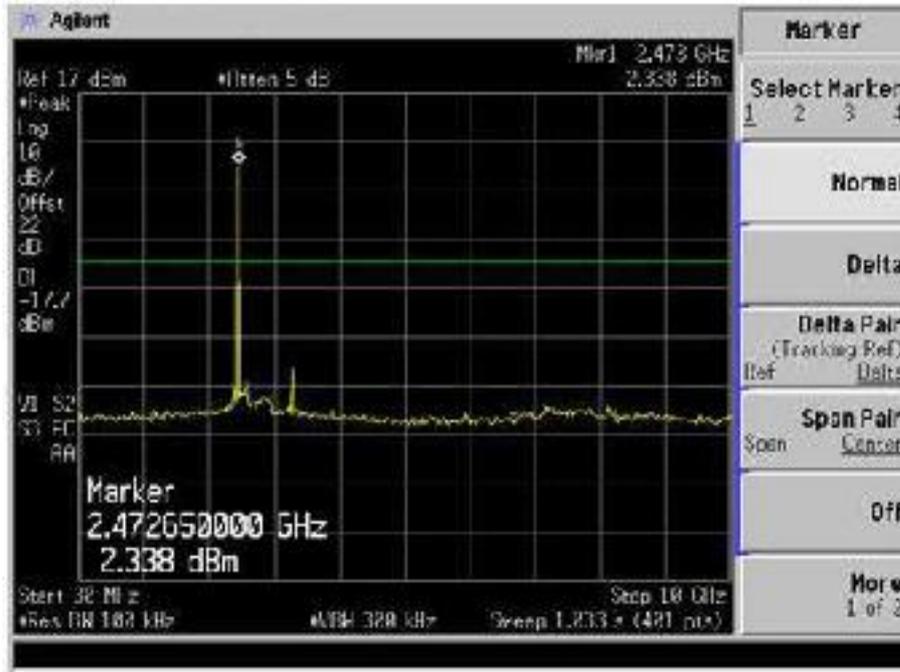
**Plot 67 – Channel 11 @ QPSK 18Mbps**



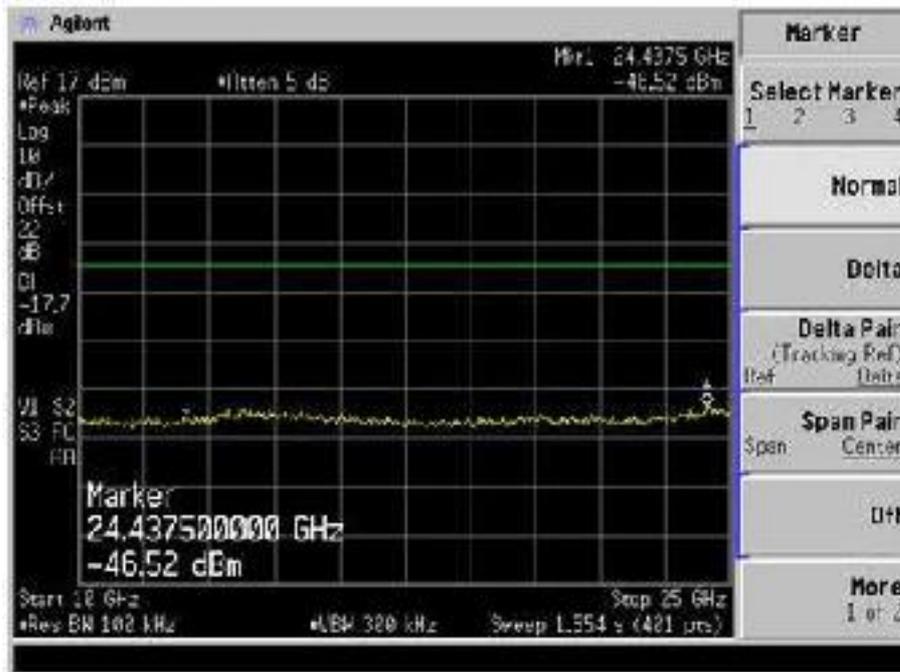
**Plot 68 – Channel 11 @ QPSK 18Mbps**

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



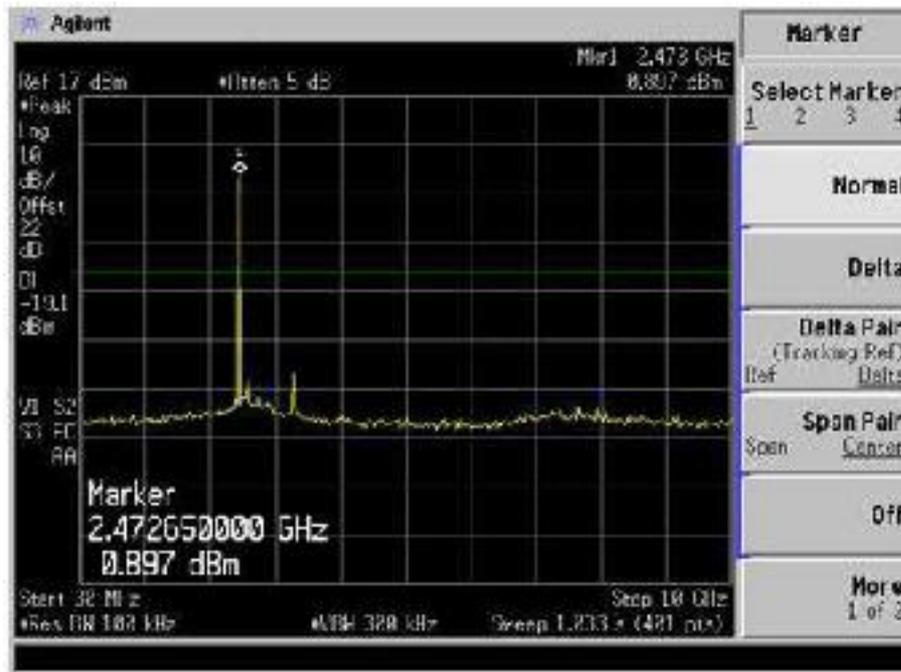
Plot 69 – Channel 11 @ 16Q AM 36Mbps



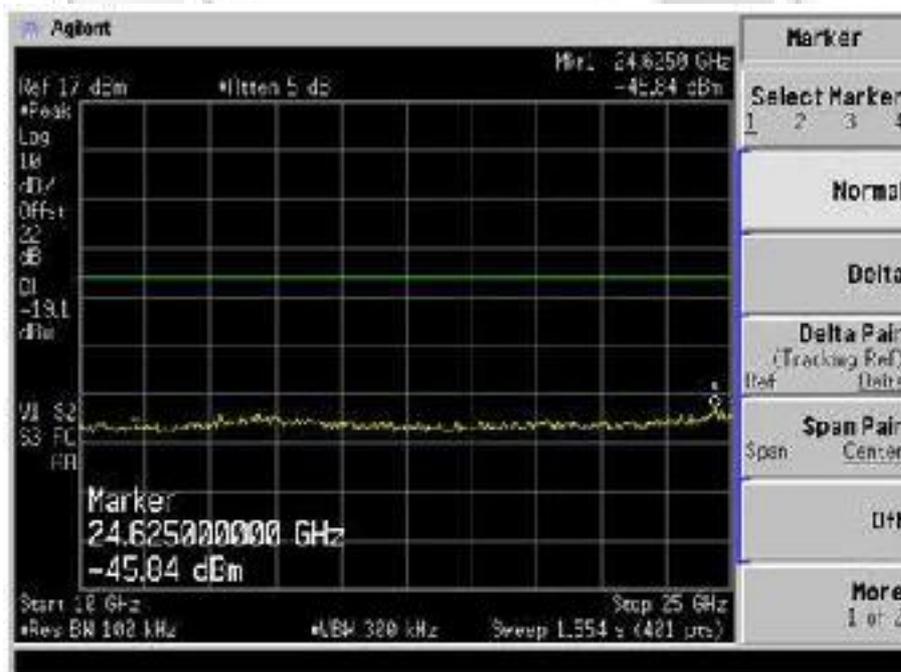
Plot 70 – Channel 11 @ 16Q AM 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (NON-RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Non-Restricted Bands) Plots – 802.11g



Plot 71 – Channel 11 @ 64Q AM 54Mbps



Plot 72 – Channel 11 @ 64Q AM 54Mbps

**RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST**

**47 CFR FCC Part 15.205 Restricted Bands**

MHz		MHz		MHz		GHz	
0.090	- 0.110	16.42	- 16.423	399.9	- 410	4.5	- 5.15
0.495	- 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	Above 38.6	
13.36	- 13.41						

**47 CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Restricted Bands) Limits**

The EUT shows compliance to the requirements of this section, which states that emissions which fall in the restricted bands must comply with the radiated emission limits specified in the table below.

Frequency Range (MHz)	EIRP (dBm)	Radiated Emissions (dBuV/m)
0.009 – 0.490	-6.7 – (-41.4) **	67.6 – 20logF* @ 300m **
0.490 – 1.705	-41.4 – (-52.3) **	87.6 – 20logF* @ 30m **
1.705 – 30	-45.7	29.5 @ 30m
30 - 88	-55.2	40.0 @ 3m
88 - 216	-51.7	43.5 @ 3m
216 - 960	-49.2	46.0 @ 3m
>960	-41.2 ***	54.0 @ 3m ***

\* F is frequency in kHz.  
\*\* Decreasing linearly with the logarithm of the frequency.  
\*\*\* Above 1GHz, a peak limit of 20dB above the average limit does apply.

**47 CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Restricted Bands) Test Instrumentation**

Instrument	Model	S/No	Cal Due Date
Agilent EMC Analyzer (9kHz-26.5GHz)	E7405A	US40240195	16 Mar 2013
GW Instek Programmable Power Supply	PSH-3630A	RK200168	30 Jan 2013

## RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

### 47CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Restricted Bands) Test Setup

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The RF antenna connector was connected to the spectrum analyser via a low-loss coaxial cable.
4. The resolution bandwidth (RBW) of the spectrum analyser was set to the following settings. The video bandwidth (VBW) was set to at least three times of the RBW.

Frequency (MHz)	RBW (kHz)
0.009 – 0.150	0.2
0.150 – 30.0	9.0
30.0 – 1000	100.0
> 1000	1000.0

5. The detector of the spectrum analyser was set to peak detection mode.
6. All other supporting equipment were powered separately from another filtered mains.

### 47CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Restricted Bands) Test Method

1. Measurement in the range 9kHz – 1000MHz
  - 1.1 The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode, with the transmitting frequency was set to lower channel with specified modulation and data rate.
  - 1.2 The start and stop frequencies of the spectrum analyser were set according to the supported RBW.
  - 1.3 The spectrum analyser was set to max hold to capture any spurious emissions within the span. The signal capturing was continuous until no further spurious emissions were detected.
  - 1.4 No further measurement was required if all the captured emissions complied to the limits. Else, the spectrum analyser was set to zoom to the captured emission with the detector of the spectrum analyser was set to quasi-peak. The emission level of the captured frequency was measured.
  - 1.5 The step 1.4 was repeated until all the captured emissions which exceeding the limits were measured.
  - 1.6 Repeat steps 1.1 to 1.5 with all possible modulations and data rates.
  - 1.7 The steps 1.2 to 1.6 were repeated with the transmitting frequency was set to middle and upper channel respectively.
2. Measurement above 1000MHz
  - 2.1 The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode, with the transmitting frequency was set to lower channel with specified modulation and data rate.
  - 2.2 The start and stop frequencies of the spectrum analyser were set according to the supported frequency band of the set RBW with the number of points in a sweep was set to equal or greater than 2 times of the ratio of span over RBW.
  - 2.3 The detector of the spectrum analyser was set to power average (RMS) mode with the sweep time was set to equal or greater than 10 times of the product of number of measurement points in a sweep and transmission symbol time.
  - 2.4 The spectrum analyser was then allowed to capture any spurious emissions within a single sweep. The peak marker function of the spectrum analyser was used to locate the highest power level.
  - 2.5 The steps 2.2 to 2.4 were repeated until all the required frequency bands were measured.
  - 2.6 Repeat steps 2.1 to 2.5 with all possible modulations and data rates.
  - 2.7 The steps 2.2 to 2.6 were repeated with the transmitting frequency was set to middle and upper channel respectively.
  - 2.8 The measurements were repeated with the detector of the spectrum analyser was set to peak detecting mode. The sweep time was set to auto coupler.

**RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST**



**RF Conducted Spurious Emissions (Restricted Bands) Test Setup**

**47 CFR FCC Part 15.247(d) RF Conducted Spurious Emissions (Restricted Bands) Results**

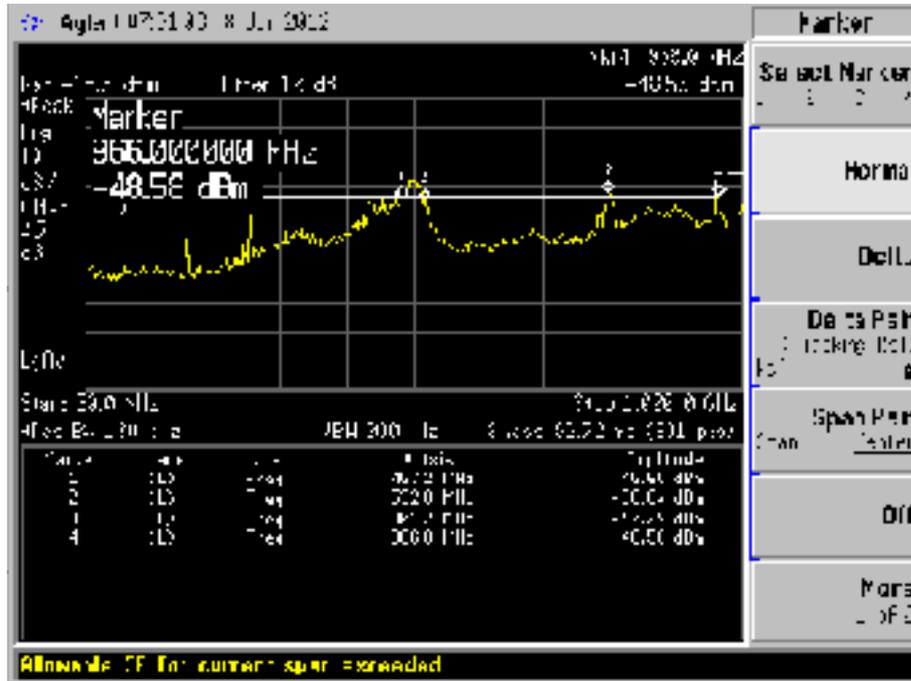
Test Input Power	24V dc (Worst Voltage)	Temperature	24°C
Attached Plots	73 – 180 (802.11b)	Relative Humidity	54%
	181 – 288 (802.11g)	Atmospheric Pressure	1027mbar
		Tested By	Kyaw Soe Hein

All spurious signals found were below the specified limit. Please refer to the attached plots.

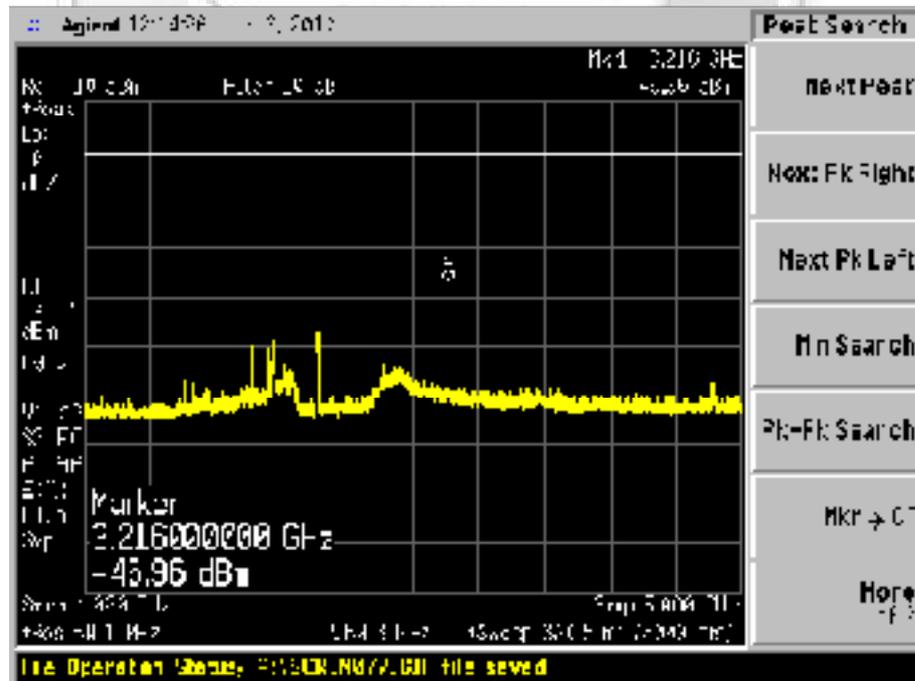


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



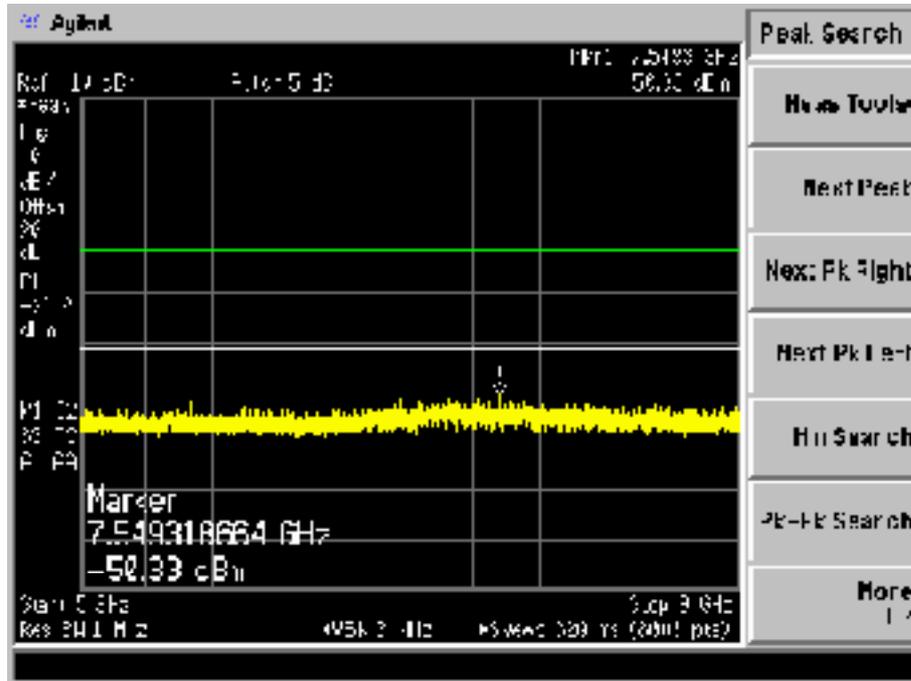
Plot 75 – Channel 1 @ DBPSK 1Mbps



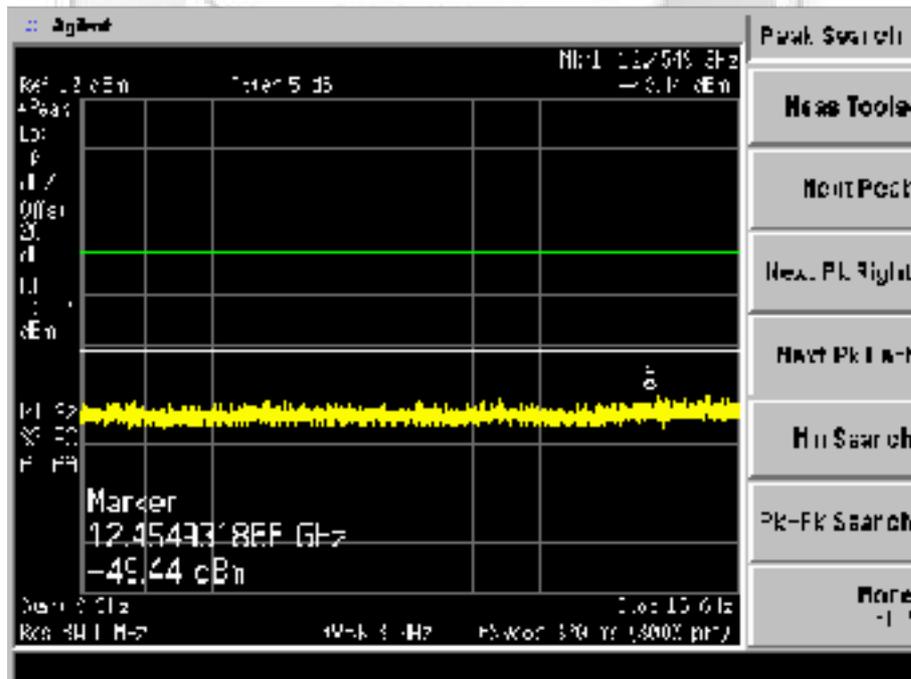
Plot 76 – Channel 1 @ DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



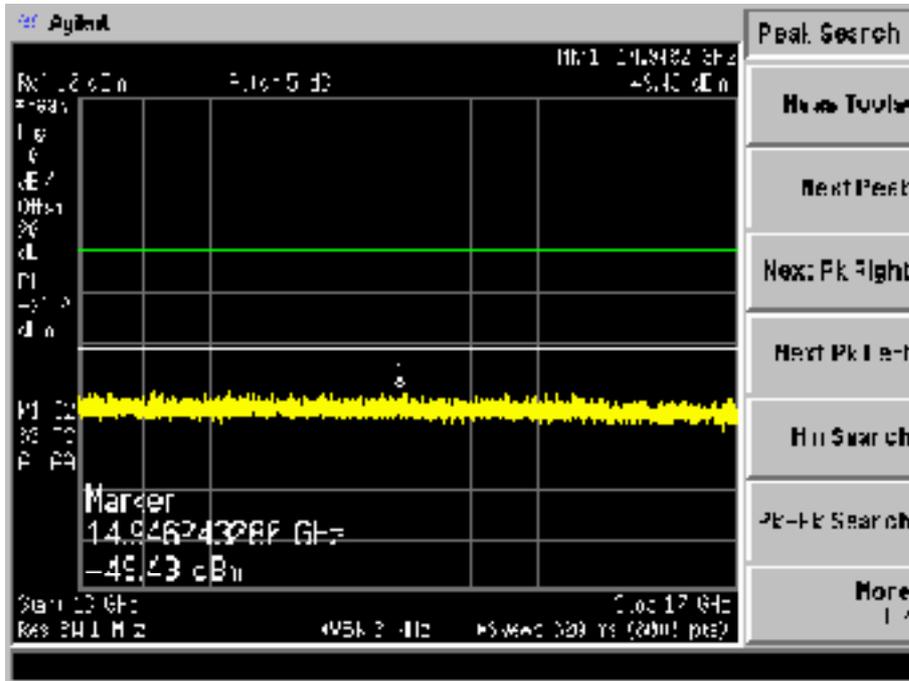
Plot 77 – Channel 1 @ DBPSK 1Mbps



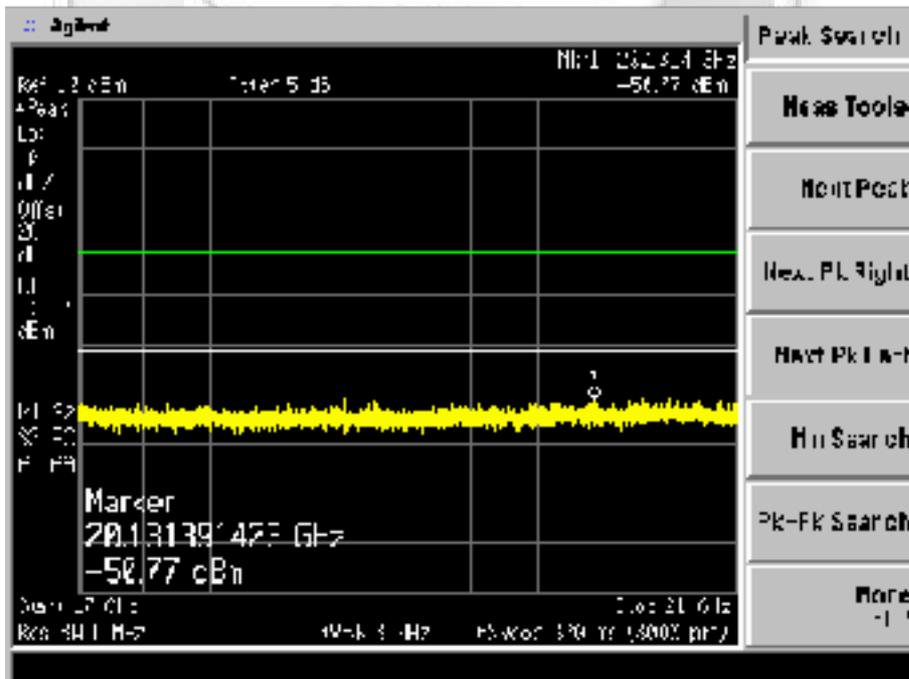
Plot 78 – Channel 1 @ DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



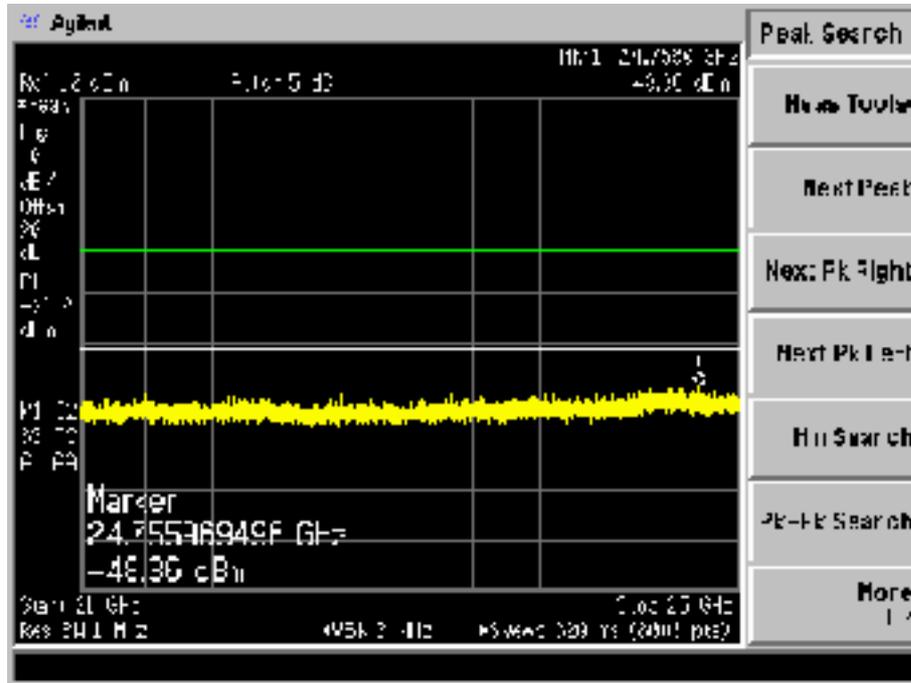
Plot79 – Channel 1 @ DBPSK 1Mbps



Plot80 – Channel 1 @ DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

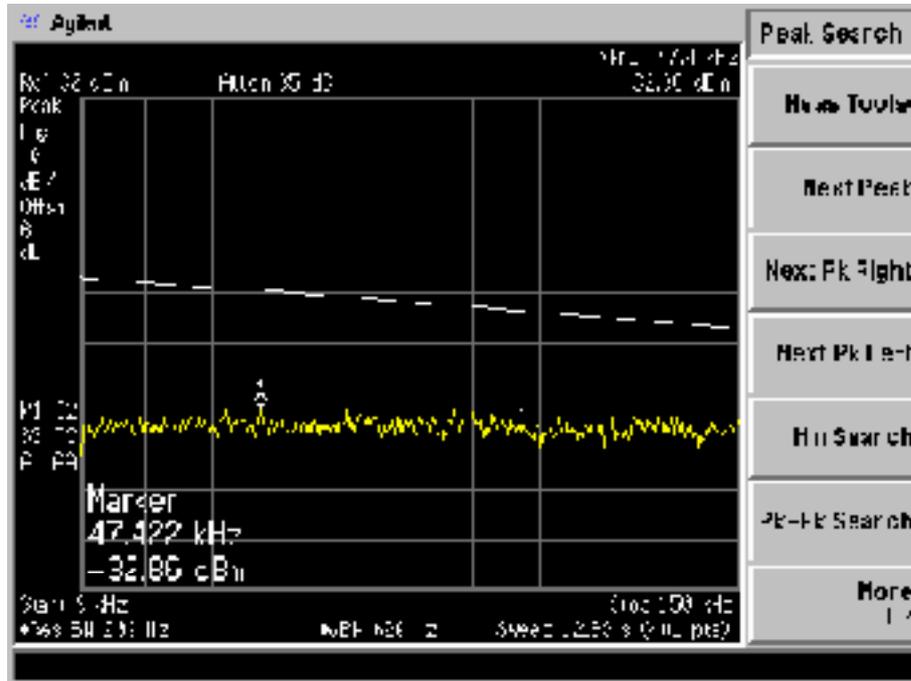


Plot 81 – Channel 1 @ DBPSK 1Mbps

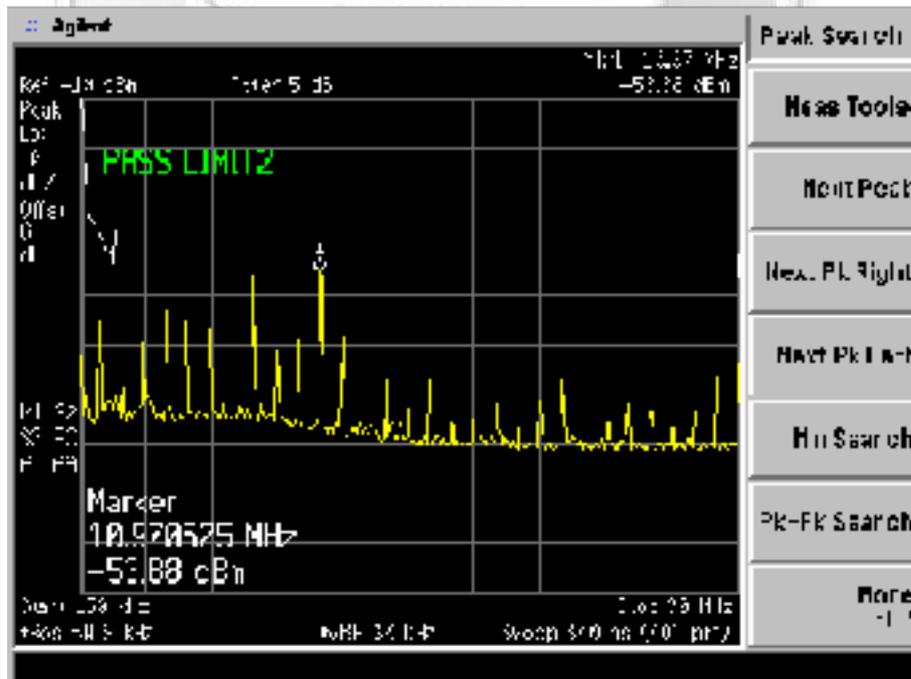


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



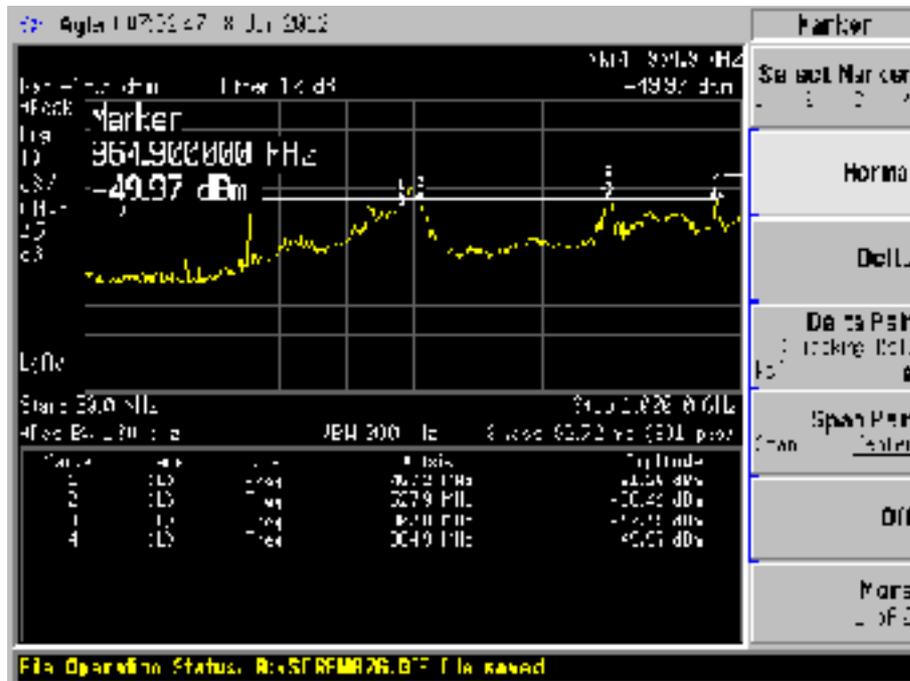
Plot82 - Channel 1 @ DQPSK 2Mbps



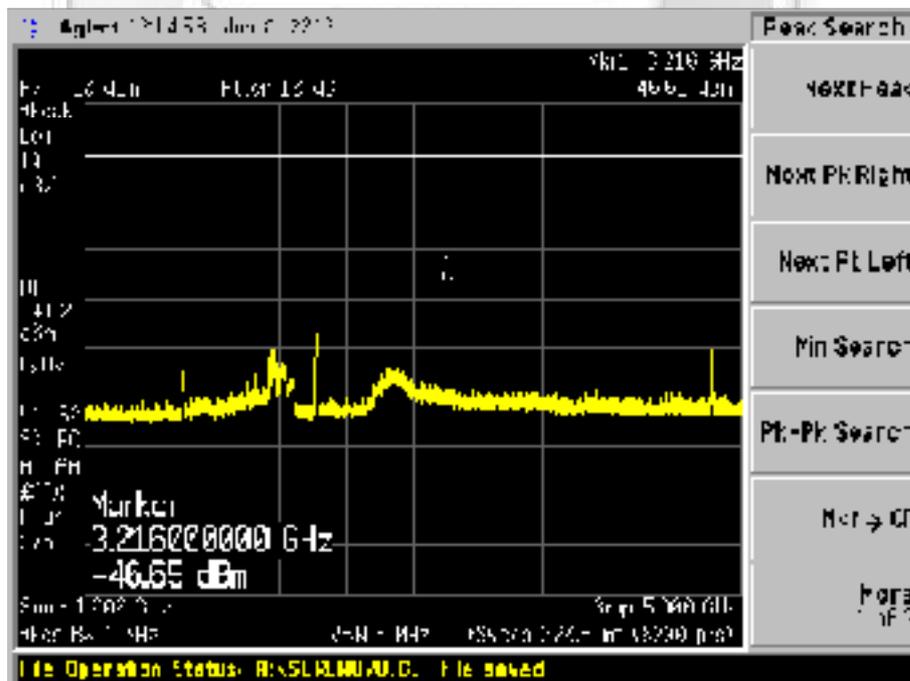
Plot83 - Channel 1 @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



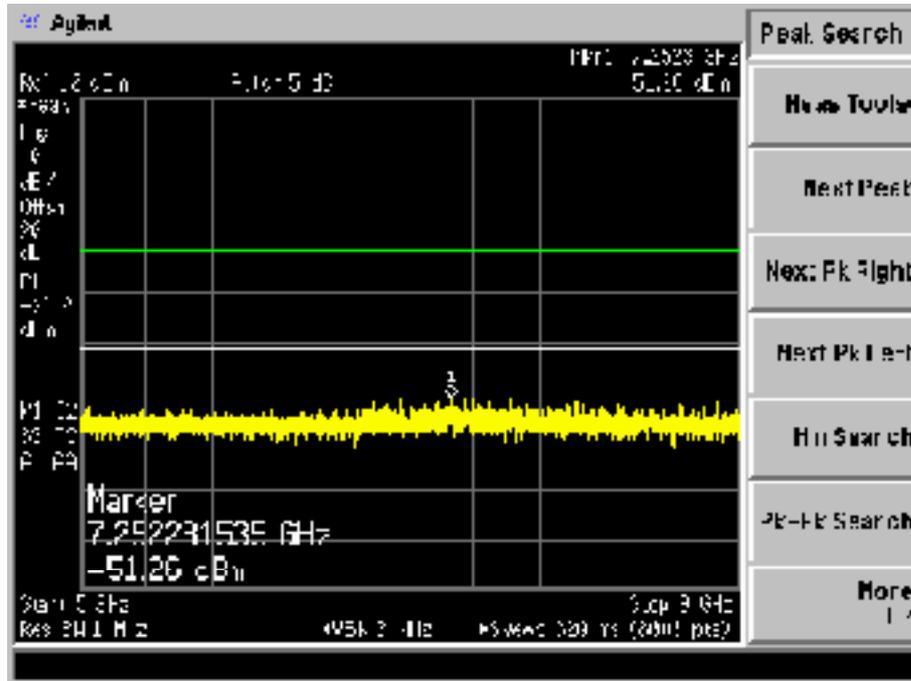
Plot 84 – Channel 1 @ DQPSK 2Mbps



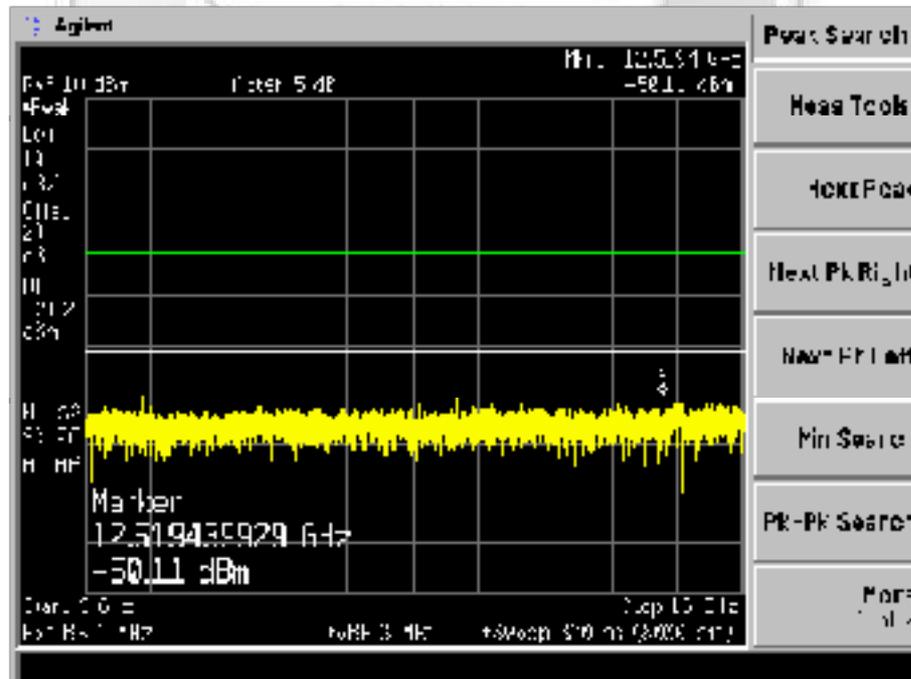
Plot 85 – Channel 1 @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



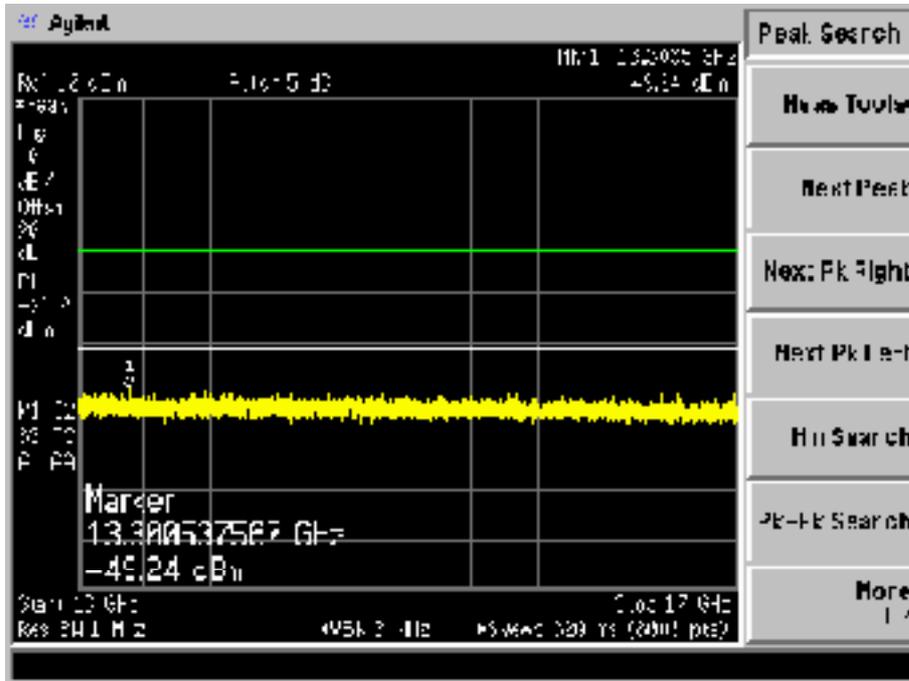
Plot86 – Channel 1 @DQPSK 2Mbps



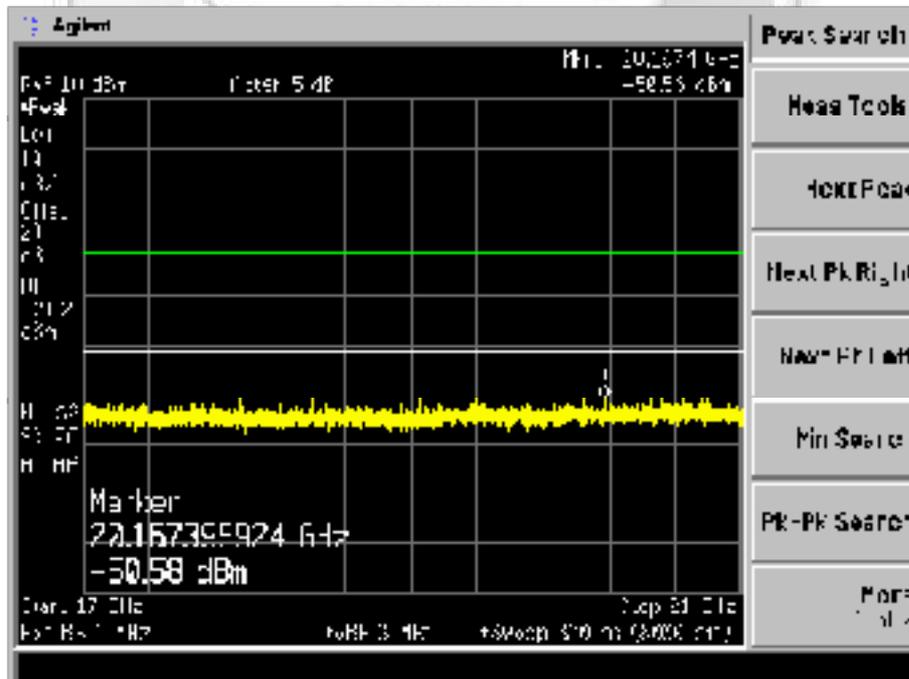
Plot87 – Channel 1 @DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



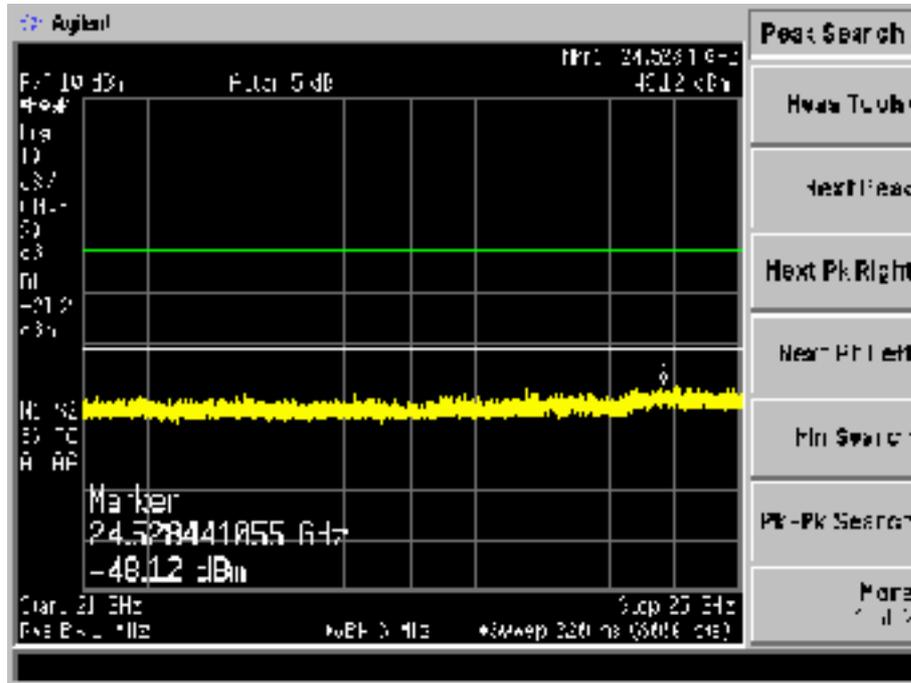
Plot88 – Channel 1 @DQPSK 2Mbps



Plot89 – Channel 1 @DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

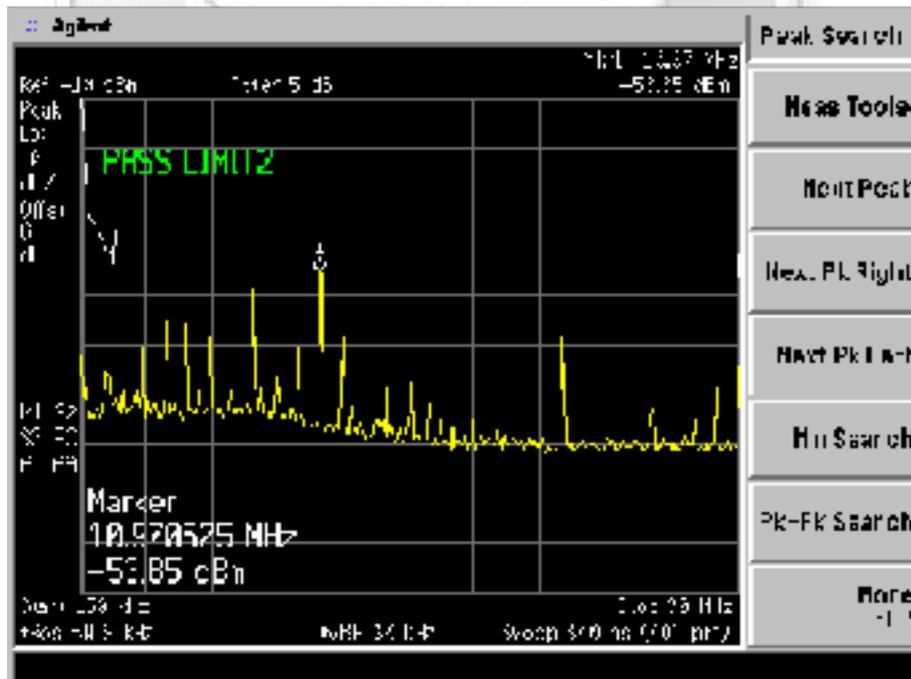
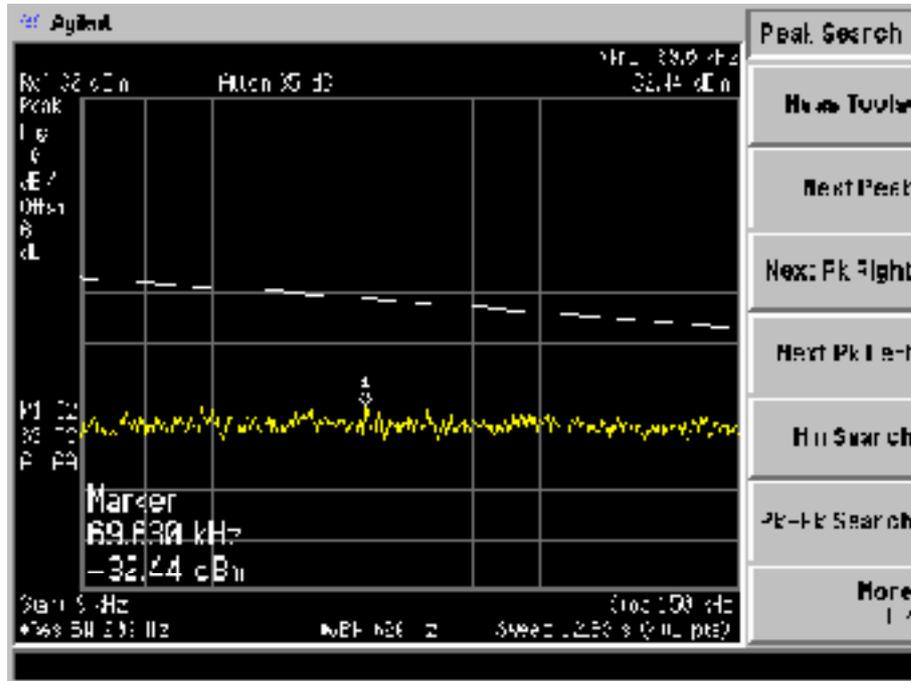


Plot90 – Channel 1 @DQPSK 2Mbps



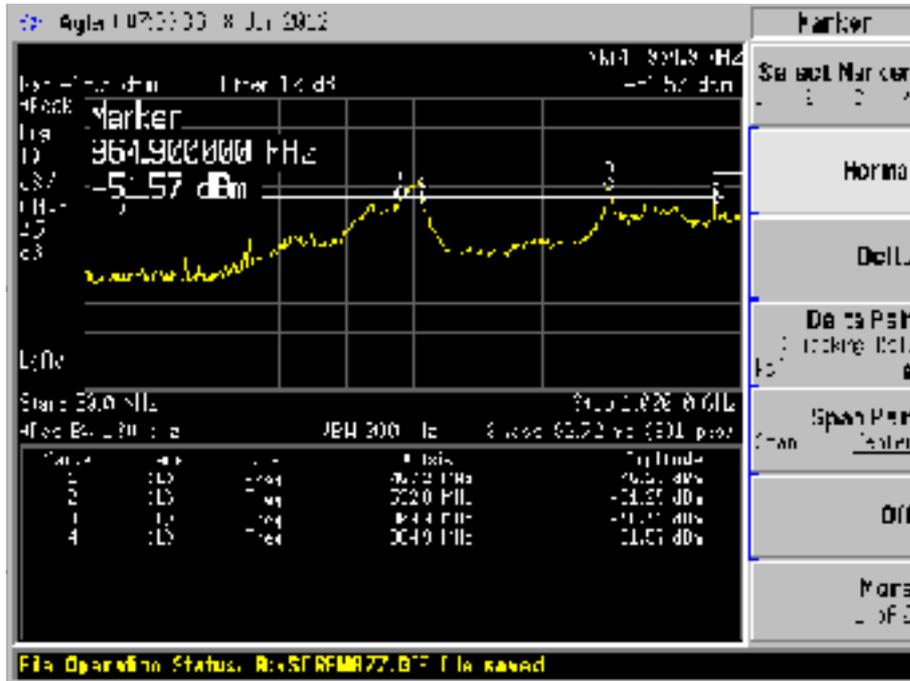
RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

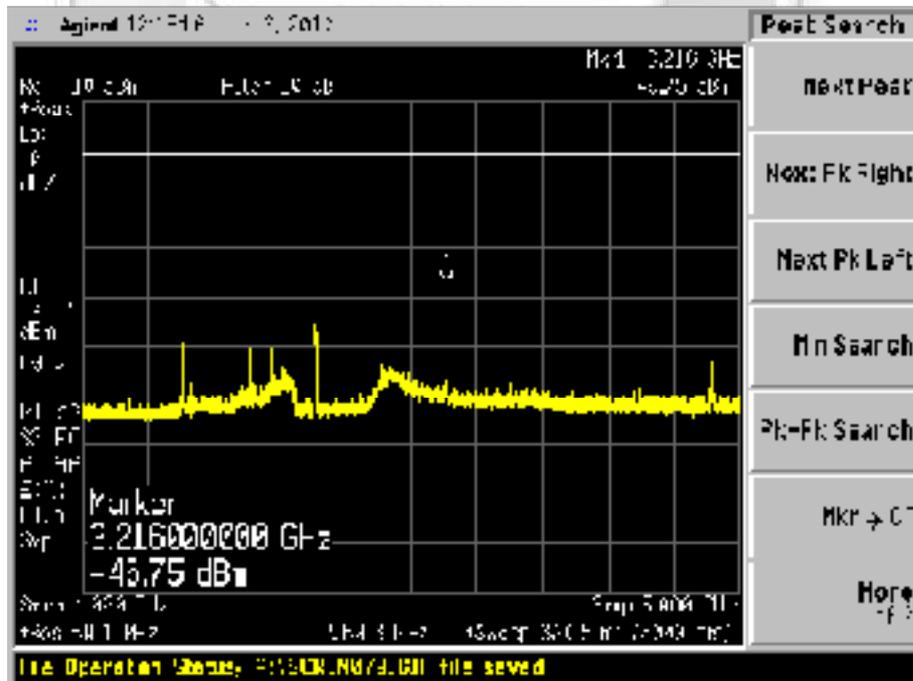


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



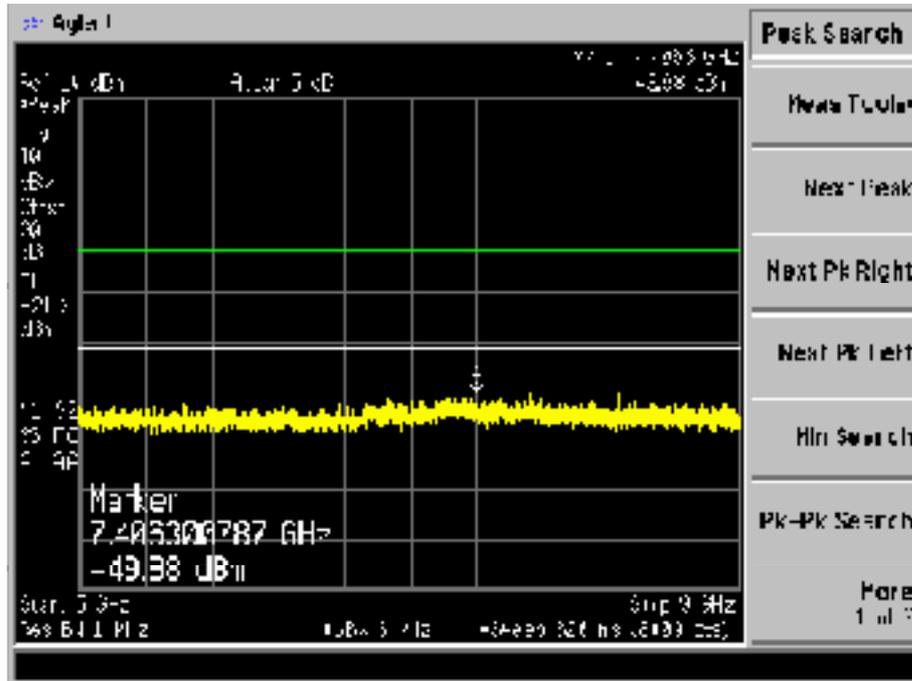
Plot 93 – Channel 1 @ CCK 5.5Mbps



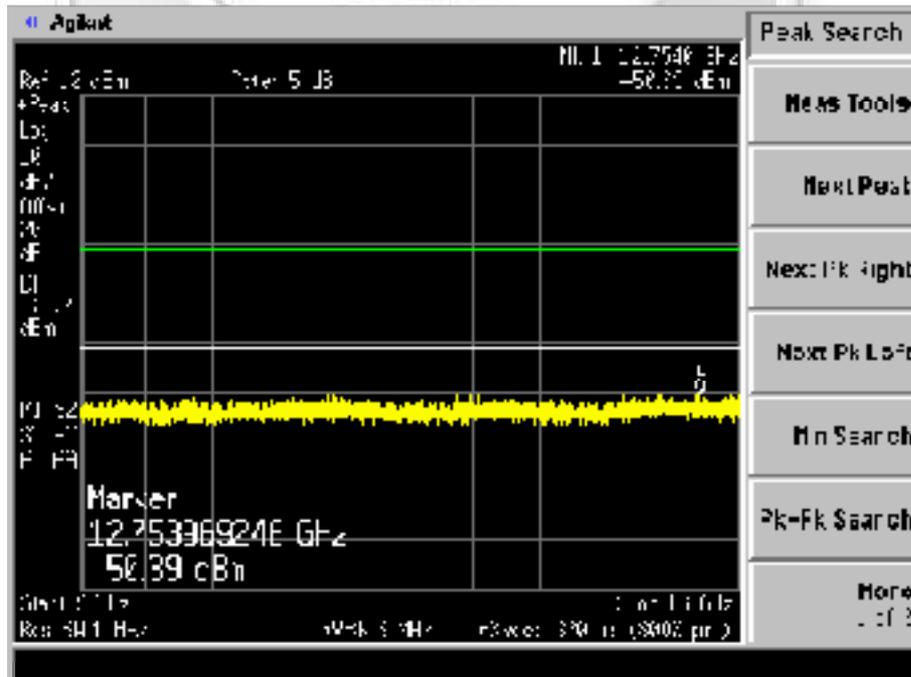
Plot 94 – Channel 1 @ CCK 5.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



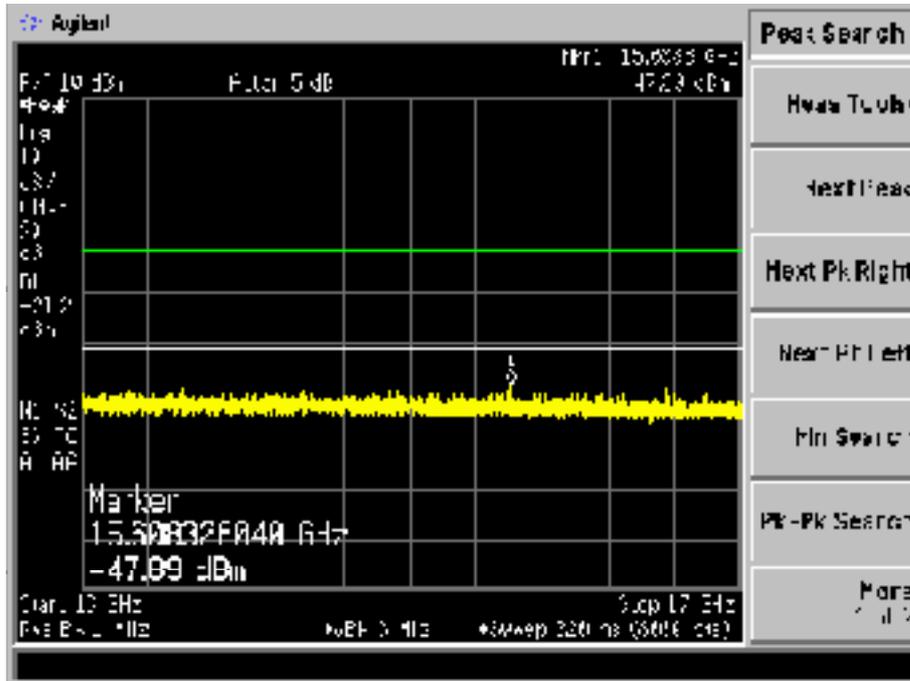
Plot 95 – Channel 1 @ CCK 5.5Mbps



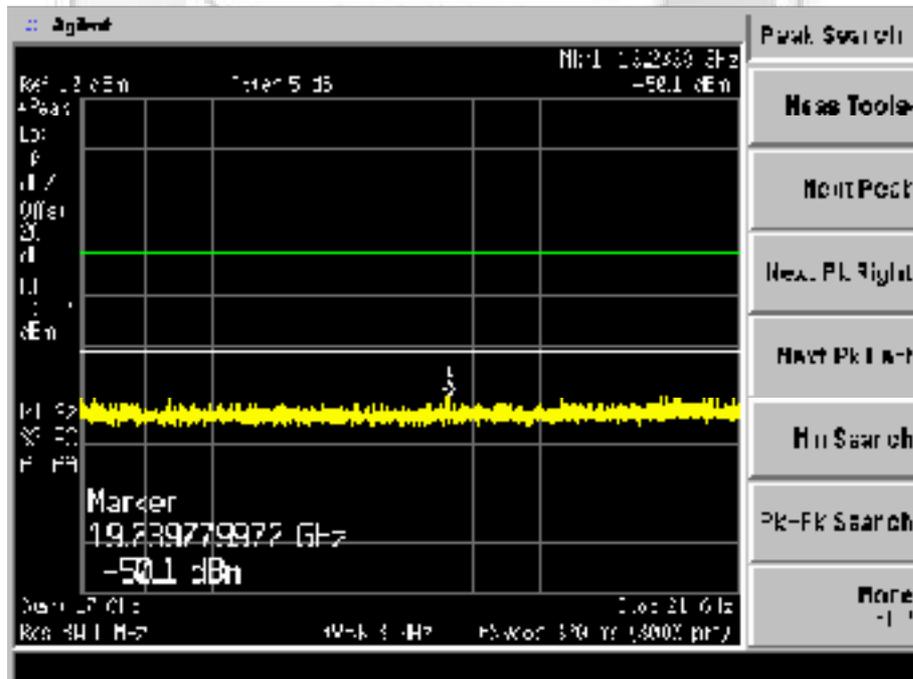
Plot 96 – Channel 1 @ CCK 5.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



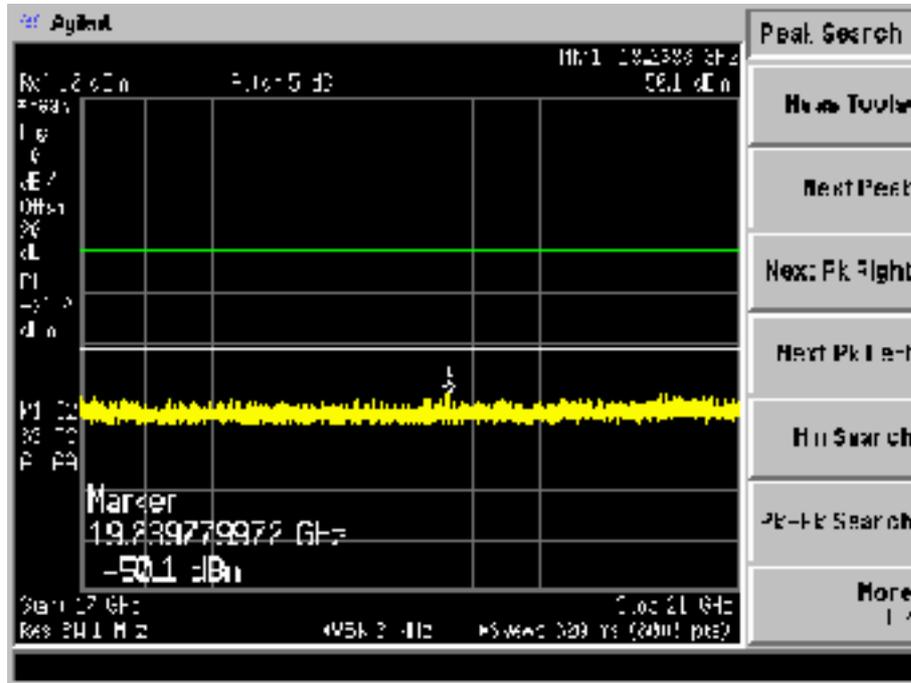
Plot 97 – Channel 1 @ CCK 5.5Mbps



Plot 98 – Channel 1 @ CCK 5.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – Peak



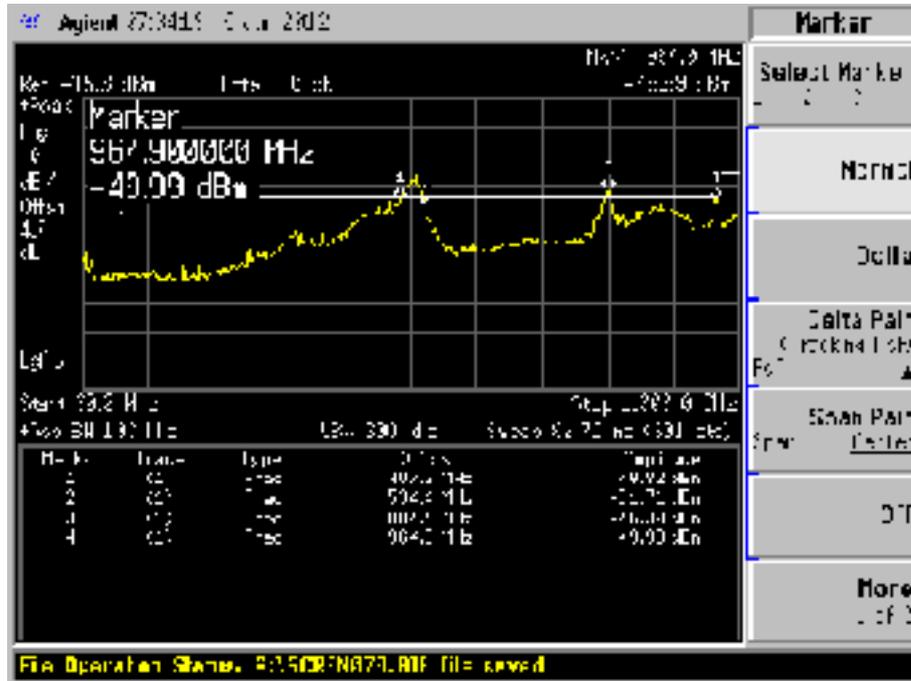
Plot 99 – Channel 1 @ CCK 5.5Mbps



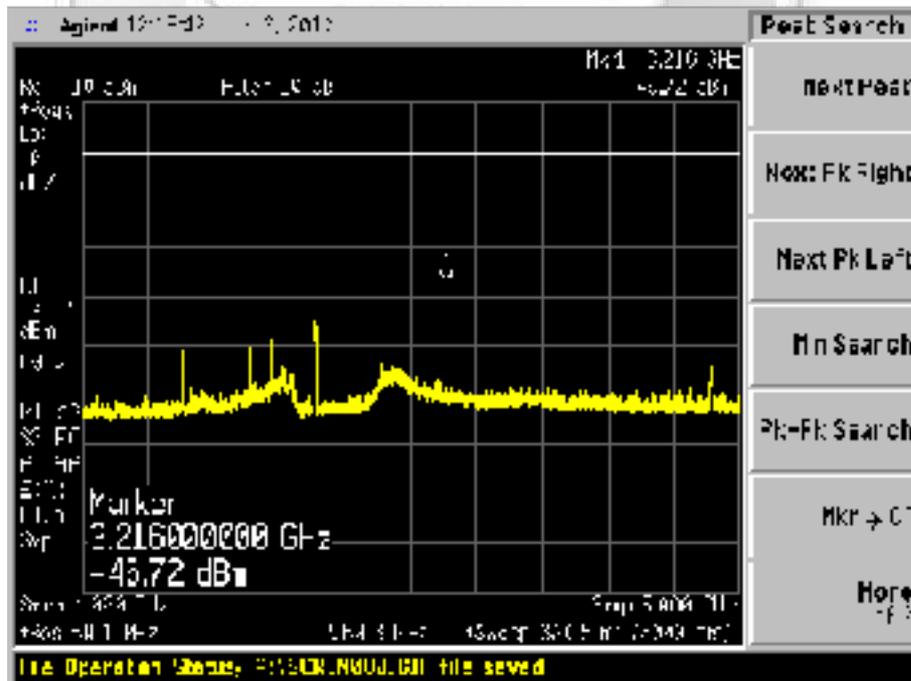


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



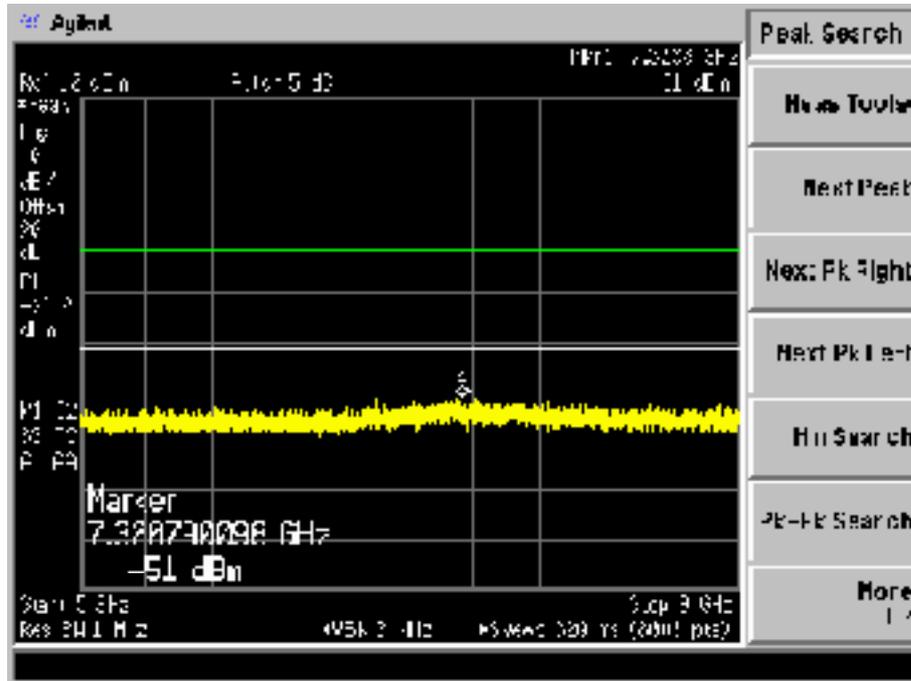
Plot 102 – Channel 1 @ CCK 11Mbps



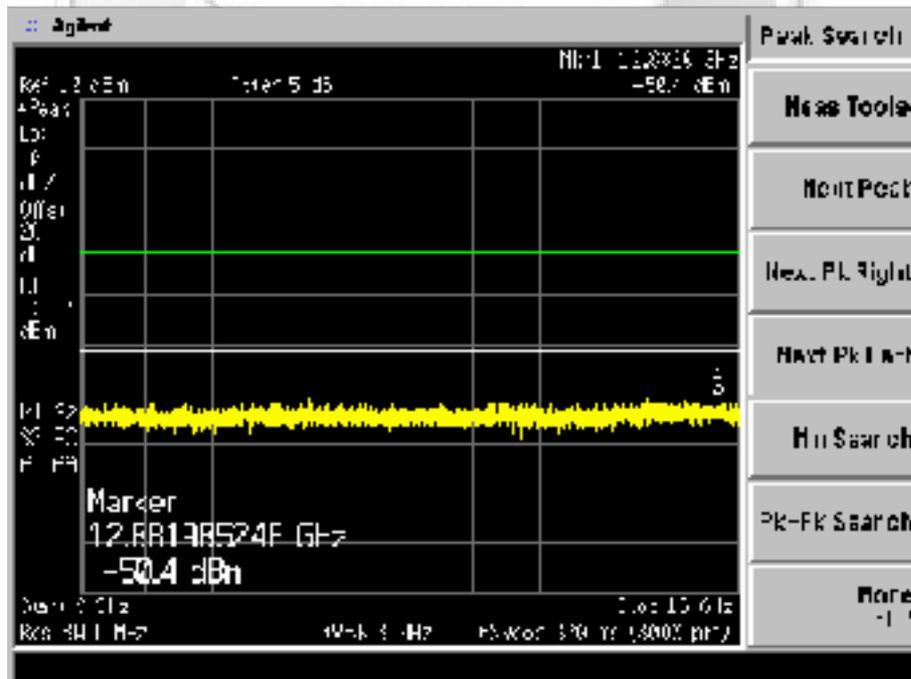
Plot 103 – Channel 1 @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



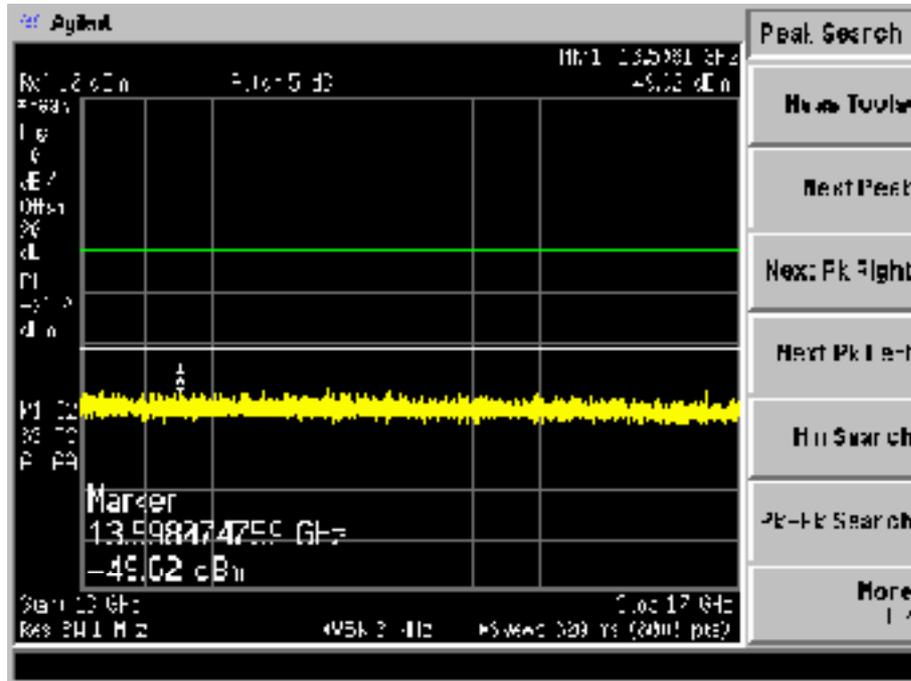
Plot 104 – Channel 1 @ CCK 11Mbps



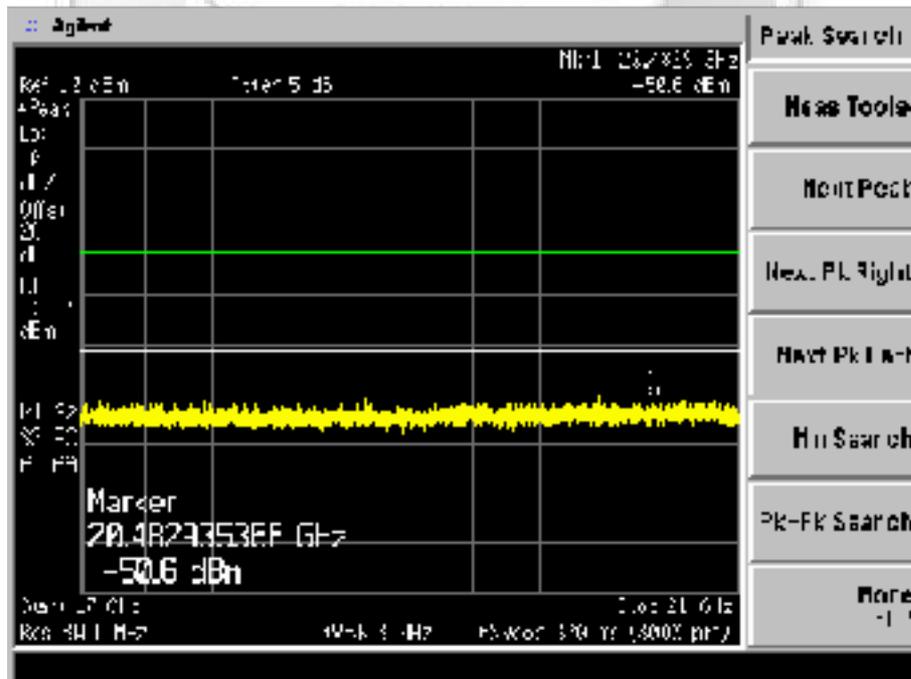
Plot 105 – Channel 1 @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



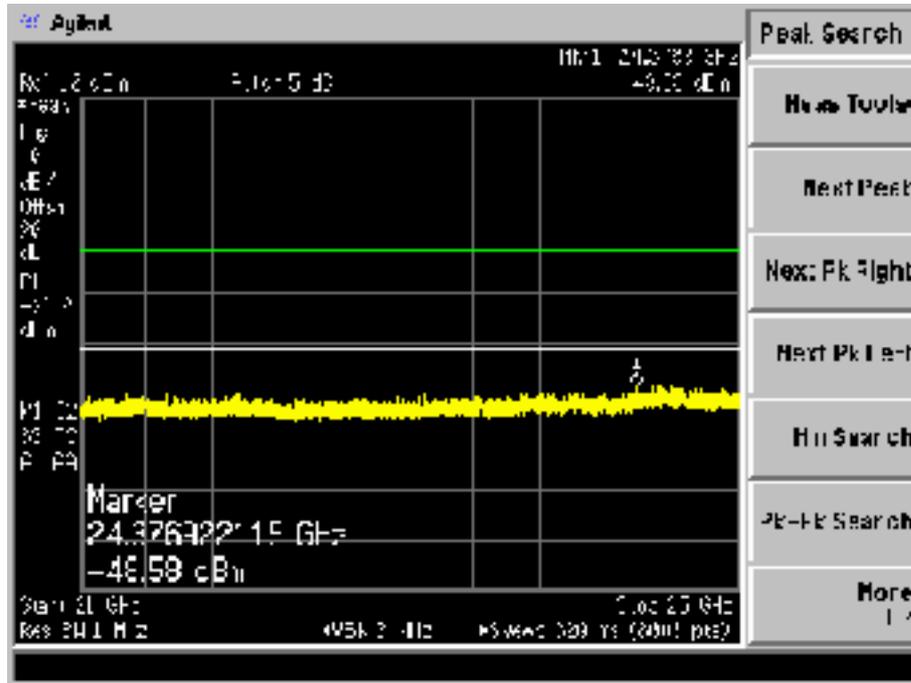
Plot 106 - Channel 1 @ CCK 11Mbps



Plot 107 - Channel 1 @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

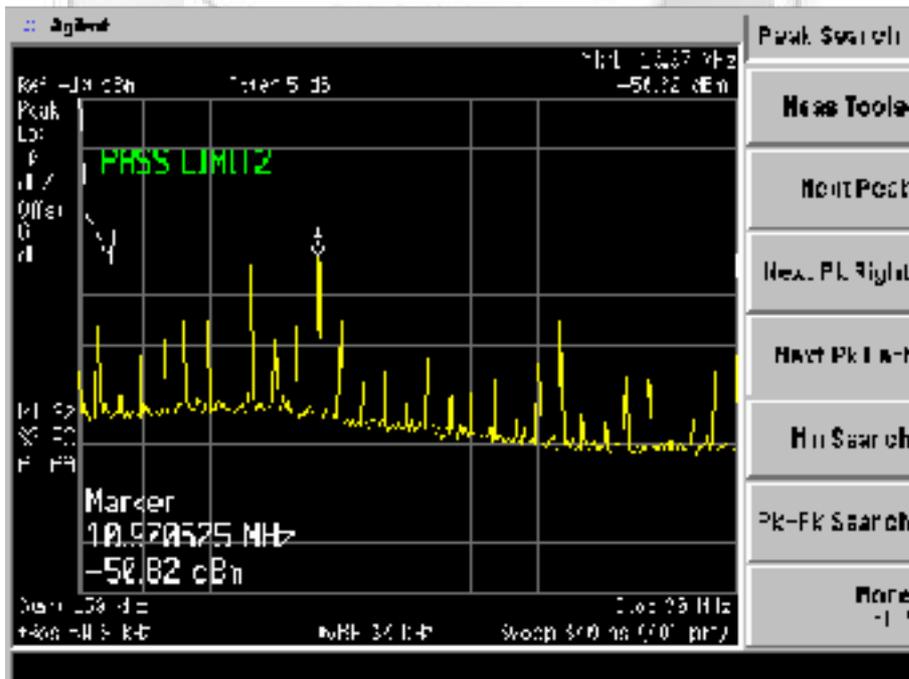
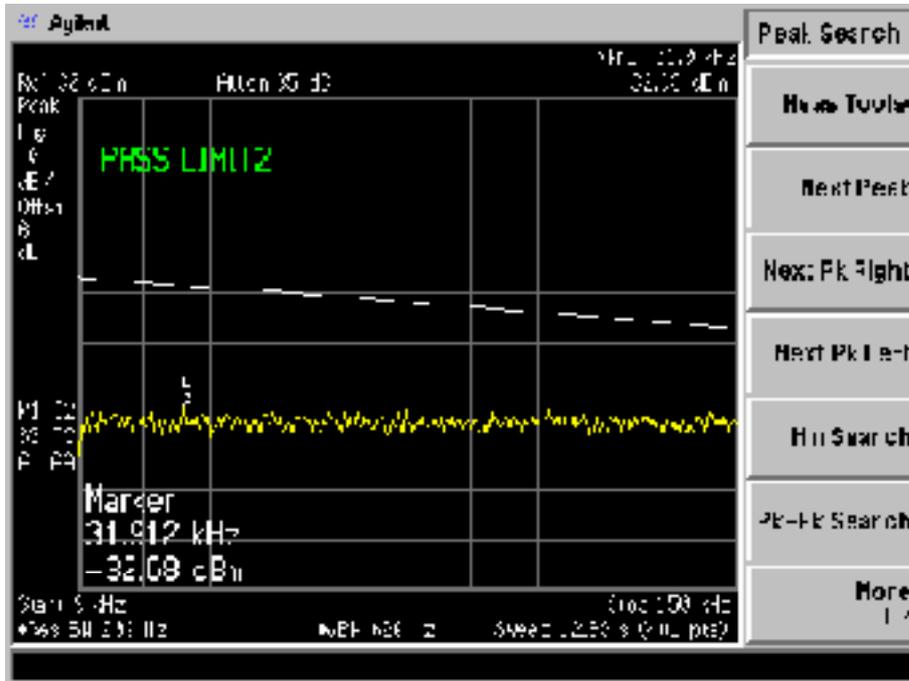


Plot 108 - Channel 1 @ CCK 11Mbps

SUD

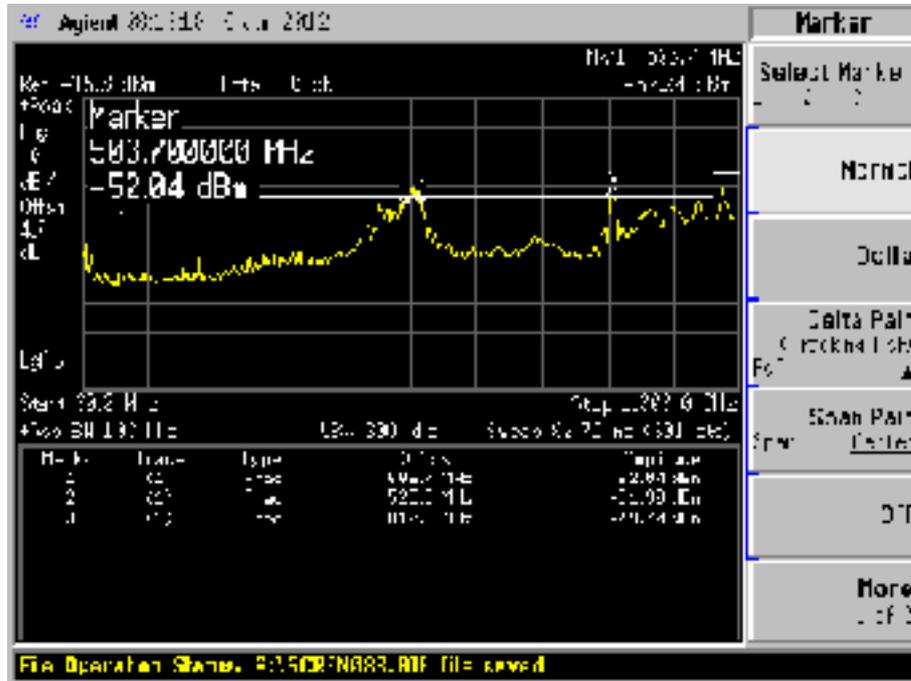
RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

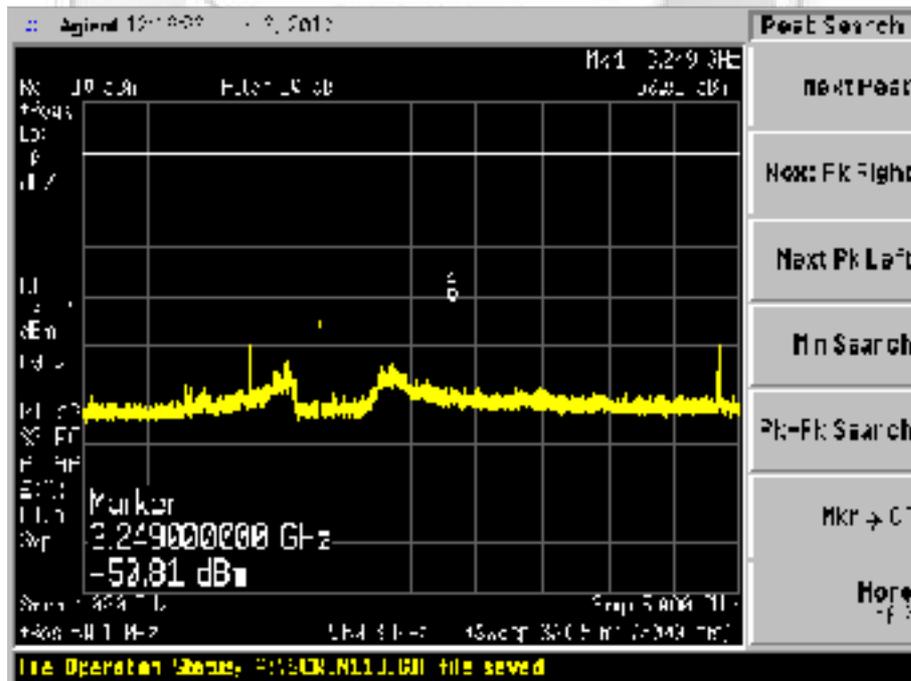


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



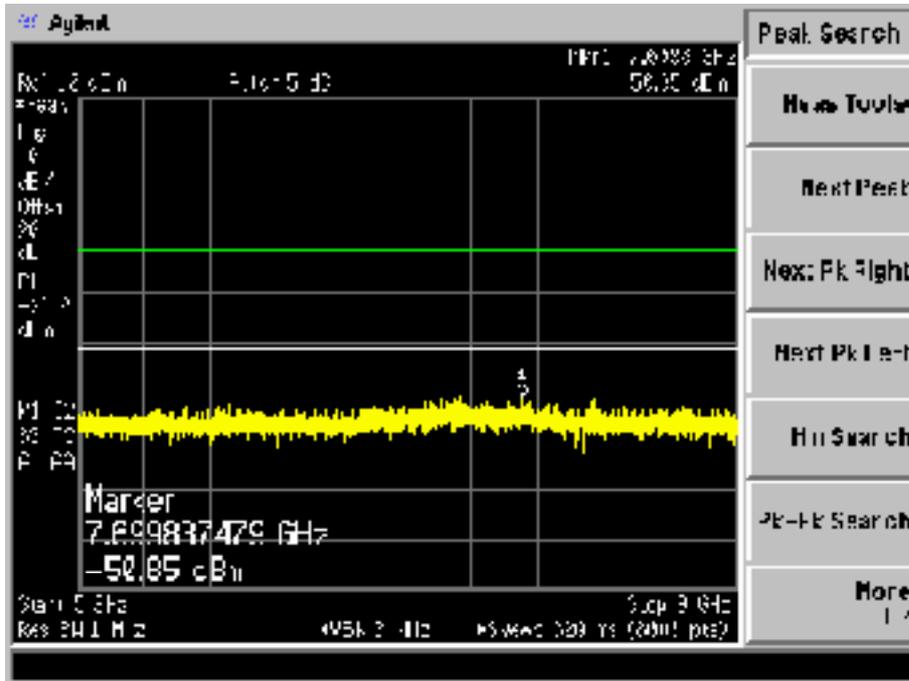
Plot 111 – Channel 6 @ DBPSK 1Mbps



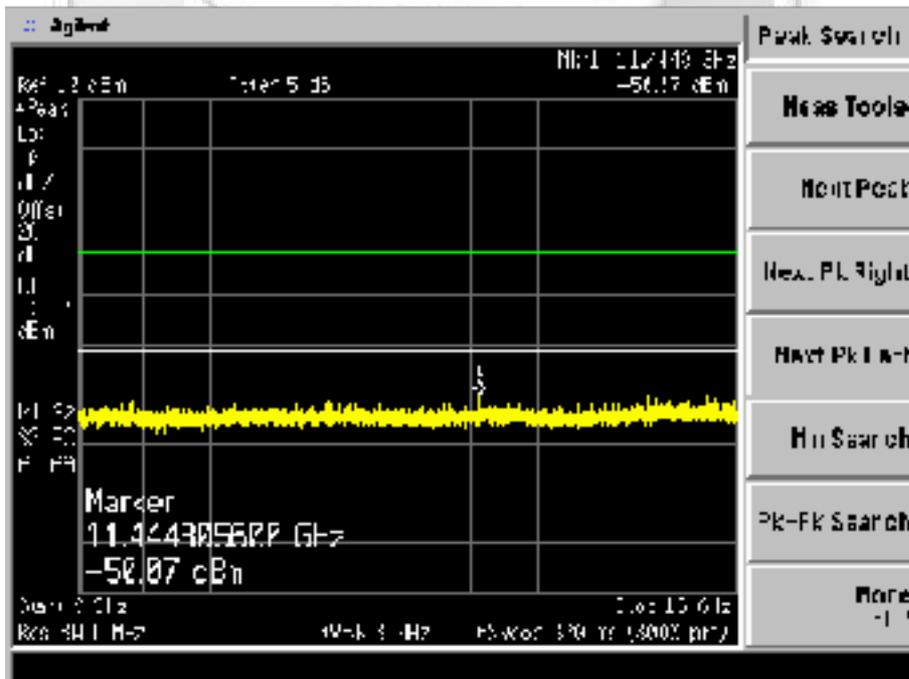
Plot 112 – Channel 6 @ DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – Peak



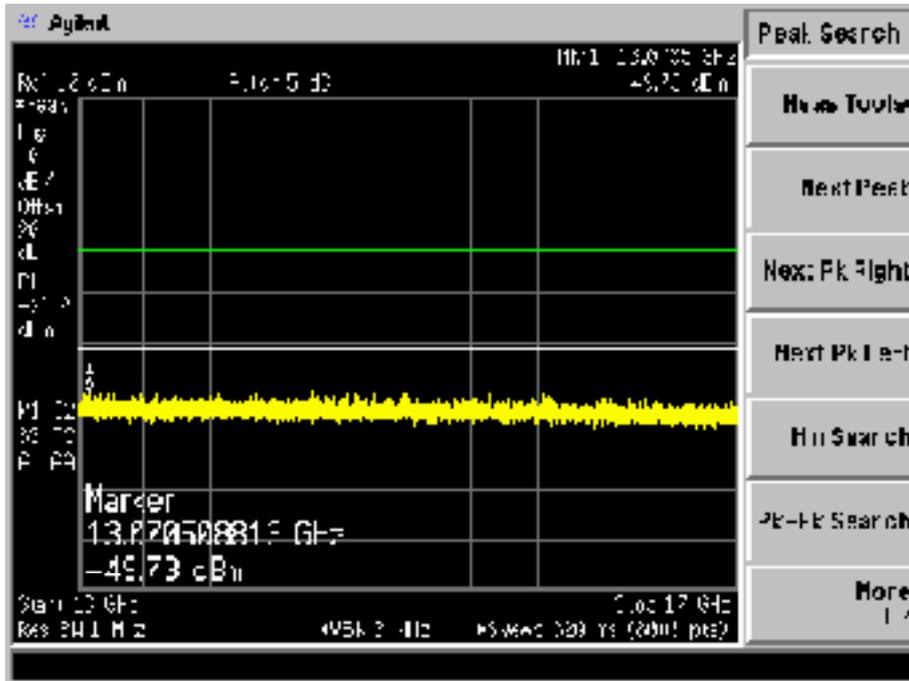
Plot 113 – Channel 6 @ DBPSK 1Mbps



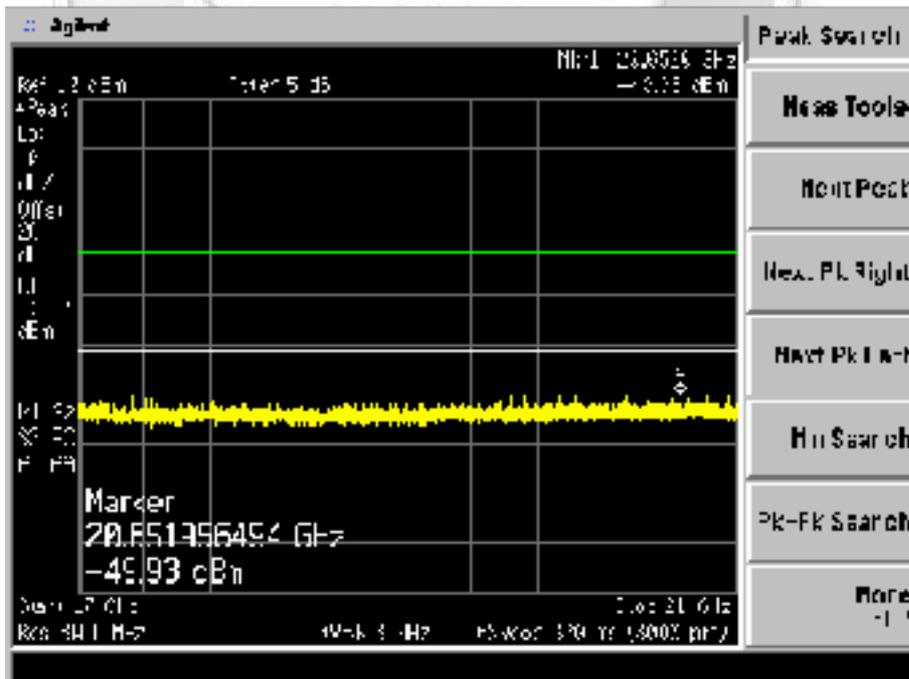
Plot 114 – Channel 6 @ DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



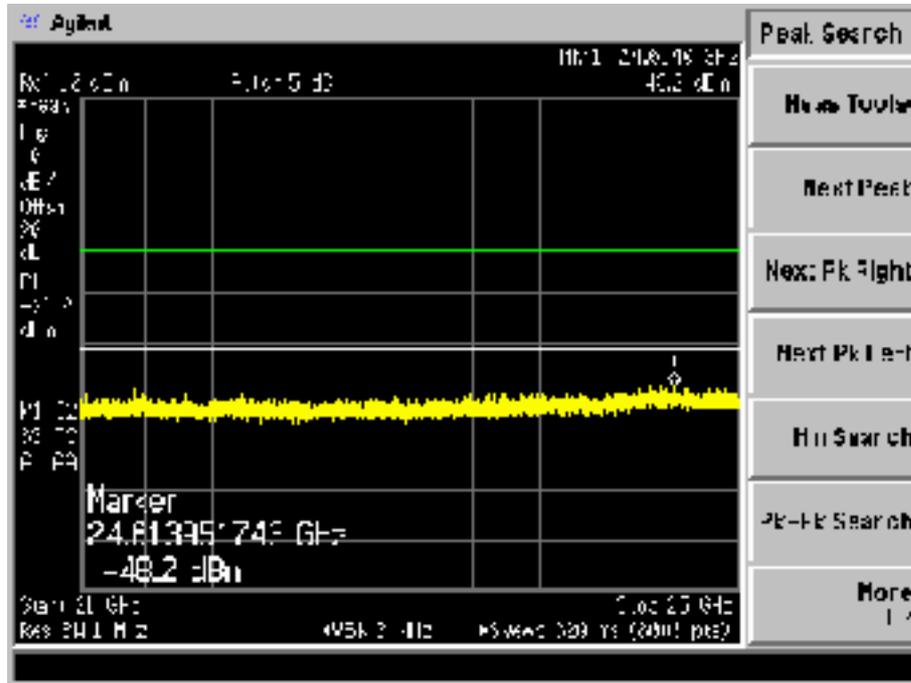
Plot 115 – Channel 6 @DBPSK 1Mbps



Plot 116 – Channel 6 @DBPSK 1Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

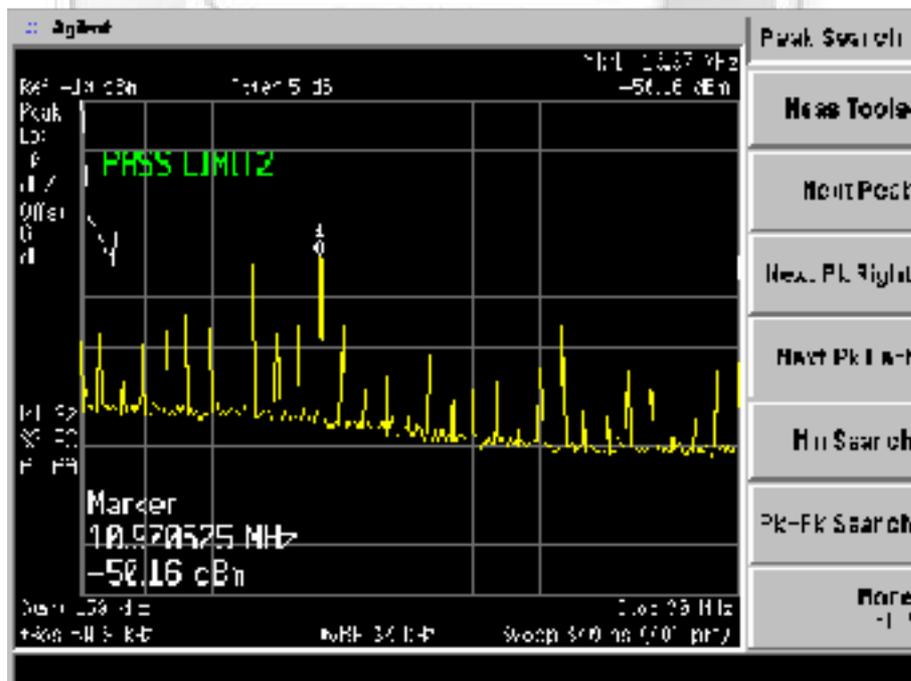
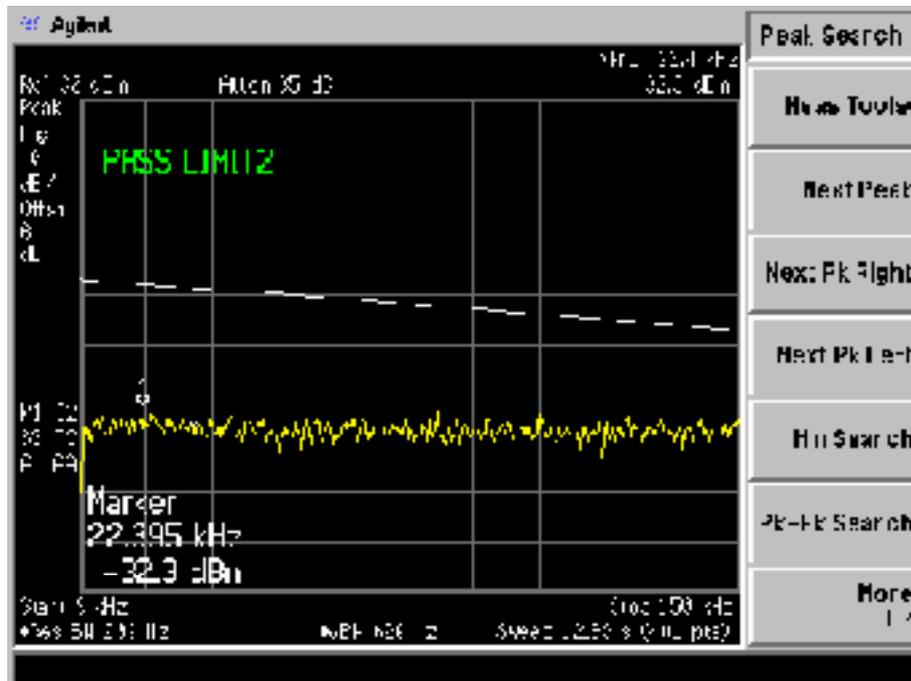


Plot 117 – Channel 6 @ DBPSK 1Mbps



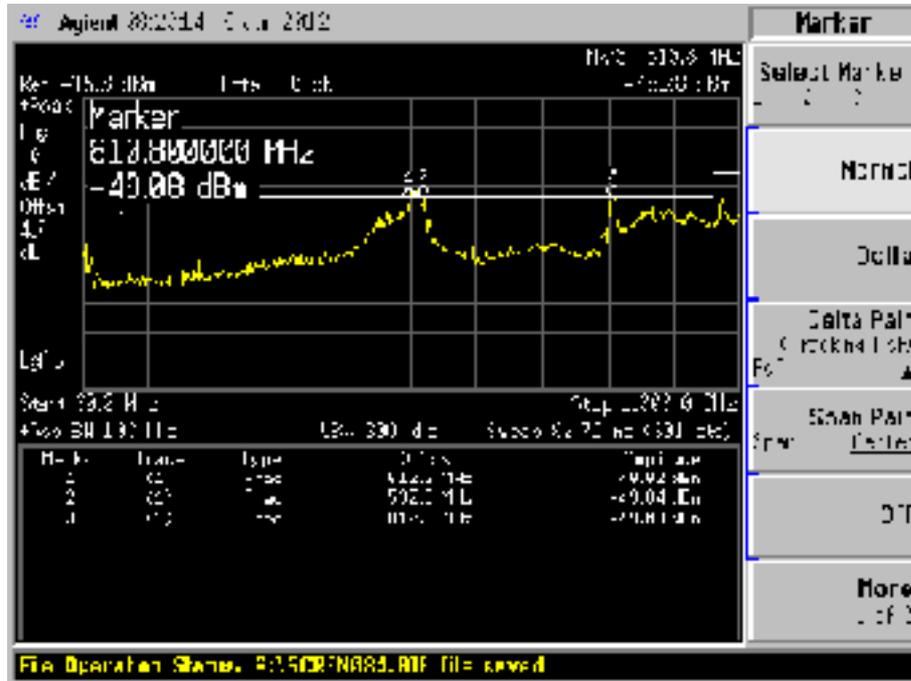
RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

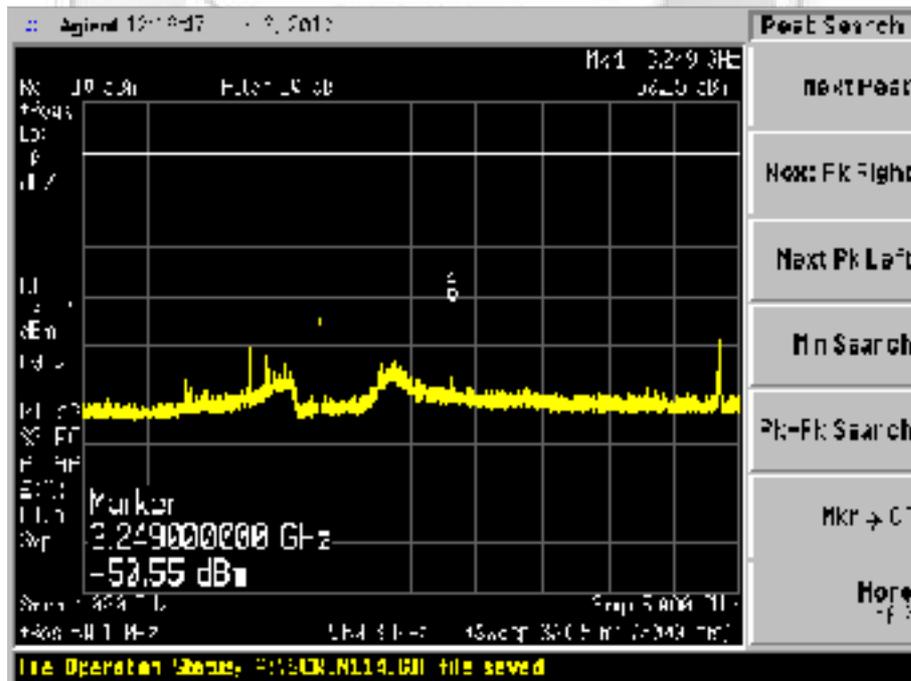


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



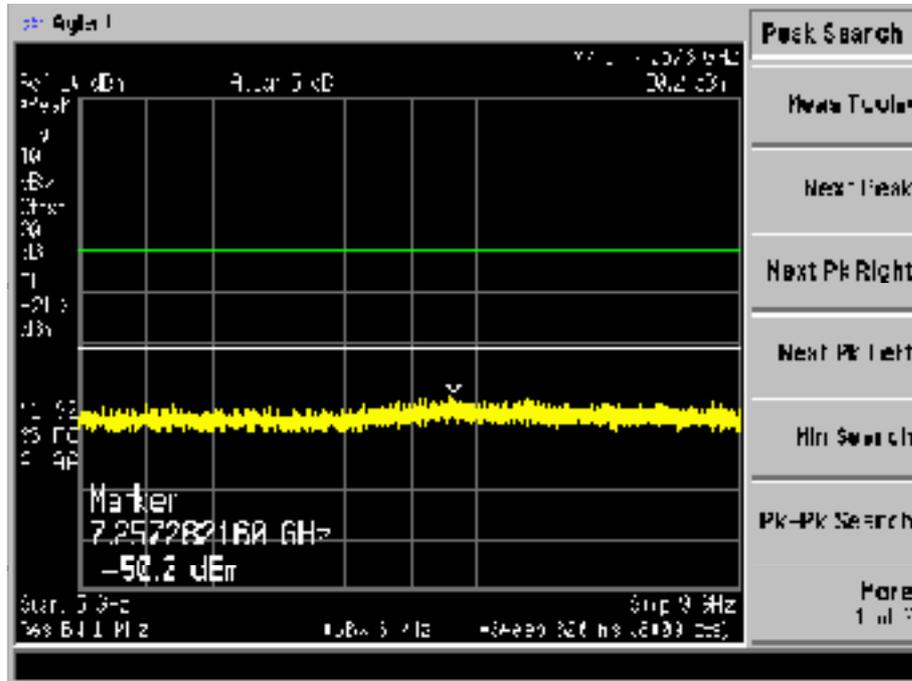
Plot 120 – Channel 6 @ DQPSK 2Mbps



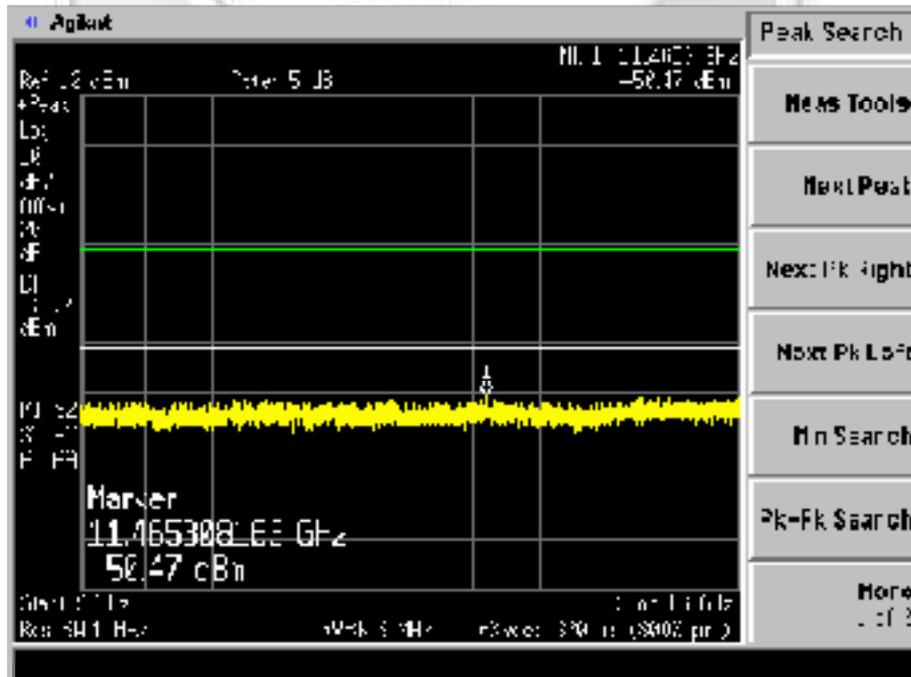
Plot 121 – Channel 6 @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



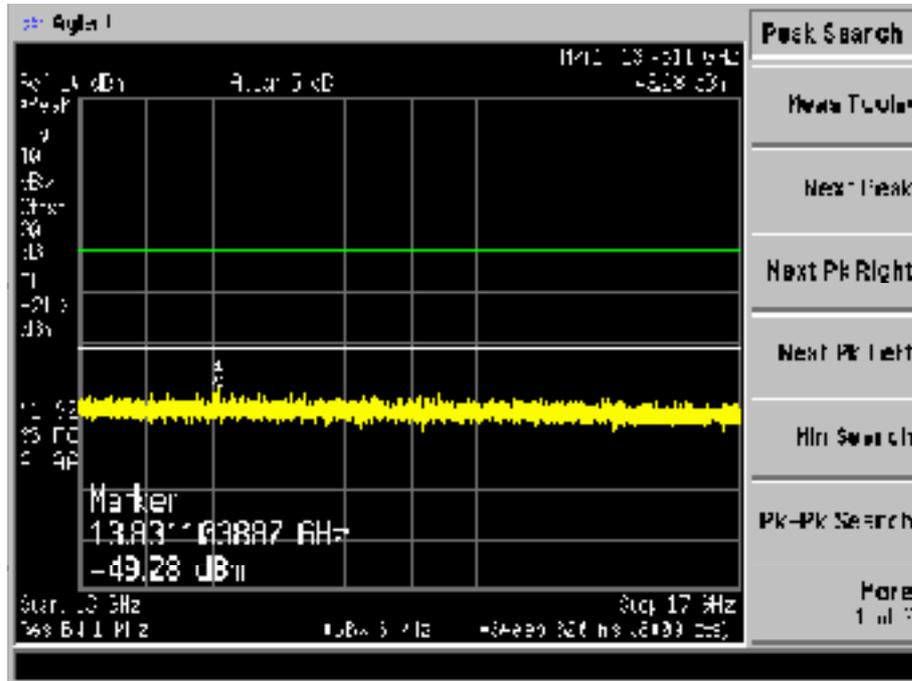
Plot 122 - Channel 6 @ DQPSK 2Mbps



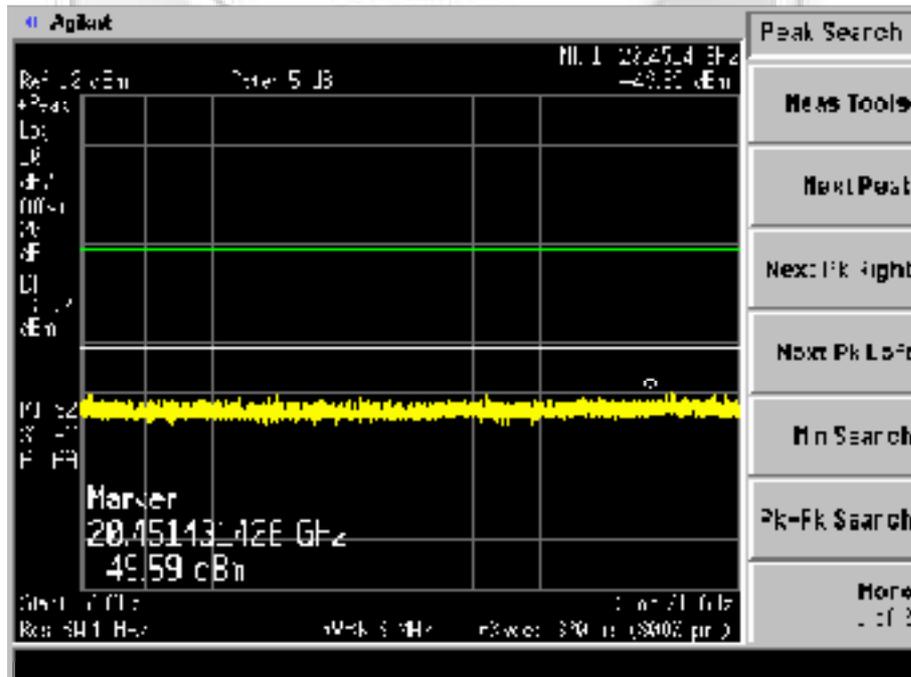
Plot 123 - Channel 6 @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



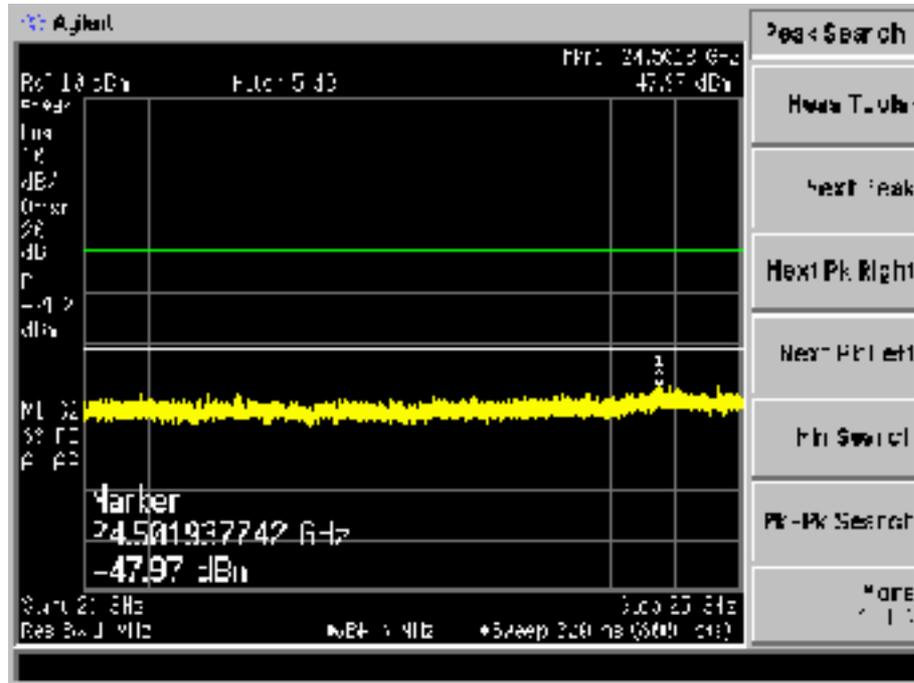
Plot 124 – Channel 6 @ DQPSK 2Mbps



Plot 125 – Channel 6 @ DQPSK 2Mbps

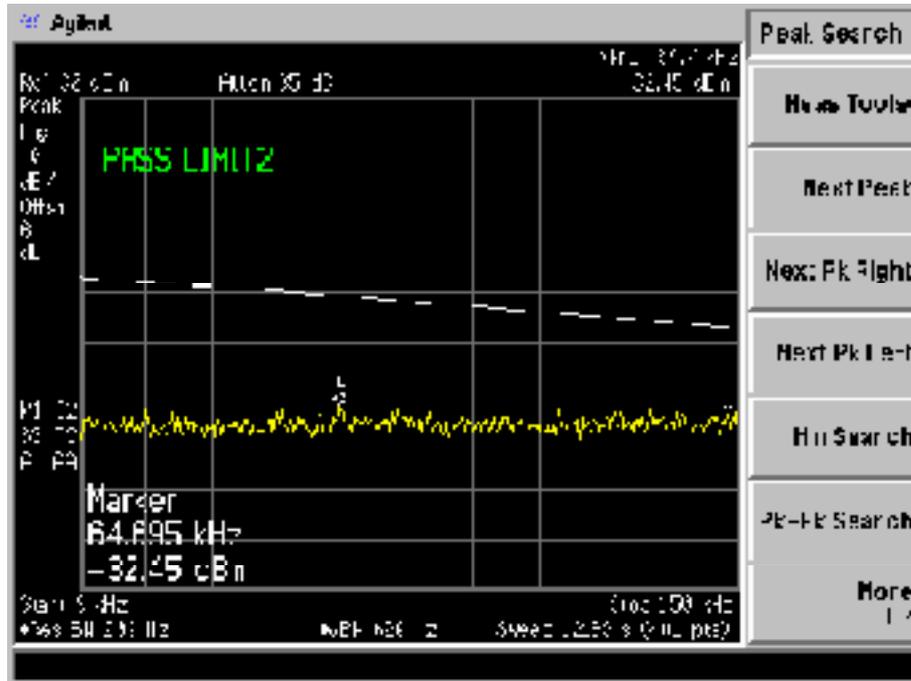
RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

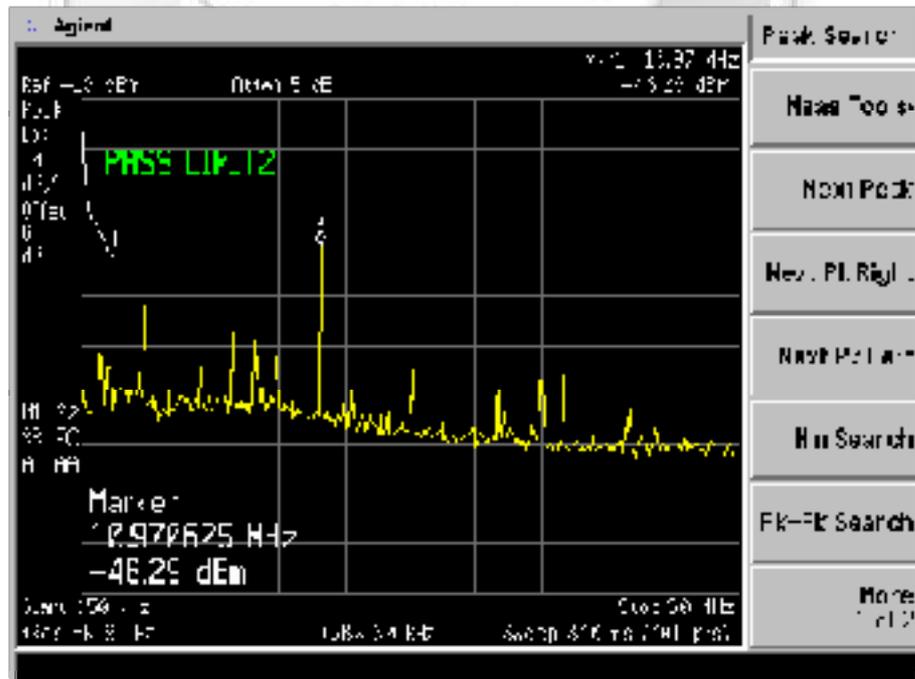


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



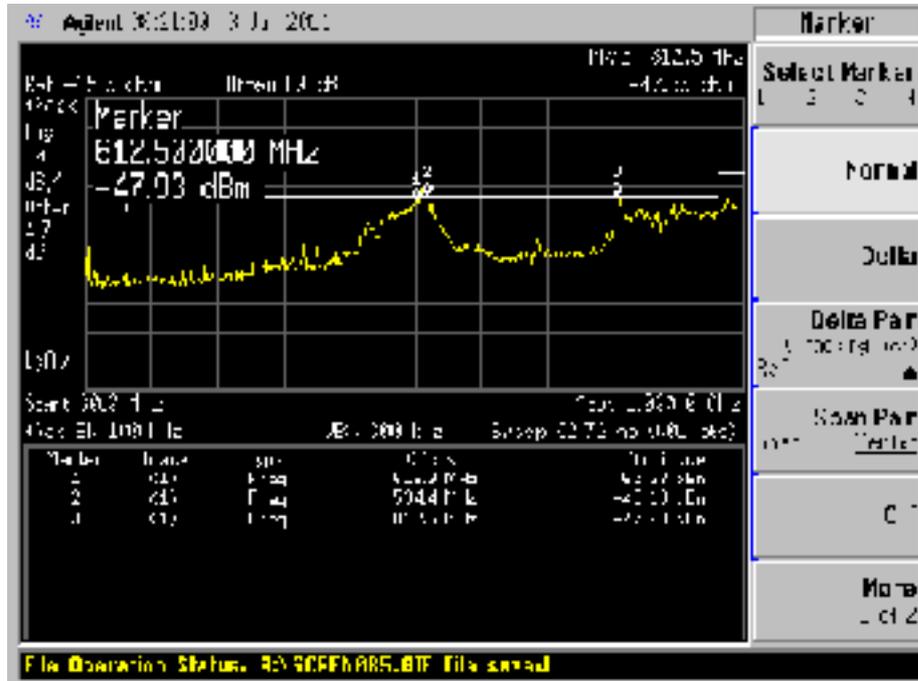
Plot 127 – Channel 6 @ CCK 5.5Mbps



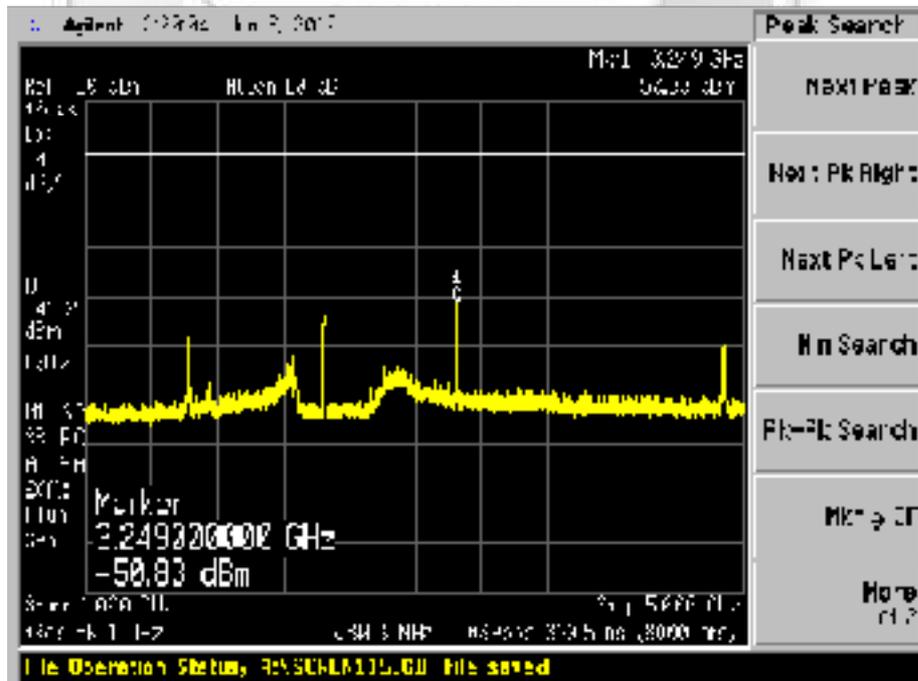
Plot 128 – Channel 6 @ CCK 5.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



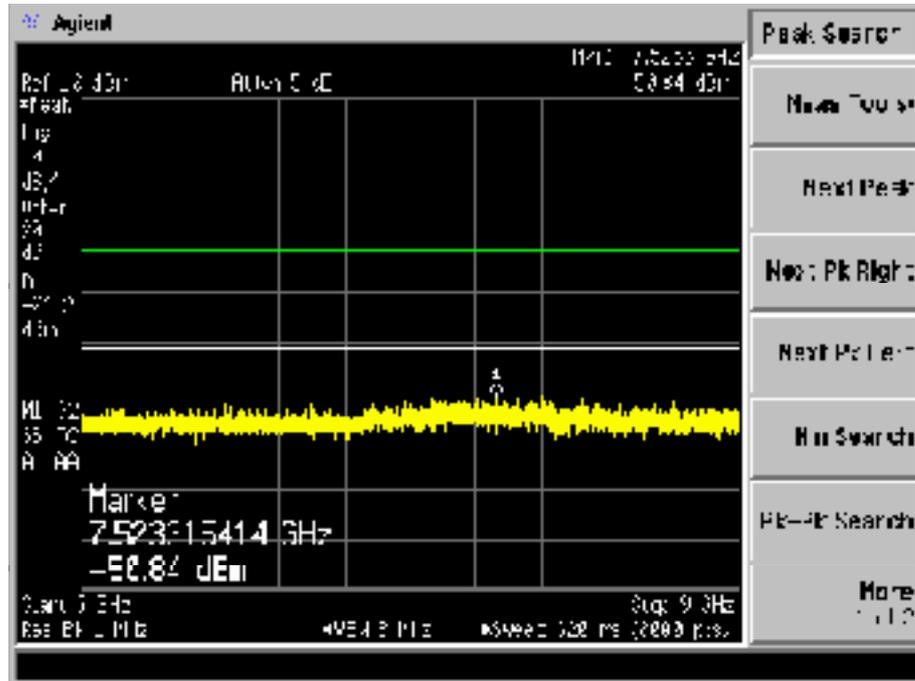
Plot129 – Channel6 @ CCK 5.5Mbps



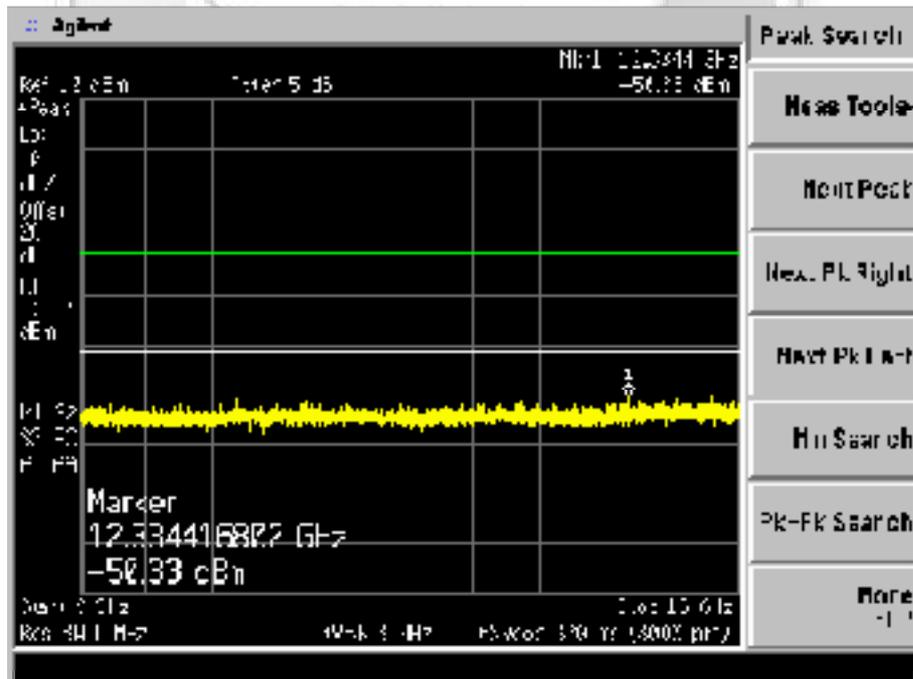
Plot130 – Channel6 @ CCK 5.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



Plot 131 – Channel 6 @ CCK 5.5Mbps



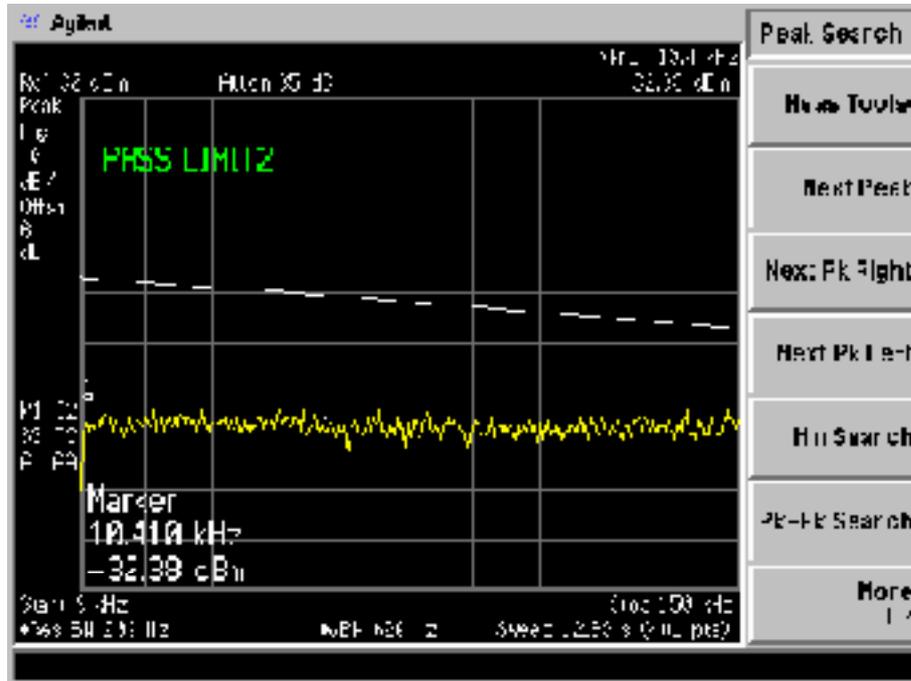
Plot 132 – Channel 6 @ CCK 5.5Mbps



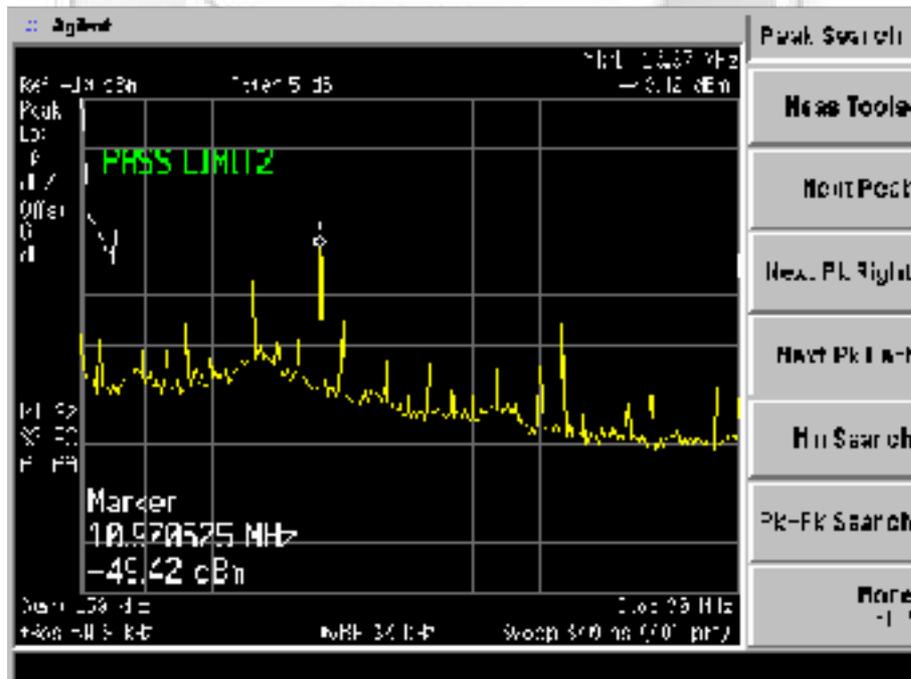


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – Peak



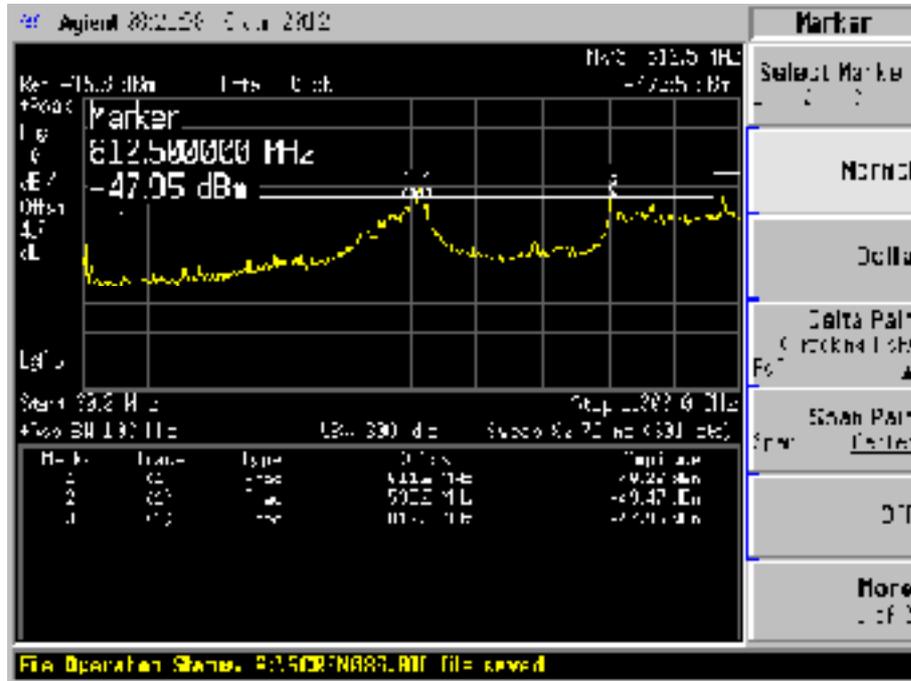
Plot 136 – Channel 6 @ CCK 11Mbps



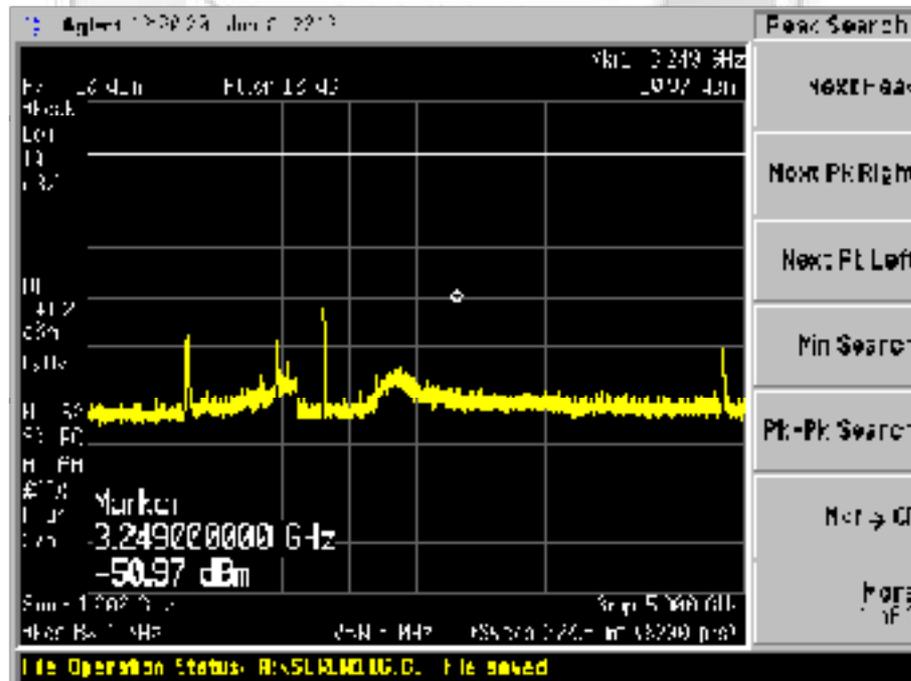
Plot 137 – Channel 6 @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



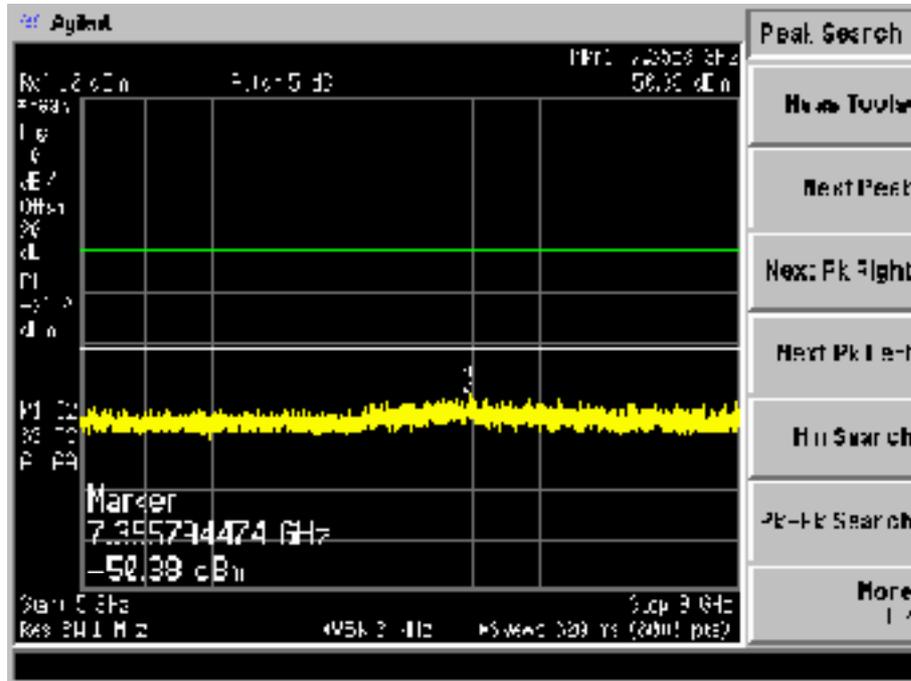
Plot 138 – Channel 6 @ CCK 11Mbps



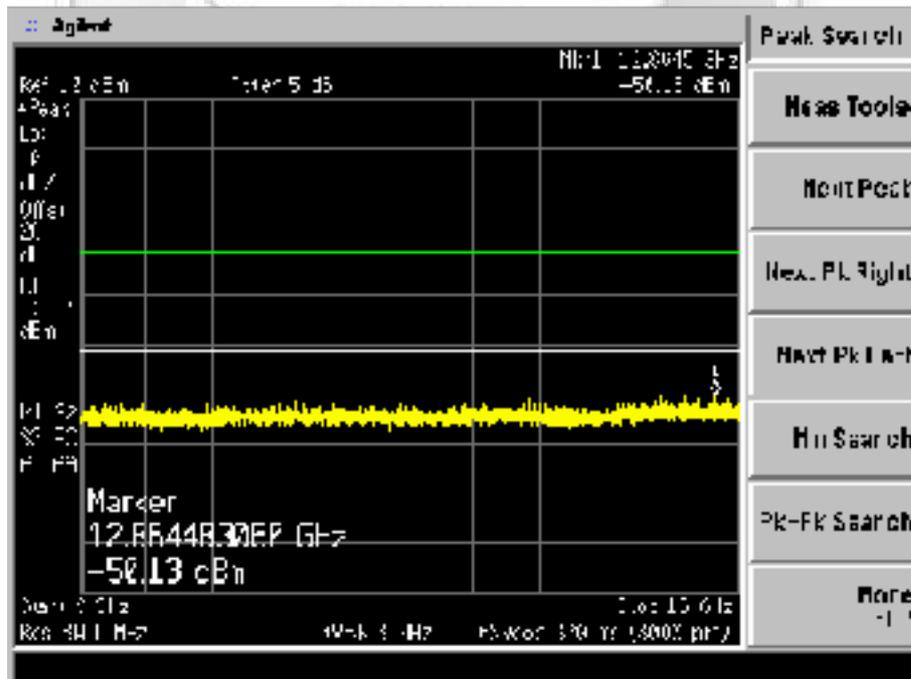
Plot 139 – Channel 6 @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



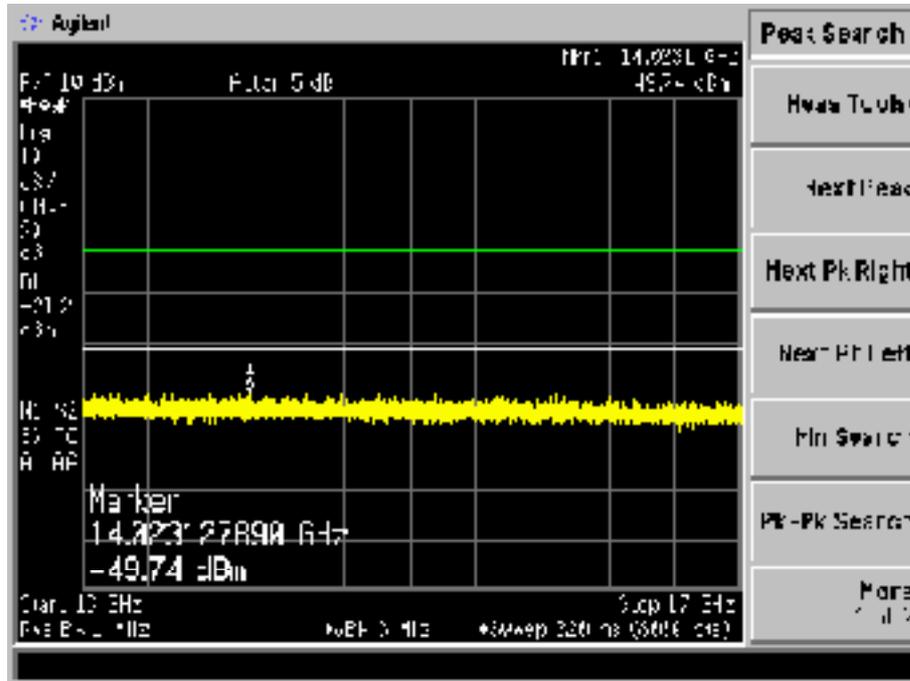
Plot 140 – Channel 6 @ CCK 11Mbps



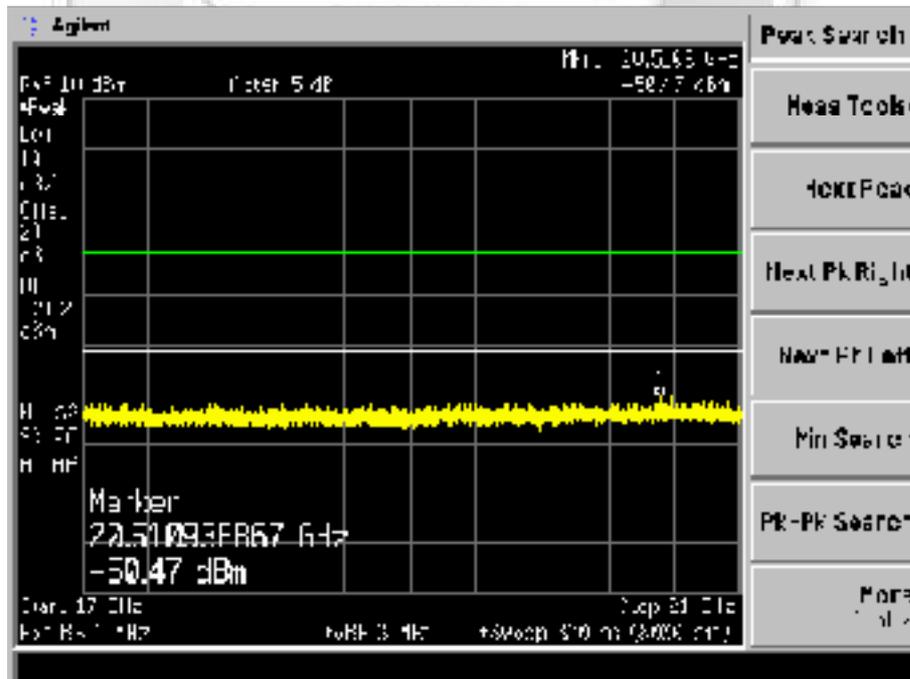
Plot 141 – Channel 6 @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



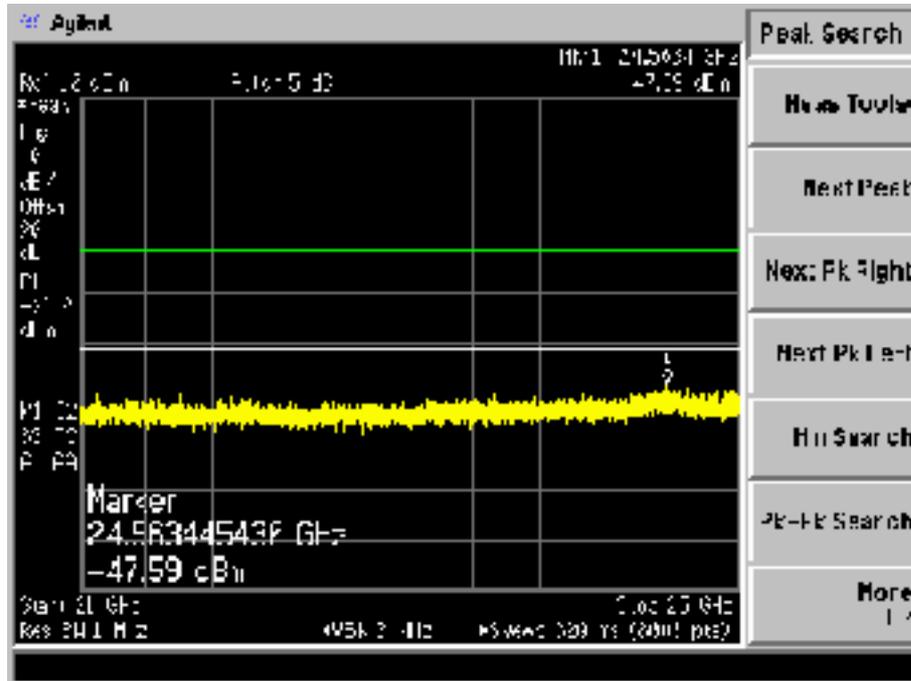
Plot 142 – Channel 6 @ CCK 11Mbps



Plot 143 – Channel 6 @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – Peak

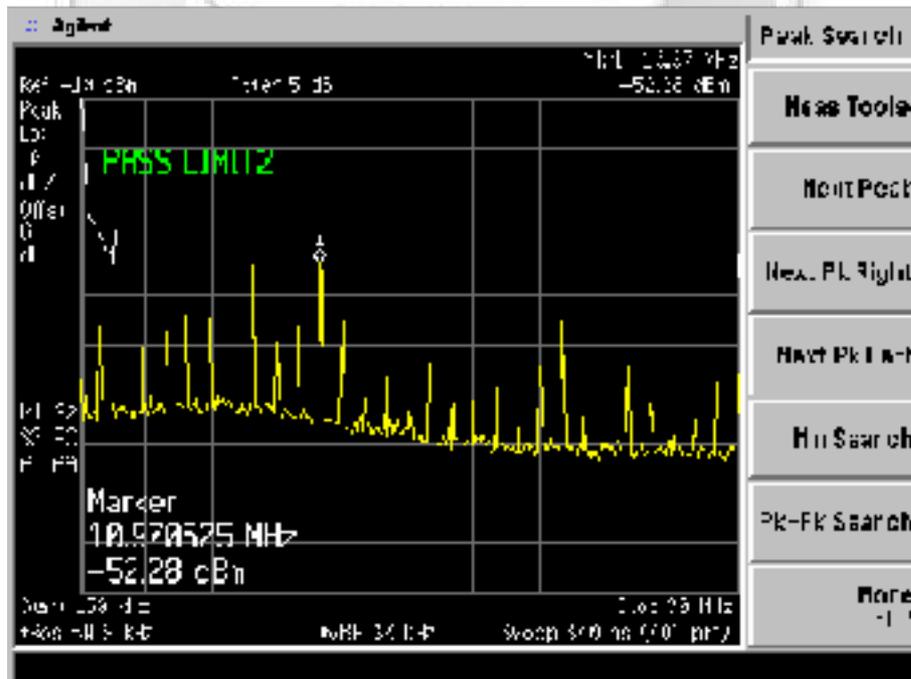
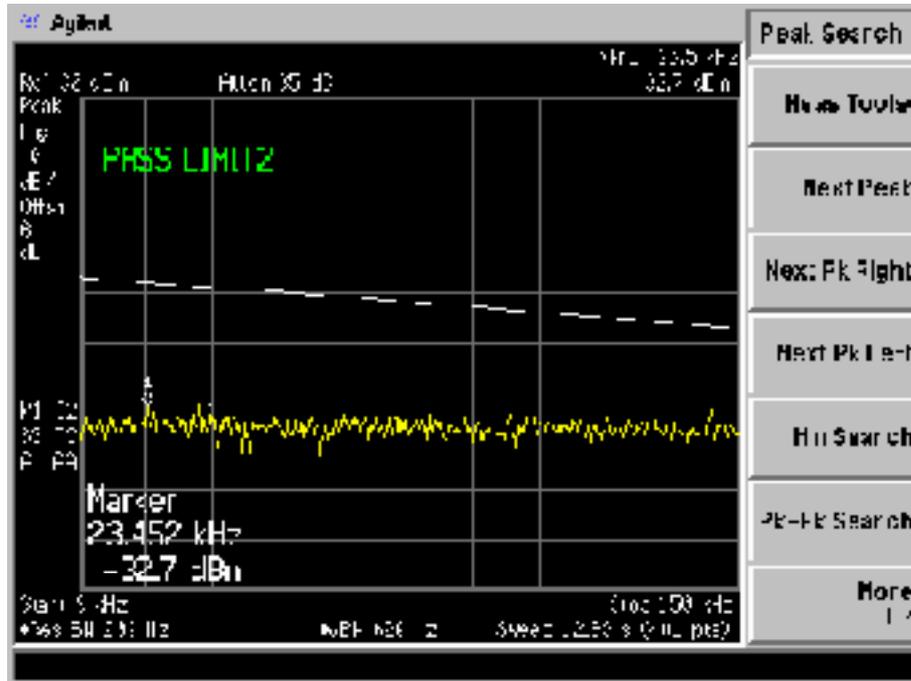


Plot 144 – Channel 6 @ CCK 11Mbps



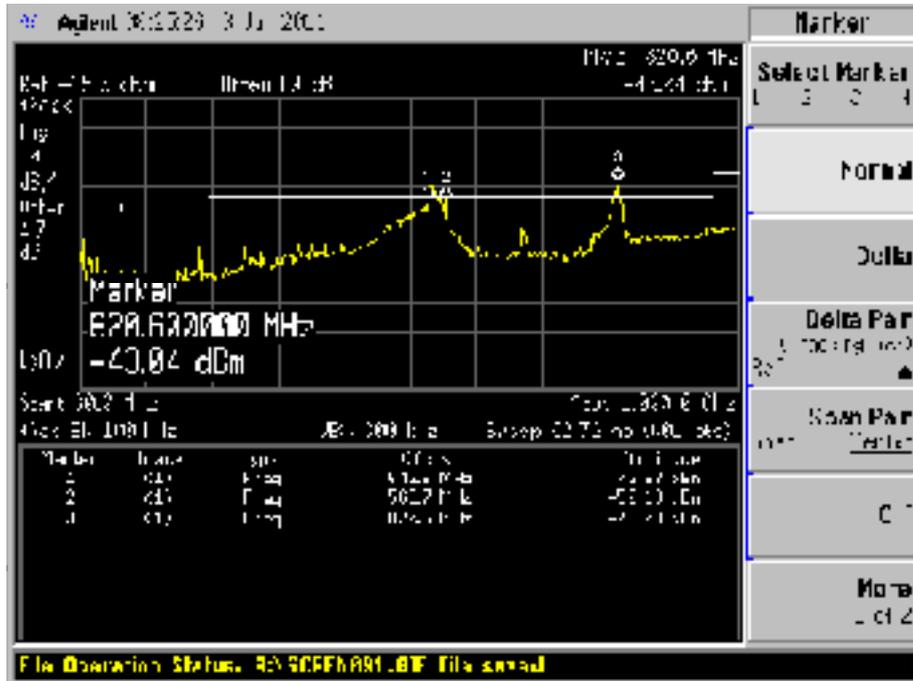
RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

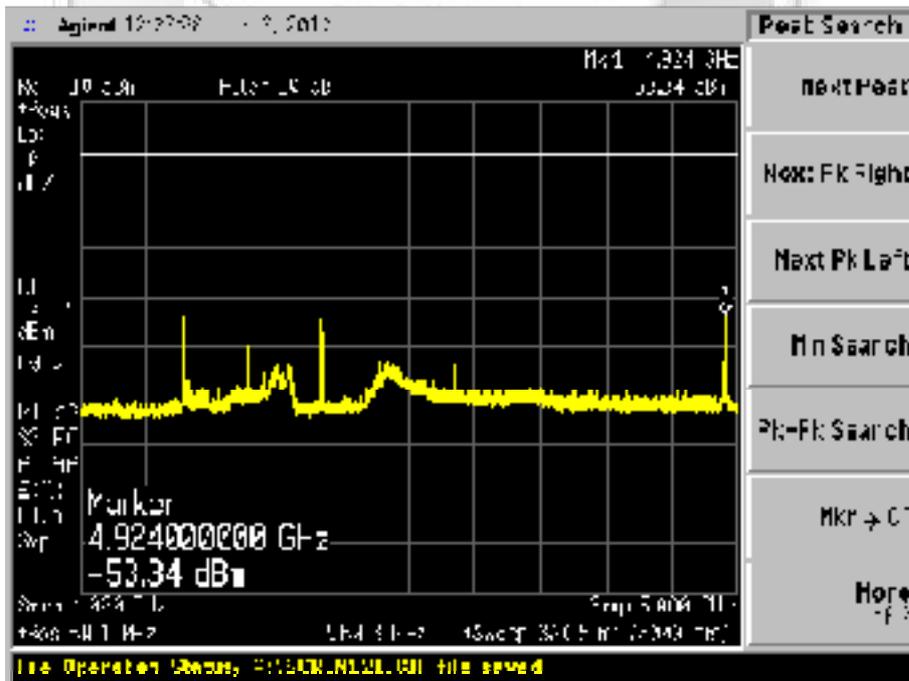


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



Plot 147 – Channel 11 @DBPSK 1Mbps

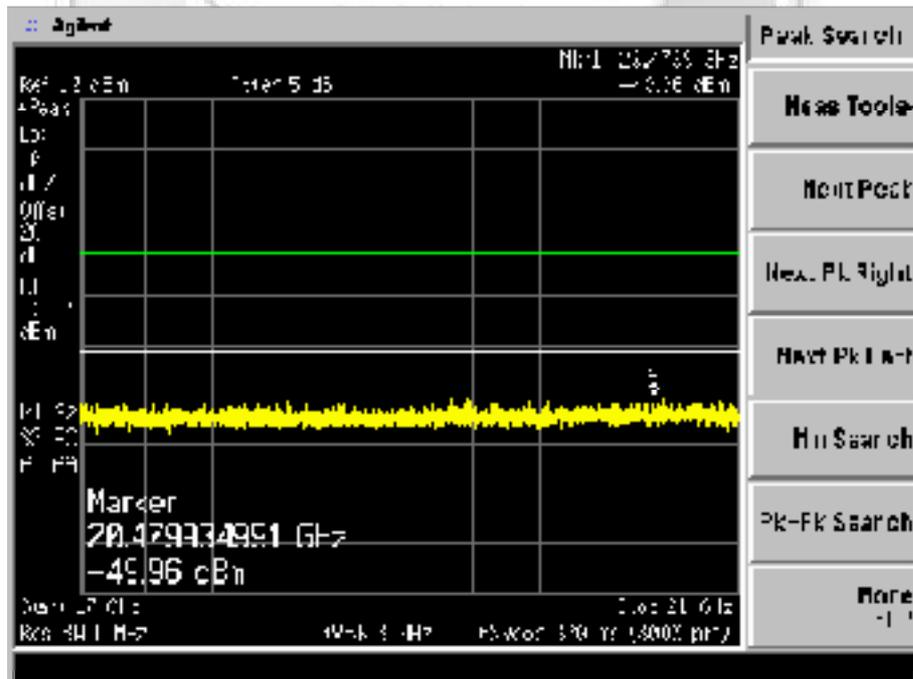
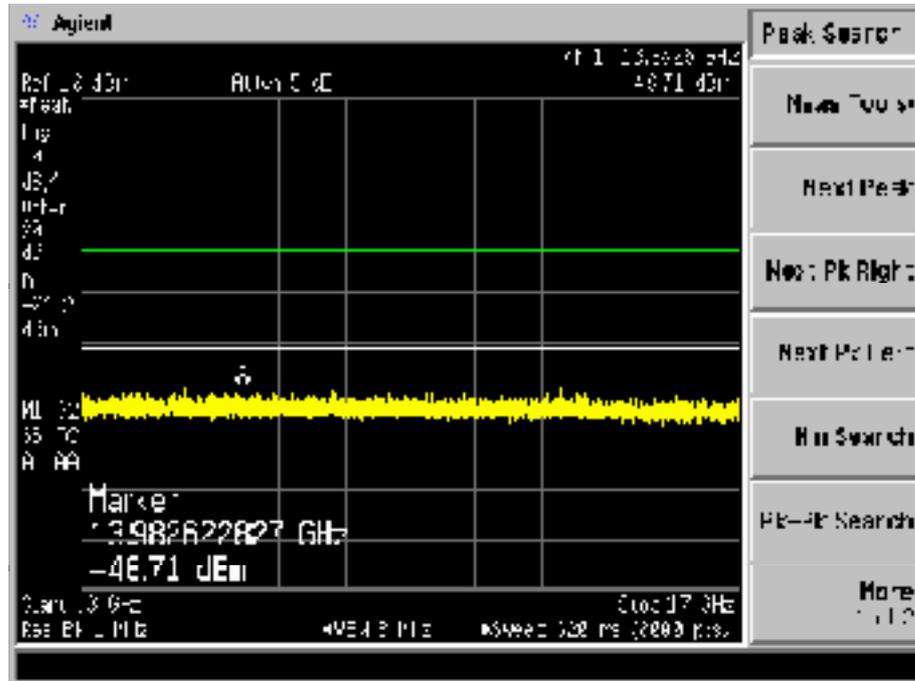


Plot 148 – Channel 11 @DBPSK 1Mbps



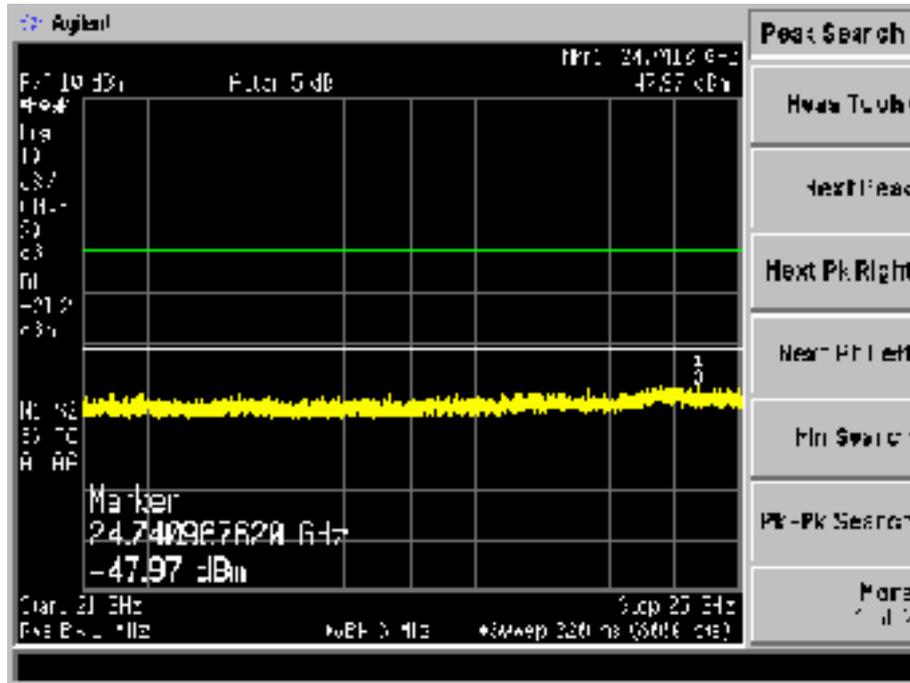
RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



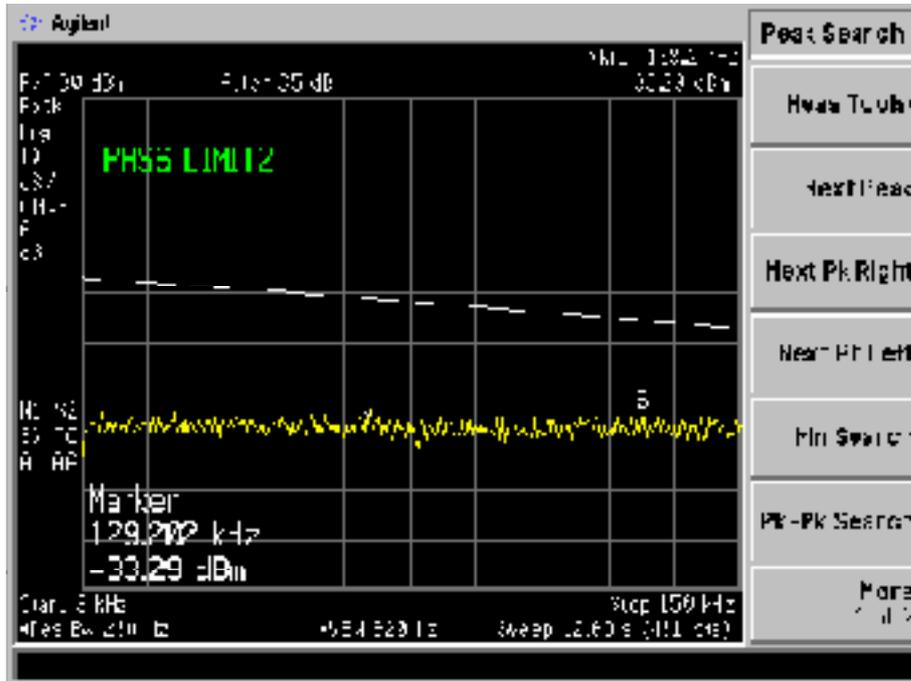
RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

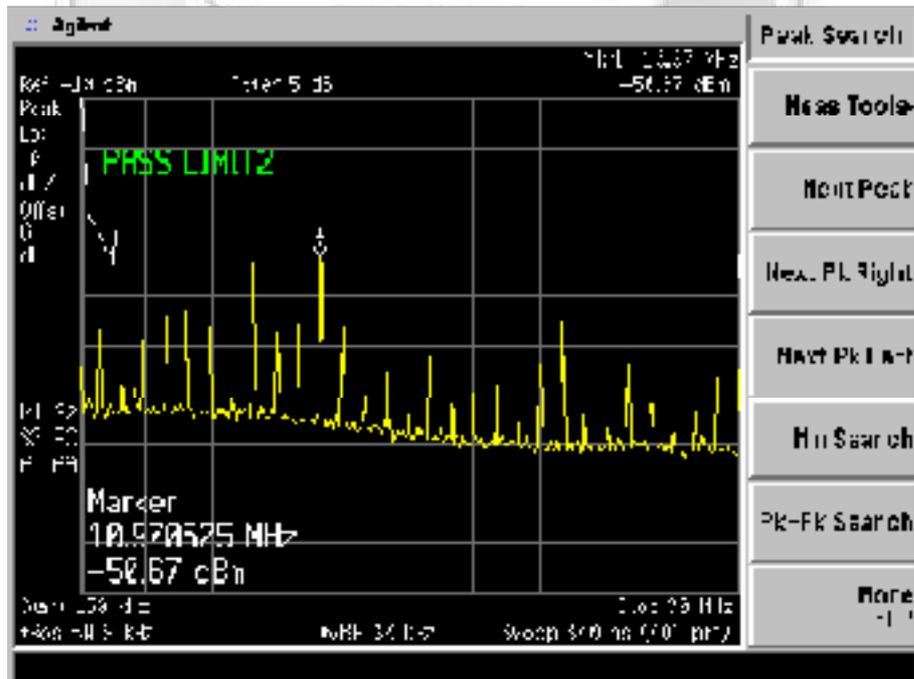


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



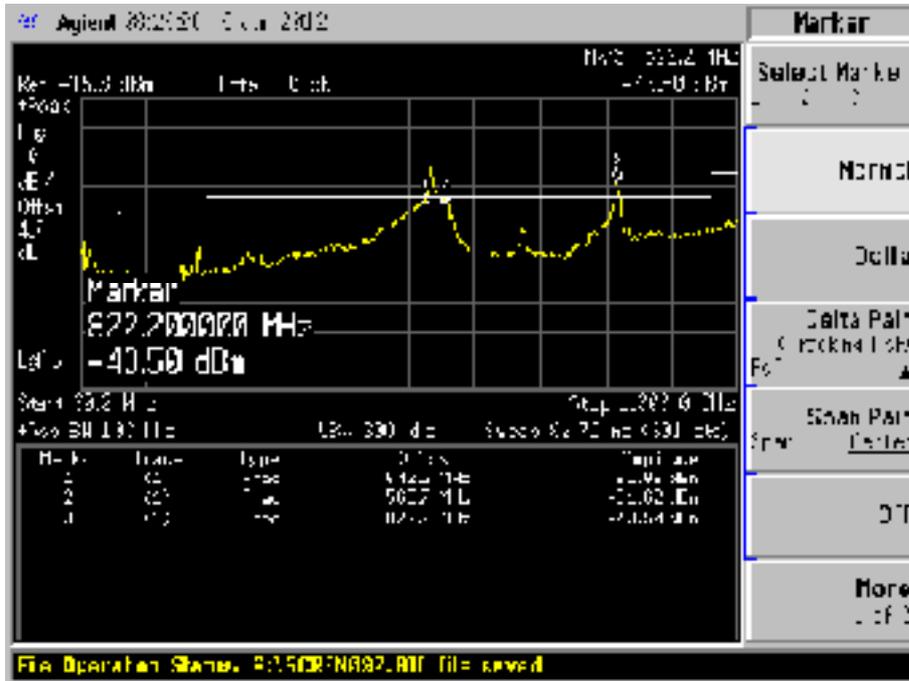
Plot 154 – Channel 11 @ DQPSK 2Mbps



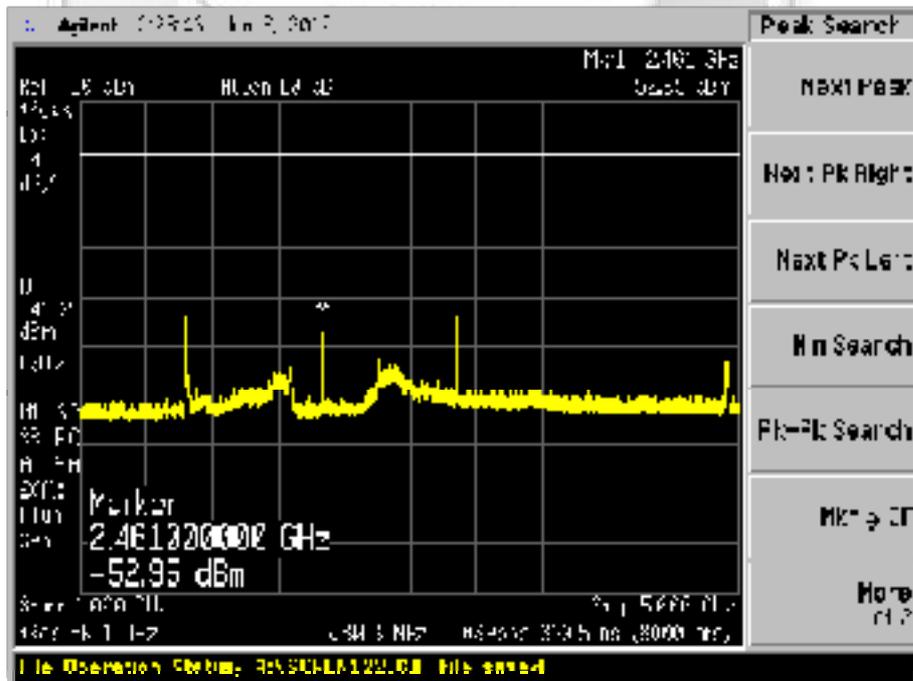
Plot 155 – Channel 11 @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



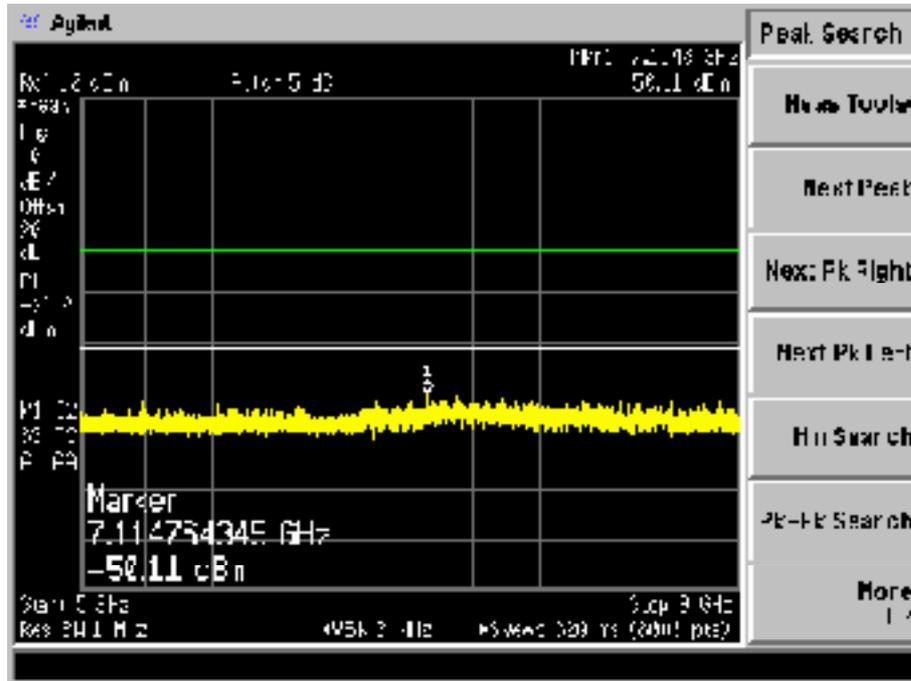
Plot 156 – Channel 11 @ DQPSK 2Mbps



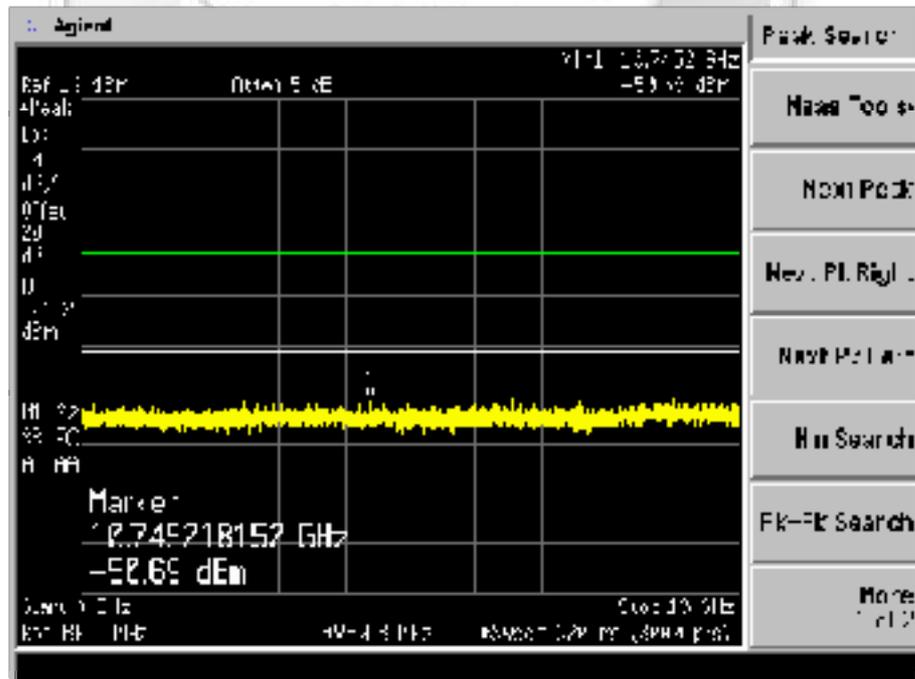
Plot 157 – Channel 11 @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



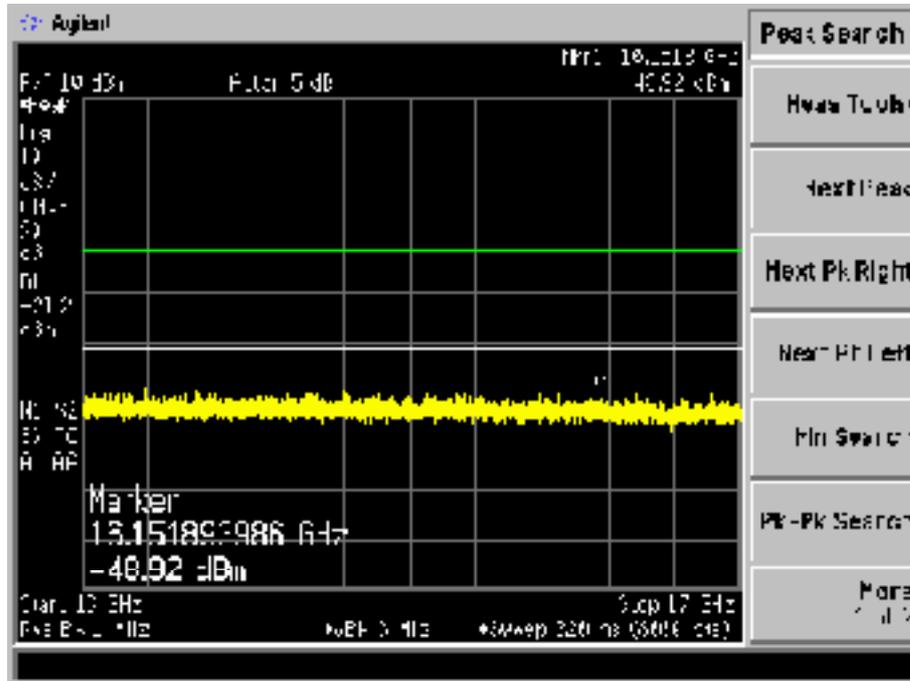
Plot 158 – Channel 11 @ DQPSK 2Mbps



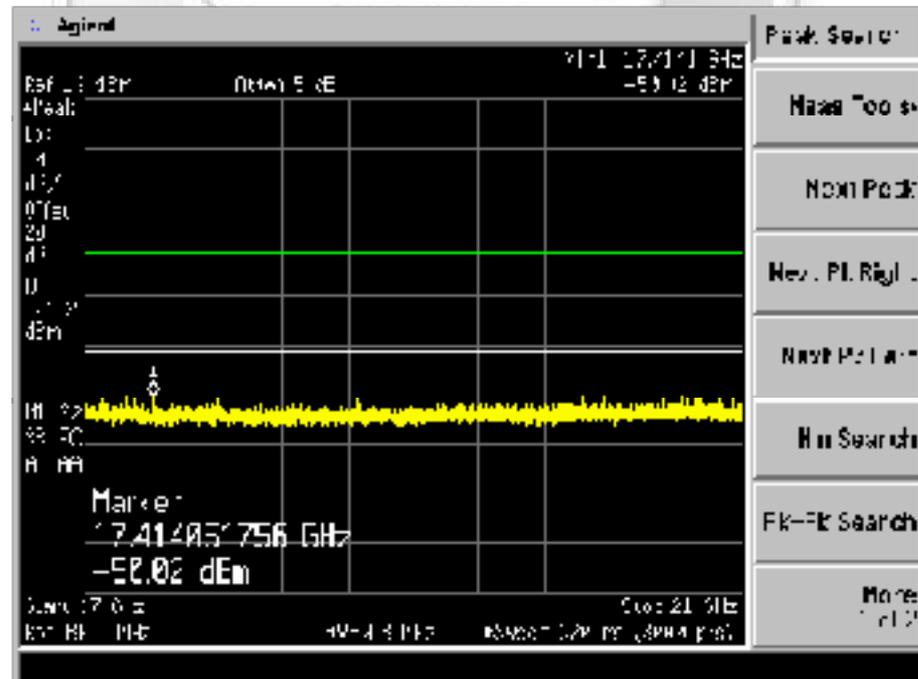
Plot 159 – Channel 11 @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



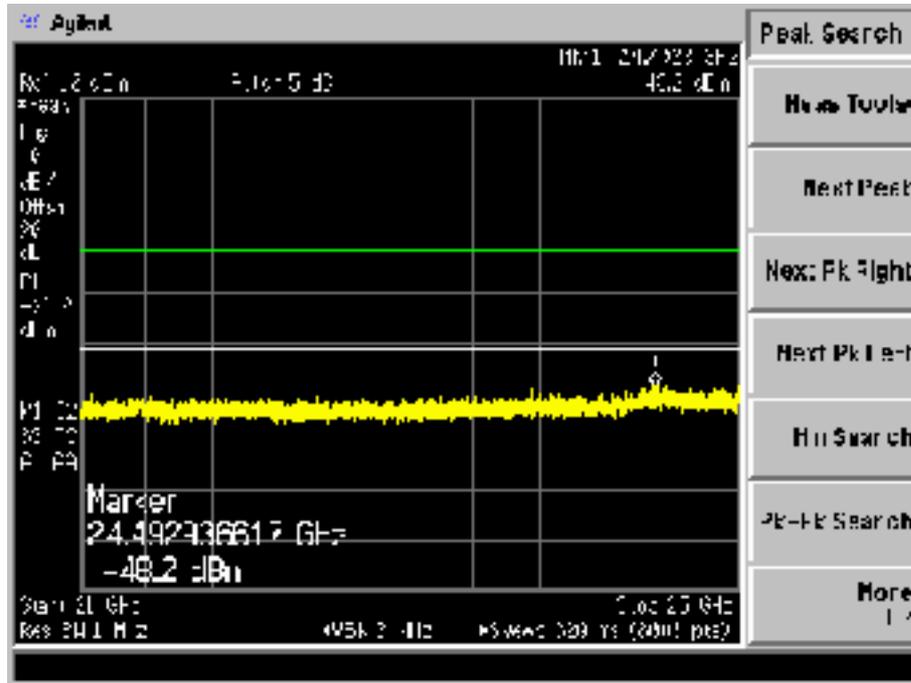
Plot 160 – Channel 11 @ DQPSK 2Mbps



Plot 161 – Channel 11 @ DQPSK 2Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

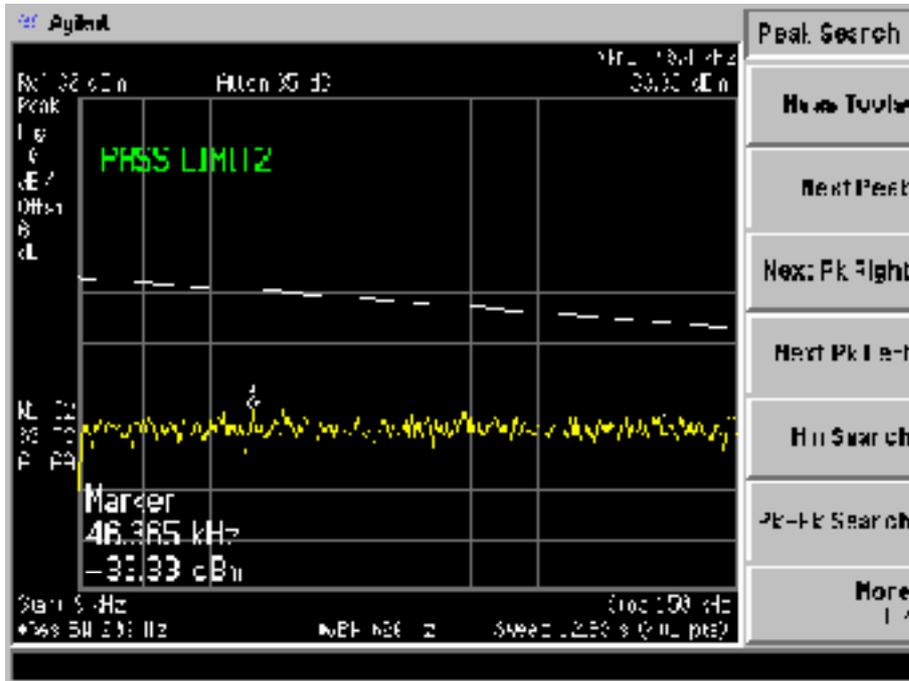


Plot 162 - Channel 11 @ DQPSK 2Mbps

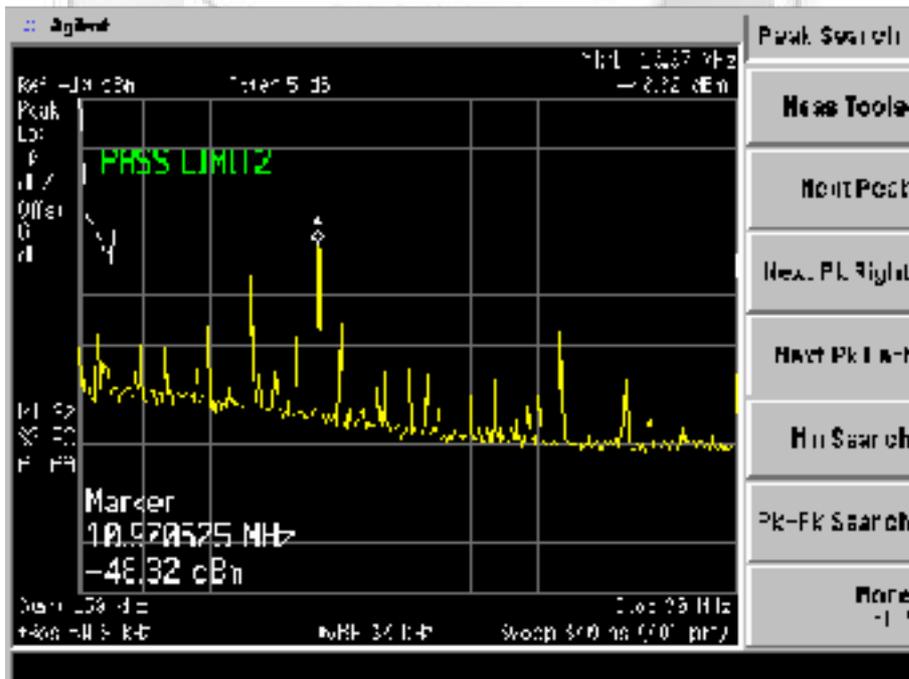


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – Peak



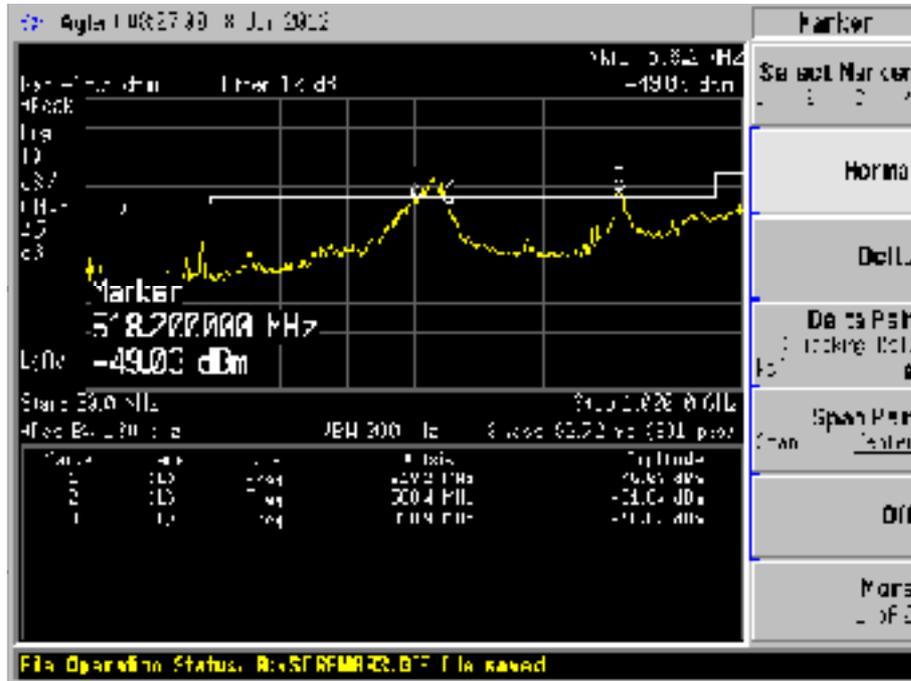
Plot 163 – Channel 11 @ CCK 5.5Mbps



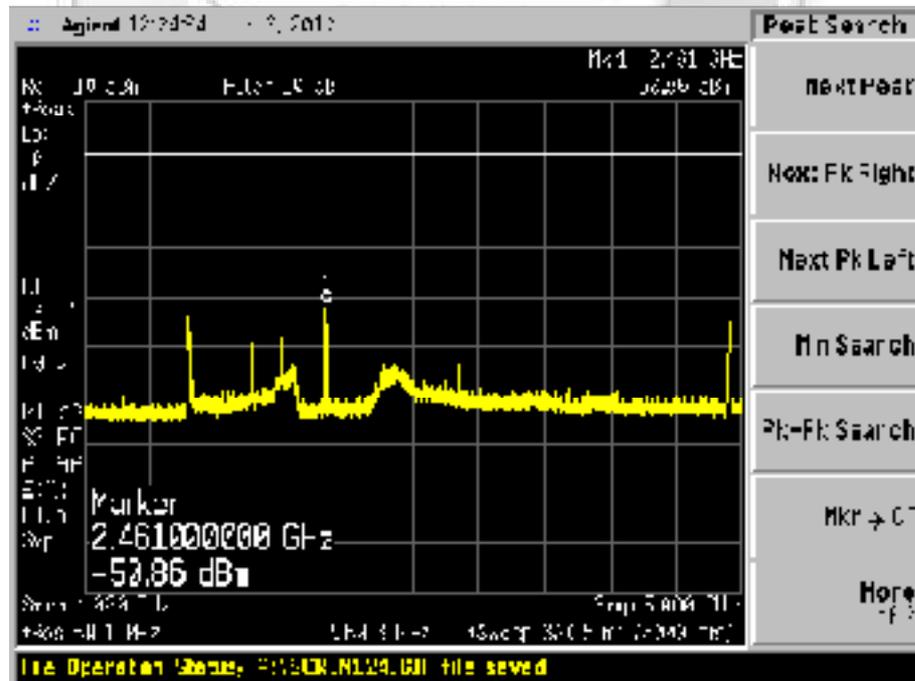
Plot 164 – Channel 11 @ CCK 5.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



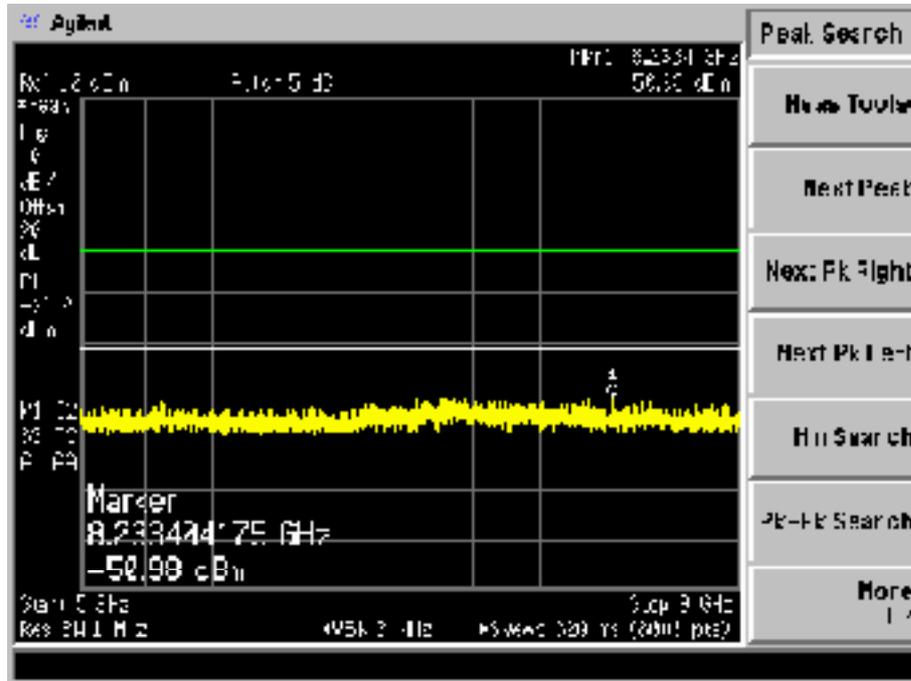
Plot 165 – Channel 11 @ CCK 5.5Mbps



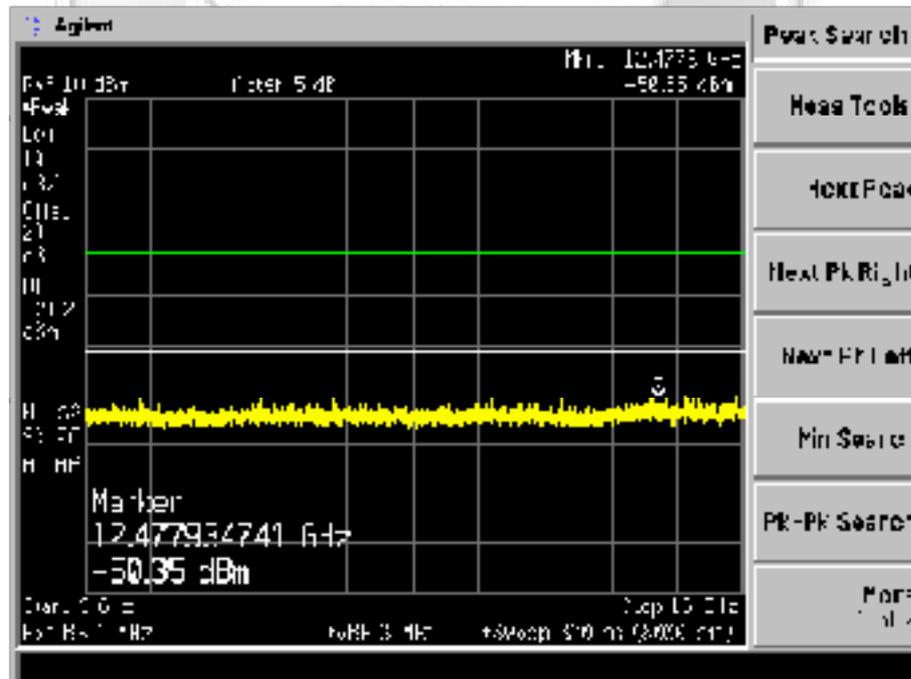
Plot 166 – Channel 11 @ CCK 5.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – Peak



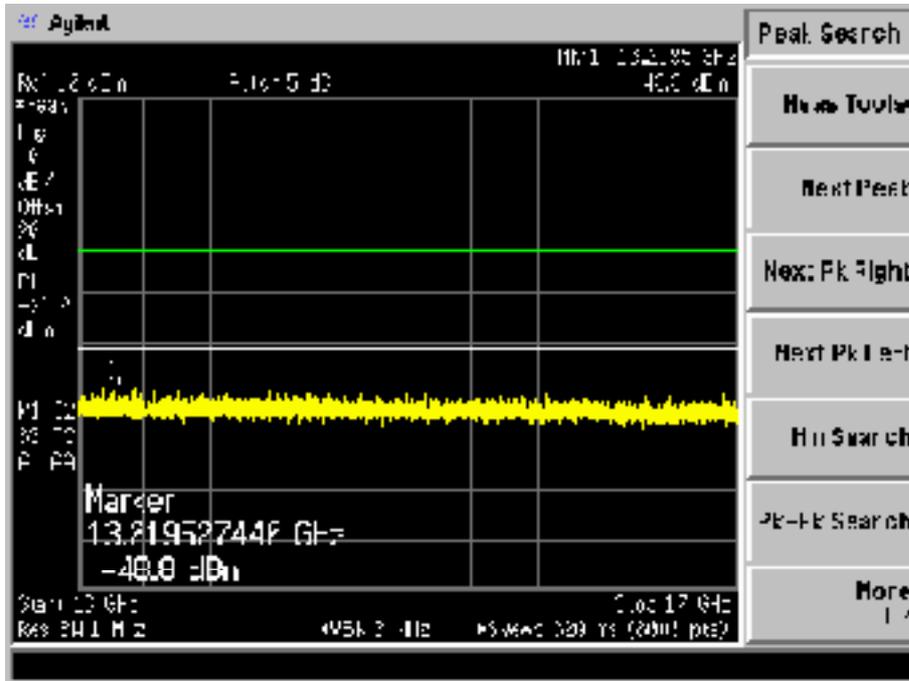
Plot 167 – Channel 11 @ CCK 5.5Mbps



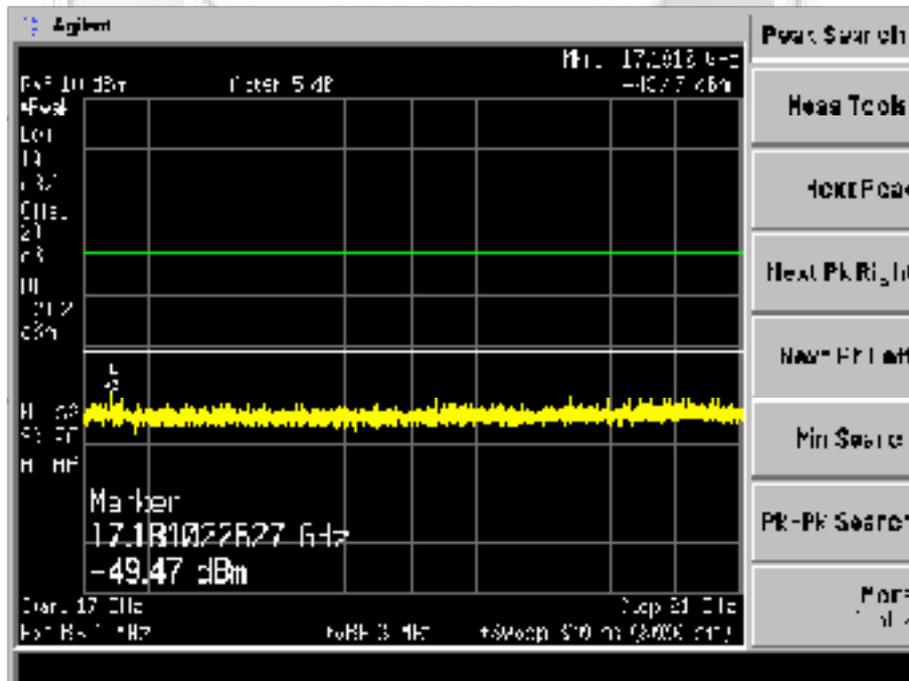
Plot 168 – Channel 11 @ CCK 5.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



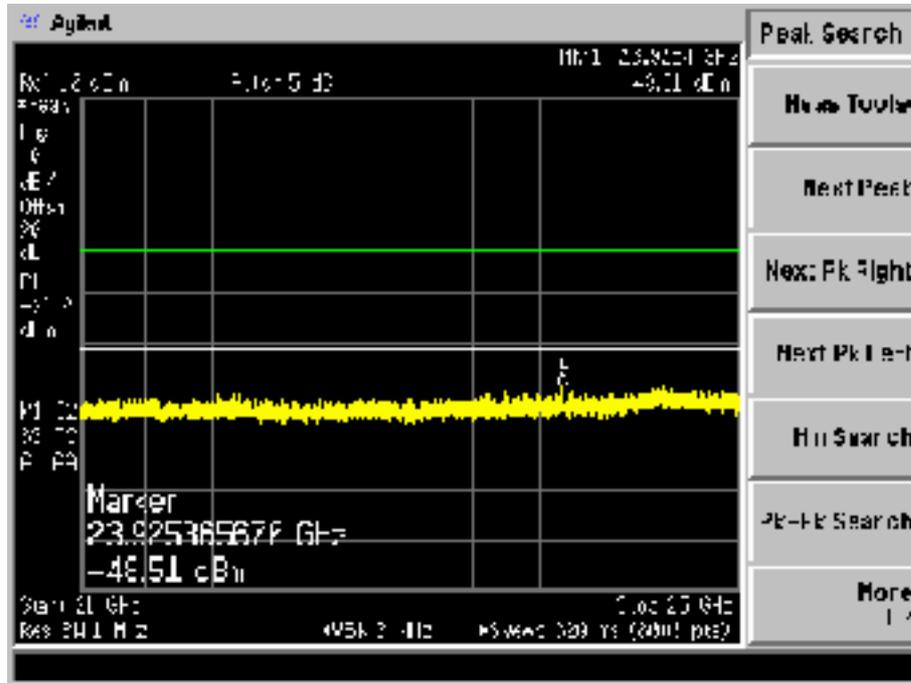
Plot 169 – Channel 11 @ CCK 5.5Mbps



Plot 170 – Channel 11 @ CCK 5.5Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

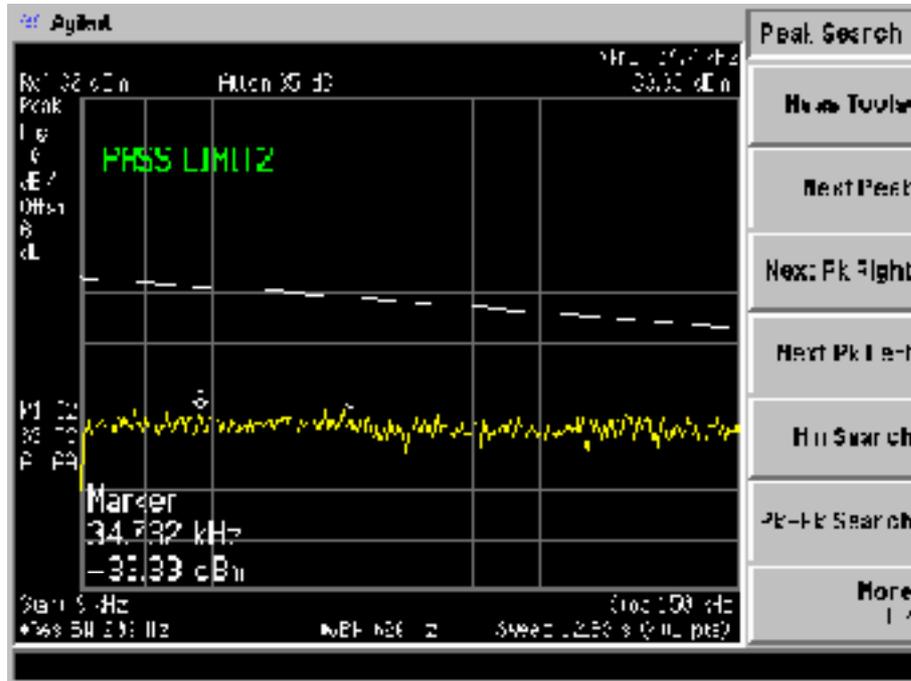


Plot 171 – Channel 11 @ CCK 5.5Mbps

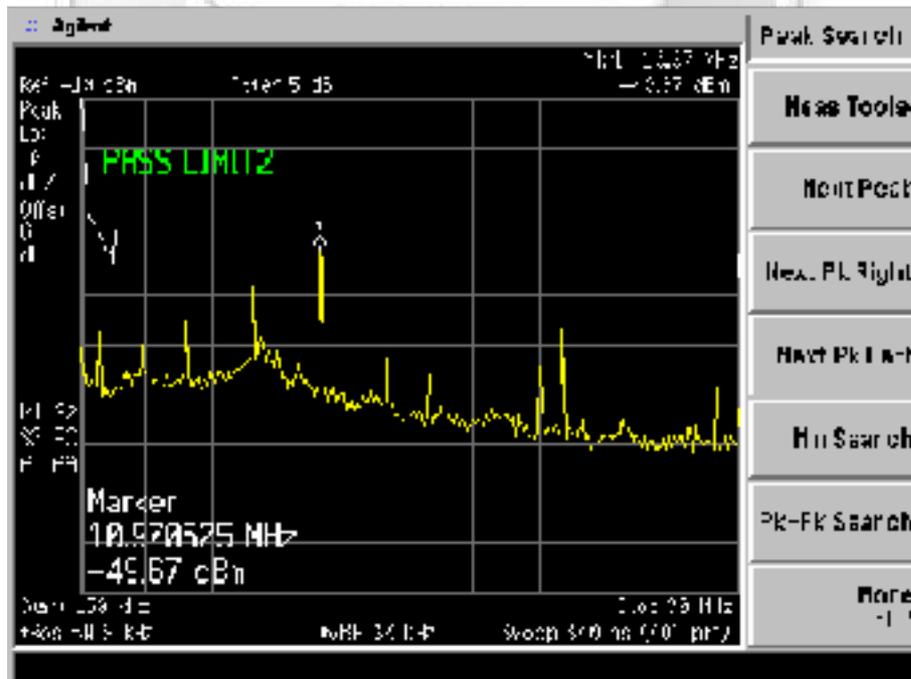


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



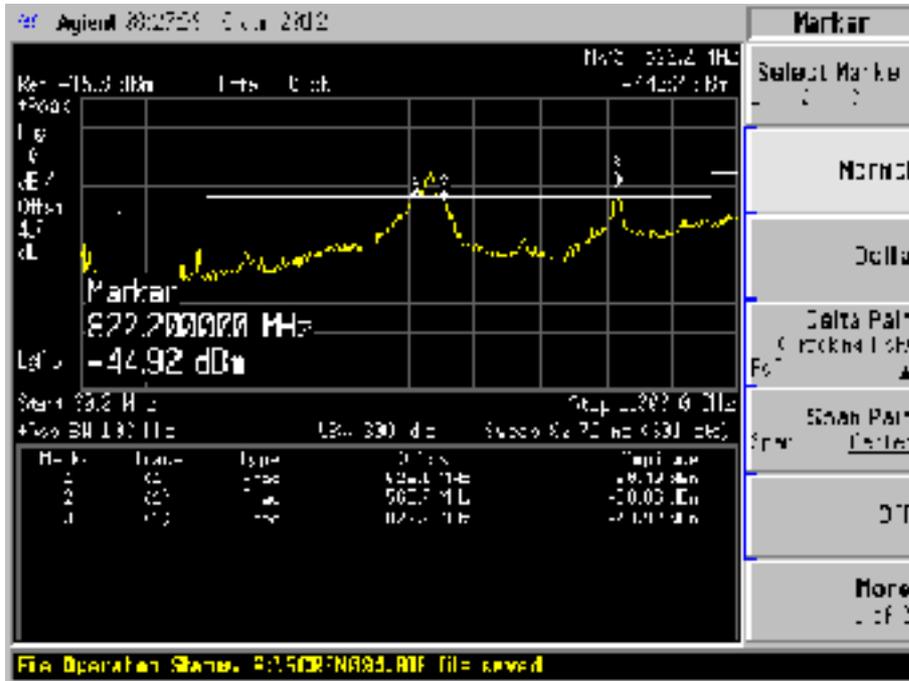
Plot 172 – Channel 11 @ CCK 11Mbps



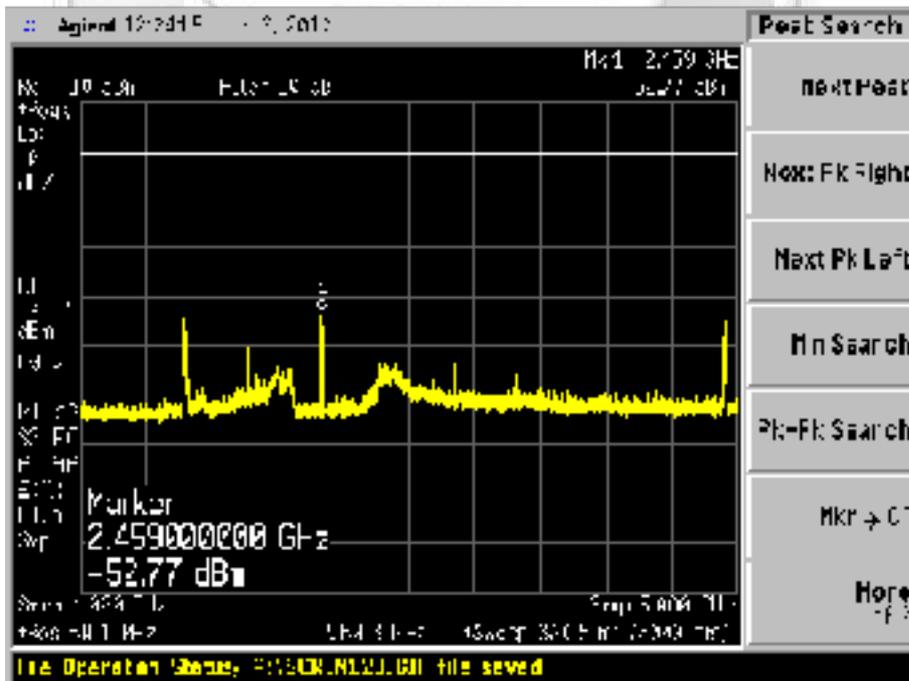
Plot 173 – Channel 11 @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – Peak



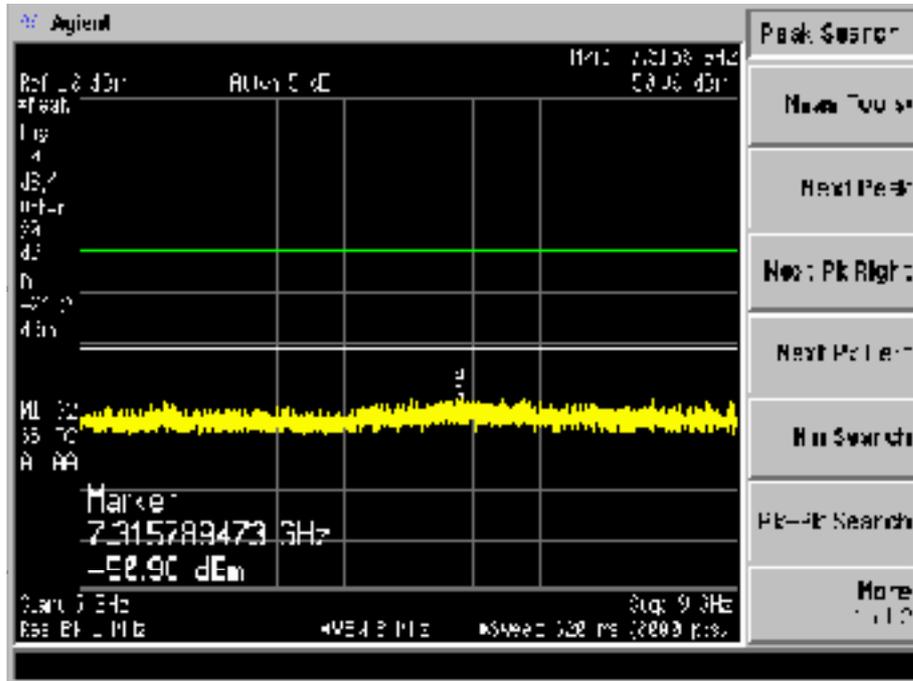
Plot174 – Channel 11 @ CCK 11Mbps



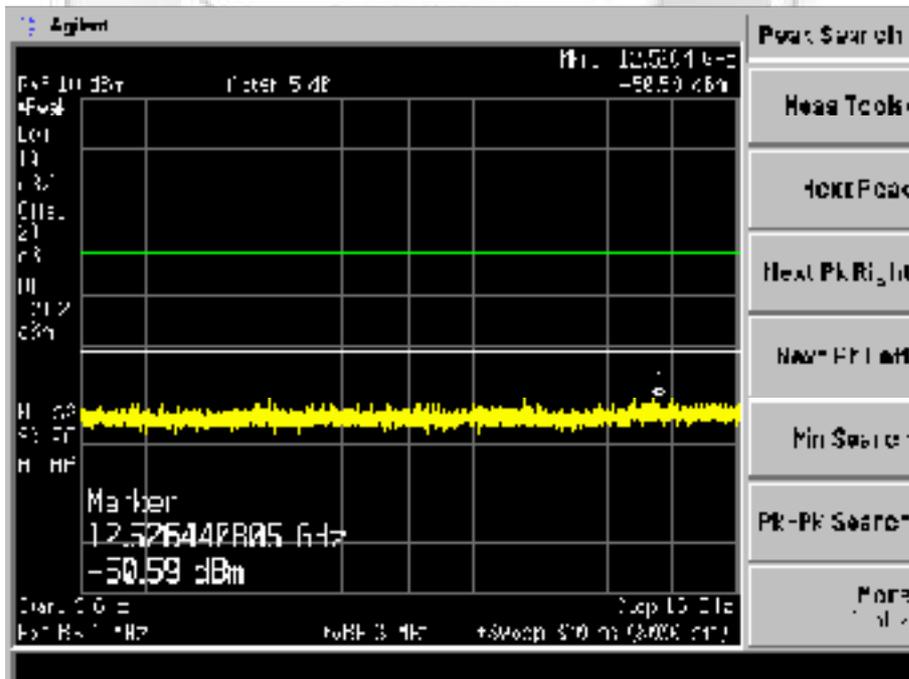
Plot175 – Channel 11 @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



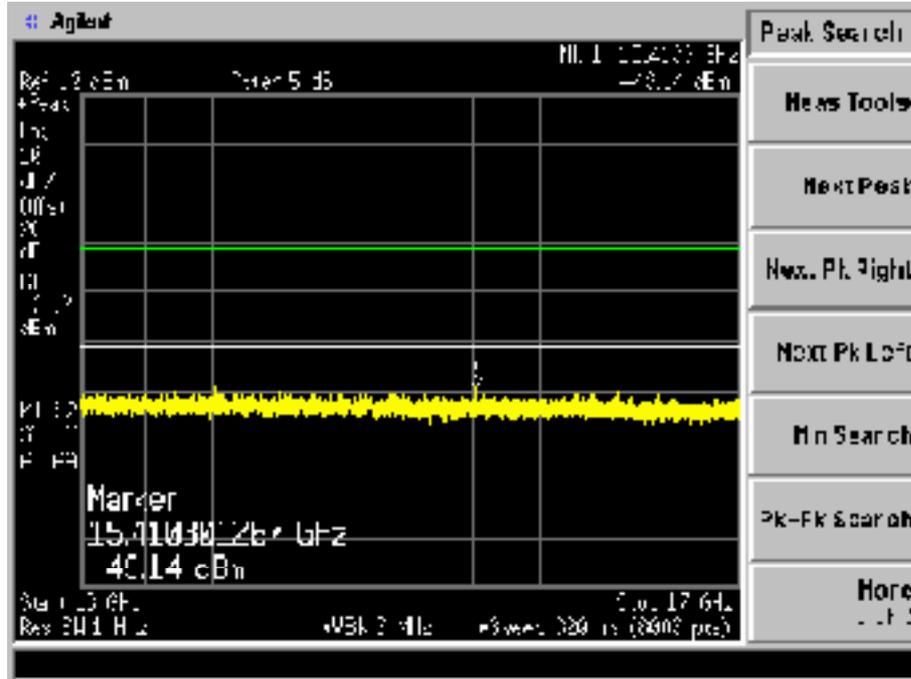
Plot176 – Channel 11 @ CCK 11Mbps



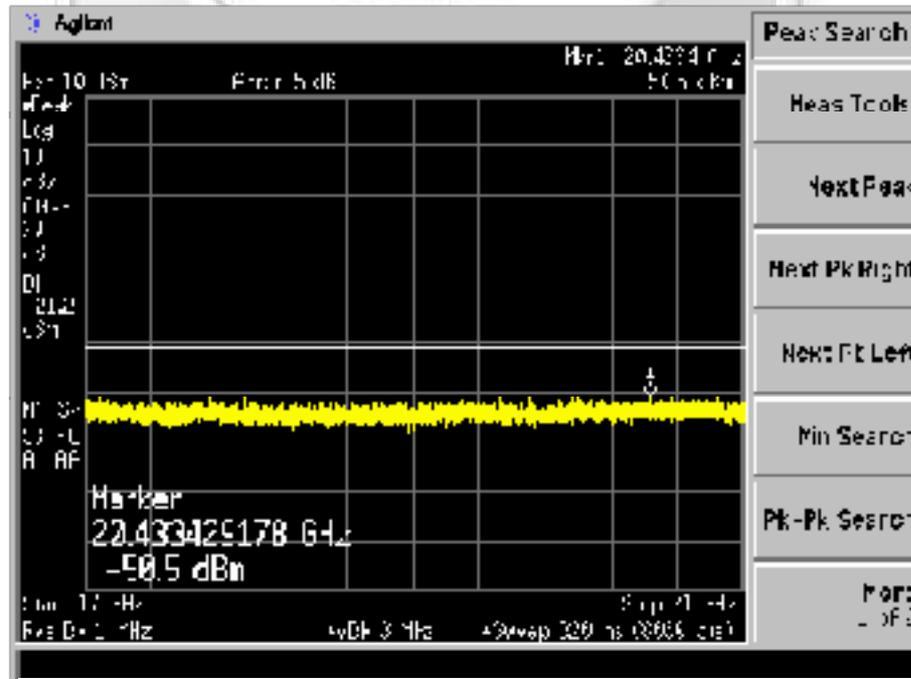
Plot177 – Channel 11 @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – Peak



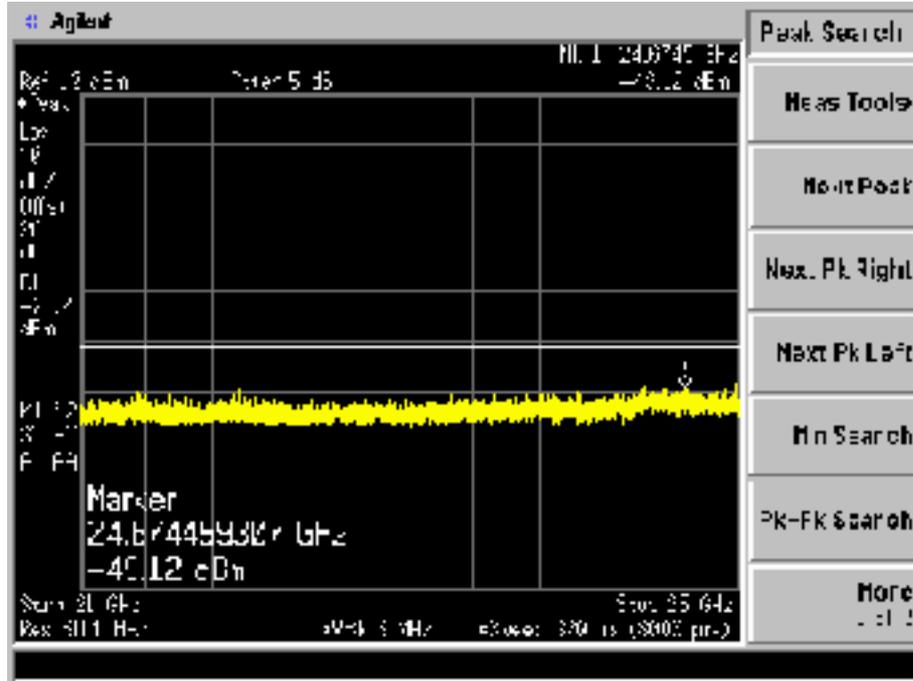
Plot178 – Channel 11 @ CCK 11Mbps



Plot179 – Channel 11 @ CCK 11Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots – Peak

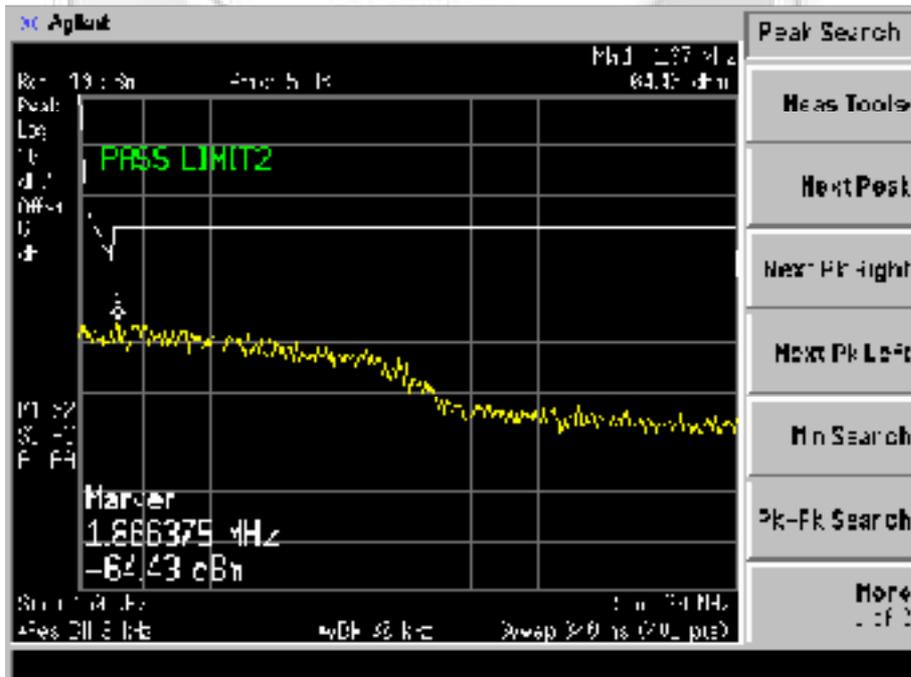
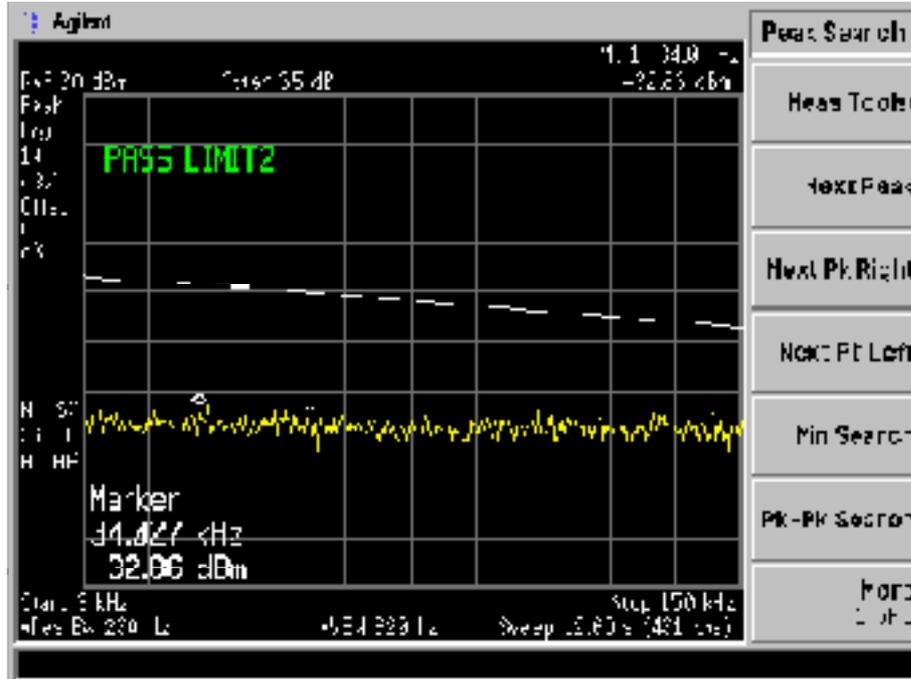


Plot180 – Channel 11 @ CCK 11Mbps



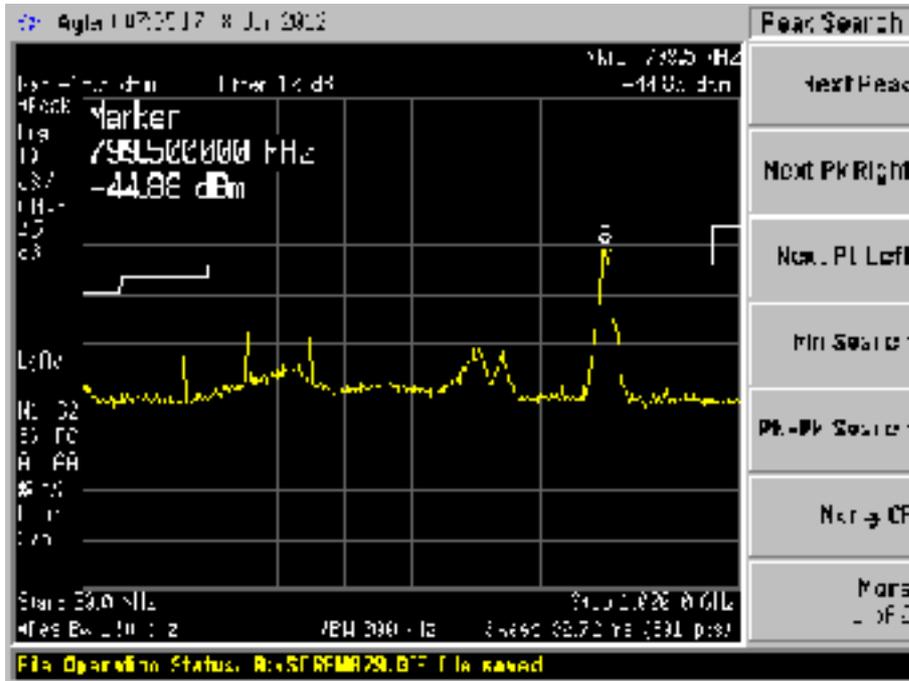
RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

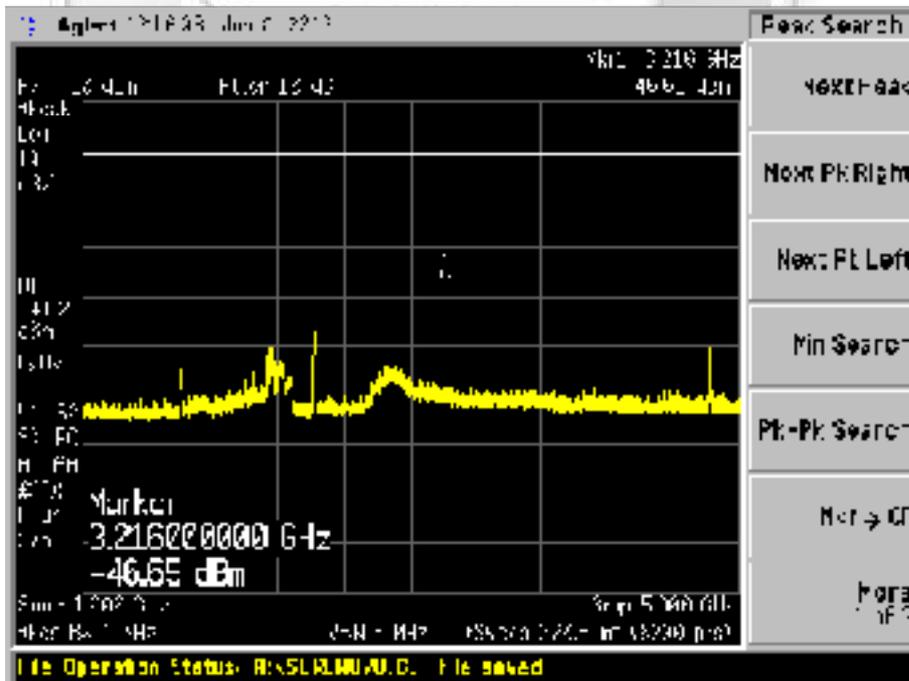


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



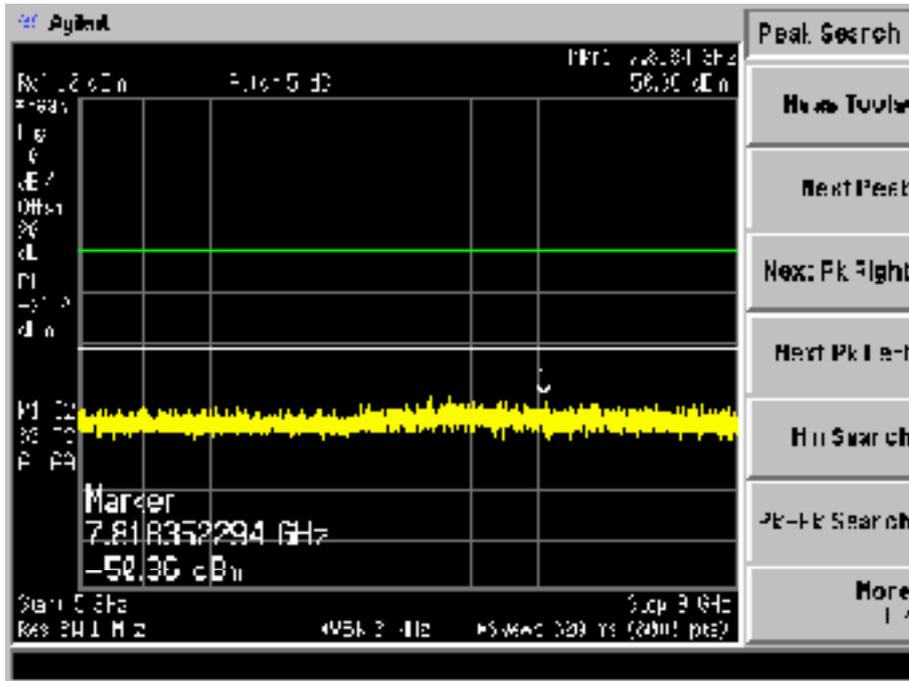
Plot 183 – Channel 1 @DBPSK 9Mbps



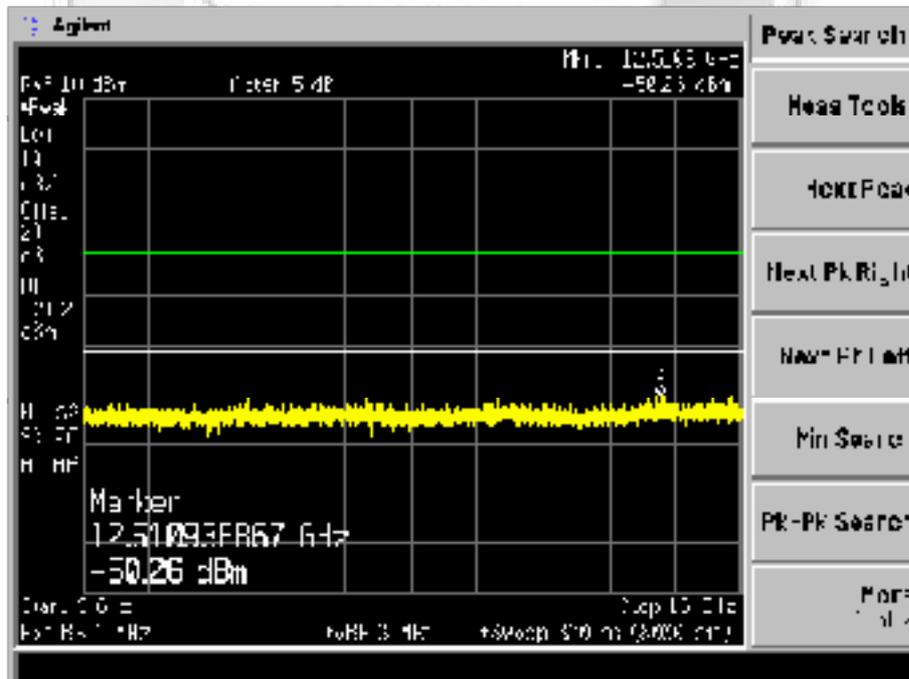
Plot 184 – Channel 1 @DBPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



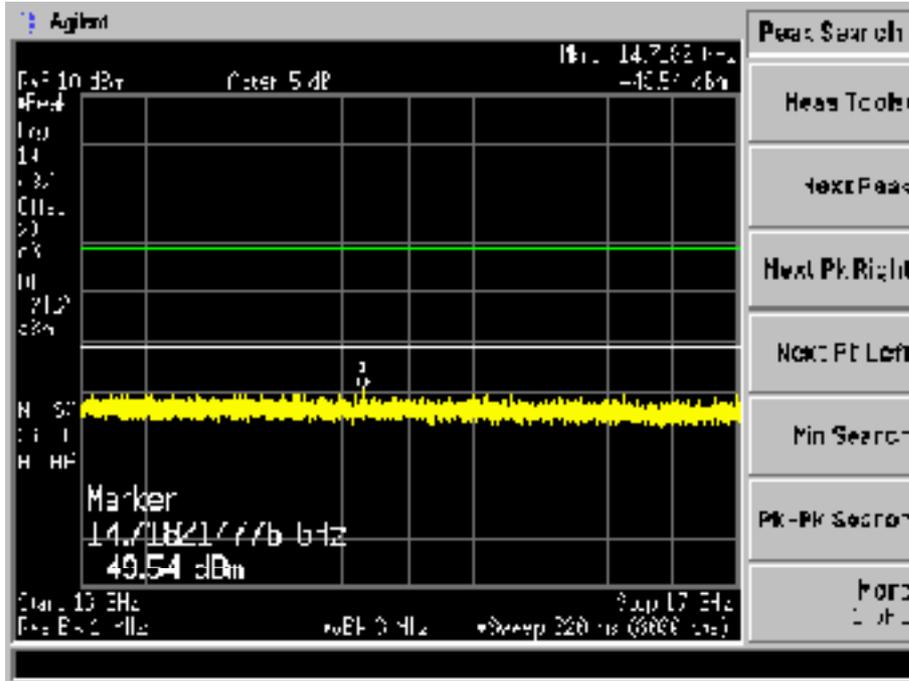
Plot 185 – Channel 1 @ DBPSK 9Mbps



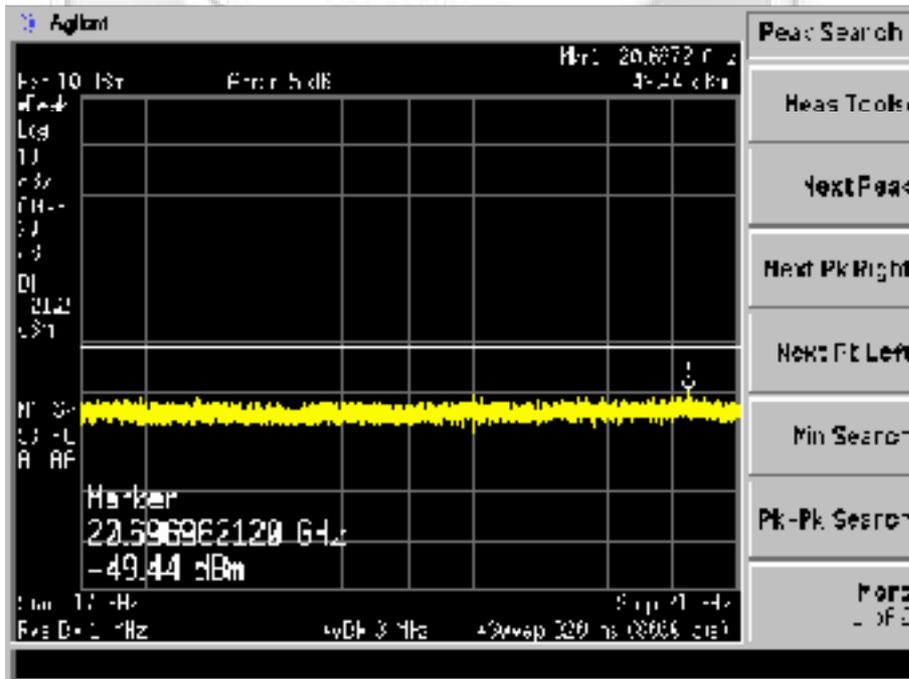
Plot 186 – Channel 1 @ DBPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



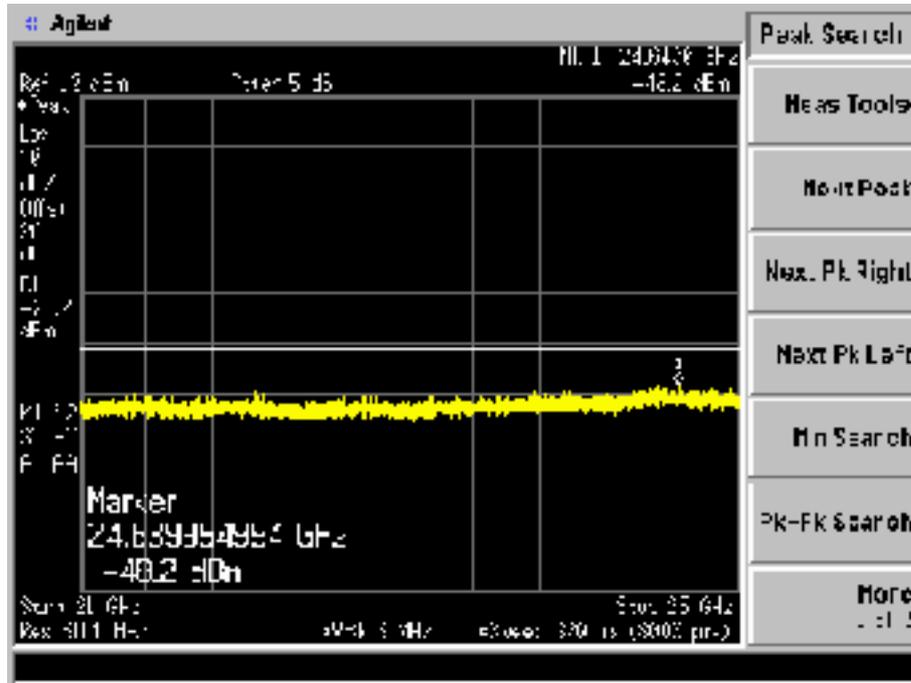
Plot 187 – Channel 1 @DBPSK 9Mbps



Plot 188 – Channel 1 @DBPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



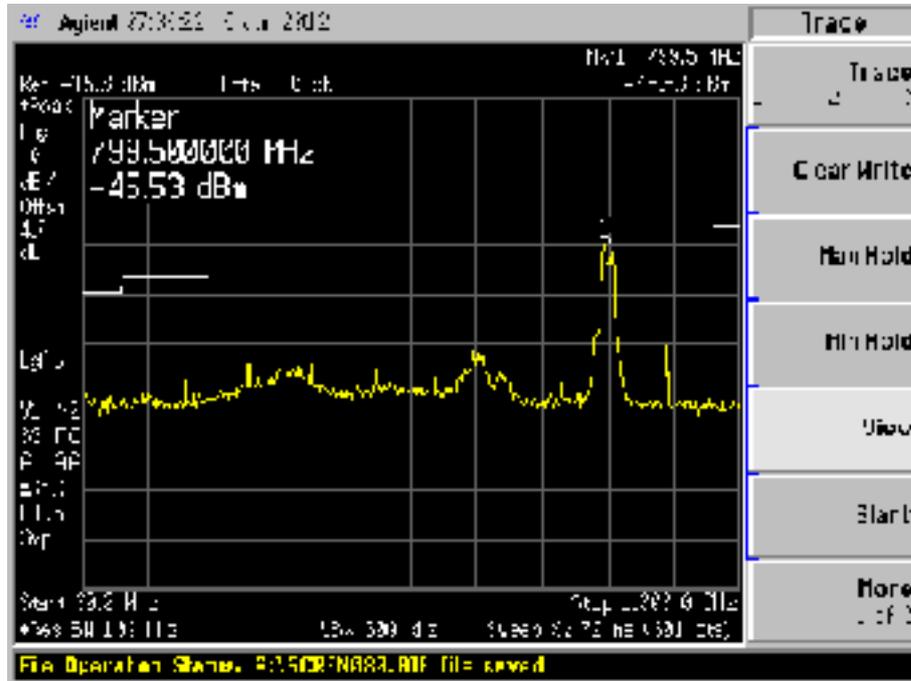
Plot 189 – Channel 1 @DBPSK 9Mbps



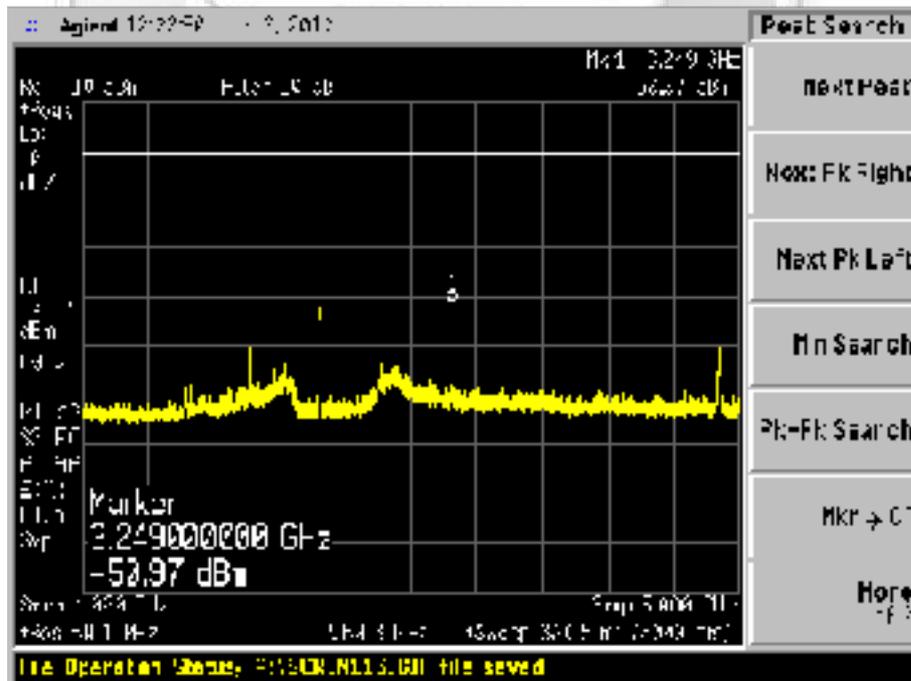


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



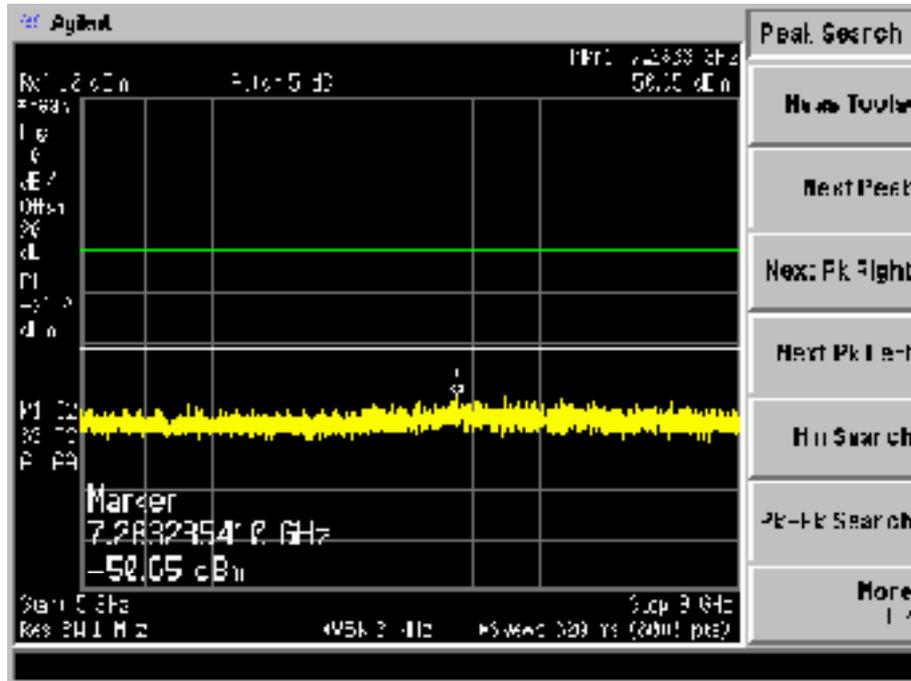
Plot 192 – Channel 1 @ DQPSK 18Mbps



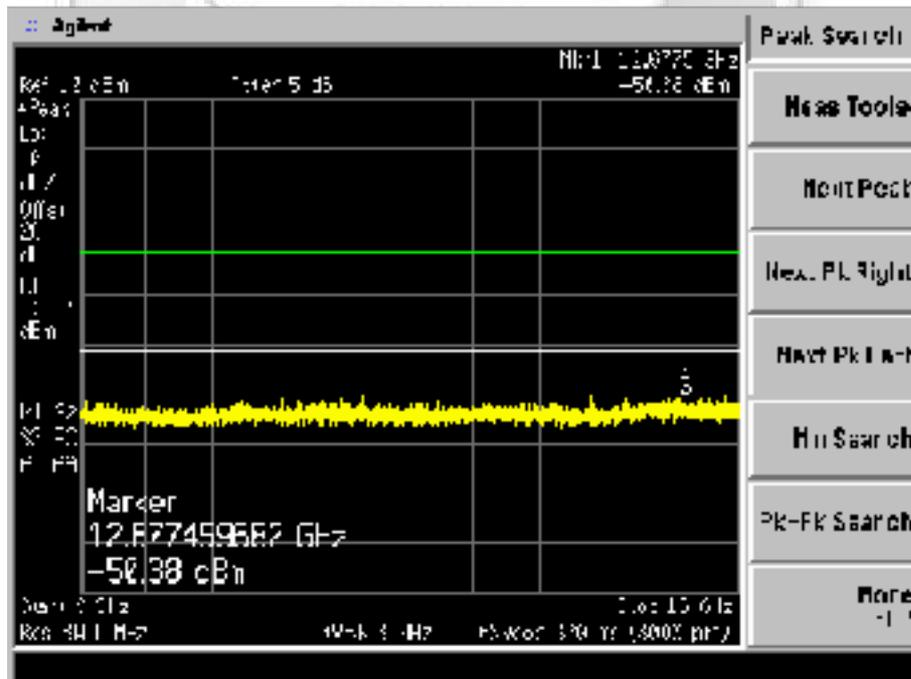
Plot 193 – Channel 1 @ DQPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



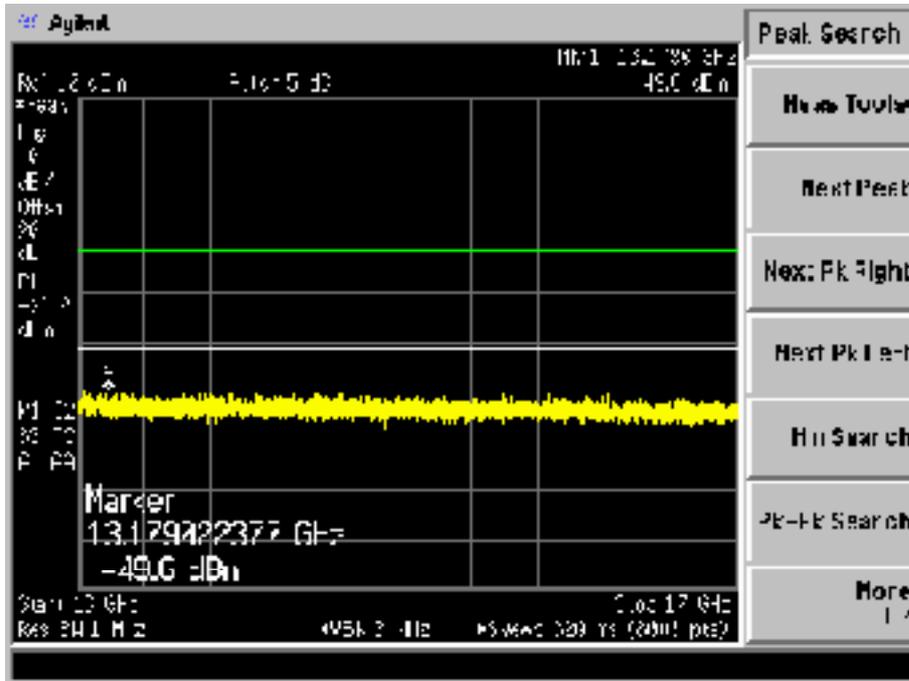
Plot 194 – Channel 1 @ DQPSK 18Mbps



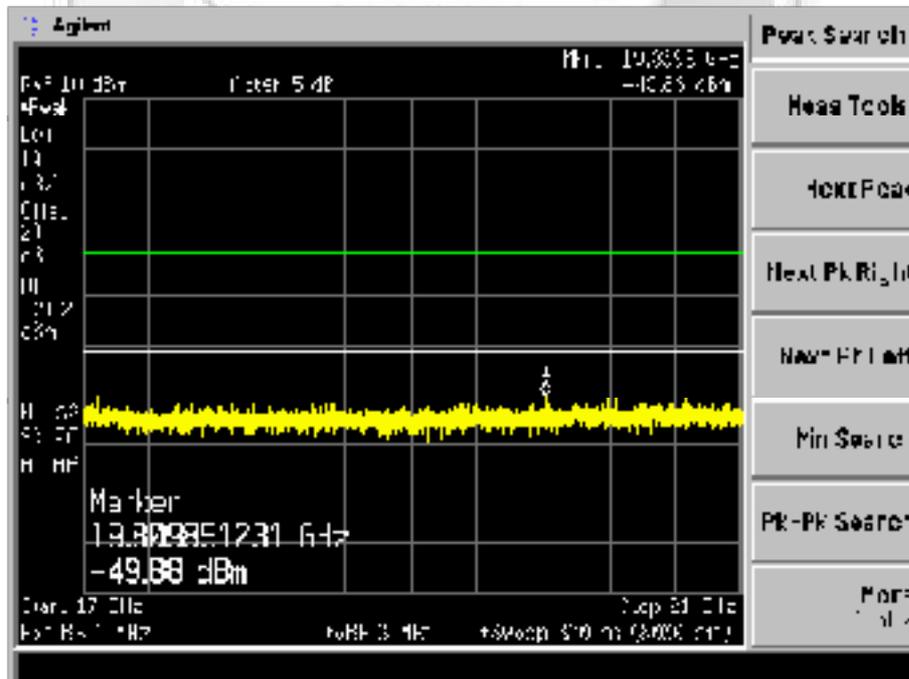
Plot 195 – Channel 1 @ DQPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



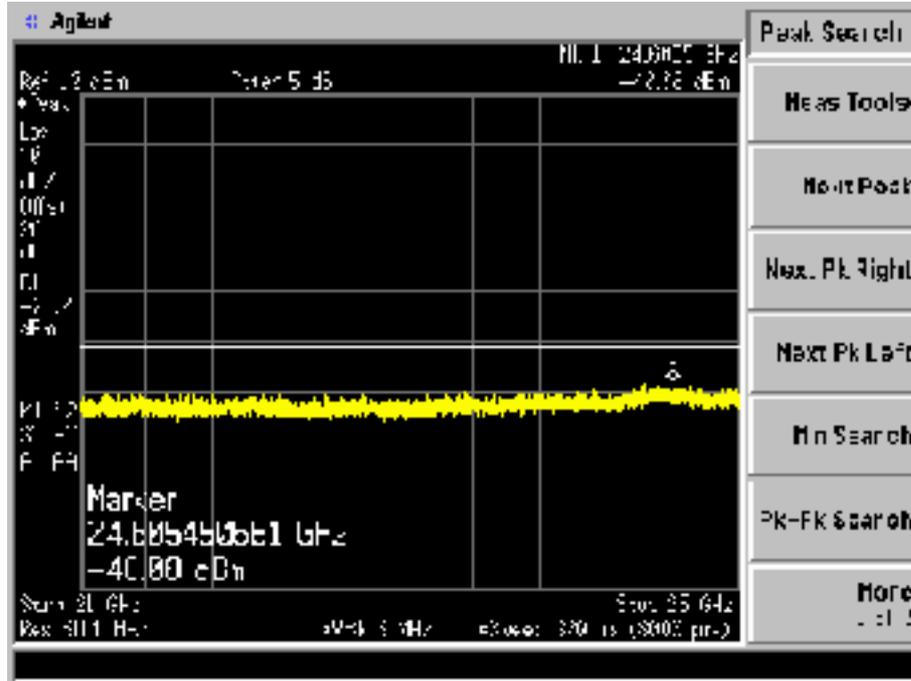
Plot 196 – Channel 1 @ DQPSK 18Mbps



Plot 197 – Channel 1 @ DQPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

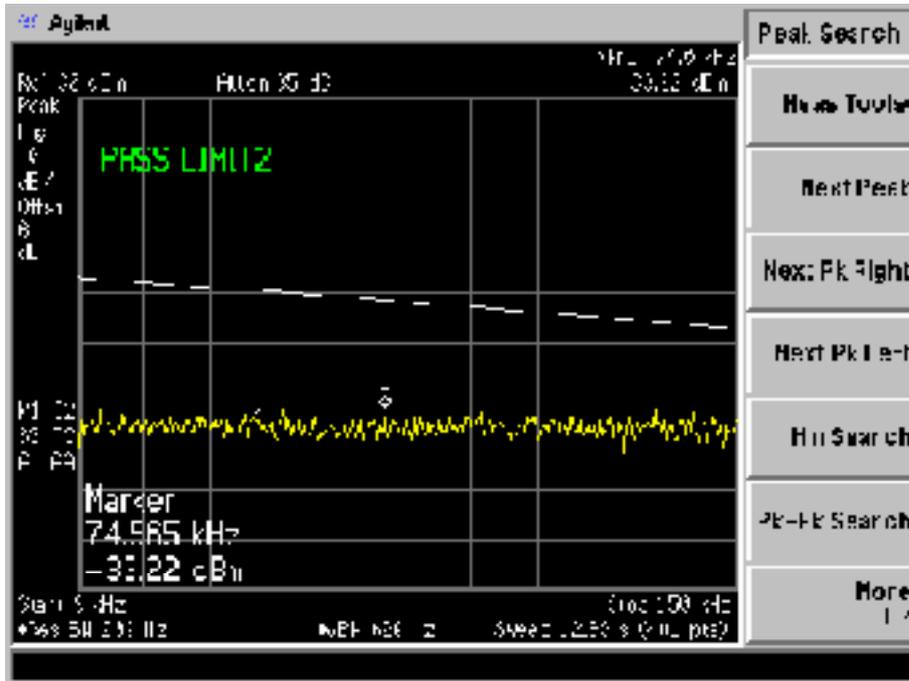


Plot 198 – Channel 1 @ DQPSK 18Mbps

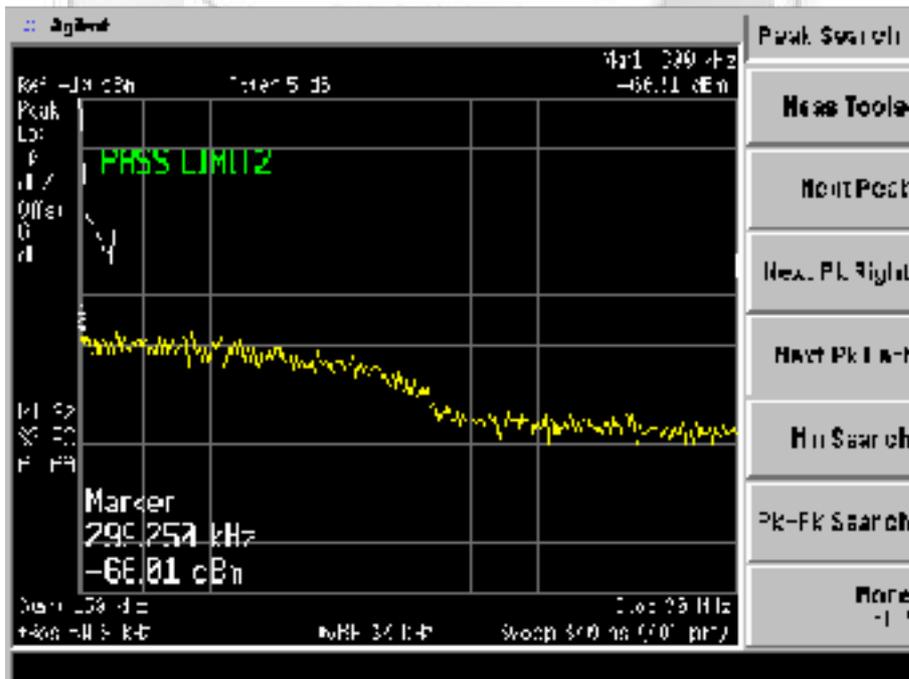


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



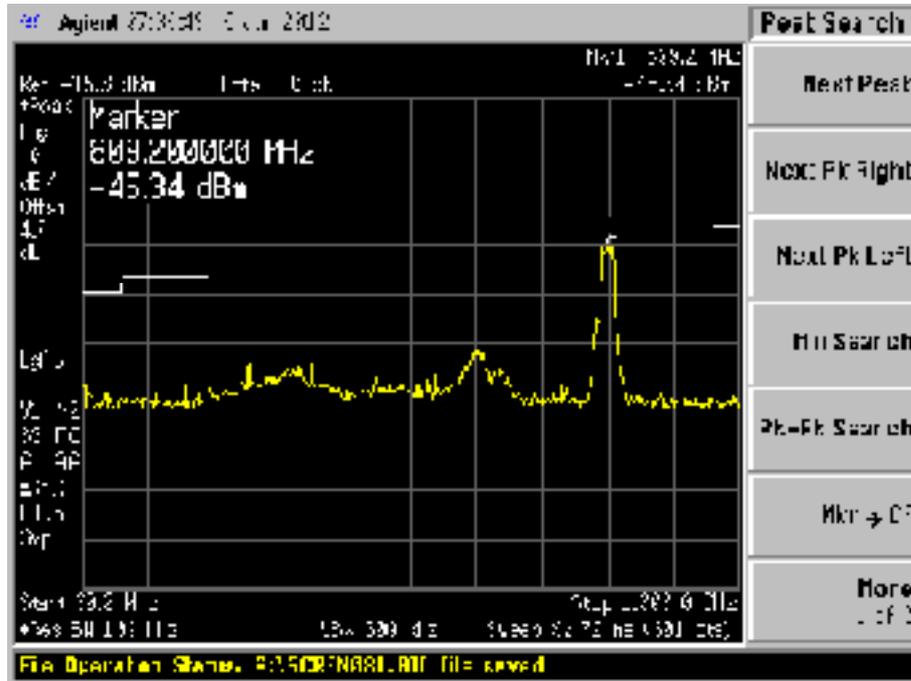
Plot 199 – Channel 1 @ CCK 36Mbps



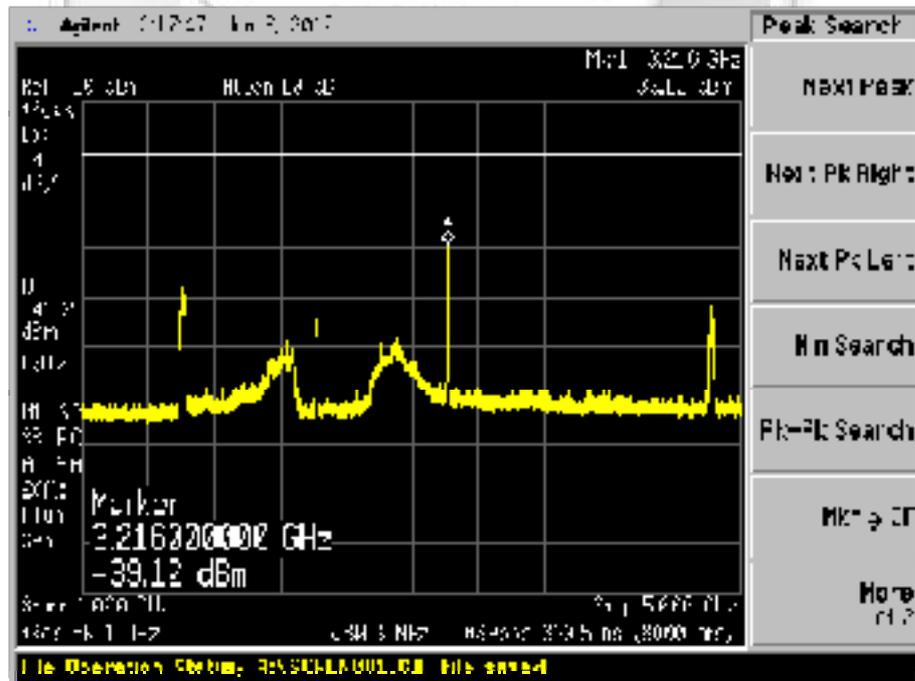
Plot 200 – Channel 1 @ CCK 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



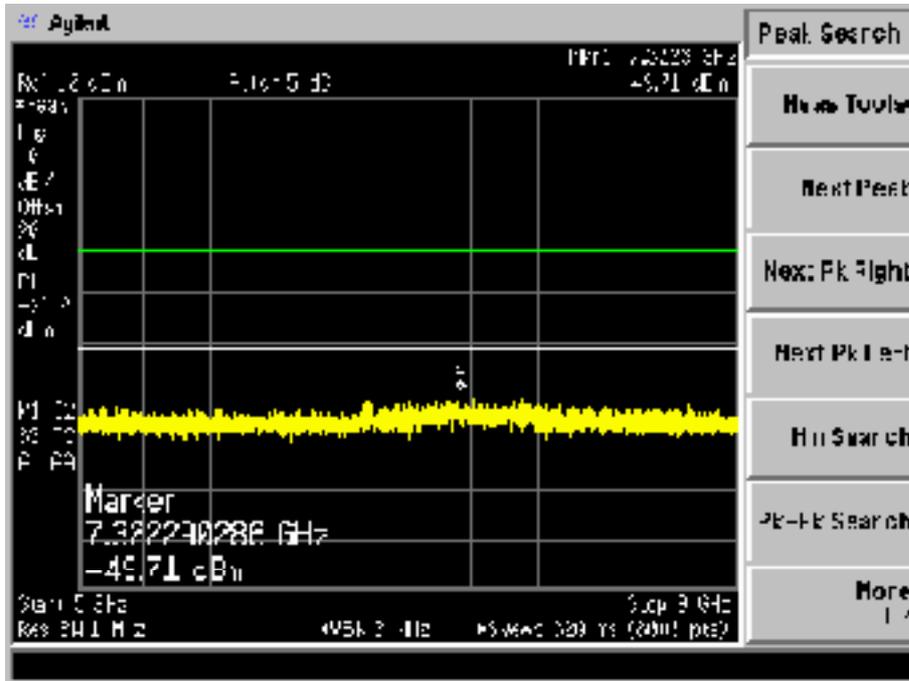
Plot 201 – Channel 1 @ CCK 36Mbps



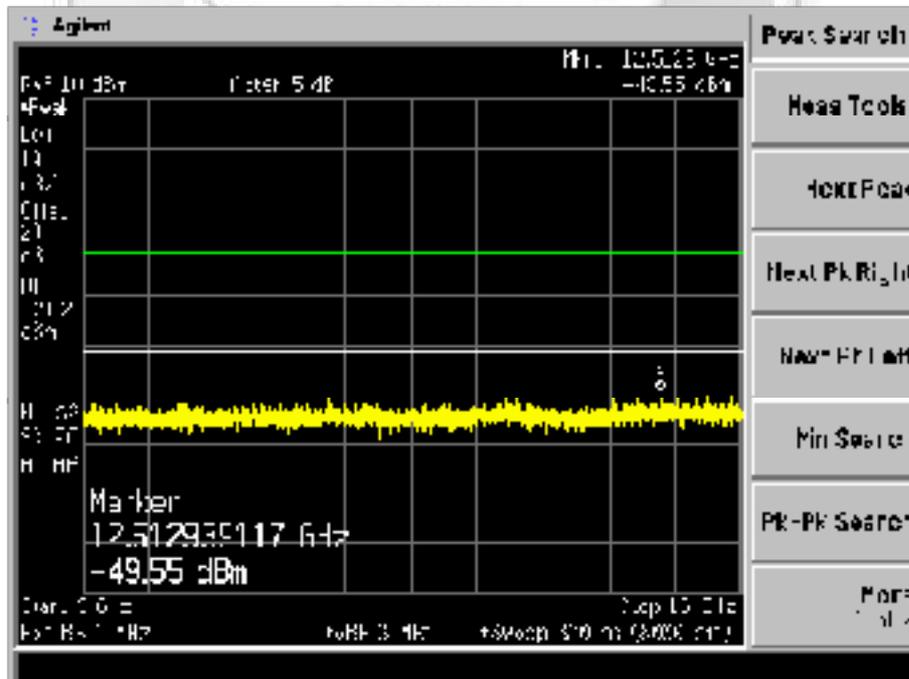
Plot 202 – Channel 1 @ CCK 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



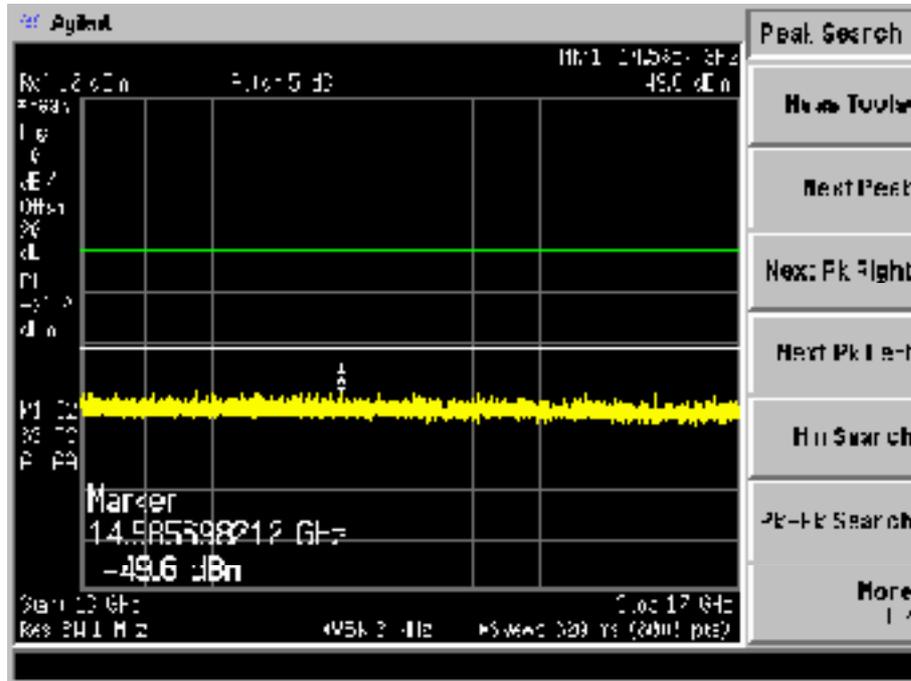
Plot 203 – Channel 1 @ CCK 36Mbps



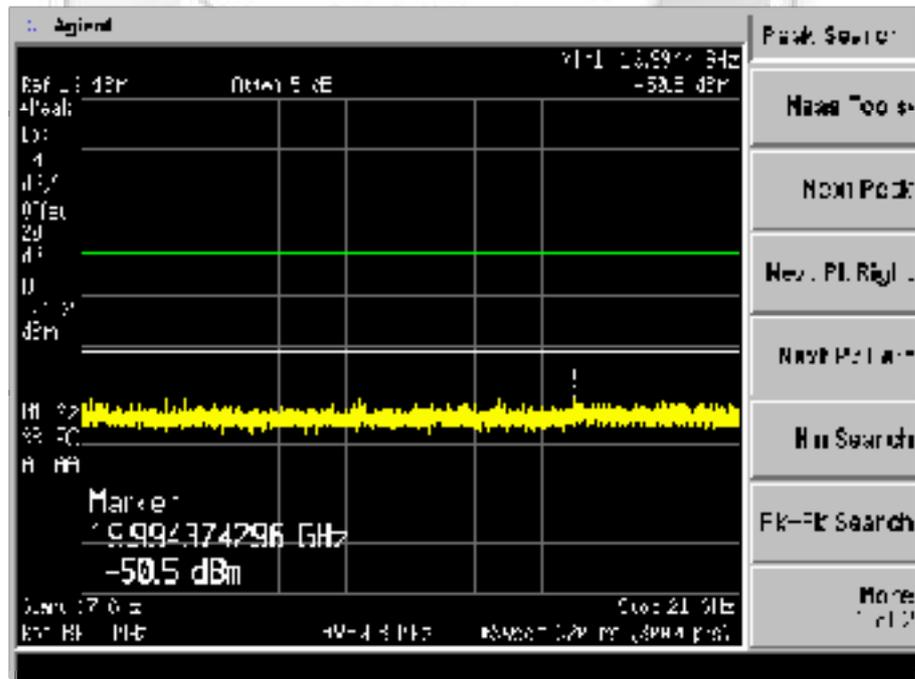
Plot 204 – Channel 1 @ CCK 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



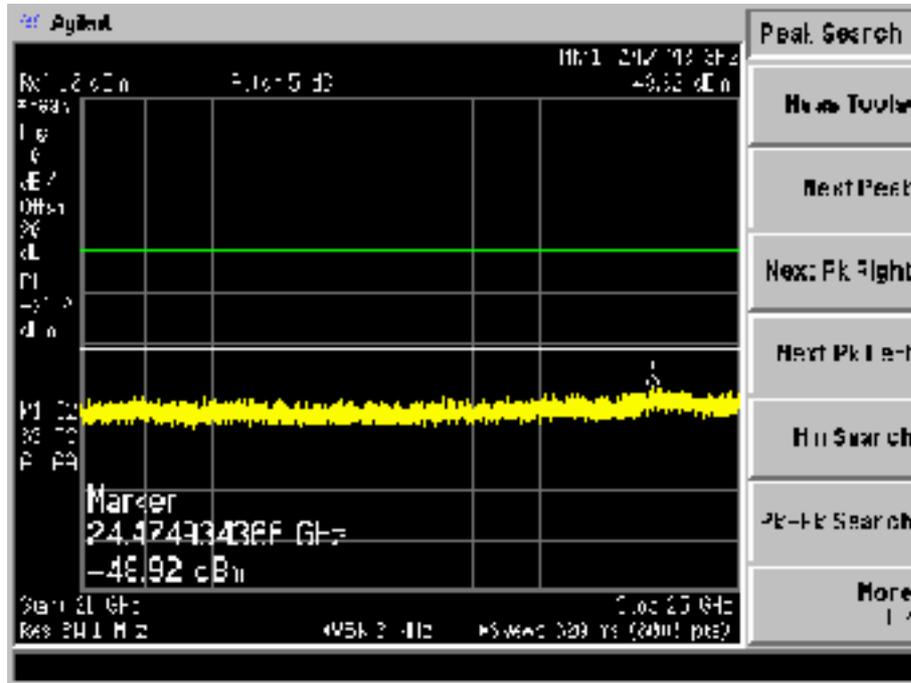
Plot 205 – Channel 1 @ CCK 36Mbps



Plot 206 – Channel 1 @ CCK 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

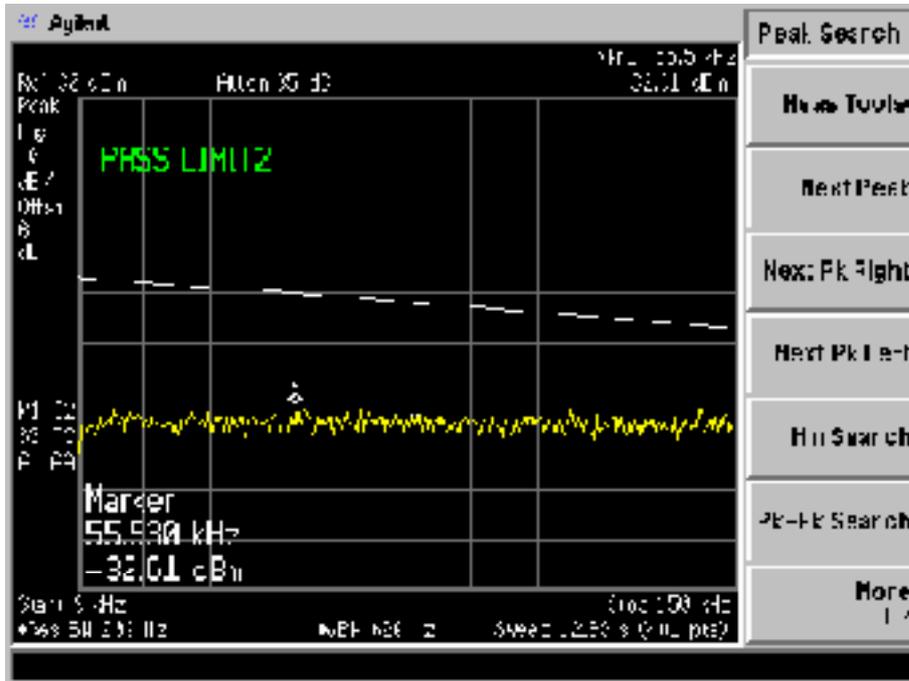


Plot 207 – Channel 1 @ CCK 36Mbps

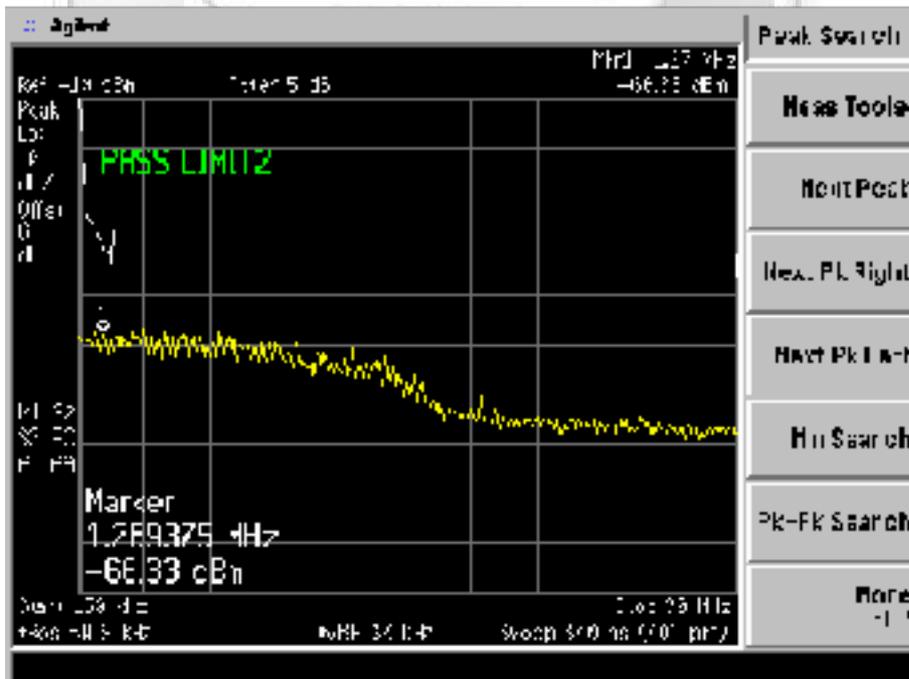


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



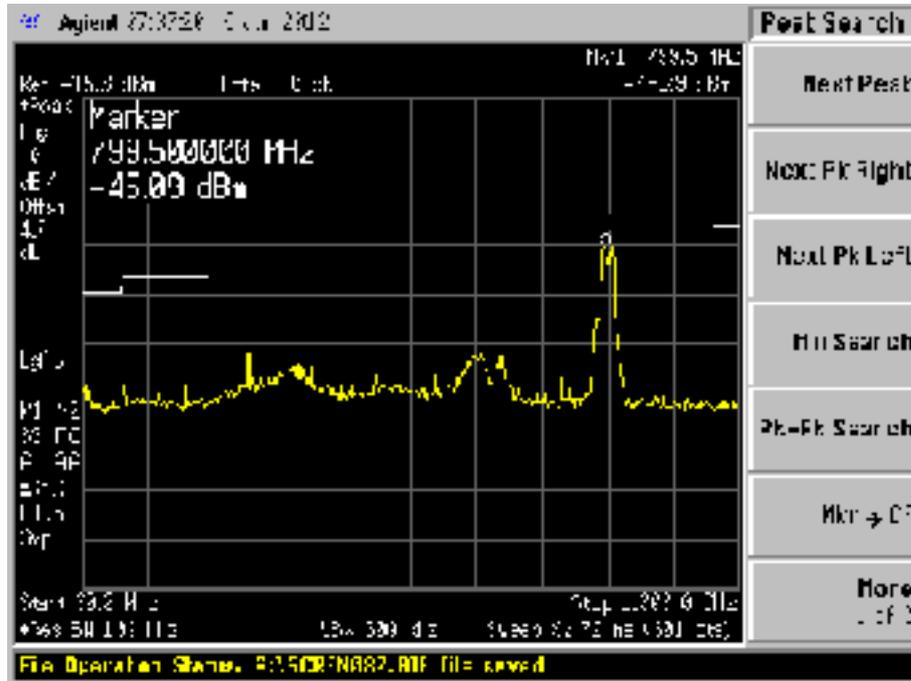
Plot 208 – Channel 1 @ CCK 54Mbps



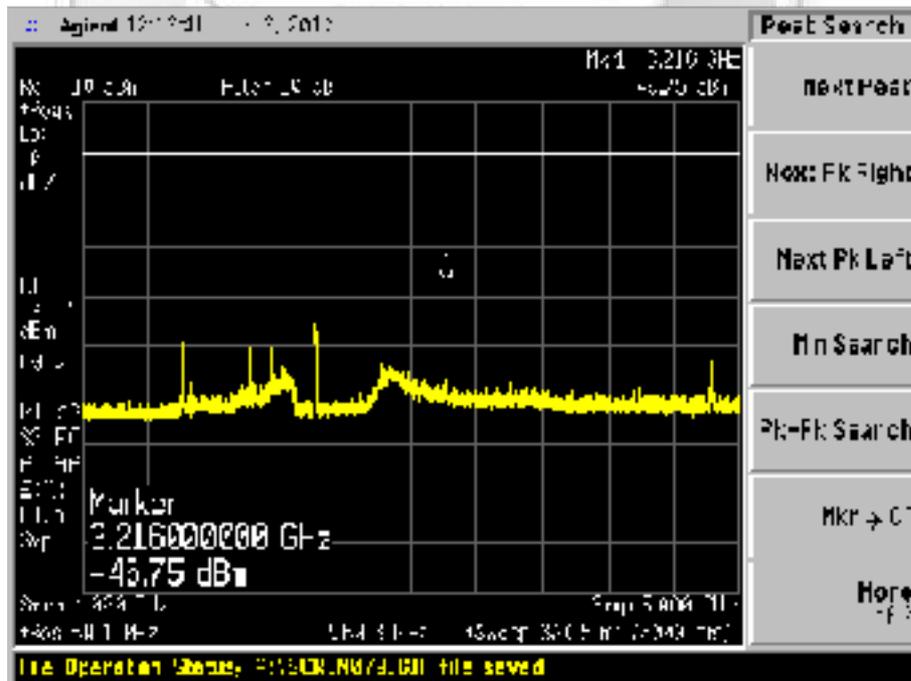
Plot 209 – Channel 1 @ CCK 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



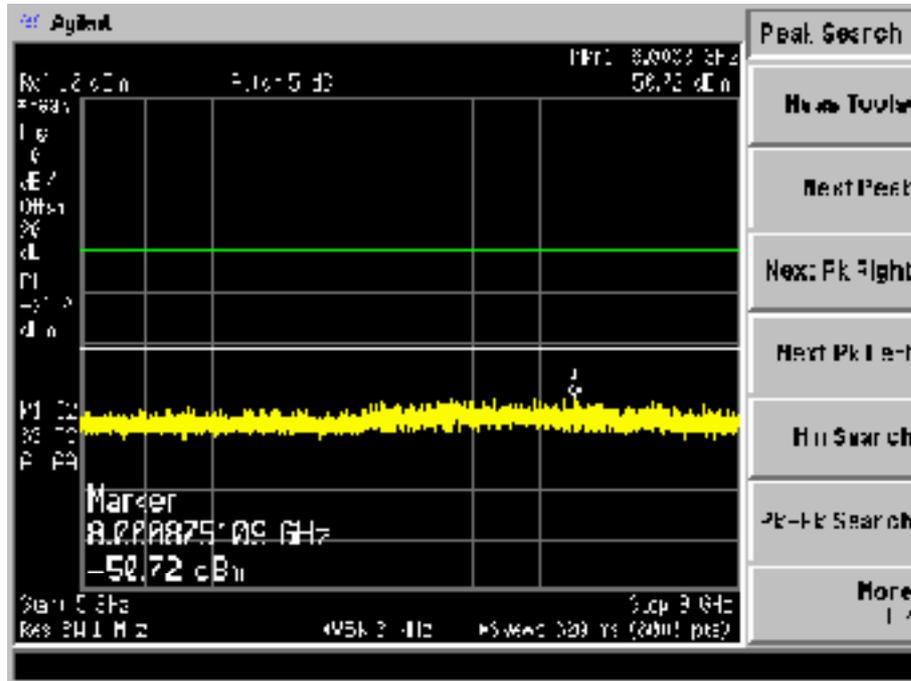
Plot 210 – Channel 1 @ CCK 54Mbps



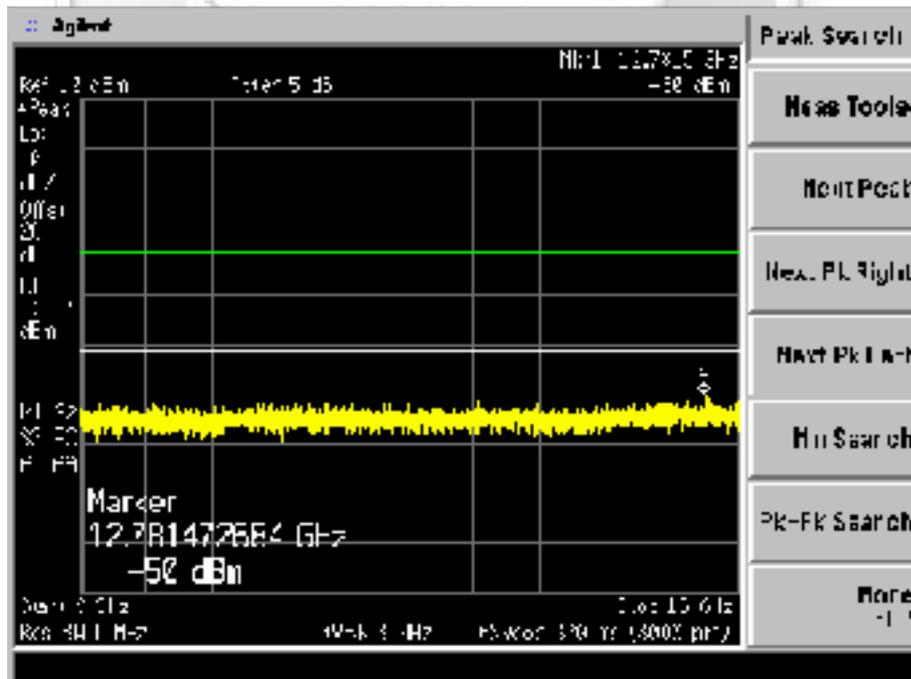
Plot 211 – Channel 1 @ CCK 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



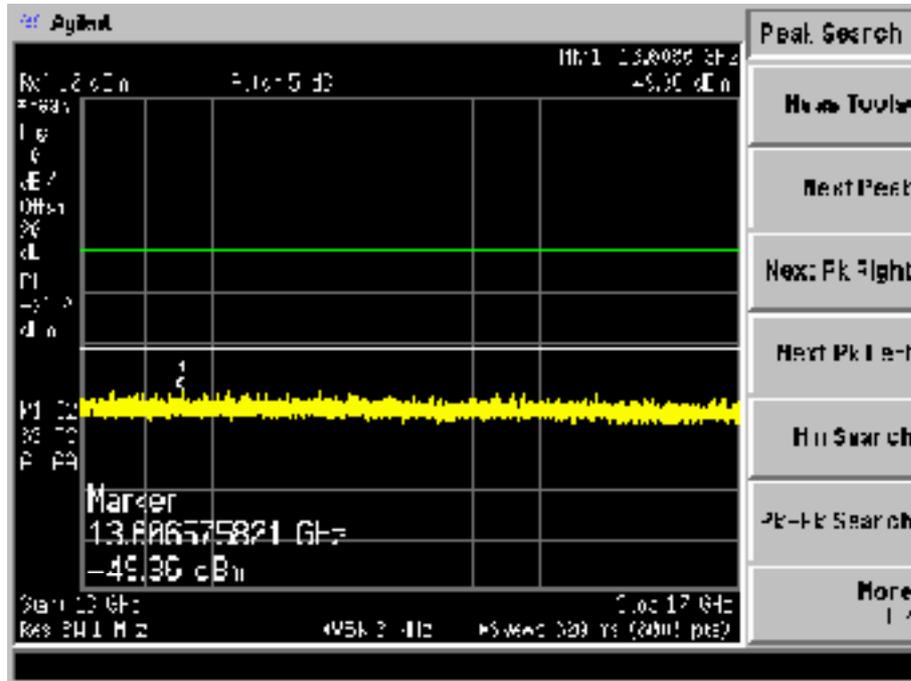
Plot 212 – Channel 1 @ CCK 54Mbps



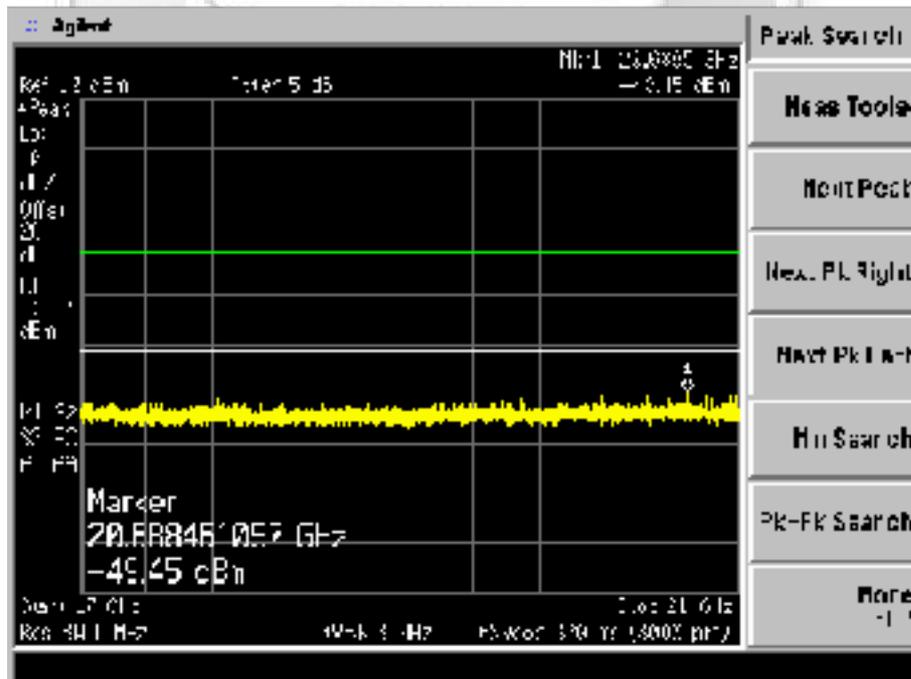
Plot 213 – Channel 1 @ CCK 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



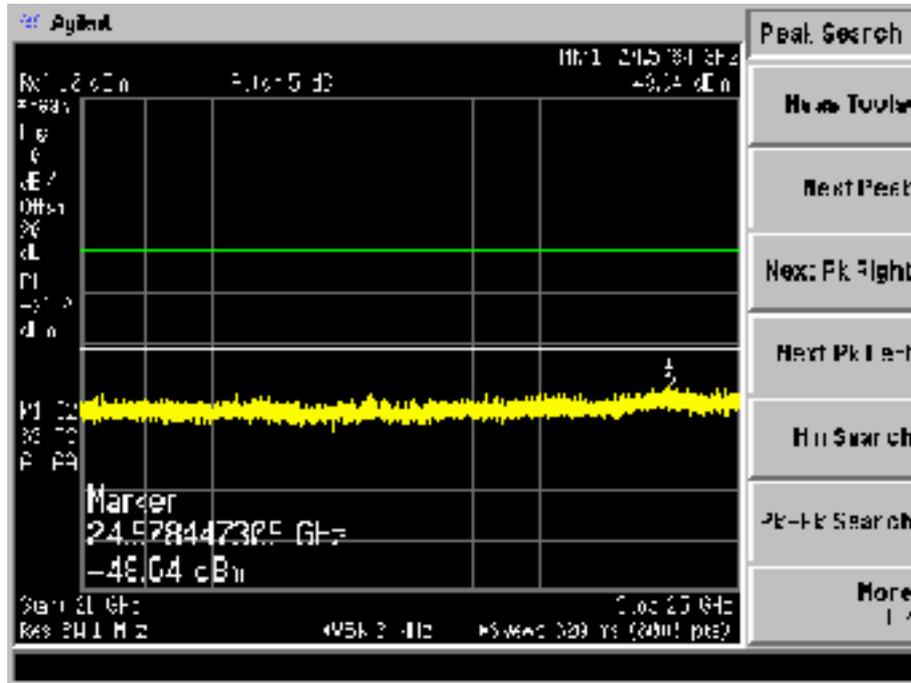
Plot 214 – Channel 1 @ CCK 54Mbps



Plot 215 – Channel 1 @ CCK 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

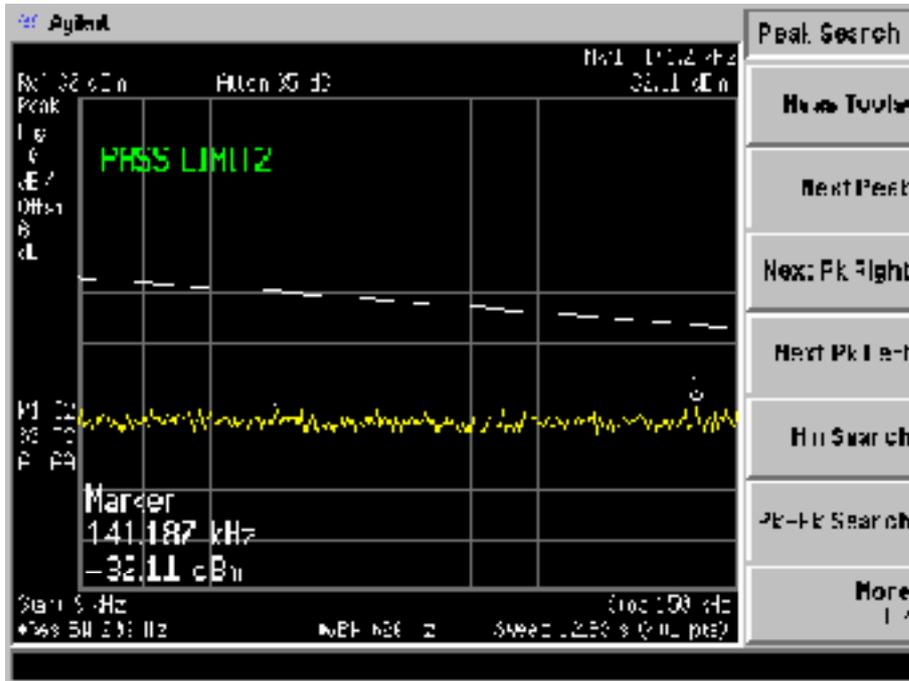


Plot 216 - Channel 1 @ CCK 54Mbps

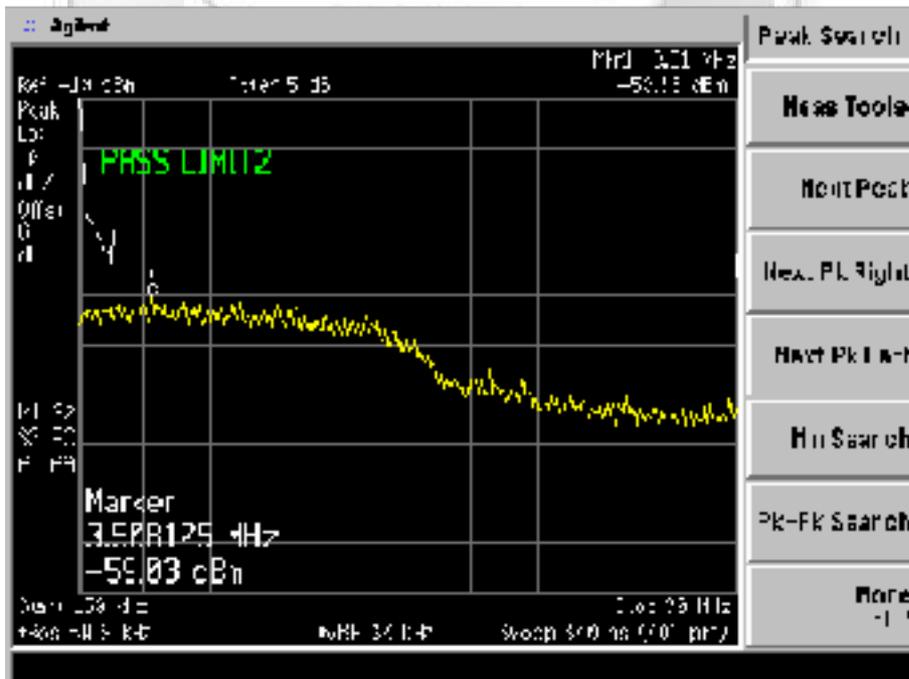


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



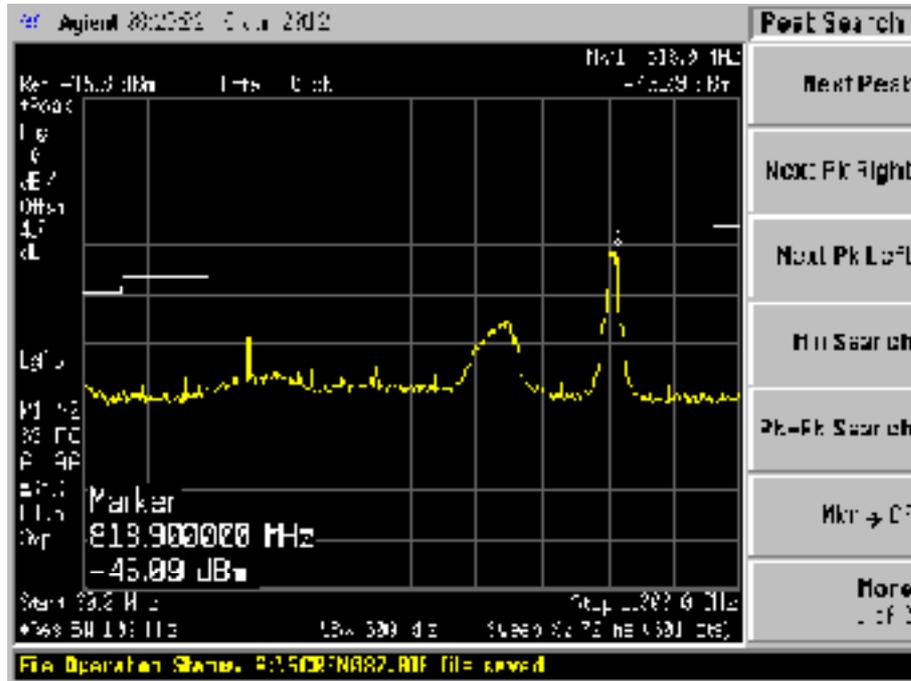
Plot 217 – Channel 6 @ DBP SK 9Mbps



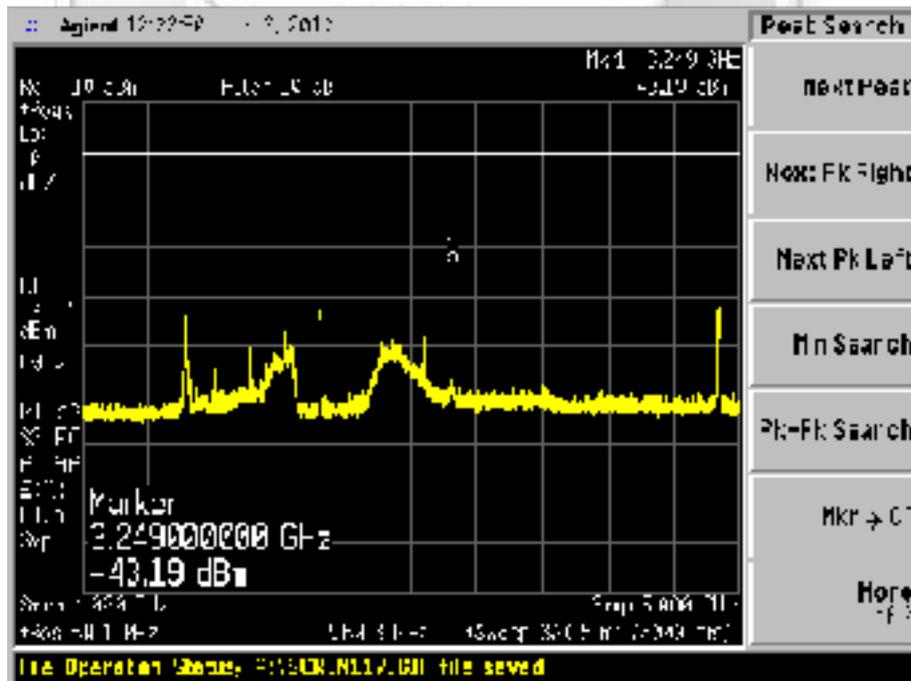
Plot 218 – Channel 6 @ DBP SK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



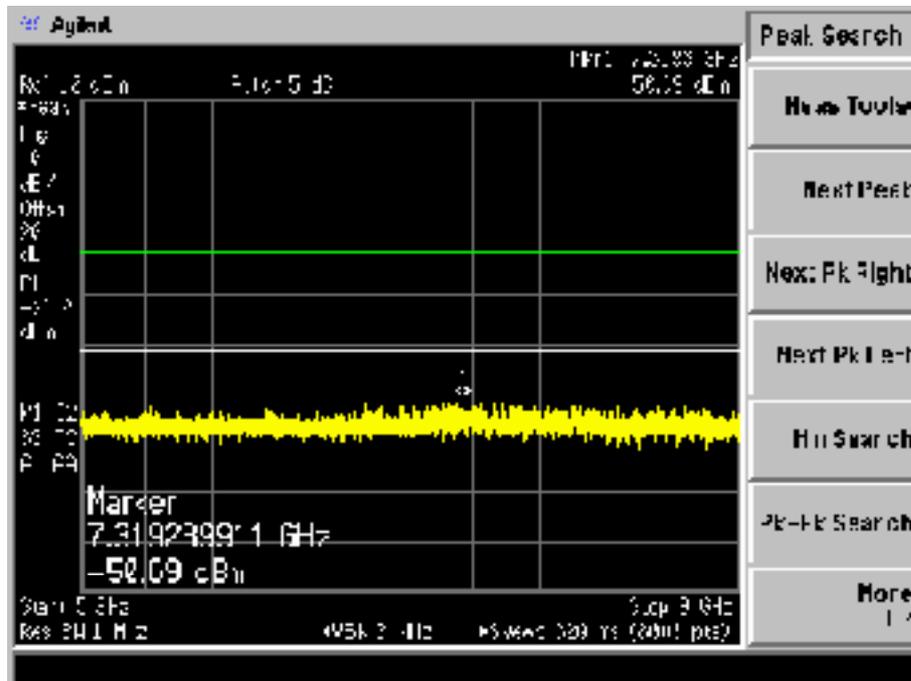
Plot 219 – Channel 6 @ DBPSK 9Mbps



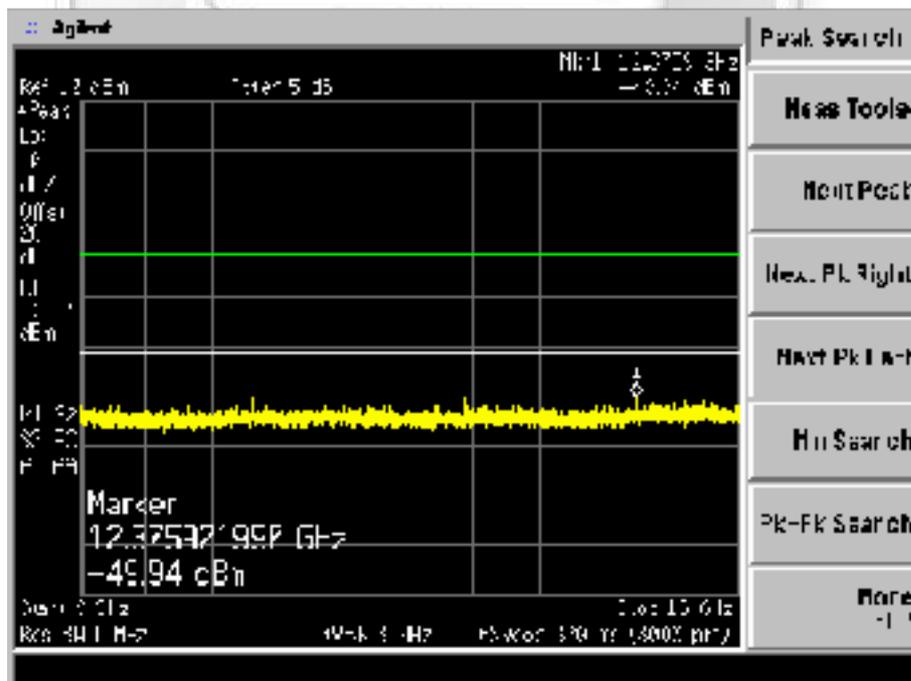
Plot 220 – Channel 6 @ DBPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



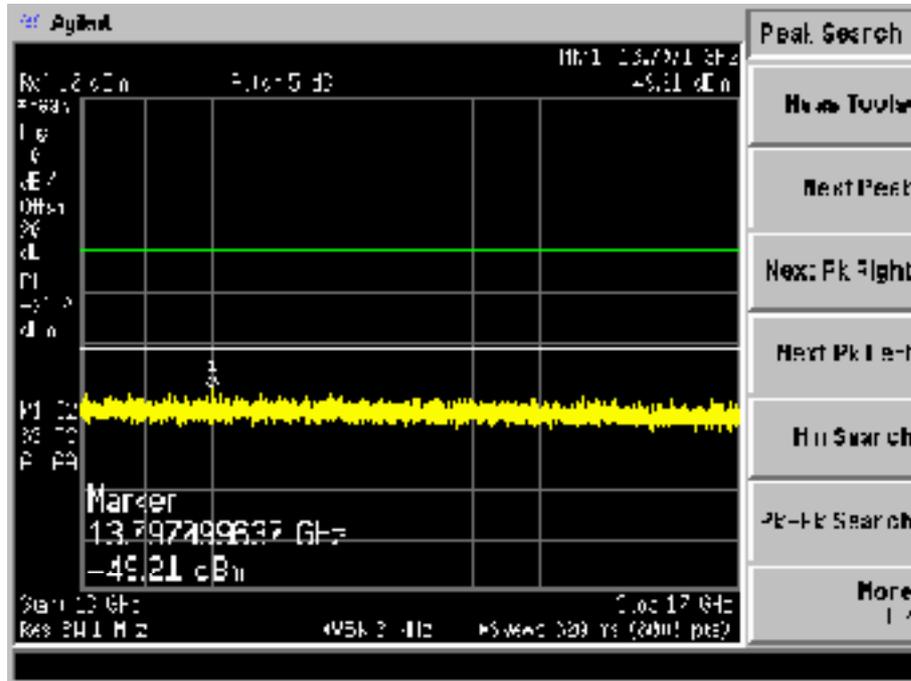
Plot 221 - Channel 6 @ DBPSK 9Mbps



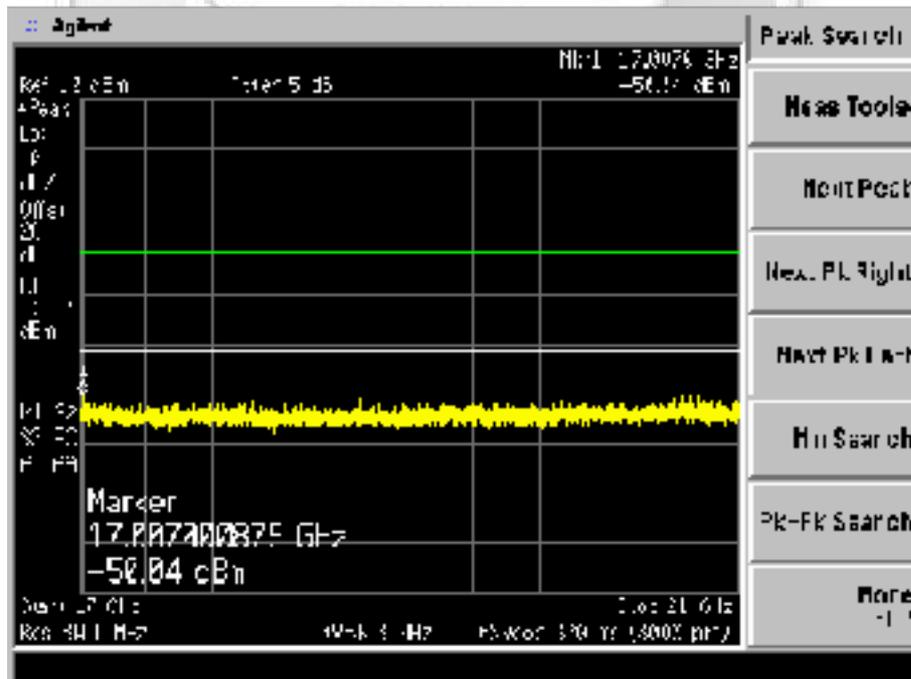
Plot 222 - Channel 6 @ DBPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



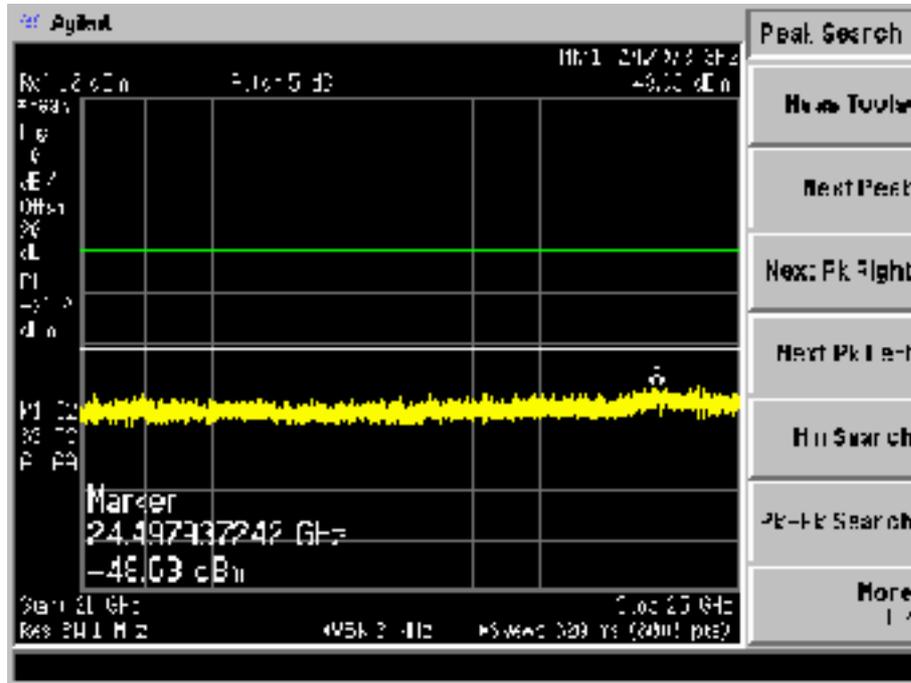
Plot 223 – Channel 6 @ DBPSK 9Mbps



Plot 224 – Channel 6 @ DBPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

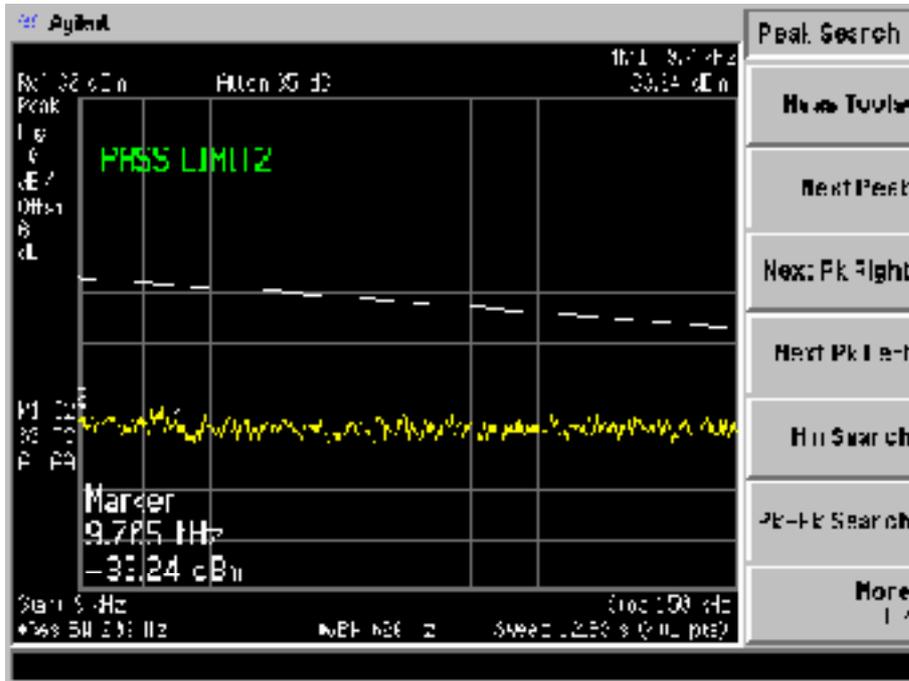


Plot 225 - Channel 6 @ DBPSK 9Mbps

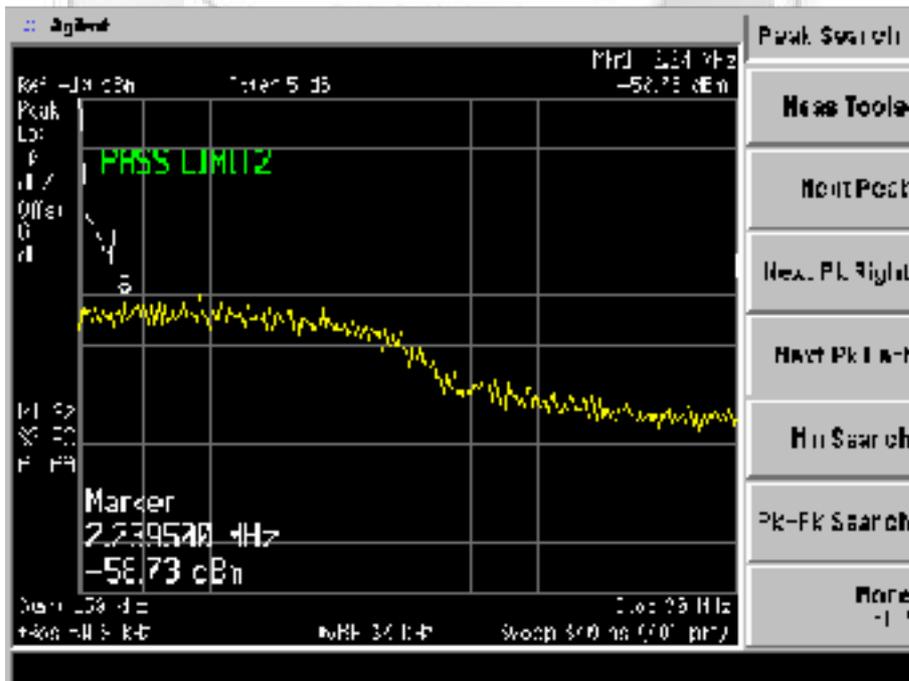


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



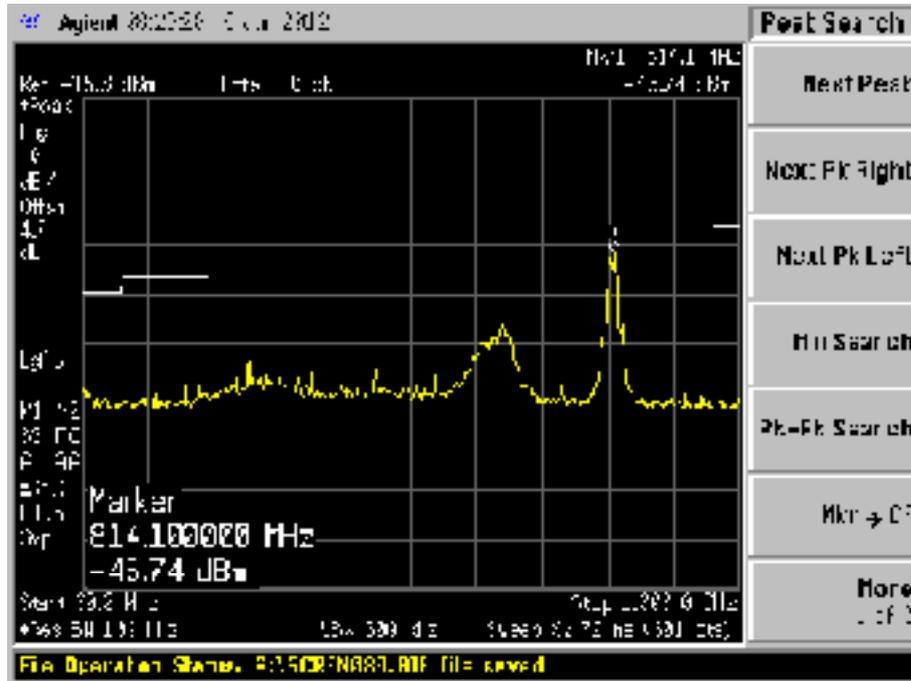
Plot 226 – Channel 6 @ DQPSK 18Mbps



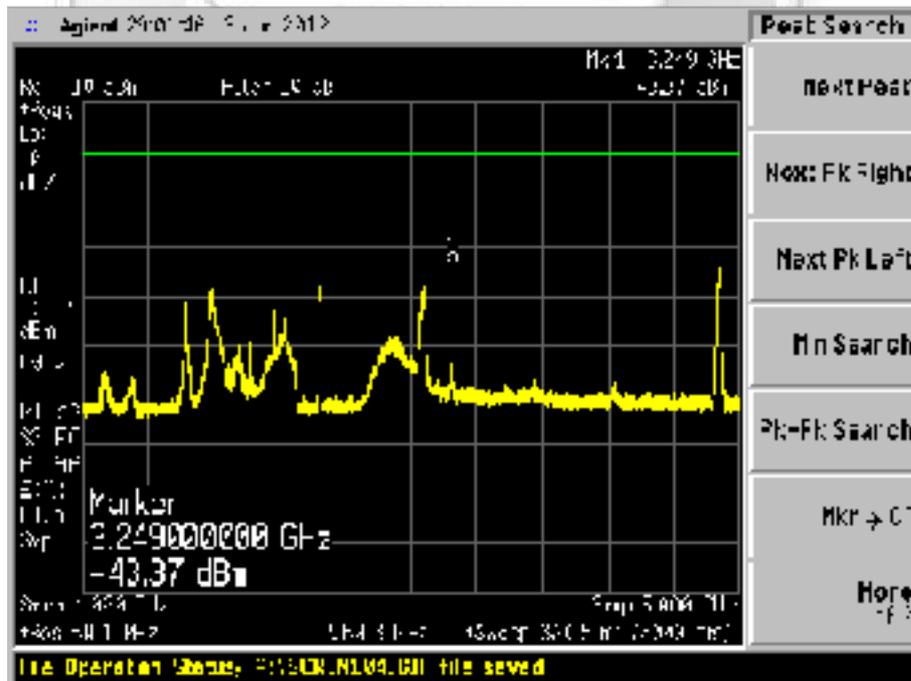
Plot 227 – Channel 6 @ DQPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



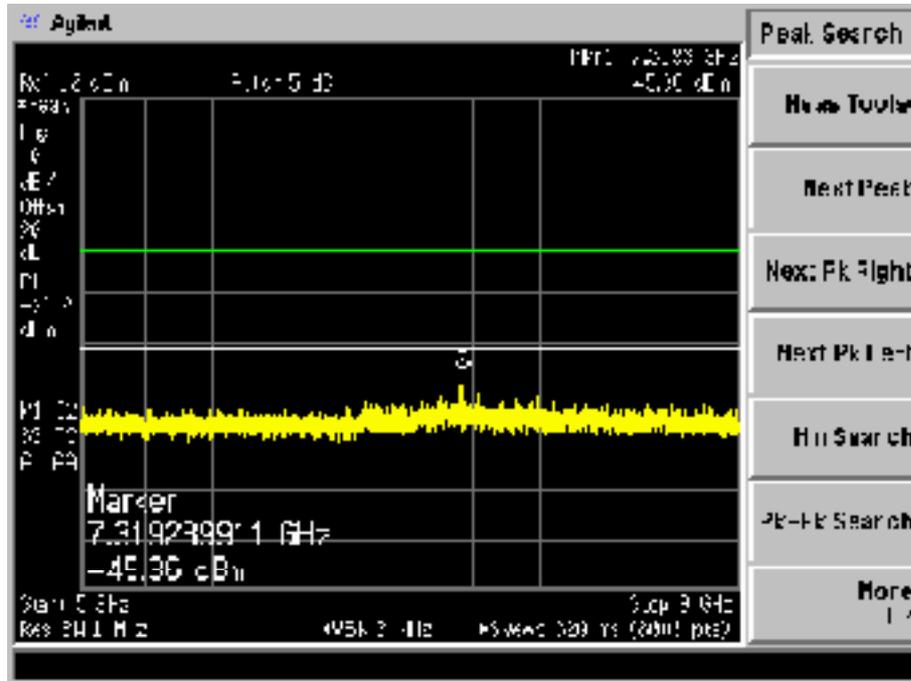
Plot 228 – Channel 6 @ DQPSK 18Mbps



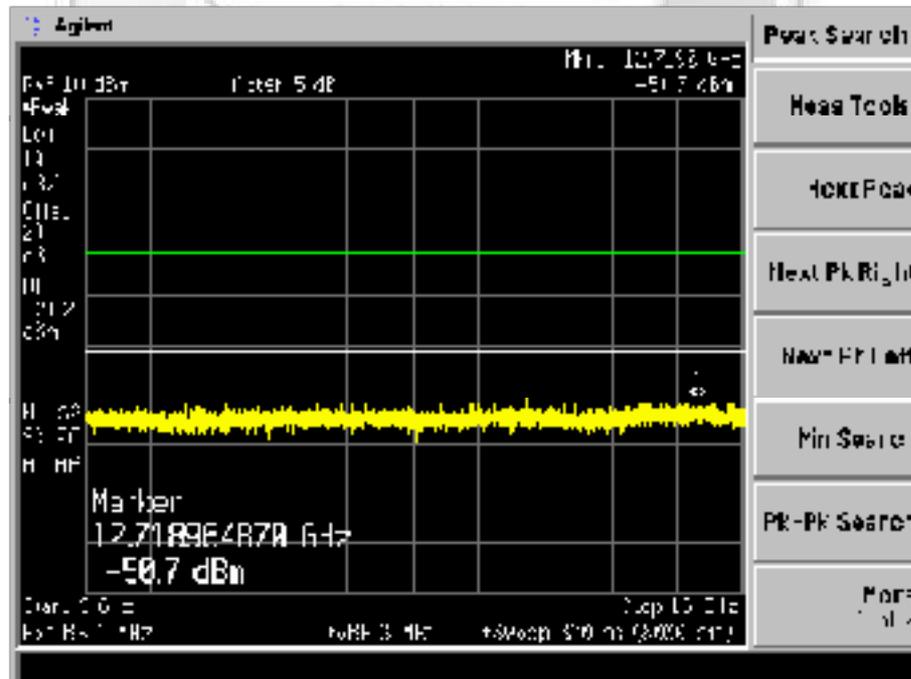
Plot 229 – Channel 6 @ DQPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



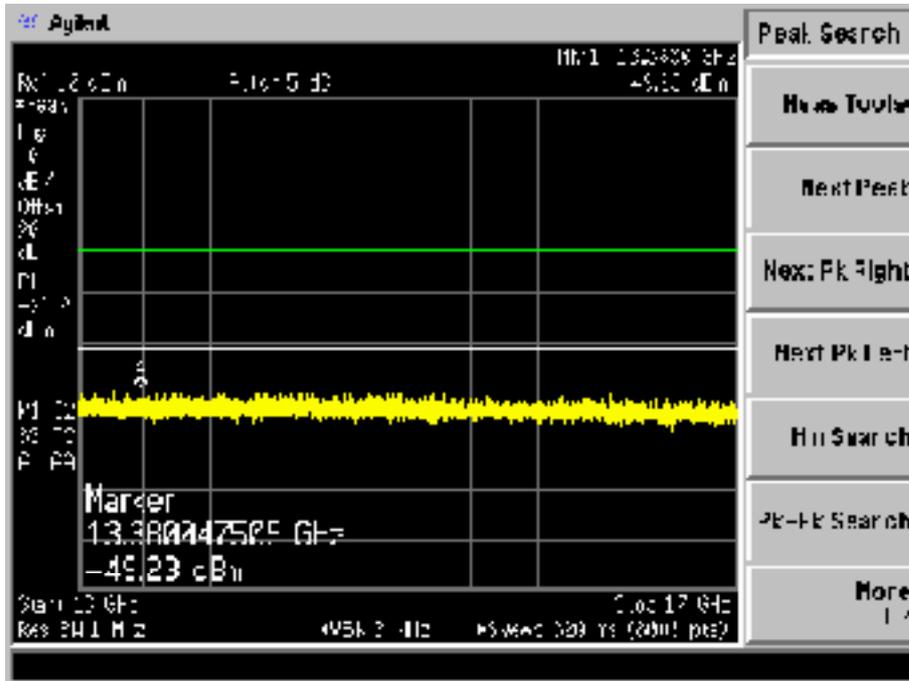
Plot 230 – Channel 6 @ DQPSK 18Mbps



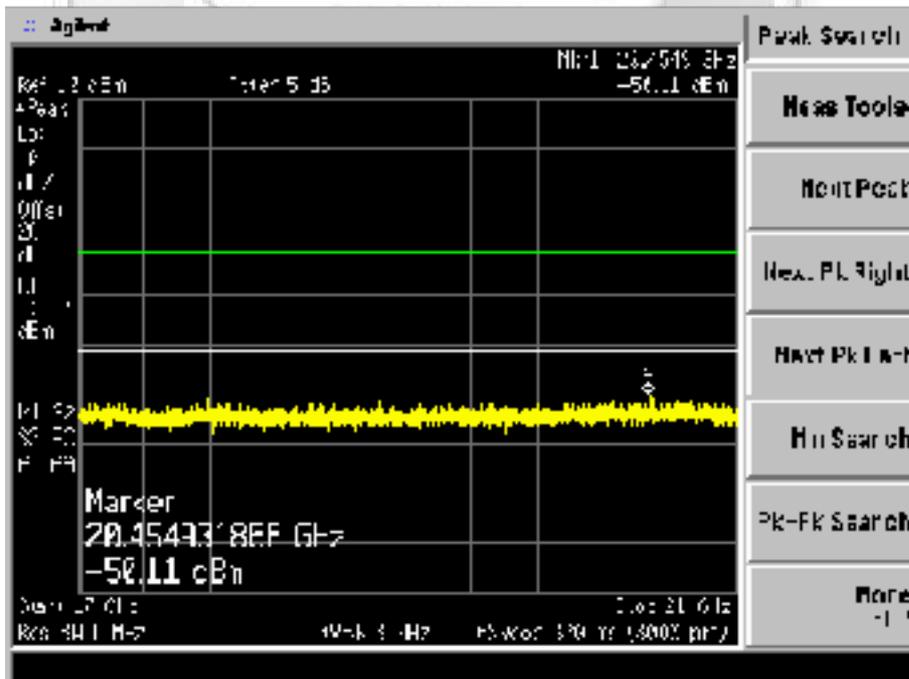
Plot 231 – Channel 6 @ DQPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



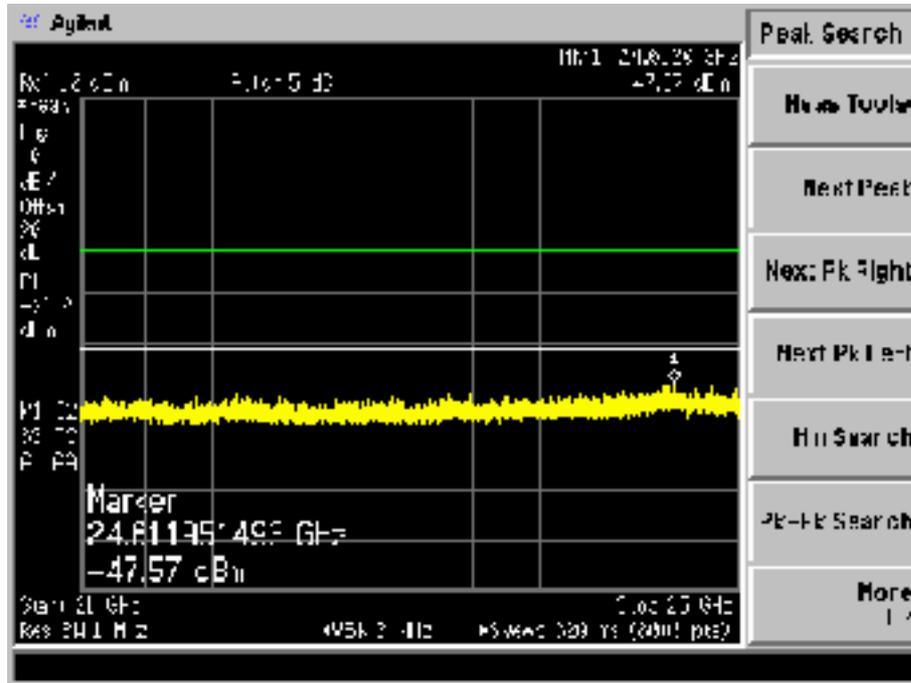
Plot 232 – Channel 6 @ DQPSK 18Mbps



Plot 233 – Channel 6 @ DQPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

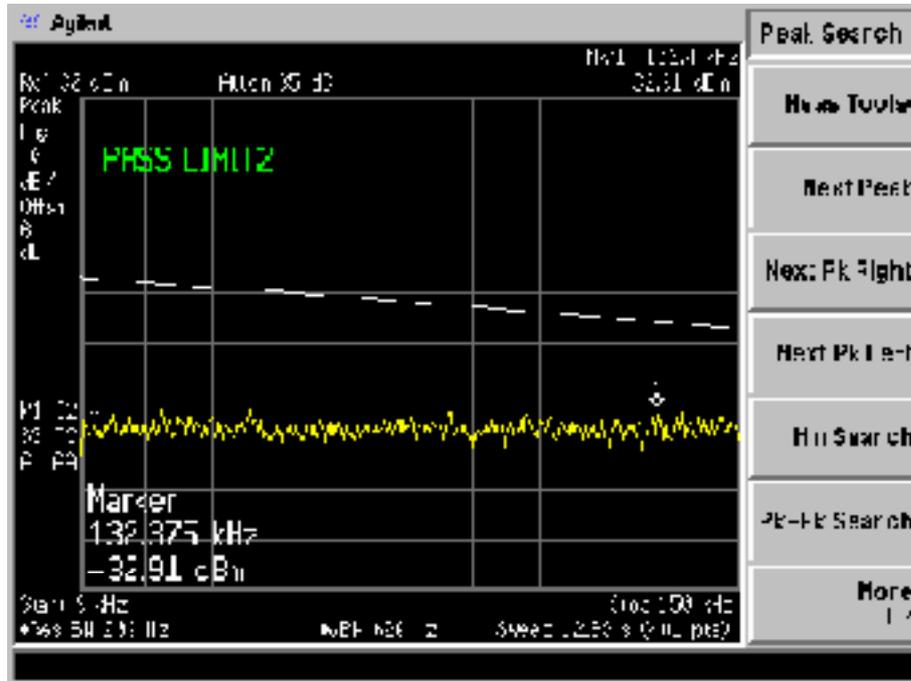


Plot 234 – Channel 6 @ DQPSK 18Mbps

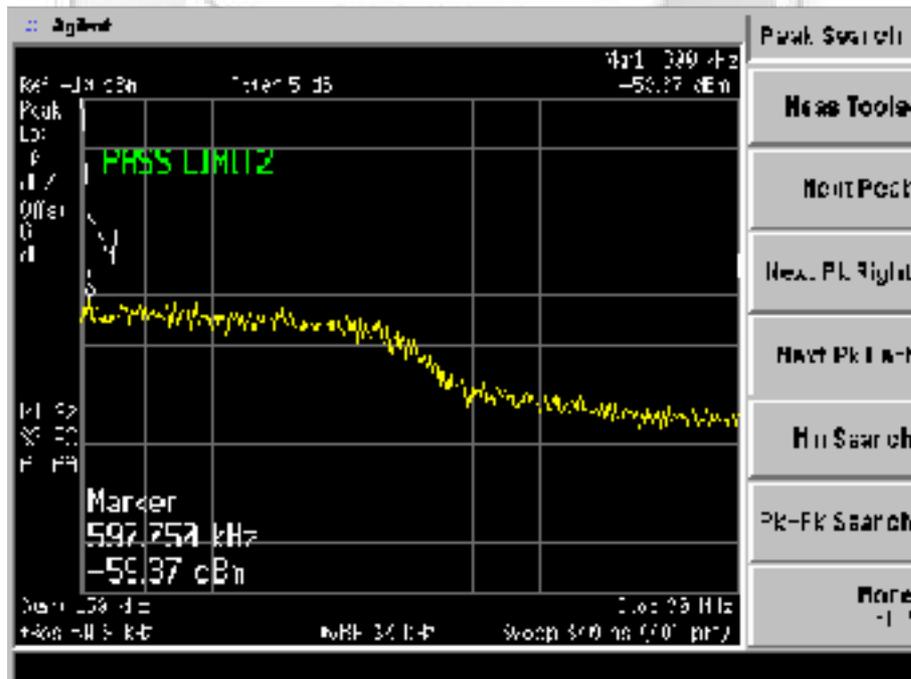


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



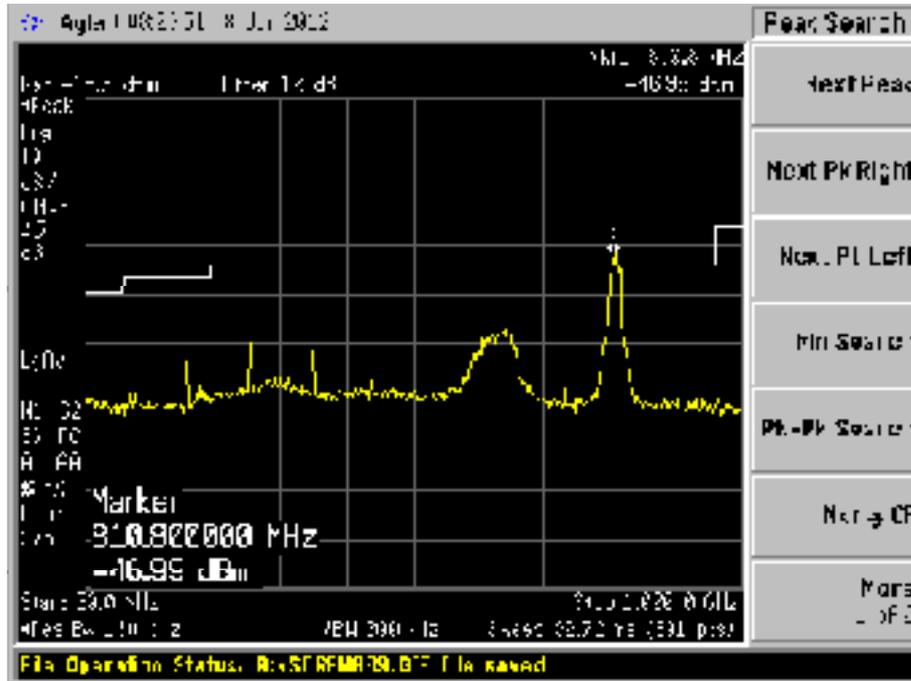
Plot 235 – Channel 6 @ CCK 36Mbps



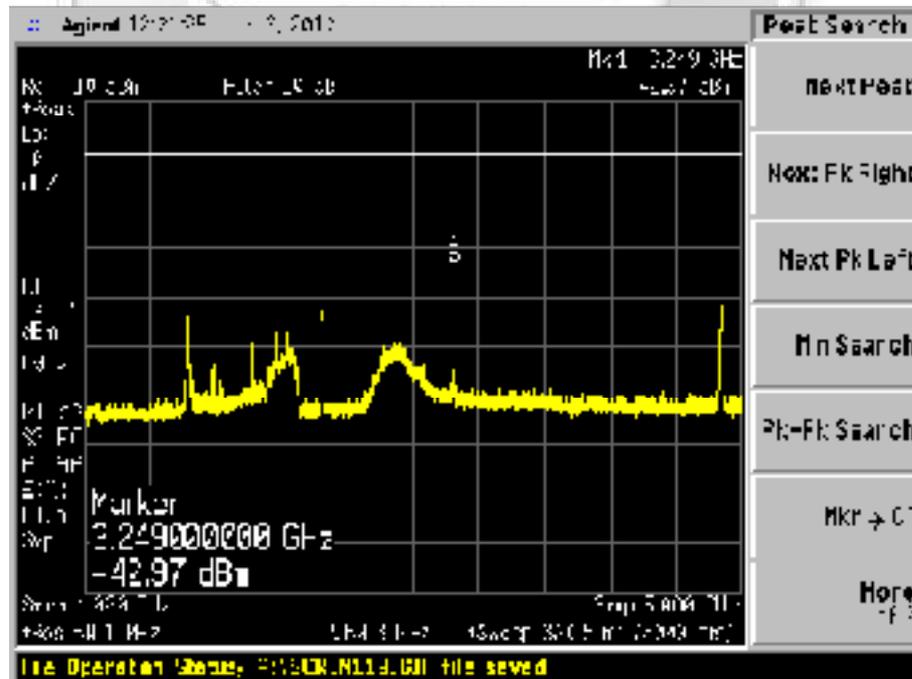
Plot 236 – Channel 6 @ CCK 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



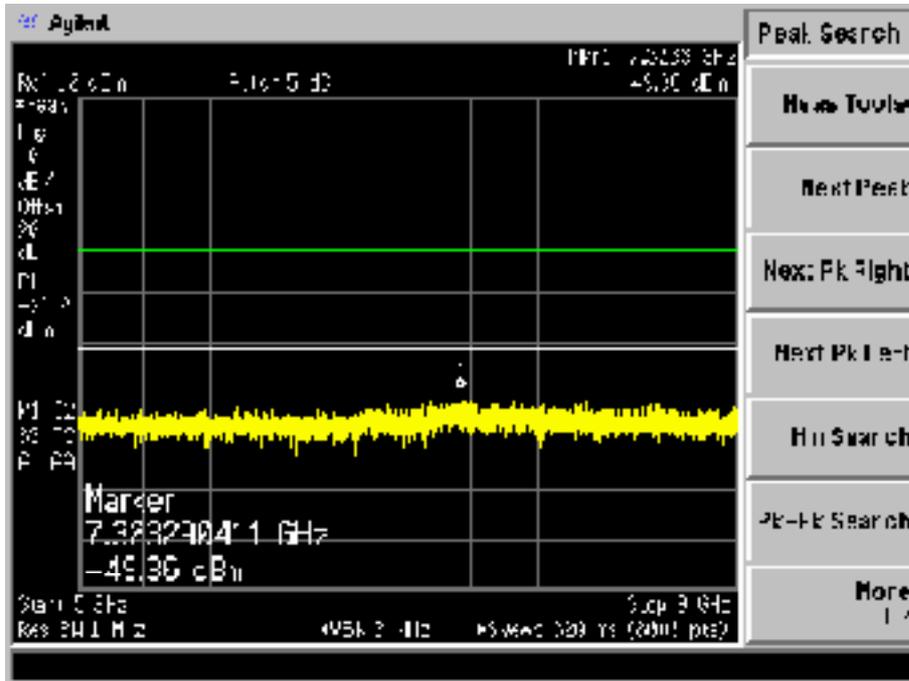
Plot 237 – Channel 6 @ CCK 36Mbps



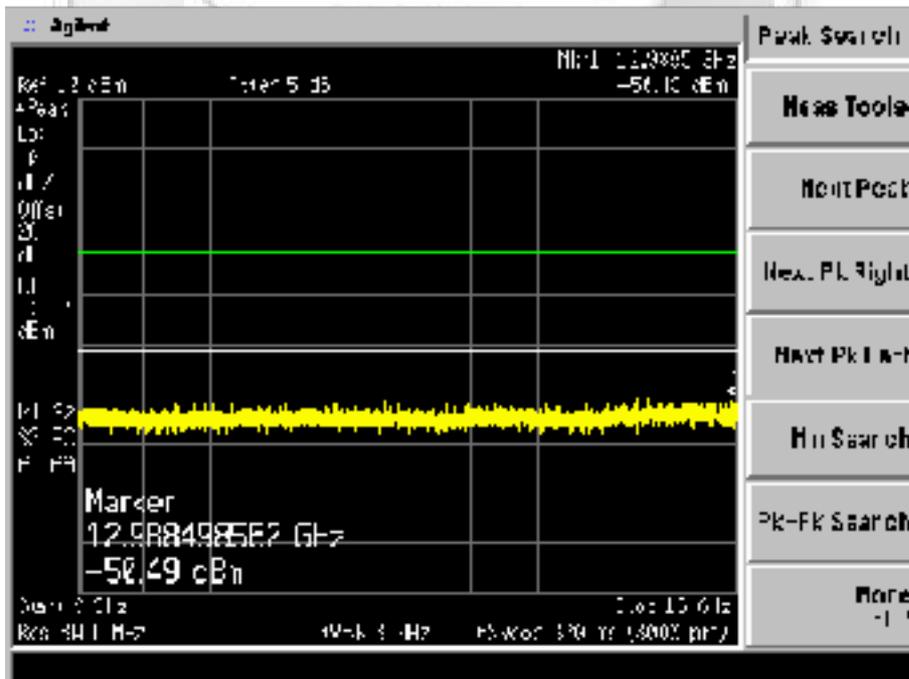
Plot 238 – Channel 6 @ CCK 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



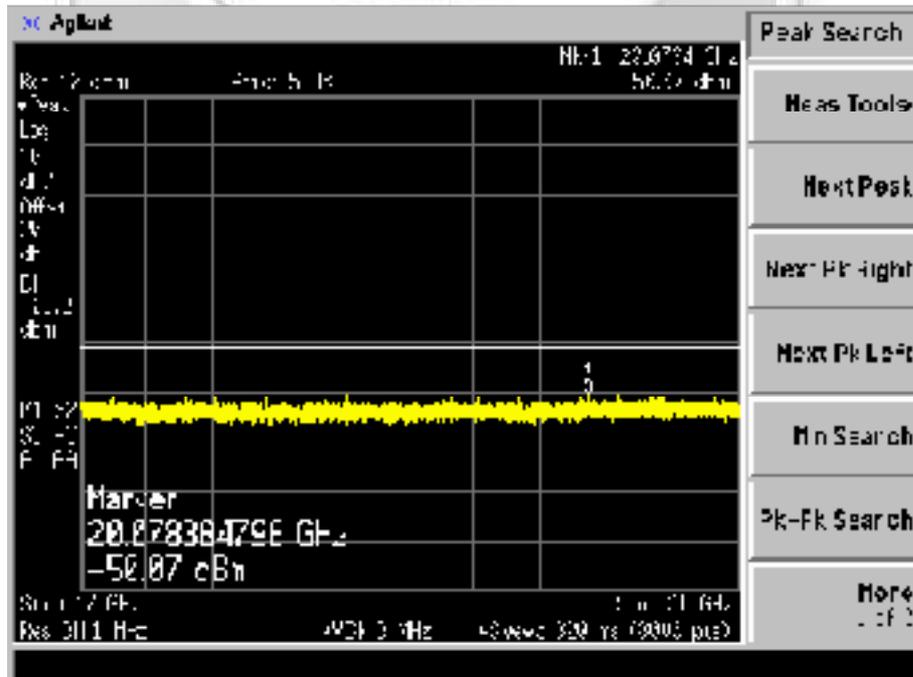
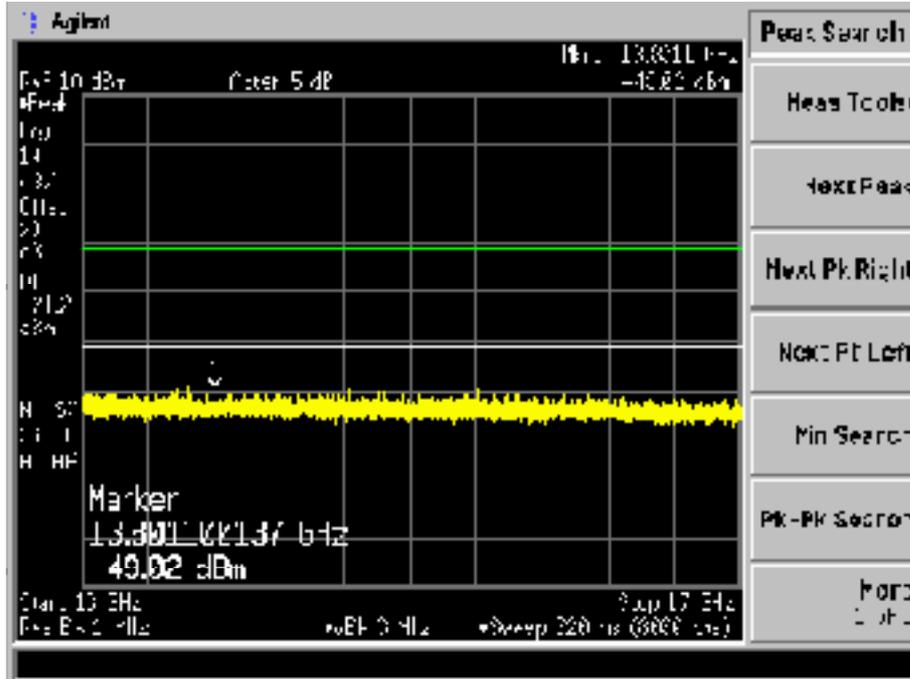
Plot 239 – Channel 6 @ CCK 36Mbps



Plot 240 – Channel 6 @ CCK 36Mbps

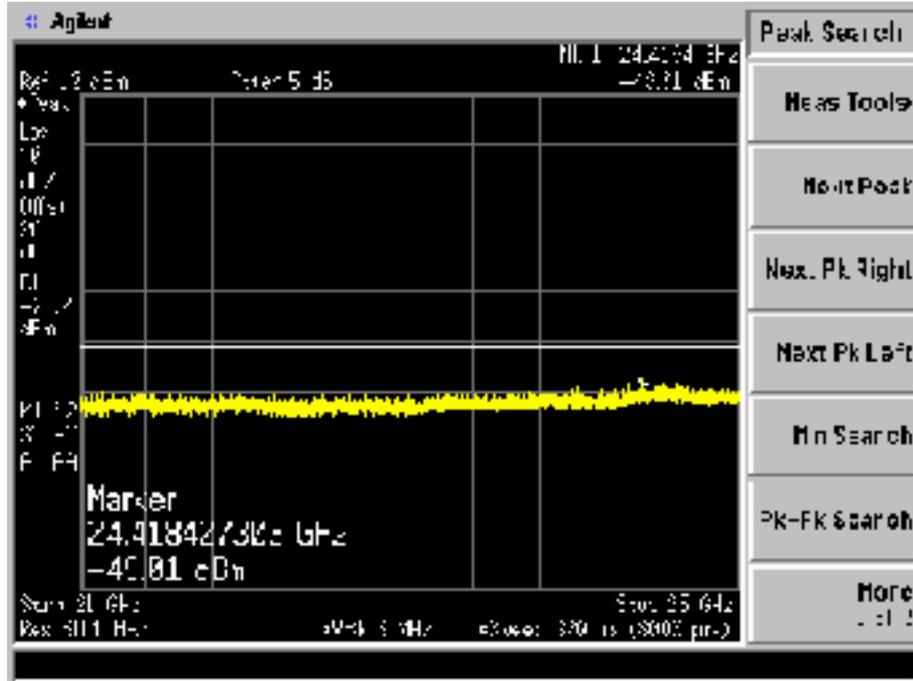
RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

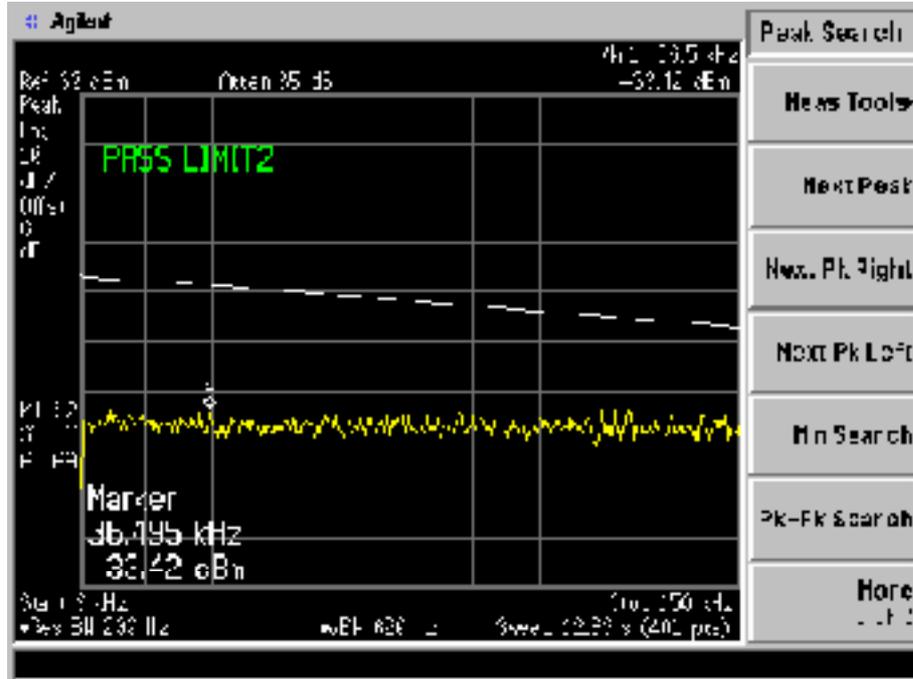


Plot 243 – Channel 6 @ CCK 36Mbps

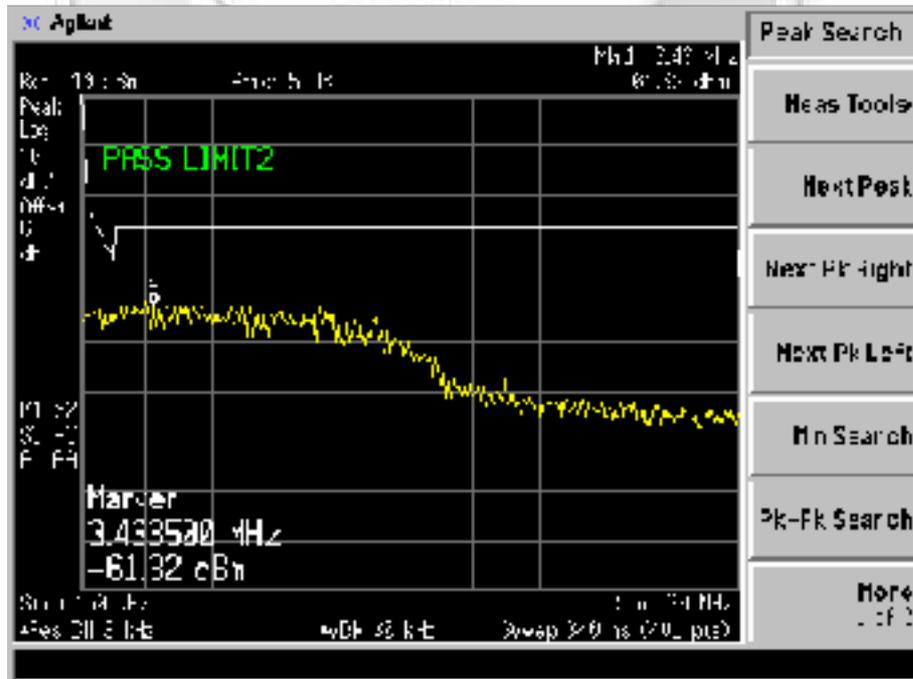


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



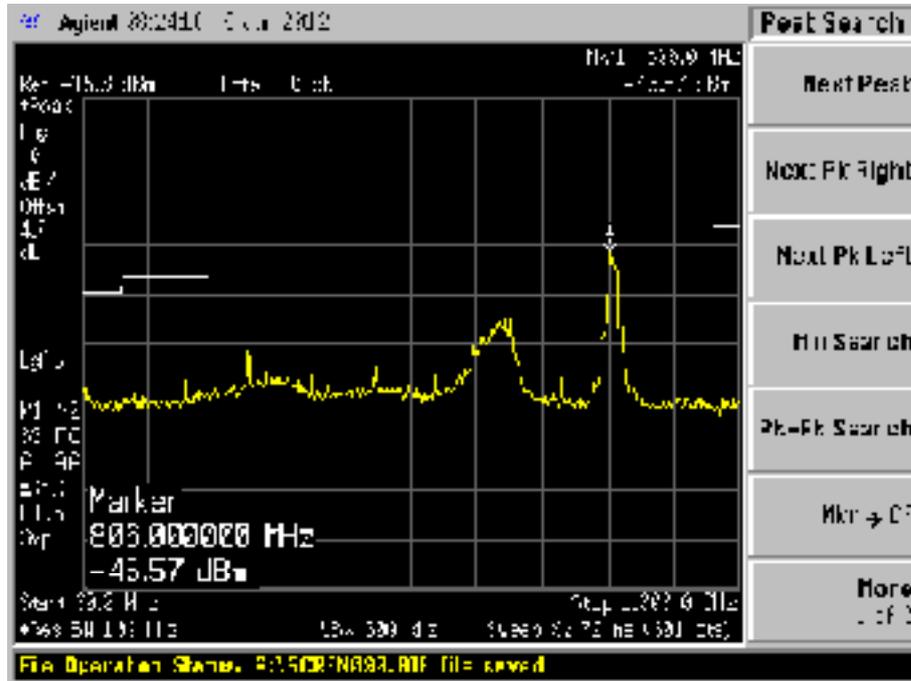
Plot 244 – Channel 6 @ CCK 54Mbps



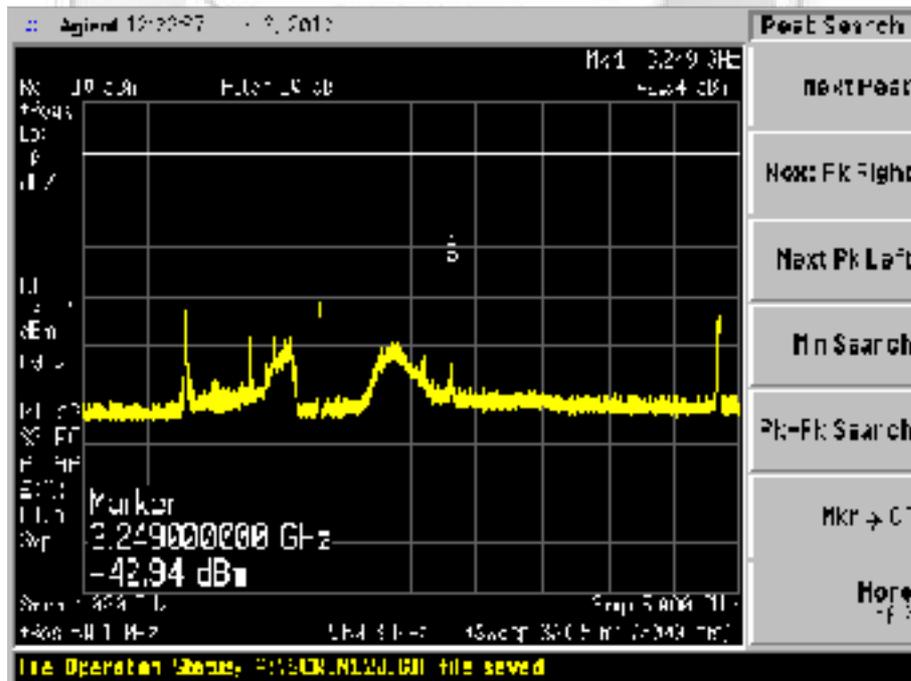
Plot 245 – Channel 6 @ CCK 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



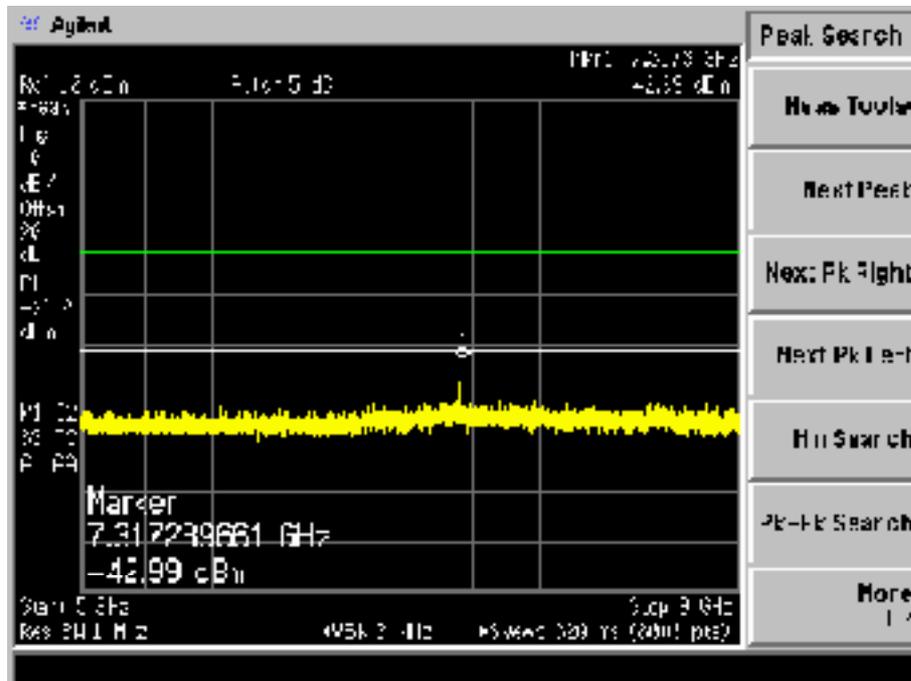
Plot 246 – Channel 6 @ CCK 54Mbps



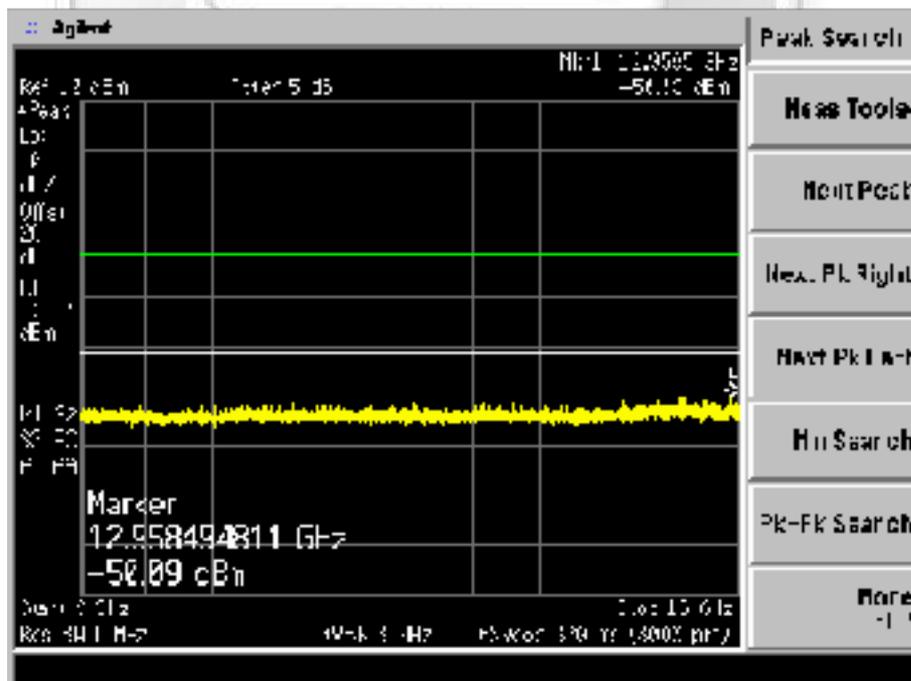
Plot 247 – Channel 6 @ CCK 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



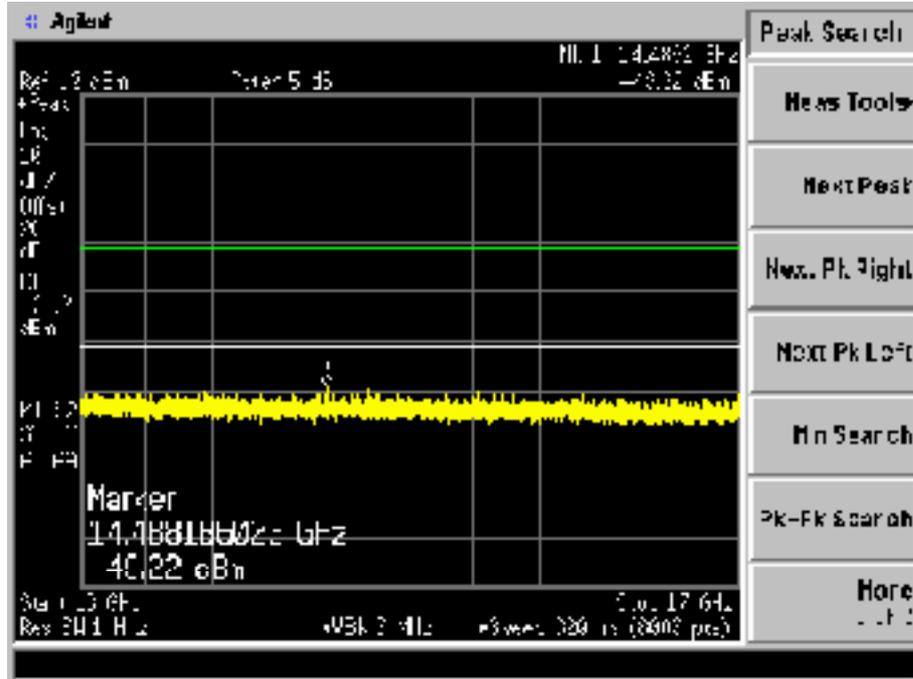
Plot 248 – Channel 6 @ CCK 54Mbps



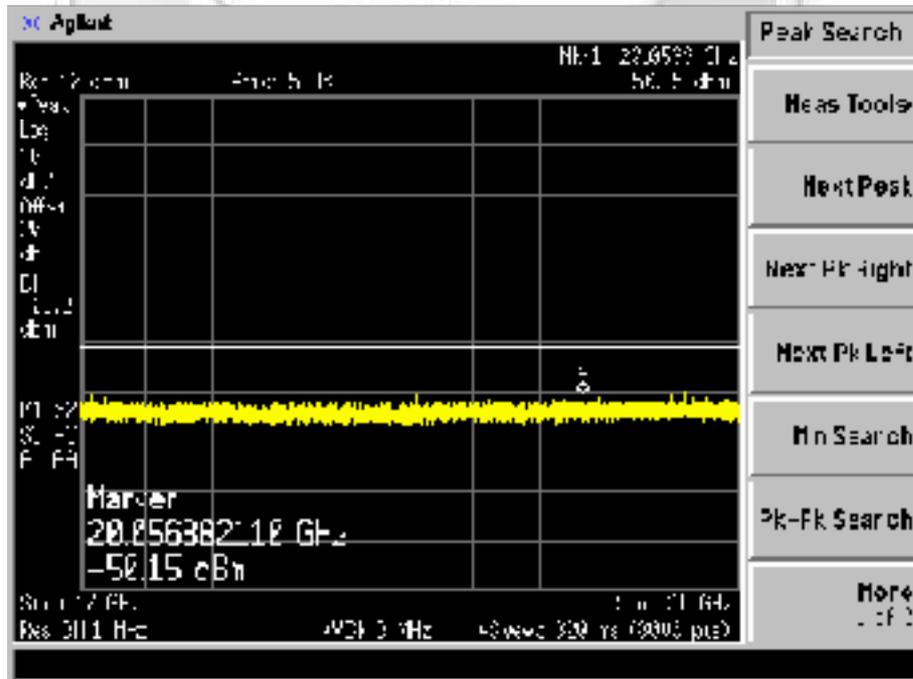
Plot 249 – Channel 6 @ CCK 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



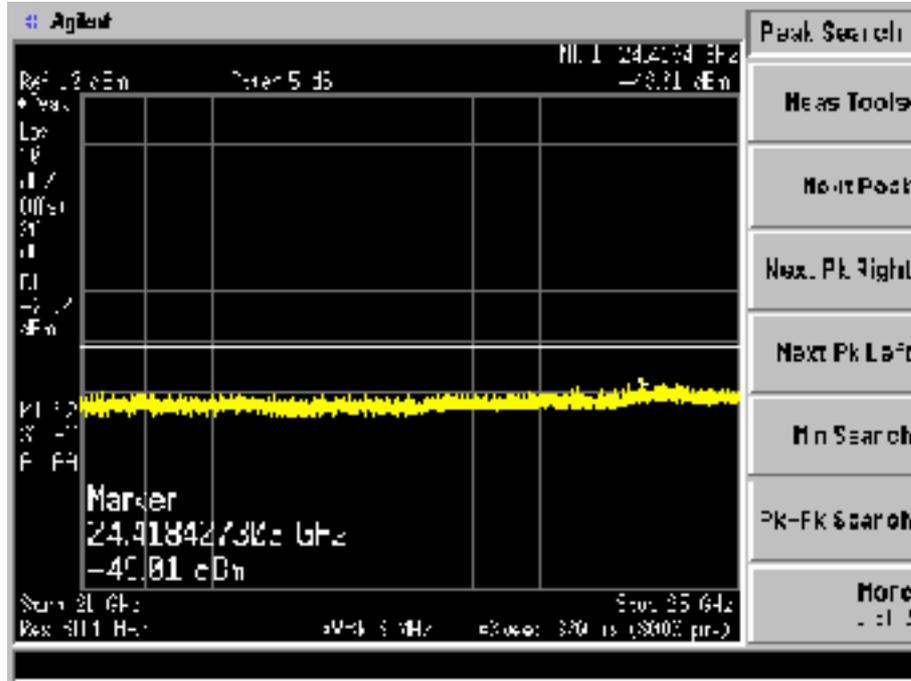
Plot 250 – Channel 6 @ CCK 54Mbps



Plot 251 – Channel 6 @ CCK 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

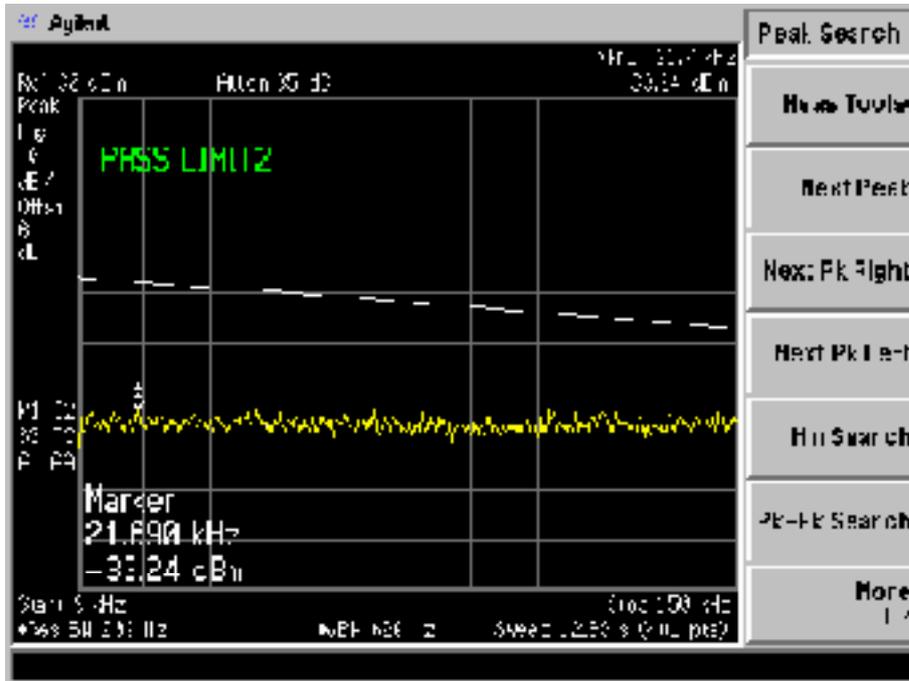


Plot 252 – Channel 6 @ CCK 54Mbps

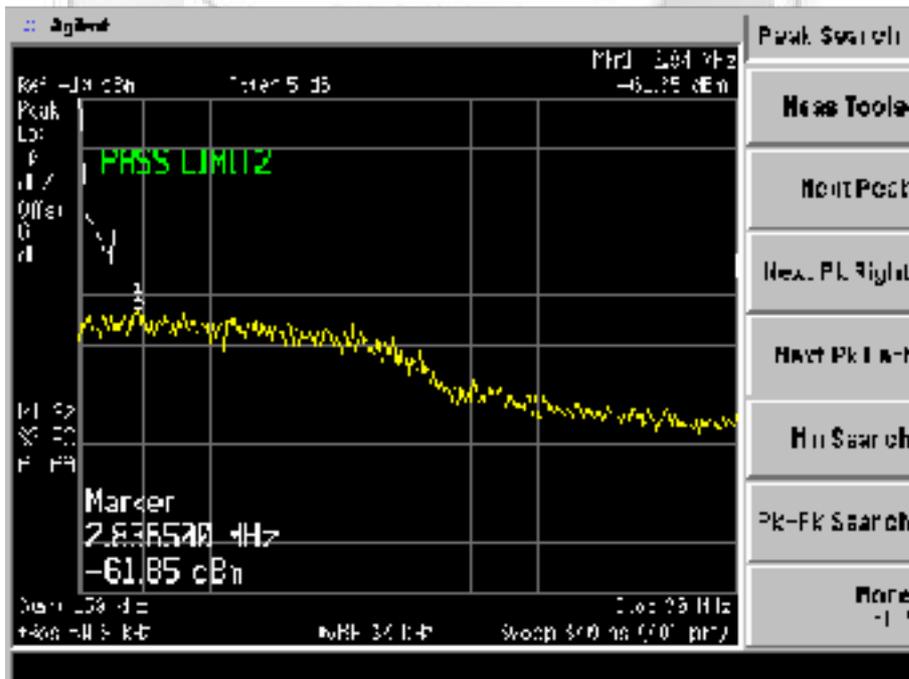


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



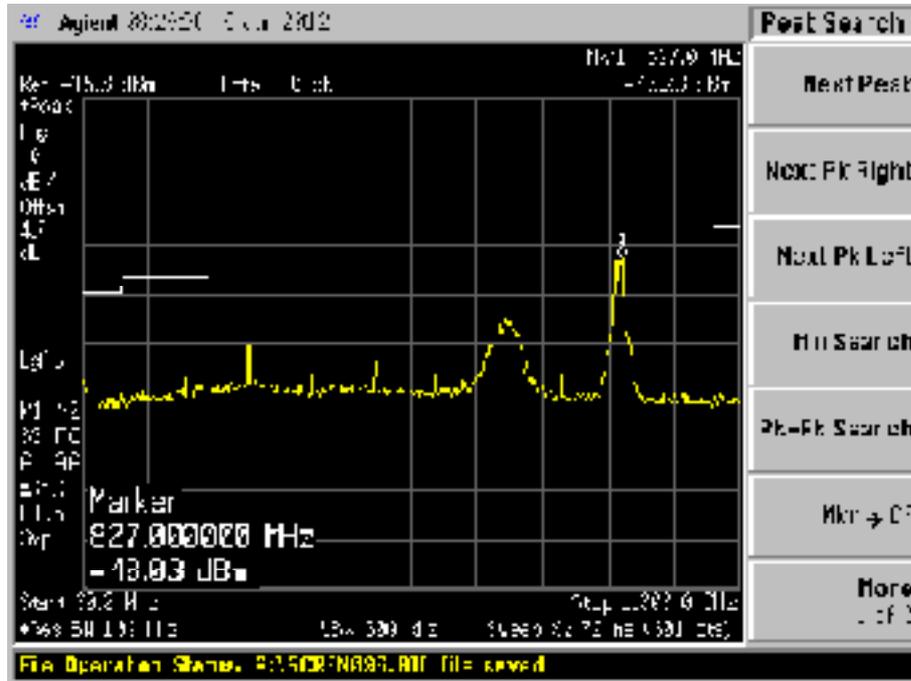
Plot 253 – Channel 11 @DBPSK 9Mbps



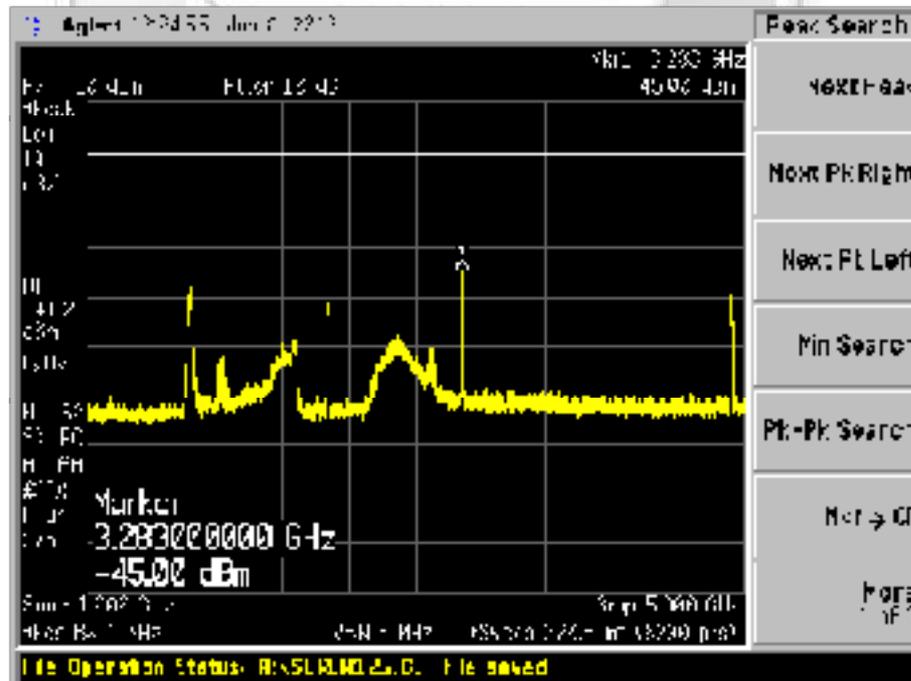
Plot 254 – Channel 11 @DBPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



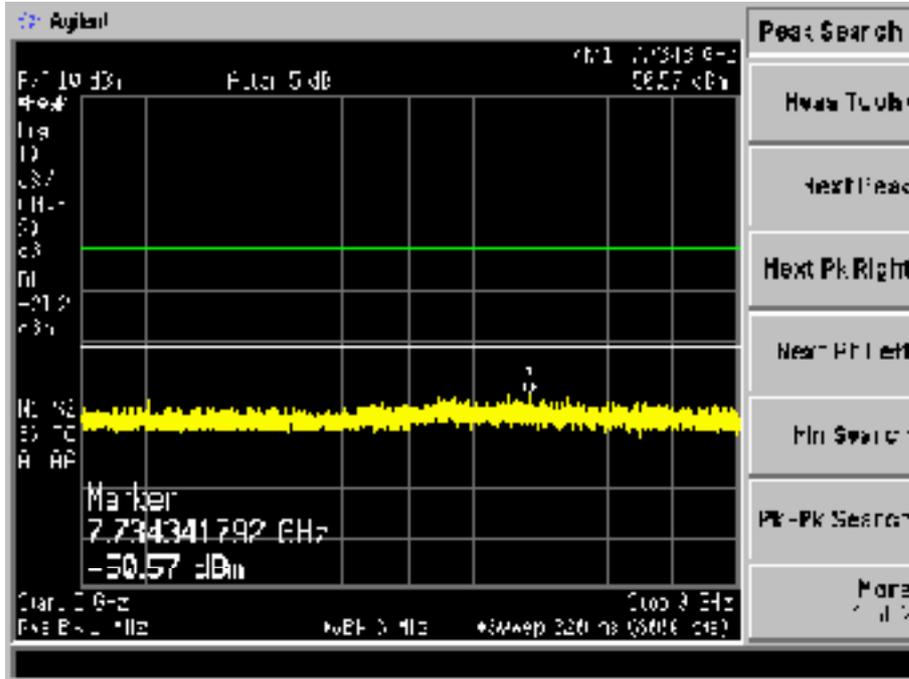
Plot 255 – Channel 11 @DBPSK 9Mbps



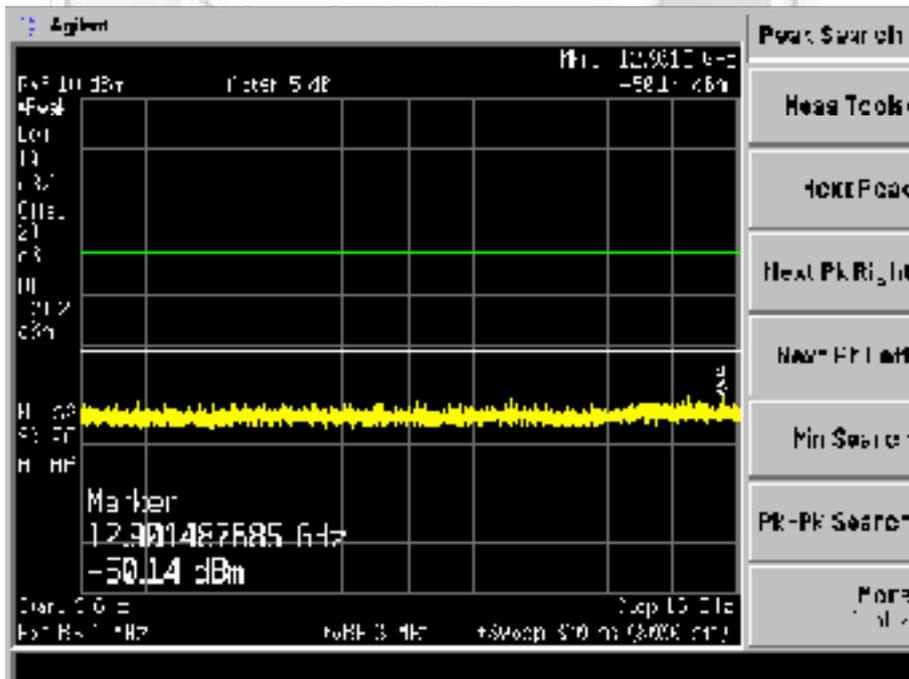
Plot 256 – Channel 11 @DBPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



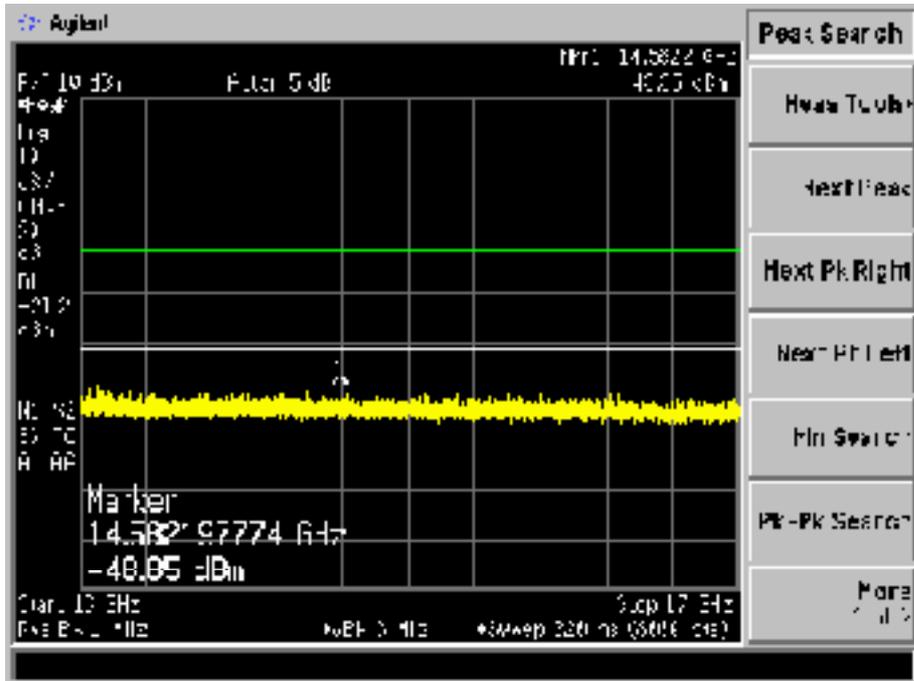
Plot 257 – Channel 11 @ DBPSK 9Mbps



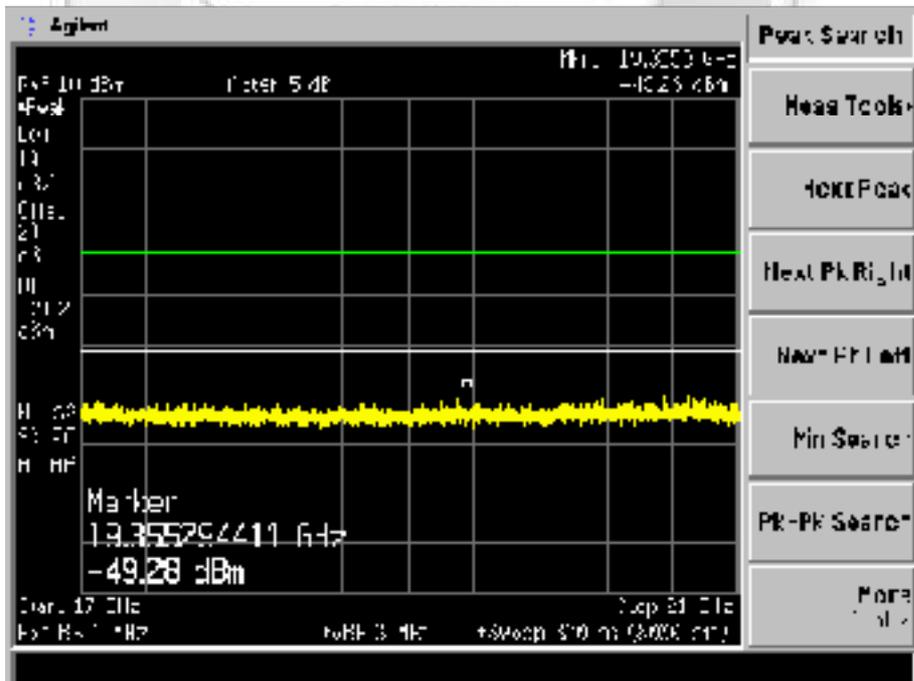
Plot 258 – Channel 11 @ DBPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



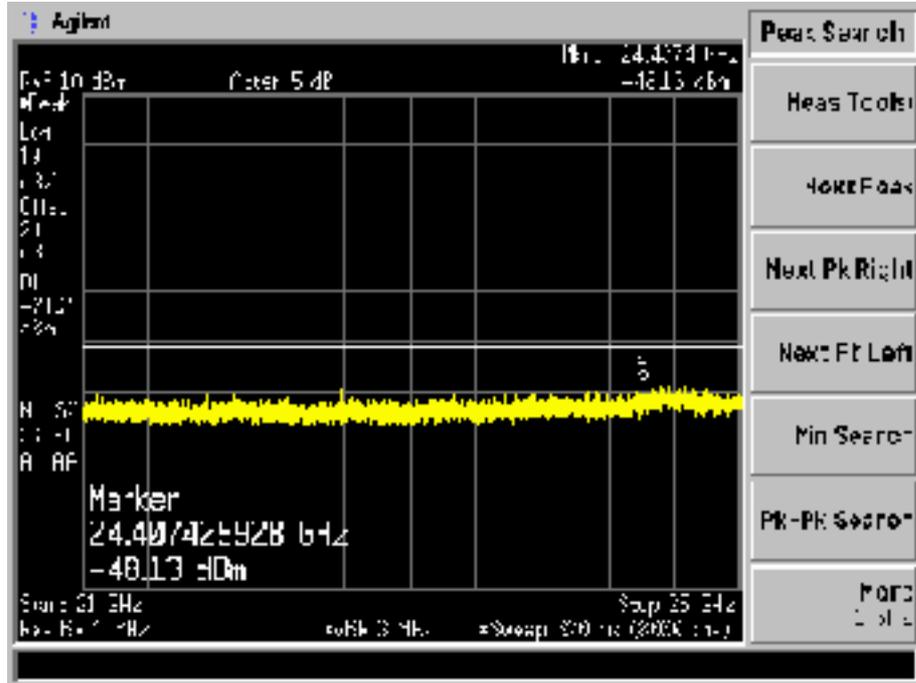
Plot 259 – Channel 11 @ DBPSK 9Mbps



Plot 260 – Channel 11 @ DBPSK 9Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

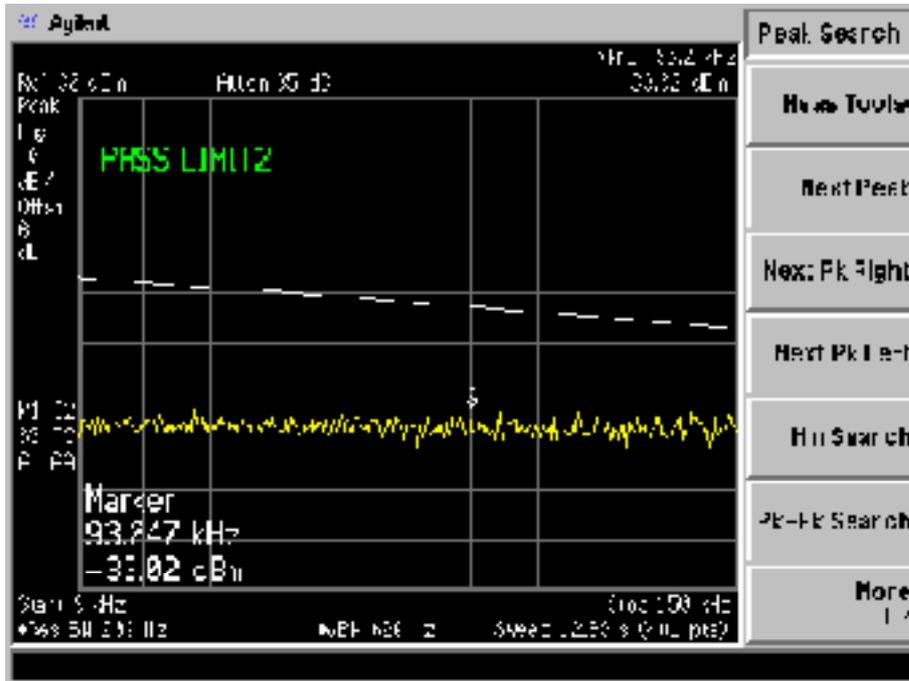


Plot 261 – Channel 11 @DBPSK 9Mbps

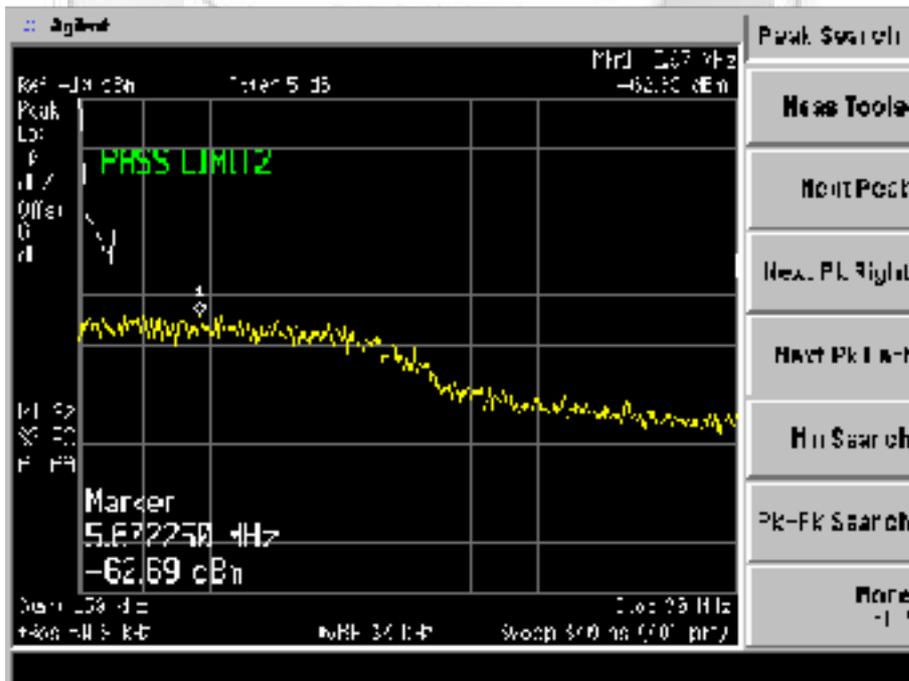


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



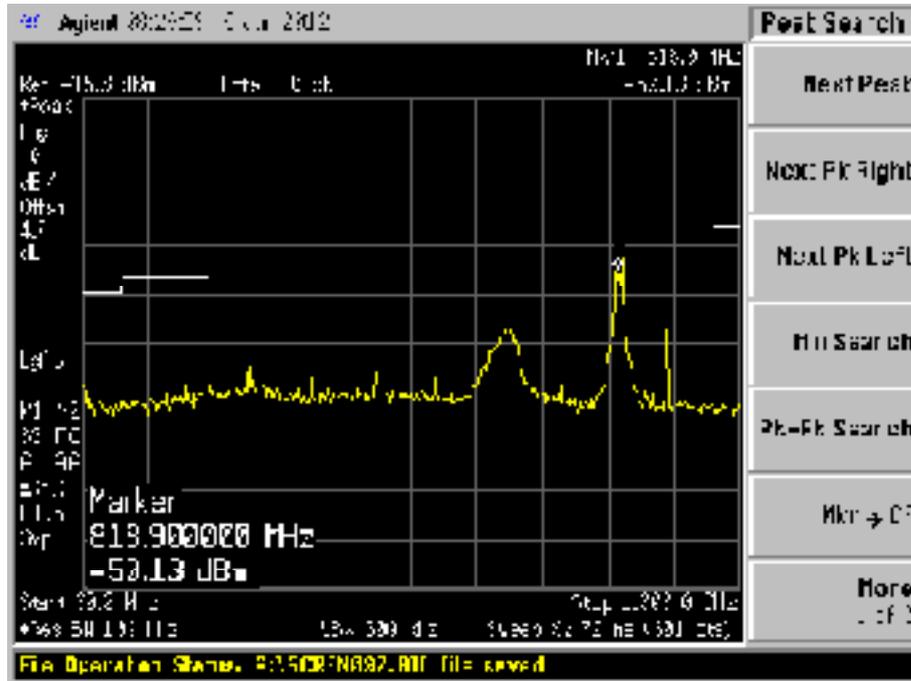
Plot 262 – Channel 11 @ DQPSK 18Mbps



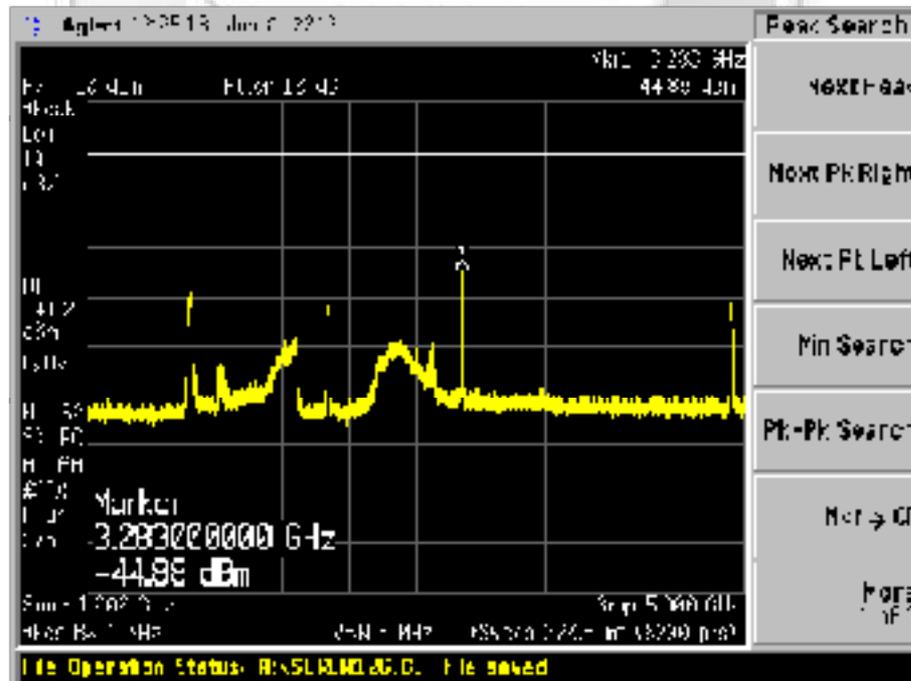
Plot 263 – Channel 11 @ DQPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



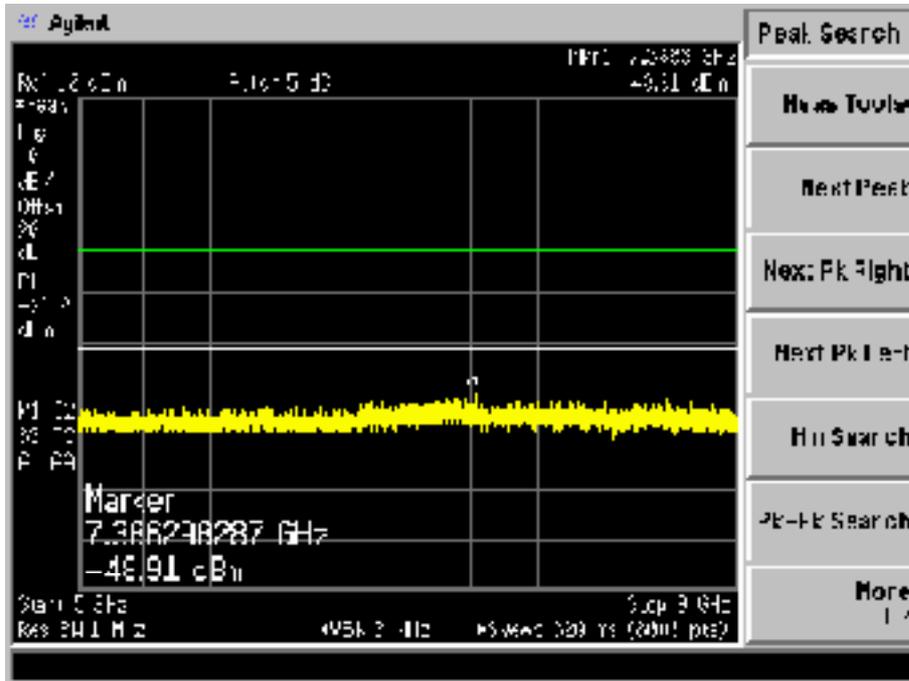
Plot 264 – Channel 11 @DBPSK 18Mbps



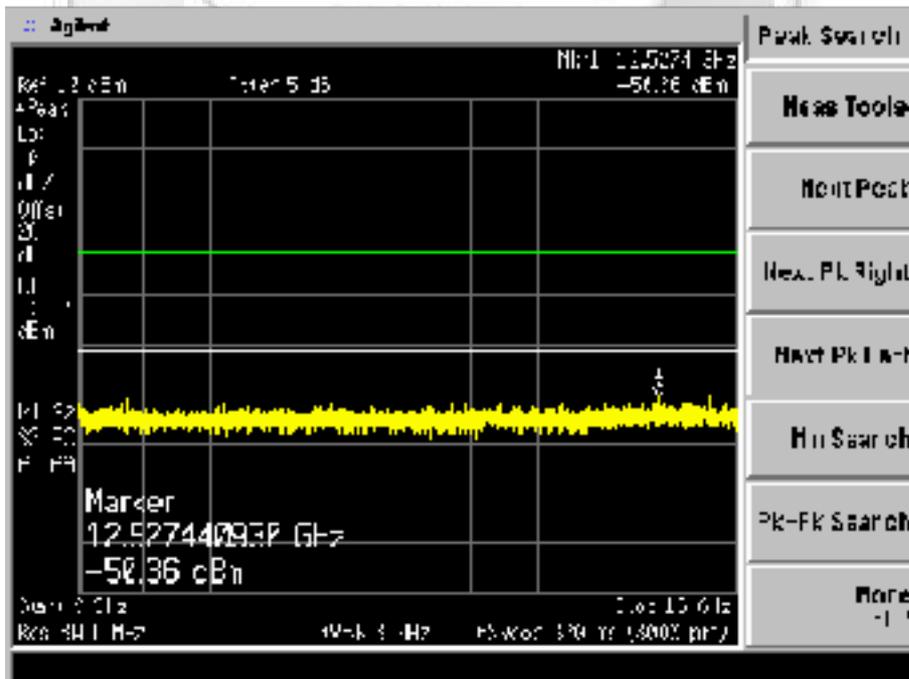
Plot 265 – Channel 11 @DBPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



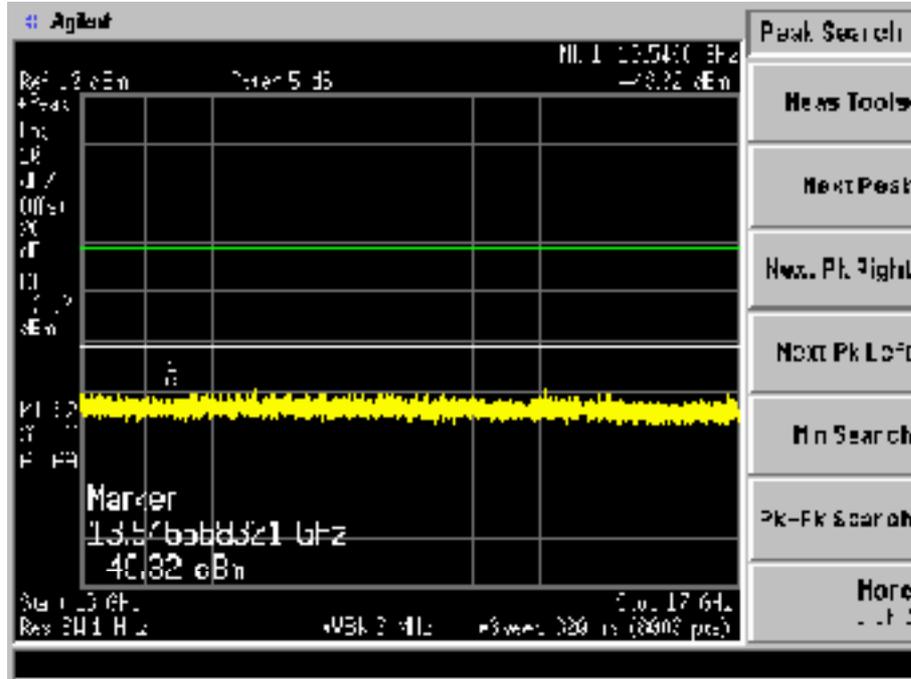
Plot 266 – Channel 11 @ DQPSK 18Mbps



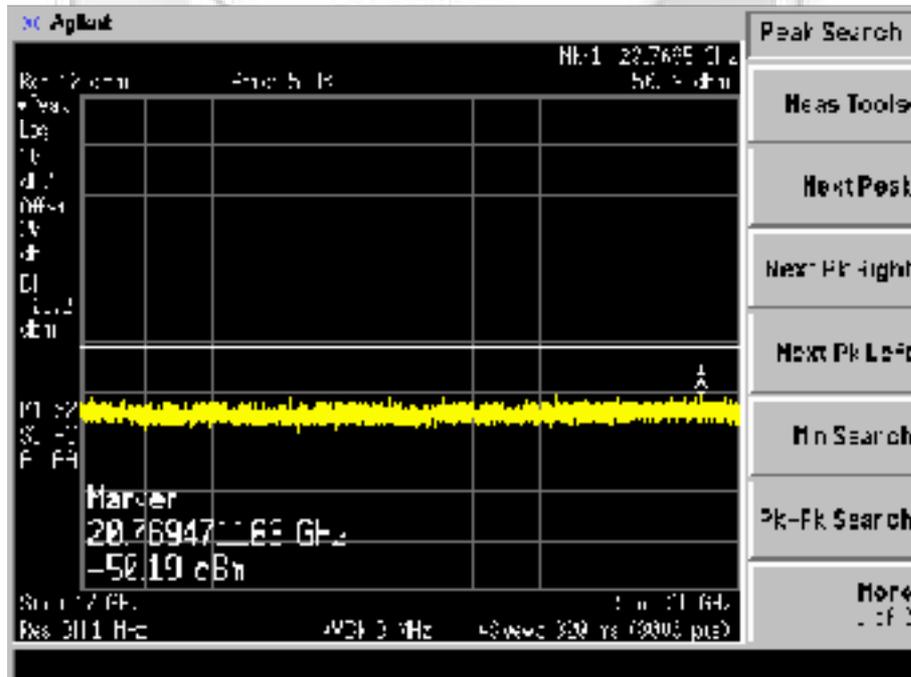
Plot 267 – Channel 11 @ DQPSK 18Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



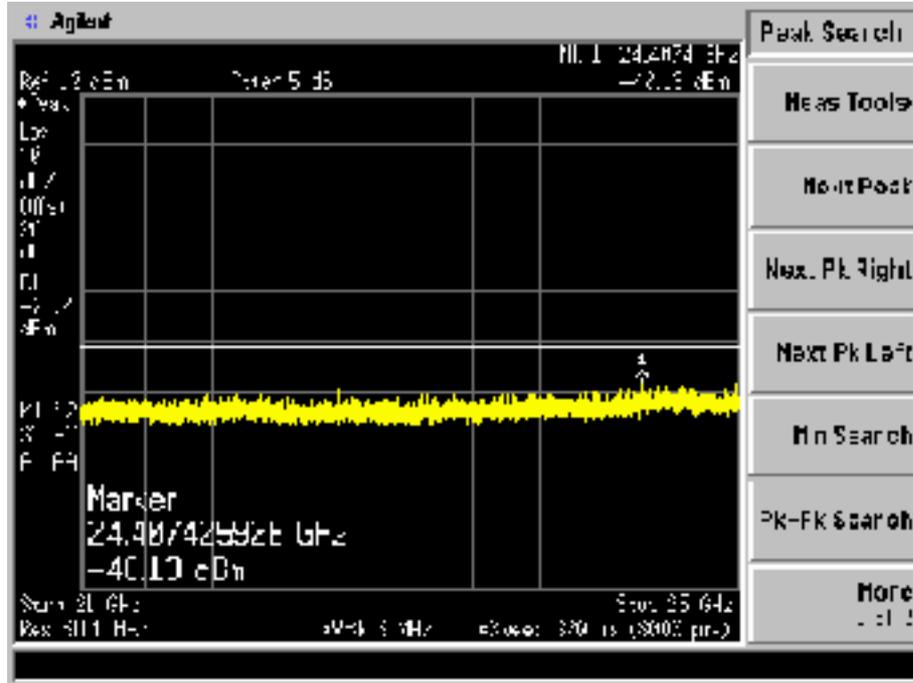
Plot 268 – Channel 11 @ DQPSK 18Mbps



Plot 269 – Channel 11 @ DQPSK 18Mbps

**RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST**

**RF Conducted Spurious Emissions (Restricted) Plots - Peak**

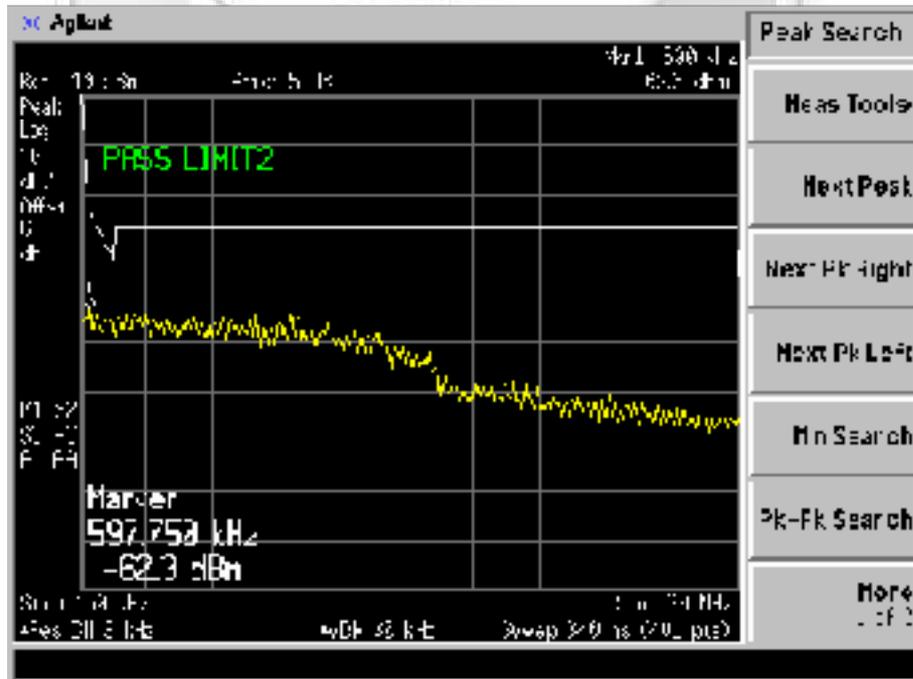
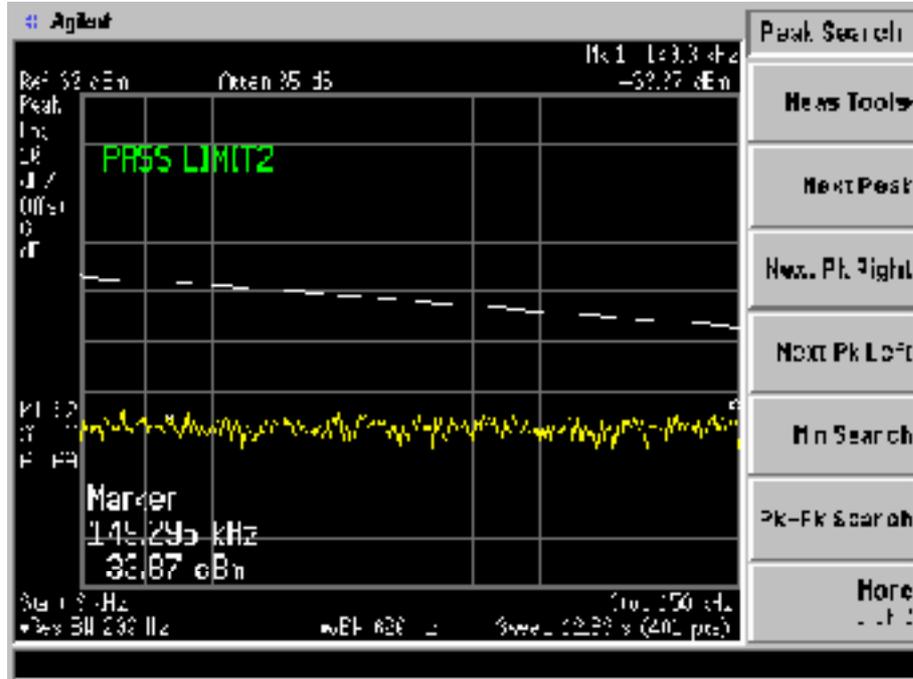


Plot 270 – Channel 11 @ DQPSK 18Mbps



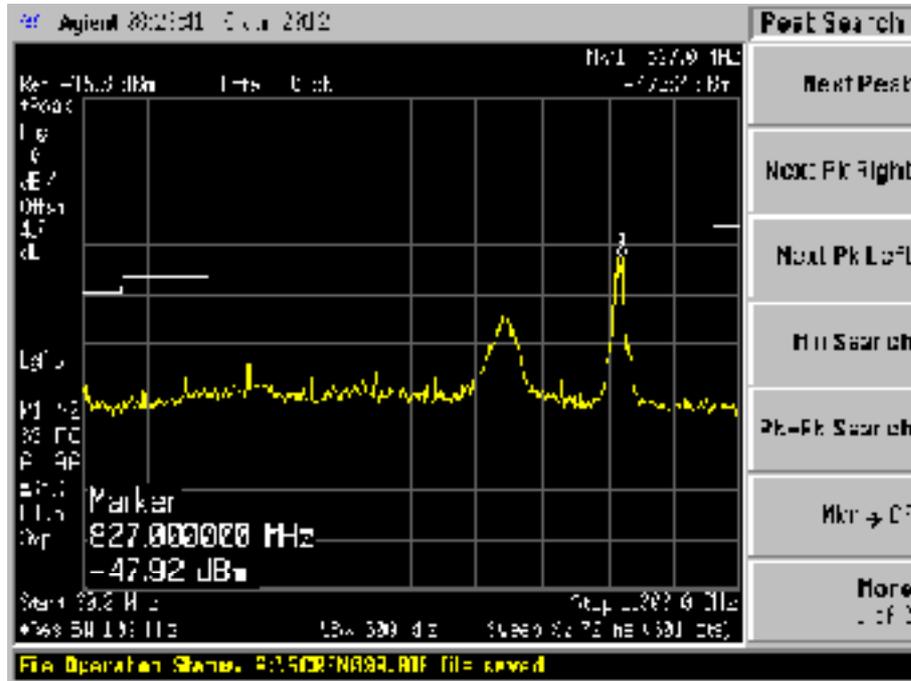
RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

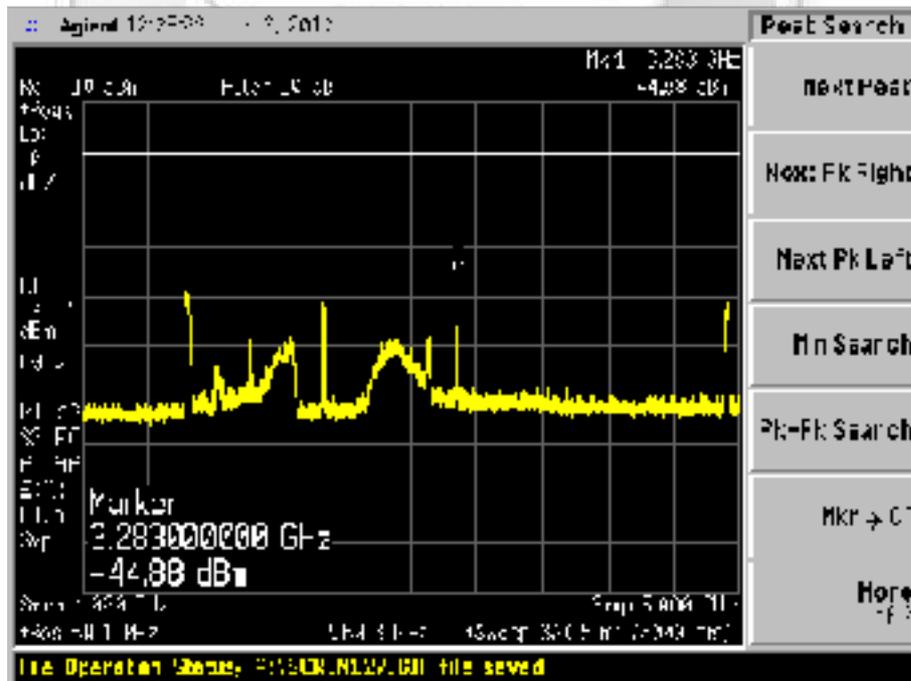


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



Plot273 – Channel 11 @ CCK 36Mbps

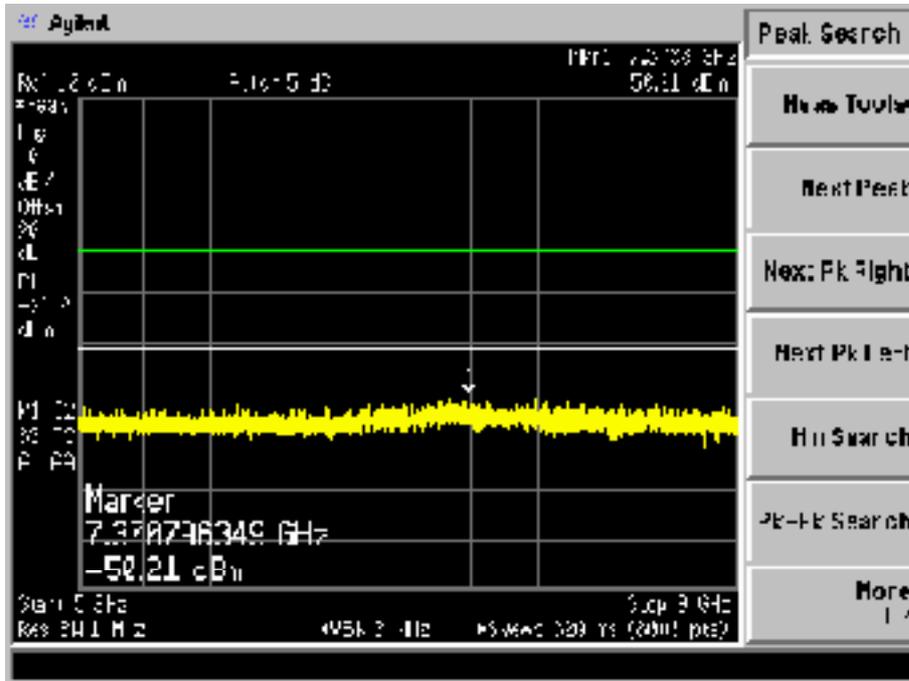


Plot274 – Channel 11 @ CCK 36Mbps

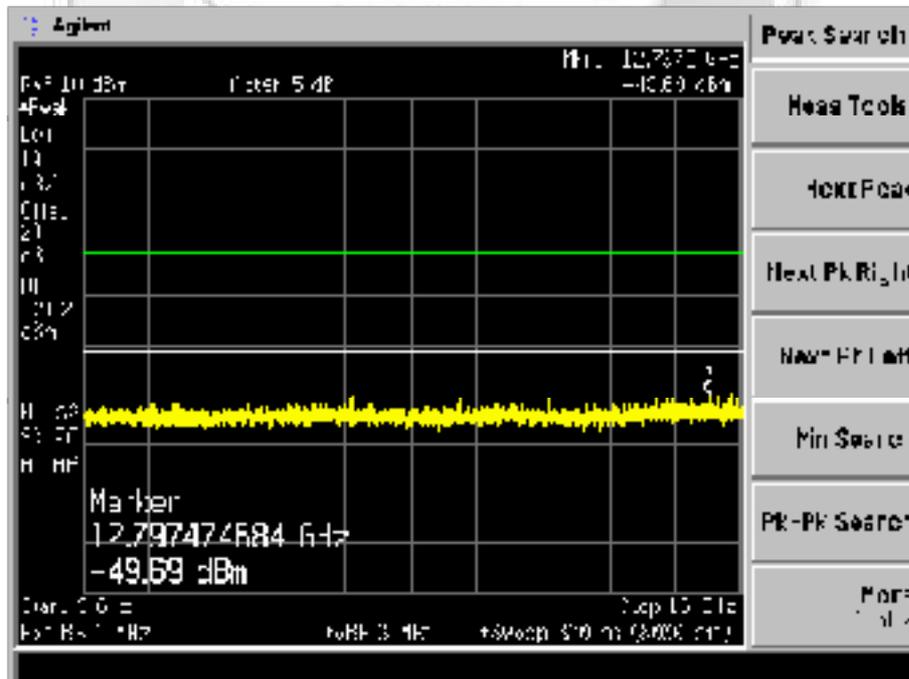


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



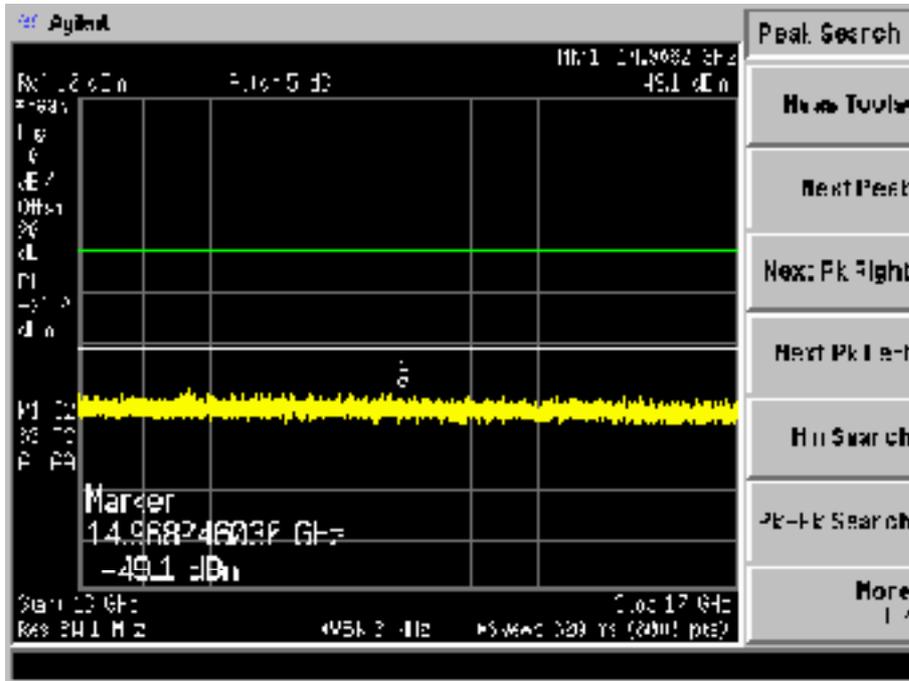
Plot 275 – Channel 11 @ CCK 36Mbps



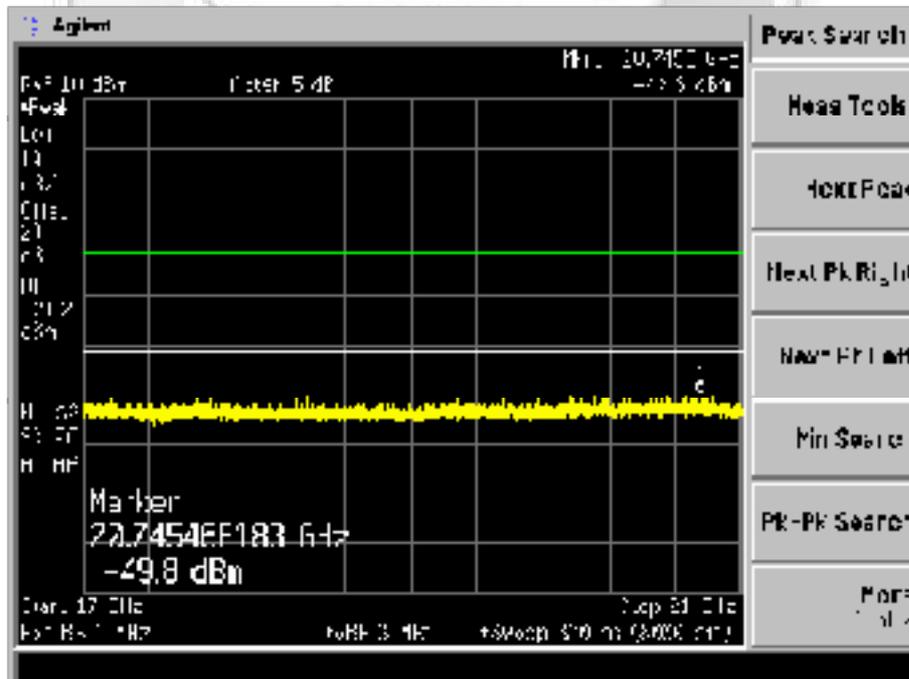
Plot 276 – Channel 11 @ CCK 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



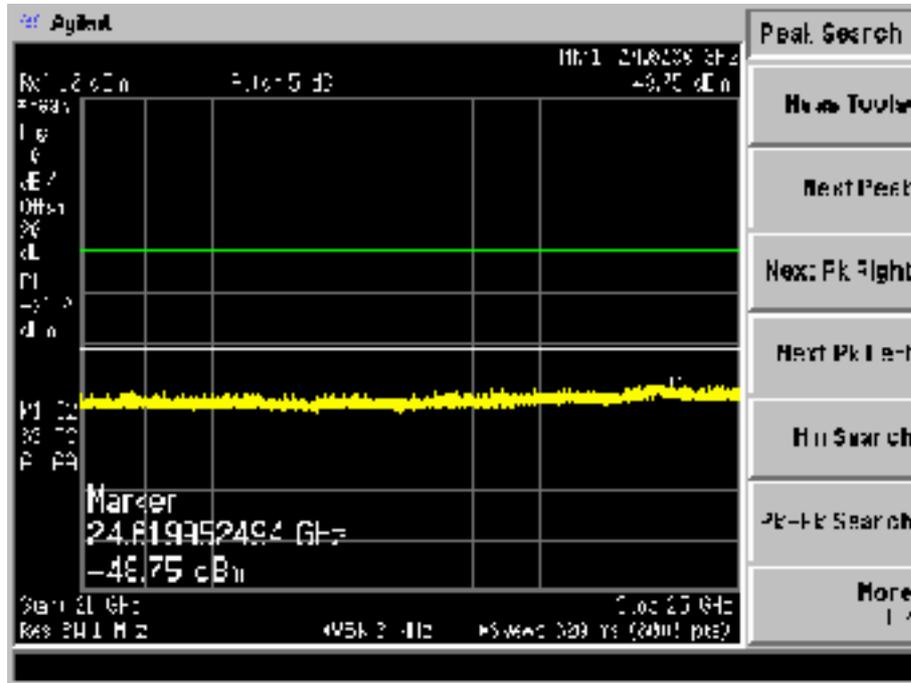
Plot277 – Channel 11 @ CCK 36Mbps



Plot278 – Channel 11 @ CCK 36Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

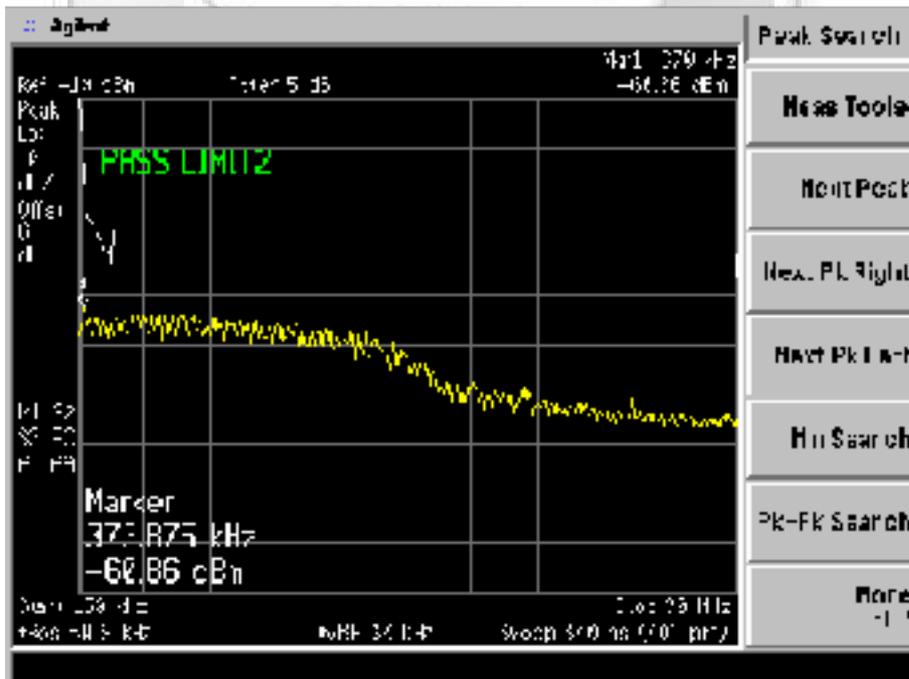
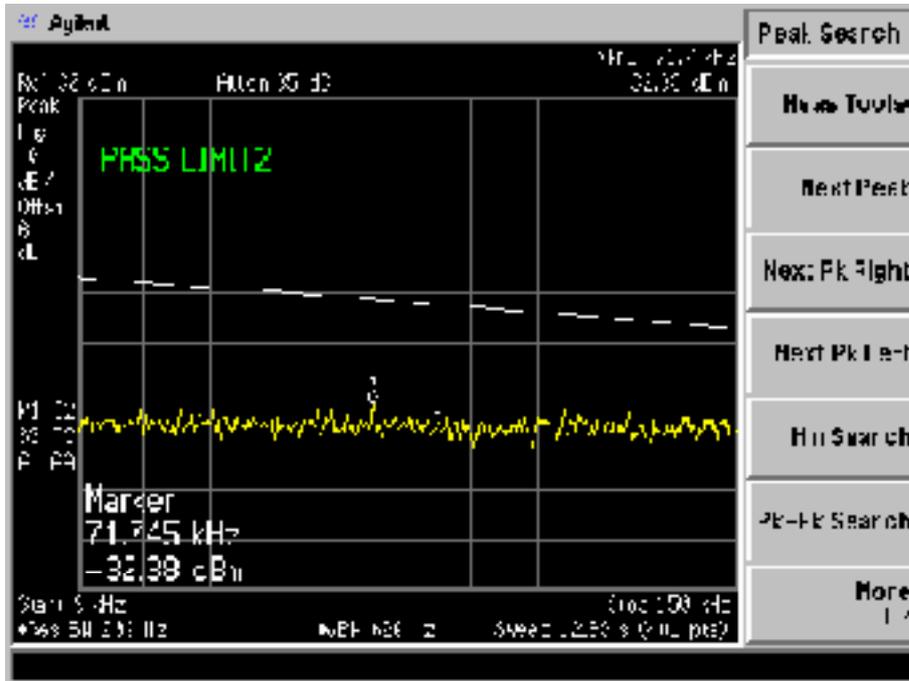


Plot 279 - Channel 11 @ CCK 36Mbps



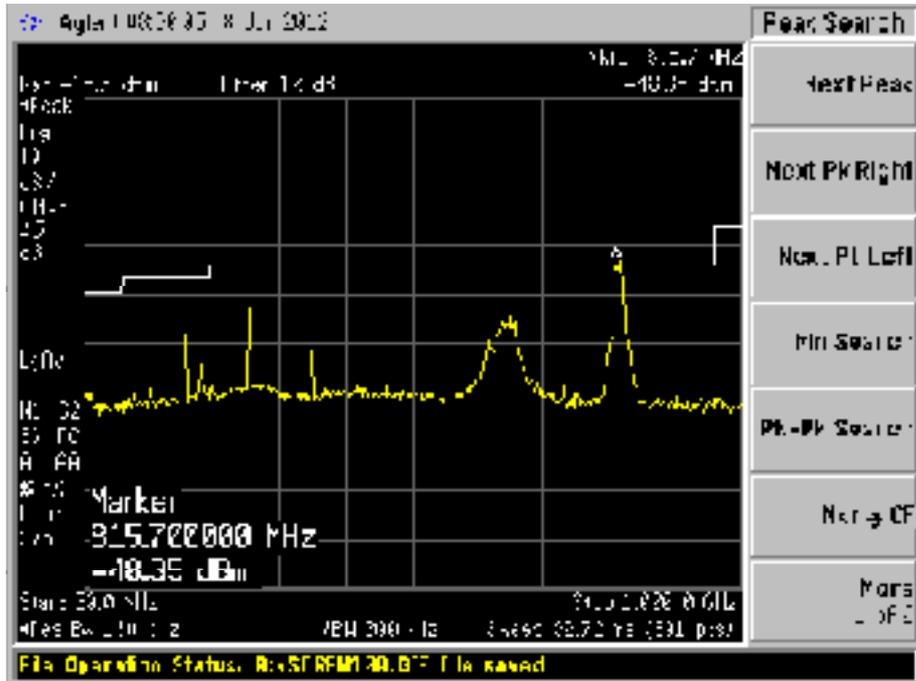
RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak

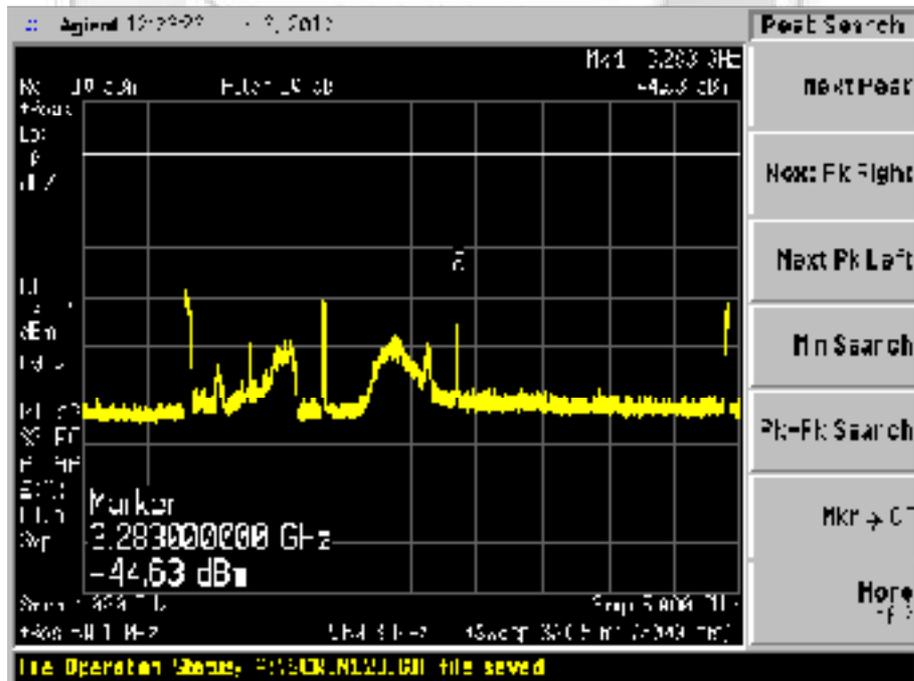


RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



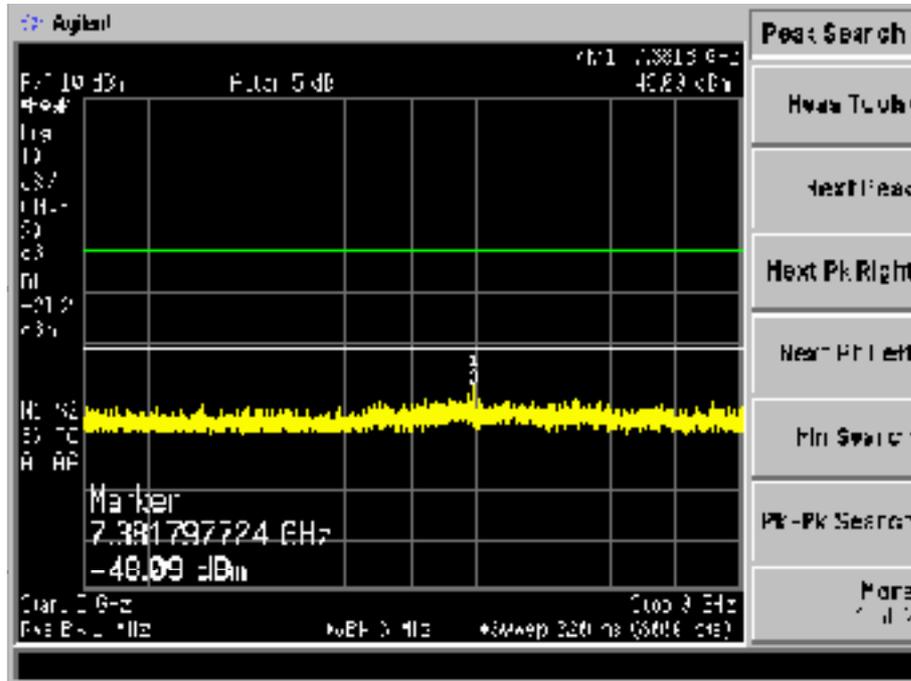
Plot 282 – Channel 11 @ CCK 54Mbps



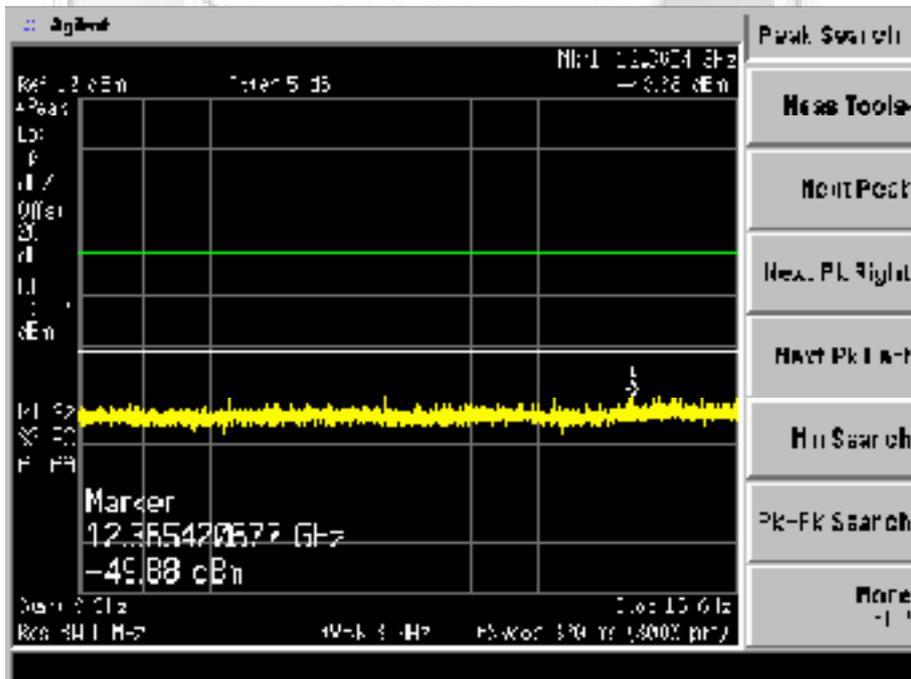
Plot 283 – Channel 11 @ CCK 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



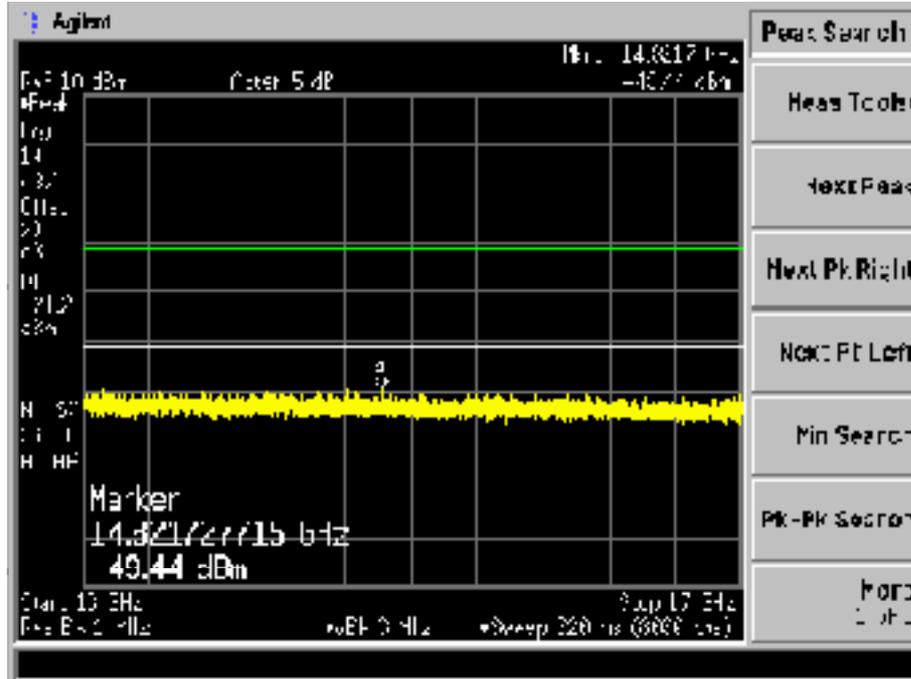
Plot 284 – Channel 11 @ CCK 54Mbps



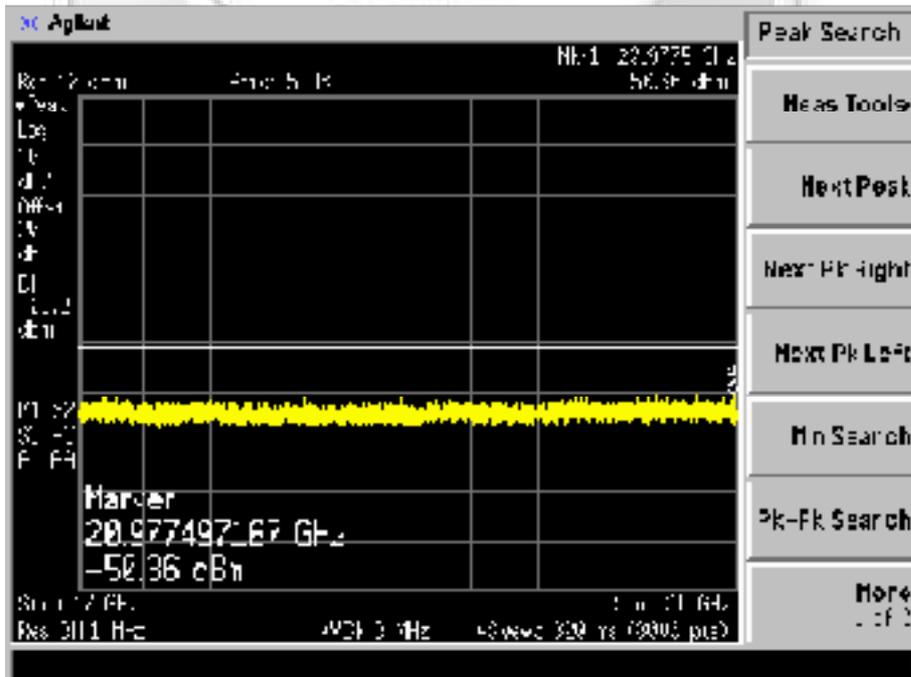
Plot 285 – Channel 11 @ CCK 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



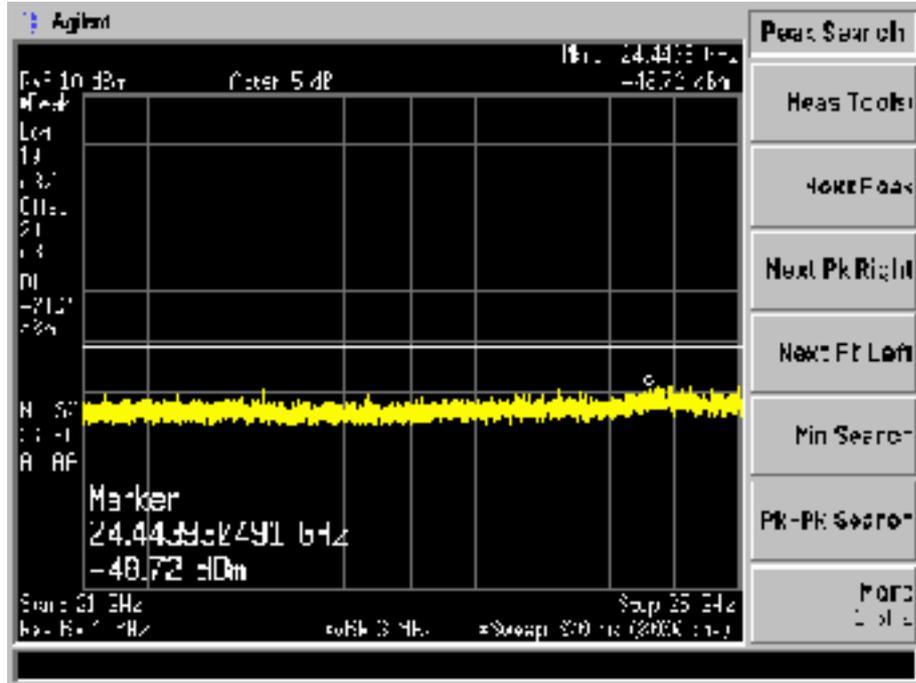
Plot286 – Channel 11 @ CCK 54Mbps



Plot287 – Channel 11 @ CCK 54Mbps

RF CONDUCTED SPURIOUS EMISSIONS (RESTRICTED BANDS) TEST

RF Conducted Spurious Emissions (Restricted) Plots - Peak



Plot288 - Channel 11 @ CCK 54Mbps



**BAND EDGE COMPLIANCE (CONDUCTED) TEST**

**47 CFR FCC Part 15.247(d) Band Edge Compliance (Conducted) Limits**

The EUT shows compliance to the requirements of this section, which states in any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator (EUT) is operating, the radio frequency power that is produced by the EUT shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of desired power.

**47 CFR FCC Part 15.247(d) Band Edge Compliance (Conducted) Test Instrumentation**

Instrument	Model	S/No	Cal Due Date
Agilent EMC Analyzer (9kHz-26.5GHz)	E7405A	US40240195	16 Mar 2013
GW Instek Programmable Power Supply	PSH-3630A	RK200168	30 Jan 2013

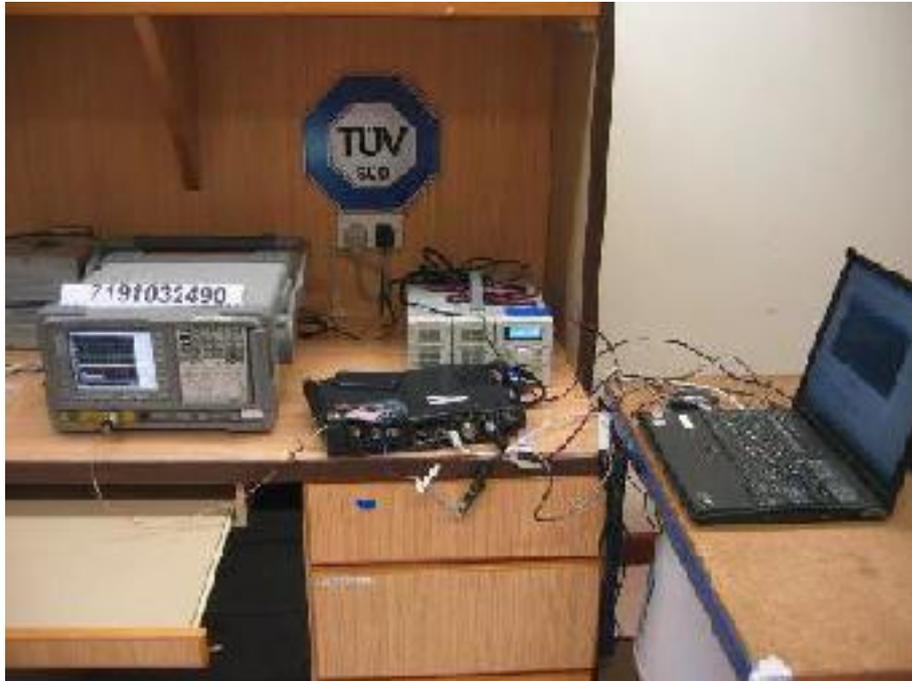
**47 CFR FCC Part 15.247(d) Band Edge Compliance (Conducted) Test Setup**

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The RF antenna connector was connected to the spectrum analyser via a low-loss coaxial cable.
4. The resolution bandwidth (RBW) and the video bandwidth (VBW) of the spectrum analyser were respectively set to 100kHz and 300kHz.
5. All other supporting equipment were powered separately from another filtered mains.

**47 CFR FCC Part 15.247(d) Band Edge Compliance (Conducted) Test Method**

1. The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode with specified modulation and data rate.
2. The frequency span of the spectrum analyser was set to wide enough to capture the lower band edge of the transmission band, 2.400GHz and any spurious emissions at the band edge.
3. The spectrum analyser was set to max hold to capture any spurious emissions within the span. The signal capturing was continuous until no further spurious emissions were detected.
4. Repeat steps 1 to 3 with all possible modulations and data rates.
5. The steps 2 to 4 were repeated with the frequency span of the spectrum analyser was set to wide enough to capture the upper band edge frequency of the transmission band, 2.4835GHz and the any spurious emissions at the band-edge.

**BAND EDGE COMPLIANCE (CONDUCTED) TEST**



**Band Edge Compliance (Conducted) Test Setup**

**47 CFR FCC Part 15.247(d) Band Edge Compliance (Conducted) Results**

Test Input Power	24V dc (Worst Voltage)	Temperature	24°C
Attached Plots	289 – 296 (802.11b)	Relative Humidity	54%
		Atmospheric Pressure	1027mbar
		Tested By	Kyaw Soe Hein

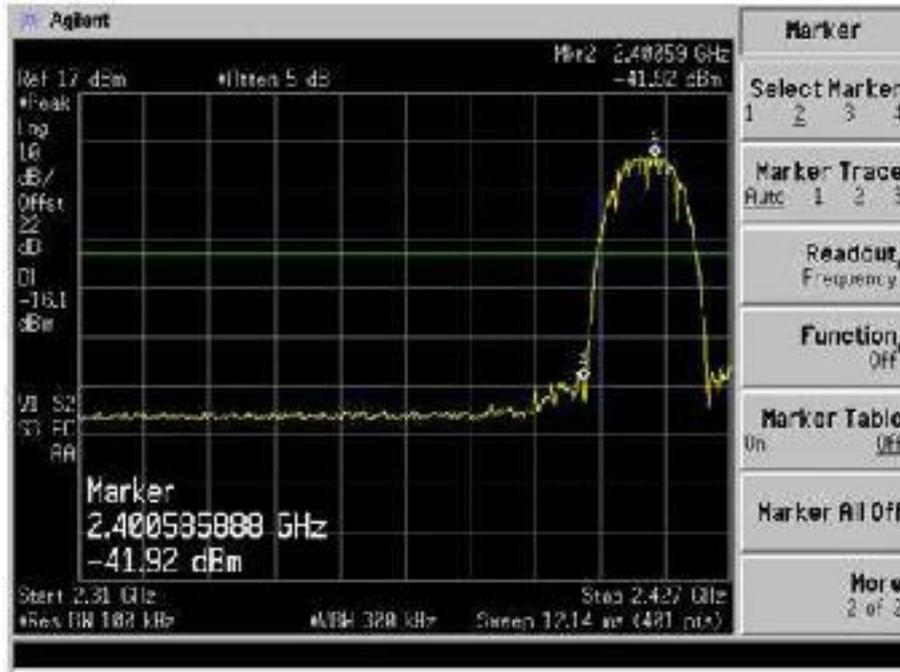
No significant signal was found and they were below the specified limit.

Test Input Power	24V dc (Worst Voltage)	Temperature	24°C
Attached Plots	297 – 304 (802.11g)	Relative Humidity	54%
		Atmospheric Pressure	1027mbar
		Tested By	Kyaw Soe Hein

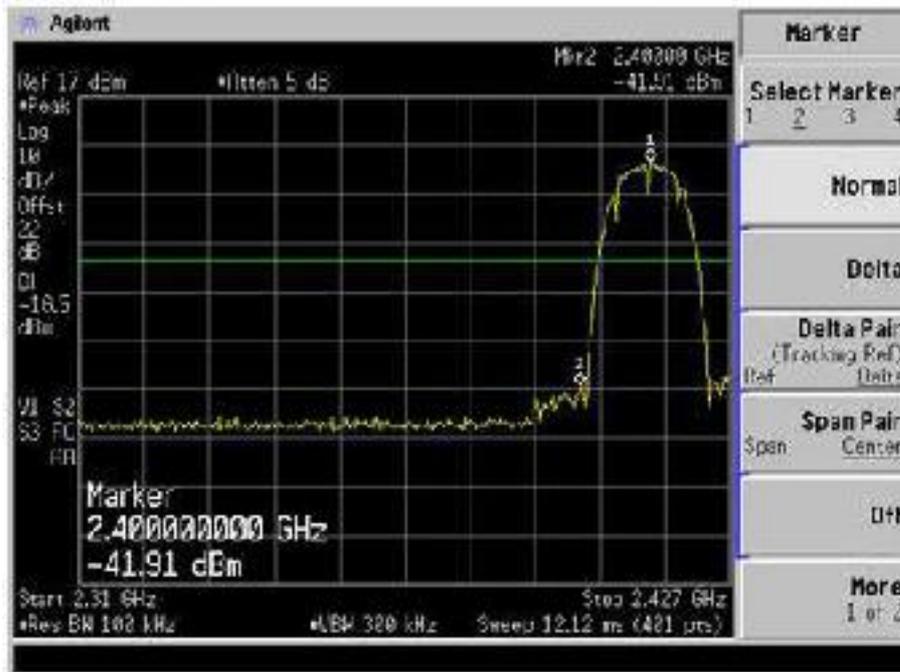
No significant signal was found and they were below the specified limit.

**BAND EDGE COMPLIANCE (CONDUCTED) TEST**

**Band Edge Compliance (Conducted) Plots – 802.11b**



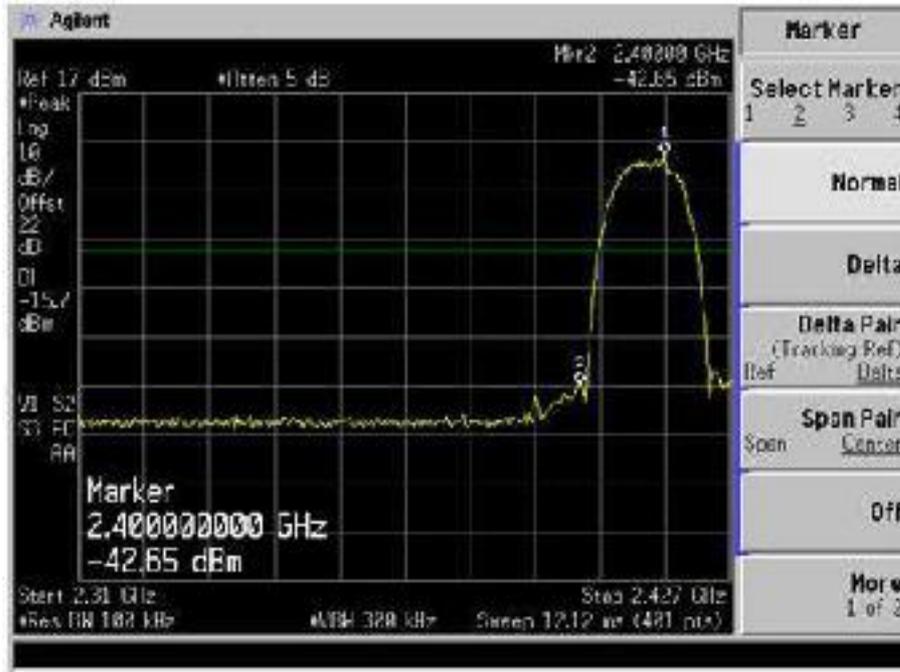
**Plot 289 – Lower Band Edge at 2.400GHz @ DBPSK 1Mbps**



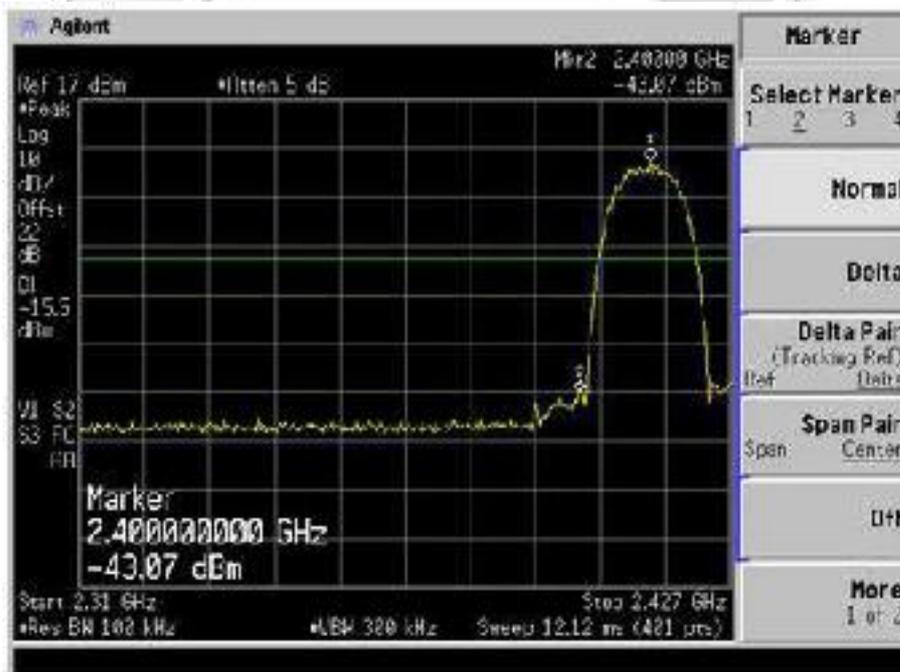
**Plot 290 – Lower Band Edge at 2.400GHz @ DQPSK 2Mbps**

**BAND EDGE COMPLIANCE (CONDUCTED) TEST**

**Band Edge Compliance (Conducted) Plots – 802.11b**



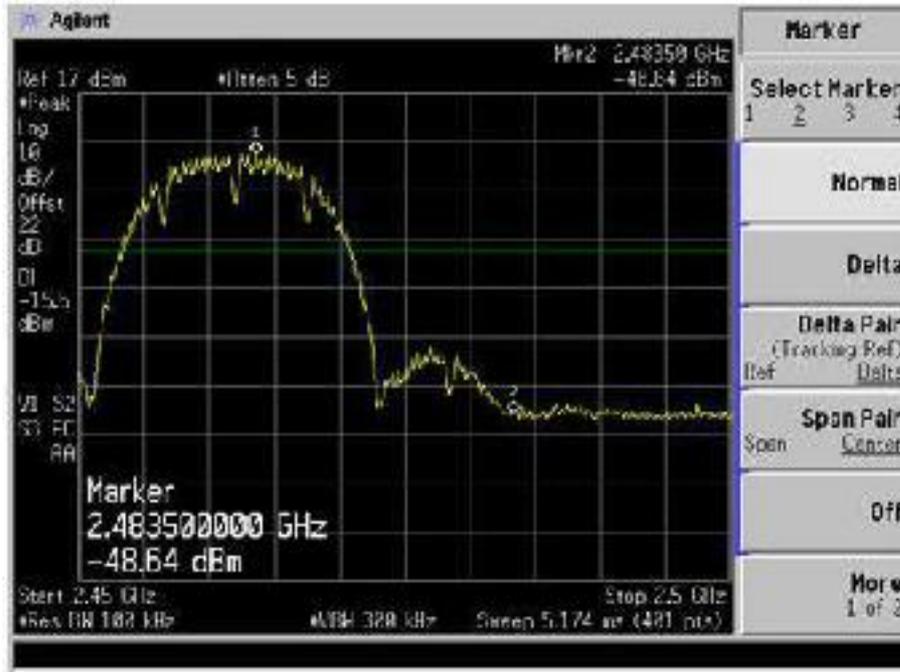
**Plot 291 – Lower Band Edge at 2.400GHz @ CCK 55Mbps**



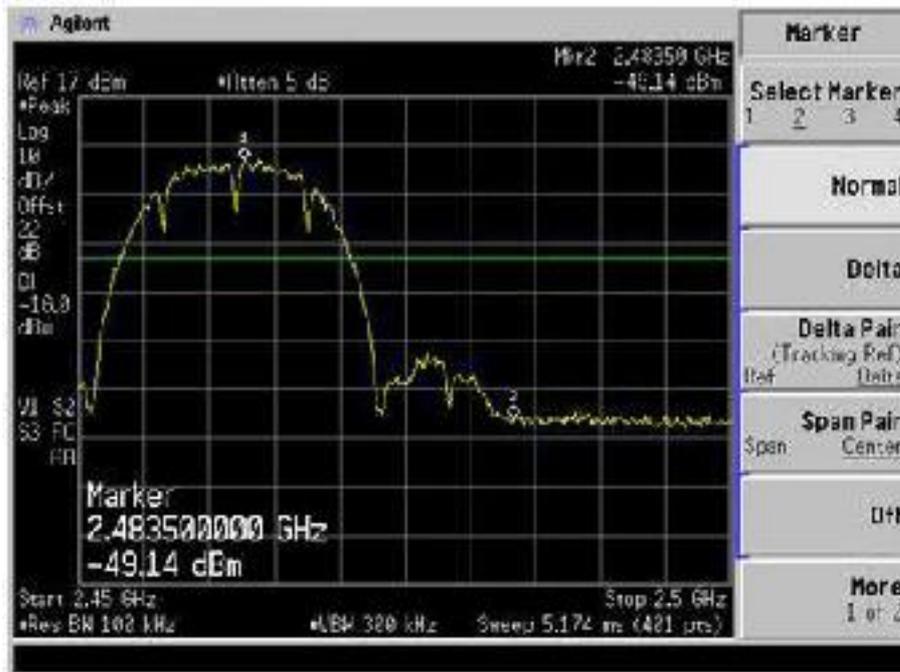
**Plot 292 – Lower Band Edge at 2.400GHz @ CCK 11Mbps**

**BAND EDGE COMPLIANCE (CONDUCTED) TEST**

**Band Edge Compliance (Conducted) Plots – 802.11b**



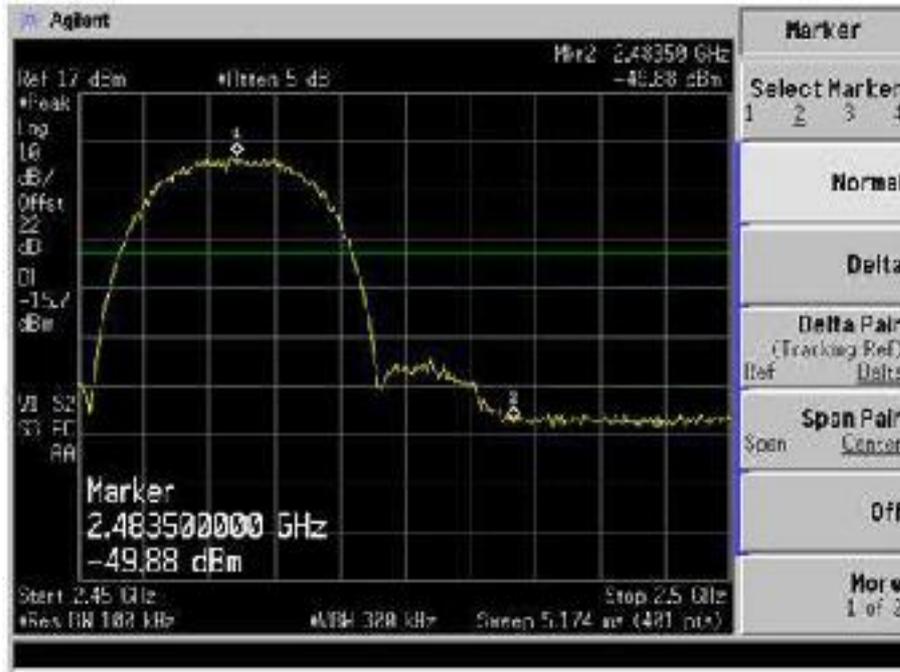
**Plot 293 – Upper Band Edge at 24835GHz @ DBPSK 1Mbps**



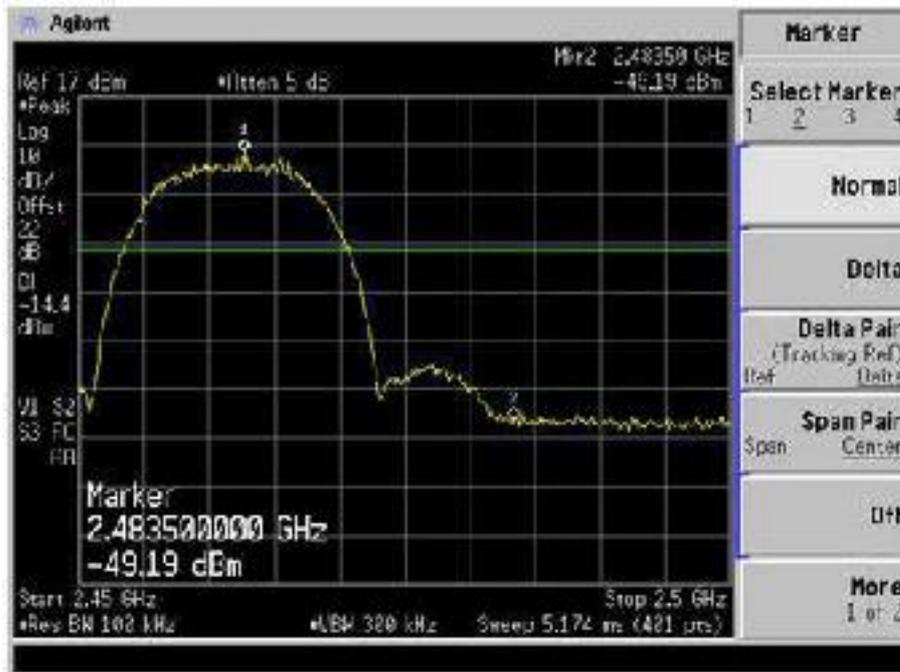
**Plot 294 – Upper Band Edge at 24835GHz @ DQPSK 2Mbps**

**BAND EDGE COMPLIANCE (CONDUCTED) TEST**

**Band Edge Compliance (Conducted) Plots – 802.11b**



**Plot 295 – Upper Band Edge at 24835GHz @ CCK 5.5Mbps**

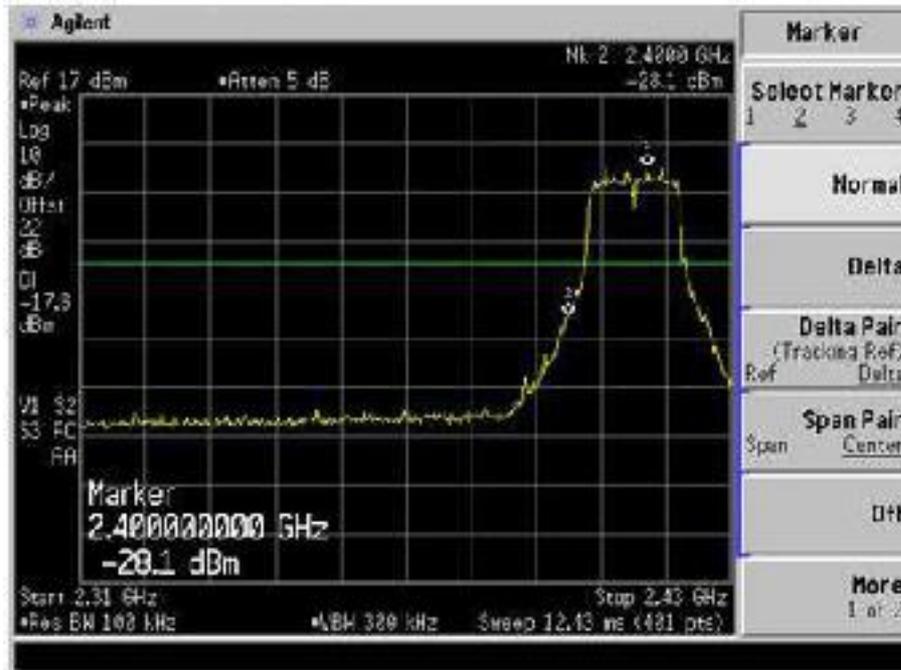


**Plot 296 – Upper Band Edge at 24835GHz @ CCK 11Mbps**

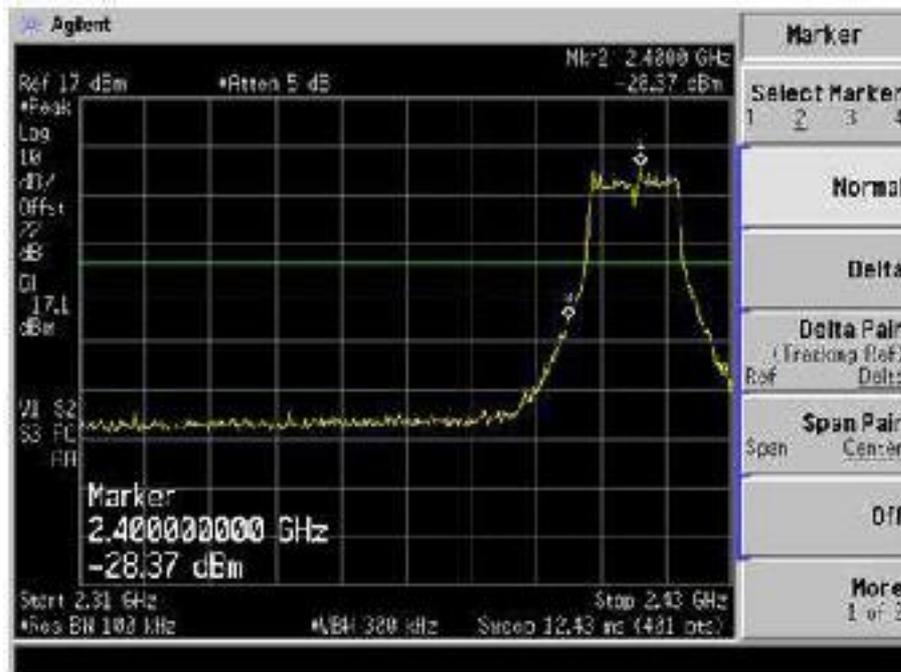


**BAND EDGE COMPLIANCE (CONDUCTED) TEST**

**Band Edge Compliance (Conducted) Plots – 802.11g**



**Plot 297 – Lower Band Edge at 2.4000GHz @ BPSK 9Mbps**

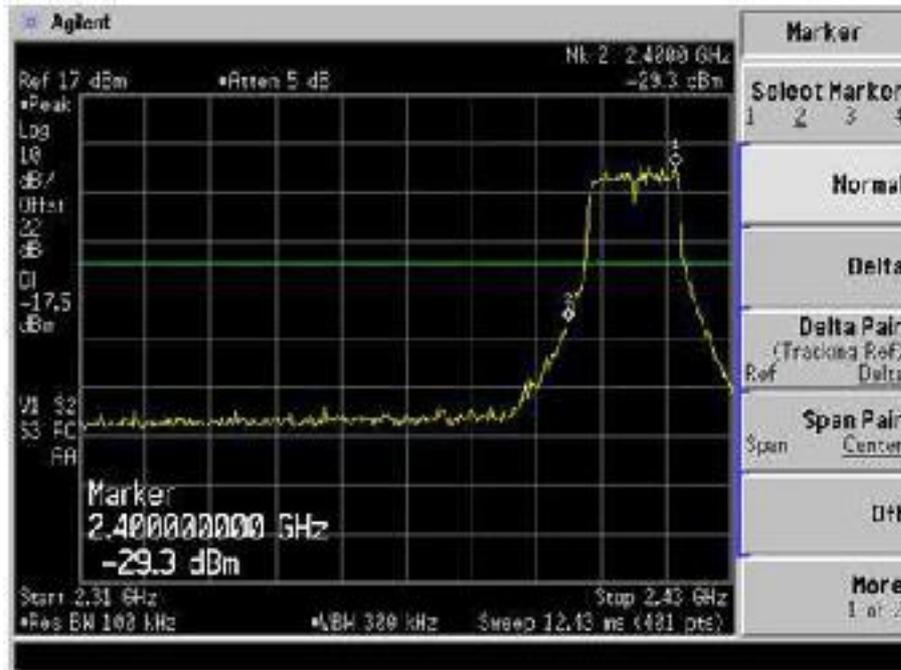


**Plot 298 – Lower Band Edge at 2.4000GHz @ QPSK 18Mbps**

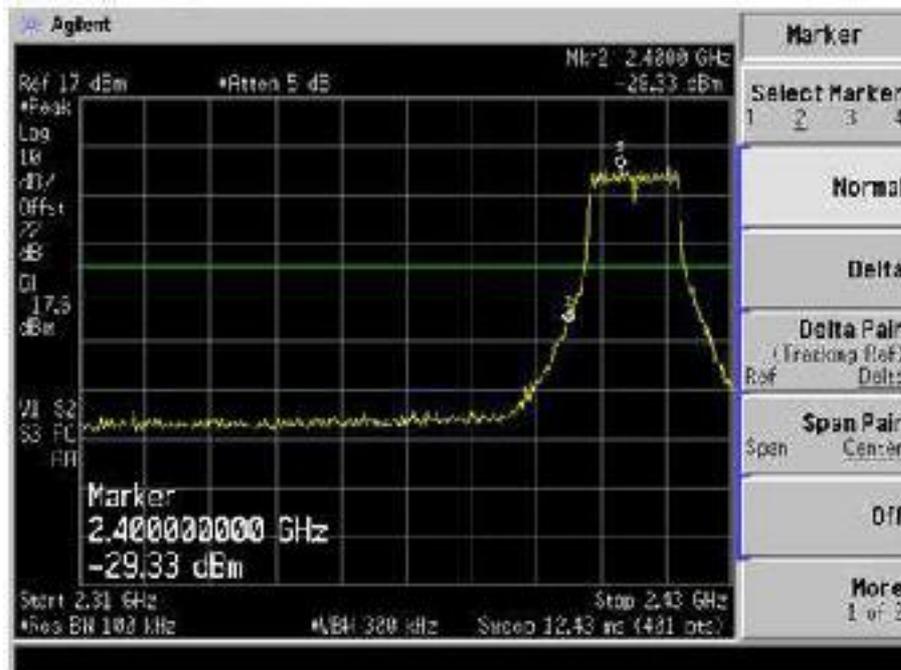


**BAND EDGE COMPLIANCE (CONDUCTED) TEST**

**Band Edge Compliance (Conducted) Plots – 802.11g**



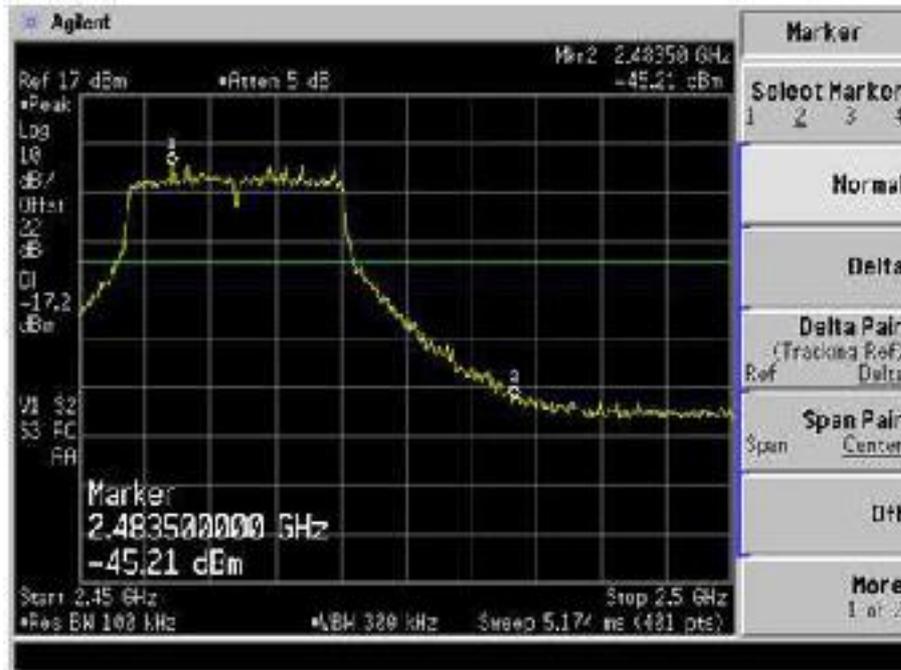
**Plot 299 – Lower Band Edge at 2.4000GHz @ 16Q AM 36Mbps**



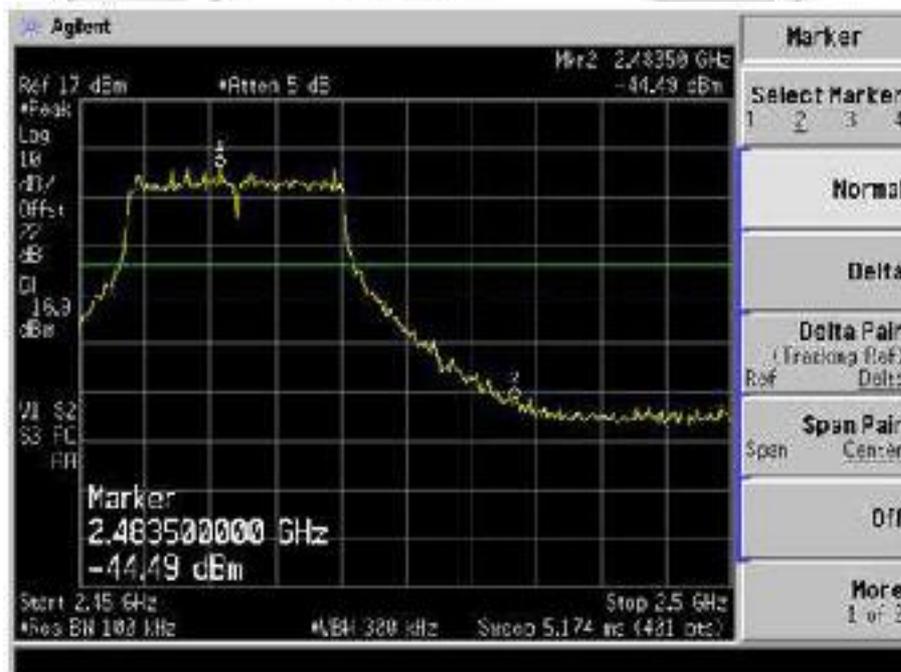
**Plot 300 – Lower Band Edge at 2.4000GHz @ 64Q AM 54Mbps**

**BAND EDGE COMPLIANCE (CONDUCTED) TEST**

**Band Edge Compliance (Conducted) Plots – 802.11g**



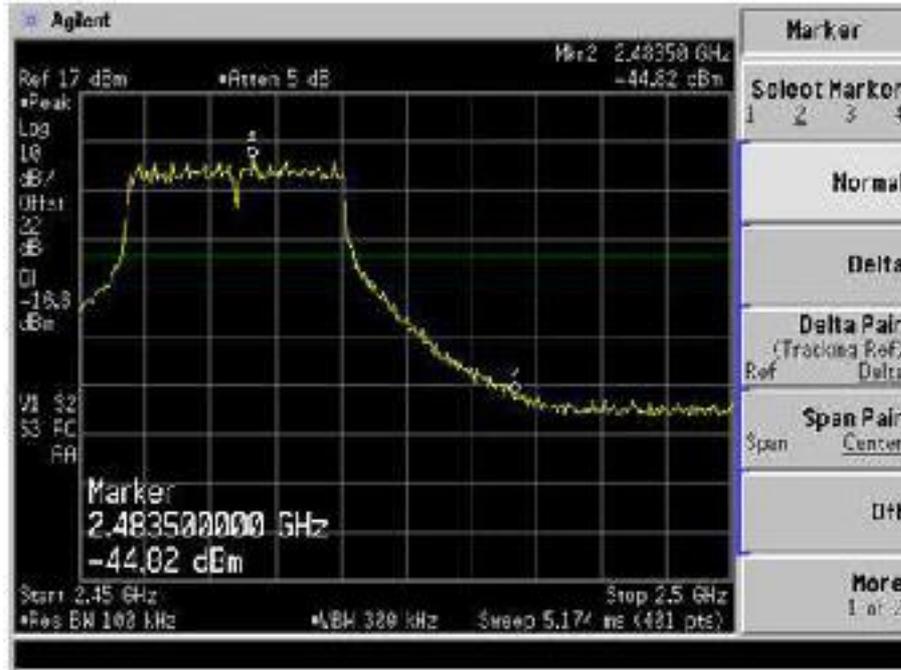
**Plot 301 – Upper Band Edge at 24835GHz @BPSK 9Mbps**



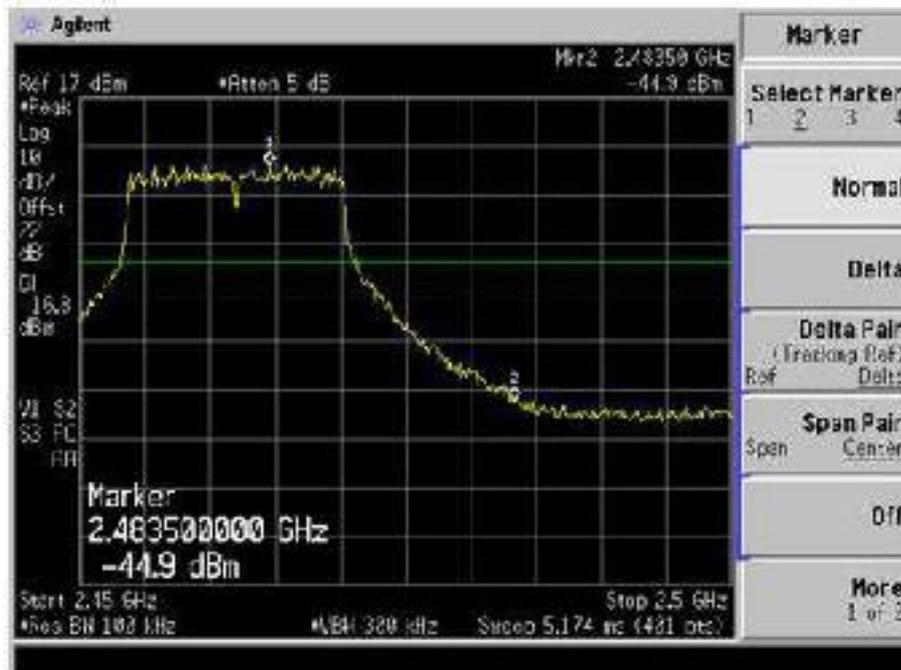
**Plot 302 – Upper Band Edge at 24835GHz @QPSK 18Mbps**

**BAND EDGE COMPLIANCE (CONDUCTED) TEST**

**Band Edge Compliance (Conducted) Plots – 802.11g**



Plot 303 – Upper Band Edge at 24835GHz @ 16Q AM 36Mbps



Plot 304 – Upper Band Edge at 24835GHz @ 64Q AM 54Mbps

**BAND EDGE COMPLIANCE (RADIATED) TEST**

**47 CFR FCC Part 15.247(d) Band Edge Compliance (Radiated) Limits**

The EUT shows compliance to the requirements of this section, which states in any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator (EUT) is operating, the radio frequency power that is produced by the EUT shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of desired power. In addition, radiated emissions which fall in the restricted bands shall comply to the radiated emission limits specified in 15.209.

**47 CFR FCC Part 15.247(d) Band Edge Compliance (Radiated) Test Instrumentation**

Instrument	Model	S/No	Cal Due Date
Agilent EMC Analyzer	E7403A	US41160165	04 Nov 2012
TDK RF Solutions Hybrid Log Periodic Antenna (30MHz-3GHz)	HLP-3003C	130238	19 Mar 2013
Sonoma Preamplifier (9kHz – 1GHz)	310N	270640	03 Jan 2013
Toyo Microwave Preamplifier (1GHz - 18GHz)	TPA0188-36	1005	24 Jun 2012
EMCO Horn Antenna – H15	3115	0003-6088	20 May 2013

**47 CFR FCC Part 15.247(d) Band Edge Compliance (Radiated) Test Setup**

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The resolution bandwidth (RBW) and the video bandwidth (VBW) of the spectrum analyser were respectively set to 100kHz and 300kHz to show compliance of spurious at band edges are at least 20dB below the carriers. For restricted band spurious at band edges, peak and average measurement plots were taken using the following setting:
  - a. Peak Plot  
RBW = VBW = 1MHz
  - b. Average Plot  
RBW = 1MHz, VBW = 10Hz
4. All other supporting equipment were powered separately from another filtered mains.

**47 CFR FCC Part 15.247(d) Band Edge Compliance (Radiated) Test Method**

1. The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode with specified modulation and data rate.
2. The frequency span of the spectrum analyser was set to wide enough to capture the lower band edge of the transmission band, 2.400GHz and any spurious emissions at the band edge.
3. The spectrum analyser was set to max hold to capture any spurious emissions within the span. The signal capturing was continuous until no further spurious emissions were detected.
4. Repeat steps 1 to 3 with all possible modulations and data rates.
5. The steps 2 to 4 were repeated with the frequency span of the spectrum analyser was set to wide enough to capture the upper band edge frequency of the transmission band, 2.4835GHz and the any spurious emissions at the band edge.

**BAND EDGE COMPLIANCE (RADIATED) TEST**



**Band Edge Compliance (Radiated) Test Setup**

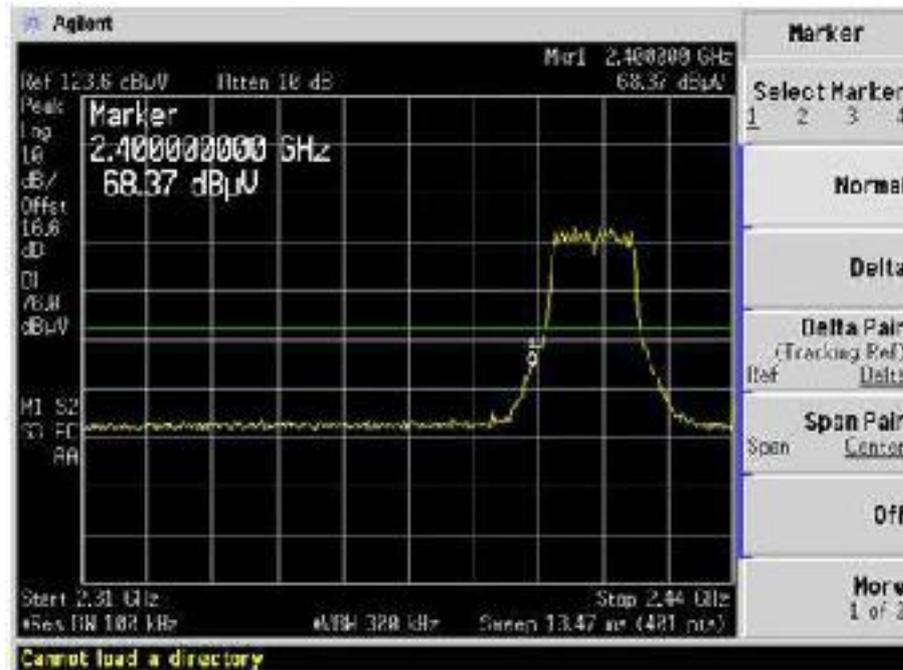
**47 CFR FCC Part 15.247(d) Band Edge Compliance (Radiated) Results**

Test Input Power	24V dc (Worst Voltage)	Temperature	22°C
Attached Plots	305 – 310	Relative Humidity	52%
		Atmospheric Pressure	1028mbar
		Tested By	Jason Lai

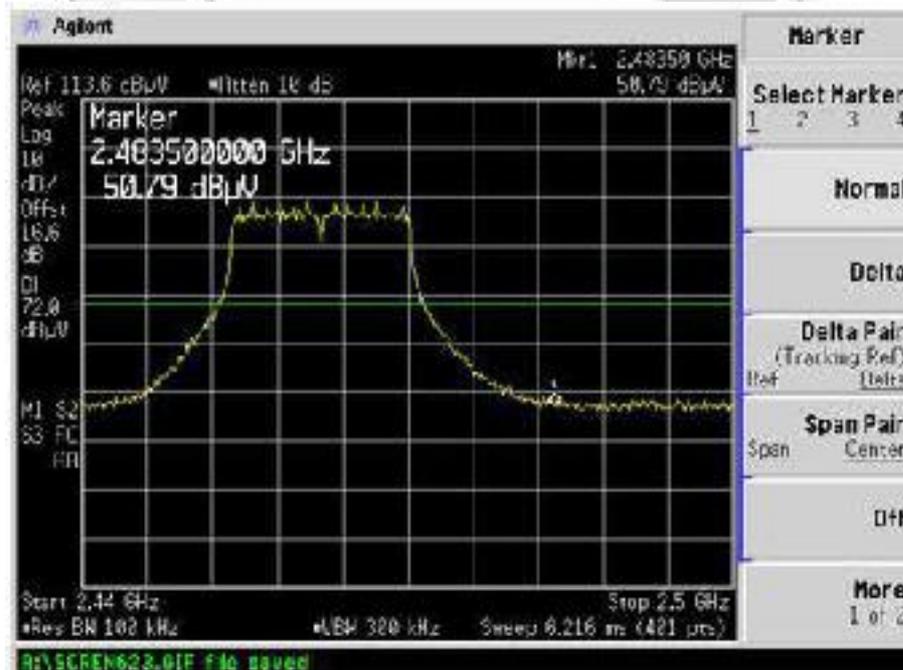
No significant signal was found and they were below the specified limit.

**BAND EDGE COMPLIANCE (RADIATED) TEST**

**Band Edge Compliance (Radiated) Plots (20dB Delta from Carrier at Band Edge)**



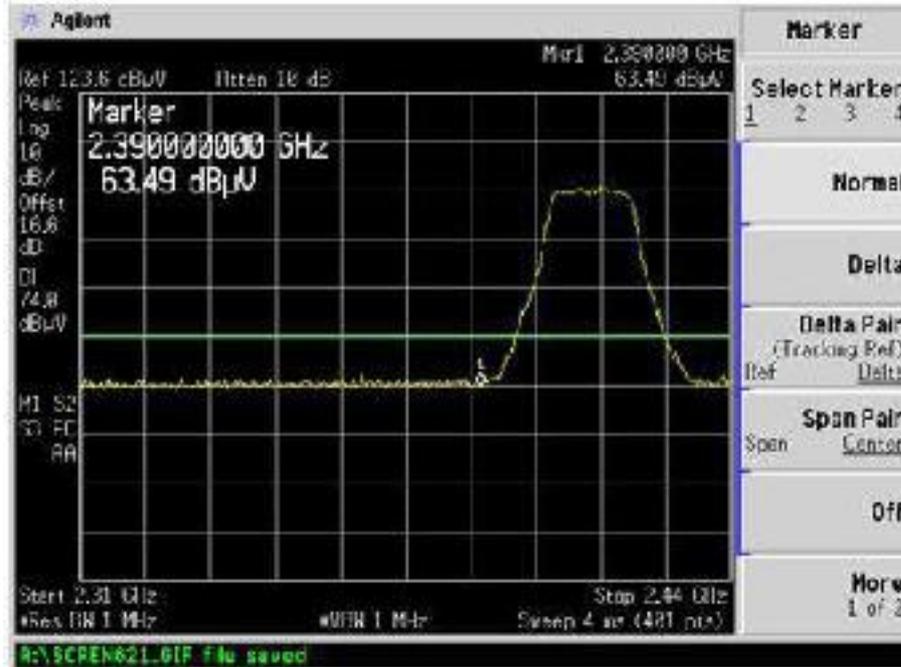
Plot 305 – Lower Band Edge at 2.4000GHz @ 64Q AM 54Mbps (Worst Case)



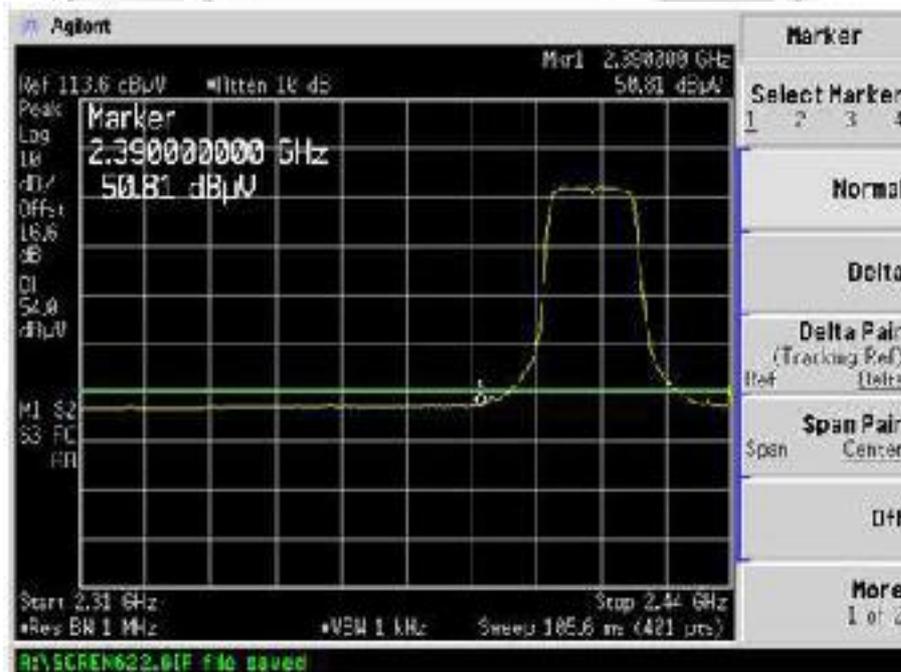
Plot 306 – Lower Band Edge at 2.4000GHz @ 64Q AM 54Mbps (Worst Case)

**BAND EDGE COMPLIANCE (RADIATED) TEST**

**Band Edge Compliance (Radiated) Plots (20dB Delta from Carrier at Band Edge)**



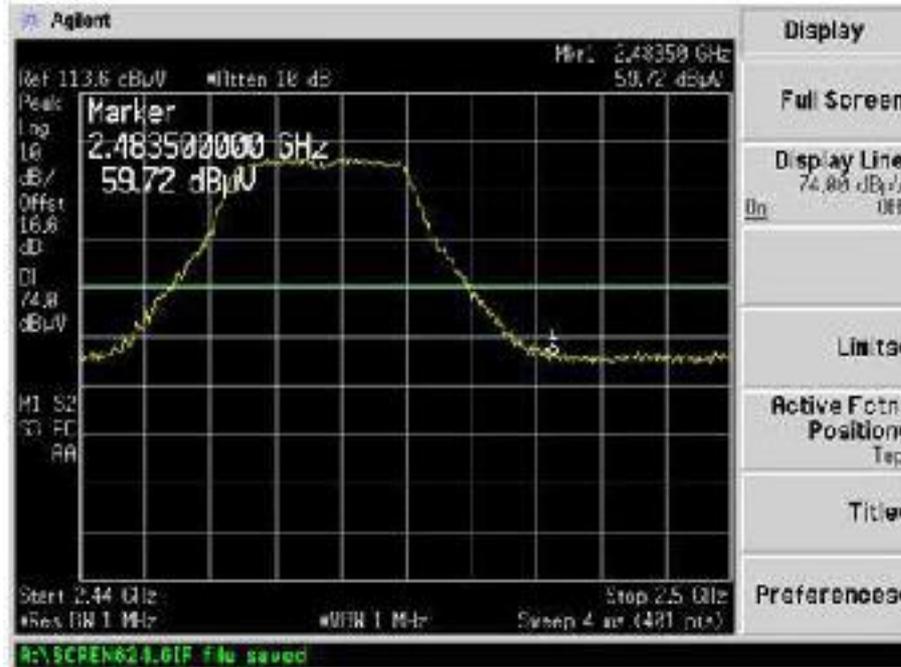
Plot 307 – Lower Band Edge at 2.4000GHz @ 64Q AM 54Mbps (Worst Case)



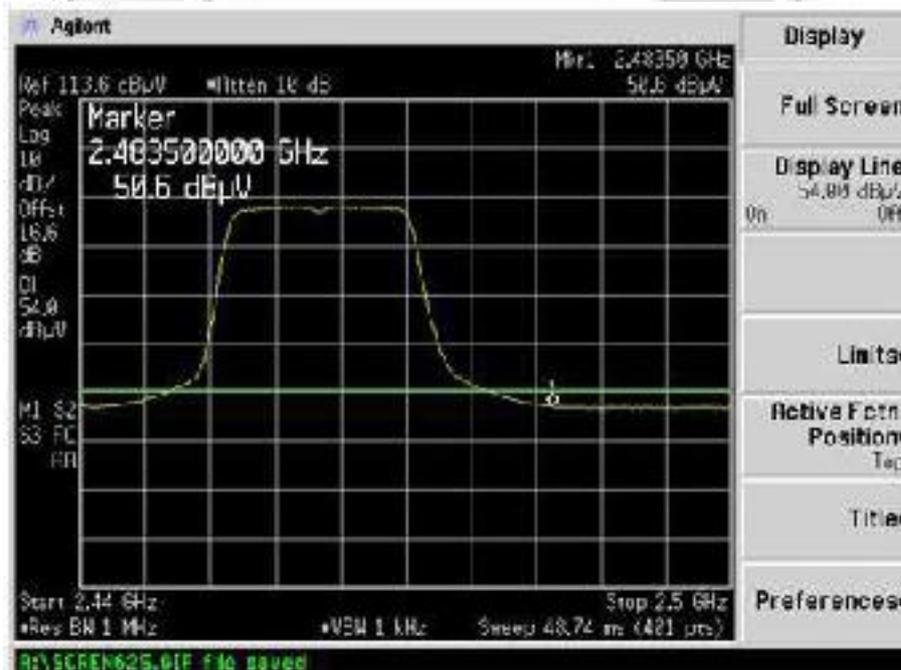
Plot 308 – Lower Band Edge at 2.4000GHz @ 64Q AM 54Mbps (Worst Case)

**BAND EDGE COMPLIANCE (RADIATED) TEST**

**Band Edge Compliance (Radiated) Plots (20dB Delta from Carrier at Band Edge)**



Plot 309 – Upper Band Edge at 24835GHz @ 64Q AM 54Mbps (Worst Case)



Plot 310 – Upper Band Edge at 24835GHz @ 64Q AM 54Mbps (Worst Case)

**PEAK POWER SPECTRAL DENSITY TEST**

**47 CFR FCC Part 15.247(e) Peak Power Spectral Density Limits**

The EUT shows compliance to the requirements of this section, which states the peak power spectral density conducted from the intentional radiator (EUT) to the antenna shall not be greater than 8dBm (6.3mW) in any 3kHz band during anytime interval of continuous transmission.

**47 CFR FCC Part 15.247(e) Peak Power Spectral Density Test Instrumentation**

Instrument	Model	S/No	Cal Due Date
Agilent EMC Analyzer (9kHz-26.5GHz)	E7405A	US40240195	16 Mar 2013
GW Instek Programmable Power Supply	PSH-3630A	RK200168	30 Jan 2013

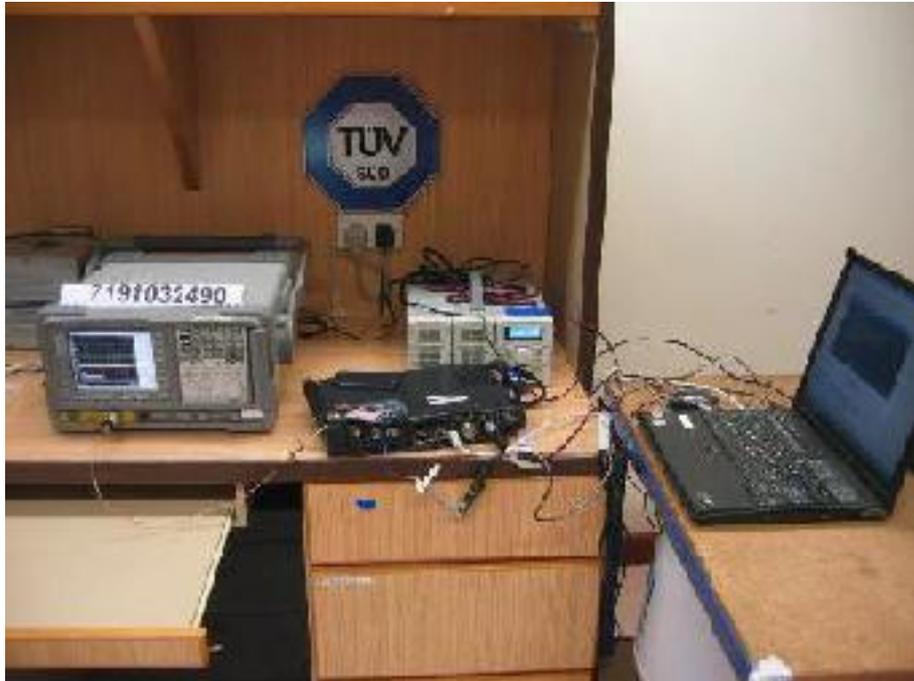
**47 CFR FCC Part 15.247(e) Peak Power Spectral Density Test Setup**

1. The EUT and supporting equipment were set up as shown in the setup photo.
2. The power supply for the EUT was connected to a filtered mains.
3. The RF antenna connector was connected to the spectrum via a low-loss coaxial cable.
4. The resolution bandwidth (RBW), video bandwidth (VBW) and span of the spectrum analyser were set to the following  
RBW = 100kHz  
VBW = 300kHz  
Span = 5% to 30% greater than EBW  
Sweep time = auto couple
5. All other supporting equipment were powered separately from another filtered mains.

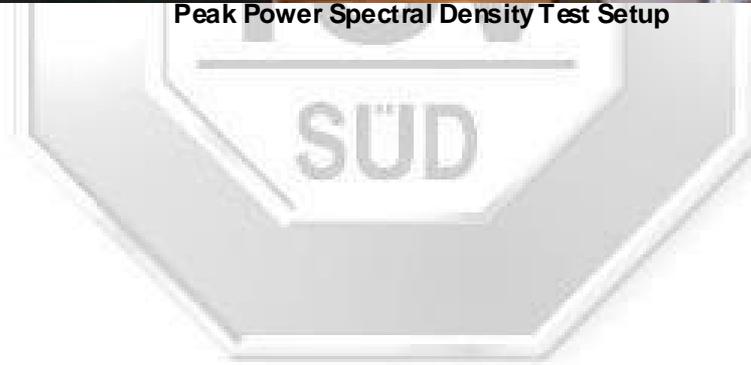
**47 CFR FCC Part 15.247(e) Peak Power Spectral Density Test Method**

1. The EUT was switched on and allowed to warm up to its normal operating condition. The EUT was then configured to operate in the test mode at lower channel with specified modulation and data rate.
2. The peak of the transmitting frequency was detected with the marker peak function of the spectrum analyser.
3. The detected power level was scaled to an equivalent 3kHz by adding a bandwidth correction factor (BWCF) of  $10 \log (3\text{kHz} / 100\text{kHz})$ ; ie -15.2dB.
4. The peak power density of the transmitting frequency was plotted and recorded.
5. Repeat steps 1 to 4 with all possible modulations and data rates.
6. The steps 2 to 5 were repeated with the transmitting frequency was set to middle and upper channel respectively.

**PEAK POWER SPECTRAL DENSITY TEST**



Peak Power Spectral Density Test Setup



PEAK POWER SPECTRAL DENSITY TEST

**47 CFR FCC Part 15.247(e) Peak Power Spectral Density Results**

Test Input Power	24V dc (Worst Voltage)	Temperature	24°C
Attached Plots	311 – 322 (802.11b)	Relative Humidity	54%
		Atmospheric Pressure	1027mbar
		Tested By	Kyaw Soe Hein

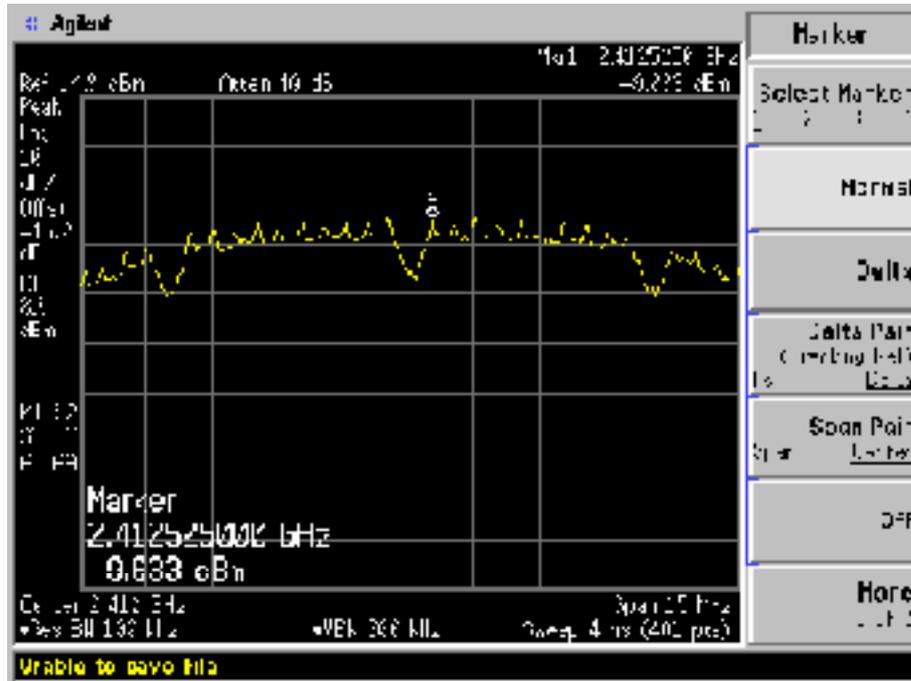
Channel	Channel Frequency (GHz)	Peak Power Spectral Density (mW)	Limit (mW)	Modulation @ Data Rate
1	2.412	0.1039	6.3	DBPSK @ 1Mbps
		0.0857	6.3	DQPSK @ 2Mbps
		0.0861	6.3	CCK @ 5.5Mbps
		0.1216	6.3	CCK @ 11Mbps
6	2.437	0.0800	6.3	DBPSK @ 1Mbps
		0.0964	6.3	DQPSK @ 2Mbps
		0.0918	6.3	CCK @ 5.5Mbps
		0.0863	6.3	CCK @ 11Mbps
11	2.462	0.0843	6.3	DBPSK @ 1Mbps
		0.0822	6.3	DQPSK @ 2Mbps
		0.0989	6.3	CCK @ 5.5Mbps
		0.0843	6.3	CCK @ 11Mbps

Test Input Power	24V dc (Worst Voltage)	Temperature	24°C
Attached Plots	323 – 334 (802.11g)	Relative Humidity	54%
		Atmospheric Pressure	1027mbar
		Tested By	Kyaw Soe Hein

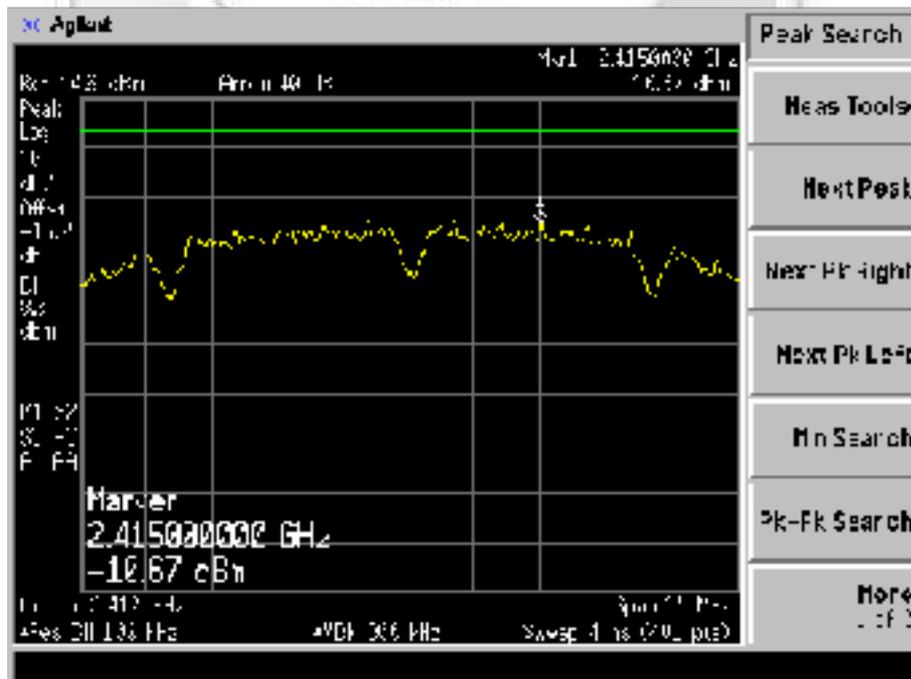
Channel	Channel Frequency (GHz)	Peak Power Spectral Density (mW)	Limit (mW)	Modulation @ Data Rate
1	2.412	0.0733	6.3	BPSK @ 9Mbps
		0.0843	6.3	QPSK @ 18Mbps
		0.0838	6.3	16QAM @ 36Mbps
		0.0773	6.3	64QAM @ 54Mbps
6	2.437	0.0736	6.3	BPSK @ 9Mbps
		0.0705	6.3	QPSK @ 18Mbps
		0.0753	6.3	16QAM @ 36Mbps
		0.0731	6.3	64QAM @ 54Mbps
11	2.462	0.0828	6.3	BPSK @ 9Mbps
		0.0836	6.3	QPSK @ 18Mbps
		0.0820	6.3	16QAM @ 36Mbps
		0.0931	6.3	64QAM @ 54Mbps

PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11b



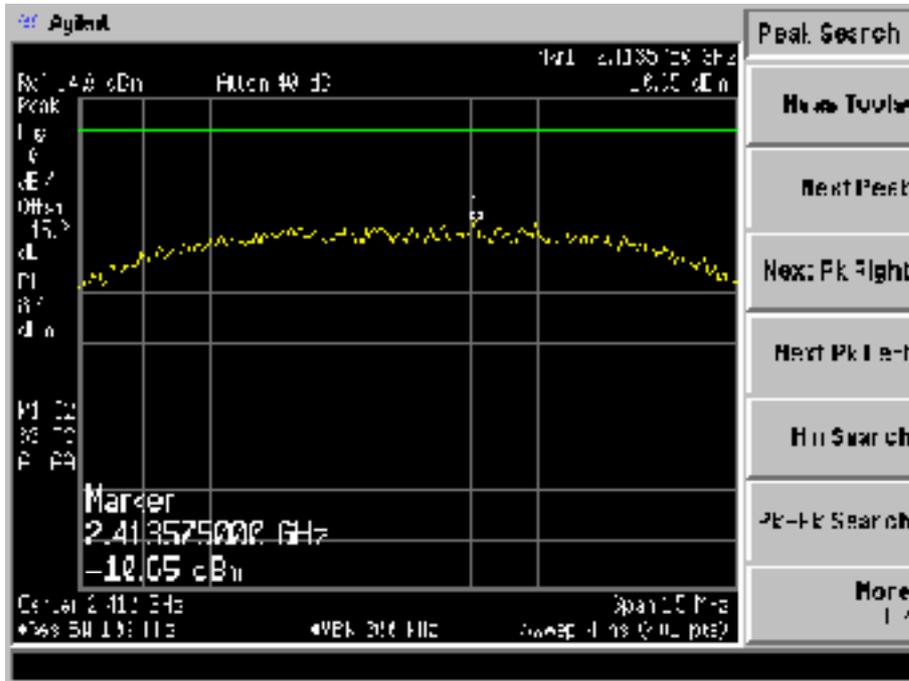
Plot 311 – Channel 1 @ DBPSK 1Mbps



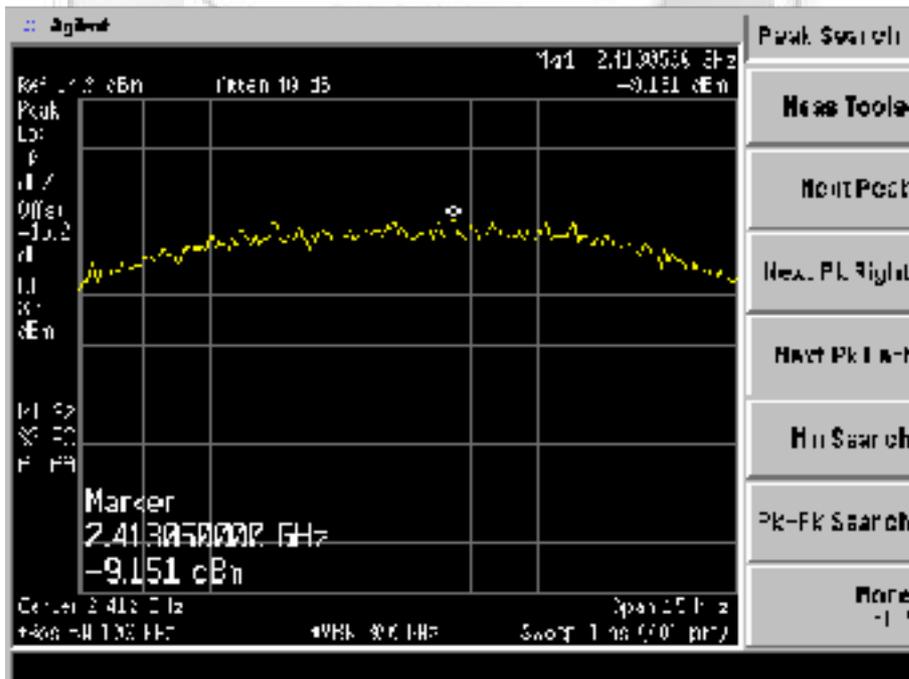
Plot 312 – Channel 1 @ DQPSK 2Mbps

PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots - 802.11b



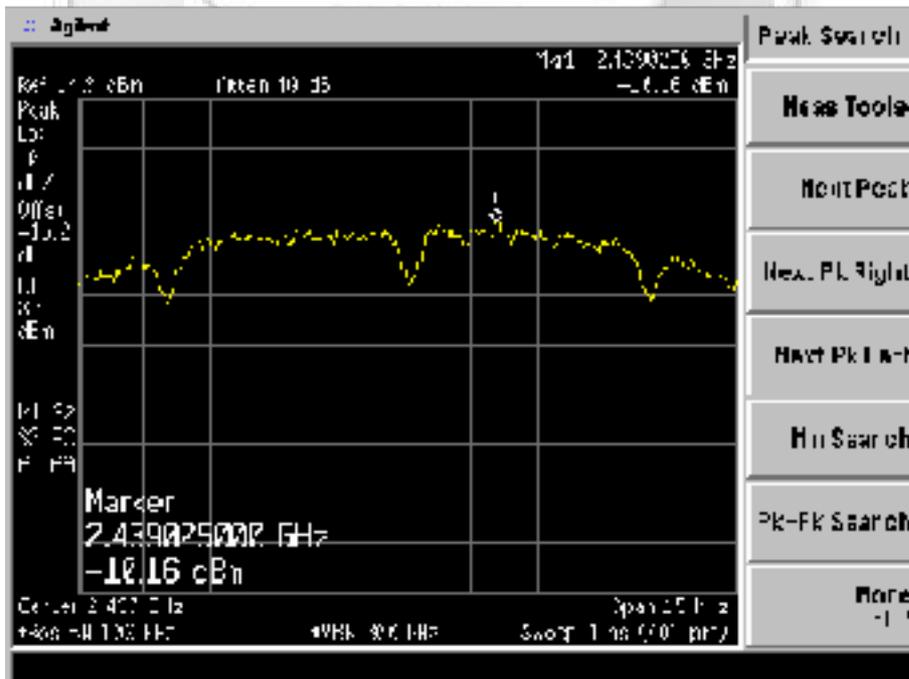
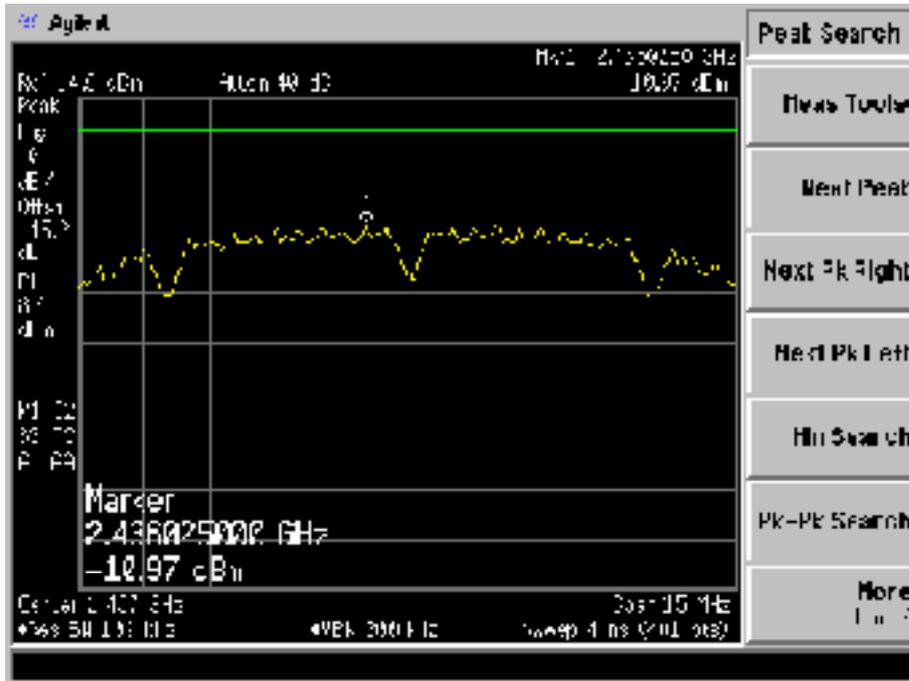
Plot 313 – Channel 1 @ CCK 5.5Mbps



Plot 314 – Channel 1 @ CCK 11Mbps

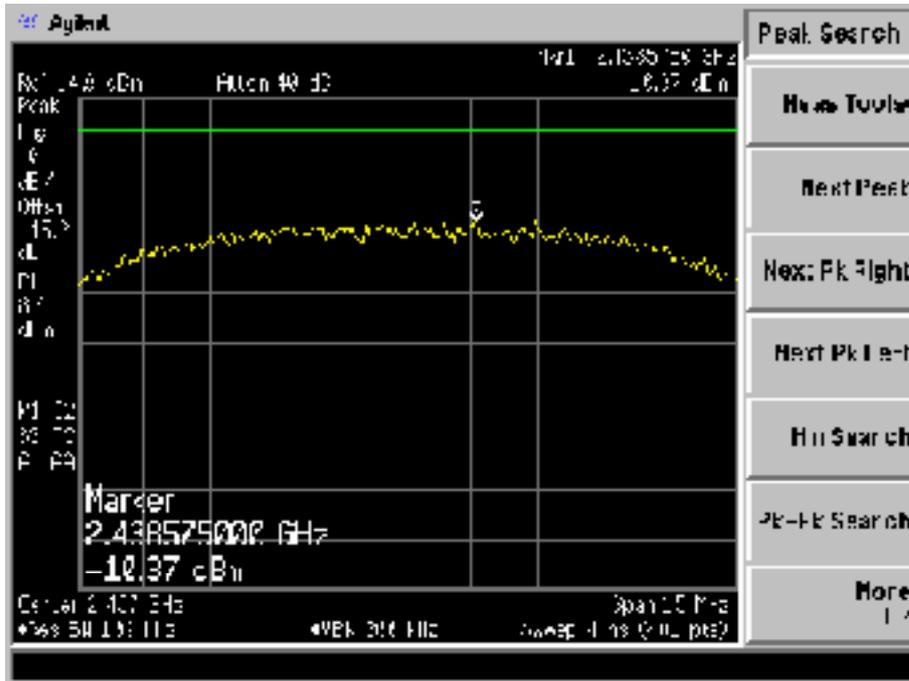
PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots - 802.11b

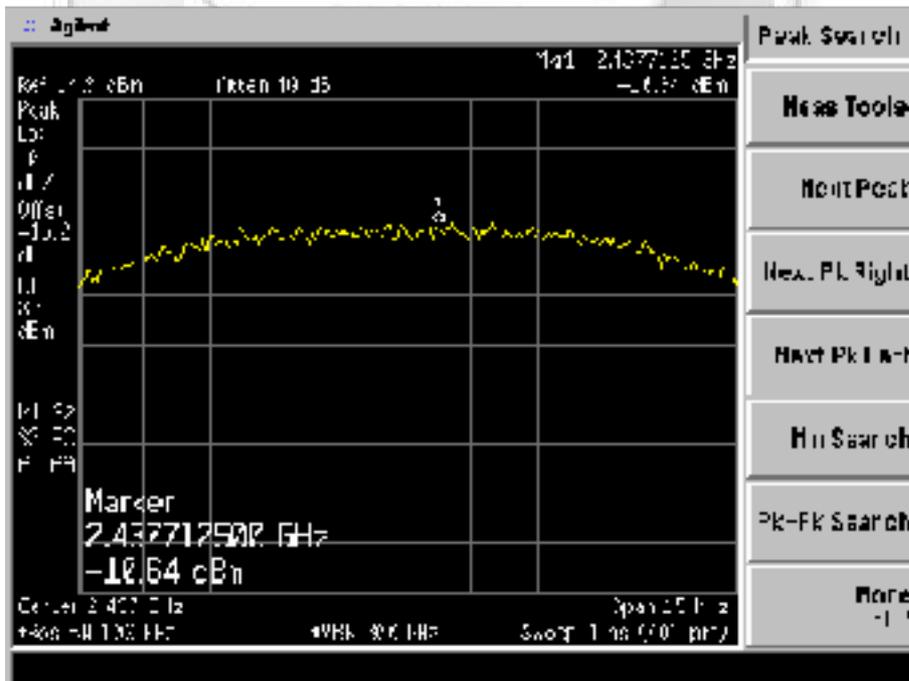


PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots - 802.11b



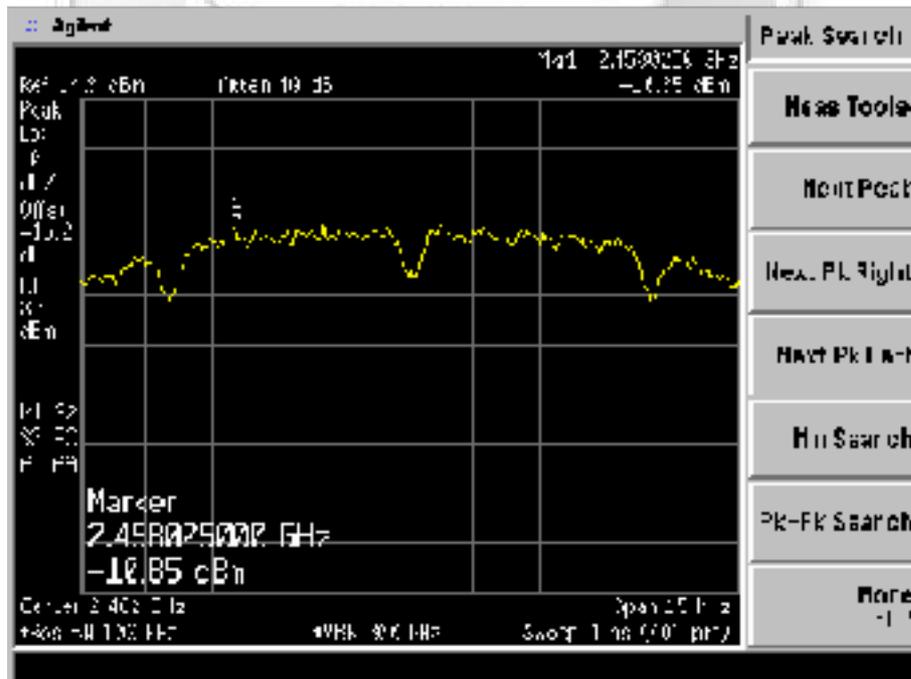
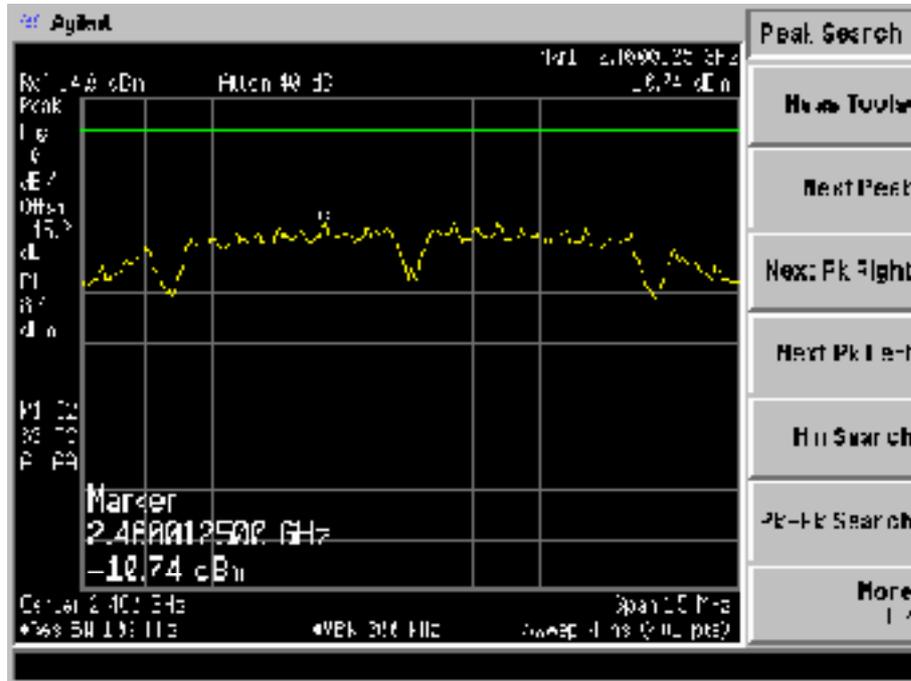
Plot 317 – Channel 6 @ CCK 5.5Mbps



Plot 318 – Channel 6 @ CCK 11Mbps

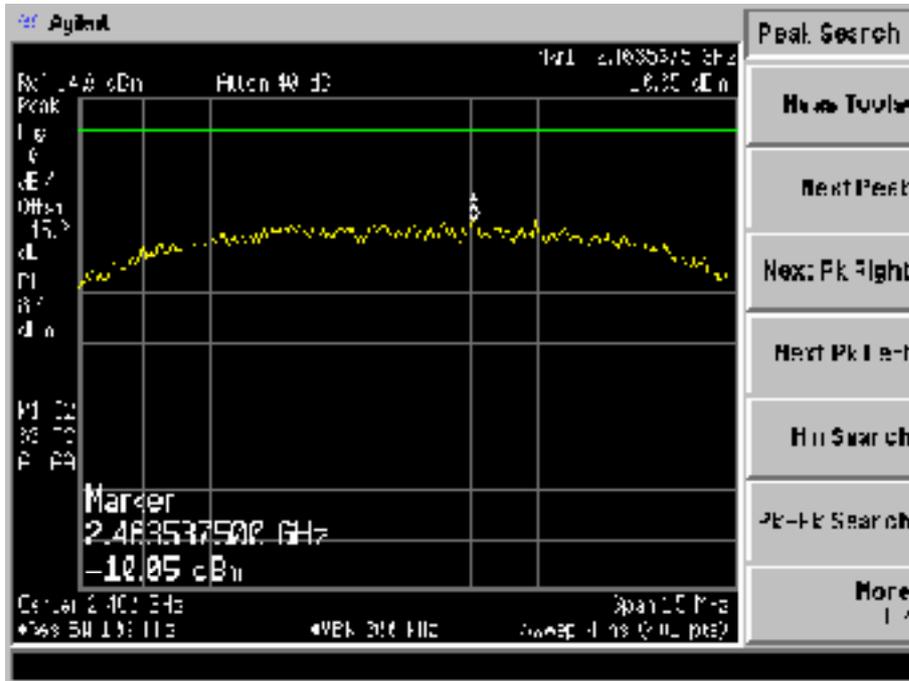
PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots - 802.11b

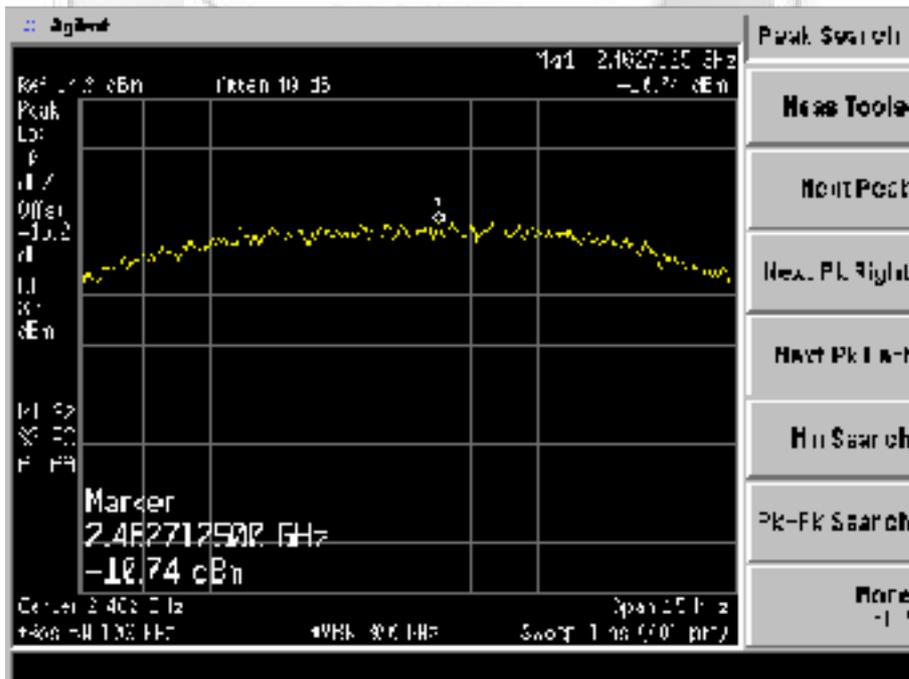


PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots - 802.11b



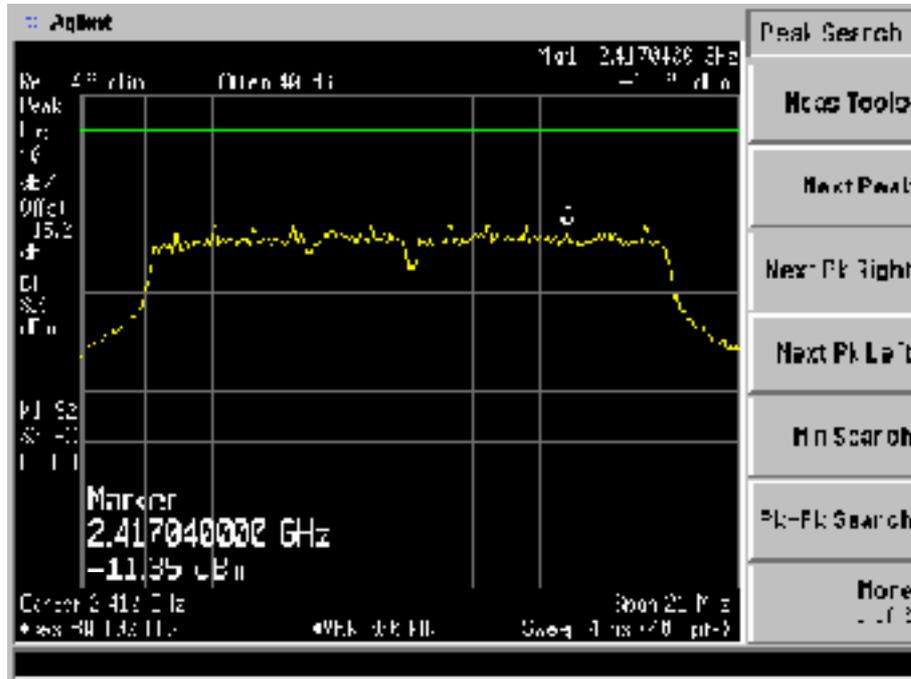
Plot 321 – Channel 11 @ CCK 5.5Mbps



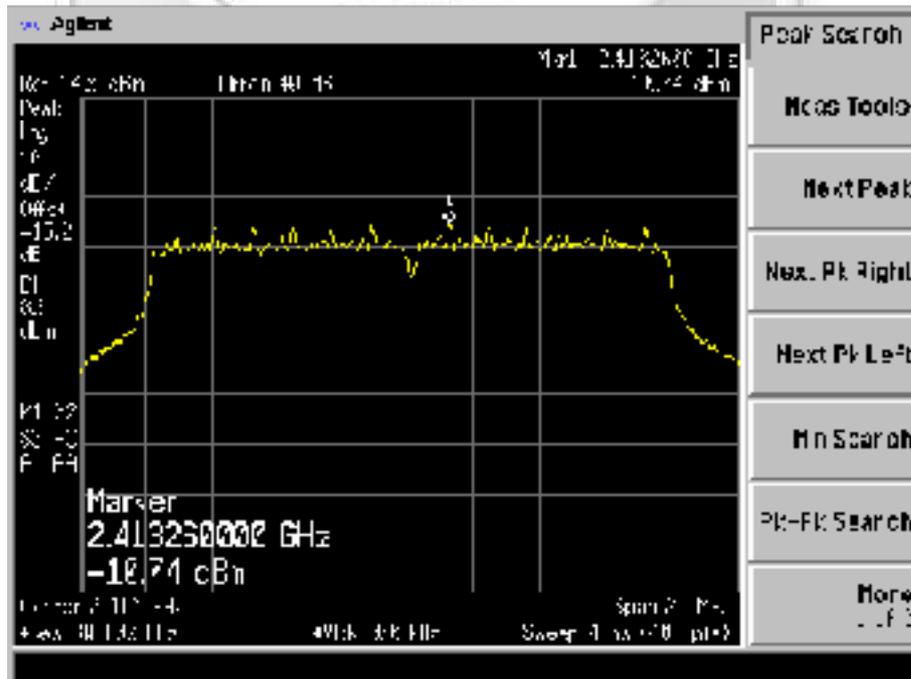
Plot 322 – Channel 11 @ CCK 11Mbps

PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11g



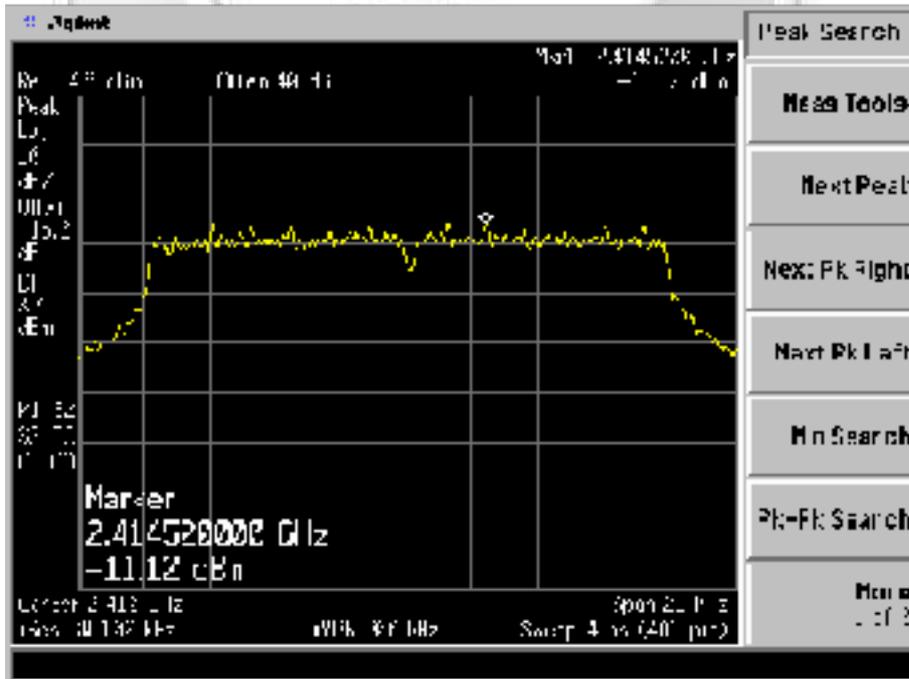
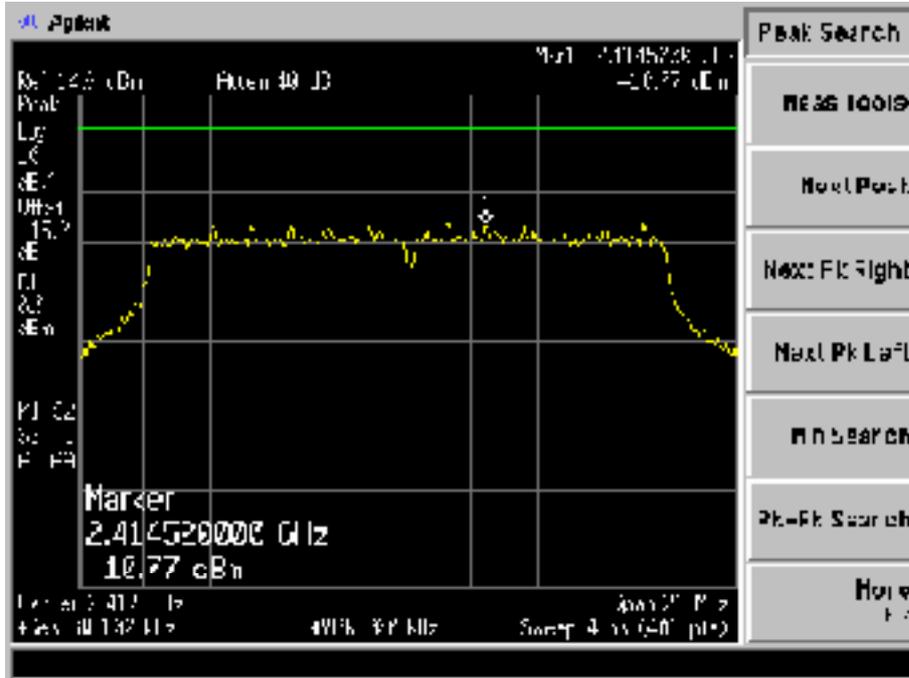
Plot 323 – Channel 1 @ BPSK 9Mbps



Plot 324 – Channel 1 @ QPSK 18Mbps

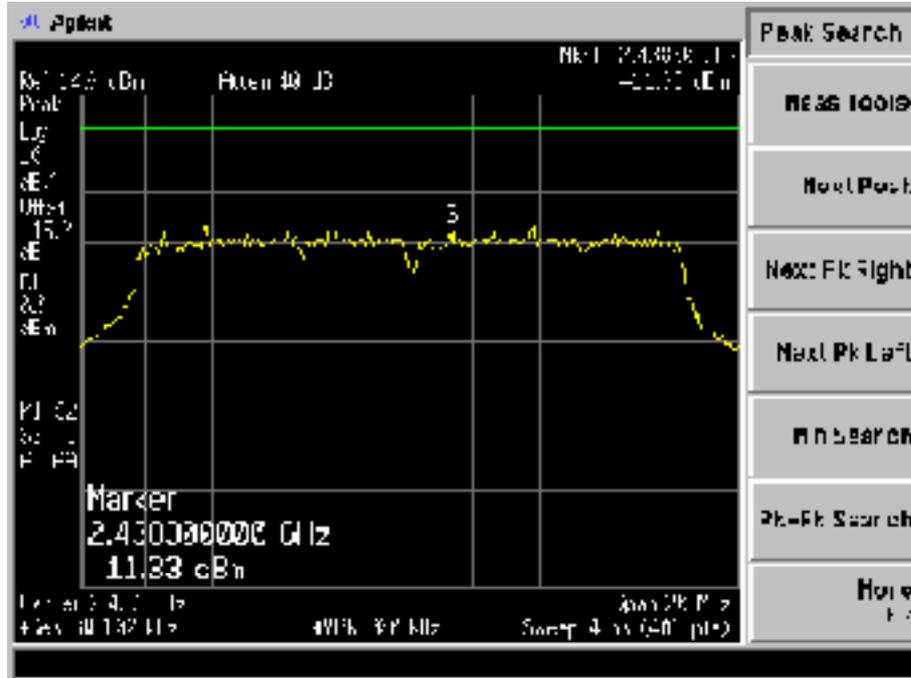
**PEAK POWER SPECTRAL DENSITY TEST**

Peak Power Spectral Density Plots – 802.11g

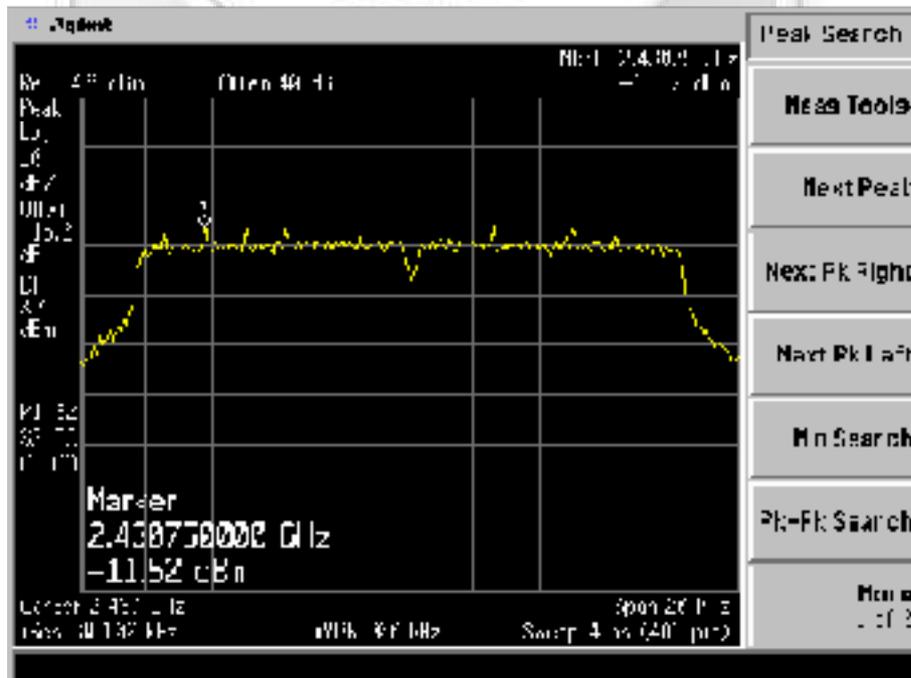


PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11g



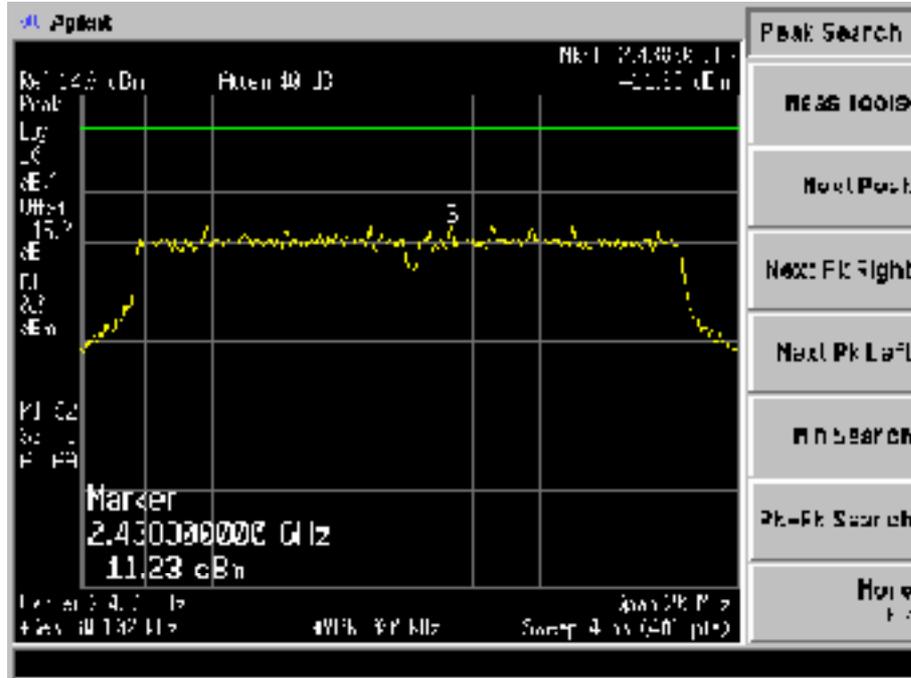
Plot 327 – Channel 6 @ BPSK 9Mbps



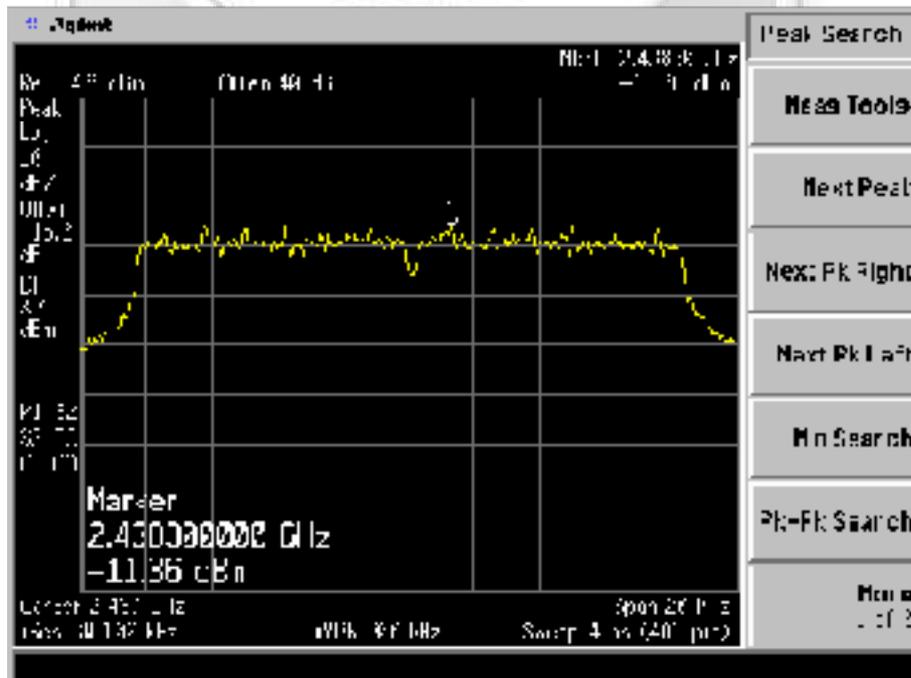
Plot 328 – Channel 6 @ QPSK 18Mbps

**PEAK POWER SPECTRAL DENSITY TEST**

Peak Power Spectral Density Plots – 802.11g



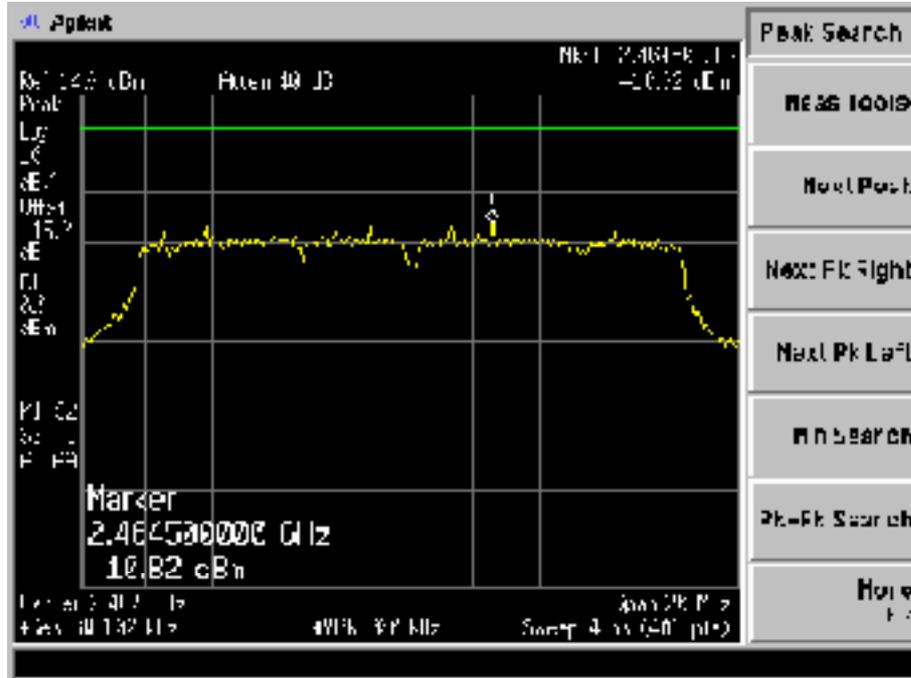
Plot 329 – Channel 6 @ 16Q AM 36Mbps



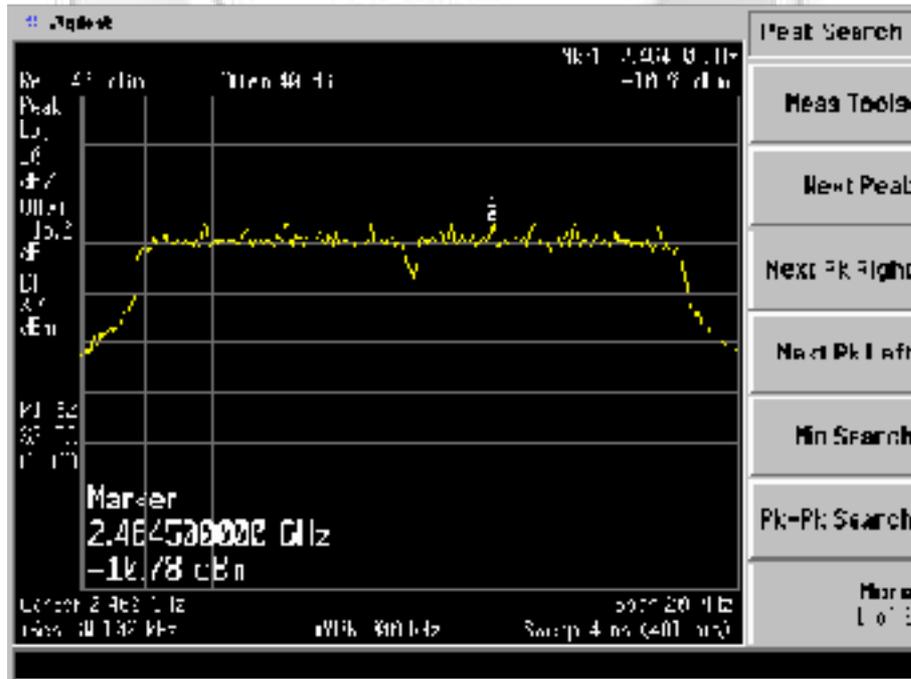
Plot 330 – Channel 6 @ 64Q AM 54Mbps

**PEAK POWER SPECTRAL DENSITY TEST**

Peak Power Spectral Density Plots – 802.11g



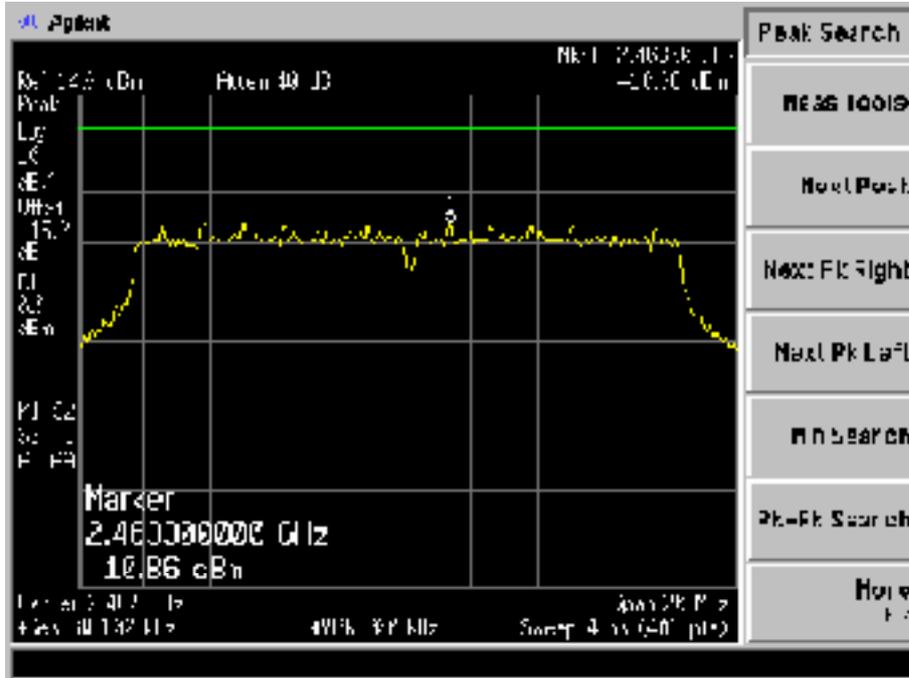
Plot 331 – Channel 11 @ BPSK 9Mbps



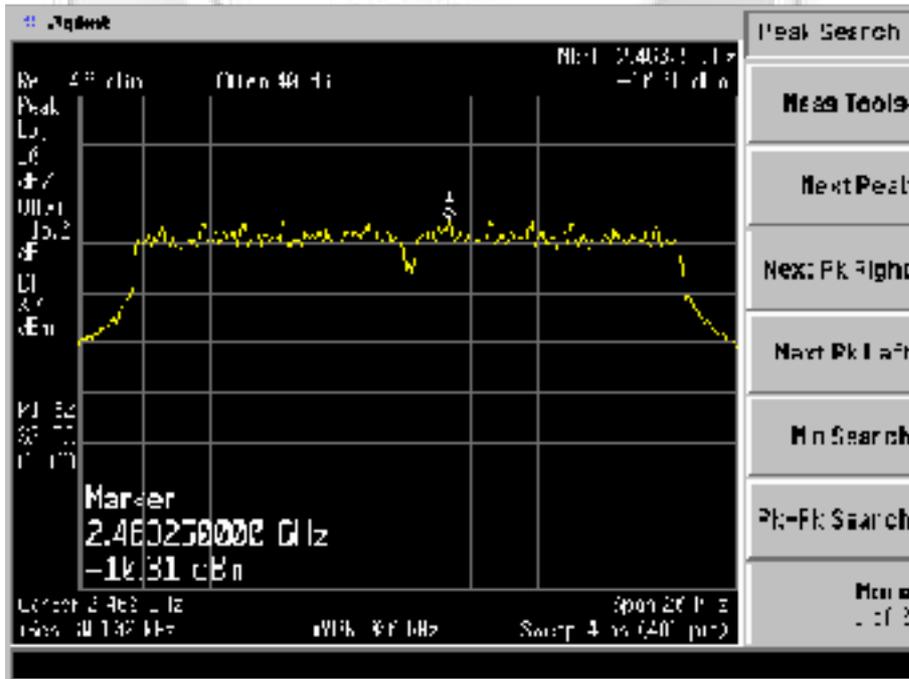
Plot 332 – Channel 11 @ QPSK 18Mbps

PEAK POWER SPECTRAL DENSITY TEST

Peak Power Spectral Density Plots – 802.11g



Plot 333 – Channel 11 @16Q AM 36Mbps



Plot 334 – Channel 11 @64Q AM 54Mbps

**MAXIMUM PERMISSIBLE EXPOSURE (MPE) TEST**

**47 CFR FCC Part 1.1310 Maximum Permissible Exposure (MPE) Limits**

The EUT shows compliance to the requirements of this section, which states the MPE limits for general population/ uncontrolled exposure are as shown below.

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (min)
0.3 - 1.34	614	1.63	100 <sup>Note 2</sup>	30
1.34 - 30	824 / f	2.19 / f	180 / f <sup>2</sup> <sup>Note 2</sup>	30
30 - 300	27.5	0.073	0.2	30
300 - 1500	-	-	f / 1500	30
1500 - 100000	-	-	1.0	30
Notes				
1. f = frequency in MHz				
2. Plane wave equivalent power density				

**47 CFR FCC Part 1.1310 Maximum Permissible Exposure Computation**

The power density at 20cm distance was computed from the following formula:

$$S = \frac{(30GP)}{(377d^2)}$$

where

- S = Power density in W/m<sup>2</sup>
- P = 0.0350W
- d = Test distance at 0.2m
- G = Numerical isotropic gain, 1.00 (0.0dBi)

Substituting the relevant parameters into the formula:

$$S = \frac{[(30GP)}{377d^2]}$$

$$= 0.0811 \text{ W/m}^2$$

$$= 0.0082 \text{ mW/cm}^2$$

■ The power density of the EUT at 20cm distance is 0.0082mW/cm<sup>2</sup> based on the above computation and found to be lower than the power density limit of 1.0mW/cm<sup>2</sup>.

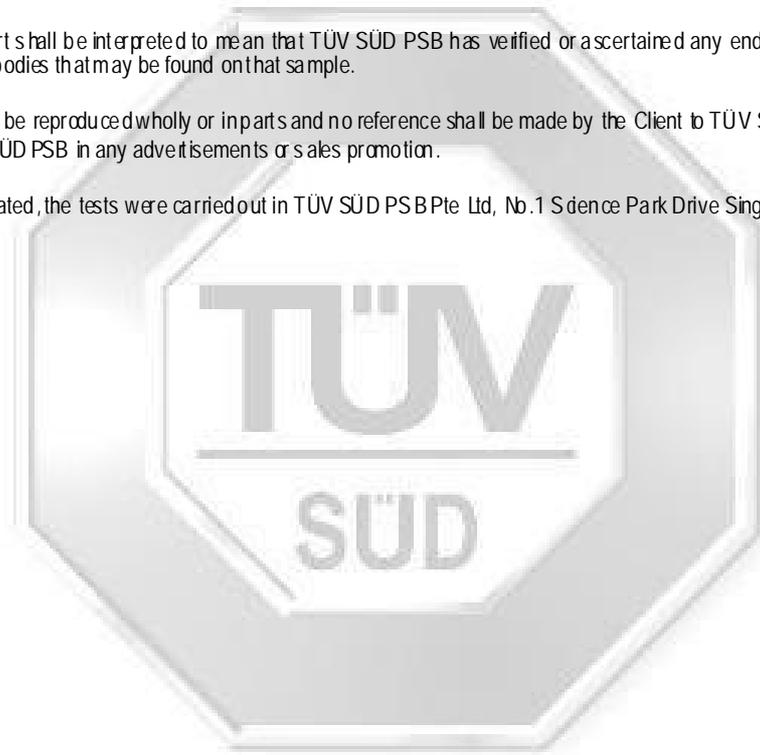
**Test Report No. 7191048238-EEC12/03**  
dated 04 Dec 2012



Please note that this Report is issued under the following terms :

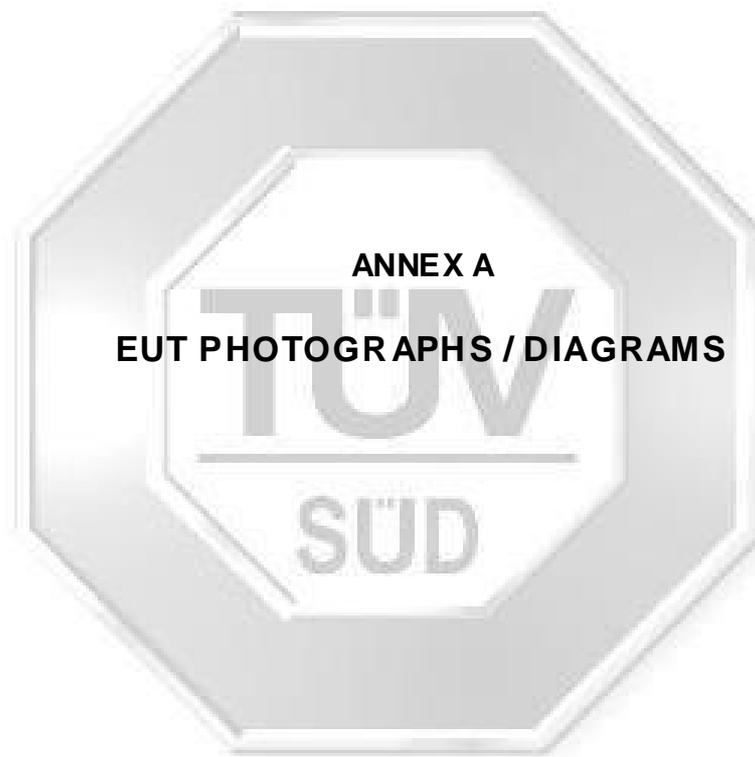
1. This report applies to the sample of the specific product/equipment given at the time of its testing/calibration. The results are not used to indicate or imply that they are applicable to other similar items. In addition, such results must not be used to indicate or imply that TÜV SÜD PSB approves, recommends or endorses the manufacturer, supplier or user of such product/equipment, or that TÜV SÜD PSB in any way "guarantees" the later performance of the product/equipment. Unless otherwise stated in this report, no tests were conducted to determine long term effects of using the specific product/equipment.
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5. Unless otherwise stated, the tests were carried out in TÜV SÜD PSB Pte Ltd, No.1 Science Park Drive Singapore 118221.

July 2011



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**ANNEX A EUT PHOTOGRAPHS / DIAGRAMS**



**ANNEX A EUT PHOTOGRAPHS / DIAGRAMS**

**EUT PHOTOGRAPHS – MAIN UNIT**



**Front View**



**Rear View**

**ANNEX A EUT PHOTOGRAPHS / DIAGRAMS**

**EUT PHOTOGRAPHS – HANDSET**



**Front View**



**Rear View**

**ANNEX A EUT PHOTOGRAPHS / DIAGRAMS**

**EUT PHOTOGRAPHS – ANTENNA UNIT**



**Front View**



**Internal View**

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

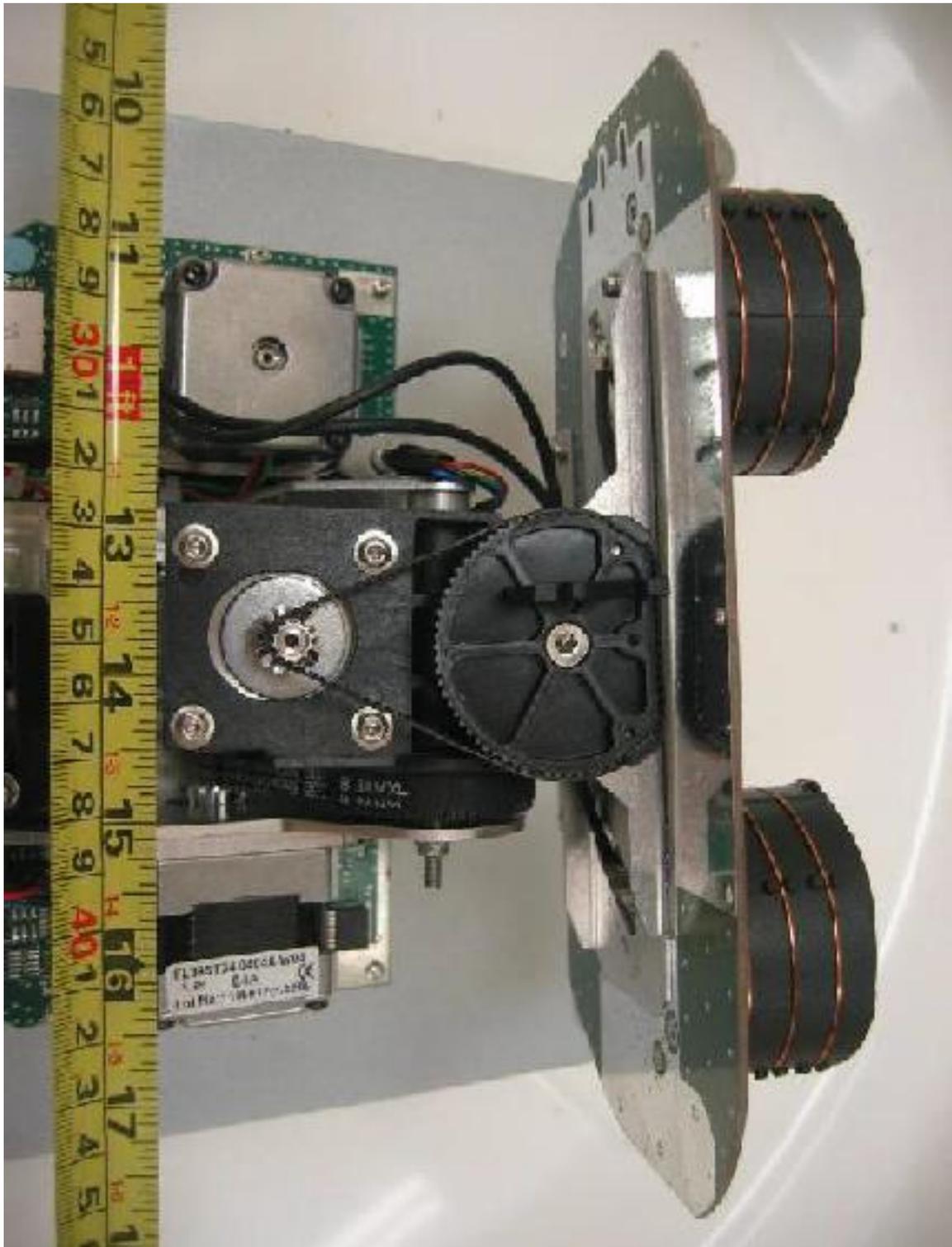
EUT PHOTOGRAPHS – ANTENNA UNIT



Antenna Component View

**ANNEX A EUT PHOTOGRAPHS / DIAGRAMS**

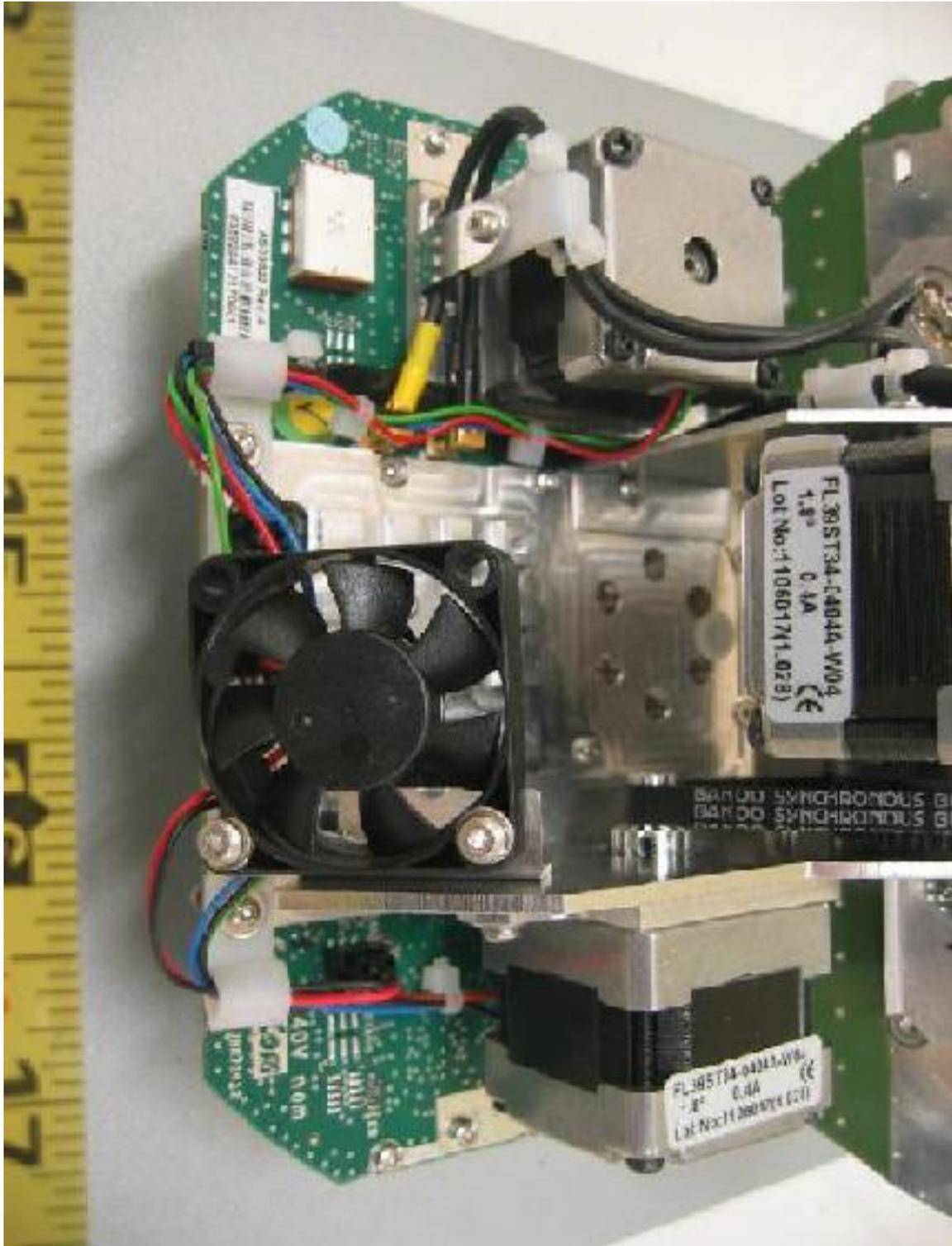
**EUT PHOTOGRAPHS – ANTENNA UNIT**



**Antenna Trace View**

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

EUT PHOTOGRAPHS – ANTENNA UNIT



RF ATC Board PCB Component Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

EUT PHOTOGRAPHS – MAIN UNIT



Satellite RF  
Antenna

Internal View

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

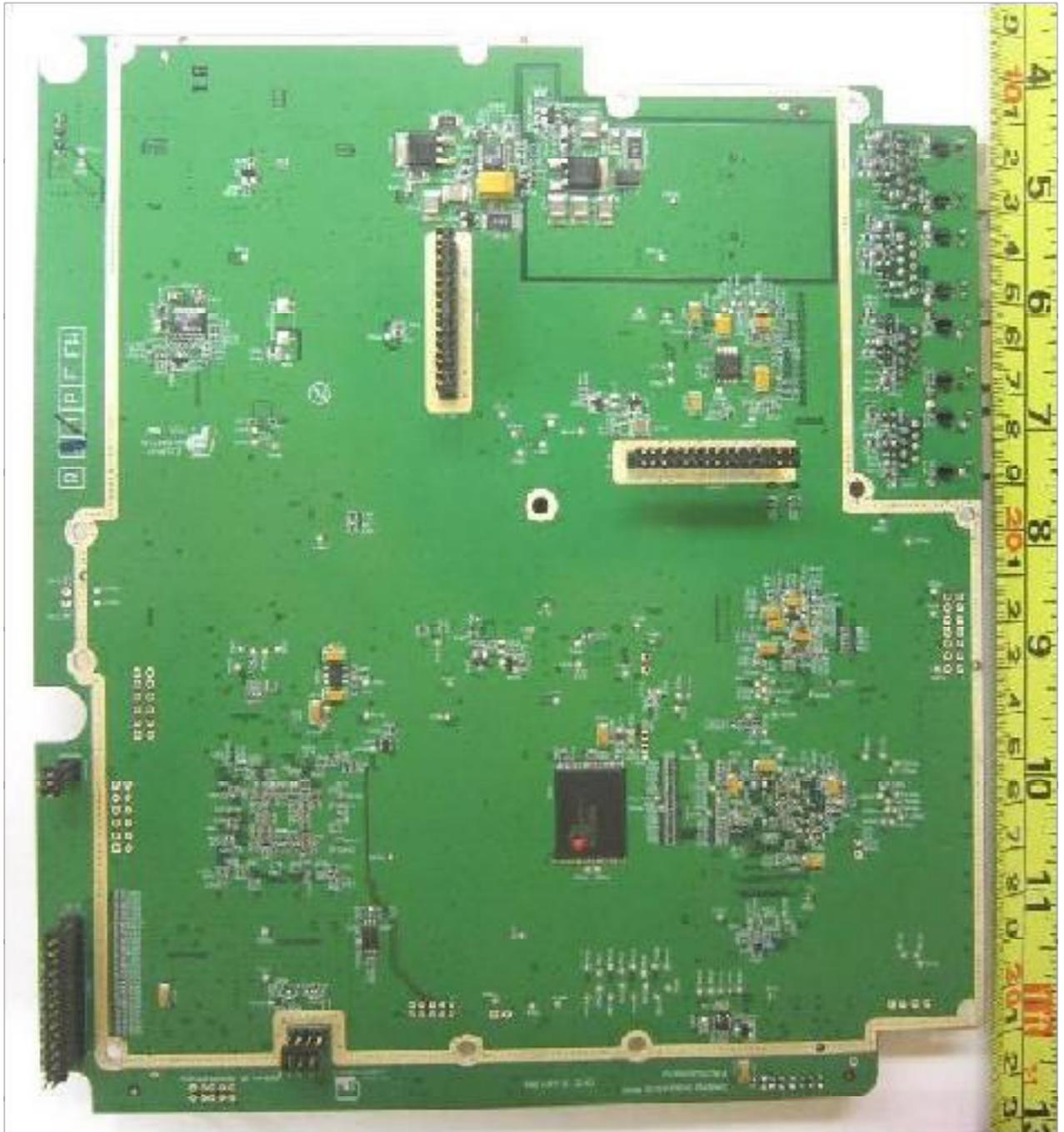
EUT PHOTOGRAPHS – MAIN UNIT



BaseBand PCB Component Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

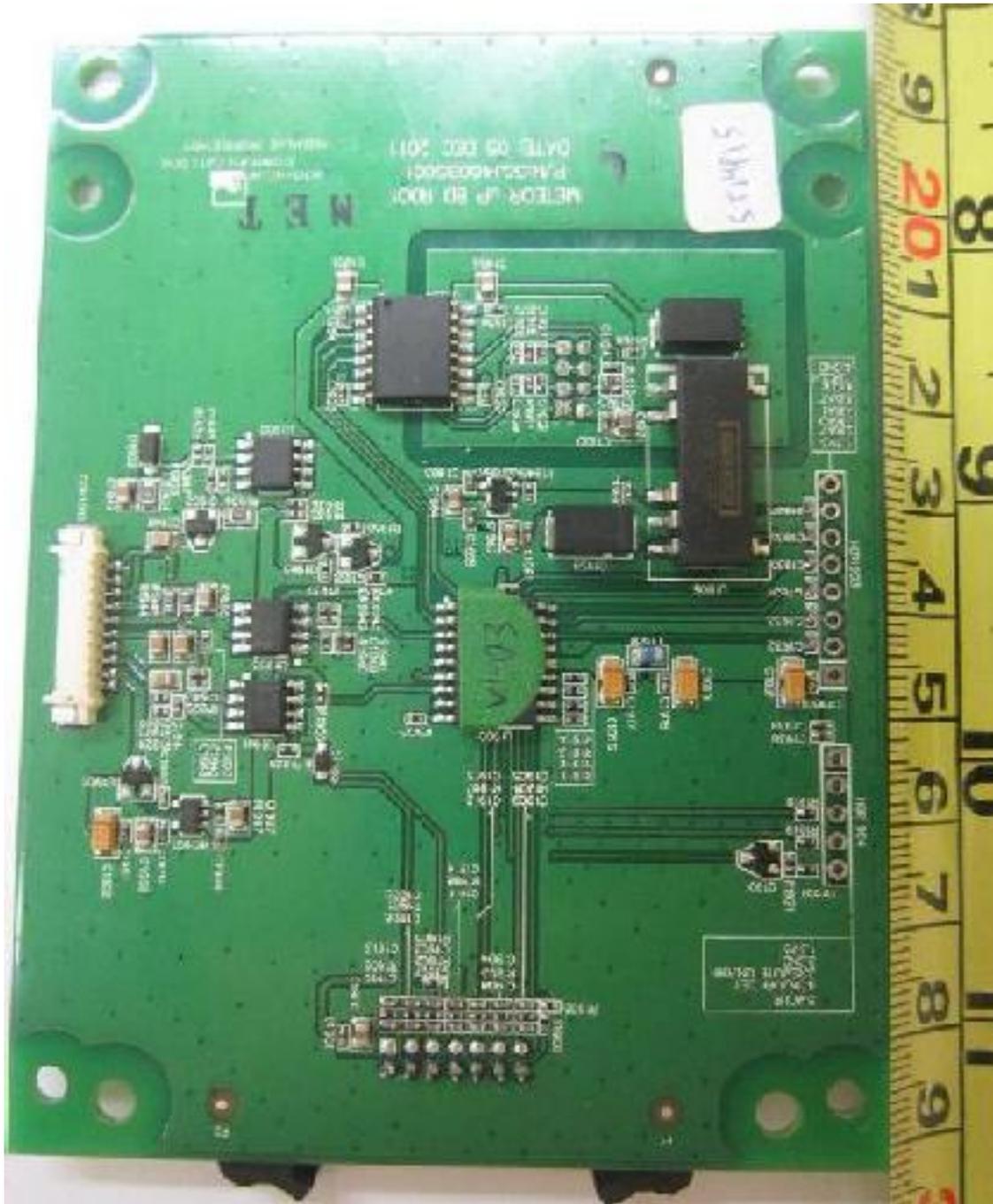
EUT PHOTOGRAPHS – MAIN UNIT



BaseBand PCB Trace Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

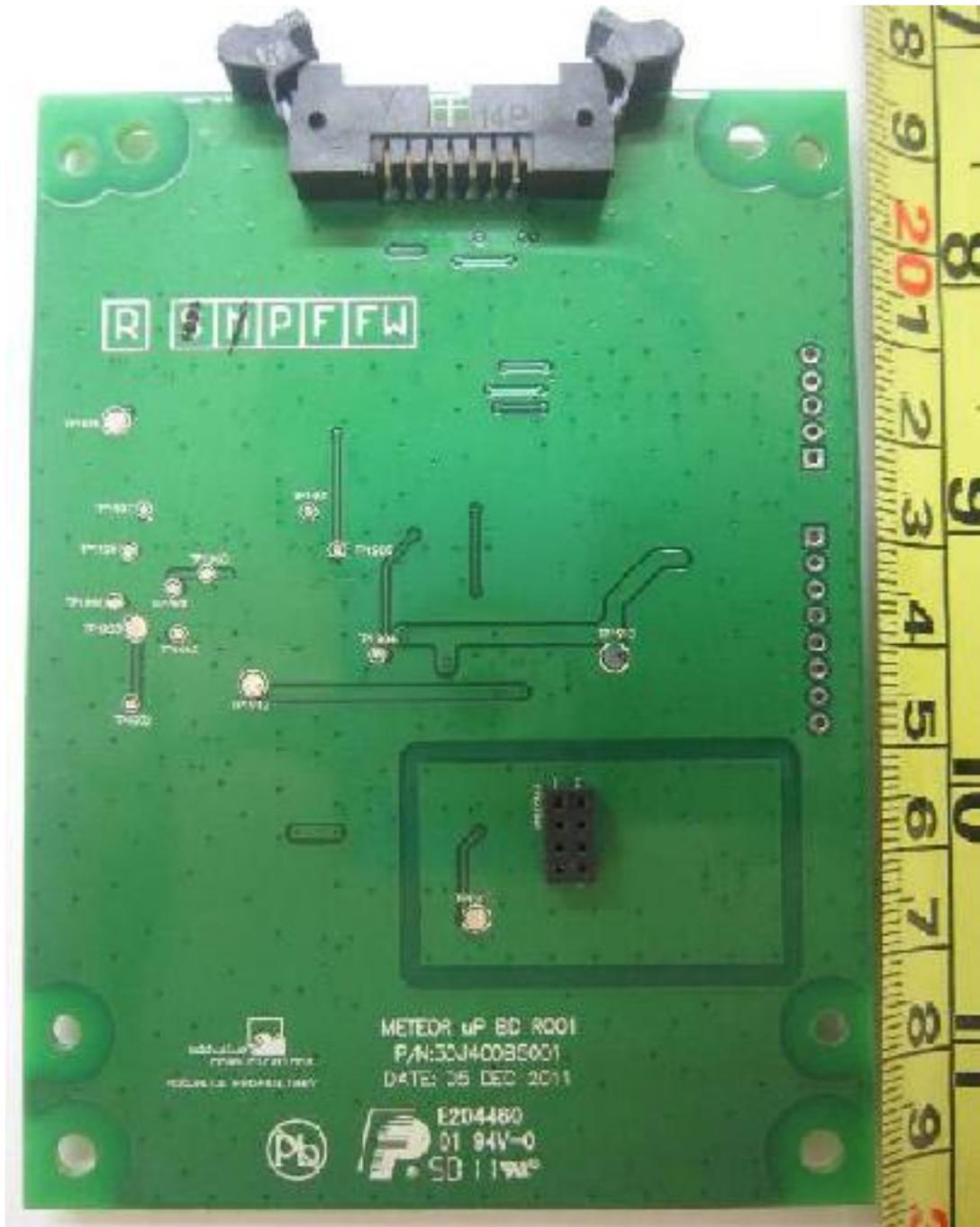
EUT PHOTOGRAPHS – MAIN UNIT



Microprocessor Board PCB Component Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

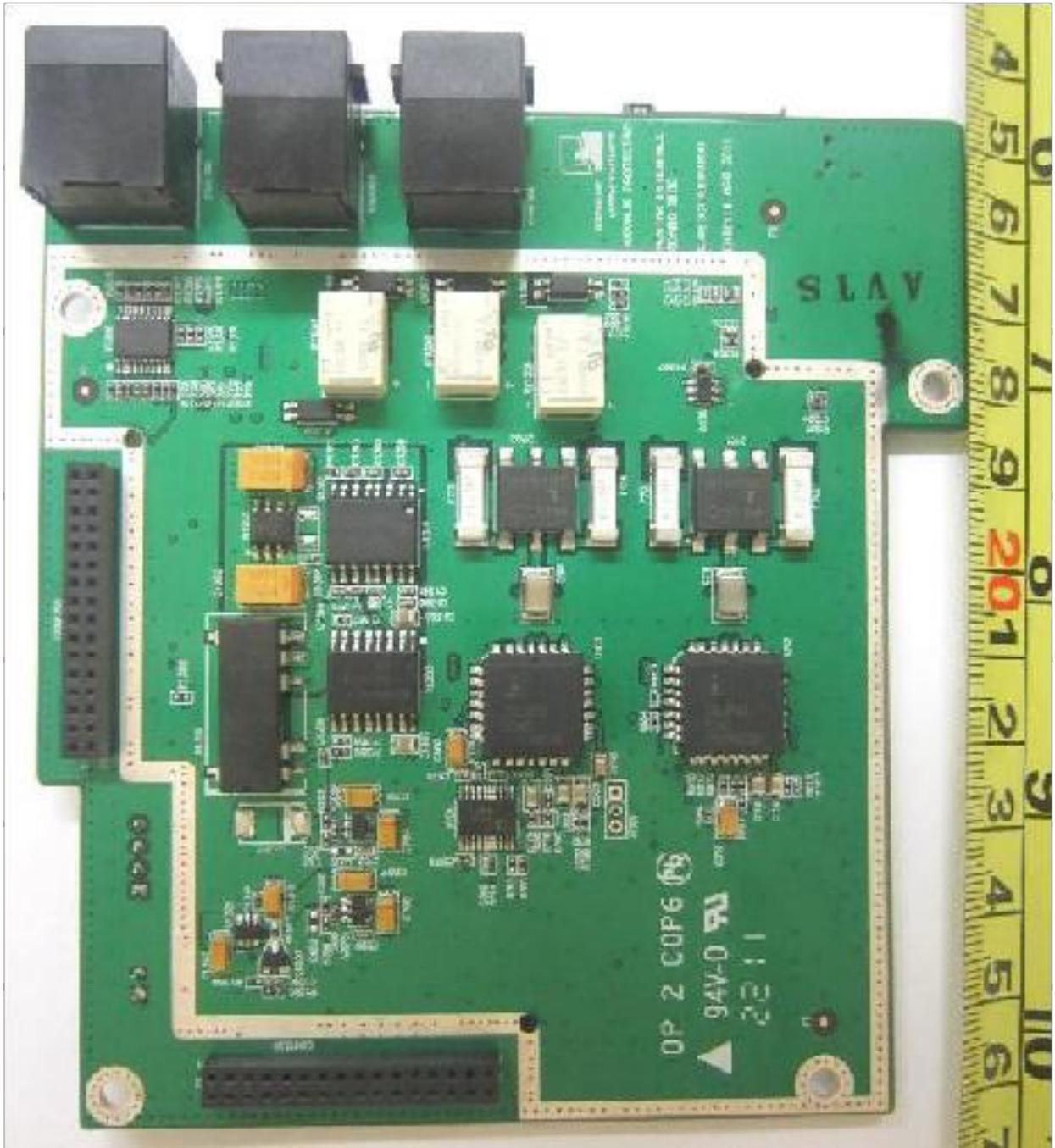
EUT PHOTOGRAPHS – MAIN UNIT



Microprocessor Board PCB Trace Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

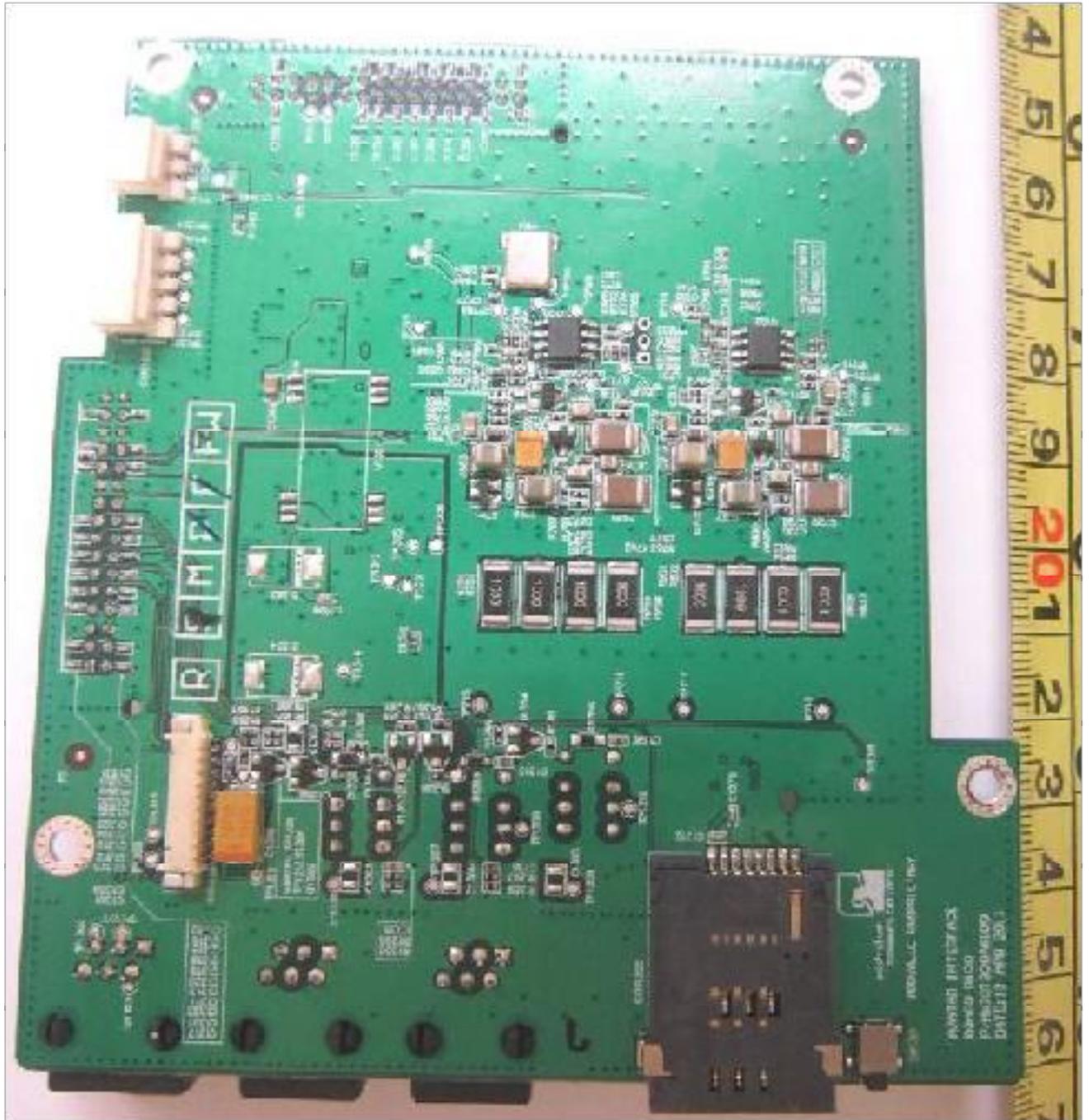
EUT PHOTOGRAPHS – MAIN UNIT



Interface Board PCB Component Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

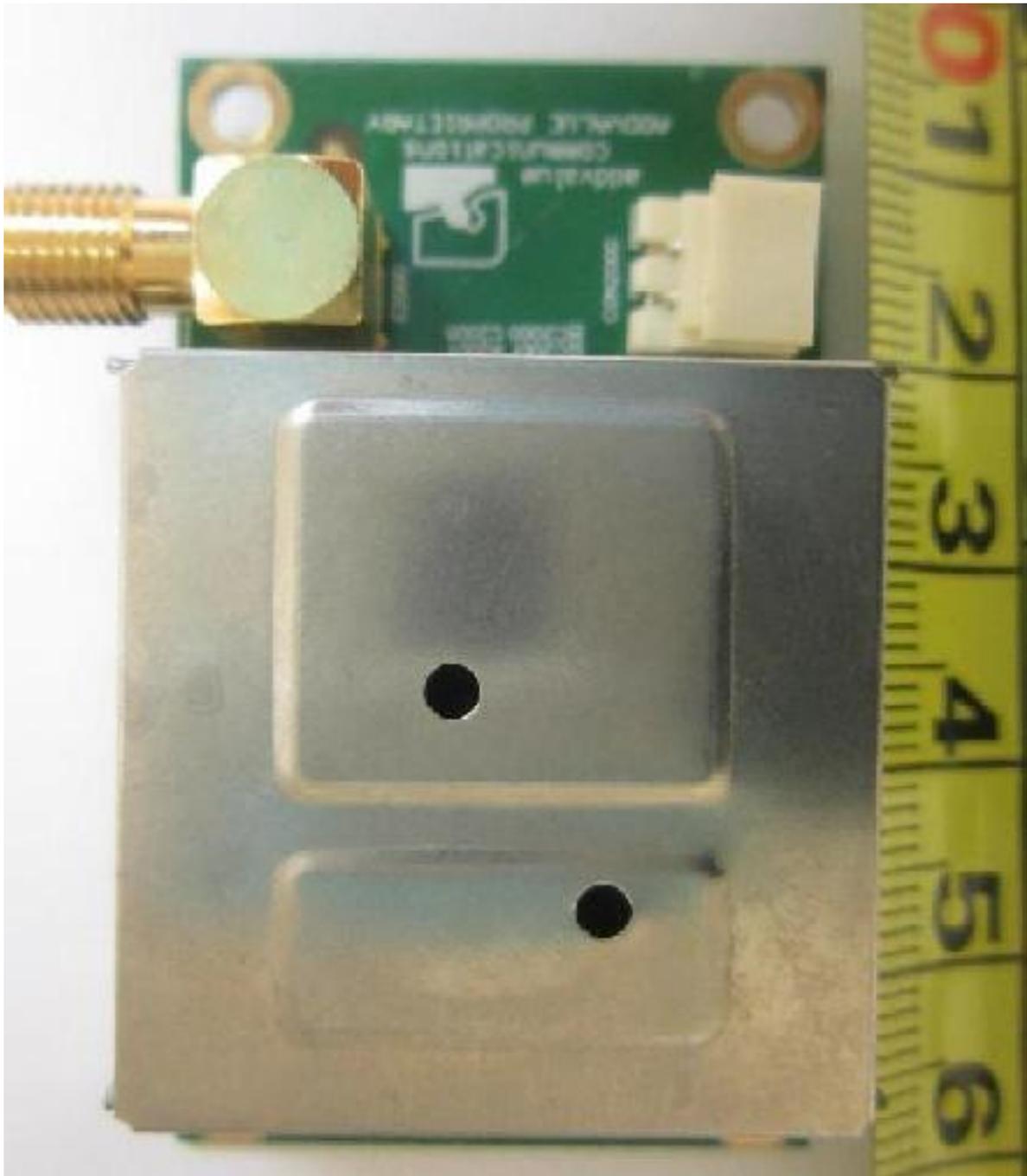
EUT PHOTOGRAPHS – MAIN UNIT



Interface Board PCB Trace Side

**ANNEX A EUT PHOTOGRAPHS / DIAGRAMS**

**EUT PHOTOGRAPHS – MAIN UNIT**



**Crystal Board PCB Component Side**

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

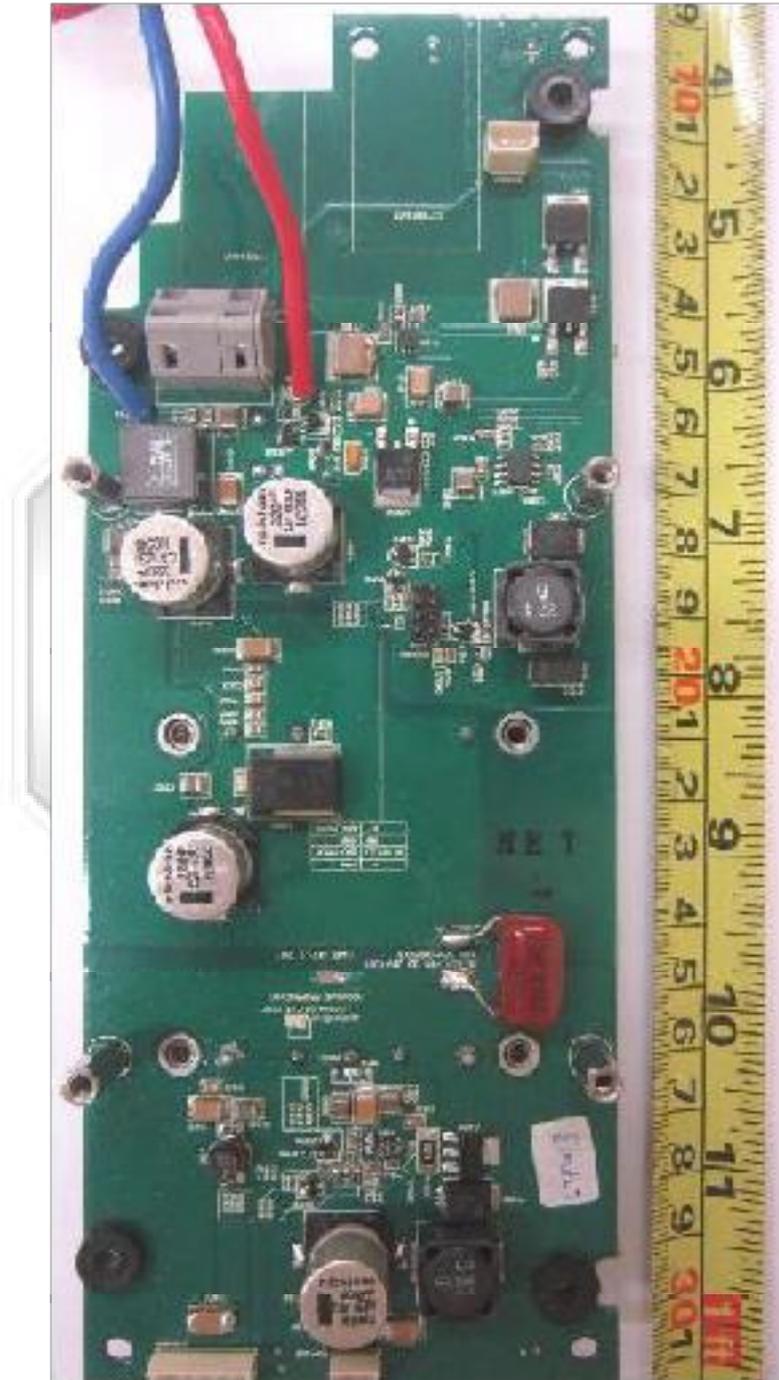
EUT PHOTOGRAPHS – MAIN UNIT



Crystal Board PCB Trace Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

EUT PHOTOGRAPHS – MAIN UNIT



Power Supply PCB Component Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

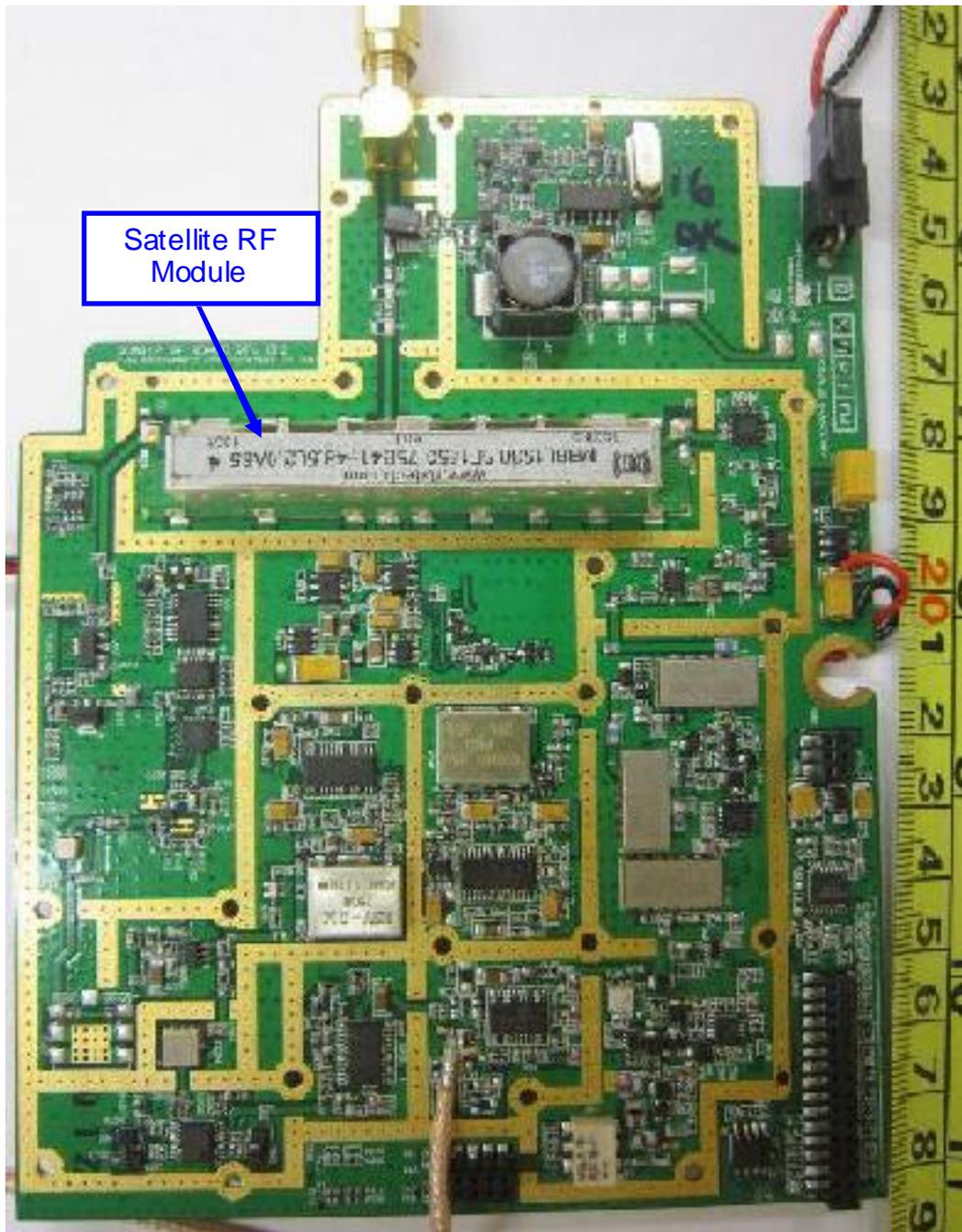
EUT PHOTOGRAPHS – MAIN UNIT



Power Supply PCB Trace Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

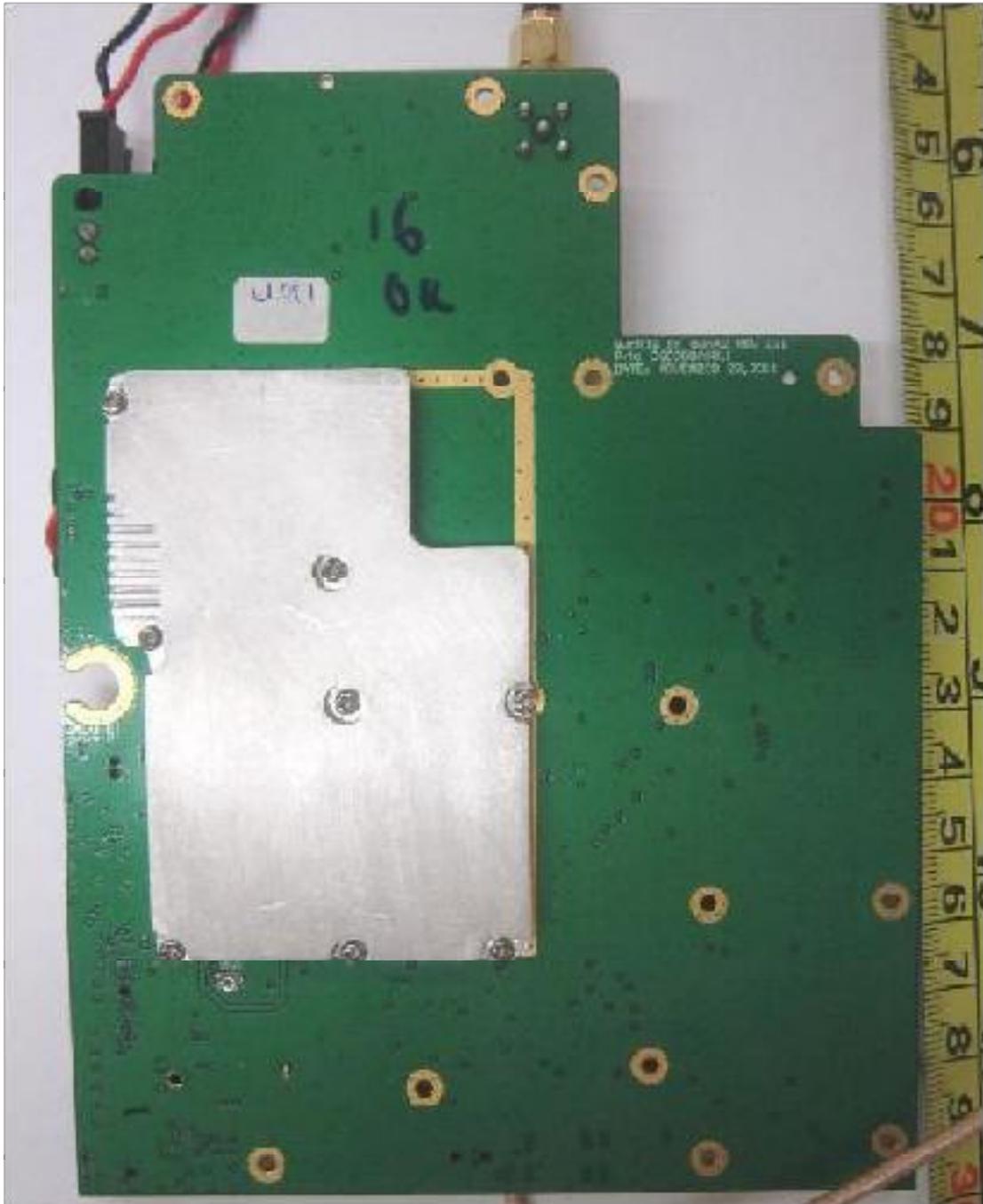
EUT PHOTOGRAPHS – MAIN UNIT



RF Module PCB Component Side

**ANNEX A EUT PHOTOGRAPHS / DIAGRAMS**

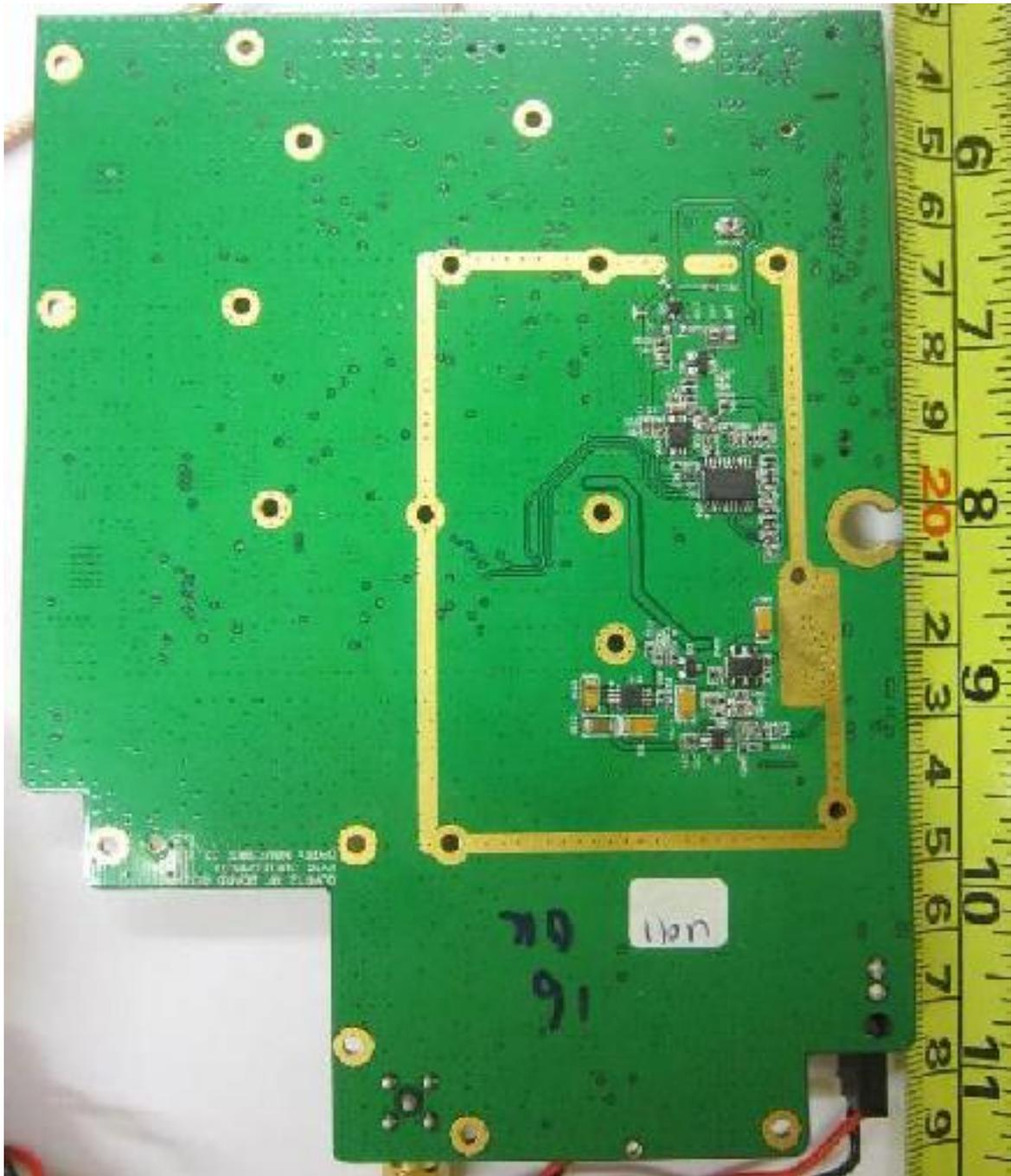
**EUT PHOTOGRAPHS – MAIN UNIT**



**RF Module PCB Trace Side**

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

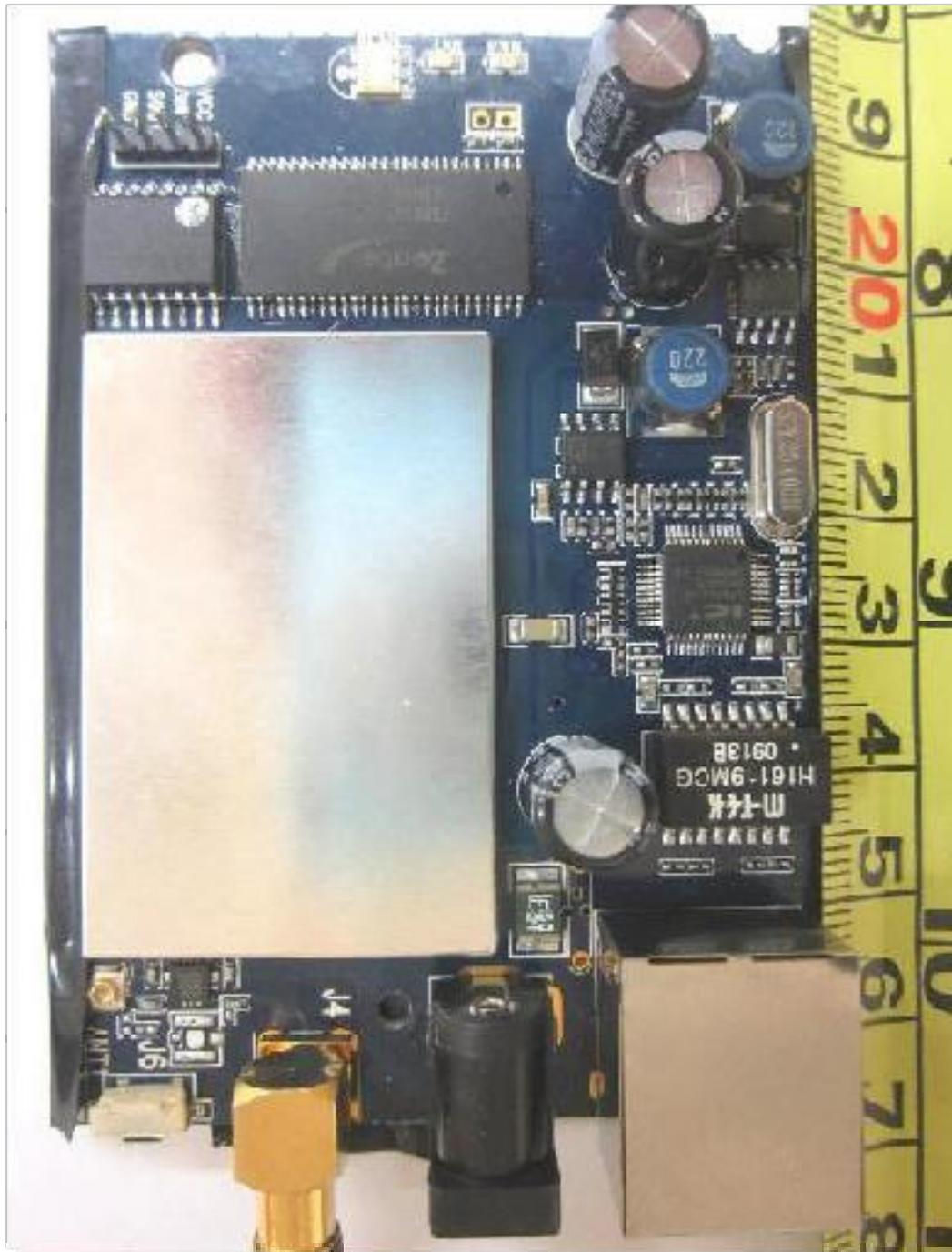
EUT PHOTOGRAPHS



RF Module Circuit with RF Shield Removed

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

EUT PHOTOGRAPHS – MAIN UNIT



WiFi Module PCB Component Side

**ANNEX A EUT PHOTOGRAPHS / DIAGRAMS**

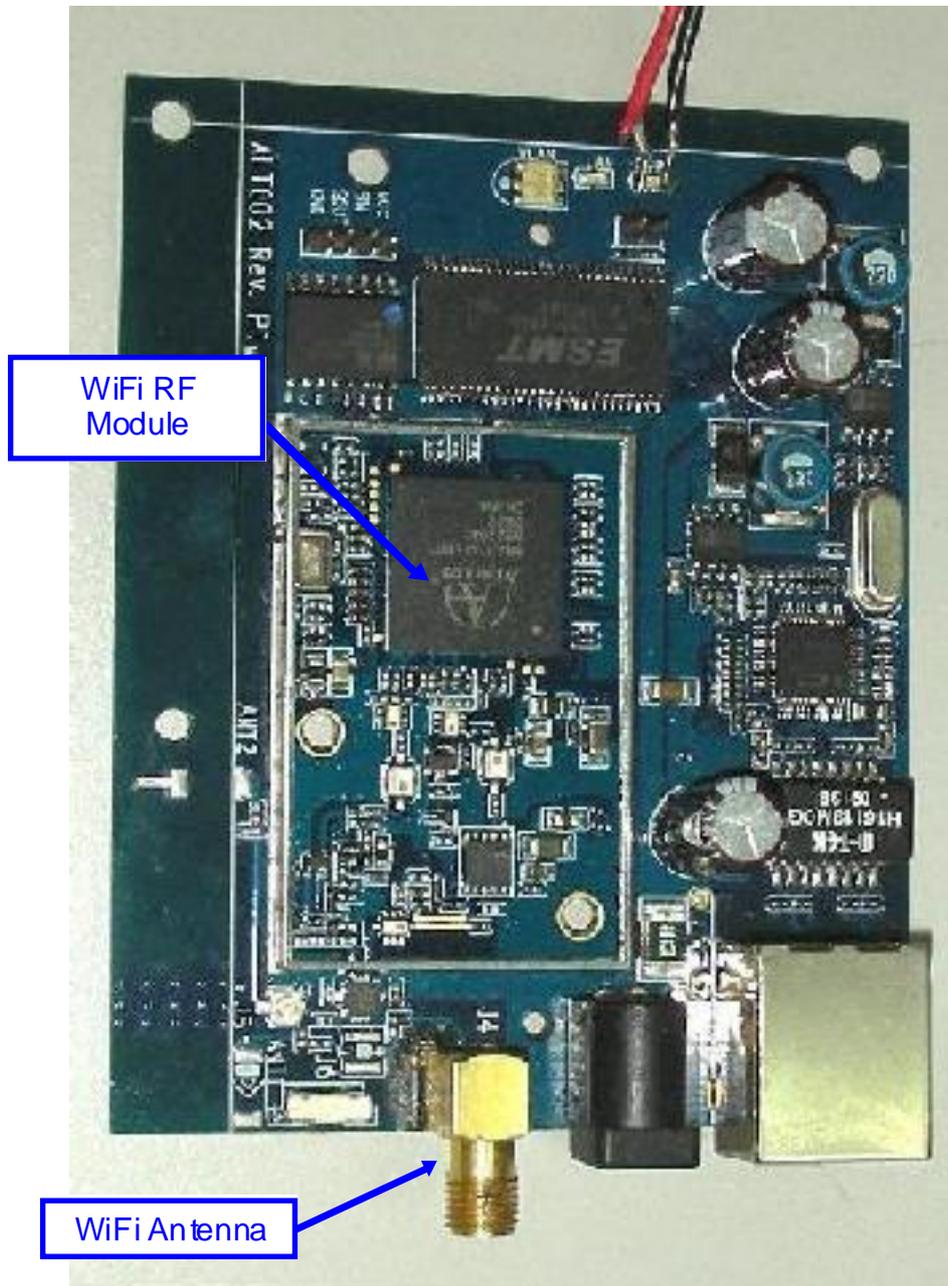
**EUT PHOTOGRAPHS – MAIN UNIT**



**WiFi Module PCB Trace Side**

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

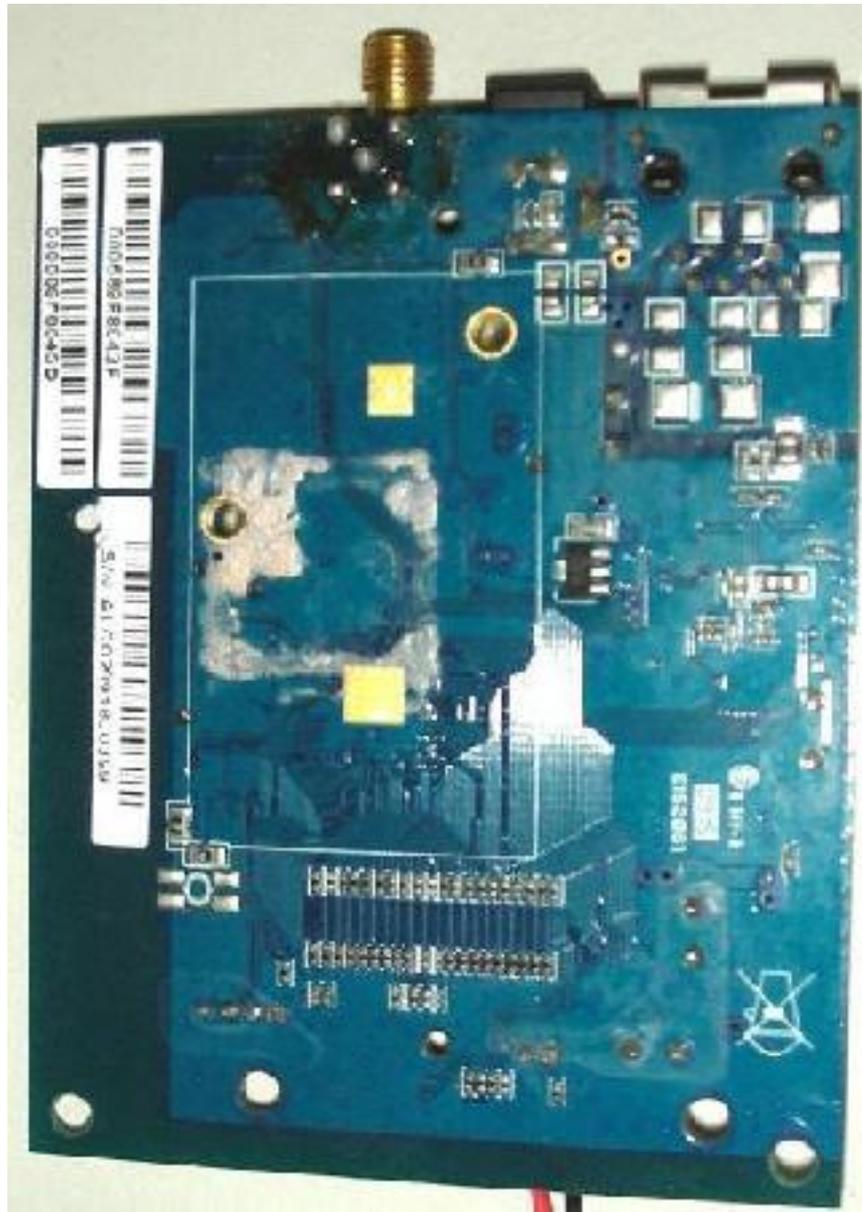
EUT PHOTOGRAPHS



WiFiModule Circuit with RF Shield Removed Component Side

ANNEX A EUT PHOTOGRAPHS / DIAGRAMS

EUT PHOTOGRAPHS



WiFi Module Circuit with RF Shield Removed Trace Side

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**ANNEX B USER MANUAL TECHNICAL DESCRIPTION BLOCK & CIRCUIT DIAGRAMS**



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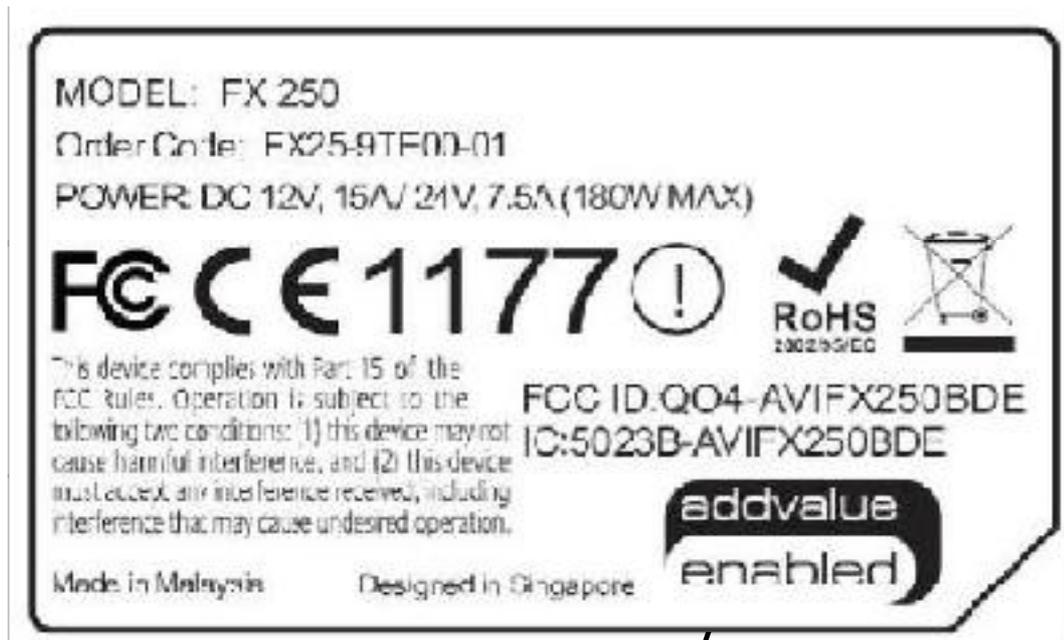
**ANNEX C FCC LABEL & POSITION**



**ANNEX C FCC LABEL & POSITION**

Labelling requirements per Section 2.925 & 15.19

The label shown will be permanently affixed at a conspicuous location on the device and be readily visible to the user at the time of purchase.



Sample Label



Physical Location of FCC Label on EUT