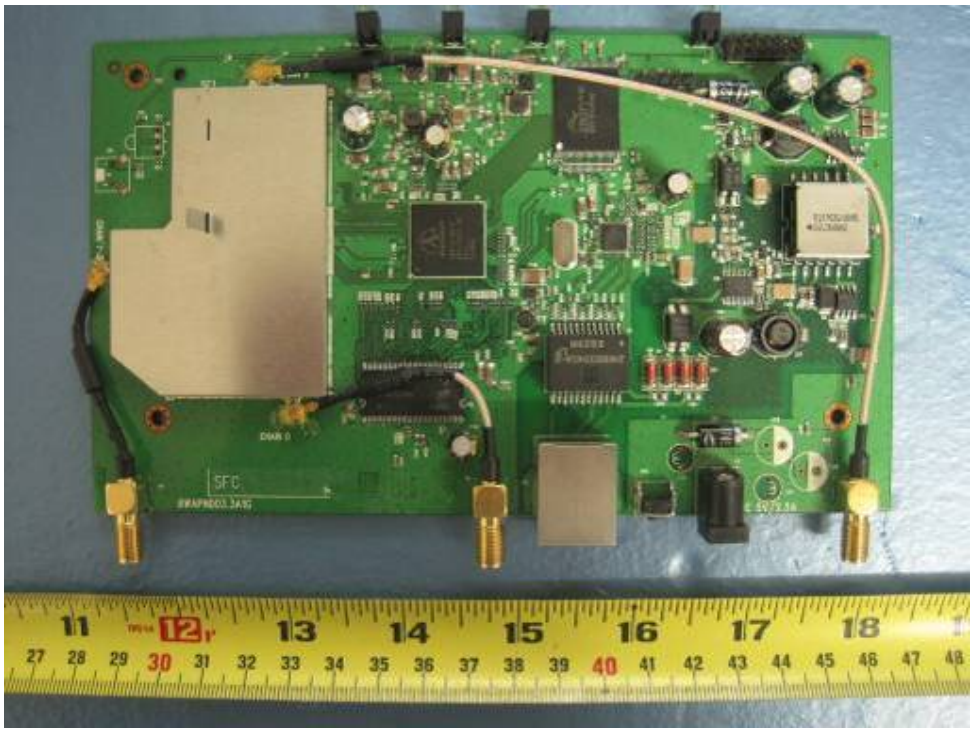
AIRAYA, CORP

Wireless Bridge

Model: WirelessGRID-300

03 November 2010
Report No.: SL10062401-AIR-003(Part90)
(This report supersedes: NONE)



RF Test Report
To: FCC Part 90Y, RSS111 Issue 3

SIEMIC, INC.
Accessing global markets

Modifications made to the product : None

This Test Report is Issued Under the Authority of:	
David Zhang	
David Zhang Compliance Engineer	Leslie Bai Director of Certification

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Test result presented in this test report is applicable to the representative sample only.

Laboratory Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.

In addition to testing and certification, SIEMIC provides initial design reviews and compliance management through out a project. Our extensive experience with China, Asia Pacific, North America, European, and international compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Accreditation Body	Scope
USA	FCC, A2LA	EMC , RF/Wireless , Telecom
Canada	IC, A2LA, NIST	EMC, RF/Wireless , Telecom
Taiwan	BSMI , NCC , NIST	EMC, RF, Telecom , Safety
Hong Kong	OFTA , NIST	RF/Wireless ,Telecom
Australia	NATA, NIST	EMC, RF, Telecom , Safety
Korea	KCC/RRA, NIST	EMI, EMS, RF , Telecom, Safety
Japan	VCCI, JATE, TELEC, RFT	EMI, RF/Wireless, Telecom
Mexico	NOM, COFETEL, Caniety	Safety, EMC , RF/Wireless, Telecom
Europe	A2LA, NIST	EMC, RF, Telecom , Safety

Accreditations for Product Certifications

Country	Accreditation Body	Scope
USA	FCC TCB, NIST	EMC , RF , Telecom
Canada	IC FCB , NIST	EMC , RF , Telecom
Singapore	iDA, NIST	EMC , RF , Telecom
CE	EU, NIST	EMC, Safety, RF, Telecom

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1 Executive Summary & EUT information

The purpose of this test programmed was to demonstrate compliance of the AIRAYA, CORP, Model: WirelessGRID-300 against the current Stipulated Standards. The Wireless Bridge have demonstrated compliance with the FCC 90Y 2010.

The equipment under test radio operating frequency is
4945MHz to 4985MHz (5MHz) 4945MHz to 4985MHz (10MHz)
4950MHz to 4980MHz (15MHz) 4950MHz to 4970MHz (20MHz)

The test has demonstrated that this unit complies with stipulated standards.

EUT Information

EUT Description	:	The WirelessGRID is a point-to-point and point-to-multipoint radio device. TheWirelessGRID transfers all Ethernet packets received by the bridge to any other bridge that's been successfully associated with the sending bridge. These packets can include T1, voice, video, and data. When a bridge receives the RF packet, it translates the packet back into an Ethernet packet frame and sends it out over the physical Ethernet connection. The Ethernet packets can be sent in any of 3 different data rates, depending on the device at the other end of Ethernet cable. These data rates include 10, 100, or 1000 mbps. The device is operating as a MAC layer bridge. The WirelessGRID uses an OFDM radio section with a digital interface. The system receives Ethernet packets over the PCI bus and sends packets out over the radio interface via the PCI bus. Data being sent out over the radio interface comes in from the Ethernet interface or is sourced from inside the bridge via the user management functions. A Link requires at least two of an Indoor Unit (IU) or Outdoor Unit (OU) used to establish communications between locations. The IU consists of a radio, antenna cable, antenna, enclosure, AC power supply or DC power source. The IU uses a long antenna cable between the antenna and the radio. The OU consists of a radio, antenna cable, antenna, Power Over Ethernet, enclosure, and AC power supply. The Power Over Ethernet includes an injector, which is located near the AC power source and a splitter mounted inside the outdoor enclosure. The short antenna cable is connected between the radio board and the integrated antenna. A version of the Outdoor Unit allows the user to connect a non-integrated antenna via an N-connector. The IU is installed inside the OU enclosures. The communications between the units is for outdoor use only. Versions of the product that include an external connector will require professional installation. Versions of the product that are provided with the attached antenna to the enclosure using Torx head screws, will not require professional installation. If the following table, the GI defines the Guard Interval between symbols. This helps the receiver overcome the effects of any multipath delays. The MCS Index value represents the Modulation and Coding Scheme that determines the number of spatial streams, the modulation, the coding rate and data rate.
Model No	:	WirelessGRID-300
Input Power	:	5VDC
Classification Per Stipulated Test Standard	:	Licensed Non-Broadcast Station Transmitter

2 TECHNICAL DETAILS

Purpose	Compliance testing of Wireless Bridge, model WirelessGRID-300 Module with stipulated standard
Applicant / Client	AIRAYA, CORP
Manufacturer	AIRAYA, CORP 637 Adair Court Morgan Hill, CA 95037
Laboratory performing the tests	SIEMIC Laboratories
Test report reference number	SL10062401-AIR-003(Part90)
Date EUT received	28 Oct 2010
Standard applied	47 CFR §90: 2010 & RSS111 issue 3 2009
Dates of test (from – to)	28 Oct 2010 to 03 Nov 2010
No of Units:	1
Equipment Category:	TNB
Trade Name:	AIRAYA, CORP
Model :	WirelessGRID-300
RF Operating Frequency (ies)	4945MHz to 4985MHz (5MHz) 4945MHz to 4985MHz (10MHz) 4950MHz to 4980MHz (15MHz) 4950MHz to 4970MHz (20MHz)
FCC ID :	QDE-GRID-3X3-PS
IC ID :	4433A-GRID3X3PS

3 MODIFICATION

NONE

4 TEST SUMMARY

The product was tested in accordance with the following specifications. All testing has been performed according to below product classification:

Licensed Non-Broadcast Station Transmitter

Test Results Summary

Test Standard	Description	Pass / Fail
47 CFR Part 90: 2010 & RSS119 Issue 3:2009		
47 CFR 2.1046, 47 CFR 90.1215	RF Output Power	Pass
47 CFR 2,1047, 47 CFR 90	Occupied Bandwidth	N/A
47 CFR 2.1049, 47 CFR 90.210	Emission Mask	Pass
47 CFR 2.1051, 47 CFR 90.210	Spurious Emission at Antenna Terminals	Pass
47 CFR 2.1055, 47 CFR §90.1215	Peak Excursion Ratio	Pass
47 CFR 2.1053, 47 CFR §90.210	Field Strength of Spurious radiation	Pass
RSS-111, RSS-GEN Section 6	Receiver Spurious Emission	Pass
47 CFR §90.1215	Peak Power Spectral Density	Pass
47 CFR §90.213	Frequency Stability	
PS: All measurement uncertainties are not taken into consideration for all presented test result.		

The test has demonstrated that this unit complies with stipulated standards.

Note: The radio utilizes external antenna with maximum gain of 29dBi.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication."

All testing were tested with modulation 64QAM

5 MEASUREMENTS, EXAMINATION AND DERIVED RESULTS

5.1 Conducted Emissions Voltage

Note: N/A

5.2 RF Output Power

Conducted Measurement

1. EUT was set for low, mid, high channel with modulated mode and highest RF output power.
   The spectrum analyzer was connected to the antenna terminal.
2. Environmental Conditions — Temperature 25°C; Relative Humidity 50%; Atmospheric Pressure 1019mbar
3. Conducted 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% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 20GHz is ±1.5dB.
4. Test Date : Oct 28 2010 to Nov 03 2010
   Tested By : David Zhang

Requirement(s): 47 CFR § 2.1046 and § 90.1215

Procedures: Power limits.

The transmitting power of stations operating in the 4940–4990 MHz band must not exceed the maximum limits in this section.

(a)(1) The maximum conducted output power should not exceed:

Channel bandwidth (MHz)	Low power maximum conducted output power (dBm)	High power maximum conducted output power (dBm)
1	7	20
5	14	27
10	17	30
15	18.8	31.8
20	20	33

(2) High power devices are also limited to a peak power spectral density of 21 dBm per one MHz. High power devices using channel bandwidths other than those listed above are permitted; however, they are limited to peak power spectral density of 21 dBm/MHz. If transmitting antennas of directional gain greater than 9 dBi are used, both the maximum conducted output power and the peak power spectral density should be reduced by the amount in decibels that the directional gain of the antenna exceeds 9 dBi. However, high power point-to-point and point-to-multipoint operations (both fixed and temporary-fixed rapid deployment) may employ transmitting antennas with directional gain up to 26 dBi without any corresponding reduction in the maximum conducted output power or spectral density. Corresponding reduction in the maximum conducted output power and peak power spectral density should be the amount in decibels that the directional gain of the antenna exceeds 26 dBi.

Channel bandwidth: 5MHz

Channel	Channel Frequency (MHz)	Channel Power-Chain 0 (dBm)	Channel Power Chain 2 (dBm)	Total Power (dBm)	Limit (dBm)
Low	4945	22.70	21.40	25.51	27.00
Mid	4965	22.60	22.40	25.51	27.00
High	4985	22.50	22.20	25.36	27.00

Channel bandwidth: 10MHz

Channel	Channel Frequency (MHz)	Channel Power-Chain 0 (dBm)	Channel Power Chain 2 (dBm)w	Total Power (dBm)	Limit (dBm)
Low	4945	25.7	25.1	28.42	30.00
Mid	4965	26.0	25.4	28.72	30.00
High	4985	25.9	25.5	28.71	30.00

Channel bandwidth: 15MHz

Channel	Channel Frequency (MHz)	Channel Power-Chain 0 (dBm)	Channel Power Chain 2 (dBm)	Total Power (dBm)	Limit (dBm)
Low	4950	27.2	26.2	29.74	31.80
Mid	4965	27.7	26.7	30.24	31.80
High	4980	27.0	26.5	29.77	31.80

Channel bandwidth: 20MHz

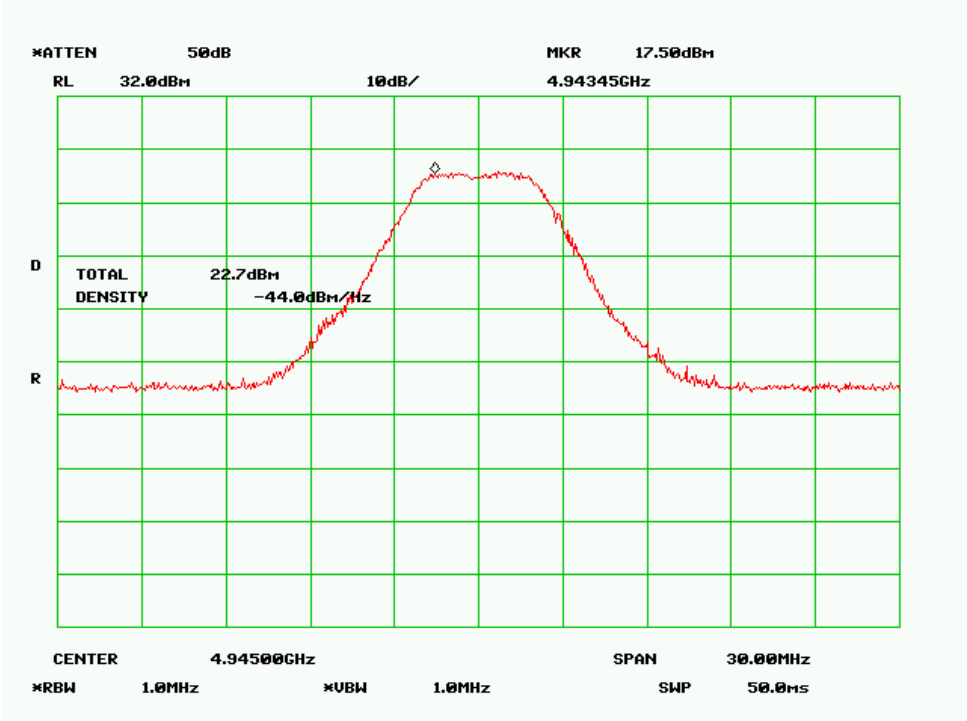
Channel	Channel Frequency (MHz)	Channel Power-Chain 0 (dBm)	Channel Power Chain 2 (dBm)	Total Power (dBm)	Limit (dBm)
Low	4950	28.2	26.5	29.74	33.00
High	4970	28.8	27.5	29.77	33.00

Refer to the attached plots.

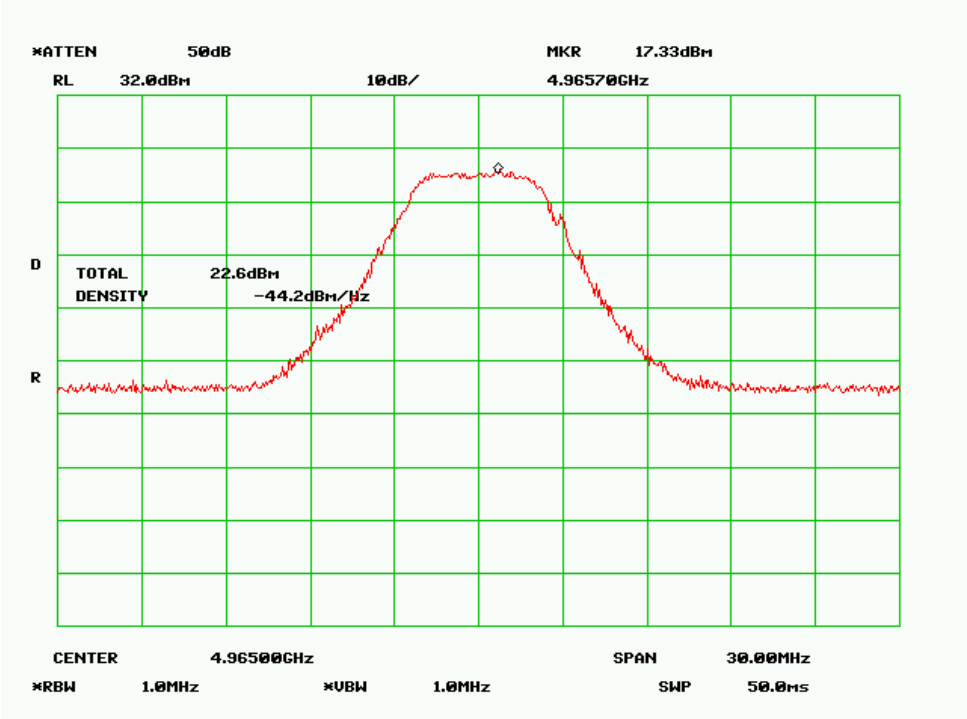
Note : Testing was performed assuming that antenna gain is less than 26dBi. For the antenna gain greater than 26dBi, manufacturer shall ensure that Corresponding reduction in the maximum conducted output power and peak power spectral density should be the amount in decibels that the directional gain of the antenna exceeds 26 dBi.

Chain 0 (5MHz)

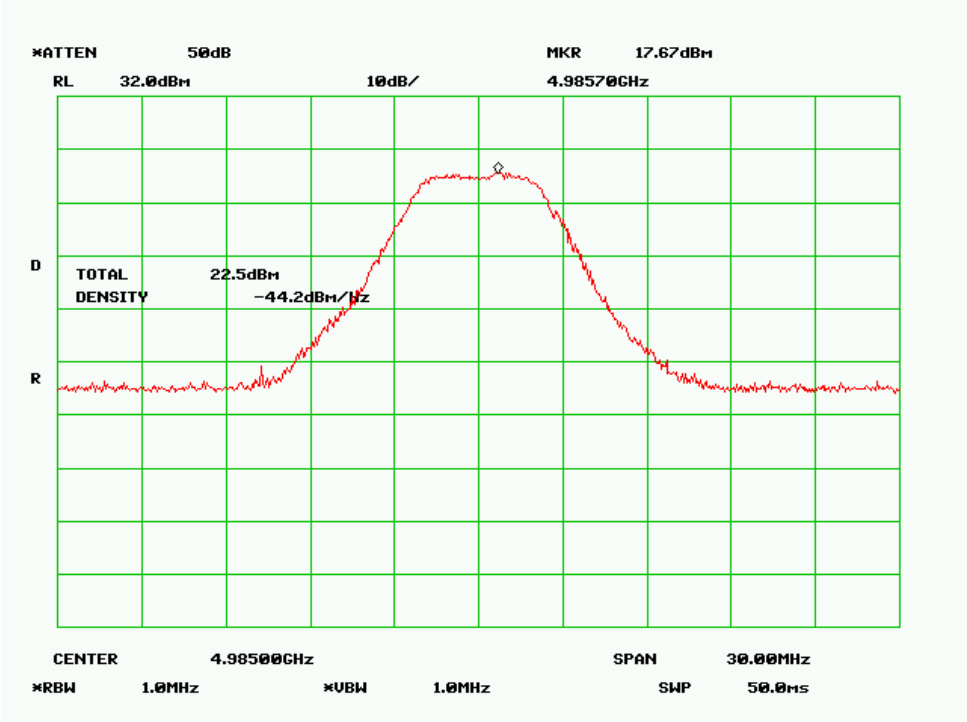
Low Channel (5MHz)



Middle Channel (5MHz)

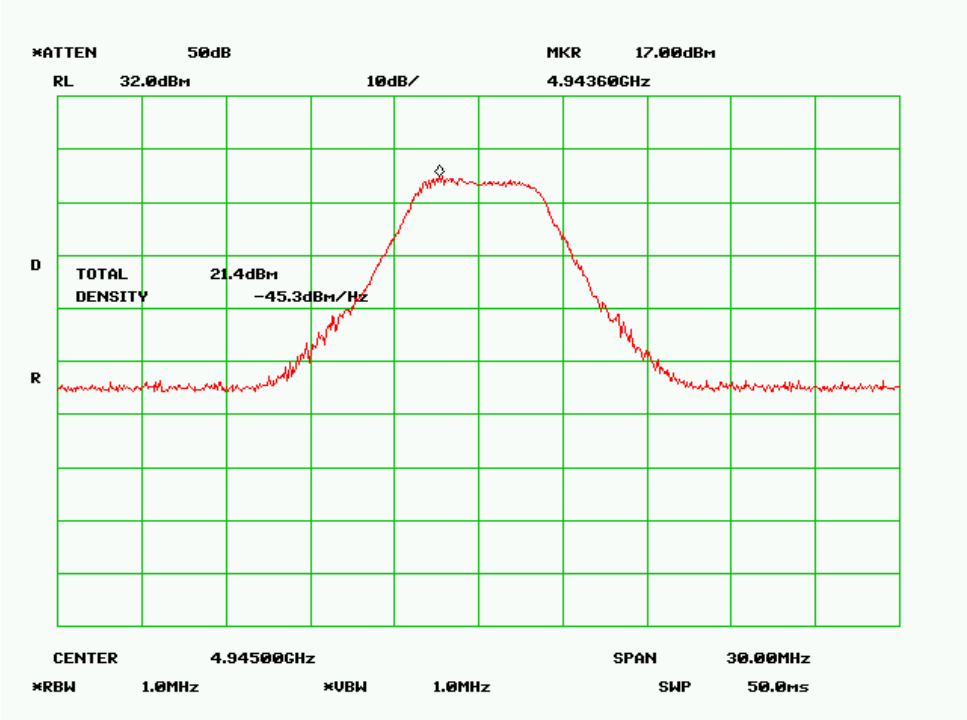


High Channel (5MHz)

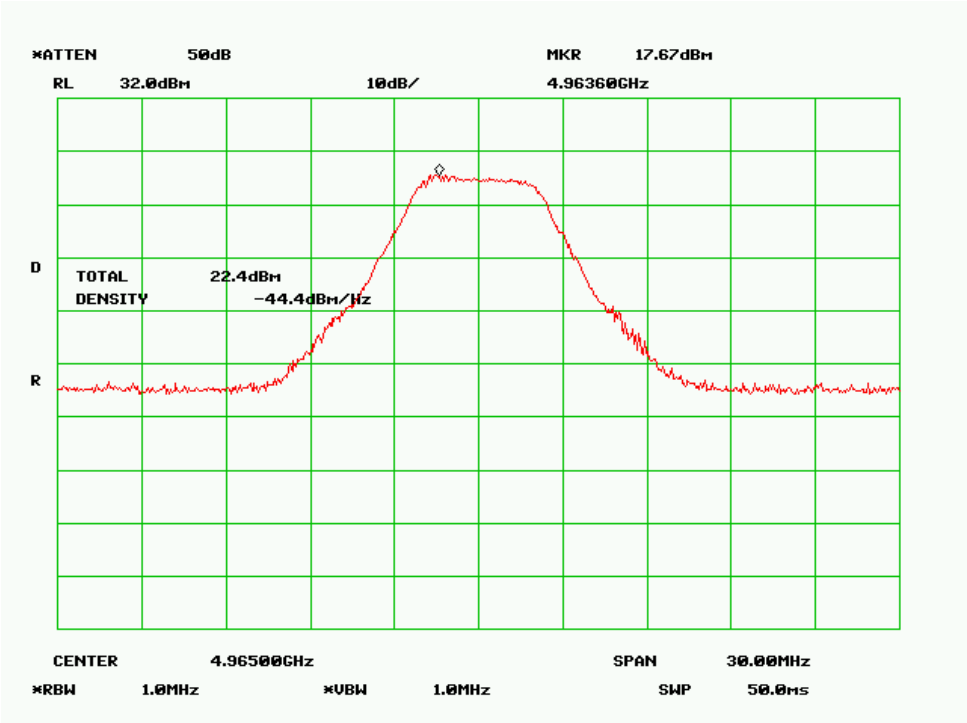


Chain 2 (5MHz)

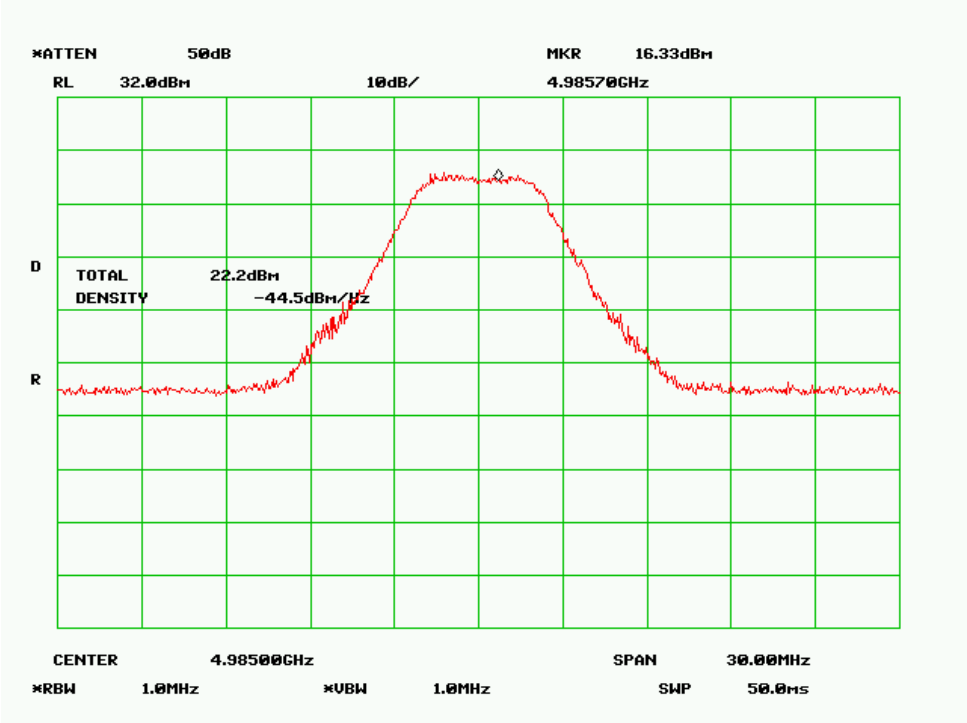
Low Channel (5MHz)



Middle Channel (5MHz)

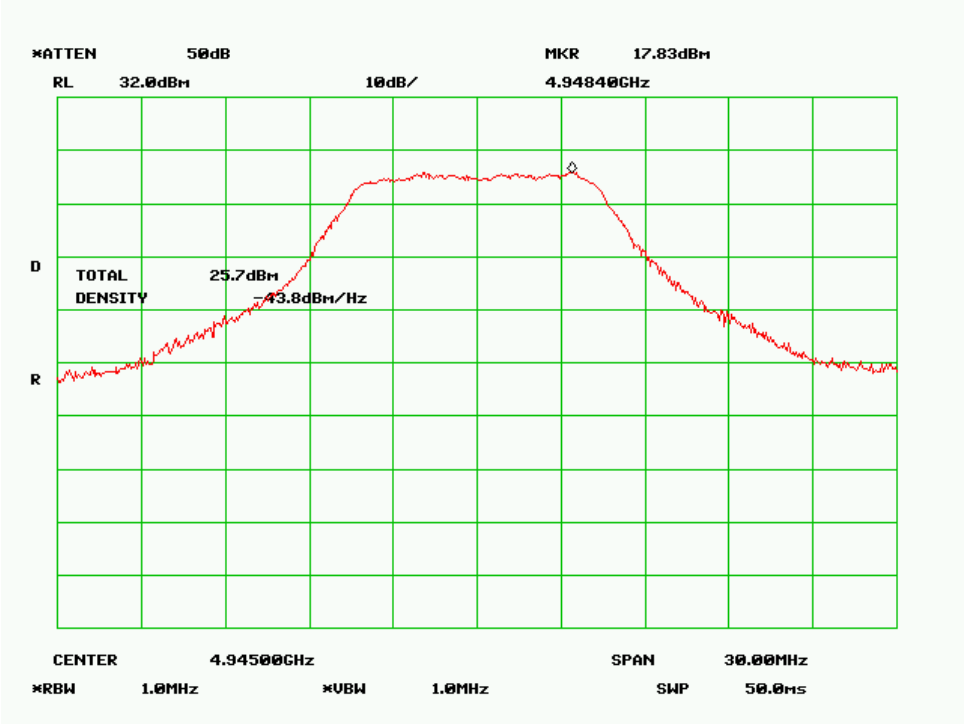


High Channel (5MHz)

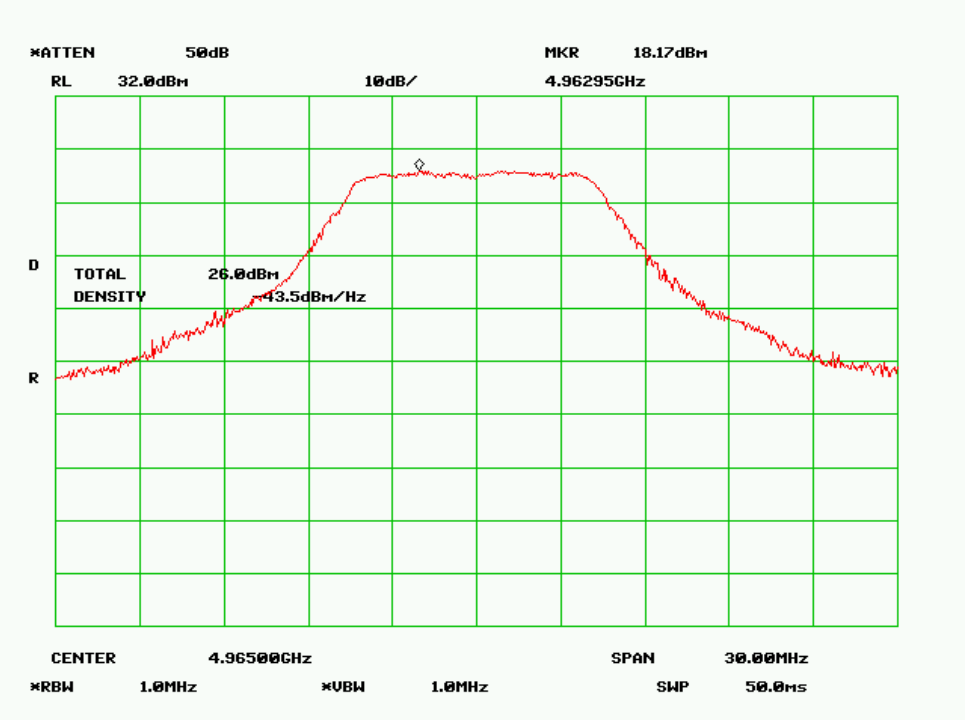


Chain 0 (10MHz)

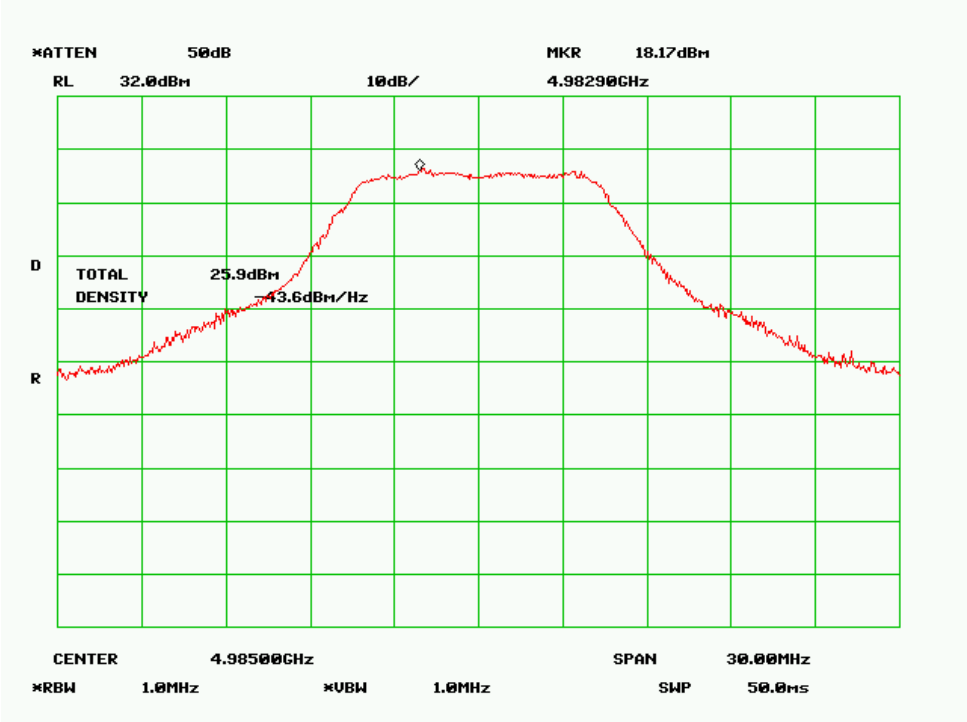
Low Channel (10MHz)



Middle Channel (10MHz)

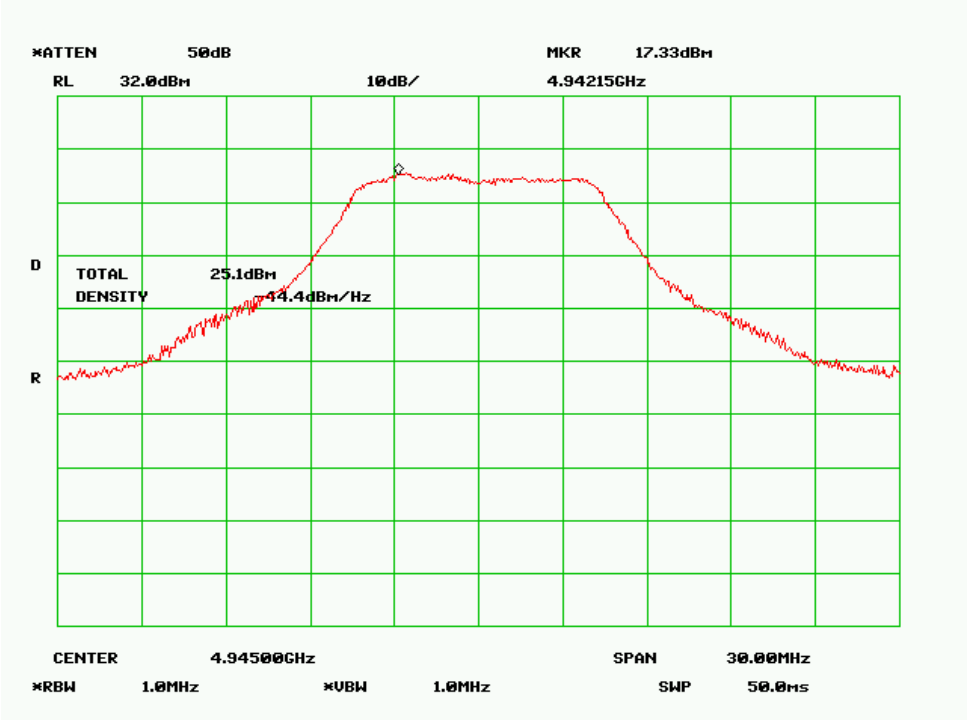


High Channel (10MHz)

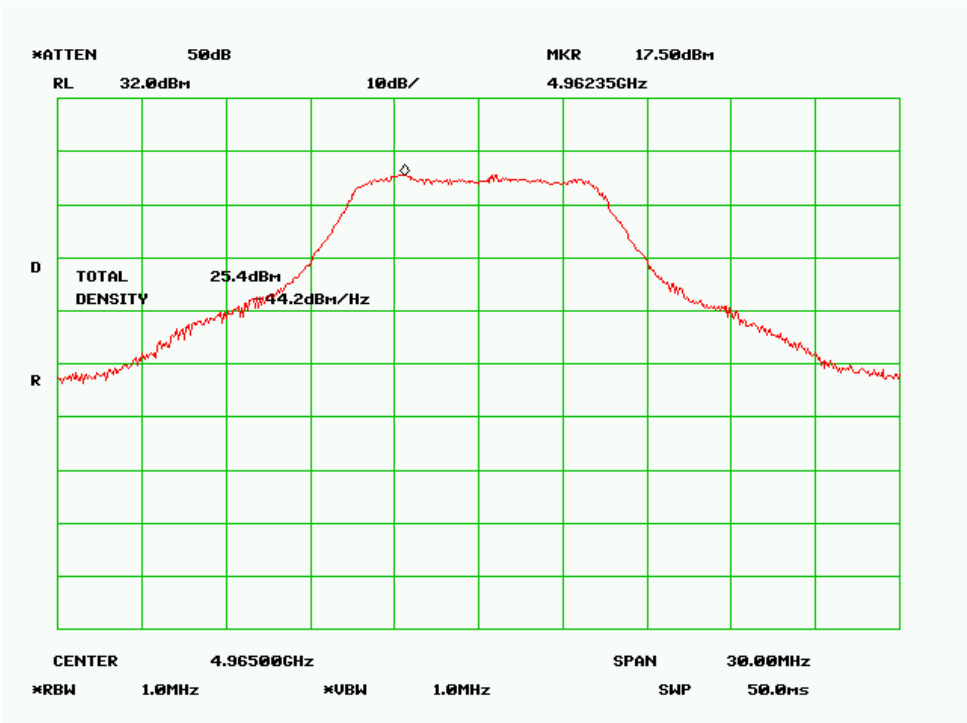


Chain 2 (10MHz)

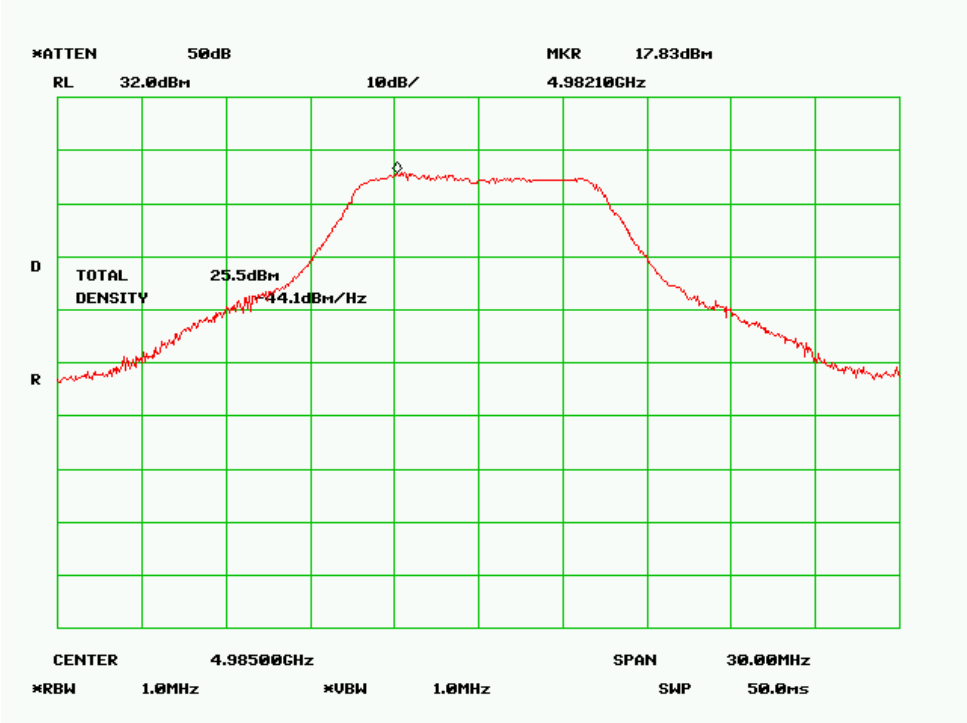
Low Channel (10MHz)



Middle Channel (10MHz)

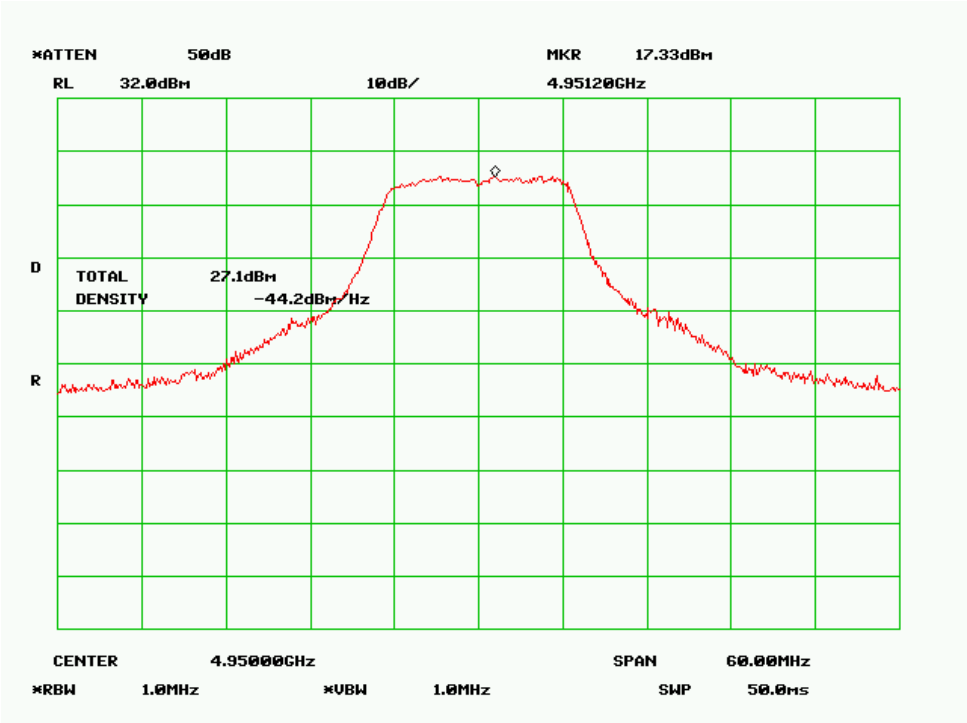


High Channel (10MHz)

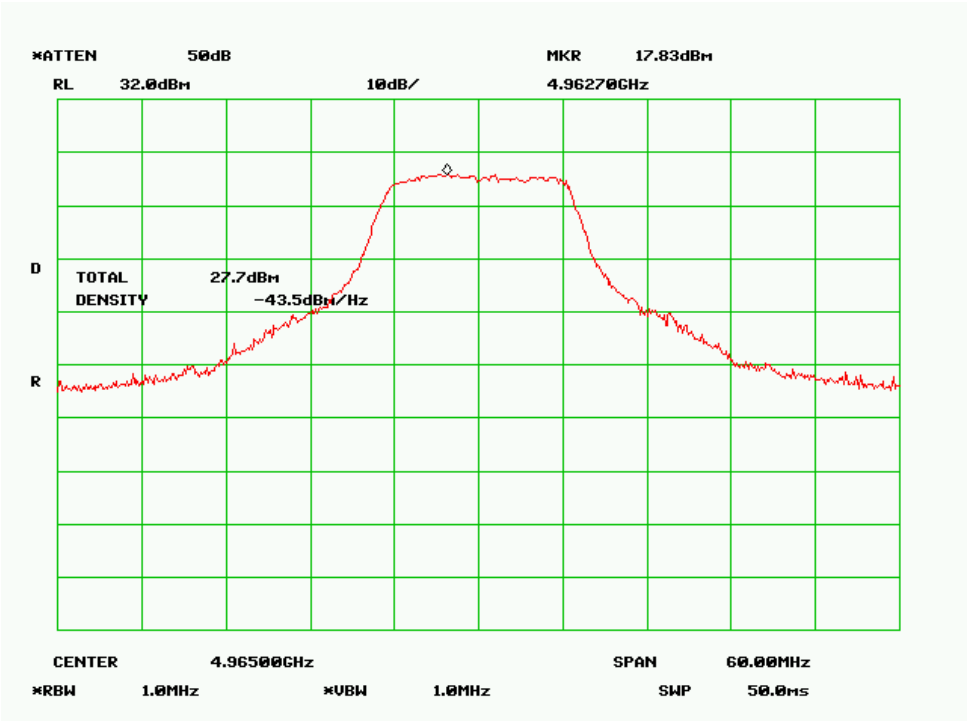


Chain 0 (15MHz)

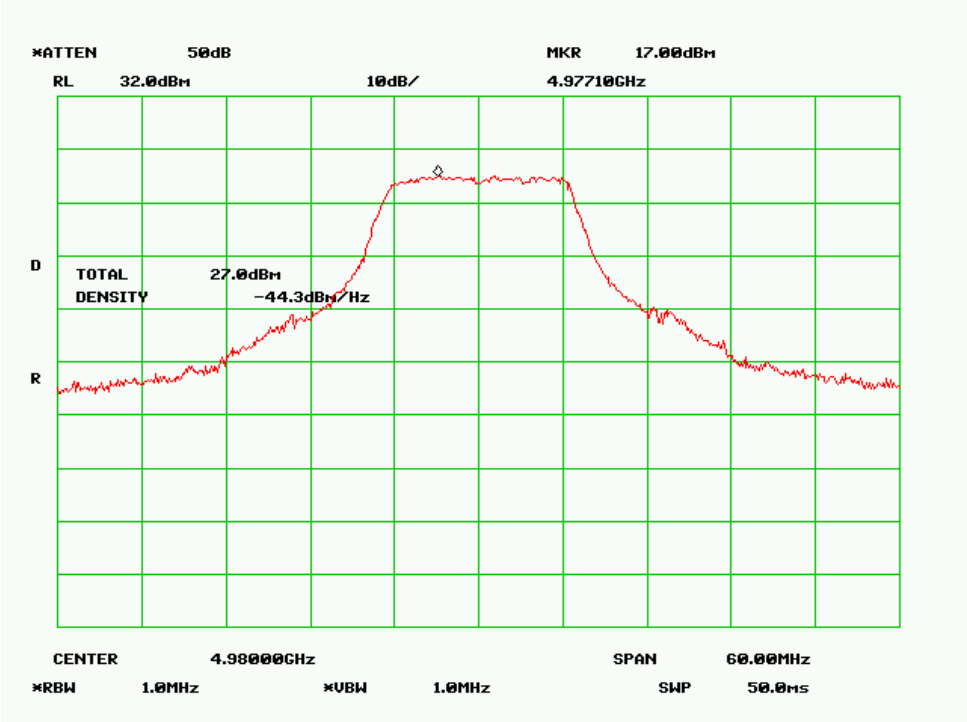
Low Channel (15MHz)



Middle Channel (15MHz)

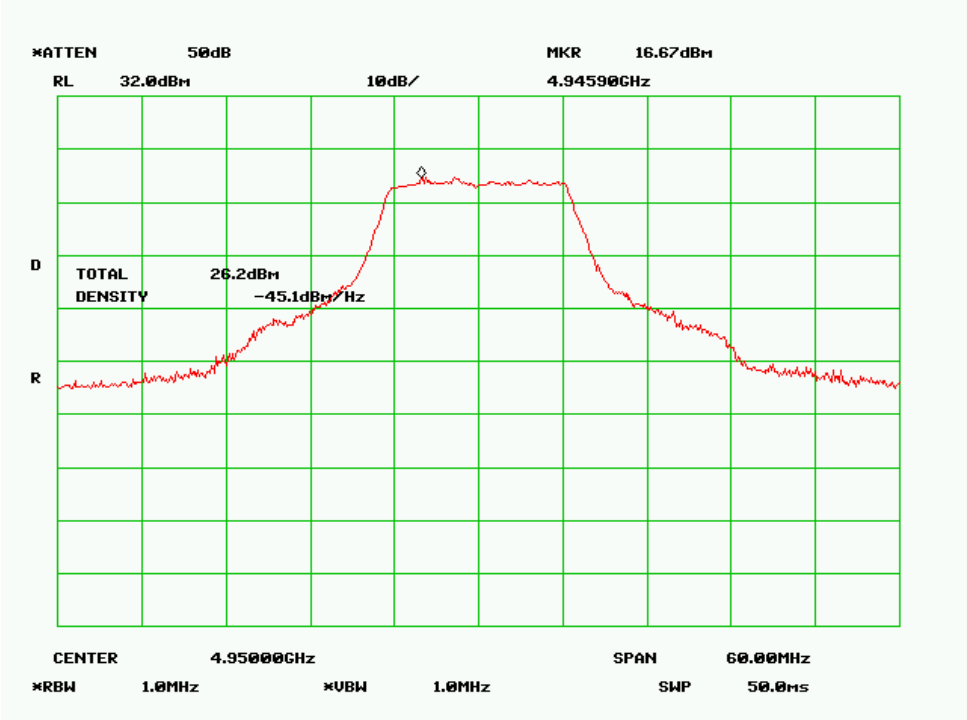


High Channel (15MHz)

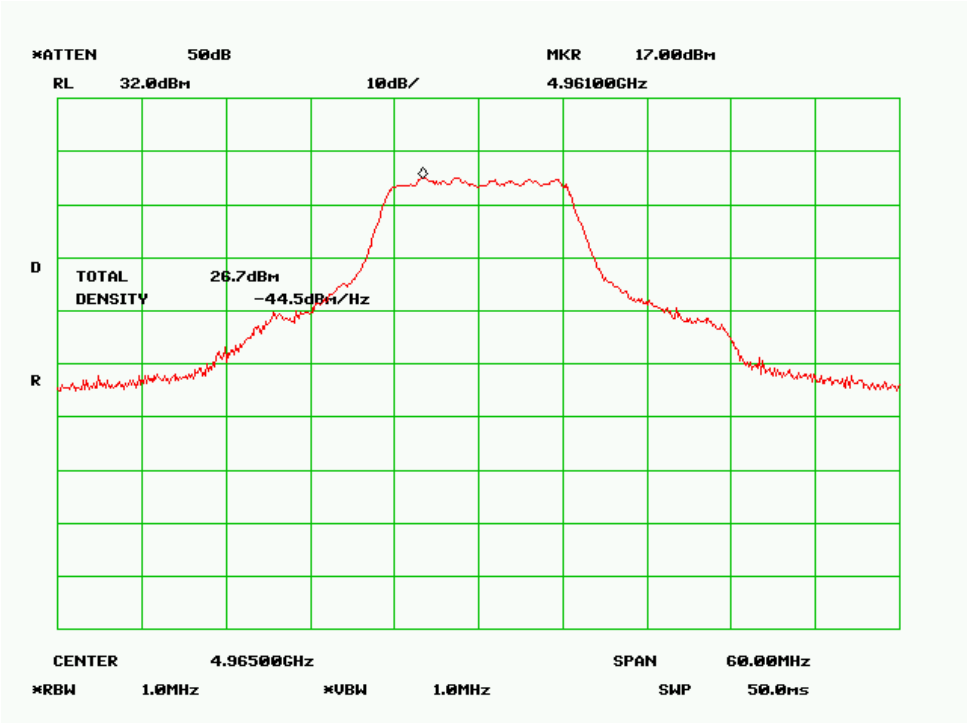


Chain 2 (15MHz)

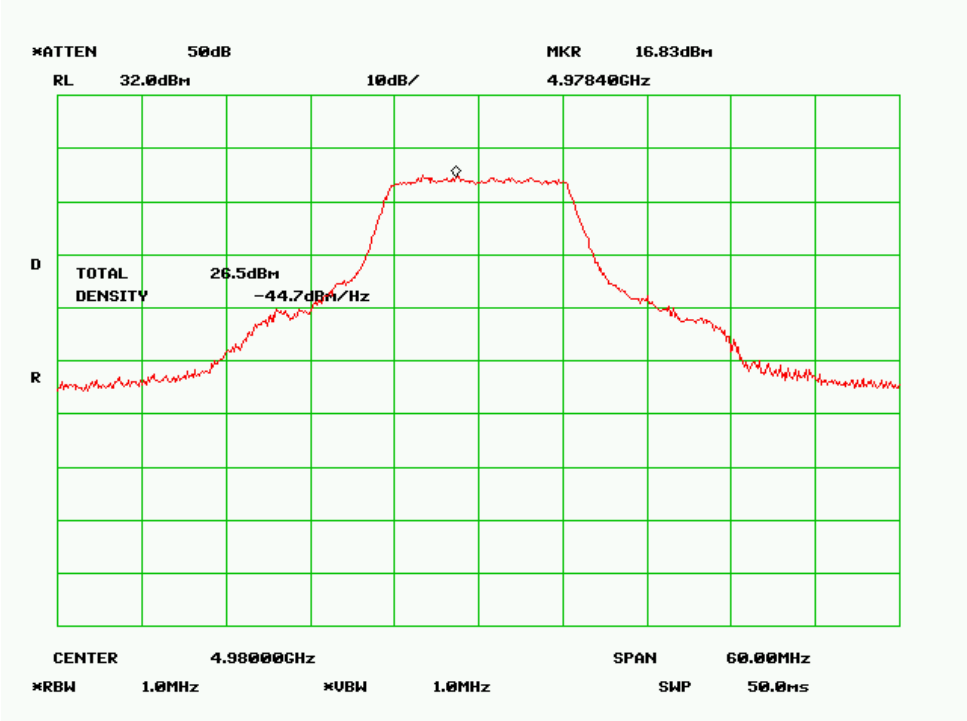
Low Channel (15MHz)



Middle Channel (15MHz)

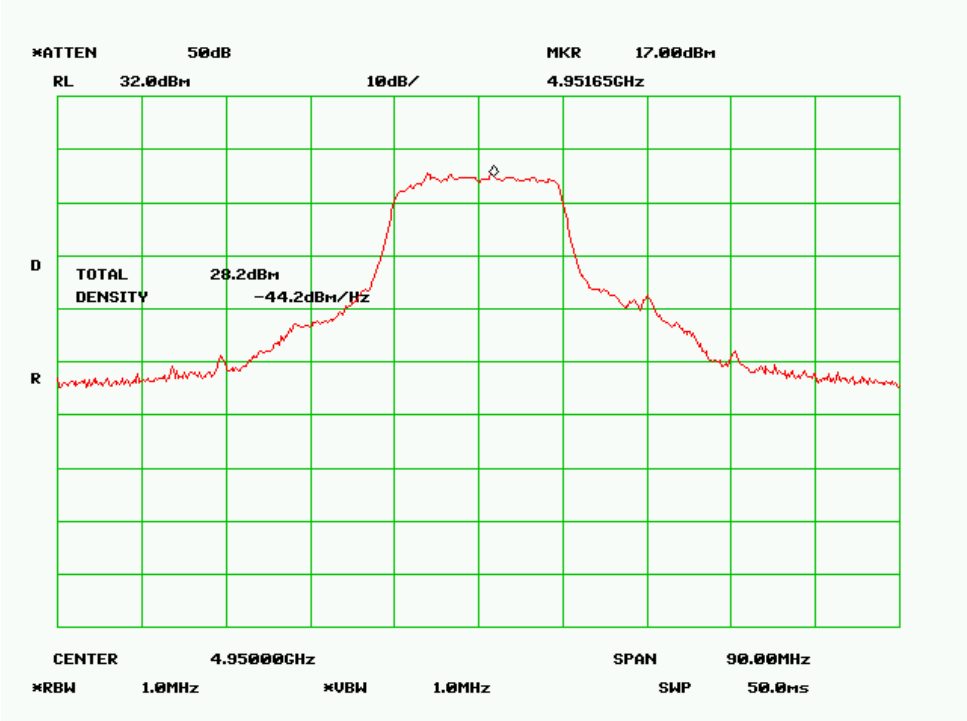


High Channel (15MHz)

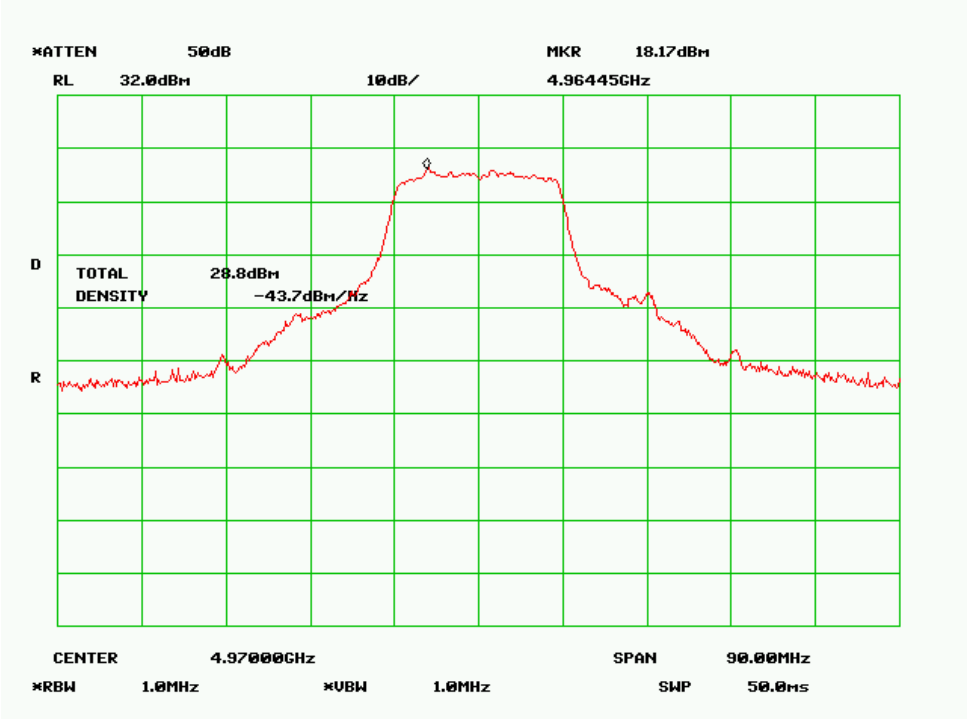


Chain 0 (20MHz)

Low Channel (20MHz)

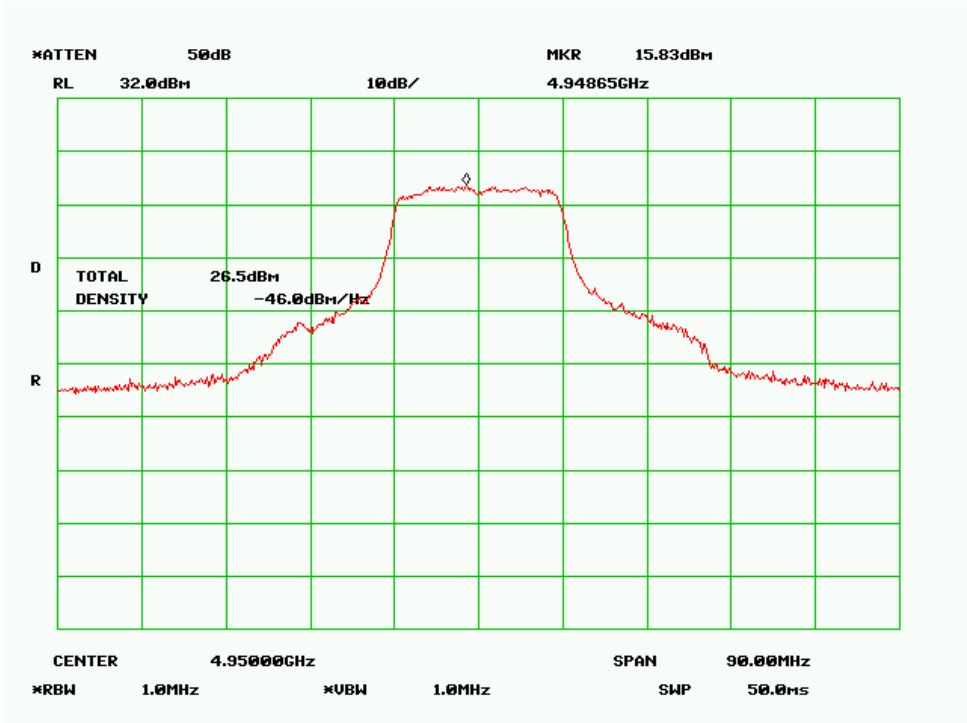


High Channel (20MHz)

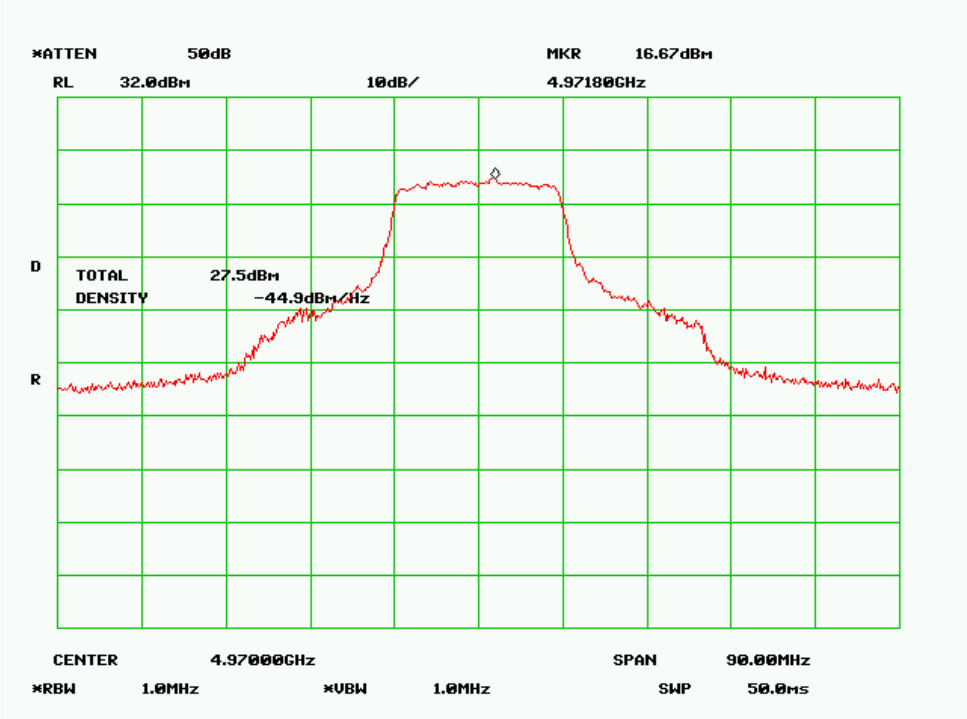


Chain 2 (20MHz)

Low Channel (20MHz)



High Channel (20MHz)



5.3 Occupied Bandwidth

Conducted Measurement

1. EUT was set for low, mid, high channel with modulated mode and highest RF output power.
   The spectrum analyzer was connected to the antenna terminal.
2. Environmental Conditions

Temperature	25°C
Relative Humidity	50%
Atmospheric Pressure	1019mbar

3. Conducted 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% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 40GHz is ±1.5dB.
4. Test Date : Oct 28 2010 to Nov 03 2010
   Tested By : David Zhang

Requirement(s): 47 CFR §90

Procedures: The 99% bandwidths was measured conducted using a spectrum analyzer at low, mid, and hi channels.

Operating channel bandwidth: 5MHz

Channel	Channel Frequency (MHz)	Chain 0-99% bandwidth (MHz)	Chain 2-99% bandwidth (MHz)
Low	4945	4.667	4.667
Mid	4965	4.667	4.667
High	4985	4.667	4.667

Operating channel bandwidth: 10MHz

Channel	Channel Frequency (MHz)	Chain 0-99% bandwidth (MHz)	Chain 2-99% bandwidth (MHz)
Low	4945	9.00	9.00
Mid	4965	9.00	9.00
High	4985	9.00	9.00

Operating channel bandwidth: 15MHz

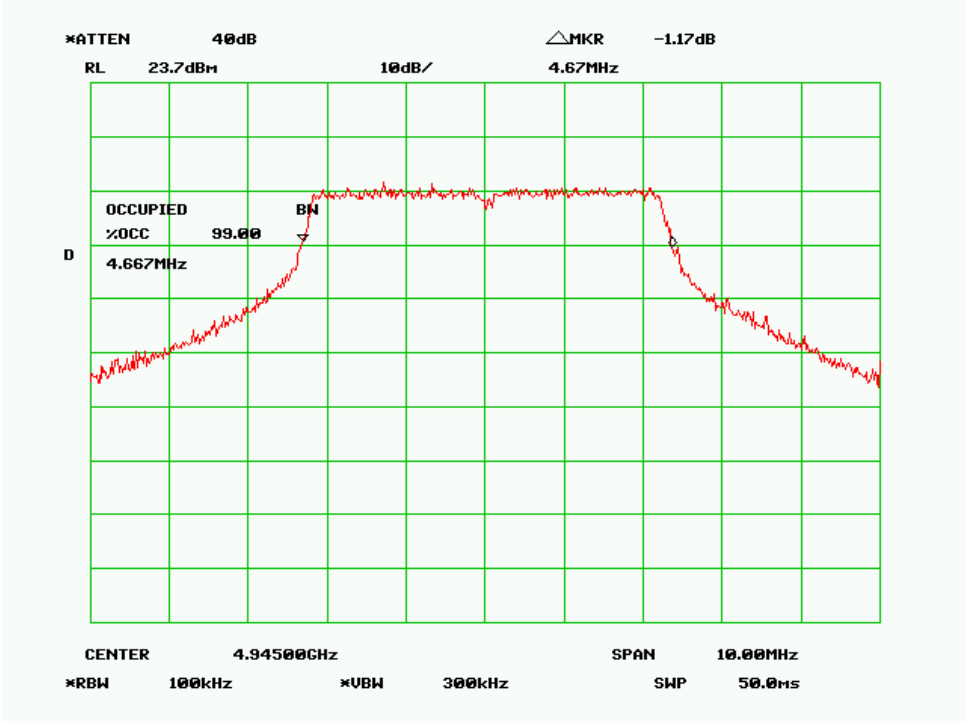
Channel	Channel Frequency (MHz)	Chain 0-99% bandwidth (MHz)	Chain 2-99% bandwidth (MHz)
Low	4950	13.33	13.33
Mid	4965	13.33	13.37
High	4980	13.33	13.33

Operating channel bandwidth: 20MHz

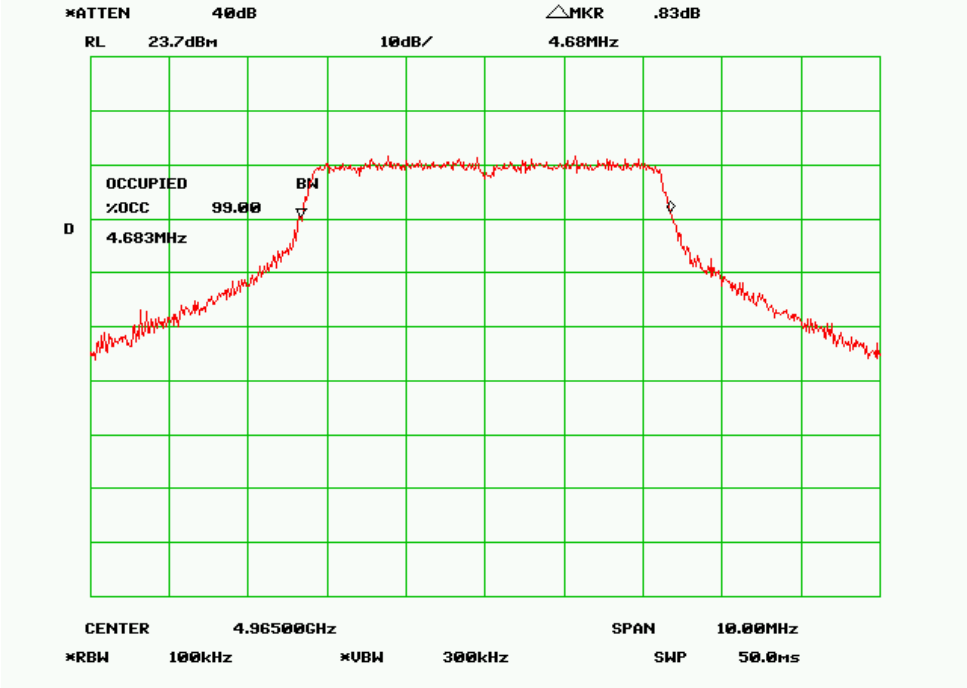
Channel	Channel Frequency (MHz)	Chain 0-99% bandwidth (MHz)	Chain 2-99% bandwidth (MHz)
Low	4950	17.6	17.6
High	4970	17.6	17.6

Chain 0 (5MHz)

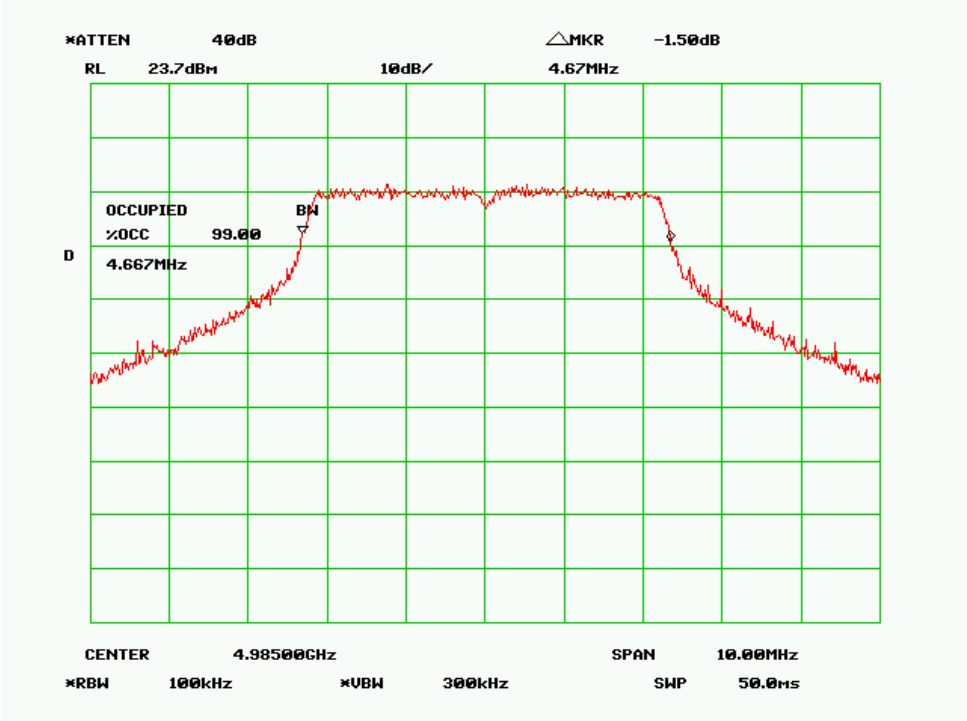
99% Bandwidth - Low Channel (5MHz)



99% Bandwidth - Mid Channel (5MHz)

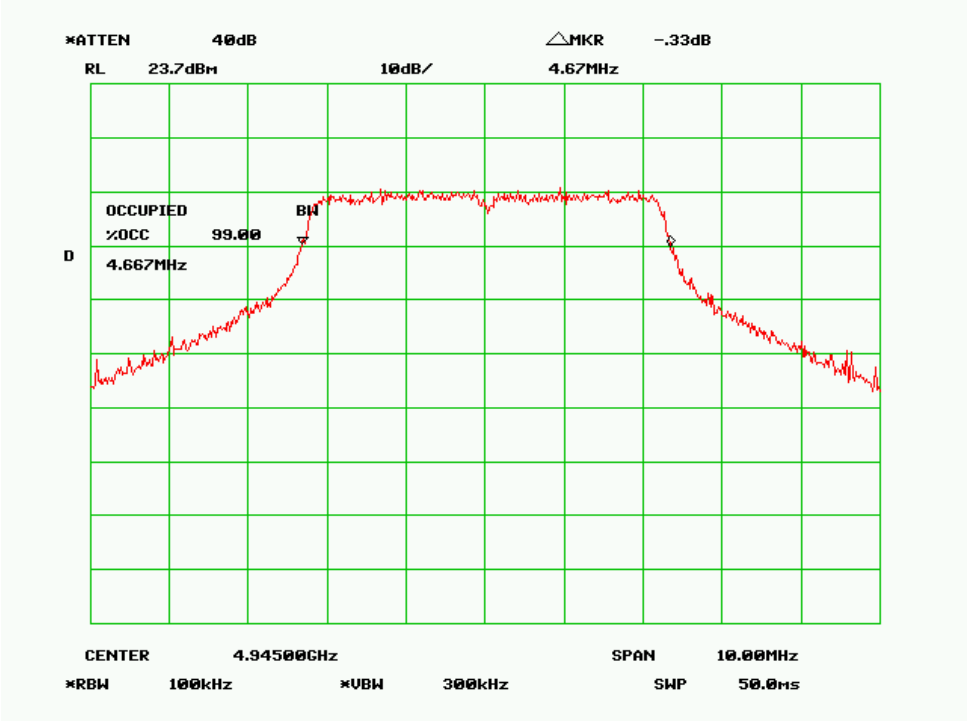


99% Bandwidth – High Channel (5MHz)

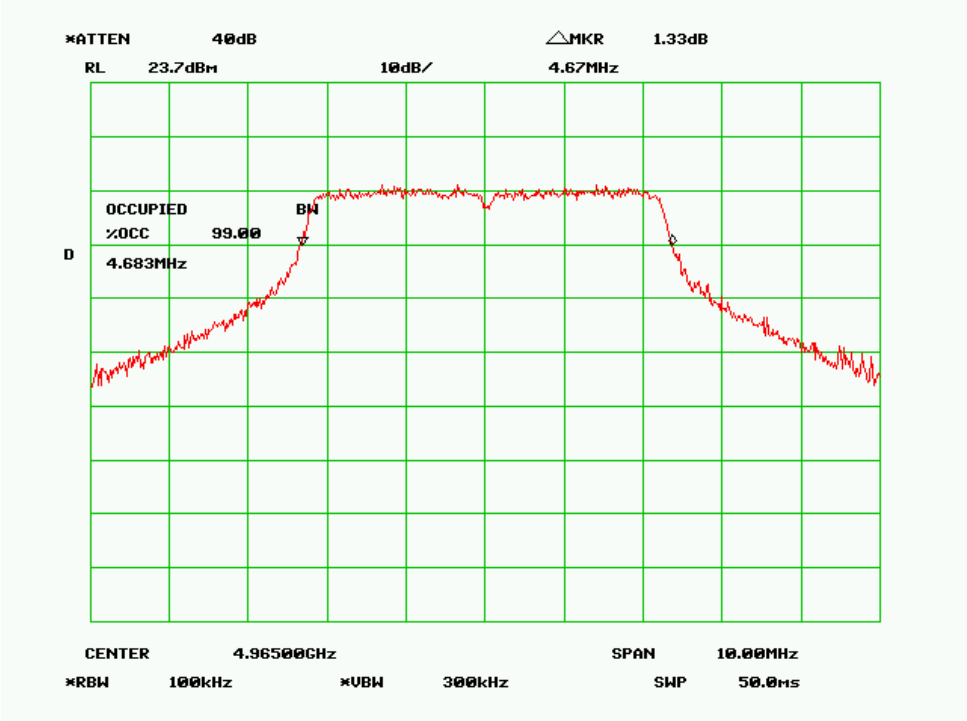


Chain 2 (5MHz)

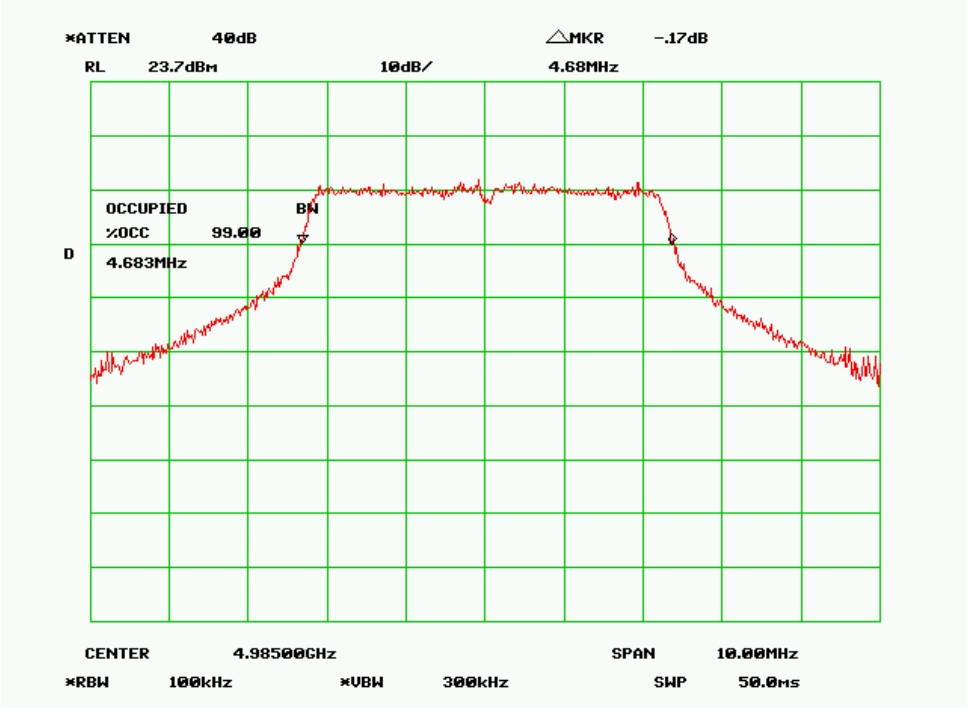
99% Bandwidth - Low Channel (5MHz)



99% Bandwidth - Mid Channel (5MHz)

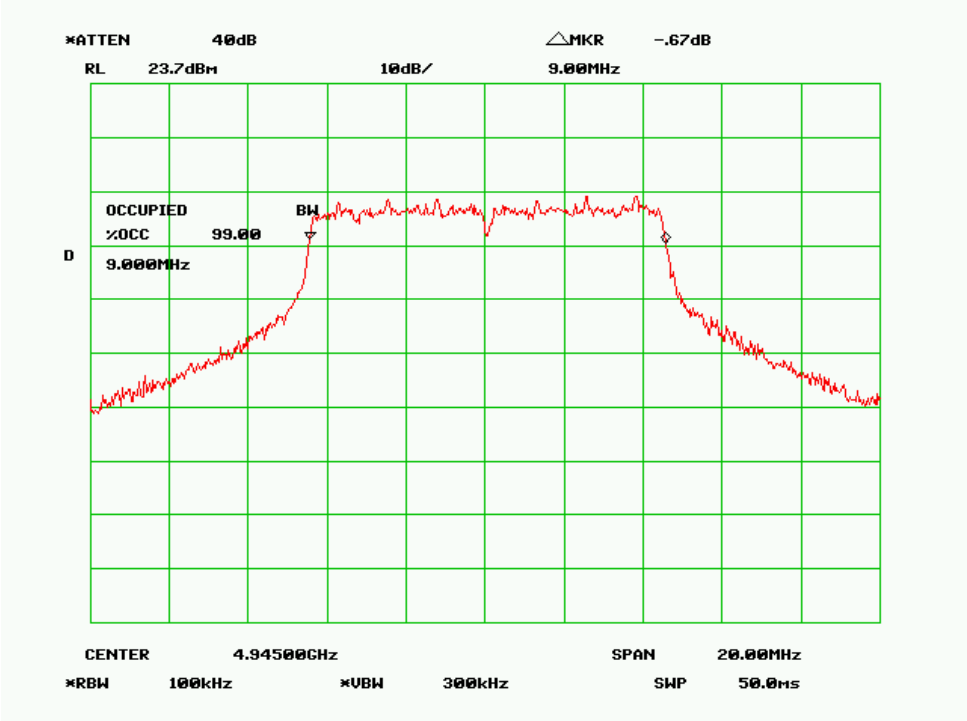


99% Bandwidth – High Channel (5MHz)

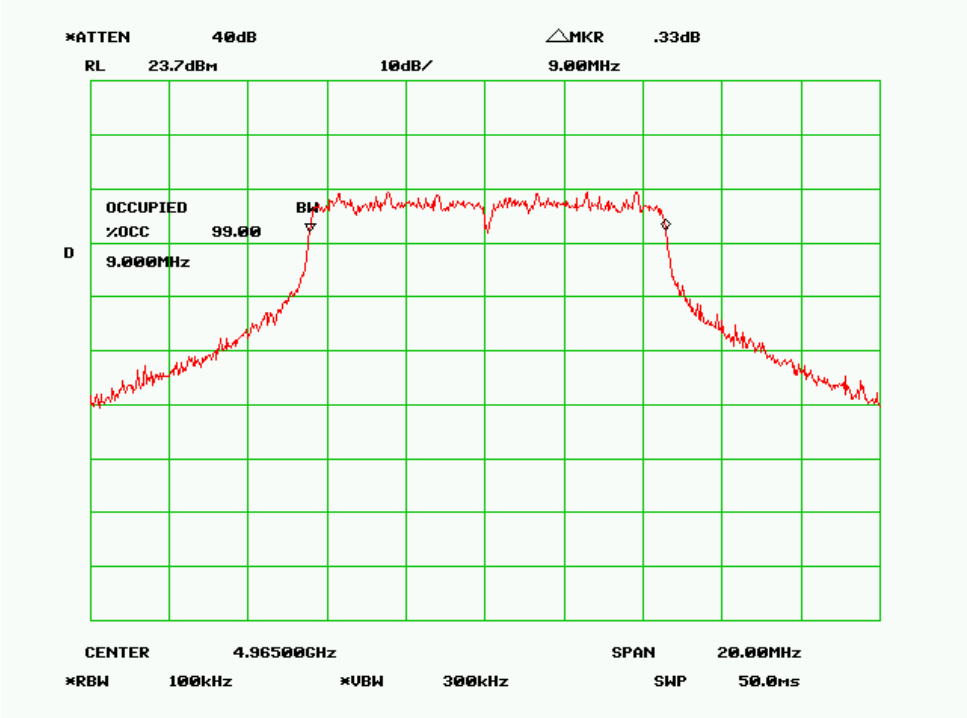


Chain 0 (10MHz)

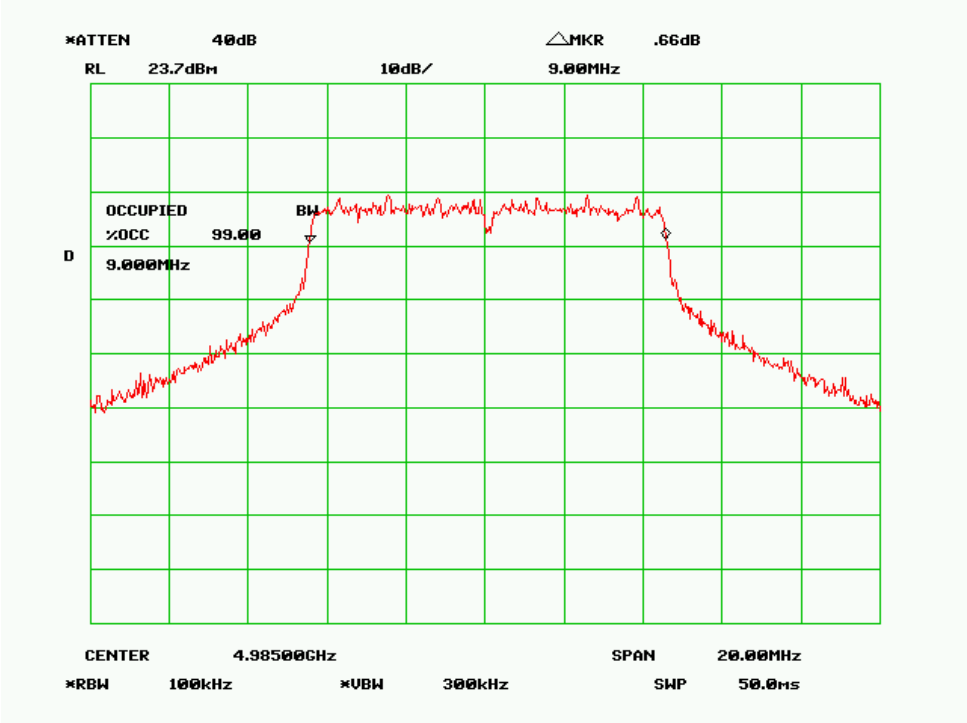
99% Bandwidth - Low Channel (10MHz)



99% Bandwidth - Mid Channel (10MHz)

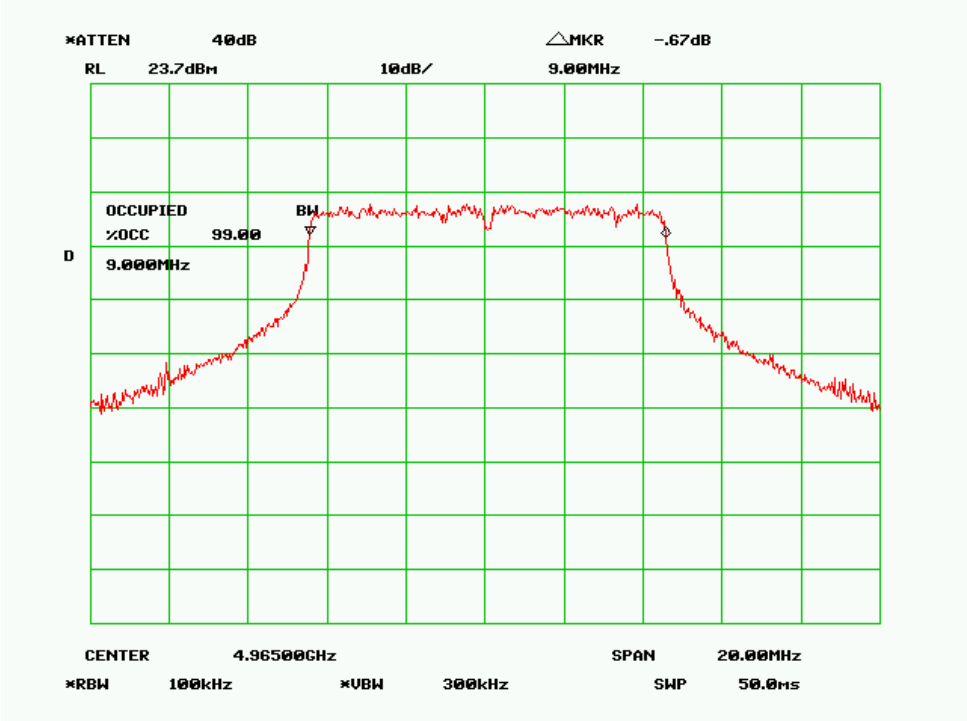


99% Bandwidth – High Channel (10MHz)

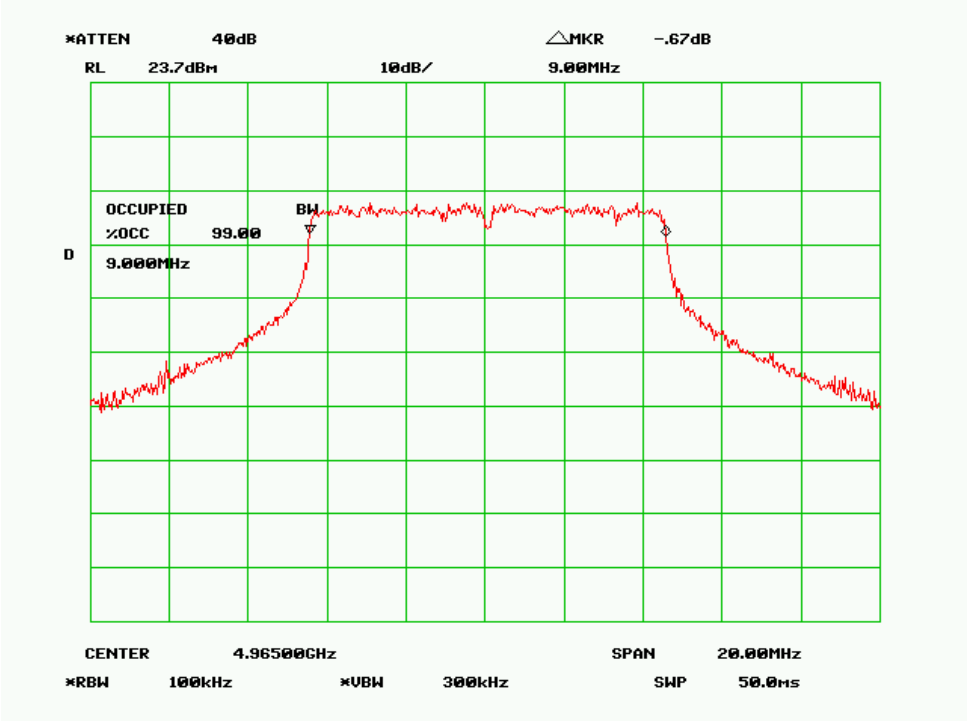


Chain 2 (10MHz)

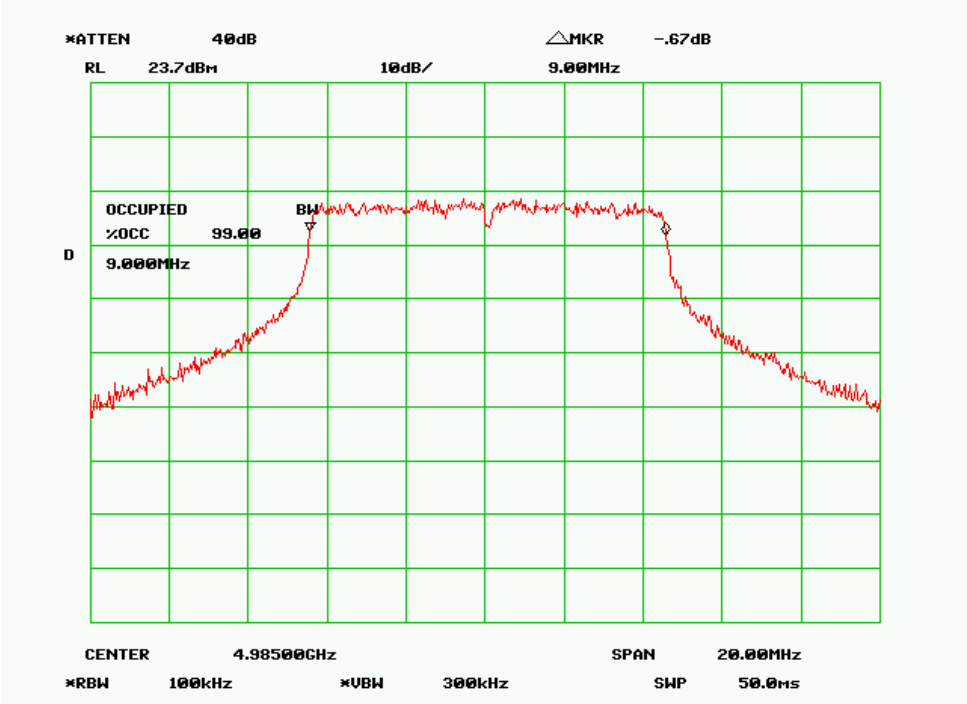
99% Bandwidth - Low Channel (10MHz)



99% Bandwidth - Mid Channel (10MHz)

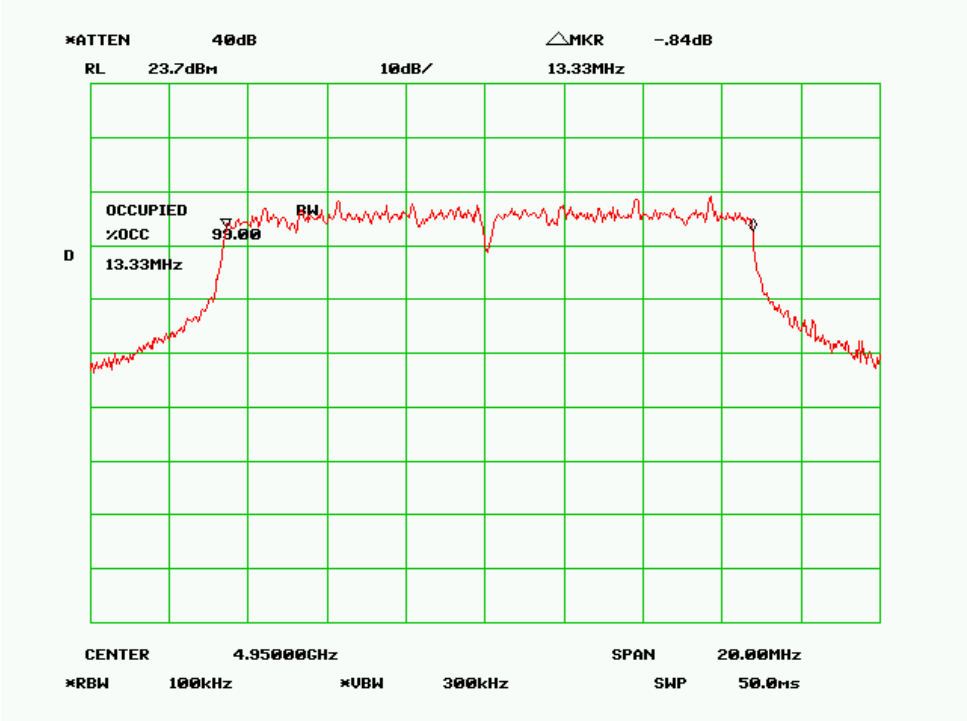


99% Bandwidth – High Channel (10MHz)

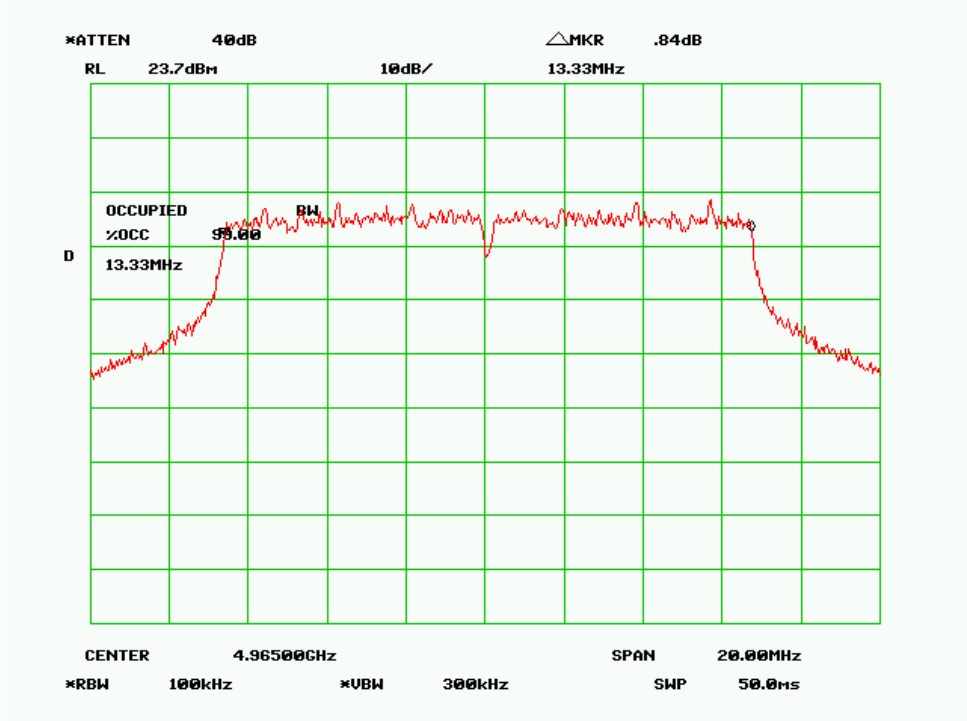


Chain 0 (15MHz)

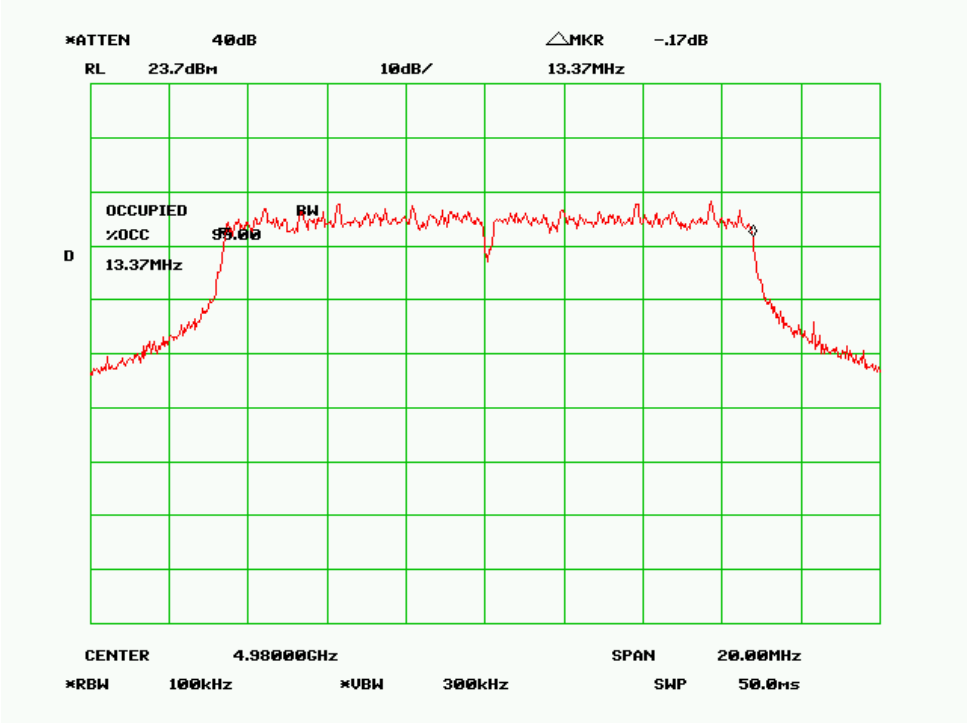
99% Bandwidth - Low Channel (15MHz)



99% Bandwidth - Mid Channel (15MHz)

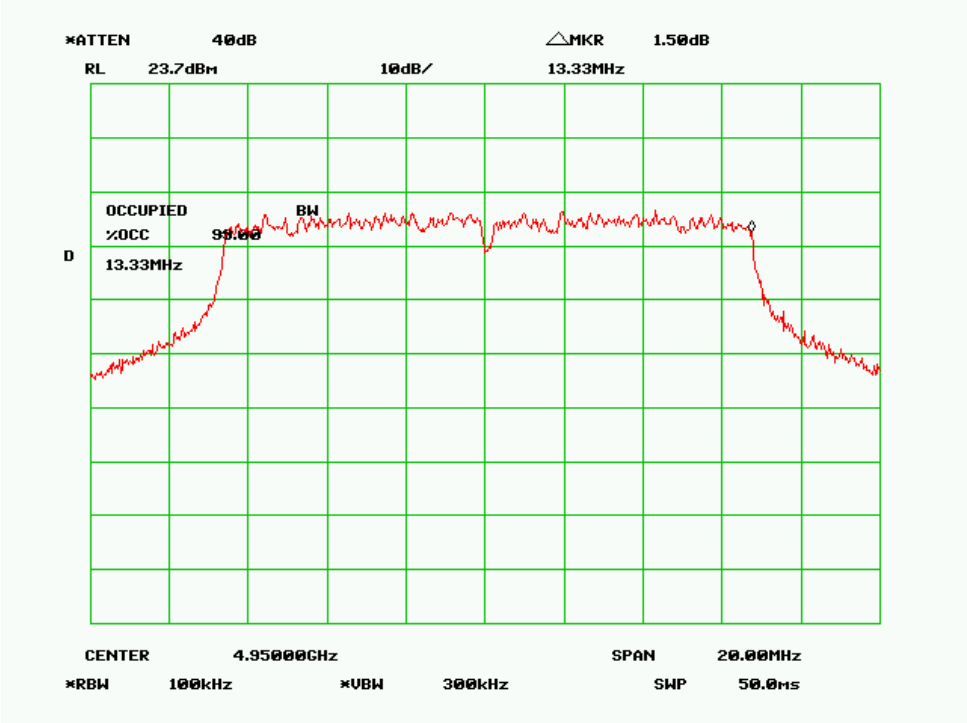


99% Bandwidth – High Channel (15MHz)

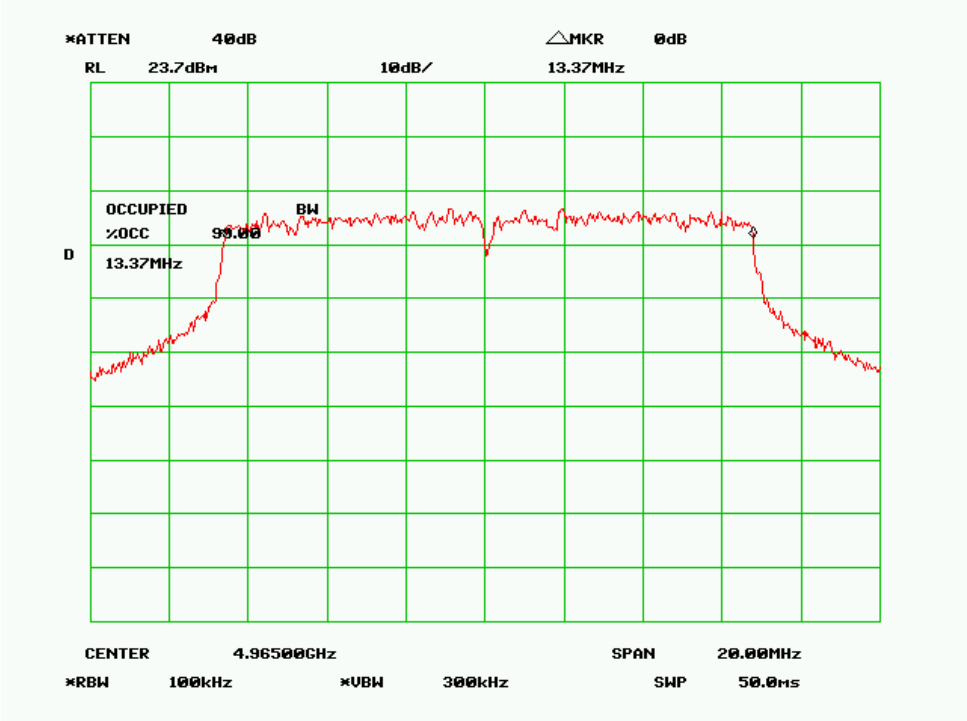


Chain 2 (15MHz)

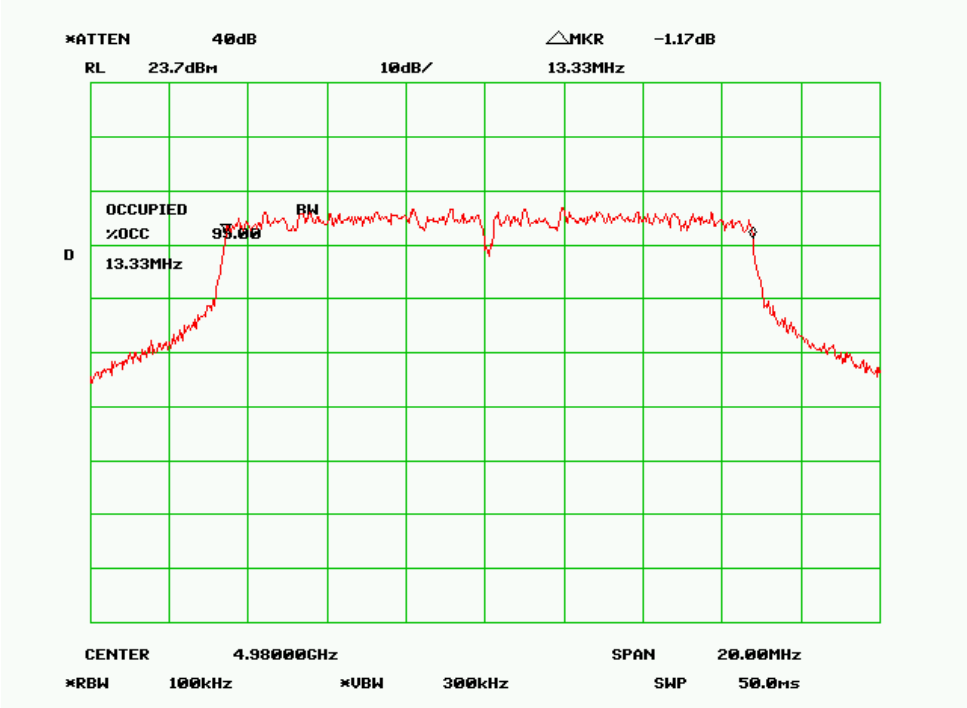
99% Bandwidth - Low Channel (15MHz)



99% Bandwidth - Mid Channel (15MHz)

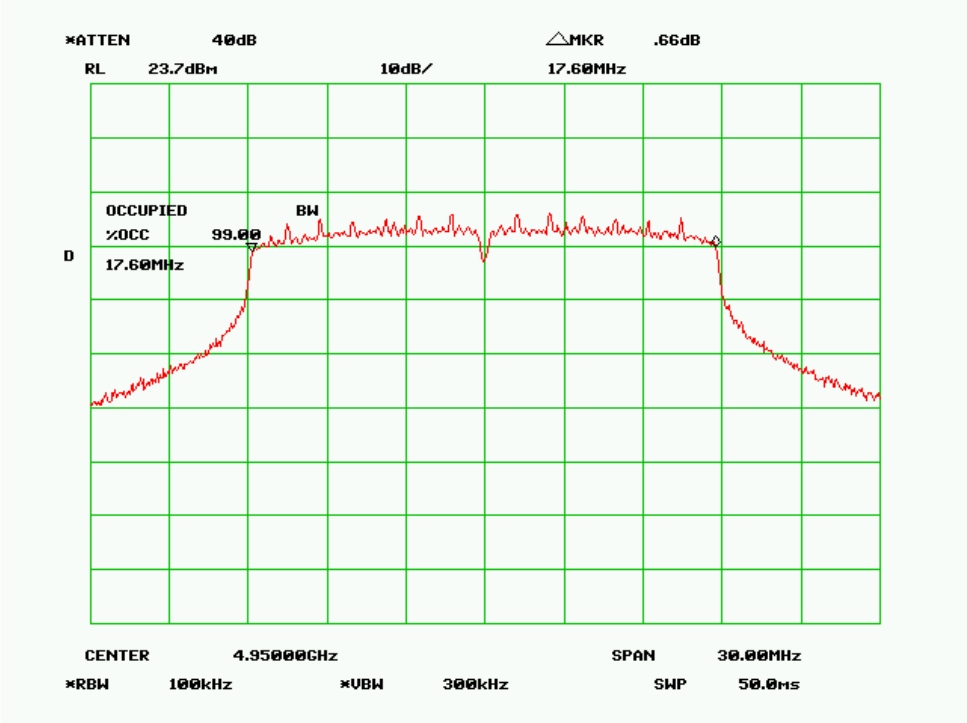


99% Bandwidth – High Channel (15MHz)

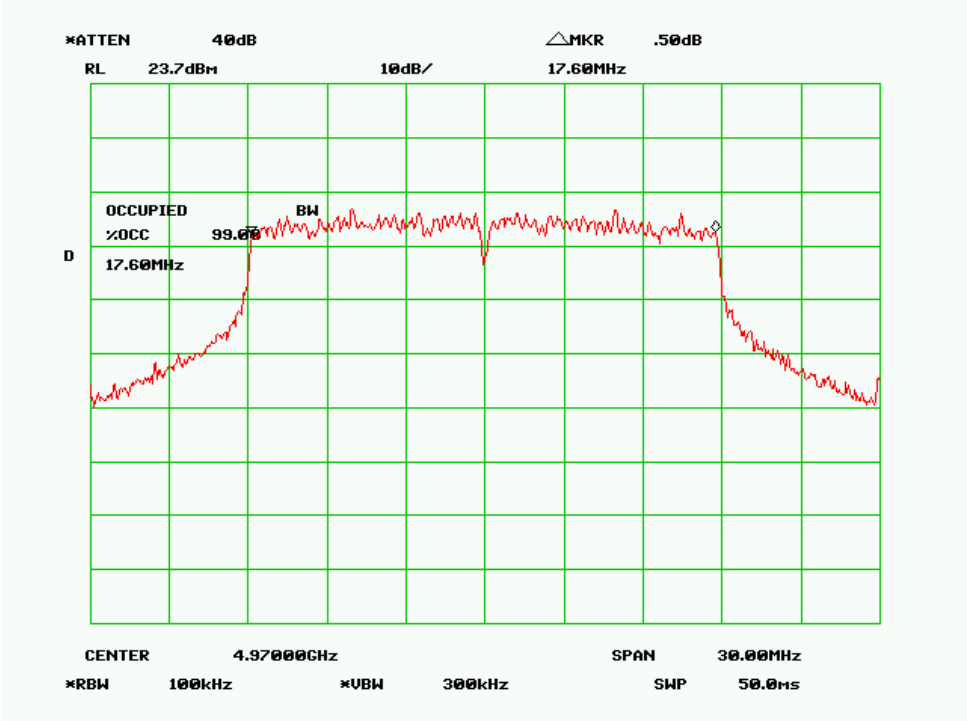


Chain 0 (20MHz)

99% Bandwidth - Low Channel (20MHz)

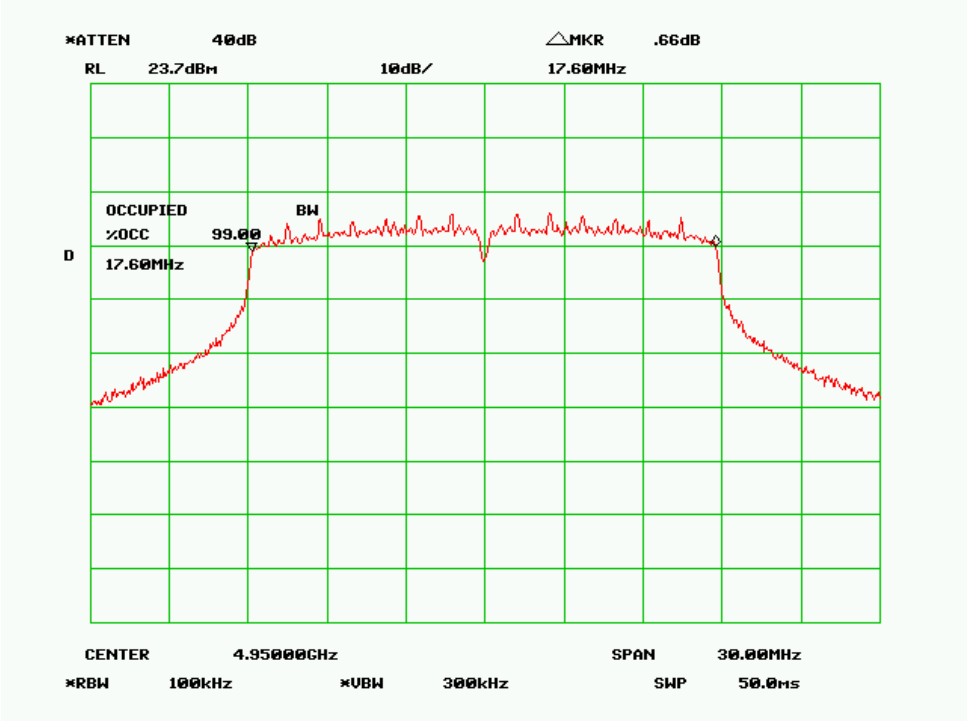


99% Bandwidth – High Channel (20MHz)

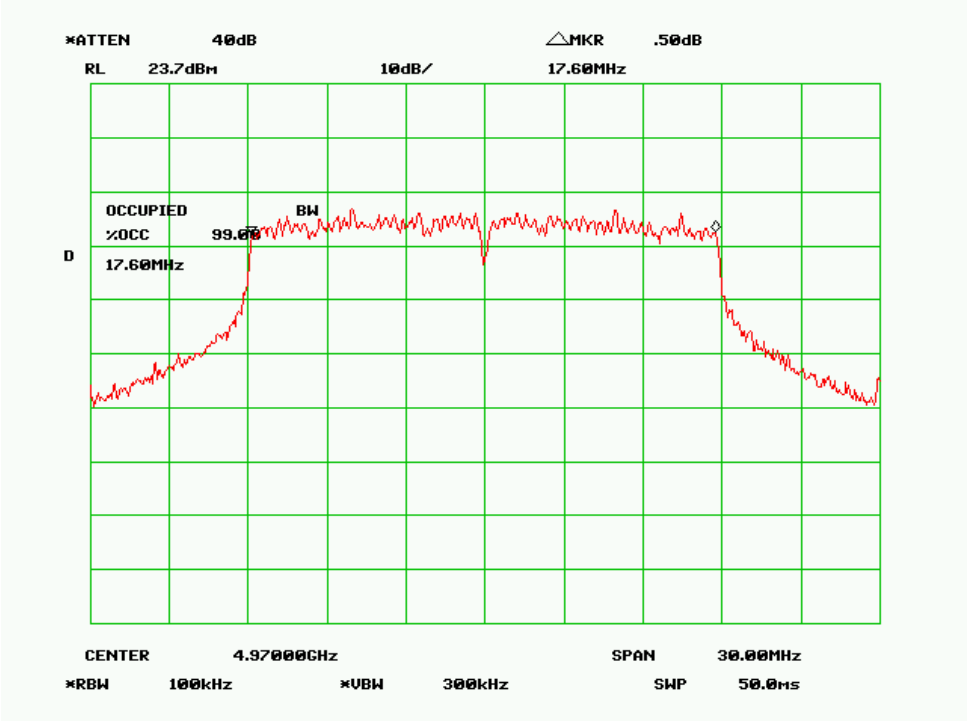


Chain 2 (20MHz)

99% Bandwidth - Low Channel (20MHz)



99% Bandwidth – High Channel (20MHz)



5.4 Emission Mask

	Conducted Measurement		
1.	EUT was set for low , mid, high channel with modulated mode and highest RF output power. The spectrum analyzer was connected to the antenna terminal.		
	Conducted Emissions Measurement Uncertainty		
2	All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 40GHz is ±1.5dB.		
3	Environmental Conditions	Temperature	25°C
		Relative Humidity	50%
		Atmospheric Pressure	1019mbar
4	Test Date : Oct 28 2010 to Nov 03 2010 Tested By : David Zhang		

Standard Requirement: 47 CFR §90.210

(m) *Emission Mask L. For high power transmitters (greater than 20dBm)* operating in the 4940–4990 MHz frequency band, the power spectral density of the emissions must be attenuated below the output power of the transmitter as follows:

(1) On any frequency removed from the assigned frequency between 0–45% of the authorized bandwidth (BW): 0 dB.

(2) On any frequency removed from the assigned frequency between 45–50% of the authorized bandwidth: 568 log (% of (BW)/45) dB.

(3) On any frequency removed from the assigned frequency between 50–55% of the authorized bandwidth: 26 + 145 log (% of (BW)/50) dB.

(4) On any frequency removed from the assigned frequency between 55–100% of the authorized bandwidth: 32 + 31 log (% of (BW)/55) dB attenuation.

(5) On any frequency removed from the assigned frequency between 100–150% of the authorized bandwidth: 40 + 57 log (% of (BW)/100) dB attenuation.

(6) On any frequency removed from the assigned frequency above 150% of the authorized bandwidth: 50 dB or 55 + 10 log (P) dB, whichever is the lesser attenuation.

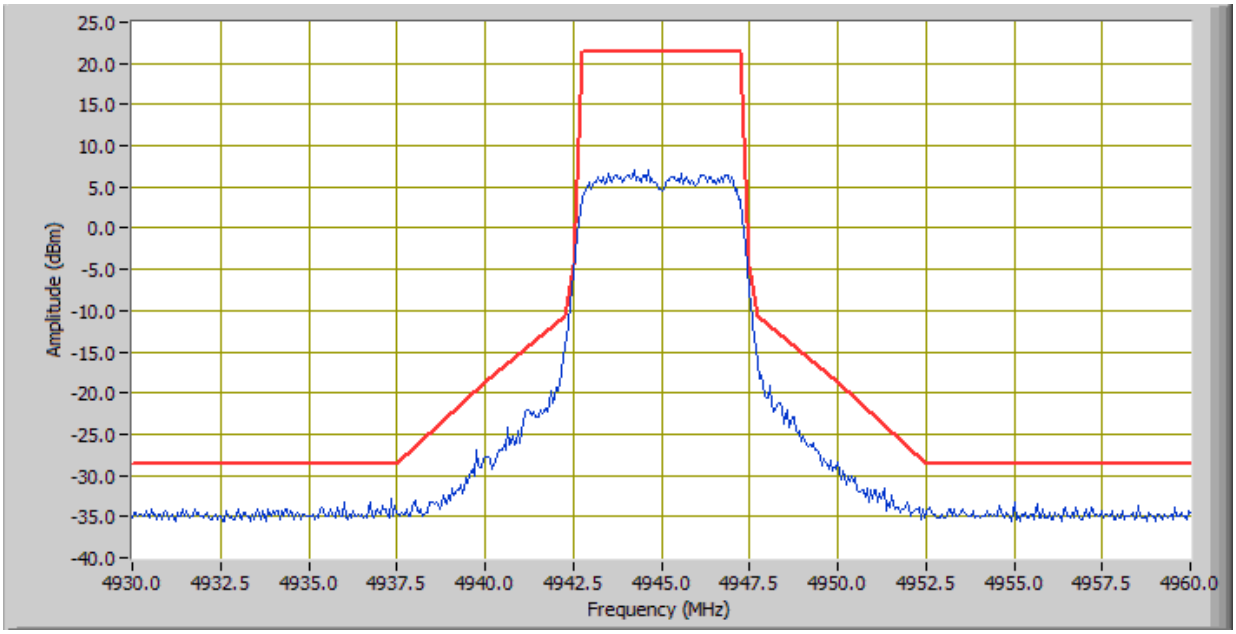
(7) The zero dB reference is measured relative to the highest average power of the fundamental emission measured across the designated channel bandwidth using a resolution bandwidth of at least one percent of the occupied bandwidth of the fundamental emission and a video bandwidth of 30 KHz. The power spectral density is the power measured within the resolution bandwidth of the measurement device divided by the resolution bandwidth of the measurement device. Emission levels are also based on the use of measurement instrumentation employing a resolution bandwidth of at least one percent of the occupied bandwidth.

Procedures: The Emission mask were measured conducted using a spectrum analyzer at low, mid, and hi channels.

Channel Bandwidth: 5MHz

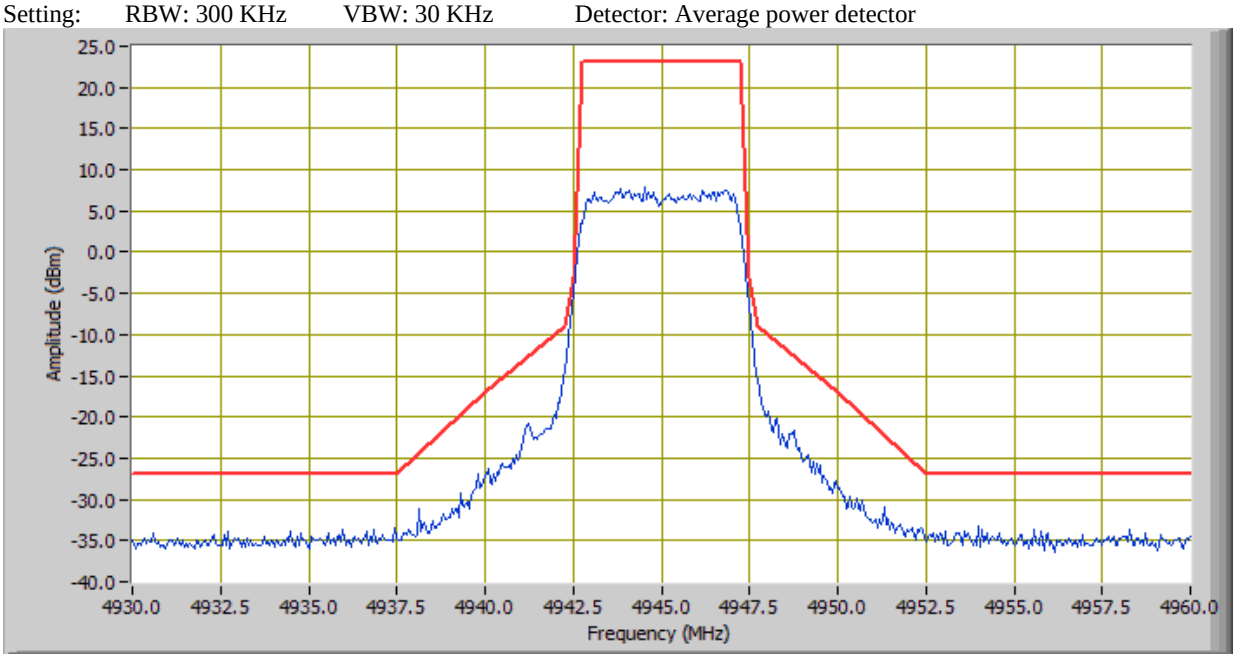
Chain 0 (5MHz)

Low Channel (5MHz)
Setting: RBW: 300 KHz VBW: 30 KHz Detector: Average power detector



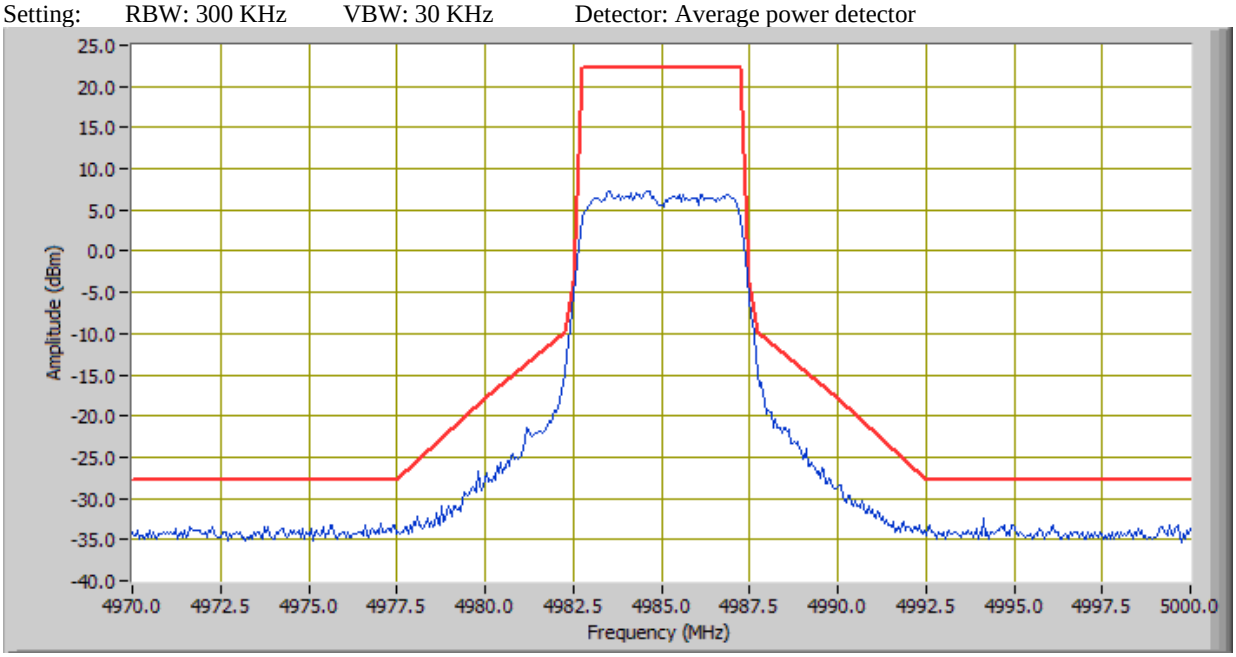
Mid Channel (5MHz)

Setting: RBW: 300 KHz VBW: 30 KHz Detector: Average power detector



High Channel (5MHz)

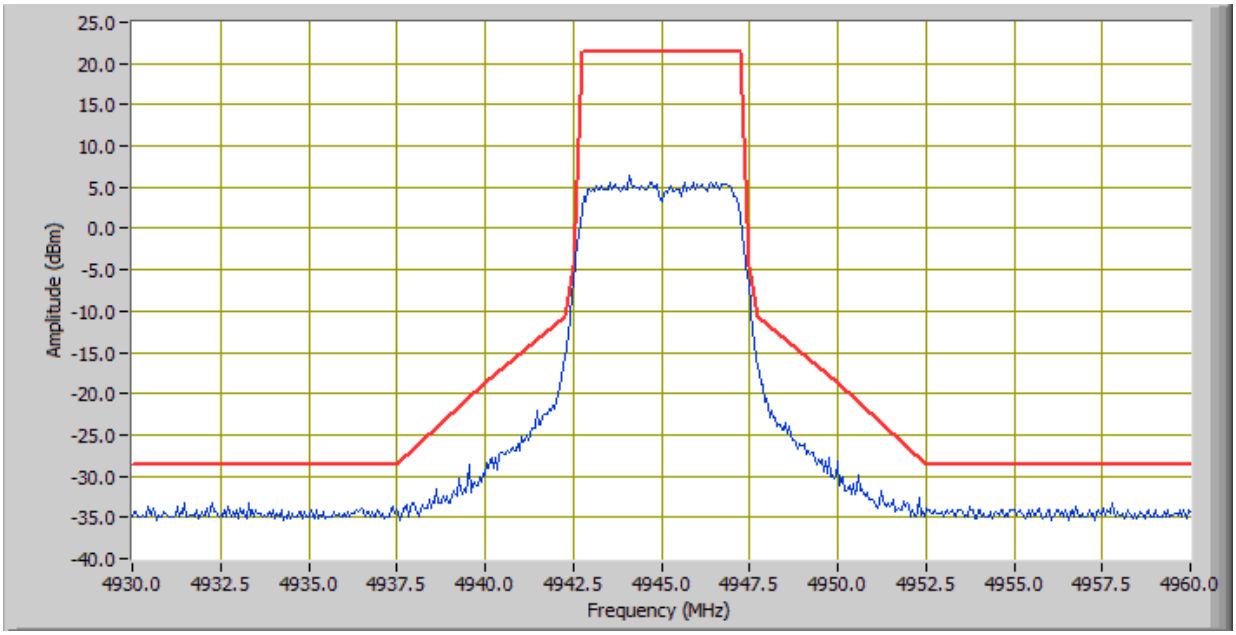
Setting: RBW: 300 KHz VBW: 30 KHz Detector: Average power detector



Chain 2 (5MHz)

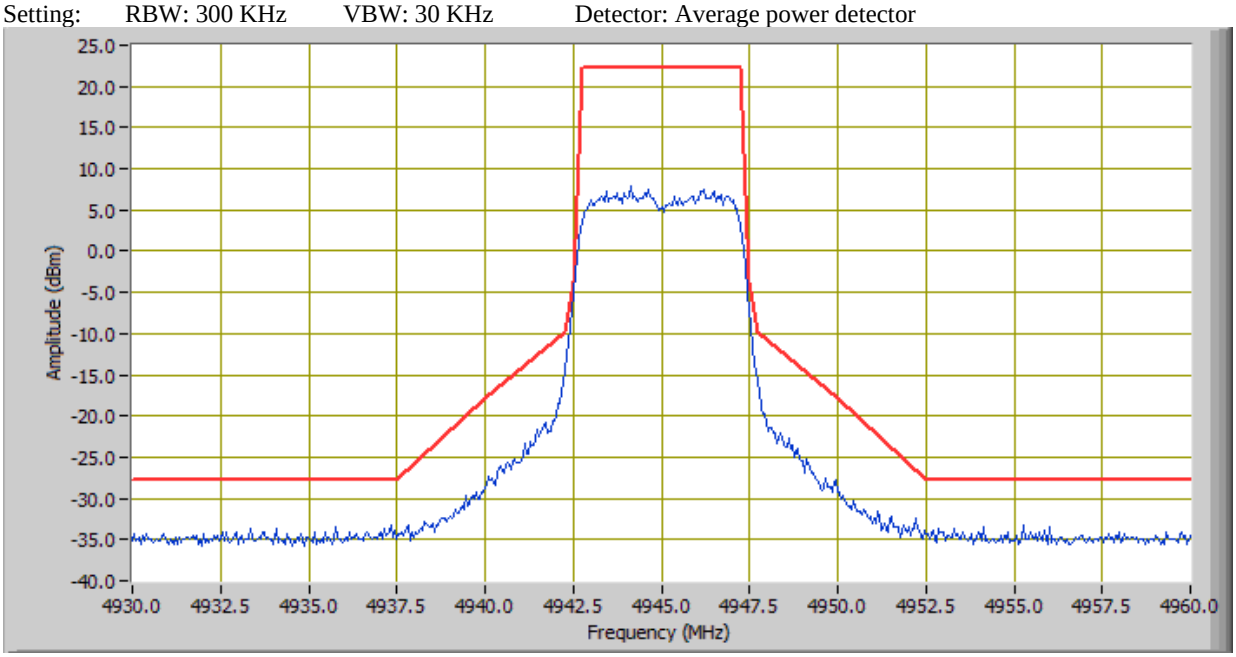
Low Channel (5MHz)

Setting: RBW: 300 KHz VBW: 30 KHz Detector: Average power detector



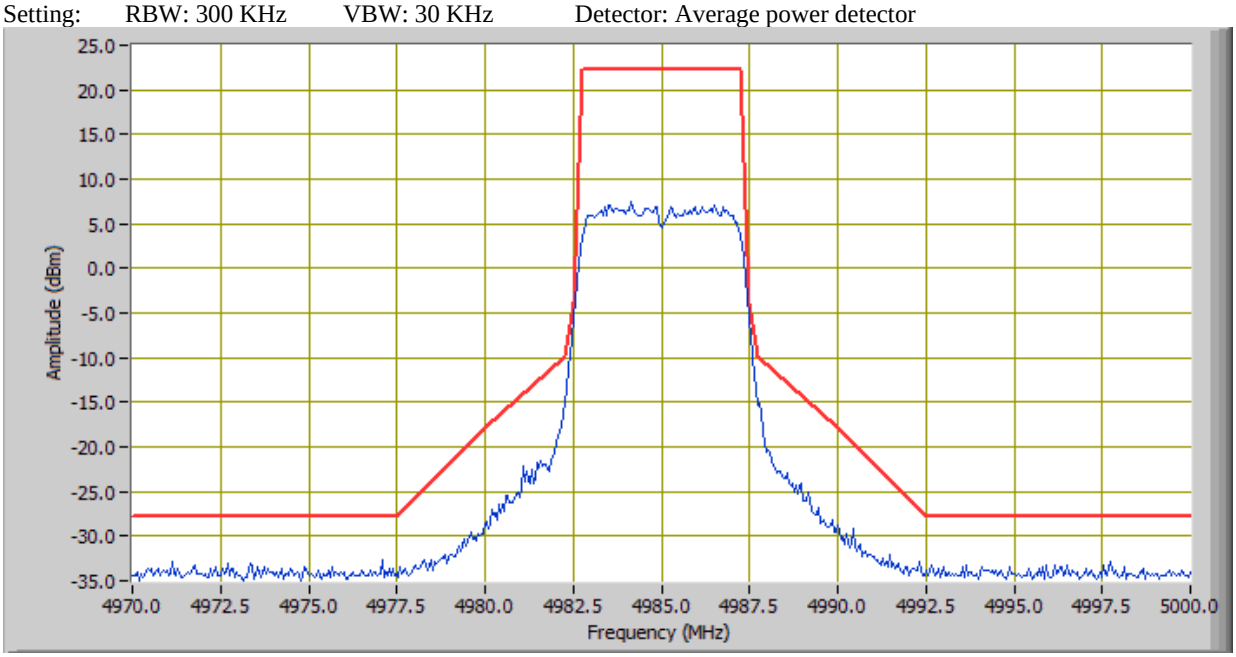
Mid Channel (5MHz)

Setting: RBW: 300 KHz VBW: 30 KHz Detector: Average power detector



High Channel (5MHz)

Setting: RBW: 300 KHz VBW: 30 KHz Detector: Average power detector

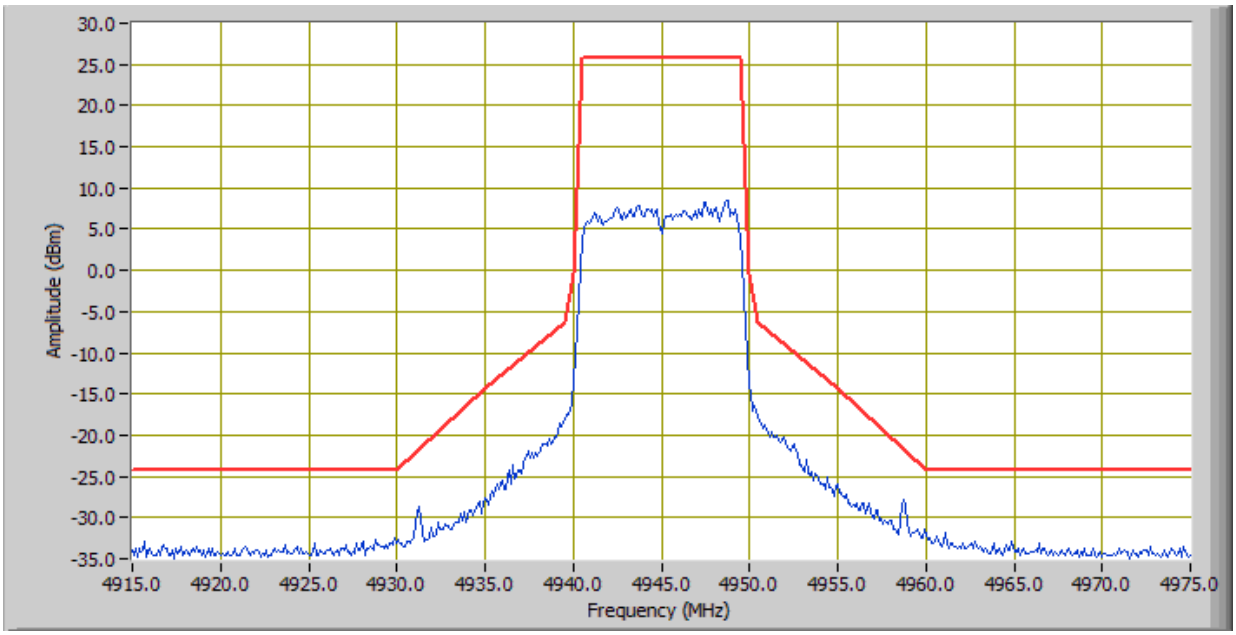


Channel Bandwidth: 10MHz

Chain 0 (10MHz)

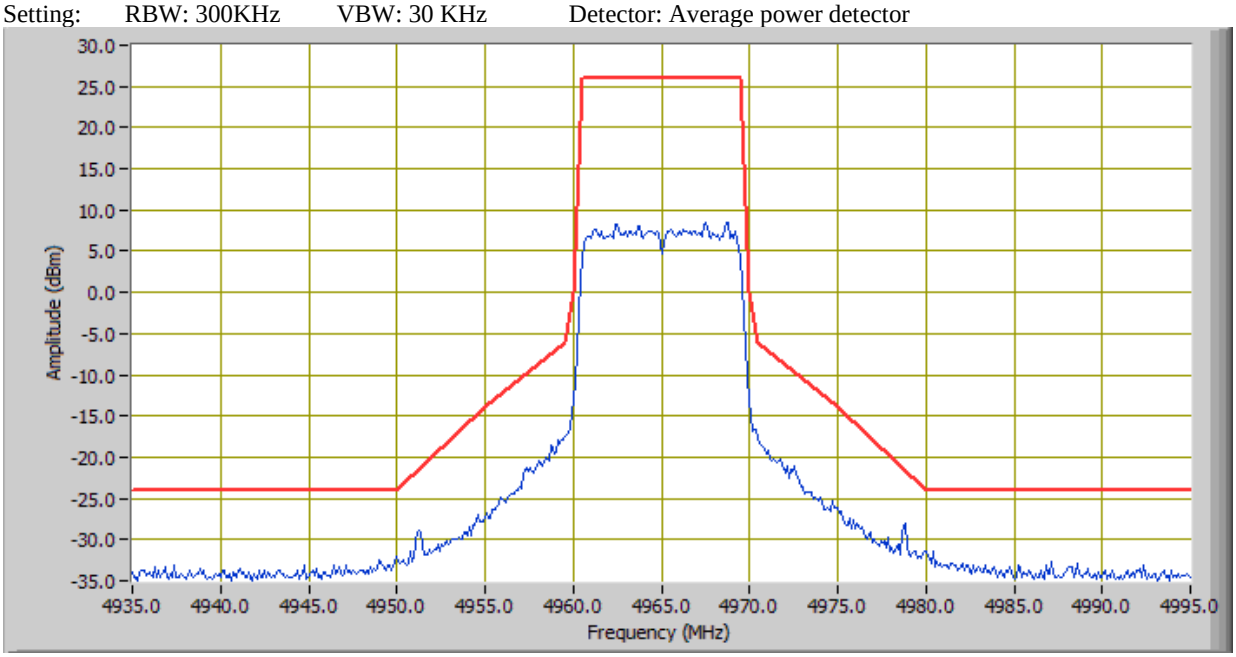
Low Channel (10MHz)

Setting: RBW: 300KHz VBW: 30 KHz Detector: Average power detector



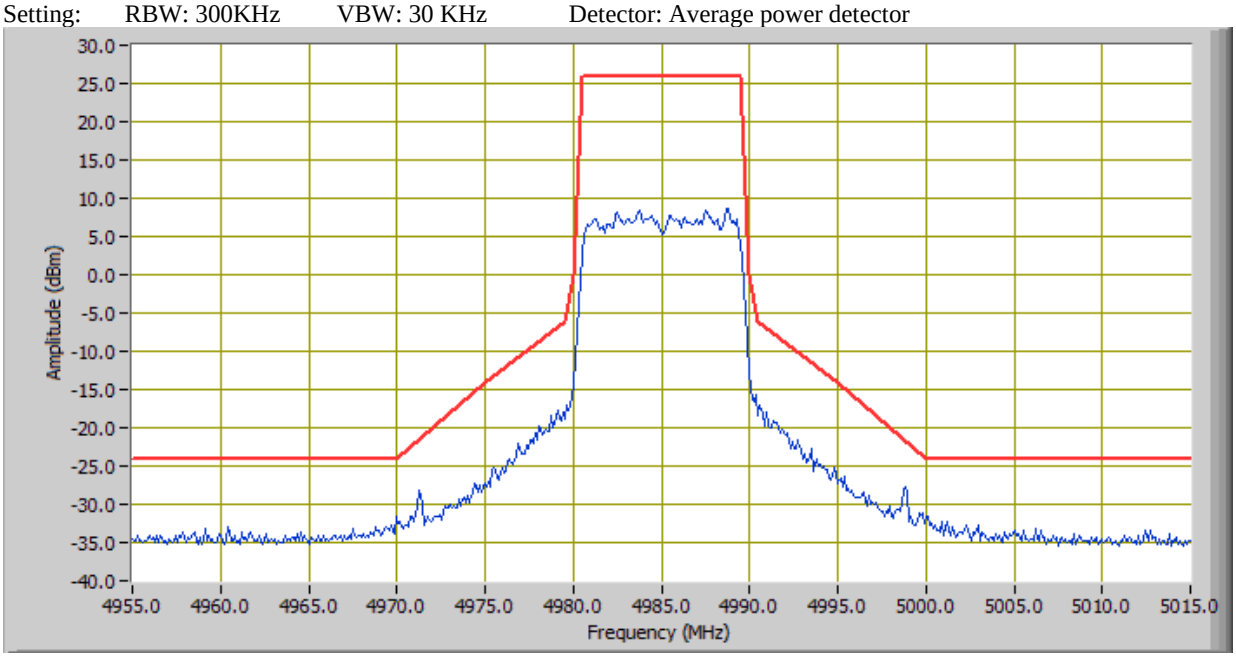
Mid Channel (10MHz)

Setting: RBW: 300KHz VBW: 30 KHz Detector: Average power detector



High Channel (10MHz)

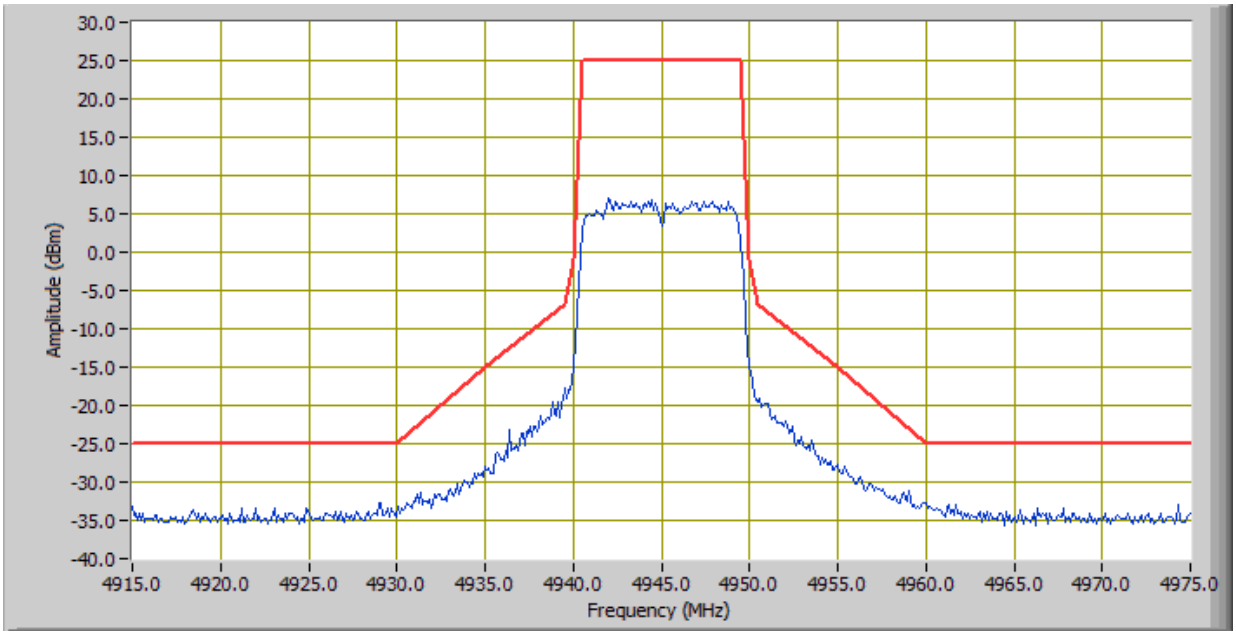
Setting: RBW: 300KHz VBW: 30 KHz Detector: Average power detector



Chain 2 (10MHz)

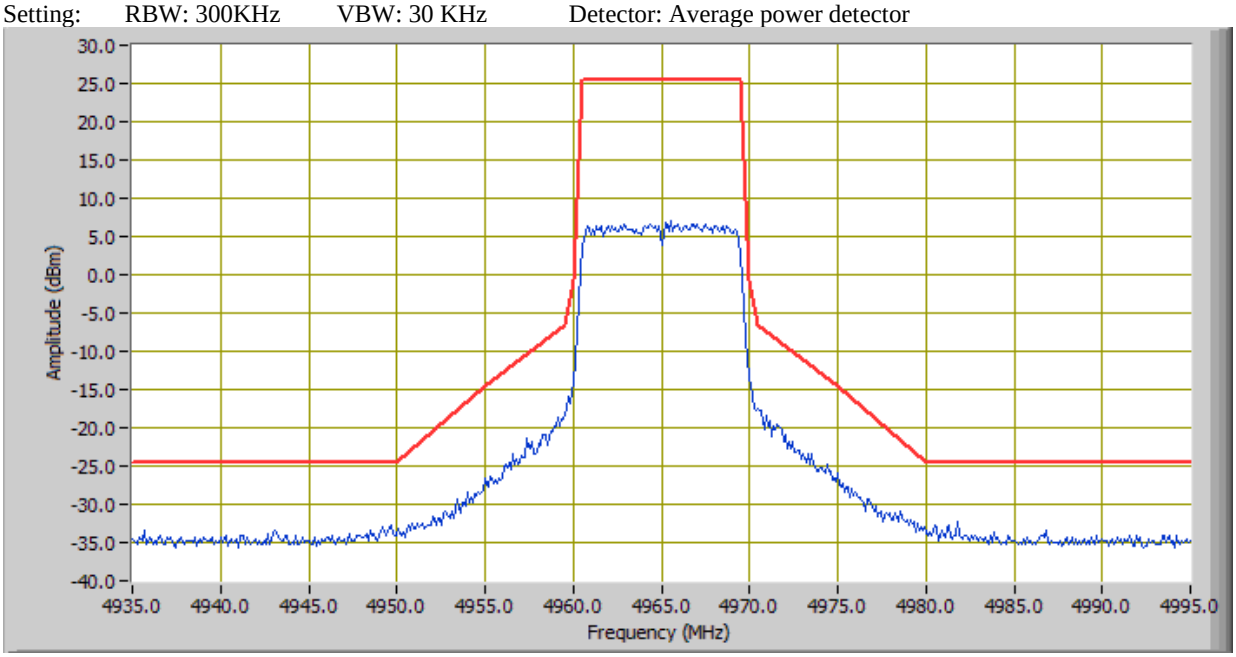
Low Channel (10MHz)

Setting: RBW: 300KHz VBW: 30 KHz Detector: Average power detector



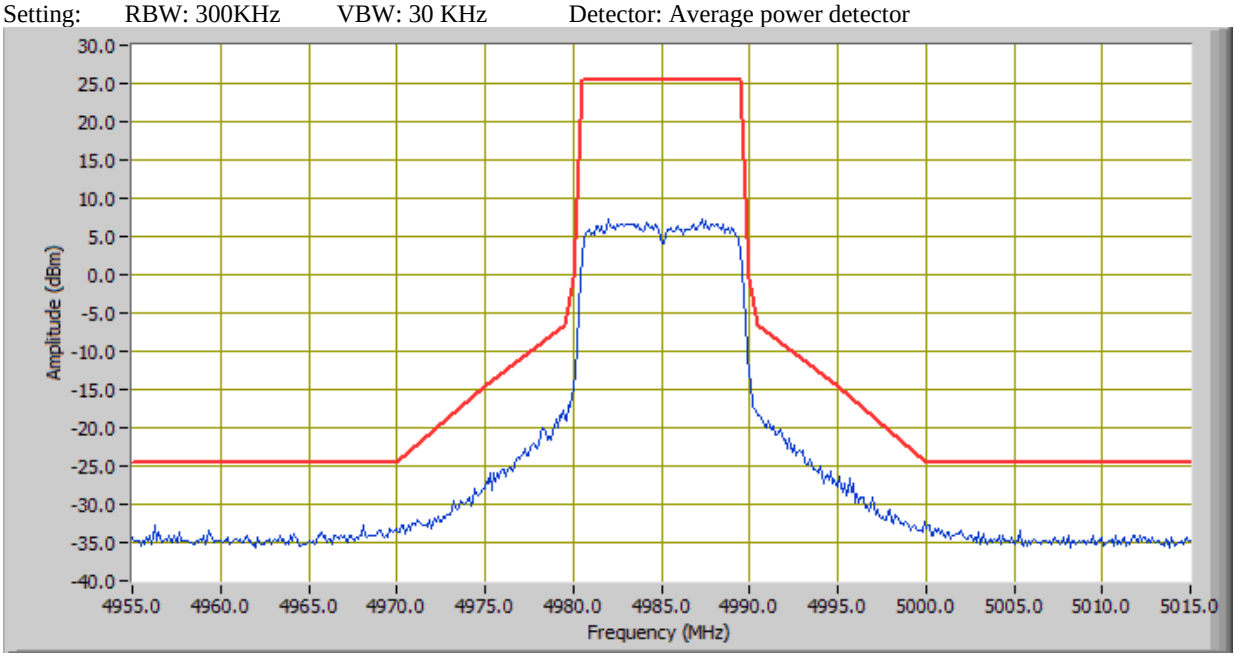
Mid Channel (10MHz)

Setting: RBW: 300KHz VBW: 30 KHz Detector: Average power detector



High Channel (10MHz)

Setting: RBW: 300KHz VBW: 30 KHz Detector: Average power detector

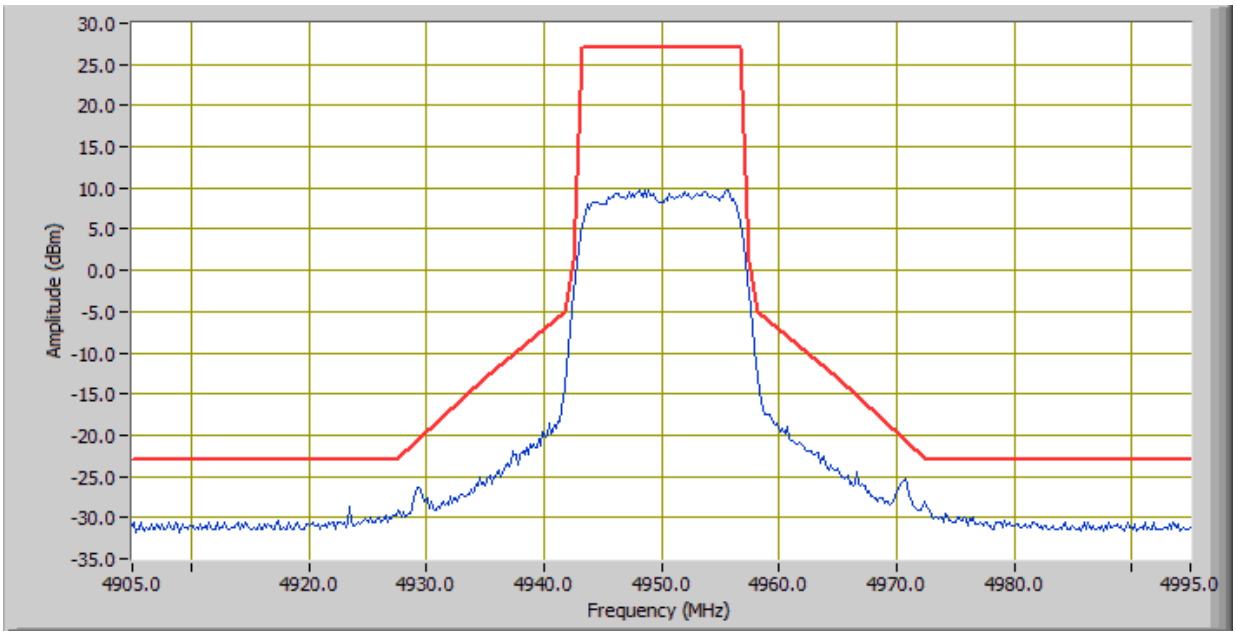


Channel Bandwidth: 15MHz

Chain 0 (15MHz)

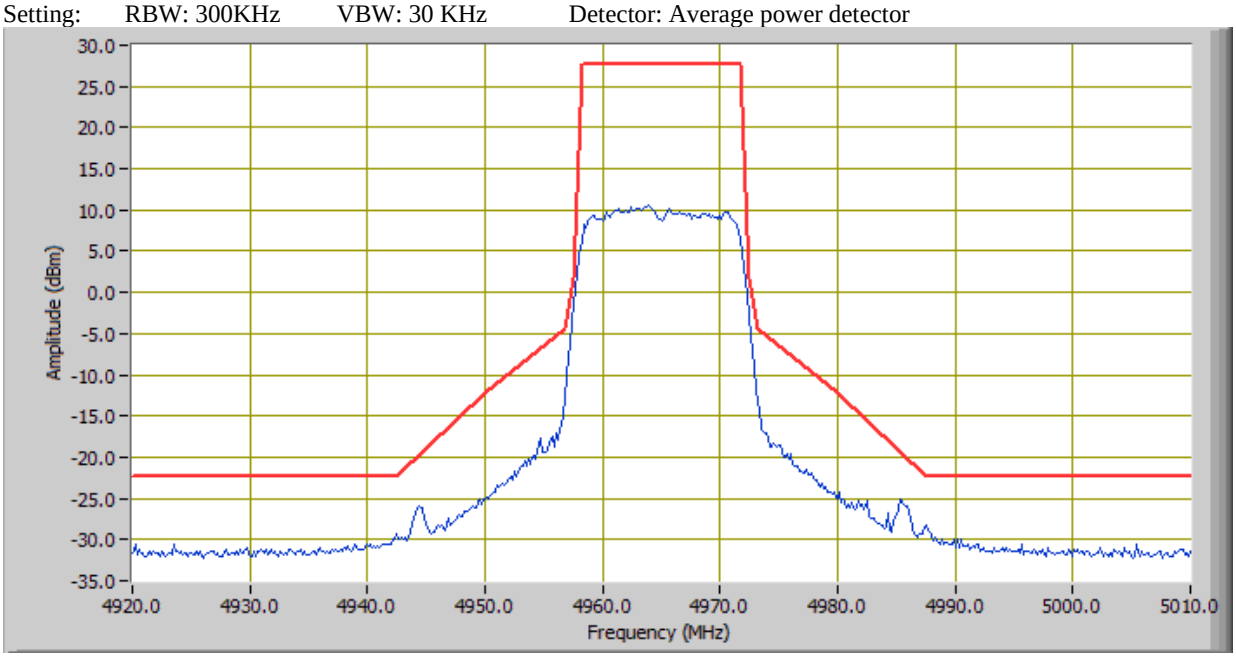
Low Channel (15MHz)

Setting: RBW: 300KHz VBW: 30 KHz Detector: Average power detector



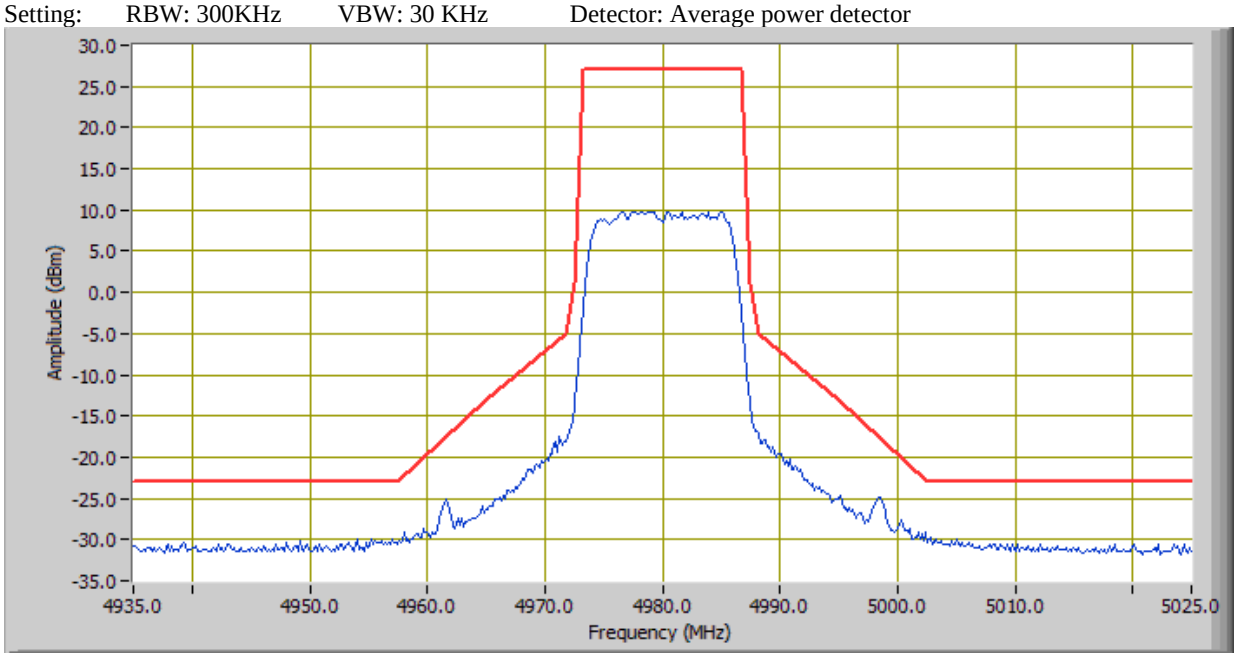
Mid Channel (15MHz)

Setting: RBW: 300KHz VBW: 30 KHz Detector: Average power detector



High Channel (15MHz)

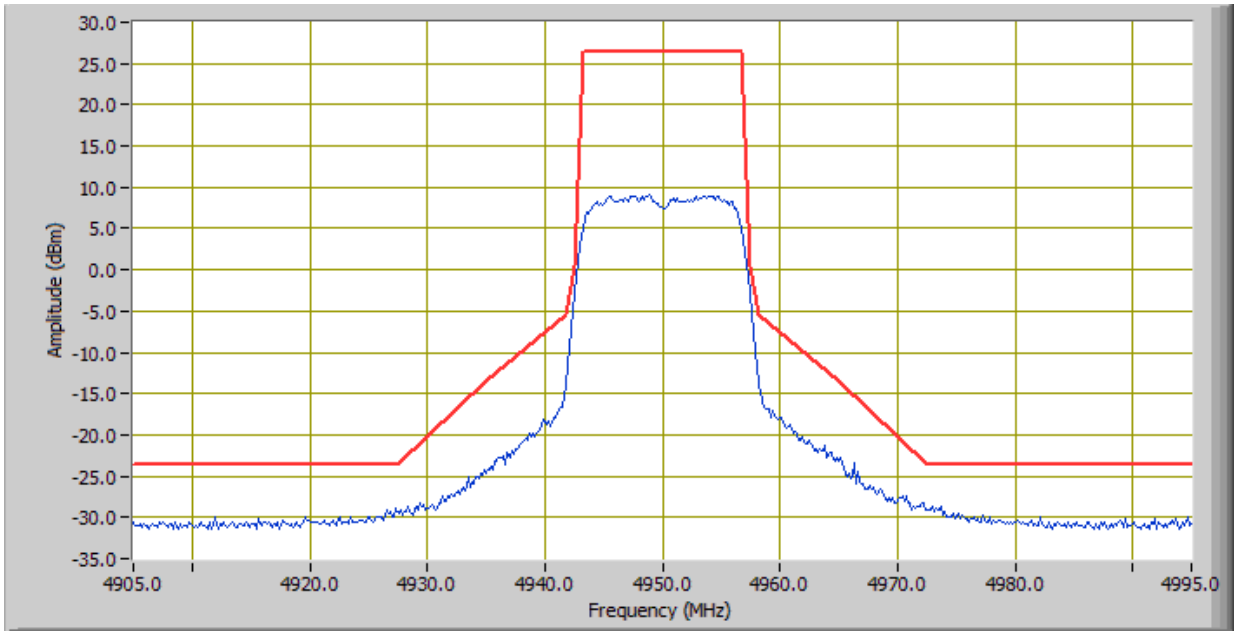
Setting: RBW: 300KHz VBW: 30 KHz Detector: Average power detector



Chain 2 (15MHz)

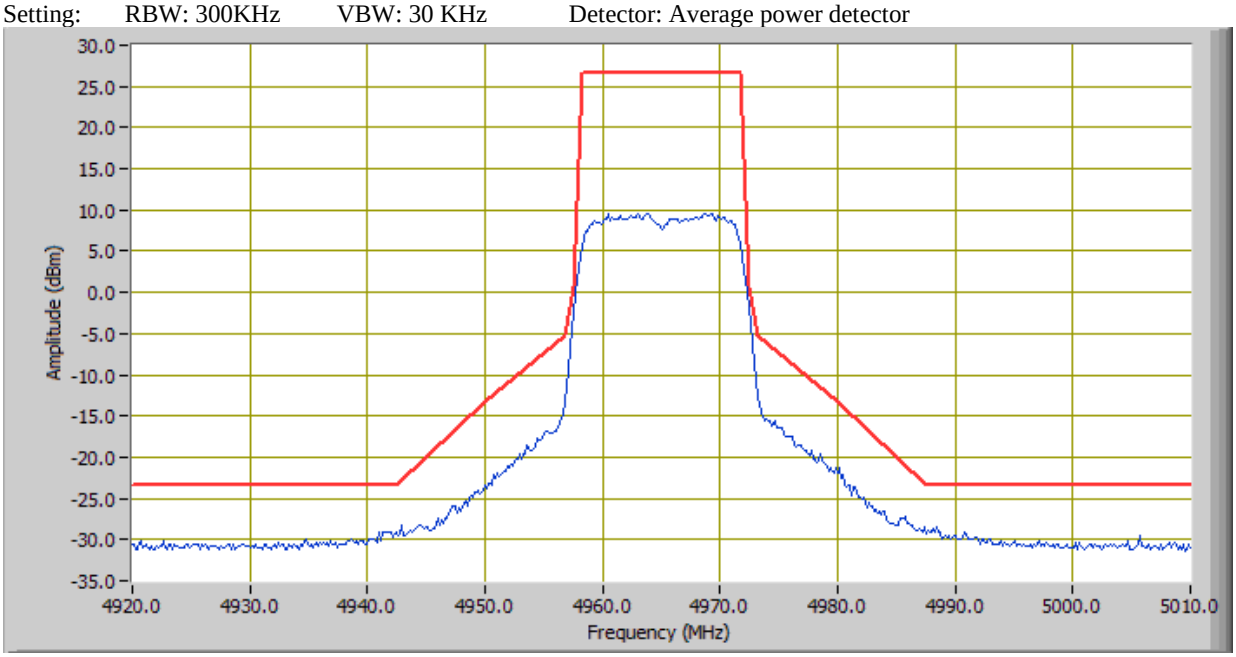
Low Channel (15MHz)

Setting: RBW: 300KHz VBW: 30 KHz Detector: Average power detector



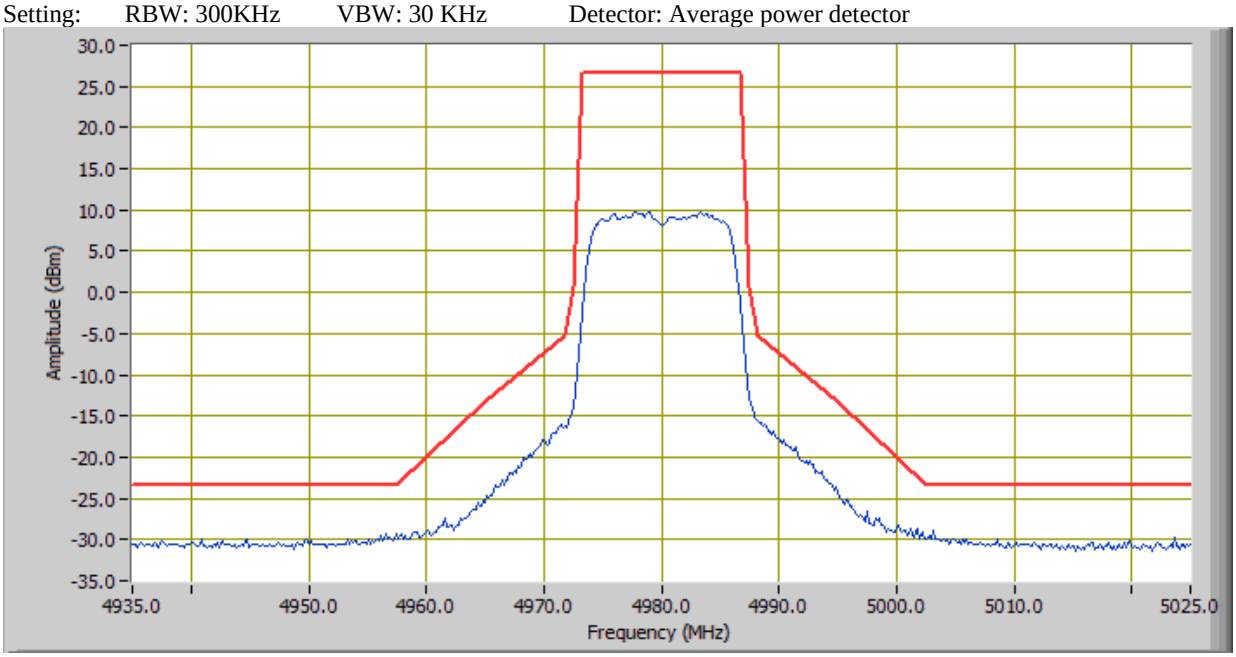
Mid Channel (15MHz)

Setting: RBW: 300KHz VBW: 30 KHz Detector: Average power detector



High Channel (15MHz)

Setting: RBW: 300KHz VBW: 30 KHz Detector: Average power detector

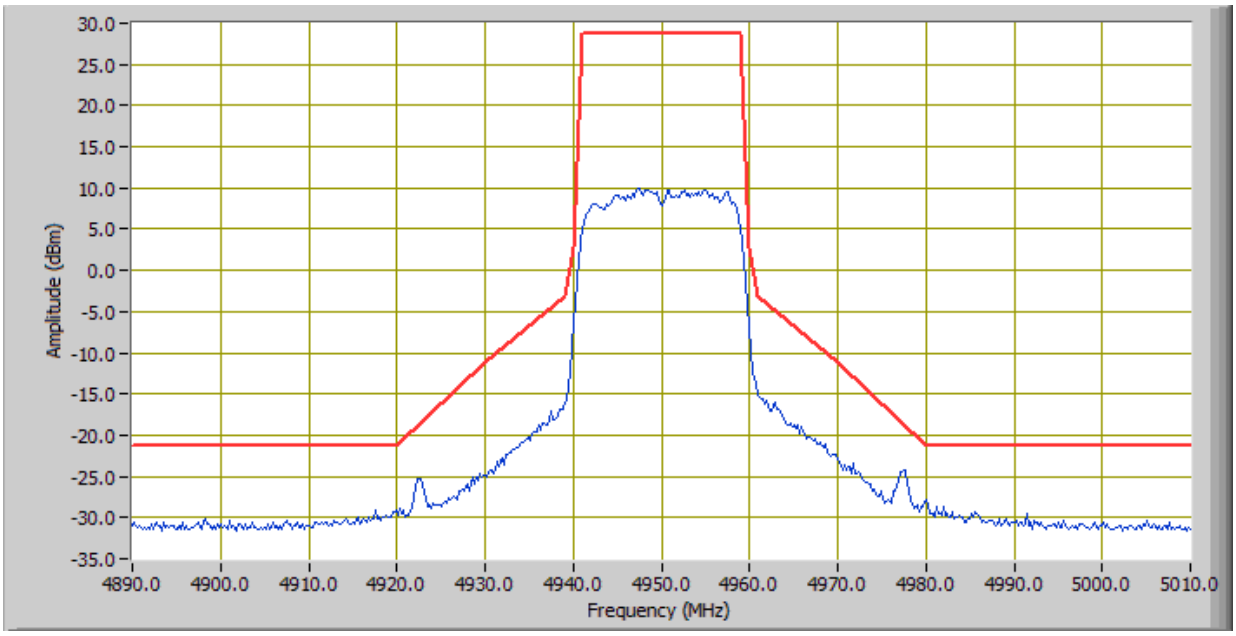


Channel Bandwidth: 20MHz

Chain 0 (20MHz)

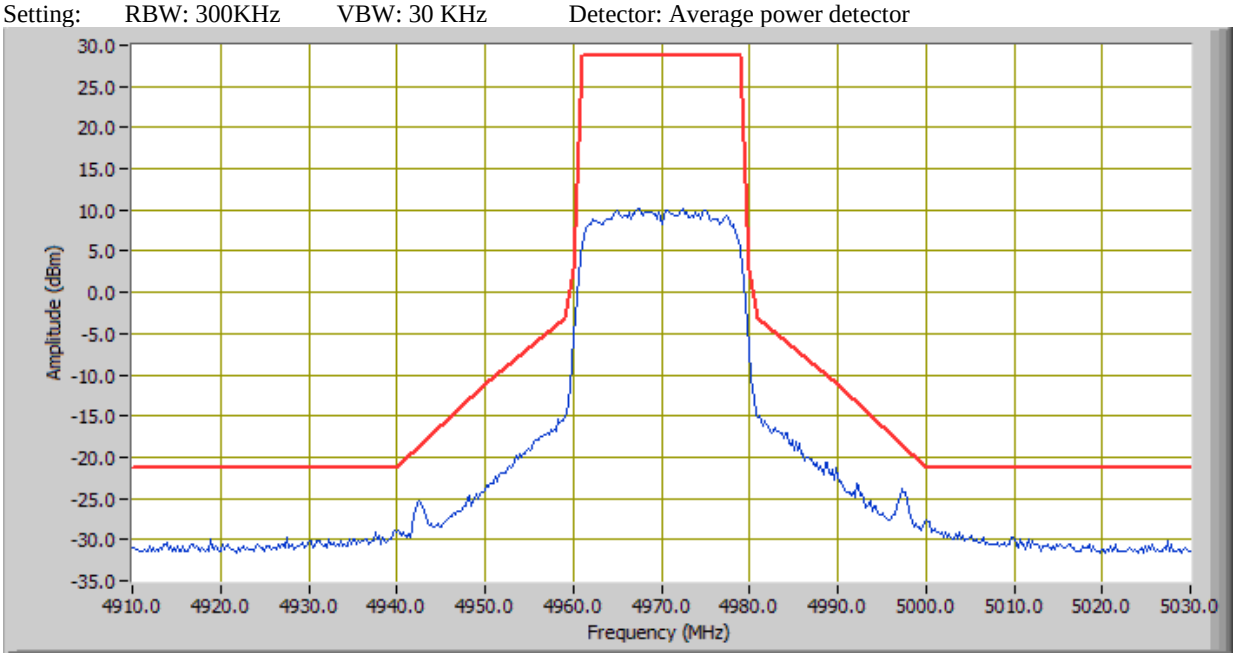
Low Channel (20MHz)

Setting: RBW: 300KHz VBW: 30 KHz Detector: Average power detector



High Channel (20MHz)

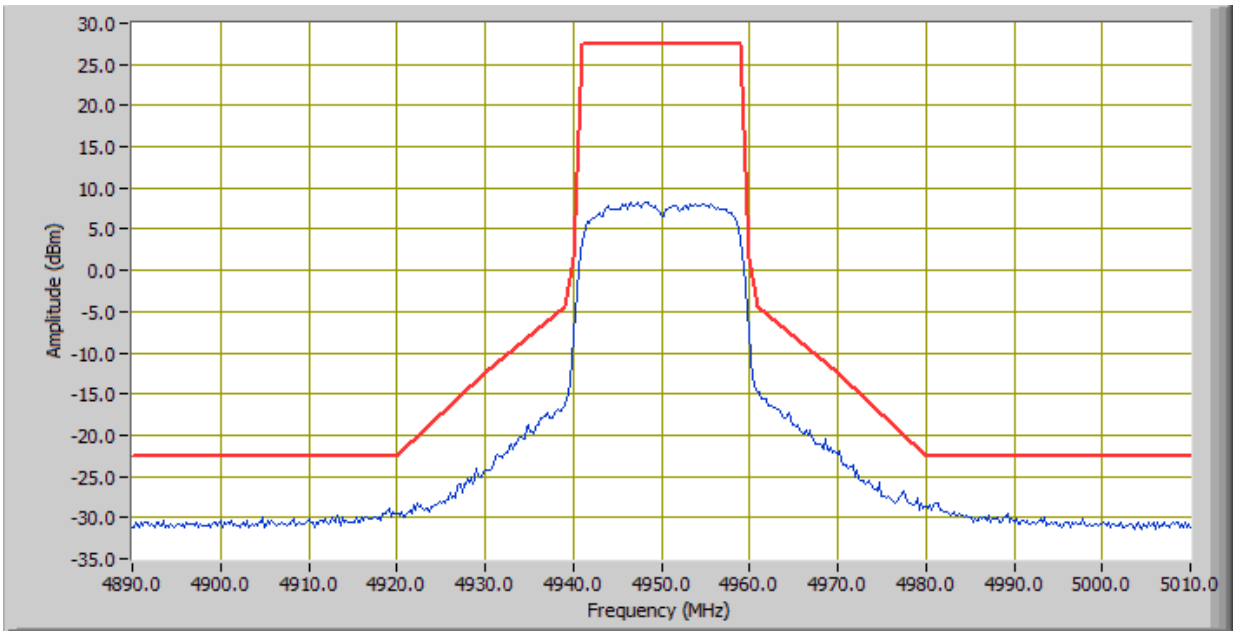
Setting: RBW: 300KHz VBW: 30 KHz Detector: Average power detector



Chain 2 (20MHz)

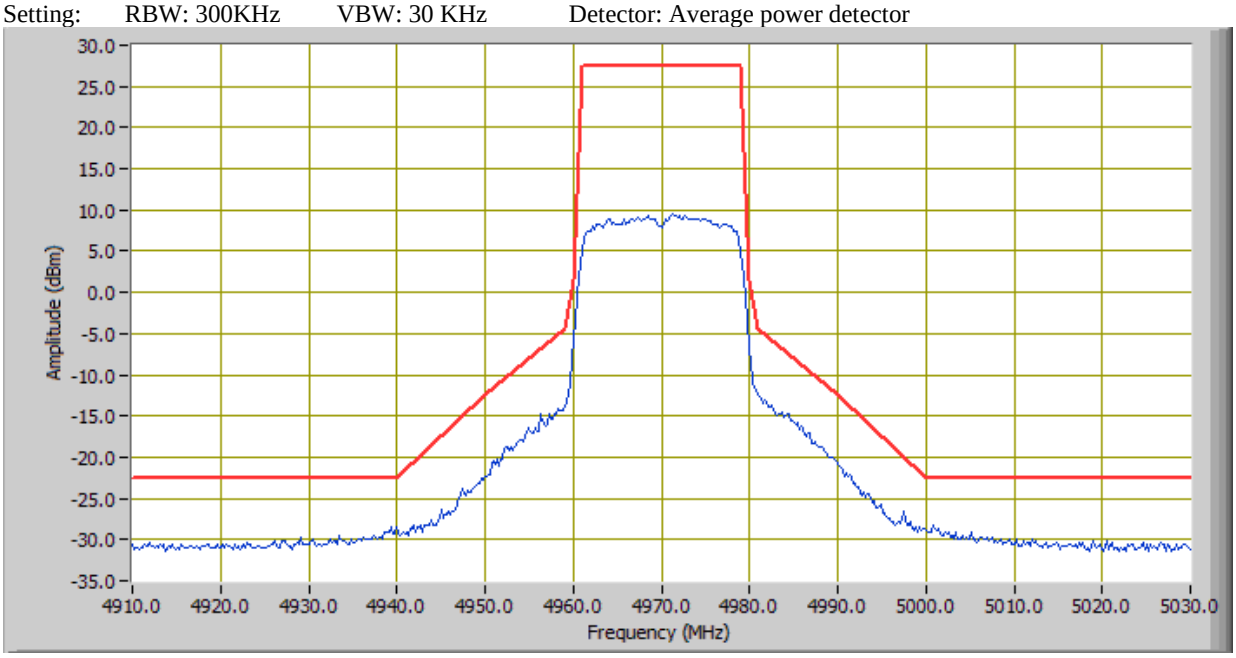
Low Channel (20MHz)

Setting: RBW: 300KHz VBW: 30 KHz Detector: Average power detector



High Channel (20MHz)

Setting: RBW: 300KHz VBW: 30 KHz Detector: Average power detector



5.5 Spurious Emissions at Antenna Terminals

1. Conducted Measurement
   EUT was set for low, mid, high channel with modulated mode and highest RF output power.
   The spectrum analyzer was connected to the antenna terminal.
2. Conducted 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% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 40GHz is ±1.5dB.
3. Environmental Conditions

Temperature	25°C
Relative Humidity	50%
Atmospheric Pressure	1019mbar

4. Test Date : Oct 28 2010 to Nov 03 2010
   Tested By : David Zhang

Standard Requirement: 47 CFR §90.210

The power spectral density of the emissions must be attenuated below the output power of the transmitter as follows:

On any frequency removed from the assigned frequency above 150% of the authorized bandwidth: 40 dB.

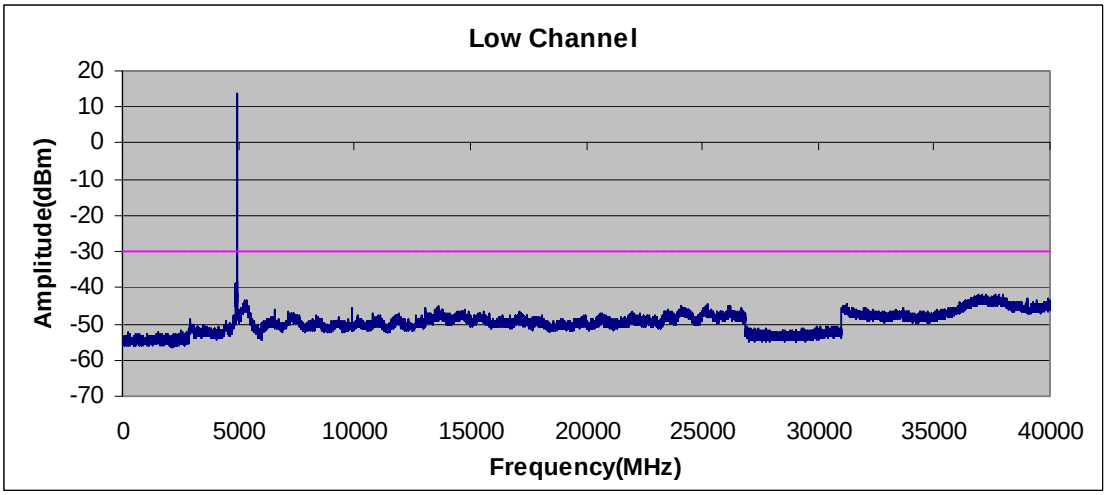
Procedures:

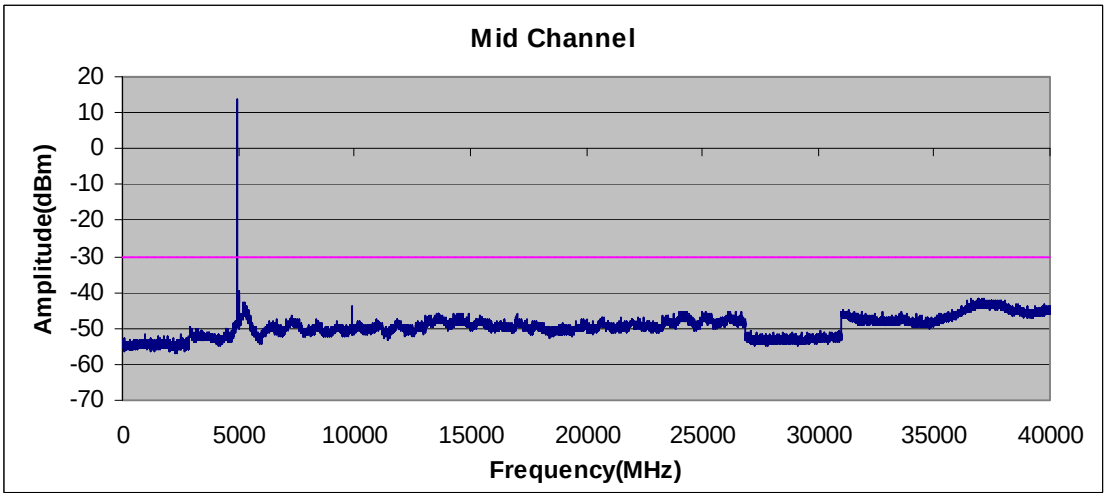
The spurious emission at antenna terminals measurement was taken conducted using a spectrum analyzer with RBW setting of 1MHz, VBW setting of 1MHz.

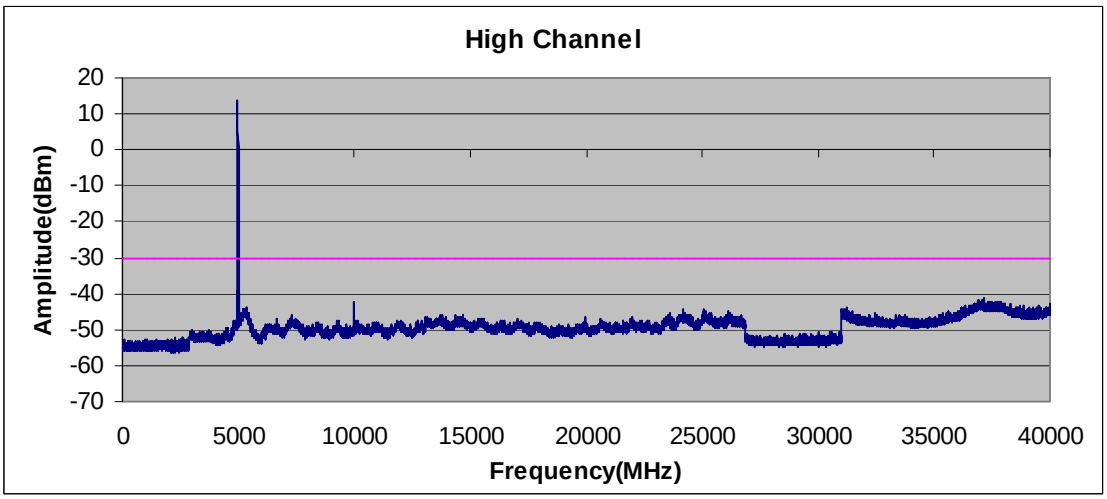
Refer to the attached plots.

Operating channel bandwidth: 5MHz

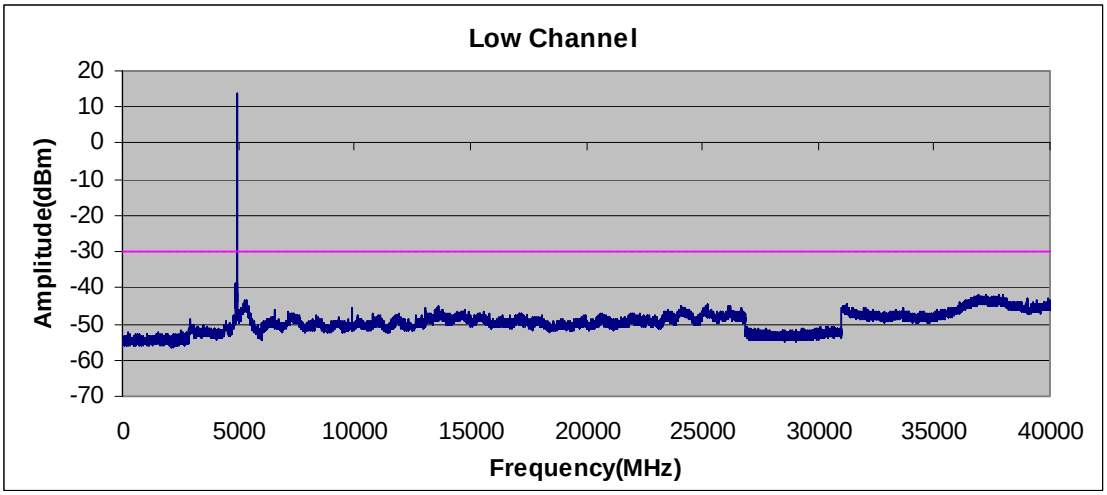
Chain 0 (5MHz)

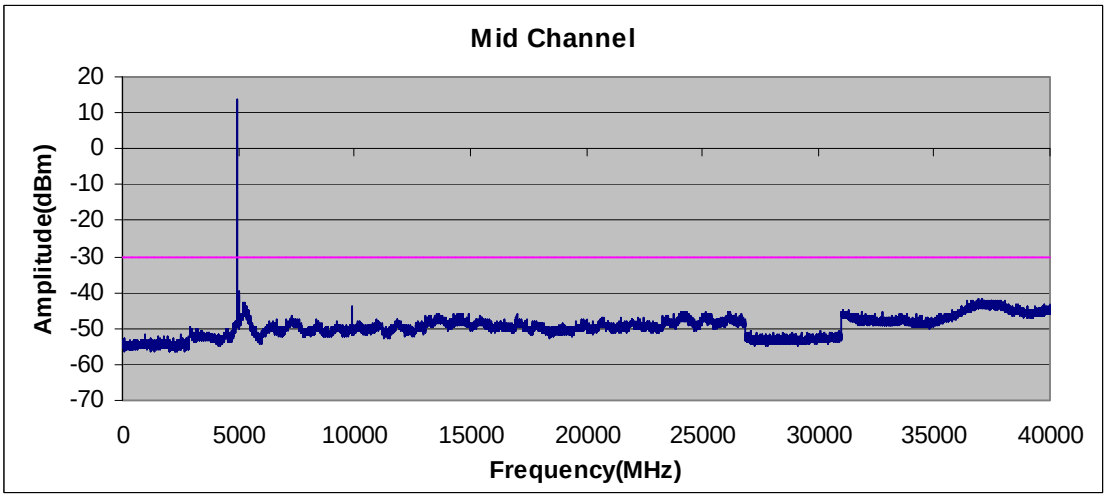


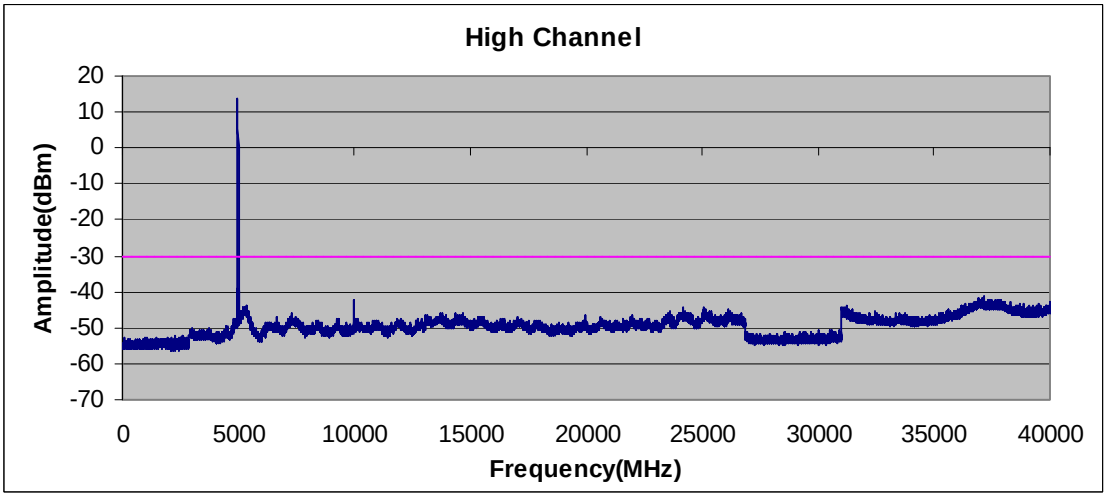




Chain 2 (5MHz)

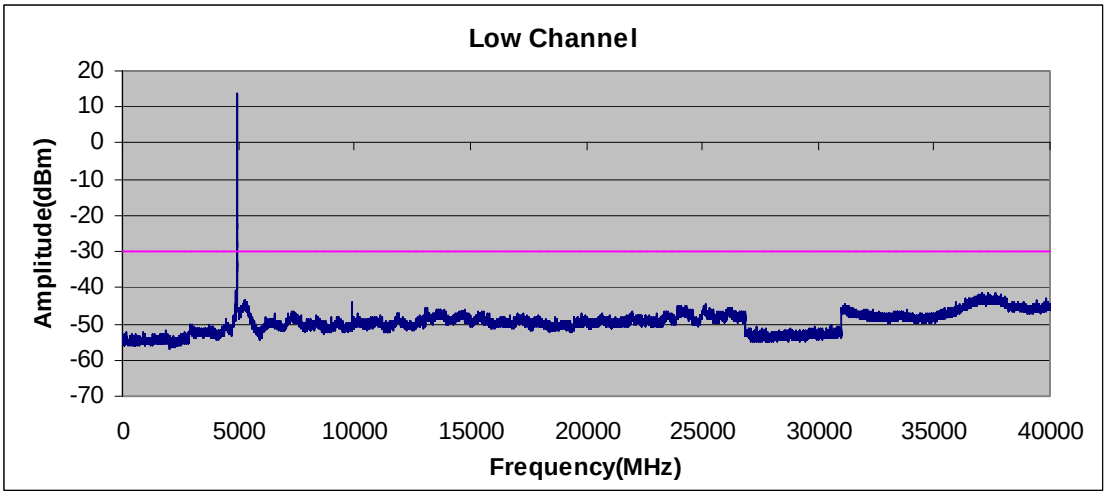

Low Channel
Amplitude(dBm)
20
10
0
-10
-20
-30
-40
-50
-60
-70
0
5000
10000
15000
20000
25000
30000
35000
40000
Frequency(MHz)

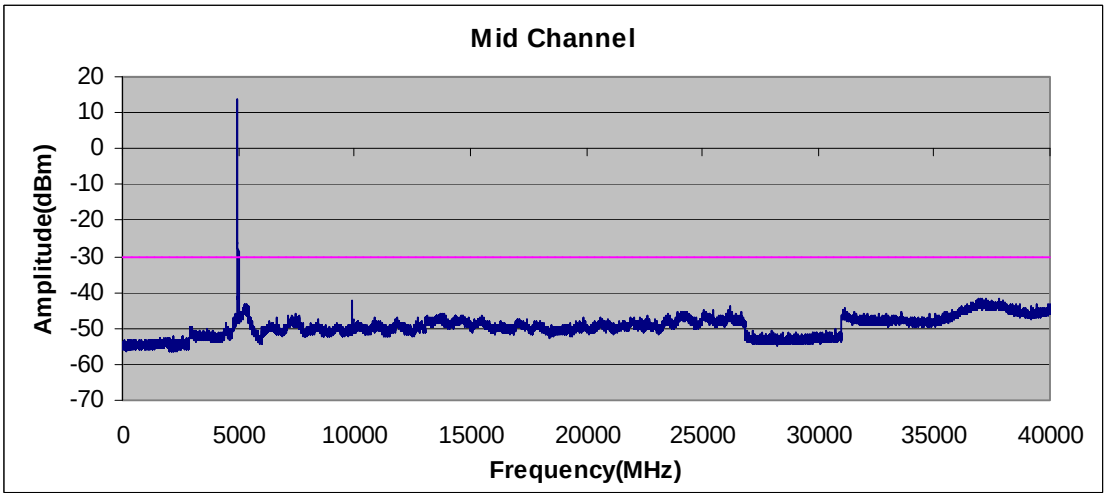

Mid Channel
Amplitude(dBm)
20
10
0
-10
-20
-30
-40
-50
-60
-70
0
5000
10000
15000
20000
25000
30000
35000
40000
Frequency(MHz)

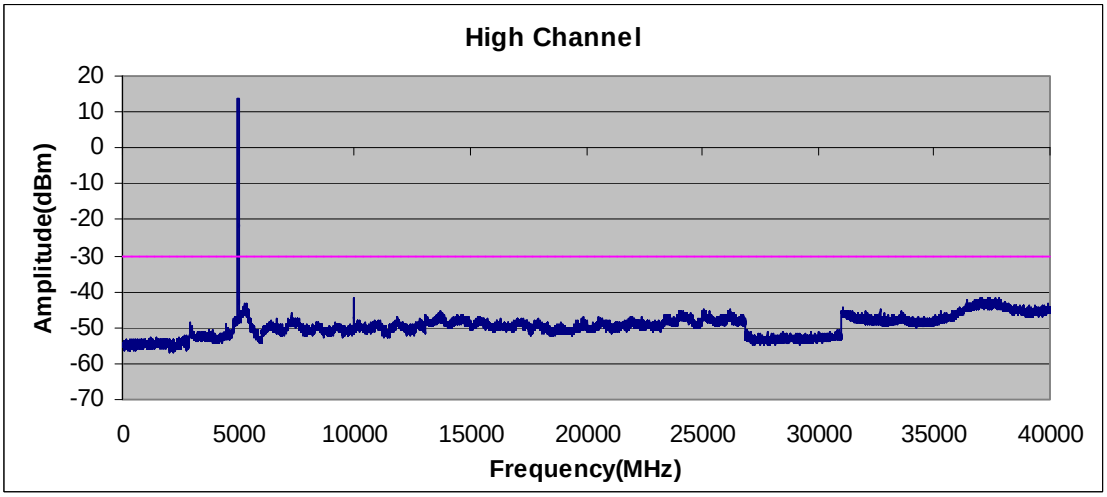

High Channel
Amplitude(dBm)
20
10
0
-10
-20
-30
-40
-50
-60
-70
0
5000
10000
15000
20000
25000
30000
35000
40000
Frequency(MHz)

Operating channel bandwidth: 10MHz

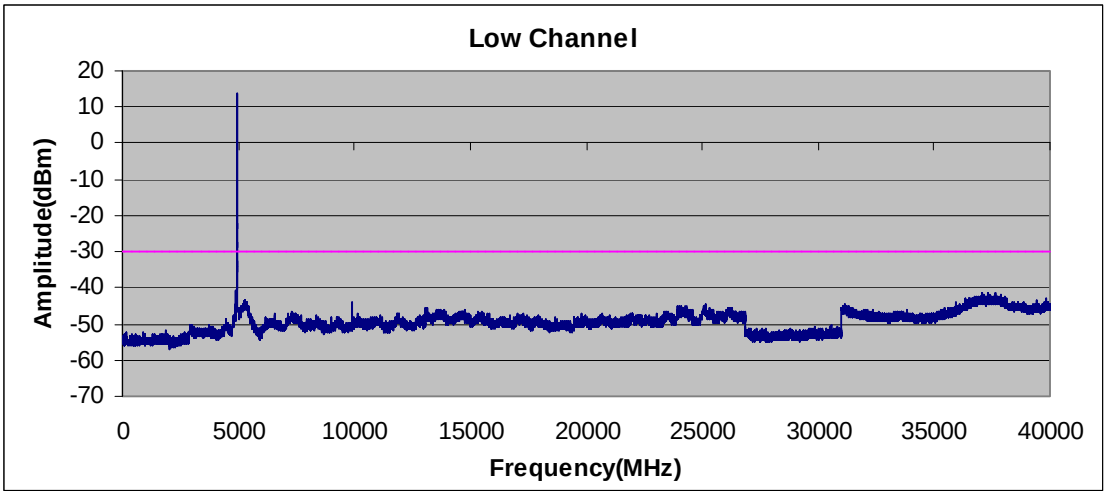
Chain 0 (10MHz)

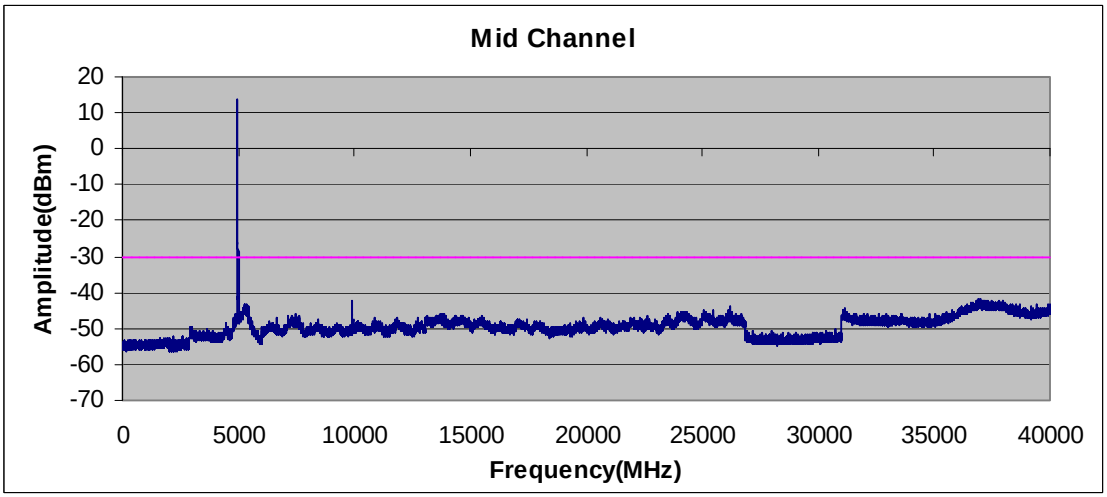


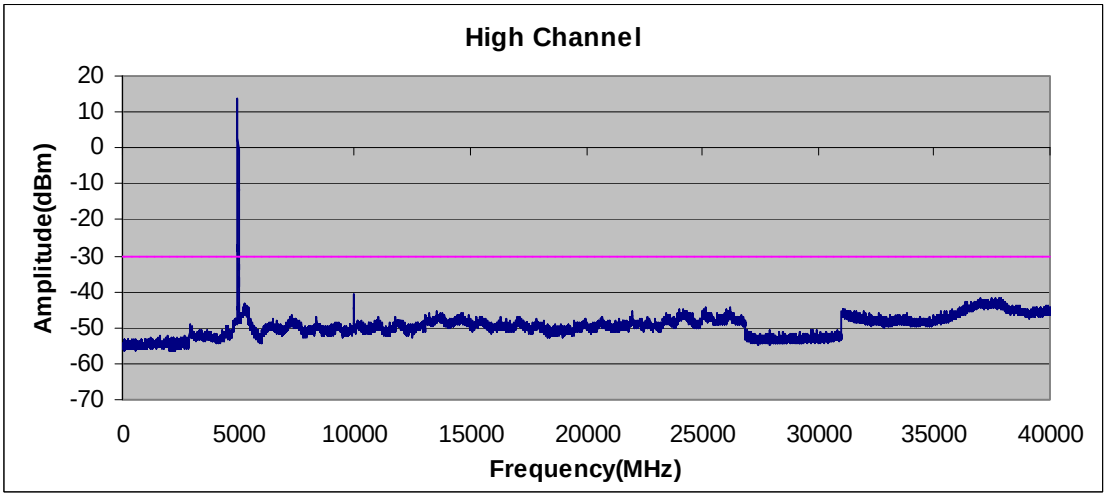




Chain 2 (10MHz)

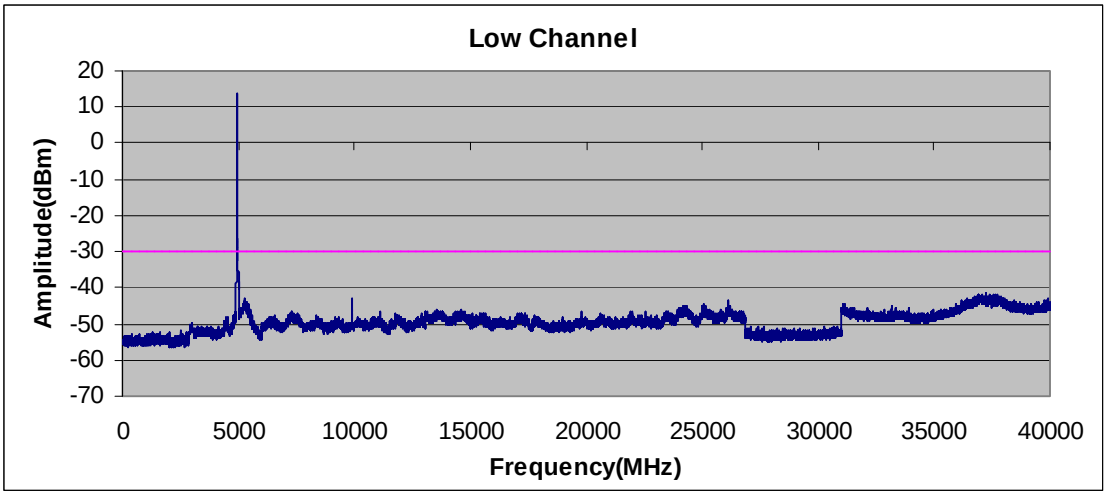


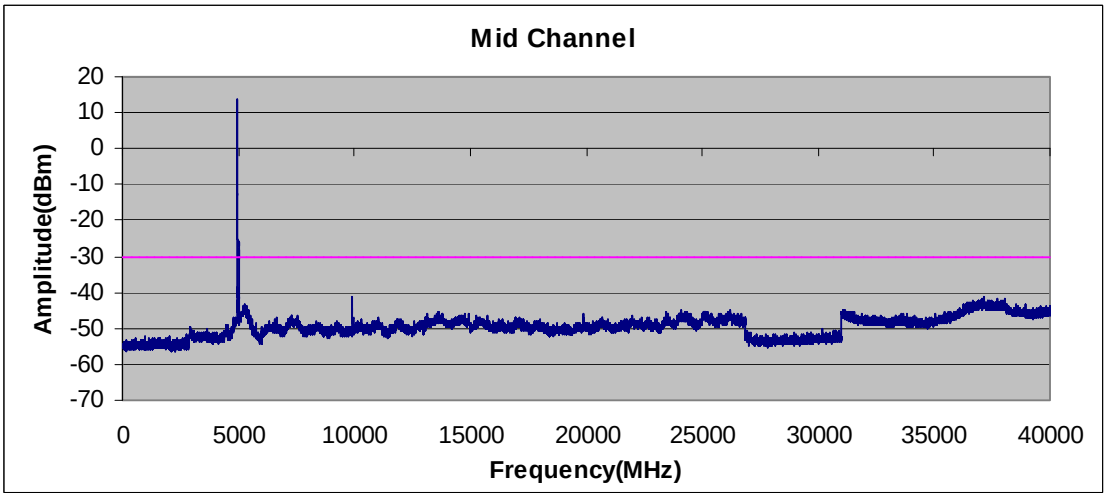


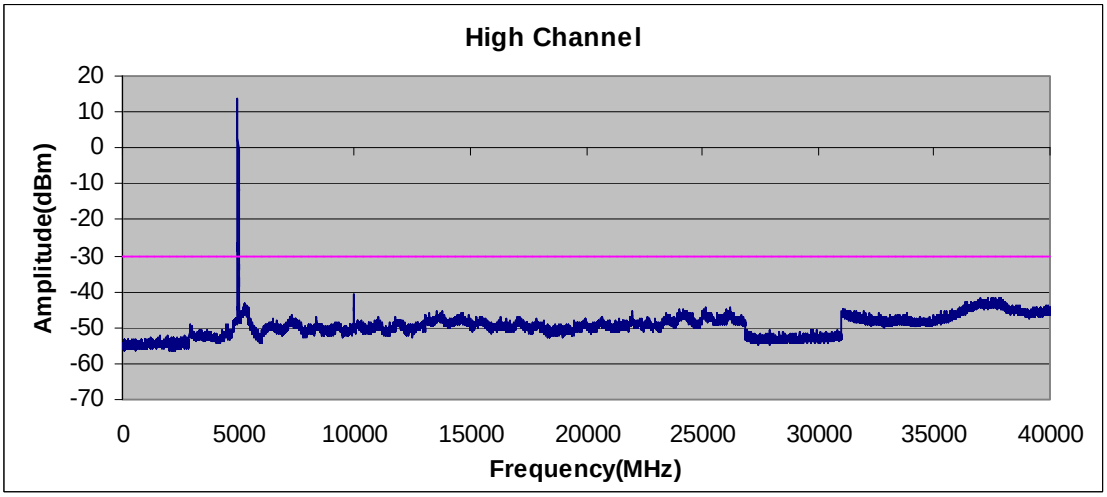


Operating channel bandwidth: 15MHz

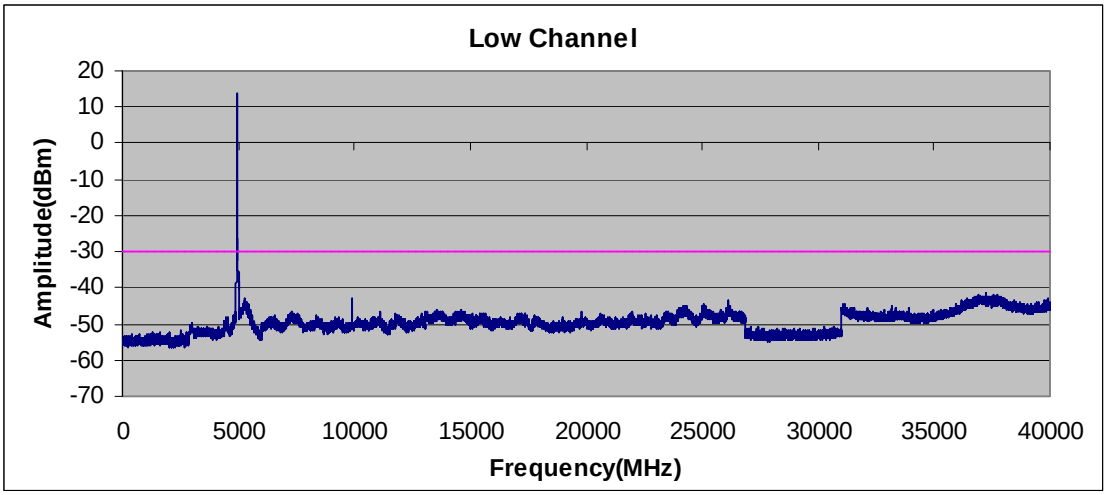
Chain 0 (15MHz)

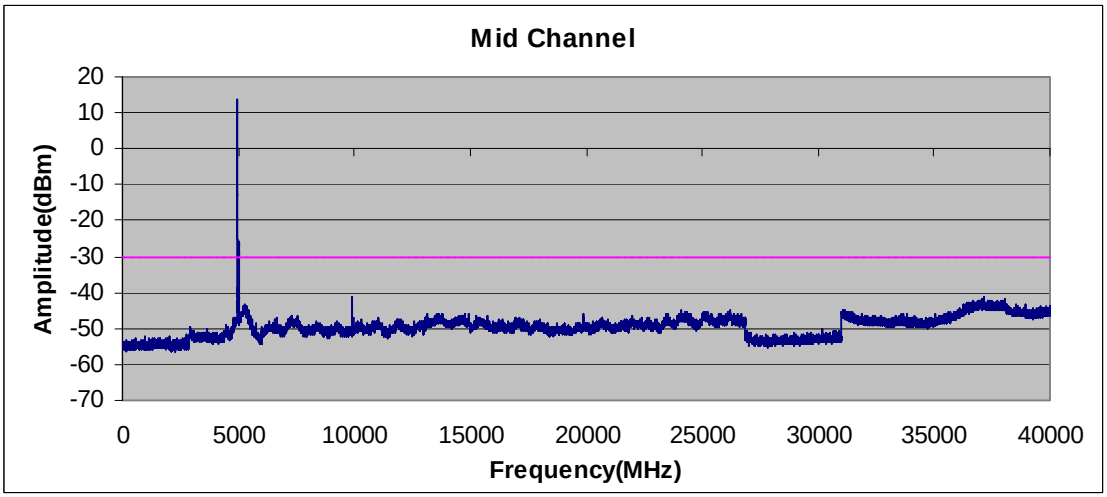


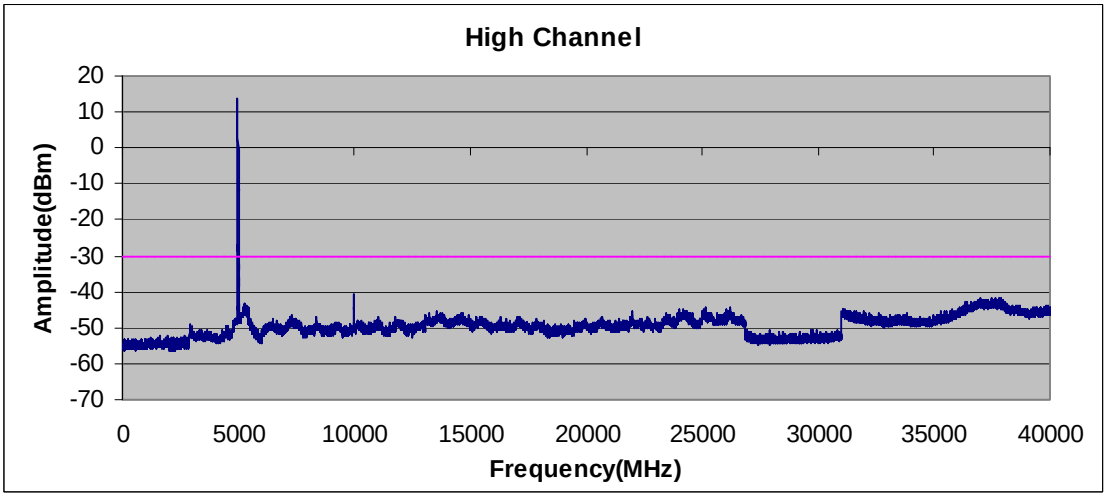




Chain 2 (15MHz)

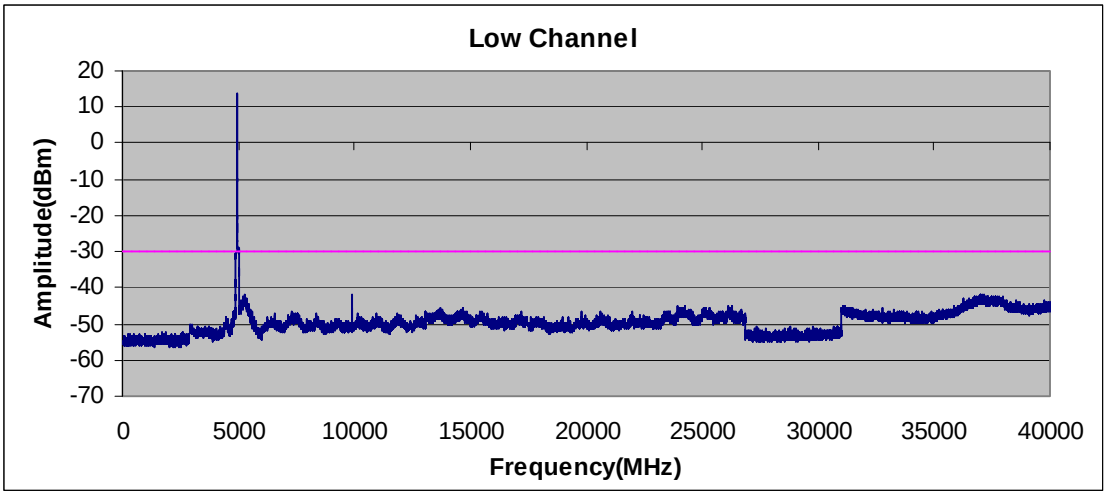


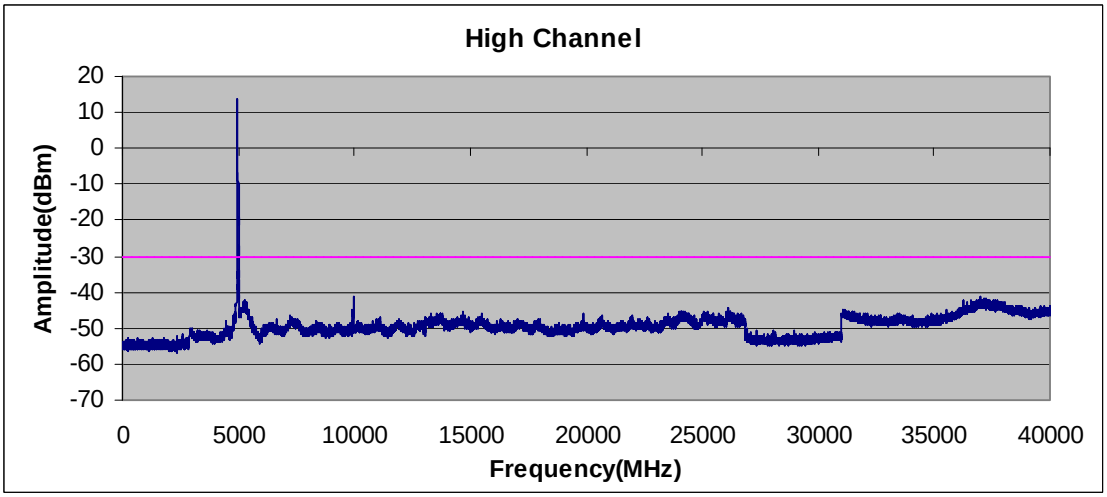




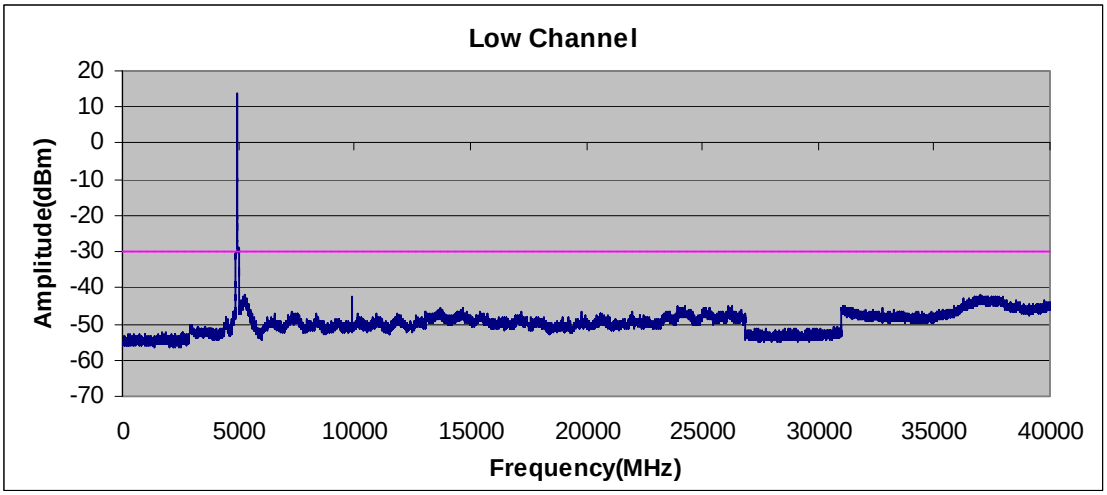
Operating channel bandwidth: 20MHz

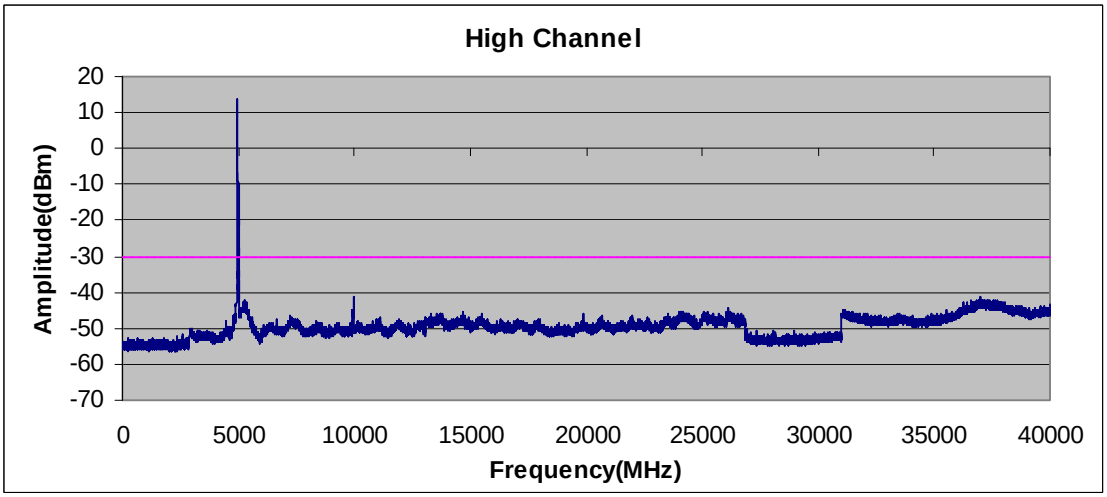
Chain 0 (20MHz)





Chain 2 (20MHz)





5.6 Peak Excursion Ratio

	Conducted Measurement		
1.	EUT was set for mid channel. The spectrum analyzer was connected to the antenna terminal.		
	Conducted Emissions Measurement Uncertainty		
2	All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 40GHz is ±1.5dB.		
3	Environmental Conditions	Temperature	25°C
		Relative Humidity	50%
		Atmospheric Pressure	1019mbar
4	Test Date : Oct 28 2010 to Nov 03 2010 Tested By : David Zhang		

Standard Requirement: 47 CFR §90.1215

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

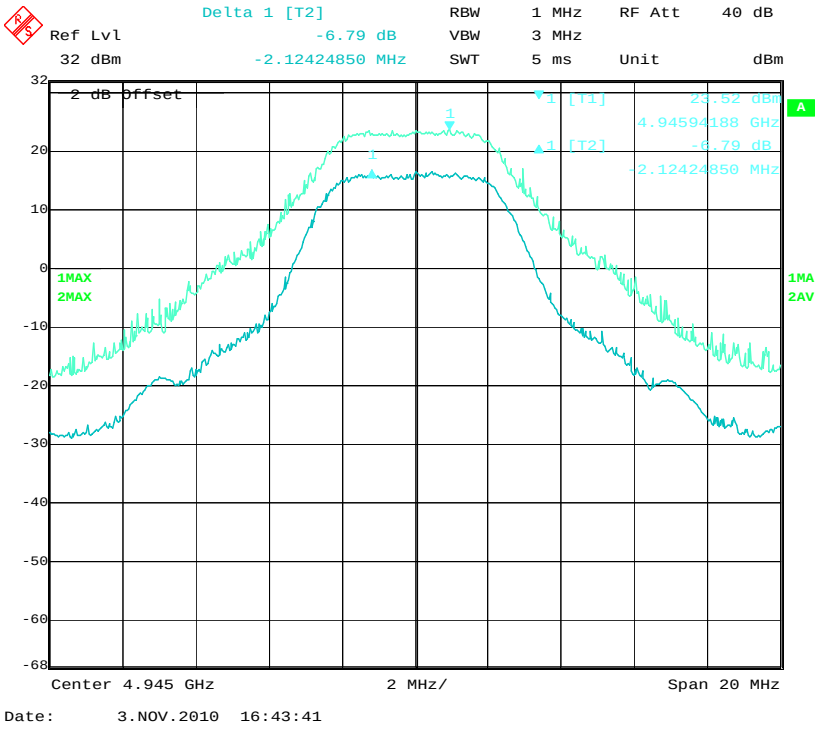
Procedures: The peak excursion was measured conducted using a spectrum analyzer mid channels.

Test Result: Pass

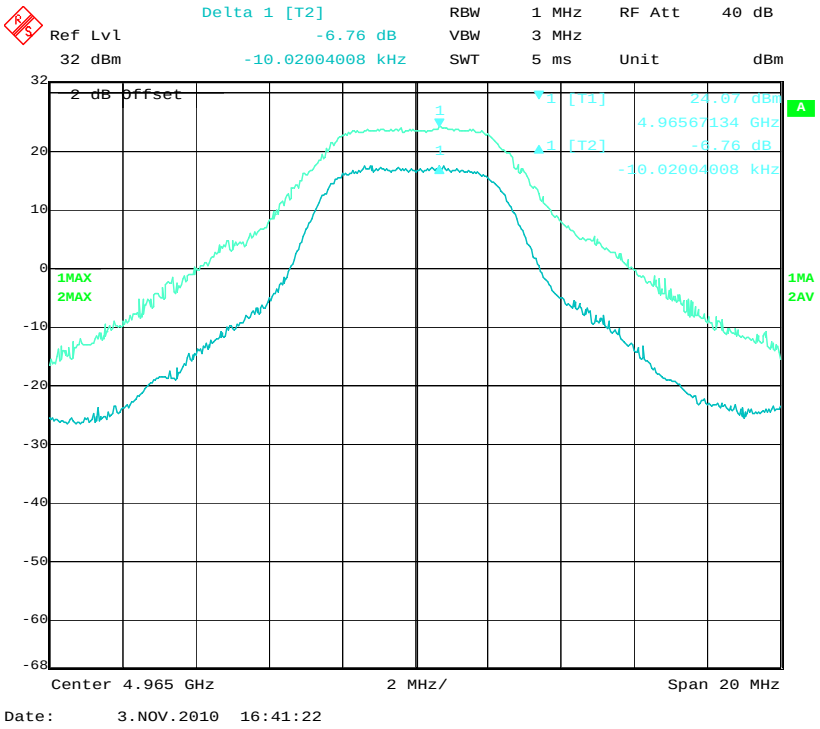
Channel Bandwidth: 5MHz

Chain 0 (5MHz)

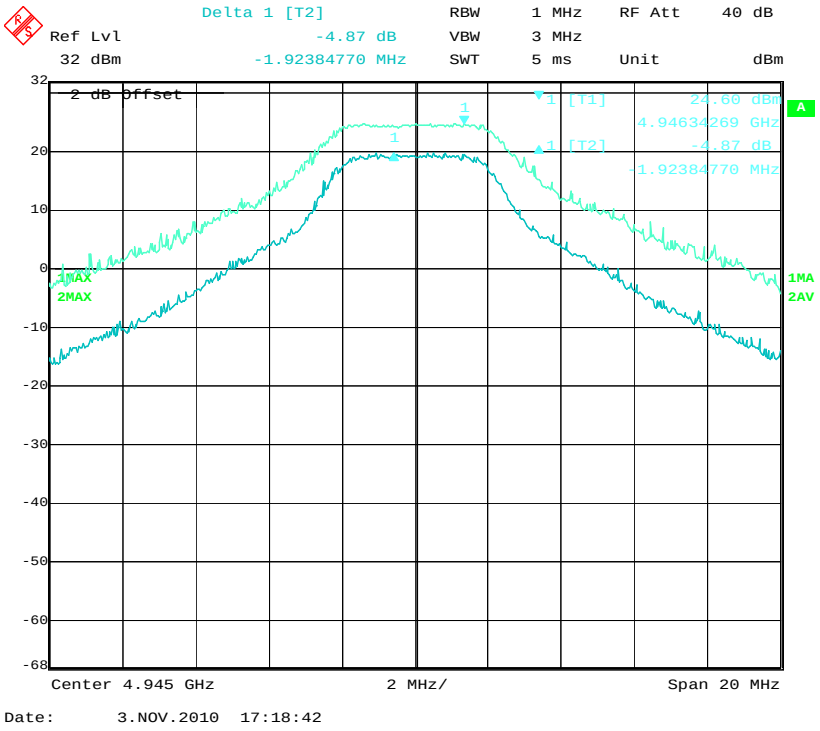
Low Channel (5MHz)



Mid Channel (5MHz)

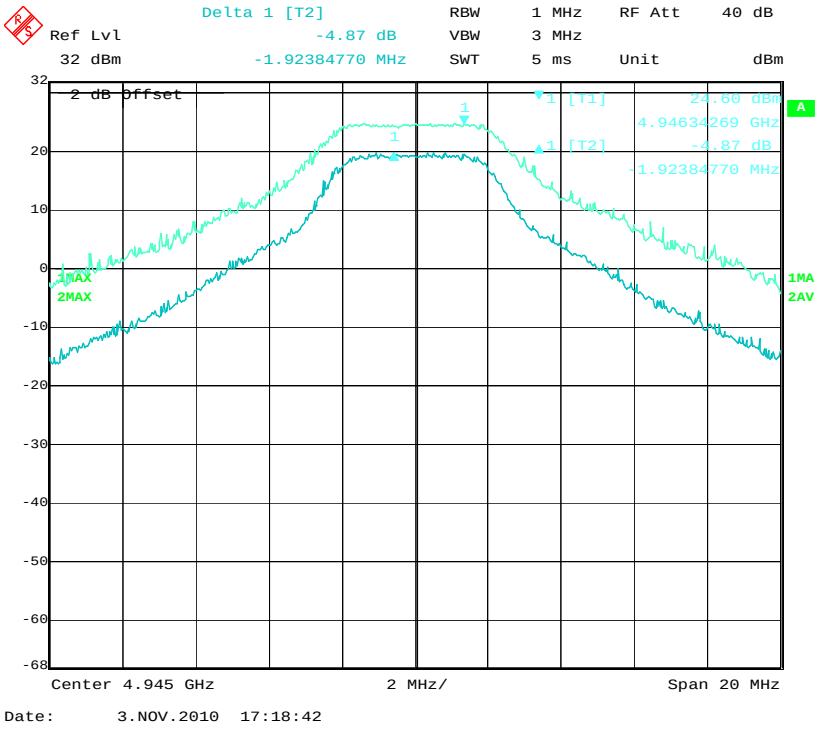


High Channel (5MHz)

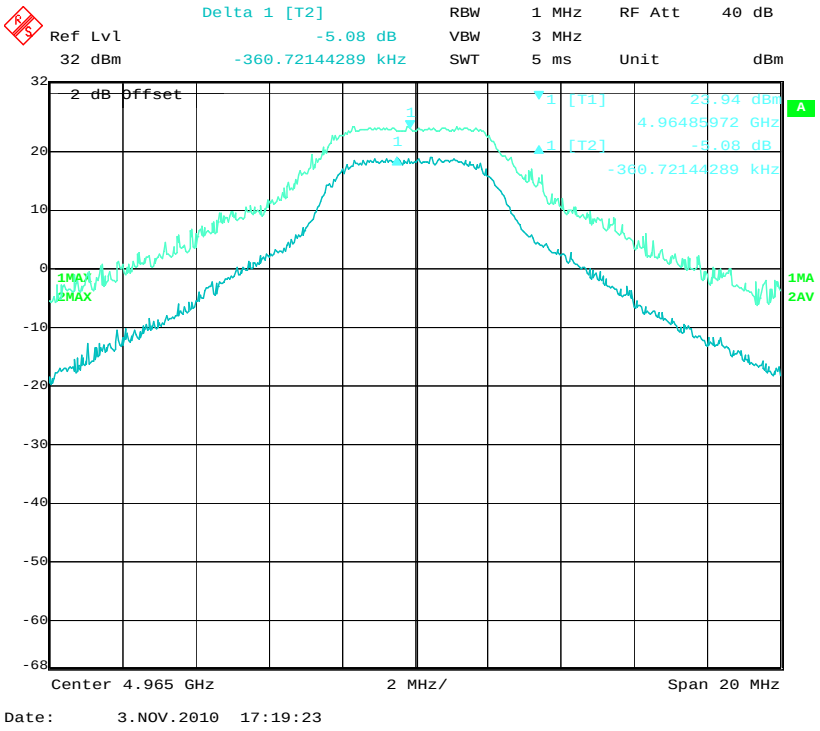


Chain 2 (5MHz)

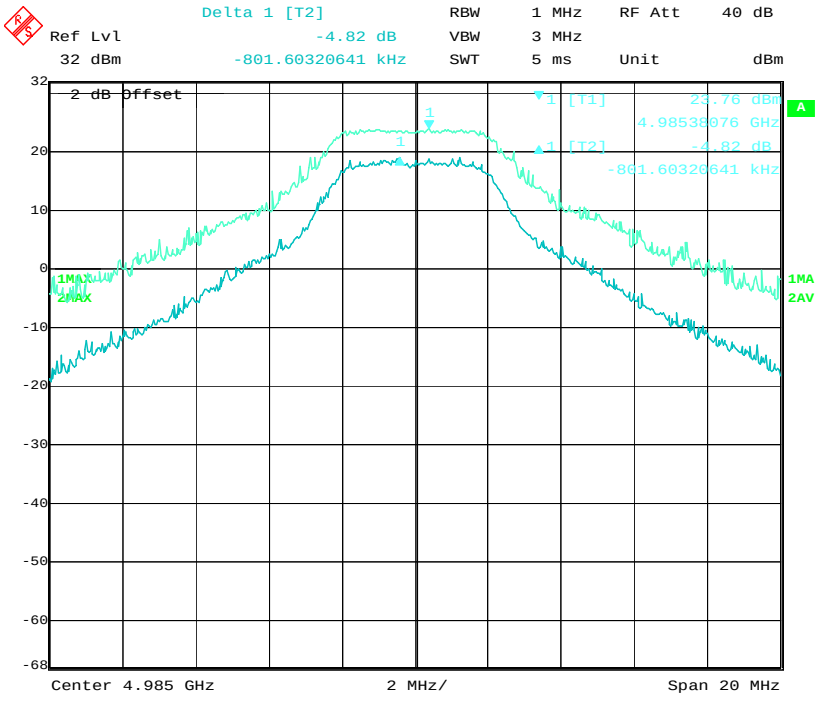
Low Channel (5MHz)



Mid Channel (5MHz)



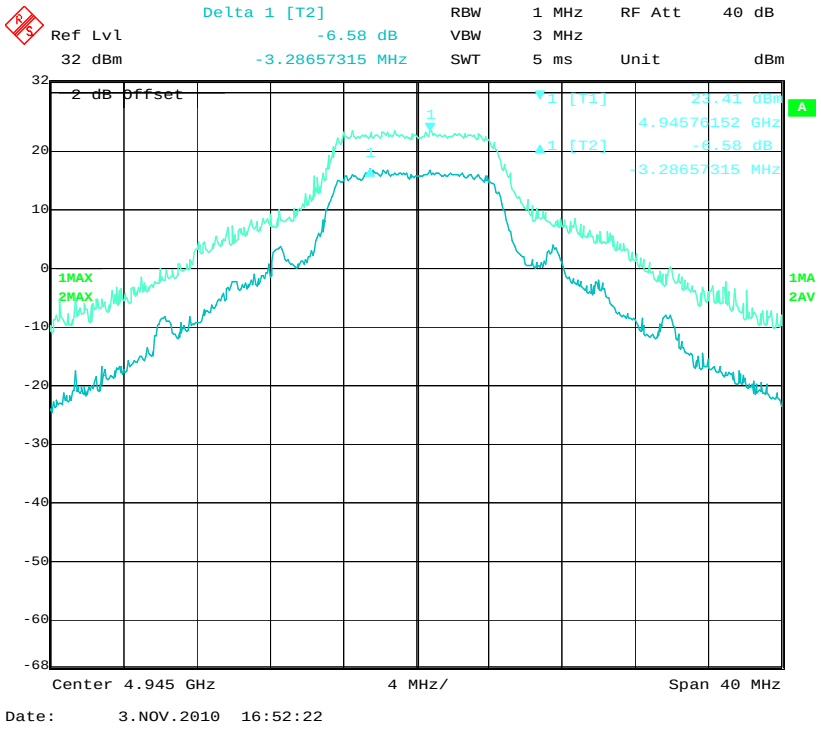
High Channel (5MHz)



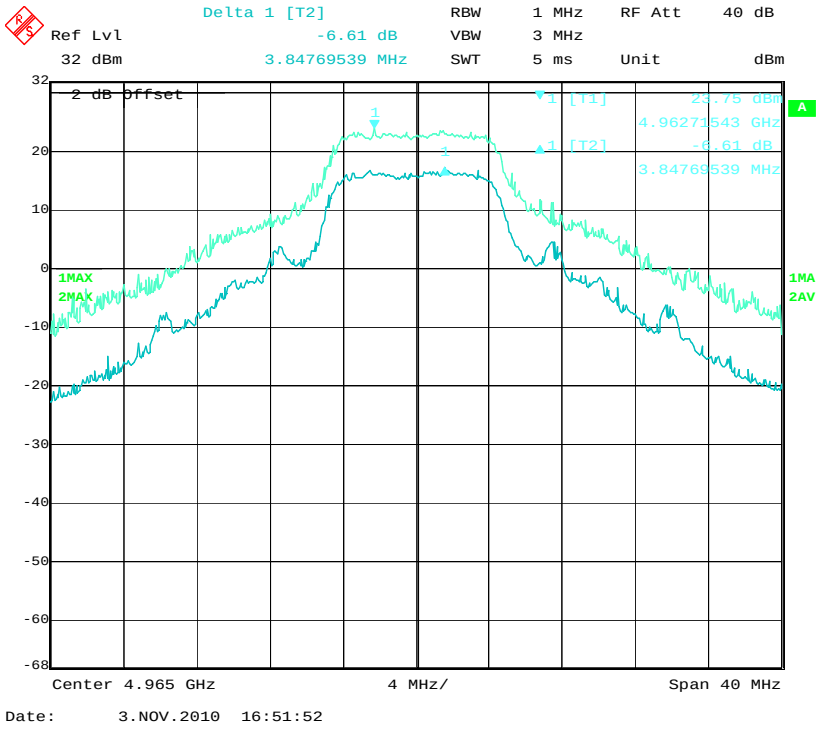
Channel Bandwidth: 10MHz

Chain 0 (10MHz)

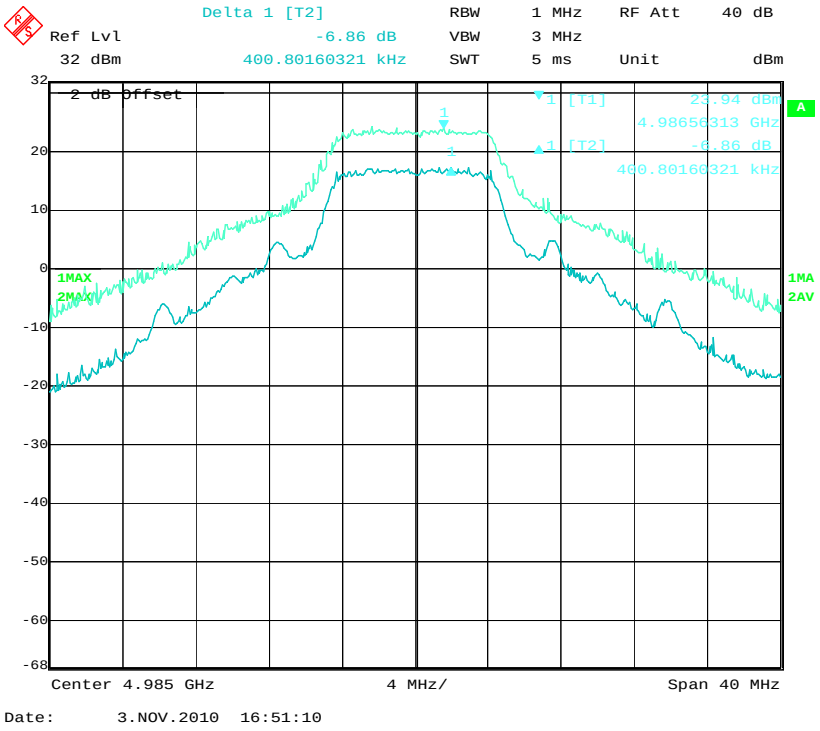
Low Channel (10MHz)



Mid Channel (10MHz)

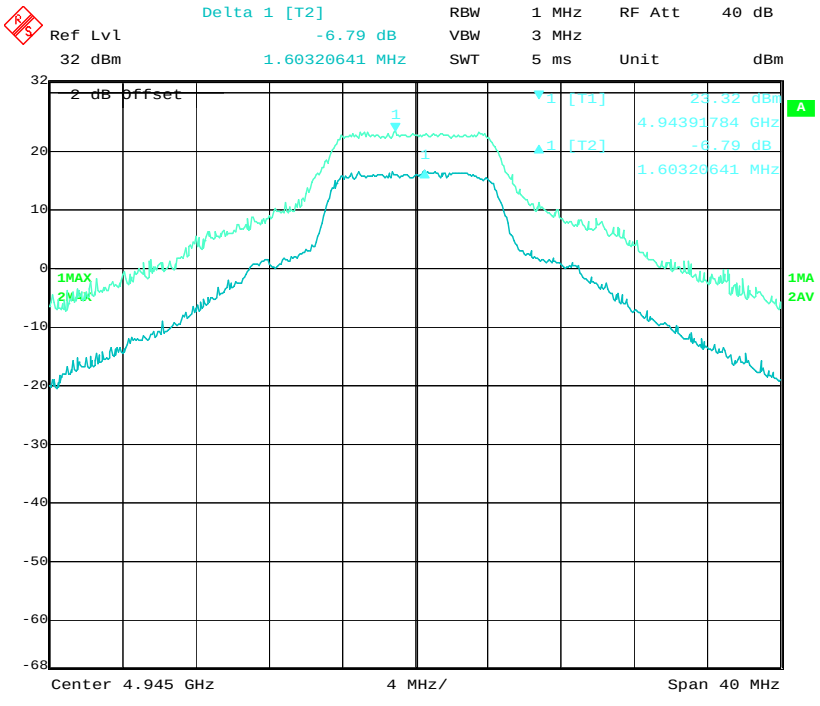


High Channel (10MHz)

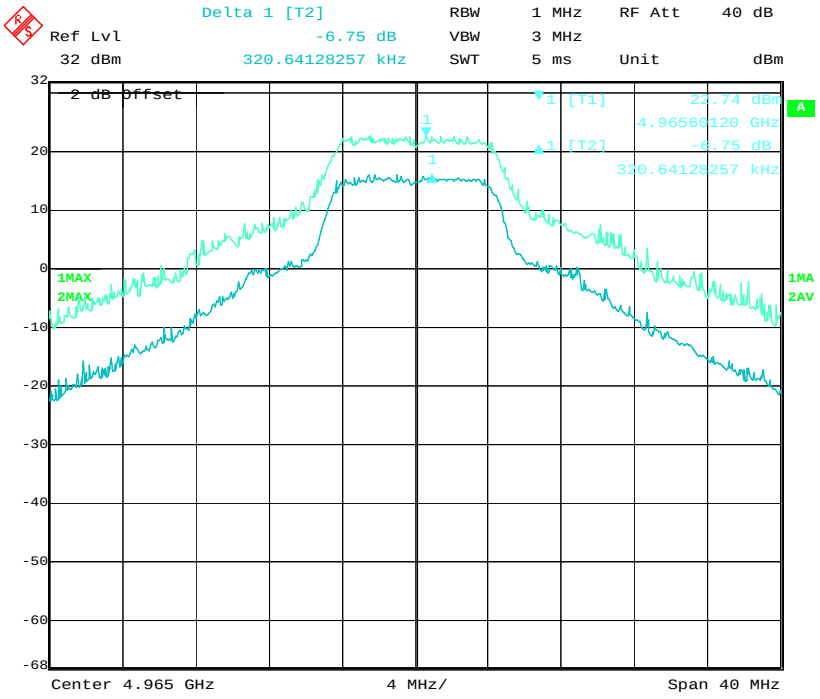


Chain 2 (10MHz)

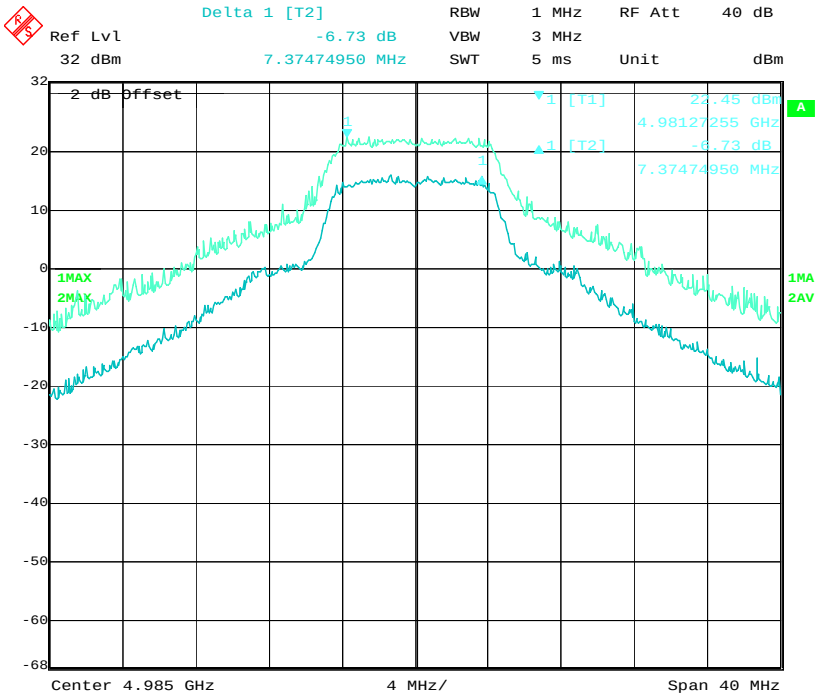
Low Channel (10MHz)



Mid Channel (10MHz)



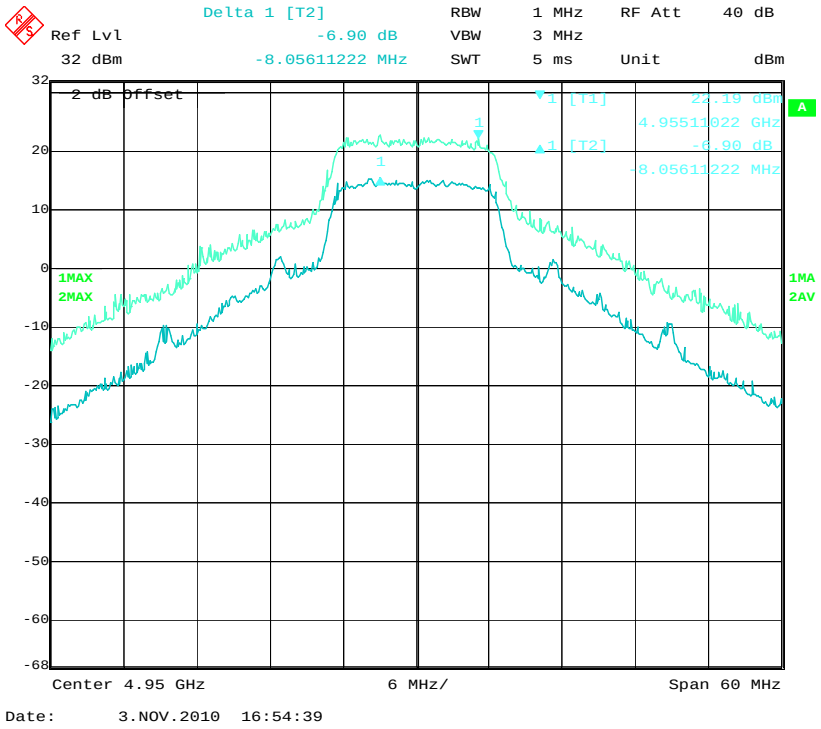
High Channel (10MHz)



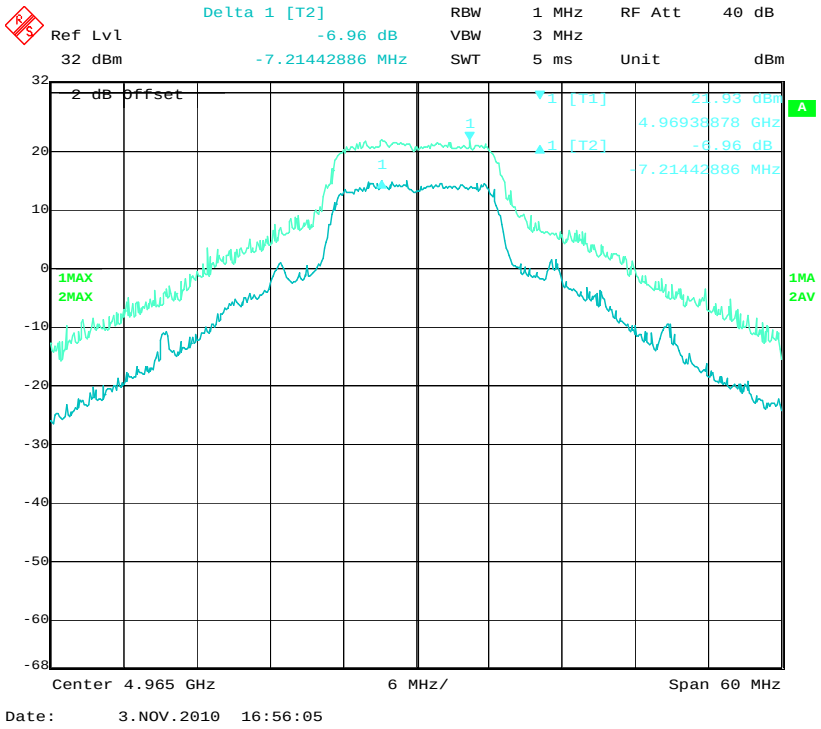
Channel Bandwidth: 15MHz

Chain 0 (15MHz)

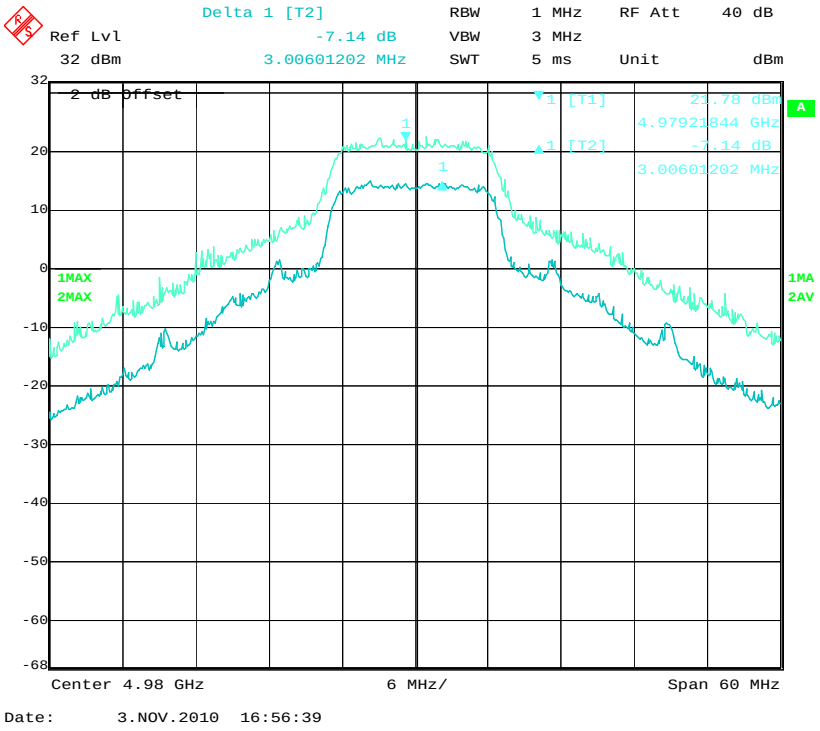
Low Channel (15MHz)



Mid Channel (15MHz)

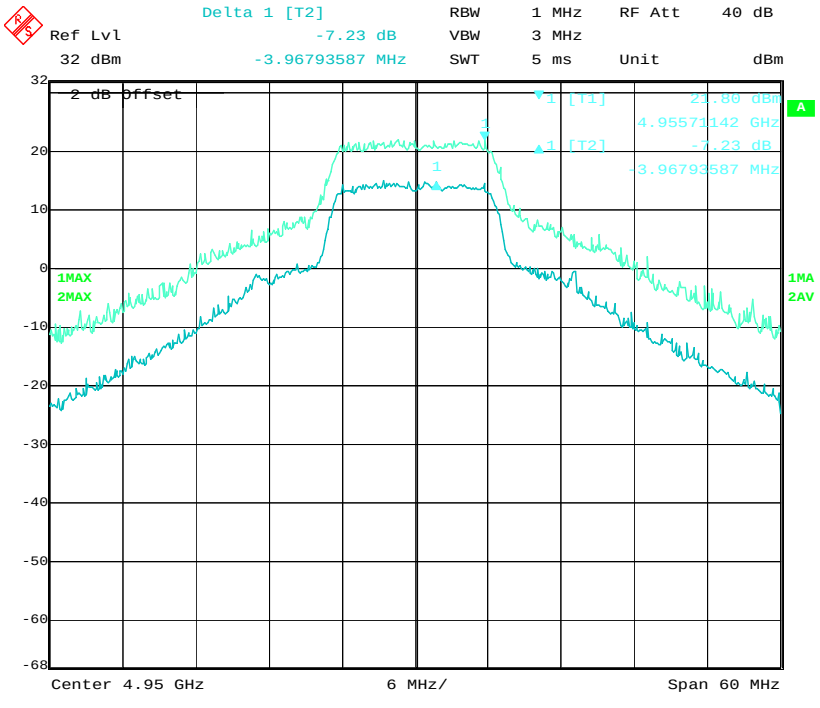


High Channel (15MHz)

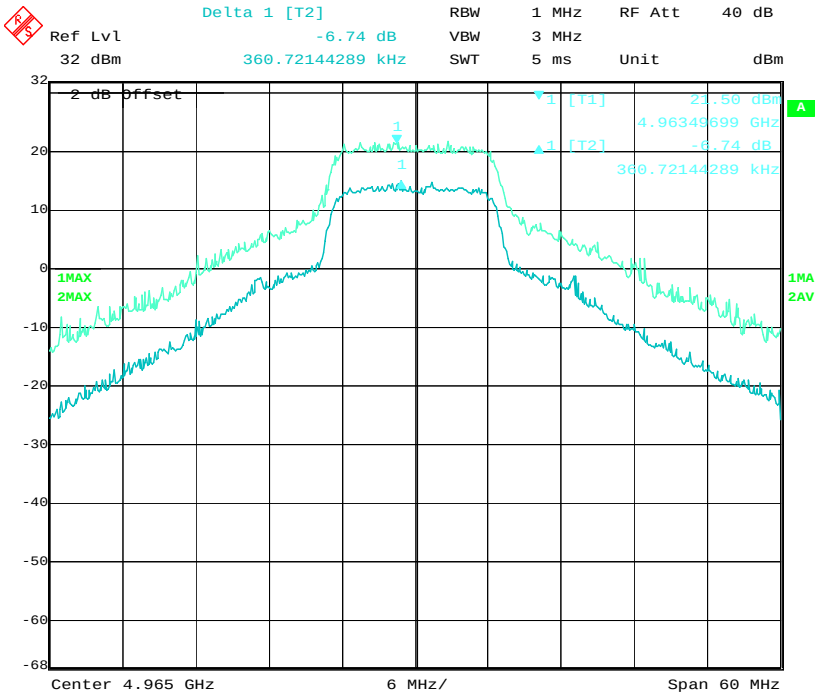


Chain 2 (15MHz)

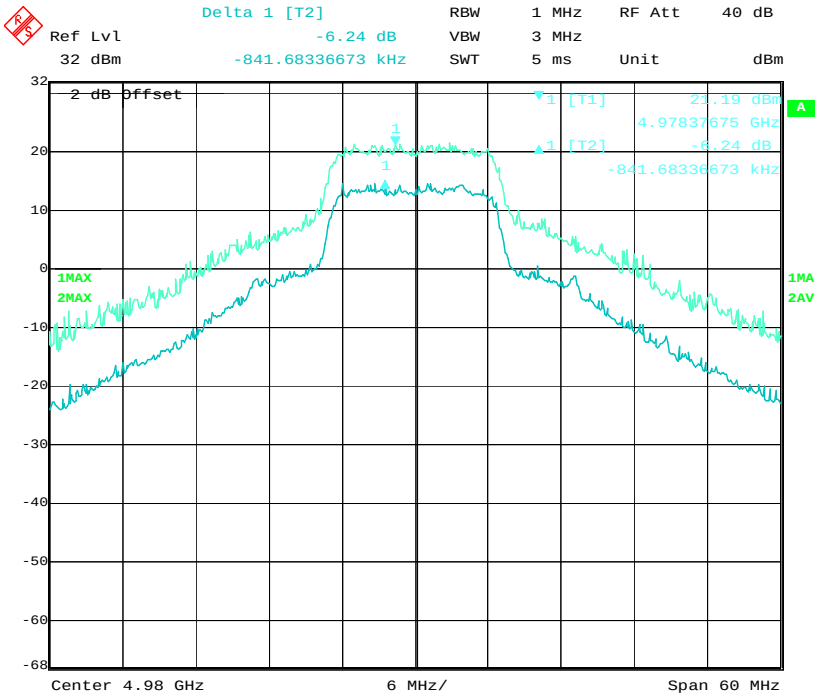
Low Channel (15MHz)



Mid Channel (15MHz)



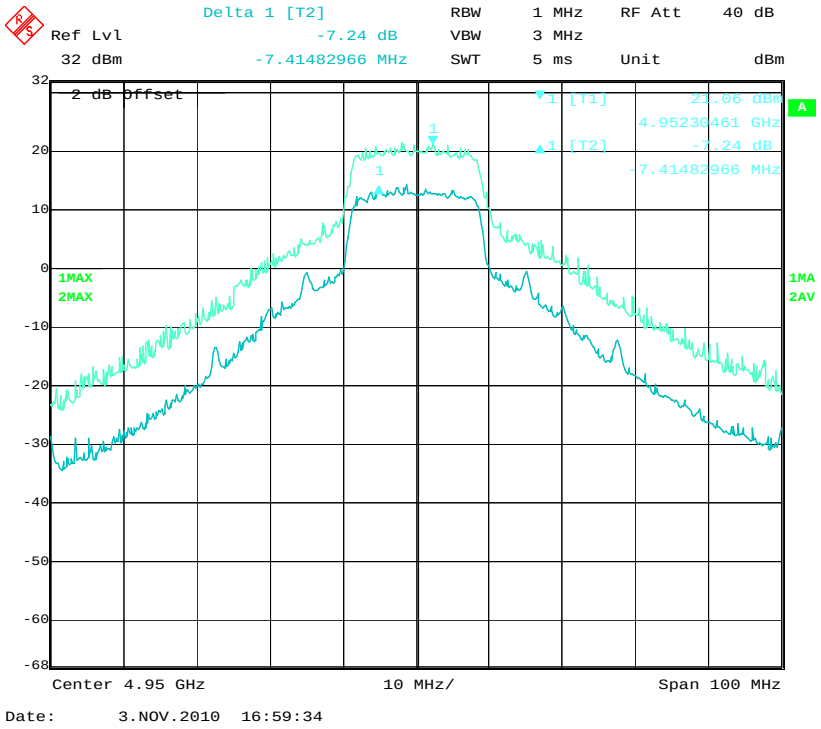
High Channel (15MHz)



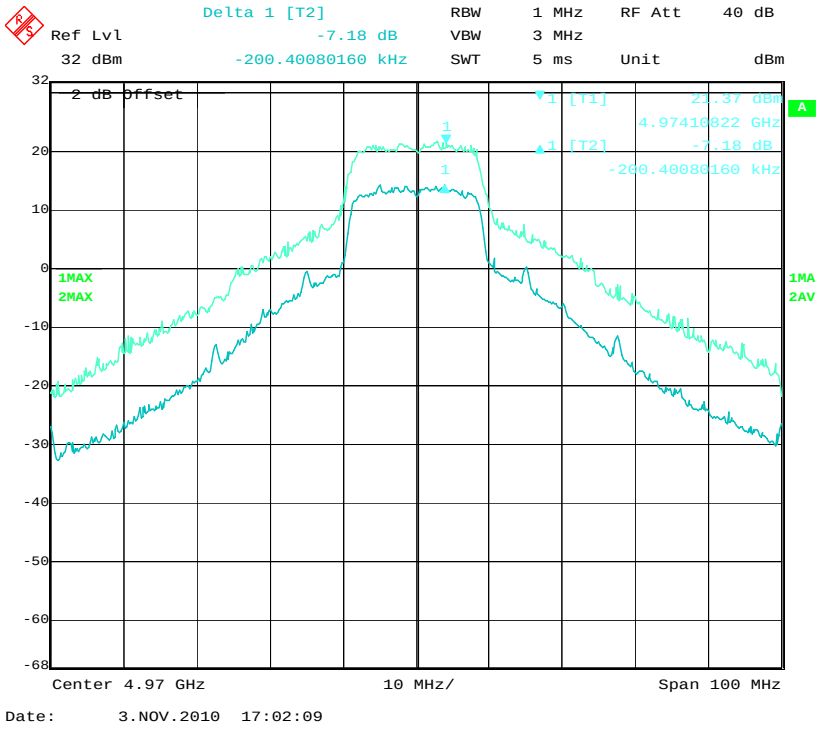
Channel Bandwidth: 20MHz

Chain 0 (20MHz)

Low Channel (20MHz)

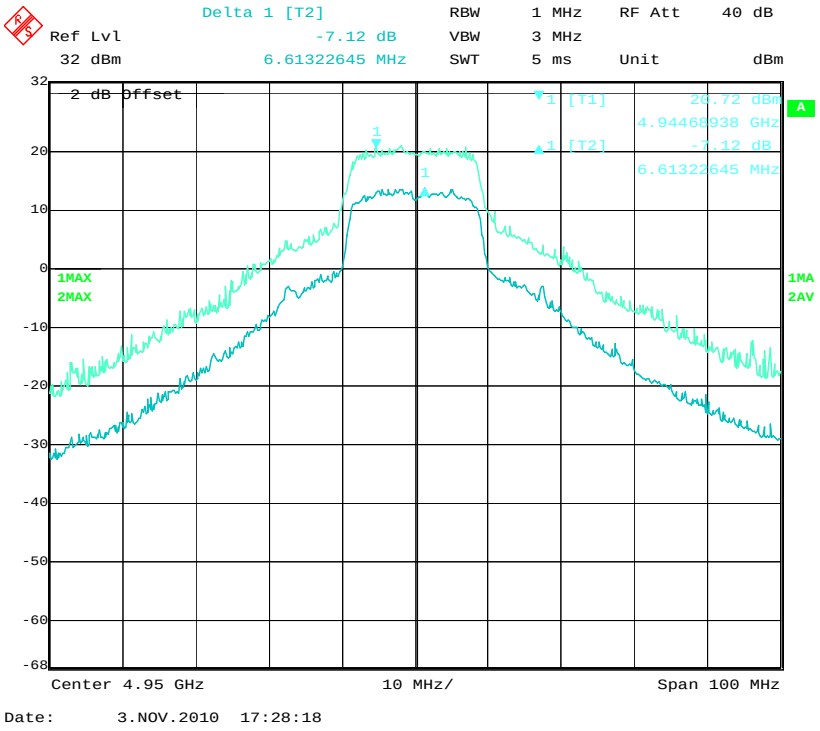


High Channel (20MHz)

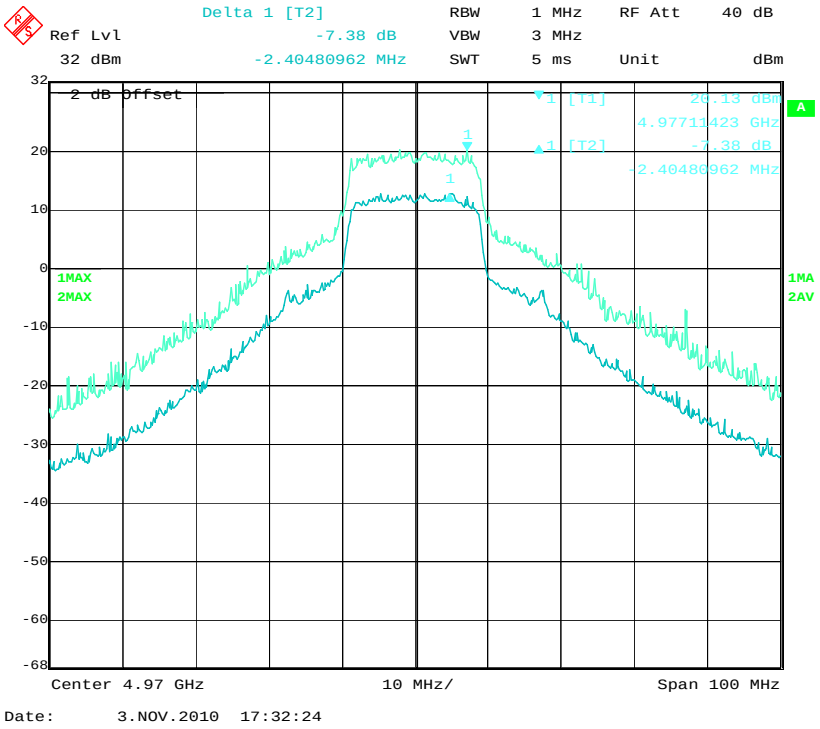


Chain 2 (20MHz)

Low Channel (20MHz)



High Channel (20MHz)



5.7 Field Strength of spurious, Radiation (Transmitter)

1. Radiated Measurement
   EUT was set for low, mid, high channel with modulated mode and highest RF output power.
   The spectrum analyzer was connected to the antenna terminal.
2. 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% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 1GHz & 1GHz above (3m & 10m) is +/-6dB.
3. Environmental Conditions

Temperature	23ºC - 25ºC
Relative Humidity	50%
Atmospheric Pressure	1019mbar

4. Test Date : Oct 28 2010 to Nov 03 2010
   Tested By : David Zhang

Standard Requirement : 47 CFR §90.210

The power spectral density of the emissions must be attenuated below the output power of the transmitter as follows:

On any frequency removed from the assigned frequency above 150% of the authorized bandwidth: 40 dB.

Procedures: ANSI/TIA/EIA 603 Clause 3.2.12

.

Test Result: Pass

Below 1GHz (With AC-DC adapter, model: JTA0302A)

Frequency(MHz)	Azimuth	Antenna Polarity	Antenna Height (cm)	ERP (dBm)	ERP Limit (dBm)	Margin (dB)
625.01	166.00	H	119.00	-53.06	-20.00	-33.06
928.97	90.00	H	309.00	-66.20	-20.00	-46.20
29.98	227.00	H	104.00	-59.60	-20.00	-39.60
374.61	332.00	H	388.00	-72.98	-20.00	-52.98
375.01	180.00	H	101.00	-55.47	-20.00	-35.47
991.00	307.00	V	247.00	-66.27	-20.00	-46.27

Below 1GHz (With PoE Injector, model: POE30U-560(G))

Frequency(MHz)	Azimuth	Antenna Polarity	Antenna Height (cm)	ERP (dBm)	ERP Limit (dBm)	Margin (dB)
827.20	252.00	V	389.00	-66.74	-20.00	-46.74
30.23	357.00	H	100.00	-59.02	-20.00	-39.02
375.00	33.00	H	104.00	-52.55	-20.00	-32.55
500.00	48.00	H	206.00	-54.21	-20.00	-34.21
625.00	202.00	H	121.00	-55.67	-20.00	-35.67
750.02	164.00	H	101.00	-57.89	-20.00	-37.89

Below 1GHz (With PoE Injector, model: SA06L48-V)

Frequency(MHz)	Azimuth	Antenna Polarity	Antenna Height (cm)	ERP (dBm)	ERP Limit (dBm)	Margin (dB)
846.17	152.00	H	197.00	-66.97	-20.00	-46.97
824.62	46.00	V	288.00	-66.68	-20.00	-46.68
30.60	288.00	H	114.00	-57.52	-20.00	-37.52
838.79	124.00	H	361.00	-64.22	-20.00	-44.22
825.44	124.00	V	337.00	-66.68	-20.00	-46.68
400.00	199.00	H	219.00	-63.02	-20.00	-43.02

Below 1GHz (With PoE Injector, model: AT-6101G)

Frequency(MHz)	Azimuth	Antenna Polarity	Antenna Height (cm)	ERP (dBm)	ERP Limit (dBm)	Margin (dB)
34.98	46.00	H	98.00	-61.35	-20.00	-41.35
44.35	60.00	V	98.00	-58.10	-20.00	-38.10
105.72	261.00	H	98.00	-55.03	-20.00	-35.03
60.02	261.00	H	98.00	-62.45	-20.00	-42.45
52.16	354.00	H	98.00	-63.97	-20.00	-43.97
625.00	104.00	H	98.00	-55.84	-20.00	-35.84

Above 1GHz

Channel Bandwidth 15MHz

Low Channel

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	ERP			
GHz	(dBuV/m)	Degree	Meter	H / V	(dB)	(dB)	(dB)	(dBm)	Limit (dBm)	Margin	Comments
9.900	43.98	246.00	191.00	V	38.90	6.76	32.32	-40.06	-13.00	-27.06	Peak
9.900	34.73	238.00	100.00	H	38.90	6.76	32.32	-49.31	-13.00	-36.31	Peak
14.850	35.40	127.00	100.00	V	48.40	8.47	31.59	-36.70	-13.00	-23.70	Peak
14.850	35.65	342.00	100.00	H	48.40	8.47	31.59	-36.46	-13.00	-23.46	Peak

Mid Channel

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	ERP			
GHz	(dBuV/m)	Degree	Meter	H / V	(dB)	(dB)	(dB)	(dBm)	Limit (dBm)	Margin	Comments
9.930	51.79	178.00	100.00	V	38.90	6.76	32.32	-32.25	-13.00	-19.25	Peak
9.930	47.38	222.00	139.00	H	38.90	6.76	32.32	-36.67	-13.00	-23.67	Peak
14.895	44.59	224.00	100.00	V	48.40	8.47	31.59	-27.51	-13.00	-14.51	Peak
14.895	44.83	336.00	100.00	H	48.40	8.47	31.59	-27.27	-13.00	-14.27	Peak

High Channel

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	ERP			
GHz	(dBuV/m)	Degree	Meter	H / V	(dB)	(dB)	(dB)	(dBm)	Limit (dBm)	Margin	Comments
9.960	49.22	174.00	147.00	V	38.90	6.76	32.32	-34.82	-13.00	-21.82	Peak
9.960	42.18	196.00	100.00	H	38.90	6.76	32.32	-41.86	-13.00	-28.86	Peak
14.920	35.33	347.00	100.00	V	48.40	8.47	31.59	-36.77	-13.00	-23.77	Peak
14.920	34.86	291.00	100.00	H	48.40	8.47	31.59	-37.24	-13.00	-24.24	Peak

Note: Only the result of worst case with highest output power is presented. All the other configurations are verified.

5.8 Receiver Spurious Emission

1. Radiated Measurement
   EUT was set for low , mid, high channel with modulated mode and highest RF output power.
   The spectrum analyzer was connected to the antenna terminal.
2. 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% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 1GHz & 1GHz above (3m & 10m) is +/-6dB.
3. Environmental Conditions

Temperature	25°C
Relative Humidity	50%
Atmospheric Pressure	1019mbar

4. Test Date : Oct 28 2010 to Nov 03 2010
   Tested By : David Zhang

Standard Requirement: RSS-111, RSS-GEN Section 6

Procedures: The EUT was set to transmit at the highest output power. The EUT was set to transmit at mid channel. Note that setting the channel other than mid; the spurious emissions are the same.

Test Result: Pass

equency(MHz)	Azimuth	Antenna Polarity	Antenna Height (cm)	Final Field Strength (dBuV/m)	Limit (dBuV/m)	Margin (dB)
828.33	188.00	V	158.00	24.81	46.00	-15.47
836.99	388.00	V	250.00	24.57	46.00	-15.63
959.28	388.00	H	207.00	26.10	46.00	-13.45
931.23	194.00	V	308.00	25.58	46.00	-14.05
910.28	388.00	V	319.00	25.98	46.00	-13.72
944.57	326.00	H	94.00	25.76	46.00	-13.87

5.9 Peak Power Spectral Density

1. Conducted Measurement
TIA/EIA-603-C 2.2.19
Conducted Emissions Measurement Uncertainty

2 All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 40GHz is ±1.5dB.

3 Environmental Conditions

Temperature	25°C
Relative Humidity	50%
Atmospheric Pressure	1019mbar

4 Test Date : Oct 28 2010 to Nov 03 2010
Tested By : David Zhang

Standard Requirement: 47 CFR §90.1215

(a)(1) The maximum conducted output power should not exceed:

Channel bandwidth (MHz)	Low power maximum conducted output power (dBm)	High power maximum conducted output power (dBm)
1	7	20
5	14	27
10	17	30
15	18.8	31.8
20	20	33

(2) High power devices are also limited to a peak power spectral density of 21 dBm per one MHz. High power devices using channel bandwidths other than those listed above are permitted; however, they are limited to peak power spectral density of 21 dBm/MHz. If transmitting antennas of directional gain greater than 9 dBi are used, both the maximum conducted output power and the peak power spectral density should be reduced by the amount in decibels that the directional gain of the antenna exceeds 9 dBi. However, high power point-to-point and point-to-multipoint operations (both fixed and temporary-fixed rapid deployment) may employ transmitting antennas with directional gain up to 26 dBi without any corresponding reduction in the maximum conducted output power or spectral density. Corresponding reduction in the maximum conducted output power and peak power spectral density should be the amount in decibels that the directional gain of the antenna exceeds 26 dBi.

Procedures: The peak value measured in a 1MHz measurement bandwidth.

Note : Testing was performed assuming that antenna gain is less than 26dBi. For the antenna gain greater than 26dBi, manufacturer shall ensure that Corresponding reduction in the maximum conducted output power and peak power spectral density should be the amount in decibels that the directional gain of the antenna exceeds 26 dBi.

Channel bandwidth: 5MHz

Channel	Channel Frequency (MHz)	PSD-Chain 0 (dBm)	PSD- Chain 2 (dBm)	Total PSD (dBm)
Low	4945	17.50	17.00	20.27
Mid	4965	17.50	17.80	20.68
High	4985	17.70	17.50	20.60

Channel bandwidth: 10MHz

Channel	Channel Frequency (MHz)	PSD-Chain 0 (dBm)	PSD- Chain 2 (dBm)	Total PSD (dBm)
Low	4945	17.83	17.80	20.84
Mid	4965	18.17	17.50	20.86
High	4985	18.17	17.70	20.94

Channel bandwidth: 15MHz

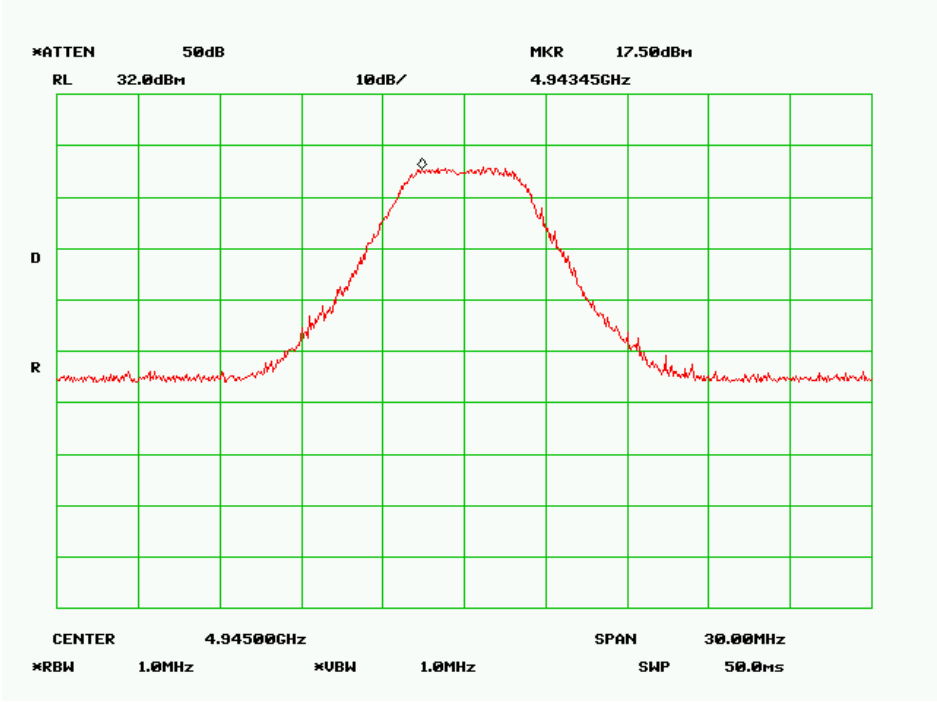
Channel	Channel Frequency (MHz)	PSD-Chain 0 (dBm)	PSD- Chain 2 (dBm)	Total PSD (dBm)
Low	4950	17.33	16.70	20.02
Mid	4965	17.83	17.00	20.45
High	4980	17.00	16.80	19.93

Channel bandwidth: 20MHz

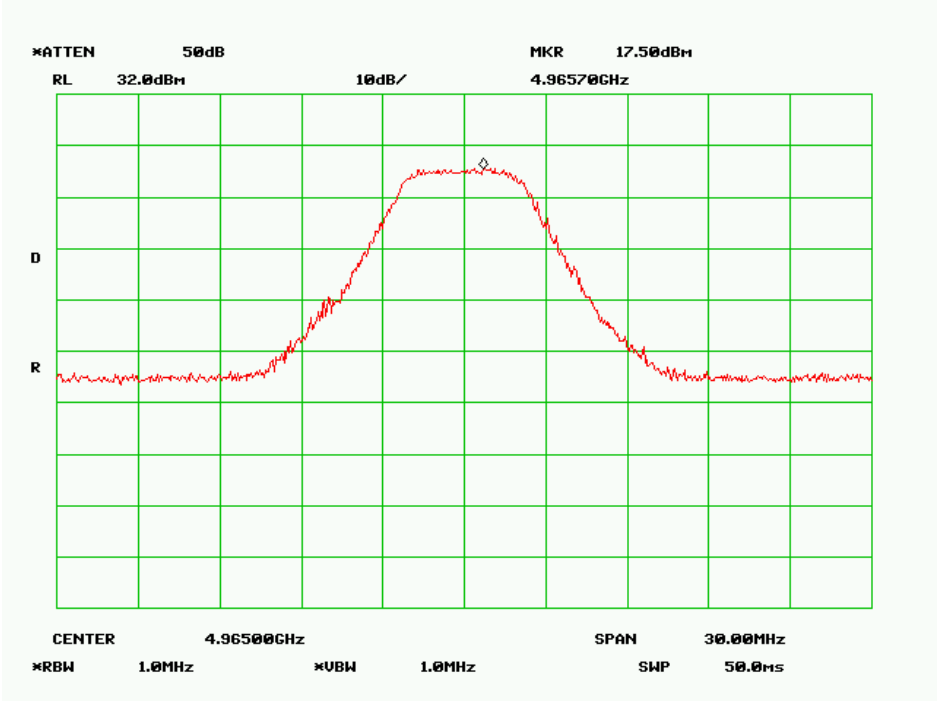
Channel	Channel Frequency (MHz)	PSD-Chain 0 (dBm)	PSD- Chain 2 (dBm)	Total PSD (dBm)
Low	4950	17.00	15.80	19.46
High	4970	18.17	16.70	20.49

Channel Bandwidth: 5MHz

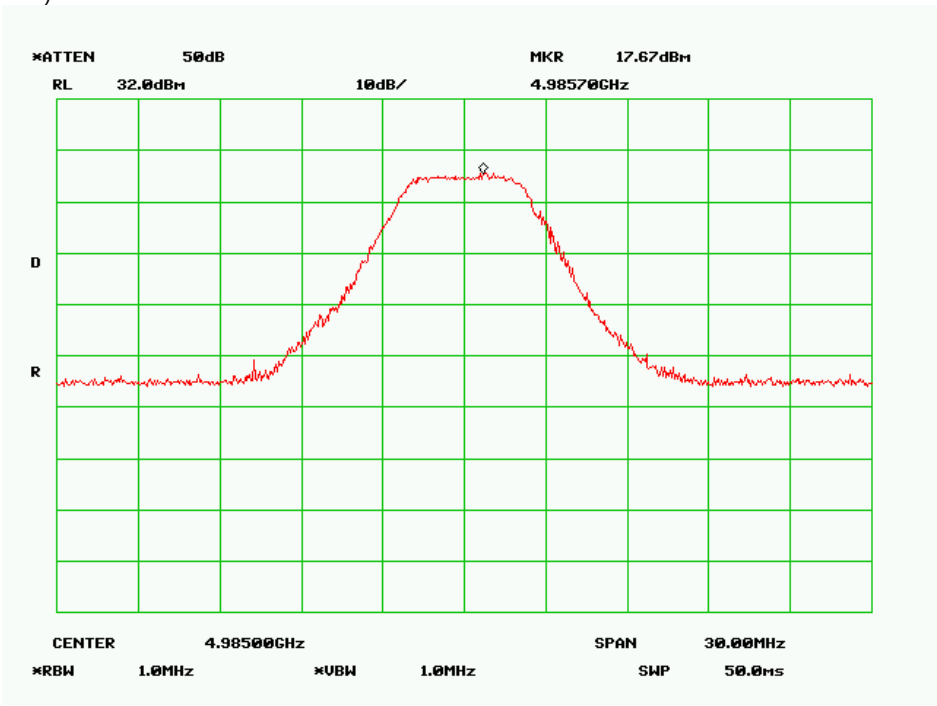
Chain 0 (5MHz)
Low Channel (5MHz)



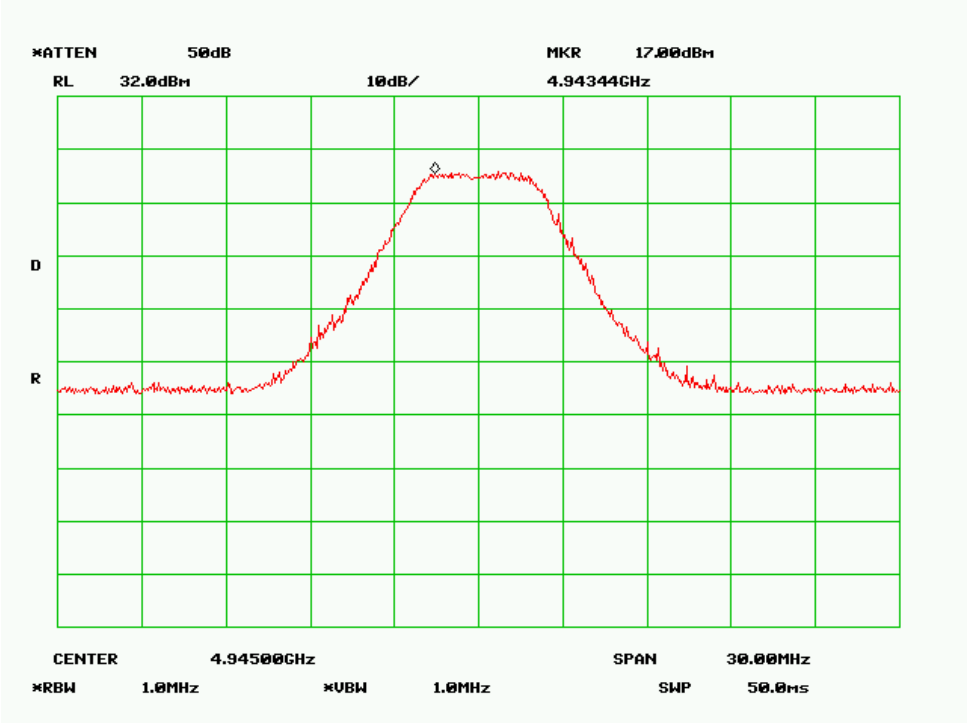
Mid Channel (5MHz)



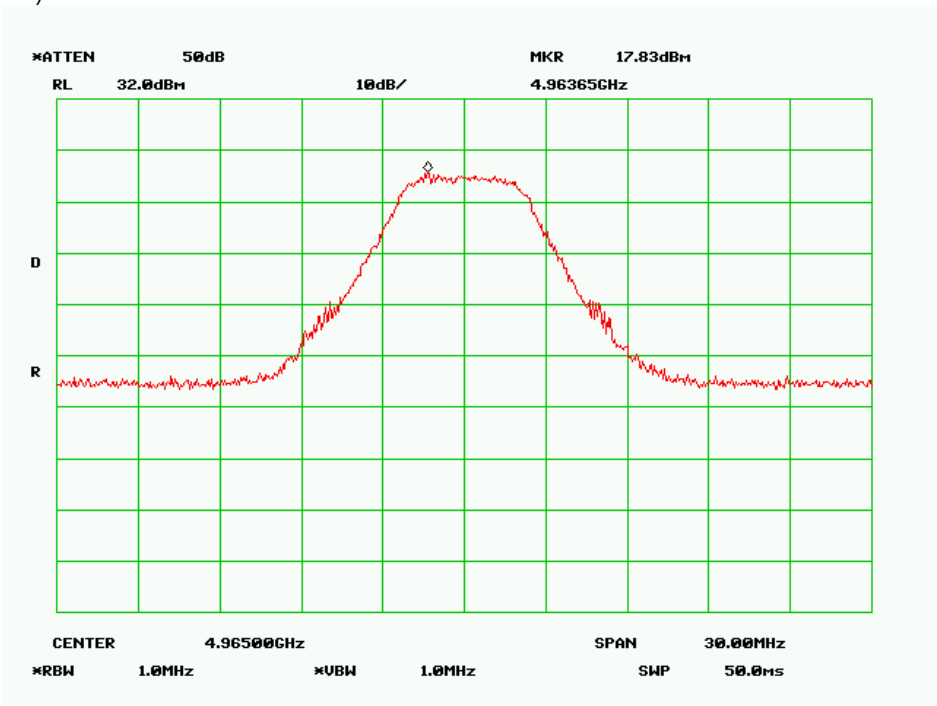
High Channel (5MHz)



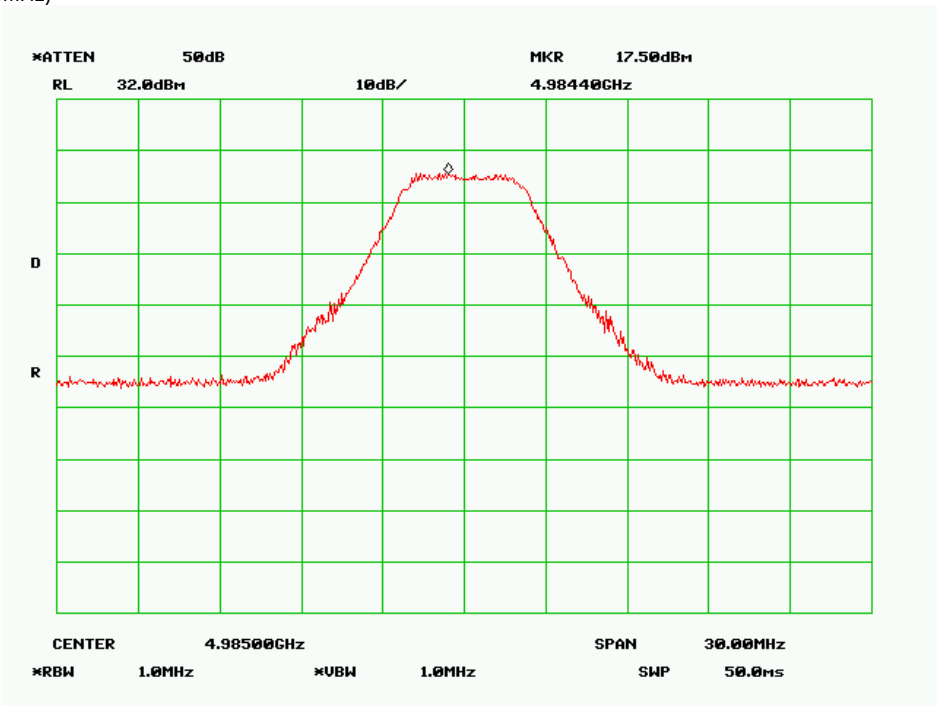
Chain 2 (5MHz)
Low Channel (5MHz)



Mid Channel (5MHz)

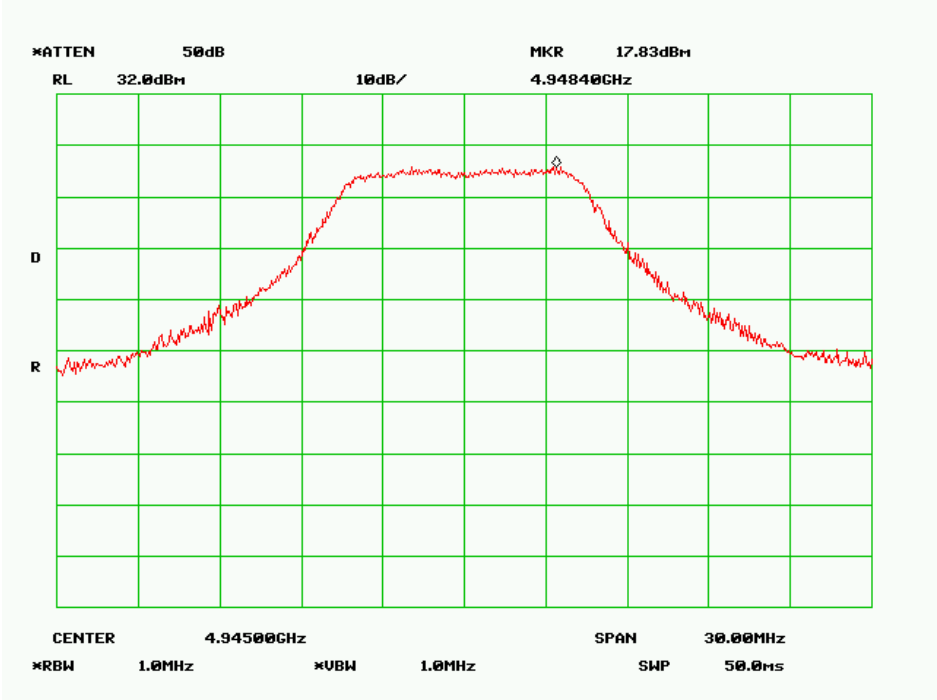


High Channel (5MHz)

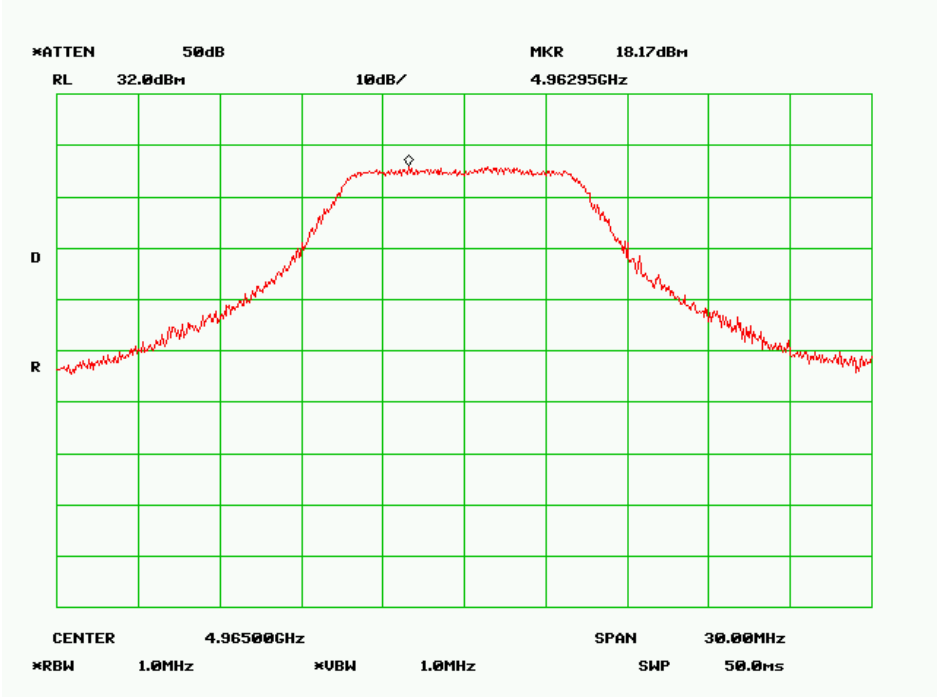


Channel Bandwidth: 10MHz

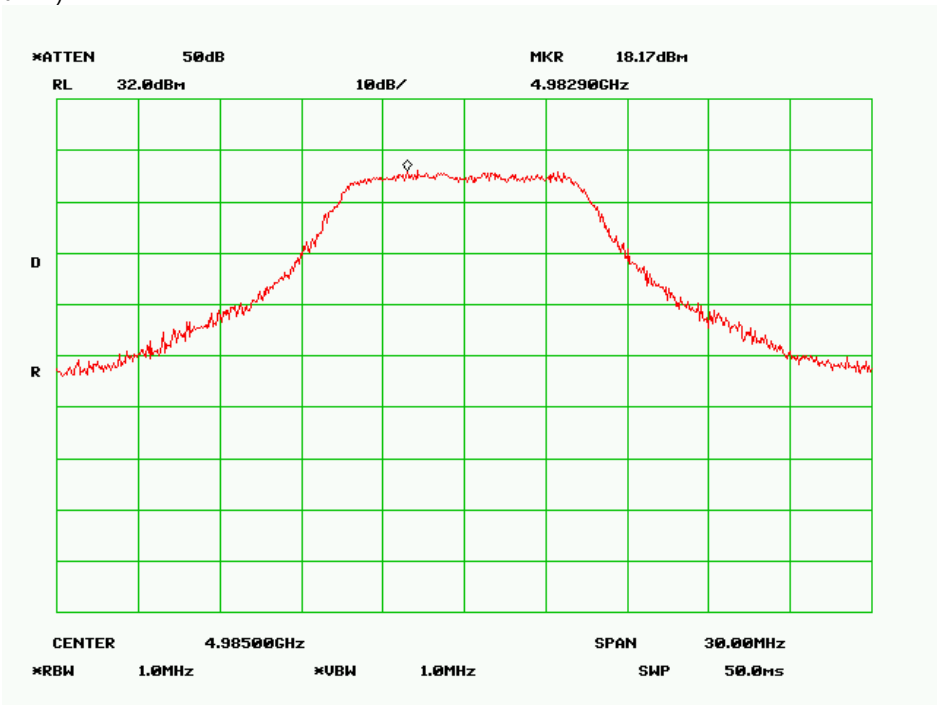
Chain 0 (10MHz)
Low Channel (10MHz)



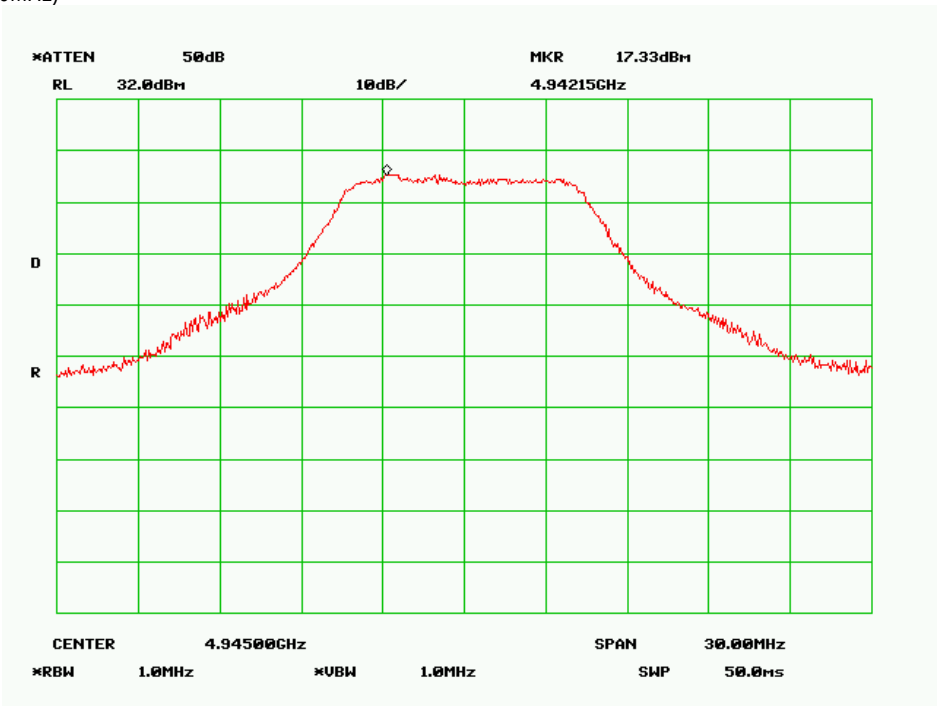
Mid Channel (10MHz)



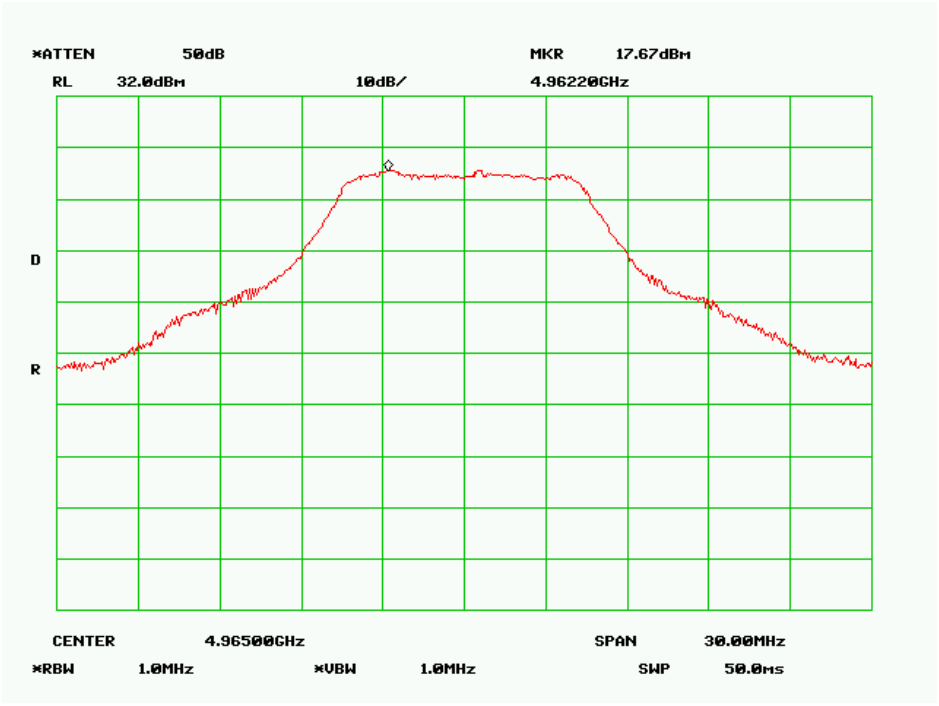
High Channel (10MHz)



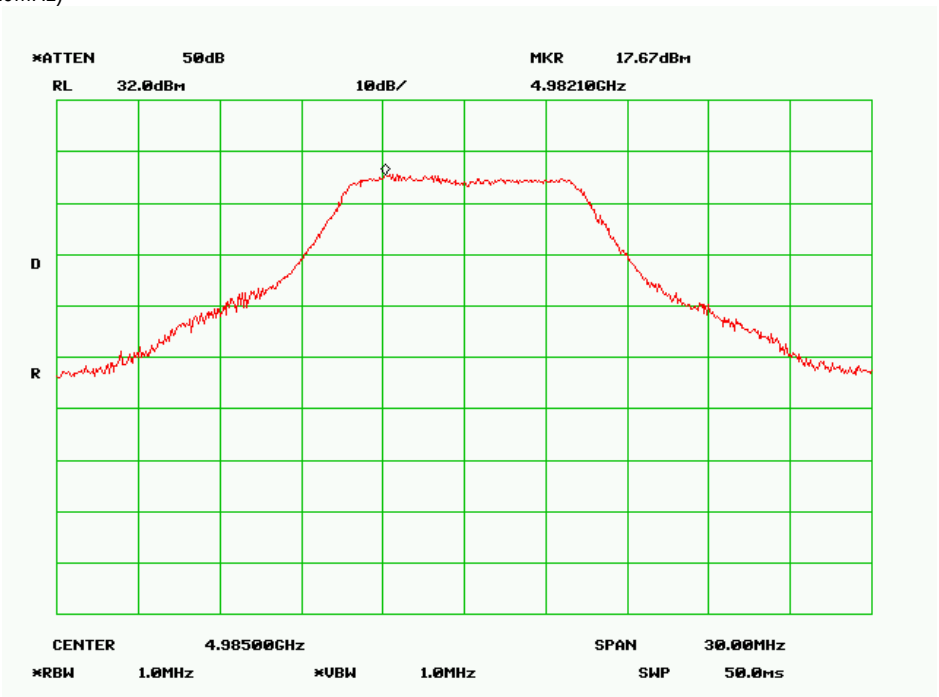
Chain 2 (10MHz)
Low Channel (10MHz)



Mid Channel (10MHz)

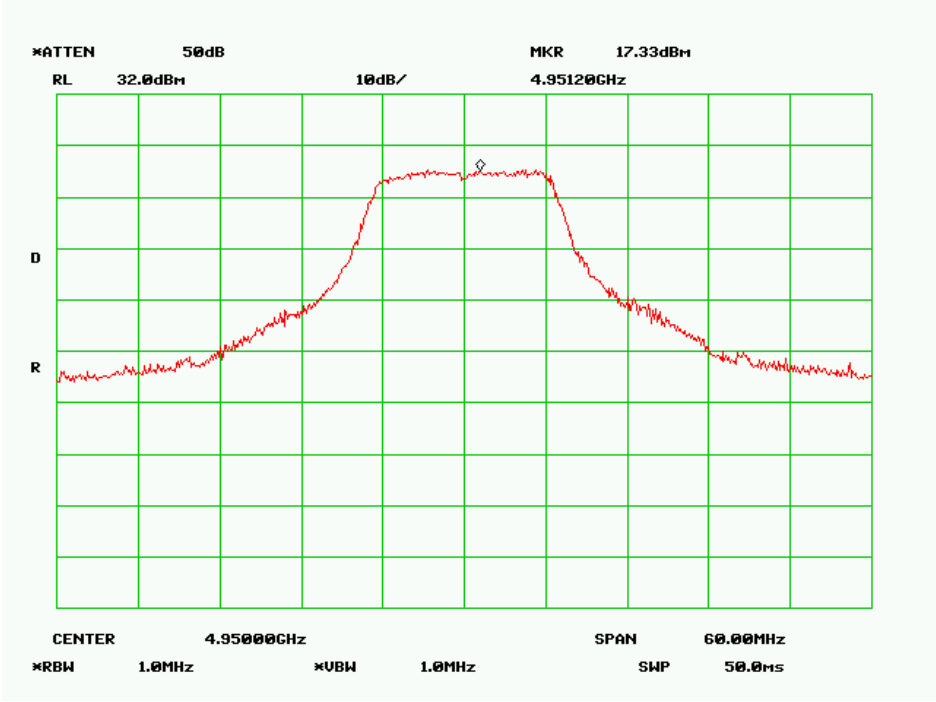


High Channel (10MHz)

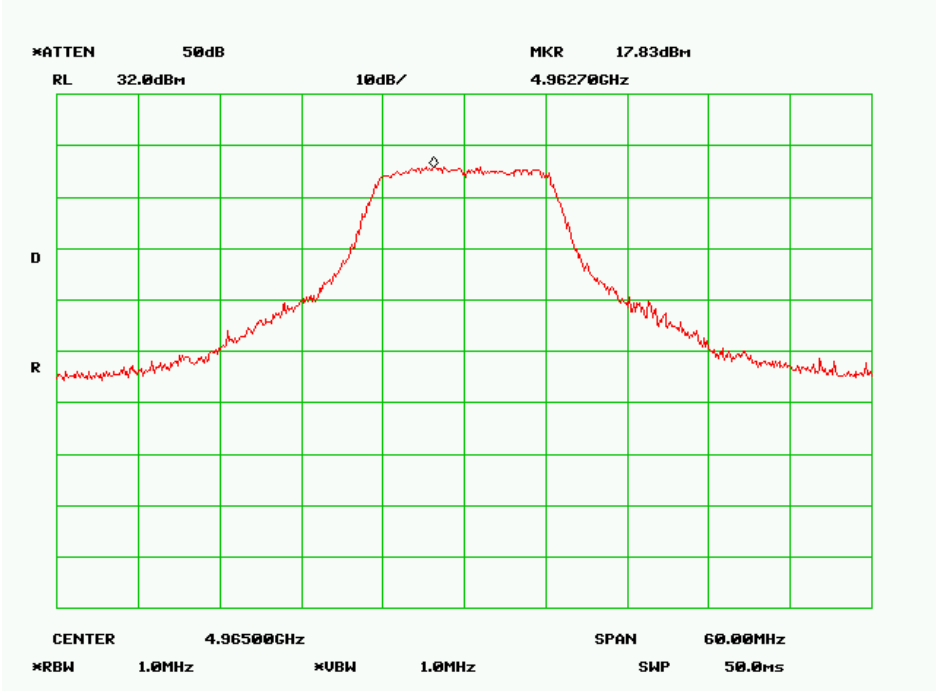


Channel Bandwidth: 15MHz

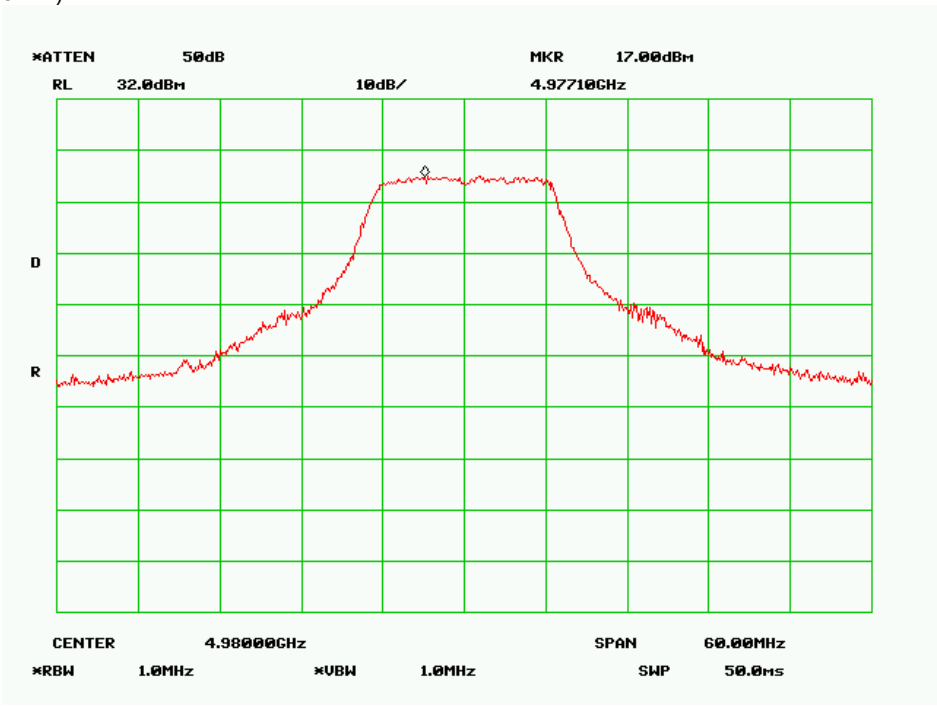
Chain 0 (15MHz)
Low Channel (15MHz)



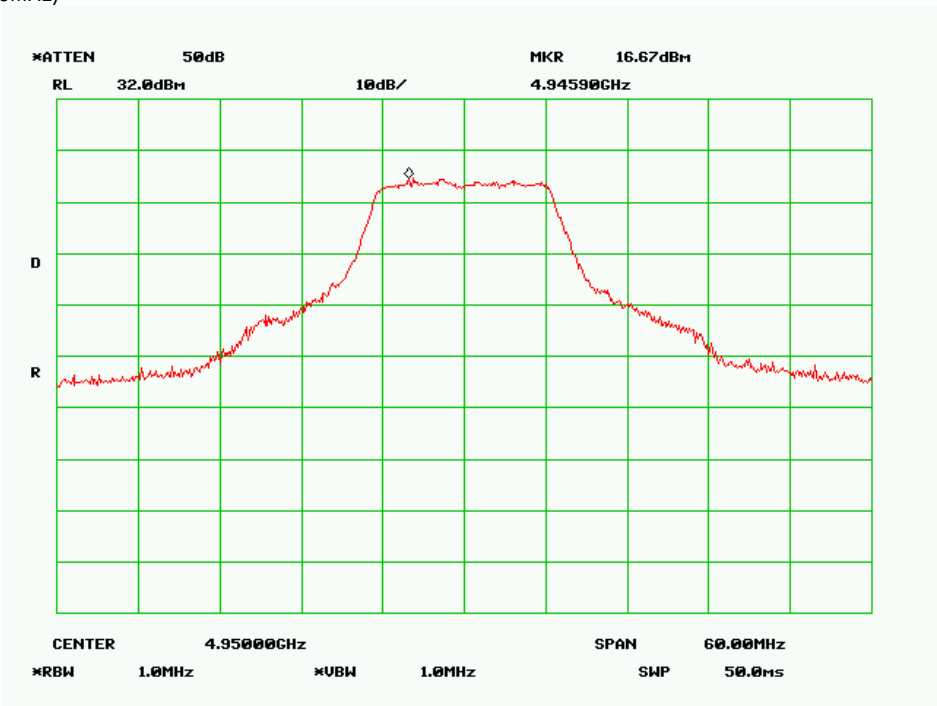
Mid Channel (15MHz)



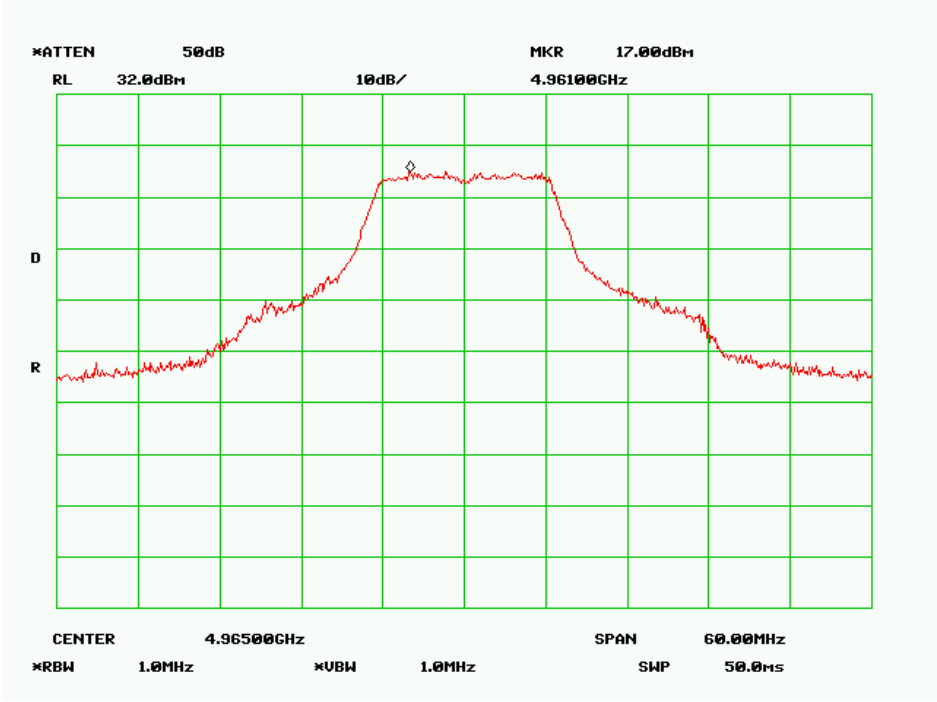
High Channel (15MHz)



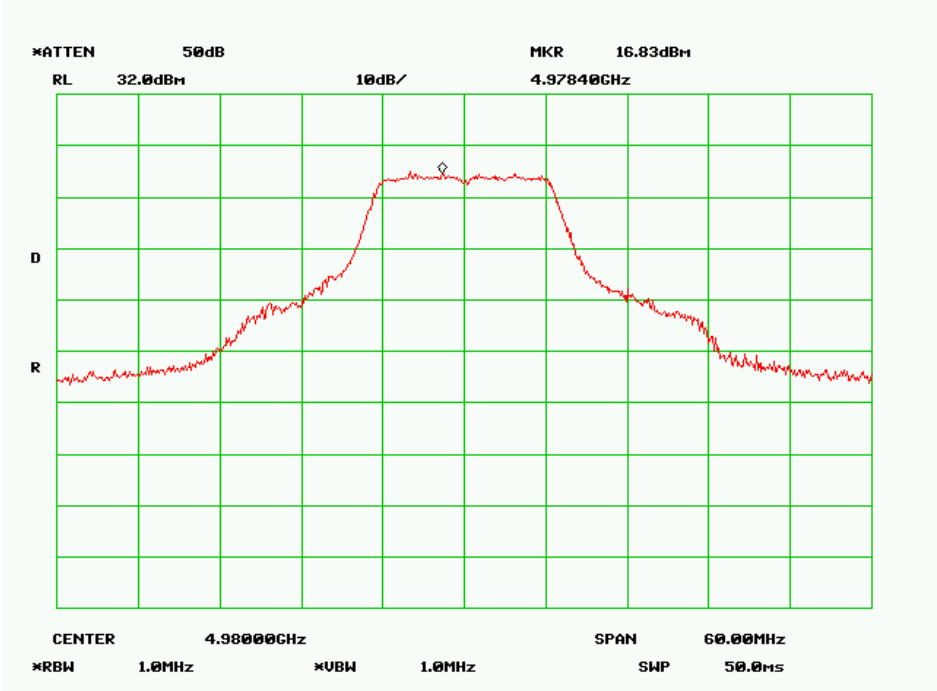
Chain 2 (15MHz)
Low Channel (15MHz)



Mid Channel (15MHz)

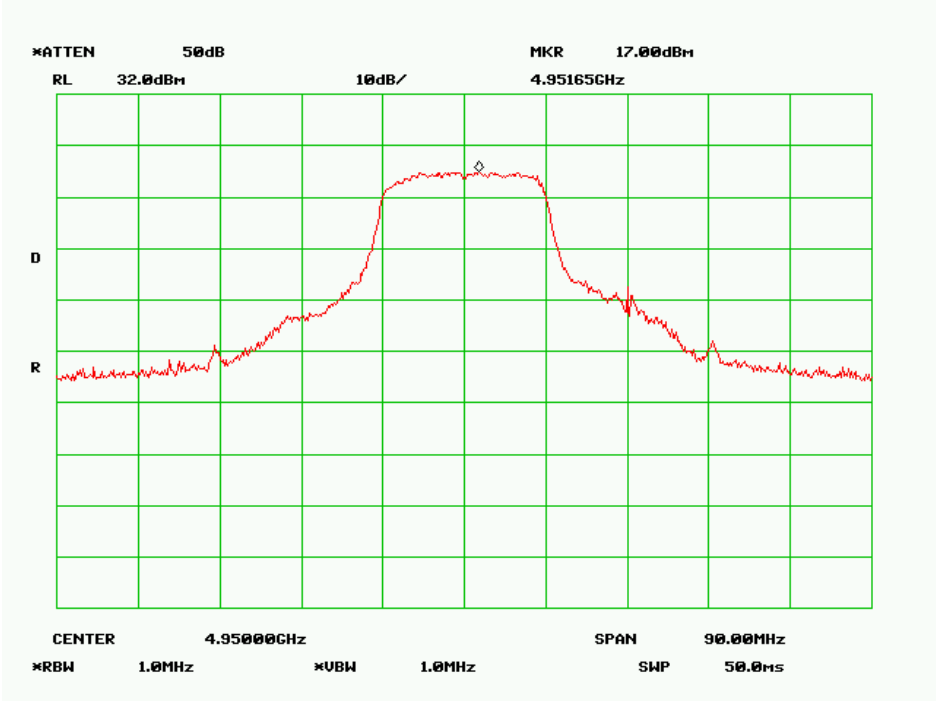


High Channel (15MHz)

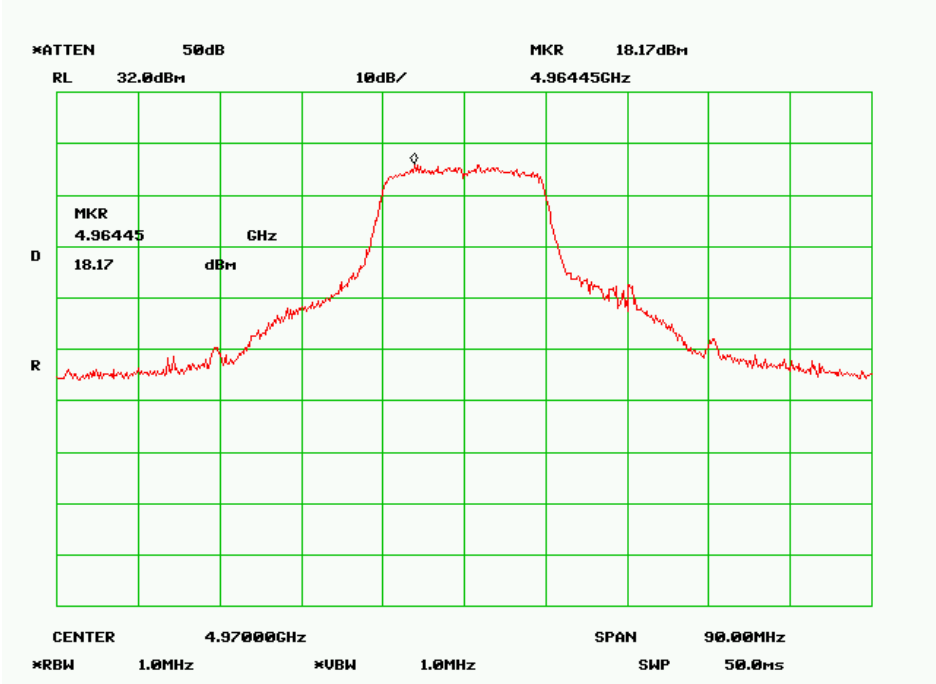


Channel Bandwidth: 20MHz

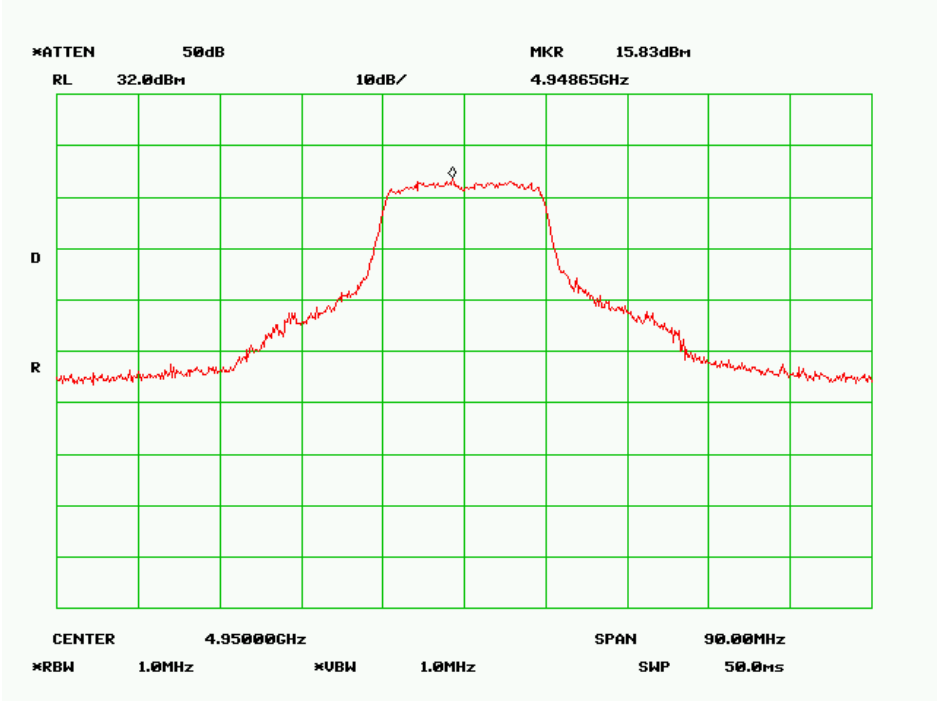
Chain 0 (20MHz)
Low Channel (20MHz)



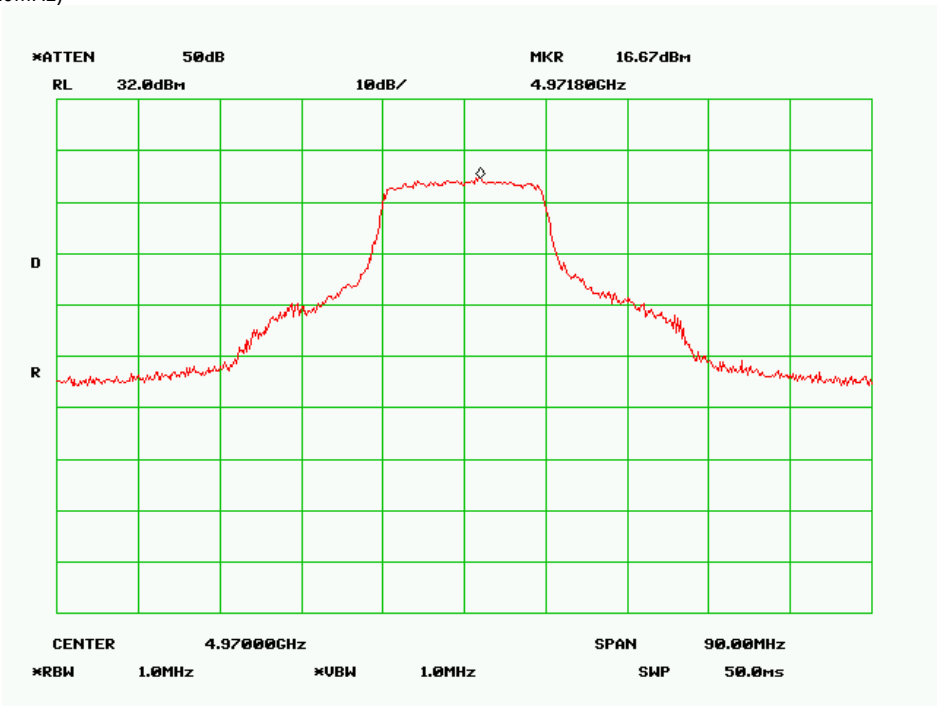
High Channel (20MHz)



Chain 2 (20MHz)
Low Channel (20MHz)



High Channel (20MHz)



5.10 Frequency Stability

Conducted Measurement

1. EUT was set for low, mid, high channel with modulated mode and highest RF output power.
   The spectrum analyzer was connected to the antenna terminal.
2. Environmental Conditions — Temperature 25°C; Relative Humidity 50%; Atmospheric Pressure 1019mbar
   Conducted Emissions Measurement Uncertainty
3. All test measurements carried out are traceable to national standards. The uncertainty of the measurement at a confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2, in the range 30MHz – 40GHz is ±1.5dB.
4. Test Date : Oct 28 2010 to Nov 03 2010
   Tested By : David Zhang

Requirement(s): 47 CFR §90.213

Procedures: The 99% bandwidths was measured conducted using a spectrum analyzer at low, mid, and hi channels.

Power Supply (VDC)	Temperature (celcius)	Frequency (MHz)	Deviation (ppm)
5.00	65	4964.9917	3.2024325
5.00	60	4964.9858	2.0141085
5.00	55	4964.9792	0.6847969
5.00	50	4964.9725	-0.6646558
5.00	40	4964.9733	-0.5035271
5.00	30	4964.9742	-0.3222574
5.00	20	4964.9758	REF
5.00	10	4964.9958	4.028217
5.00	0	4965.0042	5.7200682
5.00	-10	4965.0067	6.2235953
5.00	-20	4965.0025	5.3776697
5.00	-30	4964.9867	2.1953783
5.00	-40	4964.9642	-2.3363659
4.25	20	4964.9762	0.0805643
5.75	20	4964.9758	0

Annex A. TEST INSTRUMENT & METHOD

Annex A.i. TEST INSTRUMENTATION & GENERAL PROCEDURES

Instrument	Model	Calibration Due
AC Conducted Emissions		
R&S EMI Test Receiver	ESIB40	05/19/2011
R&S LISN	ESH2-Z5	05/18/2011
CHASE LISN	MN2050B	05/18/2011
Hygro Hermograph	ST-50	06/04/2011
Radiated Emissions		
Spectrum Analyzer	8564E	05/19/2011
EMI Receiver	ESIB 40	05/18/2011
R&S LISN	ESH2-Z5	05/18/2011
CHASE LISN	MN2050B	05/19/2011
Antenna(1 ~18GHz)	3115	6/2/2011
Antenna (30MHz~2GHz)	JB1	6/1/2011
Chamber	3m	12/4/2010
Pre-Amplifier(1 ~ 26GHz)	8449	5/17/2011
Horn Antenna (18~40GHz)	AH-840	7/23/2013
Microwave Pre-Amp (18~40GHz)	PA-840	Every 2000 Hours
Hygro Hermograph	ST-50	06/04/2011
Frequency Stability		
R&S EMI Receiver	ESIB 40	05/19/2011
TestEquity Environment Chamber	1007H	6/1/2011
Hygro Hermograph	ST-50	06/04/2011
Transient Frequency Behaviour		
RF Signal Generator	HP8656	05/18/2011
RF Signal analyzer	HP8920A	05/18/2011
Oscilloscope	-	05/19/2011
Hygro Hermograph	ST-50	06/04/2011

Note: * - Functional Verification

Annex A.ii. CONDUCTED EMISSIONS TEST DESCRIPTION

Test Set-up

1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table, as shown in Annex B.

2. The power supply for the EUT was fed through a 50Ω/50μH EUT LISN, connected to filtered mains.

3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.

4. All other supporting equipments were powered separately from another main supply.

Test Method

1. The EUT was switched on and allowed to warm up to its normal operating condition.

2. A scan was made on the NEUTRAL line (for AC mains) or Earth line (for DC power) over the required frequency range using an EMI test receiver.

3. High peaks, relative to the limit line, were then selected.

4. The EMI test receiver was then tuned to the selected frequencies and the necessary measurements made with a receiver bandwidth setting of 10 KHz. For FCC tests, only Quasi-peak measurements were made; while for CISPR/EN tests, both Quasi-peak and Average measurements were made.

5. Steps 2 to 4 were then repeated for the LIVE line (for AC mains) or DC line (for DC power).

Sample Calculation Example

At 20 MHz limit = 250 μV = 47.96 dBμV

Transducer factor of LISN, pulse limiter & cable loss at 20 MHz = 11.20 dB

Q-P reading obtained directly from EMI Receiver = 40.00 dBμV
(Calibrated for system losses)

Therefore, Q-P margin = 47.96 – 40.00 = 7.96 i.e. 7.96 dB below limit

Annex A. iii RADIATED EMISSIONS TEST DESCRIPTION

EUT Characterisation

EUT characterisation, over the frequency range from 30MHz to 10th Harmonic , was done in order to minimise radiated emissions testing time while still maintaining high confidence in the test results.

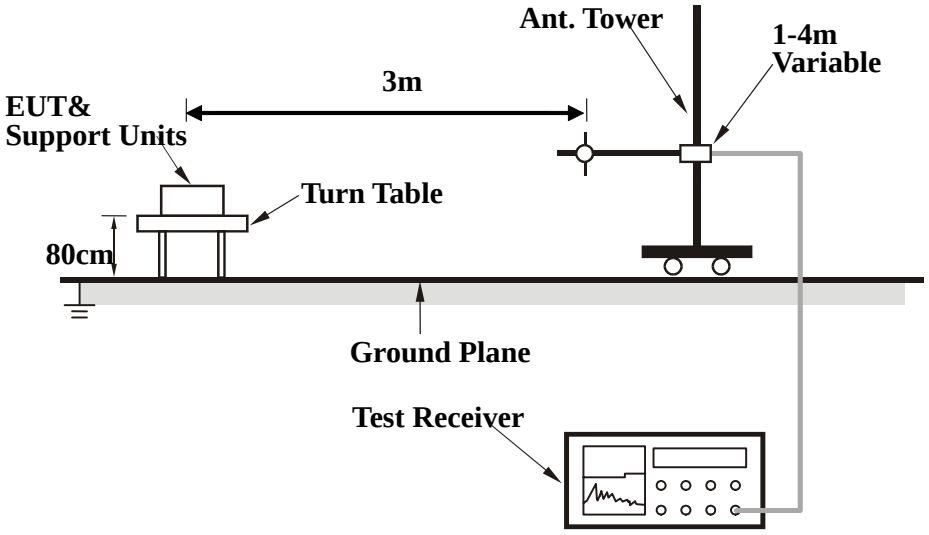
The EUT was placed in the chamber, at a height of about 0.8m on a turntable. Its radiated emissions frequency profile was observed, using a spectrum analyzer /receiver with the appropriate broadband antenna placed 3m away from the EUT. Radiated emissions from the EUT were maximised by rotating the turntable manually, changing the antenna polarisation and manipulating the EUT cables while observing the frequency profile on the spectrum analyzer / receiver. Frequency points at which maximum emissions occurred, clock frequencies and operating frequencies were then noted for the formal radiated emissions test at the Open Area Test Site (OATS).

Test Set-up

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.



Test Method

The following procedure was performed to determine the maximum emission axis of EUT:
1. With the receiving antenna is H polarization, rotate the EUT in turns with three orthogonal axes to determine the axis of maximum emission.
2. With the receiving antenna is V polarization, rotate the EUT in turns with three orthogonal axes to determine the axis of maximum emission.
3. Compare the results derived from above two steps. So, the axis of maximum emission from EUT was determined and the configuration was used to perform the final measurement.

Final Radiated Emission Measurement
1. Setup the configuration according to figure 1. Turn on EUT and make sure that it is in normal function.

2. For emission frequencies measured below 1 GHz, a pre-scan is performed in a shielded chamber to determine the accurate frequencies of higher emissions will be checked on a open test site. As the same purpose, for emission frequencies measured above 1 GHz, a pre-scan also be performed with a 1 meter measuring distance before final test.

3. For emission frequencies measured below and above 1 GHz, set the spectrum analyzer on a 100 kHz and 1 MHz resolution bandwidth respectively for each frequency measured in step 2.

4. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ◦ to 360 ◦ with a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading.

5. Repeat step 4 until all frequencies need to be measured was complete.

6. Repeat step 5 with search antenna in vertical polarized orientations.

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	Peak	100 kHz	100 kHz
Above 1000	Peak	1 MHz	1 MHz
	Average	1 MHz	10 Hz

Sample Calculation Example

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. For the limit is employed average value, therefore the peak value can be transferred to average value by subtracting the duty factor. The basic equation with a sample calculation is as follows:

Peak = Reading + Corrected Factor

where
Corr. Factor = Antenna Factor + Cable Factor - Amplifier Gain (if any)
And the average value is

Average = Peak Value + Duty Factor or
Set RBW = 1MHz, VBW = 10Hz.

Note:
If the measured frequencies are fall in the restricted frequency band, the limit employed must be quasi peak value when frequencies are below or equal to 1 GHz. And the measuring instrument is set to quasi peak detector function.

Annex B EUT AND TEST SETUP PHOTOGRAPHS

Please see the attachment

Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

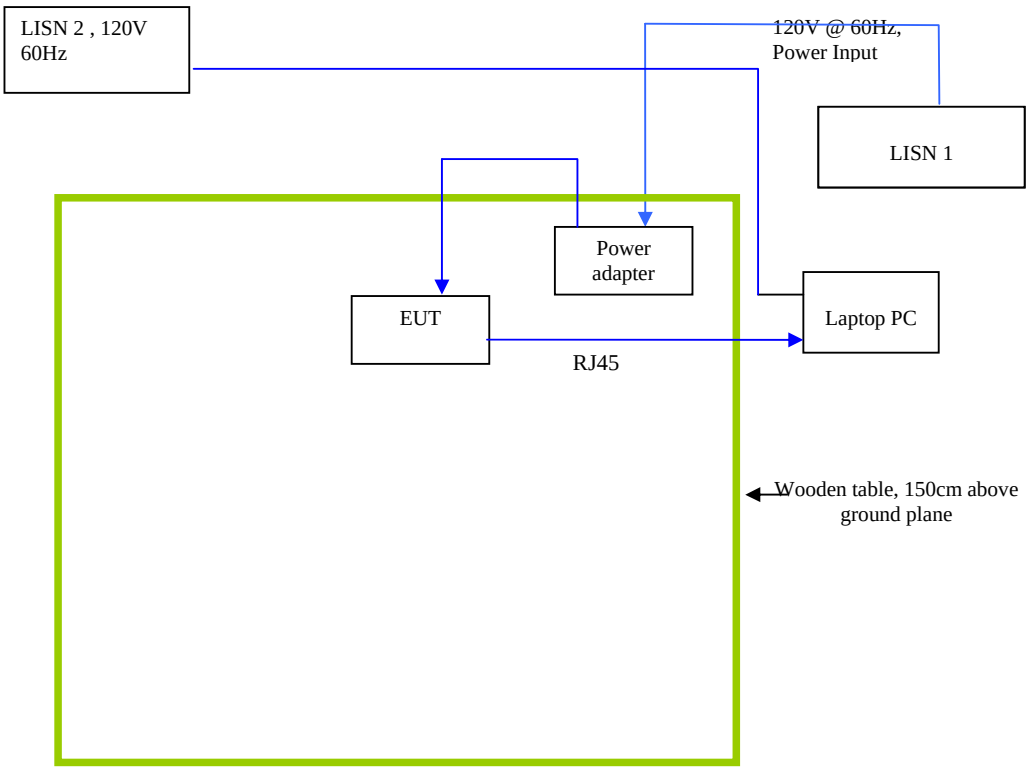
EUT TEST CONDITIONS

Annex C. i. SUPPORTING EQUIPMENT DESCRIPTION

The following is a description of supporting equipment and details of cables used with the EUT.

Equipment Description (Including Brand Name)	Model & Serial Number	Cable Description (List Length, Type & Purpose)
PC Laptop / HP	Zv5000 / CND4510VS3	Ethernet Cable , 1 meter, from PC Laptop to EUT
Power Adapter (Laptop) / HP	Series PPP017L / 316688-001	DC output cable , 1.5 meter, from adapter to laptop
PoE Power Injector (optional) / Allied Telesis	AT-6101G / 990-002505	Ethernet Cable , 1 meter, from injector to EUT
PoE Power Injector (optional)	SA06L48 / R00082102727	Ethernet Cable , 1 meter, from injector to EUT
PoE Power Injector (optional) / PHIHONG	POE30U-560(G)	Ethernet Cable , 1 meter, from injector to EUT
AC-DC power supply	JTA0302A / R00044100108	Ethernet Cable , 1 meter, from injector to EUT

Block Configuration Diagram for Radiated Emission



Block Configuration Diagram for Conducted Emission

N/A

Annex C.ii. EUT OPERATING CONDITIONS

The following is the description of how the EUT is exercised during testing.

Test	Description Of Operation
Emissions	The radio was set to constant transmitting mode in order to simulate worst case.

Annex D USER MANUAL, BLOCK & CIRCUIT DIAGRAM

Please see attachment

Annex E. SIEMIC ACCREDITATION CERTIFICATES

SIEMIC ACREDITATION DETAILS: A2LA Certificate Number: 2742.01

THE AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

SIEMIC LABORATORIES
San Jose, CA

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 18 June 2005*).

Presented this 11th day of July 2008.

President
For the Accreditation Council
Certificate Number 2742.01
Valid to September 30, 2010

For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

THE AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION

ACCREDITED PRODUCT CERTIFICATION BODY

A2LA has accredited

SIEMIC INC.
San Jose, CA

for technical competence as a
Product Certification Body

This product certification body is accredited in accordance with the recognized International Standard ISO/IEC Guide 65:1996 *General requirements for bodies operating product certification systems*. This accreditation demonstrates technical competence for a defined scope and the operation of a quality management system for a Telecommunications Certification Body (TCB) meeting FCC (U.S.), IDA (Singapore) and IC (Canada) requirements.

Presented this 9th day of January 2009.

President
For the Accreditation Council
Certificate Number: 2742.02
Valid to: September 30, 2010

For the product certification schemes to which this accreditation applies, please refer to the certification body's Scope of Accreditation.

SCOPE OF ACCREDITATION TO ISO/IEC GUIDE 65:1996

SIEMIC INC.
2206 Ringwood Ave.
San Jose, CA 95131
Mr. Snell Leong (Authorized Representative) Phone: 408 526 1188
www.siemic.com

PRODUCT CERTIFICATION CONFORMITY ASSESSMENT BODY (CAB)

Valid to: September 30, 2010 Certificate Number: 2742.02

In recognition of the successful completion of the A2LA Certification Body Accreditation Program evaluation, including the US Federal Communications Commission (FCC), Industry Canada (IC) and Singapore (IDA) requirements for the indicated types of product certifications, accreditation is granted to this organization to perform the following product certification schemes:

Economy	Scope
Federal Communication Commission - (FCC)	
Unlicensed Radio Frequency Devices	A1, A2, A3, A4
Licensed Radio Frequency Devices	B1, B2, B3, B4
Telephone Terminal Equipment	C

**Please refer to FCC TCB Program Roles and Responsibilities, v04, released February 14, 2008 detailing scopes, roles and responsibilities. http://www.fcc.gov/oet/ea/FCC-Overview-TCB-Program.pdf*

Industry Canada - (IC)	
Radio	All Radio Standards Specifications (RSS) in Category I Equipment Standards List Radio

**Please refer to Industry Canada (IC) website at: http://www.ic.gc.ca/epic/site/smt-gst.nsf/en/h_sf01342e.html*

IDA – Singapore	
Line Terminal Equipment	All Technical Specifications for Line Terminal Equipment – Table 1 of IDA MRA Recognition Scheme: 2008, Annex 2
Radio-Communication Equipment	All Technical Specifications for Radio-Communication Equipment – Table 2 of IDA MRA Recognition Scheme: 2008, Annex 2

**Please refer to Info-Communication Development Authority (iDA) Singapore website at: http://www.ida.gov.sg/doc/Policies%20and%20Regulation/Policies_and_Regulation_Level2/20060609145118/MRARecScheme.pdf*

(A2LA Cert. No. 2742.02) 01/09/09 Page 1 of 1

SIEMIC ACREDITATION DETAILS: FCC Test Site Registration No. 783147

FEDERAL COMMUNICATIONS COMMISSION

Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046

December 20, 2007

Registration Number: 783147

SIEMIC Laboratories
2206 Ringwood Avenue,
San Jose, CA 95131

Attention: Leslie Bai

Re: Measurement facility located at San Jose
3 & 10 meter site
Date of Renewal: December 20, 2007

Dear Sir or Madam:

Your request for renewal of the registration of the subject measurement facility has been received. The information submitted has been placed in your file and the registration has been renewed. The name of your organization will remain on the list of facilities whose measurement data will be accepted in conjunction with applications for Certification under Parts 15 or 18 of the Commission's Rules. Please note that the file must be updated for any changes made to the facility and the registration must be renewed at least every three years.

Measurement facilities that have indicated that they are available to the public to perform measurement services on a fee basis may be found on the FCC website www.fcc.gov under E-Filing, OET Equipment Authorization Electronic Filing, Test Firms.

Sincerely,

Phyllis Parrish
Industry Analyst

SIEMIC ACREDITATION DETAILS: Industry of Canada CAB ID : US0160

UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899-

March 4, 2009

Mr. Leslie Bai
SIEMIC, Inc.
2206 Ringwood Avenue
San Jose, CA 95131

Dear Mr. Bai:

NIST is pleased to inform you that your laboratory has been recognized by Industry Canada (IC), under the Asia Pacific Economic Cooperation for Telecommunications Equipment Mutual Recognition Arrangement (APEC Tel MRA). Your laboratory is now designated to act as a Conformity Assessment Body (CAB) under Appendix B, **Phase I** Procedures, of the APEC Tel MRA. The pertinent information about your laboratory's designation is as follows:

CAB Name:	SIEMIC, Inc.
Physical Location:	2206 Ringwood Avenue, San Jose, CA 95131 USA
Identification No.:	US0160
Recognized Scope:	CS-03 Part I, II, V, VI, VII and VIII

You may submit test data to IC to verify that the equipment to be imported into Canada satisfies the applicable requirements. The designation of your organization will remain in force as long as its accreditation for the designated scope remains valid and comply with the designation requirements.

Recognized CABs are listed on the NIST website at http://ts.nist.gov/mra. Please contact Ms. Ramona Saar at (301) 975-5521 or ramona.saar@nist.gov if you have any questions.

Sincerely,

David F. Alderman
Group Leader, Standards Coordination and Conformity Group
Standards Services Division

Enclosure

cc: CAB Program Manager

NIST

SIEMIC ACREDITATION DETAILS: Industry of Canada Test Site Registration No. 4842-1

Industry Canada Industrie Canada

May 27, 2010

OUR FILE: 46405-4842
Submission No: 140856

Siemic Inc.
2206 Ringwood Ave
San Jose, CA, 95131
USA

Attention: Snell Leong

Dear Sir/Madame:

The Bureau has received your application for the renewal of a 3m alternative test site. Be advised that the information received was satisfactory to Industry Canada. The following number(s) is now associated to the site(s) for which registration / renewal was sought (**4842A-1**). Please reference the appropriate site number in the body of test reports containing measurements performed on the site. In addition, please keep for your records the following information;

- Your primary code is: **4842**

- The company number associated to the site(s) located at the above address is: **4842A**

Furthermore, to obtain or renew a unique site number, the applicant shall demonstrate that the site has been accredited to ANSI C63.4-2003 or later. A scope of accreditation indicating the accreditation by a recognized accreditation body to ANSI C63.4-2003 or later shall be accepted. Please indicate in a letter the previous assigned site number if applicable and the type of site (example: 3 metre OATS or 3 metre chamber). If the test facility is not accredited to ANSI C63.4-2003 or later, the test facility shall submit test data demonstrating full compliance with the ANSI standard. The Bureau will evaluate the filing to determine if recognition shall be granted.

The frequency for re-validation of the test site and the information that is required to be filed or retained by the testing party shall comply with the requirements established by the accrediting organization. However, in all cases, test site re-validation shall occur on an interval not to exceed two years. There is no fee or form associated with an OATS filing. OATS submissions are encouraged to be submitted electronically to the Bureau using the following URL;
http://strategis.ic.gc.ca/epic/internet/inceb-bhst.nsf/en/h_tt00052e.html.

If you have any questions, you may contact the Bureau by e-mail at certification.bureau@ic.gc.ca Please reference our file and submission number above for all correspondence.

Yours sincerely,

Dalwinder Gill
For: Wireless Laboratory Manager
Certification and Engineering Bureau
3701 Carling Ave., Building 94
P.O. Box 11490, Station "H"
Ottawa, Ontario K2H 8S2
Email: dalwinder.gill@ic.gc.ca
Tel. No. (613) 998-8363
Fax. No. (613) 990-4752

SIEMIC ACREDITATION DETAILS: FCC DOC CAB Recognition : US1109

FEDERAL COMMUNICATIONS COMMISSION

Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046

August 28, 2008

Siemic Laboratories
2206 Ringwood Ave.,
San Jose, CA 95131

Attention: Leslie Bai

Re: Accreditation of Siemic Laboratories
Designation Number: US1109
Test Firm Registration #: 540430

Dear Sir or Madam:

We have been notified by American Association for Laboratory Accreditation that Siemic Laboratories has been accredited as a Conformity Assessment Body (CAB).

At this time Siemic Laboratories is hereby designated to perform compliance testing on equipment subject to Declaration Of Conformity (DOC) and Certification under Parts 15 and 18 of the Commission's Rules.

This designation will expire upon expiration of the accreditation or notification of withdrawal of designation.

Sincerely,

George Tannahill

George Tannahill
Electronics Engineer

SIEMIC ACREDITATION DETAILS: Australia CAB ID : US0160

UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899-

November 20, 2008

Mr. Leslie Bai
SIEMIC, Inc.
2206 Ringwood Avenue
San Jose, CA 95131

Dear Mr. Bai:

NIST is pleased to inform you that your laboratory has been recognized by the Australian Communications and Media Authority (ACMA) under the Asia Pacific Economic Cooperation for Telecommunications Equipment Mutual Recognition Arrangement (APEC Tel MRA). Your laboratory is now designated to act as a Conformity Assessment Body (CAB) under Appendix B, **Phase I** Procedures, of the APEC Tel MRA. The pertinent information about your laboratory's designation is as follows:

CAB Name:	Siemic, Inc.
Physical Location:	2206 Ringwood Avenue, San Jose, CA 95131
Identification No.:	US0160
Recognized Scope:	EMC: AS/NZS 4251.1 (until 5/31/2009), AS/NZS 4251.2 (until 5/31/2009), AS/NZS CISPR 11, AS/NZS CISPR 14.1, AS/NZS CISPR 22, AS/NZS 61000.6.3, AS/NZS 61000.6.4 Radiocommunications: AS/NZS 4281, AS/NZS 4268, AS/NZS 4280.1, AS/NZS 4280.2, AS/NZS 4295, AS/NZS 4582, AS/NZS 4583, AS/NZS 4769.1, AS/NZS 4769.2, AS/NZS 4770, AS/NZS 4771 Telecommunications: AS/ACIF S002:05, AS/ACIF S003:06, AS/ACIF S004:06, AS/ACIF S006:01, AS/ACIF S016:01, AS/ACIF S031:01, AS/ACIF S038:01, AS/ACIF S040:01, AS/ACIF S041:05, AS/ACIF S043.2:06, AS/NZS 60950.1

You may submit test data to ACMA to verify that the equipment to be imported into Australia satisfies the applicable requirements. The designation of your organization will remain in force as long as its accreditation for the designated scope remains valid and comply with the designation requirements. Recognized CABs are listed on the NIST website at http://ts.nist.gov/mra. Please contact Ms. Ramona Saar, at (301) 975-5521 or ramona.saar@nist.gov if you have questions.

Sincerely,

David F. Alderman

David F. Alderman
Group Leader, Standards Coordination and Conformity Group
Standards Services Division

Enclosure

cc: Snell Leong, Siemic, Inc.; Ramona Saar, NIST

NIST

SIEMIC ACREDITATION DETAILS: Korea CAB ID: US0160

UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899-

October 1, 2008

Mr. Leslie Bai
SIEMIC, Inc.
2206 Ringwood Avenue
San Jose, CA 95131

Dear Mr. Bai:

NIST is pleased to inform you that your laboratory has been recognized by the Radio Research Agency (RRA) Korea Communications Commission (KCC) under the Asia Pacific Economic Cooperation for Telecommunications Equipment Mutual Recognition Arrangement (APEC Tel MRA). Your laboratory is now designated to act as a Conformity Assessment Body (CAB) under Appendix B, **Phase I** Procedures, of the APEC Tel MRA. The pertinent information about your laboratory's designation is as follows:

CAB Name:	SIEMIC, Inc.
Physical Location:	2206 Ringwood Avenue, San Jose, CA 95131
Identification No.:	US0160
Recognized Scope:	**EMI:** KCC Notice 2008-39, RRL Notice 2008-3: CA Procedures for EMI KN22: Test Method for EMI **EMS:** KCC Notice 2008-38, RRL Notice 2008-4: CA Procedures for EMS KN24, KN-61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11: Test Method for EMS **Wireless:** RRL Notice 2008-26, RRL Notice 2008-2, RRL Notice 2008-10, RRL Notice 2007-49, RRL Notice 2007-20, RRL Notice 2007-21, RRL Notice 2007-80, RRL Notice 2004-68 **Wired:** President Notice 20664, RRL Notice 2007-30, RRL Notice 2008-7 with attachments 1, 3, 5, 6 President Notice 20664, RRL Notice 2008-7 with attachment 4

You may submit test data to RRA/KCC to verify that the equipment to be imported into Korea satisfies the applicable requirements. The designation of your organization will remain in force as long as its accreditation for the designated scope remains valid and comply with the designation requirements.

Recognized CABs are listed on the NIST website at http://ts.nist.gov/mra. If you have any questions please contact Ramona Saar at (301) 975-5521 or ramona.saar@nist.gov.

Sincerely,

David F. Alderman
Group Leader, Standards Coordination and Conformity Group
Standards Services Division

Enclosure

cc: Ramona Saar

NIST

SIEMIC ACREDITATION DETAILS: Taiwan BSMI Accreditation No. SL2-IN-E-1130R

UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899

May 3, 2006

Mr. Leslie Bai
SIEMIC Laboratories
2206 Ringwood Avenue
San Jose, CA 95131

Dear Mr. Bai:

I am pleased to inform you that your laboratory has been recognized by the Chinese Taipei's Bureau of Standards, Metrology, and Inspection (BSMI) under the Asia Pacific Economic Cooperation (APEC) Mutual Recognition Arrangement (MRA). Your laboratory is now designated to act as a Conformity Assessment Body (CAB) under Appendix B, **Phase I** Procedures, of the APEC Tel MRA. You may submit test data to BSMI to verify that the equipment to be imported into Chinese Taipei satisfies the applicable requirements. The designation of your organization will remain in force as long as its accreditation for the designated scope remains valid and comply with the designation requirements. The pertinent designation information is as follows:

- BSMI number: **SL2-IN-E-1130R** (Must be applied to the test reports)
- U.S Identification No: **US0160**
- Scope of Designation: **CNS 13438**
- Authorized signatory: **Mr. Leslie Bai**

The names of all recognized CABs will be posted on the NIST website at http://ts.nist.gov/mra. If you have any questions, please contact Mr. Dhillon at 301-975-5521. We appreciate your continued interest in our international conformity assessment activities.

Sincerely,

David F. Alderman
Group Leader, Standards Coordination and Conformity Group

cc: Jogindar Dhillon

NIST

SIEMIC ACREDITATION DETAILS: Taiwan NCC CAB ID: US0160

UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899

November 25, 2008

Mr. LeslieBai
SIEMIC, Inc.
2206 Ringwood Avenue
San Jose, CA 95131

Dear Mr. Bai:

NIST is pleased to inform you that your laboratory has been recognized by the National Communications Commission (NCC) for the requested scope expansion under the Asia Pacific Economic Cooperation for Telecommunications Equipment Mutual Recognition Arrangement (APEC Tel MRA). Your laboratory is designated to act as a Conformity Assessment Body (CAB) under Appendix B, **Phase I** Procedures, of the APEC Tel MRA. The pertinent information about your laboratory's designation is as follows:

CAB Name:	SIEMIC, Inc.
Physical Location:	2206 Ringwood Avenue, San Jose, CA 95131
Identification No.:	US0160
Current Scope:	LP0002
Additional Scope:	PSTN01, ADSL01, ID0002, IS6100 and CNS 14336

You may submit test data to NCC to verify that the equipment to be imported into China satisfies the applicable requirements. The designation of your organization will remain in force as long as its accreditation for the designated scope remains valid and comply with the designation requirements.

Recognized CABs are listed on the NIST website at http://ts.nist.gov/mra. If you have any questions please contact Ramona Saar at (301) 975-5521 or ramona.saar@nist.gov.

Sincerely,

David F. Alderman
Group Leader, Standards Coordination and Conformity Group
Standards Services Division

Enclosure

cc: Ramona Saar

NIST

SIEMIC ACREDITATION DETAILS: Mexico NOM Recognition

CANIETI

CAMARA NACIONAL DE LA INDUSTRIA ELECTRONICA, DE TELECOMUNICACIONES E INFORMATICA

Laboratorio Valentín V. Rivero

México D.F. a 16 de octubre de 2006.

LESLIE BAI
DIRECTOR OF CERTIFICATION
SIEMIC LABORATORIES, INC.
ACCESSING GLOBAL MARKETS
P R E S E N T E

En contestación a su escrito de fecha 5 de septiembre del año en curso, le comento que estamos muy interesados en su intención de firmar un Acuerdo de Reconocimiento Mutuo, para lo cual adjunto a este escrito encontrara el Acuerdo en idioma ingles y español prellenado de los cuales le pido sea revisado y en su caso corregido, para que si esta de acuerdo poder firmarlo para mandarlo con las autoridades Mexicanas para su visto bueno y así poder ejercer dicho acuerdo.

Aprovecho este escrito para mencionarle que nuestro intermediario gestor será la empresa Isatel de México, S. A. de C. V., empresa que ha colaborado durante mucho tiempo con nosotros en lo relacionado a la evaluación de la conformidad y que cuenta con amplia experiencia en la gestoría de la certificación de cumplimiento con Normas Oficiales Mexicanas de producto en México.

Me despido de usted enviándole un cordial saludo y esperando sus comentarios al Acuerdo que nos ocupa.

Atentamente:

Ing. Faustino Gómez González
Gerente Técnico del Laboratorio de CANIETI.

Culiacán 71
Hipódromo Condesa
06100 México, D.F.
Tel. 5264-0908 con 12 líneas
Fax 5264 0488
www.canieti.org

SIEMIC ACREDITATION DETAILS: Hong Kong OFTA CAB ID : US0160

UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899-

December 8, 2008

Mr. Leslie Bai
SIEMIC, Inc.
2206 Ringwood Avenue
San Jose, CA 95131

Dear Mr. Bai:

NIST is pleased to inform you that your laboratory has been recognized by the Office of the Telecommunications Authority (OFTA) under the Asia Pacific Economic Cooperation for Telecommunications Equipment Mutual Recognition Arrangement (APEC Tel MRA). Your laboratory is now designated to act as a Conformity Assessment Body (CAB) under Appendix B, **Phase I** Procedures, of the APEC Tel MRA. The pertinent information about your laboratory's designation is as follows:

CAB Name:	SIEMIC, Inc.
Physical Location:	2206 Ringwood Avenue, San Jose, California 95131 USA
Identification No.:	US0160
Recognized Scope:	**Radio:** HKTA 1002, 1007, 1008, 1010, 1015, 1016, 1020, 1022, 1026, 1027, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1039, 1041, 1042, 1043, 1044, 1046, 1047, 1048, 1049, 1051 **Telecom:** HKTA 2011, 2012, 2013, 2014, 2017, 2018, 2022, 2024, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033

You may submit test data to OFTA to verify that the equipment to be imported into Hong Kong satisfies the applicable requirements. The designation of your organization will remain in force as long as its accreditation for the designated scope remains valid and comply with the designation requirements.

Recognized CABs are listed on the NIST website at http://ts.nist.gov/mra. If you have any questions please contact Ramona Saar at (301) 975-5521 or ramona.saar@nist.gov.

Sincerely,

David F. Alderman

David F. Alderman
Group Leader, Standards Coordination and Conformity Group
Standards Services Division

Enclosure

cc: Ramona Saar

NIST

SIEMIC ACREDITATION DETAILS: Australia ACMA CAB ID: US0160

UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899

November 20, 2008

Mr. Leslie Bai
SIEMIC, Inc.
2206 Ringwood Avenue
San Jose, CA 95131

Dear Mr. Bai:

NIST is pleased to inform you that your laboratory has been recognized by the Australian Communications and Media Authority (ACMA) under the Asia Pacific Economic Cooperation for Telecommunications Equipment Mutual Recognition Arrangement (APEC Tel MRA). Your laboratory is now designated to act as a Conformity Assessment Body (CAB) under Appendix B, **Phase I** Procedures, of the APEC Tel MRA. The pertinent information about your laboratory's designation is as follows:

CAB Name:	Siemic, Inc.
Physical Location:	2206 Ringwood Avenue, San Jose, CA 95131
Identification No.:	US0160
Recognized Scope:	EMC: AS/NZS 4251.1 (until 5/31/2009), AS/NZS 4251.2 (until 5/31/2009), AS/NZS CISPR 11, AS/NZS CISPR 14.1, AS/NZS CISPR 22, AS/NZS 61000.6.3, AS/NZS 61000.6.4 Radiocommunications: AS/NZS 4281, AS/NZS 4268, AS/NZS 4280.1, AS/NZS 4280.2, AS/NZS 4295, AS/NZS 4582, AS/NZS 4583, AS/NZS 4769.1, AS/NZS 4769.2, AS/NZS 4770, AS/NZS 4771 Telecommunications: AS/ACIF S002:05, AS/ACIF S003:06, AS/ACIF S004:06, AS/ACIF S006:01, AS/ACIF S016:01, AS/ACIF S031:01, AS/ACIF S038:01, AS/ACIF S040:01, AS/ACIF S041:05, AS/ACIF S043.2:06, AS/NZS 60950.1

You may submit test data to ACMA to verify that the equipment to be imported into Australia satisfies the applicable requirements. The designation of your organization will remain in force as long as its accreditation for the designated scope remains valid and comply with the designation requirements. Recognized CABs are listed on the NIST website at http://ts.nist.gov/mra. Please contact Ms. Ramona Saar, at (301) 975-5521 or ramona.saar@nist.gov if you have questions.

Sincerely,

David F. Alderman

David F. Alderman
Group Leader, Standards Coordination and Conformity Group
Standards Services Division

Enclosure

cc: Snell Leong, Siemic, Inc.; Ramona Saar, NIST

NIST

SIEMIC ACREDITATION DETAILS: Australia NATA Recognition

Leslie Bai
SIEMIC, Inc.
2206 Ringwood Avenue
San Jose, CA 95131

November 4, 2008

Under Australian government legislation, the Australian Communications and Media Authority (ACMA) has determined the National Association of Testing Authorities, Australia (NATA) as an accreditation body as per Section 409(1) of the Telecommunications Act 1997 (Cth). Pursuant to Section 409(2) of the Telecommunications Act 1997 (Cth), I am pleased to advise that your laboratory has been determined as a Recognised Testing Authority (RTA).

This determination has been made on the basis of your accreditation by A2LA accreditation no. 2742.01 and the Mutual Recognition Agreement between NATA and A2LA. It is effective from 11 July 2008. RTA status applies only to the following standards and is contingent upon their continued inclusion in your laboratory's scope of accreditation.

AS/ACIF S002, AS/ACIF S003, AS/ACIF S004,
AS/ACIF S006, AS/ACIF S016, AS/ACIF S031,
AS/ACIF S038, AS/ACIF S041 and
AS/ACIF S043.2

As an RTA, your laboratory has the following obligations:
1. the laboratory shall continue to meet all of the accreditation criteria of A2LA;
2. the authorised representative of the laboratory shall notify NATA of changes to the staff or operations of the laboratory which would affect the performance of the tests for which the laboratory has been determined;
3. compliance of equipment shall be reported on test reports bearing the A2LA logo/endorsement.

Current information on the Australian Communications and Media Authority and regulatory requirements for telecommunications products within Australia can be obtained from the ACMA's web-site at "http://www.acma.gov.au". Further information about NATA may be gained by visiting "http://www.nata.asn.au".

Please note that AS/ACIF S040 and New Zealand standards do not form part of the RTA scheme.

Your RTA listing will appear on the NATA website shortly.

Kind Regards

Chris Norton,
Senior Scientific Officer
Measurement Science and Technology
National Association of Testing Authorities (NATA)
71-73 Flemington Road
North Melbourne Vic 3051
Australia
Ph: +61 3 9329 1633 Fx: +61 3 9326 5148
E-Mail: Christopher.Norton@nata.asn.au
Internet: www.nata.asn.au

SIEMIC ACREDITATION DETAILS: VCCI Radiated Test Site Registration No. R-3083

VCCI Council

CERTIFICATE

Company: SIEMIC Inc.
<*Member No. 3081* >

Facility: SIEMIC Inc.
(Radiation 3 meter site)

Location of Facility:
2206 Ringwood Avenue, San Jose, CA 95131 USA

This is to certify that the following measuring facility has been registered in accordance with the Rules for Voluntary Control Measures

Registration No.: R-3083
Date of Registration: June 12 , 2009
This Certificate is valid until September 30 , 2010

VCCI Council

SIEMIC ACREDITATION DETAILS: VCCI Conducted (Main Port) Test Site Registration No. C-3421

VCCI Council

CERTIFICATE

Company: SIEMIC Inc.

<Member No. 3081 >

Facility: SIEMIC Inc.

(Main Ports Conducted Interference Measurement)

Location of Facility:

2206 Ringwood Avenue, San Jose, CA 95131 USA

This is to certify that the following measuring facility has been registered in accordance with the Rules for Voluntary Control Measures

Registration No.: C-3421

Date of Registration: June 12 , 2009

This Certificate is valid until September 30 , 2010

VCCI Council

SIEMIC ACREDITATION DETAILS: VCCI Conducted (Telecom Port) Test Site Registration No. T-1597

VCCI Council

CERTIFICATE

Company: SIEMIC Inc.

<Member No. 3081 >

Facility: SIEMIC Inc.

(Telecominication Ports Conducted Interference Measurement)

Location of Facility:

2206 Ringwood Avenue, San Jose, CA 95131 USA

This is to certify that the following measuring facility has been registered in accordance with the Rules for Voluntary Control Measures

Registration No.: T-1597

Date of Registration: June 12 , 2009

This Certificate is valid until September 30 , 2010

VCCI Council