Radioframe Networks, Inc.

MC-Series iDEN Microcell High Power

March 6, 2007

Report No. RAFN0073

Report Prepared By

NORTHWEST EMC

www.nwemc.com
1-888-EMI-CERT

EMC Test Report

NORTHWEST EMC

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Issue Date: March 6, 2007
Radioframe Networks, Inc.
Model: MC-Series iDEN Microcell High Power

Emissions				
Test Description	**Specification**	**Test Method**	**Pass**	**Fail**
Radiated Emissions	FCC 15.109:2006	ANSI C63.4:2003	☒	☐
Conducted Emissions	FCC 15.107:2006	ANSI C63.4:2003	☒	☐
Frequency Stability	FCC 90I:2005	ANSI/TIA/EIA-603-B:2002	☒	☐
Field Strength of Spurious Radiation	FCC 90I:2005	ANSI/TIA/EIA-603-B:2002	☒	☐
Emission Mask	FCC 90I:2005	ANSI/TIA/EIA-603-B:2002	☒	☐
Output Power	FCC 90I:2005	ANSI/TIA/EIA-603-B:2002	☒	☐
Spurious Emissions at Antenna Terminal	FCC 90I:2005	ANSI/TIA/EIA-603-B:2002	☒	☐

Modifications made to the product
See the Modifications section of this report

Test Facility

The measurement facility used to collect the data is located at:

Northwest EMC, Inc.
22975 NW Evergreen Parkway, Suite 400; Hillsboro, OR 97124
Phone: (503) 844-4066
Fax: 844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada.

Approved By:

Donald Facteau, IS Manager

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.

Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested, the specific description is noted in each of the individual sections of the test report supporting this certificate of test.

Revision Number	Description	Date	Page Number
00	None		

Accreditations and Authorizations

FCC: Accredited by NVLAP for performance of FCC radio, digital, and ISM device testing. Our Open Area Test Sites, certification chambers, and conducted measurement facilities have been fully described in reports filed with the FCC and accepted by the FCC in letters maintained in our files. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by the FCC as a Telecommunications Certification Body (TCB). This allows Northwest EMC to certify transmitters to FCC specifications in accordance with 47 CFR 2.960 and 2.962.

NVLAP: Northwest EMC, Inc. is accredited under the United States Department of Commerce, National Institute of Standards and Technology, and National Voluntary Laboratory Accreditation Program for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. The NVLAP accreditation encompasses Electromagnetic Compatibility Testing in accordance with the European Union EMC Directive 89/336/EEC, ANSI C63.4, MIL-STD 461E, DO-160D and SAE J1113. Additionally, Northwest EMC is accredited by NVLAP to perform radio testing in accordance with the European Union R&TTE Directive 1999/5/EEC, the requirements of FCC, and the RSS radio standards for Industry Canada.

NVLAP LAB CODE 200629-0
NVLAP LAB CODE 200630-0
NVLAP LAB CODE 200676-0

Industry Canada: Accredited by NVLAP for performance of Industry Canada RSS and ICES testing. Our Open Area Test Sites and certification chambers comply with RSS 212, Issue 1 (Provisional) and have been filed with Industry Canada and accepted. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by NIST and recognized by Industry Canada as a Certification Body (CB) per the APEC Mutual Recognition Arrangement (MRA). This allows Northwest EMC to certify transmitters to Industry Canada technical requirements.

CAB: Designated by NIST and validated by the European Commission as a Conformity Assessment Body (CAB) to conduct tests and approve products to the EMC directive and transmitters to the R&TTE directive, as described in the U.S. - EU Mutual Recognition Agreement.

TÜV Product Service: Included in TUV Product Service Group's Listing of Recognized Laboratories. It qualifies in connection with the TUV Certification after Recognition of Agent's Testing Program for the product categories and/or standards shown in TUV's current Listing of CARAT Laboratories, available from TUV. A certificate was issued to represent that this laboratory continues to meet TUV's CARAT Program requirements. Certificate No. USA0401C.

TÜV Rheinland: Authorized to carryout EMC tests by order and under supervision of TÜV Rheinland. This authorization is based on "Conditions for EMC-Subcontractors" of November 1992.

NEMKO: Assessed and accredited by NEMKO (Norwegian testing and certification body) for European emissions and immunity testing. As a result of NEMKO's laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification (Authorization No. ELA 119).

Australia/New Zealand: The National Association of Testing Authorities (NATA), Australia has been appointed by the ACA as an accreditation body to accredit test laboratories and competent bodies for EMC standards. Accredited test reports or assessments by competent bodies must carry the NATA logo. Test reports made by an overseas laboratory that has been accredited for the relevant standards by an overseas accreditation body that has a Mutual Recognition Agreement (MRA) with NATA are also accepted as technical grounds for product conformity. The report should be endorsed with the respective logo of the accreditation body (NVLAP).

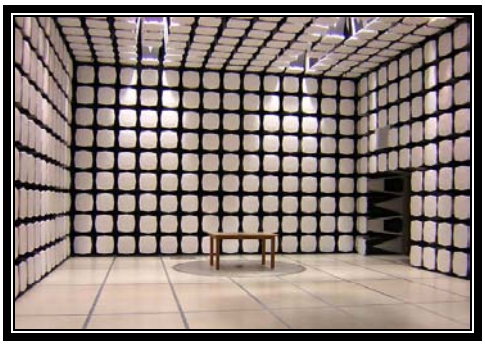
VCCI: Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. *(Registration Numbers. - Hillsboro: C-1071, R-1025, and R-2318, Irvine: C-2094 and R-1943, Sultan: R-871, C-1784 and R-1761).*

BSMI: Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement. License No.SL2-IN-E-1017.

GOST: Northwest EMC, Inc. has been assessed and accredited by the Russian Certification bodies Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC, to perform EMC and Hygienic testing for Information Technology Products. As a result of their laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification

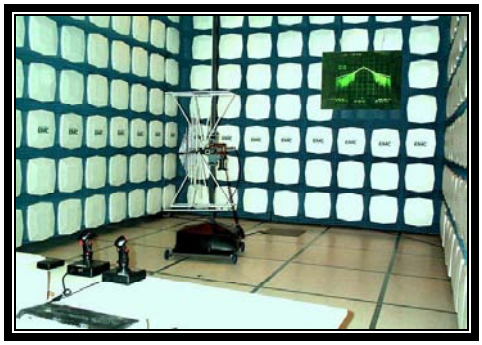
SCOPE

For details on the Scopes of our Accreditations, please visit:
http://www.nwemc.com/scope.asp



California – Orange County Facility
Labs OC01 – OC13

41 Tesla Ave. Irvine, CA 92618
(888) 364-2378 Fax: (503) 844-3826



Oregon – Evergreen Facility
Labs EV01 – EV11

22975 NW Evergreen Pkwy. Suite 400 Hillsboro, OR 97124
(503) 844-4066 Fax: (503) 844-3826

Washington – Sultan Facility
Labs SU01 – SU07

14128 339th Ave. SE Sultan, WA 98294
(888) 364-2378

Party Requesting the Test

Company Name:	Radioframe Networks, Inc.
Address:	9461 Willows Road NE, Suite 100
City, State, Zip:	Redmond, WA 98052
Test Requested By:	Dean Busch
Model:	MC-Series iDEN Microcell High Power
First Date of Test:	March 21, 2006
Last Date of Test:	March 6, 2007
Receipt Date of Samples:	March 21, 2006
Equipment Design Stage:	Preproduction
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):

Dual band operation: 851.0125 to 868.9875, 935.01875 to 939.98125. The RadioFrame MC-Series is used in locations where cellular coverage and capacity can be a challenge, such as NASCAR events, hotels, convention centers, manufacturing facilities, sports stadiums and more, including macro coverage.

Testing Objective:

FCC Certification of higher power microcell basestation. Radio blade portion has been previously tested and certified in other lower powered basestation configurations. This configuration uses a higher power amplifier.

CONFIGURATION 1 RAFN0067/RAFN00073

Software/Firmware Running during test	
Description	**Version**
System Manager	

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
EUT	Radioframe Networks, Inc.	MC-Series iDEN Microcell High Power	Engineering Unit

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
DC Power Supply	Electronics Measurements, Inc.	TCR	95F-0824
IC Simulator	Radioframe Networks, Inc.	ASY-0550-05	02103250121
Site Controller	Motorola	X516	CAF030LTCY

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC (x2)	No	30 ft.	No	EUT	Power Supply
Ethernet (x2)	No	50 ft.	No	EUT	IC Simulator
BNC	Yes	30 ft.	No	EUT	Site Controller
BNC	Yes	10 ft.	No	IC Simulator	Site Controller
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 2 RAFN0067

Software/Firmware Running during test	
Description	**Version**
System Manager	

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
EUT	Radioframe Networks, Inc.	MC-Series iDEN Microcell High Power	Engineering Unit

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
DC Power Supply	Electronics Measurements, Inc.	TCR	95F-0824
IC Simulator	Radioframe Networks, Inc.	ASY-0550-05	02103250121
Site Controller	Motorola	X516	CAF030LTCY

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DC (x2)	No	30 ft.	No	EUT	Power Supply
BNC	Yes	30 ft.	No	EUT	Site Controller
BNC	Yes	10 ft.	No	IC Simulator	Site Controller
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Dual Directional Coupler	Amplifier Research	DC7154	IRD	2/23/2006	13
Spectrum Analyzer	Agilent	E4407B	AAU	9/20/2006	12

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

Configuration: The peak measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The occupied bandwidth / emission mask was measured with the EUT set to low; medium, and high transmit frequencies. At each channel, measurements were made at low, mid, and high power output settings

FCC Interpretation Regarding Emission Mask and 90.691

```
-----Original Message-----
From: Andrew Leimer [mailto:ALEIMER@fcc.gov] Sent: Wednesday, May 14, 2003 12:21 PM
To: rwacs@att.net
Subject: Re: Part 90 rules


Hello Dean,

How are you doing?  I have not heard from you in a while!  The following explanation is from the archives.
The basic question was if emissions mask g
would ever be used.  I hope it answers your question:

I found that footnote 3 was added to Section 90.210 as a result of the First R&O, Eighth R&O and 2nd FNPRM in
PR Docket 93-144 (FCC 95-501), adopted 12/15/95.  Footnote 3 initially said "Equipment in this band licensed
to EA systems shall comply with the emission mask provisions of Section 90.691." Note here that this R&O dealt
principally with the upper 200 MHz SMR channels
which were auctioned in contiguous segments/blocks.  Consequently, providing more flexibility in the emission
mask that required protection of the "outer"
channels in those blocks and to any interior channels in those blocks used by
incumbents made sense.

When the Commission subsequently dealt with auctioning the lower 80 channels (non-contiguous channels in each
block) and the General Category channels (contiguously allocated channels by block for auction purposes but
originally
allocated on a single channel basis for site-specific licensing purposes), the
consideration of emission mask caused footnote 3 to be modified as it exists today.  Specifically, the Second
R&O in PR Docket 93-144 (FCC 97-223), adopted
6/23/97 @ para 80 reasons that applying the same emission mask standards to the lower 230 channels (lower 80
channels and 150 General Category channels) as to the upper 200 channels facilitates the use of common
equipment and the combining of all such channels.  It further states that Section 90.691 (the emission mask)
would apply to "outer" channels used by a licensee "that create
out-of-band emissions that affect another licensee".  The MO&O on reconsideration of the 800 MHz 1st R&O (FCC
97-224, adopted 6/23/97) at para 76 agreed with Erricson's recommendation to expand the emission mask
provision
of Section 90.691 to "non-EA 800 MHz Part 90 CMRS systems".  The decision was
based ostensibly on extending the flexibility of the 90.691 emission mask to incumbent licensees (non-EA
licensees or non-auction winners) and to those non-SMR channels used by CMRS operators.  The paragraph closes
by stating that
neither Ericsson or Motorola believe that such relaxation will increase the amount of interference to adjacent
channel licensees.

You'll note that there is some similarity between emission mask G (applicable
to equipment without audio low pass filters) under Section 90.210 and the emission mask required by Section
90.691.  It is my interpretation that footnote 3 under Section 90.210 (the applicability of the emission mask
under
Section 90.691) was intended principally for Part 90 CMRS systems in the 800 MHz band to provide flexbility
and consistency to those operators.  As Section
90.210 is written, however, I don't see how we could legally prevent any 800 MHz licensee from using the more
flexibile emission mask under Section 90.691.
```

NORTHWEST EMC

EMISSION MASK

XMit 2006.08.25

EUT:	MC-Series iDEN Microcell High Power			**Work Order:**	RAFN0067
Serial Number:	Engineering unit			**Date:**	11/09/06
Customer:	Radioframe Networks, Inc.			**Temperature:**	21°C
Attendees:	Erin Duleba			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	30.11
Tested by:	Holly Ashkannejhad	**Power:**	-48VDC	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 90I:2005	ANSI/TIA/EIA-603-B:2002

COMMENTS

Ground strap installed as will be used in typical installations.

DEVIATIONS FROM TEST STANDARD

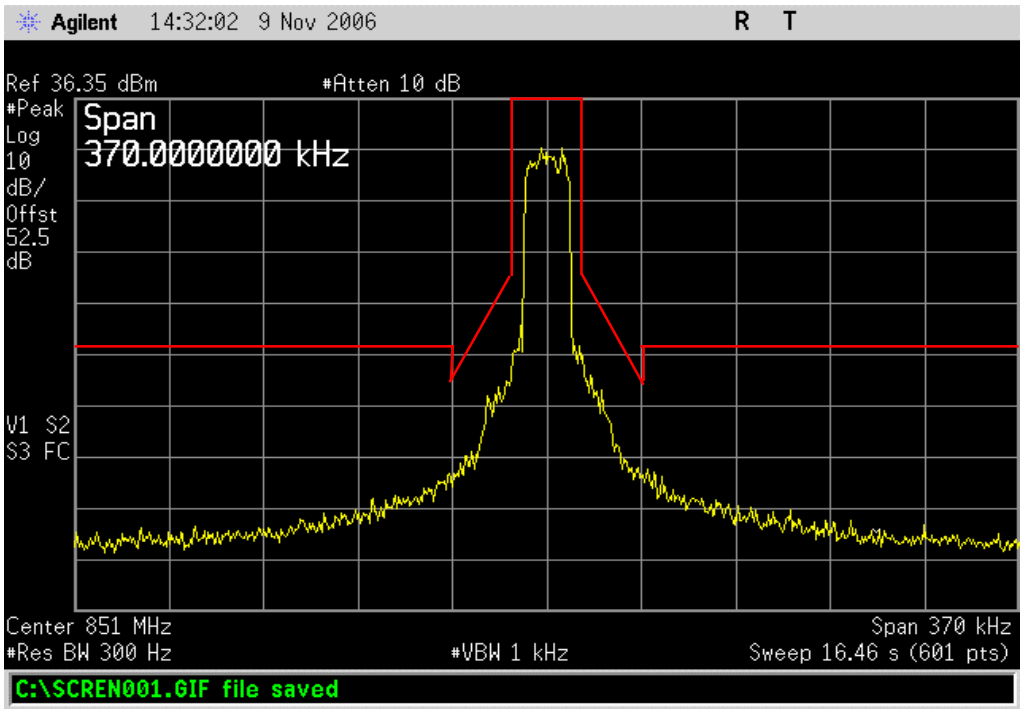
Configuration #	1	Signature Holly Ashkannejhad

			Value	Limit	Results
Low Channel					
	High Power				
		< 37.5 kHz Fc	N/A	See Table	Pass
		> 37.5 kHz Fc	N/A	See Table	Pass
	Mid Power				
		< 37.5 kHz Fc	N/A	See Table	Pass
		> 37.5 kHz Fc	N/A	See Table	Pass
	Low Power				
		< 37.5 kHz Fc	N/A	See Table	Pass
		> 37.5 kHz Fc	N/A	See Table	Pass
Mid Channel					
	High Power				
		< 37.5 kHz Fc	N/A	See Table	Pass
		> 37.5 kHz Fc	N/A	See Table	Pass
	Mid Power				
		< 37.5 kHz Fc	N/A	See Table	Pass
		> 37.5 kHz Fc	N/A	See Table	Pass
	Low Power				
		< 37.5 kHz Fc	N/A	See Table	Pass
		> 37.5 kHz Fc	N/A	See Table	Pass
High Channel					
	High Power				
		< 37.5 kHz Fc	N/A	See Table	Pass
		> 37.5 kHz Fc	N/A	See Table	Pass
	Mid Power				
		< 37.5 kHz Fc	N/A	See Table	Pass
		> 37.5 kHz Fc	N/A	See Table	Pass
	Low Power				
		< 37.5 kHz Fc	N/A	See Table	Pass
		> 37.5 kHz Fc	N/A	See Table	Pass

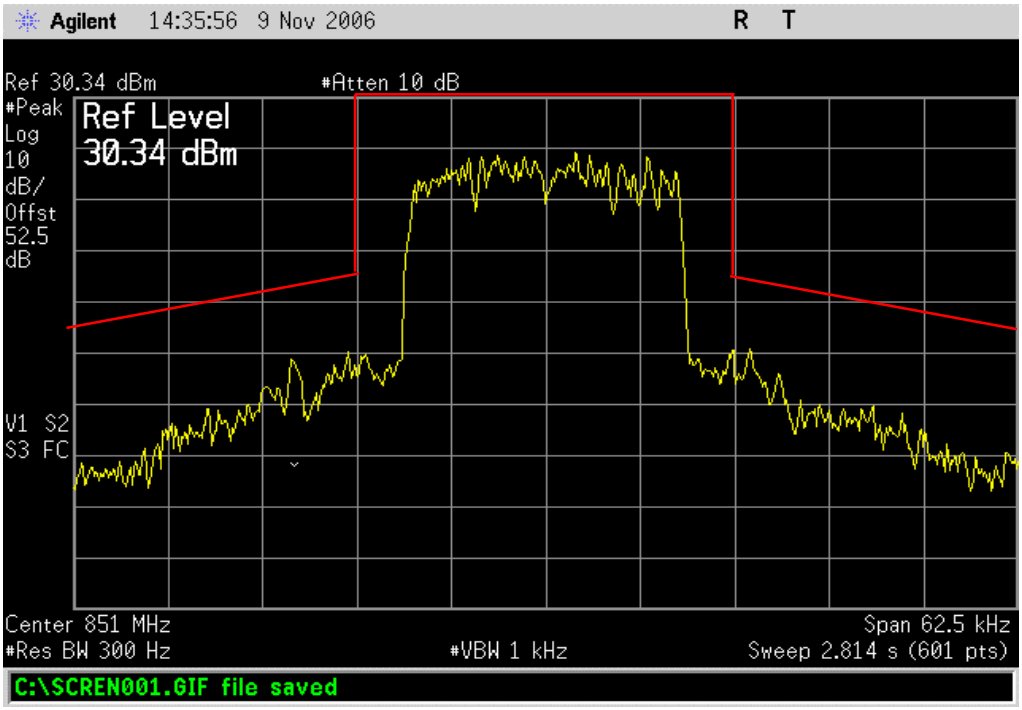
EMISSION MASK

Low Channel, High Power, < 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table

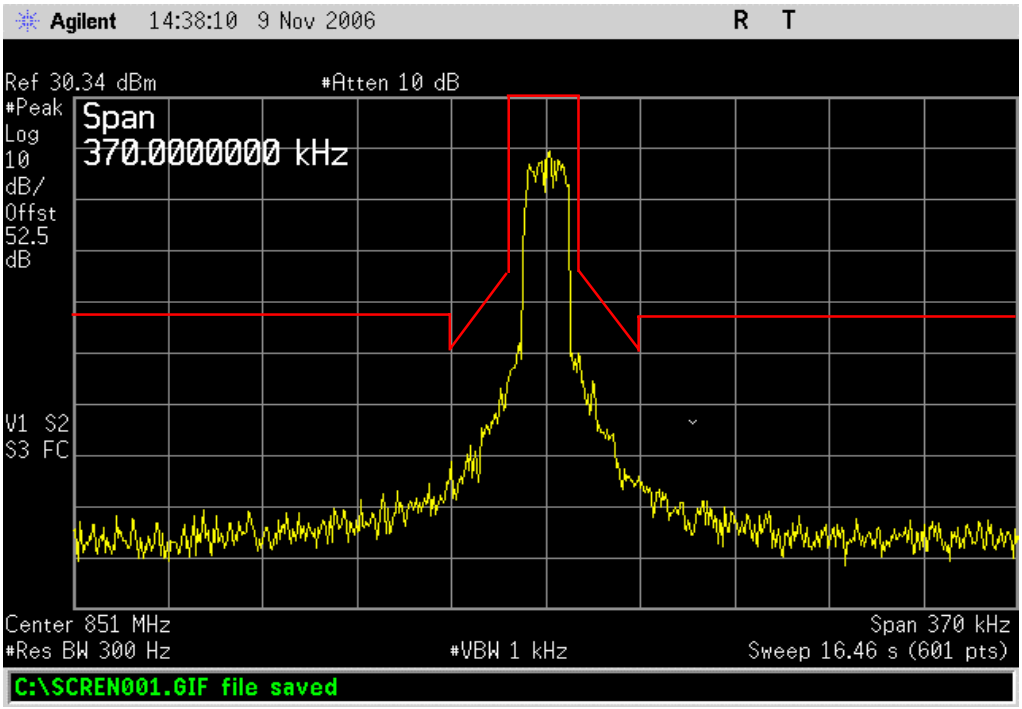
Low Channel, High Power, > 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



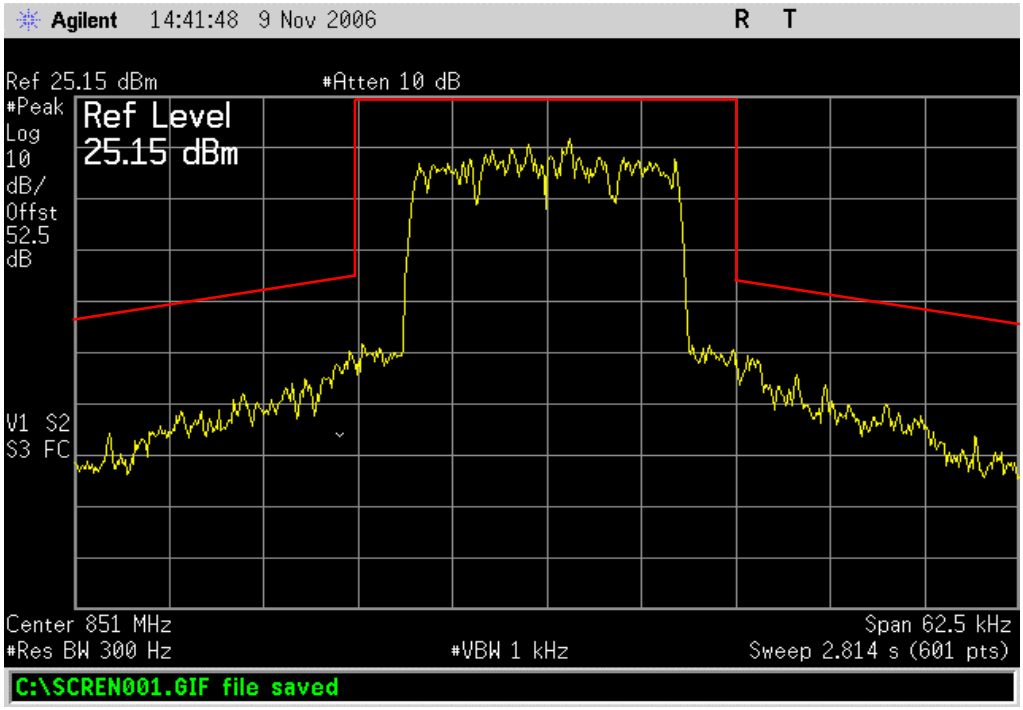
Low Channel, Mid Power, < 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



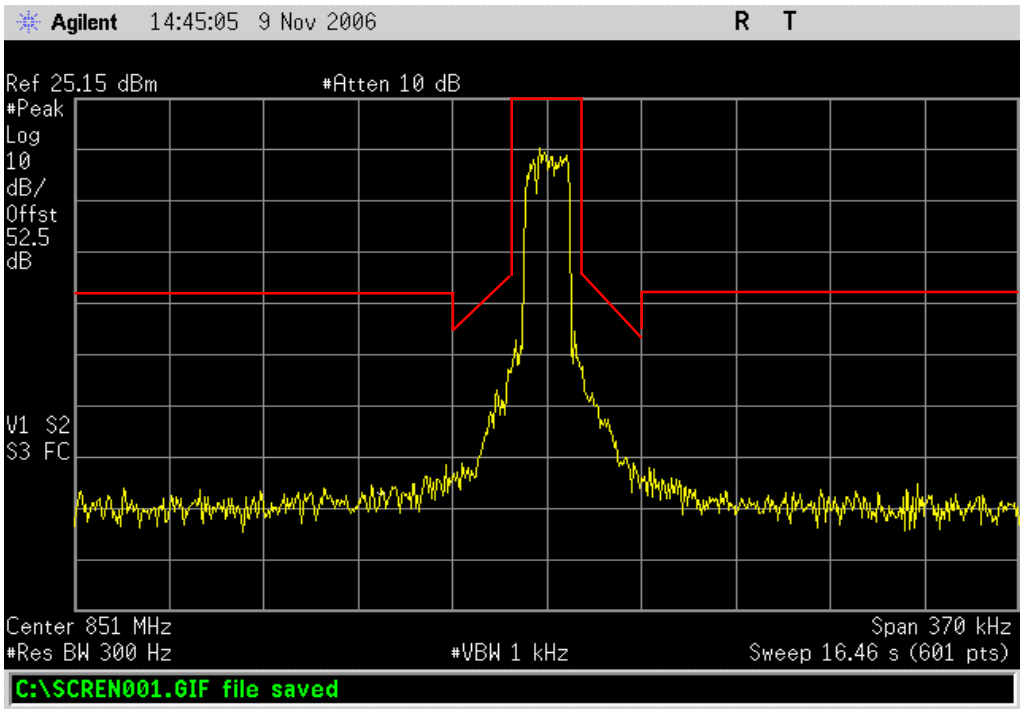
Low Channel, Mid Power, > 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



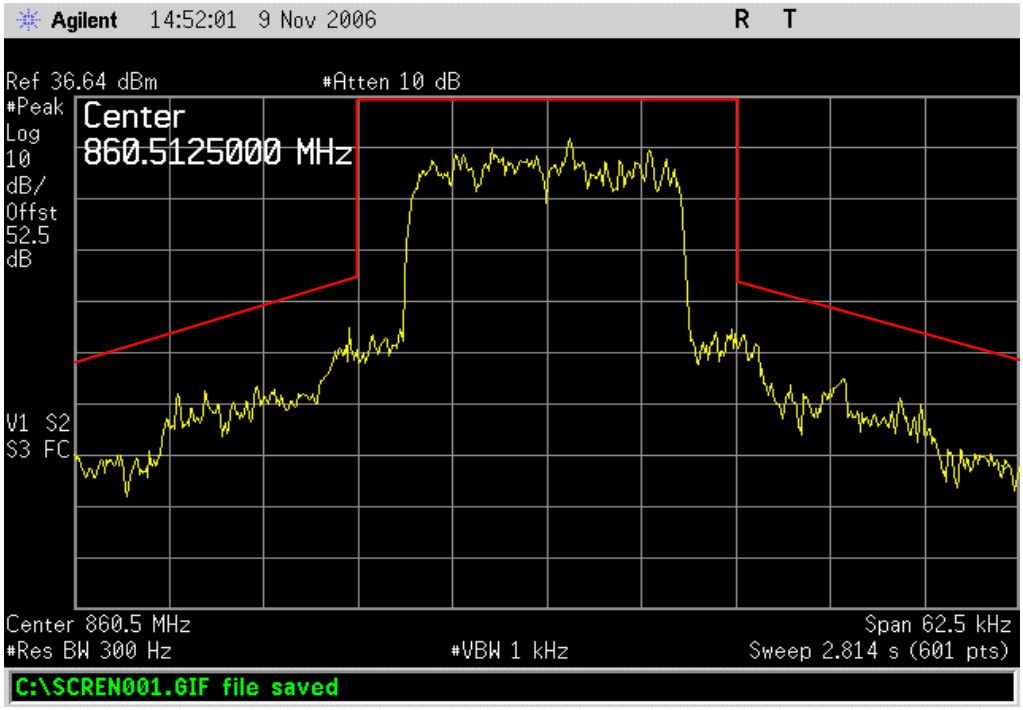
Low Channel, Low Power, < 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



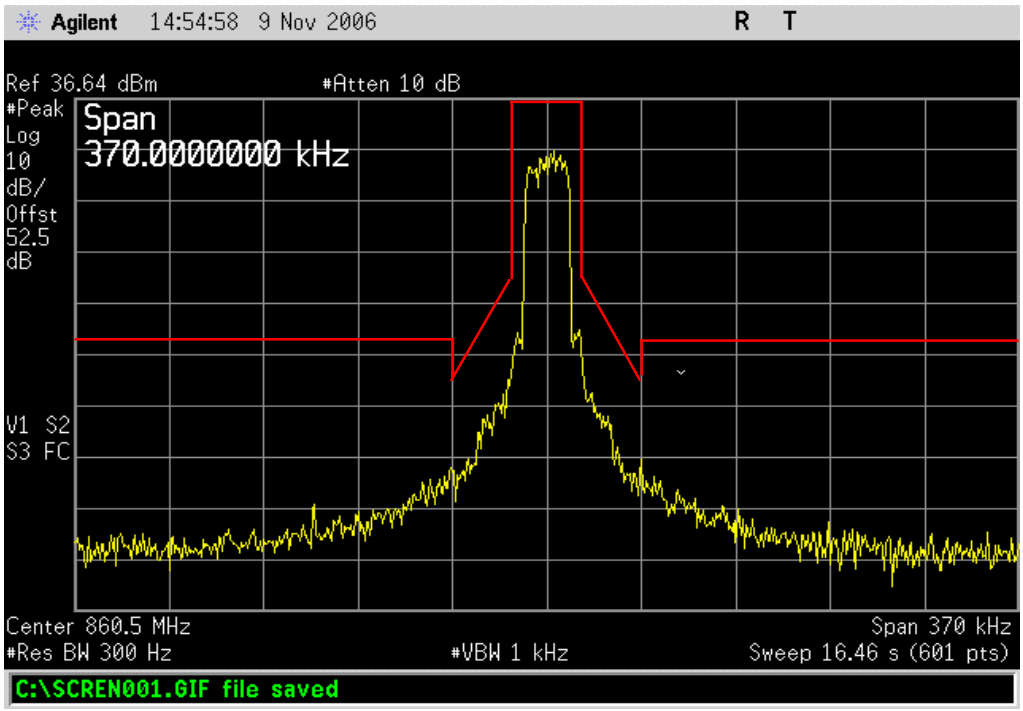
Low Channel, Low Power, > 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



Mid Channel, High Power, < 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table

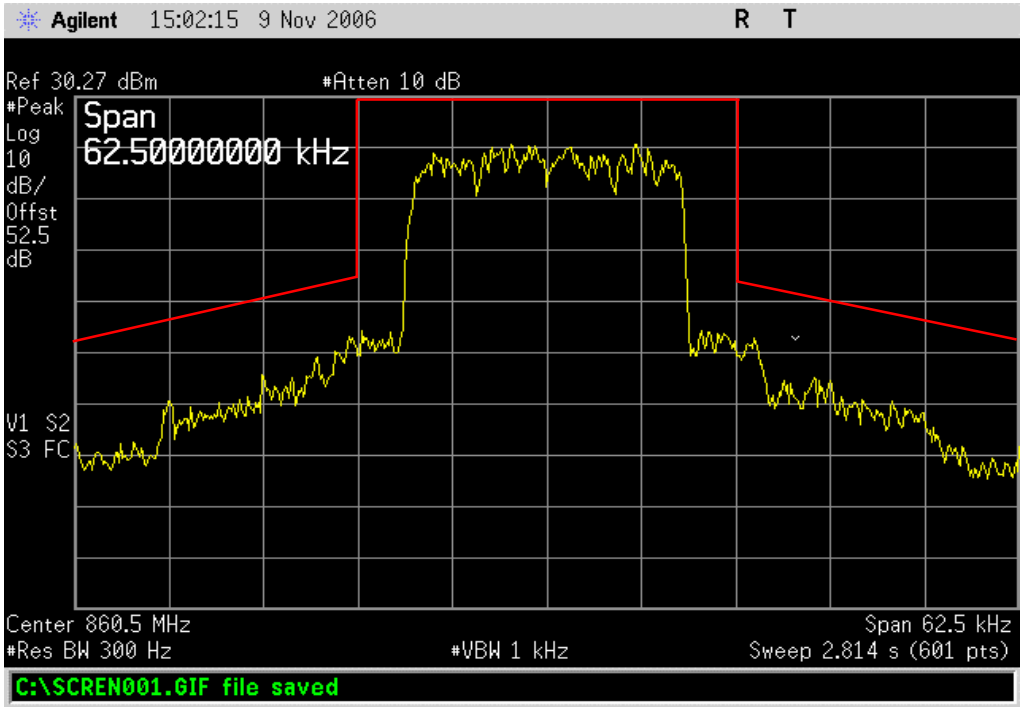


Mid Channel, High Power, > 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table

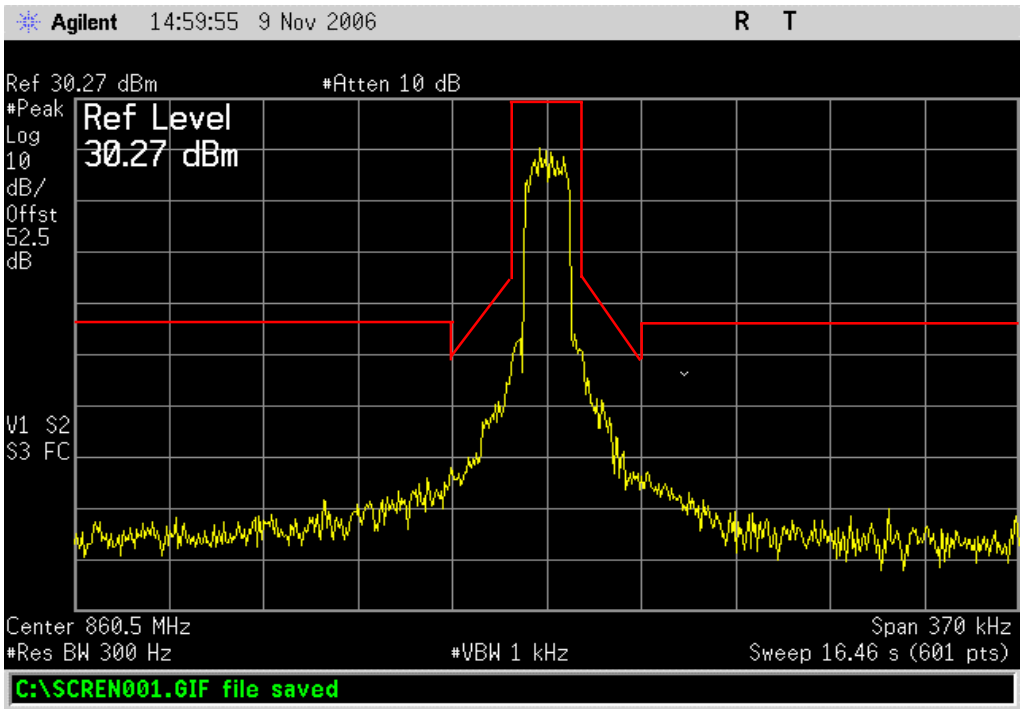


EMISSION MASK

Mid Channel, Mid Power, < 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table

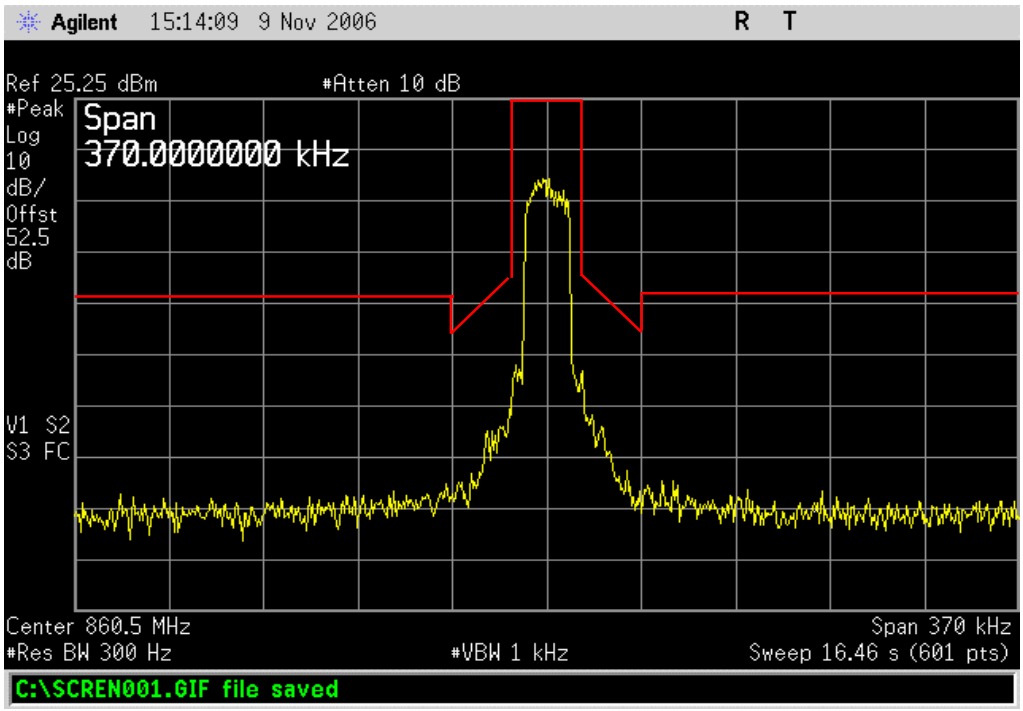


Mid Channel, Mid Power, > 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table

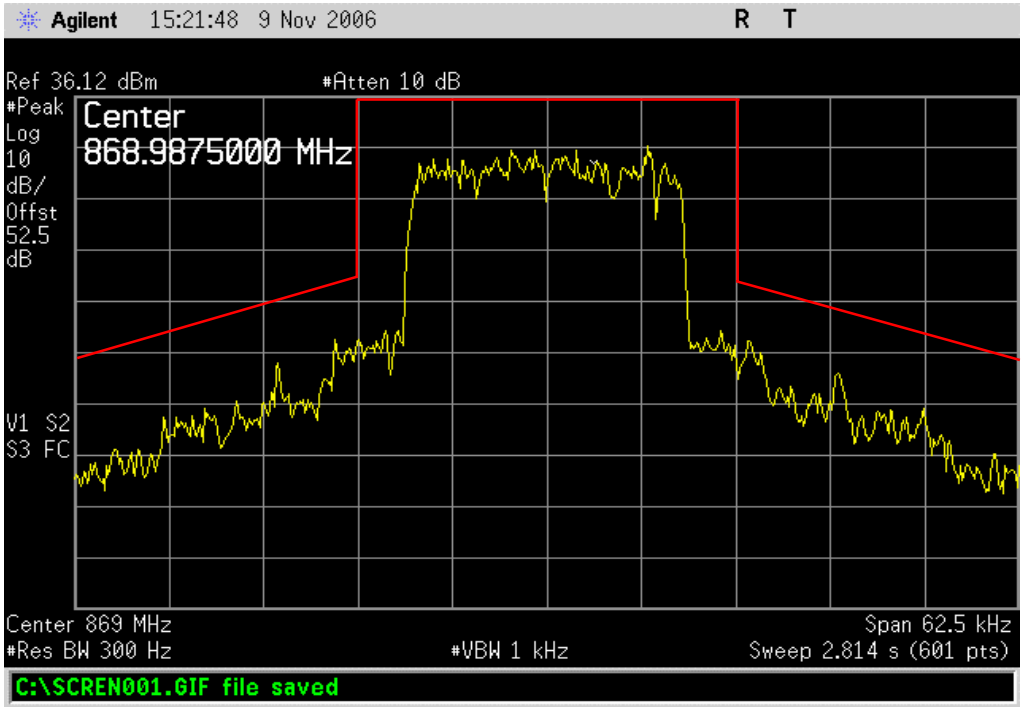


Mid Channel, Low Power, < 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table

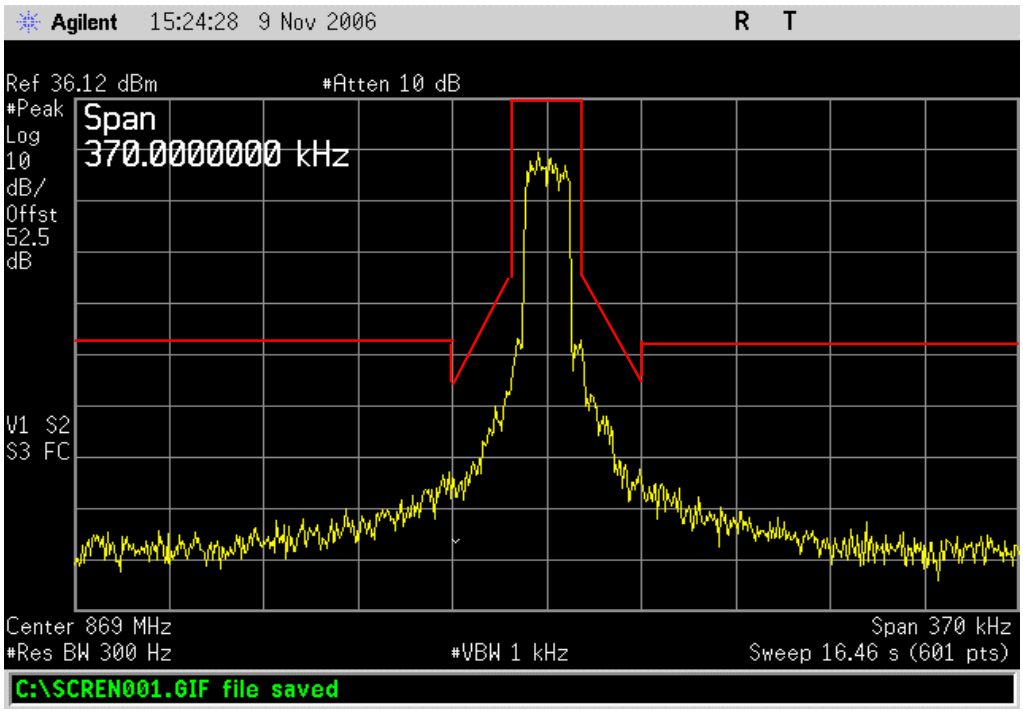
Mid Channel, Low Power, > 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



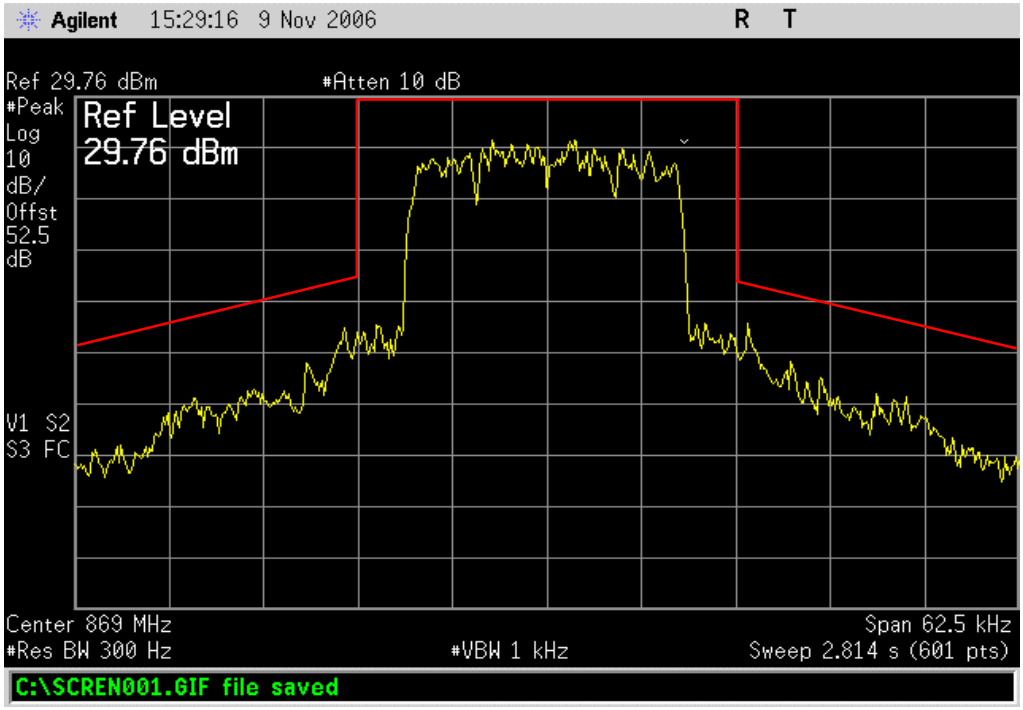
High Channel, High Power, < 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



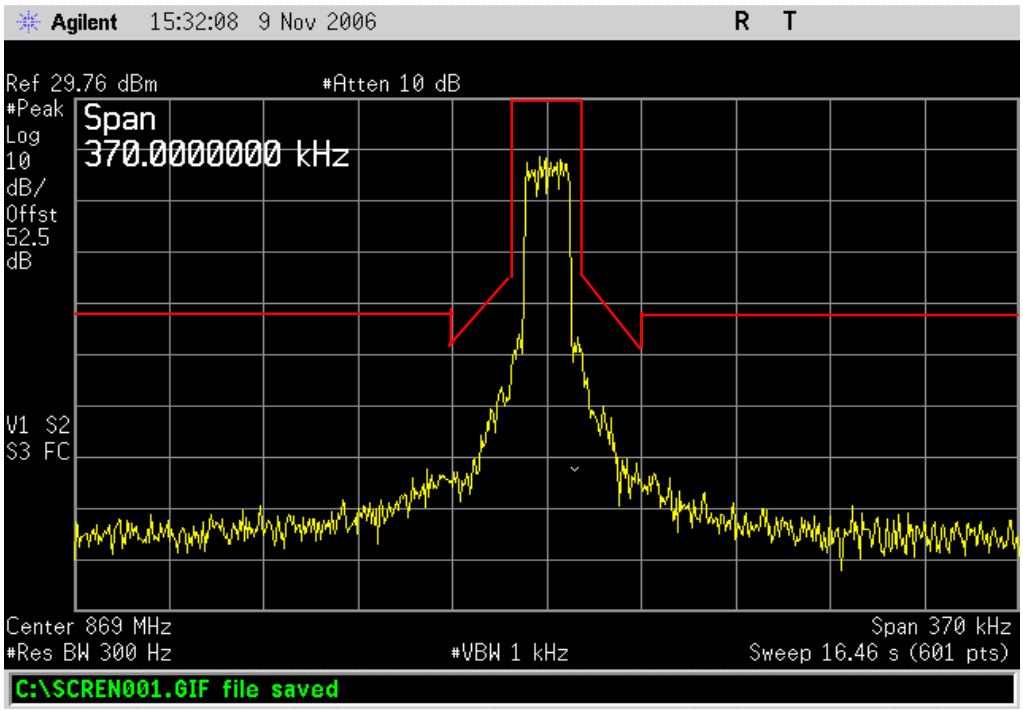
High Channel, High Power, > 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



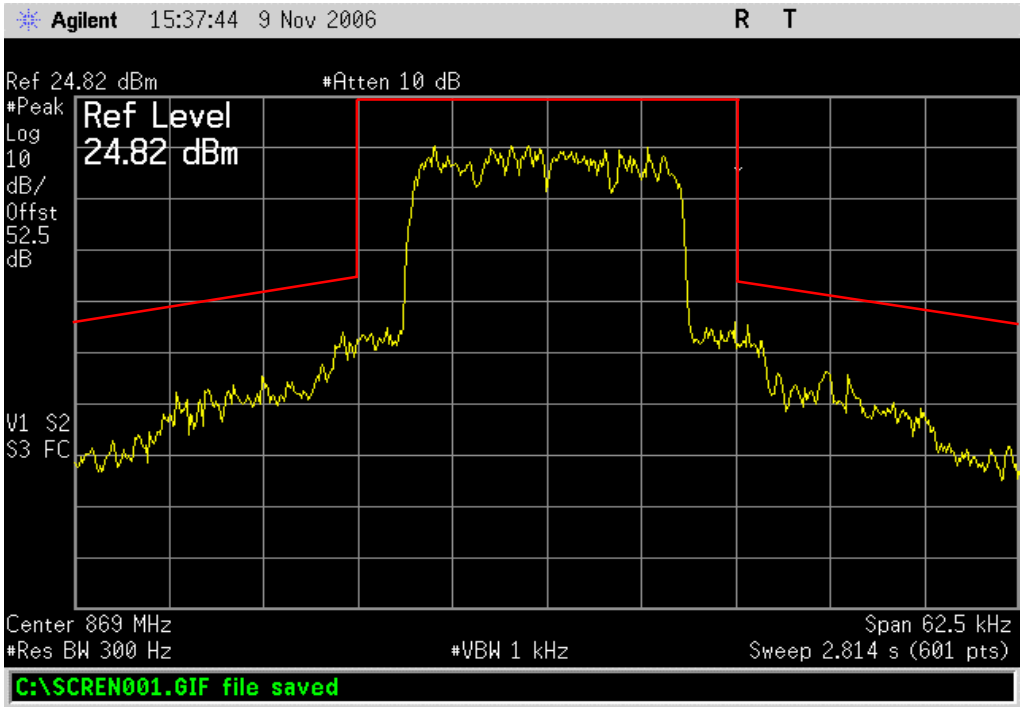
High Channel, Mid Power, < 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



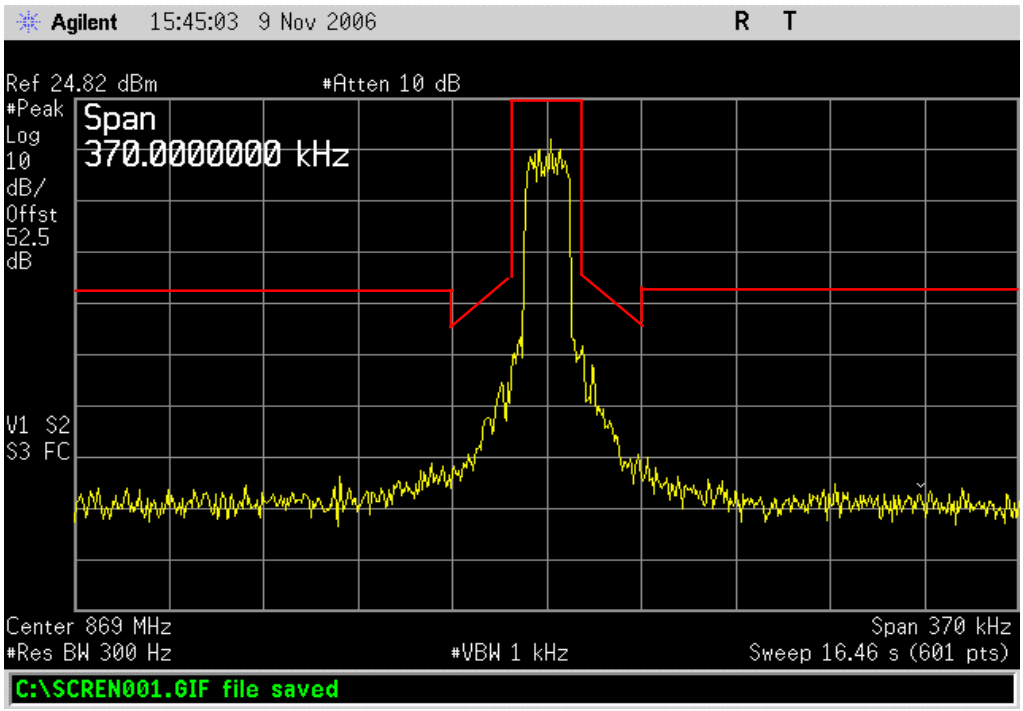
High Channel, Mid Power, > 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



High Channel, Low Power, < 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table

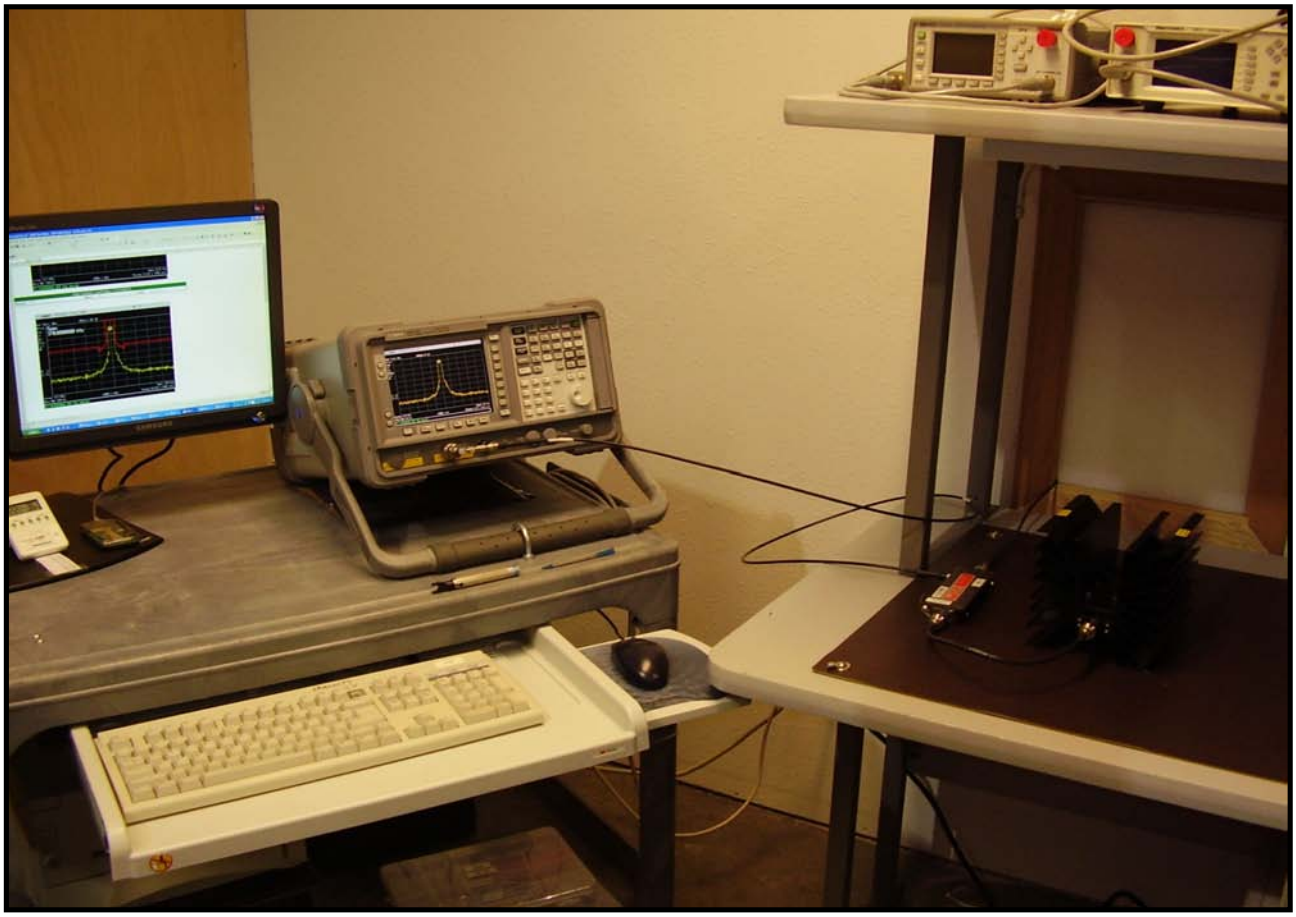


High Channel, Low Power, > 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



Frequency (MHz)	Output Power (dBm)	Power (P) Watts	Attenuation for the range 12.5 kHz to 37.5 kHz from fc (dBc)				Attenuation >37.5 kHz from fc (dBc)	
			50 + (10*log P)	116*log(f/6.1)		80	43 + (10*log P)	80
				f = 12.5 kHz	f = 37.5 kHz			
851.0125	36.35	4.32E+00	56.4	36.14	91.49	80	49.4	80
	30.34	1.08E+00	50.3	36.14	91.49	80	43.3	80
	25.15	3.27E-01	45.2	36.14	91.49	80	38.2	80
860.5125	36.64	4.61E+00	56.6	36.14	91.49	80	49.6	80
	30.27	1.06E+00	50.3	36.14	91.49	80	43.3	80
	25.25	3.35E-01	45.3	36.14	91.49	80	38.3	80
868.9875	36.12	4.09E+00	56.1	36.14	91.49	80	49.1	80
	29.76	9.46E-01	49.8	36.14	91.49	80	42.8	80
	24.82	3.03E-01	44.8	36.14	91.49	80	37.8	80

Emission Mask



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Dual Directional Coupler	Amplifier Research	DC7154	IRD	2/23/2006	13
Spectrum Analyzer	Agilent	E4407B	AAU	9/20/2006	12
Attenuator	Coaxicom	66702 5910-6	ATZ	2/23/2007	13
Attenuator	Inmet	2N100W-30dB		NCR	
Attenuator	Inmet	2N200W-30dB		NCR	

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

Configuration: The peak measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The occupied bandwidth / emission mask was measured with the EUT set to low; medium, and high transmit frequencies. At each channel, measurements were made at low, mid, and high power output settings

FCC Interpretation Regarding Emission Mask and 90.691

-----Original Message-----
From: Andrew Leimer [mailto:ALEIMER@fcc.gov] Sent: Wednesday, May 14, 2003 12:21 PM
To: rwacs@att.net
Subject: Re: Part 90 rules

Hello Dean,

How are you doing? I have not heard from you in a while! The following explanation is from the archives. The basic question was if emissions mask g
would ever be used. I hope it answers your question:

I found that footnote 3 was added to Section 90.210 as a result of the First R&O, Eighth R&O and 2nd FNPRM in PR Docket 93-144 (FCC 95-501), adopted 12/15/95. Footnote 3 initially said "Equipment in this band licensed to EA systems shall comply with the emission mask provisions of Section 90.691." Note here that this R&O dealt principally with the upper 200 MHz SMR channels
which were auctioned in contiguous segments/blocks. Consequently, providing more flexibility in the emission mask that required protection of the "outer"
channels in those blocks and to any interior channels in those blocks used by
incumbents made sense.

When the Commission subsequently dealt with auctioning the lower 80 channels (non-contiguous channels in each block) and the General Category channels (contiguously allocated channels by block for auction purposes but originally
allocated on a single channel basis for site-specific licensing purposes), the
consideration of emission mask caused footnote 3 to be modified as it exists today. Specifically, the Second R&O in PR Docket 93-144 (FCC 97-223), adopted
6/23/97 @ para 80 reasons that applying the same emission mask standards to the lower 230 channels (lower 80 channels and 150 General Category channels) as to the upper 200 channels facilitates the use of common equipment and the combining of all such channels. It further states that Section 90.691 (the emission mask) would apply to "outer" channels used by a licensee "that create
out-of-band emissions that affect another licensee". The MO&O on reconsideration of the 800 MHz 1st R&O (FCC 97-224, adopted 6/23/97) at para 76 agreed with Erricson's recommendation to expand the emission mask provision
of Section 90.691 to "non-EA 800 MHz Part 90 CMRS systems". The decision was
based ostensibly on extending the flexibility of the 90.691 emission mask to incumbent licensees (non-EA licensees or non-auction winners) and to those non-SMR channels used by CMRS operators. The paragraph closes by stating that
neither Ericsson or Motorola believe that such relaxation will increase the amount of interference to adjacent channel licensees.

You'll note that there is some similarity between emission mask G (applicable
to equipment without audio low pass filters) under Section 90.210 and the emission mask required by Section 90.691. It is my interpretation that footnote 3 under Section 90.210 (the applicability of the emission mask under
Section 90.691) was intended principally for Part 90 CMRS systems in the 800 MHz band to provide flexbility and consistency to those operators. As Section
90.210 is written, however, I don't see how we could legally prevent any 800 MHz licensee from using the more flexibile emission mask under Section 90.691.

NORTHWEST

EMC

EMISSION MASK

XMit 2006.08.25

EUT:	MC-Series iDEN Microcell High Power			**Work Order:**	RAFN0067/RAFN0073
Serial Number:	Engineering unit			**Date:**	11/9/2006 & 3/13/2007
Customer:	Radioframe Networks, Inc.			**Temperature:**	21°C
Attendees:	Erin Duleba			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	30.11
Tested by:	Greg Kiemel	**Power:**	-48VDC	**Job Site:**	EV06/Offsite

TEST SPECIFICATIONS	Test Method
FCC 90I:2005	ANSI/TIA/EIA-603-B-2002

COMMENTS

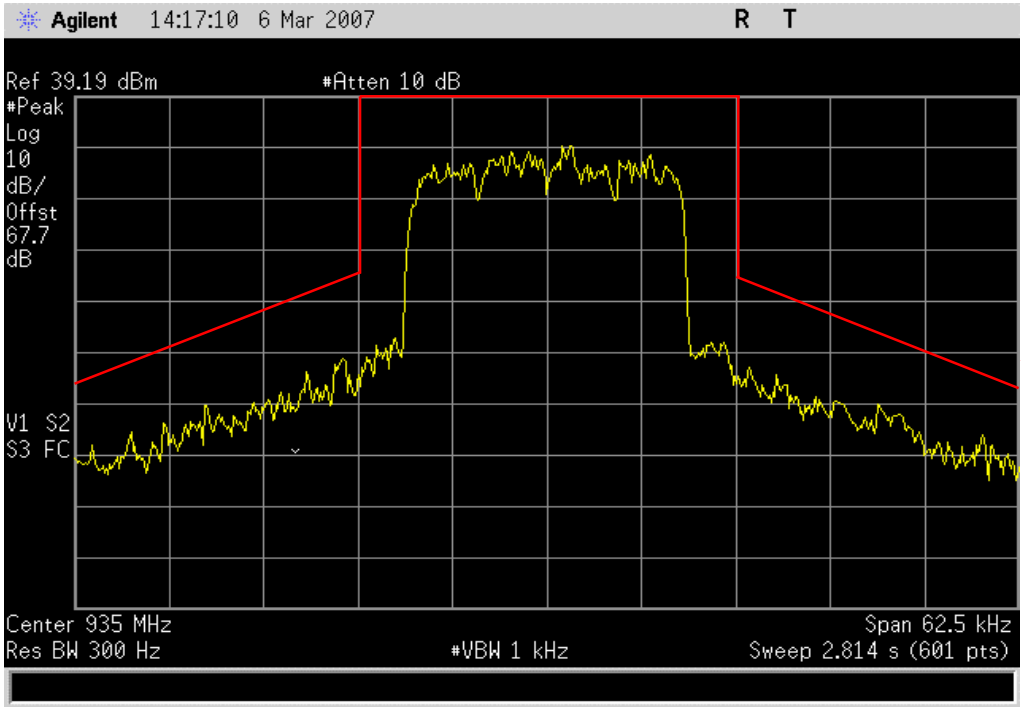
Ground strap installed as will be used in typical installations.

DEVIATIONS FROM TEST STANDARD

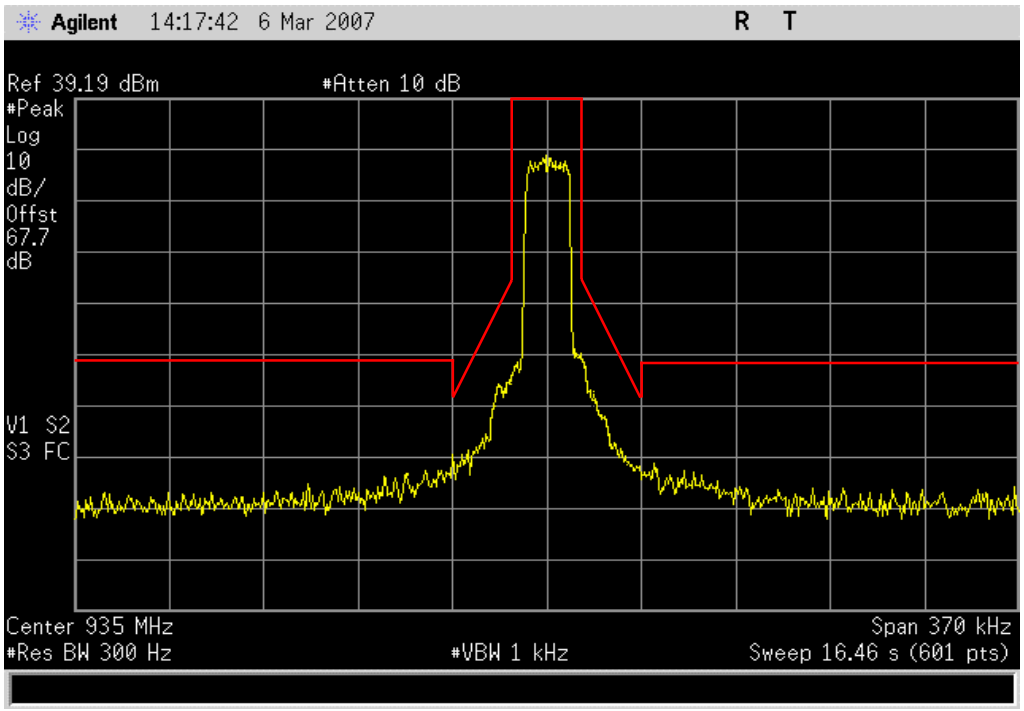
Configuration #	**1**	*Signature*

		Value	Limit	Results
Low Channel				
	High Power			
	< 37.5 kHz Fc	N/A	See Table	Pass
	> 37.5 kHz Fc	N/A	See Table	Pass
	Mid Power			
	< 37.5 kHz Fc	N/A	See Table	Pass
	> 37.5 kHz Fc	N/A	See Table	Pass
	Low Power			
	< 37.5 kHz Fc	N/A	See Table	Pass
	> 37.5 kHz Fc	N/A	See Table	Pass
Mid Channel				
	High Power			
	< 37.5 kHz Fc	N/A	See Table	
	> 37.5 kHz Fc	N/A	See Table	Pass
	Mid Power			
	< 37.5 kHz Fc	N/A	See Table	Pass
	> 37.5 kHz Fc	N/A	See Table	Pass
	Low Power			
	< 37.5 kHz Fc	N/A	See Table	Pass
	> 37.5 kHz Fc	N/A	See Table	Pass
High Channel				
	High Power			
	< 37.5 kHz Fc	N/A	See Table	
	> 37.5 kHz Fc	N/A	See Table	Pass
	Mid Power			
	< 37.5 kHz Fc	N/A	See Table	Pass
	> 37.5 kHz Fc	N/A	See Table	Pass
	Low Power			
	< 37.5 kHz Fc	N/A	See Table	Pass
	> 37.5 kHz Fc	N/A	See Table	Pass

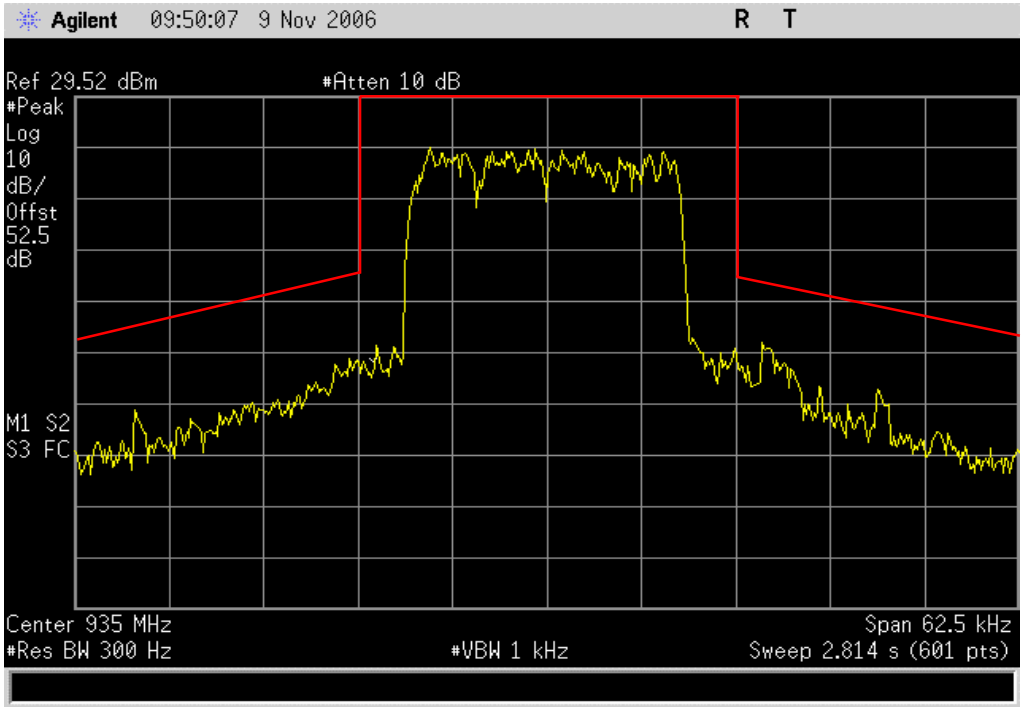
Low Channel, High Power, < 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



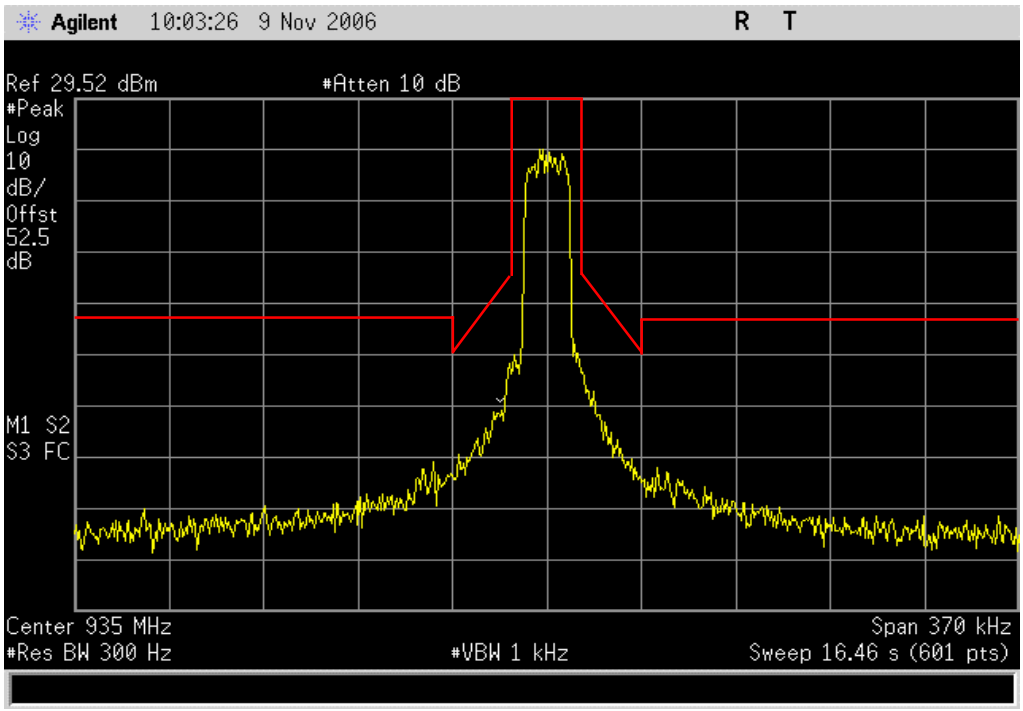
Low Channel, High Power, > 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



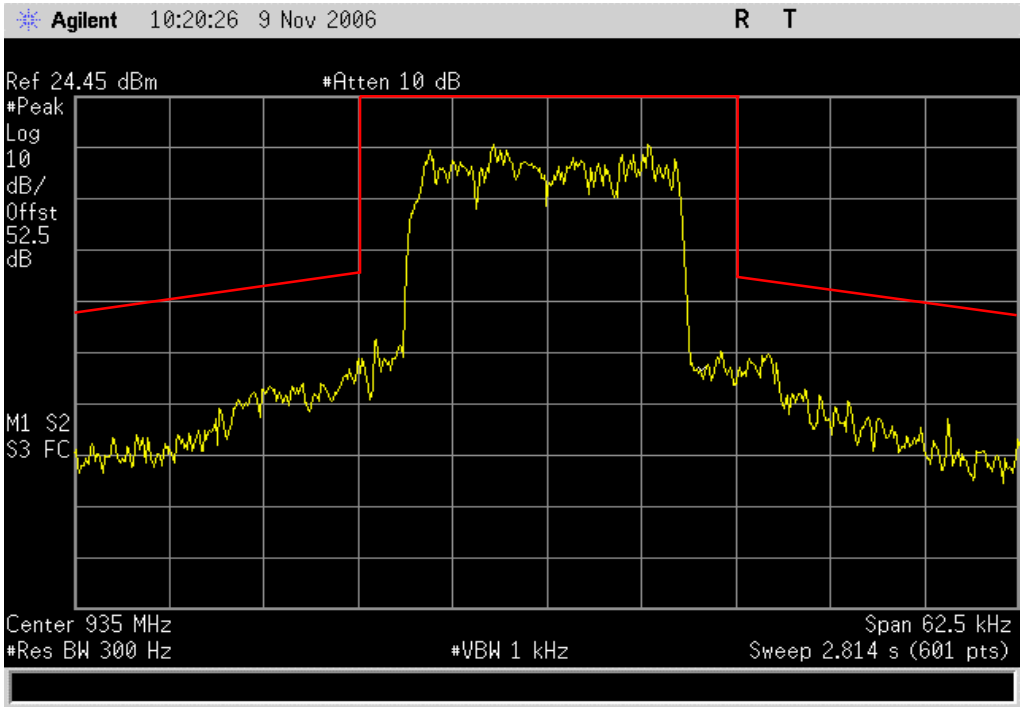
Low Channel, Mid Power, < 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



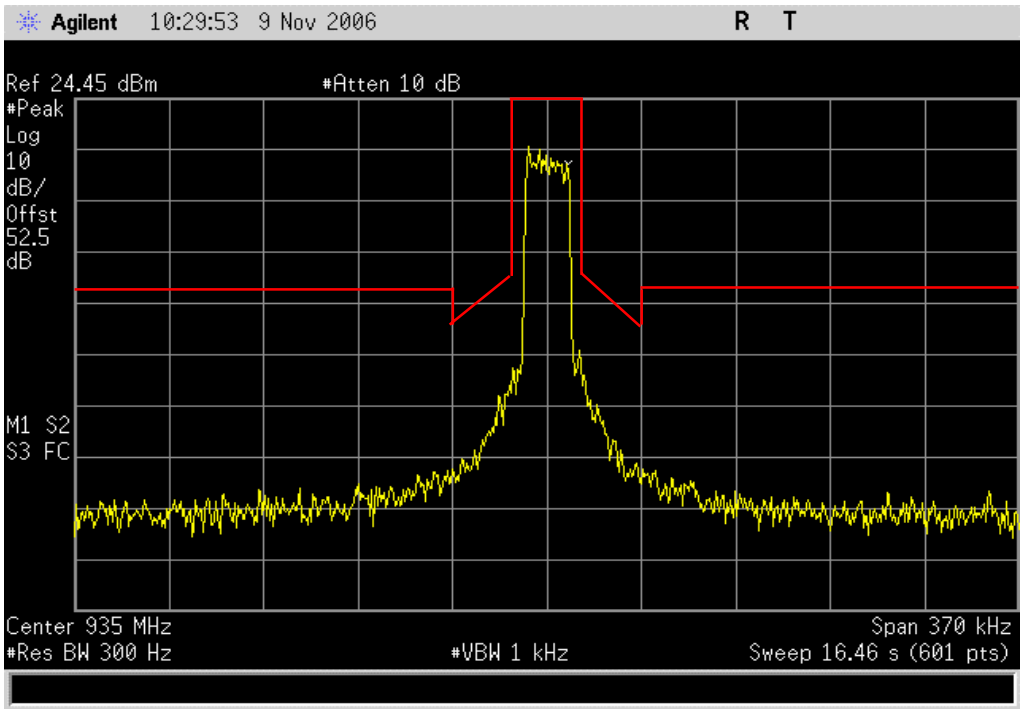
Low Channel, Mid Power, > 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



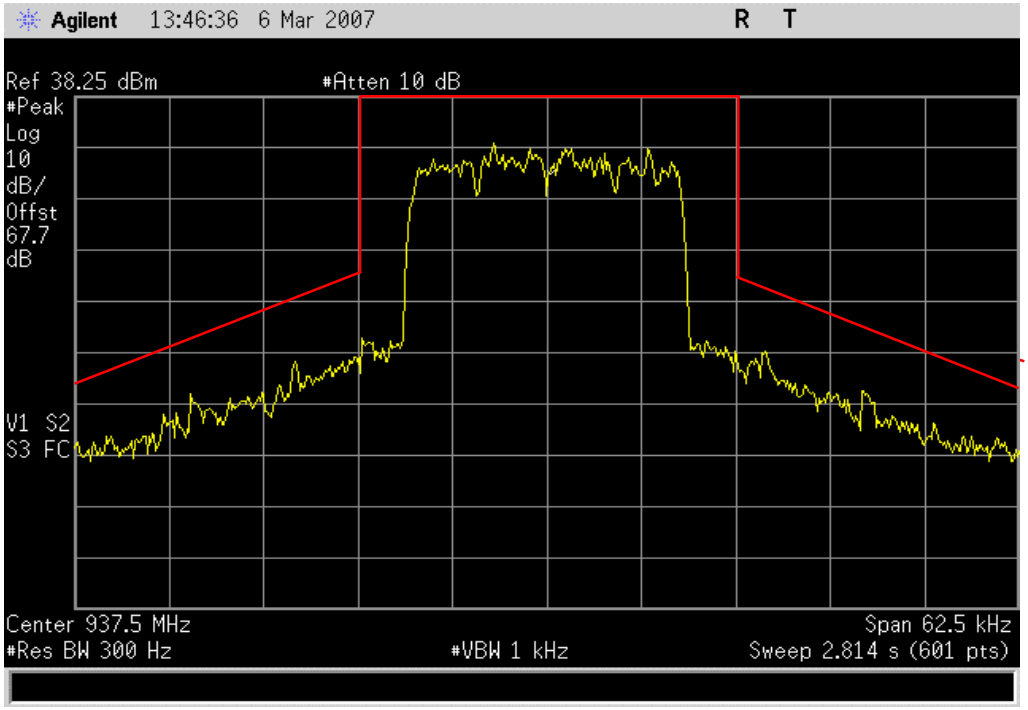
Low Channel, Low Power, < 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



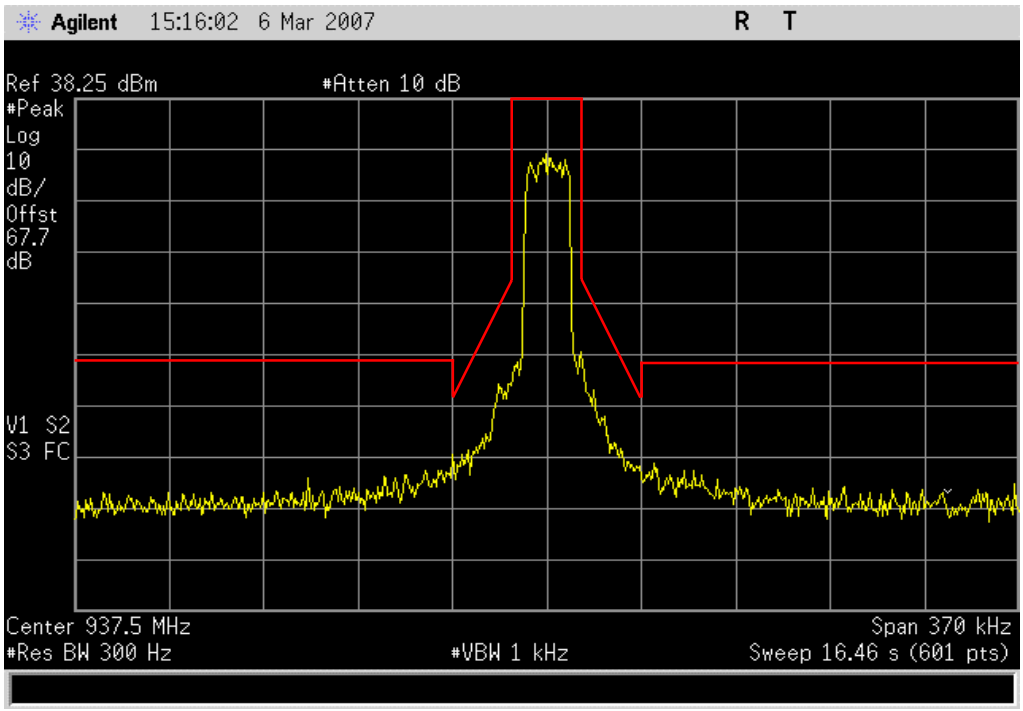
Low Channel, Low Power, > 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



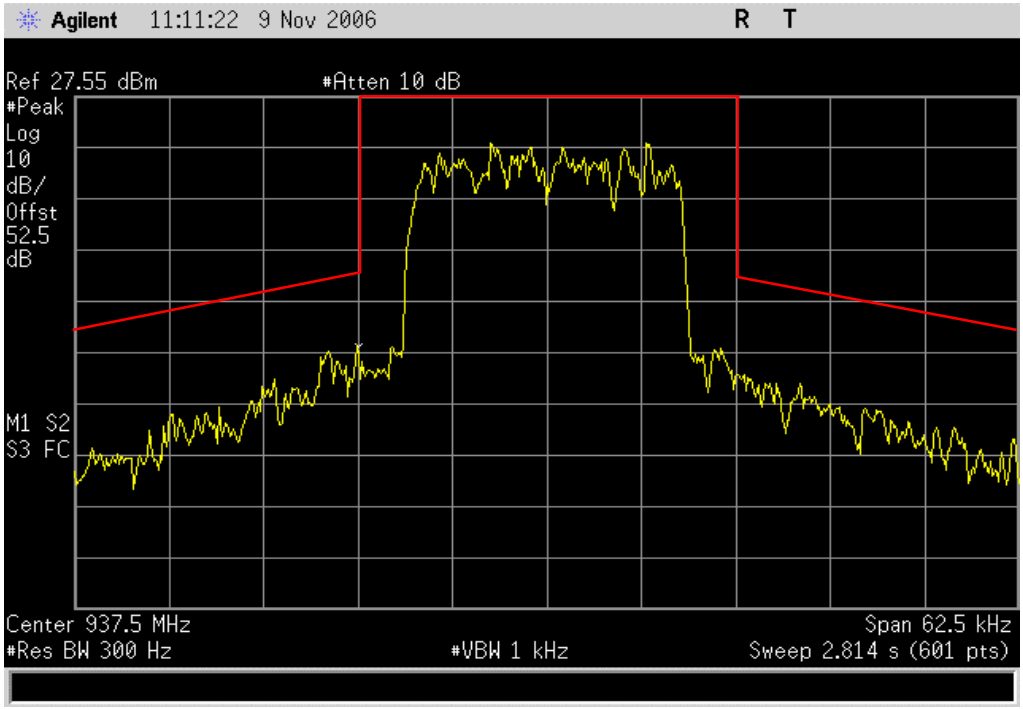
Mid Channel, High Power, < 37.5 kHz Fc					
Result:		**Value:**	N/A	**Limit:**	See Table



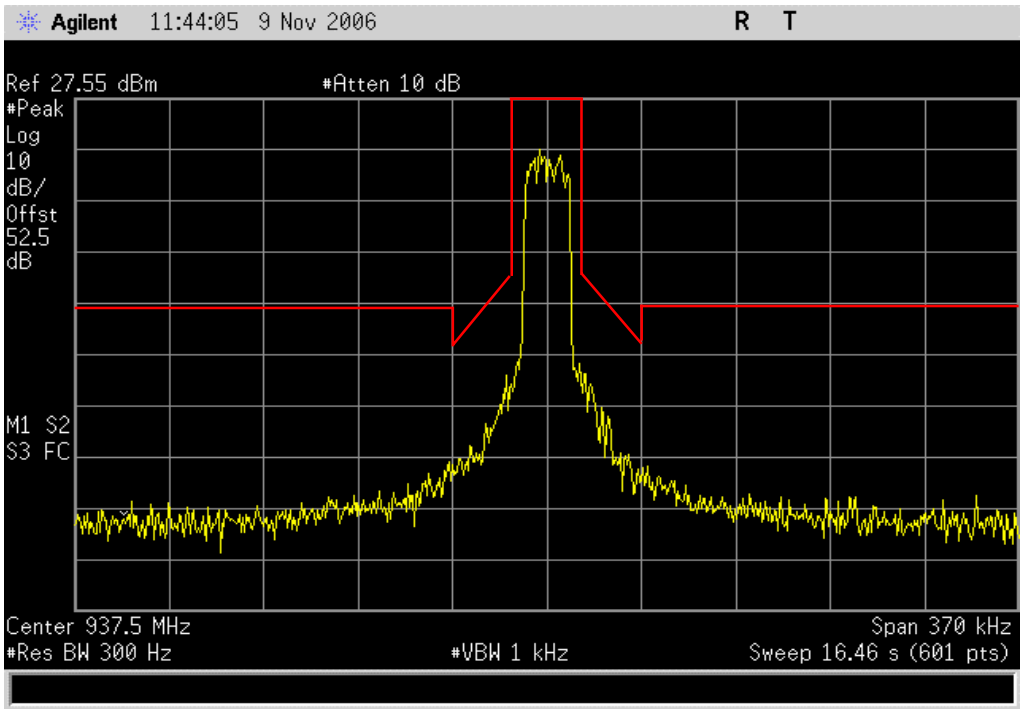
Mid Channel, High Power, > 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



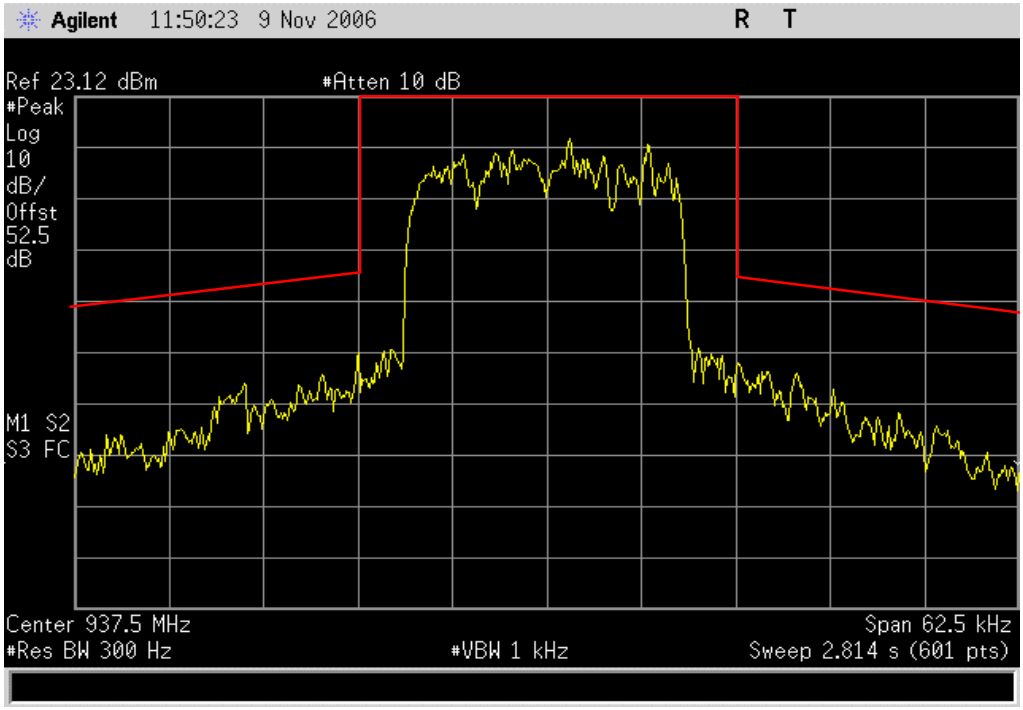
Mid Channel, Mid Power, < 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



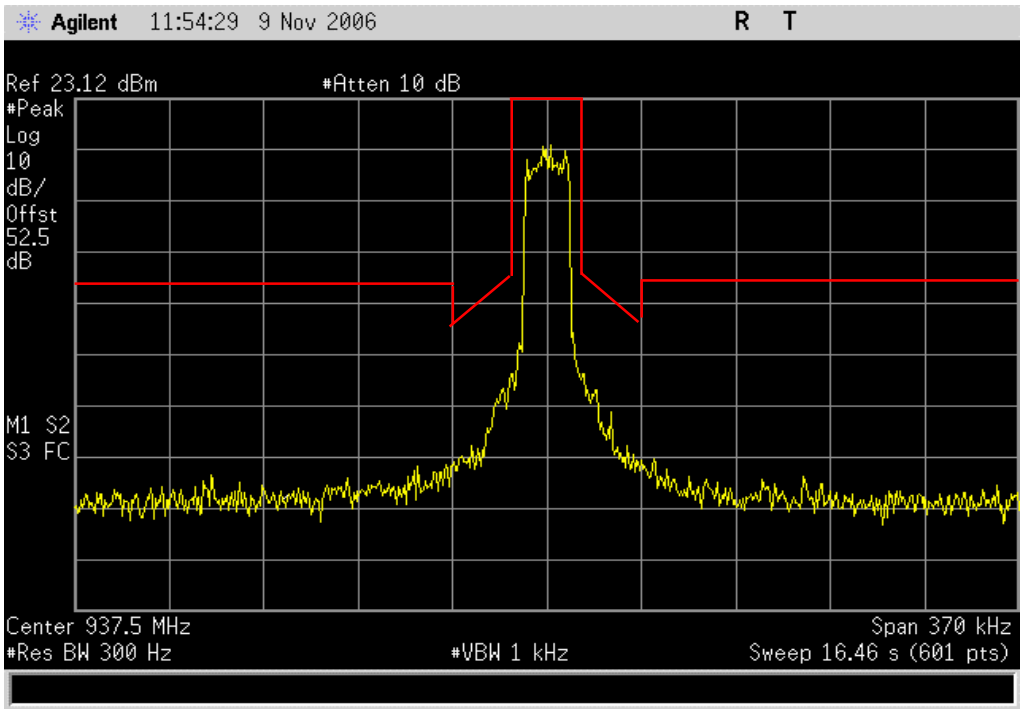
Mid Channel, Mid Power, > 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



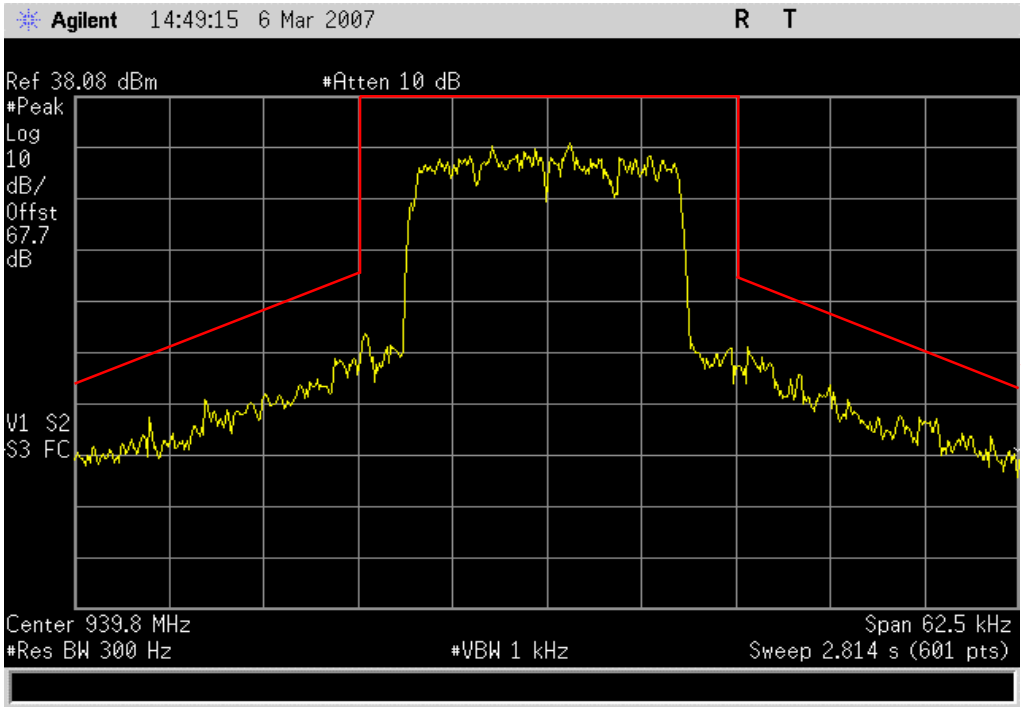
Mid Channel, Low Power, < 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



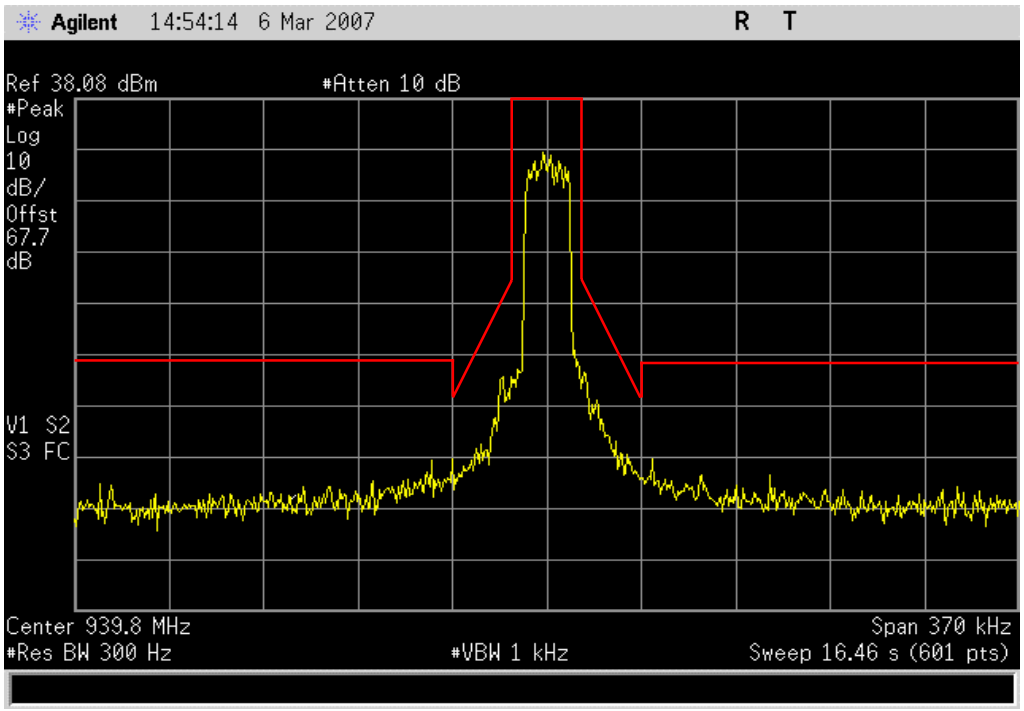
Mid Channel, Low Power, > 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



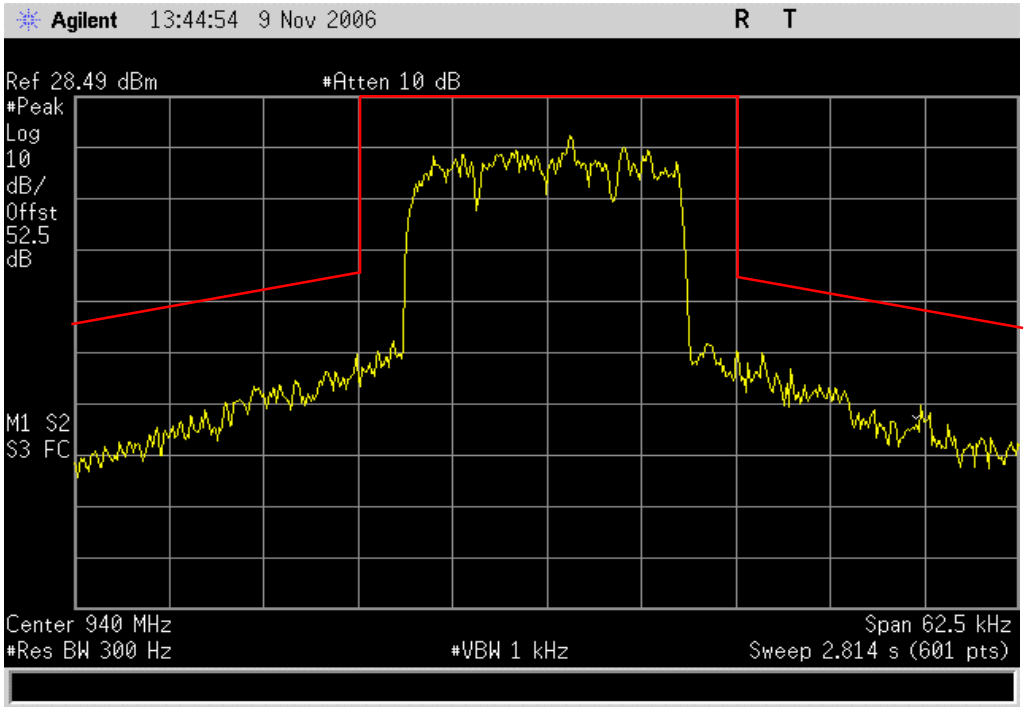
High Channel, High Power, < 37.5 kHz Fc					
Result:		**Value:**	N/A	**Limit:**	See Table



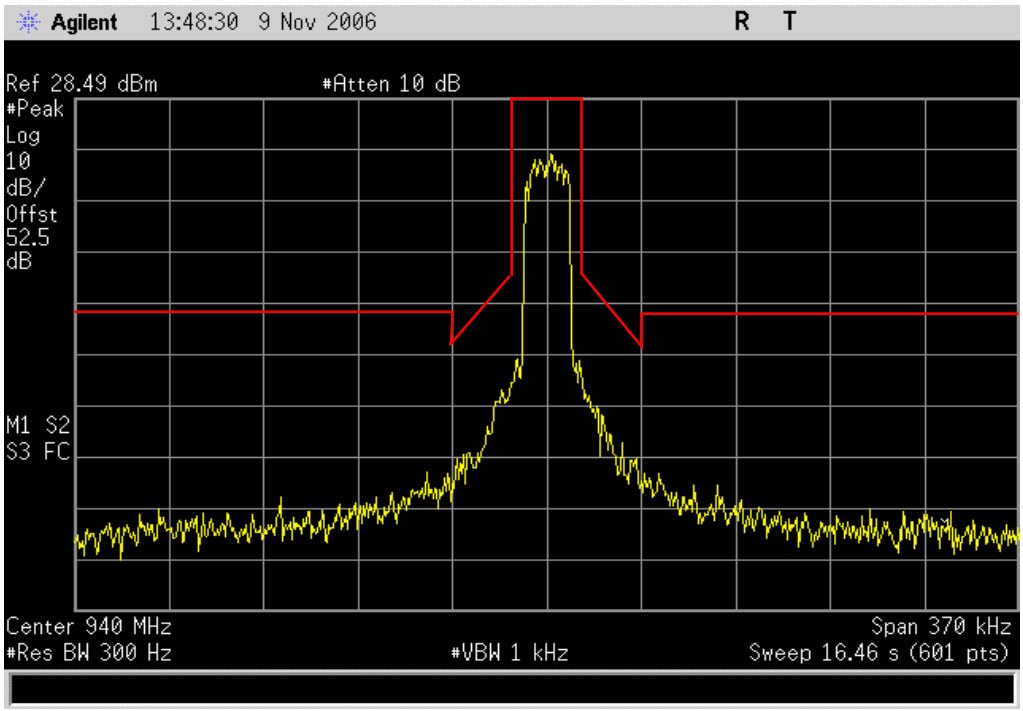
High Channel, High Power, > 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



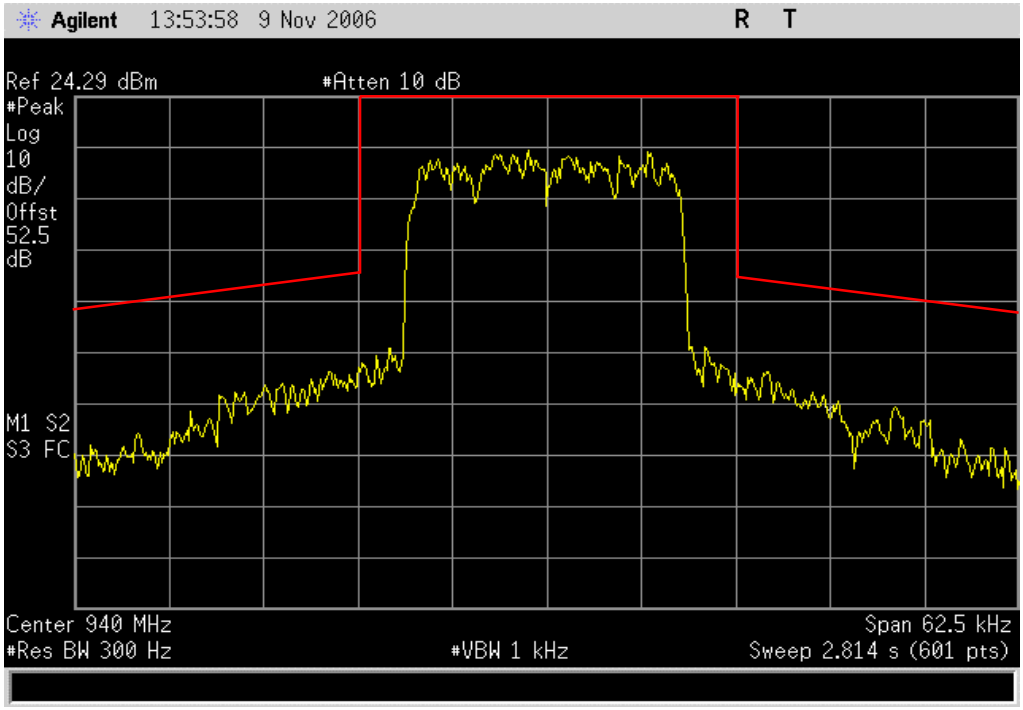
High Channel, Mid Power, < 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



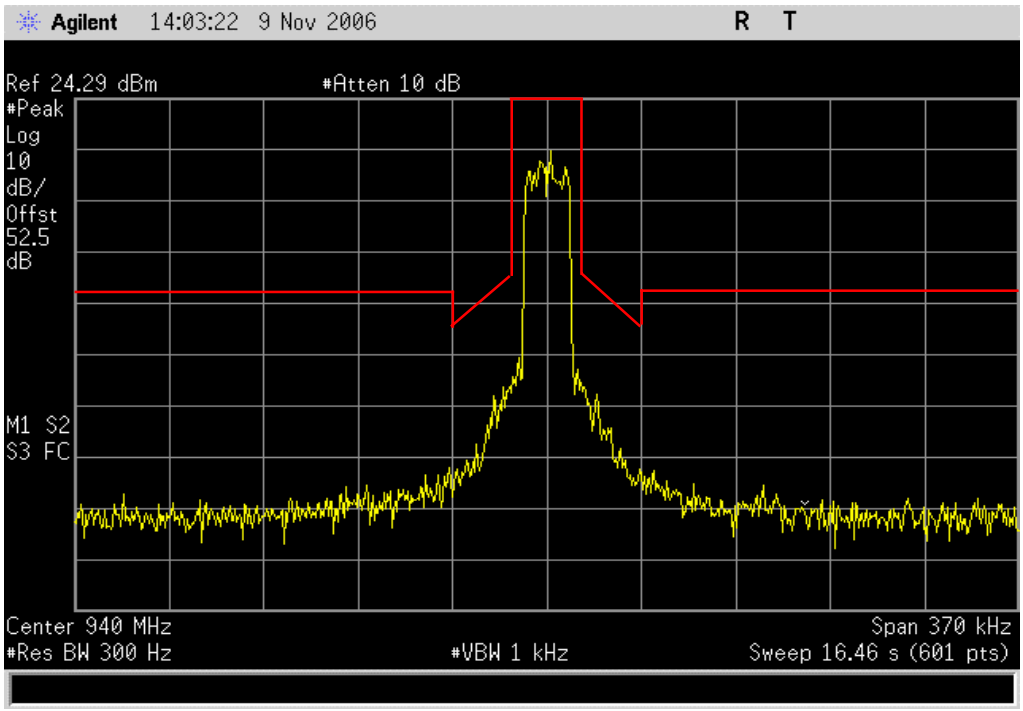
High Channel, Mid Power, > 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



High Channel, Low Power, < 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table

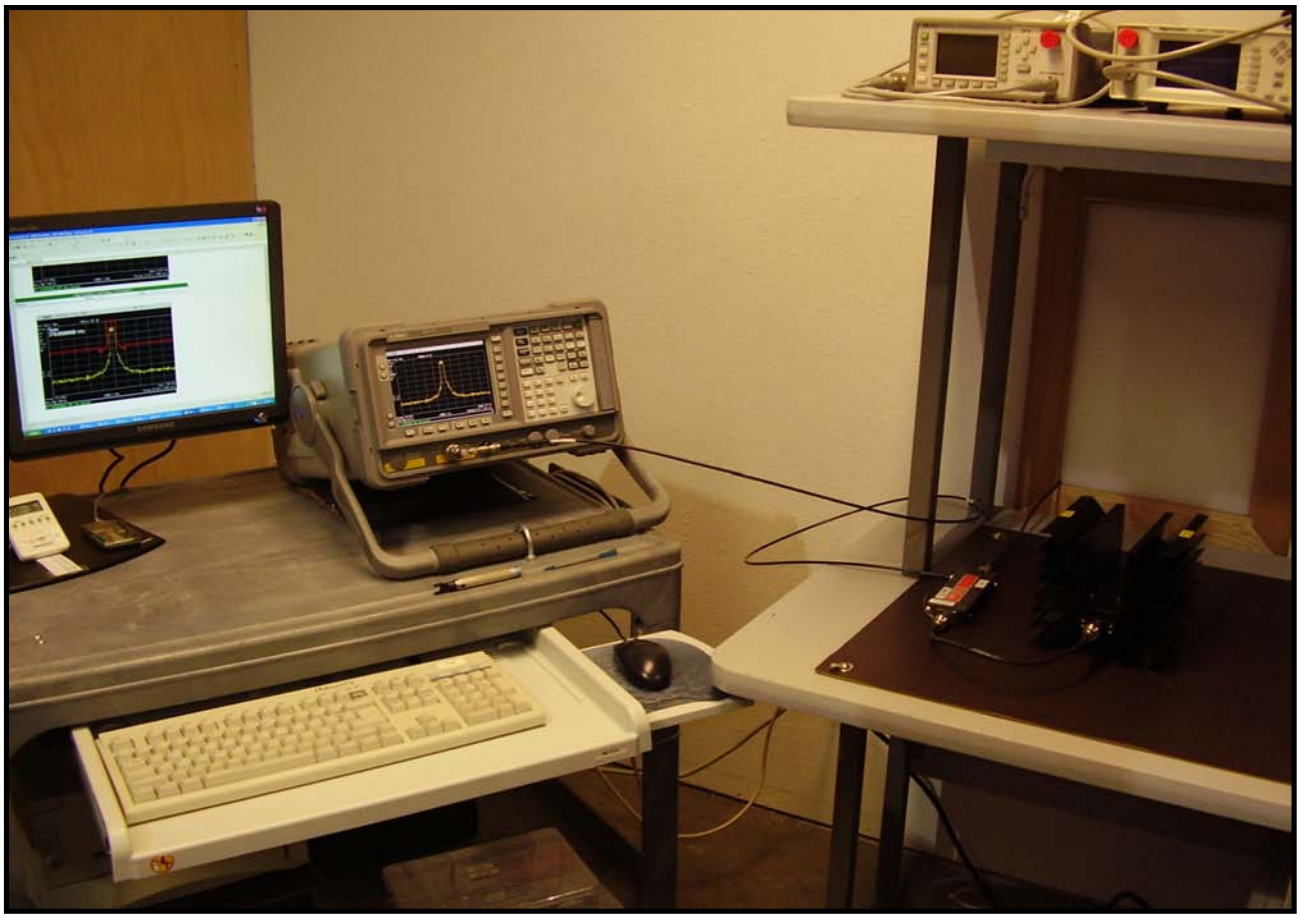


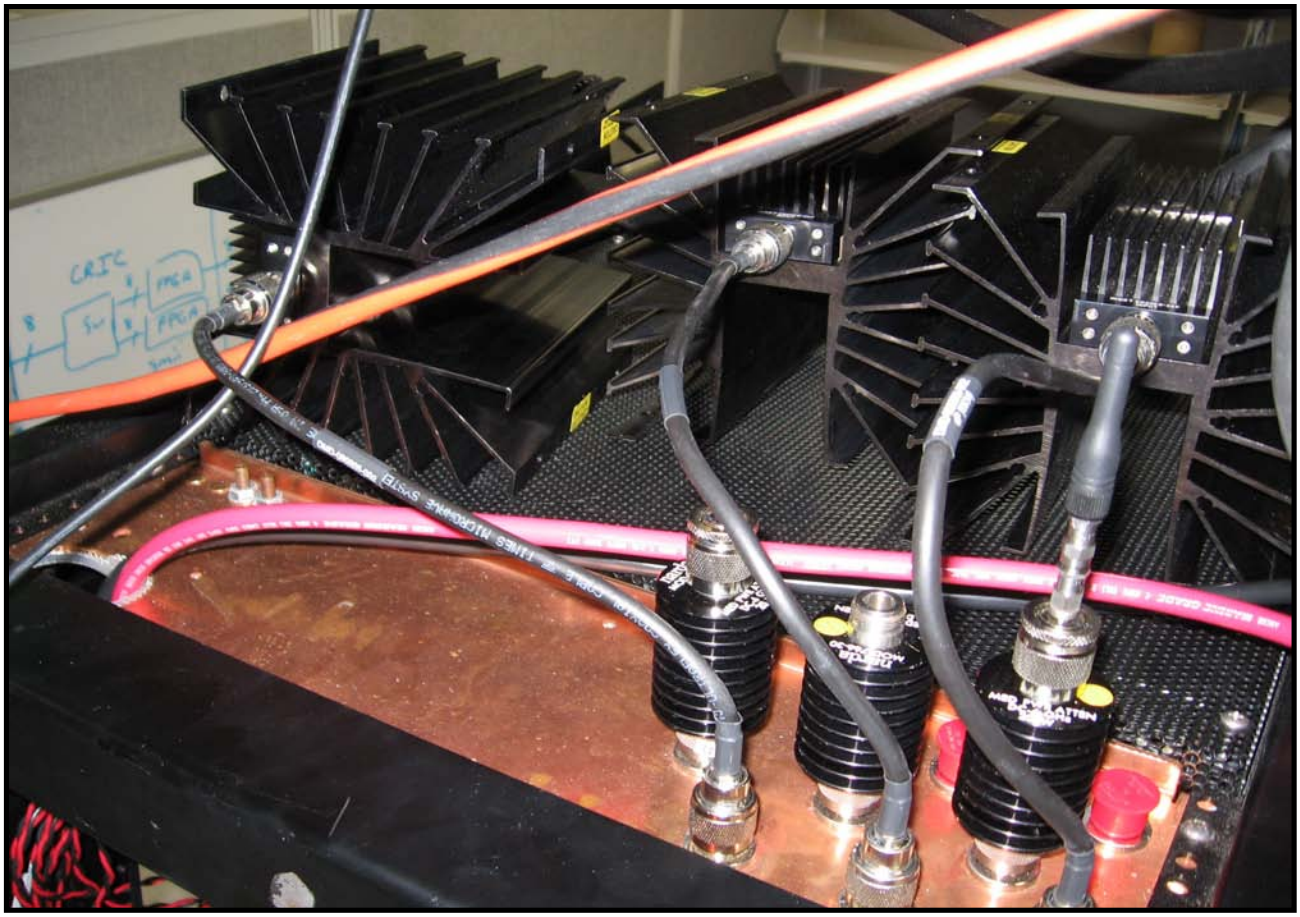
High Channel, Low Power, > 37.5 kHz Fc					
Result:	Pass	**Value:**	N/A	**Limit:**	See Table



Frequency (MHz)	Output Power (dBm)	Power (P) Watts	Attenuation for the range 12.5 kHz to 37.5 kHz from fc (dBc)				Attenuation >37.5 kHz from fc (dBc)	
			50 + (10*log P)	116*log(f/6.1)		80	43 + (10*log P)	80
				f = 12.5 kHz	f = 37.5 kHz			
935.01875	39.19	8.30E+00	59.2	36.14	91.49	80	52.2	80
	25.52	3.56E-01	45.5	36.14	91.49	80	38.5	80
	19.62	9.16E-02	39.6	36.14	91.49	80	32.6	80
937.49375	38.25	6.68E+00	58.3	36.14	91.49	80	51.3	80
	25.04	3.19E-01	45.0	36.14	91.49	80	38.0	80
	18.62	7.28E-02	38.6	36.14	91.49	80	31.6	80
939.98175	38.05	6.38E+00	58.1	36.14	91.49	80	51.1	80
	25.60	3.63E-01	45.6	36.14	91.49	80	38.6	80
	18.80	7.59E-02	38.8	36.14	91.49	80	31.8	80

EMISSION MASK





OUTPUT POWER

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4407B	AAU	9/20/2006	12
Dual Directional Coupler	Amplifier Research	DC7154	IRD	2/23/2006	13
Power Sensor	Gigatronics	80701A	SPL	9/19/2006	12
Power Meter	Gigatronics	8651A	SPM	9/19/2006	12
Signal Generator	Hewlett-Packard	8648D	TGC	1/27/2006	13

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The output power was measured with the EUT set to low, medium, and high transmit frequencies within the allowable band, and three power levels (lowest, mid, and highest available). The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer through a directional coupler and attenuator to prevent analyzer overload. The measurement was made with an RMS average detector.

NORTHWEST EMC

OUTPUT POWER

XMit 2006.08.25

EUT:	MC-Series iDEN Microcell High Power			**Work Order:**	RAFN0067
Serial Number:	Engineering unit			**Date:**	11/08/06
Customer:	Radioframe Networks, Inc.			**Temperature:**	22°C
Attendees:	Erin Duleba			**Humidity:**	43%
Project:	None			**Barometric Pres.:**	29.98
Tested by:	Rod Peloquin	**Power:**	-48VDC	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 90I:2005	ANSI/TIA/EIA-603-B:2002

COMMENTS

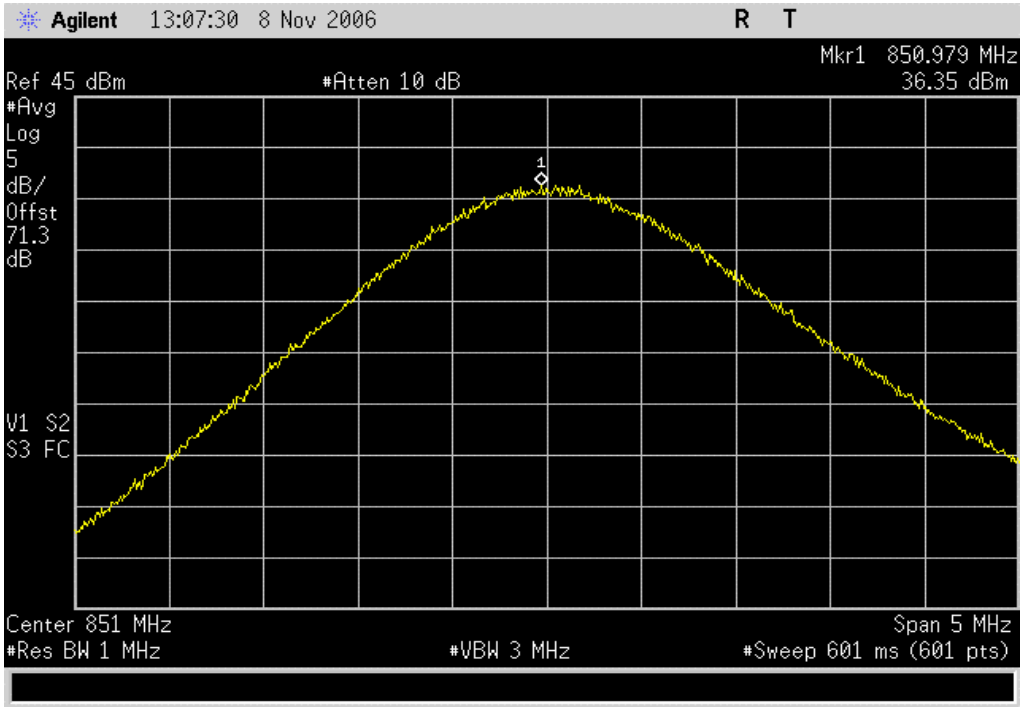
800 Band

DEVIATIONS FROM TEST STANDARD

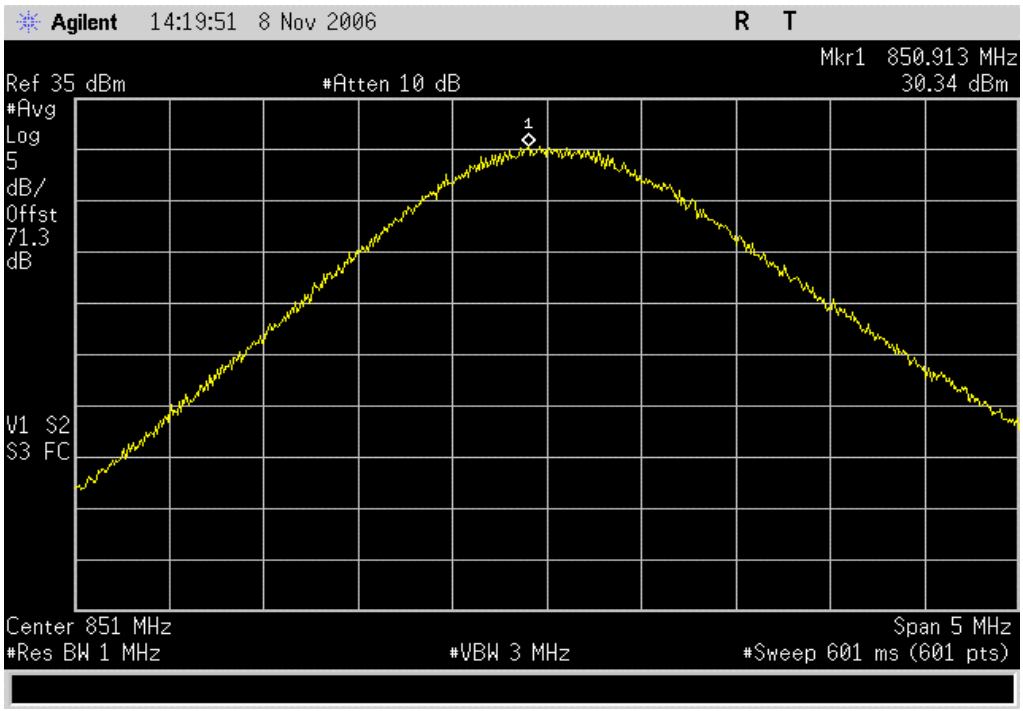
Configuration #	1	Signature

		Value	Limit	Results
Low Channel				
	High Power	36.35 dBm	N/A	Pass
	Mid Power	30.34 dBm	N/A	Pass
	Low Power	25.15 dBm	N/A	Pass
Mid Channel				
	High Power	36.64 dBm	N/A	Pass
	Mid Power	30.27 dBm	N/A	Pass
	Low Power	25.25 dBm	N/A	Pass
High Channel				
	High Power	36.12 dBm	N/A	Pass
	Mid Power	29.76 dBm	N/A	Pass
	Low Power	24.82 dBm	N/A	Pass

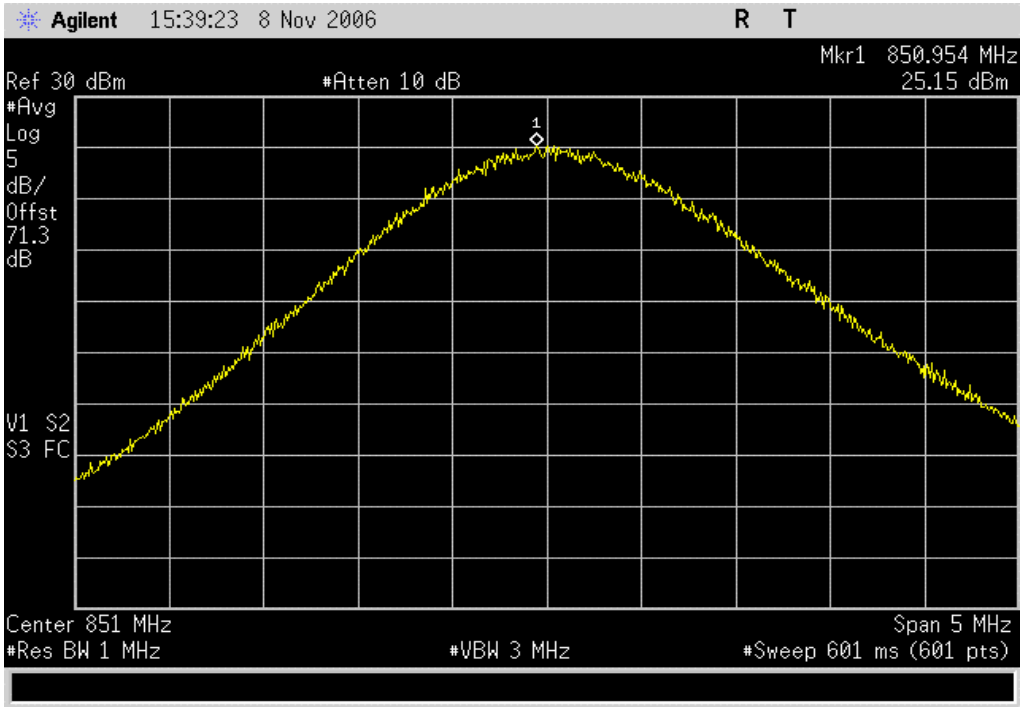
Low Channel, High Power					
Result:	Pass	**Value:**	36.35 dBm	**Limit:**	N/A



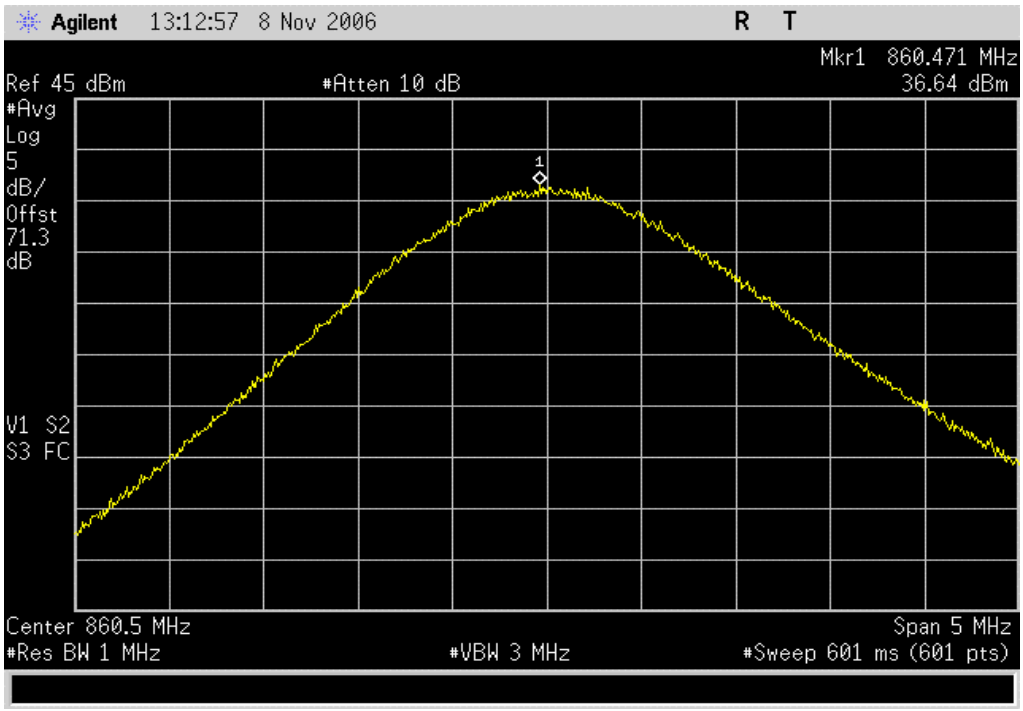
Low Channel, Mid Power					
Result:	Pass	**Value:**	30.34 dBm	**Limit:**	N/A



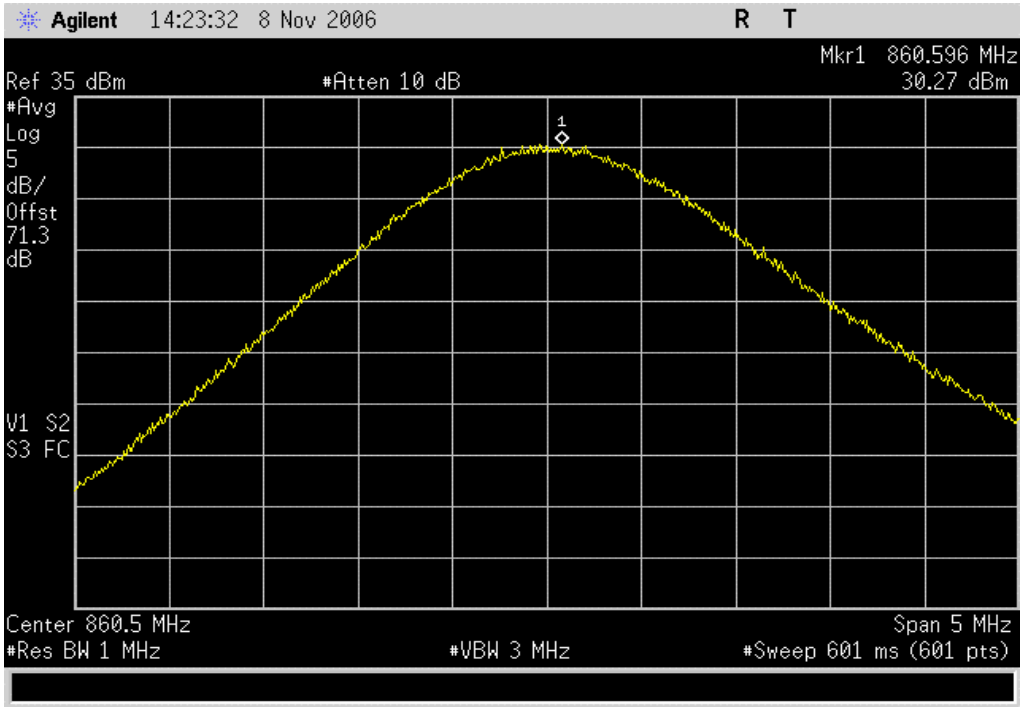
Low Channel, Low Power					
Result:	Pass	**Value:**	25.15 dBm	**Limit:**	N/A



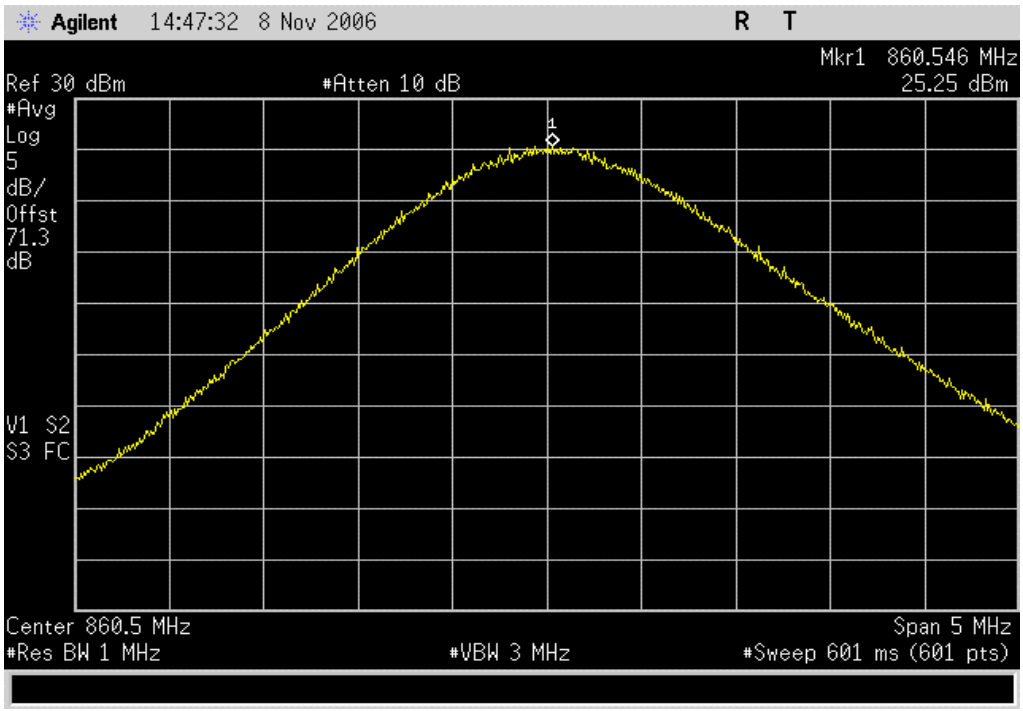
Mid Channel, High Power					
Result:	Pass	**Value:**	36.64 dBm	**Limit:**	N/A



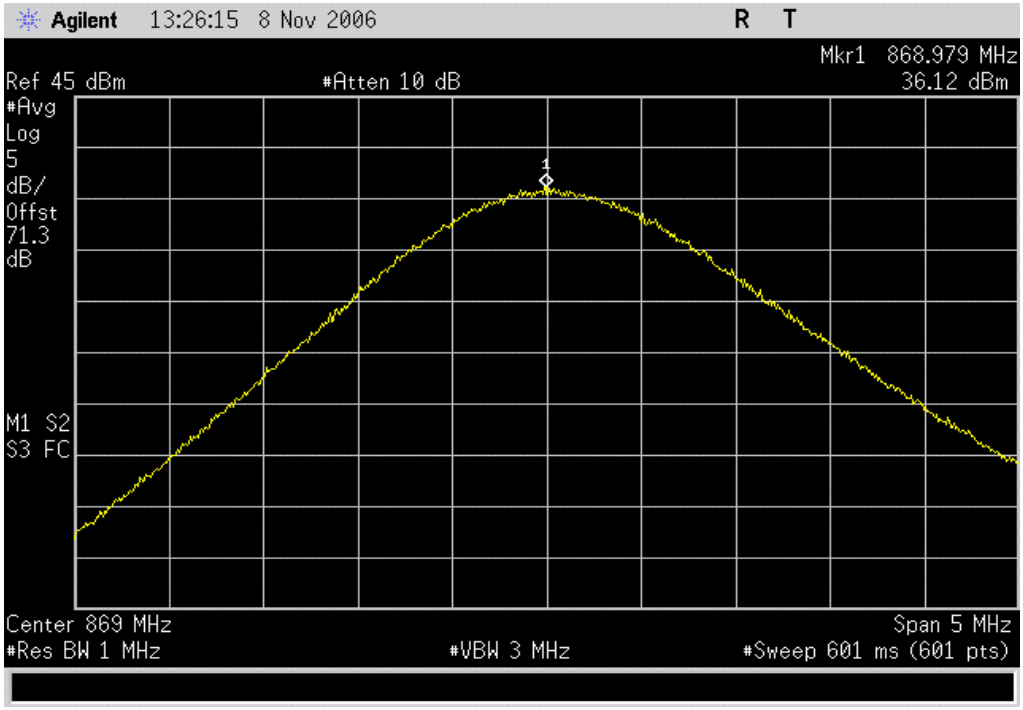
Mid Channel, Mid Power					
Result:	Pass	**Value:**	30.27 dBm	**Limit:**	N/A



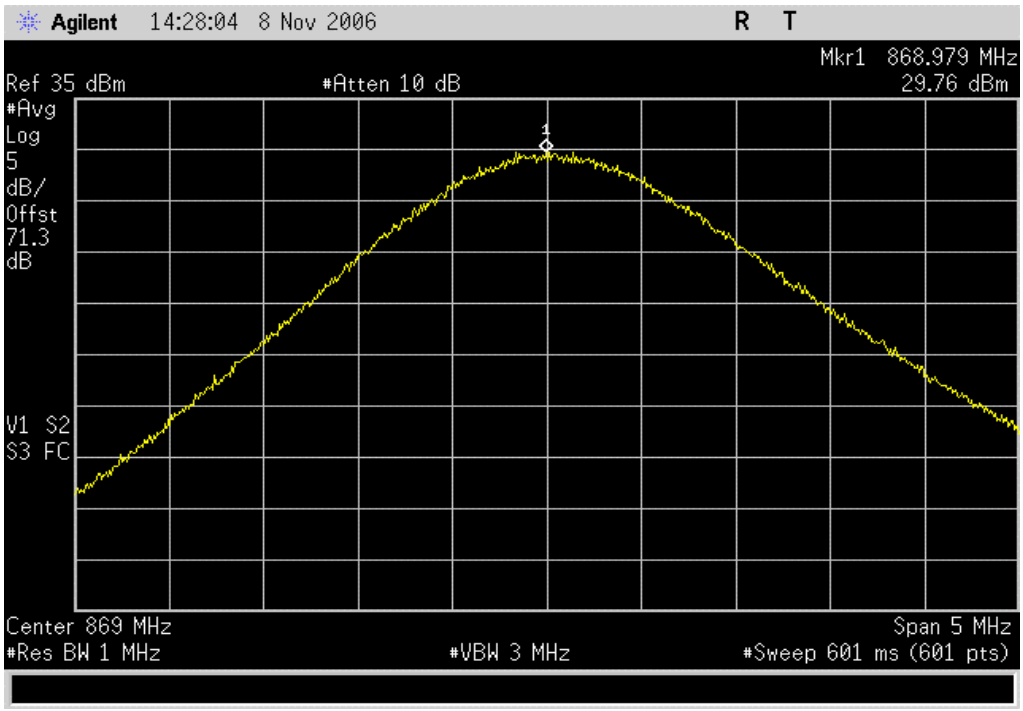
Mid Channel, Low Power					
Result:	Pass	**Value:**	25.25 dBm	**Limit:**	N/A



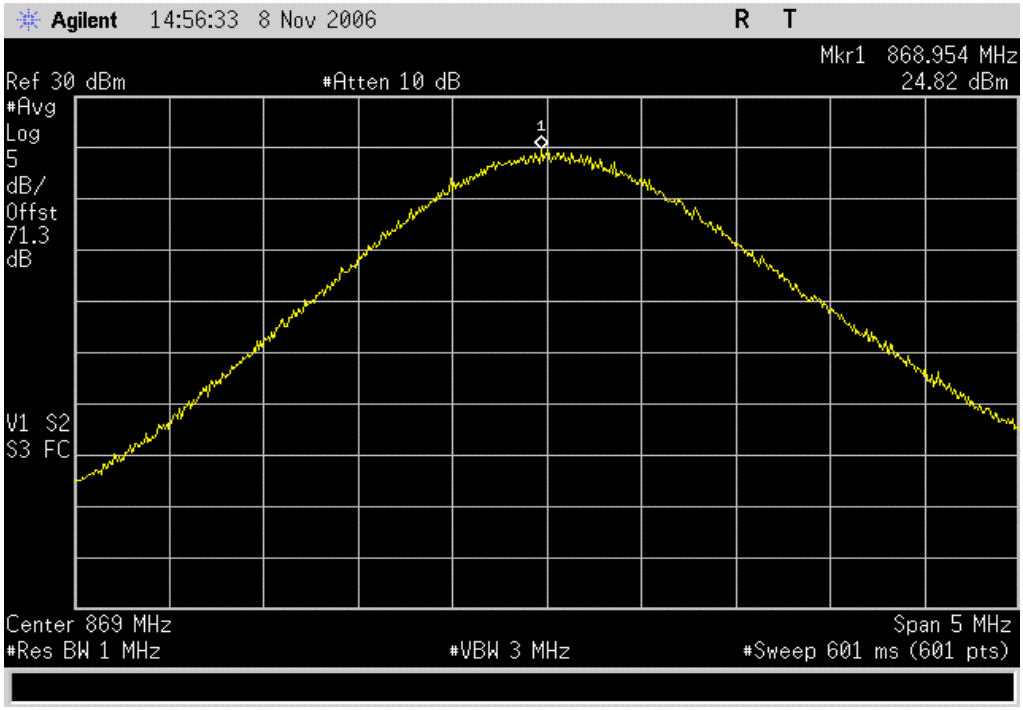
High Channel, High Power					
Result:	Pass	**Value:**	36.12 dBm	**Limit:**	N/A



High Channel, Mid Power					
Result:	Pass	**Value:**	29.76 dBm	**Limit:**	N/A



High Channel, Low Power					
Result:	Pass	**Value:**	24.82 dBm	**Limit:**	N/A



OUTPUT POWER

OUTPUT POWER

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TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4407B	AAU	9/20/2006	12
Dual Directional Coupler	Amplifier Research	DC7154	IRD	2/23/2006	13
Power Sensor	Gigatronics	80701A	SPL	9/19/2006	12
Power Meter	Gigatronics	8651A	SPM	9/19/2006	12
Signal Generator	Hewlett-Packard	8648D	TGC	1/27/2006	13
Attenuator	Inmet	2N100W-30dB		NCR	
Attenuator	Inmet	2N200W-30dB		NCR	
Attenuator	Coaxicom	66702 5910-6	ATZ	2/23/2007	13

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The output power was measured with the EUT set to low, medium, and high transmit frequencies within the allowable band, and three power levels (lowest, mid, and highest available). The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer through a directional coupler and attenuator to prevent analyzer overload. The measurement was made with an RMS average detector.

NORTHWEST EMC

OUTPUT POWER

XMit 2006.08.25

EUT:	**MC-Series iDEN Microcell High Power**			**Work Order:**	**RAFN0067/RAFN0073**
Serial Number:	**Engineering unit**			**Date:**	**11/8/2006 & 3/6/2007**
Customer:	**Radioframe Networks, Inc.**			**Temperature:**	**22°C**
Attendees:	**Erin Duleba**			**Humidity:**	**43%**
Project:	**None**			**Barometric Pres.:**	**29.98**
Tested by:	**Rod Peloquin**	**Power:**	**-48VDC**	**Job Site:**	**EV06/ Offsite**

TEST SPECIFICATIONS	Test Method
FCC 90I:2005	ANSI/TIA/EIA-603-B:2002

COMMENTS

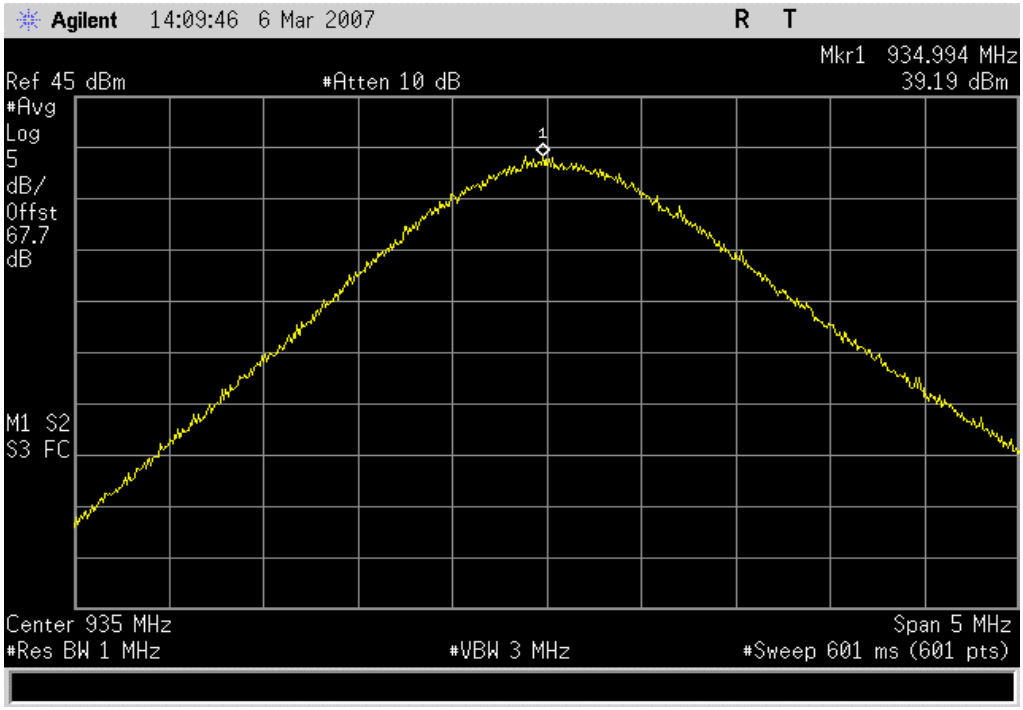
900 Band

DEVIATIONS FROM TEST STANDARD

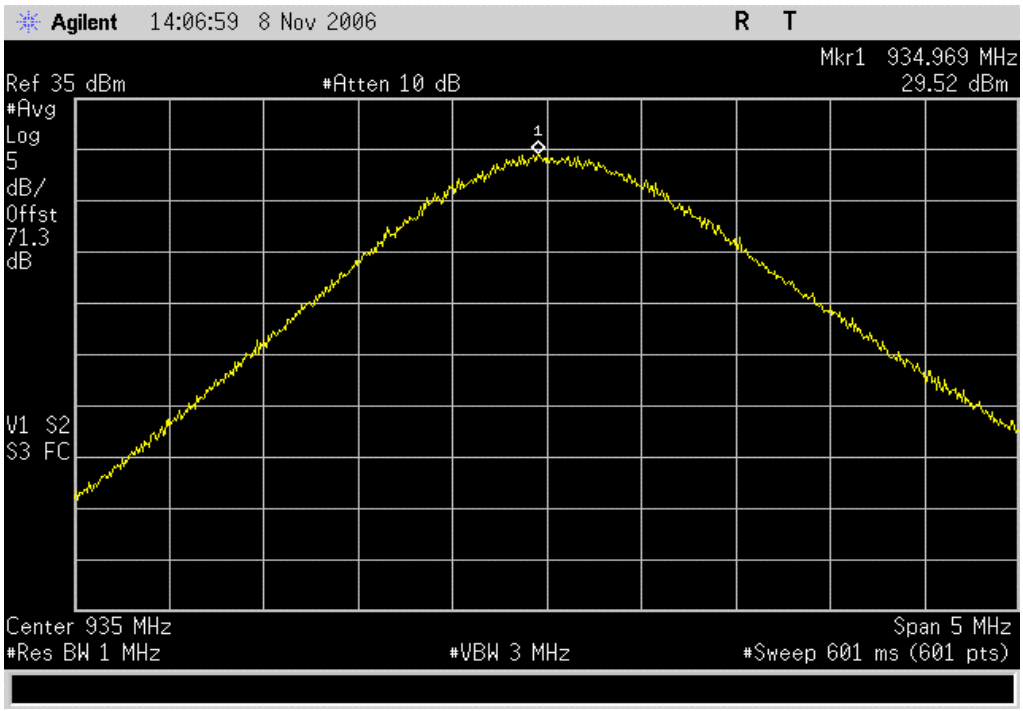
Configuration #	**1**	*Signature*

		Value	**Limit**	**Results**
Low Channel				
	High Power	39.19 dBm	N/A	Pass
	Mid Power	29.52 dBm	N/A	Pass
	Low Power	24.45 dBm	N/A	Pass
Mid Channel				
	High Power	38.25 dBm	N/A	Pass
	Mid Power	27.55 dBm	N/A	Pass
	Low Power	23.12 dBm	N/A	Pass
High Channel				
	High Power	38.08 dBm	N/A	Pass
	Mid Power	28.49 dBm	N/A	Pass
	Low Power	24.29 dBm	N/A	Pass

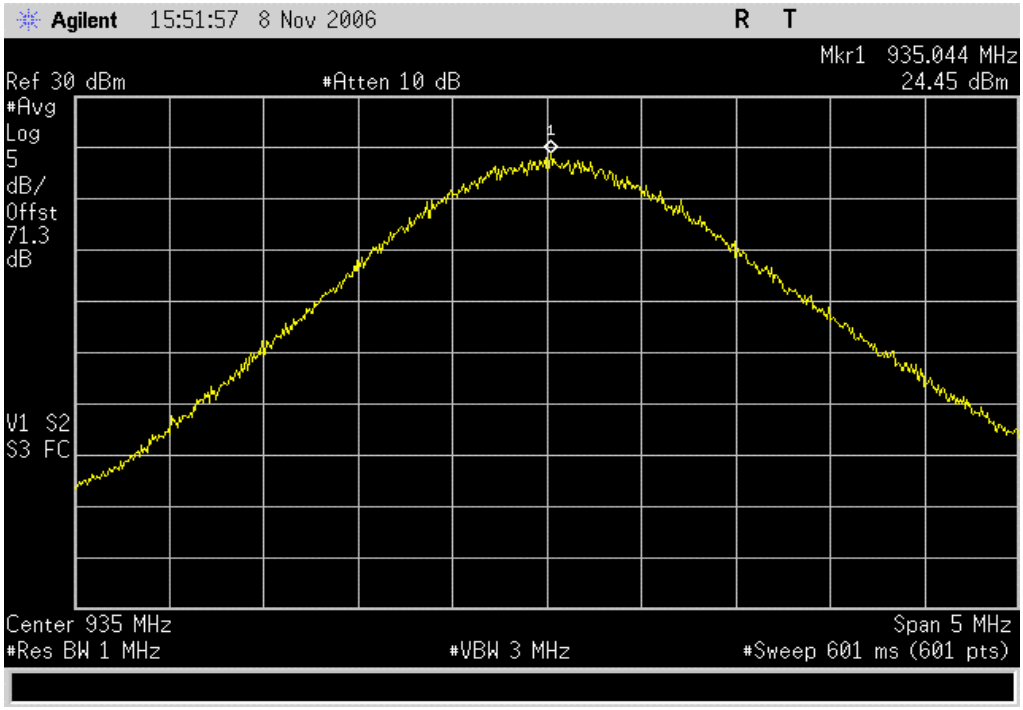
Low Channel, High Power					
Result:	Pass	**Value:**	39.19 dBm	**Limit:**	N/A



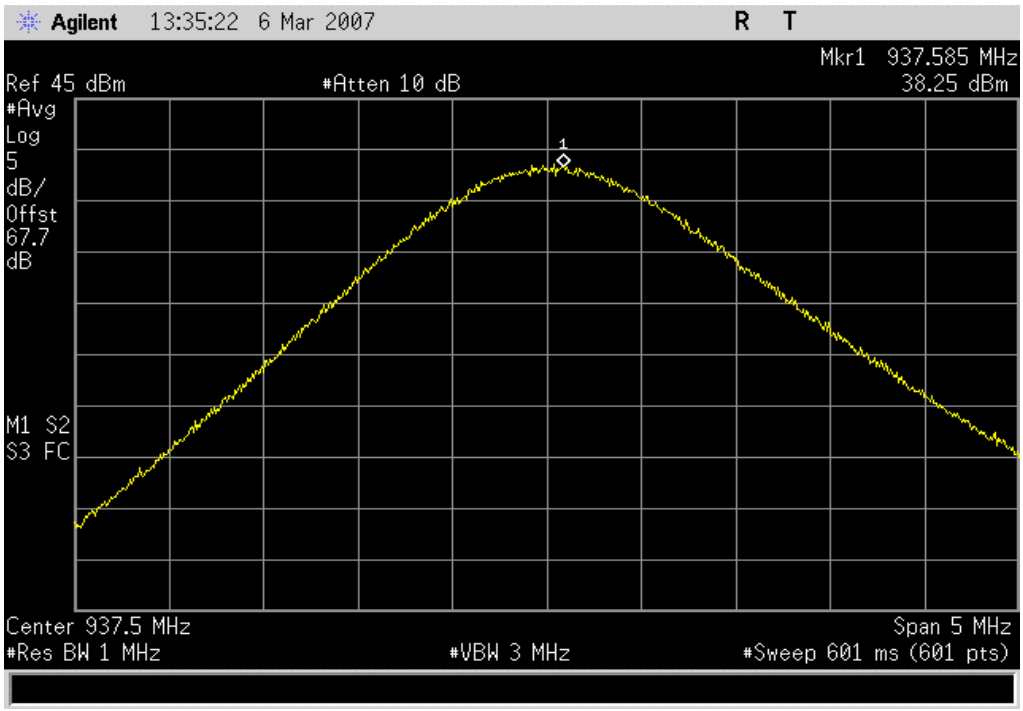
Low Channel, Mid Power					
Result:	Pass	**Value:**	29.52 dBm	**Limit:**	N/A



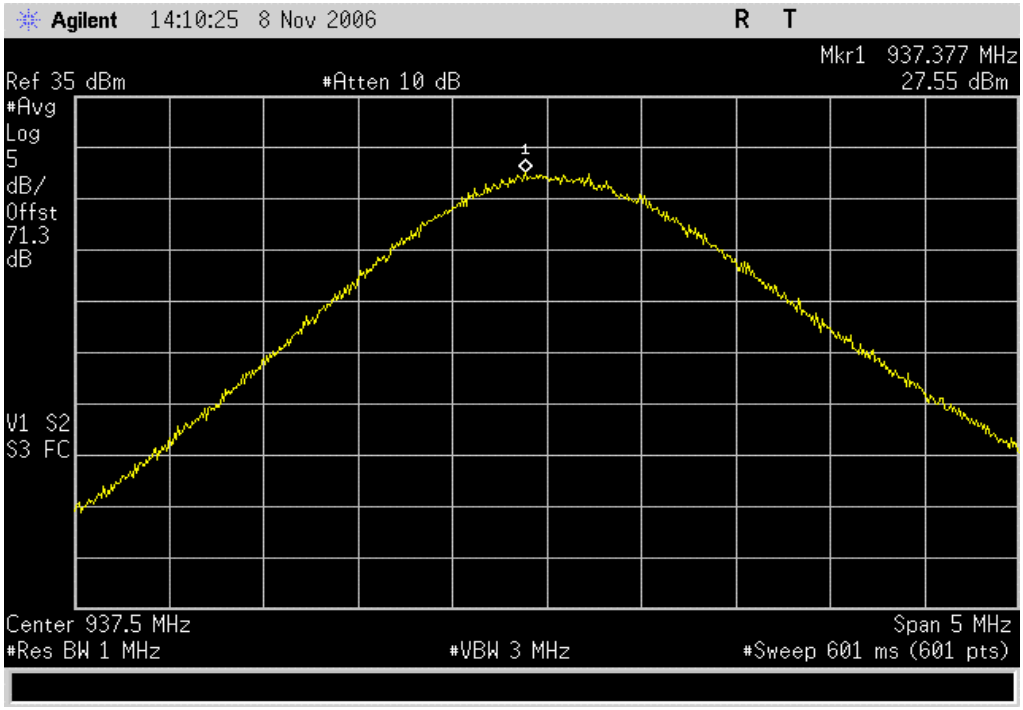
Low Channel, Low Power					
Result:	Pass	**Value:**	24.45 dBm	**Limit:**	N/A



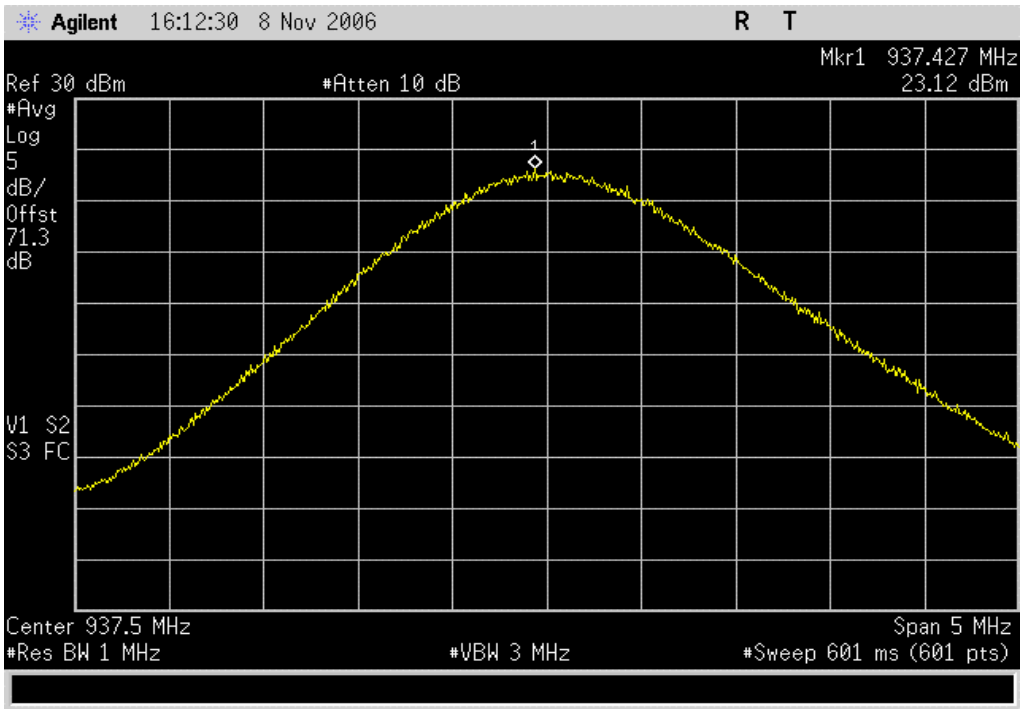
Mid Channel, High Power					
Result:	Pass	**Value:**	38.25 dBm	**Limit:**	N/A



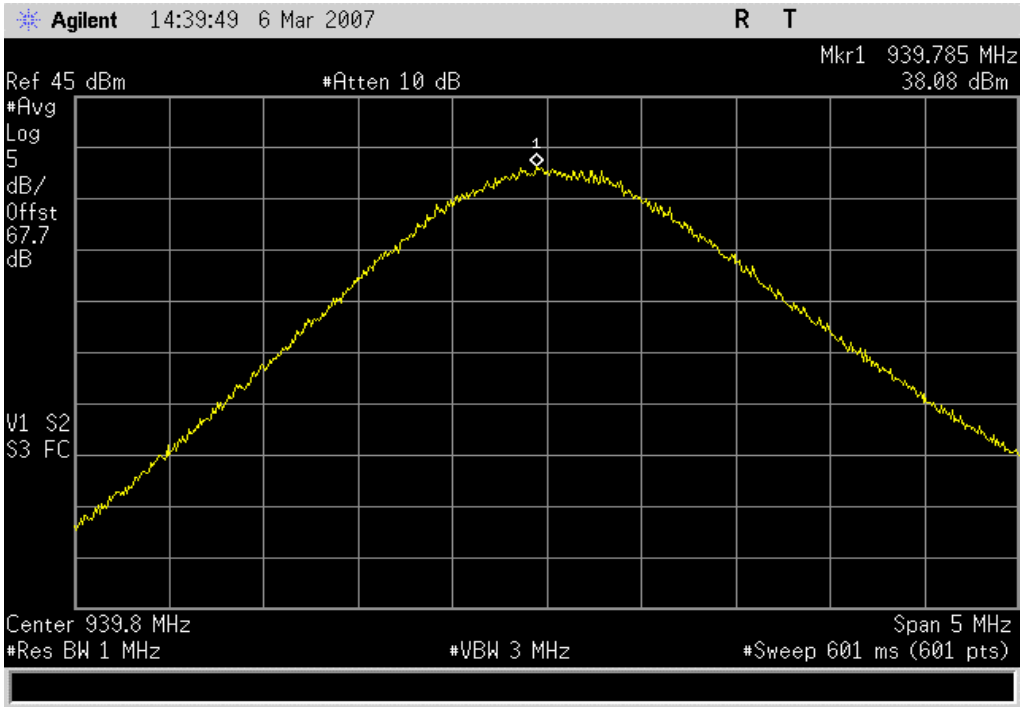
Mid Channel, Mid Power					
Result:	Pass	**Value:**	27.55 dBm	**Limit:**	N/A



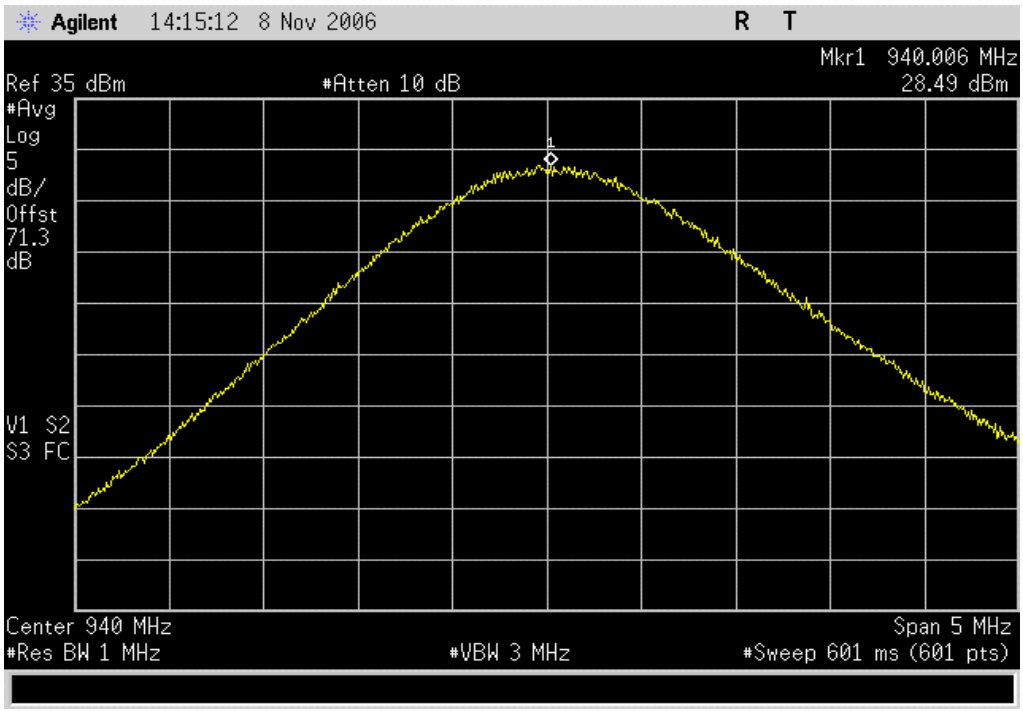
Mid Channel, Low Power					
Result:	Pass	**Value:**	23.12 dBm	**Limit:**	N/A



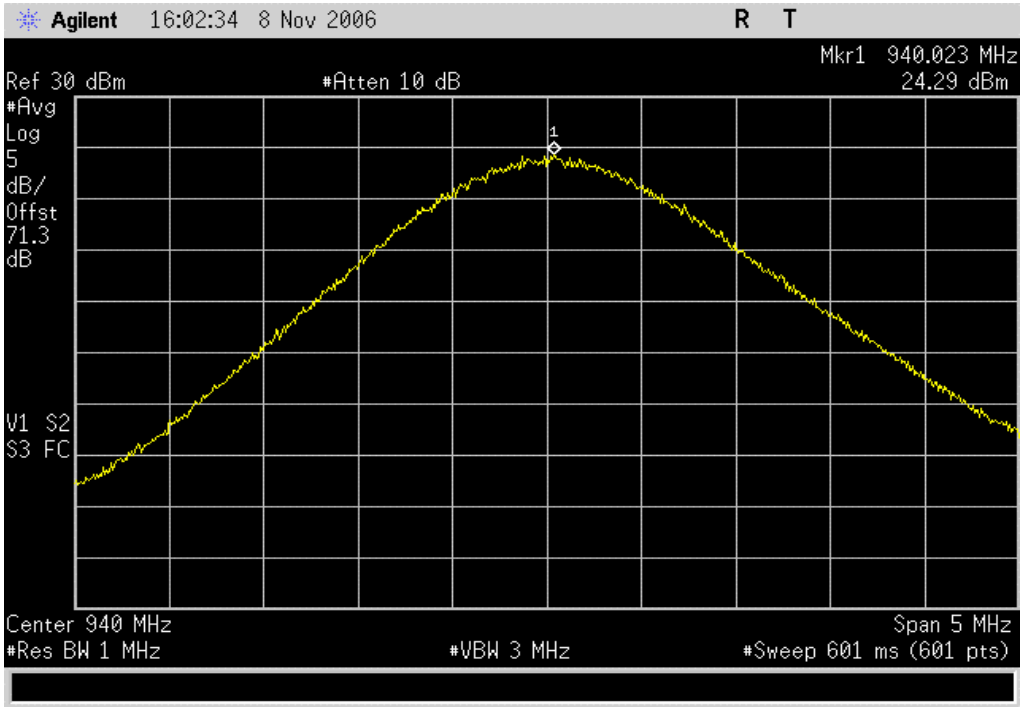
High Channel, High Power					
Result:	Pass	**Value:**	38.08 dBm	**Limit:**	N/A



High Channel, Mid Power					
Result:	Pass	**Value:**	28.49 dBm	**Limit:**	N/A

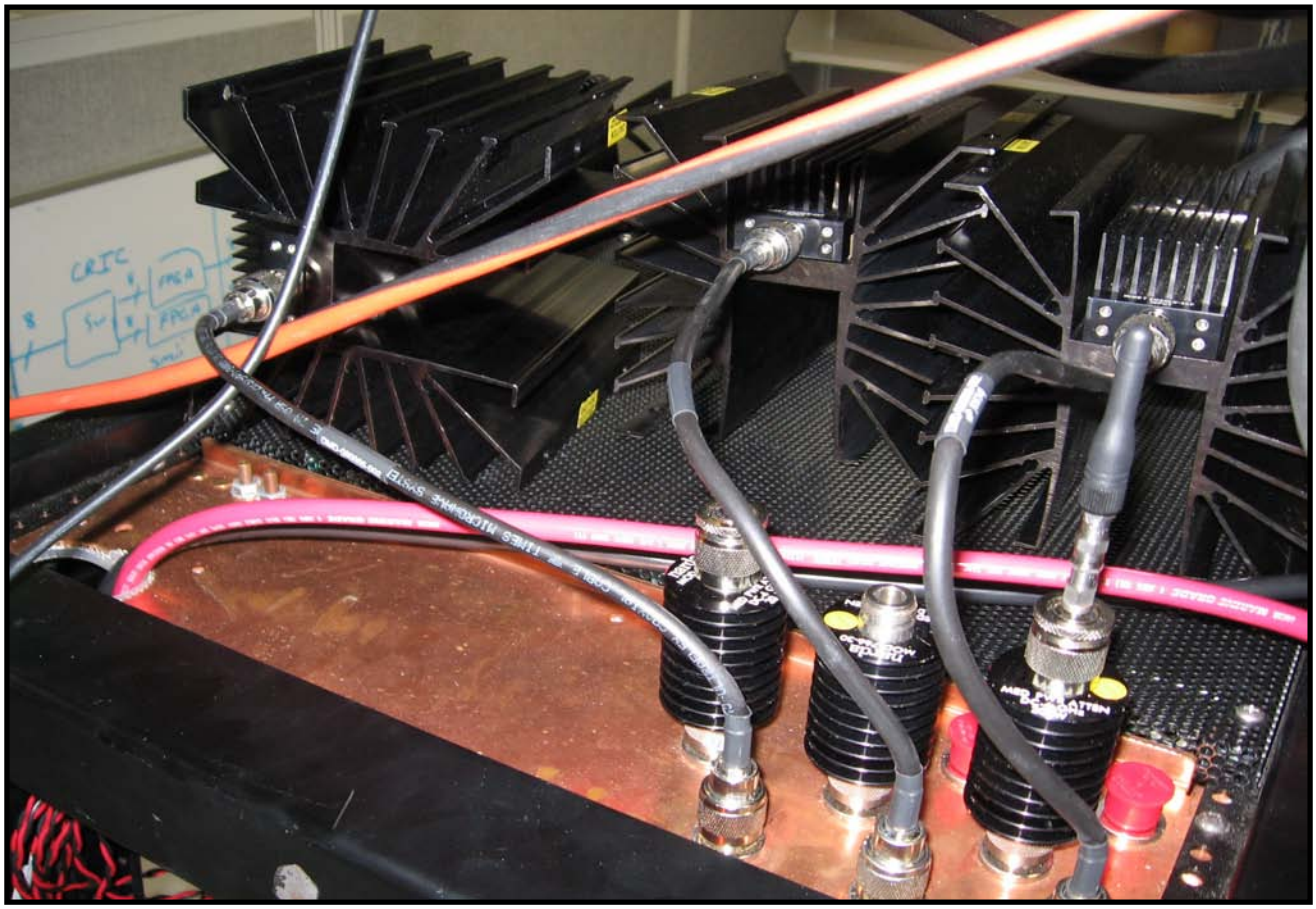


High Channel, Low Power					
Result:	Pass	**Value:**	24.29 dBm	**Limit:**	N/A



OUTPUT POWER

OUTPUT POWER



Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:
Single channels within the center of the allowable 800MHz and 900MHz bands

Operating Modes Investigated:
Typical

Data Rates Investigated:
96 kBps at 64-QAM

Output Power Setting(s) Investigated:
Maximum ~ 14 dBm

Power Input Settings Investigated:
-48Vdc

Software\Firmware Applied During Test			
Exercise software	Vx Works	**Version**	N/A
Description			
The system was tested using standard operating production software to exercise the functions of the device during the testing.			

EUT and Peripherals			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
EUT- Multi-Channel RadioBlade (MCRB	Radioframe Networks, Inc.	176-0860-00	14106110148
EUT- Multi-Channel RadioBlade (MCRB	Radioframe Networks, Inc.	176-0860-00	14106110160
EUT- Multi-Channel RadioBlade (MCRB	Radioframe Networks, Inc.	176-0860-00	14106110151
EUT- Multi-Channel RadioBlade (MCRB	Radioframe Networks, Inc.	176-0860-00	14106110146
EUT- Multi-Channel RadioBlade (MCRB	Radioframe Networks, Inc.	176-0860-00	14106110173
EUT- Multi-Channel RadioBlade (MCRB	Radioframe Networks, Inc.	176-0860-00	14106110174
MC-15 SERIES DUAL BAND SYSTEM (3 SE	Radioframe Networks, Inc.	176-7970-xx	14106050325
FRU, DUAL BAND RF SHELF	Radioframe Networks, Inc.	176-0970-xx	14105510109
FRU, DUAL BAND RF SHELF	Radioframe Networks, Inc.	176-0970-xx	14105510110
FRU, DUAL BAND RF SHELF	Radioframe Networks, Inc.	176-0970-xx	14105510113
RadioBlade Shelf (RBS)	Radioframe Networks, Inc.	176-0535-xx	14106030127
MC-15 BTS Interface Chassis (BIC)	Radioframe Networks, Inc.	176-0900-xx	14106050474
MC Common RadioFrame Interface Card	Radioframe Networks, Inc.	176-7540-xx	041053919XV
MC Common RadioFrame Interface Card	Radioframe Networks, Inc.	176-7540-xx	041053919W3
Base Processing Card (BPC)	Radioframe Networks, Inc.	176-7570-xx	04105411HGM
Base Processing Card (BPC)	Radioframe Networks, Inc.	176-7570-xx	04105401GP1
Base Processing Card (BPC)	Radioframe Networks, Inc.	176-7570-xx	04105421JKZ
MC-15 Airlink Interface Chassis (AI	Radioframe Networks, Inc.	176-0800-xx	14106050522
BPC W/ LC SPAM	Radioframe Networks, Inc.	176-7565-xx	04105411HC0
SPAM	Radioframe Networks, Inc.	176-7510-xx	Unknown
SPAM	Radioframe Networks, Inc.	176-7510-xx	Unknown
BPC W/ LC SPAM	Radioframe Networks, Inc.	176-7565-xx	04105411HJX
SPAM	Radioframe Networks, Inc.	176-7510-xx	Unknown
SPAM	Radioframe Networks, Inc.	176-7510-xx	Unknown
BPC W/ LC SPAM	Radioframe Networks, Inc.	176-7565-xx	04105411HLH
SPAM	Radioframe Networks, Inc.	176-7510-xx	Unknown
SPAM	Radioframe Networks, Inc.	176-7510-xx	Unknown
Ethernet Rear Transition Module (ER	Radioframe Networks, Inc.	176-7562-xx	14105320204
Ethernet Rear Transition Module (ER	Radioframe Networks, Inc.	176-7562-xx	14105320203
Coaxial RMII Transceiver Card (CRTC	Radioframe Networks, Inc.	176-0820-xx	14105480250

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Site Simulator	Radioframe Networks, Inc.	N/a	N/a
Site Controller	Motorola, Inc.	CCN1008N	CAF030LTC4
GPS Antenna	Hewlett-Packard	8532A	901
DC Power Supply	Electronic Measurements, Inc.	EMS 60-33	20K11738

Equipment isolated from the EUT so as not to contribute to the measurement result is considered to be outside the test setup boundary

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Power	No	8.0	No	MC-15 SERIES DUAL BAND SYSTEM	DC Supply
BNC	Yes	30.0	No	ERTM	Site Simulator
BNC	Yes	30.0	No	Site Controller	Site Simulator
BNC	Yes	3.0	No	GPS Antenna	Site Controller
Ethernet	No	3.0	No	Site Controller	ERTM

Measurement Equipment					
Description	**Manufacturer**	**Model**	**Identifier**	**Last Cal**	**Interval**
Spectrum Analyzer	Hewlett-Packard	8593E	AAN	01/25/2006	13 mo
Multimeter	Tektronix	DMM912	MMH	12/08/2005	13 mo
DC Power Supply	Sorensen	DCR60-45B	TPB	NCR	NA
Chamber, Temp./Humidity Chamber	Cincinnati Sub Zero (CSZ)	ZH-32-2-2-H/AC	TBA	08/24/2005	12 mo
Chamber Temp. & Humidity Controller	ESZ / Eurotherm	Dimension II	TBC	08/24/2005	12 mo

Test Description

Requirement: Per 47 CFR 15.255, the frequency stability shall be measured with variation of ambient temperature and primary supply voltage. A spectrum analyzer or frequency counter can be used to measure the frequency stability. If using a spectrum analyzer, it must have a precision frequency reference that exceeds the stability requirement of the transmitter. A temperature / humidity chamber is required.

Configuration:

Variation of Supply Voltage

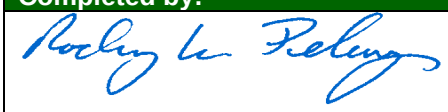
The primary supply voltage was varied from 85% to 115% of nominal. The EUT can only be operated from the public AC mains, so an DC lab supply was used to vary the supply voltage from 115% to 85% -48V DC.

Variation of Ambient Temperature

Using a temperature chamber, the transmit frequency was recorded at the extremes of the specified temperature range (-20° to +50° C) and at 10°C intervals.

Measurements were made at the single transmit frequency. The antenna is integral to the EUT, so a radiated measurement was made using a spectrum analyzer and a near field probe. The spectrum analyzer is equipped with a precision frequency reference that exceeds the stability requirement of the EUT.

Completed by:



NORTHWEST EMC

FREQUENCY STABILITY

Rev BETA 01/30/01

EUT:	MC-Series			Work Order:	RAFN0060
Serial Number:	Various			Date:	03/21/06
Customer:	Radioframe Networks, Inc.			Temperature:	21°C
Attendees:	Dean Busch	Tested by:	Rod Pelqouin	Humidity:	32%
Customer Ref. No.:	None	Power:	-48 Vdc	Job Site:	Off-site

TEST SPECIFICATIONS

Specification:	FCC 90I	Year:	2005	Method:	ANSI/TIA/EIA-603-B	Year:	2002

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Transmitting mid band

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Minimum frequency stability of 1 part per million (ppm) for variations of temperature and supply voltage (DC)

RESULTS	MINIMUM FREQUENCY STABILITY
Pass	0.3 ppm

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Frequency Stability

Frequency Stability with Variation of Ambient Temperature (Primary Supply = 48 Vdc)

Temp (°C)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
50	860.55000	860.550037	0.04	1
40	860.55000	860.550062	0.07	1
30	860.55000	860.550037	0.04	1
20	860.55000	860.550037	0.04	1
10	860.55000	860.550250	0.29	1
0	860.55000	860.550037	0.04	1
-10	860.55000	860.550049	0.06	1
-20	860.55000	860.550049	0.06	1
-30	860.55000	860.550049	0.06	1

Frequency Stability with Variation of Primary Supply Voltage (Ambient Temperature = 20°C)

Voltage (Vdc)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
55.2 (115%)	860.55000	860.550062	0.07	1
52.8 (110%)	860.55000	860.550037	0.04	1
50.4 (105%)	860.55000	860.550050	0.06	1
48 (100%)	860.55000	860.550037	0.04	1
45.6 (95%)	860.55000	860.550050	0.06	1
43.2 (90%)	860.55000	860.550000	0.00	1
40.8 (85%)	860.55000	860.55000	0.00	1

NORTHWEST EMC

FREQUENCY STABILITY

Rev BETA 01/30/01

EUT:	MC-Series			Work Order:	RAFN0060
Serial Number:	Various			Date:	03/21/06
Customer:	Radioframe Networks, Inc.			Temperature:	21°C
Attendees:	Dean Busch	Tested by:	Rod Pelqouin	Humidity:	32%
Customer Ref. No.:	None	Power:	-48 Vdc	Job Site:	EV06 & EV09

TEST SPECIFICATIONS

Specification:	FCC 90I	Year:	2005	Method:	ANSI/TIA/EIA-603-B	Year:	2002

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Transmitting mid 900MHz band

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Minimum frequency stability of 1 part per million (ppm) for variations of temperature and supply voltage (DC)

RESULTS	MINIMUM FREQUENCY STABILITY
Pass	0.05 ppm

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

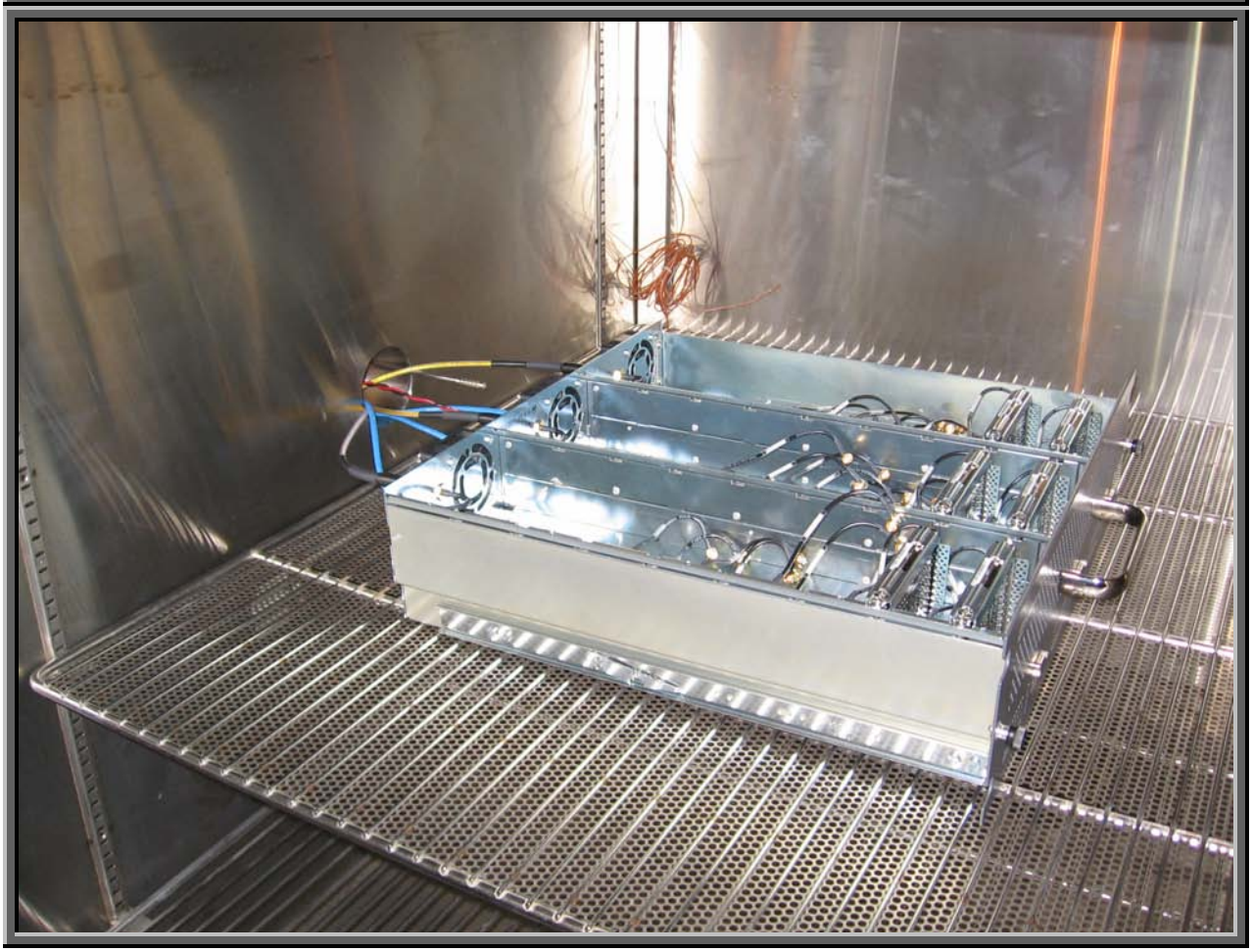
Frequency Stability

Frequency Stability with Variation of Ambient Temperature (Primary Supply = -48 Vdc)

Temp (°C)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
50	937.46875	937.468775	0.03	1
40	937.46875	937.468800	0.05	1
30	937.46875	937.468800	0.05	1
20	937.46875	937.468787	0.04	1
10	937.46875	937.468763	0.01	1
0	937.46875	937.468787	0.04	1
-10	937.46875	937.468763	0.01	1
-20	937.46875	937.468763	0.01	1
-30	937.46875	937.468775	0.03	1

Frequency Stability with Variation of Primary Supply Voltage (Ambient Temperature = 20°C)

Voltage (Vdc)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
55.2 (115%)	937.46875	937.468738	0.01	1
52.8 (110%)	937.46875	937.468763	0.01	1
50.4 (105%)	937.46875	937.468763	0.01	1
48 (100%)	937.46875	937.468775	0.03	1
45.6 (95%)	937.46875	937.468775	0.03	1
43.2 (90%)	937.46875	937.468775	0.03	1
40.8 (85%)	937.46875	937.468775	0.03	N/A



SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Dual Directional Coupler	Amplifier Research	DC7154	IRD	2/23/2006	13
Spectrum Analyzer	Agilent	E4407B	AAU	9/20/2006	12

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

A spectrum analyzer was used to scan from 0 to 9 GHz. A 100 kHz resolution bandwidth was used. No video filtering was employed. A directional coupler was used on the RF input of the spectrum analyzer.

Testing also included the three carrier intermodulation test specified by the FCC. Two modulated carriers near the start of the operational band are transmitting at full power, and one near the opposite end of the band is also transmitting at full power.

NORTHWEST EMC

SPURIOUS EMISSIONS AT ANTENNA TERMINALS

XMit 2006.08.25

EUT:	MC-Series iDEN Microcell High Power			**Work Order:**	RAFN0067
Serial Number:	Engineering unit			**Date:**	11/10/06
Customer:	Radioframe Networks, Inc.			**Temperature:**	22°C
Attendees:	Erin Duleba			**Humidity:**	34%
Project:	None			**Barometric Pres.:**	29.89
Tested by:	Greg Kiemel	**Power:**	-48VDC	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 90I:2005	ANSI/TIA/EIA-603-B:2002

COMMENTS

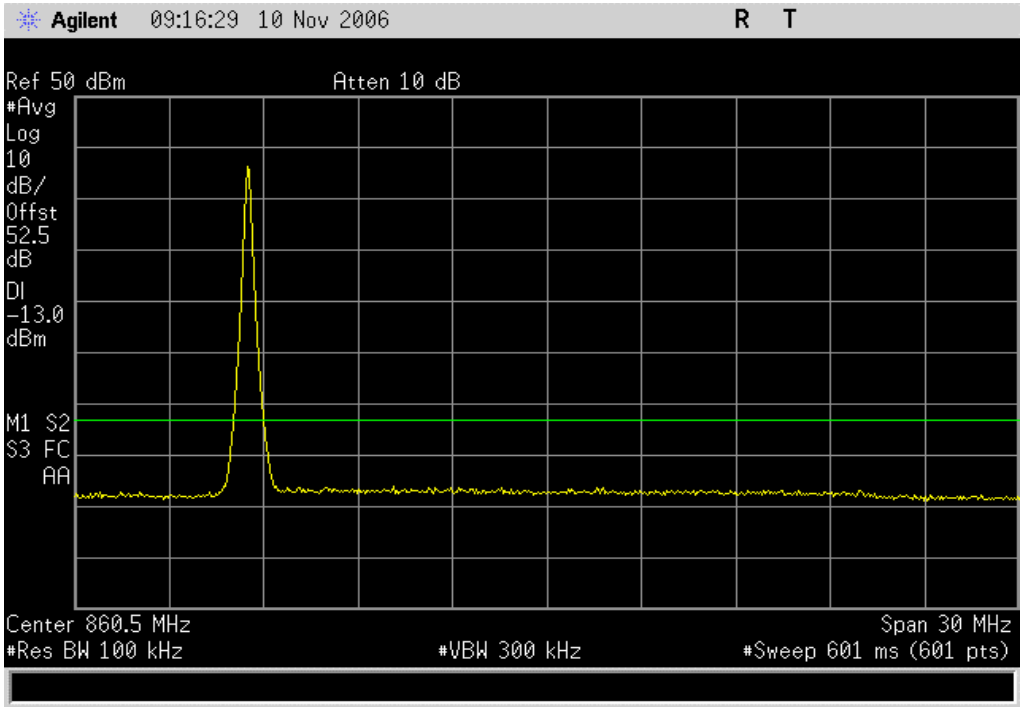
800 MHz band

DEVIATIONS FROM TEST STANDARD

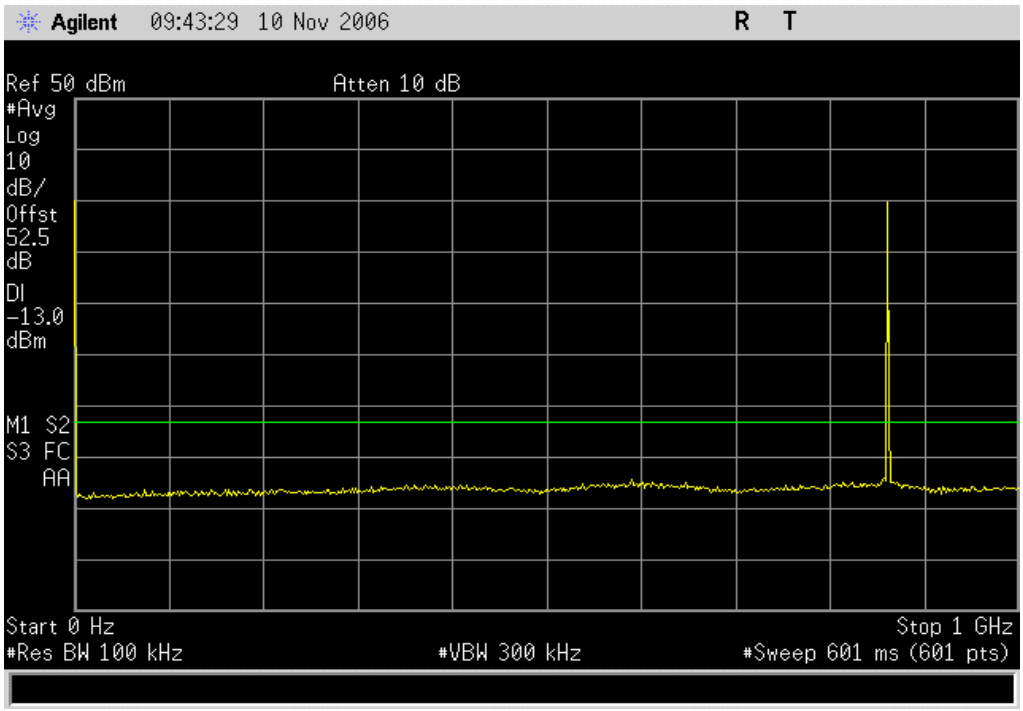
Configuration #	1	Signature

		Value	Limit	Results
Low Channel				
	In Band	<-25 dBm	≤-13 dBm	Pass
	0-1GHz	<-25 dBm	≤-13 dBm	Pass
	995MHz-2.8GHz	<-25 dBm	≤-13 dBm	Pass
	2.795GHz-4.5GHz	<-25 dBm	≤-13 dBm	Pass
	4.495GHz-6GHz	<-25 dBm	≤-13 dBm	Pass
	5.995GHz-7.5GHz	<-25 dBm	≤-13 dBm	Pass
	7.495GHz-9GHz	<-25 dBm	≤-13 dBm	Pass
Mid Channel				
	In Band	<-25 dBm	≤-13 dBm	Pass
	0-1GHz	<-25 dBm	≤-13 dBm	Pass
	995MHz-2.8GHz	<-25 dBm	≤-13 dBm	Pass
	2.795GHz-4.5GHz	<-25 dBm	≤-13 dBm	Pass
	4.495GHz-6GHz	<-25 dBm	≤-13 dBm	Pass
	5.995GHz-7.5GHz	<-25 dBm	≤-13 dBm	Pass
	7.495GHz-9GHz	<-25 dBm	≤-13 dBm	Pass
High Channel				
	In Band	<-25 dBm	≤-13 dBm	Pass
	0-1GHz	<-25 dBm	≤-13 dBm	Pass
	995MHz-2.8GHz	<-25 dBm	≤-13 dBm	Pass
	2.795GHz-4.5GHz	<-25 dBm	≤-13 dBm	Pass
	4.495GHz-6GHz	<-25 dBm	≤-13 dBm	Pass
	5.995GHz-7.5GHz	<-25 dBm	≤-13 dBm	Pass
	7.495GHz-9GHz	<-25 dBm	≤-13 dBm	Pass
3 Channel Intermods				
	In Band	<-25 dBm	≤-13 dBm	Pass
	0-1GHz	<-25 dBm	≤-13 dBm	Pass
	995MHz-2.8GHz	<-25 dBm	≤-13 dBm	Pass
	2.795GHz-4.5GHz	<-25 dBm	≤-13 dBm	Pass
	4.495GHz-6GHz	<-25 dBm	≤-13 dBm	Pass
	5.995GHz-7.5GHz	<-25 dBm	≤-13 dBm	Pass
	7.495GHz-9GHz	<-25 dBm	≤-13 dBm	Pass

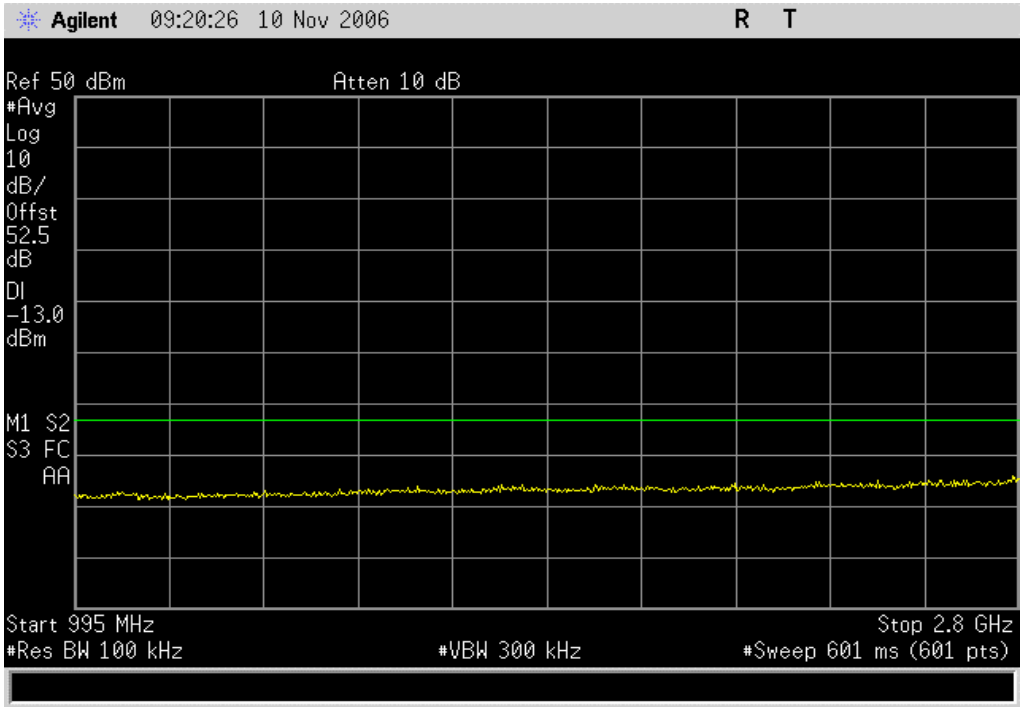
Low Channel, In Band					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



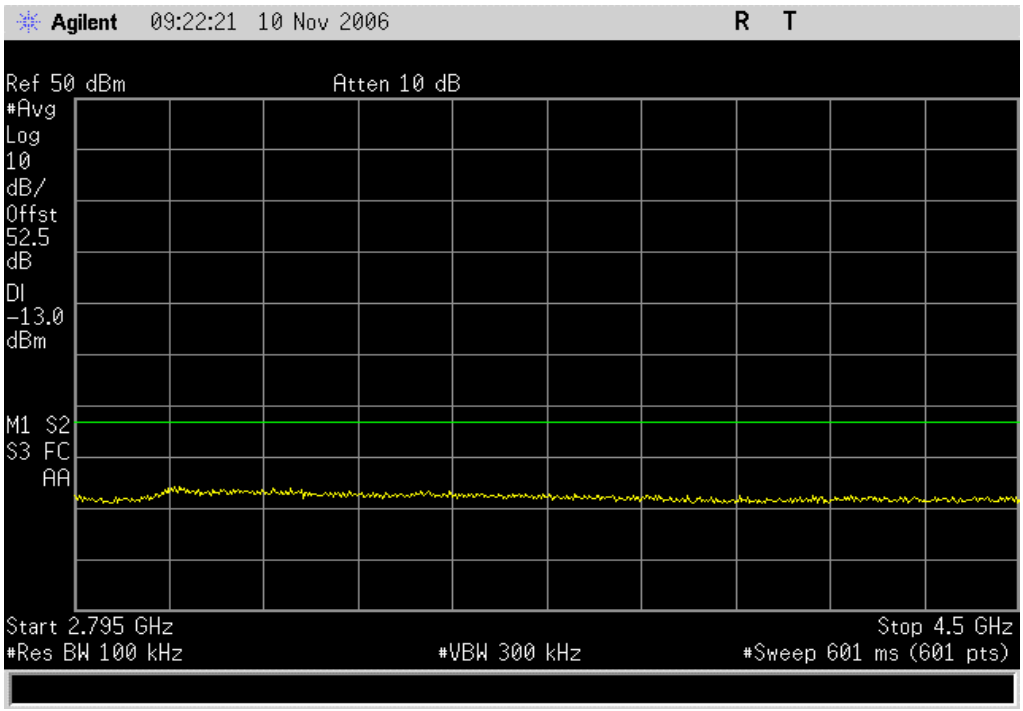
Low Channel, 0-1GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



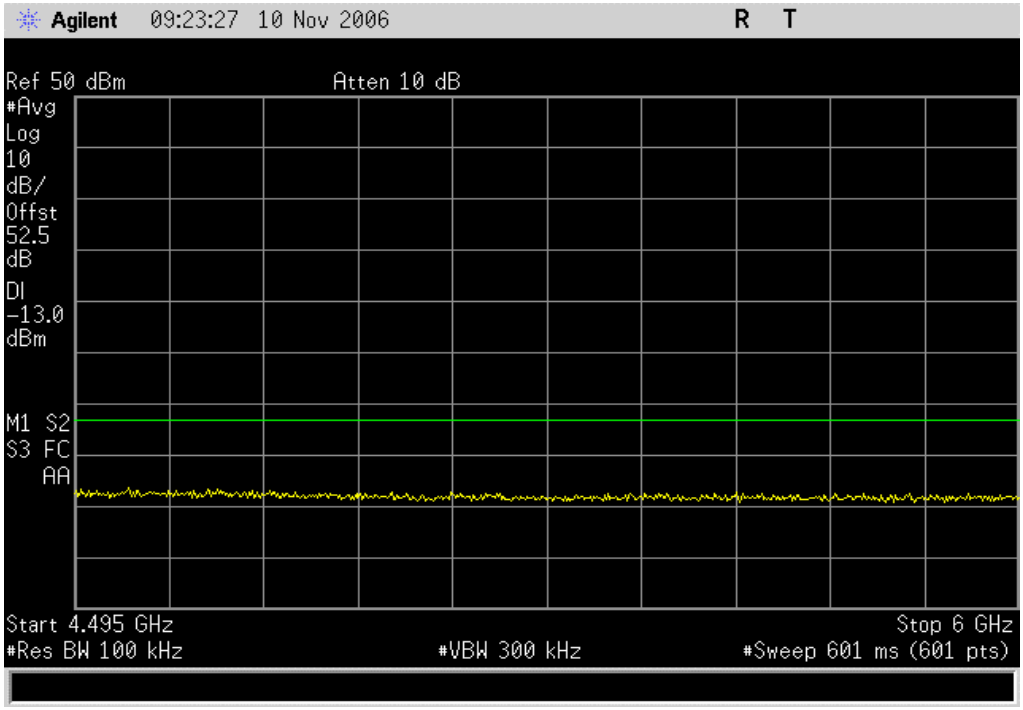
Low Channel, 995MHz-2.8GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



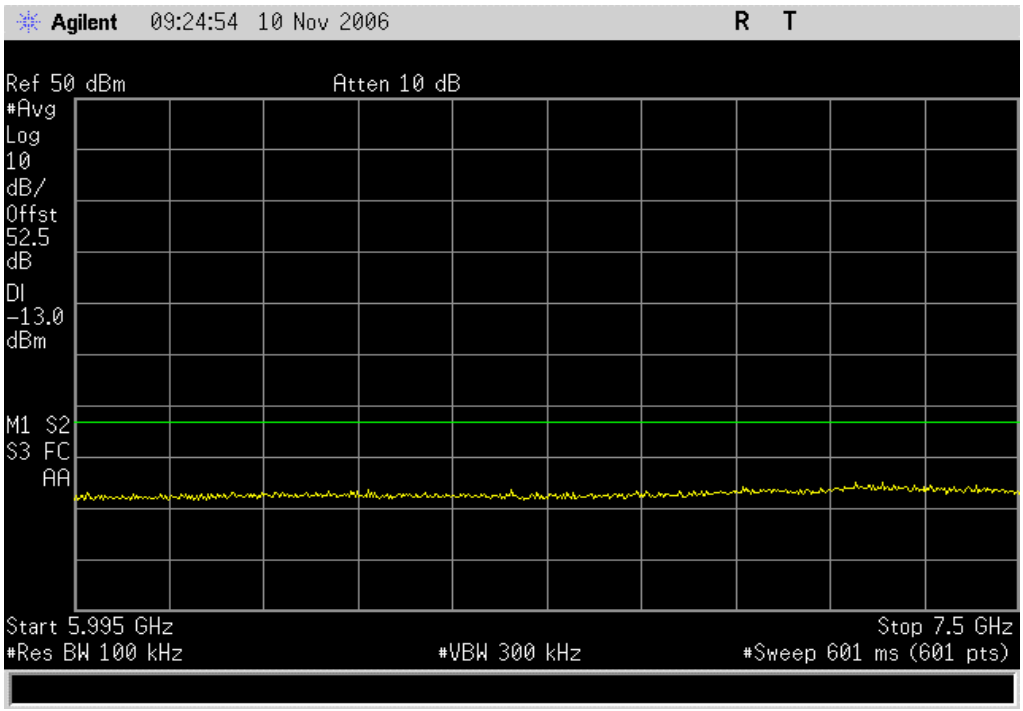
Low Channel, 2.795GHz-4.5GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



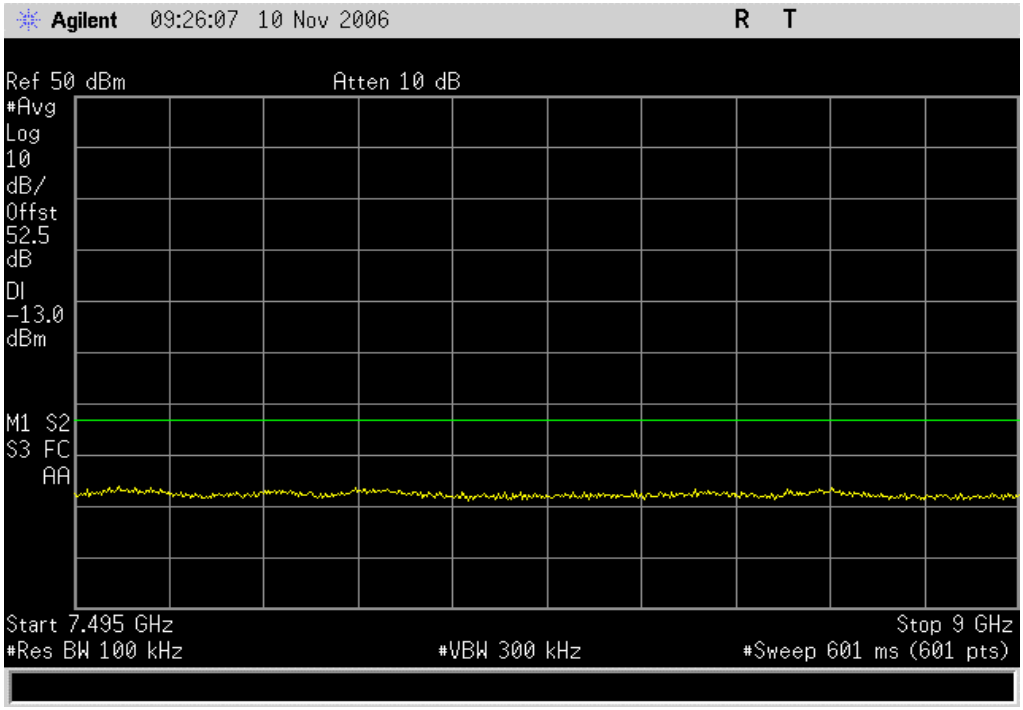
Low Channel, 4.495GHz-6GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



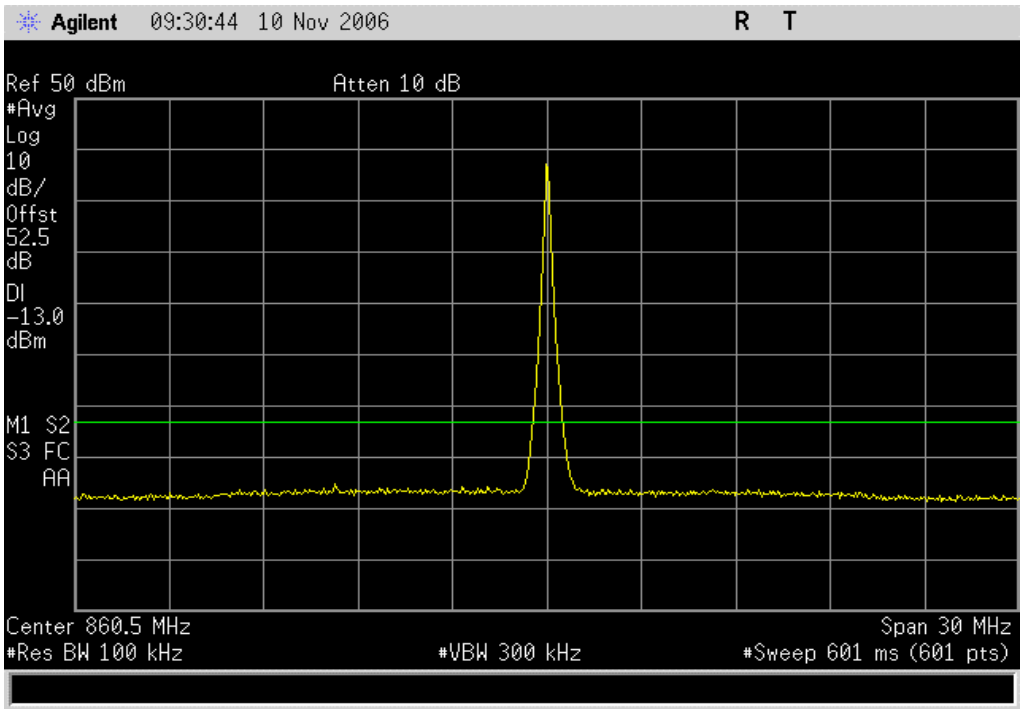
Low Channel, 5.995GHz-7.5GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



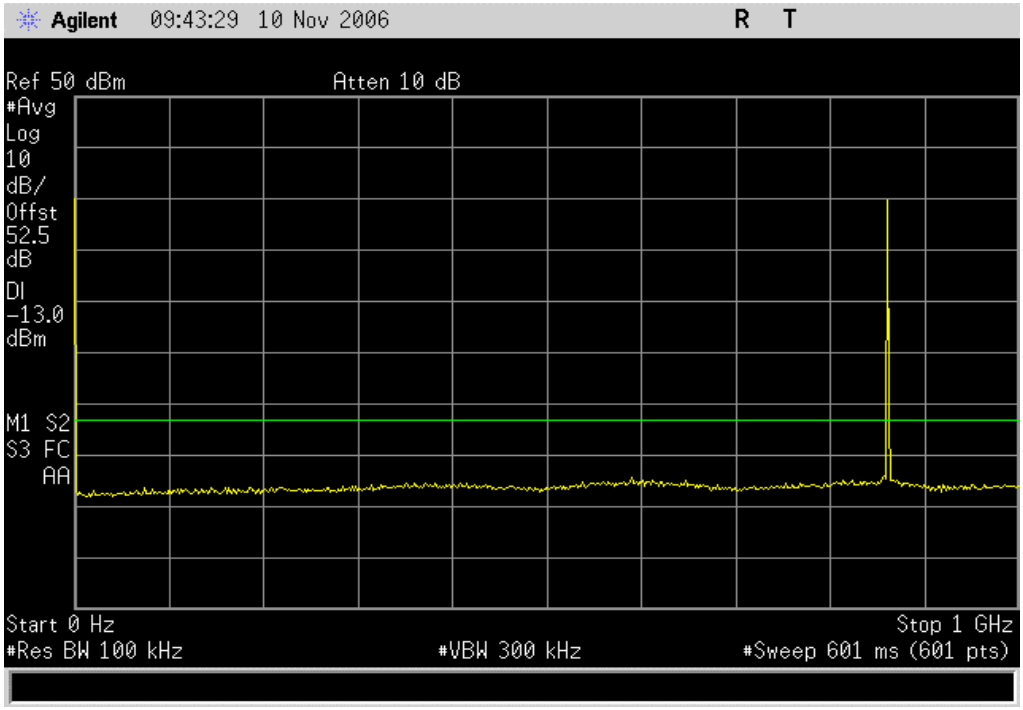
Low Channel, 7.495GHz-9GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



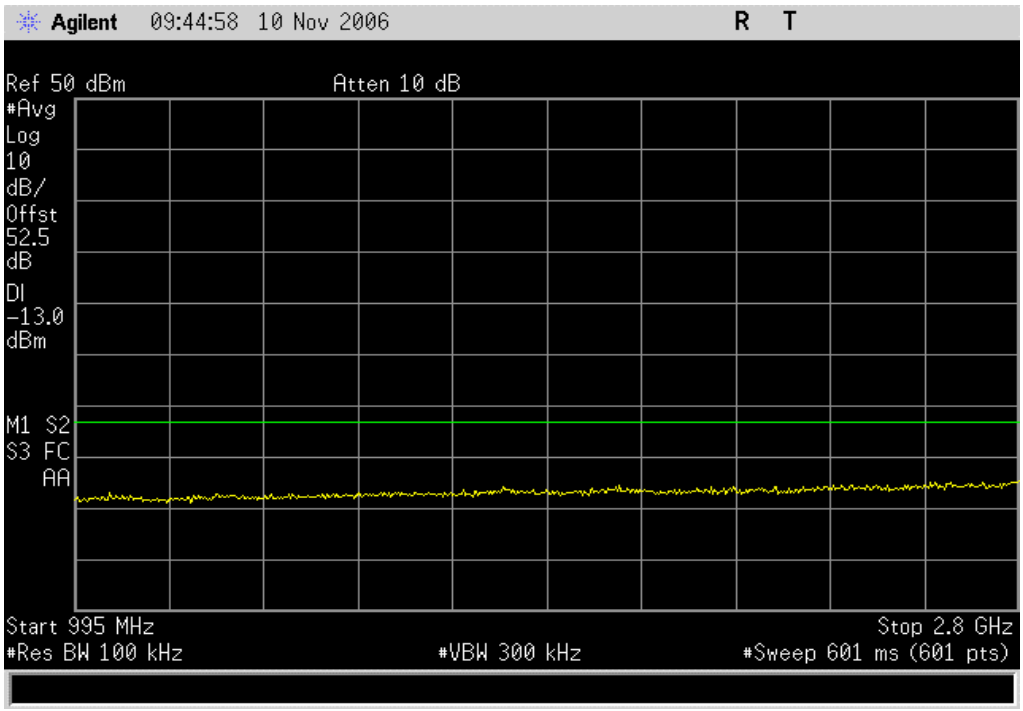
Mid Channel, In Band					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



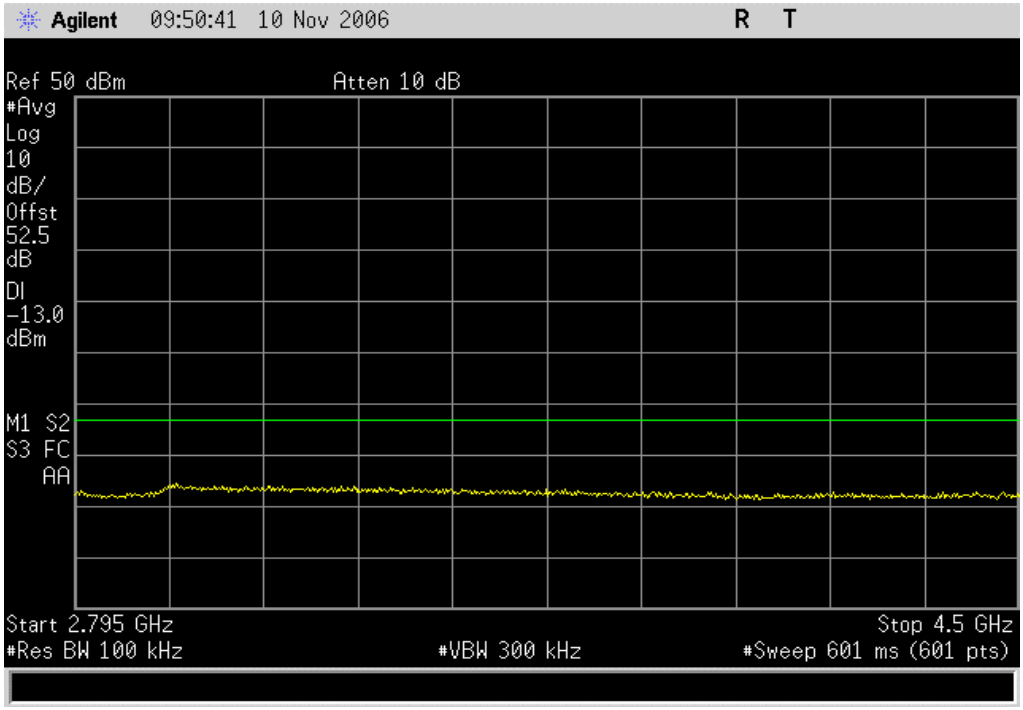
Mid Channel, 0-1GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



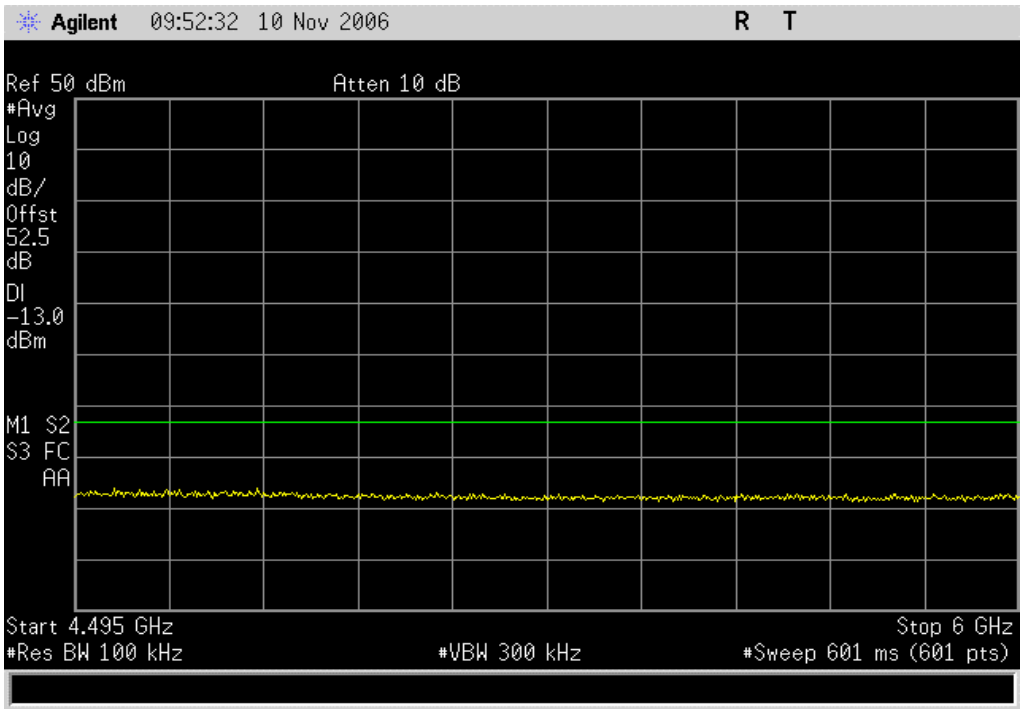
Mid Channel, 995MHz-2.8GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



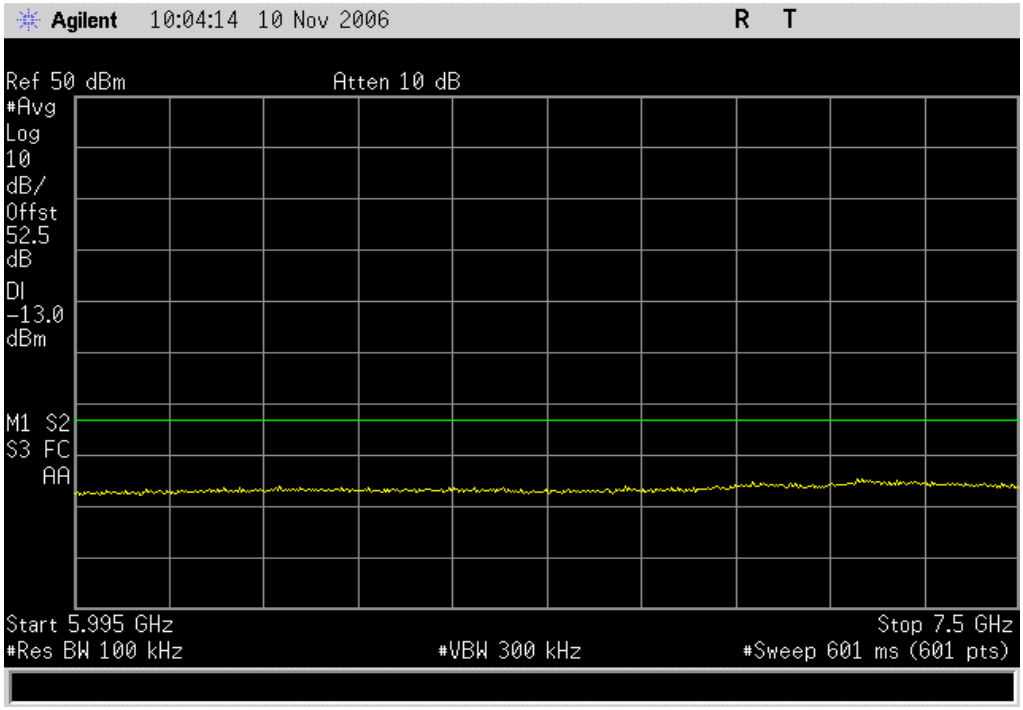
Mid Channel, 2.795GHz-4.5GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



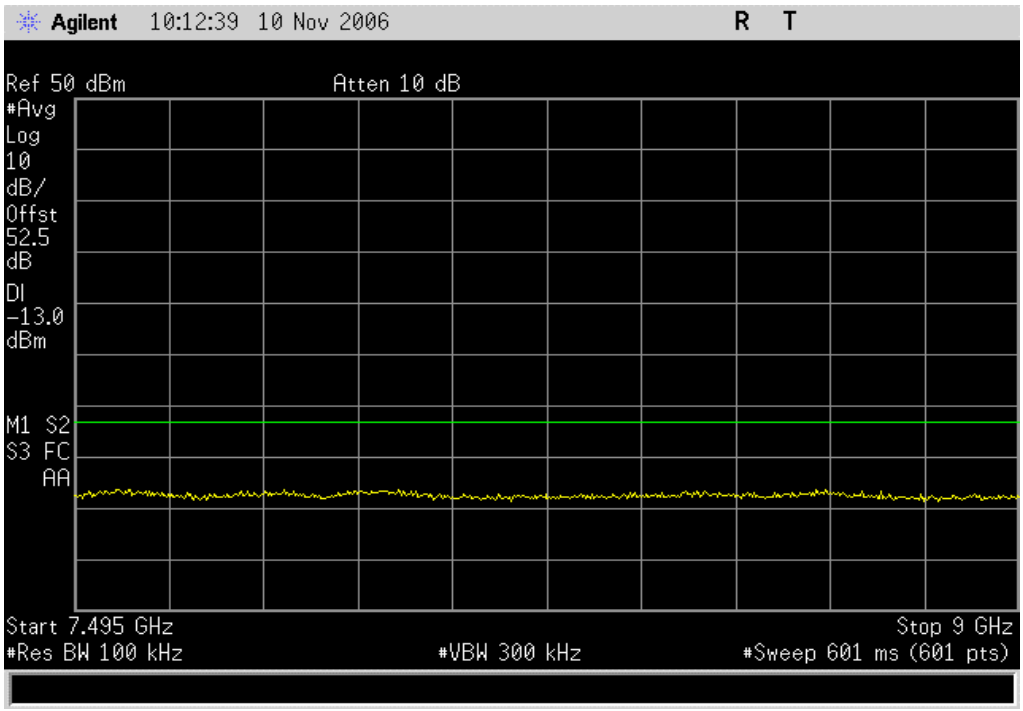
Mid Channel, 4.495GHz-6GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



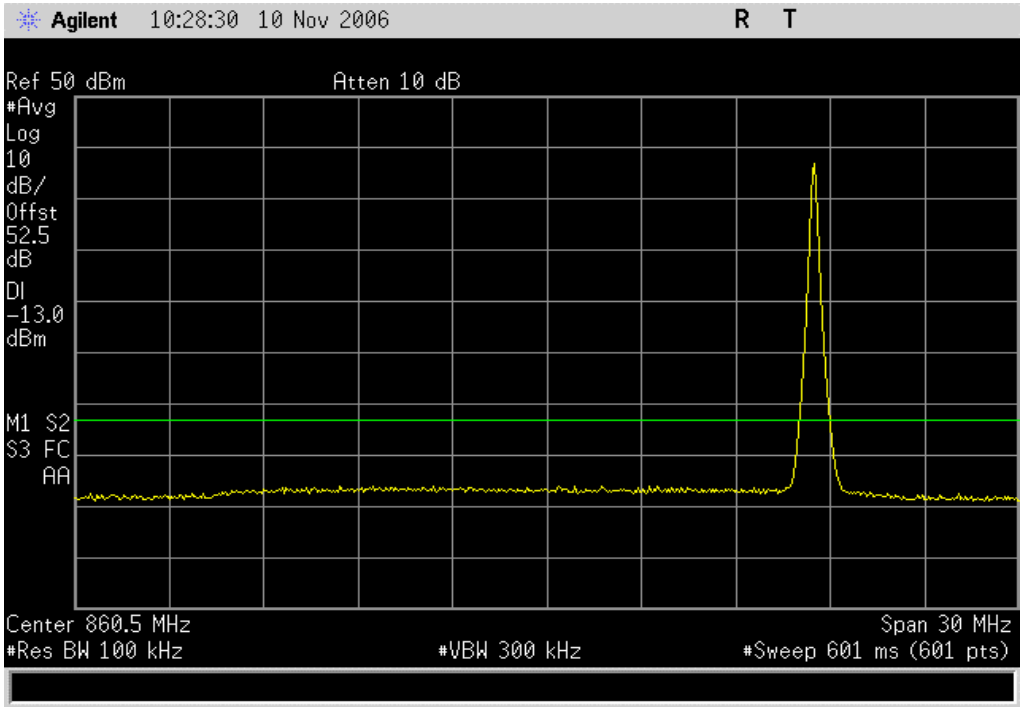
Mid Channel, 5.995GHz-7.5GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



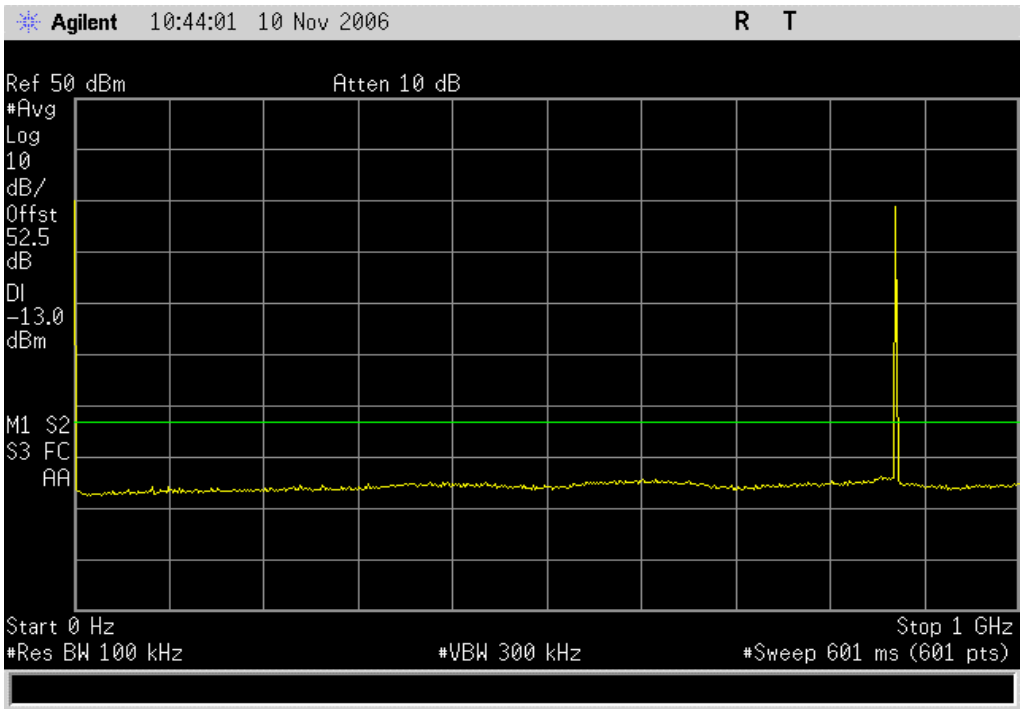
Mid Channel, 7.495GHz-9GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



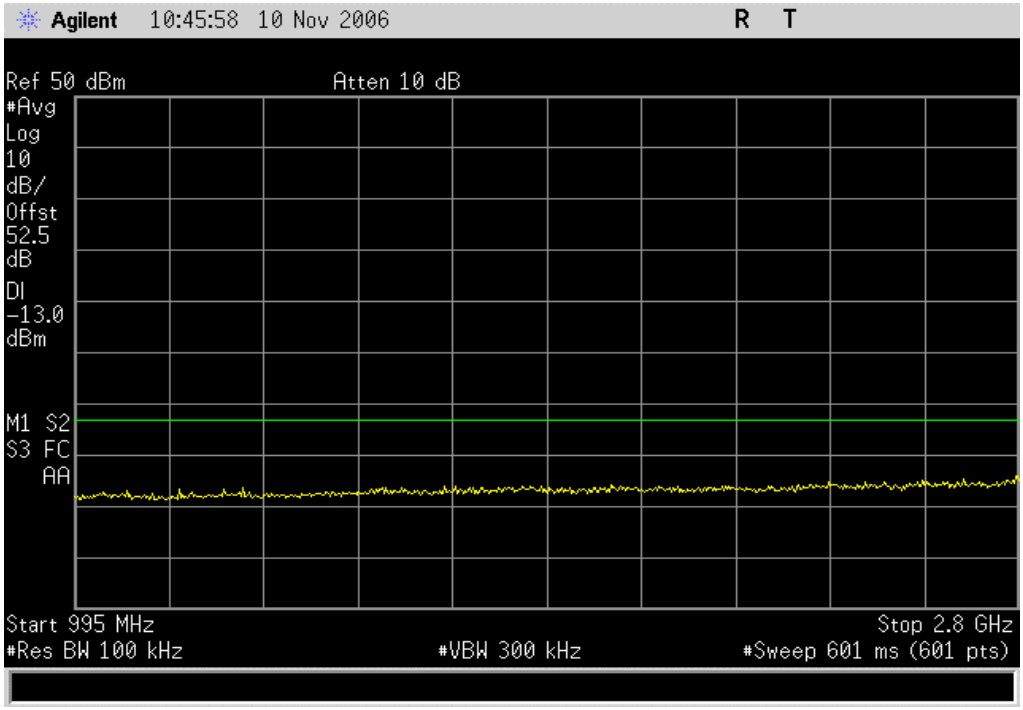
High Channel, In Band					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



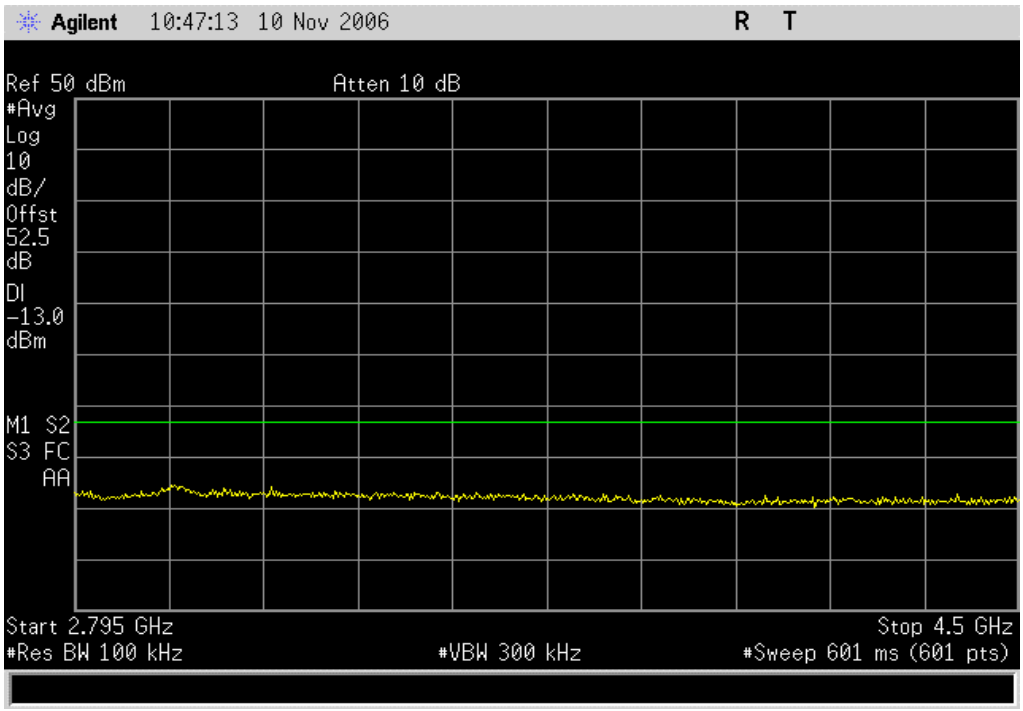
High Channel, 0-1GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



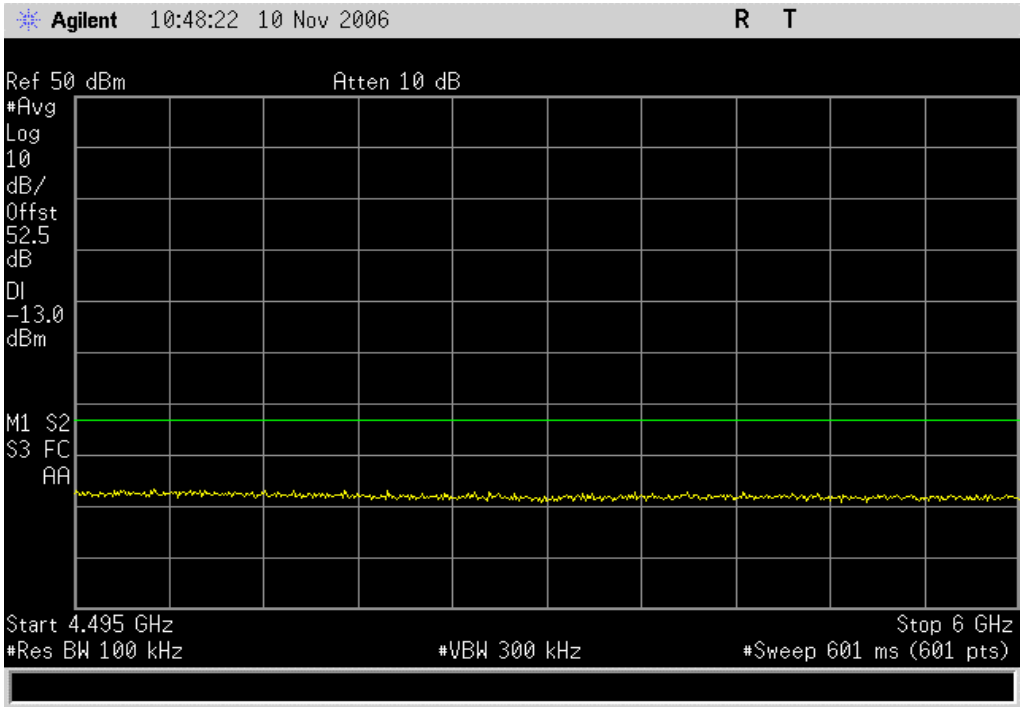
High Channel, 995MHz-2.8GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



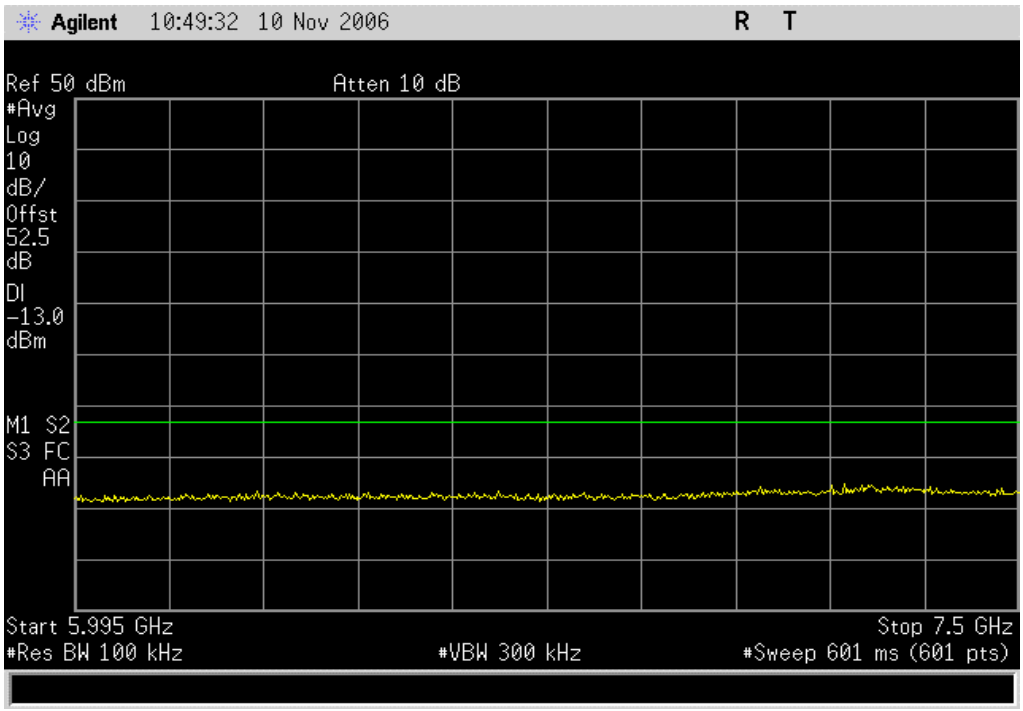
High Channel, 2.795GHz-4.5GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



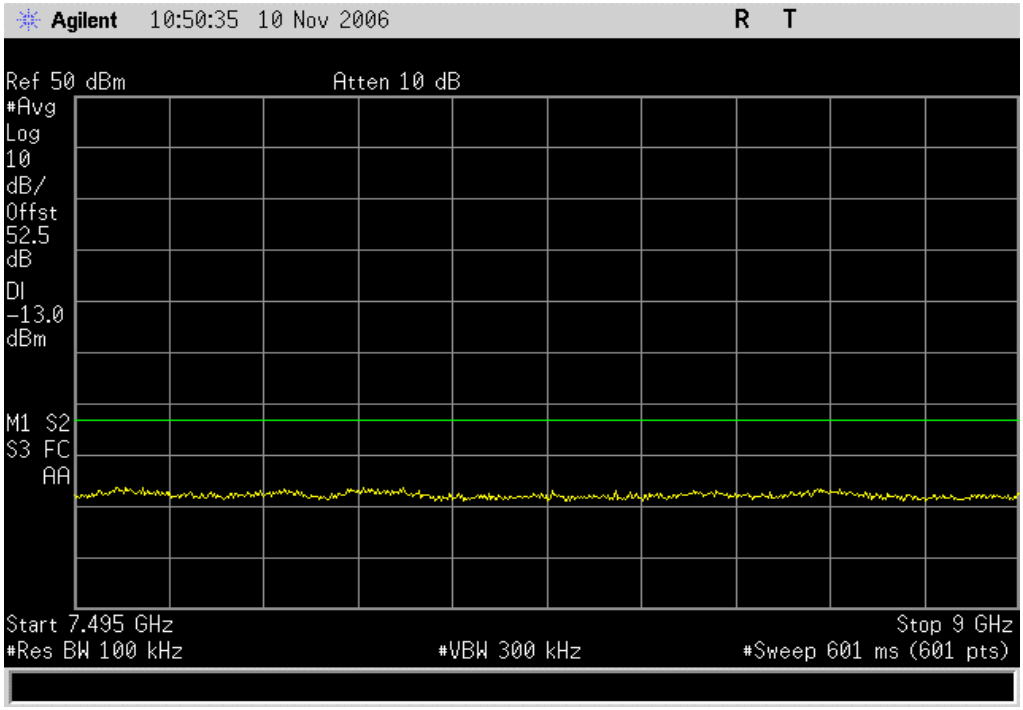
High Channel, 4.495GHz-6GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



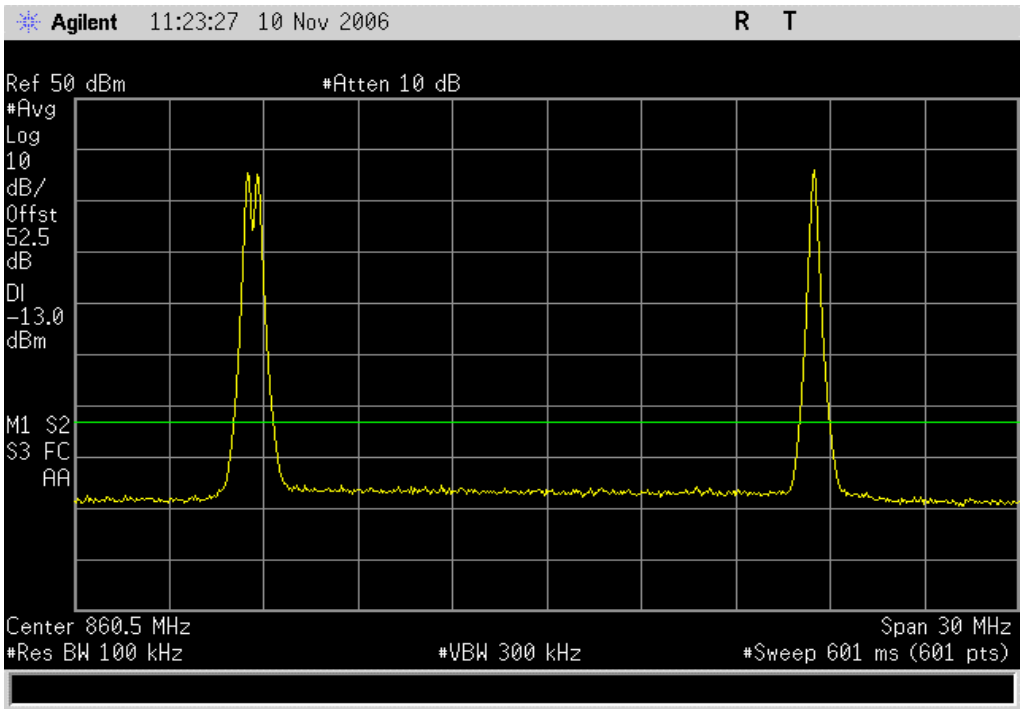
High Channel, 5.995GHz-7.5GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



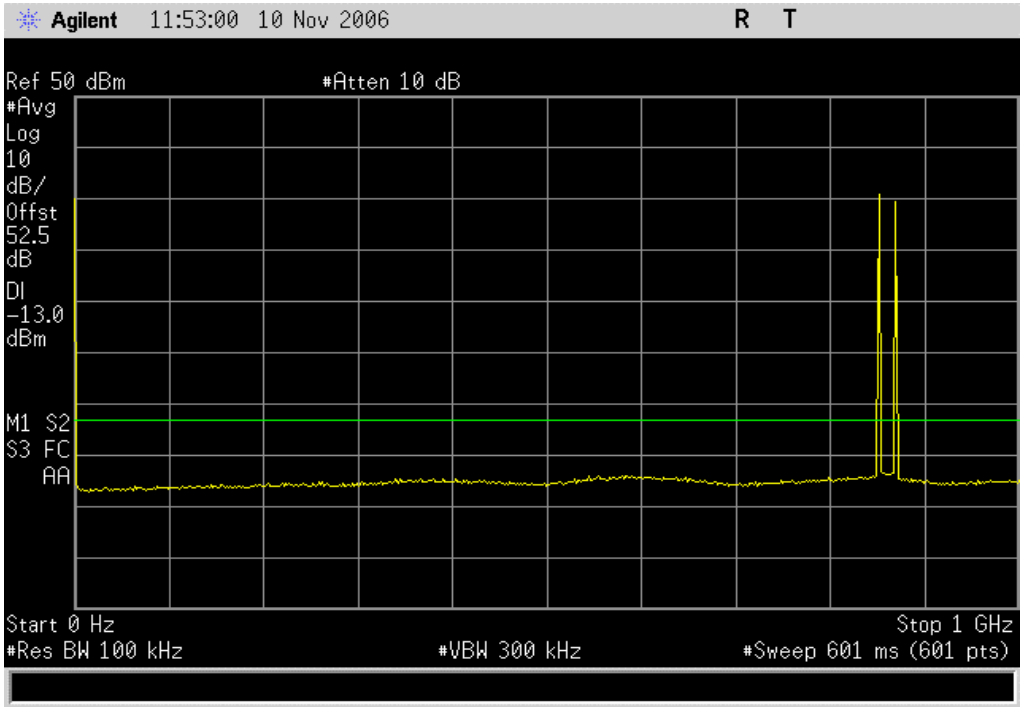
High Channel, 7.495GHz-9GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



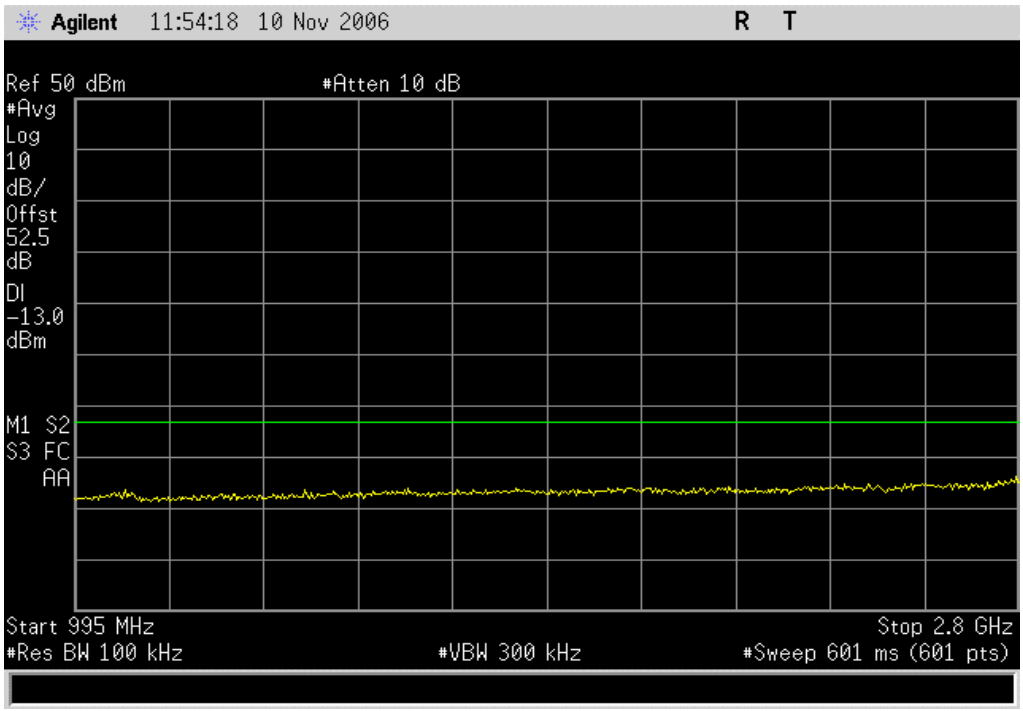
3 Channel Intermods, In Band					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



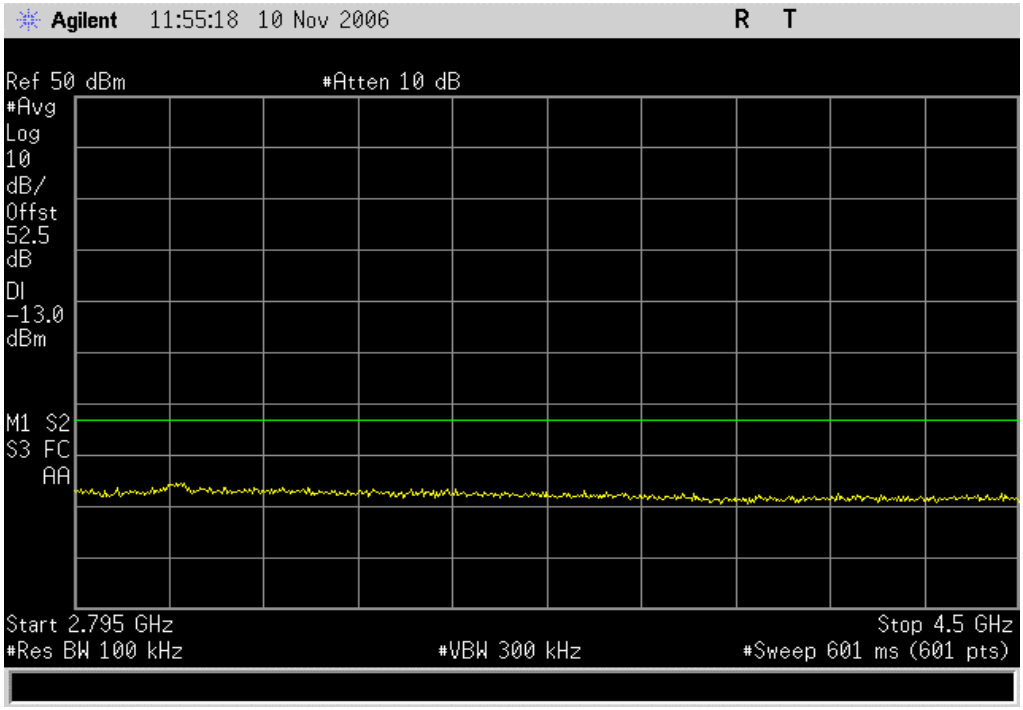
3 Channel Intermods, 0-1GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



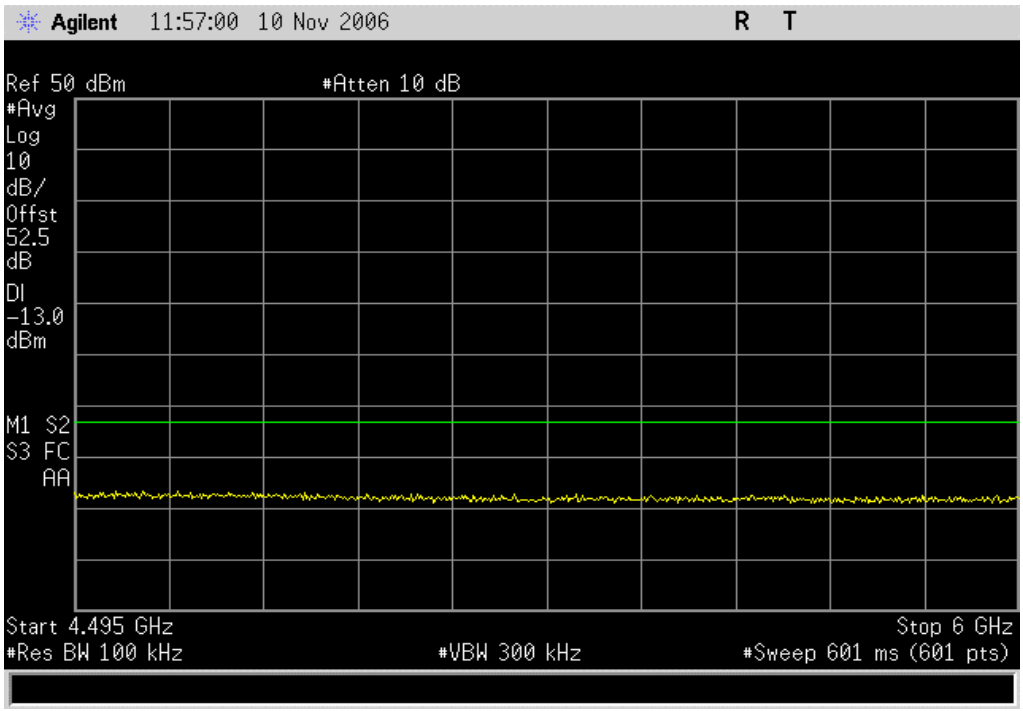
3 Channel Intermods, 995MHz-2.8GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



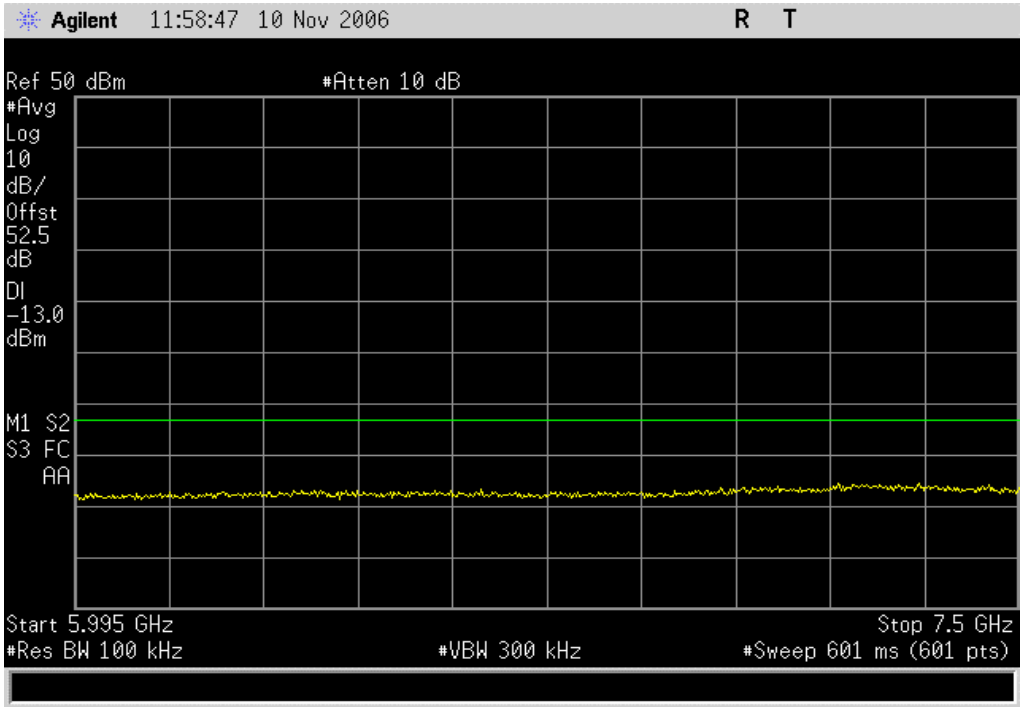
3 Channel Intermods, 2.795GHz-4.5GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



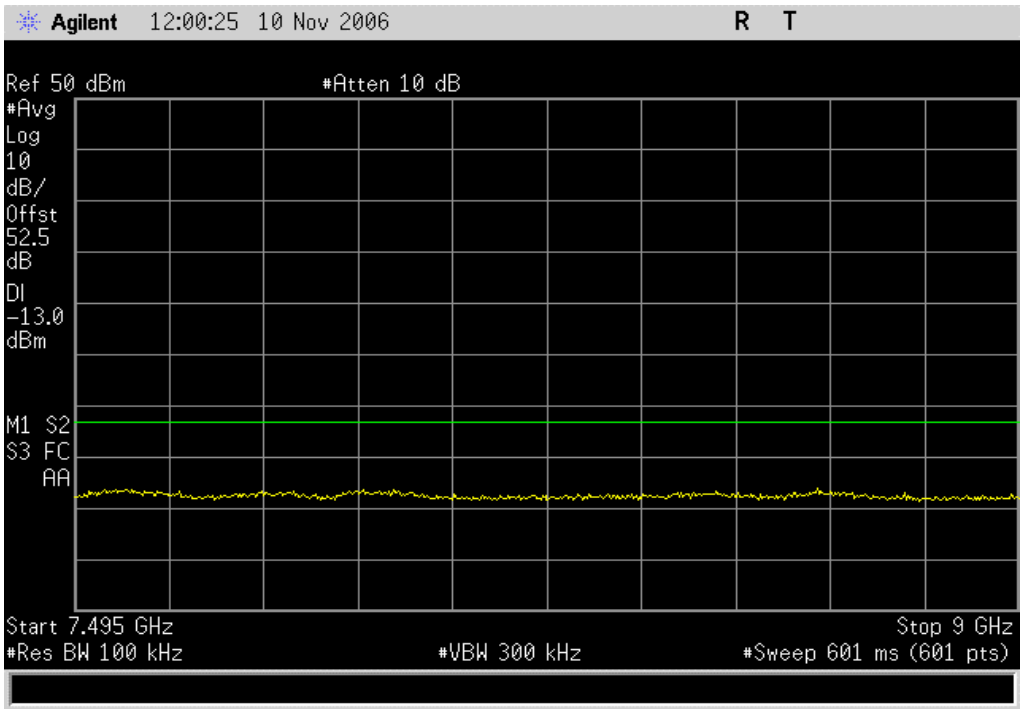
3 Channel Intermods, 4.495GHz-6GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



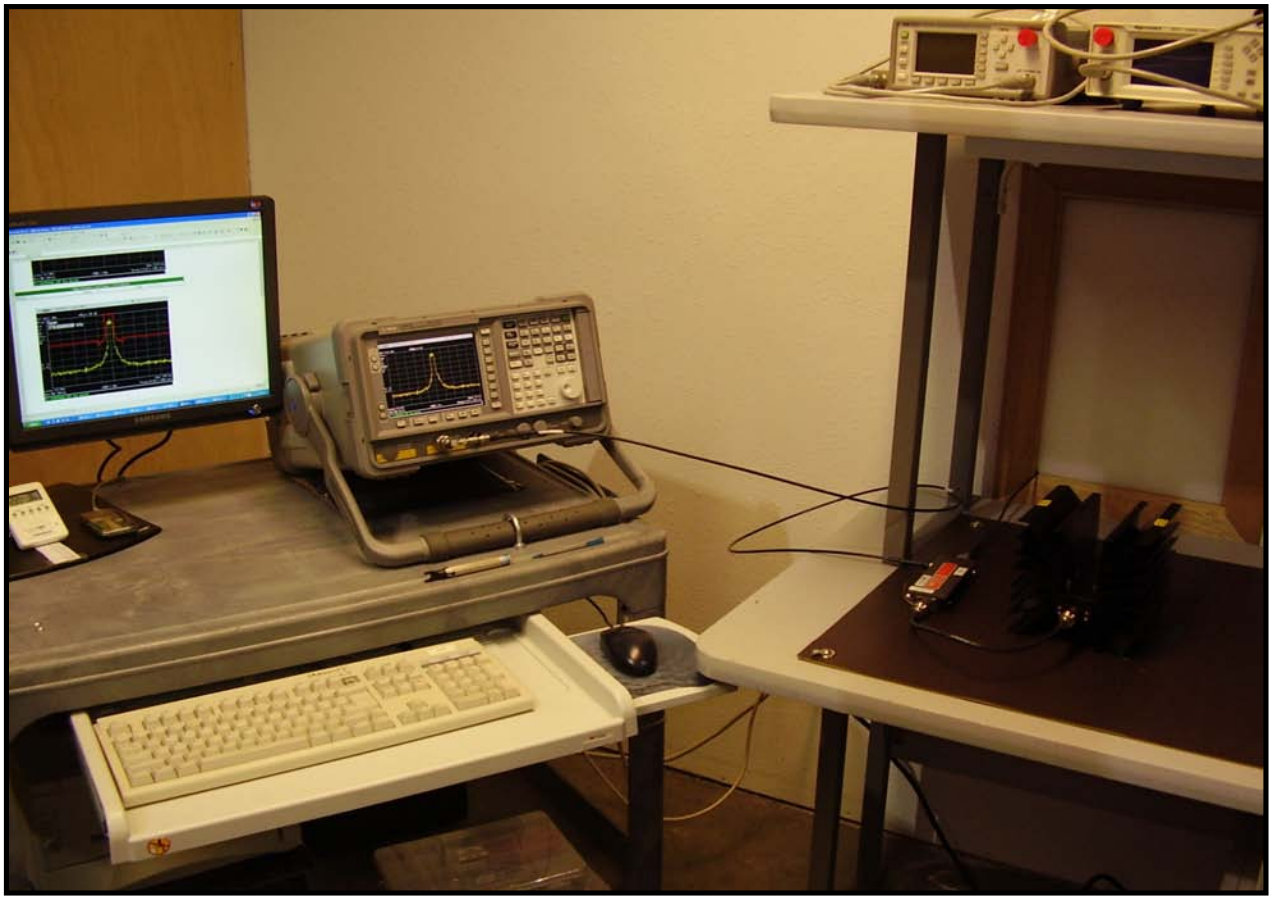
3 Channel Intermods, 5.995GHz-7.5GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



3 Channel Intermods, 7.495GHz-9GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



SPURIOUS EMISSIONS AT ANTENNA TERMINALS



SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Dual Directional Coupler	Amplifier Research	DC7154	IRD	2/23/2006	13
Spectrum Analyzer	Agilent	E4407B	AAU	9/20/2006	12
Attenuator	Inmet	2N100W-30dB		NCR	
Attenuator	Inmet	2N200W-30dB		NCR	

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

A spectrum analyzer was used to scan from 0 to 9.5 GHz. A 100 kHz resolution bandwidth was used. No video filtering was employed. A directional coupler was used on the RF input of the spectrum analyzer.

Testing also included the three carrier intermodulation test specified by the FCC. Two modulated carriers near the start of the operational band are transmitting at full power, and one near the opposite end of the band is also transmitting at full power.

NORTHWEST EMC

SPURIOUS EMISSIONS AT ANTENNA TERMINALS

XMit 2006.08.25

EUT:	MC-Series iDEN Microcell High Power			**Work Order:**	RAFN0067/RAFN0073
Serial Number:	Engineering unit			**Date:**	11/10/2006 & 3/6/2007
Customer:	Radioframe Networks, Inc.			**Temperature:**	22°C
Attendees:	Erin Duleba			**Humidity:**	34%
Project:	None			**Barometric Pres.:**	29.89
Tested by:	Greg Kiemel	**Power:**	-48VDC	**Job Site:**	EV06/Offsite

TEST SPECIFICATIONS	Test Method
FCC 90I:2005	ANSI/TIA/EIA-603-B:2002

COMMENTS

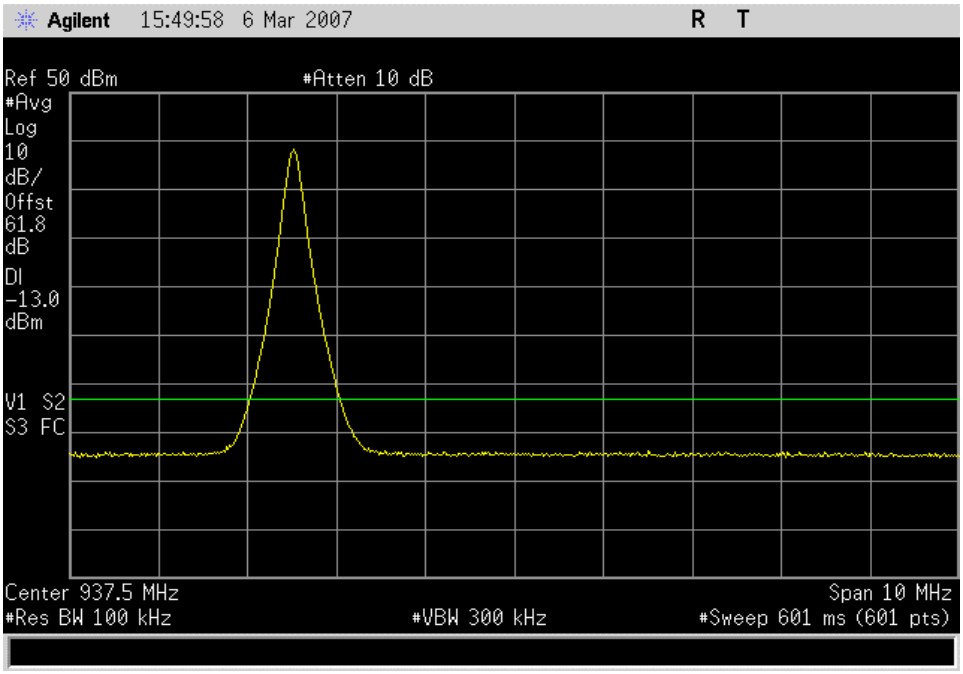
900 MHz Band

DEVIATIONS FROM TEST STANDARD

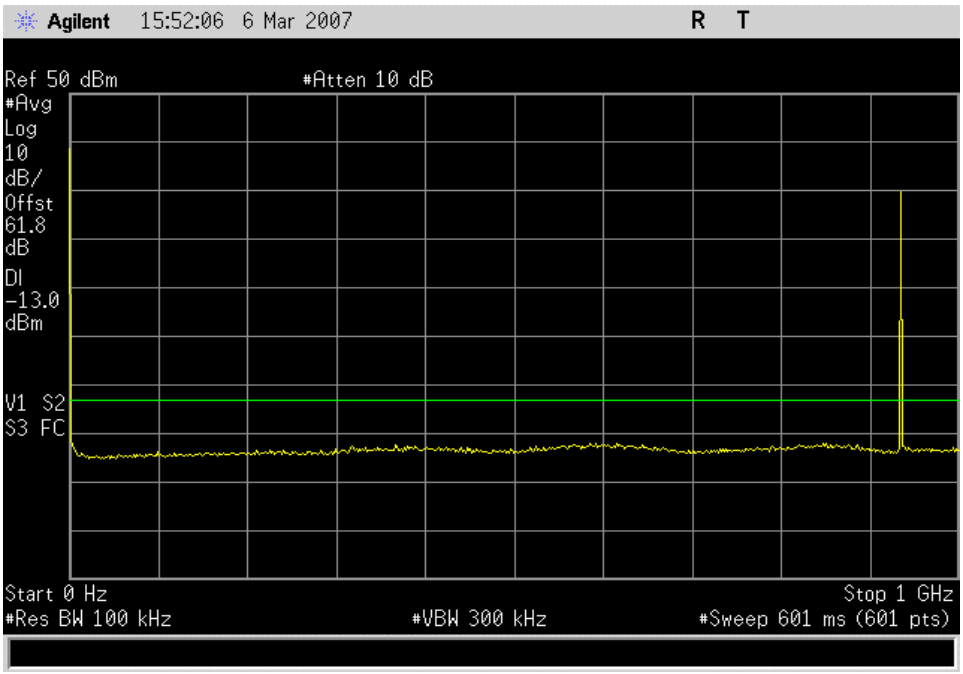
Configuration #	1	*Signature*

		Value	Limit	Results
Low Channel				
	In Band	< -20 dBm	≤ -13 dBm	Pass
	0-1GHz	< -20 dBm	≤ -13 dBm	Pass
	995MHz-2.8GHz	< -20 dBm	≤ -13 dBm	Pass
	2.795GHz-4.5GHz	< -20 dBm	≤ -13 dBm	Pass
	4.495GHz-6GHz	< -20 dBm	≤ -13 dBm	Pass
	5.995GHz-7.5GHz	< -20 dBm	≤ -13 dBm	Pass
	7.495 GHz-9.5 GHz	< -20 dBm	≤ -13 dBm	Pass
Mid Channel				
	In Band	< -20 dBm	≤ -13 dBm	Pass
	0-1GHz	< -20 dBm	≤ -13 dBm	Pass
	995MHz-2.8GHz	< -20 dBm	≤ -13 dBm	Pass
	2.795GHz-4.5GHz	< -20 dBm	≤ -13 dBm	Pass
	4.495GHz-6GHz	< -20 dBm	≤ -13 dBm	Pass
	5.995GHz-7.5GHz	< -20 dBm	≤ -13 dBm	Pass
	7.495 GHz-9.5 GHz	< -20 dBm	≤ -13 dBm	Pass
High Channel				
	In Band	< -20 dBm	≤ -13 dBm	Pass
	0-1GHz	< -20 dBm	≤ -13 dBm	Pass
	995MHz-2.8GHz	< -20 dBm	≤ -13 dBm	Pass
	2.795GHz-4.5GHz	< -20 dBm	≤ -13 dBm	Pass
	4.495GHz-6GHz	< -20 dBm	≤ -13 dBm	Pass
	5.995GHz-7.5GHz	< -20 dBm	≤ -13 dBm	Pass
	7.495 GHz-9.5 GHz	< -20 dBm	≤ -13 dBm	Pass
3 Channel Intermods				
	In Band	<-25 dBm	≤-13 dBm	Pass
	0-1GHz	<-25 dBm	≤-13 dBm	Pass
	995MHz-2.8GHz	<-25 dBm	≤-13 dBm	Pass
	2.795GHz-4.5GHz	<-25 dBm	≤-13 dBm	Pass
	4.495GHz-6GHz	<-25 dBm	≤-13 dBm	Pass
	5.995GHz-7.5GHz	<-25 dBm	≤-13 dBm	Pass
	7.495 GHz-9.5 GHz	<-25 dBm	≤-13 dBm	Pass

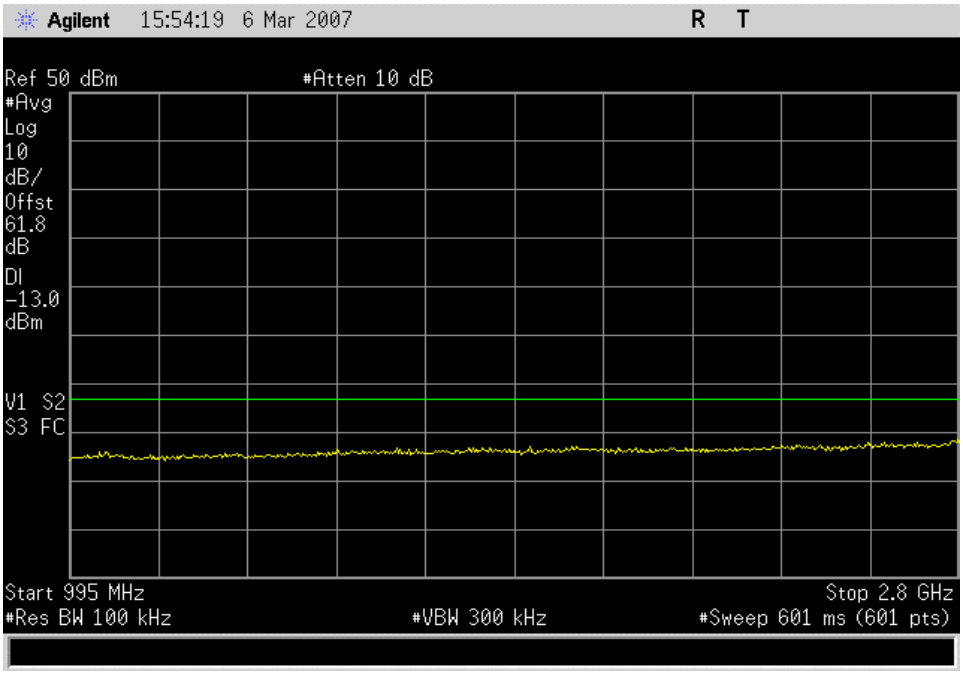
Low Channel, In Band					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



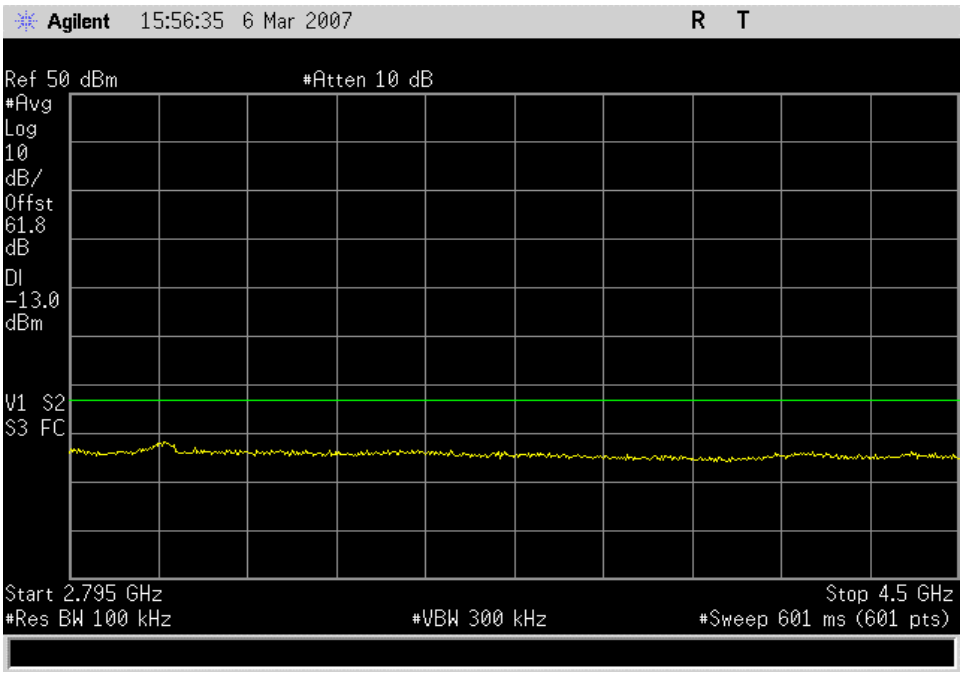
Low Channel, 0-1GHz					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



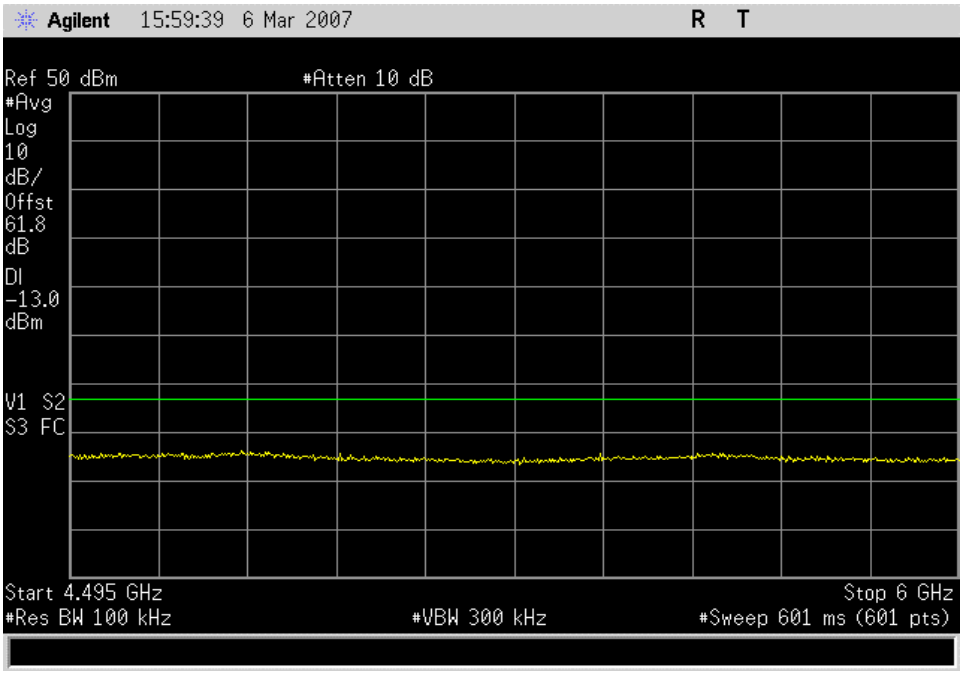
Low Channel, 995MHz-2.8GHz					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



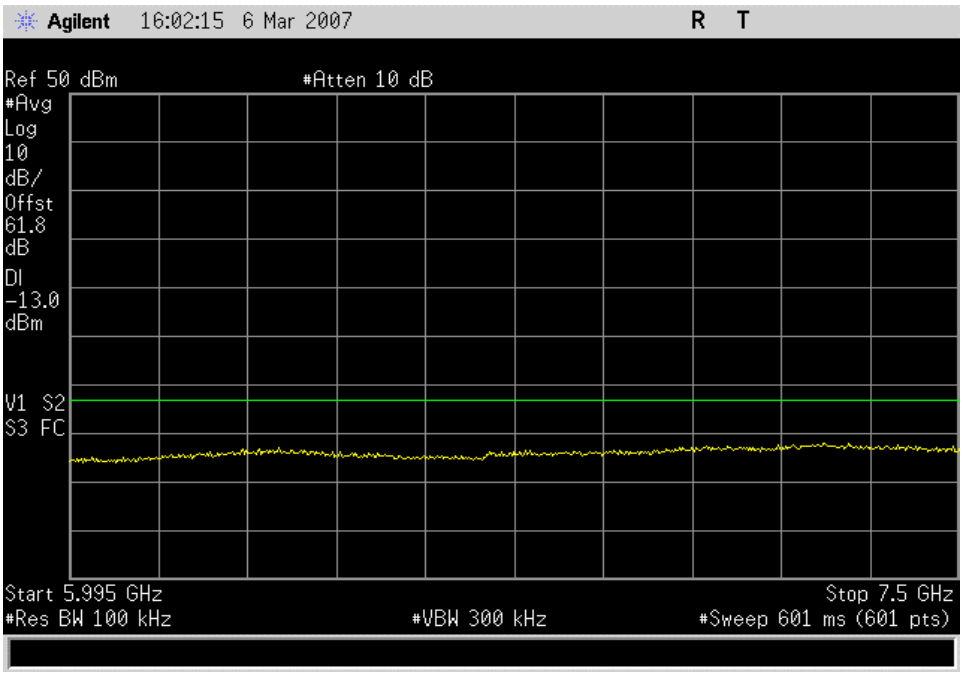
Low Channel, 2.795GHz-4.5GHz					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



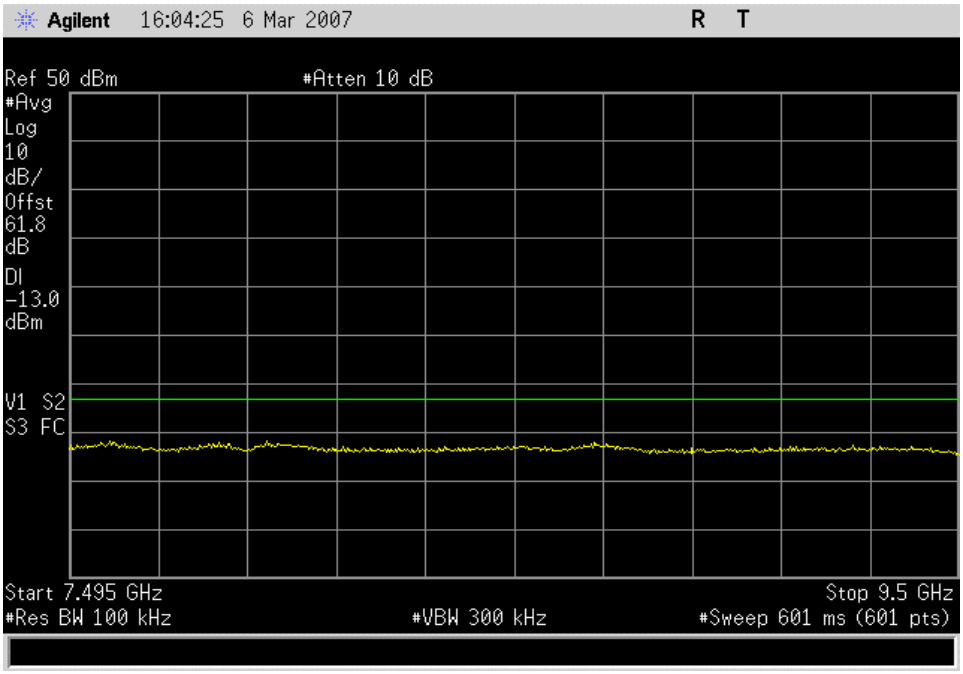
Low Channel, 4.495GHz-6GHz					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



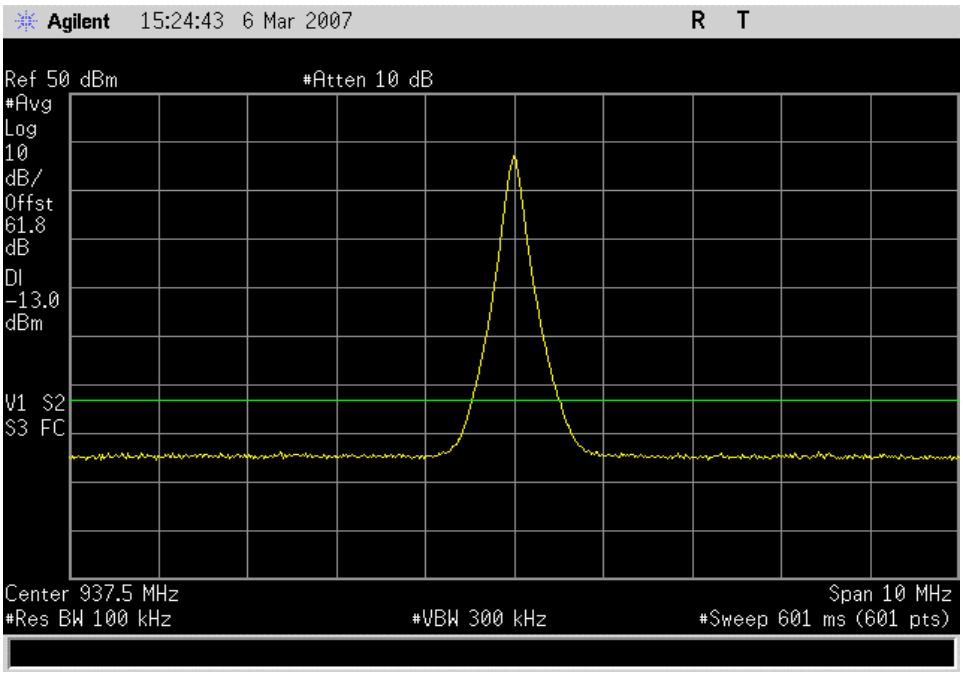
Low Channel, 5.995GHz-7.5GHz					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



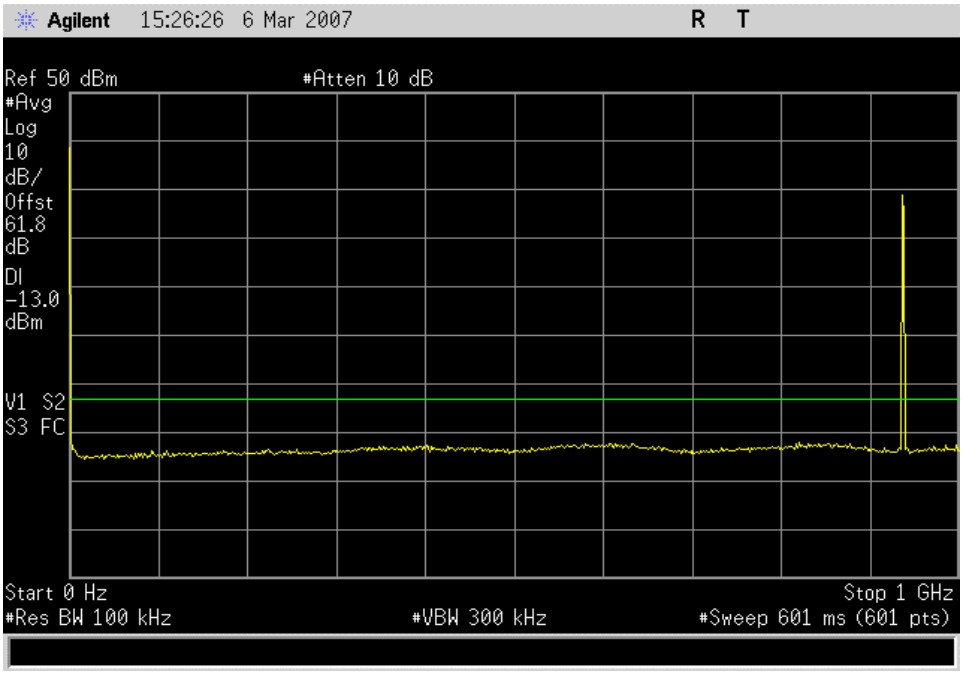
Low Channel, 7.495GHz-9.5GHz					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



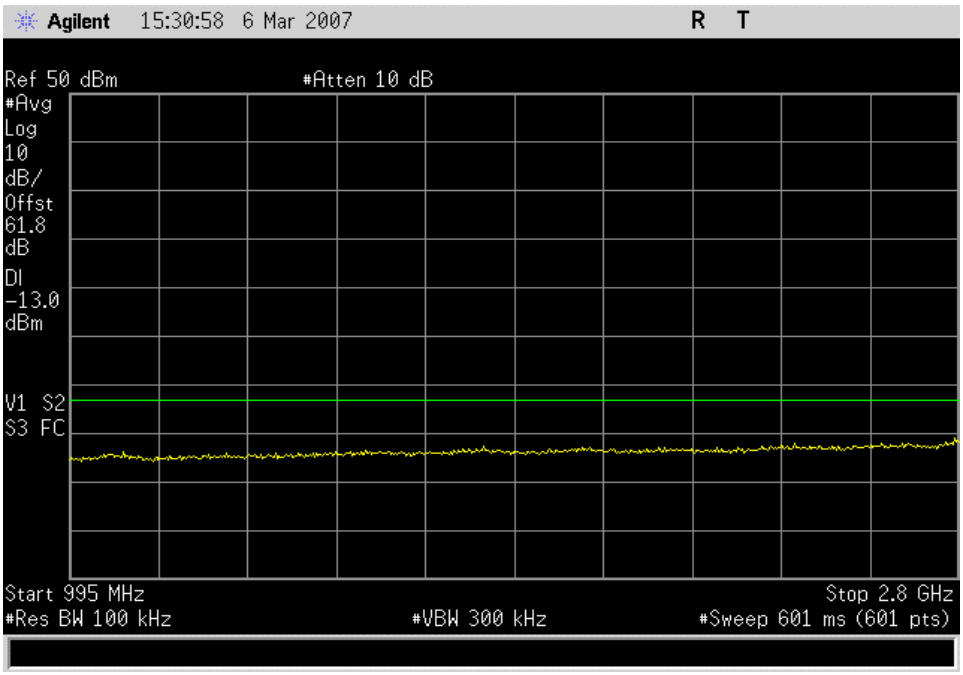
Mid Channel, In Band					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



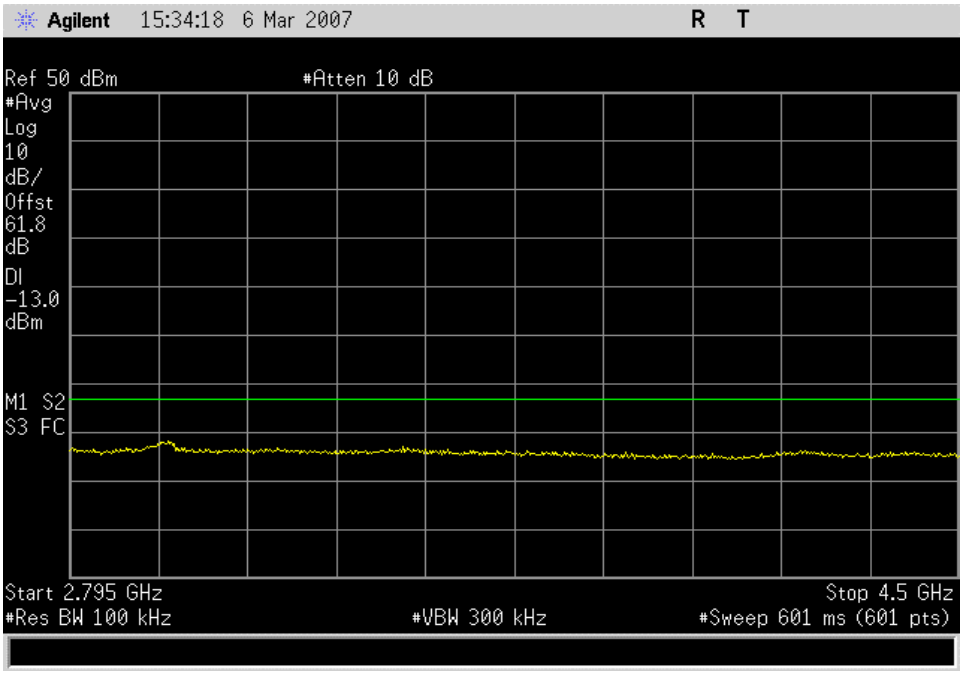
Mid Channel, 0-1GHz					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



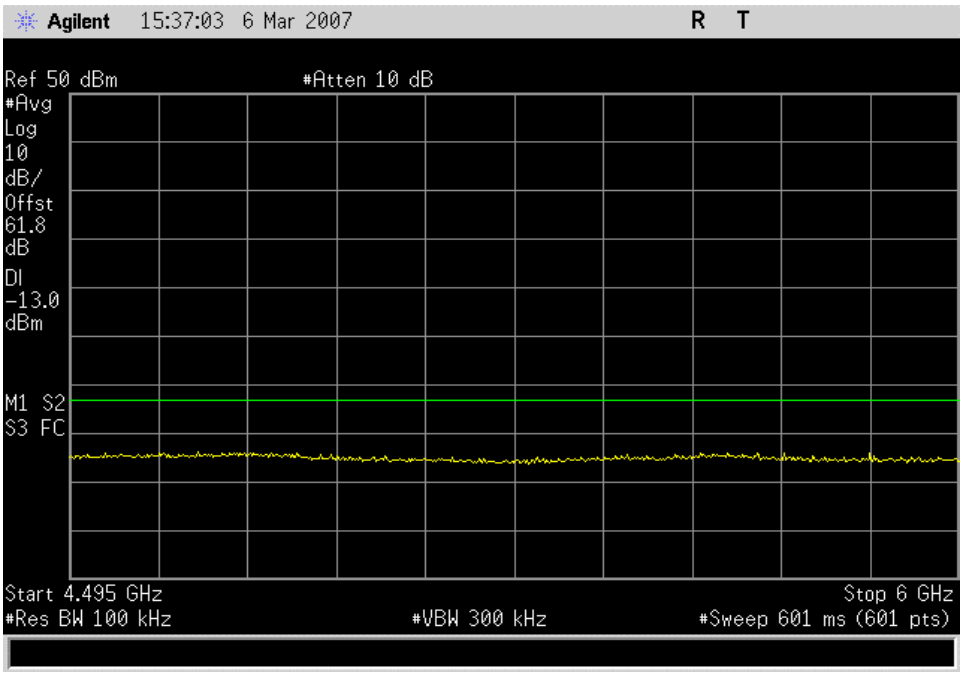
Mid Channel, 995MHz-2.8GHz					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



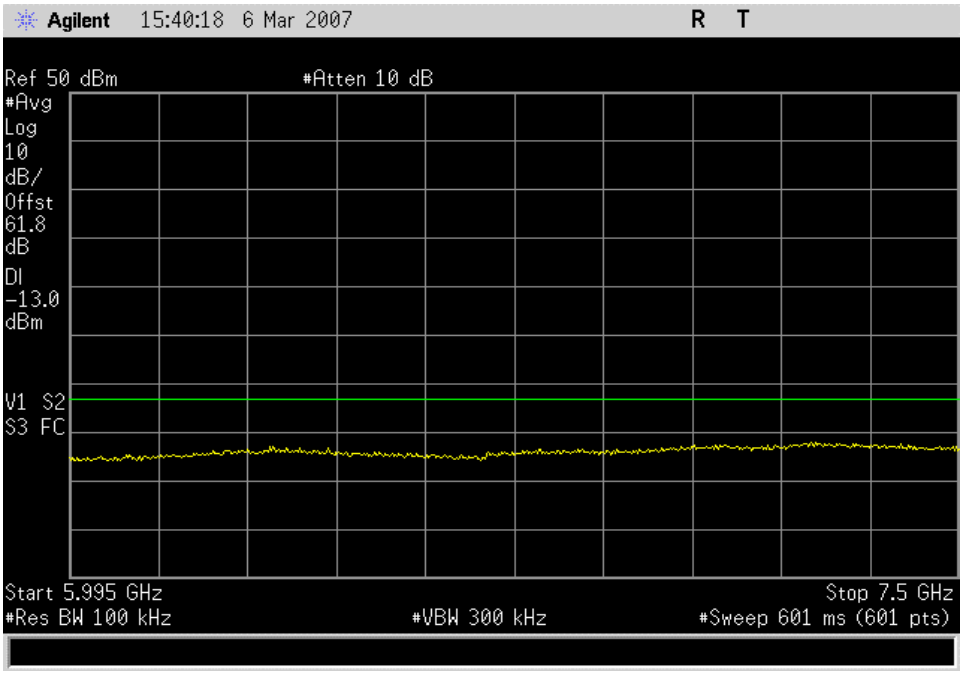
Mid Channel, 2.795GHz-4.5GHz					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



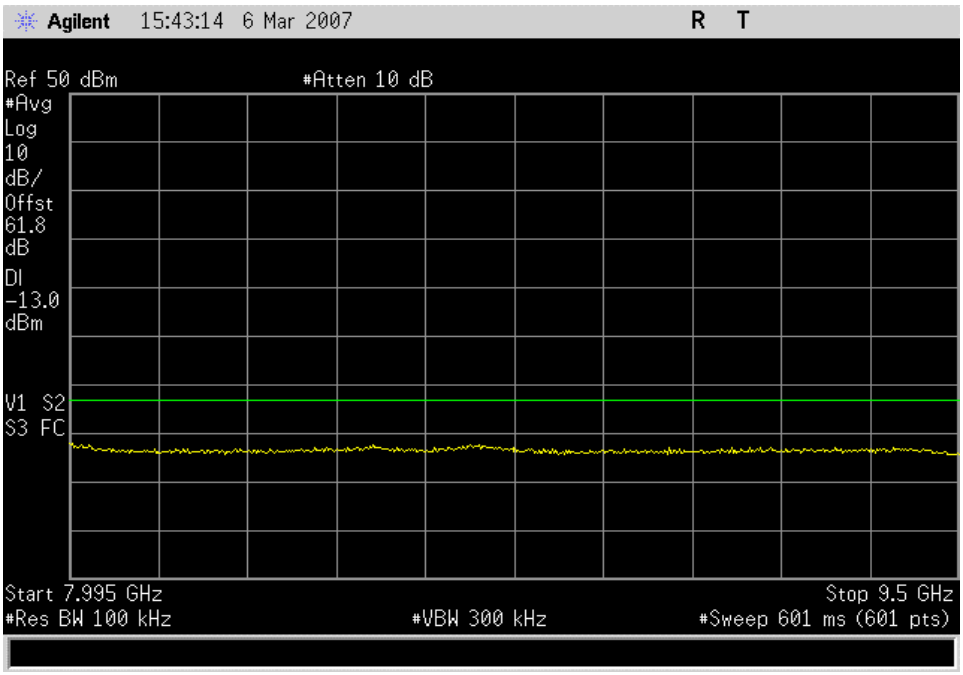
Mid Channel, 4.495GHz-6GHz					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



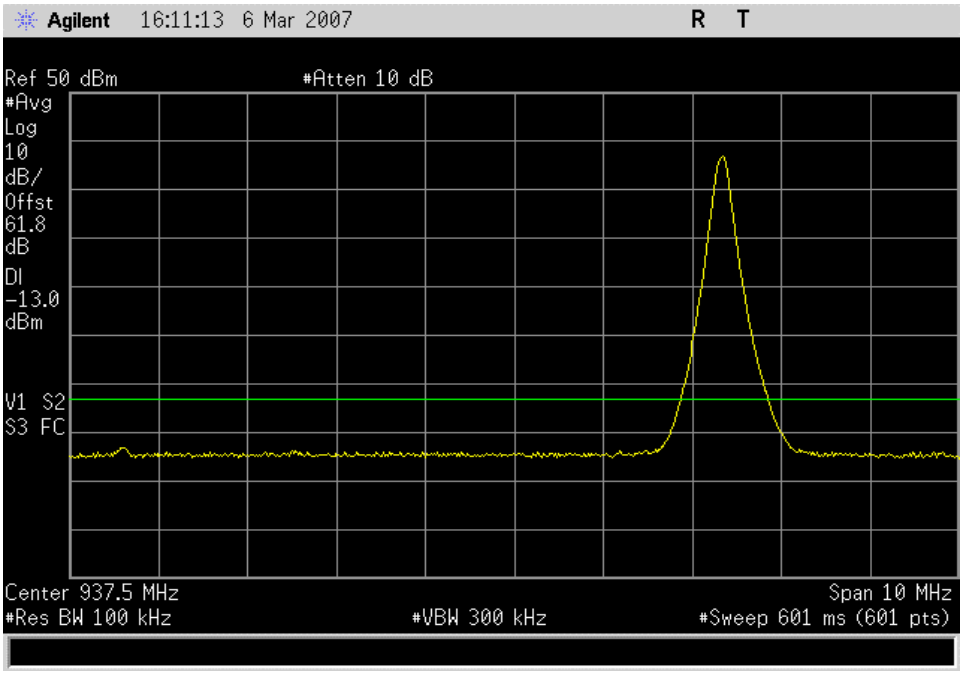
Mid Channel, 5.995GHz-7.5GHz					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



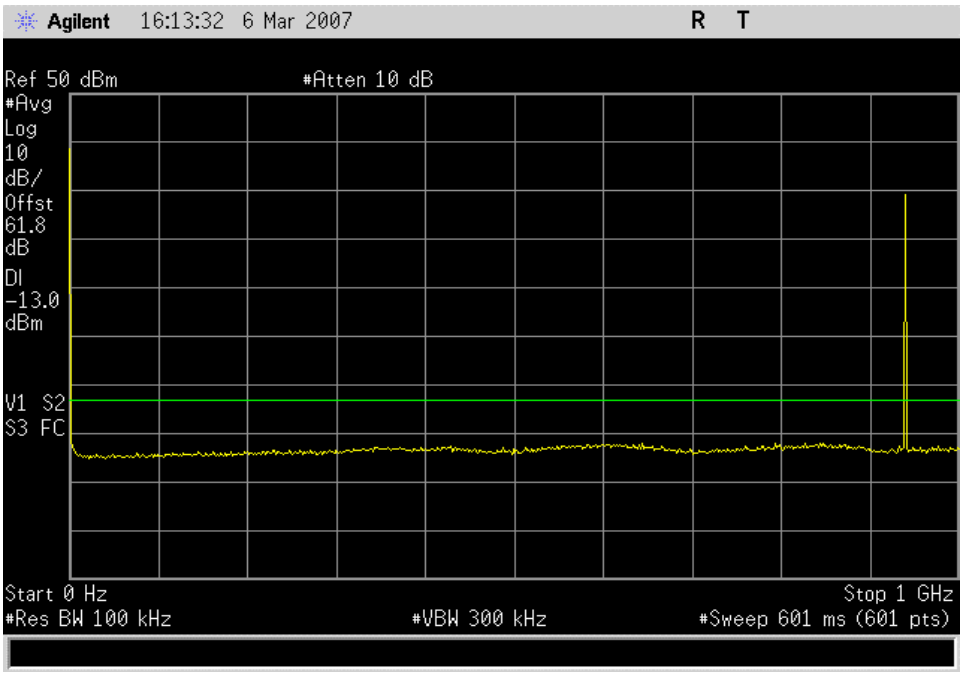
Mid Channel, 7.495GHz-9.5GHz					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



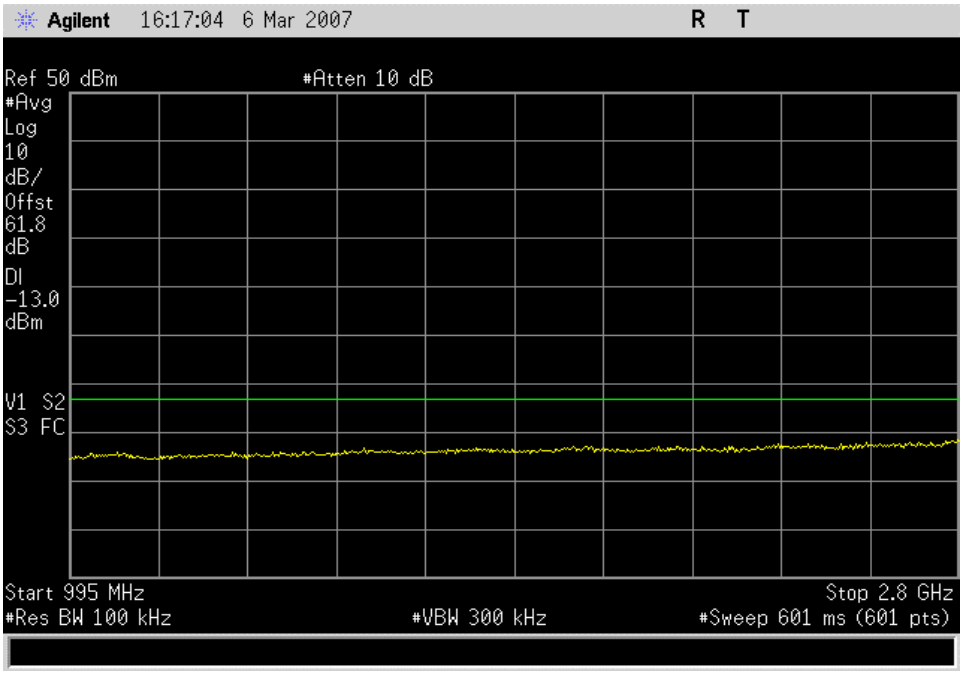
High Channel, In Band					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



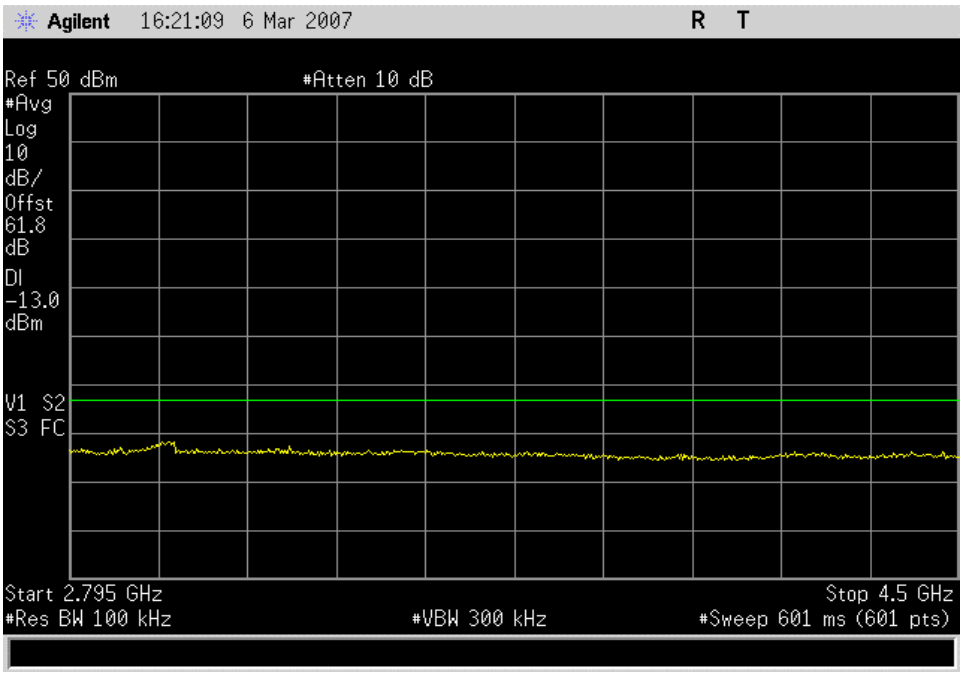
High Channel, 0-1GHz					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



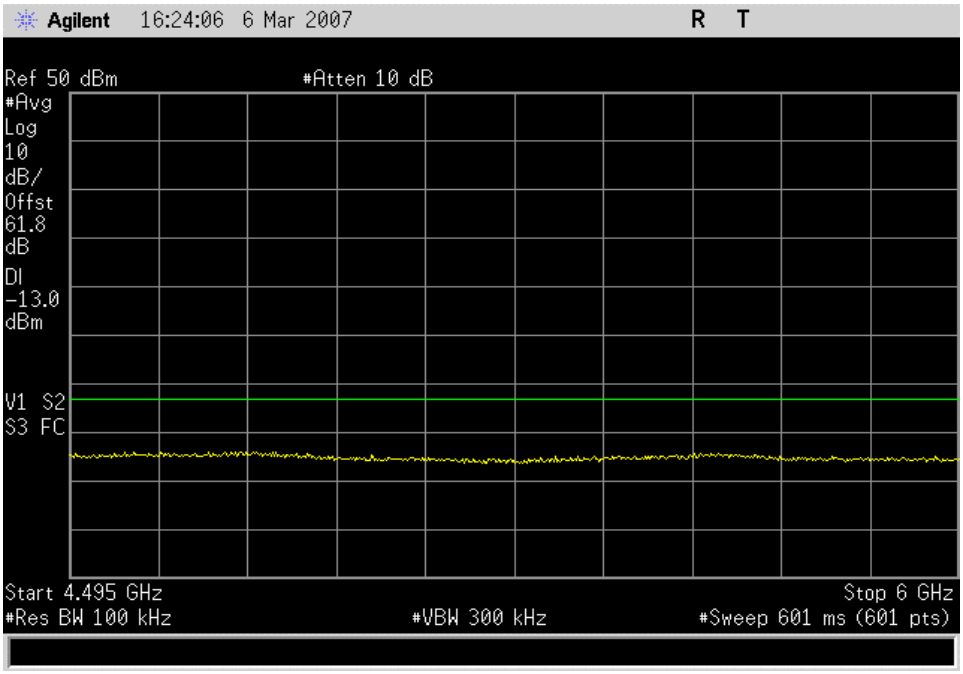
High Channel, 995MHz-2.8GHz					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



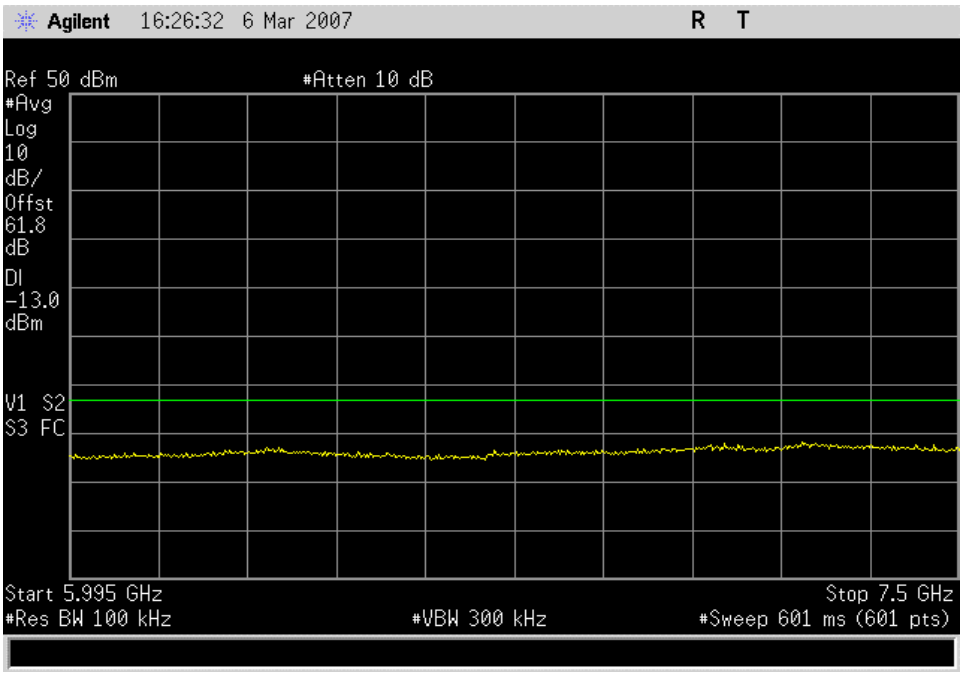
High Channel, 2.795GHz-4.5GHz					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



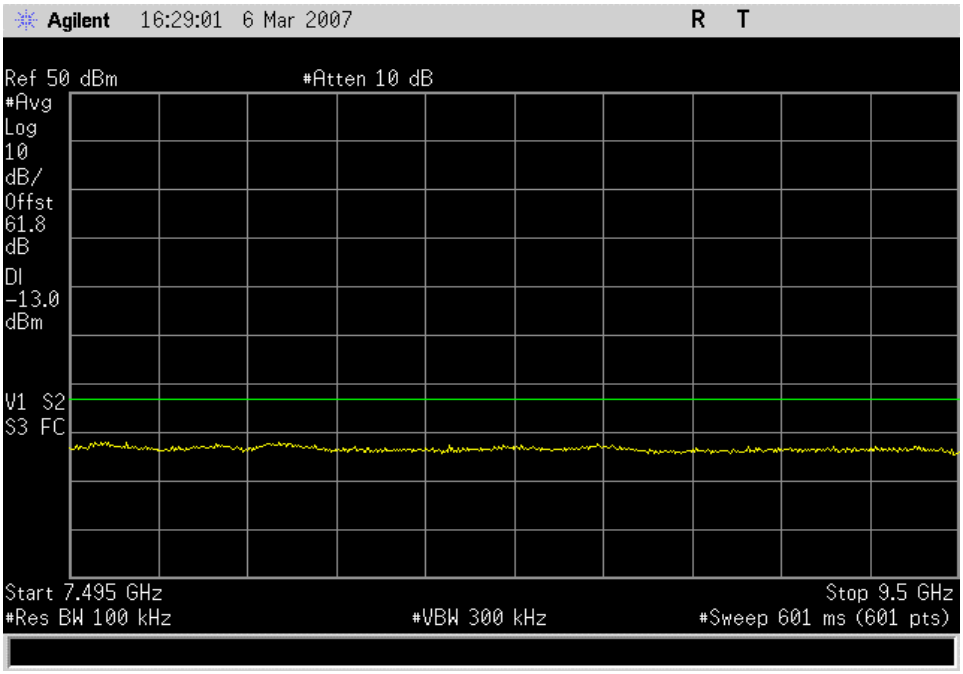
High Channel, 4.495GHz-6GHz					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



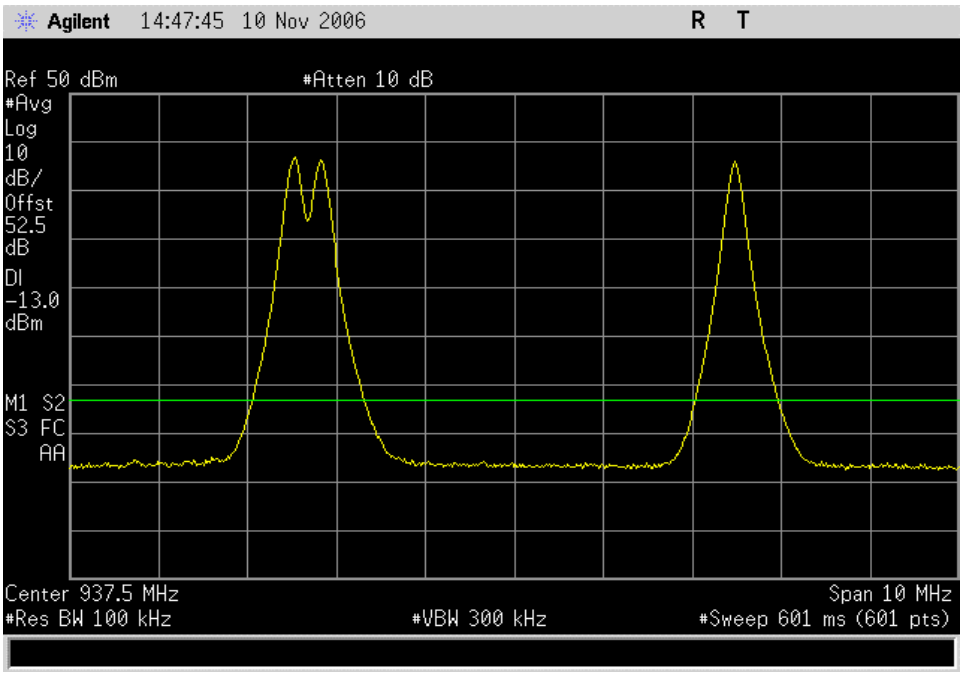
High Channel, 5.995GHz-7.5GHz					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



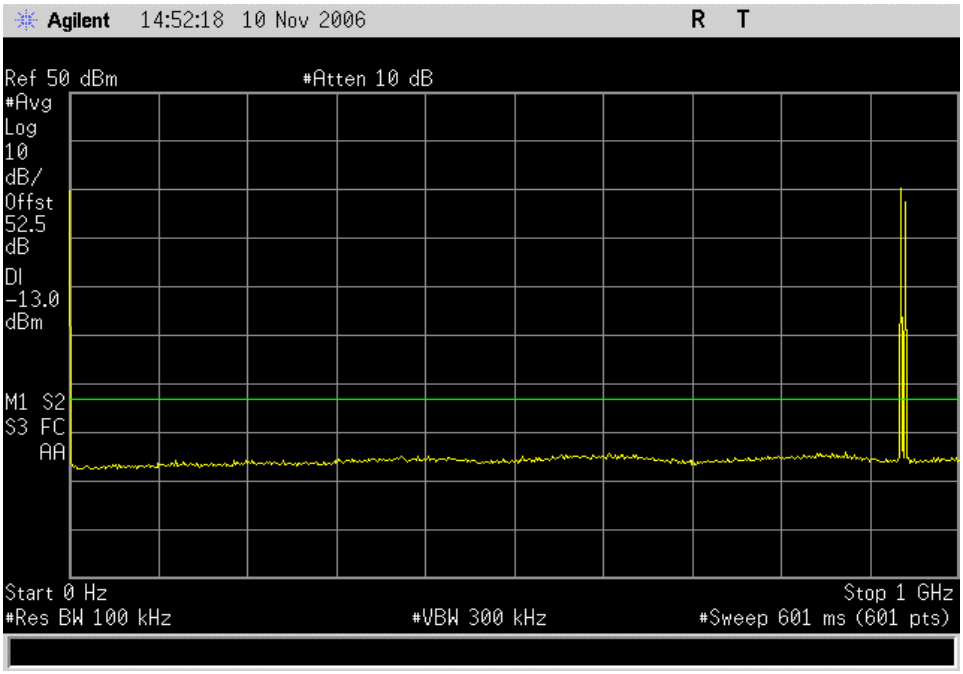
High Channel, 7.495GHz-9.5GHz					
Result:	Pass	**Value:**	< -20 dBm	**Limit:**	≤ -13 dBm



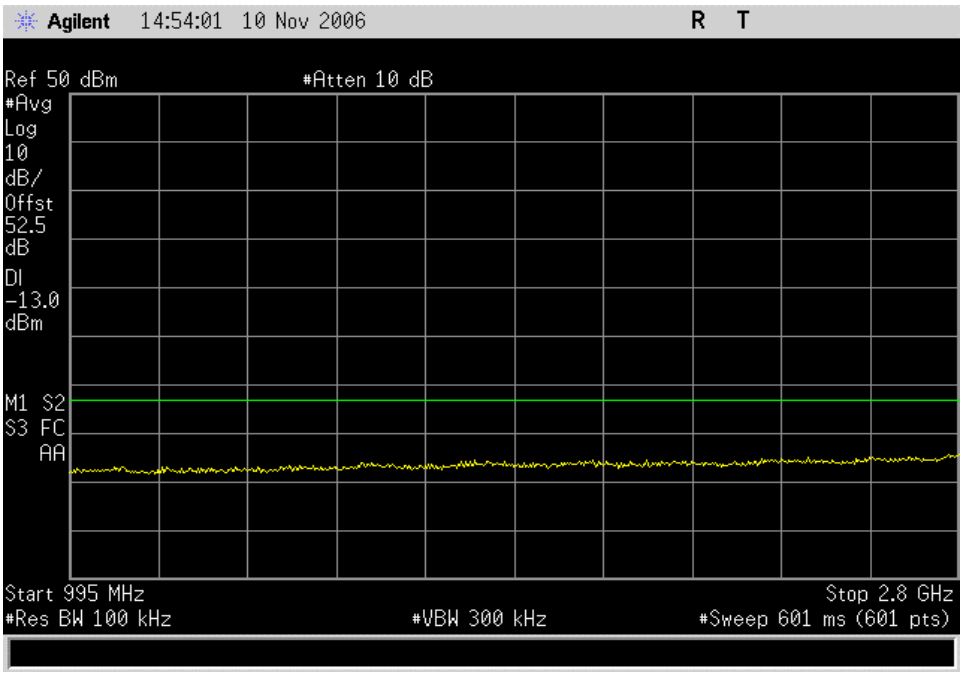
3 Channel Intermods, In Band					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



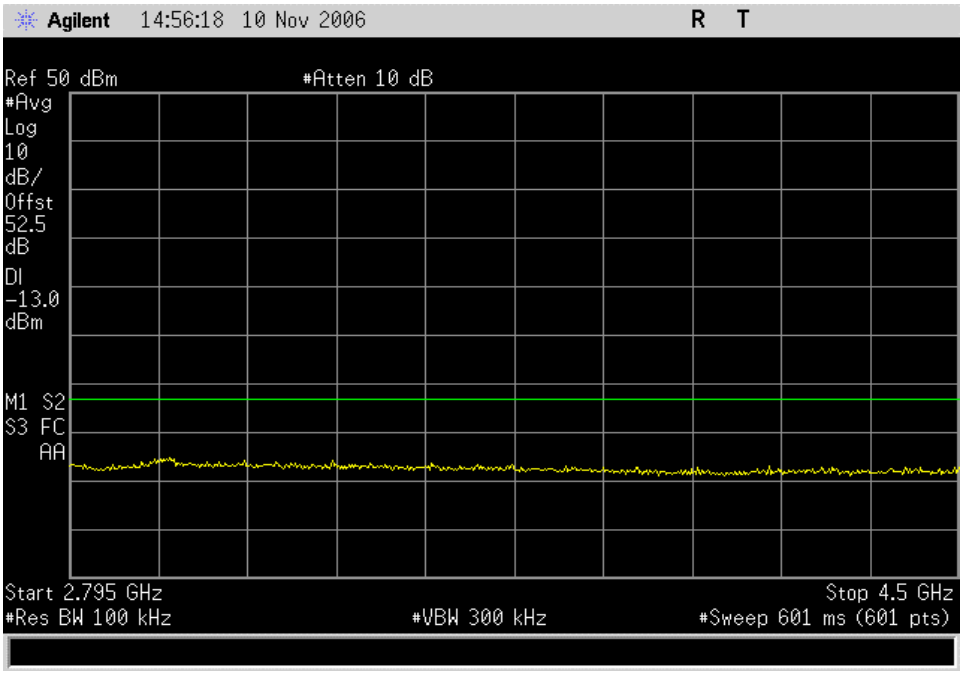
3 Channel Intermods, 0-1GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



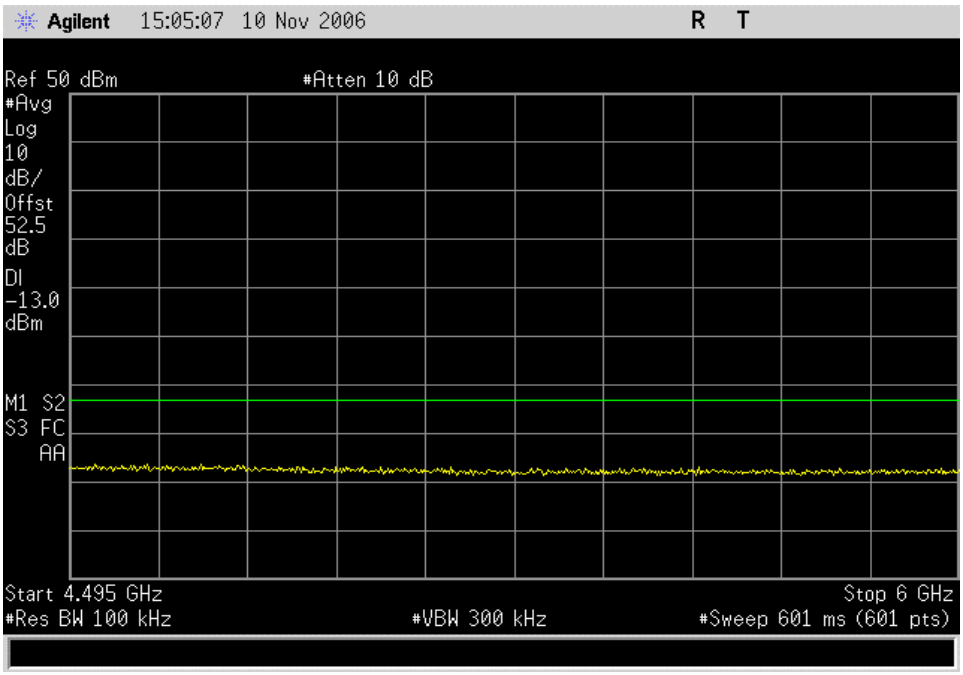
3 Channel Intermods, 995MHz-2.8GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



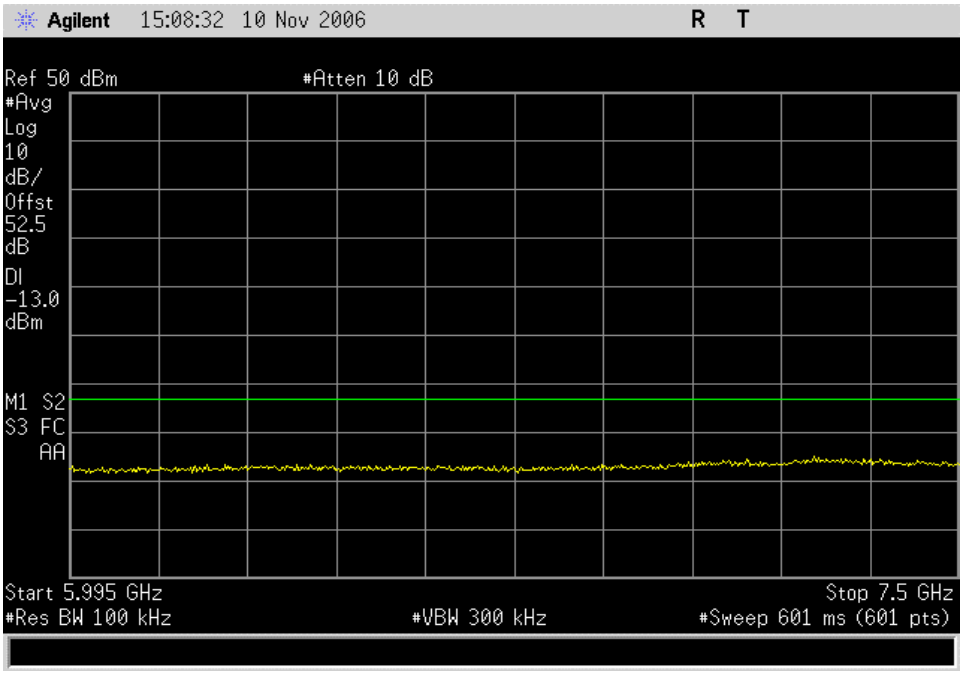
3 Channel Intermods, 2.795GHz-4.5GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



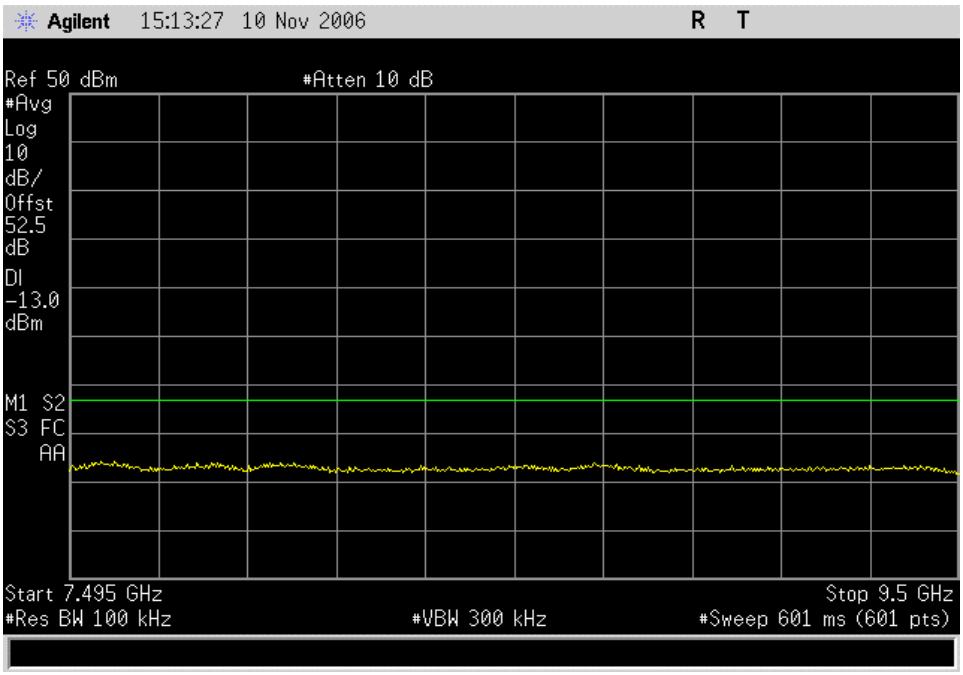
3 Channel Intermods, 4.495GHz-6GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



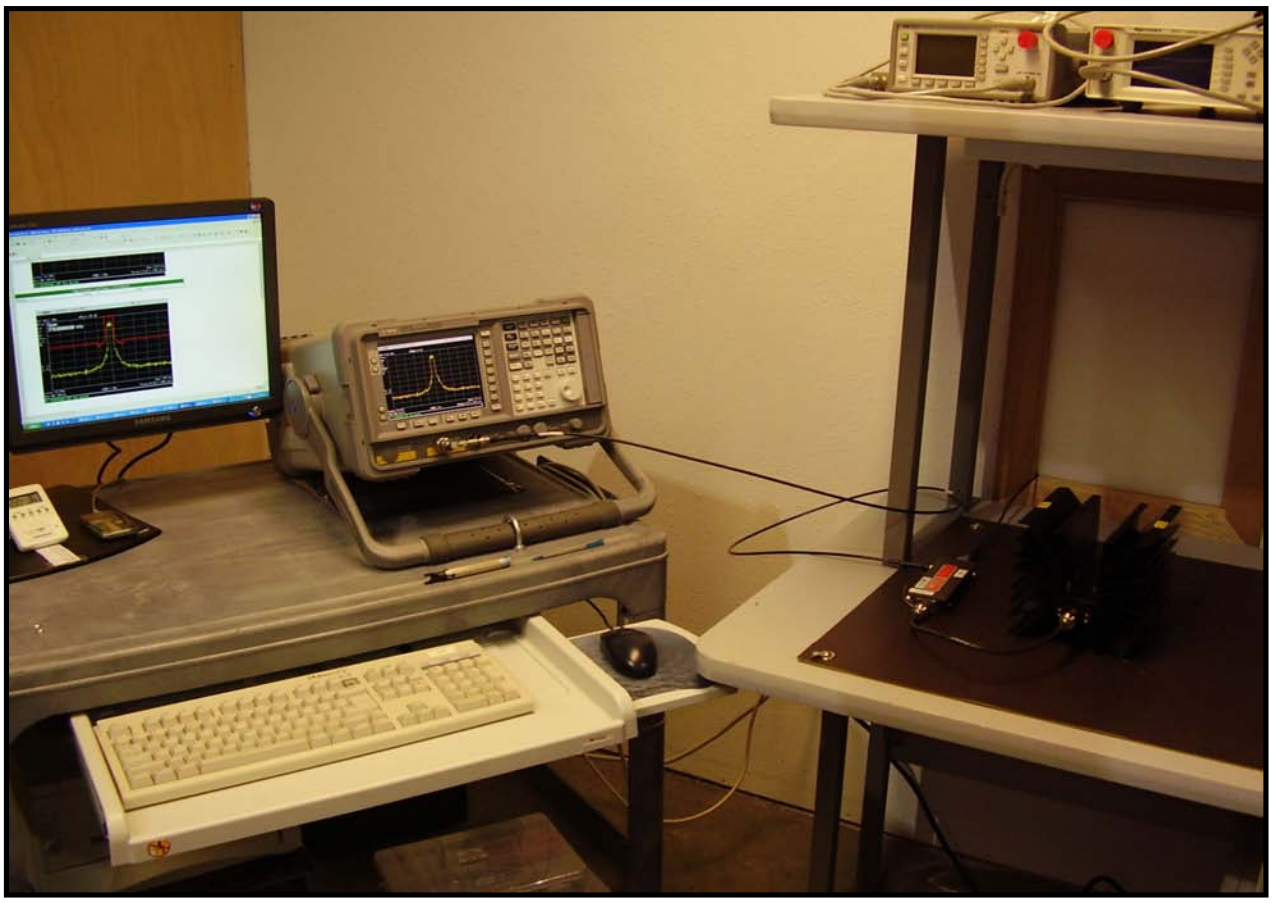
3 Channel Intermods, 5.995GHz-7.5GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



3 Channel Intermods, 7.495 GHz-9.5 GHz					
Result:	Pass	**Value:**	<-25 dBm	**Limit:**	≤-13 dBm



SPURIOUS EMISSIONS AT ANTENNA TERMINALS



Field Strength of Spurious Radiation

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

Transmitting typical sector configuration, 800 and 900MHz bands

POWER SETTINGS INVESTIGATED

-48Vdc

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	10 GHz

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
EV01 cables g,h,j			EVB	7/6/2006	13
EV01 cables c,g, h			EVA	7/6/2006	13
High Pass Filter 1.2 - 18 GHz	Micro-Tronics	HPM50108	HFV	11/28/2005	13
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	7/6/2006	13
Pre-Amplifier	Miteq	AM-1616-1000	AOL	7/6/2006	13
Antenna, Horn	EMCO	3115	AHC	8/24/2006	12
Antenna, Biconilog	EMCO	3141	AXE	12/28/2005	24
Signal Generator	Hewlett Packard	8341B	TGN	1/26/2006	13
Antenna, Horn	EMCO	3115	AHJ	5/20/2005	24
Spectrum Analyzer	Agilent	E4446A	AAT	4/4/2006	12

MEASUREMENT BANDWIDTHS

	Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

Per 2.1053 and 90.691, the Field Strength of Spurious Radiation was measured in the far-field at an FCC Listed OATS up to 10 GHz. Spectrum analyzer, signal generator, and linearly polarized antennas were used to measure radiated harmonics and spurious emissions. The orientation of the EUT and measurement antenna were manipulated to maximize the level of emissions. The EUT was configured to transmit at the highest output power into a dummy load at low, mid, and high frequencies for both the 800MHz and 900MHz bands.

For licensed transmitters, the FCC references TIA/EIA-603 as the measurement procedure standard. TIA/EIA-603 Section 2.2.12 describes a method for measuring radiated spurious emissions that utilizes an antenna substitution method:

At an approved test site, the transmitter is place on a remotely controlled turntable, and the measurement antenna is placed 3 meters from the transmitter. The turntable azimuth is varied to maximize the level of spurious emissions. The height of the measurement antenna is also varied from 1 to 4 meters. The amplitude and frequency of the highest emissions are noted. The transmitter is then replaced with a ½ wave dipole that is successively tuned to each of the highest spurious emissions. A signal generator is connected to the dipole (horn antenna for frequencies above 1 GHz), and its output is adjusted to match the level previously noted for each frequency. The output of the signal generator is recorded, and by factoring in the cable loss to the dipole antenna and its gain; the power (dBm) into an ideal ½ wave dipole antenna is determined for each radiated spurious emission.

For the purposes of preliminary measurements, the field strength of the spurious emissions can be measured and compared with a 3 meter limit. The 3 meter limit was calculated to be 82.5 dBuV/m at 3 meters. The final measurements must be made utilizing the substitution method described above.

NORTHWEST EMC

Field Strength of Spurious Radiation

PSA 2006.10.30
EMI 2006.7.11

EUT:	MC-Series iDEN Microcell High Power			Work Order:	RAFN0067
Serial Number:	Engineering unit			Date:	11/07/06
Customer:	Radioframe Networks, Inc.			Temperature:	22
Attendees:	Erin Duleba			Humidity:	52%
Project:	None			Barometric Pres.:	29.86
Tested by:	Holly Ashkannejhad	Power:	-48VDC	Job Site:	EV01

TEST SPECIFICATIONS	Test Method
FCC 90I:2005	ANSI/TIA/EIA-603-B:2002

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

Antenna ports terminated.

EUT OPERATING MODES

Transmitting typical sector configuration, 800 and 900MHz bands

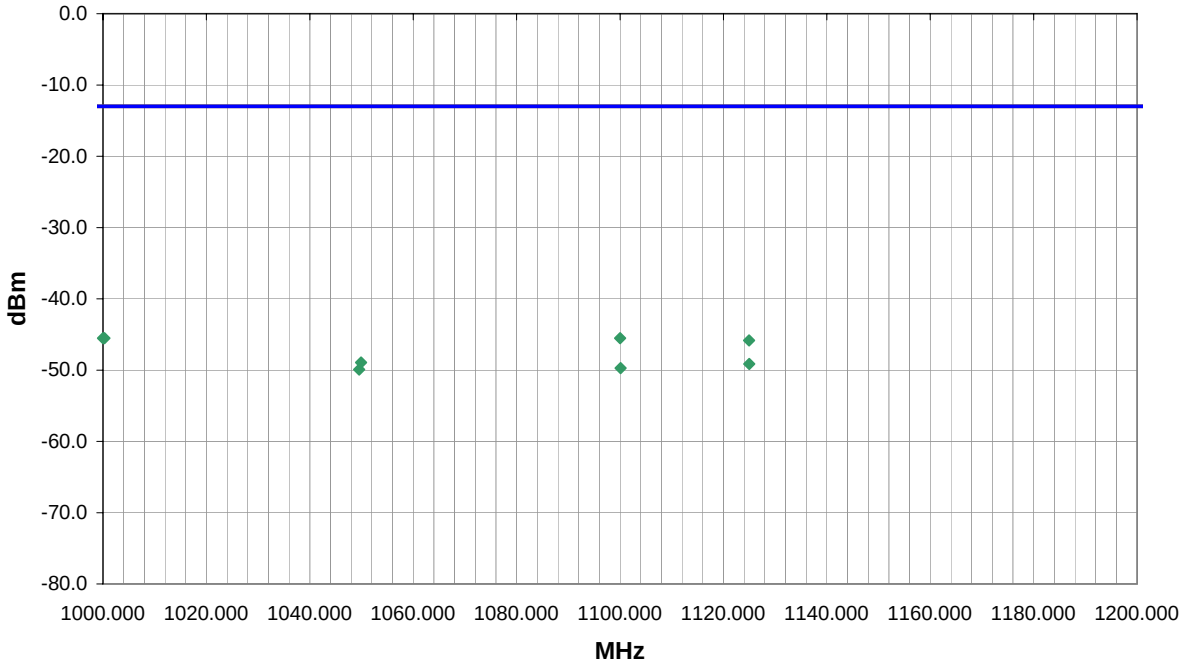
DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	2
Configuration #	1
Results	Pass

NVLAP Lab Code 200630-0

Signature Holly Ashkannejhad



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
1000.000			189.0	1.0			V-Horn	PK	2.80E-08	-45.5	-13.0	-32.5
1000.284			171.0	2.3			H-Horn	PK	2.80E-08	-45.5	-13.0	-32.5
1100.010			202.0	1.0			V-Horn	PK	2.80E-08	-45.5	-13.0	-32.5
1124.967			126.0	1.0			V-Horn	PK	2.61E-08	-45.8	-13.0	-32.8
1049.917			171.0	1.0			V-Horn	PK	1.28E-08	-48.9	-13.0	-35.9
1124.981			147.0	1.0			H-Horn	PK	1.22E-08	-49.1	-13.0	-36.1
1100.097			82.0	1.9			H-Horn	PK	1.06E-08	-49.7	-13.0	-36.7
1049.557			130.0	1.0			H-Horn	PK	1.02E-08	-49.9	-13.0	-36.9

NORTHWEST EMC

Field Strength of Spurious Radiation

PSA 2006.10.30
EMI 2006.7.11

EUT:	MC-Series iDEN Microcell High Power			Work Order:	RAFN0067
Serial Number:	Engineering unit			Date:	11/07/06
Customer:	Radioframe Networks, Inc.			Temperature:	22
Attendees:	Erin Duleba			Humidity:	52%
Project:	None			Barometric Pres.:	29.86
Tested by:	Holly Ashkannejhad	Power:	-48VDC	Job Site:	EV01

TEST SPECIFICATIONS	Test Method
FCC 90I:2005	ANSI/TIA/EIA-603-B:2002

TEST PARAMETERS

Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

Antenna ports terminated.

EUT OPERATING MODES

Transmitting typical sector configuration, 800 and 900MHz bands

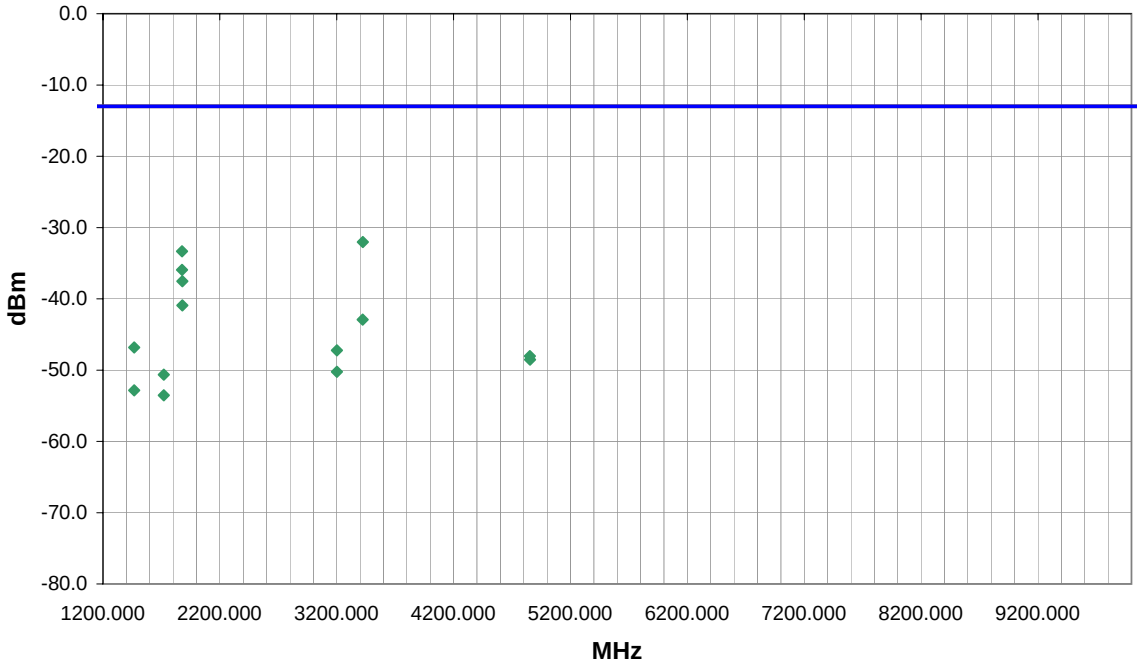
DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	1
Configuration #	1
Results	Pass

NVLAP Lab Code 200630-0

Signature Holly Ashkannejhad



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
3422.678			144.0	1.0			H-Horn	PK	6.27E-07	-32.0	-13.0	-19.0
1875.977			90.0	1.0			H-Horn	PK	4.65E-07	-33.3	-13.0	-20.3
1876.163			158.0	1.0			V-Horn	PK	2.55E-07	-35.9	-13.0	-22.9
1879.629			229.0	1.0			H-Horn	PK	1.77E-07	-37.5	-13.0	-24.5
1879.589			161.0	1.0			V-Horn	PK	8.07E-08	-40.9	-13.0	-27.9
3422.304			113.0	1.0			V-Horn	PK	5.09E-08	-42.9	-13.0	-29.9
1466.459			342.0	1.0			V-Horn	PK	2.08E-08	-46.8	-13.0	-33.8
3201.633			110.0	1.5			V-Horn	PK	1.89E-08	-47.2	-13.0	-34.2
4853.050			152.0	1.0			H-Horn	PK	1.57E-08	-48.0	-13.0	-35.0
4853.283			169.0	1.0			V-Horn	PK	1.40E-08	-48.5	-13.0	-35.5
3201.966			342.0	1.0			H-Horn	PK	9.49E-09	-50.2	-13.0	-37.2
1719.723			130.0	1.0			H-Horn	PK	8.65E-09	-50.6	-13.0	-37.6
1466.519			3.0	1.0			H-Horn	PK	5.21E-09	-52.8	-13.0	-39.8
1720.037			177.0	1.1			V-Horn	PK	4.44E-09	-53.5	-13.0	-40.5


NORTHWEST
EMC

RADIATED EMISSIONS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

Typical operating mode with transceivers disabled and preamps on.

POWER SETTINGS INVESTIGATED

-48VDC

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	10 GHz

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
EV01 cables g,h,j			EVB	7/6/2006	13
EV01 cables c,g, h			EVA	7/6/2006	13
Spectrum Analyzer	Agilent	E4446A	AAT	4/4/2006	12
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	7/6/2006	13
Pre-Amplifier	Miteq	AM-1616-1000	AOL	7/6/2006	13
Antenna, Biconilog	EMCO	3141	AXE	12/28/2005	24
Antenna, Horn	EMCO	3115	AHC	8/30/2005	12

MEASUREMENT BANDWIDTHS

	Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, a final radiated emissions test was performed. The frequency range investigated (scanned), is also noted in this report. Radiated emissions measurements were made at the EUT azimuth and antenna height such that the maximum radiated emissions level will be detected. This requires the use of a turntable and an antenna positioner. The preferred method of a continuous azimuth search is utilized for frequency scans of the EUT field strength with both polarities of the measuring antenna. A calibrated, linearly polarized antenna was positioned at the specified distance from the periphery of the EUT.

Tests were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna was varied in height above the conducting ground plane to obtain the maximum signal strength. Though specified in the report, the measurement distance shall be 3 meters or 10 meters. At any measurement distance, the antenna height was varied from 1 meter to 4 meters. These height scans apply for both horizontal and vertical polarization, except that for vertical polarization the minimum height of the center of the antenna shall be increased so that the lowest point of the bottom of the antenna clears the ground surface by at least 25 cm.

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

PSA 2006.10.30
EMI 2006.7.11

EUT:	MC-Series iDEN Microcell High Power			Work Order:	RAFN0067
Serial Number:	Engineering unit			Date:	11/07/06
Customer:	Radioframe Networks, Inc.			Temperature:	22
Attendees:	Erin Duleba			Humidity:	52%
Project:	None			Barometric Pres.:	29.86
Tested by:	Holly Ashkannejhad	Power:	-48VDC	Job Site:	EV01

TEST SPECIFICATIONS	Test Method
FCC 15.109:2006	ANSI C63.4:2003

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

EUT in typical configuration with antenna ports terminated. Ground strap installed as will be used in typical installations.

EUT OPERATING MODES

Typical operating mode with transceivers disabled and preamps on.

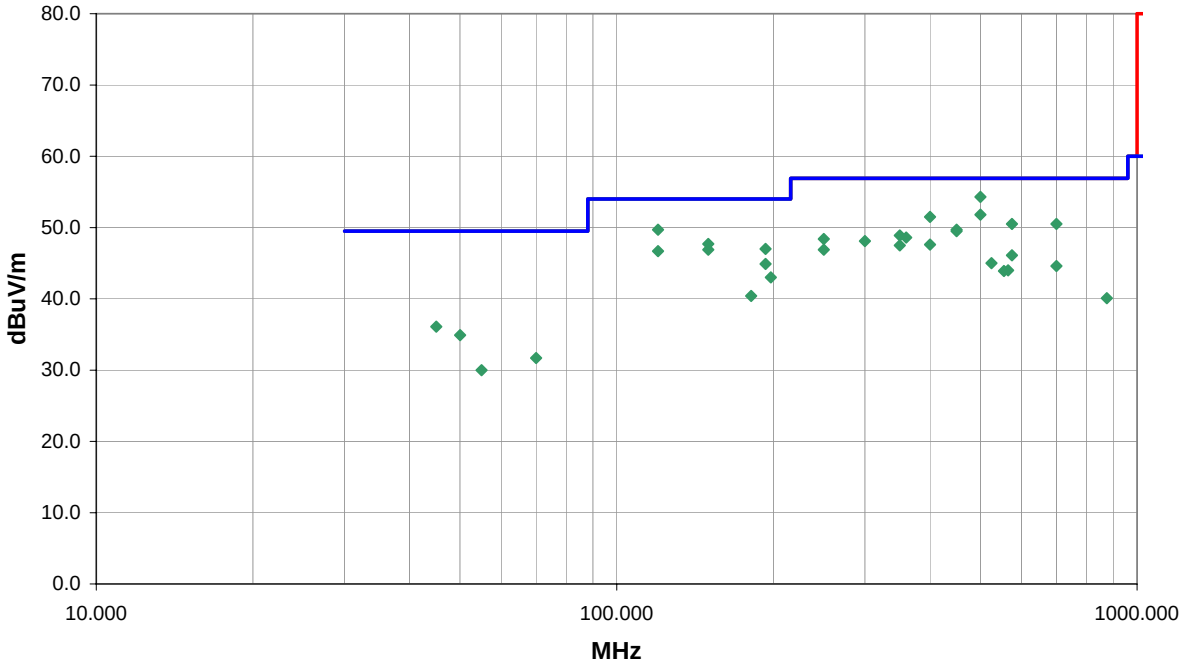
DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	1
Configuration #	2
Results	Pass

NVLAP Lab Code 200630-0

Signature Holly Ashkannejhad



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
500.042	48.3	6.0	117.0	1.0	3.0	0.0	H-Bilog	QP	0.0	54.3	56.9	-2.6
120.045	56.2	-6.5	265.0	1.0	3.0	0.0	H-Bilog	QP	0.0	49.7	54.0	-4.3
500.042	45.8	6.0	64.0	1.2	3.0	0.0	V-Bilog	QP	0.0	51.8	56.9	-5.1
400.021	47.3	4.2	259.0	1.8	3.0	0.0	V-Bilog	QP	0.0	51.5	56.9	-5.4
150.020	53.1	-5.4	17.0	1.0	3.0	0.0	H-Bilog	QP	0.0	47.7	54.0	-6.3
575.005	42.6	7.9	265.0	1.0	3.0	0.0	H-Bilog	QP	0.0	50.5	56.9	-6.4
700.067	40.0	10.5	75.0	1.5	3.0	0.0	H-Bilog	QP	0.0	50.5	56.9	-6.4
193.255	50.0	-3.0	292.0	1.7	3.0	0.0	V-Bilog	QP	0.0	47.0	54.0	-7.0
150.017	52.3	-5.4	119.0	2.2	3.0	0.0	V-Bilog	QP	0.0	46.9	54.0	-7.1
450.005	44.8	4.9	128.0	1.0	3.0	0.0	H-Bilog	QP	0.0	49.7	56.9	-7.2
120.046	53.2	-6.5	83.0	3.0	3.0	0.0	V-Bilog	QP	0.0	46.7	54.0	-7.3
450.012	44.6	4.9	174.0	1.0	3.0	0.0	V-Bilog	QP	0.0	49.5	56.9	-7.4
350.031	46.4	2.5	36.0	1.0	3.0	0.0	V-Bilog	QP	0.0	48.9	56.9	-8.0
360.136	45.8	2.8	128.0	1.2	3.0	0.0	H-Bilog	QP	0.0	48.6	56.9	-8.3
250.008	49.1	-0.7	131.0	1.7	3.0	0.0	V-Bilog	QP	0.0	48.4	56.9	-8.5
300.003	47.7	0.4	164.0	1.8	3.0	0.0	H-Bilog	QP	0.0	48.1	56.9	-8.8
193.253	47.9	-3.0	135.0	1.0	3.0	0.0	H-Bilog	QP	0.0	44.9	54.0	-9.1
400.024	43.4	4.2	90.0	1.0	3.0	0.0	H-Bilog	QP	0.0	47.6	56.9	-9.3
350.014	45.0	2.5	280.0	1.0	3.0	0.0	H-Bilog	QP	0.0	47.5	56.9	-9.4
250.008	47.6	-0.7	37.0	1.0	3.0	0.0	H-Bilog	QP	0.0	46.9	56.9	-10.0
575.004	38.2	7.9	169.0	1.0	3.0	0.0	V-Bilog	QP	0.0	46.1	56.9	-10.8

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
197.755	45.4	-2.4	132.0	1.2	3.0	0.0	V-Bilog	QP	0.0	43.0	54.0	-11.0
525.011	37.9	7.1	269.0	1.0	3.0	0.0	H-Bilog	QP	0.0	45.0	56.9	-11.9
700.037	34.1	10.5	127.0	1.8	3.0	0.0	V-Bilog	QP	0.0	44.6	56.9	-12.3
565.045	36.5	7.5	117.0	1.5	3.0	0.0	H-Bilog	QP	0.0	44.0	56.9	-12.9
555.007	36.5	7.4	141.0	1.2	3.0	0.0	V-Bilog	QP	0.0	43.9	56.9	-13.0
45.006	39.4	-3.3	153.0	1.0	3.0	0.0	V-Bilog	QP	0.0	36.1	49.5	-13.4
181.246	44.6	-4.2	91.0	3.0	3.0	0.0	H-Bilog	QP	0.0	40.4	54.0	-13.6
50.009	39.6	-4.7	221.0	1.8	3.0	0.0	V-Bilog	QP	0.0	34.9	49.5	-14.6
875.016	27.7	12.4	241.0	1.3	3.0	0.0	V-Bilog	QP	0.0	40.1	56.9	-16.8
70.005	39.4	-7.7	164.0	1.7	3.0	0.0	V-Bilog	QP	0.0	31.7	49.5	-17.8
55.002	35.5	-5.5	76.0	3.5	3.0	0.0	H-Bilog	QP	0.0	30.0	49.5	-19.5

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

PSA 2006.10.30
EMI 2006.7.11

EUT:	MC-Series iDEN Microcell High Power	Work Order:	RAFN0067
Serial Number:	Engineering unit	Date:	11/07/06
Customer:	Radioframe Networks, Inc.	Temperature:	22
Attendees:	Erin Duleba	Humidity:	52%
Project:	None	Barometric Pres.:	29.86
Tested by:	Holly Ashkannejhad	Power: -48VDC	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 90I:2005	ANSI C63.4:2003

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

EUT in typical configuration with antenna ports terminated. Ground strap installed as will be used in typical installations.

EUT OPERATING MODES

Typical operating mode with transceivers disabled and preamps on.

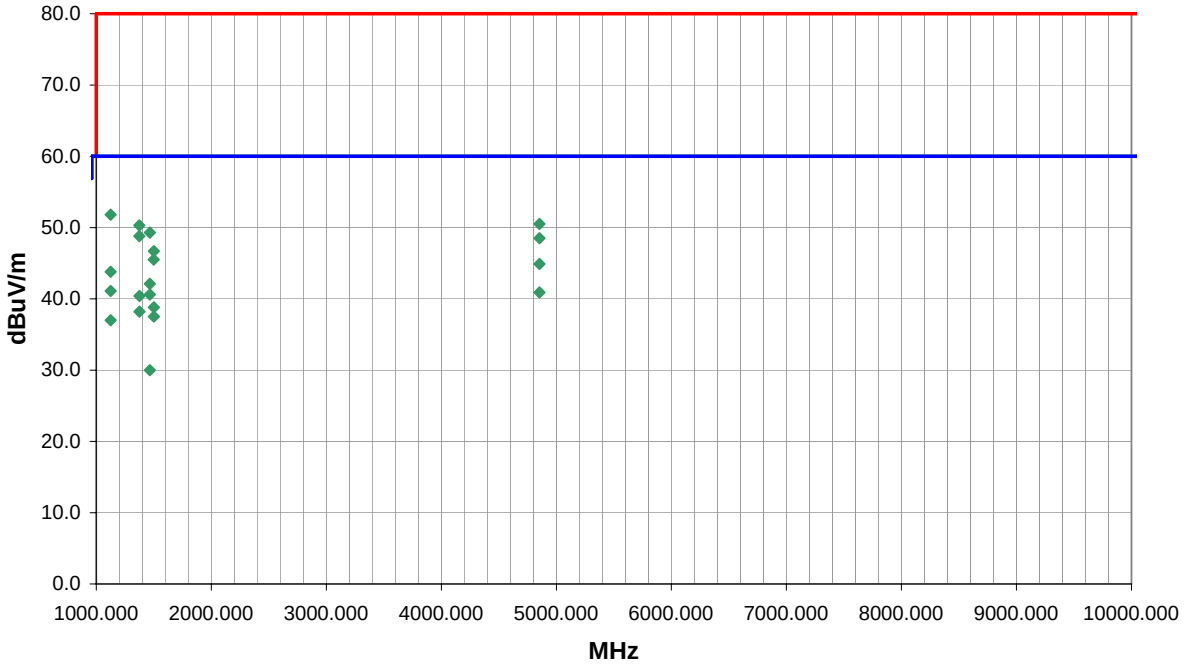
DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	3
Configuration #	2
Results	Pass

NVLAP Lab Code 200630-0

Signature Holly Ashkannejhad



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
4853.449	36.4	8.5	172.0	1.2	3.0	0.0	V-Horn	AV	0.0	44.9	60.0	-15.1
1466.606	44.6	-2.5	348.0	1.0	3.0	0.0	V-Horn	AV	0.0	42.1	60.0	-17.9
1125.043	44.7	-3.6	182.0	1.0	3.0	0.0	V-Horn	AV	0.0	41.1	60.0	-18.9
4853.449	32.4	8.5	159.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.9	60.0	-19.1
1375.122	43.4	-3.0	184.0	1.0	3.0	0.0	V-Horn	AV	0.0	40.4	60.0	-19.6
1500.201	41.3	-2.5	343.0	1.0	3.0	0.0	V-Horn	AV	0.0	38.8	60.0	-21.2
1375.028	41.2	-3.0	162.0	1.2	3.0	0.0	H-Horn	AV	0.0	38.2	60.0	-21.8
1500.185	40.0	-2.5	204.0	1.0	3.0	0.0	H-Horn	AV	0.0	37.5	60.0	-22.5
1125.168	40.6	-3.6	256.0	2.0	3.0	0.0	H-Horn	AV	0.0	37.0	60.0	-23.0
1125.216	55.4	-3.6	182.0	1.0	3.0	0.0	V-Horn	PK	0.0	51.8	80.0	-28.2
4853.679	42.0	8.5	172.0	1.2	3.0	0.0	V-Horn	PK	0.0	50.5	80.0	-29.5
1374.871	53.3	-3.0	184.0	1.0	3.0	0.0	V-Horn	PK	0.0	50.3	80.0	-29.7
1466.581	32.5	-2.5	7.0	1.0	3.0	0.0	H-Horn	AV	0.0	30.0	60.0	-30.0
1466.542	51.8	-2.5	348.0	1.0	3.0	0.0	V-Horn	PK	0.0	49.3	80.0	-30.7
1374.861	51.8	-3.0	162.0	1.2	3.0	0.0	H-Horn	PK	0.0	48.8	80.0	-31.2
4853.233	40.0	8.5	159.0	1.0	3.0	0.0	H-Horn	PK	0.0	48.5	80.0	-31.5
1500.328	49.2	-2.5	204.0	1.0	3.0	0.0	H-Horn	PK	0.0	46.7	80.0	-33.3
1499.995	48.0	-2.5	343.0	1.0	3.0	0.0	V-Horn	PK	0.0	45.5	80.0	-34.5
1125.349	47.4	-3.6	256.0	2.0	3.0	0.0	H-Horn	PK	0.0	43.8	80.0	-36.2
1466.422	43.1	-2.5	7.0	1.0	3.0	0.0	H-Horn	PK	0.0	40.6	80.0	-39.4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CONDUCTED EMISSIONS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

BCU and LNAs operating only

POWER SETTINGS INVESTIGATED

-48VDC

SAMPLE CALCULATIONS

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4446A	AAT	4/4/2006	12
LISN	Solar	9233-50-TS-50-N	LIH	4/21/2006	13
LISN	Solar	9233-50-TS-50-N	LII	4/21/2006	13
High Pass Filter	TTE	H97-100K-50-720B	HFX	8/22/2006	13
Attenuator	Tektronix	011-0059-02	ATC	12/19/2005	13
EV01 cables g,h,e,f			EVC	3/17/2006	13

MEASUREMENT BANDWIDTHS

	Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50 Ω measuring port is terminated by a 50 Ω EMI meter or a 50 Ω resistive load. All 50 Ω measuring ports of the LISN are terminated by 50Ω.

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

PSA 2006.10.30
EMI 2006.7.11

EUT:	MC-Series iDEN Microcell High Power			Work Order:	RAFN0067
Serial Number:	Engineering unit			Date:	11/08/06
Customer:	Radioframe Networks, Inc.			Temperature:	22
Attendees:	Erin Duleba			Humidity:	52%
Project:	None			Barometric Pres.:	29.86
Tested by:	Rod Peloquin	Power:	-48VDC	Job Site:	EV01

TEST SPECIFICATIONS	Test Method
FCC 15.107:2006	ANSI C63.4:2003

TEST PARAMETERS

Cable or Line Tested	Negative

COMMENTS

Ground strap installed as will be used in typical installations.

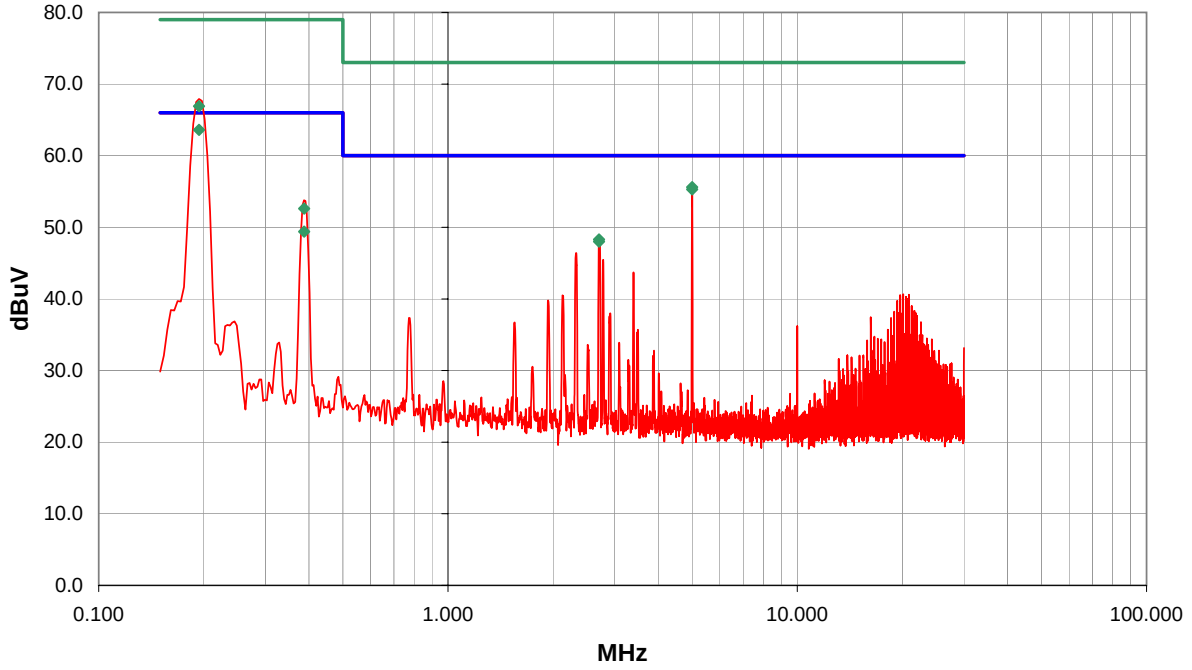
EUT OPERATING MODES

BCU and LNAs operating only

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	1		
Configuration #	1		
Results	Pass	NVLAP Lab Code 200630-0	*Signature*



Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.194	42.5			1.1	0.0	20.0		AV		63.6	66.0	-2.4
5.000	34.3			0.5	0.8	20.0		AV		55.6	60.0	-4.4
2.706	27.3			0.5	0.5	20.0		AV		48.3	60.0	-11.7
0.194	45.8			1.1	0.0	20.0		QP		66.9	79.0	-12.1
0.388	28.5			0.9	0.0	20.0		AV		49.4	66.0	-16.6
5.000	34.0			0.5	0.8	20.0		QP		55.3	73.0	-17.7
2.706	27.0			0.5	0.5	20.0		QP		48.0	73.0	-25.0
0.388	31.7			0.9	0.0	20.0		QP		52.6	79.0	-26.4
5.001	34.6			0.5	0.8	20.0				55.9	60.0	-4.1
2.708	27.5			0.5	0.5	20.0				48.5	60.0	-11.5
0.387	32.7			0.9	0.2	20.0				53.8	66.0	-12.2
2.326	25.4			0.5	0.5	20.0				46.4	60.0	-13.6
2.781	24.4			0.5	0.6	20.0				45.5	60.0	-14.5
3.397	22.6			0.5	0.6	20.0				43.7	60.0	-16.3
20.099	18.7			0.5	1.5	20.0				40.7	60.0	-19.3
20.875	18.6			0.5	1.5	20.0				40.6	60.0	-19.4
19.713	18.6			0.5	1.5	20.0				40.6	60.0	-19.4
2.129	19.5			0.5	0.5	20.0				40.5	60.0	-19.5
20.489	18.3			0.5	1.5	20.0				40.3	60.0	-19.7

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

PSA 2006.10.30
EMI 2006.7.11

EUT:	MC-Series iDEN Microcell High Power			Work Order:	RAFN0067
Serial Number:	Engineering unit			Date:	11/08/06
Customer:	Radioframe Networks, Inc.			Temperature:	22
Attendees:	Erin Duleba			Humidity:	52%
Project:	None			Barometric Pres.:	29.86
Tested by:	Rod Peloquin	Power:	-48VDC	Job Site:	EV01

TEST SPECIFICATIONS	Test Method
FCC 15.107:2006	ANSI C63.4:2003

TEST PARAMETERS	
Cable or Line Tested	Positive

COMMENTS

Ground strap installed as will be used in typical installations.

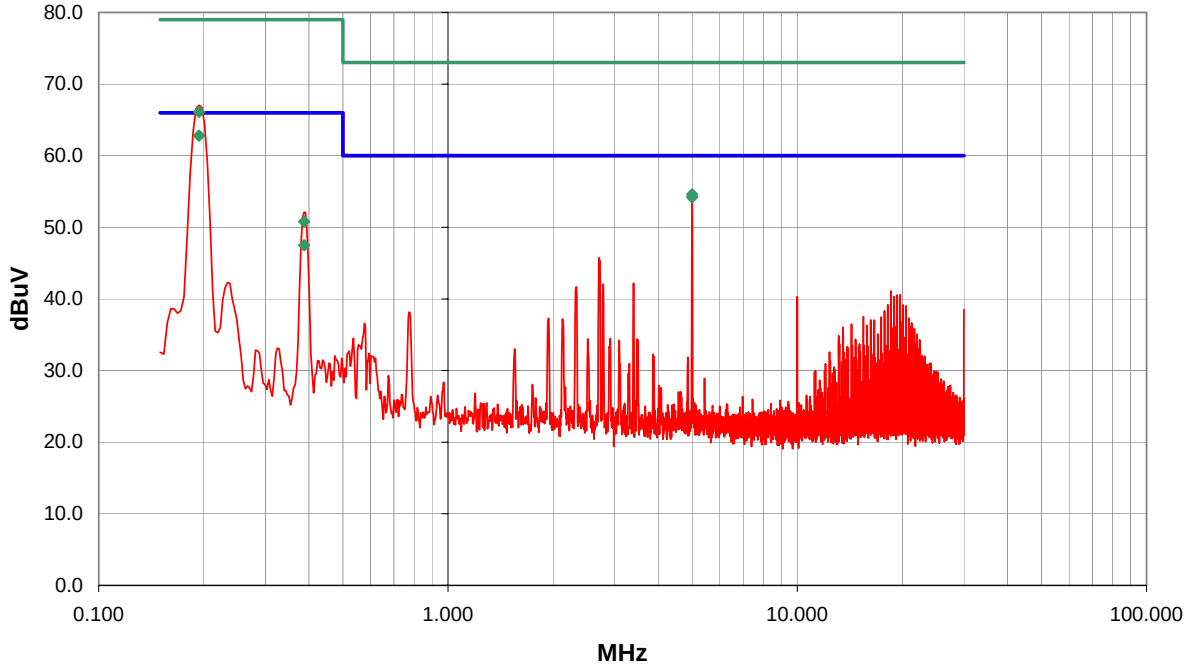
EUT OPERATING MODES

BCU and LNAs operating only

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	2		
Configuration #	1		
Results	Pass	NVLAP Lab Code 200630-0	*Signature*



Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.194	41.7			1.1	0.0	20.0		AV		62.8	66.0	-3.2
5.000	33.3			0.5	0.8	20.0		AV		54.6	60.0	-5.4
0.194	45.0			1.1	0.0	20.0		QP		66.1	79.0	-12.9
0.387	26.6			0.9	0.0	20.0		AV		47.5	66.0	-18.5
5.000	32.9			0.5	0.8	20.0		QP		54.2	73.0	-18.8
0.387	29.9			0.9	0.0	20.0		QP		50.8	79.0	-28.2
5.001	33.7			0.5	0.8	20.0				55.0	60.0	-5.0
0.387	31.0			0.9	0.2	20.0				52.1	66.0	-13.9
2.708	24.7			0.5	0.5	20.0				45.7	60.0	-14.3
3.401	21.1			0.5	0.6	20.0				42.2	60.0	-17.8
2.781	21.0			0.5	0.6	20.0				42.1	60.0	-17.9
2.329	20.7			0.5	0.5	20.0				41.7	60.0	-18.3
18.550	19.2			0.5	1.4	20.0				41.1	60.0	-18.9
19.709	18.6			0.5	1.5	20.0				40.6	60.0	-19.4
19.323	18.6			0.5	1.5	20.0				40.5	60.0	-19.5
18.936	18.4			0.5	1.5	20.0				40.3	60.0	-19.7
10.000	18.8			0.5	1.0	20.0				40.3	60.0	-19.7
18.160	17.3			0.5	1.4	20.0				39.2	60.0	-20.8
20.095	17.2			0.5	1.5	20.0				39.2	60.0	-20.8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Conducted Emissions