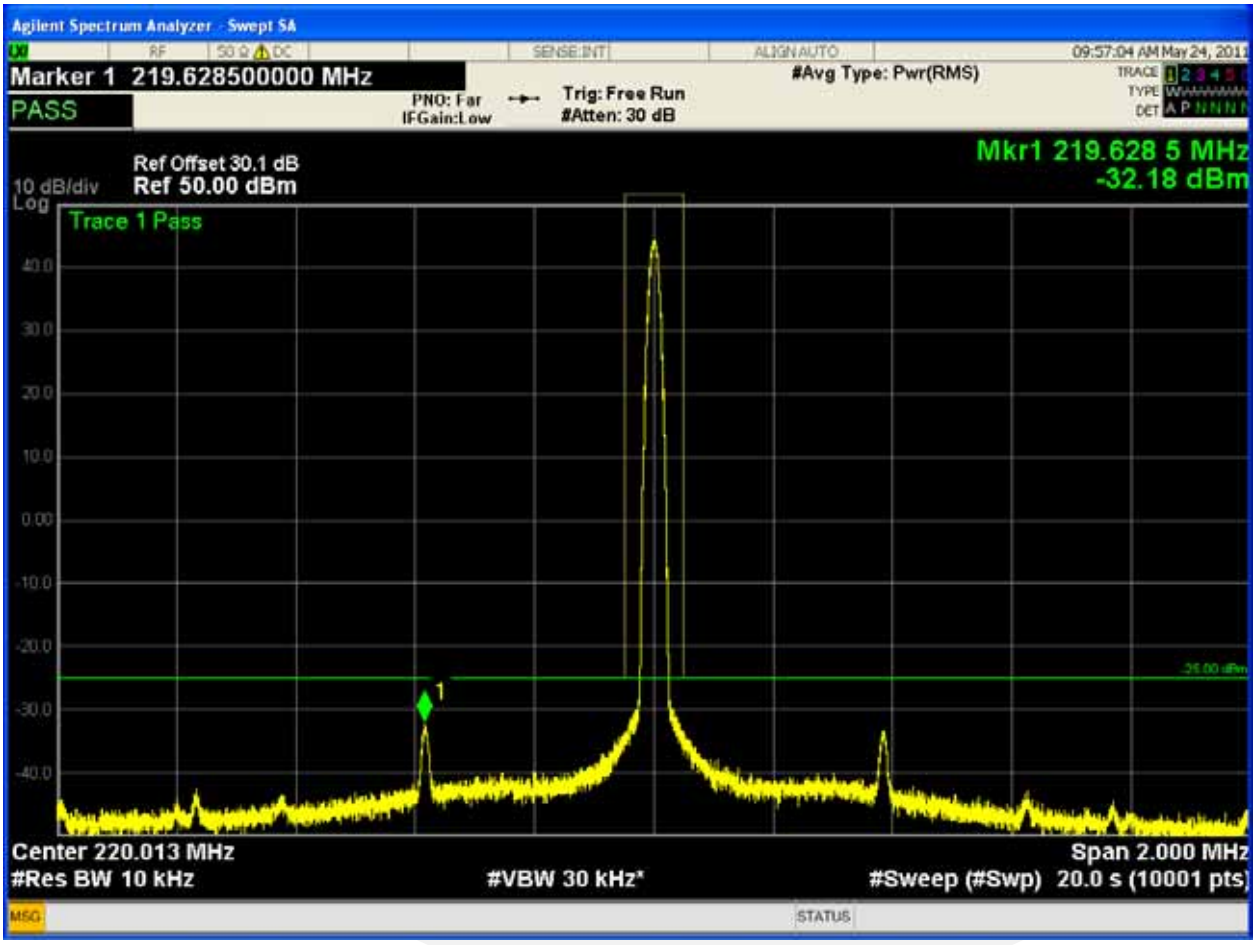
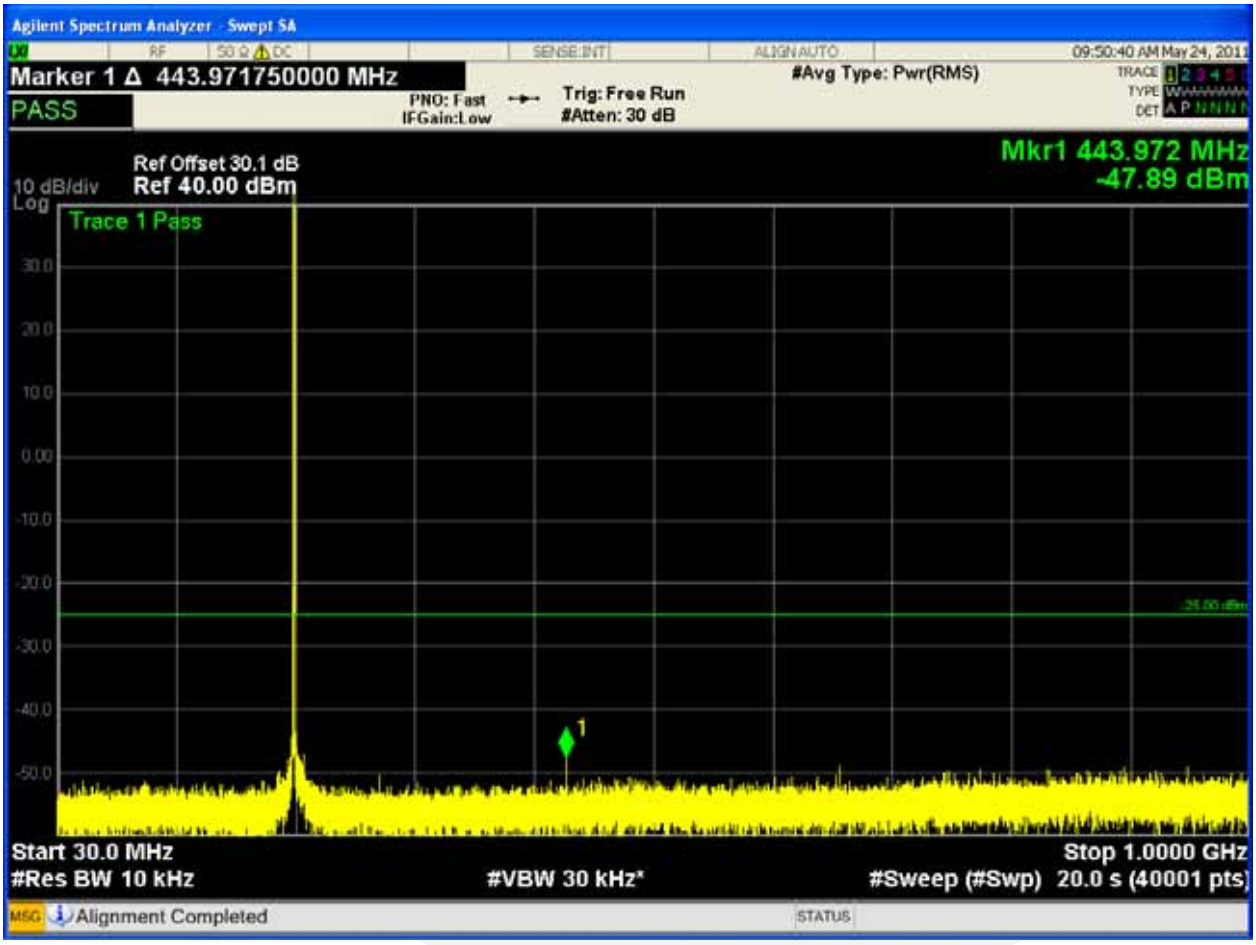
FCC Conducted Emissions below 1 GHz
Tx port
Transmit mode
75 watt peak power



Modulation: DQPSK_HALF
Low channel: 220.0125 MHz
Close in emissions

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

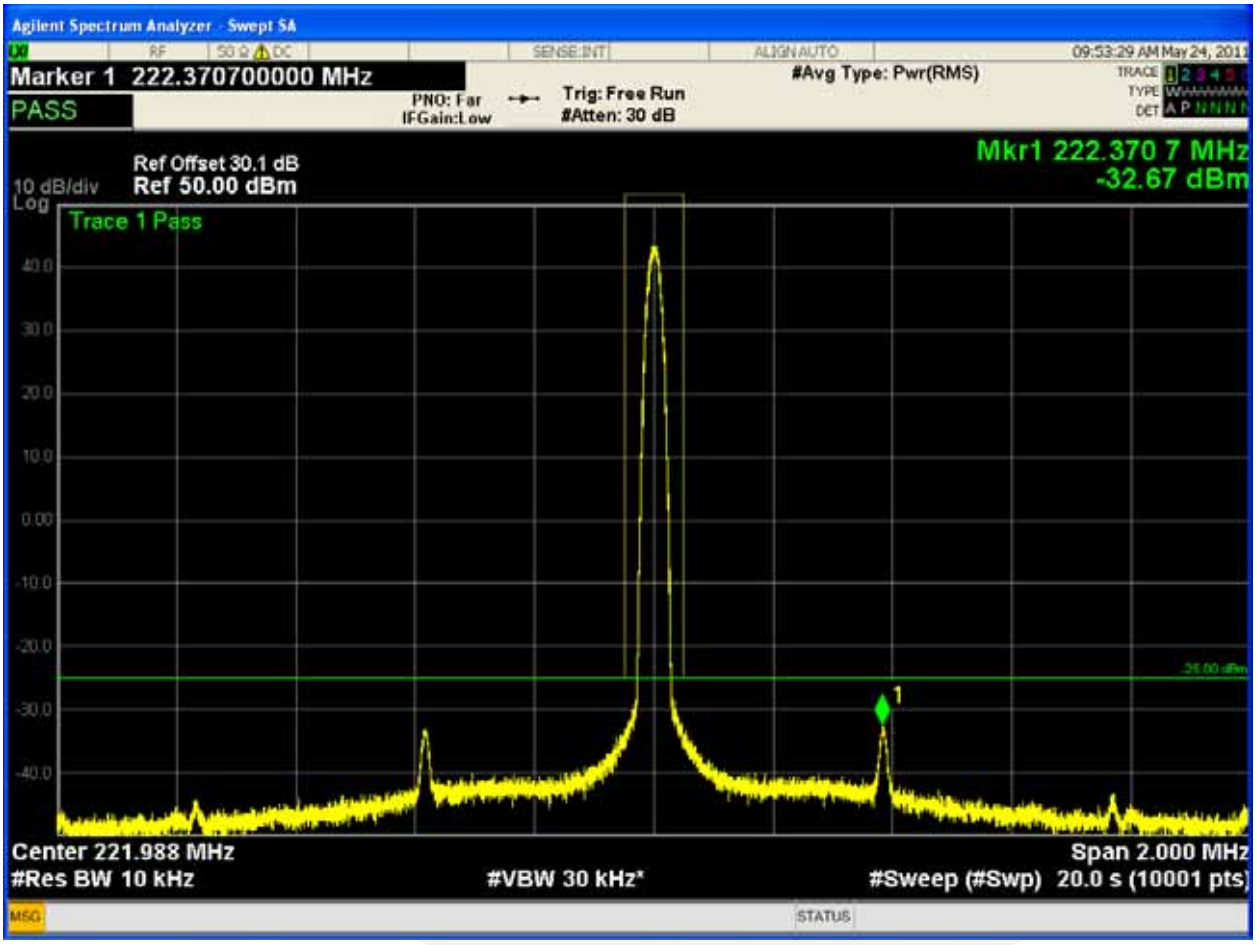
FCC Conducted Emissions below 1 GHz
Tx port
Transmit mode
75 watt peak power



Modulation: DQPSK
High channel: 221.9875 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

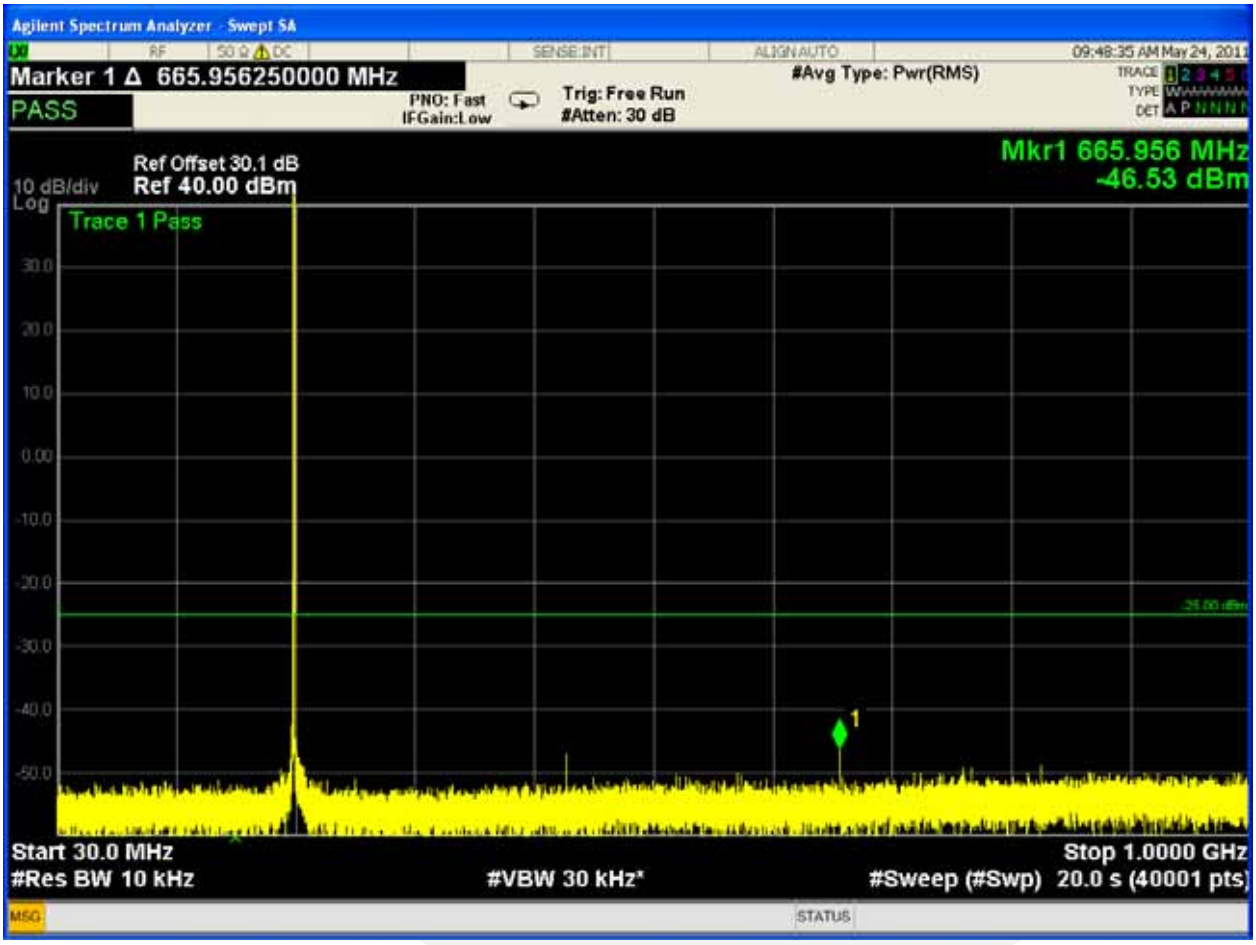
FCC Conducted Emissions below 1 GHz
Tx port
Transmit mode
75 watt peak power



Modulation: DQPSK
High channel: 221.9875 MHz
Close in emissions

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

FCC Conducted Emissions below 1 GHz
Tx port
Transmit mode
75 watt peak power



Modulation: DQPSK_HALF
High channel: 221.9875 MHz

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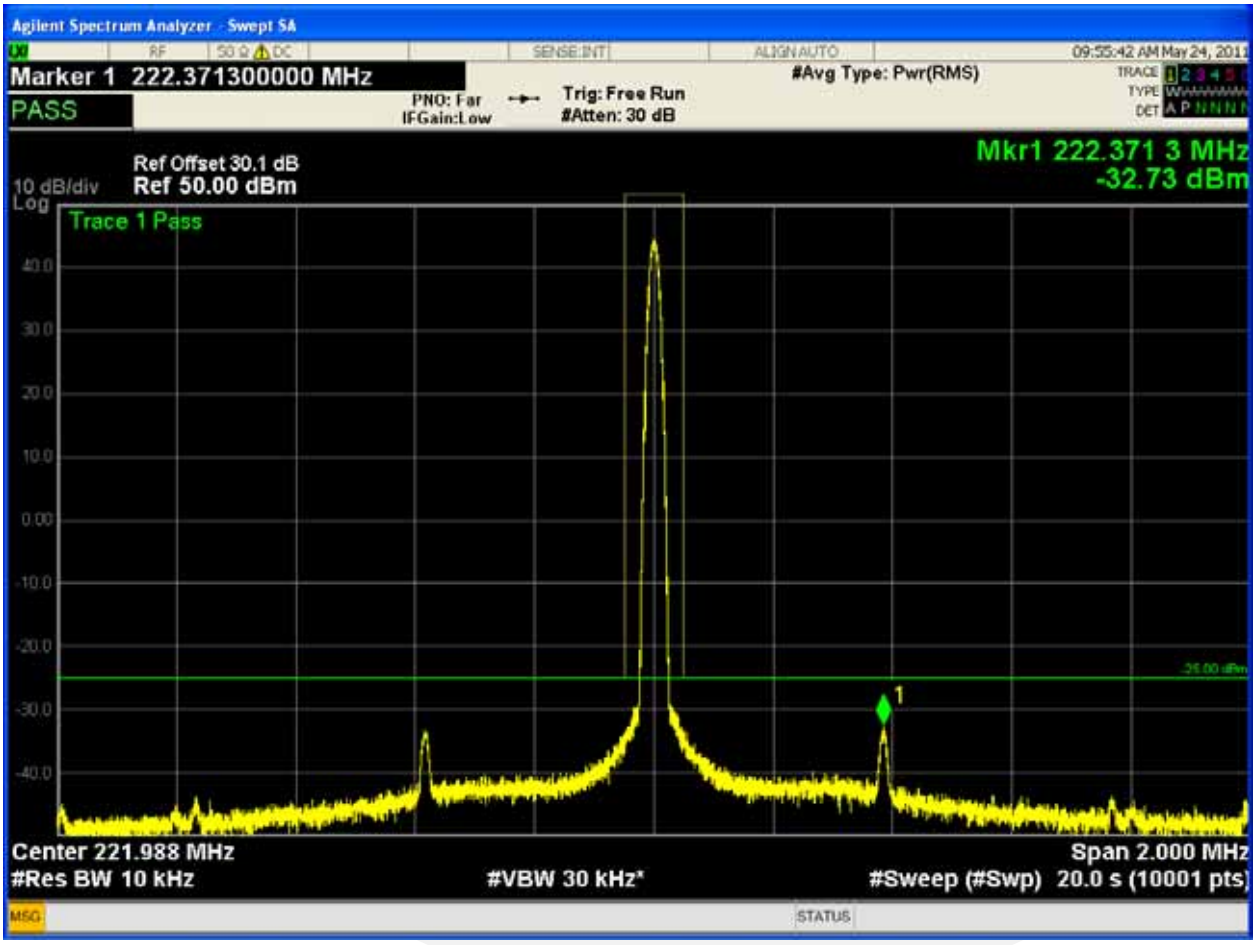
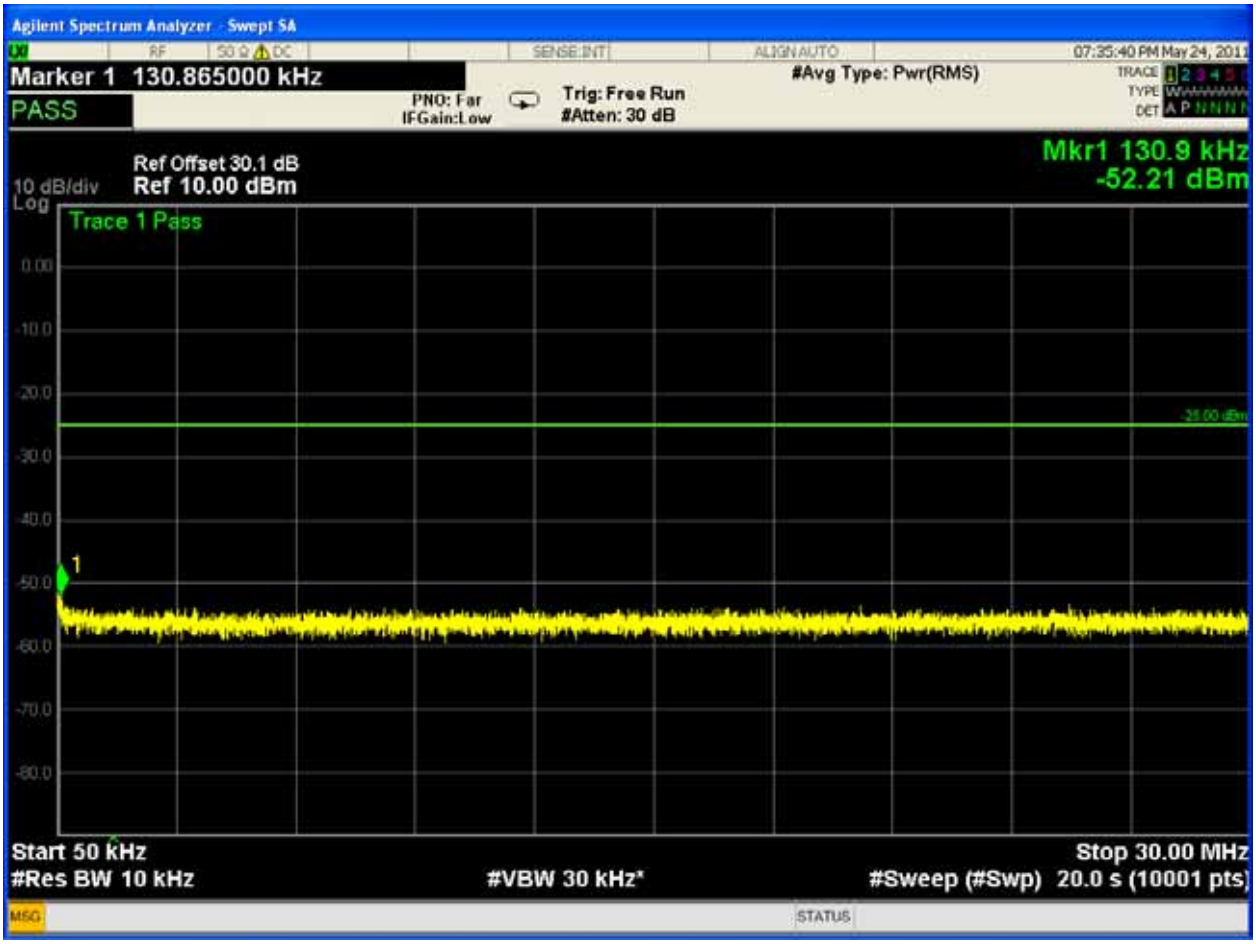
FCC Conducted Emissions below 1 GHz
Tx port
Transmit mode
75 watt peak power



Modulation: DQPSK_HALF
High channel: 221.9875 MHz
Close in emissions

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

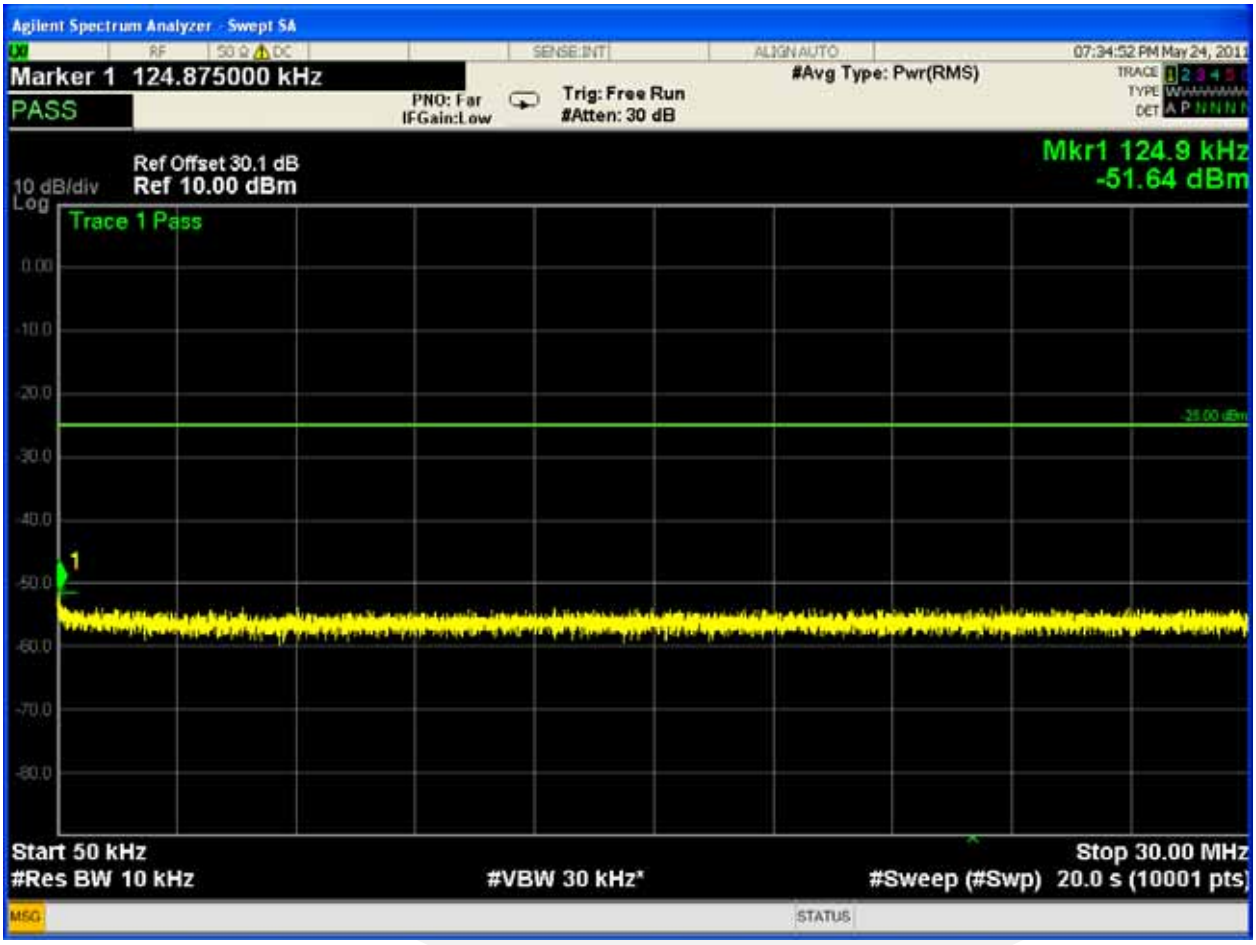
FCC Conducted Emissions below 1 GHz
Tx port
Transmit mode
10 watt peak power



Modulation: DQPSK
Low channel: 220.0125 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

FCC Conducted Emissions below 1 GHz
Tx port
Transmit mode
10 watt peak power



Modulation: DQPSK_HALF
Low channel: 220.0125 MHz

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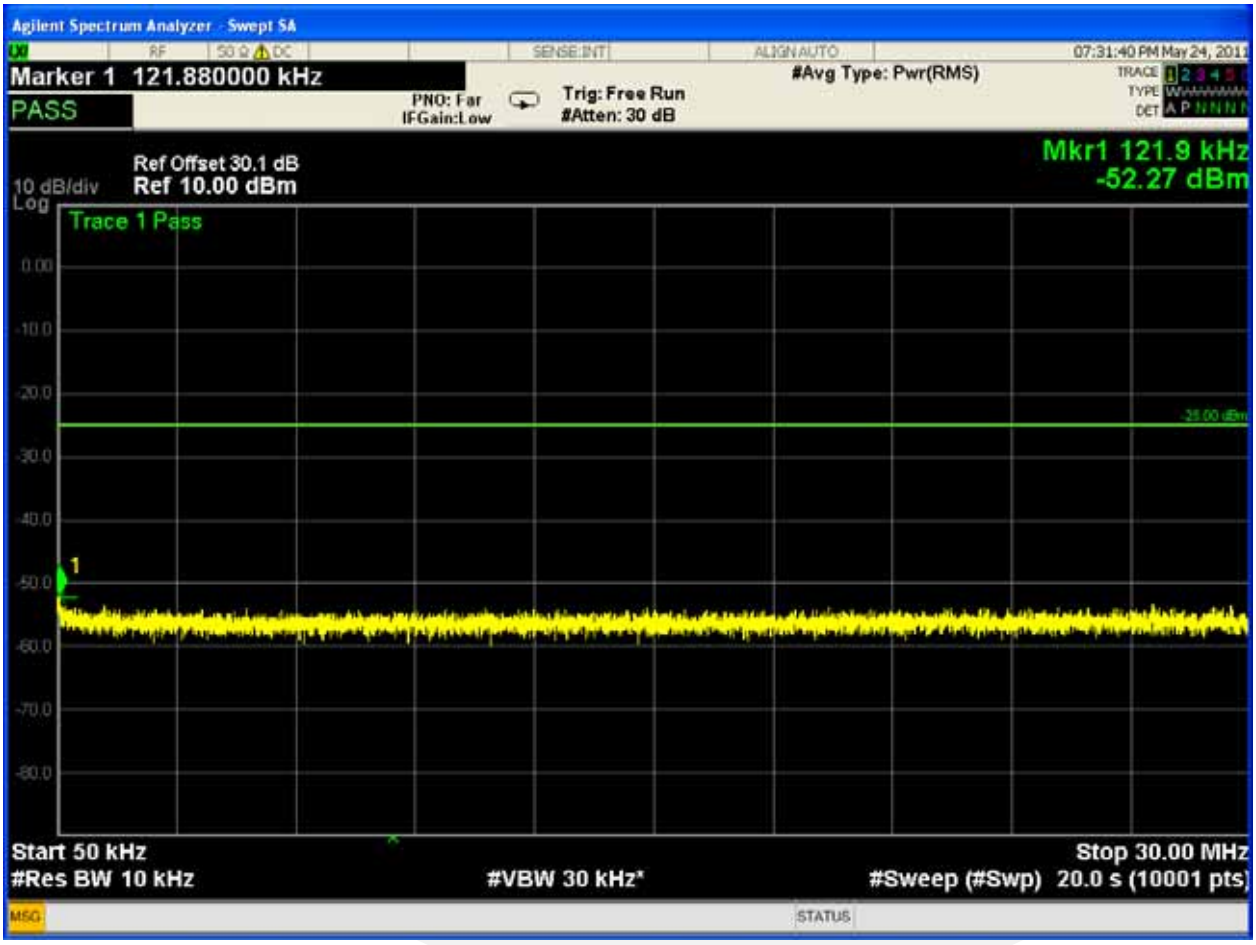
FCC Conducted Emissions below 1 GHz
Tx port
Transmit mode
10 watt peak power



Modulation: DQPSK
High channel: 221.9875 MHz

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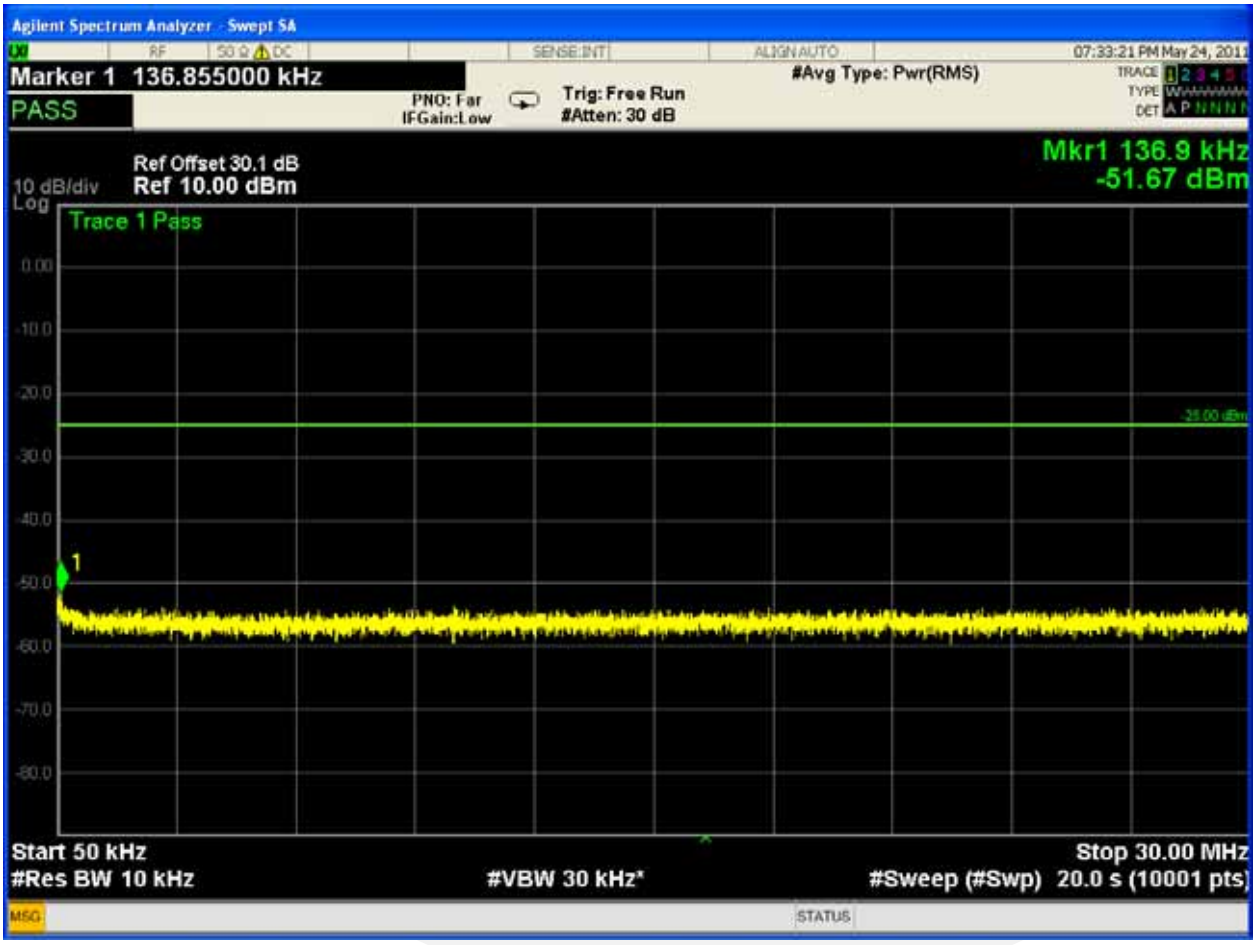
FCC Conducted Emissions below 1 GHz
Tx port
Transmit mode
10 watt peak power



Modulation: DQPSK_HALF
High channel: 221.9875 MHz

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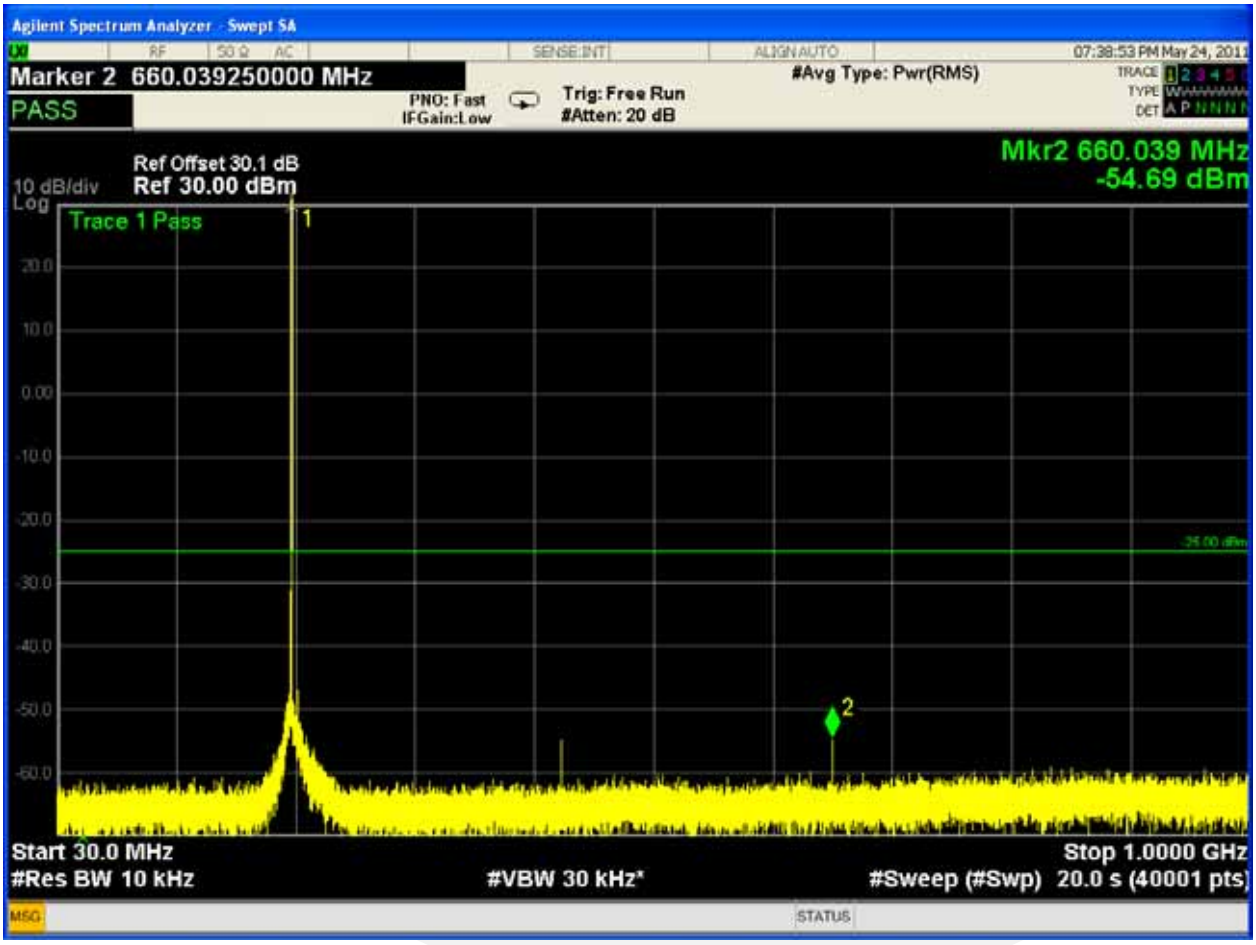
FCC Conducted Emissions below 1 GHz
Tx port
Transmit mode
10 watt peak power



Modulation: DQPSK
Low channel: 220.0125 MHz

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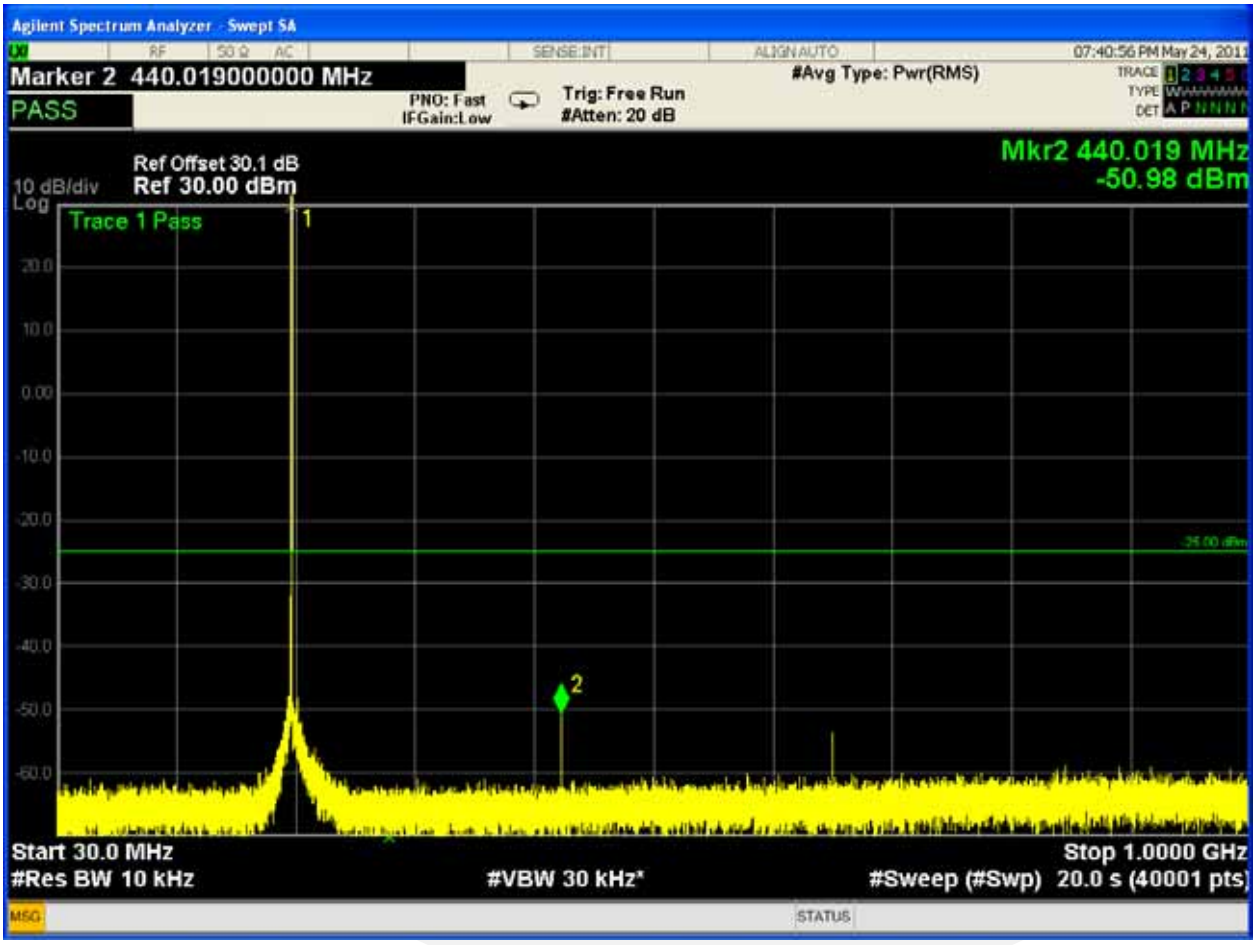
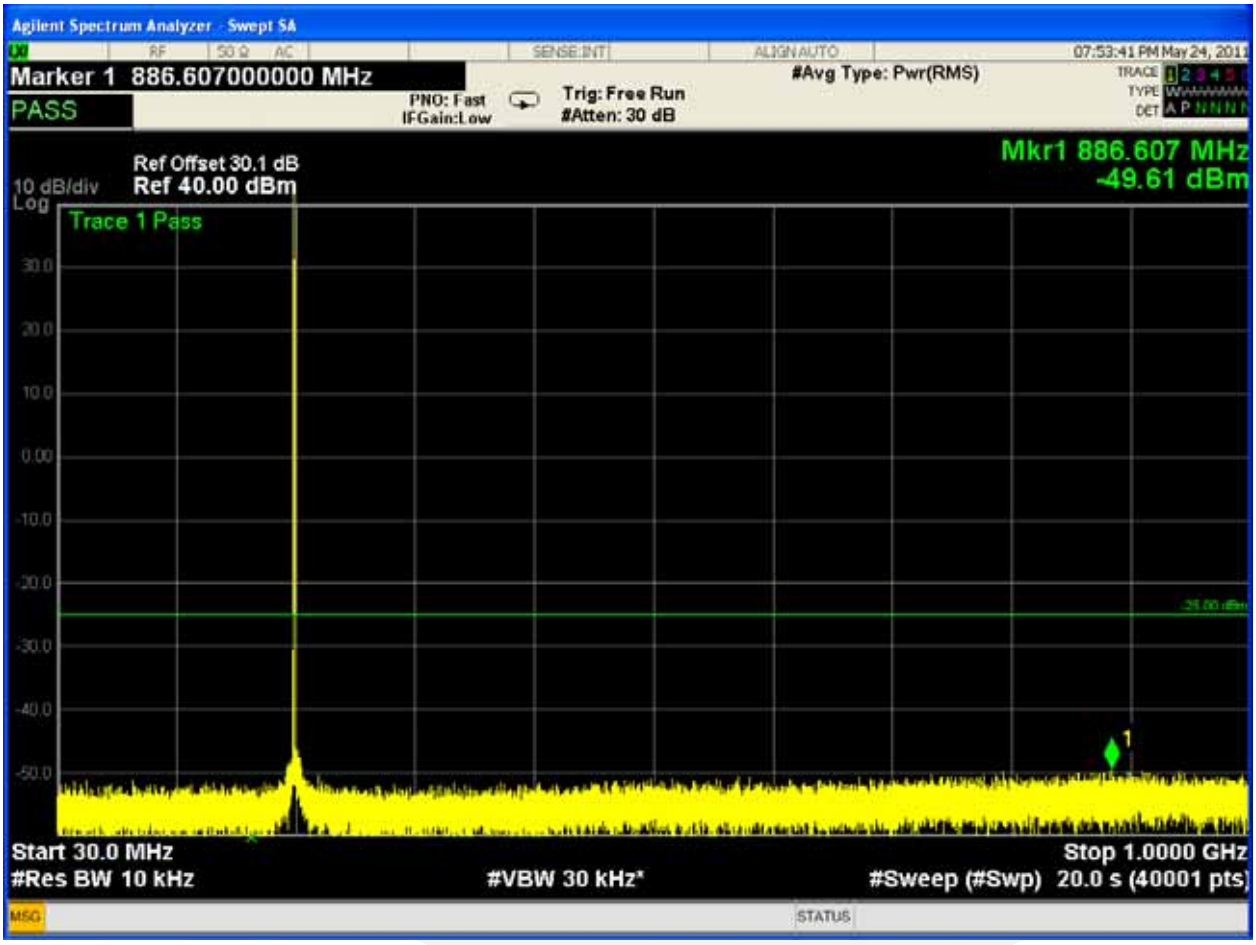
FCC Conducted Emissions below 1 GHz
Tx port
Transmit mode
10 watt peak power



Modulation: DQPSK_HALF
Low channel: 220.0125 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

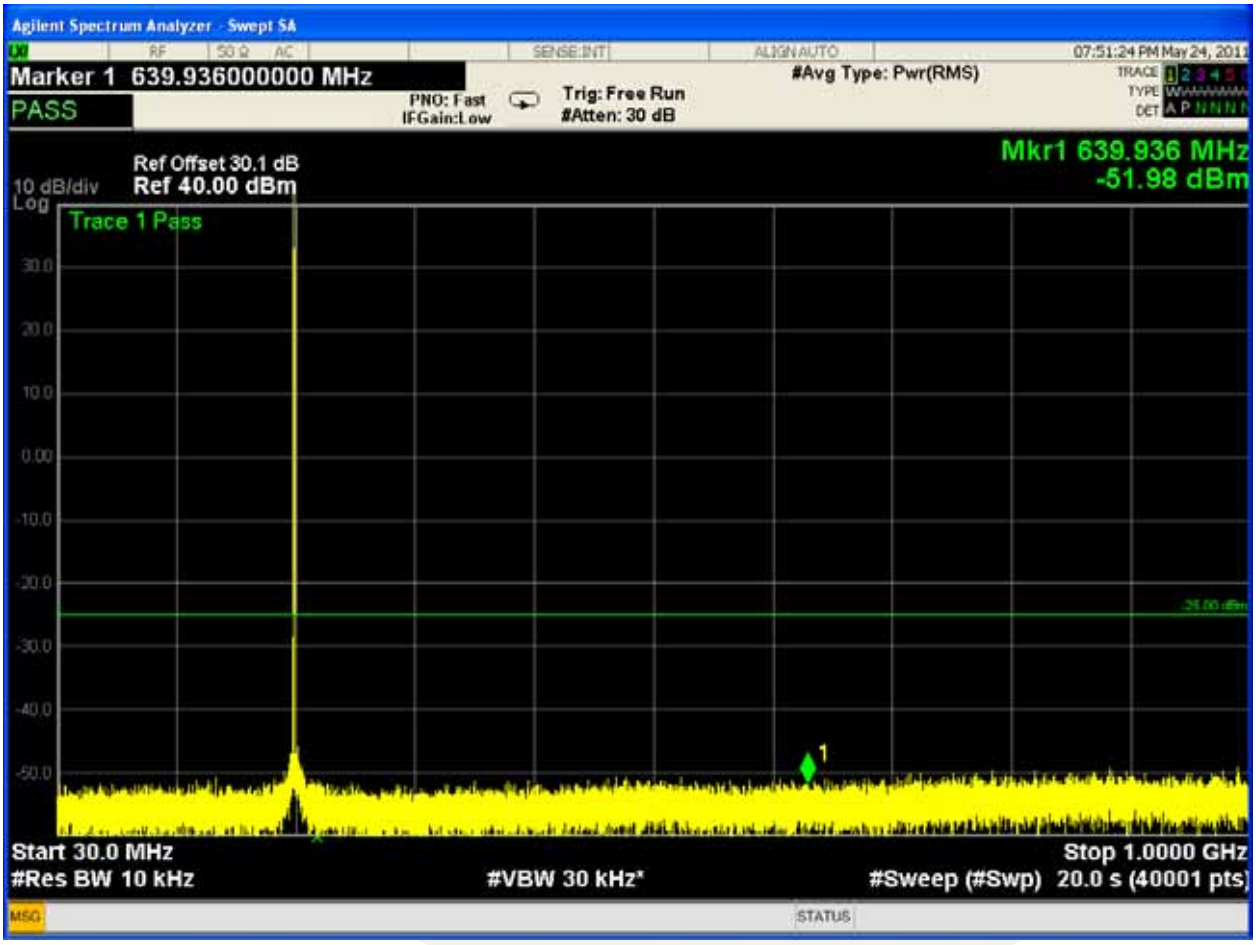
FCC Conducted Emissions below 1 GHz
Tx port
Transmit mode
10 watt peak power



Modulation: DQPSK
High channel: 221.9875 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

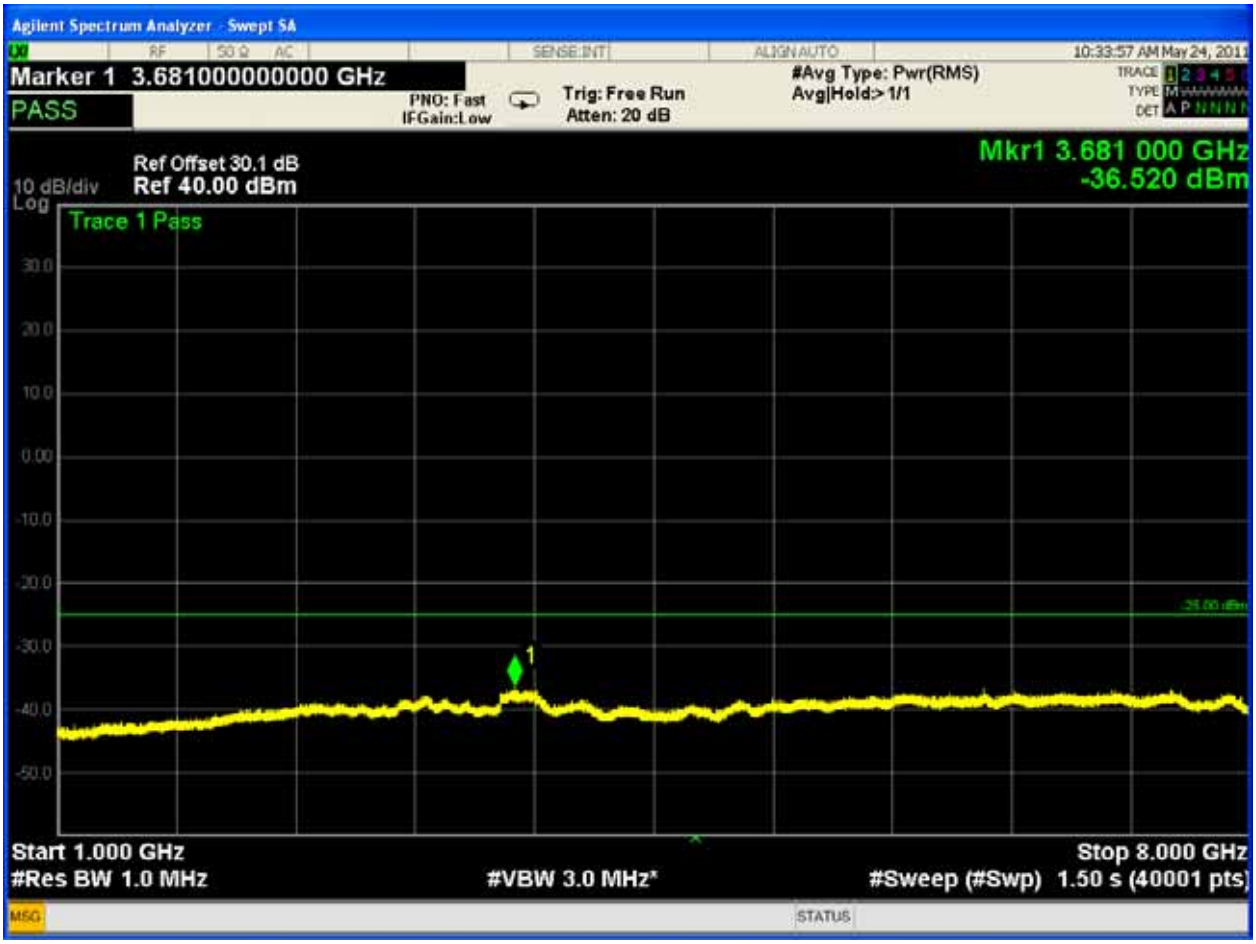
FCC Conducted Emissions below 1 GHz
Tx port
Transmit mode
10 watt peak power



Modulation: DQPSK_HALF
High channel: 221.9875 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

FCC / Industry Canada Conducted Emissions above 1 GHz
Tx port
Transmit mode
75 watt peak power



Modulation: DQPSK
Low channel: 220.0125 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

FCC / Industry Canada Conducted Emissions above 1 GHz
Tx port
Transmit mode
75 watt peak power

Modulation: DQPSK_HALF
Low channel: 220.0125 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

FCC / Industry Canada Conducted Emissions above 1 GHz
Tx port
Transmit mode
75 watt peak power

Modulation: DQPSK
High channel: 221.9875 MHz

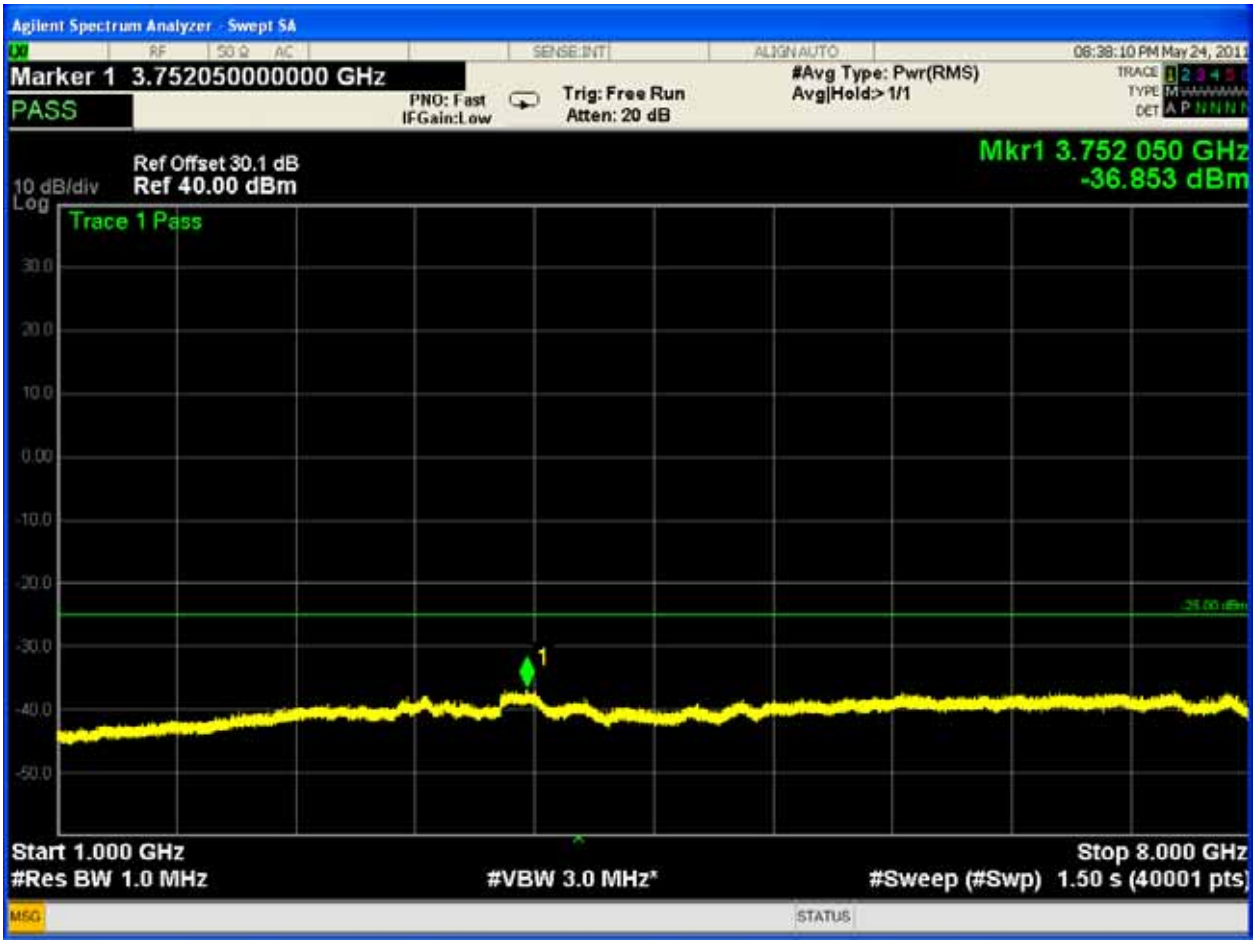
TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

FCC / Industry Canada Conducted Emissions above 1 GHz
Tx port
Transmit mode
75 watt peak power

Modulation: DQPSK_HALF
High channel: 221.9875 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

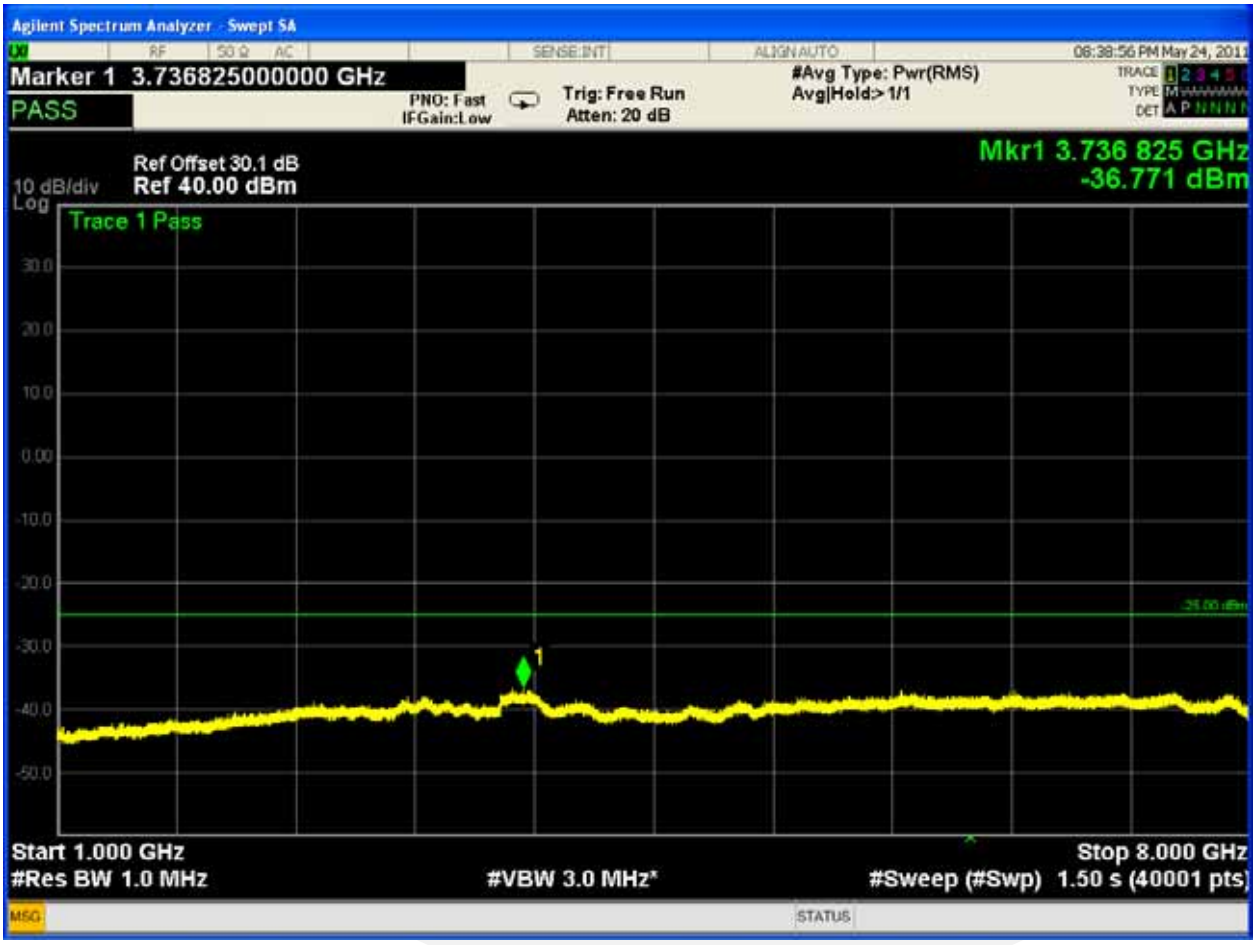
FCC / Industry Canada Conducted Emissions above 1 GHz
Tx port
Transmit mode
10 watt peak power



Modulation: DQPSK
Low channel: 220.0125 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

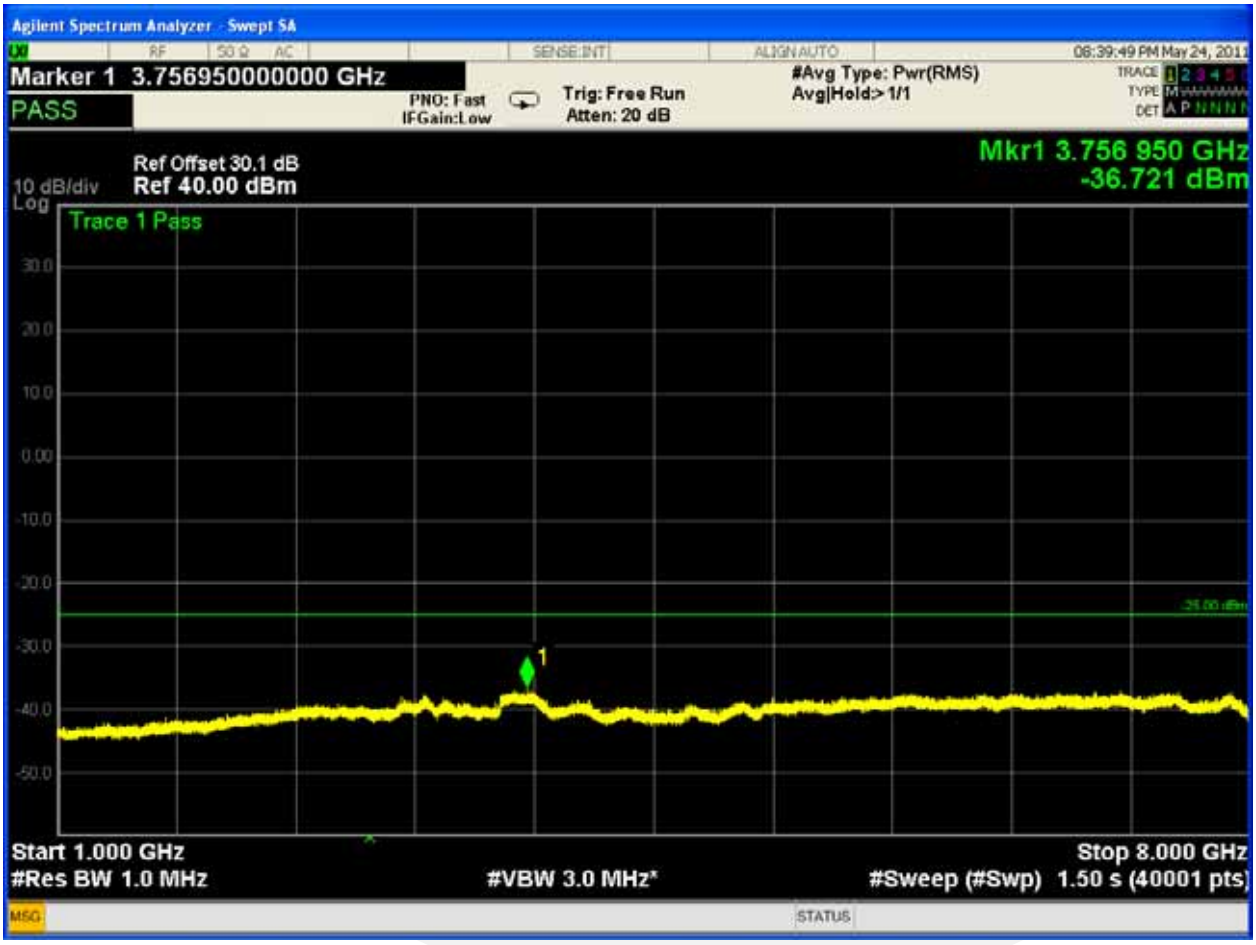
FCC / Industry Canada Conducted Emissions above 1 GHz
Tx port
Transmit mode
10 watt peak power



Modulation: DQPSK_HALF
Low channel: 220.0125 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

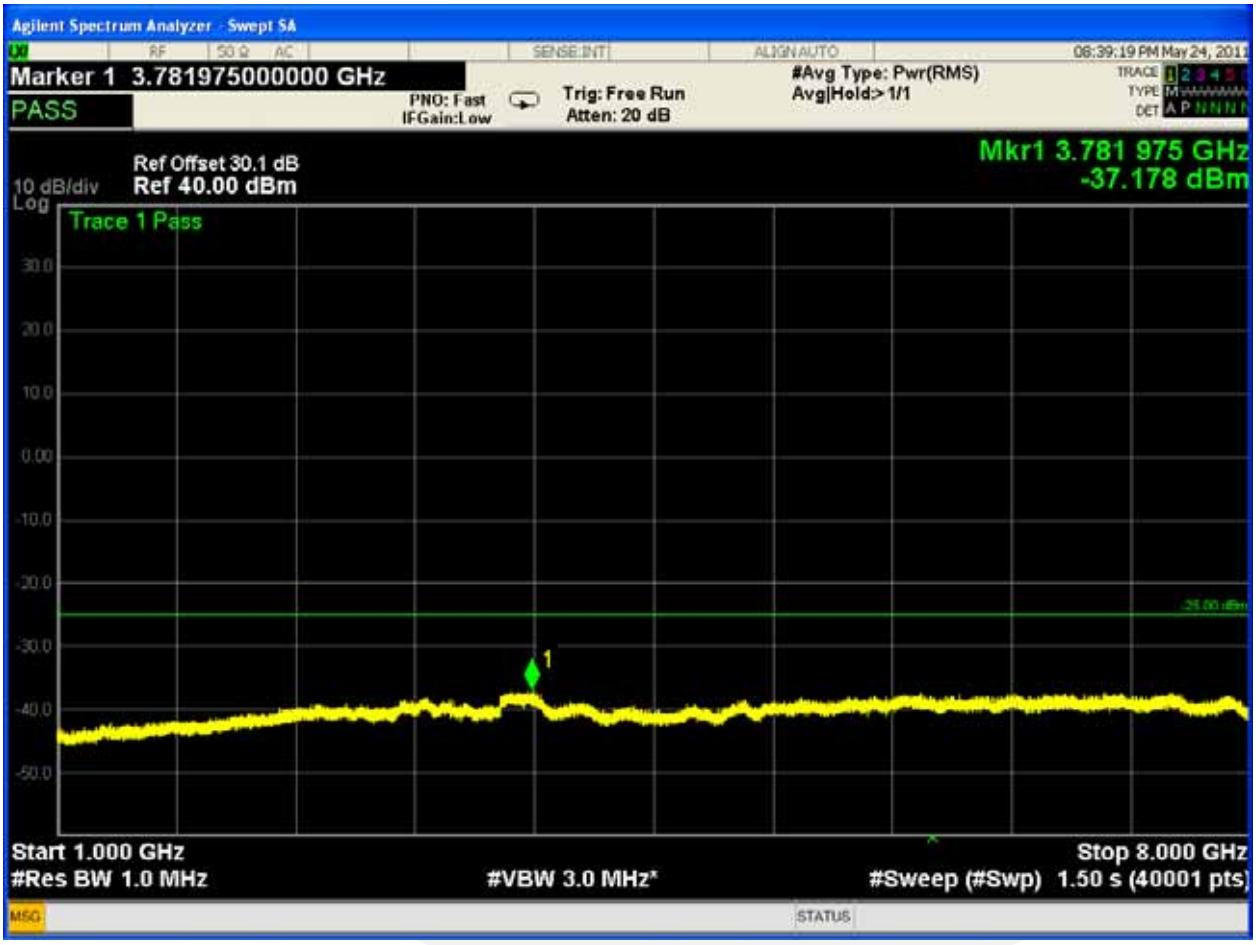
FCC / Industry Canada Conducted Emissions above 1 GHz
Tx port
Transmit mode
10 watt peak power



Modulation: DQPSK
High channel: 221.9875 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

FCC / Industry Canada Conducted Emissions above 1 GHz
Tx port
Transmit mode
10 watt peak power



Modulation: DQPSK_HALF
High channel: 221.9875 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

8.6 Frequency stability

Test summary
The requirements are: ■ - MET ☐ - NOT MET

Test location
☐ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Oakwood Lab (Open Area Test Site)
■ - NextGen RF Design

Test equipment

	Vendor	Model	Serial Number	Cal Date / Cal Due Date
Spectrum Analyzer	Agilent	PSA N9030A	US4S230321	03-03-2011 / 04-21-2012
Power Supply	HP/Agilent	6030A	2934A-01826	12-16-2010 / 07-07-2011
Computer	Dell	XPS M170	36134745733	N/A
30 dB power attenuator	Weinschel	5009	MA907	Cal by user
Multimeter	Fluke	87V	86670404	04/21/2011 – 04/21/2012
Rx1 Load	Weinschel	2-40	T1328	Cal by user
Rx2 Load	Systron Doner	108328	N/A	Cal by ser
DC Block	PE8210		N/A	Cal by user
50 ohm load	Inmet 3016		N/A	Cal by user
Temperature Chamber	Thermotron	S1.2 MiniMax	NGRF16	N/A

Test limits

FCC 90.213
0.1 ppm – 220-222 MHz
1 ppm – 217-220 MHz – N/A

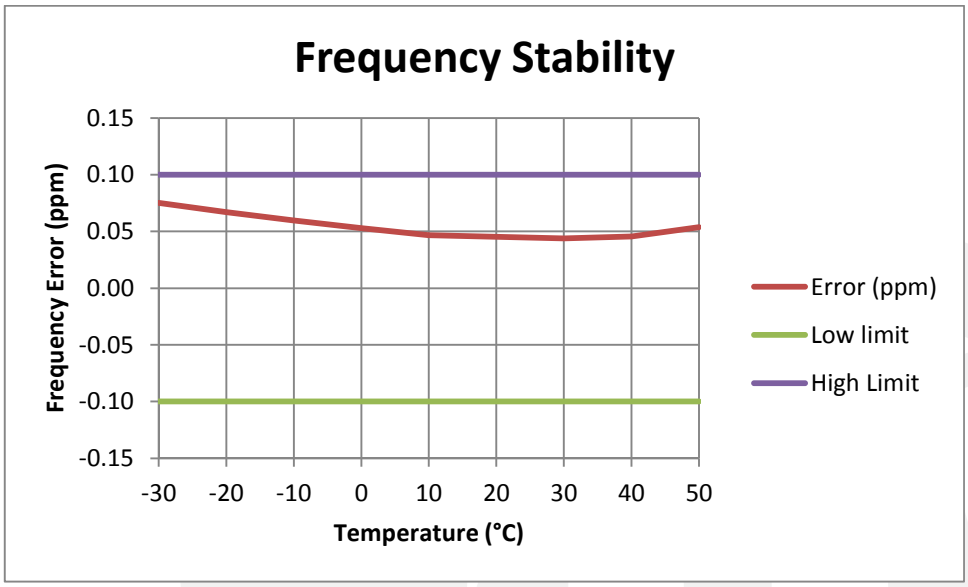
RSS-119 5.3
0.1 ppm – 220-222 MHz
5 ppm – 217-218 MHz 5 ppm – 219-220 MHz – N/A

Test Data
See following pages

Frequency error data has been collected by recording the frequency error information as reported from the vector signal analyzer digital demodulation measurement function contained within the N9030A spectrum analyzer. Knowing the data rate, modulation format, and filter parameters, the digital demodulator is configured to decode the transmission data. The demodulated data is then processed by the vector signal analyzer and is then able to determine the fundamental frequency error result referenced to the center frequency of the spectrum analyzer. This method of frequency error measurement is used on digital transmissions when a suitable unmodulated RF signal is not available.

For each data point, the product was unpowered at the test temperature for a sufficient time to ensure that the frequency determining circuitry was also at the test temperature. Power was then applied to the product and a frequency error measurement was performed as soon as data communications with the test computer allowed, typically around 2 minutes after power was applied.

Frequency Stability versus temperature
Frequency: 221.0000 MHz
Modulation: DQPSK
Supply Voltage: 24.0 Vdc



Frequency (MHz)	221.000000	
Temperature °C	Freq Error (Hz)	Error (ppm)
-30	16.592	0.0751
-20	14.779	0.0669
-10	13.158	0.0595
0	11.684	0.0529
10	10.333	0.0468
20	10.021	0.0453
30	9.6754	0.0438
40	10.064	0.0455
50	11.880	0.0538

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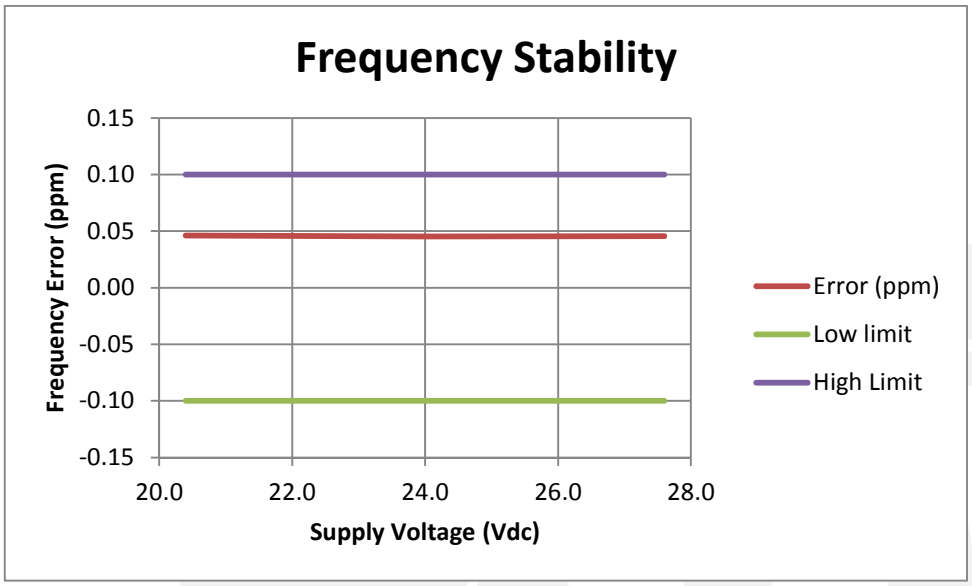
Frequency Stability versus supply voltage
Frequency: 221.0000 MHz
Modulation: DQPSK
Temperature: 20°C



Frequency (MHz)	221.000000	
Voltage	Freq Error (Hz)	Error (ppm)
20.4	10.218	0.0462
24.0	10.021	0.0453
27.6	10.082	0.0456

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8.7 Receiver emissions

Test summary
The requirements are: ■ - MET ☐ - NOT MET

Test location
☐ - Wild River Lab Large Test Site (Open Area Test Site)
■ - Oakwood Lab (Open Area Test Site)
■ - NextGen RF Design

Test equipment (conducted)

	Vendor	Model	Serial Number	Cal Date / Cal Due Date
Spectrum Analyzer	Agilent	PSA N9030A	US4S230321	03-03-2011 / 04-21-2012
Power Supply	HP/Agilent	6030A	2934A-01826	12-16-2010 / 07-07-2011
Computer	Dell	XPS M170	36134745733	N/A
30 dB power attenuator	Weinschel	5009	MA907	Cal by user
Multimeter	Fluke	87V	86670404	04/21/2011 – 04/21/2012
Rx1 Load	Weinschel	2-40	T1328	Cal by user
Rx2 Load	Systron Doner	108328	N/A	Cal by ser
DC Block	PE8210		N/A	Cal by user
50 ohm load	Inmet 3016		N/A	Cal by user

Test equipment (radiated)

TUV ID	Model	Manufacturer	Description	Serial	Cal Due
OWLE02074	3115	Electro-Mechanics	Ridge Guide Antenna	2504	24-Feb-12
WRLE02674	85662A	Hewlett-Packard	Analyzer Display	2050A02007	05-Nov-11
WRLE02690	8568B	Hewlett-Packard	Spectrum Analyzer	2430A00930	05-Nov-11
WRLE02680	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00343	15-Jun-11
OWLE02671	8447D	Hewlett-Packard	Preamplifier	2648A04942	Code B 05-Jan-12
WRLE03958	SL18B4020	Phase One Microwave	Preamplifier 1 – 18 GHz	0002	Code B 05-Jan-12
WRLE03204	EM-6917B	Electro-Metrics	Biconicalog Periodic	102	21-Apr-12

Test limits
Radiated, FCC 15.109, RSS-Gen

Frequncy (MHz)	Field strength (μV/meter)	Field strength (dBμV/meter)
30 - 88	100, QP	40.0
88 - 216	150, QP	43.5
216 - 960	200, QP	46.0
Above 960	500, QP	54.0
> 1000	500, AV 5000, PK	54.0 74.0

FCC 15.111
2.0 nwatts (-57dBm)

RSS-Gen 6.2
2.0 nwatts (-57 dBm) 30-1000 MHz
5.0 nwatts (-53 dBm) > 1000 MHz

Test Data
See following pages

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Radiated emissions

Below 1 GHz

Measurement summary for limit1: FCC-B <1GHz 3m (Qp)					
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-B <1GHz 3m
499.988 MHz	49.11 Qp	2.37 / 17.46 / 24.75 / 0.0	44.19	V / 1.30 / 180	-1.81
874.968 MHz	41.75 Qp	3.43 / 22.35 / 24.65 / 0.0	42.88	V / 1.40 / 150	-3.12
179.901 MHz	53.05 Qp	1.53 / 10.29 / 24.84 / 0.0	40.03	V / 1.00 / 205	-3.47
199.999 MHz	50.36 Qp	1.61 / 10.7 / 24.68 / 0.0	37.99	V / 1.00 / 237	-5.51
624.976 MHz	41.34 Qp	2.87 / 19.59 / 24.77 / 0.0	39.03	V / 1.20 / 175	-6.97

≥ 1 GHz

Measurement summary for limit1: FCC B >1GHz 3m av (Av)					
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC B >1GHz 3m av
1.5 GHz	59.79 Av	4.36 / 26.05 / 51.23 / 0.0	38.98	V / 1.00 / 185	-15.02
2.495 GHz	50.38 Av	6.73 / 28.57 / 49.2 / 0.0	36.48	V / 1.00 / 0	-17.52
1.875 GHz	54.31 Av	5.16 / 27.7 / 51.18 / 0.0	35.99	V / 1.00 / 270	-18.01
1.0 GHz	58.35 Av	3.61 / 24.6 / 50.6 / 0.0	35.96	H / 1.00 / 180	-18.04
2.0 GHz	53.4 Av	5.46 / 27.9 / 50.86 / 0.0	35.89	V / 1.00 / 180	-18.11

Measurement summary for limit2: FCC B >1G 3 M peak (Pk)					
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA2 FCC B >1G 3 M peak
1.875 GHz	67.9 Pk	5.16 / 27.7 / 51.18 / 0.0	49.58	V / 1.00 / 270	-24.42
2.495 GHz	61.25 Pk	6.73 / 28.57 / 49.2 / 0.0	47.35	V / 1.00 / 0	-26.65
1.5 GHz	65.75 Pk	4.36 / 26.05 / 51.23 / 0.0	44.94	V / 1.00 / 185	-29.06
4.0 GHz	50.75 Pk	9.41 / 32.25 / 48.27 / 0.0	44.14	V / 1.00 / 270	-29.86
1.125 GHz	65.5 Pk	3.79 / 25.14 / 51.19 / 0.0	43.25	V / 1.00 / 0	-30.75

The emission limits shown in the above tables are based on measurements employing a CISPR quasi-peak detector except for the frequency bands above 1000 MHz. Radiated emission limits above 1000 MHz are based on measurements employing an average detector. When average radiated emission measurements are specified in this part, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, *e.g.*, see §§ 15.250, 15.252, 15.255, and 15.509–15.519, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. Radiated emissions from the EUT are measured in the frequency range of 30 to 1000 MHz using a spectrum analyzer and appropriate broadband linearly polarized antennas. Measurements between 30 MHz and 1000 MHz are made with a 120 kHz / 6 dB bandwidth and quasi-peak detection and measurements above 1000 MHz are made with a 1 MHz RBW/VBW / 6 dB bandwidth and peak detection, 1 MHz RBW/ 10 Hz VBW for average detection. Table top equipment is placed on a non-conductive support 80 cm above the ground plane. Interface cables that are closer than 40 centimeters to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimeters from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screen room located outside the test area. The antenna is positioned 3 meters horizontally from the EUT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 meters, measurement scans are made with both horizontal and vertical antenna polarizations and the EUT is rotated 360 degrees. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB / decade (inverse linear-distance for field strength measurements).

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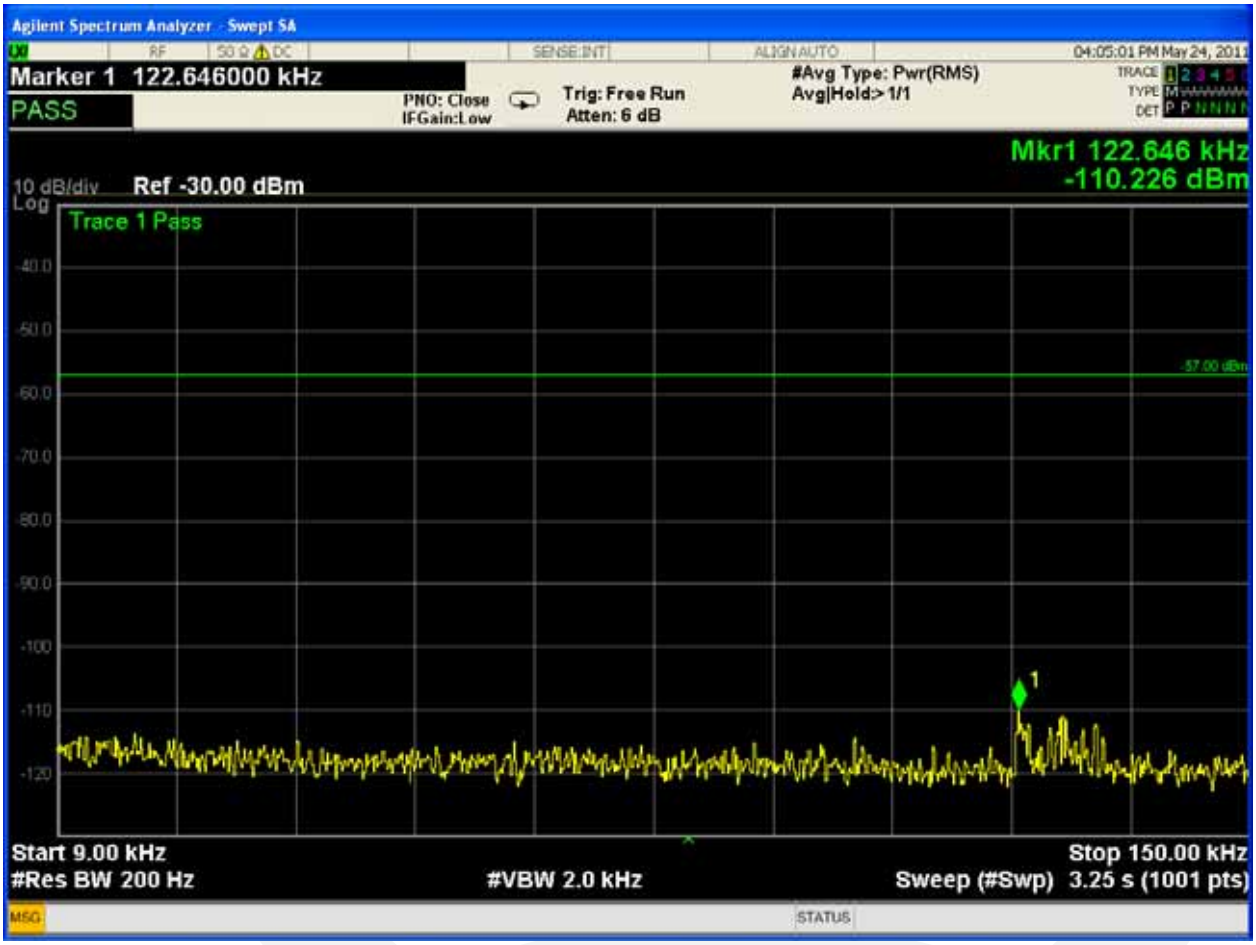
Conducted emissions



Rx1 Port
Receive mode
Low channel: 220.0125 MHz

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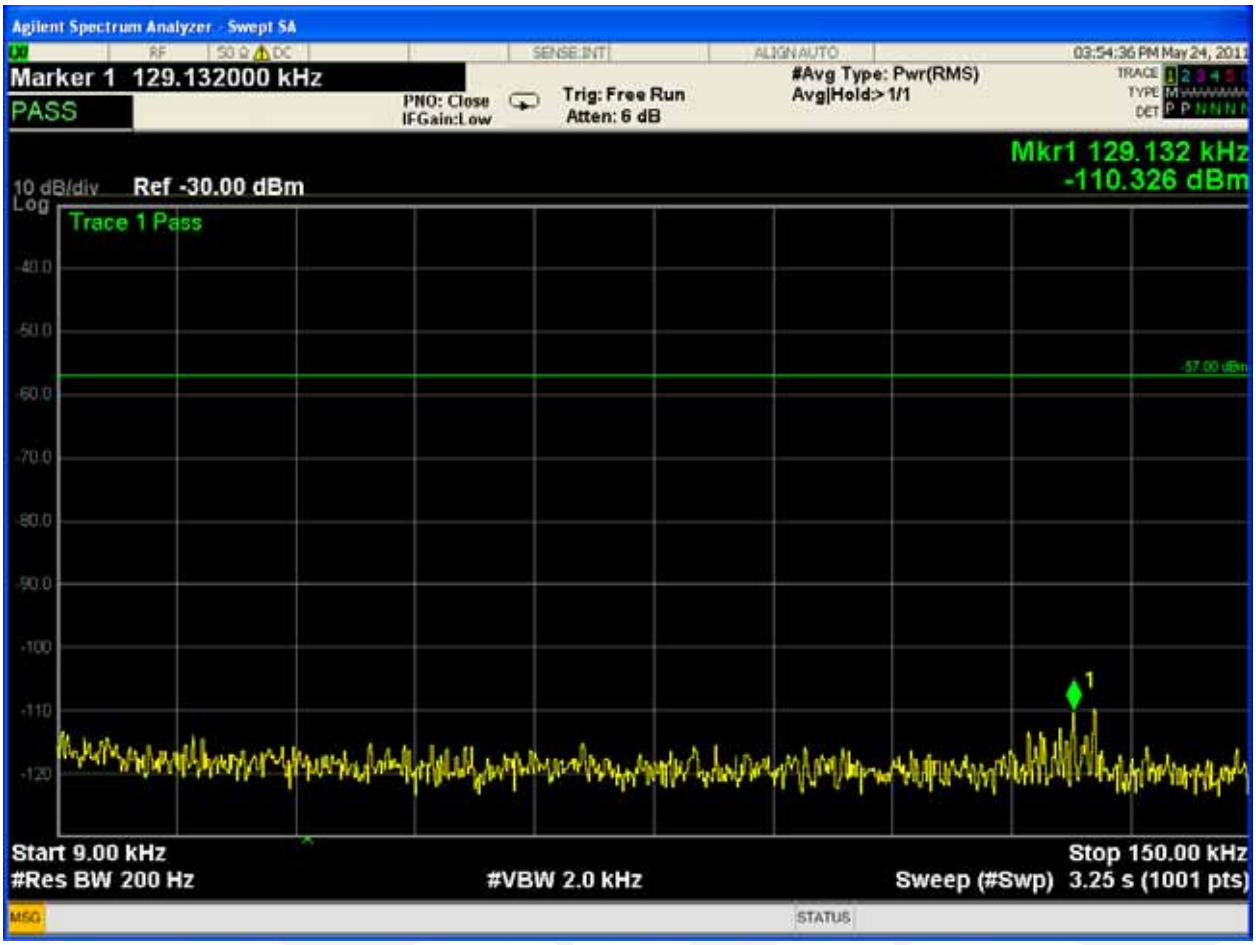
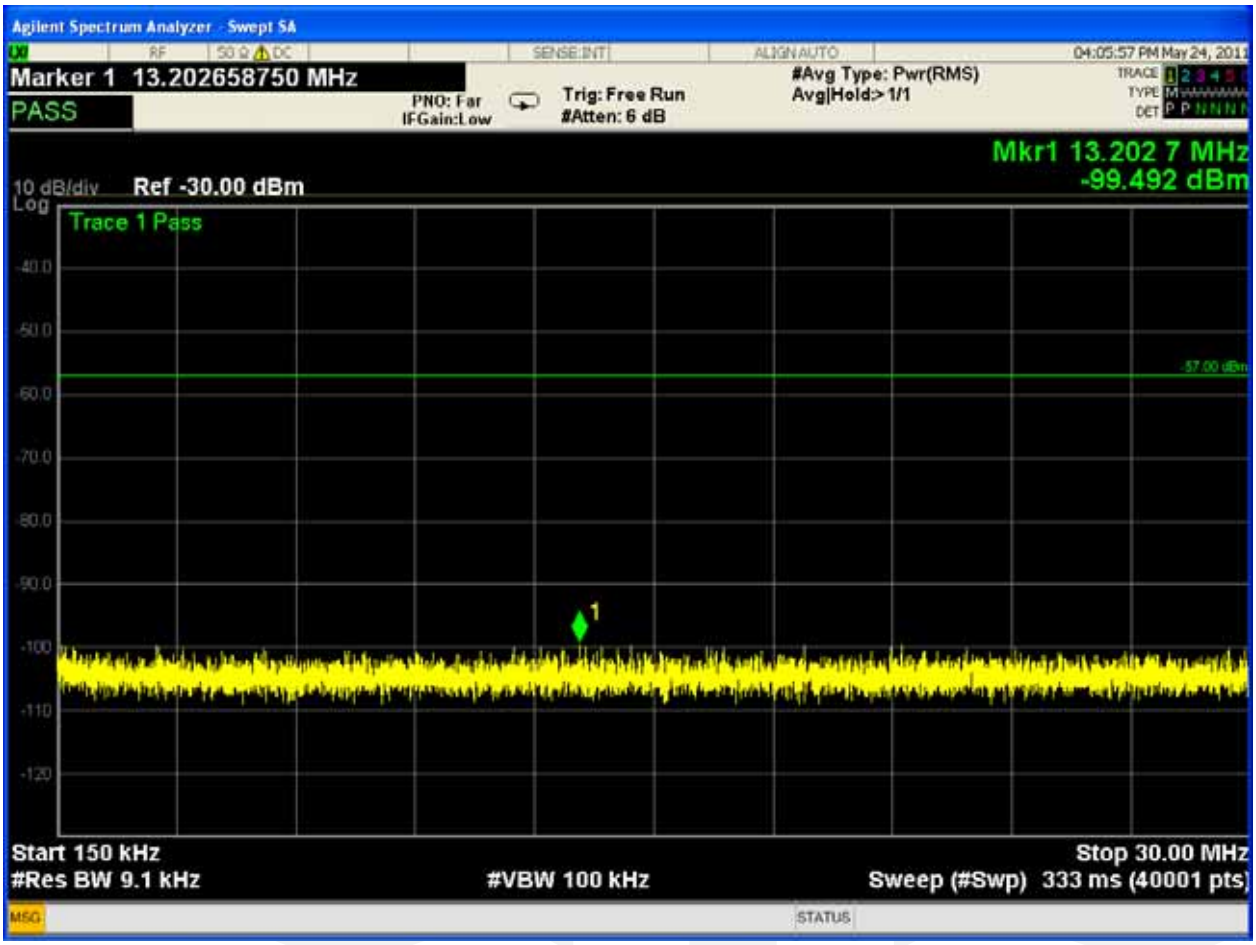


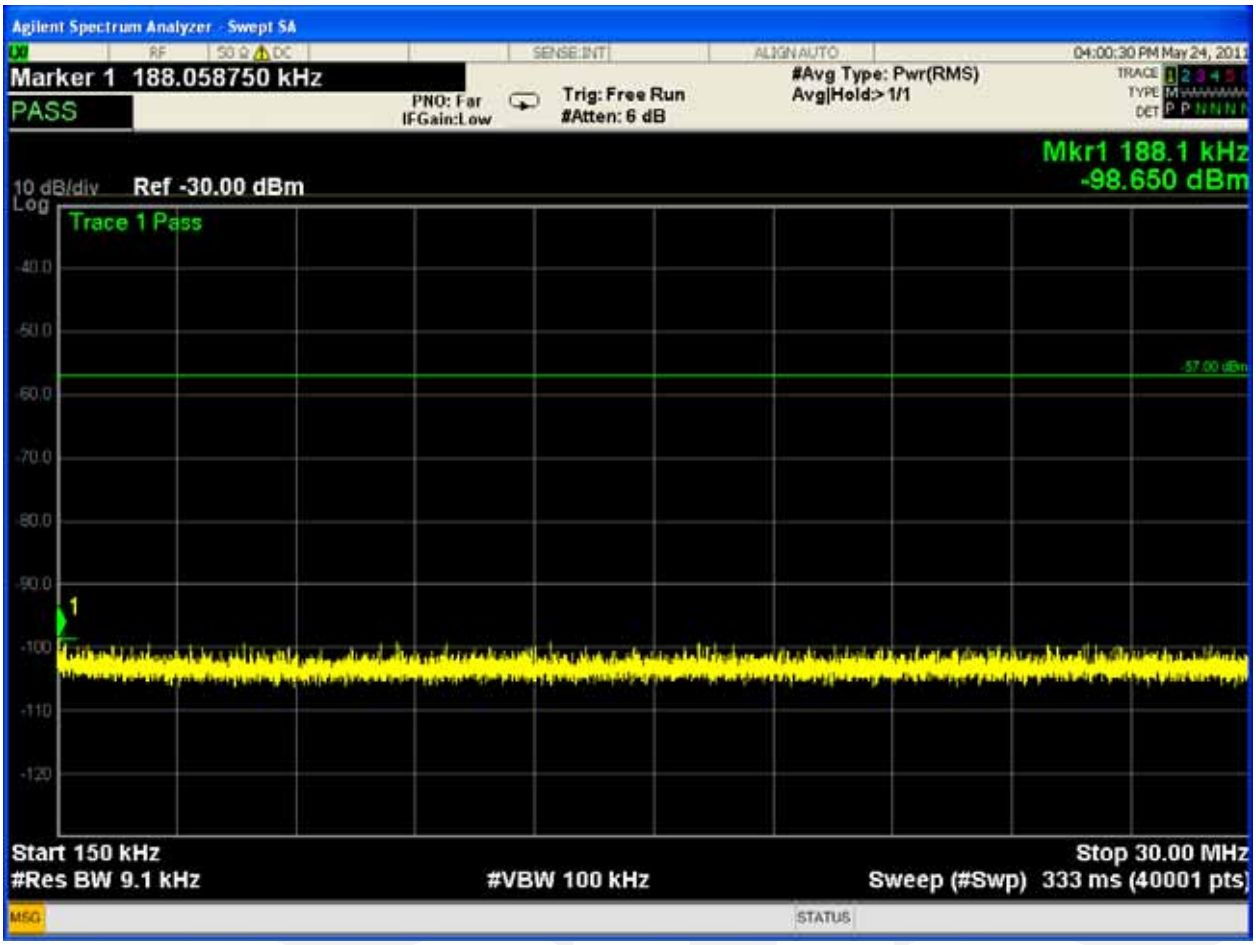
Rx2 port
Receive mode
Low channel: 220.0125 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298



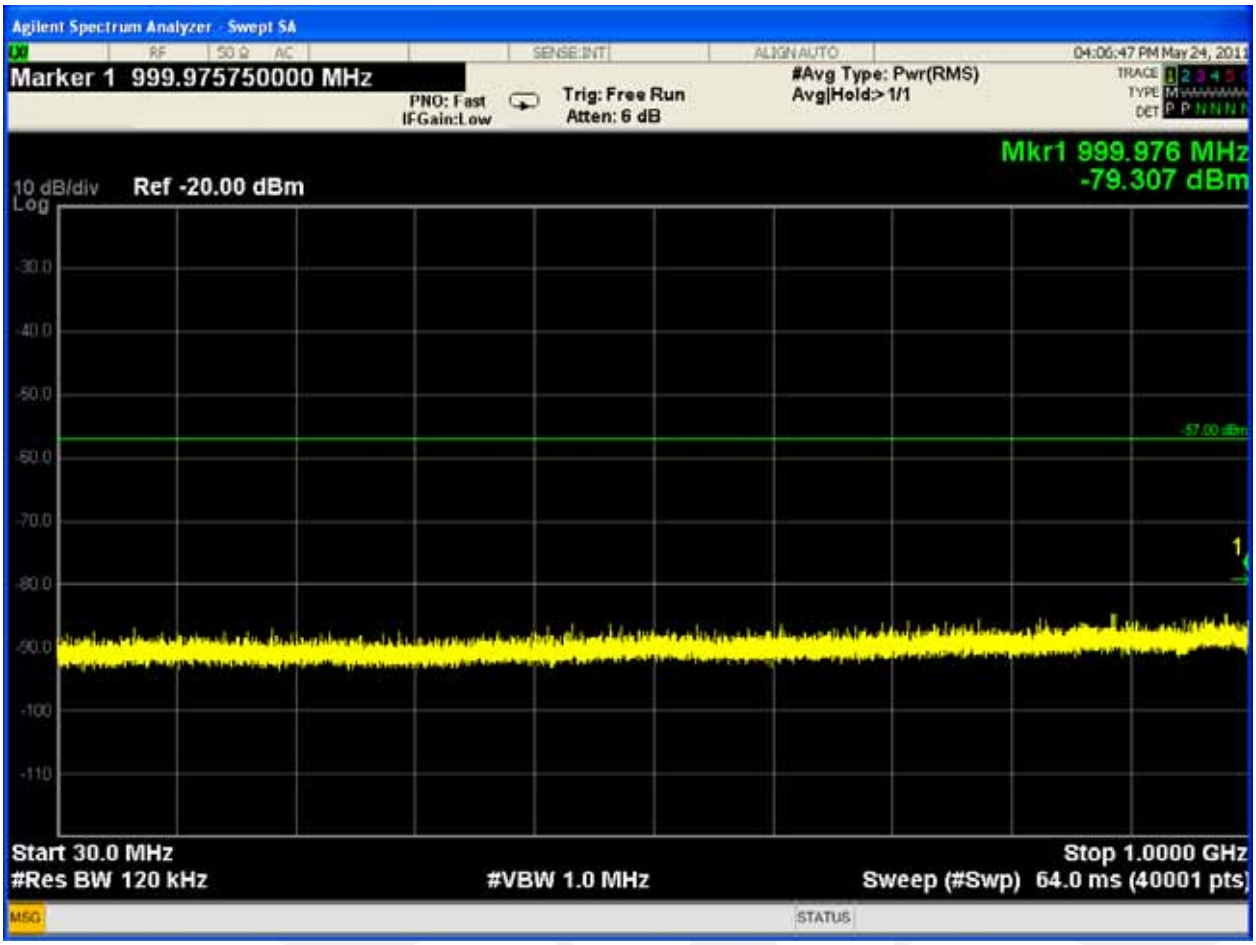
Rx1 Port
Receive mode
Low channel: 220.0125 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298



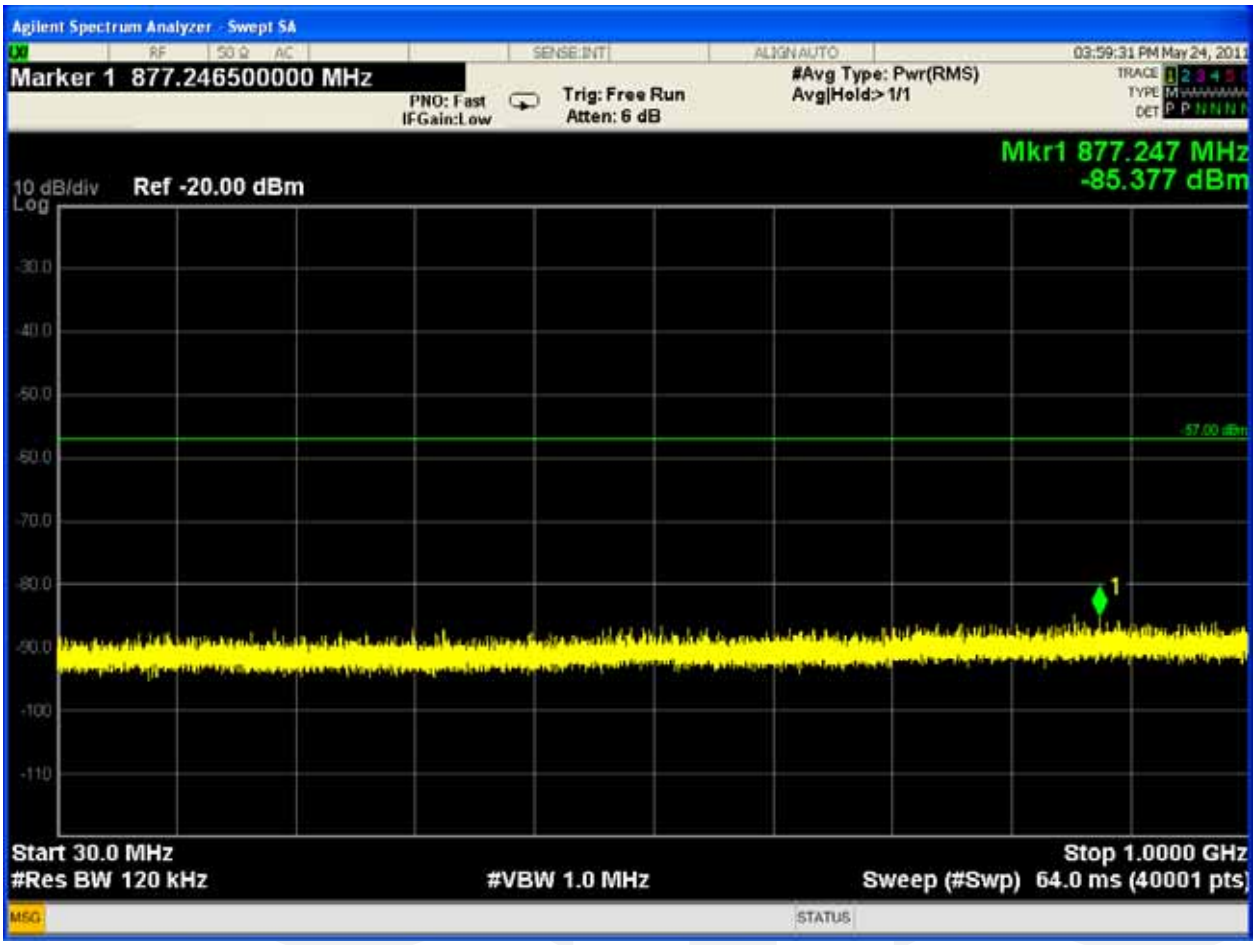
Rx2 port
Receive mode
Low channel: 220.0125 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298



Rx1 Port
Receive mode
Low channel: 220.0125 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298



Rx2 port
Receive mode
Low channel: 220.0125 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

Rx1 Port
Receive mode
Low channel: 220.0125 MHz

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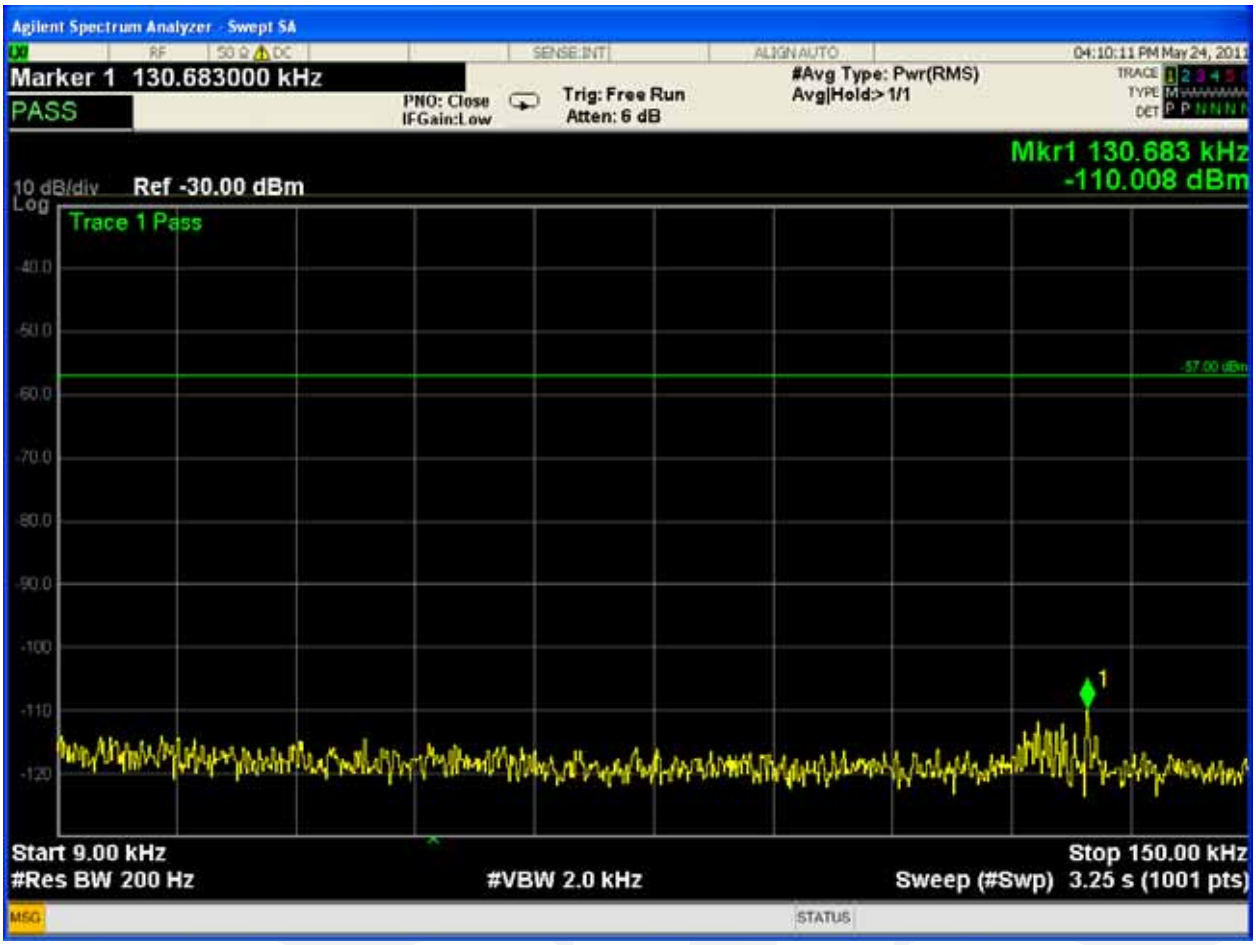
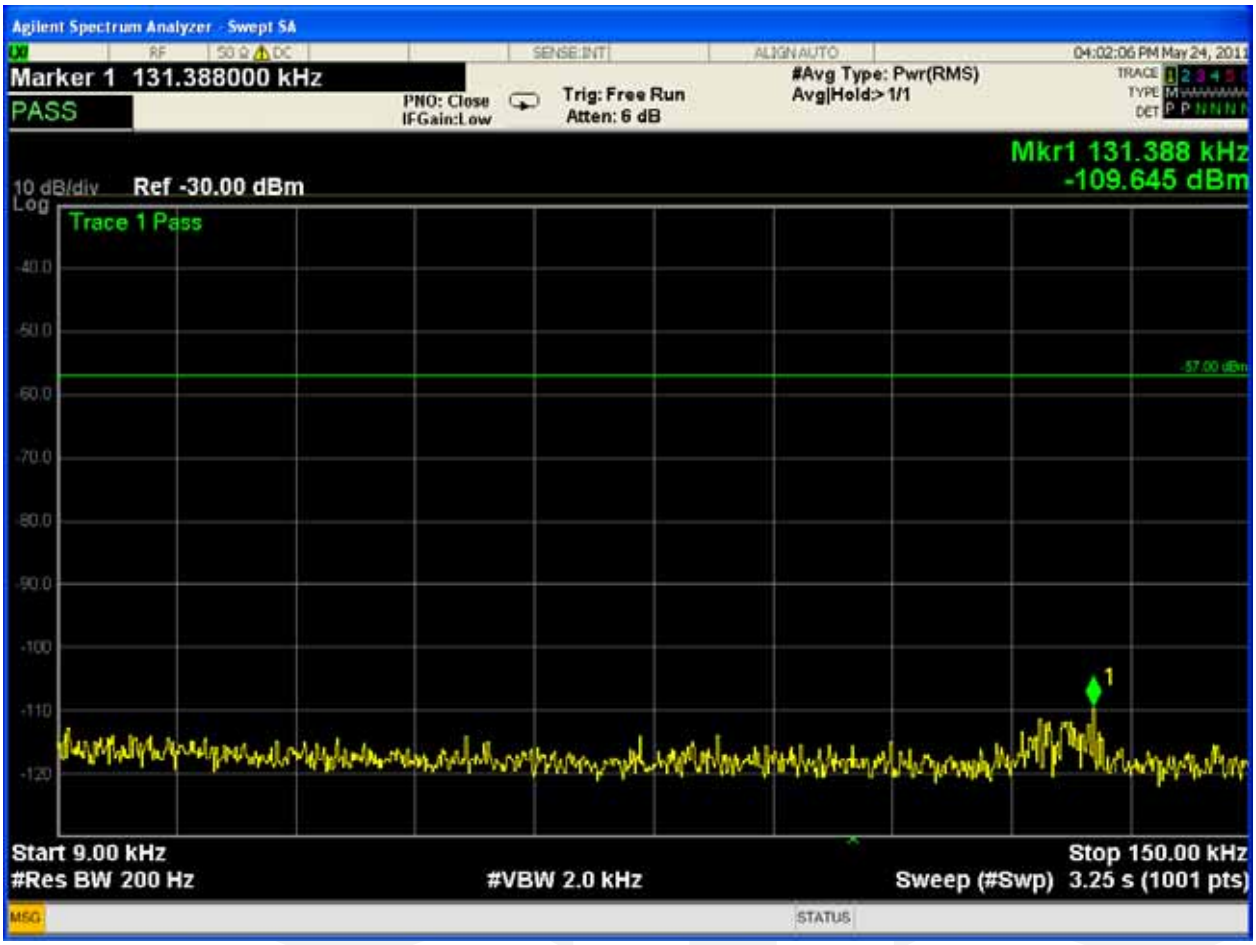
Rx2 port
Receive mode
Low channel: 220.0125 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298



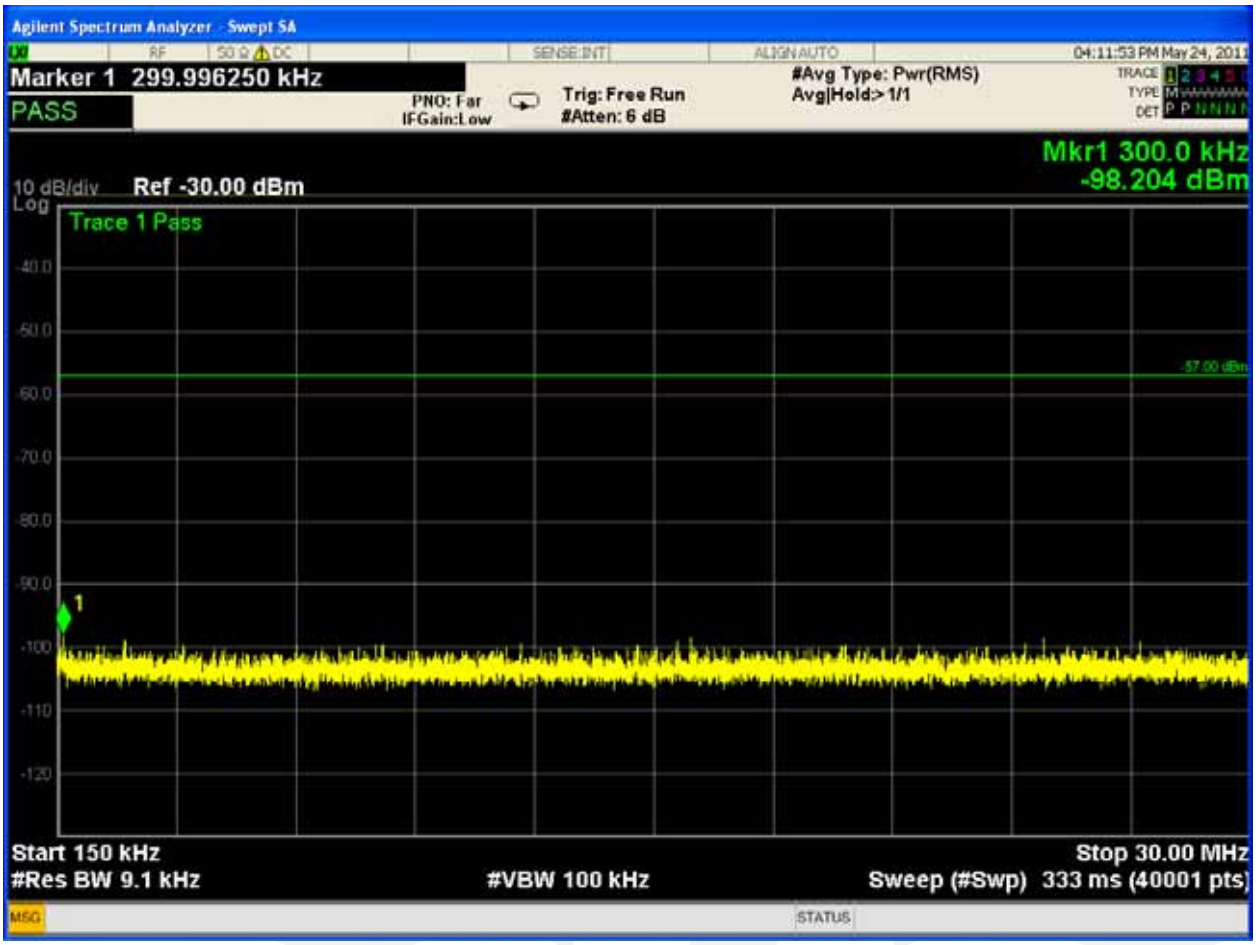
Rx1 Port
Receive mode
High channel: 221.9875 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298



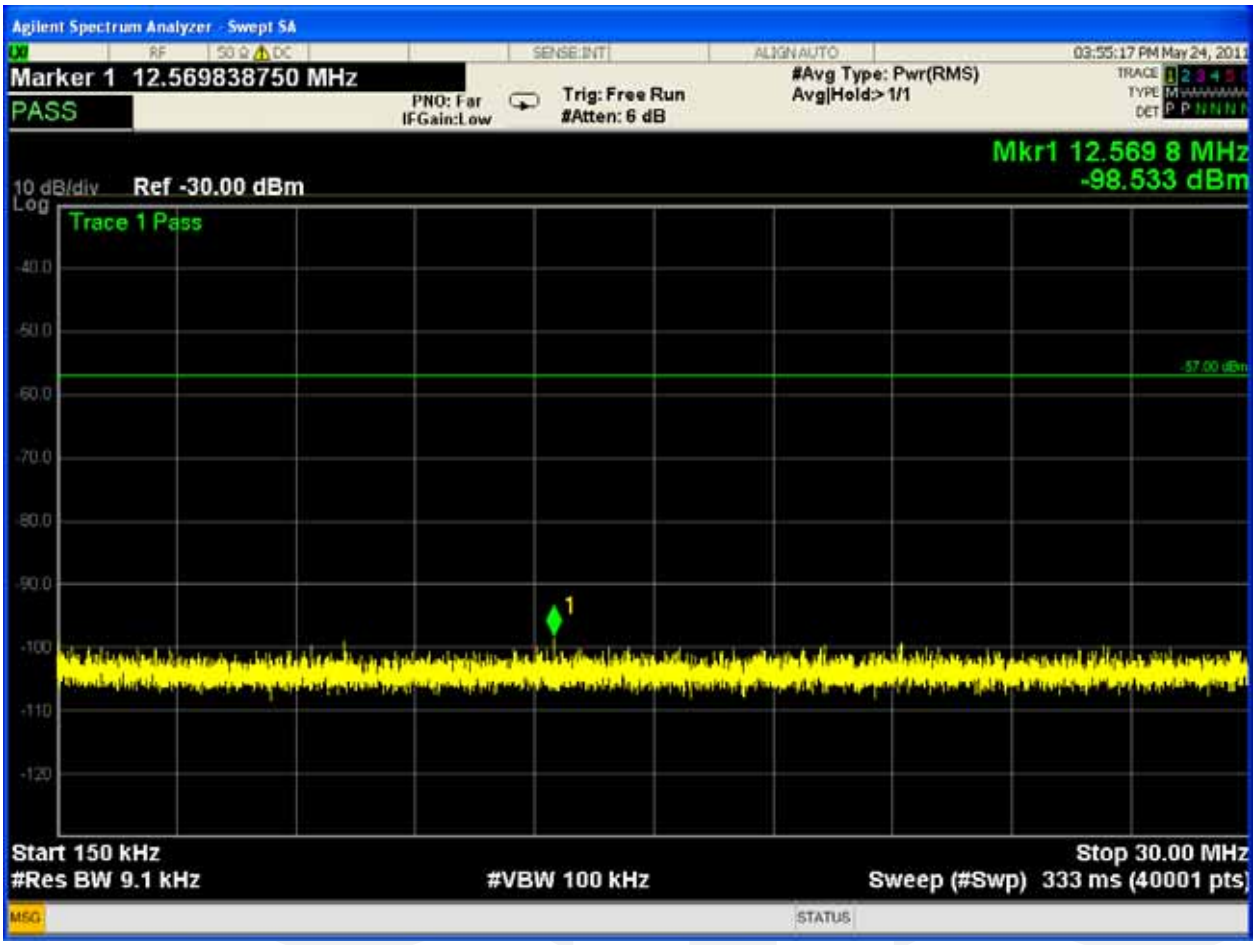
Rx2 port
Receive mode
High channel: 221.9875 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298



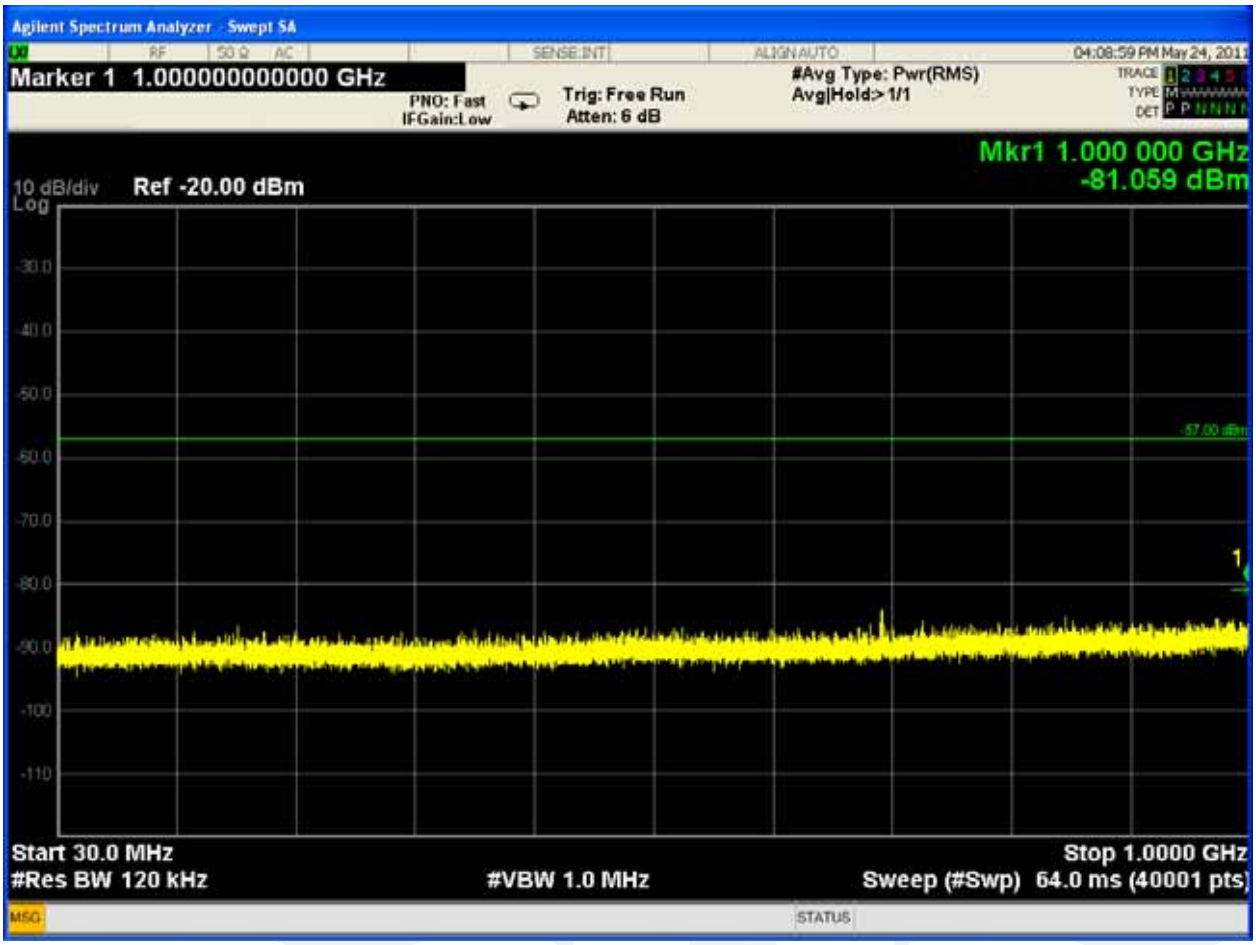
Rx1 Port
Receive mode
High channel: 221.9875 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298



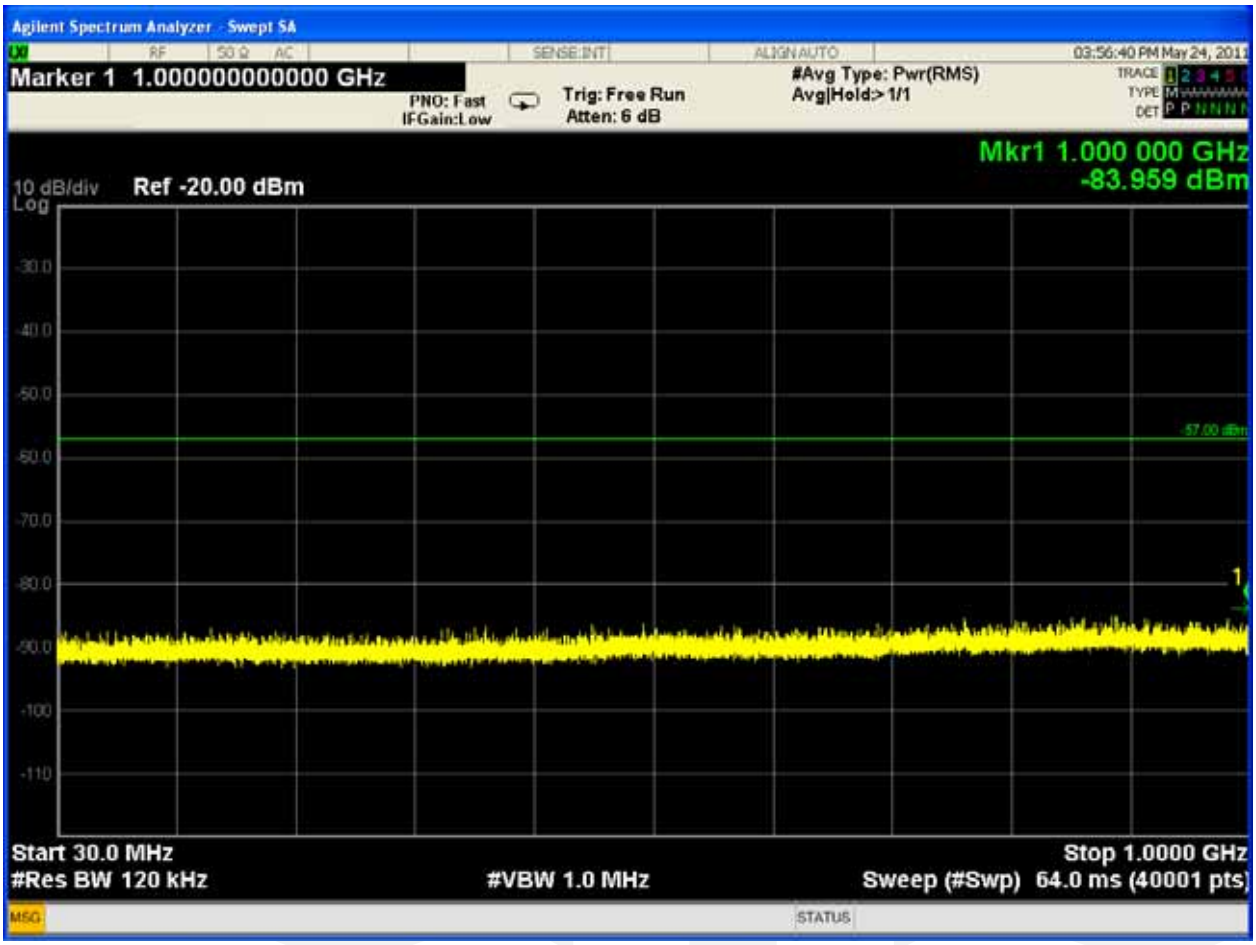
Rx2 port
Receive mode
High channel: 221.9875 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298



Rx1 Port
Receive mode
High channel: 221.9875 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298



Rx2 port
Receive mode
High channel: 221.9875 MHz

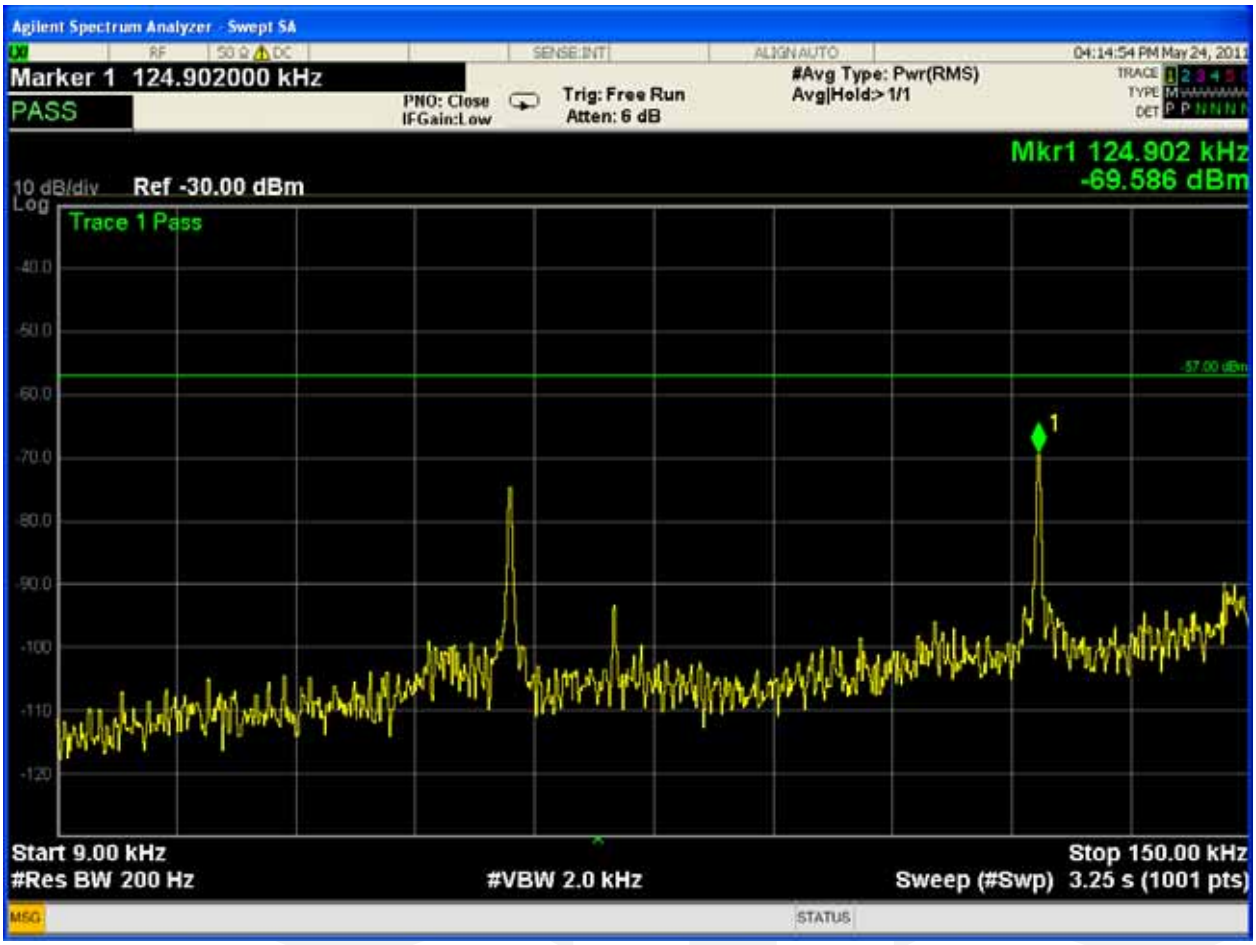
TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

Rx1 Port
Receive mode
High channel: 221.9875 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

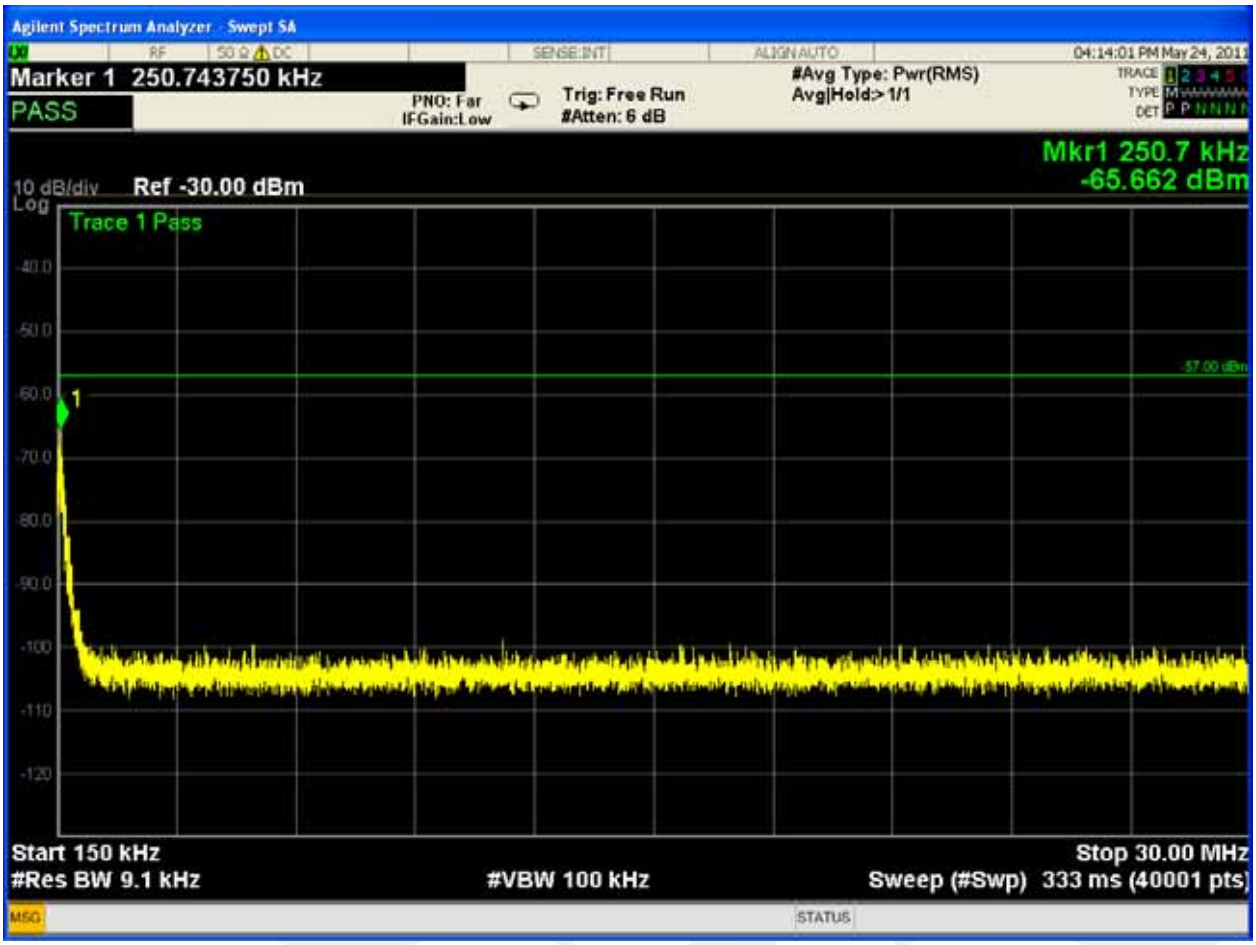
Rx2 port
Receive mode
High channel: 221.9875 MHz

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298



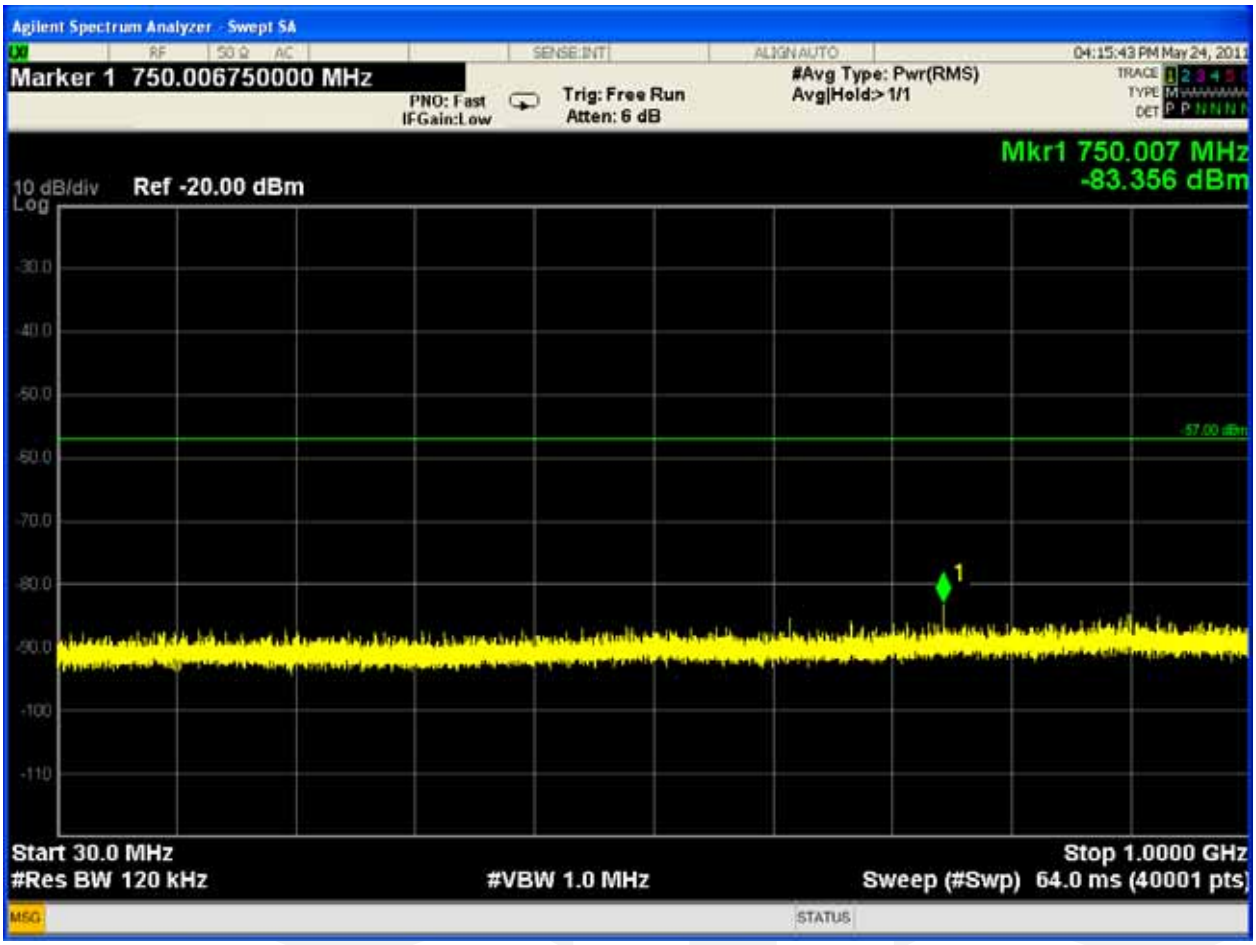
GPS Port

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298



GPS Port

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298



GPS Port

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

GPS Port

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

9. Test-setup photo(s):

Radiated emissions

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

Radiated emissions

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Radiated emissions

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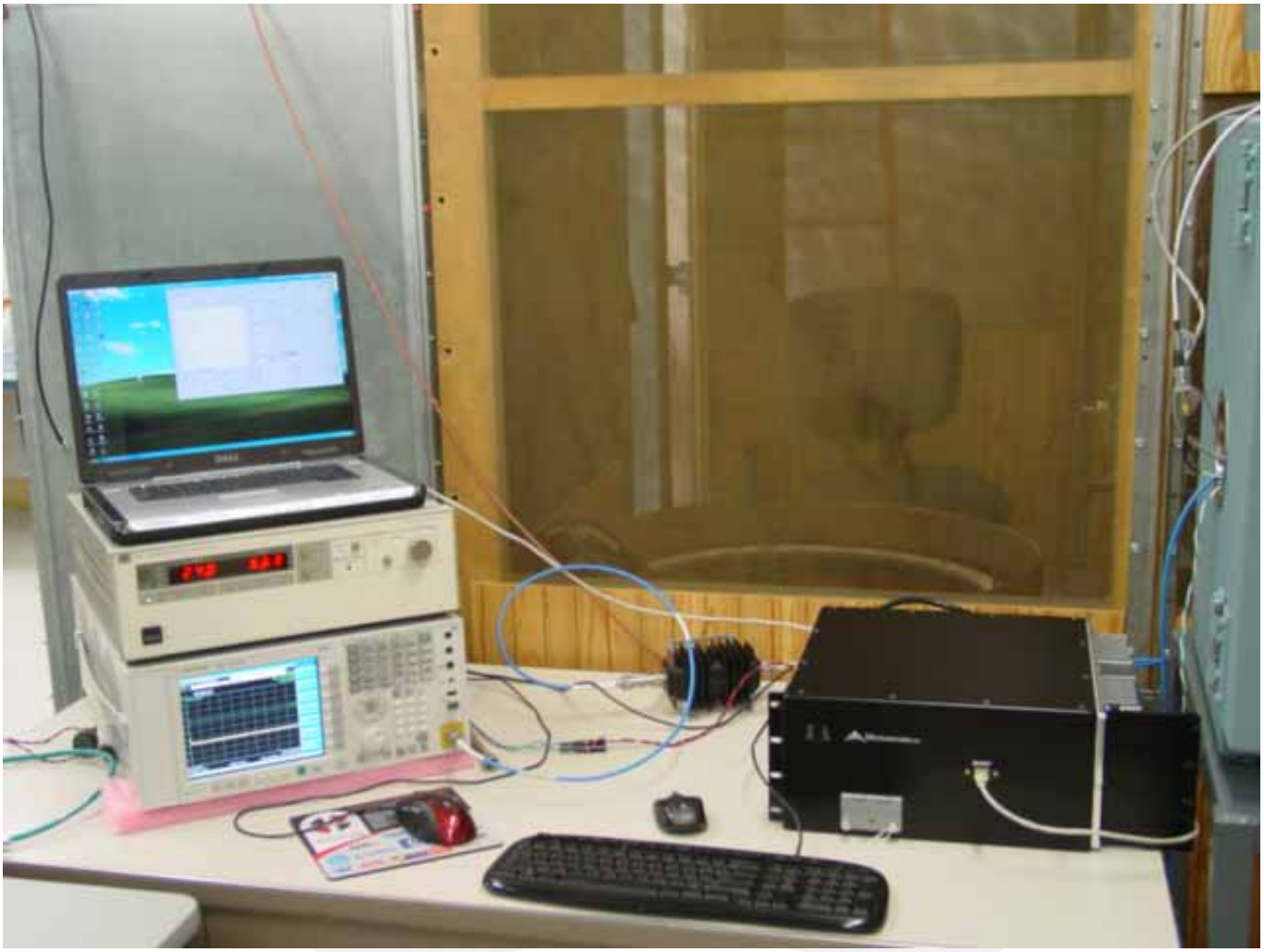
Radiated emissions

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

Conducted emissions



TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

Conducted emissions, frequency stability

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

10. EUT information

TÜV SÜD AMERICA INC 19333 Wild Mountain Road Taylors Falls MN USA 55084-1786 Tel: 651 638 0297 Fax: 651 638 0298

Form

EMC Test Plan and Constructional Data Form

PLEASE COMPLETE THIS DOCUMENT IN FULL, ENTERING N/A IF THE FIELD IS NOT APPLICABLE. IF TESTING RESULTS IN MODIFICATIONS TO THE EQUIPMENT, PLEASE SUBMIT A REVISED TP/CDF INDICATING THOSE MODIFICATIONS.
NOTE: This information will be input into your test report as shown below. Press the F1 key at any time to get HELP for the current field selected.

Company:	Meteorcomm LLC		
nitial Re1201 SW	1201 SW 7th St		
	Renton, WA 98057		
Contact:	Fred Cleveland	Position:	Principal RF Design Engineer
Phone:	253-872-2521 x128	Fax:	253-872-7662
E-mail Address:	fcleveland@meteorcomm.com		

General Equipment Description -- ***NOTE: This information will be input into your test report as shown below.***

EUT Description	Base Radio 24 V		
EUT Name	Base Radio		
Model No.:	63030-24	Serial No.:	BF2A071100062
Product Options:	GPS, LAN		
Configurations to be tested:	GPS, LAN		

Equipment Modification (*If applicable, indicate modifications since EUT was last tested. If modifications are made during this testing, submit revised TP/CDF after testing is complete.)*

Modifications since last test:

Modifications made during test:

Test Objective(s): ***Please indicate the tests to be performed, entering the applicable standard(s) where noted.***

☐ EMC Directive 2004/108/EC (EMC)	☒ FCC: Class ☐ A ☒ B Part 15
Std:	☐ VCCI: Class ☐ A ☐ B
☐ Machinery Directive 89/392/EEC (EMC)	☐ BSMI: Class ☐ A ☐ B (Separate Report)
Std:	☒ Canada: Class ☐ A ☒ B
☐ Medical Device Directive 93/42/EEC (EMC)	☐ Australia: Class ☐ A ☐ B
Std:	☒ Other: FCC 90 / IC RSS-119
☐ Vehicle Directive - 2004/104/EC (EMC)	☐ Ag Directive *2009/64/EC (EMC)
☐ Other Vehicle Std:	
☐ FDA Reviewers Guidance for Premarket Notification Submissions (EMC)	

Third Party Certification (contact TÜV for quote), if applicable (*Signature on last page required).

☐ Attestation of Compliance (AoC)*	☐ EMC Certification (used with Octagon Mark)*
☐ Statement of Compliance (SoC, previously CoC)* - All aspects of the essential requirements were assessed	
Protection Class (Req'd for AoC, SoC, EMC Cert. N/A for vehicles) ☐ Class I ☐ Class II ☐ Class III (Press **F1** when field is selected to show additional information on Protection Class.)	
☒ FCC / TCB Certification	☐ Taiwan Certification
☒ Industry Canada / FCB Certification	☐ Korean Certification
☐ e-Mark Certification	

EMC Test Plan and Constructional Data Form

Attendance

Test will be: ☒ Attended by the customer ☐ Unattended by the customer

Failure - *Complete this section if testing will not be attended by the customer.*

If a failure occurs, TÜV SÜD America should:

☐ Call contact listed above, if not available then stop testing. (After hrs phone): _____

☐ Continue testing to complete test series.

☒ Continue testing to define corrective action.

☐ Stop testing.

EUT Specifications and Requirements

Length: 17 Width: 19 Height: 7 Weight: 24

Power Requirements

Regulations require testing to be performed at typical power ratings in the countries of intended use. (i.e., European power is typically 230 VAC 50 Hz or 400 VAC 50 Hz, single and three phase, respectively)

Voltage: 120Vac/24Vdc (If battery powered, make sure battery life is sufficient to complete testing.)

# of Phases: 1

Current (Amps/phase(max)): 5ac/16dc Current (Amps/phase(nominal)): 3ac/6.5dc

Other _____

Other Special Requirements

none

Typical Installation and/or Operating Environment

(ie. Hospital, Small Business, Industrial/Factory, etc.)

Industrial

EUT Power Cable

☐ Permanent OR ☒ Removable Length (in meters): 1.7

☐ Shielded OR ☒ Unshielded

☐ Not Applicable

EMC Test Plan and Constructional Data Form

EUT Interface Ports and Cables

Type	During Test: Analog	During Test: Digital	During Test: Active	During Test: Passive	Qty	Shielding: Yes	Shielding: No	Shielding: Type	Termination	Connector Type	Port Termination	Length tested (in meters)	Removable	Permanent
EXAMPLE:														
RS232	☐	☒	☒	☐	*2*	☒	☐	*Foil over braid*	*Coaxial*	*Metallized 9-pin D-Sub*	*Characteristic Impedance*	*6*	☒	☐
LAN	☐	☒	☒	☐	1	☐	☒	twisted pair	100 ohm differential	RJ45	100	1	☒	☐
MAINT	☐	☒	☐	☒	1	☐	☒	twisted pair	open	RJ45	100	n/a	☒	☐
GPS	☒	☐	☐	☒	1	☒	☐	foil over braid	coaxial	TNC	50	0	☒	☐
Rx1/Rx2	☒	☐	☒	☐	2	☒	☐	foil over braid	coaxial	type N	50	0	☒	☐
dc +/-	☒	☐	☒	☐	1	☐	☒	twisted pair	lug	screw lug	dc	1.7	☒	☐
Tx	☒	☐	☒	☐	1	☒	☐	foil over braid	coaxial	type N	50	.5	☒	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐

EMC Test Plan and Constructional Data Form

EUT Software.

Revision Level: Sprint v16.01

Description: ITC Application Software Image

Equipment Under Test (EUT) Operating Modes to be Tested -- list the operating modes to be used during test. It is recommended the equipment be tested while operating in a typical operation mode. FCC testing of personal computers and/or peripherals requires that a simple program generate a complete line of upper case H's. Provide a general description of all software, firmware, and PLD algorithms used in the equipment. List all code modules as described above, with the revision level used during testing. Consult with your TÜV Product Service Representative if additional assistance is required.

1. Transmitter radiated emissions 30 Mhz - 2200 MHz
   with internal GPS upper limit = 7900 MHz
   Flow = 217.6125 MHz / Modulation = DQPSK
   Fhigh = 221.9875 MHz / modulation = DQPSK_HALF
2. Receiver radiated emissions 30 MHz - 2200 MHz
   with internal GPS upper limit = 7900 MHz
   Flow = 217.6125 MHz / Modulation = DQPSK
   Fhigh = 221.9875 MHz / modulation = DQPSK_HALF
3. Power line conducted emissions

Equipment Under Test (EUT) System Components -- List and describe all components which are part of the EUT. For FCC & Taiwan testing a minimum configuration is required. (ie. Mouse, Printer, Monitor, External Disk Drive, Motherboard, etc)

Description	Model #	Serial #	FCC ID #
Master processor	custom	N/A	N/A
RF/DC Power	custom	N/A	N/A
Rx - Tx LPF	custom	N/A	N/A
Modulator	custom	N/A	N/A
Driver	custom	N/A	N/A
PA Final	custom	N/A	N/A
DC Converter	custom	N/A	N/A

EMC Test Plan and Constructional Data Form

Support Equipment -- List and describe all support equipment which is not part of the EUT. (i.e. peripherals, simulators, etc) This information is required for FCC & Taiwan testing.

Description	*Model #*	*Serial #*	*FCC ID #*
Computer	Dell XPS M170	36134745733	E2K24BNHM
System Power Supply	HP 6030A	2934A-01826	N/A
Tx Load1 - Weinschel Electronics	45-3-33	KF636	N/A
GPS antenna	AR-10S	N/A	N/A
Tx Load2 - Weinschel Electronics	5009	MA907	N/A
Rx loads	40 dB attenuators		N/A
Systron Donor Corp	108328	N/A	
Weinschel Eng	N/A	T1328	

Oscillator Frequencies

Manufacturer	*Frequency*	*Derived Frequency*	*Component # / Location*	*Description of Use*

Power Supply

Manufacturer	*Model #*	*Serial #*	*Type*
			☐ Switched-mode: (Frequency) _____ ☐ Linear ☐ Other: _____
			☐ Switched-mode: (Frequency) _____ ☐ Linear ☐ Other: _____

Power Line Filters

Manufacturer	*Model #*	*Location in EUT*

EMC Test Plan and Constructional Data Form

Critical EMI Components (Capacitors, ferrites, etc.)

Description	*Manufacturer*	*Part # or Value*	*Qty*	*Component # / Location*

EMC Critical Detail -- Describe other EMC Design details used to reduce high frequency noise.

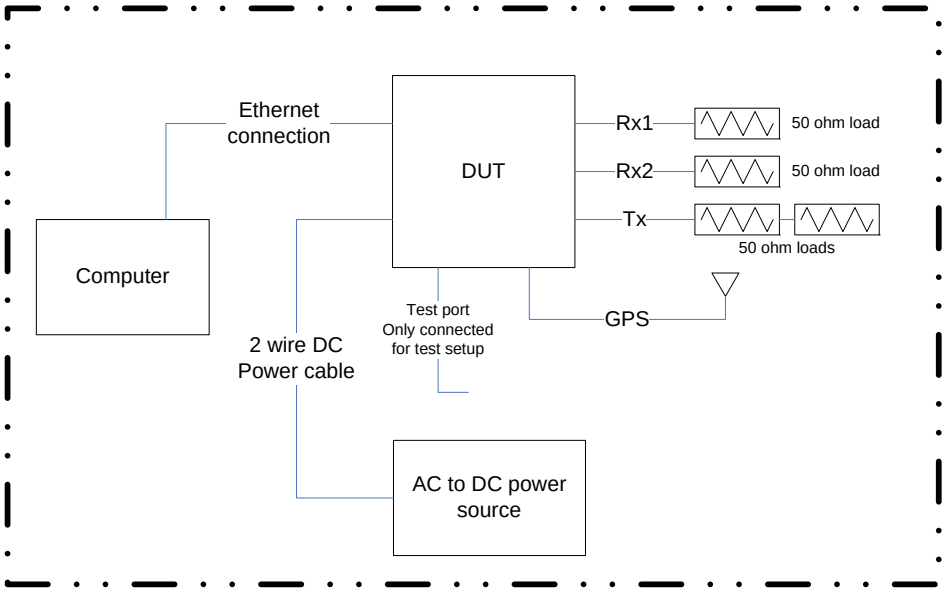
PLEASE ENTER NAMES BELOW (INSERT ELECTRONIC SIGNATURE IF POSSIBLE)

Authorization (Signature Required if a Third Party Certification is checked on pg 1)

Customer authorization to perform tests according to this test plan.	Date
Tim Blom	5 May 2011
Test Plan/CDF Prepared By (please print)	Date

EMC Block Diagram Form

System Configuration Block Diagram -- Provide a line drawing identifying the EUT, simulators, support equipment, I/O cables, power cables, and any other pertinent components to be used during testing. Use a dashed line to separate the equipment in the testing field versus equipment outside testing field.



Authorization Signatures

Customer authorization to perform tests according to this test plan.	Date
Tim Blom	5/6/2011
Test Plan/CDF Prepared By (please print)	Date