

# **Exhibit 6B**

# **Test Report**

# **Parts 21/74**

NextNet Wireless, Inc

09/27/2004

9555 James Ave. South Suite 270  
Bloomington, MN 55431

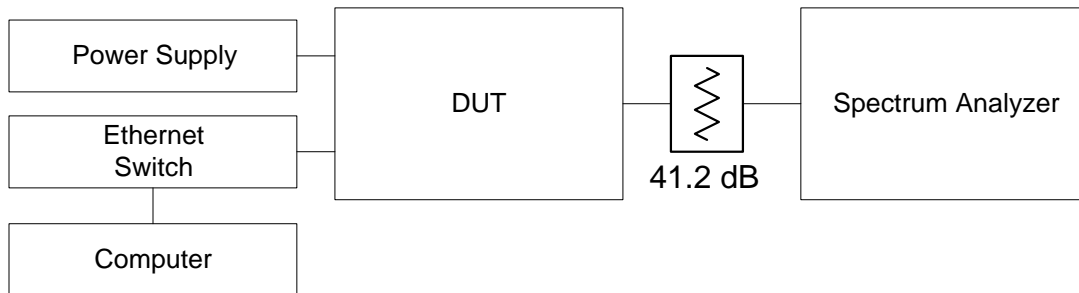
## RF Power Output

Rule Part Number: 2.1046, 21.909(g)(2), 21.909(n), 74.939(g)(2), 74.939(p)  
Tx Power < 2 watts  
EIRP < 18 dBW

Test Procedure: The RF output power is measured with a spectrum analyzer. The RF output is applied to an attenuator that is connected to the spectrum analyzer RF input port. The transmitter is enabled in test mode with the attached computer. Measurements are performed at three frequencies across the band, for each of the modulation formats available (4 QAM, 16 QAM, and 64 QAM), and 12, 15, and 19.5 Vdc.

Test Conditions: Frequency = 2503, 2593, 2683 MHz  
Temperature = 25 °C  
Voltage = 12, 15, 19.5 Vdc

Test Set-Up:



Test Results Summary:

Pass Tx power at antenna connector ( $\leq 2$  watts) across frequency band, modulation level, and input supply voltage range.

## RF Power Output

Test Equipment:

DUT	NextNet Wireless CPE (RSU-2400-AV) # 2008687
Spectrum Analyzer	Agilent E4440A S/N: MY44022791 Calibrated on: 05/30/2004 Cal due: 05/30/2006
Attenuator(s) 2 x 20 dB	Pasternak Corporation Model: PE7005-20 (20 dB) Calibrated by user
Computer	Dell Inspiron 5000 Model: PPM S/N: 000832RM-12961-04R-0441
Ethernet Switch	D-Link Model: DSS-5+ 5 port 10/100Mbps S/N: B205335003175
Power Supply 1	Globetek Model: GT-21148-3015-T3 15 Vdc / 1.6A Limited Power Source S/N: 00430704
Power Supply 2	Globetek Model: GT-21097-5020-0.5 19.5 Vdc / 2.5 A Limited Power Source S/N: 003808 09/03
Power Supply 3	Agilent E3615A 0-20 Vdc / 0-3 A S/N: KR01508861
Multimeter	HP 34401A Multimeter Cal Date: 08-03-2004 Cal Due: 08-03-06 S/N: 3146A58949

## RF Power Output

Test Results: 14.29 % transmit duty cycle

Tx Power: (maximum)

Maximum Power setting (Globetek 19.5 Vdc Power Supply)						
	4-QAM		16-QAM		64-QAM	
Freq (MHz)	(dBm)	(Watts)	(dBm)	(Watts)	(dBm)	(Watts)
2503	32.14	1.63682	32.07	1.61065	32.03	1.59588
2593	32.69	1.85780	32.67	1.84927	32.65	1.84077
2683	32.20	1.65959	32.15	1.64059	32.17	1.64816
Maximum Power setting (Globetek 15 Vdc Power Supply)						
	QPSK		16 QAM		64 QAM	
Freq (MHz)	(dBm)	(Watts)	(dBm)	(Watts)	(dBm)	(Watts)
2503	32.54	1.79473	32.96	1.97697	32.28	1.69044
2593	32.52	1.78649	32.79	1.90108	32.19	1.65577
2683	32.51	1.78238	32.83	1.91867	32.18	1.65196
Maximum Power setting (HP Power Supply 12 Vdc)						
	4-QAM		16-QAM		64-QAM	
Freq (MHz)	(dBm)	(Watts)	(dBm)	(Watts)	(dBm)	(Watts)
2503	32.08	1.61436	32.08	1.61436	32.30	1.69824
2593	31.96	1.57036	32.12	1.62930	32.25	1.67880
2683	31.78	1.50661	32.10	1.62181	32.14	1.63682

TX Power: (minimum)

Minimum Power setting (Globetek 19.5 Vdc Power Supply)						
	4-QAM		16-QAM		64-QAM	
Freq (MHz)	(dBm)	(Watts)	(dBm)	(Watts)	(dBm)	(Watts)
2503	0.37	0.00109	-0.42	0.00091	-0.35	0.00092
2593	0.22	0.00105	-0.46	0.00090	-0.45	0.00090
2683	0.06	0.00101	-0.61	0.00087	-0.51	0.00089
Minimum Power setting (Globetek 15 Vdc Power Supply)						
	4-QAM		16-QAM		64-QAM	
Freq (MHz)	(dBm)	(Watts)	(dBm)	(Watts)	(dBm)	(Watts)
2503	0.95	0.00124	0.22	0.00105	0.41	0.00110
2593	0.71	0.00118	0.17	0.00104	0.32	0.00108
2683	0.57	0.00114	0.10	0.00102	0.33	0.00108
Minimum Power setting (HP Power Supply 12 Vdc)						
	4-QAM		16-QAM		64-QAM	
Freq (MHz)	(dBm)	(Watts)	(dBm)	(Watts)	(dBm)	(Watts)
2503	-0.71	0.00085	-0.09	0.00098	-0.02	0.00100
2593	-0.91	0.00081	-0.16	0.00096	-0.07	0.00098
2683	-0.95	0.00080	-0.23	0.00095	-0.19	0.00096

## RF Power Output

Test Conclusions:

Vertically Polarized Antenna

RF Power Output = 33 dBm

Vertical Antenna Gain = 13.5 dBi

Transmitted Power = RF Power + Isotropic Antenna Gain

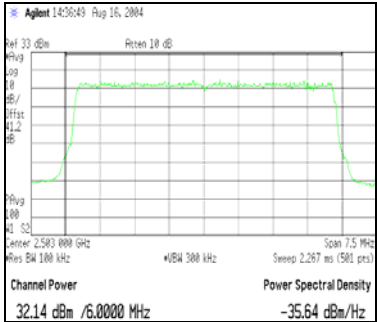
Transmitted Power = 33 + 13.5 = 46.5 dBm

Transmitted Power =  $10 \cdot \log(2) + 13.5 \text{ dBi} = 16.5 \text{ dBiW} < 18 \text{ dBiW}$

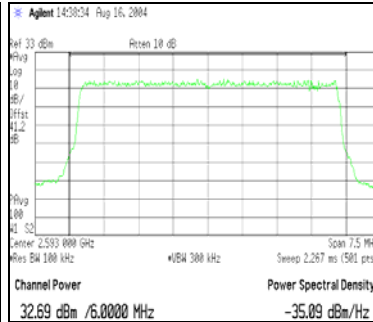
Pass: Transmitted Power Output Requirement for Vertically Polarized Antenna for user installation

### RF Power Output (maximum)

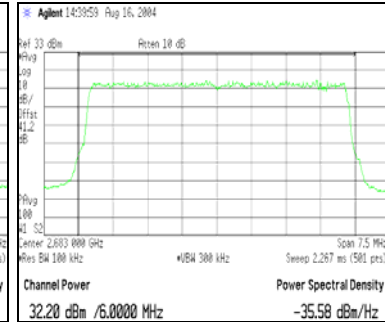
Measured with Globtek 19.5 Vdc power supply



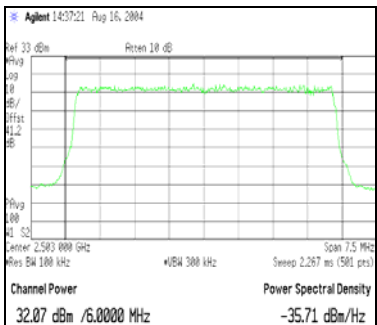
4-QAM 2503 MHz



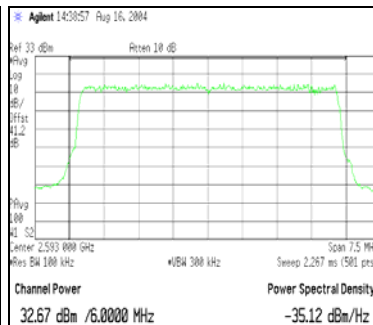
4-QAM 2593 MHz



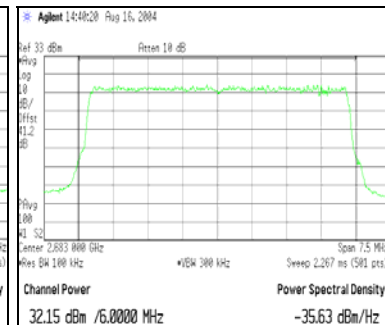
4-QAM 2683 MHz



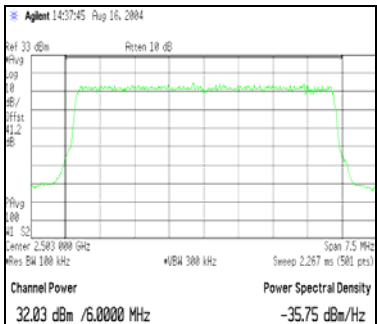
16-QAM 2503 MHz



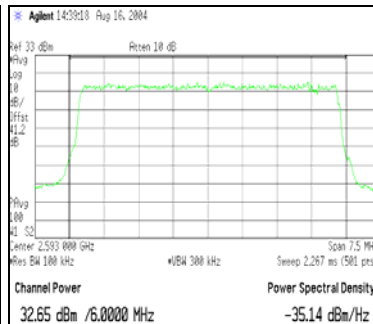
16-QAM 2593 MHz



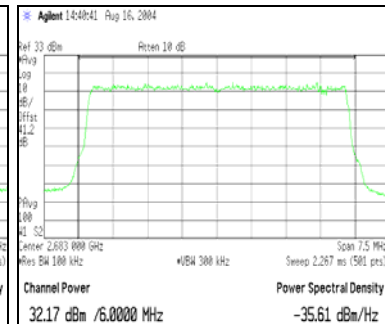
16-QAM 2683 MHz



64-QAM 2503 MHz



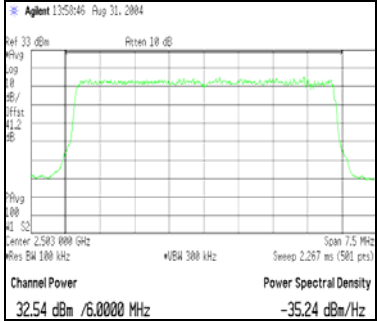
64-QAM 2593 MHz



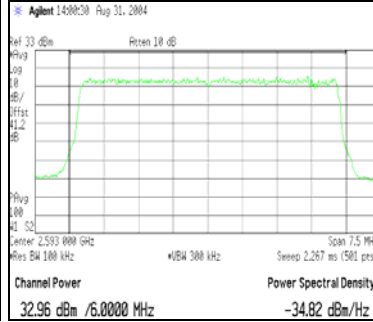
64-QAM 2683 MHz

### RF Power Output (maximum)

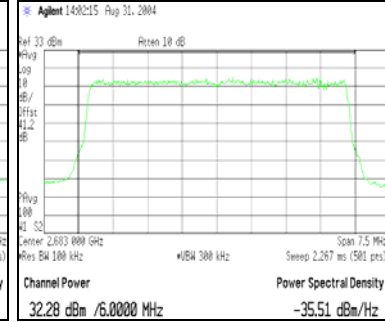
Measured with Globtek 15 Vdc power supply



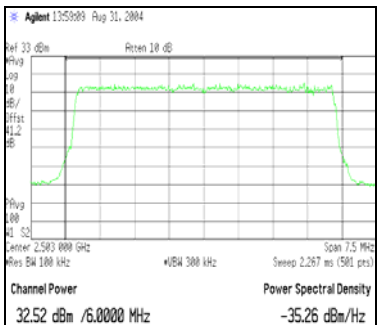
4-QAM 2503 MHz



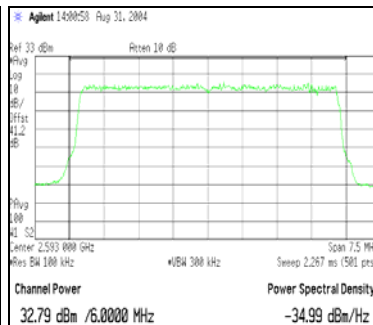
4-QAM 2593 MHz



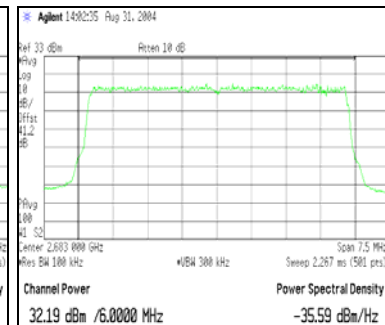
4-QAM 2683 MHz



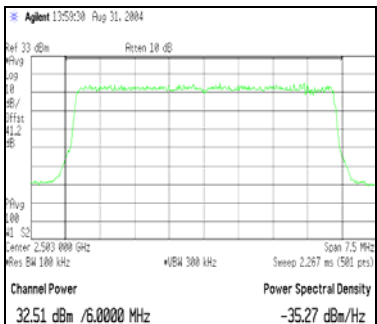
16-QAM 2503 MHz



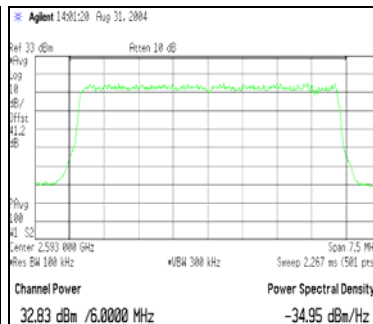
16-QAM 2593 MHz



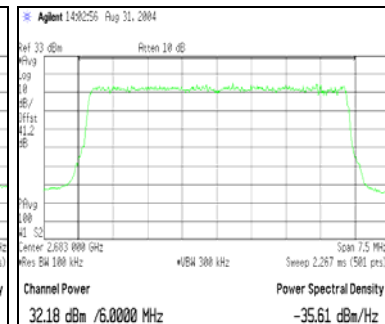
16-QAM 2683 MHz



64-QAM 2503 MHz



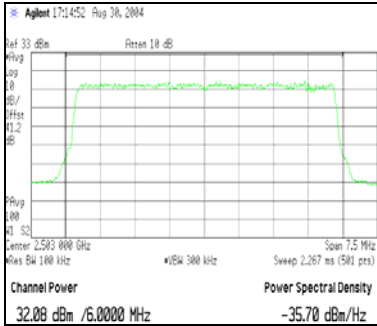
64-QAM 2593 MHz



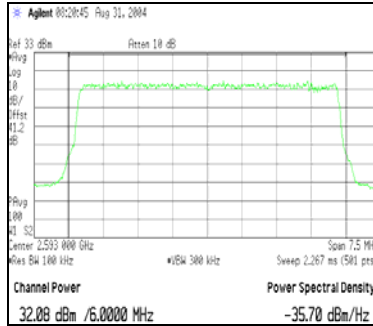
64-QAM 2683 MHz

## RF Power Output (maximum)

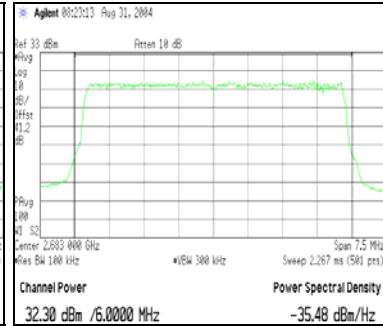
Measured with HP power supply (12 Vdc)



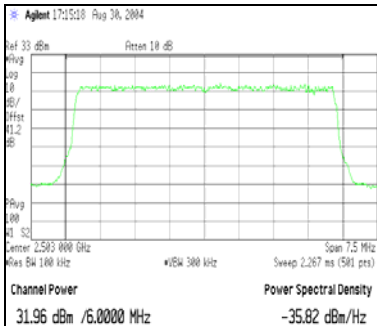
4-QAM 2503 MHz



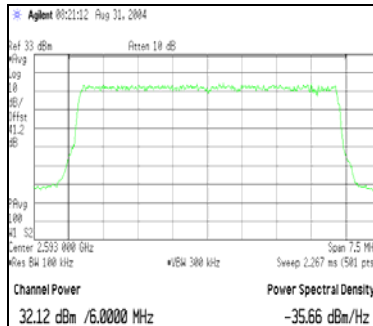
4-QAM 2593 MHz



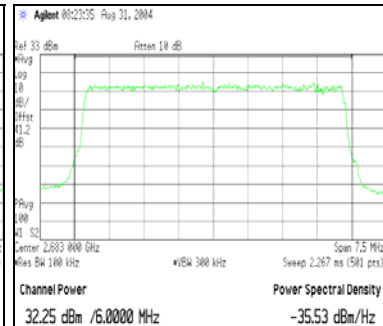
4-QAM 2683 MHz



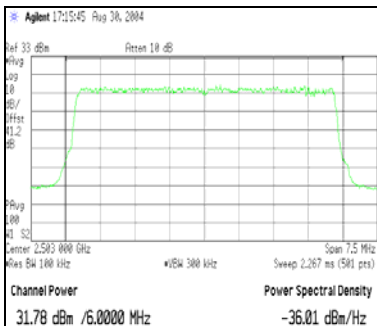
16-QAM 2503 MHz



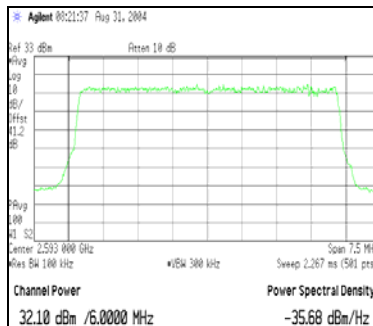
16-QAM 2593 MHz



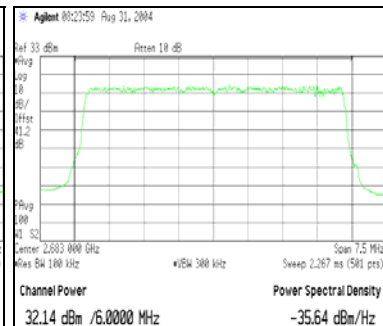
16-QAM 2683 MHz



64-QAM 2503 MHz



64-QAM 2593 MHz

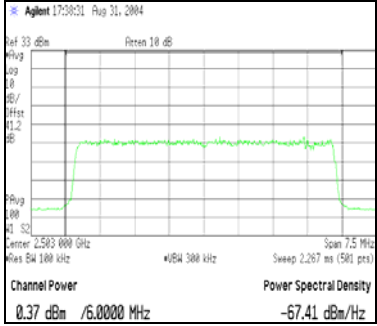


64-QAM 2683 MHz

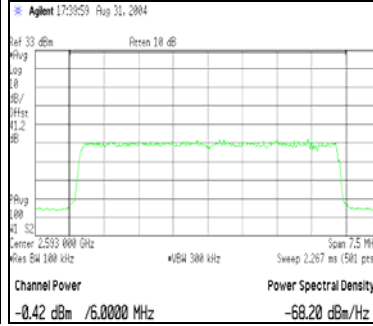


## RF Power Output (minimum)

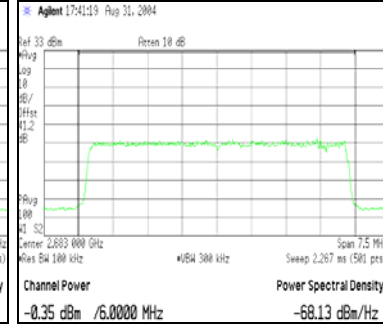
Measured with Globtek 19.5 Vdc power supply



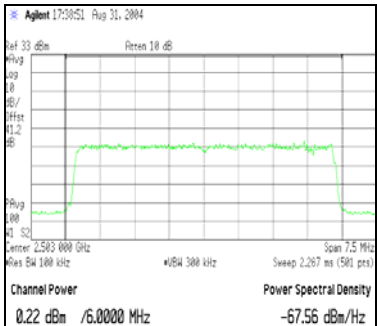
4-QAM 2503 MHz



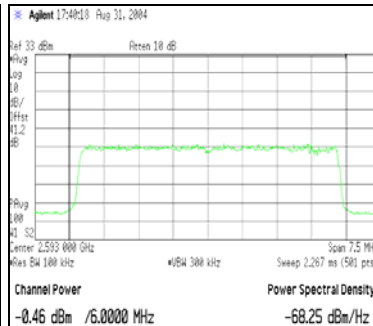
4-QAM 2593 MHz



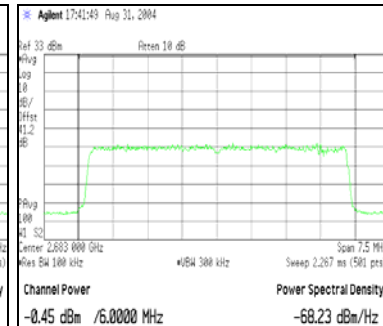
4-QAM 2683 MHz



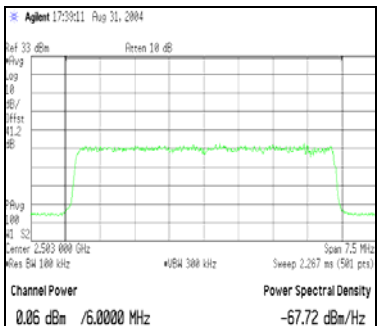
16-QAM 2503 MHz



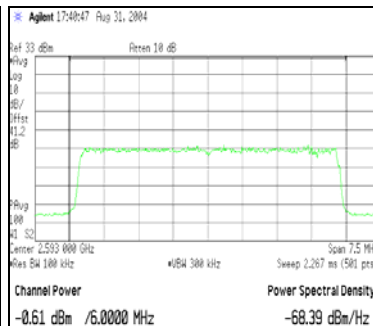
16-QAM 2593 MHz



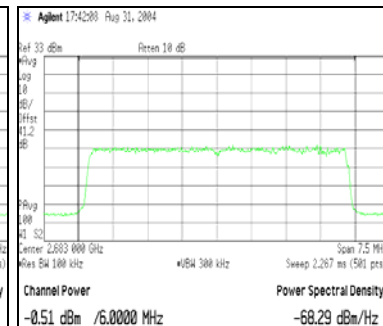
16-QAM 2683 MHz



64-QAM 2503 MHz



64-QAM 2593 MHz

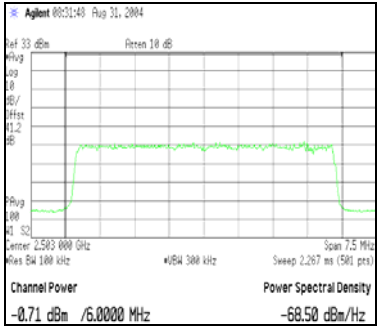


64-QAM 2683 MHz

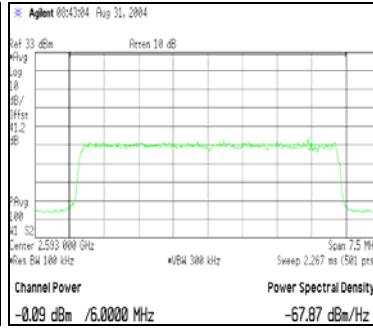


### RF Power Output (minimum)

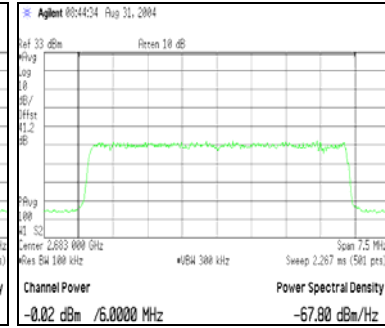
Measured with HP power supply (12 Vdc)



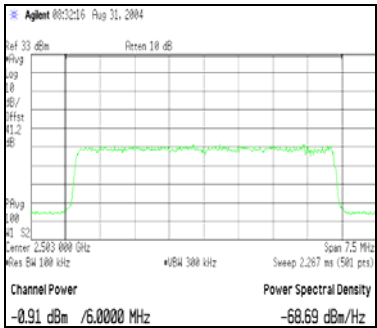
4-QAM 2503 MHz



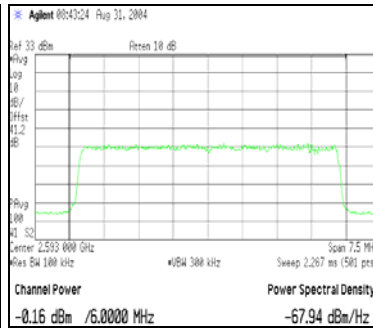
4-QAM 2593 MHz



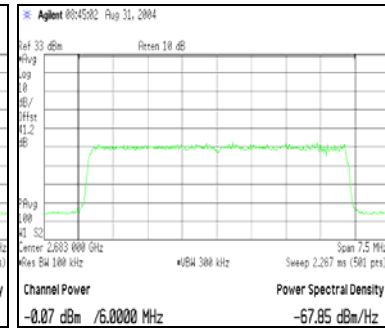
4-QAM 2683 MHz



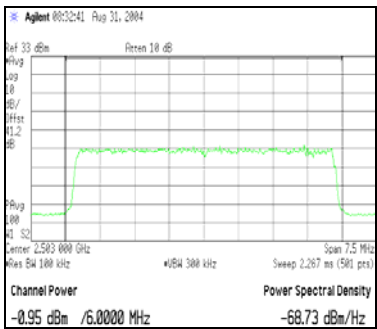
16-QAM 2503 MHz



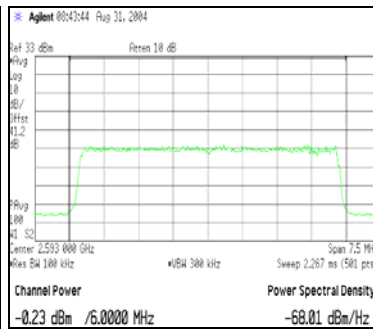
16-QAM 2593 MHz



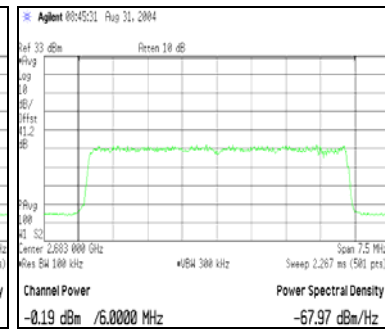
16-QAM 2683 MHz



64-QAM 2503 MHz



64-QAM 2593 MHz



64-QAM 2683 MHz

## Modulation Characteristics

### Rule Parts:

2.1047(d), 21.905(b), 21.908(d), 21.908(e), 74.936(a), 74.936(f)

Modulation Characteristics = OFDM

21.905(b) Quadrature amplitude modulation (QAM), digital vestigial sideband modulation (VSB), quadrature phase shift key modulation (QPSK), code division multiple access (CDMA), and orthogonal frequency division multiplex (OFDM) emissions may be employed, subject to compliance with the policies set forth in the Declaratory Ruling and Order, 11 FCC Rcd 18839 (1996). Use of OFDM also is subject to the subsequent Declaratory Ruling and Order, DA 99-554 (Mass Med. Bur. rel. Mar. 19, 1999).

21.908(d) The maximum out-of-band power of an MDS response station using all or part of a 6 MHz channel, employing digital modulation and transmitting with an EIRP greater than -6 dBW per 6 MHz channel shall be attenuated (as measured in accordance with paragraph (e) of this section) at the 6 MHz channel edges at least 25 dB relative to the average 6 MHz channel power level, then attenuated along a linear slope to at least 40 dB at 250 kHz beyond the nearest channel edge, then attenuated along a linear slope from that level to at least 60 dB at 3 MHz above the upper and below the lower licensed channel edges, and attenuated at least 60 dB at all other frequencies.

21.908(e) In measuring compliance with the out-of-band emissions limitations, the licensee shall employ one of two methods in each instance: (1) absolute power measurement of the average signal power with one instrument, with measurement of the spectral attenuation on a separate instrument; or (2) relative measurement of both the average power and the spectral attenuation on a single instrument. The formula for absolute power measurements is to be used when the average signal power is found using a separate instrument, such as a power meter; the formula gives the amount by which the measured power value is to be attenuated to find the absolute power value to be used on the spectrum analyzer or equivalent instrument at the spectral point of concern. The formula for relative power measurements is to be used when the average signal power is found using the same instrument as used to measure the attenuation at the specified spectral points, and allows different resolution bandwidths to be applied to the two parts of the measurement; the formula gives the required amplitude separation (in dB) between the flat top of the (digital) signal and the point of concern.

## Modulation Characteristics

For absolute power measurements:

Attenuation in dB (below channel power) =  $A + 10\log(\text{CBW} / \text{RBW})$

For relative power measurements:

Attenuation in dB (below flat top) =  $A + 10\log(\text{RBW1} / \text{RBW2})$

Where:

$A$  = Attenuation specified for spectral point (e.g., 25, 35, 40, 60 dB)

CBW = Channel bandwidth (for absolute power measurements)

RBW = Resolution bandwidth (for absolute power measurements)

RBW1 = Resolution bandwidth for flat top measurement (relative)

RBW2 = Resolution bandwidth for spectral point measurement (relative)

74.936(a) An ITFS station may employ amplitude modulation (C3F) for the transmission of the visual signal and frequency modulation (F3E) or (G3E) for the transmission of the aural signal when transmitting a standard analog television signal. Quadrature amplitude modulation (QAM), digital vestigial sideband modulation (VSB), quadrature phase shift key modulation (QPSK), code division multiple access (CDMA) and orthogonal frequency division multiplex (OFDM) emissions may be employed, subject to compliance with the policies set forth in the *Declaratory Ruling and Order*, 11 FCC Rcd 18839 (1996). Use of OFDM also is subject to the subsequently *Digital Declaratory Ruling and Order*, DA 99-554 (Mass Med. Bur. rel. Mar. 19, 1999).

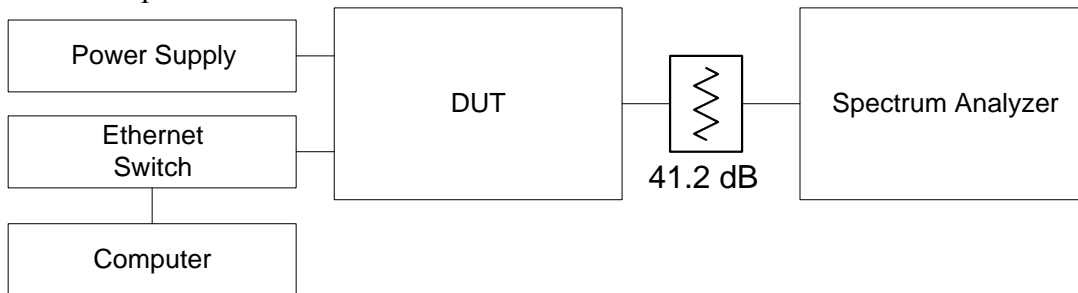
74.936(f) The maximum out-of-band power of an ITFS response station using all or part of a 6 MHz channel, employing digital modulation and transmitting with an EIRP greater than  $-6$  dBW per 6 MHz channel shall be attenuated (as measured in accordance with §21.908(e)) at the 6 MHz channel edges at least 25 dB relative to the average 6 MHz channel power level, then attenuated along a linear slope to at least 40 dB at 250 kHz beyond the nearest channel edge, then attenuated along a linear slope from that level to at least 60 dB at 3 MHz above the upper and below the lower licensed channel edges, and attenuated at least 60 dB at all other frequencies. The maximum out-of-band power of an ITFS response station using all or part of a 6 MHz channel, employing digital modulation and transmitting with an EIRP no greater than  $-6$  dBW per 6 MHz channel shall be attenuated (as measured in accordance with §21.908(e)) at the channel edges at least 25 dB relative to the average 6 MHz channel transmitter output power level ( $P$ ), then attenuated along a linear slope to at least 40 dB or  $33+10\log(P)$  dB, whichever is the lesser attenuation, at 250 kHz beyond the nearest channel edge, then attenuated along a linear slope from that level to at least 60 dB or  $43+10\log(P)$  dB, whichever is the lesser attenuation, at 3 MHz above the upper and below the lower licensed channel edges, and attenuated at least 60 dB or  $43+10\log(P)$  dB, whichever is the lesser attenuation, at all other frequencies.

## Modulation Characteristics

**Test Procedure:** The Orthogonal Frequency Division Multiplexing (OFDM) modulated Time Division Duplex (TDD) RF signal from the test unit is applied to a spectrum analyzer. The Spectrum Analyzer is time gated, to capture the transmission during the burst. An RMS detector is used to measure the average power of the transmission. The resolution bandwidth of the flat top measurement is equal to the resolution bandwidth of the spectral point measurement thereby setting the  $10\log(RBW1 / RBW2) = 0$  for the relative power measurement method. The transmitter is enabled in test mode with the attached computer. Measurements are performed at three frequencies across the band, for each of the modulation formats available (4 QAM, 16 QAM, and 64 QAM), and 12, 15, and 19.5 Vdc.

**Test Conditions:** Frequencies = 2503, 2593, 2683 MHz  
Temperature = 25 °C  
Voltage = 12, 15, 19.5 Vdc

**Test Set-Up:**



## Modulation Characteristics

Test Equipment:

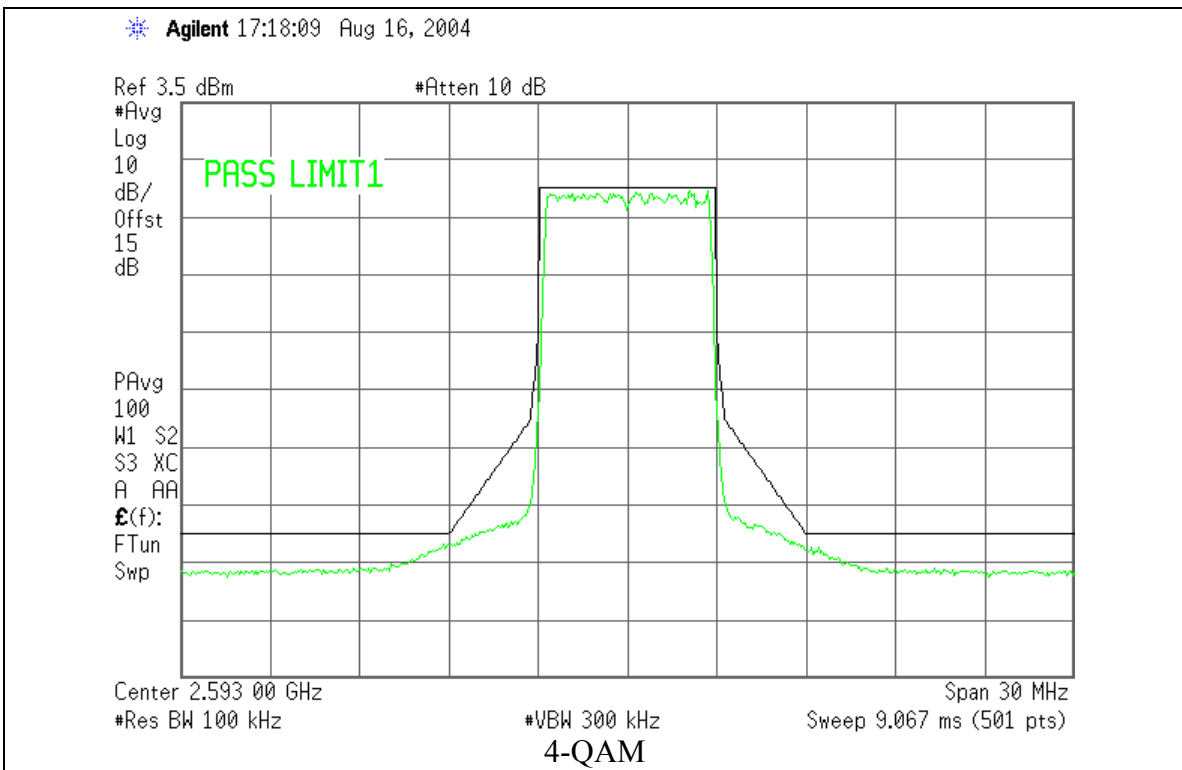
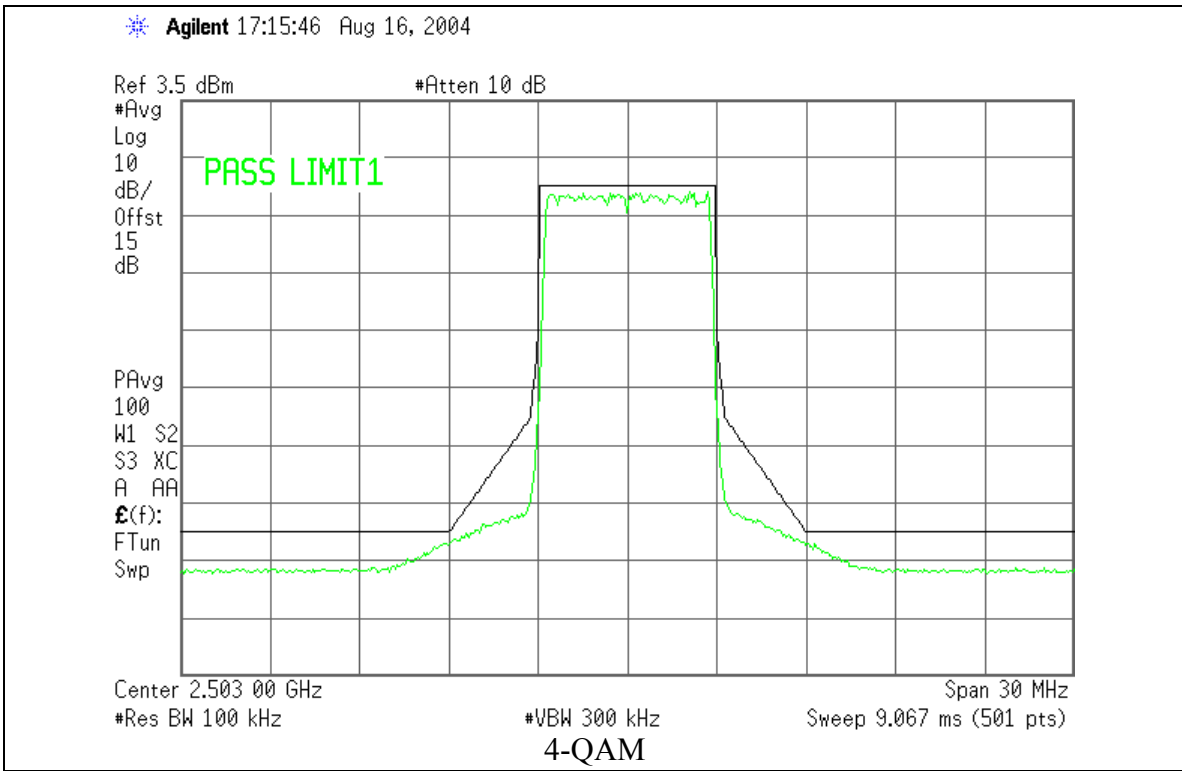
DUT	NextNet Wireless CPE (RSU-2400-AV) # 2008687
Spectrum Analyzer	Agilent E4440A S/N: MY44022791 Calibrated on: 05/30/2004 Cal due: 05/30/2006
Attenuator(s) 2 x 20 dB	Pasternak Corporation Model: PE7005-20 (20 dB) Calibrated by user
Computer	Dell Inspiron 5000 Model: PPM S/N: 000832RM-12961-04R-0441
Ethernet Switch	D-Link Model: DSS-5+ 5 port 10/100Mbps S/N: B205335003175
Power Supply 1	Globetek Model: GT-21148-3015-T3 15 Vdc / 1.6A Limited Power Source S/N: 00430704
Power Supply 2	Globetek Model: GT-21097-5020-0.5 19.5 Vdc / 2.5 A Limited Power Source S/N: 003808 09/03
Power Supply 3	Agilent E3615A 0-20 Vdc / 0-3 A S/N: KR01508861
Multimeter	HP 34401A Multimeter Cal Date: 08-03-2004 Cal Due: 08-03-06 S/N: 3146A58949

Test Results Summary:

Pass modulation characteristics across frequency band, modulation level, and input supply voltage range.

### Modulation Characteristics

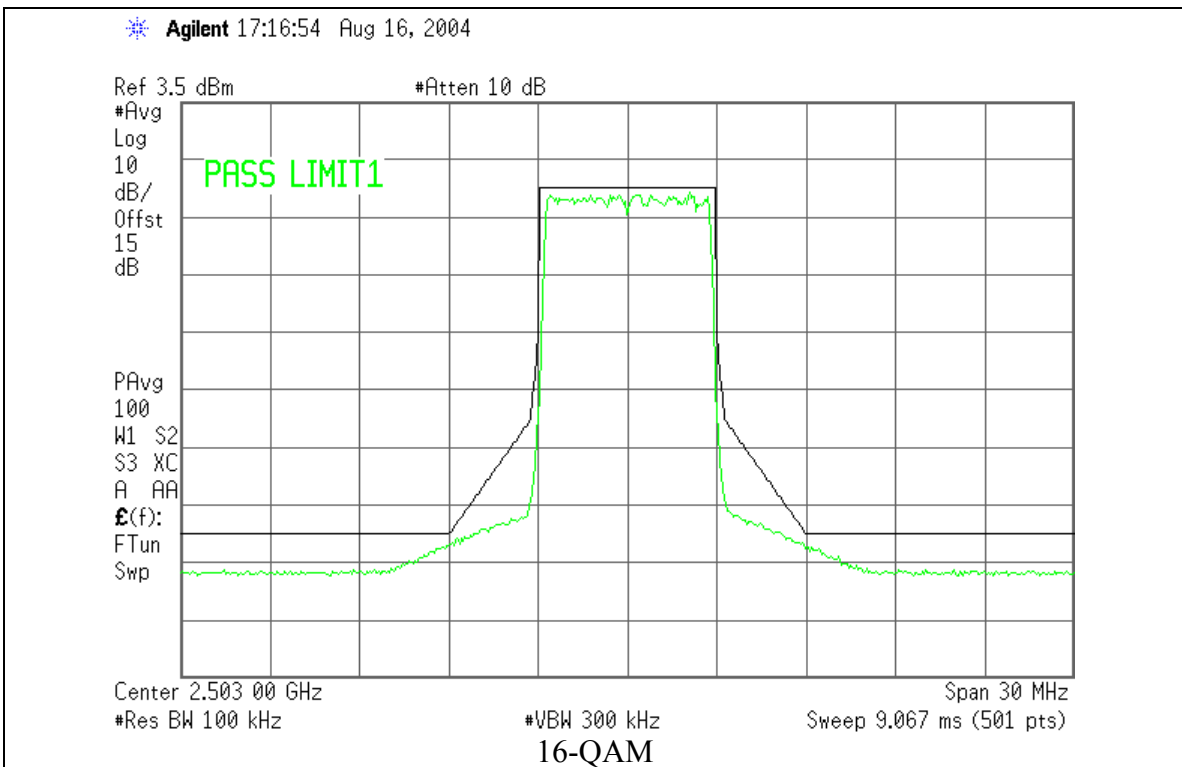
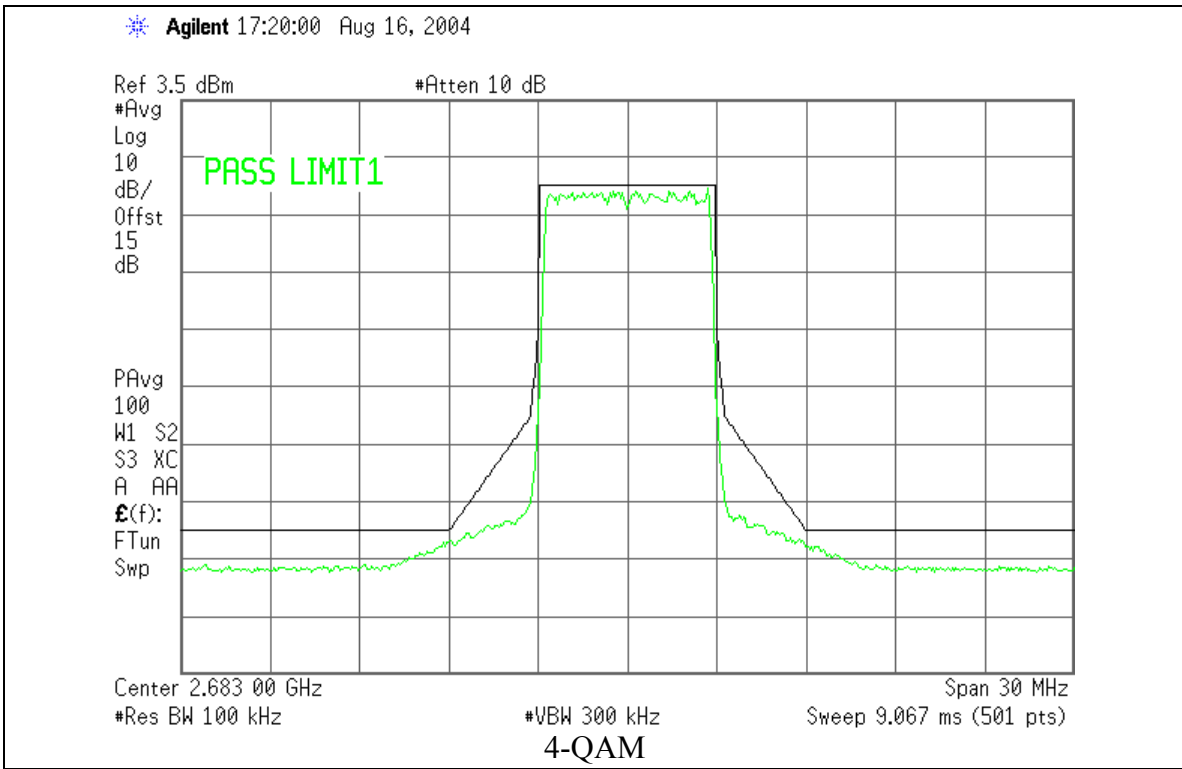
Measured with Globtek 19.5 Vdc power supply





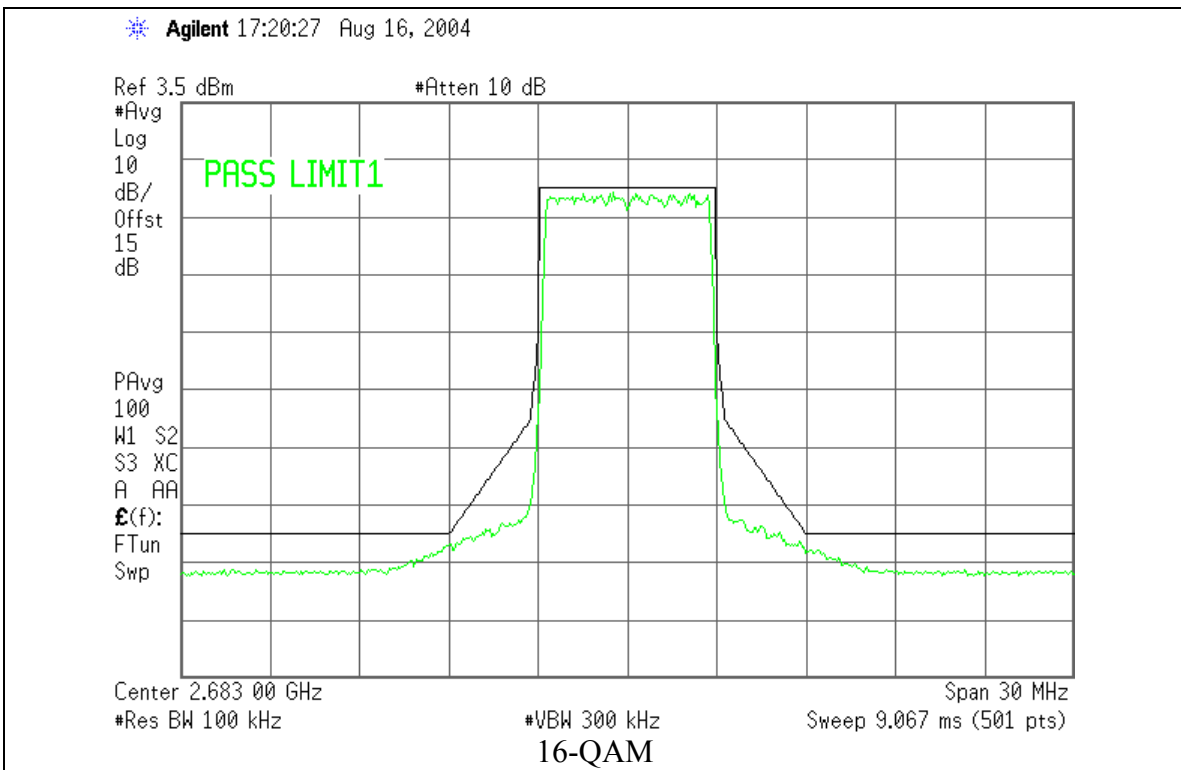
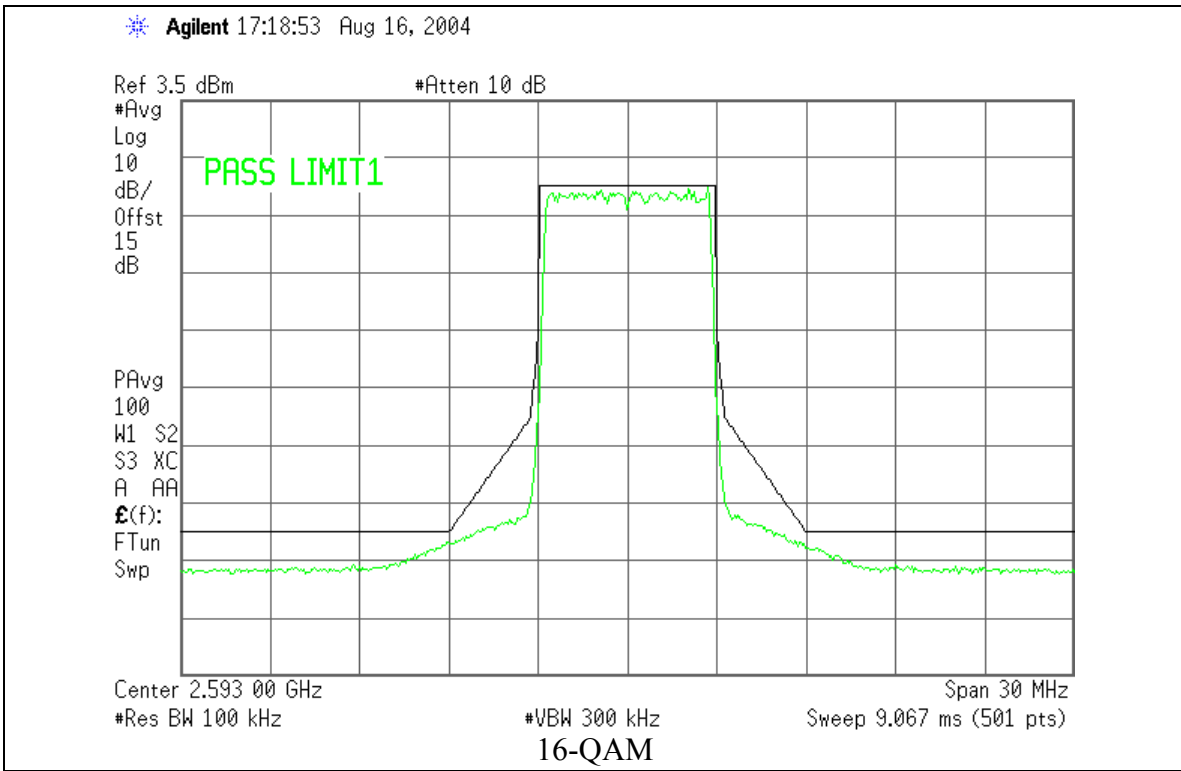
### Modulation Characteristics

Measured with Globtek 19.5 Vdc power supply



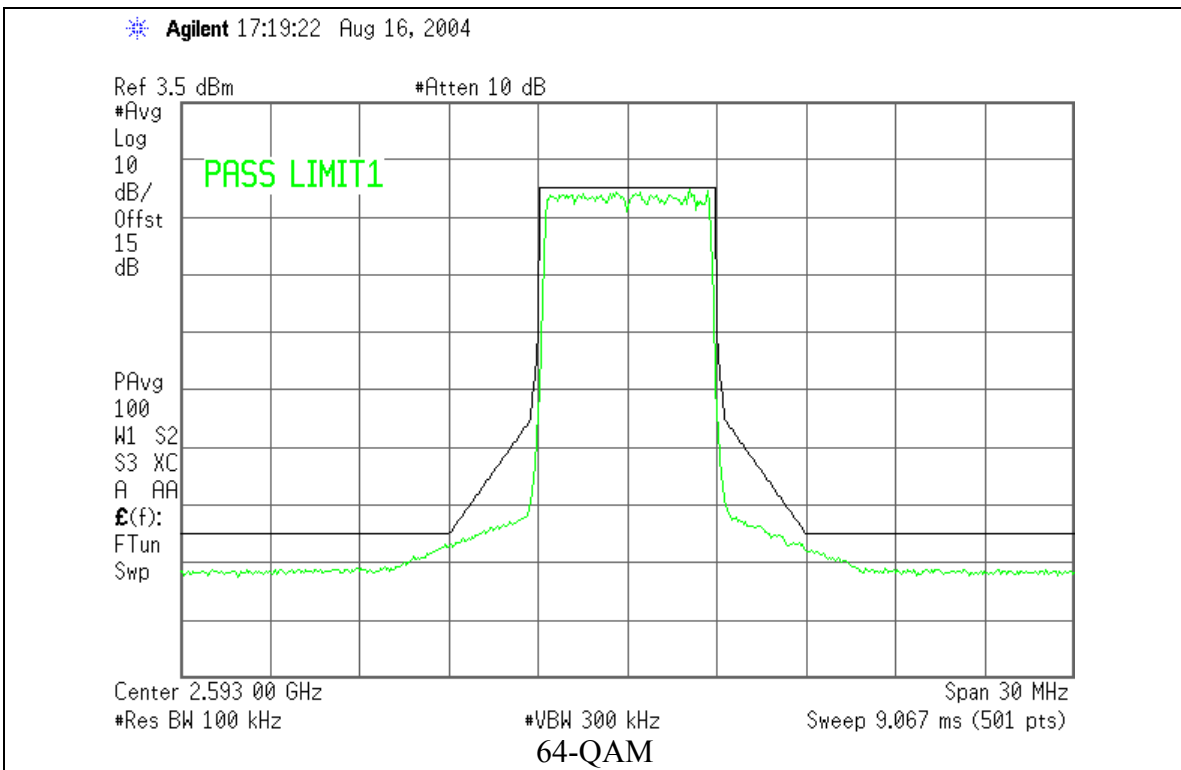
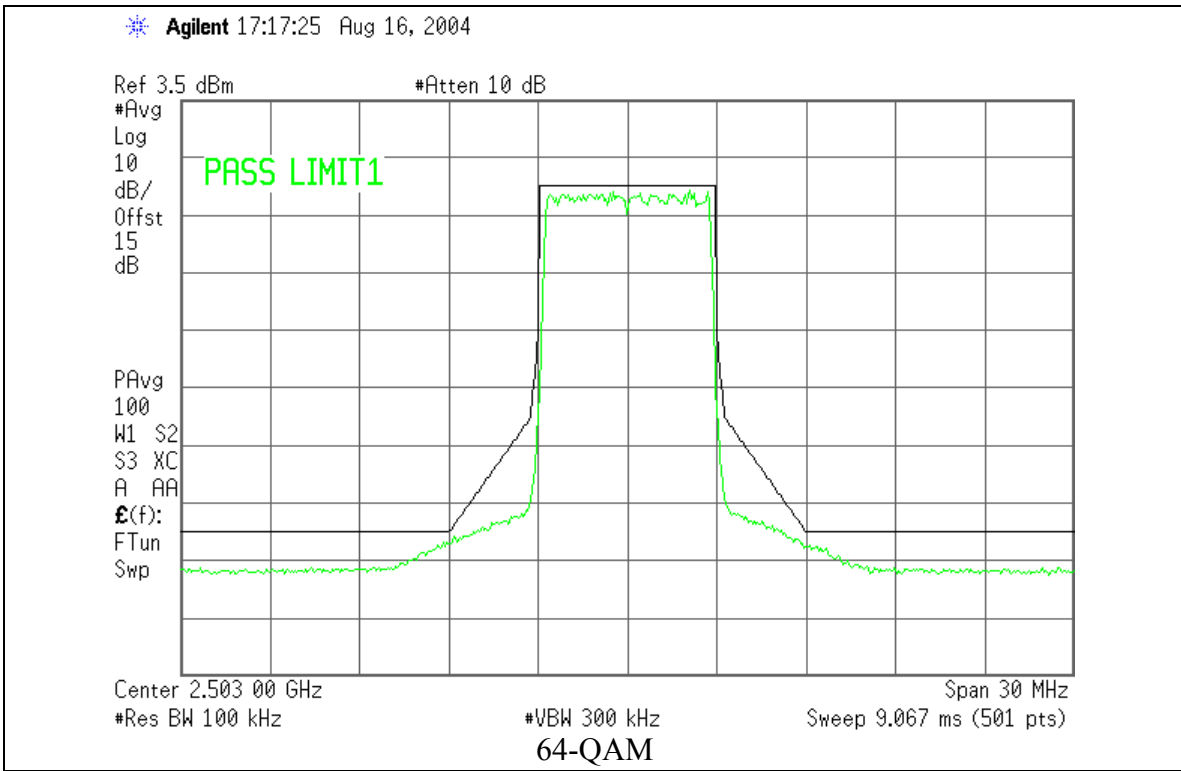
### Modulation Characteristics

Measured with Globtek 19.5 Vdc power supply



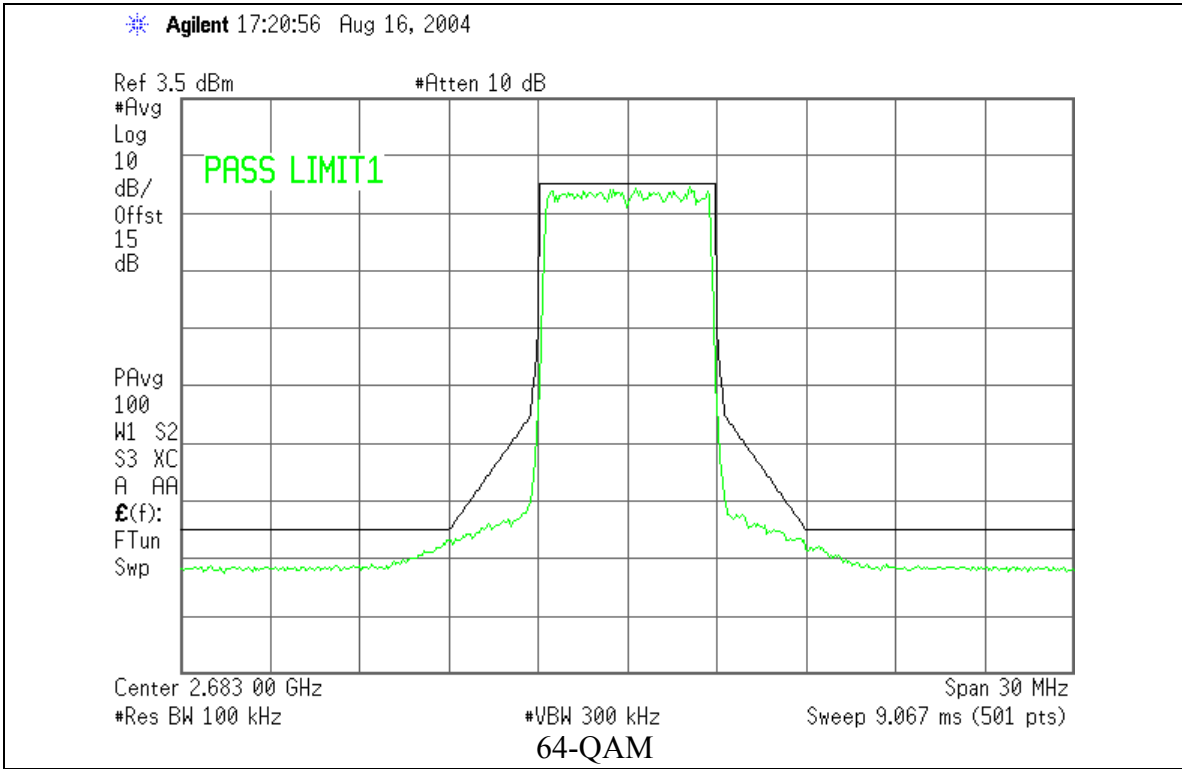
### Modulation Characteristics

Measured with Globtek 19.5 Vdc power supply



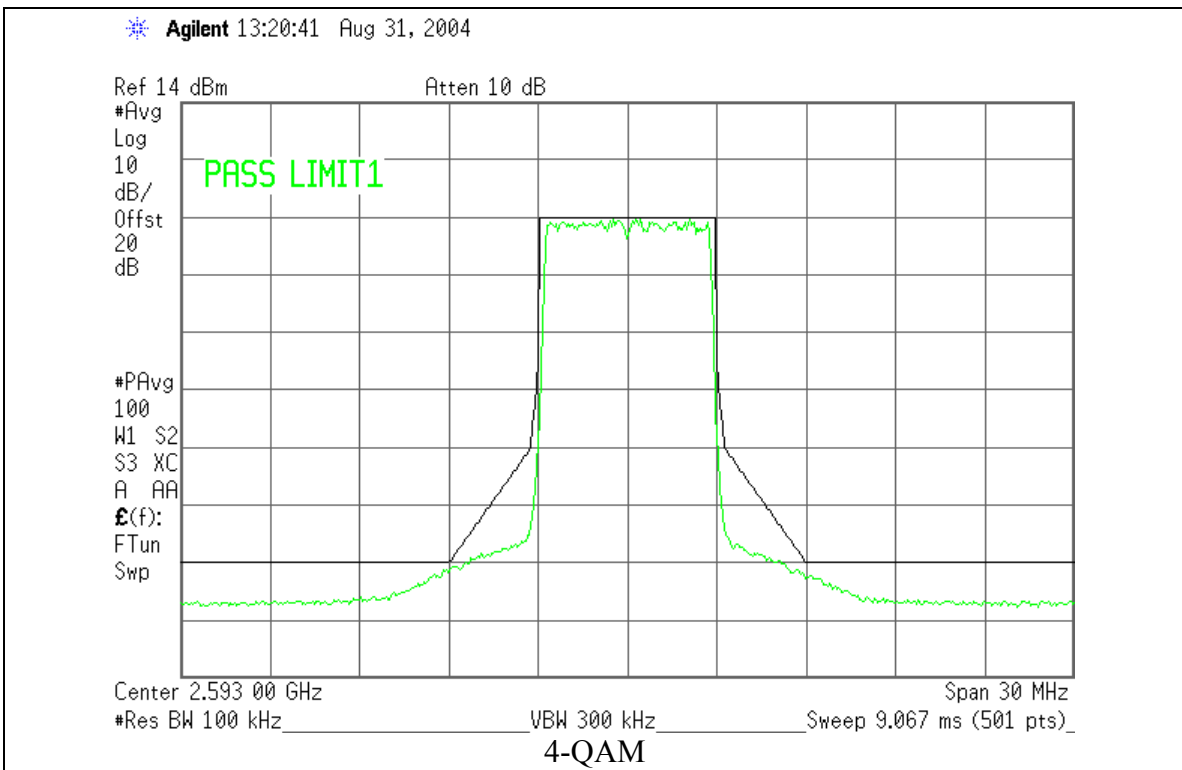
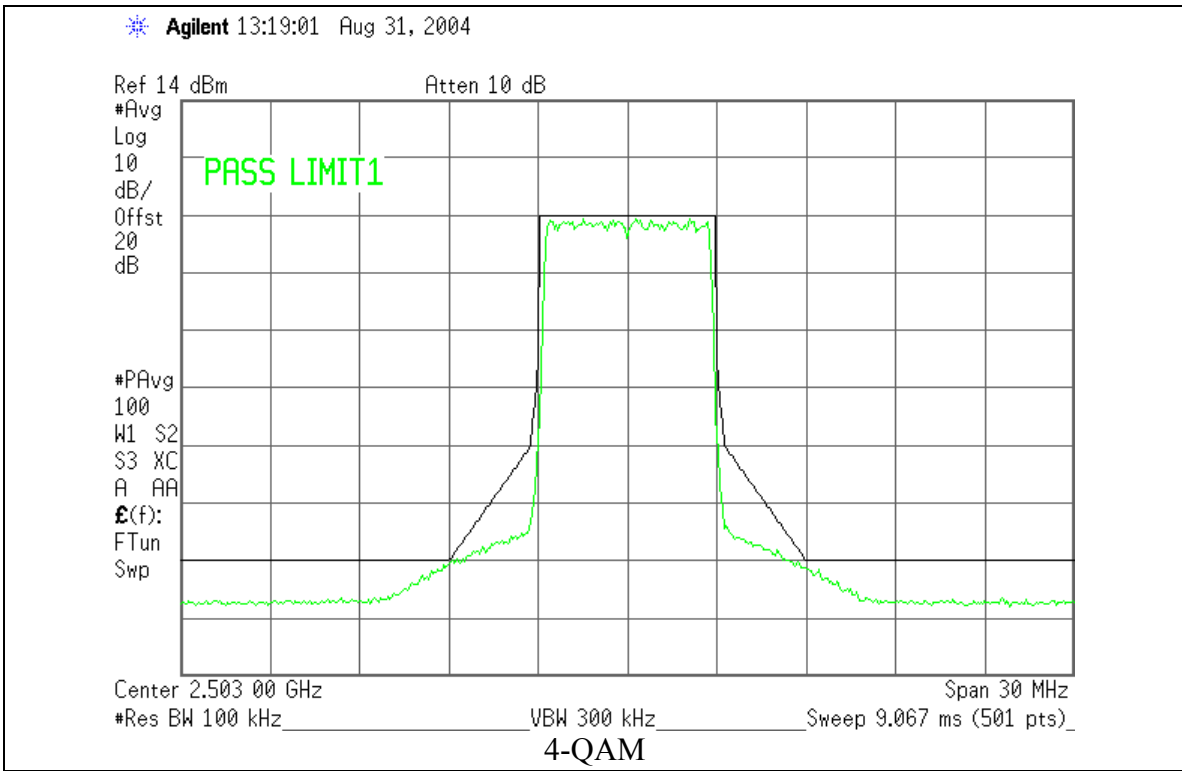
### Modulation Characteristics

Measured with Globtek 19.5 Vdc power supply



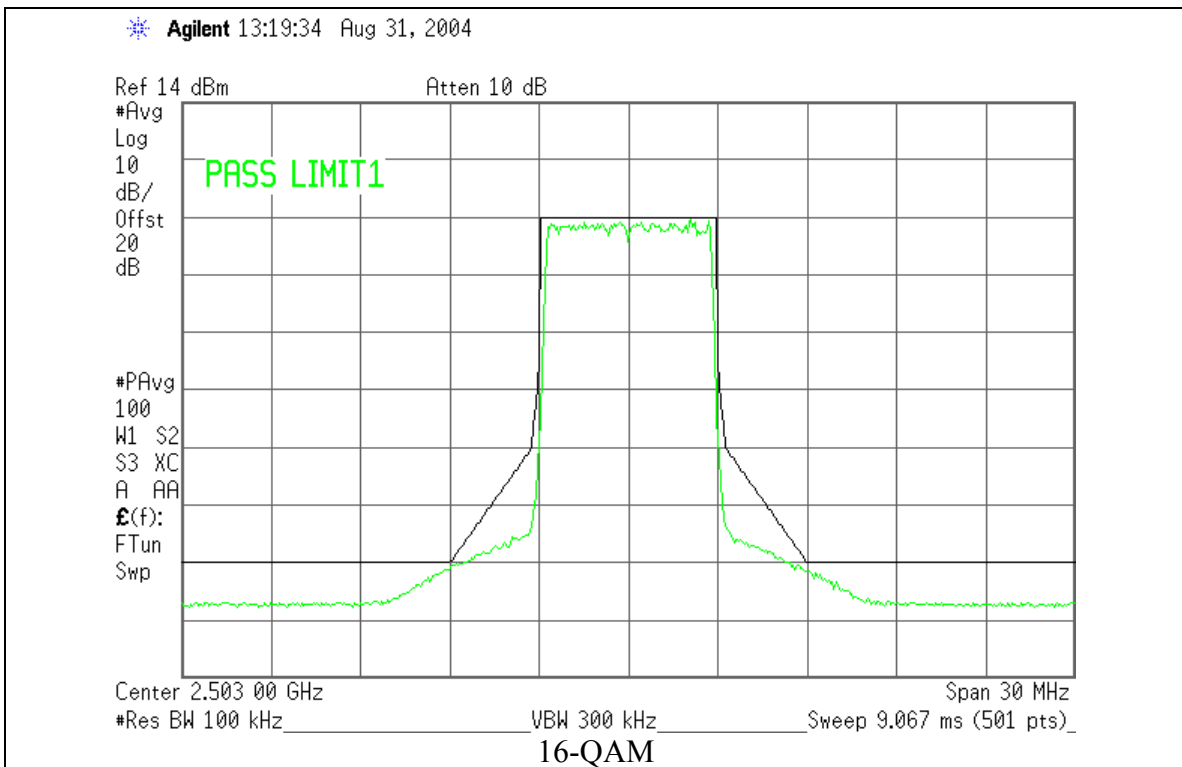
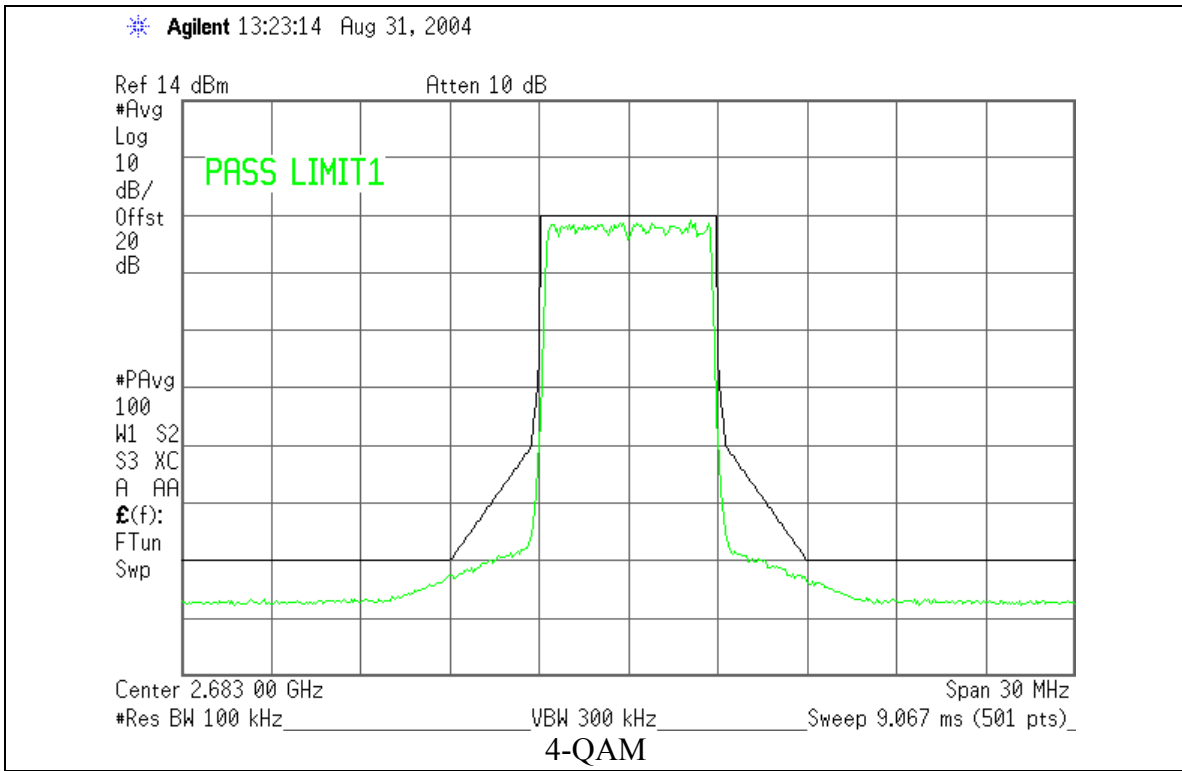
### Modulation Characteristics

Measured with Globtek 15 Vdc power supply



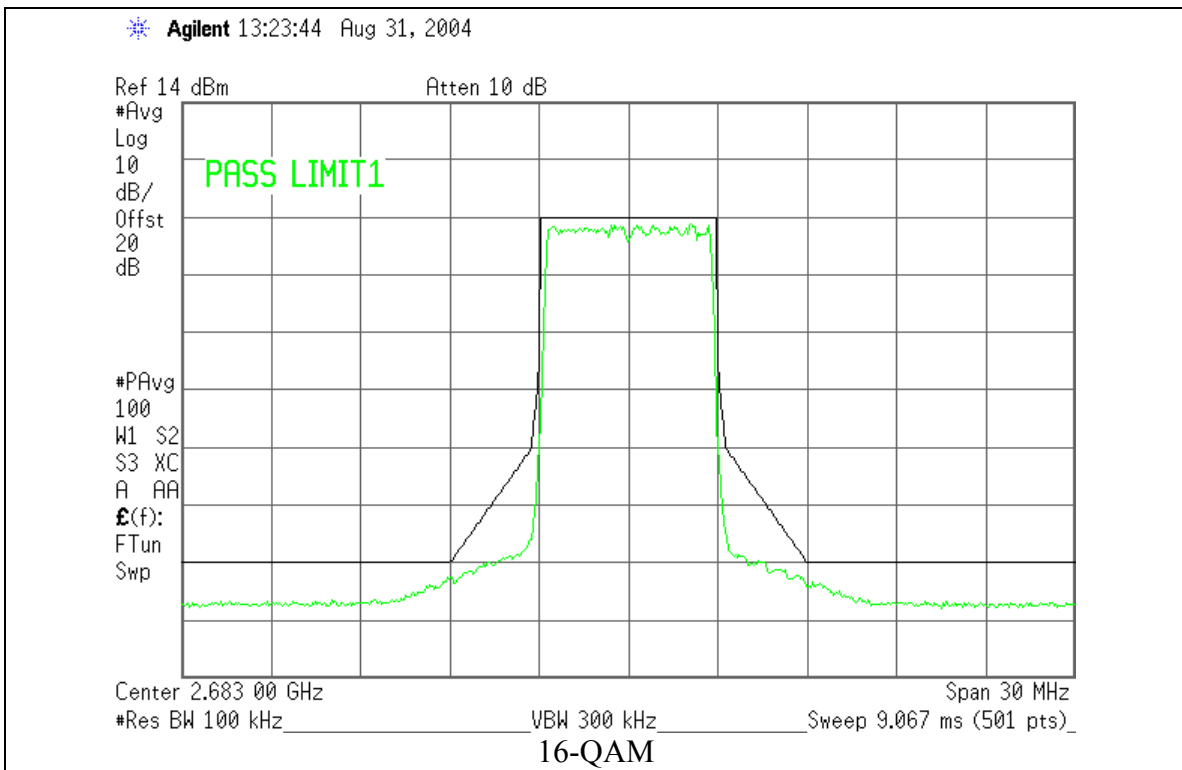
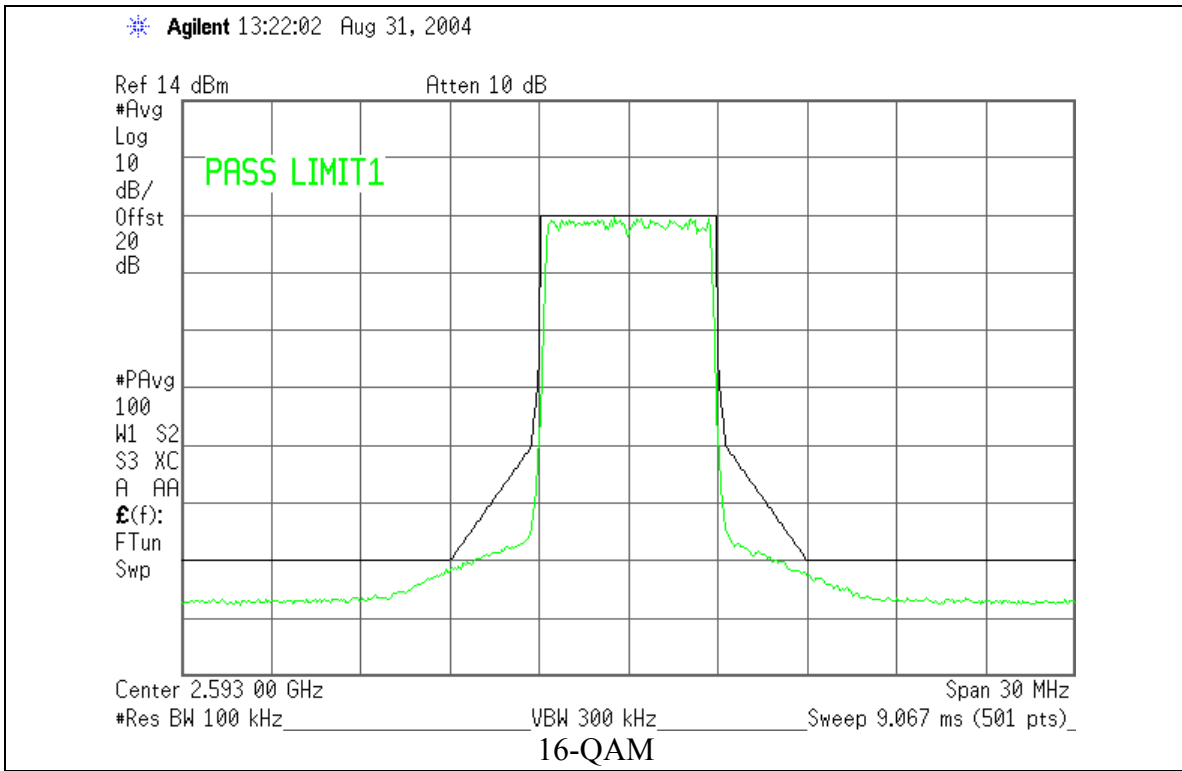
### Modulation Characteristics

Measured with Globtek 15 Vdc power supply



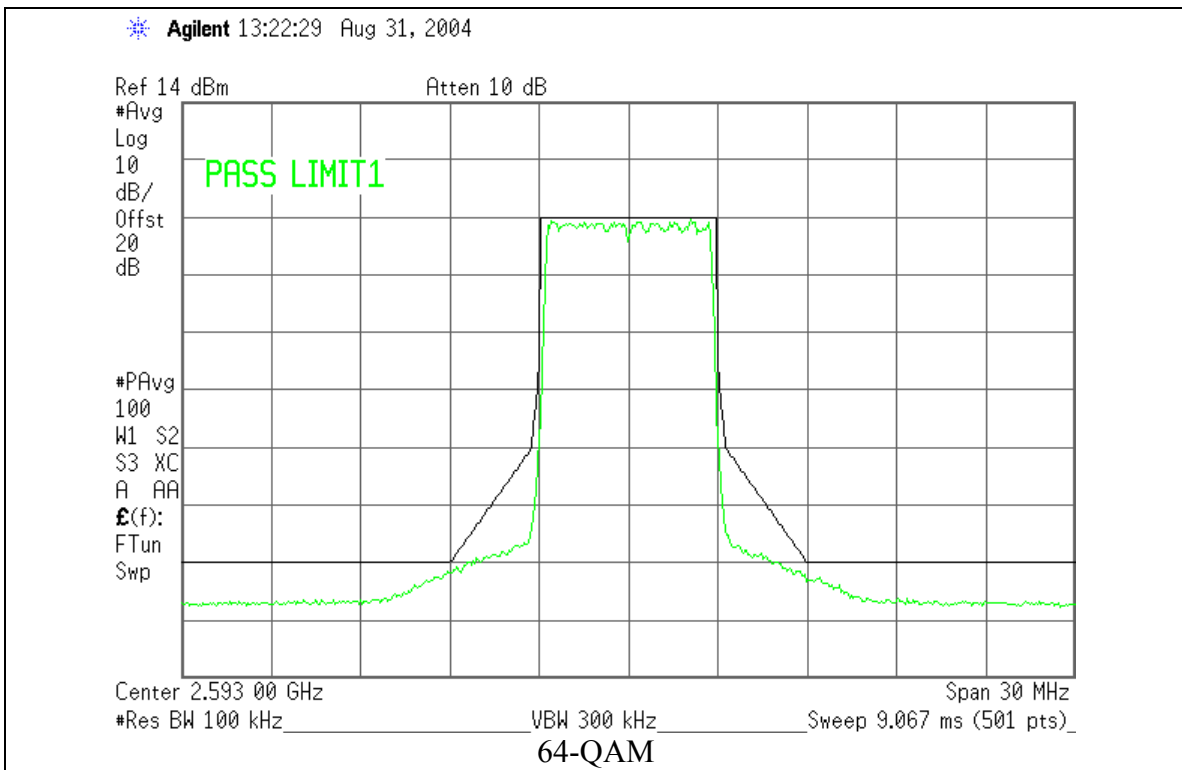
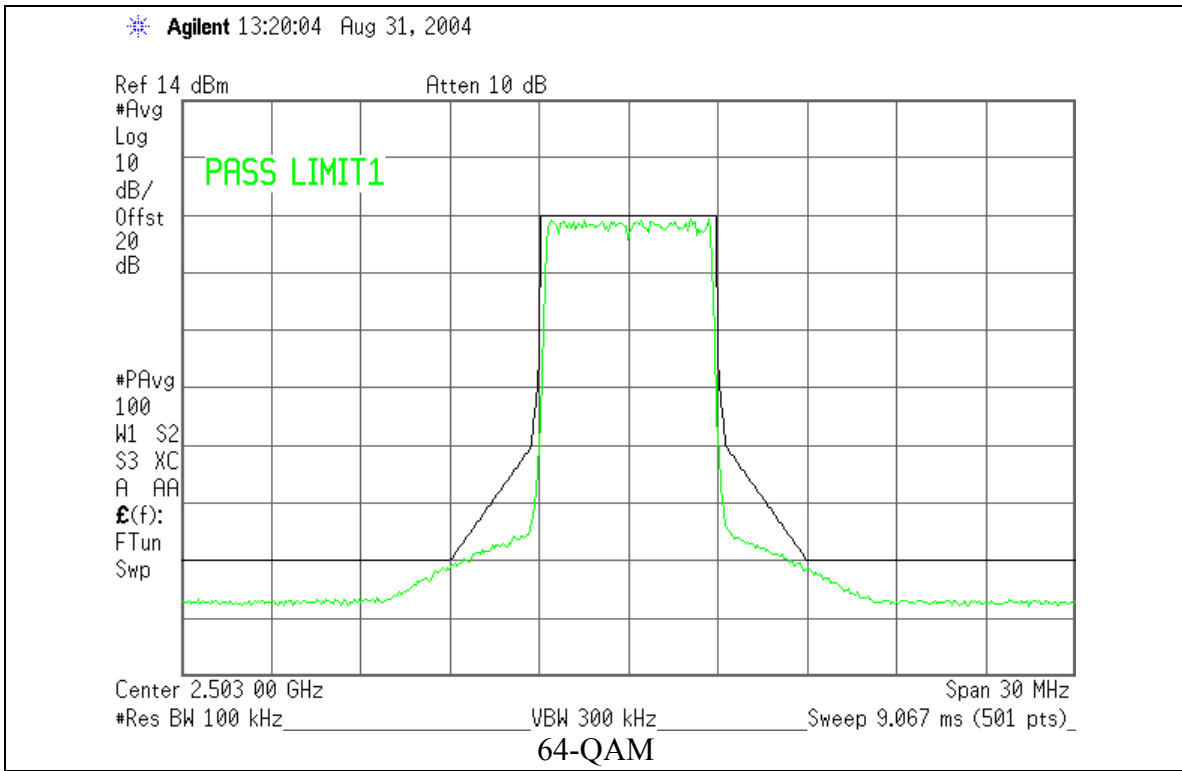
### Modulation Characteristics

Measured with Globtek 15 Vdc power supply



### Modulation Characteristics

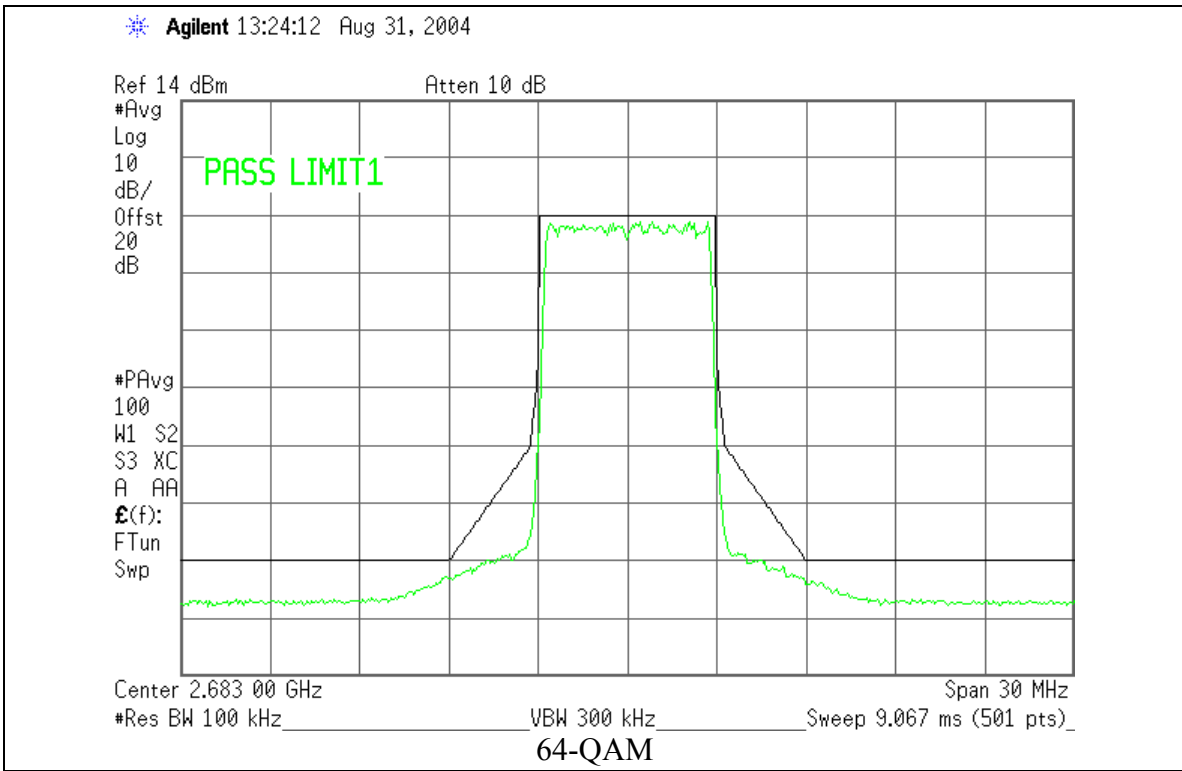
Measured with Globtek 15 Vdc power supply





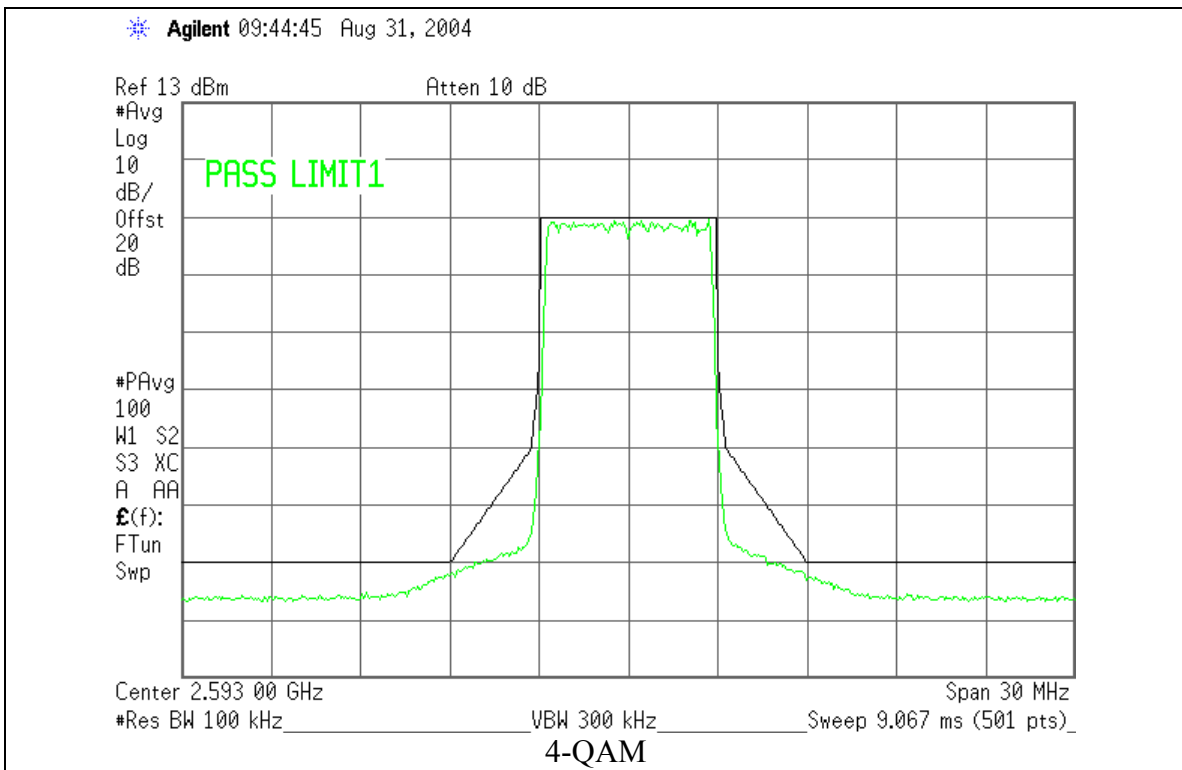
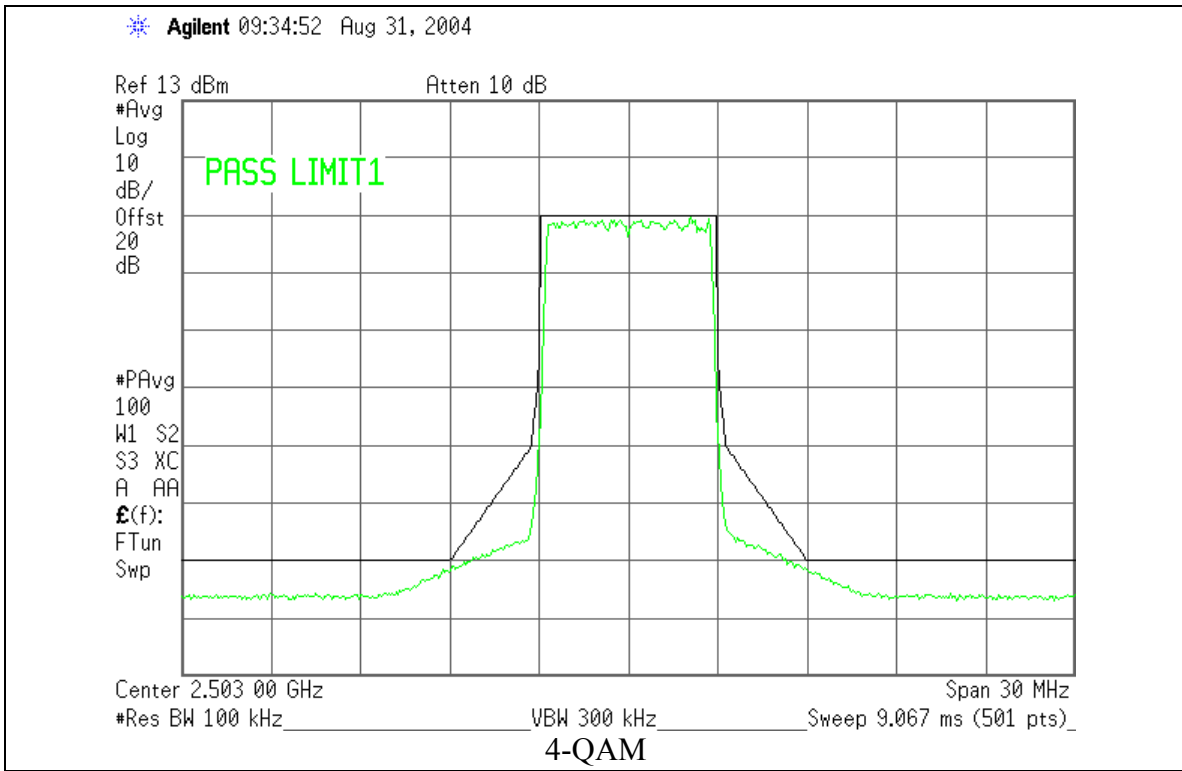
### Modulation Characteristics

Measured with Globtek 15 Vdc power supply



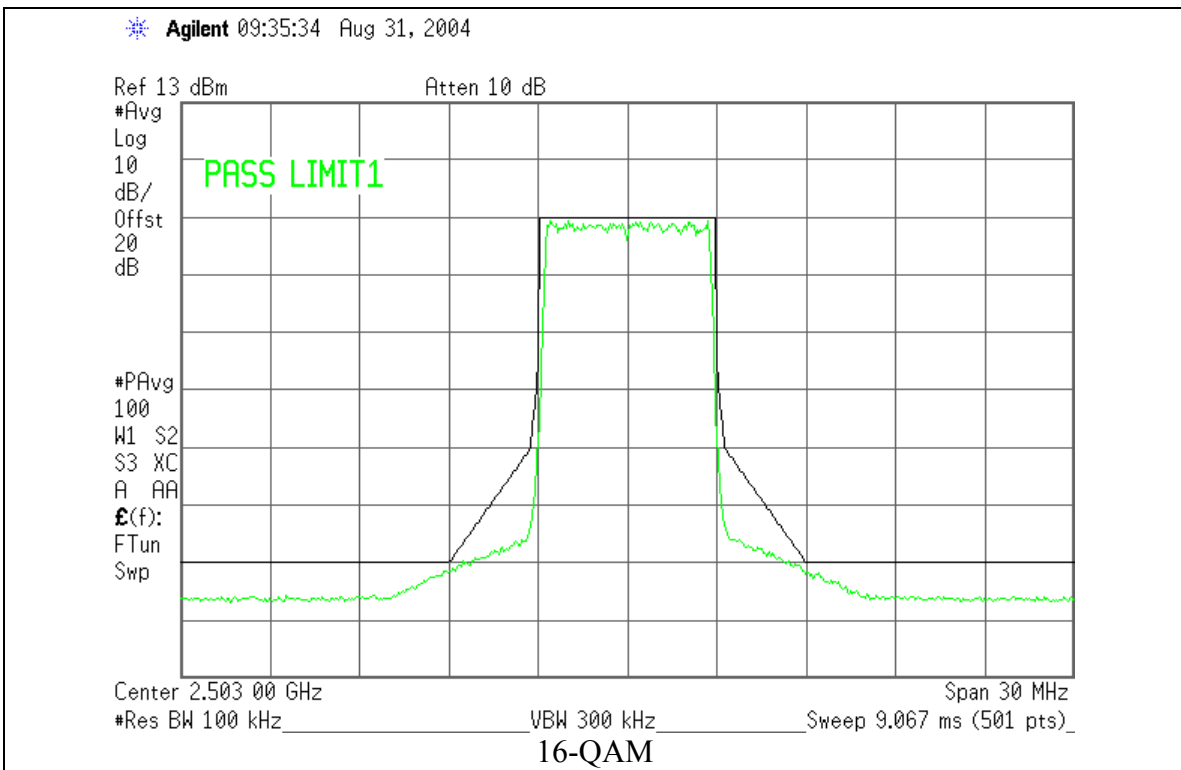
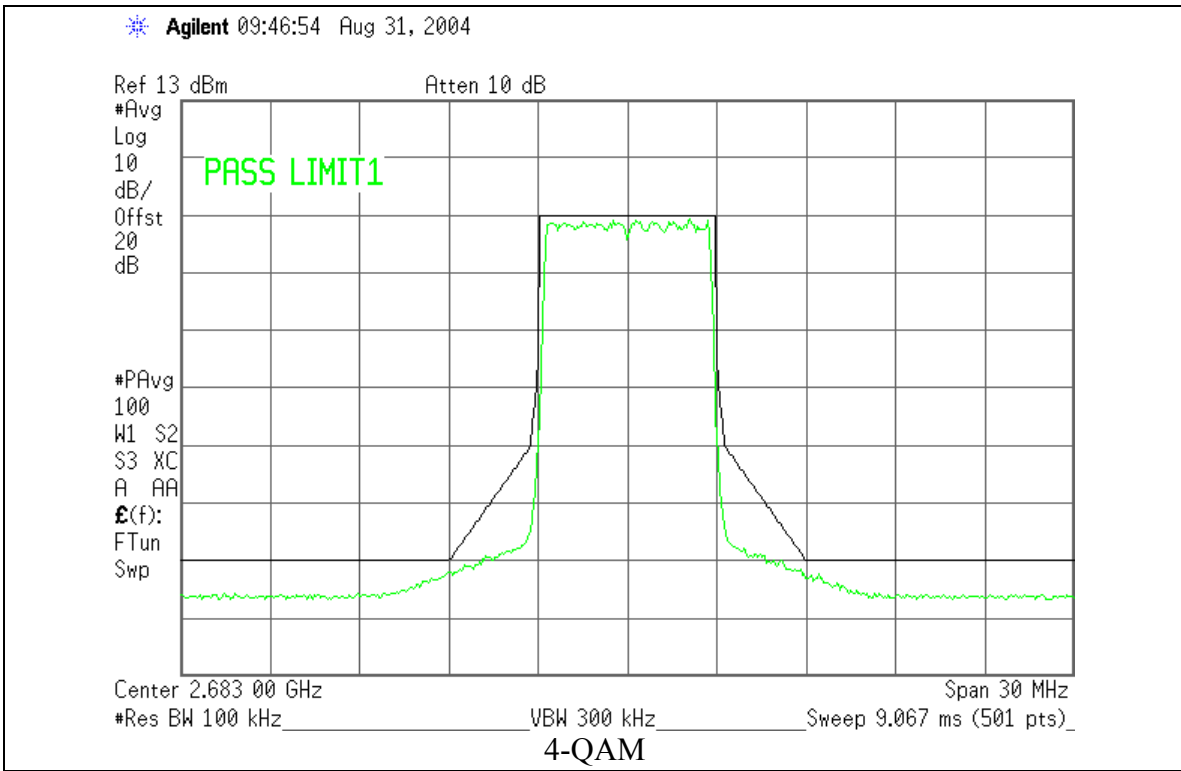
### Modulation Characteristics

Measured with HP Power Supply (12 Vdc)



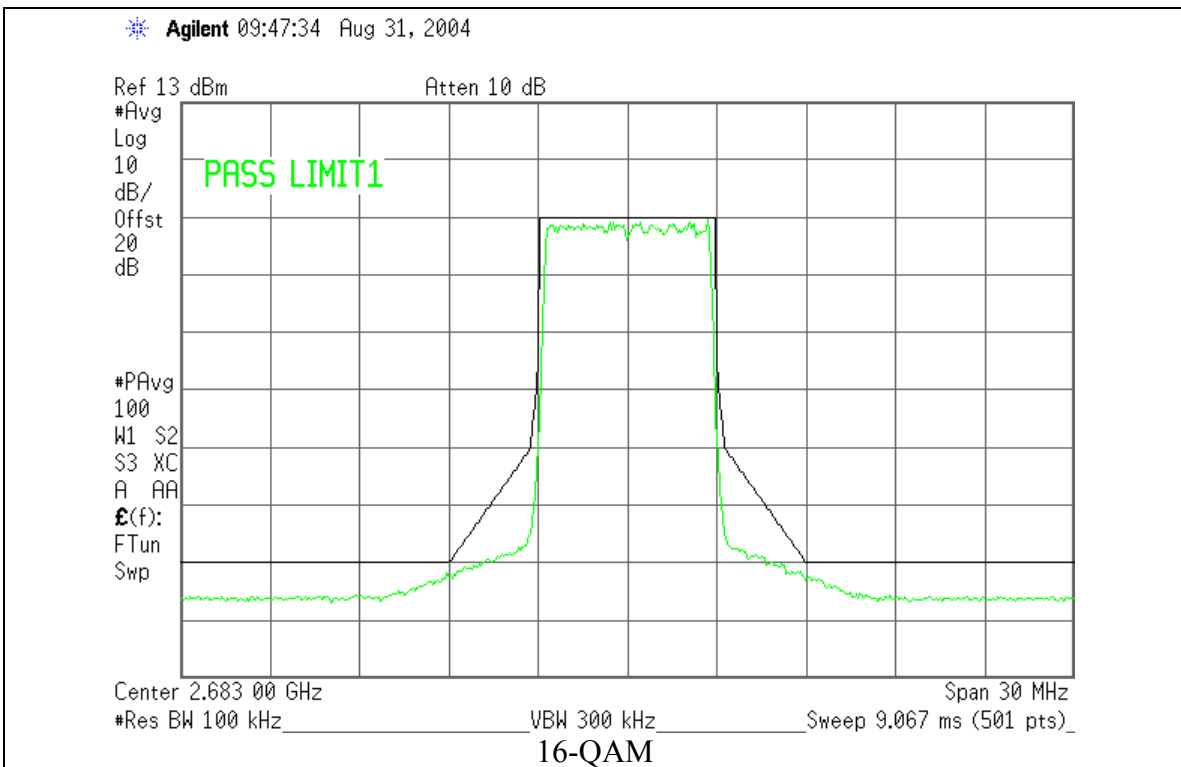
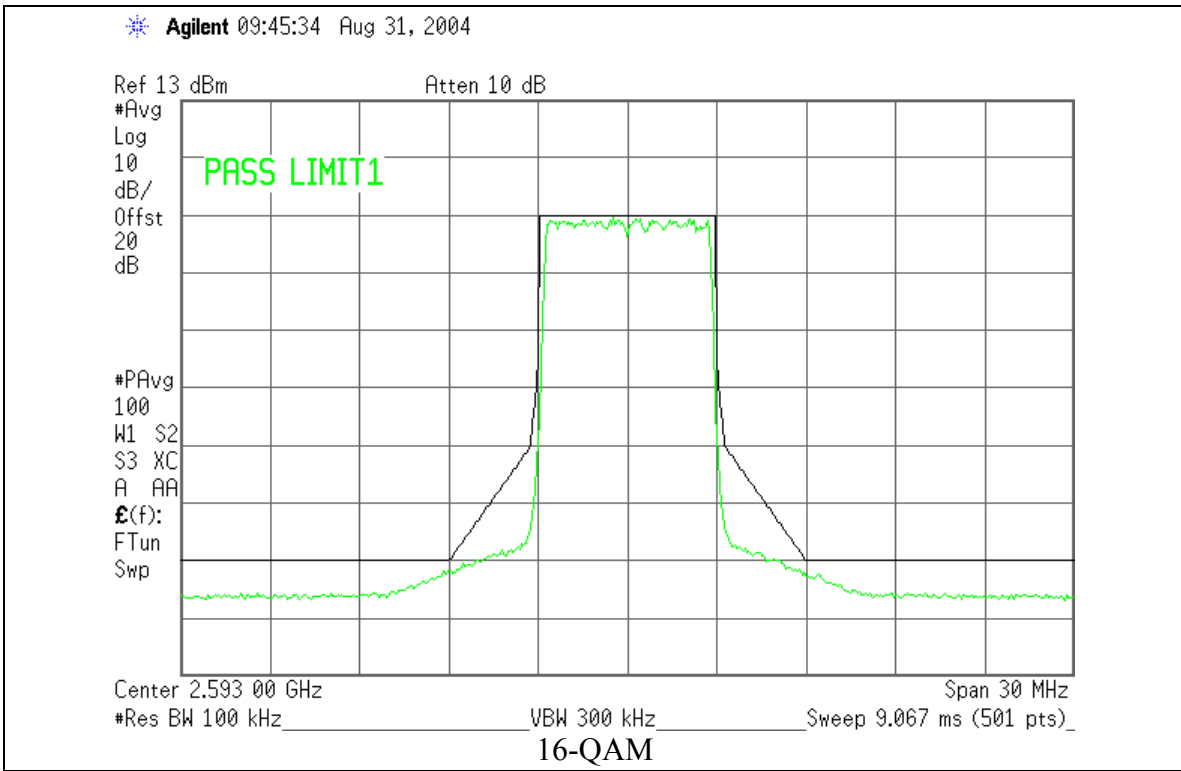
### Modulation Characteristics

Measured with HP Power Supply (12 Vdc)



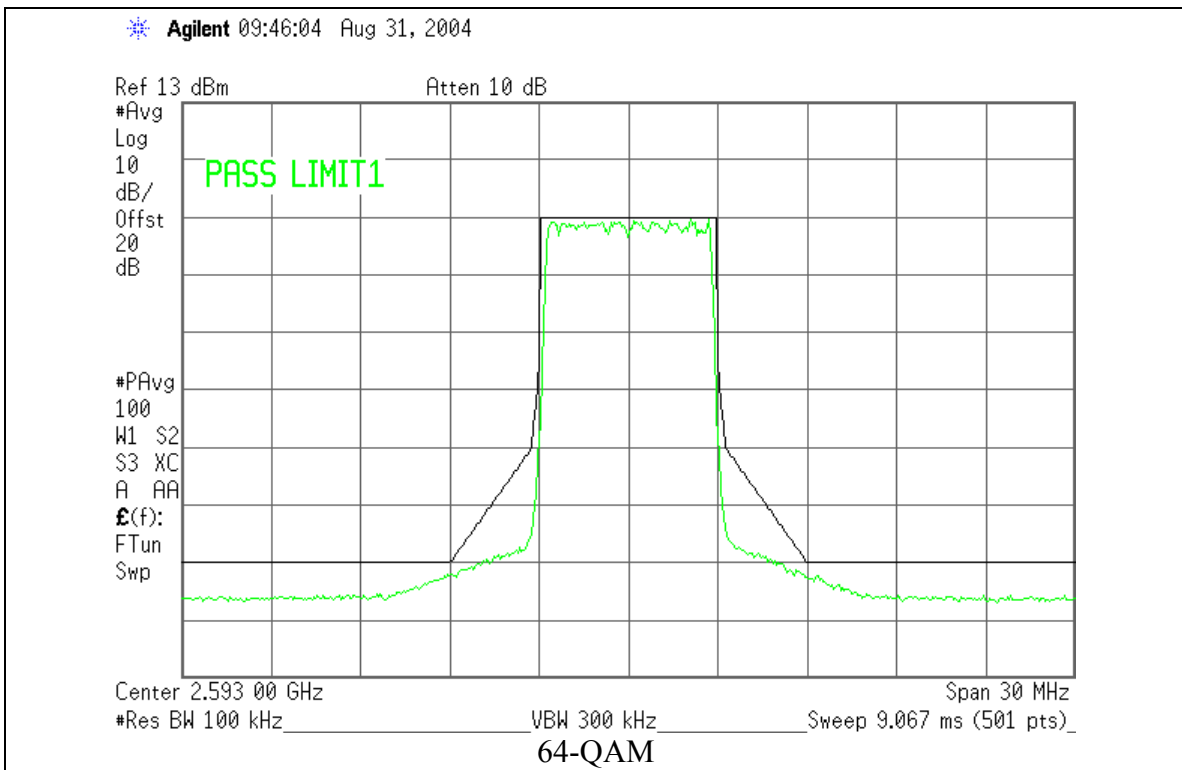
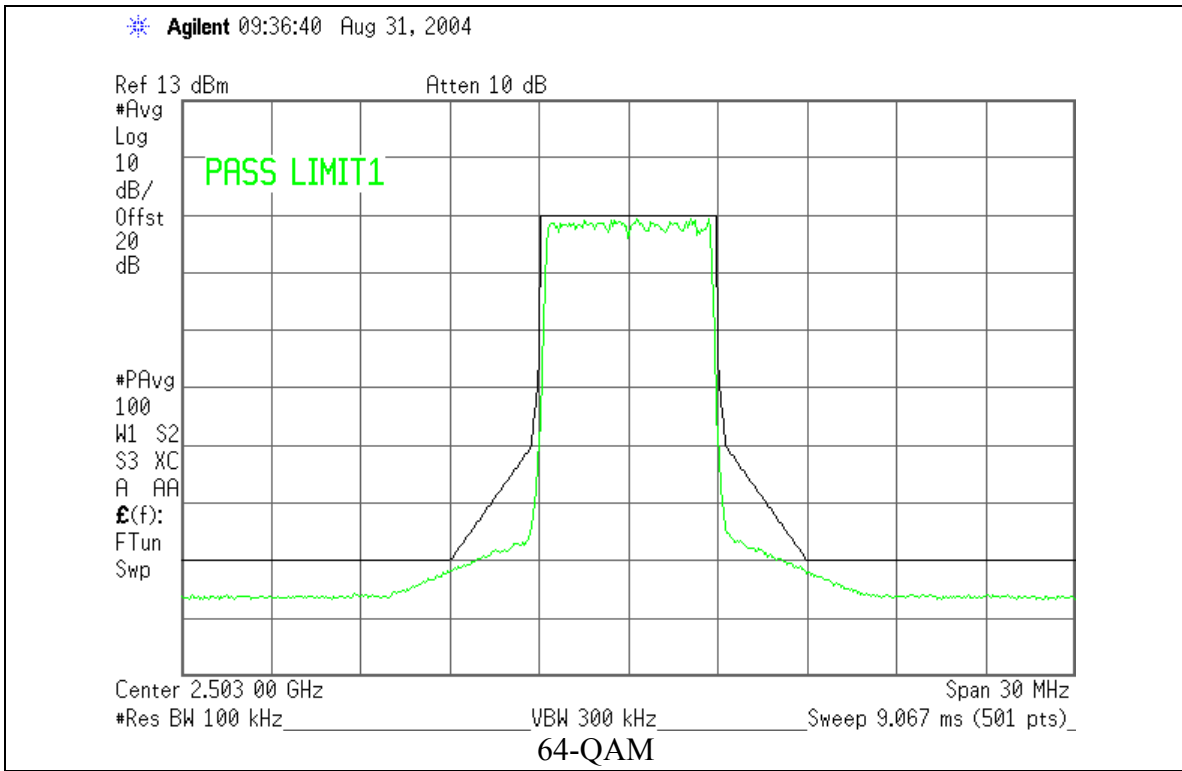
### Modulation Characteristics

Measured with HP Power Supply (12 Vdc)



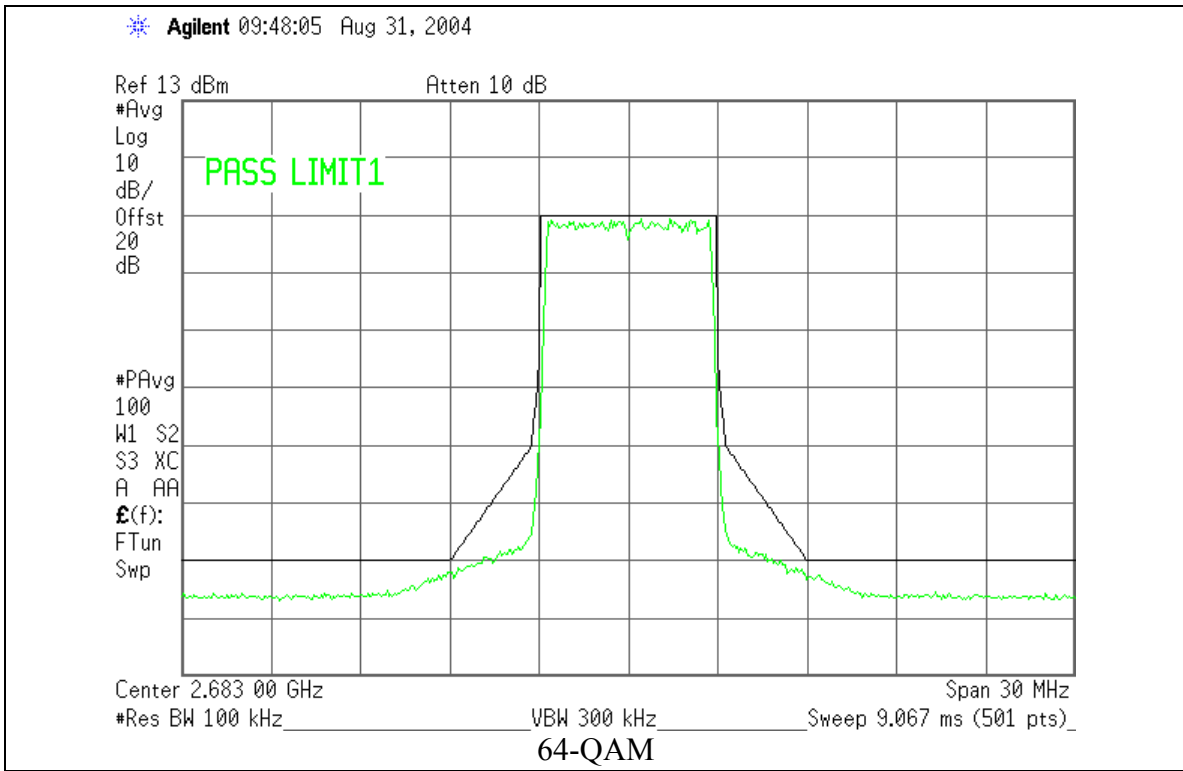
### Modulation Characteristics

Measured with HP Power Supply (12 Vdc)



### Modulation Characteristics

Measured with HP Power Supply (12 Vdc)



## Occupied Bandwidth

Rule Part Number: 2.1049(h), 21.105

Each authorization issued pursuant to these rules will show, as the emission designator, a symbol representing the class of emission which shall be prefixed by a number specifying the necessary bandwidth. This figure does not necessarily indicate the bandwidth actually occupied by the emission at any instant. In those cases where part 2 of this chapter does not provide a formula for the computation of the necessary bandwidth, the occupied bandwidth may be used in the emission designator.

Test Procedure: The Orthogonal Frequency Division Multiplexing (OFDM) modulated Time Division Duplex (TDD) RF signal from the test unit is applied to a spectrum analyzer. The Spectrum Analyzer is time gated, to capture the transmission during the burst. The occupied bandwidth of the test unit is recorded by measuring the 99 % modulation bandwidth with the built in measurement function in the spectrum analyzer. The transmitter is enabled in test mode with the attached computer. Measurements are performed at three frequencies across the band, for each of the modulation formats available (4 QAM, 16 QAM, and 64 QAM), and 12 , 15, and 19.5 Vdc.

Test Conditions: Frequency = 2503, 2593, 2683 MHz  
Temperature = 25 °C  
Voltage = 12, 15, 19.5 Vdc

Test Results Summary:

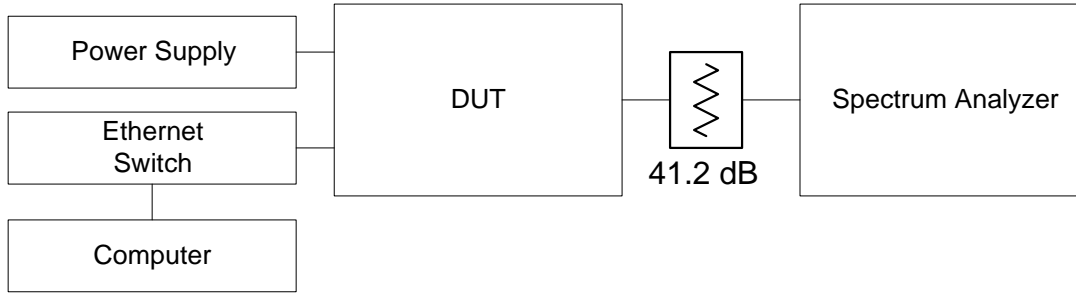
99.0 % Occupied Bandwidth (MHz)

Globetek 19.5 Vdc Power Supply			
	Modulation Type		
Freq (MHz)	4-QAM	16-QAM	64-QAM
2503	5.4920	5.4895	5.4962
2593	5.4895	5.4989	5.4835
2683	5.4945	5.4855	5.4974
Globetek 15 Vdc Power Supply			
	Modulation Type		
Freq (MHz)	4-QAM	16-QAM	64-QAM
2503	5.4849	5.4902	5.4934
2593	5.4890	5.4818	5.4941
2683	5.4857	5.4877	5.4888
HP Power Supply (12 Vdc)			
	Modulation Type		
Freq (MHz)	4-QAM	16-QAM	64-QAM
2503	5.4819	5.4873	5.4886
2593	5.4801	5.4986	5.4731
2683	5.4900	5.4869	5.4902



## Occupied Bandwidth

Test Set-Up:

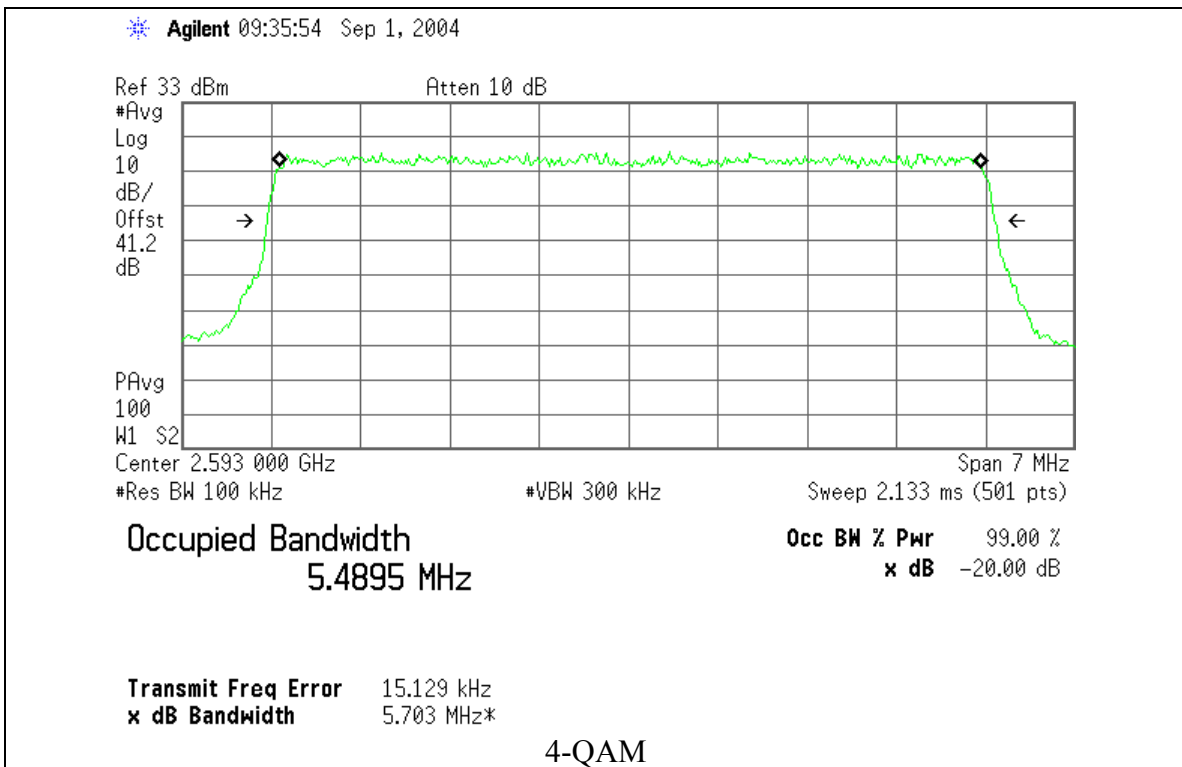
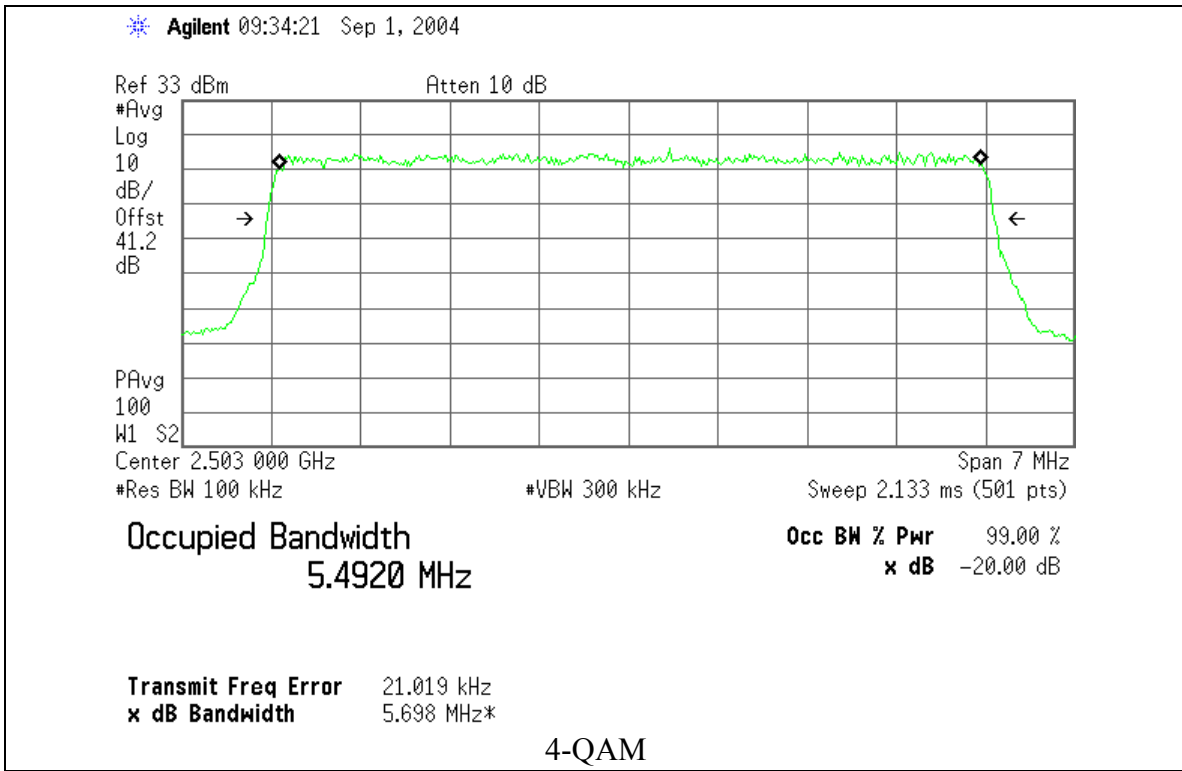


Test Equipment:

DUT	NextNet Wireless CPE (RSU-2400-AV) # 2008687
Spectrum Analyzer	Agilent E4440A S/N: MY44022791 Calibrated on: 05/30/2004 Cal due: 05/30/2006
Attenuator(s) 2 x 20 dB	Pasternak Corporation Model: PE7005-20 (20 dB) Calibrated by user
Computer	Dell Inspiron 5000 Model: PPM S/N: 000832RM-12961-04R-0441
Ethernet Switch	D-Link Model: DSS-5+ 5 port 10/100Mbps S/N: B205335003175
Power Supply 1	Globetek Model: GT-21148-3015-T3 15 Vdc / 1.6A Limited Power Source S/N: 00430704
Power Supply 2	Globetek Model: GT-21097-5020-0.5 19.5 Vdc / 2.5 A Limited Power Source S/N: 003808 09/03
Power Supply 3	Agilent E3615A 0-20 Vdc / 0-3 A S/N: KR01508861
Multimeter	HP 34401A Multimeter Cal Date: 08-03-2004 Cal Due: 08-03-06 S/N: 3146A58949

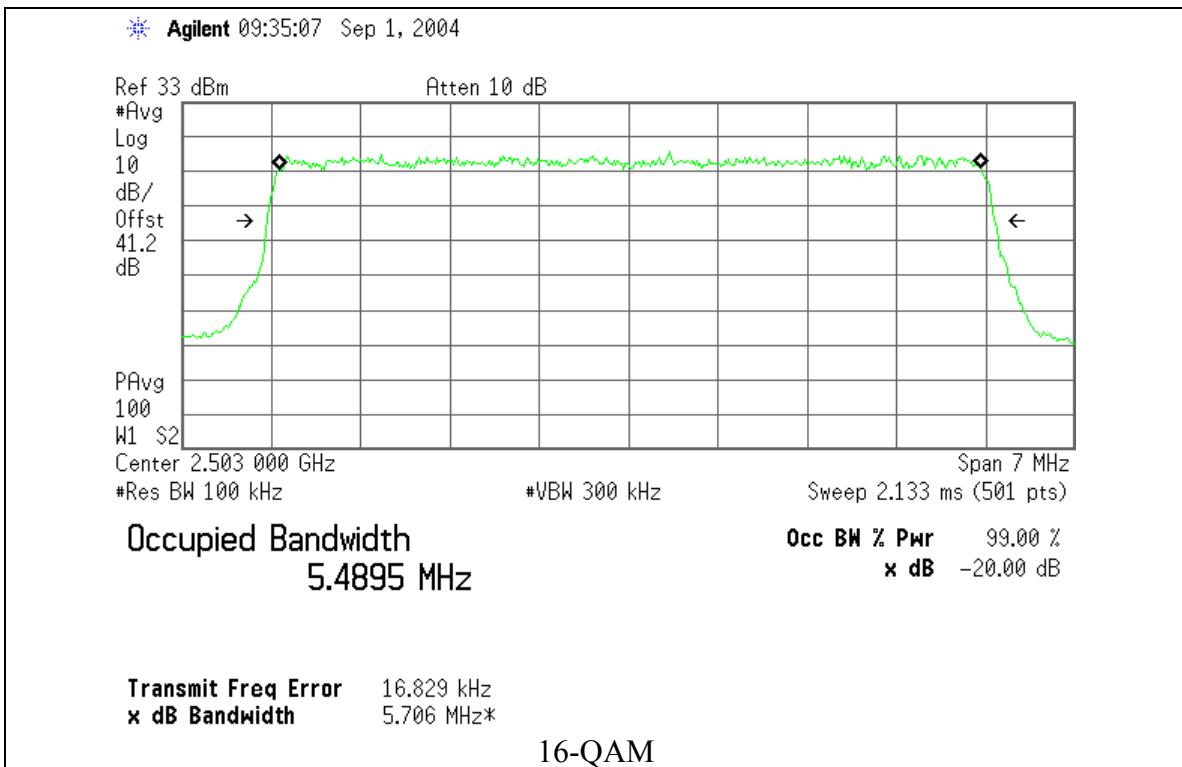
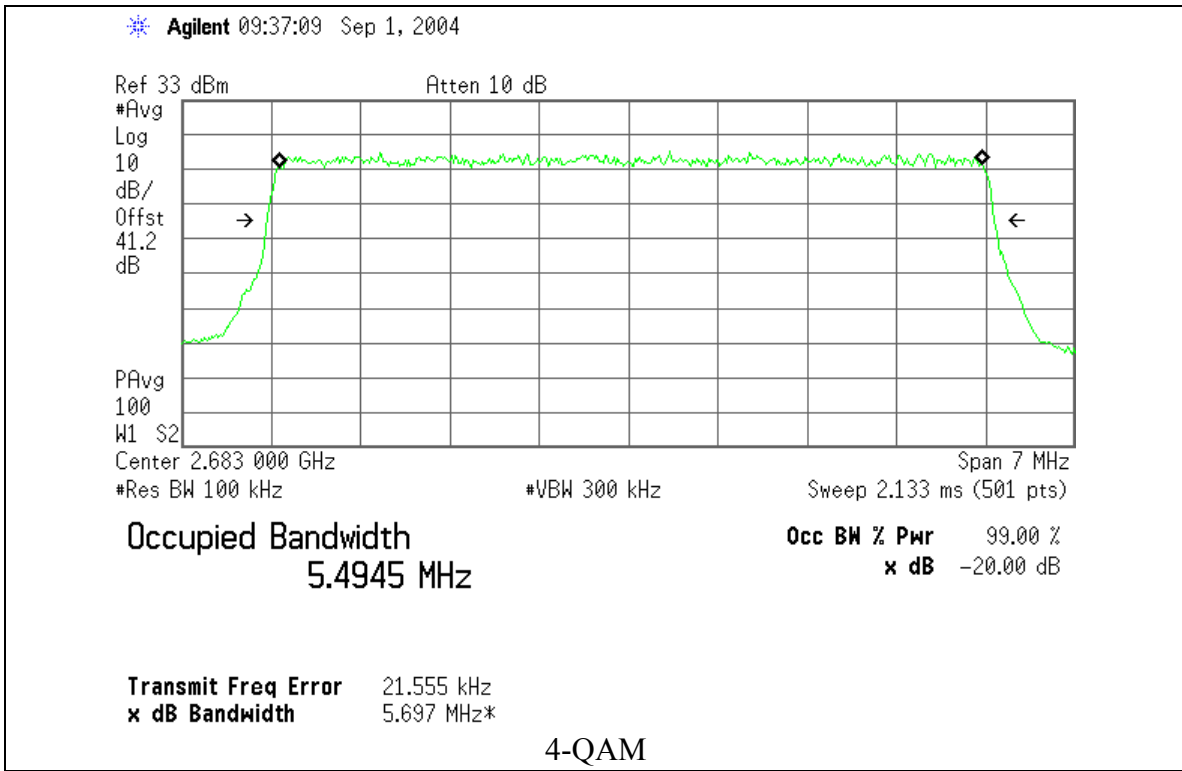
### Occupied Bandwidth

Measured with Globtek 19.5 Vdc power supply



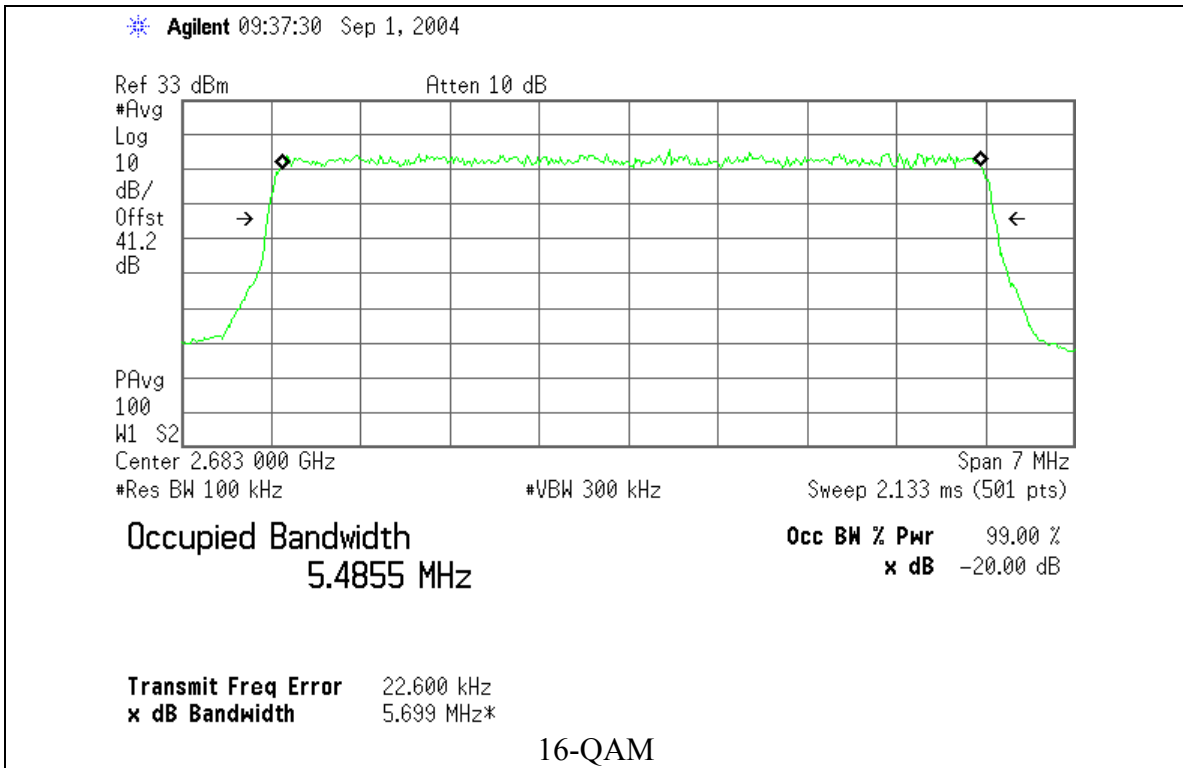
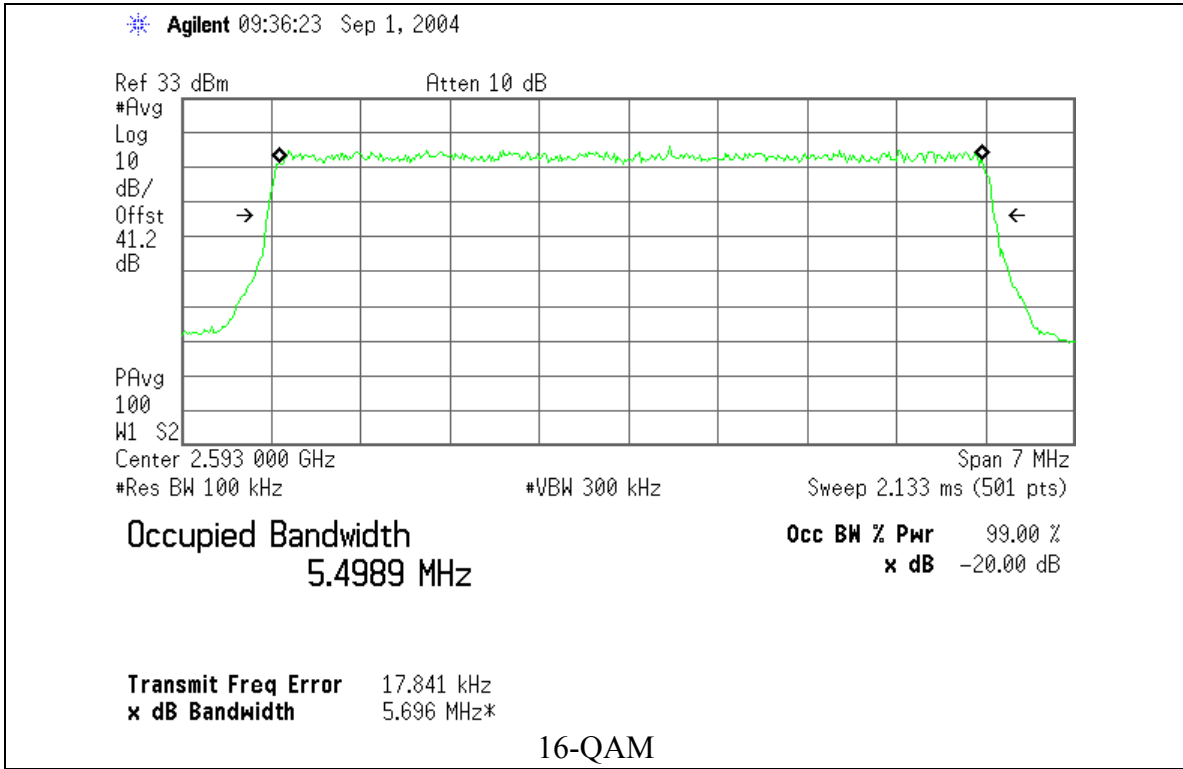
### Occupied Bandwidth

Measured with Globtek 19.5 Vdc power supply



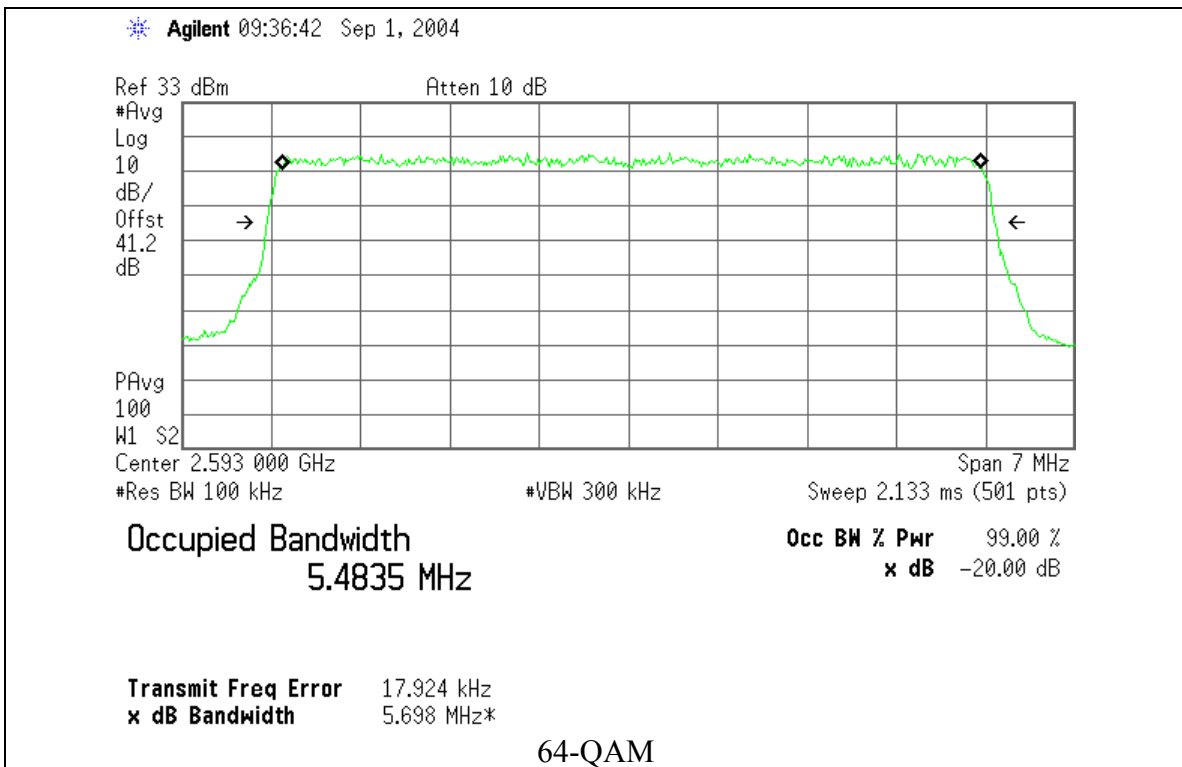
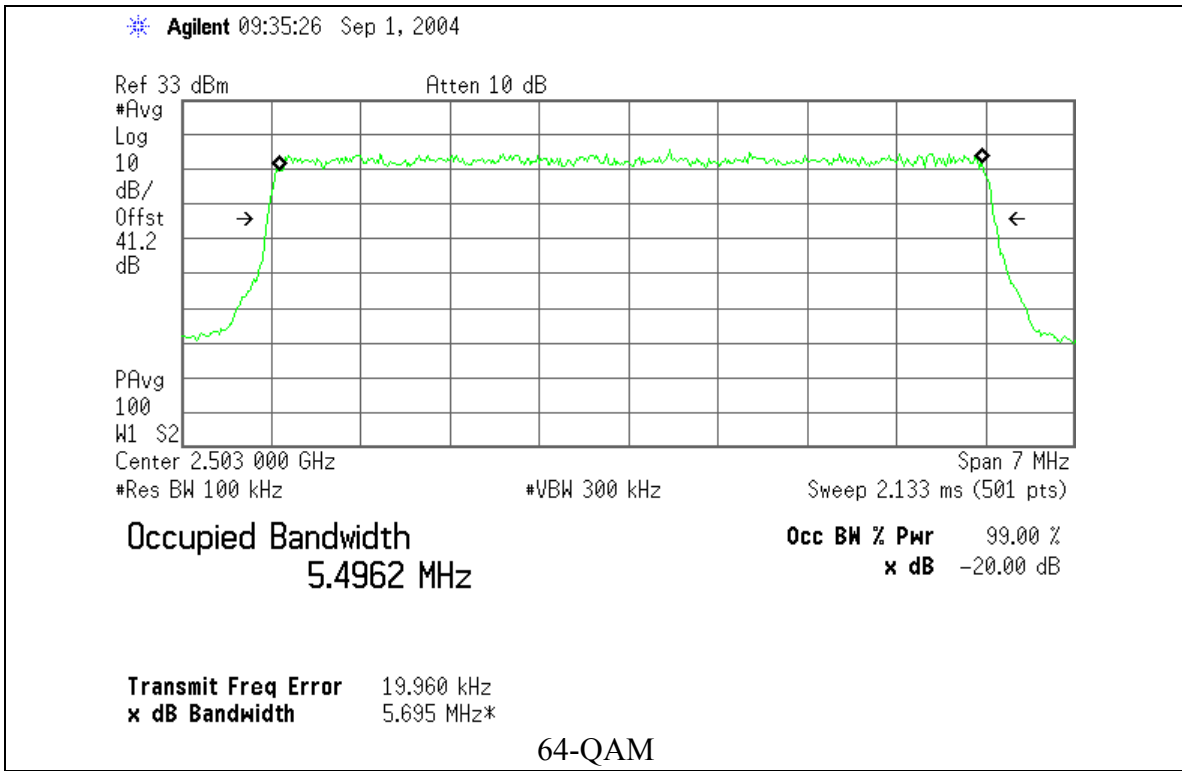
### Occupied Bandwidth

Measured with Globtek 19.5 Vdc power supply



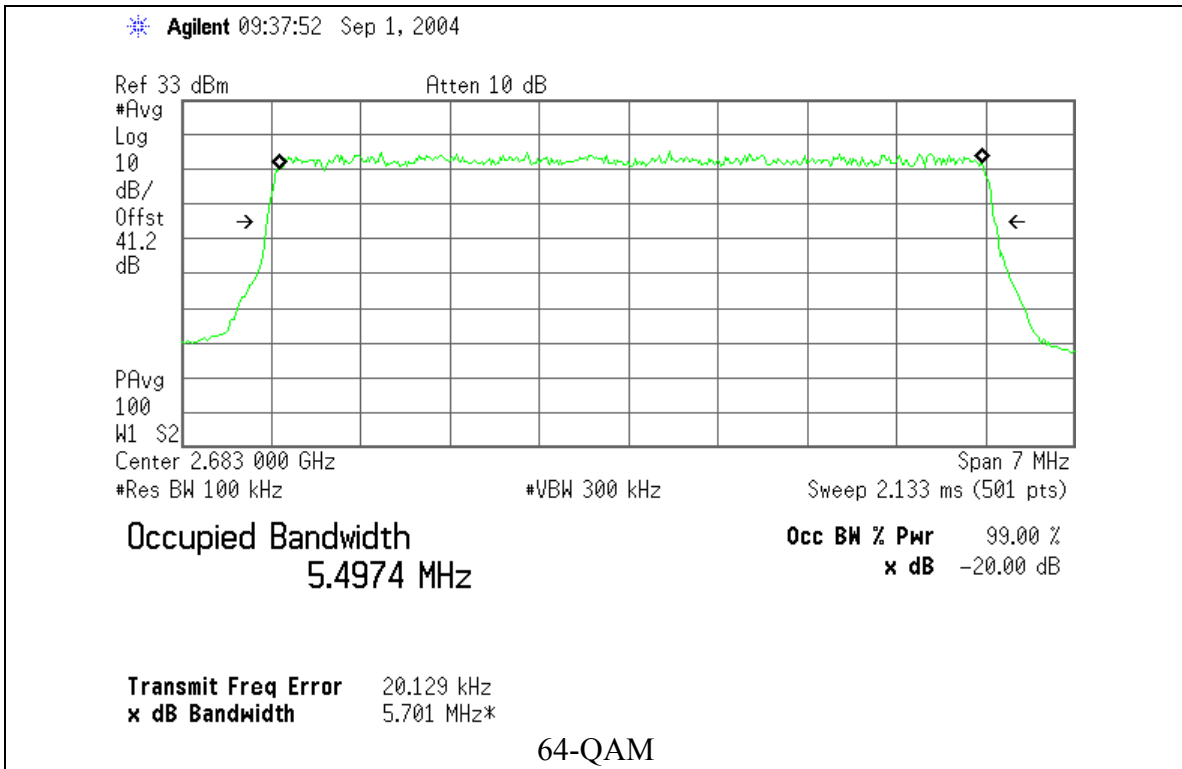
### Occupied Bandwidth

Measured with Globtek 19.5 Vdc power supply



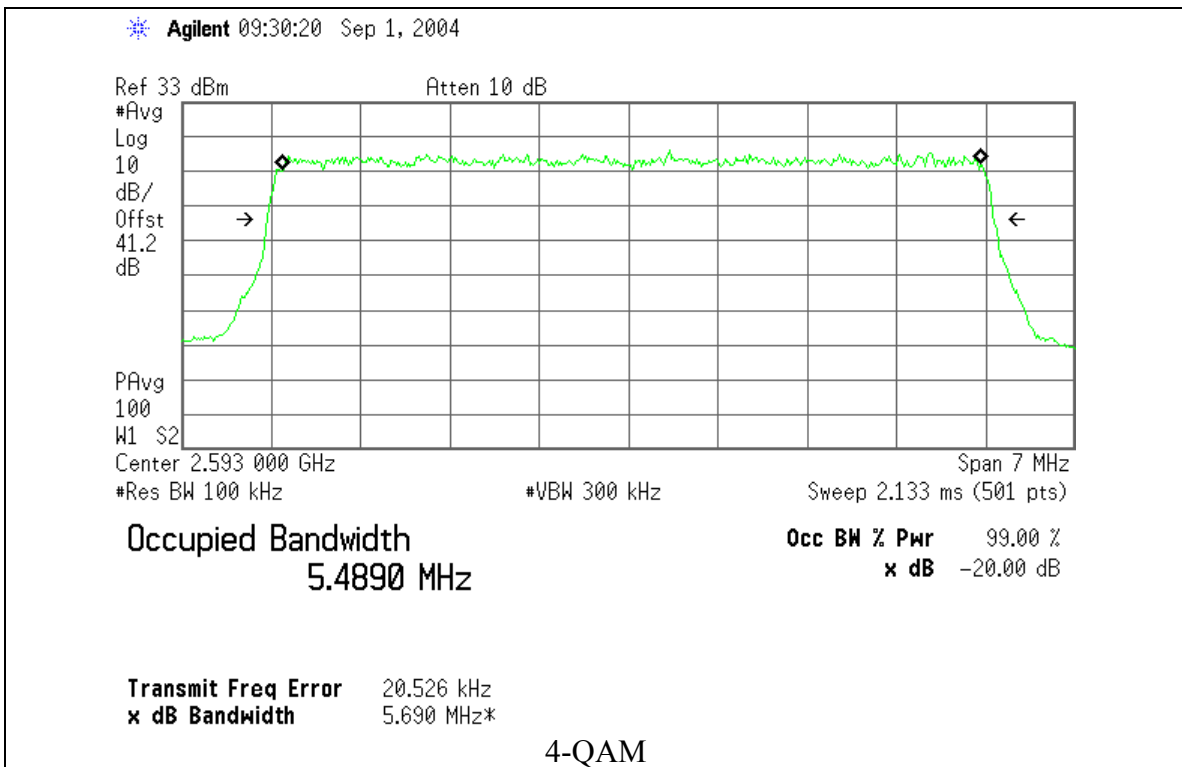
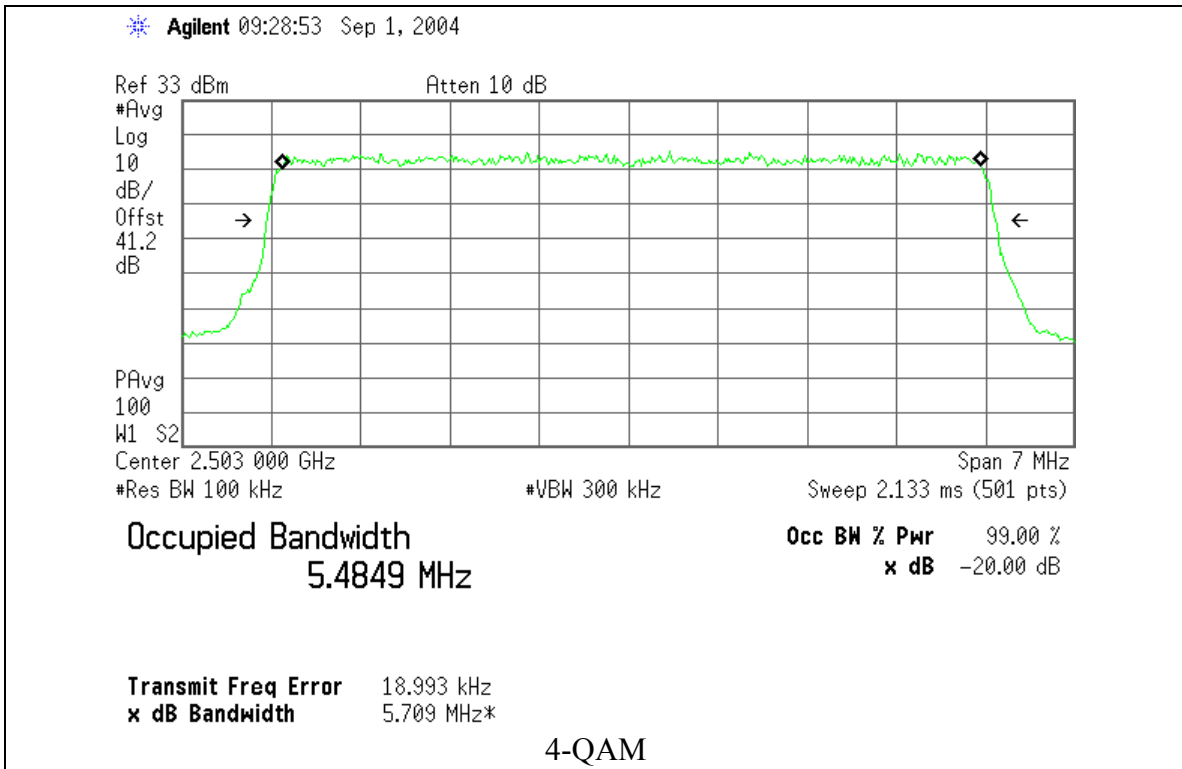
## Occupied Bandwidth

Measured with Globtek 19.5 Vdc power supply



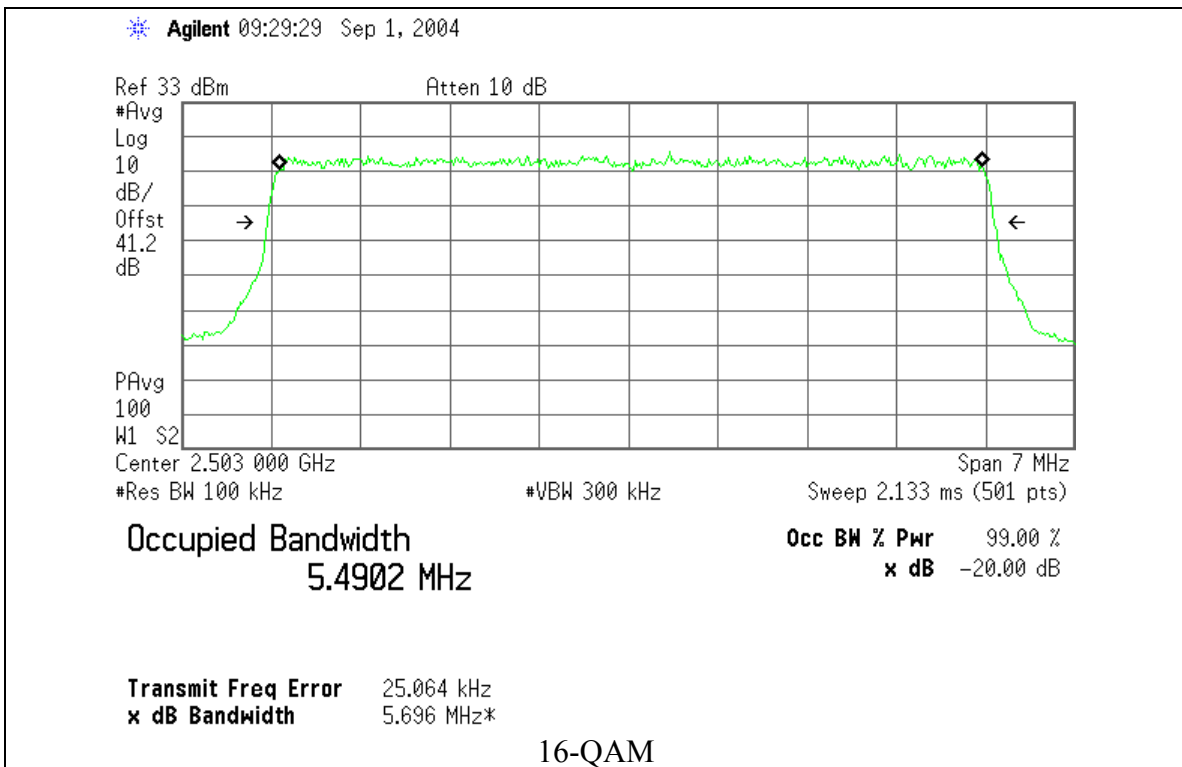
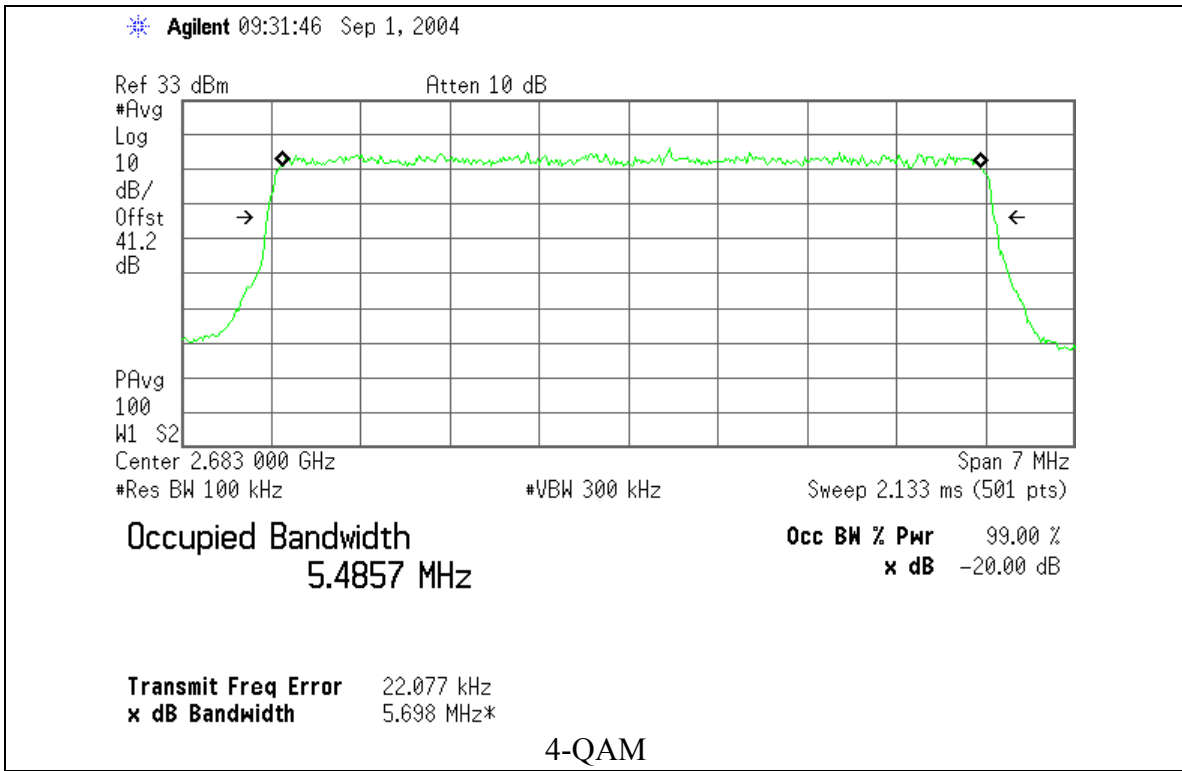
### Occupied Bandwidth

Measured with Globtek 15 Vdc power supply



### Occupied Bandwidth

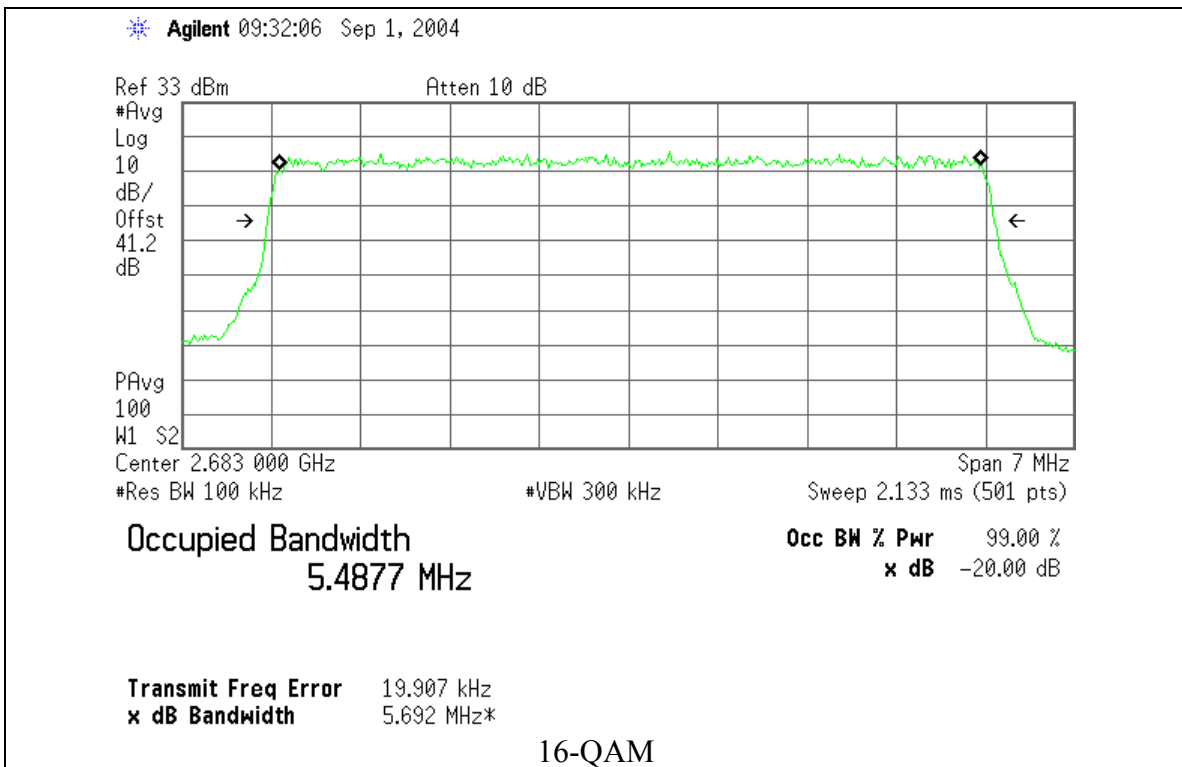
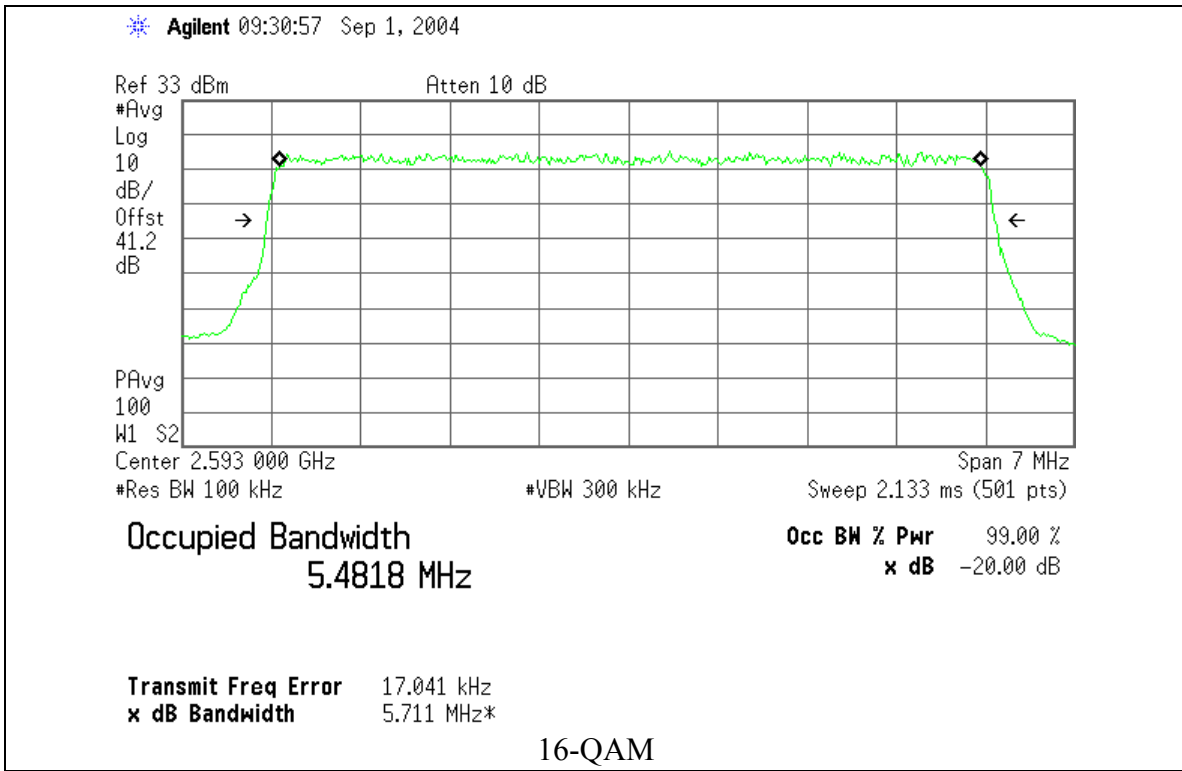
Measured with Globtek 15 Vdc power supply





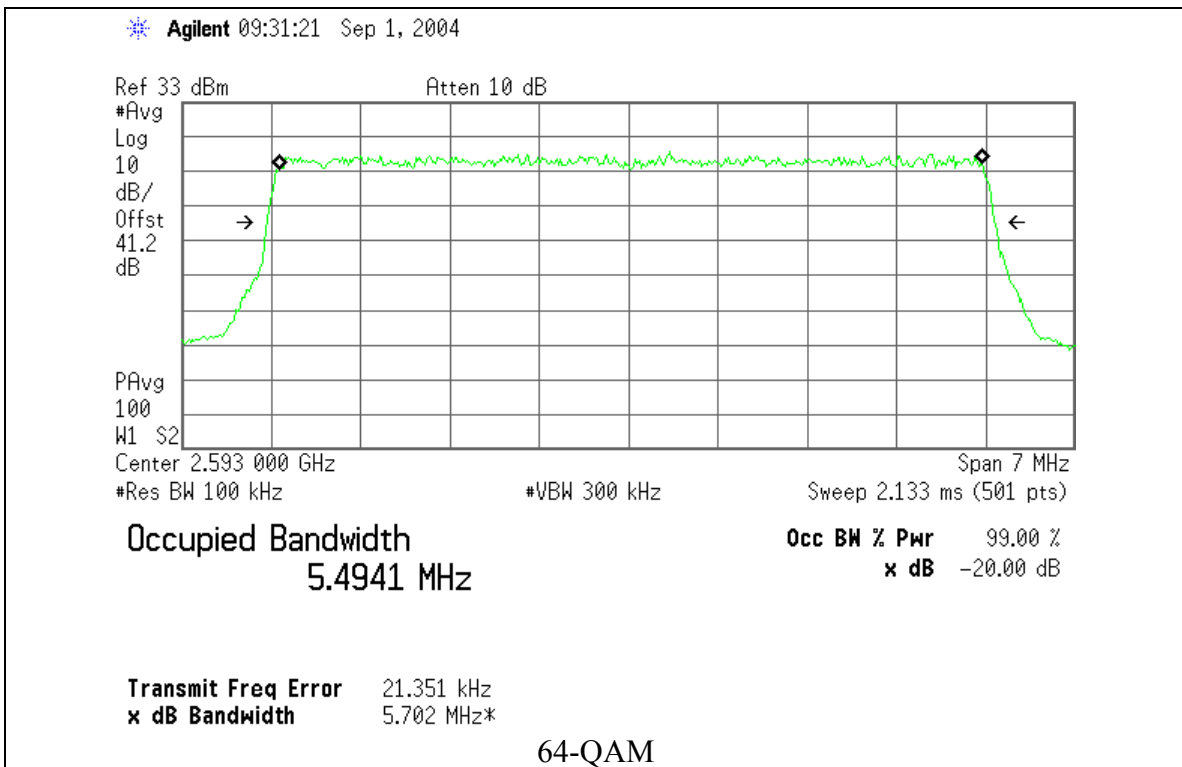
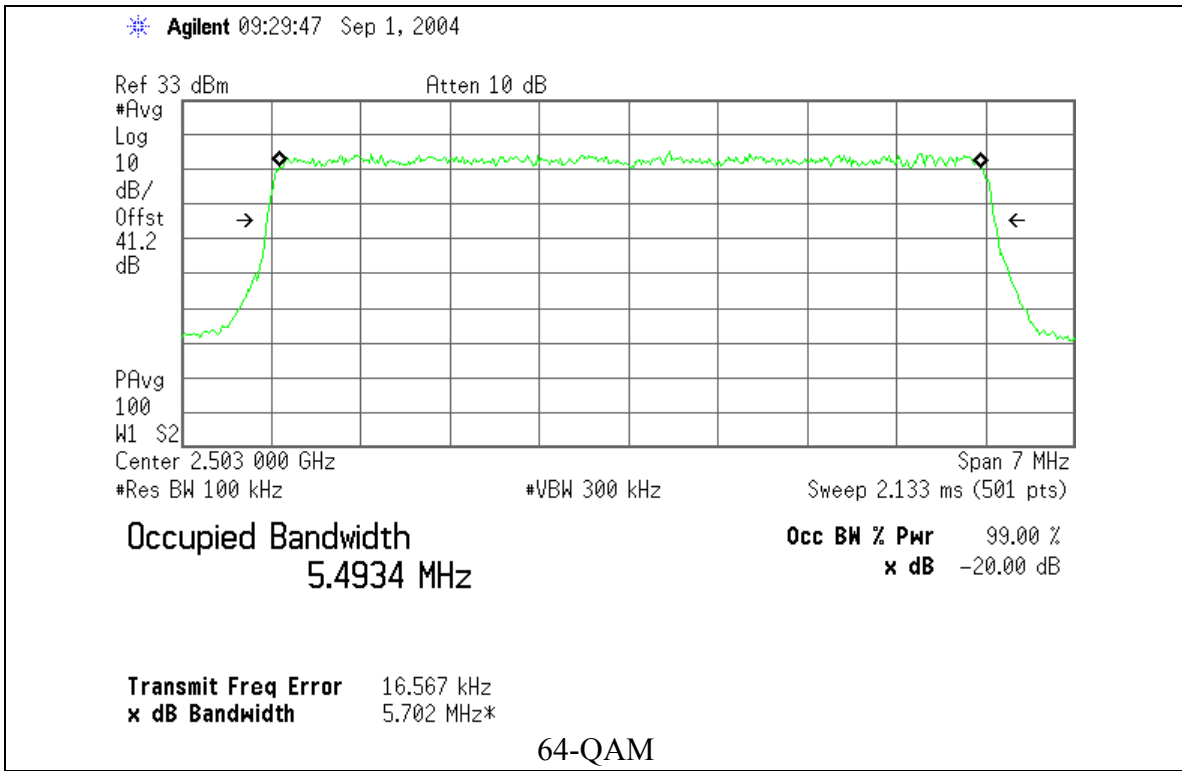
### Occupied Bandwidth

Measured with Globtek 15 Vdc power supply



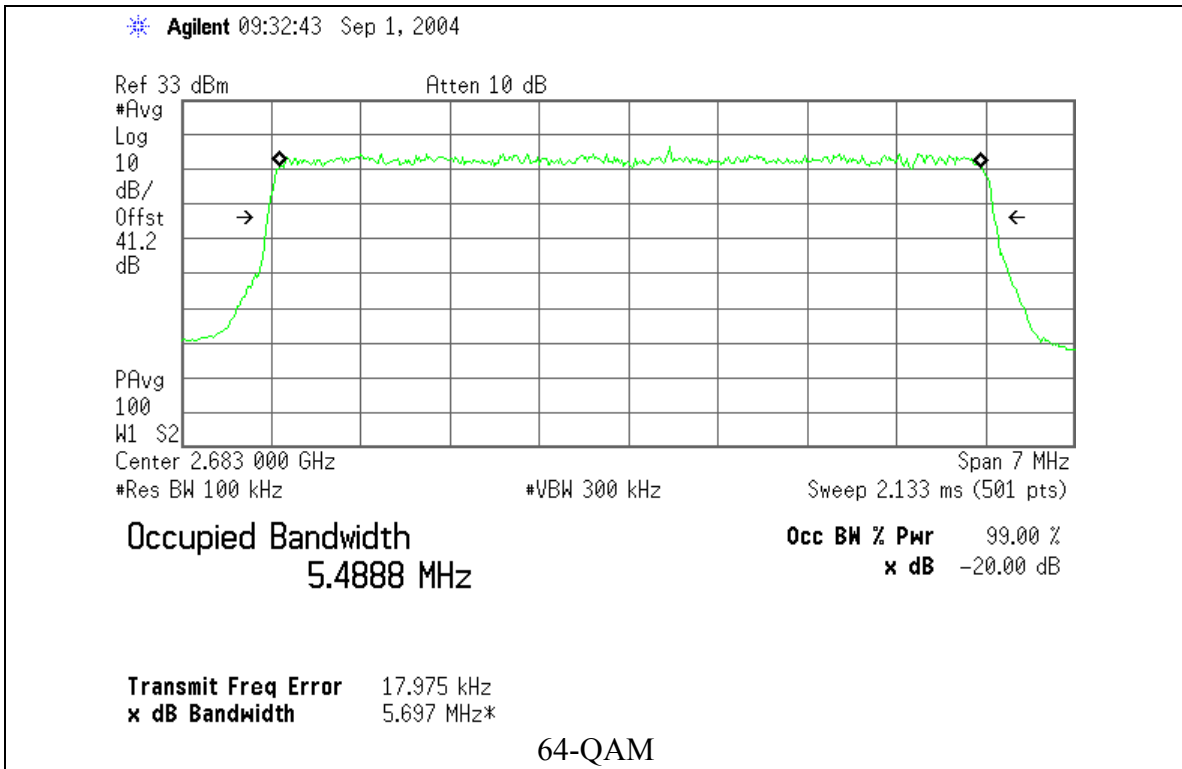
### Occupied Bandwidth

Measured with Globtek 15 Vdc power supply



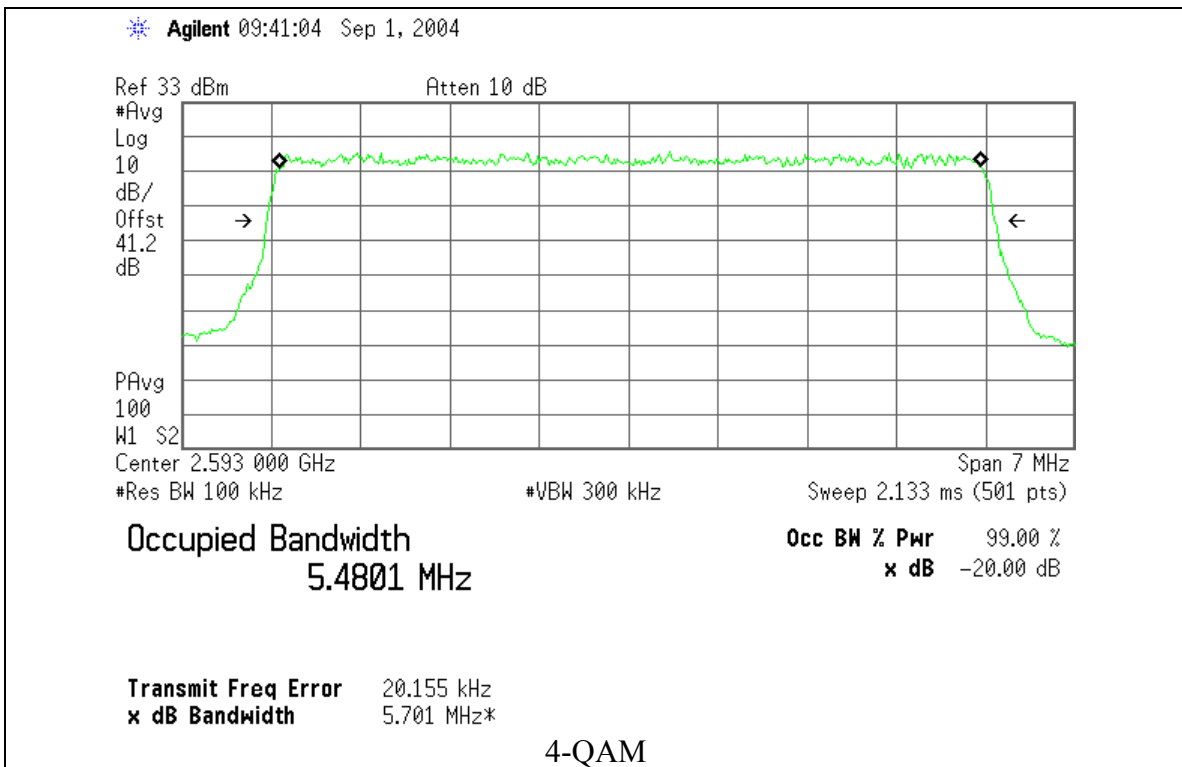
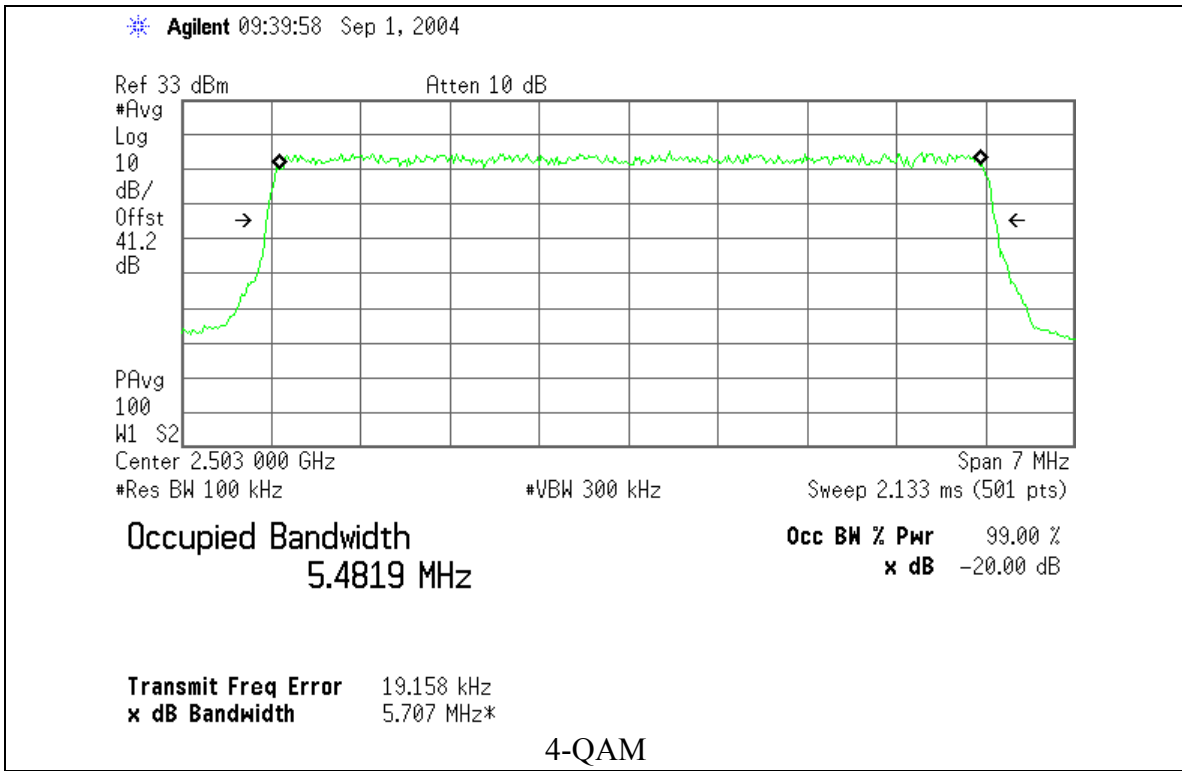
## Occupied Bandwidth

Measured with Globtek 15 Vdc power supply



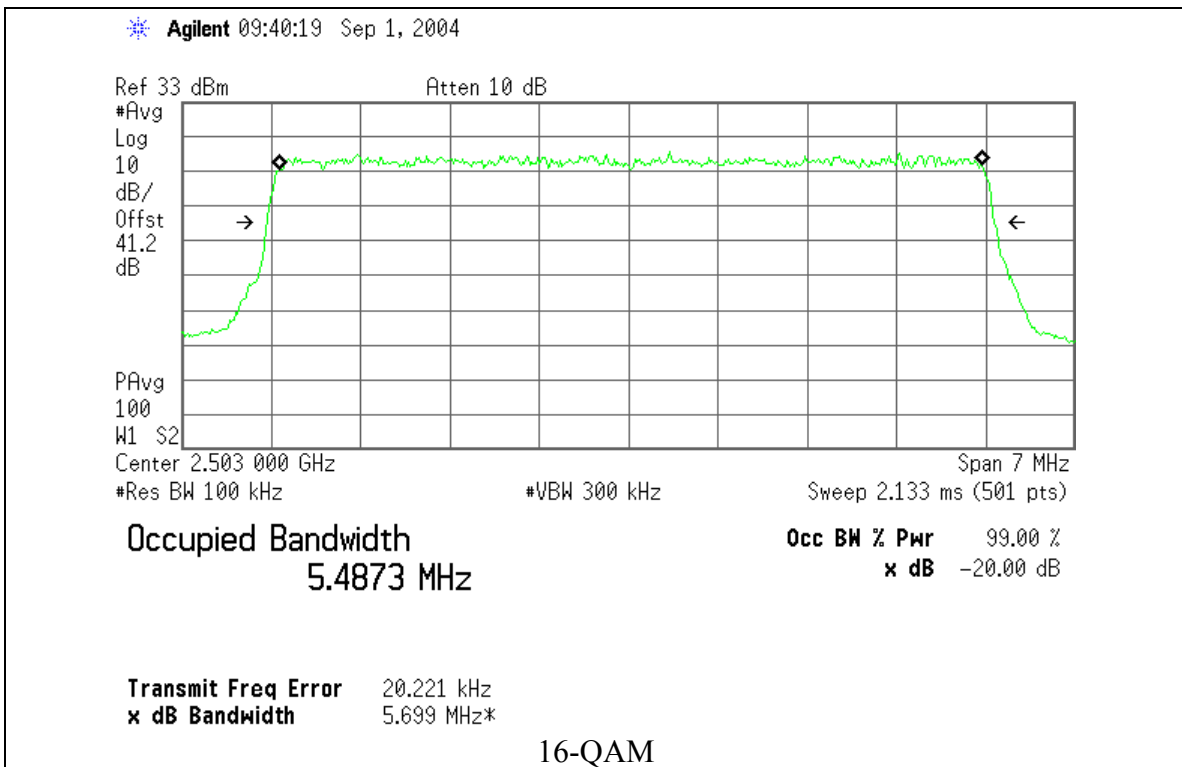
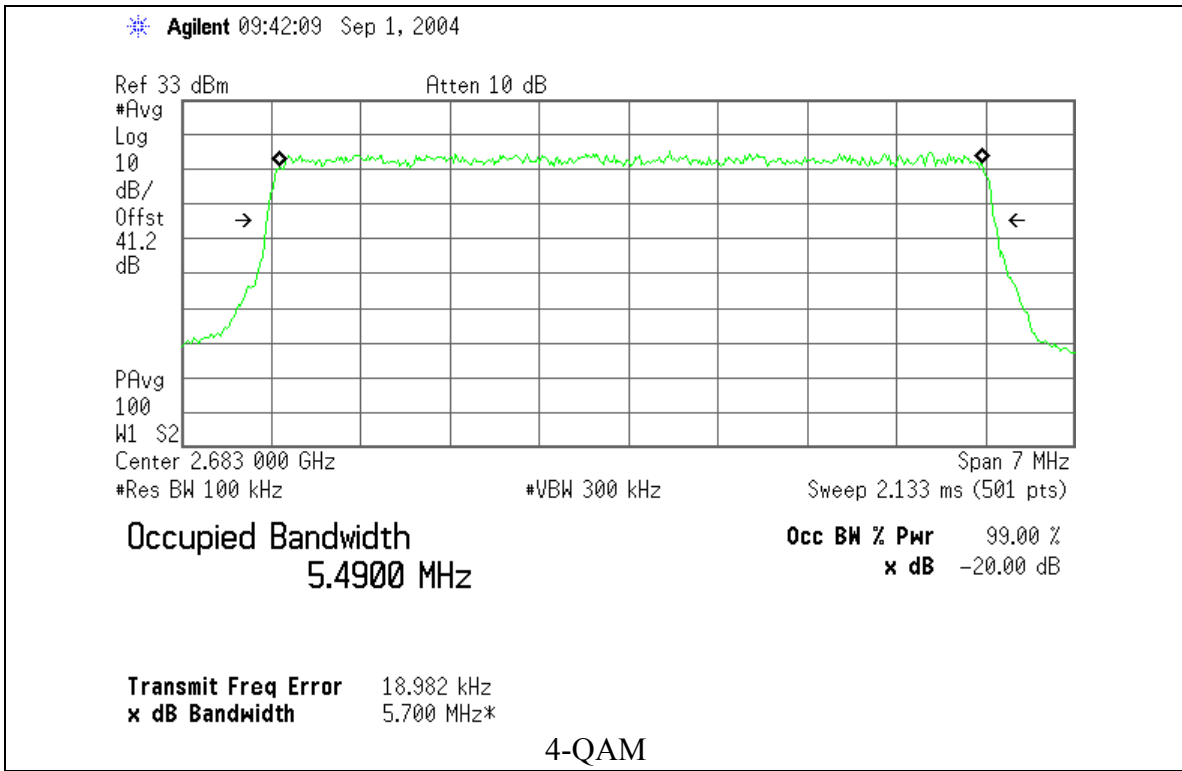
### Occupied Bandwidth

Measured with HP Power Supply (12 Vdc)



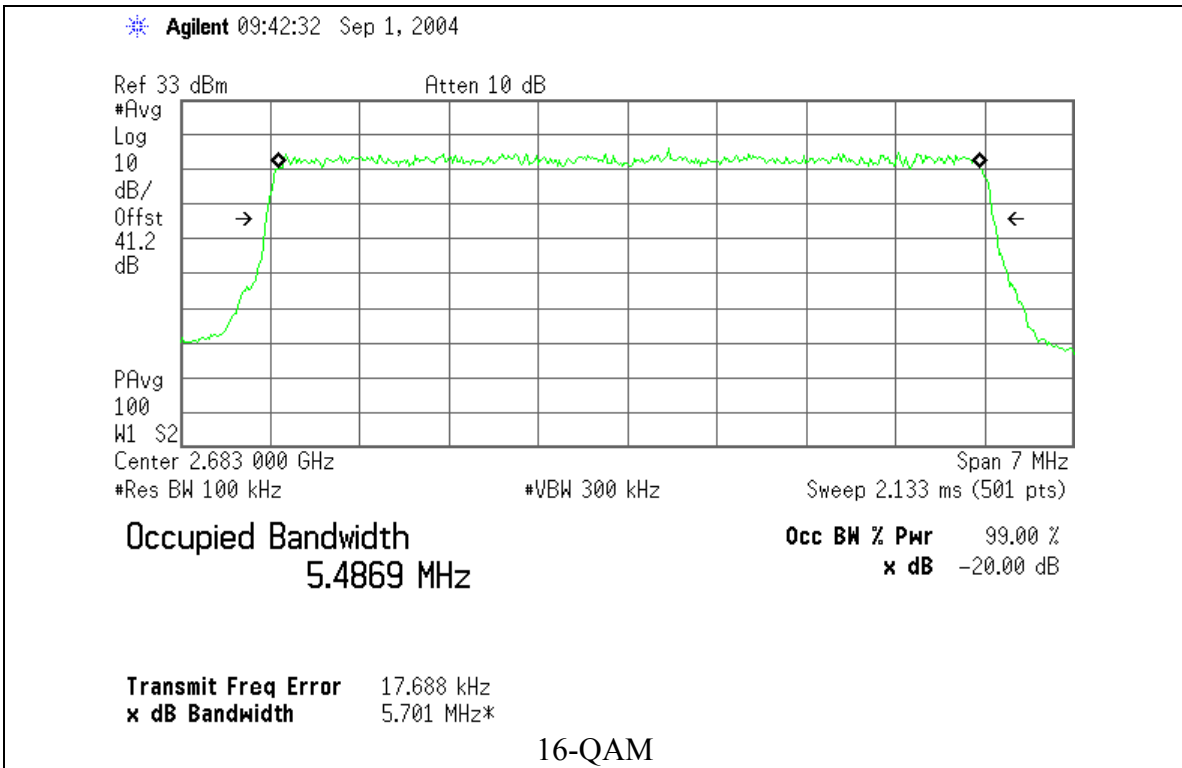
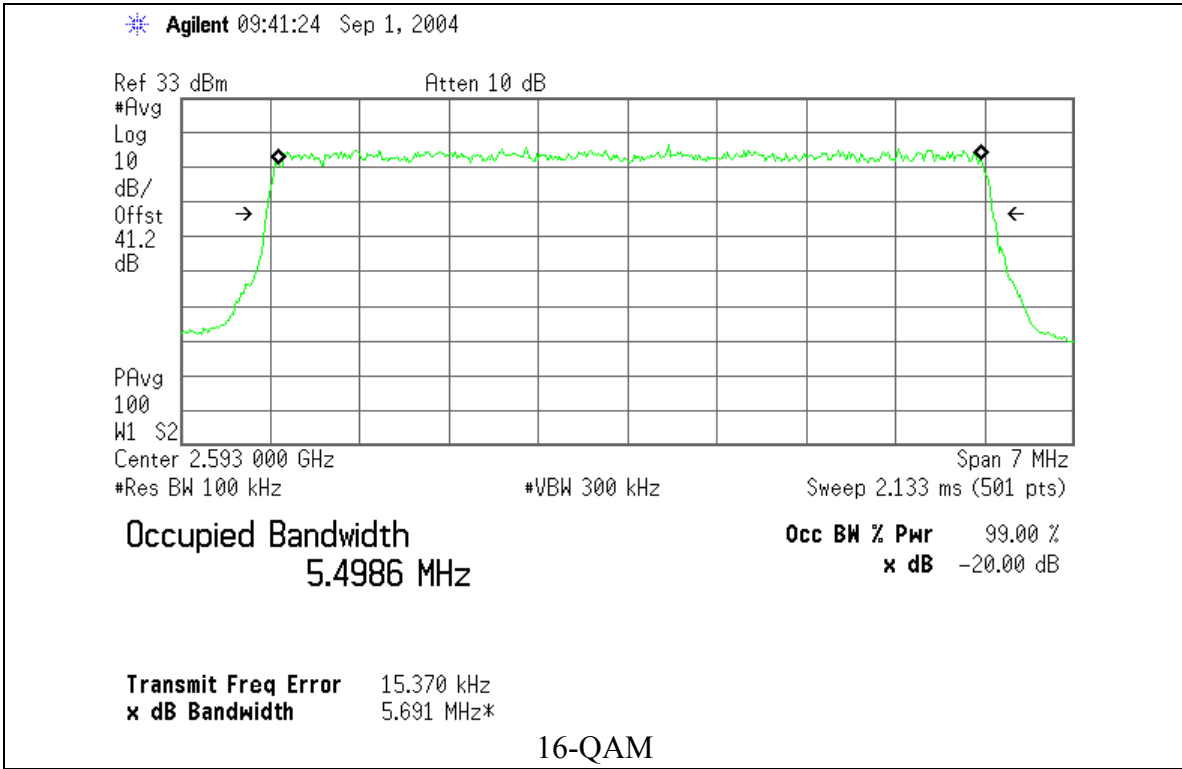
### Occupied Bandwidth

Measured with HP Power Supply (12 Vdc)



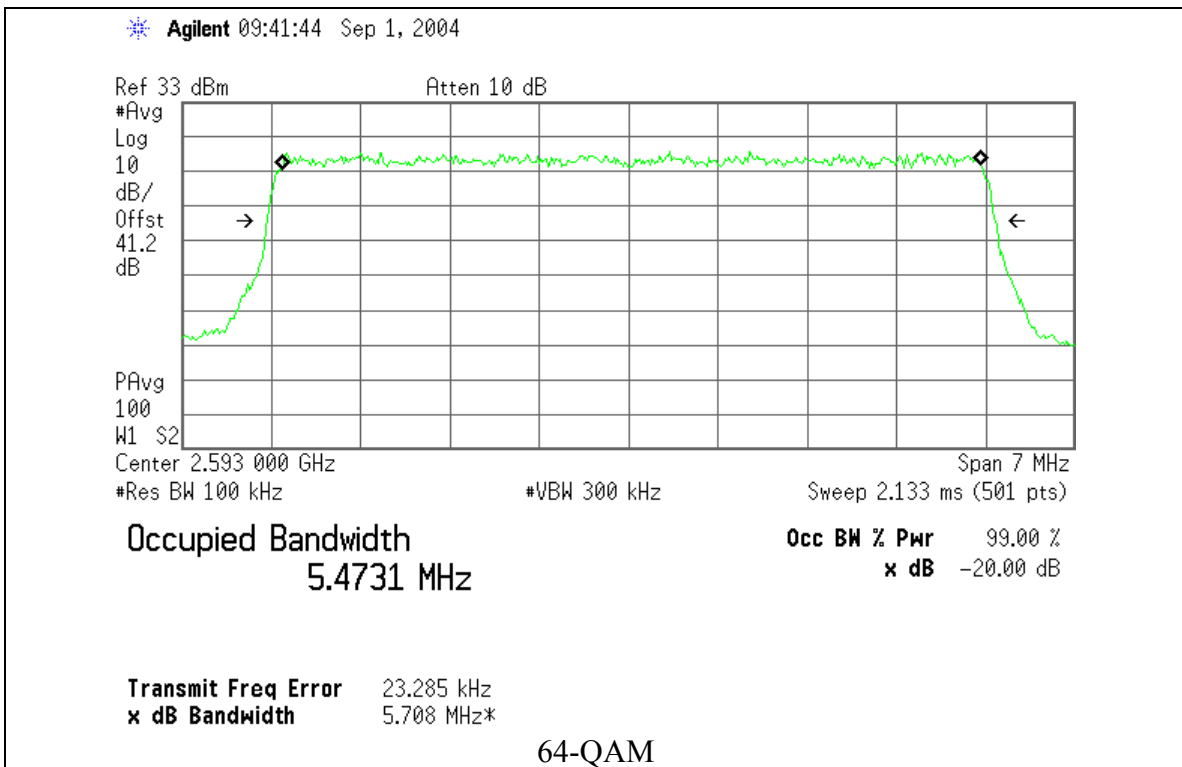
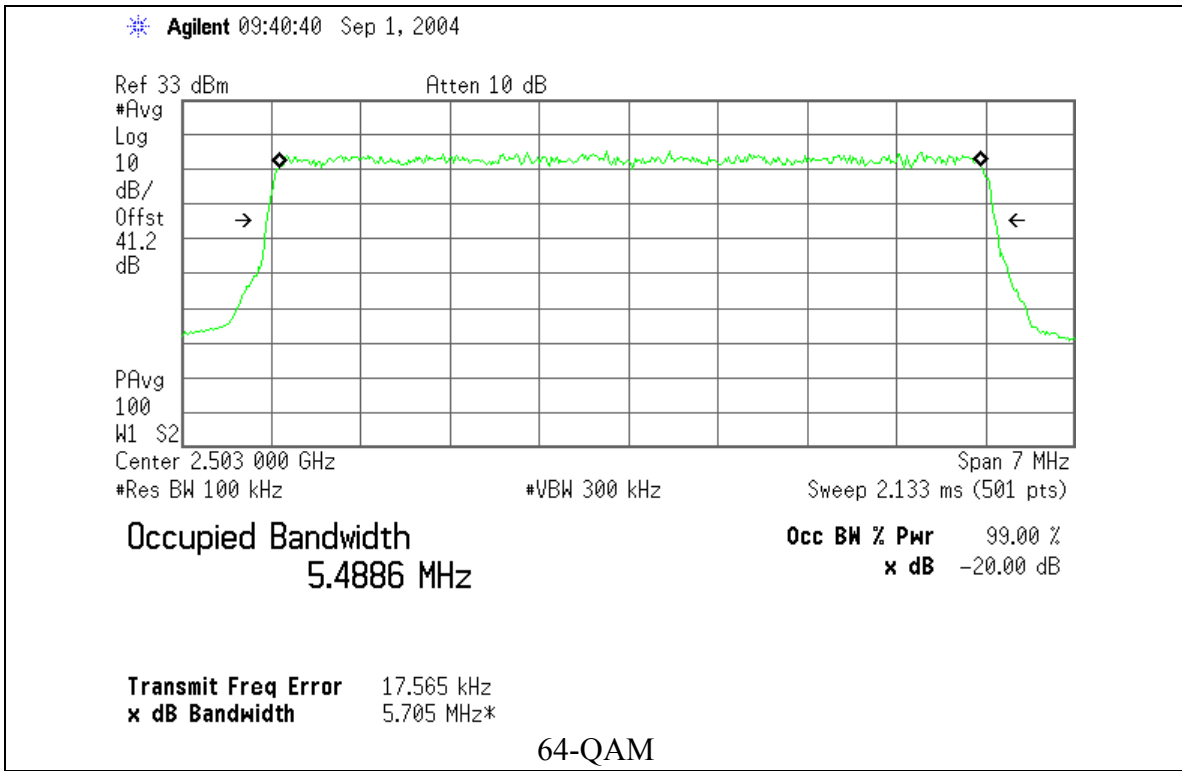
### Occupied Bandwidth

Measured with HP Power Supply (12 Vdc)



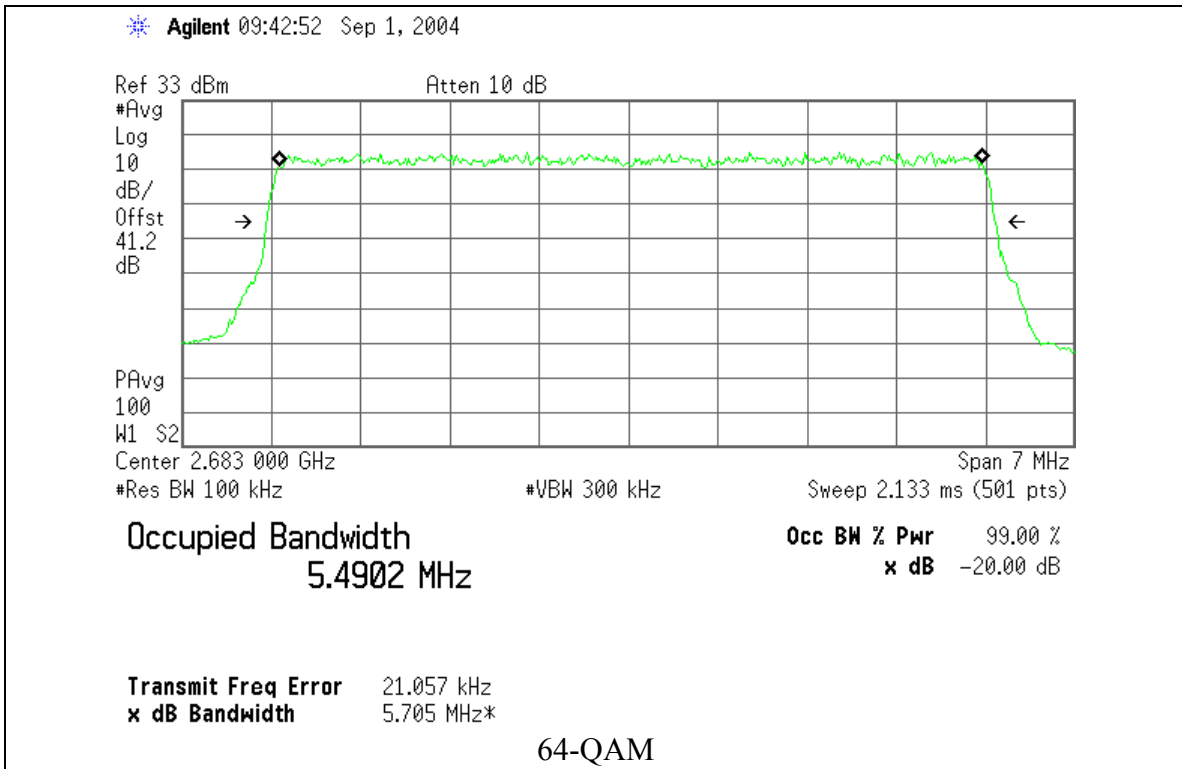
### Occupied Bandwidth

Measured with HP Power Supply (12 Vdc)



## Occupied Bandwidth

Measured with HP Power Supply (12 Vdc)





## Spurious emissions at antenna terminals

Rule Part Number: 2.1051, 2.1049, 2.1057

Frequency Range = 9 kHz to 26.86 GHz

Attenuation (dB) below the power (W) supplied to the antenna transmission line

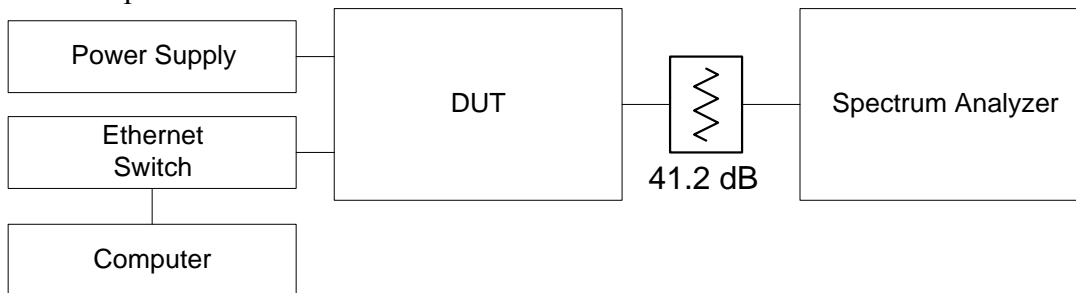
Attenuation =  $43 + 10 \log P$ , or 70 dBc, whichever is less stringent

Attenuation =  $43 + 10 \log(2) = 46$  dBc 2 watt transmit level

**Test Procedure:** The Orthogonal Frequency Division Multiplexing (OFDM) modulated Time Division Duplex (TDD) RF signal from the test unit is applied to a spectrum analyzer thru 30 dB of attenuation. The transmission is recorded from 9 kHz to 26.5 GHz. The transmitter is enabled in test mode with the attached computer. Measurements are performed with 12, 15, and 19.5 Vdc input power and low mid and high frequencies. All measurements performed with 4-QAM modulation.

**Test Conditions:** Frequency = 2503, 2593, 2683 MHz  
Temperature = 25 °C  
Voltage = 12, 15, 19.5 Vdc

### Test Setup



## Spurious emissions at antenna terminals

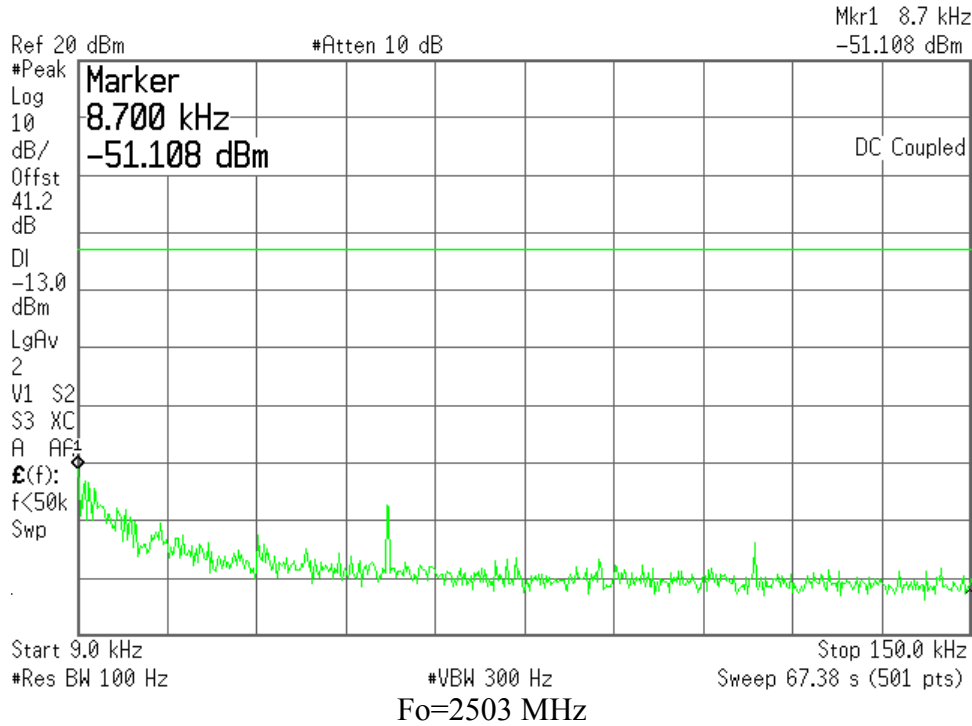
Test Equipment:

DUT	NextNet Wireless CPE (RSU-2400-AV) # 2008687
Spectrum Analyzer	Agilent E4440A S/N: MY44022791 Calibrated on: 05/30/2004 Cal due: 05/30/2006
Attenuator(s) 2 x 20 dB	Pasternak Corporation Model: PE7005-20 (20 dB) Calibrated by user
Computer	Dell Inspiron 5000 Model: PPM S/N: 000832RM-12961-04R-0441
Ethernet Switch	D-Link Model: DSS-5+ 5 port 10/100Mbps S/N: B205335003175
Power Supply 1	Globetek Model: GT-21148-3015-T3 15 Vdc / 1.6A Limited Power Source S/N: 00430704
Power Supply 2	Globetek Model: GT-21097-5020-0.5 19.5 Vdc / 2.5 A Limited Power Source S/N: 003808 09/03
Power Supply 3	Agilent E3615A 0-20 Vdc / 0-3 A S/N: KR01508861
Multimeter	HP 34401A Multimeter Cal Date: 08-03-2004 Cal Due: 08-03-06 S/N: 3146A58949

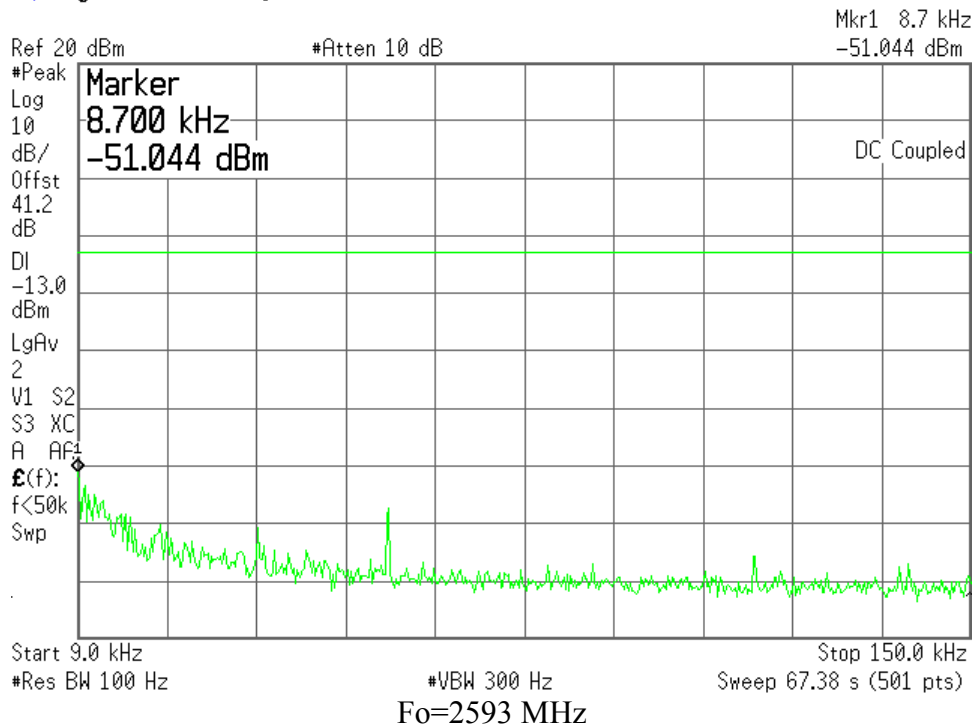
### Spurious emissions at antenna terminals

Measured with Globtek 19.5 Vdc power supply

Agilent 16:51:46 Aug 16, 2004



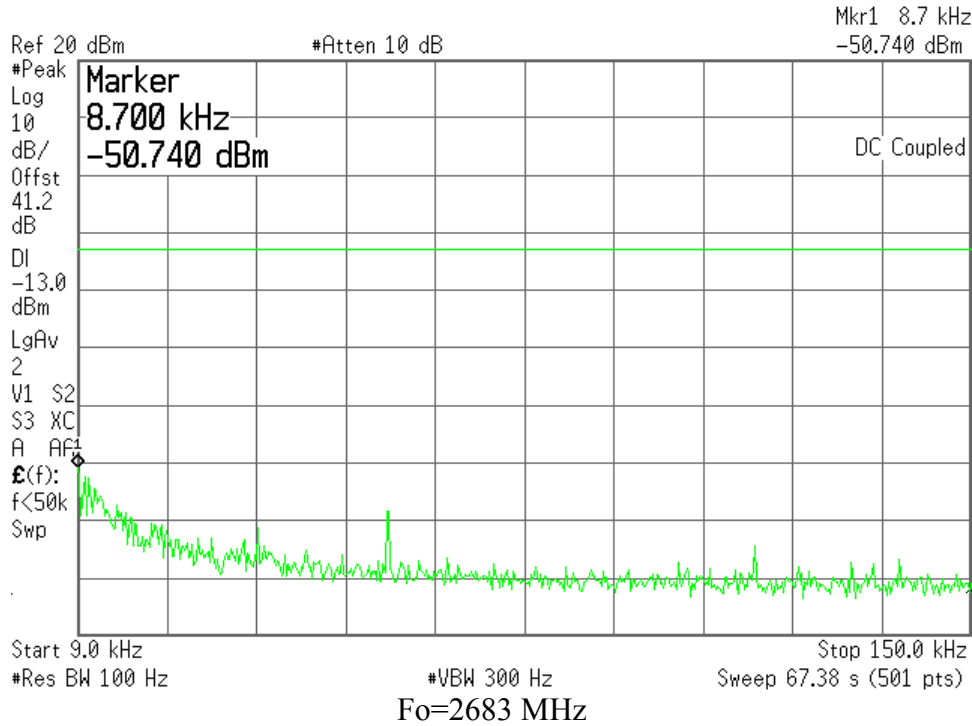
Agilent 16:56:04 Aug 16, 2004



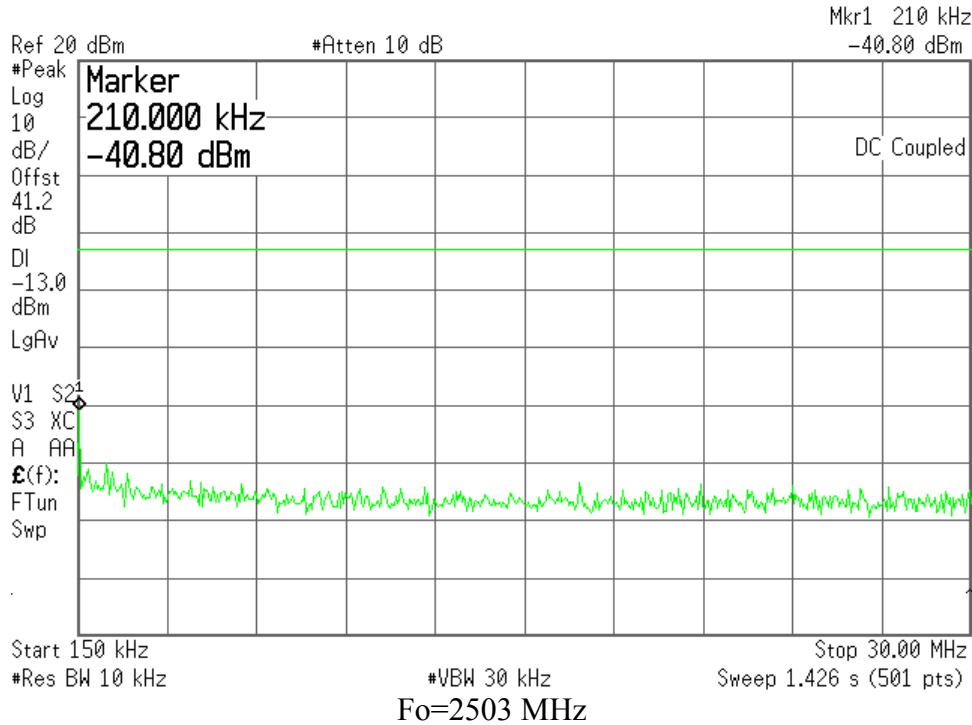
### Spurious emissions at antenna terminals

Measured with Globtek 19.5 Vdc power supply

Agilent 16:59:46 Aug 16, 2004



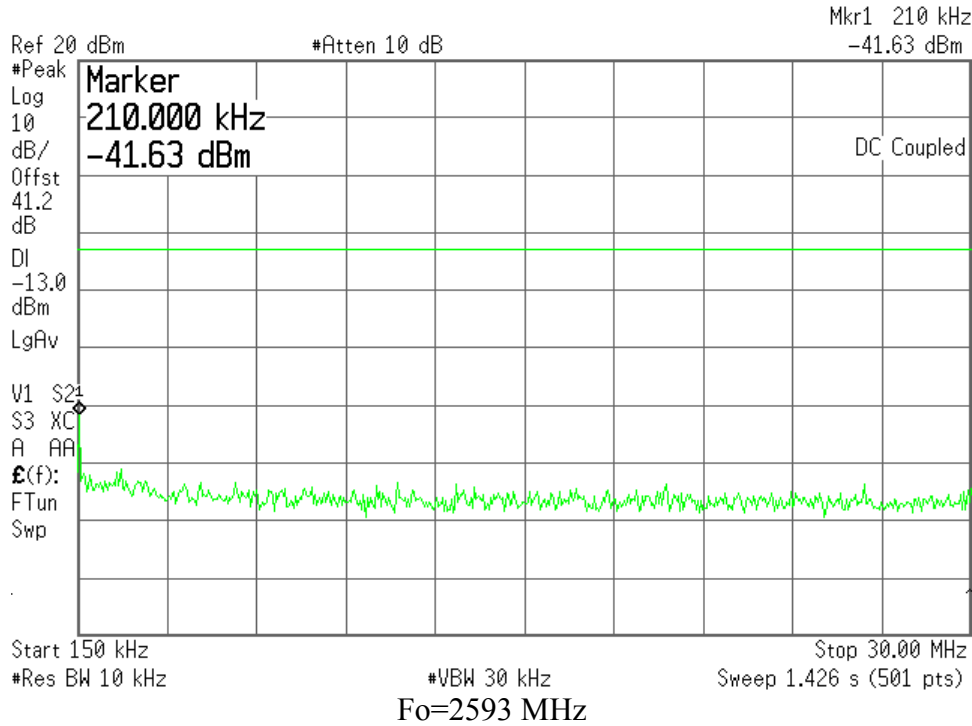
Agilent 17:05:12 Aug 16, 2004



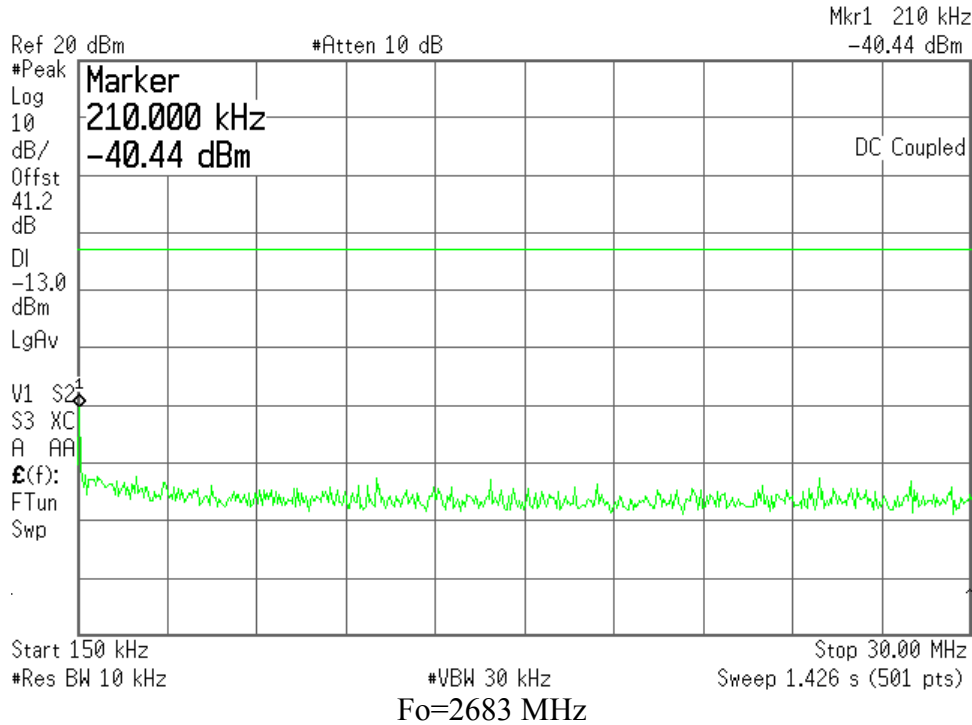
### Spurious emissions at antenna terminals

Measured with Globtek 19.5 Vdc power supply

Agilent 17:04:33 Aug 16, 2004



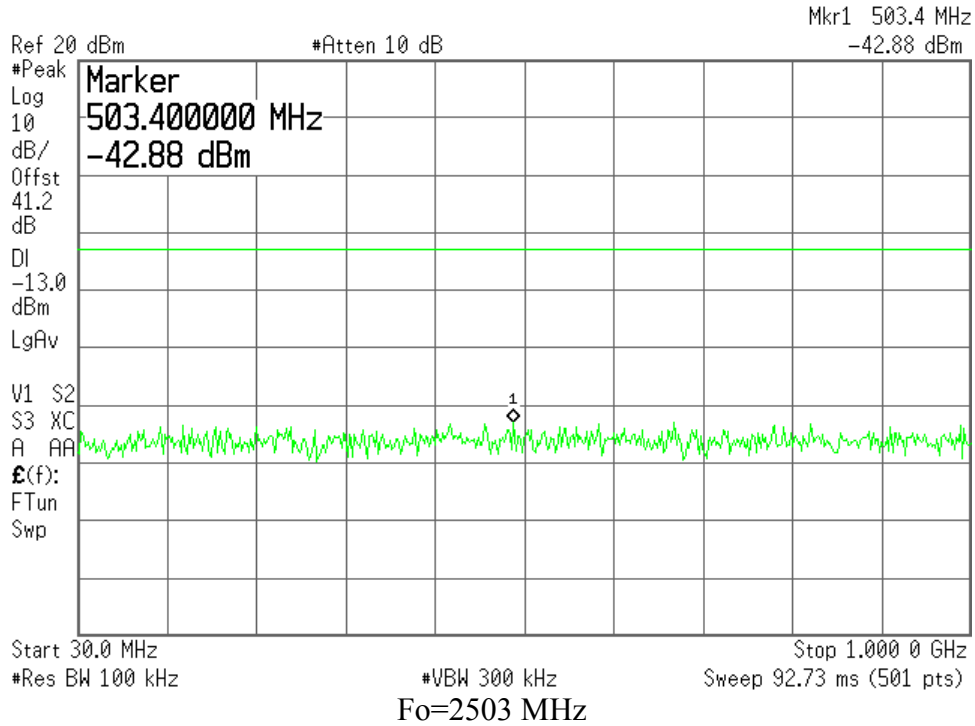
Agilent 17:03:46 Aug 16, 2004



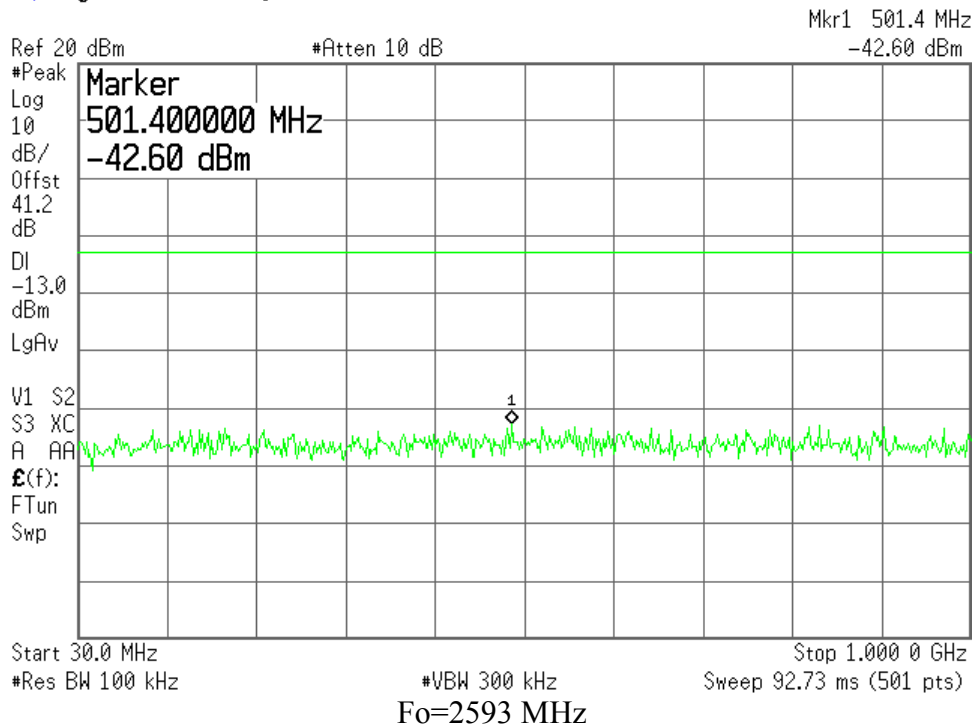
### Spurious emissions at antenna terminals

Measured with Globtek 19.5 Vdc power supply

Agilent 17:06:39 Aug 16, 2004



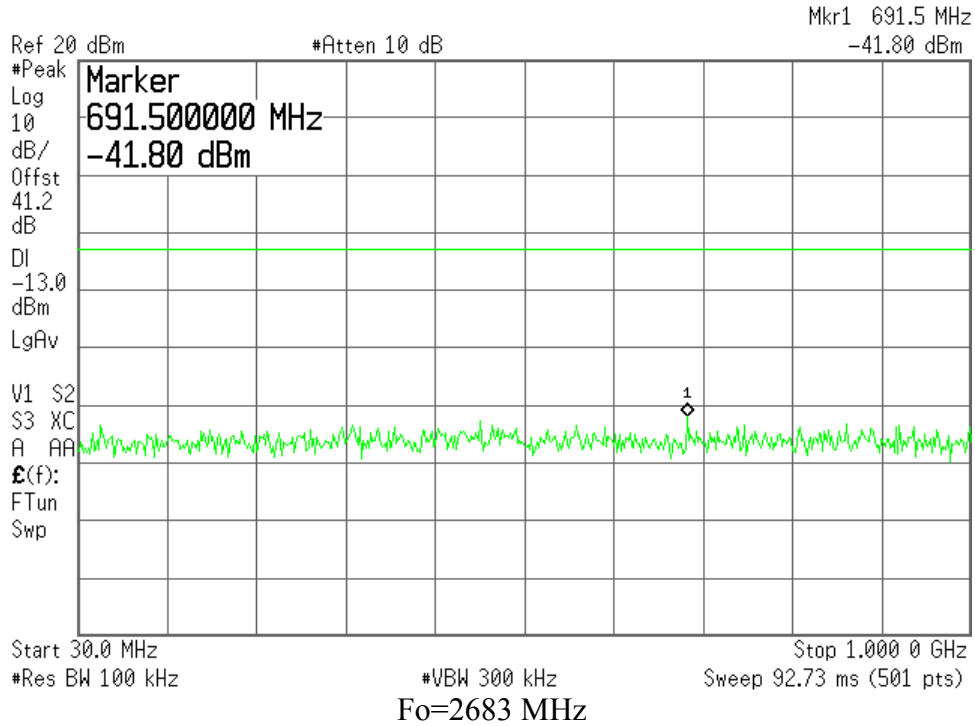
Agilent 17:07:32 Aug 16, 2004



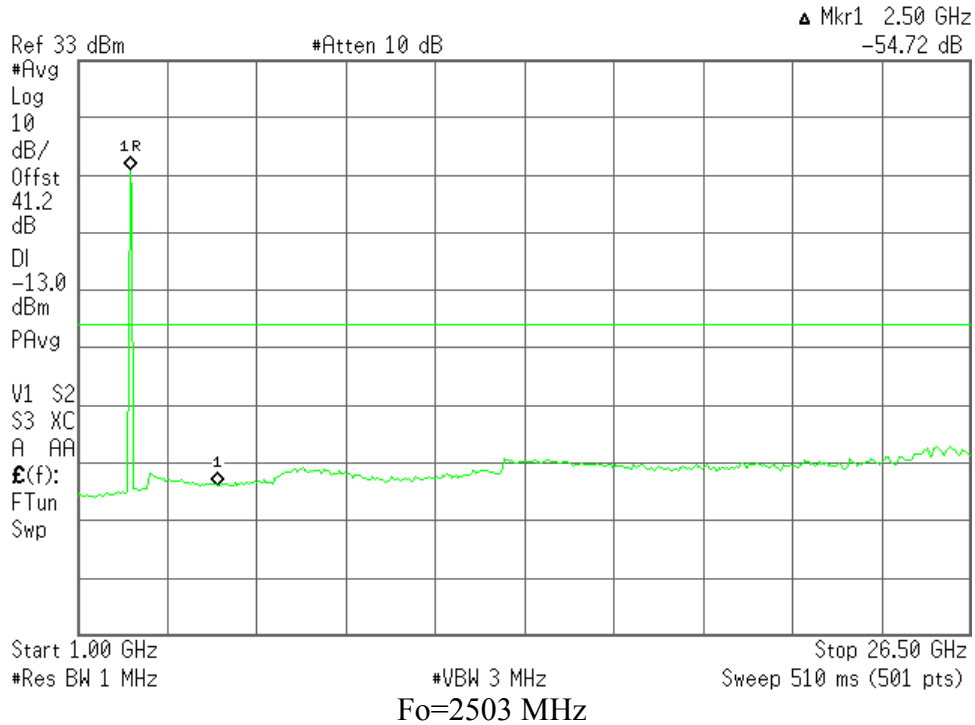
### Spurious emissions at antenna terminals

Measured with Globtek 19.5 Vdc power supply

Agilent 17:08:04 Aug 16, 2004



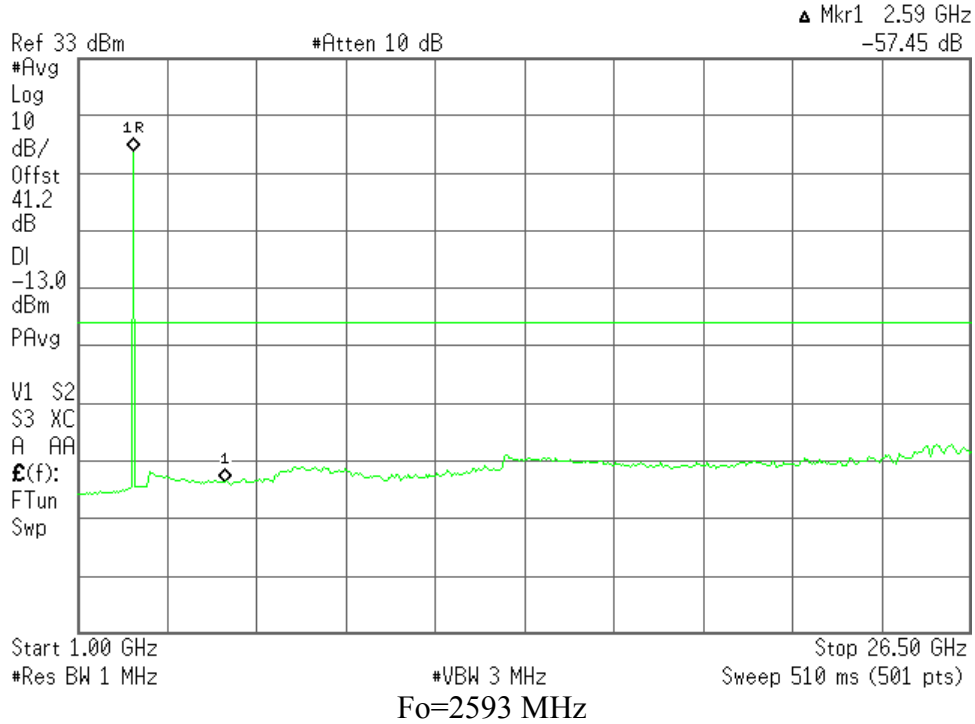
Agilent 16:55:47 Sep 24, 2004



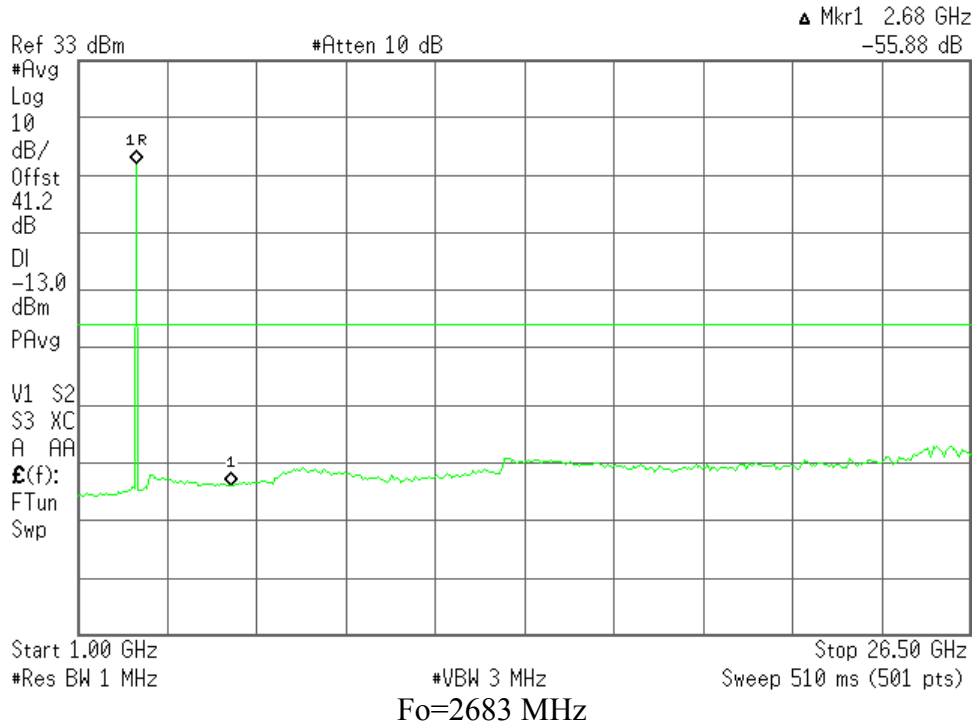
### Spurious emissions at antenna terminals

Measured with Globtek 19.5 Vdc power supply

Agilent 16:56:20 Sep 24, 2004



Agilent 16:56:58 Sep 24, 2004

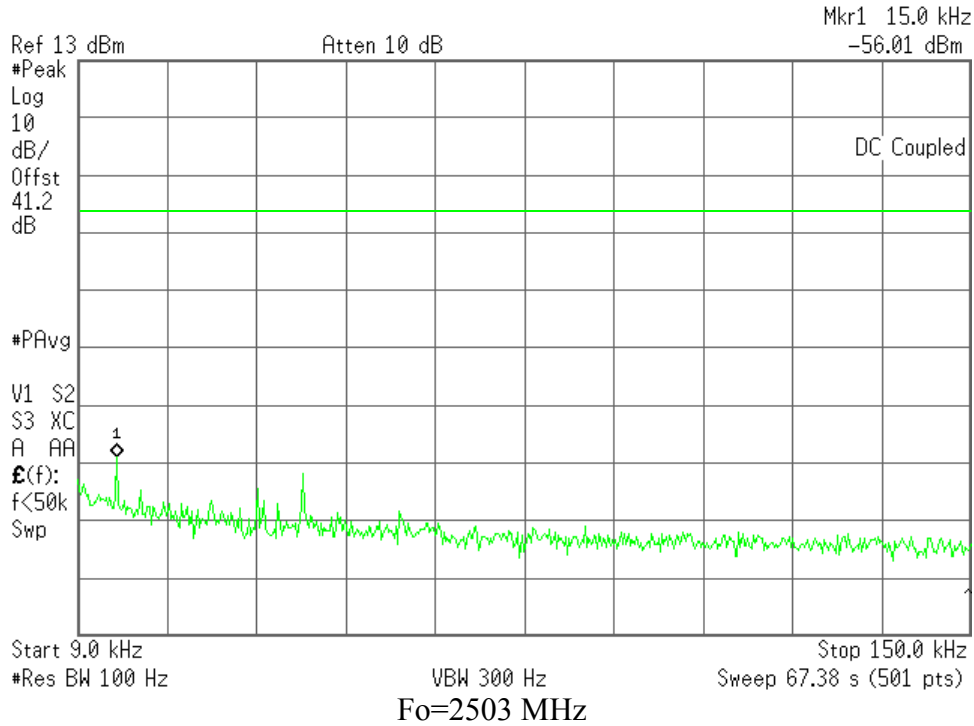




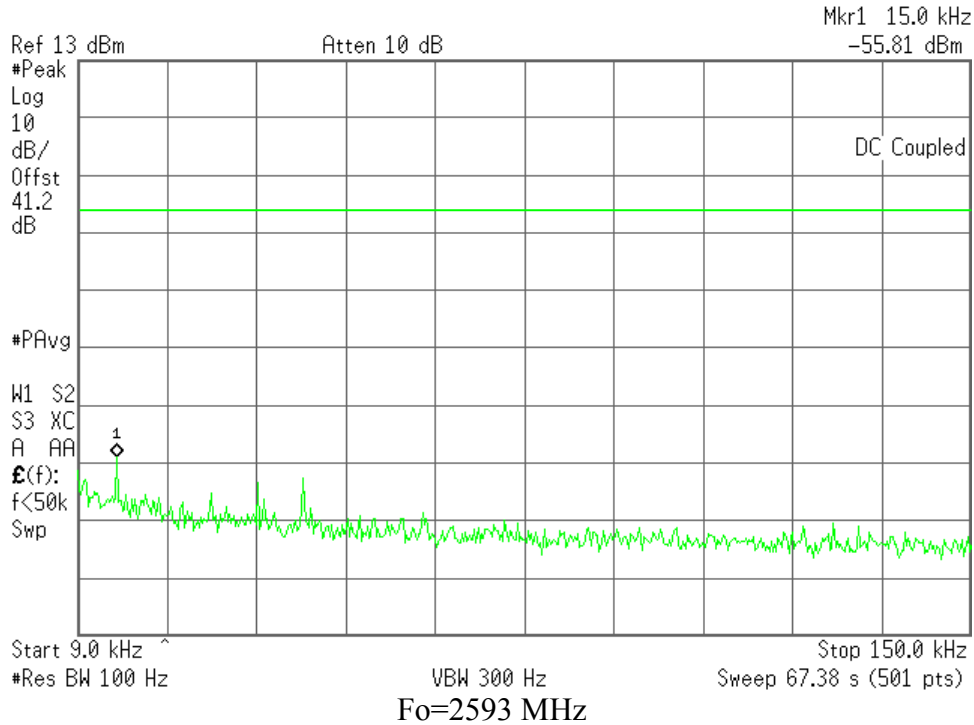
### Spurious emissions at antenna terminals

Measured with Globtek 15 Vdc power supply

Agilent 15:12:24 Aug 31, 2004



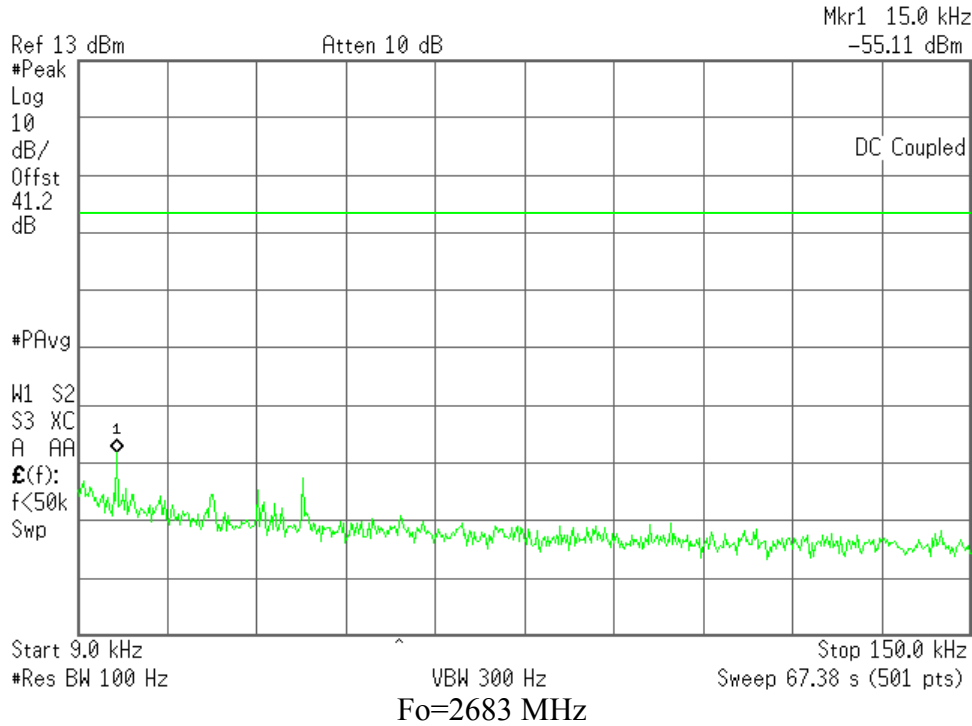
Agilent 15:16:19 Aug 31, 2004



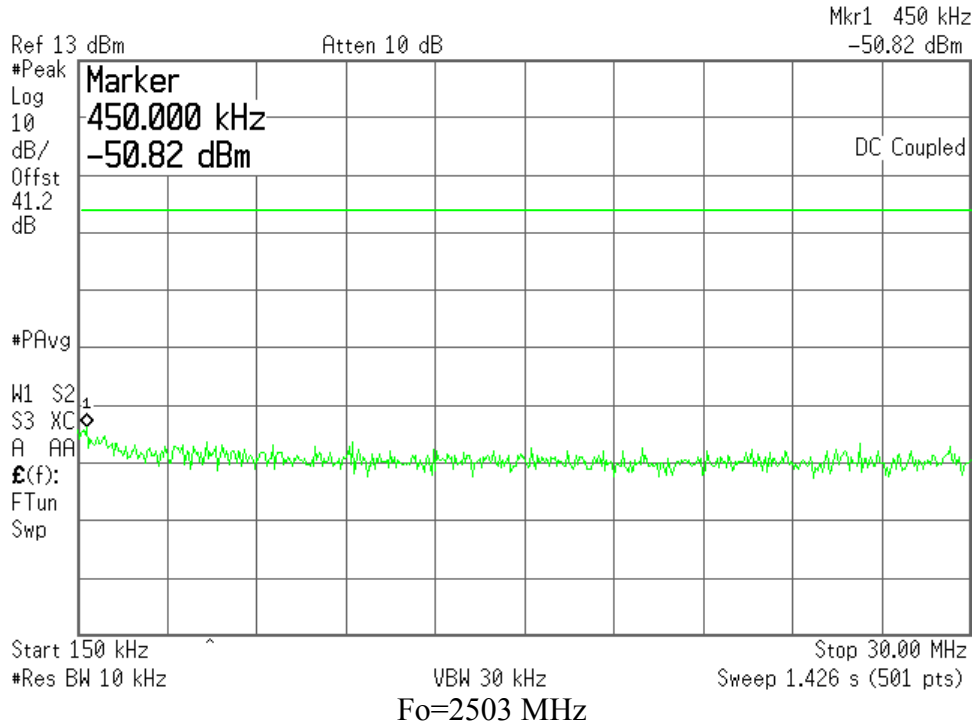
### Spurious emissions at antenna terminals

Measured with Globtek 15 Vdc power supply

Agilent 15:21:19 Aug 31, 2004



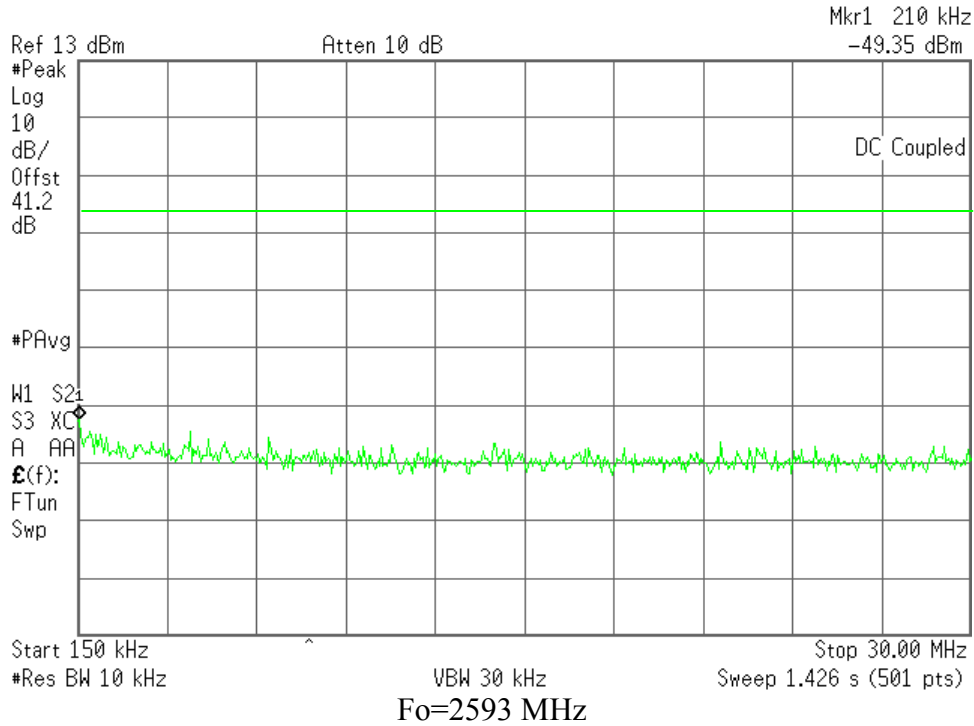
Agilent 15:22:54 Aug 31, 2004



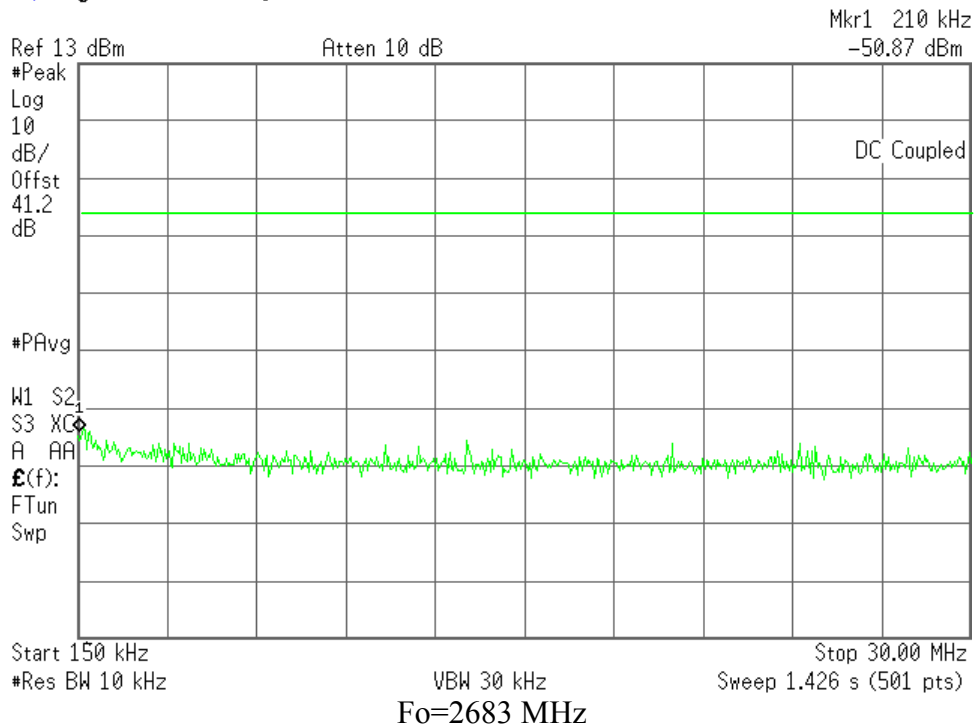
### Spurious emissions at antenna terminals

Measured with Globtek 15 Vdc power supply

Agilent 15:23:53 Aug 31, 2004



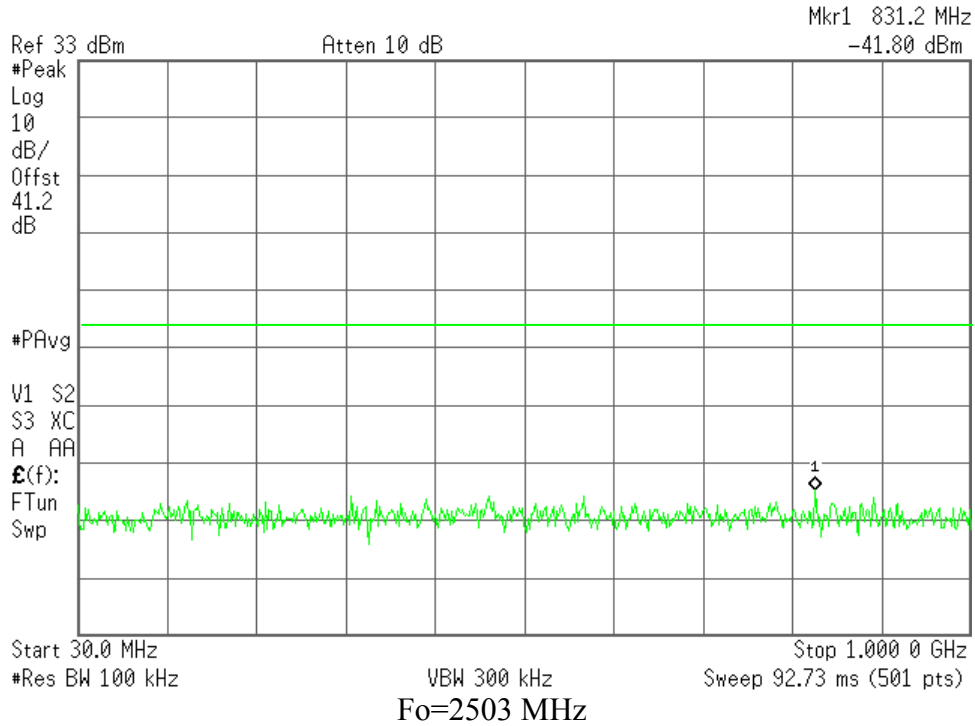
Agilent 15:24:58 Aug 31, 2004



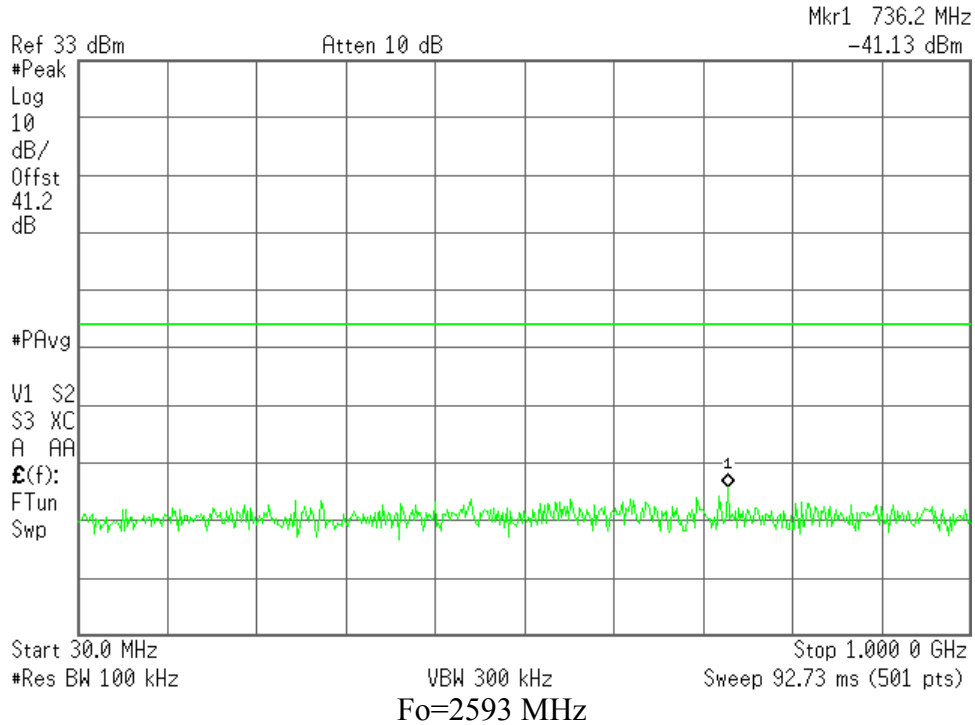
### Spurious emissions at antenna terminals

Measured with Globtek 15 Vdc power supply

Agilent 15:27:23 Aug 31, 2004



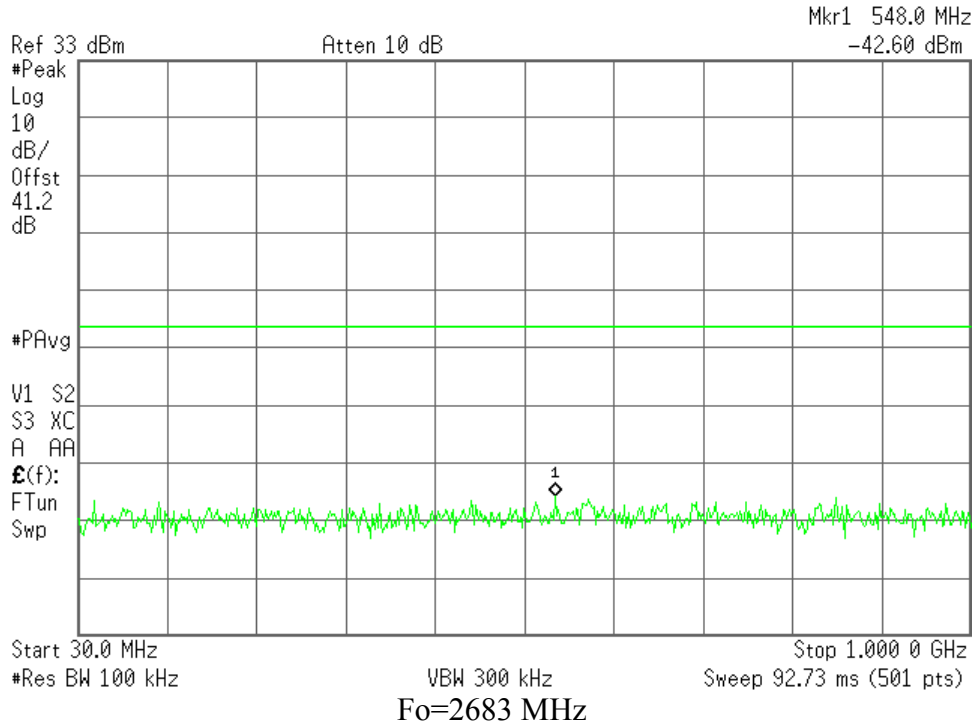
Agilent 15:29:02 Aug 31, 2004



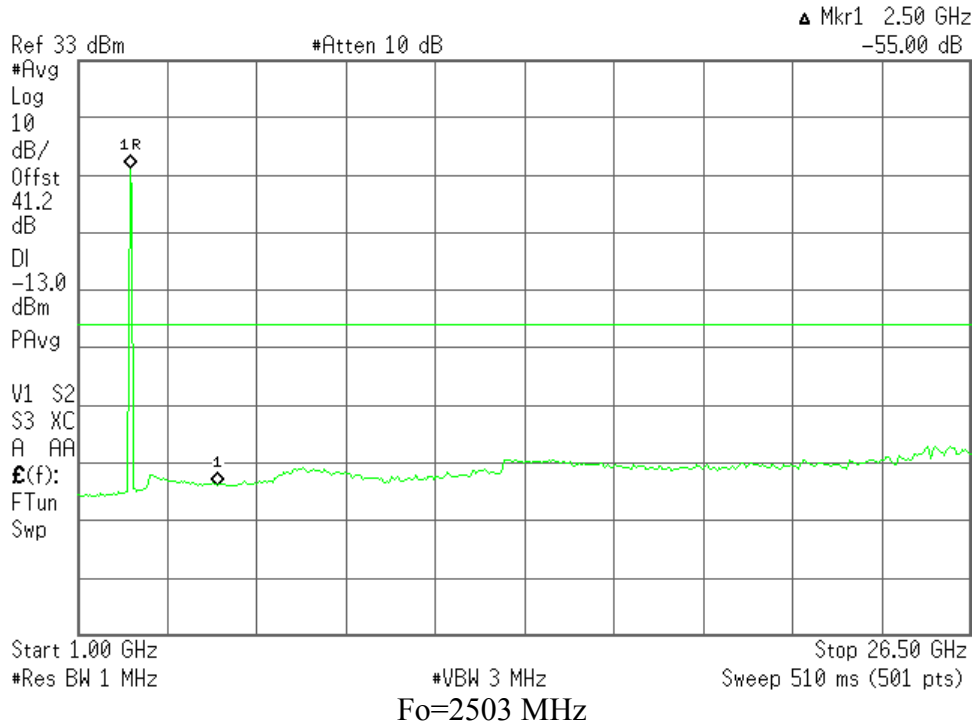
### Spurious emissions at antenna terminals

Measured with Globtek 15 Vdc power supply

Agilent 15:29:38 Aug 31, 2004



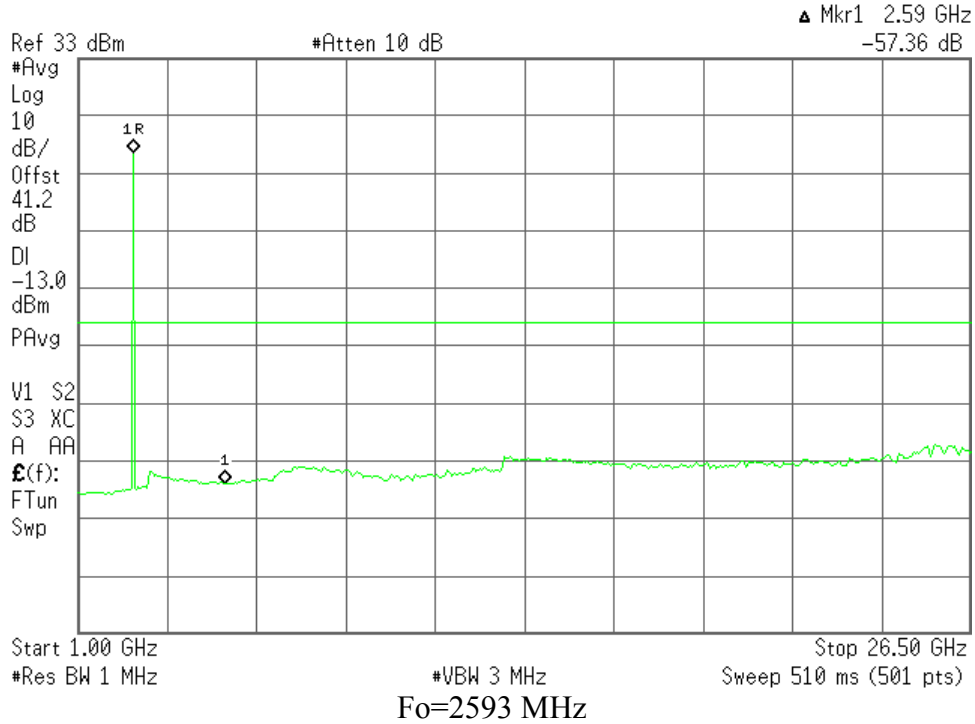
Agilent 17:00:05 Sep 24, 2004



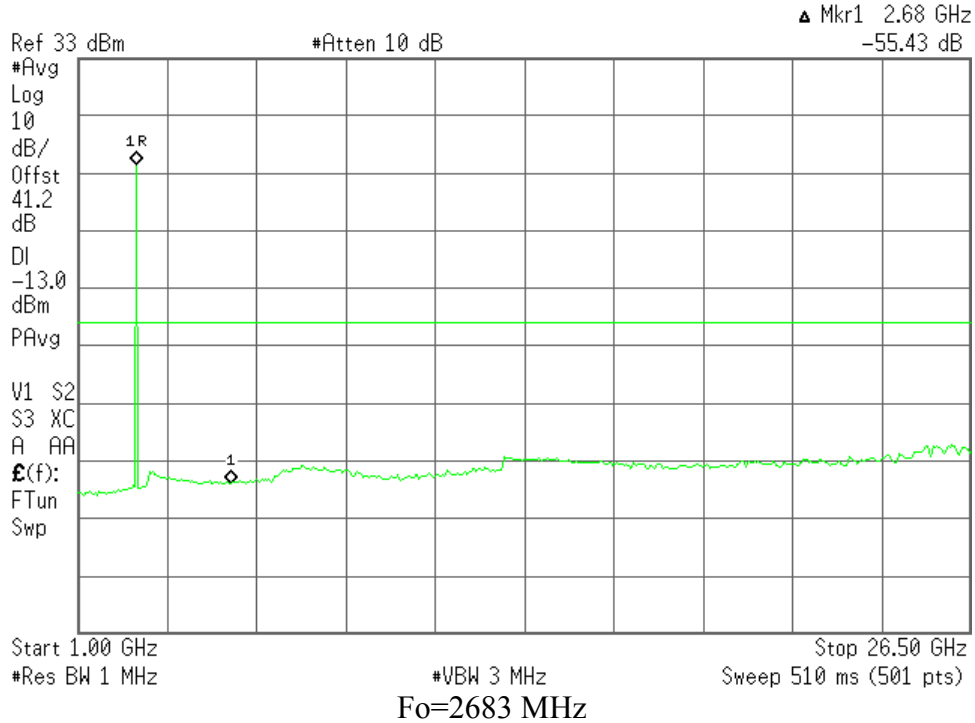
### Spurious emissions at antenna terminals

Measured with Globtek 15 Vdc power supply

Agilent 17:00:38 Sep 24, 2004



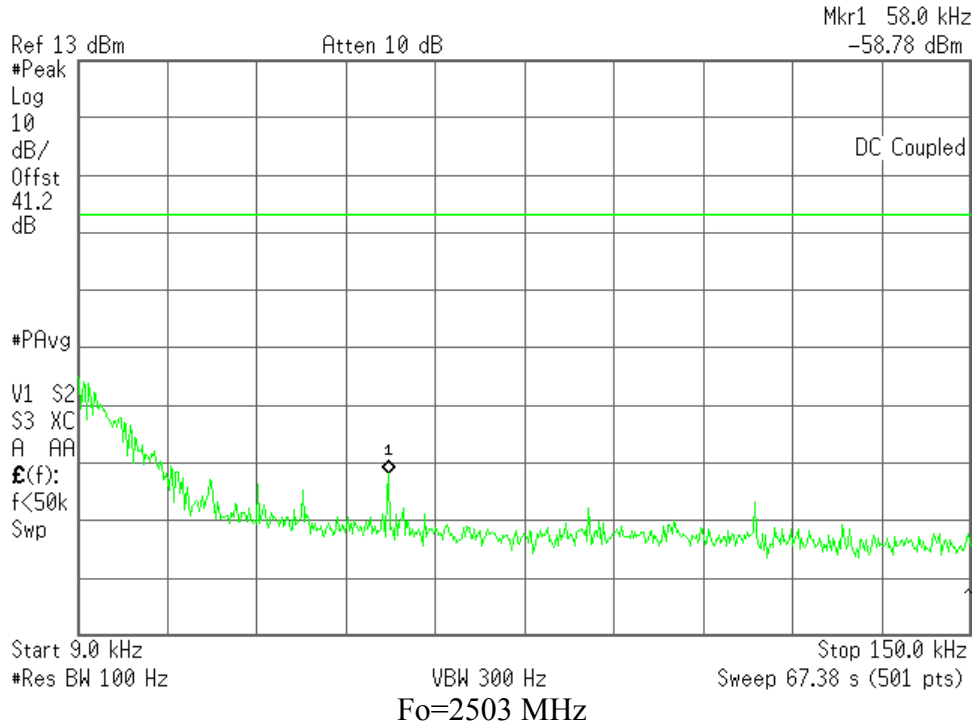
Agilent 17:01:18 Sep 24, 2004



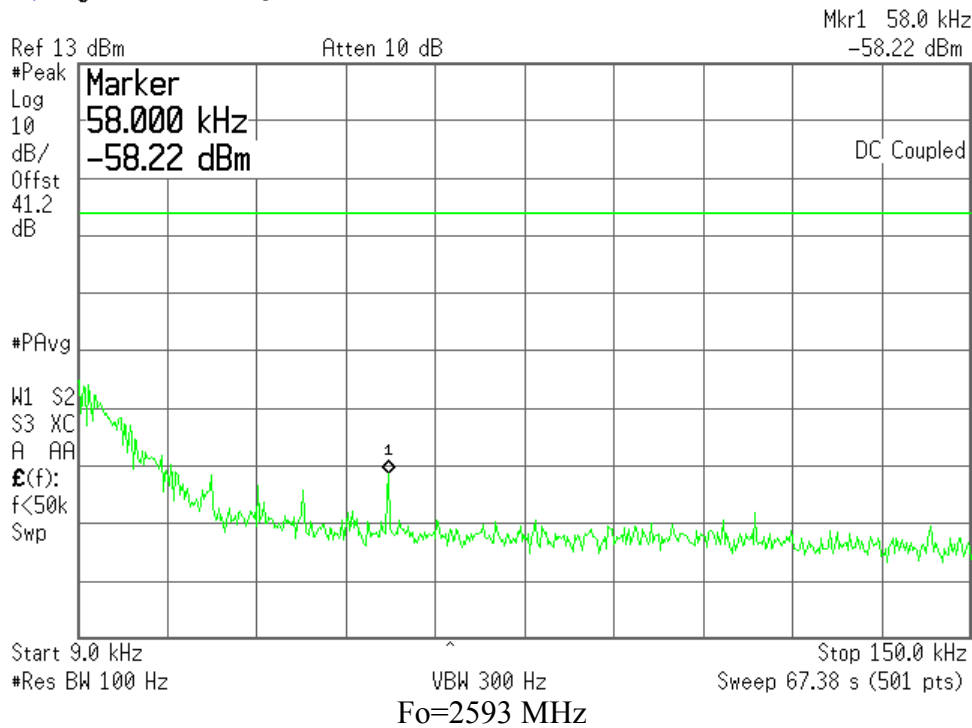
### Spurious emissions at antenna terminals

Measured with HP Power Supply (12 Vdc)

Agilent 15:49:52 Aug 31, 2004



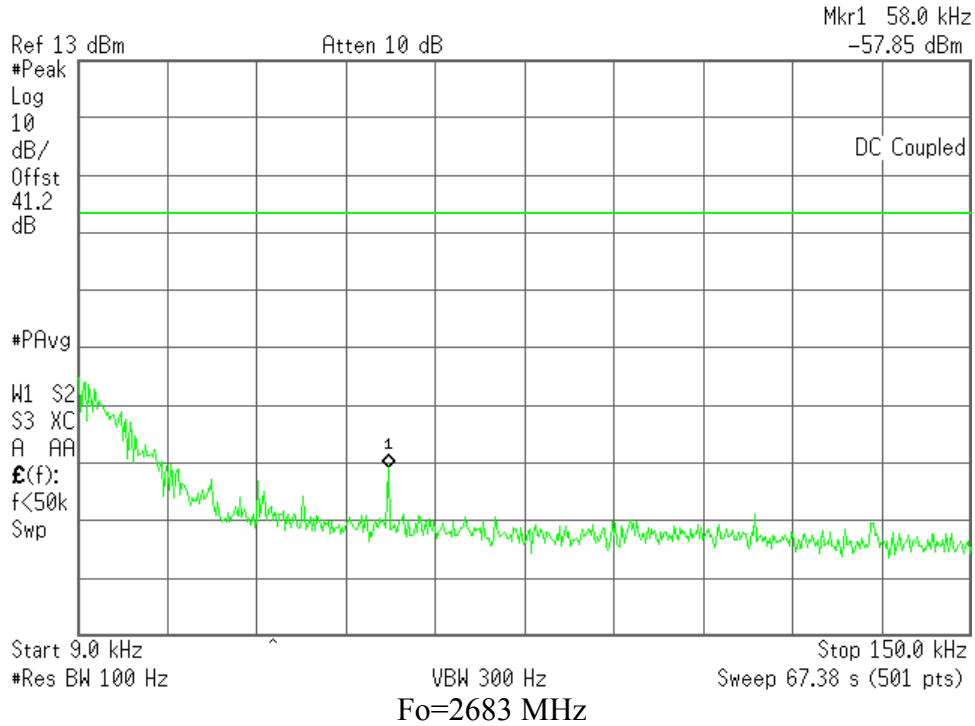
Agilent 15:58:31 Aug 31, 2004



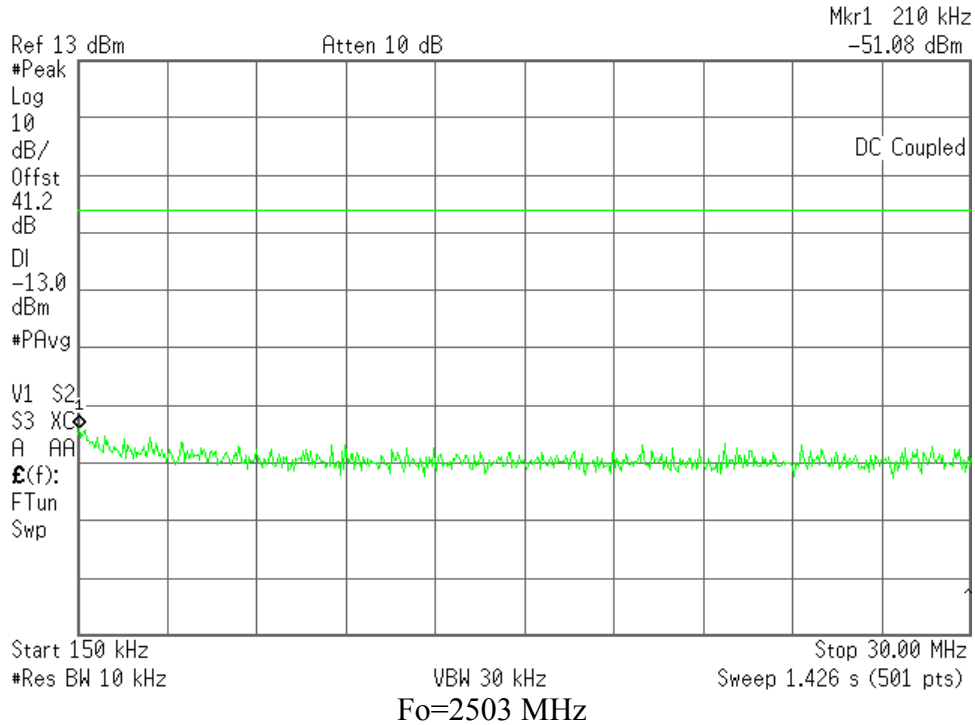
### Spurious emissions at antenna terminals

Measured with HP Power Supply (12 Vdc)

Agilent 16:02:58 Aug 31, 2004



Agilent 16:52:07 Aug 31, 2004



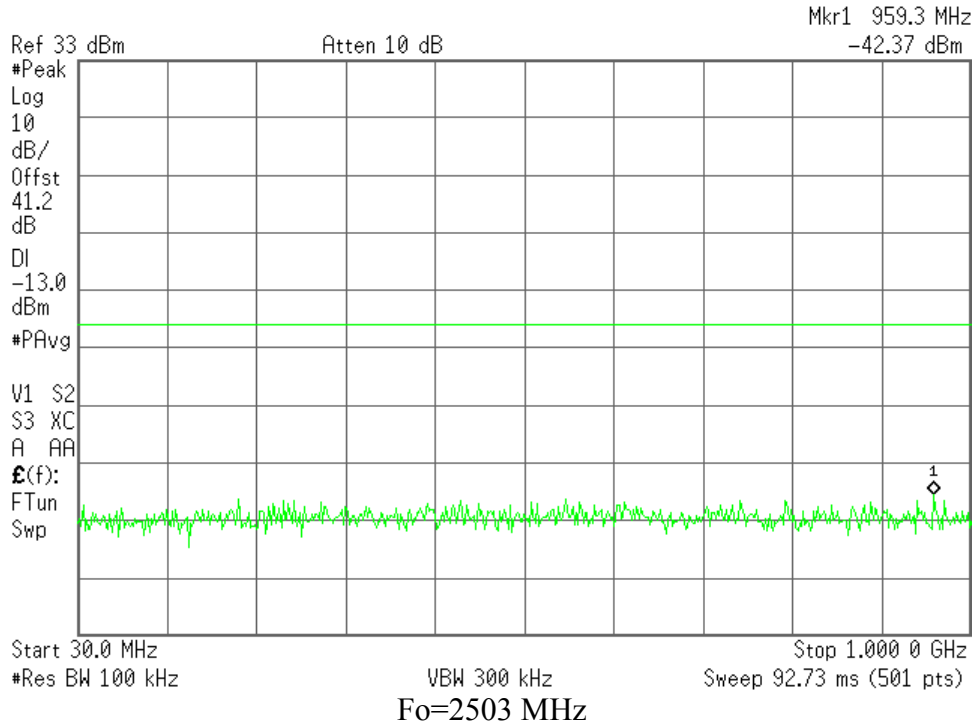




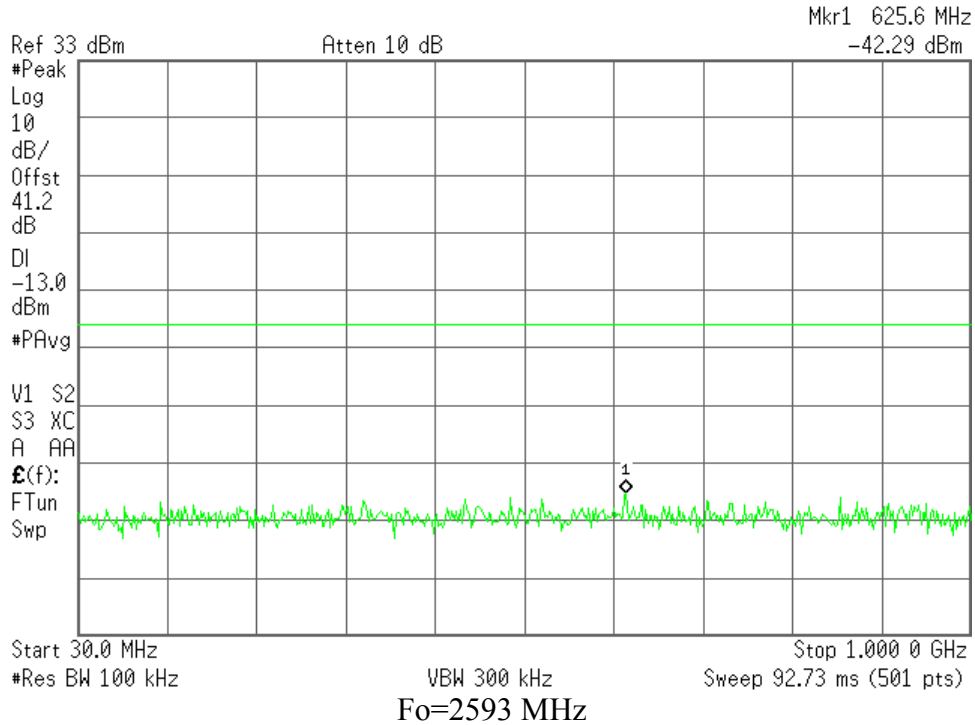
### Spurious emissions at antenna terminals

Measured with HP Power Supply (12 Vdc)

Agilent 16:55:46 Aug 31, 2004



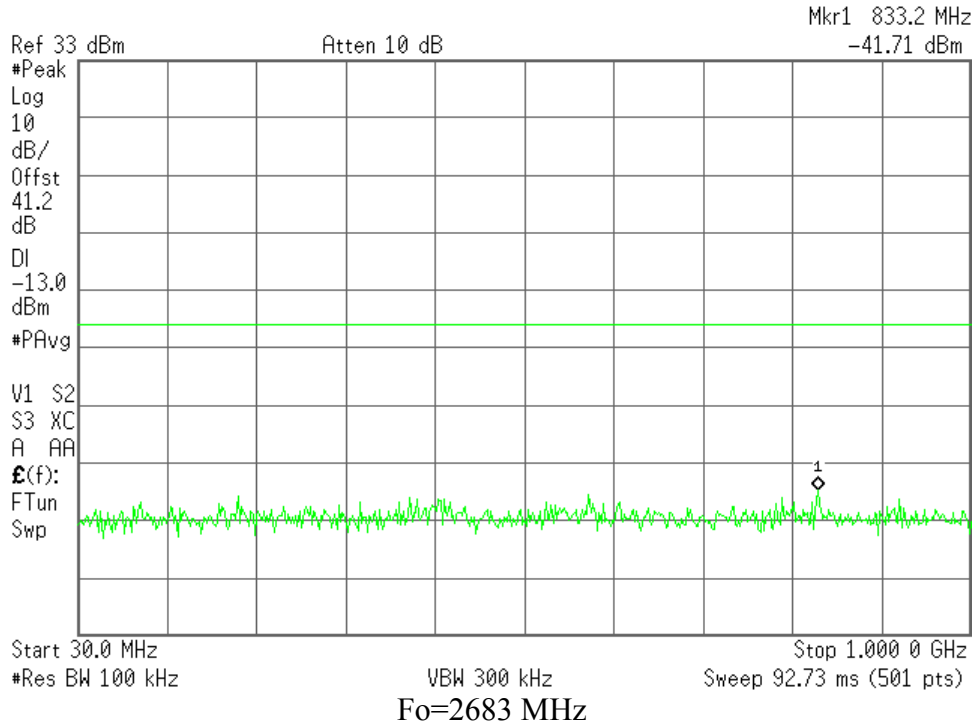
Agilent 16:56:18 Aug 31, 2004



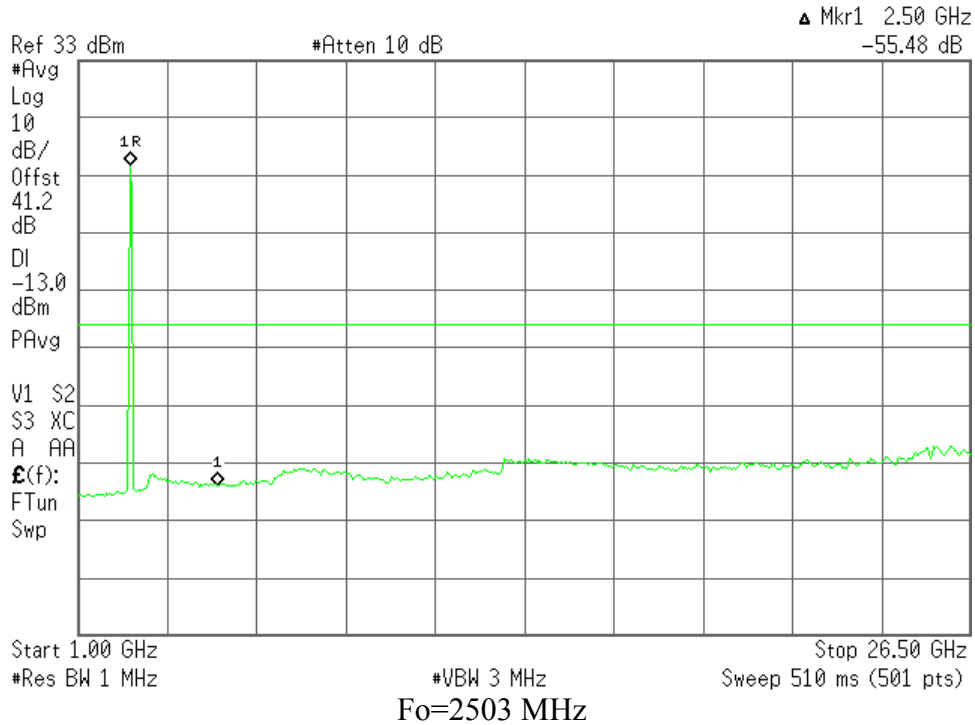
### Spurious emissions at antenna terminals

Measured with HP Power Supply (12 Vdc)

Agilent 16:56:43 Aug 31, 2004



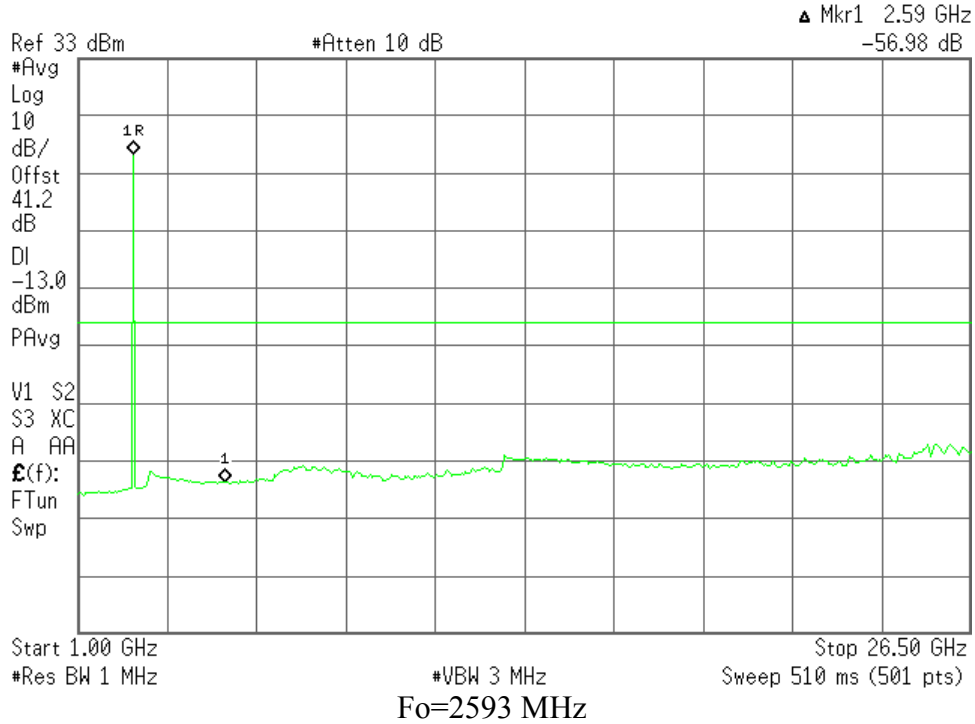
Agilent 16:48:46 Sep 24, 2004



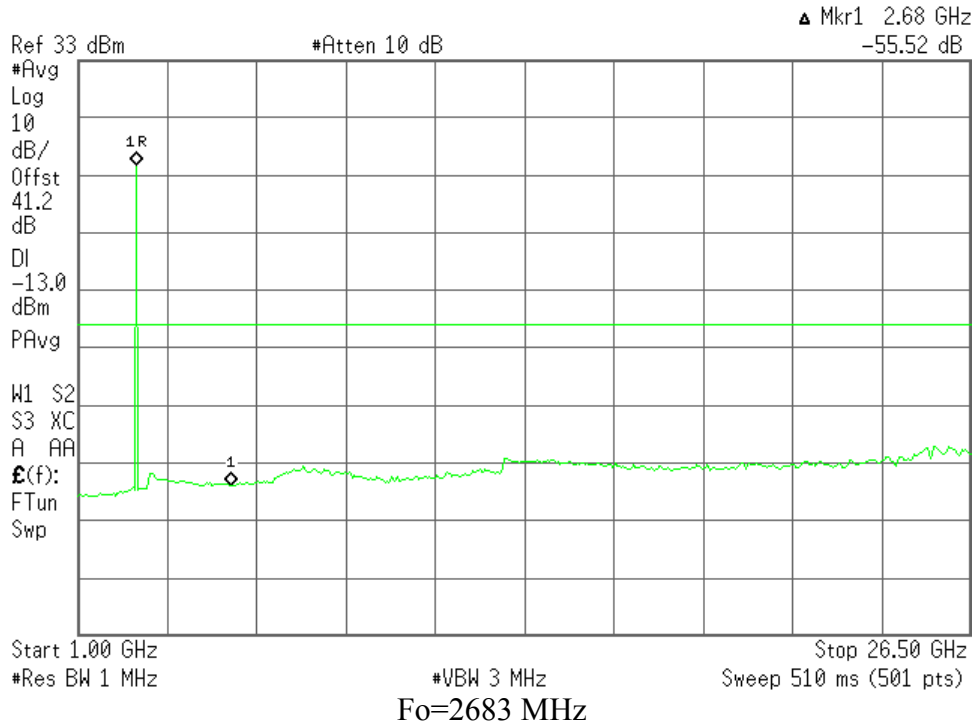
### Spurious emissions at antenna terminals

Measured with HP Power Supply (12 Vdc)

Agilent 16:49:34 Sep 24, 2004



Agilent 16:50:04 Sep 24, 2004



## Field strength of spurious radiation

Rule Part Number: 2.1053, 2.1049, 2.1057

Frequency Range = 30 MHz to 26.86 GHz  
Case Radiation Attenuation =  $43+10\log P = -13$  dBm maximum

Test Procedure: The field strength of spurious radiation was measured at an open area test site with applicable measurement antennas, low noise amplifiers, and spectrum analyzers. Measurements were performed by TUV Product Service Inc – Taylors Falls on August 5<sup>th</sup> and 6<sup>th</sup>, 2004. Spurious signals were maximized for peak level by rotation of the test unit and elevation of the measurement antenna. Verification of compliance to the emissions limit was accomplished by antenna substitution. Identified spurious signals between 30 MHz and 1000 MHz are measured with a 120 kHz/6 dB bandwidth and quasi-peak detection. Spurious signals above 1000 MHz are measured with a 1 MHz/6 dB bandwidth and peak detection.

Test Conditions: Frequency = 2593 MHz  
Temperature = 25 °C  
Supply Voltage = 120 Vac / 60 Hz (19.5 VDC to RSU-2400-AV)

Test Equipment: NextNet Wireless, Inc.

DUT	NextNet Wireless CPE (RSU-2400-AV) # 2008687
Attenuator(s) 2 x 20 dB	Pasternak Corporation Model: PE7005-20 (20 dB) Calibrated by user
Computer	Dell Inspiron 5000 Model: PPM S/N: 000832RM-12961-04R-0441
Ethernet Switch	D-Link Model: DSS-5+ 5 port 10/100Mbps S/N: B205335003175
Power Supply	Globetek Model: GT-21097-5024-4.5 19.5 Vdc / 2.56A Limited Power Source S/N: 008968 23/04

## Field strength of spurious radiation



### TEST RESULT SUMMARY

**FCC PART 15 SUBPART B**  
**Class B Limit**  
**FCC PART 2.1053**

MANUFACTURER'S NAME	NextNet Wireless, Incorporated
NAME OF EQUIPMENT	Expedience
TYPE OF EQUIPMENT	ISM/MMDS Indoor Customer Premise Equipment
MODEL NUMBER	<b>900-0041-1XXX</b>
MANUFACTURER'S ADDRESS	9555 James Avenue South, Suite 270 Bloomington MN 55431
TEST REPORT NUMBER	WC403349.2
TEST DATE	05 August 2004

According to testing performed at TÜV Product Service Inc, the above-mentioned unit is in compliance with the electromagnetic compatibility requirements defined in FCC Part 15 and FCC Part 2.1053.

It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics. Any modifications necessary for compliance made during testing on the above mentioned date(s) must be implemented in all production units for compliance to be maintained.

TÜV Product Service Inc, as an independent testing laboratory, declares that the equipment tested as specified above conforms to the requirements of FCC Part 15 and FCC Part 2.1053.

Date: 09 September 2004

Location: Taylors Falls MN  
USA

J. C. Sausen  
Tested By

T. K. Swanson  
Technical Writer

Not Transferable

## Field strength of spurious radiation



### EMC EMISSION - TEST REPORT

Test Report File No. : **WC403349.2** Date of issue: 09 September 2004

Model / Serial No. : **900-0041-1XXX / board # 2008687**

Product Name : **Expedience**

Product Type : **ISM/MMDS Indoor Customer Premise Equipment**

Applicant : **NextNet Wireless, Incorporated**

Manufacturer : **NextNet Wireless, Incorporated**

License holder : **NextNet Wireless, Incorporated**

Address : **9555 James Avenue South, Suite 270**  
: **Bloomington MN 55431**

Test Result :  **Positive**     **Negative**

Test Project Number Reference(s) : **WC403349.2**

Total pages including Appendices : **39**

*TÜV Product Service Inc is a subcontractor to TÜV Product Service, GmbH according to the principles outlined in ISO/IEC Guide 25 and EN 45001.*

*TÜV Product Service Inc reports apply only to the specific samples tested under stated test conditions. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. TÜV Product Service Inc shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV Product Service Inc issued reports.*

*This report is the confidential property of the client. As a mutual protection to our clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval. This report shall not be used by the client to claim product endorsement by NVLAP or any agency of the US government.*

*TÜV Product Service Inc and its professional staff hold government and professional organization certifications and are members of AAMI, ACIL, AEA, ANSI, IEEE, NVLAP, and VCCI*

File No. WC403349.2, Page 1 of 13

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 838 0297 Fax: 651 838 0298 Rev.No 1.0

## Field strength of spurious radiation



D I R E C T O R Y - E M I S S I O N S		
		Page(s)
<b>A) Documentation</b>		
Test report		<u>1 - 10</u>
Directory		<u>2</u>
Test Regulations		<u>3</u>
Deviations from standard / Summary		<u>10</u>
Test-setups (Photos)		<u>11 - 13</u>
Test-setup (drawing)		<u>Appendix A</u>
<b>B) Test data</b>		
Conducted emissions	10/150 kHz - 30 MHz	<u>5, 9</u>
Radiated emissions	10 kHz - 30 MHz	<u>5, 9</u>
Radiated emissions	30 MHz - 1000 MHz	<u>6, 9</u>
Interference power	30 MHz - 300 MHz	<u>6, 9</u>
Equivalent Radiated emissions	1 GHz - 26 GHz	<u>7, 9</u>
<b>C) Appendix A</b>		
Test Data Sheets and Test Setup Drawing(s)		<u>A2 - A16</u>
<b>D) Appendix B</b>		
Constructional Data Form		<u>B2 - B8</u>
Product Information Form(s)		<u>N/A</u>
<b>E) Appendix C</b>		
Measurement Protocol		<u>C1 - C2</u>

File No. WC403349.2, Page 2 of 13

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1768 Tel: 651 838 0297 Fax: 651 838 0298 Rev.No 1.0



## Field strength of spurious radiation



**EMISSIONS TEST REGULATIONS :**

The emissions tests were performed according to following regulations:

-----

<input type="checkbox"/> - EN 50081-1 / 1991	<input type="checkbox"/> - Group 1	<input type="checkbox"/> - Group 2
<input type="checkbox"/> - EN 55011 / 1991	<input type="checkbox"/> - Class A	<input type="checkbox"/> - Class B
<input type="checkbox"/> - EN 55013 / 1990	<input type="checkbox"/> - Household appliances and similar	
<input type="checkbox"/> - EN 55014 / 1987	<input type="checkbox"/> - Portable tools	
	<input type="checkbox"/> - Semiconductor devices	
<input type="checkbox"/> - EN 55014 / A2:1990	<input type="checkbox"/> - Household appliances and similar	
<input type="checkbox"/> - EN 55014 / 1993	<input type="checkbox"/> - Portable tools	
	<input type="checkbox"/> - Semiconductor devices	
<input type="checkbox"/> - EN 55015 / 1987		
<input type="checkbox"/> - EN 55015 / A1:1990		
<input type="checkbox"/> - EN 55015 / 1993		
<input type="checkbox"/> - EN 55022 / 1987	<input type="checkbox"/> - Class A	<input type="checkbox"/> - Class B
<input type="checkbox"/> - EN 55022 / 1994	<input type="checkbox"/> - Class A	<input type="checkbox"/> - Class B
<input type="checkbox"/> - BS		
<input type="checkbox"/> - VCCI	<input type="checkbox"/> - Class A	<input type="checkbox"/> - Class B
<input checked="" type="checkbox"/> - FCC Part 15 Subpart B	<input type="checkbox"/> - Class A	<input checked="" type="checkbox"/> - Class B
<input checked="" type="checkbox"/> - FCC Part 2.1053		
<input type="checkbox"/> - AS 3548 (1992)	<input type="checkbox"/> - Class A	<input type="checkbox"/> - Class B
<input type="checkbox"/> - CISPR 11 (1990)	<input type="checkbox"/> - Group 1	<input type="checkbox"/> - Group 2
	<input type="checkbox"/> - Class A	<input type="checkbox"/> - Class B
<input type="checkbox"/> - CISPR 22 (1993)	<input type="checkbox"/> - Class A	<input type="checkbox"/> - Class B

File No. WC403349.2, Page 3 of 13

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1768 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0

## Field strength of spurious radiation



### Environmental conditions in the lab:

	<u>Actual</u>
Temperature:	: 23 °C
Relative Humidity	: 65 %
Atmospheric pressure	: 99.0 kPa
Power supply system	: 115 VAC / 60 Hz / 1-phase

### Sign Explanations:

- not applicable
- applicable



File No. WC403349.2, Page 4 of 13

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0

## Field strength of spurious radiation



### Emissions Test Conditions: CONDUCTED EMISSIONS (Interference Voltage)

The *CONDUCTED EMISSIONS (INTERFERENCE VOLTAGE)* measurements were performed at the following test location:

- Test not applicable

- Wild River Lab Large Test Site (Open Area Test Site)
- Wild River Lab Small Test Site (Open Area Test Site)
- Oakwood Lab (Open Area Test Site)
- Wild River Lab Screen Room
- New Brighton Lab Shielded Room

#### Test equipment used :

TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
<input checked="" type="checkbox"/> - 2416	3825/2	Electro-Mechanics (EMCO)	50 $\Omega$ LISN	8812-1437	Code B
<input checked="" type="checkbox"/> - 2534	ESHS-20	Rhode & Schwarz	EMI Receiver	837055/003	14-Jan-05

Cal Code B = Calibration verification performed internally. Cal Code Y = Calibration not required when used with other calibrated equipment.

All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST) and is calibrated annually.

### Emissions Test Conditions: RADIATED EMISSIONS (Magnetic Field)

The *RADIATED EMISSIONS (MAGNETIC FIELD)* measurements were performed at the following test location:

- Test not applicable

- Wild River Lab Large Test Site (Open Area Test Site)
- Wild River Lab Small Test Site (Open Area Test Site)
- Oakwood Lab (Open Area Test Site)

#### at a test distance of :

- 3 meters
- 30 meters

File No. WC403349.2, Page 5 of 13

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 838 0297 Fax: 651 838 0298 Rev.No 1.0

## Field strength of spurious radiation



### Emissions Test Conditions: RADIATED EMISSIONS (Electric Field)

The *RADIATED EMISSIONS (ELECTRIC FIELD)* measurements, in the frequency range of 30 MHz-1000 MHz, were tested in a horizontal and vertical polarization at the following test location:

- Test not applicable

- Wild River Lab Large Test Site (Open Area Test Site) – NSA measurements made 2-03, due 2-05.
- Wild River Lab Small Test Site (Open Area Test Site)
- Oakwood Lab (Open Area Test Site)

at a test distance of :

- 3 meters
- 10 meters
- 30 meters

Test equipment used :

TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
■ - 3204	EM-6917B	Electro-Metrics	Biconicalog Periodic	102	24-Oct-04
■ - 8052	8566B	Hewlett-Packard	Spectrum Analyzer	2115a00853	17-Oct-04
■ - 8051	85662A	Hewlett-Packard	Analyzer Display	2112A02220	17-Oct-04
■ - 2682	85650A	Hewlett-Packard	Quasi-Peak Adapter	2811A01127	23-Feb-05
■ - 3962	ZHL-1042J	Mini-Circuits	Preamplifier	D120403-2	Code B

Cal Code B = Calibration verification performed internally. Cal Code Y = Calibration not required when used with other calibrated equipment.

All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST) and is calibrated annually.

### Emissions Test Conditions: INTERFERENCE POWER

The *INTERFERENCE POWER* measurements were performed by using the absorbing clamp on the mains and interface cables in the frequency range 30 MHz - 300 MHz at the following test location:

- Test not applicable

- Wild River Lab Large Test Site (Open Area Test Site)
- Wild River Lab Small Test Site (Open Area Test Site)
- Oakwood Lab (Open Area Test Site)
- Wild River Lab Screen Room
- New Brighton Lab Shielded Room

File No. WC403349.2, Page 6 of 13

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 838 0297 Fax: 651 838 0298 Rev.No 1.0

## Field strength of spurious radiation



### Emissions Test Conditions: RADIATED EMISSIONS (Electric Field)

The *EQUIVALENT RADIATED EMISSIONS* measurements in the frequency range 1 GHz – 12.5 GHz were performed in a horizontal and vertical polarization at the following test location:

- Test not applicable

- Wild River Lab Large Test Site (Open Area Test Site)
- Wild River Lab Small Test Site (Open Area Test Site)
- Oakwood Lab (Open Area Test Site)
- Wild River Lab Screen Room

at a test distance of:

- 1 meters
- 3 meters
- 10 meters

#### Test equipment used :

	TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
■-	8052	8566B	Hewlett-Packard	Spectrum Analyzer	2115a00853	17-Oct-04
■ -	8051	85662A	Hewlett-Packard	Analyzer Display	2112A02220	17-Oct-04
■	2682	85650A	Hewlett-Packard	Quasi-Peak Adapter	2811A01127	23-Feb-05
■-	3957	SL18B4020	Phase One Microwave	Preamplifier 1 – 18 GHz	0001	Code B
■ -	2075	3115	Electro-Mechanics (EMCO)	Ridge Guide Ant. 1-18 GHz	9001-3275	19-Nov-04

Cal Code B = Calibration verification performed internally. Cal Code Y = Calibration not required when used with other calibrated equipment.

All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST) and is calibrated annually.

File No. WC403349.2, Page 7 of 13

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 838 0297 Fax: 651 838 0298 Rev.No 1.0

## Field strength of spurious radiation



### Equipment Under Test (EUT) Test Operation Mode - Emission tests :

The device under test was operated under the following conditions during emissions testing:

- Standby
- Test program (H - Pattern)
- Test program (color bar)
- Test program (customer specific)
- Practice operation
- Normal Operating Mode
- Customer Premise Equipment transmitter. FCC Parts 2, 15C, 21, and 74.  
Customer Premise Equipment receive. FCC Part 15B

### Configuration of the device under test:

- See Constructional Data Form in Appendix B - Pages B2
- See Product Information Form in Appendix B - beginning on Page B3

The following peripheral devices and interface cables were connected during the measurement:

- \_\_\_\_\_ Type : \_\_\_\_\_
- \_\_\_\_\_ Type : \_\_\_\_\_
- \_\_\_\_\_ Type : \_\_\_\_\_
- \_\_\_\_\_ Type : \_\_\_\_\_
- \_\_\_\_\_ Type : \_\_\_\_\_
- \_\_\_\_\_ Type : \_\_\_\_\_
- \_\_\_\_\_ Type : \_\_\_\_\_
- \_\_\_\_\_ Type : \_\_\_\_\_
- unshielded power cable
- unshielded cables
- shielded cables                      MPS.No.: \_\_\_\_\_
- customer specific cables
- \_\_\_\_\_
- \_\_\_\_\_

File No. WC403349.2, Page 8 of 13

TÜV PRODUCT SERVICE INC    19333 Wild Mountain Road    Taylors Falls MN 55084-1768    Tel: 651 838 0297    Fax: 651 838 0298    Rev.No 1.0

## Field strength of spurious radiation



### Emission Test Results:

#### Conducted emissions 10/150 kHz - 30 MHz – FCC Part 15 Subpart B

The requirements are  - MET  - NOT MET  
Minimum margin of compliance \_\_\_\_\_ 17 dB at \_\_\_\_\_ 18.91 MHz  
Maximum margin of non-compliance \_\_\_\_\_ dB at \_\_\_\_\_ MHz  
Remarks: \_\_\_\_\_

#### Radiated emissions (electric field) 30 MHz - 1000 MHz – FCC Part 15 Subpart B

The requirements are  - MET  - NOT MET  
Minimum margin of compliance \_\_\_\_\_ 5 dB at \_\_\_\_\_ 223.9 MHz  
Maximum margin of non-compliance \_\_\_\_\_ dB at \_\_\_\_\_ MHz  
Remarks: \_\_\_\_\_

#### Equivalent Radiated emissions 1 GHz - 27 GHz – FCC Part 15 Subpart B

The requirements are  - MET  - NOT MET  
Minimum margin of compliance \_\_\_\_\_ 4 dB at \_\_\_\_\_ 7779.0 MHz  
Maximum margin of non-compliance \_\_\_\_\_ dB at \_\_\_\_\_ MHz  
Remarks: No emissions detected within 10 dB.

#### Radiated emissions (electric field) 30 MHz - 1000 MHz – FCC Part 2.1053

The requirements are  - MET  - NOT MET  
Minimum margin of compliance \_\_\_\_\_ 44 dB at \_\_\_\_\_ 223.9 MHz  
Maximum margin of non-compliance \_\_\_\_\_ dB at \_\_\_\_\_ MHz  
Remarks: \_\_\_\_\_

#### Radiated emissions (electric field) 1 GHz - 27 GHz – FCC Part 2.1053

The requirements are  - MET  - NOT MET  
Minimum margin of compliance \_\_\_\_\_ 34 dB at \_\_\_\_\_ 7779.0 MHz  
Maximum margin of non-compliance \_\_\_\_\_ dB at \_\_\_\_\_ MHz  
Remarks: \_\_\_\_\_

File No. WC403349.2, Page 9 of 13

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1768 Tel: 651 838 0297 Fax: 651 838 0298 Rev.No 1.0

## Field strength of spurious radiation



### DEVIATIONS FROM STANDARD:

None

### GENERAL REMARKS:

During radiated emissions testing the following modifications were made in order for compliance:

1. Added 36pF caps to ethernet lines:
2. Changed to NextNet Wireless P/S Model: GT-21097-5024-4.5.

### SUMMARY:

The requirements according to the technical regulations are

- met
- **not** met.

The device under test does

- fulfill the general approval requirements mentioned on page 3.
- **not** fulfill the general approval requirements mentioned on page 3.

Testing Start Date: 05 August 2004

Testing End Date: 05 August 2004

- TÜV PRODUCT SERVICE INC -

Tested By:  
J. C. Sausen

T. K. Swanson  
Technical Writer

File No. WC403349.2, Page 10 of 13

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0



## Field strength of spurious radiation



Test-setup photo(s):  
Conducted emission 10/150 kHz - 30 MHz



File No. WC403349.2, Page 11 of 13

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0

## Field strength of spurious radiation



Test-setup photo(s):  
Radiated emission 30 MHz - 12500 MHz



File No. WC403349.2, Page 12 of 13

TÜV PRODUCT SERVICE INC 1933 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0

## Field strength of spurious radiation



Test-setup photo(s):  
Radiated emission 30 MHz - 12500 MHz



File No. WC403349.2, Page 13 of 13

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0

## Field strength of spurious radiation



### Appendix A

Test Data Sheets  
and  
Test Setup Drawing(s)



File No. WC403349.2, Page A1 of A16

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0

## Field strength of spurious radiation

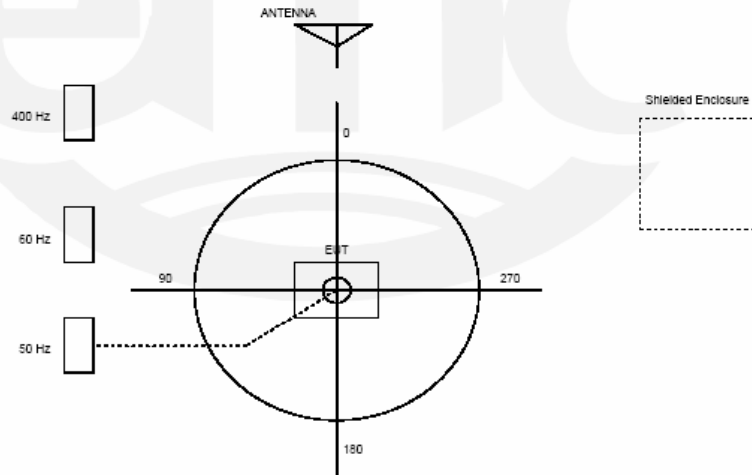


### TEST SETUP FOR EMISSIONS TESTING

WILD RIVER LAB  
Large Test Site

Notes:

1. Items shown in dotted lines are located on the floor below the test area. It is 5 meters vertically from the ground floor to the test area.
2. 50 Hz, 60 Hz, and 400 Hz are power panels for alternating current.
3. The antenna may be positioned horizontally 3, 10 or 30 meters from the center of the turntable.
4. The circle is a 6.7 meter diameter turntable.
5. A ground plane is in the plane of this sheet.
6. The test sample is shown in the azimuthal position representing zero degrees.



File No. WC403349.2, Page A2 of A16

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0

## Field strength of spurious radiation

### CONDUCTED EMISSIONS



Test Report #: WC403349 Run 10 Test Area: LTS

EUT Model #: RSU-2400A Date: 8/5/2004

EUT Serial #: \_\_\_\_\_ EUT Power: 60 Hz / 110 VAC Temperature: 23.0 °C

Test Method: FCC B Air Pressure: 99.0 kPa


Customer: Next Net Rel. Humidity: 65.0 %

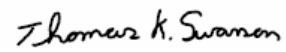
EUT Description: 2.4 GHz TRx & Rcvr Residential Subscriber Unit

Notes: With P/S Model # GT-21097-5024-4.5

Data File Name: 3349.dat Page: 1 of 4

List of measurements for run #: 10						
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	EUT Lead	DELTA1 EN 55022 B AVE	DELTA2
<b>Transmit Mode:</b>						
450.0 kHz	16.17 Qp	0.0 / 0.75 / 0.0 / 0.0	16.92	L1	-29.96	n/a
989.51 kHz	17.81 Qp	0.0 / 0.05 / 0.0 / 0.0	17.86	L1	-28.14	n/a
4.098 MHz	19.9 Qp	0.1 / 0.05 / 0.0 / 0.0	20.05	L1	-25.95	n/a
5.964 MHz	11.38 Qp	0.1 / 0.05 / 0.0 / 0.0	11.53	L1	-38.47	n/a
10.703 MHz	21.74 Qp	0.2 / 0.05 / 0.0 / 0.0	21.99	L1	-28.01	n/a
18.916 MHz	32.24 Qp	0.3 / 0.09 / 0.0 / 0.0	32.63	L1	-17.37	n/a
30.0 MHz	20.25 Qp	0.5 / 0.1 / 0.0 / 0.0	20.85	L1	-29.15	n/a
450.0 kHz	15.62 Qp	0.0 / 0.75 / 0.0 / 0.0	16.37	N	-30.51	n/a
989.51 kHz	20.78 Qp	0.0 / 0.05 / 0.0 / 0.0	20.83	N	-25.17	n/a
4.098 MHz	21.58 Qp	0.1 / 0.05 / 0.0 / 0.0	21.73	N	-24.27	n/a
5.964 MHz	13.11 Qp	0.1 / 0.05 / 0.0 / 0.0	13.26	N	-36.74	n/a
10.703 MHz	12.2 Qp	0.2 / 0.05 / 0.0 / 0.0	12.45	N	-37.55	n/a
18.916 MHz	30.9 Qp	0.3 / 0.09 / 0.0 / 0.0	31.29	N	-18.71	n/a
30.0 MHz	12.23 Qp	0.5 / 0.1 / 0.0 / 0.0	12.83	N	-37.17	n/a
<b>Receive Mode:</b>						
450.0 kHz	15.79 Qp	0.0 / 0.75 / 0.0 / 0.0	16.54	N	-30.34	n/a
472.57 kHz	17.66 Qp	0.0 / 0.64 / 0.0 / 0.0	18.3	N	-28.17	n/a
4.579 MHz	23.58 Qp	0.1 / 0.05 / 0.0 / 0.0	23.73	N	-22.27	n/a
13.798 MHz	17.97 Qp	0.3 / 0.07 / 0.0 / 0.0	18.34	N	-31.66	n/a
18.915 MHz	30.96 Qp	0.3 / 0.09 / 0.0 / 0.0	31.35	N	-18.65	n/a
28.686 MHz	25.23 Qp	0.49 / 0.1 / 0.0 / 0.0	25.82	N	-24.18	n/a
450.0 kHz	16.27 Qp	0.0 / 0.75 / 0.0 / 0.0	17.02	L1	-29.86	n/a
472.57 kHz	17.53 Qp	0.0 / 0.64 / 0.0 / 0.0	18.17	L1	-28.3	n/a
989.51 kHz	11.54 Qp	0.0 / 0.05 / 0.0 / 0.0	11.59	L1	-34.41	n/a

Tested by: J. C. Sausen   
 Printed Signature

Reviewed by: TKS   
 Printed Signature

File No. WC403349.2, Page A3 of A16

## Field strength of spurious radiation

### CONDUCTED EMISSIONS



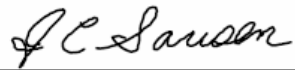
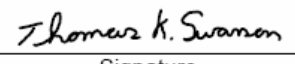
Test Report #: WC403349 Run 10 Test Area: LTS  
 EUT Model #: RSU-2400A Date: 8/5/2004  
 EUT Serial #: \_\_\_\_\_ EUT Power: 60 Hz / 110 VAC Temperature: 23.0 °C  
 Test Method: FCC B Air Pressure: 99.0 kPa  
 Customer: Next Net Rel. Humidity: 65.0 %

EUT Description: 2.4 GHz TRx & Rcvr Residential Subscriber Unit

Notes: With P/S Model # GT-21097-5024-4.5

Data File Name: 3349.dat Page: 2 of 4

List of measurements for run #: 10						
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTN (dB)	FINAL (dBuV / m)	EUT Lead	DELTA1 EN 55022 B AVE	DELTA2
4.098 MHz	6.49 Qp	0.1 / 0.05 / 0.0 / 0.0	6.64	L1	-39.36	n/a
4.579 MHz	23.45 Qp	0.1 / 0.05 / 0.0 / 0.0	23.6	L1	-22.4	n/a
5.964 MHz	9.82 Qp	0.1 / 0.05 / 0.0 / 0.0	9.97	L1	-40.03	n/a
10.703 MHz	8.98 Qp	0.2 / 0.05 / 0.0 / 0.0	9.23	L1	-40.77	n/a
13.798 MHz	15.5 Qp	0.3 / 0.07 / 0.0 / 0.0	15.87	L1	-34.13	n/a
18.916 MHz	31.01 Qp	0.3 / 0.09 / 0.0 / 0.0	31.4	L1	-18.6	n/a
28.686 MHz	25.25 Qp	0.49 / 0.1 / 0.0 / 0.0	25.84	L1	-24.16	n/a
30.0 MHz	12.39 Qp	0.5 / 0.1 / 0.0 / 0.0	12.99	L1	-37.01	n/a
End of conducted data.						

Tested by: J. C. Sausen   
 Printed Signature  
 Reviewed by: TKS   
 Printed Signature

File No. WC403349.2, Page A4 of A16

## Field strength of spurious radiation

### CONDUCTED EMISSIONS



Test Report #: <u>WC403349 Run 10</u>	Test Area: <u>LTS</u>		
EUT Model #: <u>RSU-2400A</u>	Date: <u>8/5/2004</u>		
EUT Serial #: _____	EUT Power: <u>60 Hz / 110 VAC</u>	Temperature: <u>23.0</u> °C	
Test Method: <u>FCC B</u>		Air Pressure: <u>99.0</u> kPa	
Customer: <u>Next Net</u>		Rel. Humidity: <u>65.0</u> %	
EUT Description: <u>2.4 GHz TRx &amp; Rcvr Residential Subscriber Unit</u>			
Notes: <u>With P/S Model # GT-21097-5024-4.5</u>			
Data File Name: <u>3349.dat</u>		Page: <u>3</u> of 4	

<b>Measurement summary for limit1: EN 55022 B AVE (Qp)</b>					
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTN (dB)	FINAL (dBuV / m)	EUT Lead	DELTA1 EN 55022 B AVE
18.916 MHz	32.24 Qp	0.3 / 0.09 / 0.0 / 0.0	32.63	L1	-17.37
4.579 MHz	23.58 Qp	0.1 / 0.05 / 0.0 / 0.0	23.73	N	-22.27
28.686 MHz	25.25 Qp	0.49 / 0.1 / 0.0 / 0.0	25.84	L1	-24.16
4.098 MHz	21.58 Qp	0.1 / 0.05 / 0.0 / 0.0	21.73	N	-24.27
989.51 kHz	20.78 Qp	0.0 / 0.05 / 0.0 / 0.0	20.83	N	-25.17
10.703 MHz	21.74 Qp	0.2 / 0.05 / 0.0 / 0.0	21.99	L1	-28.01
472.57 kHz	17.66 Qp	0.0 / 0.64 / 0.0 / 0.0	18.3	N	-28.17
30.0 MHz	20.25 Qp	0.5 / 0.1 / 0.0 / 0.0	20.85	L1	-29.15
450.0 kHz	16.27 Qp	0.0 / 0.75 / 0.0 / 0.0	17.02	L1	-29.86
13.798 MHz	17.97 Qp	0.3 / 0.07 / 0.0 / 0.0	18.34	N	-31.66
5.964 MHz	13.11 Qp	0.1 / 0.05 / 0.0 / 0.0	13.26	N	-36.74

Tested by:	J. C. Sausen		
	Printed	Signature	
Reviewed by:	TKS		
	Printed	Signature	

File No. WC403349.2, Page A5 of A16



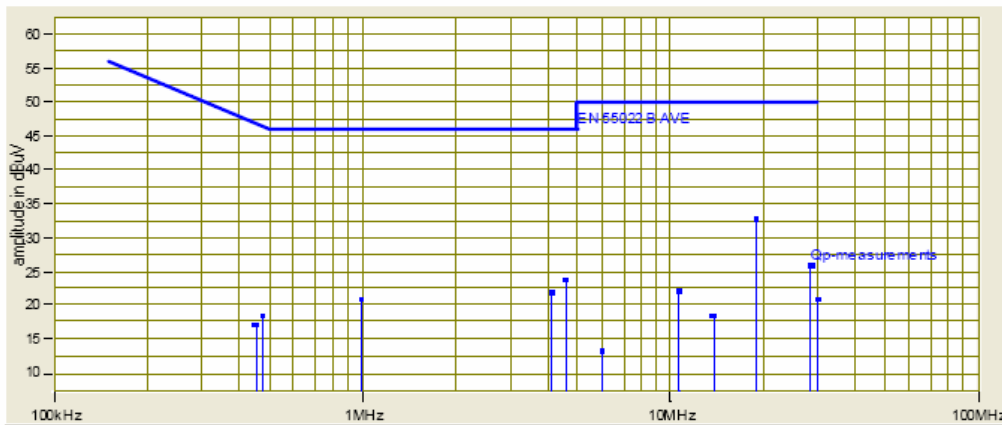
## Field strength of spurious radiation

### CONDUCTED EMISSIONS



Test Report #:	WC403349 Run 10	Test Area:	LTS		
EUT Model #:	RSU-2400A	Date:	8/5/2004		
EUT Serial #:		EUT Power:	60 Hz / 110 VAC	Temperature:	23.0 °C
Test Method:	FCC B	Air Pressure:	99.0 kPa		
Customer:	Next Net	Rel. Humidity:	65.0 %		
EUT Description:	2.4 GHz TRx & Rcvr Residential Subscriber Unit				
Notes:	With P/S Model # GT-21097-5024-4.5				
Data File Name:	3349.dat	Page:	4 of 4		

#### Graph:



Tested by: J. C. Sausen

Printed

Signature

Reviewed by: TKS

by:

Printed

Signature

File No. WC403349.2, Page A6 of A16

## Field strength of spurious radiation

### RADIATED EMISSIONS



Test Report #: WC403349 Run 9 Test Area: LTS

EUT Model #: RSU-2400A Date: 8/5/04

EUT Serial #: \_\_\_\_\_ EUT Power: 60 Hz / 110 VAC Temperature: 23.0 °C

Test Method: FCC B Air Pressure: 99.0 kPa

Customer: Next Net Rel. Humidity: 65.0 %

EUT Description: 2.4 GHz TRx & Rcvr Residential Subscriber Unit

Notes: Note P/S change on data line #119.

Data File Name: 3349-9.dat Page: 1 of 8

List of measurements for run #: 9						
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-B <1GHz 3m	DELTA2 FCC B >1GHz 3m
Each measurement maxed:						
2.404 GHz	97.2 Pk	4.31 / 30.49 / 43.66 / 0.0	88.33	H / 1.00 / 0	n/a	34.33*
2.405 GHz	40.39 Av	4.31 / 30.49 / 43.67 / 0.0	31.52	H / 1.00 / 0	n/a	-22.48
2.404 GHz	39.97 Av	4.31 / 30.49 / 43.66 / 0.0	31.1	H / 1.00 / 0	n/a	-22.9
2.44 GHz	41.49 Av	4.33 / 30.57 / 43.69 / 0.0	32.7	H / 1.00 / 0	n/a	-21.3
2.44 GHz	92.0 Pk	4.33 / 30.57 / 43.69 / 0.0	83.21	H / 1.00 / 0	n/a	29.21*
2.476 GHz	98.3 Pk	4.35 / 30.65 / 43.7 / 0.0	89.6	H / 1.00 / 0	n/a	35.6*
2.476 GHz	41.87 Av	4.35 / 30.65 / 43.7 / 0.0	33.17	H / 1.00 / 0	n/a	-20.83
2.476 GHz	104.2 Pk	4.35 / 30.65 / 43.7 / 0.0	95.5	V / 1.00 / 0	n/a	41.5*
2.476 GHz	41.42 Av	4.35 / 30.65 / 43.7 / 0.0	32.72	V / 1.00 / 0	n/a	-21.28
2.593 GHz	113.3 Pk	4.42 / 30.89 / 43.7 / 0.0	104.9	V / 1.00 / 0	n/a	50.9*
2.593 GHz	39.71 Av	4.42 / 30.89 / 43.7 / 0.0	31.31	V / 1.00 / 0	n/a	-22.69
2.593 GHz	100.8 Pk	4.42 / 30.89 / 43.7 / 0.0	92.4	H / 1.00 / 0	n/a	38.4*
2.593 GHz	39.5 Av	4.42 / 30.89 / 43.7 / 0.0	31.1	H / 1.00 / 0	n/a	-22.9
2.44 GHz	99.9 Pk	4.33 / 30.57 / 43.69 / 0.0	91.11	V / 1.00 / 0	n/a	37.11*
2.44 GHz	41.44 Av	4.33 / 30.57 / 43.69 / 0.0	32.65	V / 1.00 / 0	n/a	-21.35
2.404 GHz	101.05 Pk	4.31 / 30.49 / 43.66 / 0.0	92.18	V / 1.00 / 0	n/a	38.18*
2.404 GHz	41.1 Av	4.31 / 30.49 / 43.66 / 0.0	32.23	V / 1.00 / 0	n/a	-21.77
All above measurements are of the fundamental and will not be included in the measurement summary – Measurement summary includes spurious emissions only.						
2.404 GHz spurious:						
4.808 GHz	37.62 Av	6.33 / 34.56 / 44.11 / 0.0	34.4	V / 1.00 / 0	n/a	-19.6
4.808 GHz	37.88 Av	6.33 / 34.56 / 44.11 / 0.0	34.66	H / 1.00 / 0	n/a	-19.34
7.212 GHz	45.7 Av	8.1 / 37.22 / 44.1 / 0.0	46.92	H / 1.00 / 0	n/a	-7.08
7.212 GHz	42.61 Av	8.1 / 37.22 / 44.1 / 0.0	43.83	V / 1.00 / 0	n/a	-10.17

Tested by: J. C. Sausen  
 Printed \_\_\_\_\_ Signature J C Sausen

Reviewed by: TKS  
 Printed \_\_\_\_\_ Signature Thomas K. Swanson

File No. WC403349.2, Page A7 of A16

## Field strength of spurious radiation

### RADIATED EMISSIONS



Test Report #: WC403349 Run 9 Test Area: LTS

EUT Model #: RSU-2400A Date: 8/5/04

EUT Serial #: \_\_\_\_\_ EUT Power: 60 Hz / 110 VAC Temperature: 23.0 °C

Test Method: FCC B Air Pressure: 99.0 kPa


Customer: Next Net Rel. Humidity: 65.0 %

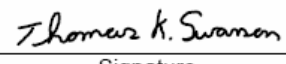
EUT Description: 2.4 GHz TRx & Rcvr Residential Subscriber Unit

Notes: Note P/S change on data line #119.

Data File Name: 3349-9.dat Page: 2 of 8

List of measurements for run #: 9						
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-B <1GHz 3m	DELTA2 FCC B >1GHz 3m
1.17 GHz	39.61 Av	2.97 / 26.5 / 40.1 / 0.0	28.98	V / 1.00 / 0	n/a	-25.02
2.440 GHz spurious:						
4.88 GHz	37.89 Av	6.39 / 34.76 / 44.04 / 0.0	35.01	V / 1.00 / 0	n/a	-18.99
4.88 GHz	38.36 Av	6.39 / 34.76 / 44.04 / 0.0	35.48	H / 1.00 / 0	n/a	-18.52
7.32 GHz	44.48 Av	8.1 / 37.44 / 44.06 / 0.0	45.96	V / 1.00 / 0	n/a	-8.04
7.32 GHz	44.65 Av	8.1 / 37.44 / 44.06 / 0.0	46.13	H / 1.00 / 0	n/a	-7.87
2.476 GHz spurious:						
1.17 GHz	38.79 Av	2.97 / 26.5 / 40.1 / 0.0	28.16	V / 1.00 / 0	n/a	-25.84
4.952 GHz	35.29 Av	6.46 / 34.97 / 44.0 / 0.0	32.71	V / 1.00 / 0	n/a	-21.29
4.952 GHz	37.65 Av	6.46 / 34.97 / 44.0 / 0.0	35.07	H / 1.00 / 0	n/a	-18.93
7.428 GHz	41.52 Av	8.12 / 37.66 / 44.01 / 0.0	43.28	H / 1.00 / 0	n/a	-10.72
7.428 GHz	38.97 Av	8.12 / 37.66 / 44.01 / 0.0	40.73	V / 1.00 / 0	n/a	-13.27
2.593 GHz spurious:						
5.186 GHz	35.76 Av	6.61 / 35.4 / 44.0 / 0.0	33.77	V / 1.00 / 0	n/a	-20.23
5.186 GHz	34.92 Av	6.61 / 35.4 / 44.0 / 0.0	32.93	H / 1.00 / 0	n/a	-21.07
7.779 GHz	47.68 Av	8.25 / 37.63 / 43.71 / 0.0	49.85	H / 1.00 / 0	n/a	-4.15
7.779 GHz	42.62 Av	8.25 / 37.63 / 43.71 / 0.0	44.79	V / 1.00 / 0	n/a	-9.21
1.908 GHz	38.08 Av	3.88 / 29.07 / 42.69 / 0.0	28.33	V / 1.00 / 0	n/a	-25.67
1.908 GHz	38.21 Av	3.88 / 29.07 / 42.69 / 0.0	28.46	H / 1.00 / 0	n/a	-25.54
2.079 GHz	40.8 Av	3.9 / 29.77 / 43.27 / 0.0	31.21	V / 1.00 / 0	n/a	-22.79
2.476 GHz spurious:						
1.904 GHz	40.59 Av	3.87 / 29.04 / 42.68 / 0.0	30.82	V / 1.00 / 0	n/a	-23.18

Tested by: J. C. Sausen   
 Printed Signature

Reviewed by: TKS   
 Printed Signature

File No. WC403349.2, Page A8 of A16

## Field strength of spurious radiation

### RADIATED EMISSIONS



Test Report #: WC403349 Run 9 Test Area: LTS

EUT Model #: RSU-2400A Date: 8/5/04

EUT Serial #: \_\_\_\_\_ EUT Power: 60 Hz / 110 VAC Temperature: 23.0 °C

Test Method: FCC B Air Pressure: 99.0 kPa

Customer: Next Net Rel. Humidity: 65.0 %

EUT Description: 2.4 GHz TRx & Rcvr Residential Subscriber Unit

Notes: Note P/S change on data line #119.

Data File Name: 3349-9.dat Page: 3 of 8

List of measurements for run #: 9						
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-B <1GHz 3m	DELTA2 FCC B >1GHz 3m
2.44 GHz spurious:						
1.849 GHz	41.56 Av	3.83 / 28.73 / 42.55 / 0.0	31.57	V / 1.00 / 0	n/a	-22.43
2.404 GHz spurious:						
1.796 GHz	40.65 Av	3.78 / 28.41 / 42.37 / 0.0	30.47	V / 1.00 / 0	n/a	-23.53
NOTE! THE FOLLOWING MEASUREMENTS ARE NOT MAXED UNLESS NOTED.						
2.404 GHz TRANSMIT MODE:						
32.93 MHz	27.25 Qp	0.45 / 19.5 / 25.9 / 0.0	21.3	H / 1.00 / 0	-18.7	n/a
87.711 MHz	37.1 Qp	0.8 / 7.5 / 25.81 / 0.0	19.59	H / 1.00 / 0	-20.41	n/a
115.011 MHz	48.95 Qp	0.9 / 9.6 / 25.9 / 0.0	33.55	H / 1.00 / 0	-9.95	n/a
179.391 MHz	37.25 Qp	1.1 / 9.43 / 26.14 / 0.0	21.64	H / 1.00 / 0	-21.86	n/a
195.994 MHz	40.85 Qp	1.19 / 11.33 / 26.27 / 0.0	27.1	H / 1.00 / 0	-16.4	n/a
223.989 MHz	38.6 Qp	1.28 / 11.1 / 26.3 / 0.0	24.68	H / 1.00 / 0	-21.32	n/a
224.265 MHz	38.8 Qp	1.29 / 11.1 / 26.3 / 0.0	24.89	H / 1.00 / 0	-21.11	n/a
240.0 MHz	40.65 Qp	1.3 / 11.76 / 26.3 / 0.0	27.41	H / 1.00 / 0	-18.59	n/a
265.2 MHz	37.0 Qp	1.43 / 12.58 / 26.41 / 0.0	24.6	H / 1.00 / 0	-21.4	n/a
251.988 MHz	46.1 Qp	1.35 / 12.16 / 26.33 / 0.0	33.28	H / 1.00 / 0	-12.72	n/a
260.0 MHz	41.25 Qp	1.4 / 12.7 / 26.38 / 0.0	28.97	H / 1.00 / 0	-17.03	n/a
280.0 MHz	46.15 Qp	1.5 / 12.66 / 26.48 / 0.0	33.83	H / 1.00 / 0	-12.17	n/a
300.0 MHz	38.6 Qp	1.5 / 13.73 / 26.58 / 0.0	27.25	H / 1.00 / 0	-18.75	n/a
420.0 MHz	33.0 Qp	1.7 / 16.84 / 26.77 / 0.0	24.77	H / 1.00 / 0	-21.23	n/a
336.0 MHz	48.2 Qp	1.57 / 14.27 / 26.7 / 0.0	37.34	H / 1.00 / 0	-8.66	n/a
336.0 MHz	40.35 Qp	1.57 / 14.27 / 26.7 / 0.0	29.49	V / 1.00 / 0	-16.51	n/a
336 MHz maxed:						
336.0 MHz	61.6 Qp	1.57 / 14.27 / 26.7 / 0.0	50.74	V / 1.10 / 167	4.74	n/a

Tested by: J. C. Sausen  
 Printed \_\_\_\_\_ Signature J C Sausen

Reviewed by: TKS  
 Printed \_\_\_\_\_ Signature Thomas K. Swanson

File No. WC403349.2, Page A9 of A16

## Field strength of spurious radiation

### RADIATED EMISSIONS



Test Report #: WC403349 Run 9 Test Area: LTS

EUT Model #: RSU-2400A Date: 8/5/04

EUT Serial #: \_\_\_\_\_ EUT Power: 60 Hz / 110 VAC Temperature: 23.0 °C

Test Method: FCC B Air Pressure: 99.0 kPa

Customer: Next Net Rel. Humidity: 65.0 %

EUT Description: 2.4 GHz TRx & Rcvr Residential Subscriber Unit

Notes: Note P/S change on data line #119.

Data File Name: 3349-9.dat Page: 4 of 8

List of measurements for run #: 9						
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-B <1GHz 3m	DELTA2 FCC B >1GHz 3m
Added 36pF caps to ethernet lines:						
336.0 MHz	41.27 Qp	1.57 / 14.27 / 26.7 / 0.0	30.41	V / 1.10 / 167	-15.59	n/a
336.0 MHz	41.75 Qp	1.57 / 14.27 / 26.7 / 0.0	30.89	V / 1.40 / 226	-15.11	n/a
223.989 MHz	47.9 Qp	1.28 / 11.1 / 26.3 / 0.0	33.98	V / 1.10 / 180	-12.02	n/a
87.711 MHz	50.4 Qp	0.8 / 7.5 / 25.81 / 0.0	32.89	V / 1.10 / 180	-7.11	n/a
115.011 MHz	54.7 Qp	0.9 / 9.6 / 25.9 / 0.0	39.3	V / 1.00 / 195	-4.2	n/a
195.994 MHz	41.95 Qp	1.19 / 11.33 / 26.27 / 0.0	28.2	V / 1.00 / 195	-15.3	n/a
223.989 MHz	49.7 Qp	1.28 / 11.1 / 26.3 / 0.0	35.78	V / 1.00 / 195	-10.22	n/a
265.2 MHz	40.5 Qp	1.43 / 12.58 / 26.41 / 0.0	28.1	V / 1.00 / 195	-17.9	n/a
300.0 MHz	38.4 Qp	1.5 / 13.73 / 26.58 / 0.0	27.05	V / 1.00 / 195	-18.95	n/a
420.0 MHz	38.6 Qp	1.7 / 16.84 / 26.77 / 0.0	30.37	V / 1.00 / 195	-15.63	n/a
32.93 MHz	37.85 Qp	0.45 / 19.5 / 25.9 / 0.0	31.9	V / 1.00 / 195	-8.1	n/a
DISCONNECTED ETHERNET CONNECTION AT LAPTOP IN SCREEN ROOM.						
EUT FULLY OPERATIONAL.						
115.011 MHz	57.53 Qp	0.9 / 9.6 / 25.9 / 0.0	42.13	V / 1.00 / 195	-1.37	n/a
2.44 GHz MODE:						
115.011 MHz	57.44 Qp	0.9 / 9.6 / 25.9 / 0.0	42.04	V / 1.00 / 195	-1.46	n/a
2.476 GHz MODE:						
115.011 MHz	57.33 Qp	0.9 / 9.6 / 25.9 / 0.0	41.93	V / 1.00 / 195	-1.57	n/a
2.593 GHz MODE:						
115.011 MHz	57.69 Qp	0.9 / 9.6 / 25.9 / 0.0	42.29	V / 1.00 / 195	-1.21	n/a

Tested by: J. C. Sausen  
 \_\_\_\_\_  
 Printed Signature

Reviewed by: TKS  
 \_\_\_\_\_  
 Printed Signature

File No. WC403349.2, Page A10 of A16

## Field strength of spurious radiation

### RADIATED EMISSIONS



Test Report #: WC403349 Run 9 Test Area: LTS

EUT Model #: RSU-2400A Date: 8/5/04

EUT Serial #: \_\_\_\_\_ EUT Power: 60 Hz / 110 VAC Temperature: 23.0 °C

Test Method: FCC B Air Pressure: 99.0 kPa

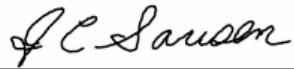
Customer: Next Net Rel. Humidity: 65.0 %

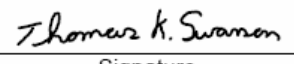
EUT Description: 2.4 GHz TRx & Rcvr Residential Subscriber Unit

Notes: Note P/S change on data line #119.

Data File Name: 3349-9.dat Page: 5 of 8

List of measurements for run #: 9						
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-B <1GHz 3m	DELTA2 FCC B >1GHz 3m
NOTE!!! THE ABOVE MEASUREMENTS AT 115 MHZ SHOW THAT THE LOW FREQUENCY EMISSIONS DO NOT CHANGE WITH TRANSMIT FREQUENCY CHANGES.						
32.93 MHz	39.6 Qp	0.45 / 19.5 / 25.9 / 0.0	33.65	V / 1.00 / 195	-6.35	n/a
195.994 MHz	42.0 Qp	1.19 / 11.33 / 26.27 / 0.0	28.25	V / 1.00 / 195	-15.25	n/a
223.989 MHz	49.4 Qp	1.28 / 11.1 / 26.3 / 0.0	35.48	V / 1.00 / 195	-10.52	n/a
265.2 MHz	40.7 Qp	1.43 / 12.58 / 26.41 / 0.0	28.3	V / 1.00 / 195	-17.7	n/a
87.711 MHz	57.05 Qp	0.8 / 7.5 / 25.81 / 0.0	39.54	V / 1.00 / 270	-0.46	n/a
87 MHz MAXED:						
87.711 MHz	57.28 Qp	0.8 / 7.5 / 25.81 / 0.0	39.77	V / 1.00 / 5	-0.23	n/a
MOVED CABLE TO MAXIMIZE EMISSION LEVEL AT 87.7 MHZ: ADDED STEWARD FERRITE #25A0393-0A0 TO RSU END OF DC POWER CORD.						
87.711 MHz	57.55 Qp	0.8 / 7.5 / 25.81 / 0.0	40.04	V / 1.00 / 5	0.04	n/a
99.801 MHz	65.12 Qp	0.88 / 9.04 / 25.9 / 0.0	49.15	V / 1.00 / 5	5.65	n/a
REMOVED ALL FERRITES. CHANGED TO: NEXTNET WIRELESS P/S MODEL: GT-21097-5024-4.5.						
87.711 MHz	39.65 Qp	0.8 / 7.5 / 25.81 / 0.0	22.14	V / 1.00 / 5	-17.86	n/a
99.801 MHz	42.95 Qp	0.88 / 9.04 / 25.9 / 0.0	26.98	V / 1.00 / 5	-16.52	n/a
78.531 MHz	44.2 Qp	0.77 / 7.69 / 25.8 / 0.0	26.87	V / 1.00 / 5	-13.13	n/a
118.731 MHz	42.3 Qp	0.9 / 9.6 / 25.95 / 0.0	26.85	V / 1.00 / 5	-16.65	n/a
134.589 MHz	40.6 Qp	1.0 / 8.55 / 26.07 / 0.0	24.08	V / 1.00 / 5	-19.42	n/a
140.002 MHz	49.8 Qp	1.0 / 9.27 / 26.01 / 0.0	34.05	V / 1.00 / 5	-9.45	n/a
32.93 MHz	33.05 Qp	0.45 / 19.5 / 25.9 / 0.0	27.1	V / 1.00 / 5	-12.9	n/a
33.164 MHz	33.0 Qp	0.45 / 19.43 / 25.9 / 0.0	26.97	V / 1.00 / 5	-13.03	n/a
115.011 MHz	40.05 Qp	0.9 / 9.6 / 25.9 / 0.0	24.65	V / 1.00 / 5	-18.85	n/a

Tested by: J. C. Sausen   
 Printed Signature

Reviewed by: TKS   
 Printed Signature

File No. WC403349.2, Page A11 of A16

## Field strength of spurious radiation

### RADIATED EMISSIONS



Test Report #: WC403349 Run 9 Test Area: LTS

EUT Model #: RSU-2400A Date: 8/5/04

EUT Serial #: \_\_\_\_\_ EUT Power: 60 Hz / 110 VAC Temperature: 23.0 °C

Test Method: FCC B Air Pressure: 99.0 kPa

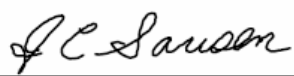
Customer: Next Net Rel. Humidity: 65.0 %

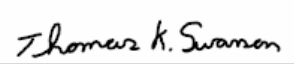
EUT Description: 2.4 GHz TRx & Rcvr Residential Subscriber Unit

Notes: Note P/S change on data line #119.

Data File Name: 3349-9.dat Page: 6 of 8

List of measurements for run #: 9						
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-B <1GHz 3m	DELTA2 FCC B >1GHz 3m
195.994 MHz	45.05 Qp	1.19 / 11.33 / 26.27 / 0.0	31.3	V / 1.00 / 5	-12.2	n/a
223.989 MHz	54.7 Qp	1.28 / 11.1 / 26.3 / 0.0	40.78	V / 1.00 / 5	-5.22	n/a
218.589 MHz	54.1 Qp	1.25 / 11.0 / 26.3 / 0.0	40.05	V / 1.00 / 5	-5.95	n/a
240.0 MHz	41.85 Qp	1.3 / 11.76 / 26.3 / 0.0	28.61	V / 1.00 / 5	-17.39	n/a
251.988 MHz	44.65 Qp	1.35 / 12.16 / 26.33 / 0.0	31.83	V / 1.00 / 5	-14.17	n/a
260.0 MHz	36.55 Qp	1.4 / 12.7 / 26.38 / 0.0	24.27	V / 1.00 / 5	-21.73	n/a
265.2 MHz	30.7 Qp	1.43 / 12.58 / 26.41 / 0.0	18.3	V / 1.00 / 5	-27.7	n/a
280.0 MHz	44.7 Qp	1.5 / 12.66 / 26.48 / 0.0	32.38	V / 1.00 / 5	-13.62	n/a
300.0 MHz	35.45 Qp	1.5 / 13.73 / 26.58 / 0.0	24.1	V / 1.00 / 5	-21.9	n/a
336.0 MHz	33.05 Qp	1.57 / 14.27 / 26.7 / 0.0	22.19	V / 1.00 / 5	-23.81	n/a
420.0 MHz	31.95 Qp	1.7 / 16.84 / 26.77 / 0.0	23.72	V / 1.00 / 5	-22.28	n/a
223.9 MHz MAXED:						
223.989 MHz	53.65 Qp	1.28 / 11.1 / 26.3 / 0.0	39.73	V / 1.00 / 259	-6.27	n/a
87.711 MHz	35.8 Qp	0.8 / 7.5 / 25.81 / 0.0	18.29	V / 1.00 / 5	-21.71	n/a
99.801 MHz	42.45 Qp	0.88 / 9.04 / 25.9 / 0.0	26.48	V / 1.00 / 5	-17.02	n/a
179.391 MHz	38.45 Qp	1.1 / 9.43 / 26.14 / 0.0	22.84	V / 1.00 / 5	-20.66	n/a
218.589 MHz	52.55 Qp	1.25 / 11.0 / 26.3 / 0.0	38.5	V / 1.00 / 5	-7.5	n/a
224.265 MHz	50.4 Qp	1.29 / 11.1 / 26.3 / 0.0	36.49	V / 1.00 / 5	-9.51	n/a
No further significant EUT emissions detected 30 MHz to 12.5 GHz, vert and hor ant.						

Tested by: J. C. Sausen   
 Printed Signature

Reviewed by: TKS   
 Printed Signature

File No. WC403349.2, Page A12 of A16

## Field strength of spurious radiation

### RADIATED EMISSIONS



Test Report #: <u>WC403349 Run 9</u>	Test Area: <u>LTS</u>		
EUT Model #: <u>RSU-2400A</u>	Date: <u>8/5/04</u>		
EUT Serial #: _____	EUT Power: <u>60 Hz / 110 VAC</u>	Temperature: <u>23.0</u> °C	
Test Method: <u>FCC B</u>		Air Pressure: <u>99.0</u> kPa	
Customer: <u>Next Net</u>		Rel. Humidity: <u>65.0</u> %	
EUT Description: <u>2.4 GHz TRx &amp; Rcvr Residential Subscriber Unit</u>			
Notes: <u>Note P/S change on data line #119.</u>			
Data File Name: <u>3349-9.dat</u>		Page: <u>7 of 8</u>	

Measurement summary for limit1: FCC-B <1GHz 3m (Qp)					
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-B <1GHz 3m
223.989 MHz	54.7 Qp	1.28 / 11.1 / 26.3 / 0.0	40.78	V / 1.00 / 5	-5.22
218.589 MHz	54.1 Qp	1.25 / 11.0 / 26.3 / 0.0	40.05	V / 1.00 / 5	-5.95
32.93 MHz	39.6 Qp	0.45 / 19.5 / 25.9 / 0.0	33.65	V / 1.00 / 195	-6.35
336.0 MHz	48.2 Qp	1.57 / 14.27 / 26.7 / 0.0	37.34	H / 1.00 / 0	-8.66
140.002 MHz	49.8 Qp	1.0 / 9.27 / 26.01 / 0.0	34.05	V / 1.00 / 5	-9.45
224.265 MHz	50.4 Qp	1.29 / 11.1 / 26.3 / 0.0	36.49	V / 1.00 / 5	-9.51
280.0 MHz	46.15 Qp	1.5 / 12.66 / 26.48 / 0.0	33.83	H / 1.00 / 0	-12.17
195.994 MHz	45.05 Qp	1.19 / 11.33 / 26.27 / 0.0	31.3	V / 1.00 / 5	-12.2
251.988 MHz	46.1 Qp	1.35 / 12.16 / 26.33 / 0.0	33.28	H / 1.00 / 0	-12.72
33.164 MHz	33.0 Qp	0.45 / 19.43 / 25.9 / 0.0	26.97	V / 1.00 / 5	-13.03
78.531 MHz	44.2 Qp	0.77 / 7.69 / 25.8 / 0.0	26.87	V / 1.00 / 5	-13.13
420.0 MHz	38.6 Qp	1.7 / 16.84 / 26.77 / 0.0	30.37	V / 1.00 / 195	-15.63
99.801 MHz	42.95 Qp	0.88 / 9.04 / 25.9 / 0.0	26.98	V / 1.00 / 5	-16.52
118.731 MHz	42.3 Qp	0.9 / 9.6 / 25.95 / 0.0	26.85	V / 1.00 / 5	-16.65
260.0 MHz	41.25 Qp	1.4 / 12.7 / 26.38 / 0.0	28.97	H / 1.00 / 0	-17.03
240.0 MHz	41.85 Qp	1.3 / 11.76 / 26.3 / 0.0	28.61	V / 1.00 / 5	-17.39
265.2 MHz	40.7 Qp	1.43 / 12.58 / 26.41 / 0.0	28.3	V / 1.00 / 195	-17.7
87.711 MHz	39.65 Qp	0.8 / 7.5 / 25.81 / 0.0	22.14	V / 1.00 / 5	-17.86
300.0 MHz	38.6 Qp	1.5 / 13.73 / 26.58 / 0.0	27.25	H / 1.00 / 0	-18.75
115.011 MHz	40.05 Qp	0.9 / 9.6 / 25.9 / 0.0	24.65	V / 1.00 / 5	-18.85
134.589 MHz	40.6 Qp	1.0 / 8.55 / 26.07 / 0.0	24.08	V / 1.00 / 5	-19.42
179.391 MHz	38.45 Qp	1.1 / 9.43 / 26.14 / 0.0	22.84	V / 1.00 / 5	-20.66

Tested by:	J. C. Sausen	
	Printed	Signature
Reviewed by:	TKS	
	Printed	Signature

File No. WC403349.2, Page A13 of A16



## Field strength of spurious radiation

### RADIATED EMISSIONS



Test Report #: <u>WC403349 Run 9</u>	Test Area: <u>LTS</u>		
EUT Model #: <u>RSU-2400A</u>	Date: <u>8/5/04</u>		
EUT Serial #: _____	EUT Power: <u>60 Hz / 110 VAC</u>	Temperature: <u>23.0</u> °C	
Test Method: <u>FCC B</u>		Air Pressure: <u>99.0</u> kPa	
Customer: <u>Next Net</u>		Rel. Humidity: <u>65.0</u> %	
EUT Description: <u>2.4 GHz TRx &amp; Rcvr Residential Subscriber Unit</u>			
Notes: <u>Note P/S change on data line #119.</u>			
Data File Name: <u>3349-9.dat</u>		Page: <u>8 of 8</u>	

Measurement summary for limit2: FCC B >1GHz 3m (Av)					
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA2 FCC B >1GHz 3m
7.779 GHz	47.68 Av	8.25 / 37.63 / 43.71 / 0.0	49.85	H / 1.00 / 0	-4.15
7.212 GHz	45.7 Av	8.1 / 37.22 / 44.1 / 0.0	46.92	H / 1.00 / 0	-7.08
7.32 GHz	44.65 Av	8.1 / 37.44 / 44.06 / 0.0	46.13	H / 1.00 / 0	-7.87
7.428 GHz	41.52 Av	8.12 / 37.66 / 44.01 / 0.0	43.28	H / 1.00 / 0	-10.72
4.88 GHz	38.36 Av	6.39 / 34.76 / 44.04 / 0.0	35.48	H / 1.00 / 0	-18.52
4.952 GHz	37.65 Av	6.46 / 34.97 / 44.0 / 0.0	35.07	H / 1.00 / 0	-18.93
4.808 GHz	37.88 Av	6.33 / 34.56 / 44.11 / 0.0	34.66	H / 1.00 / 0	-19.34
5.186 GHz	35.76 Av	6.61 / 35.4 / 44.0 / 0.0	33.77	V / 1.00 / 0	-20.23
1.849 GHz	41.56 Av	3.83 / 28.73 / 42.55 / 0.0	31.57	V / 1.00 / 0	-22.43
2.079 GHz	40.8 Av	3.9 / 29.77 / 43.27 / 0.0	31.21	V / 1.00 / 0	-22.79
1.904 GHz	40.59 Av	3.87 / 29.04 / 42.68 / 0.0	30.82	V / 1.00 / 0	-23.18
1.796 GHz	40.65 Av	3.78 / 28.41 / 42.37 / 0.0	30.47	V / 1.00 / 0	-23.53
1.17 GHz	39.61 Av	2.97 / 26.5 / 40.1 / 0.0	28.98	V / 1.00 / 0	-25.02
1.908 GHz	38.21 Av	3.88 / 29.07 / 42.69 / 0.0	28.46	H / 1.00 / 0	-25.54

Tested by:	J. C. Sausen		
	Printed	Signature	
Reviewed by:	TKS		
	Printed	Signature	

File No. WC403349.2, Page A14 of A16

## Field strength of spurious radiation

### RADIATED EMISSIONS



Test Report #: <u>WC403349 Run 9</u>	Test Area: <u>LTS</u>		
EUT Model #: <u>RSU-2400A</u>	Date: <u>9/9/2004</u>		
EUT Serial #: _____	EUT Power: <u>60 Hz 110 VAC</u>	Temperature: <u>23.0</u> °C	
Test Method: <u>FCC Part 2.1053</u>		Air Pressure: <u>99.0</u> kPa	
Customer: <u>NextNet</u>		Rel. Humidity: <u>65.0</u> %	
EUT Description: <u>2.4 GHZ TRx &amp; Rcvr Residential Subscriber Unit</u>			
Notes: _____			
Data File Name: <u>3349-9_dBm.dat</u>		Page: <u>1</u> of <u>2</u>	

Substitution performed at 115 MHz. Final level of 42.29 dBuV/m matches -48.5 dBm.  
 Matching dBm level - (cable loss) + (antenna gain) = Final ERP.  
 -48.5 - (.8) + (-6.2) = -55.5 dBm

Limit is -13 dBm. Minimum passing margin is 34 dB at 7779.0 MHz with a level of -47.94 dBm.

List of measurements for run #: 1						
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBm)	POL / HGT / AZ (m) (DEG)	DELTA1	DELTA2
223.989 MHz	54.7 Qp	1.28 / 11.1 / 26.3 / -97.79	-57.01	V / 1.00 / 0	n/a	n/a
218.589 MHz	54.1 Qp	1.25 / 11.0 / 26.3 / -97.79	-57.74	V / 1.00 / 0	n/a	n/a
32.93 MHz	39.6 Qp	0.45 / 19.5 / 25.9 / -97.79	-64.14	V / 1.00 / 0	n/a	n/a
336.0 MHz	48.2 Qp	1.57 / 14.27 / 26.7 / -97.79	-60.45	V / 1.00 / 0	n/a	n/a
140.0 MHz	49.8 Qp	1.0 / 9.26 / 26.02 / -97.79	-63.74	V / 1.00 / 0	n/a	n/a
224.265 MHz	50.4 Qp	1.29 / 11.1 / 26.3 / -97.79	-61.3	V / 1.00 / 0	n/a	n/a
280.0 MHz	46.15 Qp	1.5 / 12.66 / 26.48 / -97.79	-63.96	V / 1.00 / 0	n/a	n/a
195.994 MHz	45.05 Qp	1.19 / 11.33 / 26.27 / -97.79	-66.49	V / 1.00 / 0	n/a	n/a
251.988 MHz	46.1 Qp	1.35 / 12.16 / 26.33 / -97.79	-64.51	V / 1.00 / 0	n/a	n/a
33.164 MHz	33.0 Qp	0.45 / 19.43 / 25.9 / -97.79	-70.82	V / 1.00 / 0	n/a	n/a
78.531 MHz	44.2 Qp	0.77 / 7.69 / 25.8 / -97.79	-70.92	V / 1.00 / 0	n/a	n/a
420.0 MHz	38.6 Qp	1.7 / 16.84 / 26.77 / -97.79	-67.42	V / 1.00 / 0	n/a	n/a
99.801 MHz	42.95 Qp	0.88 / 9.04 / 25.9 / -97.79	-70.81	V / 1.00 / 0	n/a	n/a
118.71 MHz	42.3 Qp	0.9 / 9.6 / 25.95 / -97.79	-70.94	V / 1.00 / 0	n/a	n/a
260.0 MHz	41.25 Qp	1.4 / 12.7 / 26.38 / -97.79	-68.82	V / 1.00 / 0	n/a	n/a
240.0 MHz	41.85 Qp	1.3 / 11.76 / 26.3 / -97.79	-69.18	V / 1.00 / 0	n/a	n/a

Tested by:	J. C. Sausen		
	Printed	Signature	
Reviewed by:	T. K. Swanson		
	Printed	Signature	

File No. WC403349.2, Page A15 of A16

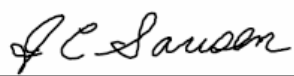
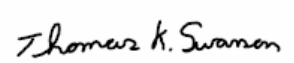
## Field strength of spurious radiation

### RADIATED EMISSIONS



Test Report #: WC403349 Run 9 Test Area: LTS  
 EUT Model #: RSU-2400A Date: 9/9/2004  
 EUT Serial #: \_\_\_\_\_ EUT Power: 60 Hz 110 VAC Temperature: 23.0 °C  
 Test Method: FCC Part 2.1053 Air Pressure: 99.0 kPa  
 Customer: NextNet Rel. Humidity: 65.0 %  
 EUT Description: 2.4 GHZ TRx & Rcvr Residential Subscriber Unit  
 Notes: \_\_\_\_\_  
 Data File Name: 3349-9\_dBm.dat Page: 2 of 2

List of measurements for run #: 1						
FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBm)	POL / HGT / AZ (m)(DEG)	DELTA1	DELTA2
265.2 MHz	40.7 Qp	1.43 / 12.58 / 26.41 / -97.79	-69.49	V / 1.00 / 0	n/a	n/a
87.711 MHz	39.65 Qp	0.8 / 7.5 / 25.81 / -97.79	-75.65	V / 1.00 / 0	n/a	n/a
300.0 MHz	38.6 Qp	1.5 / 13.73 / 26.58 / -97.79	-70.54	V / 1.00 / 0	n/a	n/a
115.011 MHz	40.05 Qp	0.9 / 9.6 / 25.9 / -97.79	-73.14	V / 1.00 / 0	n/a	n/a
134.589 MHz	40.6 Qp	1.0 / 8.55 / 26.07 / -97.79	-73.71	V / 1.00 / 0	n/a	n/a
179.391 MHz	38.45 Qp	1.1 / 9.43 / 26.14 / -97.79	-74.95	V / 1.00 / 0	n/a	n/a
7.779 GHz	47.68 Av	8.25 / 37.63 / 43.71 / -97.79	-47.94	V / 1.00 / 0	n/a	n/a
7.212 GHz	45.7 Av	8.1 / 37.22 / 44.1 / -97.79	-50.87	V / 1.00 / 0	n/a	n/a
7.32 GHz	44.65 Av	8.1 / 37.44 / 44.06 / -97.79	-51.66	V / 1.00 / 0	n/a	n/a
7.428 GHz	41.52 Av	8.12 / 37.66 / 44.01 / -97.79	-54.51	V / 1.00 / 0	n/a	n/a
4.88 GHz	38.36 Av	6.39 / 34.76 / 44.04 / -97.79	-62.31	V / 1.00 / 0	n/a	n/a
4.952 GHz	37.65 Av	6.46 / 34.97 / 44.0 / -97.79	-62.72	V / 1.00 / 0	n/a	n/a
4.804 GHz	37.88 Av	6.32 / 34.55 / 44.11 / -97.79	-63.14	V / 1.00 / 0	n/a	n/a
5.186 GHz	35.76 Av	6.61 / 35.4 / 44.0 / -97.79	-64.02	V / 1.00 / 0	n/a	n/a
1.849 GHz	41.56 Av	3.83 / 28.72 / 42.55 / -97.79	-66.22	V / 1.00 / 0	n/a	n/a
2.079 GHz	40.8 Av	3.9 / 29.77 / 43.27 / -97.79	-66.58	V / 1.00 / 0	n/a	n/a
1.904 GHz	40.59 Av	3.87 / 29.04 / 42.68 / -97.79	-66.97	V / 1.00 / 0	n/a	n/a
1.796 GHz	40.65 Av	3.78 / 28.42 / 42.38 / -97.79	-67.32	V / 1.00 / 0	n/a	n/a
1.17 GHz	39.61 Av	2.97 / 26.5 / 40.1 / -97.79	-68.81	V / 1.00 / 0	n/a	n/a
1.908 GHz	38.21 Av	3.88 / 29.07 / 42.69 / -97.79	-69.33	V / 1.00 / 0	n/a	n/a

Tested by: J. C. Sausen   
 Printed Signature  
 Reviewed by: T. K. Swanson   
 Printed Signature

File No. WC403349.2, Page A16 of A16

## Field strength of spurious radiation



### Appendix B

Constructional Data Form



File No. WC403349.2, Page B1 of B8

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0

## Field strength of spurious radiation

Form

### EMC Test Plan and Constructional Data Form



PLEASE COMPLETE THIS DOCUMENT IN FULL, ENTERING N/A IF THE FIELD IS NOT APPLICABLE.

**Applicant** -- 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: NextNet Wireless, Inc.  
Address: 9555 James Avenue South  
Suite 270  
Bloomington, MN 55431  
Contact: Tim Blom Position: Principal Engineer  
Phone: 507-837-1057 x212 Fax: 507-837-1059  
E-mail Address: blomt@nextnetwireless.com

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

EUT Description: ISM/MMDS Indoor Customer Premise Equipment  
EUT Name: Expedience  
Model No.: 900-0041-1XXX Serial No.: board # 2008687  
Product Options: none  
Configurations to be tested: standard

#### Test Objective

- |  |   |
|--|---|
| <input type="checkbox"/> EMC Directive 89/336/EEC (EMC)<br>Std: _____                        | <input checked="" type="checkbox"/> FCC: Class <input type="checkbox"/> A <input checked="" type="checkbox"/> B Part 15 |
| <input type="checkbox"/> Machinery Directive 89/392/EEC (EMC)<br>Std: _____                  | <input type="checkbox"/> VCCI: Class <input type="checkbox"/> A <input type="checkbox"/> B                              |
| <input type="checkbox"/> Medical Device Directive 93/42/EEC (EMC)<br>Std: _____              | <input type="checkbox"/> BCIC: Class <input type="checkbox"/> A <input type="checkbox"/> B                              |
| <input type="checkbox"/> Vehicle Directive 72/245/EEC (EMC)<br>Std: _____                    | <input type="checkbox"/> Canada: Class <input type="checkbox"/> A <input type="checkbox"/> B                            |
| <input type="checkbox"/> FDA Reviewers Guidance for Premarket Notification Submissions (EMC) | <input type="checkbox"/> Australia: Class <input type="checkbox"/> A <input type="checkbox"/> B                         |
|  | <input checked="" type="checkbox"/> Other: <u>FCC Parts 2, 15B/C, 21, 74</u>  |

#### TUV Product Service Certification Requested

- |  |   |
|--|---|
| <input type="checkbox"/> Attestation of Conformity (AoC) | <input type="checkbox"/> International EMC Mark (IEM)   |
| <input type="checkbox"/> Certificate of Conformity (CoC) | <input type="checkbox"/> Compliance Document  |
| Protection Class (N/A for vehicles)                      | <input type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III |

File No. WC403349.2, Page B2 of B8

## Field strength of spurious radiation

Form

### EMC Test Plan and Constructional Data Form



(Press F1 when field is selected to show additional information on Protection Class.)

#### 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, TUV Product Service 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: 6.25"      Width: 1.125"      Height: 9.25"      Weight: 1.5Lb  
: \_\_\_\_\_

#### 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: 120 (if battery powered, make sure battery life is sufficient to complete testing.)

# of Phases: 1

Current (Amps/phase(max)): 1      Current (Amps/phase(nominal)): .5

Other: ---

#### Other Special Requirements

N/A

#### Typical Installation and/or Operating Environment

(ie. Hospital, Small Business, Industrial/Factory, etc.)  
Home or small business

#### EUT Power Cable

Permanent      OR       Removable      Length (in meters): 2  
 Shielded      OR       Unshielded  
 Not Applicable

## Field strength of spurious radiation

Form

### EMC Test Plan and Constructional Data Form



EUT Interface Ports and Cables												
Interface				Shielding								
Type	Analog	Digital	Qty	Yes	No	Type	Termination	Connector Type	Port Termination	Length (in meters)	Removable	Permanent
<i>EXAMPLE:</i> RS232	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<i>Foil over braid</i>	<i>Coaxial</i>	<i>Metallized 9-pin D-Sub</i>	<i>Characteristic Impedance</i>	6	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15DC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	twin pair		Circular	DC	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ethernet	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	CAT-5		RJ-45	100 ohm	15	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>						<input type="checkbox"/>	<input type="checkbox"/>

## Field strength of spurious radiation

Form

### EMC Test Plan and Constructional Data Form



**EUT Software.**

Revision Level: 2.2

Description: Expedience software

**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. Customer Premise Equipment transmitter. FCC Parts 2, 15C, 21, and 74.
2. Customer Premise Equipment receive. FCC Part 15B
- 3.

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

Description	Model #	Serial #	FCC ID #
CPE transmitter / receiver	900-0041-1XXX	Board # 2008687	PHX-RSU2400A



## Field strength of spurious radiation

Form

### EMC Test Plan and Constructional Data Form



<b>Support Equipment</b> -- List and describe all support equipment which is not part of the EUT. (i.e. peripherals, simulators, etc.)			
Description	Model #	Serial #	FCC ID #
Dell laptop computer	Inspiron 5000	000832RM-12961-04R-0441	N/A
D-Link switch	DSS-5+	B20533503175	N/A

<b>Oscillator Frequencies</b>			
Frequency	Derived Frequency	Component # / Location	Description of Use
20.000MHz	N	Y902	TCXO for main stability
1100k/200k /70k	N	U1, U5, U6	power supply switches

<b>Power Supply</b>			
Manufacturer	Model #	Serial #	Type
Group West International	BUT-15-1660	n/a	<input checked="" type="checkbox"/> Switched-mode: (Frequency) 100 kHz <input type="checkbox"/> Linear <input type="checkbox"/> Other: _____
			<input type="checkbox"/> Switched-mode: (Frequency) _____ <input type="checkbox"/> Linear <input type="checkbox"/> Other: _____

<b>Power Line Filters</b>		
Manufacturer	Model #	Location in EUT
N/A		

File No. WC403349.2, Page B6 of B8

## Field strength of spurious radiation

Form

### 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.**

N/A

(PLEASE INSERT "ELECTRONIC SIGNATURE" BELOW IF POSSIBLE)

**Authorization Signatures**

/s/ Tim Blom	8/2/2004
Customer authorization to perform tests according to this test plan.	Date
Test Plan/CDF Prepared By (please print)	Date
Reviewed by TÜV Product Service Associate	Date

## Field strength of spurious radiation

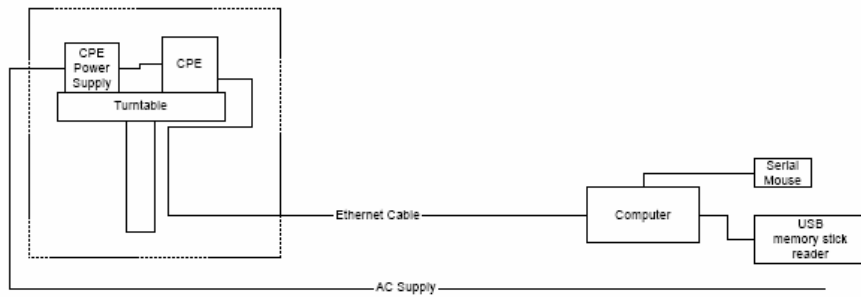
Form

### 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.

-Part 15B/C test setup for ISM/MMDS Customer Premise Equipment (CPE) for DOC compliance.  
Parts 2, 15B/C, 21, and 74 test setup for ISM/MMDS Customer Premise Equipment (CPE).



#### Authorization Signatures

/s/ Tim Blom

8/2/2004

Customer authorization to perform tests  
according to this test plan.

Date

Test Plan/CDF Prepared By (please print)

Date

Reviewed by TUV Product Service Associate

Date

File No. WC403349.2, Page B8 of B8

## Field strength of spurious radiation



### Appendix C

#### MEASUREMENT PROTOCOL FOR FCC

##### GENERAL INFORMATION

In compliance with FCC Docket 92-152, "Harmonization of Rules for Digital Devices Incorporate International Standards", testing for FCC compliance may be done following the ANSI C63.4-1992 procedures and using the CISPR 22 Limits.

##### Measurement Uncertainty

The test system for conducted emissions is defined as the LISN, tuned receiver or spectrum analyzer, and coaxial cable. The test system for radiated emissions is defined as the antenna, the pre-amplifier, the spectrum analyzer and the coaxial cable. These test systems have a measurement uncertainty of  $\pm 4.8$  dB. The equipment comprising the test systems are calibrated on an annual basis.

##### Justification

The Equipment Under Test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions. A cable is connected to each available port and either terminated with a peripheral into its characteristic impedance or left unterminated. When appropriate, the cables are manually manipulated with respect to each other to obtain maximum emissions from the unit.

##### CONDUCTED EMISSIONS

The final level, expressed in dB $\mu$ V, is arrived at by taking the reading directly from the EMI receiver. This level is compared directly to the CISPR limit. Conducted and radiated emission testing is performed according to the procedures in ANSI C.63.4-1992.

To convert between dB $\mu$ V and  $\mu$ V, the following conversions apply:

$$\text{dB}\mu\text{V} = 20(\log \mu\text{V})$$

$$\mu\text{V} = \text{Inverse log}(\text{dB}\mu\text{V}/20)$$

##### RADIATED EMISSIONS

The final level, expressed in dB $\mu$ V/m, is arrived at by taking the reading from the spectrum analyzer (Level dB $\mu$ V), adding the antenna correction factor and cable loss factor (Factor dB) to it, then subtracting the preamp gain. This result then has the CISPR limit subtracted from it to provide the Delta which gives the tabular data as shown in the data sheets in Attachment A.

Example:

FREQ (MHz)	LEVEL (dB $\mu$ V)	CABLE/ANT/PREAMP (dB)	FINAL (dB/m) (dB)	FINAL (dB $\mu$ V/m)	POL/HGT/AZ (m) (deg)	DELTA1 FCC
60.80	42.5Qp	+ 1.2 + 10.9	- 25.5 =	29.1	V 1.0 0.0	-10.9

File No. WC403349.2, Page C1 of C2

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0

## Field strength of spurious radiation



### DETAILS OF TEST PROCEDURES

#### General Standard Information

The test methods used comply with ANSI C63.4-1992 - "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz."

#### Conducted Emissions

Conducted emissions on the 60 Hz power interface of the EUT are measured in the frequency range of 450 kHz to 30 MHz. The measurements are performed using a receiver, which has CISPR characteristic bandwidth and quasi-peak detection, and a Line Impedance Stabilization Network (LISN), with 50  $\Omega$ /50  $\mu$ H (CISPR 16) characteristics. Table top equipment is placed on a non-conducting table 80 centimeters above the floor and is positioned 40 centimeters from the vertical ground plane (wall) of the screen room. In some cases, a pre-scan using a spectrum analyzer is initially performed on the units comprising the system under test to locate the highest emissions. If the minimum passing margin appears to be less than 20 dB with a peak mode measurement, the emissions are re-measured using a tuned receiver or spectrum analyzer with quasi-peak and average detection and recorded on the data sheets.

#### Radiated Emissions

Radiated emissions from the EUT are measured in the frequency range of 30 to 12500 MHz using a spectrum analyzer and appropriate broadband linearly polarized antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasi-peak detection and measurements above 1000 MHz are made with a 1 MHz/6 dB bandwidth and peak detection. Table top equipment is placed on a 1.0 X 1.5 meter non-conducting table 80 centimeters above the ground plane. Floor standing equipment is placed directly on the turntable/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 10 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 are rotated 360 degrees. The EUT is then replaced with a tuned dipole antenna (below 1 GHz) or horn antenna (above 1 GHz). The substitute antenna was placed in the same polarization as the test antenna. A signal generator was used to generate a signal level that matched the level measured from the EUT. The signal level minus the cable loss from the signal generator to the substitute antenna plus the substitute antenna gain equals the spurious power level.

File No. WC403349.2, Page C2 of C2

TÜV PRODUCT SERVICE INC 19333 Wild Mountain Road Taylors Falls MN 55084-1758 Tel: 651 638 0297 Fax: 651 638 0298 Rev.No 1.0

## Frequency Stability

Rule Part Number: 2.1055, 21.101(a), 74.961(a)

Stability Requirements: 0.001 % or 10 ppm

Test Procedure: The local oscillator signal that drives the transmit modulator was lightly coupled onto an RF probe and applied to a spectrum analyzer. The frequency of the RF VCO was monitored and recorded for changes due to temperature change and input voltage.

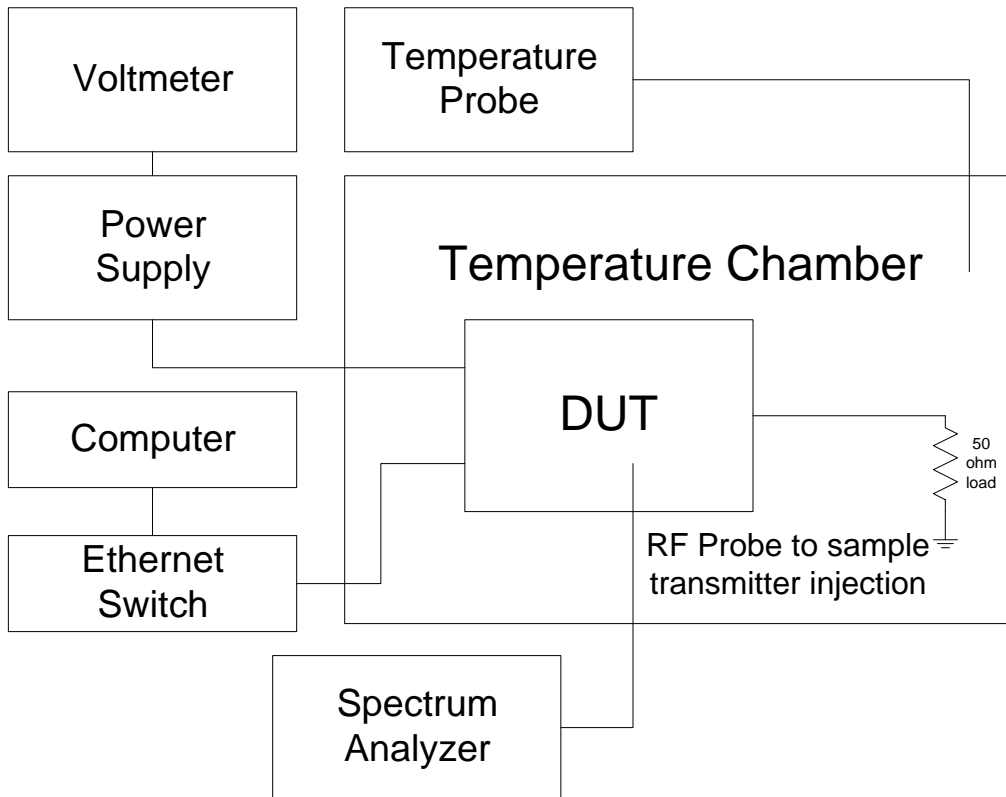
Test Conditions: Standard Test Conditions

Test Equipment:

DUT	NextNet Wireless CPE (RSU-2400-AV) # 2008687
Spectrum Analyzer	Hewlett Packard HP8563E S/N: 3221A00143 Cal Date: 10-16-2003 Cal Due: 10-16-2005
Attenuator(s) 2 x 20 dB	Pasternak Corporation Model: PE7005-20 (20 dB) Calibrated by user
Computer	Dell Inspiron 5000 Model: PPM S/N: 000332RM-12561-93N-3144
Ethernet Switch	D-Link Model: DSS-5+ 5 port 10/100Mbps S/N: B205335003172
Power Supply	Agilent E3615A 0-20 Vdc / 0-3 A S/N: KR01508861
Multimeter	HP 34401A Multimeter Cal Date: 08-03-2004 Cal Due: 08-03-06 S/N: 3146A58949

## Frequency Stability

Test Set-Up:



## Frequency Stability

Test Conditions: Frequency = 2593 MHz  
Supply Voltage = 12, 15, 19.5 Vdc

2.1055(a) The frequency stability shall be measured with variation of ambient temperature as follows:

(1) From  $-30^{\circ}$  to  $+50^{\circ}$  centigrade for all equipment except that specified in paragraphs (a) (2) and (3) of this section.

2.1055(b) Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than  $10^{\circ}$  centigrade through the range.

Test Results: Temperature Variation

12 Vdc				
Temp (°C)	Freq (Hz)	Freq Error (Hz)	Freq Error (%)	Freq Error (ppm)
-30	2592996525	-3475	-0.00013	-1.34
-20	2592998700	-1300	-0.00005	-0.50
-10	2592999108	-892	-0.00003	-0.34
0	2592999817	-183	-0.00001	-0.07
10	2593000350	350	0.00001	0.13
20	2593000625	625	0.00002	0.24
30	2593000675	675	0.00003	0.26
40	2593001242	1242	0.00005	0.48
50	2593001825	1825	0.00007	0.70
60	2593002425	2425	0.00009	0.94
70	2593003425	3425	0.00013	1.32

15 Vdc				
Temp (°C)	Freq (Hz)	Freq Error (Hz)	Freq Error (%)	Freq Error (ppm)
-30	2592996483	-3517	-0.00014	-1.36
-20	2592998408	-1592	-0.00006	-0.61
-10	2592999100	-900	-0.00003	-0.35
0	2592999792	-208	-0.00001	-0.08
10	2593000317	317	0.00001	0.12
20	2593000783	783	0.00003	0.30
30	2593000983	983	0.00004	0.38
40	2593001667	1667	0.00006	0.64
50	2593001917	1917	0.00007	0.74
60	2593002408	2408	0.00009	0.93
70	2593003433	3433	0.00013	1.32

19.5 Vdc				
Temp (°C)	Freq (Hz)	Freq Error (Hz)	Freq Error (%)	Freq Error (ppm)
-30	2592996533	-3467	-0.00013	-1.34
-20	2592998667	-1333	-0.00005	-0.51
-10	2592999192	-808	-0.00003	-0.31
0	2592999825	-175	-0.00001	-0.07
10	2593000358	358	0.00001	0.14
20	2593000633	633	0.00002	0.24
30	2593000675	675	0.00003	0.26
40	2593001258	1258	0.00005	0.49
50	2593001833	1833	0.00007	0.71
60	2593002433	2433	0.00009	0.94
70	2593003392	3392	0.00013	1.31



## Frequency Stability

Test Conditions: Frequency = 2593 MHz  
Temperature = 20 °C

(d) The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

Test Results: Supply Voltage Variation

Source Input

Voltage Specification: 12 Vdc to 19.5 Vdc

Test Voltage Range =  $0.85 * 12 = 10.2$  Vdc lower limit

$1.15 * 19.5 = 22.425$  Vdc upper limit

Temp=20°C Source Voltage (VDC)	Frequency (Hz)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)
10.2	2593000925	925	0.000036	0.357
11.1	2593000917	917	0.000035	0.354
12.0	2593000917	917	0.000035	0.354
15.8	2593000917	917	0.000035	0.354
19.5	2593000925	925	0.000036	0.357
21.0	2593000925	925	0.000036	0.357
22.425	2593000925	925	0.000036	0.357