

PCTEST ENGINEERING LABORATORY, INC.

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**MEASUREMENT REPORT** FCC Part 27 LTE

#### **Applicant Name:**

Novatel Wireless Inc. 9645 Scranton Road, Suite 205 San Diego, CA 92121-3030 United States

Date of Testing: September 13 - 17, 2010 **Test Site/Location:** PCTEST Lab., Columbia, MD, USA **Test Report Serial No.:** 0Y1109271716.PKR

## FCC ID:

**APPLICANT:** 

## NOVATEL WIRELESS INC.

PKRNVWMC551S

Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§2; §27
EUT Type:	Cellular/PCS CDMA/EvDO and 700MHz LTE USB Modem
Model(s):	MC551
Tx Frequency Range:	779.5MHz - 784.5MHz (5MHz BW LTE - Band 13)
	782MHz (10MHz BW LTE - Band 13)
Max. RF Output Power:	0.131 W ERP (5MHz BW - QPSK) (21.17 dBm)
	0.13 W ERP (5MHz BW - 16-QAM) (21.14 dBm)
	0.138 W ERP (10MHz BW - QPSK) (21.4 dBm)
	0.137 W ERP (10MHz BW - 16-QAM) (21.37 dBm)
Emission Designator(s):	4M49G7D (5MHz BW, QPSK), 4M49W7D (5MHz BW, 16-QAM),
	8M95G7D (10MHz BW, QPSK), 8M95W7D (10MHz BW, 16-QAM)
Test Device Serial No.:	identical prototype [S/N: N/A]

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Grant Conditions: Power output listed is ERP for Part 27.

PCTEST certifies that no party to this application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988. 21 U.S.C. 862.

Randy Ortanez President



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# MEASUREMENT REPORT FCC Part 27



### §2.1033 General Information

APPLICANT:	Novatel Wireless Inc.			
APPLICANT ADDRESS:	9645 Scranton Road, Suite 205			
	San Diego, CA 92121-3030			
TEST SITE:	PCTEST ENGINEERING LABORATORY, INC.			
TEST SITE ADDRESS:	6660-B Dobbin Road, Columbia, MD 21045 USA			
FCC RULE PART(S):	§2; §27			
BASE MODEL:	MC551			
FCC ID:	PKRNVWMC551S			
FCC CLASSIFICATION:	PCS Licensed Transmitter (PCB)			
EMISSION DESIGNATOR(S):	4M49G7D (5MHz BW, QPSK), 4M49W7D (5MHz BW, 16-QAM), 8M95G7D (10MHz BW, QPSK), 8M95W7D (10MHz BW, 16-QAM)			
MODULATIONS:	QPSK, 16-QAM (Uplink)			
FREQUENCY TOLERANCE:	Emission must remain in band			
Test Device Serial No.:	N/A Production Pre-Production Engineering			
DATE(S) OF TEST:	September 13 - 17, 2010			
TEST REPORT S/N:	0Y1109271716.PKR			

## **Test Facility / Accreditations**

#### Measurements were performed at PCTEST Engineering Lab. located in Columbia, MD 21045, U.S.A.



- PCTEST facility is an FCC registered (PCTEST Reg. No. 90864) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (2451A-1).
- PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP Lab code: 100431-0) in EMC, FCC and Telecommunications.
- PCTEST Lab is accredited to ISO 17025-2005 by the American Association for Laboratory Accreditation (A2LA) in Specific Absorption Rate (SAR) testing, Hearing Aid Compatibility (HAC) testing, CTIA Test Plans, and wireless testing for FCC and Industry Canada Rules.
- PCTEST Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and R&TTE (n.b. 0982) under the U.S.-EU Mutual Recognition Agreement (MRA).
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC Guide 65 by the American National Standards Institute (ANSI) in all scopes of FCC Rules and Industry Canada Standards (RSS).
- PCTEST facility is an IC registered (2451A-1) test laboratory with the site description on file at Industry Canada.
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for AMPS, CDMA, and EvDO wireless devices and for Over-the-Air (OTA) Antenna Performance testing for AMPS, CDMA, GSM, GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO, and CDMA 1xRTT.

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## 1.0 INTRODUCTION

#### 1.1 Scope

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission.

### 1.2 Testing Facility

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity are, the Baltimore-Washington Internt'I (BWI) airport, the city of Baltimore and the Washington, DC area. (*See Figure 1-1*).

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility in New Concept Business Park, Guilford Industrial Park, Columbia, Maryland. The site address is 6660-B Dobbin Road, Columbia, MD 21045. The test site is one of the highest points in the Columbia area with an elevation of 390 feet above mean sea level. The site coordinates are 39° 11'15" N latitude and 76° 49'38" W longitude. The facility is 1.5 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. There are no FM or TV transmitters within 15 miles of the site. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2003 on January 28, 2009.

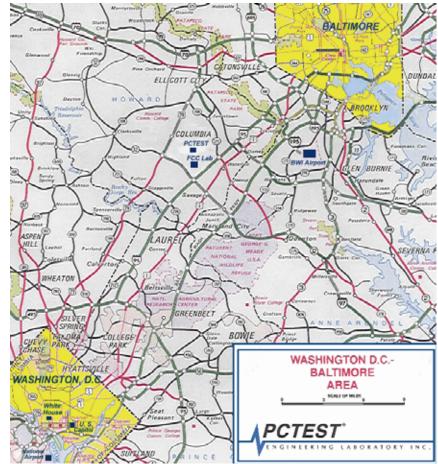


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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## 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

The Equipment Under Test (EUT) is the **Novatel Cellular/PCS CDMA/EvDO and 700MHz LTE USB Modem FCC ID: PKRNVWMC551S**. The test data contained in this report pertains only to the emissions due to the EUT's LTE function. The EUT consisted of the following component(s):

Trade Name / Base Model	FCC ID	Description			
Novatel / Model: MC551	PKRNVWMC551S	Cellular/PCS CDMA/EvDO and 700MHz LTE USB Modem			
Table 2.1 EUT Equipment Description					

#### Table 2-1. EUT Equipment Description

The EUT was set to transmit at full power in each available channel bandwidth of 5MHz and 10MHz with a CMW500 LTE Base Station Simulator. Each available modulation type (i.e. QPSK, 16-QAM) and resource block size configuration was also tested to determine the configuration producing the worst case emissions.

## 2.2 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

## 2.3 Labeling Requirements

#### Per 2.925

The FCC identifier shall be permanently affixed to the equipment and shall be readily visible to the purchaser at the time of purchase.

#### Per 15.19; Docket 95-19

In addition to this requirement, a device subject to certification shall be labeled as follows:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the trade name and FCC ID must be displayed on the device per Section 15.19(b)(2).

Please see attachment for FCC ID label and label location.

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## 3.0 DESCRIPTION OF TESTS

#### 3.1 Measurement Procedure

The radiated spurious measurements were made outdoors at a 3meter test range (see Figure 3-1). The equipment under test is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. This power level was recorded using a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This level is recorded with the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic antenna are taken into consideration.

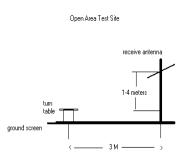


Figure 3-1. Diagram of 3-meter outdoor test range

#### Deviation from Measurement Procedure......None

# 3.2 Occupied Bandwidth Emission Limits §2.1049, §27.53(I)(6)

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

# 3.3 Block C Frequency Range §27.5(b)(3)

Two paired channels of 11 megahertz each are available for assignment in Block C in the 746-757 MHz and 776-787 MHz bands. In the event that no licenses for two channels in this Block C are assigned based on the results of the first auction in which such licenses were offered because the auction results do not satisfy the applicable reserve price, the spectrum in the 746-757 MHz and 776-787 MHz bands will instead be made available for assignment at a subsequent auction as follows: (i) Two paired channels of 6 megahertz each available for assignment in Block C1 in the 746-752 MHz and 776-782 MHz bands. (ii) Two paired channels of 5 megahertz each available for assignment in Block C1 in the 746-752 MHz and 776-782 MHz bands.

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#### 3.4 Spurious and Harmonic Emissions at Antenna Terminal §2.1051, §27.53(c)

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10<sup>th</sup> harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

#### 3.5 Radiated Power and Radiated Spurious Emissions §2.1053, §27.53(c)

Spurious and harmonic radiated emissions are measured outdoors at our 3-meter test range. The equipment under test is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. This level is then measured with a broadband average power meter. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10<sup>th</sup> harmonic. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive average power meter reading. This spurious level is recorded with the power meter. For readings above 1 GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration. This device was tested under all configurations and the worst case radiated power is reported while transmitting with the maximum number of resource blocks in each channel bandwidth.

# 3.6 Frequency Stability / Temperature Variation §2.1055, §27.54

The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Specification – The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

#### Time Period and Procedure:

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).

2. The equipment is turned on in a "standby" condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.

3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A sufficient stabilization period at each temperature shall be used prior to each frequency requirement.

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#### TEST EQUIPMENT CALIBRATION DATA 4.0

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST).

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	263-10dB	(DC-18GHz) 10 dB Attenuator	N/A		N/A	N/A
-	No.166	(1000-26500MHz) Microwave RF Cable	N/A		N/A	N/A
-	No.167	(100kHz - 100MHz) RG58 Coax Cable	N/A		N/A	N/A
Agilent	11713A	Attenuation/Switch Driver	12/2/2009	Annual	12/2/2010	3439A02645
Agilent	8449B	(1-26.5GHz) Pre-Amplifier	12/2/2009	Annual	12/2/2010	3008A00985
Agilent	85650A	Quasi-Peak Adapter	12/2/2009	Annual	12/2/2010	3303A01872
Agilent	8566B	(100Hz-22GHz) Spectrum Analyzer	12/2/2009	Annual	12/2/2010	3638A08713
Agilent	E4407B	ESA Spectrum Analyzer	3/30/2010	Annual	3/30/2011	US39210313
Agilent	E8257D	(250kHz-20GHz) Signal Generator	3/30/2010	Annual	3/30/2011	MY45470194
Agilent	N9020A	MXA Signal Analyzer	10/22/2009	Annual	10/22/2010	US46470561
Anritsu	ML2495A	Power Meter	10/12/2009	Annual	10/12/2010	941001
Espec	ESX-2CA	Environmental Chamber	4/1/2010	Annual	4/1/2011	17620
MiniCircuits	VHF-1300+	High Pass Filter	N/A		N/A	30716
MiniCircuits	VHF-3100+	High Pass Filter	N/A		N/A	30721
Pasternack	PE2208-6	Bidirectional Coupler	N/A		N/A	N/A
Rohde & Schwarz	CMW500	LTE Base Station Simulator	8/30/2010	Annual	8/30/2011	100976
Schwarzbeck	UHA9105	Dipole Antenna (400 - 1GHz) Rx	7/17/2009	Biennial	7/17/2011	9105-2404
Schwarzbeck	UHA9105	Dipole Antenna (400 - 1GHz) Tx	7/17/2009	Biennial	7/17/2011	9105-2403
Sunol	DRH-118	Horn Antenna (1 - 18GHz)	5/14/2009	Biennial	5/14/2011	A050307
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	7/17/2009	Biennial	7/17/2011	A051107

Table 4-1. Test Equipment

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# 5.0 SAMPLE CALCULATIONS

#### **Emission Designator**

#### **QPSK Modulation**

#### Emission Designator = 8M62G7D

LTE BW = 8.62 MHz G = Phase Modulation 7 = Quantized/Digital Info D = Amplitude/Angle Modulated

#### **16QAM Modulation**

#### Emission Designator = 8M45D7W

LTE BW = 8.45 MHz D = Amplitude/Angle Modulated 7 = Quantized/Digital Info W = Combination (Audio/Data)

#### Spurious Radiated Emission – LTE Band

#### Example: Middle Channel LTE Mode 2<sup>nd</sup> Harmonic (1564 MHz)

The average receive power meter reading at 3 meters with the EUT on the turntable was -81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of -81.0 dBm on the power meter. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 1564 MHz. So 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm – (-24.80).

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#### **TEST RESULTS** 6.0

#### Summary 6.1

Company Name:	Novatel Wireless Inc.
FCC ID:	PKRNVWMC551S
FCC Classification:	PCS Licensed Transmitter (PCB)
Mode(s):	LTE

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
TRANSMITTER MC	DDE (Tx)				
2.1049	Occupied Bandwidth	N/A		PASS	Sections 7.0, 8.0
2.1051, 27.53(c)(2)	Band Edge / Conducted Spurious Emissions <b>(*)</b>	< 43 + 10log <sub>10</sub> (P[Watts]) < 65 + 10log <sub>10</sub> (P[Watts]) in a 6.25kHz bandwidth for emissions in the 763 – 775MHz and 793 – 805MHz bands	CONDUCTED	PASS	Sections 7.0, 8.0
2.1046	Transmitter Conducted Output Power Measurements	N/A		N/A	Section 6.2
2.1055, 27.54	Frequency Stability	Fundamental emissions must stay within the allotted band		PASS	Section 6.6
27.50(b)(10)	Effective Radiated Power	< 3 Watts max. ERP		PASS	Section 6.3
2.1053, 27.53(c)(2) 27.53(c)(4)	Undesirable Out-of-Band Emissions	< 43 + 10log <sub>10</sub> (P[Watts]) for all out-of-band emissions	RADIATED	PASS	Section 6.4
2.1053, 27.53(f)	Undesirable Emissions in the 1559 – 1610MHz band	< -40dBm/MHz EIRP (wideband) < -50dBm EIRP (narrowband)		PASS	Section 6.5

#### Table 6-1. Summary of Test Results

#### Notes:

 $^*$  - For out of band conducted spurious emissions (including those at the band edges), the emissions of both QPSK and 16-QAM modulations were investigated for 5MHz and 10MHz channel bandwidths. The worst case transmitter emissions are shown in Sections 7.0 and 8.0.

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# 6.2 Transmitter Conducted Output Power §2.1046

The **Novatel Cellular/PCS CDMA/EvDO and 700MHz LTE USB Modem FCC ID: PKRNVWMC551S** was connected to a Rohde and Schwarz LTE Base Station Simulator (Model: CMW500). The EUT was configured through the CMW500 to produce all required combinations of modulations, channel bandwidths, and resource block sizes to determine the configuration producing the worst case emissions.

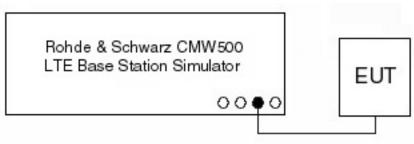
	Modulation	Channel Bandwidth [MHz]	RB Size	RB Offset	Maximum Avg. Power [dBm]
	QPSK	5	1	0	24.47
	16-QAM	5	1	0	24.44
₽	QPSK	5	1	24	24.36
μ	16-QAM	5	1	24	24.35
779.5MHz	QPSK	5	12	6	24.42
1	16-QAM	5	12	6	24.29
	QPSK	5	25	0	24.45
	16-QAM	5	25	0	24.47

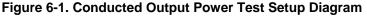
	Modulation	Channel Bandwidth [MHz]	RB Size	RB Offset	Maximum Avg. Power [dBm]
	QPSK	5	1	0	24.33
	16-QAM	5	1	0	24.07
Ηz	QPSK	5	1	24	24.30
784.5.5MHz	16-QAM	5	1	24	23.94
4.5.	QPSK	5	12	6	24.45
78,	16-QAM	5	12	6	24.31
ľ	QPSK	5	25	0	24.42
	16-QAM	5	25	0	24.43

Table 6-2. Maximum Average Conducted Output Power (5MHz Bandwidth)

	[MHz]	RB Size	RB Offset	Avg. Power [dBm]
QPSK	10	1	0	24.46
16-QAM	10	1	0	24.44
QPSK	10	1	49	24.36
16-QAM	10	1	49	24.06
QPSK	10	25	12	24.45
16-QAM	10	25	12	24.45
QPSK	10	50	0	24.47
16-QAM	10	50	0	24.34
	16-QAM QPSK 16-QAM QPSK 16-QAM QPSK 16-QAM	16-QAM       10         QPSK       10         16-QAM       10         QPSK       10         16-QAM       10         QPSK       10         16-QAM       10         16-QAM       10         16-QAM       10         16-QAM       10         QPSK       10         16-QAM       10	16-QAM101QPSK10116-QAM101QPSK102516-QAM1025QPSK105016-QAM1050	16-QAM1010QPSK1014916-QAM10149QPSK10251216-QAM102512QPSK10500

Table 6-3. Maximum Average Conducted Output Power (10MHz Bandwidth)





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09/13/10



#### Effective Radiated Power Output Data 6.3 §27.50(b)(10)

Frequency [MHz]	Modulation	BW [MHz]	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBd]	Pol [H/V]	ERP [dBm]	ERP [Watts]	Power Source
779.50	QPSK	5	-13.940	21.17	0.00	Н	21.17	0.131	USB
779.50	16-QAM	5	-13.970	21.14	0.00	Н	21.14	0.130	USB
784.50	QPSK	5	-14.560	20.55	0.00	Н	20.55	0.114	USB
784.50	16-QAM	5	-15.580	19.53	0.00	Н	19.53	0.090	USB
782.00	QPSK	10	-13.710	21.40	0.00	Н	21.40	0.138	USB
782.00	16-QAM	10	-13.740	21.37	0.00	Н	21.37	0.137	USB

Table 6-4. Effective Radiated Power Output Data

#### NOTES:

Effective Radiated Power Output Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This level is recorded using the power meter. The conducted power at the terminals of the dipole is measured. The ERP is recorded.

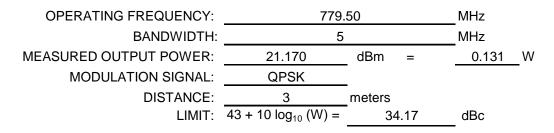
This device was tested under all configurations and the worst case radiated power is reported while transmitting with the maximum number of resource blocks in each channel bandwidth. This unit was tested while powered by a laptop PC through a USB connection. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the EUT in the horizontal setup while connected to the USB port of the laptop PC through a short USB extension cable. The data reported in the table above was measured in this test setup.

FCC ID: PKRNVWMC551S	PCTEST	FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
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#### 6.4 LTE Radiated Measurements §2.1053, §27.53(c)(2)

#### Field Strength of SPURIOUS Radiation



FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
2342.84	-72.11	8.84	-63.27	Н	84.4
3122.34	-74.35	9.70	-64.65	Н	85.8
3901.84	-94.09	9.30	-84.79	Н	106.0
4681.34	-94.98	11.20	-83.78	Н	105.0

Table 6-5. Radiated Spurious Data (QPSK Modulation)

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

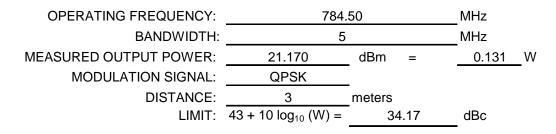
This device was tested under all configurations and the worst case radiated spurious emissions are reported while transmitting with the maximum number of resource blocks in each channel bandwidth. This unit was tested while powered by a laptop PC through a USB connection. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the EUT in the horizontal setup while connected to the USB port of the laptop PC through a short USB extension cable. The data reported in the table above was measured in this test setup.

FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
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#### LTE Radiated Measurements (Cont'd) §2.1053, §27.53(c)(2)

#### Field Strength of SPURIOUS Radiation



FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
2349.11	-71.99	8.85	-63.14	Н	84.3
3133.61	-72.05	9.70	-62.35	Н	83.5
3918.11	-91.65	9.27	-82.38	Н	103.5
4702.61	-92.24	11.20	-81.04	Н	102.2

Table 6-6. Radiated Spurious Data (QPSK Modulation)

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

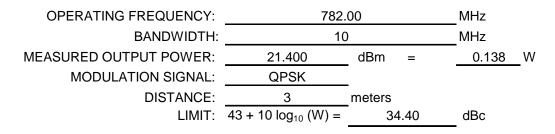
This device was tested under all configurations and the worst case radiated spurious emissions are reported while transmitting with the maximum number of resource blocks in each channel bandwidth. This unit was tested while powered by a laptop PC through a USB connection. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the EUT in the horizontal setup while connected to the USB port of the laptop PC through a short USB extension cable. The data reported in the table above was measured in this test setup.

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#### LTE Radiated Measurements (Cont'd) §2.1053, §27.53(c)(2)

#### Field Strength of SPURIOUS Radiation



FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
2346.00	-71.86	8.84	-63.01	Н	84.4
3128.00	-74.32	9.70	-64.62	Н	86.0
3910.00	-94.02	9.29	-84.74	Н	106.1
4692.00	-94.92	11.20	-83.72	Н	105.1

Table 6-7. Radiated Spurious Data (QPSK Modulation)

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the worst case radiated spurious emissions are reported while transmitting with the maximum number of resource blocks in each channel bandwidth. This unit was tested while powered by a laptop PC through a USB connection. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the EUT in the horizontal setup while connected to the USB port of the laptop PC through a short USB extension cable. The data reported in the table above was measured in this test setup.

FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
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#### 6.5 LTE Radiated Measurements in 1559 – 1610MHz Band §2.1053, §27.53(f)

#### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	784.50	MHz
BANDWIDTH:	5	MHz
MEASURED OUTPUT POWER:	21.170	dBm = <u>0.131</u> W
MODULATION SIGNAL:	QPSK	_
DISTANCE:	3	meters
NARROWBAND EMISSION LIMIT:	-50	dBm
WIDEBAND EMISSION LIMIT:	-40	dBm/MHz

FREQUENCY (MHz)	EMISSION TYPE	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	MARGIN (dB)
1563.34	WIDEBAND	-73.34	8.53	-64.81	Н	-24.81

 Table 6-8. Radiated Spurious Data

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the worst case radiated spurious emissions are reported while transmitting with the maximum number of resource blocks in each channel bandwidth. This unit was tested while powered by a laptop PC through a USB connection. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found with the EUT in the horizontal setup while connected to the USB port of the laptop PC through a short USB extension cable. The data reported in the table above was measured in this test setup.

FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
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#### LTE Frequency Stability Measurements 6.6 <u>§2.1055, §27.54</u>

OPERATING FREQUENCY: 784,500,000 Hz

BANDWIDTH: 5 MHz

REFERENCE VOLTAGE: 5 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	5.00	+ 20 (Ref)	784,500,005	5	0.000001
100 %		- 30	784,500,016	16	0.000002
100 %		- 20	784,500,012	12	0.000002
100 %		- 10	784,500,015	15	0.000002
100 %		0	784,500,010	10	0.000001
100 %		+ 10	784,500,004	4	0.000001
100 %		+ 20	784,499,995	-5	-0.000001
100 %		+ 30	784,499,979	-21	-0.000003
100 %		+ 40	784,499,988	-12	-0.000002
100 %		+ 50	784,499,983	-17	-0.000002
115 %	5.75	+ 20	784,499,970	-30	-0.000004
85 %	4.25	+ 20	784,500,018	18	0.000002

Table 6-9. Frequency Stability Data

#### Note:

The frequency deviation was measured to ensure that the channel emissions remained within the authorized band with varying temperature and voltage.

FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS.	Reviewed by: Quality Manager
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# LTE Frequency Stability Measurements (Cont'd) §2.1055, §27.54

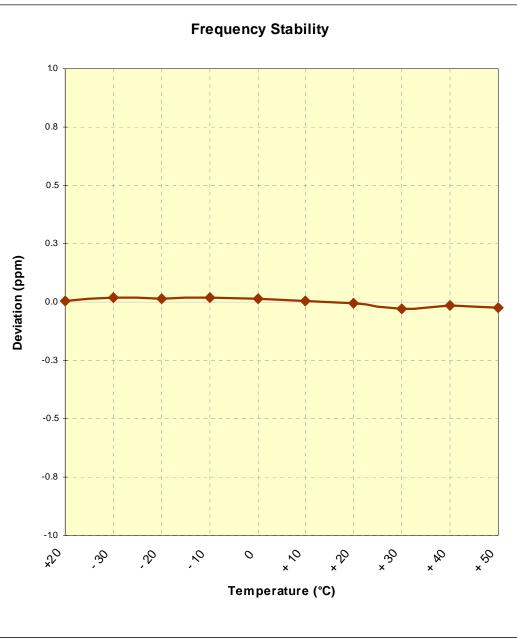


Figure 6-2. Frequency Stability Graph

#### Note:

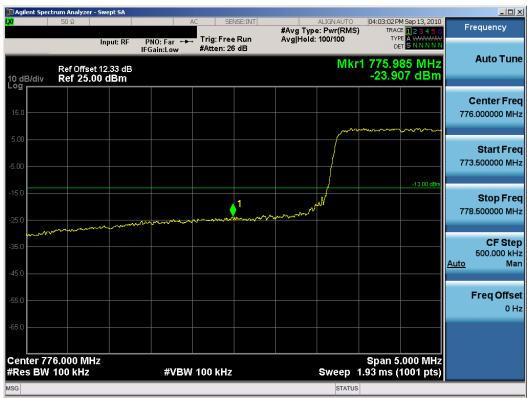
The frequency deviation was measured to ensure that the channel emissions remained within the authorized band with varying temperature and voltage.

FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
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## 7.0 PLOT(S) OF EMISSIONS – 5MHZ BANDWIDTH

For all plots in Sections 7.0 and 8.0 showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit is  $65 + 10\log_{10}(P_{[Watts]}) = -35dBm$  in a 6.25kHz bandwidth. Since it was not possible to set the resolution bandwidth to 6.25kHz with the available equipment, a bandwidth of 10kHz was used instead to show compliance. By using a 10kHz bandwidth, the limit was adjusted by  $10\log_{10}(10kHz/6.25kHz) = 2.04dB$ . Thus, the limit shown in all plots in the 763 – 775MHz and 793 – 805MHz bands for all available modulation types was -35dBm + 2.04dB = -32.96dBm.



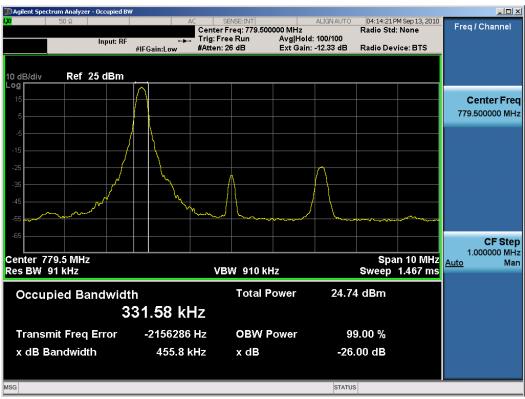
Plot 7-1. Lower Band Edge Plot (QPSK – Low Channel, RB Size 25)

FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
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Agilent Spec	trum Analyzer 50 Ω	- Swept SA		۹ <i>C</i> CT	NSE:INT		ALIGN AUTO	04:05:070	M Sep 13, 2010	
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5.00										763.000000 MH
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start 763.	.000 MHz							Stop 775	.000 MHz	
Res BW	10 kHz		#VBW	10 kHz			Sweep	458 ms (	1001 pts)	
SG							STATUS	3		

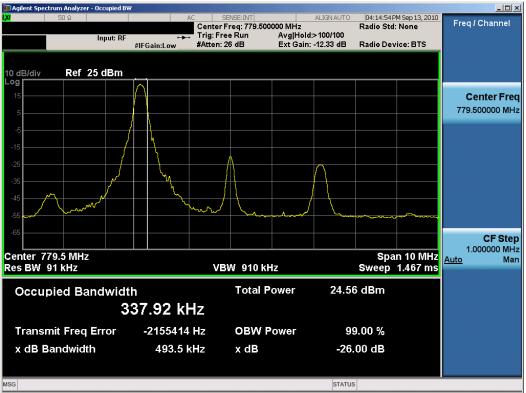




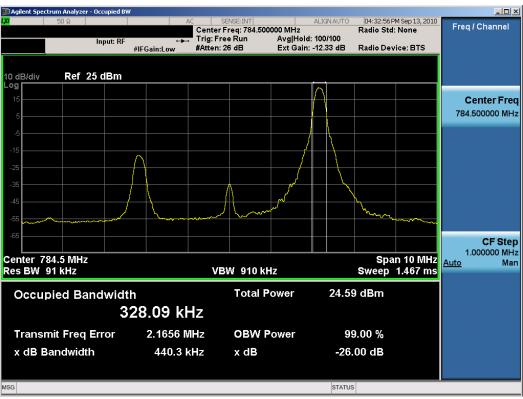
Plot 7-3. Occupied Bandwidth Plot (QPSK - Low Channel, RB Size 1, RB Offset 0)

FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
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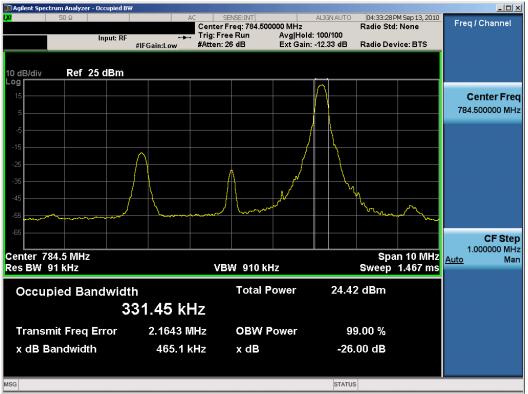
Plot 7-4. Occupied Bandwidth Plot (16-QAM – Low Channel, RB Size 1, RB Offset 0)



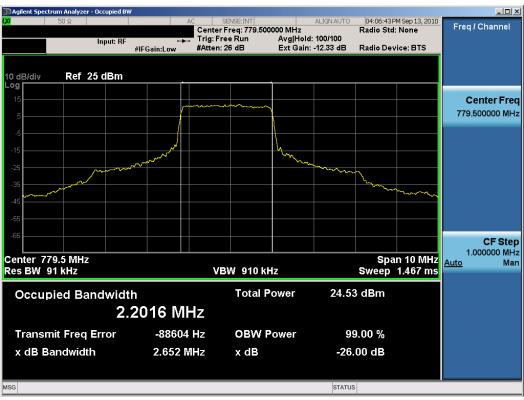
Plot 7-5. Occupied Bandwidth Plot (QPSK – High Channel, RB Size 1, RB Offset 24)

FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
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Plot 7-6. Occupied Bandwidth Plot (16-QAM – High Channel, RB Size 1, RB Offset 24)



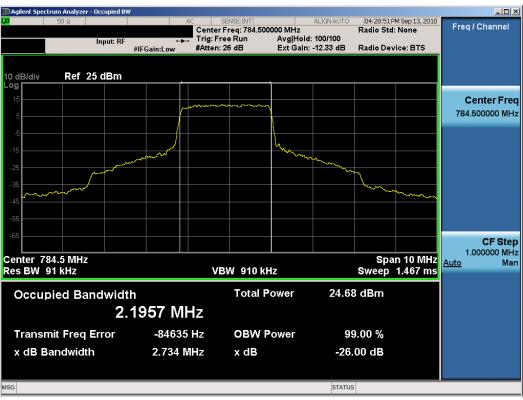
Plot 7-7. Occupied Bandwidth Plot (QPSK – Low Channel, RB Size 12, RB Offset 6)

FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
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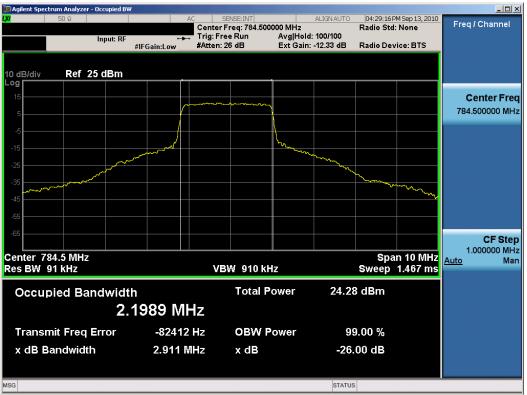
Plot 7-8. Occupied Bandwidth Plot (16-QAM - Low Channel, RB Size 12, RB Offset 6)



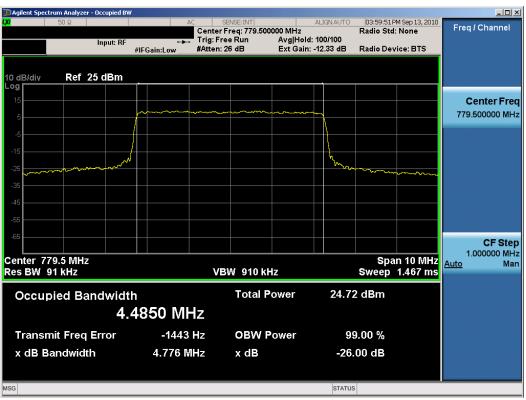
Plot 7-9. Occupied Bandwidth Plot (QPSK – High Channel, RB Size 12, RB Offset 6)

FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
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Plot 7-10. Occupied Bandwidth Plot (16-QAM - High Channel, RB Size 12, RB Offset 6)

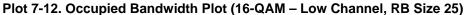


Plot 7-11. Occupied Bandwidth Plot (QPSK – Low Channel, RB Size 25)

FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
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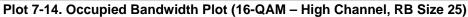


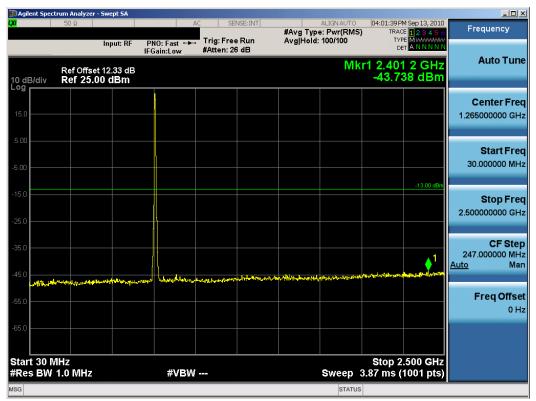
Plot 7-13. Occupied Bandwidth Plot (QPSK – High Channel, RB Size 25)

FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
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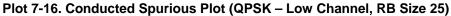


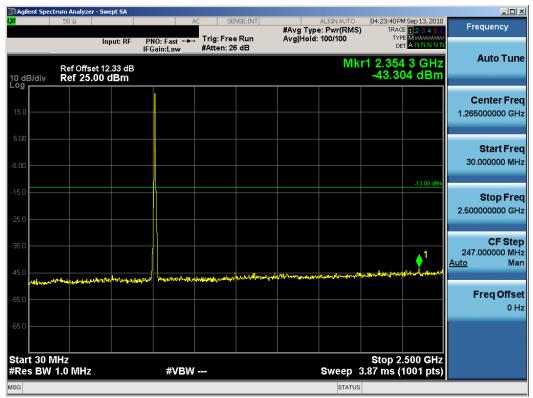
Plot 7-15. Conducted Spurious Plot (QPSK - Low Channel, RB Size 25)

FCC ID: PKRNVWMC551S	PCTEST	FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
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Agilent Spec	trum Analyzer 50 Q	- Swept SA					0.4:00:00 0	10 10,0010	
	50 \Q	Input: RF	PNO: Fast ↔ IFGain:Low			ALIGN AUTO ype: Pwr(RMS) Id: 100/100	TRACI	4 Sep 13, 2010 E 1 2 3 4 5 6 E MW//////// T A N N N N N	Frequency
0 dB/div		et 12.33 dB 00 dBm	IFGain:Low	#Atten: 2		Mkr	1 5.789 -45.68	0 GHz 39 dBm	Auto Tun
.5.0									Center Fre 5.250000000 GF
.00								-13.00 dBm	<b>Start Fre</b> 2.500000000 GF
5.0								-13.00 4851	<b>Stop Fre</b> 8.00000000 GF
5.0					1	where an address of the	Land In .		<b>CF Ste</b> 550.000000 Mi <u>Auto</u> Mi
5.0	Splante Routerty	Walanda Parkaturkatan	una wakatan ang sak	, had no gan and an			Urrillon and and a short of	Ω≈### ₩ +178≥+4 ₩/+	Freq Offs 01
tart 2.50	0 GHz 1.0 MHz		#VBW			Sweep 9	Stop 8. .20 ms (′	.000 GHz 1001 pts)	
G						STATUS			



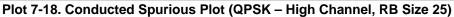


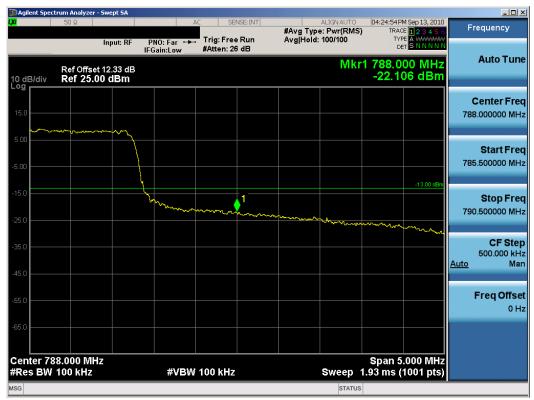
Plot 7-17. Conducted Spurious Plot (QPSK – High Channel, RB Size 25)

FCC ID: PKRNVWMC551S	PCTEST	FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
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© 2011 DCTEST Engineering Labo	aratory Inc	•		DEV/ 1 11 TE



Agilent Spectrum Analyzer - 50 Ω	Swept SA		C 051				04:04:04:01	10 10, 0010	
50 22	Input: RF	PNO: Fast ↔ IFGain:Low				ALIGN AUTO e: Pwr(RMS) 100/100	TRACE	1 Sep 13, 2010 1 2 3 4 5 6 M WWWWWW T A N N N N N	Frequency
Ref Offset		IFGain:Low	#Atten: 20			Mkr	1 6.267	5 GHz 8 dBm	Auto Tun
5.0									<b>Center Fre</b> 5.250000000 GF
.00								-13.00 dBm	<b>Start Fre</b> 2.50000000 GF
5.0								-13,00 dBm	Stop Fre 8.00000000 G⊦
5.0					∳ <sup>*</sup>	1			CF Ste 550.000000 MH <u>Auto</u> Ma
5.0	legen der der der der	eeneringerenteringent.P	gan ang ang ang ang ang	an yolan da	r-rahlangnat gludindaai	rtingnyayayarlaya	a han lun a jila	and a flat to energy a grade of	Freq Offs 0 F
tart 2.500 GHz Res BW 1.0 MHz		#VBW				Sweep 9	Stop 8.	000 GHz	
G						STATUS			





Plot 7-19. Upper Band Edge Plot (QPSK – High Channel, RB Size 25)

FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 29 of 27
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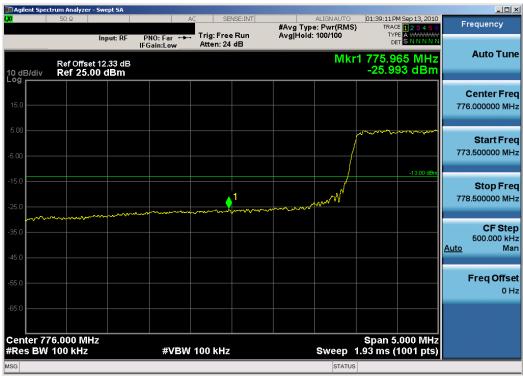
Agilent Spect	trum Analyzer	- Swept SA								
	50 Ω	Input: RF	PNO: Far ↔ IFGain:Low			#Avg Typ Avg Hold:	ALIGN AUTO e: Pwr(RMS) 100/100	TRAC	M Sep 13, 2010 E <b>1 2 3 4 5</b> 6 E A WWWWW T S N N N N N	Frequency
) dB/div	Ref Offse <b>Ref 25.(</b>	t 12.33 dB 00 dBm					Mkr	1 793.0 -52.54	84 MHz 49 dBm	Auto Tun
5.0										Center Fre 799.000000 M⊦
.00										Start Fre 793.000000 M⊦
5.0										Stop Fre 805.000000 MF
5.0									-32.96 dBm	CF Ste 1.200000 MH Auto Ma
5.0 <b>1</b>	gr-f <sup>-w</sup> ddd-gr-bogdo	etrerywydd ywdd yw	ر معالماً <sup>الم</sup> العاكمة معالم المراجعة م	rile Mary Cost My						Freq Offso 0 ⊦
	000 MHz 10 kHz			10 kHz	Thephane	and the second second			.000 MHz 1001 pts)	
G							STATUS			

Plot 7-20. Upper Emission Mask (793 – 805MHz) Plot (QPSK – High Channel, RB Size 25)

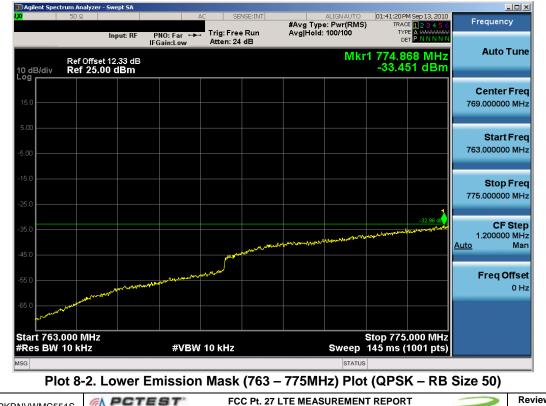
FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 29 of 37
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#### PLOT(S) OF EMISSIONS - 10MHZ BANDWIDTH 8.0

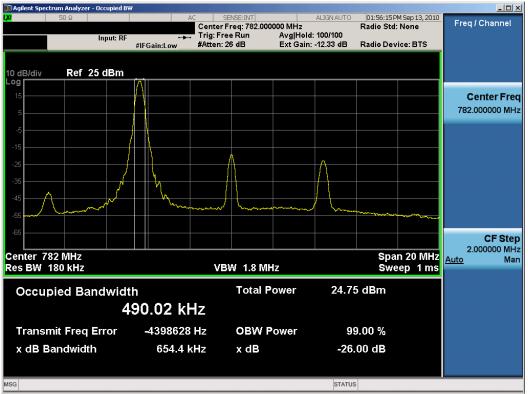


Plot 8-1. Lower Band Edge Plot (QPSK – RB Size 50)

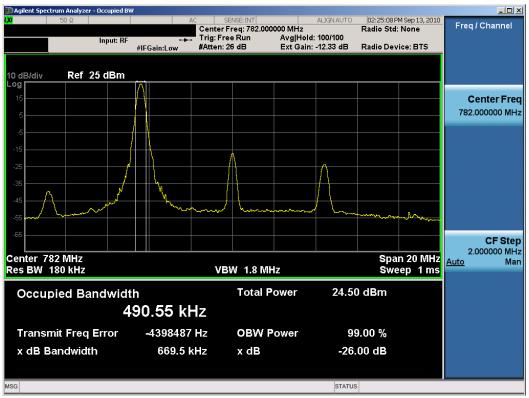


FCC ID: PKRNVWMC551S	PCTEST	FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 30 of 37
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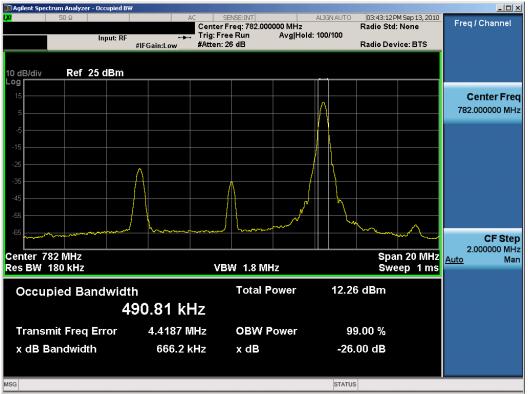




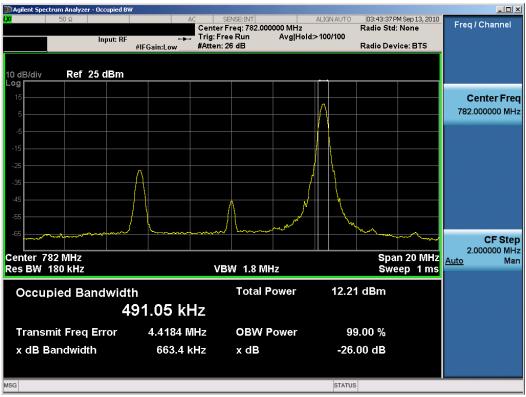
Plot 8-4. Occupied Bandwidth Plot (16-QAM - RB Size 1, RB Offset 0)

FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
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Plot 8-5. Occupied Bandwidth Plot (QPSK - RB Size 1, RB Offset 49)

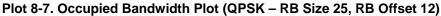


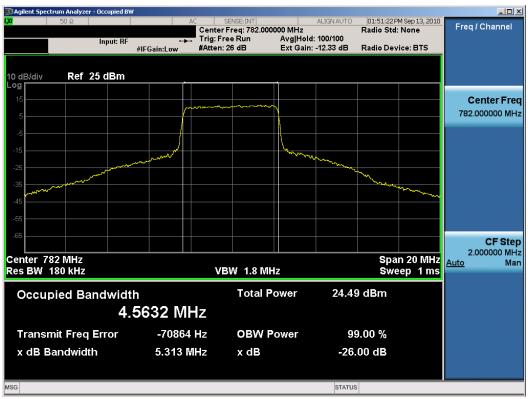
Plot 8-6. Occupied Bandwidth Plot (16-QAM - RB Size 1, RB Offset 49)

FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 32 of 37
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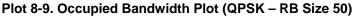


Plot 8-8. Occupied Bandwidth Plot (16-QAM - RB Size 25, RB Offset 12)

FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
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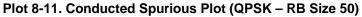
Plot 8-10. Occupied Bandwidth Plot (16-QAM - RB Size 50)

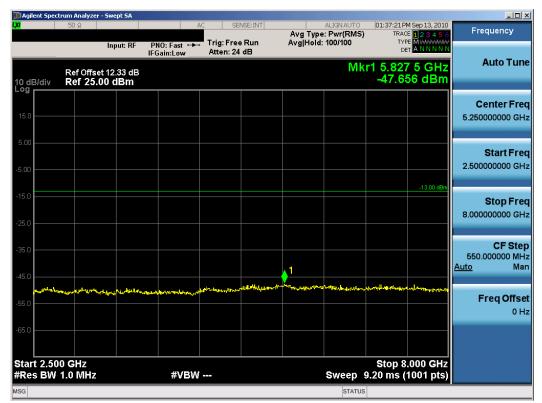
FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 34 of 37
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09/13/10



🚺 Agilent Spec	trum Analyzer	- Swept SA								_0>
<u>XI</u>	50 Ω					Avg Typ Avg Hold	ALIGNAUTO e: Pwr(RMS)	TRACE	1 Sep 13, 2010	Frequency
10 dB/div	Ref Offse Ref 25.0	Input: RF et 12.33 dB 00 dBm	PNO: Fast ++- IFGain:Low	Atten: 24		Avginoid		1 1.558	9 GHz 6 dBm	Auto Tune
15.0			/							<b>Center Fre</b> 1.265000000 GH
5.00									40.00 JD=	<b>Start Fre</b> 30.000000 MH
25.0									-13.00 dBm	<b>Stop Fre</b> 2.500000000 GH
15.0						↓ 1	Lakor where here	a daada metada aa da	Lennum (Thefur 14	<b>CF Ste</b> 247.000000 M⊢ <u>Auto</u> Ma
55.0	ranser and	LL-lengt-willnengt-gener	hand had germina	nglaghet.slaa.hol.h	an a	heeder haarse falle	L-3892-1-10-1			Freq Offse 0 H
65.0 Start 30 M Res BW			#VBW				Sweep 3	Stop 2. 8.87 ms <u>(</u> 1	500 GHz 001 pts)	
SG							STATUS			





Plot 8-12. Conducted Spurious Plot (QPSK - RB Size 50)

FCC ID: PKRNVWMC551S		FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Page 35 of 37	
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Agilent Spectrum An							
📈 50 Ω	Input: RF	PNO: Far ↔		#A un Av	ALIGN AUTO vg Type: Pwr(RMS g Hold: 100/100	01:39:52 PM Sep 13, 2010 5) TRACE 1 2 3 4 5 6 TYPE A WWWWW DET S N N N N N	Frequency
10 dB/div Ref	Offset 12.33 dB 7 <b>25.00 dBm</b>	IFGain:Low	Atten: 24 dr		Mk	r1 788.485 MHz -26.786 dBm	8
15.0							Center Free 788.000000 MH
5.00	~~~~~\ \						<b>Start Fre</b> 785.500000 MH
-15.0	- Www	Saman and a second	·····	1		-13.00 dBm	Stop Free 790.500000 MH
45.0							CF Ste 500.000 kH <u>Auto</u> Ma
55.0							Freq Offse 0 H
-65.0 Center 788.000 #Res BW 100 I		#VBW	100 kHz		Sween	Span 5.000 MHz 1.93 ms (1001 pts)	
ISG		# * D * *			STATU		



Plot 8-13. Upper Band Edge Plot (QPSK - RB Size 50)

Plot 8-14. Upper Emission Mask (793 – 805MHz) Plot (QPSK – RB Size 50)

FCC ID: PKRNVWMC551S	PCTEST	FCC Pt. 27 LTE MEASUREMENT REPORT (CERTIFICATION)	NOVATEL WIRELESS	Reviewed by: Quality Manager
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#### CONCLUSION 9.0

The data collected relate only to the item(s) tested and show that the Novatel Cellular/PCS CDMA/EvDO and 700MHz LTE USB Modem FCC ID: PKRNVWMC551S complies with all the requirements of Parts 2 and 27 of the FCC rules.

FCC ID: PKRNVWMC551S	FCTEST	FCC Pt. 27 LTE MEASUREMENT REPORT		Reviewed by:
FCC ID. FRANKWINGSTS	**** V **********************	(CERTIFICATION)	NOVATEL WIRELESS	Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 37 of 37
0Y1109271716.PKR	September 13 - 17, 2010	Cellular/PCS CDMA/EvDO and 700MHz LTE USB Modem		Fage 37 01 37
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