

### Parallel Wireless Inc.

CWS-3050-05

FCC 22H:2016 Converged Wireless System

Report # KMWC0071 Rev 01





NVLAP Lab Code: 200676-0

### **CERTIFICATE OF TEST**



Last Date of Test: September 28, 2016 Parallel Wireless Inc. Model: CWS-3050-05

### **Radio Equipment Testing**

#### **Standards**

Specification	Method
FCC 22H:2016	ANSI/TIA/EIA-603-D-2010

#### Results

Method Clause	Test Description	Applied	Results	Comments
2.2.1	Conducted Output Power	Yes	Pass	
2.2.1	Peak To Average Ratio	Yes	Pass	
2.2.2	Frequency Stability	Yes	Pass	
2.2.3	Occupied Bandwidth	Yes	Pass	
2.2.12	Out of Band Emissions	Yes	Pass	
2.2.13	Band Edge Compliance	Yes	Pass	
2.2.13	Spurious Conducted Emissions	Yes	Pass	
2.2.13	Intermodulation	Yes	Pass	
2.2.17.2	ERP of Fundamental	No	N/A	Not requested

#### **Deviations From Test Standards**

None

Approved By:

Victor Ratinoff, Operations Manager

Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information.

# **REVISION HISTORY**



Revision Number	Description	Date	Page Number
01	Removed LTE20 data	11/22/16	Multiple

# ACCREDITATIONS AND AUTHORIZATIONS



#### **United States**

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

**A2LA** - Accredited by A2LA to ISO / IEC 17065 as a product certifier. This allows Northwest EMC to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

#### Canada

**ISED** - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with ISED.

#### **European Union**

European Commission - Validated by the European Commission as a Notified Body under the R&TTE Directive.

#### Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

#### Korea

MSIP / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

#### Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

#### **Taiwan**

**BSMI** – Recognized by BSMI as a CAB for the acceptance of test data.

**NCC** - Recognized by NCC as a CAB for the acceptance of test data.

#### Singapore

**IDA** – Recognized by IDA as a CAB for the acceptance of test data.

#### Israel

MOC - Recognized by MOC as a CAB for the acceptance of test data.

#### Hong Kong

**OFCA** – Recognized by OFCA as a CAB for the acceptance of test data.

#### **Vietnam**

MIC – Recognized by MIC as a CAB for the acceptance of test data.

#### SCOPE

For details on the Scopes of our Accreditations, please visit:

http://www.nwemc.com/accreditations/ http://gsi.nist.gov/global/docs/cabs/designations.html

#### MEASUREMENT UNCERTAINTY



#### **Measurement Uncertainty**

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable test description page. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable), and are available upon request.

The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

Test	+ MU	<u>- MU</u>
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.2 dB	-5.2 dB
AC Powerline Conducted Emissions (dB)	2.4 dB	-2.4 dB

## **FACILITIES**





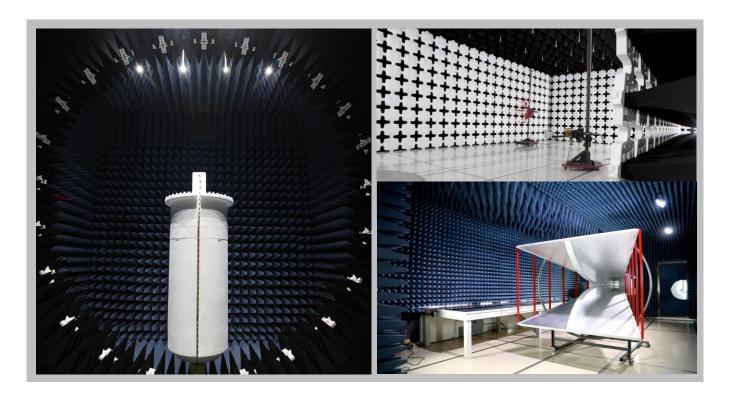


California
Labs OC01-13
41 Tesla
Irvine, CA 92618
(949) 861-8918
41 Tesla Irvine, CA 92618

Minnesota Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136 New York Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214 Oregon Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066 **Texas**Labs TX01-09
3801 E Plano Pkwy
Plano, TX 75074
(469) 304-5255

**Washington**Labs NC01-05
19201 120<sup>th</sup> Ave NE
Bothell, WA 98011
(425)984-6600

(949) 861-8918	(612)-638-5136 (315) 554-8214		(503) 844-4066	(469) 304-5255	(425)984-6600		
NVLAP							
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200676-0			NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0		
	Innovation, Science and Economic Development Canada						
2834B-1, 2834B-3 2834E-1 N/A 2834D-1, 2834D-2 2834G-1 2834				2834F-1			
	BSMI						
SL2-IN-E-1154R	SL2-IN-E-1154R SL2-IN-E-1152R N/A		SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R		
	VCCI						
A-0029	A-0109	N/A	A-0108	A-0201	A-0110		
	Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA						
US0158	US0175	N/A	US0017	US0191	US0157		



### PRODUCT DESCRIPTION



#### **Client and Equipment Under Test (EUT) Information**

Company Name:	Parallel Wireless Inc.	
Address:	1 Tara Blvd, Suite #404	
City, State, Zip:	Nashua, NH 03062	
Test Requested By:	Edward Lee of KMW Communications	
Model:	CWS-3050-05	
First Date of Test:	September 26, 2016	
Last Date of Test:	September 28, 2016	
Receipt Date of Samples:	September 26, 2016	
Equipment Design Stage:	Production	
Equipment Condition:	No Damage	
Purchase Authorization:	Verified	

#### Information Provided by the Party Requesting the Test

#### **Functional Description of the EUT:**

Tower based Converged Wireless System Base Station operating in the UMTS Band 5 with WCDMA and LTE Band 5 with 5 MHz and 10 MHz channel bandwidths.

#### **Testing Objective:**

To demonstrate compliance of the Cellular radio to FCC 22H requirements.

# **CONFIGURATIONS**



#### Configuration KMWC0071-1

Software/Firmware Running during test		
Description	Version	
eNB2440_20160729_v0_1_41.pkg	41	

EUT				
Description	Manufacturer	Model/Part Number	Serial Number	
Converged Wireless System Base Station	Parallel Wireless Inc.	CWS-3050-05	K162600004	

Peripherals in test setup boundary				
Description	Manufacturer	Model/Part Number	Serial Number	
High Power Terminator	Telcon	KTMO400800060	1111-0064	
Laptop	Samsung	NP300V5A	HGHS93-JBA00674K	
Laptop Power Supply	Delta Electronics, Inc.	SADP-90FH D	CNBA4400215ABZ040C18685	

Cables						
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2	
DC Cable	No	5m	No	CWS-3050 Tower	DC Mains	
RF Output Cable x2	Yes	5m	No	CWS-3050 Tower	High Power Terminator	
Ethernet Cable	No	2.5m	No	CWS-3050 Tower	Laptop	
AC Cable	No	1.5m	No	AC Mains	Laptop Power Supply	
DC Cable	No	2.0m	Yes	Laptop	Laptop Power Supply	

### Configuration KMWC0071- 2

Software/Firmware Running during test			
Description	Version		
eNB2440_20160729_v0_1_41.pkg	41		

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Converged Wireless System Base Station	Parallel Wireless Inc.	CWS-3050-05	K162600004

Peripherals in test setup boun	idary		
Description	Manufacturer	Model/Part Number	Serial Number
High Power Terminator	Telcon	KTMO400800060	1111-0064
High Power Terminator	Telcon	KTMO400800060	1111-0004

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC Cable	No	5m	No	CWS-3050 Tower	DC Mains
Ethernet Cable	No	2.5m	No	CWS-3050 Tower	Unterminated
AISG Cable	Yes	3m	No	CWS-3050 Tower	Unterminated
AISG (ALM) Cable	Yes	6.1m	No	CWS-3050 Tower	Unterminated
RF Output Cable x2	Yes	5m	No	CWS-3050 Tower	High Power Terminator
Optical Cable	No	10m	No	CWS-3050 Tower	Unterminated
Ground Braid	No	2m	No	CWS-3050 Tower	Ground

# **MODIFICATIONS**



### **Equipment Modifications**

Item	Date	Test	Modification	Note	Disposition of EUT
		Conducted	Tested as	No EMI suppression	EUT remained at
1	9/26/2016	Output Power	delivered to	devices were added or	Northwest EMC
		Output i owei	Test Station.	modified during this test.	following the test.
		Peak To	Tested as	No EMI suppression	EUT remained at
2	9/26/2016	Average Ratio	delivered to	devices were added or	Northwest EMC
		Average Natio	Test Station.	modified during this test.	following the test.
		Band Edge	Tested as	No EMI suppression	EUT remained at
3	9/26/2016	Compliance	delivered to	devices were added or	Northwest EMC
		Compliance	Test Station.	modified during this test.	following the test.
		Occupied	Tested as	No EMI suppression	EUT remained at
4	9/26/2016	Bandwidth	delivered to	devices were added or	Northwest EMC
		Danawidin	Test Station.	modified during this test.	following the test.
		Spurious	Tested as	No EMI suppression	EUT remained at
5	9/26/2016	Emissions at	delivered to	devices were added or	Northwest EMC
		the Antenna	Test Station.	modified during this test.	following the test.
		Terminals	T41	NI- ENI	
6	0/06/0046	linta mana di ilatia n	Tested as	No EMI suppression devices were added or	EUT remained at
О	9/26/2016	Intermodulation	delivered to		Northwest EMC
			Test Station.	modified during this test.	following the test.
7	0/00/0040	Frequency	Tested as	No EMI suppression	EUT remained at
7	9/26/2016	Stability	delivered to	devices were added or	Northwest EMC
		,	Test Station.	modified during this test.	following the test.
0	0/00/0040	Out of Band	Tested as	No EMI suppression	Scheduled testing
8	9/28/2016	Emissions	delivered to	devices were added or	was completed.
			Test Station.	modified during this test.	,



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

#### **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Aeroflex	INMET 8535	AMO	4/4/2016	4/4/2017
Meter - Power	ETS Lindgren	7002-006	SRB	12/14/2015	12/14/2016

#### **CLIENT PROVIDED EQUIPMENT**

Description	Manufacturer	Model	Last Cal.	Cal. Due
High Power Attenuator - 30dB	Aeroflex/Weinschel	53-30-43	NCR	NCR
Attenuator - 20dB	N/A	N/A	NCR	NCR
Power Divider	Fairview Microwave	MP8748-2	NCR	NCR
500hm Terminator	Aeroflex/Weinschel	1455-4	NCR	NCR
High Power Terminator	Telcon	KTMO400800060	NCR	NCR

#### **TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The RF output power was measured with the EUT set to the modes called out in the datasheet. The power measurement was made using a direct connection between the RF output of the EUT and an RF Power Sensor which only measures across the high time of the burst of the carrier.

The observed duty cycle was noted but not needed to calculate the ERP.

ERP = Max Measured Power + Antenna gain (dBi)

The measurements from Port 1 and Port 2 were summed to determine the total average power in ERP.

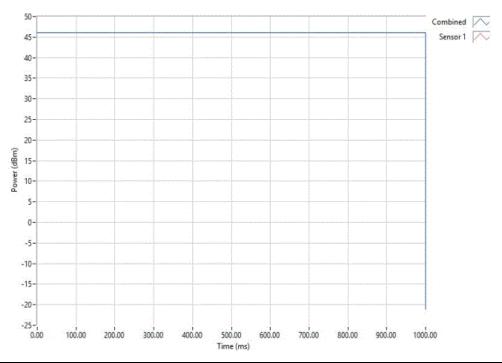
### **CONDUCTED OUTPUT POWER**



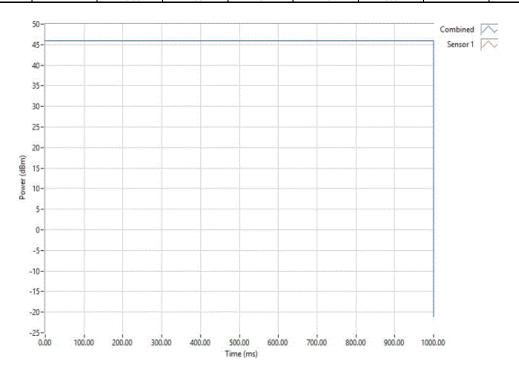
FIIT	: CWS-3050-05							Work Order:	KMWC0071	
Serial Number:									09/26/16	
	: KMW Communications							Temperature:		
	Edward Lee								38.4% RH	
Project:								Barometric Pres.:		
	: Johnny Candelas			Powe	r: 48VDC			Job Site:		
TEST SPECIFICAT					Test Method					
FCC 22H:2016					ANSI/TIA/EIA-603-D-	-2010				
COMMENTS										
	ng 40W. Reference Level Off	set: DC Block + 30dB Atte	enuator + 20d	B Attenuator -	Power Divider + Cabl	e Loss = 55.0dB t	otal.			
	M TEST STANDARD									
None										
Configuration #	1	Signature	1	e d	! late					
		Oignature			Avg Cond Pwr (dBm)	Duty Cycle (%)	Antenna Gain (dBi)	EIRP (dBm)	Limit (Watts)	Results
Antenna Port 1					χ. /		` '	\(\frac{1}{2}\)	(	
	Low Channel LTE5, 871.5 M				46.00	100	0	46	500	Pass
	Mid Channel LTE5, 881.5 M				45.99	100	0	46	500	Pass
	High Channel LTE5, 891.5 M				45.96	100	0	46	500	Pass
	Low Channel LTE10, 874 M				45.98	100	0	46	500	Pass
	Mid Channel LTE10, 881.5 M				45.99	100	0	46	500	Pass
•	High Channel LTE10, 889 M	1Hz			45.97	100	0	46	500	Pass
Antenna Port 2	1 Ob 1 1 TEE 074 E N	41.1—			45.07	400	^	40	500	D
	Low Channel LTE5, 871.5 M				45.97 45.98	100 100	0	46 46	500 500	Pass Pass
	Mid Channel LTE5, 881.5 M High Channel LTE5, 891.5 M				45.98 45.95	100	0	46 46	500	Pass Pass
	Low Channel LTE10, 874 M				45.95 45.97	100	0	46	500	Pass
	Mid Channel LTE10, 881.5 M				45.99	100	0	46	500	Pass
	High Channel LTE10, 889 M				45.99 45.99	100	0	46	500	Pass
Antenna Port 1 MIM		INZ			40.99	100	U	40	300	Fass
Antenna Fort i wiiwi	Low Channel LTE5, 871.5 M	1Hz			45.97	100	0	46	500	Pass
	Mid Channel LTE5, 881.5 M				45.97	100	0	46	500	Pass
	High Channel LTE5, 891.5 M				45.99	100	0	46	500	Pass
	Low Channel LTE10, 874 M				45.99	100	0	46	500	Pass
	Mid Channel LTE10, 881.5 M				45.99	100	0	46	500	Pass
	High Channel LTE10, 889 M				45.99	100	Ö	46	500	Pass
Antenna Port 2 MIM		··· <del>·</del>								
	Low Channel LTE5, 871.5 M	1Hz			45.99	100	0	46	500	Pass
	Mid Channel LTE5, 881.5 M				46.00	100	Ō	46	500	Pass
	High Channel LTE5, 891.5 M				45.99	100	0	46	500	Pass
	Low Channel LTE10, 874 M				45.99	100	Ō	46	500	Pass
	Mid Channel LTE10, 881.5 M				45.98	100	0	46	500	Pass
	High Channel LTE10, 889 M				45.98	100	0	46	500	Pass
Linear Sum of the P			Port 1 (mW)	Port 2 (mW)	Sum (mW)	Sum (dBm)				
	Low Channel LTE5, 871.5 M		39536.7	39719.2	79255.8	48.99	0	48.99	500	Pass
	Mid Channel LTE5, 881.5 M		39536.7	39810.7	79233.6	49.00	0	49.00	500	Pass
	High Channel LTE5, 891.5 M		39719.2	39719.2	79438.3	49.00	0	49.00	500	Pass
	Low Channel LTE10, 874 M		39719.2	39719.2	79438.3	49.00	0	49.00	500	Pass
	Mid Channel LTE10, 881.5 M		39719.2	39627.8	79347.0	49.00	0	49.00	500	Pass
	High Channel LTE10, 889 M		39719.2	39627.8	79347.0	49.00	0	49.00	500	Pass
	riigii Orialiilei ETETO, 009 IV	11 12	001 10.2	33021.0	100-1.0	40.00	U	40.00	300	1 000



	Antenna Port 1, Low Channel LTE5, 871.5 MHz								
		Avg Cond	Duty	Antenna	EIRP	Limit			
		Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results		
Ι Γ		46.00	100	0	46	500	Pass		

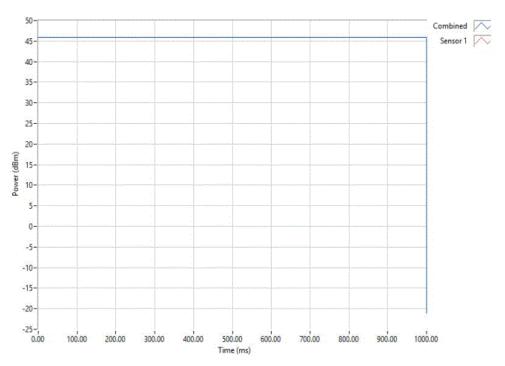


Antenna Port 1, Mid Channel LTE5, 881.5 MHz									
	Avg Cond	Duty	Antenna	EIRP	Limit				
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results			
	45.99	100	0	46	500	Pass			

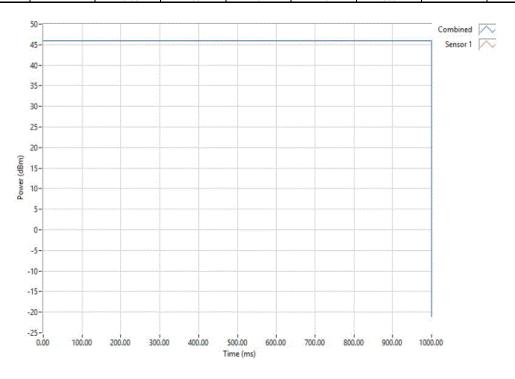




Antenna Port 1, High Channel LTE5, 891.5 MHz								
	Avg Cond	Duty	Antenna	EIRP	Limit			
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results		
	45.96	100	0	46	500	Pass		

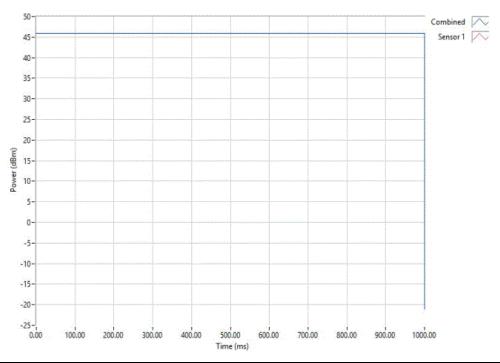


	Antenna Port 1, Low Channel LTE10, 874 MHz								
		Avg Cond	Duty	Antenna	EIRP	Limit			
_		Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results		
l		45.98	100	0	46	500	Pass		

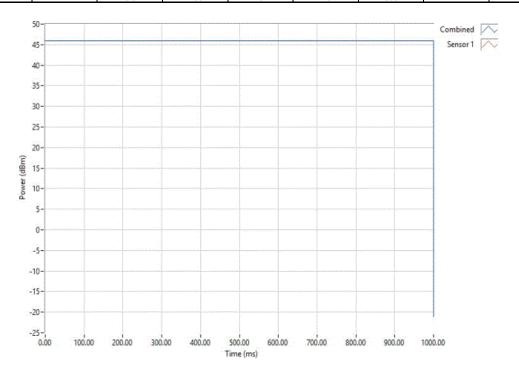




		Antenna Port 1,	Mid Channel LTI	E10, 881.5 MHz		
	Avg Cond	Duty	Antenna	EIRP	Limit	
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
ı	45.99	100	0	46	500	Pass



		Antenna Port 1	, High Channel L	TE10, 889 MHz		
	Avg Cond	Duty	Antenna	EIRP	Limit	
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
	45.97	100	0	46	500	Pass

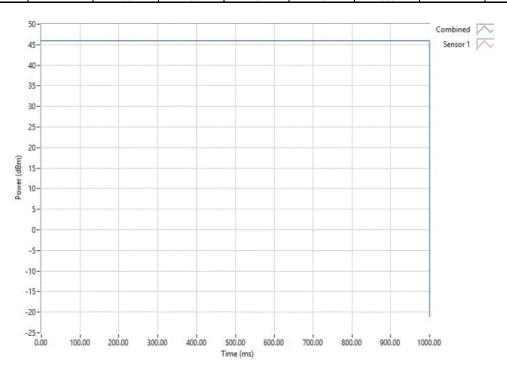




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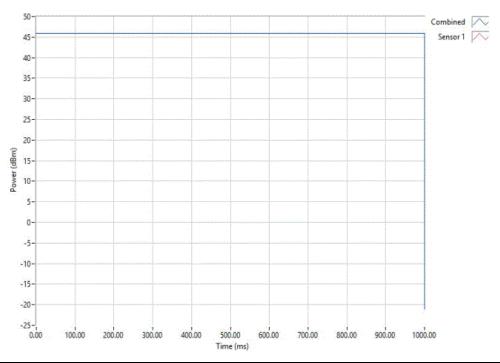
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ı		Antenna Port 2	, Low Channel LT	E5, 871.5 MHz		
I	Avg Cond	Duty	Antenna	EIRP	Limit	
I	 Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
	45.97	100	0	46	500	Pass

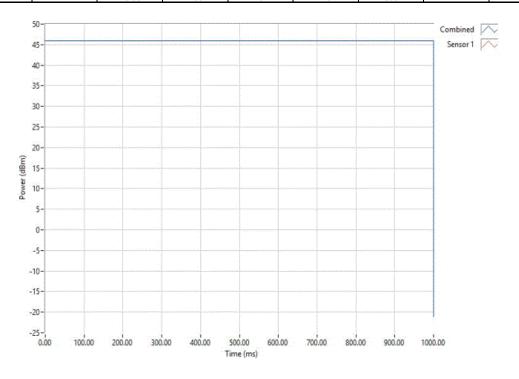




		Antenna Port 2	, Mid Channel LT	E5, 881.5 MHz		
	Avg Cond	Duty	Antenna	EIRP	Limit	
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
	45.98	100	0	46	500	Pass

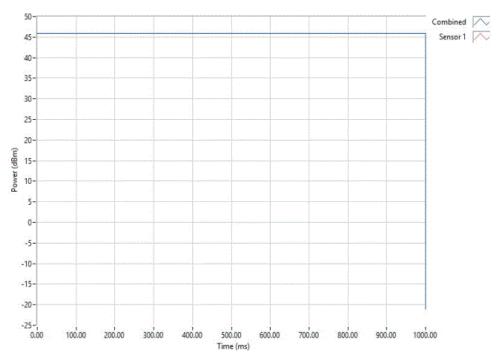


		Antenna Port 2,	, High Channel L	ΓΕ5, 891.5 MHz		
	Avg Cond	Duty	Antenna	EIRP	Limit	
_	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
ĺ	45.95	100	0	46	500	Pass

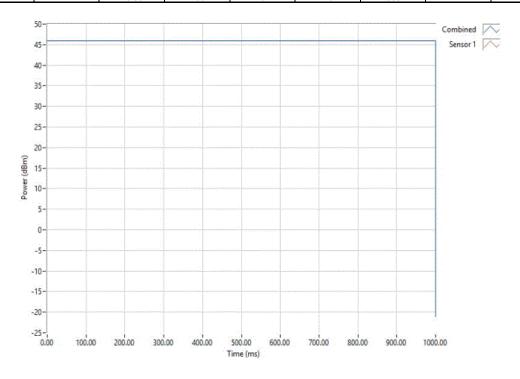




		Antenna Port 2	, Low Channel L	ΓΕ10, 874 MHz		
	Avg Cond	Duty	Antenna	EIRP	Limit	
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
	45.97	100	0	46	500	Pass

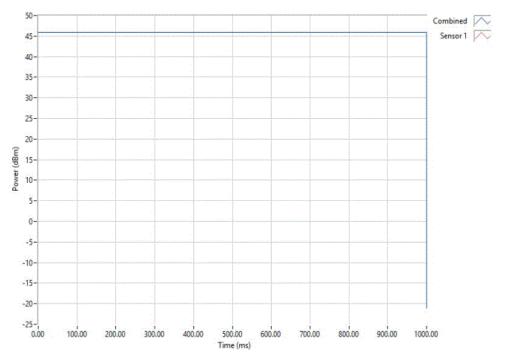


		Antenna Port 2,	Mid Channel LT	E10, 881.5 MHz		
	Avg Cond	Duty	Antenna	EIRP	Limit	
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
Γ	45.99	100	0	46	500	Pass





		Antenna Port 2	, High Channel L	TE10, 889 MHz		
	Avg Cond	Duty	Antenna	EIRP	Limit	
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
	45.99	100	0	46	500	Pass

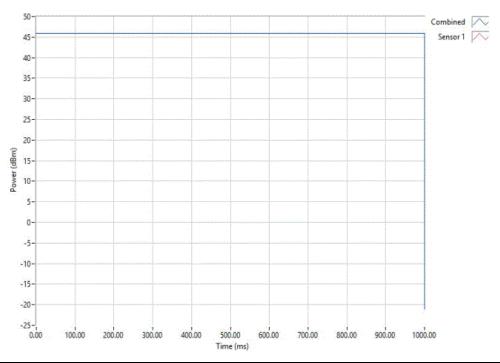


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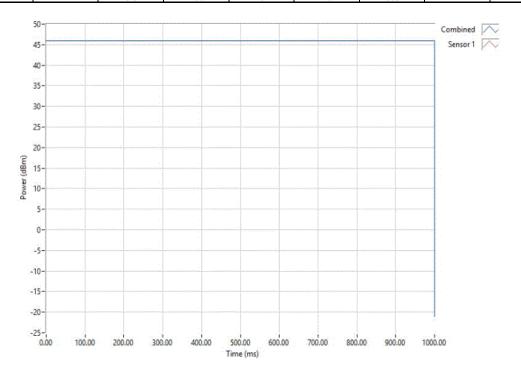
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Antenna Port 1 MIMO, Low Channel LTE5, 871.5 MHz Avg Cond Duty Antenna EIRP Limit Pwr (dBm) Cycle (%) Gain (dBi) (dBm) (Watts) Results						
	Avg Cond	Duty	Antenna	EIRP	Limit	
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
	45.97	100	0	46	500	Pass

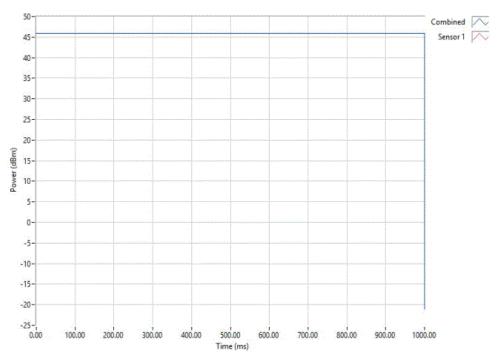


-	Antenna Port 1 MI	MO, Mid Channe	I LTE5, 881.5 MF	lz	
Avg Cond	Duty	Antenna	EIRP	Limit	
 Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
45.97	100	0	46	500	Pass

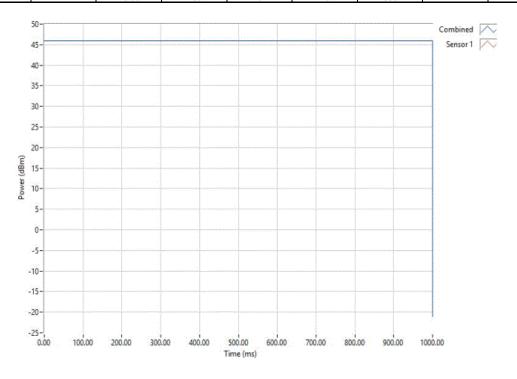




	A	ntenna Port 1 MII	MO, High Channe	I LTE5, 891.5 MH	Ηz		
	Avg Cond	Duty	Antenna	EIRP	Limit		
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results	_
	45.99	100	0	46	500	Pass	

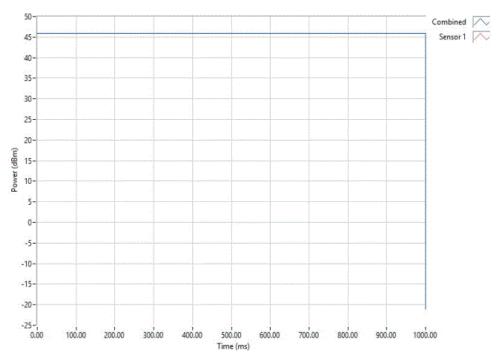


	Antenna Port 1 MIMO, Low Channel LTE10, 874 MHz									
		Avg Cond	Duty	Antenna	EIRP	Limit				
_		Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results			
		45.99	100	0	46	500	Pass			

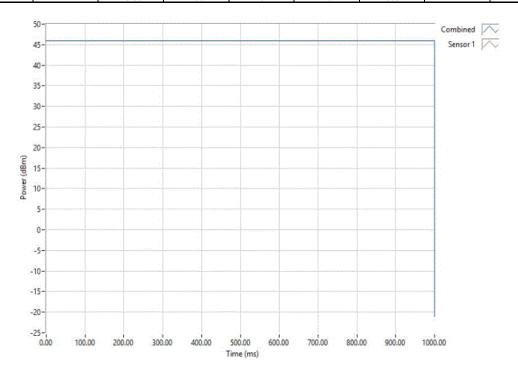




Antenna Port 1 MIMO, Mid Channel LTE10, 881.5 MHz									
		Avg Cond	Duty	Antenna	EIRP	Limit			
		Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results		
I		45.99	100	0	46	500	Pass		



Antenna Port 1 MIMO, High Channel LTE10, 889 MHz									
	Avg Cond	Duty	Antenna	EIRP	Limit				
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results			
	45.99	100	0	46	500	Pass			

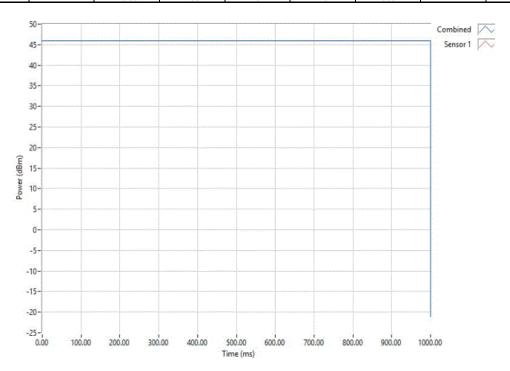




				1

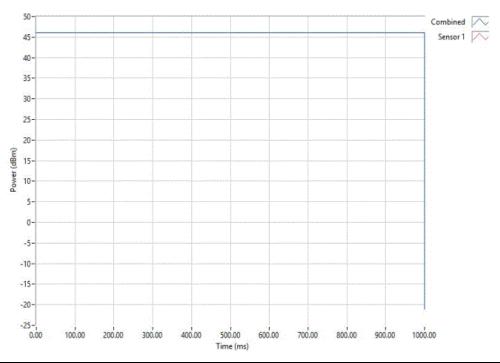
Intentionally Left Blank

Antenna Port 2 MIMO, Low Channel LTE5, 871.5 MHz									
Avg	Cond	Duty	Antenna	EIRP	Limit				
Pwr	(dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results			
4	5.99	100	0	46	500	Pass			

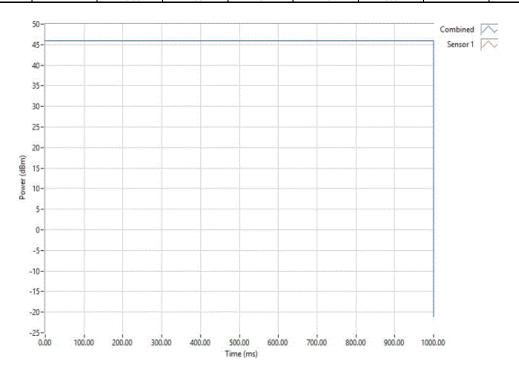




Antenna Port 2 MIMO, Mid Channel LTE5, 881.5 MHz									
		Avg Cond	Duty	Antenna	EIRP	Limit			
		Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results		
1		46.00	100	0	46	500	Pass		

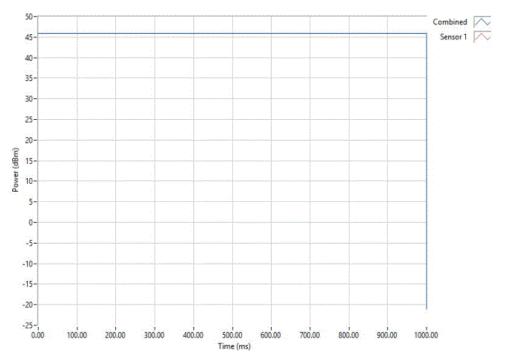


Antenna Port 2 MIMO, High Channel LTE5, 891.5 MHz									
	Avg Cond	Duty	Antenna	EIRP	Limit				
<u></u>	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results			
	45.99	100	0	46	500	Pass			

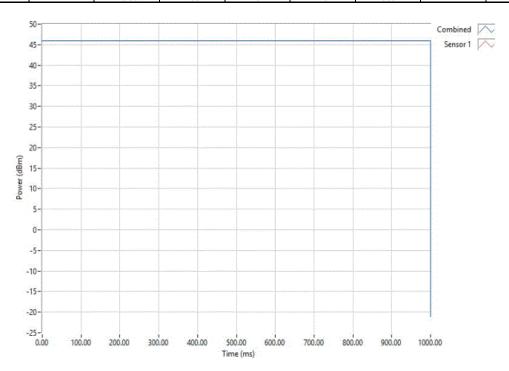




Antenna Port 2 MIMO, Low Channel LTE10, 874 MHz									
		Avg Cond	Duty	Antenna	EIRP	Limit			
		Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results		
		45.99	100	0	46	500	Pass		

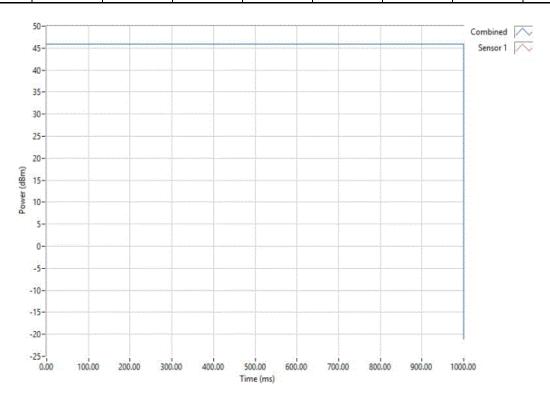


Antenna Port 2 MIMO, Mid Channel LTE10, 881.5 MHz										
	Avg Cond	Duty	Antenna	EIRP	Limit					
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results				
	45.98	100	0	46	500	Pass				





Antenna Port 2 MIMO, High Channel LTE10, 889 MHz									
	Avg Cond	Duty	Antenna	EIRP	Limit				
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results			
	45.98	100	0	46	500	Pass			





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

#### **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Aeroflex	INMET 8535	AMO	4/4/2016	4/4/2017
Meter - Power	ETS Lindgren	7002-006	SRB	12/14/2015	12/14/2016

#### **CLIENT PROVIDED EQUIPMENT**

Description	Manufacturer	Model	Last Cal.	Cal. Due
High Power Attenuator - 30dB	Aeroflex/Weinschel	53-30-43	NCR	NCR
Attenuator - 20dB	N/A	N/A	NCR	NCR
Power Divider	Fairview Microwave	MP8748-2	NCR	NCR
50Ohm Terminator	Aeroflex/Weinschel	1455-4	NCR	NCR
High Power Terminator	Telcon	KTMO400800060	NCR	NCR

#### **TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The RF output power was measured with the EUT set to the modes called out in the datasheet. The power measurement was made using a direct connection between the RF output of the EUT and an RF Power Sensor which only measures across the high time of the burst of the carrier.

The observed duty cycle was noted but not needed to calculate the ERP.

ERP = Max Measured Power + Antenna gain (dBi)

The measurements from Port 1 and Port 2 were summed to determine the total average power in ERP.

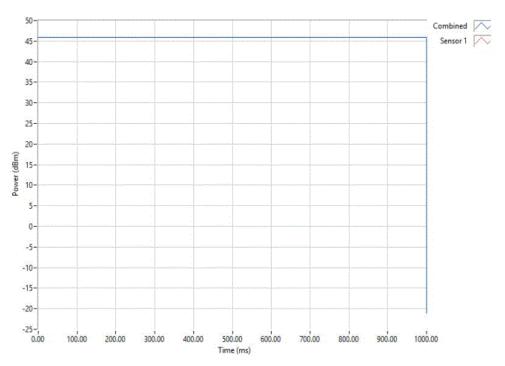
### **CONDUCTED OUTPUT POWER**



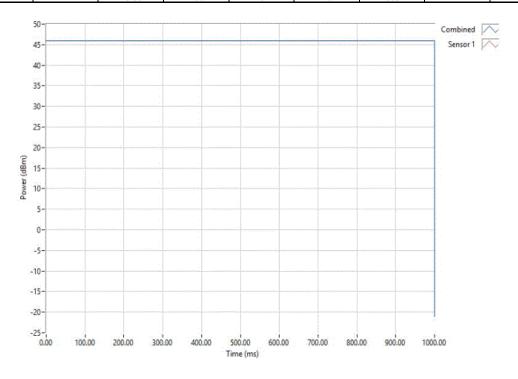
EUT:	: CWS-3050-05							Work Order:	KMWC0071	
Serial Number:	: K162600004							Date:	09/26/16	
Customer	: KMW Communications							Temperature:	22.3 °C	
Attendees	: Edward Lee							Humidity:	38.4% RH	
Project	: None							Barometric Pres.:	1016 mbar	
	: Johnny Candelas			Power:	48VDC			Job Site:	OC13	
TEST SPECIFICAT	TONS				Test Method					
FCC 22H:2016					ANSI/TIA/EIA-603-D	0-2010				
COMMENTS										
Power Level Settin	ng 40W. Reference Level Offse	et: DC Block + 30dB	Attenuator + 20	dB Attenuator + I	Power Divider + Cab	ole Loss = 55.0dB	total.			
	M TEST STANDARD									
None										
			_1	. 1	Lake					
Configuration #	1									
		Signature	U							
					Avg Cond	Duty	Antenna	EIRP	Limit	Results
Antenna Port 1					Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
Antenna Port 1	Low Channel WCDMA, 871.4	N41.1-			45.97	100	0	46	500	Pass
	Mid Channel WCDMA, 871.4				45.97 45.98	100	0	46	500	Pass
	High Channel WCDMA, 891.6				45.99 45.99	100	0	46	500	Pass
Antenna Port 2	Trigit Chariner WCDIVIA, 091.0	IVII IZ			40.00	100	0	40	300	1 033
Antenna i ort z	Low Channel WCDMA, 871.4	MHz			46	100	0	46	500	Pass
	Mid Channel WCDMA, 881.4 M				46	100	0	46	500	Pass
	High Channel WCDMA, 891.6				45.97	100	0	46	500	Pass
Antenna Port 1 MIM					10.07					. 400
	Low Channel WCDMA, 871.4	MHz			46	100	0	46	500	Pass
	Mid Channel WCDMA, 881.4 M				45.98	100	0	46	500	Pass
	High Channel WCDMA, 891.6	MHz			45.98	100	0	46	500	Pass
Antenna Port 2 MIM	10									
	Low Channel WCDMA, 871.4	MHz			45.98	100	0	46	500	Pass
	Mid Channel WCDMA, 881.4 M				45.96	100	0	46	500	Pass
	High Channel WCDMA, 891.6	MHz			45.99	100	0	46	500	Pass
Linear Sum of the P	Power									
			Port 1 (mW)	Port 2 (mW)	Sum (mW)	Sum (dBm)				
		DMA, 871.4 MHz	39810.7	39627.8	79438.5	49.00	0	49	500	Pass
		DMA, 881.4 MHz	39627.8	39445.7	79073.5	48.98	0	49	500	Pass
	High Channel We	CDMA, 891.6 MHz	39627.8	39719.2	79347.0	49.00	0	49	500	Pass



		Antenna Port 1, I	_ow Channel WC	DMA, 871.4 MHz		
	Avg Cond	Duty	Antenna	EIRP	Limit	
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
I	45.97	100	0	46	500	Pass

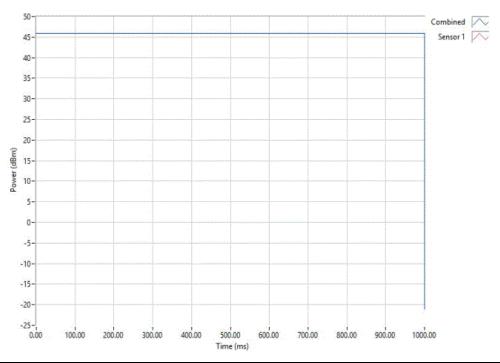


		Antenna Port 1, I	Mid Channel WC	DMA, 881.4 MHz		
	Avg Cond	Duty	Antenna	EIRP	Limit	
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
1	45.98	100	0	46	500	Pass

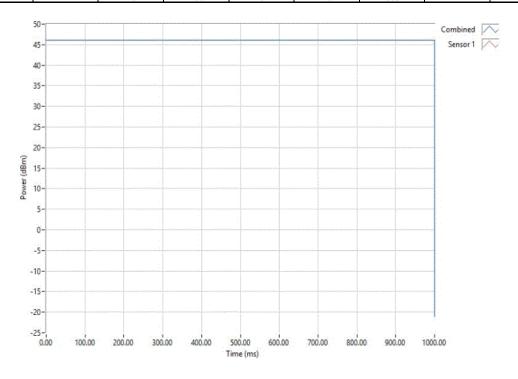




	Antenna Port 1, F	High Channel WC	DMA, 891.6 MHz		
Avg Cond	Duty	Antenna	EIRP	Limit	
Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
45.99	100	0	46	500	Pass

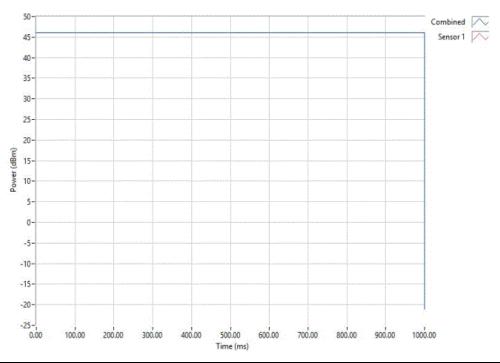


		Antenna Port 2, L	ow Channel WC	DMA, 871.4 MHz		
	Avg Cond	Duty	Antenna	EIRP	Limit	
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
	46	100	0	46	500	Pass

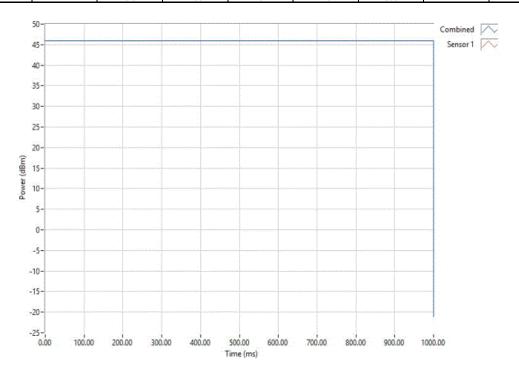




		Antenna Port 2, I	Mid Channel WCl	DMA, 881.4 MHz		
	Avg Cond	Duty	Antenna	EIRP	Limit	
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
	46	100	0	46	500	Pass

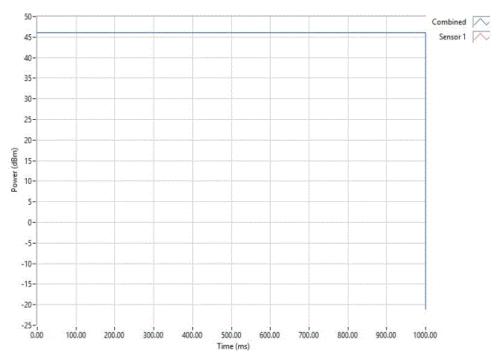


	Antenna Port 2, I	High Channel WC	DMA, 891.6 MHz		
Avg Cond	Duty	Antenna	EIRP	Limit	
 Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
45.97	100	0	46	500	Pass

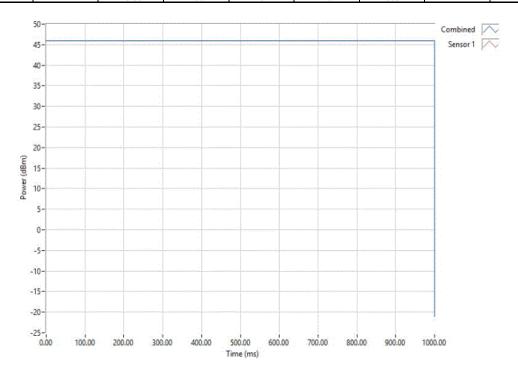




	Ant	enna Port 1 MIM	O, Low Channel	WCDMA, 871.4 N	ИHz	
	Avg Cond	Duty	Antenna	EIRP	Limit	
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
1	46	100	0	46	500	Pass

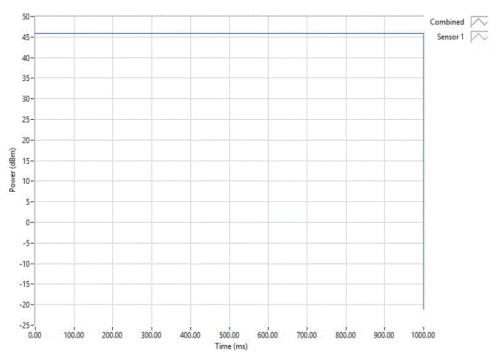


	An	tenna Port 1 MIM	O, Mid Channel \	WCDMA, 881.4 N	1Hz	
	Avg Cond	Duty	Antenna	EIRP	Limit	
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
	45.98	100	0	46	500	Pass

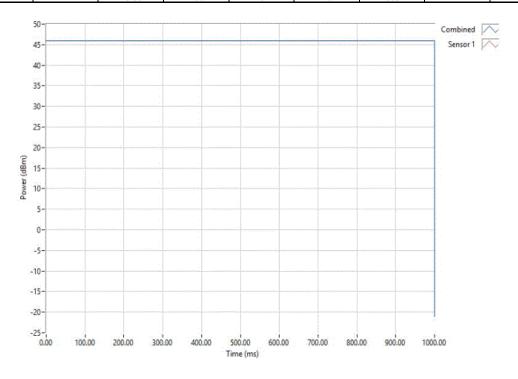




Ant	enna Port 1 MIM	O, High Channel	WCDMA, 891.6 N	ИНz	
Avg Cond	Duty	Antenna	EIRP	Limit	
Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
45.98	100	0	46	500	Pass

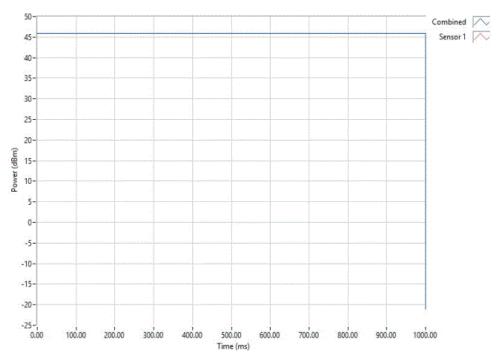


	Ant	enna Port 2 MIM	O, Low Channel \	NCDMA, 871.4 N	ИHz	
	Avg Cond	Duty	Antenna	EIRP	Limit	
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
	45.98	100	0	46	500	Pass

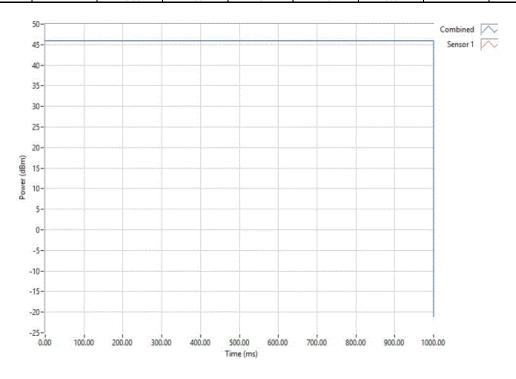




An	enna Port 2 MIM	O, Mid Channel V	WCDMA, 881.4 M	lHz	
Avg Cond	Duty	Antenna	EIRP	Limit	
Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
45.96	100	0	46	500	Pass



Antenna Port 2 MIMO, High Channel WCDMA, 891.6 MHz						
	Avg Cond	Duty	Antenna	EIRP	Limit	
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(Watts)	Results
	45.99	100	0	46	500	Pass



### **PEAK TO AVERAGE RATIO - LTE BAND 5**



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

#### **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Aeroflex	INMET 8535	AMO	4/4/2016	4/4/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/19/2015	11/19/2016

#### **CLIENT PROVIDED EQUIPMENT**

Description	Manufacturer	Model	Last Cal.	Cal. Due
High Power Attenuator - 30dB	Aeroflex/Weinschel	53-30-43	NCR	NCR
Attenuator - 20dB	N/A	N/A	NCR	NCR
Power Divider	Fairview Microwave	MP8748-2	NCR	NCR
500hm Terminator	Aeroflex/Weinschel	1455-4	NCR	NCR
High Power Terminator	Telcon	KTMO400800060	NCR	NCR

#### **TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

Because the conducted Output Power was measured using a RMS Average detector, the Peak to Average Ratio was measured to show that the maximum peak-max-hold spectrum to the maximum of the average spectrum does not exceed 13 dB.

The spectrum analyzer settings were as follows:

Span set to encompass the entire emission bandwidth, centered on the transmit channel.

The largest difference between the following two traces was calculated:

▶1st Trace: Peak detector and trace max-hold.

▶2nd Trace: The same procedure and settings as was used for conducted Output Power.

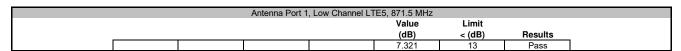
### **PEAK TO AVERAGE RATIO - LTE BAND 5**

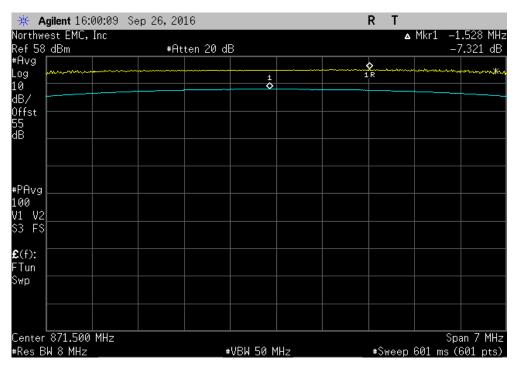


	: CWS-3050-05						KMWC0071	
Serial Number:	: K162600004						09/26/16	
	: Parallel Wireless Inc.					Temperature:		
	: Edward Lee						38.4% RH	
Project					В	arometric Pres.:		
	Johnny Candelas		Powers	48VDC		Job Site:	OC13	
TEST SPECIFICAT	TIONS			Test Method				
FCC 22H:2016				ANSI/TIA/EIA-603-D-2010				
COMMENTS								
Power Level Settin	ng 40W. Reference Level O	Offset: DC Block + 30dB Attenuator + 2	OdB Attenuator +	Power Divider + Cable Loss = 55.0c	B total.			
<b>DEVIATIONS FROM</b>	M TEST STANDARD							
None								
			0 1	100				
			1					
Configuration #	1		Je	Colle				
Configuration #	1	Signature	fe d	Esther		Value	Limit	
Configuration #	1		Je d.	Collen		Value (dB)	Limit < (dB)	Results
Configuration #  Antenna Port 1	1		Je d.	Coffee		Value (dB)	Limit < (dB)	Results
J	Low Channel LTE5. 871.5	Signature	Je de	Coffee				Results Pass
J	Low Channel LTE5, 871.5 Mid Channel LTE5, 881.5	Signature MHz	J. d.	Cather .		(dB)	< (dB)	
J		Signature  MHz MHz	J. d.	- Calhar		(dB) 7.321	< (dB)	Pass
J	Mid Channel LTE5, 881.5 I	Signature  MHz  MHz  MHz  MHz		Collection		7.321 7.048	< (dB)	Pass Pass
J	Mid Channel LTE5, 881.5 High Channel LTE5, 891.5	Signature  MHz MHz MHz MHz MHz	Je de			7.321 7.048 7.334	< (dB)  13 13 13	Pass Pass Pass
J	Mid Channel LTE5, 881.5 High Channel LTE5, 891.5 Low Channel LTE10, 874 I	Signature  MHz MHz MHz MHz MHz MHz MHz MHz		- Calhar		7.321 7.048 7.334 9.617	< (dB)  13 13 13 13 13	Pass Pass Pass Pass
J	Mid Channel LTE5, 881.5 High Channel LTE5, 891.5 Low Channel LTE10, 874 Mid Channel LTE10, 881.5 High Channel LTE10, 889	Signature  MHz  MHz  MHz  MHz  MHz  MHz  MHz  MH	J. d.	- Calhar		7.321 7.048 7.334 9.617 9.748 10.085	13 13 13 13 13 13	Pass Pass Pass Pass Pass Pass
Antenna Port 1	Mid Channel LTE5, 881.5 High Channel LTE5, 891.5 Low Channel LTE10, 874 Mid Channel LTE10, 881.5 High Channel LTE10, 889 Low Channel LTE5, 871.5	Signature  MHz MHz MHz MHz MHz MHz MHz MHz MHz MH		Caller		7.321 7.048 7.334 9.617 9.748 10.085	< (dB)  13 13 13 13 13 13 13 13	Pass Pass Pass Pass Pass Pass Pass Pass
Antenna Port 1	Mid Channel LTE5, 881.5 High Channel LTE5, 891.5 Low Channel LTE10, 874 I Mid Channel LTE10, 881.5 High Channel LTE10, 889 Low Channel LTE5, 871.5 Mid Channel LTE5, 881.5	Signature  MHz MHz MHz MHz MHz MHz MHz MHz MHz MH				7.321 7.048 7.334 9.617 9.748 10.085 7.349 7.095	< (dB)  13 13 13 13 13 13 13 13 13 13	Pass Pass Pass Pass Pass Pass Pass Pass
Antenna Port 1	Mid Channel LTE5, 881.5 High Channel LTE16, 891.5 Low Channel LTE10, 874 Mid Channel LTE10, 881.5 High Channel LTE10, 889.5 Low Channel LTE5, 871.5 Mid Channel LTE5, 881.5 High Channel LTE5, 881.5	Signature  MHz MHz MHz MHz 5 MHz		- Caller		7.321 7.048 7.334 9.617 9.748 10.085 7.349 7.095 7.44	< (dB)  13 13 13 13 13 13 13 13 13 13 13 13 13	Pass Pass Pass Pass Pass Pass Pass Pass
Antenna Port 1	Mid Channel LTE5, 881.5 High Channel LTE10, 874. Low Channel LTE10, 874 Mid Channel LTE10, 881.5 High Channel LTE10, 889. Low Channel LTE5, 881.5 High Channel LTE5, 881.5 Low Channel LTE5, 881.5 Low Channel LTE10, 874	Signature  MHz MHz MHz MHz MHz MHz MHz MHz MHz MH				7.321 7.048 7.334 9.617 9.748 10.085 7.349 7.095 7.44 9.719	< (dB)  13 13 13 13 13 13 13 13 13 13 13 13 13	Pass Pass Pass Pass Pass Pass Pass Pass
Antenna Port 1	Mid Channel LTE5, 881.5 High Channel LTE10, 891.5 Low Channel LTE10, 874 I Mid Channel LTE10, 881.5 High Channel LTE5, 889.5 Low Channel LTE5, 881.5 High Channel LTE5, 881.5 Low Channel LTE10, 874 I Low Channel LTE10, 874	Signature  MHz MHz MHz MHz MHz MHz MHz MHz MHz MH		- Calhar		7.321 7.048 7.334 9.617 9.748 10.085 7.349 7.095 7.44 9.719	< (dB)  13 13 13 13 13 13 13 13 13 13 13 13 13	Pass Pass Pass Pass Pass Pass Pass Pass
Antenna Port 1	Mid Channel LTE5, 881.5 High Channel LTE10, 874. Low Channel LTE10, 874 Mid Channel LTE10, 881.5 High Channel LTE10, 889. Low Channel LTE5, 881.5 High Channel LTE5, 881.5 Low Channel LTE5, 881.5 Low Channel LTE10, 874	Signature  MHz MHz MHz MHz MHz MHz MHz MHz MHz MH				7.321 7.048 7.334 9.617 9.748 10.085 7.349 7.095 7.44 9.719	< (dB)  13 13 13 13 13 13 13 13 13 13 13 13 13	Pass Pass Pass Pass Pass Pass Pass Pass

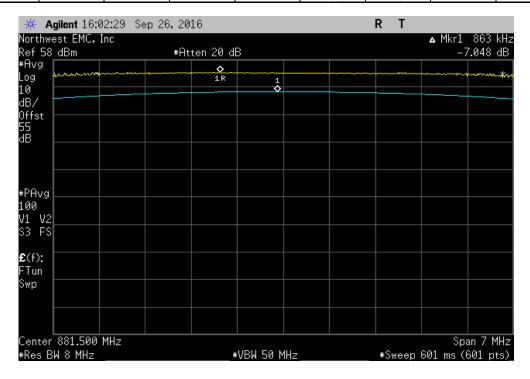
#### **PEAK TO AVERAGE RATIO - LTE BAND 5**



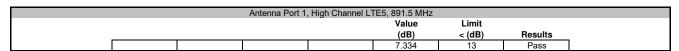


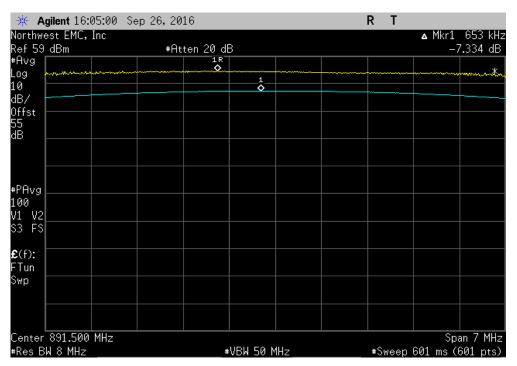


		Antenna Port 1	, Mid Channel LT	E5, 881.5 MHz		
				Value	Limit	
				(dB)	< (dB)	Results
i				7.048	13	Pass

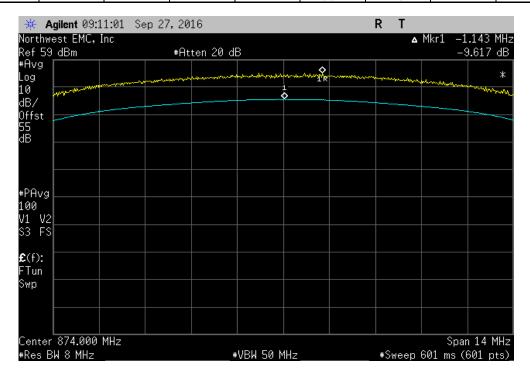




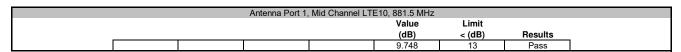


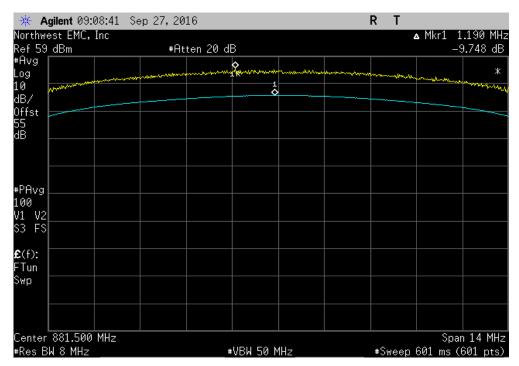


	Antenna Port 1	, Low Channel L	ΓΕ10, 874 MHz		
			Value	Limit	
			(dB)	< (dB)	Results
			9.617	13	Pass

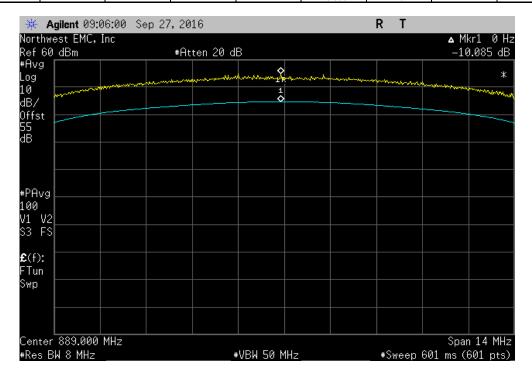








	Antenna Port 1	, High Channel L	TE10, 889 MHz		
			Value	Limit	
			(dB)	< (dB)	Results
			10.085	13	Pass

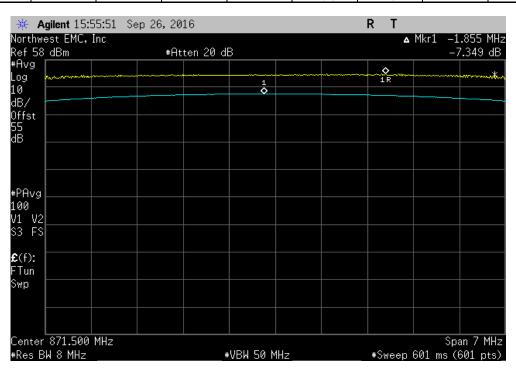




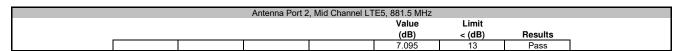
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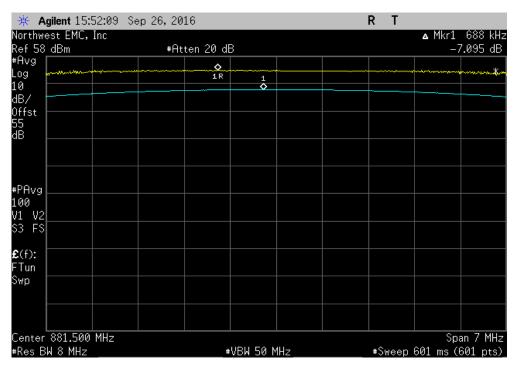
Intentionally Left Blank

	Antenna Port 2	, Low Channel LT	E5, 871.5 MHz		
			Value	Limit	
			(dB)	< (dB)	Results
			7.349	13	Pass

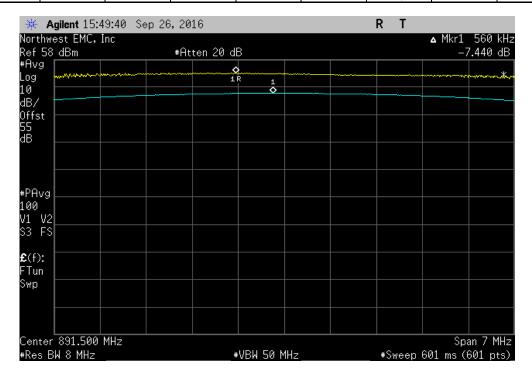




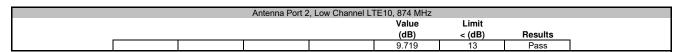


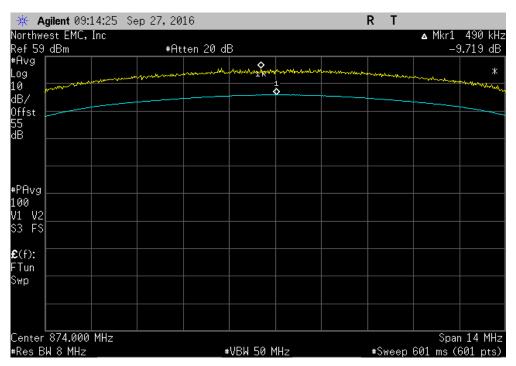


	Antenna Port 2	, High Channel L∃	ΓΕ5, 891.5 MHz		
			Value	Limit	
			(dB)	< (dB)	Results
			7.44	13	Pass

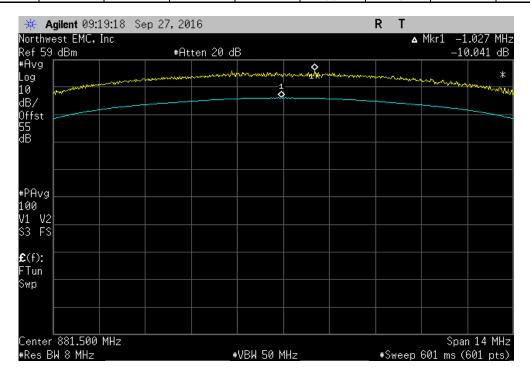






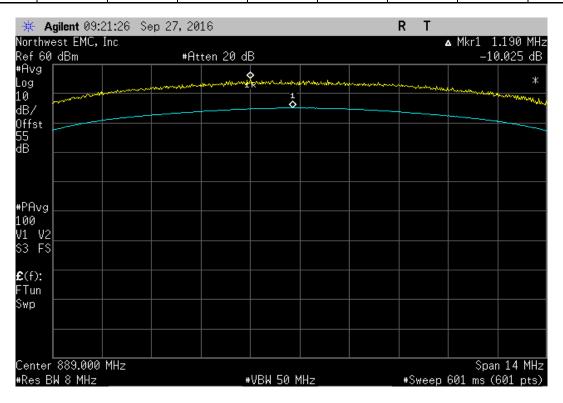


	Antenna Port 2,	Mid Channel LTI	E10, 881.5 MHz		
			Value	Limit	
			(dB)	< (dB)	Results
			10.041	13	Pass





	Antenna Port 2	, High Channel L	TE10, 889 MHz		
			Value	Limit	
			(dB)	< (dB)	Results
			10.025	13	Pass





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

#### **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Aeroflex	INMET 8535	AMO	4/4/2016	4/4/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/19/2015	11/19/2016

#### **CLIENT PROVIDED EQUIPMENT**

Description	Manufacturer	Model	Last Cal.	Cal. Due
High Power Attenuator - 30dB	Aeroflex/Weinschel	53-30-43	NCR	NCR
Attenuator - 20dB	N/A	N/A	NCR	NCR
Power Divider	Fairview Microwave	MP8748-2	NCR	NCR
500hm Terminator	Aeroflex/Weinschel	1455-4	NCR	NCR
High Power Terminator	Telcon	KTMO400800060	NCR	NCR

#### **TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

Because the conducted Output Power was measured using a RMS Average detector, the Peak to Average Ratio was measured to show that the maximum peak-max-hold spectrum to the maximum of the average spectrum does not exceed 13 dB.

The spectrum analyzer settings were as follows:

Span set to encompass the entire emission bandwidth, centered on the transmit channel.

The largest difference between the following two traces was calculated:

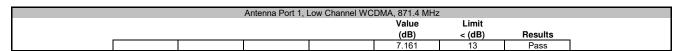
▶1st Trace: Peak detector and trace max-hold.

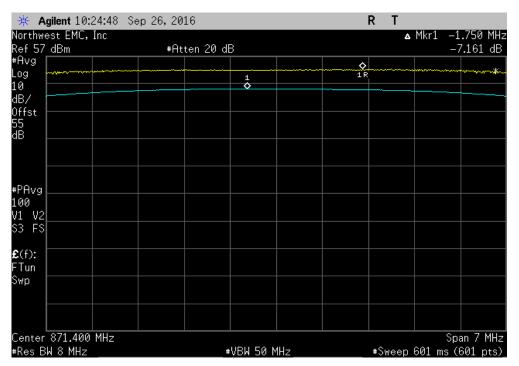
▶2nd Trace: The same procedure and settings as was used for conducted Output Power.



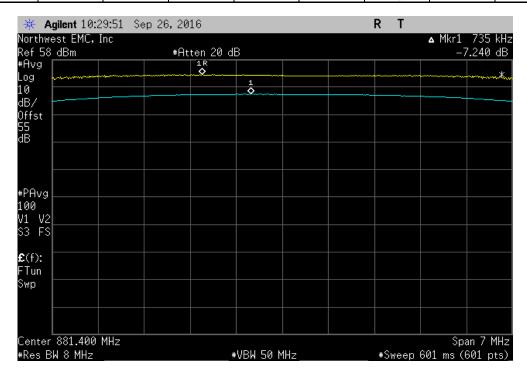
EUT:	CWS-3050-05		Work Order:	KMWC0071	
Serial Number:	K162600004			09/26/16	,
Customer:	Parallel Wireless Inc.		Temperature:	22.3 °C	
Attendees:	Edward Lee		Humidity:	38.4% RH	
Project:	None		Barometric Pres.:		,
	Johnny Candelas	Power: 48VDC	Job Site:	OC13	
TEST SPECIFICAT	IONS	Test Method			
FCC 22H:2016		ANSI/TIA/EIA-603-D-2010			
COMMENTS					
Power Level Settin	g 40W. Reference Level Offset: DC Block + 30dB Attenuator + 2	20dB Attenuator + Power Divider + Cable Loss = 55.0dE	total.		
	M TEST STANDARD				
None					
		for de later			
Configuration #		fe a com			
	Signature	3			
			Value	Limit	
			(dB)	< (dB)	Results
Antenna Port 1					_
	Low Channel WCDMA, 871.4 MHz		7.161	13	Pass
	Mid Channel WCDMA, 881.4 MHz		7.24	13	Pass
	High Channel WCDMA, 891.6 MHz		7.484	13	Pass
Antenna Port 2					
	Low Channel WCDMA, 871.4 MHz		7.177	13	Pass
	Mid Channel WCDMA, 881.4 MHz		7.265	13	Pass
	High Channel WCDMA, 891.6 MHz		7.5	13	Pass



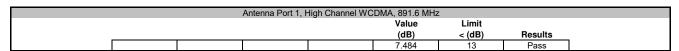


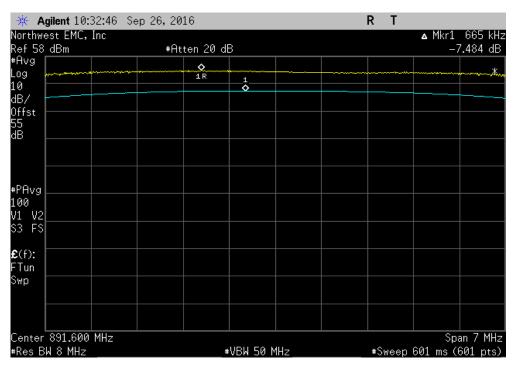


		Antenna Port 1, I	Mid Channel WC	DMA, 881.4 MHz			
				Value	Limit		
_				(dB)	< (dB)	Results	
l [	<u> </u>			7.24	13	Pass	

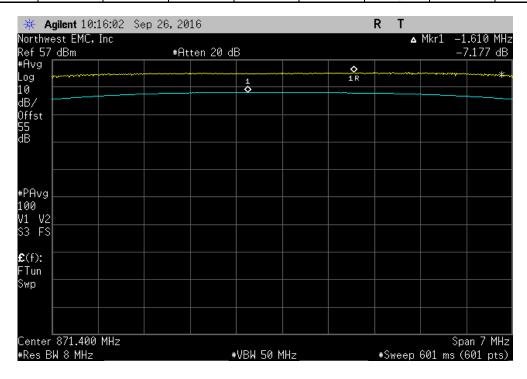




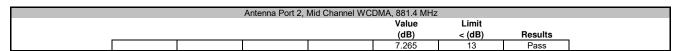


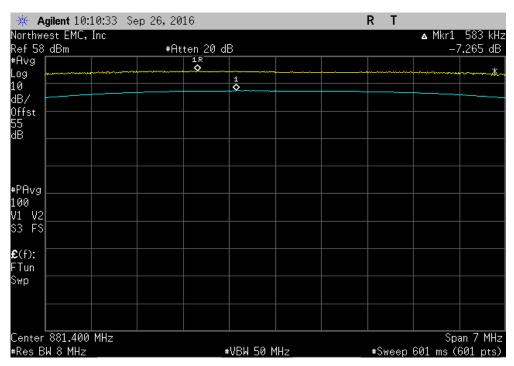


	Antenna Port 2, L	ow Channel WC	DMA, 871.4 MHz		
			Value	Limit	
			(dB)	< (dB)	Results
			7.177	13	Pass

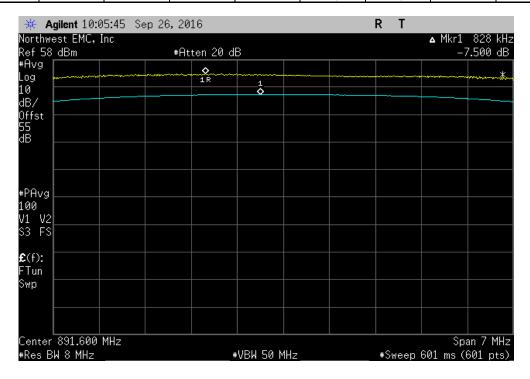








		Antenna Port 2, F	ligh Channel WC	DMA, 891.6 MHz			
				Value	Limit		
				(dB)	< (dB)	Results	_
l				7.5	13	Pass	1





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

#### **TEST EQUIPMENT**

1201 20011 1112111					
Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPHS-32-3.5-SCT/AC	TBE	NCR	NCR
Thermometer	Omega Engineering, Inc.	HH311	DUC	10/3/2014	10/3/2017
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Aeroflex	INMET 8535	AMO	4/4/2016	4/4/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/19/2015	11/19/2016

#### **CLIENT PROVIDED EQUIPMENT**

Description	Manufacturer	Model	Last Cal.	Cal. Due
High Power Attenuator - 30dB	Aeroflex/Weinschel	53-30-43	NCR	NCR
Attenuator - 20dB	N/A	N/A	NCR	NCR
Power Divider	Fairview Microwave	MP8748-2	NCR	NCR
500hm Terminator	Aeroflex/Weinschel	1455-4	NCR	NCR
High Power Terminator	Telcon	KTMO400800060	NCR	NCR

#### **TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

Testing was done with an absence of modulation in a CW mode of operation.

The primary supply voltage was varied from 85 % to 115% of the nominal voltage. Using a temperature chamber, the transmit frequency was recorded at the extremes of the specified temperature range (-30° to +50° C) at 10°C intervals.

Per the requirements of FCC Part 22.355, the specified limits for Fixed Base Station use is 1.5 ppm.

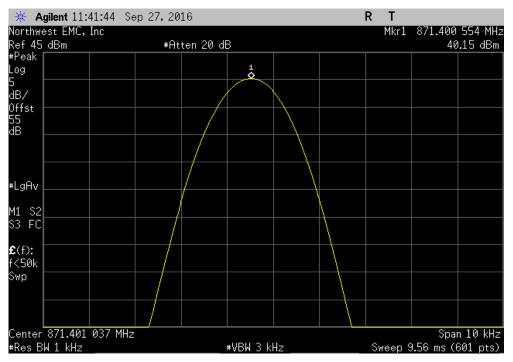


EUT: CWS-3050-05
Serial Number: K162600004
Customer: Parallel Wireless Inc. Work Order: KMWC0071 Date: 09/26/16 Temperature: 22.3 °C Attendees: Edward Lee Humidity: 38.4% RH Barometric Pres.: 1016 mba Project: None Tested by: Johnny Candelas Power: 48VDC Test Method Job Site: OC13 FCC 22H:2016 ANSI/TIA/EIA-603-D-2010 COMMENTS Power Level Setting 40W. Reference Level Offset: DC Block + 30dB Attenuator + 20dB Attenuator + Power Divider + Cable Loss = 55.0dB total. DEVIATIONS FROM TEST STANDARD Configuration # Signature Measured Value (MHz) Assigned Value (MHz) Results (ppm) (ppm) Antenna Port 1 Normal Temperature and Voltage Low Channel CW, 871.4 MHz 871.400554 871.4 Pass 0.6 Mid Channel CW 881 5 MHz 881 500559 881.5 0.6 1.5 Pass High Channel CW, 891.6 MHz 891.600589 Pass 891.6 0.7 Extreme Vol tage, 55.2 VDC Low Channel CW, 871.4 MHz 871.400553 871.4 0.6 1.5 Pass Mid Channel CW, 881.5 MHz High Channel CW, 891.6 MHz 881.500576 881.5 0.7 Pass 891.600589 0.7 Pass Extreme Voltage, 40.8 VDC Low Channel CW, 871.4 MHz 871.400553 871.4 0.6 1.5 Pass Mid Channel CW, 881.5 MHz 881.500576 881.5 0.7 1.5 Pass High Channel CW, 891.6 MHz 891.60059 Pass 891.6 0.7 Extreme Ter nperature, -30°C Low Channel CW, 871.4 MHz 871.400103 871.4 0.1 Pass 1.5 Mid Channel CW, 881.5 MHz 881.500109 881.5 0.1 1.5 Pass High Channel CW, 891.6 MHz 891.600105 891.6 Pass 0.1 Extreme Te perature. -20°C Low Channel CW, 871.4 MHz Pass 871.400236 871.4 0.3 1.5 1.5 1.5 Mid Channel CW, 881.5 MHz 881 500242 881.5 0.3 Pass High Channel CW, 891.6 MHz Pass 891.600255 891.6 0.3 Extreme Te nperature, -10°C Low Channel CW, 871.4 MHz 871.40037 Pass 871.4 0.4 1.5 Mid Channel CW, 881.5 MHz 881 500376 881.5 0.4 1.5 Pass High Channel CW, 891.6 MHz 891.600388 891.6 Pass 0.4 Extreme Te nperature, 0°C Low Channel CW, 871.4 MHz 871.400503 871.4 Pass 0.6 1.5 Mid Channel CW, 881.5 MHz High Channel CW, 891.6 MHz 1.5 881 500509 881.5 0.6 Pass 891.600507 Pass Extreme Ter nperature, +10°C Low Channel CW, 871.4 MHz 871.400503 871.4 0.6 Pass 1.5 Mid Channel CW, 881.5 MHz 881.500509 881.5 0.6 1.5 Pass High Channel CW, 891.6 MHz 891.600522 891.6 Pass 0.6 Extreme Te nperature, +20°C Low Channel CW, 871.4 MHz 871.400503 871.4 0.6 1.5 Pass Mid Channel CW, 881.5 MHz 881.500509 881.5 0.6 1.5 Pass High Channel CW, 891.6 MHz 891.600522 891.6 0.6 Pass nperature, +30°C Low Channel CW, 871.4 MHz Extreme Te 0.6 Pass 1.5 Mid Channel CW, 881,5 MHz 881 500526 881.5 0.6 1.5 1.5 Pass High Channel CW, 891.6 MHz Pass 891.600539 0.6 Extreme Te perature, +40°C Low Channel CW, 871.4 MHz 871.400587 871.4 0.7 Pass 1.5 Mid Channel CW 881 5 MHz 881 50061 881.5 0.7 1.5 Pass High Channel CW, 891.6 MHz 891.600622 Pass 891.6 0.7 Extreme Te nperature, +50°C Low Channel CW, 871.4 MHz 871.40067 Pass 871.4 0.8 1.5 Mid Channel CW, 881.5 MHz High Channel CW, 891.6 MHz 881.500676 881.5 0.8 Pass 891.60069 Pass Antenna Port 2 Normal Temperature and Voltage Low Channel CW, 871.4 MHz 871.40057 871.4 0.7 1.5 Pass Mid Channel CW, 881.5 MHz 0.7 1.5 Pass High Channel CW, 891.6 MHz Extreme Voltage, 55.2 VDC 891 600589 891 6 0.7 1.5 Pass Low Channel CW, 871.4 MHz Mid Channel CW, 881.5 MHz 871 400587 871.4 0.7 Pass 0.7 881.50058 881.5 1.5 Pass High Channel CW, 891.6 MHz 891.600589 891.6 0.7 Pass Extreme Voltage, 40.8 VDC Low Channel CW, 871.4 MHz 871 40057 871.4 0.7 1.5 Pass Mid Channel CW, 881.5 MHz 881.500593 881.5 0.7 1.5 Pass High Channel CW, 891.6 MHz 891.600589 891.6 0.7 1.5 Pass Extreme Temperature, -30°C Low Channel CW 871 4 MHz 871 400153 871 4 0.2 1.5 Pass Mid Channel CW, 881.5 MHz 881.500142 881.5 0.2 1.5 Pass High Channel CW, 891.6 MHz 891.600138 891 6 02 Pass Extreme Temperature, -20°C 1.5 1.5 Low Channel CW, 871.4 MHz 871.400236 871.4 0.3 Pass Mid Channel CW, 881.5 MHz 0.3 881.500242 Pass High Channel CW, 891.6 MHz 891 600238 891 6 0.3 1.5 Pass Extreme Temperature, -10°C Low Channel CW, 871.4 MHz 871.400387 871.4 0.4 1.5 Pass Mid Channel CW, 881.5 MHz 881.500376 0.4 1.5 1.5 Pass High Channel CW, 891.6 MHz 891 60039 891 6 0.4 Pass

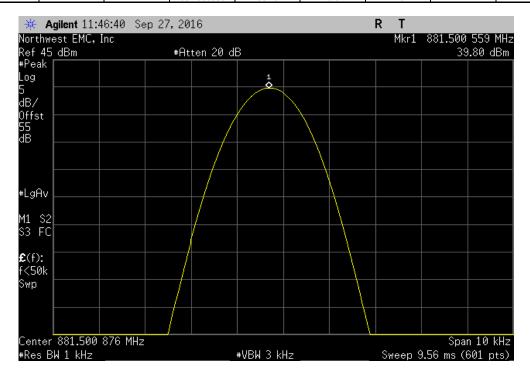
Extreme Temperature, 0°C					
Low Channel CW, 871.4 MHz	871.400487	871.4	0.6	1.5	Pass
Mid Channel CW, 881.5 MHz	881.500493	881.5	0.6	1.5	Pass
High Channel CW, 891.6 MHz	891.600505	891.6	0.6	1.5	Pass
Extreme Temperature, +10°C					
Low Channel CW, 871.4 MHz	871.400503	871.4	0.6	1.5	Pass
Mid Channel CW, 881.5 MHz	881.500509	881.5	0.6	1.5	Pass
High Channel CW, 891.6 MHz	891.600522	891.6	0.6	1.5	Pass
Extreme Temperature, +20°C					
Low Channel CW, 871.4 MHz	871.400503	871.4	0.6	1.5	Pass
Mid Channel CW, 881.5 MHz	881.500509	881.5	0.6	1.5	Pass
High Channel CW, 891.6 MHz	891.600505	891.6	0.6	1.5	Pass
Extreme Temperature, +30°C					
Low Channel CW, 871.4 MHz	871.40052	871.4	0.6	1.5	Pass
Mid Channel CW, 881.5 MHz	881.500514	881.5	0.6	1.5	Pass
High Channel CW, 891.6 MHz	891.60054	891.6	0.6	1.5	Pass
Extreme Temperature, +40°C					
Low Channel CW, 871.4 MHz	871.400604	871.4	0.7	1.5	Pass
Mid Channel CW, 881.5 MHz	881.50061	881.5	0.7	1.5	Pass
High Channel CW, 891.6 MHz	891.600606	891.6	0.7	1.5	Pass
Extreme Temperature, +50°C					
Low Channel CW, 871.4 MHz	871.40067	871.4	0.8	1.5	Pass
Mid Channel CW, 881.5 MHz	881.500676	881.5	0.8	1.5	Pass
High Channel CW, 891.6 MHz	891.60069	891.6	0.8	1.5	Pass



	Antenna Port 1	, Normal Temper	ature and Voltage	e, Low Channel C	W, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
1		871.400554	871.4	0.6	1.5	Pass

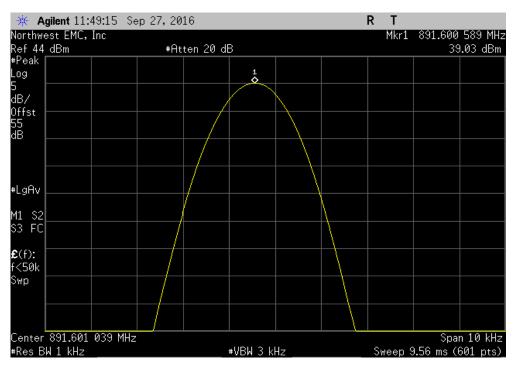


	Antenna Port 1	, Normal Tempei	rature and Voltag	e, Mid Channel C	W, 881.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		881.500559	881.5	0.6	1.5	Pass

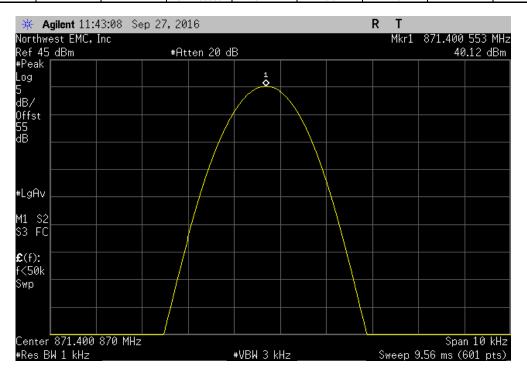




	Antenna Port 1	, Normal Temper	ature and Voltage	e, High Channel C	CW, 891.6 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
ı		891.600589	891.6	0.7	1.5	Pass

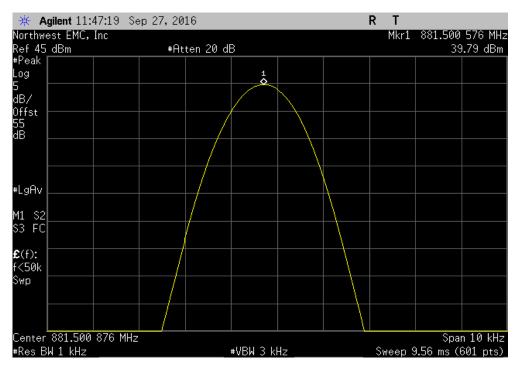


	Antenna Por	t 1, Extreme Volt	age, 55.2 VDC, I	ow Channel CW	, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		871.400553	871.4	0.6	1.5	Pass

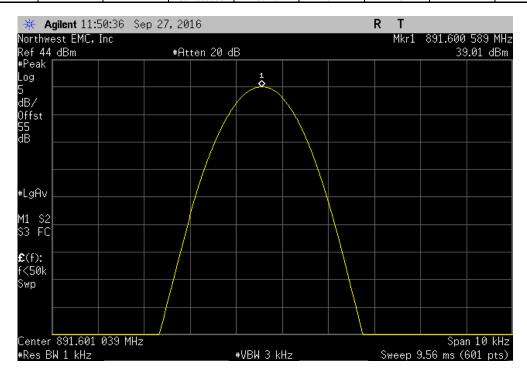




	Antenna Port	1, Extreme Vol	tage, 55.2 VDC, I	Mid Channel CW,	881.5 MHz		
		Measured	Assigned	Error	Limit		
_		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	_
í l		881.500576	881.5	0.7	1.5	Pass	1

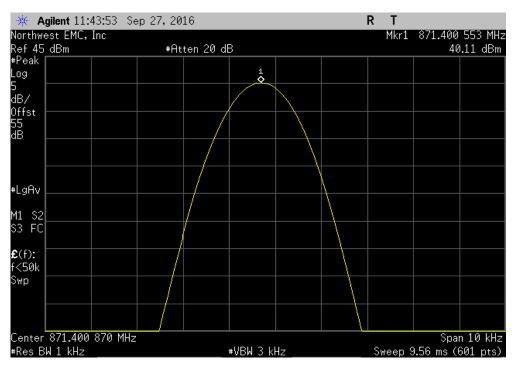


	Antenna Port	1, Extreme Volt	age, 55.2 VDC, I	ligh Channel CW	, 891.6 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		891.600589	891.6	0.7	1.5	Pass

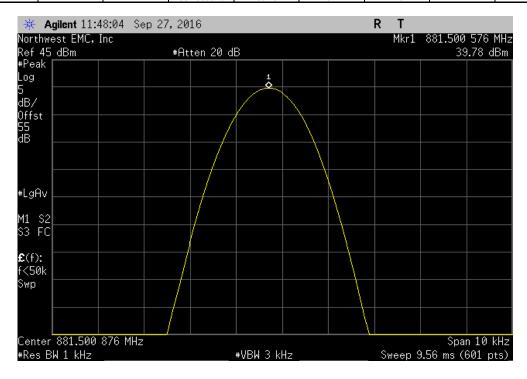




	Antenna Po	rt 1, Extreme Volt	age, 40.8 VDC, I	ow Channel CW	, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
i		871.400553	871.4	0.6	1.5	Pass

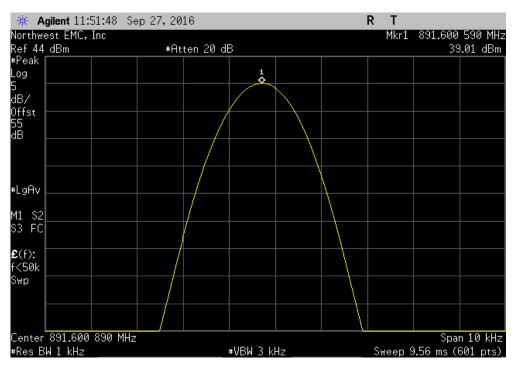


	Antenna Por	t 1, Extreme Vol	tage, 40.8 VDC, I	Mid Channel CW,	, 881.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		881.500576	881.5	0.7	1.5	Pass

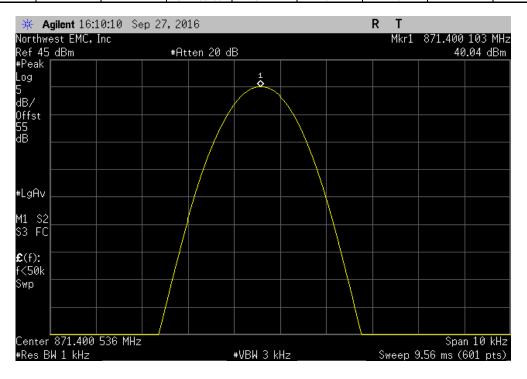




	Antenna Por	t 1, Extreme Volt	age, 40.8 VDC, H	ligh Channel CW	, 891.6 MHz		
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
1		891.60059	891.6	0.7	1.5	Pass	

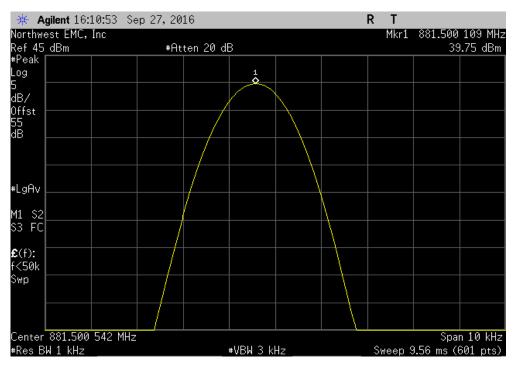


	Antenna Port	1, Extreme Tem	perature, -30°C,	Low Channel CW	/, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		871.400103	871.4	0.1	1.5	Pass

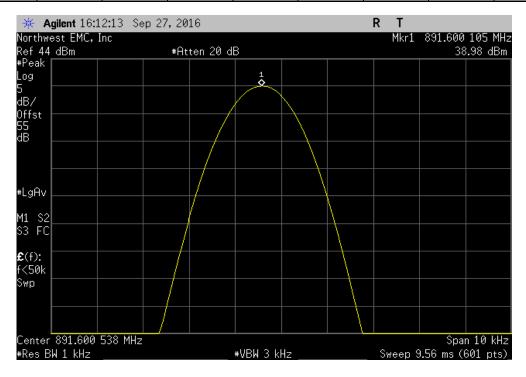




	Antenna Port 1, Extreme	Temperature, -30°C	, Mid Channel CW	/, 881.5 MHz		
	Measure	ed Assigned	Error	Limit		
_	Value (Mi	Hz) Value (MHz)	(ppm)	(ppm)	Results	_
í F	881.5001	09 881.5	0.1	1.5	Pass	Í

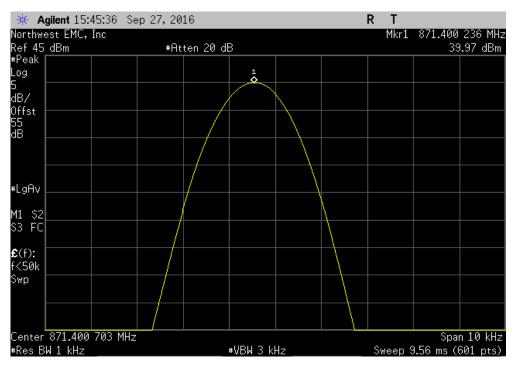


	Antenna Port 1	1, Extreme Tem	perature, -30°C, l	High Channel CW	V, 891.6 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		891.600105	891.6	0.1	1.5	Pass

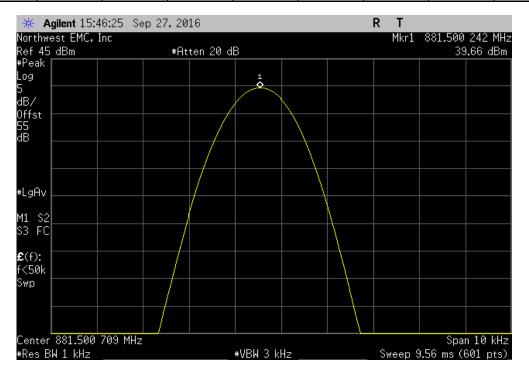




	Antenna Por	t 1, Extreme Tem	perature, -20°C,	Low Channel CW	, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
i		871.400236	871.4	0.3	1.5	Pass

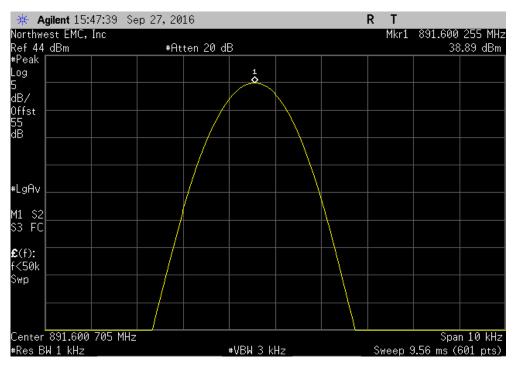


	Antenna Por	t 1, Extreme Tem	perature, -20°C,	Mid Channel CW	, 881.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		881.500242	881.5	0.3	1.5	Pass

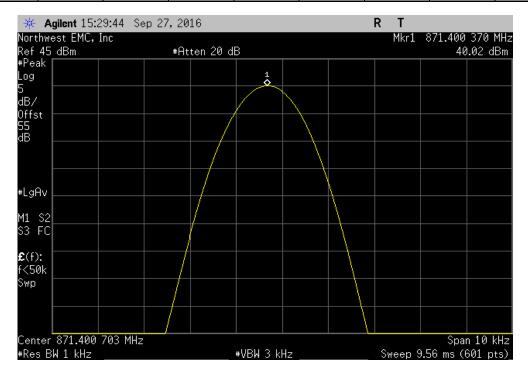




	Antenna Port	1, Extreme Tem	perature, -20°C,	High Channel CW	/, 891.6 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		891.600255	891.6	0.3	1.5	Pass

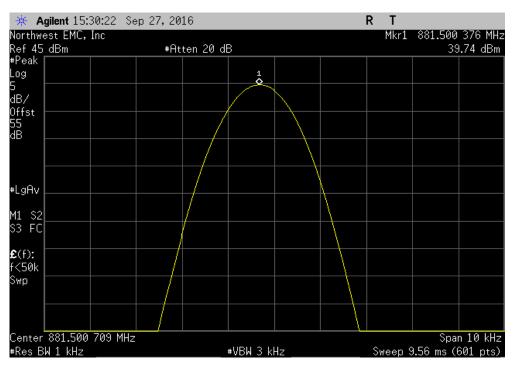


	Antenna Por	t 1, Extreme Tem	perature, -10°C,	Low Channel CW	/, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		871.40037	871.4	0.4	1.5	Pass

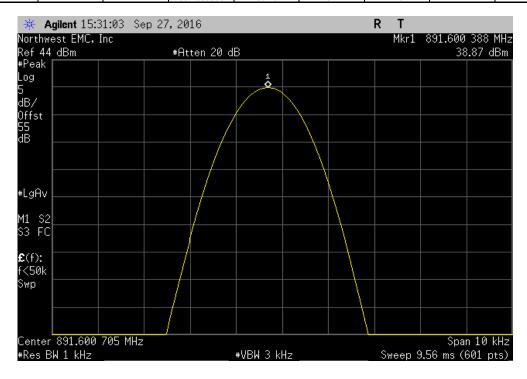




	Antenna Port 1, Extrem	e Temperatu	ıre, -10°C, I	Mid Channel CW	, 881.5 MHz		
	Measu	ed As	signed	Error	Limit		
	Value (N	Hz) Valu	ue (MHz)	(ppm)	(ppm)	Results	
i [	881.500	376 8	381.5	0.4	1.5	Pass	

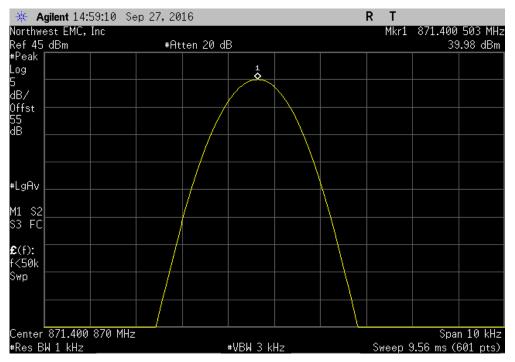


	Antenna Port 1, Extrem	e Temperatur	e, -10°C,	High Channel CW	/, 891.6 MHz	
	Measu	ed Ass	signed	Error	Limit	
	Value (N	Hz) Valu	e (MHz)	(ppm)	(ppm)	Results
	891.600	388 8	91.6	0.4	1.5	Pass

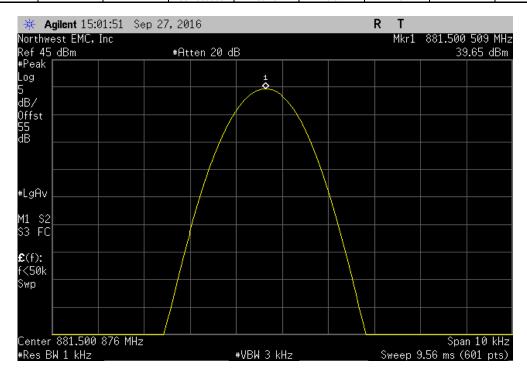




	Antenna Port 1, Extreme Te	mperature, 0°C, L	ow Channel CW	, 871.4 MHz	
	Measured	Assigned	Error	Limit	
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
	871.400503	871.4	0.6	1.5	Pass

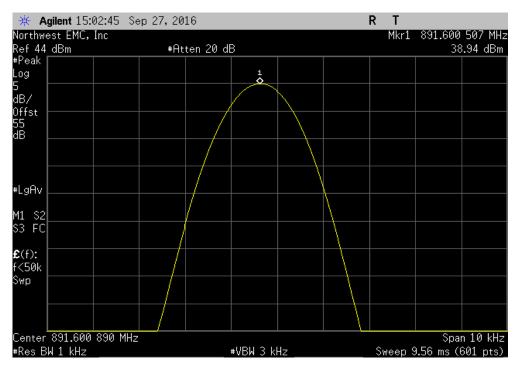


	Antenna Port 1, E	Extreme Ter	mperature, 0°C, N	Mid Channel CW,	881.5 MHz	
	Me	easured	Assigned	Error	Limit	
	Val	ue (MHz)	Value (MHz)	(ppm)	(ppm)	Results
	881	1.500509	881.5	0.6	1.5	Pass

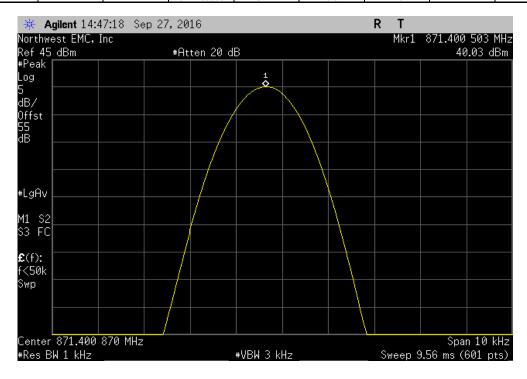




	Antenna Port 1, Extreme To	emperature, 0°C, F	ligh Channel CW	, 891.6 MHz		
	Measured	Assigned	Error	Limit		
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	_
1 Γ	891.600507	891.6	0.6	1.5	Pass	

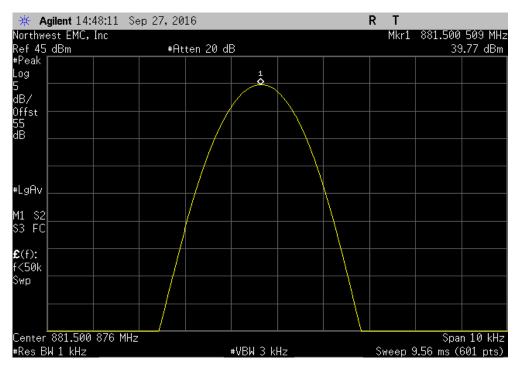


	Antenna Port	1, Extreme Tem	perature, +10°C,	Low Channel CV	V, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		871.400503	871.4	0.6	1.5	Pass

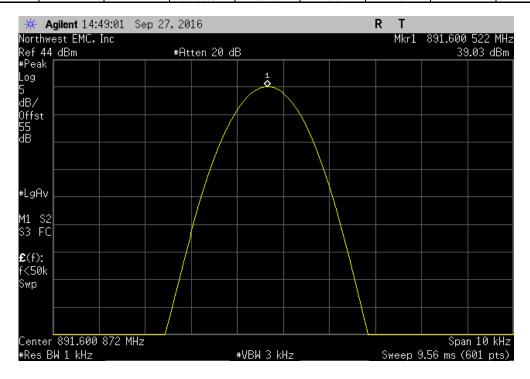




	Antenna Port 1	1, Extreme Tem	perature, +10°C,	Mid Channel CW	, 881.5 MHz		
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
		881.500509	881.5	0.6	1.5	Pass	I

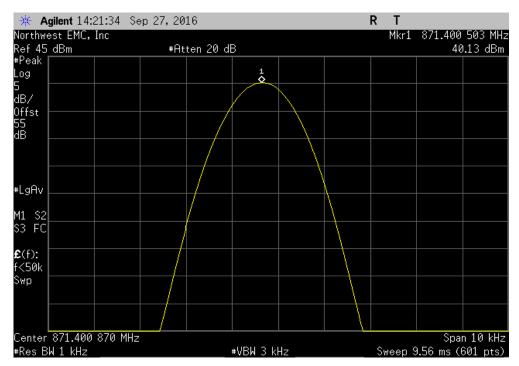


	Antenna Port	1, Extreme Temp	perature, +10°C,	High Channel CV	V, 891.6 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		891.600522	891.6	0.6	1.5	Pass

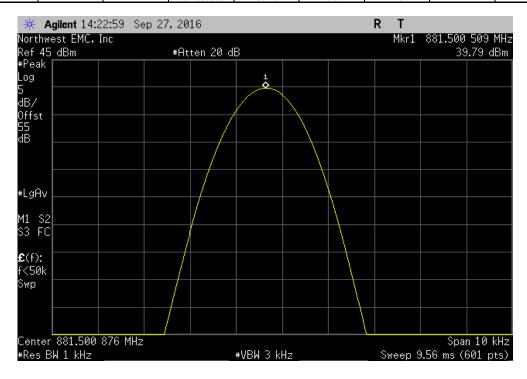




	Antenna Port	: 1, Extreme Tem	perature, +20°C,	Low Channel CW	/, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		871.400503	871.4	0.6	1.5	Pass

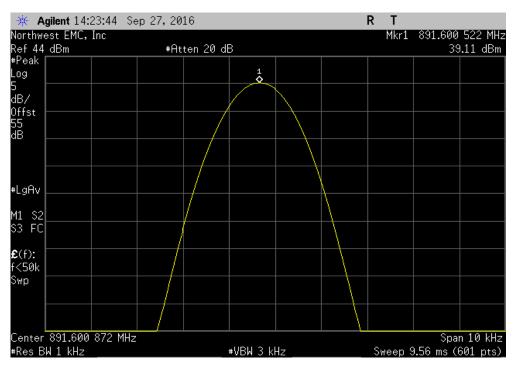


	Antenna Port	1, Extreme Tem	perature, +20°C,	Mid Channel CW	/, 881.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		881.500509	881.5	0.6	1.5	Pass

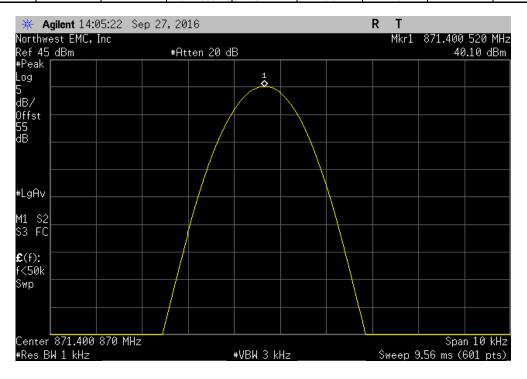




	Antenna Port	1, Extreme Tem	perature, +20°C,	High Channel CV	V, 891.6 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		891.600522	891.6	0.6	1.5	Pass

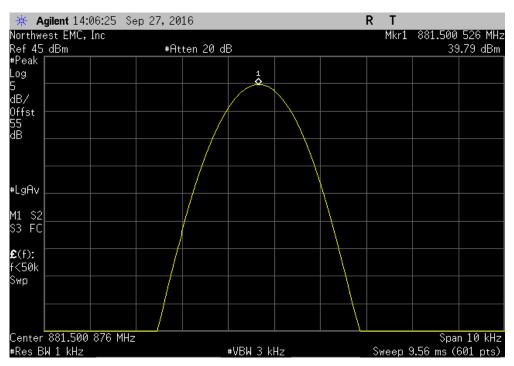


	Antenna Por	1, Extreme Tem	perature, +30°C,	Low Channel CV	V, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		871.40052	871.4	0.6	1.5	Pass

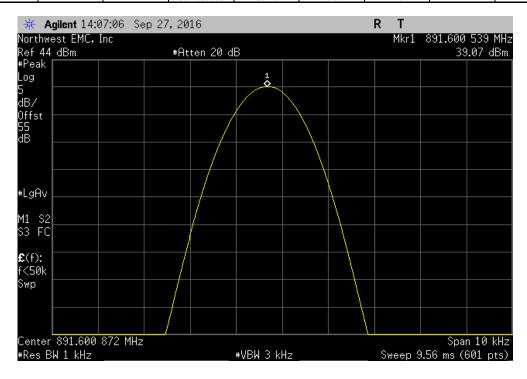




	Antenna Port	1, Extreme Tem	perature, +30°C,	Mid Channel CW	, 881.5 MHz		
		Measured	Assigned	Error	Limit		
_		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	_
ĺ		881.500526	881.5	0.6	1.5	Pass	ł

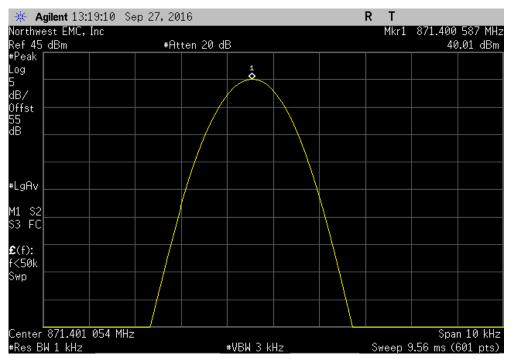


	Antenna Port	1, Extreme Temp	perature, +30°C,	High Channel CV	V, 891.6 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		891.600539	891.6	0.6	1.5	Pass

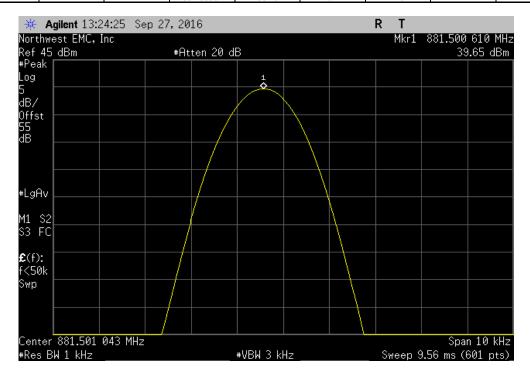




	Antenna Port	1, Extreme Tem	perature, +40°C,	Low Channel CW	/, 871.4 MHz		
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
1		871.400587	871.4	0.7	1.5	Pass	

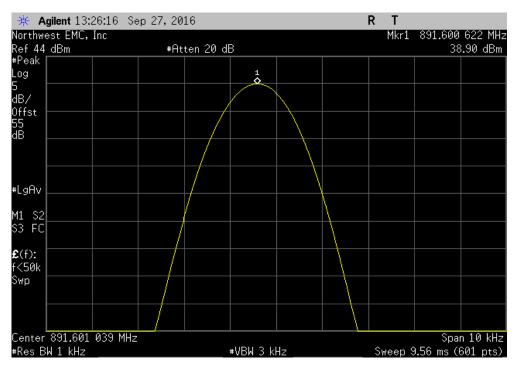


	Antenna Por	t 1, Extreme Tem	perature, +40°C,	Mid Channel CW	/, 881.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		881.50061	881.5	0.7	1.5	Pass

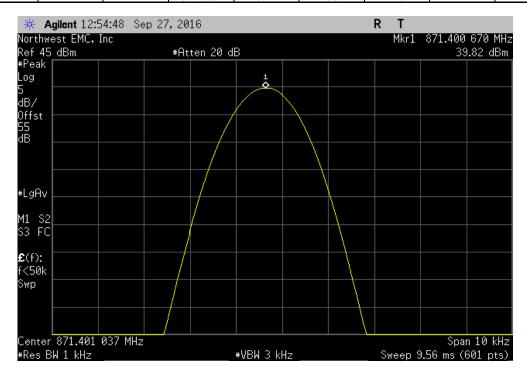




	Antenna Port	1, Extreme Temp	perature, +40°C,	High Channel CV	/, 891.6 MHz		
		Measured	Assigned	Error	Limit		
_		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	_
,		891.600622	891.6	0.7	1.5	Pass	ł

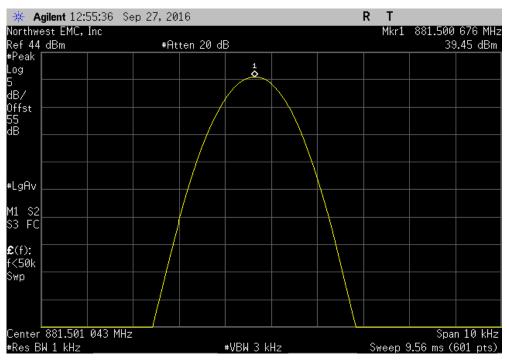


	Antenna Por	t 1, Extreme Tem	perature, +50°C,	Low Channel CV	V, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		871.40067	871.4	0.8	1.5	Pass

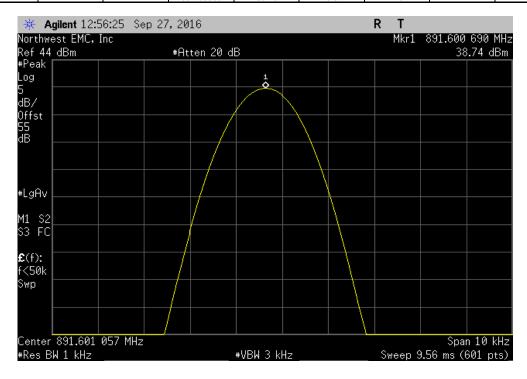




	Antenna Port	1, Extreme Tem	perature, +50°C,	Mid Channel CW	, 881.5 MHz		
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
l [		881.500676	881.5	8.0	1.5	Pass	1

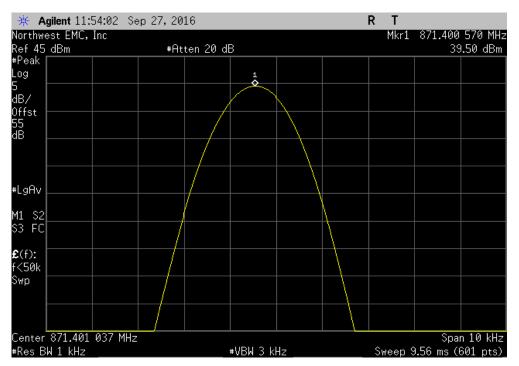


	Antenna Port	1, Extreme Tem	perature, +50°C,	High Channel CV	V, 891.6 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
_		891.60069	891.6	0.8	1.5	Pass

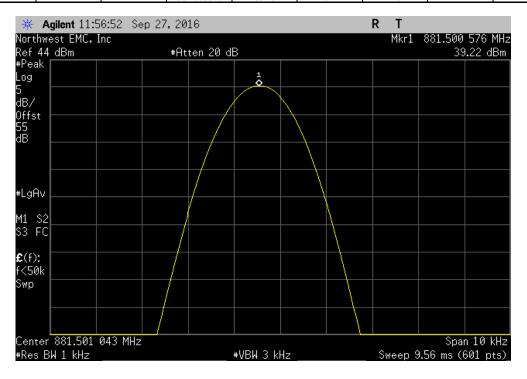




	Antenna Port 2	, Normal Temper	ature and Voltage	e, Low Channel C	W, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		871.40057	871.4	0.7	1.5	Pass

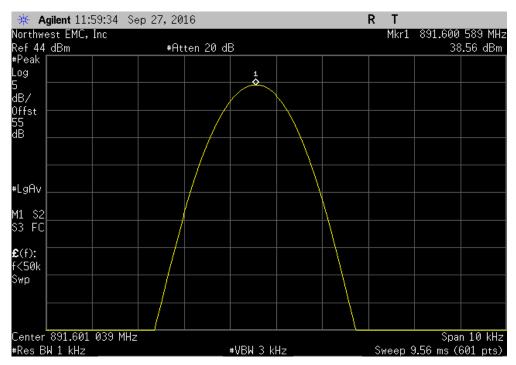


	Antenna Port 2	, Normal Temper	rature and Voltag	e, Mid Channel C	W, 881.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		881.500576	881.5	0.7	1.5	Pass

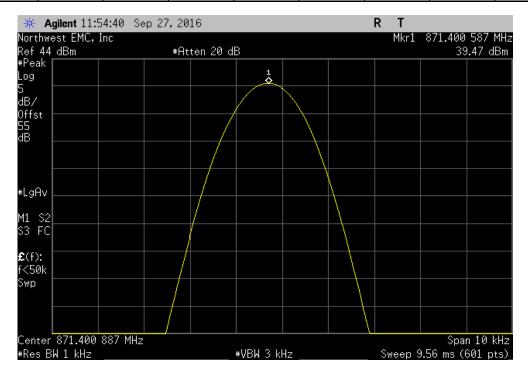




	Antenna Port 2,	Normal Temper	ature and Voltage	e, High Channel C	CW, 891.6 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
ı		891.600589	891.6	0.7	1.5	Pass

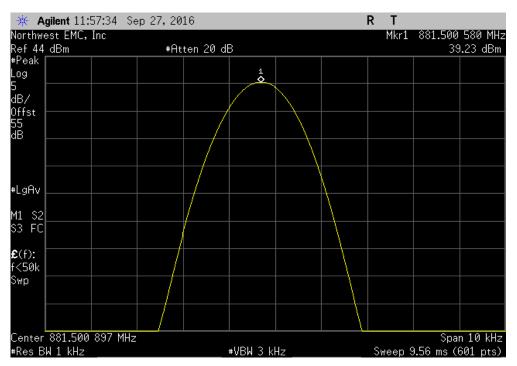


	Antenna Port	2, Extreme Vol	age, 55.2 VDC, I	ow Channel CW	, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		871.400587	871.4	0.7	1.5	Pass

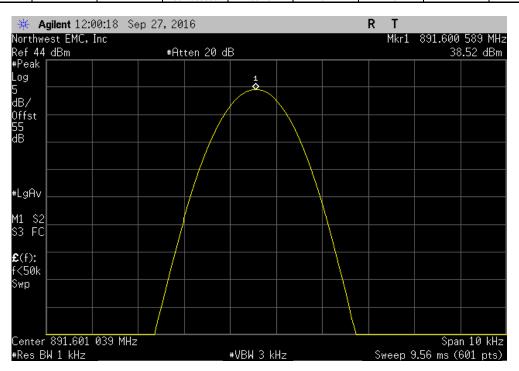




	Antenna Po	rt 2, Extreme Vol	tage, 55.2 VDC, I	Mid Channel CW,	, 881.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
1		881.50058	881.5	0.7	1.5	Pass

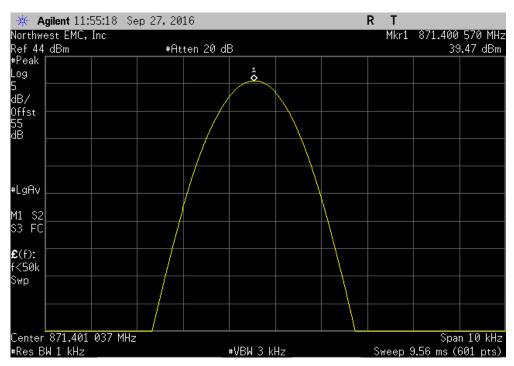


	Antenna Port 2, I	Extreme Volt	age, 55.2 VDC, I	ligh Channel CW	, 891.6 MHz	
	N	<b>l</b> easured	Assigned	Error	Limit	
	Va	alue (MHz)	Value (MHz)	(ppm)	(ppm)	Results
	89	91.600589	891.6	0.7	1.5	Pass

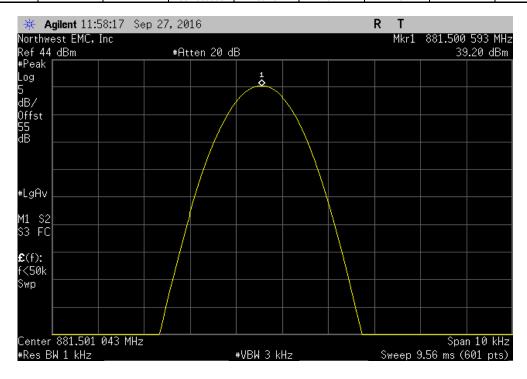




	Antenna Por	rt 2, Extreme Volt	tage, 40.8 VDC, L	ow Channel CW,	, 871.4 MHz		
		Measured	Assigned	Error	Limit		
_		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
1		871.40057	871.4	0.7	1.5	Pass	ĺ

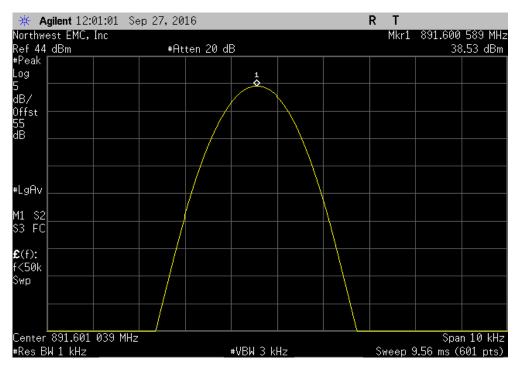


	Antenna Port 2, Extreme	Voltage, 40.8 VDC	Mid Channel CV	V, 881.5 MHz	
	Measure	d Assigned	Error	Limit	
	Value (Mi	lz) Value (MHz)	(ppm)	(ppm)	Results
	881.5005	93 881.5	0.7	1.5	Pass

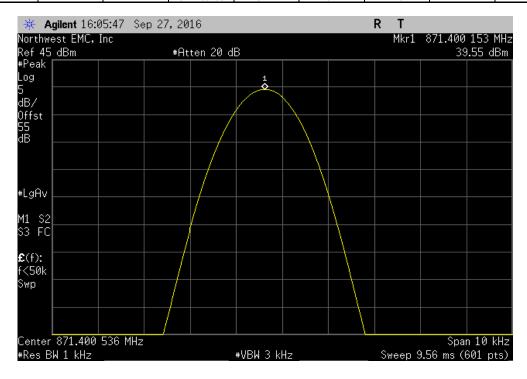




	Antenna Port 2, Ext	treme Volta	age, 40.8 VDC, H	ligh Channel CW	, 891.6 MHz		
		asured	Assigned	Error	Limit		
_	Value	e (MHz)	Value (MHz)	(ppm)	(ppm)	Results	_
	891.	600589	891.6	0.7	1.5	Pass	ł

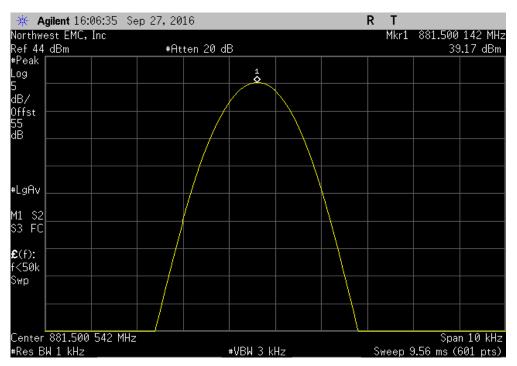


	Antenna Port 2	2, Extreme Tem	perature, -30°C,	Low Channel CW	/, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		871.400153	871.4	0.2	1.5	Pass

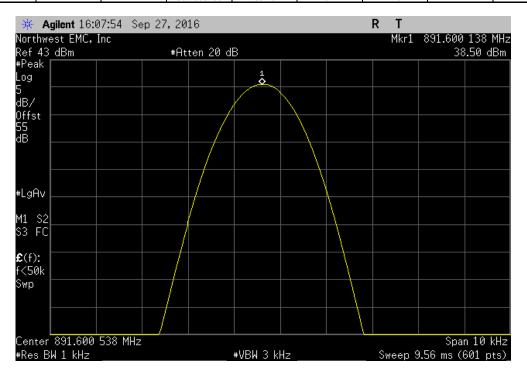




	Antenna Port 2, E	Extreme Tem	perature, -30°C,	Mid Channel CW	, 881.5 MHz		
	M	leasured	Assigned	Error	Limit		
	Va	lue (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
ĺ	88	31.500142	881.5	0.2	1.5	Pass	I

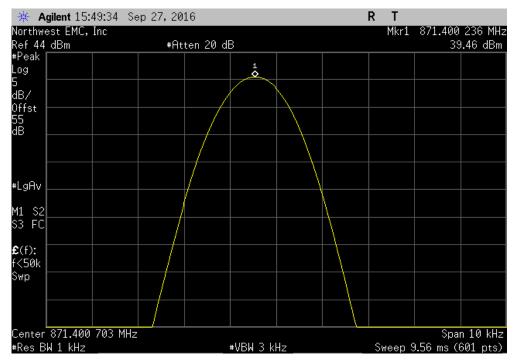


	Antenna Port 2, Extreme Ten	perature, -30°C,	High Channel CV	V, 891.6 MHz	
	Measured	Assigned	Error	Limit	
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
	891.600138	891.6	0.2	1.5	Pass

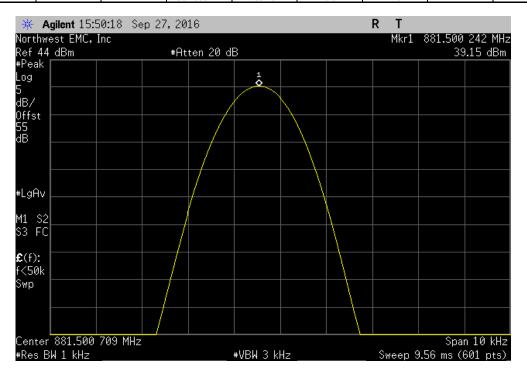




	Antenna Port	2, Extreme Tem	perature, -20°C,	Low Channel CW	, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		871.400236	871.4	0.3	1.5	Pass

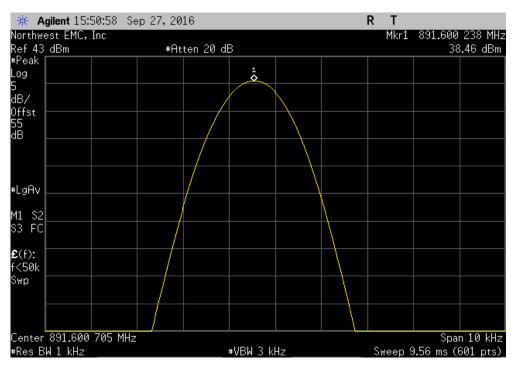


	Antenna Port	2, Extreme Tem	perature, -20°C,	Mid Channel CW	, 881.5 MHz	
		Measured	Assigned	Error	Limit	
_		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
1 [		881.500242	881.5	0.3	1.5	Pass

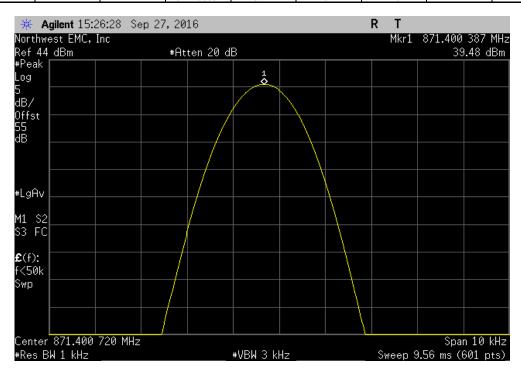




	Antenna Port	2, Extreme Tem	perature, -20°C, I	High Channel CW	/, 891.6 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		891.600238	891.6	0.3	1.5	Pass

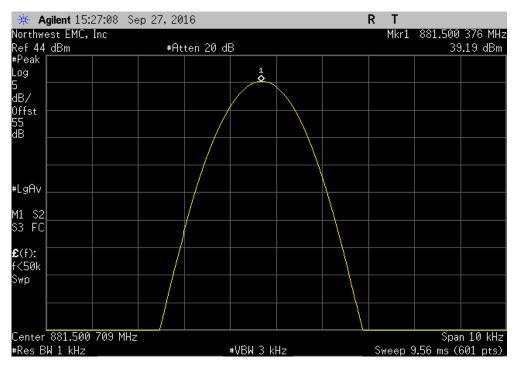


	Antenna Port 2	2, Extreme Tem	perature, -10°C,	Low Channel CW	, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		871.400387	871.4	0.4	1.5	Pass

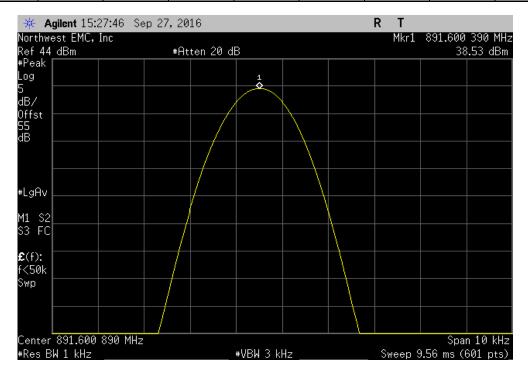




	Antenna Port 2	2, Extreme Tem	perature, -10°C,	Mid Channel CW	, 881.5 MHz		
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	_
		881.500376	881.5	0.4	1.5	Pass	

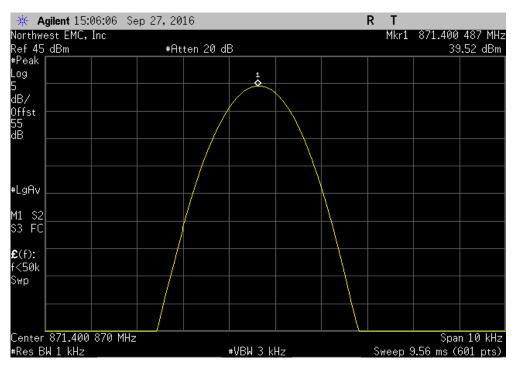


	Antenna Port	2, Extreme Tem	perature, -10°C,	High Channel CW	V, 891.6 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		891.60039	891.6	0.4	1.5	Pass

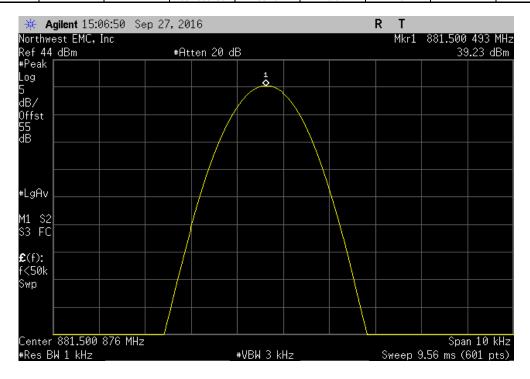




	Antenna Por	t 2, Extreme Ter	mperature, 0°C, L	ow Channel CW,	871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		871.400487	871.4	0.6	1.5	Pass

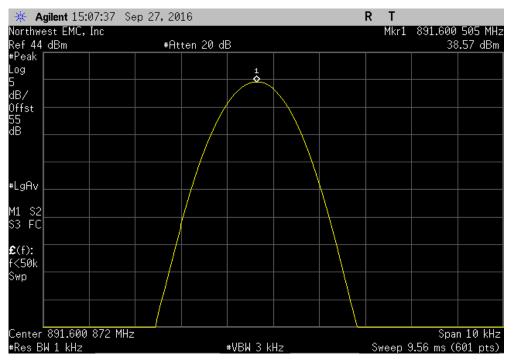


	Antenna Port 2, Extreme Te	mperature, 0°C, I	Mid Channel CW,	881.5 MHz	
	Measured	Assigned	Error	Limit	
	 Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
1	881.500493	881.5	0.6	1.5	Pass

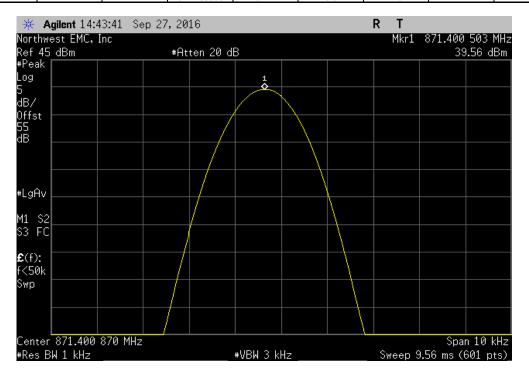




	Antenna Port 2, Extreme Te	emperature, 0°C, F	ligh Channel CW	, 891.6 MHz		
	Measured	Assigned	Error	Limit		
<u> </u>	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	_
	891.600505	891.6	0.6	1.5	Pass	İ

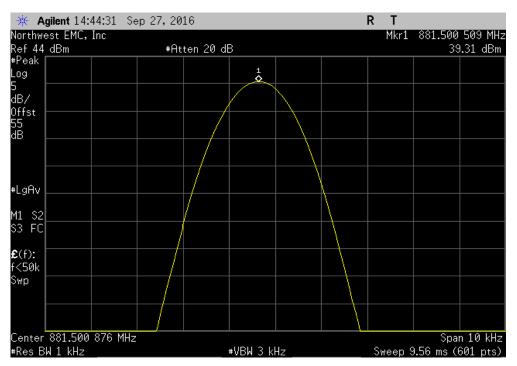


	Antenna Port	2, Extreme Tem	perature, +10°C,	Low Channel CW	V, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		871.400503	871.4	0.6	1.5	Pass

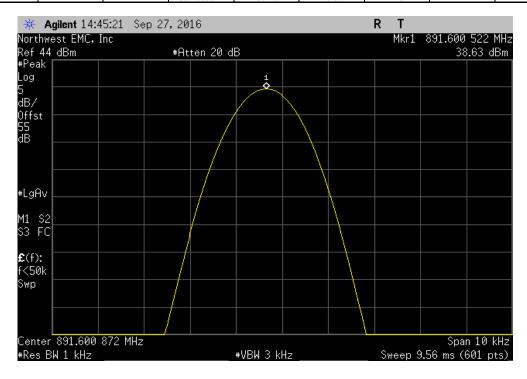




	Antenna Port	2, Extreme Tem	perature, +10°C,	Mid Channel CW	, 881.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
ı		881.500509	881.5	0.6	1.5	Pass

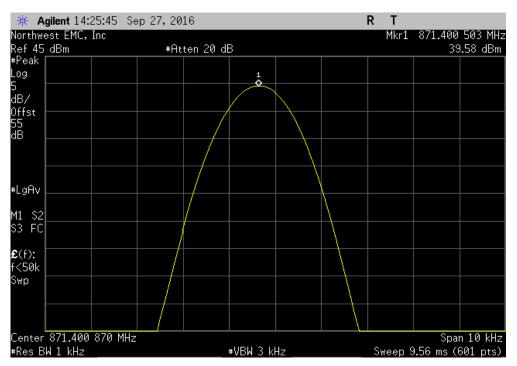


	Antenna Port 2, Extreme Ten	nperature, +10°C,	High Channel CV	V, 891.6 MHz	
	Measured	Assigned	Error	Limit	
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
	891.600522	891.6	0.6	1.5	Pass

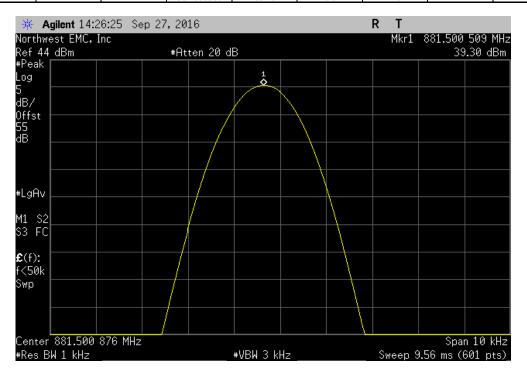




	Antenna Port	2, Extreme Tem	perature, +20°C,	Low Channel CW	/, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		871.400503	871.4	0.6	1.5	Pass

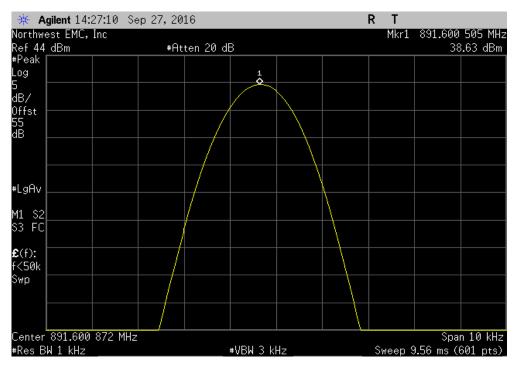


	Antenna Port 2, Extreme	Temperature, +20°	C, Mid Channel	CW, 881.5 MHz	
	Measure	ed Assigned	Error	Limit	
	Value (M	Hz) Value (MHz)	(ppm)	(ppm)	Results
	881.5005	09 881.5	0.6	1.5	Pass

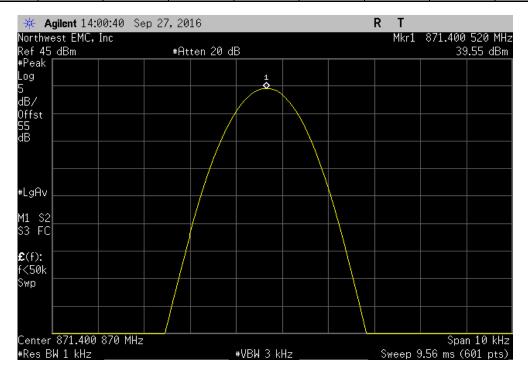




	Antenna Port	2, Extreme Temp	perature, +20°C,	High Channel CV	V, 891.6 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		891.600505	891.6	0.6	1.5	Pass

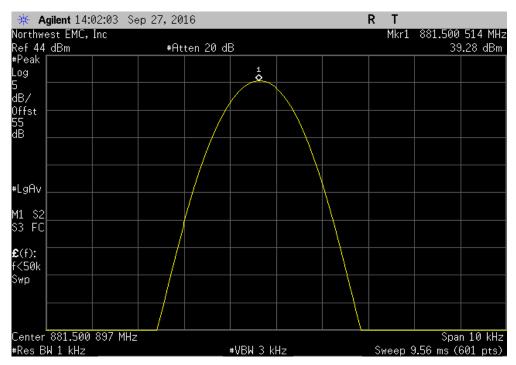


	Antenna Port	2, Extreme Tem	perature, +30°C,	Low Channel CW	V, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		871.40052	871.4	0.6	1.5	Pass

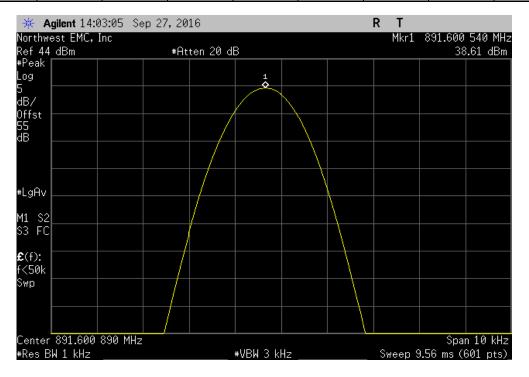




	Antenna Port 2, Extreme	emperature, +30°C	, Mid Channel CV	V, 881.5 MHz		
	Measured	Assigned	Error	Limit		
	Value (MH	z) Value (MHz)	(ppm)	(ppm)	Results	
	881.50051	4 881.5	0.6	1.5	Pass	İ

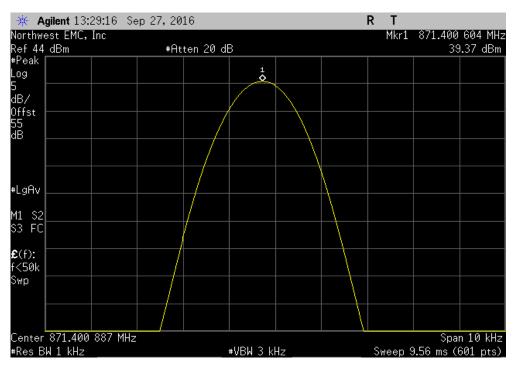


	Antenna Port	2, Extreme Temp	perature, +30°C,	High Channel CV	V, 891.6 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		891.60054	891.6	0.6	1.5	Pass

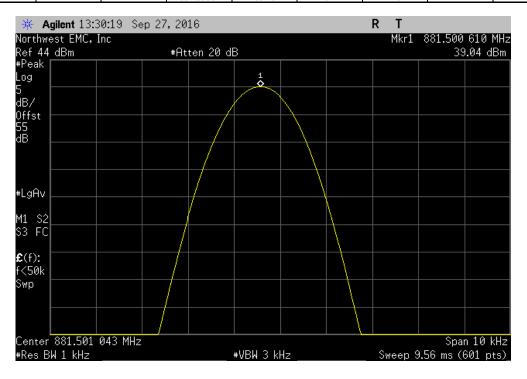




	Antenna Port 2, Ext	reme Temp	perature, +40°C,	Low Channel CW	/, 871.4 MHz		
	Mea	asured	Assigned	Error	Limit		
	Valu	ıe (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
,	871.	.400604	871.4	0.7	1.5	Pass	

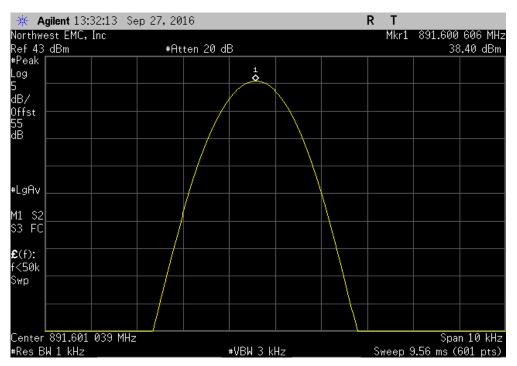


	Antenna Por	t 2, Extreme Tem	perature, +40°C,	Mid Channel CW	/, 881.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		881.50061	881.5	0.7	1.5	Pass

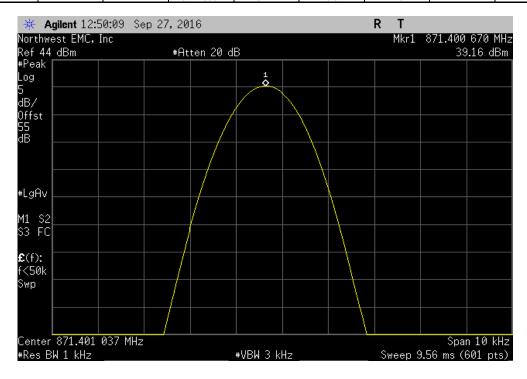




	Antenna Port	2, Extreme Temp	perature, +40°C,	High Channel CV	V, 891.6 MHz		
		Measured	Assigned	Error	Limit		
_		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	_
ĺ		891.600606	891.6	0.7	1.5	Pass	ł

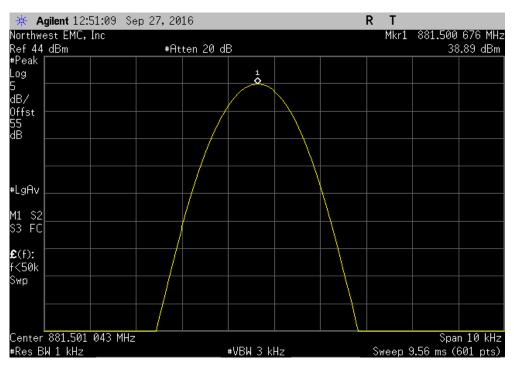


	Antenna Port	t 2, Extreme Tem	perature, +50°C,	Low Channel CW	V, 871.4 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		871.40067	871.4	0.8	1.5	Pass

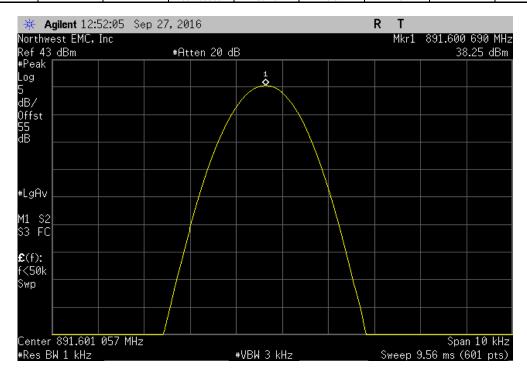




	Antenna Port 2, Extre	me Tem	perature, +50°C,	Mid Channel CW	/, 881.5 MHz		
	Meas	ured	Assigned	Error	Limit		
	Value (	(MHz)	Value (MHz)	(ppm)	(ppm)	Results	
	881.50	0676	881.5	0.8	1.5	Pass	



	Antenna Port	2, Extreme Temp	perature, +50°C,	High Channel CV	V, 891.6 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		891.60069	891.6	0.8	1.5	Pass





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

#### **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Aeroflex	INMET 8535	AMO	4/4/2016	4/4/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/19/2015	11/19/2016

#### **CLIENT PROVIDED EQUIPMENT**

Description	Manufacturer	Model	Last Cal.	Cal. Due
High Power Attenuator - 30dB	Aeroflex/Weinschel	53-30-43	NCR	NCR
Attenuator - 20dB	N/A	N/A	NCR	NCR
Power Divider	Fairview Microwave	MP8748-2	NCR	NCR
50Ohm Terminator	Aeroflex/Weinschel	1455-4	NCR	NCR
High Power Terminator	Telcon	KTMO400800060	NCR	NCR

#### **TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The spectrum analyzer settings were as follows:

- >RBW = Approx. 1% of the emission bandwidth (B). This was an iterative process to determine the RBW based on the emissions bandwidth (B).
- >VBW= > RBW
- >A peak detector was used
- >Trace max hold.

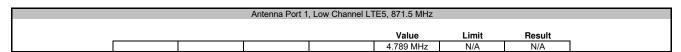
The spectrum analyzer occupied bandwidth measurement function was then used to measure the 26 dB emission bandwidth.

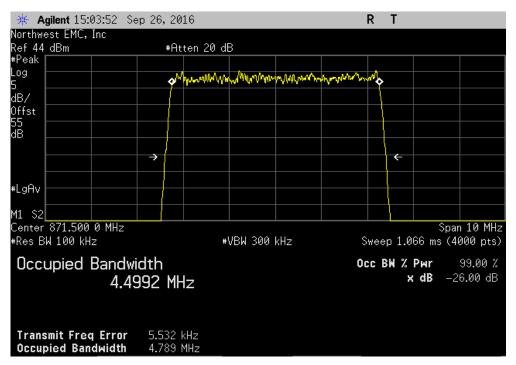
There is no required limit to be met in the rule part for this test. The purpose of the test is to report the results.



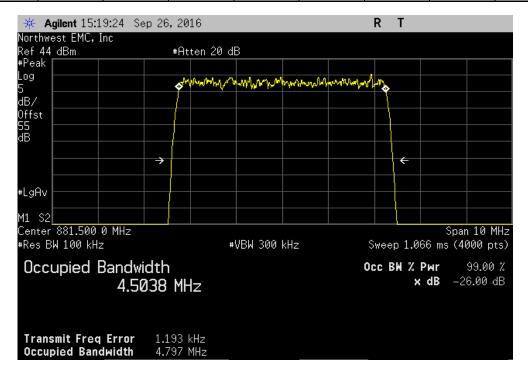
EUT	: CWS-3050-05					Work Ord	er: KMWC0071	
Serial Number	: K162600004					Da	te: 09/26/16	
Customer	: Parallel Wireless Inc.					Temperatu	e: 22.3 °C	
Attendees	: Edward Lee					Humidi	ty: 38.4% RH	
Project	: None					Barometric Pre		
Tested by	: Johnny Candelas		Powe	er: 48VDC		Job Si	te: OC13	
TEST SPECIFICAT	TIONS			Test Method				
FCC 22H:2016				ANSI/TIA/EIA-603-D-2010				
COMMENTS								
		Offset: DC Block + 30dB Attenuator + 2	OdB Attenuator -	+ Power Divider + Cable Los	ss = 55.0dB to	otal.		
	M TEST STANDARD							
None	_							
Configuration #	1	Signature	he d	- Colle				
						Value	Limit	Result
Antenna Port 1								
	Low Channel LTE5, 871.5					4.789 MHz	N/A	N/A
	Mid Channel LTE5, 881.5					4.797 MHz	N/A	N/A
	High Channel LTE5, 891.5					4.805 MHz	N/A	N/A
	Low Channel LTE10, 874					9.503 MHz	N/A	N/A
	Mid Channel LTE10, 881.5	5 MHz				9.599 MHz	N/A	N/A
	High Channel LTE10, 889	MHz				9.58 MHz	N/A	N/A
Antenna Port 2								
	Low Channel LTE5, 871.5					4.787 MHz	N/A	N/A
	Mid Channel LTE5, 881.5					4.798 MHz	N/A	N/A
	High Channel LTE5, 891.5					4.793 MHz	N/A	N/A
	Low Channel LTE10, 874	MHz				9.55 MHz	N/A	N/A
	Mid Channel LTE10, 881.5	5 MHz				9.573 MHz	N/A	N/A
	High Channel LTE10, 889	MHz				9.533 MHz	N/A	N/A



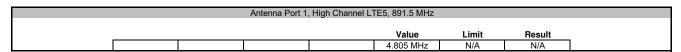


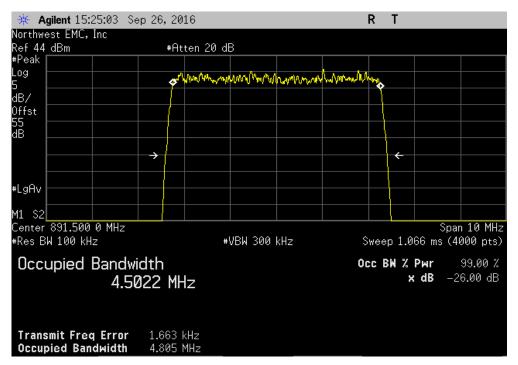


	Antenna Port 1	, Mid Channel LT	E5, 881.5 MHz		
			Value	Limit	Result
			4.797 MHz	N/A	N/A

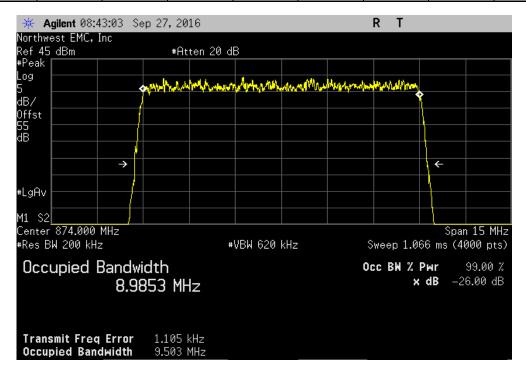




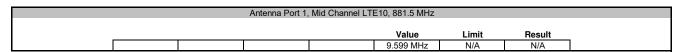


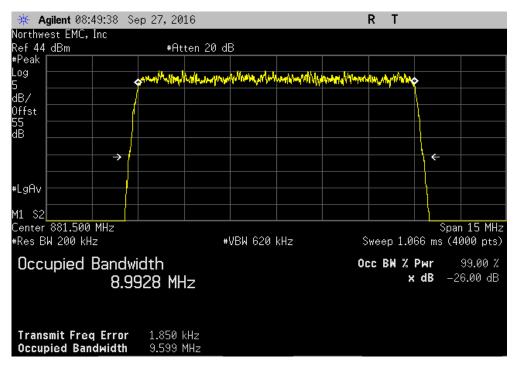


	Antenna Port 1	, Low Channel L7	ΓΕ10, 874 MHz		
			Value	Limit	Daniel
			Value	Limit	Result
			9.503 MHz	N/A	N/A

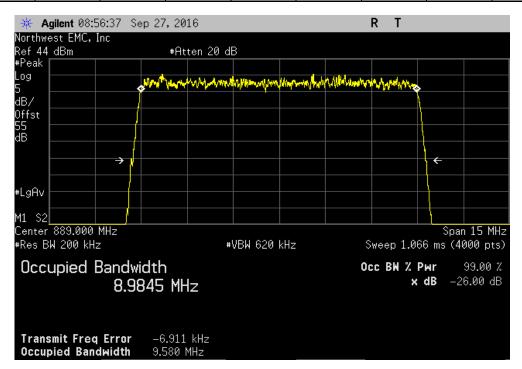




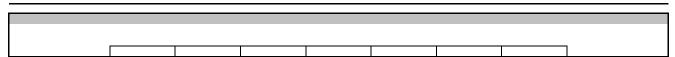




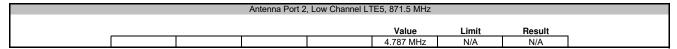
	Antenna Port 1	, High Channel L	ΓΕ10, 889 MHz		
			Value	Limit	Result
			9.58 MHz	N/A	N/A

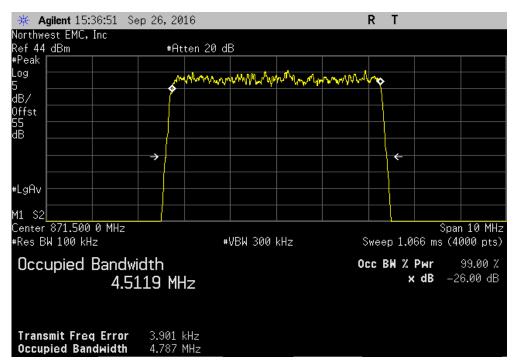




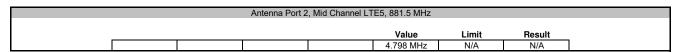


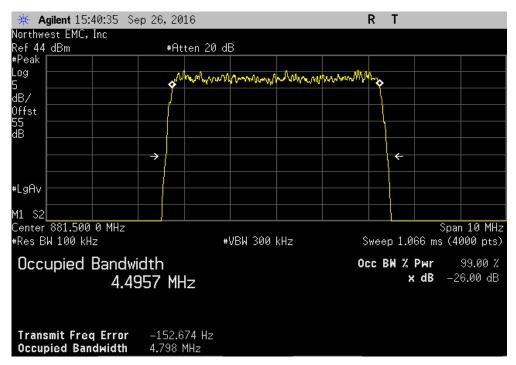
Intentionally Left Blank



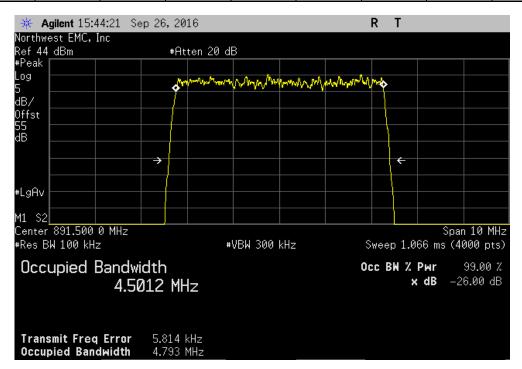




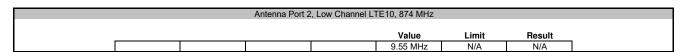


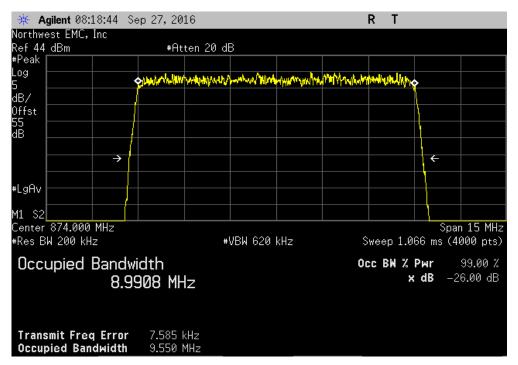


	Antenna Port 2	, High Channel L∃	ΓΕ5, 891.5 MHz		
			Value	Limit	Result
			4.793 MHz	N/A	N/A

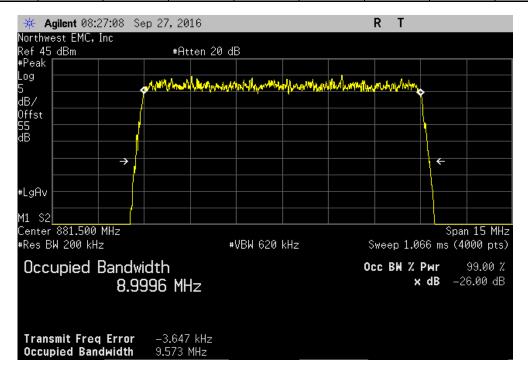






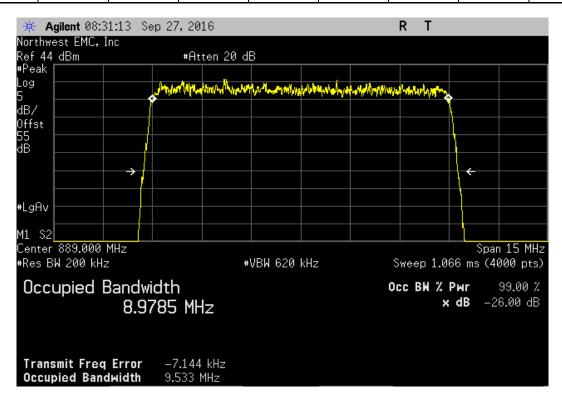


	Antenna Port 2,	Mid Channel LTE	E10, 881.5 MHz		
			W-L	1.1	D !!
			Value	Limit	Result





Antenna Port 2, High Channel LTE10, 889 MHz								
				Value	Limit	Result		
				9.533 MHz	N/A	N/A		





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

#### **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Aeroflex	INMET 8535	AMO	4/4/2016	4/4/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/19/2015	11/19/2016

#### **CLIENT PROVIDED EQUIPMENT**

Description	Manufacturer	Model	Last Cal.	Cal. Due
High Power Attenuator - 30dB	Aeroflex/Weinschel	53-30-43	NCR	NCR
Attenuator - 20dB	N/A	N/A	NCR	NCR
Power Divider	Fairview Microwave	MP8748-2	NCR	NCR
50Ohm Terminator	Aeroflex/Weinschel	1455-4	NCR	NCR
High Power Terminator	Telcon	KTMO400800060	NCR	NCR

#### **TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The spectrum analyzer settings were as follows:

>RBW = Approx. 1% of the emission bandwidth (B). This was an iterative process to determine the RBW based on the emissions bandwidth (B).

>VBW= > RBW

>A peak detector was used

>Trace max hold.

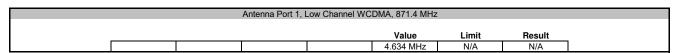
The spectrum analyzer occupied bandwidth measurement function was then used to measure the 26 dB emission bandwidth.

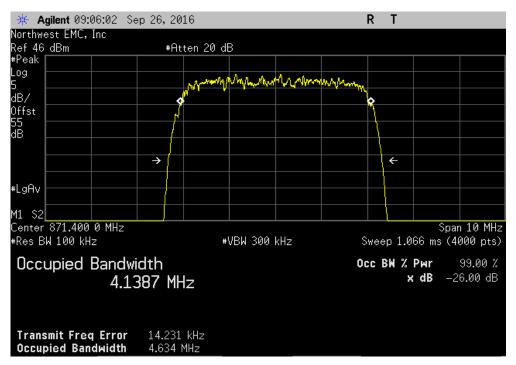
There is no required limit to be met in the rule part for this test. The purpose of the test is to report the results.



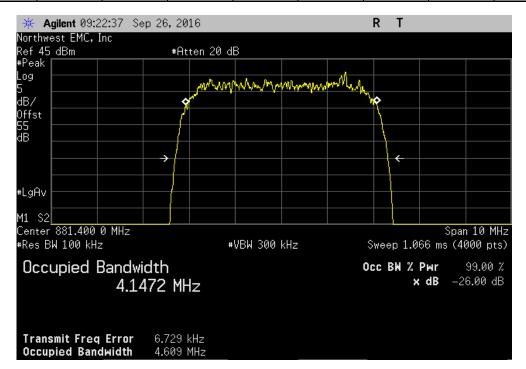
EUT:	: CWS-3050-05				Work Order:		,
Serial Number:	: K162600004				Date:	09/26/16	,
Customer	Parallel Wireless Inc.				Temperature:	22.3 °C	,
	Edward Lee					38.4% RH	
Project					Barometric Pres.:		
	Johnny Candelas		Power:	48VDC	Job Site:	OC13	
TEST SPECIFICAT	TONS			Test Method			
FCC 22H:2016				ANSI/TIA/EIA-603-D-2010			
COMMENTS							
Power Level Settin	ng 40W. Reference Level O	ffset: DC Block + 30dB Attenuator + 2	20dB Attenuator + F	Power Divider + Cable Loss = 55.0dB	total.		
	M TEST STANDARD						
None							
			1	Colle			
Configuration #	1 1	(	1	Land			
		Signature					
L					Value	Limit	Result
Antenna Port 1					4 00 4 4 11	N1/A	21/4
	Low Channel WCDMA, 87				4.634 MHz	N/A	N/A
	Mid Channel WCDMA, 88				4.609 MHz	N/A	N/A
	High Channel WCDMA, 89	91.6 MHz			4.635 MHz	N/A	N/A
Antenna Port 2							
	Low Channel WCDMA, 87				4.602 MHz	N/A	N/A
	Mid Channel WCDMA, 881				4.64 MHz	N/A	N/A
	High Channel WCDMA, 89	91.6 MHz			4.658 MHz	N/A	N/A



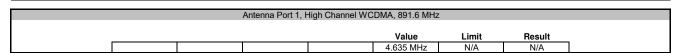


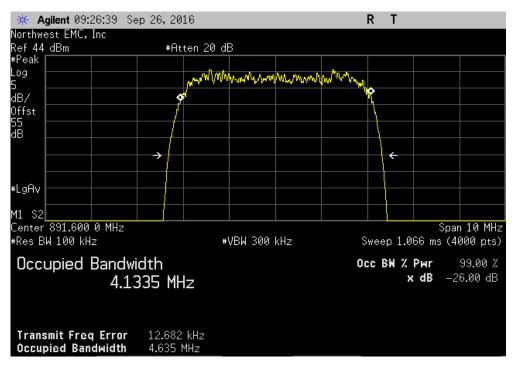


Antenna Port 1, Mid Channel WCDMA, 881.4 MHz									
					Value	Limit	Result		
					4.609 MHz	N/A	N/A		

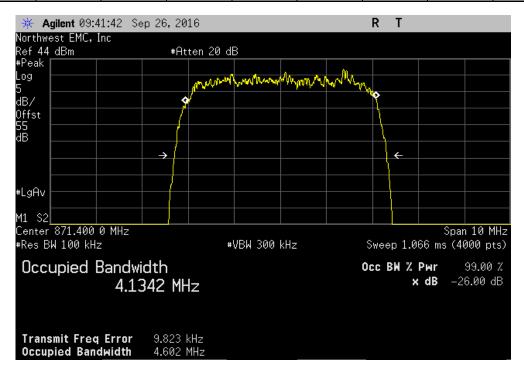




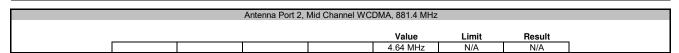


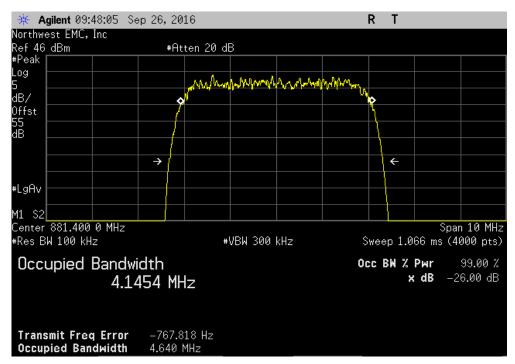


Antenna Port 2, Low Channel WCDMA, 871.4 MHz								
					Value	Limit	Result	
					4.602 MHz	N/A	N/A	

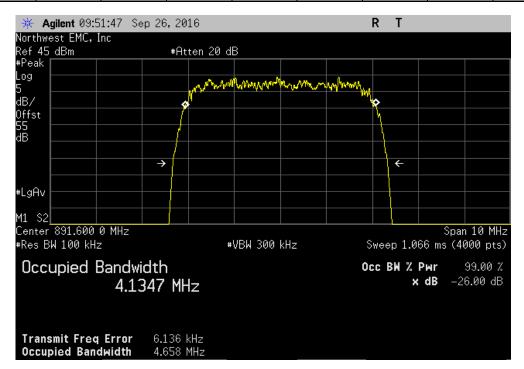








Antenna Port 2, High Channel WCDMA, 891.6 MHz								
					Value	Limit	Result	



## **OUT OF BAND EMISSIONS**



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

#### **MODES OF OPERATION**

Transmitting at LTE5, Low Ch(871.5MHZ), Mid Ch(881.5MHz), High Ch(891.5MHz) Transmitting at LTE10, Low Ch(874MHZ), Mid Ch(881.5MHz), High Ch(889MHz) Transmitting at WCDMA, Low Ch(871.4MHZ), Mid Ch(881.4MHz), High Ch(891.6MHz)

#### POWER SETTINGS INVESTIGATED

48VDC

#### **CONFIGURATIONS INVESTIGATED**

KMWC0071 - 2

#### FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz Stop Frequency 8000 MHz

#### SAMPLE CALCULATIONS

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

#### **TEST EQUIPMENT**

0 0					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Filter - Band Pass/Notch	K&L Microwave	3TNF-500/1000-N/N	HFR	3/3/2016	12 mo
Attenuator	S.M. Electronics	SA6-20	REO	3/28/2016	12 mo
Attenuator	S.M. Electronics	SA18H-10	REN	3/28/2016	12 mo
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	PAD	8/15/2016	12 mo
Cable	ESM Cable Corp.	1-8GHz cables	OCX	9/19/2016	12 mo
Cable	ESM Cable Corp.	30-1GHz cables	OCW	9/19/2016	12 mo
Filter - High Pass	Micro-Tronics	HPM50108	HGP	3/28/2016	12 mo
Filter - Low Pass	Micro-Tronics	LPM50003	HGO	3/28/2016	12 mo
Antenna - Biconilog	EMCO	3142	AXB	11/6/2015	24 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVJ	8/15/2016	12 mo
Antenna - Double Ridge	ETS Lindgren	3115	AIR	6/23/2016	24 mo
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAY	11/5/2015	12 mo

#### **TEST DESCRIPTION**

The highest gain antenna to be used with the EUT was tested for final measurements. The EUT was configured for the lowest, a middle, and the highest transmit frequency in each operational band. For each configuration, the spectrum was scanned throughout the specified range. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.10). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

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

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

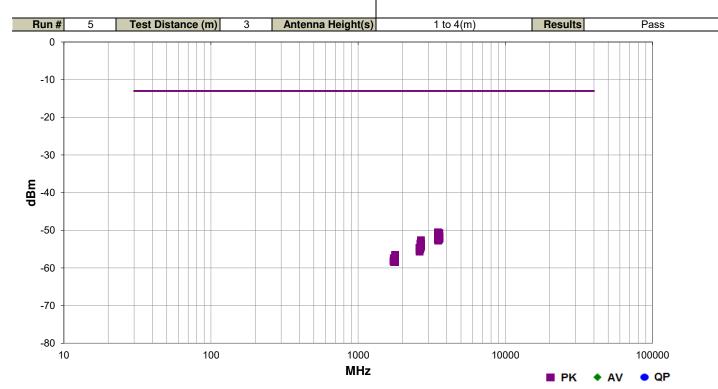
# **OUT OF BAND EMISSIONS**



09/28/16 Work Order: KMWC0071 Date: And May Project: Temperature: 22 °C None Job Site: OC07 . Humidity: 42.9% RH Serial Number: K162600004 **Barometric Pres.:** 1016 mbar Tested by: Mike Tran **EUT:** CWS-3050-05 Configuration: 2 Customer: Parallel Wireless Inc. Attendees: Edward Lee **EUT Power:** 48VDC Transmitting at LTE5, Low Ch(871.5MHZ), Mid Ch(881.5MHz), High Ch(891.5MHz) Operating Mode: Transmitting at LTE10, Low Ch(874MHZ), Mid Ch(881.5MHz), High Ch(889MHz) Transmitting at WCDMA, Low Ch(871.4MHZ), Mid Ch(881.4MHz), High Ch(891.6MHz) **Deviations:** Comments: None

 Test Specifications
 Test Method

 FCC 22H:2016
 ANSI/TIA/EIA-603-D-2010



Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
3487.042	1.0	311.0	Horz	PK	8.85E-09	-50.5	-13.0	-37.5	LTE5, Low Ch, EUT Horz
3564.992	1.3	201.0	Vert	PK	8.46E-09	-50.7	-13.0	-37.7	LTE5, High Ch, EUT Vert
3488.292	1.0	181.0	Vert	PK	7.20E-09	-51.4	-13.0	-38.4	LTE5, Low Ch, EUT Vert
3565.267	1.0	150.0	Horz	PK	7.03E-09	-51.5	-13.0	-38.5	LTE5, High Ch, EUT Horz
3483.942	2.5	294.0	Horz	PK	7.03E-09	-51.5	-13.0	-38.5	Dual LTE5+LTE10, Low Ch, EUT Horz
3484.717	3.3	331.0	Horz	PK	6.87E-09	-51.6	-13.0	-38.6	Dual WCDMA+WCDMA, Low Ch, EUT Horz
3526.825	2.7	227.0	Horz	PK	6.87E-09	-51.6	-13.0	-38.6	WCDMA, Mid Ch, EUT Vert
3486.958	2.2	76.0	Horz	PK	6.72E-09	-51.7	-13.0	-38.7	Dual LTE5+WCDMA, Low Ch, EUT Horz
3564.250	1.0	209.0	Vert	PK	6.72E-09	-51.7	-13.0	-38.7	WCDMA, High Ch, EUT Horz
3565.042	2.4	311.0	Horz	PK	6.56E-09	-51.8	-13.0	-38.8	WCDMA, High Ch, EUT Vert
3488.017	1.0	288.0	Vert	PK	6.41E-09	-51.9	-13.0	-38.9	Dual LTE5+LTE5, Low Ch, EUT Vert

Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
3568.500	2.9	99.0	Horz	PK	6.41E-09	-51.9	-13.0	-38.9	WCDMA, High Ch, EUT on Side
3565.017	1.0	320.0	Vert	PK	6.41E-09	-51.9	-13.0	-38.9	WCDMA, High Ch, EUT Vert
3525.617	1.1	230.0	Vert	PK	6.27E-09	-52.0	-13.0	-39.0	LTE10, Mid Ch, EUT Vert
3555.292	1.0	86.0	Vert	PK	6.27E-09	-52.0	-13.0	-39.0	LTE10, High Ch, EUT Vert
3526.450	3.0	40.0	Vert	PK	6.27E-09	-52.0	-13.0	-39.0	WCDMA, Mid Ch, EUT Horz
3484.342	1.1	343.0	Horz	PK	6.27E-09	-52.0	-13.0	-39.0	WCDMA, Low Ch, EUT Vert
3495.108	1.0	194.0	Vert	PK	6.13E-09	-52.1	-13.0	-39.1	LTE10, Low Ch, EUT Vert
3526.150	1.2	124.0	Horz	PK	6.13E-09	-52.1	-13.0	-39.1	LTE10, Mid Ch, EUT Horz
3486.850	3.7	352.0	Vert	PK	6.13E-09	-52.1	-13.0	-39.1	Dual LTE5+LTE10, Low Ch, EUT Vert
3497.750	1.0	325.0	Vert	PK	6.13E-09	-52.1	-13.0	-39.1	Dual LTE10+WCDMA, Low Ch, EUT Vert
3566.558	1.0	92.0	Vert	PK	6.13E-09	-52.1	-13.0	-39.1	WCDMA, High Ch, EUT on Side
3556.833	1.3	90.0	Horz	PK	5.99E-09	-52.2	-13.0	-39.2	LTE10, High Ch, EUT Horz
3486.525	1.6	244.0	Vert	PK	5.99E-09	-52.2	-13.0	-39.2	Dual LTE5+WCDMA, Low Ch, EUT Vert
3484.725 3567.525	1.3 1.0	259.0 209.0	Vert	PK PK	5.99E-09	-52.2 -52.2	-13.0	-39.2 -39.2	Dual WCDMA+WCDMA, Low Ch, EUT Vert
3485.267	1.0	120.0	Horz Horz	PK PK	5.99E-09 5.85E-09	-52.2 -52.3	-13.0 -13.0	-39.2	WCDMA, High Ch, EUT Horz Dual LTE5+LTE5, Low Ch, EUT Horz
3485.392	2.5	75.0	Vert	PK	5.85E-09	-52.3 -52.3	-13.0	-39.3	WCDMA, Low Ch, EUT Horz
3525.675	1.0	243.0	Horz	PK	5.59E-09	-52.5	-13.0	-39.5	LTE5, Mid Ch, EUT Horz
3525.983	2.4	67.0	Vert	PK	5.59E-09	-52.5	-13.0	-39.5	LTE5, Mid Ch, EUT Vert
3494.275	1.0	94.0	Horz	PK	5.59E-09	-52.5	-13.0	-39.5	LTE10, Low Ch, EUT Horz
2674.035	1.0	135.0	Horz	PK	5.46E-09	-52.6	-13.0	-39.6	LTE5, High Ch, EUT Horz
3496.525	1.0	44.0	Horz	PK	5.33E-09	-52.7	-13.0	-39.7	Dual LTE10+WCDMA, Low Ch, EUT Horz
2673.960	1.0	47.0	Vert	PK	4.44E-09	-53.5	-13.0	-40.5	LTE5, High Ch, EUT Vert
2645.433	1.0	62.0	Horz	PK	4.44E-09	-53.5	-13.0	-40.5	LTE5, Mid Ch, EUT Horz
2673.775	2.0	206.0	Horz	PK	4.34E-09	-53.6	-13.0	-40.6	LTE5, High Ch, EUT Vert
2674.825	1.0	13.0	Vert	PK	4.24E-09	-53.7	-13.0	-40.7	LTE 5, High Ch, EUT on Side
2674.605	1.0	238.0	Vert	PK	4.14E-09	-53.8	-13.0	-40.8	LTE5, High Ch, EUT Horz
2676.325	3.3	101.0	Horz	PK	3.95E-09	-54.0	-13.0	-41.0	LTE 5, High Ch, EUT on Side
2672.975	1.0	166.0	Vert	PK	3.78E-09	-54.2	-13.0	-41.2	WCDMA, High Ch, EUT Horz
2674.242	1.0	193.0	Horz	PK	3.61E-09	-54.4	-13.0	-41.4	WCDMA, High Ch, EUT Vert
2614.075	1.0	55.0	Horz	PK	3.44E-09	-54.6	-13.0	-41.6	LTE5, Low Ch, EUT Horz
2613.308	1.0	94.0	Vert	PK	3.37E-09	-54.7	-13.0	-41.7	LTE5, Low Ch, EUT Vert
2641.650	1.0	112.0	Horz	PK	3.29E-09	-54.8	-13.0	-41.8	WCDMA, Mid Ch, EUT Vert
2641.983	1.0	275.0	Vert	PK	3.29E-09	-54.8	-13.0	-41.8	WCDMA, Mid Ch, EUT Horz
2643.492	1.0	141.0	Vert	PK	3.14E-09	-55.0	-13.0	-42.0	LTE5, Mid Ch, EUT Vert
2611.833	1.0	135.0	Vert	PK	3.07E-09	-55.1	-13.0	-42.1	WCDMA, Low Ch, EUT Horz
2611.517	1.0	196.0	Horz	PK	2.74E-09	-55.6 56.5	-13.0	-42.6 42.5	WCDMA, Low Ch, EUT Vert
1781.017	1.0	118.0	Vert Vert	PK PK	2.22E-09 1.81E-09	-56.5	-13.0 -13.0	-43.5	LTE5, High Ch, EUT Vert
1744.667 1780.533	1.0 2.0	114.0 153.0	Horz	PK PK	1.69E-09	-57.4 -57.7	-13.0 -13.0	-44.4 -44.7	LTE5, Low Ch, EUT Vert LTE5, High Ch, EUT Horz
1760.333	1.0	144.0	Vert	PK	1.61E-09	-57.7 -57.9	-13.0	-44.7 -44.9	LTE5, Mid Ch, EUT Vert
1761.236	1.0	244.0	Horz	PK	1.61E-09 1.57E-09	-57.9 -58.0	-13.0	-44.9 -45.0	LTE5, Mid Ch, EUT Horz
1743.933	1.0	305.0	Vert	PK	1.57E-09 1.57E-09	-58.0 -58.0	-13.0	-45.0 -45.0	WCDMA, Low Ch, EUT Horz
1743.933	1.0	196.0	Horz	PK	1.50E-09	-58.2	-13.0	-45.2	LTE5, Low Ch, EUT Horz
1784.442	2.9	350.0	Horz	PK	1.50E-09	-58.2	-13.0	-45.2 -45.2	WCDMA, High Ch, EUT Vert
1760.650	1.8	214.0	Horz	PK	1.50E-09	-58.2	-13.0	-45.2	WCDMA, Mid Ch, EUT Vert
1741.992	2.2	70.0	Horz	PK	1.47E-09	-58.3	-13.0	-45.3	WCDMA, Iow Ch, EUT Vert
1782.067	3.7	266.0	Vert	PK	1.44E-09	-58.4	-13.0	-45.4	WCDMA, High Ch, EUT Horz
1765.217	1.0	360.0	Vert	PK	1.44E-09	-58.4	-13.0	-45.4	WCDMA, Mid Ch, EUT Horz



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

#### **TEST EQUIPMENT**

TEGT EGGII MENT					
Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Aeroflex	INMET 8535	AMO	4/4/2016	4/4/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/19/2015	11/19/2016

#### **CLIENT PROVIDED EQUIPMENT**

Description	Manufacturer	Model	Last Cal.	Cal. Due
High Power Attenuator - 30dB	Aeroflex/Weinschel	53-30-43	NCR	NCR
Attenuator - 20dB	N/A	N/A	NCR	NCR
Power Divider	Fairview Microwave	MP8748-2	NCR	NCR
500hm Terminator	Aeroflex/Weinschel	1455-4	NCR	NCR
High Power Terminator	Telcon	KTMO400800060	NCR	NCR

#### **TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The spurious RF conducted emissions at the authorized bands per FCC 22(H) were measured with the EUT transmitting at the data rate(s) listed in the datasheet.

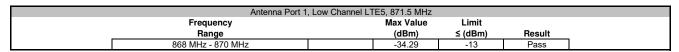
An average RMS detector was used to match the method used during Output Power. The screen capture shows the margin between the measured value and the limit at the band edge.

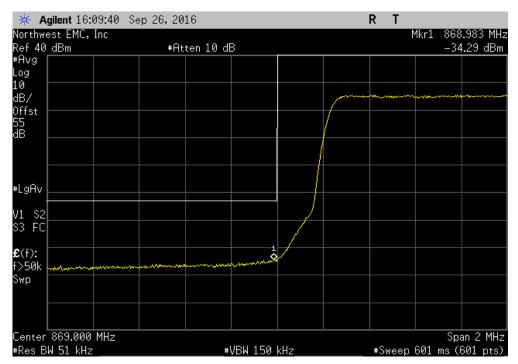
# **BAND EDGE COMPLIANCE**



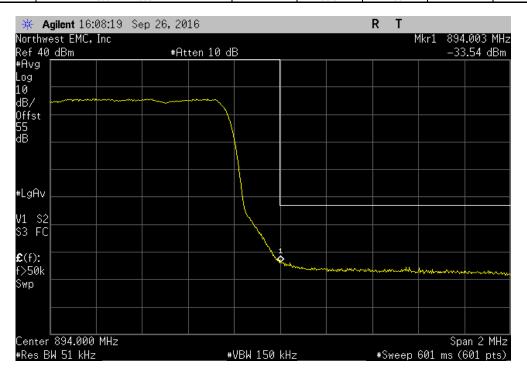
EUT	: CWS-3050-05					Work Order:	KMWC0071			
Serial Number						Date:	09/26/16			
Customer	: Parallel Wireless Inc.			Temperature:	22.3 °C					
Attendees	Attendees: Edward Lee					Humidity: 38.4% RH				
Project	: None					Barometric Pres.:	1016 mbar			
Tested by	: Johnny Candelas		Power:	48VDC		Job Site:	OC13			
TEST SPECIFICAT	TIONS			Test Method						
FCC 22H:2016				ANSI/TIA/EIA-603-D-2010						
COMMENTS										
Power Level Setti	ng 40W. Reference Level	Offset: DC Block + 30dB Attenuator	+ 200B Attenuator +	+ Power Divider + Cable Loss = 55.0	udb totai.					
DEVIATIONS EDG										
DEVIATIONS FRO	M TEST STANDARD									
DEVIATIONS FRO	OM TEST STANDARD	1								
None	OM TEST STANDARD		£. £							
	1		for d.	l.M.						
None	1	Signature	fe d.			May Value	Limit			
None	M TEST STANDARD		fe d.	Frequency		Max Value	Limit (dBm)	Popult		
None Configuration #	M TEST STANDARD		for d.			Max Value (dBm)	Limit ≤ (dBm)	Result		
None Configuration #	1	Signature	fe d.	Frequency Range		(dBm)	≤ (dBm)			
None	1 Low Channel LTE5, 871.8	Signature S	fe d.	Frequency Range 868 MHz - 870 MHz		(dBm) -34.29	≤ (dBm) -13	Pass		
None Configuration #	1 Low Channel LTE5, 871.8 High Channel LTE5, 891.	Signature  5 MHz 5 MHz	fe d.	Frequency Range 868 MHz - 870 MHz 893 MHz - 895 MHz		(dBm) -34.29 -33.54	≤ (dBm) -13 100	Pass Pass		
None Configuration #	Low Channel LTE5, 871. High Channel LTE5, 891. Low Channel LTE10, 874	Signature  5 MHz 5 MHz 1 MHz	fr d.	Frequency Range 868 MHz - 870 MHz 893 MHz - 895 MHz 868 MHz - 870 MHz		(dBm) -34.29 -33.54 -32.66	≤ (dBm)  -13 100 -13	Pass Pass Pass		
None Configuration # Antenna Port 1	1 Low Channel LTE5, 871.8 High Channel LTE5, 891.	Signature  5 MHz 5 MHz 1 MHz	fr d.	Frequency Range 868 MHz - 870 MHz 893 MHz - 895 MHz		(dBm) -34.29 -33.54	≤ (dBm) -13 100	Pass Pass		
None Configuration # Antenna Port 1	Low Channel LTE5, 871.4 High Channel LTE5, 891. Low Channel LTE10, 874 High Channel LTE10, 888	Signature  5 MHz 5 MHz 9 MHz 9 MHz	fr d.	Frequency Range 868 MHz - 870 MHz 893 MHz - 895 MHz 868 MHz - 870 MHz 893 MHz - 895 MHz		(dBm) -34.29 -33.54 -32.66 -32.35	≤ (dBm)  -13 100 -13 -13	Pass Pass Pass Pass		
None Configuration # Antenna Port 1	Low Channel LTE5, 871.5 High Channel LTE5, 891. Low Channel LTE10, 874 High Channel LTE10, 889 Low Channel LTE5, 871.5	Signature  5 MHz 5 MHz 9 MHz 9 MHz 5 MHz	fr d.	Frequency Range 868 MHz - 870 MHz 893 MHz - 895 MHz 868 MHz - 870 MHz 893 MHz - 895 MHz 868 MHz - 870 MHz		(dBm) -34.29 -33.54 -32.66 -32.35	≤ (dBm)  -13 100 -13 -13 -13	Pass Pass Pass Pass		
None Configuration #	Low Channel LTE5, 871.9 High Channel LTE5, 891. Low Channel LTE10, 874 High Channel LTE10, 878 Low Channel LTE5, 871.5 High Channel LTE5, 891.	Signature  6 MHz 5 MHz 9 MHz 9 MHz 9 MHz 5 MHz 5 MHz 5 MHz	fr d.	Frequency Range 868 MHz - 870 MHz 893 MHz - 895 MHz 868 MHz - 870 MHz 893 MHz - 895 MHz 868 MHz - 870 MHz 893 MHz - 895 MHz		(dBm) -34.29 -33.54 -32.66 -32.35 -34.78 -33.55	≤ (dBm)  -13 100 -13 -13 -13 100	Pass Pass Pass Pass Pass		
None Configuration # Antenna Port 1	Low Channel LTE5, 871.5 High Channel LTE5, 891. Low Channel LTE10, 874 High Channel LTE10, 889 Low Channel LTE5, 871.5	Signature  5 MHz 5 MHz 1 MHz 9 MHz 5 MHz 5 MHz 5 MHz 1 MHz 1 MHz 1 MHz 1 MHz 1 MHz 1 MHz 1 MHz 1 MHz	fu d.	Frequency Range 868 MHz - 870 MHz 893 MHz - 895 MHz 868 MHz - 870 MHz 893 MHz - 895 MHz 868 MHz - 870 MHz		(dBm) -34.29 -33.54 -32.66 -32.35	≤ (dBm)  -13 100 -13 -13 -13	Pass Pass Pass Pass		



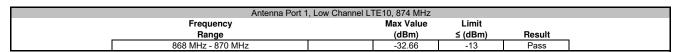


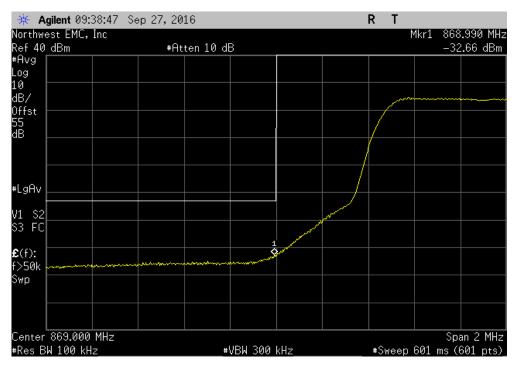


	Antenna Port 1, High Channel	LTE5, 891.5 MHz		
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
893 MHz - 895 MHz		-33.54	100	Pass

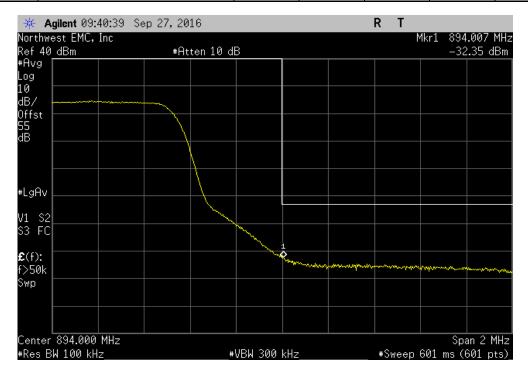




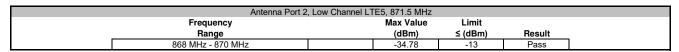


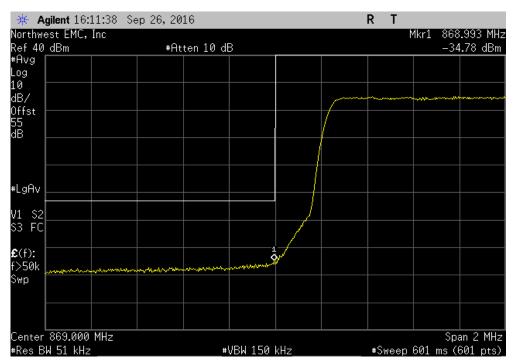


	Antenna Port 1	, High Channel L	TE10, 889 MHz		
	Frequency		Max Value	Limit	
	Range		(dBm)	≤ (dBm)	Result
i	893 MHz - 895 MHz		-32.35	-13	Pass

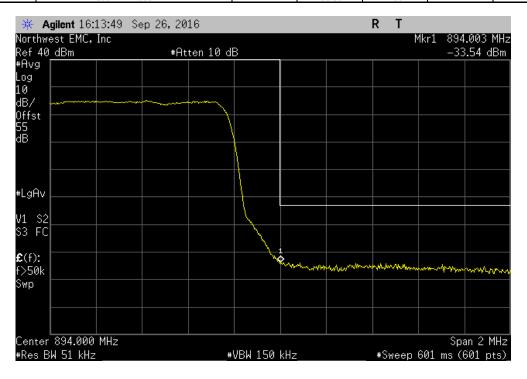








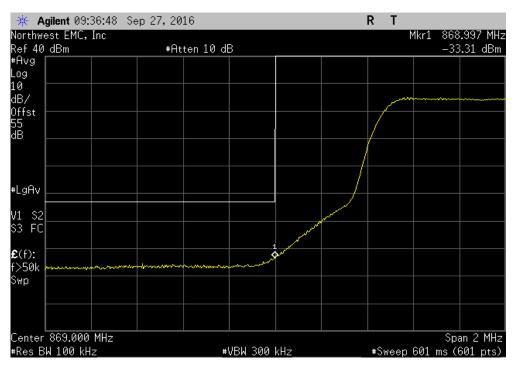
Ante	enna Port 2, High Chan	nel LTE5, 891.5 MHz		
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
893 MHz - 895 MHz		-33.55	100	Pass



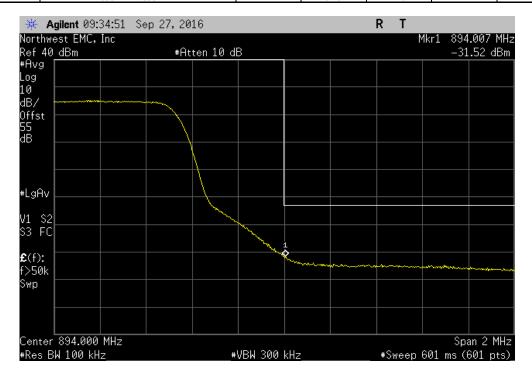
#### **BAND EDGE COMPLIANCE - LTE BAND 5**



Antenna Port 2	2, Low Channel L	ΓΕ10, 874 MHz		
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
868 MHz - 870 MHz		-33.31	-13	Pass



Antenna Port 2, High Channel LTE10, 889 MHz					
Frequency		Max Value	Limit		
 Range		(dBm)	≤ (dBm)	Result	
893 MHz - 895 MHz		-31.52	-13	Pass	





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

#### **TEST EQUIPMENT**

Description	Manufacturer	Model	D	Last Cal.	Cal. Due
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Aeroflex	INMET 8535	AMO	4/4/2016	4/4/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/19/2015	11/19/2016

#### **CLIENT PROVIDED EQUIPMENT**

Description	Manufacturer	Model	Last Cal.	Cal. Due
High Power Attenuator - 30dB	Aeroflex/Weinschel	53-30-43	NCR	NCR
Attenuator - 20dB	N/A	N/A	NCR	NCR
Power Divider	Fairview Microwave	MP8748-2	NCR	NCR
500hm Terminator	Aeroflex/Weinschel	1455-4	NCR	NCR
High Power Terminator	Telcon	KTMO400800060	NCR	NCR

#### **TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

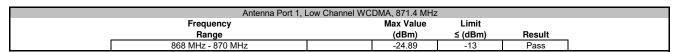
The spurious RF conducted emissions at the authorized bands per FCC 22H were measured with the EUT transmitting at the data rate(s) listed in the datasheet.

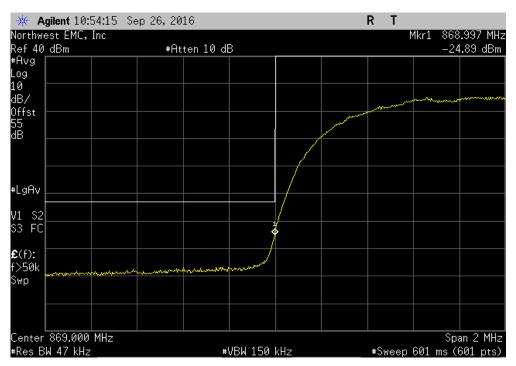
An average RMS detector was used to match the method used during Output Power. The screen capture shows the margin between the measured value and the limit at the band edge.



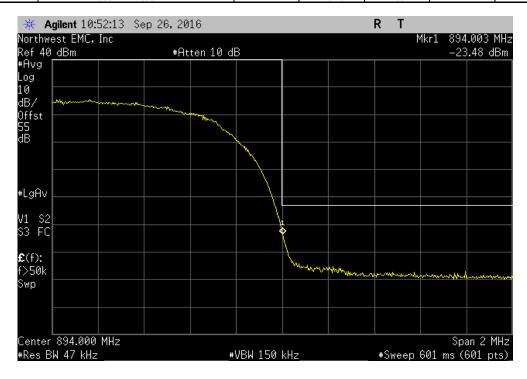
FIIT							
LUI	: CWS-3050-05				Work Order:	KMWC0071	
Serial Number:	: K162600004				Date:	09/26/16	
Customer	: Parallel Wireless Inc.				Temperature:	22.3 °C	
Attendees	: Edward Lee				Humidity:	38.4% RH	
Project	: None				Barometric Pres.:	1016 mbar	
Tested by:	: Johnny Candelas		Power: 48VDC		Job Site:	OC13	
TEST SPECIFICAT	TIONS		Test Method				
FCC 22H:2016			ANSI/TIA/EIA-6	03-D-2010			
COMMENTS							
Daniel Land Cattle	40W D-4 L L	W DO DII- 00-ID AH	tor + 20dB Attenuator + Power Divider	O-1-1-1 55 0-1D 4	-4-1		
TOWER ECVEROCION	ig 4011. Helefellee Eevel e	onset. Do block + doab Attenda	tor + 200B Atteriuator + 1 ower Biviaci	+ Oubic 2033 = 00.00D (	otui.		
	M TEST STANDARD						
DEVIATIONS FROM None	M TEST STANDARD						
None	M TEST STANDARD		1 11 12				
None	M TEST STANDARD		- S. L. C. M.				
None	M TEST STANDARD	Signature	for d. lake	-			
None	M TEST STANDARD	Signature			Max Value	Limit	
	M TEST STANDARD	Signature	Frequenc Range		Max Value (dBm)	Limit ≤ (dBm)	Result
None Configuration #	M TEST STANDARD	Signature	Frequenc				Result
None	1	· · ·	Frequenc	у			Result Pass
None Configuration #	1  Low Channel WCDMA, 87	71.4 MHz	Frequenc Range	<b>y</b> MHz	(dBm)	≤ (dBm)	
None  Configuration #  Antenna Port 1	1	71.4 MHz	Frequenc Range 868 MHz - 870	<b>y</b> MHz	(dBm) -24.89	≤ (dBm) -13	Pass
None Configuration #	1 Low Channel WCDMA, 87 High Channel WCDMA, 88	71.4 MHz 91.6 MHz	Frequenc Range 868 MHz - 870	MHz MHz	(dBm) -24.89 -23.48	≤ (dBm) -13	Pass Pass
None  Configuration #  Antenna Port 1	1  Low Channel WCDMA, 87	71.4 MHz 91.6 MHz 71.4 MHz	Frequenc Range 868 MHz - 870 893 MHz - 895	MHz MHz MHz	(dBm) -24.89	≤ (dBm) -13 100	Pass





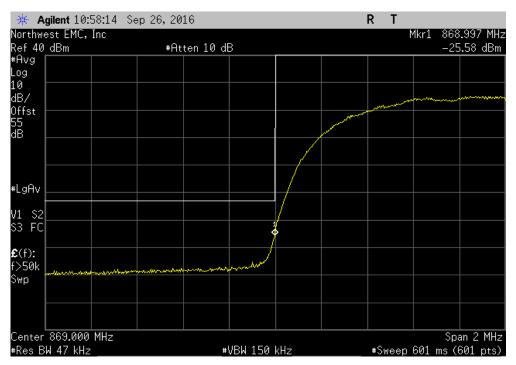


Antenna Port 1, High Channel WCDMA, 891.6 MHz					
Frequency	Frequency		Limit		
Range		(dBm)	≤ (dBm)	Result	
893 MHz - 895 MHz		-23.48	100	Pass	

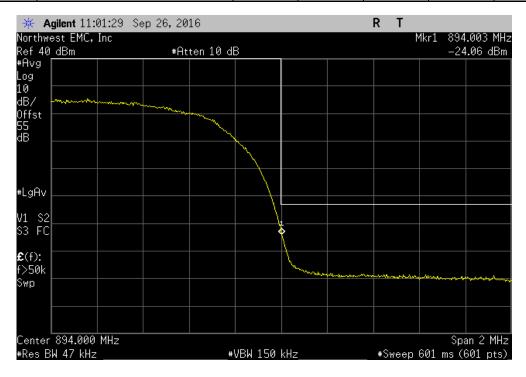




Antenna Port 2. Low Channel WCDMA. 871.4 MHz					
Frequency	Max Value	Limit			
Range	(dBm)	≤ (dBm)	Result		
868 MHz - 870 MHz	-25.58	-13	Pass		



Antenna Port 2, High Channel WCDMA, 891.6 MHz					
	Frequency		Max Value	Limit	
_	Range		(dBm)	≤ (dBm)	Result
ĺ	893 MHz - 895 MHz		-24.06	100	Pass





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

#### **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Filter - High Pass	Micro-Tronics	HPM50108	HGX	7/25/2016	7/25/2017
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Aeroflex	INMET 8535	AMO	4/4/2016	4/4/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/19/2015	11/19/2016

#### **CLIENT PROVIDED EQUIPMENT**

Description	Manufacturer	Model	Last Cal.	Cal. Due
High Power Attenuator - 30dB	Aeroflex/Weinschel	53-30-43	NCR	NCR
Attenuator - 20dB	N/A	N/A	NCR	NCR
Power Divider	Fairview Microwave	MP8748-2	NCR	NCR
50Ohm Terminator	Aeroflex/Weinschel	1455-4	NCR	NCR
High Power Terminator	Telcon	KTMO400800060	NCR	NCR

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. Analyzer plots utilizing a 1 MHz resolution bandwidth and no video filtering were made for each mode listed in the datasheet.

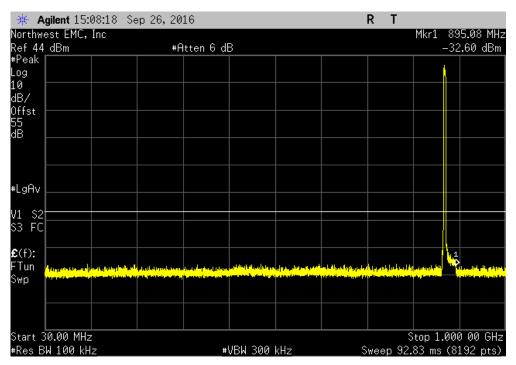
The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, were investigated to ensure they were less than or equal to the limit.



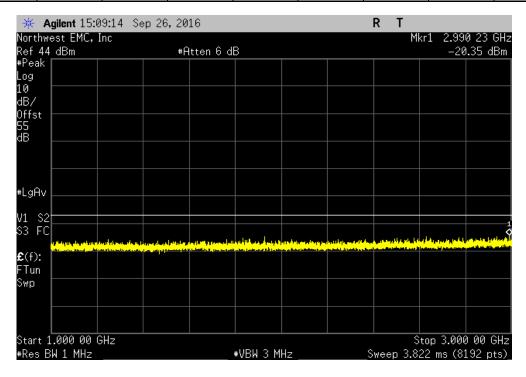
EUT	: CWS-3050-05				Mark Orda	: KMWC0071	
Serial Number:						: 09/26/16	
	: Parallel Wireless Inc.				Temperature		
	: Edward Lee					: 38.4% RH	
Project					Barometric Pres		
	: Johnny Candelas		Bower	48VDC		: OC13	
TEST SPECIFICAT			Power:	Test Method	JOD SIL	:: 0013	
FCC 22H:2016	IONS			ANSI/TIA/EIA-603-D-2010			
FCC 22H:2016				ANSI/TIA/EIA-603-D-2010			
COMMENTS							
Power Level Settin	ng 40W. Reference Level Off	fset: DC Block + 30dB Attenu	ator + 20dB Attenuator +	Power Divider + Cable Loss	s = 55.0dB total.		
DEVIATIONS EDO	M TEST STANDARD						
None	M IESI SIANDAND						
None							
Configuration #	1		fe d.				
comigaration #		Signature					
		Oignature		Frequency	Max Value	Limit	
				Range	(dBm)	≤ (dBm)	Result
Antenna Port 1					(42)	- (/	
	Low Channel LTE5, 871.5 M	ИНZ		30 MHz - 1 GHz	-32.6	-13	Pass
	Low Channel LTE5, 871.5 M			1 GHz - 3 GHz	-20.35	-13	Pass
	Low Channel LTE5, 871.5 M			3 GHz - 9 GHz	-19.27	-13	Pass
	Mid Channel LTE5, 881.5 Mi			30 MHz - 1 GHz	-30.14	-13	Pass
	Mid Channel LTE5, 881.5 Mi			1 GHz - 3 GHz	-20.5	-13	Pass
	Mid Channel LTE5, 881.5 Mi			3 GHz - 9 GHz	-20.16	-13	Pass
	High Channel LTE5, 891.5 M			30 MHz - 1 GHz	-32.08	-13	Pass
	High Channel LTE5, 891.5 M			1 GHz - 3 GHz	-19.94	-13	Pass
	High Channel LTE5, 891.5 M			3 GHz - 9 GHz	-19.97	-13	Pass
	Low Channel LTE10, 874 Mi			30 MHz - 1 GHz	-27.5	-13	Pass
	Low Channel LTE10, 874 Mi			1 GHz - 3 GHz	-20.79	-13	Pass
	Low Channel LTE10, 874 Mi			3 GHz - 9 GHz	-18.67	-13	Pass
	Mid Channel LTE10, 881.5 N			30 MHz - 1 GHz	-29.33	-13	Pass
	Mid Channel LTE10, 881.5 N			1 GHz - 3 GHz	-20.34	-13	Pass
	Mid Channel LTE10, 881.5 M			3 GHz - 9 GHz	-20.06	-13	Pass
	High Channel LTE10, 889 M			30 MHz - 1 GHz	-29.98	-13	Pass
	High Channel LTE10, 889 M			1 GHz - 3 GHz	-20.66	-13	Pass
	High Channel LTE10, 889 M			3 GHz - 9 GHz	-18.91	-13	Pass
Antenna Port 2							
	Low Channel LTE5, 871.5 M	ИНZ		30 MHz - 1 GHz	-30.5	-13	Pass
	Low Channel LTE5, 871.5 M	ИНz		1 GHz - 3 GHz	-19.96	-13	Pass
	Low Channel LTE5, 871.5 M	ИНz		3 GHz - 9 GHz	-19.53	-13	Pass
	Mid Channel LTE5, 881.5 MI	lHz		30 MHz - 1 GHz	-32.05	-13	Pass
	Mid Channel LTE5, 881.5 Mi	lHz		1 GHz - 3 GHz	-20.38	-13	Pass
	Mid Channel LTE5, 881.5 MI	lHz		3 GHz - 9 GHz	-19.84	-13	Pass
	High Channel LTE5, 891.5 M	MHz		30 MHz - 1 GHz	-30.22	-13	Pass
	High Channel LTE5, 891.5 M	MHz		1 GHz - 3 GHz	-20.95	-13	Pass
	High Channel LTE5, 891.5 M	MHz		3 GHz - 9 GHz	-18.92	-13	Pass
	Low Channel LTE10, 874 MH			30 MHz - 1 GHz	-24.04	-13	Pass
	Low Channel LTE10, 874 MI			1 GHz - 3 GHz	-20.97	-13	Pass
	Low Channel LTE10, 874 MH	lHz		3 GHz - 9 GHz	-19.74	-13	Pass
	Mid Channel LTE10, 881.5 M	MHz		30 MHz - 1 GHz	-29.56	-13	Pass
	Mid Channel LTE10, 881.5 M	MHz		1 GHz - 3 GHz	-20.56	-13	Pass
	Mid Channel LTE10, 881.5 M	MHz		3 GHz - 9 GHz	-19.42	-13	Pass
	High Channel LTE10, 889 M	ИНZ		30 MHz - 1 GHz	-30.88	-13	Pass
	High Channel LTE10, 889 M	ИНZ		1 GHz - 3 GHz	-19.81	-13	Pass
	High Channel LTE10, 889 M	ИHz		3 GHz - 9 GHz	-19.76	-13	Pass



Antenna Port 1, Low Channel LTE5, 871.5 MHz				
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
30 MHz - 1 GHz		-32.6	-13	Pass

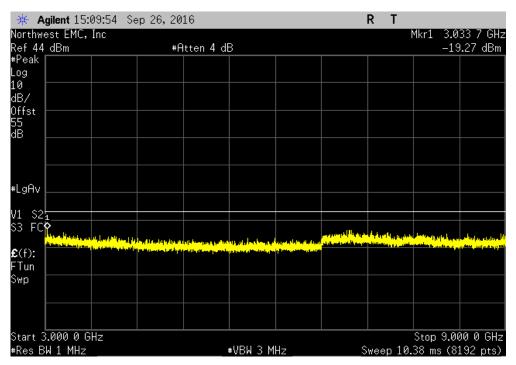


Antenna Port 1, Low Channel LTE5, 871.5 MHz						
Frequency	Max Value	Limit				
Range	(dBm)	≤ (dBm)	Result			
1 GHz - 3 GHz	-20.35	-13	Pass			

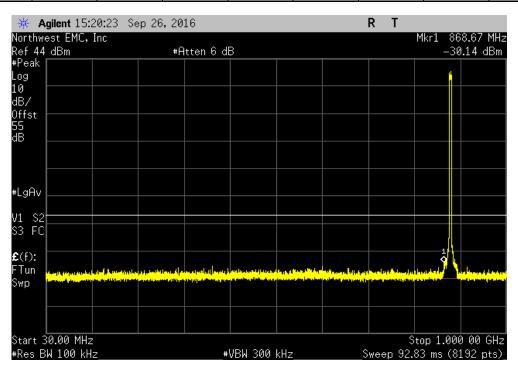




	Antenna Port 1, Low Channel LTE5, 871.5 MHz						
Frequency		Max Value	Limit				
Range		(dBm)	≤ (dBm)	Result			
3 GHz - 9 GHz		-19.27	-13	Pass			

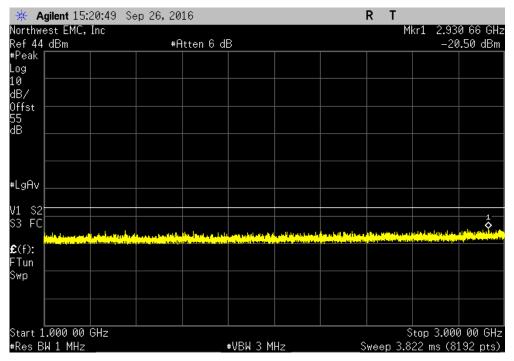


	Antenna Port 1, Mid Channel LTE5, 881.5 MHz						
	Frequency		Max Value	Limit			
_	Range		(dBm)	≤ (dBm)	Result		
ĺ	30 MHz - 1 GHz		-30.14	-13	Pass		

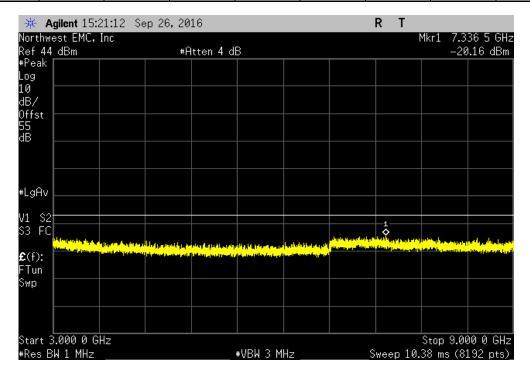




Antenna Port 1, Mid Channel LTE5, 881.5 MHz						
Frequency			Limit			
Range		(dBm)	≤ (dBm)	Result		
1 GHz - 3 GHz		-20.5	-13	Pass		

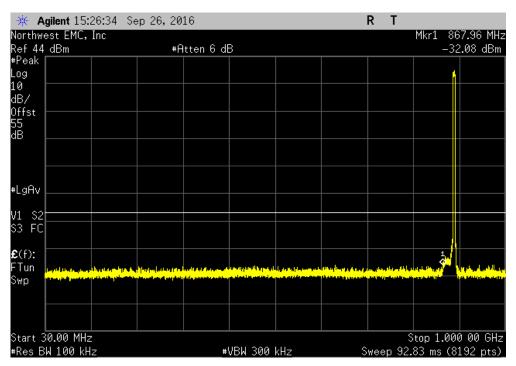


Antenna Port 1, Mid Channel LTE5, 881.5 MHz						
Frequency	Max Value	Limit				
Range	(dBm)	≤ (dBm)	Result			
3 GHz - 9 GHz	-20.16	-13	Pass			

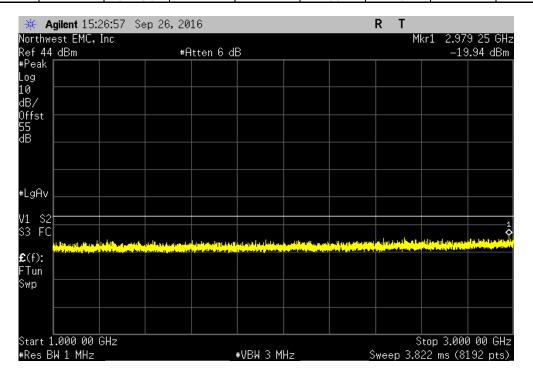




Antenna Port 1, High Channel LTE5, 891.5 MHz							
	Frequency			Max Value	Limit		
	Range			(dBm)	≤ (dBm)	Result	
1	30 MHz - 1 GHz			-32.08	-13	Pass	I

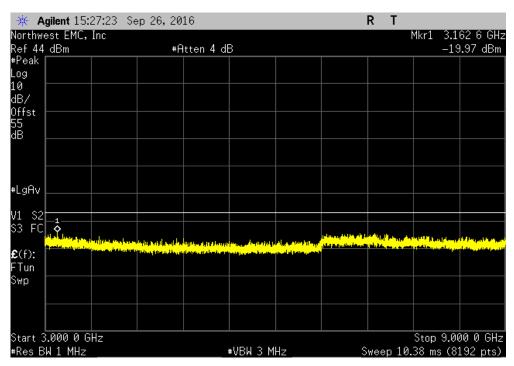


	Antenna Port 1, High Channel LTE5, 891.5 MHz						
Frequer	псу	Max Value	Limit				
Range	e	(dBm)	≤ (dBm)	Result			
1 GHz - 3	GHz	-19.94	-13	Pass			

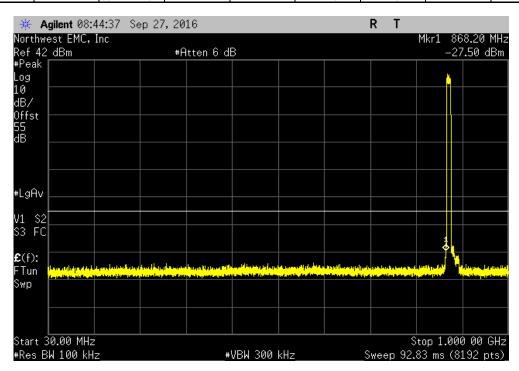




Antenna Port 1, High Channel LTE5, 891.5 MHz						
Frequency		Max Value	Limit			
Range		(dBm)	≤ (dBm)	Result		
3 GHz - 9 GHz		-19.97	-13	Pass		

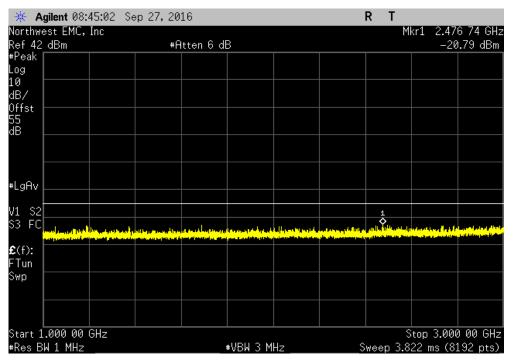


Antenna Port 1, Low Channel LTE10, 874 MHz						
Frequency Max			Limit			
Range		(dBm)	≤ (dBm)	Result		
30 MHz - 1 GHz		-27.5	-13	Pass		

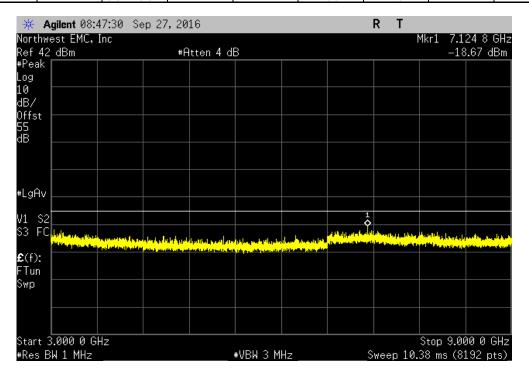




Antenna Port 1, Low Channel LTE10, 874 MHz						
Frequency			Limit			
Range		(dBm)	≤ (dBm)	Result		
1 GHz - 3 GHz		-20.79	-13	Pass		

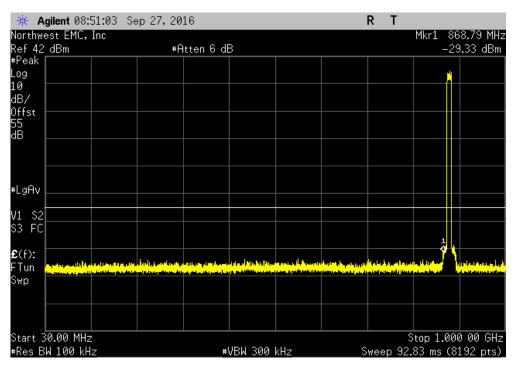


	Antenna Port 1, Low Channel LTE10, 874 MHz						
	Frequency Max Value						
_	Range	(dBm)	≤ (dBm)	Result			
	3 GHz - 9 GHz	-18.67	-13	Pass			

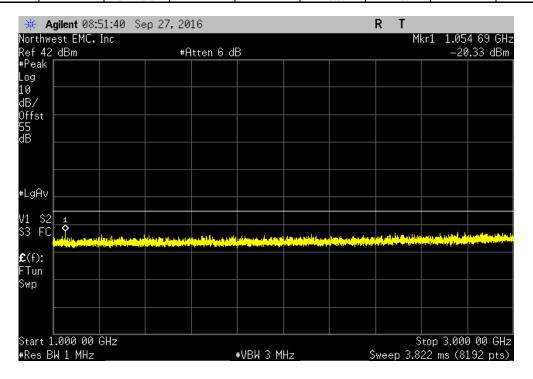




Antenna Port 1, Mid Channel LTE10, 881.5 MHz						
Frequency		N	Max Value	Limit		
Range			(dBm)	≤ (dBm)	Result	
30 MHz - 1 GHz			-29.33	-13	Pass	

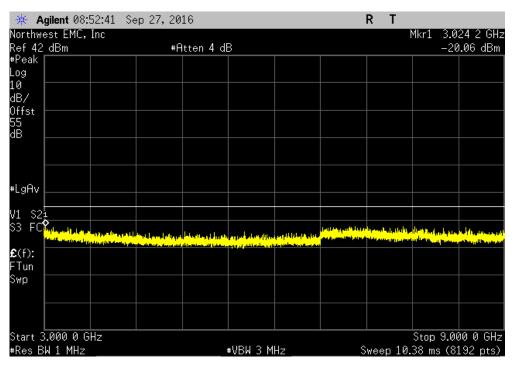


Antenna Port 1, Mid Channel LTE10, 881.5 MHz						
Frequency	Max Value	Limit				
Range	(dBm)	≤ (dBm)	Result			
1 GHz - 3 GHz	-20.34	-13	Pass			

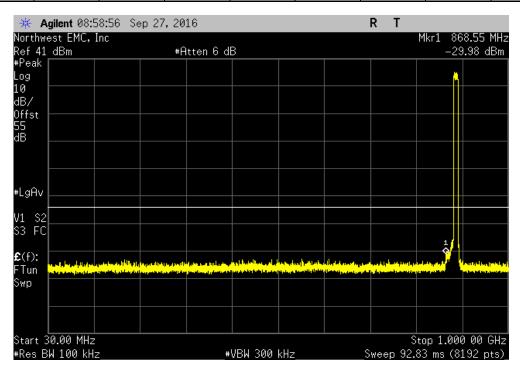




Antenna Port 1, Mid Channel LTE10, 881.5 MHz					
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
3 GHz - 9 GHz		-20.06	-13	Pass	

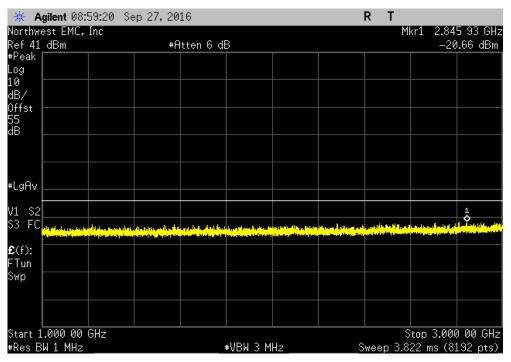


	Antenna Port 1, High Channel LTE10, 889 MHz						
	Frequency		Max Value	Limit			
_	Range		(dBm)	≤ (dBm)	Result		
l	30 MHz - 1 GHz		-29.98	-13	Pass		

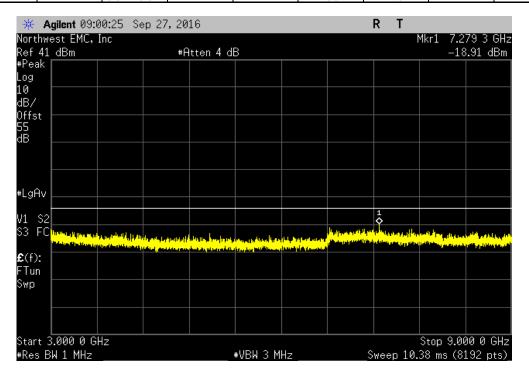




	Antenna Port 1, H	High Channel LTE10, 889 MHz		
Frequ	ency	Max Value	Limit	
Rar	ge	(dBm)	≤ (dBm)	Result
1 GHz -	3 GHz	-20.66	-13	Pass



Antenna Port	1, High Channel LTE	10, 889 MHz		
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
3 GHz - 9 GHz		-18.91	-13	Pass

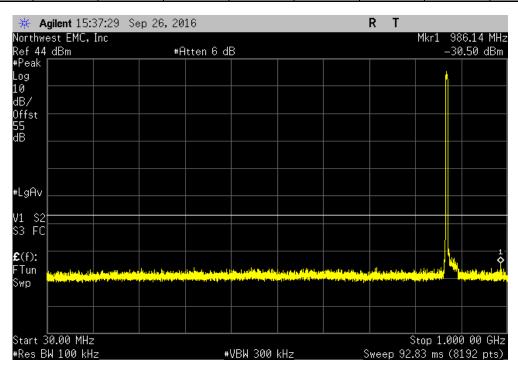




		1		1

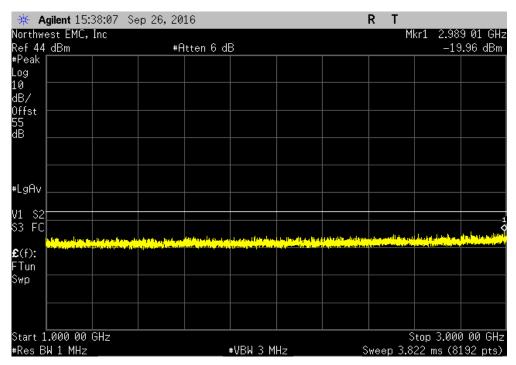
Intentionally Left Blank

	Antenna Port 2, Low Channel LTE5, 871.5 MHz						
	Frequency		Max Value	Limit			
_	Range		(dBm)	≤ (dBm)	Result		
	30 MHz - 1 GHz		-30.5	-13	Pass		

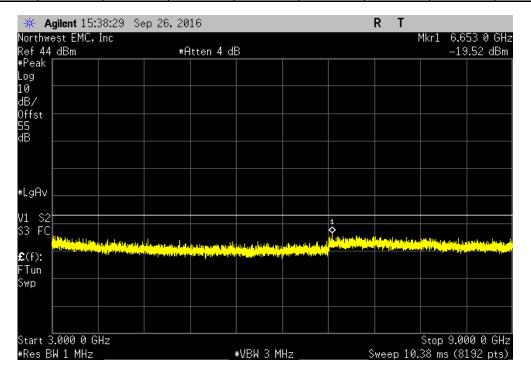




Antenna Port 2, Low Channel LTE5, 871.5 MHz					
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
1 GHz - 3 GHz		-19.96	-13	Pass	

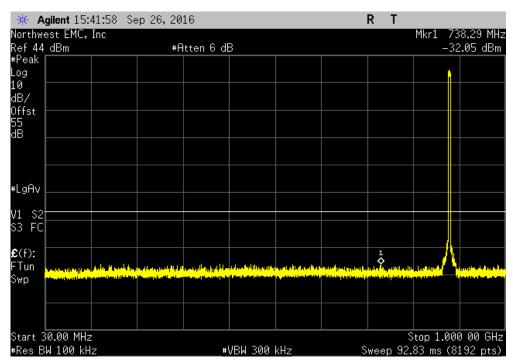


Antenna Port 2, Low Channel LTE5, 871.5 MHz						
Frequency		Max Value	Limit			
Range		(dBm)	≤ (dBm)	Result		
3 GHz - 9 GHz		-19.53	-13	Pass		

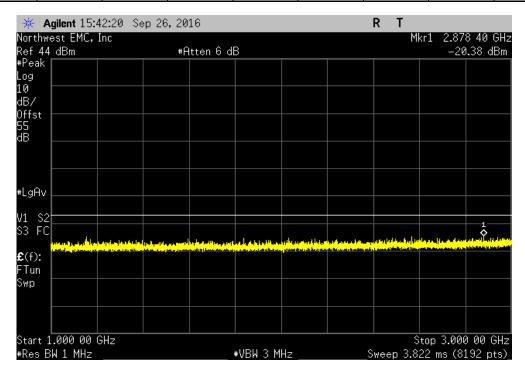




Antenna Port 2, Mid Channel LTE5, 881.5 MHz					
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
30 MHz - 1 GHz		-32.05	-13	Pass	

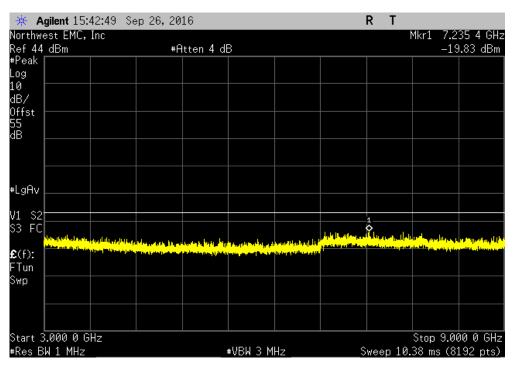


Antenna Port 2, Mid Channel LTE5, 881.5 MHz					
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
1 GHz - 3 GHz		-20.38	-13	Pass	

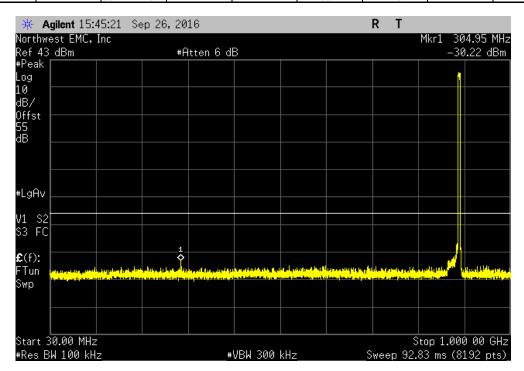




Antenna Port 2, Mid Channel LTE5, 881.5 MHz					
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
3 GHz - 9 GHz		-19.84	-13	Pass	

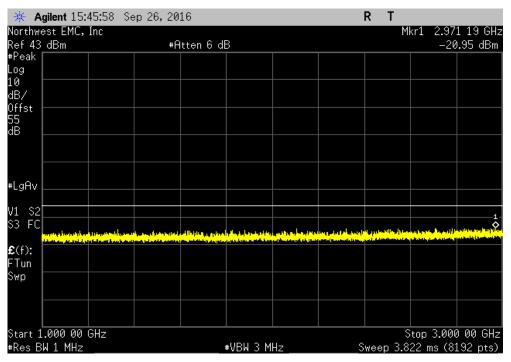


Antenna Port 2, High Channel LTE5, 891.5 MHz							
Frequency		Max Value	Limit				
Range		(dBm)	≤ (dBm)	Result			
30 MHz - 1 GHz		-30.22	-13	Pass			

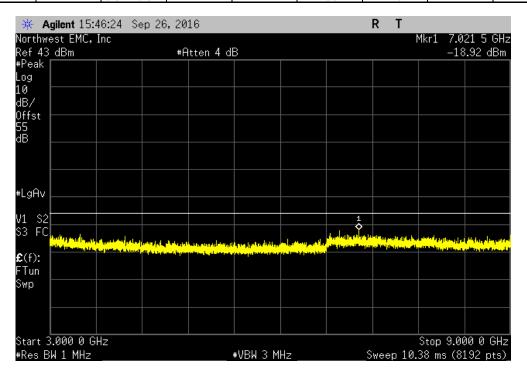




Antenna Port 2, High Channel LTE5, 891.5 MHz							
Frequency		Max Value	Limit				
Range		(dBm)	≤ (dBm)	Result			
1 GHz - 3 GHz		-20.95	-13	Pass			

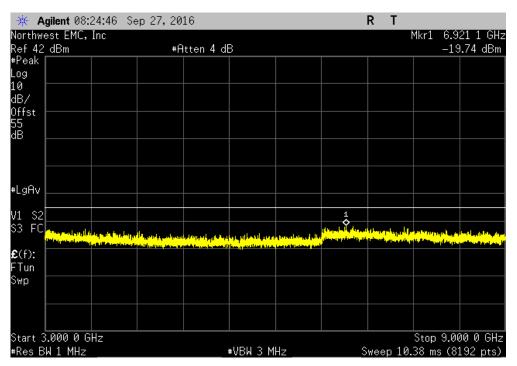


Antenna Port 2, High Channel LTE5, 891.5 MHz						
Frequency Max Value Limit						
 Range		(dBm)	≤ (dBm)	Result		
3 GHz - 9 GHz		-18.92	-13	Pass		

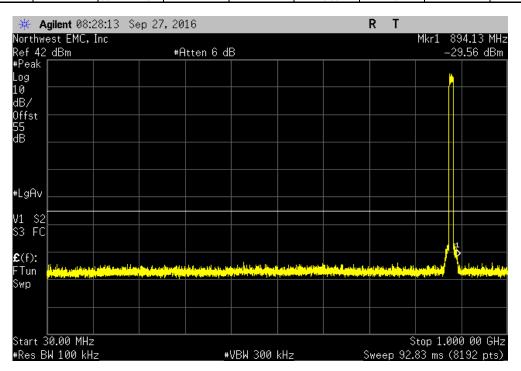




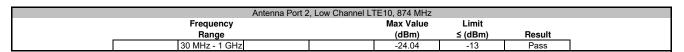
Antenna Port 2, Low Channel LTE10, 874 MHz							
Frequency			N	Max Value	Limit		
	Range			(dBm)	≤ (dBm)	Result	
	3 GHz - 9 GHz			-19.74	-13	Pass	

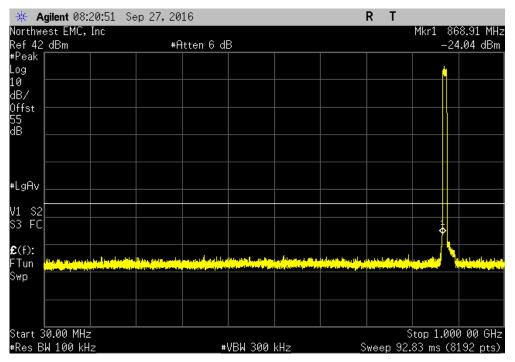


Antenna Port 2, Mid Channel LTE10, 881.5 MHz						
Frequency Max Value Limit						
Range		(dBm)	≤ (dBm)	Result		
30 MHz - 1 GHz		-29.56	-13	Pass		

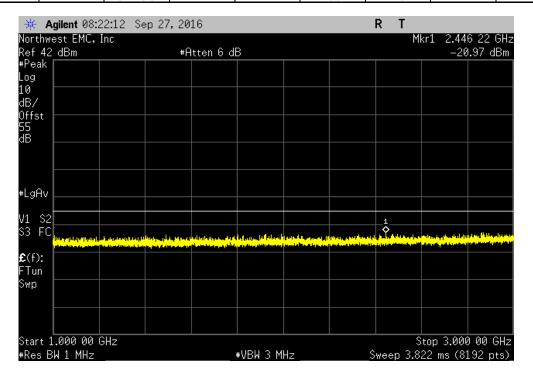






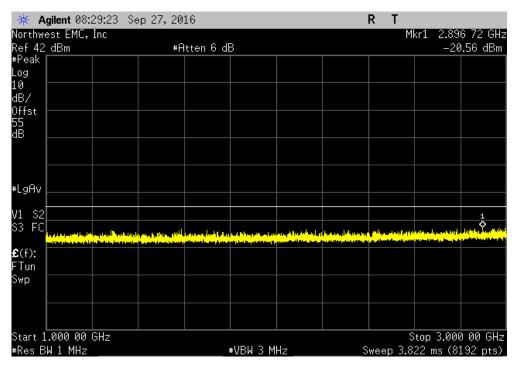


	Antenna Port 2, Low Channel LTE10, 874 MHz							
	Frequency Max Value Limit							
_	Range	(dBm)	≤ (dBm)	Result				
i ſ	1 GHz - 3 GHz	-20.97	-13	Pass				

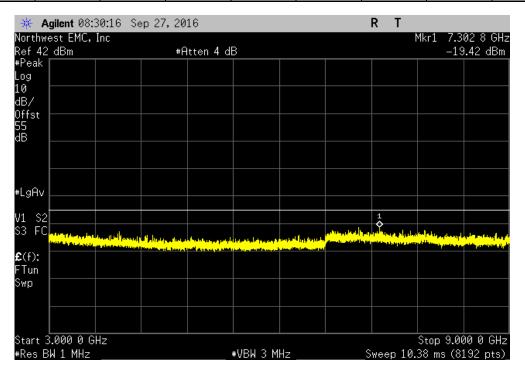




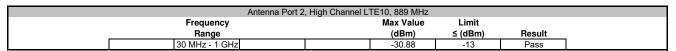
Antenna Port 2, Mid Channel LTE10, 881.5 MHz							
Frequency	Max Value	Limit					
Range	(dBm)	≤ (dBm)	Result				
1 GHz - 3 GHz	-20.56	-13	Pass				

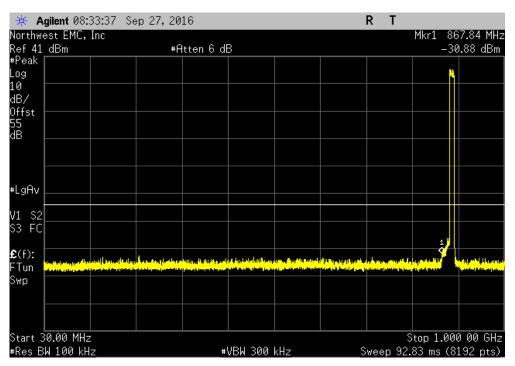


Antenna Port 2, Mid Channel LTE10, 881.5 MHz							
Frequency Max Value Limit							
Range	(dBm)	≤ (dBm)	Result				
3 GHz - 9 GHz	-19.42	-13	Pass				

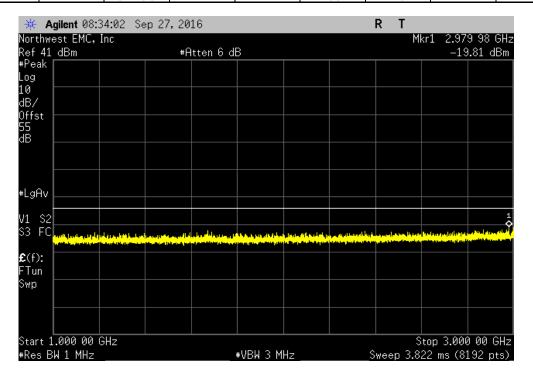






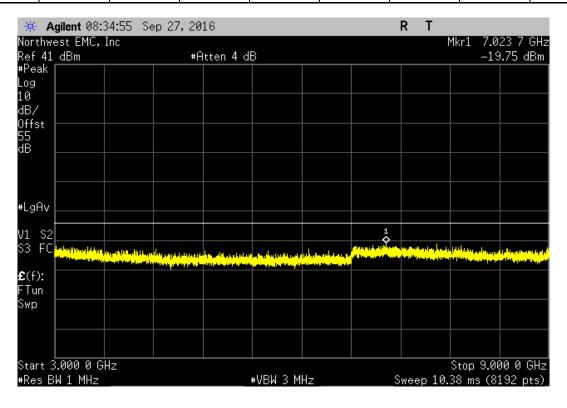


Antenna Port 2, High Channel LTE10, 889 MHz							
	Frequency		Max Value	Limit			
_	Range		(dBm)	≤ (dBm)	Result		
	1 GHz - 3 GHz		-19.81	-13	Pass		





Antenna Port 2, High Channel LTE10, 889 MHz							
Frequency		Max Value	Limit				
Range		(dBm)	≤ (dBm)	Result			
3 GHz - 9 GHz		-19.76	-13	Pass			





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

#### **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Filter - High Pass	Micro-Tronics	HPM50108	HGX	7/25/2016	7/25/2017
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Aeroflex	INMET 8535	AMO	4/4/2016	4/4/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/19/2015	11/19/2016

#### **CLIENT PROVIDED EQUIPMENT**

Description	Manufacturer	Model	Last Cal.	Cal. Due
High Power Attenuator - 30dB	Aeroflex/Weinschel	53-30-43	NCR	NCR
Attenuator - 20dB	N/A	N/A	NCR	NCR
Power Divider	Fairview Microwave	MP8748-2	NCR	NCR
50Ohm Terminator	Aeroflex/Weinschel	1455-4	NCR	NCR
High Power Terminator	Telcon	KTMO400800060	NCR	NCR

#### **TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. Analyzer plots utilizing a 1 MHz resolution bandwidth and no video filtering were made for each mode listed in the datasheet.

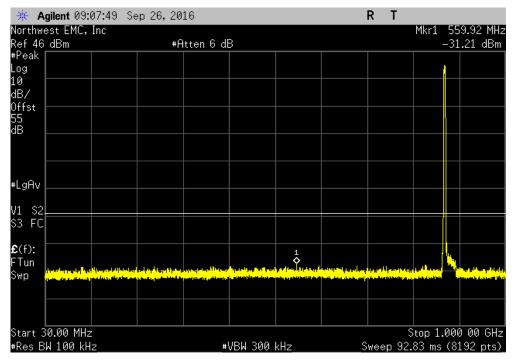
The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, were investigated to ensure they were less than or equal to the limit.



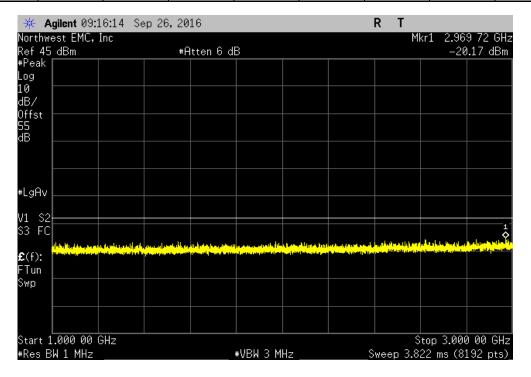
Serial Number:	CWS-3050-05			Work Order:		
	K162600004	•	•		09/26/16	•
Customer:	Parallel Wireless Inc.	<u> </u>		Temperature:	22.3 °C	
Attendees:	Edward Lee			Humidity:	38.4% RH	
Project:	None			Barometric Pres.:	1016 mbar	
	Johnny Candelas		Power: 48VDC	Job Site:	OC13	
TEST SPECIFICATI	IONS		Test Method			
FCC 22H:2016			ANSI/TIA/EIA-603-D-2010			
COMMENTS						
Power Level Settin	g 40W. Reference Level Offset: DC Block + 30di	3 Attenuator + 20dB Attenu	ator + Power Divider + Cable Loss = 5	5.0dB total.		
•	•					
	/I TEST STANDARD					
None						
			1110	·		
Configuration #	1	The s	L. Com			
	Signatu	re J				
			Frequency	Max Value	Limit	_
			Range	(dBm)	≤ (dBm)	Resu
Antenna Port 1						
	Low Channel WCDMA, 871.4 MHz		30 MHz - 1 GHz	-31.21	-13	
	Low Channel WCDMA, 871.4 MHz		1 GHz - 3 GHz	-20.17	-13	Pass Pass
	Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz		1 GHz - 3 GHz 3 GHz - 9 GHz	-20.17 -19.99	-13 -13	Pass
	Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 881.4 MHz		1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz	-20.17 -19.99 -31.49	-13 -13 -13	Pass Pass Pass
	Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz		1 GHz - 3 GHz 3 GHz - 9 GHz	-20.17 -19.99	-13 -13	Pass Pass Pass
	Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 881.4 MHz		1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz	-20.17 -19.99 -31.49	-13 -13 -13	Pass Pass Pass Pass
	Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz		1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz	-20.17 -19.99 -31.49 -20.93	-13 -13 -13 -13	Pass Pass Pass Pass Pass
	Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz		1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 3 GHz - 9 GHz	-20.17 -19.99 -31.49 -20.93 -20.34	-13 -13 -13 -13 -13	Pass Pass Pass Pass Pass Pass
	Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz High Channel WCDMA, 891.6 MHz		1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz	-20.17 -19.99 -31.49 -20.93 -20.34 -31.93	-13 -13 -13 -13 -13	
	Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz High Channel WCDMA, 891.6 MHz High Channel WCDMA, 891.6 MHz		1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz	-20.17 -19.99 -31.49 -20.93 -20.34 -31.93 -20.28	-13 -13 -13 -13 -13 -13	Pass Pass Pass Pass Pass Pass
	Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz High Channel WCDMA, 891.6 MHz High Channel WCDMA, 891.6 MHz		1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz	-20.17 -19.99 -31.49 -20.93 -20.34 -31.93 -20.28	-13 -13 -13 -13 -13 -13	Pass Pass Pass Pass Pass Pass
Antenna Port 2	Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz High Channel WCDMA, 891.6 MHz High Channel WCDMA, 891.6 MHz High Channel WCDMA, 891.6 MHz		1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 3 GHz - 9 GHz	-20.17 -19.99 -31.49 -20.93 -20.34 -31.93 -20.28 -20.48	-13 -13 -13 -13 -13 -13 -13 -13	Pass Pass Pass Pass Pass Pass Pass
Antenna Port 2	Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz High Channel WCDMA, 891.6 MHz High Channel WCDMA, 891.6 MHz High Channel WCDMA, 891.6 MHz		1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 3 GHz - 9 GHz	-20.17 -19.99 -31.49 -20.93 -20.34 -31.93 -20.28 -20.48	-13 -13 -13 -13 -13 -13 -13 -13	Pass Pass Pass Pass Pass Pass Pass Pass
Antenna Port 2	Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz High Channel WCDMA, 891.6 MHz High Channel WCDMA, 891.6 MHz High Channel WCDMA, 891.6 MHz Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz		1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz	-20.17 -19.99 -31.49 -20.93 -20.34 -31.93 -20.28 -20.48	-13 -13 -13 -13 -13 -13 -13 -13 -13	Pass Pass Pass Pass Pass Pass Pass Pass
Antenna Port 2	Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz High Channel WCDMA, 891.6 MHz High Channel WCDMA, 891.6 MHz High Channel WCDMA, 891.6 MHz Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 871.4 MHz		1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 3 GHz - 3 GHz 30 GHz - 9 GHz	-20.17 -19.99 -31.49 -20.93 -20.34 -31.93 -20.28 -20.48	-13 -13 -13 -13 -13 -13 -13 -13 -13 -13	Pass Pass Pass Pass Pass Pass Pass Pass
Antenna Port 2	Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.6 MHz High Channel WCDMA, 891.6 MHz High Channel WCDMA, 891.6 MHz Low Channel WCDMA, 891.6 MHz Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz		1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 3 GHz - 9 GHz 3 GHz - 9 GHz 3 GHz - 9 GHz 3 GHz - 1 GHz 1 GHz - 3 GHz 3 GHz - 1 GHz	-20.17 -19.99 -31.49 -20.93 -20.34 -31.93 -20.28 -20.48 -31.38 -20.43 -20.29 -31.27 -20.14	-13 -13 -13 -13 -13 -13 -13 -13 -13 -13	Pass Pass Pass Pass Pass Pass Pass Pass
Antenna Port 2	Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz High Channel WCDMA, 891.6 MHz High Channel WCDMA, 891.6 MHz High Channel WCDMA, 891.6 MHz Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 881.4 MHz		1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 30 MHz - 1 GHz 30 MHz - 1 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 30 MHz - 1 GHz 30 MHz - 3 GHz 30 MHz - 3 GHz 30 GHz - 9 GHz	-20.17 -19.99 -31.49 -20.93 -20.34 -31.93 -20.28 -20.48 -31.38 -20.43 -20.29 -31.27 -20.14 -20.13	-13 -13 -13 -13 -13 -13 -13 -13 -13 -13	Passi Passi Passi Passi Passi Passi Passi Passi Passi Passi
Antenna Port 2	Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.6 MHz High Channel WCDMA, 891.6 MHz High Channel WCDMA, 891.6 MHz Low Channel WCDMA, 891.6 MHz Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Low Channel WCDMA, 871.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz Mid Channel WCDMA, 881.4 MHz		1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 3 GHz - 9 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 30 MHz - 1 GHz 1 GHz - 3 GHz 3 GHz - 9 GHz 3 GHz - 9 GHz 3 GHz - 9 GHz 3 GHz - 1 GHz 1 GHz - 3 GHz 3 GHz - 1 GHz	-20.17 -19.99 -31.49 -20.93 -20.34 -31.93 -20.28 -20.48 -31.38 -20.43 -20.29 -31.27 -20.14	-13 -13 -13 -13 -13 -13 -13 -13 -13 -13	Pass Pass Pass Pass Pass Pass Pass Pass



	Antenna Port 1, Low Channel WC	DMA, 871.4 MHz				
Frequency	Frequency Max Value Limit					
Range		(dBm)	≤ (dBm)	Result		
30 MHz - 1 G	Hz	-31.21	-13	Pass		

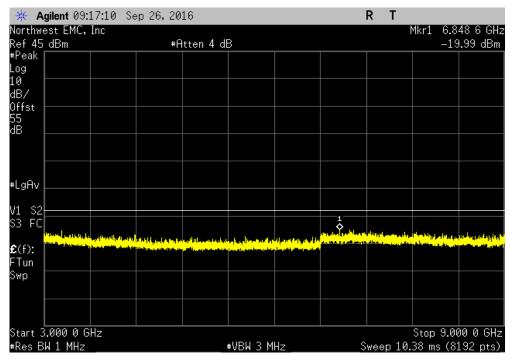


Antenna Port 1, Low Channel WCDMA, 871.4 MHz						
Frequency Max Value Limit						
Range	(dBm)	≤ (dBm)	Result			
1 GHz - 3 GHz	-20.17	-13	Pass			

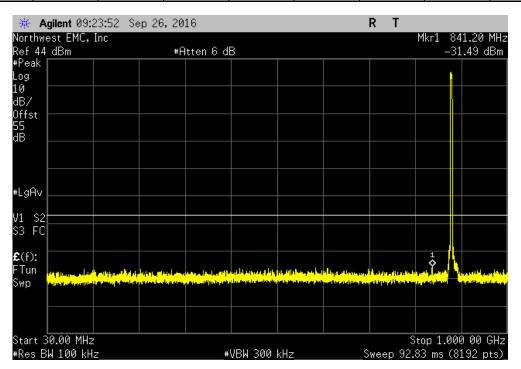




Antenna Port 1,	Low Channel WCDMA, 871.4 MHz	!			
Frequency Max Value Limit					
Range	(dBm)	≤ (dBm)	Result		
3 GHz - 9 GHz	-19.99	-13	Pass		

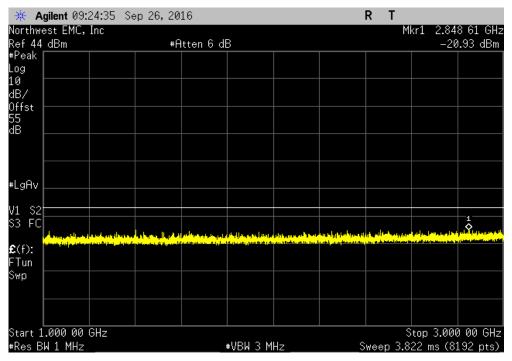


Antenna Port 1, Mid Channel WCDMA, 881.4 MHz						
	Frequency Max Value Limit					
	Range		(dBm)	≤ (dBm)	Result	
	30 MHz - 1 GHz		-31.49	-13	Pass	

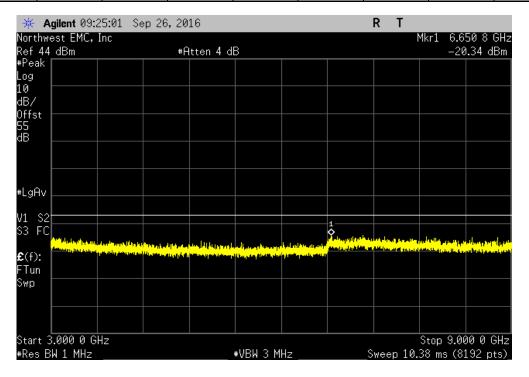




Antenna Port 1	, Mid Channel WCDMA, 881.4 MHz				
Frequency Max Value Limit					
Range	(dBm)	≤ (dBm)	Result		
1 GHz - 3 GHz	-20.93	-13	Pass		

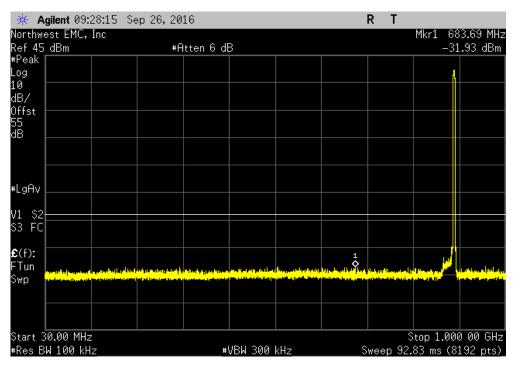


	Antenna Port 1, Mid Channel WCDMA, 881.4 MHz						
	Frequency Max Value Limit						
_	Range		(dBm)	≤ (dBm)	Result		
l	3 GHz - 9 GHz		-20.34	-13	Pass		

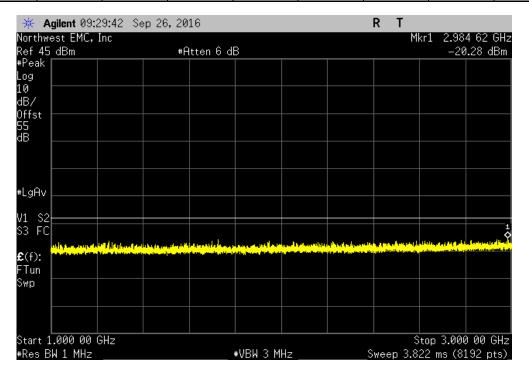




Antenna Port 1, High Channel WCDMA, 891.6 MHz						
Frequency	Max Value	Limit				
Range	(dBm)	≤ (dBm)	Result			
30 MHz - 1 GHz	-31.93	-13	Pass			

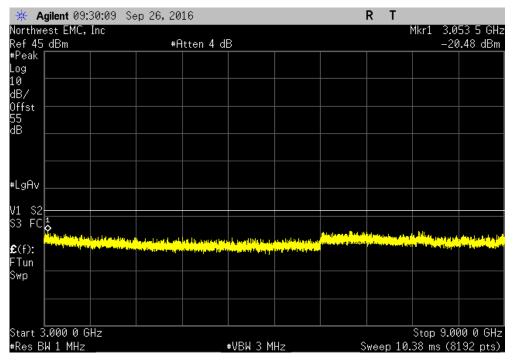


Antenna Port 1, High Channel WCDMA, 891.6 MHz						
Frequency Max Value Limit						
Range	(dBm)	≤ (dBm)	Result			
1 GHz - 3 GHz	-20.28	-13	Pass			

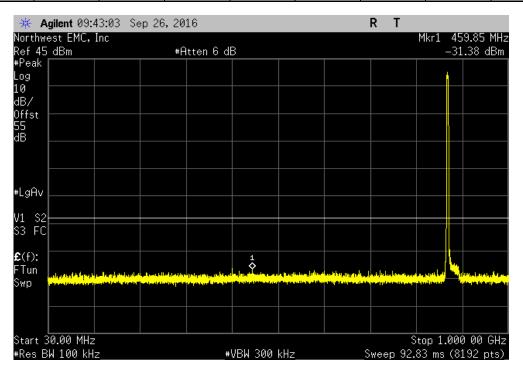




Antenna Port 1, High Channel WCDMA, 891.6 MHz							
	Frequency		Max Value	Limit			
	Range		(dBm)	≤ (dBm)	Result		
	3 GHz - 9 GHz		-20.48	-13	Pass		

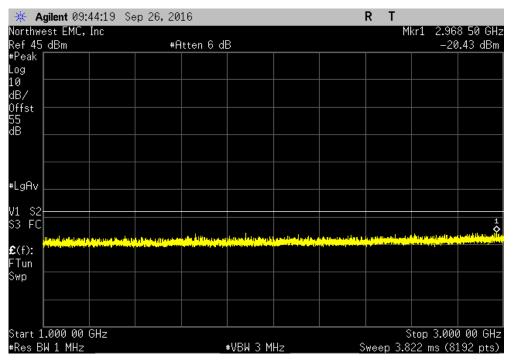


Antenna Port 2, Low Channel WCDMA, 871.4 MHz						
Frequency Max Value Limit						
Range		(dBm)	≤ (dBm)	Result		
30 MHz - 1 GHz		-31.38	-13	Pass		

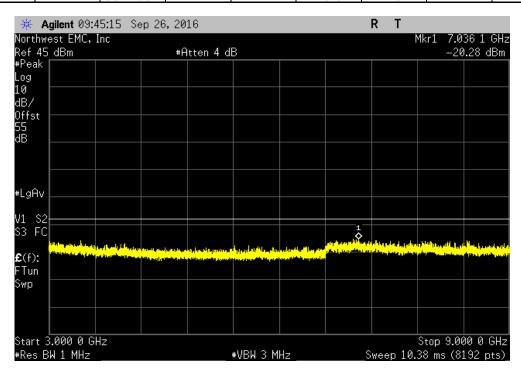




Antenna Port 2, Low Channel WCDMA, 871.4 MHz							
Frequen	у		Max Value	Limit			
Range			(dBm)	≤ (dBm)	Result		
1 GHz - 3 (	iHz		-20.43	-13	Pass		

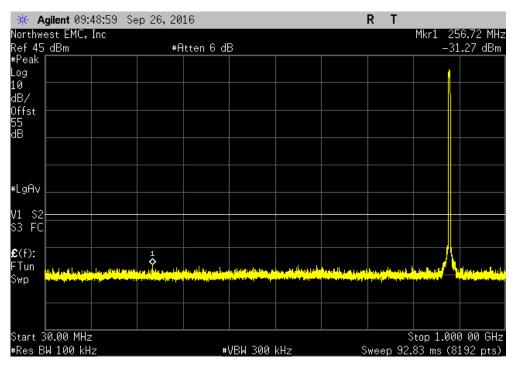


	Antenna Port 2, Low Channel WCDMA, 871.4 MHz				
	Frequency	N	Max Value	Limit	
	Range		(dBm)	≤ (dBm)	Result
i	3 GHz - 9 GHz		-20.29	-13	Pass

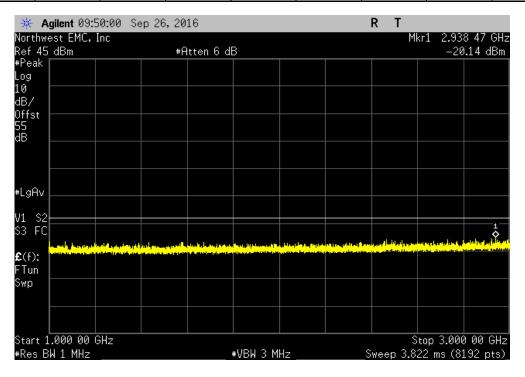




Antenna Port 2, Mid Channel WCDMA, 881.4 MHz				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
30 MHz - 1 GHz	-31.27	-13	Pass	Í

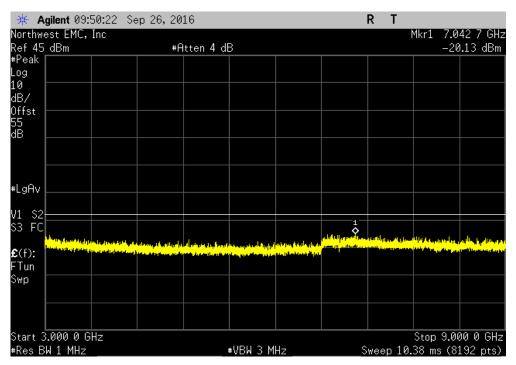


Antenna Port 2, Mid Channel WCDMA, 881.4 MHz				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
1 GHz - 3 GHz	-20.14	-13	Pass	

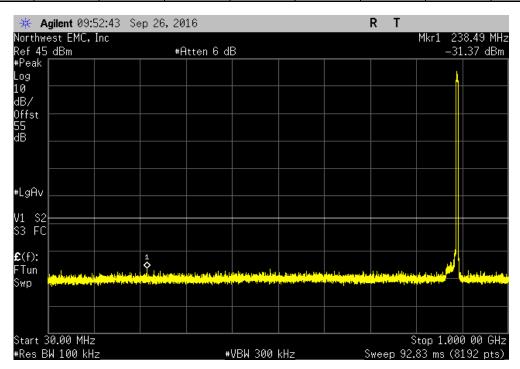




Antenna Port 2, Mid Channel WCDMA, 881.4 MHz					
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
3 GHz - 9 GHz		-20.13	-13	Pass	l



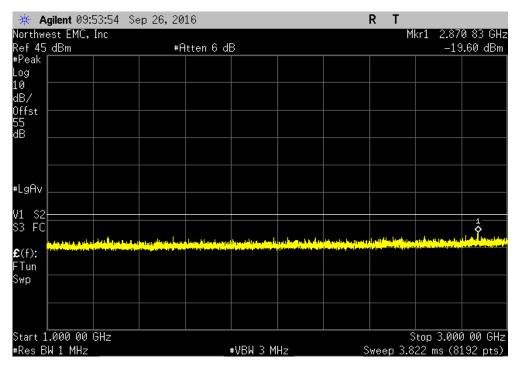
Antenna Port 2, High Channel WCDMA, 891.6 MHz					
	Frequency		Max Value	Limit	
_	Range		(dBm)	≤ (dBm)	Result
l	30 MHz - 1 GHz		-31.37	-13	Pass



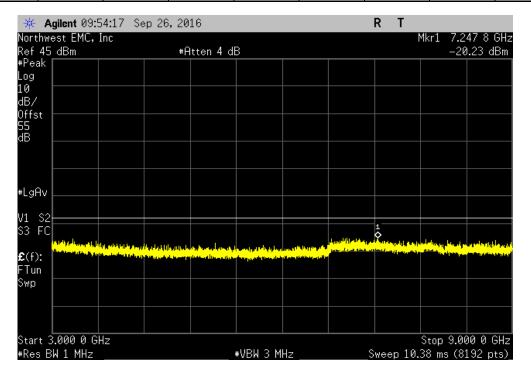
# SPURIOUS EMISSIONS AT THE ANTENNA TERMINAL - WCDMA



Antenna Port 2, High Channel WCDMA, 891.6 MHz					
Frequency Max \			Limit		
Range		(dBm)	≤ (dBm)	Result	
1 GHz - 3 GHz		-19.6	-13	Pass	



	Antenna Port 2, High Channel WCDMA, 891.6 MHz						
	Frequency		Max Value	Limit			
_	Range		(dBm)	≤ (dBm)	Result		
l	3 GHz - 9 GHz		-20.23	-13	Pass		





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

#### **TEST EQUIPMENT**

1201 20011 1112111					
Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Filter - High Pass	Micro-Tronics	HPM50108	HGX	7/25/2016	7/25/2017
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Aeroflex	INMET 8535	AMO	4/4/2016	4/4/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/19/2015	11/19/2016

#### **CLIENT PROVIDED EQUIPMENT**

Description	Manufacturer	Model	Last Cal.	Cal. Due
High Power Attenuator - 30dB	Aeroflex/Weinschel	53-30-43	NCR	NCR
Attenuator - 20dB	N/A	N/A	NCR	NCR
Power Divider	Fairview Microwave	MP8748-2	NCR	NCR
50Ohm Terminator	Aeroflex/Weinschel	1455-4	NCR	NCR
High Power Terminator	Telcon	KTMO400800060	NCR	NCR

#### **TEST DESCRIPTION**

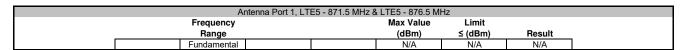
The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. Analyzer plots utilizing a 1 MHz resolution bandwidth and no video filtering were made for each mode listed in the datasheet.

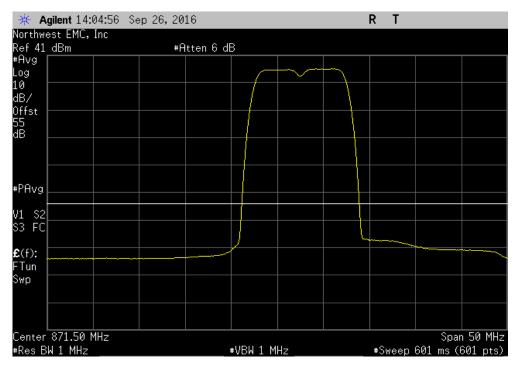
The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, were investigated to ensure they were less than or equal to the limit.



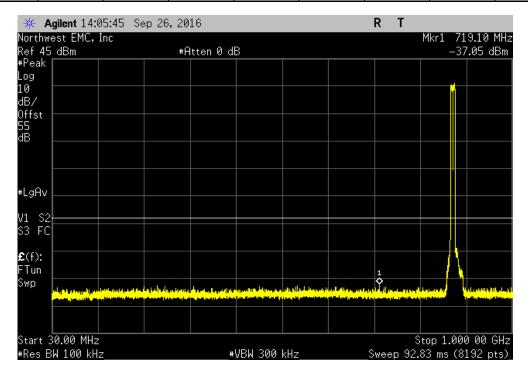
	CWS-3050-05			Work Order:	KMWC0071	
Serial Number:					09/26/16	
	Parallel Wireless Inc.			Temperature:		·
	Edward Lee			Humidity:		
Project:			n leaves	Barometric Pres.:		
	Johnny Candelas		Power: 48VDC	Job Site:	OC13	
TEST SPECIFICATI	UNS		Test Method			
FCC 22H:2016			ANSI/TIA/EIA-603-D-2010			
COMMENTS						
COMMENTS  Power Level Settin	g 40W. Reference Level O	ffset: DC Block + 30dB Atter	nuator + 20dB Attenuator + Power Divider + Cable Loss = 55.0dB	total.		
TOWER LEVEL CERTIFIC	g 40W. Helefelloc Level O	Hock Do Block + coub Atter	idator + 2005 Attendator + 1 Ower Bivider + Ouble 2005 = 00.005	iotai.		
DEVIATIONS EDON	// TEST STANDARD					
None	I ILOI STANDAND					
			for d. later			
Configuration #	1		Je d. Colle			
		Signature				
			Frequency	Max Value	Limit	
			Range	(dBm)	≤ (dBm)	Result
Antenna Port 1						
	LTE5 - 871.5 MHz & LTE5		Fundamental	N/A	N/A	N/A
	LTE5 - 871.5 MHz & LTE5		30 MHz - 1 GHz	-37.05	-13	Pass
	LTE5 - 871.5 MHz & LTE5		1 GHz - 3 GHz	-26.27	-13	Pass
	LTE5 - 871.5 MHz & LTE5		3 GHz - 9 GHz Fundamental	-23.74 N/A	-13 N/A	Pass N/A
	LTE5 - 871.5 MHz & LTE5 LTE5 - 871.5 MHz & LTE5		30 MHz - 1 GHz	N/A -29.22	-13	Pass
	LTE5 - 871.5 MHz & LTE5		1 GHz - 3 GHz	-29.22 -26.52	-13 -13	Pass
	LTE5 - 871.5 MHz & LTE5		3 GHz - 9 GHz	-26.52	-13 -13	Pass
	LTE5 - 871.5 MHz & LTE10		Fundamental	N/A	N/A	N/A
	LTE5 - 871.5 MHz & LTE10		30 MHz - 1 GHz	-29.16	-13	Pass
	LTE5 - 871.5 MHz & LTE10		1 GHz - 3 GHz	-26.01	-13	Pass
	LTE5 - 871.5 MHz & LTE10		3 GHz - 9 GHz	-23.7	-13	Pass
	WCDMA - 871.4 MHz & W		Fundamental	N/A	N/A	N/A
	WCDMA - 871.4 MHz & W	CDMA - 891.6 MHz	30 MHz - 1 GHz	-25.68	-13	Pass
	WCDMA - 871.4 MHz & W	CDMA - 891.6 MHz	1 GHz - 3 GHz	-26.57	-13	Pass
	WCDMA - 871.4 MHz & W	CDMA - 891.6 MHz	3 GHz - 9 GHz	-23.8	-13	Pass
	LTE5 - 871.5 MHz & WCD		Fundamental	N/A	N/A	N/A
	LTE5 - 871.5 MHz & WCD		30 MHz - 1 GHz	-28.91	-13	Pass
	LTE5 - 871.5 MHz & WCD		1 GHz - 3 GHz	-26.42	-13	Pass
	LTE5 - 871.5 MHz & WCD		3 GHz - 9 GHz	-23.37	-13	Pass
	LTE10 - 874 MHz & WCDN		Fundamental	N/A	N/A	N/A
	LTE10 - 874 MHz & WCDN		30 MHz - 1 GHz	-29.86	-13	Pass
	LTE10 - 874 MHz & WCDN LTE10 - 874 MHz & WCDN		1 GHz - 3 GHz 3 GHz - 9 GHz	-26.83 -24.1	-13 -13	Pass Pass
Antenna Port 2	LIE 10 - 0/4 WITZ & WCDN	VIA - 09 1.0 IVIDZ	3 GUZ - A GUZ	-24.1	-13	Pass
	LTE5 - 871.5 MHz & LTE5	- 876.5 MHz	Fundamental	N/A	N/A	N/A
	LTE5 - 871.5 MHz & LTE5		30 MHz - 1 GHz	-37.31	-13	Pass
	LTE5 - 871.5 MHz & LTE5		1 GHz - 3 GHz	-26.22	-13	Pass
	LTE5 - 871.5 MHz & LTE5		3 GHz - 9 GHz	-24.1	-13	Pass
	LTE5 - 871.5 MHz & LTE5		Fundamental	N/A	N/A	N/A
	LTE5 - 871.5 MHz & LTE5		30 MHz - 1 GHz	-30.65	-13	Pass
	LTE5 - 871.5 MHz & LTE5		1 GHz - 3 GHz	-25.85	-13	Pass
	LTE5 - 871.5 MHz & LTE5		3 GHz - 9 GHz	-24	-13	Pass
	LTE5 - 871.5 MHz & LTE10		Fundamental	N/A	N/A	N/A
	LTE5 - 871.5 MHz & LTE10		30 MHz - 1 GHz	-30.48	-13	Pass
	LTE5 - 871.5 MHz & LTE10		1 GHz - 3 GHz 3 GHz - 9 GHz	-26.34 -23.28	-13	Pass
	LTE5 - 871.5 MHz & LTE10 WCDMA - 871.4 MHz & W		3 GHz - 9 GHz Fundamental	-23.28 N/A	-13 N/A	Pass
	WCDMA - 871.4 MHz & W WCDMA - 871.4 MHz & W		30 MHz - 1 GHz	N/A -27.1	-13	N/A Pass
	WCDMA - 871.4 MHz & W		1 GHz - 3 GHz	-27.1	-13 -13	Pass
	WCDMA - 871.4 MHz & W		3 GHz - 9 GHz	-24.46	-13	Pass
	LTE5 - 871.5 MHz & WCDI		Fundamental	N/A	N/A	N/A
	LTE5 - 871.5 MHz & WCD		30 MHz - 1 GHz	-27.92	-13	Pass
	LTE5 - 871.5 MHz & WCDI		1 GHz - 3 GHz	-26.34	-13	Pass
	LTE5 - 871.5 MHz & WCD		3 GHz - 9 GHz	-24.37	-13	Pass
	LTE10 - 874 MHz & WCDN		Fundamental	N/A	N/A	N/A
	LTE10 - 874 MHz & WCDN		30 MHz - 1 GHz	-30.43	-13	Pass
	LTE10 - 874 MHz & WCDN	MA - 891.6 MHz	1 GHz - 3 GHz	-26.36	-13	Pass
	LTE10 - 874 MHz & WCDN	MA - 891.6 MHz	3 GHz - 9 GHz	-24.21	-13	Pass





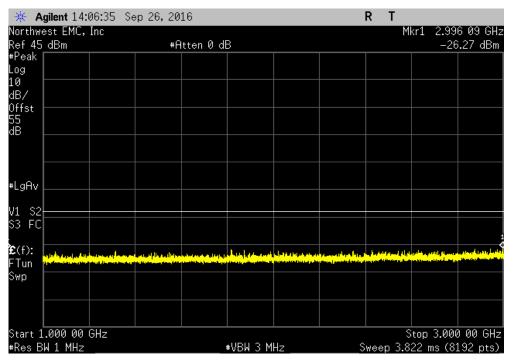


Antenna Port 1, LTE5 - 871.5 MHz & LTE5 - 876.5 MHz						
	Frequency		Max Value	Limit		
_	Range		(dBm)	≤ (dBm)	Result	
l	30 MHz - 1 GHz		-37.05	-13	Pass	

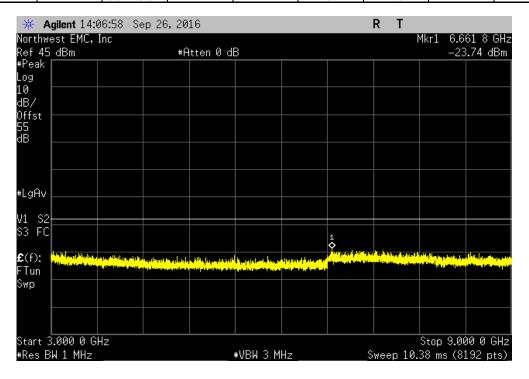




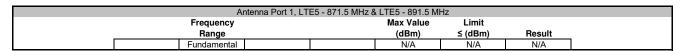
Antenna Port 1, LTE5 - 871	.5 MHz & LTE5 - 876.5 MHz	7	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
1 GHz - 3 GHz	-26.27	-13	Pass

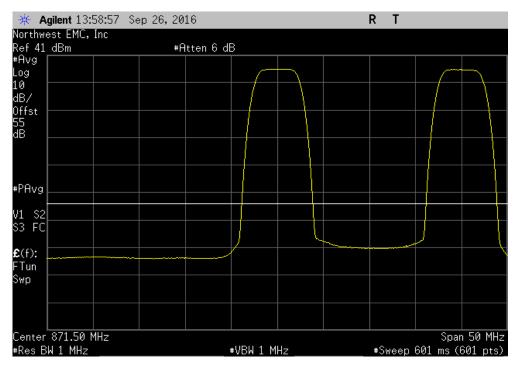


Antenna Port 1, LTE5 - 871.5 MHz & LTE5 - 876.5 MHz						
Frequency		Max Value	Limit			
Range		(dBm)	≤ (dBm)	Result		
3 GHz - 9 GHz		-23.74	-13	Pass		

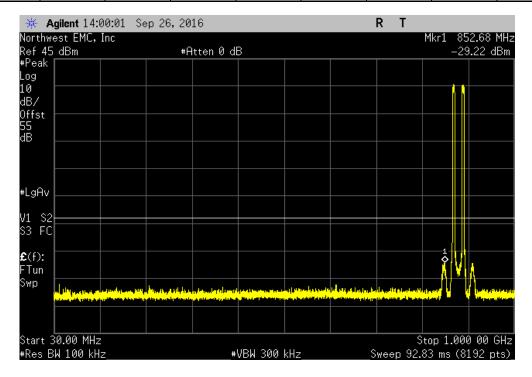






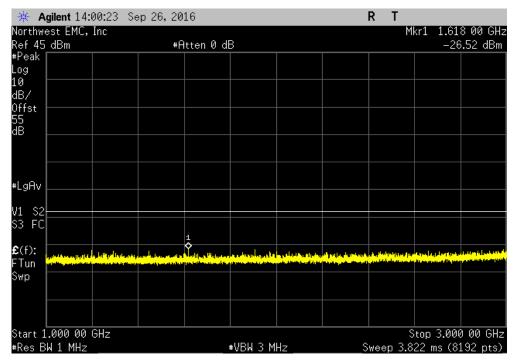


Antenna Port 1, LTE5 - 871.5 MHz & LTE5 - 891.5 MHz						
Frequency		Max Value	Limit			
Range		(dBm)	≤ (dBm)	Result		
30 MHz - 1 GHz		-29.22	-13	Pass		

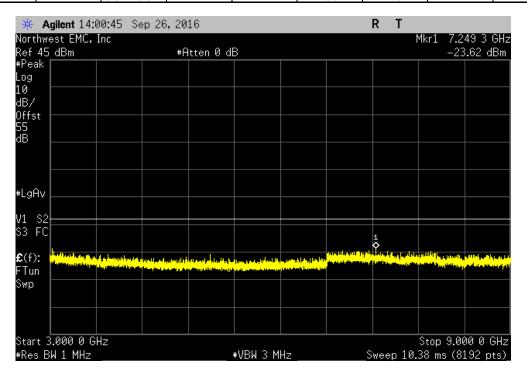




Antenna Port 1, LTE5 - 871.5 MHz & LTE5 - 891.5 MHz							
	Frequency		Max Value	Limit			
	Range		(dBm)	≤ (dBm)	Result		
	1 GHz - 3 GHz		-26.52	-13	Pass		

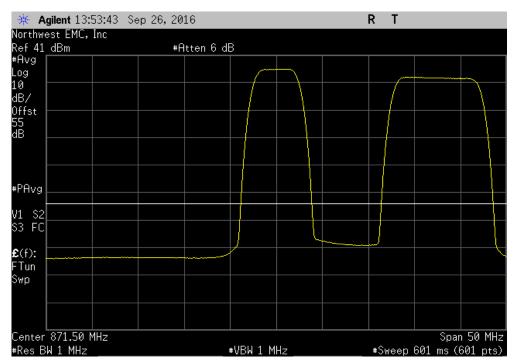


Antenna Port 1, LTE5 - 871.5 MHz & LTE5 - 891.5 MHz						
Frequency	Max Value	Limit				
Range	(dBm)	≤ (dBm)	Result			
3 GHz - 9 GHz	-23.62	-13	Pass			

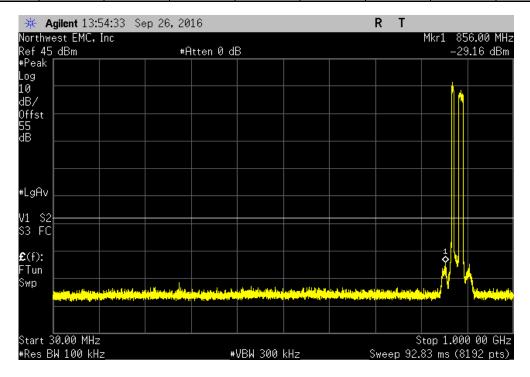




Antenna Port 1, LTE5 - 871.5 MHz & LTE10 - 889 MHz							
Frequency	Max Value	Limit					
Range	(dBm)	≤ (dBm)	Result				
Fundamental	N/A	N/A	N/A				

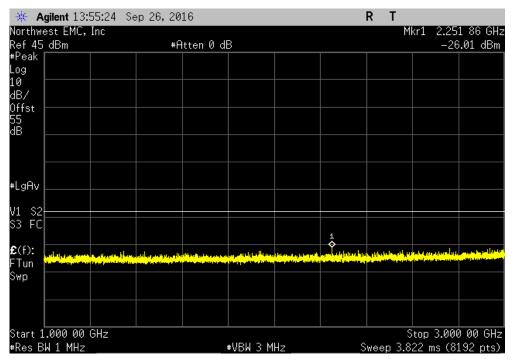


Antenna Port 1, L	TE5 - 871.5 MHz	& LTE10 - 889 MF	łz		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
30 MHz - 1 GHz		-29.16	-13	Pass	

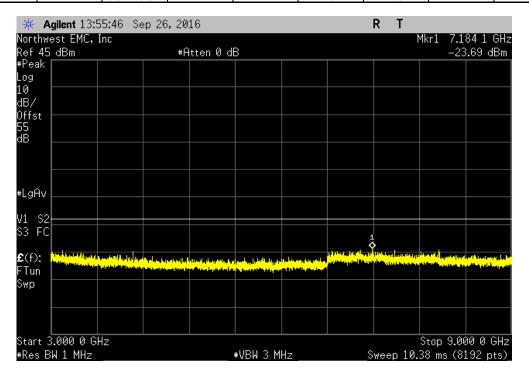




	Antenna Port 1, LT	E5 - 871.5 MHz &	LTE10 - 889 MH	Hz	
_	,	0, 1,0 1,11 12 0,			
Freguer	CV		Max Value	Limit	
B	•		(-ID)	< (JD)	D It
Range			(dBm)	≤ (dBm)	Result
1 GHz - 3	CH7		-26.01	_13	Pass
			-26.01		

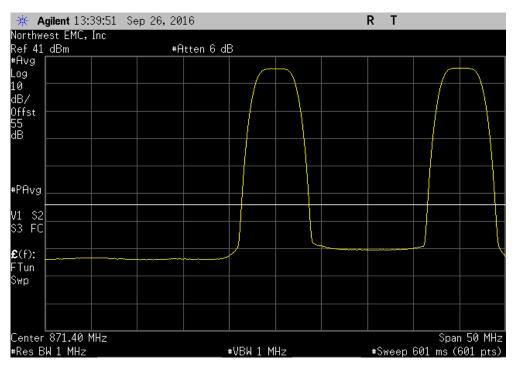


Antenna Port 1, L	ΓΕ5 - 871.5 MHz δ	& LTE10 - 889 MF	Ηz	
Frequency		Max Value	Limit	
 Range		(dBm)	≤ (dBm)	Result
3 GHz - 9 GHz		-23.7	-13	Pass

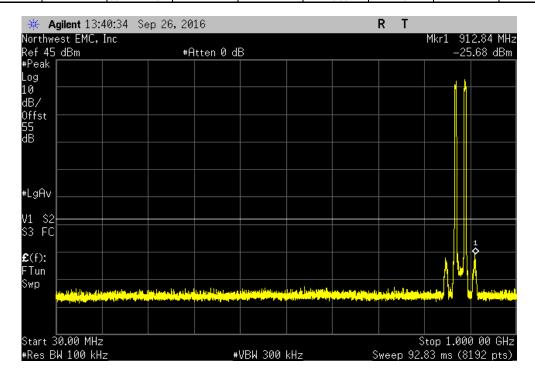




Antenna Port 1, WCDMA - 871.4 MHz & WCDMA - 891.6 MHz					
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
Fundamental		N/A	N/A	N/A	

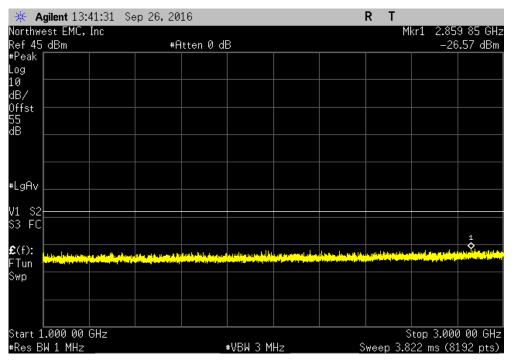


Antenna Port 1, WCDMA - 871.4 MHz & WCDMA - 891.6 MHz				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
30 MHz - 1 GHz	-25.68	-13	Pass	

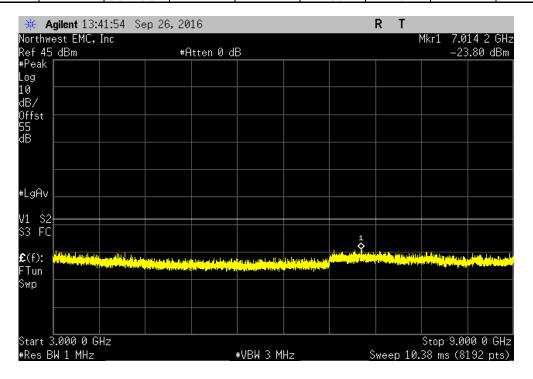




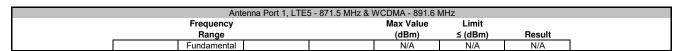
Antenna Port 1, WCDMA	- 871.4 MHz & WCDMA - 891.6	MHz	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
1 GHz - 3 GHz	-26.57	-13	Pass

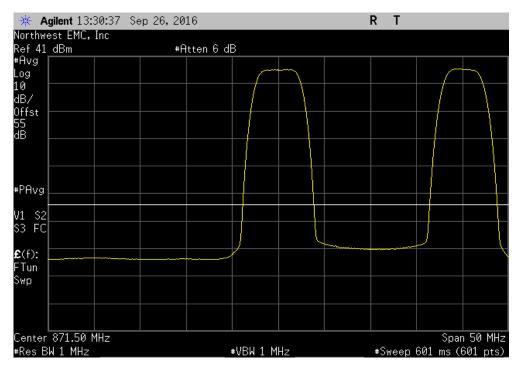


Antenna Port 1, WCDMA - 871.4 MHz & WCDMA - 891.6 MHz				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
3 GHz - 9 GHz	-23.8	-13	Pass	

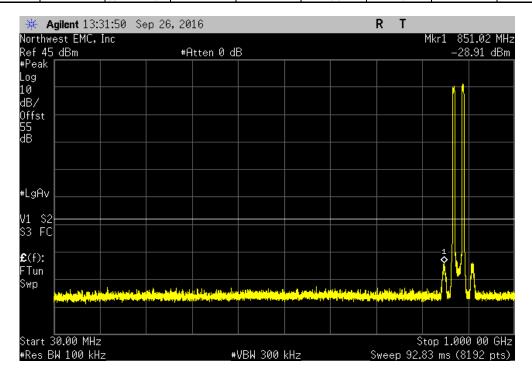






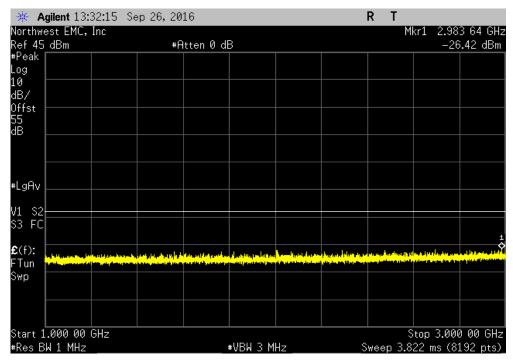


Antenna Port 1, LTE5 - 871.5 MHz & WCDMA - 891.6 MHz				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
30 MHz - 1 GHz	-28.91	-13	Pass	

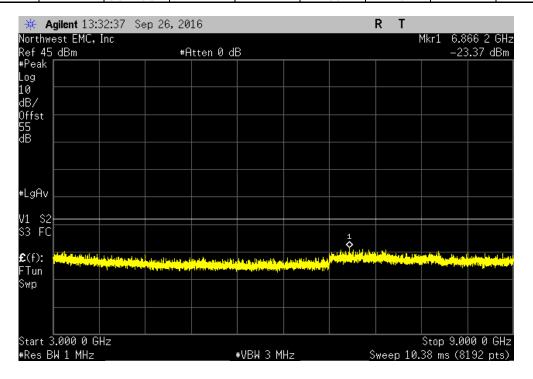




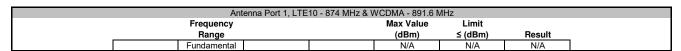
Antenna Port 1, LTE	5 - 871.5 MHz & \	WCDMA - 891.6 N	ЛHz		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
1 GHz - 3 GHz		-26.42	-13	Pass	

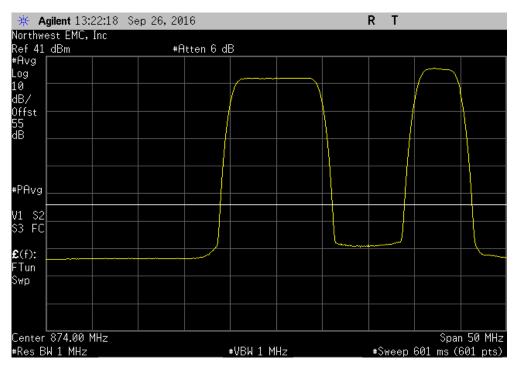


	Antenna Port 1, LTE5 - 871.5 MHz & WCDMA - 891.6 MHz				
	Frequency		Max Value	Limit	
	Range		(dBm)	≤ (dBm)	Result
1	3 GHz - 9 GHz		-23.37	-13	Pass

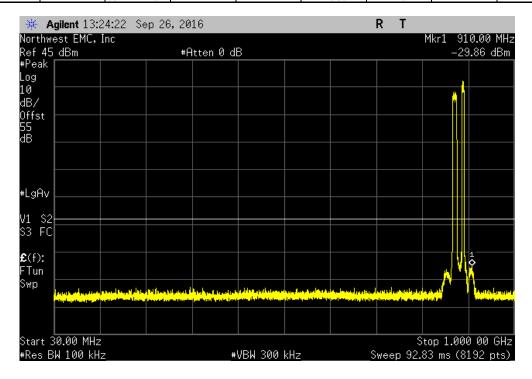






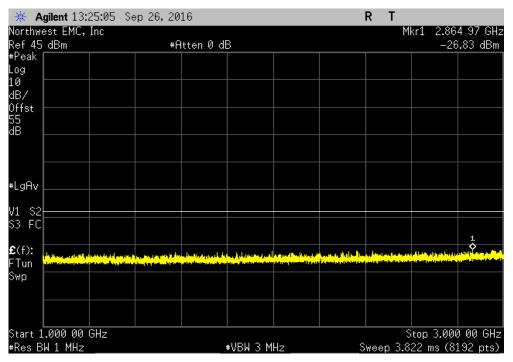


Antenna Port 1, LTE10 - 874 MHz & WCDMA - 891.6 MHz				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
30 MHz - 1 GHz	-29.86	-13	Pass	

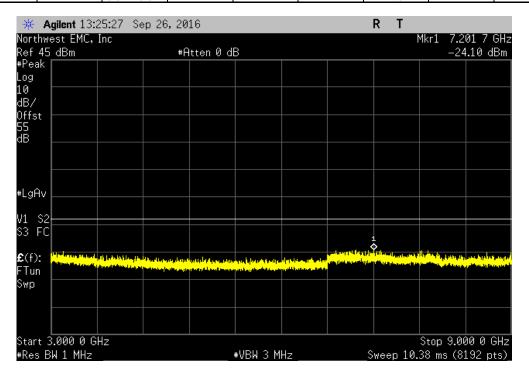




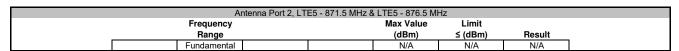
Antenna Port 1, LTE10 - 874 MHz & WCDMA - 891.6 MHz				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
1 GHz - 3 GHz	-26.83	-13	Pass	

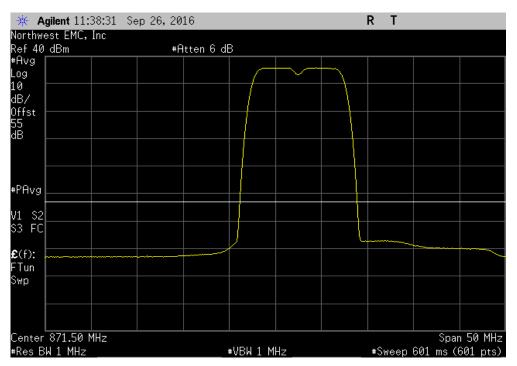


Antenna Port 1, LTE10 - 874 MHz & WCDMA - 891.6 MHz					
	Frequency		Max Value	Limit	
	Range		(dBm)	≤ (dBm)	Result
	3 GHz - 9 GHz		-24.1	-13	Pass

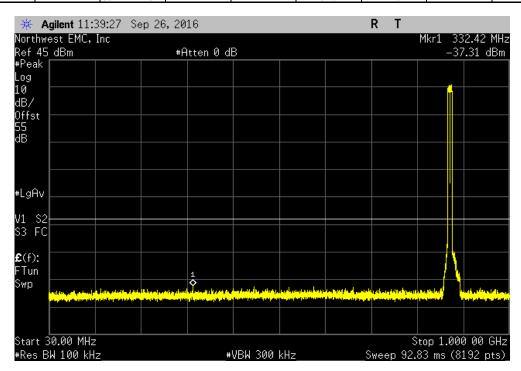






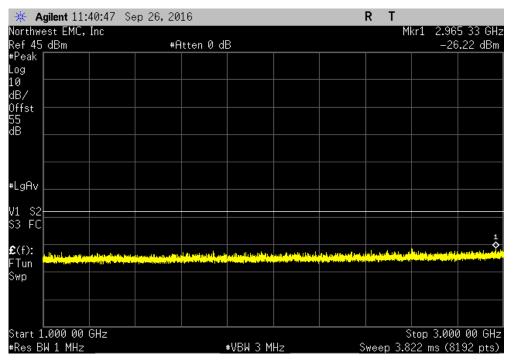


Antenna Port 2, LTE5 - 871.5 MHz & LTE5 - 876.5 MHz					
Frequency	Max Value	Limit			
Range	(dBm)	≤ (dBm)	Result		
30 MHz - 1 GHz	-37.31	-13	Pass		

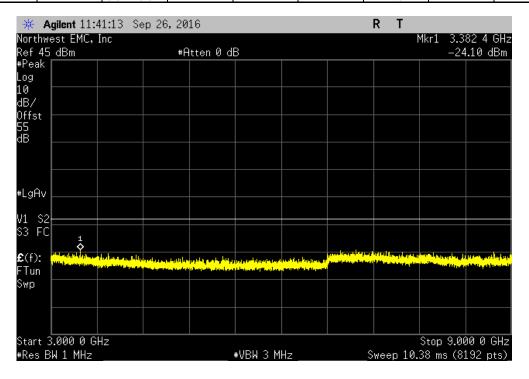




Antenna Port 2, LTE5 - 871.5 MHz & LTE5 - 876.5 MHz						
Frequency	Max Value	Limit				
Range	(dBm)	≤ (dBm)	Result			
1 GHz - 3 GHz	200.00	12	D			
I I GHZ - 3 GHZ I	-26.22	-13	Pass			

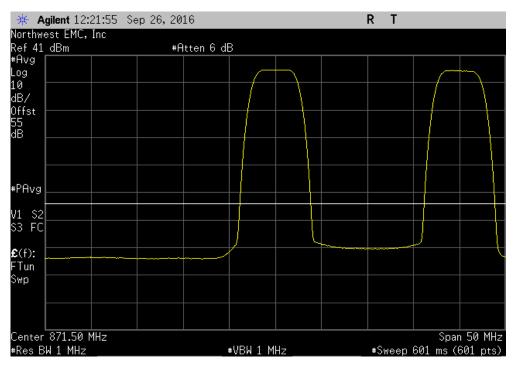


Antenna Port 2, LTE5 - 871.5 MHz & LTE5 - 876.5 MHz					
	Frequency		Max Value	Limit	
	Range		(dBm)	≤ (dBm)	Result
	3 GHz - 9 GHz		-24.1	-13	Pass

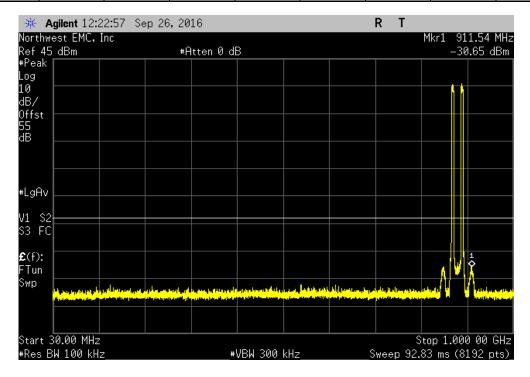




Antenna Port 2, LTE5 - 871.5 MHz & LTE5 - 891.5 MHz					
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
Fundamental		N/A	N/A	N/A	i

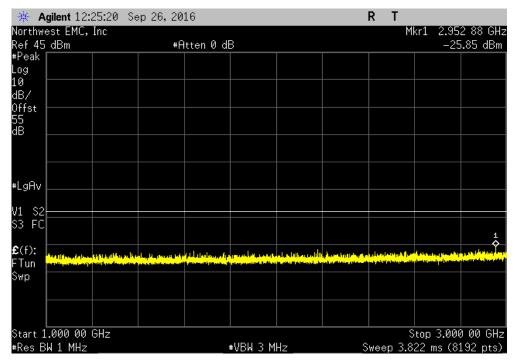


Antenna Port 2, LTE5 - 871.5 MHz & LTE5 - 891.5 MHz					
	Frequency		Max Value	Limit	
_	Range		(dBm)	≤ (dBm)	Result
l	30 MHz - 1 GHz		-30.65	-13	Pass

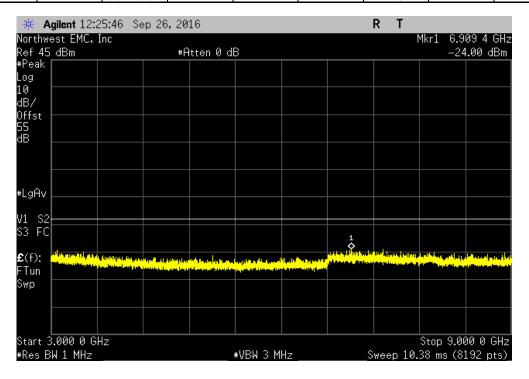




Antenna Port 2, LTE5 - 871.5 MHz & LTE5 - 891.5 MHz						
	Frequency		Max Value	Limit		
	Range		(dBm)	≤ (dBm)	Result	
	1 GHz - 3 GHz		-25.85	-13	Pass	

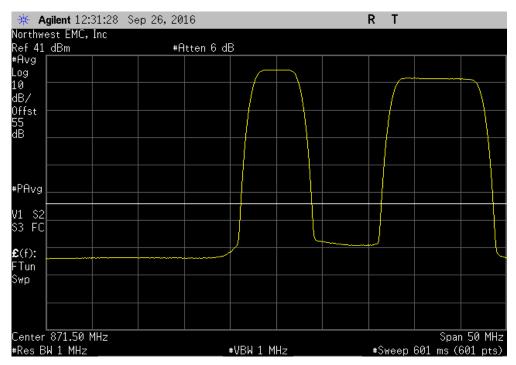


Antenna Port 2, LTE5 - 871.5 MHz & LTE5 - 891.5 MHz					
Frequency	Max Value	Limit			
Range	(dBm)	≤ (dBm)	Result		
3 GHz - 9 GHz	-24	-13	Pass		

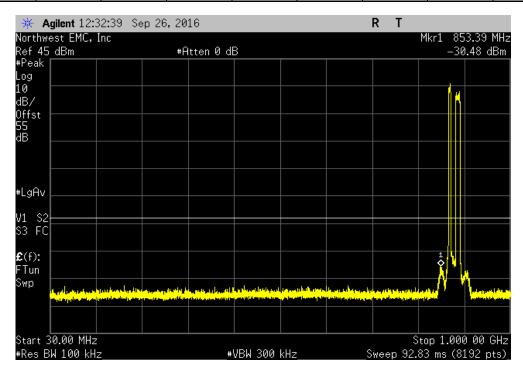




Antenna Port 2, LTE5 - 871.5 MHz & LTE10 - 889 MHz					
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
Fundamental		N/A	N/A	N/A	1

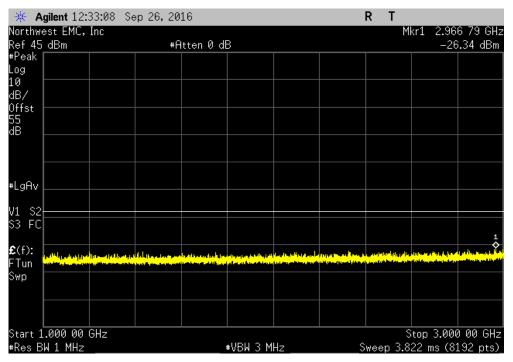


Antenna Port 2, LTE5 - 871.5 MHz & LTE10 - 889 MHz					
	Frequency		Max Value	Limit	
_	Range		(dBm)	≤ (dBm)	Result
l	30 MHz - 1 GHz		-30.48	-13	Pass

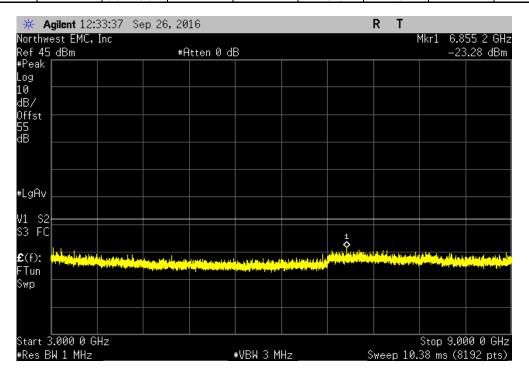




Antenna Port 2. LTE5 - 871.5 MHz & LTE10 - 889 MHz						
	Frequency	Max Value	Limit			
	Range	(dBm)	≤ (dBm)	Result		
_	nalige	(ubili)	≥ (ubiii)	nesuit		
	1 GHz - 3 GHz	-26.34	-13	Pass		

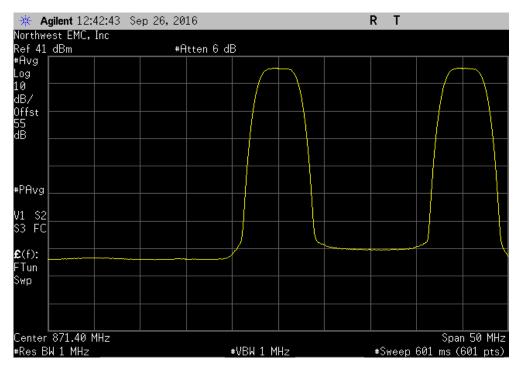


Antenna Port 2, LTE5 - 871.5 MHz & LTE10 - 889 MHz					
	Frequency		Max Value	Limit	
	Range		(dBm)	≤ (dBm)	Result
1	3 GHz - 9 GHz		-23.28	-13	Pass

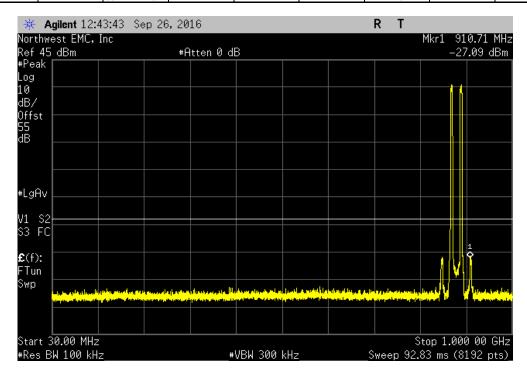




Antenna Port 2, WCDMA	A - 871.4 MHz & WCDMA - 891.6	6 MHz	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
Fundamental	N/A	N/A	N/A

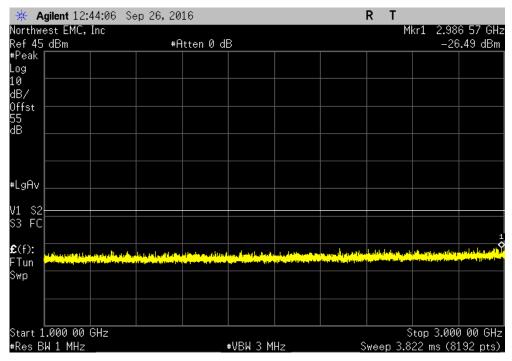


Antenna Port 2, WCDMA - 871.4 MHz & WCDMA - 891.6 MHz				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
30 MHz - 1 GHz	-27.1	-13	Pass	

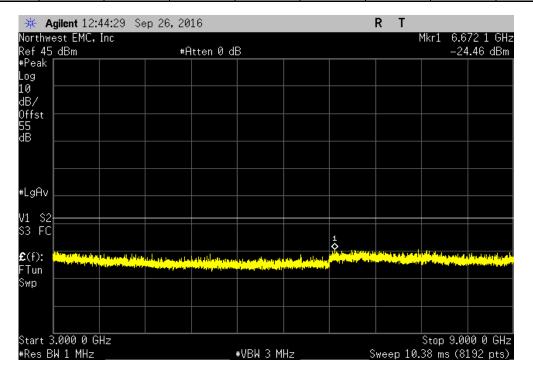




Antenna Port 2, WCD	MA - 871.4 MHz 8	k WCDMA - 891.6	6 MHz		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
1 GHz - 3 GHz		-26.49	-13	Pass	

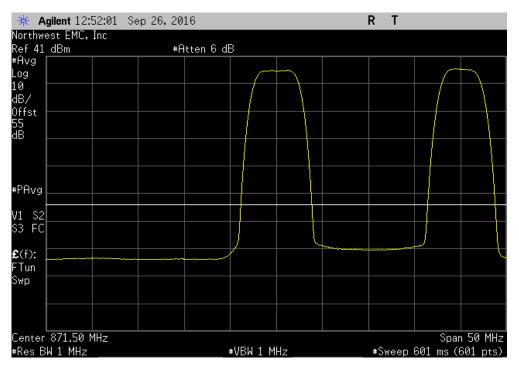


Antenna Port 2, WCDMA - 871.4 MHz & WCDMA - 891.6 MHz					
	Frequency		Max Value	Limit	
_	Range		(dBm)	≤ (dBm)	Result
l	3 GHz - 9 GHz		-24.46	-13	Pass

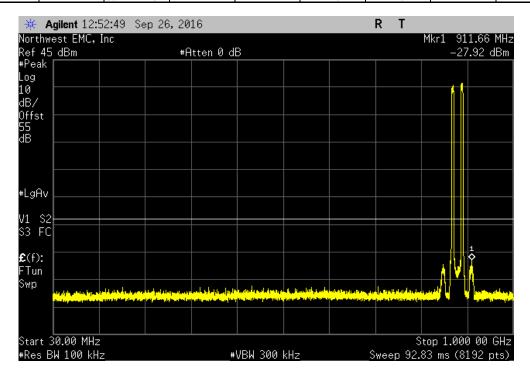




Antenna Port 2, LTE5 - 871.5 MHz & WCDMA - 891.6 MHz			
Frequency	Max Value	Limit	
1			
Range	(dBm)	≤ (dBm)	Result
Fundamental	N/A	N/A	N/A

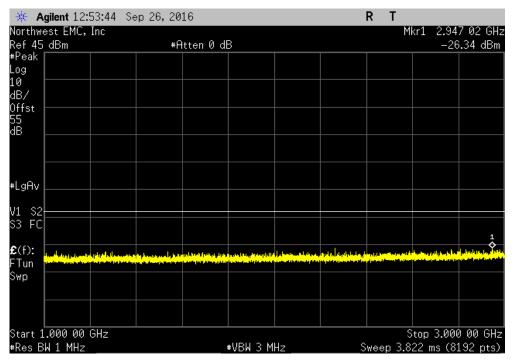


Antenna Port 2, LTE5 - 871.5 MHz & WCDMA - 891.6 MHz				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
30 MHz - 1 GHz	-27.92	-13	Pass	

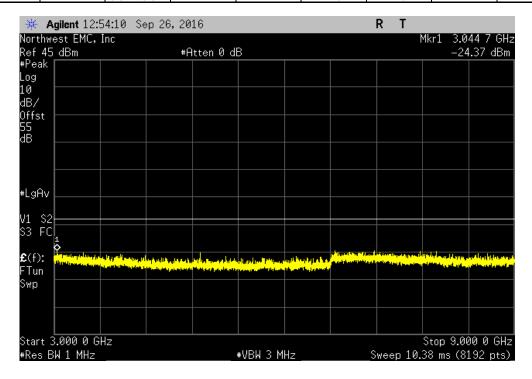




Antenna Port 2, LTE5 - 871.5 MHz & WCDMA - 891.6 MHz				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
nange	(ubiii)	≥ (ubiii)	nesuit	
1 GHz - 3 GHz	-26.34	-13	Pass	

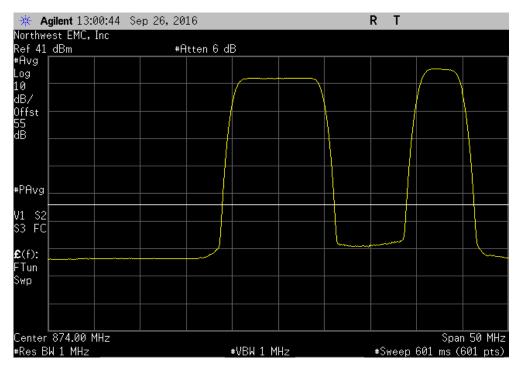


	Antenna Port 2, LTE5 - 871.5 MHz & WCDMA - 891.6 MHz				
	Frequency		Max Value	Limit	
	Range		(dBm)	≤ (dBm)	Result
l	3 GHz - 9 GHz		-24.37	-13	Pass

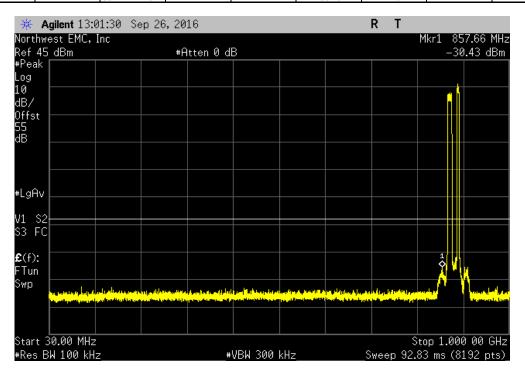




Antenna Port 2   TE10 - 8	874 MHz & WCDMA - 891.6 N	ЛН	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
Fundamental	l N/A	N/A	N/A

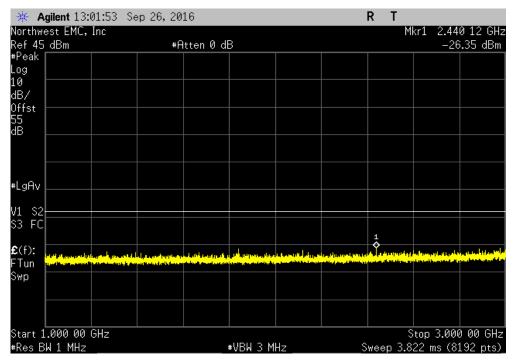


Antenna Port 2, LTE10 - 874 MHz & WCDMA - 891.6 MHz				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
30 MHz - 1 GHz	-30.43	-13	Pass	





Antenna Port 2, LTE	10 - 874 MHz & V	VCDMA - 891.6 N	1Hz		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
1 GHz - 3 GHz		-26.36	-13	Pass	



Antenna Port 2, LTE10 - 874 MHz & WCDMA - 891.6 MHz				
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
3 GHz - 9 GHz		-24.21	-13	Pass

