

NORTHWEST EMC

Commscope

Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM

FCC 27:2015

Cellular Radio

Report # TECO0031



NVLAP Lab Code: 200881-0

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America. This Report may only be duplicated in its entirety

CERTIFICATE OF TEST

Last Date of Test: September 3, 2015
Commscope
Model: Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM

Radio Equipment Testing

Standards

Specification	Method
FCC 27:2015	ANSI/TIA/EIA-603-C-2004

Results

Method Clause	Test Description	Applied	Results	Comments
2.2.1	Equivalent Isotropic Radiated Power (EIRP)	Yes	Pass	
2.2.1	Peak To Average Ratio	No	N/A	Not required for this specific rule part.
2.2.12	Spurious Radiated Emissions	Yes	Pass	
2.2.13	Spurious Conducted Emissions	Yes	Pass	
2.2.13	Band Edge Compliance	Yes	Pass	
2.2.13	Intermodulation	Yes	Pass	
2.2.2	Frequency Stability	Yes	Pass	
2.2.3	Emissions Bandwidth	Yes	N/A	Measured for characterization purposes.

Deviations From Test Standards

None

Approved By:



Tim O'Shea, 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
00		None		

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

IC - Recognized by Industry Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with IC.

European Union

European Commission – Validated by the European Commission as a Conformity Assessment Body (CAB) under the EMC directive and 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 WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) for each test is on each data sheet. 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.

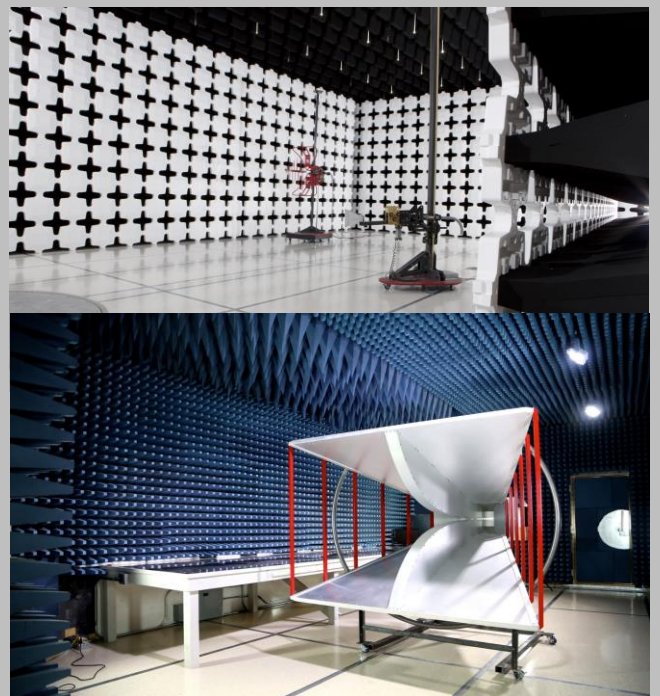
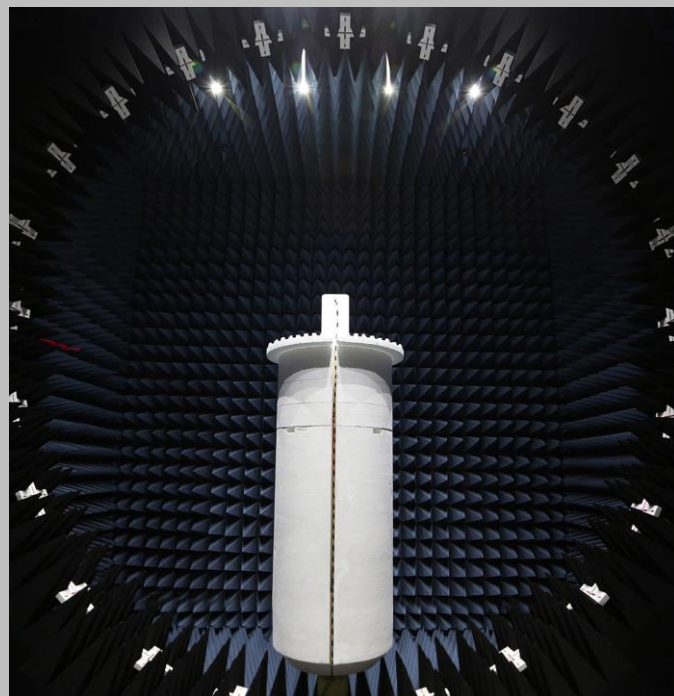
The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

Test	+ MU	- MU
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	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 th Ave NE Bothell, WA 9801 (425)984-6600
NVLAP					
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0
Industry Canada					
2834B-1, 2834B-3	2834E-1	N/A	2834D-1, 2834D-2	2834G-1	2834F-1
BSMI					
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/RRR, MIC, MOC, NCC, OFCA					
US0158	US0175	N/A	US0017	US0191	US0157



PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	Commscope
Address:	1187 Park Place
City, State, Zip:	Shakopee, MN 55379
Test Requested By:	Joshua Wittman
Model:	Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM
First Date of Test:	September 01, 2015
Last Date of Test:	September 03, 2015
Receipt Date of Samples:	September 01, 2015
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
20W MIMO Cellular Repeater
Testing Objective:
To demonstrate compliance of the Cellular repeater requirements of FCC 27:2015

CONFIGURATIONS

Configuration TECO0031- 1

Software/Firmware Running during test	
Description	Version
Firmware	9.0.1.0dev3

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM	ADC Telecommunications / Commscope	FWP-T4MT000MOD-L	None

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
RF Signal Generator	Agilent	E4438C	1178933
Power Supply	Mean Well	SE-600-48	EB11101765
IO Control Device	ADC Telecommunications / Commscope	SVT-GU-1011	None
30 dB attenuator	Aeroflex	57-30-43	QY541
Laptop	Lenovo	R61	L3-N9370
Laptop Supply	Lenovo	42T4418	11S42T4418Z1ZGWG19659N
30 dB attenuator	Aeroflex	86-30-12DC-22 GHz	369

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	> 3m	No	Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM	AC Mains
Fiber	No	> 3m	No	Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM	IO Control Device
RF	Yes	0.9m	No	Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM	30 dB attenuator
RF x2	Yes	1.8m	No	IO Control Device	Splitter
AC Power	No	1.8m	No	RF Signal Generator	AC Mains
AC Power	No	1.8m	No	Power Supply	AC Mains
DC Power	No	2.8m	Yes	IO Control Device	Power Supply
AC Power	No	1.8m	No	Laptop Supply	AC Mains
DC Power	No	1.8m	Yes	Laptop	Laptop Supply
Ethernet	No	1.5m	No	Laptop	IO Control Device
RF	Yes	1.6m	No	Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM	30 dB attenuator
RF	Yes	0.9m	No	Splitter	RF Signal Generator

CONFIGURATIONS

Configuration TECO0031- 2

Software/Firmware Running during test	
Description	Version
Firmware	9.0.1.0dev3

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM	ADC Telecommunications / Commscope	FWP-T4MT000MOD-L	None

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
30 dB attenuator	Aeroflex	57-30-43	QY541
30 dB attenuator	Aeroflex	86-30-12DC-22 GHz	369

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
RF Signal Generator	Agilent	E4438C	1178933
Power Supply	Mean Well	SE-600-48	EB11101765
IO Control Device	ADC Telecommunications / Commscope	SVT-GU-1011	None
Laptop	Lenovo	R61	L3-N9370
Laptop Supply	Lenovo	42T4418	11S42T4418Z1ZGWG19659N

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	> 3m	No	Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM	AC Mains
Fiber	No	> 3m	No	Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM	IO Control Device
RF	Yes	0.9m	No	Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM	30 dB attenuator
RF x2	Yes	1.8m	No	IO Control Device	Splitter
AC Power	No	1.8m	No	RF Signal Generator	AC Mains
AC Power	No	1.8m	No	Power Supply	AC Mains
DC Power	No	2.8m	Yes	IO Control Device	Power Supply
AC Power	No	1.8m	No	Laptop Supply	AC Mains
DC Power	No	1.8m	Yes	Laptop	Laptop Supply
Ethernet	No	1.5m	No	Laptop	IO Control Device
RF	Yes	1.6m	No	Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM	30 dB attenuator
RF	Yes	0.9m	No	Splitter	RF Signal Generator

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	9/1/2015	Equivalent Isotropic Radiated Power (EIRP)	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	9/1/2015	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	9/3/2015	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	9/3/2015	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	9/3/2015	Intermodulation	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
6	9/3/2015	Frequency Stability	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
7	9/3/2015	Emissions Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was complete.

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Meter - Power	ETS Lindgren	7002-006	SRA	4/15/2015	12
Meter - Power	ETS Lindgren	7002-006	SRE	8/4/2015	12
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12
Attenuator	S.M. Electronics	SA26B-20	RFW	3/10/2015	12
Block - DC	Fairview Microwave	SD3379	AMI	10/2/2014	12
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	36
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	4/20/2015	12

TEST DESCRIPTION

The RF output power was measured with the EUT set to the frequencies listed in the datasheet.

The modulated signal was created by an RF signal generator and input into the EUT. 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 EirP.

$EiRP = \text{Max Measured Power} + \text{Antenna gain (dBi)}$

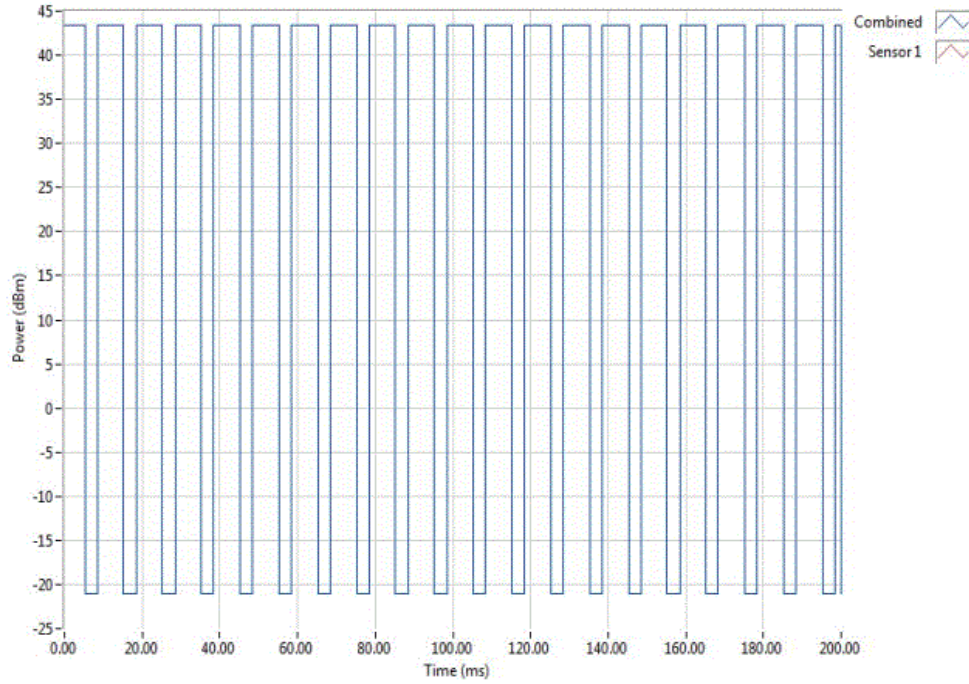
The measurements from port 1 and port 2 were summed to determine the total average power in EIRP.

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

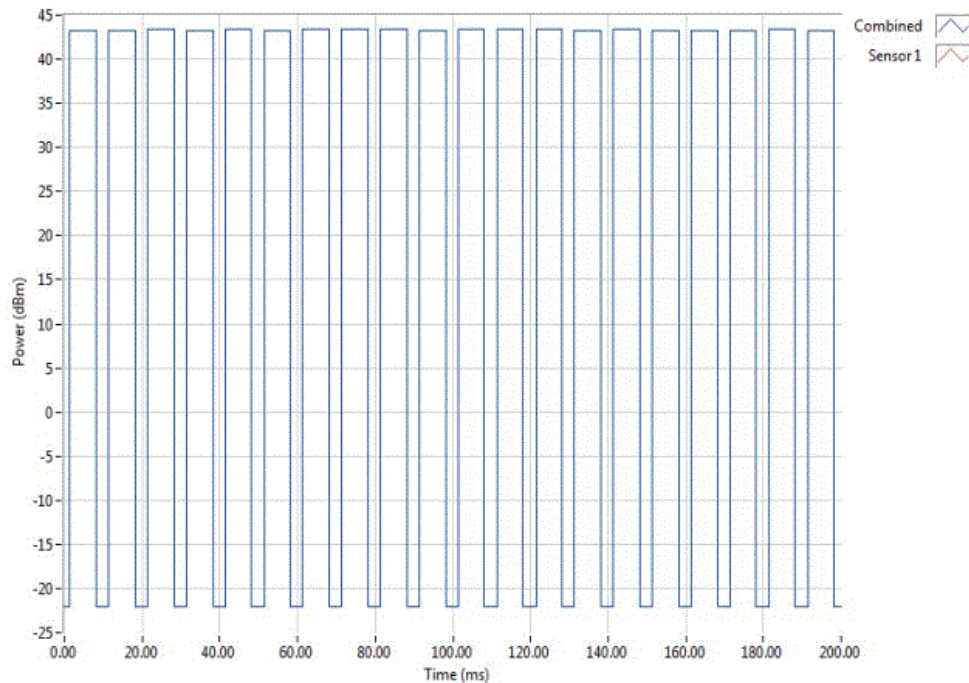
EUT: Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM				Work Order: TECO0031						
Serial Number: None				Date: 09/01/15						
Customer: ADC Telecommunications / Commscope				Temperature: 24.9°C						
Attendees: Josh Wittman				Humidity: 60%						
Project: None				Barometric Pres.: 982.3						
Tested by: Trevor Buls		Power: 110VAC/60Hz		Job Site: MN08						
TEST SPECIFICATIONS				Test Method						
FCC 27:2015				ANSI/TIA/EIA-603-C-2004						
COMMENTS										
Antenna gain is assumed to be 0, per customer the antenna gain will be reevaluated during installation. System is rated at 20W (+43 dBm) per port. Limit is 33 dBW + 10log(Maximum Bandwidth/6 MHz) dBW. Conversion from dBW to dBm is dBW + 30 dB = dBm. 33 dBW + 10log(20 MHz/6 MHz) dBW +30dB = 68.6 dBm. Power measured separately on each port. A linear summation was performed on the data.										
DEVIATIONS FROM TEST STANDARD										
None										
Configuration #	1	Signature <i>Trevor Buls</i>								
				Avg Cond Pwr (dBm)	Duty Cycle (%)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Results	
LTE 20 MHz										
Low Channel, 2506.5 MHz										
				43.37	69.025	0	43.4	68.6	Pass	
				43.32	69.024	0	43.3	68.6	Pass	
Mid Channel, 2534 MHz										
				44.79	69.023	0	44.8	68.6	Pass	
				43.31	69.024	0	43.3	68.6	Pass	
High Channel, 2561.5 MHz										
				43.37	69.025	0	43.4	68.6	Pass	
				43.17	69.023	0	43.2	68.6	Pass	
Linear Sum of the Power										
		Port 0 (mW)	Port 1 (mW)	Sum (mW)	Sum (dBm)					
		Low Channel, 2506.5 MHz	21727.0	21478.3	43205.3	46.4	0	46.4	68.6	Pass
		Mid Channel, 2534 MHz	30130.1	21428.9	51559.0	47.1	0	47.1	68.6	Pass
		High Channel, 2561.5 MHz	21727.0	20749.1	42476.1	46.3	0	46.3	68.6	Pass

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

LTE 20 MHz, Low Channel, 2506.5 MHz, Port 0						
	Avg Cond Pwr (dBm)	Duty Cycle (%)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Results
	43.37	69.025	0	43.4	68.6	Pass

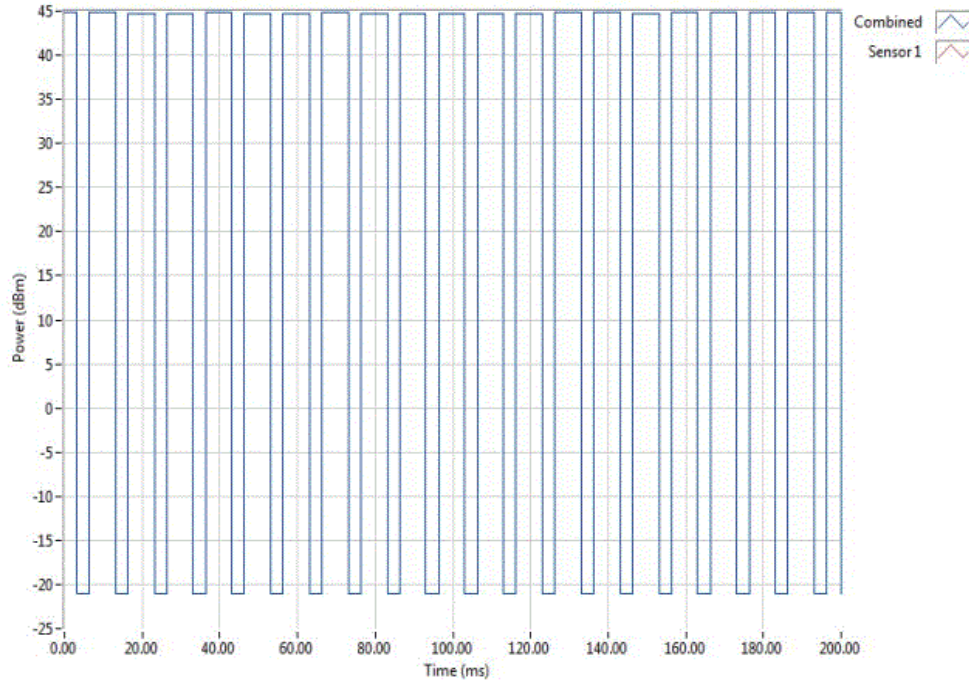


LTE 20 MHz, Low Channel, 2506.5 MHz, Port 1						
	Avg Cond Pwr (dBm)	Duty Cycle (%)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Results
	43.32	69.024	0	43.3	68.6	Pass

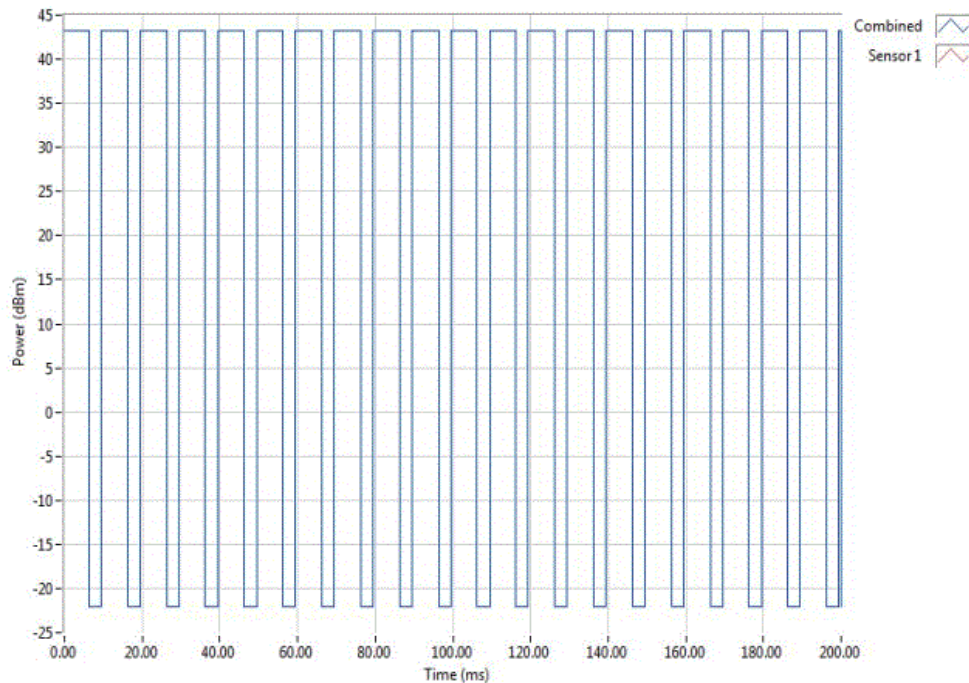


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

LTE 20 MHz, Mid Channel, 2534 MHz, Port 0						
	Avg Cond Pwr (dBm)	Duty Cycle (%)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Results
	44.79	69.023	0	44.8	68.6	Pass

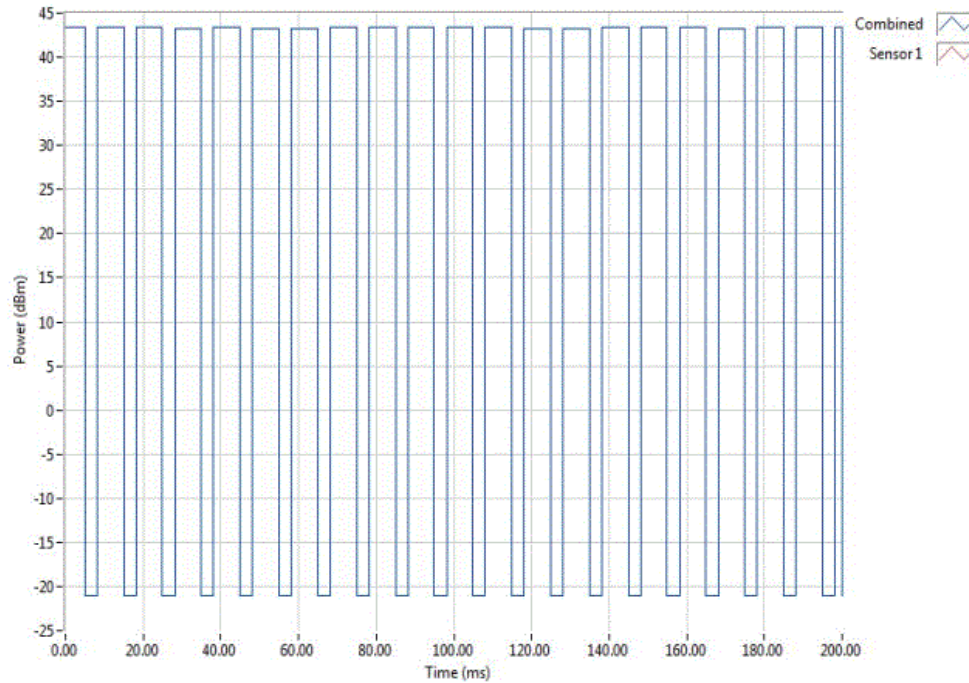


LTE 20 MHz, Mid Channel, 2534 MHz, Port 1						
	Avg Cond Pwr (dBm)	Duty Cycle (%)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Results
	43.31	69.024	0	43.3	68.6	Pass

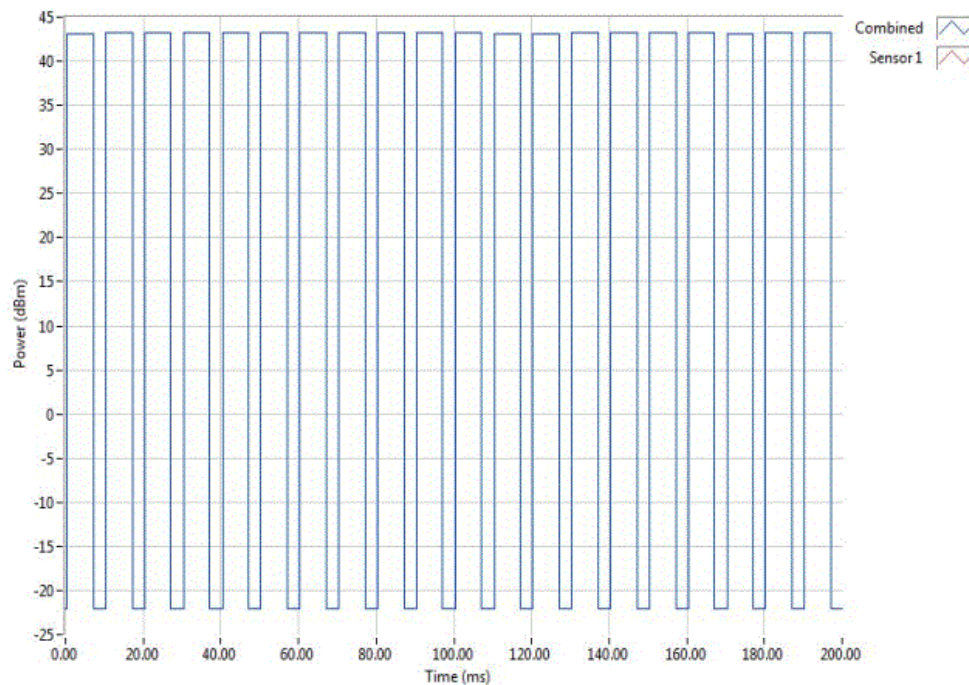


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

LTE 20 MHz, High Channel, 2561.5 MHz, Port 0						
	Avg Cond Pwr (dBm)	Duty Cycle (%)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Results
	43.37	69.025	0	43.4	68.6	Pass



LTE 20 MHz, High Channel, 2561.5 MHz, Port 1						
	Avg Cond Pwr (dBm)	Duty Cycle (%)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Results
	43.17	69.023	0	43.2	68.6	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. 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 LTE 20MHz - low channel (2506.5 MHz), mid channel (2534 MHz), and high channel (2561.5 MHz); antenna 0 and 1.

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

TECO0031 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz Stop Frequency 26500 MHz

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Filter - Low Pass	Micro-Tronics	LPM50004	HGK	3/2/2015	12 mo
Filter - High Pass	Micro-Tronics	HPM50111	HGQ	3/2/2015	12 mo
Attenuator	S.M. Electronics	SA6-20	REO	3/2/2015	12 mo
Cable	Northwest EMC	18-26GHz Standard Gain Horn Cable	MNP	10/3/2014	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-09	AHG	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	10/3/2014	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-08	AIQ	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVW	3/2/2015	12 mo
Cable	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	5/5/2015	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	3/2/2015	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AXP	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVX	3/2/2015	12 mo
Cable	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	5/5/2015	12 mo
Antenna - Double Ridge	ETS Lindgren	3115	AJA	6/3/2014	24 mo
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	PAD	3/2/2015	12 mo
Cable	ESM Cable Corp.	Bilog Cables	MNH	3/30/2015	12 mo
Antenna - Biconilog	Teseq	CBL 6141B	AYD	12/17/2013	24 mo
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	1/27/2015	12 mo

MEASUREMENT BANDWIDTHS

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

TEST DESCRIPTION

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:

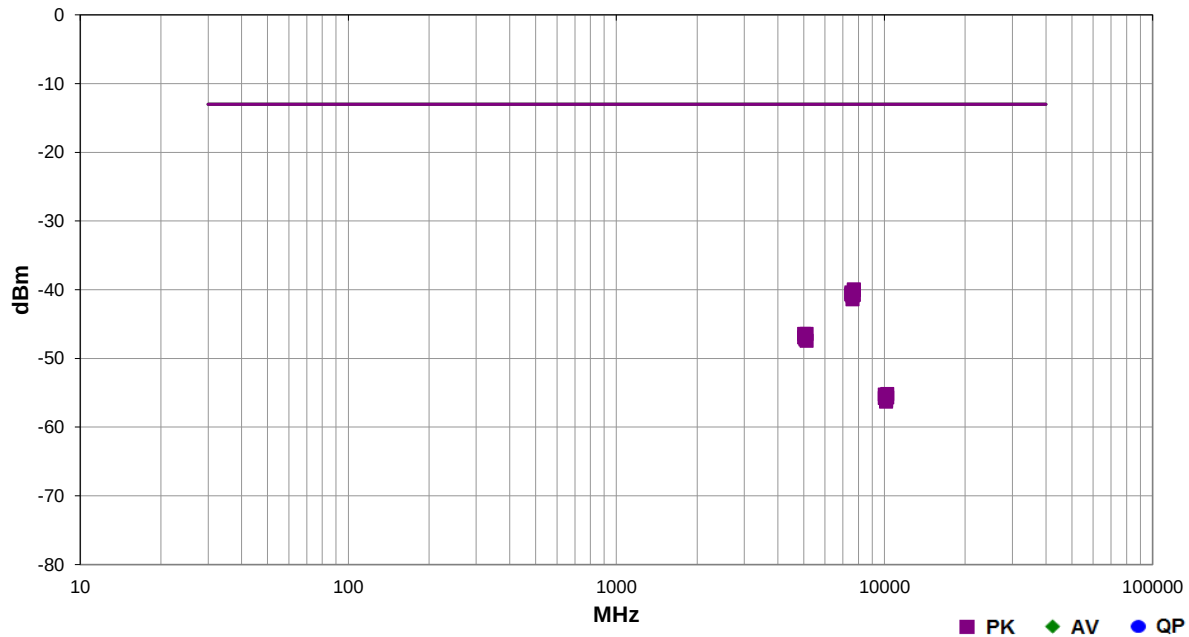
At an approved test site, the transmitter is placed on a remotely controlled turntable, and the measurement antenna is placed 3 meters from the transmitter. The turntable azimuth is varied to maximize the level of spurious emissions. The height of the measurement antenna is also varied from 1 to 4 meters. 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.

SPURIOUS RADIATED EMISSIONS

Work Order:	TECO0031	Date:	09/03/15	
Project:	None	Temperature:	24.1 °C	
Job Site:	MN05	Humidity:	63.1% RH	
Serial Number:	None	Barometric Pres.:	982.3 mbar	
EUT:	Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM			
Configuration:	2			
Customer:	ADC Telecommunications / Commscope			
Attendees:	None			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting LTE 20MHz - low channel (2506.5 MHz), mid channel (2534 MHz), and high channel (2561.5 MHz); antenna 0 and 1.			
Deviations:	None			
Comments:	None			

Test Specifications	Test Method
FCC 27:2015	ANSI/TIA/EIA-603-C-2004

Run #	12	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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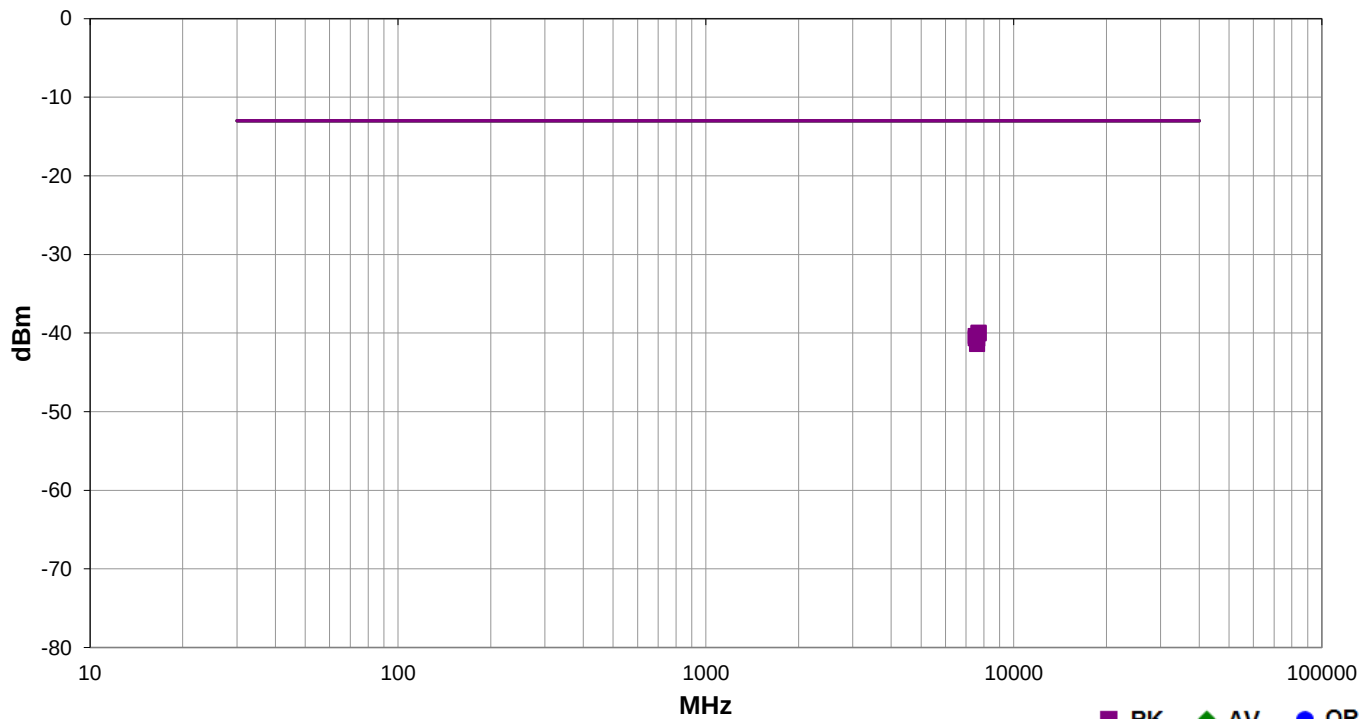
Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
7682.175	1.8	95.1	Vert	PK	1.01E-07	-39.9	-13.0	-26.9	High channel, antenna 0
7684.925	3.9	25.0	Vert	PK	9.89E-08	-40.0	-13.0	-27.0	High channel, antenna 1
7521.158	1.0	15.1	Vert	PK	9.16E-08	-40.4	-13.0	-27.4	Low channel, antenna 0
7517.733	1.0	54.0	Horz	PK	8.58E-08	-40.7	-13.0	-27.7	Low channel, antenna 0
7518.008	1.0	282.0	Vert	PK	8.58E-08	-40.7	-13.0	-27.7	Low channel, antenna 1
7604.425	1.0	147.0	Vert	PK	8.52E-08	-40.7	-13.0	-27.7	Mid channel, antenna 0
7686.308	1.0	24.0	Horz	PK	8.42E-08	-40.7	-13.0	-27.7	High channel, antenna 0
7602.658	1.7	160.1	Horz	PK	8.13E-08	-40.9	-13.0	-27.9	Mid channel, antenna 0
7602.967	2.8	42.0	Vert	PK	7.25E-08	-41.4	-13.0	-28.4	Mid channel, antenna 1
5123.250	1.0	25.0	Vert	PK	2.28E-08	-46.4	-13.0	-33.4	High channel, antenna 0
5012.225	1.9	69.1	Horz	PK	2.28E-08	-46.4	-13.0	-33.4	Low channel, antenna 0
5013.308	1.0	199.1	Vert	PK	2.03E-08	-46.9	-13.0	-33.9	Low channel, antenna 0
5068.158	1.0	204.0	Vert	PK	1.97E-08	-47.0	-13.0	-34.0	Mid channel, antenna 0
5069.358	1.0	30.1	Horz	PK	1.89E-08	-47.2	-13.0	-34.2	Mid channel, antenna 0
5124.092	1.0	202.1	Horz	PK	1.81E-08	-47.4	-13.0	-34.4	High channel, antenna 0
10245.050	1.0	26.1	Horz	PK	3.03E-09	-55.2	-13.0	-42.2	High channel, antenna 0
10026.120	1.0	113.1	Horz	PK	2.98E-09	-55.3	-13.0	-42.3	Low channel, antenna 0
10244.200	2.2	236.9	Vert	PK	2.70E-09	-55.7	-13.0	-42.7	High channel, antenna 0
10028.480	1.0	224.1	Vert	PK	2.66E-09	-55.8	-13.0	-42.8	Low channel, antenna 0
10136.670	1.3	46.0	Horz	PK	2.46E-09	-56.1	-13.0	-43.1	Mid channel, antenna 0
10134.380	3.4	330.9	Vert	PK	2.35E-09	-56.3	-13.0	-43.3	Mid channel, antenna 0

SPURIOUS RADIATED EMISSIONS

Work Order:	TECO0031	Date:	09/03/15		
Project:	None	Temperature:	24.1 °C		
Job Site:	MN05	Humidity:	63.1% RH		
Serial Number:	None	Barometric Pres.:	982.3 mbar	Tested by:	Dustin Sparks
EUT:	Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM				
Configuration:	2				
Customer:	ADC Telecommunications / Commscope				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting LTE 20MHz - low channel (2506.5 MHz), mid channel (2534 MHz), and high channel (2561.5 MHz); antenna 0 and 1.				
Deviations:	None				
Comments:	Results below are linearly summed data for MIMO mode because EUT can not currently be operated in a true MIMO state.				

Test Specifications	Test Method
FCC 27:2015	ANSI/TIA/EIA-603-C-2004

Run #	12	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
	7682.175	1.8	95.1	Vert	PK	1.01E-07	-39.9			High channel, antenna 0
	7684.925	3.9	25.0	Vert	PK	9.89E-08	-40.0			High channel, antenna 1
						2.00E-07	-37.0	-13.0	-24.0	High channel, Linear Sum
	7521.158	1.0	15.1	Vert	PK	9.16E-08	-40.4			Low channel, antenna 0
	7518.008	1.0	282.0	Vert	PK	8.58E-08	-40.7			Low channel, antenna 1
						1.77E-07	-37.5	-13.0	-24.5	Low channel, Linear Sum
	7604.425	1.0	147.0	Vert	PK	8.52E-08	-40.7			Mid channel, antenna 0
	7602.967	2.8	42.0	Vert	PK	7.25E-08	-41.4			Mid channel, antenna 1
						1.58E-07	-38.0	-13.0	-25.0	Mid channel, Linear Sum

SPURIOUS CONDUCTED EMISSIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Filter - High Pass	K&L Microwave	11SH10-18000/T50000-2.4	HIC	2/16/2015	12
Filter - High Pass	Micro-Tronics	HPM50111	HGY	8/31/2015	12
Filter - Low Pass	Micro-Tronics	LPM50004	HGV	8/31/2015	12
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12
Attenuator	S.M. Electronics	SA26B-20	RFW	3/10/2015	12
Block - DC	Fairview Microwave	SD3379	AMI	10/2/2014	12
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	36
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	4/20/2015	12

TEST DESCRIPTION

An RF signal generator was used to create the modulated signal(s) listed in the datasheets. These signals were input into the EUT.

The antenna port spurious emissions were measured at the RF output terminal of the EUT with external attenuation on the RF input of the spectrum analyzer. Analyzer plots utilizing a 1 MHz resolution bandwidth and no video filtering were made for each mode listed in the datasheet.

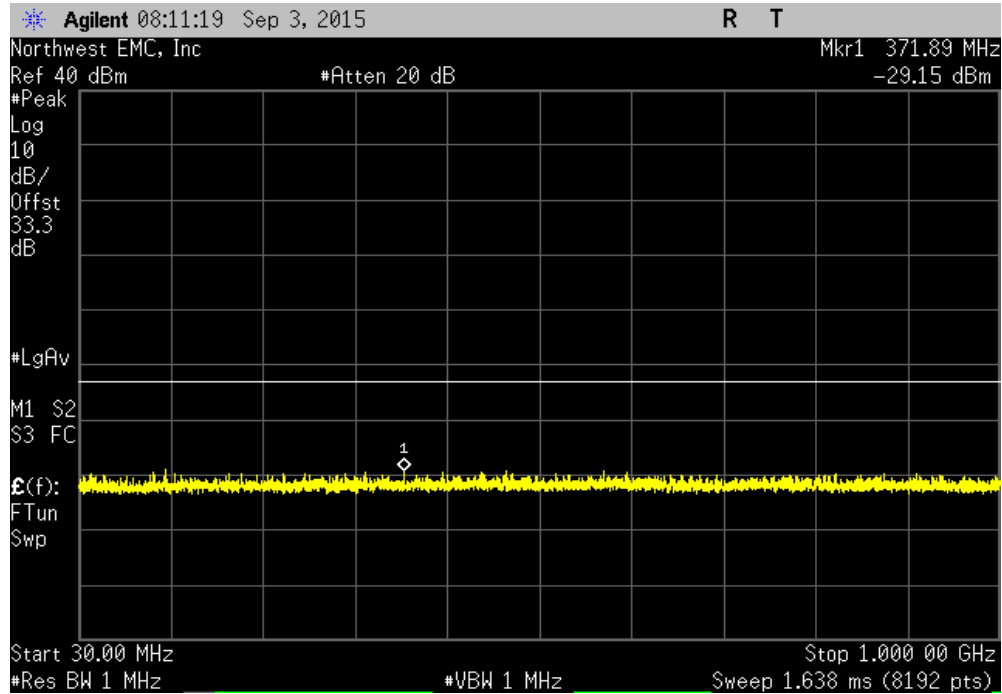
The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, were investigated to ensure they were less than or equal to the limit. Emissions close to the limit were re-measured using an RMS Average detector to match the method used during output power measurements.

SPURIOUS CONDUCTED EMISSIONS

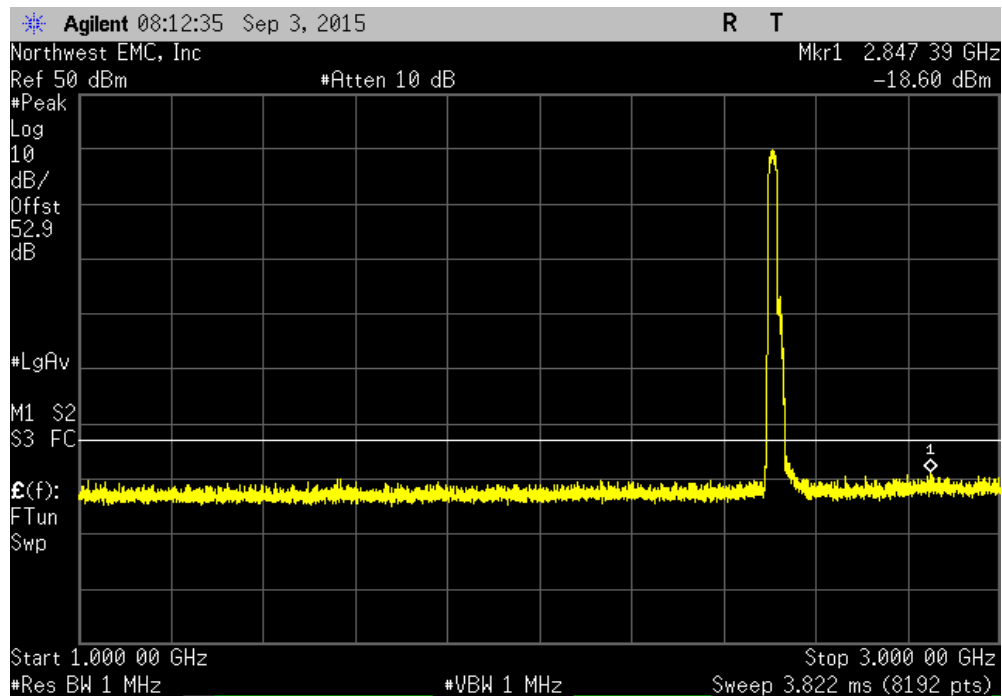
EUT: Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM		Work Order: TECO0031	
Serial Number: None		Date: 09/03/15	
Customer: ADC Telecommunications / Commscope		Temperature: 24.1°C	
Attendees: None		Humidity: 59%	
Project: None		Barometric Pres.: 982.8	
Tested by: Trevor Buls		Power: 110VAC/60Hz	
		Job Site: MN08	
TEST SPECIFICATIONS			
FCC 27:2015		Test Method	
		ANSI/TIA/EIA-603-C-2004	
COMMENTS			
Port 0 was determined to be worst case.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Trevor Buls</i>	
		Frequency Range	Max Value (dBm)
			Limit ≤ (dBm)
			Result
LTE 20 MHz			
Low Channel, 2506.5 MHz			
	Port 0	30 MHz - 1 GHz	-29.15
	Port 0	1 GHz - 3 GHz	-18.6
	Port 0	3 GHz - 18 GHz	-33.04
	Port 0	18 GHz - 26 GHz	-31.18
Mid Channel, 2534 MHz			
	Port 0	30 MHz - 1 GHz	-29.62
	Port 0	1 GHz - 3 GHz	-19.1
	Port 0	3 GHz - 18 GHz	-33.12
	Port 0	18 GHz - 26 GHz	-30.98
High Channel, 2561.5 MHz			
	Port 0	30 MHz - 1 GHz	-29.63
	Port 0	1 GHz - 3 GHz	-17.79
	Port 0	3 GHz - 18 GHz	-32.5
	Port 0	18 GHz - 26 GHz	-31.22

SPURIOUS CONDUCTED EMISSIONS

LTE 20 MHz, Low Channel, 2506.5 MHz, Port 0					
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result		
30 MHz - 1 GHz	-29.15	-13	Pass		

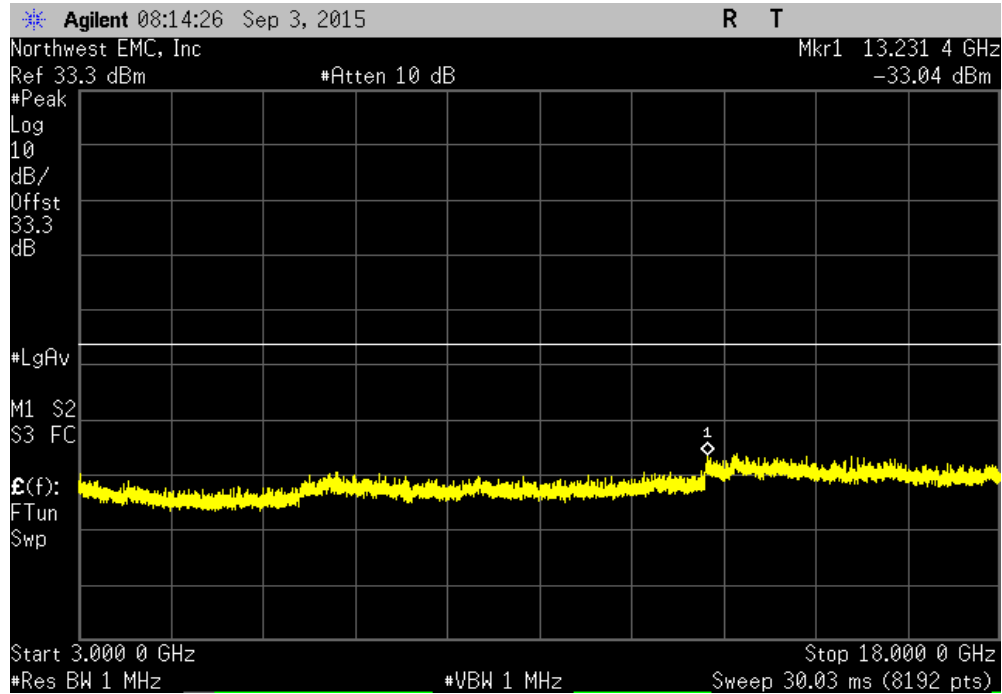


LTE 20 MHz, Low Channel, 2506.5 MHz, Port 0					
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result		
1 GHz - 3 GHz	-18.6	-13	Pass		

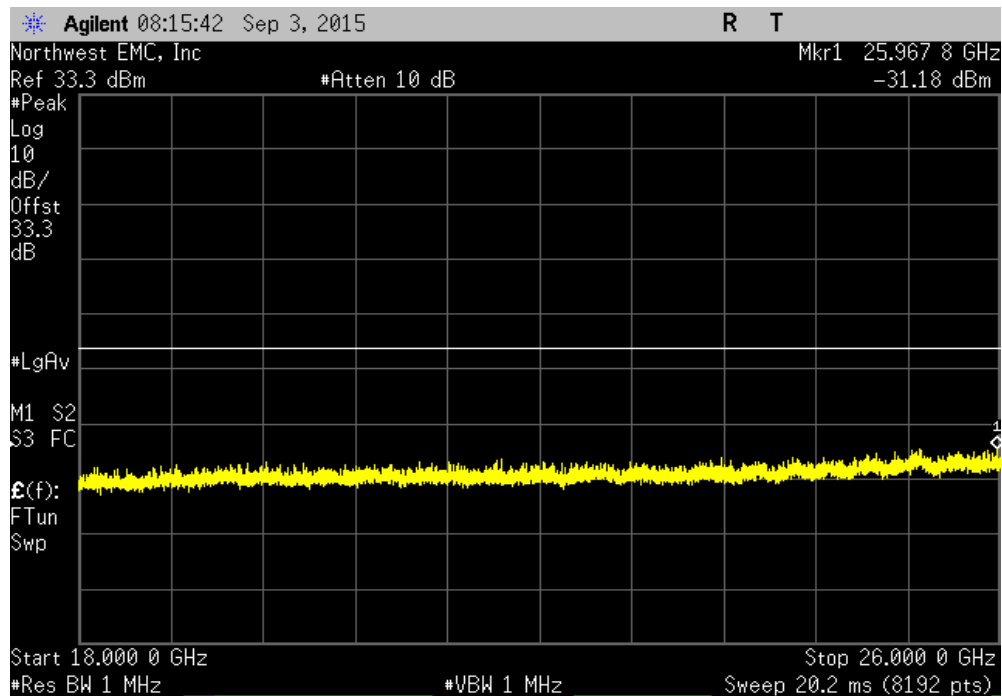


SPURIOUS CONDUCTED EMISSIONS

LTE 20 MHz, Low Channel, 2506.5 MHz, Port 0					
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result		
3 GHz - 18 GHz	-33.04	-13	Pass		

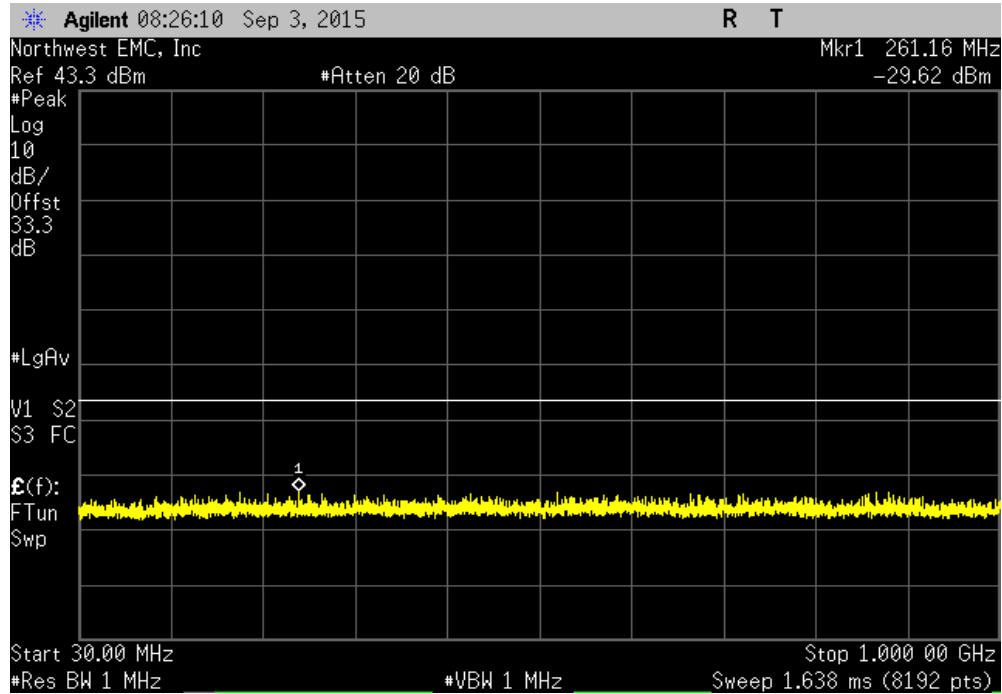


LTE 20 MHz, Low Channel, 2506.5 MHz, Port 0					
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result		
18 GHz - 26 GHz	-31.18	-13	Pass		

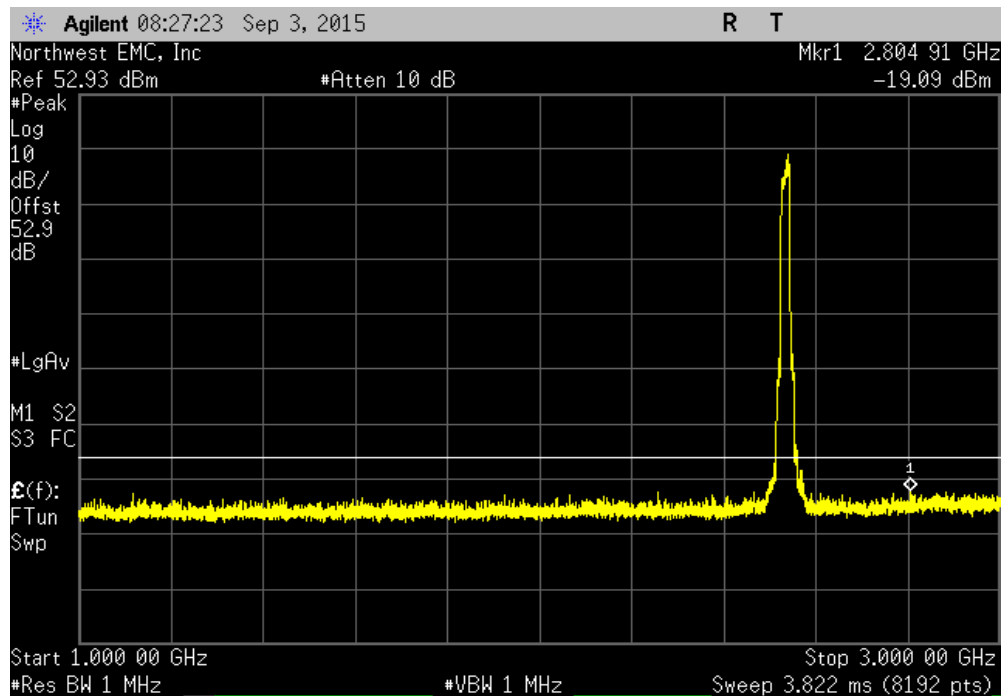


SPURIOUS CONDUCTED EMISSIONS

LTE 20 MHz, Mid Channel, 2534 MHz, Port 0					
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result		
30 MHz - 1 GHz	-29.62	-13	Pass		

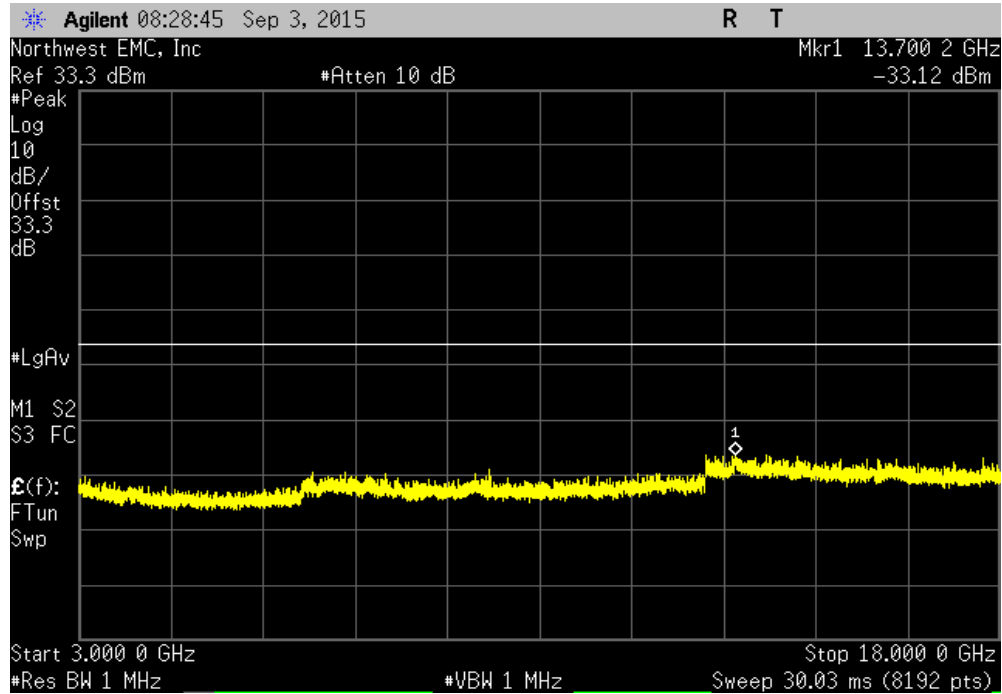


LTE 20 MHz, Mid Channel, 2534 MHz, Port 0					
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result		
1 GHz - 3 GHz	-19.1	-13	Pass		

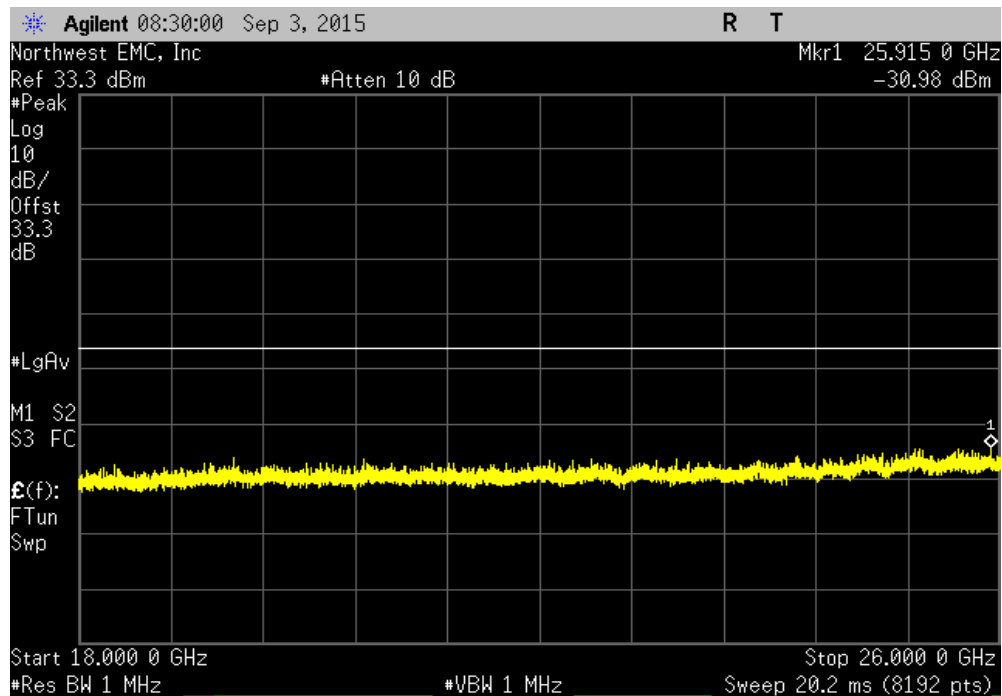


SPURIOUS CONDUCTED EMISSIONS

LTE 20 MHz, Mid Channel, 2534 MHz, Port 0				
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result	
3 GHz - 18 GHz	-33.12	-13	Pass	

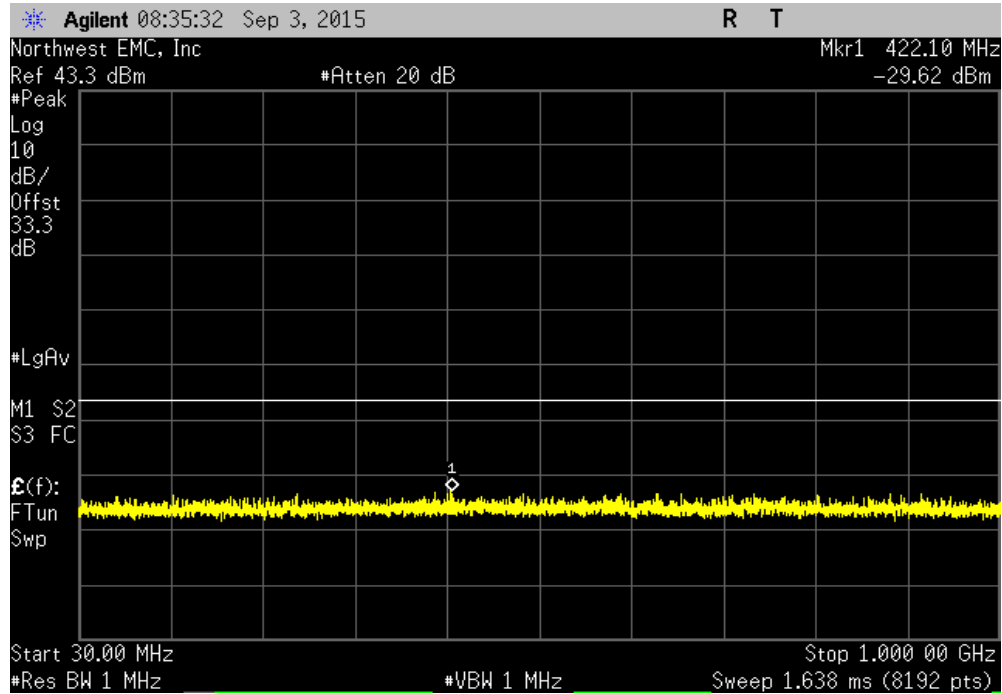


LTE 20 MHz, Mid Channel, 2534 MHz, Port 0				
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result	
18 GHz - 26 GHz	-30.98	-13	Pass	

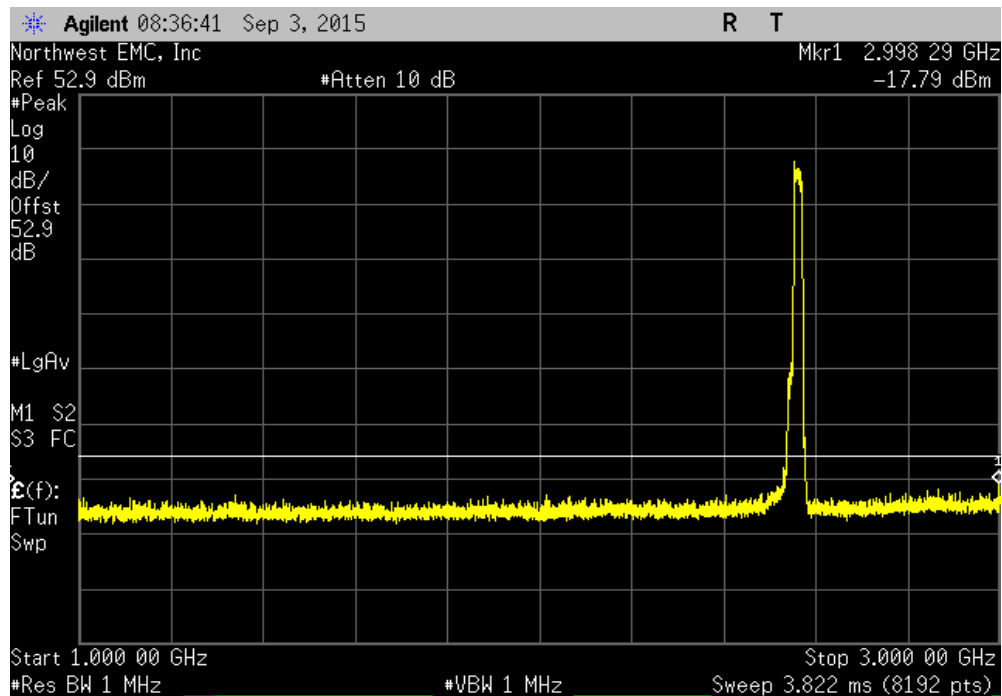


SPURIOUS CONDUCTED EMISSIONS

LTE 20 MHz, High Channel, 2561.5 MHz, Port 0					
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result		
30 MHz - 1 GHz	-29.63	-13	Pass		

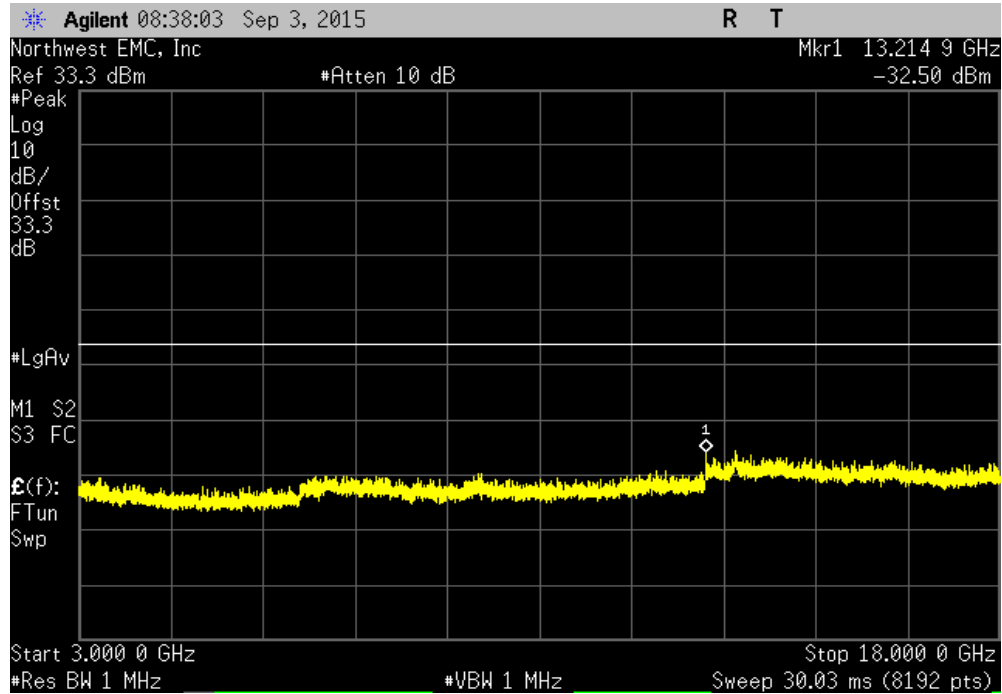


LTE 20 MHz, High Channel, 2561.5 MHz, Port 0					
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result		
1 GHz - 3 GHz	-17.79	-13	Pass		

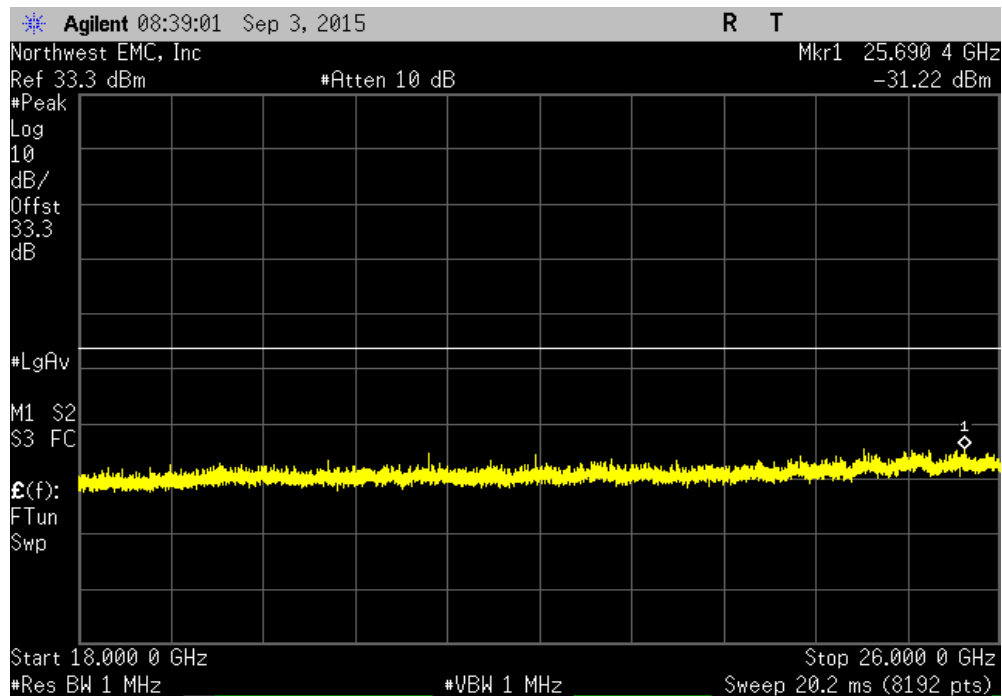


SPURIOUS CONDUCTED EMISSIONS

LTE 20 MHz, High Channel, 2561.5 MHz, Port 0					
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result		
3 GHz - 18 GHz	-32.5	-13	Pass		



LTE 20 MHz, High Channel, 2561.5 MHz, Port 0					
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result		
18 GHz - 26 GHz	-31.22	-13	Pass		



BAND EDGE COMPLIANCE

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12
Attenuator	S.M. Electronics	SA26B-20	RFW	3/10/2015	12
Block - DC	Fairview Microwave	SD3379	AMI	10/2/2014	12
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	36
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	4/20/2015	12

TEST DESCRIPTION

The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in the available band. The channels closest to the band edges were selected. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet.

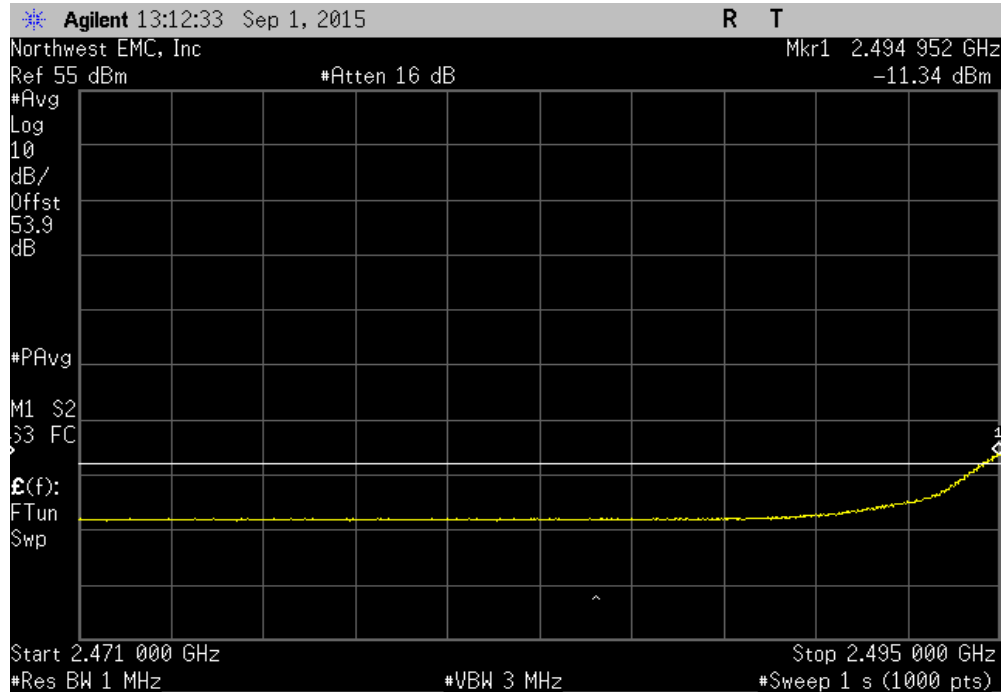
The spectrum was scanned below the lower band edge and above the higher band edge. The resolution bandwidth was set to approximately 1% of the measured emissions bandwidth within the first 1 MHz block adjacent to the transmit band. An average RMS detector was used to match the method used during Output Power. The screen capture shows the margin between the measured value and the limit at the band edge.

BAND EDGE COMPLIANCE

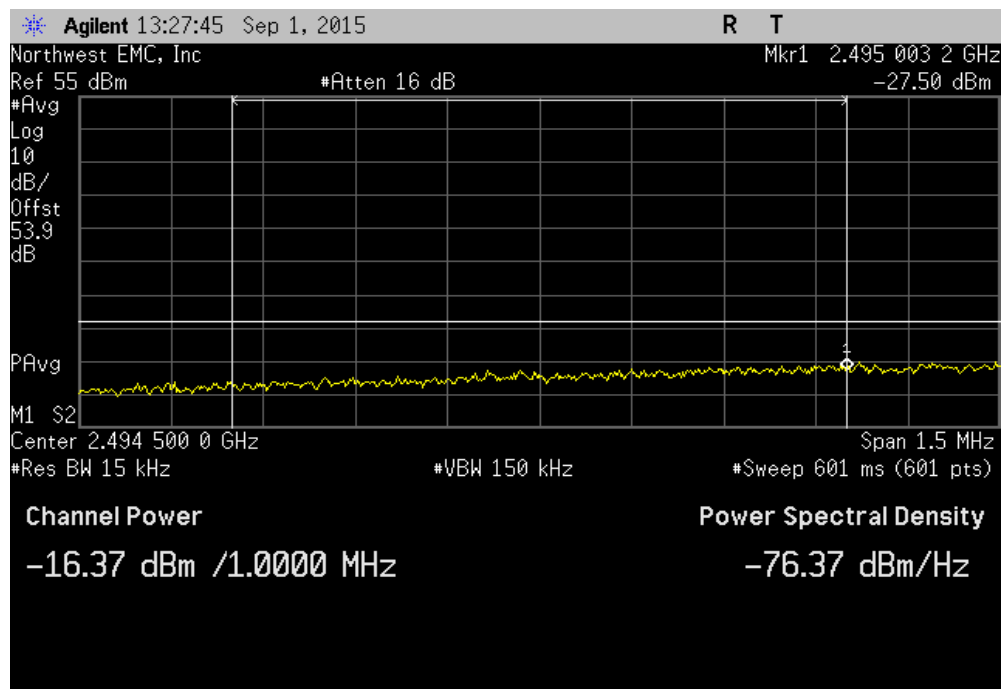
EUT: Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM		Work Order: TECO0031	
Serial Number: None		Date: 09/01/15	
Customer: ADC Telecommunications / Commscope		Temperature: 24.9°C	
Attendees: Josh Wittman		Humidity: 60%	
Project: None		Barometric Pres.: 982.3	
Tested by: Trevor Buls	Power: 110VAC/60Hz	Job Site: MN08	
TEST SPECIFICATIONS			
FCC 27:2015		Test Method: ANSI/TIA/EIA-603-C-2004	
COMMENTS			
Port 0 was determined to be worst case. A Duty Cycle Correction Factor (DCCF) was added to the RMS measurements because the EUT was transmitting at less than 100% Duty Cycle (where applicable).			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature: <i>Trevor Buls</i>	
		Avg Power (dBm)	DCCF (dB)
Low Channel	Greater than 1 MHz from BE	N/A	N/A
	Greater than 1 MHz from BE - Channel Power	-16.37	1.6
	BE to 1 MHz from BE	-15.079	1.6
High Channel	High Band Edge	N/A	N/A
		Value (dBm)	Limit (dBm)
			Result
			N/A
			-13
			Pass
			-13
			Pass

BAND EDGE COMPLIANCE

Low Channel, Greater than 1 MHz from BE						
	Avg Power (dBm)	DCCF (dB)	Value (dBm)	Limit (dBm)	Result	
	N/A	N/A	N/A	N/A	N/A	

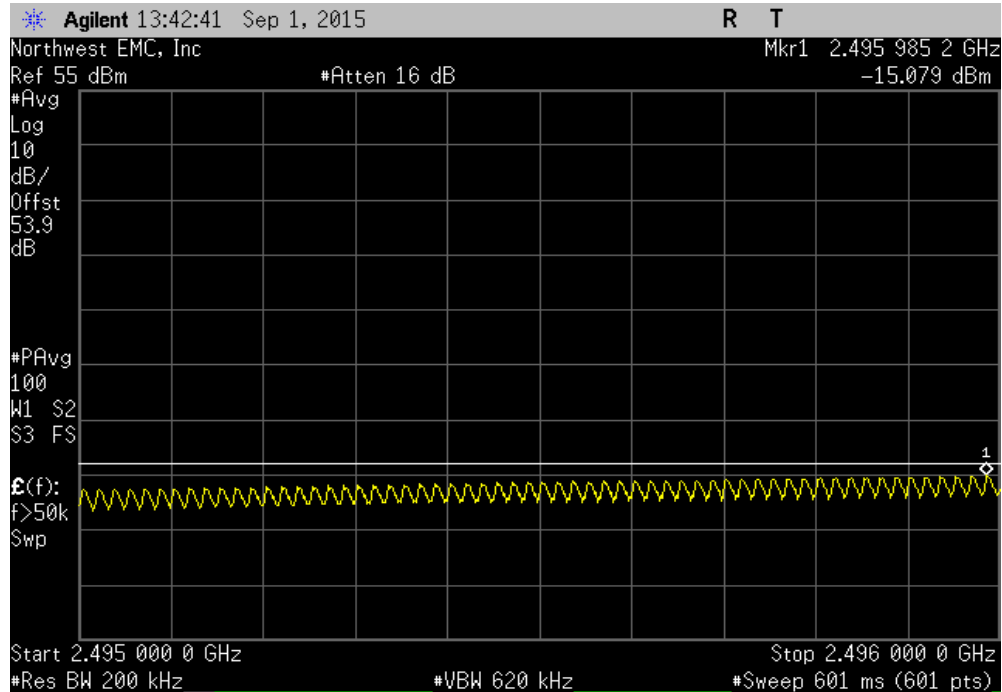


Low Channel, Greater than 1 MHz from BE - Channel Power						
	Avg Power (dBm)	DCCF (dB)	Value (dBm)	Limit (dBm)	Result	
	-16.37	1.6	-14.77	-13	Pass	

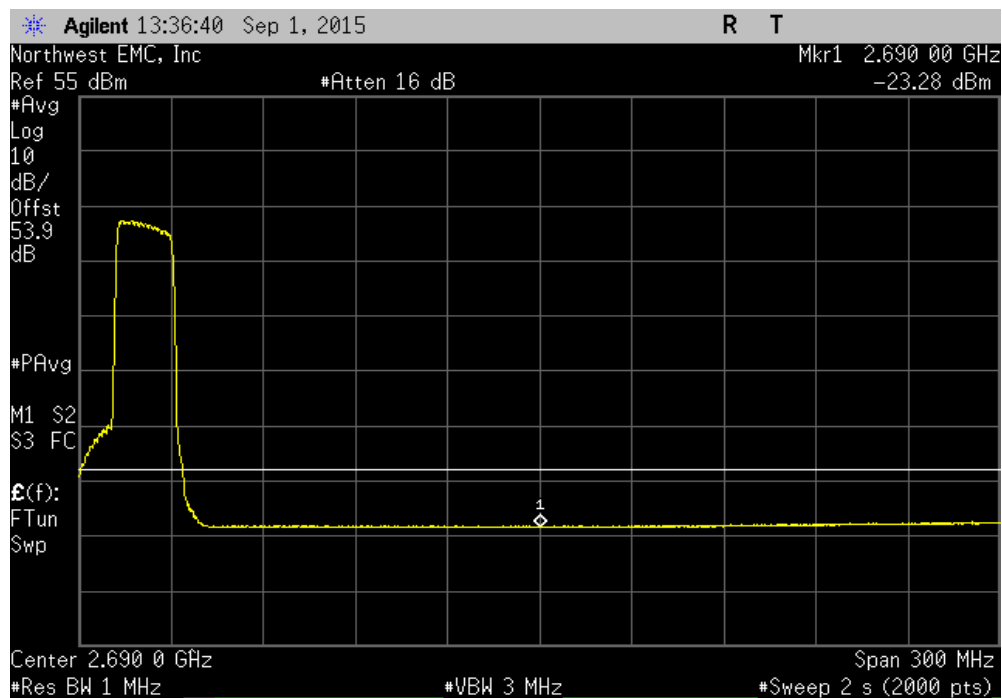


BAND EDGE COMPLIANCE

Low Channel, BE to 1 MHz from BE						
	Avg Power (dBm)	DCCF (dB)	Value (dBm)	Limit (dBm)	Result	
	-15.079	1.6	-13.5	-13	Pass	



High Channel, High Band Edge						
	Avg Power (dBm)	DCCF (dB)	Value (dBm)	Limit (dBm)	Result	
	N/A	N/A	-23.28	-13	Pass	



INTERMODULATION

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Power Divider/Combiner	Fairview Microwave	MP0208-2	IAF	NCR	0
Power Divider/Combiner	Fairview Microwave	MP0208-2	IAE	NCR	0
Filter - High Pass	K&L Microwave	11SH10-18000/T50000-2.4	HIC	2/16/2015	12
Filter - High Pass	Micro-Tronics	HPM50111	HGY	8/31/2015	12
Filter - Low Pass	Micro-Tronics	LPM50004	HGV	8/31/2015	12
Generator - Signal	Agilent	E4422B	TGQ	3/17/2015	36
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12
Attenuator	S.M. Electronics	SA26B-20	RFW	3/10/2015	12
Block - DC	Fairview Microwave	SD3379	AMI	10/2/2014	12
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	36
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	4/20/2015	12

TEST DESCRIPTION

An RF signal generator was used to create the modulated signal(s) listed in the datasheets. These signals were input into the EUT.

The EUT was configured with an input of two CW pulses at the edges of the band and a modulated pulse in the band. The purpose of the test is to insure that no additional signals are creating by having multiple carriers in the passband of the EUT.

The antenna port spurious emissions were measured at the RF output terminal of the EUT with external attenuation on the RF input of the spectrum analyzer. Analyzer plots utilizing a 1MHz resolution bandwidth and no video filtering were made for each modulation type.

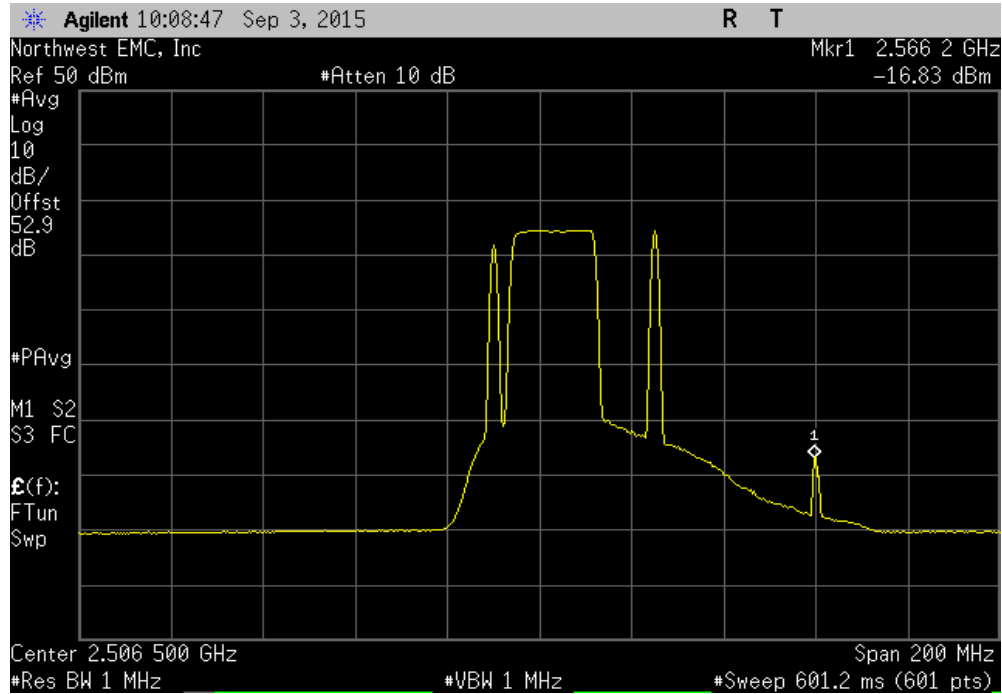
The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, were investigated to ensure they were less than or equal to the spurious conducted emissions limits. Measurements close to the limit were re-measured using a RMS average detector.

INTERMODULATION

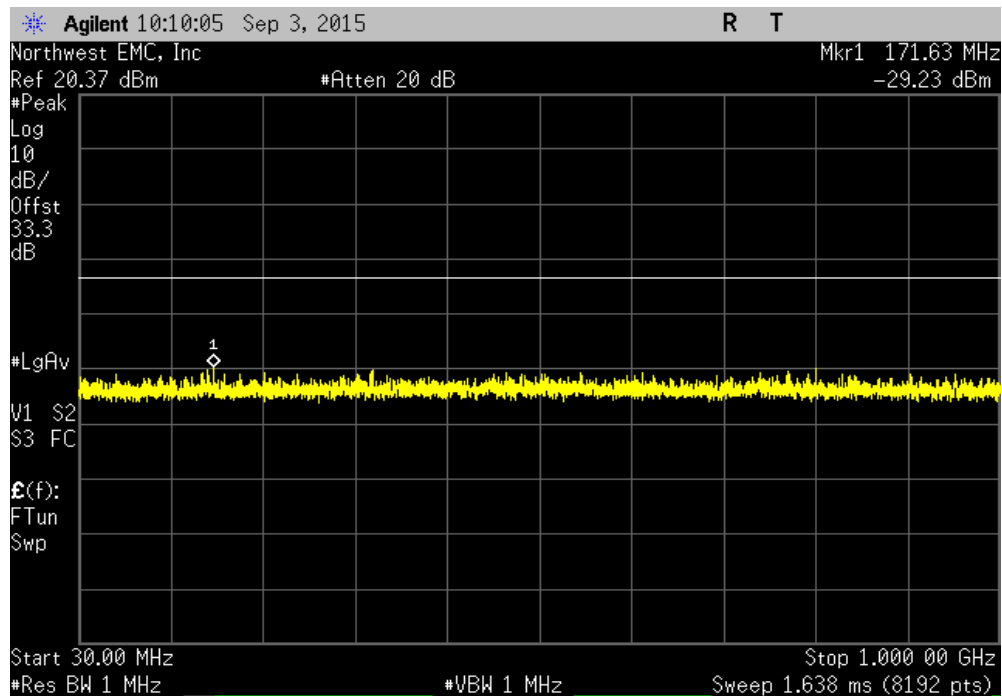
EUT: Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM		Work Order: TECO0031			
Serial Number: None		Date: 09/03/15			
Customer: ADC Telecommunications / Commscope		Temperature: 24.1°C			
Attendees: None		Humidity: 59%			
Project: None		Barometric Pres.: 982.8			
Tested by: Trevor Buls	Power: 110VAC/60Hz	Job Site: MN08			
TEST SPECIFICATIONS					
FCC 27:2015		Test Method: ANSI/TIA/EIA-603-C-2004			
COMMENTS					
Port 0 was determined to be worst case.					
DEVIATIONS FROM TEST STANDARD					
None					
Configuration #	1	Signature: <i>Trevor Buls</i>			
		Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result
Low Passband		Fundamental	-16.83	-13	Pass
Low Passband		30 MHz - 1 GHz	-29.23	-13	Pass
Low Passband		1 GHz - 3 GHz	-18.75	-13	Pass
Low Passband		3 GHz - 18 GHz	-32.68	-13	Pass
Low Passband		18 GHz - 26 GHz	-30.21	-13	Pass
Mid Passband		Fundamental	-30.32	-13	Pass
Mid Passband		30 MHz - 1 GHz	-29.25	-13	Pass
Mid Passband		1 GHz - 3 GHz	-19.59	-13	Pass
Mid Passband		3 GHz - 18 GHz	-33	-13	Pass
Mid Passband		18 GHz - 26 GHz	-31.3	-13	Pass
High Passband		Fundamental	-15.82	-13	Pass
High Passband		30 MHz - 1 GHz	-29.31	-13	Pass
High Passband		1 GHz - 3 GHz	-18.56	-13	Pass
High Passband		3 GHz - 18 GHz	-32.06	-13	Pass
High Passband		18 GHz - 26 GHz	-31.63	-13	Pass

INTERMODULATION

Low Passband						
Frequency Range			Max Value (dBm)	Limit ≤ (dBm)	Result	
Fundamental			-16.83	-13	Pass	

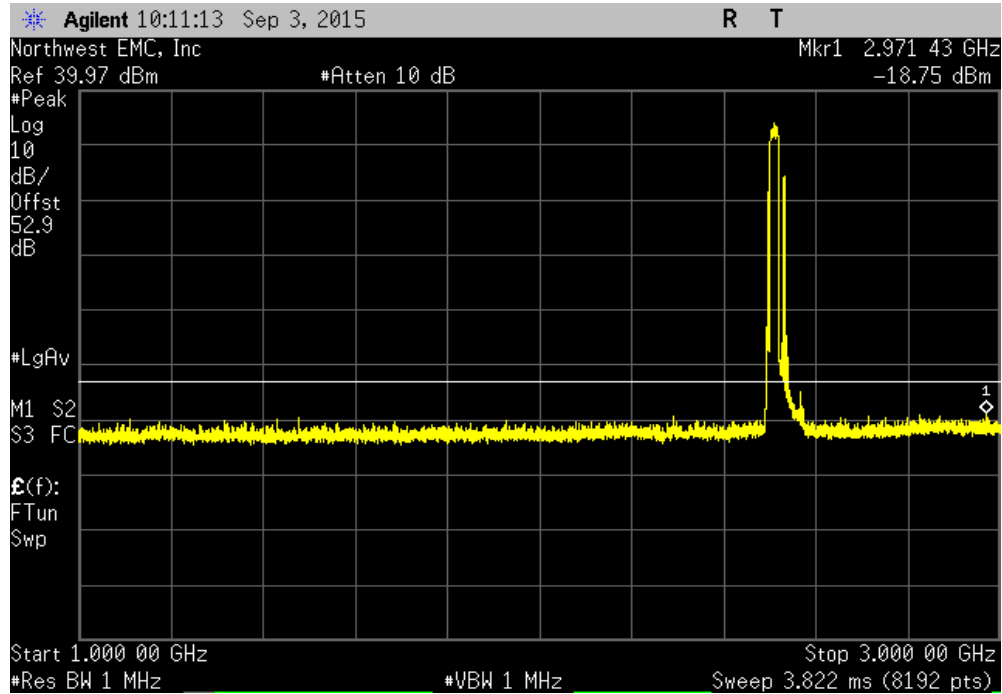


Low Passband						
Frequency Range			Max Value (dBm)	Limit ≤ (dBm)	Result	
30 MHz - 1 GHz			-29.23	-13	Pass	

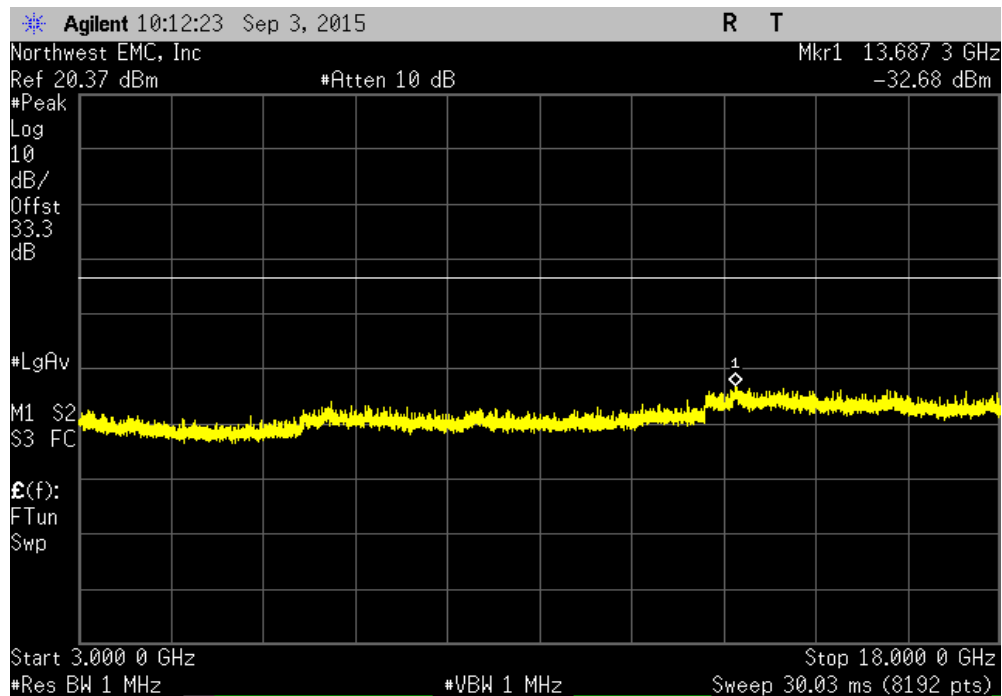


INTERMODULATION

Low Passband				
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result	
1 GHz - 3 GHz	-18.75	-13	Pass	

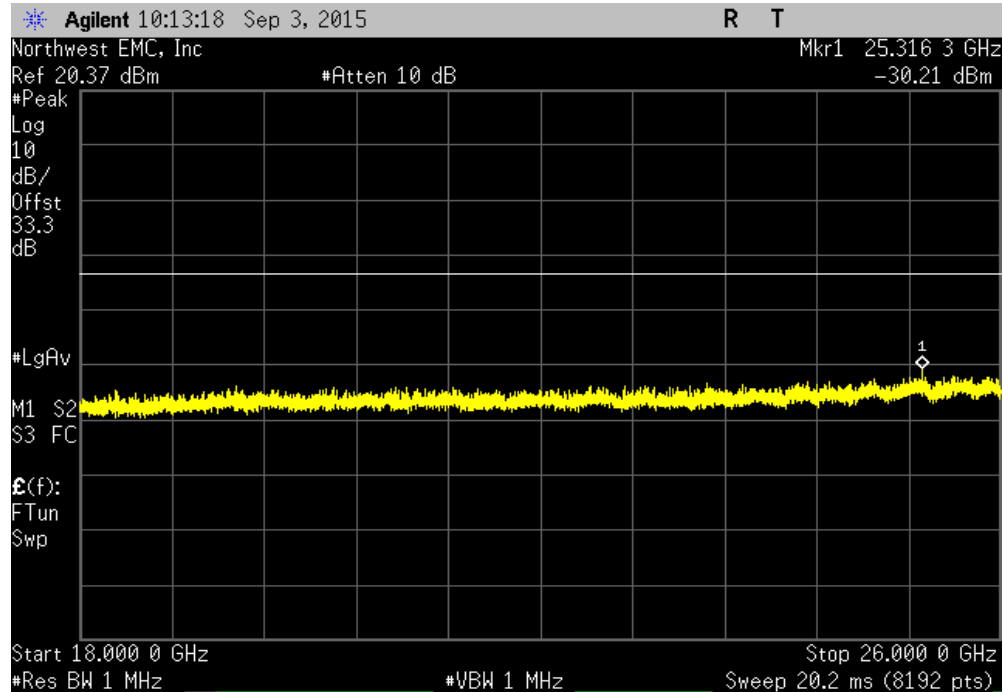


Low Passband				
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result	
3 GHz - 18 GHz	-32.68	-13	Pass	

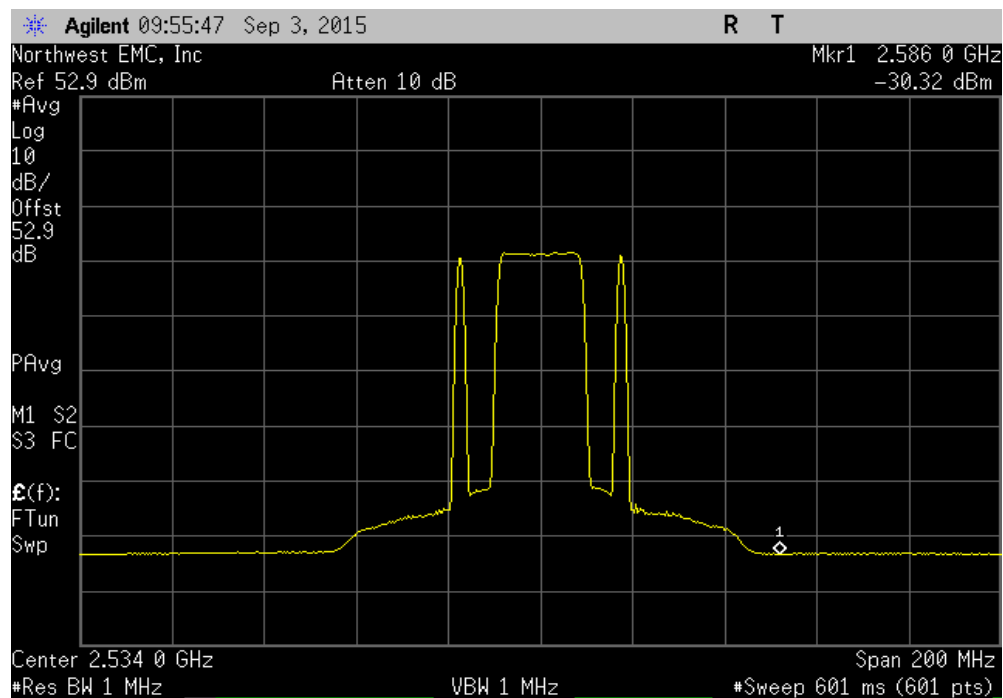


INTERMODULATION

Low Passband				
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result	
18 GHz - 26 GHz	-30.21	-13	Pass	

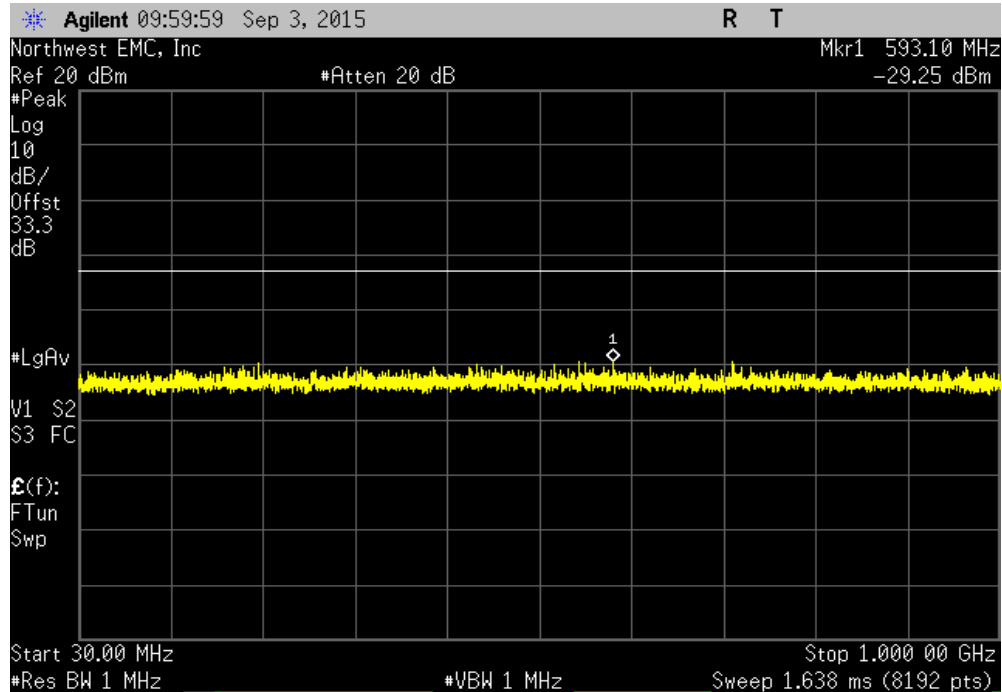


Mid Passband				
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result	
Fundamental	-30.32	-13	Pass	

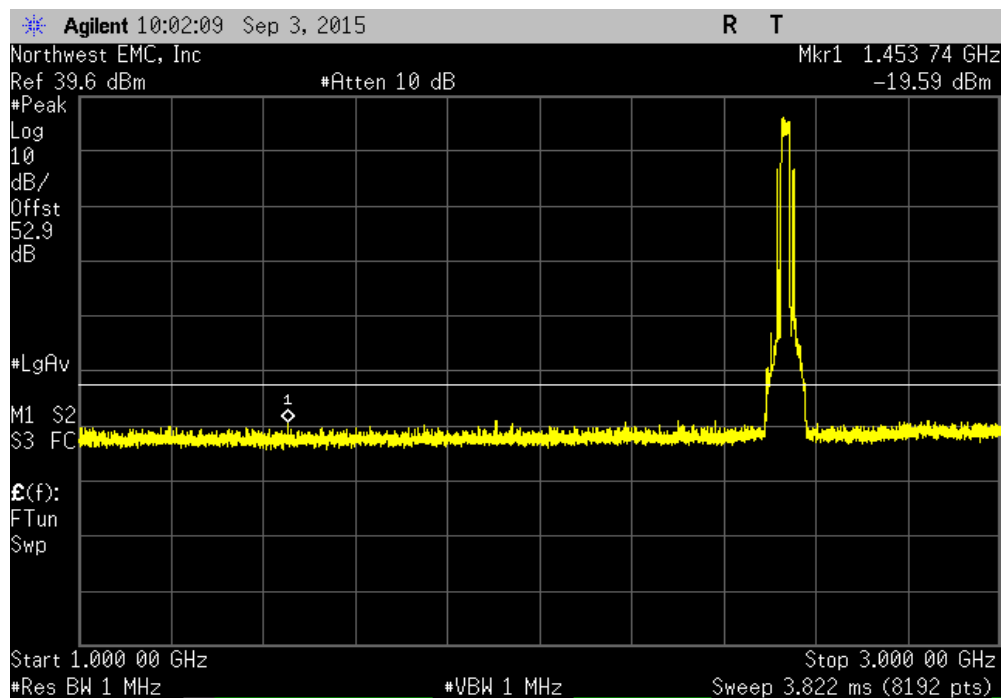


INTERMODULATION

Mid Passband					
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result		
30 MHz - 1 GHz	-29.25	-13	Pass		

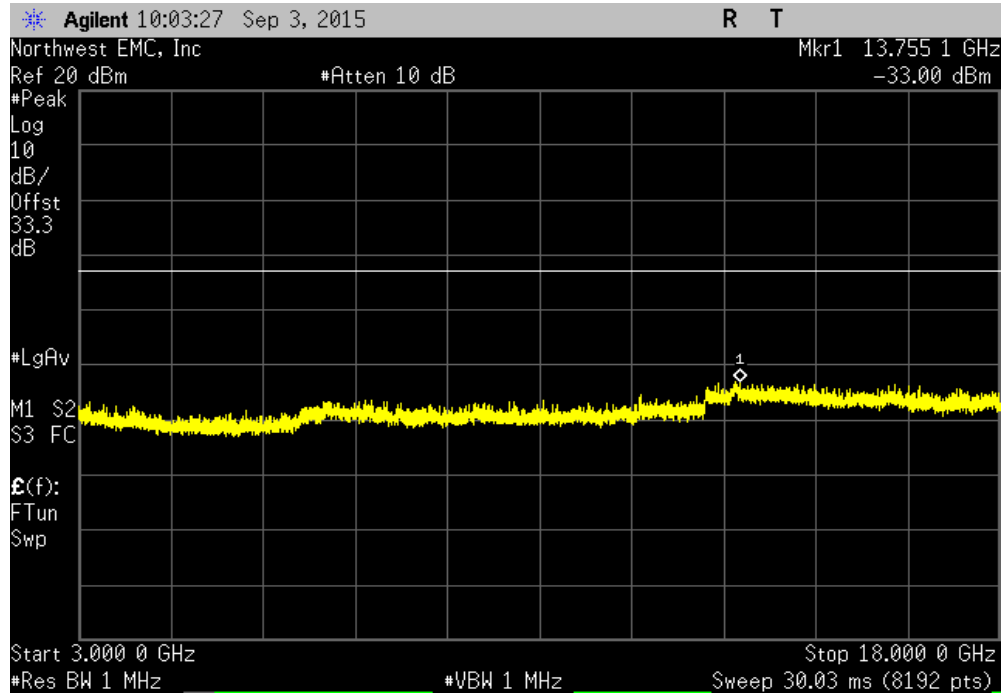


Mid Passband					
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result		
1 GHz - 3 GHz	-19.59	-13	Pass		

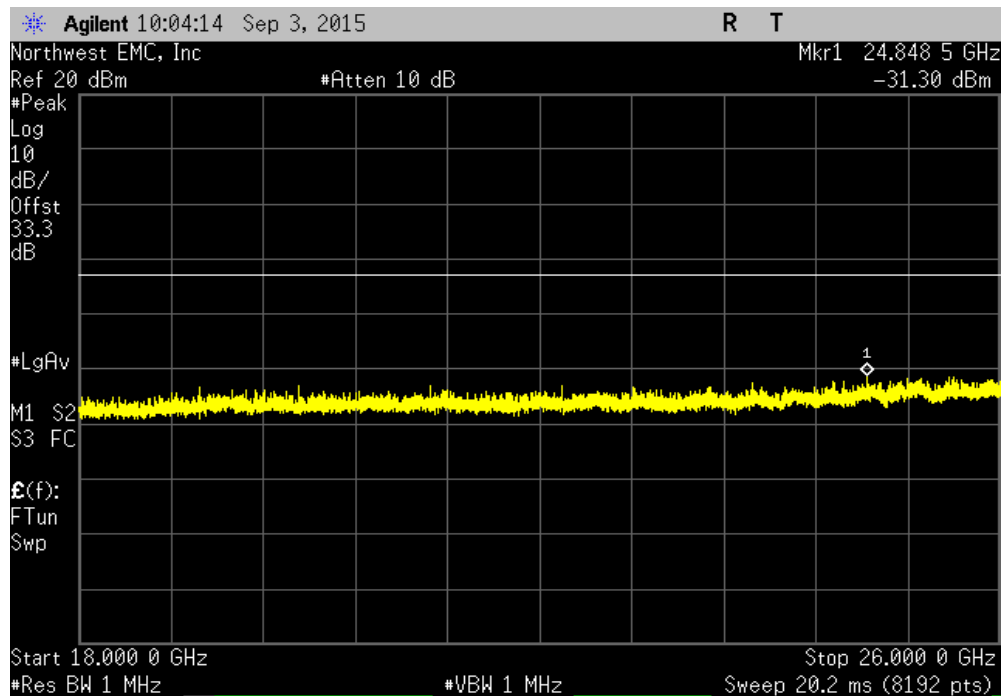


INTERMODULATION

Mid Passband				
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result	
3 GHz - 18 GHz	-33	-13	Pass	

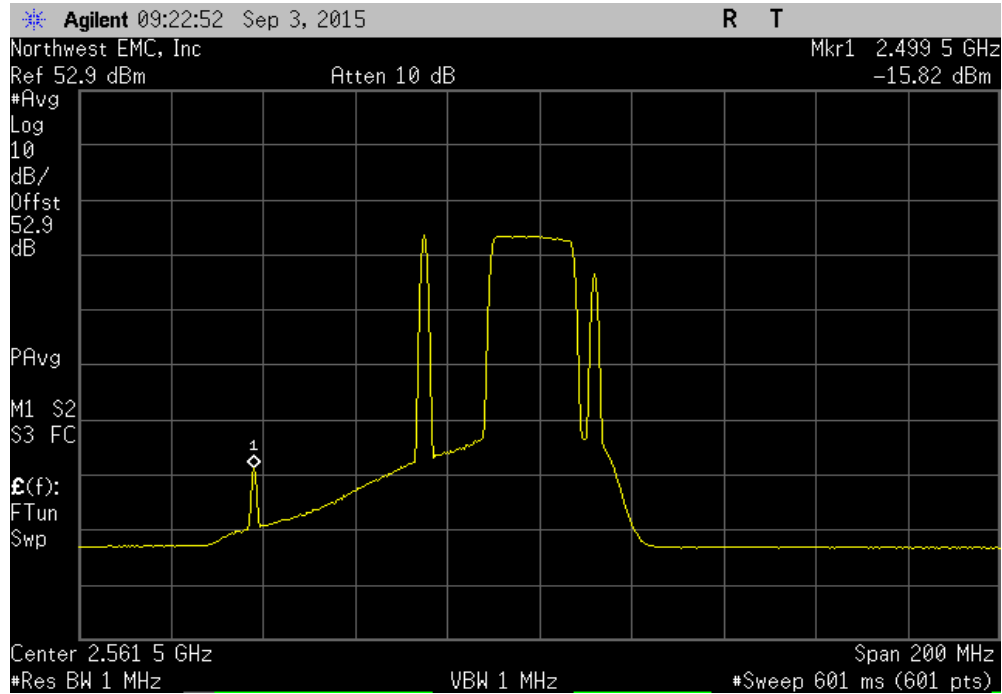


Mid Passband				
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result	
18 GHz - 26 GHz	-31.3	-13	Pass	

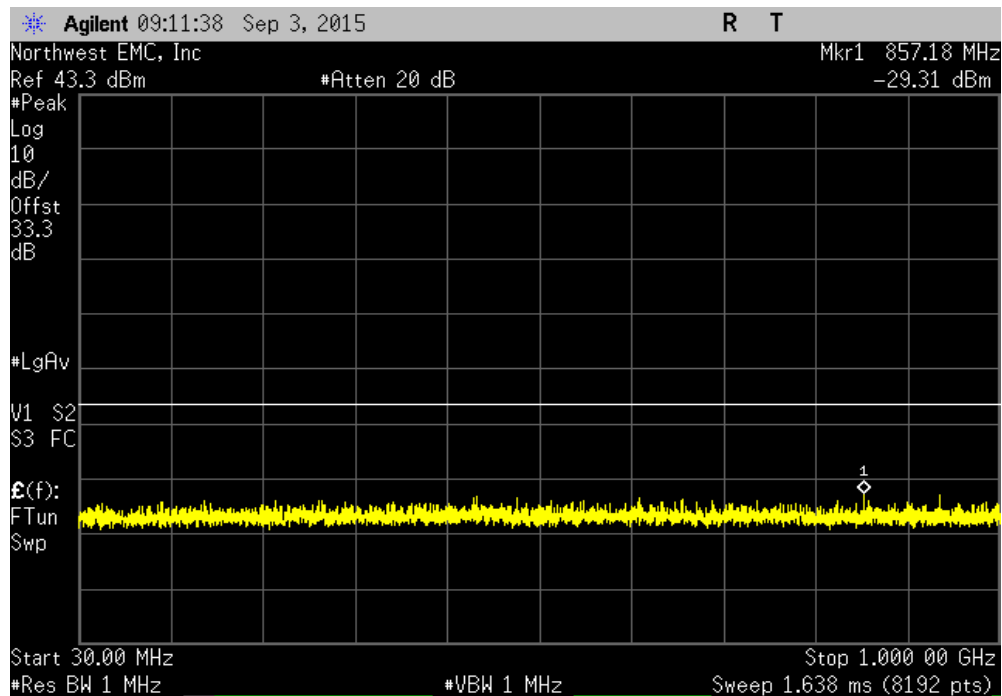


INTERMODULATION

High Passband						
Frequency Range		Max Value (dBm)		Limit ≤ (dBm)		Result
Fundamental		-15.82		-13		Pass

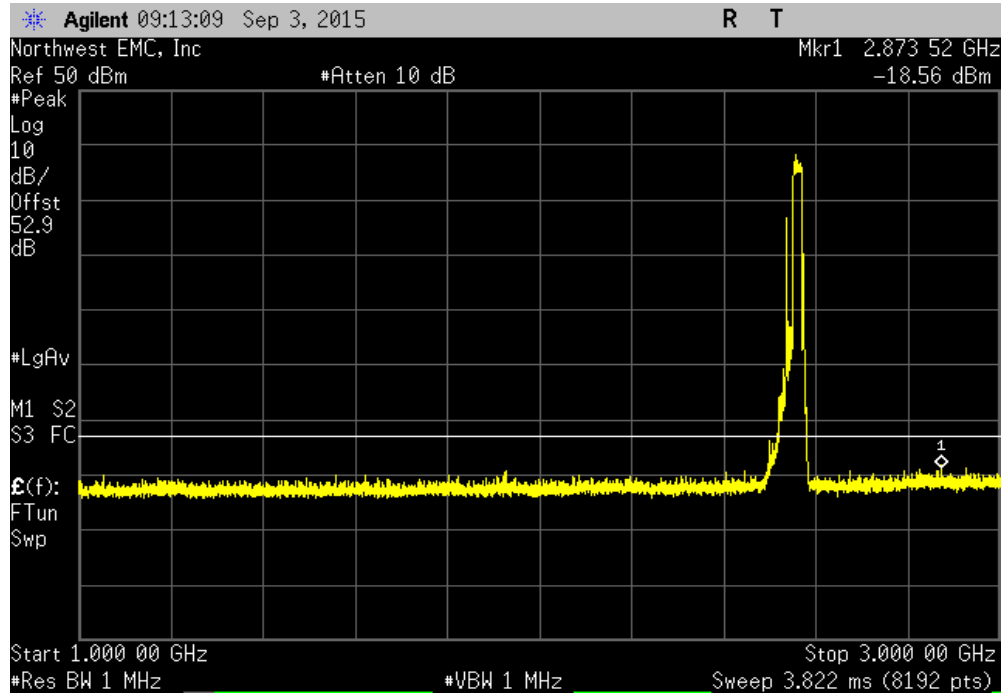


High Passband						
Frequency Range		Max Value (dBm)		Limit ≤ (dBm)		Result
30 MHz - 1 GHz		-29.31		-13		Pass

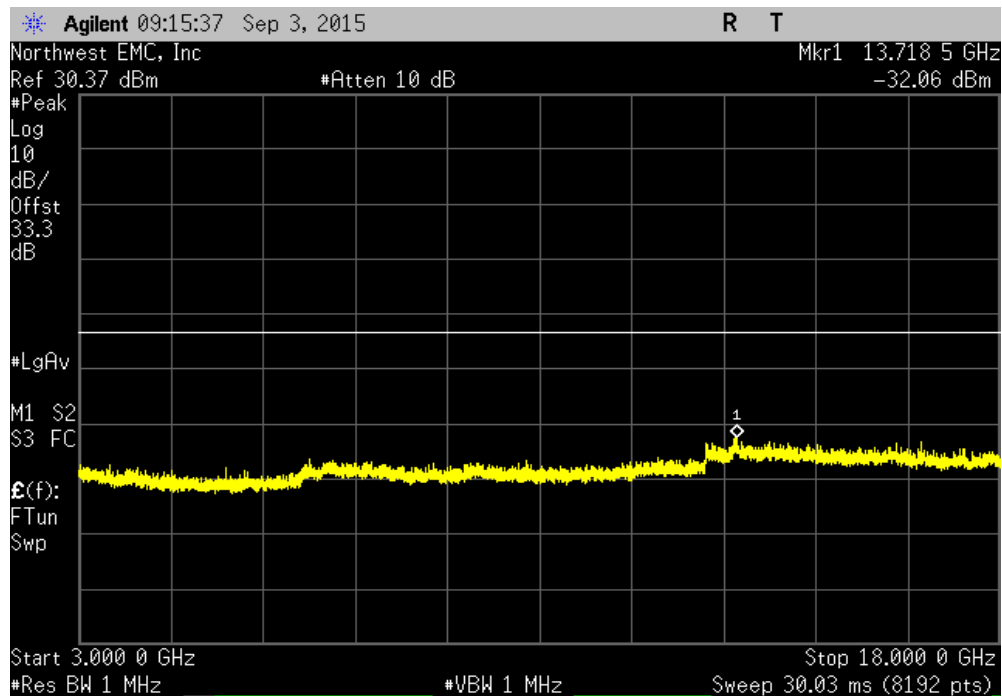


INTERMODULATION

High Passband				
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result	
1 GHz - 3 GHz	-18.56	-13	Pass	

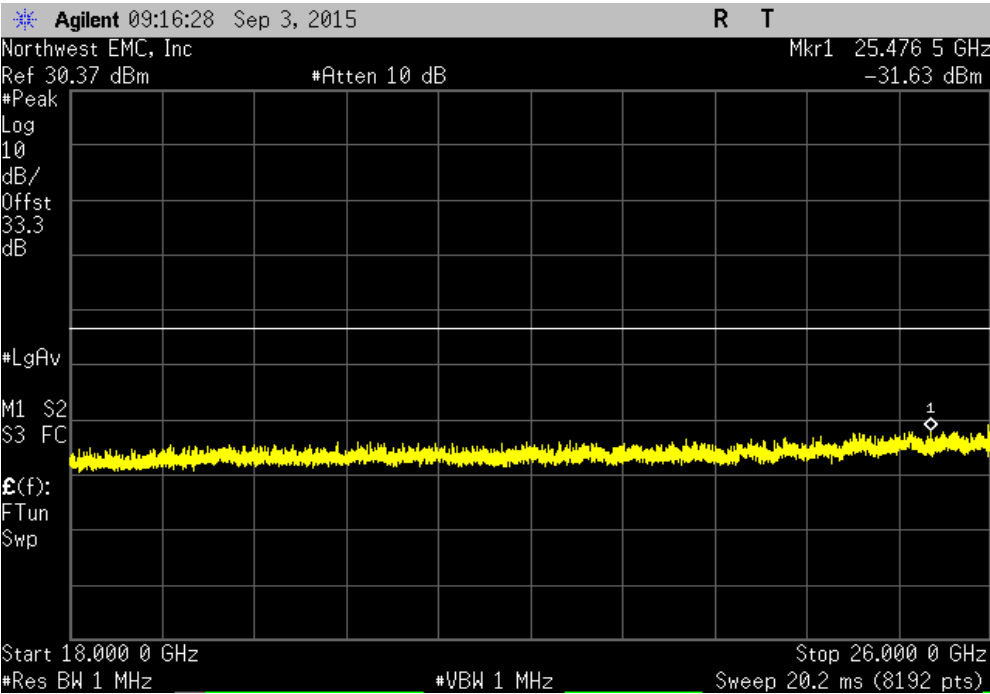


High Passband				
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result	
3 GHz - 18 GHz	-32.06	-13	Pass	



INTERMODULATION

High Passband				
Frequency Range	Max Value (dBm)	Limit ≤ (dBm)	Result	
18 GHz - 26 GHz	-31.63	-13	Pass	



FREQUENCY STABILITY

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Meter - Multimeter	Fluke	117/EFSP	MLR	5/27/2015	36
Thermometer	Omega Engineering, Inc.	HH311	DUB	11/3/2014	36
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-32-3.5-SCT/AC	TBF	10/10/2014	12
Transformer	Powerstat	246	XFR	NCR	0
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12
Attenuator	S.M. Electronics	SA26B-20	RFW	3/10/2015	12
Block - DC	Fairview Microwave	SD3379	AMI	10/2/2014	12
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	36
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	4/20/2015	12

TEST DESCRIPTION

An RF signal generator was used to create the modulated signal(s) listed in the datasheets. These signals were input into the EUT.

A direct connect measurement was made between the EUT's antenna cable and a spectrum analyzer. The spectrum analyzer is equipped with a precision frequency reference that exceeds the stability requirement of the EUT.

Measurements were made at the edges of the main transmit bands as called out on the data sheets. 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) and at 10°C intervals.

Per the requirements of FCC Part 27.54:

"The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation."

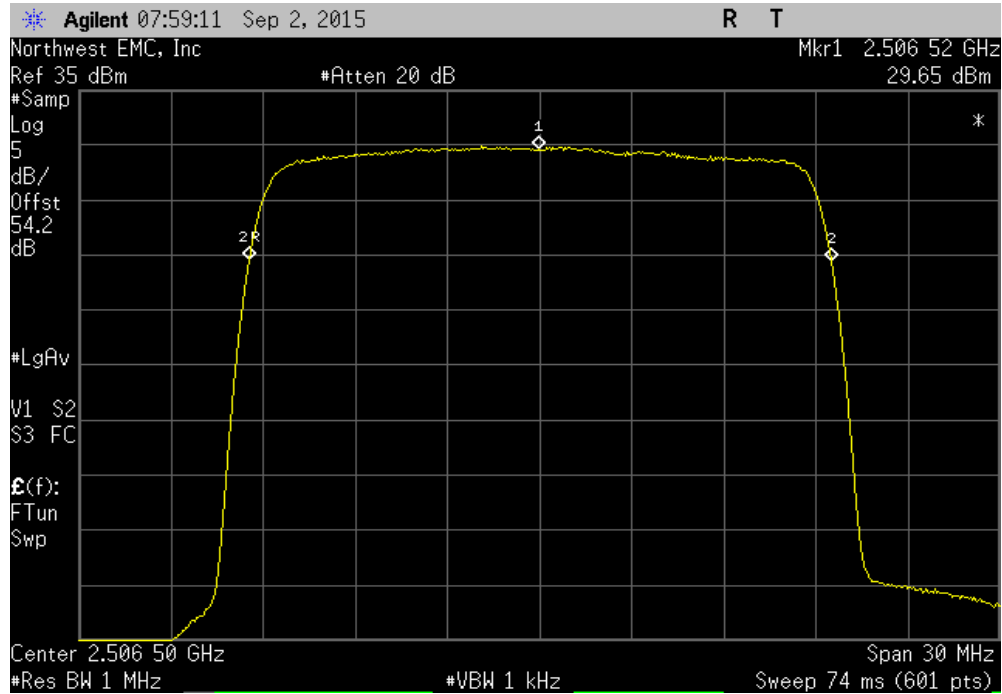
No specific limits are provided in either FCC 27.54, the product specific rule part, or FCC 2.1055, the equipment authorization procedure for testing frequency stability. While there are no limits called out, any results less than 100ppm will still allow the radio to be operating within the band.

FREQUENCY STABILITY

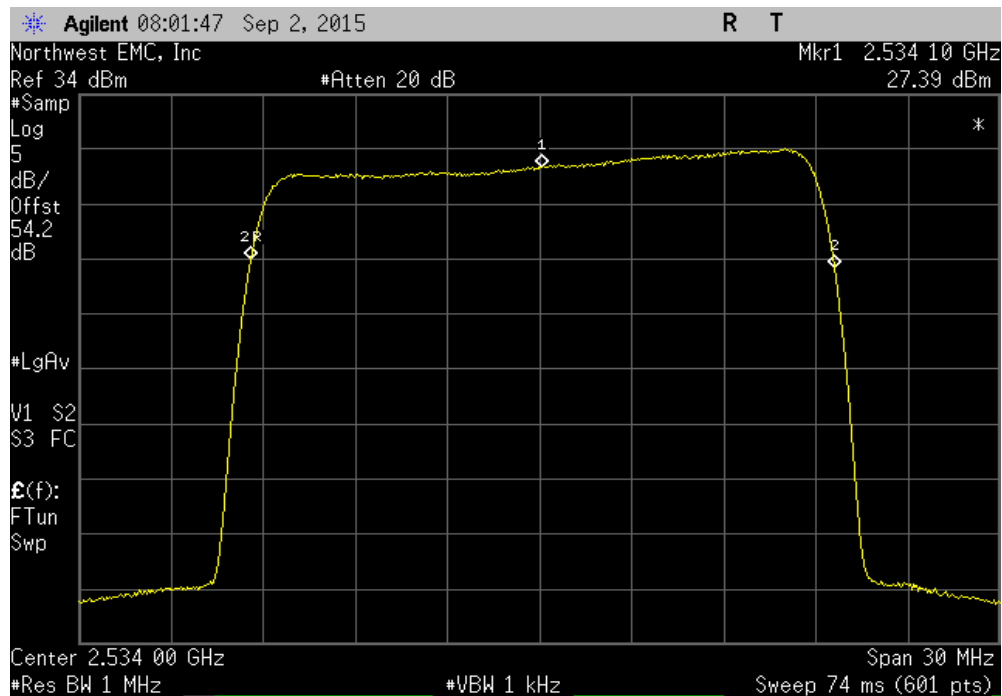
EUT: Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM			Work Order: TECO0031			
Serial Number: None			Date: 09/02/15			
Customer: ADC Telecommunications / Commscope			Temperature: 22.3°C			
Attendees: None			Humidity: 65%			
Project: None			Barometric Pres.: 982.6			
Tested by: Trevor Buls		Power: 110VAC/60Hz	Job Site: MN08			
TEST SPECIFICATIONS		Test Method				
FCC 27:2015		ANSI/TIA/EIA-603-C-2004				
COMMENTS						
Port 0 was determined to be worst case.						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	1	Signature <i>Trevor Buls</i>				
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
Voltage: 115%						
	Low Channel, 2506.5 MHz	2506.52	2506.5	8	100	Pass
	Mid Channel, 2534 MHz	2534.1	2534	39.5	100	Pass
	High Channel, 2561.5 MHz	2561.45	2561.5	19.5	100	Pass
Voltage: 100%						
	Low Channel, 2506.5 MHz	2506.52	2506.5	8	100	Pass
	Mid Channel, 2534 MHz	2534.1	2534	39.5	100	Pass
	High Channel, 2561.5 MHz	2561.42	2561.5	31.2	100	Pass
Voltage: 85%						
	Low Channel, 2506.5 MHz	2506.52	2506.5	8	100	Pass
	Mid Channel, 2534 MHz	2534.1	2534	39.5	100	Pass
	High Channel, 2561.5 MHz	2561.45	2561.5	19.5	100	Pass
Temperature: +50°						
	Low Channel, 2506.5 MHz	2506.52	2506.5	8	100	Pass
	Mid Channel, 2534 MHz	2534.08	2534	31.6	100	Pass
	High Channel, 2561.5 MHz	2561.45	2561.5	19.5	100	Pass
Temperature: +40°						
	Low Channel, 2506.5 MHz	2506.55	2506.5	20	100	Pass
	Mid Channel, 2534 MHz	2534.08	2534	31.6	100	Pass
	High Channel, 2561.5 MHz	2561.45	2561.5	19.5	100	Pass
Temperature: +30°						
	Low Channel, 2506.5 MHz	2506.5	2506.5	0	100	Pass
	Mid Channel, 2534 MHz	2534.08	2534	31.6	100	Pass
	High Channel, 2561.5 MHz	2561.45	2561.5	19.5	100	Pass
Temperature: +20°						
	Low Channel, 2506.5 MHz	2506.52	2506.5	8	100	Pass
	Mid Channel, 2534 MHz	2534.1	2534	39.5	100	Pass
	High Channel, 2561.5 MHz	2561.45	2561.5	19.5	100	Pass
Temperature: +10°						
	Low Channel, 2506.5 MHz	2506.52	2506.5	8	100	Pass
	Mid Channel, 2534 MHz	2534.1	2534	39.5	100	Pass
	High Channel, 2561.5 MHz	2561.45	2561.5	19.5	100	Pass
Temperature: 0°						
	Low Channel, 2506.5 MHz	2506.55	2506.5	20	100	Pass
	Mid Channel, 2534 MHz	2534.1	2534	39.5	100	Pass
	High Channel, 2561.5 MHz	2561.45	2561.5	19.5	100	Pass
Temperature: -10°						
	Low Channel, 2506.5 MHz	2506.5	2506.5	0	100	Pass
	Mid Channel, 2534 MHz	2534.08	2534	31.6	100	Pass
	High Channel, 2561.5 MHz	2561.42	2561.5	31.2	100	Pass
Temperature: -20°						
	Low Channel, 2506.5 MHz	2506.52	2506.5	8	100	Pass
	Mid Channel, 2534 MHz	2534.08	2534	31.6	100	Pass
	High Channel, 2561.5 MHz	2561.45	2561.5	19.5	100	Pass
Temperature: -30°						
	Low Channel, 2506.5 MHz	2506.52	2506.5	8	100	Pass
	Mid Channel, 2534 MHz	2534.08	2534	31.6	100	Pass
	High Channel, 2561.5 MHz	2561.45	2561.5	19.5	100	Pass

FREQUENCY STABILITY

Voltage: 115%, Low Channel, 2506.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2506.52	2506.5	8	100	Pass	

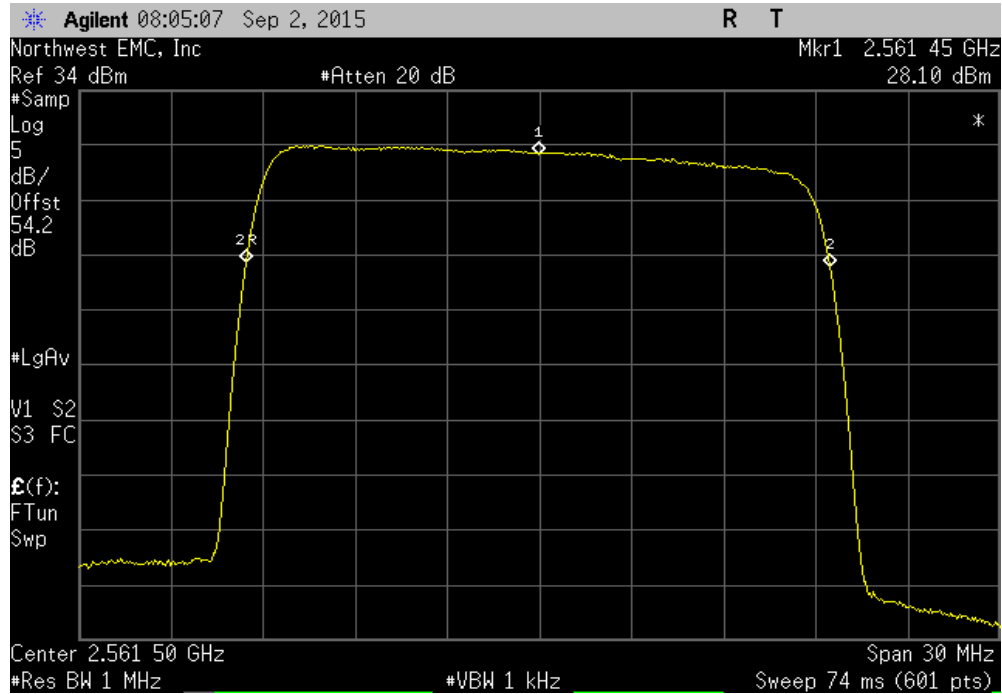


Voltage: 115%, Mid Channel, 2534 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2534.1	2534	39.5	100	Pass	

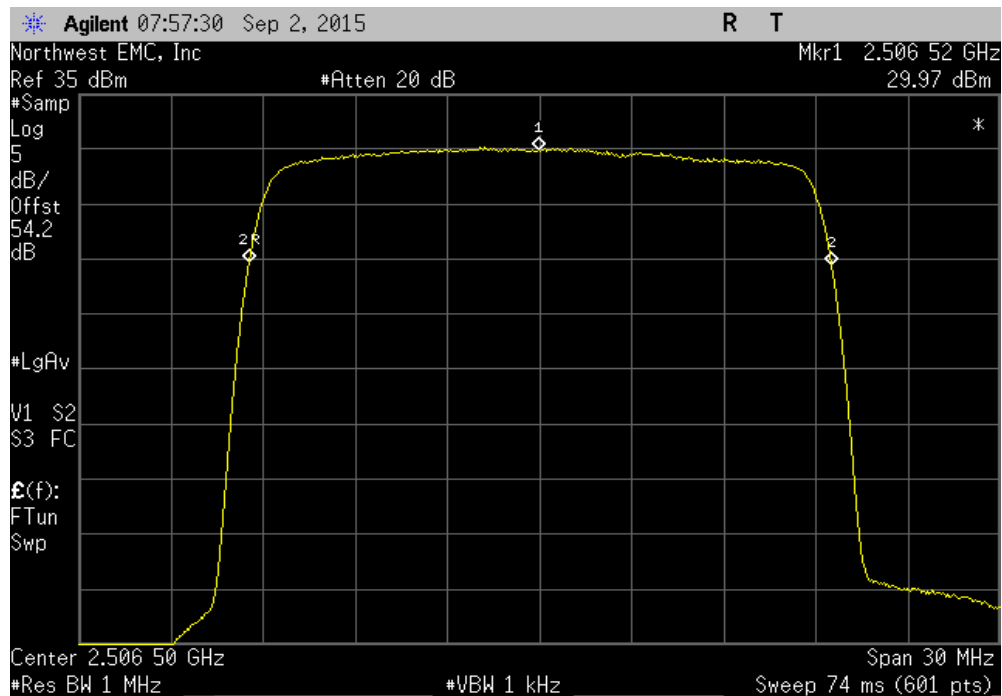


FREQUENCY STABILITY

Voltage: 115%, High Channel, 2561.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2561.45	2561.5	19.5	100	Pass	

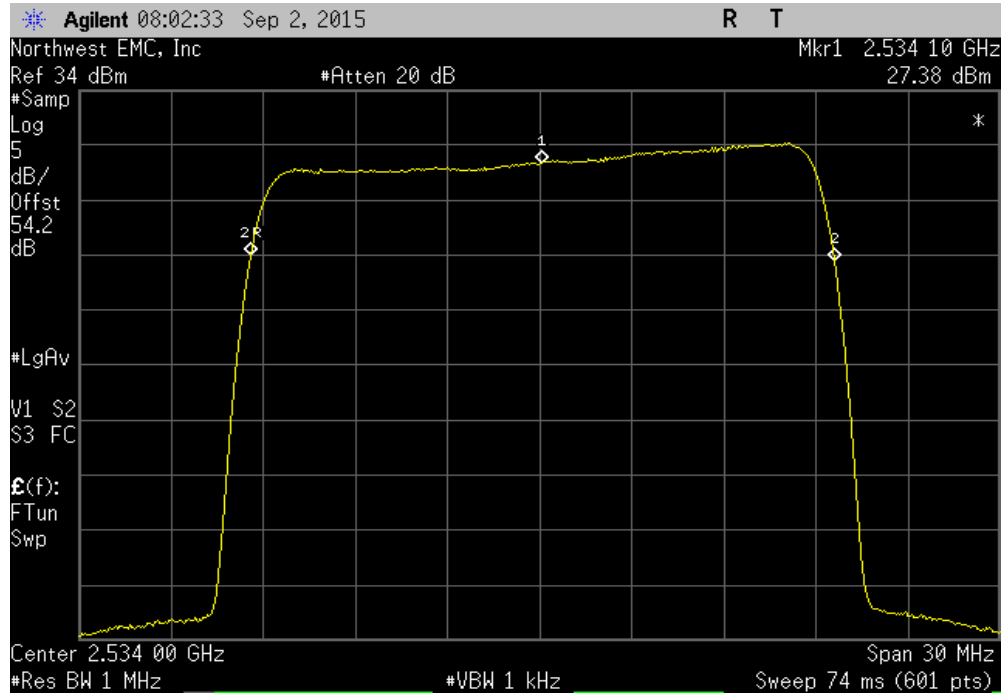


Voltage: 100%, Low Channel, 2506.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2506.52	2506.5	8	100	Pass	

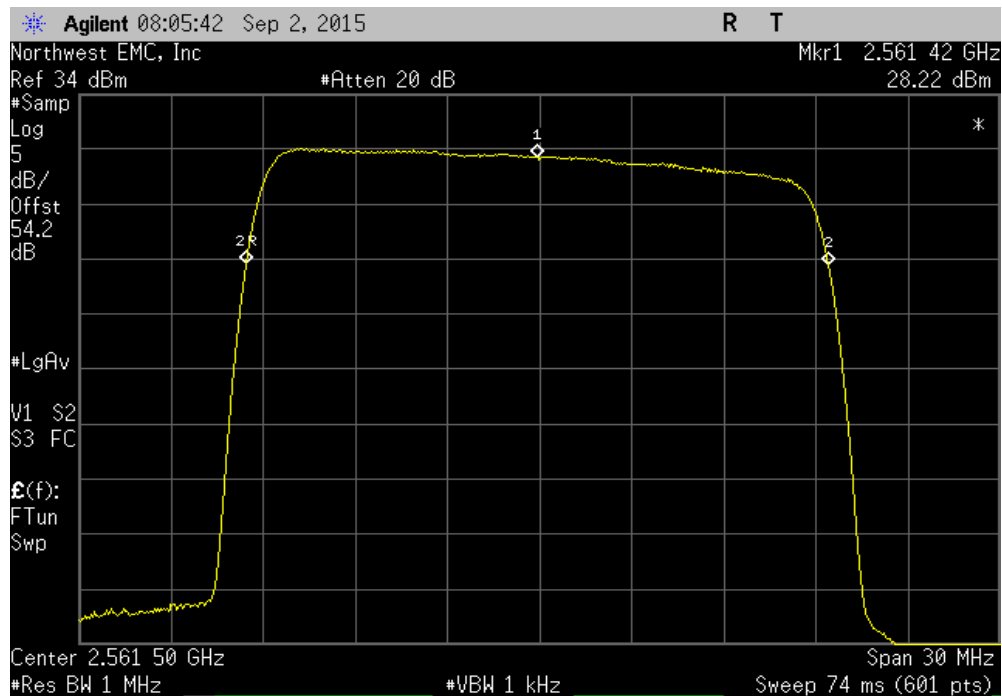


FREQUENCY STABILITY

Voltage: 100%, Mid Channel, 2534 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2534.1	2534	39.5	100	Pass	

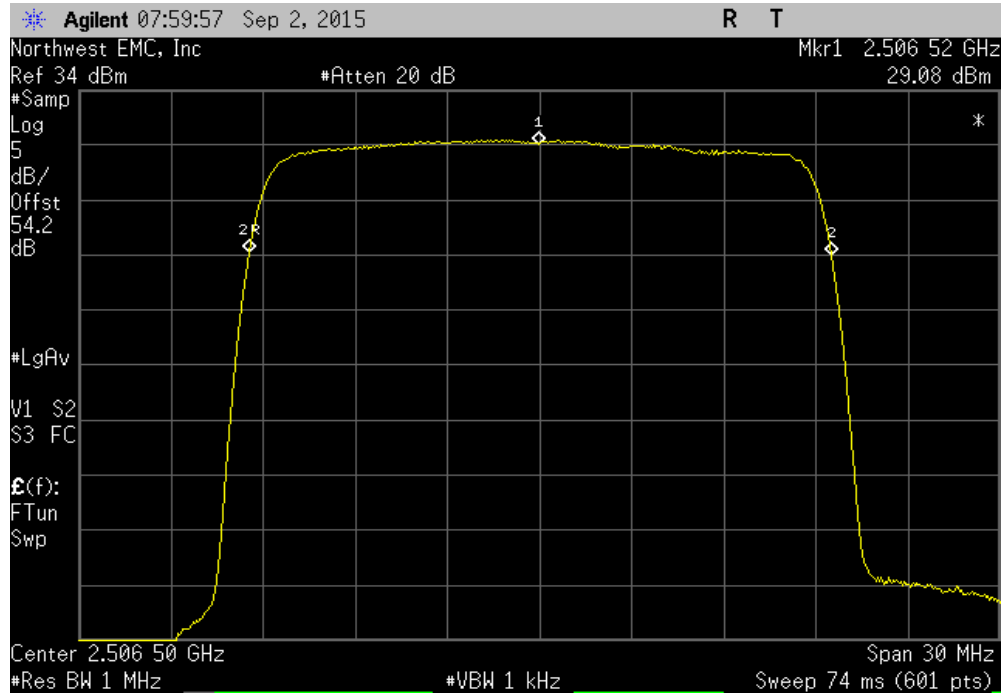


Voltage: 100%, High Channel, 2561.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2561.42	2561.5	31.2	100	Pass	

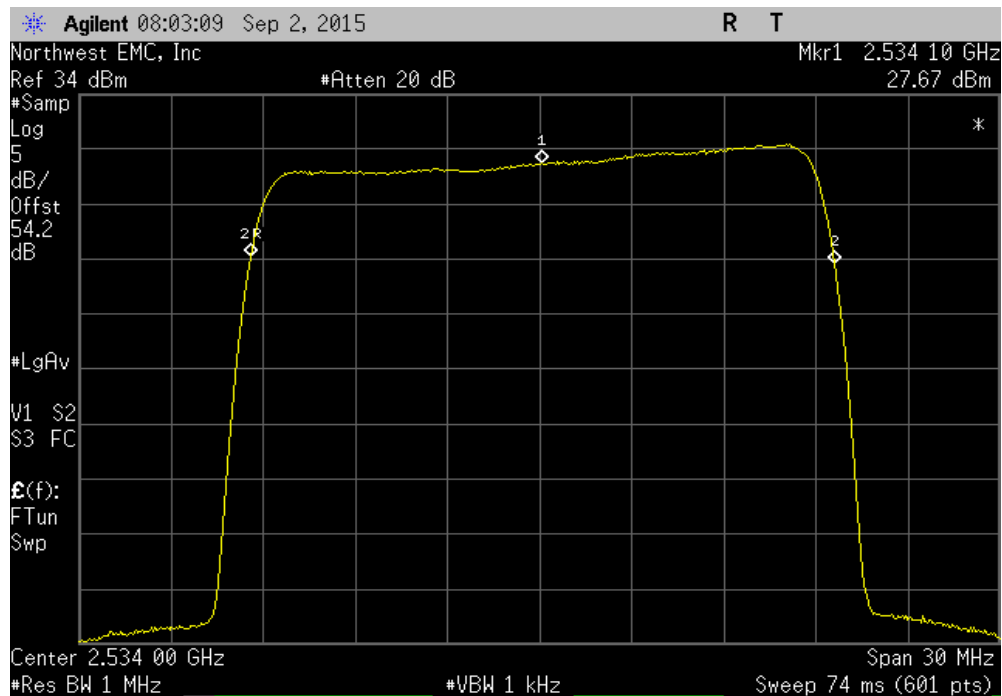


FREQUENCY STABILITY

Voltage: 85%, Low Channel, 2506.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2506.52	2506.5	8	100	Pass	

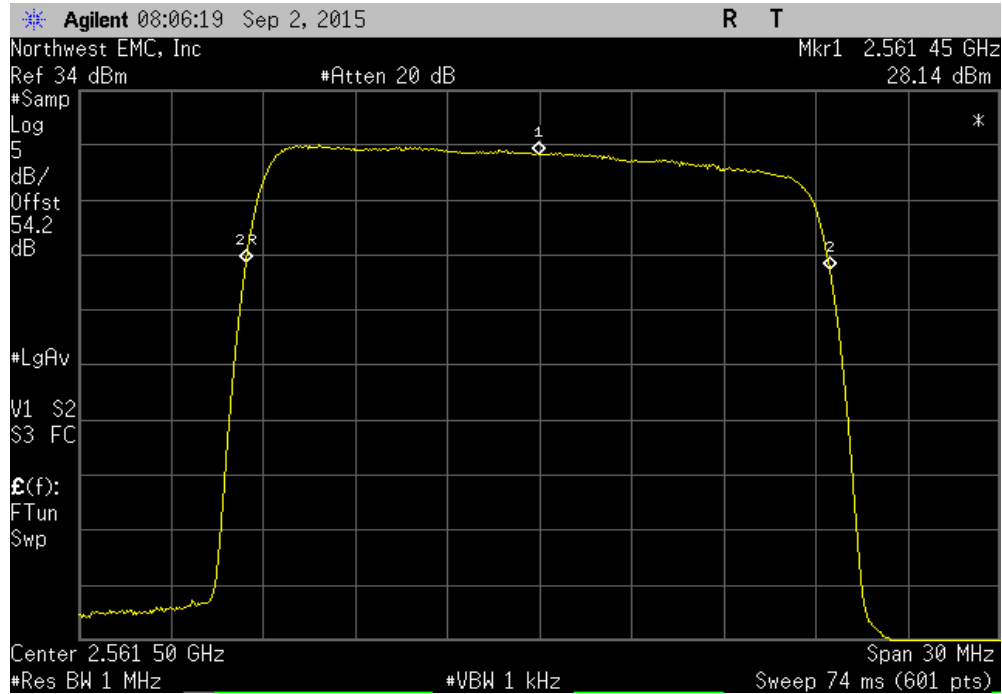


Voltage: 85%, Mid Channel, 2534 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2534.1	2534	39.5	100	Pass	

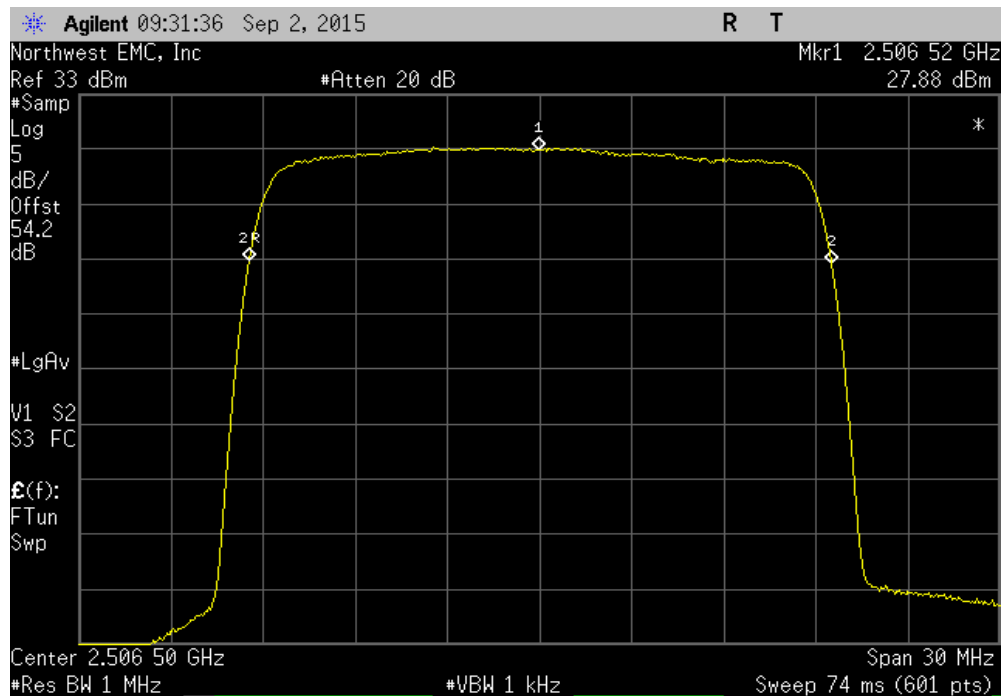


FREQUENCY STABILITY

Voltage: 85%, High Channel, 2561.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2561.45	2561.5	19.5	100	Pass	

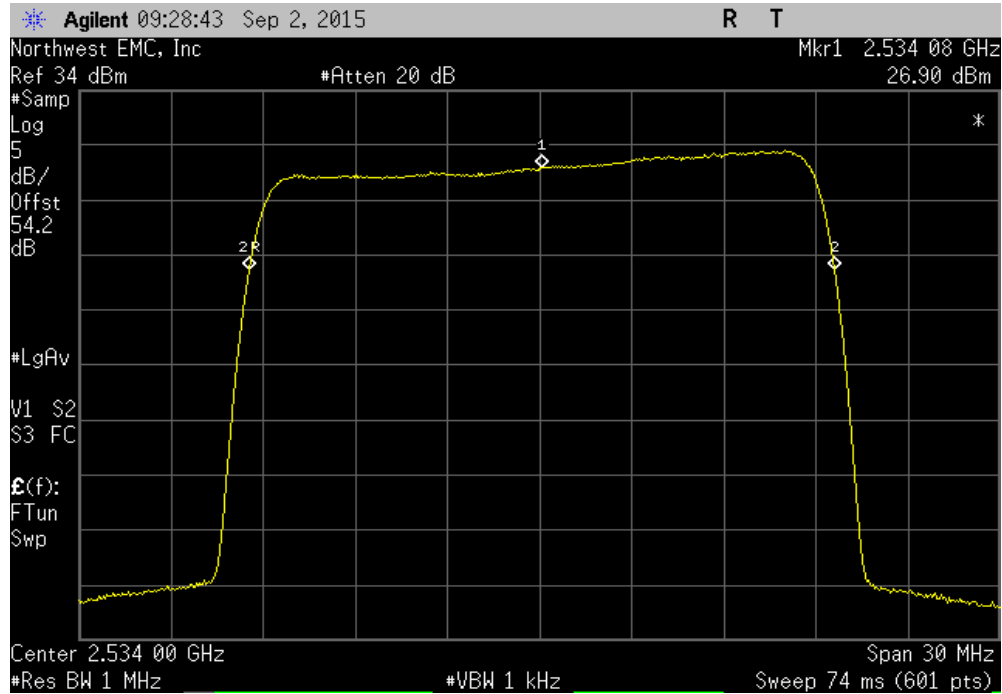


Temperature: +50°, Low Channel, 2506.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2506.52	2506.5	8	100	Pass	

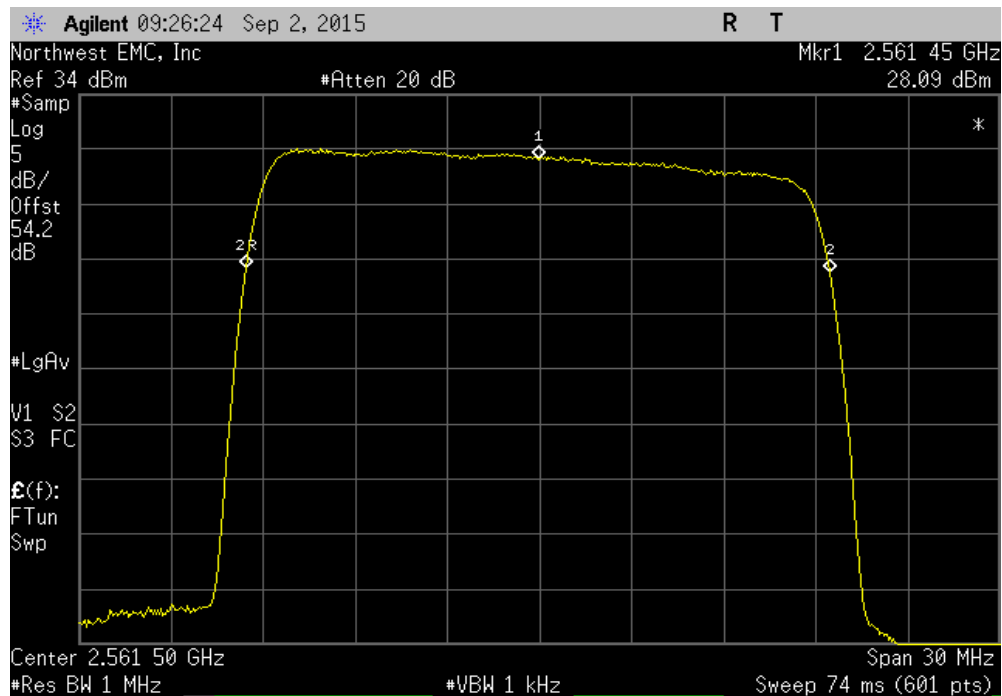


FREQUENCY STABILITY

Temperature: +50°, Mid Channel, 2534 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2534.08	2534	31.6	100	Pass	

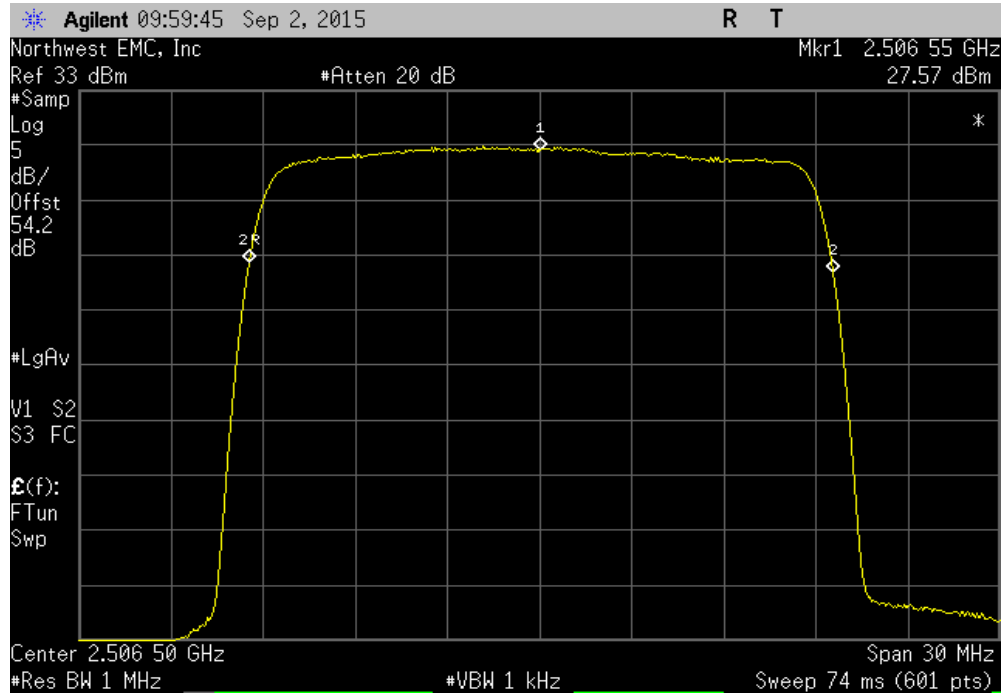


Temperature: +50°, High Channel, 2561.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2561.45	2561.5	19.5	100	Pass	

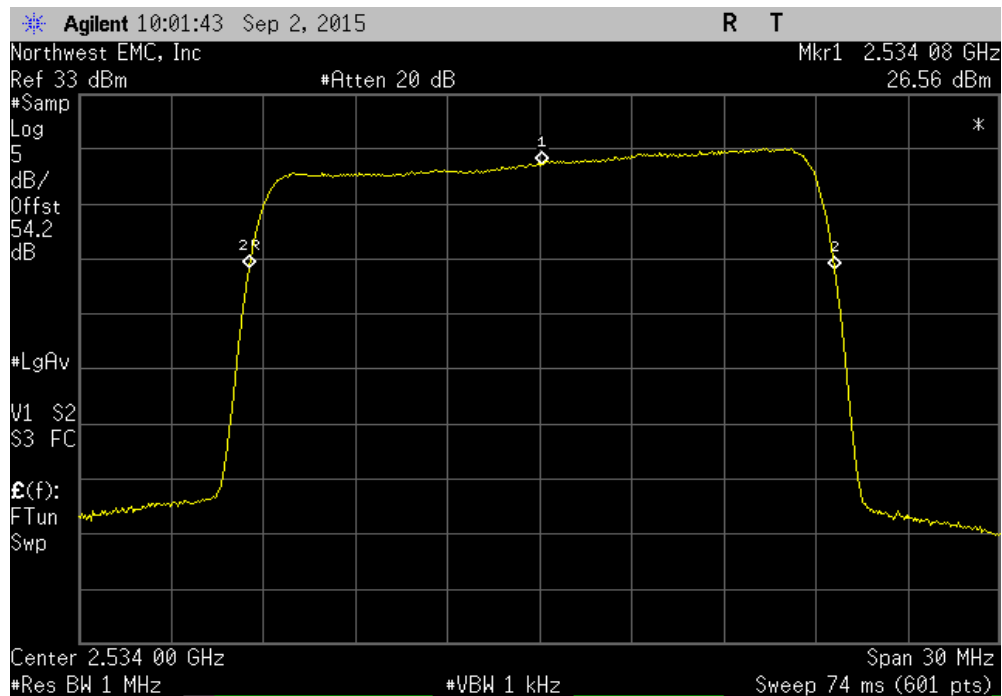


FREQUENCY STABILITY

Temperature: +40°, Low Channel, 2506.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2506.55	2506.5	20	100	Pass	

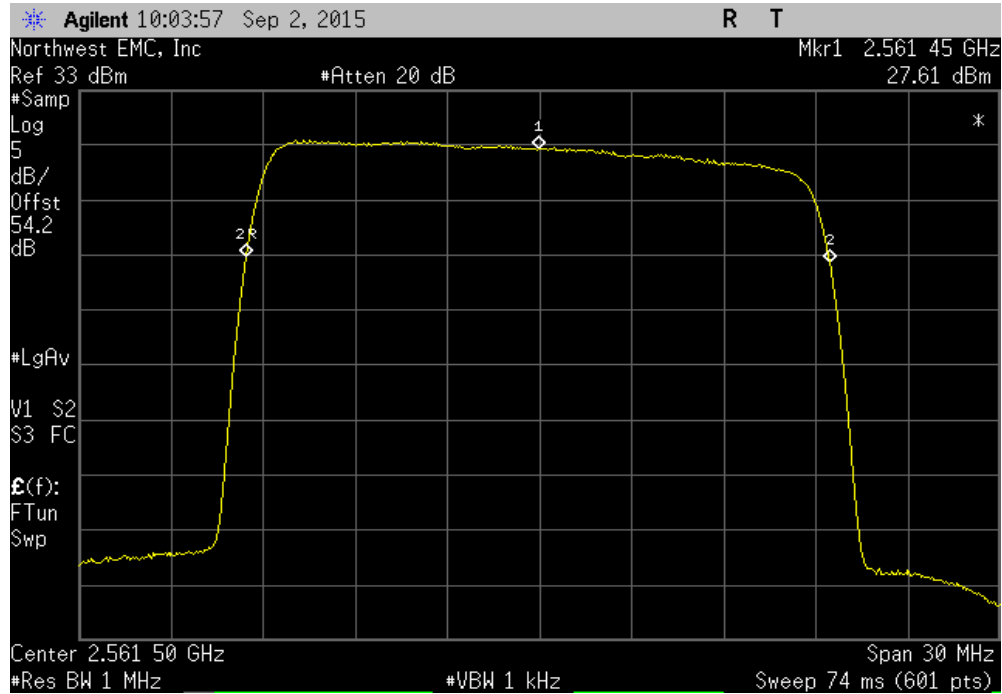


Temperature: +40°, Mid Channel, 2534 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2534.08	2534	31.6	100	Pass	

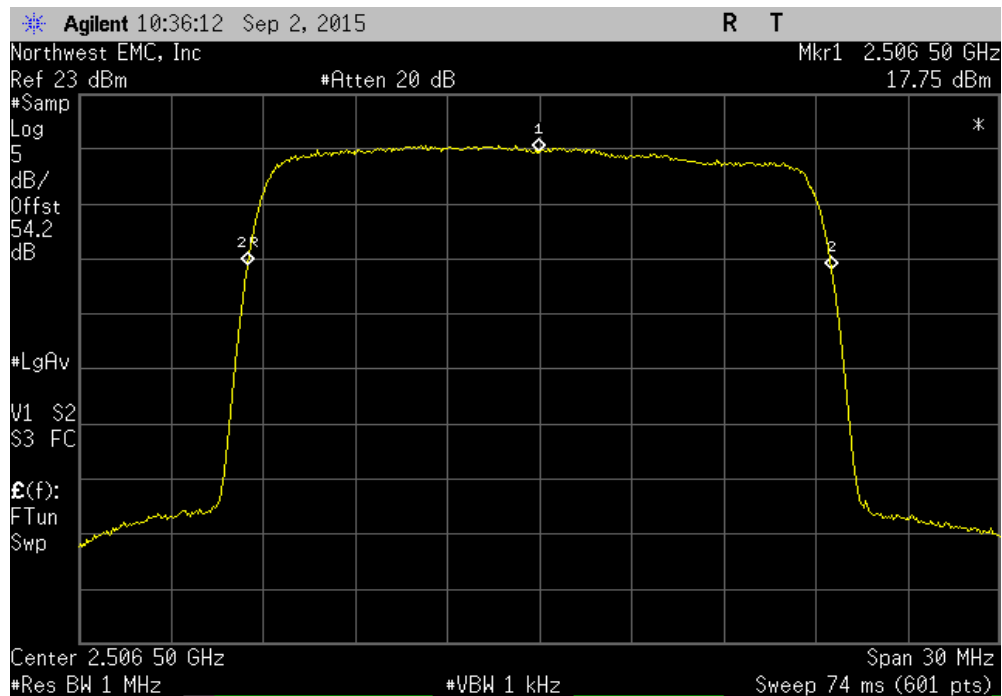


FREQUENCY STABILITY

Temperature: +40°, High Channel, 2561.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2561.45	2561.5	19.5	100	Pass	

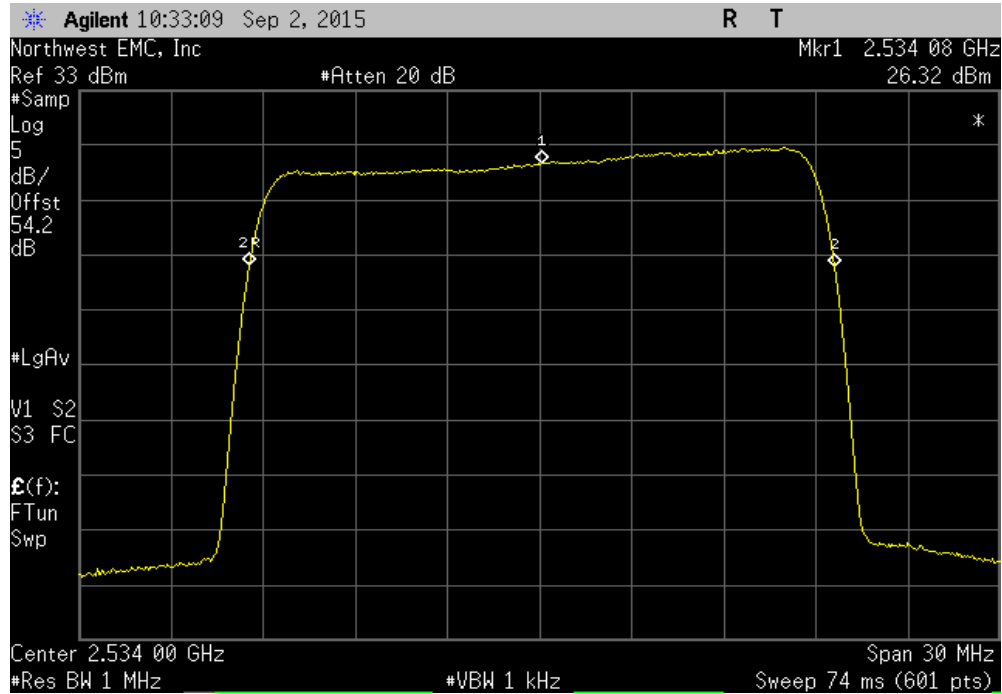


Temperature: +30°, Low Channel, 2506.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2506.5	2506.5	0	100	Pass	

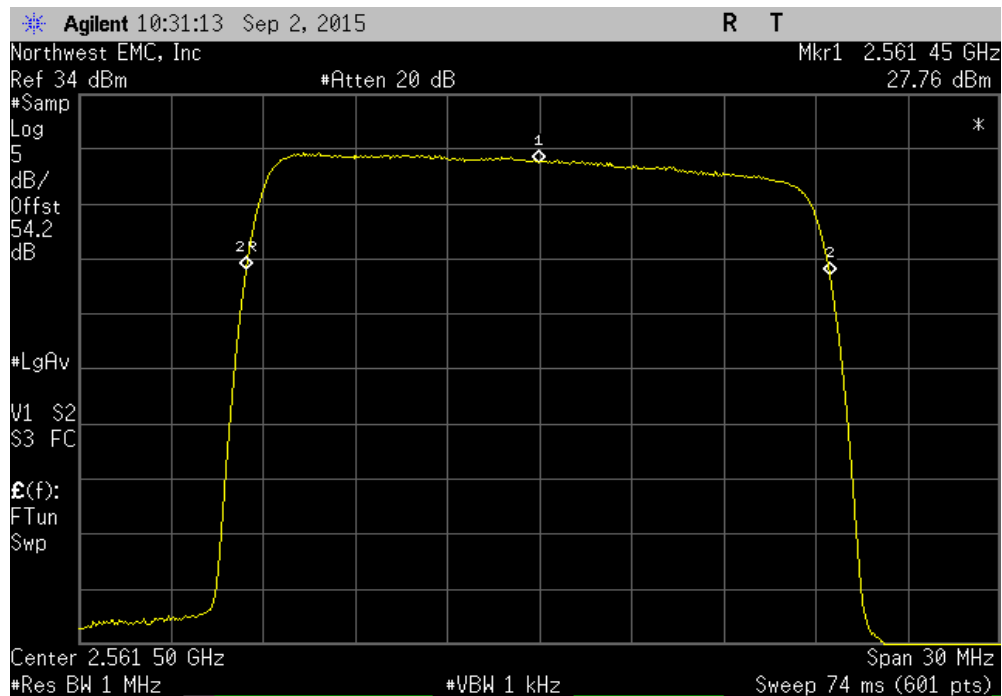


FREQUENCY STABILITY

Temperature: +30°, Mid Channel, 2534 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2534.08	2534	31.6	100	Pass	

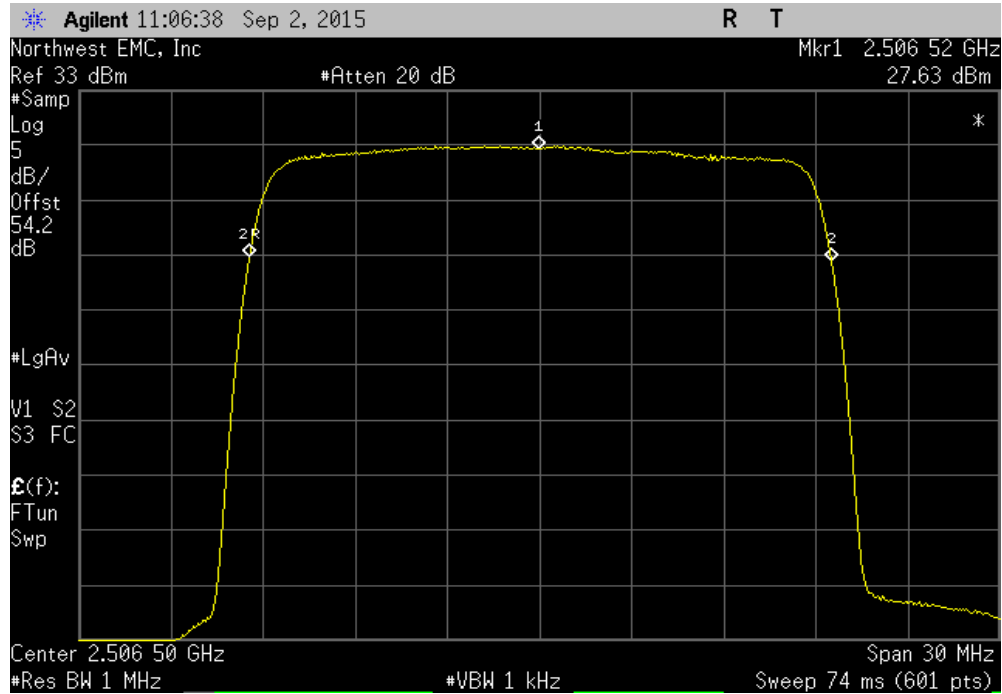


Temperature: +30°, High Channel, 2561.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2561.45	2561.5	19.5	100	Pass	

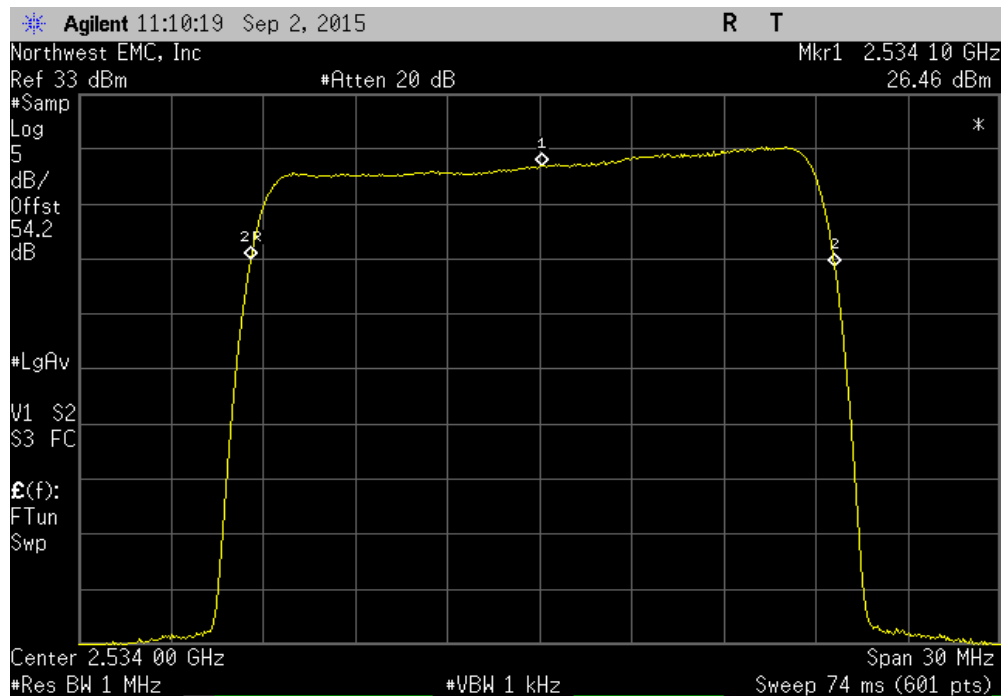


FREQUENCY STABILITY

Temperature: +20°, Low Channel, 2506.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2506.52	2506.5	8	100	Pass	

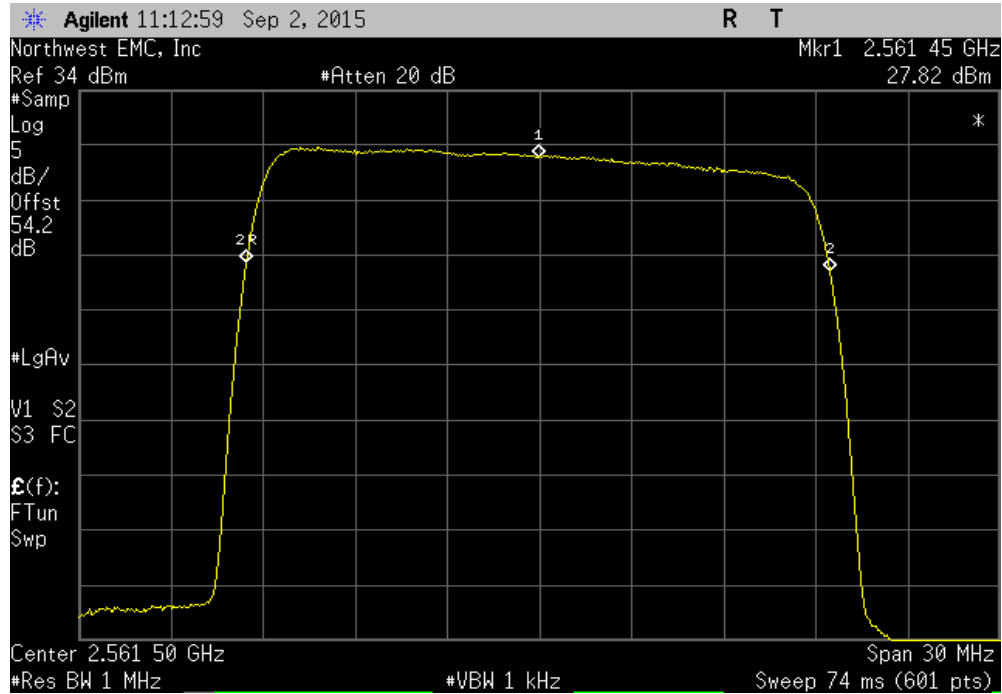


Temperature: +20°, Mid Channel, 2534 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2534.1	2534	39.5	100	Pass	

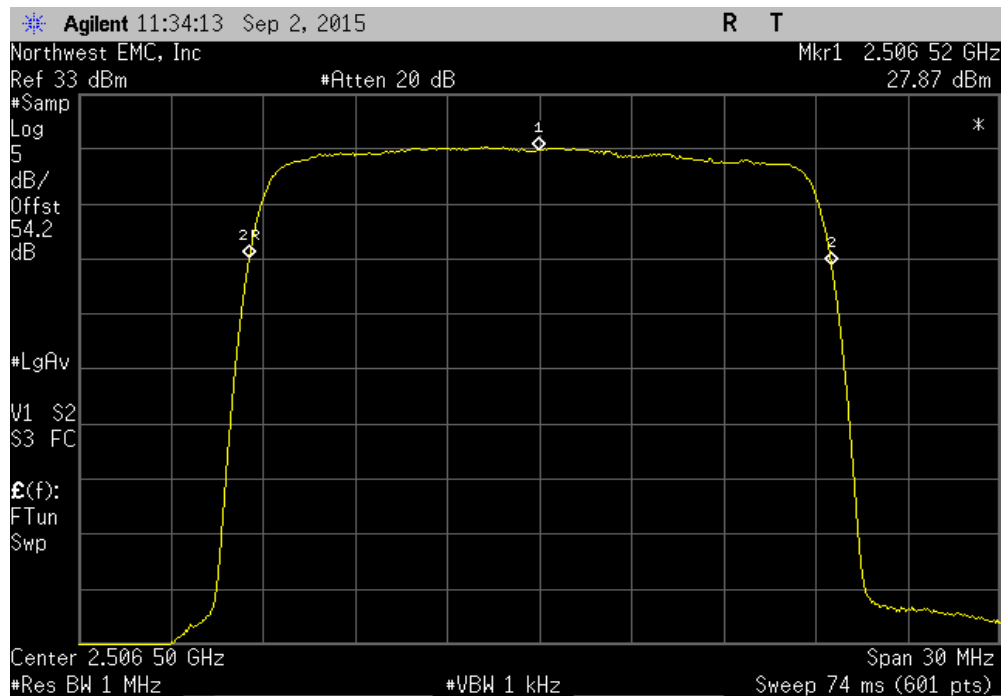


FREQUENCY STABILITY

Temperature: +20°, High Channel, 2561.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2561.45	2561.5	19.5	100	Pass	

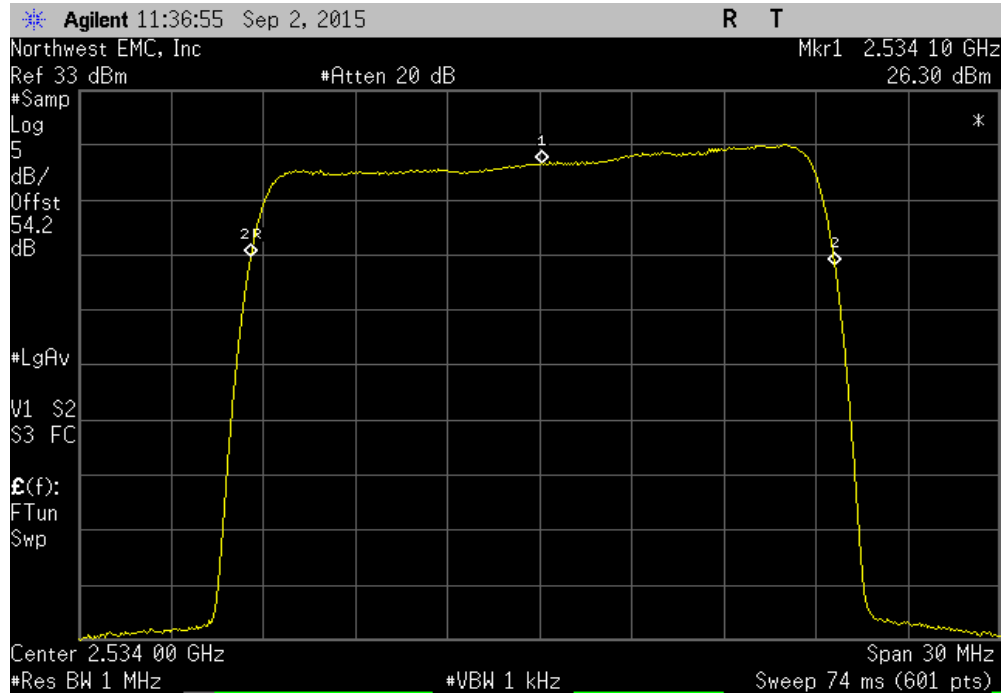


Temperature: +10°, Low Channel, 2506.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2506.52	2506.5	8	100	Pass	

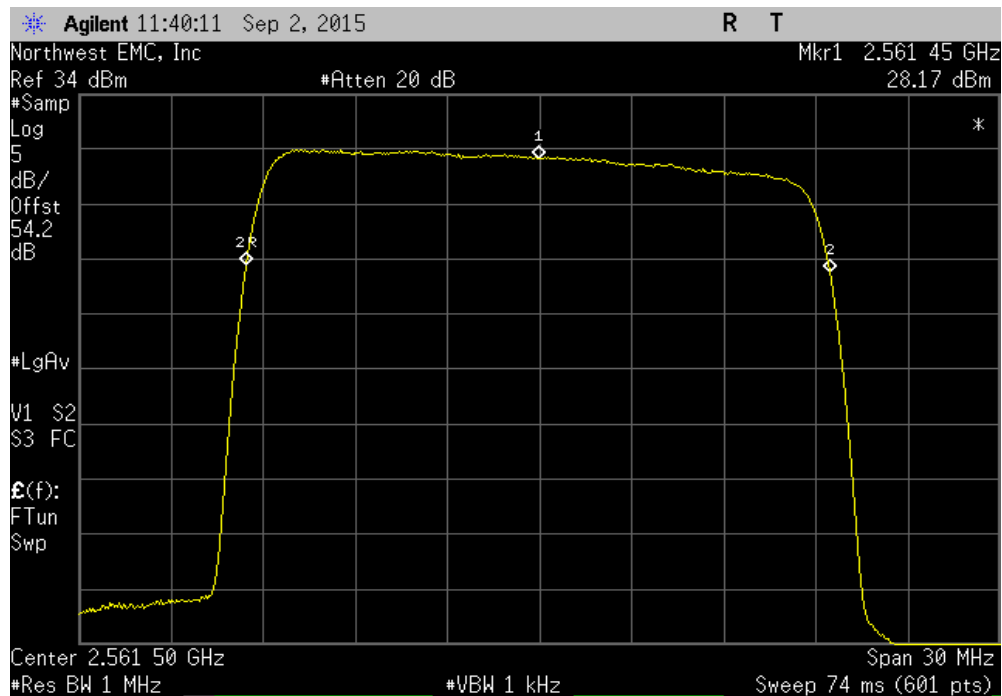


FREQUENCY STABILITY

Temperature: +10°, Mid Channel, 2534 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2534.1	2534	39.5	100	Pass	

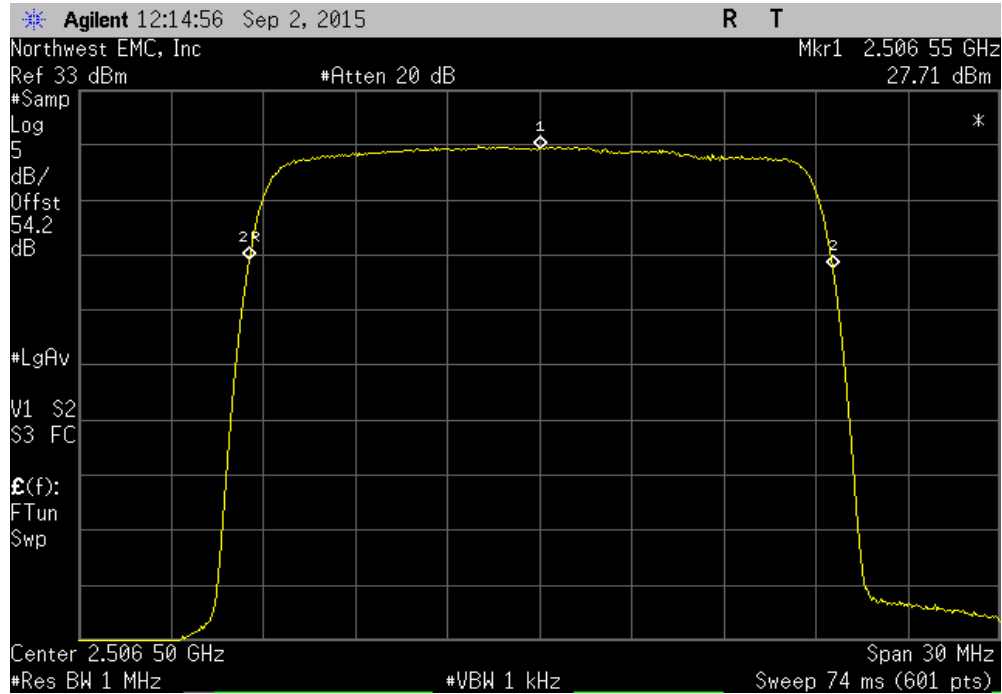


Temperature: +10°, High Channel, 2561.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2561.45	2561.5	19.5	100	Pass	

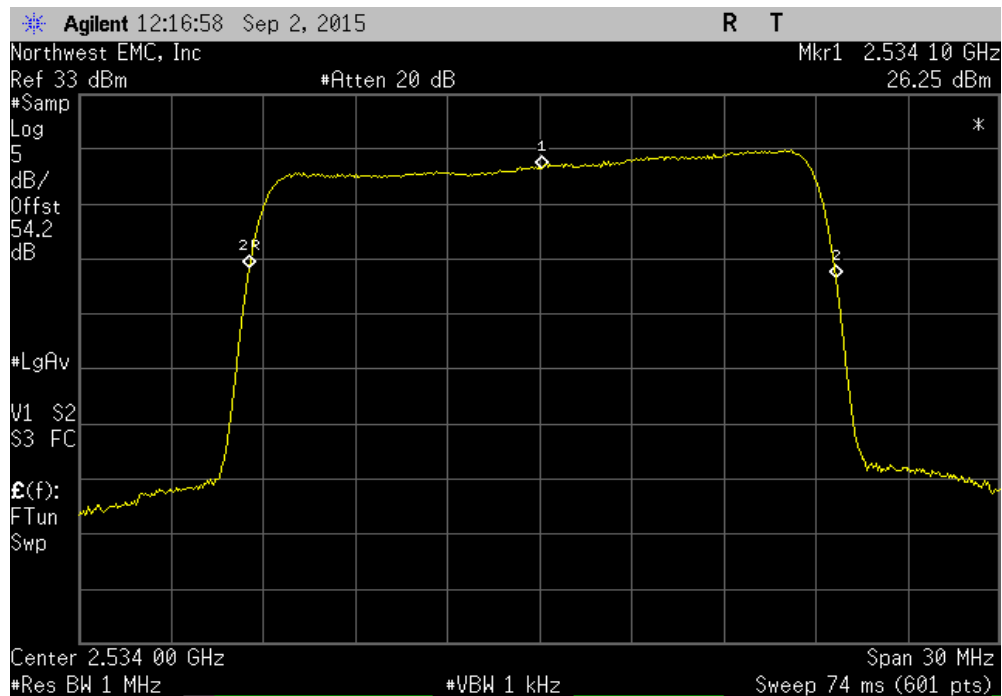


FREQUENCY STABILITY

Temperature: 0°, Low Channel, 2506.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2506.55	2506.5	20	100	Pass	

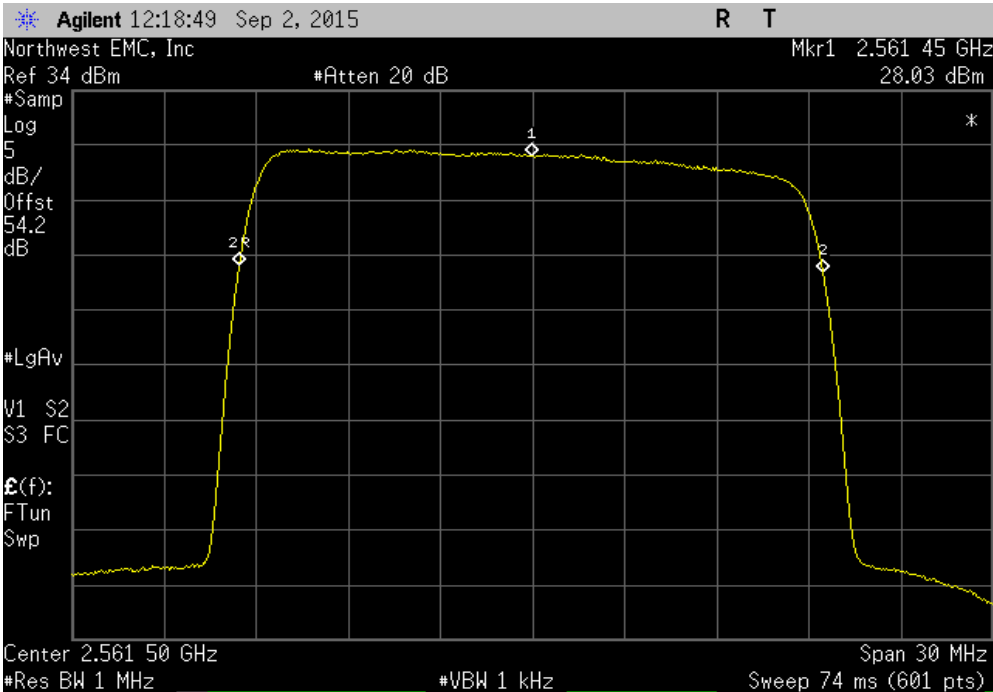


Temperature: 0°, Mid Channel, 2534 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2534.1	2534	39.5	100	Pass	

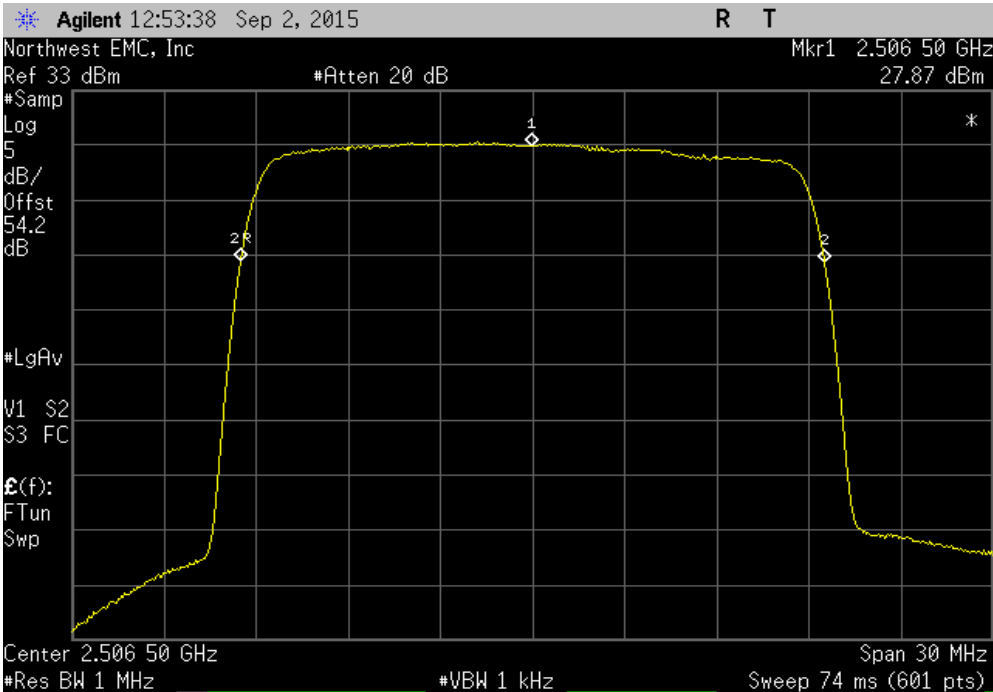


FREQUENCY STABILITY

Temperature: 0°, High Channel, 2561.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2561.45	2561.5	19.5	100	Pass	

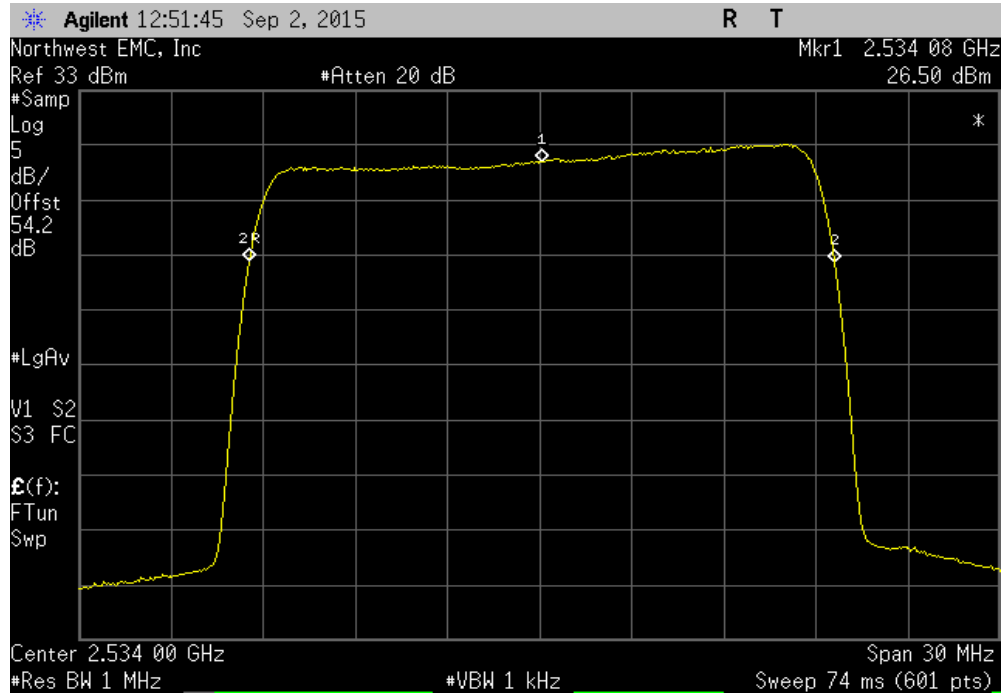


Temperature: -10°, Low Channel, 2506.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2506.5	2506.5	0	100	Pass	

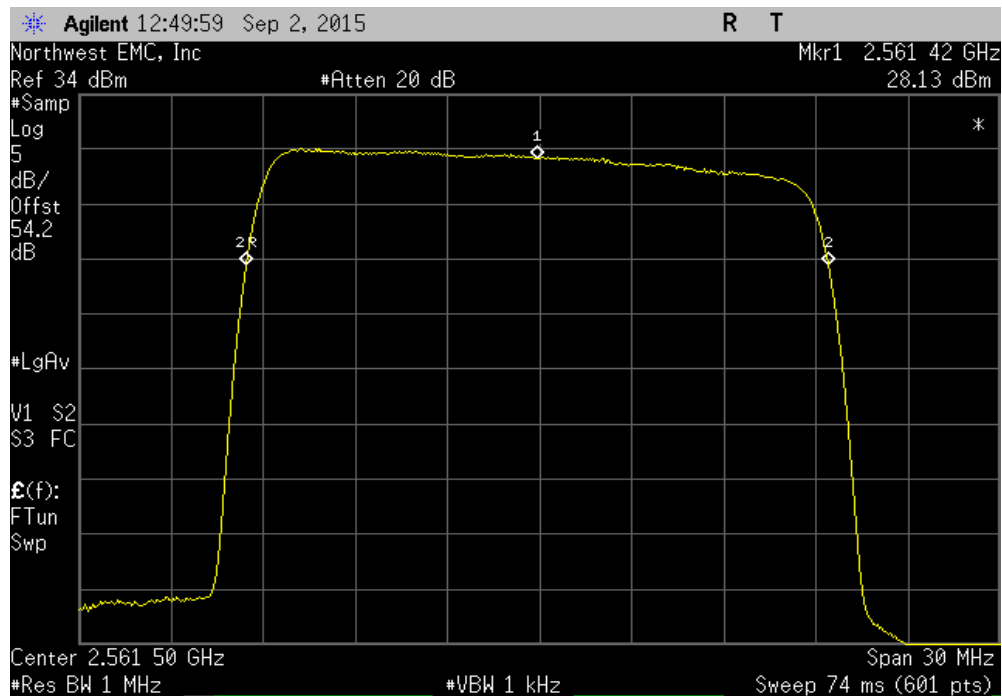


FREQUENCY STABILITY

Temperature: -10°, Mid Channel, 2534 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2534.08	2534	31.6	100	Pass	

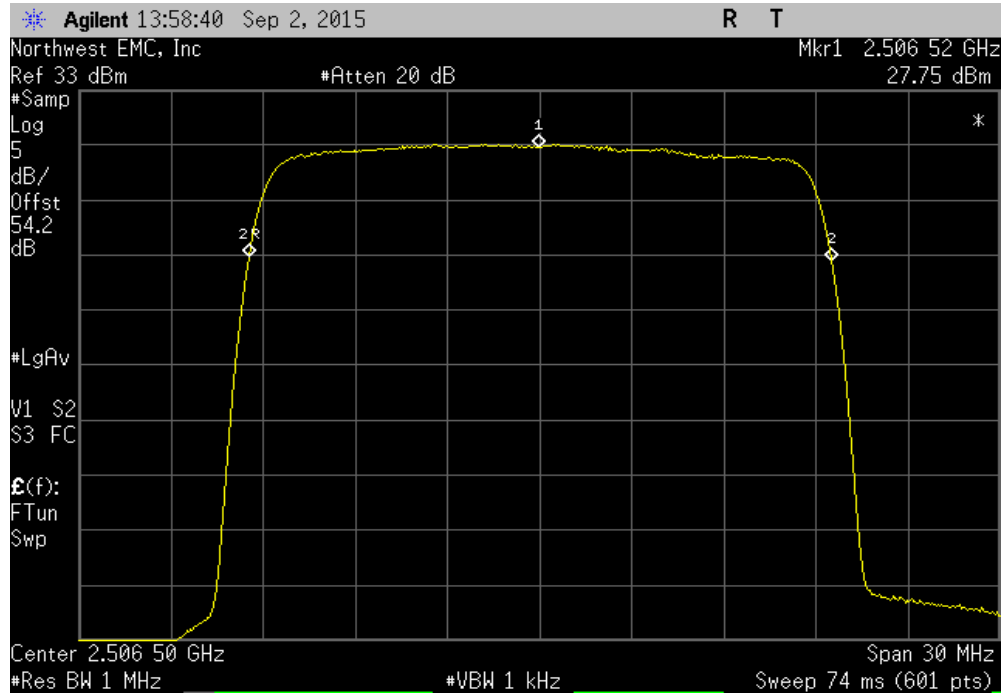


Temperature: -10°, High Channel, 2561.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2561.42	2561.5	31.2	100	Pass	

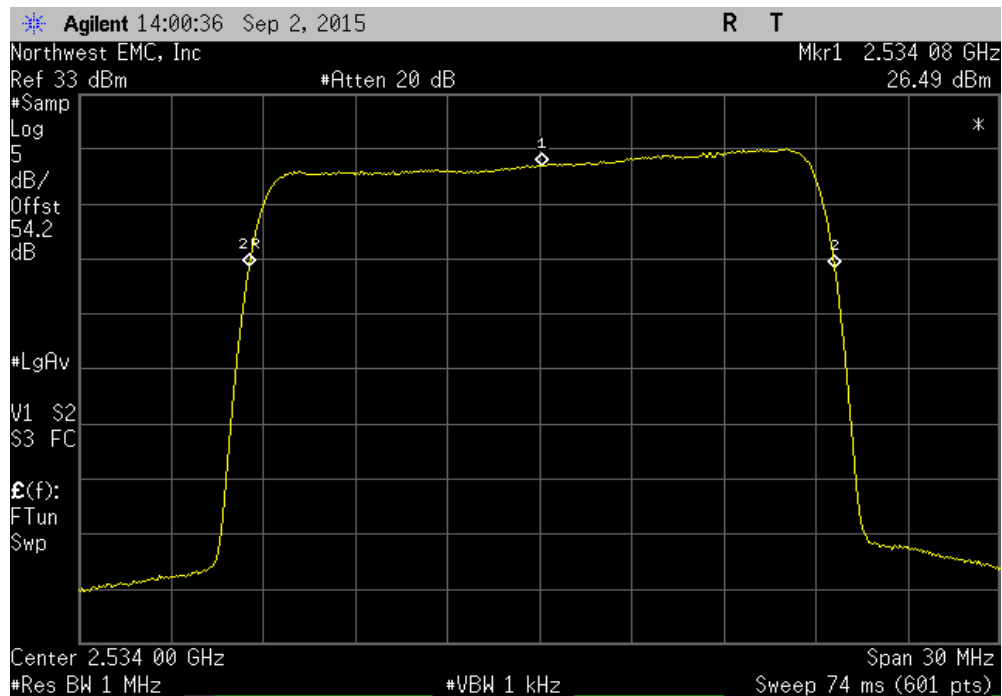


FREQUENCY STABILITY

Temperature: -20°, Low Channel, 2506.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2506.52	2506.5	8	100	Pass	

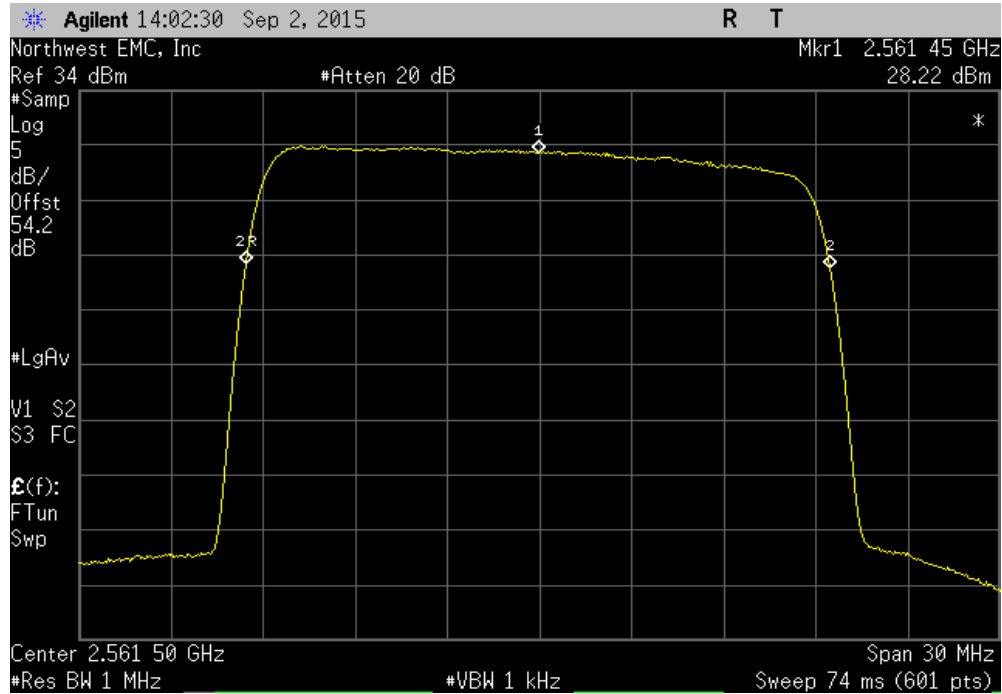


Temperature: -20°, Mid Channel, 2534 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2534.08	2534	31.6	100	Pass	

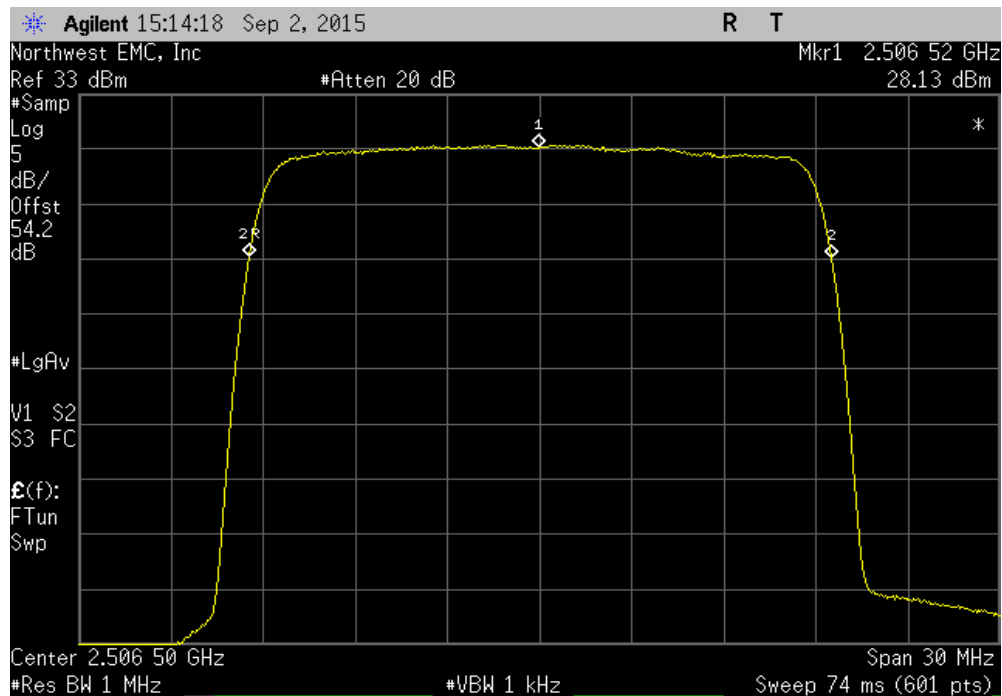


FREQUENCY STABILITY

Temperature: -20°, High Channel, 2561.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2561.45	2561.5	19.5	100	Pass	

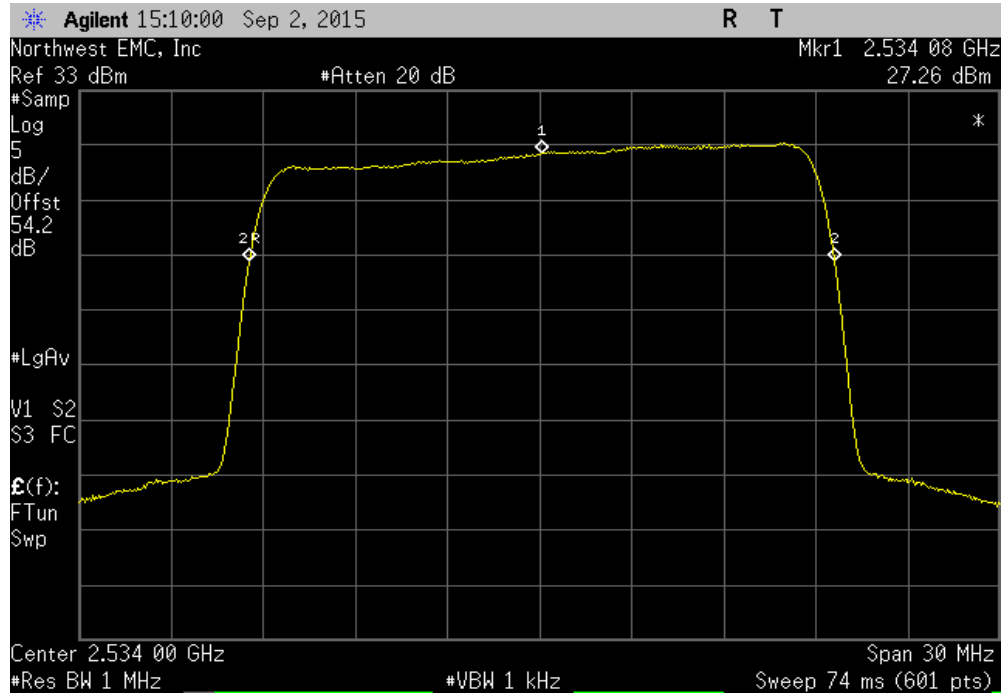


Temperature: -30°, Low Channel, 2506.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2506.52	2506.5	8	100	Pass	

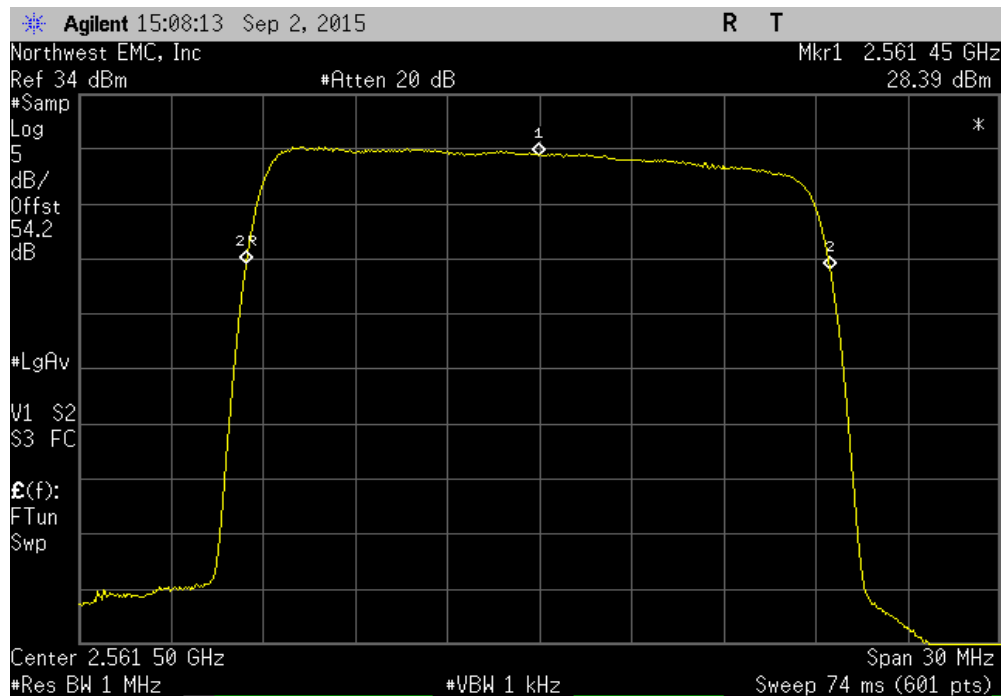


FREQUENCY STABILITY

Temperature: -30°, Mid Channel, 2534 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2534.08	2534	31.6	100	Pass	



Temperature: -30°, High Channel, 2561.5 MHz						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	2561.45	2561.5	19.5	100	Pass	



EMISSIONS BANDWIDTH

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	10/2/2014	12
Attenuator	S.M. Electronics	SA26B-20	RFW	3/10/2015	12
Block - DC	Fairview Microwave	SD3379	AMI	10/2/2014	12
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	36
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	4/20/2015	12

TEST DESCRIPTION

An RF signal generator was used to create the modulated signal(s) listed in the datasheets. These signals were input into the EUT.

A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used. The reference level offset on the spectrum analyzer was adjusted to compensate for cable loss and the external attenuation used between the RF output and the spectrum analyzer input.

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.

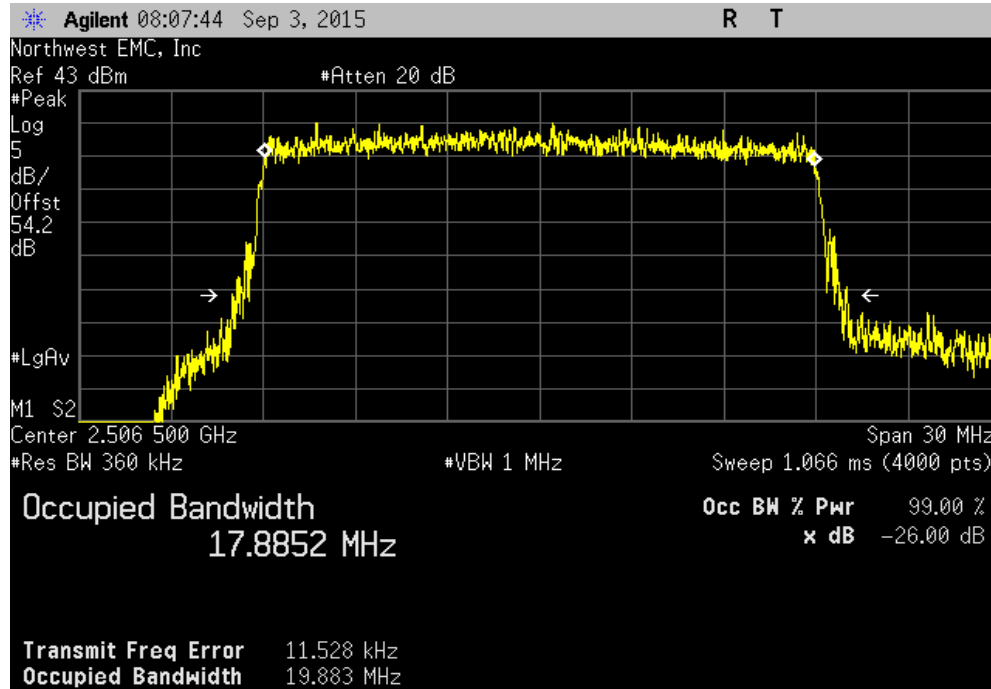
There is no required limit to be met in the rule part for this test. The purpose of the test is to both report the results and to utilize the emission bandwidth for setting the channel power integration bandwidth during conducted output power testing.

EMISSIONS BANDWIDTH

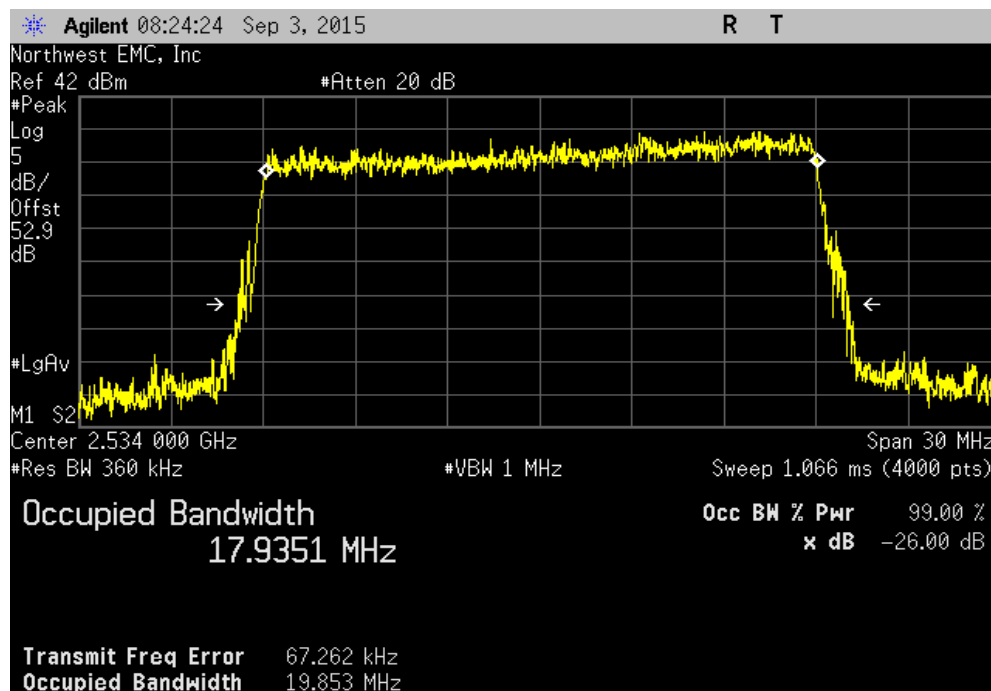
EUT: Prism 2.5 GHz TDD (2496.5-2571.5 MHz) HDM		Work Order: TECO0031	
Serial Number: None		Date: 09/03/15	
Customer: ADC Telecommunications / Commscope		Temperature: 24.1°C	
Attendees: None		Humidity: 59%	
Project: None		Barometric Pres.: 982.8	
Tested by: Trevor Buls	Power: 110VAC/60Hz	Job Site: MN08	
TEST SPECIFICATIONS			
FCC 27:2015		Test Method: ANSI/TIA/EIA-603-C-2004	
COMMENTS			
Port 0 was determined to be worst case.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Trevor Buls</i>	
		Value	Limit
LTE 20 MHz			Result
Low Channel, 2506.5 MHz			
Port 0		19.883 MHz	N/A
Mid Channel, 2534 MHz			
Port 0		19.853 MHz	N/A
Input Signal		19.865 MHz	N/A
High Channel, 2561.5 MHz			
Port 0		19.725 MHz	N/A

EMISSIONS BANDWIDTH

LTE 20 MHz, Low Channel, 2506.5 MHz, Port 0						
				Value	Limit	Result
				19.883 MHz	N/A	N/A

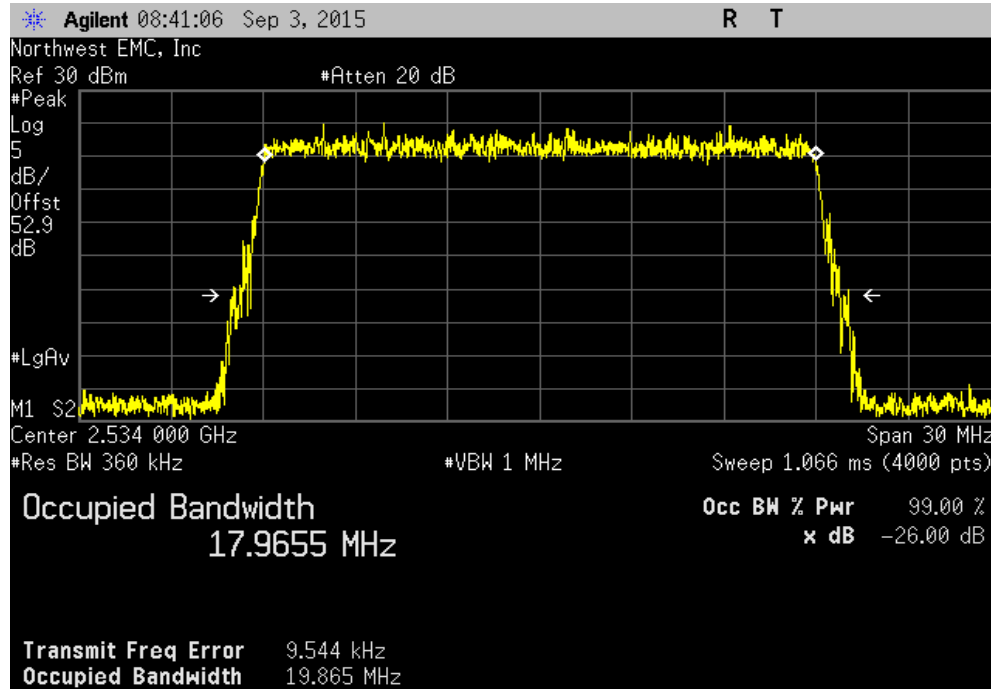


LTE 20 MHz, Mid Channel, 2534 MHz, Port 0						
				Value	Limit	Result
				19.853 MHz	N/A	N/A



EMISSIONS BANDWIDTH

LTE 20 MHz, Mid Channel, 2534 MHz, Input Signal						
				Value	Limit	Result
				19.865 MHz	N/A	N/A



LTE 20 MHz, High Channel, 2561.5 MHz, Port 0						
				Value	Limit	Result
				19.725 MHz	N/A	N/A

