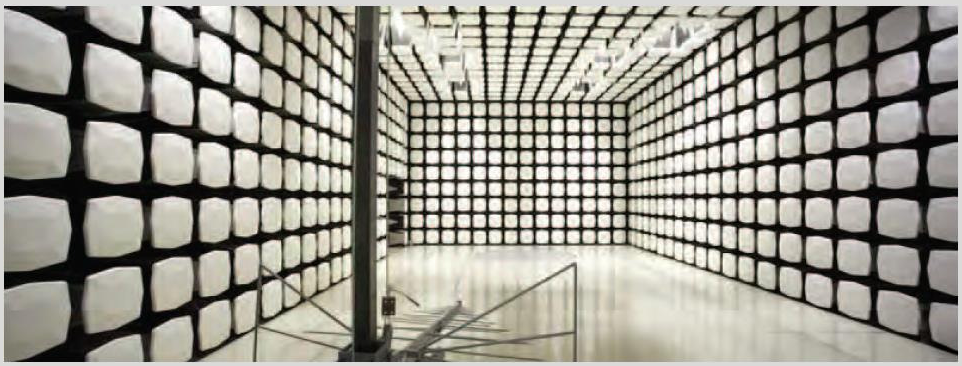
CommScope

FlexWave Prism AWS3 MIMO HDM

FCC 27:2017

MIMO Cellular Repeater Radio

Report # TECO0042



NVLAP Lab Code: 200881-0

CERTIFICATE OF TEST

2017-1-25

Last Date of Test: May 24, 2017
CommScope
Model: FlexWave Prism AWS3 MIMO HDM

Radio Equipment Testing

Standards

Specification	Method
FCC 27:2017	ANSI/TIA/EIA-603-D-2010

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	Yes	Pass	
2.2.2	Frequency Stability	Yes	Pass	
2.2.3	Emissions Bandwidth	Yes	Pass	
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	

Deviations From Test Standards

None

Approved By:

Kyle Holgate, 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

2017.5.15

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 Element 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. Within Element, we have a EU Notified Body validated for the EMCD and RED Directives.

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.

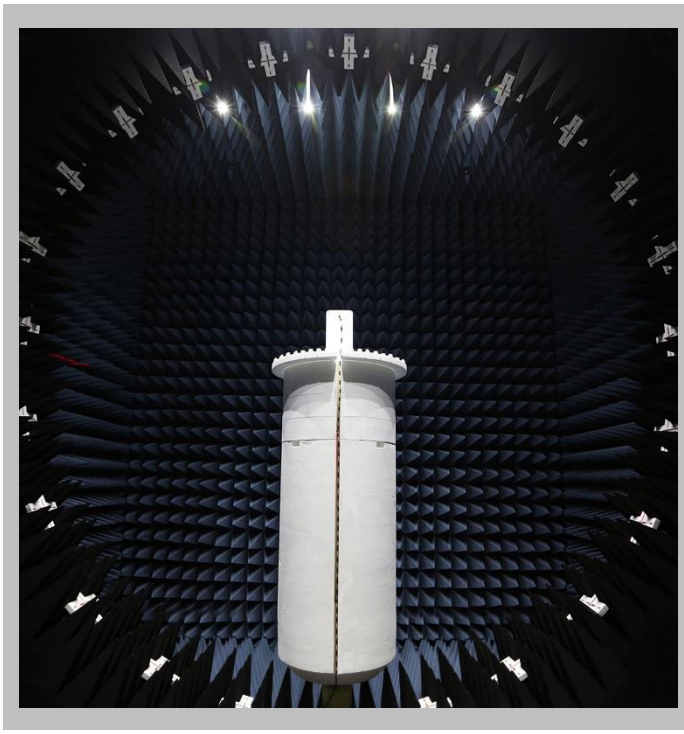
SCOPE

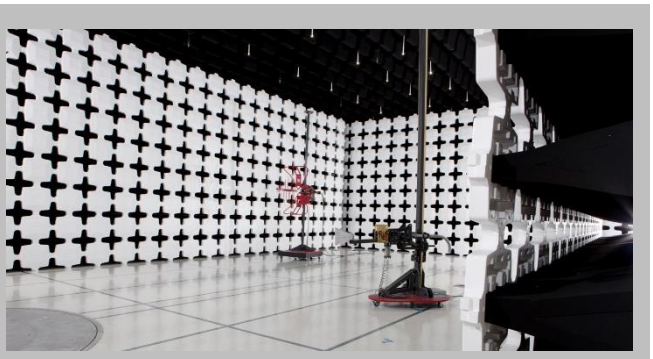
For details on the Scopes of our Accreditations, please visit:
http://portlandcustomer.element.com/ts/scope/scope.htm
http://gsi.nist.gov/global/docs/cabs/designations.html

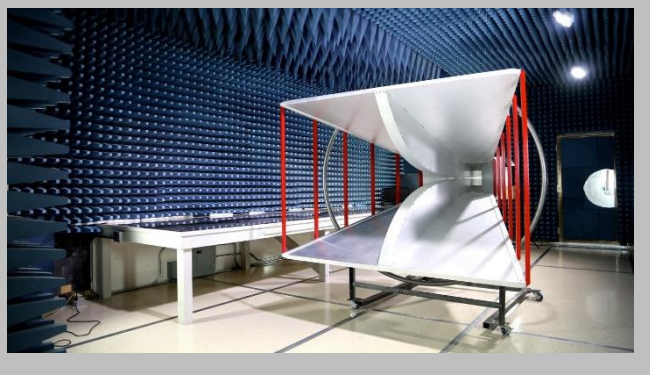
FACILITIES

2017.3.2

California	Minnesota	New York	Oregon	Texas	Washington
Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214	Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Labs NC01-05 19201 120th Ave NE Bothell, WA 98011 (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
Innovation, Science and Economic Development 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/RRA, MIC, MOC, NCC, OFCA					
US0158	US0175	N/A	US0017	US0191	US0157







MEASUREMENT UNCERTAINTY

TMU.2015.07.10

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.

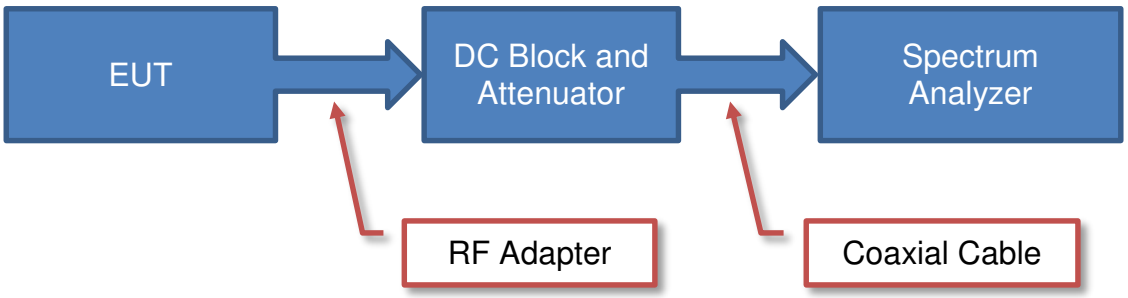
A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable 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.

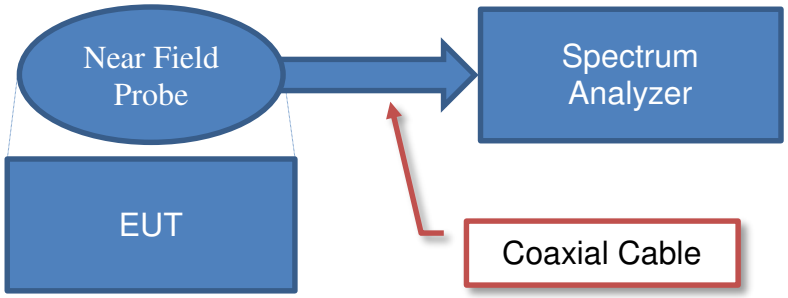
Test	+ MU	- MU
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%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

Test Setup Block Diagrams

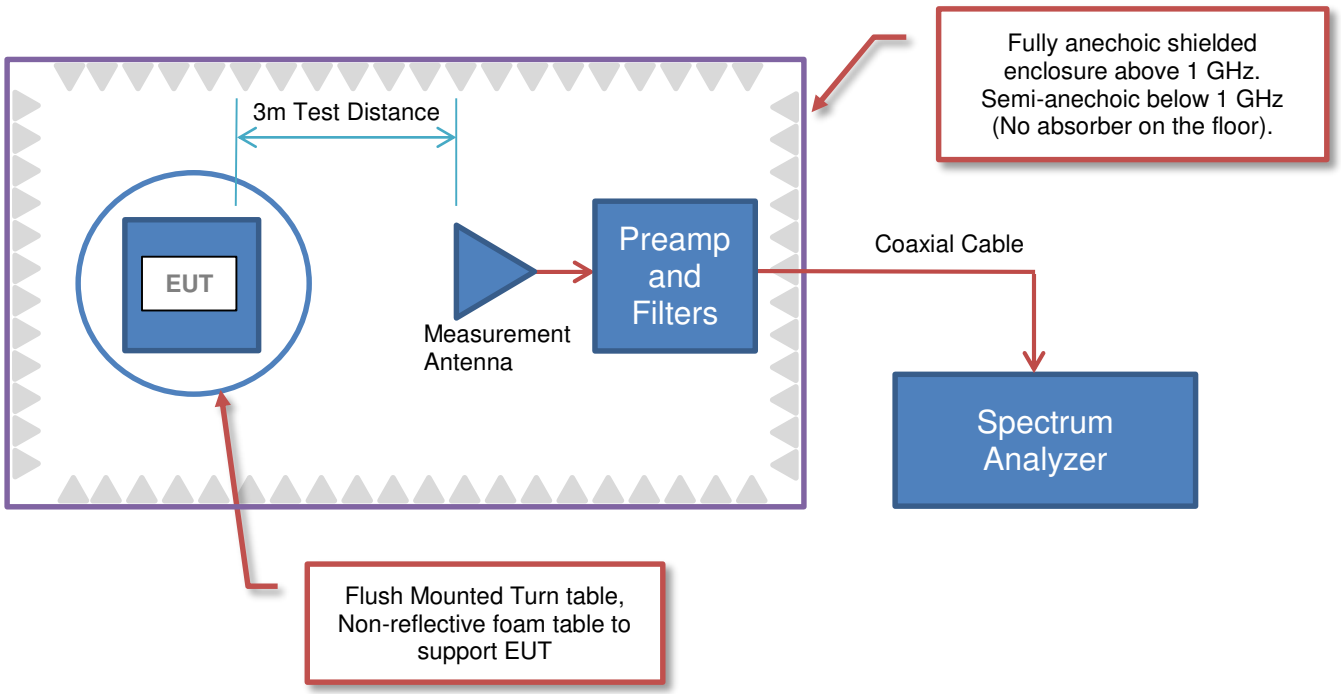
Antenna Port Conducted Measurements



Near Field Test Fixture Measurements



Spurious Radiated Emissions



PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	CommScope
Address:	501 Shenandoah Drive
City, State, Zip:	Shakopee, MN 55379
Test Requested By:	Joshua Wittman
Model:	FlexWave Prism AWS3 MIMO HDM
First Date of Test:	May 22, 2017
Last Date of Test:	May 24, 2017
Receipt Date of Samples:	May 22, 2017
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
20W MIMO Cellular RF Repeater/Industrial Booster. This RF module is part of a RF Repeater/Industrial Booster remote unit. It amplifies RF in the DownLink path for 2110-2180 MHz.

Testing Objective:
To demonstrate compliance of the Cellular repeater requirements of FCC 27L: 2017.

CONFIGURATIONS

Configuration TECO0042- 1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
AWS3 MIMO RF Module	CommScope	7761388-00-11	459644002

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Attenuator 1	Inmet Corporation	2N75W-30-296	None
Attenuator 2	Aeroflex / Weinschel	57-30-43	QY541

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Signal Generator 1	Aeroflex	IFR 3413	341007/003
Signal Generator 2	Aeroflex	IFR 3413	341006/056
48V DC Power Supply	TDK-Lambda	SWS300A-48	3LR-140Y11-0106HO411
Laptop	Lenovo	T510	431436U
Power Supply (Laptop)	Lenovo	92P1156	11S92P1156Z1ZDXN8A81AZ
I/O Control Device	CommScope/ADC Telecommunications	1673542-21	MR222P8C

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Mains Cable (Laptop)	No	1.8m	No	AC Mains	Power Supply (Laptop)
DC Power Cable (Laptop)	No	1.8m	Yes	Power Supply (Laptop)	Laptop
DC Power Cable (I/O Control Device)	No	2.8m	Yes	48V DC Power Supply	I/O Control Device
Fiber Optic Cable	No	>3.0m	No	I/O Control Device	AWS3 MIMO RF Module
AC Mains Cable (AWS3 MIMO RF Module)	No	5.0m	No	AWS3 MIMO RF Module	AC Mains
Output Cable 1	No	1.5m	No	AWS3 MIMO RF Module	Attenuator 1
Output Cable 2	No	0.9m	No	AWS3 MIMO RF Module	Attenuator 2
Ethernet Cable	No	1.0m	No	I/O Control Device	Laptop
Coaxial Cable 1	No	1.8m	No	Signal Generator 1	I/O Control Device
Coaxial Cable 2	No	1.8m	No	Signal Generator 2	I/O Control Device
AC Mains Cable (Signal Generator 1)	No	1.8m	No	Signal Generator 1	AC Mains
AC Mains Cable (Signal Generator 2)	No	1.8m	No	Signal Generator 2	AC Mains

CONFIGURATIONS

Configuration TECO0042- 2

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
AWS3 MIMO RF Module	CommScope	7761388-00-11	459644002

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Attenuator 1	Inmet Corporation	2N75W-30-296	None
Attenuator 2	Aeroflex	48-30-34	RCU

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Signal Generator 1	Aeroflex	IFR 3413	341007/003
Signal Generator 2	Aeroflex	IFR 3413	341006/056
48V DC Power Supply	TDK-Lambda	SWS300A-48	3LR-140Y11-0106HO411
Laptop	Lenovo	T510	431436U
Power Supply (Laptop)	Lenovo	92P1156	11S92P1156Z1ZDXN8A81AZ
I/O Control Device	CommScope/ADC Telecommunications	1673542-21	MR222P8C

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Mains Cable (Laptop)	No	1.8m	No	AC Mains	Power Supply (Laptop)
DC Power Cable (Laptop)	No	1.8m	Yes	Power Supply (Laptop)	Laptop
DC Power Cable (I/O Control Device)	No	2.8m	Yes	48V DC Power Supply	I/O Control Device
Fiber Optic Cable	No	>3.0m	No	I/O Control Device	AWS3 MIMO RF Module
AC Mains Cable (AWS3 MIMO RF Module)	No	5.0m	No	AWS3 MIMO RF Module	AC Mains
Output Cable 1	No	1.5m	No	AWS3 MIMO RF Module	Attenuator 1
Output Cable 2	No	0.9m	No	AWS3 MIMO RF Module	Attenuator 2
Ethernet Cable	No	1.0m	No	I/O Control Device	Laptop
Coaxial Cable 1	No	1.8m	No	Signal Generator 1	I/O Control Device
Coaxial Cable 2	No	1.8m	No	Signal Generator 2	I/O Control Device
AC Mains Cable (Signal Generator 1)	No	1.8m	No	Signal Generator 1	AC Mains
AC Mains Cable (Signal Generator 2)	No	1.8m	No	Signal Generator 2	AC Mains

MODIFICATIONS

2017-1-25

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	5/22/2017	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
2	5/23/2017	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 Element following the test.
3	5/24/2017	Frequency Stability	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
4	5/24/2017	Emissions Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
5	5/24/2017	Peak To Average Ratio	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
6	5/24/2017	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
7	5/23/2017	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
8	5/24/2017	Intermodulation	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

XMit 2017.02.08

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
Meter - Power	ETS Lindgren	7002-006	SRE	7/21/2016	7/21/2017
Meter - Power	ETS Lindgren	7002-006	SRA	3/20/2017	3/20/2018
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	10/17/2017
Cable	ESM Cable Corp	TTBJ141 KMKM-72	MNP	NCR	NCR
Attenuator	S.M. Electronics	SA26B-20	RFW	2/14/2017	2/14/2018
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/16/2017	3/16/2018

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and an RF Power Sensor. The spectrum analyzer and signal generator were used to generate an offset for the cables and attenuators. An RF signal generator was used to create the modulated signal(s) listed in the datasheets. These signals were input into the EUT.

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 EIRP.

EIRP = Max Measured Power + 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)

TbtTx 2017.01.27 XMit 2017.02.08

EUT:	**FlexWave Prism AWS3 MIMO HDM**			**Work Order:**	**TECO0042**
Serial Number:	**459644002**			**Date:**	**05/23/17**
Customer:	**CommScope**			**Temperature:**	**22.3 °C**
Attendees:	**Josh Wittman**			**Humidity:**	**42.7% RH**
Project:	**None**			**Barometric Pres.:**	**1013 mbar**
Tested by:	**Dustin Sparks**	**Power:**	**110VAC/60Hz**	**Job Site:**	**MN08**

TEST SPECIFICATIONS	**Test Method**
FCC 27:2017	ANSI/TIA/EIA-603-D-2010

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 1640W (62.2 dBm). A linear summation was performed separately on the LTE 10MHz band because the measured pulses did not trigger at the same time on the power sensors.

DEVIATIONS FROM TEST STANDARD

None

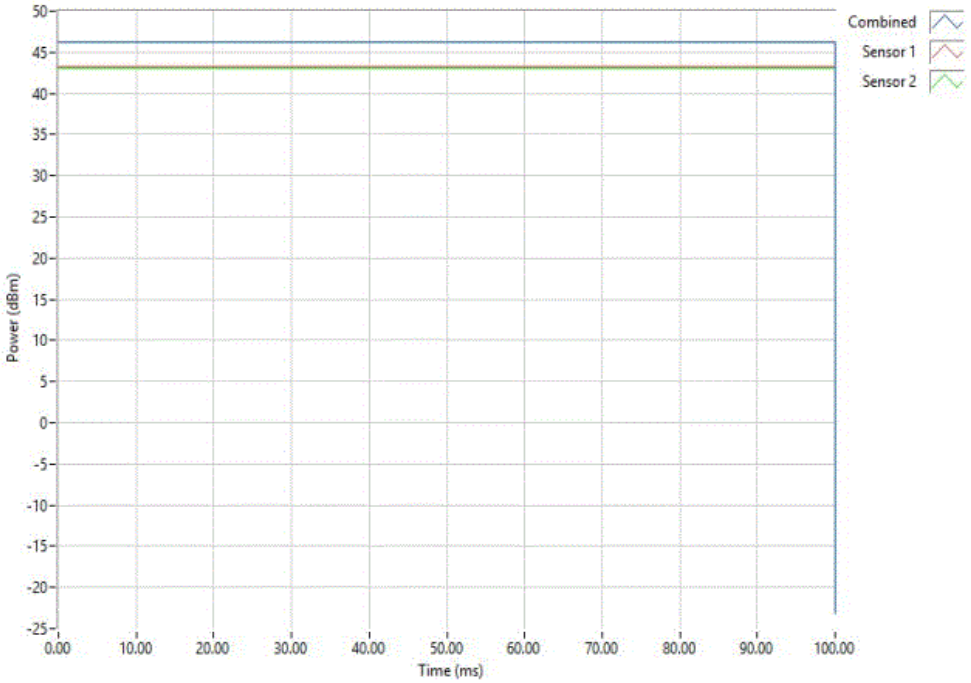
Configuration #	**1**	*Signature* Dustin Sparks

	Avg Cond Pwr Sens 1(dBm)	Avg Cond Pwr Sens 2(dBm)	Duty Cycle (%)	Antenna Gain (dBi)	Pwr Summed EIRP (dBm)	Limit (dBm)	Results
Low Channel (2112.5 MHz) WCDMA	43.27	43.1	100	0	46.2	62.2	Pass
Mid Channel (2145 MHz) WCDMA	43.35	43.19	100	0	46.3	62.2	Pass
High Channel (2177.5 MHz) WCDMA	43.03	43.07	100	0	46.1	62.2	Pass
Low Channel (2115 MHz) LTE 10MHz	43.12	43.07	99.228	0	See Summary	N/A	N/A
Mid Channel (2145 MHz) LTE 10MHz	43.47	43.32	99.44	0	See Summary	N/A	N/A
High Channel (2175 MHz) LTE 10MHz	43.33	43.45	100	0	See Summary	N/A	N/A
Linear Sum of the Power (LTE 10MHz)	**Avg Cond Pwr Sens 1 (mW)**	**Avg Cond Pwr Sens 2 (mW)**	**Power Summed (mW)**	**Antenna Gain (dBi)**	**Pwr Summed EIRP (dBm)**	**Limit (dBm)**	**Results**
Low Channel, 2115 MHz	20511.6	20276.8	40788.4	0	46.1	62.2	Pass
Mid Channel, 2145 MHz	22233.1	21478.3	43711.4	0	46.4	62.2	Pass
High Channel, 2175 MHz	21527.8	22130.9	43658.8	0	46.4	62.2	Pass

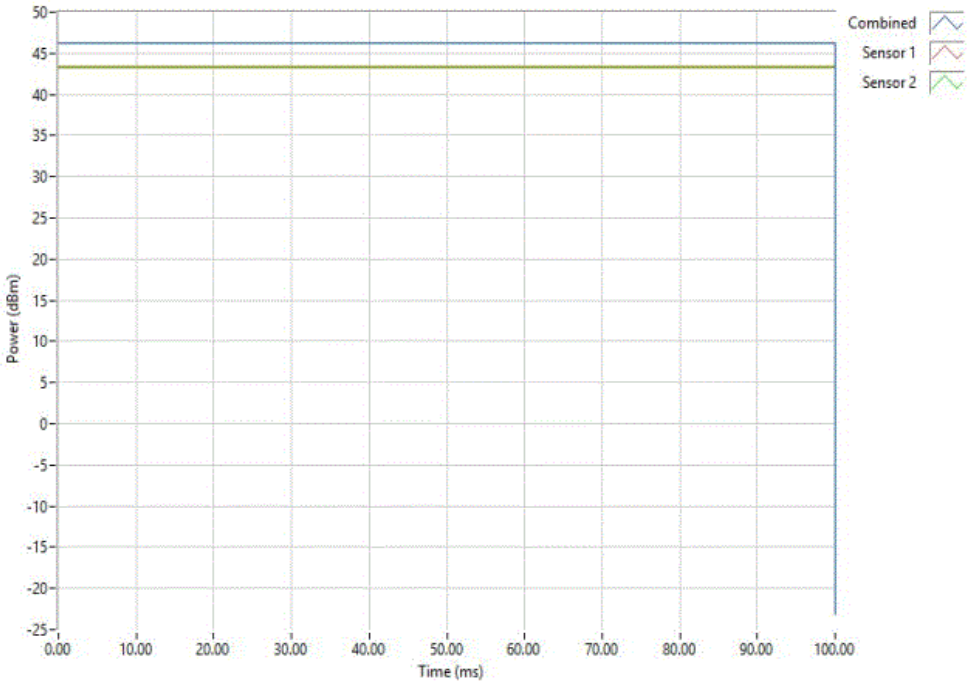
EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

TbtTx 2017.01.27 XMit 2017.02.08

Low Channel (2112.5 MHz) WCDMA						
Avg Cond Pwr Sens 1(dBm)	Avg Cond Pwr Sens 2(dBm)	Duty Cycle (%)	Antenna Gain (dBi)	Pwr Summed EIRP (dBm)	Limit (dBm)	Results
43.27	43.1	100	0	46.2	62.2	Pass



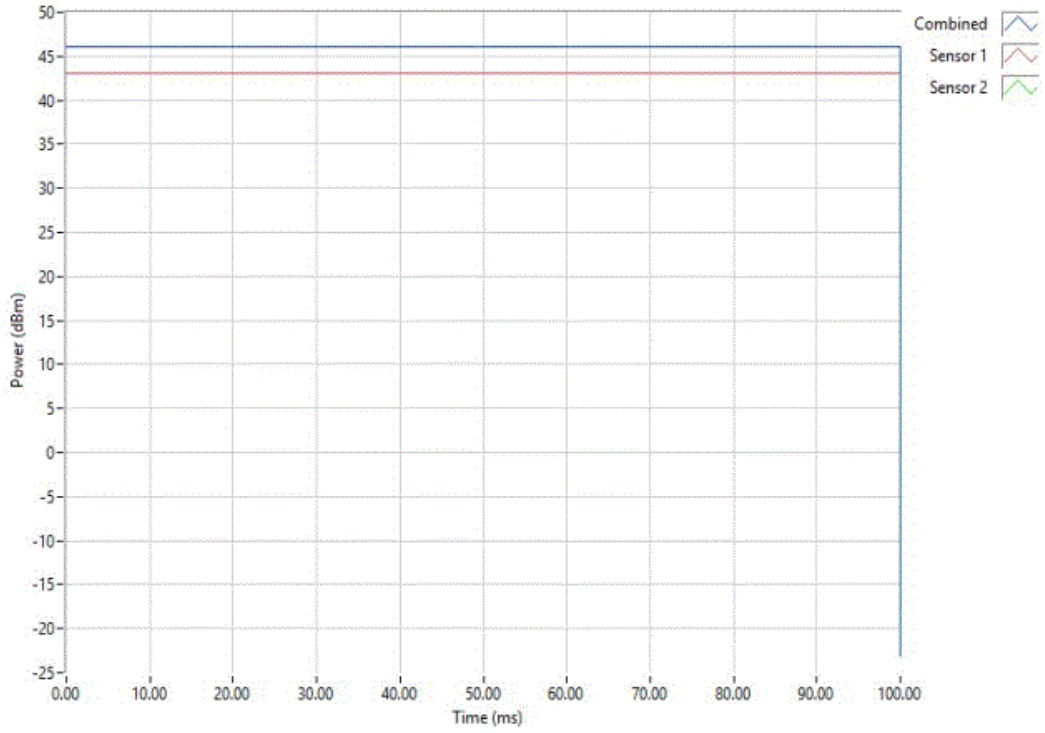
Mid Channel (2145 MHz) WCDMA						
Avg Cond Pwr Sens 1(dBm)	Avg Cond Pwr Sens 2(dBm)	Duty Cycle (%)	Antenna Gain (dBi)	Pwr Summed EIRP (dBm)	Limit (dBm)	Results
43.35	43.19	100	0	46.3	62.2	Pass



EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

TbtTx 2017.01.27 XMit 2017.02.08

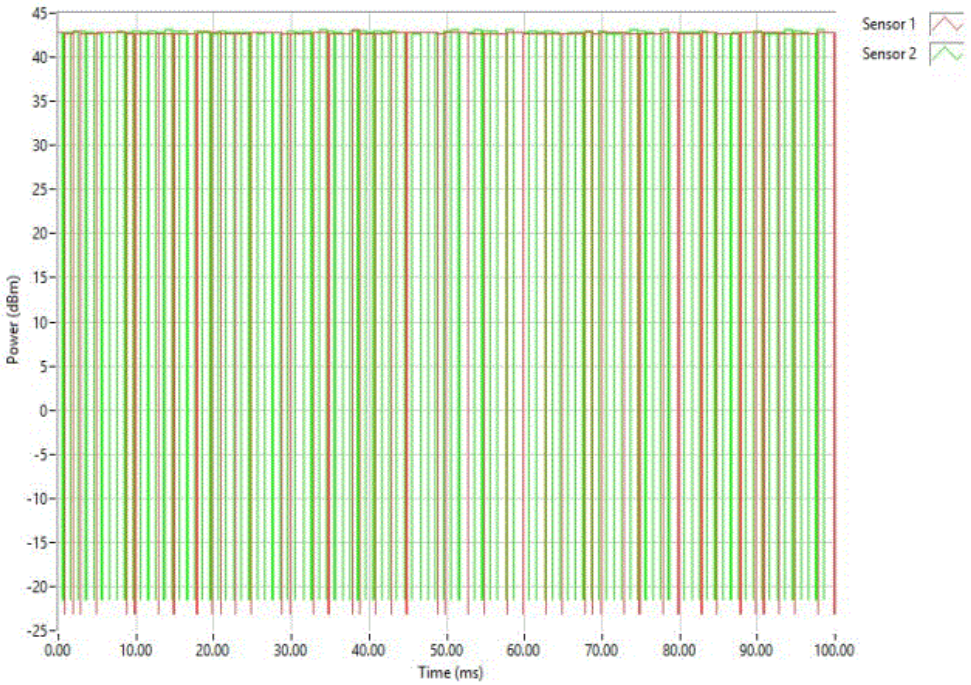
High Channel (2177.5 MHz) WCDMA						
Avg Cond Pwr Sens 1(dBm)	**Avg Cond Pwr Sens 2(dBm)**	**Duty Cycle (%)**	**Antenna Gain (dBi)**	**Pwr Summed EIRP (dBm)**	**Limit (dBm)**	**Results**
43.03	43.07	100	0	46.1	62.2	Pass



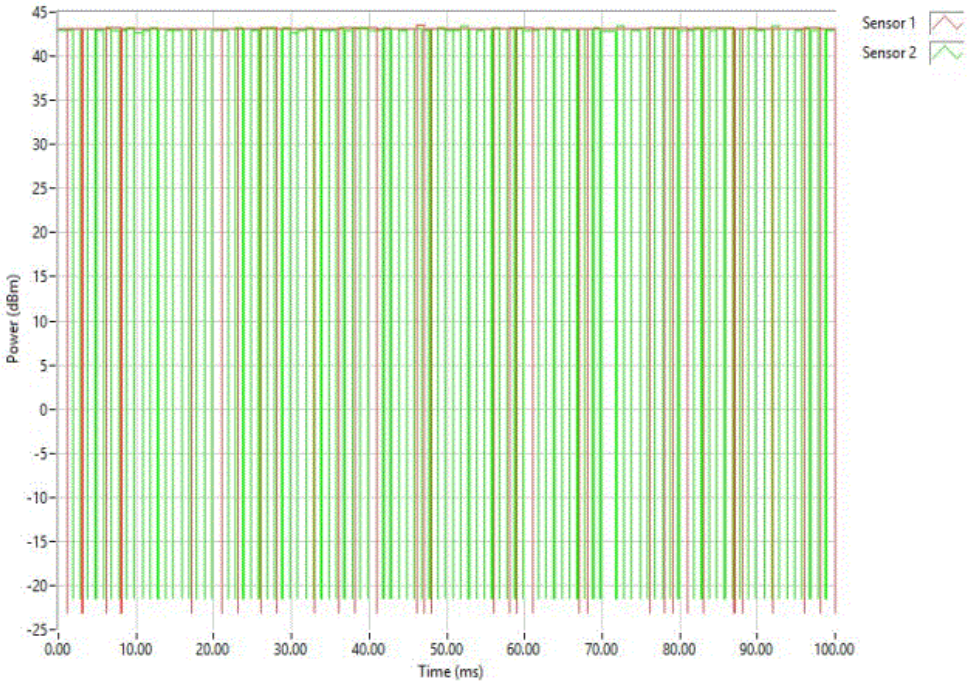
EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

TbtTx 2017.01.27 XMit 2017.02.08

Low Channel (2115 MHz) LTE 10MHz						
Avg Cond Pwr Sens 1(dBm)	**Avg Cond Pwr Sens 2(dBm)**	**Duty Cycle (%)**	**Antenna Gain (dBi)**	**Pwr Summed EIRP (dBm)**	**Limit (dBm)**	**Results**
43.12	43.07	99.228	0	See Summary	N/A	N/A

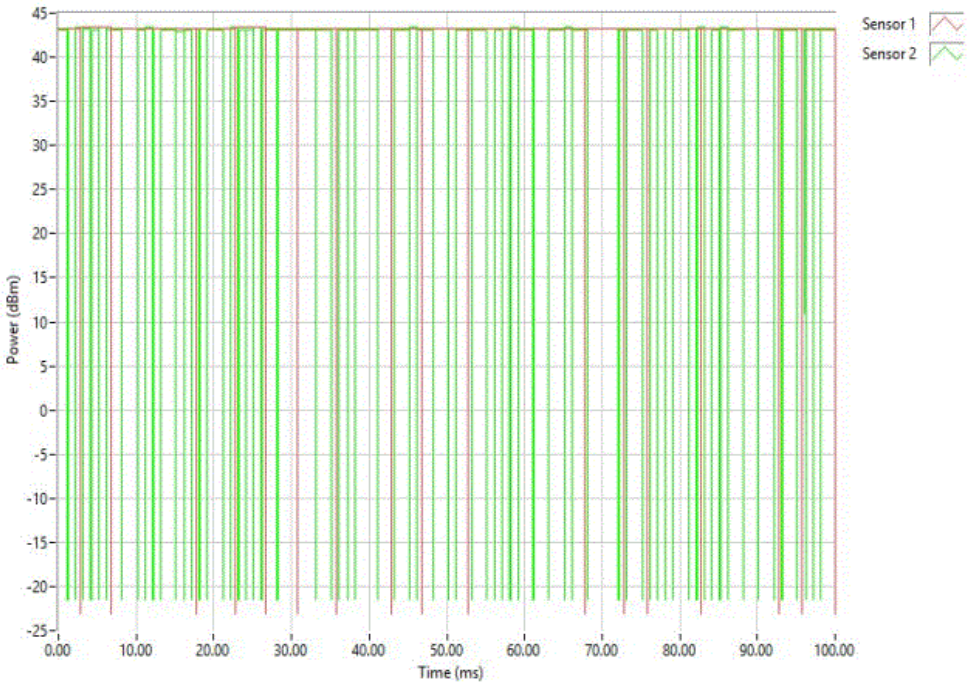


Mid Channel (2145 MHz) LTE 10MHz						
Avg Cond Pwr Sens 1(dBm)	**Avg Cond Pwr Sens 2(dBm)**	**Duty Cycle (%)**	**Antenna Gain (dBi)**	**Pwr Summed EIRP (dBm)**	**Limit (dBm)**	**Results**
43.47	43.32	99.44	0	See Summary	N/A	N/A



EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

High Channel (2175 MHz) LTE 10MHz						
Avg Cond Pwr Sens 1(dBm)	**Avg Cond Pwr Sens 2(dBm)**	**Duty Cycle (%)**	**Antenna Gain (dBi)**	**Pwr Summed EIRP (dBm)**	**Limit (dBm)**	**Results**
43.33	43.45	100	0	See Summary	N/A	N/A



PEAK TO AVERAGE RATIO

XMit 2017.02.08

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
Attenuator	Aeroflex	48-30-34	RCU	9/15/2016	9/15/2017
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	10/17/2017
Cable	ESM Cable Corp	TTBJ141 KMKM-72	MNP	NCR	NCR
Attenuator	S.M. Electronics	SA26B-20	RFW	2/14/2017	2/14/2018
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/16/2017	3/16/2018

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. An RF signal generator was used to create the modulated signal(s) listed in the datasheets. These signals were input into the EUT.

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 screen captures/traces was calculated:
- 1st Screen Capture/Trace: Peak detector and trace max-hold.
- 2nd Screen Capture/Trace: The same procedure and settings as was used for conducted Output Power.

PEAK TO AVERAGE RATIO

TbtTx 2017.01.27 XMit 2017.02.08

EUT:	FlexWave Prism AWS3 MIMO HDM			**Work Order:**	TECO0042
Serial Number:	459644002			**Date:**	05/24/17
Customer:	CommScope			**Temperature:**	21.6 °C
Attendees:	Josh Wittman			**Humidity:**	47.3% RH
Project:	None			**Barometric Pres.:**	1008 mbar
Tested by:	Dustin Sparks	**Power:**	110VAC/60Hz	**Job Site:**	MN08

TEST SPECIFICATIONS	**Test Method**
FCC 27:2017	ANSI/TIA/EIA-603-D-2010

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. Port 2 was determined to have the worst case output power and all tests were performed on port 2 unless otherwise noted.

DEVIATIONS FROM TEST STANDARD

None

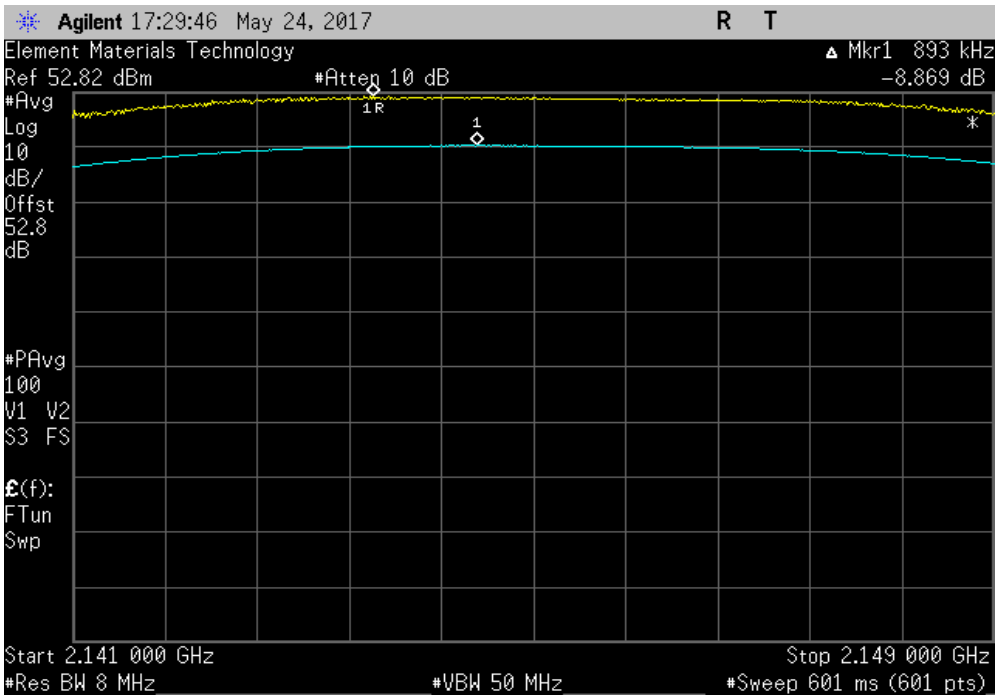
Configuration #	**2**	*Signature* Dustin Sparks

		Value (dB)	Limit < (dB)	Results
WCDMA				
	Mid Channel, 2145 MHz	8.869	13	Pass
LTE 10MHz				
	Mid Channel, 2145 MHz	11.986	13	Pass

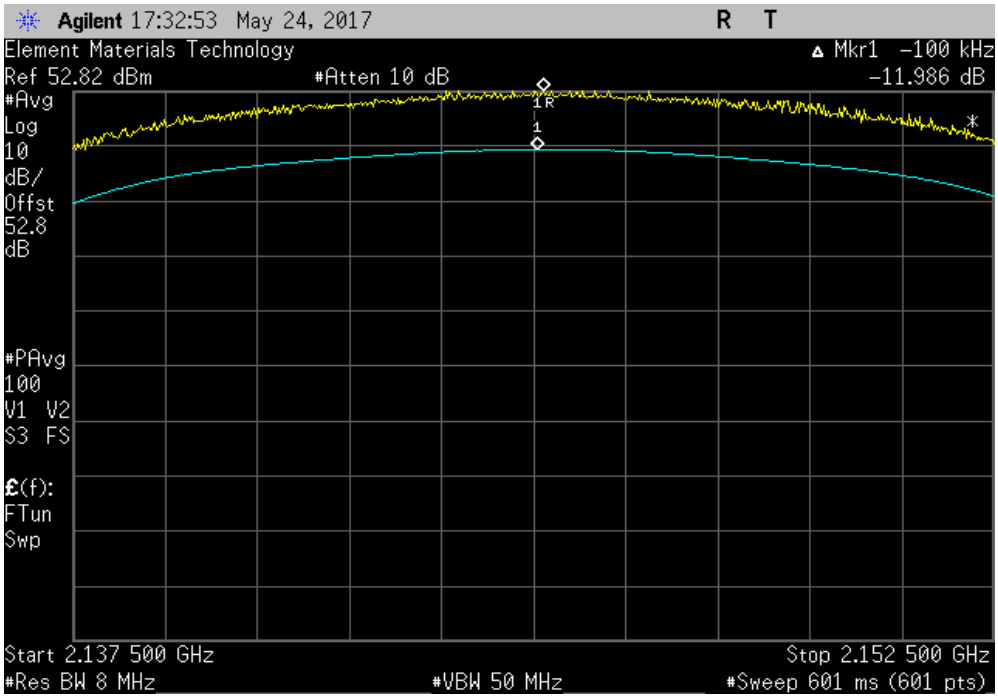
PEAK TO AVERAGE RATIO

TbtTx 2017.01.27 XMit 2017.02.08

WCDMA, Mid Channel, 2145 MHz						
				Value (dB)	Limit < (dB)	Results
				8.869	13	Pass



LTE 10MHz, Mid Channel, 2145 MHz						
				Value (dB)	Limit < (dB)	Results
				11.986	13	Pass



FREQUENCY STABILITY

XMit 2017.02.08

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
Meter - Multimeter	Fluke	117	MLS	1/23/2017	1/23/2020
Attenuator	Aeroflex	48-30-34	RCU	9/15/2016	9/15/2017
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-32-3.5-	TBF	NCR	NCR
Thermometer	Omega Engineering, Inc.	HH311	DUB	11/3/2014	11/3/2017
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	10/17/2017
Cable	ESM Cable Corp	TTBJ141 KMKM-72	MNP	NCR	NCR
Attenuator	S.M. Electronics	SA26B-20	RFW	2/14/2017	2/14/2018
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/16/2017	3/16/2018

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. An RF signal generator was used to create the modulated signal(s) listed in the datasheets. These signals were input into 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 1ppm will still allow the radio to be operating within the band.

FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

EUT:	FlexWave Prism AWS3 MIMO HDM			**Work Order:**	TECO0042
Serial Number:	459644002			**Date:**	05/24/17
Customer:	CommScope			**Temperature:**	21.5 °C
Attendees:	Josh Wittman			**Humidity:**	47% RH
Project:	None			**Barometric Pres.:**	1008 mbar
Tested by:	Dustin Sparks	**Power:**	120VAC/60Hz	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 27:2017	ANSI/TIA/EIA-603-D-2010

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. Port 2 was determined to have the worst case output power and all tests were performed on port 2 unless otherwise noted.

DEVIATIONS FROM TEST STANDARD

None

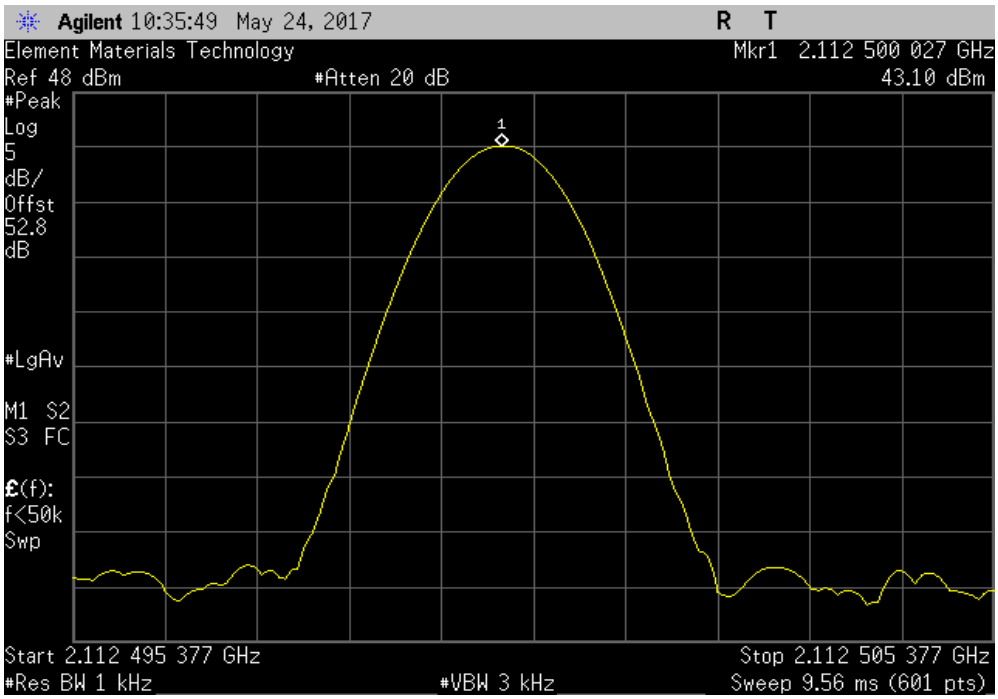
Configuration #	2	Signature Dustin Sparks

		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
+50°C						
	2112.5 MHz	2112.500027	2112.5	0.013	1	Pass
	2115 MHz	2115.000047	2115.0	0.022	1	Pass
	2145 MHz	2145.000043	2145.0	0.020	1	Pass
	2175 MHz	2175.000036	2175.0	0.017	1	Pass
	2177.5 MHz	2177.500038	2177.5	0.017	1	Pass
+40°C						
	2112.5 MHz	2112.500011	2112.5	0.005	1	Pass
	2115 MHz	2115.000025	2115.0	0.012	1	Pass
	2145 MHz	2145.000009	2145.0	0.004	1	Pass
	2175 MHz	2175.000019	2175.0	0.009	1	Pass
	2177.5 MHz	2177.500021	2177.5	0.010	1	Pass
+30°C						
	2112.5 MHz	2112.500044	2112.5	0.021	1	Pass
	2115 MHz	2115.000046	2115.0	0.022	1	Pass
	2145 MHz	2145.000043	2145.0	0.020	1	Pass
	2175 MHz	2175.000003	2175.0	0.001	1	Pass
	2177.5 MHz	2177.500038	2177.5	0.017	1	Pass
+20°C						
	2112.5 MHz	2112.500044	2112.5	0.021	1	Pass
	2115 MHz	2115.000042	2115.0	0.020	1	Pass
	2145 MHz	2145.000043	2145.0	0.020	1	Pass
	2175 MHz	2175.000053	2175.0	0.024	1	Pass
	2177.5 MHz	2177.500038	2177.5	0.017	1	Pass
+10°C						
	2112.5 MHz	2112.500027	2112.5	0.013	1	Pass
	2115 MHz	2115.000046	2115.0	0.022	1	Pass
	2145 MHz	2145.000043	2145.0	0.020	1	Pass
	2175 MHz	2175.000052	2175.0	0.024	1	Pass
	2177.5 MHz	2177.500038	2177.5	0.017	1	Pass
0°C						
	2112.5 MHz	2112.500044	2112.5	0.021	1	Pass
	2115 MHz	2115.000046	2115.0	0.022	1	Pass
	2145 MHz	2145.000043	2145.0	0.020	1	Pass
	2175 MHz	2175.000053	2175.0	0.024	1	Pass
	2177.5 MHz	2177.500038	2177.5	0.017	1	Pass
-10°C						
	2112.5 MHz	2112.500044	2112.5	0.021	1	Pass
	2115 MHz	2115.000042	2115.0	0.020	1	Pass
	2145 MHz	2145.00001	2145.0	0.005	1	Pass
	2175 MHz	2175.000036	2175.0	0.017	1	Pass
	2177.5 MHz	2177.500055	2177.5	0.025	1	Pass
-20°C						
	2112.5 MHz	2112.500044	2112.5	0.021	1	Pass
	2115 MHz	2115.000042	2115.0	0.020	1	Pass
	2145 MHz	2145.000009	2145.0	0.004	1	Pass
	2175 MHz	2175.000036	2175.0	0.017	1	Pass
	2177.5 MHz	2177.500038	2177.5	0.017	1	Pass
-30°C						
	2112.5 MHz	2112.500044	2112.5	0.021	1	Pass
	2115 MHz	2115.000046	2115.0	0.022	1	Pass
	2145 MHz	2145.000043	2145.0	0.020	1	Pass
	2175 MHz	2175.000036	2175.0	0.017	1	Pass
	2177.5 MHz	2177.500038	2177.5	0.017	1	Pass
Normal Voltage						
	2112.5 MHz	2112.500044	2112.5	0.021	1	Pass
	2115 MHz	2115.000025	2115.0	0.012	1	Pass
	2145 MHz	2145.000043	2145.0	0.020	1	Pass
	2175 MHz	2175.000053	2175.0	0.024	1	Pass
	2177.5 MHz	2177.500055	2177.5	0.025	1	Pass
Extreme Voltage (102VAC/60Hz)						
	2112.5 MHz	2112.500044	2112.5	0.021	1	Pass
	2115 MHz	2115.000042	2115.0	0.020	1	Pass
	2145 MHz	2145.000043	2145.0	0.020	1	Pass
	2175 MHz	2175.000036	2175.0	0.017	1	Pass
	2177.5 MHz	2177.500038	2177.5	0.017	1	Pass
Extreme Voltage (138VAC/60Hz)						
	2112.5 MHz	2112.500044	2112.5	0.021	1	Pass
	2115 MHz	2115.000042	2115.0	0.020	1	Pass
	2145 MHz	2145.000043	2145.0	0.020	1	Pass
	2175 MHz	2175.000036	2175.0	0.017	1	Pass
	2177.5 MHz	2177.500038	2177.5	0.017	1	Pass

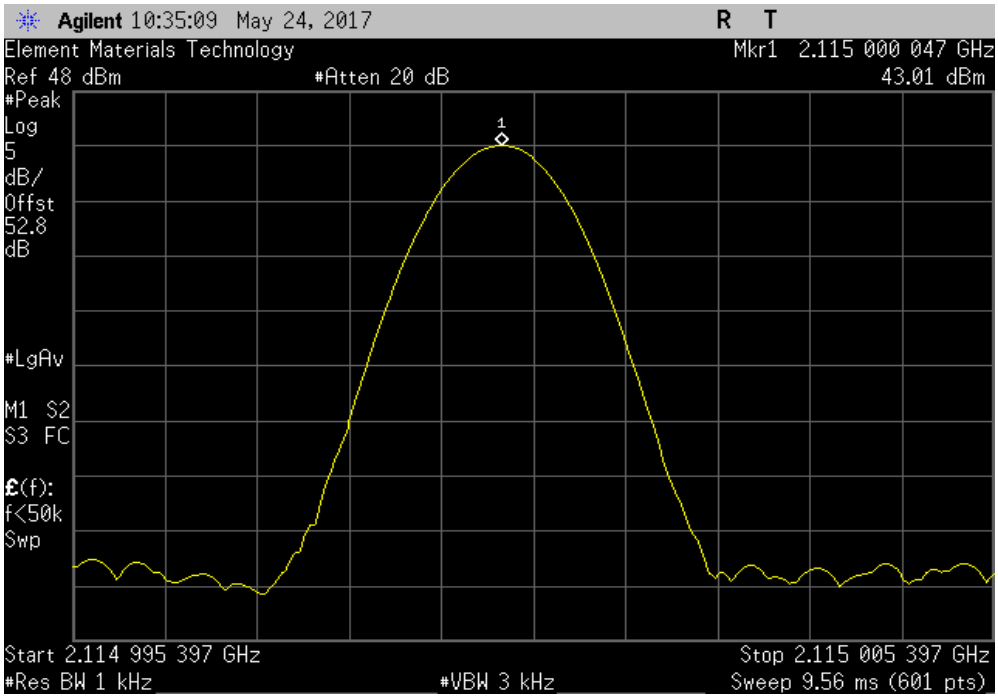
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

+50°C, 2112.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2112.500027	2112.5	0.013	1	Pass

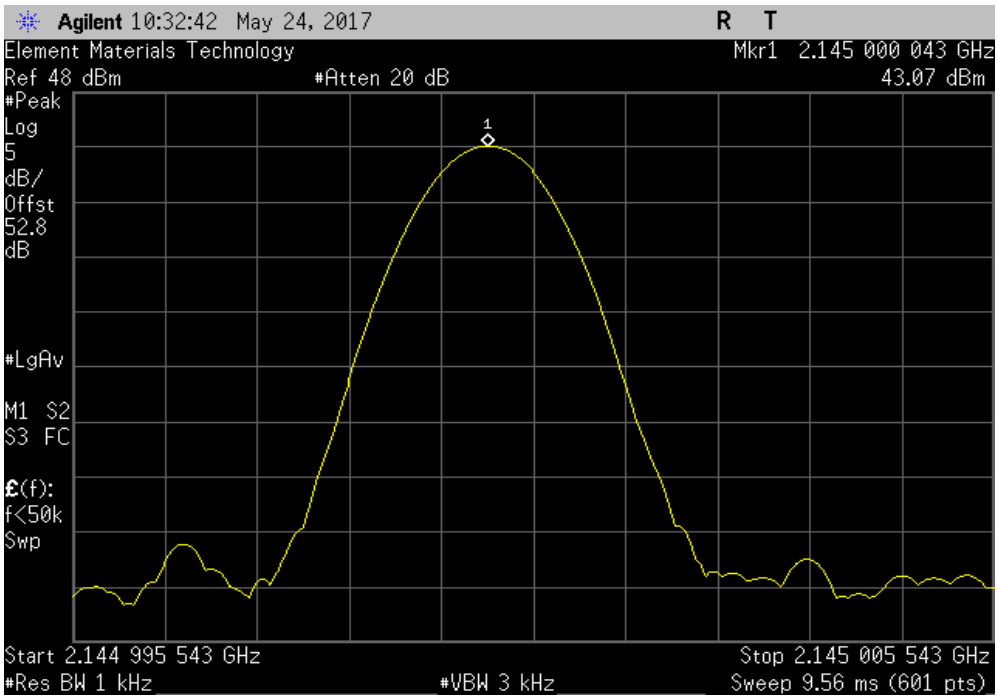


+50°C, 2115 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2115.000047	2115	0.022	1	Pass

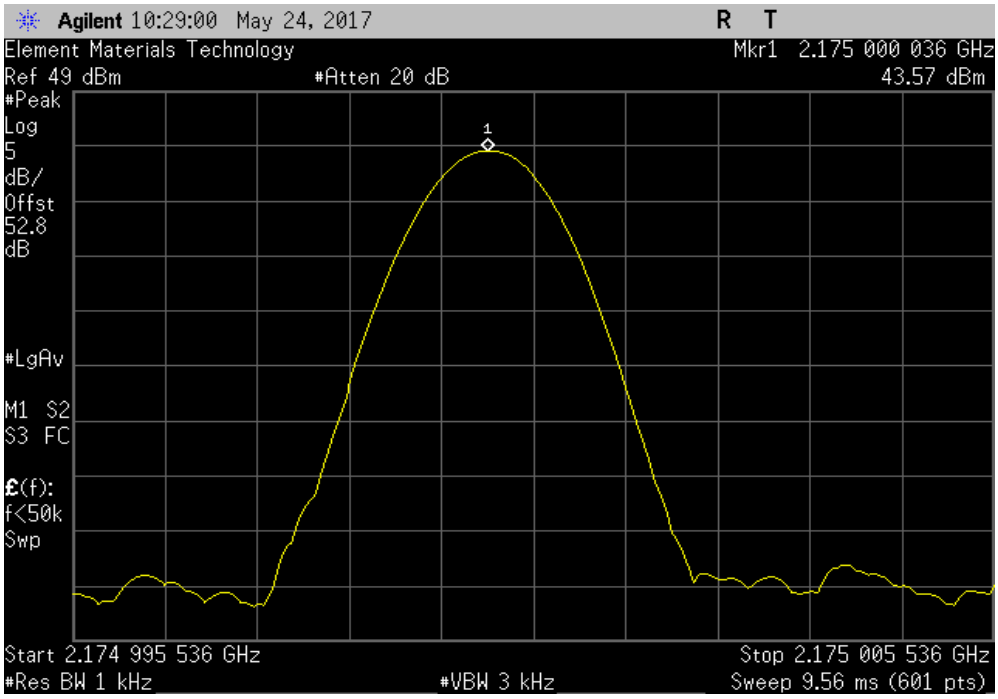


FREQUENCY STABILITY

+50°C, 2145 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2145.000043	2145	0.020	1	Pass



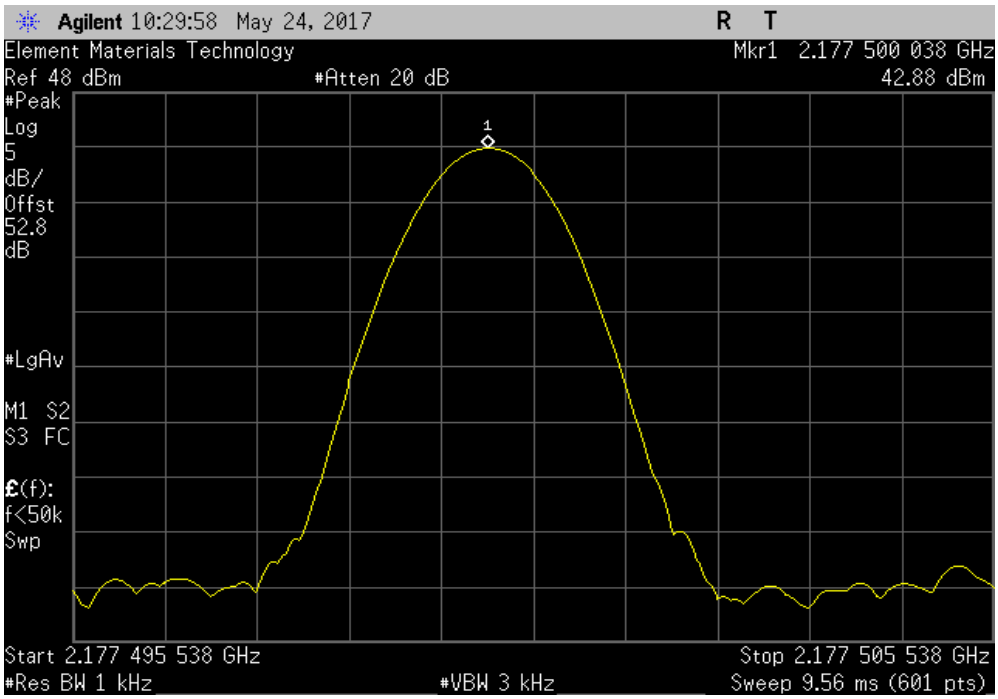
+50°C, 2175 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2175.000036	2175	0.017	1	Pass



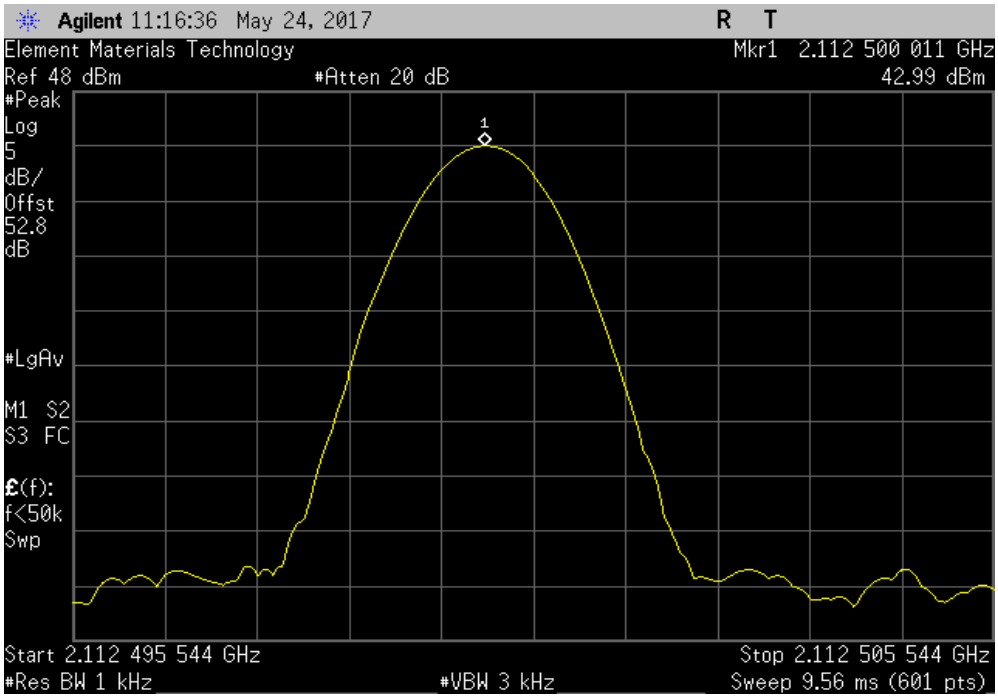
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

+50°C, 2177.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2177.500038	2177.5	0.017	1	Pass

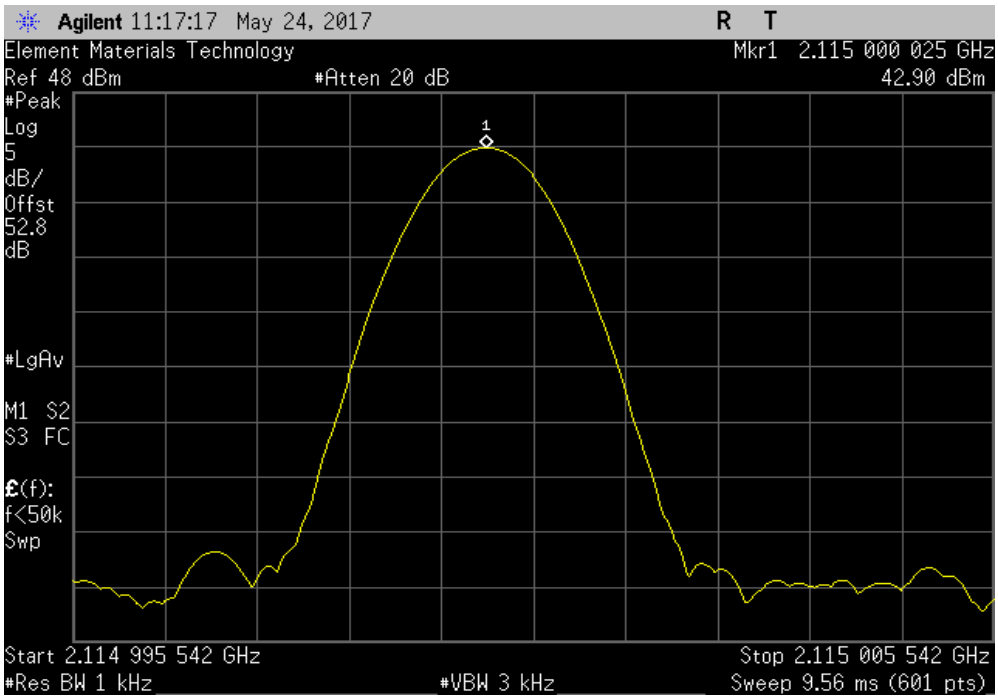


+40°C, 2112.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2112.500011	2112.5	0.005	1	Pass

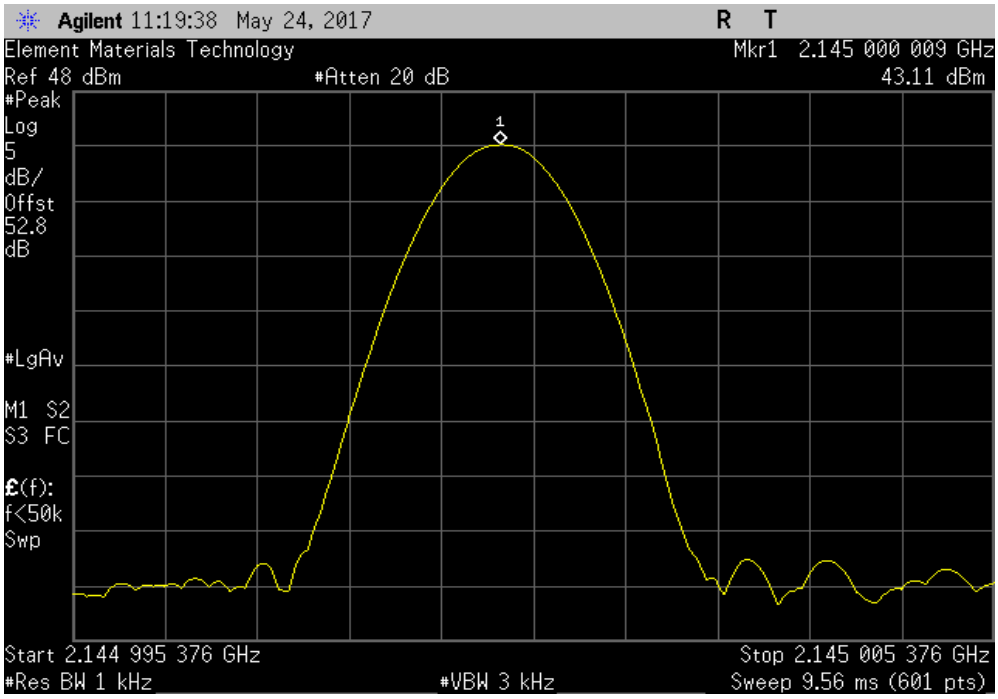


FREQUENCY STABILITY

+40°C, 2115 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2115.000025	2115	0.012	1	Pass



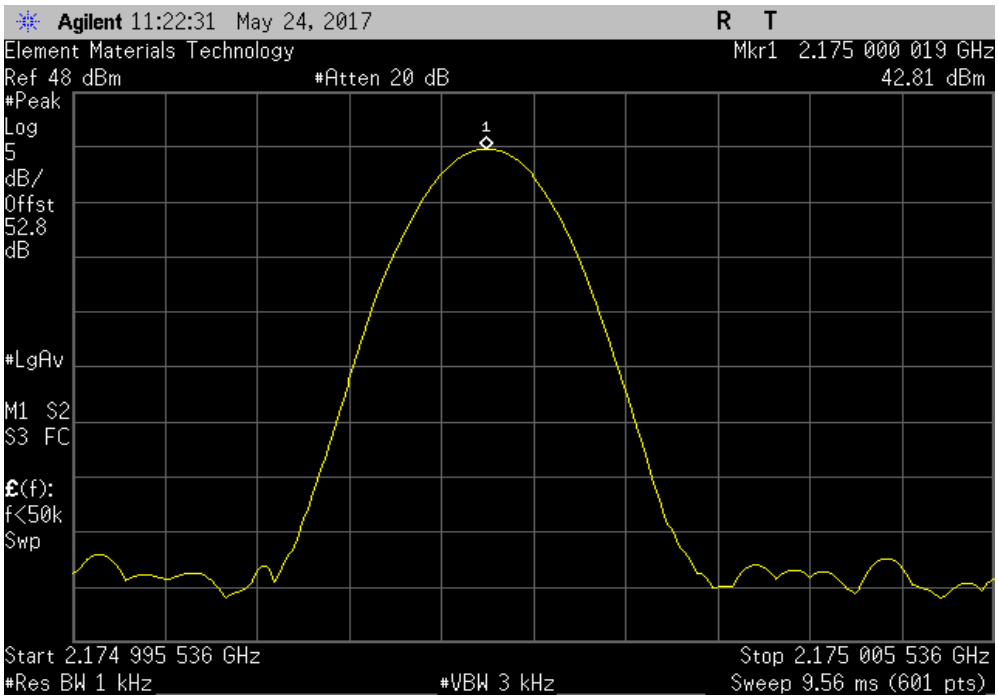
+40°C, 2145 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2145.000009	2145	0.004	1	Pass



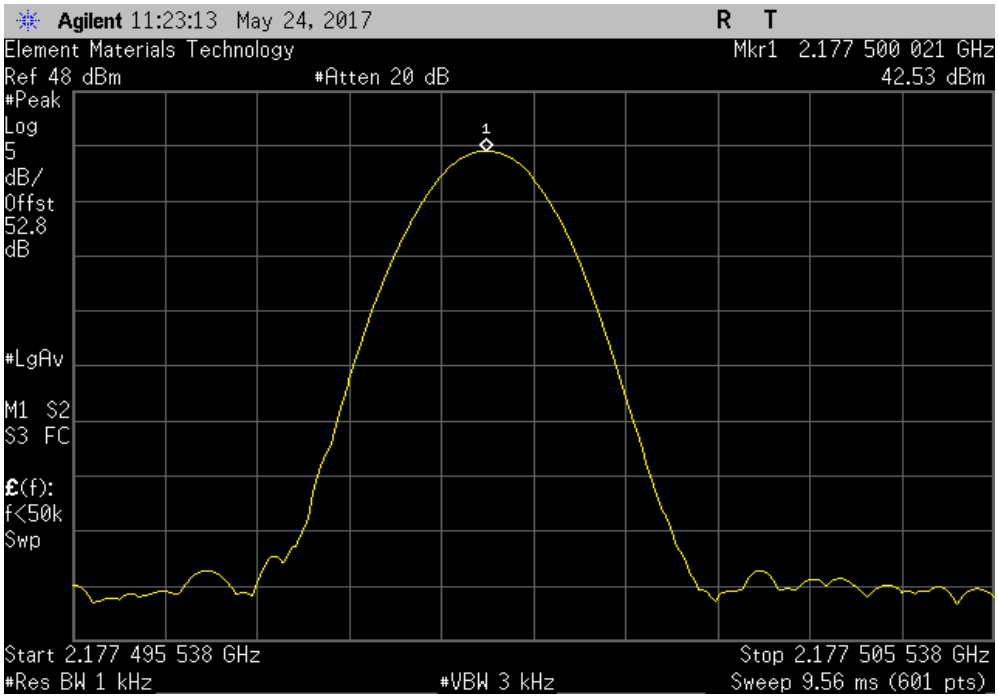
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

+40°C, 2175 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2175.000019	2175	0.009	1	Pass

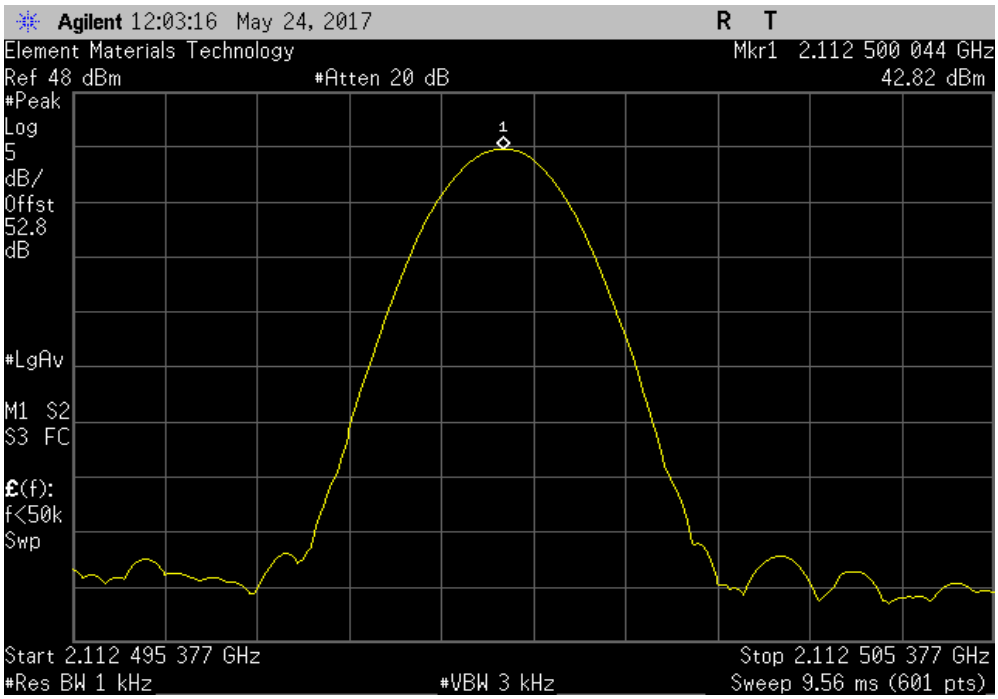


+40°C, 2177.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2177.500021	2177.5	0.010	1	Pass

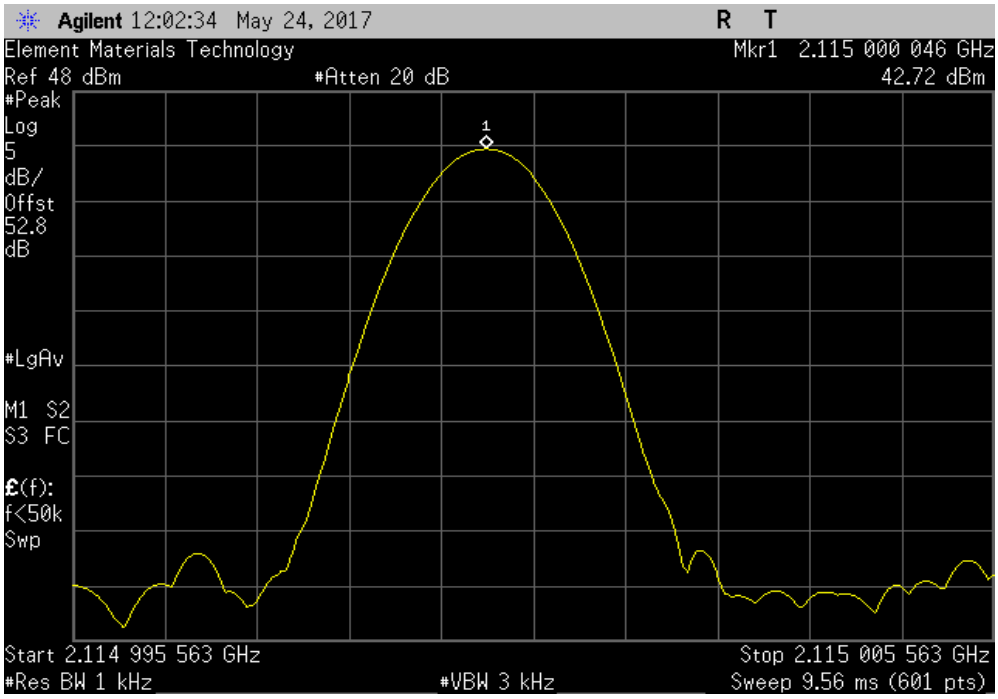


FREQUENCY STABILITY

+30°C, 2112.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2112.500044	2112.5	0.021	1	Pass



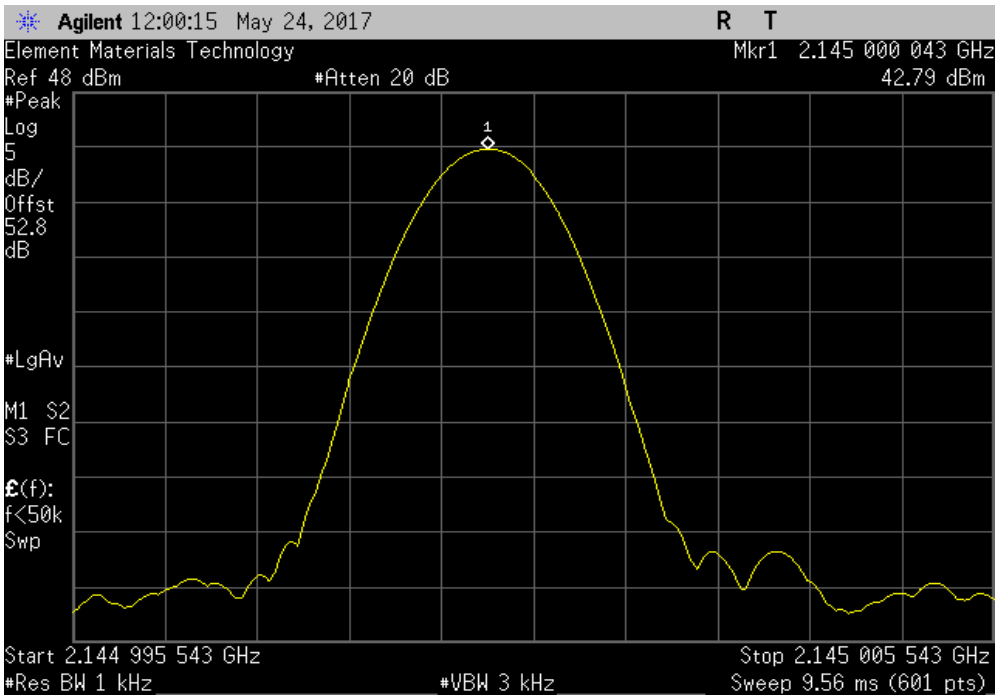
+30°C, 2115 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2115.000046	2115	0.022	1	Pass



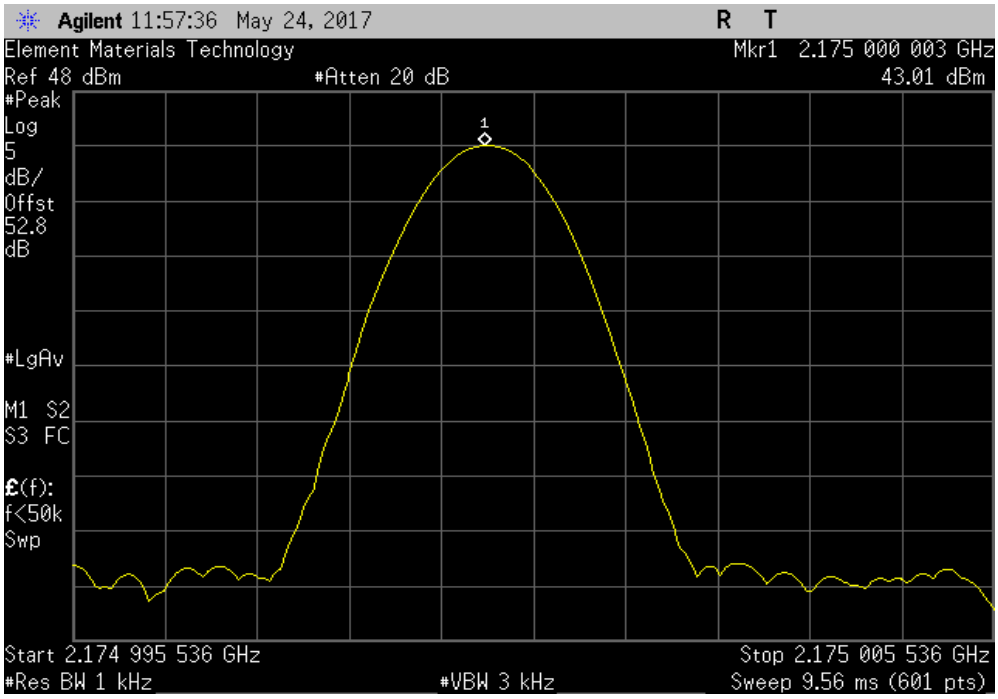
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

+30°C, 2145 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2145.000043	2145	0.020	1	Pass

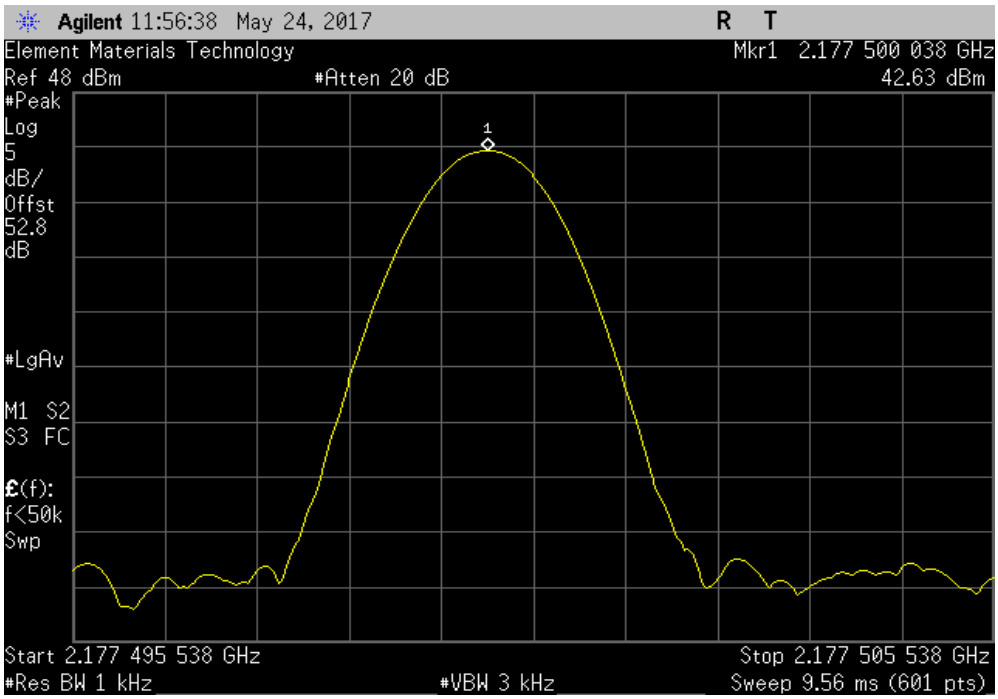


+30°C, 2175 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2175.000003	2175	0.001	1	Pass

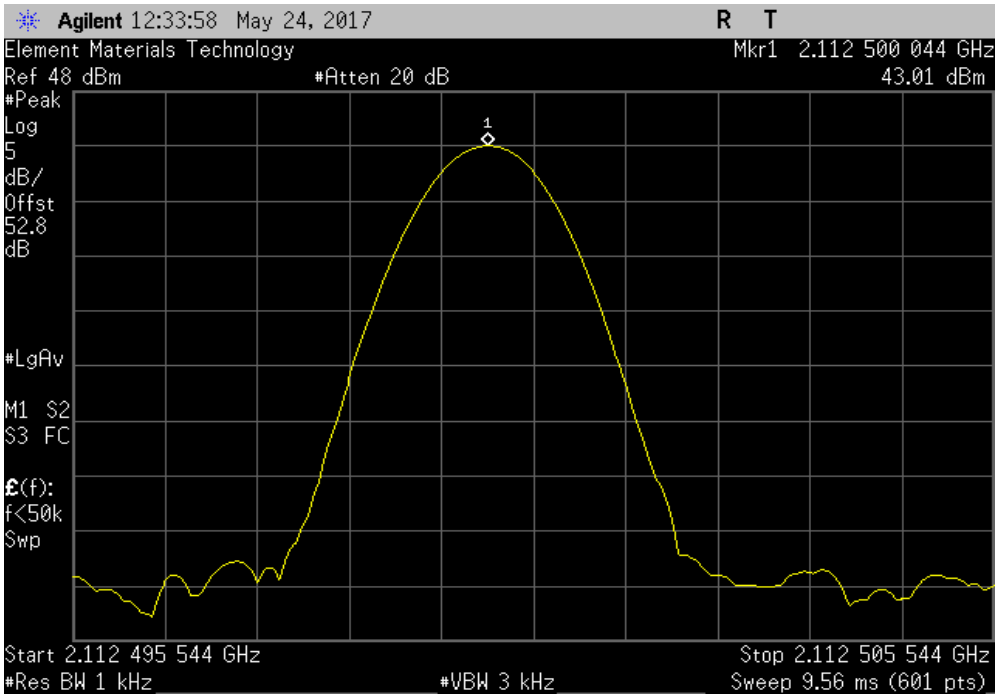


FREQUENCY STABILITY

+30°C, 2177.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2177.500038	2177.5	0.017	1	Pass



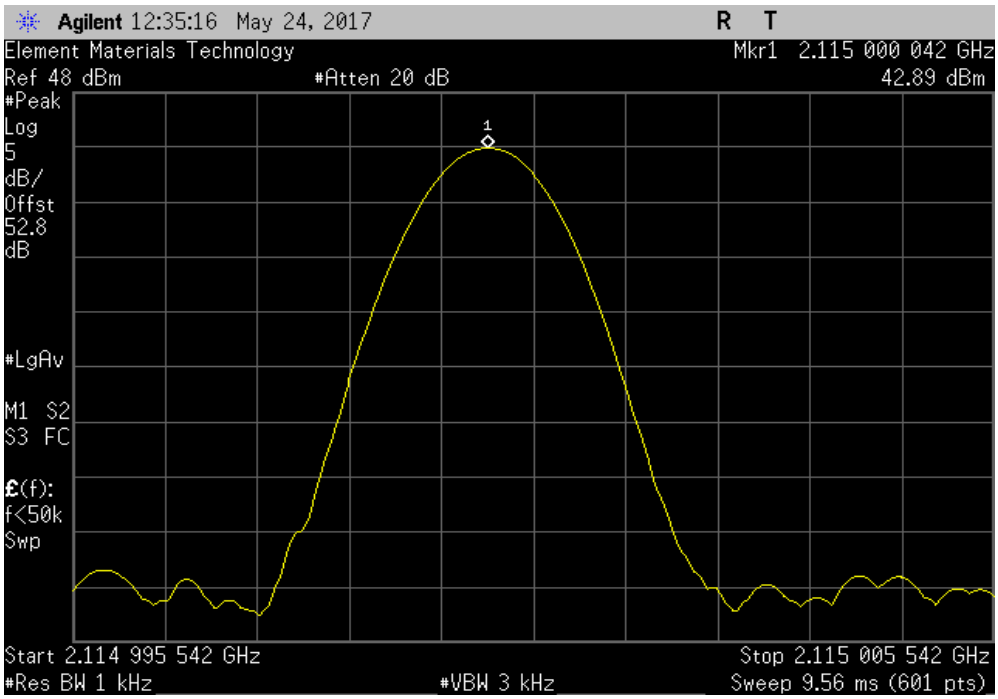
+20°C, 2112.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2112.500044	2112.5	0.021	1	Pass



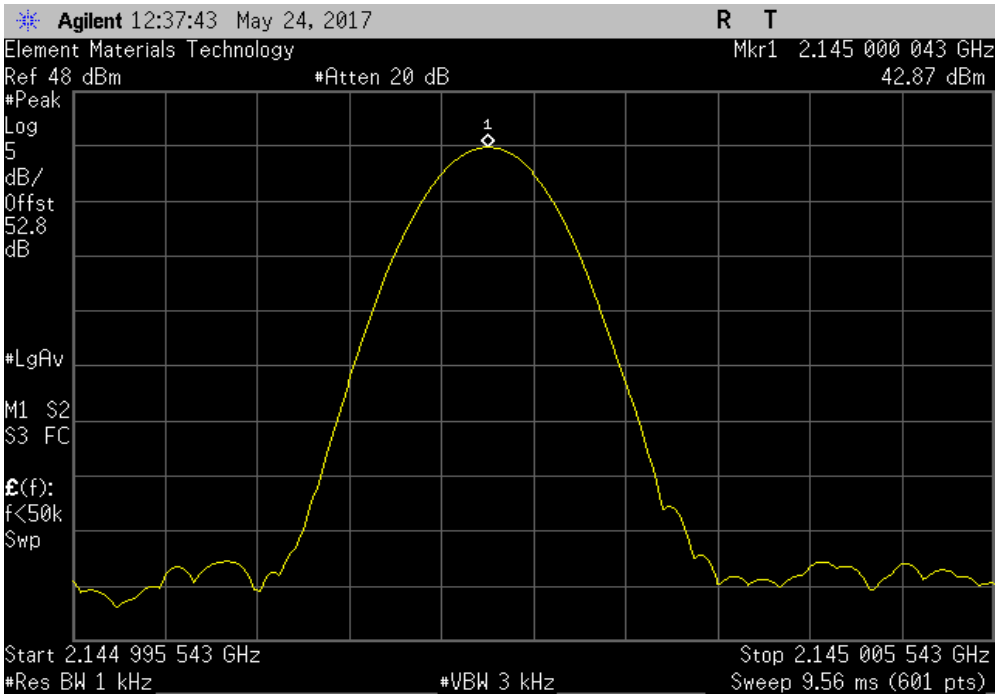
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

+20°C, 2115 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2115.000042	2115	0.020	1	Pass



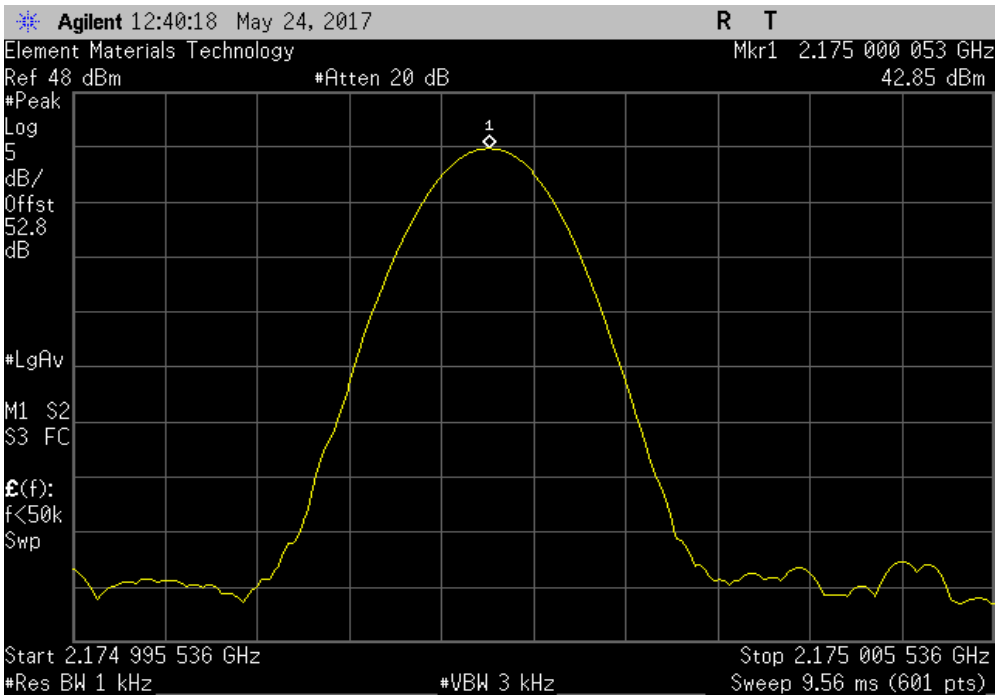
+20°C, 2145 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2145.000043	2145	0.020	1	Pass



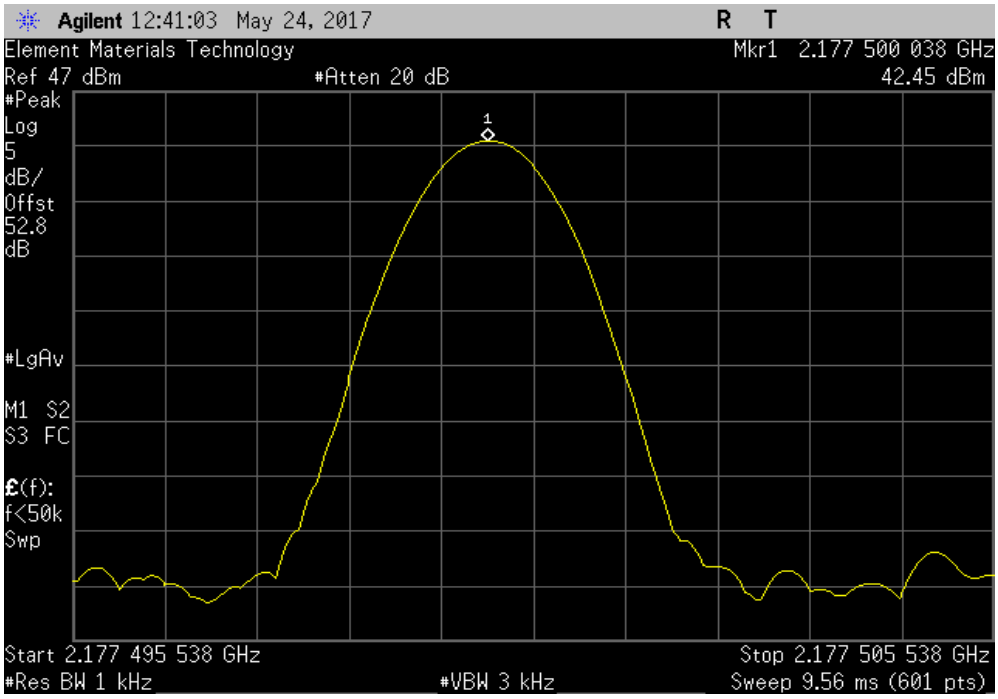
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

+20°C, 2175 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2175.000053	2175	0.024	1	Pass



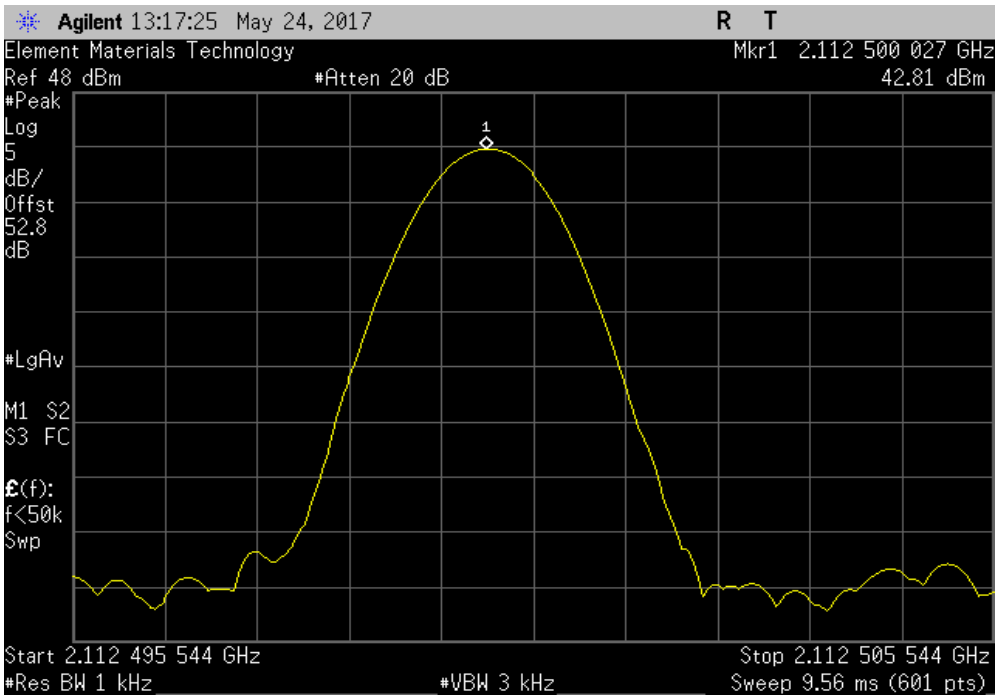
+20°C, 2177.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2177.500038	2177.5	0.017	1	Pass



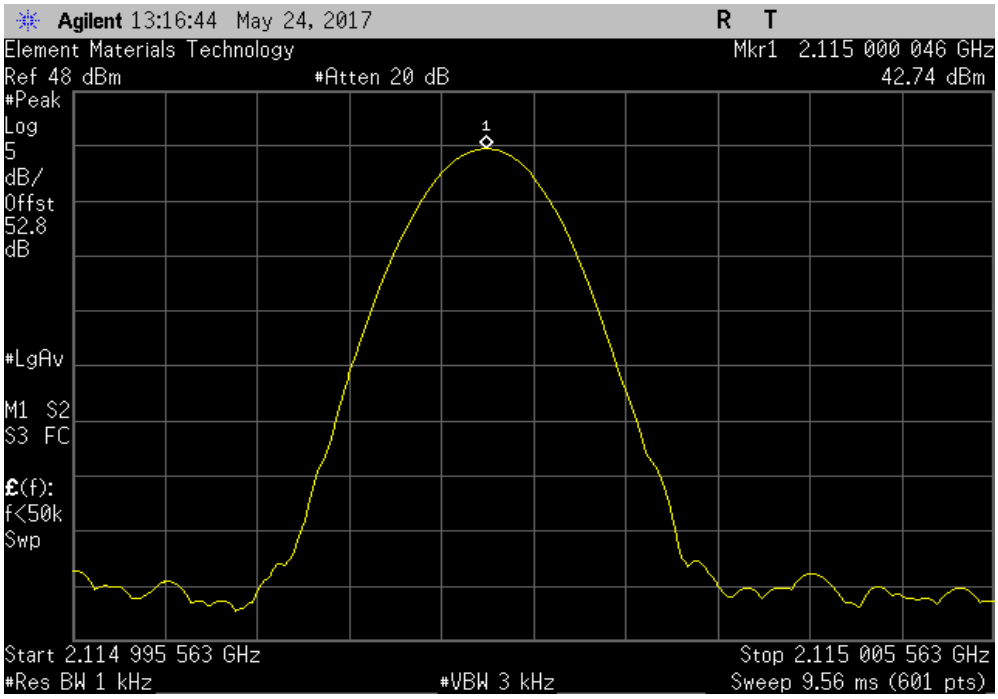
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

+10°C, 2112.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2112.500027	2112.5	0.013	1	Pass

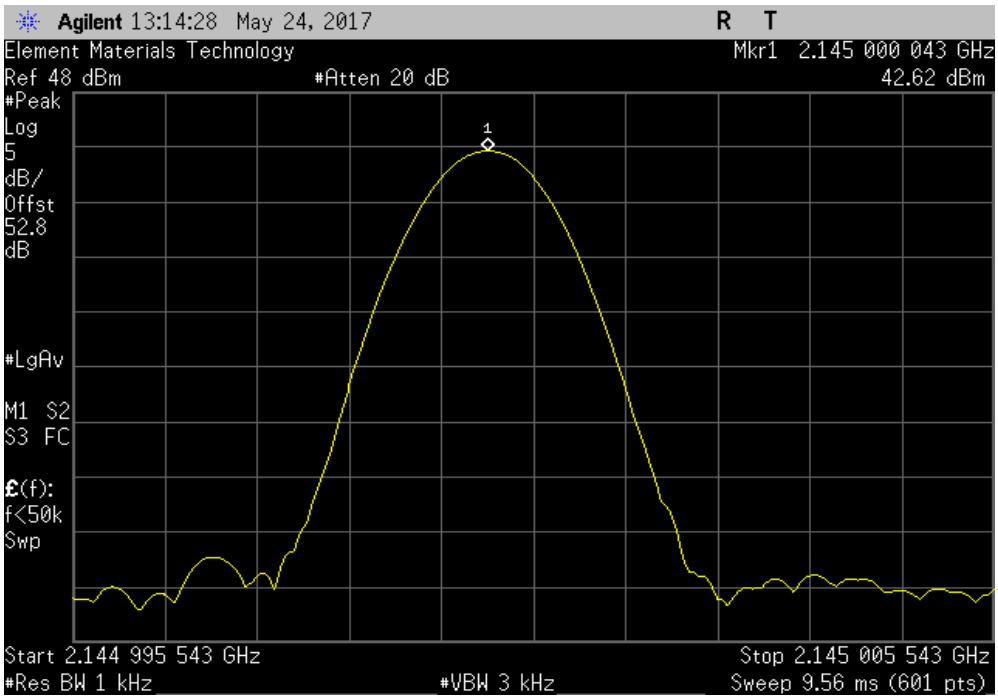


+10°C, 2115 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2115.000046	2115	0.022	1	Pass

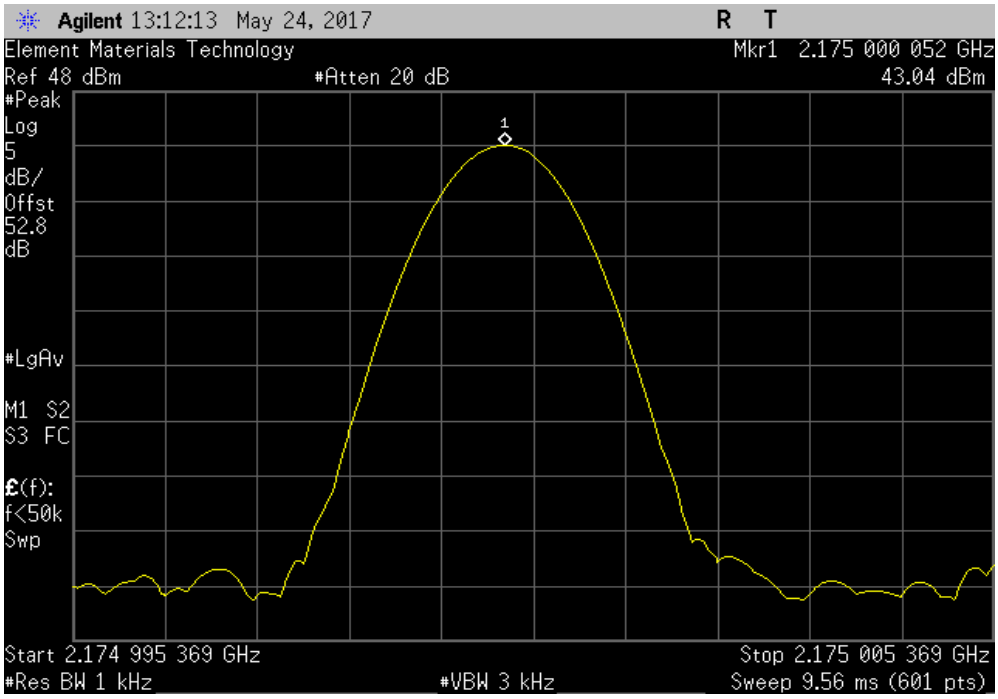


FREQUENCY STABILITY

+10°C, 2145 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2145.000043	2145	0.020	1	Pass

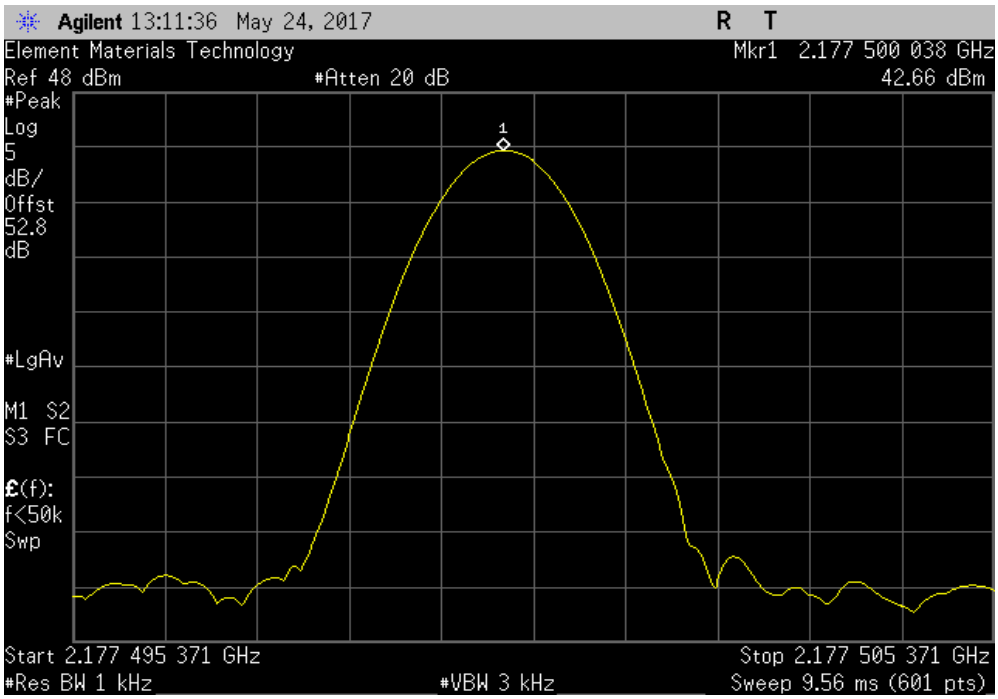


+10°C, 2175 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2175.000052	2175	0.024	1	Pass

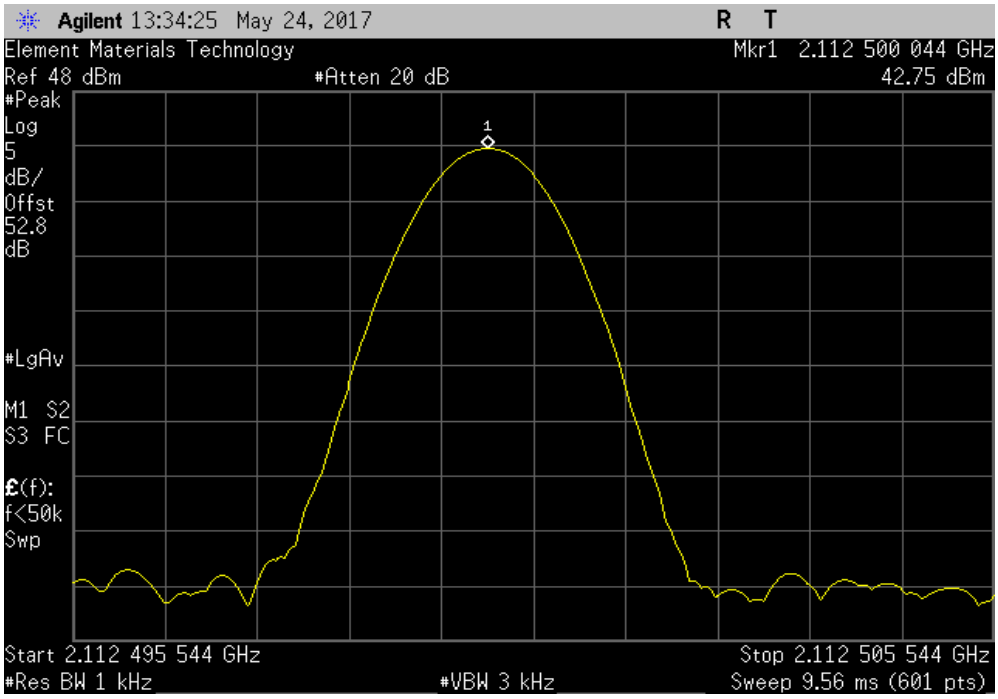


FREQUENCY STABILITY

+10°C, 2177.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2177.500038	2177.5	0.017	1	Pass



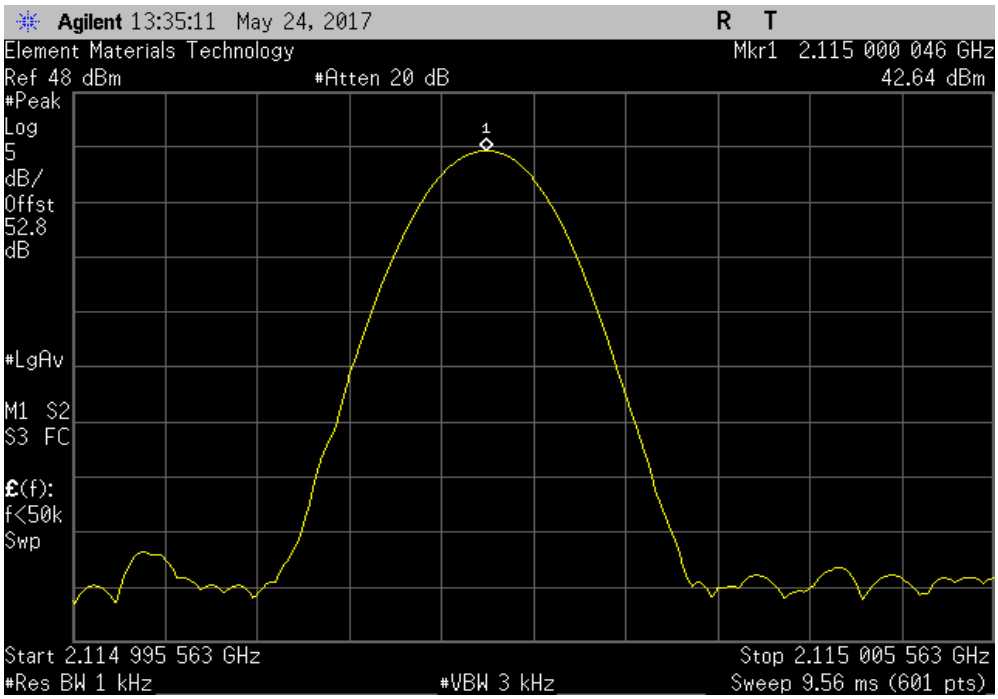
0°C, 2112.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2112.500044	2112.5	0.021	1	Pass



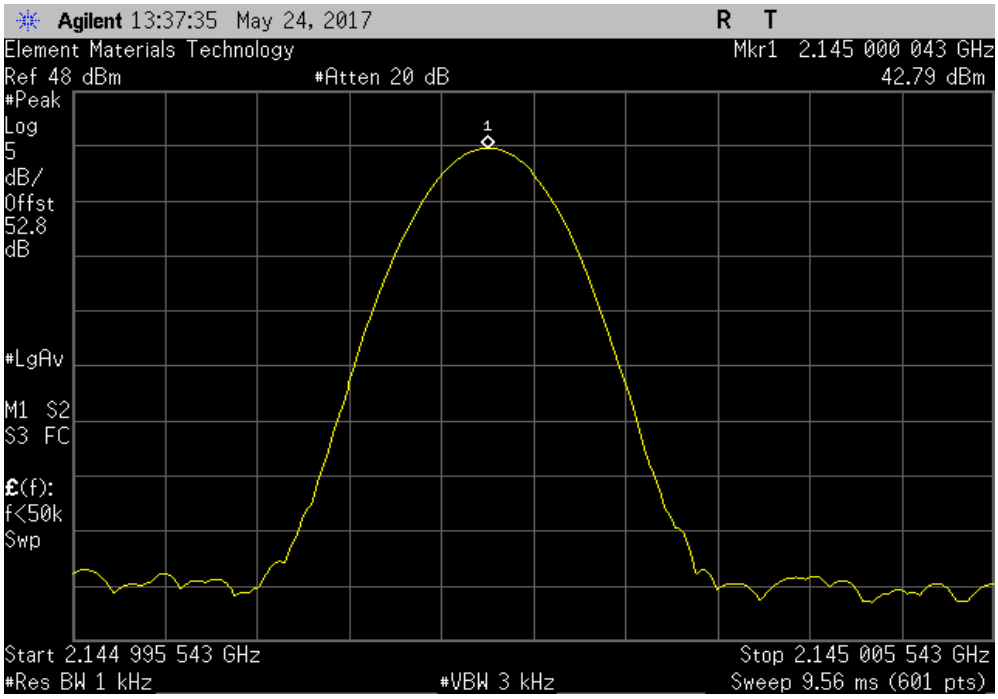
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

0°C, 2115 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2115.000046	2115	0.022	1	Pass



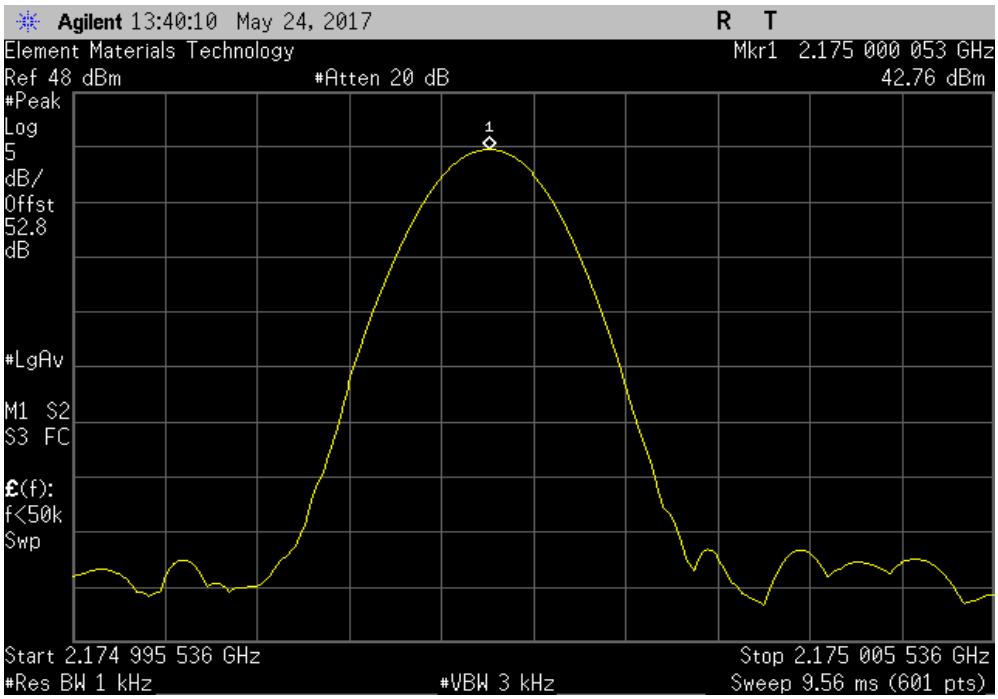
0°C, 2145 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2145.000043	2145	0.020	1	Pass



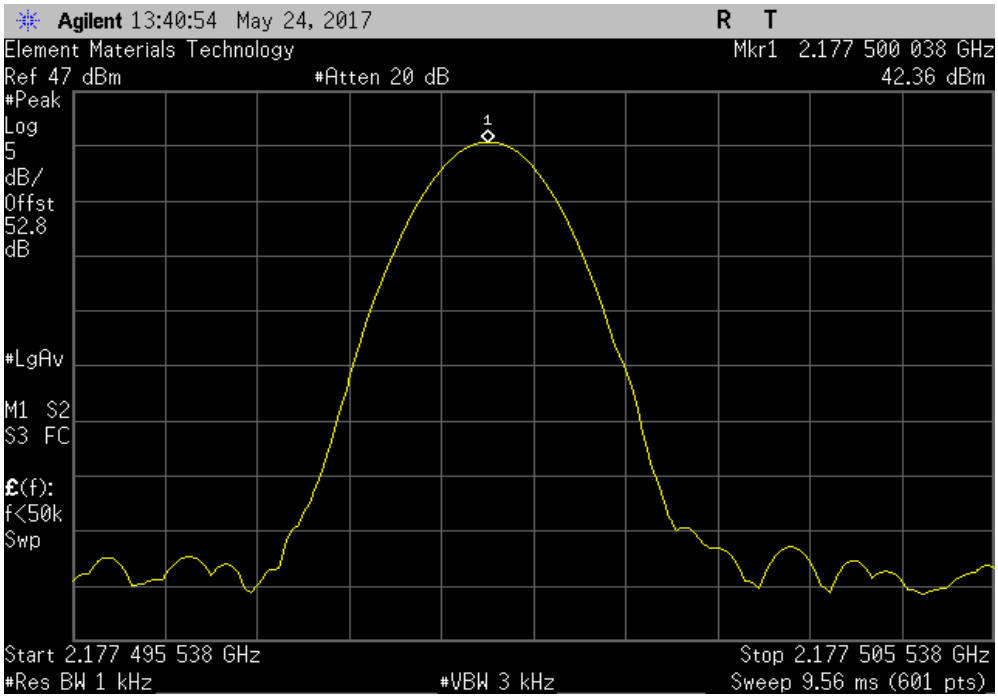
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

0°C, 2175 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2175.000053	2175	0.024	1	Pass



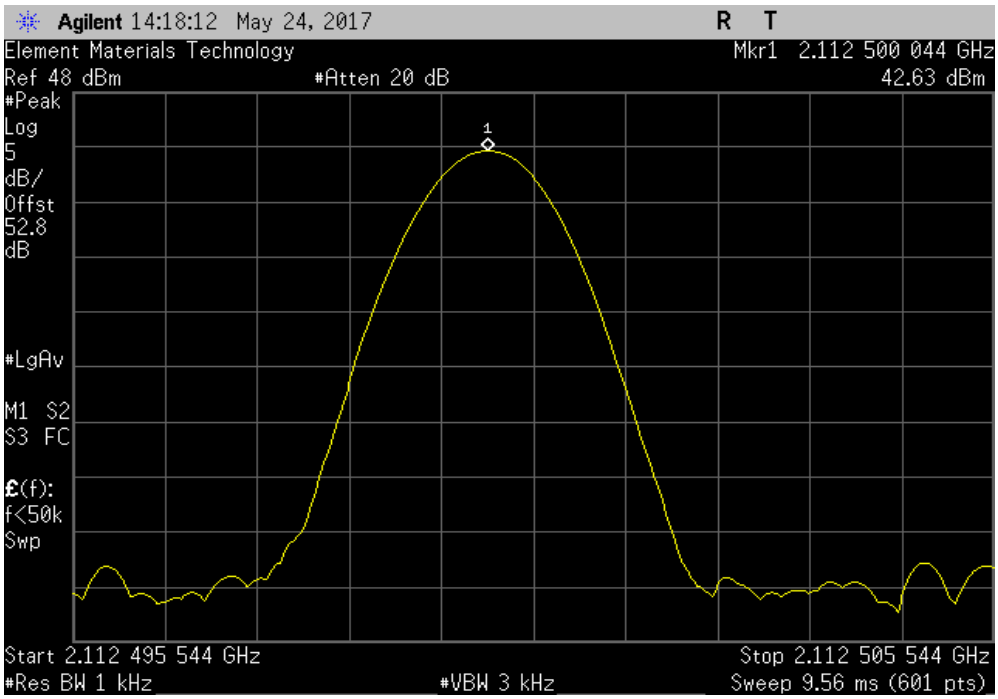
0°C, 2177.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2177.500038	2177.5	0.017	1	Pass



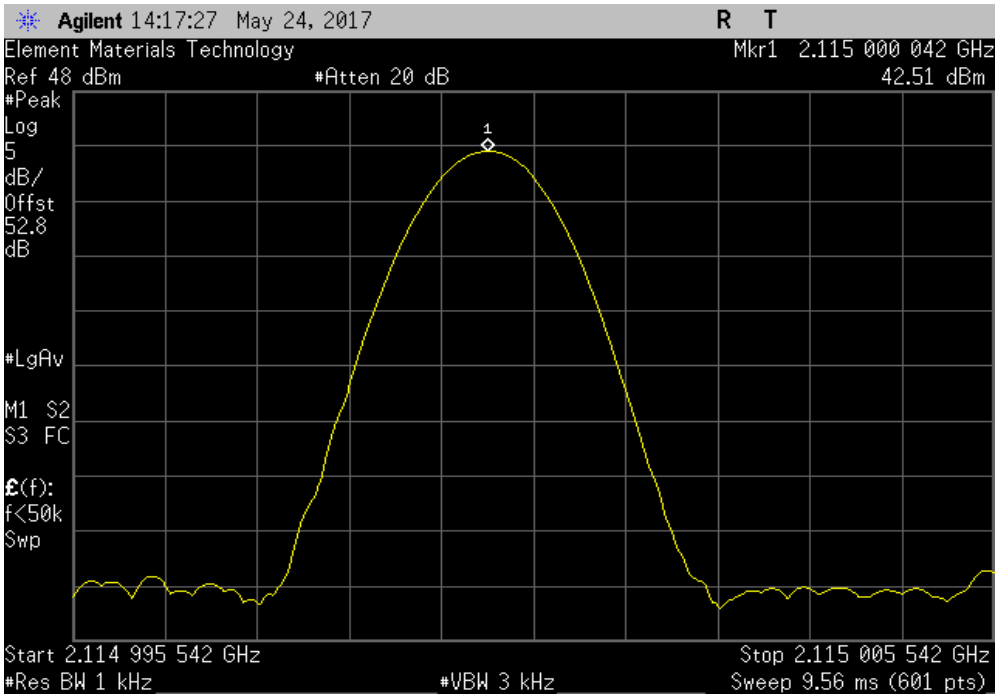
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

-10°C, 2112.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2112.500044	2112.5	0.021	1	Pass

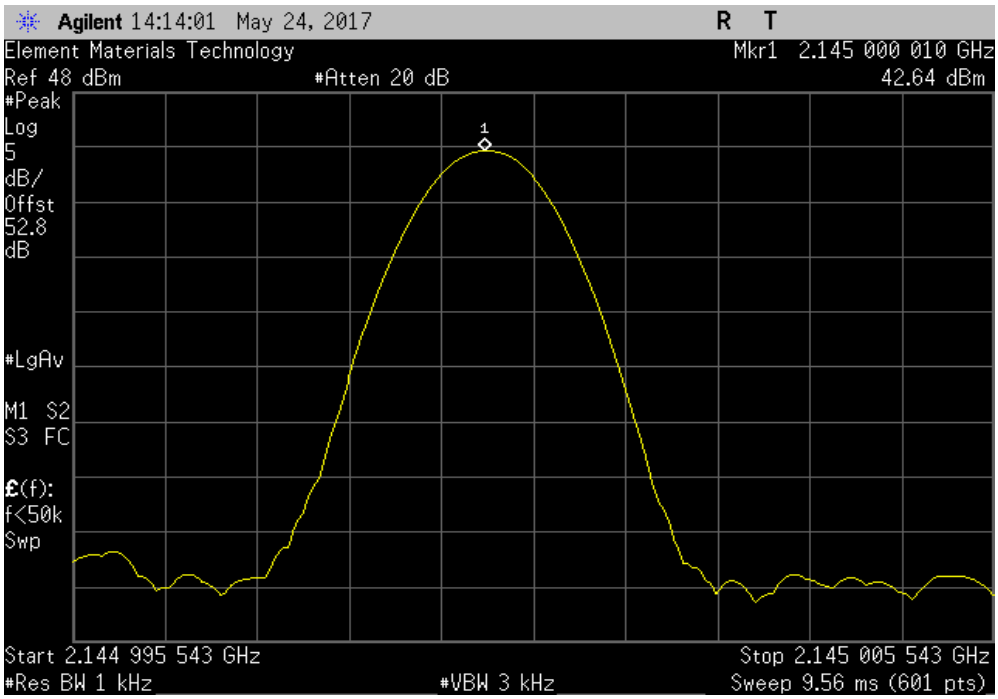


-10°C, 2115 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2115.000042	2115	0.020	1	Pass

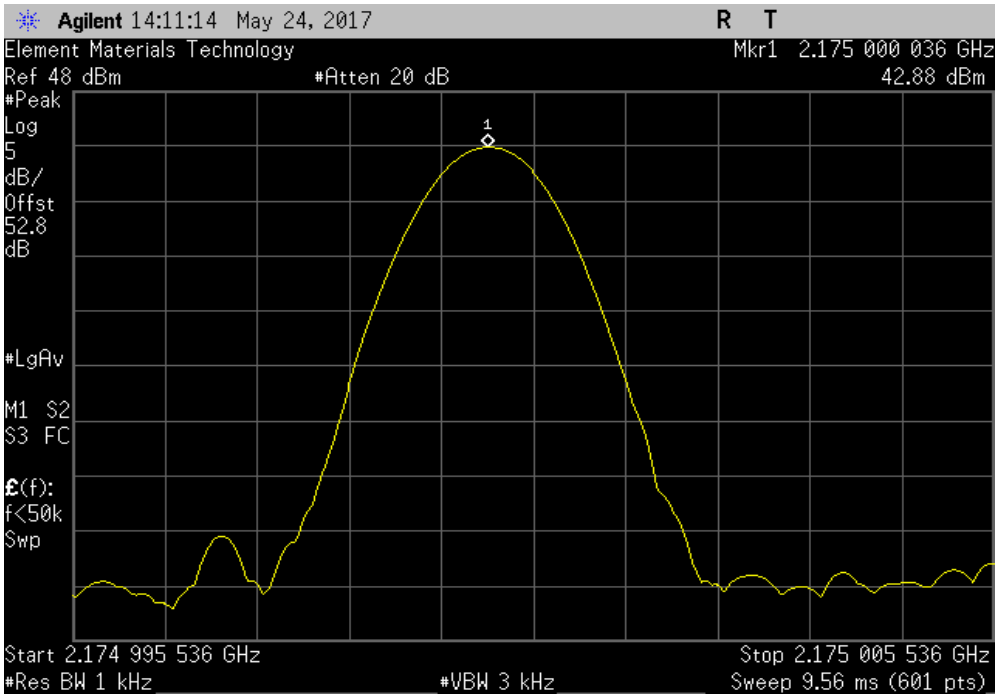


FREQUENCY STABILITY

-10°C, 2145 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2145.00001	2145	0.005	1	Pass

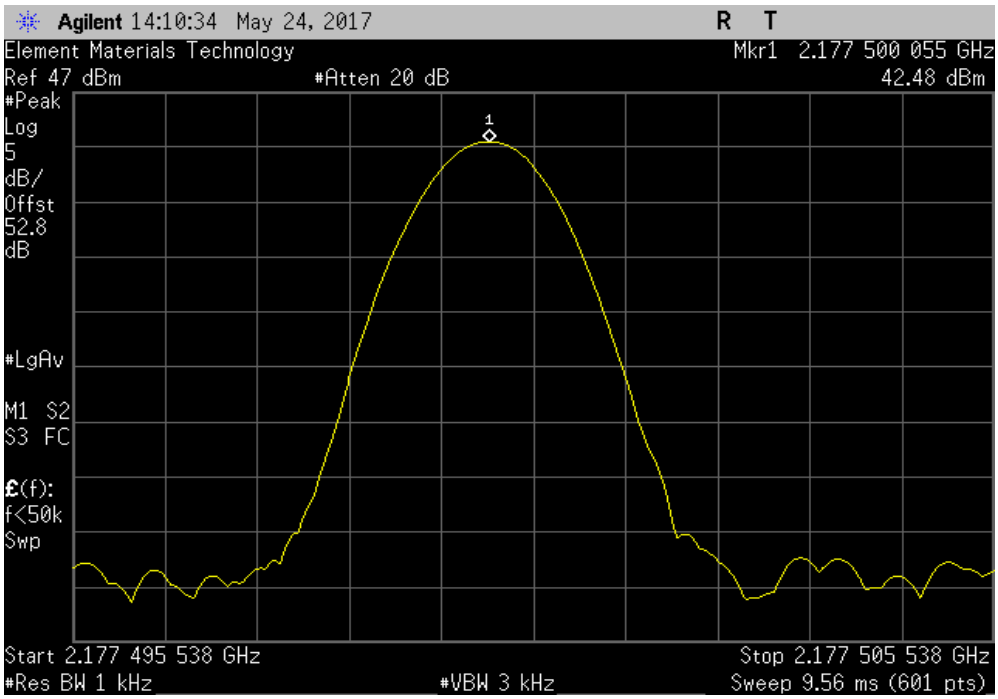


-10°C, 2175 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2175.000036	2175	0.017	1	Pass

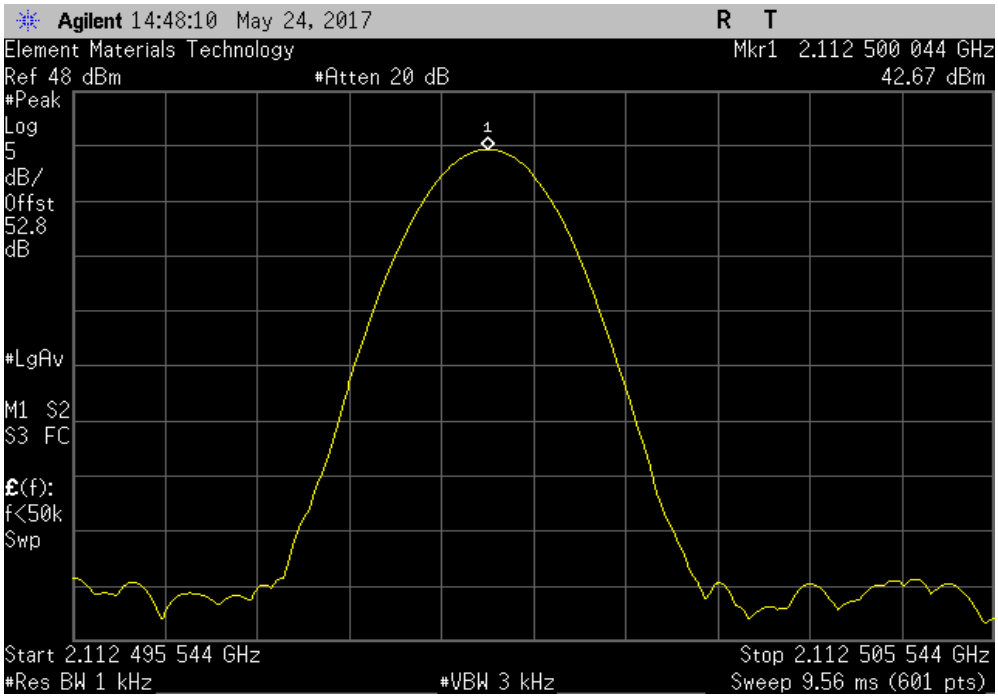


FREQUENCY STABILITY

-10°C, 2177.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2177.500055	2177.5	0.025	1	Pass

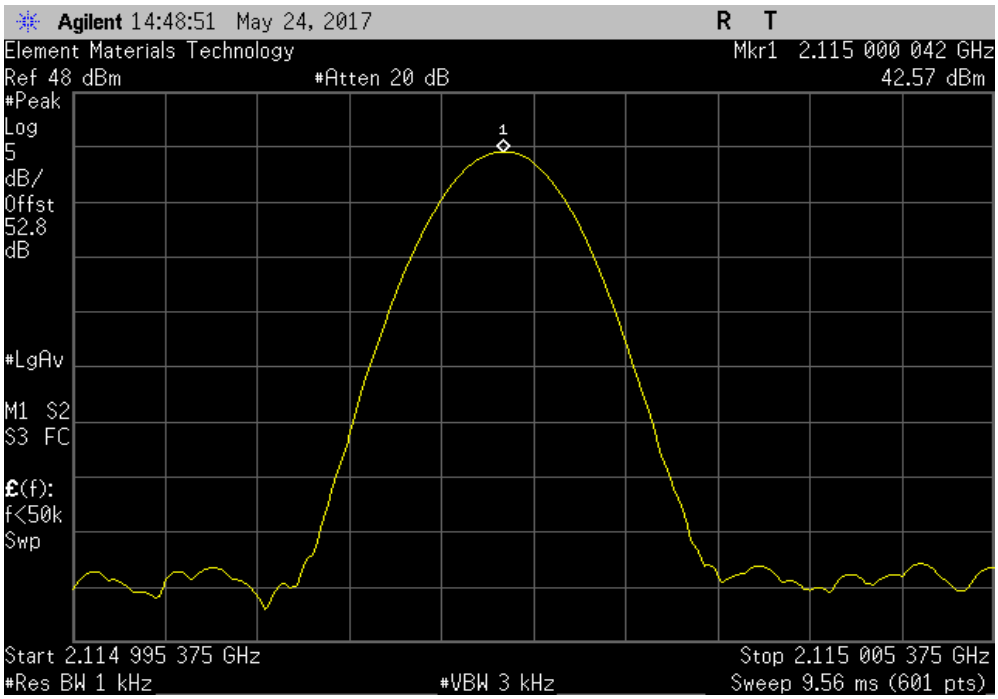


-20°C, 2112.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2112.500044	2112.5	0.021	1	Pass

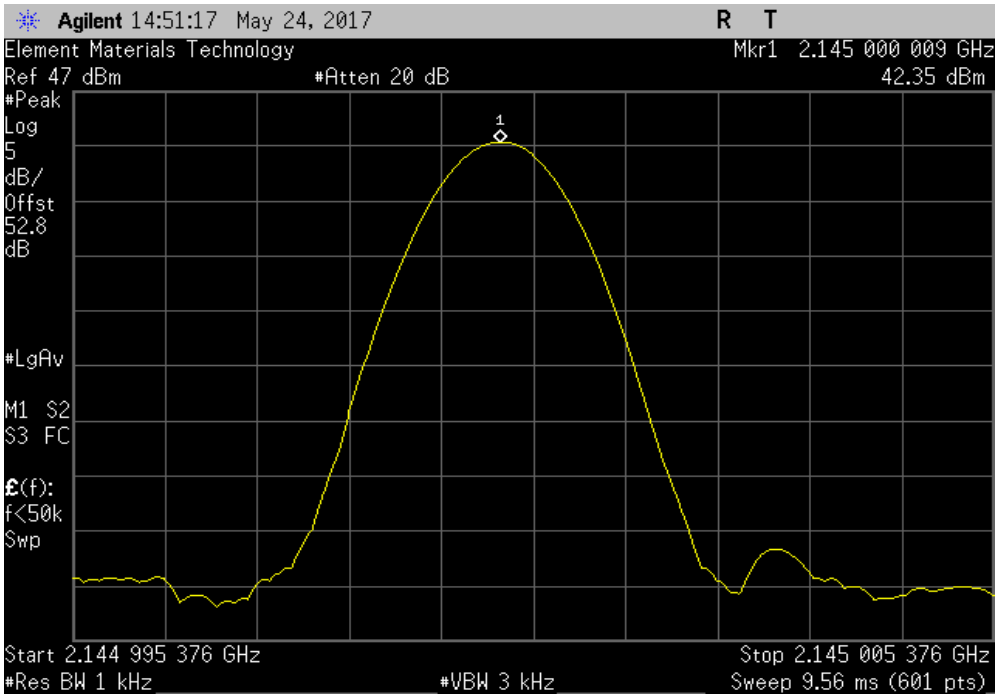


FREQUENCY STABILITY

-20°C, 2115 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2115.000042	2115	0.020	1	Pass



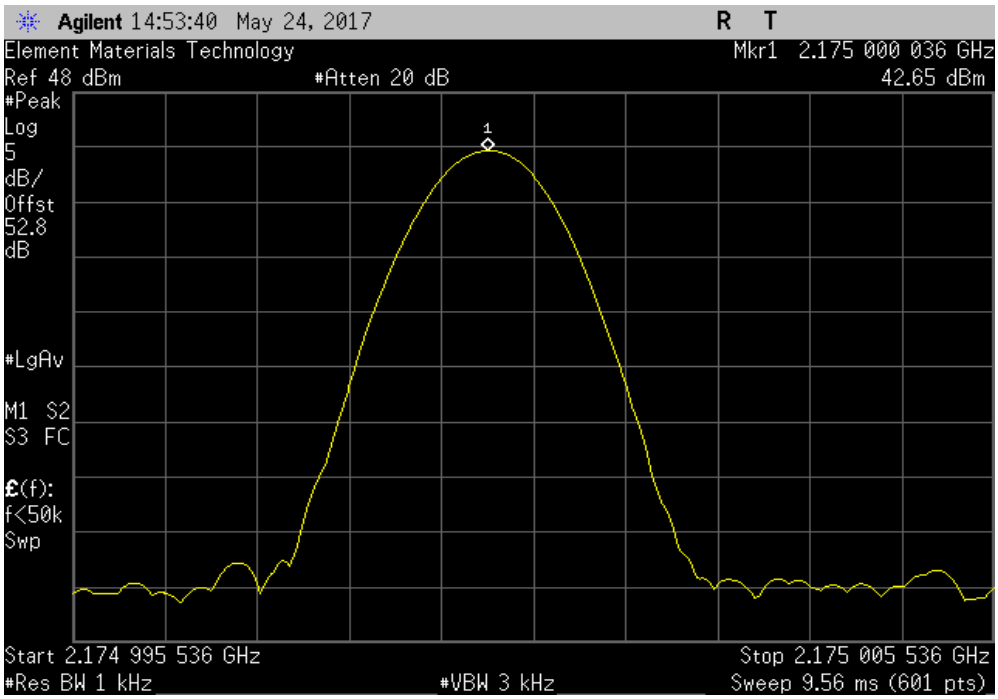
-20°C, 2145 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2145.000009	2145	0.004	1	Pass



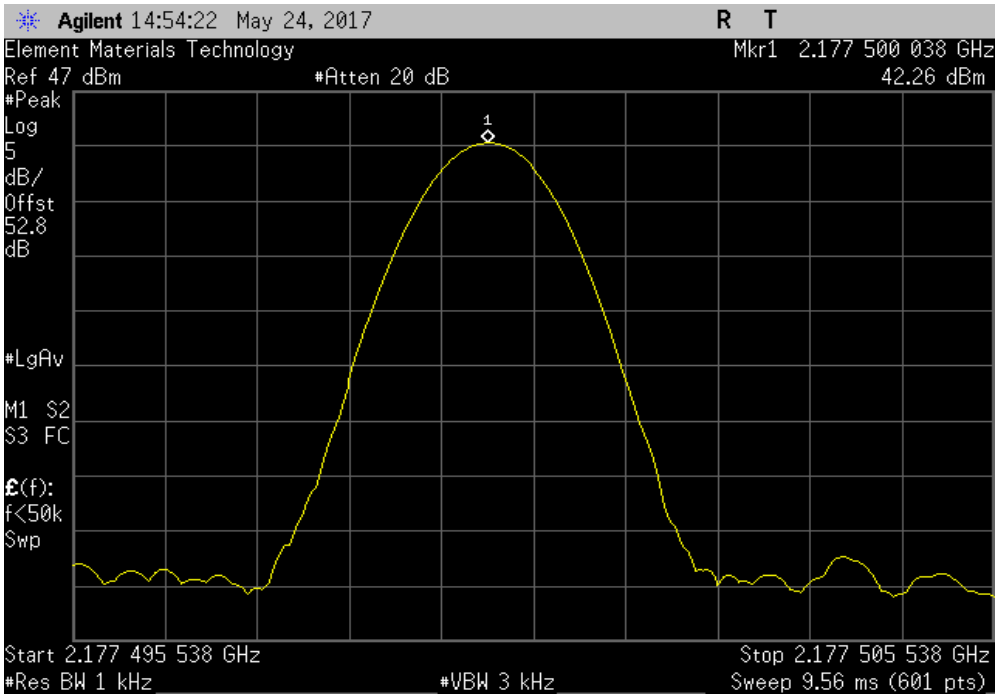
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

-20°C, 2175 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2175.000036	2175	0.017	1	Pass



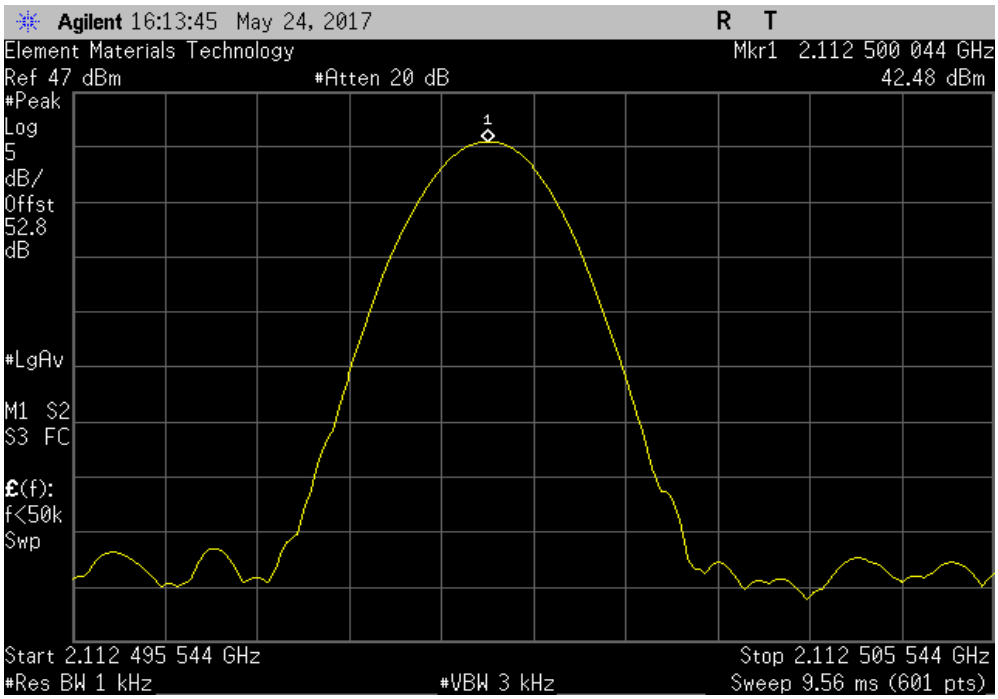
-20°C, 2177.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2177.500038	2177.5	0.017	1	Pass



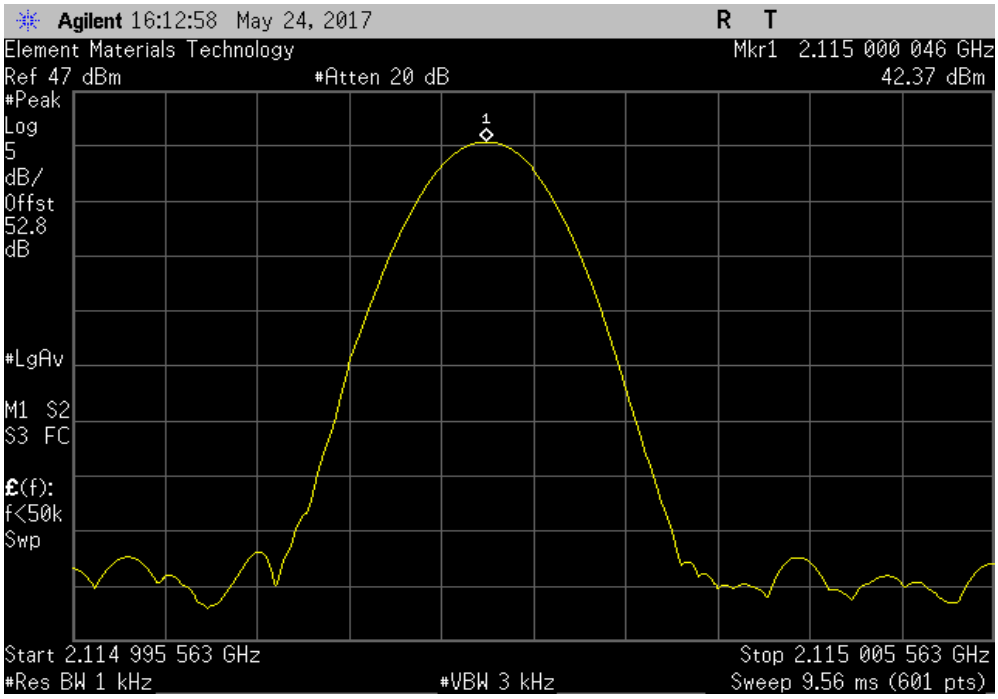
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

-30°C, 2112.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2112.500044	2112.5	0.021	1	Pass

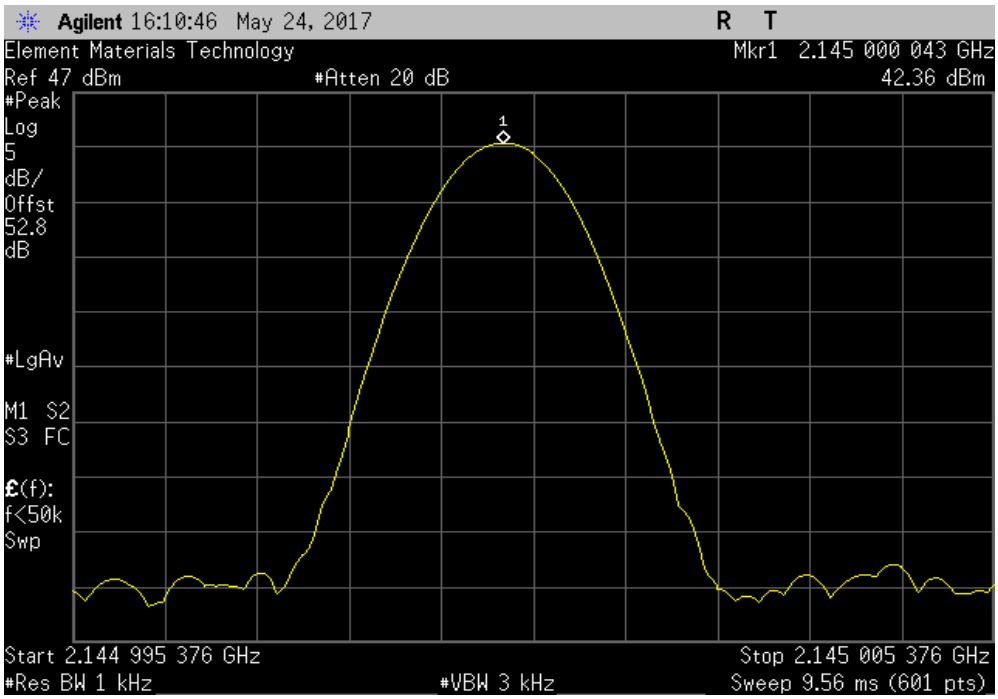


-30°C, 2115 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2115.000046	2115	0.022	1	Pass

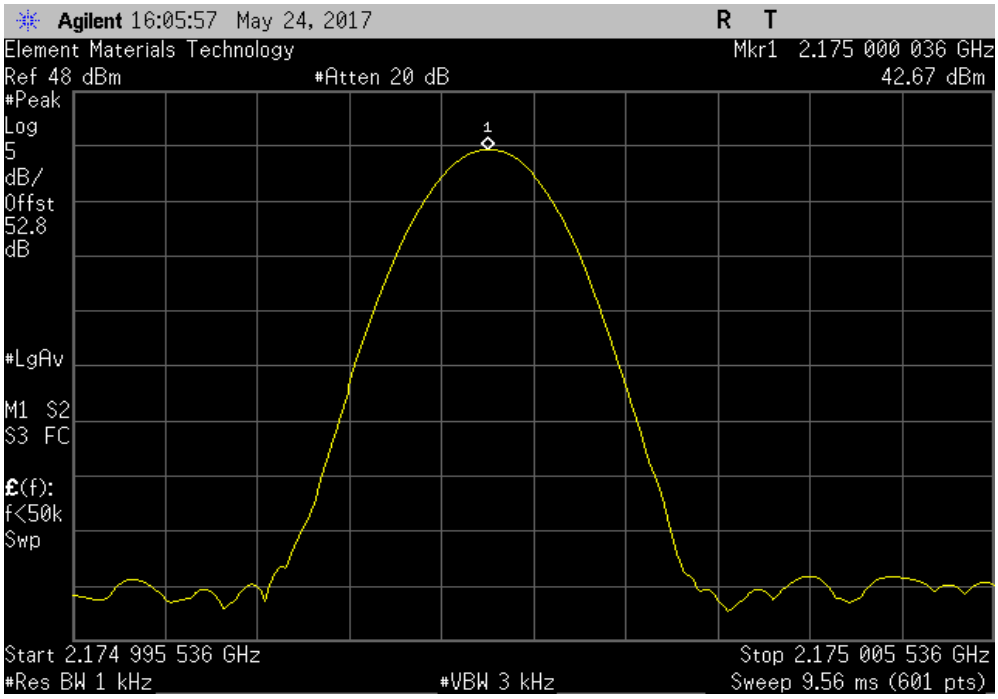


FREQUENCY STABILITY

-30°C, 2145 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2145.000043	2145	0.020	1	Pass



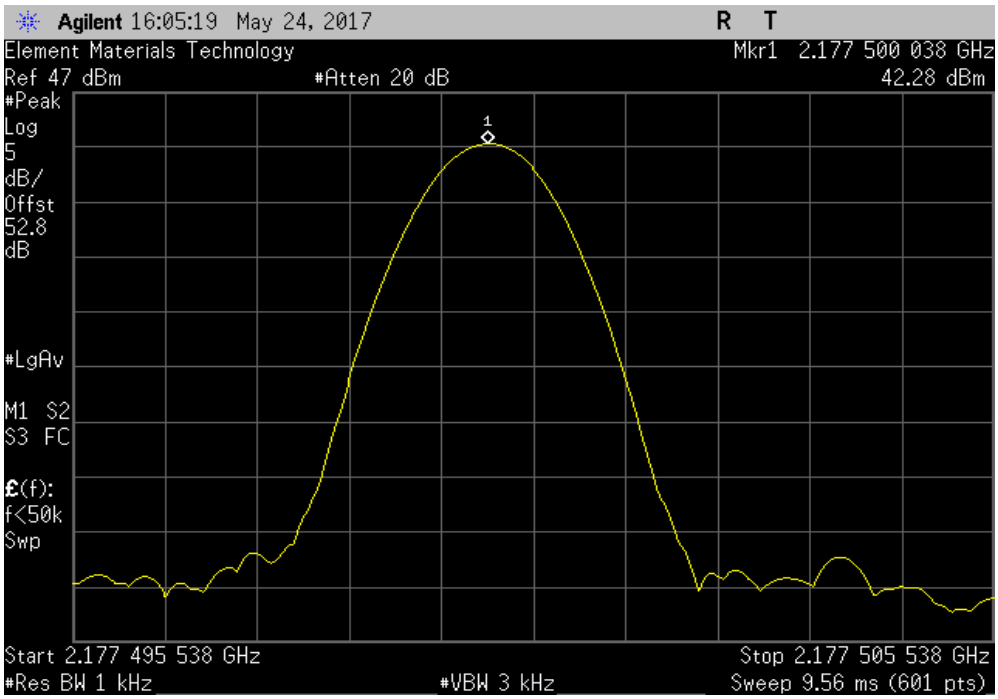
-30°C, 2175 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2175.000036	2175	0.017	1	Pass



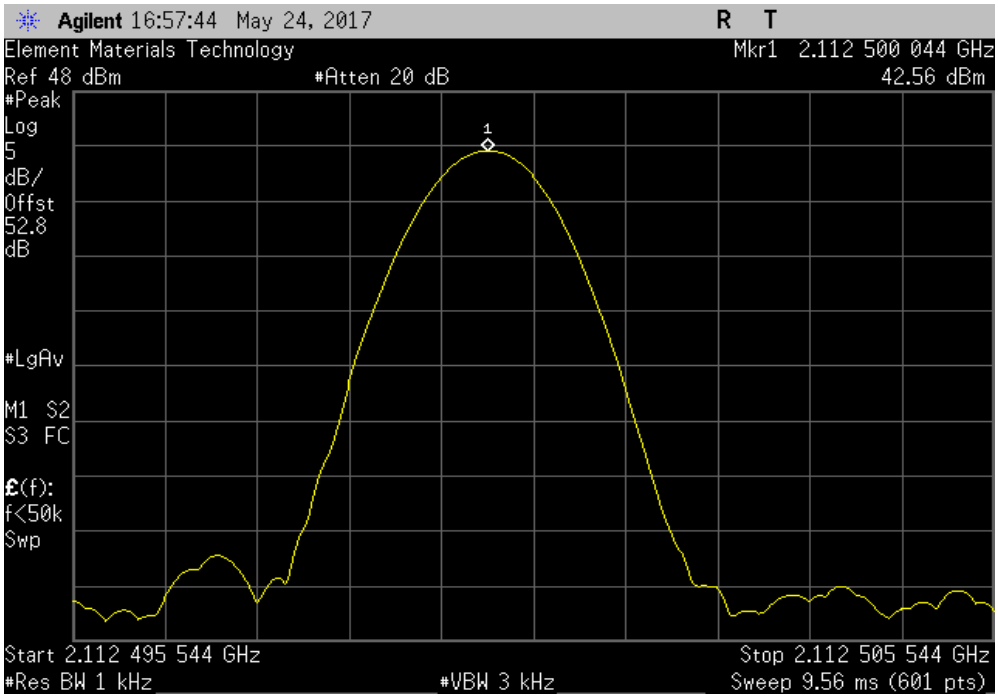
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

-30°C, 2177.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2177.500038	2177.5	0.017	1	Pass



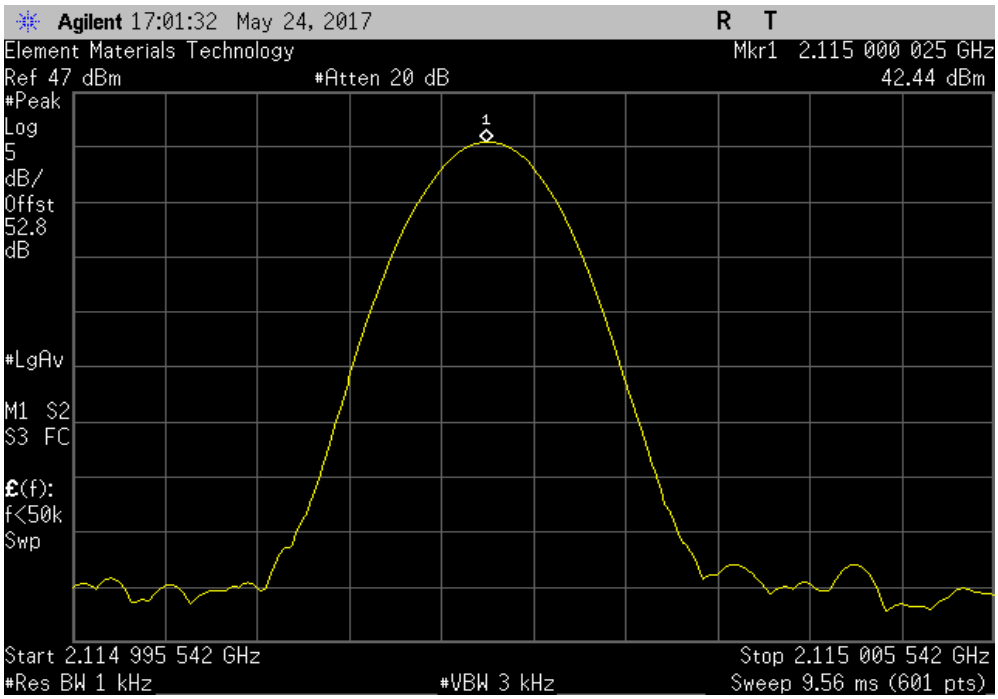
Normal Voltage, 2112.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2112.500044	2112.5	0.021	1	Pass



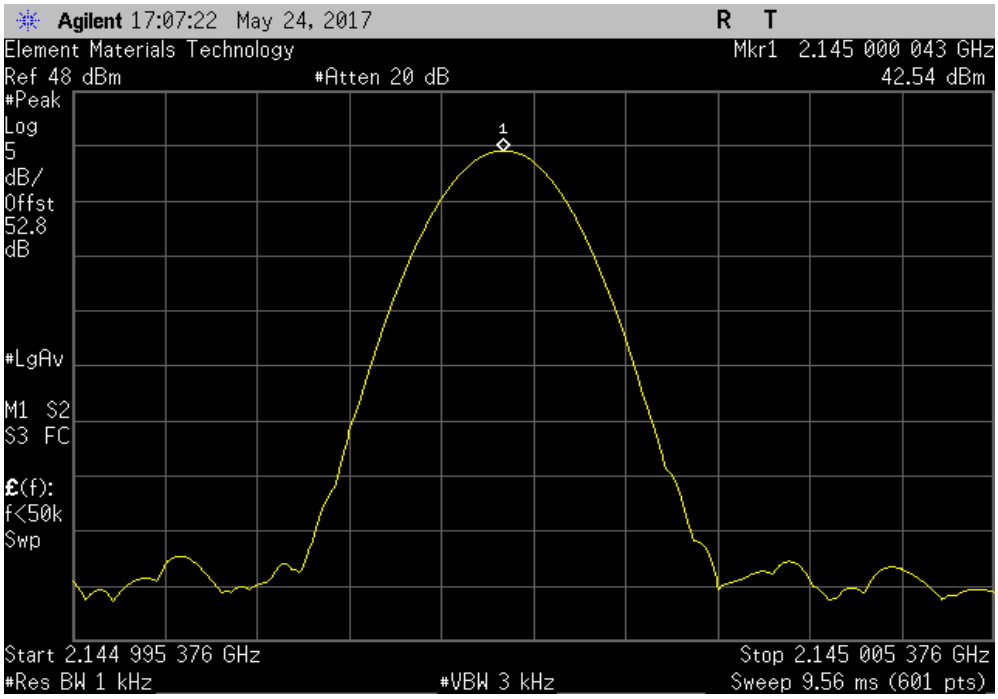
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

Normal Voltage, 2115 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2115.000025	2115	0.012	1	Pass

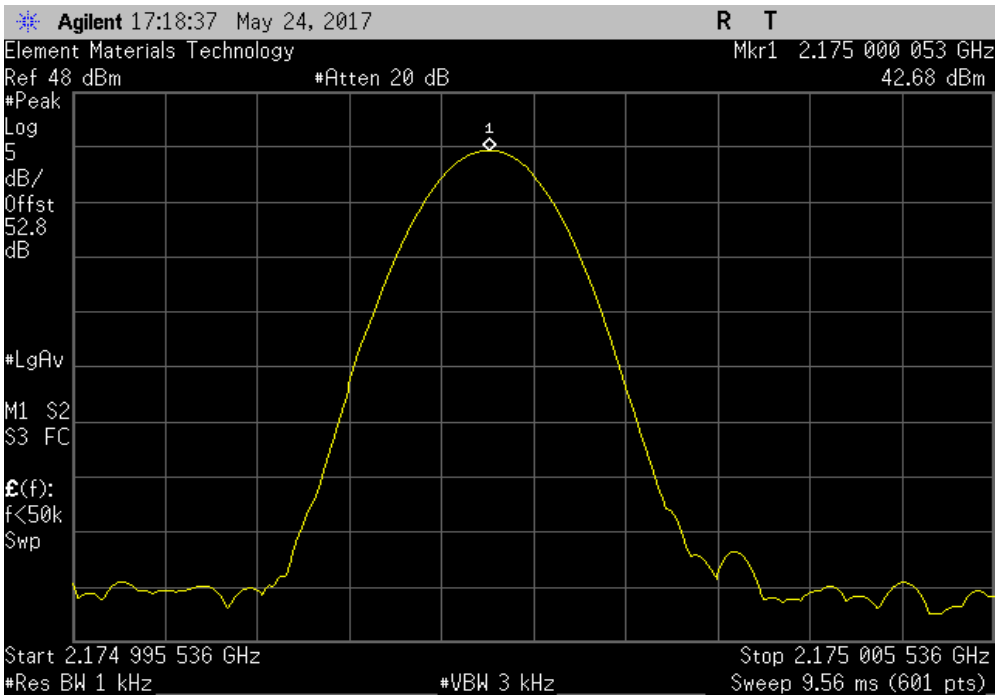


Normal Voltage, 2145 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2145.000043	2145	0.020	1	Pass

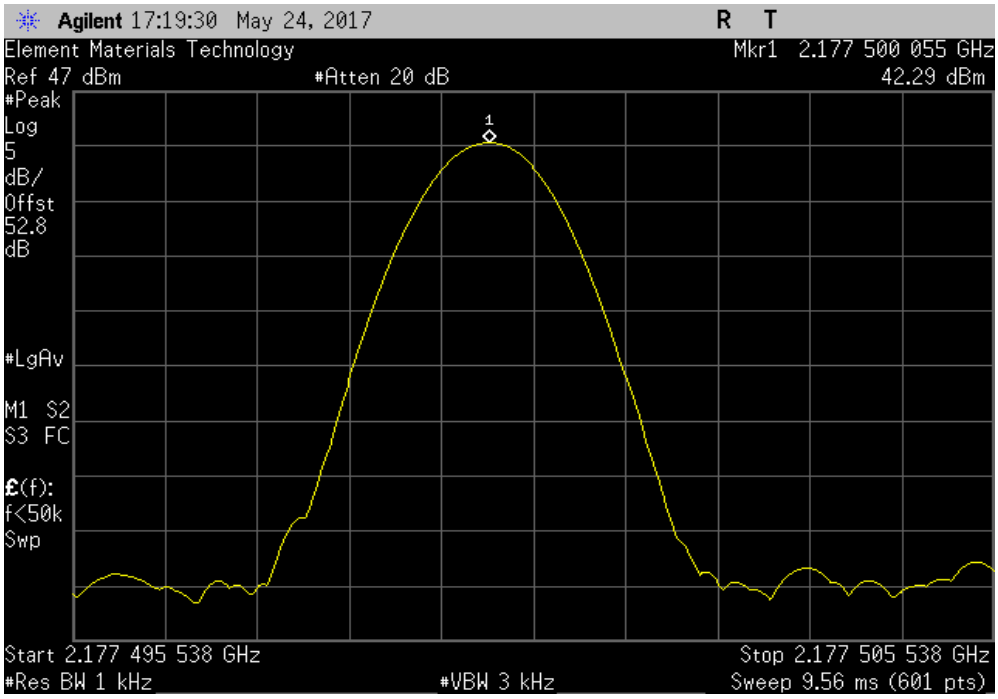


FREQUENCY STABILITY

Normal Voltage, 2175 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2175.000053	2175	0.024	1	Pass



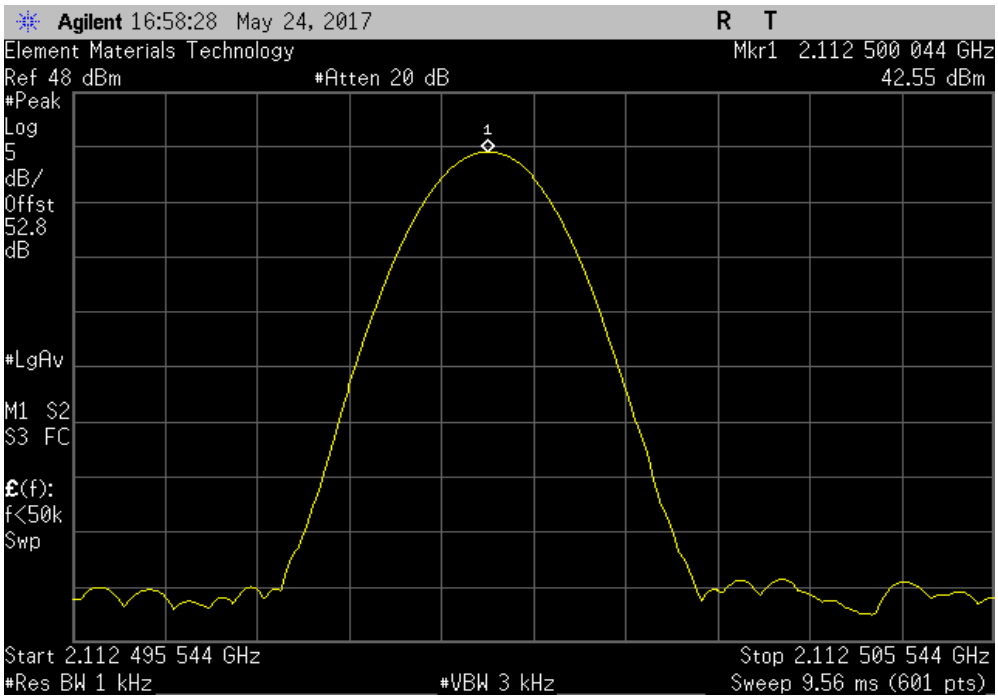
Normal Voltage, 2177.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2177.500055	2177.5	0.025	1	Pass



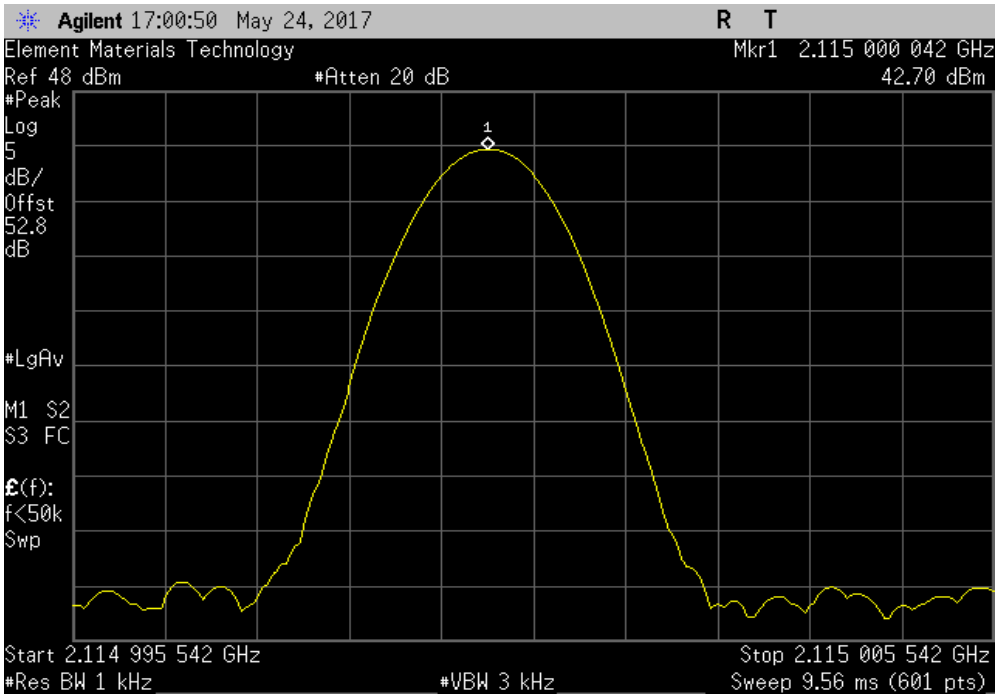
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

Extreme Voltage (102VAC/60Hz), 2112.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2112.500044	2112.5	0.021	1	Pass



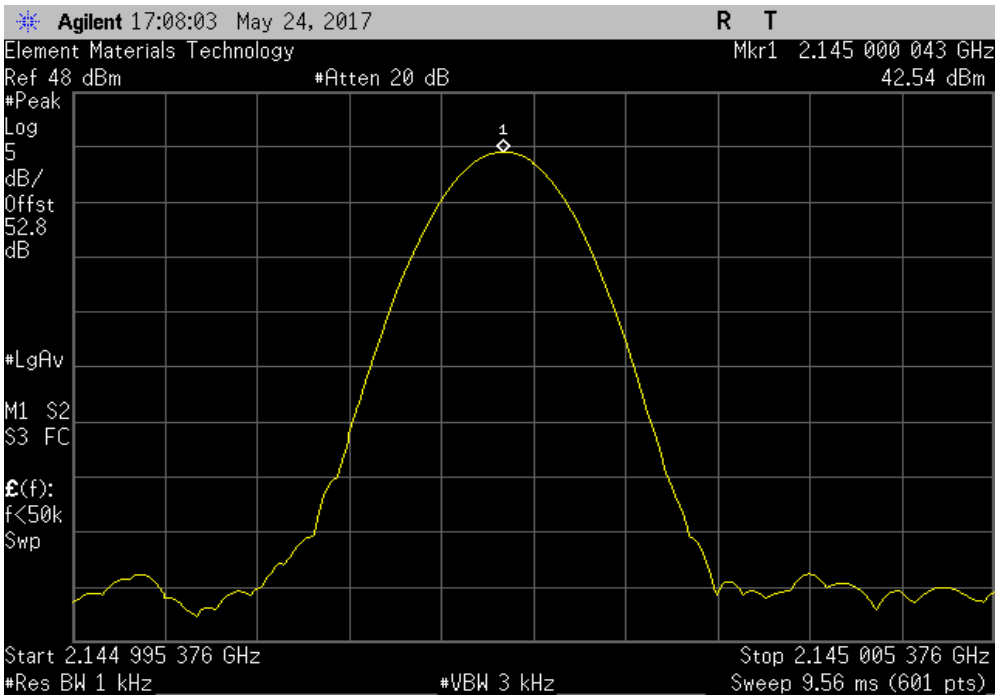
Extreme Voltage (102VAC/60Hz), 2115 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2115.000042	2115	0.020	1	Pass



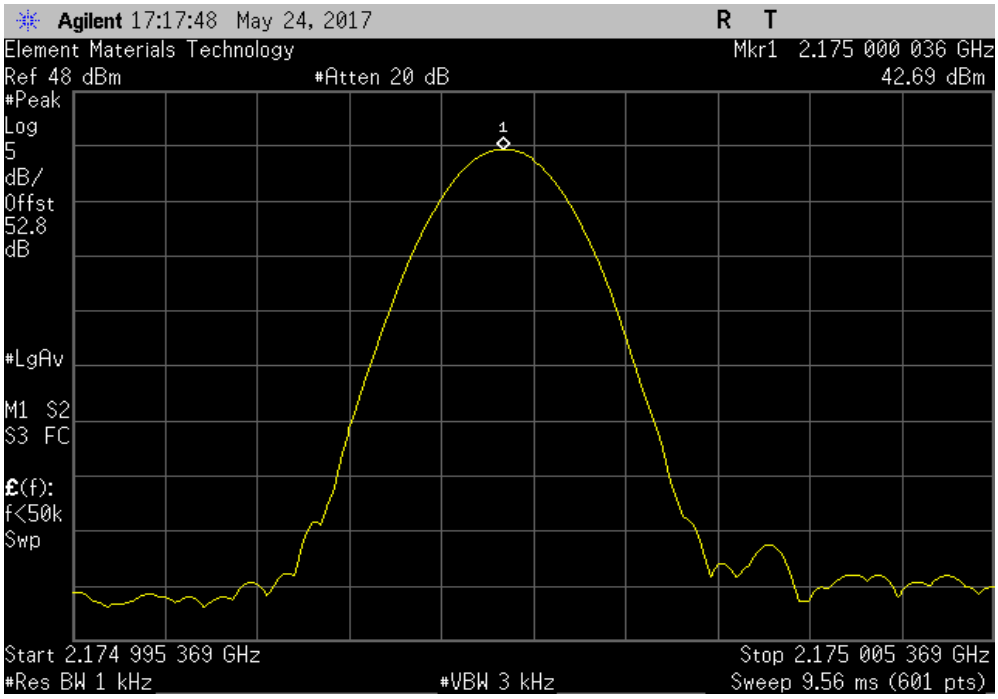
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

Extreme Voltage (102VAC/60Hz), 2145 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2145.000043	2145	0.020	1	Pass



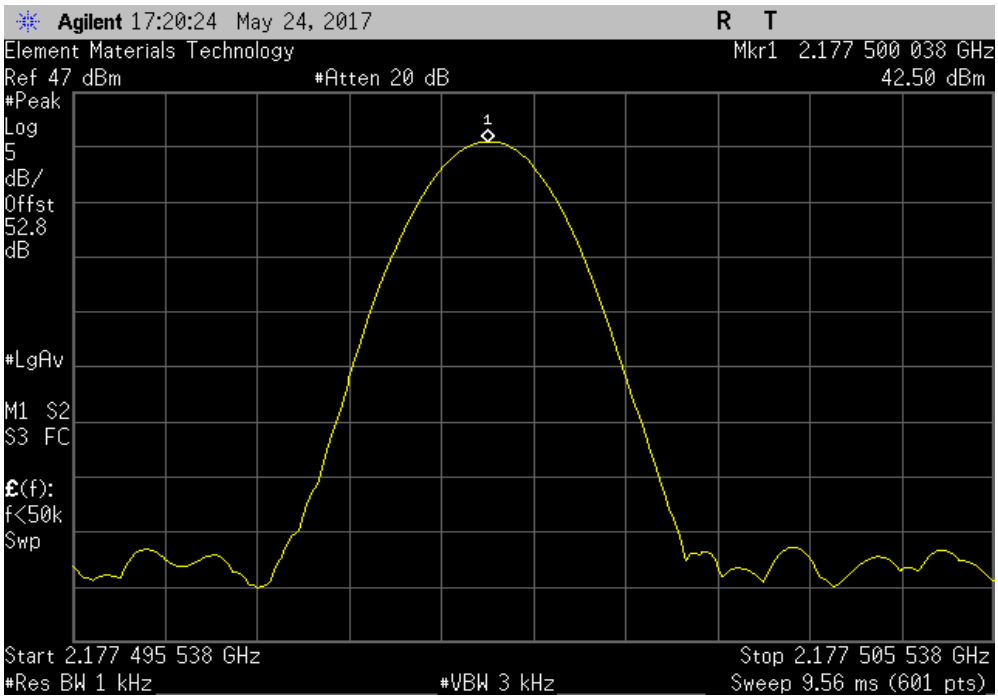
Extreme Voltage (102VAC/60Hz), 2175 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2175.000036	2175	0.017	1	Pass



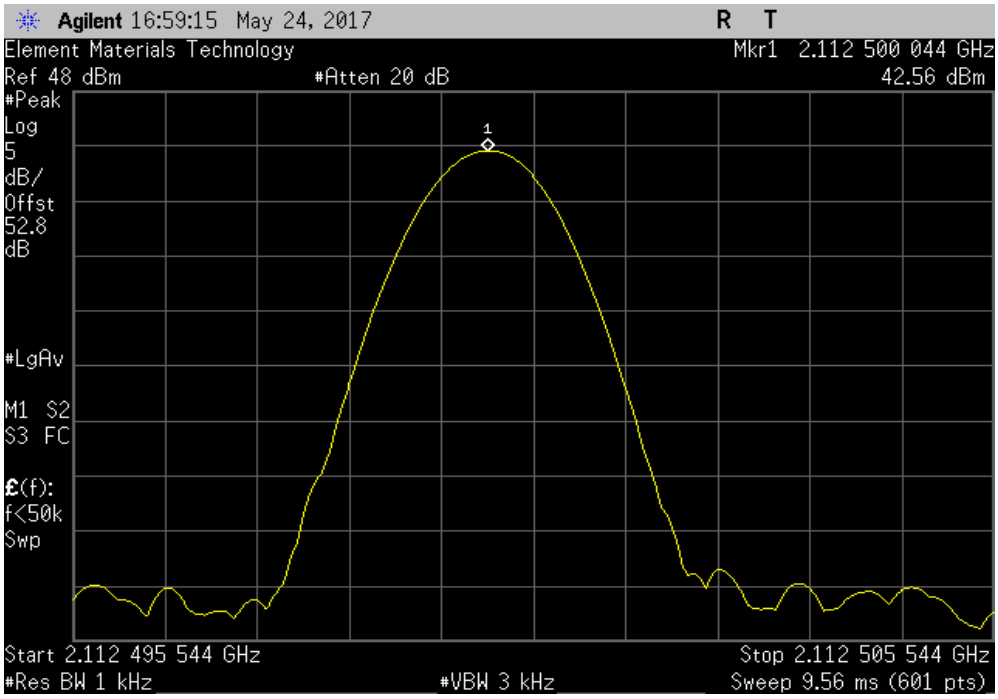
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

Extreme Voltage (102VAC/60Hz), 2177.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2177.500038	2177.5	0.017	1	Pass



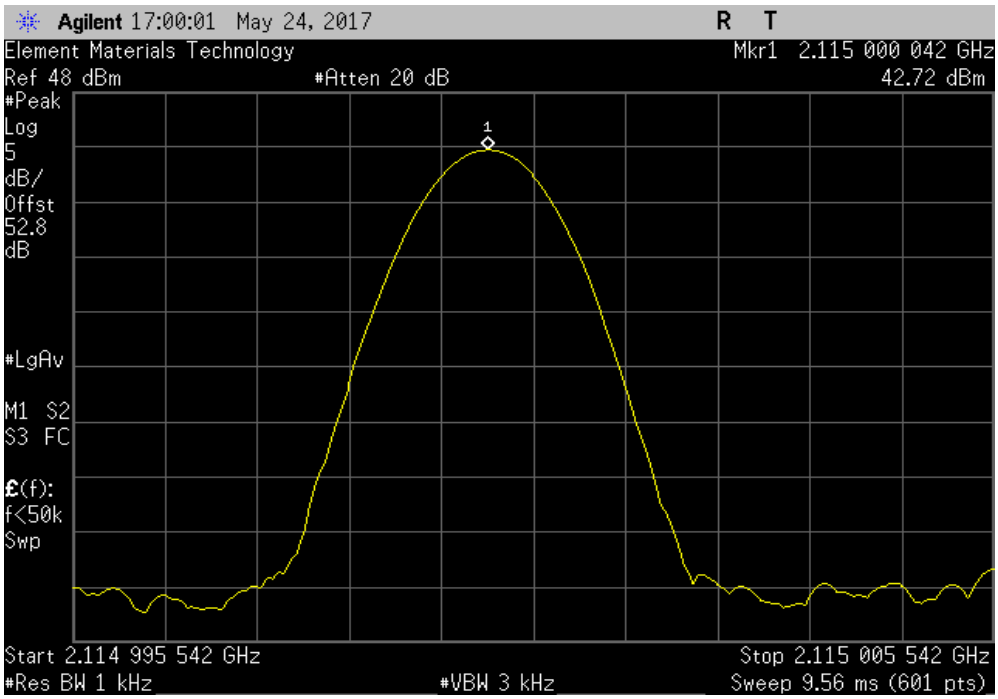
Extreme Voltage (138VAC/60Hz), 2112.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2112.500044	2112.5	0.021	1	Pass



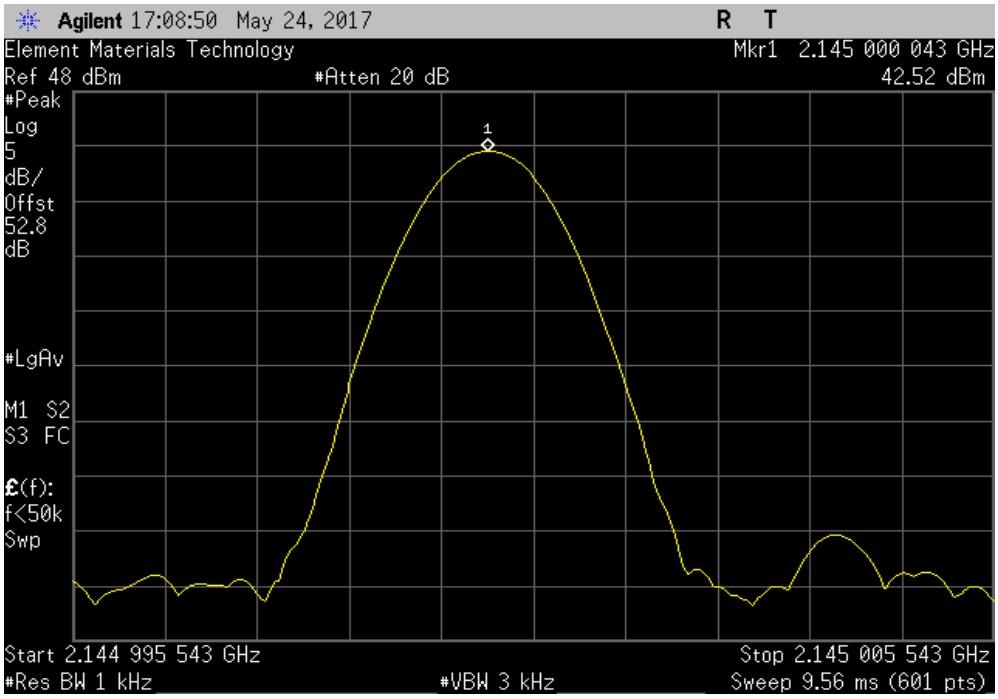
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

Extreme Voltage (138VAC/60Hz), 2115 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2115.000042	2115	0.020	1	Pass



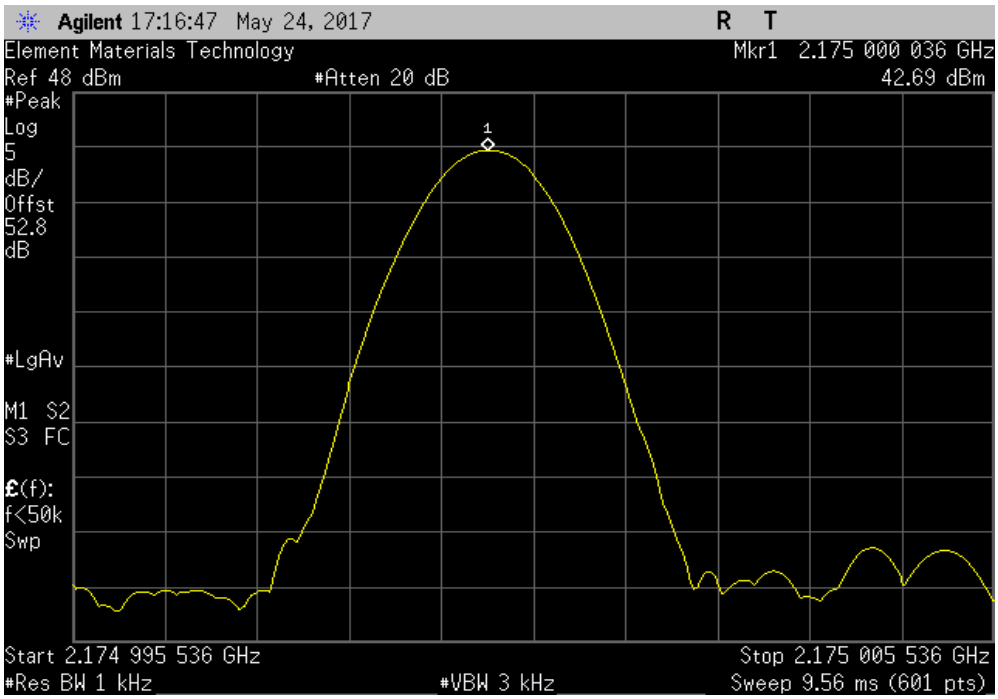
Extreme Voltage (138VAC/60Hz), 2145 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2145.000043	2145	0.020	1	Pass



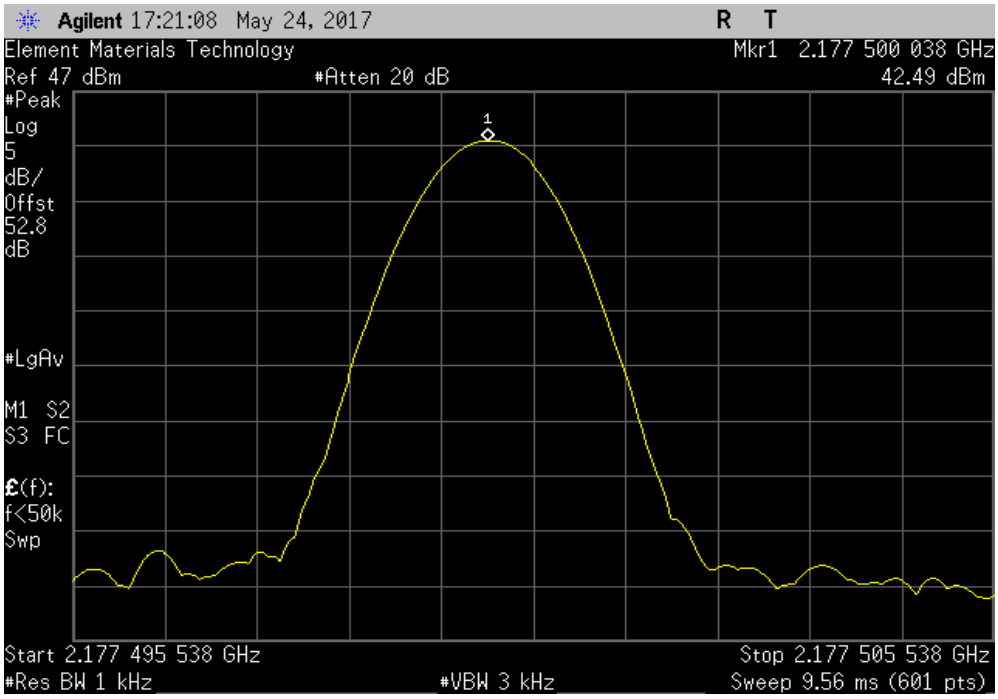
FREQUENCY STABILITY

TbtTx 2017.01.27 XMit 2017.02.08

Extreme Voltage (138VAC/60Hz), 2175 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2175.000036	2175	0.017	1	Pass



Extreme Voltage (138VAC/60Hz), 2177.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
		2177.500038	2177.5	0.017	1	Pass



EMISSIONS BANDWIDTH

XMit 2017.02.08

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
Attenuator	Aeroflex	48-30-34	RCU	9/15/2016	9/15/2017
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	10/17/2017
Cable	ESM Cable Corp	TTBJ141 KMKM-72	MNP	NCR	NCR
Attenuator	S.M. Electronics	SA26B-20	RFW	2/14/2017	2/14/2018
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/16/2017	3/16/2018

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. An RF signal generator was used to create the modulated signal(s) listed in the datasheets. These signals were input into the EUT.

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

TbtTx 2017.01.27 XMit 2017.02.08

EUT:	FlexWave Prism AWS3 MIMO HDM			**Work Order:**	TECO0042
Serial Number:	459644002			**Date:**	05/24/17
Customer:	CommScope			**Temperature:**	21.6 °C
Attendees:	Josh Wittman			**Humidity:**	46.4% RH
Project:	None			**Barometric Pres.:**	1008 mbar
Tested by:	Dustin Sparks	**Power:**	110VAC/60Hz	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 27:2017	ANSI/TIA/EIA-603-D-2010

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. Port 2 was determined to have the worst case output power and all tests were performed on port 2 unless otherwise noted.

DEVIATIONS FROM TEST STANDARD

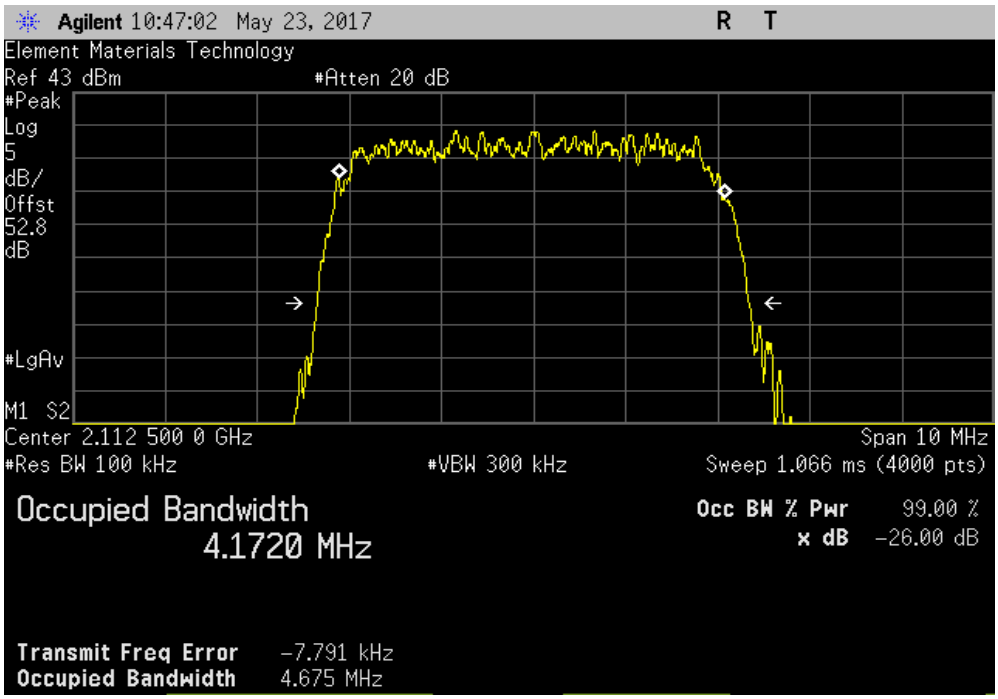
None

Configuration #	2	Signature Dustin Sparks

	Value	Limit	Result
Low Channel (2112.5 MHz) WCDMA	4.675 MHz	N/A	N/A
Mid Channel (2145 MHz) WCDMA	4.659 MHz	N/A	N/A
Mid Channel (2145 MHz) WCDMA, Input Signal	4.23 MHz	N/A	N/A
High Channel (2177.5 MHz) WCDMA	4.667 MHz	N/A	N/A
Low Channel (2115 MHz) LTE 10 MHz	9.46 MHz	N/A	N/A
Mid Channel (2145 MHz) LTE 10 MHz	9.484 MHz	N/A	N/A
Mid Channel (2145 MHz) LTE 10 MHz, Input Signal	8.99 MHz	N/A	N/A
High Channel (2175 MHz) LTE 10 MHz, Input Signal	9.466 MHz	N/A	N/A

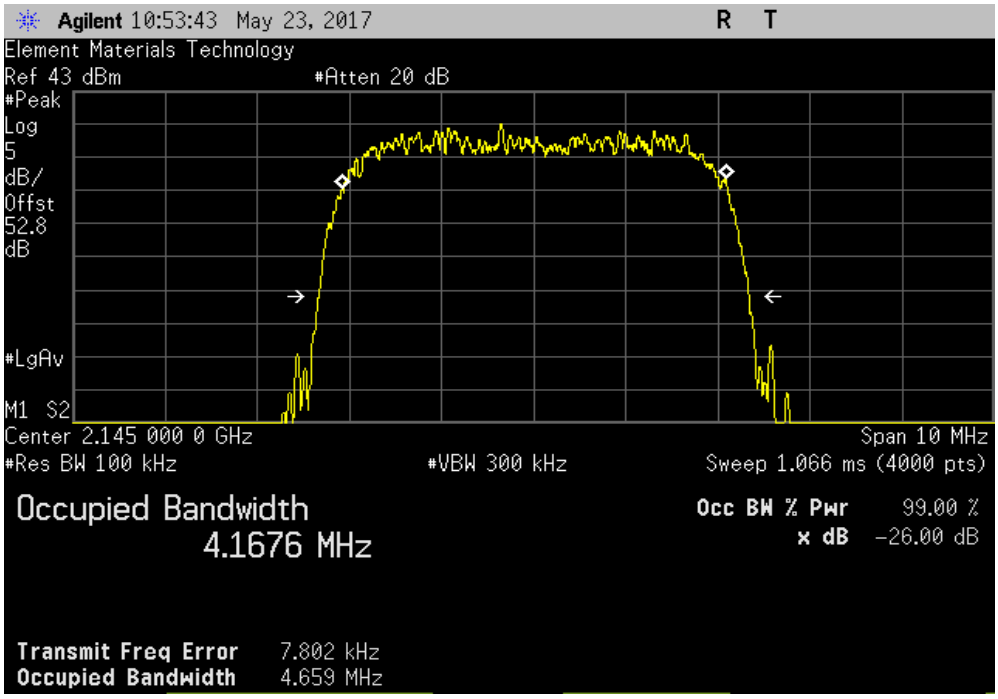
Low Channel (2112.5 MHz) WCDMA

				Value	Limit	Result
				4.675 MHz	N/A	N/A

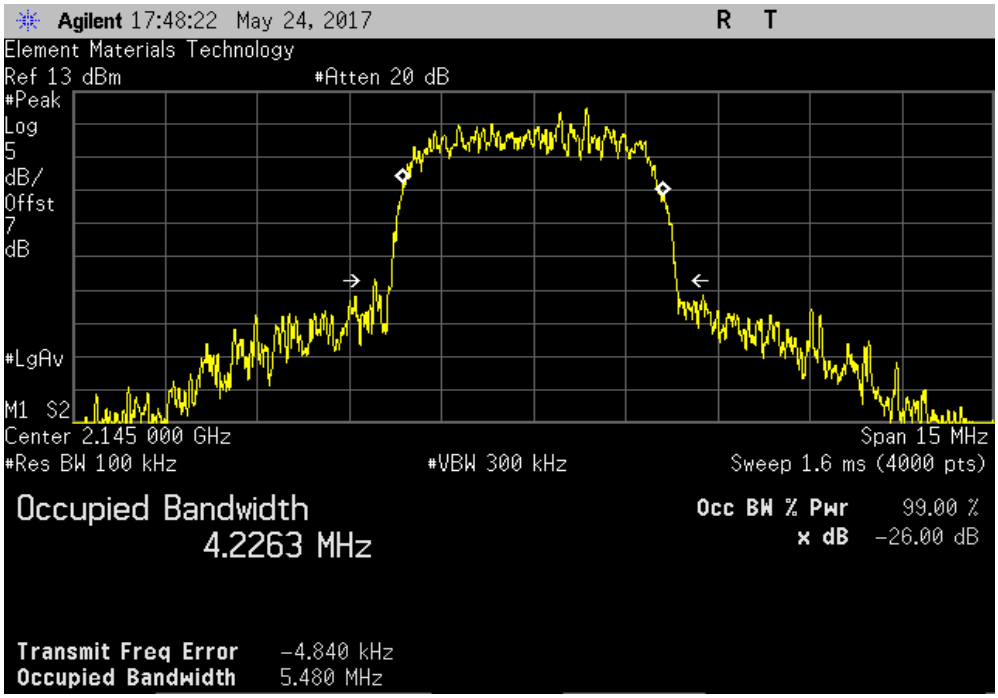


Mid Channel (2145 MHz) WCDMA

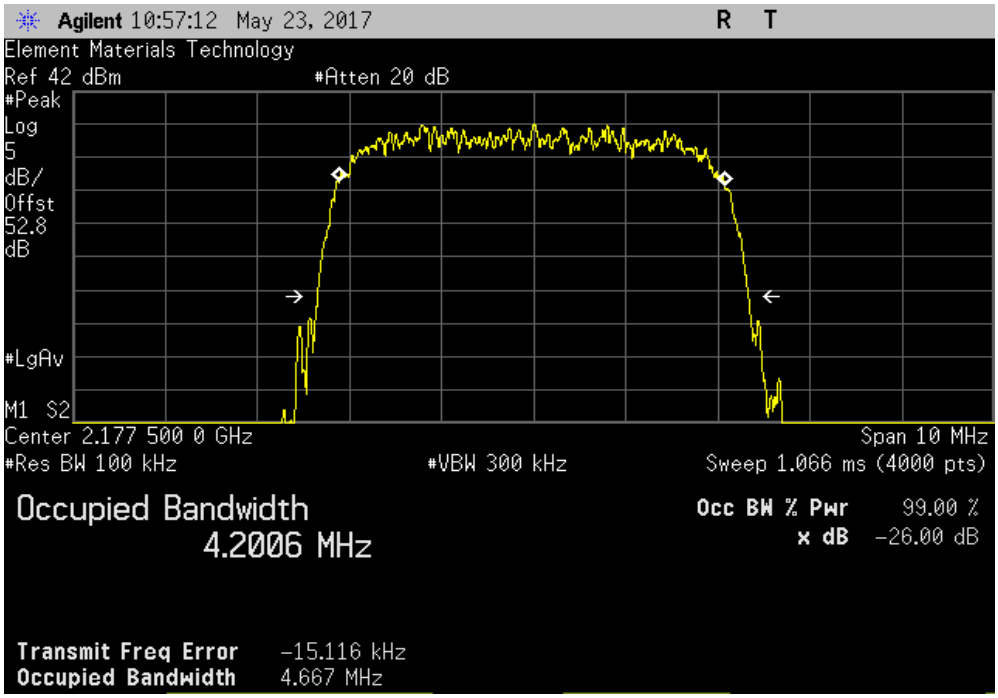
				Value	Limit	Result
				4.659 MHz	N/A	N/A



Mid Channel (2145 MHz) WCDMA, Input Signal						
				Value	Limit	Result
				4.23 MHz	N/A	N/A

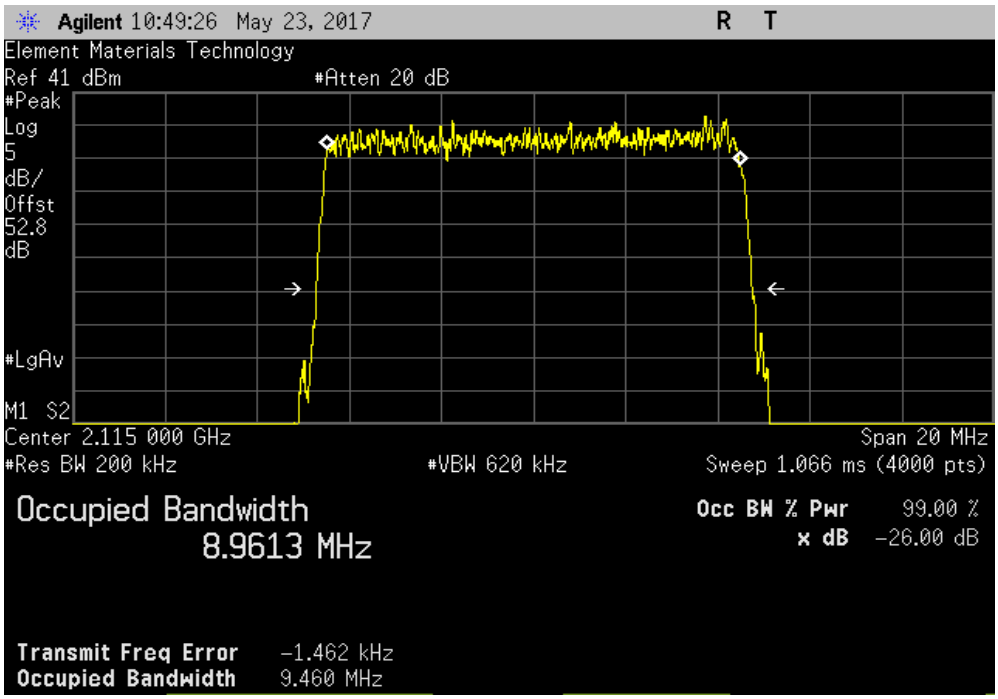


High Channel (2177.5 MHz) WCDMA						
				Value	Limit	Result
				4.667 MHz	N/A	N/A



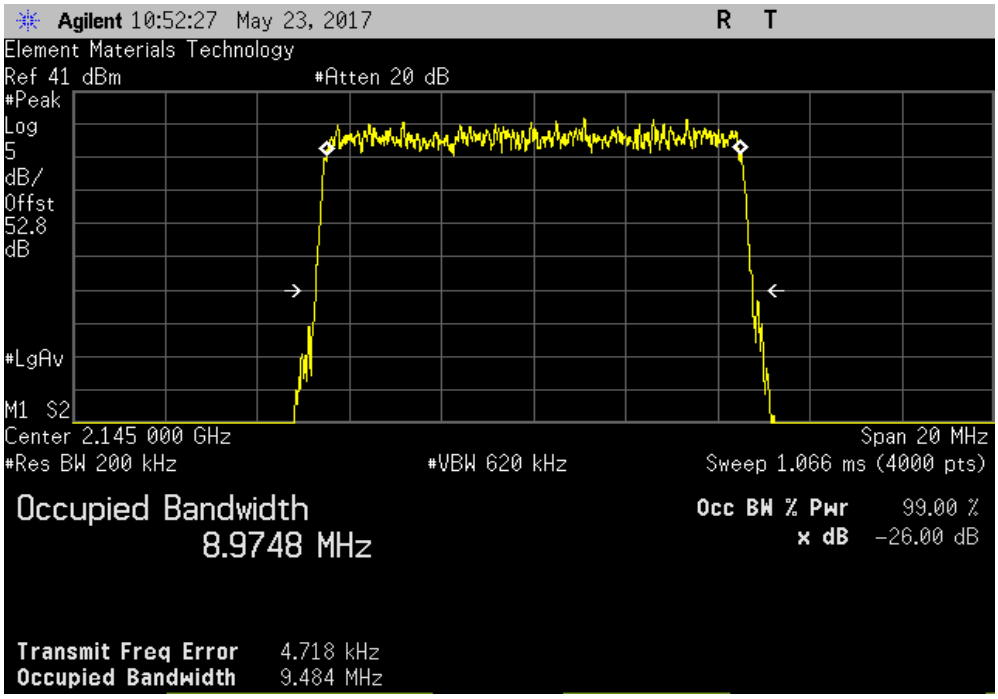
Low Channel (2115 MHz) LTE 10 MHz

				Value	Limit	Result
				9.46 MHz	N/A	N/A

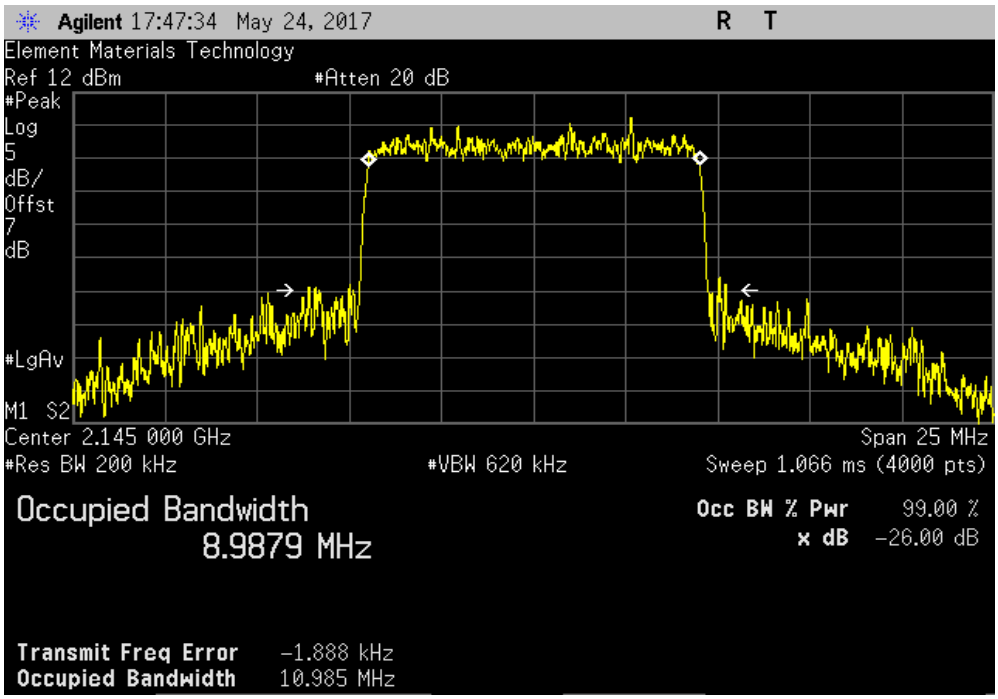


Mid Channel (2145 MHz) LTE 10 MHz

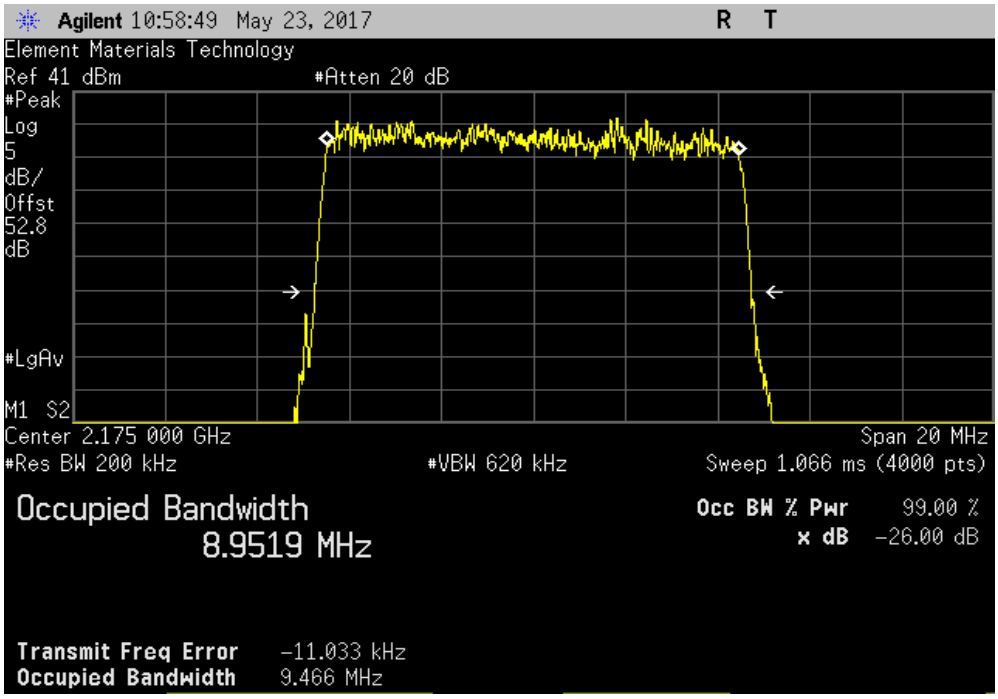
				Value	Limit	Result
				9.484 MHz	N/A	N/A



Mid Channel (2145 MHz) LTE 10 MHz, Input Signal						
				Value	Limit	Result
				8.99 MHz	N/A	N/A



High Channel (2175 MHz) LTE 10 MHz, Input Signal						
				Value	Limit	Result
				9.466 MHz	N/A	N/A



SPURIOUS RADIATED EMISSIONS

PSA-ESCI 2017.01.26

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 WCDMA, LTE 5MHz and LTE 10MHz - low channel (2112.5 MHz WCDMA/LTE 5MHz, 2115 MHz LTE 10MHz), mid channel (2145 MHz), and high channel (2177.5 MHz WCDMA/LTE 5MHz, 2175 MHz LTE 10MHz)

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

TECO0042 - 1

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
Generator - Signal	Agilent	N5182A	TIF	8/12/2014	36 mo
Power Sensor	Agilent	N8481A	SQN	8/15/2016	12 mo
Meter - Power	Agilent	N1913A	SQL	8/15/2016	12 mo
Attenuator	Fairview Microwave	SA18E-20	TWZ	9/23/2016	12 mo
Cable	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	7/29/2016	12 mo
Cable	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	12/1/2016	12 mo
Cable	ESM Cable Corp.	Bilog Cables	MNH	12/1/2016	12 mo
Filter - High Pass	Micro-Tronics	HPM50111	LFN	9/23/2016	12 mo
Filter - Low Pass	Micro-Tronics	LPM50004	LFK	9/22/2016	12 mo
Antenna - Biconilog	Teseq	CBL 6141B	AYD	1/6/2016	24 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AXP	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVT	2/14/2017	12 mo
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	AVO	12/1/2016	12 mo
Amplifier - Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	9/15/2016	12 mo
Antenna - Double Ridge	ETS Lindgren	3115	AJA	6/23/2016	24 mo
Antenna - Standard Gain	ETS Lindgren	3160-08	AIQ	NCR	0 mo
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	1/6/2017	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 tested with shielded terminations on the RF output ports instead of antennas.

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. 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. 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.

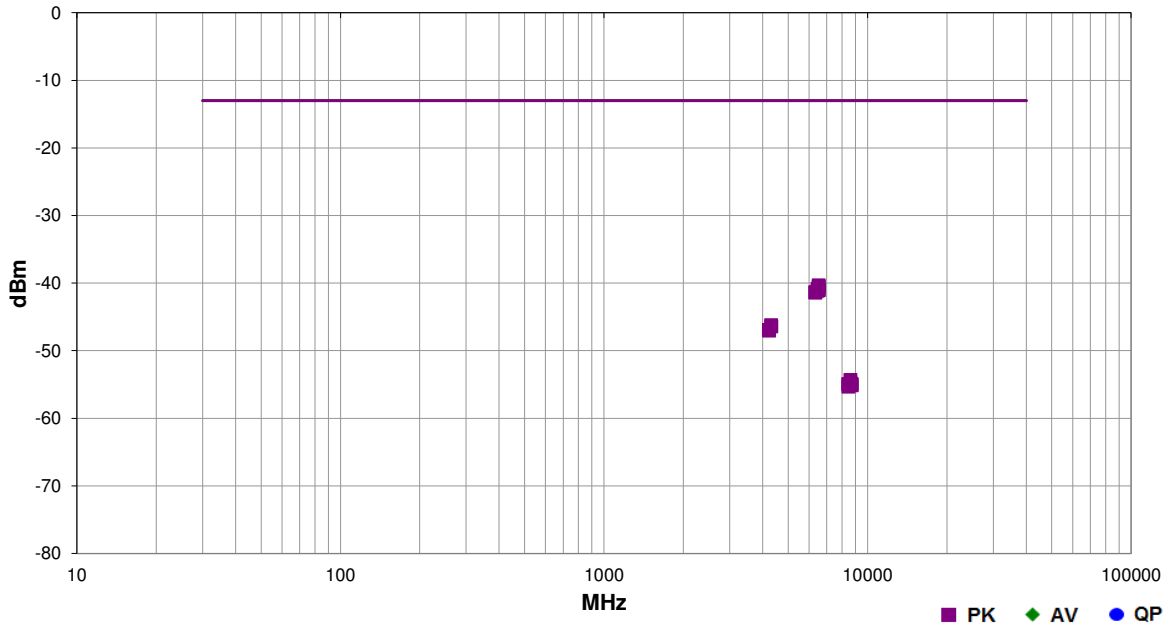
SPURIOUS RADIATED EMISSIONS

EmiR5 2017.01.25 PSA-ESCI 2017.01.26

Work Order:	TECO0042	**Date:**	05/22/17		
Project:	None	**Temperature:**	22.1 °C		
Job Site:	MN05	**Humidity:**	39.5% RH		
Serial Number:	459644002	**Barometric Pres.:**	1014 mbar	**Tested by:**	Dustin Sparks
EUT:	FlexWave Prism AWS3 MIMO HDM				
Configuration:	1				
Customer:	CommScope				
Attendees:	Josh Wittman, Mark McGraw				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting WCDMA, LTE 5MHz and LTE 10MHz - low channel (2112.5 MHz WCDMA/LTE 5MHz, 2115 MHz LTE 10MHz), mid channel (2145 MHz), and high channel (2177.5 MHz WCDMA/LTE 5MHz, 2175 MHz LTE 10MHz)				
Deviations:	None				
Comments:	None				

Test Specifications	**Test Method**
FCC 27:2017	ANSI/TIA/EIA-603-D-2010

Run #	4	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**Results**	Pass



	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
	6524.742	3.1	289.0	Vert	PK	9.27E-08	-40.3	-13.0	-27.3	High channel, LTE 10MHz
	6531.425	1.0	116.1	Horz	PK	8.85E-08	-40.5	-13.0	-27.5	High channel, LTE 5MHz
	6462.533	1.2	134.1	Horz	PK	8.26E-08	-40.8	-13.0	-27.8	Mid channel, WCDMA
	6531.092	1.0	22.1	Vert	PK	7.89E-08	-41.0	-13.0	-28.0	High channel, LTE 5MHz
	6527.342	2.9	326.9	Horz	PK	7.89E-08	-41.0	-13.0	-28.0	High channel, LTE 10MHz
	6464.142	1.0	276.0	Vert	PK	7.71E-08	-41.1	-13.0	-28.1	Mid channel, WCDMA
	6336.000	3.9	272.9	Horz	PK	7.36E-08	-41.3	-13.0	-28.3	Low channel, WCDMA
	6339.125	1.0	264.0	Vert	PK	7.20E-08	-41.4	-13.0	-28.4	Low channel, WCDMA
	4309.225	1.0	158.0	Vert	PK	2.38E-08	-46.2	-13.0	-33.2	Mid channel, WCDMA
	4312.300	1.0	214.1	Horz	PK	2.28E-08	-46.4	-13.0	-33.4	Mid channel, WCDMA
	4224.342	1.0	325.0	Vert	PK	2.03E-08	-46.9	-13.0	-33.9	Low channel, WCDMA
	4227.392	1.0	66.1	Horz	PK	1.98E-08	-47.0	-13.0	-34.0	Low channel, WCDMA
	8617.658	1.0	268.0	Vert	PK	3.69E-09	-54.3	-13.0	-41.3	Mid channel, WCDMA
	8621.458	1.0	119.1	Horz	PK	3.29E-09	-54.8	-13.0	-41.8	Mid channel, WCDMA
	8447.508	1.0	72.0	Horz	PK	3.21E-09	-54.9	-13.0	-41.9	Low channel, WCDMA
	8711.825	1.0	176.0	Horz	PK	3.21E-09	-54.9	-13.0	-41.9	High channel, WCDMA
	8710.175	1.0	275.9	Vert	PK	3.07E-09	-55.1	-13.0	-42.1	High channel, WCDMA
	8450.450	3.3	0.0	Vert	PK	2.93E-09	-55.3	-13.0	-42.3	Low channel, WCDMA

SPURIOUS CONDUCTED EMISSIONS

XMit 2017.02.08

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
Attenuator	Aeroflex	48-30-34	RCU	9/15/2016	9/15/2017
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	10/17/2017
Cable	ESM Cable Corp	TTBJ141 KMKM-72	MNP	NCR	NCR
Attenuator	S.M. Electronics	SA26B-20	RFW	2/14/2017	2/14/2018
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/16/2017	3/16/2018

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.

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

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

TbtTx 2017.01.27 XMit 2017.02.08

EUT:	FlexWave Prism AWS3 MIMO HDM			**Work Order:**	TECO0042
Serial Number:	459644002			**Date:**	05/24/17
Customer:	CommScope			**Temperature:**	21.9 °C
Attendees:	Josh Wittman			**Humidity:**	43% RH
Project:	None			**Barometric Pres.:**	1011 mbar
Tested by:	Dustin Sparks	**Power:**	110VAC/60Hz	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 27:2017	ANSI/TIA/EIA-603-D-2010

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. 3 dB correction factor derived from the formula 10log(n), where n is the number of ports. Port 2 was determined to have the worst case output power and all tests were performed on port 2 unless otherwise noted.

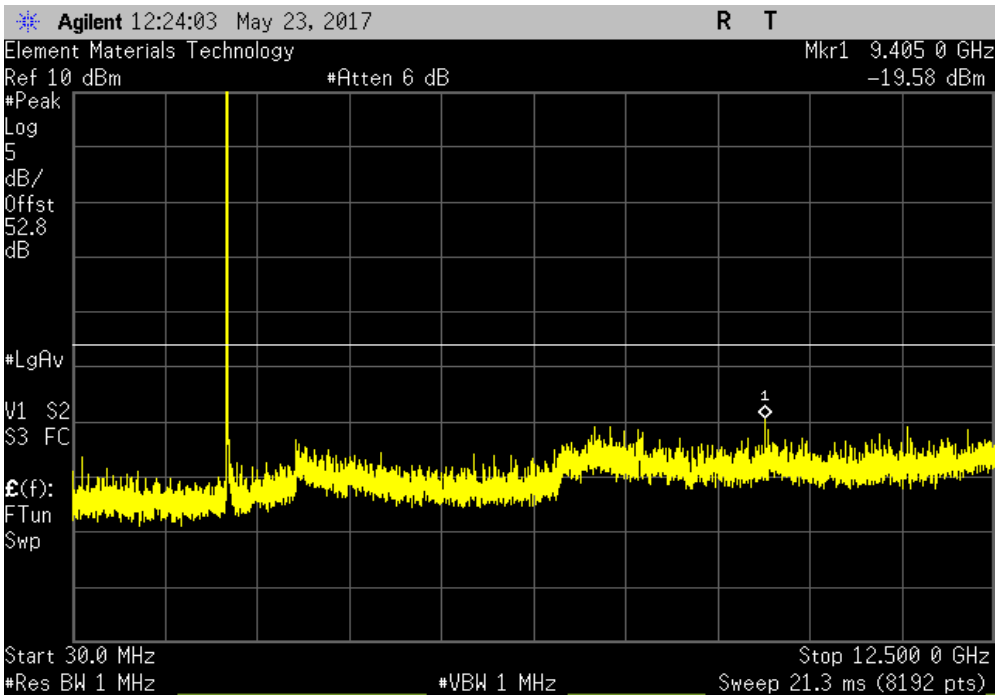
DEVIATIONS FROM TEST STANDARD

None

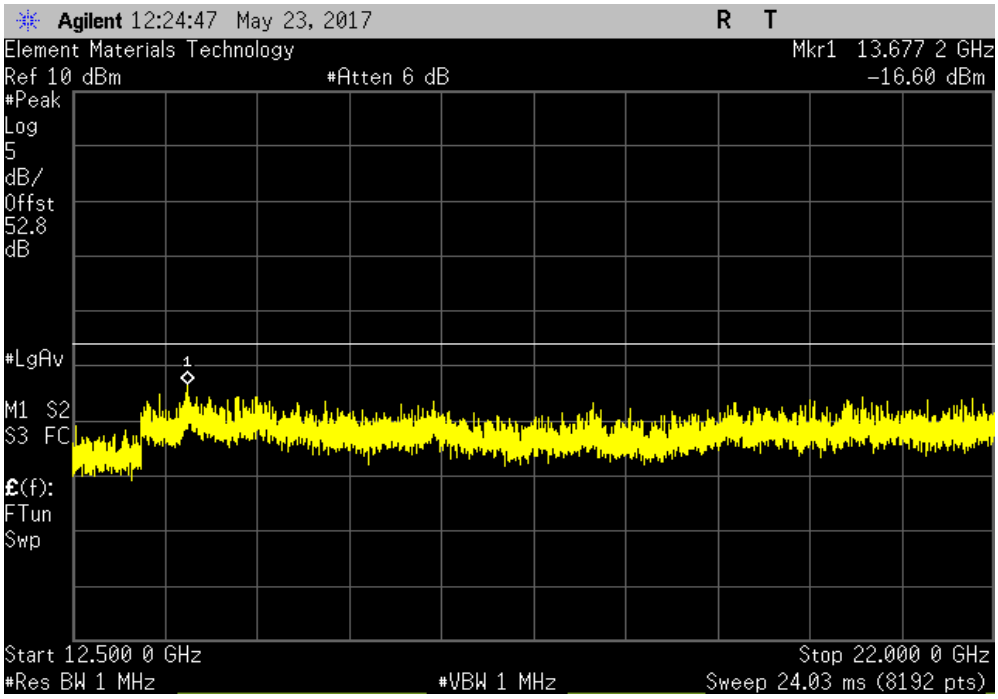
Configuration #	2	Signature Dustin Sparks

	Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
Low Channel (2112.5 MHz) WCDMA	30 MHz - 12.5 GHz	-19.58	3	-16.58	-13	Pass
Low Channel (2112.5 MHz) WCDMA	12.5 GHz - 22 GHz	-16.6	3	-13.6	-13	Pass
Mid Channel (2145 MHz) WCDMA	30 MHz - 12.5 GHz	-20.63	3	-17.63	-13	Pass
Mid Channel (2145 MHz) WCDMA	12.5 GHz - 22 GHz	-17.07	3	-14.07	-13	Pass
High Channel (2177.5 MHz) WCDMA	30 MHz - 12.5 GHz	-20.07	3	-17.07	-13	Pass
High Channel (2177.5 MHz) WCDMA	12.5 GHz - 22 GHz	-16.83	3	-13.83	-13	Pass
Low Channel (2115 MHz) LTE 10MHz	30 MHz - 12.5 GHz	-20.31	3	-17.31	-13	Pass
Low Channel (2115 MHz) LTE 10MHz	12.5 GHz - 22 GHz	-16.4	3	-13.4	-13	Pass
Mid Channel (2145 MHz) LTE 10MHz	30 MHz - 12.5 GHz	-19.97	3	-16.97	-13	Pass
Mid Channel (2145 MHz) LTE 10MHz	12.5 GHz - 22 GHz	-16.43	3	-13.43	-13	Pass
High Channel (2175 MHz) LTE 10MHz	30 MHz - 12.5 GHz	-20.49	3	-17.49	-13	Pass
High Channel (2175 MHz) LTE 10MHz	12.5 GHz - 22 GHz	-16.41	3	-13.41	-13	Pass

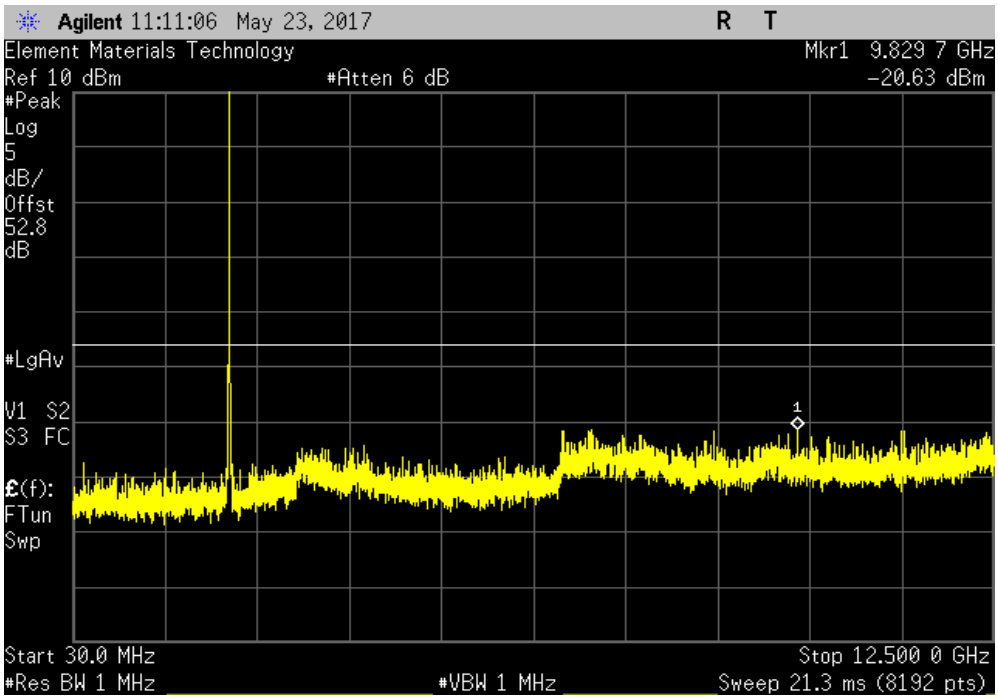
Low Channel (2112.5 MHz) WCDMA					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
30 MHz - 12.5 GHz	-19.58	3	-16.58	-13	Pass



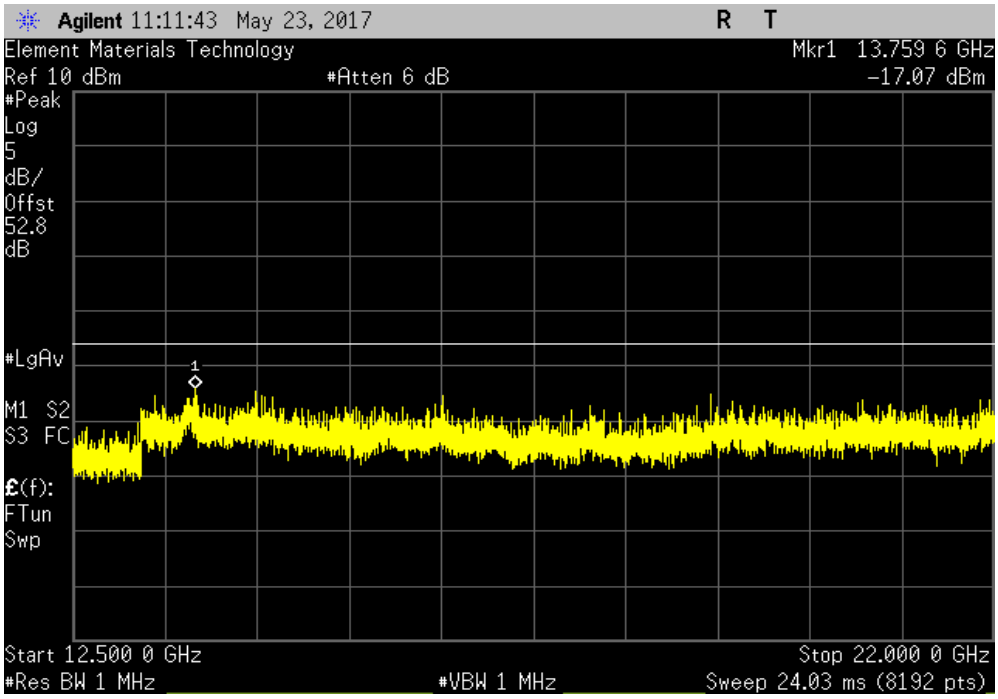
Low Channel (2112.5 MHz) WCDMA					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
12.5 GHz - 22 GHz	-16.6	3	-13.6	-13	Pass



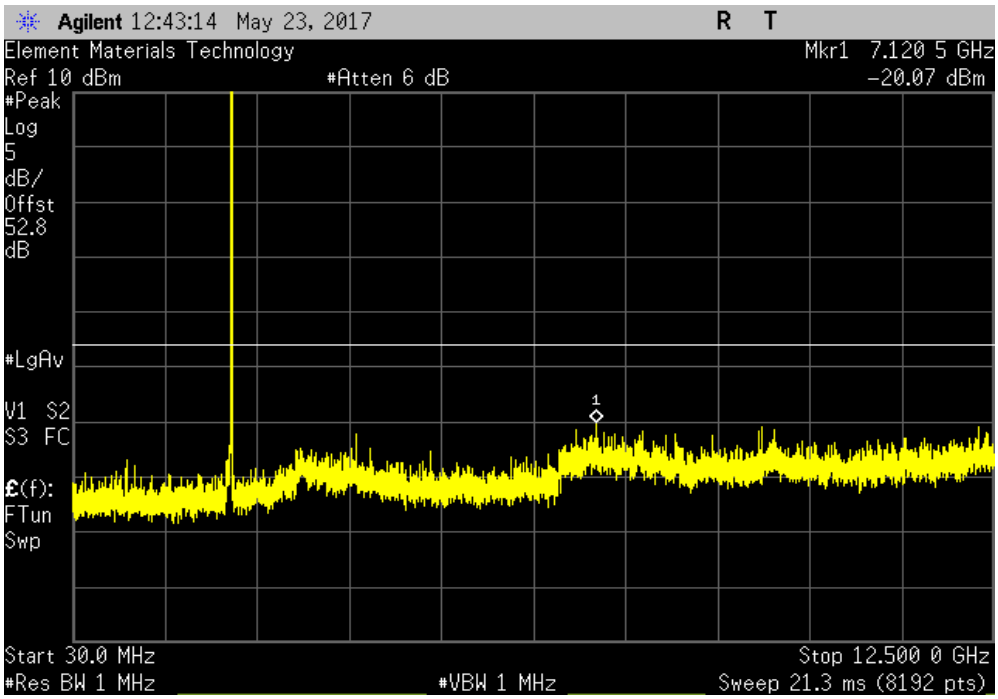
Mid Channel (2145 MHz) WCDMA					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
30 MHz - 12.5 GHz	-20.63	3	-17.63	-13	Pass



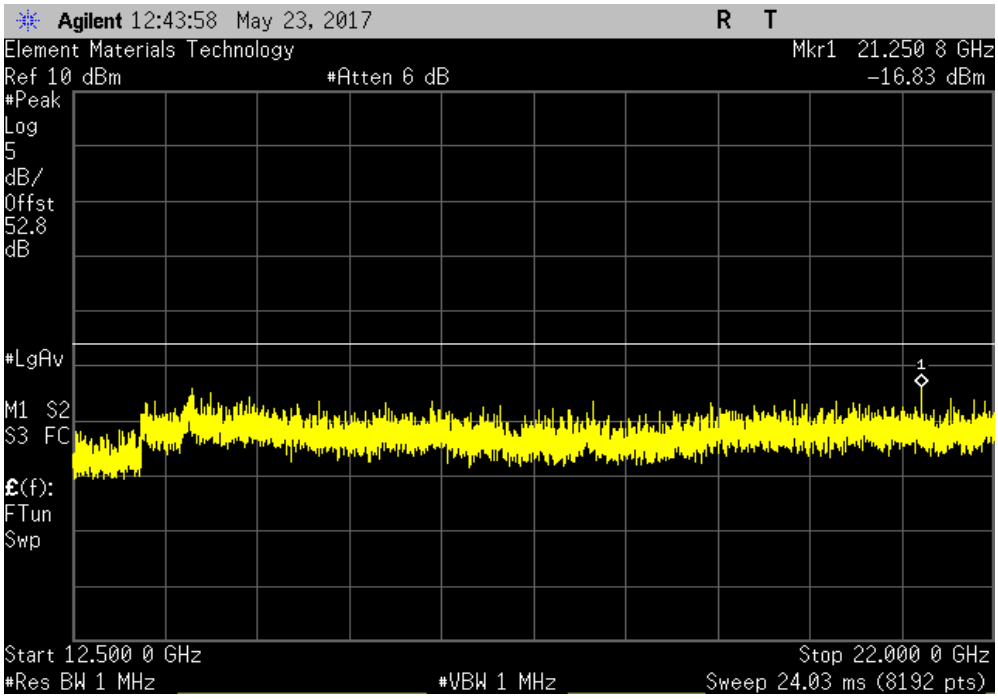
Mid Channel (2145 MHz) WCDMA					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
12.5 GHz - 22 GHz	-17.07	3	-14.07	-13	Pass



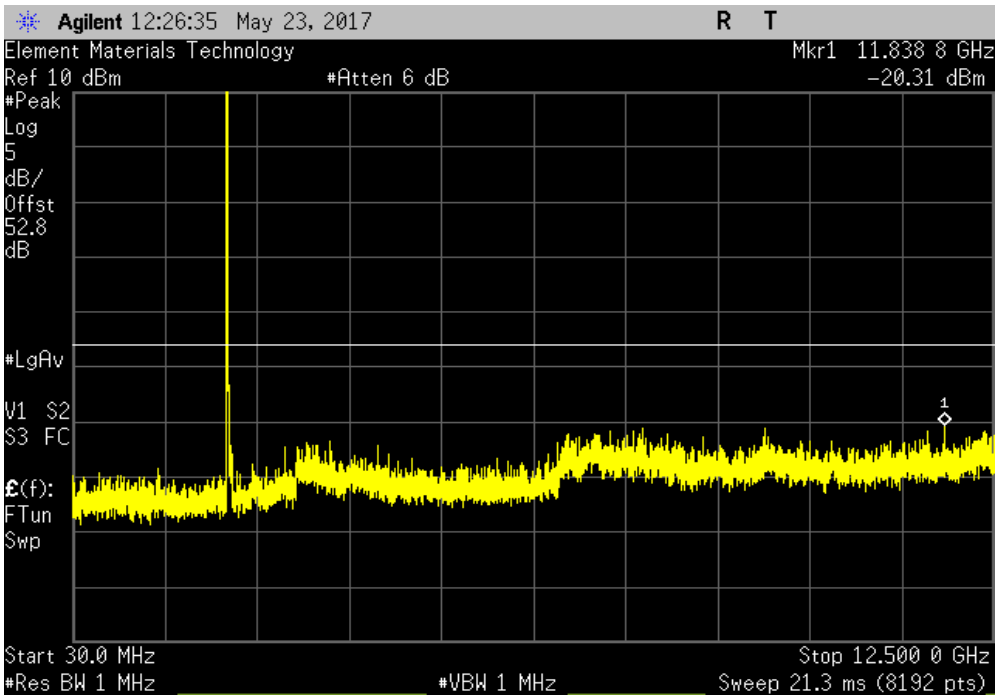
High Channel (2177.5 MHz) WCDMA					
Frequency Range	**Max Value (dBm)**	**Correction Factor (dB)**	**Max Value + CF (dBm)**	**Limit ≤ (dBm)**	**Result**
30 MHz - 12.5 GHz	-20.07	3	-17.07	-13	Pass



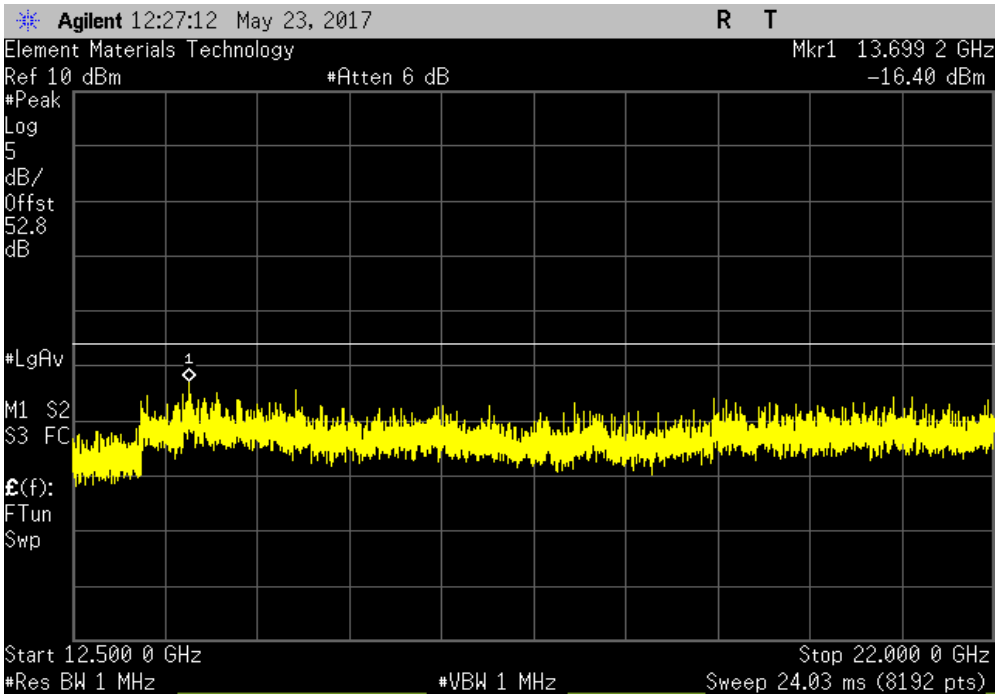
High Channel (2177.5 MHz) WCDMA					
Frequency Range	**Max Value (dBm)**	**Correction Factor (dB)**	**Max Value + CF (dBm)**	**Limit ≤ (dBm)**	**Result**
12.5 GHz - 22 GHz	-16.83	3	-13.83	-13	Pass



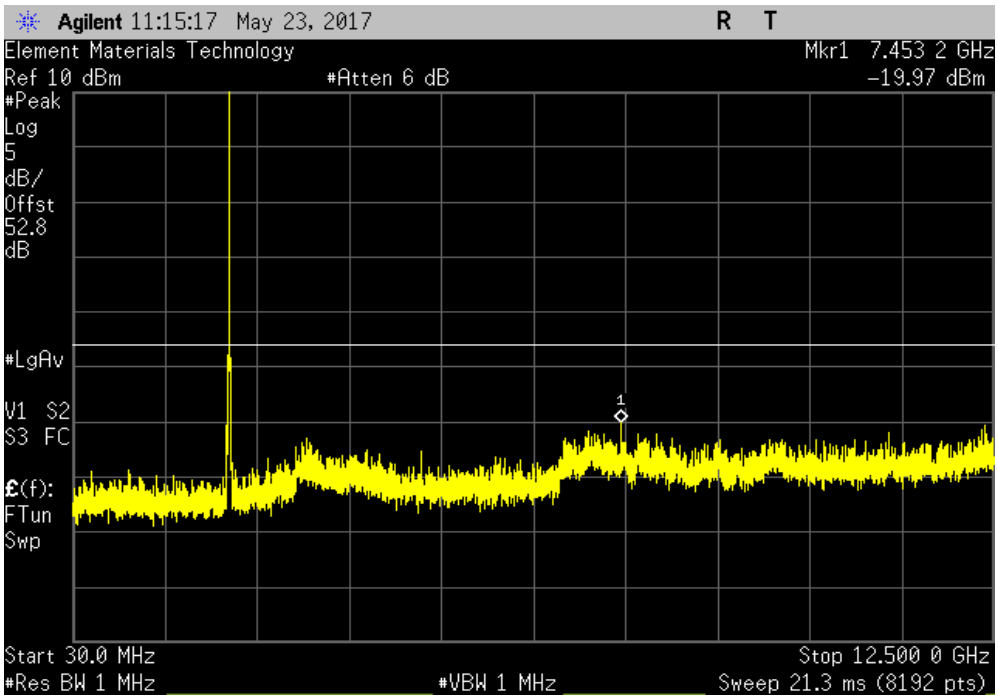
Low Channel (2115 MHz) LTE 10MHz					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
30 MHz - 12.5 GHz	-20.31	3	-17.31	-13	Pass



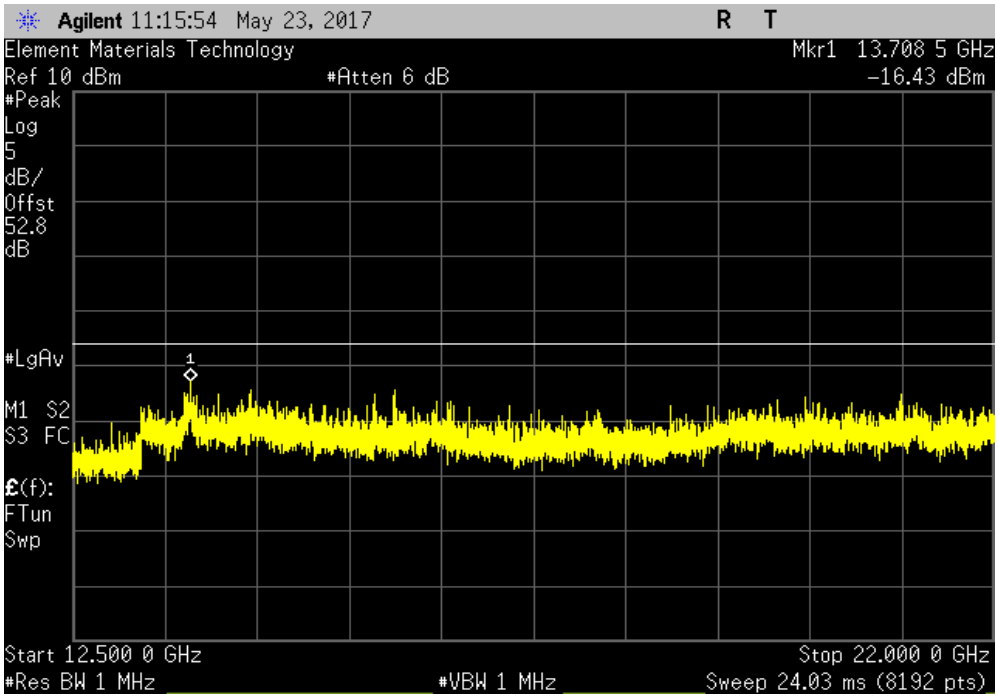
Low Channel (2115 MHz) LTE 10MHz					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
12.5 GHz - 22 GHz	-16.4	3	-13.4	-13	Pass



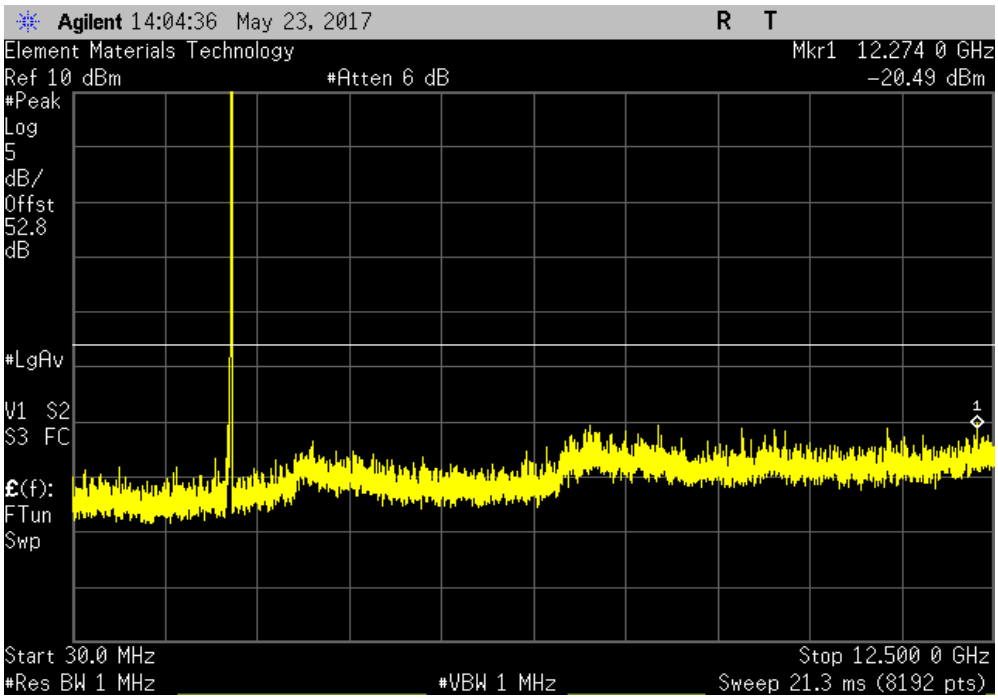
Mid Channel (2145 MHz) LTE 10MHz					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
30 MHz - 12.5 GHz	-19.97	3	-16.97	-13	Pass



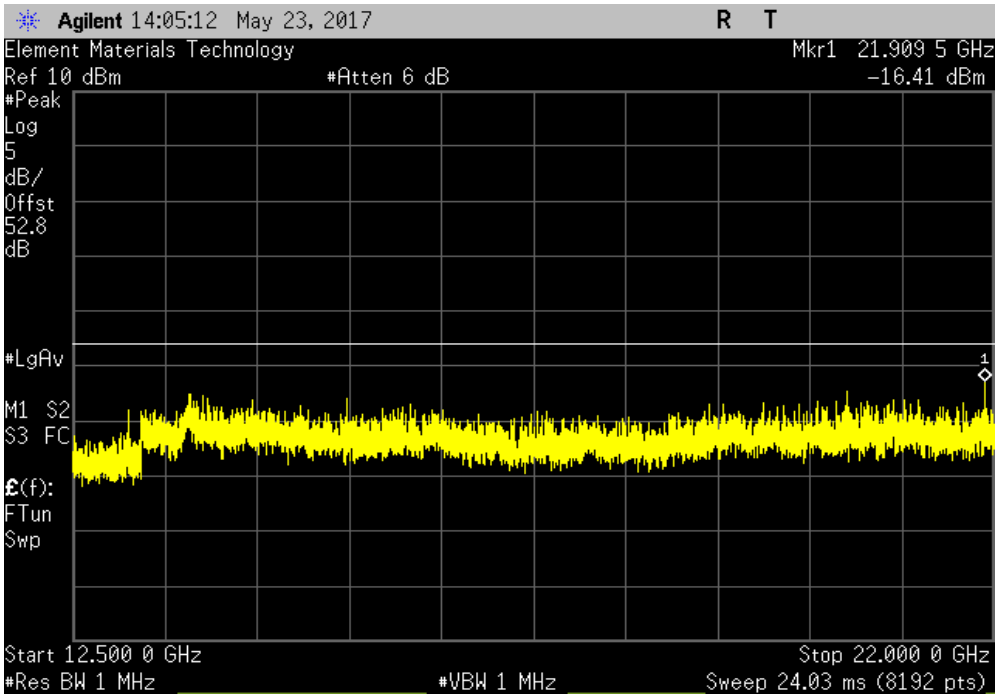
Mid Channel (2145 MHz) LTE 10MHz					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
12.5 GHz - 22 GHz	-16.43	3	-13.43	-13	Pass



High Channel (2175 MHz) LTE 10MHz					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
30 MHz - 12.5 GHz	-20.49	3	-17.49	-13	Pass



High Channel (2175 MHz) LTE 10MHz					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
12.5 GHz - 22 GHz	-16.41	3	-13.41	-13	Pass



BAND EDGE COMPLIANCE

XMit 2017.02.08

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
Attenuator	Aeroflex	48-30-34	RCU	9/15/2016	9/15/2017
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	10/17/2017
Cable	ESM Cable Corp	TTBJ141 KMKM-72	MNP	NCR	NCR
Attenuator	S.M. Electronics	SA26B-20	RFW	2/14/2017	2/14/2018
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/16/2017	3/16/2018

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. An RF signal generator was used to create the modulated signal(s) listed in the datasheets. These signals were input into the EUT.

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 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. Failing measurements were re-measured using the channel power integration method as called out in the standard.

BAND EDGE COMPLIANCE

TbtTx 2017.01.27 XMit 2017.02.08

EUT:	FlexWave Prism AWS3 MIMO HDM			**Work Order:**	TECO0042
Serial Number:	459644002			**Date:**	05/23/17
Customer:	CommScope			**Temperature:**	24.2 °C
Attendees:	Josh Wittman			**Humidity:**	40% RH
Project:	None			**Barometric Pres.:**	1012 mbar
Tested by:	Dustin Sparks	**Power:**	110VAC/60Hz	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 27:2017	ANSI/TIA/EIA-603-D-2010

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. 3 dB correction factor derived from the formula 10log(n), where n is the number of ports. Port 2 was determined to have the worst case output power and all tests were performed on port 2 unless otherwise noted.

DEVIATIONS FROM TEST STANDARD

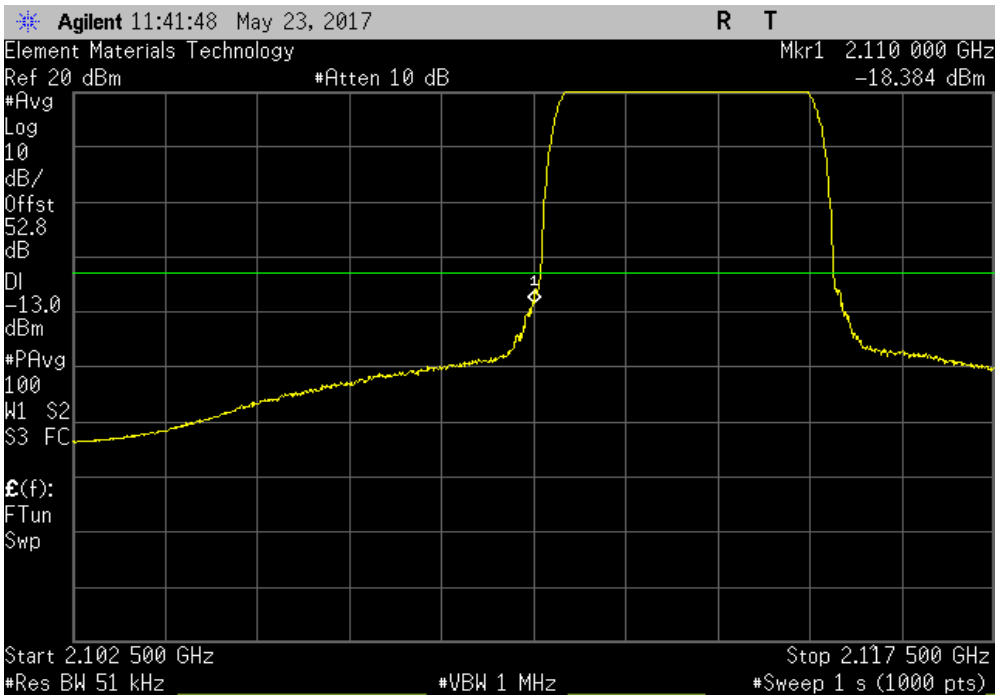
None

Configuration #	2	Signature Dustin Sparks

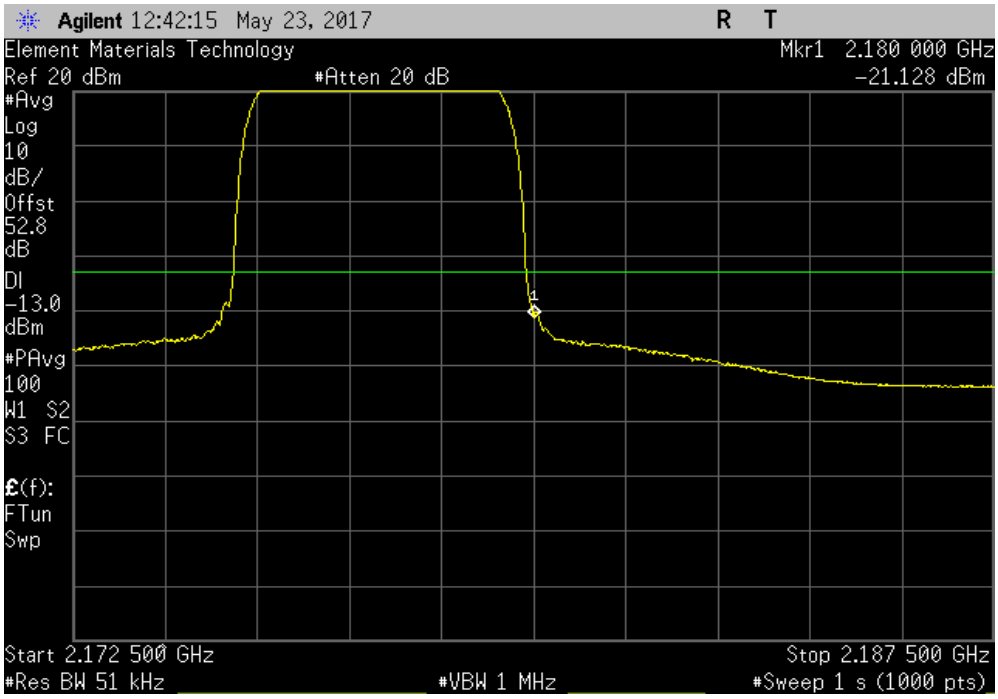
	Value (dBm)	Correction Factor (dB)	Value + CF (dBm)	Limit (dBm)	Result
Low Channel (2112.5 MHz) WCDMA	-18.37	3	-15.37	-13	Pass
High Channel (2177.5 MHz) WCDMA	-21.15	3	-18.15	-13	Pass
Low Channel (2115 MHz) LTE 10MHz	-18.54	3	-15.54	-13	Pass
High Channel (2175 MHz) LTE 10MHz	-20.78	3	-17.78	-13	Pass

BAND EDGE COMPLIANCE

Low Channel (2112.5 MHz) WCDMA						
		Value (dBm)	Correction Factor (dB)	Value + CF (dBm)	Limit (dBm)	Result
		-18.37	3	-15.37	-13	Pass



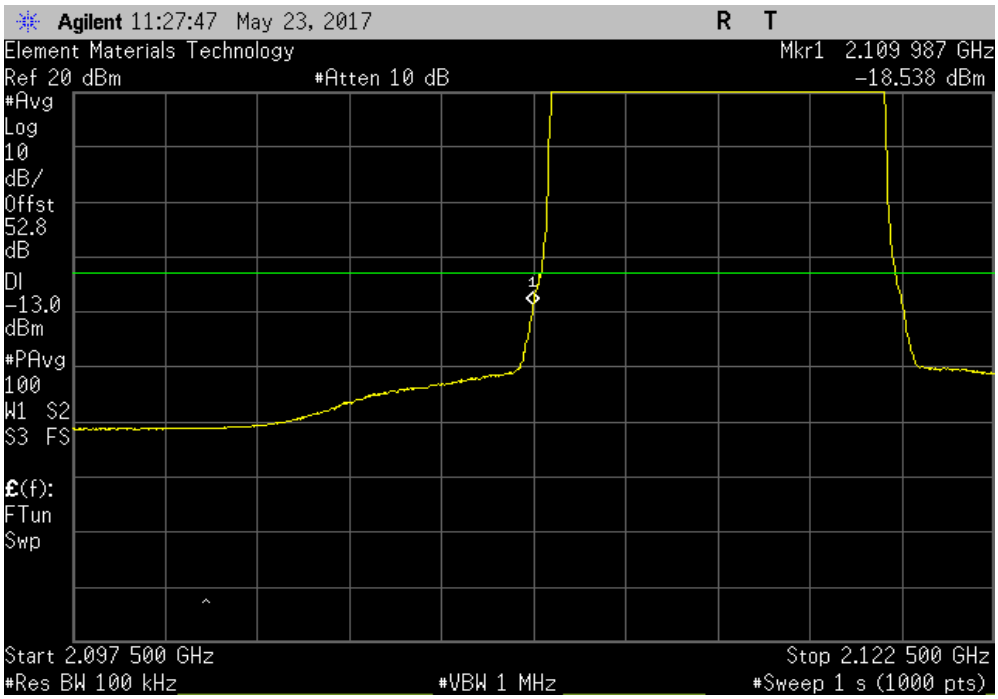
High Channel (2177.5 MHz) WCDMA						
		Value (dBm)	Correction Factor (dB)	Value + CF (dBm)	Limit (dBm)	Result
		-21.15	3	-18.15	-13	Pass



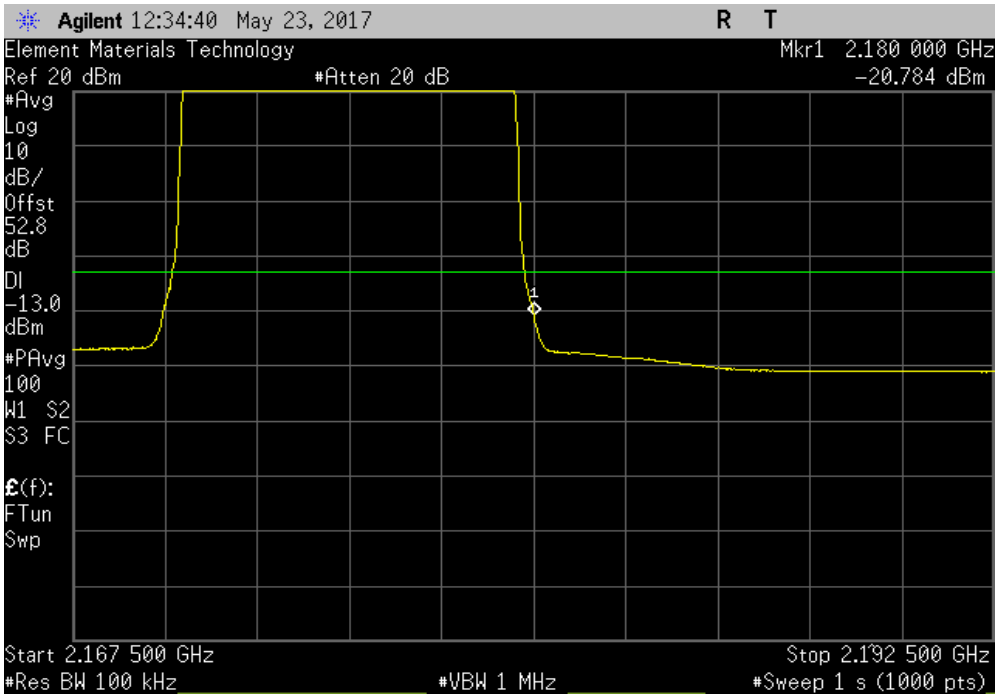
BAND EDGE COMPLIANCE

TbtTx 2017.01.27 XMit 2017.02.08

Low Channel (2115 MHz) LTE 10MHz						
		Value (dBm)	Correction Factor (dB)	Value + CF (dBm)	Limit (dBm)	Result
		-18.54	3	-15.54	-13	Pass



High Channel (2175 MHz) LTE 10MHz						
		Value (dBm)	Correction Factor (dB)	Value + CF (dBm)	Limit (dBm)	Result
		-20.78	3	-17.78	-13	Pass



INTERMODULATION

XMit 2017.02.08

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
Attenuator	Aeroflex	48-30-34	RCU	9/15/2016	9/15/2017
Power Divider/Combiner	Fairview Microwave	MP0208-2	IAF	NCR	NCR
Power Divider/Combiner	Fairview Microwave	MP0208-2	IAE	NCR	NCR
Generator - Signal	Agilent	N5183A	TIK	10/17/2014	10/17/2017
Cable	ESM Cable Corp	TTBJ141 KMKM-72	MNP	NCR	NCR
Attenuator	S.M. Electronics	SA26B-20	RFW	2/14/2017	2/14/2018
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/16/2017	3/16/2018

TEST DESCRIPTION

Analyzer plots utilizing a 1MHz resolution bandwidth and no video filtering were made for each modulation type.

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.

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

TbtTx 2017.01.27 XMit 2017.02.08

EUT:	FlexWave Prism AWS3 MIMO HDM			Work Order:	TECO0042
Serial Number:	459644002			Date:	05/24/17
Customer:	CommScope			Temperature:	21.6 °C
Attendees:	Josh Wittman			Humidity:	43.6% RH
Project:	None			Barometric Pres.:	1011 mbar
Tested by:	Dustin Sparks	Power:	110VAC/60Hz	Job Site:	MN08

TEST SPECIFICATIONS	Test Method
FCC 27:2017	ANSI/TIA/EIA-603-D-2010

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. 3 dB correction factor derived from the formula 10log(n), where n is the number of ports. Port 2 was determined to have the worst case output power and all tests were performed on port 2 unless otherwise noted. Measurements made outside of the Passband, but within the allowable band were made to show that all Intermodulation emissions were below the spurious limit.

DEVIATIONS FROM TEST STANDARD

None

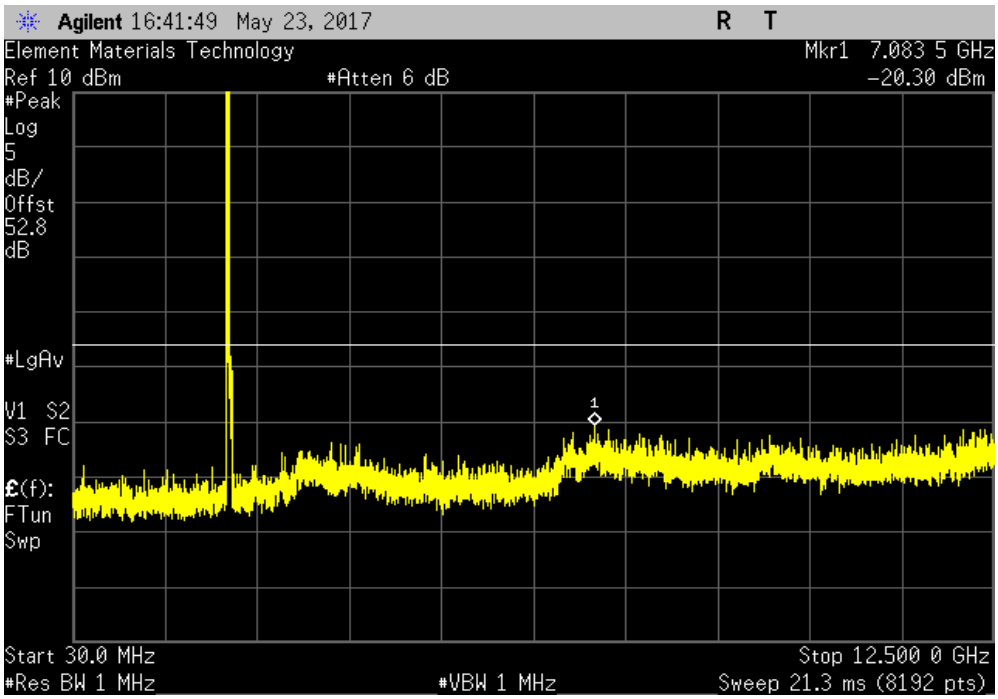
Configuration #	2	Signature Dustin Sparks

	Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
Low Passband (2110-2145 MHz) WCDMA	30 MHz - 12.5 GHz	-20.3	3	-17.3	-13	Pass
Low Passband (2110-2145 MHz) WCDMA	12.5 GHz - 22 GHz	-17.23	3	-14.23	-13	Pass
Low Passband (2110-2145 MHz) WCDMA	Fundamental	-21.76	3	-18.76	-13	Pass
Mid Passband (2130-2160 MHz) WCDMA	30 MHz - 12.5 GHz	-20.34	3	-17.34	-13	Pass
Mid Passband (2130-2160 MHz) WCDMA	12.5 GHz - 22 GHz	-16.81	3	-13.81	-13	Pass
Mid Passband (2130-2160 MHz) WCDMA	Fundamental	-18.36	3	-15.36	-13	Pass
High Passband (2145-2180 MHz) WCDMA	30 MHz - 12.5 GHz	-20.11	3	-17.11	-13	Pass
High Passband (2145-2180 MHz) WCDMA	12.5 GHz - 22 GHz	-16.09	3	-13.09	-13	Pass
High Passband (2145-2180 MHz) WCDMA	Fundamental	-19.6	3	-16.6	-13	Pass
Low Passband (2110-2145 MHz) LTE 10 MHz	30 MHz - 12.5 GHz	-20.31	3	-17.31	-13	Pass
Low Passband (2110-2145 MHz) LTE 10 MHz	12.5 GHz - 22 GHz	-17.44	3	-14.44	-13	Pass
Low Passband (2110-2145 MHz) LTE 10 MHz	Fundamental	-22.58	3	-19.58	-13	Pass
Mid Passband (2130-2160 MHz) LTE 10 MHz	30 MHz - 12.5 GHz	-20.28	3	-17.28	-13	Pass
Mid Passband (2130-2160 MHz) LTE 10 MHz	12.5 GHz - 22 GHz	-16.62	3	-13.62	-13	Pass
Mid Passband (2130-2160 MHz) LTE 10 MHz	Fundamental	-22.61	3	-19.61	-13	Pass
High Passband (2145-2180 MHz) LTE 10 MHz	30 MHz - 12.5 GHz	-19.87	3	-16.87	-13	Pass
High Passband (2145-2180 MHz) LTE 10 MHz	12.5 GHz - 22 GHz	-16.55	3	-13.55	-13	Pass
High Passband (2145-2180 MHz) LTE 10 MHz	Fundamental	-23.38	3	-20.38	-13	Pass

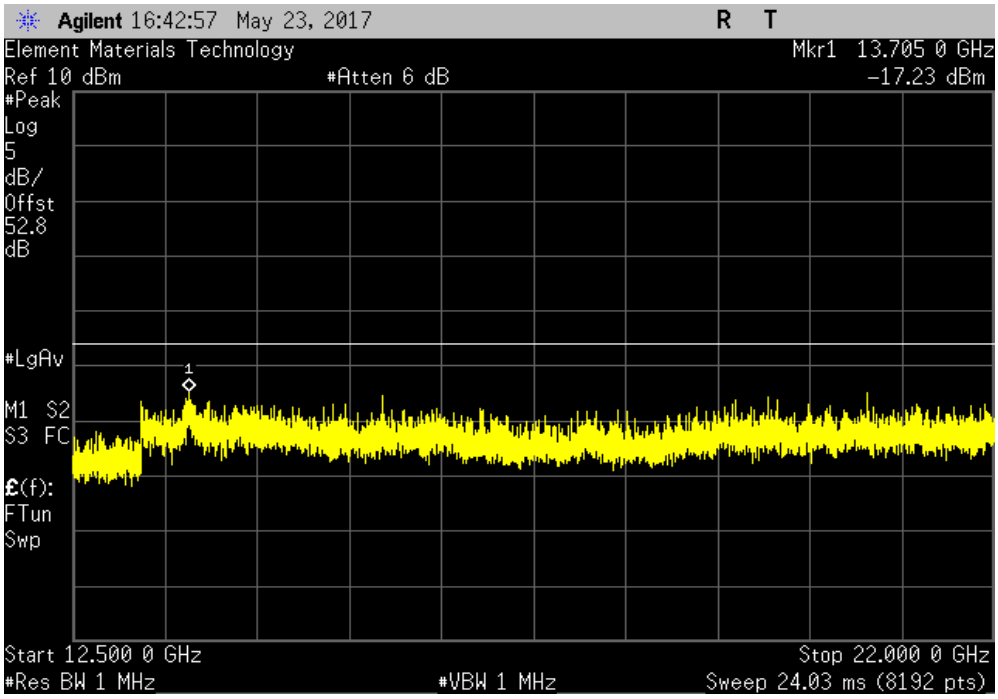
INTERMODULATION

TbtTx 2017.01.27 XMit 2017.02.08

Low Passband (2110-2145 MHz) WCDMA					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
30 MHz - 12.5 GHz	-20.3	3	-17.3	-13	Pass



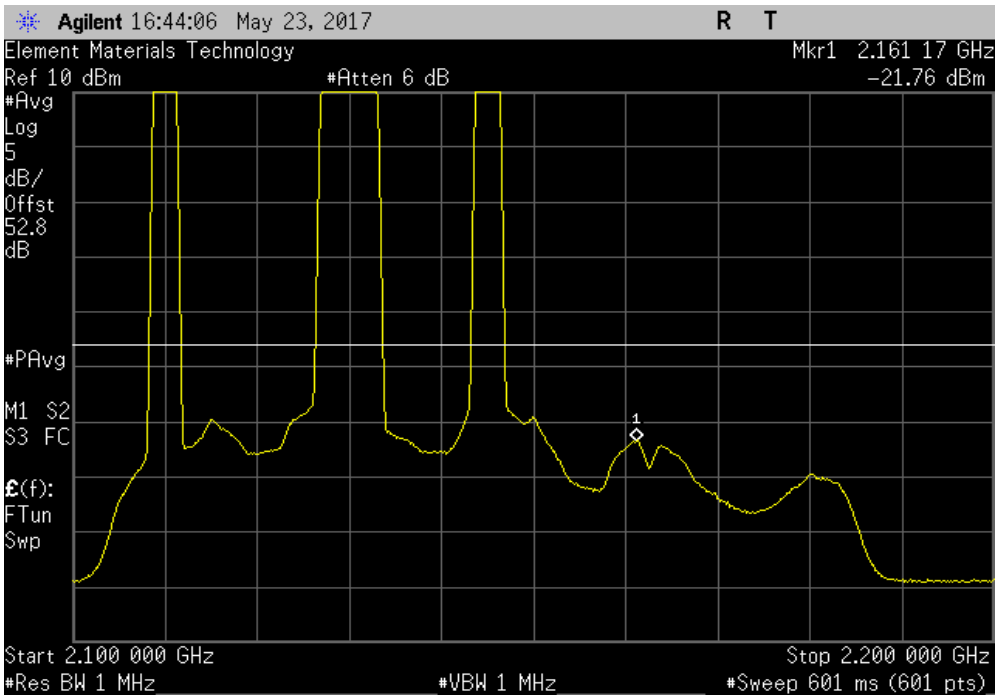
Low Passband (2110-2145 MHz) WCDMA					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
12.5 GHz - 22 GHz	-17.23	3	-14.23	-13	Pass



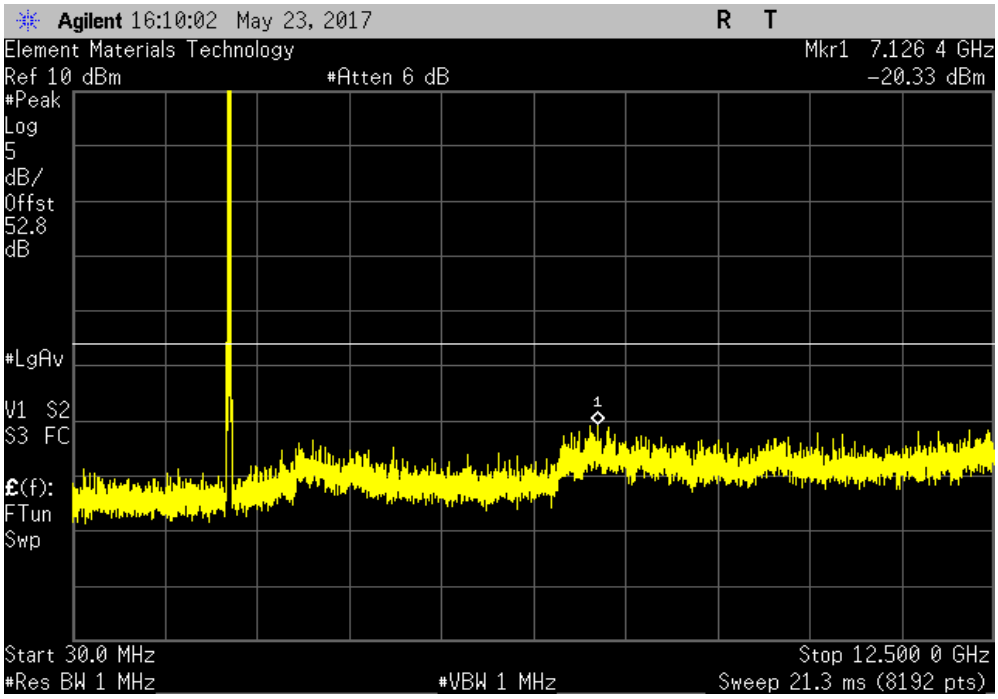
INTERMODULATION

TbtTx 2017.01.27 XMit 2017.02.08

Low Passband (2110-2145 MHz) WCDMA						
Frequency Range		Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
Fundamental		-21.76	3	-18.76	-13	Pass



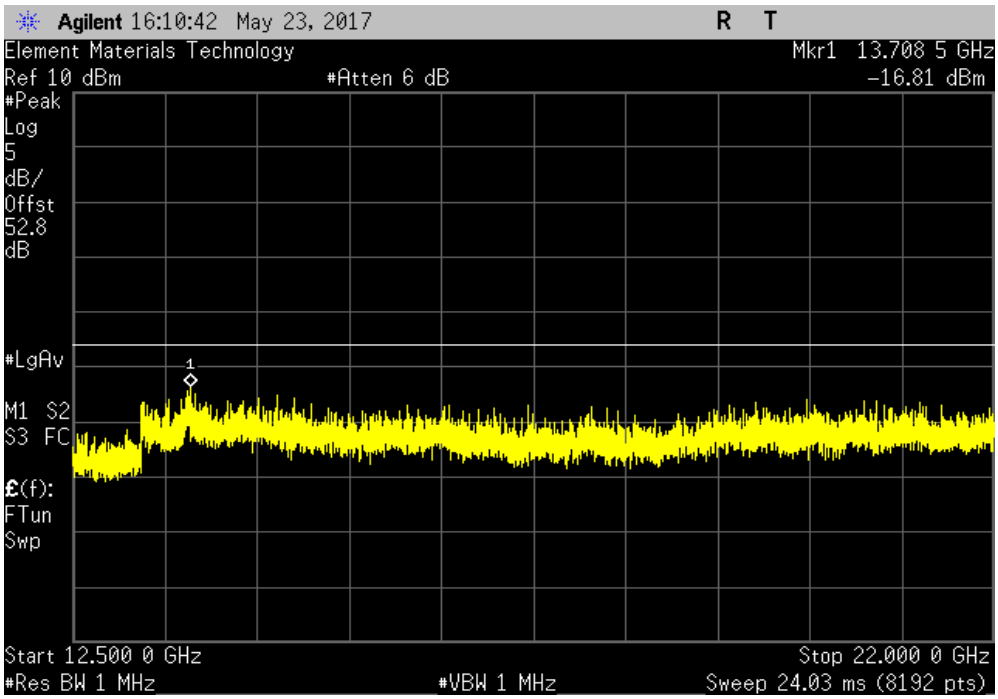
Mid Passband (2130-2160 MHz) WCDMA						
Frequency Range		Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
30 MHz - 12.5 GHz		-20.34	3	-17.34	-13	Pass



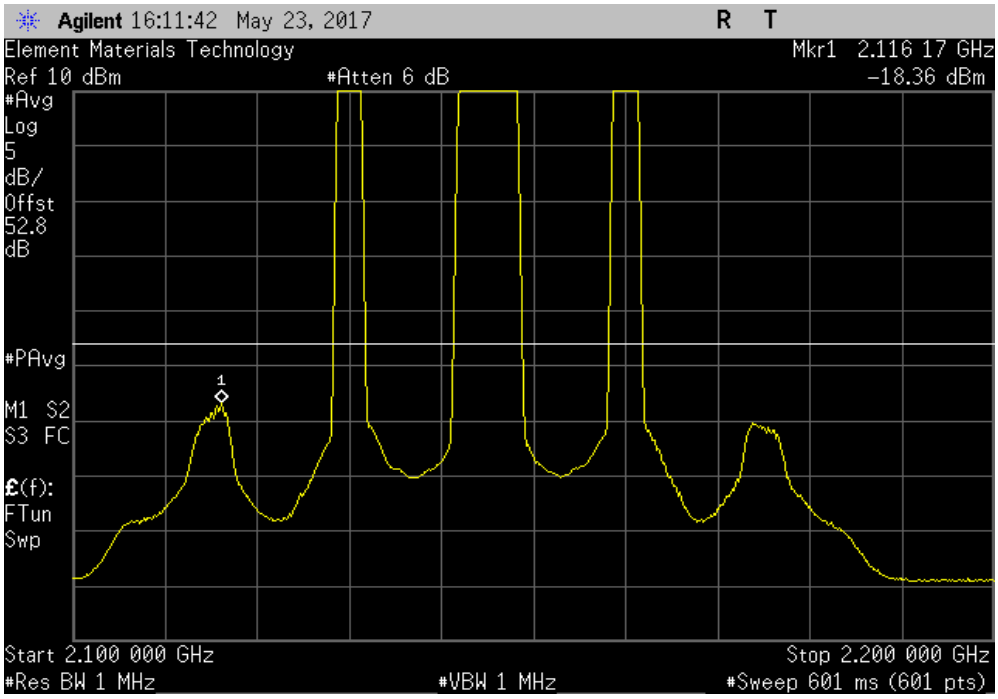
INTERMODULATION

TbtTx 2017.01.27 XMit 2017.02.08

Mid Passband (2130-2160 MHz) WCDMA					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
12.5 GHz - 22 GHz	-16.81	3	-13.81	-13	Pass



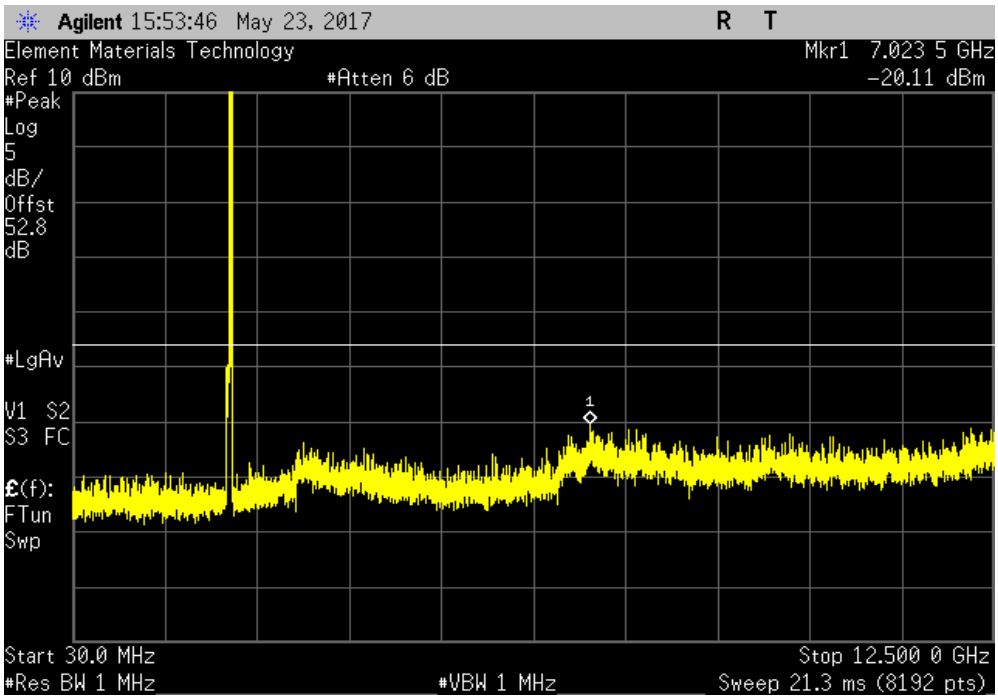
Mid Passband (2130-2160 MHz) WCDMA						
Frequency Range		Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
Fundamental		-18.36	3	-15.36	-13	Pass



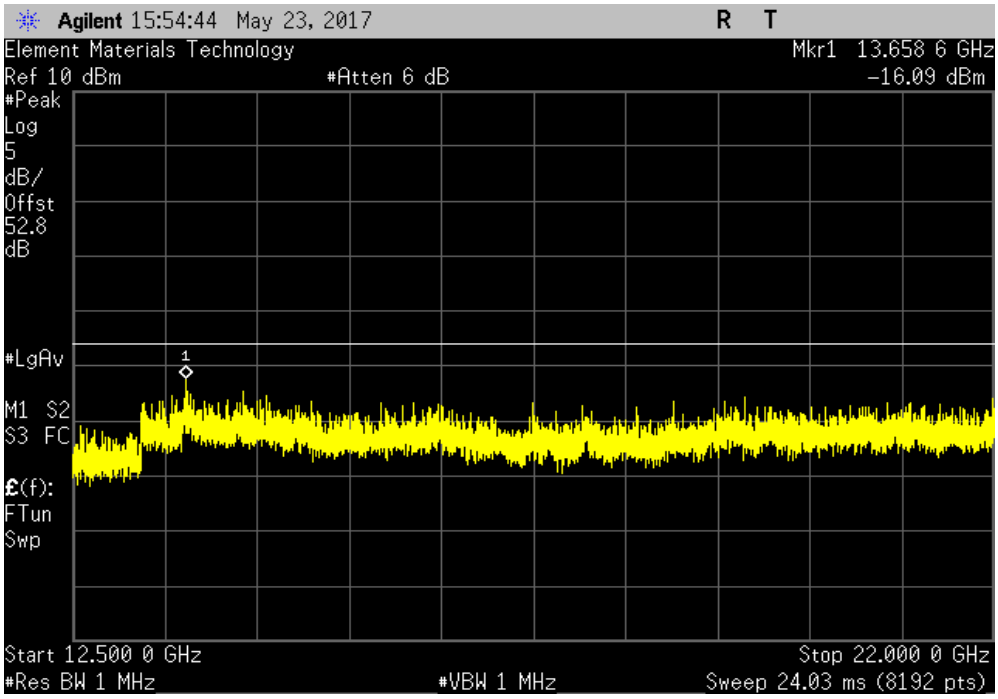
INTERMODULATION

TbtTx 2017.01.27 XMit 2017.02.08

High Passband (2145-2180 MHz) WCDMA					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
30 MHz - 12.5 GHz	-20.11	3	-17.11	-13	Pass



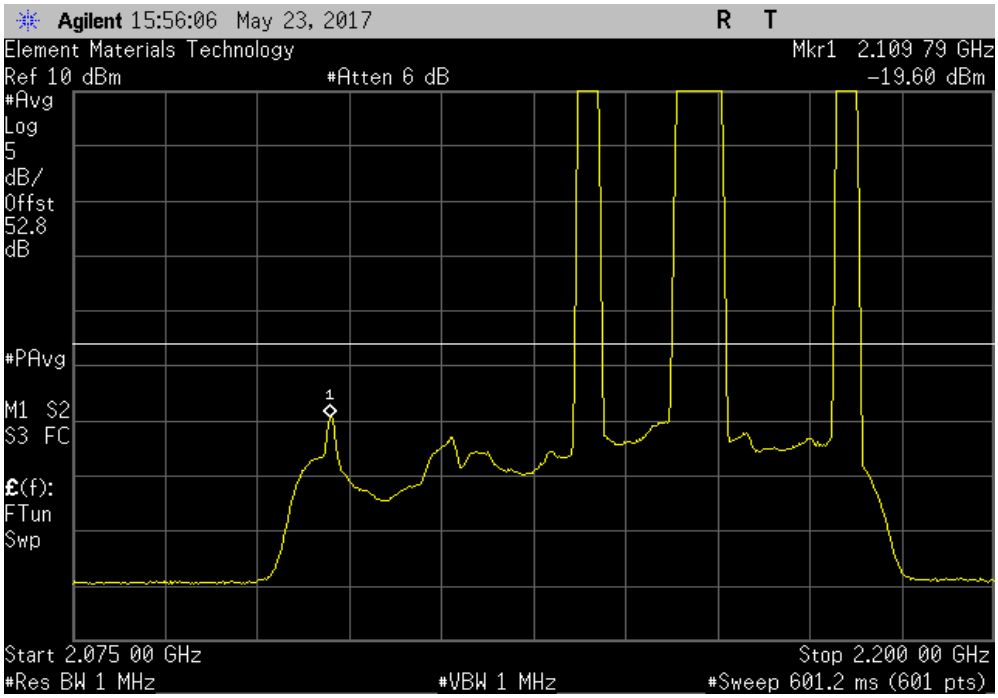
High Passband (2145-2180 MHz) WCDMA					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
12.5 GHz - 22 GHz	-16.09	3	-13.09	-13	Pass



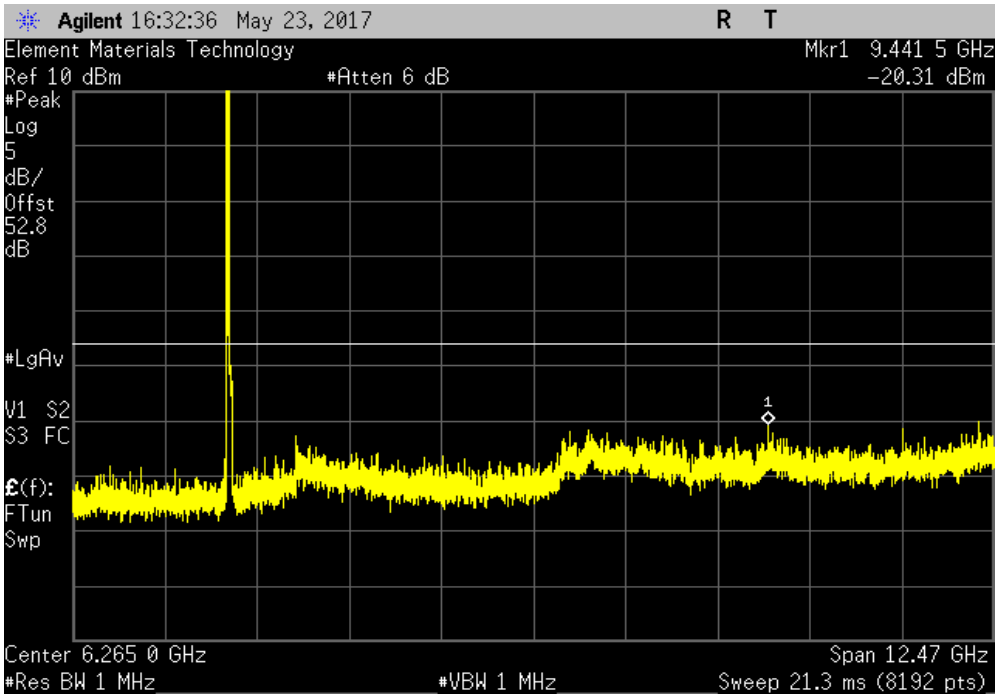
INTERMODULATION

TbtTx 2017.01.27 XMit 2017.02.08

High Passband (2145-2180 MHz) WCDMA						
Frequency Range		Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
Fundamental		-19.6	3	-16.6	-13	Pass



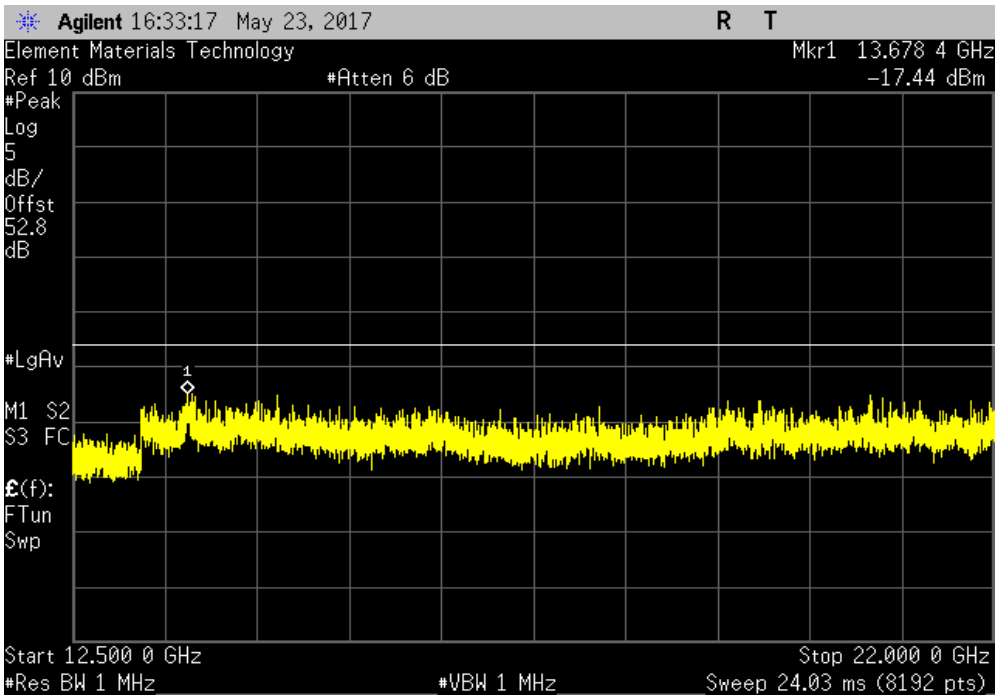
Low Passband (2110-2145 MHz) LTE 10 MHz					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
30 MHz - 12.5 GHz	-20.31	3	-17.31	-13	Pass



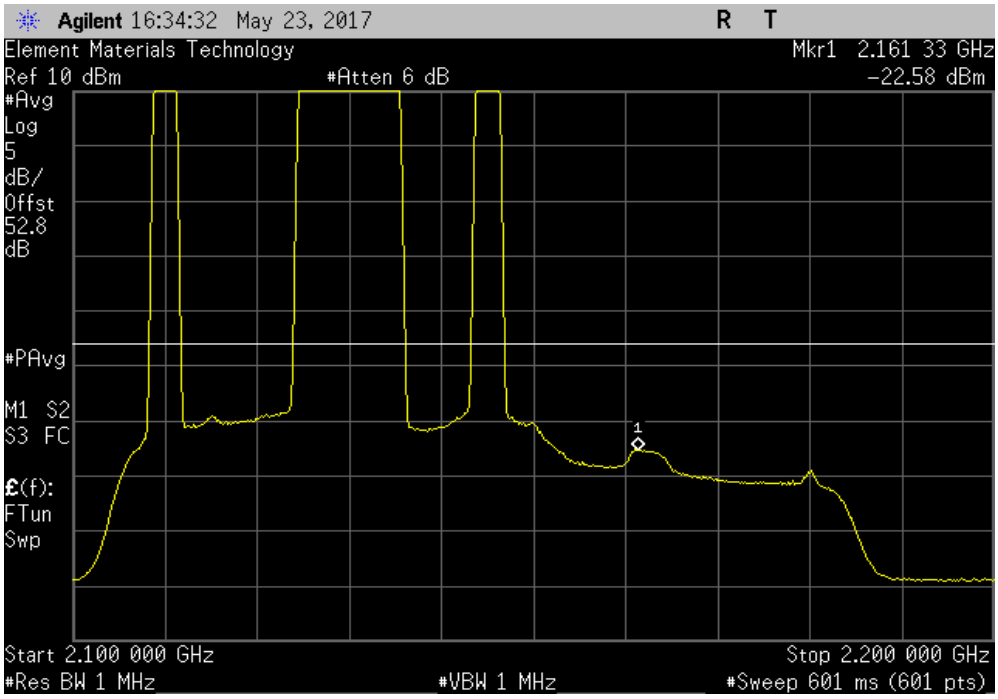
INTERMODULATION

TbtTx 2017.01.27 XMit 2017.02.08

Low Passband (2110-2145 MHz) LTE 10 MHz					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
12.5 GHz - 22 GHz	-17.44	3	-14.44	-13	Pass



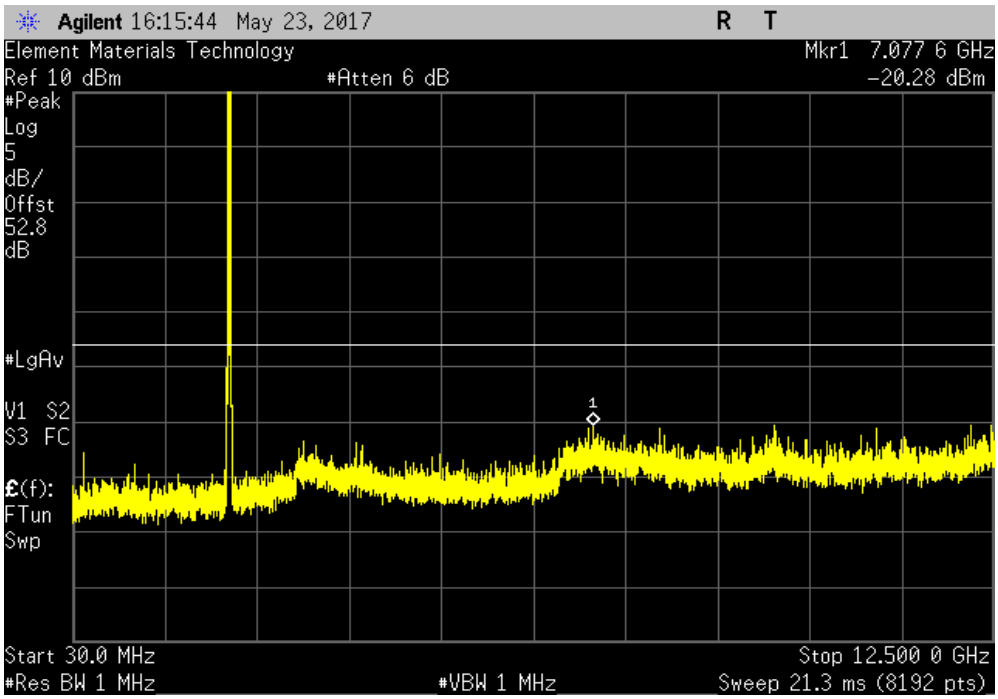
Low Passband (2110-2145 MHz) LTE 10 MHz					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
Fundamental	-22.58	3	-19.58	-13	Pass



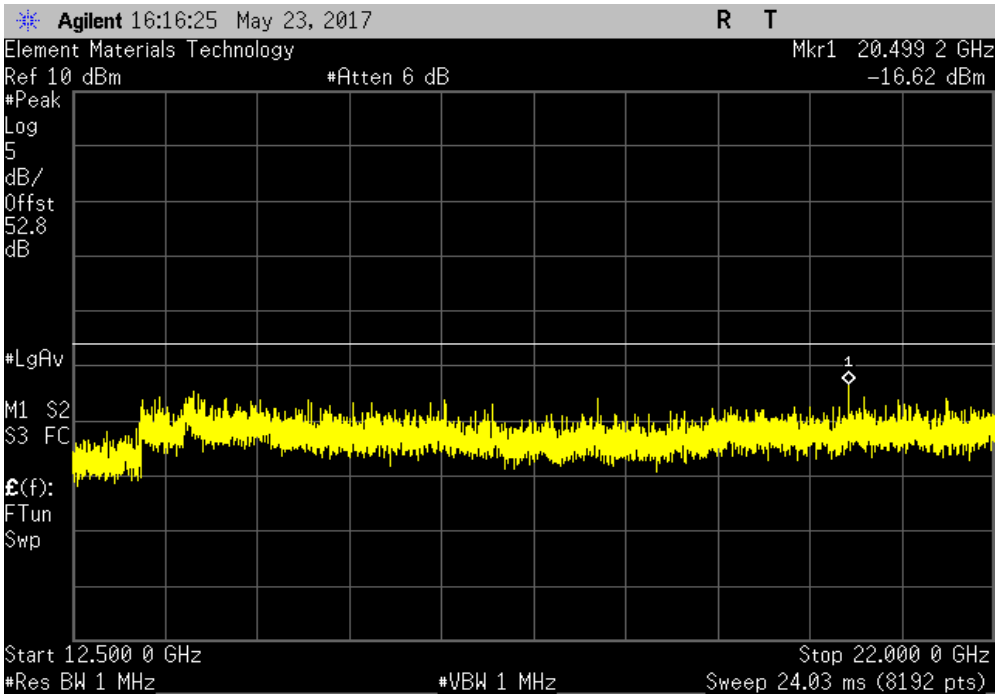
INTERMODULATION

TbtTx 2017.01.27 XMit 2017.02.08

Mid Passband (2130-2160 MHz) LTE 10 MHz					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
30 MHz - 12.5 GHz	-20.28	3	-17.28	-13	Pass



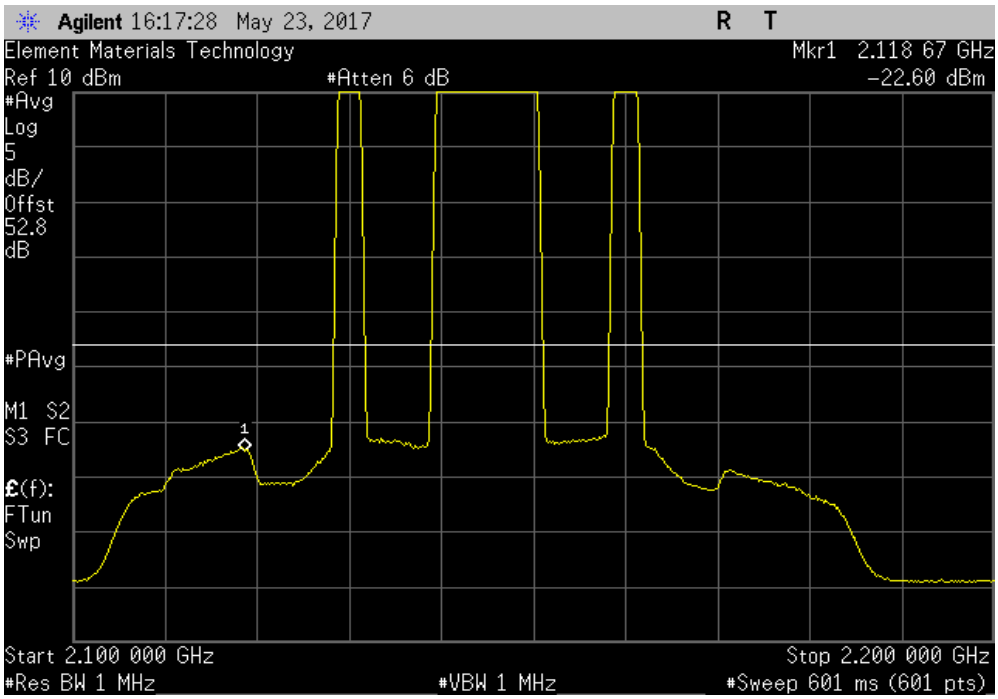
Mid Passband (2130-2160 MHz) LTE 10 MHz					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
12.5 GHz - 22 GHz	-16.62	3	-13.62	-13	Pass



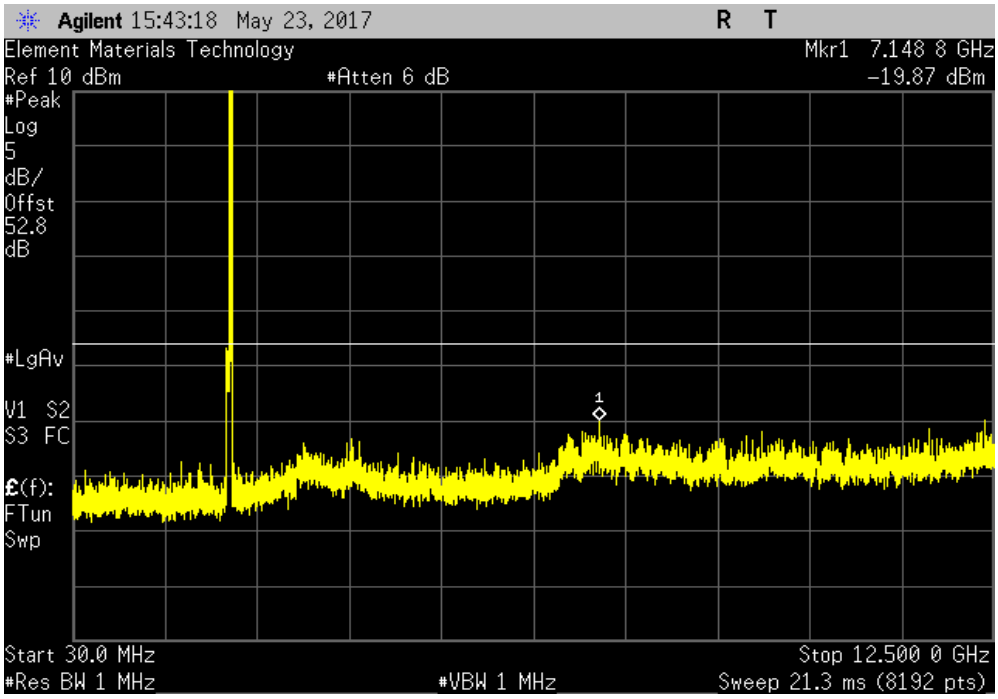
INTERMODULATION

TbtTx 2017.01.27 XMit 2017.02.08

Mid Passband (2130-2160 MHz) LTE 10 MHz						
Frequency Range		Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
Fundamental		-22.61	3	-19.61	-13	Pass



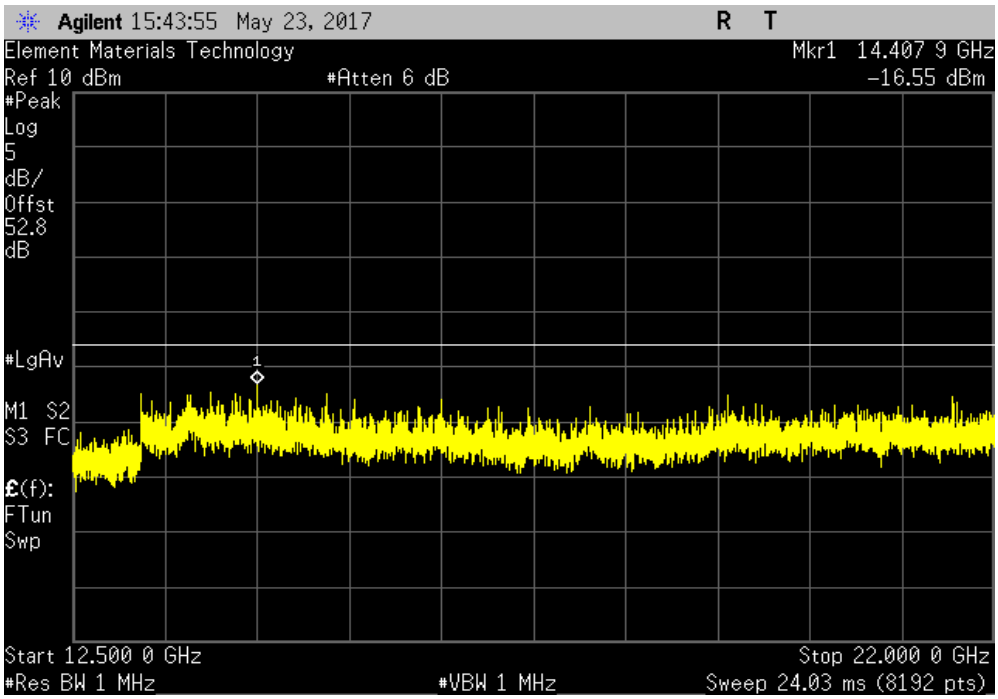
High Passband (2145-2180 MHz) LTE 10 MHz					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
30 MHz - 12.5 GHz	-19.87	3	-16.87	-13	Pass



INTERMODULATION

TbtTx 2017.01.27 XMit 2017.02.08

High Passband (2145-2180 MHz) LTE 10 MHz					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
12.5 GHz - 22 GHz	-16.55	3	-13.55	-13	Pass



High Passband (2145-2180 MHz) LTE 10 MHz					
Frequency Range	Max Value (dBm)	Correction Factor (dB)	Max Value + CF (dBm)	Limit ≤ (dBm)	Result
Fundamental	-23.38	3	-20.38	-13	Pass