

### Parallel Wireless Inc.

CWS-3050-04

FCC 27:2017 Cellular

#### Report # KMWC0079





NVLAP Lab Code: 200676-0

### **CERTIFICATE OF TEST**



2/181

Last Date of Test: June 11, 2017
Parallel Wireless Inc.
Model:CWS-3050-04

### **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	Conducted Output Power	Yes	Pass	
2.2.1	PA -Peak To Average Ratio	Yes	Pass	
2.2.2	Frequency Stability	Yes	Pass	
2.2.3	Occupied Bandwidth Emission Mask	Yes	Pass	
2.2.12	Out of Band Emissions - LTE Band 4	Yes	Pass	
2.2.13	Spurious Emissions at the Antenna Terminals	Yes	Pass	
2.2.13	Band Edge Compliance	Yes	Pass	
2.2.13	Intermodulation	Yes	Pass	
2.2.17.2	ERP of Fundamental - LTE Band 4	No	N/A	Not required for base station equipment.

#### **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		

Report No. KMWC0079 3/181

# ACCREDITATIONS AND AUTHORIZATIONS



#### **United States**

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

**A2LA** - Accredited by A2LA to ISO / IEC 17065 as a product certifier. This allows 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 - 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

Report No. KMWC0079 4/181

# **FACILITIES**





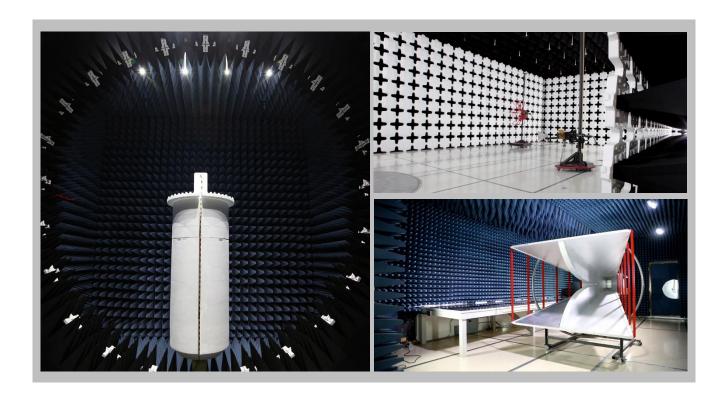


California
Labs OC01-13
41 Tesla
Irvine, CA 92618
(949) 861-8918

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

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

Irvine, CA 92618 Brooklyn Park, MN 55445 (949) 861-8918 (612)-638-5136		Elbridge, NY 13060 (315) 554-8214			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	
	Innov	ation, Science and Eco	nomic Development Car	ada		
2834B-1, 2834B-3	2834E-1	N/A	2834D-1, 2834D-2	2834G-1	2834F-1	
		BS	МІ			
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R	
		VC	CI			
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	



Report No. KMWC0079 5/181

### MEASUREMENT UNCERTAINTY



#### **Measurement Uncertainty**

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

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) for each test is on each data sheet. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable), and are available upon request.

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

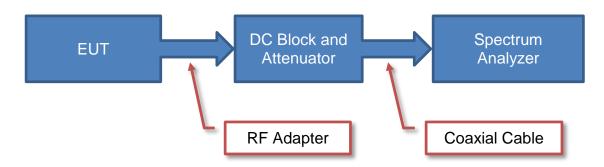
Test	+ MU	<u>- MU</u>
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%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

Report No. KMWC0079 6/181

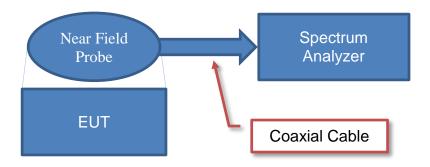
# **Test Setup Block Diagrams**



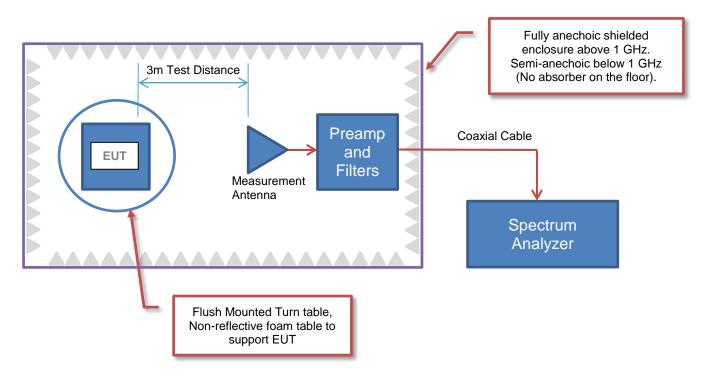
#### **Antenna Port Conducted Measurements**



### **Near Field Test Fixture Measurements**



### **Spurious Radiated Emissions**



Report No. KMWC0079 7/181

# PRODUCT DESCRIPTION



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

Company Name:	Parallel Wireless Inc.
Address:	100 Innovative Way, Suite #3410
City, State, Zip:	Nashua, NH 03062, USA
Test Requested By:	Daniel Kim
Model:	CWS-3050-04
First Date of Test:	May 8, 2017
Last Date of Test:	May 11, 2017
Receipt Date of Samples:	May 8, 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:**

Tower based Converged Wireless System Base Station operating in the LTE Band 4 with 2x2, multiple channel capability, and with 5 MHz, 10 MHz, and 20 MHz channel bandwidths

#### **Testing Objective:**

To demonstrate compliance of the Cellular radio to FCC 27 requirements.

Report No. KMWC0079 8/181

# **CONFIGURATIONS**



### Configuration KMWC0079-1

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Converged Wireless System Base Station	Parallel Wireless Inc.	CWS-3050-04	K162300007

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

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AISG (ALM) Cable	Yes	6.1m	No	CWS-3050-04 Tower	Unterminated
AISG Cable	Yes	3m	No	CWS-3050-04 Tower	Unterminated
USB Cable	No	3m	No	CWS-3050-04 Tower	Unterminated
DC Power Cable	No	5.0m	No	CWS-3050-04 Tower	DC Mains
Ethernet Cable	No	2.5m	No	CWS-3050-04 Tower	Unterminated
Ground Braid	No	2m	No	CWS-3050-04 Tower	Ground
Optical Cable	No	10m	No	CWS-3050-04 Tower	Unterminated
RF Output Cable x2	Yes	5m	No	CWS-3050-04 Tower	High Power Terminator

Report No. KMWC0079 9/181

# **CONFIGURATIONS**



### Configuration KMWC0079- 2

EUT						
Description	Manufacturer	Model/Part Number	Serial Number			
Converged Wireless System Base Station	Parallel Wireless Inc.	CWS-3050-04	K162300007			

Peripherals in test setup boundary						
Description	Manufacturer	Model/Part Number	Serial Number			
High Power Terminator	Telcon	KTMO400800060	1111-0004			
High Power Terminator	Telcon	KTMO400800060	1111-0064			
Laptop Power Supply	Delta Electronics, Inc.	SADP-90FH D	CNBA4400215ABZ040C18685			

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Cable	No	1.5m	No	AC Mains	Laptop Power Supply
DC Power Cable	No	5.0m	No	CWS-3050-04 Tower	DC Mains
Ground Braid	No	2m	No	CWS-3050-04 Tower	Ground
RF Output Cable x2	Yes	5m	No	CWS-3050-04 Tower	High Power Terminator
USB Cable	No	3m	No	CWS-3050-04 Tower	Laptop
Ethernet Cable	No	2.5m	No	CWS-3050-04 Tower	Laptop
DC Cable	No	2.m	Yes	Laptop Power Supply	Laptop

Report No. KMWC0079 10/181

# **MODIFICATIONS**



### **Equipment Modifications**

Item	Date	Test	Modification	Note	Disposition of EUT
1	5/8/2017	Intermodulation	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	5/8/2017	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.
3	5/8/2017	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.
4	5/8/2017	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.
5	5/8/2017	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.
6	5/9/2017	Out of Band Emissions, LTE Band 4	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	5/10/2017	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.
8	5/11/2017	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

Report No. KMWC0079 11/181



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
Thermometer	Omega Engineering, Inc.	HH311	DUC	10/3/2014	10/3/2017
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPHS-32-3.5-SCT/AC	TBE	NCR	NCR
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Fairview Microwave	SD3379	AMV	1/11/2017	1/11/2018
Meter - Power	ETS Lindgren	7002-006	SRB	12/6/2016	12/6/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/2/2016	11/2/2017

#### **CLIENT PROVIDED EQUIPMENT**

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

#### **TEST DESCRIPTION**

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

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

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

ERP = Max Measured Power + Antenna gain (dBi)

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



								TbtTx 2017.01.27	7 XMit 2017.02.0
EUT	: CWS-3050-04						Work Order:		74411 2017 02.5
Serial Number	: K162300007						Date:	05/08/17	
Customer	: Parallel Wireless Inc						Temperature:	22.1 °C	
Attendees	: Daniel Kim						Humidity:	45.6% RH	
Project	: None						Barometric Pres.:	1013 mbar	
Tested by	: Mike Tran		Power: 4	48VDC			Job Site:	OC13	
TEST SPECIFICAT	TONS		1	Test Method					
FCC 27:2017			/	ANSI/TIA/EIA-603-D	D-2010				
COMMENTS									
Power Level Settin	ng 40W. Reference Level O	Offset: DC Block + 30dB Attenuator + 2	0dB Attenuator + Po	ower Divider + Cab	ole Loss = 56.7dB	total.			
	M TEST STANDARD								
None		1							
Configuration #	1	0	And de	u					
		Signature		Avg Cond	Duty	Antenna	EIRP	Limit	
				Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results
Antenna Port 1				` '			` ,		
	Low Channel LTE5, 2112.5	5 MHz		45.97	100	0	46	60	Pass
	Mid Channel LTE5, 2132.5	5 MHz		45.98	100	0	46	60	Pass
	High Channel LTE5, 2152.	.5 MHz		45.98	100	0	46	60	Pass
	Low Channel LTE10, 2115	5 MHz		45.99	100	0	46	60	Pass
	Mid Channel LTE10, 2132.	.5 MHz		45.98	100	0	46	60	Pass
	High Channel LTE10, 2150	0 MHz		45.96	100	0	46	60	Pass
	Low Channel LTE20, 2120	) MHz		45.99	100	0	46	60	Pass
	Mid Channel LTE20, 2132.	.5 MHz		45.99	100	0	46	60	Pass
	High Channel LTE20, 2145	5 MHz		45.99	100	0	46	60	Pass
Antenna Port 2									
	Low Channel LTE5, 2112.5	5 MHz		45.98	100	0	46	60	Pass
	Mid Channel LTE5, 2132.5	5 MHz		45.99	100	0	46	60	Pass
	High Channel LTE5, 2152.	.5 MHz		45.98	100	0	46	60	Pass
	Low Channel LTE10, 2115	5 MHz		45.98	100	0	46	60	Pass
	Mid Channel LTE10, 2132.	.5 MHz		45.98	100	0	46	60	Pass
	High Channel LTE10, 2150	0 MHz		45.99	100	0	46	60	Pass
	Low Channel LTE20, 2120	) MHz		45.98	100	0	46	60	Pass
	Mid Channel LTE20, 2132.	.5 MHz		45.98	100	0	46	60	Pass
	High Channel LTE20, 2145			45.98	100	0	46	60	Pass
Antenna Port 1 MIM									
	Low Channel LTE5, 2112.5	5 MHz		45.99	100	0	46	60	Pass
	Mid Channel LTE5, 2132.5			45.97	100	0	46	60	Pass
	High Channel LTE5, 2152.			45.99	100	0	46	60	Pass
	Low Channel LTE10, 2115			45.99	100	0	46	60	Pass
	Mid Channel LTE10, 2132.			45.96	100	Ö	46	60	Pass
	High Channel LTE10, 2150			45.97	100	0	46	60	Pass
	Low Channel LTE20, 2120			45.99	100	0	46	60	Pass
	Mid Channel LTE20, 2132.			45.98	100	Ö	46	60	Pass
	High Channel LTE20, 2145			45.98	100	0	46	60	Pass
Antenna Port 2 MIN				.0.00					. 400
	Low Channel LTE5, 2112.5	5 MHz		45.99	100	0	46	60	Pass
	Mid Channel LTE5, 2132.5			45.98	100	0	46	60	Pass
	High Channel LTE5, 2152.			45.98	100	0	46	60	Pass
	Low Channel LTE10, 2115			45.98	100	0	46	60	Pass
	Mid Channel LTE10, 2132.			45.96	100	0	46	60	Pass
	High Channel LTE10, 2150			45.97	100	0	46	60	Pass
	Low Channel LTE20, 2120			45.97 45.98	100	0	46	60	Pass
	Mid Channel LTE20, 2132.			45.96 45.99	100	0	46 46	60	Pass
				45.99 45.99	100	0	46 46	60	Pass
	High Channel LTE20, 2145	J IVITIZ		45.99	100	U	40	00	Pass

Report No. KMWC0079 13/181



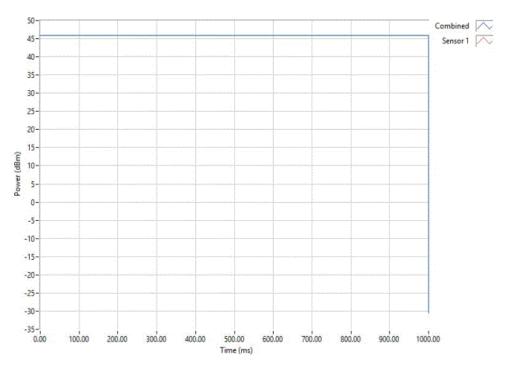
TbtTx 2017.01.27

Antenna Port 1, Low Channel LTE5, 2112.5 MHz

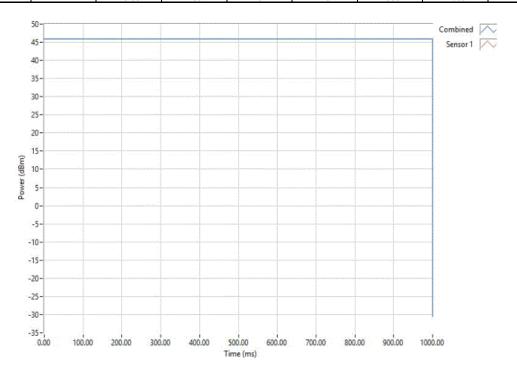
Avg Cond Duty Antenna EIRP Limit

Pwr (dBm) Cycle (%) Gain (dBi) (dBm) (dBm) Results

45.97 100 0 46 1000 Pass



Antenna Port 1, Mid Channel LTE5, 2132.5 MHz							
	Avg Cond	Duty	Antenna	EIRP	Limit		
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results	
	45.98	100	0	46	1000	Pass	



Report No. KMWC0079 14/181



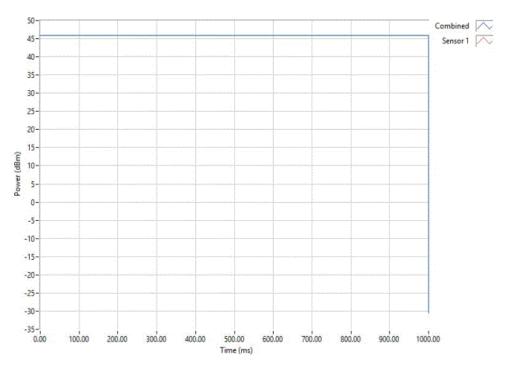
TbtTx 2017.01.27

Antenna Port 1, High Channel LTE5, 2152.5 MHz

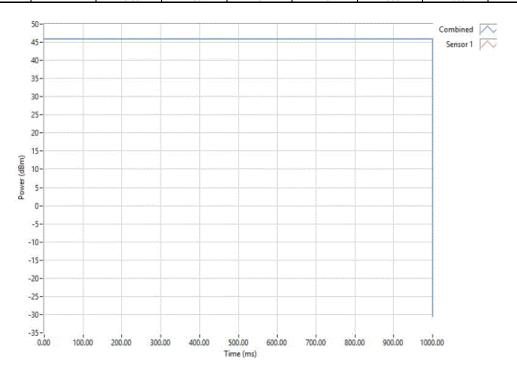
Avg Cond Duty Antenna EIRP Limit

Pwr (dBm) Cycle (%) Gain (dBi) (dBm) (dBm) Results

45.98 100 0 46 1000 Pass



Antenna Port 1, Low Channel LTE10, 2115 MHz							
	Avg Cond	Duty	Antenna	EIRP	Limit		
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results	
	45.99	100	0	46	1000	Pass	



Report No. KMWC0079 15/181



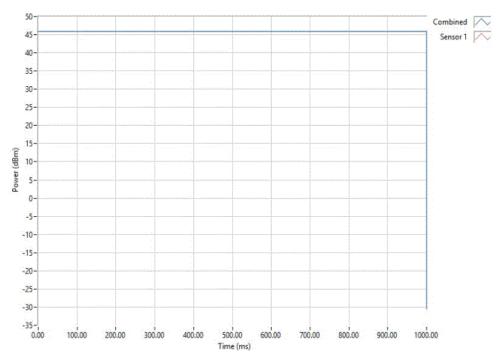
TbtTx 2017.01.27

Antenna Port 1, Mid Channel LTE10, 2132.5 MHz

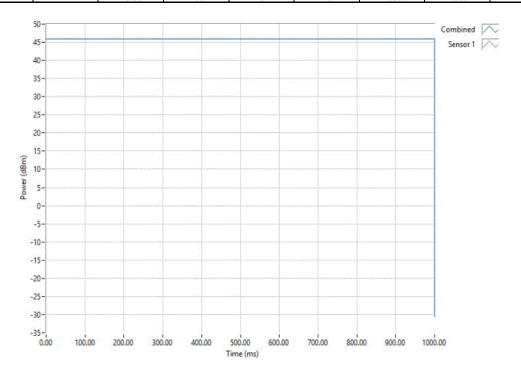
Avg Cond Duty Antenna EIRP Limit

Pwr (dBm) Cycle (%) Gain (dBi) (dBm) (dBm) Results

45.98 100 0 46 1000 Pass



Antenna Port 1, High Channel LTE10, 2150 MHz							
	Avg Cond	Duty	Antenna	EIRP	Limit		
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results	
	45.96	100	0	46	1000	Pass	



Report No. KMWC0079 16/181



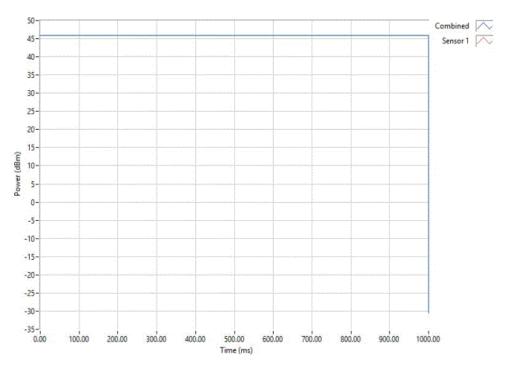
TbtTx 2017.01.27

Antenna Port 1, Low Channel LTE20, 2120 MHz

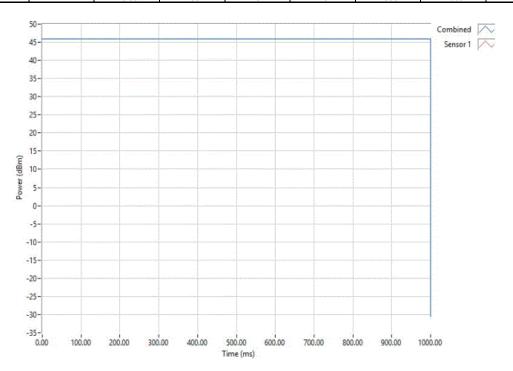
Avg Cond Duty Antenna EIRP Limit

Pwr (dBm) Cycle (%) Gain (dBi) (dBm) (dBm) Results

45.99 100 0 46 1000 Pass



Antenna Port 1, Mid Channel LTE20, 2132.5 MHz								
	Avg Cond	Duty	Antenna	EIRP	Limit			
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results		
	45.99	100	0	46	1000	Pass		



Report No. KMWC0079 17/181



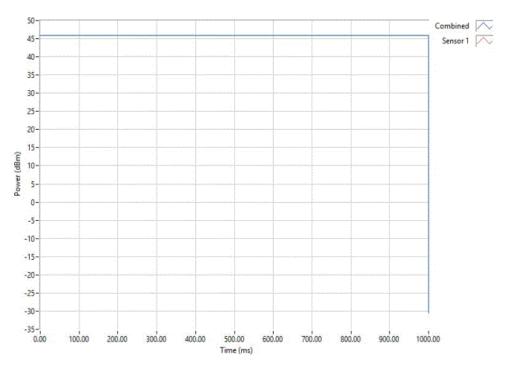
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Antenna Port 1, High Channel LTE20, 2145 MHz

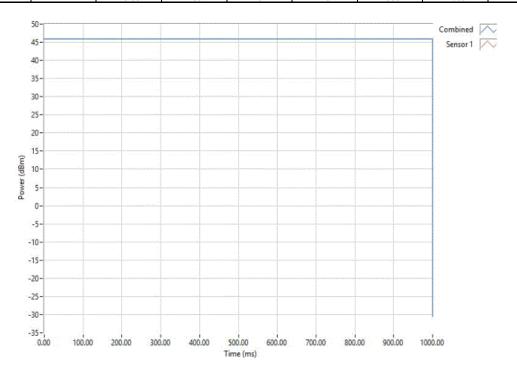
Avg Cond Duty Antenna EIRP Limit

Pwr (dBm) Cycle (%) Gain (dBi) (dBm) (dBm) Results

45.99 100 0 46 1000 Pass



Antenna Port 2, Low Channel LTE5, 2112.5 MHz							
	Avg Cond	Duty	Antenna	EIRP	Limit		
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results	
	45.98	100	0	46	1000	Pass	



Report No. KMWC0079 18/181



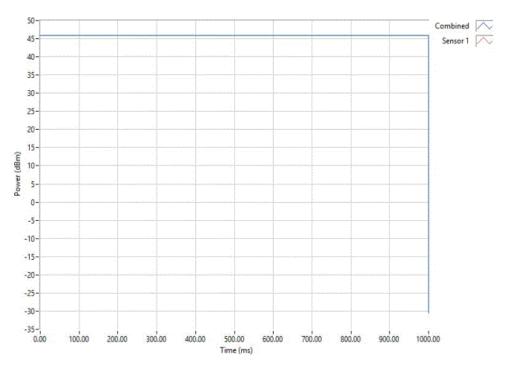
TbtTx 2017.01.27

Antenna Port 2, Mid Channel LTE5, 2132.5 MHz

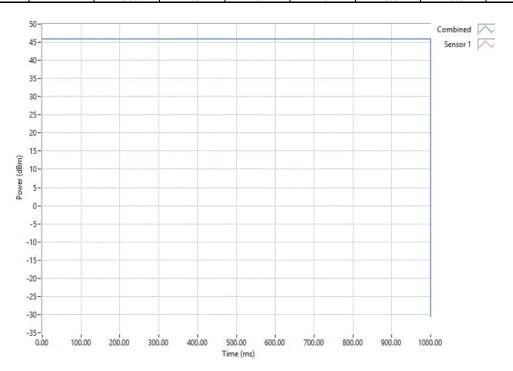
Avg Cond Duty Antenna EIRP Limit

Pwr (dBm) Cycle (%) Gain (dBi) (dBm) (dBm) Results

45.99 100 0 46 1000 Pass



Antenna Port 2, High Channel LTE5, 2152.5 MHz								
	Avg Cond	Duty	Antenna	EIRP	Limit			
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results		
	45.98	100	0	46	1000	Pass		

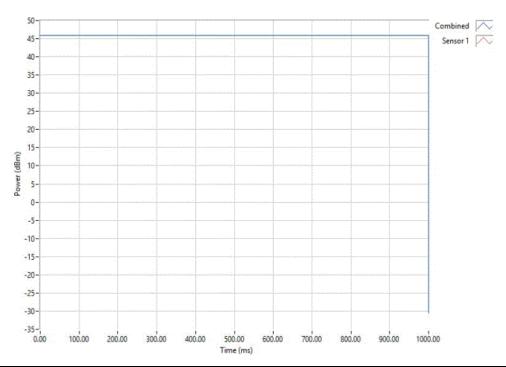


Report No. KMWC0079 19/181

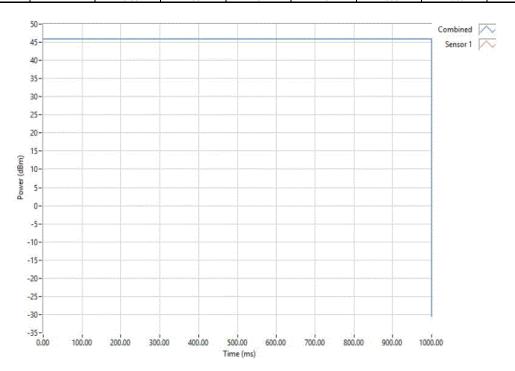


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		Antenna Port 2	Low Channel LT	E10, 2115 MHz			
	Avg Cond Pwr (dBm)	Duty Cycle (%)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Results	
	45.98	100	0	46	1000	Pass	



ſ	Antenna Port 2, Mid Channel LTE10, 2132.5 MHz								
I	Avg Cond	d Duty	Antenna	EIRP	Limit				
ı	Pwr (dBm	) Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results			
ı	45.98	100	0	46	1000	Pass			

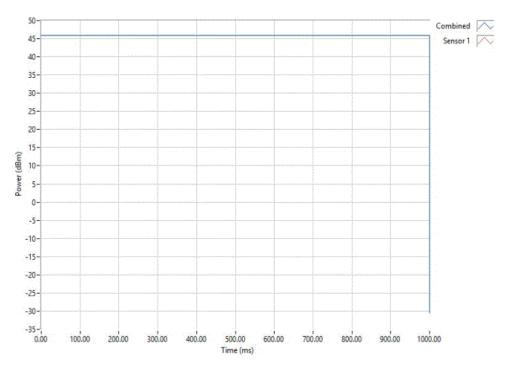


Report No. KMWC0079 20/181

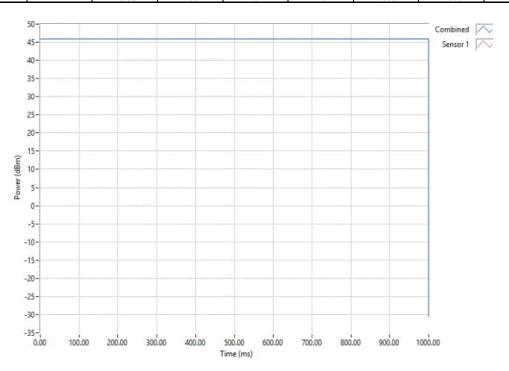


TbtTx 2017.01.27

	Antenna Port 2	2, High Channel L	TE10, 2150 MHz			
Avg Con		Antenna	EIRP	Limit	Desults	
Pwr (dBn	n) Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results	
45.99	100	0	46	1000	Pass	



		Antenna Port 2,	Low Channel LT	E20, 2120 MHz		
	Avg Cond	Duty	Antenna	EIRP	Limit	
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results
	45.98	100	0	46	1000	Pass

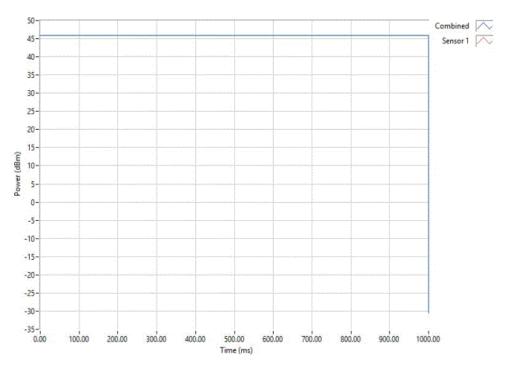


Report No. KMWC0079 21/181

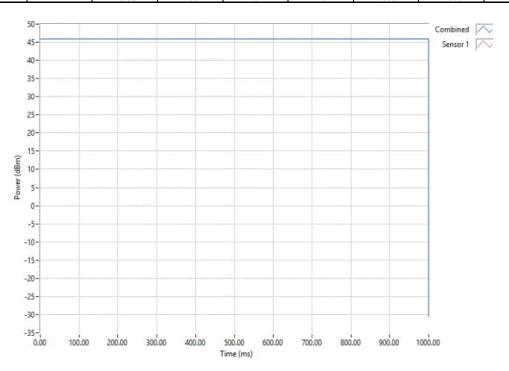


TbtTx 2017.01.27

		Antenna Port 2,	Mid Channel LTE	20, 2132.5 MHz			
	Avg Cond Pwr (dBm)	Duty Cycle (%)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Results	
	45.98	100	0	46	1000	Pass	



		Antenna Port 2,	High Channel LT	TE20, 2145 MHz		
	Avg Cond	Duty	Antenna	EIRP	Limit	
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results
	45.98	100	0	46	1000	Pass

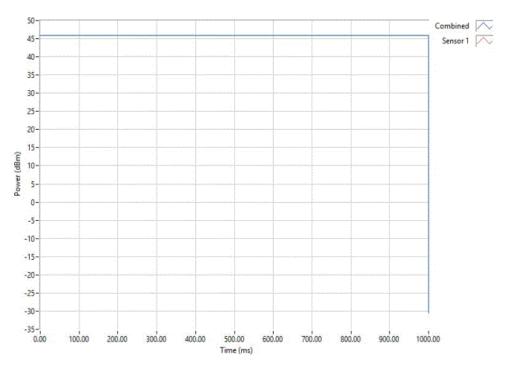


Report No. KMWC0079 22/181

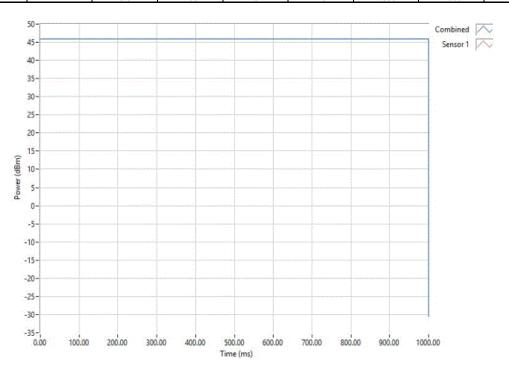


TbtTx 2017.01.27

Antenna Port 1 MIMO, Low Channel LTE5, 2112.5 MHz Avg Cond Duty Antenna EIRP Limit Pwr (dBm) Cycle (%) Gain (dBi) (dBm) (dBm) Results 45.99 46 1000 Pass



A	ntenna Port 1 MII	MO, Mid Channel	LTE5, 2132.5 MI	Нz	
Avg Cond	Duty	Antenna	EIRP	Limit	
 Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results
45.97	100	0	46	1000	Pass

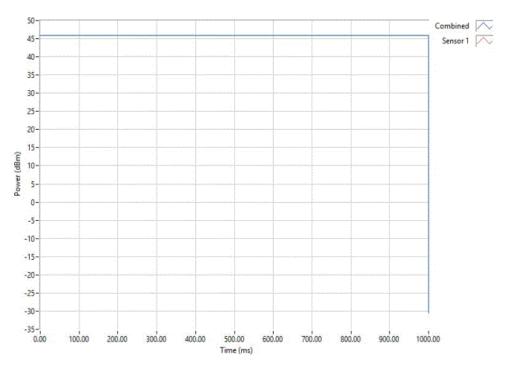


Report No. KMWC0079 23/181

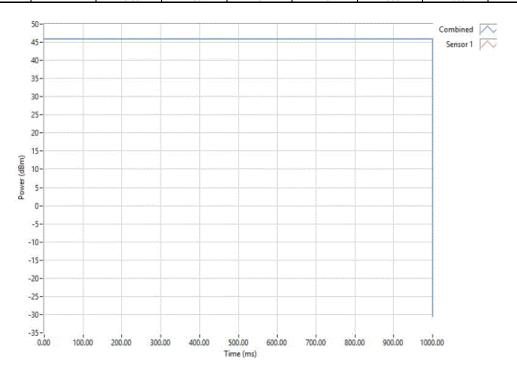


TbtTx 2017.01.27

Antenna Port 1 MIMO, High Channel LTE5, 2152.5 MHz Avg Cond Duty Antenna EIRP Limit Pwr (dBm) Cycle (%) Gain (dBi) (dBm) (dBm) Results 45.99 46 1000 Pass



Antenna Port 1 MIMO, Low Channel LTE10, 2115 MHz								
	Avg Cond	Duty	Antenna	EIRP	Limit			
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results		
	45.99	100	0	46	1000	Pass		



Report No. KMWC0079 24/181



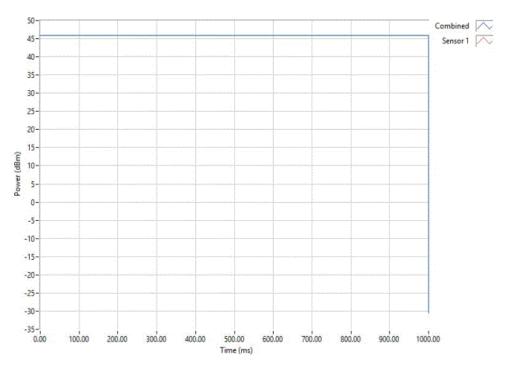
TbtTx 2017.01.27

Antenna Port 1 MIMO, Mid Channel LTE10, 2132.5 MHz

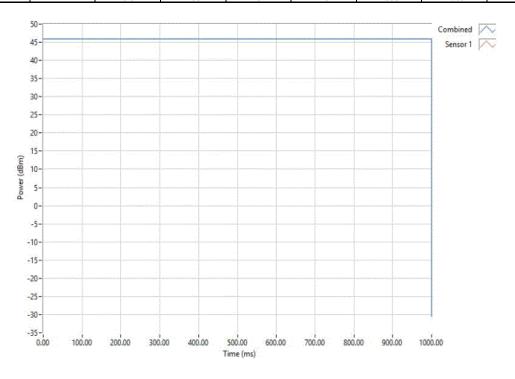
Avg Cond Duty Antenna EIRP Limit

Pwr (dBm) Cycle (%) Gain (dBi) (dBm) (dBm) Results

45.96 100 0 46 1000 Pass



Antenna Port 1 MIMO, High Channel LTE10, 2150 MHz								
Avg Cond	Duty	Antenna	EIRP	Limit				
 Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results			
45.97	100	0	46	1000	Pass			

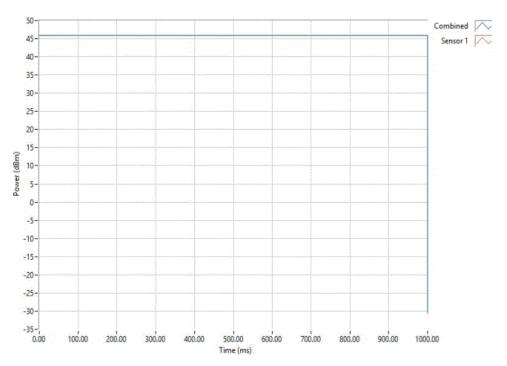


Report No. KMWC0079 25/181

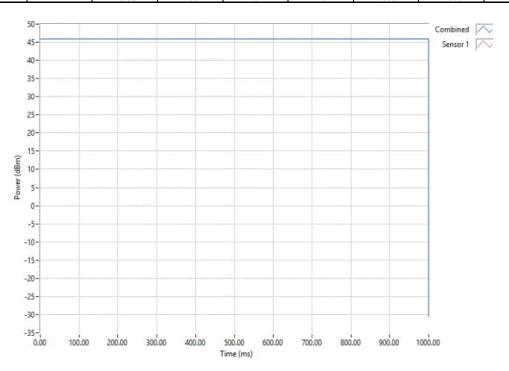


TbtTx 2017.01.27

Antenna Port 1 MIMO, Low Channel LTE20, 2120 MHz Avg Cond Duty Antenna EIRP Limit Pwr (dBm) Cycle (%) (dBm) Gain (dBi) (dBm) Results 45.99 46 1000 Pass



A	ntenna Port 1 MIN	IO, Mid Channel	LTE20, 2132.5 M	Hz	
Avg Cond	Duty	Antenna	EIRP	Limit	
 Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results
45.98	100	0	46	1000	Pass

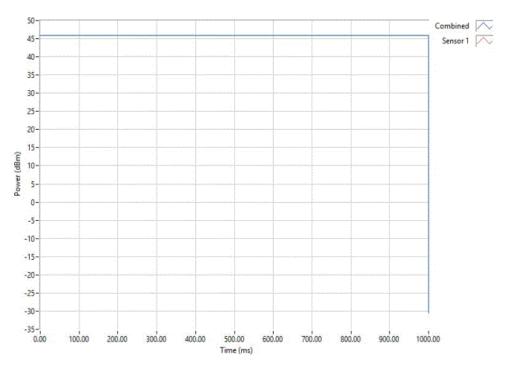


Report No. KMWC0079 26/181

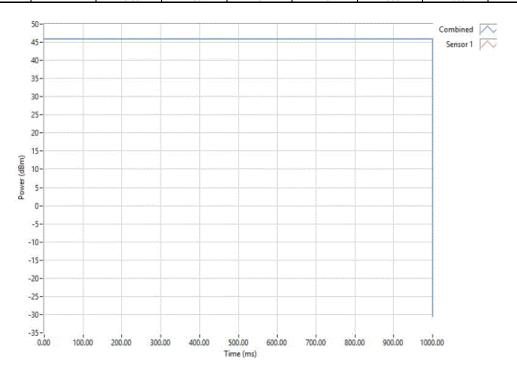


TbtTx 2017.01.27

Antenna Port 1 MIMO, High Channel LTE20, 2145 MHz Avg Cond Duty Antenna EIRP Limit Pwr (dBm) Cycle (%) Gain (dBi) (dBm) (dBm) Results 45.98 46 1000 Pass



Antenna Port 2 MIMO, Low Channel LTE5, 2112.5 MHz								
	Avg Cond	Duty	Antenna	EIRP	Limit			
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results		
	45.99	100	0	46	1000	Pass		

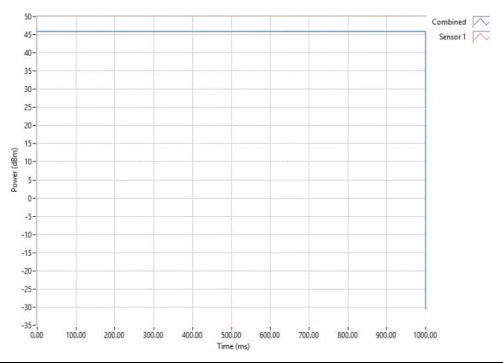


Report No. KMWC0079 27/181

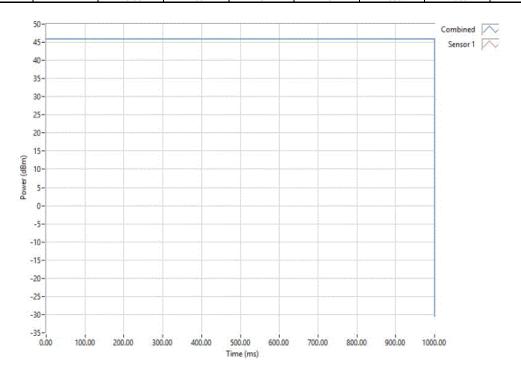


TbtTx 2017.01.27

Antenna Port 2 MIMO, Mid Channel LTE5, 2132.5 MHz Avg Cond Duty Antenna EIRP Limit Pwr (dBm) Cycle (%) Gain (dBi) (dBm) (dBm) Results 45.98 46 1000 Pass



Antenna Port 2 MIMO, High Channel LTE5, 2152.5 MHz								
	Avg Cond	Duty	Antenna	EIRP	Limit			
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results		
	45.98	100	0	46	1000	Pass		

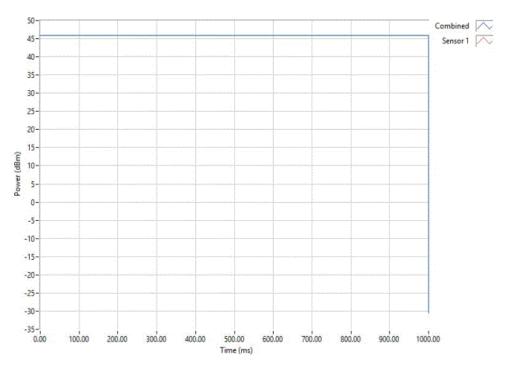


Report No. KMWC0079 28/181

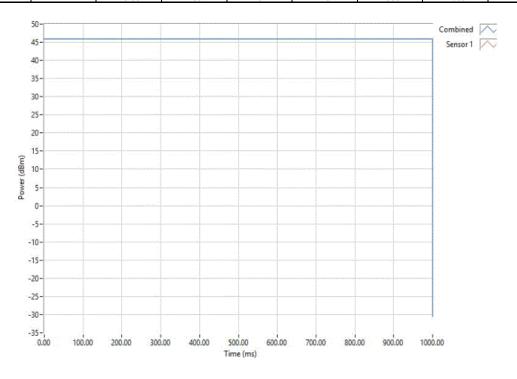


TbtTx 2017.01.27

Antenna Port 2 MIMO, Low Channel LTE10, 2115 MHz Avg Cond Duty Antenna EIRP Limit Pwr (dBm) Cycle (%) Gain (dBi) (dBm) (dBm) Results 45.98 46 1000 Pass



Ar	ntenna Port 2 MIM	10, Mid Channel	LTE10, 2132.5 M	Hz	
Avg Cond	Duty	Antenna	EIRP	Limit	
 Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results
45.96	100	0	46	1000	Pass



Report No. KMWC0079 29/181



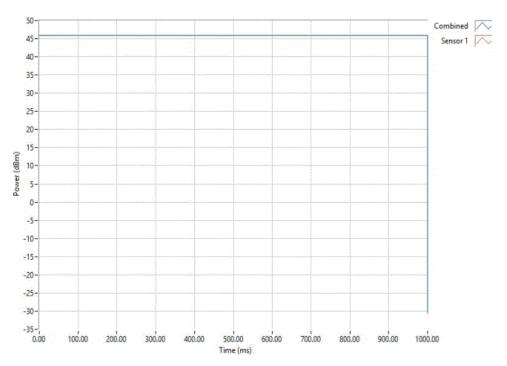
TbtTx 2017.01.27

Antenna Port 2 MIMO, High Channel LTE10, 2150 MHz

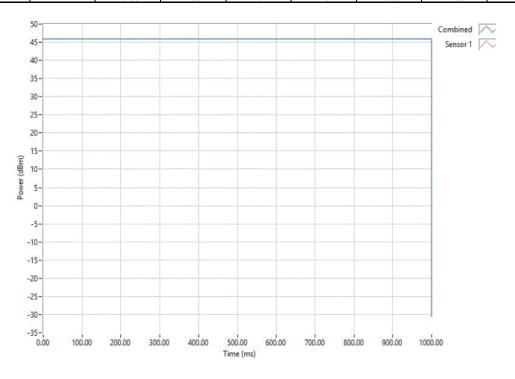
Avg Cond Duty Antenna EIRP Limit

Pwr (dBm) Cycle (%) Gain (dBi) (dBm) (dBm) Results

45.97 100 0 46 1000 Pass



Antenna Port 2 MIMO, Low Channel LTE20, 2120 MHz								
	Avg Cond	Duty	Antenna	EIRP	Limit			
	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results		
	45.98	100	0	46	1000	Pass		

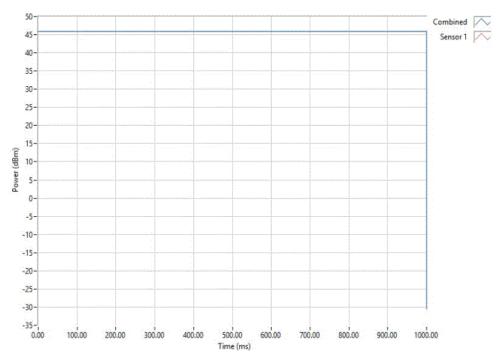


Report No. KMWC0079 30/181

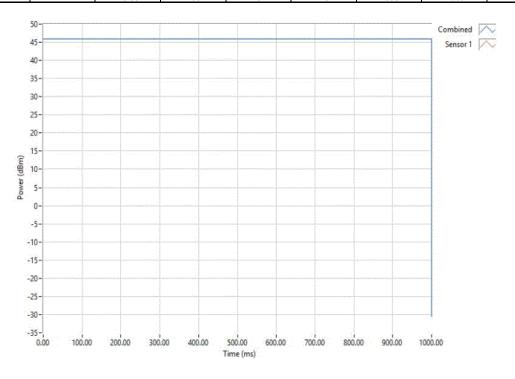


TbtTx 2017.01.27

Antenna Port 2 MIMO, Mid Channel LTE20, 2132.5 MHz Avg Cond Duty Antenna EIRP Limit Pwr (dBm) Cycle (%) Gain (dBi) (dBm) (dBm) Results 45.99 46 1000 Pass



	Aı	ntenna Port 2 MIN	лО, High Channe	I LTE20, 2145 MI	Нz	
	Avg Cond	Duty	Antenna	EIRP	Limit	
<u> </u>	Pwr (dBm)	Cycle (%)	Gain (dBi)	(dBm)	(dBm)	Results
	45.99	100	0	46	1000	Pass



Report No. KMWC0079 31/181



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
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Fairview Microwave	SD3379	AMV	1/11/2017	1/11/2018
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/2/2016	11/2/2017

#### **CLIENT PROVIDED EQUIPMENT**

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

#### **TEST DESCRIPTION**

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

>1st Trace: Peak detector and trace max-hold.
>2nd Trace: The same procedure and settings as was used for conducted Output Power.

Report No. KMWC0079



EUT:					TbtTx 2017.01.27	
	: CWS-3050-04				: KMWC0079	
Serial Number:					: 05/08/17	
	Parallel Wireless Inc			Temperature		
	: Daniel Kim				: 45.6% RH	
Project:				Barometric Pres		
	: Mike Tran		Power: 48VDC	Job Site	: OC13	
EST SPECIFICAT	TIONS		Test Method			
CC 27:2017			ANSI/TIA/EIA-603-D	-2010		
OMMENTS						
ower Level Settin	ng 40W. Reference Level O	Offset: DC Block + 30dB Attenuat	or + 20dB Attenuator + Power Divider + Cab	le Loss = 56.7dB total.		
	M TEST STANDARD					
one						
			11 00			
onfiguration #	1		And chay			
		Signature				
				Value	Limit	
				(dB)	< (dB)	Results
ntenna Port 1						
	Low Channel LTE5, 2112.5			6.98	13	Pass
	Mid Channel LTE5, 2132.5	5 MHz		7.222	13	Pass
	Mid Channel LTE5, 2132.5 High Channel LTE5, 2152.	5 MHz .5 MHz		7.222 7.094	13 13	Pass Pass
	Mid Channel LTE5, 2132.5 High Channel LTE5, 2152. Low Channel LTE10, 2115	5 MHz 5 MHz 5 MHz		7.222 7.094 9.901	13 13 13	Pass Pass Pass
	Mid Channel LTE5, 2132.5 High Channel LTE5, 2152. Low Channel LTE10, 2115 Mid Channel LTE10, 2132.	5 MHz .5 MHz 5 MHz .5 MHz		7.222 7.094 9.901 9.129	13 13 13 13	Pass Pass Pass Pass
	Mid Channel LTE5, 2132.5 High Channel LTE5, 2152. Low Channel LTE10, 2115 Mid Channel LTE10, 2132. High Channel LTE10, 2150	5 MHz .5 MHz 5 MHz .5 MHz 0 MHz		7.222 7.094 9.901 9.129 9.484	13 13 13 13 13	Pass Pass Pass Pass Pass
	Mid Channel LTE5, 2132.5 High Channel LTE5, 2152. Low Channel LTE10, 2115 Mid Channel LTE10, 2132. High Channel LTE10, 2150 Low Channel LTE20, 2120	5 MHz .5 MHz 5 MHz .5 MHz .0 MHz D MHz		7.222 7.094 9.901 9.129 9.484 11.112	13 13 13 13 13 13	Pass Pass Pass Pass Pass Pass
	Mid Channel LTE5, 2132.5 High Channel LTE5, 2152. Low Channel LTE10, 2115 Mid Channel LTE10, 2132. High Channel LTE10, 2150 Low Channel LTE20, 2120 Mid Channel LTE20, 2132.	5 MHz .5 MHz 5 MHz .5 MHz 0 MHz 0 MHz .5 MHz		7.222 7.094 9.901 9.129 9.484 11.112 11.133	13 13 13 13 13 13 13	Pass Pass Pass Pass Pass Pass Pass Pass
	Mid Channel LTE5, 2132.5 High Channel LTE5, 2152. Low Channel LTE10, 2115 Mid Channel LTE10, 2132. High Channel LTE10, 2150 Low Channel LTE20, 2120	5 MHz .5 MHz 5 MHz .5 MHz 0 MHz 0 MHz .5 MHz		7.222 7.094 9.901 9.129 9.484 11.112	13 13 13 13 13 13	Pass Pass Pass Pass Pass Pass
	Mid Channel LTE5, 2132.5 High Channel LTE5, 2152. Low Channel LTE10, 2152. Low Channel LTE10, 2132. High Channel LTE10, 2152. Low Channel LTE20, 2120. Mid Channel LTE20, 2132. High Channel LTE20, 2145	5 MHz .5 MHz .5 MHz .5 MHz 0 MHz MHz .5 MHz .5 MHz		7.222 7.094 9.901 9.129 9.484 11.112 11.133 12.495	13 13 13 13 13 13 13	Pass Pass Pass Pass Pass Pass Pass Pass
	Mid Channel LTE5, 2132.5 High Channel LTE5, 2152. Low Channel LTE10, 2115 Mid Channel LTE10, 2132. High Channel LTE20, 2120. Low Channel LTE20, 2120. Mid Channel LTE20, 2132. High Channel LTE20, 2145.	5 MHz .5 MHz .5 MHz .5 MHz 0 MHz 0 MHz .5 MHz 5 MHz 5 MHz		7.222 7.094 9.901 9.129 9.484 11.112 11.133 12.495	13 13 13 13 13 13 13 13	Pass Pass Pass Pass Pass Pass Pass Pass
	Mid Channel LTE5, 2132.5 High Channel LTE6, 2152. Low Channel LTE10, 2115 Mid Channel LTE10, 2132. High Channel LTE20, 2120 Mid Channel LTE20, 2120 Mid Channel LTE20, 2132. Low Channel LTE20, 2145 Low Channel LTE5, 2112.5 Mid Channel LTE5, 2112.5	5 MHz .5 MHz 5 MHz .5 MHz 0 MHz 0 MHz 5 MHz 5 MHz 5 MHz 5 MHz 5 MHz		7.222 7.094 9.901 9.129 9.484 11.112 11.133 12.495	13 13 13 13 13 13 13 13 13	Pass Pass Pass Pass Pass Pass Pass Pass
	Mid Channel LTE5, 2132.5 High Channel LTE6, 2152. Low Channel LTE10, 2115 Mid Channel LTE10, 2132. High Channel LTE20, 2132. High Channel LTE20, 2120. Mid Channel LTE20, 2142. Low Channel LTE20, 2145. Low Channel LTE5, 2112.5 Mid Channel LTE5, 2132.5 High Channel LTE5, 2132.5 High Channel LTE5, 2132.5	5 MHz .5 MHz .5 MHz .5 MHz .5 MHz .5 MHz .6 MHz .5 MHz		7.222 7.094 9.901 9.129 9.484 11.112 11.133 12.495 7.101 6.995 7.028	13 13 13 13 13 13 13 13 13 13	Pass Pass Pass Pass Pass Pass Pass Pass
	Mid Channel LTE5, 2132.5 High Channel LTE1, 2152. Low Channel LTE10, 2115 Mid Channel LTE10, 2132. High Channel LTE20, 2120 Mid Channel LTE20, 2132. High Channel LTE20, 2145 Low Channel LTE5, 2112.5 Mid Channel LTE5, 2132.5 High Channel LTE5, 2152. Low Channel LTE5, 2152. Low Channel LTE5, 2152.	5 MHz .5 MHz .5 MHz .5 MHz .5 MHz 0 MHz 0 MHz 5 MHz		7.222 7.094 9.901 9.129 9.484 11.112 11.133 12.495  7.101 6.995 7.028 9.615	13 13 13 13 13 13 13 13 13 13 13 13	Pass Pass Pass Pass Pass Pass Pass Pass
	Mid Channel LTE5, 2132.5 High Channel LTE6, 2152. Low Channel LTE10, 2115 Mid Channel LTE10, 2132. High Channel LTE20, 2120 Mid Channel LTE20, 2120. Mid Channel LTE20, 2142. Low Channel LTE20, 2142. Low Channel LTE5, 2112.5 High Channel LTE5, 2112.5 High Channel LTE5, 2152. Low Channel LTE5, 2152. Low Channel LTE5, 2152. Low Channel LTE10, 2132.	5 MHz 5 MHz 5 MHz 5 MHz 0 MHz 0 MHz 15 MHz 5 MHz		7.222 7.094 9.901 9.129 9.484 11.112 11.133 12.495  7.101 6.995 7.028 9.615 9.856	13 13 13 13 13 13 13 13 13 13 13 13 13 1	Pass Pass Pass Pass Pass Pass Pass Pass
	Mid Channel LTE5, 2132.5 High Channel LTE6, 215. Low Channel LTE10, 2132. High Channel LTE10, 2132. High Channel LTE20, 2132. High Channel LTE20, 2120. Mid Channel LTE20, 2145. High Channel LTE5, 2142.5 Mid Channel LTE5, 2132.5 High Channel LTE5, 2132.5 High Channel LTE5, 2152. Low Channel LTE10, 2132. Low Channel LTE10, 2132. Jigh Channel LTE10, 2132.	5 MHz 5 MHz 5 MHz 15 MHz 16 MHz 16 MHz 17 MHz 18 MHz		7.222 7.094 9.901 9.129 9.484 11.112 11.133 12.495 7.101 6.995 7.028 9.615 9.856 9.884	13 13 13 13 13 13 13 13 13 13 13 13 13 1	Pass Pass Pass Pass Pass Pass Pass Pass
	Mid Channel LTE5, 2132.5 High Channel LTE10, 2152. Low Channel LTE10, 2115 Mid Channel LTE10, 2132. High Channel LTE20, 2132. High Channel LTE20, 2132. High Channel LTE20, 2148. Low Channel LTE5, 2112.5 Mid Channel LTE5, 2132.5 High Channel LTE5, 2152. Low Channel LTE10, 2115. Mid Channel LTE10, 2115. Mid Channel LTE10, 2132. High Channel LTE10, 2132.	5 MHz .5 MHz .5 MHz .5 MHz 0 MHz .5 MHz 0 MHz .5 MHz 5 MHz 5 MHz 5 MHz 5 MHz 5 MHz 6 MHz 6 MHz 0 MHz 0 MHz 0 MHz 0 MHz 1 MHz 0 MHz 0 MHz		7.222 7.094 9.901 9.129 9.484 11.112 11.133 12.495  7.101 6.995 7.028 9.615 9.856 9.884 11.432	13 13 13 13 13 13 13 13 13 13 13 13 13 1	Pass Pass Pass Pass Pass Pass Pass Pass
ntenna Port 2	Mid Channel LTE5, 2132.5 High Channel LTE6, 215. Low Channel LTE10, 2132. High Channel LTE10, 2132. High Channel LTE20, 2132. High Channel LTE20, 2120. Mid Channel LTE20, 2145. High Channel LTE5, 2142.5 Mid Channel LTE5, 2132.5 High Channel LTE5, 2132.5 High Channel LTE5, 2152. Low Channel LTE10, 2132. Low Channel LTE10, 2132. Jigh Channel LTE10, 2132.	5 MHz .5 MHz .5 MHz .5 MHz 0 MHz .5 MHz 0 MHz .5 MHz 5 MHz 6 MHz 6 MHz 0 MHz 0 MHz 0 MHz		7.222 7.094 9.901 9.129 9.484 11.112 11.133 12.495 7.101 6.995 7.028 9.615 9.856 9.884	13 13 13 13 13 13 13 13 13 13 13 13 13 1	Pass Pass Pass Pass Pass Pass Pass Pass

Report No. KMWC0079 33/181

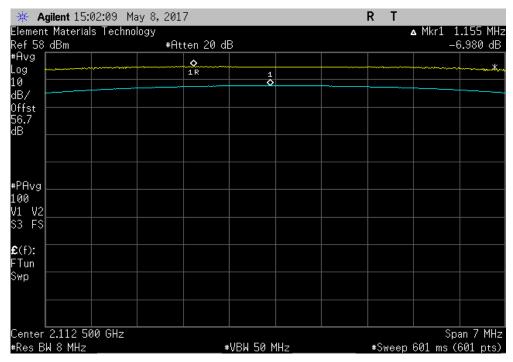


TbtTx 2017.01.27

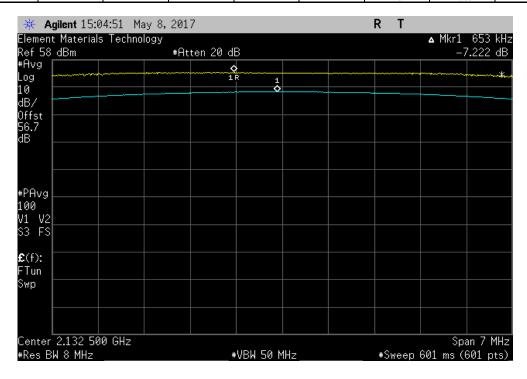
Antenna Port 1, Low Channel LTE5, 2112.5 MHz

Value Limit
(dB) < (dB) Results

6.98 13 Pass



	Antenna Port 1, Mid Channel LTE5, 2132.5 MHz						
					Value	Limit	
					(dB)	< (dB)	Results
i					7.222	13	Pass



Report No. KMWC0079 34/181

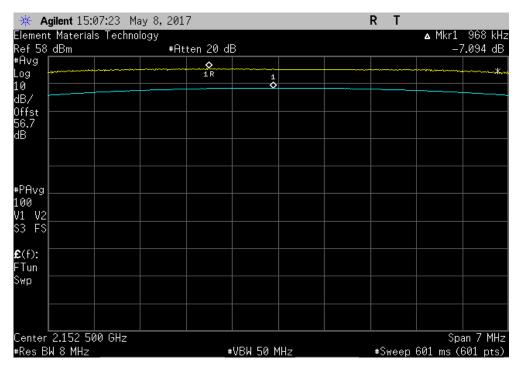


TbtTx 2017.01.27

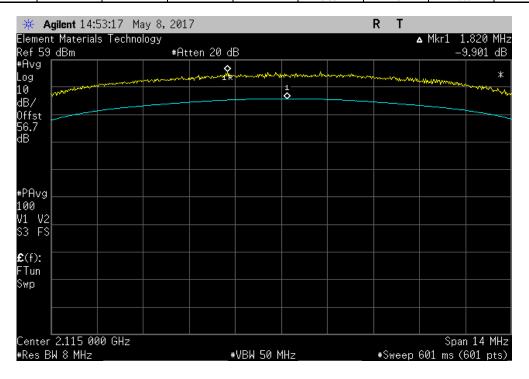
Antenna Port 1, High Channel LTE5, 2152.5 MHz

Value Limit
(dB) < (dB) Results

7.094 13 Pass



Antenna Port 1, Low Channel LTE10, 2115 MHz						
				Value	Limit	
				(dB)	< (dB)	Results
				9.901	13	Pass



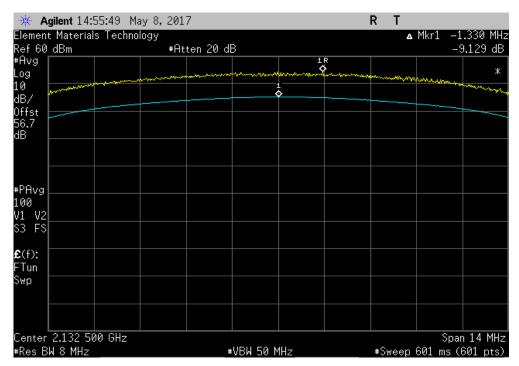
Report No. KMWC0079 35/181



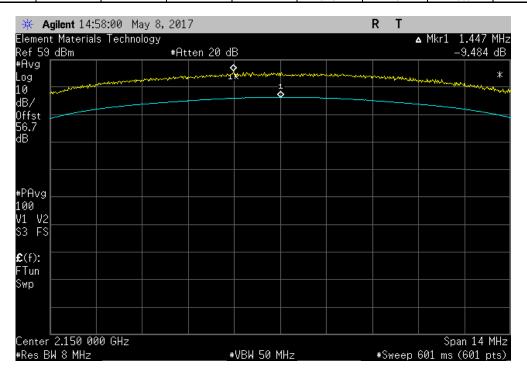
Antenna Port 1, Mid Channel LTE10, 2132.5 MHz

Value Limit
(dB) < (dB) Results

9.129 13 Pass



Antenna Port 1, High Channel LTE10, 2150 MHz						
				Value	Limit	
				(dB)	< (dB)	Results
				9.484	13	Pass



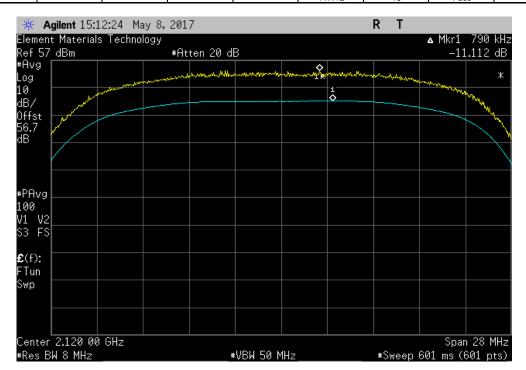
Report No. KMWC0079 36/181

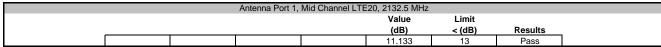


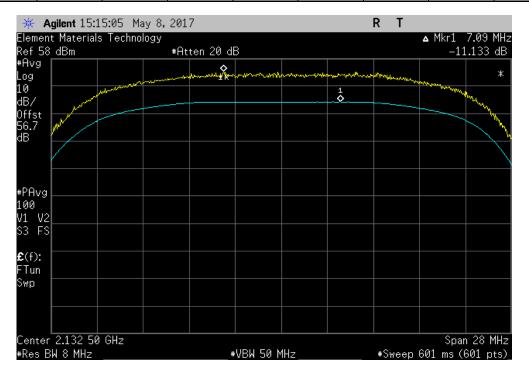
Antenna Port 1, Low Channel LTE20, 2120 MHz

Value Limit
(dB) < (dB) Results

11.112 13 Pass







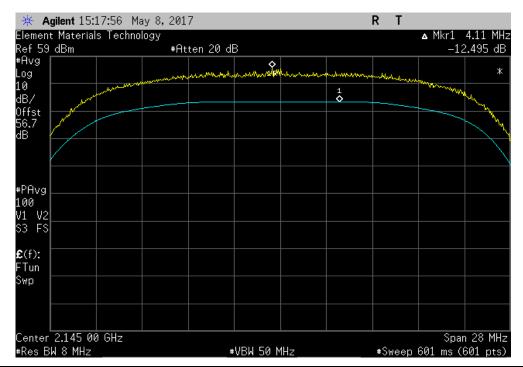
Report No. KMWC0079 37/181



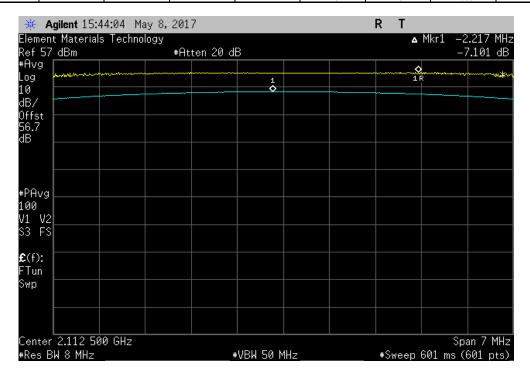
Аntenna Port 1, High Channel LTE20, 2145 MHz

Value Limit
(dB) < (dB) Results

12.495 13 Pass



		Antenna Port 2,	Low Channel LT	E5, 2112.5 MHz				
	Value Limit							
				(dB)	< (dB)	Results		
				7.101	13	Pass		



Report No. KMWC0079 38/181

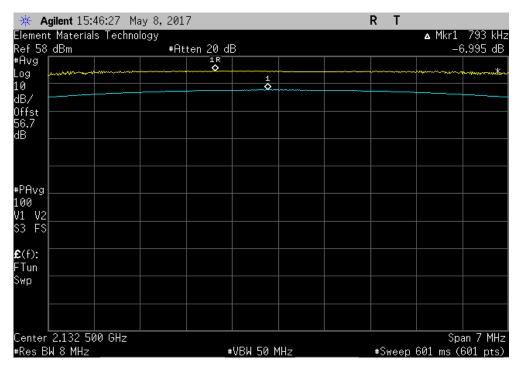


TbtTx 2017.01.27

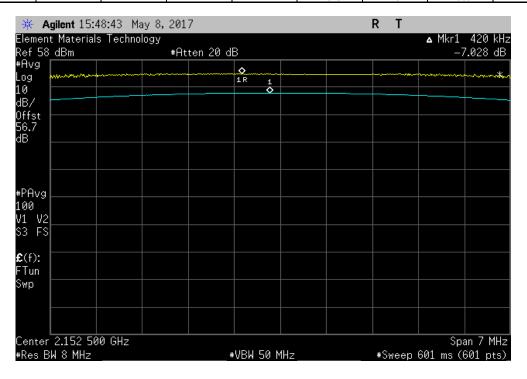
Antenna Port 2, Mid Channel LTE5, 2132.5 MHz

Value
(dB) < (dB) Results

6.995 13 Pass



		Antenna Port 2,	High Channel LT	E5, 2152.5 MHz				
Value Limit								
				(dB)	< (dB)	Results		
				7.028	13	Pass		



Report No. KMWC0079 39/181

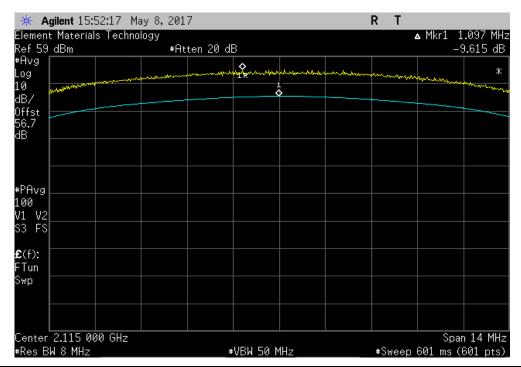


TbtTx 2017.01.27

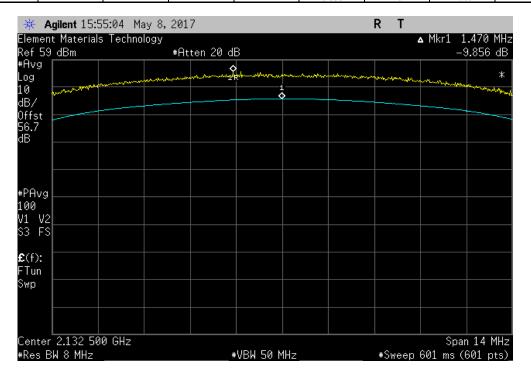
Antenna Port 2, Low Channel LTE10, 2115 MHz

Value Limit
(dB) < (dB) Results

9.615 13 Pass



Antenna Port 2, Mid Channel LTE10, 2132.5 MHz								
				Value	Limit			
				(dB)	< (dB)	Results		
				9.856	13	Pass		



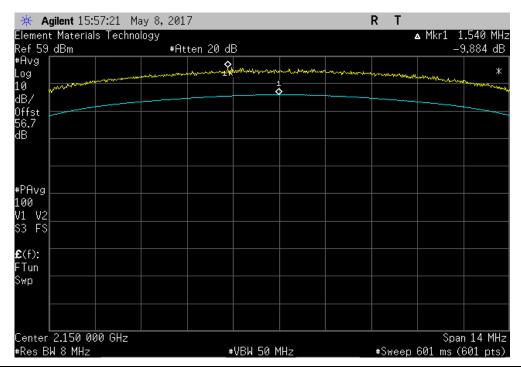
Report No. KMWC0079 40/181



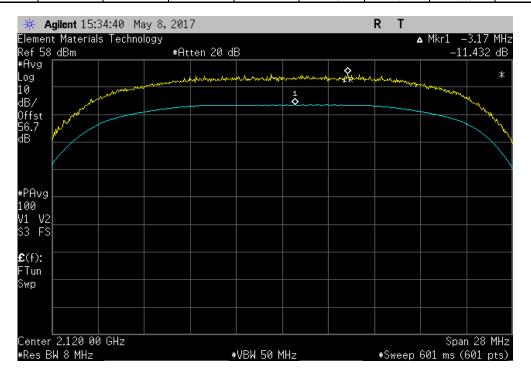
Antenna Port 2, High Channel LTE10, 2150 MHz

Value Limit
(dB) < (dB) Results

9.884 13 Pass



	Antenna Port 2, Low Channel LTE20, 2120 MHz								
					Value	Limit			
					(dB)	< (dB)	Results		
l					11.432	13	Pass	ĺ	



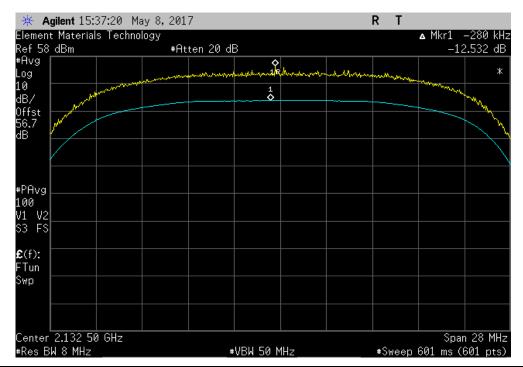
Report No. KMWC0079 41/181



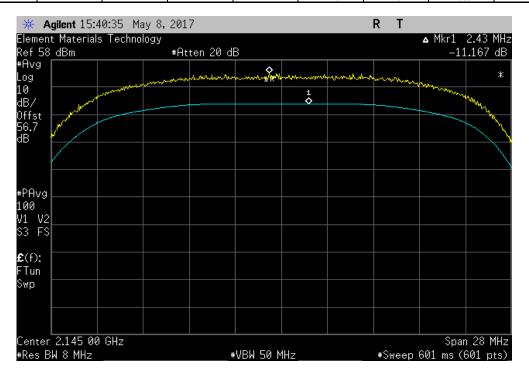
Antenna Port 2, Mid Channel LTE20, 2132.5 MHz

Value Limit
(dB) < (dB) Results

12.532 13 Pass



	Antenna Port 2,	High Channel LT	E20, 2145 MHz		
			Value	Limit	
			(dB)	< (dB)	Results
			11.167	13	Pass



Report No. KMWC0079 42/181



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
Thermometer	Omega Engineering, Inc.	HH311	DUC	10/3/2014	10/3/2017
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPHS-32-3.5-SCT/AC	TBE	NCR	NCR
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Fairview Microwave	SD3379	AMV	1/11/2017	1/11/2018
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/2/2016	11/2/2017

#### **CLIENT PROVIDED EQUIPMENT**

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

#### **TEST DESCRIPTION**

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

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.

Report No. KMWC0079 43/181



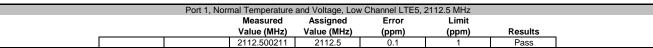
Serial Number:							05/10/17	
Attendees:	Parallel Wireless Inc Daniel Kim					Temperature: Humidity:	47.8% RH	
Project: Tested by:			Power: 48VDC		В	arometric Pres.: Job Site:		
ST SPECIFICAT C 27:2017			Test Method ANSI/TIA/EIA-603-I	D-2010				
			ANS//TIA/EIA-603-1	J-2010				
MMENTS ver Level Settin	ng 40W. Reference Level (	Offset: DC Block + 30dB Atte	nuator + 20dB Attenuator + Power Divider + C	able Loss = 56.7c	IB total.			
VIATIONS FROI	M TEST STANDARD							
nfiguration #	1		Down day					
illiguradon #	'	Signature	Now any					
				Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
t1	Normal Temperature and \	/oltage						
	Low Channel	LTE5, 2112.5 MHz LTE5, 2132.5 MHz		2112.500211 2132.500219	2112.5 2132.5	0.1 0.1	1	Pass Pass
	High Channe	I LTE5, 2152.5 MHz		2152.500218	2152.5	0.1	i	Pass
		LTE5, 2112.5 MHz		2112.500978	2112.5	0.5	1	Pass
	High Channe	LTE5, 2132.5 MHz I LTE5, 2152.5 MHz		2132.500988 2152.500152	2132.5 2152.5	0.5 0.1	1 1	Pass Pass
	Extreme Voltage, 40.8 VA	C LTE5, 2112.5 MHz		2112.500211	2112.5	0.1	1	Pass
	Mid Channel	LTE5, 2132.5 MHz I LTE5, 2152.5 MHz		2132.500201 2152.500202	2132.5 2152.5	0.1 0.1	1	Pass Pass
	Extreme Temperature, -30	°C		2112.49981	2112.5	0.1	1	Pass
	Mid Channel	LTE5, 2112.5 MHz LTE5, 2132.5 MHz		2132.499819	2132.5	0.1	1	Pass
	Extreme Temperature, -20			2152.499834	2152.5	0.1	1	Pass
		LTE5, 2112.5 MHz LTE5, 2132.5 MHz		2112.500111 2132.500119	2112.5 2132.5	0.1 0.1	1 1	Pass Pass
	High Channe Extreme Temperature, -10	I LTE5, 2152.5 MHz °C		2152.500135	2152.5	0.1	1	Pass
	Low Channel	LTE5, 2112.5 MHz LTE5, 2132.5 MHz		2112.500211 2132.500587	2112.5 2132.5	0.1 0.3	1	Pass Pass
		I LTE5, 2152.5 MHz		2152.500202	2152.5	0.1	i	Pass
	Low Channe	LTE5, 2112.5 MHz		2112.500945	2112.5	0.5	1	Pass
		LTE5, 2132.5 MHz I LTE5, 2152.5 MHz		2132.500938 2152.500953	2132.5 2152.5	0.4 0.4	1 1	Pass Pass
	Extreme Temperature, +10 Low Channel	PC LTE5, 2112.5 MHz		2112.500983	2112.5	0.5	1	Pass
	Mid Channel	LTE5, 2132.5 MHz I LTE5, 2152.5 MHz		2132.501005 2152.501004	2132.5 2152.5	0.5 0.5	1	Pass Pass
	Extreme Temperature, +20	l°C					1	Pass
	Mid Channel	LTE5, 2112.5 MHz LTE5, 2132.5 MHz		2112.500194 2132.50022	2112.5 2132.5	0.1 0.1	1	Pass
	High Channe Extreme Temperature, +30	I LTE5, 2152.5 MHz I°C		2152.500235	2152.5	0.1	1	Pass
		LTE5, 2112.5 MHz LTE5, 2132.5 MHz		2112.500211 2132.500218	2112.5 2132.5	0.1 0.1	1 1	Pass Pass
		I LTE5, 2152.5 MHz		2152.500202	2152.5	0.1	1	Pass
	Low Channel	LTE5, 2112.5 MHz LTE5, 2132.5 MHz		2112.500211 2132.500219	2112.5 2132.5	0.1 0.1	1	Pass Pass
	High Channe	I LTE5, 2152.5 MHz		2152.500213	2152.5	0.1	<u>i</u>	Pass
		LTE5, 2112.5 MHz		2112.500211	2112.5	0.1	1	Pass
		LTE5, 2132.5 MHz I LTE5, 2152.5 MHz		2132.500203 2152.500218	2132.5 2152.5	0.1 0.1	1 1	Pass Pass
rt 2	Normal Temperature and \	/oltage						
	Low Channe	LTE5, 2112.5 MHz LTE5, 2132.5 MHz		2112.500207 2132.50022	2112.5 2132.5	0.1 0.1	1	Pass Pass
	High Channe	LTE5, 2152.5 MHz		2152.500218	2152.5	0.1	i	Pass
		LTE5, 2112.5 MHz		2112.500211	2112.5	0.1	1	Pass
		LTE5, 2132.5 MHz I LTE5, 2152.5 MHz		2132.500202 2152.500185	2132.5 2152.5	0.1 0.1	1 1	Pass Pass
	Extreme Voltage, 40.8 VA	LTE5, 2112.5 MHz		2112.500206	2112.5	0.1	1	Pass
	Mid Channel	LTE5, 2132.5 MHz I LTE5, 2152.5 MHz		2132.50022 2152.500201	2132.5 2152.5	0.1	1	Pass Pass
	Extreme Temperature, -30	°C						
	Mid Channel	LTE5, 2112.5 MHz LTE5, 2132.5 MHz		2112.49981 2132.499802	2112.5 2132.5	0.1 0.1	1 1	Pass Pass
	High Channe Extreme Temperature, -20	I LTE5, 2152.5 MHz °C		2152.499801	2152.5	0.1	1	Pass
	Low Channel	LTE5, 2112.5 MHz LTE5, 2132.5 MHz		2112.500144 2132.500136	2112.5 2132.5	0.1 0.1	1	Pass Pass
		I LTE5, 2152.5 MHz		2152.500135	2152.5	0.1	1	Pass
	Low Channe	LTE5, 2112.5 MHz		2112.5006	2112.5	0.3	1	Pass
	High Channe	LTE5, 2132.5 MHz I LTE5, 2152.5 MHz		2132.500186 2152.500586	2132.5 2152.5	0.1 0.3	1 1	Pass Pass
	Extreme Temperature, 0°C Low Channel	LTE5, 2112.5 MHz		2112.500917	2112.5	0.4	1	Pass
		LTE5, 2132.5 MHz I LTE5, 2152.5 MHz		2132.500938 2152.500937	2132.5 2152.5	0.4 0.4	1 1	Pass Pass
	Extreme Temperature, +10			2112.500983	2112.5	0.5	1	Pass
	Mid Channel	LTE5, 2132.5 MHz		2132.500988 2132.500987	2132.5	0.5 0.5 0.5	1	Pass
	Extreme Temperature, +20				2152.5			Pass
	Mid Channel	LTE5, 2112.5 MHz LTE5, 2132.5 MHz		2112.500211 2132.500219	2112.5 2132.5	0.1 0.1	1	Pass Pass
		I LTE5, 2152.5 MHz		2152.500218	2152.5	0.1	1	Pass
	Low Channel	LTE5, 2112.5 MHz		2112.500211	2112.5	0.1	1	Pass
	High Channe	LTE5, 2132.5 MHz ILTE5, 2152.5 MHz		2132.500218 2152.500202	2132.5 2152.5	0.1 0.1	1	Pass Pass
	Extreme Temperature, +40 Low Channel	LTE5, 2112.5 MHz		2112.500211	2112.5	0.1	1	Pass
	Mid Channel	LTE5, 2132.5 MHz I LTE5, 2152.5 MHz		2132.500203 2152.500219	2132.5 2152.5	0.1 0.1	1	Pass Pass
	Extreme Temperature, +50	°C			2112.5	0.1		Pass
	Low Channe	LTE5, 2112.5 MHz LTE5, 2132.5 MHz		2112.500223	2112.5	U.T	1	Pass

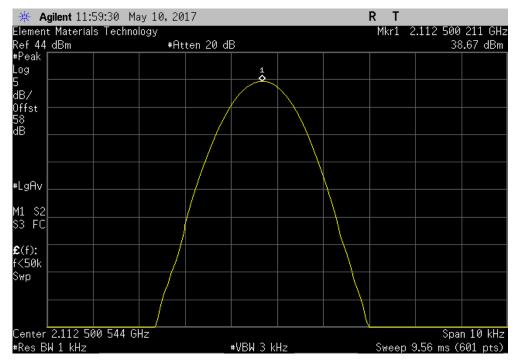
Report No. KMWC0079 44/181



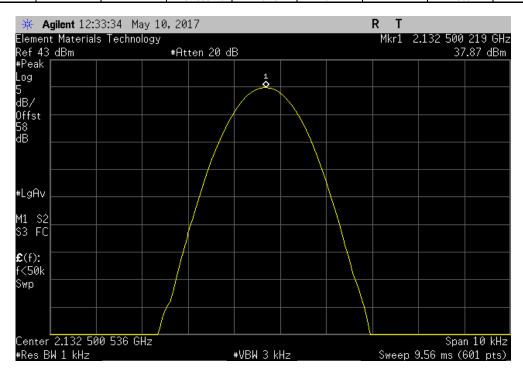
TbtTx 2017.01.27

Port 1, Normal Temperature and Voltage, Low Channel LTE5, 2112.5 MHz





	Port 1, Norma	al Temperature	and Voltage, Mic	Channel LTE5, 2	2132.5 MHz			
Measured Assigned Error Limit								
Value (MHz) Value (MHz) (ppm) (ppm) Results								
		2132.500219	2132.5	0.1	1	Pass		

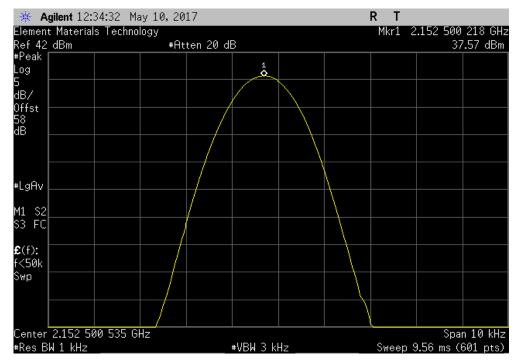


Report No. KMWC0079 45/181

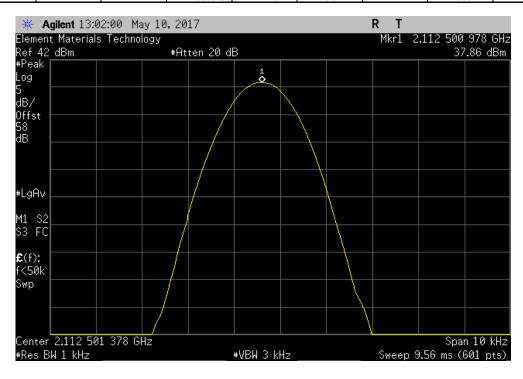


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Port 1, Normal Temperature and Voltage, High Channel LTE5, 2152.5 MHz												
	Limit											
	(ppm)	Results										
	2152.	500218	2152.5									



	Port 1, Ext	reme Voltage, 5	55.2 VDC, Low C	hannel LTE5, 21	12.5 MHz				
Measured Assigned Error Limit									
Value (MHz) Value (MHz) (ppm) (ppm) Results									
	2112.500978 2112.5 0.5 1 Pass								



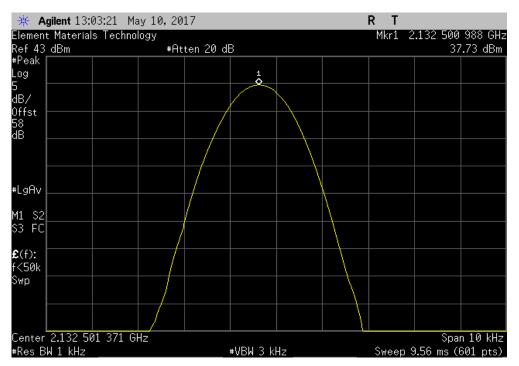
Report No. KMWC0079 46/181



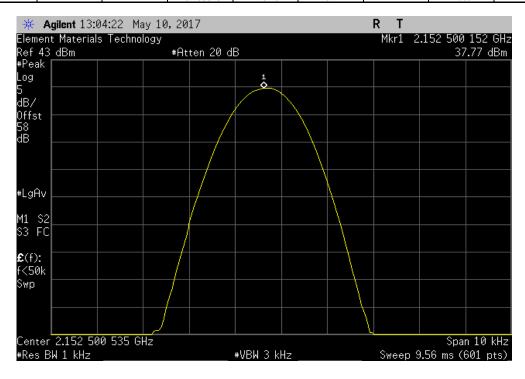
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Port 1, Extreme Voltage, 55.2 VDC, Mid Channel LTE5, 2132.5 MHz

Port 1, Extreme Voltage, 55.2 VDC, Mid Channel LTE5, 2132.5 MHz									
	Measured Assigned Error Limit								
			Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results		
		1	Pass						



	Port 1, Extrem	e Voltage, 5	55.2 VDC, High C	hannel LTE5, 21	52.5 MHz	
	M	easured	Assigned	Error	Limit	
	Va	lue (MHz)	Value (MHz)	(ppm)	(ppm)	Results
1	215	52.500152	2152.5	0.1	1	Pass

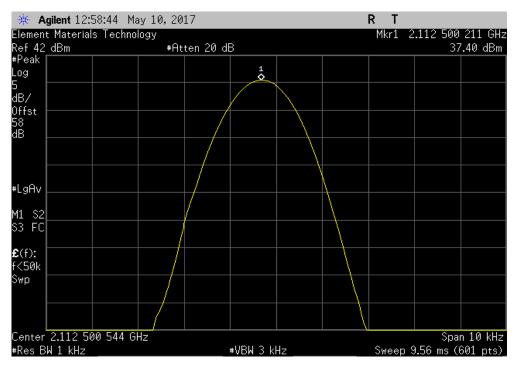


Report No. KMWC0079 47/181

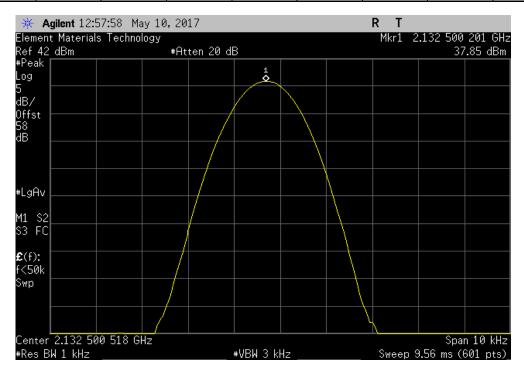


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	Port 1, Extreme Voltage	40.8 VAC, Low C	hannel LTE5, 211	2.5 MHz		
	Measured	Assigned	Error	Limit		
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
	2112.500211	2112.5	0.1	1	Pass	



	Port 1, E	xtreme Voltage,	40.8 VAC, Mid Cl	nannel LTE5, 213	2.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		2132.500201	2132.5	0.1	1	Pass

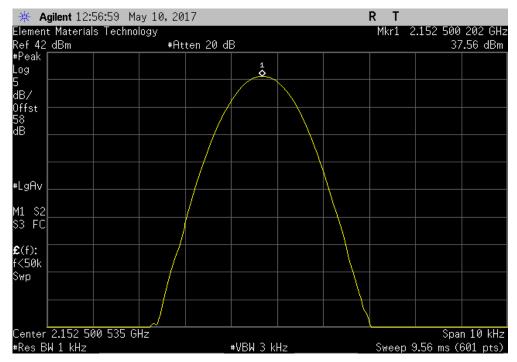


Report No. KMWC0079 48/181

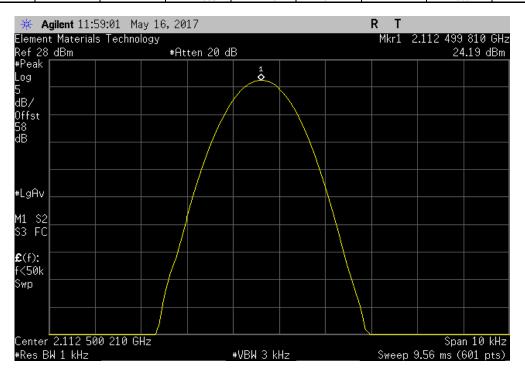


Tb/fb/2017.01.27 XMit 2017.02.08

	Port 1, Extreme Voltage,	40.8 VAC, High C	hannel LTE5, 21	52.5 MHz		
	Measured	Assigned	Error	Limit		
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
	2152.500202	2152.5	0.1	1	Pass	



	Port 1, Ex	treme Temperati	ure, -30°C, Low C	channel LTE5, 21	12.5 MHz	
		Measured	Assigned	Error	Limit	
_		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		2112.49981	2112.5	0.1	1	Pass



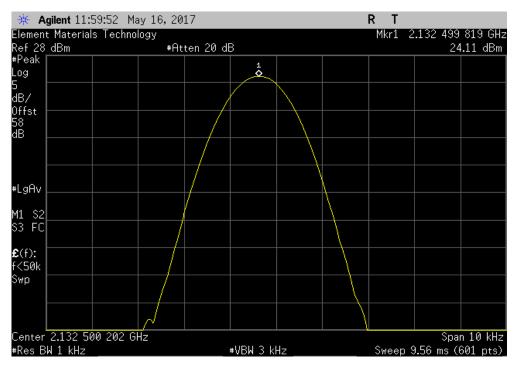
Report No. KMWC0079 49/181



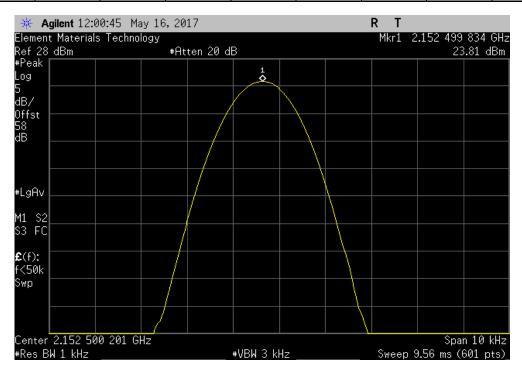
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Port 1 Extreme Temperature -30°C Mid Channel I TE5 2132 5 MHz

	Port 1, Ex	ktreme Temperati	ure, -30°C, Mid C	hannel LTE5, 213	32.5 MHz		
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
		2132.499819	2132.5	0.1	1	Pass	



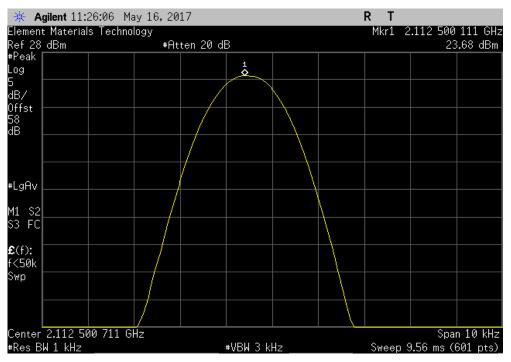
	Port 1, Ex	treme Temperatu	ıre, -30°C, High (	Channel LTE5, 21	52.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		2152.499834	2152.5	0.1	1	Pass



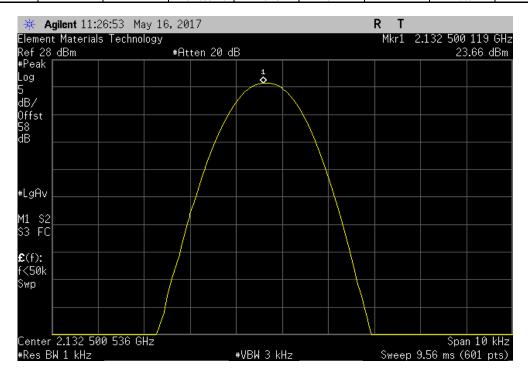
Report No. KMWC0079 50/181



TbtTx 2017.01.27



	Port 1, Ex	treme Temperati	ure, -20°C, Mid C	hannel LTE5, 21	32.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		2132.500119	2132.5	0.1	1	Pass



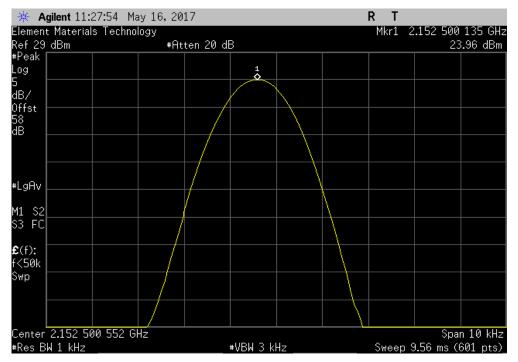
Report No. KMWC0079 51/181



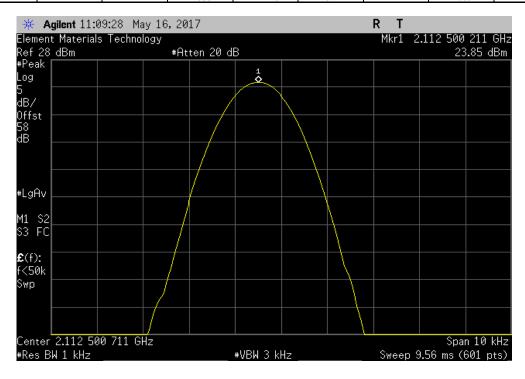
Textx 2017.01.27 XMA 2017.02.08

Port 1, Extreme Temperature, -20°C, High Channel LTE5, 2152.5 MHz

	Port 1, Extreme Tempera	ture, -20°C, High	Channel LTE5, 2°	152.5 MHz	
	Measured	Assigned	Error	Limit	
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
	2152.500135	2152.5	0.1	1	Pass



	Port 1, Ex	treme Temperati	ure, -10°C, Low C	Channel LTE5, 21	12.5 MHz	
		Measured	Assigned	Error	Limit	
_		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
ĺ	-	2112.500211	2112.5	0.1	1	Pass

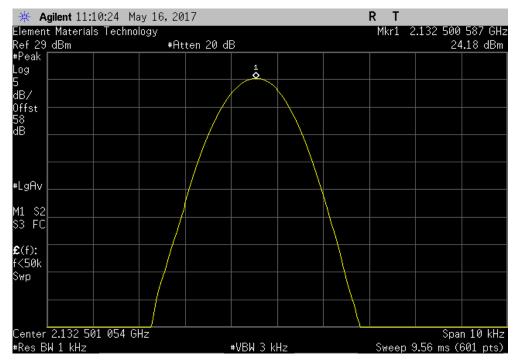


Report No. KMWC0079 52/181

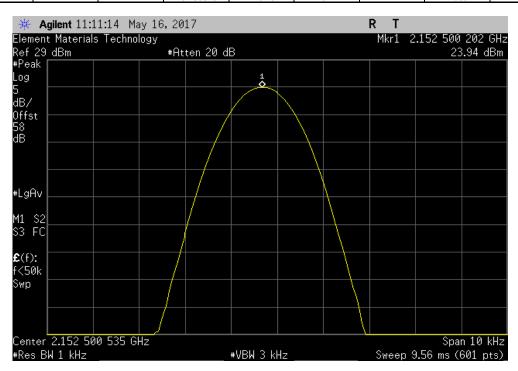


TbtTx 2017.01.27

	Port 1, Extr	reme Temperat	ure, -10°C, Mid C	hannel LTE5, 21	32.5 MHz		
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
		2132.500587	2132.5	0.3	1	Pass	



	Port 1, Ex	treme Temperatu	ıre, -10°C, High (	Channel LTE5, 21	52.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		2152.500202	2152.5	0.1	1	Pass

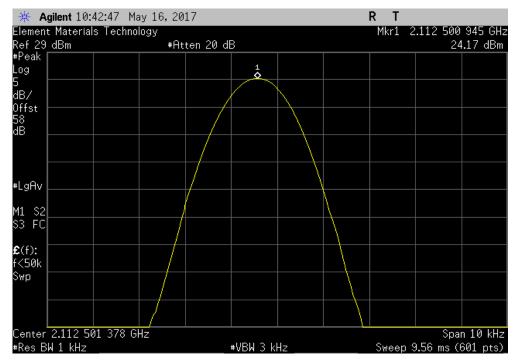


Report No. KMWC0079 53/181

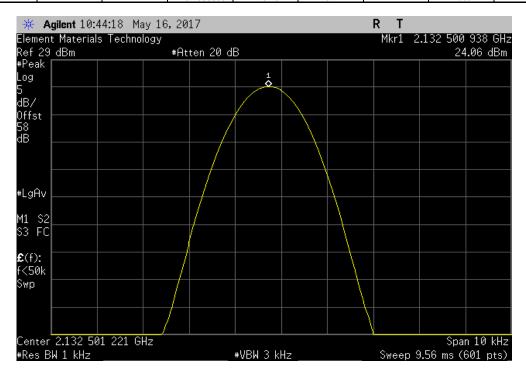


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Port 1, Extreme Temperature, 0°C, Low Channel LTE5, 2112.5 MHz										
Measured Assigned Error Limit										
Value (MHz) Value (MHz) (ppm) (ppm) Results										
2112.500945   2112.5   0.5   1   Pass										



	Port 1, E	xtreme Tempera	ture, 0°C, Mid Ch	nannel LTE5, 213	2.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		2132.500938	2132.5	0.4	1	Pass

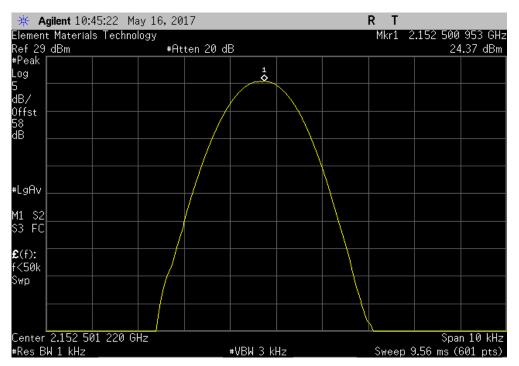


Report No. KMWC0079 54/181

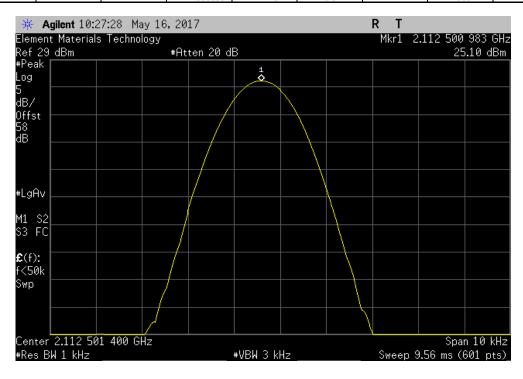


Tb/Tb 2017.01.27 XMM 2017.02.08

	Port 1, Extreme Tempe	ature, 0°C, High C	hannel LTE5, 215	52.5 MHz	
	Measured	Assigned	Error	Limit	
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
	2152.500953	2152.5	0.4	1	Pass



	Port 1, Ex	treme Temperatu	re, +10°C, Low (	Channel LTE5, 21	12.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
_		2112.500983	2112.5	0.5	1	Pass

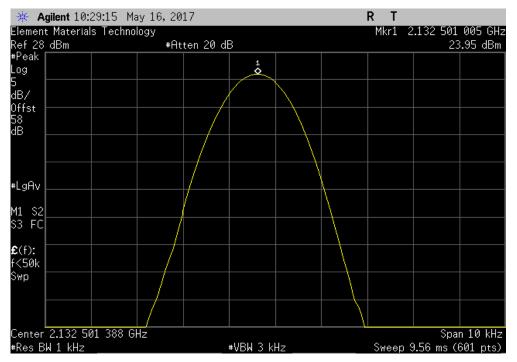


Report No. KMWC0079 55/181

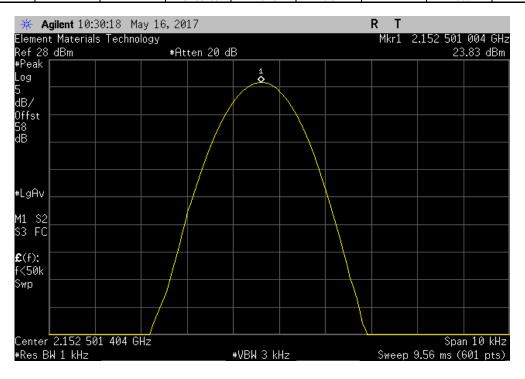


TMTs 2017.01.27 XMR 2017.02.08

Port 1, Extreme Temperature, +10°C, Mid Channel LTE5, 2132.5 MHz										
	Measured Assigned Error Limit									
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results				
	2132.501005 2132.5 0.5 1 Pass									



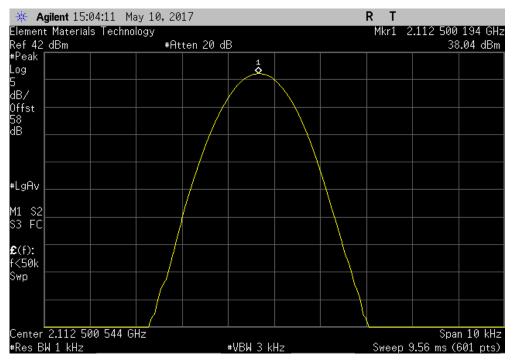
	Port 1, Ext	reme Temperatu	re, +10°C, High (	Channel LTE5, 21	152.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		2152.501004	2152.5	0.5	1	Pass



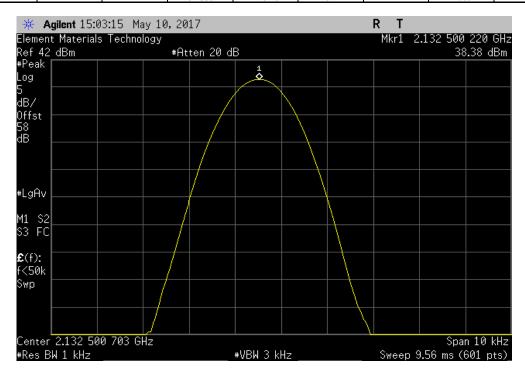
Report No. KMWC0079 56/181



TbtTx 2017.01.27



	Port 1, Ex	treme Temperatu	ure, +20°C, Mid C	Channel LTE5, 21	32.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		2132.50022	2132.5	0.1	1	Pass

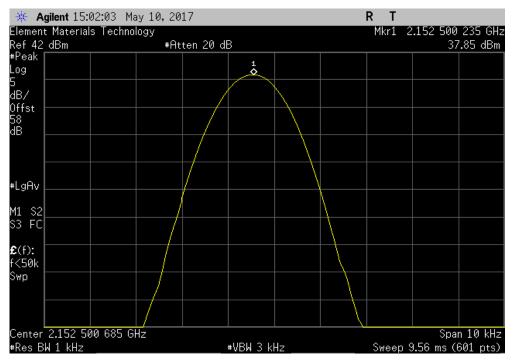


Report No. KMWC0079 57/181

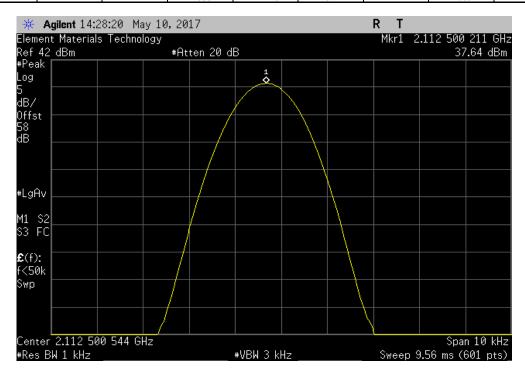


Tbt/t 2017.01.27 XMe 2017.02.08

		Port 1, Ex	treme Temperatu	re, +20°C, High (	Channel LTE5, 21	52.5 MHz				
			Measured	Assigned	Error	Limit				
	Value (MHz) Value (MHz) (ppm) (ppm) Results									
i [			2152.500235	2152.5	0.1	1	Pass	1		



	Port 1, Ex	treme Temperatu	re, +30°C, Low (	Channel LTE5, 21	12.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		2112.500211	2112.5	0.1	1	Pass

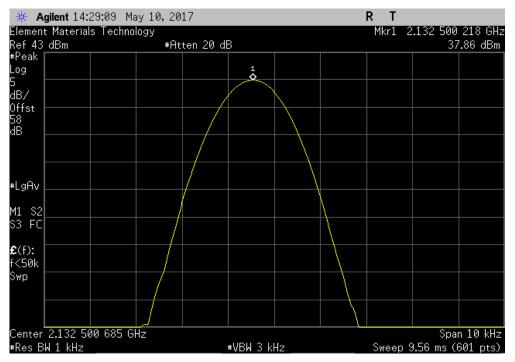


Report No. KMWC0079 58/181

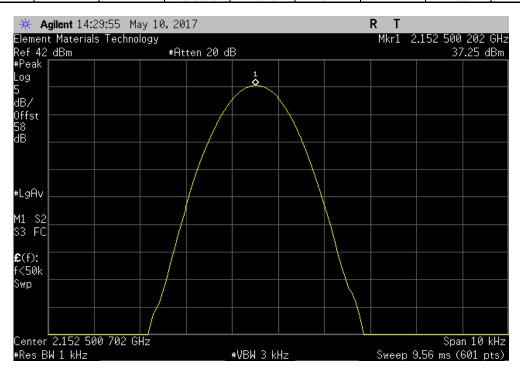


TMTv.2017.01.27 XM8.2017.02.08

Port 1, Extreme Temperature, +30°C, Mid Channel LTE5, 2132.5 MHz											
Measured Assigned Error Limit											
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results					
		2132.500218	2132.5	0.1	1	Pass					



	Port 1, Extr	reme Temperatu	re, +30°C, High (	Channel LTE5, 21	152.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		2152.500202	2152.5	0.1	1	Pass

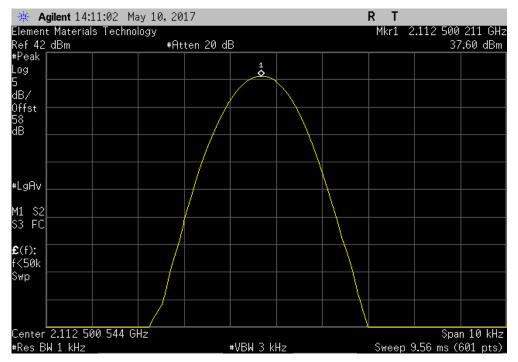


Report No. KMWC0079 59/181

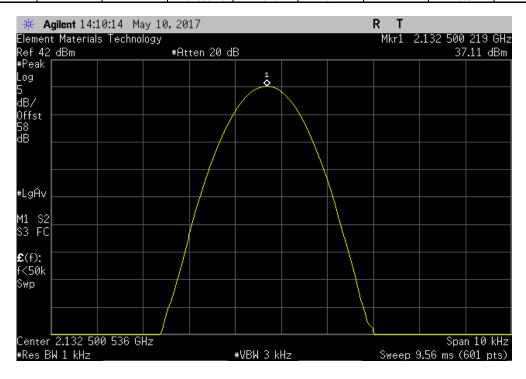


TbtTx 2017.01.27

Port 1, Extreme Temperature, +40°C, Low Channel LTE5, 2112.5 MHz										
Measured Assigned Error Limit										
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results				
2112.500211 2112.5 0.1 1 Pass										



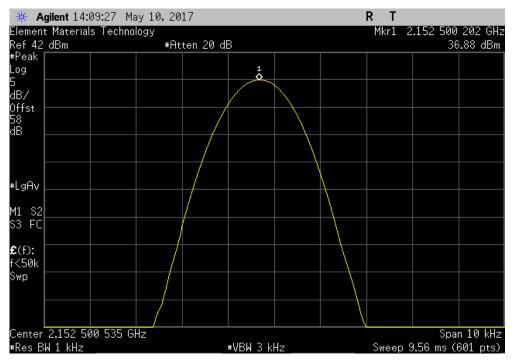
Port 1, Extreme Temperature, +40°C, Mid Channel LTE5, 2132.5 MHz								
Measured Assigned Error Limit								
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results		
		2132.500219	2132.5	0.1	1	Pass		



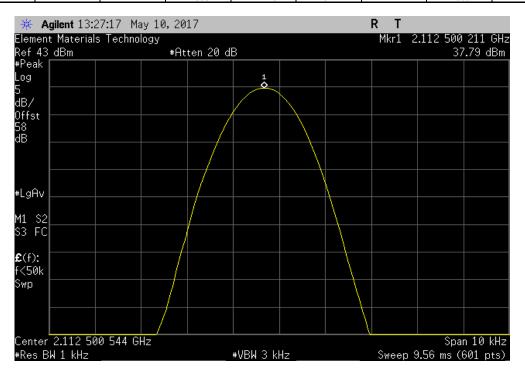
Report No. KMWC0079 60/181



TbtTx 2017.01.27



Port 1, Extreme Temperature, +50°C, Low Channel LTE5, 2112.5 MHz								
		Measured	Assigned	Error	Limit			
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results		
		2112.500211	2112.5	0.1	1	Pass		



Report No. KMWC0079 61/181

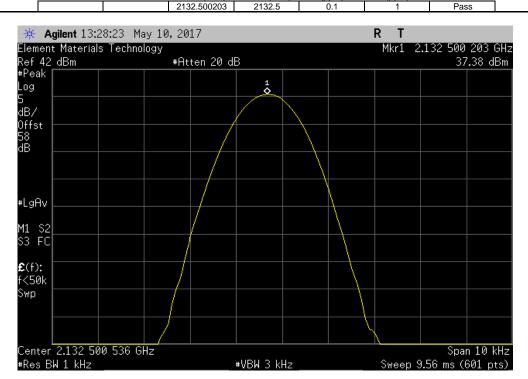


TbtTx 2017.01.27

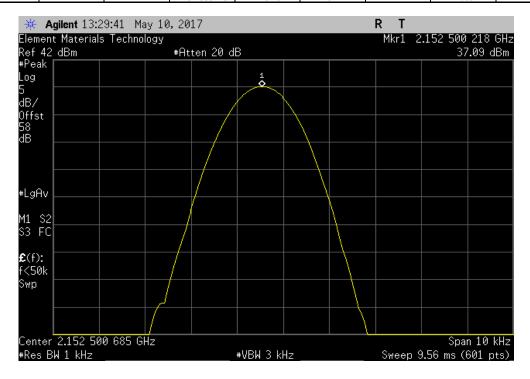
Port 1, Extreme Temperature, +50°C, Mid Channel LTE5, 2132.5 MHz

Measured Assigned Error Limit

Value (MHz) Value (MHz) (ppm) (ppm) Results



	Port 1, Ext	treme Temperatu	re, +50°C, High (	Channel LTE5, 21	52.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		2152.500218	2152.5	0.1	1	Pass



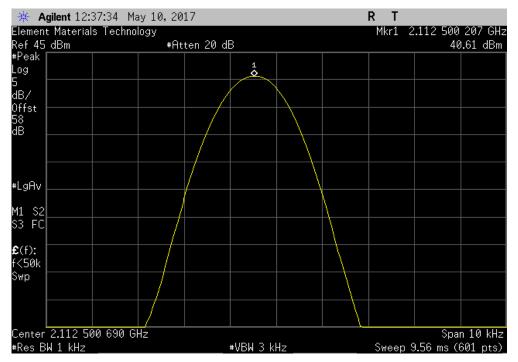
Report No. KMWC0079 62/181



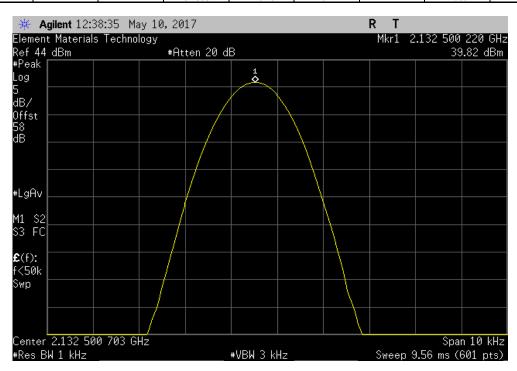
Tbut's 2017.01 27 XMM 2017.02.01

Port 2, Normal Temperature and Voltage, Low Channel LTE5, 2112.5 MHz

Port 2, Normal Temperature and Voltage, Low Channel LTE5, 2112.5 MHz									
	Measured Assigned Error Limit								
			Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results		
		Pass							



	Port 2, Normal Temperature and Voltage, Mid Channel LTE5, 2132.5 MHz								
	Measured Assigned Error Limit								
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results			
i	2132.50022 2132.5 0.1 1 Pa								

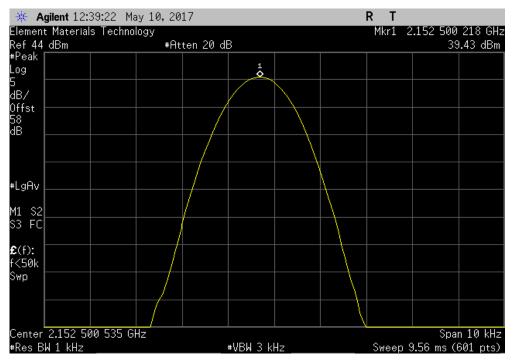


Report No. KMWC0079 63/181

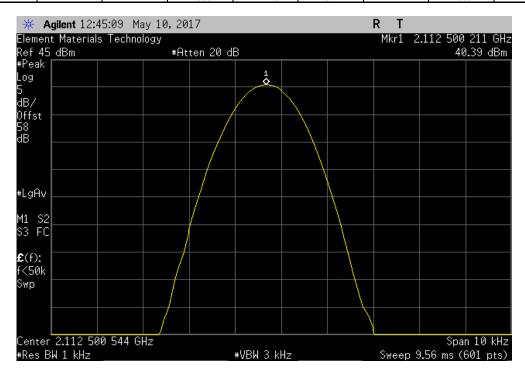


TMTs 2017.01.27 XMR 2017.02.08

Port 2, Normal Temperature and Voltage, High Channel LTE5, 2152.5 MHz								
Measured Assigned Error Limit								
Value (MHz) Value (MHz) (ppm) (ppm)								
	2152	2.500218	2152.5	0.1	1	Pass		



Port 2, Extreme Voltage, 55.2 VDC, Low Channel LTE5, 2112.5 MHz								
	Measured	Assigned	Error	Limit				
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results			
	2112.500211	2112.5	0.1	1	Pass			

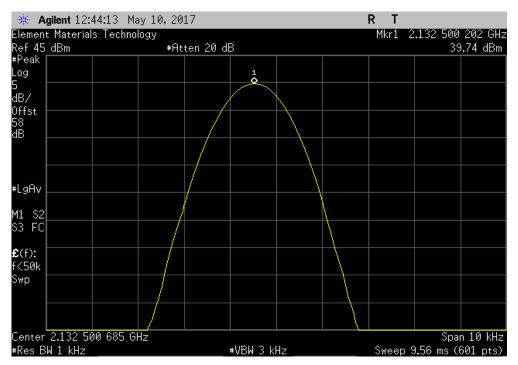


Report No. KMWC0079 64/181

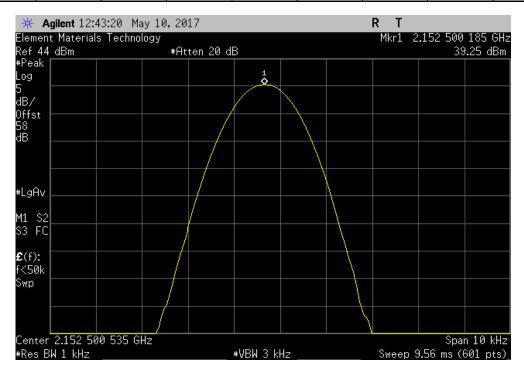


TMTk 2017.01.27 XMM 2017.02.08

Port 2, Extreme Voltage, 55.2 VDC, Mid Channel LTE5, 2132.5 MHz								
Measured Assigned Error Limit								
Value (MHz) Value (MHz) (ppm) (ppm) Re								
	213	2.500202	2132.5	0.1	1	Pass		



Port 2, Extreme Voltage, 55.2 VDC, High Channel LTE5, 2152.5 MHz								
		Measured	Assigned	Error	Limit			
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results		
		2152.500185	2152.5	0.1	1	Pass		

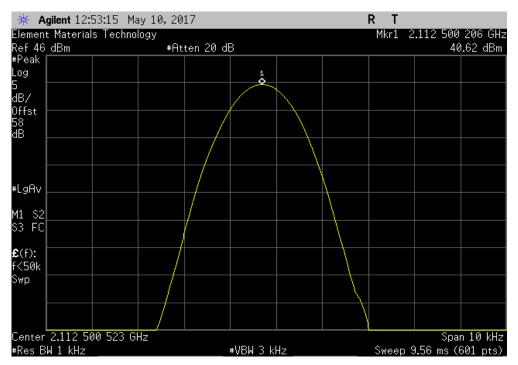


Report No. KMWC0079 65/181

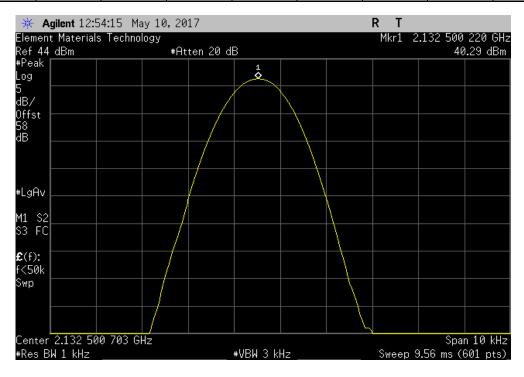


TMTk 2017.01.27 XMM 2017.02.08

Port 2, Extreme Voltage, 40.8 VAC, Low Channel LTE5, 2112.5 MHz							
Measured Assigned Error Limit							
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results		
	2112.500206	2112.5	0.1	1	Pass		



Port 2, Extreme Voltage, 40.8 VAC, Mid Channel LTE5, 2132.5 MHz								
Measured Assigned Error Limit								
	Value	(MHz)	Value (MHz)	(ppm)	(ppm)	Results		
	2132.	50022	2132.5	0.1	1	Pass		

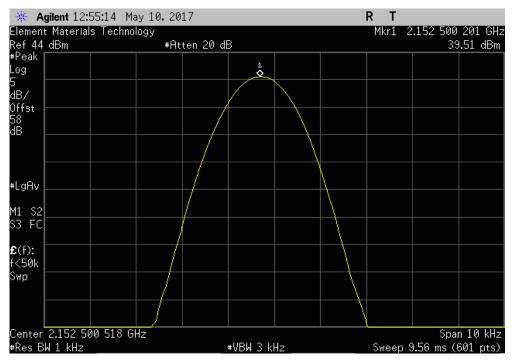


Report No. KMWC0079 66/181

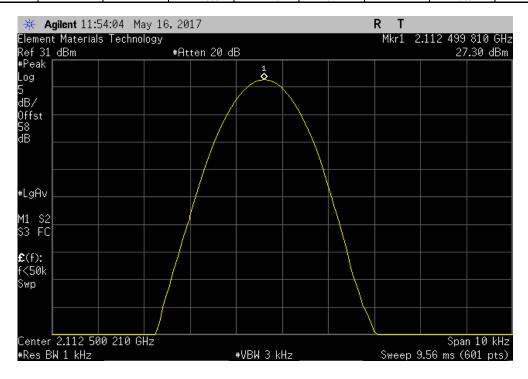


Tb/fb/2017.01.27 XMM:2017.02.08

Port 2, Extreme Voltage, 40.8 VAC, High Channel LTE5, 2152.5 MHz									
	Measured Assigned Error Limit								
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results			
1		2152.500201	2152.5	0.1	1	Pass			



Port 2, Extreme Temperature, -30°C, Low Channel LTE5, 2112.5 MHz								
	Me	asured	Assigned	Error	Limit			
	Valu	ıe (MHz)	Value (MHz)	(ppm)	(ppm)	Results		
	211:	2.49981	2112.5	0.1	1	Pass		



Report No. KMWC0079 67/181

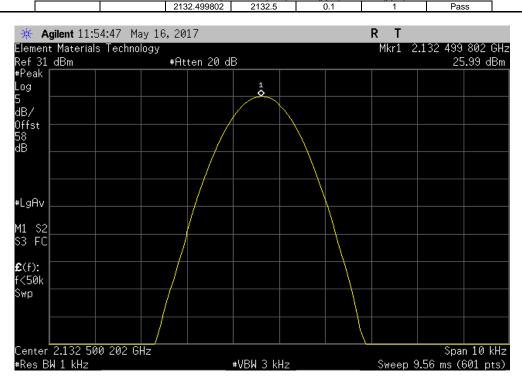


TbtTx 2017.01.27

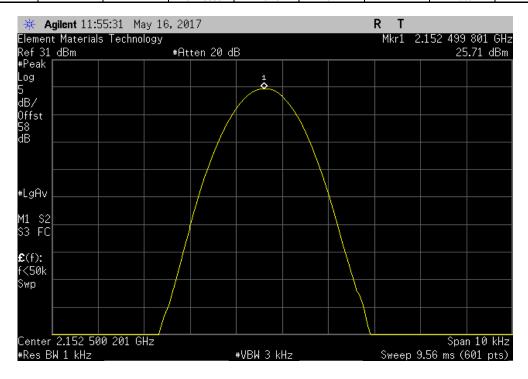
Port 2, Extreme Temperature, -30°C, Mid Channel LTE5, 2132.5 MHz

Measured Assigned Error Limit

Value (MHz) Value (MHz) (ppm) (ppm) Results



	Port 2, Extreme Temperature, -30°C, High Channel LTE5, 2152.5 MHz							
			Measured	Assigned	Error	Limit		
_			Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
ı			2152.499801	2152.5	0.1	1	Pass	

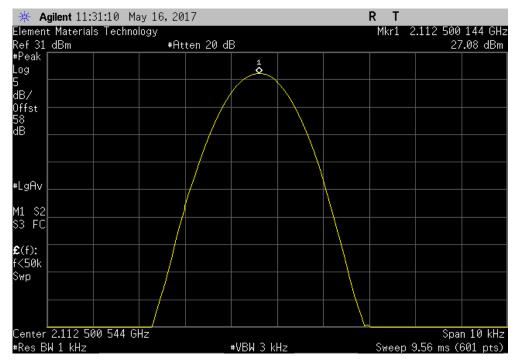


Report No. KMWC0079 68/181

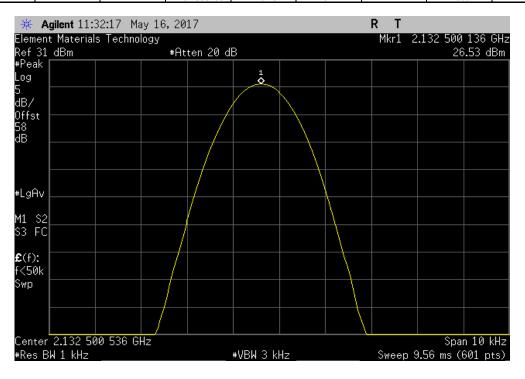


TbtTx 2017.01.27

Port 2, Extreme Temperature, -20°C, Low Channel LTE5, 2112.5 MHz								
		Measured	Assigned	Error	Limit			
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results		
		2112.500144	2112.5	0.1	1	Pass		



Port 2, Extreme Temperature, -20°C, Mid Channel LTE5, 2132.5 MHz								
		Measured	Assigned	Error	Limit			
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results		
		2132.500136	2132.5	0.1	1	Pass		

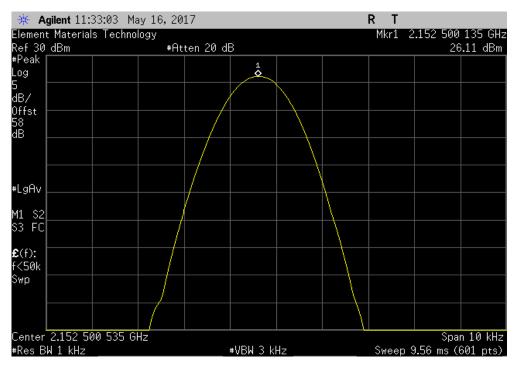


Report No. KMWC0079 69/181

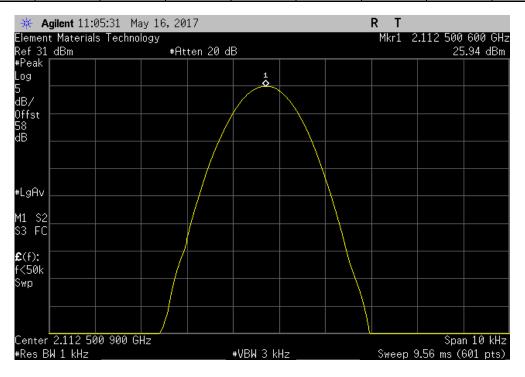


Theft's 2017.01.27 XAMI 2017.02.08

	Port 2, Extreme Temp	erature, -20°C, High	Channel LTE5, 21	152.5 MHz		
	Measure	d Assigned	Error	Limit		
	Value (MF	z) Value (MHz)	(ppm)	(ppm)	Results	
I	2152.5001	35 2152.5	0.1	1	Pass	



	Port 2, Extreme Temperature, -10°C, Low Channel LTE5, 2112.5 MHz							
		Measured	Assigned	Error	Limit			
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results		
		2112.5006	2112.5	0.3	1	Pass		

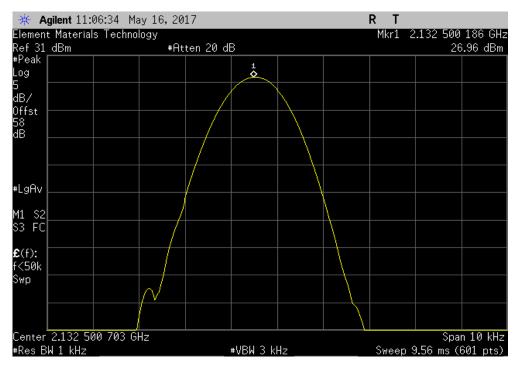


Report No. KMWC0079 70/181

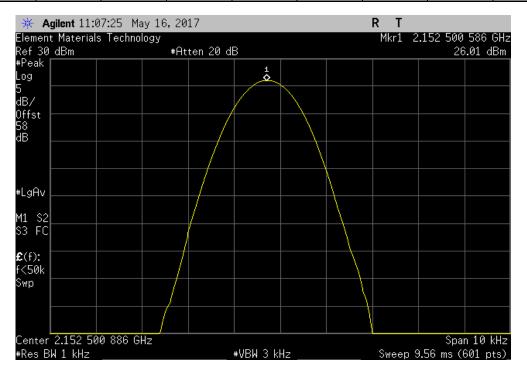


Texts 2017.01.27 XMil 2017.02.08

	Port 2, Ex	ktreme Temperati	ure, -10°C, Mid C	hannel LTE5, 213	32.5 MHz		
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
		2132.500186	2132.5	0.1	1	Pass	



	Port 2, Extreme Temperature, -10°C, High Channel LTE5, 2152.5 MHz							
		Measured	Assigned	Error	Limit			
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results		
		2152.500586	2152.5	0.3	1	Pass		

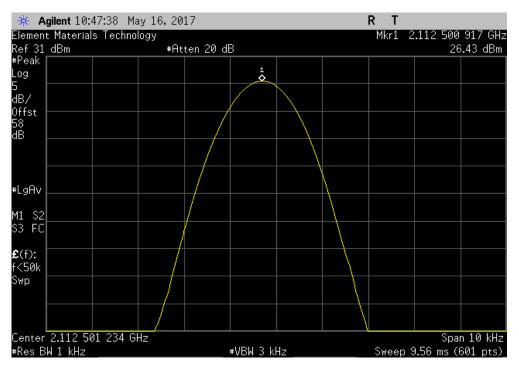


Report No. KMWC0079 71/181

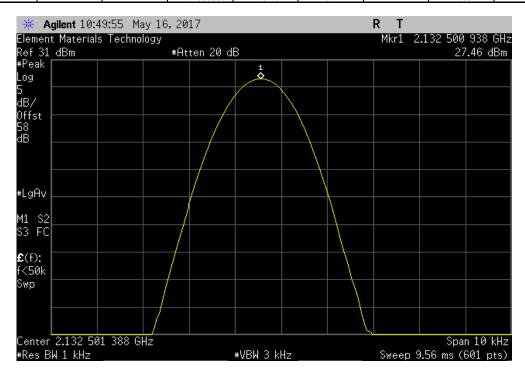


TMTx 2017.01.27 XM6 2017.02.08

	Port 2, E	xtreme Tempera	ture, 0°C, Low Ch	nannel LTE5, 211	2.5 MHz		
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
		2112.500917	2112.5	0.4	1	Pass	



Port 2, Extreme Temperature, 0°C, Mid Channel LTE5, 2132.5 MHz								
	Measured	Assigned	Error	Limit				
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results			
	2132.500938	2132.5	0.4	1	Pass			

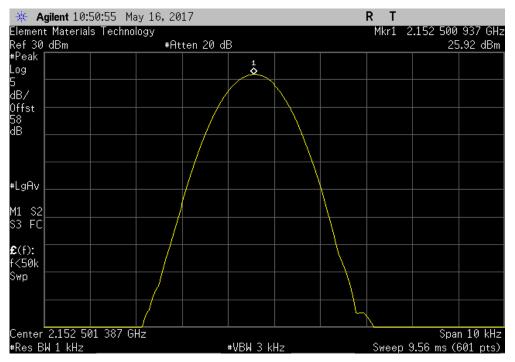


Report No. KMWC0079 72/181

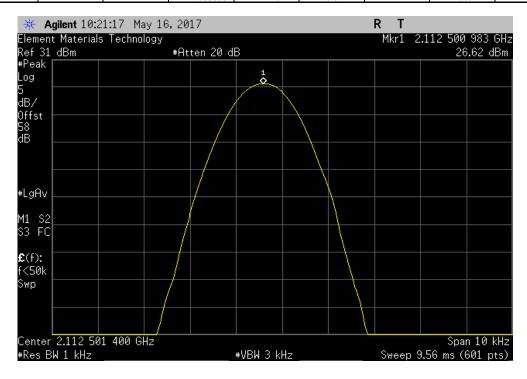


Tb/fb/2017.01.27 XMM:2017.02.08

	Port 2, Extreme Temp	erature, 0°C, High 0	Channel LTE5, 21	52.5 MHz	
	Measure	l Assigned	Error	Limit	
	Value (MH	z) Value (MHz)	(ppm)	(ppm)	Results
	2152.5009	37 2152.5	0.4	1	Pass



	Port 2, Ex	treme Temperatu	ire, +10°C, Low (	Channel LTE5, 21	12.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		2112.500983	2112.5	0.5	1	Pass

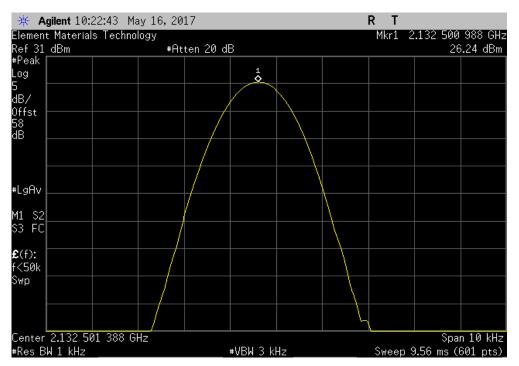


Report No. KMWC0079 73/181

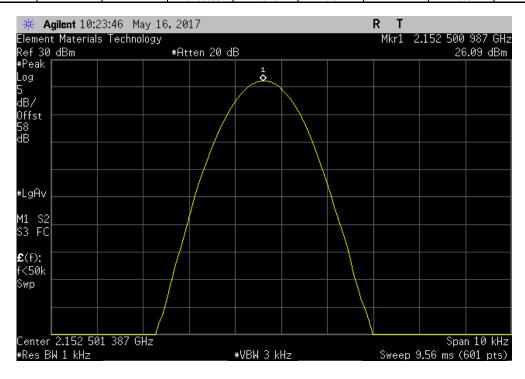


TMTk 2017.01.27 XMM 2017.02.08

	Port 2, Extre	eme Temperatu	re, +10°C, Mid C	Channel LTE5, 21	32.5 MHz	
		Measured	Assigned	Error	Limit	
	,	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
	2	2132.500988	2132.5	0.5	1	Pass



	Port 2, Extren	ne Temperatu	re, +10°C, High (	Channel LTE5, 21	152.5 MHz	
		Measured	Assigned	Error	Limit	
	٧	alue (MHz)	Value (MHz)	(ppm)	(ppm)	Results
	2	152.500987	2152.5	0.5	1	Pass

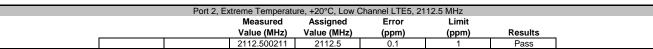


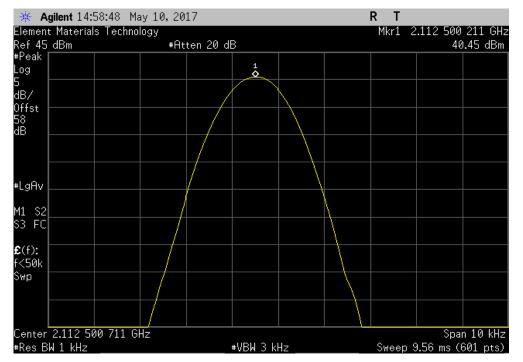
Report No. KMWC0079 74/181



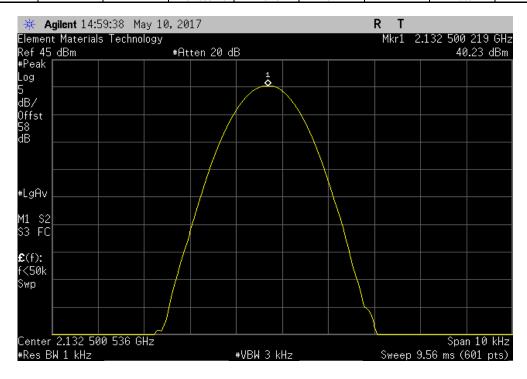
TbtTx 2017.01.27

Port 2, Extreme Temperature, +20°C, Low Channel LTE5, 2112.5 MHz Measured Error Limit





	Port 2, Ex	treme Temperati	ure, +20°C, Mid C	Channel LTE5, 21	32.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		2132.500219	2132.5	0.1	1	Pass



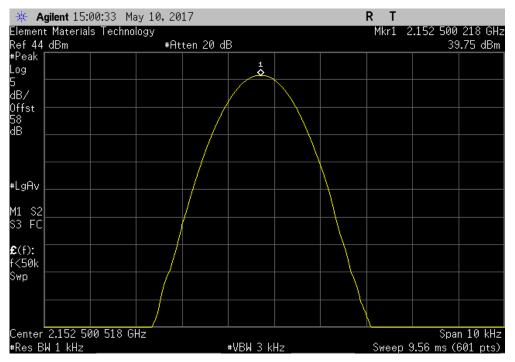
Report No. KMWC0079 75/181



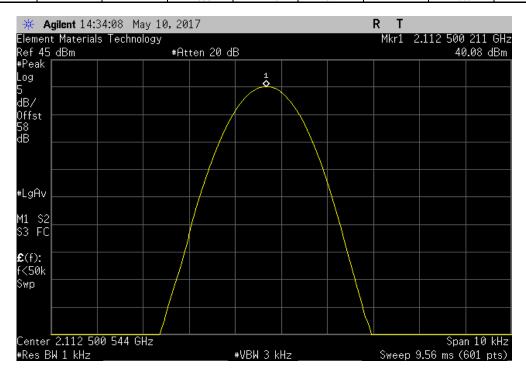
Textx 2017.01.27 XMA 2017.02.08

Port 2, Extreme Temperature, +20°C, High Channel LTE5, 2152.5 MHz

	Port 2, Ext	reme Temperatu	re, +20°C, High (	Channel LTE5, 21	52.5 MHz		
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
1		2152.500218	2152.5	0.1	1	Pass	



	Port 2, Ex	treme Temperatu	ire, +30°C, Low (	Channel LTE5, 21	12.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		2112.500211	2112.5	0.1	1	Pass

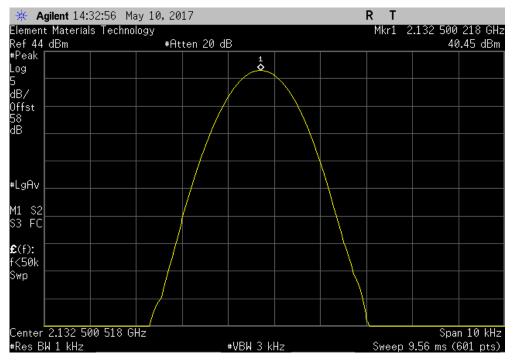


Report No. KMWC0079 76/181

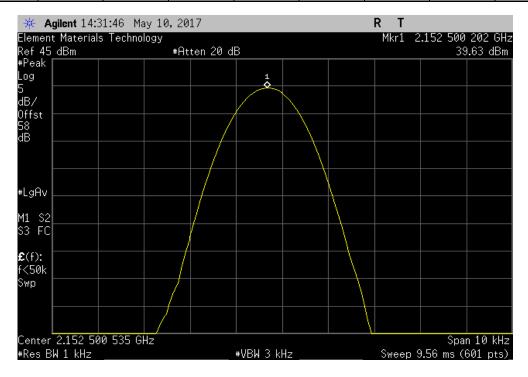


TMTs 2017.01.27 XM8 2017.02.08

	Port 2, Extr	reme Temperati	ure, +30°C, Mid C	Channel LTE5, 21	32.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		2132.500218	2132.5	0.1	1	Pass



	Port 2, Ext	treme Temperatu	re, +30°C, High (	Channel LTE5, 21	52.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		2152.500202	2152.5	0.1	1	Pass



Report No. KMWC0079 77/181



TbtTx 2017.01.27

Pass

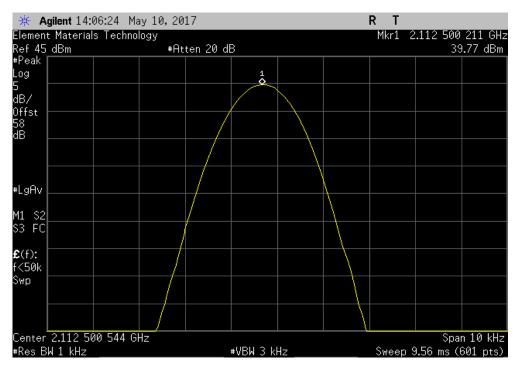
Port 2, Extreme Temperature, +40°C, Low Channel LTE5, 2112.5 MHz

Measured Assigned Error Limit

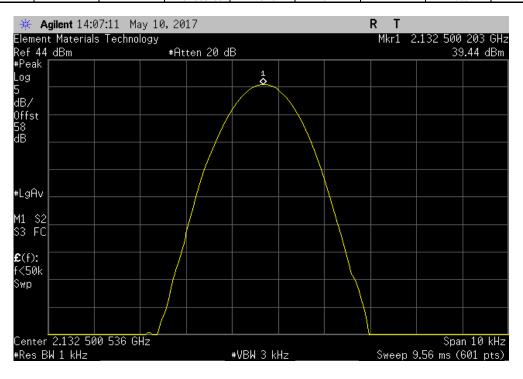
Value (MHz) Value (MHz) (ppm) Results

2112.5

2112.500211



	Port 2, Ex	treme Temperatu	ure, +40°C, Mid C	Channel LTE5, 21	32.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		2132.500203	2132.5	0.1	1	Pass

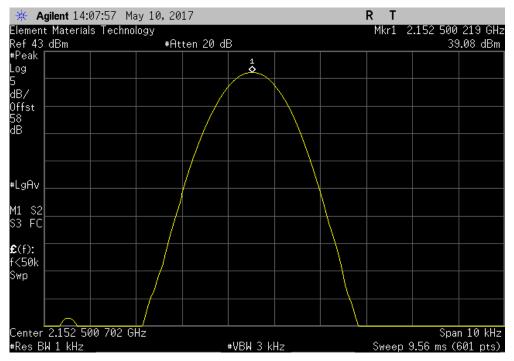


Report No. KMWC0079 78/181

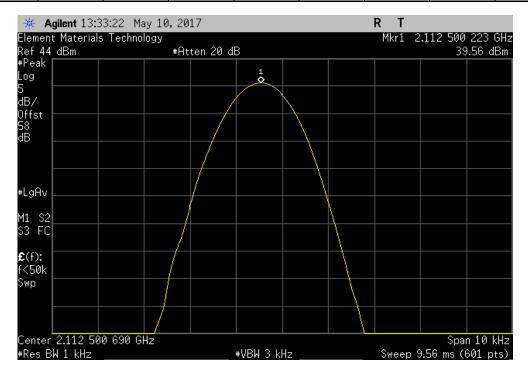


Terfx 2017.01.27 XMM 2017.02.01

	Port 2, Extreme Tempe	erature, +40°C, High	Channel LTE5, 2	152.5 MHz		
	Measure	d Assigned	Error	Limit		
	Value (MH	z) Value (MHz)	(ppm)	(ppm)	Results	
1	2152.5002	19 2152.5	0.1	1	Pass	



	Port 2, Ex	treme Temperatu	re, +50°C, Low (	Channel LTE5, 21	12.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		2112.500223	2112.5	0.1	1	Pass

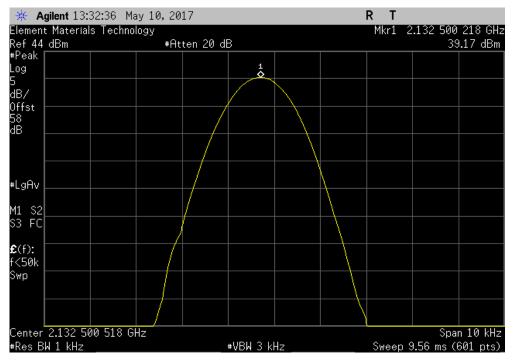


Report No. KMWC0079 79/181

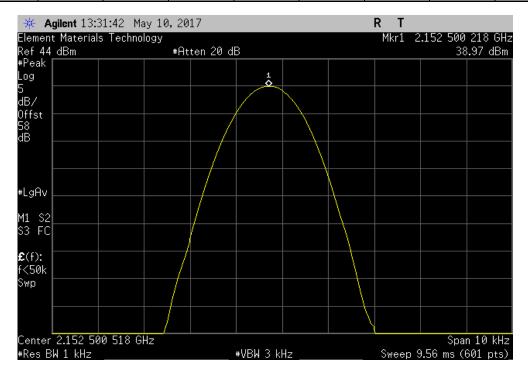


Tb/fb/2017.01.27 XMit 2017.02.08

Port 2, Extreme Temperature, +50°C, Mid Channel LTE5, 2132.5 MHz								
		N	/leasured	Assigned	Error	Limit		
		Va	alue (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
		21	32.500218	2132.5	0.1	1	Pass	



Port 2, Extreme Temperature, +50°C, High Channel LTE5, 2152.5 MHz								
		Measured	Assigned	Error	Limit			
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results		
		2152.500218	2152.5	0.1	1	Pass		



Report No. KMWC0079 80/181



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
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Fairview Microwave	SD3379	AMV	1/11/2017	1/11/2018
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/2/2016	11/2/2017

#### **CLIENT PROVIDED EQUIPMENT**

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

#### **TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The 99% bandwidth was measured utilizing the analyzer's peak detector and measuring the carrier's 26 dB occupied bandwidth based on the peak output power level measured. A plot was taken to show the occupied bandwidth is contained within the allowable transmit band.

At 3 kHz the spectrum analyzer's resolution bandwidth was sufficiently narrow to plot the actual bandwidth of the signal and not the filter response curve of the spectrum analyzer. The resolution bandwidth was approximately equal to 1% of the 20dB bandwidth and the video bandwidth was greater than or equal to the resolution bandwidth.

The occupied bandwidth was measured with the EUT configured in the modes called out in the data sheets.

Report No. KMWC0079



	_					TbtTx 2017.01.27	XMit 2017.02.0
	: CWS-3050-04					: KMWC0079	
Serial Number						05/08/17	
	: Parallel Wireless Inc				Temperature		
	: Daniel Kim					45.6% RH	
	: None				Barometric Pres.		
	: Mike Tran		Power:	48VDC	Job Site	: OC13	
TEST SPECIFICAT	TIONS			Test Method			
FCC 27:2017				ANSI/TIA/EIA-603-D-2010			
COMMENTS							
Power Level Settin	ng 40W. Reference Level O	offset: DC Block + 30dB Attenuator + 2	0dB Attenuator + F	Power Divider + Cable Loss = 56.7d	IB total.		
	M TEST STANDARD						
None							
Configuration #	1		Ano de				
Configuration #	1		none a	ill			
		Signature					
					Value	Limit	Result
Antenna Port 1					value	LIIIII	Result
Antenna i ort i	Low Channel LTE5, 2112.5	5 MHz			4.76 MHz	N/A	N/A
	Mid Channel LTE5, 2132.5				4.793 MHz	N/A	N/A
	High Channel LTE5, 2152.				4.782 MHz	N/A	N/A
	Low Channel LTE10, 2115				9.53 MHz	N/A	N/A
	Mid Channel LTE10, 2132.				9.532 MHz	N/A	N/A
	High Channel LTE10, 2150				9.57 MHz	N/A	N/A
	Low Channel LTE20, 2120				18.872 MHz	N/A	N/A
	Mid Channel LTE20, 2132.				18.86 MHz	N/A	N/A
	High Channel LTE20, 2145				18.836 MHz	N/A	N/A
Antenna Port 2							
	Low Channel LTE5, 2112.5	5 MHz			4.78 MHz	N/A	N/A
	Mid Channel LTE5, 2132.5				4,776 MHz	N/A	N/A
	High Channel LTE5, 2152.				4.759 MHz	N/A	N/A
	Low Channel LTE10, 2115				9.512 MHz	N/A	N/A
	Mid Channel LTE10, 2132.				9.539 MHz	N/A	N/A
	High Channel LTE10, 2150				9.503 MHz	N/A	N/A
	Low Channel LTE20, 2120				18.848 MHz	N/A	N/A
	Mid Channel LTE20, 2132.				18.778 MHz	N/A	N/A
	High Channel LTE20, 2145				18.916 MHz	N/A	N/A
	riigii Onaiiioi ETE20, 2140	J 1VII 12			10.310 WI 12	IN/A	14//5

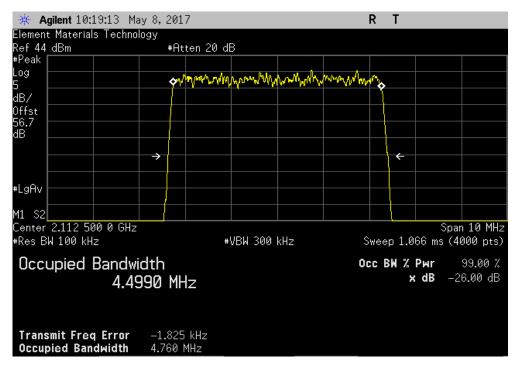
Report No. KMWC0079 82/181



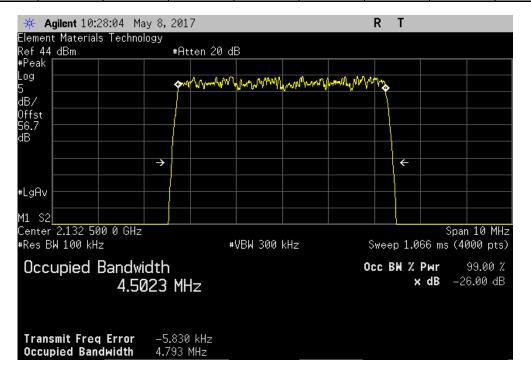
Antenna Port 1, Low Channel LTE5, 2112.5 MHz

Value Limit Result

4.76 MHz N/A N/A



	Antenna Port 1, Mid Channel LTE5, 2132.5 MHz								
					Value	Limit	Result		



Report No. KMWC0079 83/181

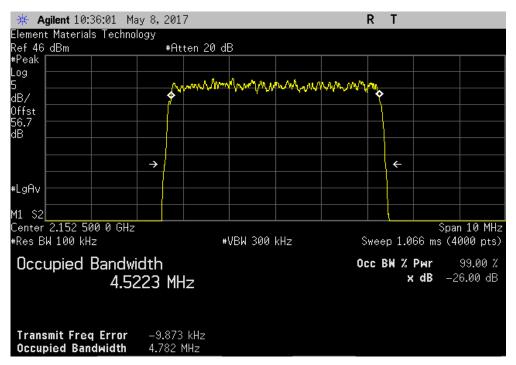


TbtTx 2017.01.27

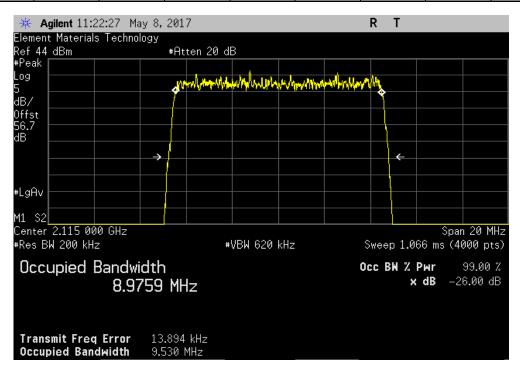
Antenna Port 1, High Channel LTE5, 2152.5 MHz

Value Limit Result

4.782 MHz N/A N/A



Antenna Port 1, Low Channel LTE10, 2115 MHz								
				Value	Limit	Result		
				9.53 MHz	N/A	N/A		



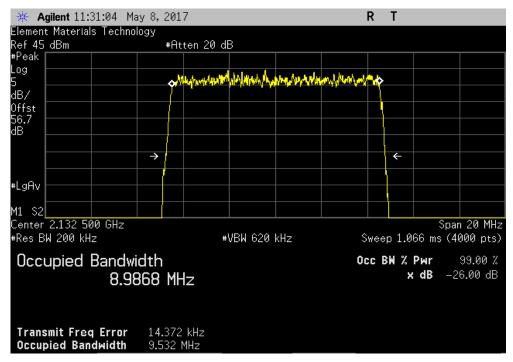
Report No. KMWC0079 84/181

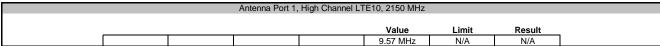


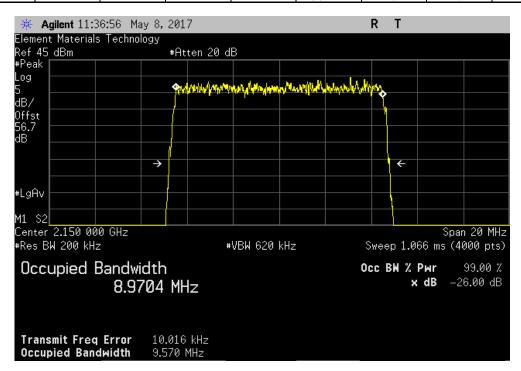
TbtTx 2017.01.27

Antenna Port 1, Mid Channel LTE10, 2132.5 MHz

| Value | Limit | Result |
| 9.532 MHz | N/A | N/A |







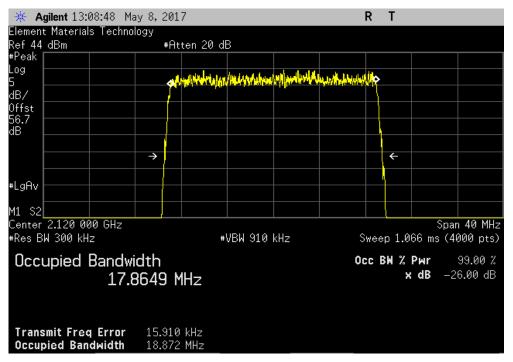
Report No. KMWC0079 85/181

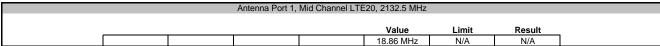


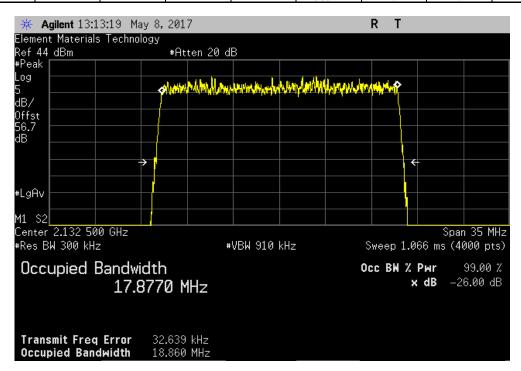
TbtTx 2017.01.27

Antenna Port 1, Low Channel LTE20, 2120 MHz

| Value | Limit | Result |
| 18.872 MHz | N/A | N/A |







Report No. KMWC0079 86/181

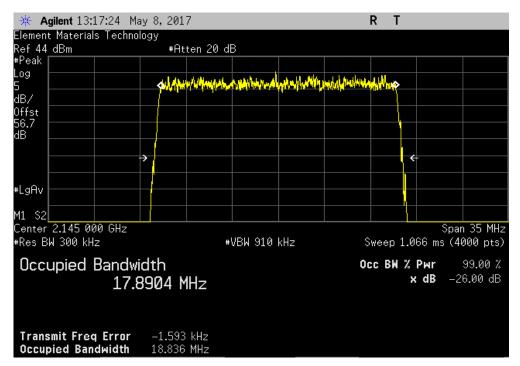


TbtTx 2017.01.27

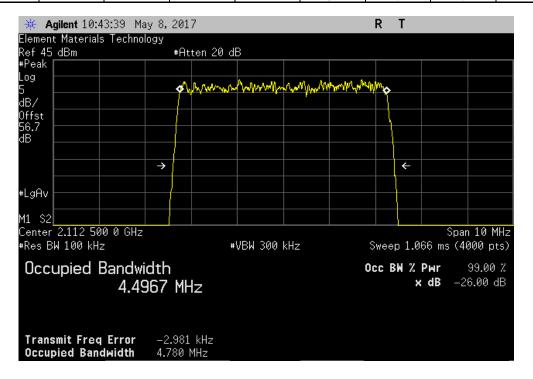
Antenna Port 1, High Channel LTE20, 2145 MHz

Value Limit Result

18.836 MHz N/A N/A



Antenna Port 2, Low Channel LTE5, 2112.5 MHz								
				Value	Limit	Result		
				4.78 MHz	N/A	N/A		

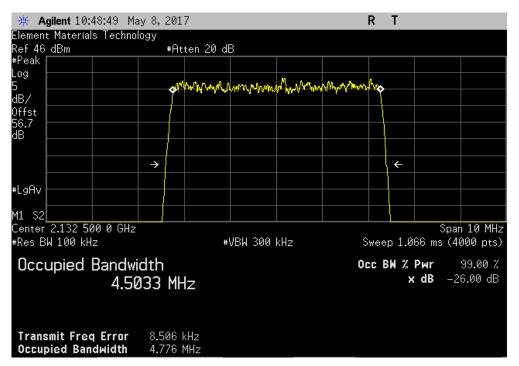


Report No. KMWC0079 87/181

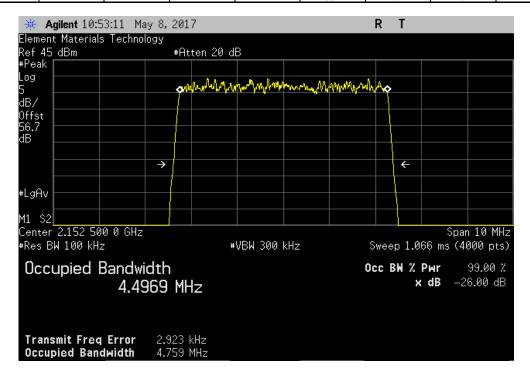


Antenna Port 2, Mid Channel LTE5, 2132.5 MHz

| Value | Limit | Result |
| 4.776 MHz | N/A | N/A |



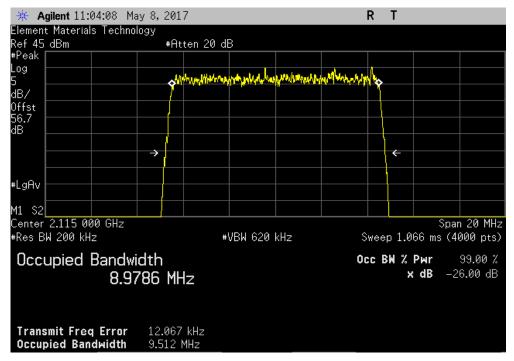
Antenna Port 2, High Channel LTE5, 2152.5 MHz								
				Value	Limit	Result		
				4.759 MHz	N/A	N/A		

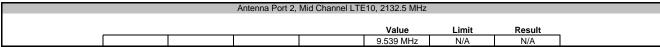


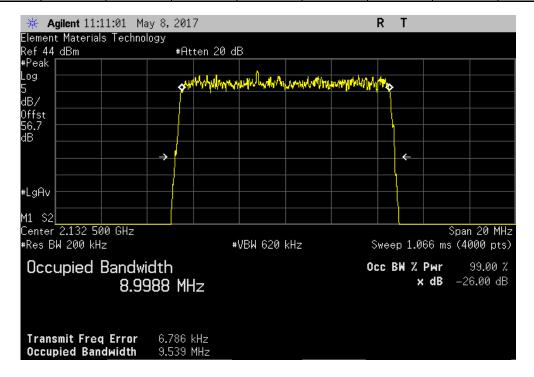
Report No. KMWC0079 88/181



TbtTx 2017.01.27







Report No. KMWC0079 89/181

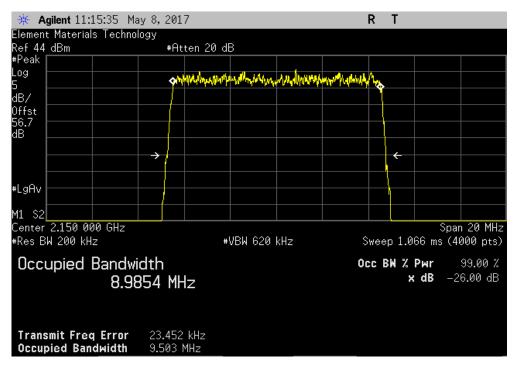


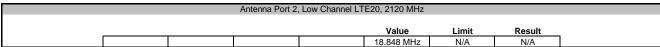
TbtTx 2017.01.27

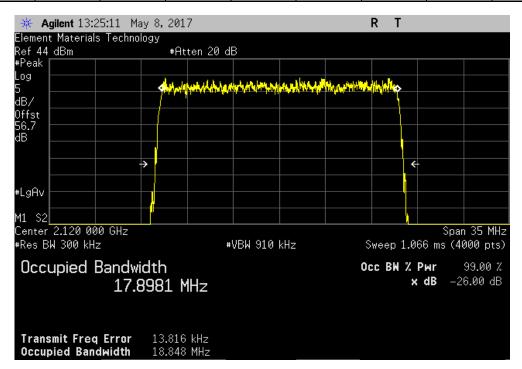
Antenna Port 2, High Channel LTE10, 2150 MHz

Value Limit Result

9.503 MHz N/A N/A







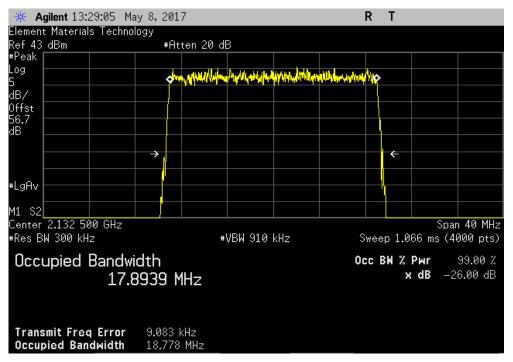
Report No. KMWC0079 90/181

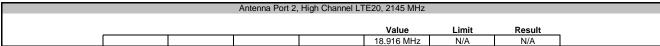


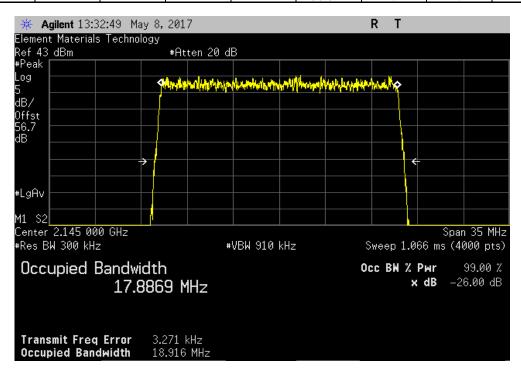
TbtTx 2017.01.27

Antenna Port 2, Mid Channel LTE20, 2132.5 MHz

| Value | Limit | Result |
| 18.778 MHz | N/A | N/A |







Report No. KMWC0079 91/181

### **OUT OF BAND EMISSIONS - LTE BAND 4**



PSA-ESCI 2017 01 2

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

#### MODES OF OPERATION

Transmitting at LTE5, Low Ch(2112.5\_MHz), Mid Ch(2132.5\_MHz), High Ch(2152.5\_MHz) Transmitting at LTE10, Low Ch(2115\_MHz), Mid Ch(2132.5\_MHz), High Ch(2150\_MHz) Transmitting at LTE20, Low Ch(2120\_MHz), Mid Ch(2132.5\_MHz), High Ch(2145\_MHz)

#### POWER SETTINGS INVESTIGATED

48VDC

#### **CONFIGURATIONS INVESTIGATED**

KMWC0079 - 2

#### FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz Stop Frequency 26000 MHz

#### SAMPLE CALCULATIONS

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

#### **TEST EQUIPMENT**

I LOT EQUIFWENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Generator - Signal	Keysight	N5182B	TFX	4/16/2015	36 mo
Antenna - Double Ridge	EMCO	3115	AHB	3/21/2016	24 mo
Filter - Low Pass	Micro-Tronics	LPM50003	LFA	10/17/2016	12 mo
Antenna - Biconilog	EMCO	3142	AXB	11/6/2015	24 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AHR	NCR	NCR
Antenna - Standard Gain	ETS Lindgren	3160-08	AHT	NCR	NCR
Antenna - Standard Gain	ETS Lindgren	3160-09	AHN	NCR	NCR
Amplifier - Pre-Amplifier	Miteq	AMF-4D-010120-30-10P-1	AOP	7/13/2017	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AOE	8/10/2016	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AOF	8/10/2016	12 mo
Cable	Northwest EMC	8-18GHz RE Cables	oco	8/10/2016	12 mo
Cable	Northwest EMC	18-26GHz RE Cables	OCK	1/3/2017	12 mo
Power Sensor	Agilent	E4412A	SQE	1/26/2017	12 mo
Filter - Band Pass/Notch	K&L Microwave	3TNF-500/1000-N/N	HFR	3/3/2016	12 mo
Antenna - Double Ridge	ETS Lindgren	3117	AHQ	9/24/2015	24 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-118002650-25-10P	AOI	1/3/2017	12 mo
Filter - Low Pass	Micro-Tronics	LPM50003	HGO	3/28/2016	12 mo
Filter - High Pass	Micro-Tronics	HPM50108	HHW	8/10/2016	12 mo
Amplifier - Pre-Amplifier	Miteq	AM-1402	AOZ	8/10/2016	12 mo
Cable	Northwest EMC	10kHz-1GHz RE Cables	OCH	8/9/2016	12 mo
Cable	Northwest EMC	1-8GHz RE Cables	OCJ	7/13/2017	12 mo
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/2/2016	12 mo

#### **TEST DESCRIPTION**

The EUT was tested with shielded terminators 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:

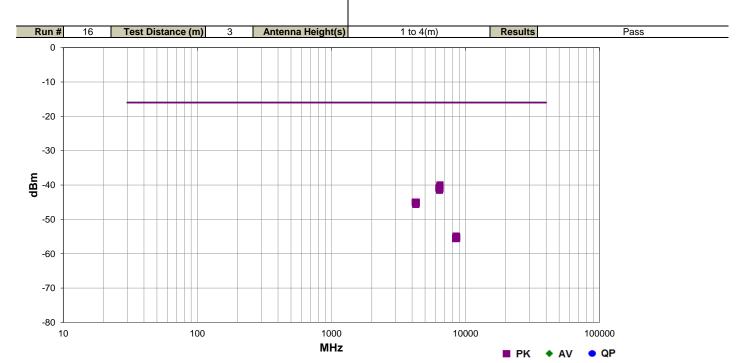
At an approved test site, the transmitter is place on a remotely controlled turntable, and the measurement antenna is placed 3 meters from the transmitter. The turntable azimuth is varied to maximize the level of spurious emissions. The height of the measurement antenna is also varied from 1 to 4 meters.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

Report No. KMWC0079 92/181

# **OUT OF BAND EMISSIONS - LTE BAND 4**



				EmiR5 2017.01.25	PSA-ESCI 2017.01.26						
Work Order:	KMWC0079	Date:	05/09/17	0 - 2							
Project:	None	Temperature:	20.8°C	And day							
Job Site:	OC10	Humidity:	50.90%								
Serial Number:	K162300007	Barometric Pres.:	1011.1 mbar	Tested by: Mike Tran	_						
EUT:	CWS-3050-04										
Configuration:	2										
Customer:	Parallel Wireless Inc										
Attendees:	Daniel Kim										
EUT Power:	48VDC										
Operating Mode:	Transmitting at LTE10	), Low Ch(2115_MHz), N	Mid Ch(2132.5_MHz), Hig 1id Ch(2132.5_MHz), High ⁄Iid Ch(2132.5_MHz), High	Ch(2150_MHz)							
Deviations:	None										
	2x40W 5: Using -16dBm limit instead of -13dBm limit per client request										
Test Specifications			Test Method								
FCC 27.53:2017			ANSI/TIA/EIA-6	03-D-2010							



Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
6458.065	1.0	278.0	Vert	PK	1.02E-07	-39.9	-16.0	-23.9	EUT Ver, High Ch, MIMO LTE5
6459.125	1.0	145.0	Vert	PK	9.49E-08	-40.2	-16.0	-24.2	EUT Ver, High Ch, LTE5
6457.740	1.0	126.0	Horz	PK	9.49E-08	-40.2	-16.0	-24.2	EUT on Side, High Ch, LTE5
6457.725	1.8	210.0	Vert	PK	9.49E-08	-40.2	-16.0	-24.2	EUT Ver, Dual Carriers Adjacent LTE5-LTE5, Right Edge
6456.840	2.6	113.0	Horz	PK	9.06E-08	-40.4	-16.0	-24.4	EUT Hor, High Ch, LTE5
6436.375	1.0	259.0	Vert	PK	9.06E-08	-40.4	-16.0	-24.4	EUT Ver, Dual Carriers Adjacent LTE5-LTE20, Right Edge
6449.350	1.3	72.0	Vert	PK	8.85E-08	-40.5	-16.0	-24.5	EUT Ver, Dual Carriers Adjacent LTE5-LTE10, Right Edge
6448.570	1.0	217.0	Vert	PK	8.65E-08	-40.6	-16.0	-24.6	EUT Ver, High Ch, LTE10
6450.505	1.0	209.0	Vert	PK	8.65E-08	-40.6	-16.0	-24.6	EUT Ver, High Ch, MIMO LTE10
6459.440	3.7	126.0	Vert	PK	8.46E-08	-40.7	-16.0	-24.7	EUT Hor, High Ch, LTE5
6397.915	1.3	134.0	Vert	PK	8.46E-08	-40.7	-16.0	-24.7	EUT Ver, Mid Ch, LTE5
6456.810	1.0	171.0	Horz	PK	8.26E-08	-40.8	-16.0	-24.8	EUT Ver, High Ch, LTE5
6338.665	1.2	258.0	Horz	PK	8.26E-08	-40.8	-16.0	-24.8	EUT on Side, Low Ch, LTE5
6457.035	1.0	316.0	Vert	PK	8.26E-08	-40.8	-16.0	-24.8	EUT Ver, Dual Carriers Edge to Edge LTE5-LTE5, Right Edge
6337.620	1.0	293.0	Vert	PK	8.07E-08	-40.9	-16.0	-24.9	EUT Ver, Low Ch, LTE5
6450.235	2.4	209.0	Vert	PK	8.07E-08	-40.9	-16.0	-24.9	EUT Ver, Dual Carriers Edge to Edge LTE5-LTE10, Right Edge
6435.900	3.4	69.0	Vert	PK	7.89E-08	-41.0	-16.0	-25.0	EUT Ver, High Ch, LTE20

Report No. KMWC0079 93/181

Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
6458.190	1.0	140.0	Vert	PK	7.71E-08	-41.1	-16.0	-25.1	EUT on Side, High Ch, LTE5
6433.635	1.0	359.0	Vert	PK	7.71E-08	-41.1	-16.0	-25.1	EUT Ver, Dual Carriers Edge to Edge LTE5-LTE20, Right Edge
6435.445	1.0	257.0	Vert	PK	7.54E-08	-41.2	-16.0	-25.2	EUT Ver, High Ch, MIMO LTE20
6396.725	1.0	312.0	Horz	PK	7.03E-08	-41.5	-16.0	-25.5	EUT on Side, Mid Ch, LTE5
4304.270	1.0	163.0	Vert	PK	3.21E-08	-44.9	-16.0	-28.9	EUT Ver, High Ch, LTE5
4224.240	1.0	88.0	Horz	PK	3.21E-08	-44.9	-16.0	-28.9	EUT on Side, Low Ch, LTE5
4225.245	1.0	194.0	Vert	PK	3.07E-08	-45.1	-16.0	-29.1	EUT Ver, Low Ch, LTE5
4303.585	1.0	303.0	Horz	PK	2.93E-08	-45.3	-16.0	-29.3	EUT on Side, High Ch, LTE5
4265.830	1.7	357.0	Horz	PK	2.80E-08	-45.5	-16.0	-29.5	EUT on Side, Mid Ch, LTE5
4264.805	1.0	360.0	Vert	PK	2.74E-08	-45.6	-16.0	-29.6	EUT Ver, Mid Ch, LTE5
8530.030	1.6	0.0	Vert	PK	3.29E-09	-54.8	-16.0	-38.8	EUT Ver, Mid Ch, LTE5
8531.500	1.0	107.0	Horz	PK	3.29E-09	-54.8	-16.0	-38.8	EUT on Side, Mid Ch, LTE5
8609.350	2.4	352.0	Horz	PK	3.14E-09	-55.0	-16.0	-39.0	EUT on Side, High Ch, LTE5
8449.045	3.7	90.0	Horz	PK	2.93E-09	-55.3	-16.0	-39.3	EUT on Side, Low Ch, LTE5
8610.615	1.0	110.0	Vert	PK	2.80E-09	-55.5	-16.0	-39.5	EUT Ver, High Ch, LTE5
8448.975	2.3	181.0	Vert	PK	2.74E-09	-55.6	-16.0	-39.6	EUT Ver, Low Ch, LTE5



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
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Fairview Microwave	SD3379	AMV	1/11/2017	1/11/2018
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/2/2016	11/2/2017

#### **CLIENT PROVIDED EQUIPMENT**

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

#### **TEST DESCRIPTION**

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

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

Report No. KMWC0079

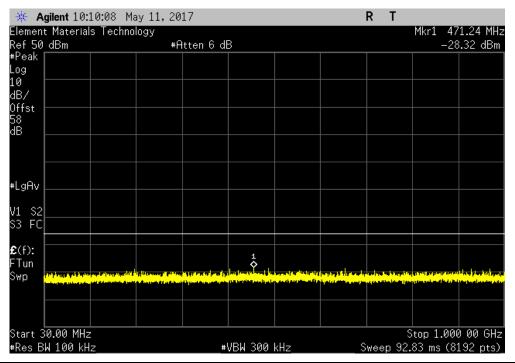


					TbtTx 2017.01.27	XMit :
	CWS-3050-04			Work Order:		
Serial Number:					05/08/17	
	Parallel Wireless Inc			Temperature:		
	Daniel Kim			Humidity:		
Project:	Mike Tran		Power: 48VDC	Barometric Pres.: Job Site:		
ST SPECIFICATI			Test Method	Job Site:	OCIS	
C 27:2017	10143		ANSI/TIA/EIA-603-D-2010			
O LI LOTI			ANONTHALIA GOOD EGIO			
OMMENTS						
ower Level Setting sing -16dBm limit EVIATIONS FROM	g 40W. Reference Level O t instead of -13dBm limit p		+ 20dB Attenuator + Power Divider + Cable Loss = 56.7dB tota	il.		
one onfiguration #	1		And day			
ninguration #	1	Signature	Now any			
	l l	Signature	Frequency	Max Value	Limit	
			Range	(dBm)	≤ (dBm)	Resul
enna Port 1				()	_ (==)	
	Low Channel LTE5, 2112.5	MHz	30 MHz - 1 GHz	-28.32	-16	Pass
	Low Channel LTE5, 2112.5		1 GHz - 5 GHz	-18.14	-16	Pass
	Low Channel LTE5, 2112.5		5 GHz - 22 GHz	-18.68	-16	Pass
	Mid Channel LTE5, 2132.5		30 MHz - 1 GHz	-28.32	-16	Pass
	Mid Channel LTE5, 2132.5		1 GHz - 5 GHz	-18.07	-16	Pass
	Mid Channel LTE5, 2132.5		5 GHz - 22 GHz	-18.81	-16	Pass
	High Channel LTE5, 2152.		30 MHz - 1 GHz	-28.39	-16	Pass
	High Channel LTE5, 2152.		1 GHz - 5 GHz	-18.58	-16	Pass
	High Channel LTE5, 2152.		5 GHz - 22 GHz	-18.5	-16	Pass
	Low Channel LTE10, 2115		30 MHz - 1 GHz	-28.93	-16	Pass
	Low Channel LTE10, 2115	MHz	1 GHz - 5 GHz	-17.92	-16	Pass
	Low Channel LTE10, 2115	MHz	5 GHz - 22 GHz	-18.68	-16	Pass
	Mid Channel LTE10, 2132.		30 MHz - 1 GHz	-28.59	-16	Pass
	Mid Channel LTE10, 2132.		1 GHz - 5 GHz	-18.09	-16	Pass
	Mid Channel LTE10, 2132.		5 GHz - 22 GHz	-18.72	-16	Pass
	High Channel LTE10, 2150		30 MHz - 1 GHz	-28.02	-16	Pass
	High Channel LTE10, 2150		1 GHz - 5 GHz	-18.21	-16	Pass
	High Channel LTE10, 2150	MHz	5 GHz - 22 GHz	-18.6	-16	Pass
	Low Channel LTE20, 2120		30 MHz - 1 GHz	-28.94	-16	Pass
	Low Channel LTE20, 2120		1 GHz - 5 GHz	-18.04	-16	Pass
	Low Channel LTE20, 2120	MHz	5 GHz - 22 GHz	-18.35	-16	Pass
	Mid Channel LTE20, 2132.	MHz	30 MHz - 1 GHz	-27.64	-16	Pass
	Mid Channel LTE20, 2132.	MHz	1 GHz - 5 GHz	-18.01	-16	Pass
	Mid Channel LTE20, 2132.	MHz	5 GHz - 22 GHz	-18.74	-16	Pass
	High Channel LTE20, 2145		30 MHz - 1 GHz	-28.55	-16	Pass
	High Channel LTE20, 2145		1 GHz - 5 GHz	-18.2	-16	Pass
	High Channel LTE20, 2145		5 GHz - 22 GHz	-18.7	-16	Pass
enna Port 2						
	Low Channel LTE5, 2112.5	MHz	30 MHz - 1 GHz	-29.21	-16	Pass
	Low Channel LTE5, 2112.5		1 GHz - 5 GHz	-18.59	-16	Pass
	Low Channel LTE5, 2112.5	MHz	5 GHz - 22 GHz	-18.73	-16	Pass
	Mid Channel LTE5, 2132.5	MHz	30 MHz - 1 GHz	-28.25	-16	Pass
	Mid Channel LTE5, 2132.5		1 GHz - 5 GHz	-18.52	-16	Pass
	Mid Channel LTE5, 2132.5		5 GHz - 22 GHz	-19.1	-16	Pass
	High Channel LTE5, 2152.		30 MHz - 1 GHz	-29.25	-16	Pass
	High Channel LTE5, 2152.5	5 MHz	1 GHz - 5 GHz	-18.86	-16	Pass
	High Channel LTE5, 2152.5		5 GHz - 22 GHz	-19.08	-16	Pass
	Low Channel LTE10, 2115		30 MHz - 1 GHz	-28.89	-16	Pass
	Low Channel LTE10, 2115		1 GHz - 5 GHz	-18.91	-16	Pass
	Low Channel LTE10, 2115		5 GHz - 22 GHz	-18.99	-16	Pass
	Mid Channel LTE10, 2132.		30 MHz - 1 GHz	-29.45	-16	Pass
	Mid Channel LTE10, 2132.		1 GHz - 5 GHz	-18.69	-16	Pass
	Mid Channel LTE10, 2132.		5 GHz - 22 GHz	-18.92	-16	Pass
	High Channel LTE10, 2150	MHz	30 MHz - 1 GHz	-28.74	-16	Pass
	High Channel LTE10, 2150		1 GHz - 5 GHz	-18.27	-16	Pass
	High Channel LTE10, 2150		5 GHz - 22 GHz	-18.48	-16	Pass
	Low Channel LTE20, 2120		30 MHz - 1 GHz	-28.94	-16	Pass
	Low Channel LTE20, 2120		1 GHz - 5 GHz	-18.55	-16	Pass
			5 GHz - 22 GHz	-18.98	-16	Pass
	Low Channel LTE20, 2120			-29.19	-16	Pass
	Low Channel LTE20, 2120 Mid Channel LTE20, 2132.		30 MHz - 1 GHz			
	Mid Channel LTE20, 2132.	5 MHz	30 MHz - 1 GHz 1 GHz - 5 GHz	-29.19 -18.41	-16	
	Mid Channel LTE20, 2132. Mid Channel LTE20, 2132.	5 MHz 5 MHz	1 GHz - 5 GHz	-18.41	-16	Pass
	Mid Channel LTE20, 2132. Mid Channel LTE20, 2132. Mid Channel LTE20, 2132.	5 MHz 5 MHz 5 MHz	1 GHz - 5 GHz 5 GHz - 22 GHz	-18.41 -18.72	-16 -16	Pass Pass
	Mid Channel LTE20, 2132. Mid Channel LTE20, 2132.	5 MHz 5 MHz 5 MHz MHz MHz	1 GHz - 5 GHz	-18.41	-16	Pass Pass Pass Pass

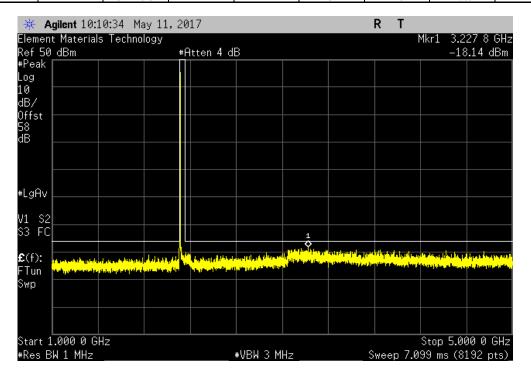
Report No. KMWC0079 96/181



TbtTx 2017.01.27



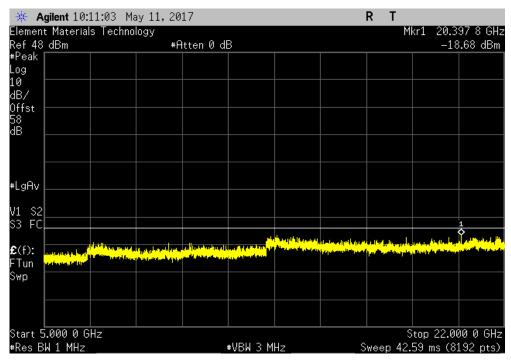
Antenna Port 1, Low Channel LTE5, 2112.5 MHz					
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
1 GHz - 5 GHz		-18.14	-16	Pass	



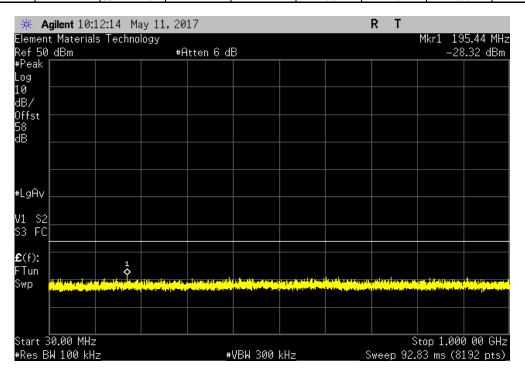
Report No. KMWC0079 97/181



TbtTx 2017.01.27



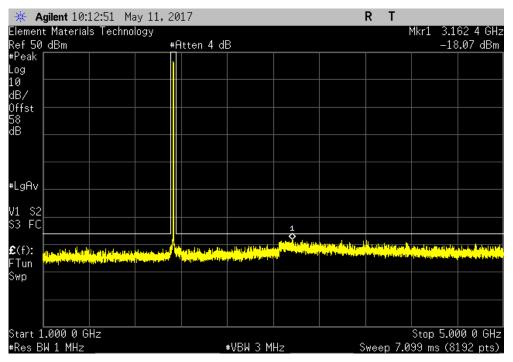
	Antenna Port 1, Mid Channel LTE5, 2132.5 MHz						
Frequ	ency		Max Value	Limit			
Rar	ge		(dBm)	≤ (dBm)	Result		
30 MHz	· 1 GHz		-28.32	-16	Pass		



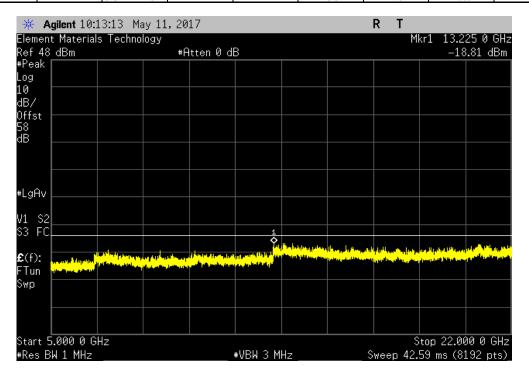
Report No. KMWC0079 98/181



TbtTx 2017.01.27



	Antenna Port 1, Mid Channel LTE5, 2132.5 MHz					
Frequ	iency	Max Value	Limit			
Rai	nge	(dBm)	≤ (dBm)	Result		
5 GHz -	22 GHz	-18.81	-16	Pass		



Report No. KMWC0079 99/181



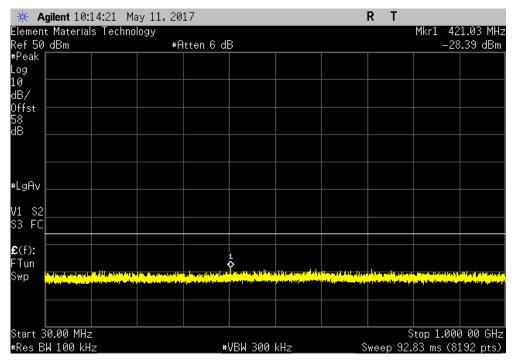
TbtTx 2017.01.27

Antenna Port 1, High Channel LTE5, 2152.5 MHz

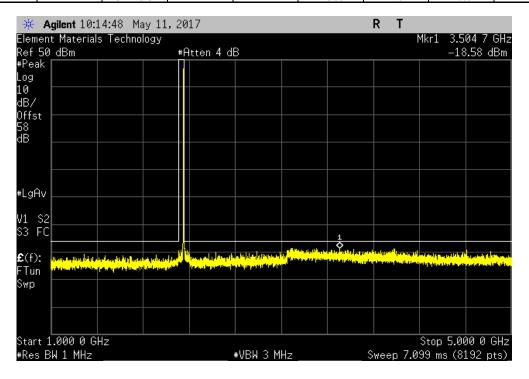
Frequency Max Value Limit

Range (dBm) ≤ (dBm) Result

30 MHz - 1 GHz -28.39 -16 Pass



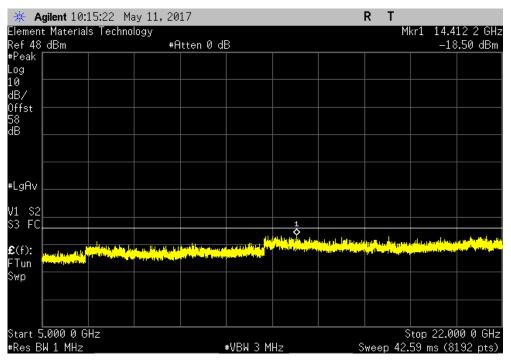
	Antenna Port 1, High Channel LT	E5, 2152.5 MHz		
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
1 GHz - 5 GHz	z	-18.58	-16	Pass



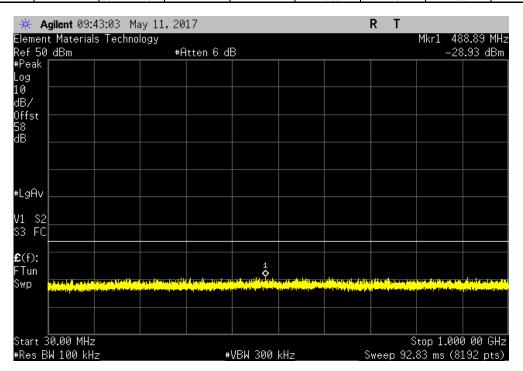
Report No. KMWC0079 100/181



TbtTx 2017.01.27



	Antenna Port 1, Low Channel LTE10, 2115 MHz					
Frequency		Max Value	Limit			
Range		(dBm)	≤ (dBm)	Result		
30 MHz - 1 GHz		-28.93	-16	Pass		



Report No. KMWC0079 101/181



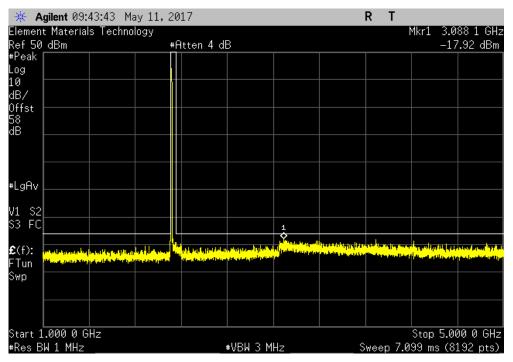
TbtTx 2017.01.27

Antenna Port 1, Low Channel LTE10, 2115 MHz

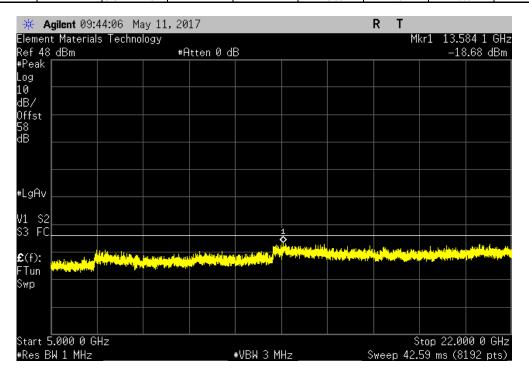
Frequency Max Value Limit

Range (dBm) ≤ (dBm) Result

1 GHz - 5 GHz -17.92 -16 Pass



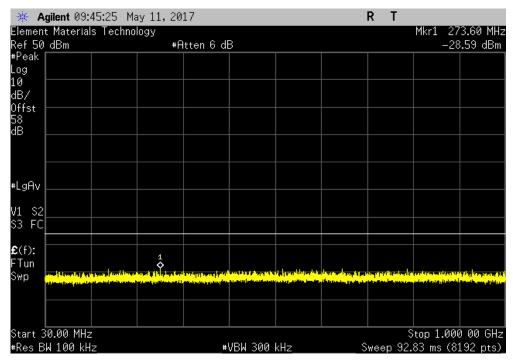
	Antenna Port 1, Low Channel LTE10, 2115 MHz					
	Frequency		Max Value	Limit		
	Range		(dBm)	≤ (dBm)	Result	
5	GHz - 22 GHz		-18.68	-16	Pass	



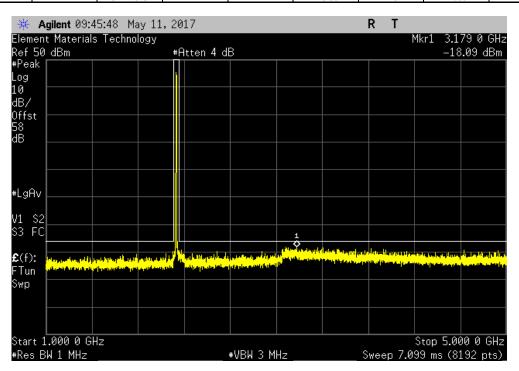
Report No. KMWC0079 102/181



TbtTx 2017.01.27



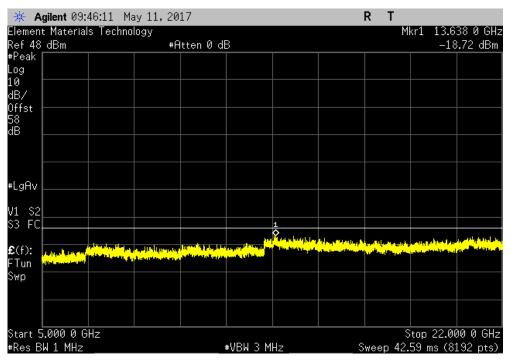
Antenna Port	1, Mid Channel LTE	E10, 2132.5 MHz		
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
1 GHz - 5 GHz		-18.09	-16	Pass



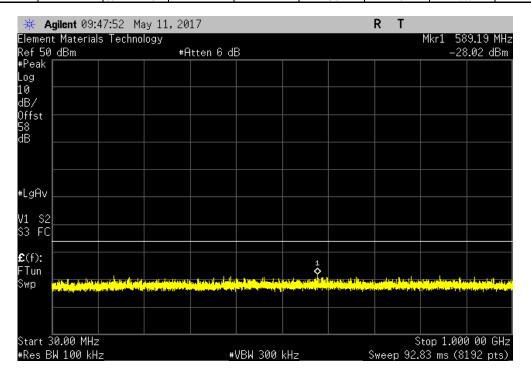
Report No. KMWC0079 103/181



TbtTx 2017.01.27



	Antenna Port 1, High Channel LTE10, 2150 MHz					
Frequency		Max Value	Limit			
Range		(dBm)	≤ (dBm)	Result		
30 MHz - 1 GHz		-28.02	-16	Pass		



Report No. KMWC0079 104/181



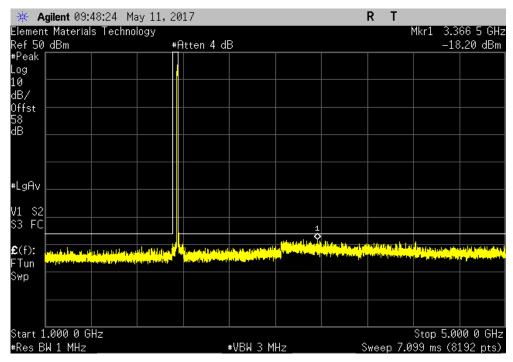
TbtTx 2017.01.27

Antenna Port 1, High Channel LTE10, 2150 MHz

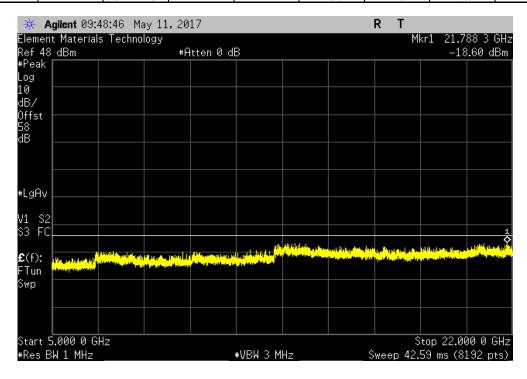
Frequency Max Value Limit

Range (dBm) ≤ (dBm) Result

1 GHz - 5 GHz -18.21 -16 Pass



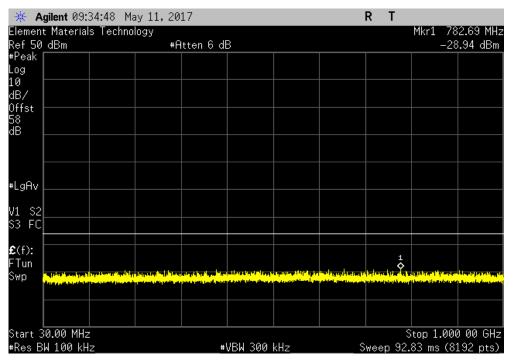
Antenna Port	1, High Channel L	ΓΕ10, 2150 MHz		
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
5 GHz - 22 GHz		-18.6	-16	Pass



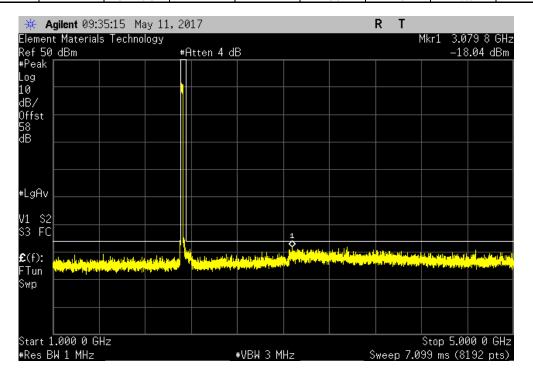
Report No. KMWC0079 105/181



TbtTx 2017.01.27



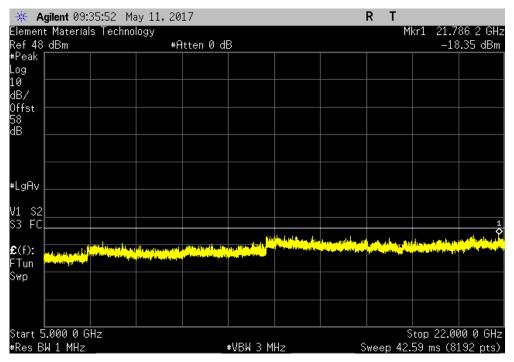
	Antenna Port	1, Low Channel LTE20, 2120 MHz		
	Frequency	Max Value	Limit	
	Range	(dBm)	≤ (dBm)	Result
1	1 GHz - 5 GHz	-18.04	-16	Pass



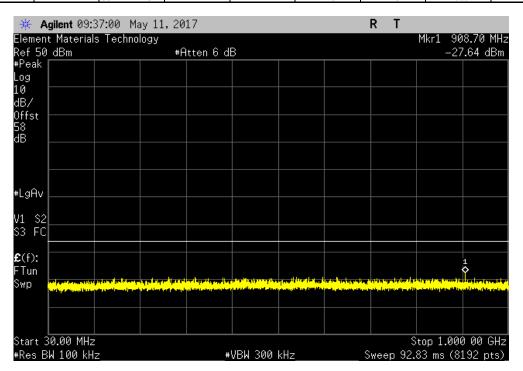
Report No. KMWC0079 106/181



TbtTx 2017.01.27



	Antenna Port 1, Mid Channel LTE	20, 2132.5 MHz		
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
30 MHz - 1 GHz	z	-27.64	-16	Pass



Report No. KMWC0079 107/181

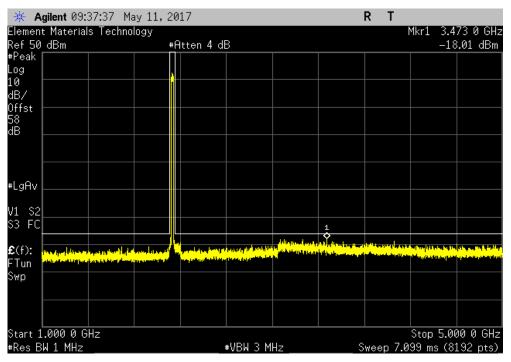


TbtTx 2017.01.27

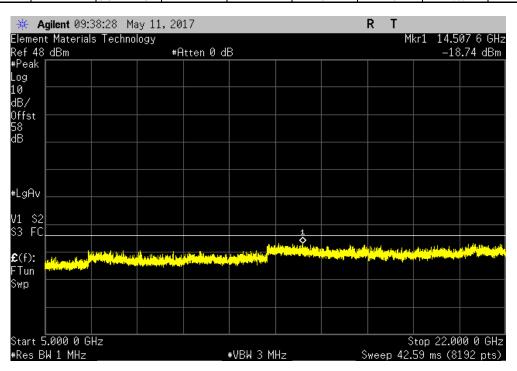
Antenna Port 1, Mid Channel LTE20, 2132.5 MHz

Frequency
Range
(dBm) ≤ (dBm) Result

1 GHz - 5 GHz
-18.01
-16
Pass



	Antenna Port 1, Mid Channel LTE:	20, 2132.5 MHz		
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
5 GHz - 22 GH:	z	-18.74	-16	Pass



Report No. KMWC0079 108/181



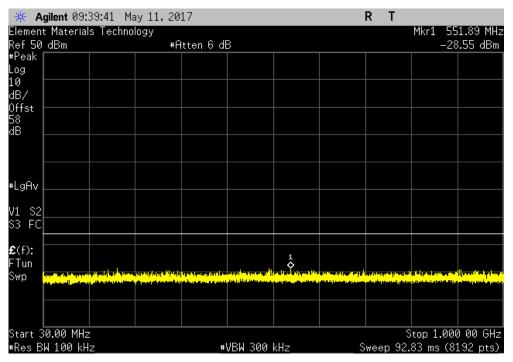
TbtTx 2017.01.27

Antenna Port 1, High Channel LTE20, 2145 MHz

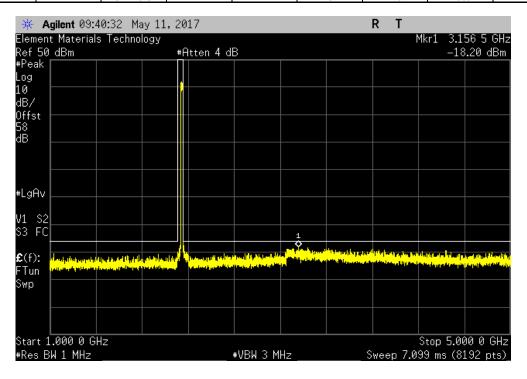
Frequency Max Value Limit

Range (dBm) ≤ (dBm) Result

30 MHz - 1 GHz -28.55 -16 Pass



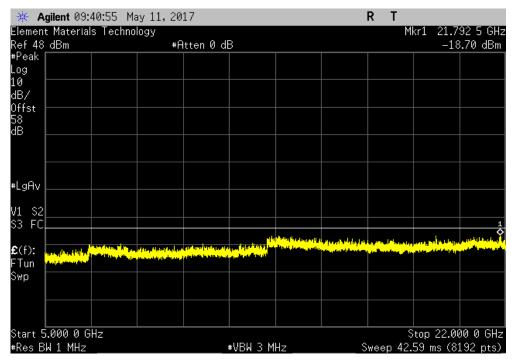
Antenna Port 1, High Channel LTE20, 2145 MHz					
	Frequency		Max Value	Limit	
	Range		(dBm)	≤ (dBm)	Result
	1 GHz - 5 GHz		-18.2	-16	Pass



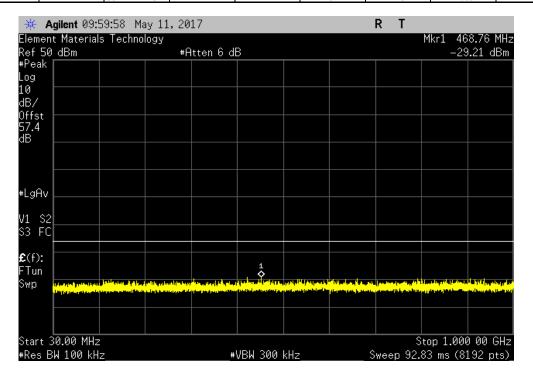
Report No. KMWC0079 109/181



TbtTx 2017.01.27



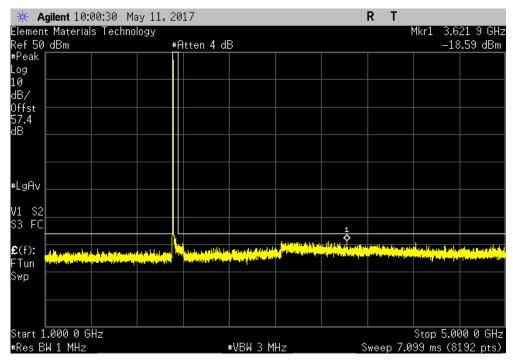
	Antenna Port 2, Low Channel LT	E5, 2112.5 MHz		
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
30 MHz - 1 GHz		-29.21	-16	Pass



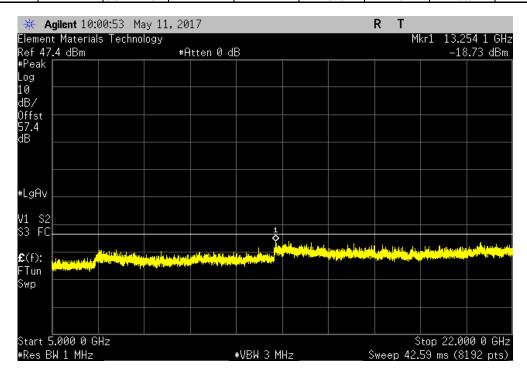
Report No. KMWC0079 110/181



TbtTx 2017.01.27



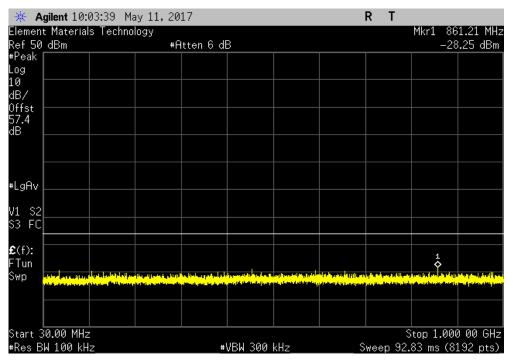
Antenna Por	2, Low Channel LT	E5, 2112.5 MHz		
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
5 GHz - 22 GHz		-18.73	-16	Pass



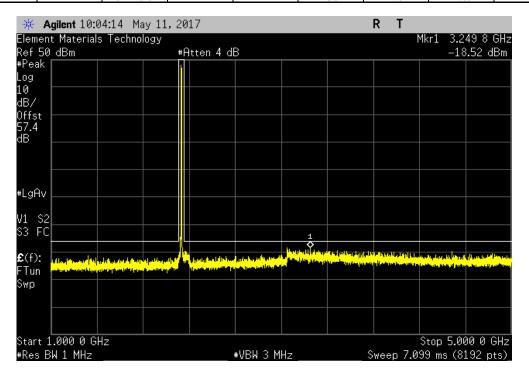
Report No. KMWC0079 111/181



TbtTx 2017.01.27



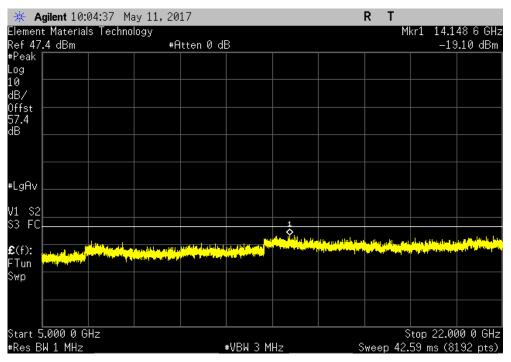
	Antenna Port	2, Mid Channel LTE5, 2132.5 MHz		
	Frequency	Max Value	Limit	
	Range	(dBm)	≤ (dBm)	Result
1	1 GHz - 5 GHz	-18.52	-16	Pass



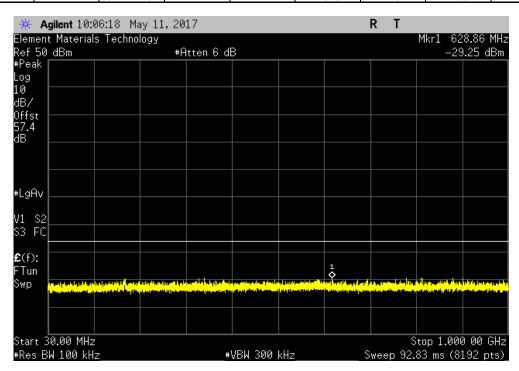
Report No. KMWC0079 112/181



TbtTx 2017.01.27



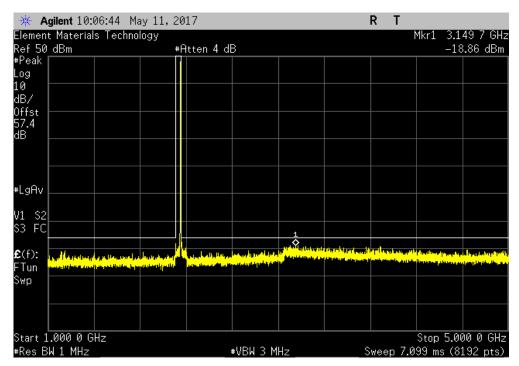
Antenna Port 2, High Channel LTE5, 2152.5 MHz					
	Frequency		Max Value	Limit	
	Range		(dBm)	≤ (dBm)	Result
3	0 MHz - 1 GHz		-29.25	-16	Pass



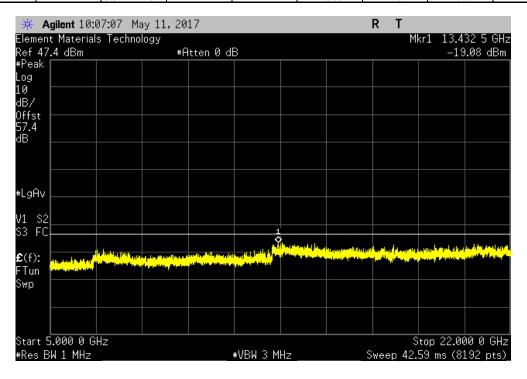
Report No. KMWC0079 113/181



TbtTx 2017.01.27



	Antenna Port 2	, High Channel LTE5,	, 2152.5 MHz		
	Frequency		Max Value	Limit	
	Range		(dBm)	≤ (dBm)	Result
ı	5 GHz - 22 GHz		-19.08	-16	Pass



Report No. KMWC0079 114/181



TbtTx 2017.01.27

Antenna Port 2, Low Channel LTE10, 2115 MHz

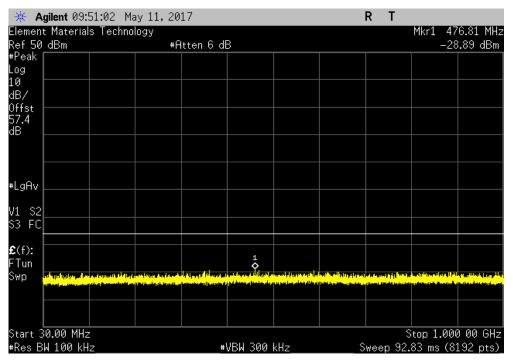
Frequency

Range
(dBm) ≤ (dBm)

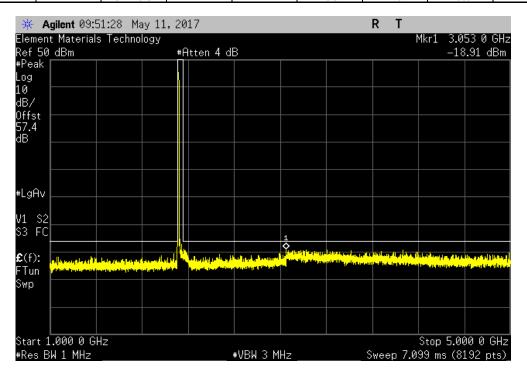
30 MHz - 1 GHz

-28.89
-16

Pass



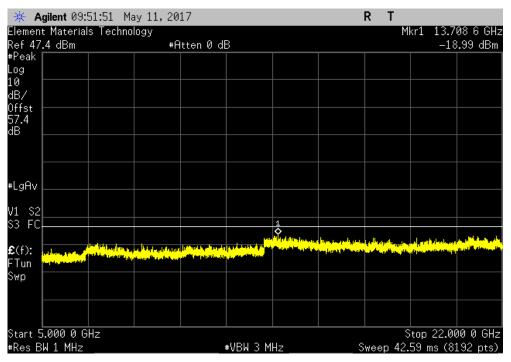
	Antenna Port 2,	Low Channel LT	E10, 2115 MHz		
Freq	uency		Max Value	Limit	
Ra	nge		(dBm)	≤ (dBm)	Result
1 GHz	- 5 GHz		-18.91	-16	Pass



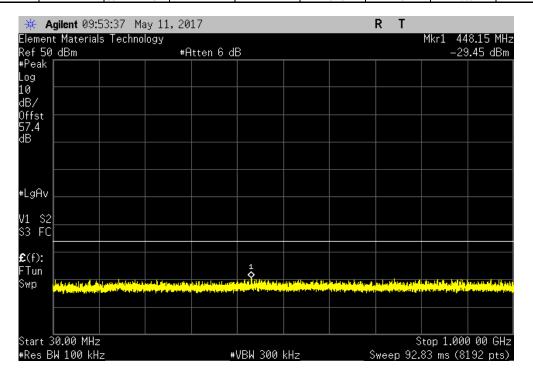
Report No. KMWC0079 115/181



TbtTx 2017.01.27



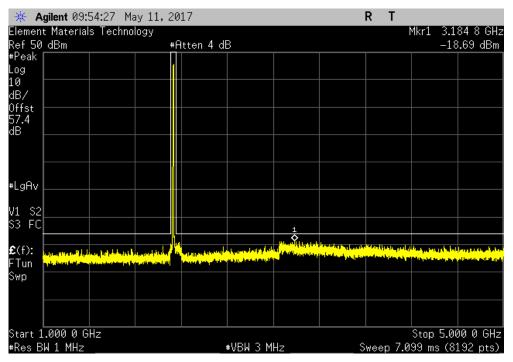
	Antenna Port 2, Mid Channel LTE	10, 2132.5 MHz		
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
30 MHz - 1 GHz	z	-29.45	-16	Pass



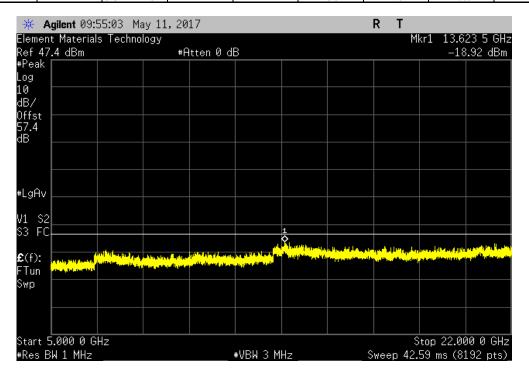
Report No. KMWC0079 116/181



TbtTx 2017.01.27



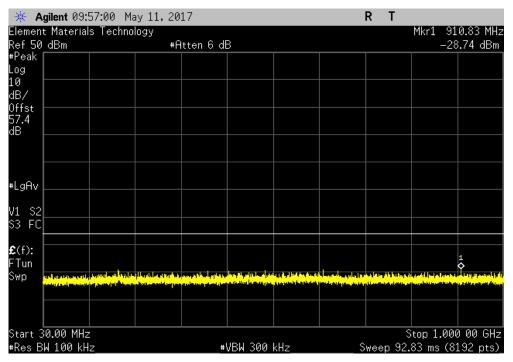
	Antenna Port 2, Mid Channel LTE	10, 2132.5 MHz		
Frequency	,	Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
5 GHz - 22 G	Hz	-18.92	-16	Pass



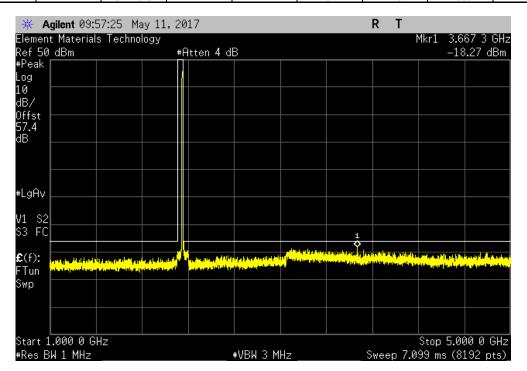
Report No. KMWC0079 117/181



TbtTx 2017.01.27



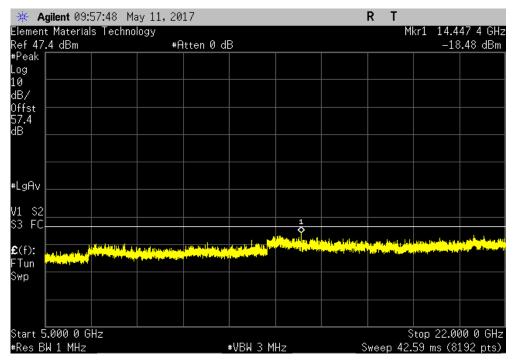
Antenna Port 2, High Channel LTE10, 2150 MHz					
	Frequency		Max Value	Limit	
	Range		(dBm)	≤ (dBm)	Result
	1 GHz - 5 GHz		-18.27	-16	Pass



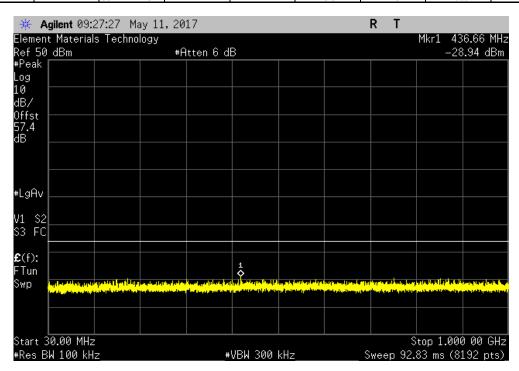
Report No. KMWC0079 118/181



TbtTx 2017.01.27



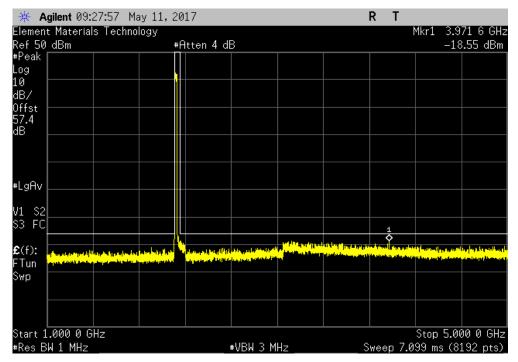
Antenna Port 2, Low Channel LTE20, 2120 MHz					
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
30 MHz - 1 GHz	z	-28.94	-16	Pass	



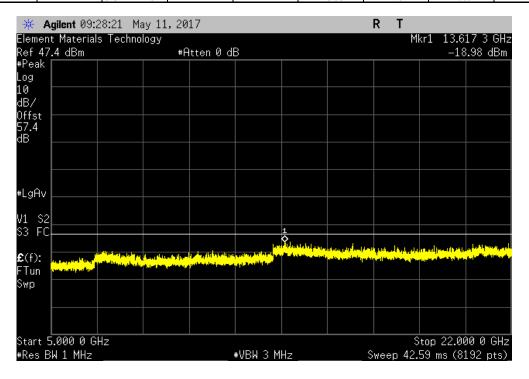
Report No. KMWC0079 119/181



TbtTx 2017.01.27



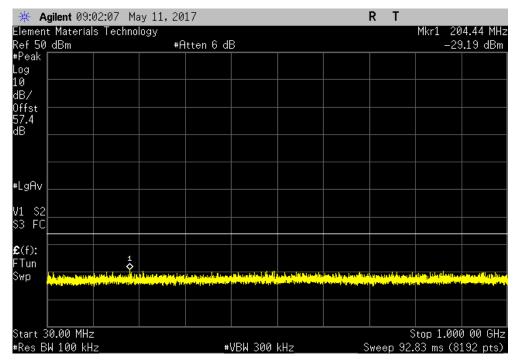
	Antenna Port 2, Low Channel LT	E20, 2120 MHz		
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
5 GHz - 22 GH	Hz	-18.98	-16	Pass



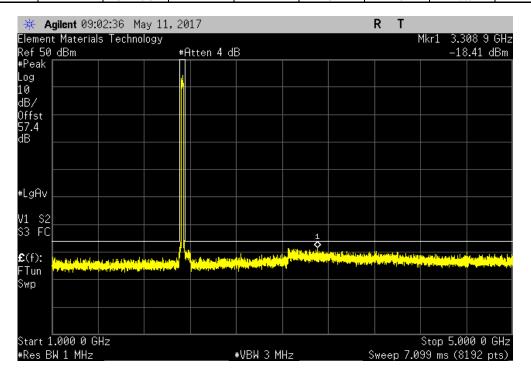
Report No. KMWC0079 120/181



				TbtTx 2017.01.27	XMit 2017.02.08
Antenna Port 2,	Mid Channel LTE20, 2132.5 MHz				
Frequency	Max Value	Limit			
Range	(dBm)	≤ (dBm)	Result		
30 MHz - 1 GHz	-29 19	-16	Pass		



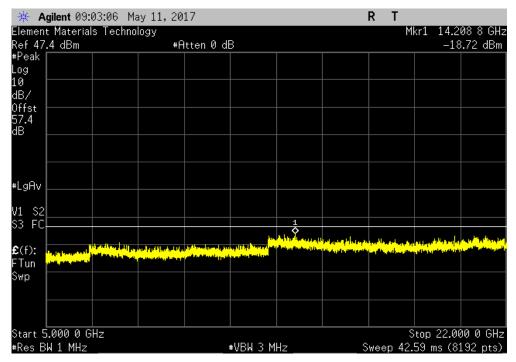
Antenna Port 2, Mid Channel LTE20, 2132.5 MHz				
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
1 GHz - 5 GHz		-18.41	-16	Pass



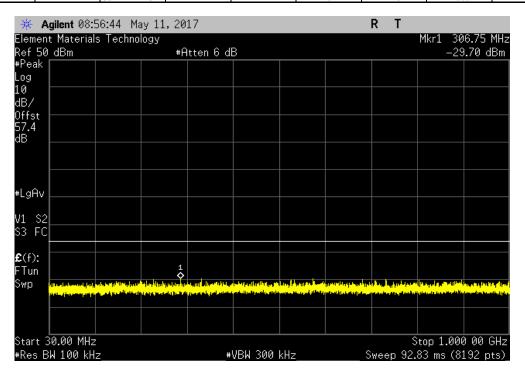
Report No. KMWC0079 121/181



TbtTx 2017.01.27



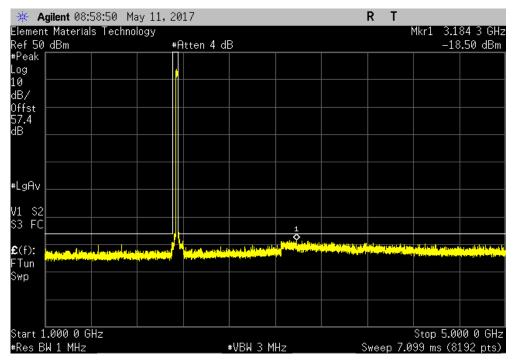
Antenna Port 2, High Channel LTE20, 2145 MHz					
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
30 MHz - 1 GH	z	-29.7	-16	Pass	



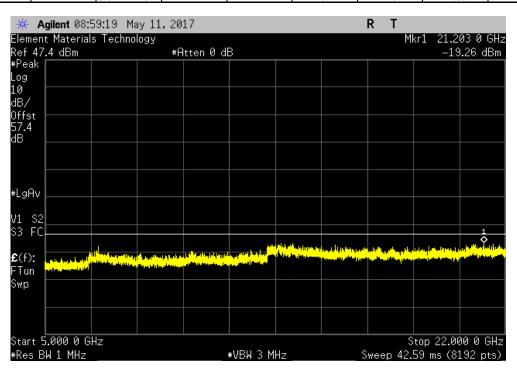
Report No. KMWC0079 122/181



TbtTx 2017.01.27



	Antenna Port 2, High Channel LTE20, 2145 MHz				
	Frequency		Max Value	Limit	
	Range		(dBm)	≤ (dBm)	Result
ĺ	5 GHz - 22 GHz		-19.27	-16	Pass



Report No. KMWC0079 123/181



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
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Fairview Microwave	SD3379	AMV	1/11/2017	1/11/2018
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/2/2016	11/2/2017

#### **CLIENT PROVIDED EQUIPMENT**

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

#### **TEST DESCRIPTION**

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

The 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 30 kHz per the specification. 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.

Only the Low Channel for each channel bandwidth was tested, the High Channel was previously tested in this band.

Report No. KMWC0079



	CWS-3050-04			Work Order:		
Serial Number:					05/11/17	
	Parallel Wireless Inc			Temperature:		
	Daniel Kim				45.6% RH	
Project:				Barometric Pres.:		
Tested by:			Power: 48VDC	Job Site:	OC13	
EST SPECIFICATI	IONS		Test Method			
CC 27:2017			ANSI/TIA/EIA-603-D-2010			
,						
OMMENTS						
wer Level Setting	g 40W. Reference Level O	Offset: DC Block + 30dB Attenu	ator + 20dB Attenuator + Power Divider + Cable Loss = 56	.7dB total.		
sing -16dBm limit	t instead of -13dBm limit p	per client request				
	I TEST STANDARD					
one						
OHC						
			11 000			
onfiguration #	1		Down Muy			
	1	Signature				
	1	Signature	Frequency	Max Value	Limit	
onfiguration #	1	Signature		Max Value (dBm)	Limit ≤ (dBm)	Result
onfiguration #	<u> </u>		Frequency Range	(dBm)	≤ (dBm)	
onfiguration #	Low Channel LTE5, 2112.5	5 MHz	Frequency Range	(dBm) -29.39	≤ (dBm) -16	Pass
onfiguration #	Low Channel LTE5, 2112.5 High Channel LTE5, 2152.	5 MHz 5 MHz	Frequency Range 105 GHz - 2.115 GH 2.15 GHz - 2.16 GH:	-29.39 -28.57	≤ (dBm) -16 -16	Pass Pass
onfiguration #	Low Channel LTE5, 2112.5 High Channel LTE5, 2152. Low Channel LTE10, 2115	5 MHz 5 MHz 5 MHz	Frequency Range 105 GHz - 2.115 GH 2.15 GHz - 2.16 GH; 2.1 GHz - 2.12 GHz	(dBm) -29.39 -28.57 -31.85	≤ (dBm)  -16 -16 -16	Pass Pass Pass
onfiguration #	Low Channel LTE5, 2112.5 High Channel LTE5, 2152. Low Channel LTE10, 2115 High Channel LTE10, 2150	5 MHz 5 MHz 5 MHz 0 MHz	Frequency Range 105 GHz - 2.115 GH 2.15 GHz - 2.16 GH: 2.1 GHz - 2.12 GHz 145 GHz - 2.165 GH	(dBm) -29.39 -28.57 -31.85 -32.4	-16 -16 -16 -16 -16	Pass Pass Pass Pass
onfiguration #	Low Channel LTE5, 2112.5 High Channel LTE5, 2152. Low Channel LTE10, 2115 High Channel LTE10, 2150 Low Channel LTE20, 2120	5 MHz 5 MHz 5 MHz 0 MHz MHz	Frequency Range 105 GHz - 2.115 GH 2.15 GHz - 2.16 GH: 2.1 GHz - 2.12 GHz 145 GHz - 2.165 GH 2.09 GHz - 2.13 GH:	(dBm) -29.39 -28.57 -31.85 -32.4 -31.5	≤ (dBm)  -16 -16 -16 -16 -16	Pass Pass Pass Pass Pass
onfiguration #	Low Channel LTE5, 2112.5 High Channel LTE5, 2152. Low Channel LTE10, 2115 High Channel LTE10, 2150	5 MHz 5 MHz 5 MHz 0 MHz MHz	Frequency Range 105 GHz - 2.115 GH 2.15 GHz - 2.16 GH: 2.1 GHz - 2.12 GHz 145 GHz - 2.165 GH	(dBm) -29.39 -28.57 -31.85 -32.4	-16 -16 -16 -16 -16	Pass Pass Pass Pass
onfiguration #	Low Channel LTE5, 2112.5 High Channel LTE5, 2152. Low Channel LTE10, 2115 High Channel LTE10, 2150 Low Channel LTE20, 2120 High Channel LTE20, 2145	5 MHz 5 MHz 5 MHz 0 MHz 0 MHz 5 MHz 5 MHz	Frequency Range  105 GHz - 2.115 GH 2.15 GHz - 2.16 GH; 2.1 GHz - 2.12 GHz 145 GHz - 2.165 GH 2.09 GHz - 2.13 GH; 135 GHz - 2.175 GH	(dBm) -29.39 -28.57 -31.85 -32.4 -31.5 -31.34	≤ (dBm)  -16 -16 -16 -16 -16 -16 -16	Pass Pass Pass Pass Pass Pass
ntenna Port 1	Low Channel LTE5, 2112.5 High Channel LTE5, 2152. Low Channel LTE10, 2115 High Channel LTE20, 2120 Low Channel LTE20, 2120 High Channel LTE20, 2145 Low Channel LTE5, 2112.5	5 MHz .5 MHz 5 MHz 0 MHz 0 MHz 5 MHz 5 MHz	Frequency Range  105 GHz - 2.115 GH 2.15 GHz - 2.16 GH: 2.1 GHz - 2.12 GHz 145 GHz - 2.165 GH 2.09 GHz - 2.13 GH: 135 GHz - 2.175 GH	(dBm)  -29.39 -28.57 -31.85 -32.4 -31.5 -31.34	≤ (dBm)  -16 -16 -16 -16 -16 -16 -16 -16	Pass Pass Pass Pass Pass Pass Pass
onfiguration # Intenna Port 1	Low Channel LTE5, 2112.5 High Channel LTE5, 2152. Low Channel LTE10, 2115 High Channel LTE20, 2120 Unigh Channel LTE20, 2120 Low Channel LTE20, 2142. Low Channel LTE5, 2112.5 High Channel LTE5, 2152.	5 MHz 5 MHz MHz 0 MHz 0 MHz 5 MHz 5 MHz 5 MHz	Frequency Range  105 GHz - 2.115 GH 2.15 GHz - 2.16 GH: 2.1 GHz - 2.12 GHz 145 GHz - 2.13 GH: 135 GHz - 2.175 GH 105 GHz - 2.175 GH	-29.39 -28.57 -31.85 -32.4 -31.5 -31.34 -30.28 -26.8	≤ (dBm)  -16 -16 -16 -16 -16 -16 -16 -16 -16	Pass Pass Pass Pass Pass Pass Pass Pass
onfiguration #  Intenna Port 1	Low Channel LTE5, 2112.5 High Channel LTE6, 2152. Low Channel LTE10, 2115 High Channel LTE20, 2120 High Channel LTE20, 2120 High Channel LTE20, 2145 Low Channel LTE5, 2112.5 High Channel LTE5, 2152. Low Channel LTE10, 2115	5 MHz 5 MHz MHz 0 MHz 5 MHz 5 MHz 5 MHz 5 MHz 5 MHz 5 MHz	Frequency Range  105 GHz - 2.115 GH 2.15 GHz - 2.16 GH: 2.1 GHz - 2.16 GH: 2.1 GHz - 2.165 GH 2.09 GHz - 2.13 GH: 135 GHz - 2.175 GH  105 GHz - 2.115 GH 2.15 GHz - 2.16 GH: 2.1 GHz - 2.12 GHz	(dBm)  -29.39 -28.57 -31.85 -32.4 -31.5 -31.34  -30.28 -26.8 -31.99	≤ (dBm)  -16 -16 -16 -16 -16 -16 -16 -16 -16 -1	Pass Pass Pass Pass Pass Pass Pass Pass
ntenna Port 1	Low Channel LTE5, 2112.5 High Channel LTE5, 2152. Low Channel LTE10, 2115 High Channel LTE10, 2150 Low Channel LTE20, 2120 High Channel LTE20, 2145 Low Channel LTE5, 2112.5 High Channel LTE5, 2152. Low Channel LTE10, 2115 High Channel LTE10, 2115	5 MHz 5 MHz 5 MHz 0 MHz 0 MHz 5 MHz 5 MHz 5 MHz 5 MHz 6 MHz	Frequency Range  105 GHz - 2.115 GH 2.15 GHz - 2.16 GH: 2.1 GHz - 2.12 GHz 145 GHz - 2.165 GH 2.09 GHz - 2.13 GH: 135 GHz - 2.175 GH  105 GHz - 2.115 GH 2.15 GHz - 2.16 GH: 2.16 GHz - 2.16 GH	-29.39 -28.57 -31.85 -32.4 -31.5 -31.34 -30.28 -26.8 -31.99 -30.92	≤ (dBm)  -16 -16 -16 -16 -16 -16 -16 -16 -16 -1	Pass Pass Pass Pass Pass Pass Pass Pass
onfiguration #  Intenna Port 1  Intenna Port 2	Low Channel LTE5, 2112.5 High Channel LTE6, 2152. Low Channel LTE10, 2115 High Channel LTE20, 2120 High Channel LTE20, 2120 High Channel LTE20, 2145 Low Channel LTE5, 2112.5 High Channel LTE5, 2152. Low Channel LTE10, 2115	5 MHz 5 MHz MHz 0 MHz 6 MHz 5 MHz 5 MHz 5 MHz 5 MHz 5 MHz 5 MHz 0 MHz 0 MHz 0 MHz	Frequency Range  105 GHz - 2.115 GH 2.15 GHz - 2.16 GH: 2.1 GHz - 2.16 GH: 2.1 GHz - 2.165 GH 2.09 GHz - 2.13 GH: 135 GHz - 2.175 GH  105 GHz - 2.115 GH 2.15 GHz - 2.16 GH: 2.1 GHz - 2.12 GHz	(dBm)  -29.39 -28.57 -31.85 -32.4 -31.5 -31.34  -30.28 -26.8 -31.99	≤ (dBm)  -16 -16 -16 -16 -16 -16 -16 -16 -16 -1	Pass Pass Pass Pass Pass Pass Pass Pass

Report No. KMWC0079 125/181



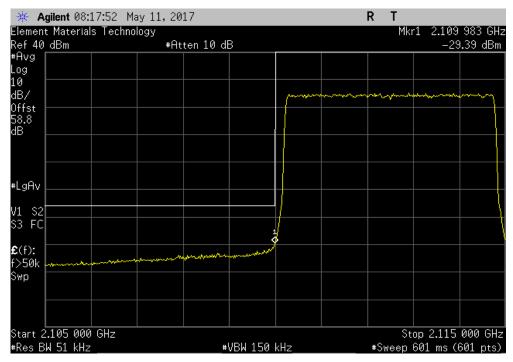
TbtTx 2017.01.27

Antenna Port 1, Low Channel LTE5, 2112.5 MHz

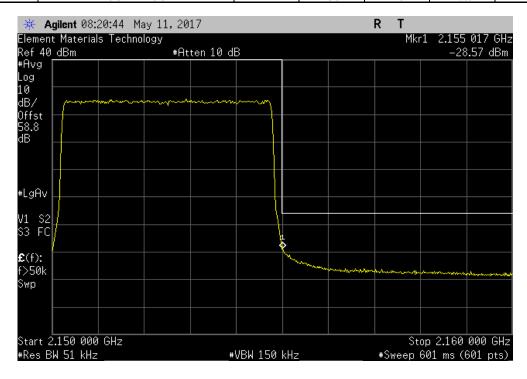
Frequency Max Value Limit

Range (dBm) ≤ (dBm) Result

2.105 GHz - 2.115 GHz -29.39 -16 Pass



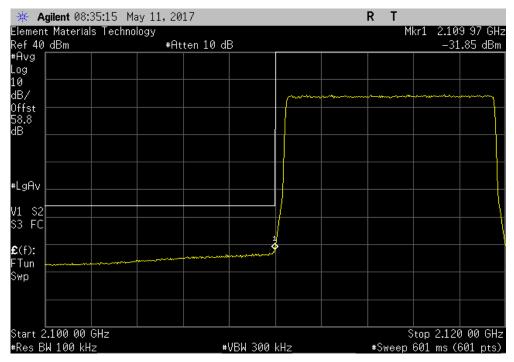
Antenna Port 1, High Channel LTE5, 2152.5 MHz				
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
2.15 GHz - 2.16 GHz	Z	-28.57	-16	Pass



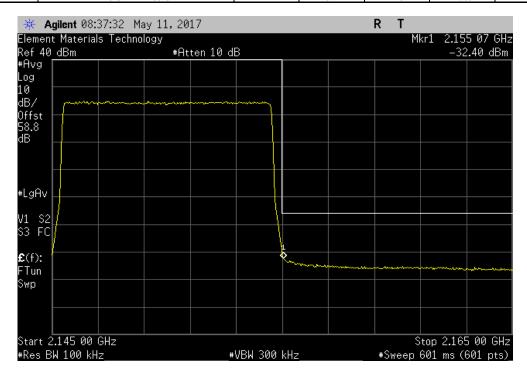
Report No. KMWC0079 126/181



TbtTx 2017.01.27



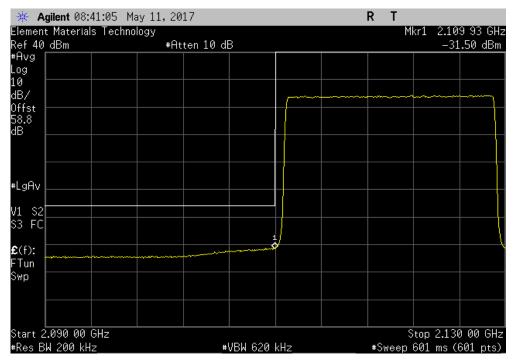
Antenna Port 1, High Channel LTE10, 2150 MHz				
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
2.145 GHz - 2.165 GHz		-32.4	-16	Pass



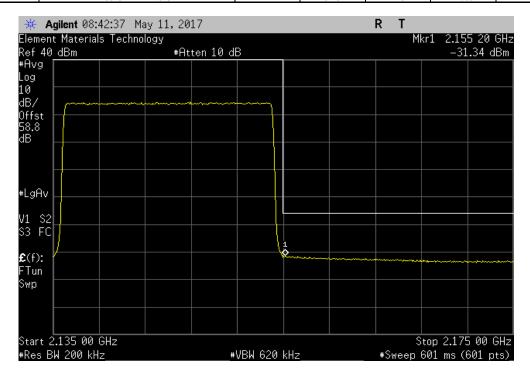
Report No. KMWC0079 127/181



TbtTx 2017.01.27



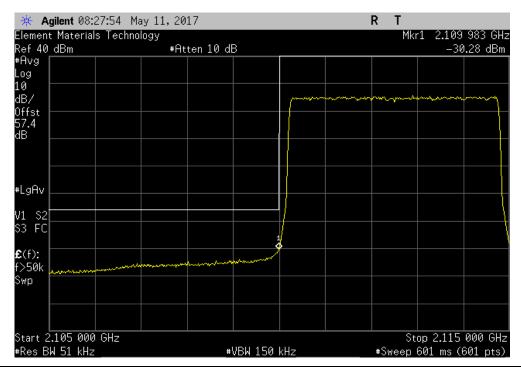
Antenna Port 1, High Channel LTE20, 2145 MHz				
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
2.135 GHz - 2.175 GHz		-31.34	-16	Pass



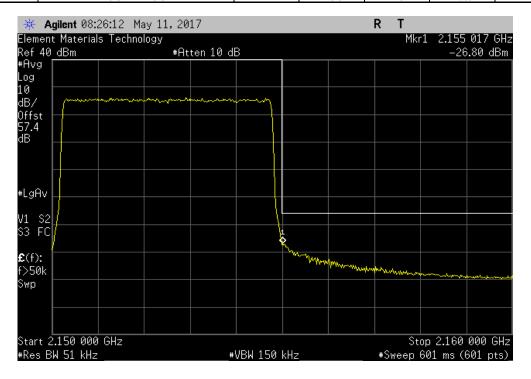
Report No. KMWC0079 128/181



TbtTx 2017.01.27



Antenna Port 2, High Channel LTE5, 2152.5 MHz				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
2.15 GHz - 2.16 GHz	-26.8	-16	Pass	1



Report No. KMWC0079 129/181



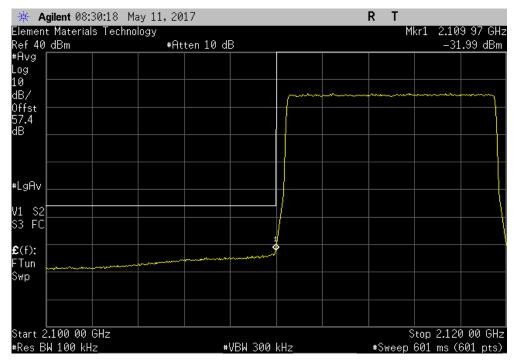
TbtTx 2017.01.27

Antenna Port 2, Low Channel LTE10, 2115 MHz

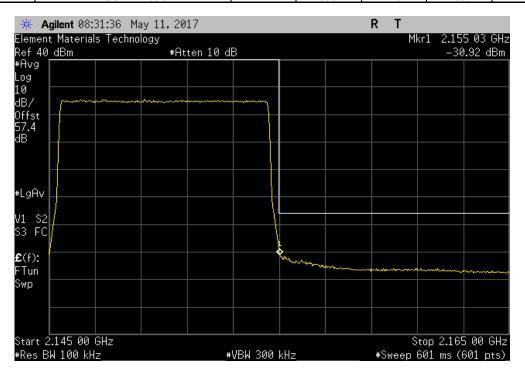
Frequency Max Value Limit

Range (dBm) ≤ (dBm) Result

2.1 GHz - 2.12 GHz - 31.99 -16 Pass



Antenna Port 2, High Channel LTE10, 2150 MHz					
Fred	quency		Max Value	Limit	
R	ange		(dBm)	≤ (dBm)	Result
2.145 GHz	r - 2.165 GHz		-30.92	-16	Pass



Report No. KMWC0079 130/181



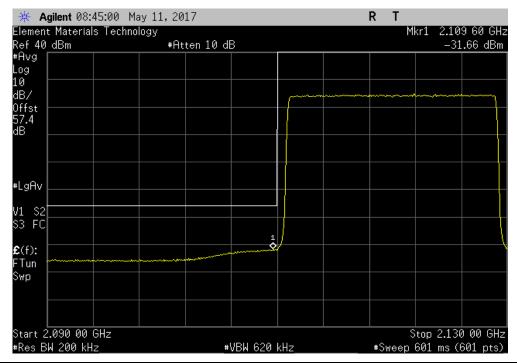
TbtTx 2017.01.27

Antenna Port 2, Low Channel LTE20, 2120 MHz

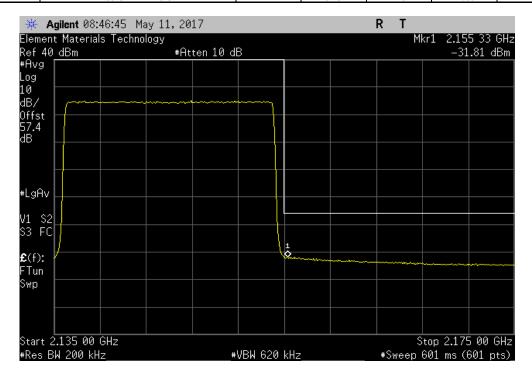
Frequency Max Value Limit

Range (dBm) ≤ (dBm) Result

2.09 GHz - 2.13 GHz -31.66 -16 Pass



Antenna Port 2, H	ligh Channel LTE20, 2145 MHz		
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
2.135 GHz - 2.175 GHz	-31.81	-16	Pass



Report No. KMWC0079 131/181



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
Power Supply - DC	Hewlett Packard	6574A	TPX	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Fairview Microwave	SD3379	AMV	1/11/2017	1/11/2018
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/2/2016	11/2/2017

#### **CLIENT PROVIDED EQUIPMENT**

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

#### **TEST DESCRIPTION**

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

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.

Report No. KMWC0079 132/181



EUT: CWS-3050-04 Serial Number: K162300007 ustomer: Parallel Wireless In es: Daniel Kim Barometric Pres.: Mike Tran ANSI/TIA/FIA-603-D-2010 ower Level Setting 40W. Reference Level Offset: DC Block + 30dB Att sing -16dBm limit instead of -13dBm limit per client request nuator + 20dB Attenuator + Power Divider + Cable Loss = 56.7dB DEVIATIONS FROM TEST STANDARD And My onfiguration # Resul LTE5, 2112.5 MHz, Low Band Edge, adjacent secondary channel LTE5, 2112.5 MHz, Low Band Edge, adjacent secondary channel LTE5, 2112.5 MHz, Low Band Edge, adjacent secondary channel LTE5, 2112.5 MHz, Low Band Edge, adjacent secondary channel N/A -28.71 -18.35 -18.19 N/A -16 -16 -16 Fundamental 30 MHz - 1 GHz Pass Pass Pass N/A 1 GHz - 5 GHz 5 GHz - 22 GHz LTE5, 2112.5 MHz, Low Band Edge, max offset secondary chann LTE5, 2112.5 MHz, Low Band Edge, max offset secondary chann Fundamental 30 MHz - 1 GHz N/A -28.14 N/A -16 Pass Pass Pass N/A LTE5, 2112.5 MHz. Low Band Edge, max offset secondary chann 1 GHz - 5 GHz 5 GHz - 22 GHz -18.3 -16 -16 LTE5. 2112.5 MHz. Low Band Edge, max offset secondary chann LTE5. 2112.5 MHz. Low Band Edge, max offset secondary chann LTE5. 2152.5 MHz. High Band Edge, adjacent secondary channe LTE5. 2152.5 MHz. High Band Edge, adjacent secondary channe LTE5. 2152.5 MHz. High Band Edge, adjacent secondary channe LTE5. 2152.5 MHz. High Band Edge, adjacent secondary channe LTE5. 2152.5 MHz. High Band Edge, max offset secondary channe LTE5. 2152.5 MHz. High Band Edge, max offset secondary channe LTE5. 2152.5 MHz. High Band Edge, max offset secondary channe LTE5. 2152.5 MHz. High Band Edge, max offset secondary channe LTE5. 2152.5 MHz. High Band Edge, max offset secondary channe LTE6. 2152.5 MHz. High Band Edge, max offset secondary channe LTE1. 2151 MHz. Low Band Edge, adjacent secondary channe LTE1. 2151 MHz. Low Band Edge, adjacent secondary channe LTE1. 2151 MHz. Low Band Edge, adjacent secondary channe LTE1. 2151 MHz. Low Band Edge, max offset secondary channe LTE1. 2151 MHz. Low Band Edge, max offset secondary channe LTE1. 2151 MHz. Low Band Edge, max offset secondary channe LTE1. 2151 MHz. Low Band Edge, max offset secondary channe LTE1. 2151 MHz. Low Band Edge, max offset secondary channe LTE1. 2151 MHz. Low Band Edge, max offset secondary channe LTE1. 2151 MHz. Low Band Edge, max offset secondary channe LTE1. 2150 MHz. High Band Edge, adjacent secondary channe LTE1. 2150 MHz. High Band Edge, adjacent secondary channe LTE1. 2150 MHz. High Band Edge, adjacent secondary channe LTE1. 2150 MHz. High Band Edge, adjacent secondary channe LTE1. 2150 MHz. High Band Edge, max offset secondary channe LTE1. 2150 MHz. High Band Edge, adjacent secondary channe LTE1. 2150 MHz. Liw Band Edge, adjacent secondary channe LTE1. 2150 MHz. Liw Band Edge, adjacent secondary channe LTE1. 2150 MHz. Liw Band Edge, adjacent secondary channe LTE1. 2150 MHz. Liw Band Edge, adjacent secondary channe LTE1. 2150 MHz. Liw Band Edge, adjacent secondary channe LTE2. 2120 MHz. Liw Band Edge, adjacent secondary channe LTE2. 2120 MHz. Liw Band Edge, adjacen LTE5, 2112.5 MHz. Low Band Edge, max offset secondary chann -18.79 N/A LTE5, 2152.5 MHz, High Band Edge, adjacent secondary channel Fundamenta N/A -16 -16 -16 N/A 30 MHz - 1 GHz 1 GHz - 5 GHz -28.73 -18.34 Pass Pass 5 GHz - 22 GHz -18.52 N/A Pass N/A Fundamental 30 MHz - 1 GHz 1 GHz - 5 GHz 5 GHz - 22 GHz Fundamental 30 MHz - 1 GHz 1 GHz - 5 GHz Fundamental 30 MHz - 1 GHz 1 GHz - 2 GHz 1 GHz - 2 GHz 1 GHz - 2 GHz 5 GHz - 2 GHz -28.01 -18.3 -18.69 N/A -29.37 -18.14 -19.31 N/A -28.81 -18.45 -16 -16 -16 N/A -16 -16 N/A -16 -16 N/A -16 -16 N/A -16 Pass Pass Pass N/A Pass Pass N/A Pass Pass N/A Pass Pass N/A Pass -19.29 Fundamental 30 MHz - 1 GHz N/A -29.2 1 GHz - 5 GHz 5 GHz - 22 GHz -18.51 Pass -18.7 Fundamental 30 MHz - 1 GHz 1 GHz - 5 GHz 5 GHz - 22 GHz N/A N/A -16 -16 N/A -28.68 -18.46 Pass Pass -19.03 -16 Pass N/A N/A N/A 30 MHz - 1 GHz 1 GHz - 5 GHz 5 GHz - 22 GHz -28.54 -18.11 -18.68 Pass Pass N/A Pass Pass Pass N/A Pass Pass N/A -16 -16 N/A -16 -16 -16 -16 -16 N/A -16 -16 N/A -16 -16 N/A 5 GHz - 22 GHz Fundamental 30 MHz - 1 GHz 1 GHz - 5 GHz 5 GHz - 22 GHz Fundamental 30 MHz - 1 GHz 1 GHz - 5 GHz 5 GHz - 22 GHz Fundamental -18.2 Pass LTE20, 2145 MHz, High Band Edge, max offset secondary channe LTE20, 2145 MHz, High Band Edge, max offset secondary channel 1 GHz - 5 GHz 5 GHz - 22 GHz -18.43 Pass Antenna Port 2 LTE5, 2112.5 MHz, Low Band Edge, adjacent secondary channel LTE5, 2112.5 MHz, Low Band Edge, adjacent secondary channel Fundamental 30 MHz - 1 GHz N/A -28.84 N/A -16 N/A LTE5, 2112.5 MHz, Low Band Edge, adjacent secondary channel LTE5, 2112.5 MHz, Low Band Edge, adjacent secondary channel 1 GHz - 5 GHz 5 GHz - 22 GHz -18.89 -18.91 -16 Pass Pass LIES, 2112.5 MHz, LOW Band Edge, adjacent secondary channel LITES, 2112.5 MHz, LOW Band Edge, max offset secondary channel LITES, 2112.5 MHz, LOW Band Edge, max offset secondary channel LITES, 2112.5 MHz, LOW Band Edge, max offset secondary channel LITES, 2112.5 MHz, LOW Band Edge, max offset secondary channel LITES, 2112.5 MHz, LOW Band Edge, max offset secondary channel LITES, 2112.5 MHz, LIW Band Edge, adjacent secondary channel LITES, 2112.5 MHz, LIW Band Edge, adjacent secondary channel LITES, 2112.5 MHz, LIW Band Edge, adjacent secondary channel LITES, 2112.5 MHz, High Band Edge, adjacent secondary channel LITES, 2112.5 MHz, High Band Edge, adjacent secondary channel LITES, 2112.5 MHz, High Band Edge, max offset secondary channel LITES, 2112.5 MHz, High Band Edge, max offset secondary channel LITES, 2112.5 MHz, High Band Edge, max offset secondary channel LITES, 2115.6 MHz, LIW Band Edge, adjacent secondary channel LITES, 2115 MHz, LOW Band Edge, adjacent secondary channel LITES, 2115 MHz, LOW Band Edge, adjacent secondary channel LITES, 2115 MHz, LOW Band Edge, max offset secondary channel LITES, 2115 MHz, LOW Band Edge, max offset secondary channel LITES, 2115 MHz, LOW Band Edge, max offset secondary channel LITES, 2115 MHz, LOW Band Edge, max offset secondary channel LITES, 2115 MHz, LOW Band Edge, max offset secondary channel LITES, 2115 MHz, LOW Band Edge, max offset secondary channel LITES, 2115 MHz, LOW Band Edge, max offset secondary channel LITES, 2115 MHz, LOW Band Edge, max offset secondary channel LITES, 2115 MHz, LOW Band Edge, max offset secondary channel LITES, 2115 MHz, LOW Band Edge, max offset secondary channel LITES, 2115 MHz, LOW Band Edge, max offset secondary channel LITES, 2115 MHz, LOW Band Edge, max offset secondary channel LITES, 2115 MHz, LOW Band Edge, max offset secondary channel LITES, 2115 MHz, LOW Band Edge, max offset secondary channel LITES, 2115 MHz, LOW Band Edge, max offset secondary channel LITES, 2115 MHz, LOW Band Edge, max offset secondary channel LITES, 2115 MHz, -16 N/A N/A 30 MHz - 1 GHz 1 GHz - 5 GHz 5 GHz - 22 GHz Fundamental -28.3 -18.18 Pass Pass Pass N/A Pass Pass N/A Pass Pass N/A Pass Pass Pass N/A Pass -18.5 N/A Fundamental 30 MHz - 1 GHz 1 GHz - 5 GHz 5 GHz - 22 GHz Fundamental 30 MHz - 1 GHz 5 GHz - 22 GHz Fundamental 30 MHz - 1 GHz Fundamental 30 MHz - 1 GHz 1 GHz - 22 GHz 1 GHz - 22 GHz 1 GHz - 22 GHz Fundamental Pass N/A Pass -18.5 Fundamental 30 MHz - 1 GHz N/A -29.65 LIE10, 2115 MHz, Low Band Edge, max offset secondary channe LTE10, 2115 MHz, Low Band Edge, max offset secondary channe LTE10, 2115 MHz, Low Band Edge, max offset secondary channe LTE10, 2115 MHz, Low Band Edge, max offset secondary channe LTE10, 2150 MHz, Limb Band Edge, max offset secondary channel LTE10, 2150 MHz, High Band Edge, adjacent secondary channel LTE10, 2150 MHz, High Band Edge, adjacent secondary channel LTE10, 2150 MHz, High Band Edge, max offset secondary channel LTE10, 2150 MHz, High Band Edge, max offset secondary channel LTE10, 2150 MHz, High Band Edge, max offset secondary channel LTE10, 2150 MHz, High Band Edge, max offset secondary channel LTE10, 2150 MHz, Limb Band Edge, max offset secondary channel LTE10, 2150 MHz, Limb Band Edge, max offset secondary channel LTE10, 2150 MHz, Low Band Edge, adjacent secondary channel LTE20, 2120 MHz, Low Band Edge, adjacent secondary channel LTE20, 2120 MHz, Low Band Edge, adjacent secondary channel LTE20, 2120 MHz, Low Band Edge, adjacent secondary channel LTE20, 2120 MHz, Low Band Edge, adjacent secondary channel LTE20, 2120 MHz, Low Band Edge, max offset secondary channel LTE20, 2120 MHz, Low Band Edge, max offset secondary channel LTE20, 2120 MHz, Low Band Edge, max offset secondary channel LTE20, 2120 MHz, Low Band Edge, max offset secondary channel LTE20, 2120 MHz, Low Band Edge, max offset secondary channel LTE20, 2145 MHz, High Band Edge, adjacent secondary channel LTE20, 2145 MHz, High Band Edge, adjacent secondary channel LTE20, 2145 MHz, High Band Edge, adjacent secondary channel LTE20, 2145 MHz, High Band Edge, adjacent secondary channel LTE20, 2145 MHz, High Band Edge, adjacent secondary channel LTE20, 2146 MHz, High Band Edge, adjacent secondary channel LTE20, 2146 MHz, High Band Edge, adjacent secondary channel LTE20, 2146 MHz, High Band Edge, adjacent secondary channel LTE20, 2146 MHz, High Band Edge, adjacent secondary channel LTE20, 2146 MHz, High Band Edge, adjacent secondary channel LTE20, 2146 MHz, High Band Edge, adjacent secondary 1 GHz - 5 GHz 5 GHz - 22 GHz Pass Pass -18.87 Fundamental 30 MHz - 1 GHz 1 GHz - 5 GHz 5 GHz - 22 GHz N/A -29.15 -18.62 N/A -16 -16 N/A Pass Pass -18.53 -16 Pass N/A N/A N/A Fundamental 30 MHz - 1 GHz 1 GHz - 5 GHz 5 GHz - 22 GHz Fundamental 30 MHz - 1 GHz 1 GHz - 22 GHz Fundamental 30 MHz - 1 GHz 1 GHz - 5 GHz 5 GHz - 22 GHz 5 GHz - 22 GHz 5 GHz - 22 GHz Fundamental -28.94 -18.48 -19.39 N/A -28.75 -18.37 -18.66 N/A -28.9 -18.75 -16 -16 -16 -16 -16 -16 N/A -16 -16 N/A Pass Pass N/A Pass Pass Pass N/A Pass Pass Pass N/A -19.08 N/A Fundamental -16 -16 -16 Pass Pass Pass LTE20, 2145 MHz, High Band Edge, adjacent secondary channel 30 MHz - 1 GHz -29.17 LTE20, 2145 MHz, High Band Edge, adjacent secondary channel LTE20, 2145 MHz, High Band Edge, adjacent secondary channel 1 GHz - 5 GHz -18.7 -18.75 5 GHz - 22 GHz LTE20, 2145 MHz, High Band Edge, max offset secondary channe LTE20, 2145 MHz, High Band Edge, max offset secondary channels Fundamental 30 MHz - 1 GHz N/A -29.39 N/A -16 N/A LTE20, 2145 MHz, High Band Edge, max offset secondary chann 1 GHz - 5 GHz Pass

133/181 Report No. KMWC0079

5 GHz - 22 GHz

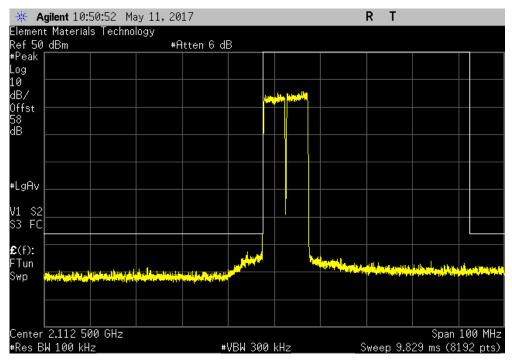
-18.36

LTE20, 2145 MHz, High Band Edge, max offset secondary chann

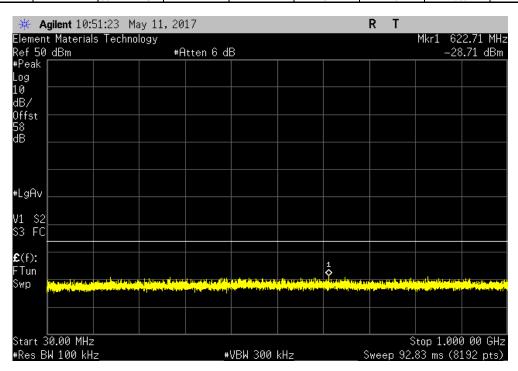


Tbrffs 2017.01.27 XMM 2017.02.08

Antenna Port 1, LTE5, 2112.5 MH	lz, Low Band Edge, a	djacent seco	ndary channel		
Frequency	Ma	ax Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
Fundamental		N/A	N/A	N/A	



Antenna Port 1, LTE5, 2112.5 MHz	, Low Band Edge, adjacent sec	ondary channel	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
30 MHz - 1 GHz	-28.71	-16	Pass

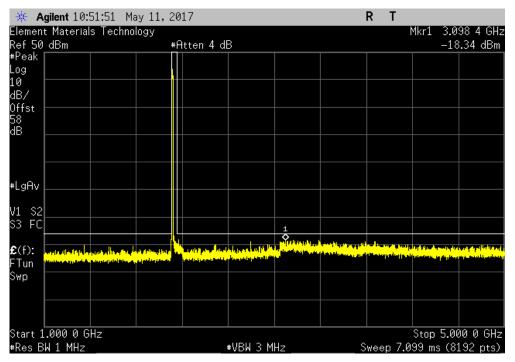


Report No. KMWC0079 134/181

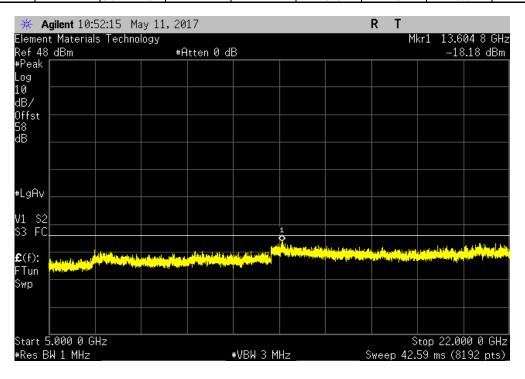


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 1, LTE5, 2112.5 M	/IHz, Low Band Ed	lge, adjacent seco	ondary channel		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
1 GHz - 5 GHz		-18.35	-16	Pass	



Antenna Port 1, LTE5, 2112.5 MHz,	Low Band Edge, adjacent sed	condary channel	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
5 GHz - 22 GHz	-18.19	-16	Pass

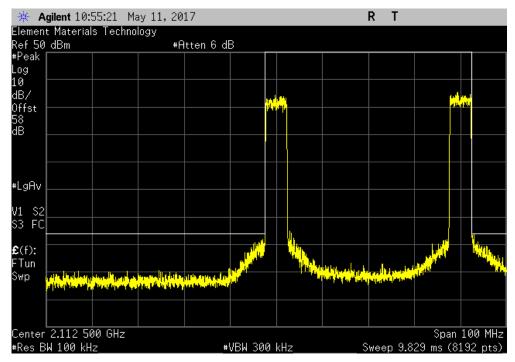


Report No. KMWC0079 135/181

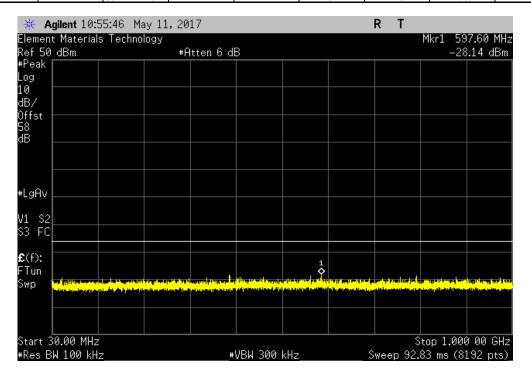


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 1, LTE5, 2112.5	MHz, Low Band Ed	ge, max offset sed	condary channel		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
Fundamental		N/A	N/A	N/A	



Antenna Port 1, LTE5, 2112.5 MHz,	, Low Band Edge, max offset se	condary channel	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
30 MHz - 1 GHz	-28.14	-16	Pass

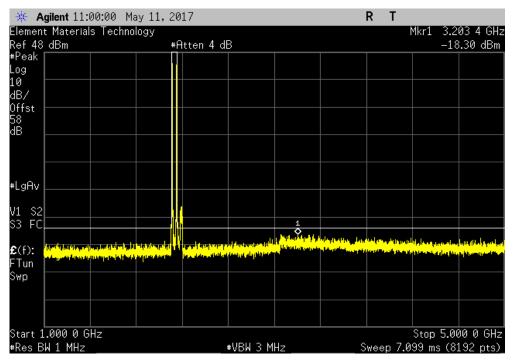


Report No. KMWC0079 136/181

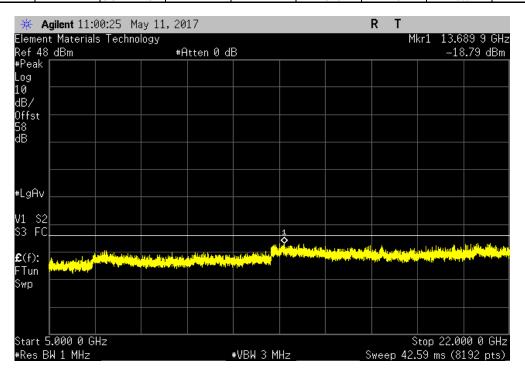


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 1, LTE5, 2	112.5 MHz, Low Band	Edge, max offset sec	ondary channel	
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
1 GHz - 5 GHz		-18.3	-16	Pass



	Antenna Port 1, LTE5, 2112.5 M	Hz, Low Band Ed	ge, max offset se	condary channel	
	Frequency		Max Value	Limit	
_	Range		(dBm)	≤ (dBm)	Result
	5 GHz - 22 GHz		-18.79	-16	Pass

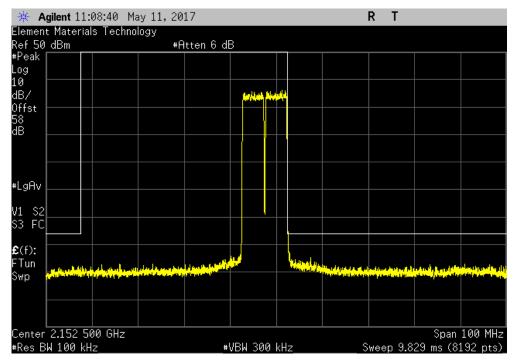


Report No. KMWC0079 137/181

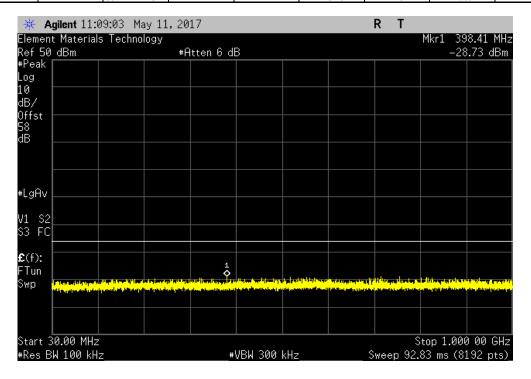


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Antenna Port 1, LTE5, 2152.5 MHz, High Band Edge, adjacent secondary channel  Frequency  Max Value  Limit
Range (dBm) ≤(dBm) Result
Fundamental N/A N/A N/A



Antenna Port 1, LTE5, 2152.5 MHz, High Band Edge, adjacent secondary channel						
Frequency	Frequency Max Value Limit					
Range	(dBm)	≤ (dBm)	Result			
30 MHz - 1 GHz	-28.73	-16	Pass			

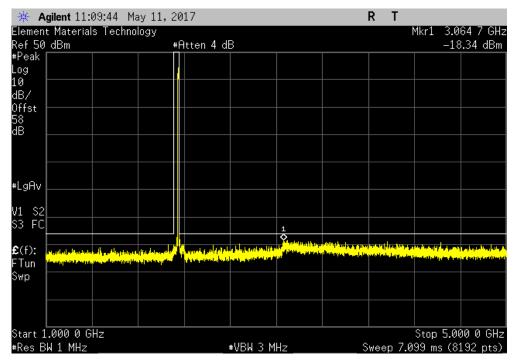


Report No. KMWC0079 138/181

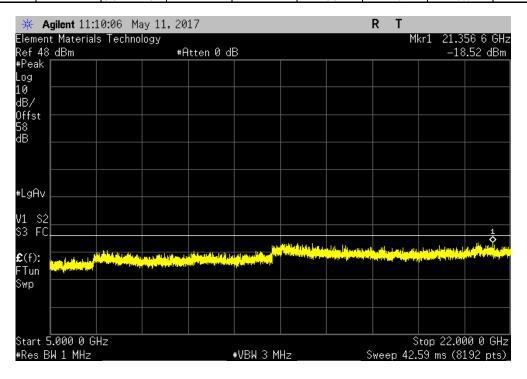


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 1, LTE5, 2152.5 MHz, High Band Edge, adjacent secondary channel						
Frequency	Max Value	Limit				
Range	(dBm)	≤ (dBm)	Result			
1 GHz - 5 GHz	-18.34	-16	Pass			



Antenna Port 1, LTE5, 2152.5 MHz, High Band Edge, adjacent secondary channel						
Frequency	Frequency Max Value Limit					
Range		(dBm)	≤ (dBm)	Result		
5 GHz - 22 GHz		-18.52	-16	Pass		

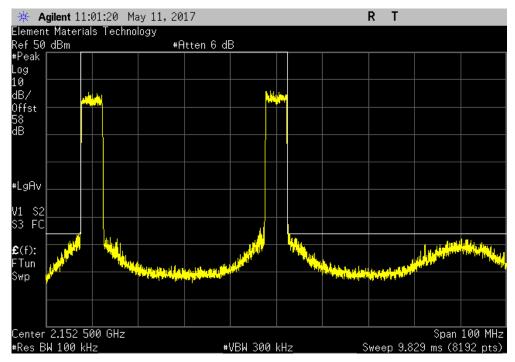


Report No. KMWC0079 139/181

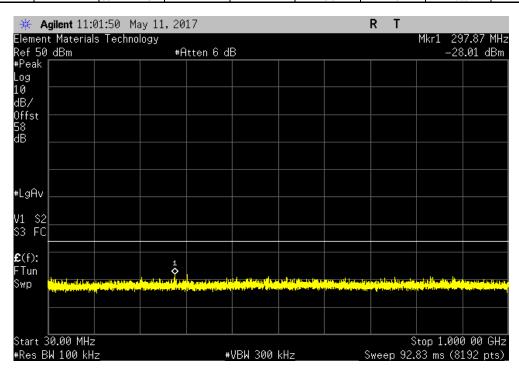


TbtTx 2017.01.27 XMM 2017.02.08

Antenna Port 1, LTE5, 2152.5 MHz, High Band Edge, max offset secondary channel								
	Frequency		Max Value	Limit				
	Range		(dBm)	≤ (dBm)	Result			
	Fundamental		N/A	N/A	N/A			



Antenna Port 1, LTE5, 2152.5 MHz, High Band Edge, max offset secondary channel							
Frequency	Frequency Max Value Limit						
Range	(dBm)	≤ (dBm)	Result				
30 MHz - 1 GHz	-28.01	-16	Pass				

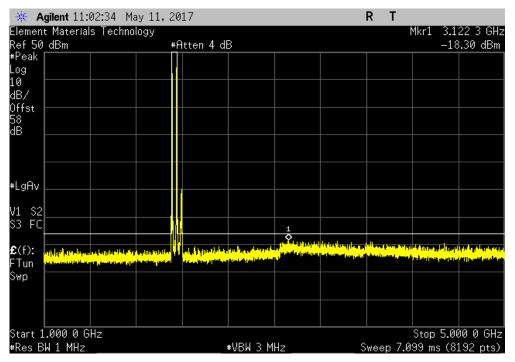


Report No. KMWC0079 140/181

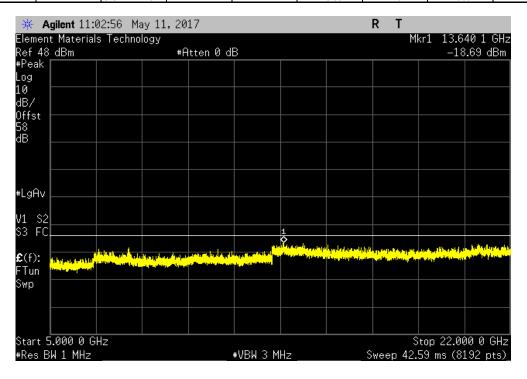


TbtTx 2017.01.27 XMM 2017.02.08

Antenna Port 1, LTE5, 2152.5 MHz, High Band Edge, max offset secondary channel						
	Frequency Max Value Limit					
	Range		(dBm)	≤ (dBm)	Result	
	1 GHz - 5 GHz		-18.3	-16	Pass	ı



Antenna Port 1, LTE5, 2152.5 MHz, High Band Edge, max offset secondary channel							
Frequency Max Value Limit							
Range		(dBm)	≤ (dBm)	Result			
5 GHz - 22 GHz		-18.69	-16	Pass			



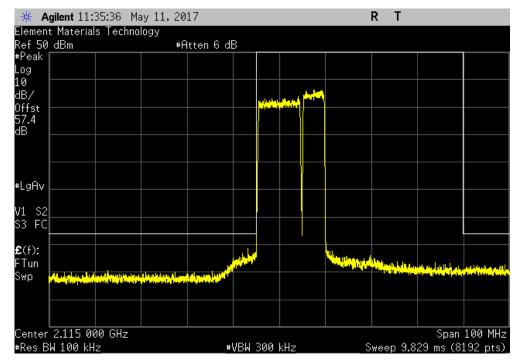
Report No. KMWC0079 141/181



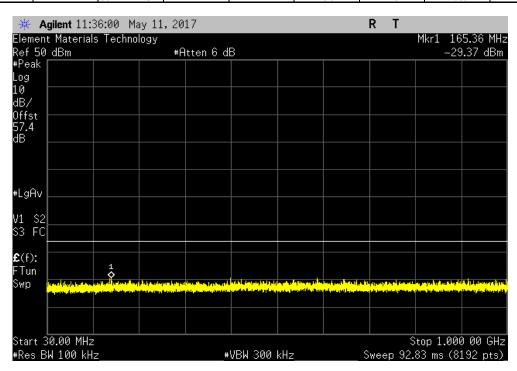
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Antenna Port 1 LTE10 2115 MHz Low Band Edge adjacent secondary channel

Antenna Port 1, LTE10, 2115 MHz, Low Band Edge, adjacent secondary channel								
Frequency Max Value								
	Range	(dBm)	≤ (dBm)	Result				
	Fundamental	N/A	N/A	N/A				



Antenna Port 1, LTE10, 2115 MHz, Low Band Edge, adjacent secondary channel							
Frequency	Frequency Max Value Limit						
Range	(dBm)	≤ (dBm)	Result				
30 MHz - 1 GHz	-29.37	-16	Pass				

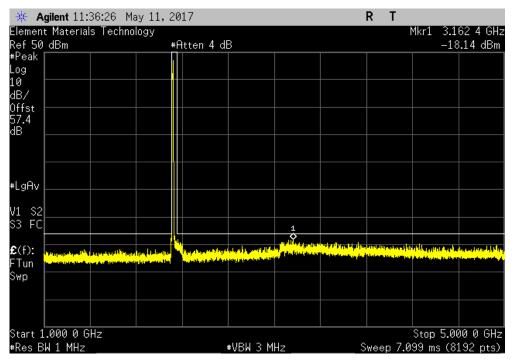


Report No. KMWC0079 142/181

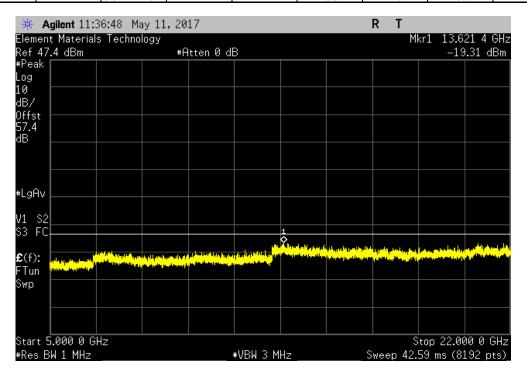


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 1, LTE10, 2115 MHz, Low Band Edge, adjacent secondary channel						
Frequency						
Range		(dBm)	≤ (dBm)	Result		
1 GHz - 5 GHz		-18.14	-16	Pass		



Antenna Port 1, LTE10, 2115 MHz, Low Band Edge, adjacent secondary channel						
Frequency Max Value Limit						
 Range	(dBm)	≤ (dBm)	Result			
5 GHz - 22 GHz	-19.31	-16	Pass			

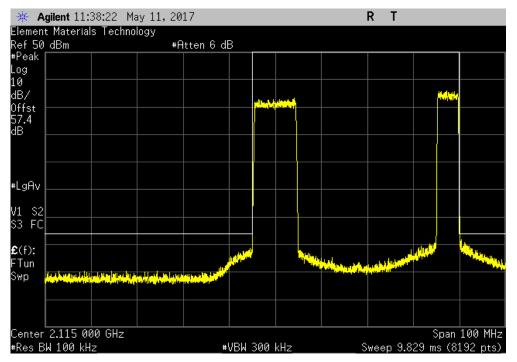


Report No. KMWC0079 143/181

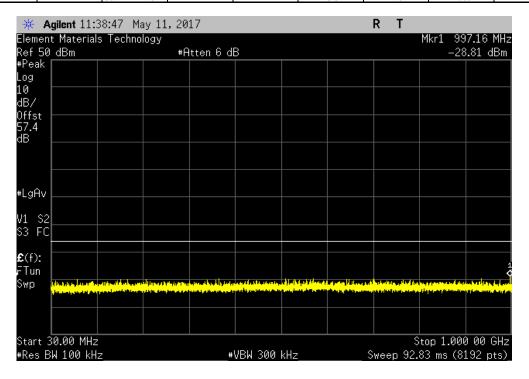


Tb(Tx 2017.01.27 XMM 2017.02.08

Antenna Port 1, LTE10, 2115 MHz, Low Band Edge, max offset secondary channel							
	Frequency		Max Value	Limit			
	Range		(dBm)	≤ (dBm)	Result		
	Fundamental		N/A	N/A	N/A		



Antenna Port 1, LTE10, 2115 MHz, I	Low Band Edge, max offset se	condary channel	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
30 MHz - 1 GHz	-28.81	-16	Pass

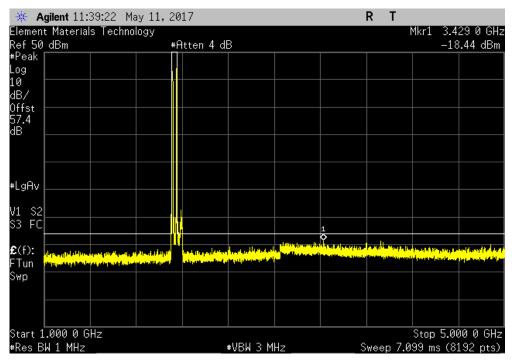


Report No. KMWC0079 144/181

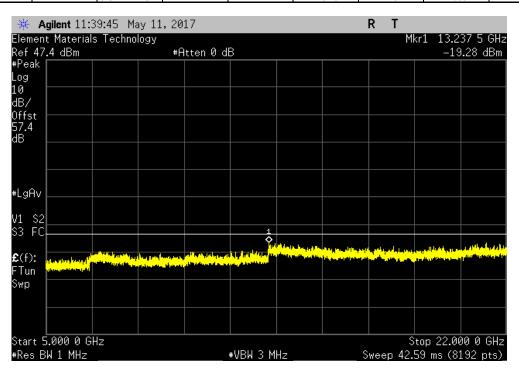


TbrTx 2017.01.27 XMM 2017.02.08

Antenna Port 1, LTE10, 2115 MF	dz, Low Band Edg	ge, max offset sec	ondary channel		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
1 GHz - 5 GHz		-18.45	-16	Pass	



Antenna Port 1, LTE10, 2115 MHz, Low Band Edge, max offset secondary channel				
Frequency		Max Value	Limit	
 Range		(dBm)	≤ (dBm)	Result
5 GHz - 22 GHz		-19.29	-16	Pass

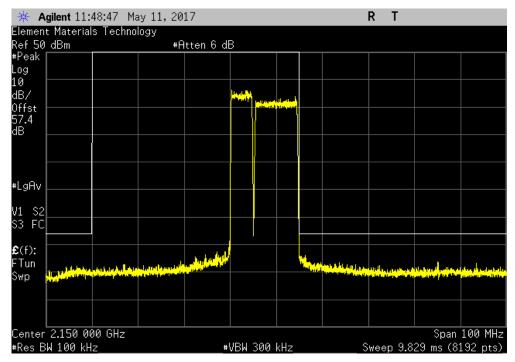


Report No. KMWC0079 145/181

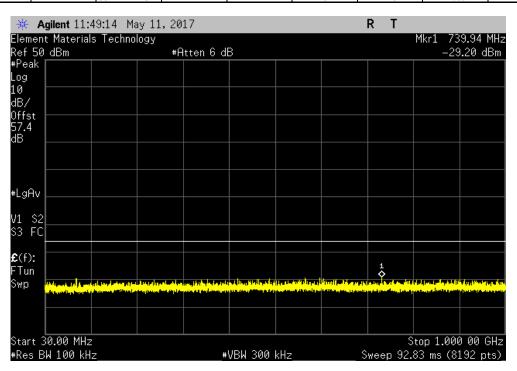


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 1, LTE10, 2150 MHz, High Band Edge, adjacent secondary channel				
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
Fundamental		N/A	N/A	N/A



Antenna Port 1, LTE10, 2150 MHz, High Band Edge, adjacent secondary channel				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
30 MHz - 1 GHz	-29.2	-16	Pass	

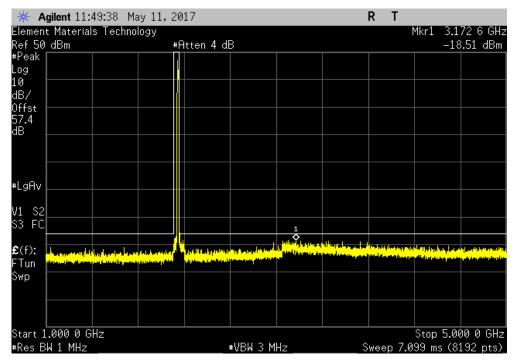


Report No. KMWC0079 146/181

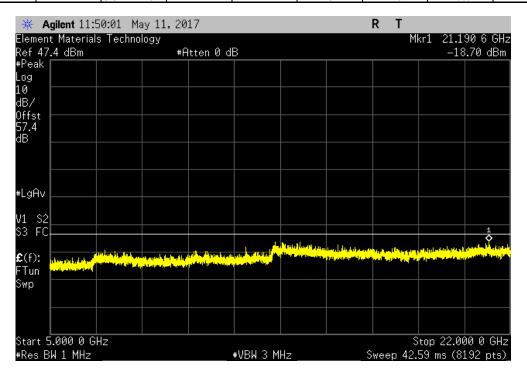


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 1, LTE10, 2150 MHz, High Band Edge, adjacent secondary channel				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
1 GHz - 5 GHz	-18.51	-16	Pass	



Antenna Port 1, LTE10, 2150 MH	Antenna Port 1, LTE10, 2150 MHz, High Band Edge, adjacent secondary channel				
Frequency	Max Value	Limit			
Range	(dBm)	≤ (dBm)	Result		
5 GHz - 22 GHz	-18.7	-16	Pass		

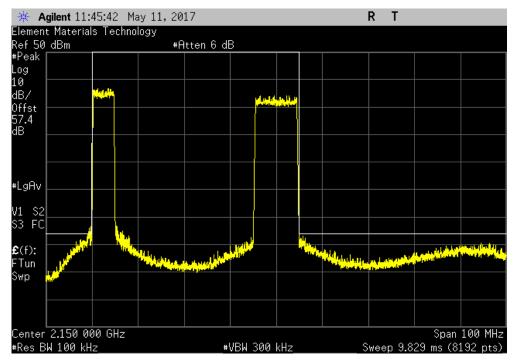


Report No. KMWC0079 147/181

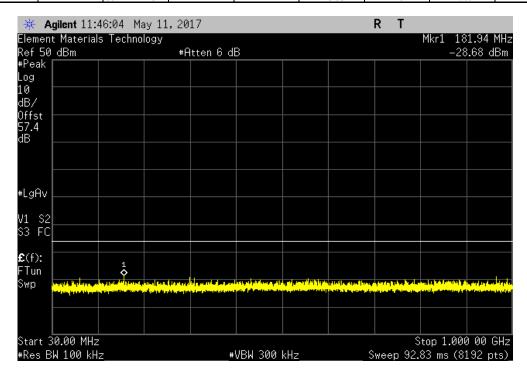


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 1, LTE10, 2150	MHz, High Band Ed	ge, max offset see	condary channel	
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
Fundamental		N/A	N/A	N/A



Antenna Port 1, LTE10, 2150 MHz, High Band Edge, max offset secondary channel					
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
30 MHz - 1 GHz		-28.68	-16	Pass	

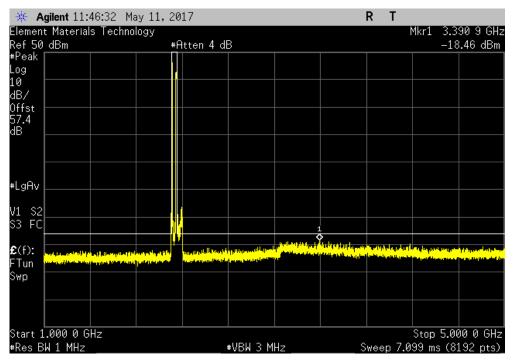


Report No. KMWC0079 148/181

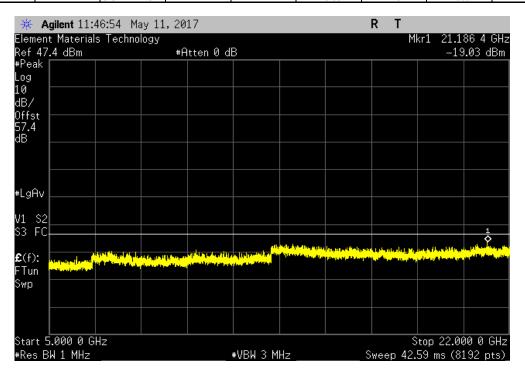


Tb/Tx 2017.01.27 XMit 2017.02.08

Antenna Port 1, LTE10, 2150 M	Hz, High Band Ed	ge, max offset sed	condary channel		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
1 GHz - 5 GHz		-18.46	-16	Pass	



Antenna Port 1, LTE10, 2150 MHz, High Band Edge, max offset secondary channel				
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
5 GHz - 22 GHz		-19.03	-16	Pass

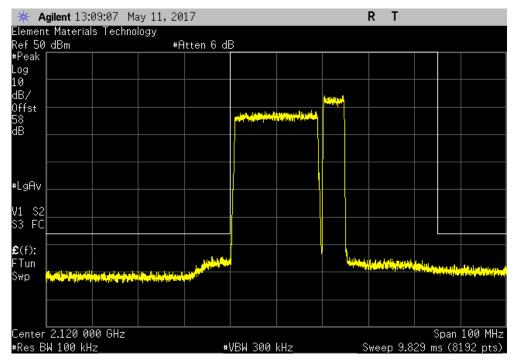


Report No. KMWC0079 149/181

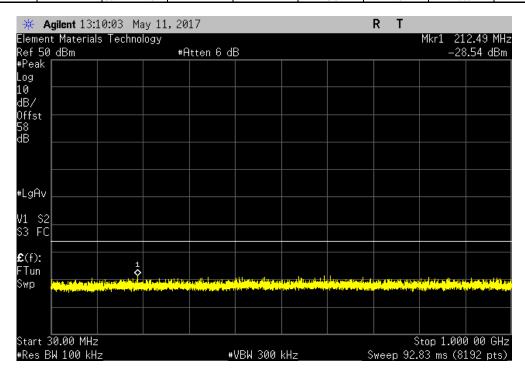


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 1, LTE20, 2120 MHz, Low Band Edge, adjacent secondary channel				
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
Fundamental		N/A	N/A	N/A



Antenna Port 1, LTE20, 2120 MHz, Low Band Edge, adjacent secondary channel				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
30 MHz - 1 GHz	-28.54	-16	Pass	

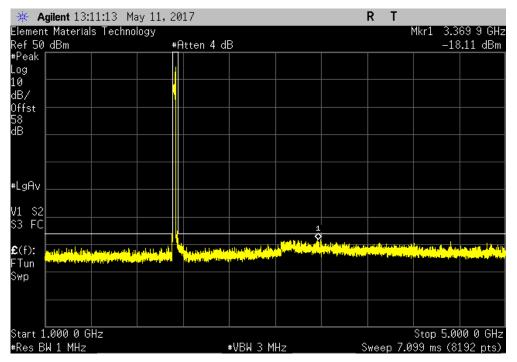


Report No. KMWC0079 150/181

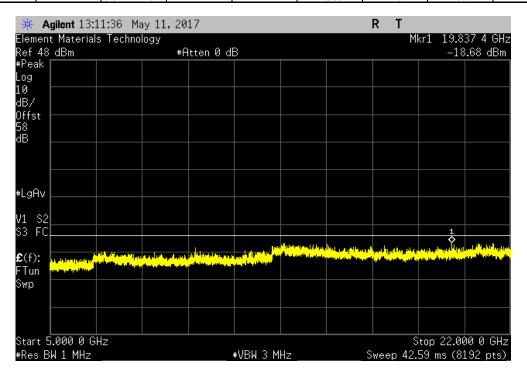


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 1, LTE20, 2120 Mł	Hz, Low Band Ed	lge, adjacent seco	ondary channel		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
1 GHz - 5 GHz		-18.11	-16	Pass	



Antenna Port 1, LTE20, 2120 M	Hz, Low Band Edge, adjacent sec	ondary channel	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
5 GHz - 22 GHz	-18.68	-16	Pass

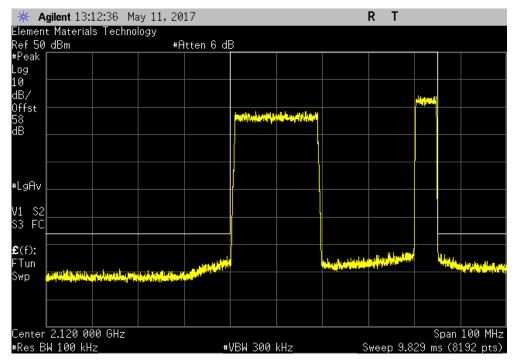


Report No. KMWC0079 151/181

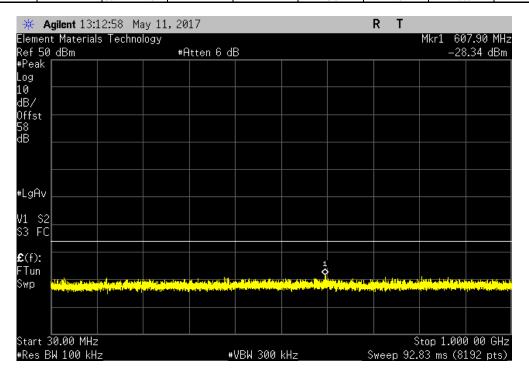


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 1, LTE20, 2120 M	IHz, Low Band Edg	ge, max offset sec	condary channel		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
Fundamental		N/A	N/A	N/A	



Antenna Port 1, LTE20, 2120 MHz, Lo	ow Band Edge, max offset se	condary channel	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
30 MHz - 1 GHz	-28.34	-16	Pass

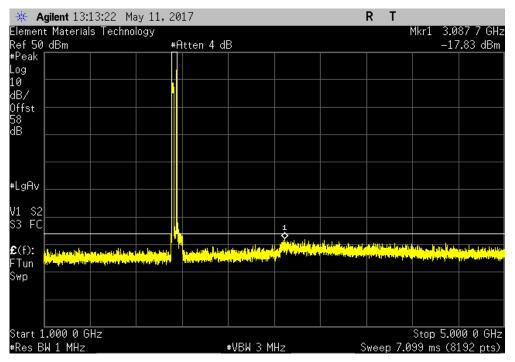


Report No. KMWC0079 152/181

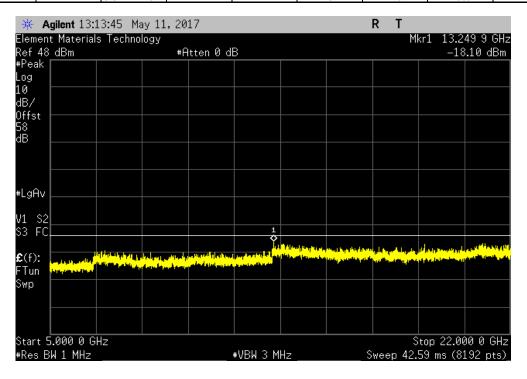


Tbrffs 2017.01.27 XMM 2017.02.08

Antenna Port 1, LTE20, 2120 M	1Hz, Low Band Ed	ge, max offset sec	condary channel		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
1 GHz - 5 GHz		-17.83	-16	Pass	



	Antenna Port 1, LTE20, 2120 Mł	اz, Low Band Edر	ge, max offset sed	condary channel	
	Frequency		Max Value	Limit	
<u></u>	Range		(dBm)	≤ (dBm)	Result
	5 GHz - 22 GHz		-18.1	-16	Pass

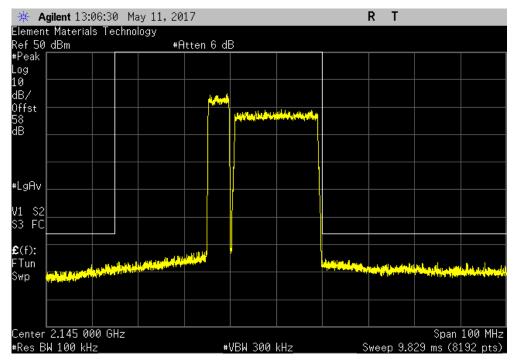


Report No. KMWC0079 153/181

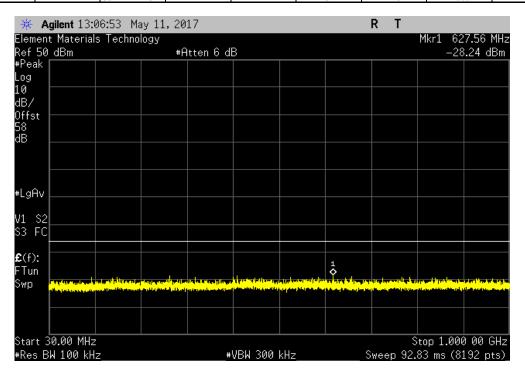


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 1, LTE20, 2145 MHz, High Band Edge, adjacent secondary channel				
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
Fundamental		N/A	N/A	N/A



Antenna Port 1, LTE20, 2145 MHz,	High Band Edge, adjacent see	condary channel	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
30 MHz - 1 GHz	-28.24	-16	Pass

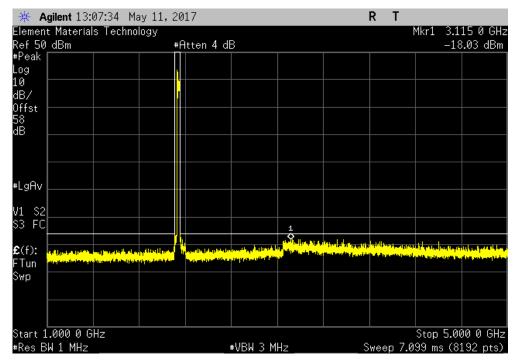


Report No. KMWC0079 154/181

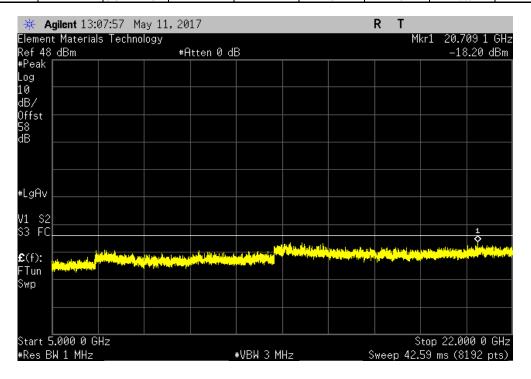


Antenna Port 1 I TE20 2145 MHz. High Rand Edge, adjacent secondary channel

Antenna Port 1, LTE20, 2145 M	Hz, High Band Edge, adjac	ent secondary channel		
Frequency	Max V	alue Limit		
Range	(dB	n) ≤ (dBm)	Result	
1 GHz - 5 GHz	-18.	03 -16	Pass	



Antenna Port 1, LTE20, 2145 MHz,	High Band Edge, adjacent sed	ondary channel	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
5 GHz - 22 GHz	-18.2	-16	Pass

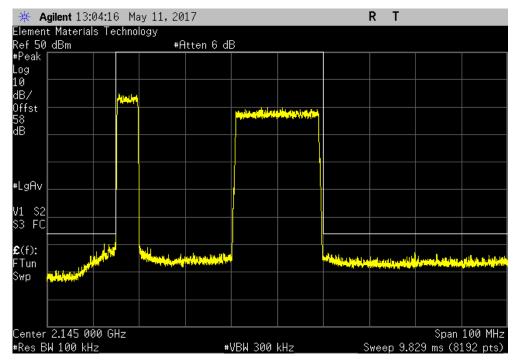


Report No. KMWC0079 155/181

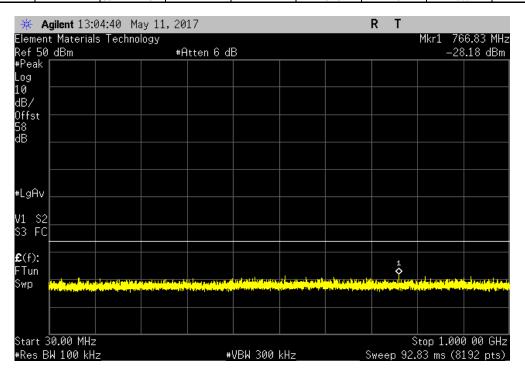


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 1, LTE20, 2145 MHz, High Band Edge, max offset secondary channel				
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
Fundamental		N/A	N/A	N/A



Antenna Po	ort 1, LTE20, 2145 MHz, High Band Edg	e, max offset sed	condary channel	
Frequen	су	Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
30 MHz - 1	GHz	-28.18	-16	Pass

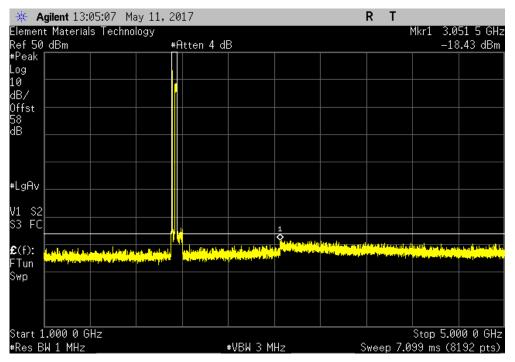


Report No. KMWC0079 156/181

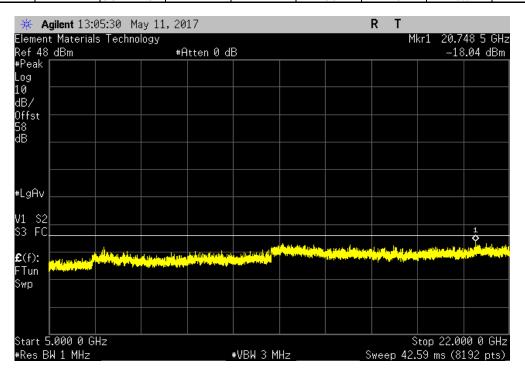


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 1, LTE20, 2145 MH	dz, High Band Ed	ge, max offset sec	condary channel		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
1 GHz - 5 GHz		-18.43	-16	Pass	



Antenna Port 1, LTE20, 2145 MHz, High Band Edge, max offset secondary channel					
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
5 GHz - 22 GHz		-18.04	-16	Pass	

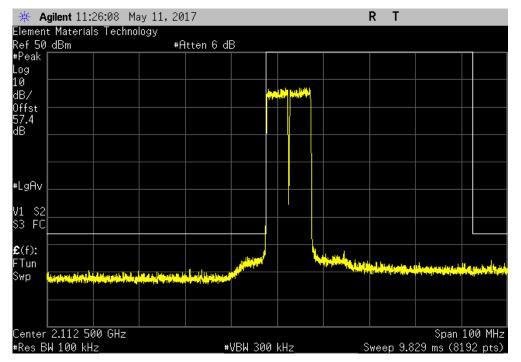


Report No. KMWC0079 157/181

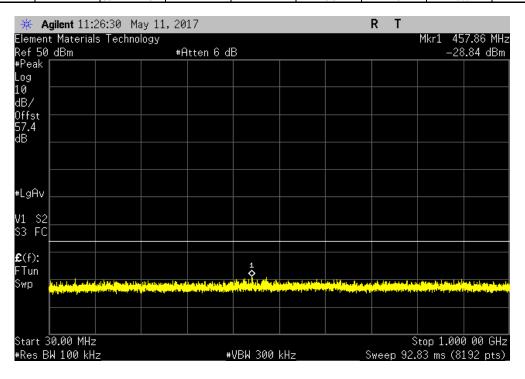


TbrTx 2017.01.27 XMM 2017.02.08

Antenna Port 2, LTE5, 2112.5 MHz, Low Band Edge, adjacent secondary channel						
	Frequency		Max Value	Limit		
	Range		(dBm)	≤ (dBm)	Result	
	Fundamental		N/A	N/A	N/A	



Antenna Port 2, LTE5, 2112.5 MHz, Low Band Edge, adjacent secondary channel					
Frequency	Max Value	Limit			
Range	(dBm)	≤ (dBm)	Result		
30 MHz - 1 GHz	-28.84	-16	Pass		

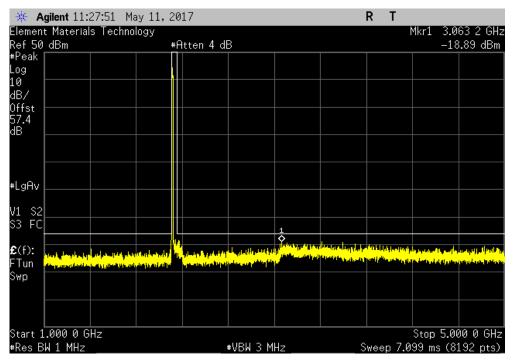


Report No. KMWC0079 158/181

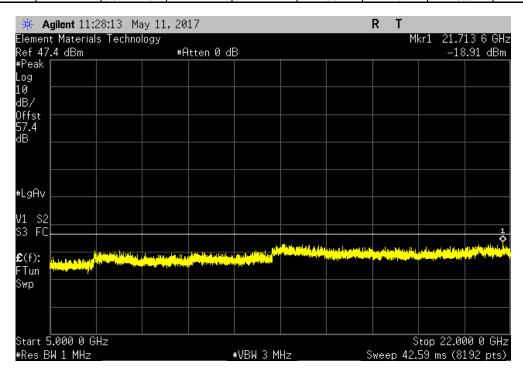


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 2, LTE5, 2112.5 MHz, Low Band Edge, adjacent secondary channel				
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
1 GHz - 5 GHz		-18.89	-16	Pass



Antenna Port 2, LTE5, 2112.5 MHz, Low Band Edge, adjacent secondary channel				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
5 GHz - 22 GHz	-18.91	-16	Pass	

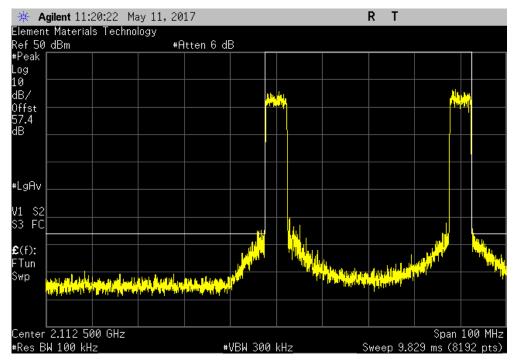


Report No. KMWC0079 159/181

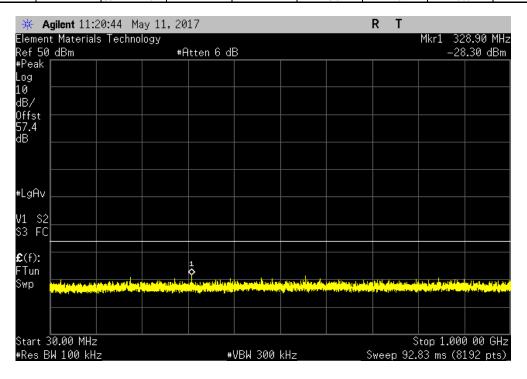


TbdTx 2017.01.27 XMA 2017.02.08

Antenna Port 2, LTE5, 2112.5 I	MHz, Low Band Ed	ge, max offset sed	condary channel		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
Fundamental		N/A	N/A	N/A	



Antenna Port 2, LTE5, 2112.5 MHz, Low Band Edge, max offset secondary channel					
Frequency	Max Value	Limit			
Range	(dBm)	≤ (dBm)	Result		
30 MHz - 1 GHz	-28.3	-16	Pass		

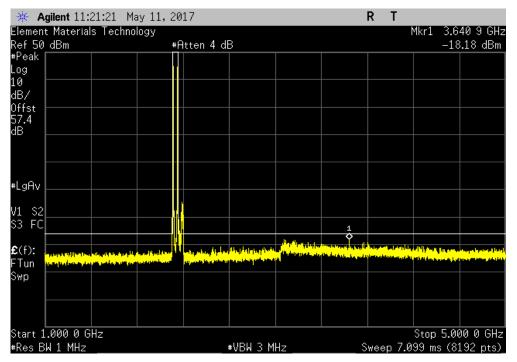


Report No. KMWC0079 160/181

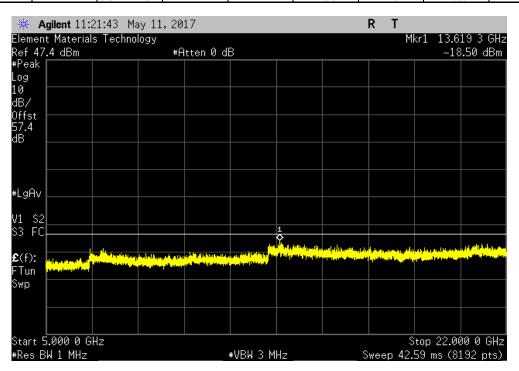


TMTN 2017.01.27 XMM 2017.02.08

Antenna Port 2, LTE5, 2112.5 M	Hz, Low Band Ed	ge, max offset sec	condary channel		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
1 GHz - 5 GHz		-18.18	-16	Pass	



Antenna Port 2, LTE5, 2112.5 MHz, Low Band Edge, max offset secondary channel					
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
5 GHz - 22 GHz		-18.5	-16	Pass	

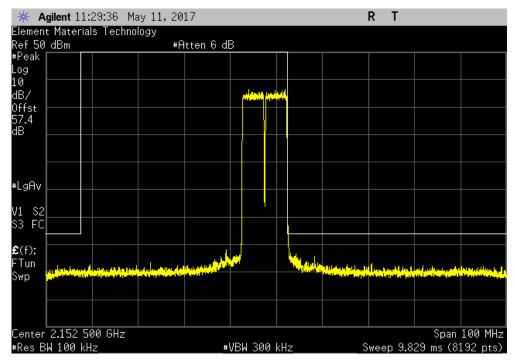


Report No. KMWC0079 161/181

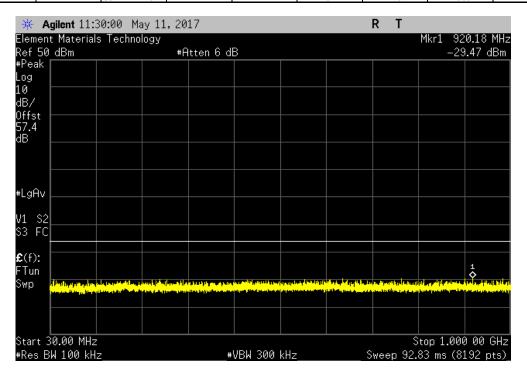


Tbrffs 2017.01.27 XMM 2017.02.08

Antenna Port 2, LTE5, 2152.5	MHz, High Band E	dge, adjacent sec	ondary channel		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
Fundamental		N/A	N/A	N/A	



Antenna Port 2, LTE5, 2152.5 MHz, High Band Edge, adjacent secondary channel					
Frequency	Max Value	Limit			
Range	(dBm)	≤ (dBm)	Result		
30 MHz - 1 GHz	-29.47	-16	Pass		

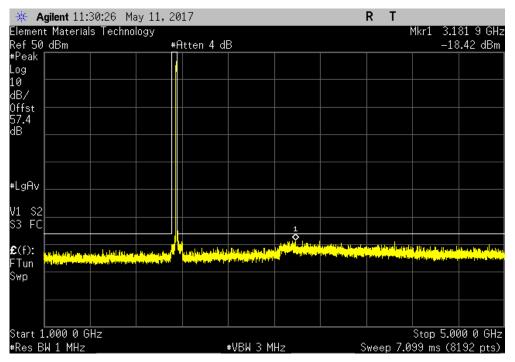


Report No. KMWC0079 162/181

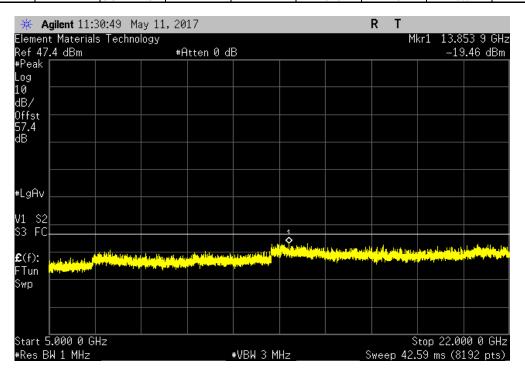


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 2, LTE5, 2152.5 MHz, High Band Edge, adjacent secondary channel					
Frequency	Max Value	Limit			
Range	(dBm)	≤ (dBm)	Result		
1 GHz - 5 GHz	-18.42	-16	Pass		



Antenna Port 2, LTE5, 2152.5 MHz	, High Band Edge, adjacent sec	condary channel	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
5 GHz - 22 GHz	-19.46	-16	Pass

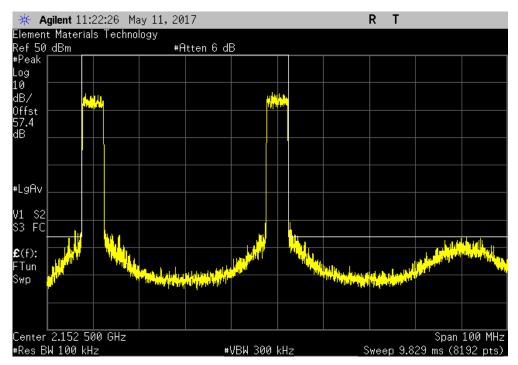


Report No. KMWC0079 163/181

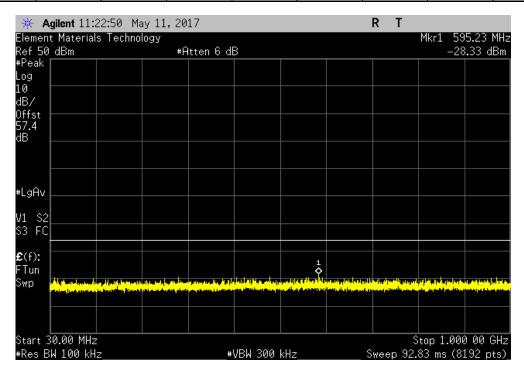


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 2, LTE5, 2152.5 MHz, High Band Edge, max offset secondary channel						
	Frequency		Max Value	Limit		
	Range		(dBm)	≤ (dBm)	Result	
1	Fundamental		N/A	N/A	N/A	



Antenna Port 2, LTE5, 2152.5 MHz, High Band Edge, max offset secondary channel					
	Frequency		Max Value	Limit	
_	Range		(dBm)	≤ (dBm)	Result
ĺ	30 MHz - 1 GHz		-28.33	-16	Pass

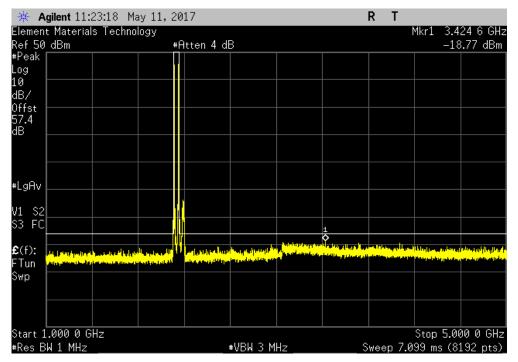


Report No. KMWC0079 164/181

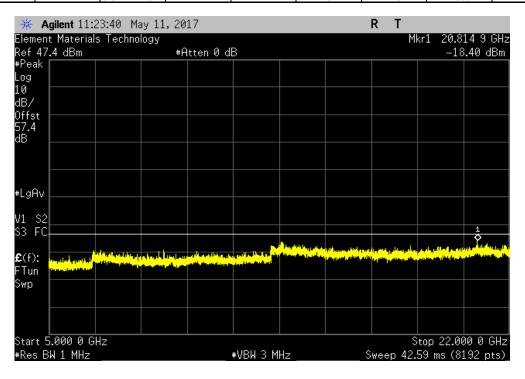


Tb(Tx 2017.01.27 XMA 2017.02.08

Antenna Port 2, LTE5, 2152.5 N	Hz, High Band Ed	ge, max offset sed	condary channel		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
1 GHz - 5 GHz		-18.77	-16	Pass	



Antenna Port 2, L1	TE5, 2152.5 MHz, High Band Ed	ge, max offset se	condary channel	
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
5 GHz - 22 GHz		-18.4	-16	Pass

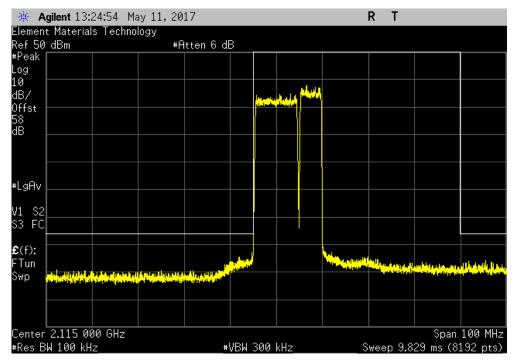


Report No. KMWC0079 165/181

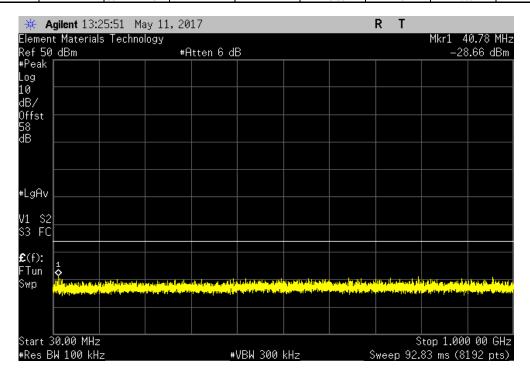


TMTx 2017.01.27 XMe 2017.02.08

Antenna Port 2, LTE10, 2115 MHz, Low Band Edge, adjacent secondary channel						
	Frequency		Max Value	Limit		
	Range		(dBm)	≤ (dBm)	Result	
	Fundamental		N/A	N/A	N/A	



Antenna Port 2, LTE10, 2115 MHz,	Low Band Edge, adjacent sec	ondary channel	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
30 MHz - 1 GHz	-28.66	-16	Pass

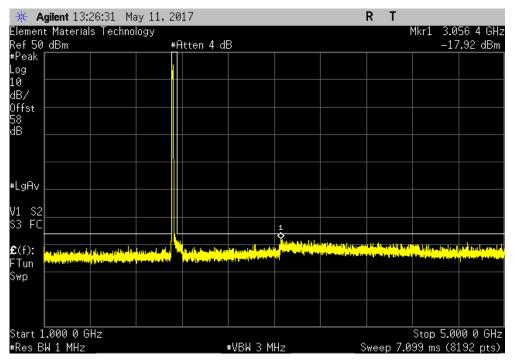


Report No. KMWC0079 166/181

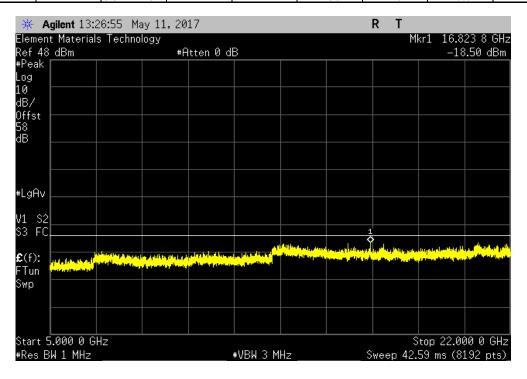


Tbrffs 2017.01.27 XMM 2017.02.08

Antenna Port 2, LTE10, 2115 MHz, Low Band Edge, adjacent secondary channel						
	Frequency		Max Value	Limit		
	Range		(dBm)	≤ (dBm)	Result	
	1 GHz - 5 GHz		-17.92	-16	Pass	



Antenna Port 2, LTE10, 2115 MF	lz, Low Band Edge, adjacent sec	ondary channel	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
5 GHz - 22 GHz	-18.5	-16	Pass

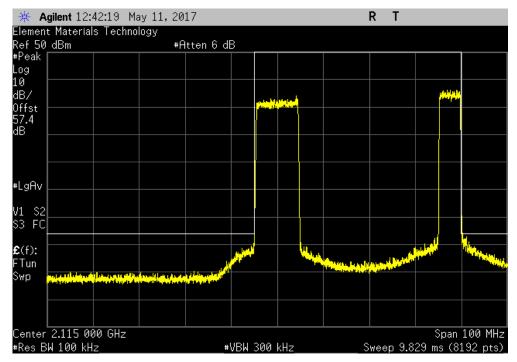


Report No. KMWC0079 167/181

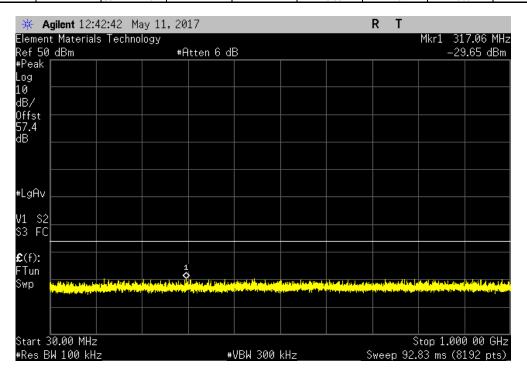


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 2, LTE10, 2115 M	Hz, Low Band Edg	ge, max offset sec	condary channel		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
Fundamental		N/A	N/A	N/A	



Antenna Port 2, LTE10, 2	115 MHz, Low Band Ed	ge, max offset sed	condary channel	
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
30 MHz - 1 GHz		-29.65	-16	Pass

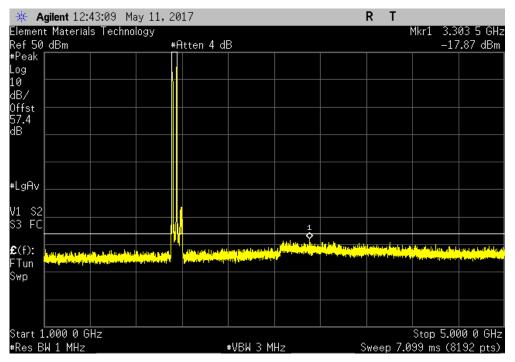


Report No. KMWC0079 168/181

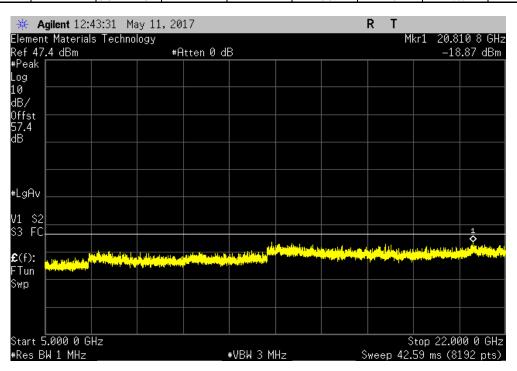


Tb(Tx 2017.01.27 XMIt 2017.02.08

Antenna Port 2, LTE10, 2115 M	Hz, Low Band Edg	ge, max offset sec	ondary channel		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
1 GHz - 5 GHz		-17.87	-16	Pass	



	Antenna Port 2, LTE10, 2115 MHz, Low Band Edge, max offset secondary channel					
	Frequency		Max Value	Limit		
<u> </u>	Range		(dBm)	≤ (dBm)	Result	
	5 GHz - 22 GHz		-18.87	-16	Pass	

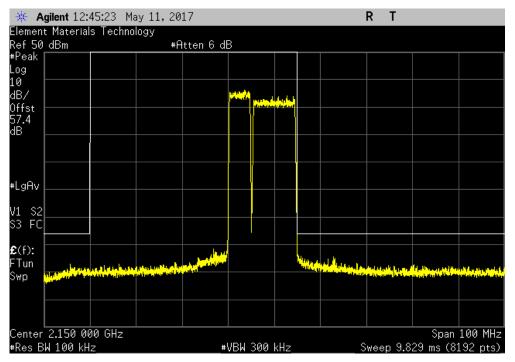


Report No. KMWC0079 169/181

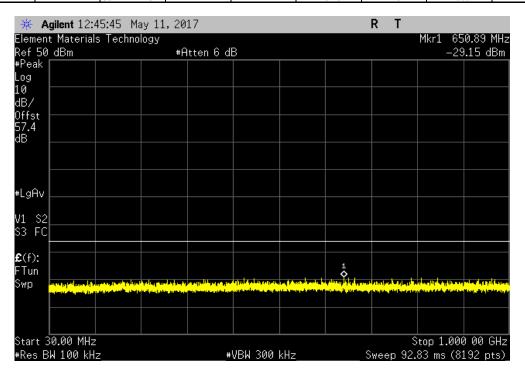


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 2, LTE10, 2150 MHz, High Band Edge, adjacent secondary channel				
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
Fundamental		N/A	N/A	N/A



Antenna Port 2, LTE10, 2150 MHz, High Band Edge, adjacent secondary channel				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
30 MHz - 1 GHz	-29.15	-16	Pass	

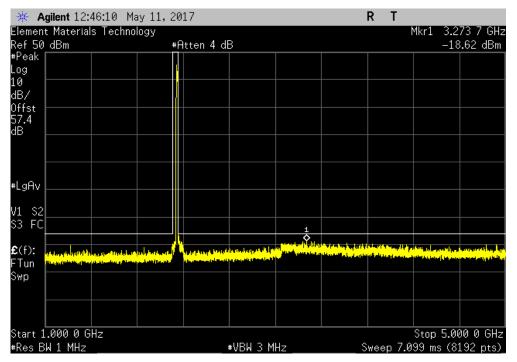


Report No. KMWC0079 170/181

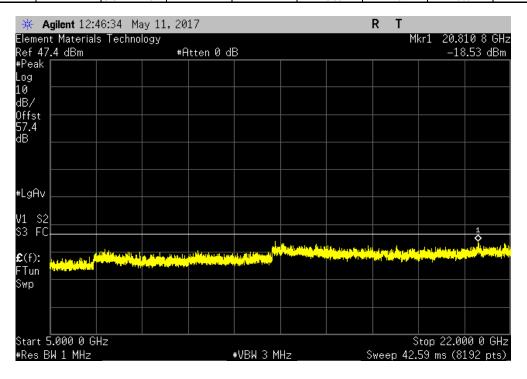


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 2, LTE10, 2150 MHz, High Band Edge, adjacent secondary channel				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
1 GHz - 5 GHz	-18.62	-16	Pass	



Antenna Port 2, LTE10, 2150 MHz	, High Band Edge, adjacent sec	ondary channel	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
5 GHz - 22 GHz	-18.53	-16	Pass

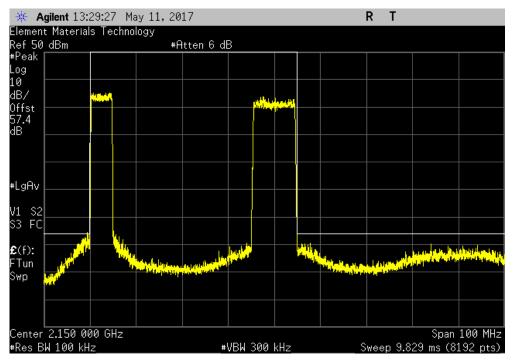


Report No. KMWC0079 171/181

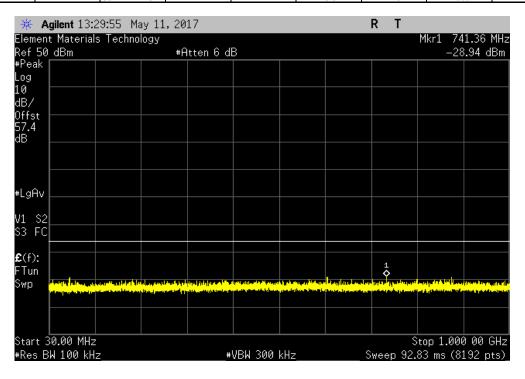


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 2, LTE10, 2150 M	Hz, High Band Ed	ge, max offset sed	condary channel		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
Fundamental		N/A	N/A	N/A	



Antenna Port 2, LTE10, 2150 MHz, High Band Edge, max offset secondary channel					
	Frequency		Max Value	Limit	
	Range		(dBm)	≤ (dBm)	Result
	30 MHz - 1 GHz		-28.94	-16	Pass

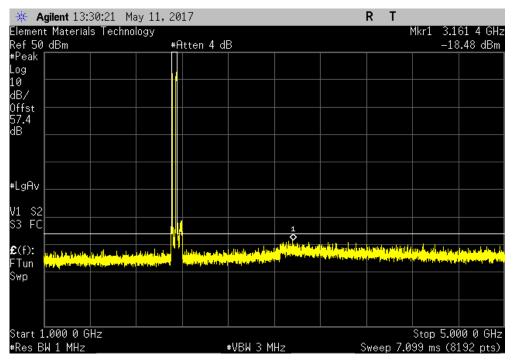


Report No. KMWC0079 172/181

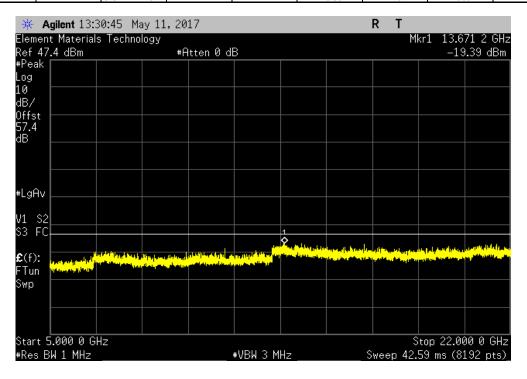


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 2, LTE10, 2150 MHz, High Band Edge, max offset secondary channel				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
1 GHz - 5 GHz	-18.48	-16	Pass	



Antenna Port 2, LTE10, 2150 MHz, High Band Edge, max offset secondary channel				
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
5 GHz - 22 GHz		-19.39	-16	Pass

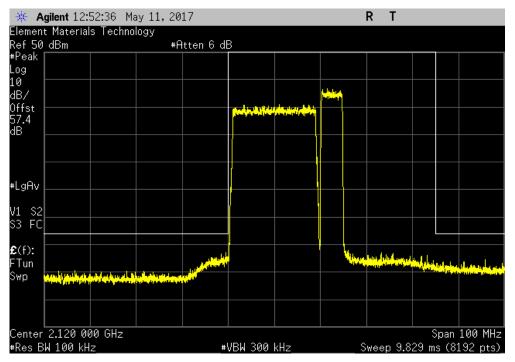


Report No. KMWC0079 173/181

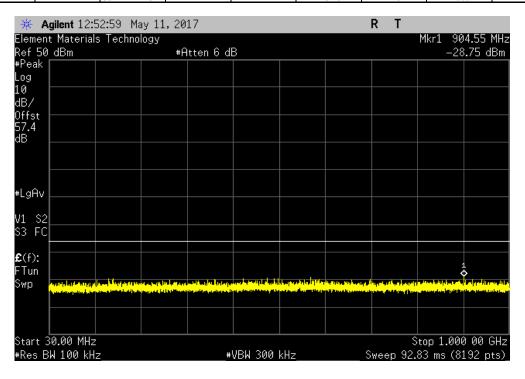


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 2, LTE20, 2120 MHz, Low Band Edge, adjacent secondary channel				
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
Fundamental		N/A	N/A	N/A



Antenna Port 2, LTE20, 2120 MHz, Low Band Edge, adjacent secondary channel				
Frequency	Max Value	Limit		
Range	(dBm)	≤ (dBm)	Result	
30 MHz - 1 GHz	-28.75	-16	Pass	

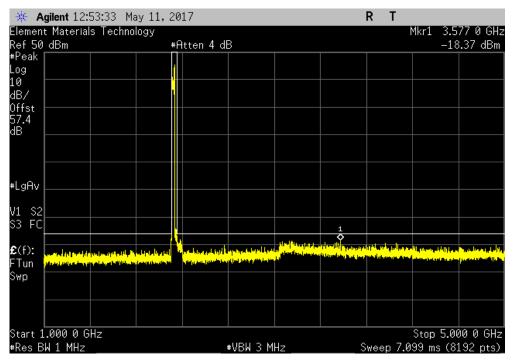


Report No. KMWC0079 174/181

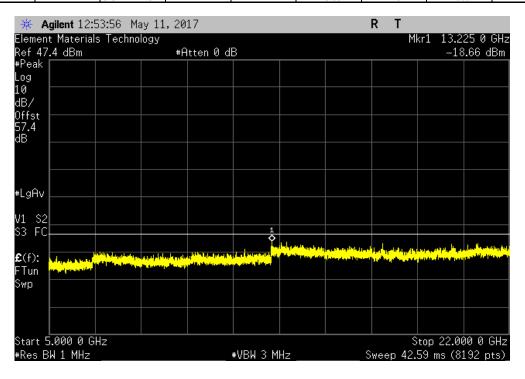


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 2, LTE20, 2120 MHz, Low Band Edge, adjacent secondary channel			
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
1 GHz - 5 GHz	-18.37	-16	Pass



Antenna Port 2, LTE20, 2120 MF	dz, Low Band Edge, adjacent sec	ondary channel	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
5 GHz - 22 GHz	-18.66	-16	Pass

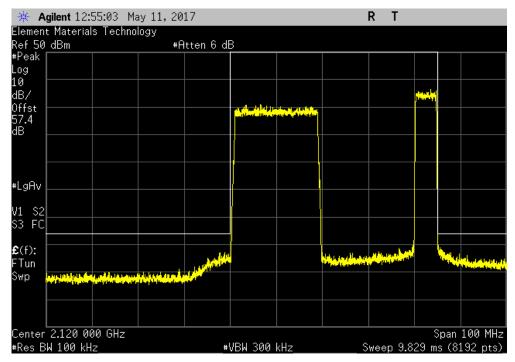


Report No. KMWC0079 175/181

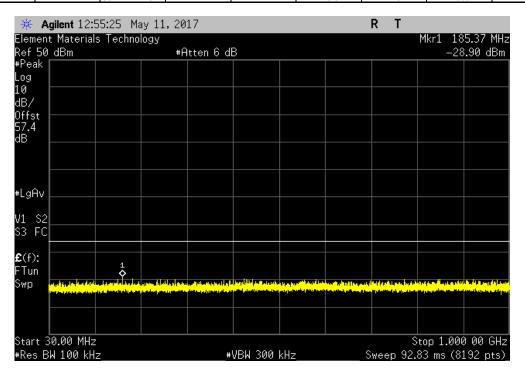


TbtTx 2017.01.27 XMit 2017.02.08

	Antenna Port 2, LTE20, 2120 I	MHz, Low Band Edg	ge, max offset sec	ondary channel		
	Frequency		Max Value	Limit		
	Range		(dBm)	≤ (dBm)	Result	
1	Fundamental		N/A	N/A	N/A	



Antenna Port 2, LTE20, 2120 MHz, L	ow Band Edge, max offset se	condary channel	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
30 MHz - 1 GHz	-28.9	-16	Pass

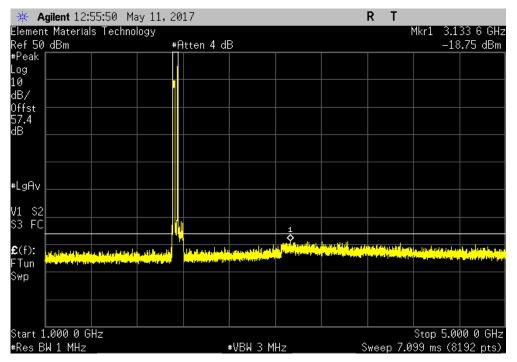


Report No. KMWC0079 176/181

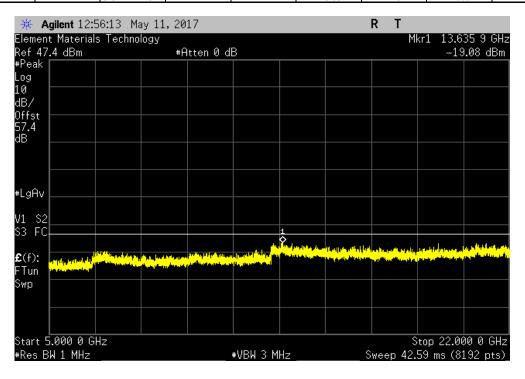


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 2, LTE20, 2120 M	اz, Low Band Ed	ge, max offset sec	ondary channel		
Frequency		Max Value	Limit		
Range		(dBm)	≤ (dBm)	Result	
1 GHz - 5 GHz		-18.75	-16	Pass	



	Antenna Port 2, LTE20, 2120 M	Hz, Low Band Edo	ge, max offset sed	ondary channel	
	Frequency		Max Value	Limit	
_	Range		(dBm)	≤ (dBm)	Result
ĺ	5 GHz - 22 GHz		-19.08	-16	Pass

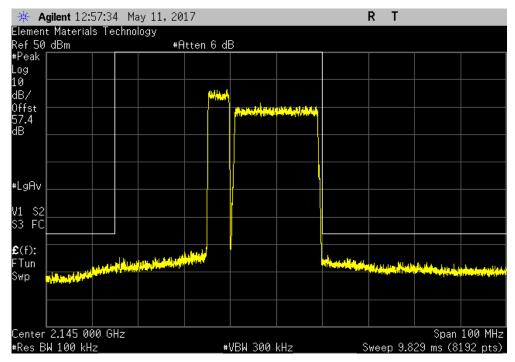


Report No. KMWC0079 177/181

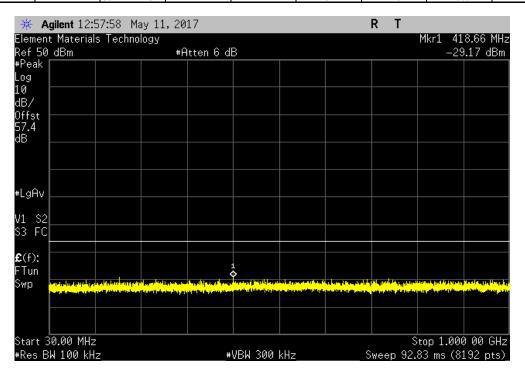


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 2, LTE20, 2145 MHz, High Band Edge, adjacent secondary channel				
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
Fundamental		N/A	N/A	N/A



Antenna Port 2, LTE20, 2145 MHz,	High Band Edge, adjacent seconda	ary channel	
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
30 MHz - 1 GHz	-29.17	-16	Pass

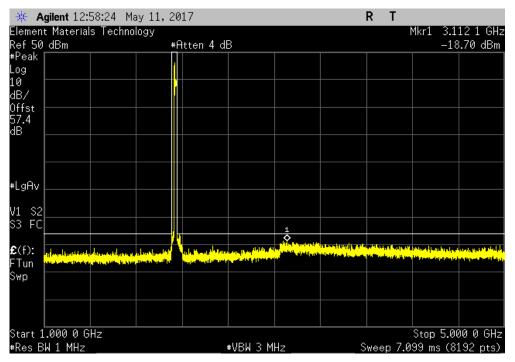


Report No. KMWC0079 178/181

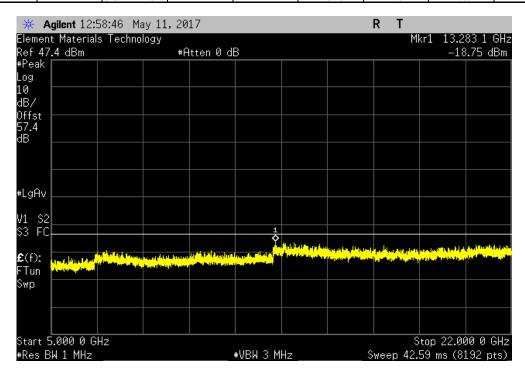


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 2, LTE20, 2145 MHz, High Band Edge, adjacent secondary channel			
Frequency	Max Value	Limit	
Range	(dBm)	≤ (dBm)	Result
1 GHz - 5 GHz	-18.7	-16	Pass



Antenna Port 2, LTE20, 21	45 MHz, High Band E	dge, adjacent sec	ondary channel	
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
5 GHz - 22 GHz		-18.75	-16	Pass

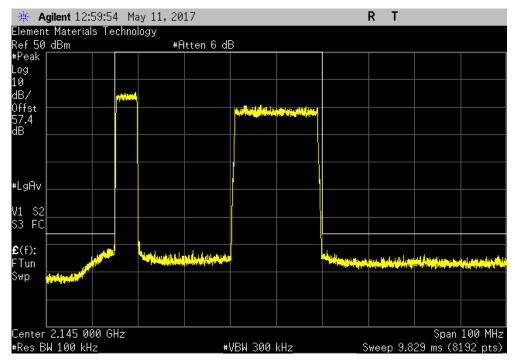


Report No. KMWC0079 179/181

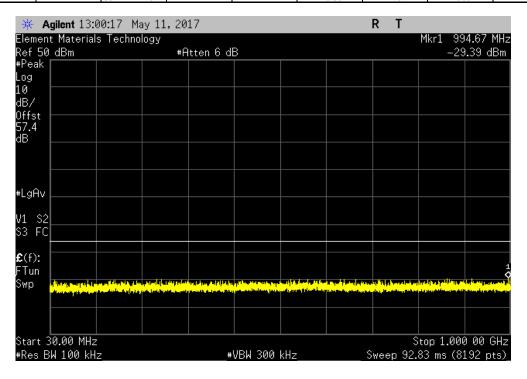


TbtTx 2017.01.27 XMit 2017.02.08

Antenna Port 2, LTE20, 2145 MHz, High Band Edge, max offset secondary channel				
Frequency		Max Value	Limit	
Range		(dBm)	≤ (dBm)	Result
Fundamental		N/A	N/A	N/A



Antenna Port 2, LTE20, 2145 M	Hz, High Band Ed	ge, max offset sed	condary channel	
Frequency		Max Value	Limit	
 Range		(dBm)	≤ (dBm)	Result
30 MHz - 1 GHz		-29.39	-16	Pass

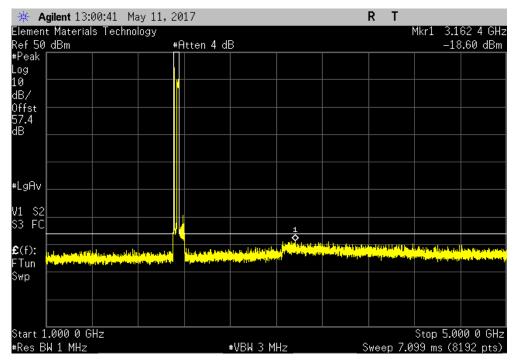


Report No. KMWC0079 180/181

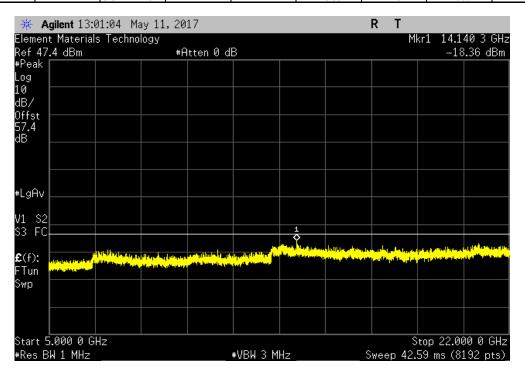


Tb(Tx 2017.01.27 XMit 2017.02.08

Antenna Port 2, LTE20, 2145 MHz, High Band Edge, max offset secondary channel						
Frequency		Max Value	Limit			
Range		(dBm)	≤ (dBm)	Result		
1 GHz - 5 GHz		-18.6	-16	Pass		



Antenna Port 2, LTE20, 2145 MHz, High Band Edge, max offset secondary channel						
	Frequency		Max Value	Limit		
	Range		(dBm)	≤ (dBm)	Result	
	5 GHz - 22 GHz		-18.36	-16	Pass	



Report No. KMWC0079 181/181