Report On

Application for Grant of Equipment Authorization of the
Nextivity Inc.
QUATRA 4000 Industrial Signal Booster

FCC CFR 47 Part 2, 27 and 90
RSS-GEN and RSS-131

Report No. 72154394C **December 2019**

REPORT ON	Radio Testing of the Nextivity Inc. QUATRA 4000 Industrial Signal Booster
TEST REPORT NUMBER	72154394C
PREPARED FOR	Nextivity Inc. 16550 West Bernardo Drive, Bldg 5, Suite 550, San Diego, CA 92127, USA
CONTACT PERSON	CK Li Sr. Principal Engineer, Regulatory (858) 485-9442 CLi@Nextivityinc.com
PREPARED BY	Xiaoying Zhang **Name** Authorized Signatory Title: EMC/Wireless Test Engineer
APPROVED BY	Ferdinand S. Custodio **Name** Authorized Signatory Title: Senior EMC Test Engineer/Wireless Team Lead
DATED	December 19, 2019

TÜV SÜD AMERICA INC 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone: 858 678 1400 FAX: 858 546 0364

Revision History

72154394C Nextivity Inc. QUATRA 4000 Industrial Signal Booster					
DATE	OLD REVISION	NEW REVISION	REASON	PAGES AFFECTED	APPROVED BY
12/19/2018	-	Initial Release			Ferdinand Custodio

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SECTION 1

REPORT SUMMARY

Radio Testing of the
Nextivity Inc.
QUATRA 4000 Industrial Signal Booster

1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Nextivity Inc. QUATRA 4000 Industrial Signal Booster to the requirements of the following:

- FCC CFR 47 Part 2, 27 and 90
- RSS-Gen Issue 5 April 2018
- RSS-199 Issue 3 December 2016
- RSS-131 Issue 3 January 2017

Objective	To perform Radio Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Nextivity Inc.
EUT	Industrial Signal Booster
Product Marketing Name	QUATRA 4000
Model Number(s)	NU: I44-1234CNU CU: I41-5ECU
FCC ID Number	NU: YETI441234CNU CU: YETI415ECU
IC Number	NU: 9298A-I441234CNU CU: 9298A-I415ECU
Serial Number(s)	370920000139 (NU), 371929000156 (CU) and 443935000064 (CU)
Number of Samples Tested	3
Test Specification/Issue/Date	• FCC CFR 47 Part 2, 27 and 90 (October 1, 2018) • RSS-131 - Zone Enhancer (Issue 3, May 2017) • RSS-Gen - General Requirements for Compliance of Radio Apparatus (Issue 5, April 2018) • ANSI C63.26-2015: American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
Start of Test	November 08, 2019
Finish of Test	December 05, 2019
Name of Engineer(s)	Xiaoying Zhang
Related Document(s)	• KDB412172 D01 Determining ERP and EIRP v01r01 August 07, 2015: Guidelines for determining the Effective Radiated Power (ERP) and Equivalent Isotropically Radiated Power (EIRP) of an RF transmitting system • KDB971168 D01 Power Meas License Digital Systems v03r01: April 9 2018: Measurement guidance for certification of licensed digital transmitters • KDB 935210 D05 Indus Booster Basic Meas v01r03 (April 15, 2019)

1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC CFR 47 Part 2, 27 and 90 with cross-reference to the corresponding ISED RSS standards is shown below.

LTE Band 26 (814 – 814 / 859 – 869 MHz)						
Section	Spec Clause				Test Description	Result
	FCC Part 2	FCC Part 90	KDB 935210 D05	RSS-131		
2.1	2.1046	-	-	-	Transmitter Conducted Output Power	Compliant
2.2	2.1046	90.635(b)	-	-	Effective Radiated Power and Effective Isotropically Radiated Power	Compliant
2.3	2.1049	90.219(e)(4)(ii)	-	-	Occupied Bandwidth	Compliant
2.4	-	-	-	-	Peak-Average Ratio	Compliant
2.5	2.1051	90.691(a)	-	-	Band Edge	Compliant
2.6	2.1051	90.691(a)	4.7.3	-	Conducted Spurious Emissions	Compliant
2.7	2.1053	90.691(a)	4.9	-	Field Strength of Spurious Radiation	Compliant
2.8	2.1055	90.213	4.8	5.2.4	Frequency Stability	Compliant
2.9	-	-	-	-	Power Line Conducted Emissions	Compliant
2.10	-	-	4.2	-	ACG Threshold Level	Compliant
2.11	-	-	4.3	5.2.1	Out of Band Rejection	Compliant
2.12	-	90.219 (e)(4)(ii)	4.4	5.2.2	Input-versus-output signal comparison	Compliant
2.13	-	90.219 (e)(4)(ii) (iii), 90.210	4.4	-	Emission Mask	Justification
2.14	-	90.219(e)(1)	4.5	5.2.3	Input / Output Power and Amplifier / Booster Gain	Compliant
2.15	-	90.219(e)(2)	4.6	-	Noise Figure	Compliant
2.16	2.1051	90.691(a)	4.7	-	Out-of-band/out-of-block (Intermodulation) and Spurious Emissions	Compliant

LTE Band 41							
Section	Spec Clause					Test Description	Result
	FCC Part 2	FCC Part 27	KDB 935210 D05	RSS-199 RSS-Gen	RSS-131		
2.1	2.1046	-	-	-	-	Transmitter Conducted Output Power	Compliant
2.2	2.1046	27.50(h)(1)	-	4.4	-	Effective Radiated Power and Effective Isotropically Radiated Power	Compliant
2.3	2.1049	-	-	RSS-Gen 6.7	-	Occupied Bandwidth	Compliant
2.4	-	-	-	4.4	-	Peak-Average Ratio	Compliant
2.5	2.1051	27.53(m)(2) and (4)	-	4.5	-	Band Edge	Compliant
2.6	2.1051	27.53(m)(2) and (4)	-	4.5	-	Conducted Spurious Emissions	Compliant
2.7	2.1053	27.53(m)(2) and (4)	-	4.5	-	Field Strength of Spurious Radiation	Compliant
2.8	2.1055	27.54	-	4.3	5.2.4	Frequency Stability	Compliant
-	-	-	-	RSS-Gen 7.1	-	Receiver Spurious Emissions	N/A
2.9	-	-	-	RSS-GEN 8.8	-	Power Line Conducted Emissions	Compliant
2.10	-	-	3.2	-	-	ACG Threshold Level	Compliant
2.11	-	-	3.3	-	5.2.1	Out of Band Rejection	Compliant
2.13	-	-	-	-		Emission Mask	For LTE Band 26 only
2.12	-	-	3.4	-	5.2.2	Input-versus-output signal comparison	Compliant
2.14	-	-	3.5	-	5.2.3	Input / Output Power and Amplifier / Booster Gain	Compliant
2.15	-	-	-	-		Noise Figure	For LTE Band 26 only
2.16	2.1051	27.53(m)(2) and (4)	3.6	4.5	-	Out-of-band/out-of-block (Intermodulation) and Spurious Emissions	Compliant

N/A: Not applicable. EUT is not a Stand-Alone receiver.

1.3 PRODUCT INFORMATION

1.3.1 EUT General Description

The Equipment Under Test (EUT) was a Nextivity Inc. QUATRA 4000 Industrial Signal Booster. The EUT is a WCDMA/LTE Signal Booster to improve voice and data cellular performance in large enterprise environments. Quatra 4000 is capable to support up to four carriers (via separate donor antenna ports). Quatra 4000 consists of two separate units: the Network Unit (NU), and the Coverage Unit (CU). The NU comprises a transmitter and receiver which communicate with the cell tower and the CU. CU comprises a transmitter and receiver which communicate with the User Equipment (e.g. Cell Phone) and the NU.

Users place the NU in an area with the strongest signal from the carrier networks. The CUs are then either placed in the center of the home or office, or in the area where the best signal quality is most needed. The NU and CU are placed at varying distance apart and are communicated via Ethernet cables.

One NU can connect up to six CUs via Ethernet Cat 5 cables. The NU transmits and receives Cellular signals from the base station and operates similar to a cellular handset. The CU transmits and receives signals with the cellular handset and operates on frequencies similar to the cellular base station.

NU has four antenna ports. Each antenna port is assigned to support one operator, separated donor antennas. Up to two bands can be transmitted simultaneously at each antenna port from yellow group to another colored group (eg. Carrier B: LTE Band 71 + Band 4, Band 71 + Band 25, Band 12 + Band 4, Band 12 + Band 25).

Up to two bands on each antenna port															
Ant Port	1					2				3			4		
Operator #	A					B				C			D		
Max Support BW	30 MHz					40 MHz				30 MHz			40 MHz		
Band	LB12	LB30	W5	L25	L4	L71	L12	L4	L25	L13	L25	L4	L41	L26	L25
Band Combination	√		√			√		√		√	√		√	√	
	√			√		√			√	√		√	√		√
	√				√		√	√		-	-	-		√	√
		√	√				√		√	-	-	-	-	-	-
		√		√				√	√	-	-	-	-	-	-
		√			√	-	-	-	-	-	-	-	-	-	-

The LTE Band 26 859-869/814-824 MHz and LTE Band 41 function of the EUT were verified in this test report.

1.3.2 Technical Description

EUT Description	Industrial Signal Booster
Trade Name	Cel-Fi™
Product Marketing Name	QUATRA 4000
Model Number(s)	NU: I44-1234CNU CU: I41-5ECU
Rated Voltage	NU: 120 VAC 60Hz CU: 54V DC (powered from NU via 2 Ethernet cables)
Mode Verified	FDD LTE Band 26 (814 – 824 MHz / 859 – 869 MHz) TDD LTE Band 41
Frequency Bands	FDD LTE Band 26: Uplink: 814 – 824 MHz Downlink: 859 – 869 MHz TDD LTE Band 41: Uplink/Downlink: 2496 – 2690 MHz

Product Specifications

Frequency Band	Band 26	Band 41
Technology	FDD LTE	TDD LTE
Booster Bandwidth	5, 10 MHz	5, 10, 15, 20 MHz
Downlink Output Power	Max. 16 dBm	Max. 16 dBm
Uplink Output Power	Max. 22 dBm	Max. 22 dBm

Capability	WCDMA (Band 5), LTE (Band 4, 12, 13, 25, 26, 30, 41 and 71)
Primary Unit (EUT)	☐ Production ☒ Pre-Production ☐ Engineering
Environment	Fixed, Indoor
Manufacturer Declared Temperature Range	0°C to 40°C
Antenna Type	External Antenna
Manufacturer	Refer to the Antenna information supplied by the manufacture
Antenna Model	Refer to the Antenna information supplied by the manufacture

Maximum Antenna System (Antenna + Cable) Gain

Radio	Uplink (Donor)	Downlink (Server)
LTE Band 26	6.35 dBi	0.4 dBi
LTE Band 41	3.92 dBi	2.3 dBi

1.3.3 Transmit Frequency Table

Mode	Channel Bandwidth (MHz)	Tx Frequency (MHz)	Emission Designator	ERP	
				Max. Power Avg (dBm)	Max. Power Avg (W)
LTE Band 26 (859-869MHz) Downlink	5	859 - 869	4M44F9W	9.74	0.01
	10	859 - 869	8M88F9W	12.36	0.02
LTE Band 26 (814-824MHz) Uplink	5	814 - 824	4M44F9W	27.92	0.62
	10	814 - 824	8M89F9W	27.90	0.62

Mode	Channel Bandwidth (MHz)	Tx Frequency (MHz)	Emission Designator	EIRP	
				Max. Power Avg (dBm)	Max. Power Avg (W)
LTE Band 41 Downlink	5	2496 - 2590	4M47F9W	11.36	0.01
	10	2496 - 2590	8M97F9W	14.21	0.03
	15	2496 - 2590	13M3F9W	15.93	0.04
	20	2496 - 2590	17M9F9W	17.27	0.05
LTE Band 41 Uplink	5	2496 - 2590	4M45F9W	23.05	0.20
	10	2496 - 2590	8M92F9W	23.21	0.21
	15	2496 - 2590	13M3F9W	23.22	0.21
	20	2496 - 2590	17M7F9W	23.77	0.24

1.4 EUT TEST CONFIGURATION

1.4.1 Test Configuration Description

Test Configuration	Description
A	Downlink (CU TX). Input signal is applied to antenna port of NU. Output is monitored from antenna port of CU.
B	Uplink (NU TX). Input signal is applied to antenna port of CU. Output is monitored from antenna port of NU.
C	Radiated test setup. Downlink (CU TX). Input signal is applied to antenna port of NU. Antenna port of CU is terminated with a 50Ω load.
D	Radiated test setup. Uplink (NU TX). Input signal is applied to antenna port of CU. Antenna port of NU is terminated with a 50Ω load.

1.4.2 EUT Exercise Software

Manufacturer provided a Nextivity Chart Interface v2.0.0.16 running from a support laptop where both EUT are connected via USB.

1.4.3 Support Equipment and I/O cables

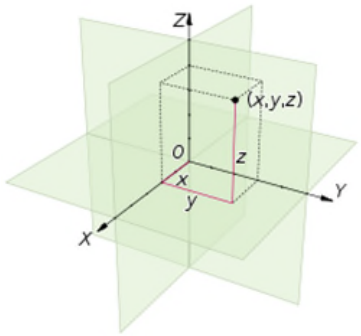
Manufacturer	Equipment/Cable	Description
Dell	Support Laptop	M/N: Latitude D630 PP18L S/N: 5SBJBG1
Dell	Support Laptop AC Adapter	M/N: PA-1900-02D S/N: 5SBJBG1
Nextivity	Support USB cable x 2	Custom 1.0 meter shielded USB Type A to Type A cable
Nextivity	Support USB cable x 2	Custom 1.0 meter shielded USB Type A to Micro B cable
Nextivity	USB / Interface Box x 2	Unshielded with “Tag-Connect” interface
Agilent	ESG Vector Signal Generator	M/N: E4438C S/N: MY49071335
Ramsey	Support Shielded Test Enclosure	With custom USB cable

1.4.4 Worst Case Configuration

Worst-case configuration used in this test report as per output power measurements:

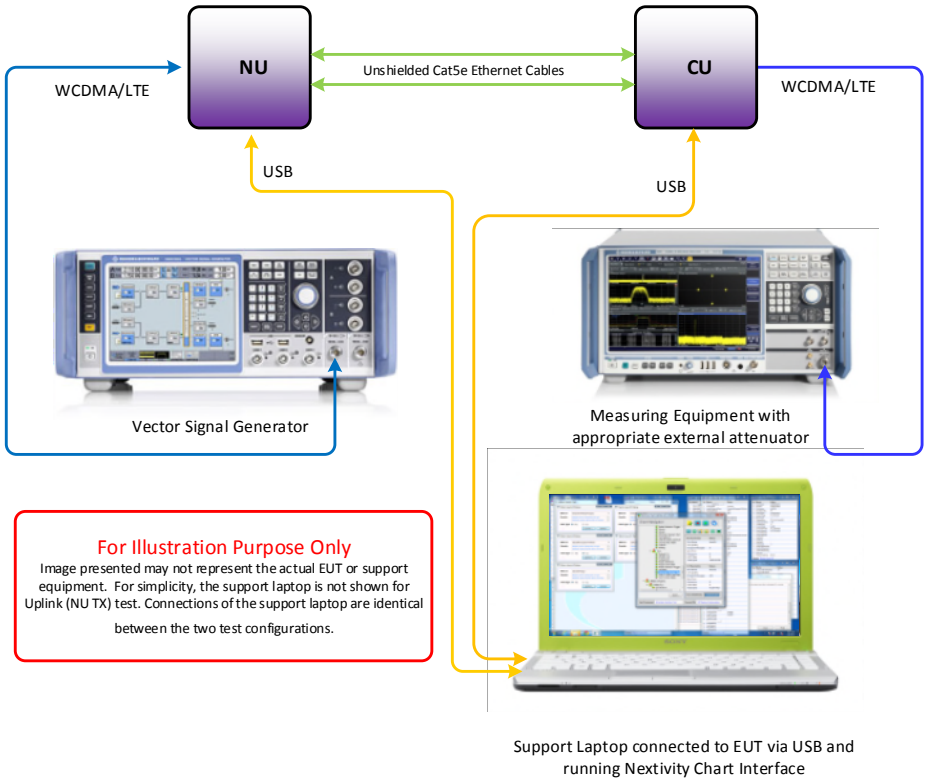
Mode	Bandwidth	Channel No.	Frequency
LTE Band 26 (859-869MHz) Downlink	10MHz	Middle Channel 8740	864.0MHz
LTE Band 26 (814-824MHz) Uplink	5MHz	Low Channel 26715	816.5MHz
LTE Band 41	20MHz	High Channel 41490	2680MHz
LTE Band 41	20MHz	High Channel 41490	2680MHz

Final installation position is unknown at the time of verification. For radiated measurements X and Z orientations were verified since the EUT won't work on Y orientation. No major variation in emissions observed between the three (3) orientations. Verifications performed using "X" configuration.

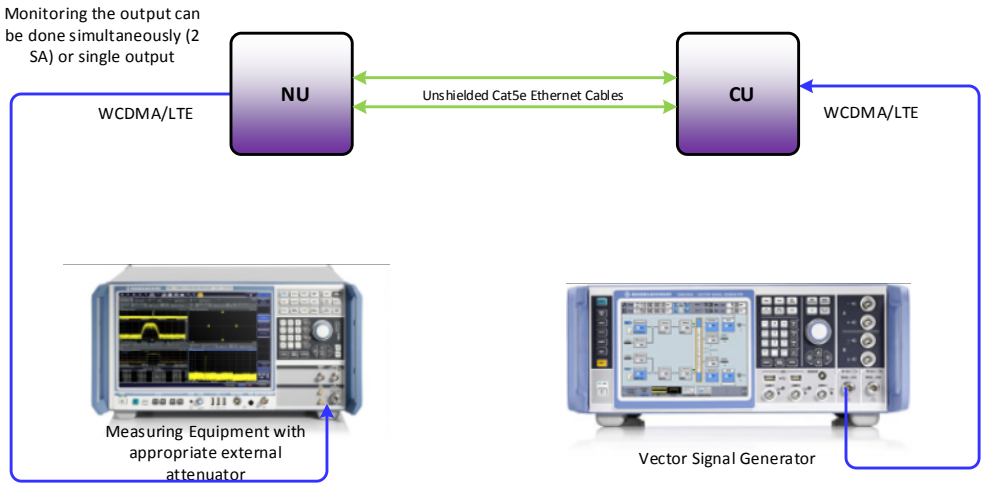


1.4.5 Simplified Test Configuration Diagram

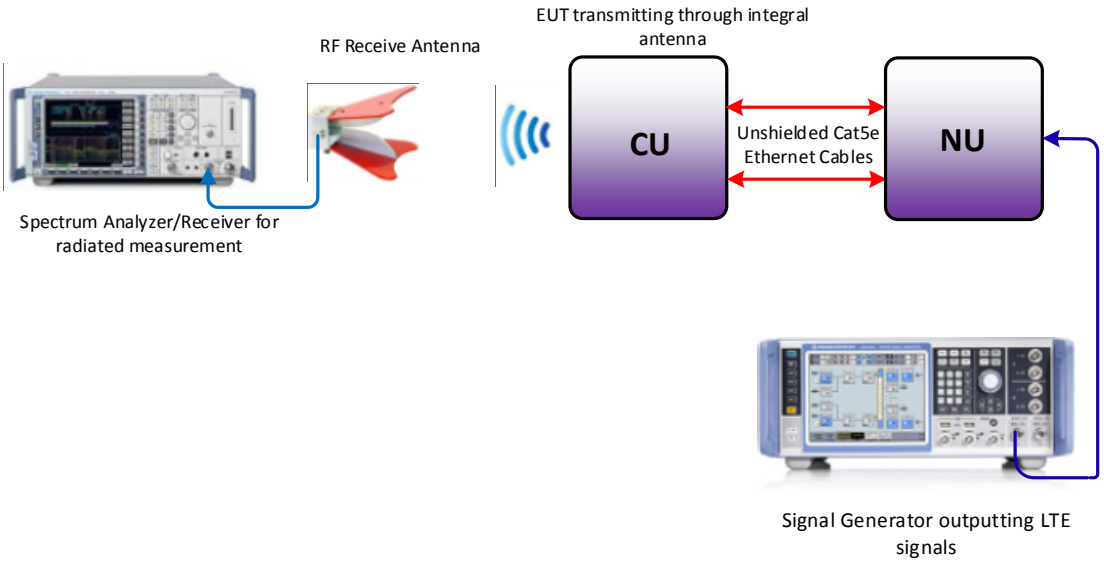
Downlink (CU Tx) Conducted Test



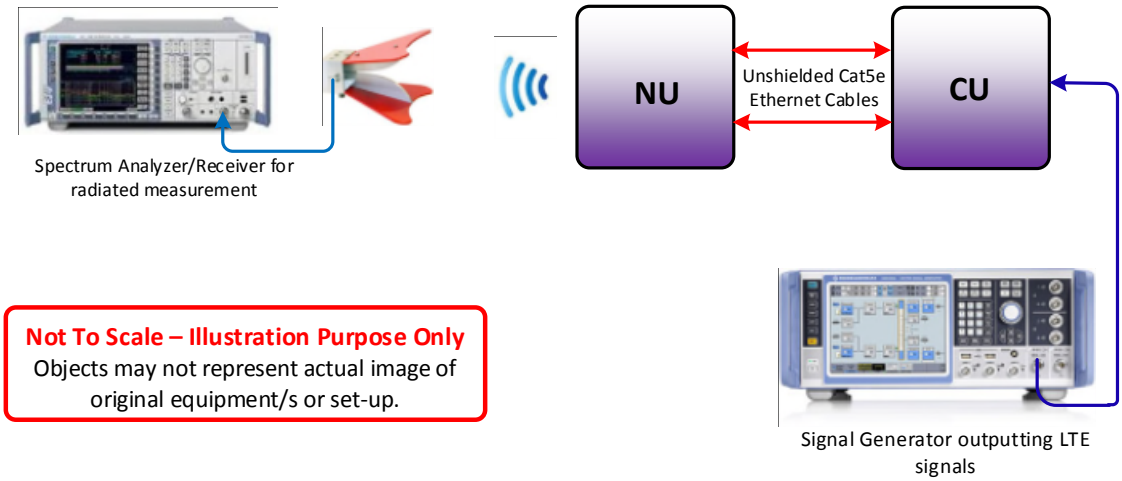
Uplink (NU Tx) Conducted Test



Radiated Testing (Downlink)



Radiated Testing (Uplink)



Not To Scale – Illustration Purpose Only
Objects may not represent actual image of original equipment/s or set-up.

1.5 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

1.6 MODIFICATION RECORD

Description of Modification	Modification Fitted By	Date Modification Fitted
Serial Number: 370920000139 (NU), 371929000156 (CU) and 443935000064 (CU)		
None	—	—

The table above details modifications made to the EUT during the test programme. The modifications incorporated during each test (if relevant) are recorded on the appropriate test pages.

1.7 TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.26 2015, American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

For conducted (if applicable) and radiated emissions the equipment under test (EUT) was configured to measure its highest possible emission level. This level was based on the maximized cable configuration from exploratory testing per ANSI C63.26-2015. The test modes were adapted according to the Operating Instructions provided by the manufacturer/client.

1.8 TEST FACILITY LOCATION

1.8.1 TÜV SÜD America Inc. (Mira Mesa)

10040 Mesa Rim Road, San Diego, CA 92121-2912 (32.901268,-117.177681). Phone: 858 678 1400 FAX: 858 546 0364

1.8.2 TÜV SÜD America Inc. (Rancho Bernardo)

16936 Via Del Campo, San Diego, CA 92127-1708 (33.018644,-117.092409). Phone: (858) 678-1400 Fax: (858) 546-0364.

1.9 TEST FACILITY REGISTRATION

1.9.1 FCC – Designation No.: US1146

TUV SUD America Inc. (San Diego), is an accredited test facility with the site description report on file and has met all the requirements specified in §2.948 of the FCC rules. The acceptance letter from the FCC is maintained in our files and the Designation is US1146.

1.9.2 Innovation, Science and Economic Development Canada (ISED) Registration No.: 3067A-1 & 22806-1

The 10m Semi-anechoic chamber of TUV SUD America Inc. (San Diego Rancho Bernardo) has been registered by Certification and Engineering Bureau of Innovation, Science and Economic Development Canada for radio equipment testing with Registration No. 3067A-1.

The 3m Semi-anechoic chamber of TUV SUD America Inc. (San Diego Mira Mesa) has been registered by Certification and Engineering Bureau of Innovation, Science and Economic Development Canada for radio equipment testing with Registration No. 22806-1.

1.9.3 BSMI – Laboratory Code: SL2-IN-E-028R (US0102)

TUV Product Service Inc. (San Diego) is a recognized EMC testing laboratory by the BSMI under the MRA (Mutual Recognition Arrangement) with the United States. Accreditation includes CNS 13438 up to 6GHz.

1.9.4 NCC (National Communications Commission - US0102)

TUV SUD America Inc. (San Diego) is listed as a Foreign Recognized Telecommunication Equipment Testing Laboratory and is accredited to ISO/IEC 17025 (A2LA Certificate No.2955.13) which under APEC TEL MRA Phase 1 was designated as a Conformity Assessment Body competent to perform testing of equipment subject to the Technical Regulations covered under its scope of accreditation including RTTE01, PLMN01 and PLMN08 for TTE type of testing and LP002 for Low-Power RF Device type of testing.

1.9.5 VCCI – Registration No. A-0280 and A-0281

TUV SUD America Inc. (San Diego) is a VCCI registered measurement facility which includes radiated field strength measurement, radiated field strength measurement above 1GHz, mains port interference measurement and telecommunication port interference measurement.

1.9.6 RRA – Identification No. US0102

TUV SUD America Inc. (San Diego) is National Radio Research Agency (RRA) recognized laboratory under Phase I of the APEC Tel MRA.

1.9.7 OFCA – U.S. Identification No. US0102

TUV SUD America Inc. (San Diego) is recognized by Office of the Communications Authority (OFCA) under Appendix B, Phase I of the APEC Tel MRA.

1.10 SAMPLE CALCULATIONS

1.10.1 LTE Emission Designator (QPSK)

Emission Designator = 1M30F9W
F = Frequency Modulation
9= Composite Digital Info
W = Combination (Audio/Data)

1.10.2 Spurious Radiated Emission (below 1GHz)

Measuring equipment raw measurement (dbµV) @ 30 MHz			24.4
Correction Factor (dB)	Asset# 1066 (cable)	0.3	-12.6
	Asset# 1172 (cable)	0.3	
	Asset# 1016 (preamplifier)	-30.7	
	Asset# 1175(cable)	0.3	
	Asset# 1002 (antenna)	17.2	
Reported QuasiPeak Final Measurement (dbµV/m) @ 30MHz			**11.8**

SECTION 2

TEST DETAILS

Radio Testing of the
Nextivity Inc.
QUATRA 4000 Industrial Signal Booster

2.1 TRANSMITTER CONDUCTED POWER MEASUREMENTS

2.1.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1046

2.1.2 Standard Applicable

The conducted power mesurements were made in accordance to FCC Part 2 Clasue 2.1046.

FCC 47 CFR Part 2, Clause 2.1046:
(a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in §2.1033(c)(8). The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.
(c) For measurements conducted pursuant to paragraphs (a) and (b) of this section, all calculations and methods used by the applicant for determining carrier power or peak envelope power, as appropriate, on the basis of measured power in the radio frequency load attached to the transmitter output terminals shall be shown. Under the test conditions specified, no components of the emission spectrum shall exceed the limits specified in the applicable rule parts as necessary for meeting occupied bandwidth or emission limitations.

2.1.3 Equipment Under Test and Modification State

Serial No: 370920000139 (NU) and 371929000156, 443935000064 (CU) / Test Configuration A and B

2.1.4 Date of Test/Initial of test personnel who performed the test

November 08, 11, 18 and 21, 2019 / XYZ

2.1.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.6 Environmental Conditions/ Test Location

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility

Ambient Temperature	23.9 - 26.1°C
Relative Humidity	25.0 - 45.7%
ATM Pressure	98.7 - 99.2kPa

2.1.7 Additional Observations

- This is a conducted test using Power Meter.
- The path loss were measured and entered as a level offset.
- Both Peak and Average measurements presented.
- Low, Middle and High channels for all bandwidths were verified and reported.

2.1.8 Test Results

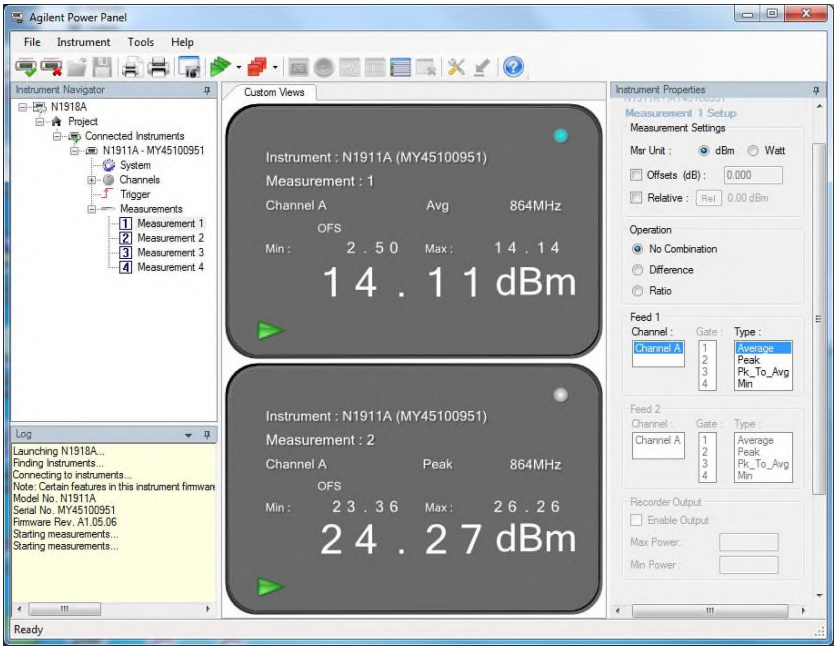
LTE Band 26 (859 – 869 / 814 – 824 MHz)							
Mode	Bandwidth (MHz)	Channel	Frequency (MHz)	Average Power		PK Power	
				(dBm)	(W)	(dBm)	(W)
Downlink	5	8715	861.5	11.0	0.01	21.76	0.15
		8740	864	11.49	0.01	21.57	0.14
		8765	866.5	11.17	0.01	21.32	0.14
	10	**8740**	**864**	**14.11**	**0.03**	24.27	0.27
Uplink	5	**26715**	**816.5**	**23.72**	**0.24**	32.91	1.95
		26740	819	23.53	0.23	34.0	2.51
		26765	821.5	23.70	0.23	32.98	1.99
	10	26740	819	23.62	0.23	32.91	1.95

LTE Band 41							
Mode	Bandwidth (MHz)	Channel	Frequency (MHz)	Average Power		PK Power	
				(dBm)	(W)	(dBm)	(W)
Downlink	5	39675	2498.5	9.06	0.01	20.74	0.12
		40620	2593	8.78	0.01	20.65	0.12
		41565	2687.5	8.97	0.01	20.97	0.13
	10	39700	2501	11.69	0.01	23.93	0.25
		40620	2593	11.70	0.01	23.31	0.21
		41540	2685	11.91	0.02	23.09	0.20
	15	39725	2503.5	12.97	0.02	25.51	0.36
		40620	2593	13.47	0.02	24.78	0.30
		41515	2682.5	13.63	0.02	25.57	0.36
	20	39750	2506	14.52	0.03	27.11	0.51
		40620	2593	14.81	0.03	27.99	0.63
		41490	**2680**	**14.97**	**0.03**	26.94	0.49
Uplink	5	39675	2498.5	18.20	0.07	31.14	1.30
		40620	2593	17.85	0.06	30.67	1.17
		41565	2687.5	19.13	0.08	32.07	1.61
	10	39700	2501	18.10	0.06	30.99	1.26
		40620	2593	17.87	0.06	31.10	1.29
		41540	2685	19.29	0.08	32.28	1.69
	15	39725	2503.5	17.93	0.06	31.34	1.36
		40620	2593	18.05	0.06	30.76	1.19
		41515	2682.5	19.30	0.09	31.69	1.48
	20	39750	2506	18.05	0.06	31.17	1.31
		40620	2593	18.01	0.06	30.67	1.17
		41490	**2680**	**19.85**	**0.10**	32.18	1.65

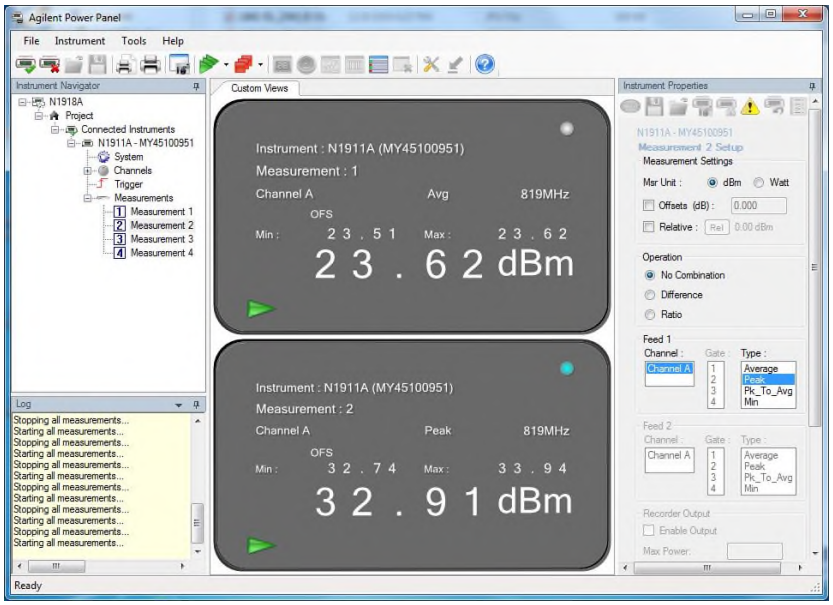
2 Bands/port worst case configuration Downlink				
CU with Ant Port	**Band & Bandwidth & Channel**	**Frequency (MHz)**	**Average Power (dBm)**	**PK Power (dBm)**
D	LTE Band 41 20MHz BW High Ch & LTE Band 26 (859-869MHz) 10MHz BW Mid Ch	2680.0 MHz + 864.0 MHz	17.34	25.43
	LTE Band 41 20MHz BW High Ch & LTE Band 25 20MHz BW Mid Ch	2680.0 MHz + 1962.5 MHz	17.42	26.89
	LTE Band 26 (859-869MHz) 10MHz BW Mid Ch & LTE Band 25 20MHz BW Mid Ch	864.0 MHz + 1962.5 MHz	18.11	26.20

2 Bands/port worst case configuration Uplink				
Ant Port	**Band & Bandwidth & Channel**	**Frequency (MHz)**	**Average Power (dBm)**	**PK Power (dBm)**
D	LTE Band 41 20MHz BW High Ch & LTE Band 26 (814-824MHz) 5MHz BW Low Ch	2680.0 MHz + 816.5 MHz	23.29	33.34
	LTE Band 41 20MHz BW High Ch & LTE Band 25 20MHz BW High Ch	2680.0 MHz + 1905.0 MHz	22.69	32.54
	LTE Band 26 (814-824MHz) 5MHz BW Low Ch & LTE Band 25 20MHz BW High Ch	816.5 MHz + 1905.0 MHz	25.20	32.90

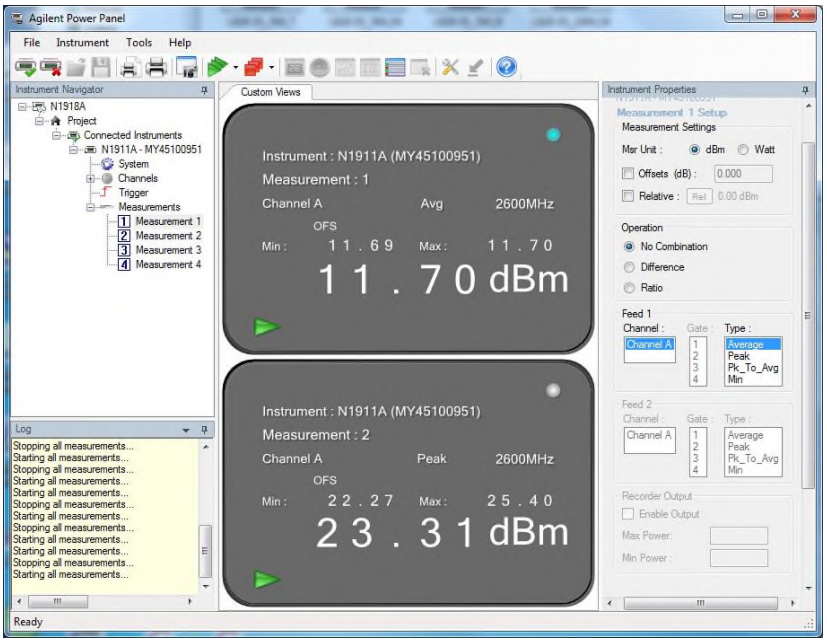
2.1.9 Sample Test Measurement Screen



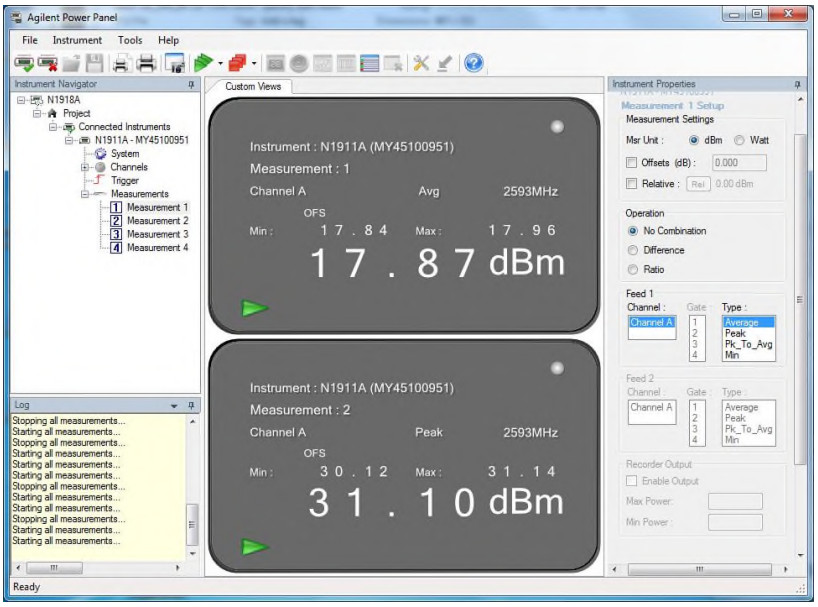
LTE Band 26 859 – 869 MHz DL 10MHz Bandwidth Middle Channel



LTE Band 26 814 – 824 MHz UL 10MHz Bandwidth Middle Channel



LTE Band 41 DL 10MHz Bandwidth Middle Channel



LTE Band 41 UL 10MHz Bandwidth Middle Channel

2.2 EFFECTIVE RADIATED POWER AND EFFECTIVE ISOTROPICALLY RADIATED POWER

2.2.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1046
FCC 47 CFR Part 27, Clause 27.50(h)(1)
FCC 47 CFR Part 90, Clause 90.635(b)
RSS-199, Clause 4.4

2.2.2 Standard Applicable

FCC 47 CFR Part 27, Clause 27.50(h):
(1) Main, booster and base stations. (i) The maximum EIRP of a main, booster or base station shall not exceed 33 dBw + 10log(X/Y) dBw, where X is the acutural channel withd in MHz and Y is either 6 MHz if priour to transtion or the station is the MBS following transition or 5.5 MHz is the station is in the LBS and UBS followng transition, except as provided in paragraph (h)(1)(ii) of this section.

FCC 47 CFR Part 90, Clause 90.635(b):
The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

RSS-199, Clause 4.4:
The transmitter output power shall be measured in terms of average value.

For mobile subscribler equipment, the e.i.r.p shall not exceed 2W. For fixed subscriber equipment, the transmitter output power shall not exceed 2W and e.i.r.p shall be limited to 40W.

2.2.3 Equipment Under Test and Modification State

Serial No: 370920000139 (NU) and 371929000156, 443935000064 (CU) / Test Configuration (N/A, calculation only)

2.2.4 Date of Test/Initial of test personnel who performed the test

November 08, 2019 / XYZ

2.2.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.6 Additional Observations

- ERP was calculated as per Section 1.2 of KDB412172 D01 (Determining ERP and EIRP v01r01).
- Calculation formula in logarithmic terms:

$$\textbf{ERP or EIRP} = P_T + G_T - L_C$$

Where:

P_T = transmitter conducted output power dBm (Section 2.1 of this test report)
G_T = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP) (dBd=dBi-2.15);
L_c = signal attenuation in the connecting cable between the transmitter and antenna, in dB (EUT configuration during verification is mounted on an interface board with short direct connection to the antenna port. The loss between the EUT and the antenna port is considered negligible).

2.2.7 Test Results

LTE Band 26 (859 – 869 / 814 – 824 MHz)						
Mode	**Bandwidth (MHz)**	**Frequency (MHz)**	**Max Power Average (dBm)**	**Antenna Gain (dBi)**	**ERP (dBm)**	**Limit (dBm)**
Downlink	5	861.5	11.0	0.4	9.25	50
		864	11.49	0.4	9.74	50
		866.5	11.17	0.4	9.42	50
	10	**864**	**14.11**	**0.4**	**12.36**	**50**
Uplink	5	**816.5**	**23.72**	**6.35**	**27.92**	**50**
		819	23.53	6.35	27.73	50
		821.5	23.70	6.35	27.90	50
	10	819	23.62	6.35	27.82	50

LTE Band 41						
Mode	**Bandwidth (MHz)**	**Frequency (MHz)**	**Max Power Average (dBm)**	**Antenna Gain (dBi)**	**EIRP (dBm)**	**Limit (dBm)**
Downlink	5	2498.5	9.06	2.3	11.36	62.21
		2593	8.78	2.3	11.08	62.21
		2687.5	8.97	2.3	11.27	62.21
	10	2501	11.69	2.3	13.99	65.22
		2593	11.70	2.3	14.0	65.22
		2685	11.91	2.3	14.21	65.22
	15	2503.5	12.97	2.3	15.27	66.98
		2593	13.47	2.3	15.77	66.98
		2682.5	13.63	2.3	15.93	66.98
	20	2506	14.52	2.3	16.82	68.23
		2593	14.81	2.3	17.11	68.23
		2680	**14.97**	**2.3**	**17.27**	**68.23**
Uplink	5	2498.5	18.20	3.92	22.12	62.21
		2593	17.85	3.92	21.77	62.21
		2687.5	19.13	3.92	23.05	62.21
	10	2501	18.10	3.92	22.02	65.22
		2593	17.87	3.92	21.79	65.22
		2685	19.29	3.92	23.21	65.22
	15	2503.5	17.93	3.92	21.85	66.98
		2593	18.05	3.92	21.97	66.98
		2682.5	19.30	3.92	23.22	66.98
	20	2506	18.05	3.92	21.97	68.23
		2593	18.01	3.92	21.93	68.23
		2680	**19.85**	**3.92**	**23.77**	**68.23**

2.3 OCCUPIED BANDWIDTH

2.3.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1049
FCC 47 CFR Part 90, Clause 90.219 (e)(4)(ii)
RSS-GEN 6.7

2.3.2 Standard Applicable

The transmitted signal bandwidth shall be reported as the 99% emission bandwidth, that is the frequency bandwidth suuch that, below its lower and above its upper frequency limits, the mean powers radiated are eqch equal to 0.5 percent of the total mean power radiated by a give emission.

26dB Bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated by at least 26 dB below the transmitter power.

Using the occupied bandwidth meansurement function in the spectrum analyzer, the 99% occupied bandwith was measured.

In addition, the 26dB bandwidth was measured in accorance with FCC KDB 971168 D01 V0202 Clause 4.1 using the ndB measurement function in the spectrum analyzer.

- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.
- The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be at least 3x RBW.

FCC Part 90.219 (e)(4):
(ii) There is no change in the occupied bandwidth of the retransmitted signals.

2.3.3 Equipment Under Test and Modification State

Serial No: 370920000139 (NU) and 371929000156, 443935000064 (CU) / Test Configuration A and B

2.3.4 Date of Test/Initial of test personnel who performed the test

November 11 and 27, 2019 / XYZ

2.3.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.6 Environmental Conditions/ Test Location

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility

Ambient Temperature	23.4 - 24.8°C
Relative Humidity	36.8 - 44.6%
ATM Pressure	98.0 - 99.2kPa

2.3.7 Additional Observations

- This is a conducted test. Both 26dB bandwidth and 99% bandwidth presented.
- Using the occupied bandwidth meansurement function in the spectrum analyzer, the 99% occupied bandwith was measured.
- The 26dB bandwidth was measured in accorance with ANSI C63.26 clause 5.4.3 using the ndB measurement function in the spectrum analyzer.
- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.
- The RBW is set to 1% of the OBW while VBW is ≥3x RBW.
- The detector is peak and the trace mode is max hold.
- All low, middle and high channels were verified. Only test plots for middle channel presented in this test report as the representative configuration.
- There is no change in the occupied bandwidth of the retransmitted signals.

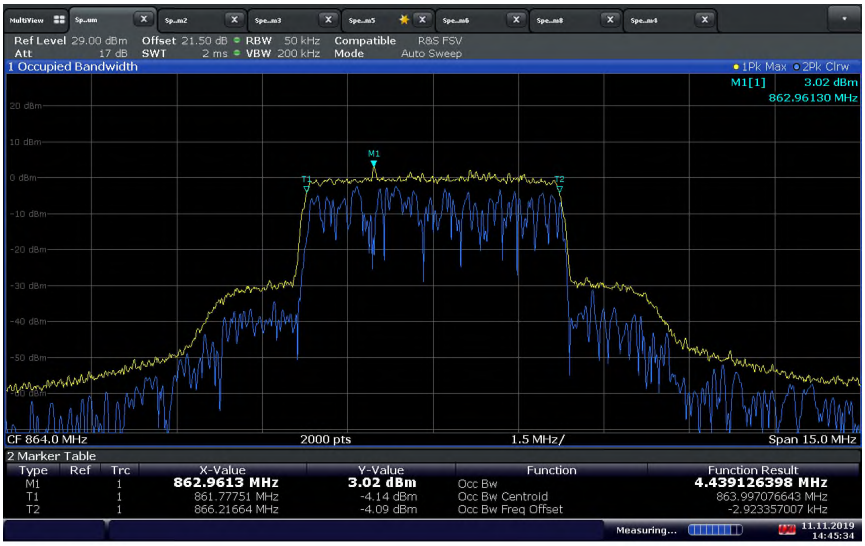
2.3.8 Test Results

LTE Band 26 (859 – 869 / 814 – 824 MHz)					
Mode	**Bandwidth (MHz)**	**Channel**	**Frequency (MHz)**	**OBW (MHz)**	**-26dB BW (MHz)**
Downlink	5	8715	861.5	4.44	4.81
		8740	864	4.44	4.76
		8765	866.5	4.46	4.79
	10	8740	864	8.88	9.57
Uplink	5	26715	816.5	4.44	4.76
		26740	819	4.44	4.75
		26765	821.5	4.44	4.75
	10	26740	819	8.89	9.49

LTE Band 41					
Mode	**Bandwidth (MHz)**	**Channel**	**Frequency (MHz)**	**OBW (MHz)**	**-26dB BW (MHz)**
Downlink	5	39675	2498.5	4.47	4.79
		40620	2593	4.44	4.77
		41565	2687.5	4.46	4.81
	10	39700	2501	8.97	9.68
		40620	2593	8.90	9.69
		41540	2685	8.92	9.66
	15	39725	2503.5	13.34	14.36
		40620	2593	13.32	14.36
		41515	2682.5	13.34	14.24
	20	39750	2506	17.91	19.32
		40620	2593	17.76	19.20
		41490	2680	17.72	19.26
Uplink	5	39675	2498.5	4.44	4.75
		40620	2593	4.45	4.76
		41565	2687.5	4.44	4.88
	10	39700	2501	8.92	9.66
		40620	2593	8.89	9.57
		41540	2685	8.88	9.48
	15	39725	2503.5	13.33	14.31
		40620	2593	13.33	14.18
		41515	2682.5	13.30	14.22
	20	39750	2506	17.74	19.04
		40620	2593	17.74	18.83
		41490	2680	17.68	18.84

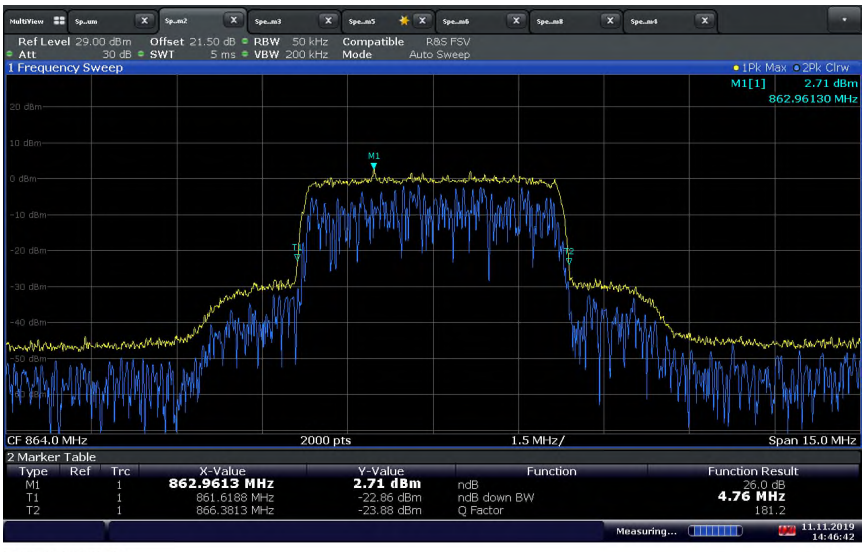
2.3.9 Example Test Plots

LTE Band 26 (859 – 869 MHz) Downlink 5MHz BW / Middle Channel 864 MHz / 99%OBW



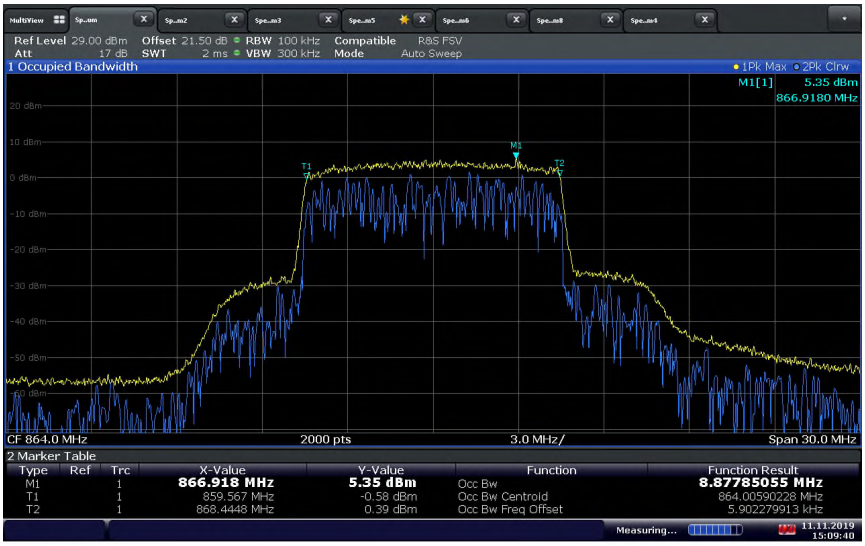
14:45:34 11.11.2019

LTE Band 26 (859 – 869 MHz) Downlink 5MHz BW / Middle Channel 864 MHz / 26dB BW



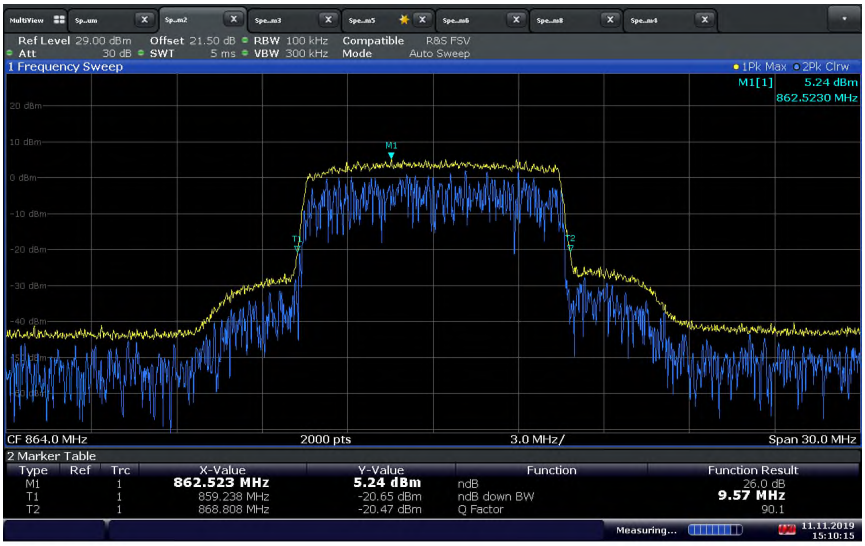
14:46:42 11.11.2019

LTE Band 26 (859 – 869 MHz) Downlink 10MHz BW / Middle Channel 864 MHz / 99%OBW



15:09:40 11.11.2019

LTE Band 26 (859 – 869 MHz) Downlink 10MHz BW / Middle Channel 864 MHz / 26dB BW

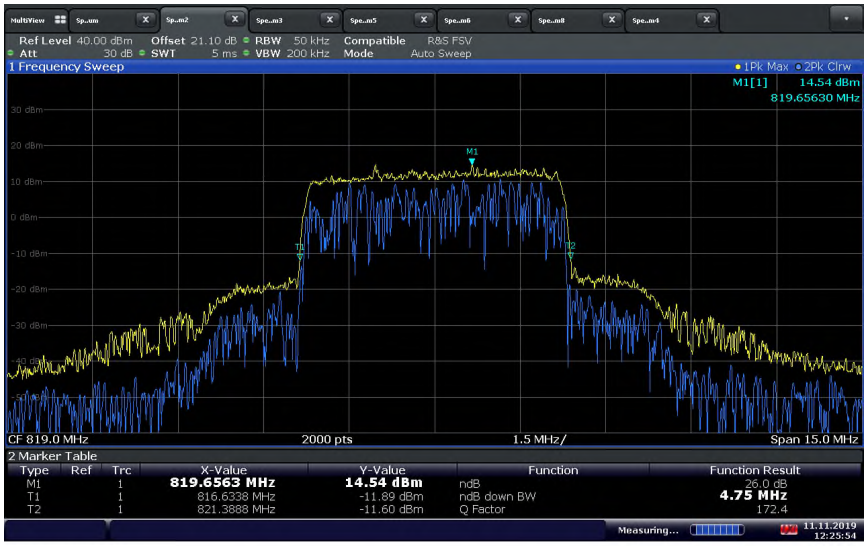


15:10:16 11.11.2019

LTE Band 26 (814 – 824 MHz) Uplink 5MHz BW / Middle Channel 819 MHz / 99%OBW

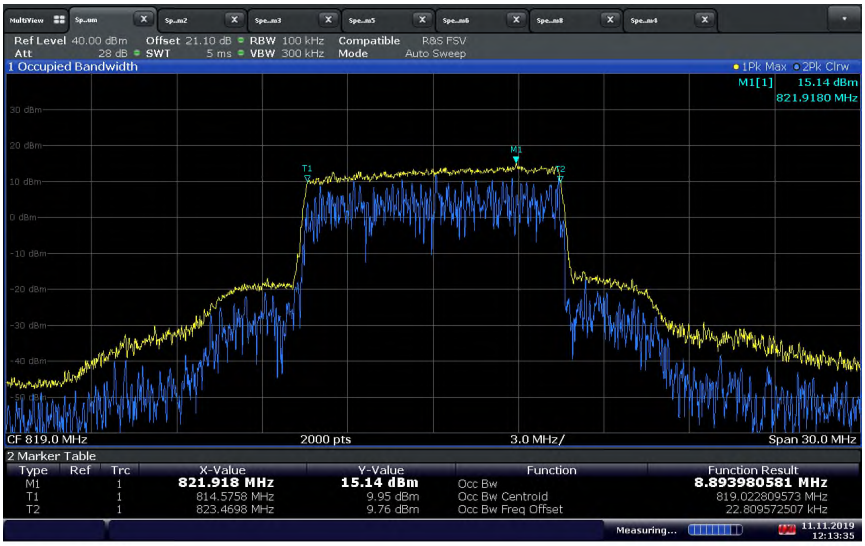
12:26:42 11.11.2019

LTE Band 26 (814 – 824 MHz) Uplink 5MHz BW / Middle Channel 819 MHz / 26dB BW



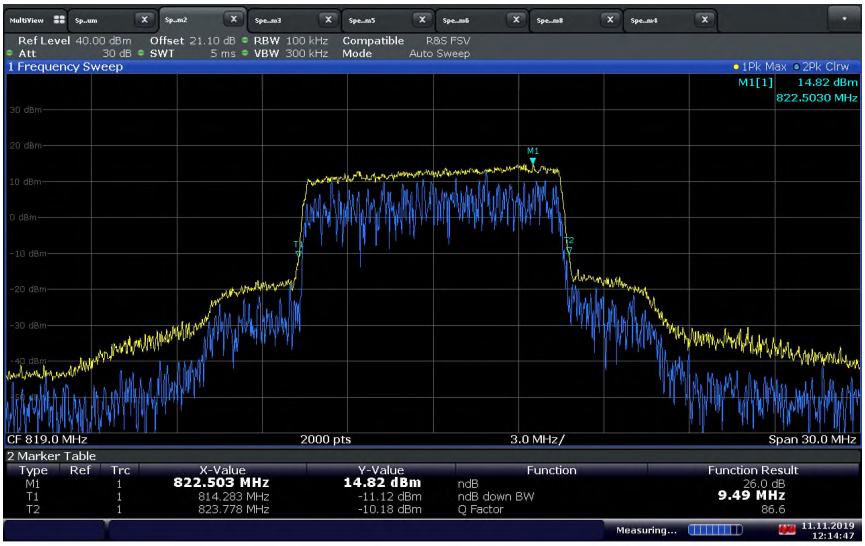
12:25:54 11.11.2019

LTE Band 26 (814 – 824 MHz) Uplink 10MHz BW / Middle Channel 819 MHz / 99%OBW



12:13:36 11.11.2019

LTE Band 26 (814 – 824 MHz) Uplink 10MHz BW / Middle Channel 819 MHz / 26dB BW

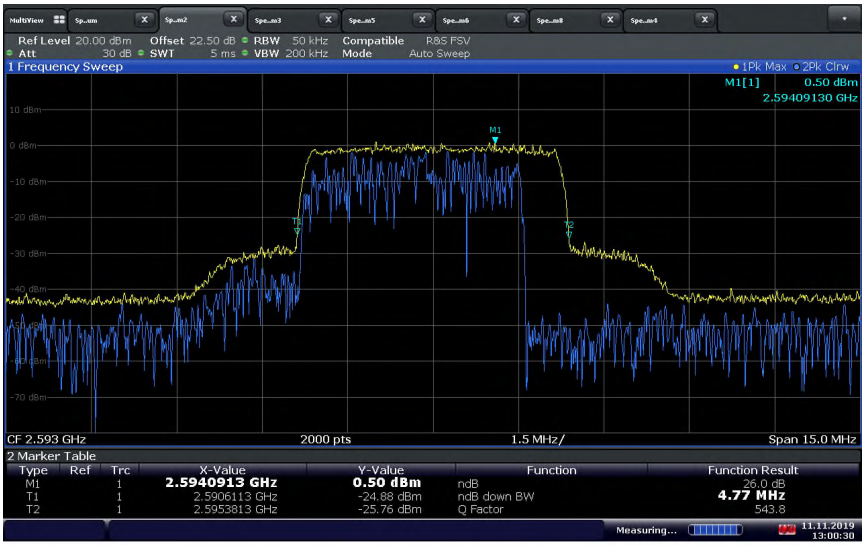


12:14:47 11.11.2019

LTE Band 41 Downlink 5MHz BW / Middle Channel 2593 MHz / 99%OBW

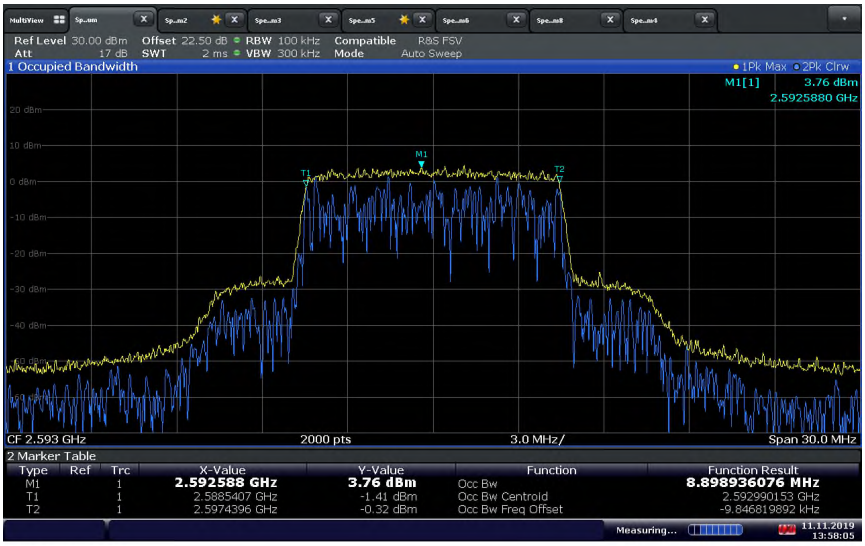
12:59:01 11.11.2019

LTE Band 41 Downlink 5MHz BW / Middle Channel 2593 MHz / 26dB BW



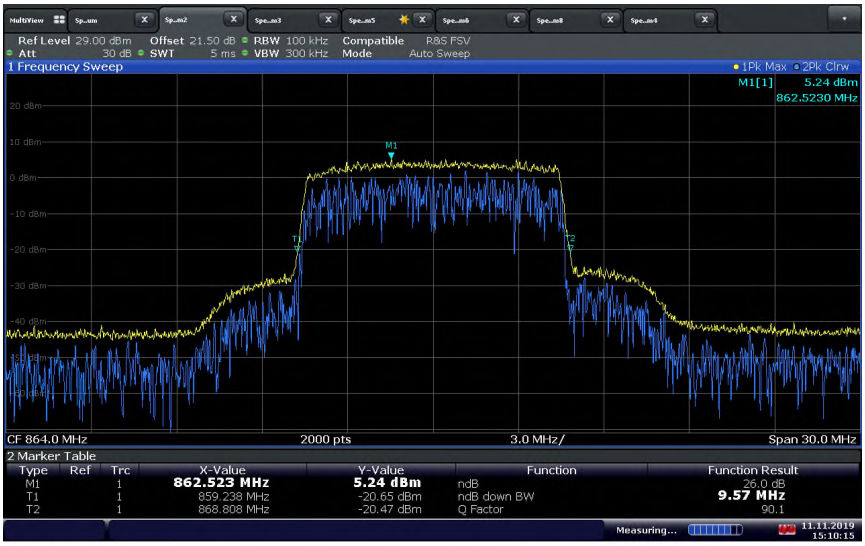
13:00:30 11.11.2019

LTE Band 41 Downlink 10MHz BW / Middle Channel 2593 MHz / 99%OBW



13:58:06 11.11.2019

LTE Band 41 Downlink 10MHz BW / Middle Channel 2593 MHz / 26dB BW



15:10:16 11.11.2019

LTE Band 41 Downlink 15MHz BW / Middle Channel 2593 MHz / 99%OBW

14:10:49 11.11.2019

LTE Band 41 Downlink 15MHz BW / Middle Channel 2593 MHz / 26dB BW

14:11:21 11.11.2019

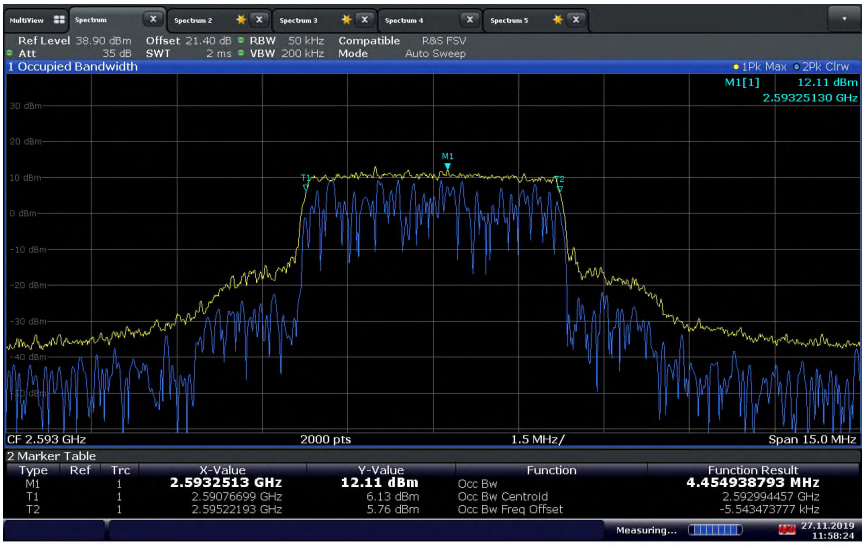
LTE Band 41 Downlink 20MHz BW / Middle Channel 2593 MHz / 99%OBW

14:29:41 11.11.2019

LTE Band 41 Downlink 20MHz BW / Middle Channel 2593 MHz / 26dB BW

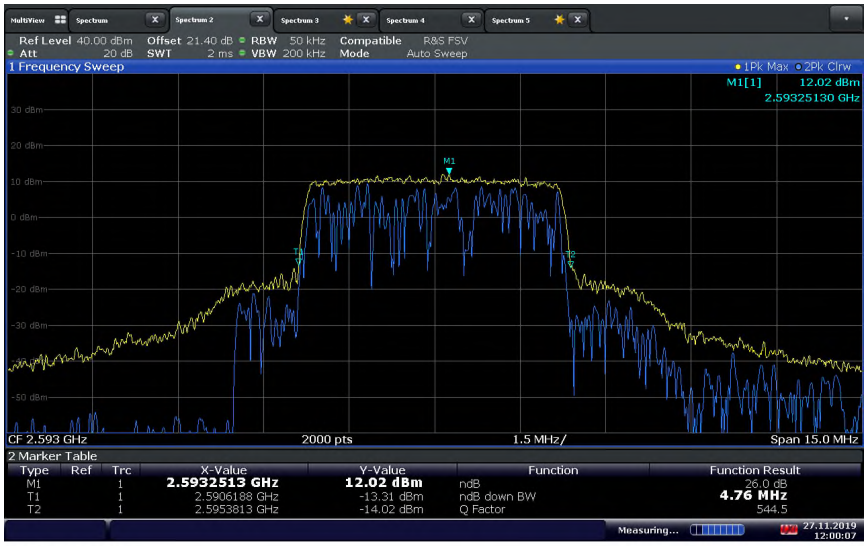
14:30:32 11.11.2019

LTE Band 41 Uplink 5MHz BW / Middle Channel 2593 MHz / 99%OBW



11:58:25 27.11.2019

LTE Band 41 Uplink 5MHz BW / Middle Channel 2593 MHz / 26dB BW

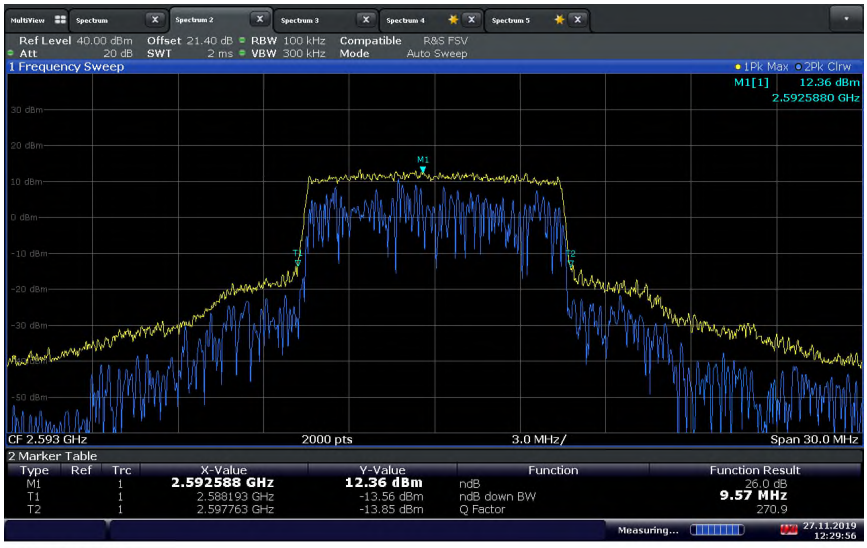


12:00:08 27.11.2019

LTE Band 41 Uplink 10MHz BW / Middle Channel 2593 MHz / 99%OBW

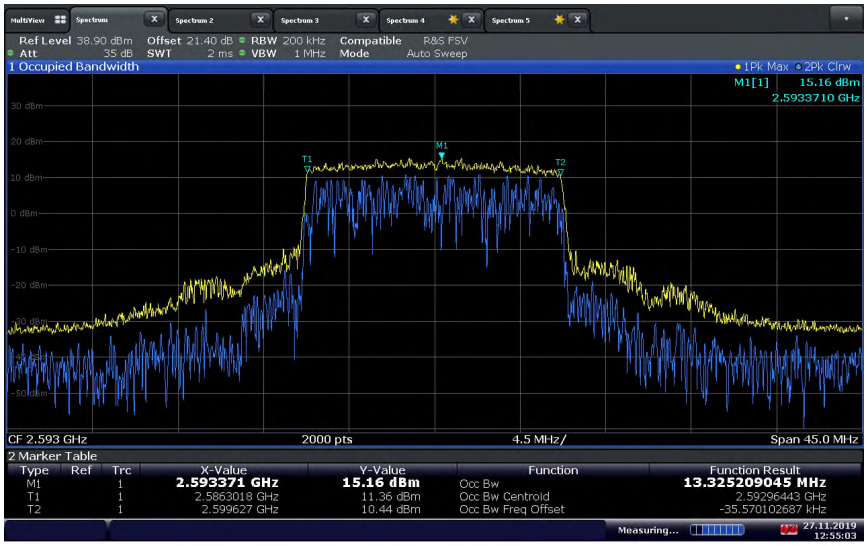
12:29:06 27.11.2019

LTE Band 41 Uplink 10MHz BW / Middle Channel 2593 MHz / 26dB BW



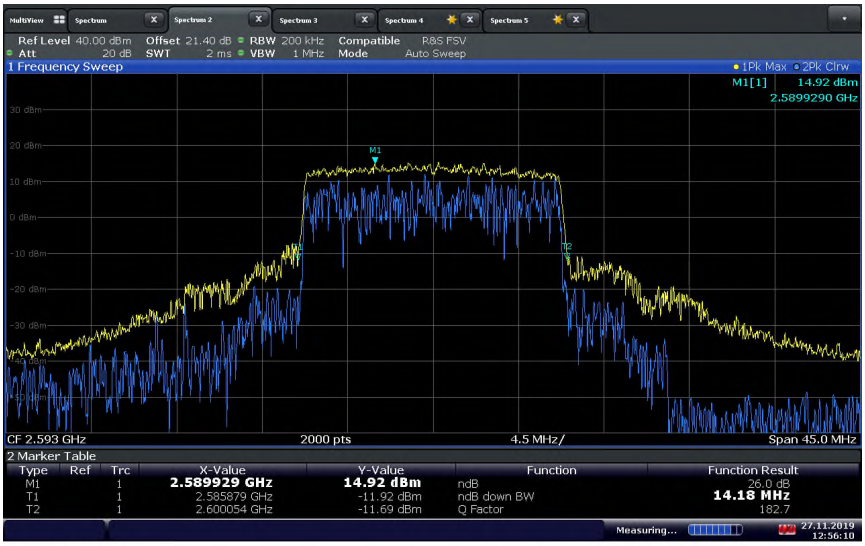
12:29:57 27.11.2019

LTE Band 41 Uplink 15MHz BW / Middle Channel 2593 MHz / 99%OBW



12:55:04 27.11.2019

LTE Band 41 Uplink 15MHz BW / Middle Channel 2593 MHz / 26dB BW

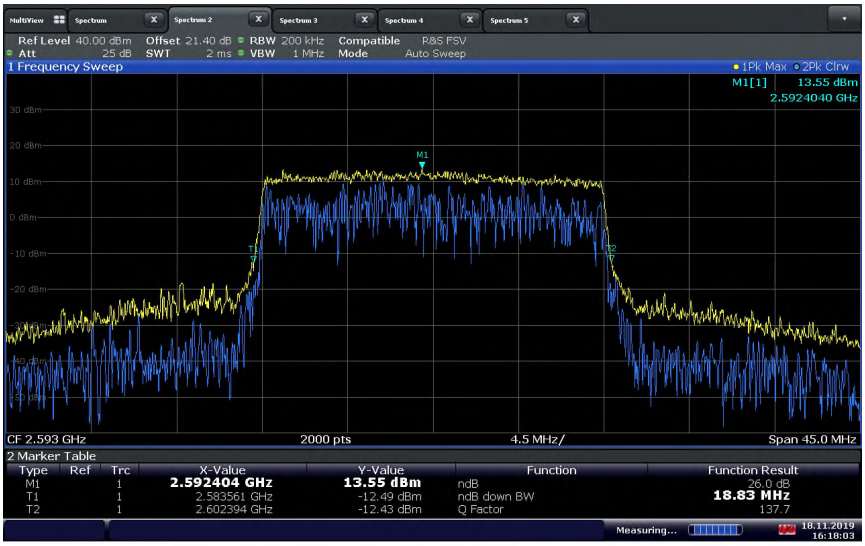


12:56:10 27.11.2019

LTE Band 41 Uplink 20MHz BW / Middle Channel 2593 MHz / 99%OBW

16:16:16 18.11.2019

LTE Band 41 Uplink 20MHz BW / Middle Channel 2593 MHz / 26dB BW



16:18:04 18.11.2019

2.4 PEAK-AVERAGE POWER RATIO

2.4.1 Specification Reference

RSS-199, Clause 4.4

2.4.2 Standard Applicable

RSS-199, Clause 4.4:
The peak-to-average power ratio (PAPR) of the equipmet shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

2.4.3 Equipment Under Test and Modification State

Serial No: 370920000139 (NU) and 371929000156, 443935000064 (CU) / Test Configuration A and B

2.4.4 Date of Test/Initial of test personnel who performed the test

November 11, 18 and 27, 2019/XYZ

2.4.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.6 Environmental Conditions

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility.

Ambient Temperature	23.4 - 26.1°C
Relative Humidity	25.0 - 44.6%
ATM Pressure	98.0 - 99.2kPa

2.4.7 Additional Observations

- This is a conducted test.
- As per FCC KDB 971168 D01 v03r01 clause 5.7, the PAPR was measured in accorance with ANSI C63.26 clause 5.2.3.4.
- Measurement was done using the Spectrum Analyzer's Complementary Cumulative Distribution Function (CCDF) measurement profile. The built-in function is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth (crest factor or peak-to-average ratio) A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth.
- Low, Middle and High channels for all bandwidths were verified.
- RBW was set to maximum the SA can support.
- There are no measured PAR levels greater than 13dB.

2.4.8 Test Results

LTE Band 26 (859 – 869 / 814 – 824 MHz) PAR (for reference only)				
Mode	**Bandwidth (MHz)**	**Channel**	**Frequency (MHz)**	**PAR (dB)**
Downlink	5	8715	861.5	10.56
		8740	864	10.70
		8765	866.5	11.05
	10	8740	864	11.04
Uplink	5	26715	816.5	9.87
		26740	819	10.63
		26765	821.5	9.61
	10	26740	819	9.81

LTE Band 41 PAR				
Mode	**Bandwidth (MHz)**	**Channel**	**Frequency (MHz)**	**PAR (dB)**
Downlink	5	39675	2498.5	10.75
		40620	2593	10.61
		41565	2687.5	10.44
	10	39700	2501	10.37
		40620	2593	11.0
		41540	2685	10.66
	15	39725	2503.5	11.24
		40620	2593	10.49
		41515	2682.5	10.50
	20	39750	2506	10.83
		40620	2593	11.10
		41490	2680	10.73
Uplink	5	39675	2498.5	8.80
		40620	2593	10.93
		41565	2687.5	10.71
	10	39700	2501	9.12
		40620	2593	10.58
		41540	2685	10.57
	15	39725	2503.5	8.63
		40620	2593	10.94
		41515	2682.5	10.38
	20	39750	2506	9.19
		40620	2593	10.88
		41490	2680	10.68

2.4.9 Example Test Plots

LTE Band 26 (859 – 869 MHz) Downlink 5MHz BW / Middle Channel 864 MHz

14:47:08 11.11.2019

LTE Band 26 (859 – 869 MHz) Downlink 10MHz BW / Middle Channel 864 MHz

15:08:15 11.11.2019

LTE Band 26 (814 – 824 MHz) Uplink 5MHz BW / Middle Channel 819 MHz
 12:24:14 11.11.2019
LTE Band 26 (814 – 824 MHz) Uplink 10MHz BW / Middle Channel 819 MHz
 12:15:21 11.11.2019

LTE Band 41 Downlink 5MHz BW / Middle Channel 2593 MHz


13:50:09 11.11.2019

LTE Band 41 Downlink 10MHz BW / Middle Channel 2593 MHz


13:57:26 11.11.2019

LTE Band 41 Downlink 15MHz BW / Middle Channel 2593 MHz


14:12:14 11.11.2019

LTE Band 41 Downlink 20MHz BW / Middle Channel 2593 MHz


14:27:42 11.11.2019

LTE Band 41 Uplink 5MHz BW / Middle Channel 2593 MHz

12:04:02 27.11.2019

LTE Band 41 Uplink 10MHz BW / Middle Channel 2593 MHz

12:26:47 27.11.2019

LTE Band 41 Uplink 15MHz BW / Middle Channel 2593 MHz


12:51:39 27.11.2019

LTE Band 41 Uplink 20MHz BW / Middle Channel 2593 MHz


16:15:14 18.11.2019

2.5 BAND EDGE

2.5.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1051
FCC 47 CFR Part 27, Clause 27.53(m)(2)(v) and (4)
FCC 47 CFR Part 90, Clause 90.691(a)
RSS-199, Clause 4.5

2.5.2 Standard Applicable

FCC 47 CFR Part 27.53(m)(2):
(v) For all fixed digital user stations, the attenuation factor shall be not less than 43 + 10 log (P) dB at the channel edge.

(4) For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

FCC 47 CFR Part 90.691(a):
(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.
(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

RSS-199, Clause 4.5:
In the 1 MHz band immediately outside and adjacent to the channel edge, the unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth for base station and fixed subscriber equipment, and 2% for mobile subscriber equipment. Beyond the 1 MHz band, a resolution bandwidth of 1 MHz shall be used. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz, or 1% or 2% of the occupied bandwidth, as applicable.

Equipment shall comply with the following unwanted emission limits:

(a) For base station and fixed subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least 43 + 10 log10 p.

(b) for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least:

(i) 40 + 10 log10 p from the channel edges to 5 MHz away
(ii) 43 + 10 log10 p between 5 MHz and X MHz from the channel edges, and
(iii) 55 + 10 log10 p at X MHz and beyond from the channel edges

In addition, the attenuation shall not be less than 43 + 10 log10 p on all frequencies between 2490.5 MHz and 2496 MHz, and 55 + 10 log10 p at or below 2490.5 MHz.

In (a) and (b), p is the transmitter power measured in watts and X is 6 MHz or the equipment occupied bandwidth, whichever is greater.

2.5.3 Equipment Under Test and Modification State

Serial No: 370920000139 (NU) and 371929000156, 443935000064 (CU) / Test Configuration A and B

2.5.4 Date of Test/Initial of test personnel who performed the test

November 12, 27 and December 02, 2019 / XYZ

2.5.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.5.6 Environmental Conditions/ Test Location

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility

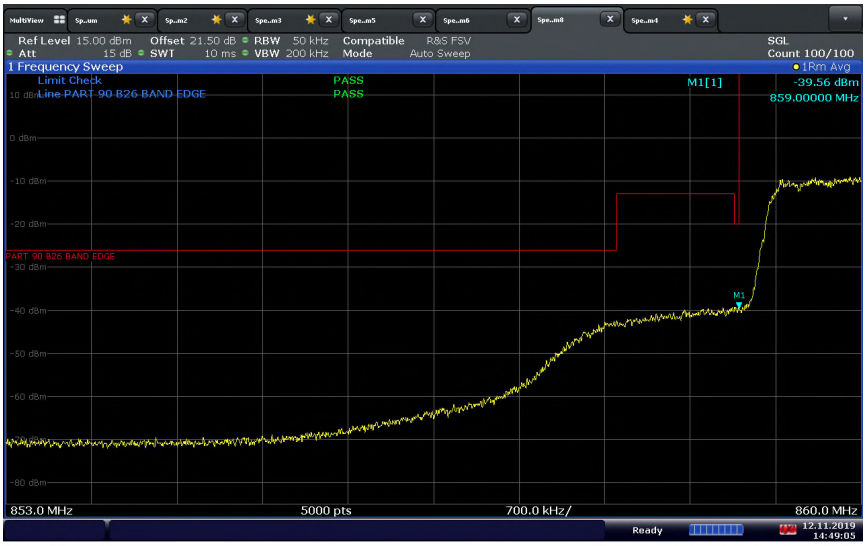
Ambient Temperature	23.4 - 24.8°C
Relative Humidity	36.8 - 44.7%
ATM Pressure	98.0 - 99.1kPa

2.5.7 Additional Observations

- This is a conducted test. Test guidance is per Section 6.1 of KDB971168 (D01 Power Meas License Digital Systems v03r01).
- The path loss was measured and entered as a level offset.
- RBW is set to 1% of Occupied Bandwidth and VBW is set to ≥3 x RBW. For emissions 1 MHz outside and adjacent to the channel edge, the limits are adjusted with the factor $10\lg(RBW_{used}/1MHz)$.

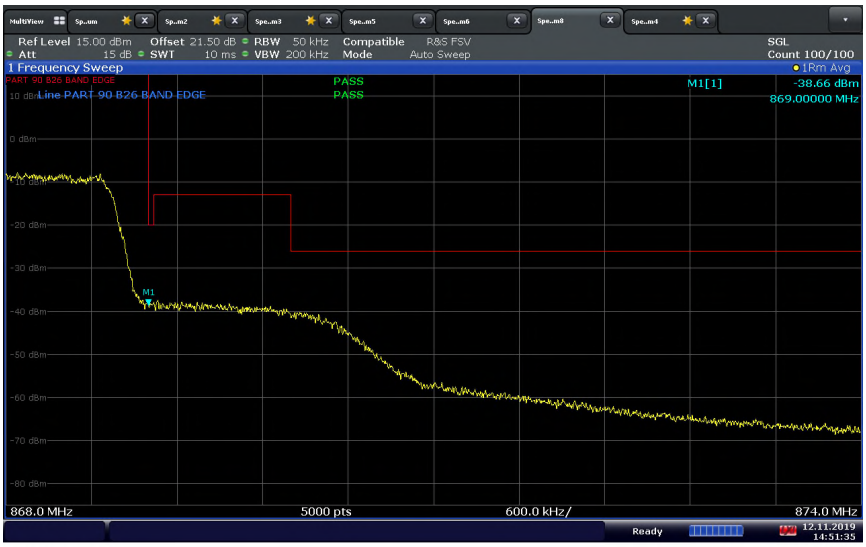
2.5.8 Test Results

LTE Band 26 (859 – 869 MHz) Downlink 5 MHz BW / Low Channel 861.5 MHz Low Band Edge @859 MHz



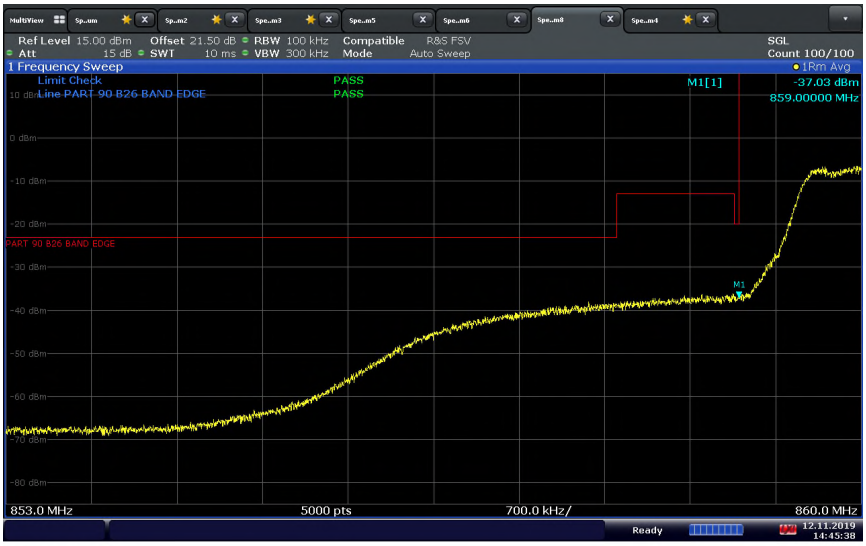
14:49:05 12.11.2019

LTE Band 26 (859 – 869 MHz) Downlink 5 MHz BW / High Channel 866.5 MHz High Band Edge @869 MHz



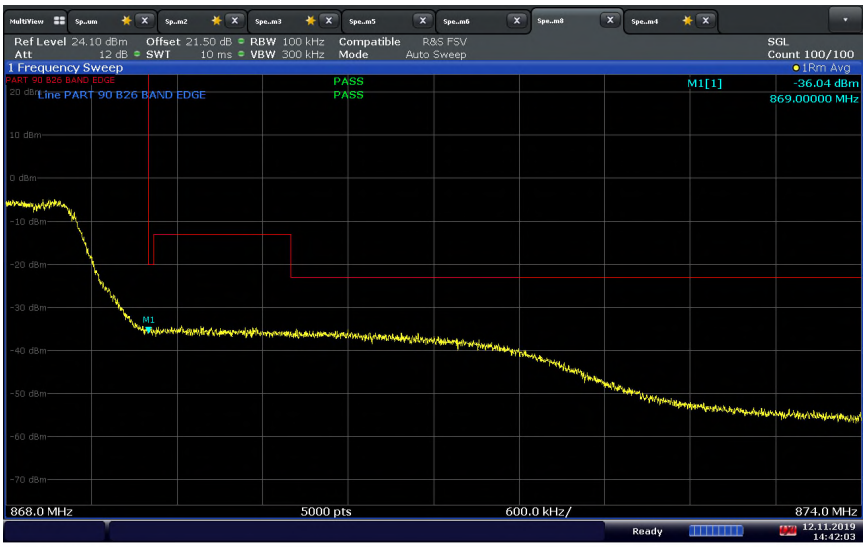
14:51:35 12.11.2019

LTE Band 26 (859 – 869 MHz) Downlink 10 MHz BW / Middle Channel 864 MHz Low Band Edge @859 MHz

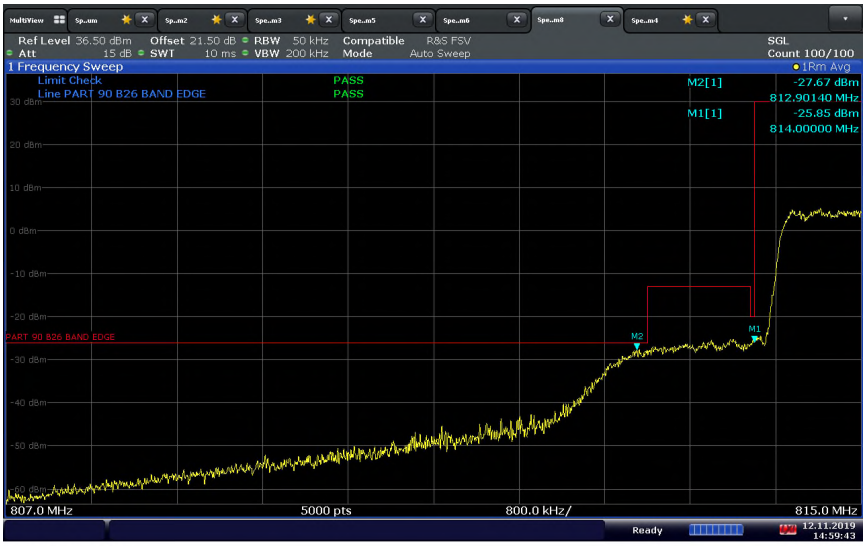


14:45:38 12.11.2019

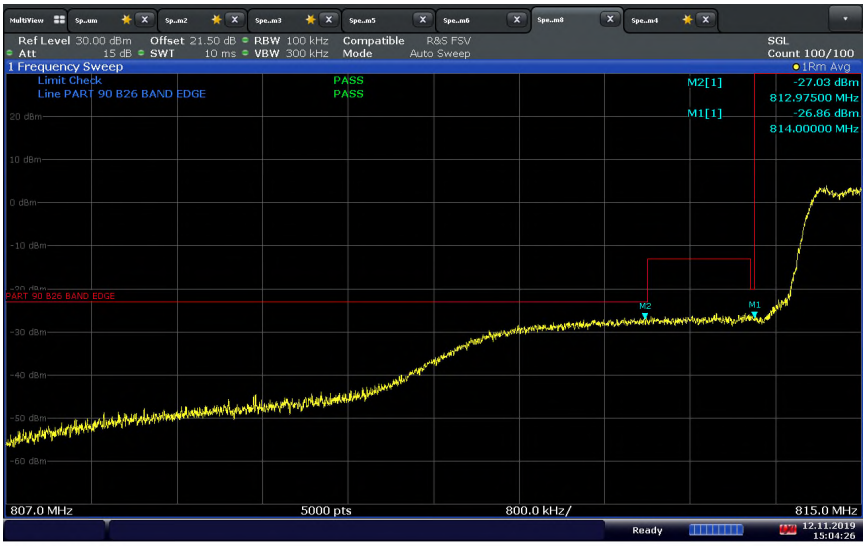
LTE Band 26 (859 – 869 MHz) Downlink 10 MHz BW / Middle Channel 864 MHz High Band Edge @869 MHz



14:42:04 12.11.2019

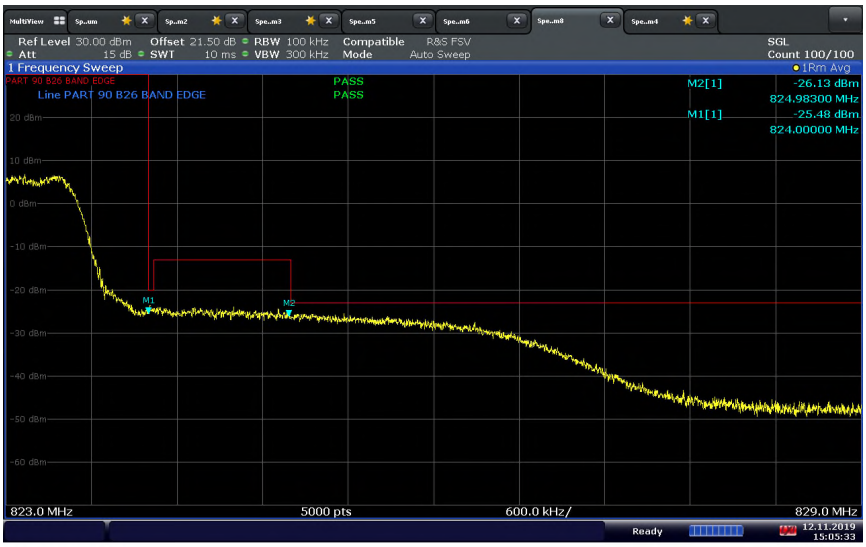
LTE Band 26 (814 – 824 MHz) Uplink 5 MHz BW / Low Channel 816.5 MHz Low Band Edge @814 MHz
 14:59:44 12.11.2019
LTE Band 26 (814 – 824 MHz) Uplink 5 MHz BW / Low Channel 821.5 MHz High Band Edge @869 MHz
 14:55:20 12.11.2019

LTE Band 26 (814 – 824 MHz) Uplink 10 MHz BW / Middle Channel 819 MHz Low Band Edge @814 MHz

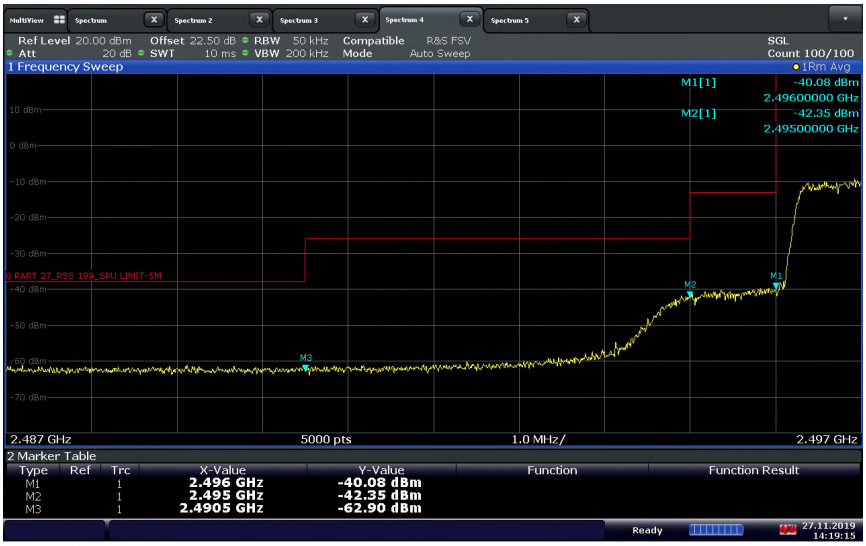
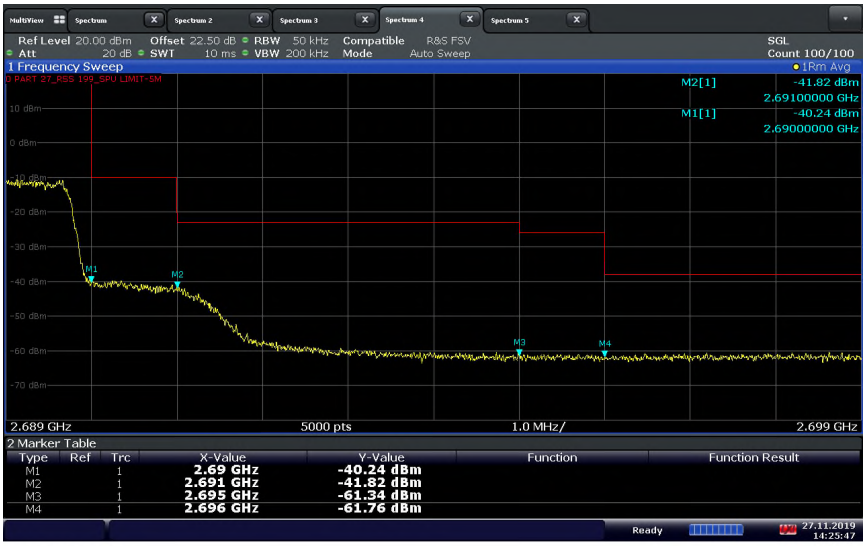


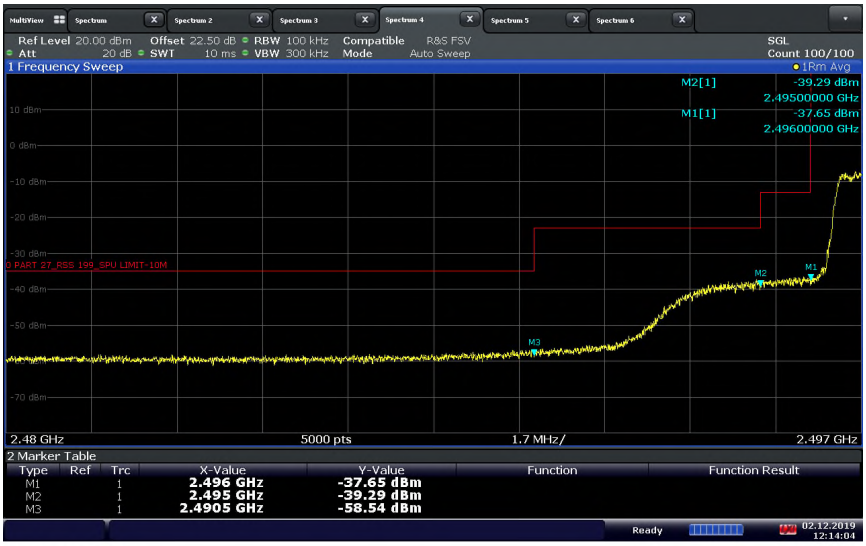
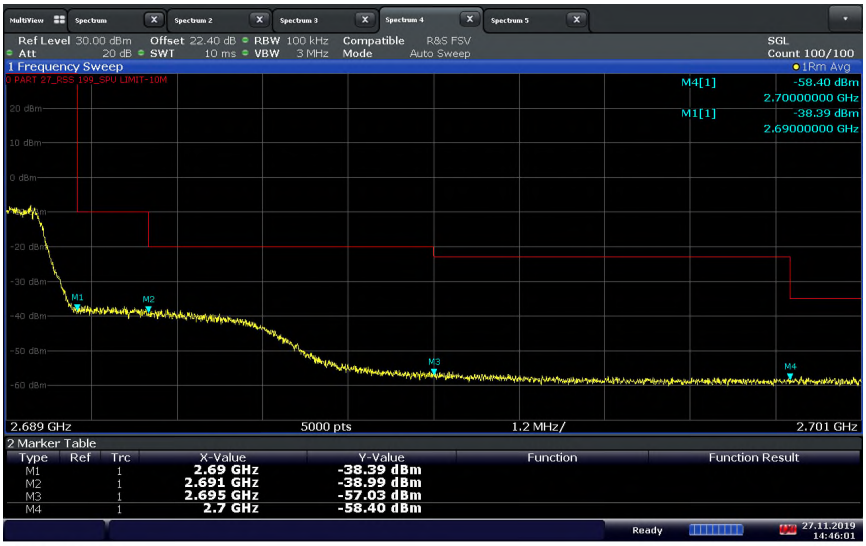
15:04:26 12.11.2019

LTE Band 26 (814 – 824 MHz) Uplink 10 MHz BW / Middle Channel 819 MHz High Band Edge @824 MHz



15:05:33 12.11.2019

LTE Band 41 Downlink 5 MHz BW / Low Channel 2498.5 MHz Low Band Edge @2496 MHz
 14:19:15 27.11.2019
LTE Band 41 Downlink 5 MHz BW / High Channel 2687.5 MHz High Band Edge @2690 MHz
 14:25:48 27.11.2019

LTE Band 41 Downlink 10 MHz BW / Low Channel 2501 MHz Low Band Edge @2496 MHz
 12:14:05 02.12.2019
LTE Band 41 Downlink 10 MHz BW / High Channel 2685 MHz High Band Edge @2690 MHz
 14:46:01 27.11.2019