Report On

Application for Grant of Equipment Authorization of the
Inseego Corp.
MD8800 Wireless Module

FCC CFR 47 Part 2, 24 and 27: 2018
RSS-133 Issue 6 January 2018
RSS-139 Issue 3 July 2015
RSS-130 Issue 2 February 2019

Report No. 72140633E Rev 1.0 **March 2019**

REPORT ON	Radio Testing of the Inseego Corp. MD8800 Wireless Module
TEST REPORT NUMBER	72140633E Rev 1.0
PREPARED FOR	Inseego Corp. 9605 Scranton Road, Suite 300 San Diego, CA 92121 USA
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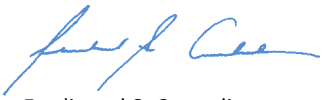
PREPARED BY	 Xiaoying Zhang **Name** Authorized Signatory Title: EMC/Wireless Test Engineer
APPROVED BY	 Ferdinand S. Custodio **Name** Authorized Signatory Title: Senior EMC Test Engineer/Wireless Team Lead
DATED	March 28, 2019

Revision History

72140633E Rev 1.0 Inseego Corp. MD8800 Wireless Module					
DATE	OLD REVISION	NEW REVISION	REASON	PAGES AFFECTED	APPROVED BY
12/28/2018	-	Initial Release			Ferdinand S. Custodio
03/28/2019	Initial Release	Rev 1.0	Changed FCC ID	All	Ferdinand S. Custodio

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

SECTION 1

REPORT SUMMARY

Radio Testing of the
Inseego Corp.
MD8800 Wireless Module

1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Inseego Corp. MD8800 Wireless Module to the requirements of the following:

- FCC CFR 47 Part 2, 24 and 27: 2018
- RSS-Gen Issue 5 April 2018
- RSS-133 Issue 6 January 2018
- RSS-139 Issue 3 July 2015
- RSS-130 Issue 2 February 2019

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	Inseego Corp.
Product Trademark/Brand	Inseego
Product Marketing Name	MD8800
Model Number(s)	MD8800
FCC ID Number	PKRISGMD8800
IC Number	3229A-MD8800
Serial Number(s)	AS190818B00021, AZ280418A00044
Number of Samples Tested	2
Test Specification/Issue/Date	• FCC CFR 47 Part 2, 24 and 27 (October 1, 2018) • RSS-133 Issue 6 January 2018: 2 GHz Personal Communications Services • RSS-139 Issue 3 July 2015 – Advanced Wireless Services (AWS) Equipment Operating in the Bands 1710-1780 MHz and 2110-2180 MHz • RSS-130 Issue 2 February 2019 – Equipment Operating in the Frequency Bands 617-652 MHz, 663-698 MHz, 698-756 MHz and 777-787 MHz • RSS-Gen Issue 5: April 2018 - General Requirements for Compliance of Radio Apparatus • ANSI C63.26-2015: American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
Start of Test	June 25, 2018
Finish of Test	October 28, 2018
Name of Engineer(s)	Xiaoying Zhang

Related Document(s)	• 3GPP TS 36.521 Version 14.4.0 Release 14: Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) Conformance Specification Radio Transmission and Reception; Part 1: Conformance Testing • 3GPP TS 36.508 Version 14.4.0 Release 14: Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Packet Core (EPC); Common Test Environments for User Equipment (UE) Conformance Testing • 72139211E_Novatel MIFI8800L_FCC Part 24 27_CA_Test Report.pdf • Supporting documents for EUT certification are separate exhibits.

1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC CFR 47 Part 2, 24 and 27: 2018 with cross-reference to the corresponding ISED RSS standard is shown below.

Section	FCC Part Sections(s)	RSS Section(s)	Test Description	Result
2.1	2.1046	-	Transmitter Conducted Output Power	Compliant*
2.2	2.1046 2.232(C) 27.50 (h)(2)	RSS-133 (6.4) RSS-139 (6.5) RSS-130 (4.6)	Effective Isotropic Radiated Power	Compliant*
2.3	27.50 (b)(10)	RSS-133 (6.4) RSS-139 (6.5) RSS-130 (4.6)	Peak-Average Ratio	Compliant*
2.4	2.1049 24.238(b) 27.53(h)(3)	RSS-Gen (6.7)	Occupied Bandwidth	Compliant*
2.5	2.1051 24.238(a)(b) 27.53(h)(1)(3) 27.53(c)(2)(5)	RSS-133 (6.5) RSS-139 (6.6) RSS-130 (4.7)	Band Edge	Compliant*
2.6	2.1051 24.238(a)(b) 27.53(h)(1)(3) 27.53(c)(2)(4)(5)(f)	RSS-133 (6.5) RSS-139 (6.6) RSS-130 (4.7)	Conducted Spurious Emissions	Compliant*
2.7	2.1053 24.238(a) 27.53(h) 27.53(c)	RSS-133 (6.5) RSS-139 (6.6) RSS-130 (4.7)	Field Strength of Spurious Radiation	Compliant
2.8	2.1055 24.235 27.54	RSS-133 (6.3) RSS-139 (6.4) RSS-130 (4.5)	Frequency Stability	Compliant*
-	-	RSS-Gen 7.4	Receiver Spurious Emissions	N/A*

Compliant*: The module was previously tested in a host under Model Number MIFI8800L. All the conducted measurements for Carrier Aggregation (CA_2A-13A, CA_4A-13A, CA_13A-66A) were from the host and covered under test report 72139211G_Novatel MIFI8800L_FCC Part 24 27_CA_Test Report.pdf. The original testing was test according to RSS-130 Issue 1. However, all the test results still comply with the new version of RSS-130 Issue 2.

N/A*: *Not required as per RSS-GEN 5.2. EUT is not a Stand-Alone receiver.*

1.3 PRODUCT INFORMATION

1.3.1 EUT General Description

The Equipment Under Test (EUT) was a Inseego Corp. MD8800 Wireless Module. The EUT is a Wireless Module supporting 2G/3G/4G, Wi-Fi, and GPS/GLNSS Technologies. The EUT is mounted on a mini ground plane for the ease of testing. The EUT comes with a USB Port to connect to an AC Adaptor.

1.3.2 Technical Description

EUT Description	Wireless Module
Product Marketing Name	MD8800
Model Number(s)	MD8800
Rated Voltage	Input 100-240VAC, Output 5V (External AC-DC Power Adapter)
Mode Verified	UL Carrier Aggregation: CA_2A-13A, CA_4A-13A, CA_13A-66A
Capability	WCDMA Band 2, 5 and LTE Band 2, 4, 5, 7, 13, 14, 46, 48, 66
Primary Unit (EUT)	☒ Production ☐ Pre-Production ☐ Engineering
Manufacturer declared Rated Power	23 dBm
(Client declaration, max. antenna gain covered under this test report)	

LTE Bands	Frequency Range	Antenna Gains
Band 2	1850 – 1910 MHz	0.5 dBi
Band 4	1710 – 1755 MHz	0.0 dBi
Band 13	777 – 787 MHz	-0.6 dBi
Band 66	1710 – 1780 MHz	0.0 dBi

1.3.3 Transmit Frequency Table

Carrier Aggregation					
Mode	Modulation	Bandwidth (MHz)	Tx Frequency (MHz)	EIRP	
				Max Power (dBm)	Max Power (Watts)
CA_2A-13A	QPSK	10 + 10	1880 + 782	23.66	0.23
	16QAM		782 + 1880	23.85	0.24
	64QAM		782 + 1880	23.63	0.23
CA_4A-13A	QPSK	10 + 10	1750 + 782	23.55	0.23
	16QAM		782 + 1732.5	23.82	0.24
	64QAM		782 + 1732.5	23.7	0.23
CA_13A-66A	QPSK	10 + 20	1755 + 782	23.04	0.20
	16QAM		1770 + 782	23.32	0.21
	64QAM		782 + 1755	23.16	0.21

1.4 EUT TEST CONFIGURATION

1.4.1 Test Configuration Description

Test Configuration	Description
A	Conducted antenna port measurement. EUT is powered via AC Adapter and controlled by a call box to transmit at max power.
B	Radiated test setup / case spurious emissions. The EUT is mounted on a mini ground plane for the ease of testing and powered via AC Adaptor. The Antenna port is terminated by the call box.

1.4.2 EUT Exercise Software

EUT is controlled by a CMW 500 Wideband Radio Communication Tester or a Keysight E7515A UXM Wireless Test Set. There are no other test software used during verification.

1.4.3 Support Equipment and I/O cables

Manufacturer	Equipment/Cable	Description
Inseego Corp.	USB Cable	Type A to Type C USB Cable. M/N: NOV7000USB
Inseego Corp.	External AC-DC Power Adapter	Model: SSW-2783, PN: 40123126.01 Input: 100-240VAC, 50/60Hz, 0.5A Output: 5VDC, max. 2A

1.4.4 Mode of Operation for Inter-Band Carrier Aggregation

The Test frequencies for E-UTRA PCell and SCell for CA inter-band operation during the test is set according to 3GPP TS 36.508 Version 14.4.0 Release 14 as follows:

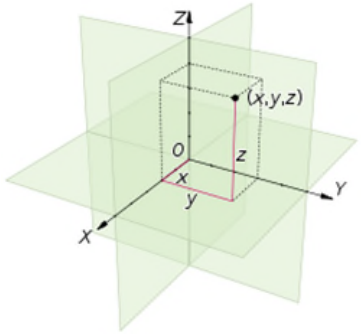
E-UTRA CA Configuration	CC Combinations / N_{RB_agg}	Test Frequency	CC N_{RB}	N_{UL}	Frequency of Uplink (MHz)
CA_2A-13A	50 + 50	f_1	CC 50	18900	1880
	50 + 50	f_2	CC 50	19150	1905
	50 + 50	f_5	CC 50	23230	782
	50 + 50	f_6	CC 50	N/A	N/A
CA_4A-13A	50 + 50	f_1	CC 50	20175	1732.5
	50 + 50	f_2	CC 50	20350	1750
	50 + 50	f_5	CC 50	23230	782
	50 + 50	f_6	CC 50	N/A	N/A
CA_13A-66A	50 + 100	f_1	CC 50	23230	782
	50 + 100	f_2	CC 50	N/A	N/A
	50 + 100	f_5	CC 100	132422	1755
	50 + 100	f_6	CC 100	132572	1770

1.4.5 Worst Case Configuration

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

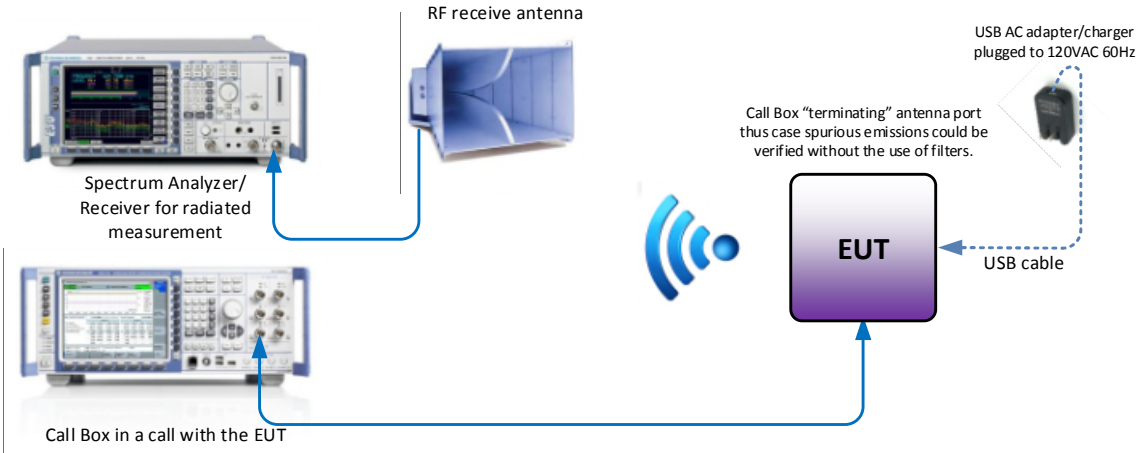
Band	Channel BW	Frequency (MHz)	Modulation	RB Size/Offset
CA_2A-13A	10 + 10 MHz	782 + 1880	16QAM	1/49 & 1/0
CA_4A-13A	10 + 10 MHz	782 + 1732.5	16QAM	1/49 & 1/0
CA_13A-66A	10 + 20 MHz	1770 + 782	16QAM	100/0 & 50/0

For radiated measurements X, Y, and Z orientations were verified. The verification was determined "X" as worst case configuration.

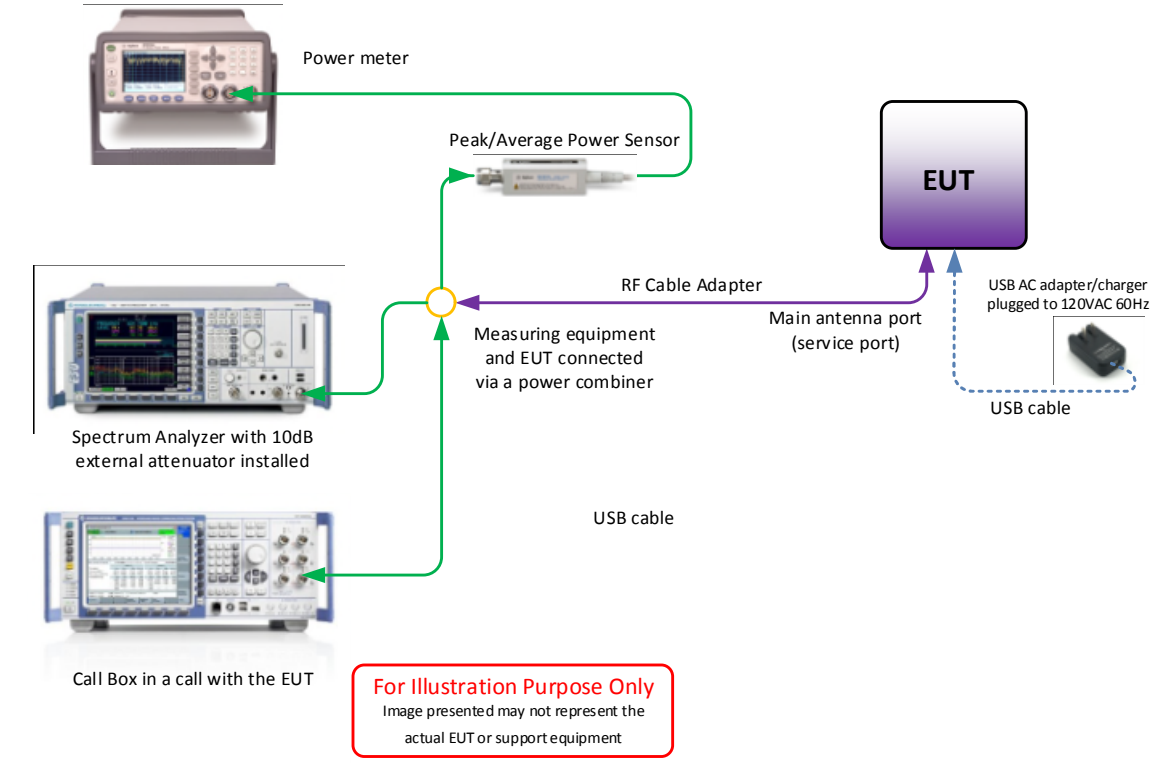


1.4.6 Simplified Test Configuration Diagram

Radiated Test Configuration/Conducted Emissions Test Configuration



Conducted (Antenna Port) Test Configuration



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 AS190818B00021, AZ280418A00044 (Host Model MIFI8800L serial number)		
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 and radiated emissions the equipment under test (EUT) was configured to measure its highest possible emission level. 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 (IC) 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.

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

1.10 SAMPLE CALCULATIONS

1.10.1 LTE Emission Designator (QPSK)

Emission Designator = 4M51G7D
G = Phase Modulation
7= Quantized/Digital Info
D = Data Transmission, telemetry, telecommand

1.10.2 LTE Emission Designator (16QAM)

Emission Designator = 4M50W7D
W = Frequency Modulation
7= Quantized/Digital Info
D = Data Transmission, telemetry, telecommand

1.10.3 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**

1.10.4 Spurious Radiated Emission – Substitution Method

Example = 84dBµV/m @ 1413 MHz (numerical sample only)

The field strength reading of 84dBµV/m @ 1413 MHz (2nd Harmonic of 706.5 MHz) is the maximized measurement when the EUT is on the turntable measured at 3 meters. The gain of the substituted antenna is 7.8dBi while the transmit cable loss is 1.0 dB (cable between signal generator and the substituted antenna). The signal generator level is adjusted until the 84dBµV/m level at the receiving end is replicated (identical test setup, i.e. same antenna, cable/s and preamp). If the adjusted signal generator level is -18dBm, then we have the following for both EIRP and ERP as required:

P_{EIRP} = -18 dBm + 7.8 dBi – 1dB
= 11.2 dBm
P_{ERP} = P_{EIRP} – 2.15 dB
= 11.2 dBm – 2.15 dB
= 9.05 dBm

SECTION 2

TEST DETAILS

Radio Testing of the
Inseego Corp.
MD8800 Wireless Module

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 2.1046:
(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: AZ280418A00044 / Test Configuration A

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

July 02, 2018 / 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	25.1 °C
Relative Humidity	52.1 %
ATM Pressure	99. 0 kPa

2.1.7 Additional Observations

- This is a conducted test using Power Meter.
- The path loss were measured and entered as a level offset.
- Low, Middle and High channels for all bandwidths with different RB size and RB offset and modulations were verified and reported.

2.1.8 Test Results

CA_2A-13A									
Bandwidth (MHz)	Modulation	PCC Freq (MHz)	No. RB	RB Offset	SCC Freq (MHz)	No. RB	RB Offset	Average Power (dBm)	Peak Power (dBm)
10+10	QPSK	1880	1	49	782	1	0	22.79	26.26
			50	**0**		**50**	**0**	**23.66**	**27.68**
	16QAM		1	49		1	0	23.12	27.81
			50	0		50	0	23.79	28.85
	64QAM		1	49		1	0	23.2	28.21
			50	0		50	0	23.6	28.96
10+10	QPSK	782	1	49	1880	1	0	23.3	26.66
			50	0		50	0	23.47	28.06
	16QAM		**1**	**49**		**1**	**0**	**23.85**	**28.61**
			50	0		50	0	23.42	28.65
	64QAM		**1**	**49**		**1**	**0**	23.63	29.43
			50	0		50	0	23.23	29.32

CA_2A-13A									
Bandwidth (MHz)	Modulation	PCC Freq (MHz)	No. RB	RB Offset	SCC Freq (MHz)	No. RB	RB Offset	Average Power (dBm)	Peak Power (dBm)
10+10	QPSK	1905	1	49	782	1	0	22.18	26.25
			50	0		50	0	23.36	27.6
	16QAM		1	49		1	0	22.6	27.83
			50	0		50	0	23.53	28.4
	64QAM		1	49		1	0	23.09	28.11
			50	0		50	0	23.37	28.69
10+10	QPSK	782	1	49	1905	1	0	22.96	26.33
			50	0		50	0	23.2	27.56
	16QAM		1	49		1	0	23.36	28.34
			50	0		50	0	23.23	28.27
	64QAM		1	49		1	0	23.42	28.87
			50	0		50	0	23.04	28.92

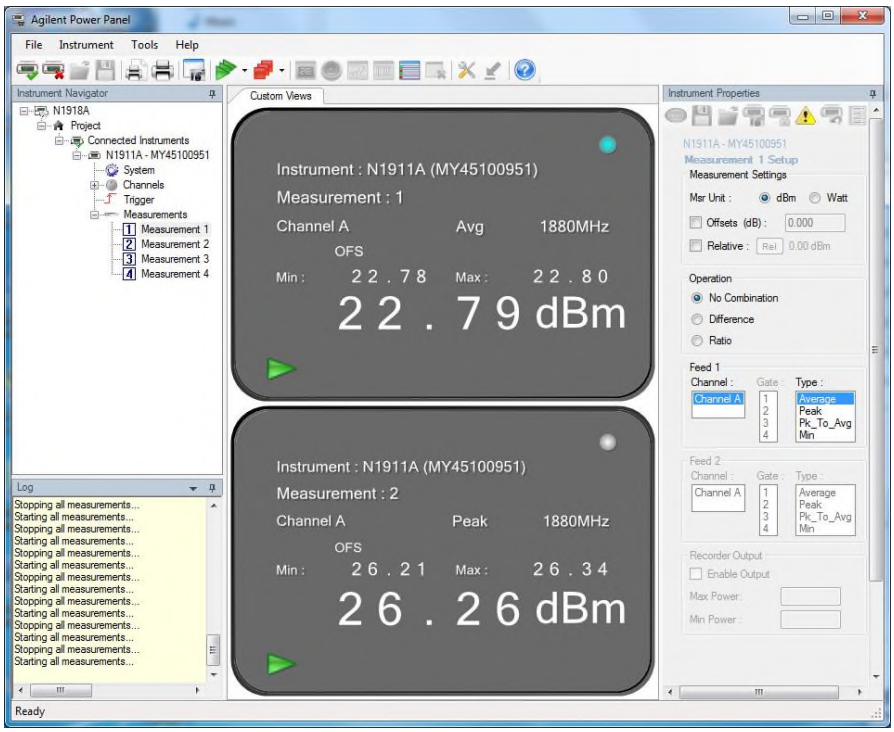
CA_4A-13A									
Bandwidth (MHz)	Modula-tion	PCC Freq (MHz)	No. RB	RB Offset	SCC Freq (MHz)	No. RB	RB Offset	Average Power (dBm)	Peak Power (dBm)
10+10	QPSK	1732.5	1	49	782	1	0	22.99	26.8
			50	0		50	0	23.46	27.68
	16QAM		1	49		1	0	23.13	27.89
			50	0		50	0	23.58	28.46
	64QAM		1	49		1	0	23.28	28.55
			50	0		50	0	23.15	29.23
10+10	QPSK	782	1	49	1732.5	1	0	23.76	27.04
			50	0		50	0	23.36	27.64
	16QAM		**1**	**49**		**1**	**0**	**23.82**	**28.47**
			50	0		50	0	23.36	28.78
	64QAM		**1**	**49**		**1**	**0**	**23.7**	**29.33**
			50	0		50	0	22.89	28.28

CA_4A-13A									
Bandwidth (MHz)	Modula-tion	PCC Freq (MHz)	No. RB	RB Offset	SCC Freq (MHz)	No. RB	RB Offset	Average Power (dBm)	Peak Power (dBm)
10+10	QPSK	1750	**1**	**49**	782	**1**	**0**	**23.55**	**27.29**
			50	0		50	0	23.25	26.8
	16QAM		1	49		1	0	23.65	28.24
			50	0		50	0	23.39	28.14
	64QAM		1	49		1	0	23.62	28.4
			50	0		50	0	23.05	29.03
10+10	QPSK	782	1	49	1750	1	0	23.64	26.93
			50	0		50	0	23.29	27.89
	16QAM		1	49		1	0	23.72	28.36
			50	0		50	0	23.25	28.66
	64QAM		1	49		1	0	23.59	29.26
			50	0		50	0	22.81	28.69

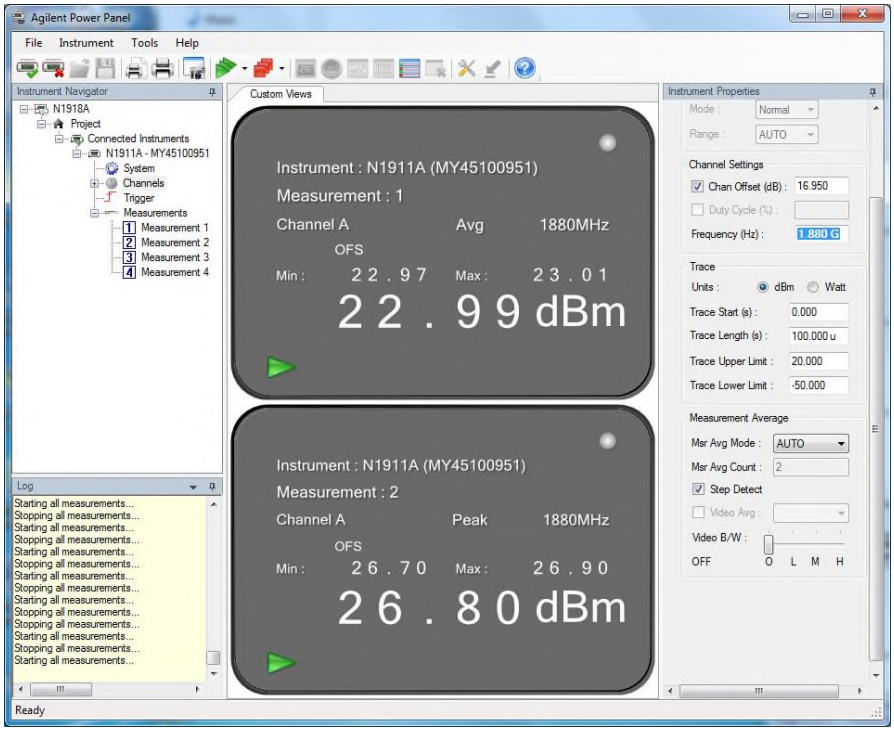
CA_13A-66A									
Bandwidth (MHz)	**Modulation**	**PCC Freq (MHz)**	**No. RB**	**RB Offset**	**SCC Freq (MHz)**	**No. RB**	**RB Offset**	**Average Power (dBm)**	**Peak Power (dBm)**
10+20	QPSK	782	1	49	1755	1	0	22.65	26.02
			50	0		100	0	22.86	27.22
	16QAM		1	49		1	0	23.27	28.14
			50	0		100	0	22.91	28.23
	64QAM		**1**	**49**		**1**	**0**	**23.16**	**28.90**
			50	0		100	0	22.45	27.96
10+20	QPSK	1755	1	99	782	1	0	21.75	26.19
			100	**0**		**50**	**0**	**23.04**	**27.07**
	16QAM		1	99		1	0	22.33	28.09
			100	0		50	0	23.26	28.12
	64QAM		1	99		1	0	22.63	28.1
			100	0		50	0	22.81	28.69

CA_13A-66A									
Bandwidth (MHz)	**Modulation**	**PCC Freq (MHz)**	**No. RB**	**RB Offset**	**SCC Freq (MHz)**	**No. RB**	**RB Offset**	**Average Power (dBm)**	**Peak Power (dBm)**
10+20	QPSK	782	1	49	1770	1	0	22.64	26.01
			50	0		100	0	22.61	26.97
	16QAM		1	49		1	0	23.23	28.15
			50	0		100	0	22.66	27.99
	64QAM		1	49		1	0	23.09	28.79
			50	0		100	0	22.27	28.02
10+20	QPSK	1770	1	99	782	1	0	21.67	26.37
			100	0		50	0	23.0	26.78
	16QAM		1	99		1	0	22.29	27.71
			100	**0**		**50**	**0**	**23.32**	**29.1**
	64QAM		1	99		1	0	21.63	26.35
			100	0		50	0	22.96	28.93

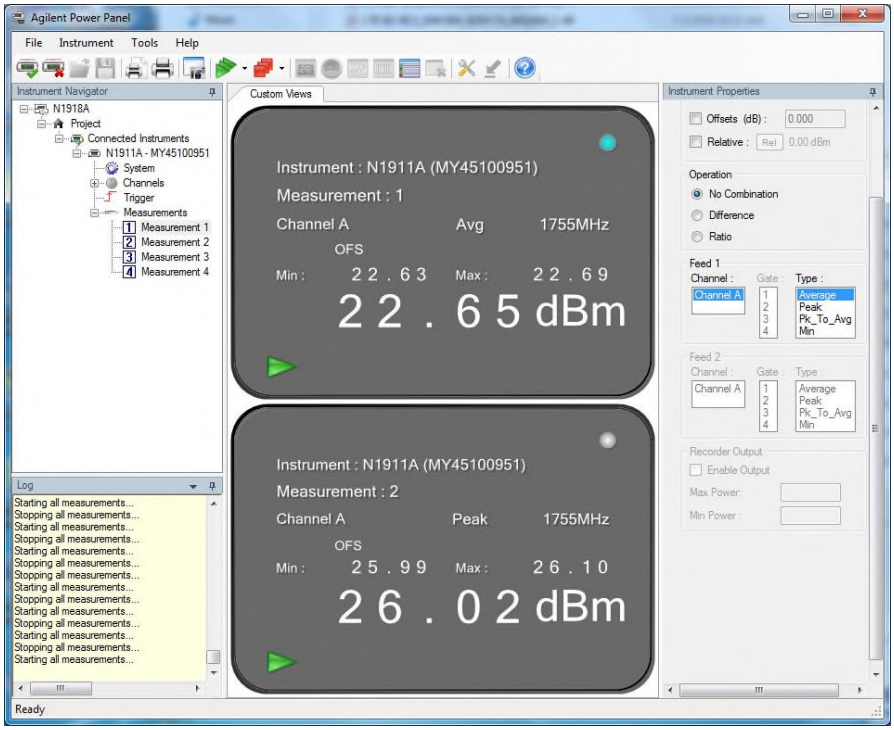
2.1.9 Sample Test Measurement Screen



CA_2A-13A_10+10 MHz Bandwidth_1880 MHz 1-49 RB & 782 MHz 1-0 RB_QPSK



CA_4A-13A_10+10 MHz Bandwidth_1732.5 MHz 1-49 RB & 782 MHz 1-0 RB_QPSK



CA_13A_66A_10+20 MHz Bandwidth_782 MHz 1-49 RB & 1755 MHz 1-0 RB & _QPSK

2.2 EFFECTIVE ISOTROPIC RADIATED POWER AND POWER SPECTRAL DENSITY

2.2.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1046
FCC 47 CFR Part 24, Clause 24.232(c)
FCC 47 CFR Part 27, Clause 27.50(h)(2)
RSS-133, Clause 6.4
RSS-139, Clause 6.5
RSS-130, Clause 4.6

2.2.2 Standard Applicable

FCC Part 24.232:
(c) Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

RSS-133, Clause 6.4:
The equivalent isotropically radiated power (e.i.r.p.) for Mobile stations and hand-held portables are limited to 2 watts maximum e.i.r.p.

FCC Part 27.50(h):
(2) Mobile and other user stations: Mobile statios arel limited to 2 watts EIRP. All ser stations are limited to 2.0 watts transmitter output power.

RSS-139, Clause 6.5:
The equivalent isotropically radiated power (e.i.r.p.) for Mobile and portable transmitters shall not exceed one watt.

RSS-130, Clause 4.6:
The e.r.p. shall not exceed 30 watts for Mobile equipment or for outdoor fixed subscriber equipment, not shall it exceed 3 watts for portable equipment or for indoor fixed subscriber equipment.

2.2.3 Equipment Under Test and Modification State

Serial No: AZ280418A00044 / Test Configuration (N/A, calculation only)

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

July 02, 2018 / 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

- EIRP was calculated as per Section 1.2 and 1.3 of KDB412172 D01 (Determining ERP and EIRP v01r01).
- Calculation formula in logarithmic terms:

$$EIRP = P_T + G_T - L_C$$

Where:

P_T = transmitter conducted output power dBm (Section 2.1 of this test report)
G_T = gain of the transmitting antenna, in dBi (EIRP);
L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB (EUT posees an internal Antenna. The loss between the EUT and the antenna port is considered negligible).

2.2.7 Test Results

CA_2A-13A												
Bandwidth (MHz)	Modula-tion	PCC Freq (MHz)	No. RB	RB Offset	SCC Freq (MHz)	No. RB	RB Offset	Average Power (dBm)	Antenna Gain (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
10+10	QPSK	1880	1	49	782	1	0	22.79	0.5	23.29	33	9.71
			50	0		50	0	23.66	0.5	24.16	33	8.84
	16QAM		1	49		1	0	23.12	0.5	23.62	33	9.38
			50	0		50	0	23.79	0.5	24.29	33	8.71
	64QAM		1	49		1	0	23.2	0.5	23.7	33	9.3
			50	0		50	0	23.6	0.5	24.1	33	8.9
10+10	QPSK	782	1	49	1880	1	0	23.3	0.5	23.8	33	9.2
			50	0		50	0	23.47	0.5	23.97	33	9.03
	16QAM		**1**	**49**		**1**	**0**	**23.85**	**0.5**	**24.35**	**33**	**8.65**
			50	0		50	0	23.42	0.5	23.92	33	9.08
	64QAM		1	49		1	0	23.63	0.5	24.13	33	8.87
			50	0		50	0	23.23	0.5	23.73	33	9.27

CA_2A-13A												
Bandwidth (MHz)	Modula-tion	PCC Freq (MHz)	No. RB	RB Offset	SCC Freq (MHz)	No. RB	RB Offset	Average Power (dBm)	Antenna Gain (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
10+10	QPSK	1905	1	49	782	1	0	22.18	0.5	22.68	33	10.32
			50	0		50	0	23.36	0.5	23.86	33	9.14
	16QAM		1	49		1	0	22.6	0.5	23.1	33	9.9
			50	**0**		**50**	**0**	**23.53**	**0.5**	**24.03**	**33**	**8.97**
	64QAM		1	49		1	0	23.09	0.5	23.59	33	9.41
			50	0		50	0	23.37	0.5	23.87	33	9.13
10+10	QPSK	782	1	49	1905	1	0	22.96	0.5	23.46	33	9.54
			50	0		50	0	23.2	0.5	23.7	33	9.3
	16QAM		1	49		1	0	23.36	0.5	23.86	33	9.14
			50	0		50	0	23.23	0.5	23.73	33	9.27
	64QAM		1	49		1	0	23.42	0.5	23.92	33	9.08
			50	0		50	0	23.04	0.5	23.54	33	9.46

CA_4A-13A												
Bandwidth (MHz)	Modula-tion	PCC Freq (MHz)	No. RB	RB Offset	SCC Freq (MHz)	No. RB	RB Offset	Average Power (dBm)	Antenna Gain (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
10+10	QPSK	1732.5	1	49	782	1	0	22.99	0.0	22.99	30	7.01
			50	0		50	0	23.46	0.0	23.46	30	6.54
	16QAM		1	49		1	0	23.13	0.0	23.13	30	6.87
			50	0		50	0	23.58	0.0	23.58	30	6.42
	64QAM		1	49		1	0	23.28	0.0	23.28	30	6.72
			50	0		50	0	23.15	0.0	23.15	30	6.85
10+10	QPSK	782	1	49	1732.5	1	0	23.76	0.0	23.76	30	6.24
			50	0		50	0	23.36	0.0	23.36	30	6.64
	16QAM		**1**	**49**		**1**	**0**	**23.82**	**0.0**	**23.82**	**30**	**6.18**
			50	0		50	0	23.36	0.0	23.36	30	6.64
	64QAM		1	49		1	0	23.7	0.0	23.7	30	6.3
			50	0		50	0	22.89	0.0	22.89	30	7.11

CA_4A-13A												
Bandwidth (MHz)	Modula-tion	PCC Freq (MHz)	No. RB	RB Offset	SCC Freq (MHz)	No. RB	RB Offset	Average Power (dBm)	Antenna Gain (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dB)
10+10	QPSK	1750	1	49	782	1	0	23.55	0.0	23.55	30	6.45
			50	0		50	0	23.25	0.0	23.25	30	6.75
	16QAM		**1**	**49**		**1**	**0**	**23.65**	**0.0**	**23.65**	**30**	**6.35**
			50	0		50	0	23.39	0.0	23.39	30	6.61
	64QAM		1	49		1	0	23.62	0.0	23.62	30	6.38
			50	0		50	0	23.05	0.0	23.05	30	6.95
10+10	QPSK	782	1	49	1750	1	0	23.64	0.0	23.64	30	6.36
			50	0		50	0	23.29	0.0	23.29	30	6.71
	16QAM		1	49		1	0	23.72	0.0	23.72	30	6.28
			50	0		50	0	23.25	0.0	23.25	30	6.75
	64QAM		1	49		1	0	23.59	0.0	23.59	30	6.41
			50	0		50	0	22.81	0.0	22.81	30	7.19

CA_13A-66A												
Bandwidth (MHz)	**Modula-tion**	**PCC Freq (MHz)**	**No. RB**	**RB Offset**	**SCC Freq (MHz)**	**No. RB**	**RB Offset**	**Average Power (dBm)**	**Antenna Gain (dBm)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
10+20	QPSK	782	1	49	1755	1	0	22.65	0.0	22.65	30	7.35
			50	0		100	0	22.86	0.0	22.86	30	7.14
	16QAM		1	49		1	0	23.27	0.0	23.27	30	6.73
			50	0		100	0	22.91	0.0	22.91	30	7.09
	64QAM		1	49		1	0	23.16	0.0	23.16	30	6.84
			50	0		100	0	22.45	0.0	22.45	30	7.55
10+20	QPSK	1755	1	0	782	1	0	21.75	0.0	21.75	30	8.25
			100	0		50	0	23.04	0.0	23.04	30	6.96
	16QAM		1	0		1	0	22.33	0.0	22.33	30	7.67
			100	**0**		**50**	**0**	**23.26**	**0.0**	**23.26**	**30**	**6.74**
	64QAM		1	0		1	0	22.63	0.0	22.63	30	7.37
			100	0		50	0	22.81	0.0	22.81	30	7.19

CA_13A-66A												
Bandwidth (MHz)	**Modula-tion**	**PCC Freq (MHz)**	**No. RB**	**RB Offset**	**SCC Freq (MHz)**	**No. RB**	**RB Offset**	**Average Power (dBm)**	**Antenna Gain (dBm)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
10+20	QPSK	782	1	49	1770	1	0	22.64	0.0	22.64	30	7.36
			50	0		100	0	22.61	0.0	22.61	30	7.39
	16QAM		1	49		1	0	23.23	0.0	23.23	30	6.77
			50	0		100	0	22.66	0.0	22.66	30	7.34
	64QAM		1	49		1	0	23.09	0.0	23.09	30	6.91
			50	0		100	0	22.27	0.0	22.27	30	7.73
10+20	QPSK	1770	1	99	782	1	0	21.67	0.0	21.67	30	8.33
			100	0		50	0	23.0	0.0	23.0	30	7
	16QAM		1	99		1	0	22.29	0.0	22.29	30	7.71
			100	**0**		**50**	**0**	**23.32**	**0.0**	**23.32**	**30**	**6.68**
	64QAM		1	99		1	0	21.63	0.0	21.63	30	8.37
			100	0		50	0	22.96	0.0	22.96	30	7.04

2.3 PEAK-AVERAGE RATIO

2.3.1 Specification Reference

FCC 47 CFR Part 24, Clause 24.232 (d)
RSS-133, Clause 6.4
RSS-139, Clause 6.5
RSS-130, Clause 4.6

2.3.2 Standard Applicable

FCC Part 24:
Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13dB.

RSS-133, RSS-139 and RSS-130:
The transmitter's peak-to-average power ratio (PAPR) shall not exceed 13 dB for more than 0.1% of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.

2.3.3 Equipment Under Test and Modification State

Serial No: AZ280418A00044 / Test Configuration A

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

July 02, 2018 / 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	25.1 °C
Relative Humidity	52.1 %
ATM Pressure	99.0 kPa

2.3.7 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) The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signals spends at or above the level defines the probability for that particular power level. For GSM signals, an average and a peak trace are used to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth.
- Low, Middle and High channels for all bandwidths and modulations were verified.
- The path loss for was measured and entered as a level offset.
- There are no measured PAPR levels greater than 13dB. EUT complies.

2.3.8 Test Results

CA_2A-13A						
Bandwidth (MHz)	Modulation	PCC Freq (MHz)	PCC PAR (dB)	SCC Freq (MHz)	SCC PAR (dB)	Limit (dB)
10+10	QPSK	1880	5.4	782	5.6	13
	16QAM	1880	6.71	782	6.6	13
	64QAM	1880	7.4	782	7.44	13

CA_2A-13A						
Bandwidth (MHz)	Modulation	PCC Freq (MHz)	PCC PAR (dB)	SCC Freq (MHz)	SCC PAR (dB)	Limit (dB)
10+10	QPSK	1905	5.1	782	5.4	13
	16QAM	1905	6.56	782	6.48	13
	64QAM	1905	7.43	782	7.52	13

CA_4A-13A						
Bandwidth (MHz)	Modulation	PCC Freq (MHz)	PCC PAR (dB)	SCC Freq (MHz)	SCC PAR (dB)	Limit (dB)
10+10	QPSK	1732.5	4.74	782	6.77	13
	16QAM	1732.5	5.82	782	7.21	13
	64QAM	1732.5	6.62	782	8.16	13

CA_4A-13A						
Bandwidth (MHz)	Modulation	PCC Freq (MHz)	PCC PAR (dB)	SCC Freq (MHz)	SCC PAR (dB)	Limit (dB)
10+10	QPSK	1750	5.11	782	5.23	13
	16QAM	1750	6.31	782	6.49	13
	64QAM	1750	7.18	782	7.33	13

CA_13A-66A						
Bandwidth (MHz)	**Modulation**	**PCC Freq (MHz)**	**PCC PAR (dB)**	**SCC Freq (MHz)**	**SCC PAR (dB)**	**Limit (dB)**
10+20	QPSK	782	5.19	1755	6.74	13
	16QAM	782	6.73	1755	7.69	13
	64QAM	782	7.53	1755	8.21	13

CA_13A-66A						
Bandwidth (MHz)	**Modulation**	**PCC Freq (MHz)**	**PCC PAR (dB)**	**SCC Freq (MHz)**	**SCC PAR (dB)**	**Limit (dB)**
10+20	QPSK	782	5.47	1770	6.75	13
	16QAM	782	6.63	1770	7.89	13
	64QAM	782	7.81	1770	7.91	13

2.3.9 Example Test Plots

CA_2A-13A_10+10 MHz Bandwidth_PCC_Band 2_1880 MHz_QPSK

13:20:44 02.07.2018

CA_2A-13A_10+10 MHz Bandwidth_SCC_Band 13_782 MHz_QPSK

13:26:12 02.07.2018

CA_4A-13A_10+10 MHz Bandwidth_PCC_Band 4_1732.5 MHz_QPSK


13:11:04 02.07.2018

CA_4A-13A_10+10 MHz Bandwidth_SCC_Band 13_782 MHz_QPSK


13:09:11 02.07.2018

CA_13A-66A_10+20 MHz Bandwidth_PCC_Band 13_782 MHz_QPSK


13:33:14 02.07.2018

CA_13A-66A_10+20 MHz Bandwidth_SCC_Band 66_1755 MHz_QPSK


13:03:50 02.07.2018

2.4 OCCUPIED BANDWIDTH

2.4.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1049
FCC 47 CFR Part 24, Clause 24.238(b)
FCC 47 CFR Part 27, Clause 27.53(h)(3)
RSS-GEN, Clause 6.7

2.4.2 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 v03r01 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.

2.4.3 Equipment Under Test and Modification State

Serial No: AZ280418A00044 / Test Configuration A

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

July 02, 2018 / 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 Location

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility

Ambient Temperature	25.1 °C
Relative Humidity	52.1 %
ATM Pressure	99.0 kPa

2.4.7 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 resolution bandwidth (RBW) shall be in the range of 1% of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be at least 3x RBW.
- Low, Mid and High channels for all bandwidths and modulations were verified. Test results of Mid channel were presented as representative.

2.4.8 Test Results

CA_2A-13A							
Bandwidth (MHz)	**Modulation**	**PCC Freq (MHz)**	**PCC OBW (MHz)**	**PCC 26 dB BW (MHz)**	**SCC Freq (MHz)**	**SCC OBW (MHz)**	**SCC 26 dB BW (MHz)**
10+10	QPSK	1880	8.93	9.64	782	8.93	9.64
	16QAM	1880	8.95	9.68	782	8.89	9.64
	64QAM	1880	8.95	9.64	782	8.88	9.51

CA_2A-13A							
Bandwidth (MHz)	**Modulation**	**PCC Freq (MHz)**	**PCC OBW (MHz)**	**PCC 26 dB BW (MHz)**	**SCC Freq (MHz)**	**SCC OBW (MHz)**	**SCC 26 dB BW (MHz)**
10+10	QPSK	1905	8.93	9.68	782	8.91	9.55
	16QAM	1905	8.93	9.64	782	8.91	9.64
	64QAM	1905	8.92	9.64	782	8.93	9.64

CA_4A-13A							
Bandwidth (MHz)	Modulation	PCC Freq (MHz)	PCC OBW (MHz)	PCC 26 dB BW (MHz)	SCC Freq (MHz)	SCC OBW (MHz)	SCC 26 dB BW (MHz)
10+10	QPSK	1732.5	8.96	9.72	782	8.91	9.6
	16QAM	1732.5	8.96	9.68	782	8.91	9.64
	64QAM	1732.5	8.97	9.72	782	8.9	9.68

CA_4A-13A							
Bandwidth (MHz)	Modulation	PCC Freq (MHz)	PCC OBW (MHz)	PCC 26 dB BW (MHz)	SCC Freq (MHz)	SCC OBW (MHz)	SCC 26 dB BW (MHz)
10+10	QPSK	1750	8.96	9.77	782	8.91	9.55
	16QAM	1750	8.97	9.68	782	8.88	9.6
	64QAM	1750	8.96	9.77	782	8.9	9.64

CA_13A-66A							
Bandwidth (MHz)	Modulation	PCC Freq (MHz)	PCC OBW (MHz)	PCC 26 dB BW (MHz)	SCC Freq (MHz)	SCC OBW (MHz)	SCC 26 dB BW (MHz)
10+20	QPSK	782	8.92	9.68	1755	17.97	19.36
	16QAM	782	8.91	9.55	1755	17.92	19.28
	64QAM	782	8.88	9.72	1755	17.93	19.19

CA_13A-66A							
Bandwidth (MHz)	Modulation	PCC Freq (MHz)	PCC OBW (MHz)	PCC 26 dB BW (MHz)	SCC Freq (MHz)	SCC OBW (MHz)	SCC 26 dB BW (MHz)
10+20	QPSK	782	8.91	9.68	1770	17.89	19.28
	16QAM	782	8.9	9.6	1770	17.84	19.19
	64QAM	782	8.91	9.51	1770	17.84	19.19

2.4.9 Example Test Plots

CA_2A-13A_10+10 MHz Bandwidth_PCC_Band 2_1880 MHz_QPSK / 99%OBW

15:20:38 02.07.2018

CA_2A-13A_10+10 MHz Bandwidth_PCC_Band 2_1880 MHz_QPSK / 26dB BW

15:20:09 02.07.2018

CA_2A-13A_10+10 MHz Bandwidth_SCC_Band 13_782 MHz_QPSK / 99%OBW

15:04:52 02.07.2018

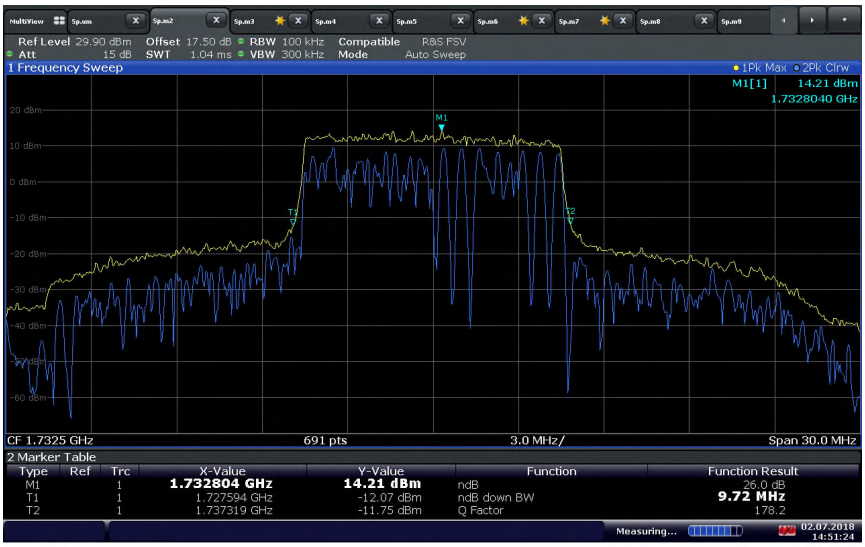
CA_2A-13A_10+10 MHz Bandwidth_SCC_Band 13_782 MHz_QPSK / 26dB BW

15:04:06 02.07.2018

CA_4A-13A_10+10 MHz Bandwidth_PCC_Band 4_1732.5 MHz_QPSK / 99%OBW

14:50:52 02.07.2018

CA_4A-13A_10+10 MHz Bandwidth_PCC_Band 4_1732.5 MHz_QPSK / 26dB BW



14:51:25 02.07.2018

CA_4A-13A_10+10 MHz Bandwidth_SCC_Band 13_782 MHz_QPSK / 99%OBW

14:56:32 02.07.2018

CA_4A-13A_10+10 MHz Bandwidth_SCC_Band 13_782 MHz_QPSK / 26dB BW

14:55:51 02.07.2018

CA_13A-66A_10+20 MHz Bandwidth_PCC_Band 13_782 MHz_QPSK / 99%OBW

14:15:02 02.07.2018

CA_13A-66A_10+20 MHz Bandwidth_PCC_Band 13_782 MHz_QPSK / 26dB BW

14:19:41 02.07.2018

CA_13A-66A_10+20 MHz Bandwidth_SCC_Band 66_1755 MHz_QPSK / 99%OBW

14:32:44 02.07.2018

CA_13A-66A_10+20 MHz Bandwidth_SCC_Band 66_1755 MHz_QPSK / 26dB BW

14:32:12 02.07.2018

2.5 BAND EDGE

2.5.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1051
FCC 47 CFR Part 24, Clause 24.238(a)(b)
FCC 47 CFR Part 27, Clause 27.53(h)(1)(3)
FCC 47 CFR Part 27, Clause 27.53(c)(2)(5)
RSS-133, Clause 6.5
RSS-139, Clause 6.6
RSS-130, Clause 4.7

2.5.2 Standard Applicable

FCC 47 CFR Part 24.238
(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.
(b) Measurement procedure. Compliance with these reules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

FCC 47 CFR Part 27.53:
(h) AWS emission limits—(1) General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB
(3) Measurement procedure. (i) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission 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 at least 26 dB below the transmitter power.

(c)(2) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;
(c)(5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed.

RSS-133, Clause 6.5.1
Equipment shall comply with the limits in (i) and (ii) below.

(i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10 p(watts).
(ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10 p(watts). If the

measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

RSS-139, Clause 6.6

(i) In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block, which can contain the quipment's occupied bandwidth, the emisison power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 $\log_{10}$ p (watts) dB.

(ii) After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the quipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (dBW) by at least 43 + 10 $\log_{10}$ p(watts) dB.

RSS-130, Clause 4.7.1

The power of any unwanted emissions in any 100 kHz bandwidth on any frequency outside thefrequency range(s) within which the equipment is designed to operate shall be attenuated below the transmitter power, P (dBW), by at least 43 + 10 log10 p (watts), dB. However, in the 100 kHz band immediately outside the equipment's operating frequency range, a resolution bandwidth of 30 kHz may be employed.

2.5.3 Equipment Under Test and Modification State

Serial No: AZ280418A00044 / Test Configuration A

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

July 03, 2018 / 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

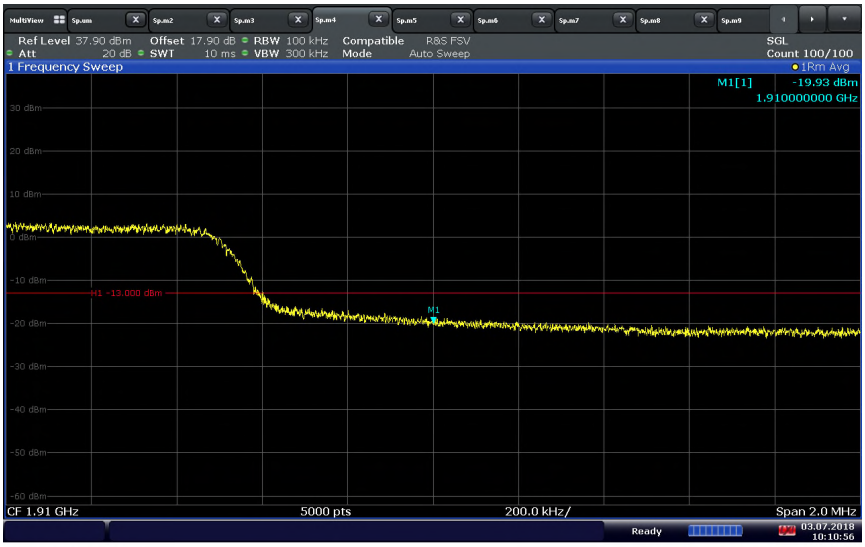
Ambient Temperature	25.8 °C
Relative Humidity	49.4 %
ATM Pressure	98.9 kPa

2.5.7 Additional Observations

- This is a conducted test.
- The path loss were measured and entered as a level offset.
- RBW is set to at least 1% of emission bandwidth for Band 2, Band 4 and Band 66, and 30 kHz for Band 13. VBW is set to 3X RBW.
- For emissions more than 100 kHz (for Band 13) outside the equipment's operating frequency block, the limit is set to:
  -13 + 10lg (RBW_{used}/1 MHz) dBm.
- Only worst case configuration for all technologies presented in this test report.

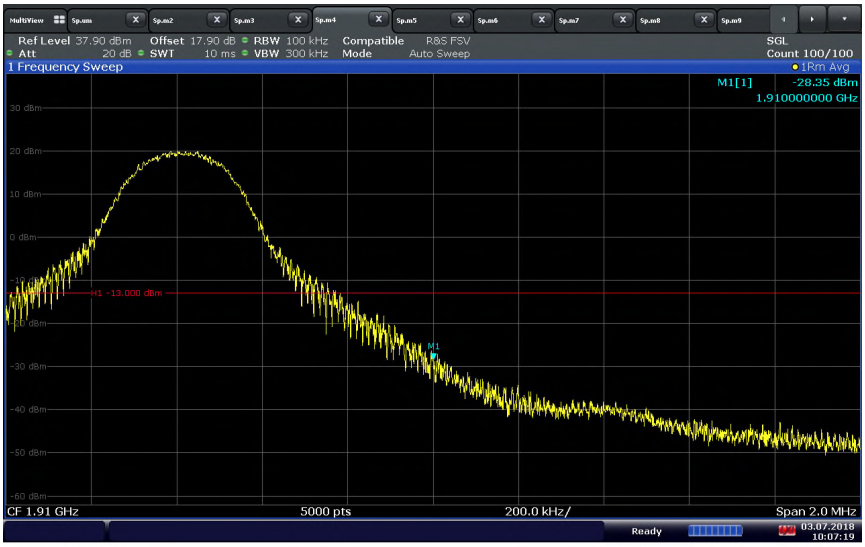
2.5.8 Test Results

CA_2A-13A_10+10 MHz Bandwidth_PCC_Band 2_1905 MHz_Full RB_QPSK / High Edge



10:10:56 03.07.2018

CA_2A-13A_10+10 MHz Bandwidth_PCC_Band 2_1905 MHz_1 RB_QPSK / High Edge

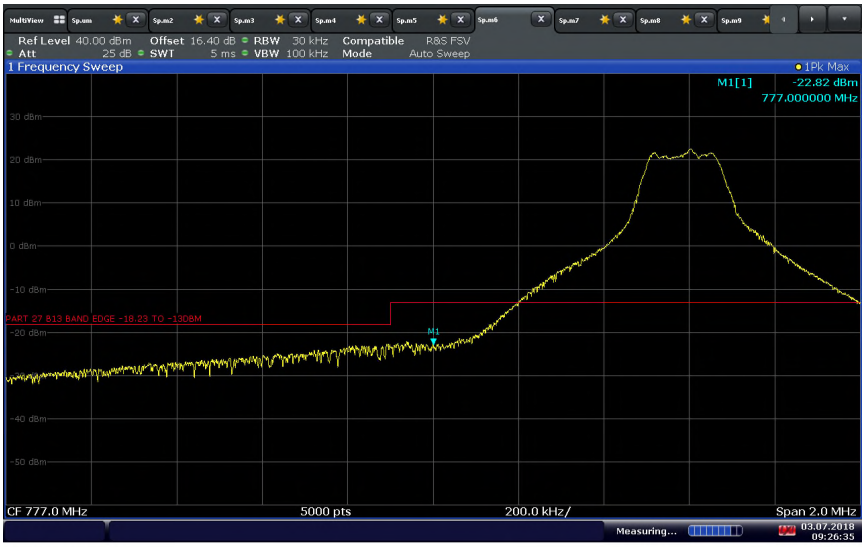


10:07:19 03.07.2018

CA_2A-13A_10+10 MHz Bandwidth_SCC_Band 13_782 MHz_Full RB_QPSK / Low Edge

09:29:01 03.07.2018

CA_2A-13A_10+10 MHz Bandwidth_SCC_Band 13_782 MHz_1-0 RB_QPSK / Low Edge

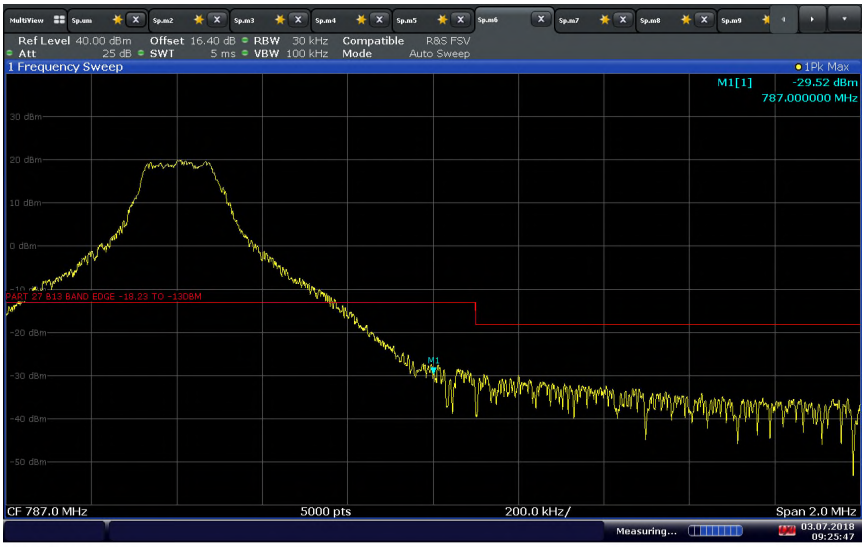


09:26:36 03.07.2018

CA_2A-13A_10+10 MHz Bandwidth_SCC_Band 13_782 MHz_Full RB_QPSK / High Edge

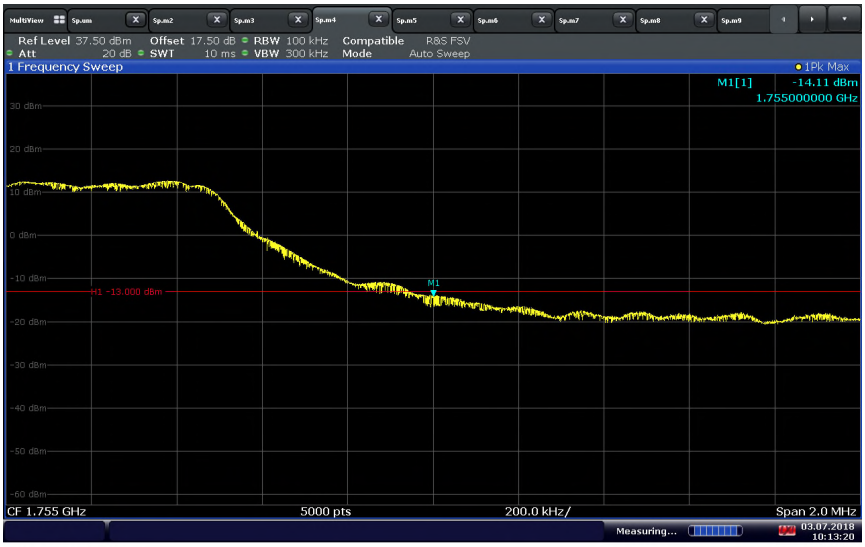
09:21:54 03.07.2018

CA_2A-13A_10+10 MHz Bandwidth_SCC_Band 13_782 MHz_1-49 RB_QPSK / High Edge



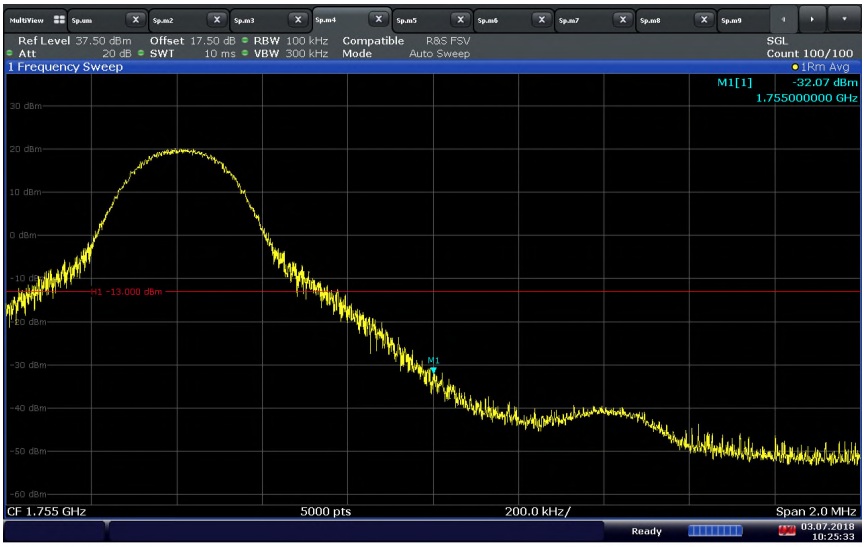
09:25:48 03.07.2018

CA_4A-13A_10+10 MHz Bandwidth_PCC_Band 4_1750 MHz_Full RB_QPSK / High Edge



10:13:20 03.07.2018

CA_4A-13A_10+10 MHz Bandwidth_PCC_Band 4_1750 MHz_1-49 RB_QPSK / High Edge

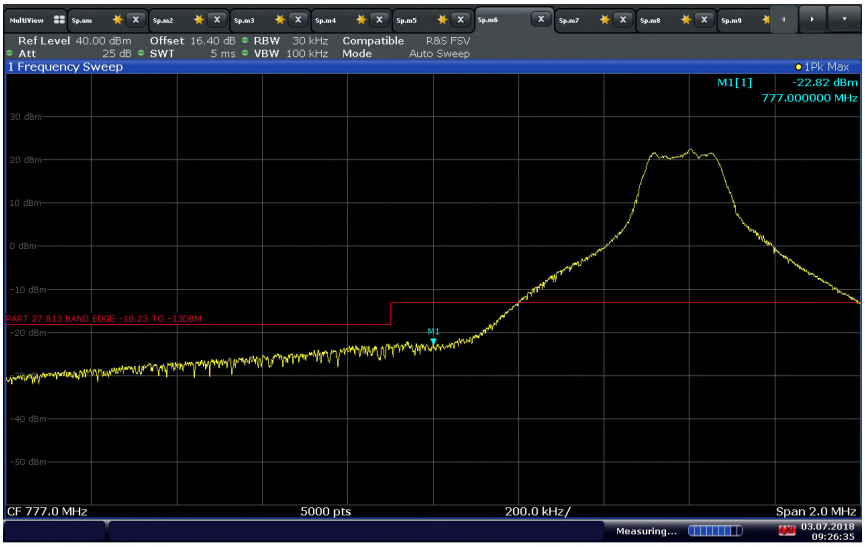


10:25:33 03.07.2018

CA_4A-13A_10+10 MHz Bandwidth_SCC_Band 13_782 MHz_Full RB_QPSK / Low Edge

09:29:01 03.07.2018

CA_4A-13A_10+10 MHz Bandwidth_SCC_Band 13_782 MHz_1-0 RB_QPSK / Low Edge

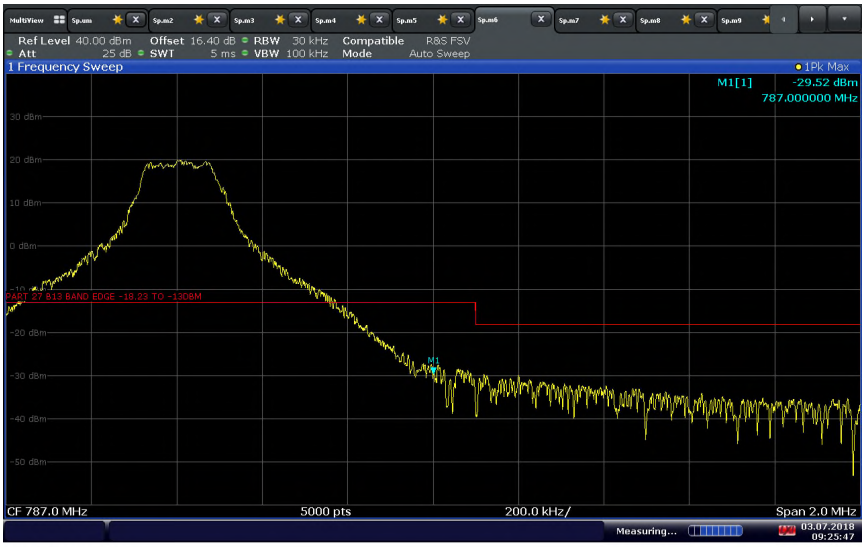


09:26:36 03.07.2018

CA_4A-13A_10+10 MHz Bandwidth_SCC_Band 13_782 MHz_Full RB_QPSK / High Edge

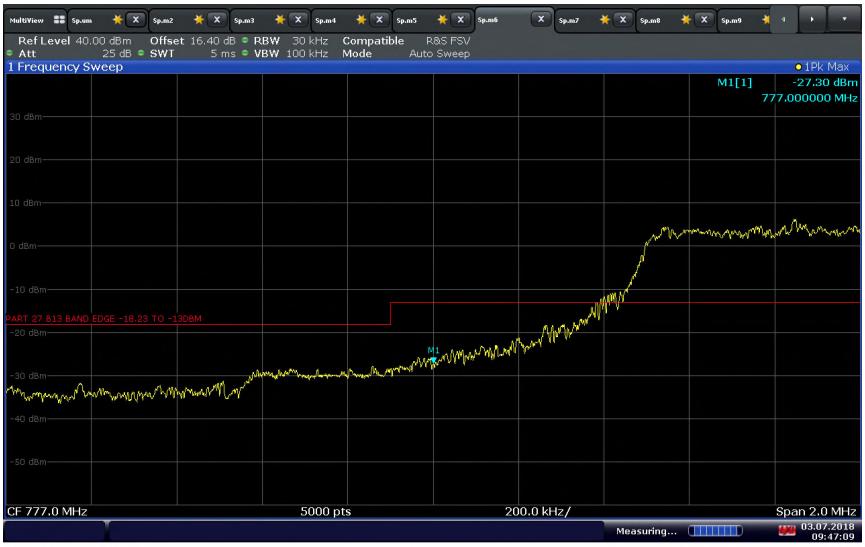
09:21:54 03.07.2018

CA_4A-13A_10+10 MHz Bandwidth_SCC_Band 13_782 MHz_1-49 RB_QPSK / High Edge



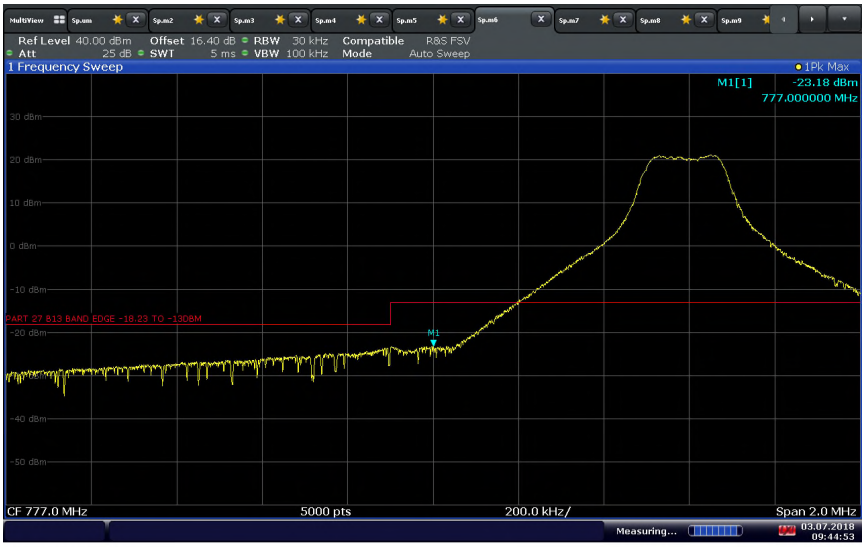
09:25:48 03.07.2018

CA_13A-66A_10+10 MHz Bandwidth_PCC_Band 13_782 MHz_Full RB_QPSK / Low Edge



09:47:09 03.07.2018

CA_13A-66A_10+10 MHz Bandwidth_PCC_Band 13_782 MHz_1-0 RB_QPSK / Low Edge

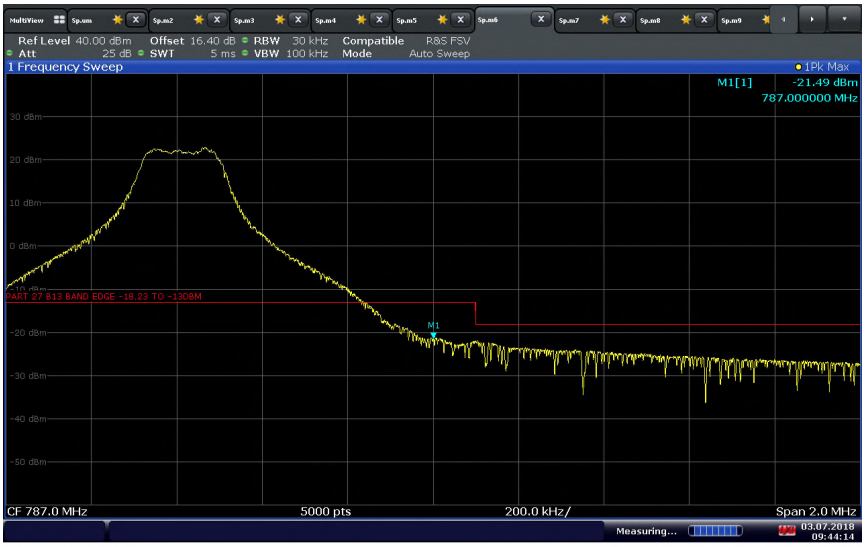


09:44:54 03.07.2018

CA_13A-66A_10+10 MHz Bandwidth_PCC_Band 13_782 MHz_Full RB_QPSK / High Edge

09:41:03 03.07.2018

CA_13A-66A_10+10 MHz Bandwidth_PCC_Band 13_782 MHz_1-49 RB_QPSK / High Edge



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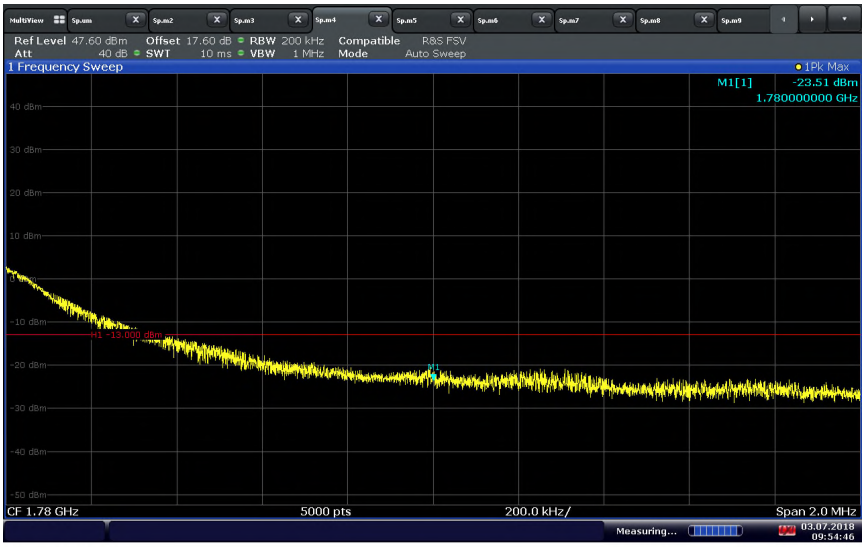
CA_13A-66A_10+20 MHz Bandwidth_SCC_Band 66_1770 MHz_Full RB_QPSK / High Edge



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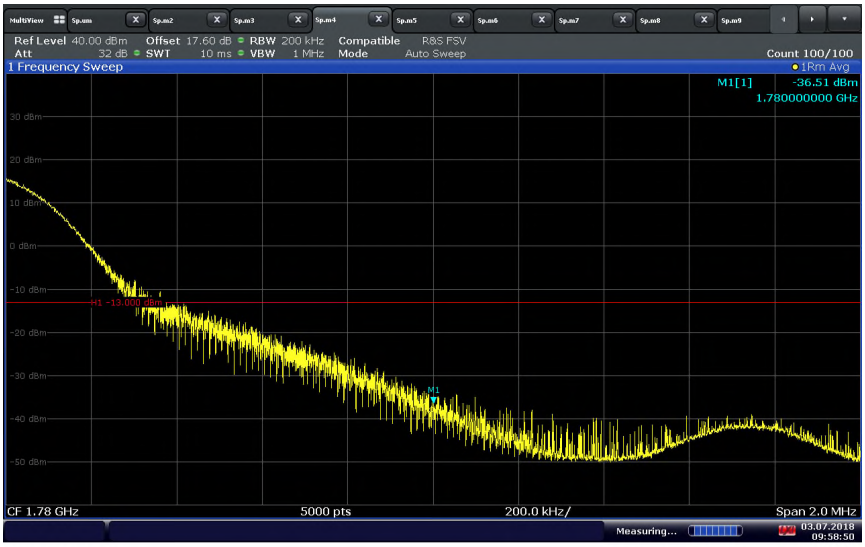
CA_13A-66A_10+20 MHz Bandwidth_SCC_Band 66_1770 MHz_1-99 RB_QPSK / High Edge



09:58:50 03.07.2018

2.6 CONDUCTED SPURIOUS EMISSIONS

2.6.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1051
FCC 47 CFR Part 24, Clause 24.238(a)(b)
FCC 47 CFR Part 27, Clause 27.53(h)(1)(3)
FCC 47 CFR Part 27, Clause 27.53(c)(2)(4)(5)(f)
RSS-133, Clause 6.5
RSS-139, Clause 6.6
RSS-130, Clause 4.7

2.6.2 Standard Applicable

FCC 47 CFR Part 24.238
(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.
(b) Measurement procedure. Compliance with these reules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

FCC 47 CFR Part 27.53:
(h) AWS emission limits—(1) General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB
(3) Measurement procedure. (i) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission 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 at least 26 dB below the transmitter power.

(c)(2) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;
(c)(5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed.

RSS-133, Clause 6.5.1
Equipment shall comply with the limits in (i) and (ii) below.

(i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10 p(watts).
(ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10 p(watts). If the

measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

RSS-139, Clause 6.6

(i) In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block, which can contain the quipment's occupied bandwidth, the emisison power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 $\log_{10}$ p (watts) dB.

(ii) After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the quipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (dBW) by at least 43 + 10 $\log_{10}$ p(watts) dB.

RSS-130, Clause 4.7

4.7.1 The power of any unwanted emissions in any 100 kHz bandwidth on any frequency outside thefrequency range(s) within which the equipment is designed to operate shall be attenuated below the transmitter power, P (dBW), by at least 43 + 10 log10 p (watts), dB. However, in the 100 kHz band immediately outside the equipment's operating frequency range, a resolution bandwidth of 30 kHz may be employed.

4.7.2 In addition to the limit outlined in section 4.7.1 above, equipment operating in the frequency bands 746-756 MHz and 777-787 MHz shall also comply with the following restrictions:

a. the power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least:

i. 76 + 10 log10 p (watts), dB, for base and fixed equipment and
ii. 65 + 10 log10 p (watts), dB, for mobile and portable equipment

b. the e.i.r.p. in the band 1559-1610 MHz shall not exceed −70 dBW/MHz for wideband signal and −80 dBW for discrete emission with bandwidth less than 700 Hz.

2.6.3 Equipment Under Test and Modification State

Serial No: AZ280418A00044 / Test Configuration A

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

July 02, 2018 / ZXY

2.6.5 Test Equipment Used

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

2.6.6 Environmental Conditions/ Test Location

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility

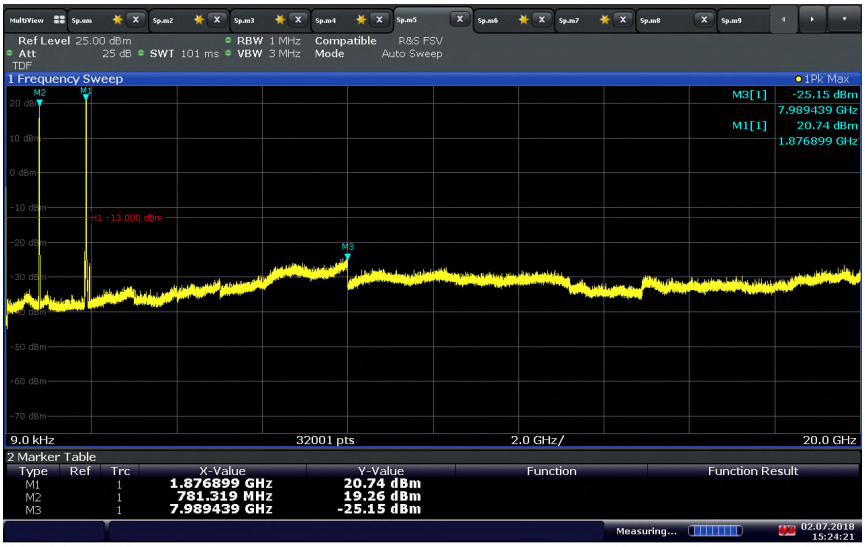
Ambient Temperature	25.1 °C
Relative Humidity	52.1 %
ATM Pressure	99.0 kPa

2.6.7 Additional Observations

- This is a conducted test.
- The spectrum was searched from 9 kHz to the 10th harmonic.
- The path loss was measured and entered as a transducer factor (TDF).
- Low, Middle and High channels on all channel bandwidth and modulation are verified. Only worst case configuration for all technologies presented in this test report.

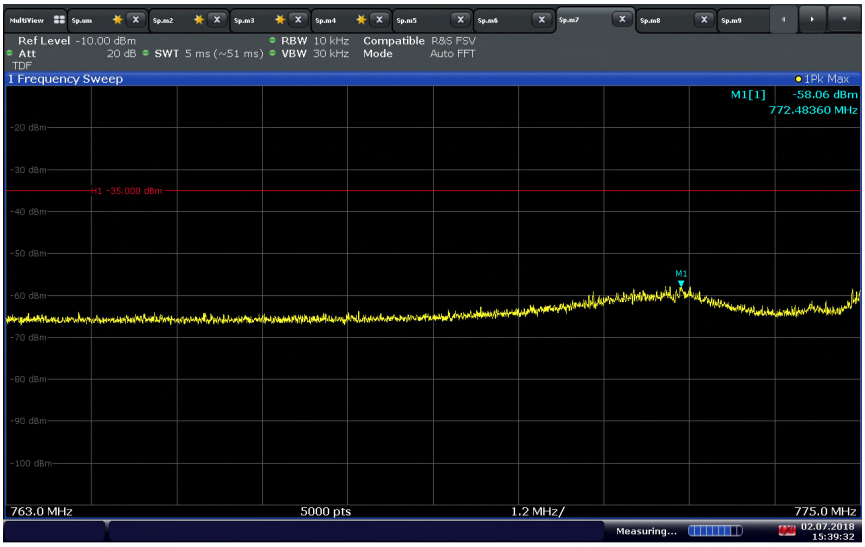
2.6.8 Test Results

CA_2A-13A_10+10 MHz Bandwidth_1880 MHz & 782 MHz_ Full RB_QPSK / Conducted Spurious Emissions

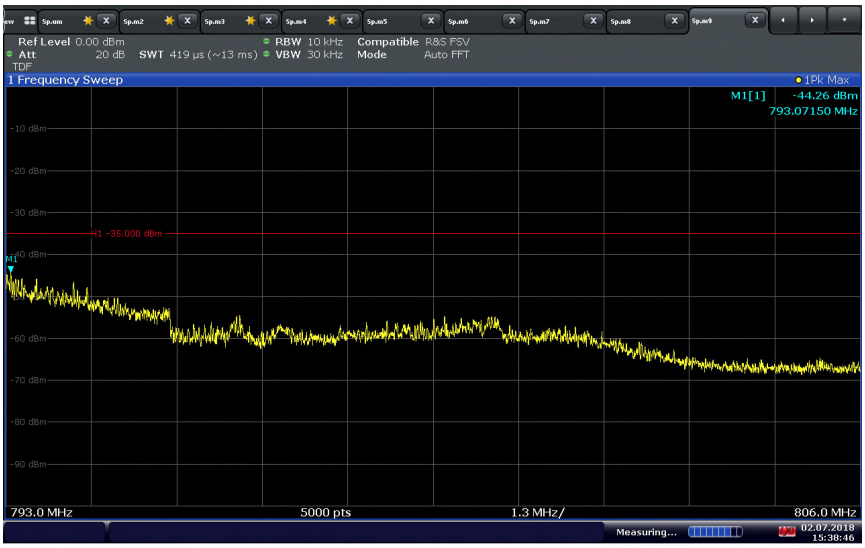
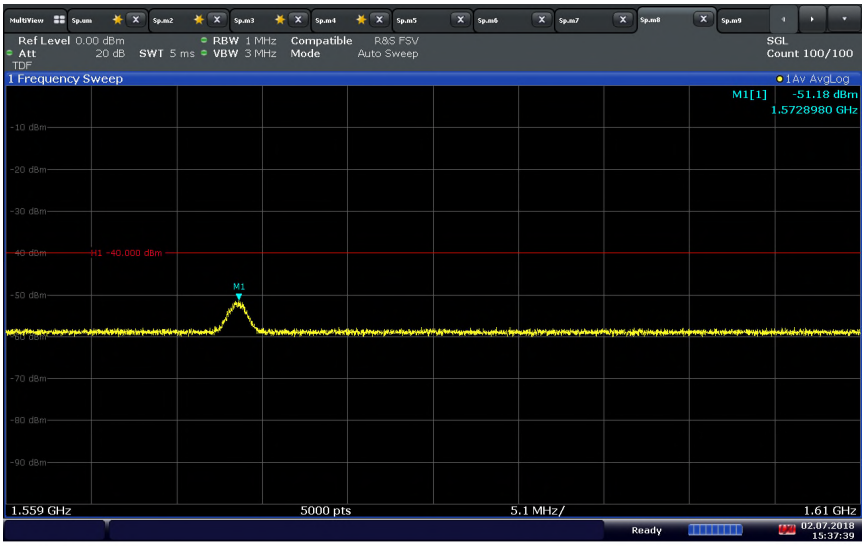


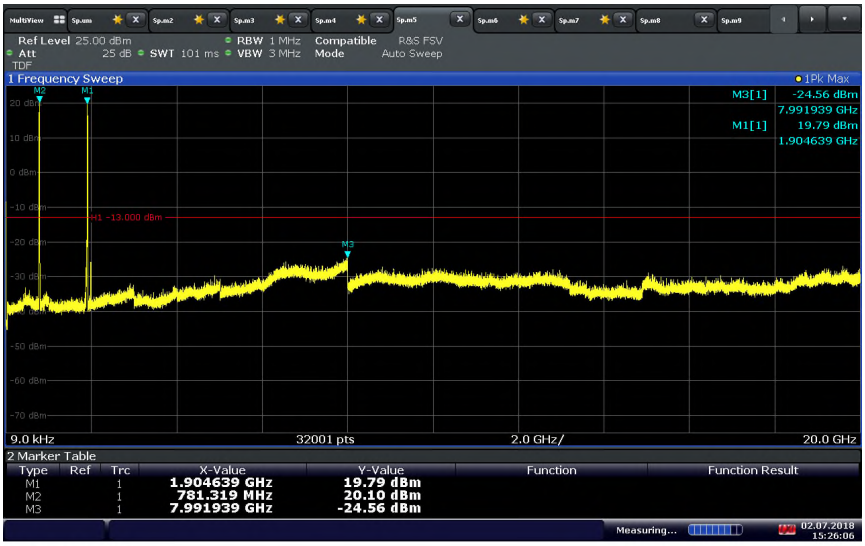
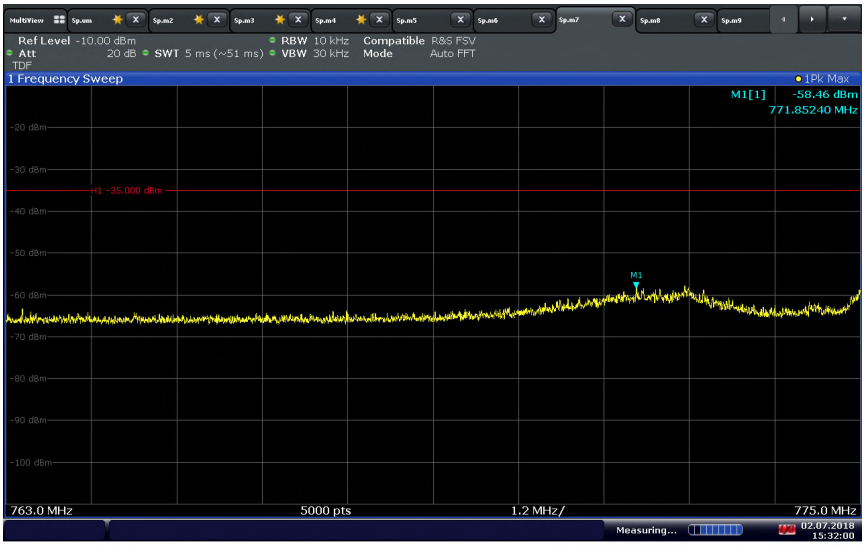
15:24:22 02.07.2018

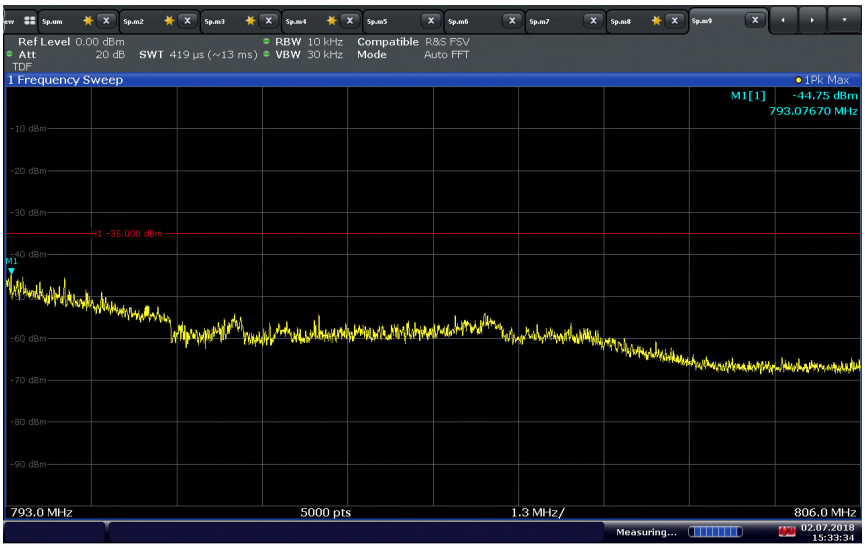
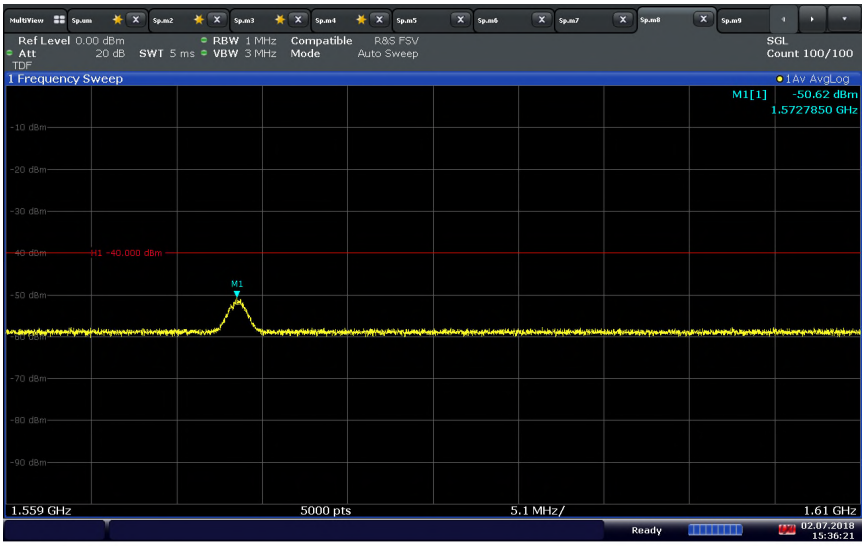
CA_2A-13A_10+10 MHz Bandwidth_1880 MHz & 782 MHz_ Full RB_QPSK / Conducted Spurious Emissions (763-775 MHz)



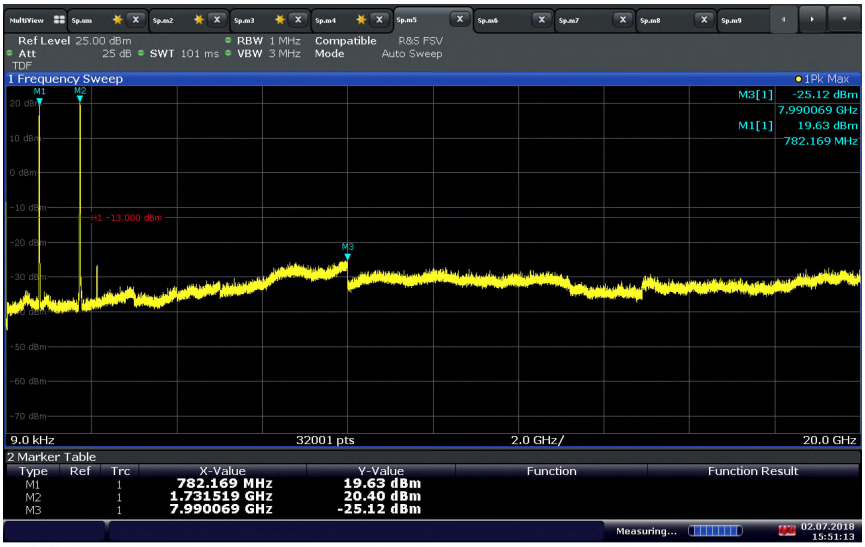
15:39:33 02.07.2018

CA_2A-13A_10+10 MHz Bandwidth_1880 MHz & 782 MHz_ Full RB_QPSK / Conducted Spurious Emissions (793-806 MHz)
 15:38:46 02.07.2018
CA_2A-13A_10+10 MHz Bandwidth_1880 MHz & 782 MHz_1 RB_QPSK / Conducted Spurious Emissions (1559-1610 MHz)
 15:37:40 02.07.2018

CA_2A-13A_10+10 MHz Bandwidth_1905 MHz & 782 MHz_ Full RB_QPSK / Conducted Spurious Emissions
 15:26:07 02.07.2018
CA_2A-13A_10+10 MHz Bandwidth_1905 MHz & 782 MHz_ Full RB_QPSK / Conducted Spurious Emissions (763-775 MHz)
 15:32:01 02.07.2018

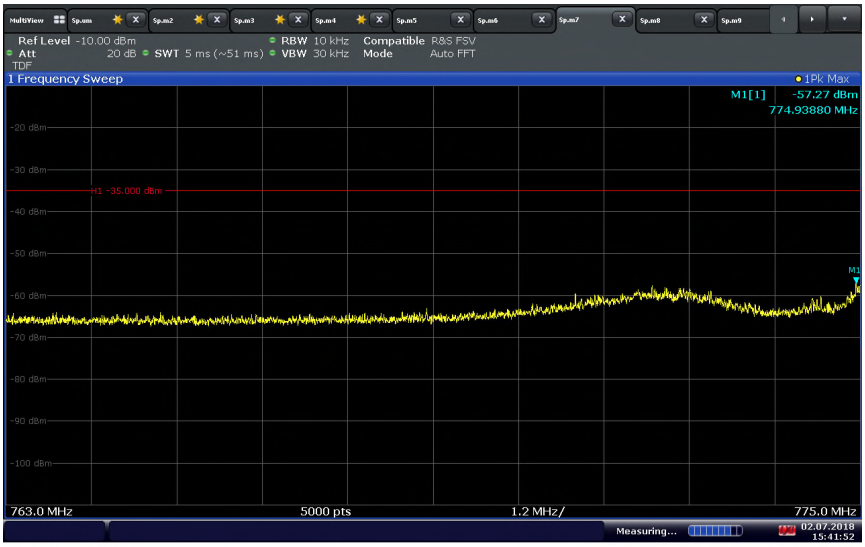
CA_2A-13A_10+10 MHz Bandwidth_1905 MHz & 782 MHz_ Full RB_QPSK / Conducted Spurious Emissions (793-806 MHz)
 15:33:35 02.07.2018
CA_2A-13A_10+10 MHz Bandwidth_1905 MHz & 782 MHz_1 RB_QPSK / Conducted Spurious Emissions (1559-1610 MHz)
 15:36:21 02.07.2018

CA_4A-13A_10+10 MHz Bandwidth_1732.5 MHz & 782 MHz_ Full RB_QPSK / Conducted Spurious Emissions

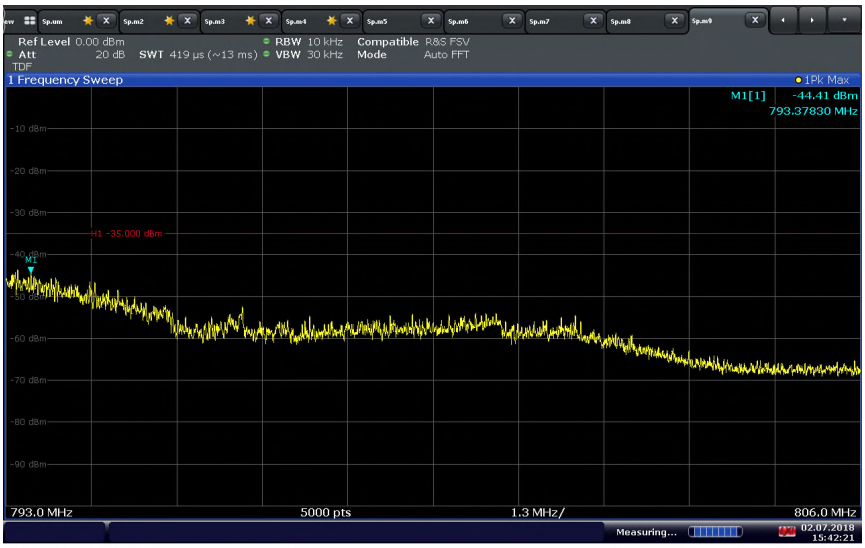
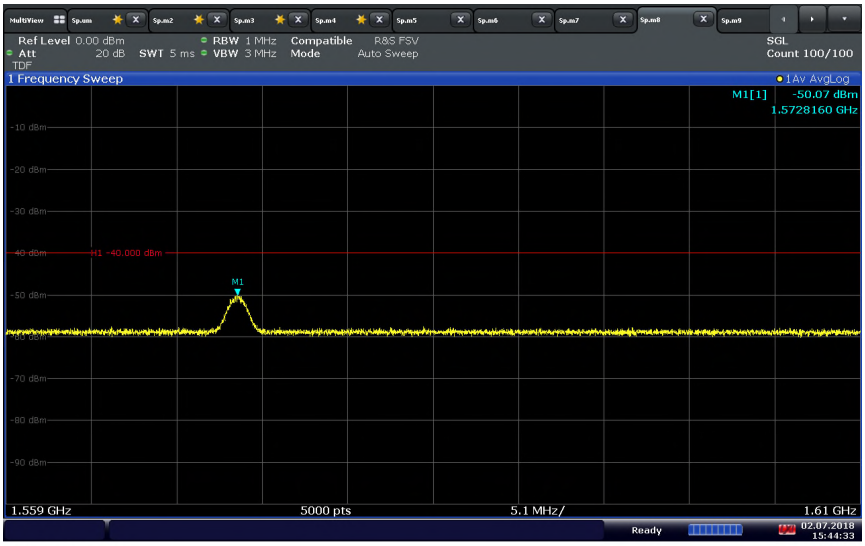


15:51:13 02.07.2018

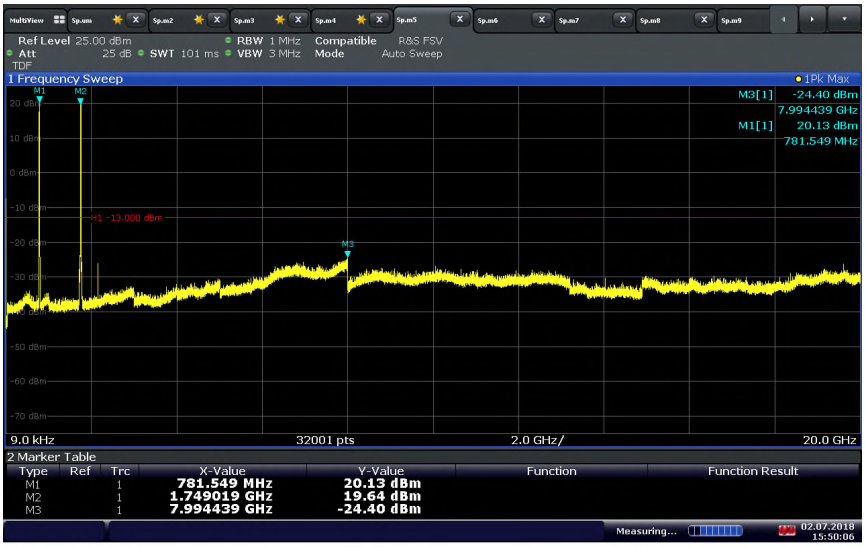
CA_4A-13A_10+10 MHz Bandwidth_1732.5 MHz & 782 MHz_ Full RB_QPSK / Conducted Spurious Emissions (763-775 MHz)



15:41:53 02.07.2018

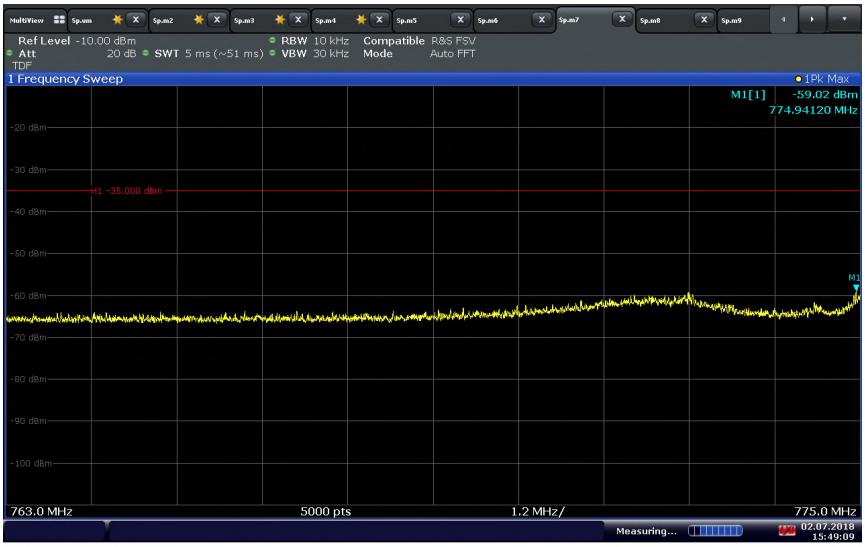
CA_4A-13A_10+10 MHz Bandwidth_1732.5 MHz & 782 MHz_ Full RB_QPSK / Conducted Spurious Emissions (793-806 MHz)
 15:42:21 02.07.2018
CA_4A-13A_10+10 MHz Bandwidth_1732.5 MHz & 782 MHz_1 RB_QPSK / Conducted Spurious Emissions (1559-1610 MHz)
 15:44:33 02.07.2018

CA_4A-13A_10+10 MHz Bandwidth_1750 MHz & 782 MHz_ Full RB_QPSK / Conducted Spurious Emissions

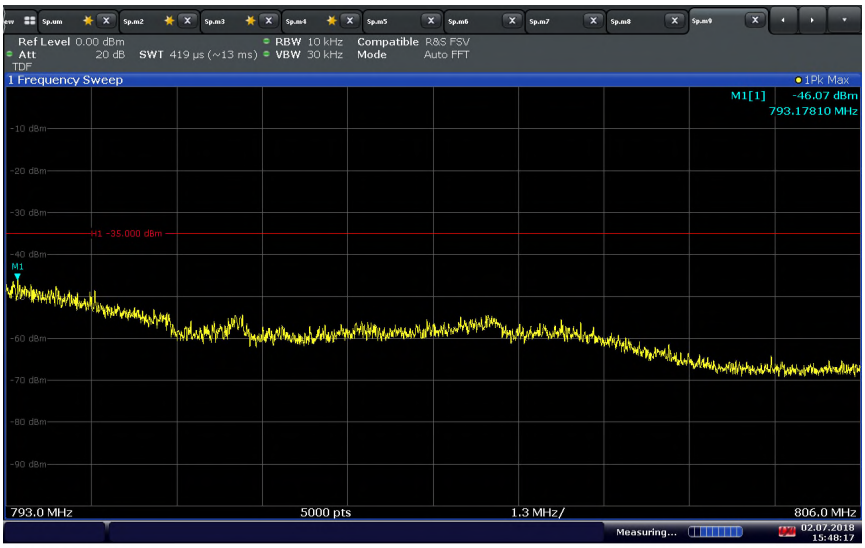
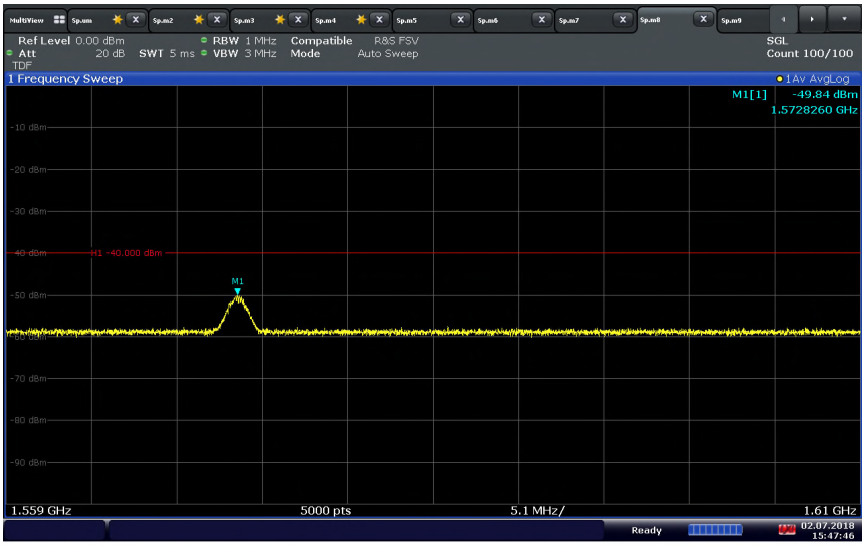


15:50:07 02.07.2018

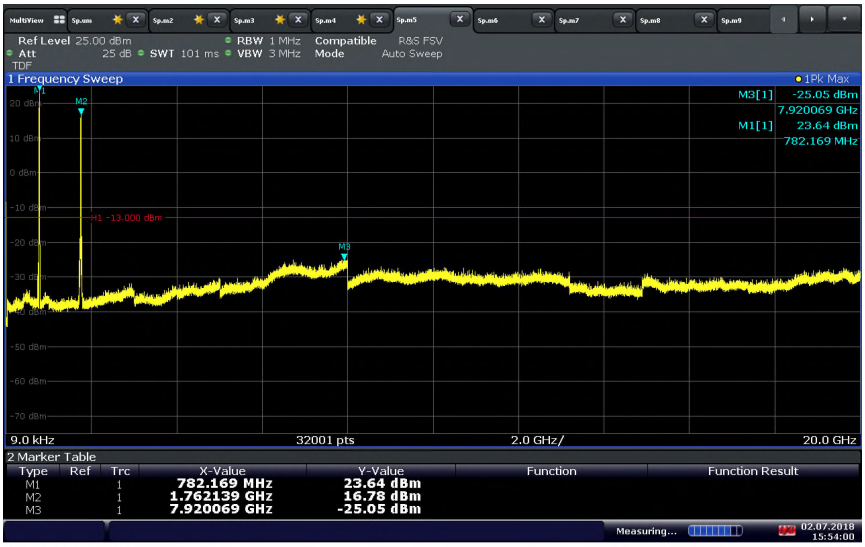
CA_4A-13A_10+10 MHz Bandwidth_1750 MHz & 782 MHz_ Full RB_QPSK / Conducted Spurious Emissions (763-775 MHz)



15:49:10 02.07.2018

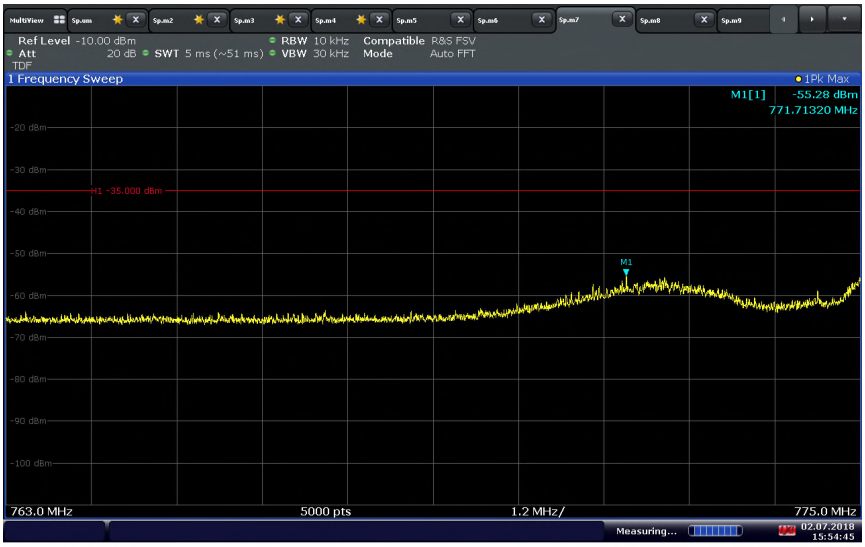
CA_4A-13A_10+10 MHz Bandwidth_1750 MHz & 782 MHz_Full RB_QPSK / Conducted Spurious Emissions (793-806 MHz)
 15:48:17 02.07.2018
CA_4A-13A_10+10 MHz Bandwidth_1750 MHz & 782 MHz_1 RB_QPSK / Conducted Spurious Emissions (1559-1610 MHz)
 15:47:46 02.07.2018

CA_13A-66A_10+20 MHz Bandwidth_782 MHz & 1755 MHz_Full RB_QPSK / Conducted Spurious Emissions

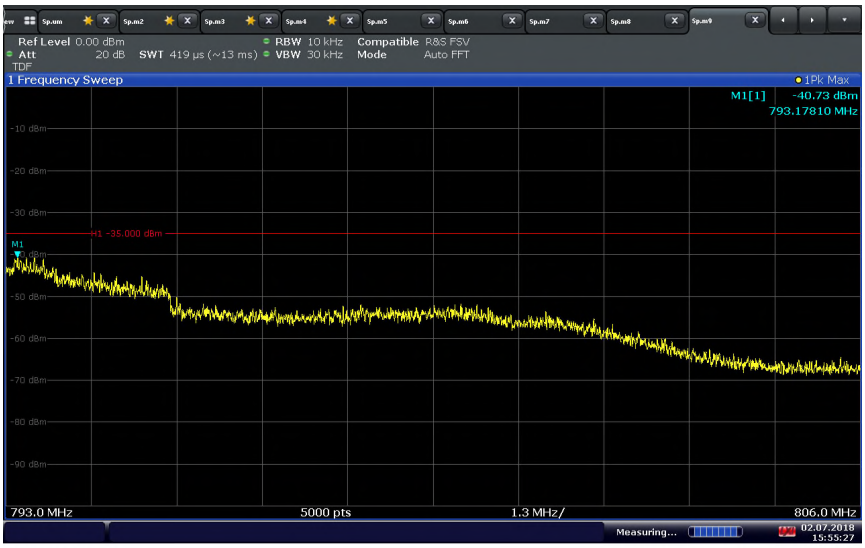
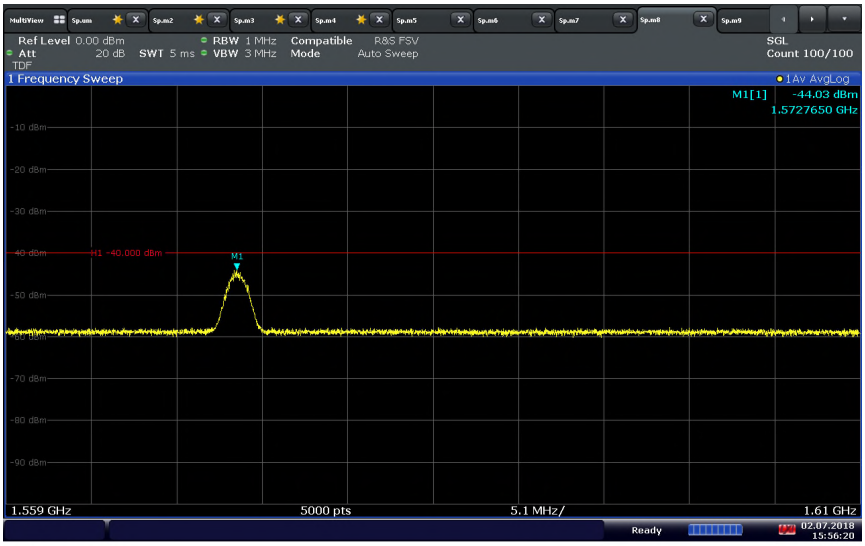


15:54:01 02.07.2018

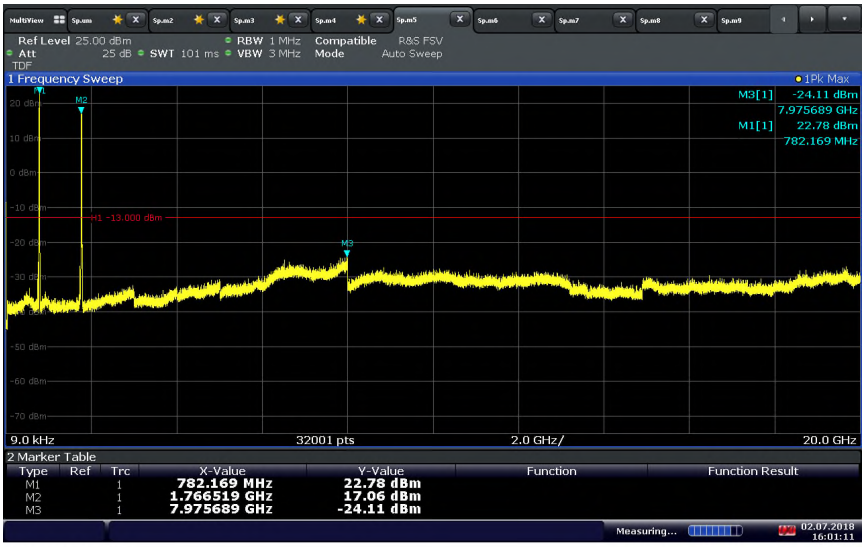
CA_13A-66A_10+20 MHz Bandwidth_782 MHz & 1755 MHz_Full RB_QPSK / Conducted Spurious Emissions (763-775 MHz)



15:54:46 02.07.2018

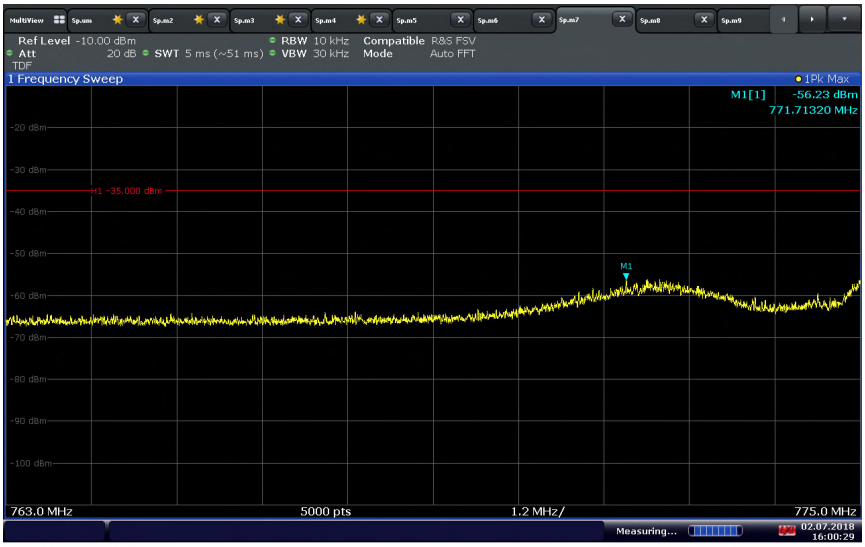
CA_13A-66A_10+20 MHz Bandwidth_782 MHz & 1755 MHz_Full RB_QPSK / Conducted Spurious Emissions (793-806 MHz)
 15:55:28 02.07.2018
CA_13A-66A_10+20 MHz Bandwidth_782 MHz & 1755 MHz_1 RB_QPSK / Conducted Spurious Emissions (1559-1610 MHz)
 15:56:21 02.07.2018

CA_13A-66A_10+20 MHz Bandwidth_782 MHz & 1770 MHz_Full RB_QPSK / Conducted Spurious Emissions



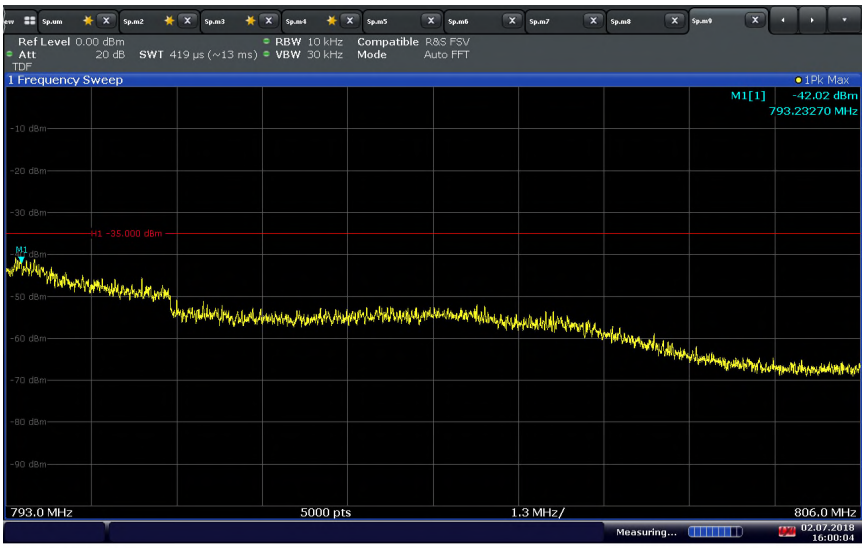
16:01:12 02.07.2018

CA_13A-66A_10+20 MHz Bandwidth_782 MHz & 1770 MHz_Full RB_QPSK / Conducted Spurious Emissions (763-775 MHz)



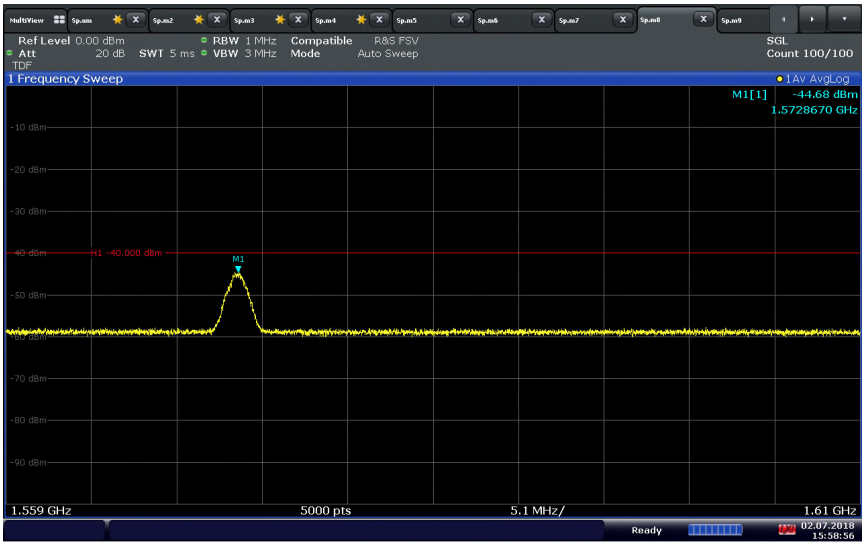
16:00:29 02.07.2018

CA_13A-66A_10+20 MHz Bandwidth_782 MHz & 1770 MHz_Full RB_QPSK / Conducted Spurious Emissions (793-806 MHz)



16:00:05 02.07.2018

CA_13A-66A_10+20 MHz Bandwidth_782 MHz & 1770 MHz_1 RB_QPSK / Conducted Spurious Emissions (1559-1610 MHz)



15:58:56 02.07.2018

2.7 FIELD STRENGTH OF SPURIOUS RADIATION

2.7.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1053
FCC 47 CFR Part 24, Clause 24.238(a)
FCC 47 CFR Part 27, Clause 27.53(h)
FCC 47 CFR Part 27, Clause 27.53(c)
RSS-133, Clause 6.5
RSS-139, Clause 6.6
RSS-130, Clause 4.7

2.7.2 Standard Applicable

FCC 47 CFR Part 24.238
(a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.
(b) Measurement procedure. Compliance with these reules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

FCC 47 CFR Part 27.53:
(h) AWS emission limits—(1) General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB

(c)(2) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

RSS-133, Clause 6.5.1
Equipment shall comply with the limits in (i) and (ii) below.

(i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10 p(watts).
(ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10 p(watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

RSS-139, Clause 6.6

(i) In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block, which can contain the quipment's occupied bandwidth, the emisison power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 $\log_{10}$ p (watts) dB.
(ii) After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the quipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (dBW) by at least 43 + 10 $\log_{10}$ p(watts) dB.

RSS-130, Clause 4.7.1
The power of any unwanted emissions in any 100 kHz bandwidth on any frequency outside thefrequency range(s) within which the equipment is designed to operate shall be attenuated below the transmitter power, P (dBW), by at least 43 + 10 log10 p (watts), dB. However, in the 100 kHz band immediately outside the equipment's operating frequency range, a resolution bandwidth of 30 kHz may be employed.

2.7.3 Equipment Under Test and Modification State

Serial No: AS190818B00021 / Test Configuration B

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

October 28, 2018 / XYZ

2.7.5 Test Equipment Used

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

2.7.6 Environmental Conditions/ Test Location

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility

Ambient Temperature	23.3 °C
Relative Humidity	47.0 %
ATM Pressure	99.1 kPa

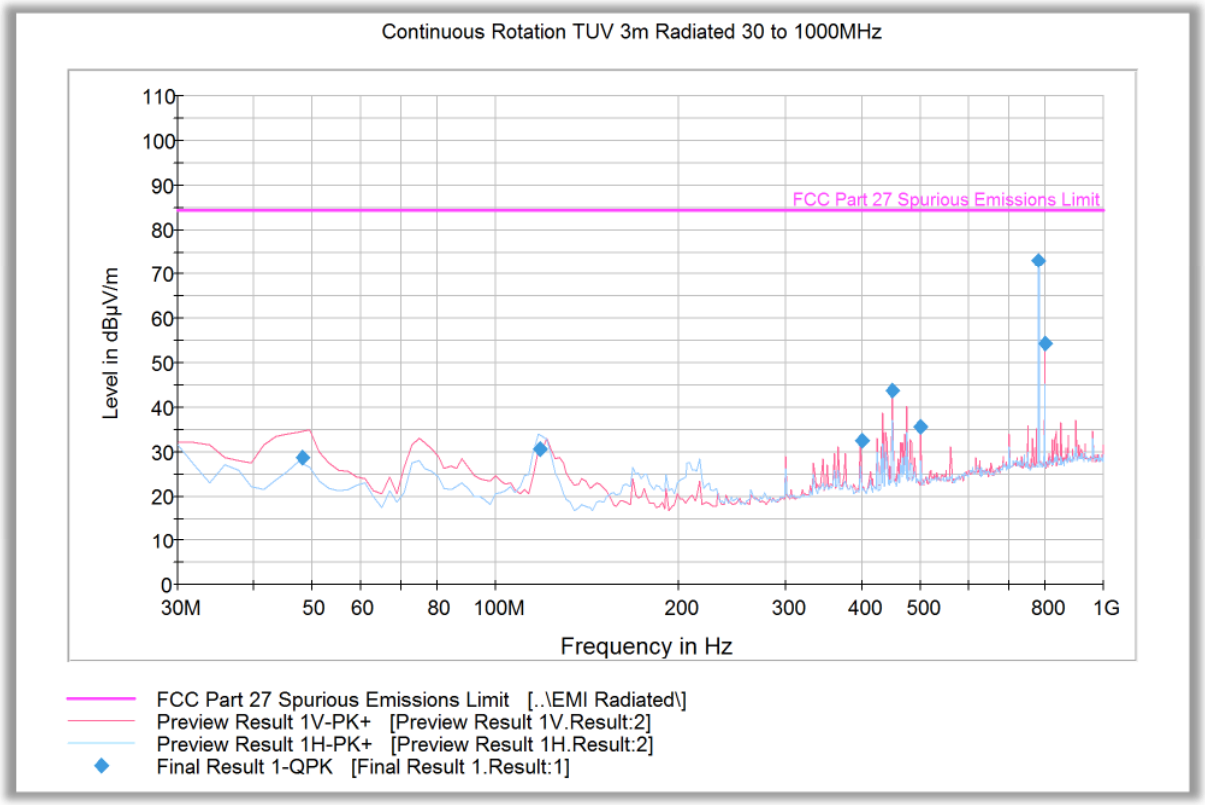
2.7.7 Additional Observations

- This is a radiated test using substitution method as per Unwanted Emissions: Radiated Spurious method of measurement of ANSI/TIA/EIA-603-C 2004, August 17, 2004.
- Emissions within 6dB of the limit will be proven by substitution method.
- This is cabinet spurious emissions testing. Main antenna port was terminated during the test. Fundamental frequency measurement will be ignored for this test.
- Only the worst case configuration presented in this test report.
- Only noise floor measurements observed above 18GHz.
- Measurement was done using EMC32 V8.52 automated software. Reported level is the actual level with all the correction factors factored in. Correction Factor column is for informational purposes only.

2.7.8 Test Results

Compliant. See attached plots.

2.7.9 Radiated Emission Test Results Below 1GHz – Worst Case CA_2A-13A 16QAM

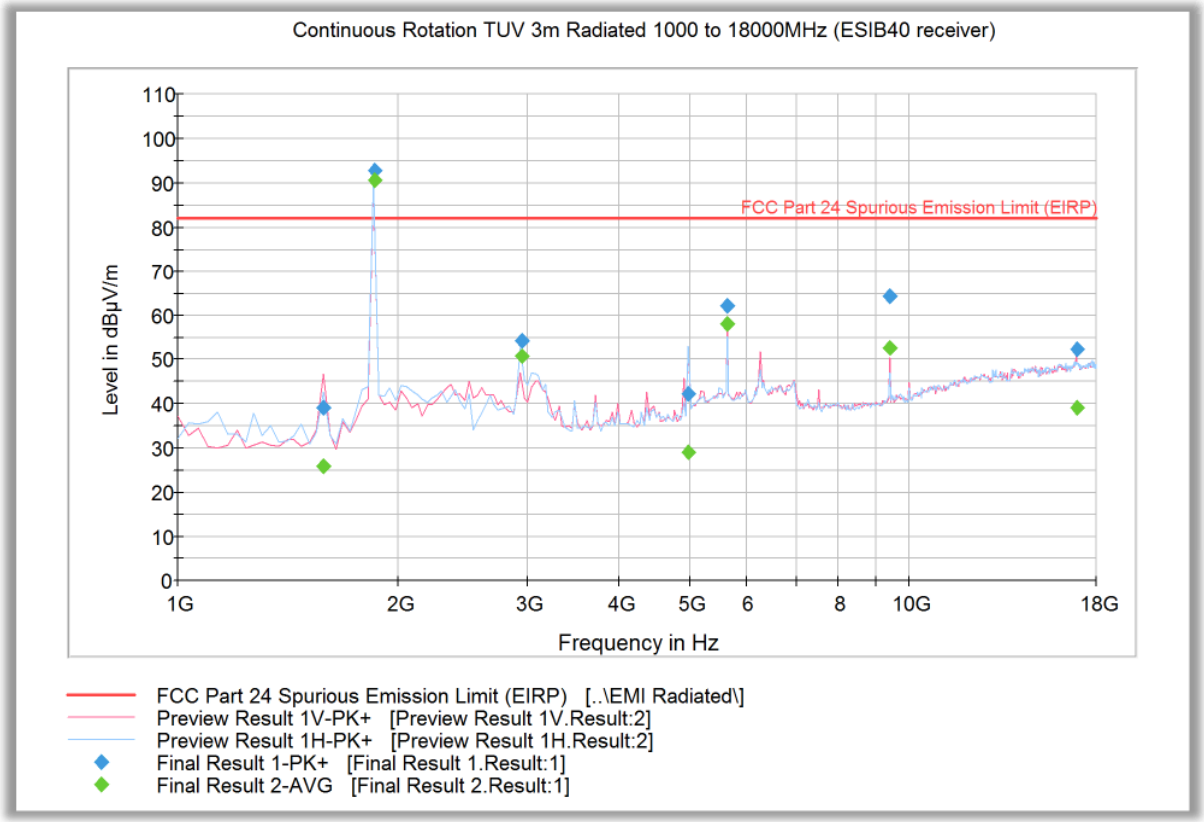


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
48.198878	28.8	1000.0	120.000	100.0	V	218.0	-14.5	55.6	84.4
118.594950	30.8	1000.0	120.000	250.0	H	0.0	-14.7	53.6	84.4
399.978677	32.4	1000.0	120.000	250.0	V	196.0	-4.4	52.0	84.4
449.999760	43.7	1000.0	120.000	172.0	V	122.0	-3.1	40.7	84.4
499.980842	35.7	1000.0	120.000	159.0	V	139.0	-2.0	48.7	84.4
782.404569	73.0	1000.0	120.000	100.0	H	200.0	3.4	Fundamental Carrier*	
800.003447	54.3	1000.0	120.000	100.0	V	177.0	3.6	30.1	84.4

***** This is the fundamental frequency not part of spurious emission evaluation. Data provided for information purpose only.

2.7.10 Radiated Emission Test Results Above 1GHz – Worst Case CA_2A-13A 16QAM



Peak Data

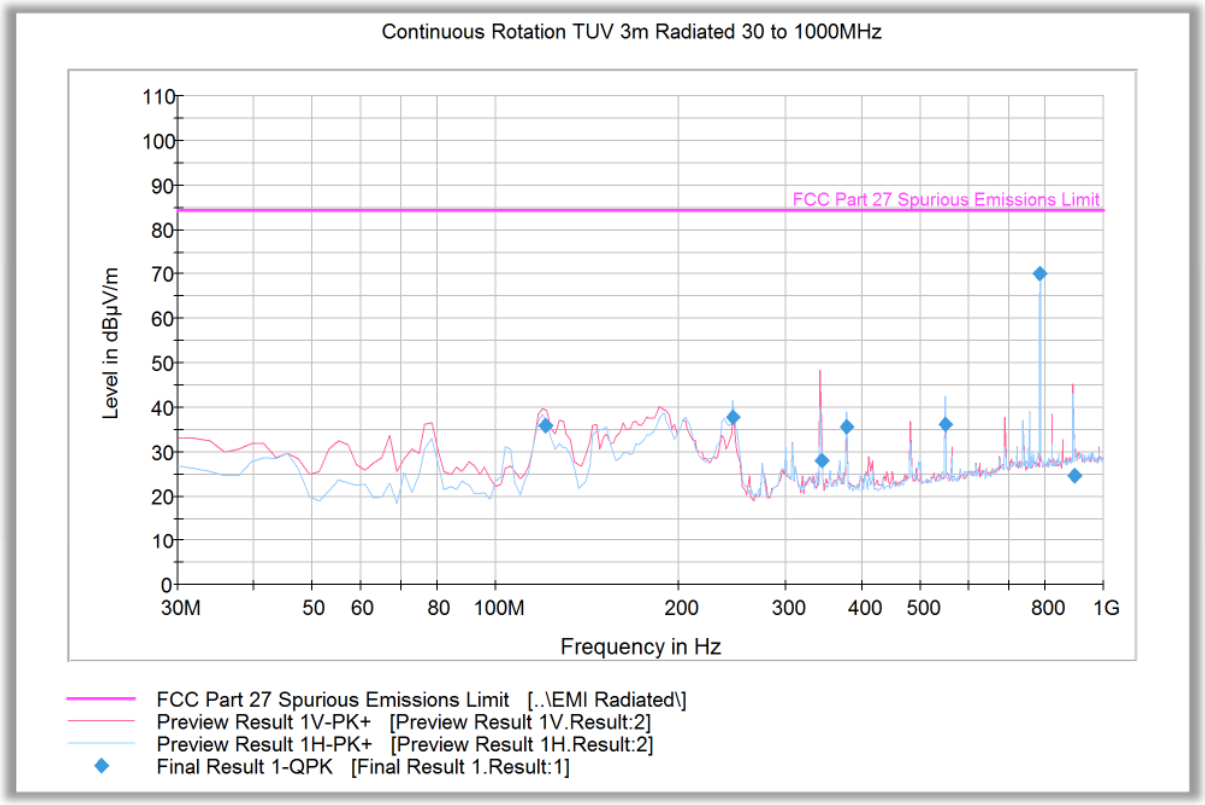
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1582.958317	39.1	1000.0	1000.000	103.7	V	320.0	-5.8	45.3	84.4
1875.303407	92.8	1000.0	1000.000	282.3	H	20.0	-2.9	Fundamental Carrier*	
2949.283768	54.3	1000.0	1000.000	103.7	H	122.0	0.3	30.1	84.4
4980.971944	42.2	1000.0	1000.000	302.2	V	129.0	3.6	42.2	84.4
5626.666533	62.1	1000.0	1000.000	336.2	V	24.0	5.0	22.3	84.4
9377.761523	64.1	1000.0	1000.000	175.6	V	252.0	8.5	20.3	84.4
16912.819639	52.4	1000.0	1000.000	152.2	V	-3.0	17.9	32.0	84.4

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1582.958317	25.9	1000.0	1000.000	103.7	V	320.0	-5.8	58.5	84.4
1875.303407	90.6	1000.0	1000.000	282.3	H	20.0	-2.9	Fundamental Carrier*	
2949.283768	50.8	1000.0	1000.000	103.7	H	122.0	0.3	33.6	84.4
4980.971944	29.2	1000.0	1000.000	302.2	V	129.0	3.6	55.2	84.4
5626.666533	58.0	1000.0	1000.000	336.2	V	24.0	5.0	26.4	84.4
9377.761523	52.6	1000.0	1000.000	175.6	V	252.0	8.5	31.8	84.4
16912.819639	39.2	1000.0	1000.000	152.2	V	-3.0	17.9	45.2	84.4

***** This is the fundamental frequency not part of spurious emission evaluation. Data provided for information purpose only.

2.7.11 Radiated Emission Test Results Below 1GHz – Worst Case CA_4A-13A 16QAM

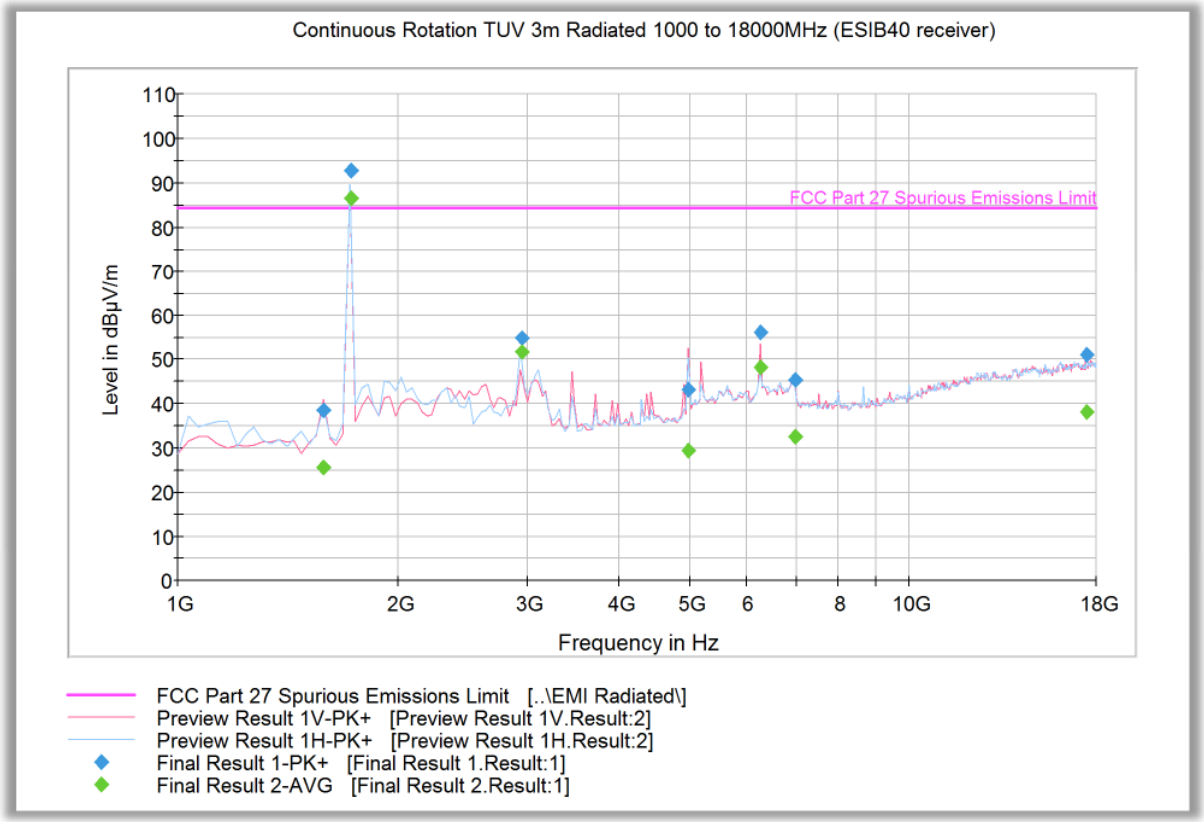


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
120.818838	35.9	1000.0	120.000	100.0	V	-7.0	-14.7	48.5	84.4
245.771543	37.9	1000.0	120.000	143.0	H	226.0	-8.7	46.5	84.4
343.245932	28.2	1000.0	120.000	100.0	V	229.0	-5.2	56.2	84.4
377.155912	35.6	1000.0	120.000	134.0	H	46.0	-4.5	48.8	84.4
548.578036	36.2	1000.0	120.000	133.0	H	147.0	-0.8	48.2	84.4
786.356232	70.0	1000.0	120.000	100.0	H	-1.0	3.4	Fundamental Carrier*	
896.646172	24.8	1000.0	120.000	178.0	V	272.0	5.6	59.6	84.4

***** This is the fundamental frequency not part of spurious emission evaluation. Data provided for information purpose only.

2.7.12 Radiated Emission Test Results Above 1GHz – Worst Case CA_4A-13A 16QAM



Peak Data

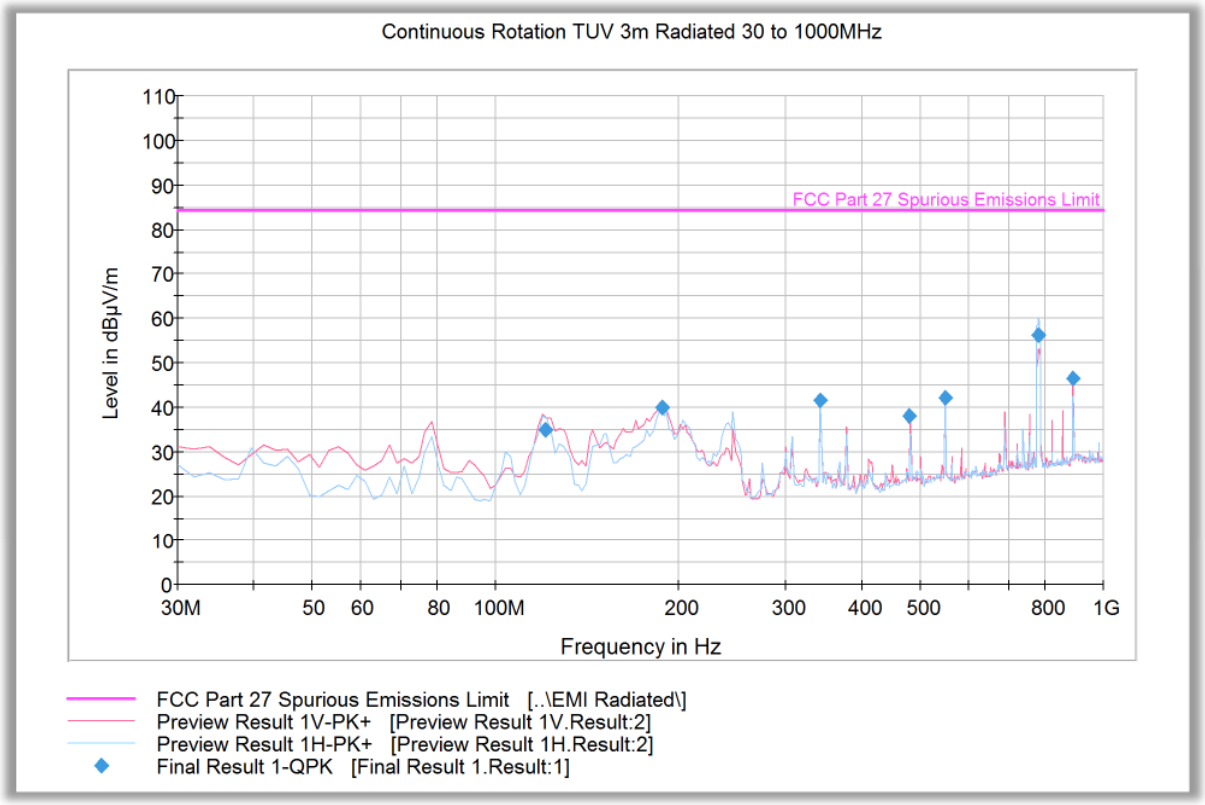
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1582.958317	38.6	1000.0	1000.000	130.7	V	323.0	-5.8	45.8	84.4
1728.030862	92.7	1000.0	1000.000	291.2	V	30.0	-4.7	Fundamental Carrier*	
2949.283768	54.9	1000.0	1000.000	100.7	H	121.0	0.3	29.5	84.4
4987.371944	43.3	1000.0	1000.000	304.2	V	119.0	3.6	41.1	84.4
6249.892986	56.0	1000.0	1000.000	303.2	V	119.0	5.8	28.4	84.4
6967.723848	45.4	1000.0	1000.000	131.7	V	69.0	6.3	39.0	84.4
17489.977956	51.0	1000.0	1000.000	250.5	H	199.0	17.7	33.4	84.4

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1582.958317	25.8	1000.0	1000.000	130.7	V	323.0	-5.8	58.6	84.4
1728.030862	86.5	1000.0	1000.000	291.2	V	30.0	-4.7	Fundamental Carrier*	
2949.283768	51.8	1000.0	1000.000	100.7	H	121.0	0.3	32.6	84.4
4987.371944	29.6	1000.0	1000.000	304.2	V	119.0	3.6	54.8	84.4
6249.892986	48.4	1000.0	1000.000	303.2	V	119.0	5.8	36.0	84.4
6967.723848	32.6	1000.0	1000.000	131.7	V	69.0	6.3	51.8	84.4
17489.977956	38.1	1000.0	1000.000	250.5	H	199.0	17.7	46.3	84.4

***** This is the fundamental frequency not part of spurious emission evaluation. Data provided for information purpose only.

2.7.13 Radiated Emission Test Results Below 1GHz – Worst Case CA_13A-66A 16QAM

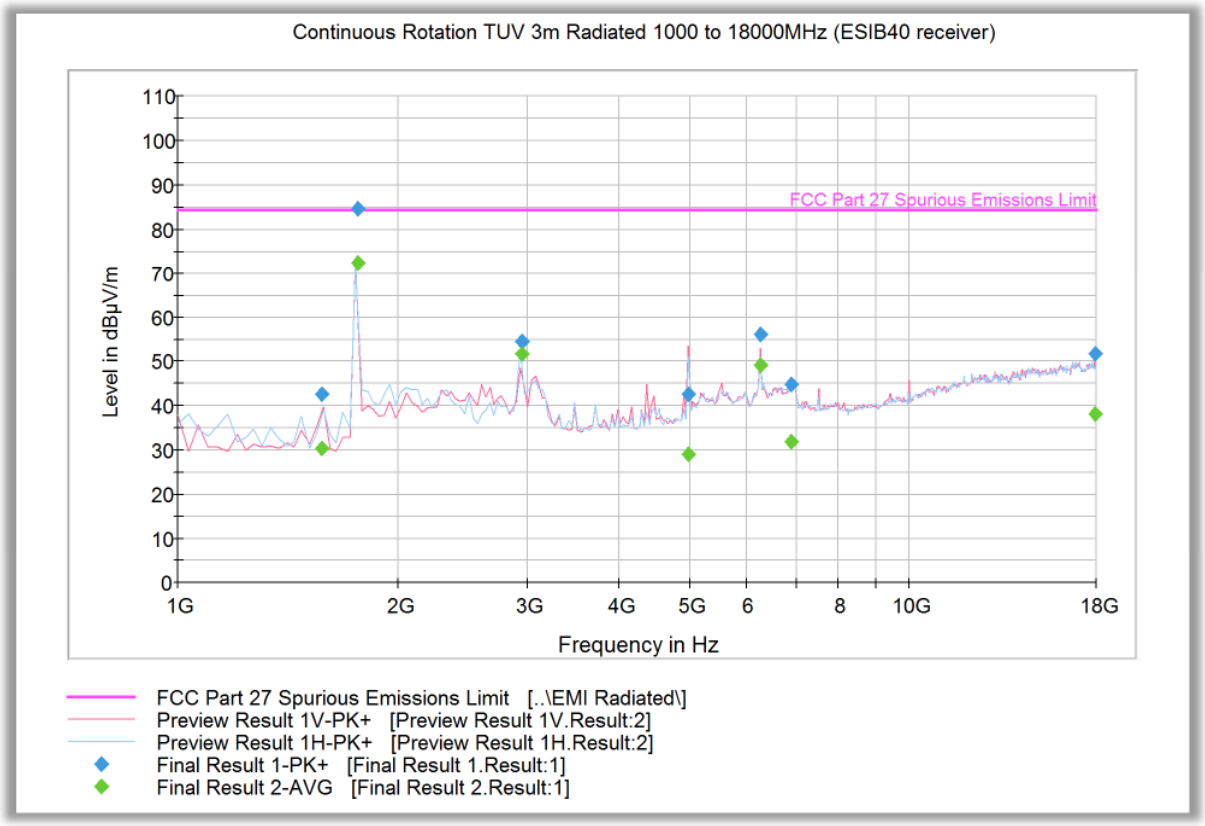


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
120.738838	35.0	1000.0	120.000	115.0	V	354.0	-14.7	49.4	84.4
188.094910	39.9	1000.0	120.000	100.0	V	222.0	-11.1	44.5	84.4
342.885932	41.5	1000.0	120.000	100.0	H	51.0	-5.2	42.9	84.4
480.021964	38.1	1000.0	120.000	100.0	V	251.0	-1.6	46.3	84.4
548.578036	42.3	1000.0	120.000	127.0	H	220.0	-0.8	42.1	84.4
781.484569	56.2	1000.0	120.000	100.0	H	357.0	3.4	Fundamental Carrier*	
891.486172	46.7	1000.0	120.000	150.0	V	263.0	5.3	37.7	84.4

***** This is the fundamental frequency not part of spurious emission evaluation. Data provided for information purpose only.

2.7.14 Radiated Emission Test Results Above 1GHz – Worst Case CA_13A-66A 16QAM



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1576.958317	42.6	1000.0	1000.000	103.7	V	99.0	-5.8	41.8	84.4
1764.498998	84.6	1000.0	1000.000	337.1	V	11.0	-4.0	Fundamental Carrier*	
2949.283768	54.7	1000.0	1000.000	102.7	H	123.0	0.3	29.7	84.4
4977.771944	42.5	1000.0	1000.000	220.4	V	103.0	3.6	41.9	84.4
6249.892986	56.2	1000.0	1000.000	271.3	V	89.0	5.8	28.2	84.4
6884.387575	44.9	1000.0	1000.000	292.2	V	-3.0	6.2	39.5	84.4
17907.595591	51.7	1000.0	1000.000	183.5	V	20.0	17.8	32.7	84.4

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1576.958317	30.3	1000.0	1000.000	103.7	V	99.0	-5.8	54.1	84.4
1764.498998	72.5	1000.0	1000.000	337.1	V	11.0	-4.0	Fundamental Carrier*	
2949.283768	51.7	1000.0	1000.000	102.7	H	123.0	0.3	32.7	84.4
4977.771944	29.3	1000.0	1000.000	220.4	V	103.0	3.6	55.1	84.4
6249.892986	49.1	1000.0	1000.000	271.3	V	89.0	5.8	35.3	84.4
6884.387575	32.0	1000.0	1000.000	292.2	V	-3.0	6.2	52.4	84.4
17907.595591	38.2	1000.0	1000.000	183.5	V	20.0	17.8	46.2	84.4

***** This is the fundamental frequency not part of spurious emission evaluation. Data provided for information purpose only.

2.8 FREQUENCY STABILITY

2.8.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1055
FCC 47 CFR Part 24, Clause 24.235
FCC 47 CFR Part 27, Clause 27.54
RSS-133, Clause 6.3
RSS-139, Clause 6.4
RSS-130, Clause 4.5

2.8.2 Standard Applicable

FCC 47 CFR Part 24.235 and FCC 47 CFR Part 27.54:
The frequency stability shall be sufficient to ensure the fundamental emissions stays within the authorized frequency block.

RSS-133, Clause 6.3
The carrier frequency shall not depart from the reference frequency, in excess of ±2.5 ppm for mobile stations and ±1.0 ppm for base station.

RSS-139, Clause 6.4
The frequency shall be sufficient to ensure that the occupied bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-GEN.

RSS-130, Clause 4.5
For equipment that is capable of transmitting numerous channels simultaneously for different applications (e.g. LTE and narrowband – Internet of Things (IoT)), the occupied bandwidth shall be the bandwidth representing the sum of the occupied bandwidths of these channels.

2.8.3 Equipment Under Test and Modification State

Serial No: AZ280418A00044 / Test Configuration A

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

June 26 and July 03, 2018 / XYZ

2.8.5 Test Equipment Used

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

2.8.6 Environmental Conditions/ Test Location

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility

Ambient Temperature	25.8 - 28.3 °C
Relative Humidity	47.3 - 49.4 %
ATM Pressure	98.7 - 98.9 kPa

2.8.7 Additional Observations

- This is a conducted test. The EUT was operated at 3.7 VDC nominal voltage and was placed in the temperature chamber for this evaluation. The EUT was controlled by a CMW500 and utilizing a spectrum analyser for measurement.
- Measurement was done using the CMW 500 measurement function.
- The EUT was tested over the temperature -30°C to +50°C in 10°C steps and allowed to sit for 1 hour to allow the equipment and chamber temperature to stabilize. The measurements were then performed.
- Voltage variation was also performed at voltage 3.3VDC and higher 4.3VDC of the nominal voltage at 20°C.
- The maximum frequency deviation for LTE Band 13 was verified against the frequency band edges using reference points F_L and F_H at the unwanted emission level which complies with the attenuation of 43 + 10 log10 p (watts) on the emission mask of the lowest and highest channel.

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2.8.8 Test Results

CA_2A_13A – QPSK 10 MHz & 10 MHz BW- Channel 1880 + 782 MHz				
Voltage (VDC)	**Temperature (°C)**	**Frequency Error (Hz) LTE Band 2 / Band 13**	**Frequency Error (ppm) LTE Band 2 / Band 13**	**Limit (ppm)***
3.7	-30	17.6/-10.0	0.009/-0.013	±2.5 / ±0.1
	-20	17.71/-10.3	0.009/-0.013	±2.5 / ±0.1
	-10	16.51/-11.24	0.009/-0.014	±2.5 / ±0.1
	0	16.31/-9.9	0.009/-0.013	±2.5 / ±0.1
	+10	15.81/-10.77	0.008/-0.014	±2.5 / ±0.1
	+20	15.31/-11.22	0.008/-0.014	±2.5 / ±0.1
	+30	14.89/-10.34	0.008/-0.013	±2.5 / ±0.1
	+40	15.18/-10.76	0.008/-0.014	±2.5 / ±0.1
	+50	16.68/-10.26	0.009/-0.013	±2.5 / ±0.1
3.3	20	14.36/-11.32	0.008/-0.014	±2.5 / ±0.1
4.3		16.45/-10.24	0.009/-0.013	±2.5 / ±0.1

CA_2A_13A – QPSK 10 MHz & 10 MHz BW- Channel 1880 + 782 MHz LTE Band 13						
Voltage (VDC)	**Temperature (°C)**	**F_L (MHz)**	**F_L – Freq Error (MHz)**	**F_H (MHz)**	**F_L + Freq Error (MHz)**	**Compliance**
3.7	-30	777.209	777.209	786.779	786.779	Yes
	+20	777.245	777.245	786.773	786.773	Yes
	+50	777.281	777.281	786.749	786.749	Yes
3.3	20	777.215	777.215	786.767	786.767	Yes
4.3		777.221	777.221	786.779	786.779	Yes

*Limit for LTE Band 13 is according to 3GPP TS 36 010 V14.4.0

The frequency stability of the EUT is sufficient to keep it within the authorised frequency ranges at any temperature interval and voltage variations across the measured range.

CA_4A_13A – QPSK 10 MHz & 10 MHz BW- Channel 1732.5 + 782 MHz				
Voltage (VDC)	**Temperature (°C)**	**Frequency Error (Hz) LTE Band 4 / Band 13**	**Frequency Error (ppm) LTE Band 4 / Band 13**	**Limit (ppm)***
3.7	-30	18.07/-10.3	0.01/-0.013	±0.1
	-20	16.34/-11.43	0.009/-0.015	±0.1
	-10	18.17/-10.26	0.01/-0.013	±0.1
	0	17.97/-9.9	0.01/-0.013	±0.1
	+10	16.89/-10.1	0.01/-0.013	±0.1
	+20	16.29/-10.13	0.009/-0.013	±0.1
	+30	14.61/-11.67	0.008/-0.015	±0.1
	+40	16.31/-10.1	0.009/-0.013	±0.1
	+50	16.06/-11.04	0.009/-0.014	±0.1
3.3	20	17.58 / -10.61	0.01/-0.014	±0.1
4.3		17.47 / -11.43	0.01/-0.015	±0.1

CA_4A_13A – QPSK 10 MHz & 10 MHz BW- Channel 1732.5 + 782 MHz LTE Band 13						
Voltage (VDC)	**Temperature (°C)**	**F_L (MHz)**	**F_L – Freq Error (MHz)**	**F_H (MHz)**	**F_L + Freq Error (MHz)**	**Compliance**
3.7	-30	777.251	777.251	786.809	786.809	Yes
	+20	777.251	777.251	786.773	786.773	Yes
	+50	777.221	777.221	786.779	786.779	Yes
3.3	20	77.257	77.257	786.767	786.767	Yes
4.3		777.251	777.251	786.773	786.773	Yes

*Limit according to 3GPP TS 36 010 V14.4.0

The frequency stability of the EUT is sufficient to keep it within the authorised frequency ranges at any temperature interval and voltage variations across the measured range.

CA_13A_66A – QPSK 10 MHz & 20 MHz BW- Channel 782 + 1755 MHz				
Voltage (VDC)	**Temperature (°C)**	**Frequency Error (Hz) LTE Band 13 / Band 66**	**Frequency Error (ppm) LTE Band 13 / Band 66**	**Limit (ppm)***
3.7	-30	-10.29/-19.45	-0.013/-0.011	±0.1
	-20	-9.73/-20.43	-0.012/-0.012	±0.1
	-10	-9.81/18.54	-0.013/0.011	±0.1
	0	-9.31/17.48	-0.012/0.010	±0.1
	+10	-10.93/16.67	-0.014/0.009	±0.1
	+20	-9.78/16.84	-0.013/0.01	±0.1
	+30	-11.06/16.52	-0.014/0.009	±0.1
	+40	-9.44/18.01	-0.012/0.01	±0.1
	+50	-11.4/17.08	-0.015/0.01	±0.1
3.3	20	-12.9 / 16.55	-0.017/0.009	±0.1
4.3		-11.72 / 16.22	-0.015/0.009	±0.1

CA_13A_66A – QPSK 10 MHz & 10 MHz BW- Channel 782 + 1755 MHz LTE Band 13						
Voltage (VDC)	**Temperature (°C)**	**F_L (MHz)**	**F_L – Freq Error (MHz)**	**F_H (MHz)**	**F_L + Freq Error (MHz)**	**Compliance**
3.7	-30	777.161	777.161	786.833	786.833	Yes
	+20	777.137	777.137	786.863	786.863	Yes
	+50	777.203	777.203	786.803	786.803	Yes
3.3	20	777.149	777.149	786.833	786.833	Yes
4.3		777.155	777.155	786.839	786.839	Yes

*Limit according to 3GPP TS 36 010 V14.4.0

The frequency stability of the EUT is sufficient to keep it within the authorised frequency ranges at any temperature interval and voltage variations across the measured range.

SECTION 3

TEST EQUIPMENT USED

3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

ID Number (SDGE/SDRB)	Test Equipment	Type	Serial Number	Manufacturer	Cal Date	Cal Due Date
Antenna Conducted Port Setup						
7662	P-Series Power Meter	N1911A	MY45100951	Agilent	06/15/18	06/15/19
7661	50MHz-18GHz Wideband Power Sensor	N1921A	MY45241383	Agilent	06/15/18	06/15/19
7608	Vector Signal Generator	SMBV100A	259021	Rhode & Schwarz	09/19/17	09/19/19
7582	Signal/Spectrum Analyzer	FSW26	101614	Rhode & Schwarz	12/14/17	12/14/18
-	Wideband Radio Communication Tester	CMW 500	158164	Rhode & Schwarz	04/04/18	04/04/19
8825	20dB Attenuator	46-20-34	BK5773	Weinschel Corp.	Verified by 7608 and 7582	
-	10dB Attenuator	VAT-10W2+2W	N/A	MCL	Verified by 7608 and 7582	
Radiated Test Setup						
7582	Signal/Spectrum Analyzer	FSW26	101614	Rhode & Schwarz	12/14/17	12/14/18
7608	Vector Signal Generator	SMBV100A	259021	Rhode & Schwarz	09/19/17	09/19/19
1002	Bilog Antenna	3142C	00058717	EMCO	11/20/17	11/20/18
7575	Double-ridged waveguide horn antenna	3117	00155511	EMCO	06/16/18	06/16/20
1193	Pre-amplifier	PAM-0202	185	A.H. Systems, Inc.	04/11/18	04/11/19
8921	High-frequency cable	SucoFlex 100 SX	N/A	Suhner	Verified by 7608 and 7582	
8923	High-frequency cable	Micropore 19057793	N/A	United Microwave Products	Verified by 7608 and 7582	
1040	EMI Test Receiver	ESIB40	100292	Rhode & Schwarz	10/15/18	10/15/19
8628	Pre-amplifier	QLI-01182835-JO	8986002	Quinstar	02/06/18	02/06/19
-	Power Splitter	ZN2PD-63-S+	UU74001429	Mini-Circuits	Verified by 7608 and 7582	
-	UXM Wireless Set	E7515A	MY56180375	Keysight	For signalling only	
-	Wideband Radio Communication Tester	CMW 500	158164	Rhode & Schwarz	For signalling only	
Miscellaneous						
6708	Multimeter	34401A	US36086974	Hewlett Packard	07/18/18	07/18/19
7579	Temperature Chamber	115	151617	TestQuity	08/24/18	08/24/19
11312	Mini Environmental Quality Meter	850027	CF099-56010-340	Sper Scientific	02/26/18	02/26/19
	Test Software	EMC32	V8.53	Rhode & Schwarz	N/A	

3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:

3.2.1 Conducted Antenna Port Measurement

	Input Quantity (Contribution) X_i	Value		Prob. Dist.	Divisor	$u_i(x)$	$u_i(x)^2$
1	Receiver reading	0.10	dB	Normal, k=1	1.000	0.10	0.01
2	Cable attenuation	1.00	dB	Normal, k=2	2.000	0.50	0.25
3	Receiver sinewave accuracy	0.08	dB	Normal, k=2	2.000	0.04	0.00
4	Receiver pulse amplitude	0.00	dB	Rectangular	1.732	0.00	0.00
5	Receiver pulse repetition rate	0.00	dB	Rectangular	1.732	0.00	0.00
6	Noise floor proximity	0.00	dB	Rectangular	1.732	0.00	0.00
7	Frequency interpolation	0.10	dB	Rectangular	1.732	0.06	0.00
8	Mismatch	0.07	dB	U-shaped	1.414	0.05	0.00
	Combined standard uncertainty			Normal		0.52	dB
	Expanded uncertainty			Normal, k=2		**1.03**	**dB**

3.2.2 Radiated Emission Measurements (Below 1GHz)

	Input Quantity (Contribution) X_i	Value		Prob. Dist.	Divisor	$u_i(x)$	$u_i(x)^2$
1	Receiver reading	0.10	dB	Normal, k=1	1.000	0.10	0.01
2	Attenuation: antenna-receiver	0.20	dB	Normal, k=2	2.000	0.10	0.01
3	Antenna factor AF	0.75	dB	Normal, k=2	2.000	0.38	0.14
4	Receiver sinewave accuracy	0.45	dB	Normal, k=2	2.000	0.23	0.05
5	Receiver pulse amplitude	1.50	dB	Rectangular	1.732	0.87	0.75
6	Receiver pulse repetition rate	1.50	dB	Rectangular	1.732	0.87	0.75
7	Noise floor proximity	0.50	dB	Rectangular	1.732	0.29	0.08
8	Mismatch: antenna-receiver	0.95	dB	U-shaped	1.414	0.67	0.45
9	AF frequency interpolation	0.30	dB	Rectangular	1.732	0.17	0.03
10	AF height deviations	0.10	dB	Rectangular	1.732	0.06	0.00
11	Directivity difference at 3 m	3.12	dB	Rectangular	1.732	1.80	3.24
12	Phase center location at 3 m	1.00	dB	Rectangular	1.732	0.58	0.33
13	Cross-polarisation	0.90	dB	Rectangular	1.732	0.52	0.27
14	Balance	0.00	dB	Rectangular	1.732	0.00	0.00
15	Site imperfections	3.76	dB	Triangular	2.449	1.54	2.36
16	Separation distance at 3 m	0.30	dB	Rectangular	1.732	0.17	0.03
17	Effect of setup table material	0.77	dB	Rectangular	1.732	0.44	0.20
18	Table height at 3 m	0.10	dB	Normal, k=2	2.000	0.05	0.00
19	Near-field effects	0.00	dB	Triangular	2.449	0.00	0.00
20	Effect of ambient noise on OATS	0.00	dB				0.00
	Combined standard uncertainty			Normal		2.95	dB
	Expanded uncertainty			Normal, k=2		**5.90**	**dB**

3.2.3 Radiated Emission Measurements (Above 1GHz)

	Input Quantity (Contribution) X_i	Value	Prob. Dist.	Divisor	$u_i(x)$	$u_i(x)^2$
1	Receiver reading	0.10 dB	Normal, k=1	1.000	0.10	0.01
2	Attenuation: antenna-receiver	0.20 dB	Normal, k=2	2.000	0.10	0.01
3	Antenna factor AF	0.75 dB	Normal, k=2	2.000	0.38	0.14
4	Receiver sinewave accuracy	0.45 dB	Normal, k=2	2.000	0.23	0.05
5	Receiver pulse amplitude	1.50 dB	Rectangular	1.732	0.87	0.75
6	Receiver pulse repetition rate	1.50 dB	Rectangular	1.732	0.87	0.75
7	Noise floor proximity	0.50 dB	Rectangular	1.732	0.29	0.08
8	Mismatch: antenna-receiver	0.95 dB	U-shaped	1.414	0.67	0.45
9	AF frequency interpolation	0.30 dB	Rectangular	1.732	0.17	0.03
10	AF height deviations	0.10 dB	Rectangular	1.732	0.06	0.00
11	Directivity difference at 3 m	3.12 dB	Rectangular	1.732	1.80	3.24
12	Phase center location at 3 m	1.00 dB	Rectangular	1.732	0.58	0.33
13	Cross-polarisation	0.90 dB	Rectangular	1.732	0.52	0.27
14	Balance	0.00 dB	Rectangular	1.732	0.00	0.00
15	Site imperfections	3.25 dB	Triangular	2.449	1.33	1.76
16	Separation distance at 3 m	0.30 dB	Rectangular	1.732	0.17	0.03
17	Effect of setup table material	0.77 dB	Rectangular	1.732	0.44	0.20
18	Table height at 3 m	0.10 dB	Normal, k=2	2.000	0.05	0.00
19	Near-field effects	0.00 dB	Triangular	2.449	0.00	0.00
20	Effect of ambient noise on OATS	0.00 dB				0.00
	Combined standard uncertainty		Normal	2.85 dB		
	Expanded uncertainty		Normal, k=2	**5.70 dB**		

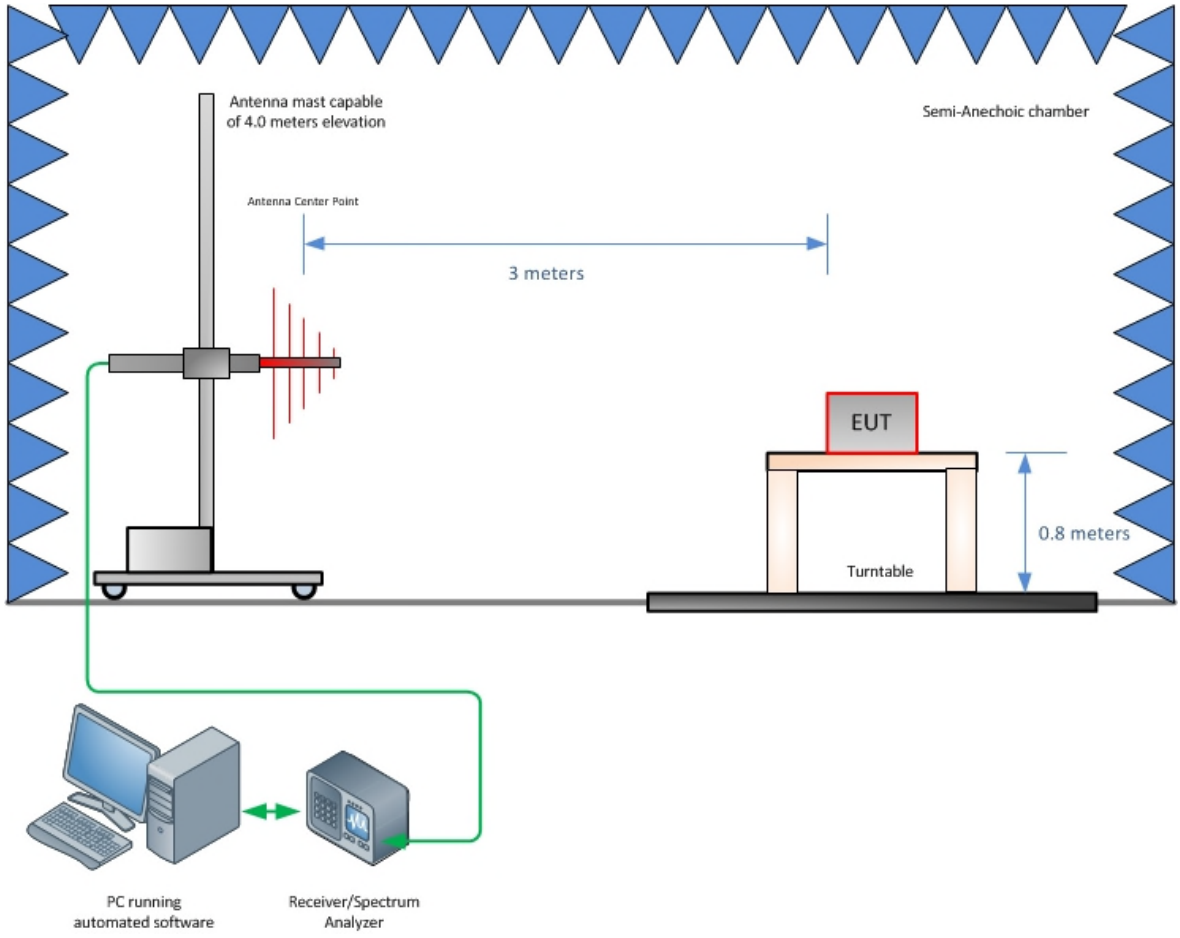
3.2.4 Conducted Measurements

	Input Quantity (Contribution) X_i	Value	Prob. Dist.	Divisor	$u_i(x)$	$u_i(x)^2$
1	Receiver reading	0.10 dB	Normal, k=1	1.000	0.10	0.01
2	LISN-receiver attenuation	0.10 dB	Normal, k=2	2.000	0.05	0.00
3	LISN voltage division factor	0.30 dB	Normal, k=2	2.000	0.15	0.02
4	Receiver sinewave accuracy	0.36 dB	Normal, k=2	2.000	0.18	0.03
5	Receiver pulse amplitude	1.50 dB	Rectangular	1.732	0.87	0.75
6	Receiver pulse repetition rate	1.50 dB	Rectangular	1.732	0.87	0.75
7	Noise floor proximity	0.00 dB	Rectangular	1.732	0.00	0.00
8	AMN VDF frequency interpolation	0.10 dB	Rectangular	1.732	0.06	0.00
9	Mismatch	0.07 dB	U-shaped	1.414	0.05	0.00
10	LISN impedance	2.65 dB	Triangular	2.449	1.08	1.17
11	Effect of mains disturbance	0.00 dB			0.00	0.00
12	Effect of the environment					
	Combined standard uncertainty		Normal	1.66 dB		
	Expanded uncertainty		**Normal, k=2**	**3.31 dB**		

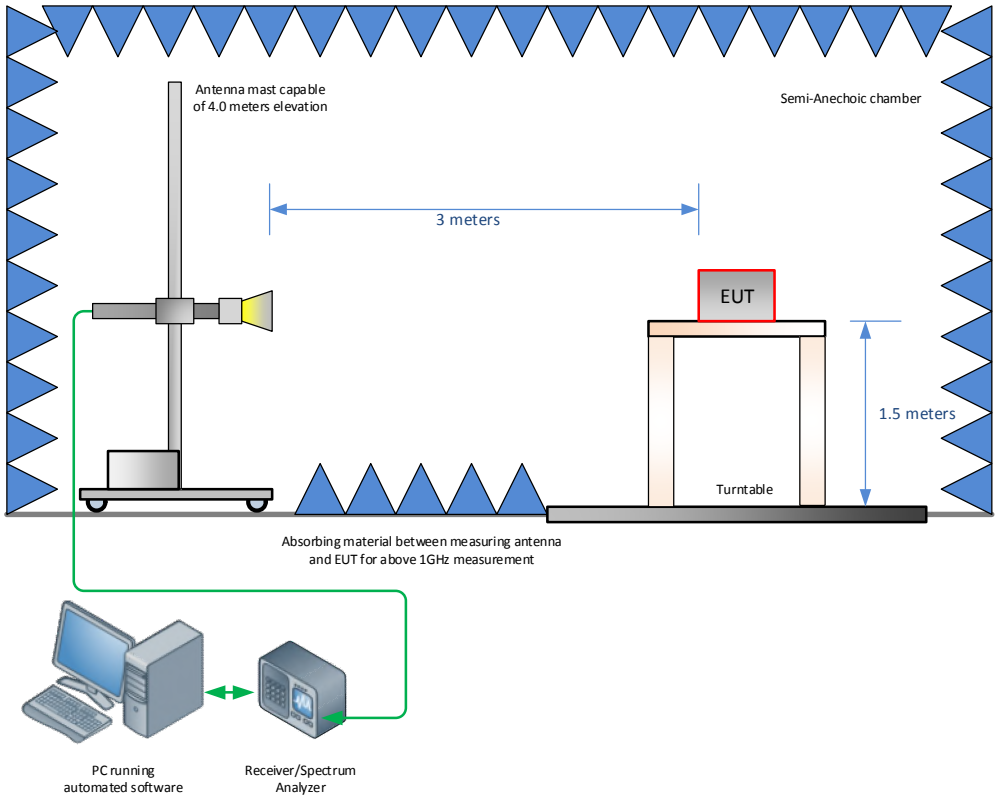
SECTION 4

DIAGRAM OF TEST SETUP

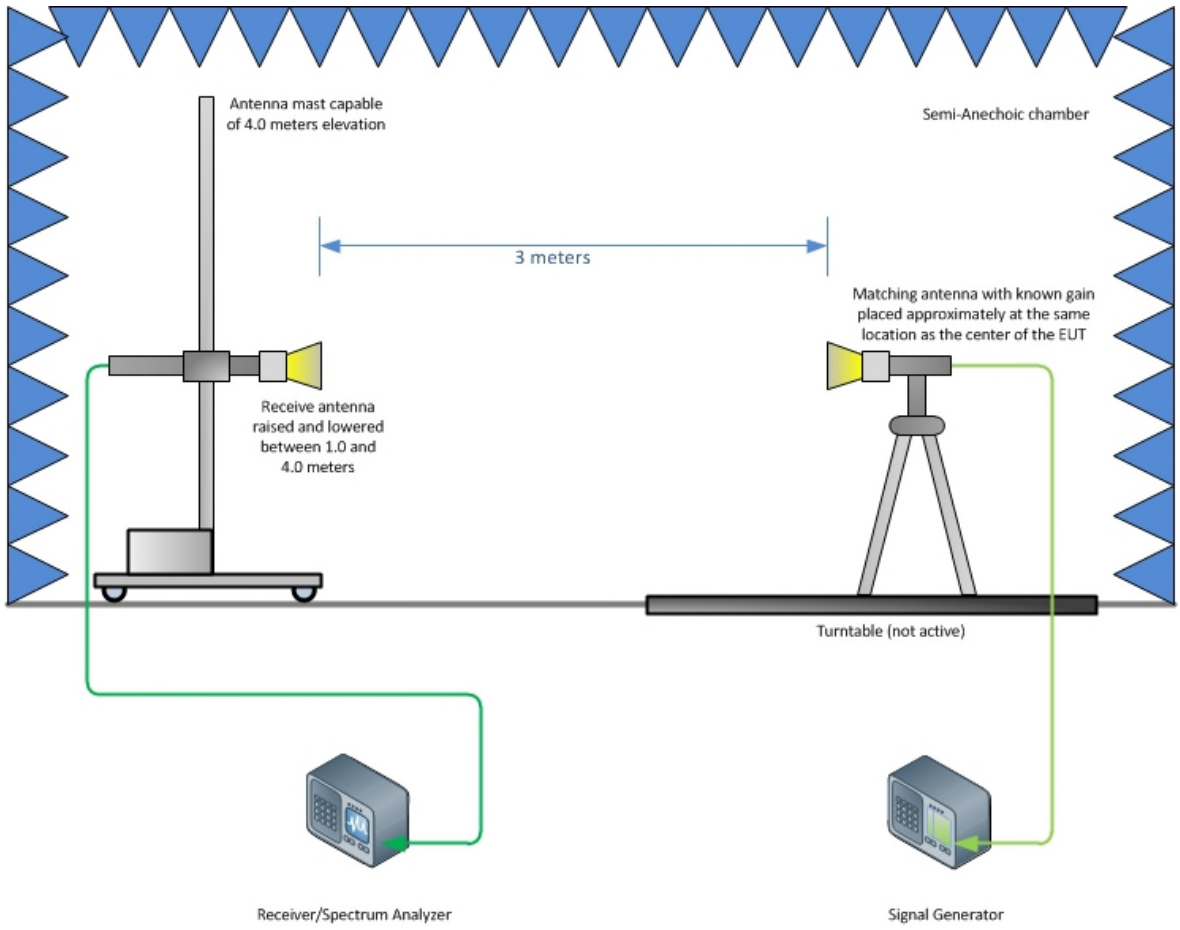
4.1 TEST SETUP DIAGRAM



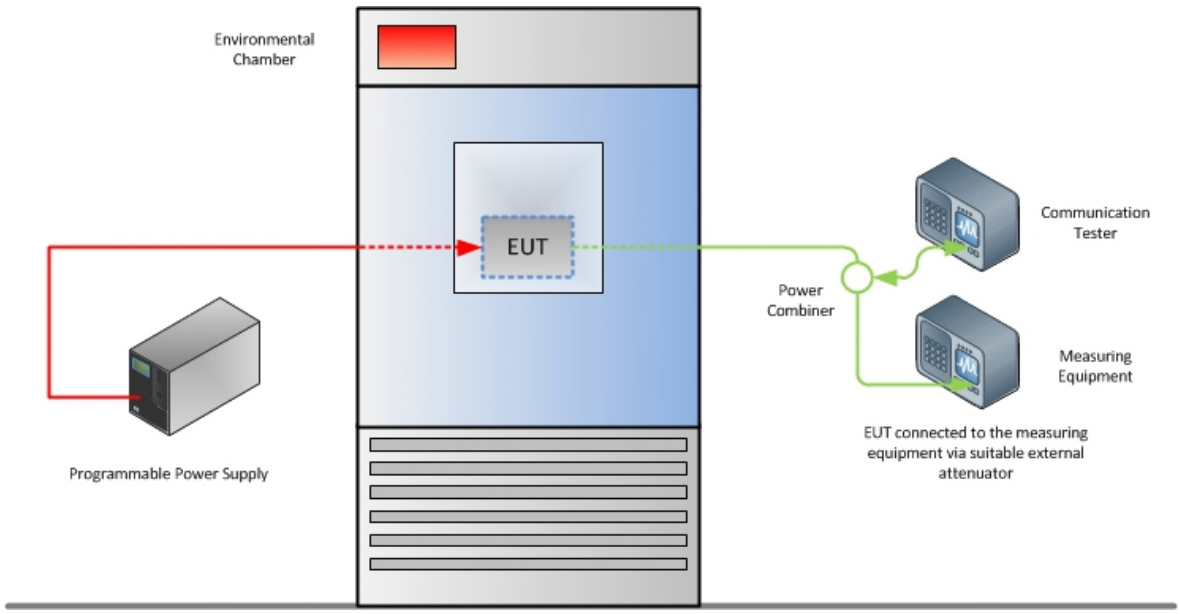
Radiated Emission Test Setup (Below 1GHz)



Radiated Emission Test Setup (Above 1GHz)



Substitution Test Method (Above 1GHz)



Frequency Stability Test Comfiguration

SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

5.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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