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Report No.: T191120D05-RP9

IC: 24213-1002244

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Rev.: 03

**FCC 47 CFR PART 27 SUBPART C, M  
&  
INDUSTRY CANADA RSS-199**

**TEST REPORT**

For

**GUARDIAN SYSTEM LTE**

**FCC Model No.: G2-SY-CON2  
IC Model No.: G2-SY-CON2-1002244**

**Trade Name: GUARDIAN**

*Issued to*

<b>FCC:</b>	<b>Seeing Machines Pty Ltd 80 Mildura Street, Fyshwick, ACT , Canberra 2609 Australia</b>
<b>IC:</b>	<b>Seeing Machines Ltd. 80 Mildura Street Fyshwick ACT 2609 Australia</b>

*Issued by*

**Compliance Certification Services Inc.  
Wugu Laboratory  
No.11, Wugong 6th Rd., Wugu Dist.,  
New Taipei City, Taiwan. (R.O.C.)  
Issued Date: June 20, 2020**

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.  
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### Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	January 22, 2020	Initial Issue	ALL	Doris Chu
01	April 22, 2020	See the following Note Rev. (01)	P.6, P.11, P.13, P.20-22, P.30-31, P.34-39, P.57-73, P.75-76	Doris Chu
02	April 28, 2020	See the following Note Rev. (02)	P.6	Doris Chu
03	June 20, 2020	See the following Note Rev. (03)	P.1, P.4, P.6	Allison Chen

**Rev (01):**

1. Revised Antenna type.
2. Revised section 5.2 DC Power Supplies Cal Due date indication.
3. Added section 6.3.
4. Revised section 8.2 Test Procedure and Test Results.
5. Revised 100%RB to Full RB.
6. The worst case in section 8.6 is 1RB
7. Added section 8.7 Test Configuration.

**Rev (02):**

1. Revised section 2 power supply.

**Rev (03):**

1. Modify IC Model No.: G2-SY-CON2-1002244.

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## 1. TEST RESULT CERTIFICATION

**FCC Applicant:** Seeing Machines Pty Ltd  
80 Mildura Street, Fyshwick, ACT , Canberra 2609 Australia

**IC Applicant:** Seeing Machines Ltd.  
80 Mildura Street Fyshwick ACT 2609 Australia

**Manufacturer:** ADLINK TECHNOLOGY INC.  
9F, No. 166, Jian Yi Rd., Zhonghe Dist., New Taipei City, 235  
Taiwan

**Equipment Under Test:** GUARDIAN SYSTEM LTE

**Trade Name:** GUARDIAN

**FCC Model No.:** G2-SY-CON2

**IC Model No.:** G2-SY-CON2-1002244

**Date of Test:** December 23, 2019 ~ January 8, 2020

APPLICABLE STANDARDS	
Standard	TEST RESULT
FCC Part 27, Subpart C, M, FCC Part 2 & RSS-199 Issue 3 December 2016	No non-compliance noted
Statements of Conformity	
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.	

The above equipment has been tested by Compliance Certification Services Inc., and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by:




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Kevin Tsai  
Deputy Manager  
Compliance Certification Services Inc.

## 2. EUT DESCRIPTION

<b>Product</b>	GUARDIAN SYSTEM LTE		
<b>FCC Model No.</b>	G2-SY-CON2		
<b>IC Model No.</b>	G2-SY-CON2-1002244		
<b>Model Discrepancy</b>	N/A		
<b>Trade</b>	GUARDIAN		
<b>Received Date</b>	November 20, 2019		
<b>Power Supply</b>	Powered from DC supply: DC 12V.		
<b>Modulation Technology</b>	LTE Band 41	QPSK, 16QAM	
<b>Frequency Range</b>	LTE Band 41 Channel Bandwidth: 5MHz	2498.5MHz ~2687.5MHz	
	LTE Band 41 Channel Bandwidth: 10MHz	2501MHz ~2685MHz	
	LTE Band 41 Channel Bandwidth: 15MHz	2503.5MHz ~2682.5MHz	
	LTE Band 41 Channel Bandwidth: 20MHz	2506MHz ~2680MHz	
<b>Transmit Power (EIRP Power)</b>	LTE Band 41 Channel Bandwidth: 5MHz	QPSK	22.39 dBm
		16QAM	21.94 dBm
	LTE Band 41 Channel Bandwidth: 10MHz	QPSK	21.69 dBm
		16QAM	21.69 dBm
	LTE Band 41 Channel Bandwidth: 15MHz	QPSK	21.70 dBm
		16QAM	21.70 dBm
	LTE Band 41 Channel Bandwidth: 20MHz	QPSK	22.50 dBm
		16QAM	22.00 dBm
<b>Antenna Specification</b>	Dipole Antenna Band 41 Antenna gain: 0.1 dBi		
<b>HW Version</b>	V1		
<b>SW Version</b>	V9		

**Note:** 1. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

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### 3. TEST METHODOLOGY

#### 3.1 DESCRIPTION OF TEST TYPE

The EUT had been tested under operating condition.

Software used to control the EUT for staying in continuous transmitting mode was programmed.

#### LTE Band 41: 2496MHz ~ 2690MHz

Three channels had been tested for each channel bandwidth.

Channel Bandwidth	5MHz		10MHz		15MHz		20MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low CH	39675	2498.5	39700	2501	39725	2503.5	39750	2506
Middle CH	40620	2593	40620	2593	40620	2593	40620	2593
High CH	41565	2687.5	41540	2685	41515	2682.5	41490	2680

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### 3.2 THE WORST MODE OF MEASUREMENT

Radiated Emission Measurement Above 1G	
Test Condition	Radiated Emission Above 1G
Power supply Mode	Mode 1: EUT power by Power supply
Worst Mode	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4
Worst Position	<input type="checkbox"/> Placed in fixed position. <input checked="" type="checkbox"/> Placed in fixed position at X-Plane (E2-Plane) <input type="checkbox"/> Placed in fixed position at Y-Plane (E1-Plane) <input type="checkbox"/> Placed in fixed position at Z-Plane (H-Plane)

Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Power supply Mode	Mode 1: EUT power by Power supply
Worst Mode	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4

Remark:

1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis ,X, Y, Z and two polarity, for radiated measurement. The worst case(X-Plane) were recorded in this report



## 4. TEST SUMMARY

FCC Standard Section	IC Standard Section	Report Section	Test Item	Result
-	-	2	Antenna Requirement	Pass
2.1046 27.50(h)(2)	RSS-199, section 4.4	8.1	ERP and EIRP Measurement	Pass
2.1055, 27.54	RSS-199 section 4.3	8.2	Frequency Stability v.s. temperature measurement	Pass
2.1049	RSS-GEN 6.7 RSS-199, section 4.2	8.3	Occupied Bandwidth Measurement	Pass
27.53(h)	RSS-199 section 4.5	8.4	Peak to Average Ratio	Pass
27.53(h)	RSS-199 section 4.5	8.5	Conducted Band Edge	Pass
27.53(h)	RSS-199 section 4.5	8.6	Conducted Spurious Emission	Pass
27.53(h)	RSS-199 section 4.5	8.7	Spurious Radiation Measurement	Pass

## 5. INSTRUMENT CALIBRATION

### 5.1 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at  
No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan. (R.O.C.)

Test site	Test Engineer	Remark
Radiation	Jerry Chang	-
RF Conducted	Dally Hong	-

**Remark:** The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

## 5.2 MEASUREMENT EQUIPMENT USED

### Equipment Used for Emissions Measurement

*Remark: Each piece of equipment is scheduled for calibration once a year.*

RF Conducted Test Site					
Equipment	Manufacturer	Model	S/N	Cal Date	Cal Due
Coaxial Cable	Woken	WC12	CC001	06/28/2019	06/27/2020
Coaxial Cable	Woken	WC12	CC003	06/28/2019	06/27/2020
Power Divider	Solvang Technology	STI08-0015	008	08/06/2019	08/05/2020
Signal Analyzer	R&S	FSV 40	101073	09/25/2019	09/24/2020
Wideband Radio Communication Tester	R&S	CMW 500	116875	07/29/2019	07/28/2020
DC Power Supplies	GW Instek	SPS-3610	GPE880163	01/14/2019	01/13/2020
Software	N/A				

3M 966 Chamber Test Site					
Equipment	Manufacturer	Model	S/N	Cal Date	Cal Due
Band Reject Filters	MICRO TRONICS	BRM 50702	120	02/26/2019	02/25/2020
Bilog Antenna	Sunol Sciences	JB3	A030105	07/26/2019	07/25/2020
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/26/2019	02/25/2020
Coaxial Cable	EMCI	EMC105	190914+25111	09/20/2019	09/19/2020
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	01/30/2019	01/29/2020
double Ridged Guide Horn Antenna	ETC	MCTD 1209	DRH13M02003	10/04/2019	10/03/2020
Loop Ant	COM-POWER	AL-130	121051	03/22/2019	03/21/2020
Pre-Amplifier	EMEC	EM330	060609	02/26/2019	02/25/2020
Pre-Amplifier	HP	8449B	3008A00965	02/26/2019	02/25/2020
Wideband Radio Communication Tester	R&S	CMW 500	116875	07/29/2019	07/28/2020
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	05/29/2019	05/28/2020
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Software	e3 6.11-20180413				

### 5.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	+/- 1.2575
Emission bandwidth, 20dB bandwidth	+/- 0.0014
RF output power, conducted	+/- 1.14
Power density, conducted	+/- 1.40
3M Semi Anechoic Chamber / 30M~200M	+/- 4.12
3M Semi Anechoic Chamber / 200M~1000M	+/- 4.68
3M Semi Anechoic Chamber / 1G~8G	+/- 5.18
3M Semi Anechoic Chamber / 8G~18G	+/- 5.47
3M Semi Anechoic Chamber / 18G~26G	+/- 3.81
3M Semi Anechoic Chamber / 26G~40G	+/- 3.87

**Remark:** This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

## 6. FACILITIES AND ACCREDITATIONS

### 6.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.

Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan. (R.O.C.)

Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10: 2013 and CISPR Publication 22.

### 6.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### 6.3 LABORATORY ACCREDITATIONS AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by American Association for Laboratory Accreditation Program for the specific scope accreditation under Lab Code: 0824-01 to perform Electromagnetic Interference tests according to FCC Part 15 and CISPR 22 requirements. In addition, the test facilities are listed with Industry Canada, Certification and Engineering Bureau, ISED#: 2324G.

## 7. SETUP OF EQUIPMENT UNDER TEST

### 7.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix I for the actual connections between EUT and support equipment.

### 7.2 SUPPORT EQUIPMENT

No.	Equipment	Brand	Model	Series No.	FCC ID	IC ID
1	NB(J)	TOSHIBA	PT345T-00L002	N/A	PD97260H	1000M-7260H

**Remark:**

1. *All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
2. *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

## 8. TEST PROCEDURE AND RESULT

### 8.1 EIRP MEASUREMENT

#### LIMIT

According to FCC §2.1046

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

RSS-199 § 4.4,

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

#### TEST PROCEDURES

##### **CONDUCTED POWER MEASUREMENT:**

1. The transmitter output power was connected to the call box.
2. Set EUT at maximum output power via call box.
3. Set Call box at lowest, middle and highest channels for each band and modulation.

#### TEST RESULTS

*No non-compliance noted.*

### LTE Band 41

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	EIRP Power (dBm)
Band 41	5M	39675	2498.5	QPSK	1	0	0	22.04	22.14
					1	12	0	22.24	22.34
					1	24	0	21.94	22.04
					12	0	1	21.84	21.94
					12	6	1	22.24	22.34
					12	11	1	22.04	22.14
		16QAM	25	0	1	21.54	21.64		
			1	0	1	21.44	21.54		
			1	12	1	21.34	21.44		
			1	24	1	21.84	21.94		
			12	0	2	20.94	21.04		
			12	6	2	21.54	21.64		
		QPSK	12	11	2	21.04	21.14		
			25	0	2	20.94	21.04		
			1	0	0	21.21	21.31		
			1	12	0	21.39	21.49		
			1	24	0	21.11	21.21		
			12	0	1	21.61	21.71		
	16QAM	12	6	1	21.91	22.01			
		12	11	1	21.41	21.51			
		25	0	1	21.71	21.81			
		1	0	1	21.11	21.21			
		1	12	1	21.61	21.71			
		1	24	1	20.91	21.01			
	QPSK	12	0	2	20.81	20.91			
		12	6	2	20.81	20.91			
		12	11	2	20.51	20.61			
		25	0	2	20.61	20.71			
		1	0	0	20.89	20.99			
		1	12	0	22.29	22.39			
	16QAM	1	24	0	21.19	21.29			
		12	0	1	21.39	21.49			
		12	6	1	21.29	21.39			
		12	11	1	21.49	21.59			
		25	0	1	21.39	21.49			
		1	0	1	19.99	20.09			
QPSK	1	12	1	21.49	21.59				
	1	24	1	20.89	20.99				
	12	0	2	20.39	20.49				
	12	6	2	20.79	20.89				
	12	11	2	20.49	20.59				
	25	0	2	20.39	20.49				



Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	EIRP Power (dBm)		
Band 41	10M	39700	2501.0	QPSK	1	0	0	20.09	20.19		
					1	24	0	20.29	20.39		
					1	49	0	20.11	20.21		
					25	0	1	20.05	20.15		
					25	12	1	20.02	20.12		
					25	24	1	19.99	20.09		
				16QAM	50	0	1	20.05	20.15		
					1	0	1	20.04	20.14		
					1	24	1	20.03	20.13		
					1	49	1	20.89	20.99		
					25	0	2	19.99	20.09		
					25	12	2	20.05	20.15		
		40620	2593.0	QPSK	2593.0	QPSK	1	0	0	21.23	21.33
							1	24	0	21.35	21.45
							1	49	0	21.17	21.27
							25	0	1	21.15	21.25
							25	12	1	21.21	21.31
							25	24	1	21.17	21.27
				16QAM	50	0	1	21.33	21.43		
					1	0	1	21.19	21.29		
					1	24	1	21.59	21.69		
					1	49	1	21.09	21.19		
					25	0	2	20.79	20.89		
					25	12	2	20.69	20.79		
		41540	2685.0	QPSK	2685.0	QPSK	1	0	0	20.99	21.09
							1	24	0	21.39	21.49
							1	49	0	21.19	21.29
							25	0	1	21.39	21.49
							25	12	1	21.29	21.39
							25	24	1	21.49	21.59
				16QAM	50	0	1	21.59	21.69		
					1	0	1	20.19	20.29		
					1	24	1	20.49	20.59		
					1	49	1	20.59	20.69		
					25	0	2	20.59	20.69		
					25	12	2	20.79	20.89		
					25	24	2	20.69	20.79		
					50	0	2	20.59	20.69		

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	EIRP Power (dBm)		
Band 41	15M	39725	2503.5	QPSK	1	0	0	20.10	20.20		
					1	37	0	20.30	20.40		
					1	74	0	20.12	20.22		
					36	0	1	20.06	20.16		
					36	18	1	20.03	20.13		
					36	35	1	20.00	20.10		
				16QAM	75	0	1	20.06	20.16		
					1	0	1	20.05	20.15		
					1	37	1	20.04	20.14		
					1	74	1	20.90	21.00		
					36	0	2	20.00	20.10		
					36	18	2	20.06	20.16		
		40620	2593.0	QPSK	2593.0	QPSK	1	0	0	21.24	21.34
							1	37	0	21.36	21.46
							1	74	0	21.18	21.28
							36	0	1	21.16	21.26
							36	18	1	21.22	21.32
							36	35	1	21.18	21.28
				16QAM	75	0	1	21.34	21.44		
					1	0	1	21.20	21.30		
					1	37	1	21.60	21.70		
					1	74	1	21.10	21.20		
					36	0	2	20.80	20.90		
					36	18	2	20.70	20.80		
		41515	2682.5	QPSK	2682.5	QPSK	36	35	2	20.60	20.70
							36	0	2	20.80	20.90
							36	18	2	20.70	20.80
							36	35	2	20.60	20.70
							75	0	2	20.50	20.60
							75	0	1	21.60	21.70
				16QAM	1	0	1	20.20	20.30		
					1	37	1	20.50	20.60		
					1	74	1	20.60	20.70		
					36	0	2	20.60	20.70		
					36	18	2	20.80	20.90		
					36	35	2	20.70	20.80		
75	0	2	20.60	20.70							

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	EIRP Power (dBm)		
Band 41	20M	39750	2506.0	QPSK	1	0	0	22.10	22.20		
					1	49	0	22.30	22.40		
					1	99	0	22.00	22.10		
					50	0	1	21.90	22.00		
					50	24	1	22.30	22.40		
					50	49	1	22.10	22.20		
				16QAM	100	0	1	21.60	21.70		
					1	0	1	21.50	21.60		
					1	49	1	21.40	21.50		
					1	99	1	21.90	22.00		
					50	0	2	21.00	21.10		
					50	24	2	21.60	21.70		
		40620	2593.0	QPSK	2593.0	QPSK	1	0	0	21.30	21.40
							1	49	0	21.48	21.58
							1	99	0	21.20	21.30
							50	0	1	21.70	21.80
							50	24	1	22.00	22.10
							50	49	1	21.50	21.60
				16QAM	100	0	1	21.80	21.90		
					1	0	1	21.20	21.30		
					1	49	1	21.70	21.80		
					1	99	1	21.00	21.10		
					50	0	2	20.90	21.00		
					50	24	2	20.90	21.00		
		41490	2680.0	QPSK	2680.0	QPSK	50	49	2	20.60	20.70
							50	0	2	20.70	20.80
							1	0	0	21.00	21.10
							1	49	0	22.40	22.50
							1	99	0	21.30	21.40
							50	0	1	21.50	21.60
				16QAM	50	24	1	21.40	21.50		
					50	49	1	21.60	21.70		
					100	0	1	21.50	21.60		
					1	0	1	20.10	20.20		
					1	49	1	21.60	21.70		
					1	99	1	21.00	21.10		
16QAM	50	0	2	20.50	20.60						
	50	24	2	20.90	21.00						
	50	49	2	20.60	20.70						
	100	0	2	20.50	20.60						
	100	0	2	20.50	20.60						
	100	0	2	20.50	20.60						

## 8.2 FREQUENCY STABILITY MEASUREMENT

### LIMIT

According to the FCC part 27.54 shall be tested the frequency stability. The rule is defined that "The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

### According to RSS -199 section 4.3,

The transmitter frequency stability limit shall be determined as follows:

- (a) the frequency offset shall be measured according to the procedure described in RSS-Gen and recorded
- (b) using a resolution bandwidth equal to that permitted within the 1 MHz band immediately outside the channel edge, as found in section 4.5, reference points will be selected at the unwanted emission limits, which comply with the attenuation specified in section 4.5 for the type of device under test, on the emission mask of the lowest and highest channels. The frequency at these points shall be recorded as fL and fH respectively

The applicant shall ensure compliance with frequency stability requirements by showing that fL minus the frequency offset and fH plus the frequency offset is within the frequency range in which the equipment is designed to operate.

### TEST PROCEDURE

Use Anritsu 8820 with frequency Error measurement capability.

Temp = -40°C to +65°C

Voltage= 85% to 115% of the nominal value.

**The Worst case: DC 12V**

**NOTE:** The frequency error was recorded frequency error from the communication simulator.

Report No.: T191120D05-RP9

## TEST RESULTS

### FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT:

#### LTE Band 41

Reference Frequency: LTE Band 41 Max Bandwidth QPSK, 2593 MHz				
Limit: $\pm 2.5$ ppm = 6482.5 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
12	65	0.01	0.000004	+/- 2.5
12	50	0.01	0.000004	
12	40	-0.01	-0.000004	
12	30	0.00	0.000000	
12	20	0.00	0.000000	
12	10	0.02	0.000008	
12	0	0.01	0.000004	
12	-10	-0.01	-0.000004	
12	-20	0.02	0.000008	
12	-30	0.01	0.000004	
12	-40	0.00	0.000000	

Reference Frequency: LTE Band 41 Max Bandwidth 16QAM, 2593 MHz				
Limit: $\pm 2.5$ ppm = 6482.5 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
12	65	0.01	0.000004	+/- 2.5
12	50	-0.01	-0.000004	
12	40	0.01	0.000004	
12	30	0.00	0.000000	
12	20	0.00	0.000000	
12	10	0.02	0.000008	
12	0	0.02	0.000008	
12	-10	-0.01	-0.000004	
12	-20	-0.01	-0.000004	
12	-30	0.00	0.000000	
12	-40	0.01	0.000004	

**FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT:**

**LTE Band 41**

Reference Frequency: LTE Band 41 Max Bandwidth QPSK, 2593 MHz				
Limit: $\pm 2.5$ ppm = 6482.5 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
10.2	20	0.00	0.000000	+/- 2.5
12	20	0.00	0.000000	
13.8	20	0.01	0.000004	

Reference Frequency: LTE Band 41 Max Bandwidth 16QAM, 2593 MHz				
Limit: $\pm 2.5$ ppm = 6482.5 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
10.2	20	-0.01	-0.000004	+/- 2.5
12	20	0.00	0.000000	
13.8	20	0.00	0.000000	

### 8.3 OCCUPIED BANDWIDTH MEASUREMENT

#### LIMITS

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

#### TEST PROCEDURES

KDB 971168 D01 Power Meas License Digital Systems – Section 4.2

1. The occupied bandwidth was measured with the spectrum analyzer at the lowest, middle and highest channels in each band and different modulation. The 99% and -26dB bandwidth was measured and recorded.
2. RBW = 1-5% of the expected OBW
3. VBW  $\geq$  3 x RBW
4. Detector = Peak
5. Trace mode = max. hold

## TEST RESULTS

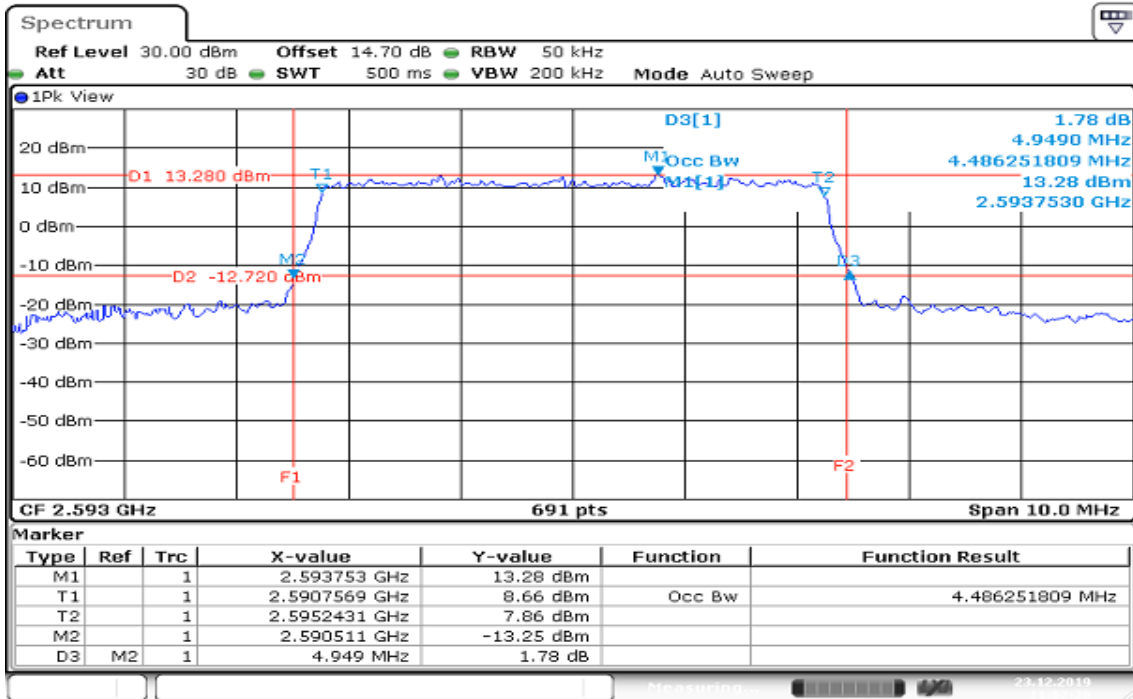
### LTE Band 41

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	OBW(99%)(MHz)	26 dB Bandwidth(MHz)
41	5	Middle	2535.0	QPSK	4.4863	4.9490
		Middle	2535.0	16QAM	4.4718	4.9350
	10	Middle	2535.0	QPSK	8.9436	10.4920
		Middle	2535.0	16QAM	8.9146	9.6240
	15	Middle	2535.0	QPSK	13.4588	16.0490
		Middle	2535.0	16QAM	13.4588	16.7870
	20	Middle	2535.0	QPSK	18.0608	19.9710
		Middle	2535.0	16QAM	18.0029	20.2600



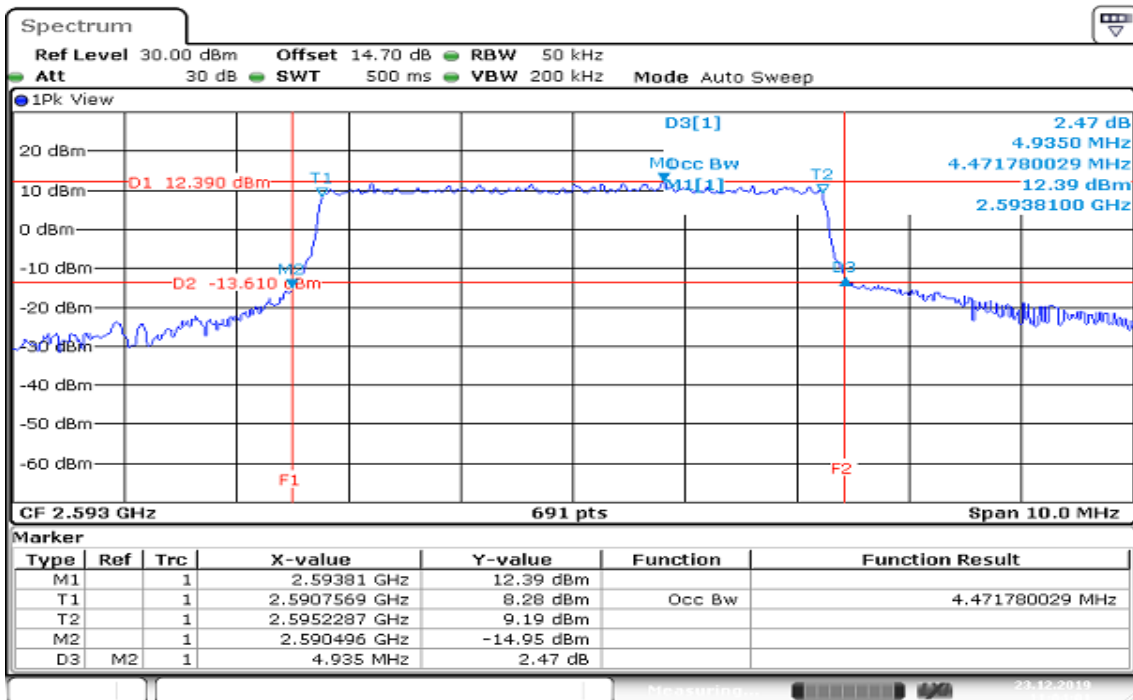
Report No.: T191120D05-RP9

## LTE Band 41 CHANNEL BANDWIDTH: 5MHz / QPSK CH Mid



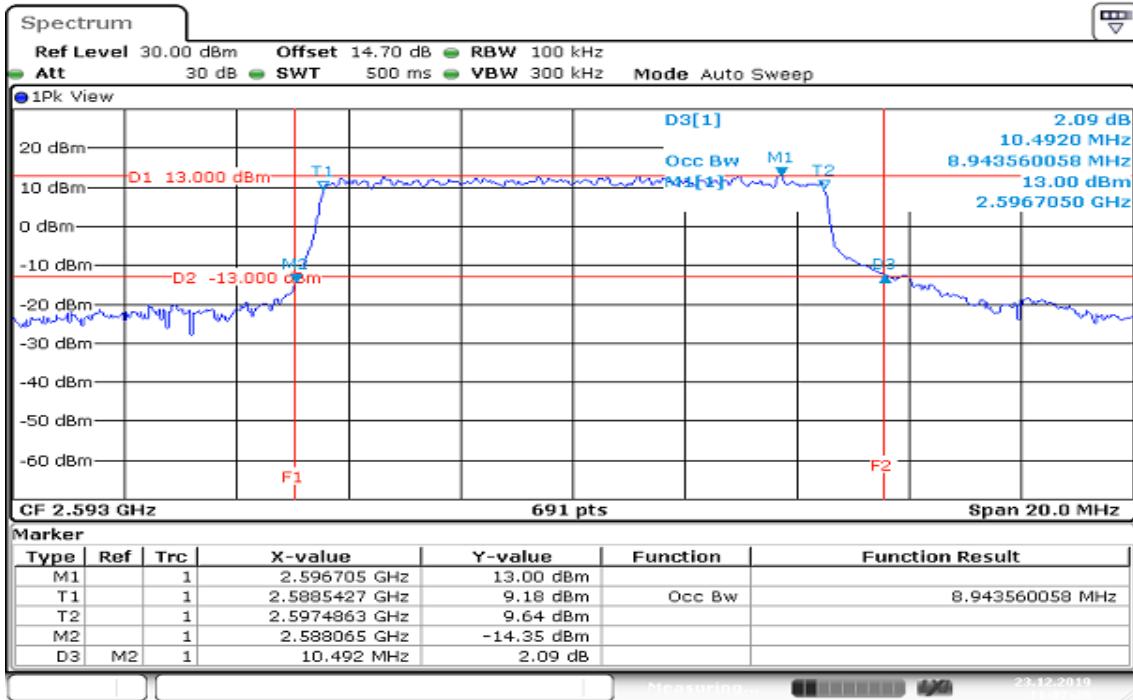
Date: 23.DEC.2019 11:02:20

## CHANNEL BANDWIDTH: 5MHz / 16QAM CH Mid



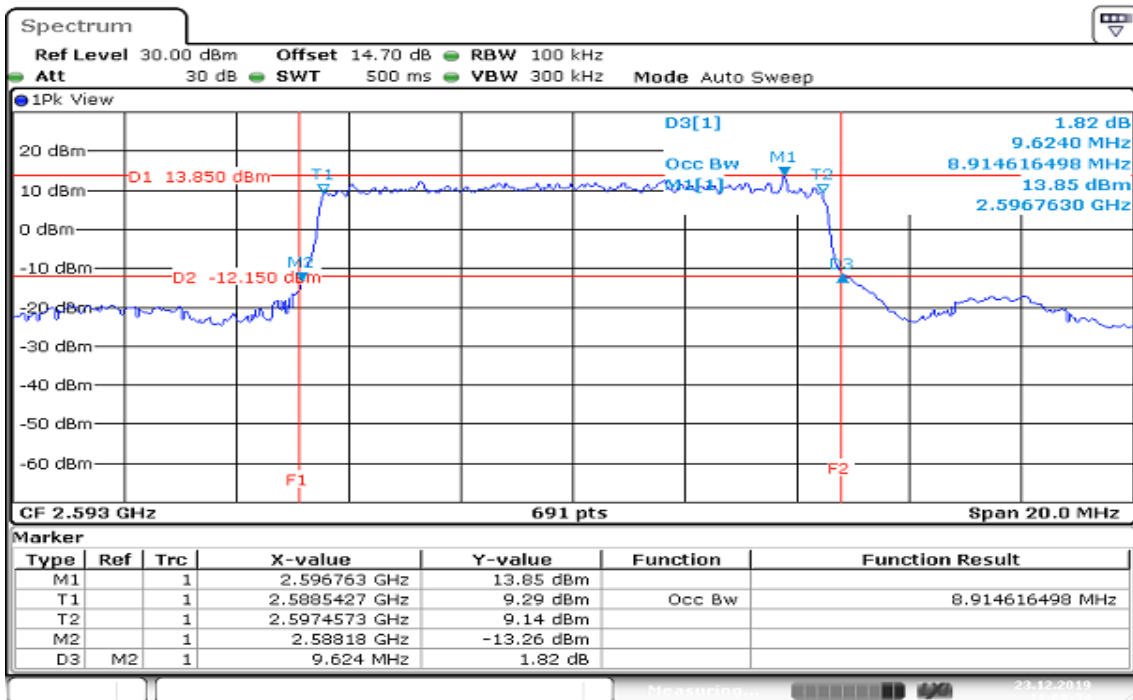
Date: 23.DEC.2019 11:04:02

## CHANNEL BANDWIDTH: 10MHz / QPSK CH Mid



Date: 23.DEC.2019 11:07:28

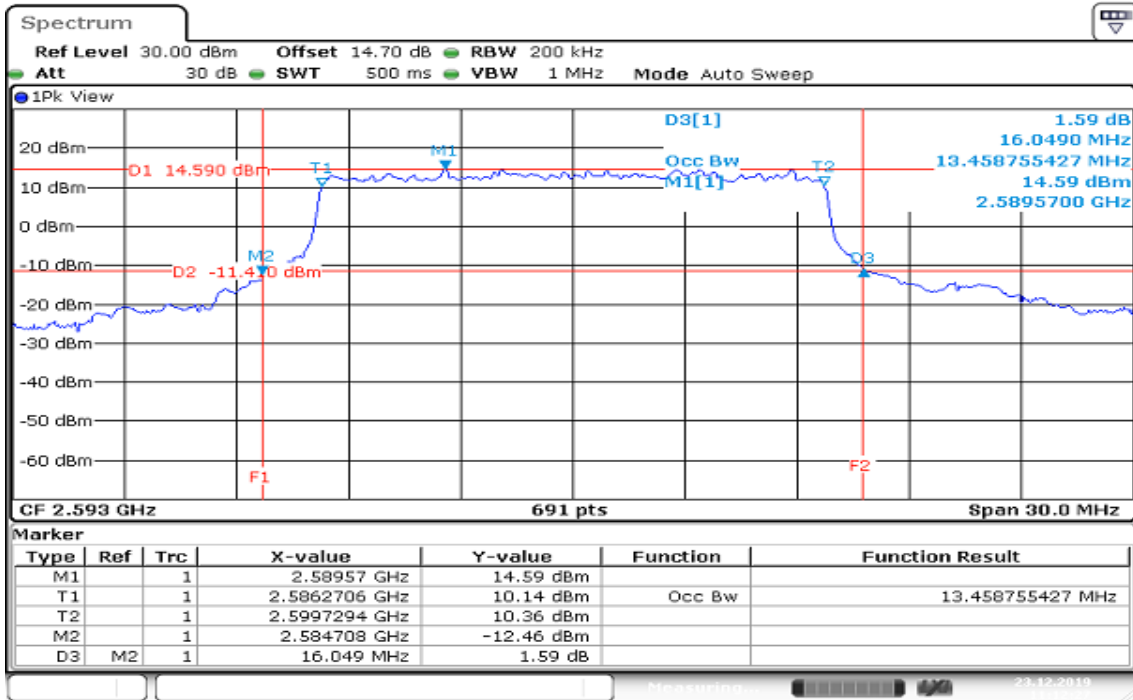
## CHANNEL BANDWIDTH: 10MHz / 16QAM CH Mid



Date: 23.DEC.2019 11:09:34

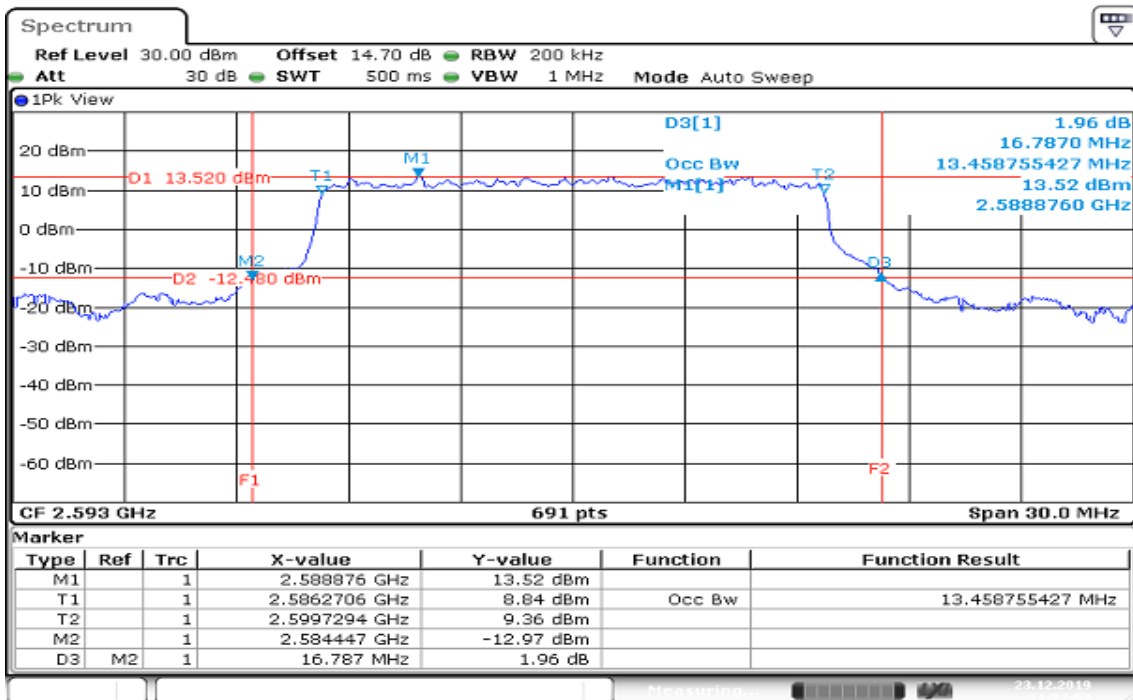
Report No.: T191120D05-RP9

## CHANNEL BANDWIDTH: 15MHz / QPSK CH Mid



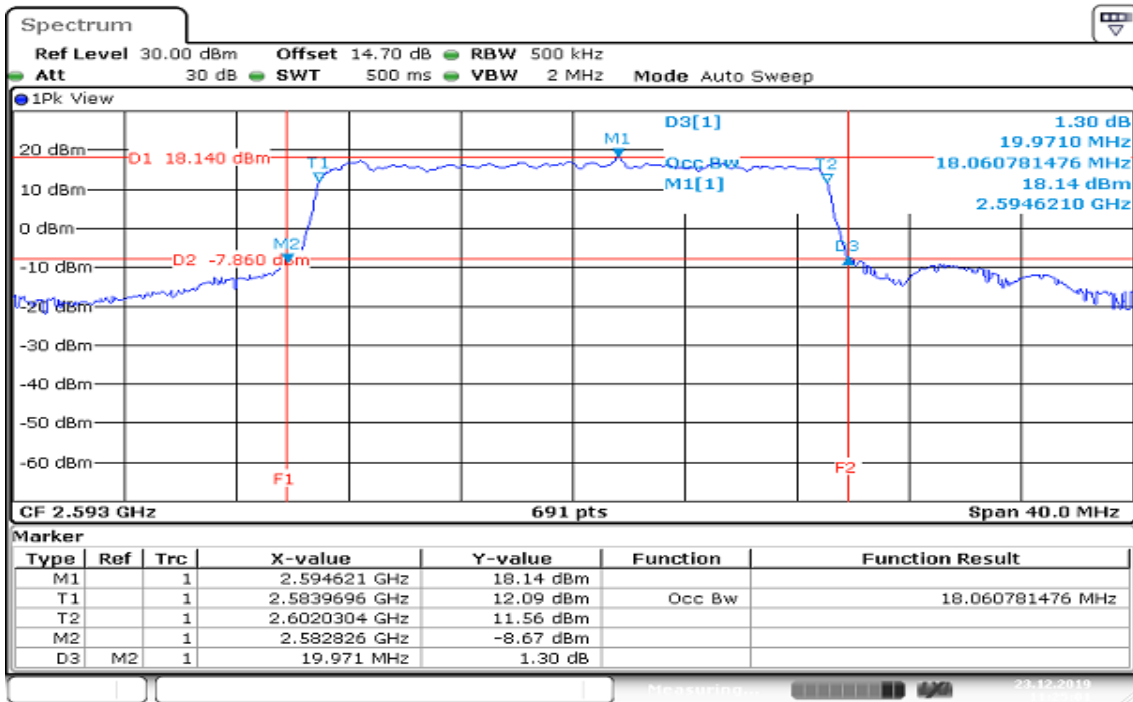
Date: 23.DEC.2019 11:12:27

## CHANNEL BANDWIDTH: 15MHz / 16QAM CH Mid



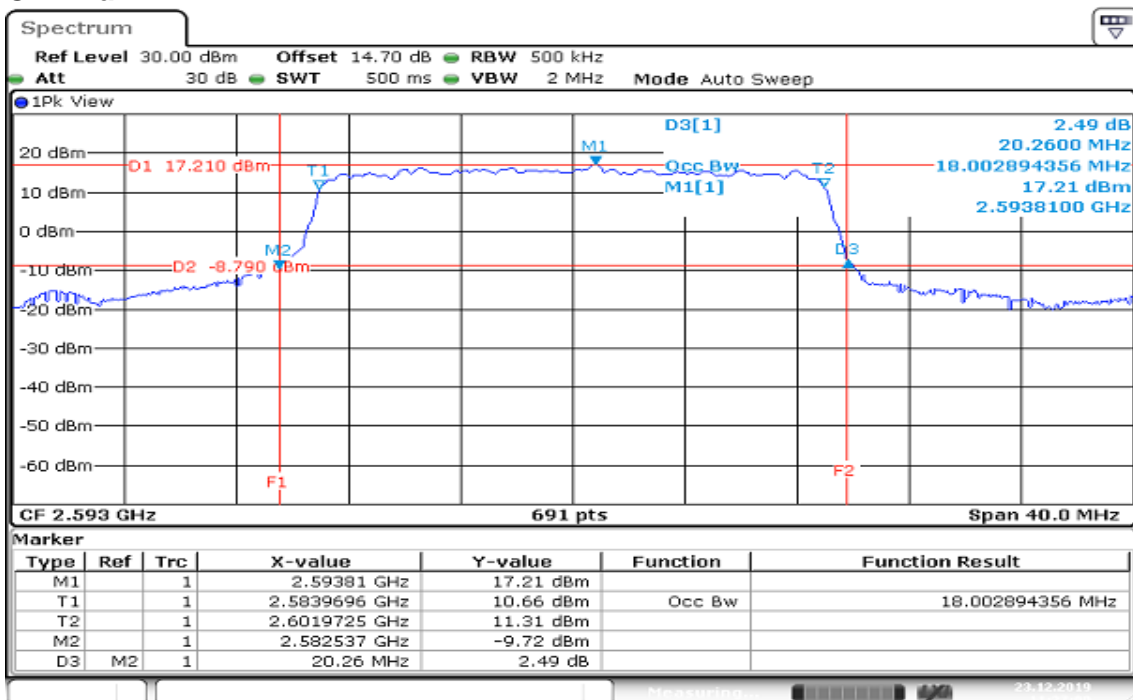
Date: 23.DEC.2019 11:22:53

## CHANNEL BANDWIDTH: 20MHz / QPSK CH Mid



Date: 23.DEC.2019 11:25:01

## CHANNEL BANDWIDTH: 20MHz / 16QAM CH Mid



Date: 23.DEC.2019 11:27:01

## 8.4 PEAK TO AVERAGE POWER RATIO

### LIMIT

In measuring transmissions in this band using an average power technique, peak-to-average power ratio (PAPR) of the transmission may not exceed 13 dB.

### TEST PROCEDURES

1. According to KDB 971168D01.
2. The EUT was connect to spectrum analyzer and call box.
3. Set the CCDF function in spectrum analyzer.
4. The highest RF output power were measured and recorded the maximum PAPR level associated with a probability of 0.1%.
5. Record the Peak to Average Power Ratio.

Report No.: T191120D05-RP9

## TEST RESULTS

### LTE Band 41

#### CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
40620	2593	5.45

#### CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
40620	2593	5.97

#### CHANNEL BANDWIDTH: 15MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
40620	2593	5.36

#### CHANNEL BANDWIDTH: 20MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
40620	2593	5.57

#### CHANNEL BANDWIDTH: 5MHz / QPSK / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
40620	2593	5.22

#### CHANNEL BANDWIDTH: 10MHz / QPSK / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
40620	2593	7.36

#### CHANNEL BANDWIDTH: 15MHz / QPSK / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
40620	2593	5.22

#### CHANNEL BANDWIDTH: 20MHz / QPSK / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
40620	2593	4.87

**Note:** We selected worst case to performed test in middle channel, the results can be meet other channel.

**CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB**

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
40620	2593	6.14

**CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB**

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
40620	2593	6.64

**CHANNEL BANDWIDTH: 15MHz / 16QAM / 1RB**

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
40620	2593	5.57

**CHANNEL BANDWIDTH: 20MHz / 16QAM / 1RB**

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
40620	2593	6.03

**CHANNEL BANDWIDTH: 5MHz / 16QAM / Full RB**

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
40620	2593	5.97

**CHANNEL BANDWIDTH: 10MHz / 16QAM / Full RB**

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
40620	2593	6.87

**CHANNEL BANDWIDTH: 15MHz / 16QAM / Full RB**

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
40620	2593	7.01

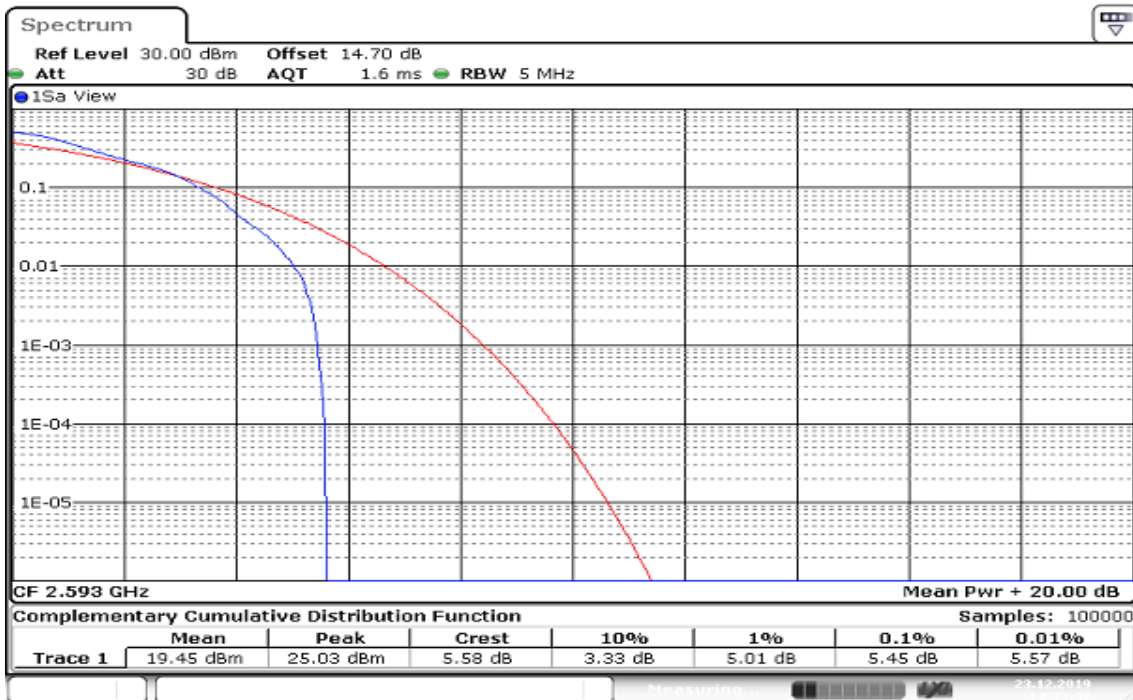
**CHANNEL BANDWIDTH: 20MHz / 16QAM / Full RB**

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
40620	2593	6.78

**Note:** We selected worst case to performed test in middle channel, the results can be meet other channel.

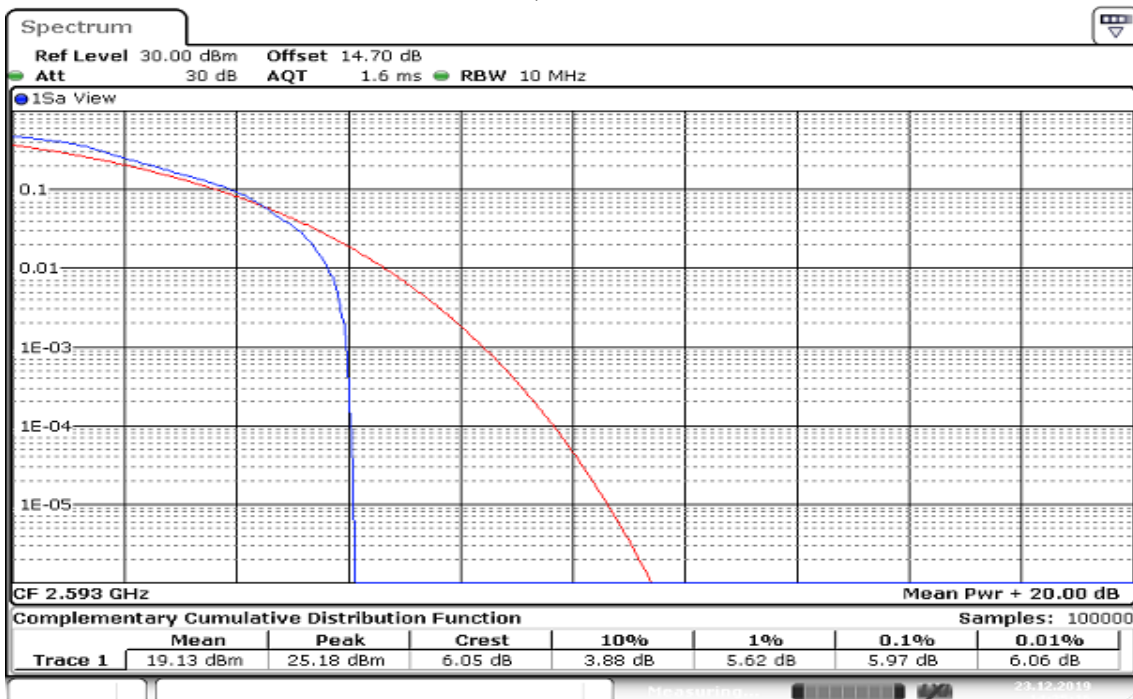
## LTE Band 41

### CHANNEL BANDWIDTH: 5MHz / QPSK/1RB



Date: 23.DEC.2019 14:33:37

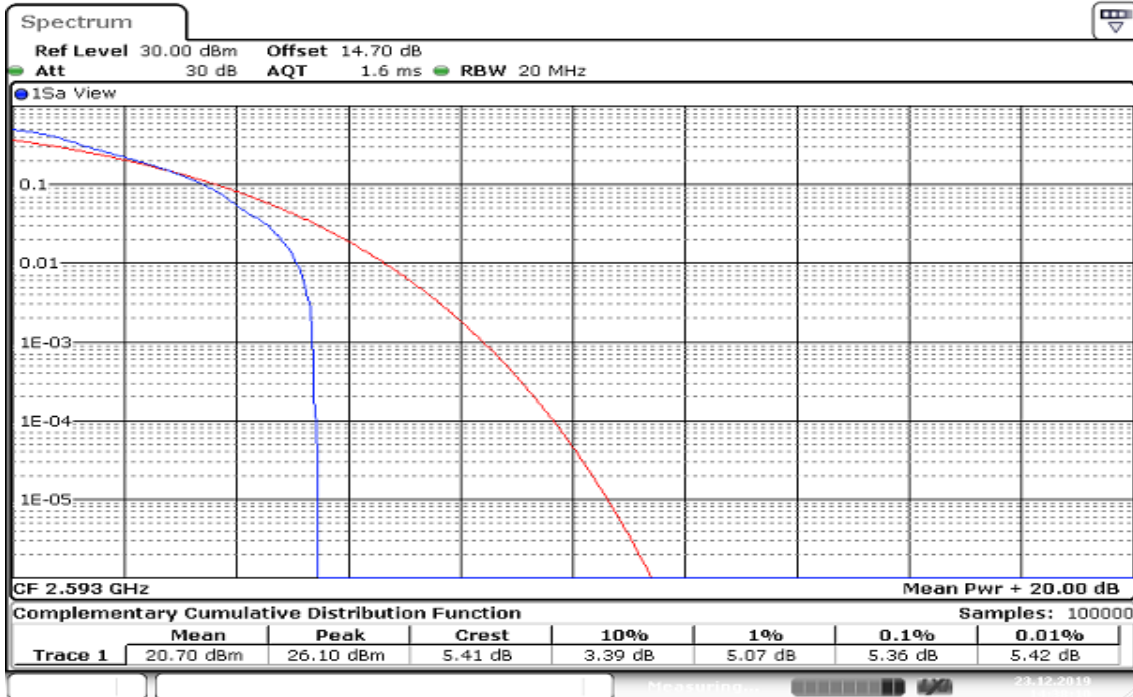
### CHANNEL BANDWIDTH: 10MHz / QPSK /1RB



Date: 23.DEC.2019 14:35:16

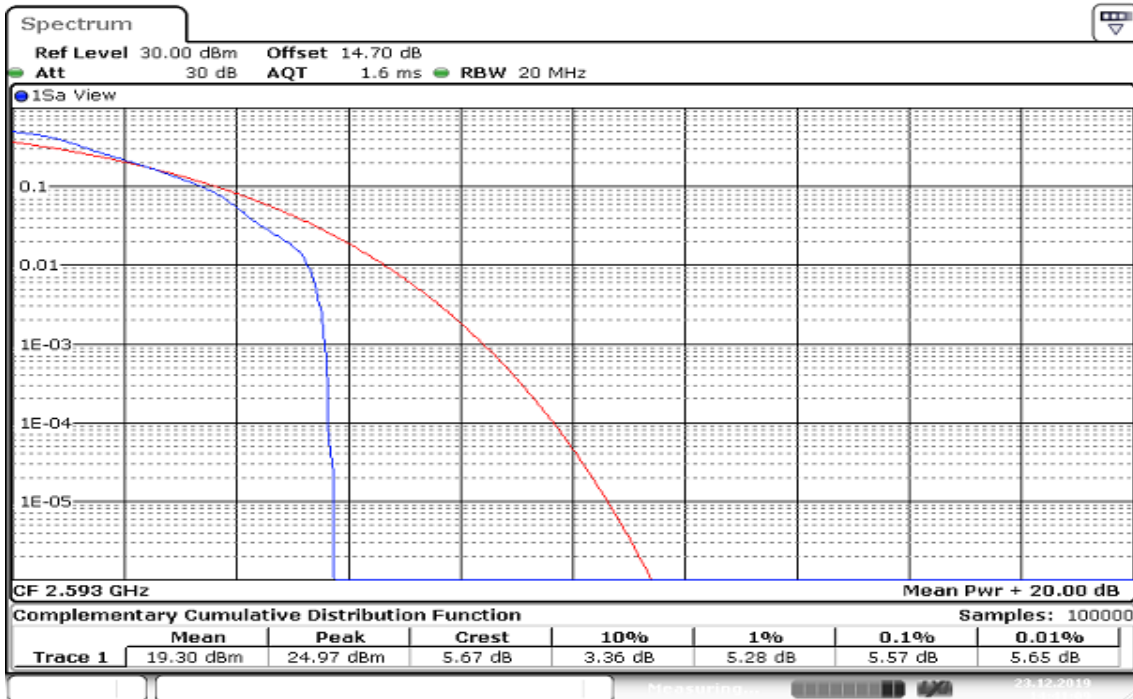


### CHANNEL BANDWIDTH: 15MHz / QPSK/1RB



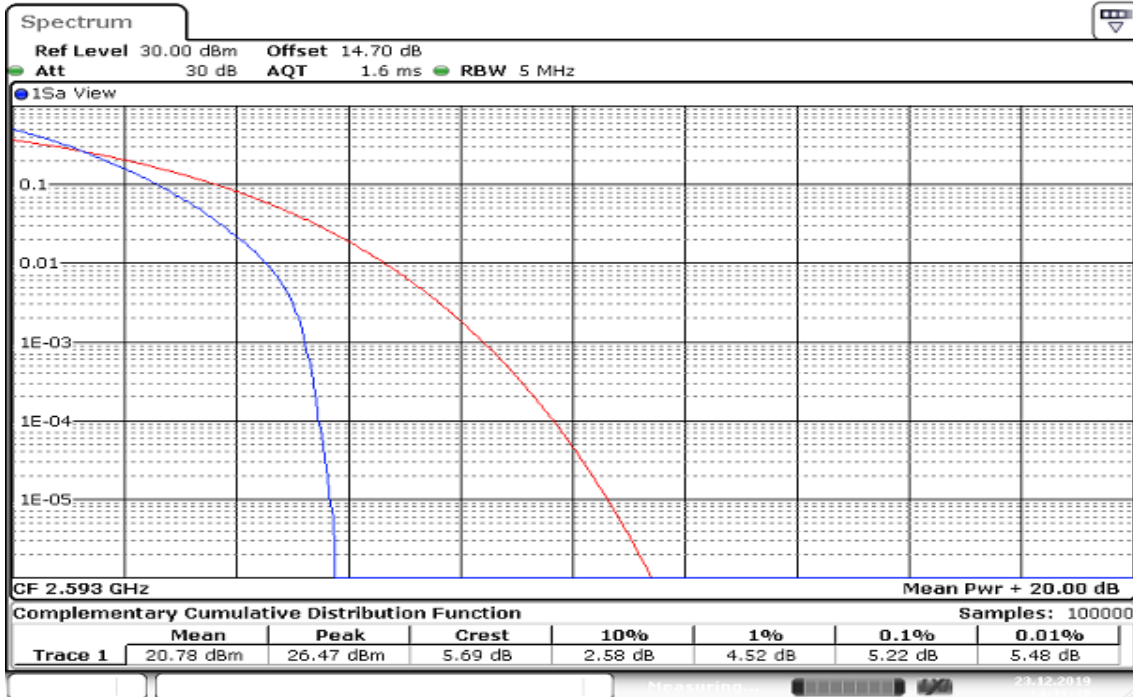
Date: 23.DEC.2019 14:38:10

### CHANNEL BANDWIDTH: 20MHz / QPSK/1RB



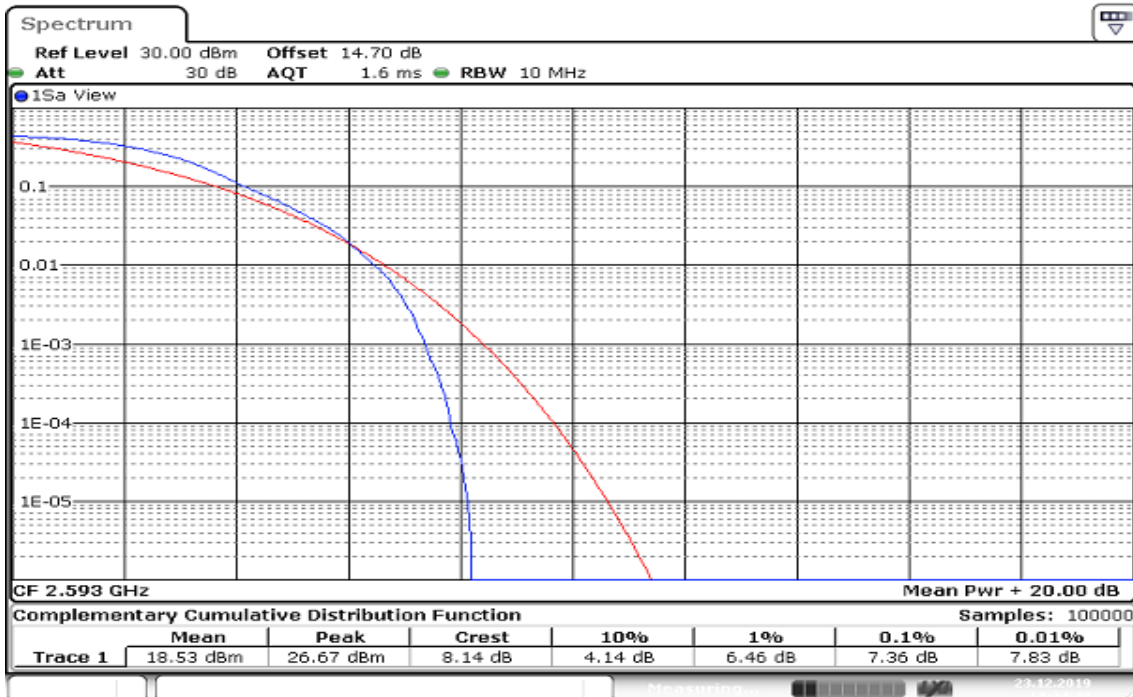
Date: 23.DEC.2019 14:41:09

## CHANNEL BANDWIDTH: 5MHz / QPSK/ Full RB



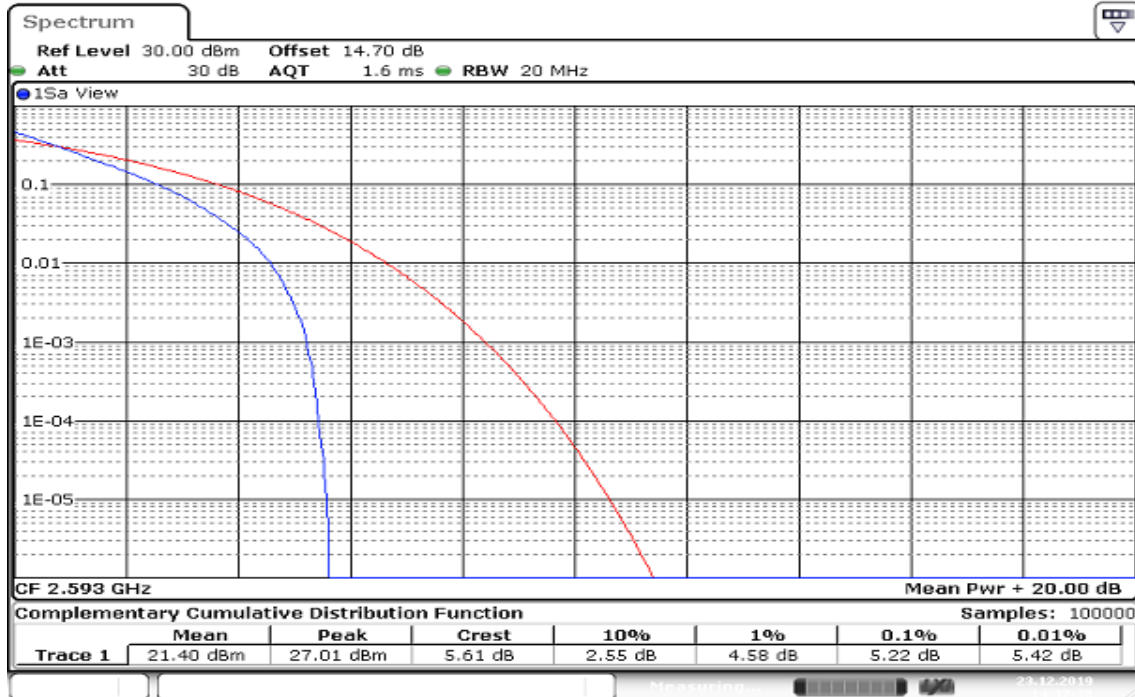
Date: 23.DEC.2019 14:31:38

## CHANNEL BANDWIDTH: 10MHz / QPSK / Full RB



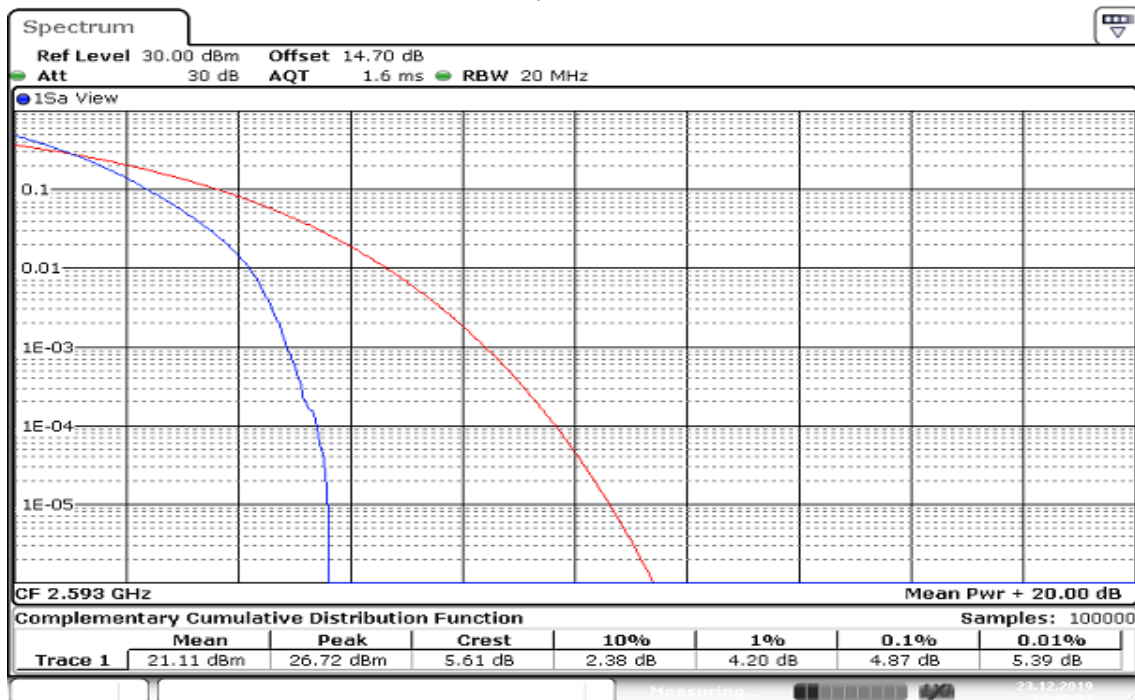
Date: 23.DEC.2019 14:34:50

### CHANNEL BANDWIDTH: 15MHz / QPSK / Full RB



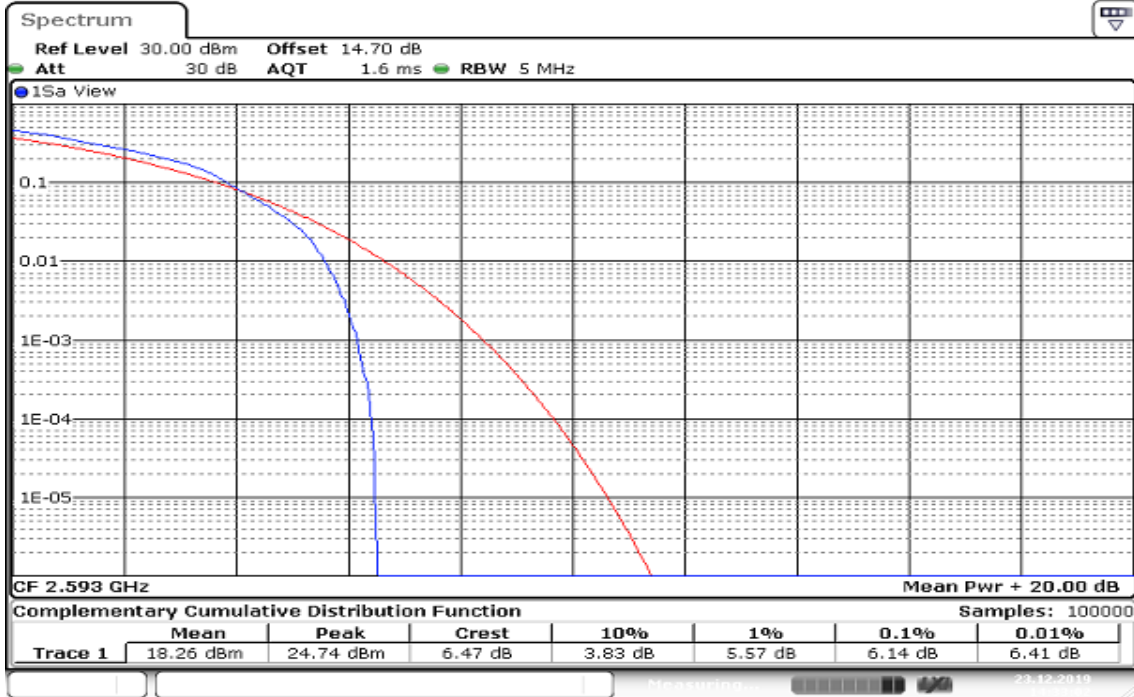
Date: 23.DEC.2019 14:37:38

### CHANNEL BANDWIDTH: 20MHz / QPSK / Full RB



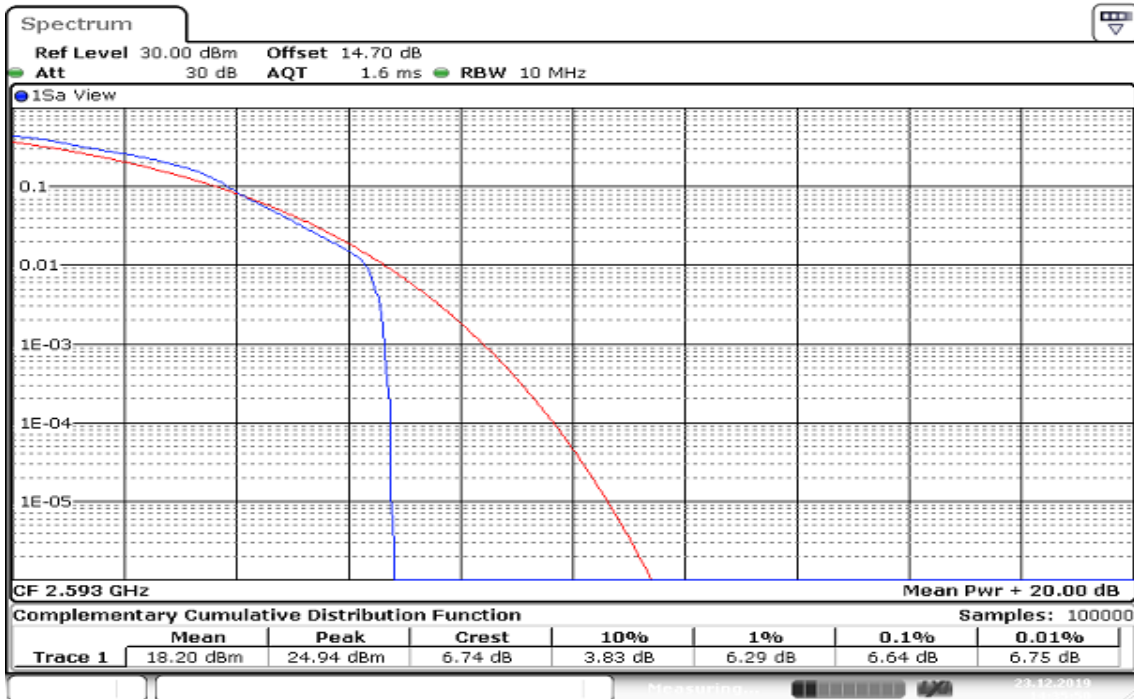
Date: 23.DEC.2019 14:40:38

## CHANNEL BANDWIDTH: 5MHz / 16QAM /1RB



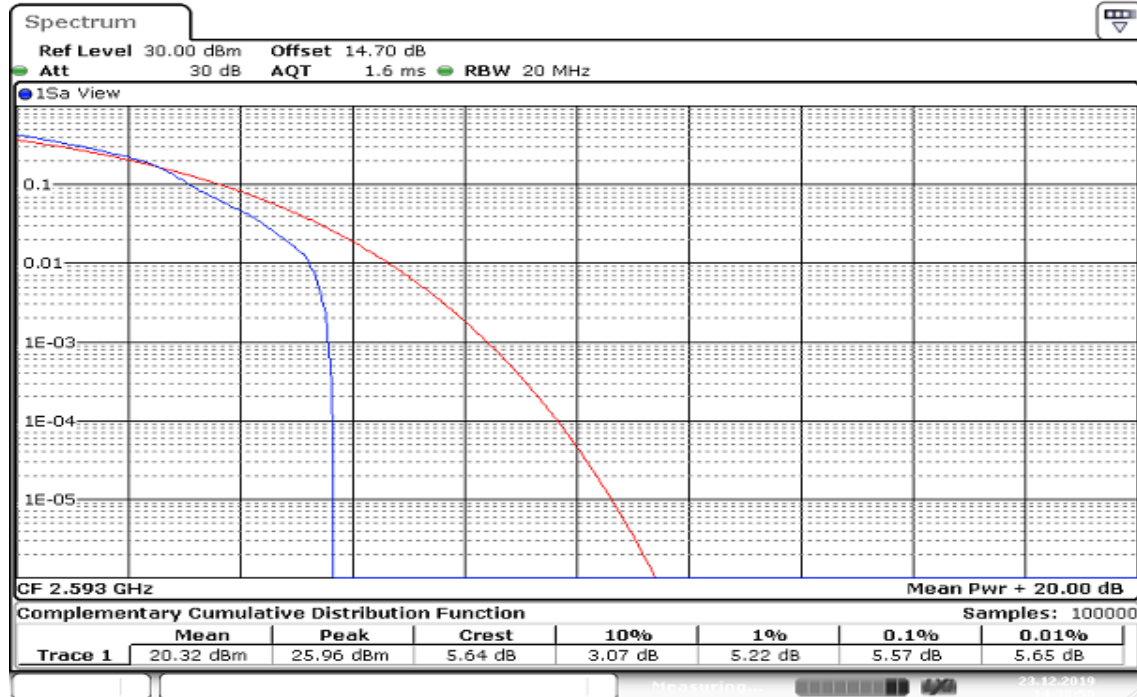
Date: 23.DEC.2019 14:33:03

## CHANNEL BANDWIDTH: 10MHz / 16QAM /1RB



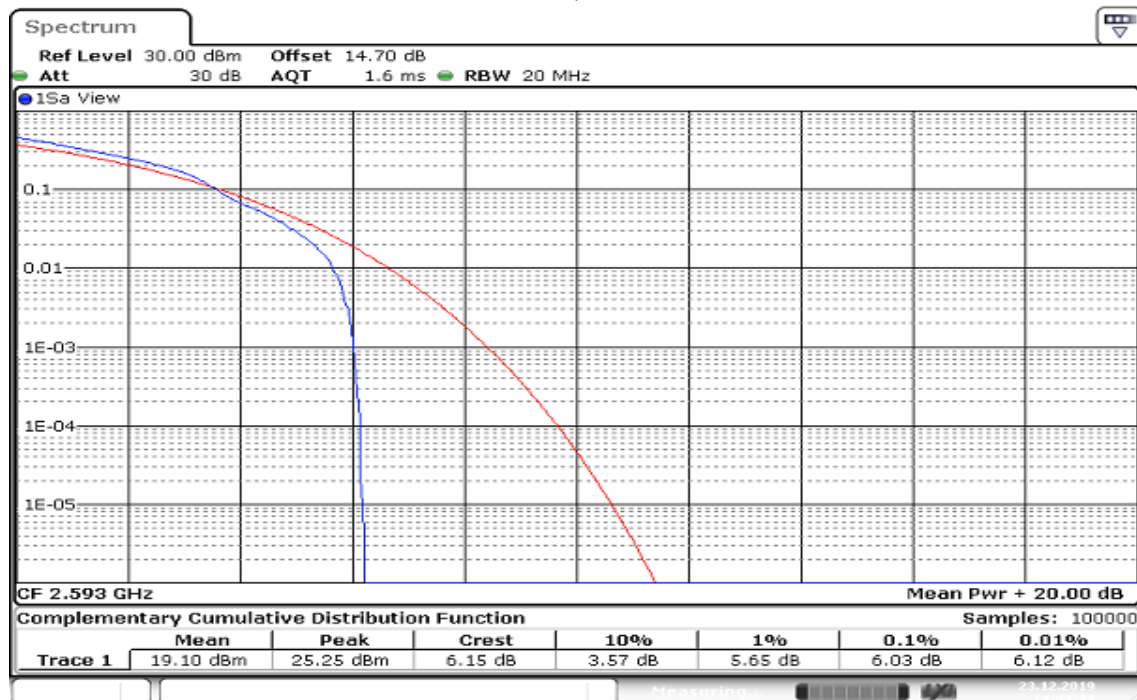
Date: 23.DEC.2019 14:35:50

### CHANNEL BANDWIDTH: 15MHz / 16QAM /1RB



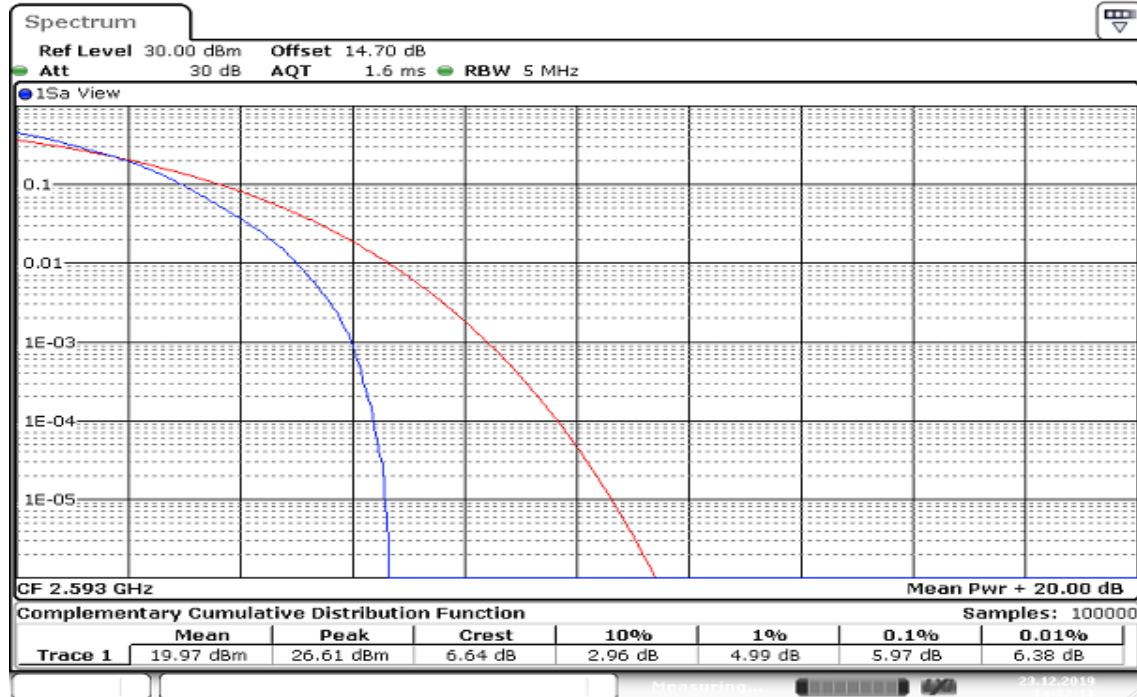
Date: 23.DEC.2019 14:38:50

### CHANNEL BANDWIDTH: 20MHz / 16QAM /1RB



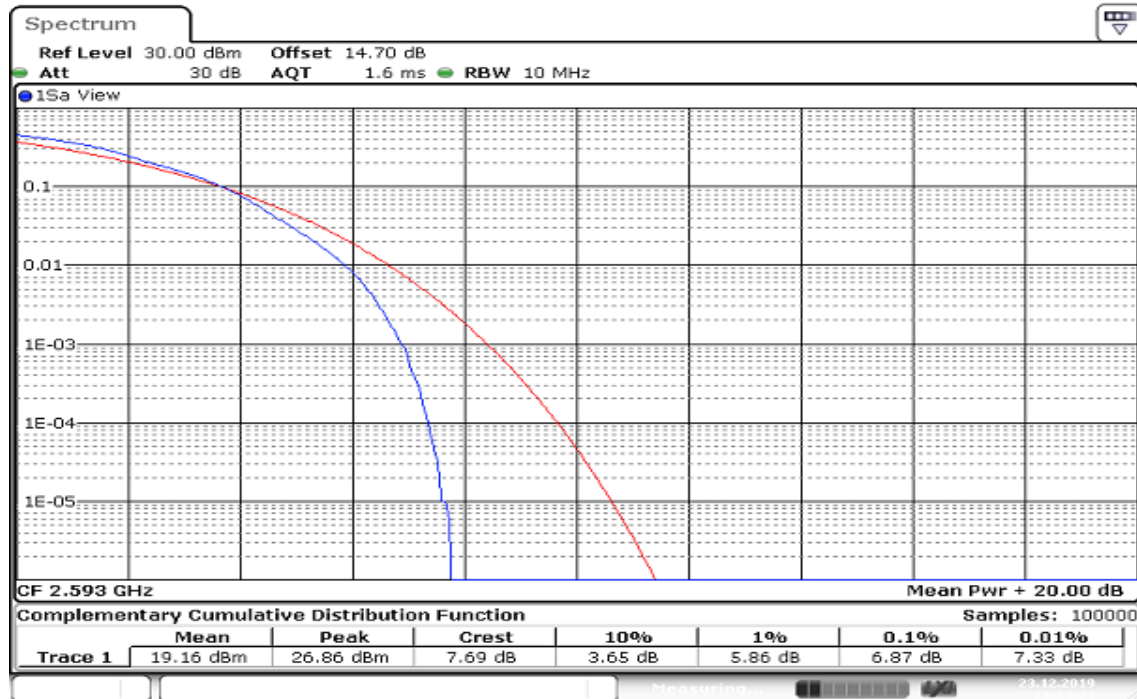
Date: 23.DEC.2019 14:41:38

### CHANNEL BANDWIDTH: 5MHz / 16QAM / Full RB



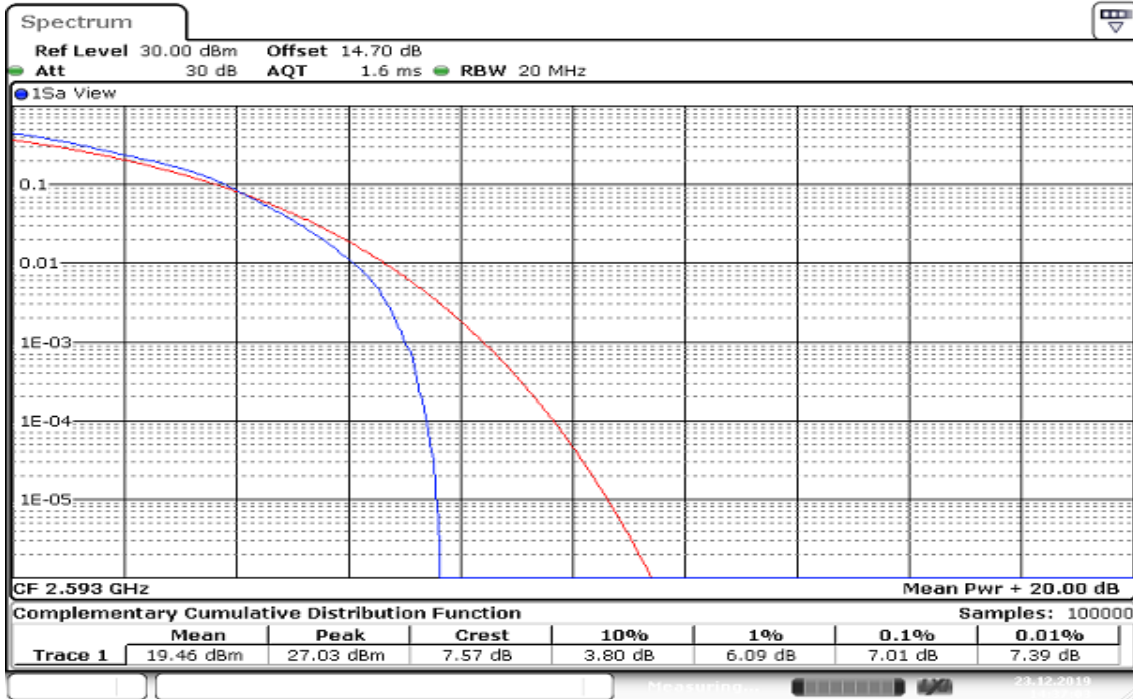
Date: 23.DEC.2019 14:32:12

### CHANNEL BANDWIDTH: 10MHz / 16QAM / Full RB



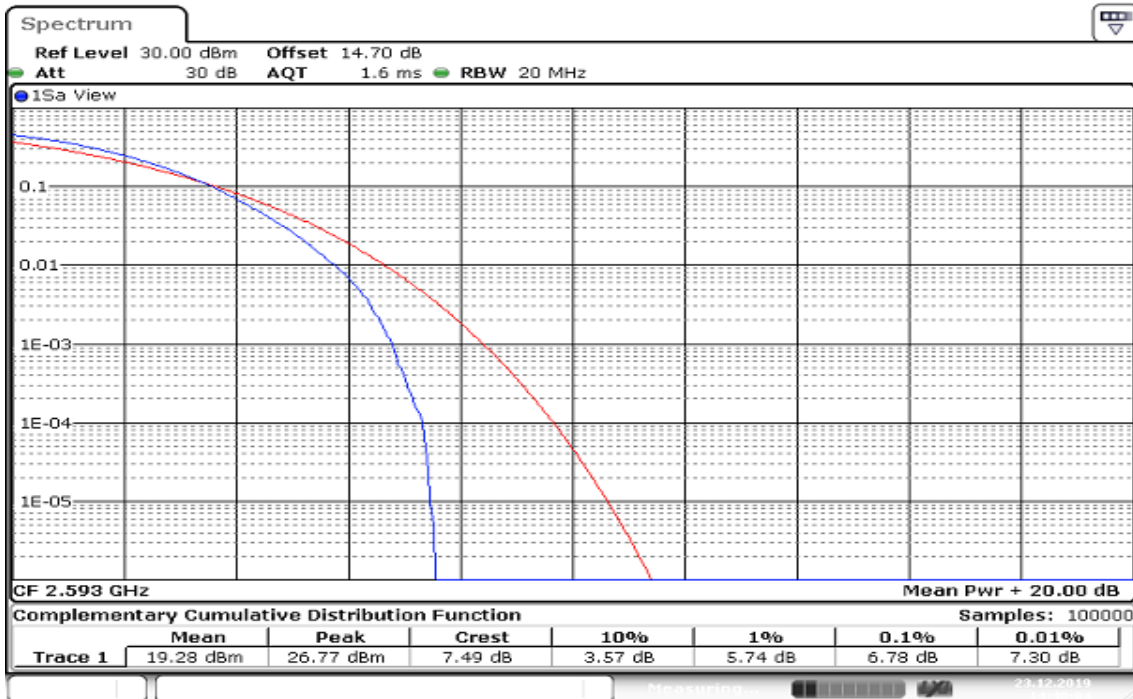
Date: 23.DEC.2019 14:34:23

## CHANNEL BANDWIDTH: 15MHz / 16QAM / Full RB



Date: 23.DEC.2019 14:37:04

## CHANNEL BANDWIDTH: 20MHz / 16QAM / Full RB



Date: 23.DEC.2019 14:40:05

Report No.: T191120D05-RP9

## 8.5 BAND EDGE MEASUREMENT

### LIMIT

#### **Part 27.53(m) (4), Band 41**

Specifies that “for BRS and EBS stations. 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)(4) of this section. In addition, the attenuation factor shall not be less than  $43 + 10 \log (P)$  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.

#### **According to RSS-199, Band 41**

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)  $40 + 10 \log_{10} p$  from the channel edges to 5 MHz away
- (ii)  $43 + 10 \log_{10} p$  between 5 MHz and X MHz from the channel edges, and
- (iii)  $55 + 10 \log_{10} p$  at X MHz and beyond from the channel edges

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

**p** is the transmitter power measured in watts and **X** is 6 MHz or the equipment occupied bandwidth, whichever is greater.

### TEST PROCEDURES

KDB 971168 D01 Power Meas License Digital Systems – Section 6.0

1. RBW  $\geq$  1% of the emission bandwidth
2. VBW  $\geq$  3 x RBW
3. Span was set large enough so as to capture all out of emissions near the band edge.



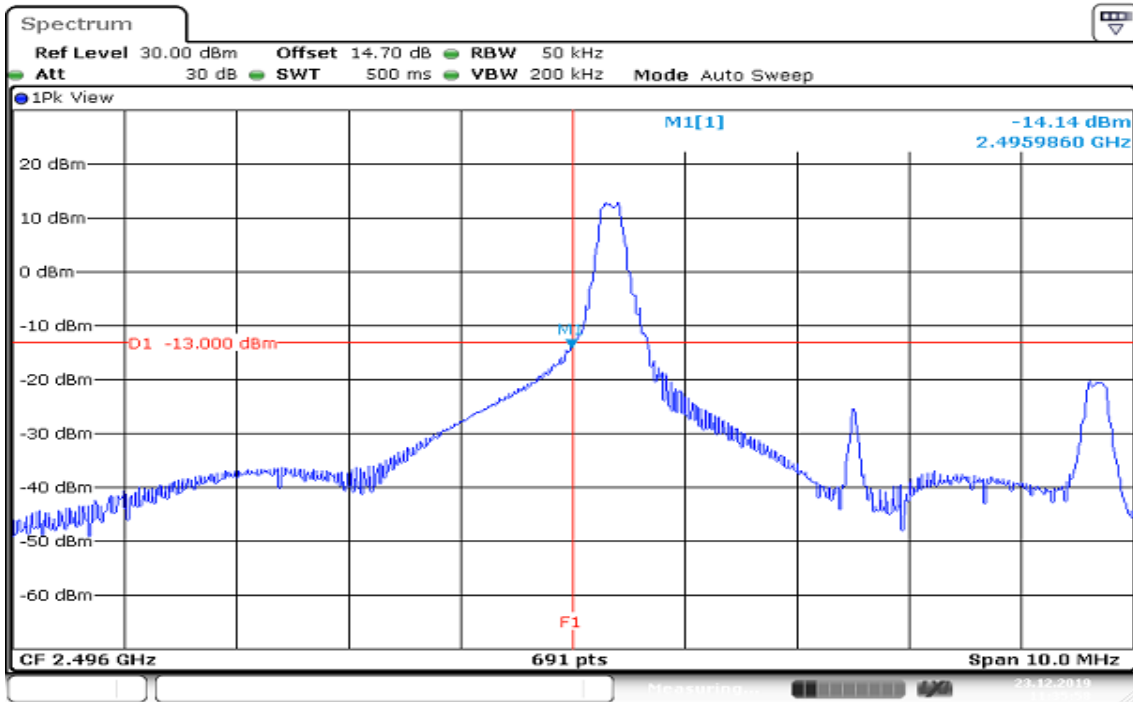
Report No.: T191120D05-RP9

## TEST RESULTS:

### LTE Band 41

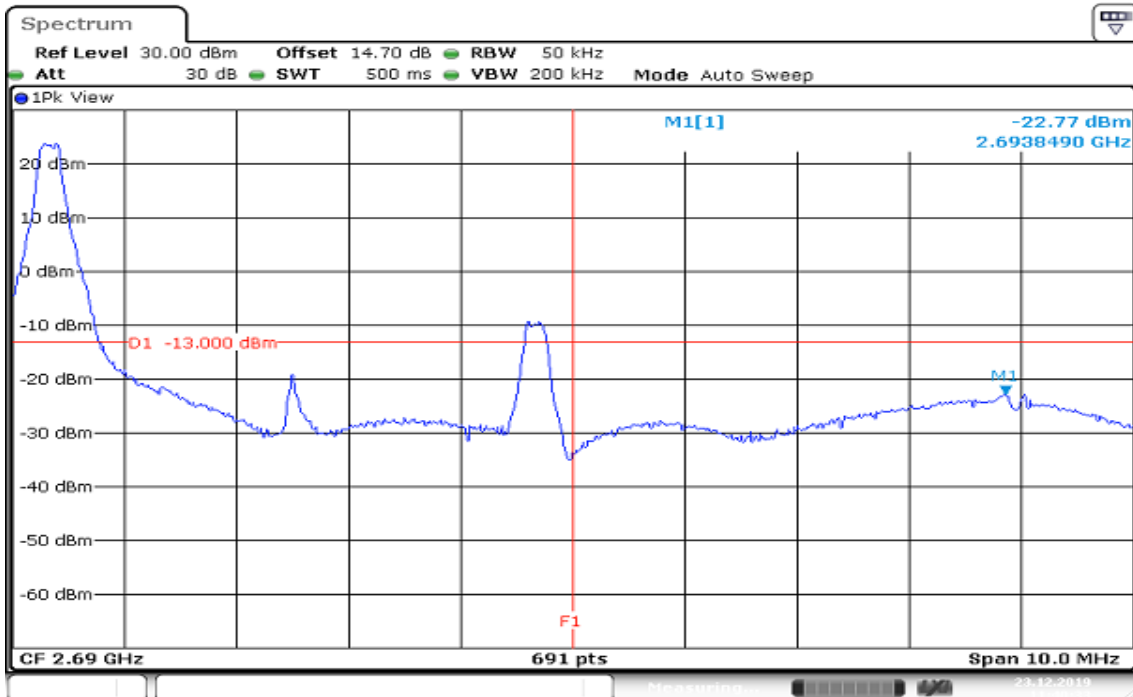
CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB ALLOCATION

### LOWER BAND EDGE



Date: 23. DEC. 2019 11:35:59

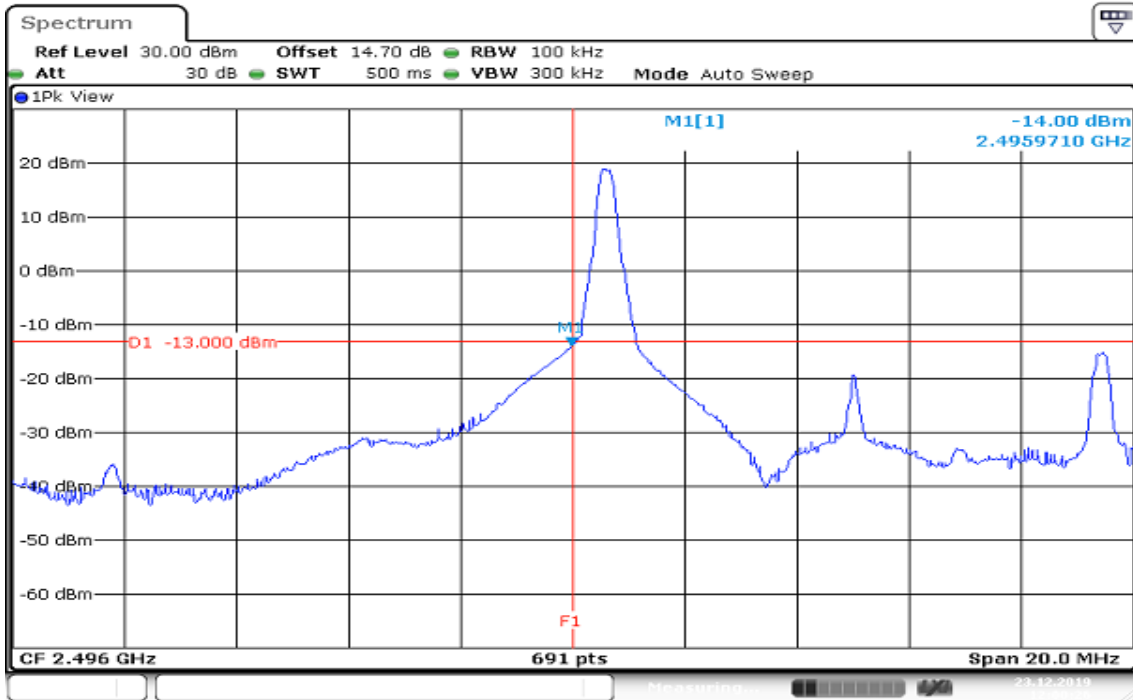
### HIGHER BAND EDGE



Date: 23. DEC. 2019 11:40:33

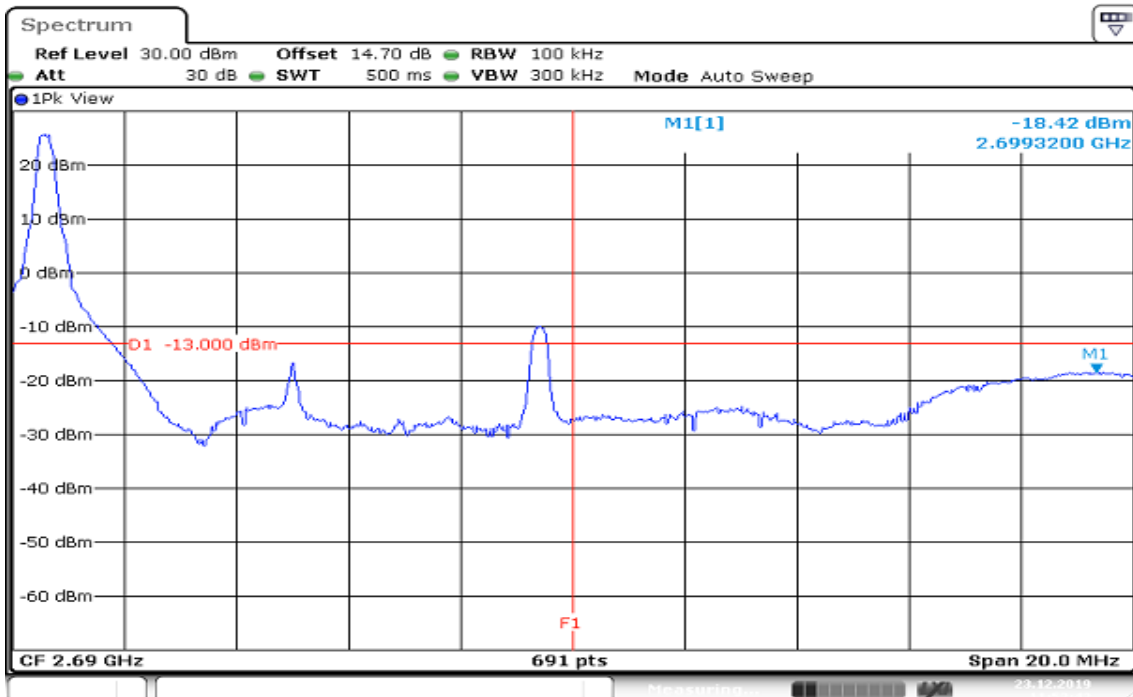
Report No.: T191120D05-RP9

## CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB ALLOCATION LOWER BAND EDGE



Date: 23.DEC.2019 12:00:26

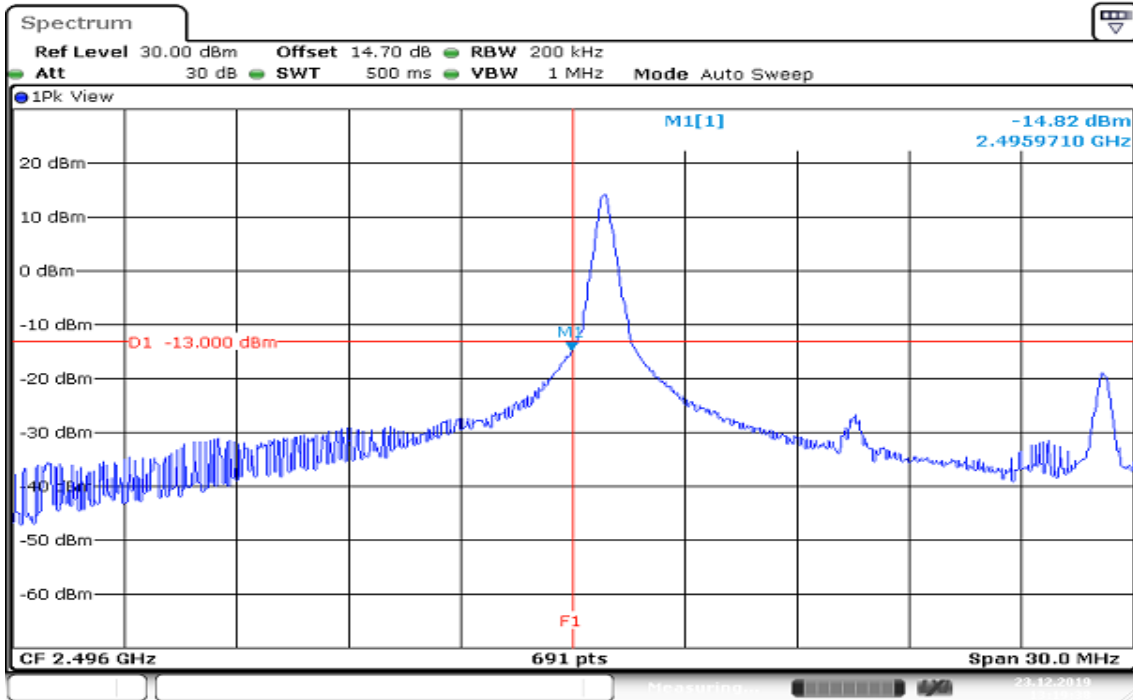
## HIGHER BAND EDGE



Date: 23.DEC.2019 11:59:44

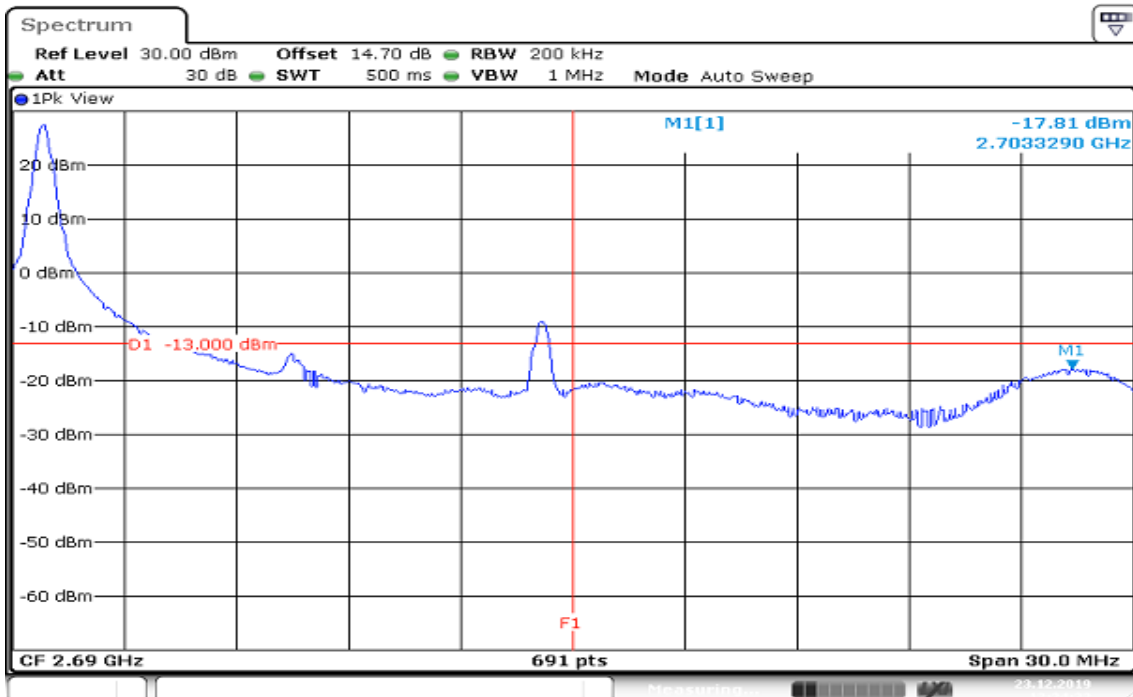
Report No.: T191120D05-RP9

## CHANNEL BANDWIDTH: 15MHz / QPSK / 1RB ALLOCATION LOWER BAND EDGE



Date: 23.DEC.2019 13:19:38

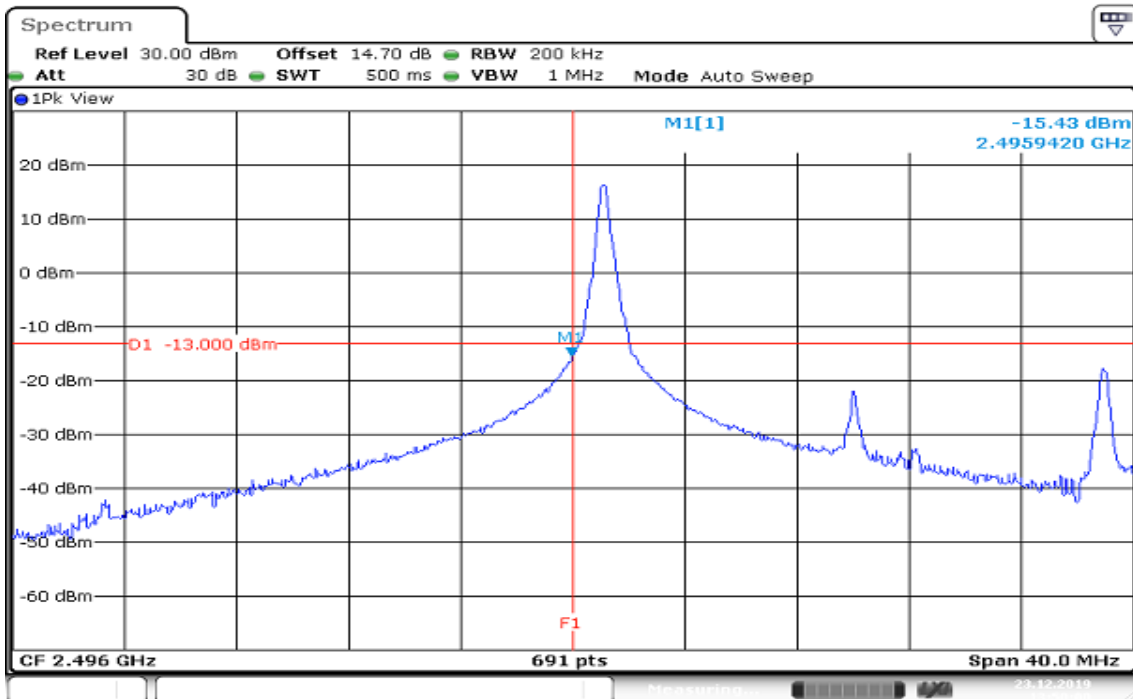
## HIGHER BAND EDGE



Date: 23.DEC.2019 13:24:33

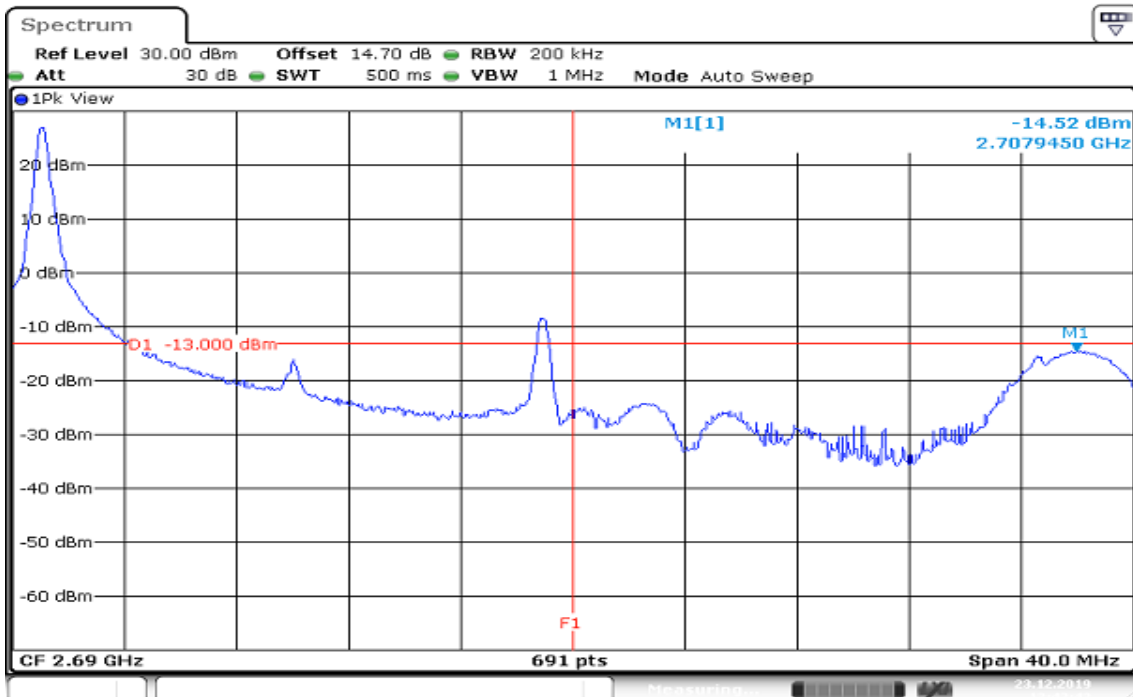
Report No.: T191120D05-RP9

## CHANNEL BANDWIDTH: 20MHz / QPSK / 1RB ALLOCATION LOWER BAND EDGE



Date: 23.DEC.2019 13:50:00

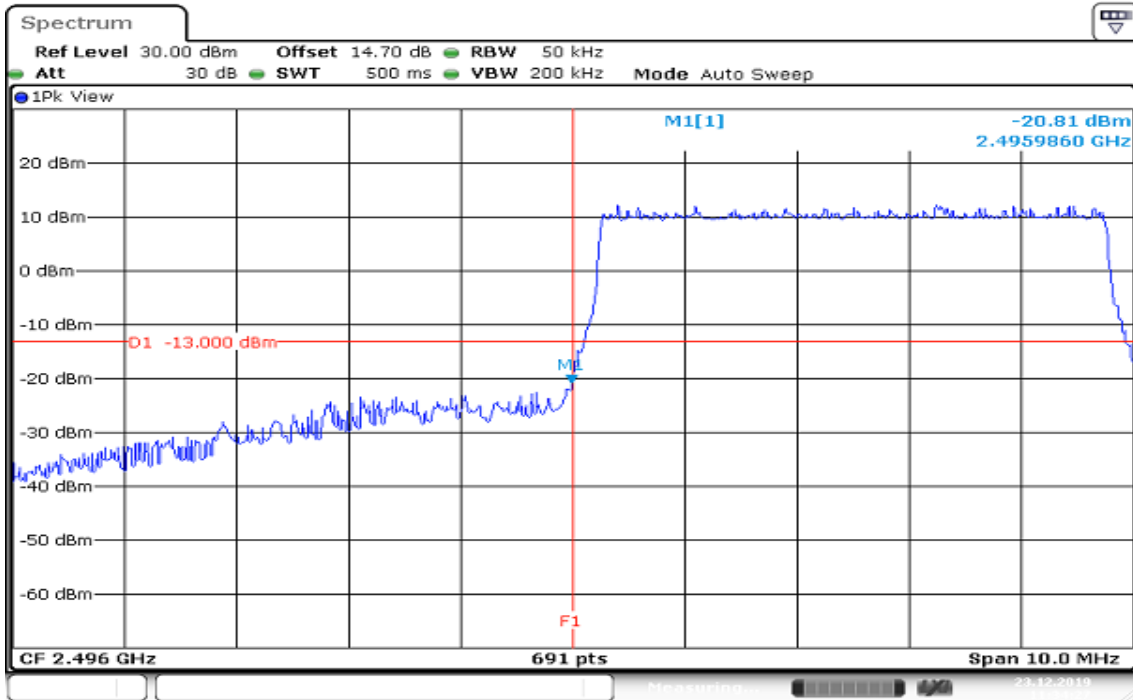
## HIGHER BAND EDGE



Date: 23.DEC.2019 13:42:43

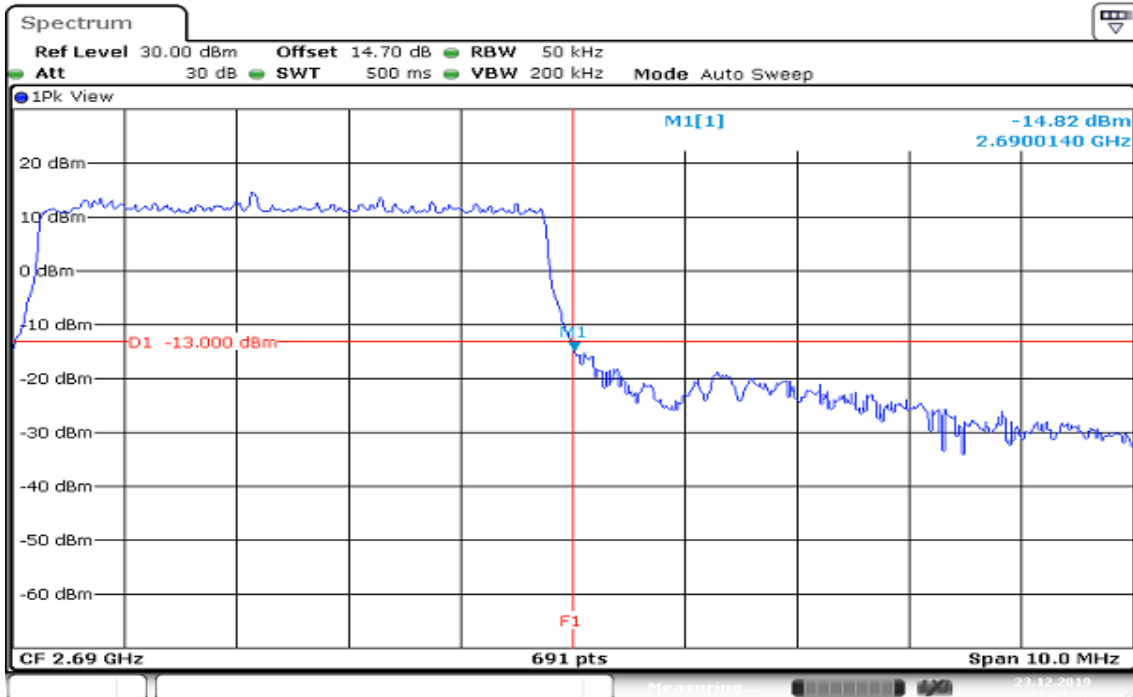
Report No.: T191120D05-RP9

## CHANNEL BANDWIDTH: 5MHz / QPSK / FULLRB ALLOCATION LOWER BAND EDGE



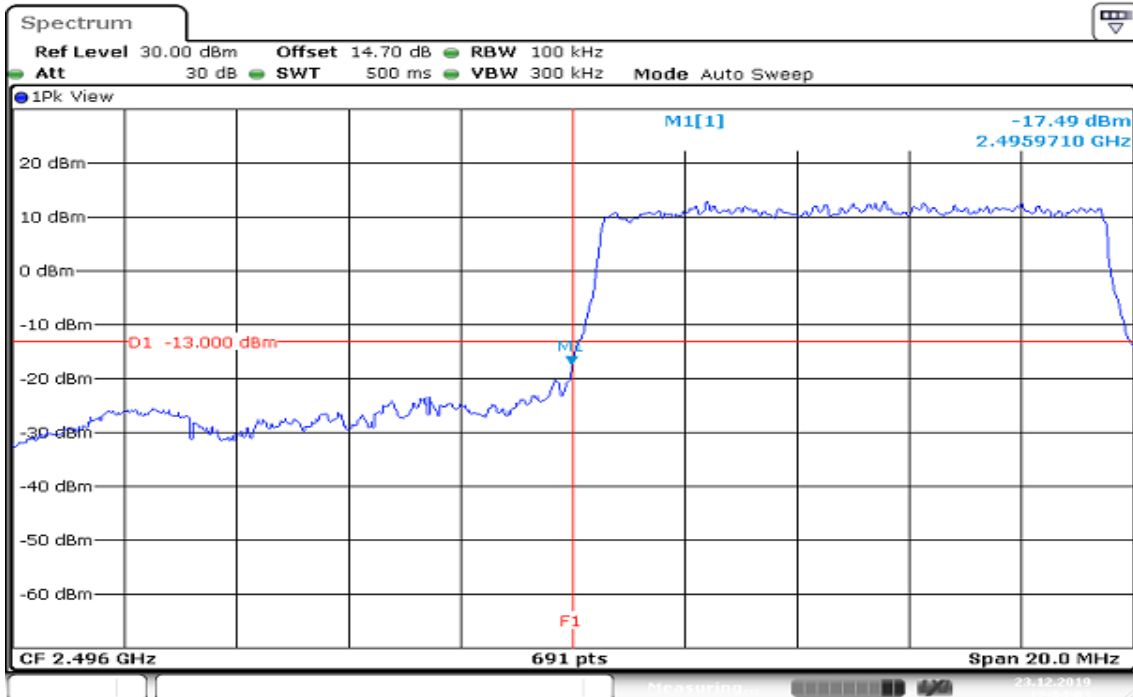
Date: 23.DEC.2019 11:34:27

## HIGHER BAND EDGE



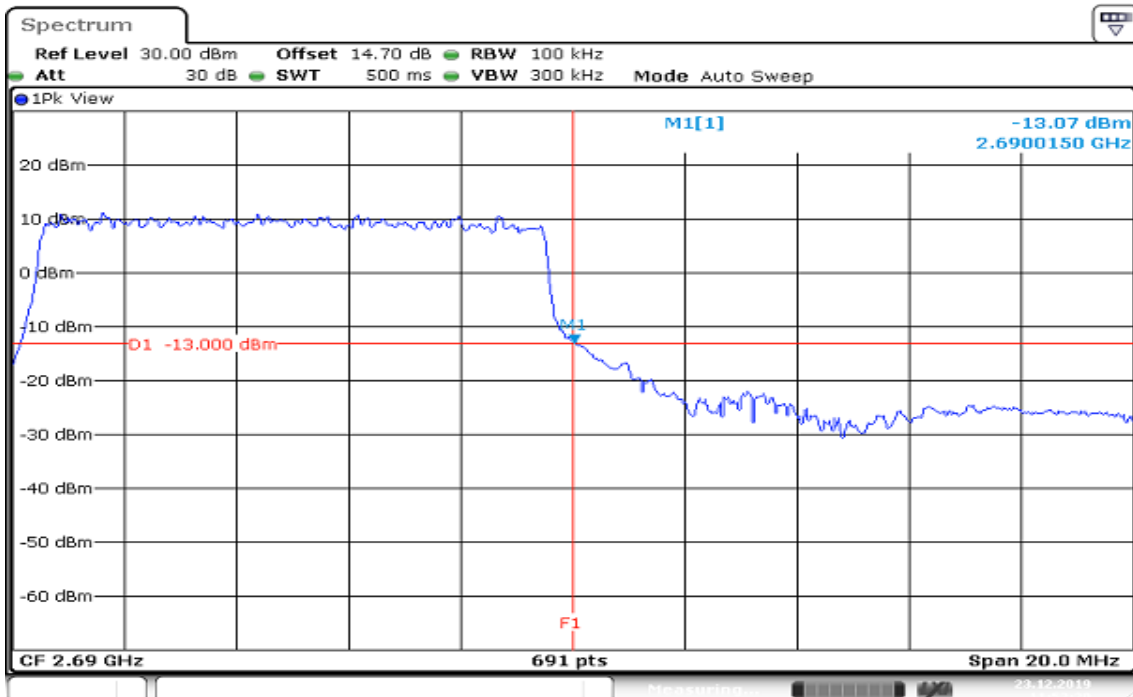
Date: 23.DEC.2019 11:41:32

## CHANNEL BANDWIDTH: 10MHz / QPSK / FULLRB ALLOCATION LOWER BAND EDGE



Date: 23.DEC.2019 12:04:03

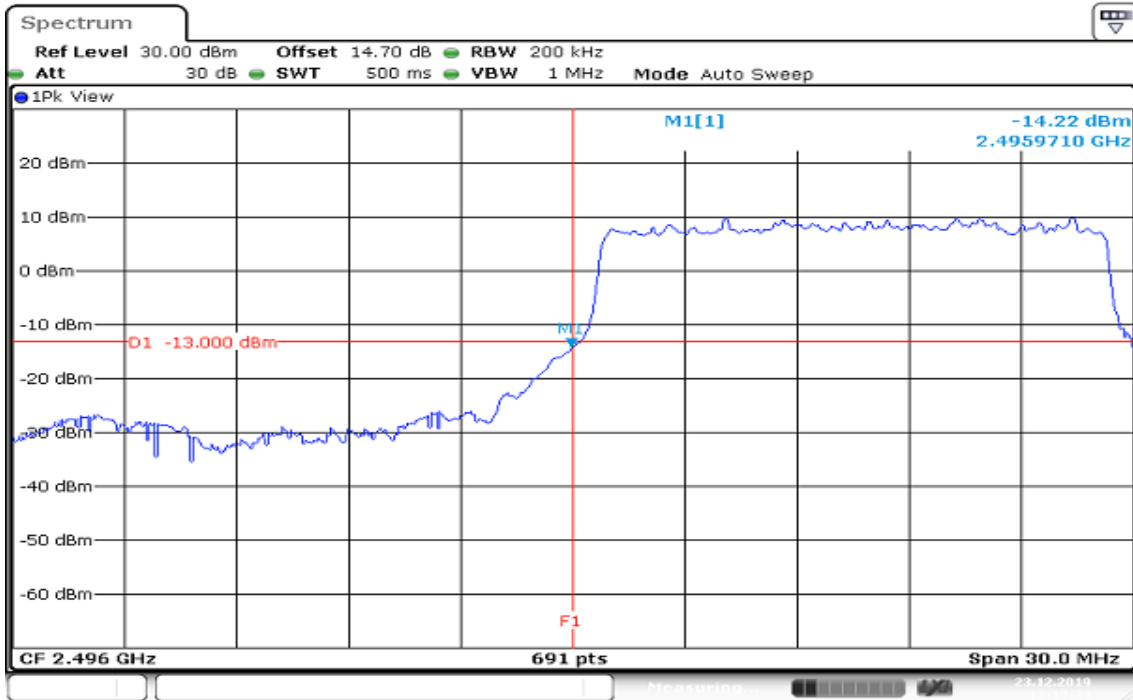
## HIGHER BAND EDGE



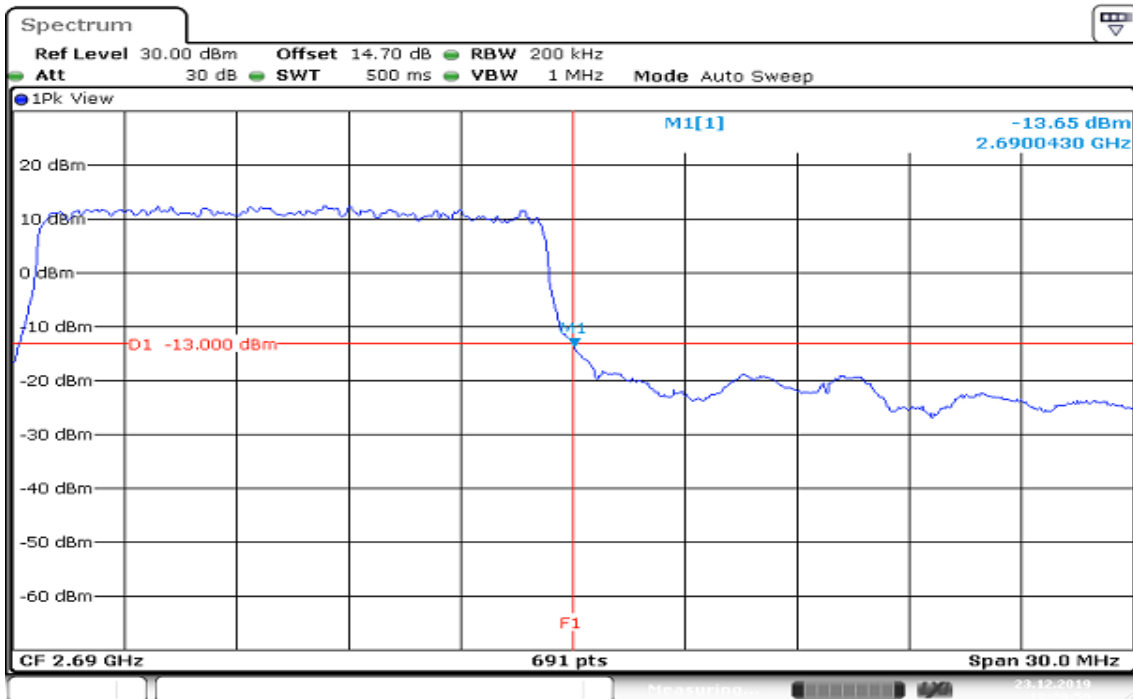
Date: 23.DEC.2019 11:52:21

Report No.: T191120D05-RP9

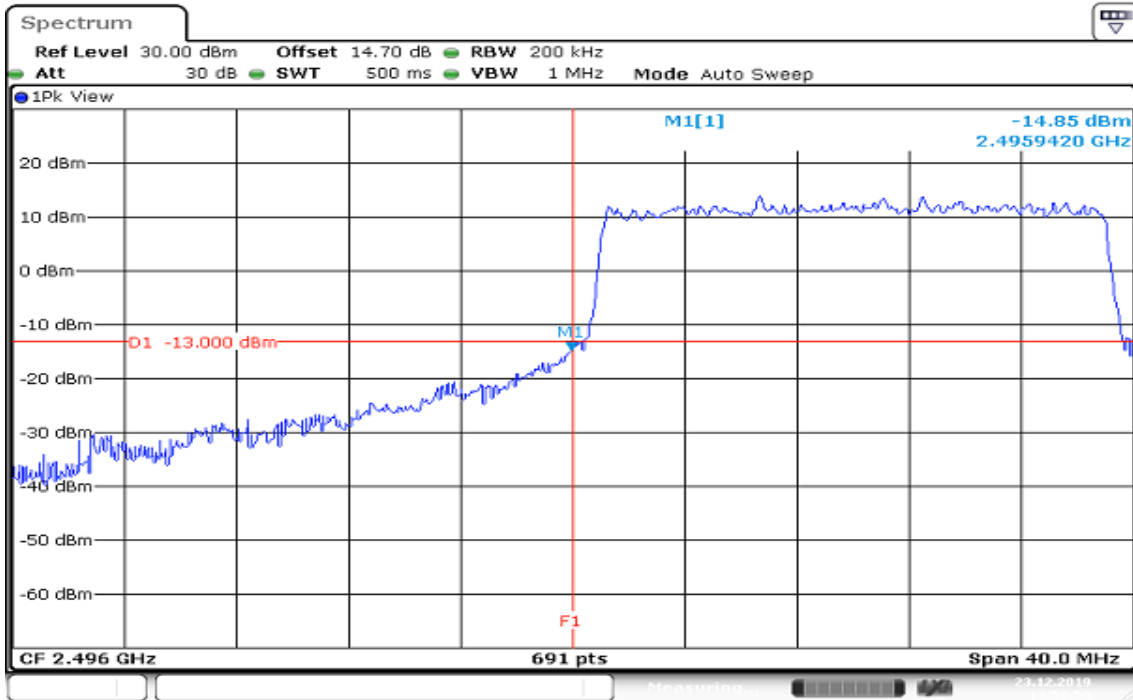
## CHANNEL BANDWIDTH: 15MHz / QPSK / FULLRB ALLOCATION LOWER BAND EDGE



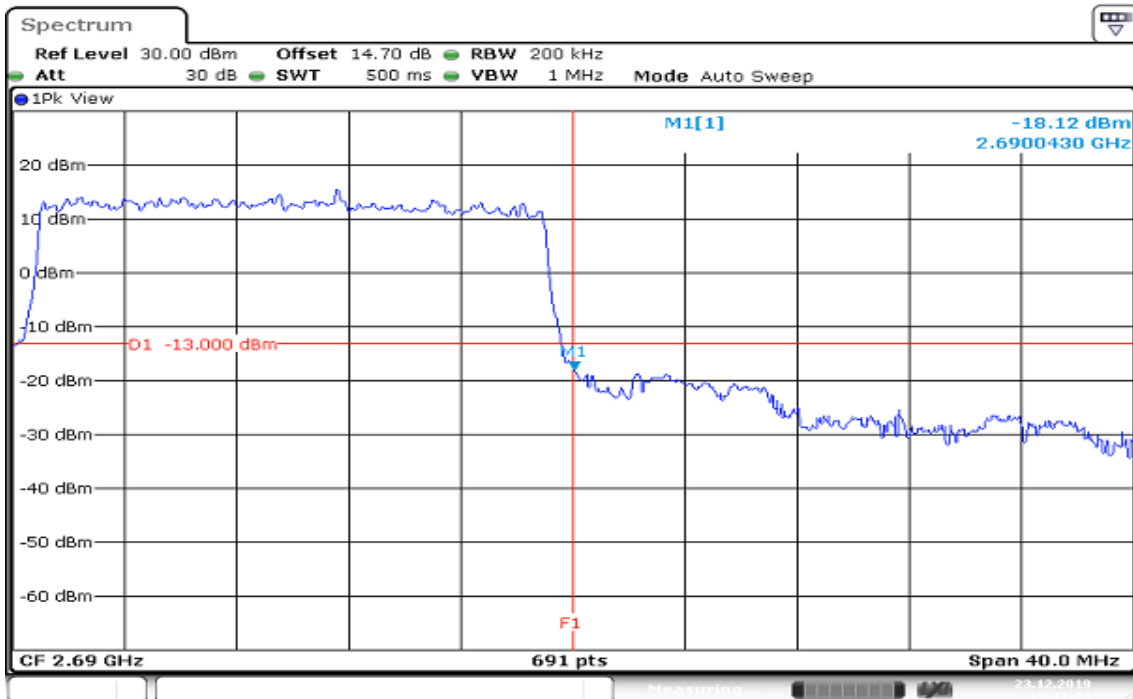
## HIGHER BAND EDGE



## CHANNEL BANDWIDTH: 20MHz / QPSK / FULLRB ALLOCATION LOWER BAND EDGE



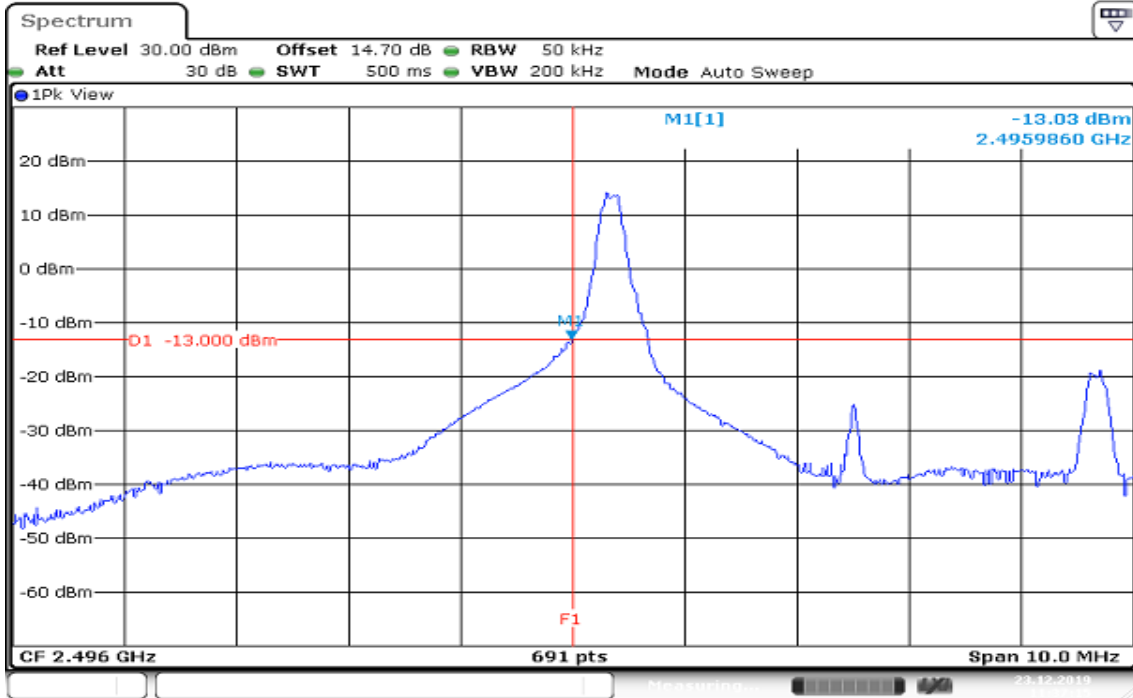
## HIGHER BAND EDGE



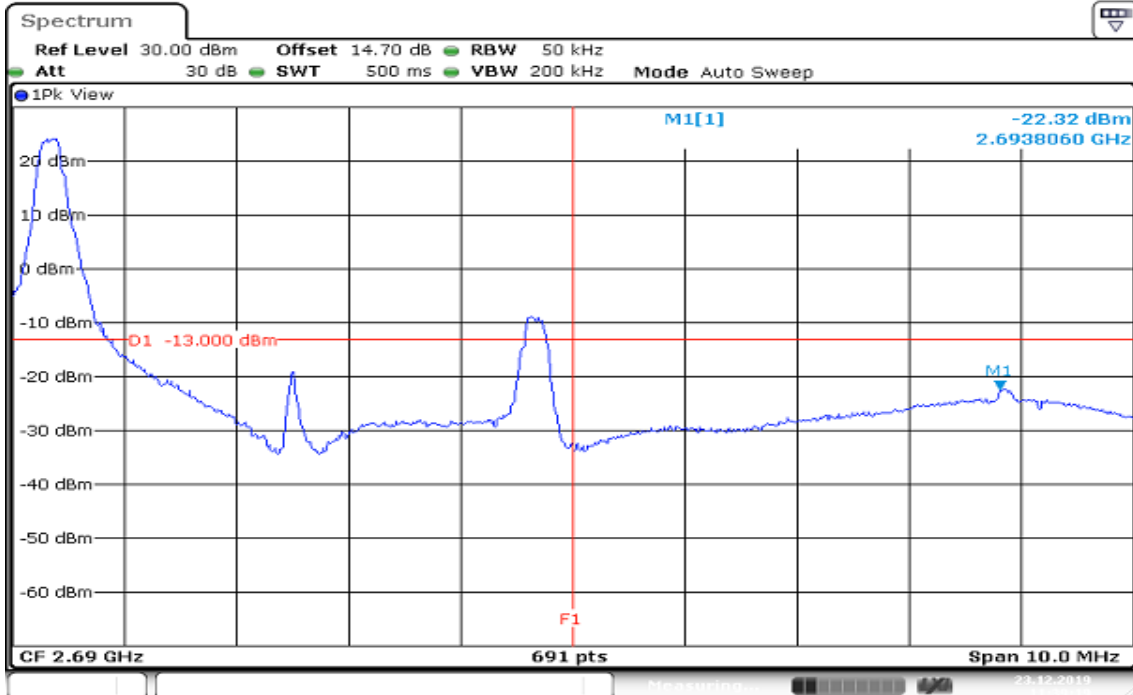


Report No.: T191120D05-RP9

## CHANNEL BANDWIDTH: 5MHz / 16QAM/ 1RB ALLOCATION LOWER BAND EDGE

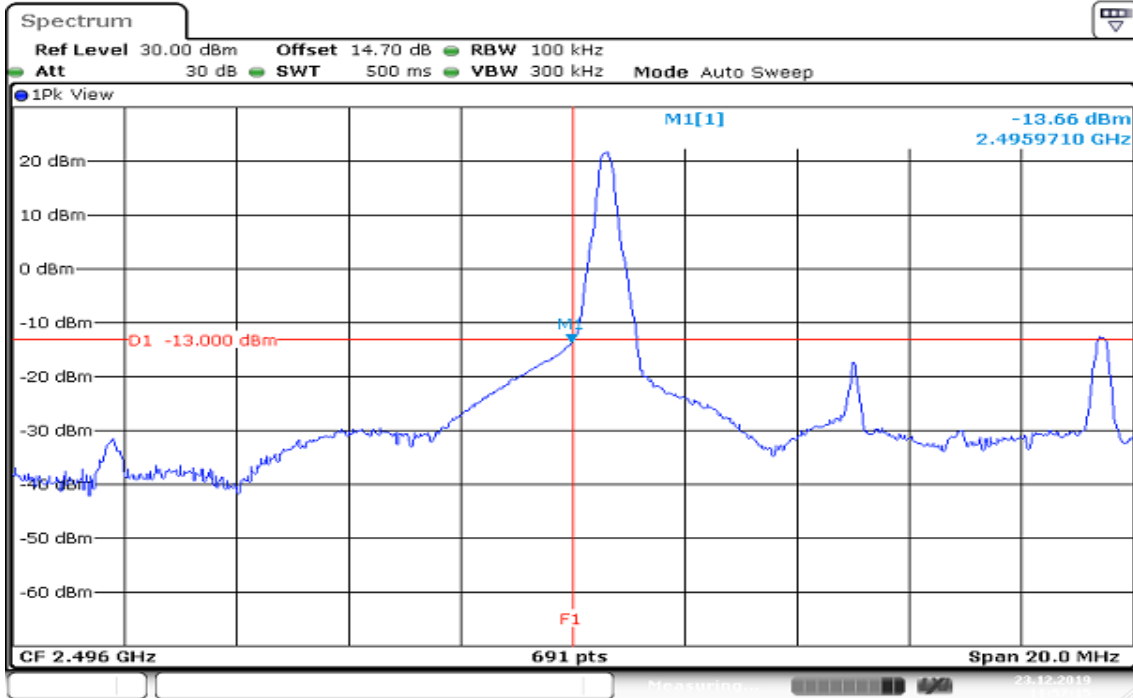


## HIGHER BAND EDGE



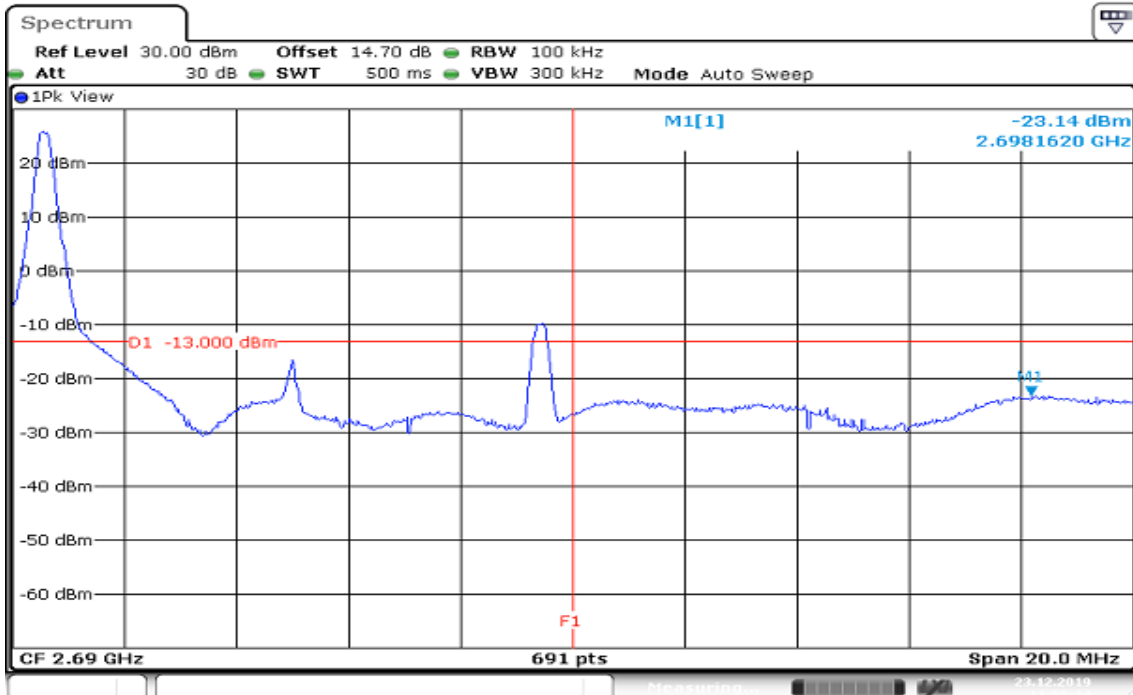
Report No.: T191120D05-RP9

## CHANNEL BANDWIDTH: 10MHz / 16QAM/ 1RB ALLOCATION LOWER BAND EDGE



Date: 23.DEC.2019 11:57:15

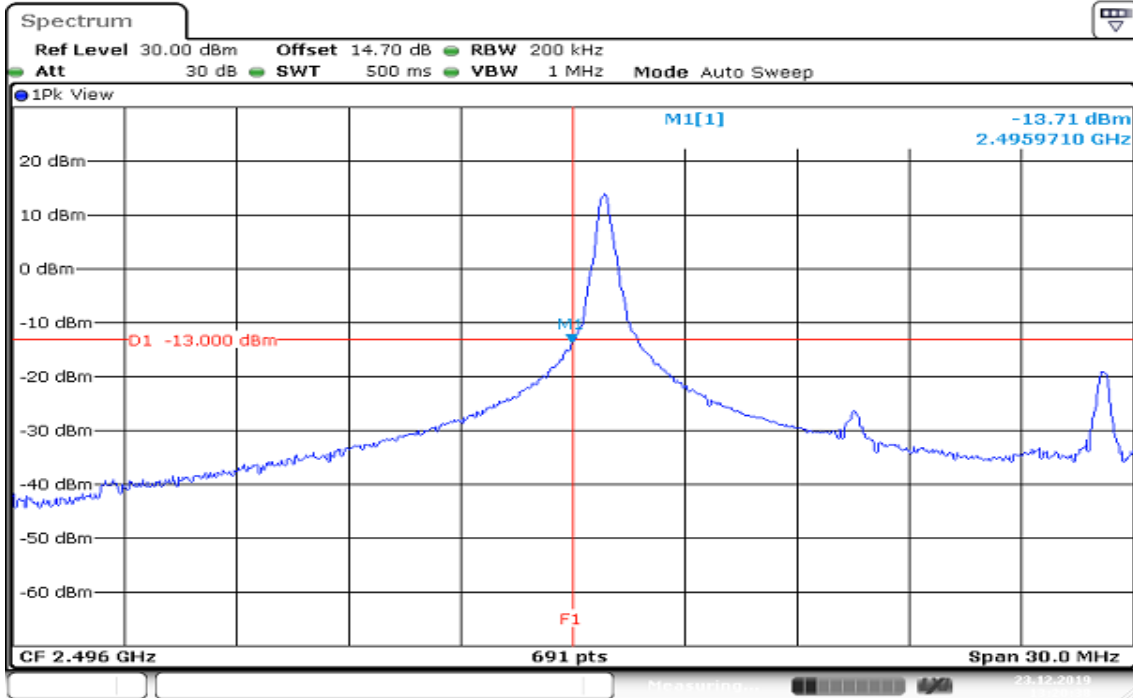
## HIGHER BAND EDGE



Date: 23.DEC.2019 11:55:14

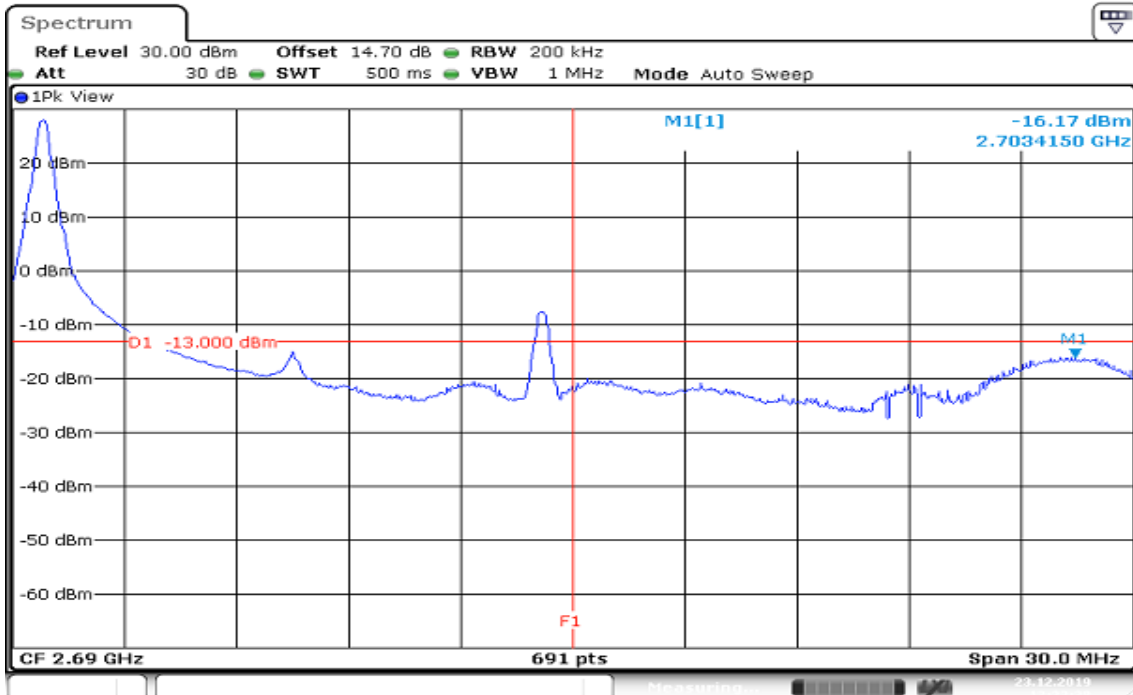
Report No.: T191120D05-RP9

## CHANNEL BANDWIDTH: 15MHz / 16QAM/ 1RB ALLOCATION LOWER BAND EDGE



Date: 23.DEC.2019 13:20:39

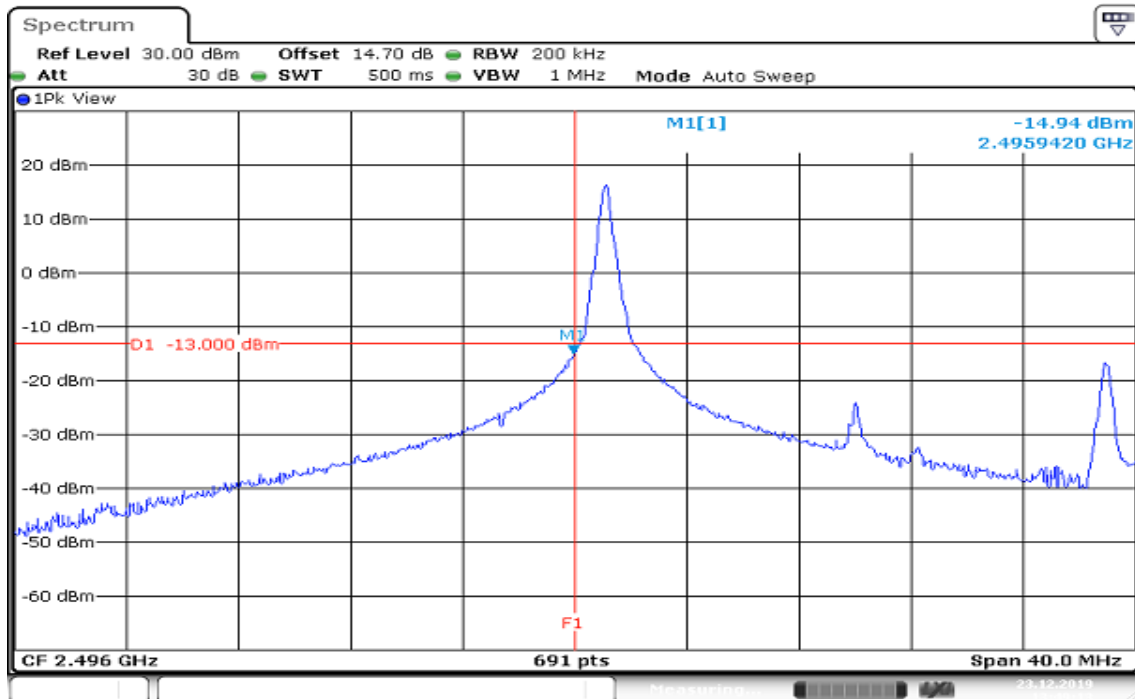
## HIGHER BAND EDGE



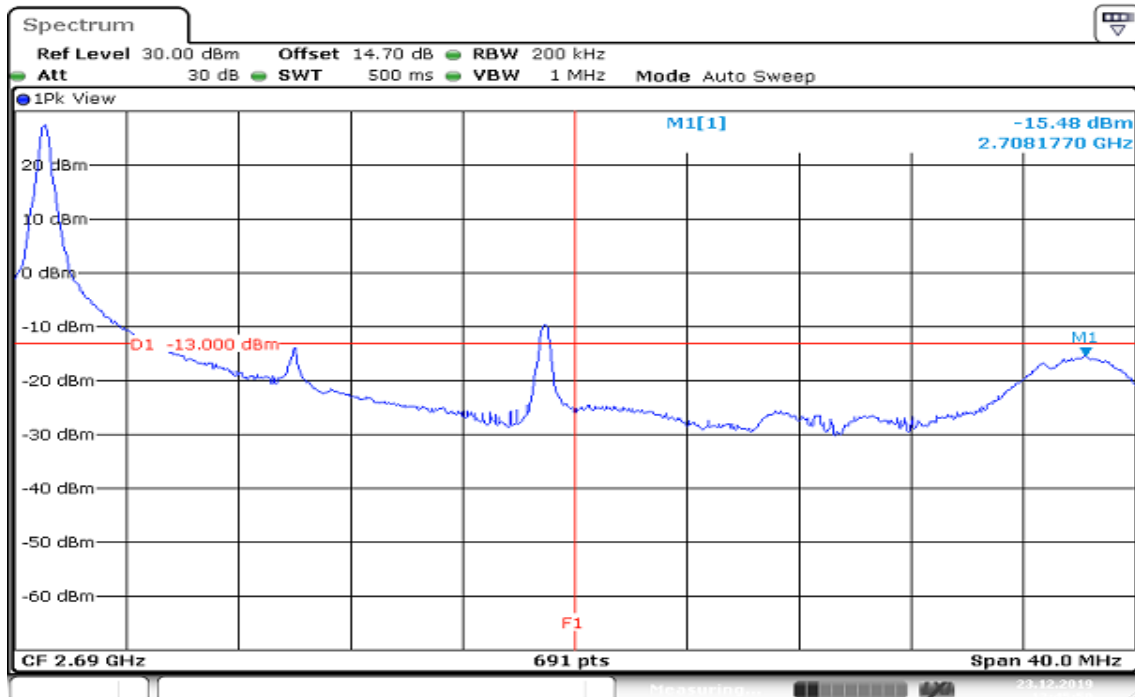
Date: 23.DEC.2019 13:23:38

Report No.: T191120D05-RP9

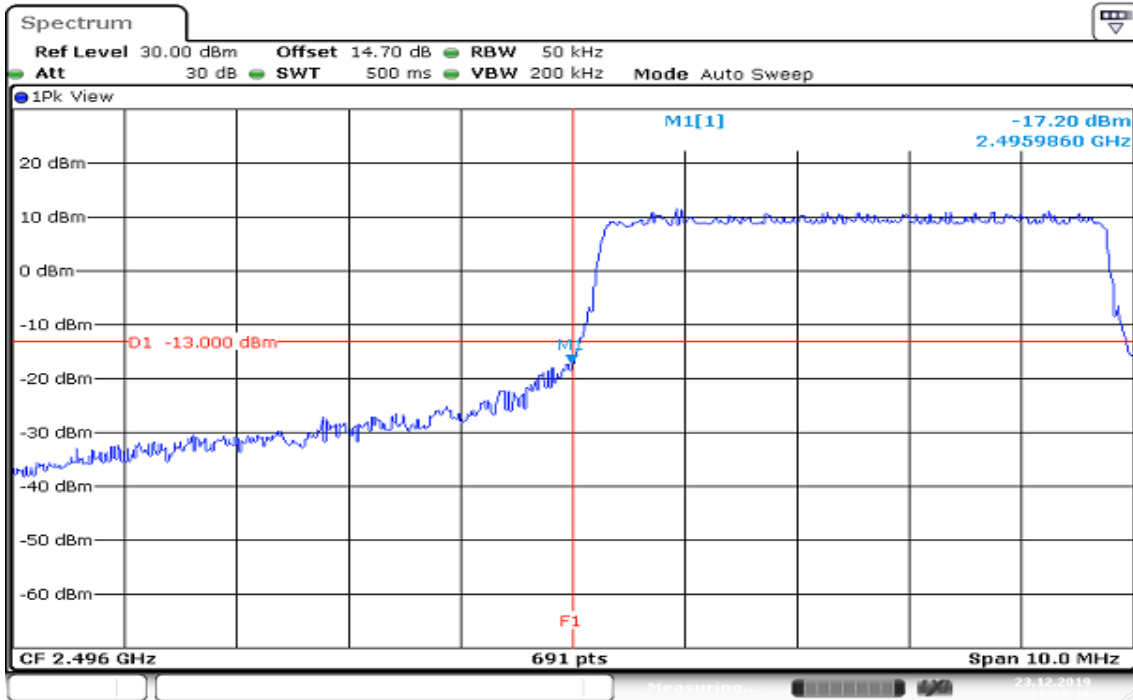
## CHANNEL BANDWIDTH: 20MHz / 16QAM/ 1RB ALLOCATION LOWER BAND EDGE



## HIGHER BAND EDGE

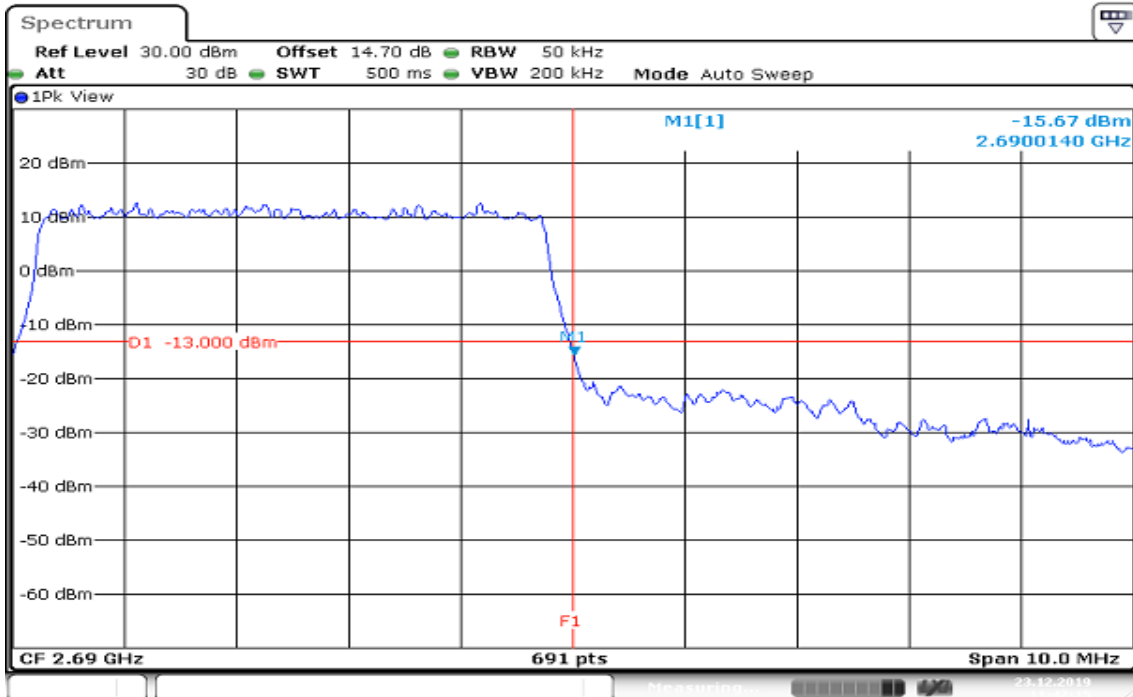


## CHANNEL BANDWIDTH: 5MHz / 16QAM/ FULLRB ALLOCATION LOWER BAND EDGE



Date: 23.DEC.2019 11:33:16

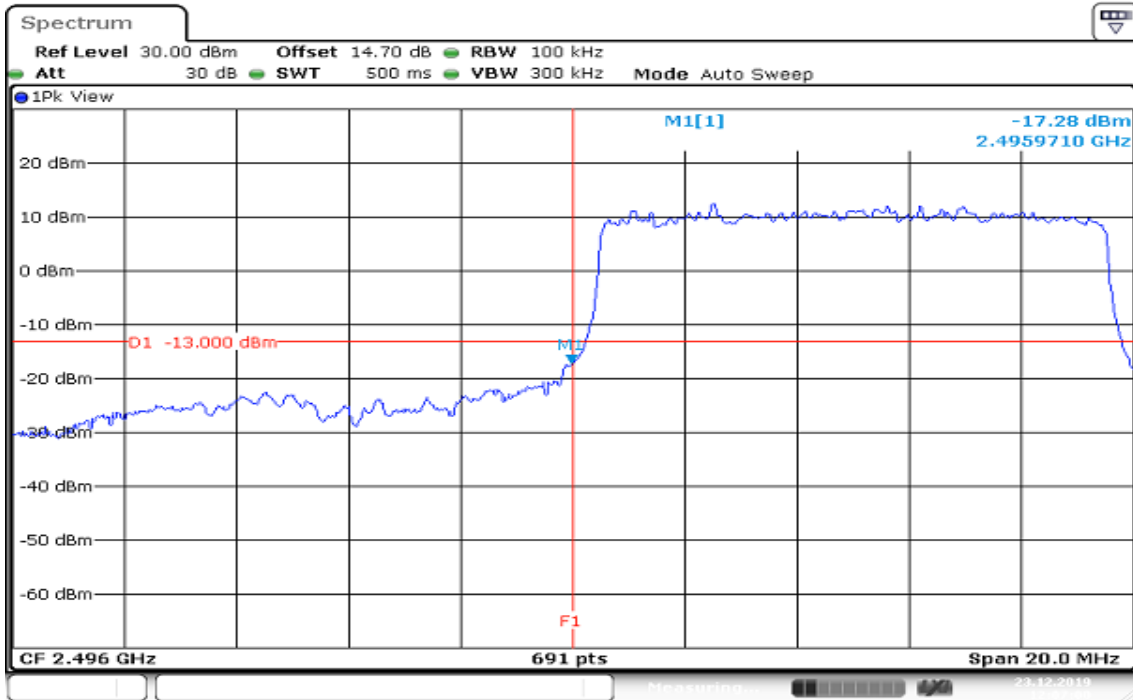
## HIGHER BAND EDGE



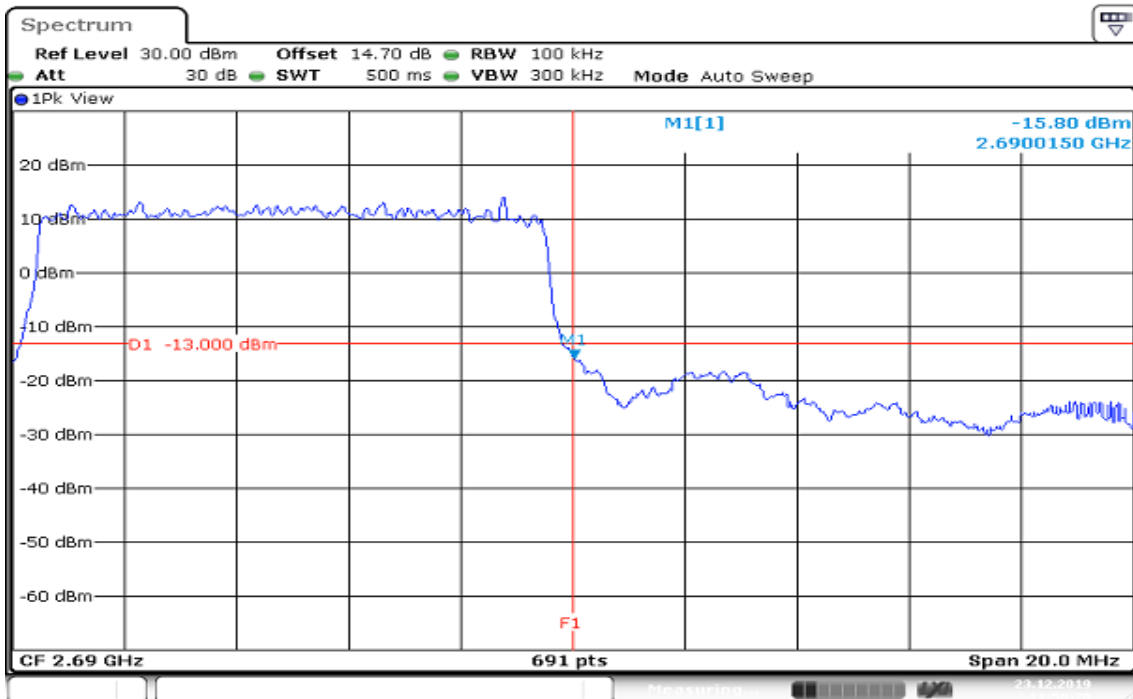
Date: 23.DEC.2019 11:47:16

Report No.: T191120D05-RP9

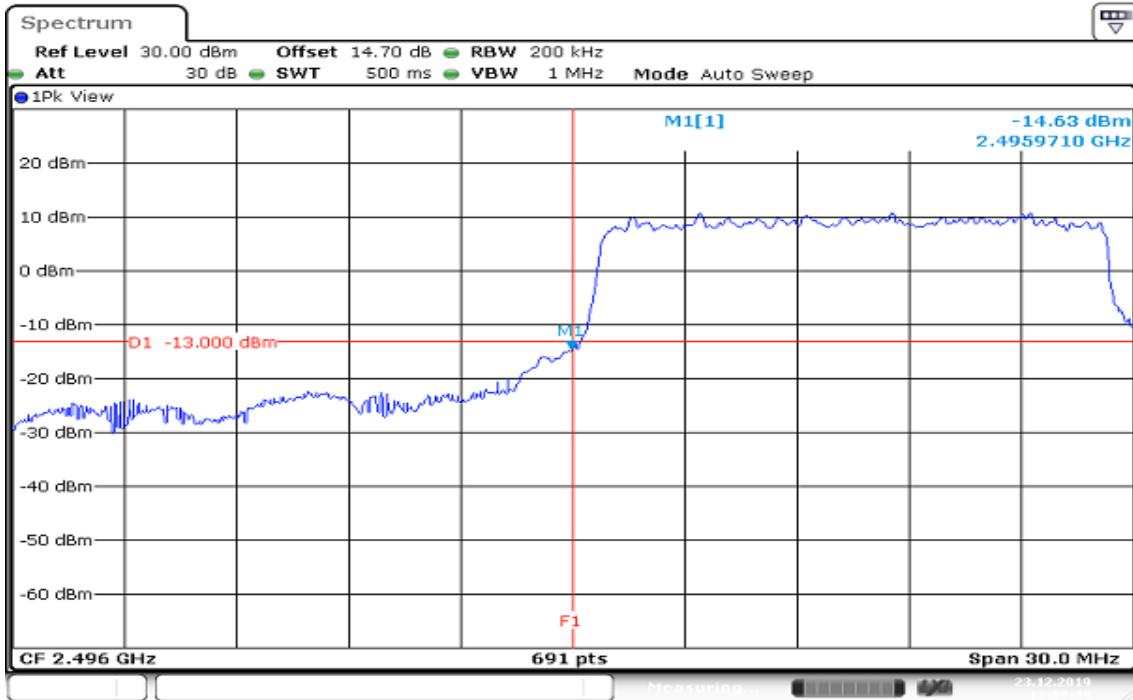
## CHANNEL BANDWIDTH: 10MHz / 16QAM/ FULLRB ALLOCATION LOWER BAND EDGE



## HIGHER BAND EDGE

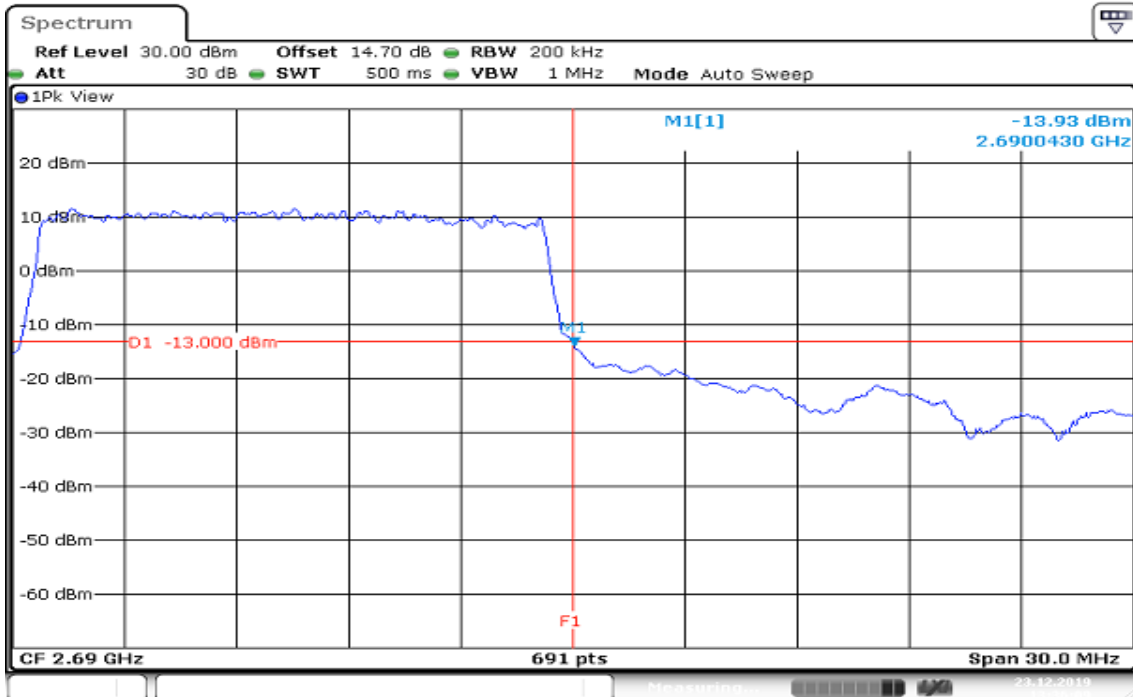


## CHANNEL BANDWIDTH: 15MHz / 16QAM/ FULLRB ALLOCATION LOWER BAND EDGE



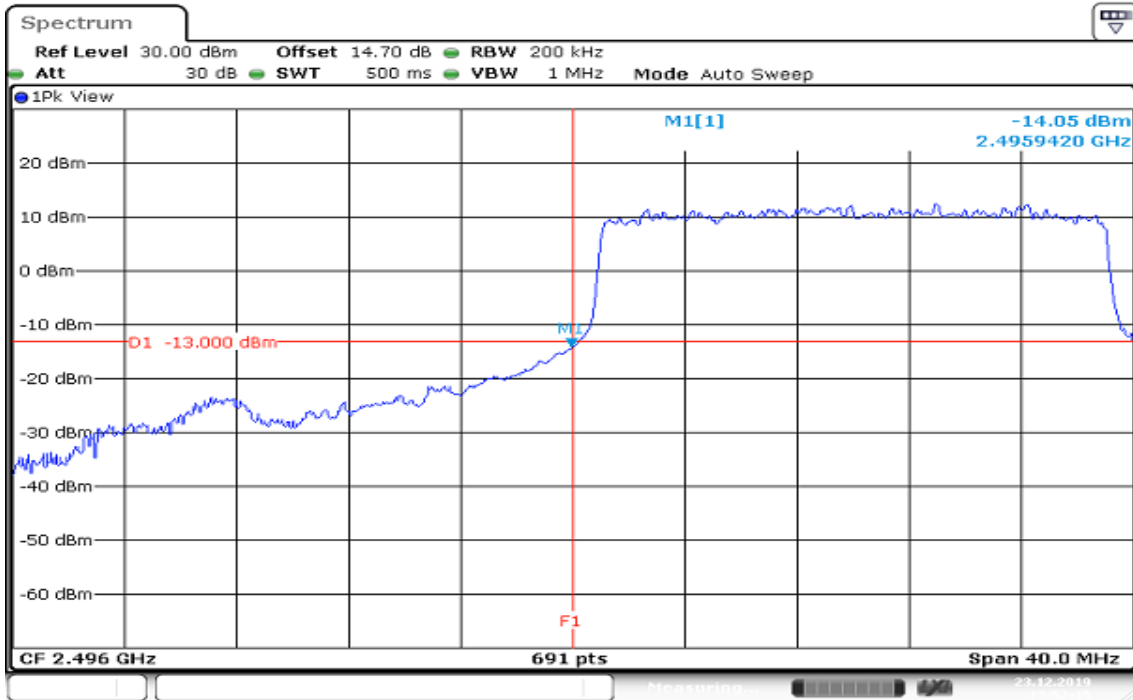
Date: 23.DEC.2019 12:09:49

## HIGHER BAND EDGE



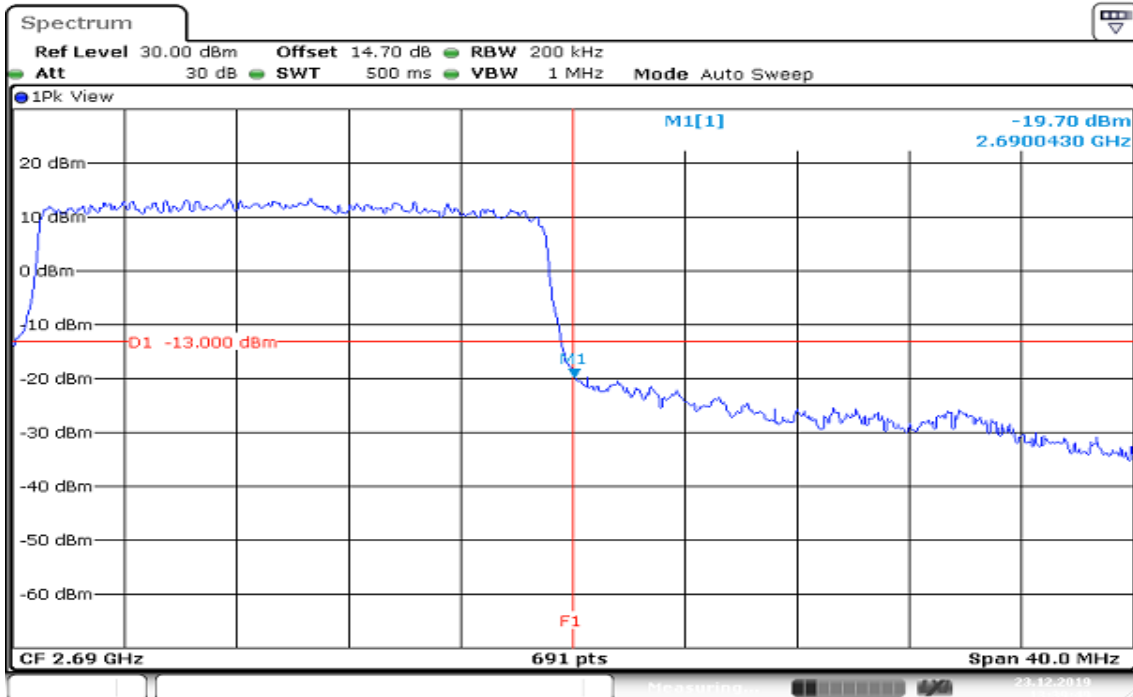
Date: 23.DEC.2019 13:36:10

## CHANNEL BANDWIDTH: 20MHz / 16QAM/ FULLRB ALLOCATION LOWER BAND EDGE



Date: 23.DEC.2019 13:52:15

## HIGHER BAND EDGE



Date: 23.DEC.2019 13:39:49



## 8.6 CONDUCTED SPURIOUS EMISSIONS

### LIMITS

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log_{10}(P)$  dB. The limit of emission equal to  $-13\text{dBm}$

### TEST PROCEDURES

1. According to KDB 971168D01, photograph 6.0
2. The EUT was connect to spectrum analyzer and call box.
3. The RF output of EUT was connected to the spectrum analyzer.
4. Set the spectrum analyzer , RBW=1MHz, VBW=3MHz.
5. Record the maximum spurious emission.
6. The fundamental frequency should be excluded against the limit in operating band.

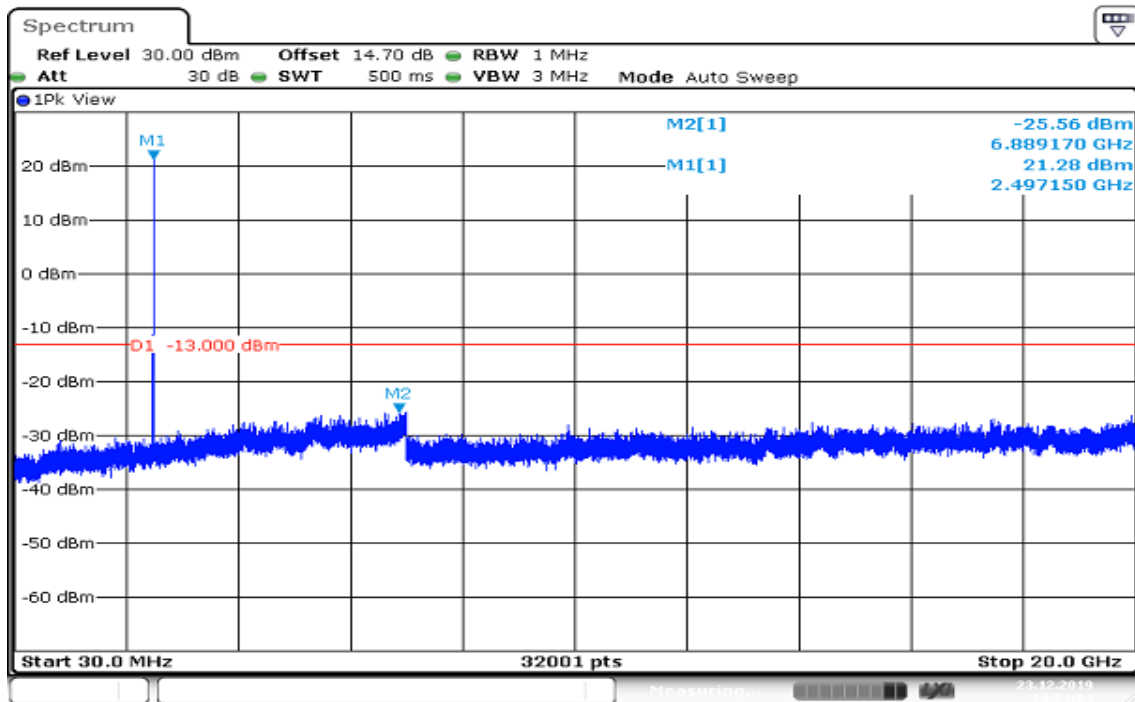
Report No.: T191120D05-RP9

## TEST RESULTS

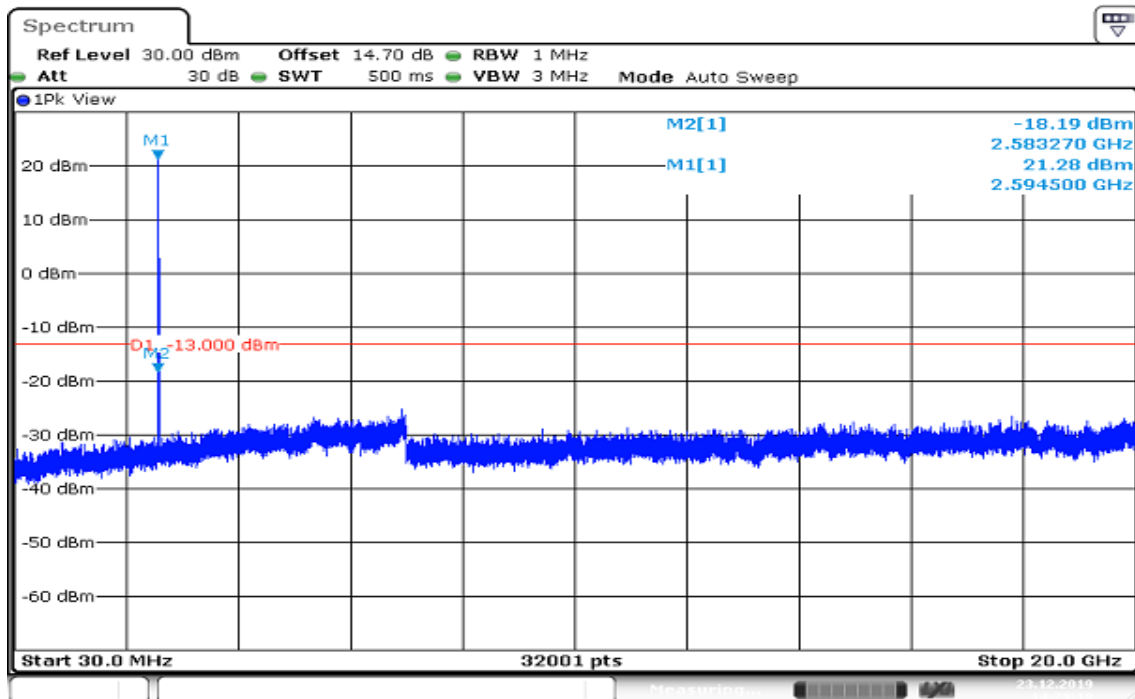
### LTE Band 41

CHANNEL BANDWIDTH: 5MHz /QPSK / 1RB

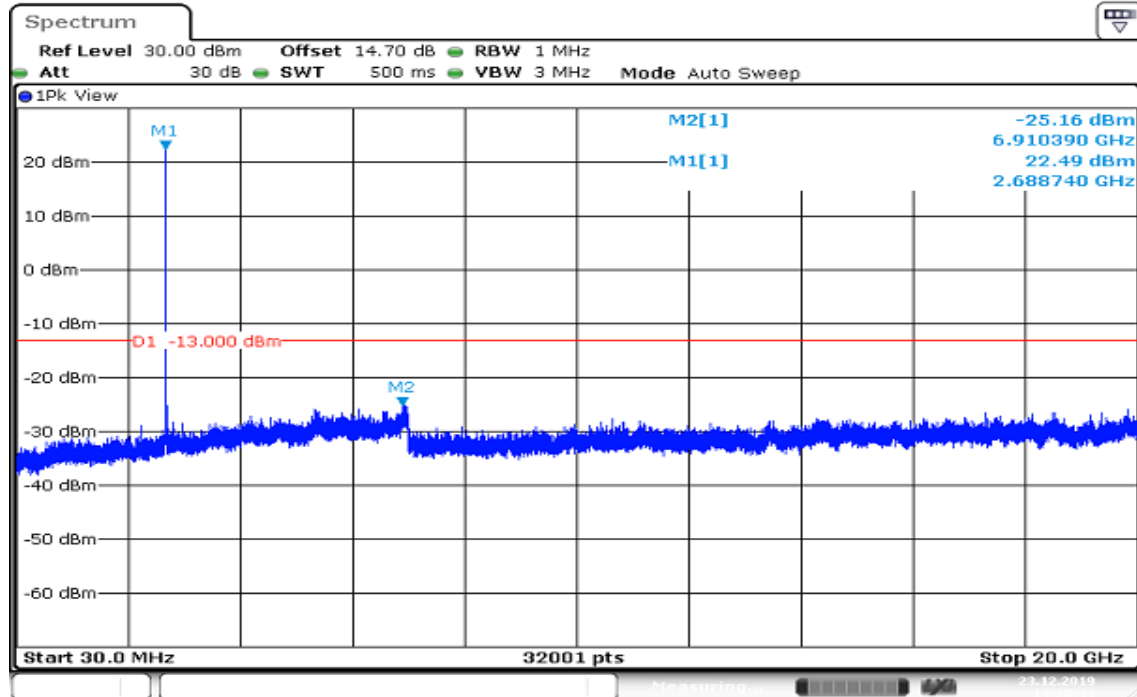
### CH Low



### CH Mid



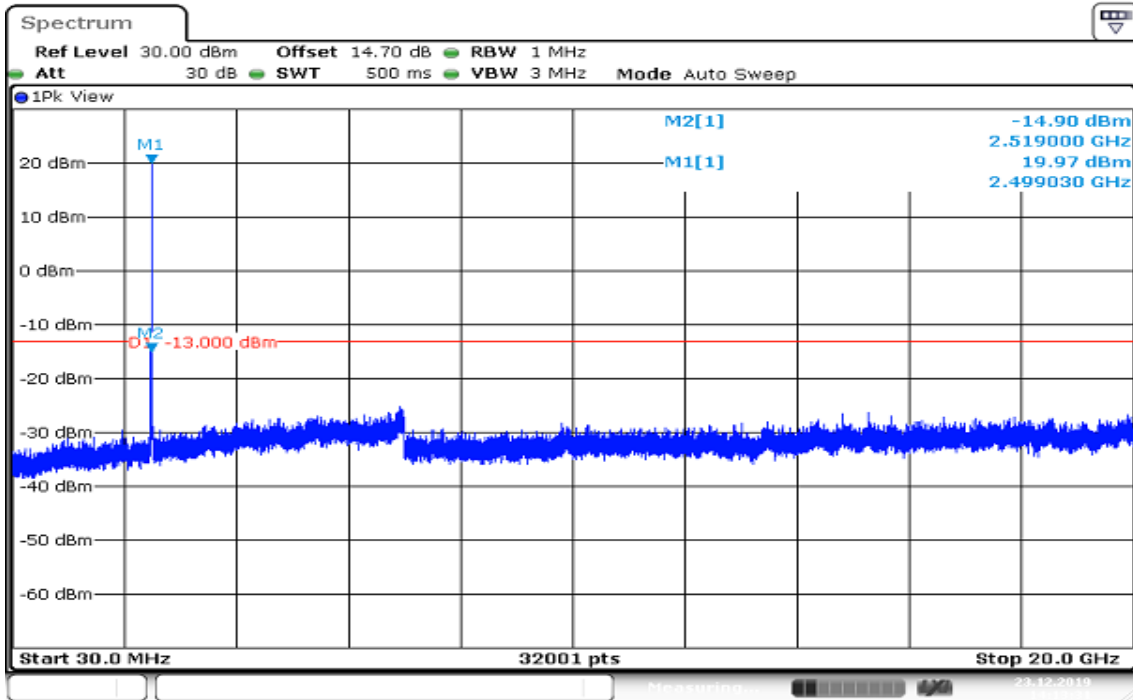
## CH High



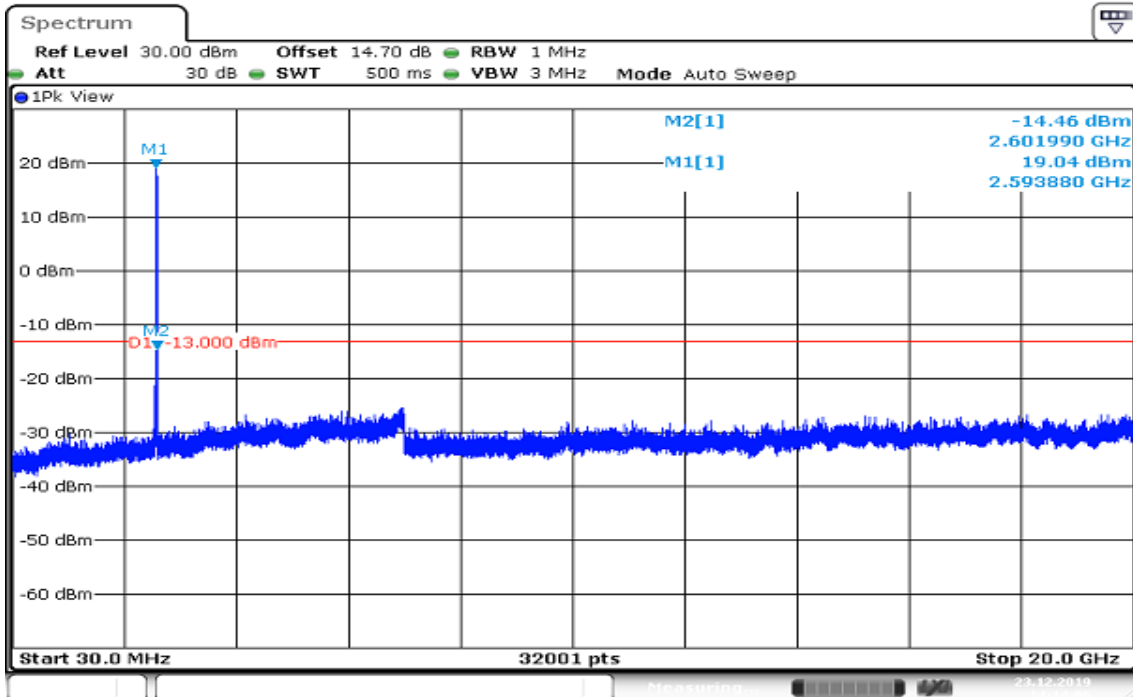
Date: 23.DEC.2019 14:25:41

Report No.: T191120D05-RP9

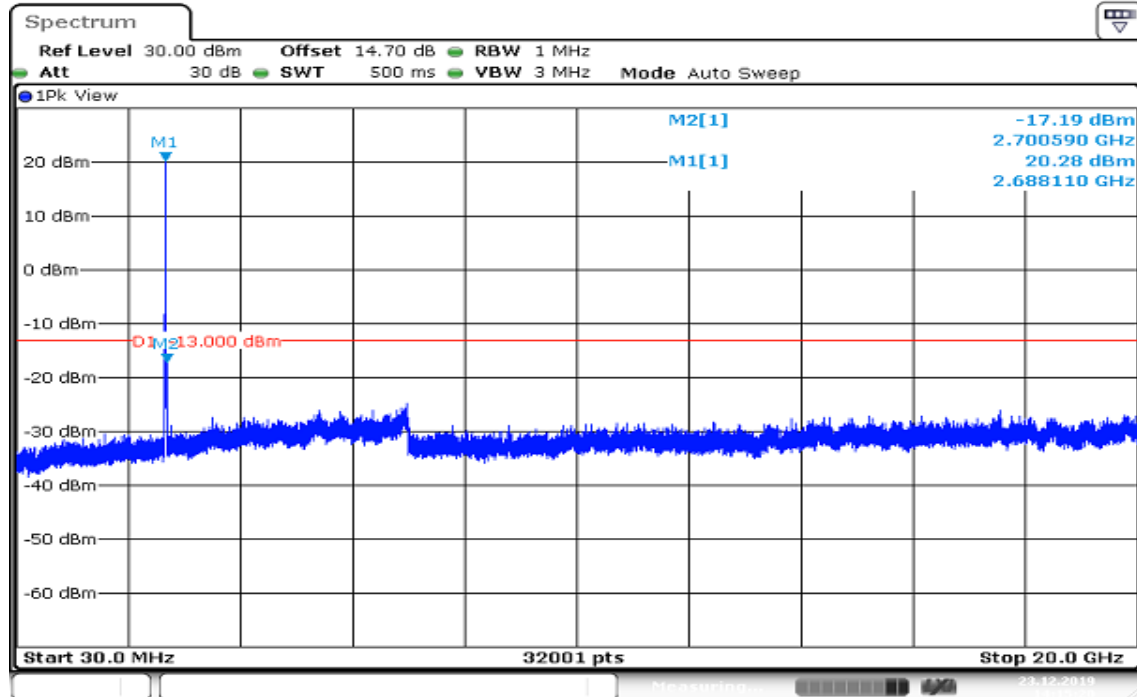
## CHANNEL BANDWIDTH: 10MHz /QPSK / 1RB CH Low



## CH Mid

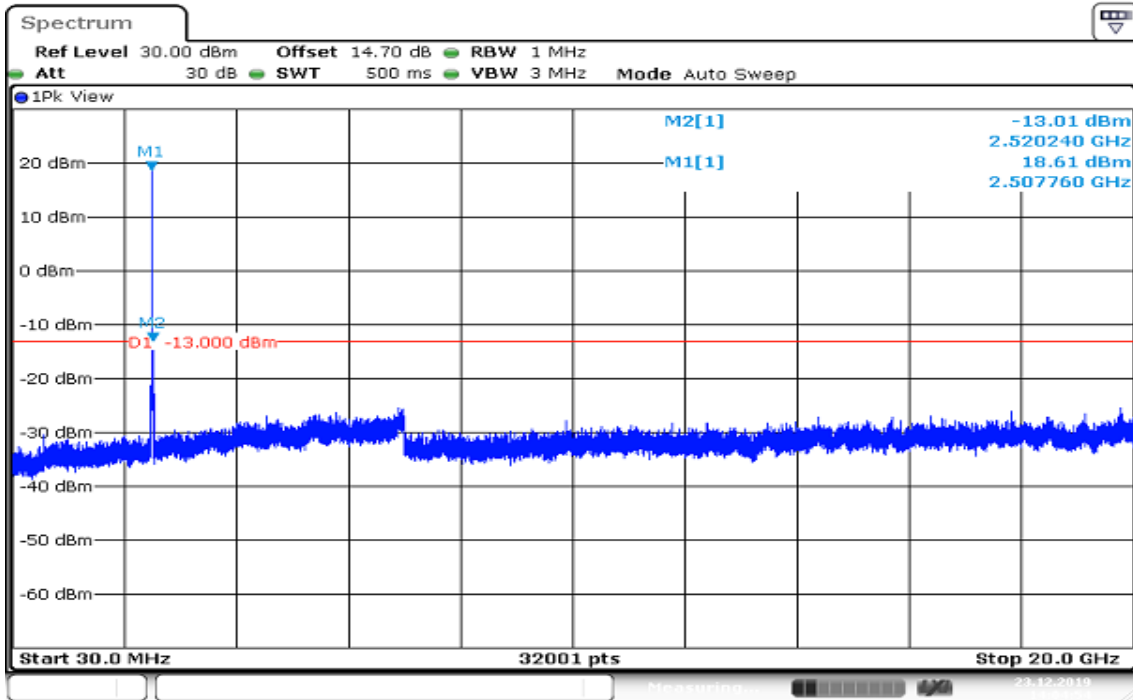


## CH High

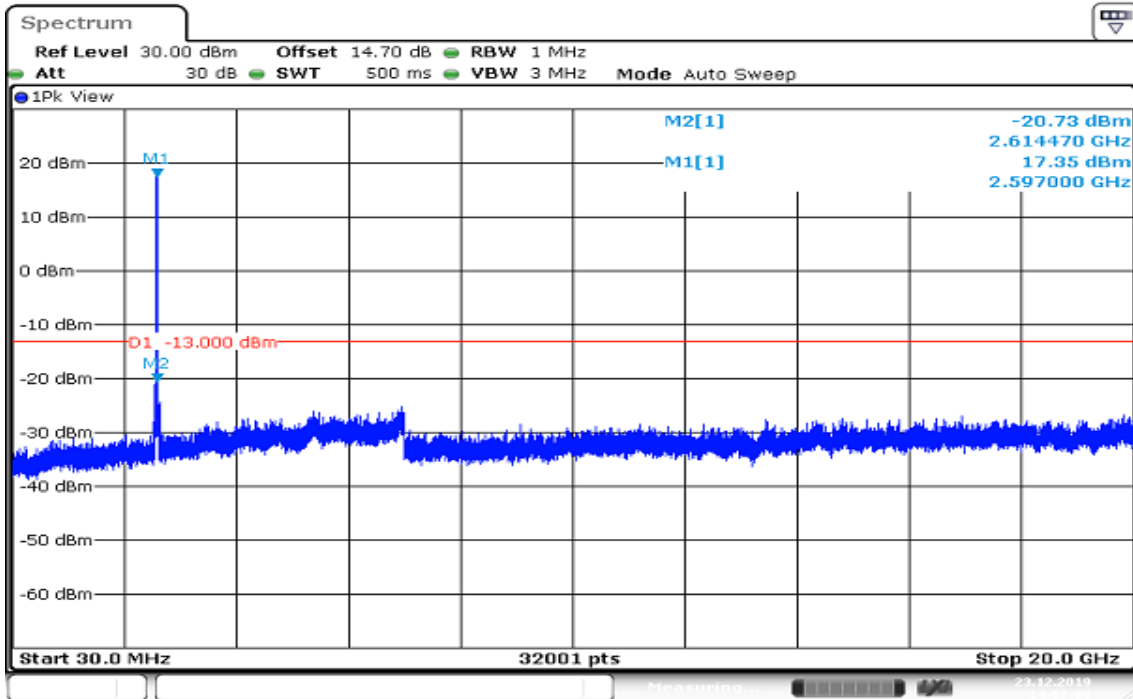


Report No.: T191120D05-RP9

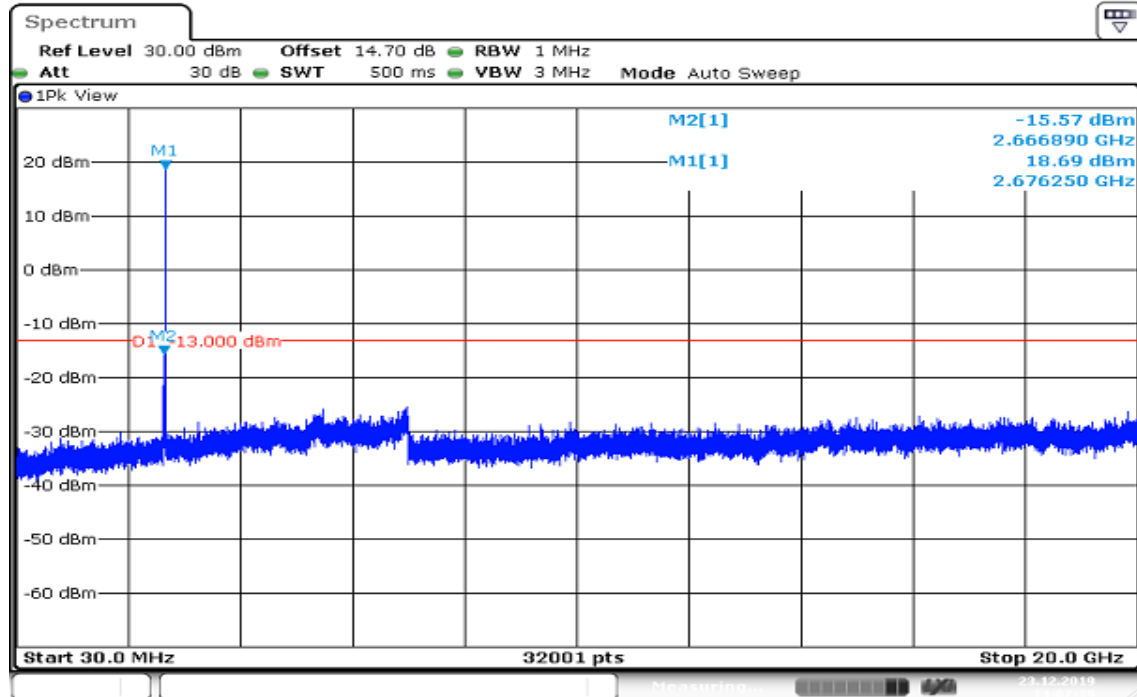
## CHANNEL BANDWIDTH: 15MHz /QPSK / 1RB CH Low



## CH Mid

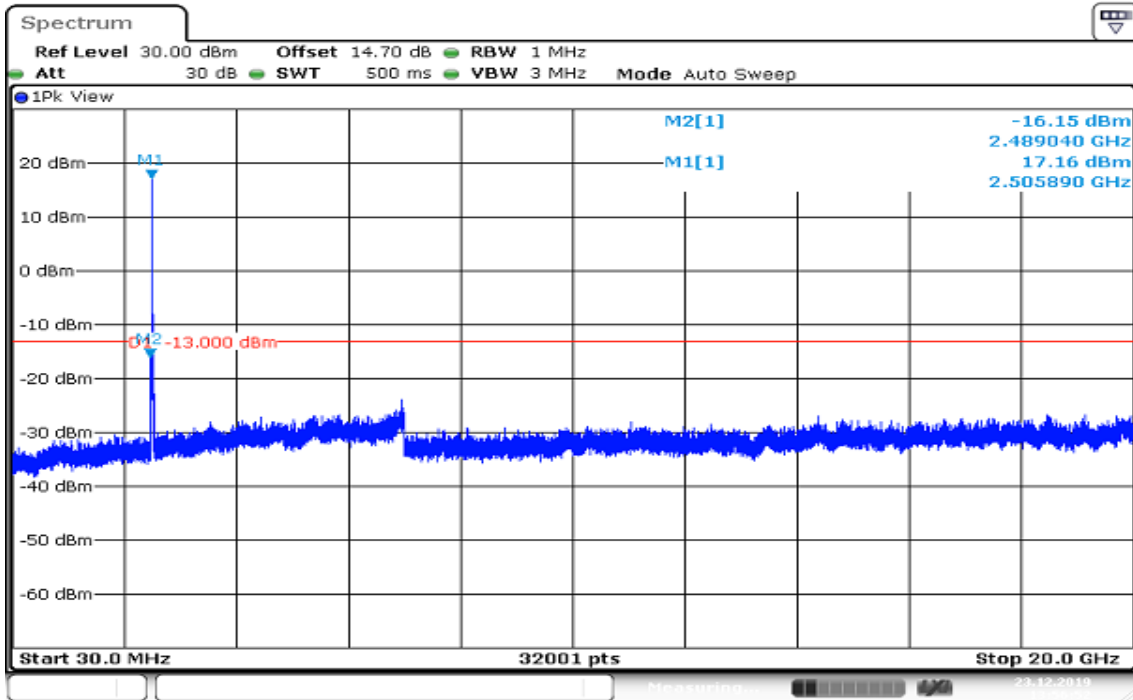


## CH High

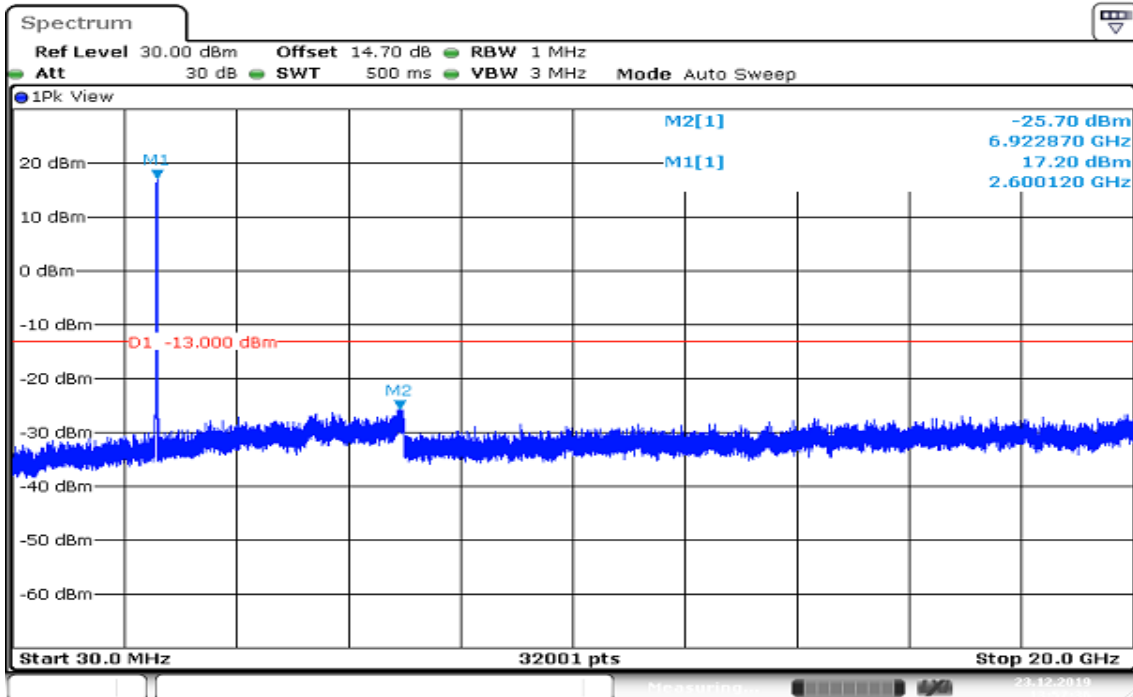


Report No.: T191120D05-RP9

## CHANNEL BANDWIDTH: 20MHz /QPSK / 1RB CH Low

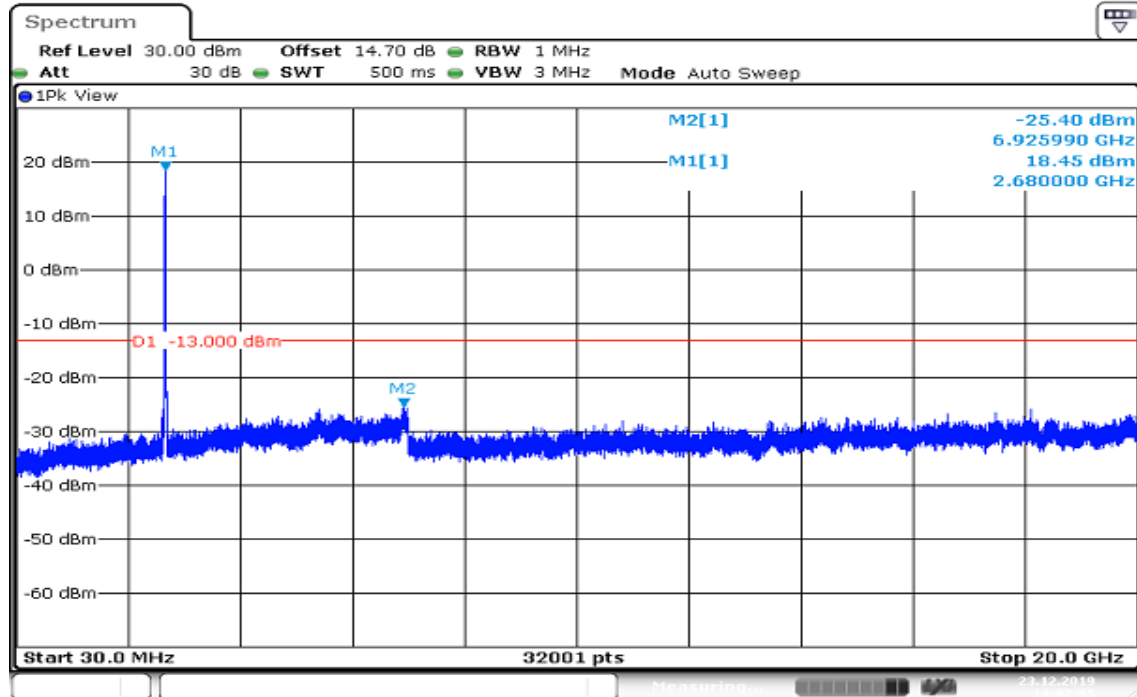


## CH Mid





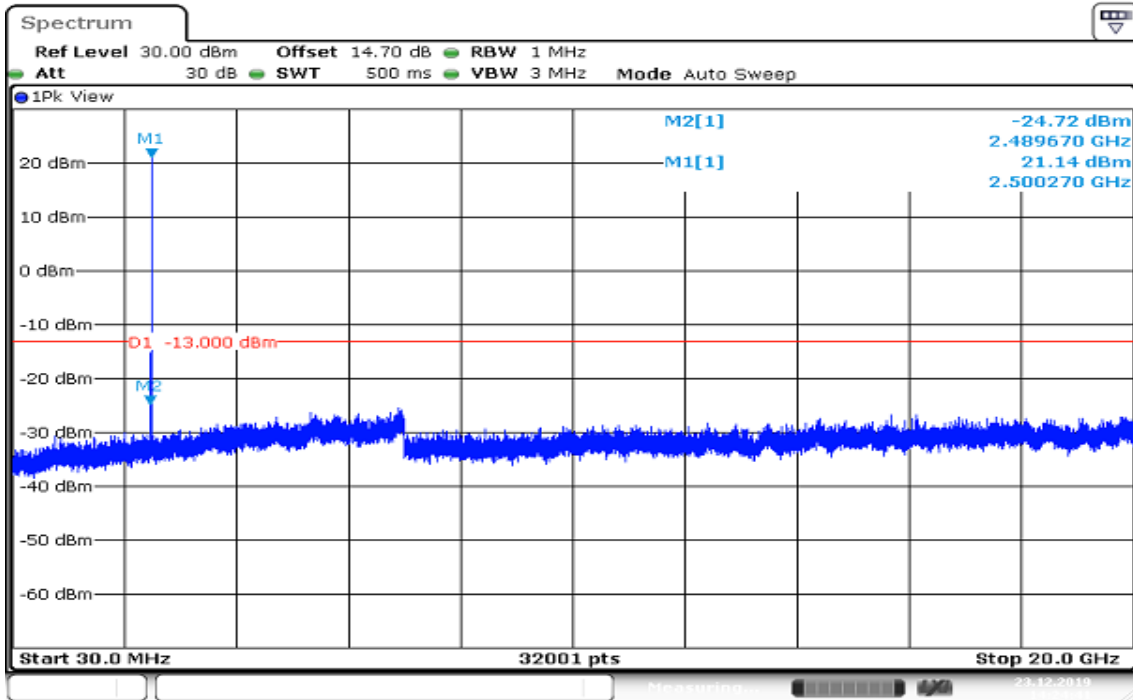
## CH High



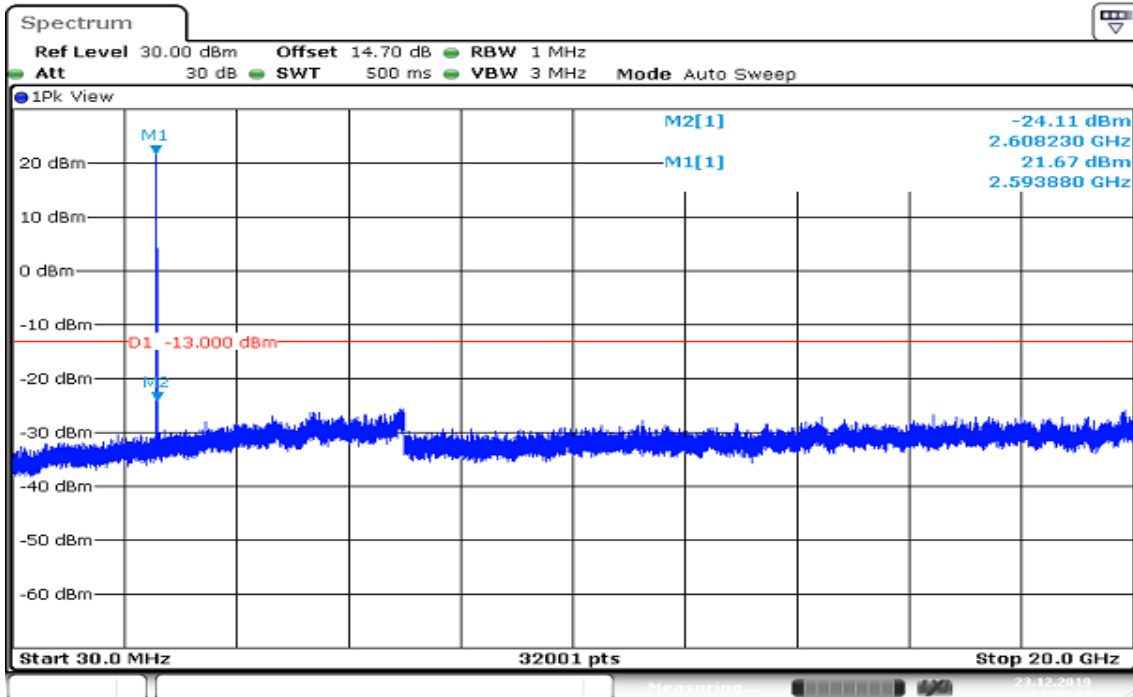
Date: 23.DEC.2019 14:02:55

Report No.: T191120D05-RP9

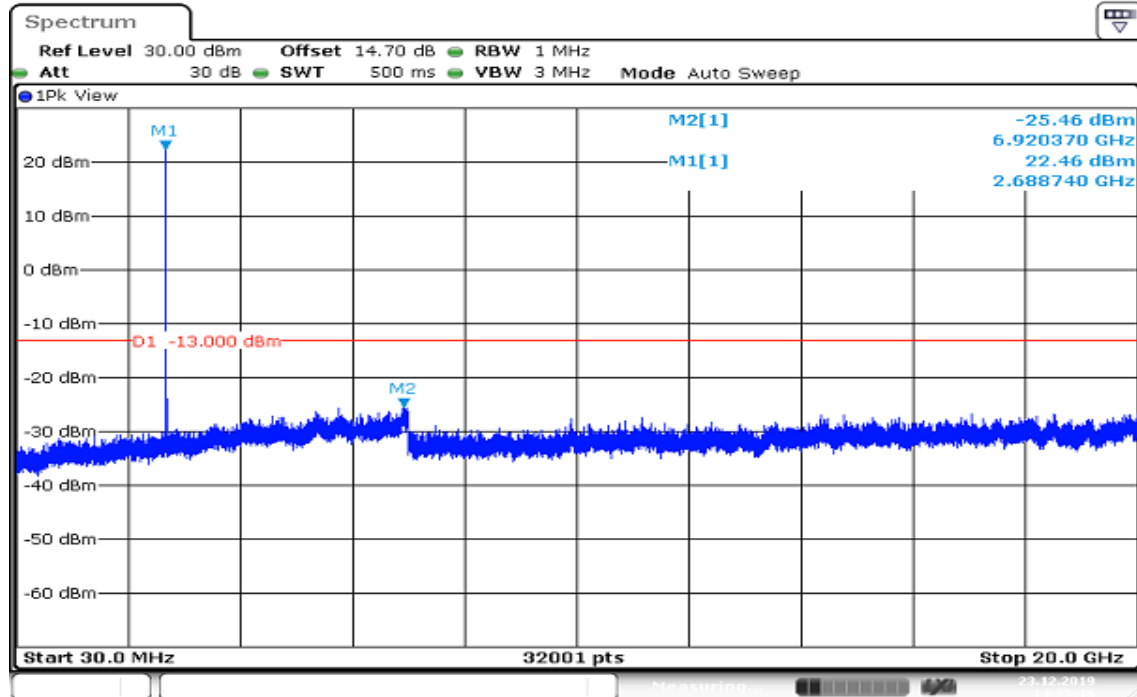
## CHANNEL BANDWIDTH:5MHz /16QAM / 1RB CH Low



## CH Mid

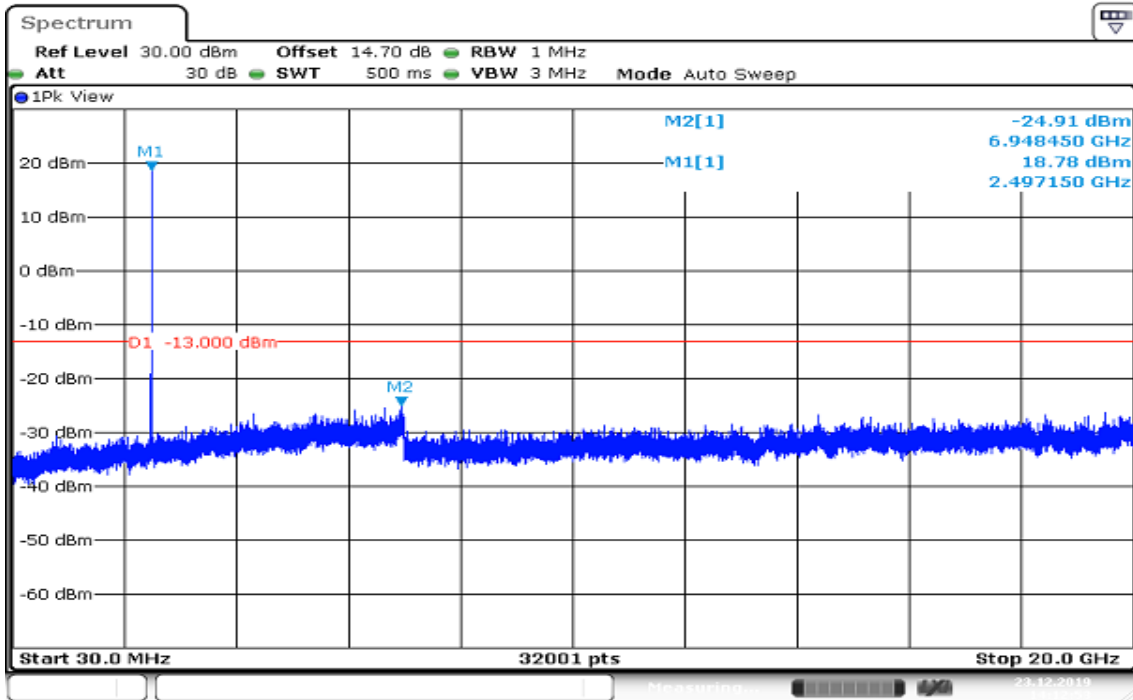


## CH High

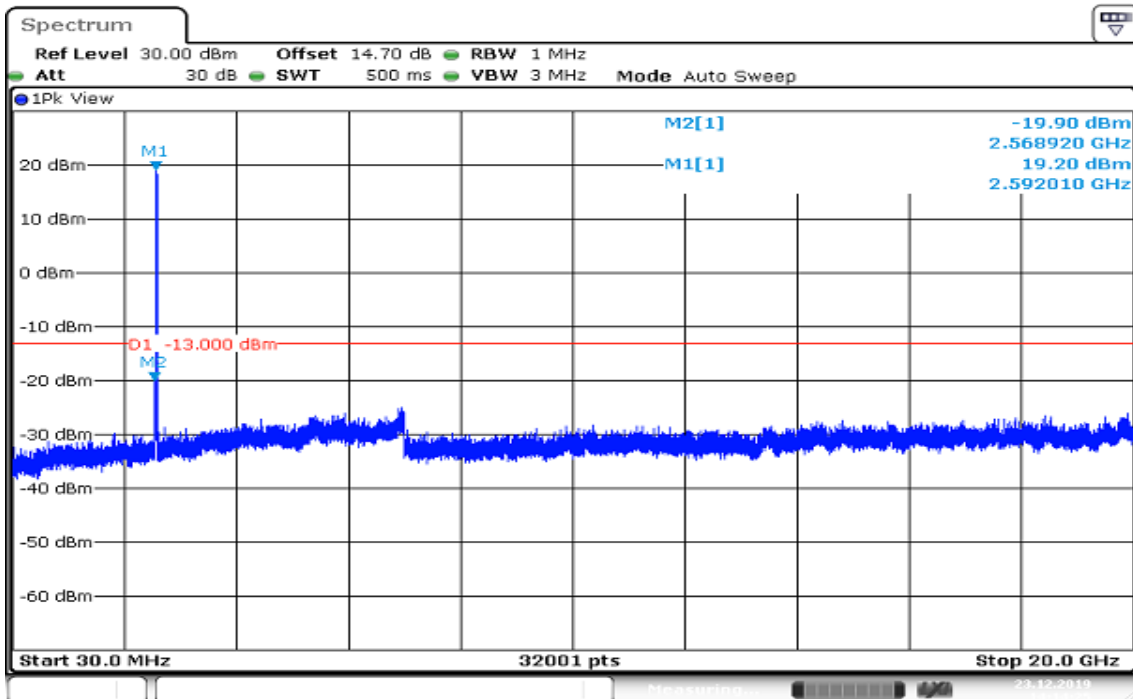


Date: 23.DEC.2019 14:25:16

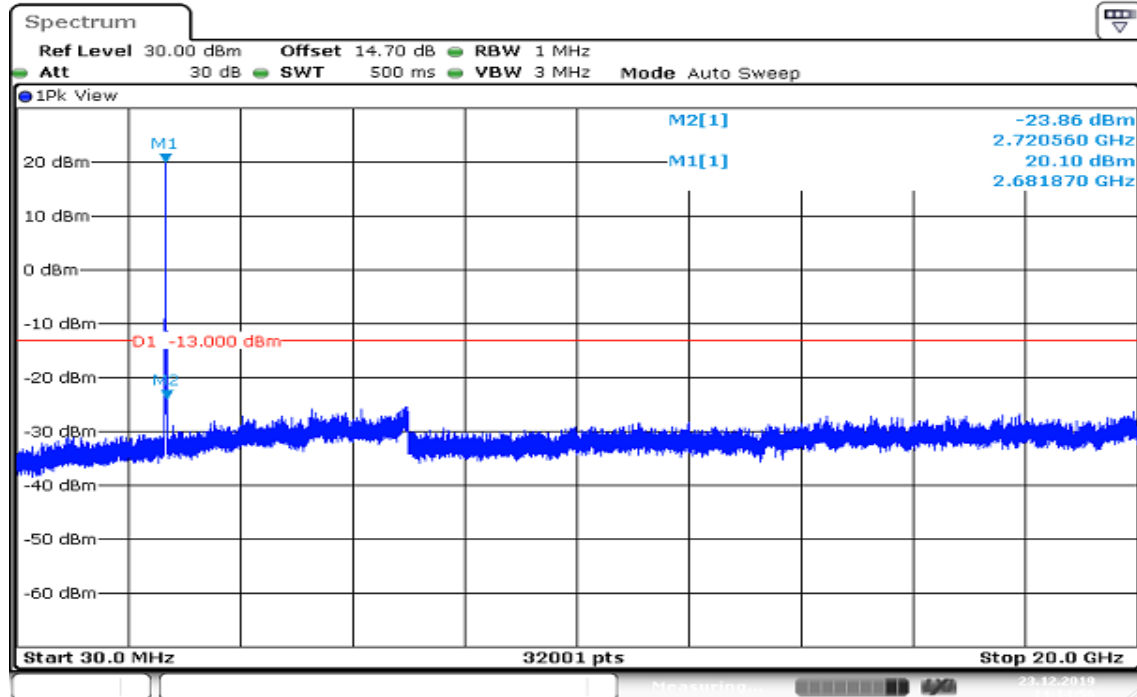
## CHANNEL BANDWIDTH:10MHz /16QAM / 1RB CH Low



## CH Mid



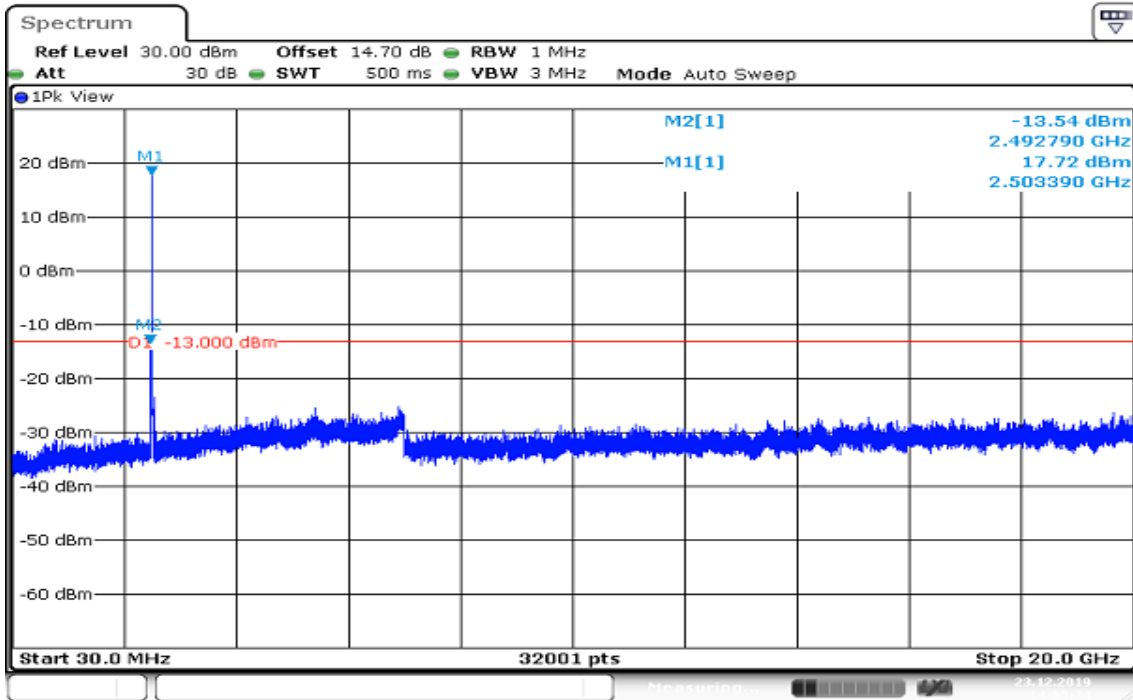
## CH High



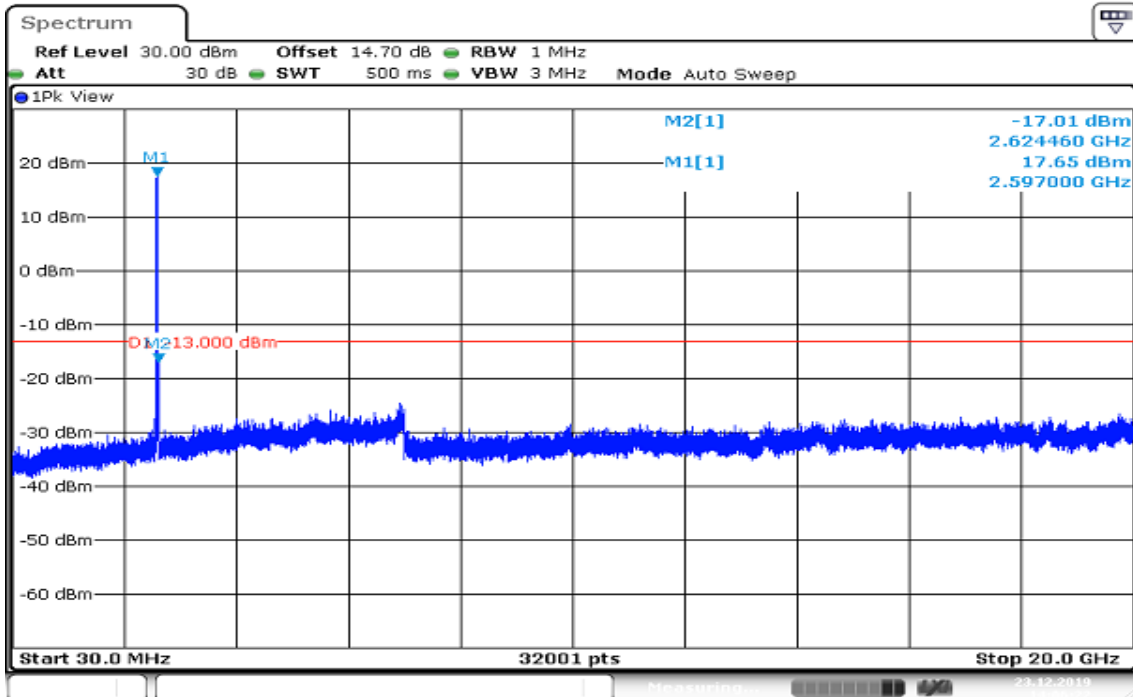
Date: 23. DEC. 2019 14:14:56

Report No.: T191120D05-RP9

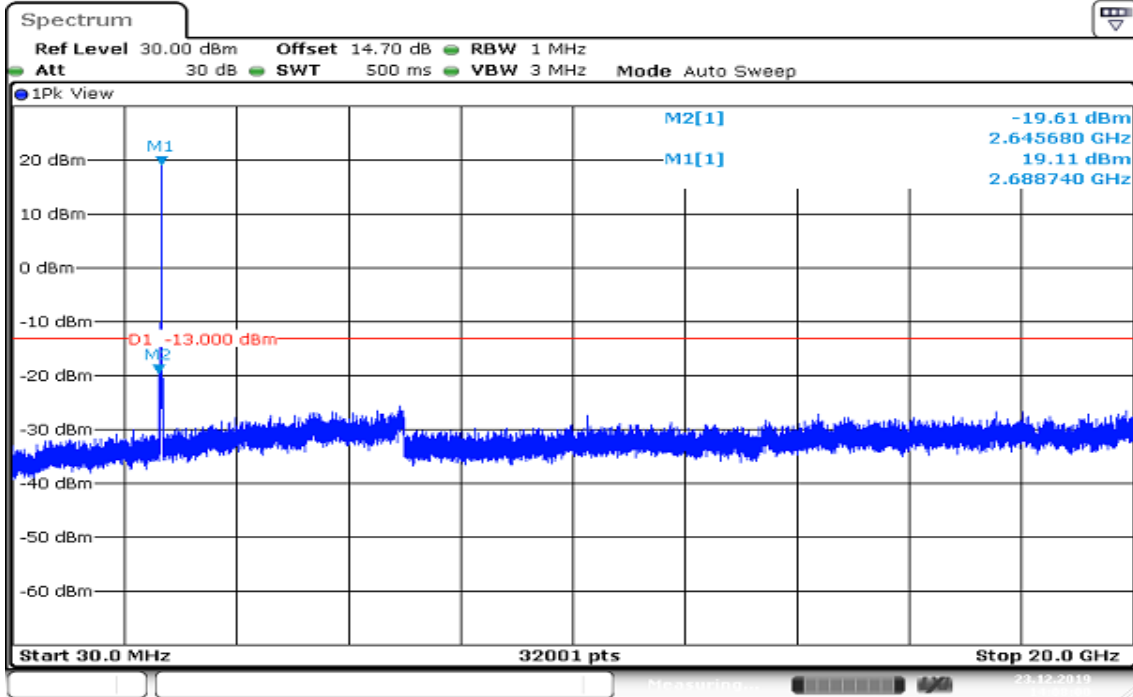
## CHANNEL BANDWIDTH:15MHz /16QAM / 1RB CH Low



## CH Mid



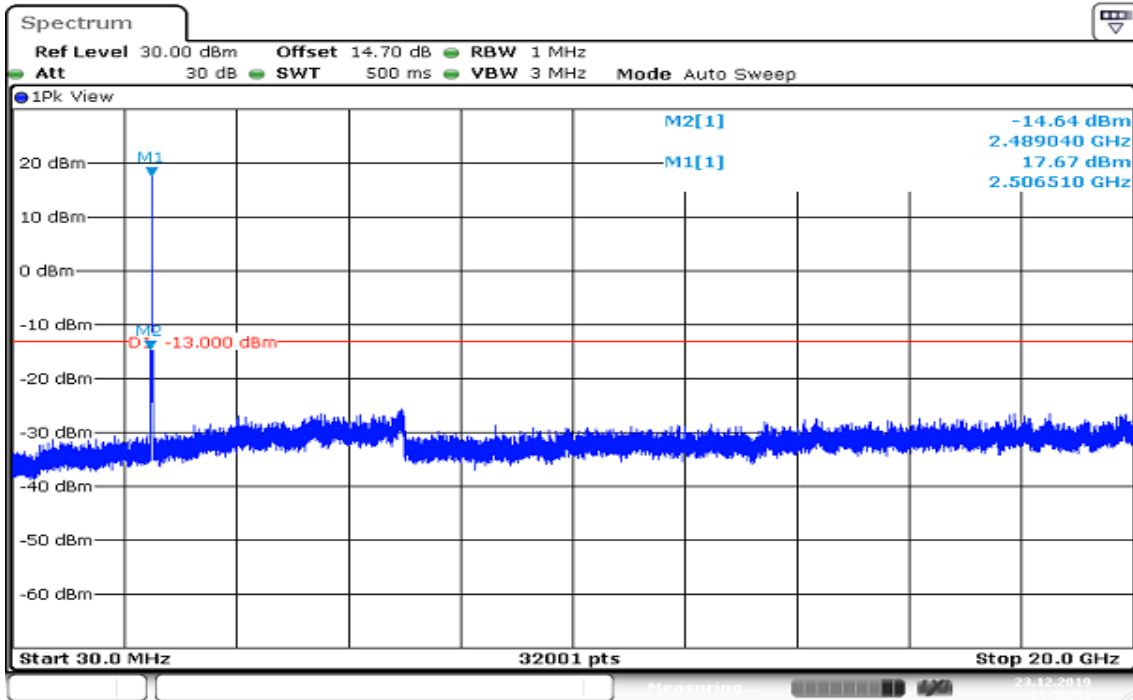
## CH High



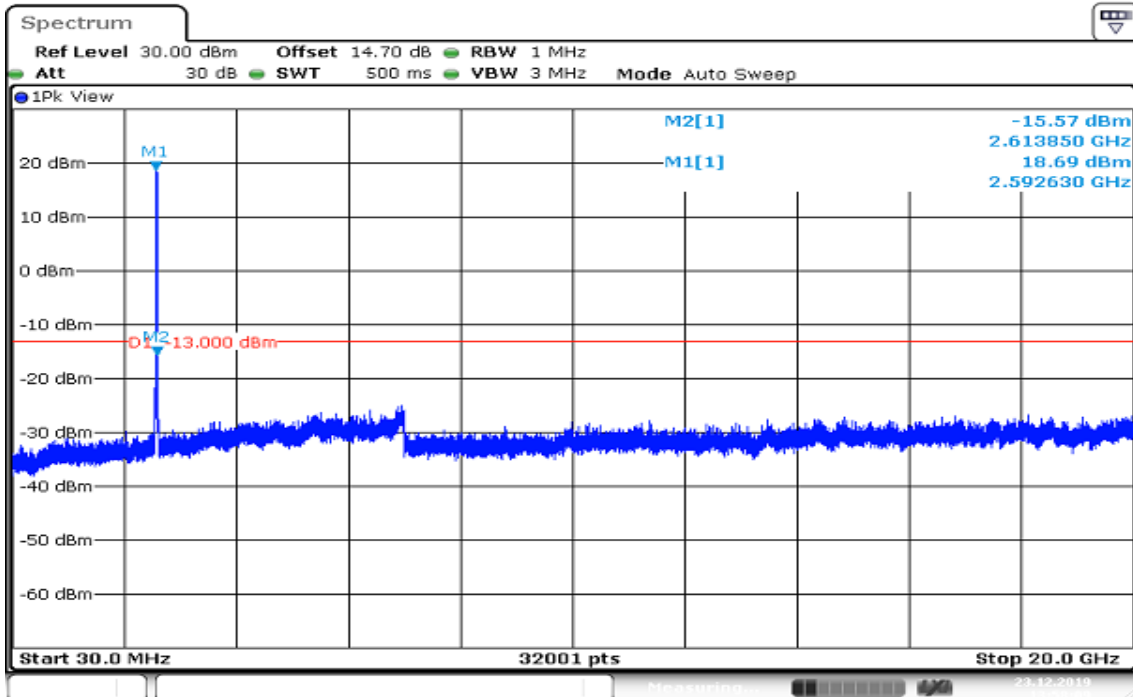
Date: 23. DEC. 2019 14:08:00

Report No.: T191120D05-RP9

## CHANNEL BANDWIDTH:20MHz /16QAM / 1RB CH Low

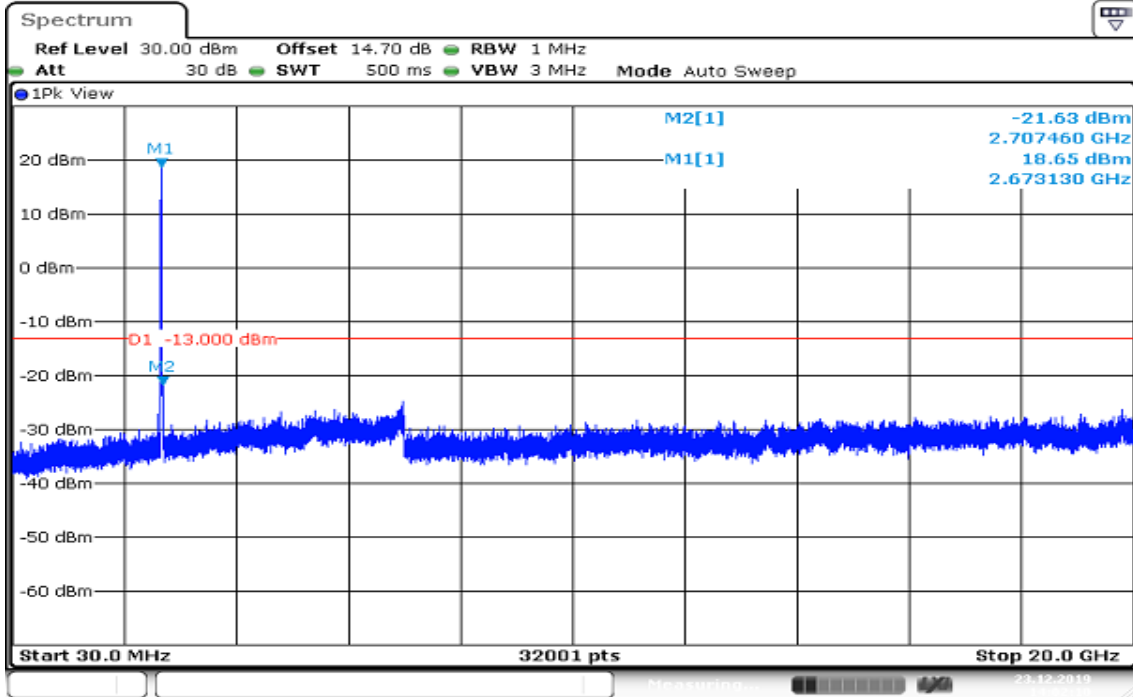


## CH Mid





## CH High



Date: 23.DEC.2019 14:02:11

## 8.7 RADIATED EMISSION MEASUREMENT

### LIMITS

#### **FCC §27.53(h), Band 41**

General protection levels. Except as otherwise specified below, for operations in the 1710-1755MHz 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  $43 + 10 \log_{10}(P)$  dB.

#### **According to RSS-199, Band 41**

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)  $40 + 10 \log_{10} p$  from the channel edges to 5 MHz away
- (ii)  $43 + 10 \log_{10} p$  between 5 MHz and X MHz from the channel edges, and
- (iii)  $55 + 10 \log_{10} p$  at X MHz and beyond from the channel edges

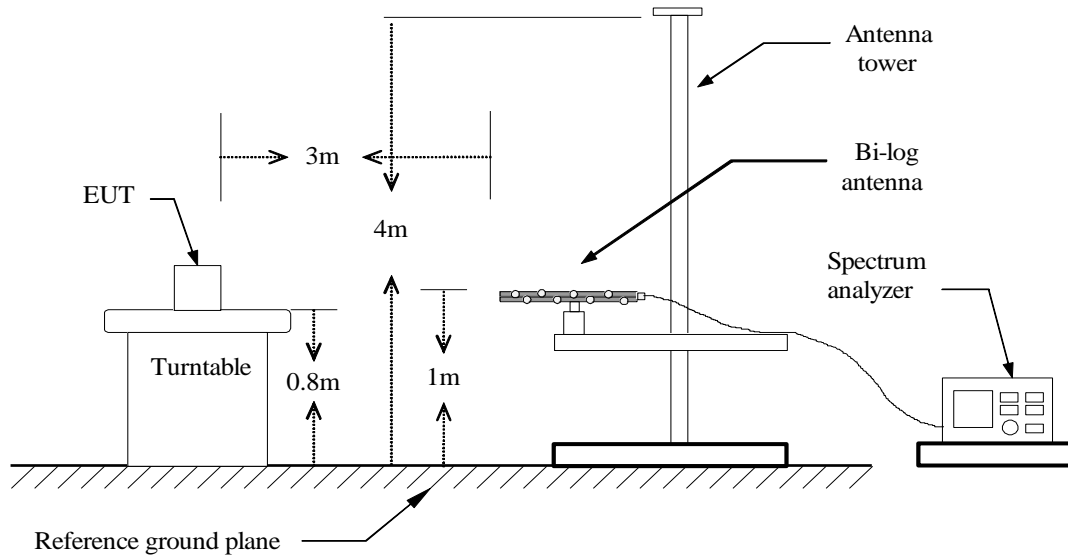
In addition, the attenuation shall not be less than  $43 + 10 \log_{10} p$  on all frequencies between 2490.5 MHz and 2496 MHz, and  $55 + 10 \log_{10} p$  at or below 2490.5 MHz.

**p** is the transmitter power measured in watts and **X** is 6 MHz or the equipment occupied bandwidth, whichever is greater.

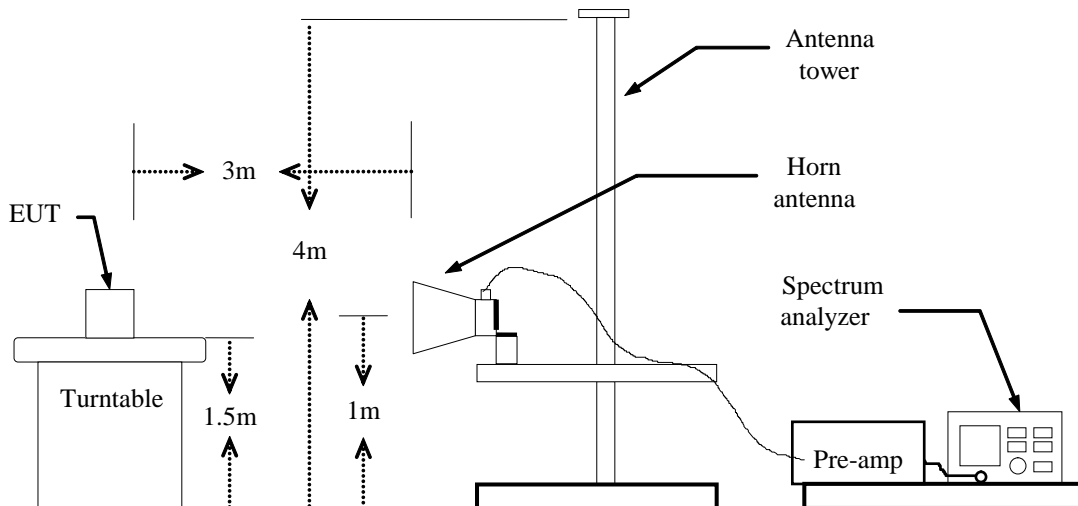
Report No.: T191120D05-RP9

## Test Configuration

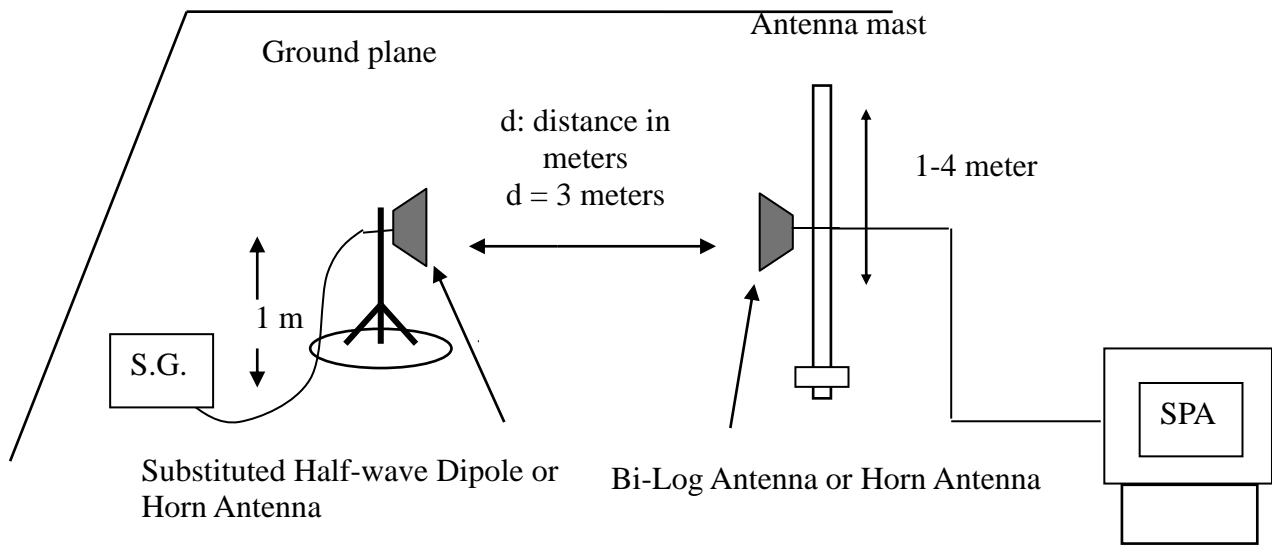
### Below 1 GHz



### Above 1 GHz



Report No.: T191120D05-RP9

**Substituted Method Test Set-up****TEST PROCEDURES**

1. According to KDB 971168 D01 and TIA-603-E.
2. The EUT was placed on a turntable
  - (1) Below 1G : 0.8m
  - (2) Above 1G : 1.5m
  - (3) EUT set 3m from the receiving antenna
  - (4) The table was rotated 360 degrees of the highest spurious emission to determine the position.
3. Set the spectrum analyzer , RBW=1MHz, VBW=3MHz.
4. A horn antenna was driven by a signal generator.
5. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.

Report No.: T191120D05-RP9

## Test Results

LTE Band 41 / BW: 20MHz / QPSK / RB =1, RB Offset = 0

Operation Mode: Tx / Low CH

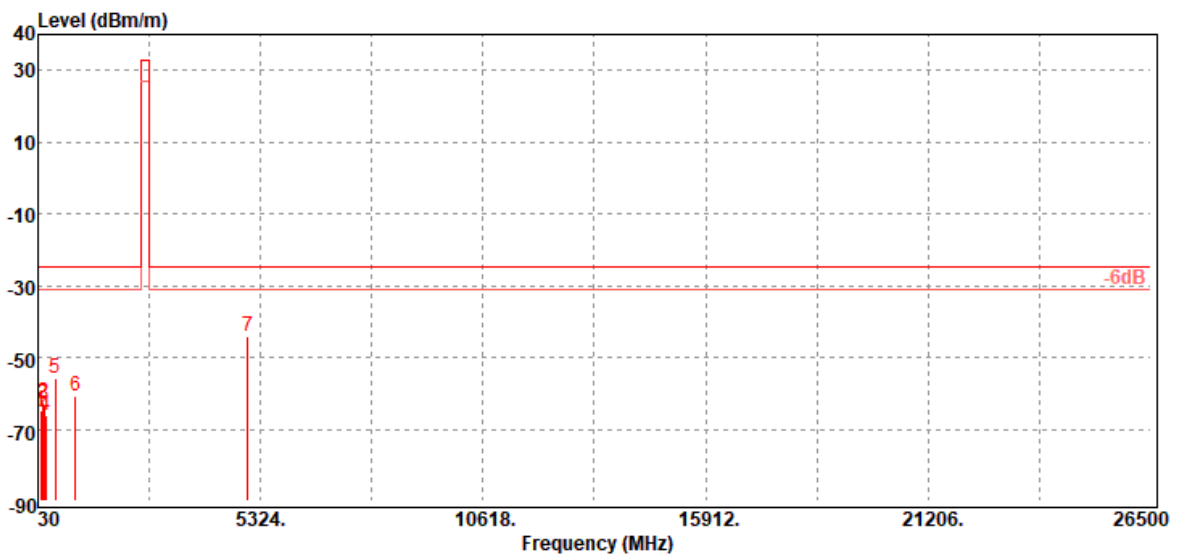
Test Date: January 8, 2020

Temperature: 18.6°C

Tested by: Jerry Chang

Humidity: 59% RH

Polarity: Ver.



Freq. MHz	ERP/EIRP dBm	SG Output Level dBm	Antenna Gain dBd/dBi	Cable Loss dB	Limit dBm	Margin dB	Antenna Polarization (V/H)
105.66	-64.60	-54.39	-9.37	-0.84	-25.00	-39.60	V
159.01	-62.74	-55.3	-6.40	-1.04	-25.00	-37.74	V
172.59	-62.80	-56.58	-5.14	-1.08	-25.00	-37.80	V
219.15	-66.14	-62.9	-2.02	-1.22	-25.00	-41.14	V
447.10	-55.80	-51.95	-2.10	-1.75	-25.00	-30.80	V
924.34	-60.98	-57.1	-1.30	-2.58	-25.00	-35.98	V
5012.00	-44.17	-50.08	12.48	-6.57	-25.00	-19.17	V

Report No.: T191120D05-RP9

**Operation Mode:** Tx / Low CH

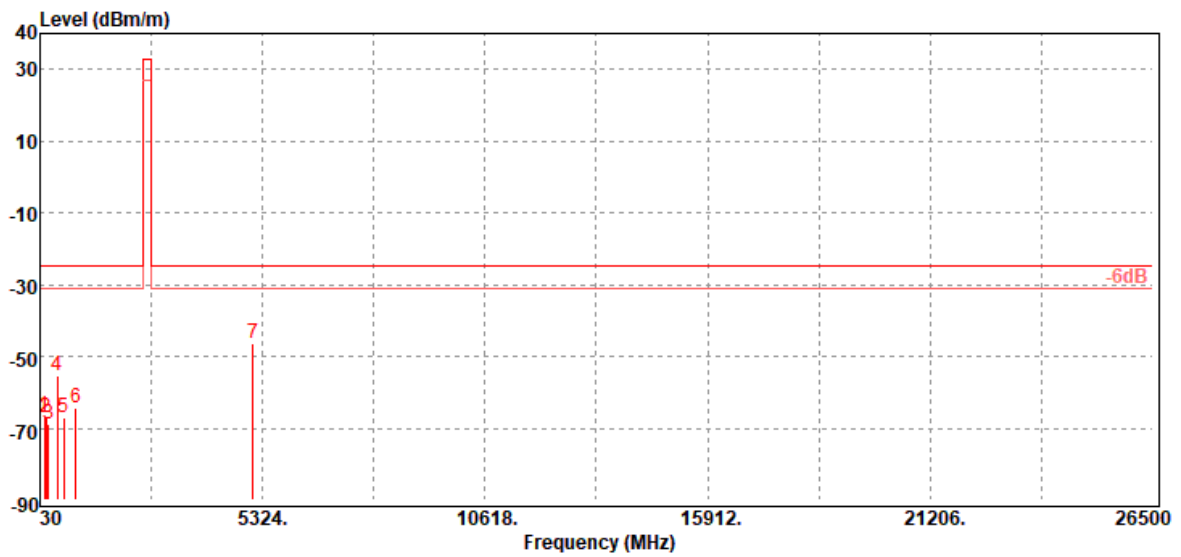
**Test Date:** January 8, 2020

**Temperature:** 18.6°C

**Tested by:** Jerry Chang

**Humidity:** 59% RH

**Polarity:** Hor.



Freq. MHz	ERP/EIRP dBm	SG Output Level dBm	Antenna Gain dBd/dBi	Cable Loss dB	Limit dBm	Margin dB	Antenna Polarization (V/H)
134.76	-66.41	-56.11	-9.35	-0.95	-25.00	-41.41	H
180.35	-67.13	-61.67	-4.36	-1.10	-25.00	-42.13	H
224.00	-68.88	-65.73	-1.92	-1.23	-25.00	-43.88	H
442.25	-55.56	-51.72	-2.10	-1.74	-25.00	-30.56	H
604.24	-67.02	-63.97	-0.98	-2.07	-25.00	-42.02	H
878.75	-64.20	-60.46	-1.23	-2.51	-25.00	-39.20	H
5102.00	-46.44	-52.39	12.60	-6.65	-25.00	-21.44	H

Report No.: T191120D05-RP9

**Operation Mode:** Tx / Mid CH

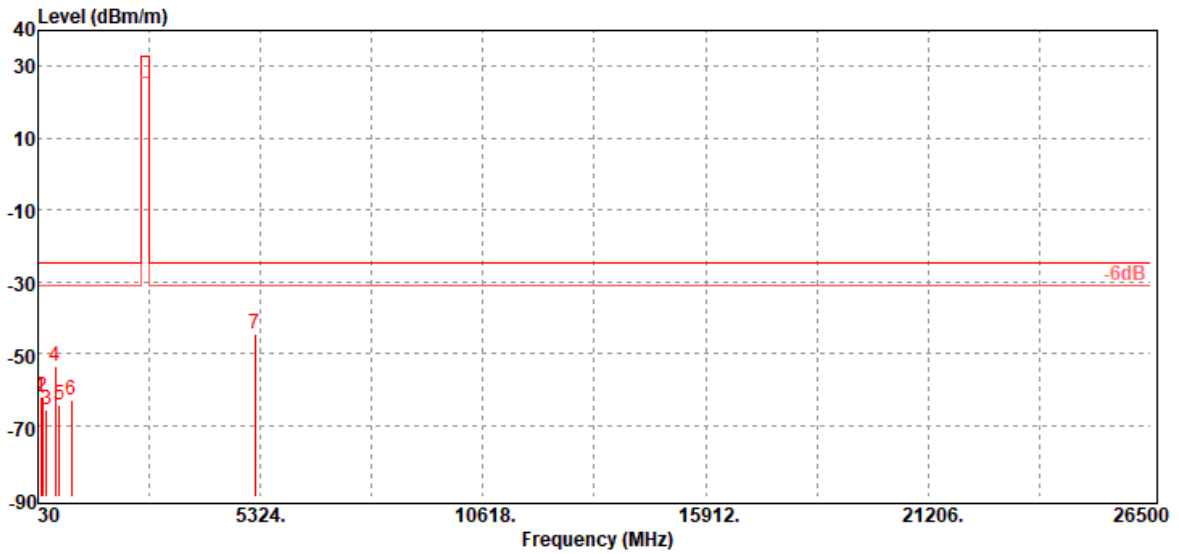
**Test Date:** January 8, 2020

**Temperature:** 18.6°C

**Tested by:** Jerry Chang

**Humidity:** 59% RH

**Polarity:** Ver.



Freq. MHz	ERP/EIRP dBm	SG Output Level dBm	Antenna Gain dBd/dBi	Cable Loss dB	Limit dBm	Margin dB	Antenna Polarization (V/H)
105.66	-62.26	-52.05	-9.37	-0.84	-25.00	-37.26	V
133.79	-62.16	-51.69	-9.52	-0.95	-25.00	-37.16	V
225.94	-65.53	-62.36	-1.94	-1.23	-25.00	-40.53	V
447.10	-53.48	-49.63	-2.10	-1.75	-25.00	-28.48	V
531.49	-64.29	-61.07	-1.30	-1.92	-25.00	-39.29	V
817.64	-62.98	-59.07	-1.51	-2.40	-25.00	-37.98	V
5186.00	-44.53	-50.71	12.92	-6.74	-25.00	-19.53	V

Report No.: T191120D05-RP9

**Operation Mode:** Tx / Mid CH

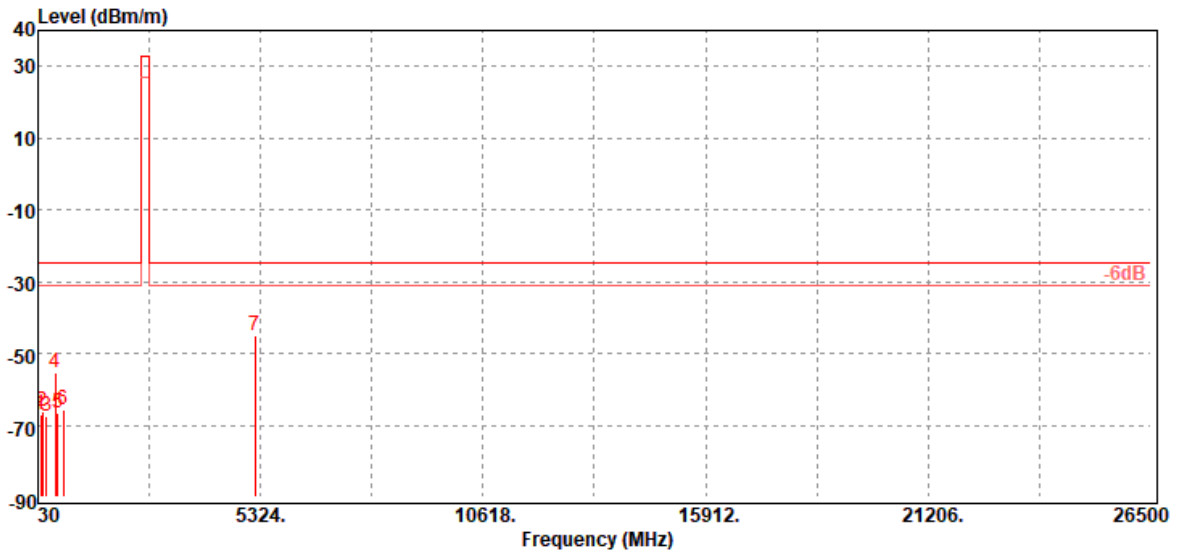
**Test Date:** January 8, 2020

**Temperature:** 18.6°C

**Tested by:** Jerry Chang

**Humidity:** 59% RH

**Polarity:** Hor.



Freq. MHz	ERP/EIRP dBm	SG Output Level dBm	Antenna Gain dBd/dBi	Cable Loss dB	Limit dBm	Margin dB	Antenna Polarization (V/H)
94.99	-67.14	-59.04	-7.30	-0.80	-25.00	-42.14	H
134.76	-66.21	-55.91	-9.35	-0.95	-25.00	-41.21	H
225.94	-67.44	-64.27	-1.94	-1.23	-25.00	-42.44	H
444.19	-55.58	-51.73	-2.10	-1.75	-25.00	-30.58	H
500.45	-66.69	-62.83	-1.99	-1.87	-25.00	-41.69	H
636.25	-65.74	-61.91	-1.70	-2.13	-25.00	-40.74	H
5186.00	-45.07	-51.25	12.92	-6.74	-25.00	-20.07	H



Report No.: T191120D05-RP9

**Operation Mode:** Tx / High CH

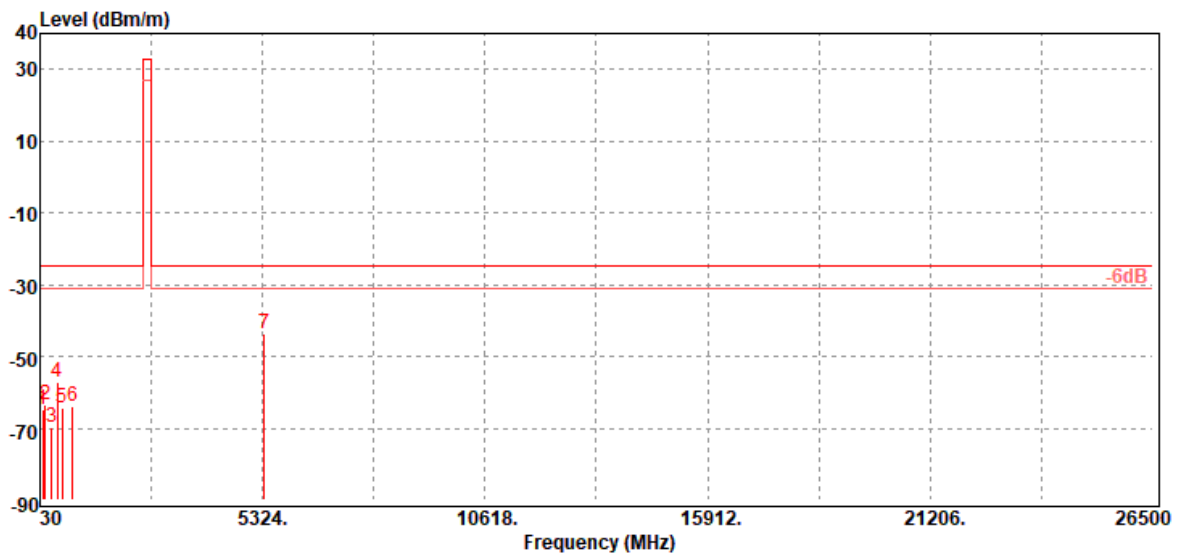
**Test Date:** January 8, 2020

**Temperature:** 18.6°C

**Tested by:** Jerry Chang

**Humidity:** 59% RH

**Polarity:** Ver.



Freq. MHz	ERP/EIRP dBm	SG Output Level dBm	Antenna Gain dBd/dBi	Cable Loss dB	Limit dBm	Margin dB	Antenna Polarization (V/H)
105.66	-64.99	-54.78	-9.37	-0.84	-25.00	-39.99	V
159.01	-63.67	-56.23	-6.40	-1.04	-25.00	-38.67	V
299.66	-69.79	-66.35	-2.01	-1.43	-25.00	-44.79	V
445.16	-56.95	-53.1	-2.10	-1.75	-25.00	-31.95	V
553.80	-64.19	-60.95	-1.28	-1.96	-25.00	-39.19	V
813.76	-63.90	-60.09	-1.42	-2.39	-25.00	-38.90	V
5360.00	-43.68	-50.03	13.26	-6.91	-25.00	-18.68	V

Report No.: T191120D05-RP9

**Operation Mode:** Tx / High CH

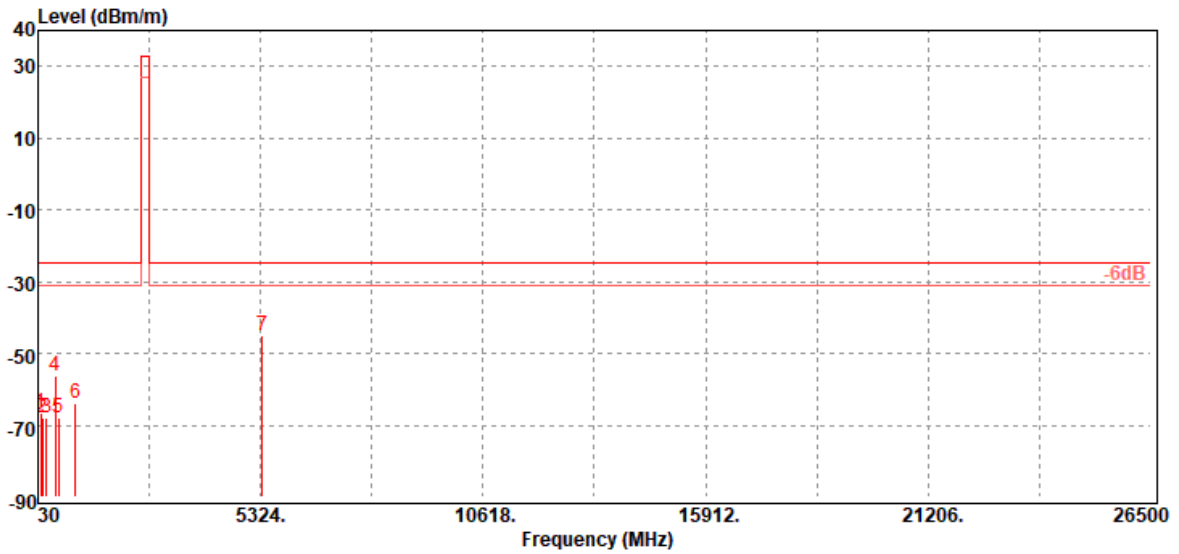
**Test Date:** January 8, 2020

**Temperature:** 18.6°C

**Tested by:** Jerry Chang

**Humidity:** 59% RH

**Polarity:** Hor.



Freq. MHz	ERP/EIRP dBm	SG Output Level dBm	Antenna Gain dBd/dBi	Cable Loss dB	Limit dBm	Margin dB	Antenna Polarization (V/H)
94.99	-66.76	-58.66	-7.30	-0.80	-25.00	-41.76	H
133.79	-68.02	-57.55	-9.52	-0.95	-25.00	-43.02	H
225.94	-68.04	-64.87	-1.94	-1.23	-25.00	-43.04	H
445.16	-56.38	-52.53	-2.10	-1.75	-25.00	-31.38	H
527.61	-67.94	-64.72	-1.30	-1.92	-25.00	-42.94	H
925.31	-63.70	-59.82	-1.30	-2.58	-25.00	-38.70	H
5360.00	-45.03	-51.38	13.26	-6.91	-25.00	-20.03	H

**- End of Test Report -**