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Report No.: T191120D05-RP6

IC: 24213-1002244

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**FCC 47 CFR PART 24 SUBPART E
+
INDUSTRY CANADA RSS-133**

TEST REPORT

For

GUARDIAN SYSTEM LTE

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

Trade Name: GUARDIAN

Issued to

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

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.22-24, P.35-36, P.62-73, P.74-98, P.99-100	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. Revised 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. Revised section 8.7 Test Configuration and test procedure.

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 20, 2019 ~ January 8, 2020



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APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR PART 24 SUBPART E + RSS-133 Issue 6	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.	

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA -603-E and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rule FCC PART 24 Subpart E and IC RSS-133 Issue 6.

Approved by:

Kevin Tsai
Deputy Manager
Compliance Certification Services Inc.



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2. EUT DESCRIPTION

Product	GUARDIAN SYSTEM LTE				
FCC Model No.	G2-SY-CON2				
IC Model No.	G2-SY-CON2-1002244				
Model Discrepancy	N/A				
Trade	GUARDIAN				
Received Date	November 20, 2019				
Power Supply	Powered from DC supply: DC 12V.				
Frequency Range	LTE Band 25 Channel Bandwidth: 1.4MHz	1850.7 MHz ~1914.3 MHz			
	LTE Band 25 Channel Bandwidth: 3MHz	1851.5 MHz ~ 1913.5 MHz			
	LTE Band 25 Channel Bandwidth: 5MHz	1852.5 MHz ~1912.5 MHz			
	LTE Band 25 Channel Bandwidth: 10MHz	1855.0 MHz ~1910.0 MHz			
	LTE Band 25 Channel Bandwidth: 15MHz	1857.5 MHz ~ 1907.5 MHz			
	LTE Band 25 Channel Bandwidth: 20MHz	1860.0 MHz ~1905.0 MHz			
Modulation Technique	LTE Band 25	QPSK, 16QAM			
Antenna Specification	Dipole Antenna Antenna gain: 1.2 dBi				
Transmit Power (EIRP Power)	LTE Band 25 Channel Bandwidth: 1.4MHz	QPSK:	22.49	dBm	
		16QAM:	22.19	dBm	
	LTE Band 25 Channel Bandwidth: 3MHz	QPSK:	22.50	dBm	
		16QAM:	22.20	dBm	
	LTE Band 25 Channel Bandwidth: 5MHz	QPSK:	22.54	dBm	
		16QAM:	22.24	dBm	
	LTE Band 25 Channel Bandwidth: 10MHz	QPSK:	22.56	dBm	
		16QAM:	22.26	dBm	
	LTE Band 25 Channel Bandwidth: 15MHz	QPSK:	22.57	dBm	
		16QAM:	22.27	dBm	
	LTE Band 25 Channel Bandwidth: 20MHz	QPSK:	22.63	dBm	
		16QAM:	22.33	dBm	
HW Version	V1				
SW Version	V9				

Remark: The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.

3. TEST METHODOLOGY

Both conducted and radiated testing were performed according to TIA -603-E, FCC CFR 47, Part 2 and Part 24 Subpart E.

The tests documented in this report were performed in accordance with IC RSS-133, SPSR510 and ANSI C63.26: 2015.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 DESCRIPTION OF TEST MODES

The EUT had been tested under operating condition.

The EUT be set in maximum power transmission via call box during testing.

LTE Band 25: 1850 MHz ~ 1915MHz

Three channels had been tested for each channel bandwidth.

Channel Bandwidth	1.4MHz		3MHz		5MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low channel (L)	26047	1850.7	26055	1851.5	26065	1852.5
Middle channel (M)	26365	1882.5	26365	1882.5	26365	1882.5
High channel (H)	26683	1914.3	26675	1913.5	26665	1912.5

Channel Bandwidth	10MHz		15MHz		20MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low channel (L)	26090	1855.0	26115	1857.5	26140	1860.0
Middle channel (M)	26365	1882.5	26365	1882.5	26365	1882.5
High channel (H)	26640	1910.0	26615	1907.5	26590	1905.0

3.2.1 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	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4
Worst Position	☐ Placed in fixed position. ☒ Placed in fixed position at X-Plane (E2-Plane) ☐ Placed in fixed position at Y-Plane (E1-Plane) ☐ 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	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ 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



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4. TEST SUMMARY

FCC Standard Sec.	IC Standard Sec.	Report Section	Test Item	Result
-	-	2	Antenna Requirement	Pass
2.1046	RSS-GEN 6.12	8.1	Output Power measurement	Pass
24.232(c)	RSS-133, section 6.4	8.2	EIRP Measurement	Pass
2.1055, 24.235	RSS-133 section 6.3	8.3	Frequency Stability v.s. temperature measurement	Pass
2.1049	RSS-GEN 6.7	8.4	Occupied Bandwidth Measurement	Pass
24.232(d)	RSS-133, section 6.4	8.5	Peak to Average Ratio	Pass
24.238(a)	RSS-133 section 6.5	8.6	Conducted Band Edge	Pass
24.238(a)	RSS-133 section 6.5	8.7	Conducted Spurious Emission	Pass
24.238(a)	RSS-133 section 6.5	8.8	Spurious Radiation Measurement	Pass



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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.*



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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				



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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 $k=2$.



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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.



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7. SETUP OF EQUIPMENT UNDER TEST

7.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix II 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. FCC PART 24 REQUIREMENTS & INDUSTRY CANADA RSS-133

8.1 EIRP MEASUREMENT

LIMIT

According to FCC §2.1046

FCC 24.232(b):

The equivalent Isotropic Radiated Power (EIRP) must not exceed 2 Watts.

According to RSS-133, section 6.4

The equivalent isotropically radiated power (e.i.r.p.) for transmitters shall not exceed the limits given in SRSP-510. Moreover, base station transmitters operating in the band 1930-1995 MHz shall not have output power exceeding 2 watts.

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.

TEST RESULTS**LTE Band 25**

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	EIRP Power (dBm)
Band 25	1.4M	26047	1850.7	QPSK	1	0	0	21.20	22.40
					1	2	0	20.82	22.02
					1	5	0	20.55	21.75
					3	0	1	21.05	22.25
					3	1	1	19.89	21.09
					3	2	1	19.98	21.18
					6	0	1	20.48	21.68
				16QAM	1	0	1	20.63	21.83
					1	2	1	19.91	21.11
					1	5	1	20.02	21.22
					3	0	2	20.21	21.41
					3	1	2	20.12	21.32
					3	2	2	20.00	21.20
					6	0	2	19.85	21.05
		26365	1882.5	QPSK	1	0	0	21.12	22.32
					1	2	0	20.94	22.14
					1	5	0	21.29	22.49
					3	0	1	21.06	22.26
					3	1	1	20.87	22.07
					3	2	1	21.19	22.39
					6	0	1	21.03	22.23
				16QAM	1	0	1	20.52	21.72
					1	2	1	20.38	21.58
					1	5	1	20.99	22.19
					3	0	2	20.09	21.29
					3	1	2	19.96	21.16
					3	2	2	20.00	21.20
					6	0	2	19.97	21.17
		26683	1914.3	QPSK	1	0	0	19.55	20.75
					1	2	0	19.63	20.83
					1	5	0	18.94	20.14
					3	0	1	20.48	21.68
					3	1	1	20.56	21.76
					3	2	1	19.99	21.19
					6	0	1	20.24	21.44
				16QAM	1	0	1	19.24	20.44
					1	2	1	19.35	20.55
					1	5	1	19.60	20.80
					3	0	2	19.58	20.78
					3	1	2	19.24	20.44
					3	2	2	19.20	20.40
					6	0	2	19.47	20.67



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Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	EIRP Power (dBm)
Band 25	3M	26055	1851.5	QPSK	1	0	0	21.21	22.41
					1	7	0	20.83	22.03
					1	14	0	20.56	21.76
					8	0	1	21.06	22.26
					8	4	1	19.90	21.10
					8	7	1	19.99	21.19
					15	0	1	20.49	21.69
				16QAM	1	0	1	20.64	21.84
					1	7	1	19.92	21.12
					1	14	1	20.03	21.23
					8	0	2	20.22	21.42
					8	4	2	20.13	21.33
					8	7	2	20.01	21.21
					15	0	2	19.86	21.06
		26365	1882.5	QPSK	1	0	0	21.13	22.33
					1	7	0	20.95	22.15
					1	14	0	21.30	22.50
					8	0	1	21.07	22.27
					8	4	1	20.88	22.08
					8	7	1	21.20	22.40
					15	0	1	21.04	22.24
				16QAM	1	0	1	20.53	21.73
					1	7	1	20.39	21.59
					1	14	1	21.00	22.20
					8	0	2	20.10	21.30
					8	4	2	19.97	21.17
					8	7	2	20.01	21.21
					15	0	2	19.98	21.18
		26675	1913.5	QPSK	1	0	0	19.57	20.77
					1	7	0	19.65	20.85
					1	14	0	18.96	20.16
					8	0	1	20.50	21.70
					8	4	1	20.58	21.78
					8	7	1	20.01	21.21
					15	0	1	20.26	21.46
				16QAM	1	0	1	19.26	20.46
					1	7	1	19.37	20.57
					1	14	1	19.62	20.82
					8	0	2	19.60	20.80
					8	4	2	19.26	20.46
					8	7	2	19.22	20.42
					15	0	2	19.49	20.69

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	EIRP Power (dBm)
Band 25	5M	26065	1852.5	QPSK	1	0	0	21.26	22.46
					1	12	0	20.88	22.08
					1	24	0	20.61	21.81
					12	0	1	21.11	22.31
					12	6	1	19.95	21.15
					12	11	1	20.04	21.24
					25	0	1	20.54	21.74
				16QAM	1	0	1	20.69	21.89
					1	12	1	19.97	21.17
					1	24	1	20.08	21.28
					12	0	2	20.27	21.47
					12	6	2	20.18	21.38
					12	11	2	20.06	21.26
					25	0	2	19.91	21.11
		26365	1882.5	QPSK	1	0	0	21.17	22.37
					1	12	0	20.99	22.19
					1	24	0	21.34	22.54
					12	0	1	21.11	22.31
					12	6	1	20.92	22.12
					12	11	1	21.24	22.44
					25	0	1	21.08	22.28
				16QAM	1	0	1	20.57	21.77
					1	12	1	20.43	21.63
					1	24	1	21.04	22.24
					12	0	2	20.14	21.34
					12	6	2	20.01	21.21
					12	11	2	20.05	21.25
					25	0	2	20.02	21.22
		26665	1912.5	QPSK	1	0	0	19.62	20.82
					1	12	0	19.70	20.90
					1	24	0	19.01	20.21
					12	0	1	20.55	21.75
					12	6	1	20.63	21.83
					12	11	1	20.06	21.26
					25	0	1	20.31	21.51
				16QAM	1	0	1	19.31	20.51
					1	12	1	19.42	20.62
					1	24	1	19.67	20.87
					12	0	2	19.65	20.85
					12	6	2	19.31	20.51
					12	11	2	19.27	20.47
					25	0	2	19.54	20.74

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	EIRP Power (dBm)
Band 25	10M	26090	1885.0	QPSK	1	0	0	21.28	22.48
					1	24	0	20.90	22.10
					1	49	0	20.63	21.83
					25	0	1	21.13	22.33
					25	12	1	19.97	21.17
					25	24	1	20.06	21.26
					50	0	1	20.56	21.76
				16QAM	1	0	1	20.71	21.91
					1	24	1	19.99	21.19
					1	49	1	20.10	21.30
					25	0	2	20.29	21.49
					25	12	2	20.20	21.40
					25	24	2	20.08	21.28
					50	0	2	19.93	21.13
		26365	1882.5	QPSK	1	0	0	21.19	22.39
					1	24	0	21.01	22.21
					1	49	0	21.36	22.56
					25	0	1	21.13	22.33
					25	12	1	20.94	22.14
					25	24	1	21.26	22.46
					50	0	1	21.10	22.30
				16QAM	1	0	1	20.59	21.79
					1	24	1	20.45	21.65
					1	49	1	21.06	22.26
					25	0	2	20.16	21.36
					25	12	2	20.03	21.23
					25	24	2	20.07	21.27
					50	0	2	20.04	21.24
		26640	1910.0	QPSK	1	0	0	19.65	20.85
					1	24	0	19.73	20.93
					1	49	0	19.04	20.24
					25	0	1	20.58	21.78
					25	12	1	20.66	21.86
					25	24	1	20.09	21.29
					50	0	1	20.34	21.54
				16QAM	1	0	1	19.34	20.54
					1	24	1	19.45	20.65
					1	49	1	19.70	20.90
					25	0	2	19.68	20.88
					25	12	2	19.34	20.54
					25	24	2	19.30	20.50
					50	0	2	19.57	20.77

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	EIRP Power (dBm)
Band 25	15M	26115	1857.5	QPSK	1	0	0	21.29	22.49
					1	37	0	20.91	22.11
					1	74	0	20.64	21.84
					36	0	1	21.14	22.34
					36	18	1	19.98	21.18
					36	35	1	20.07	21.27
					75	0	1	20.57	21.77
				16QAM	1	0	1	20.72	21.92
					1	37	1	20.00	21.20
					1	74	1	20.11	21.31
					36	0	2	20.30	21.50
					36	18	2	20.21	21.41
					36	35	2	20.09	21.29
					75	0	2	19.94	21.14
		26365	1882.5	QPSK	1	0	0	21.20	22.40
					1	37	0	21.02	22.22
					1	74	0	21.37	22.57
					36	0	1	21.14	22.34
					36	18	1	20.95	22.15
					36	35	1	21.27	22.47
					75	0	1	21.11	22.31
				16QAM	1	0	1	20.60	21.80
					1	37	1	20.46	21.66
					1	74	1	21.07	22.27
					36	0	2	20.17	21.37
					36	18	2	20.04	21.24
					36	35	2	20.08	21.28
					75	0	2	20.05	21.25
		26615	1907.5	QPSK	1	0	0	19.66	20.86
					1	37	0	19.74	20.94
					1	74	0	19.05	20.25
					36	0	1	20.59	21.79
					36	18	1	20.67	21.87
					36	35	1	20.10	21.30
					75	0	1	20.35	21.55
				16QAM	1	0	1	19.35	20.55
					1	37	1	19.46	20.66
					1	74	1	19.71	20.91
					36	0	2	19.69	20.89
					36	18	2	19.35	20.55
					36	35	2	19.31	20.51
					75	0	2	19.58	20.78

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	EIRP Power (dBm)
Band 25	20M	26140	1860.0	QPSK	1	0	0	21.32	22.52
					1	49	0	20.94	22.14
					1	99	0	20.67	21.87
					50	0	1	21.17	22.37
					50	24	1	20.01	21.21
					50	49	1	20.10	21.30
					100	0	1	20.60	21.80
				16QAM	1	0	1	20.75	21.95
					1	49	1	20.03	21.23
					1	99	1	20.14	21.34
					50	0	2	20.33	21.53
					50	24	2	20.24	21.44
					50	49	2	20.12	21.32
					100	0	2	19.97	21.17
		26365	1882.5	QPSK	1	0	0	21.26	22.46
					1	49	0	21.08	22.28
					1	99	0	21.43	22.63
					50	0	1	21.20	22.40
					50	24	1	21.01	22.21
					50	49	1	21.33	22.53
					100	0	1	21.17	22.37
				16QAM	1	0	1	20.66	21.86
					1	49	1	20.52	21.72
					1	99	1	21.13	22.33
					50	0	2	20.23	21.43
					50	24	2	20.10	21.30
					50	49	2	20.14	21.34
					100	0	2	20.11	21.31
		26590	1905.0	QPSK	1	0	0	19.73	20.93
					1	49	0	19.81	21.01
					1	99	0	19.12	20.32
					50	0	1	20.66	21.86
					50	24	1	20.74	21.94
					50	49	1	20.17	21.37
					100	0	1	20.42	21.62
				16QAM	1	0	1	19.42	20.62
					1	49	1	19.53	20.73
					1	99	1	19.78	20.98
					50	0	2	19.76	20.96
					50	24	2	19.42	20.62
					50	49	2	19.38	20.58
					100	0	2	19.65	20.85



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8.2 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

LIMIT

According to FCC §2.1055, FCC §24.235.

Frequency Tolerance: +/- 2.5ppm

According to RSS -133 section 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 stations.

In lieu of meeting the above stability values, the test report may show that the frequency stability is sufficient to ensure that the emission bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

Test Procedure

Use Anritsu 8820 with frequency Error measurement capability.

Temp = -40°C to $+65^{\circ}\text{C}$

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.*

TEST RESULTS

No non-compliance noted.

Test Results

FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT: LTE Band 25 / QPSK

Reference Frequency: LTE Band 25, 1882.5 MHz at 20(°C)				
Limit: 2.5 ppm = 4706.25 Hz				
Power Supply (Vac)	Environment Temperature (°C)	BW: 10M Frequency Error(Hz)	Frequency Error (ppm)	Limit (ppm)
12	65	-0.02	-0.000011	+/- 2.5
12	50	0.00	0.000000	
12	40	-0.01	-0.000005	
12	30	0.00	0.000000	
12	20	0.00	0.000000	
12	10	0.00	0.000000	
12	0	-0.02	-0.000011	
12	-10	0.00	0.000000	
12	-20	0.01	0.000005	
12	-30	0.00	0.000000	
12	-40	-0.02	-0.000011	

LTE Band 25 / 16QAM

Reference Frequency: LTE Band 25, 1882.5 MHz at 20(°C)				
Limit: 2.5 ppm = 4706.25 Hz				
Power Supply (Vac)	Environment Temperature (°C)	BW: 10M Frequency Error(Hz)	Frequency Error (ppm)	Limit (ppm)
12	65	0.01	0.000005	+/- 2.5
12	50	-0.01	-0.000005	
12	40	0.00	0.000000	
12	30	0.01	0.000005	
12	20	0.00	0.000000	
12	10	0.01	0.000005	
12	0	-0.02	-0.000011	
12	-10	-0.01	-0.000005	
12	-20	0.02	0.000011	
12	-30	0.01	0.000005	
12	-40	0.01	0.000005	



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FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT:

LTE Band 25 / QPSK

Reference Frequency: LTE Band 25, 1882.5 MHz at 20(°C)				
Limit: 2.5 ppm = 4706.25 Hz				
Power Supply (Vac)	Environment Temperature (°C)	BW: 20M Frequency Error(Hz)	Frequency Error (ppm)	Limit (ppm)
10.2	20	0.01	0.000005	+/- 2.5
12		0.00	0.000000	
13.8		0.00	0.000000	

LTE Band 25 / 16QAM

Reference Frequency: LTE Band 25, 1882.5 MHz at 20(°C)				
Limit: 2.5 ppm = 4706.25 Hz				
Power Supply (Vac)	Environment Temperature (°C)	BW: 20M Frequency Error(Hz)	Frequency Error (ppm)	Limit (ppm)
10.2	20	0.01	0.000005	+/- 2.5
12		0.00	0.000000	
13.8		-0.01	-0.000005	

8.3 OCCUPIED BANDWIDTH MEASUREMENT

Limits

For Reporting purposes only.

TEST PROCEDURES

KDB 971168 D01

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 $\geq 3 \times$ RBW
4. Detector = Peak
5. Trace mode = max. hold

TEST RESULTS

LTE Band 25

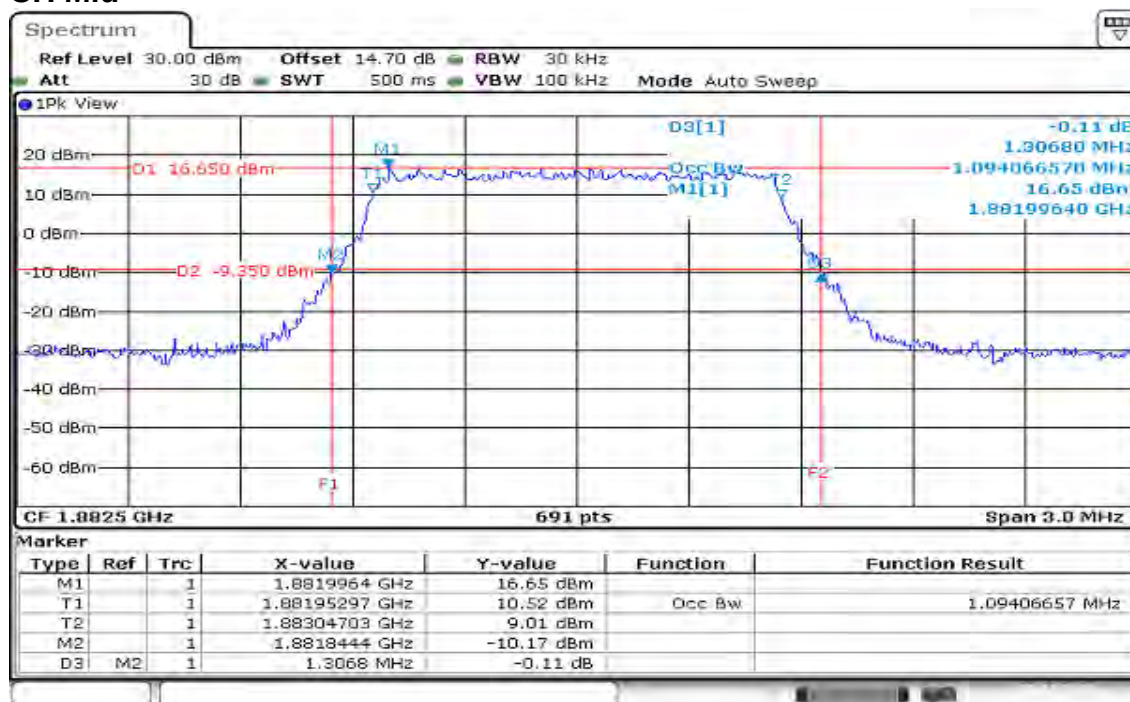
Band	BW (MHz)	Channel	Frequency (MHz)	Mode	OBW(99%)(MHz)	26 dB Bandwidth(MHz)
25	1.4	Middle	1882.5	QPSK	1.0941	1.3068
		Middle	1882.5	16QAM	1.0941	1.3025
	3	Middle	1882.5	QPSK	2.6918	2.9566
		Middle	1882.5	16QAM	2.6831	2.9653
	5	Middle	1882.5	QPSK	4.4863	4.9480
		Middle	1882.5	16QAM	4.4573	4.8900
	10	Middle	1882.5	QPSK	8.9146	9.6950
		Middle	1882.5	16QAM	8.9146	9.5500
	15	Middle	1882.5	QPSK	13.3719	14.6010
		Middle	1882.5	16QAM	13.3719	14.5140
	20	Middle	1882.5	QPSK	17.8292	19.5500
		Middle	1882.5	16QAM	17.8292	19.5500

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LTE Band 25

BW: 1.4MHz / QPSK

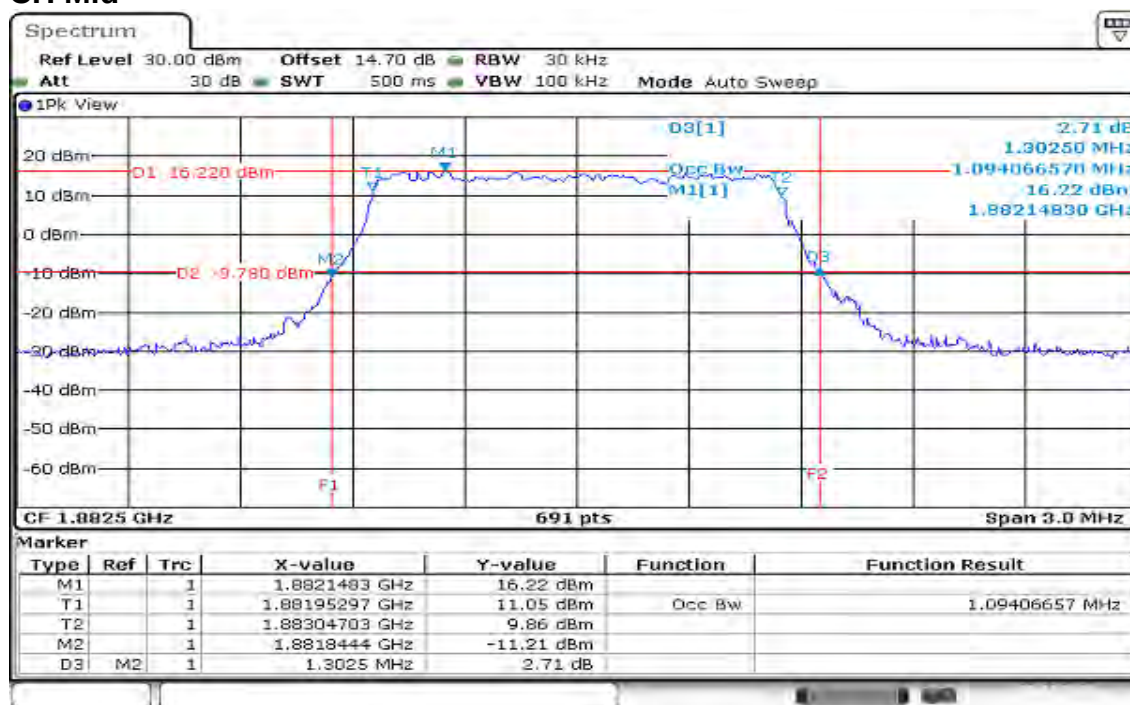
CH Mid



Date: 20.DEC.2019 10:39:24

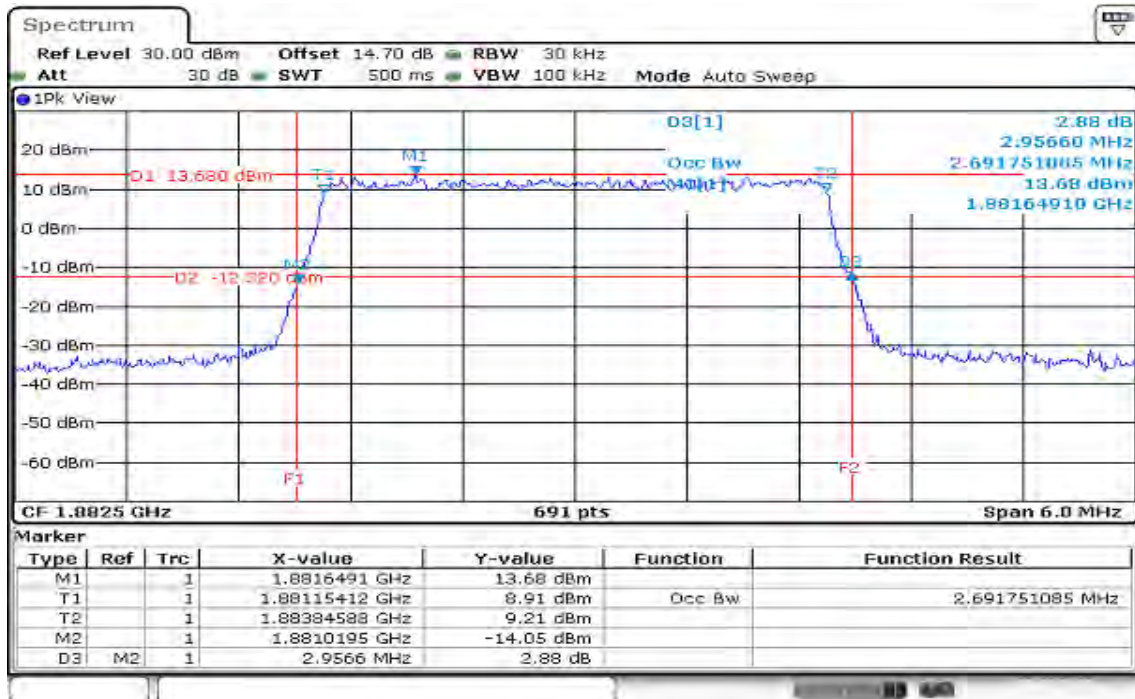
BW: 1.4MHz / 16QAM

CH Mid

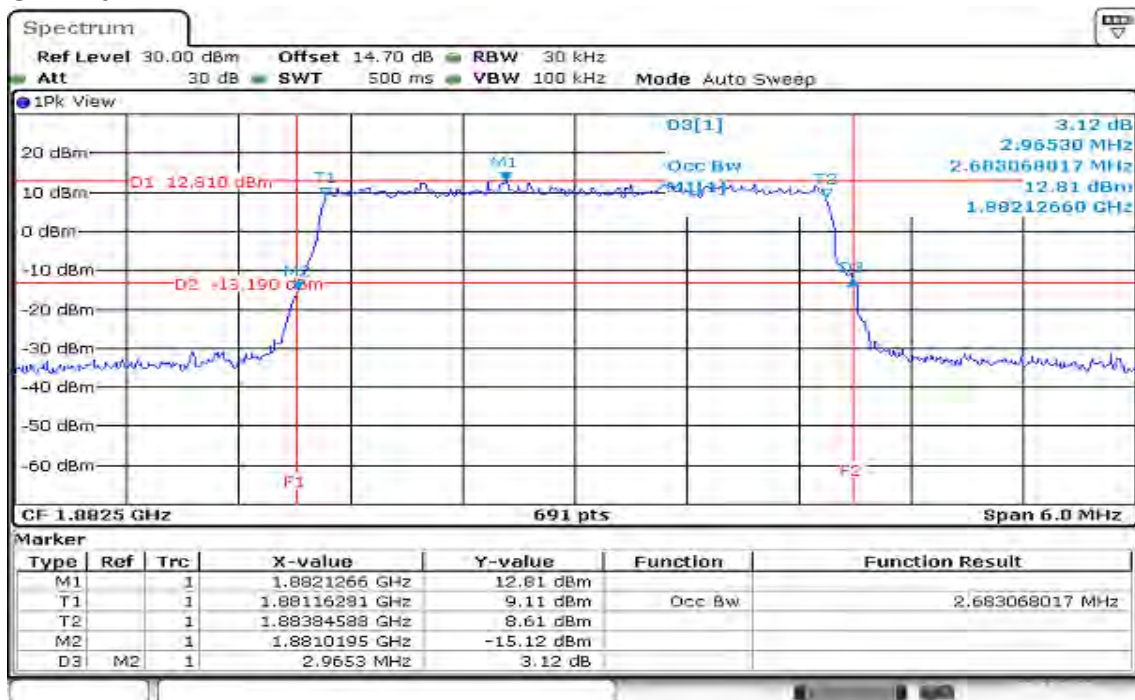


Date: 20.DEC.2019 10:36:16

Report No.: T191120D05-RP6

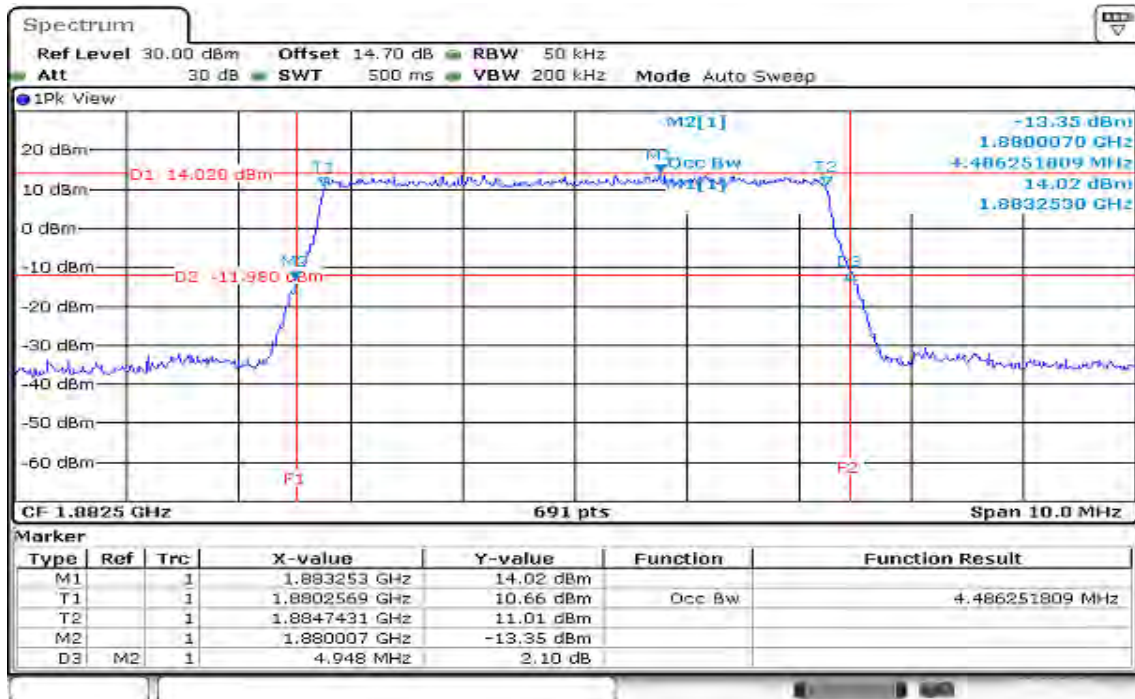
BW: 3MHz / QPSK
CH Mid


Date: 20.DEC.2019 10:40:42

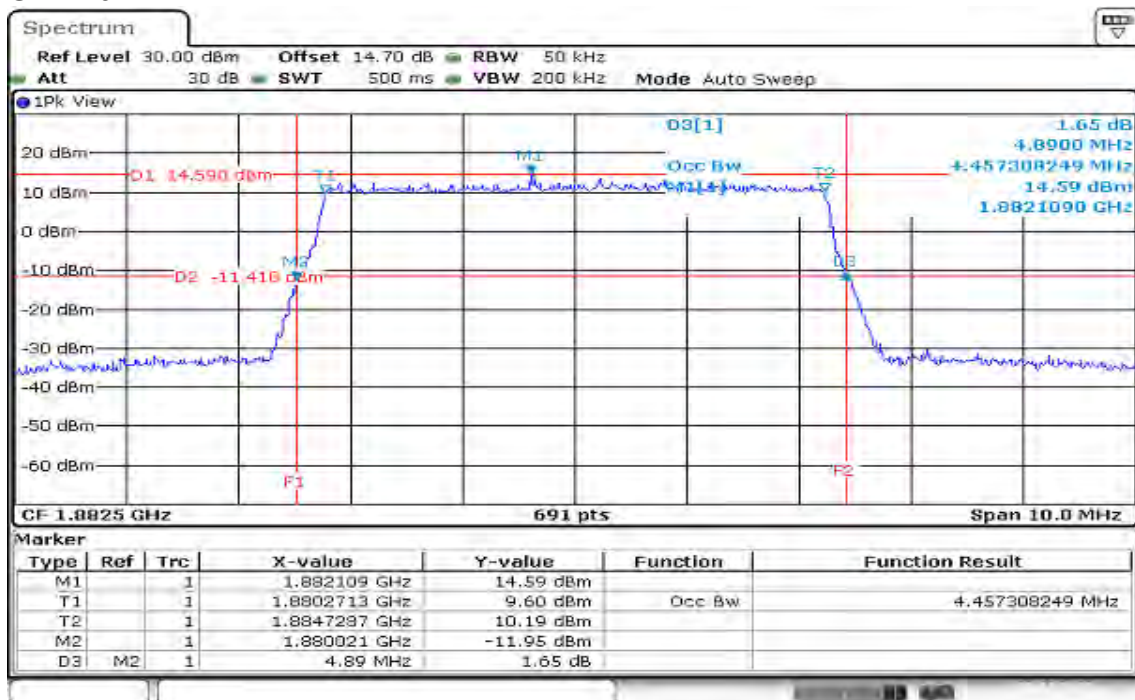
BW: 3MHz / 16QAM
CH Mid


Date: 20.DEC.2019 10:44:42

Report No.: T191120D05-RP6

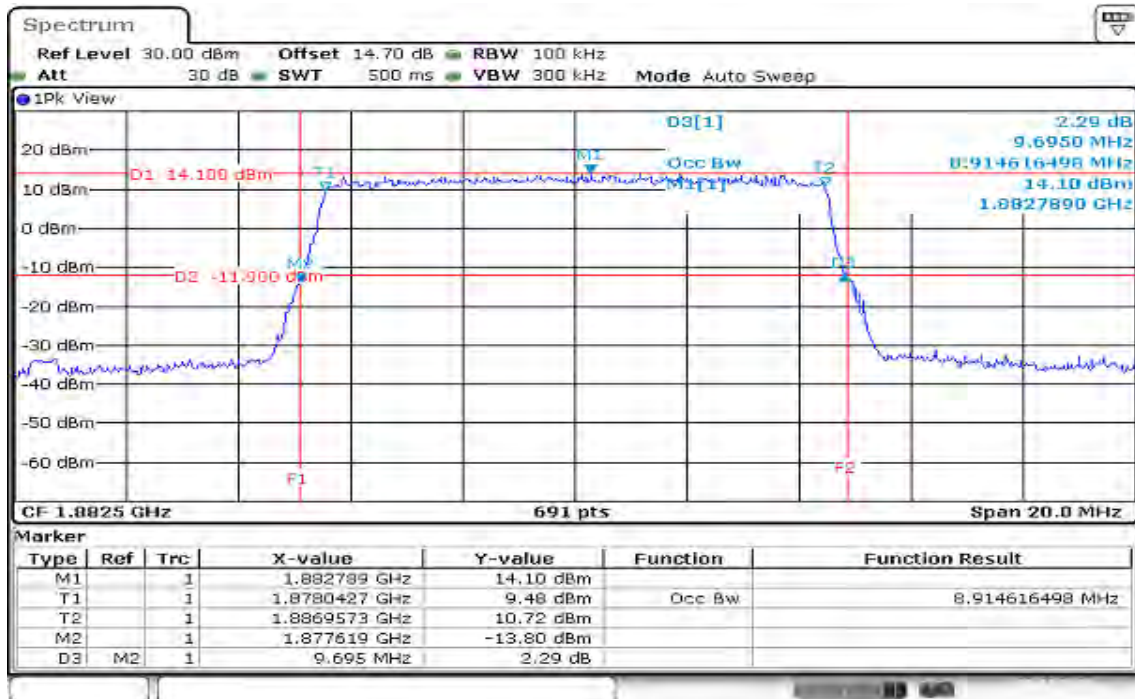
BW: 5MHz / QPSK
CH Mid


Date: 20.DEC.2019 10:46:16

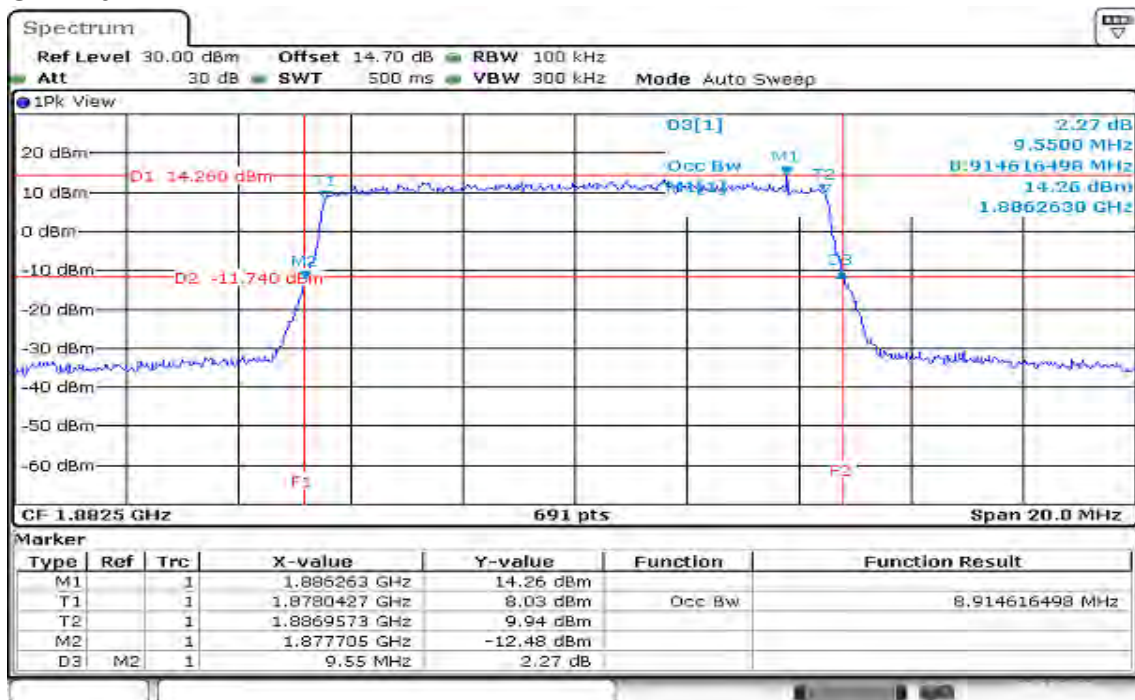
BW: 5MHz / 16QAM
CH Mid


Date: 20.DEC.2019 10:47:35

Report No.: T191120D05-RP6

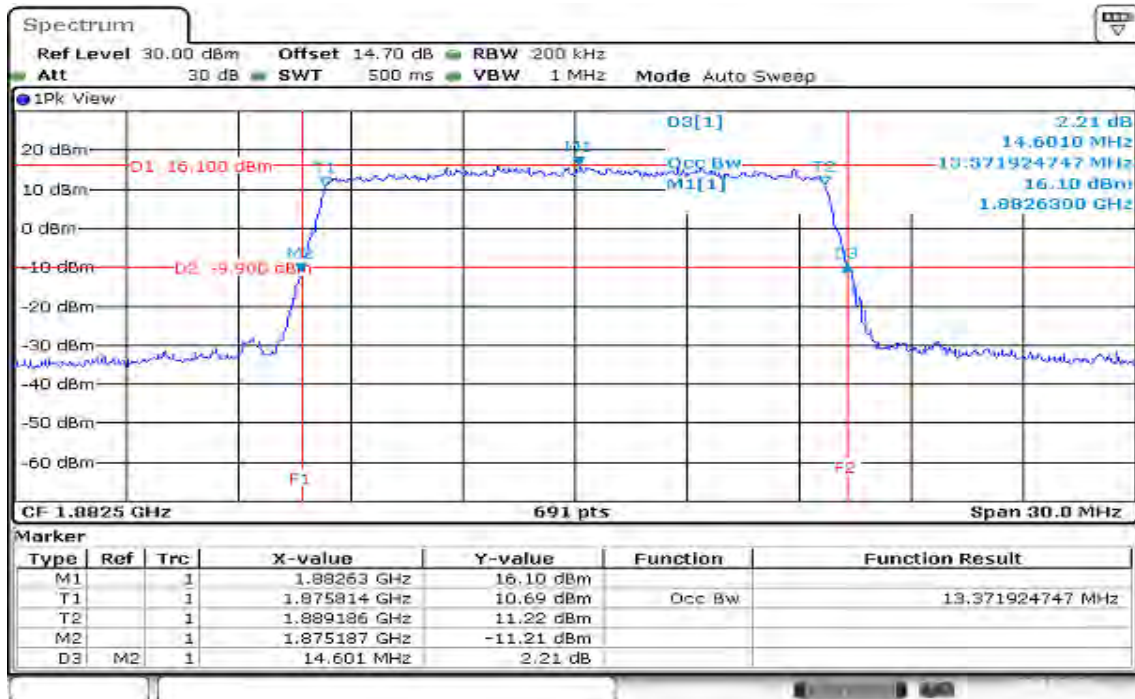
BW: 10MHz / QPSK
CH Mid


Date: 20.DEC.2019 10:51:54

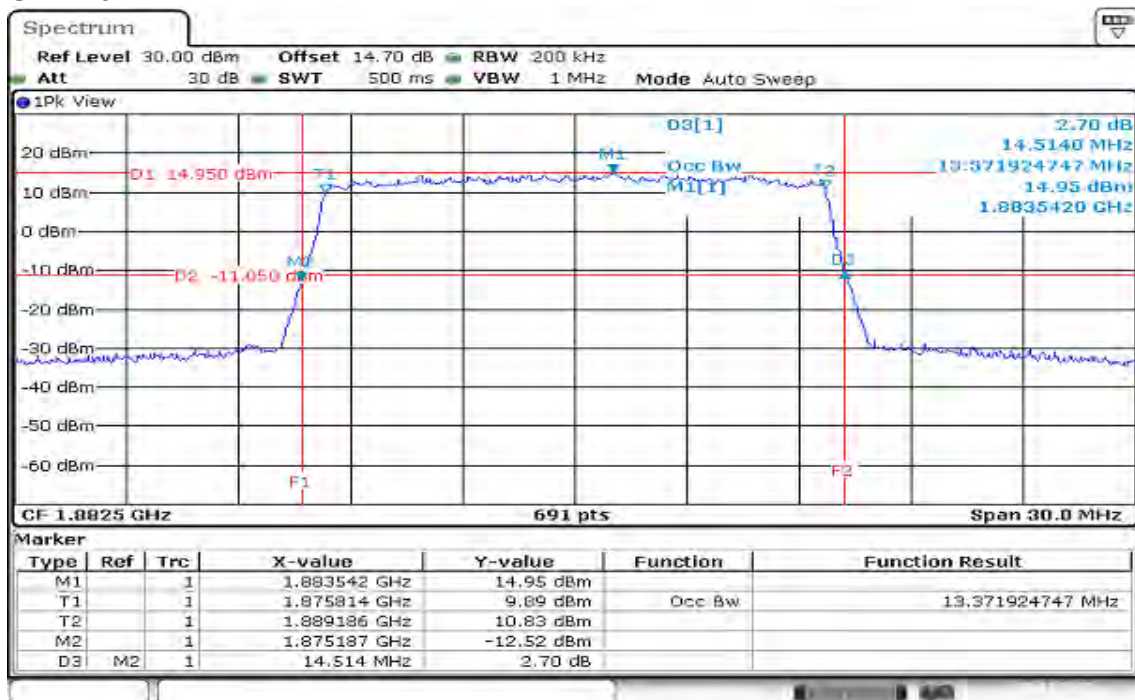
BW: 10MHz / 16QAM
CH Mid


Date: 20.DEC.2019 10:50:41

Report No.: T191120D05-RP6

BW: 15MHz / QPSK
CH Mid


Date: 20.DEC.2019 10:53:21

BW: 15MHz / 16QAM
CH Mid


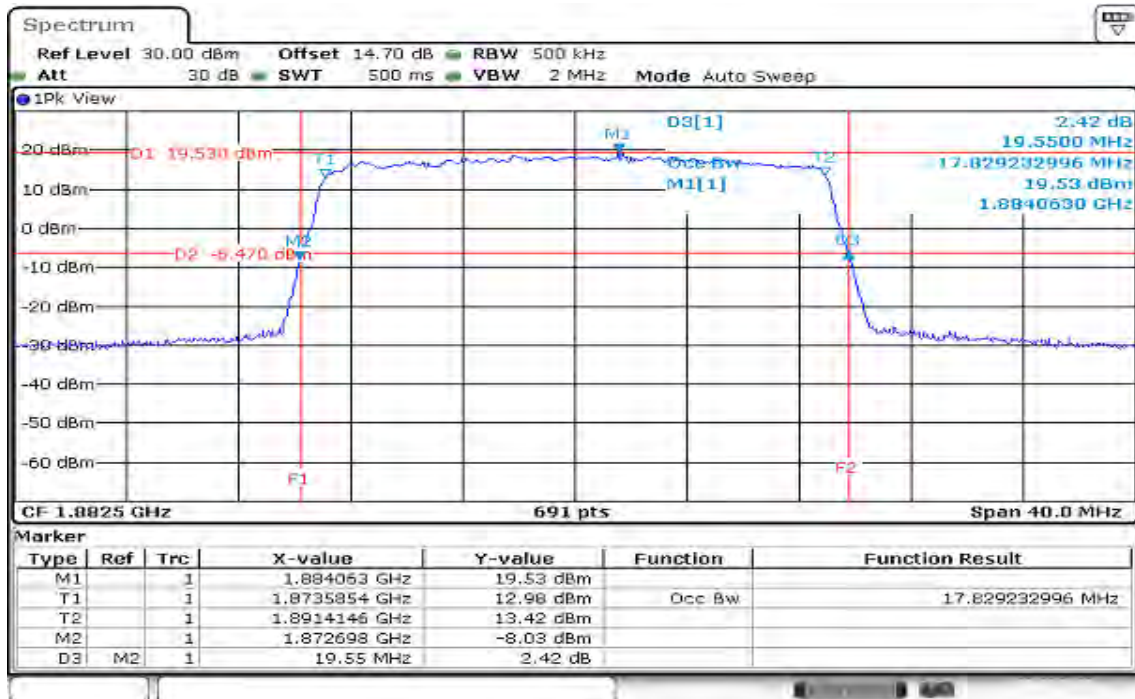
Date: 20.DEC.2019 10:54:15



Report No.: T191120D05-RP6

BW: 20MHz / QPSK

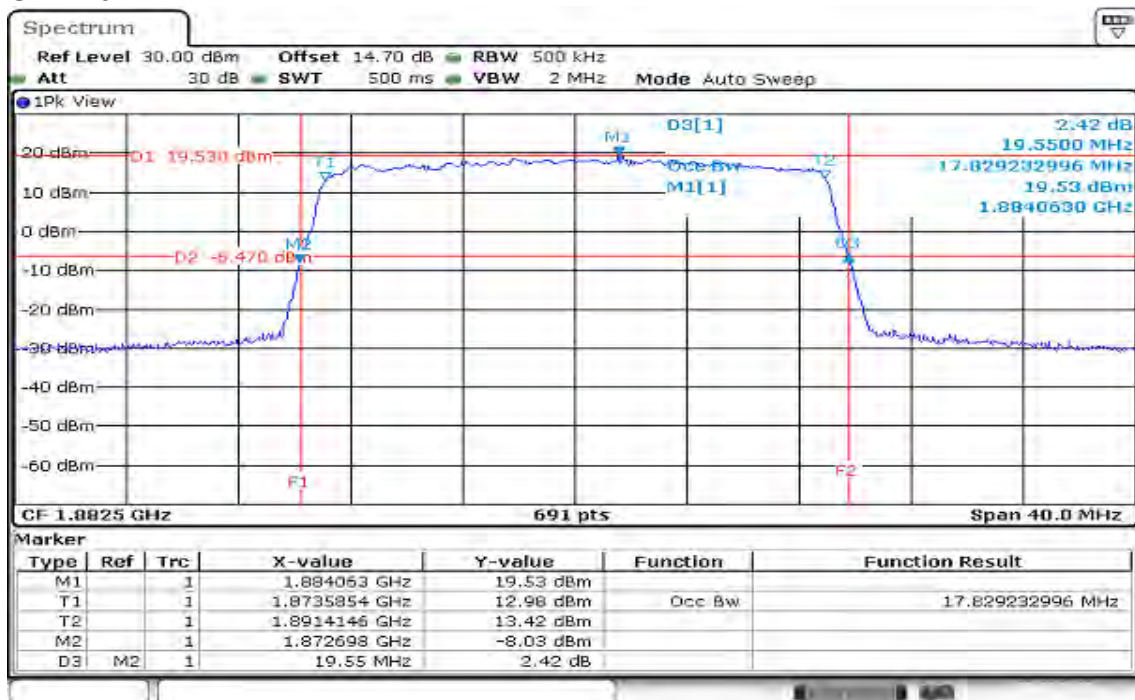
CH Mid



Date: 20.DEC.2019 11:04:42

BW: 20MHz / 16QAM

CH Mid



Date: 20.DEC.2019 11:24:33



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8.4 PEAK TO AVERAGE POWER RATIO

Limit

In measuring 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.

Test Procedures

1. According to KDB 971168 D01,
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.

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

Test Results

LTE Band 25

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	4.32

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	5.28

CHANNEL BANDWIDTH: 3MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	4.41

CHANNEL BANDWIDTH: 3MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	5.42

CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	4.46

CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	5.51

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

CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	4.55

CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	5.54

CHANNEL BANDWIDTH: 15MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	4.72

CHANNEL BANDWIDTH: 15MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	5.42

CHANNEL BANDWIDTH: 20MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	4.78

CHANNEL BANDWIDTH: 20MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	5.36

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

CHANNEL BANDWIDTH: 1.4MHz / QPSK / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	4.96

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	5.80

CHANNEL BANDWIDTH: 3MHz / QPSK / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	4.81

CHANNEL BANDWIDTH: 3MHz / 16QAM / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	5.91

CHANNEL BANDWIDTH: 5MHz / QPSK / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	4.84

CHANNEL BANDWIDTH: 5MHz / 16QAM / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	5.83

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

CHANNEL BANDWIDTH: 10MHz / QPSK / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	4.81

CHANNEL BANDWIDTH: 10MHz / 16QAM / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	5.83

CHANNEL BANDWIDTH: 15MHz / QPSK / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	4.96

CHANNEL BANDWIDTH: 15MHz / 16QAM / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	5.86

CHANNEL BANDWIDTH: 20MHz / QPSK / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	4.67

CHANNEL BANDWIDTH: 20MHz / 16QAM / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26365	1882.5	5.80

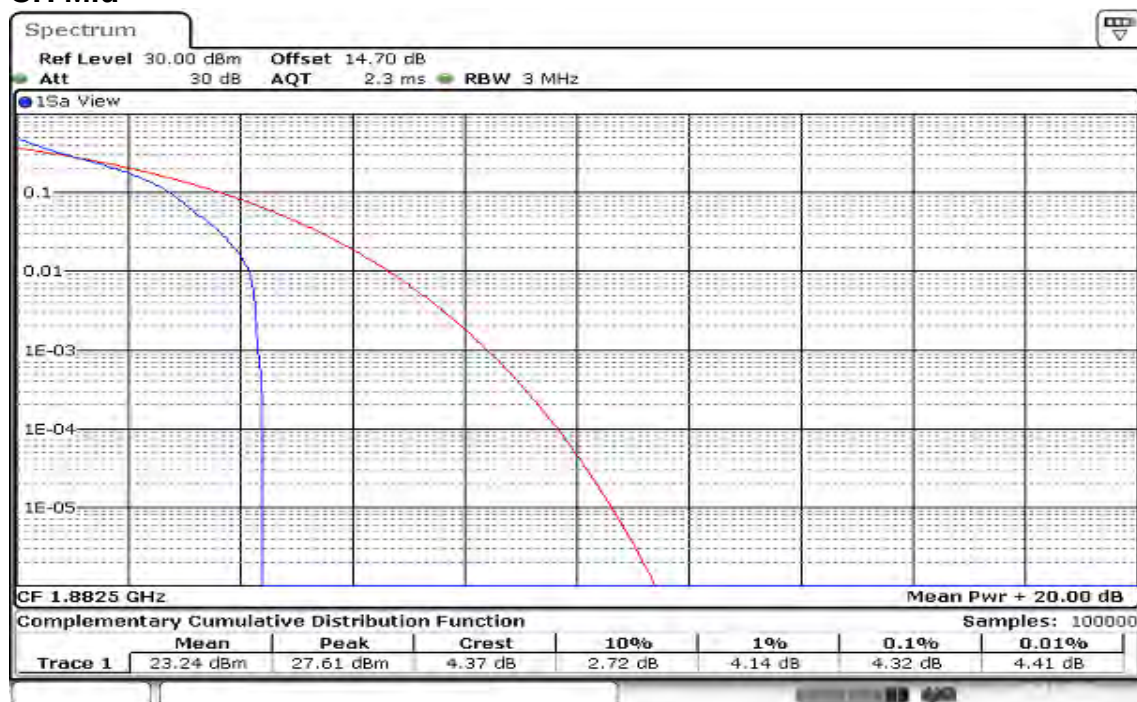
Note: We selected worst case to performed test in middle channel, the results can be meet other channel.

Report No.: T191120D05-RP6

LTE Band 25

BW: 1.4MHz / QPSK / RB =1, RB Offset = 0

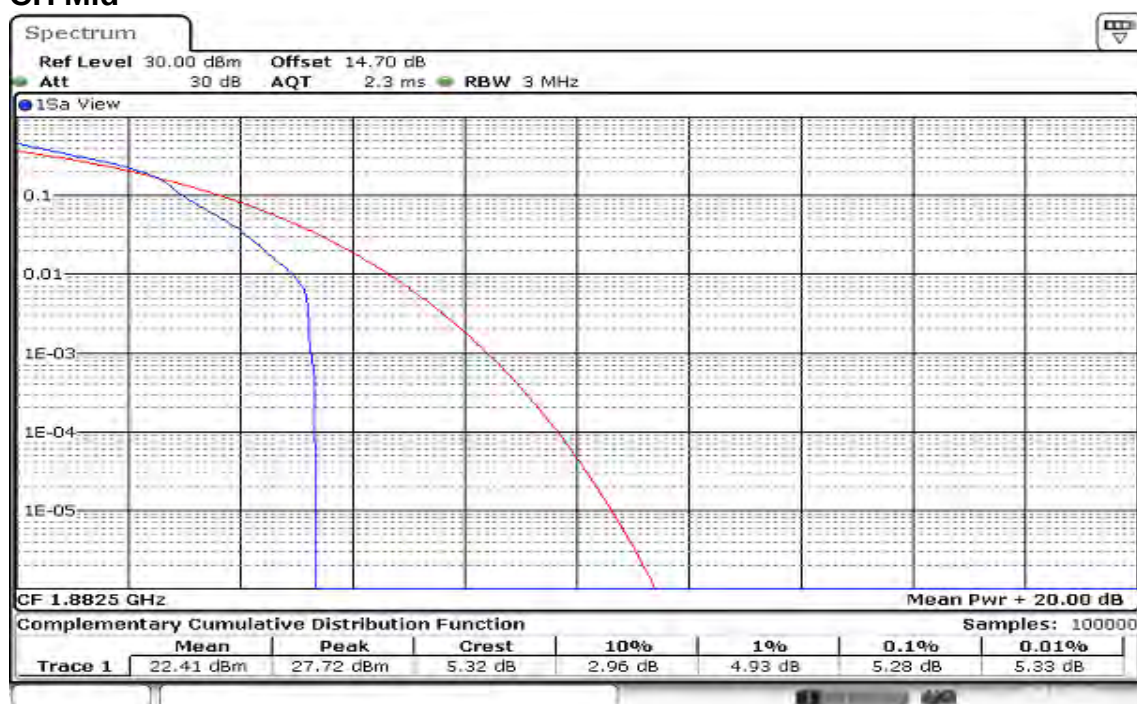
CH Mid



Date: 20.DEC.2019 09:48:49

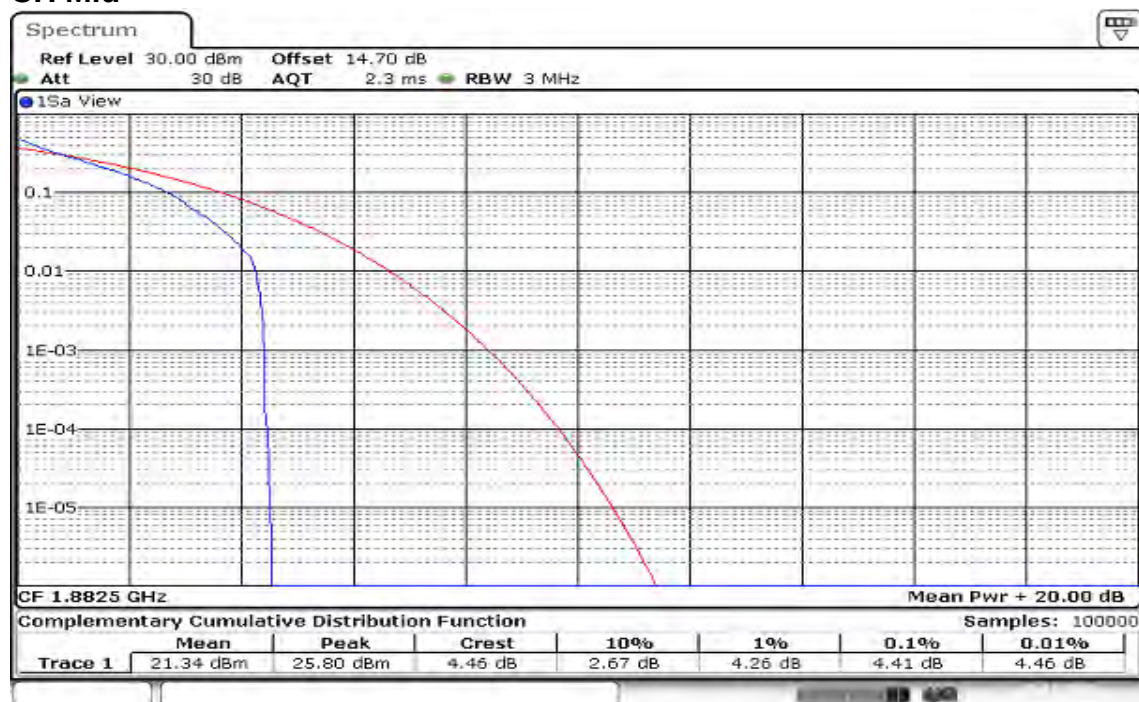
BW: 1.4MHz / 16QAM / RB =1, RB Offset = 0

CH Mid

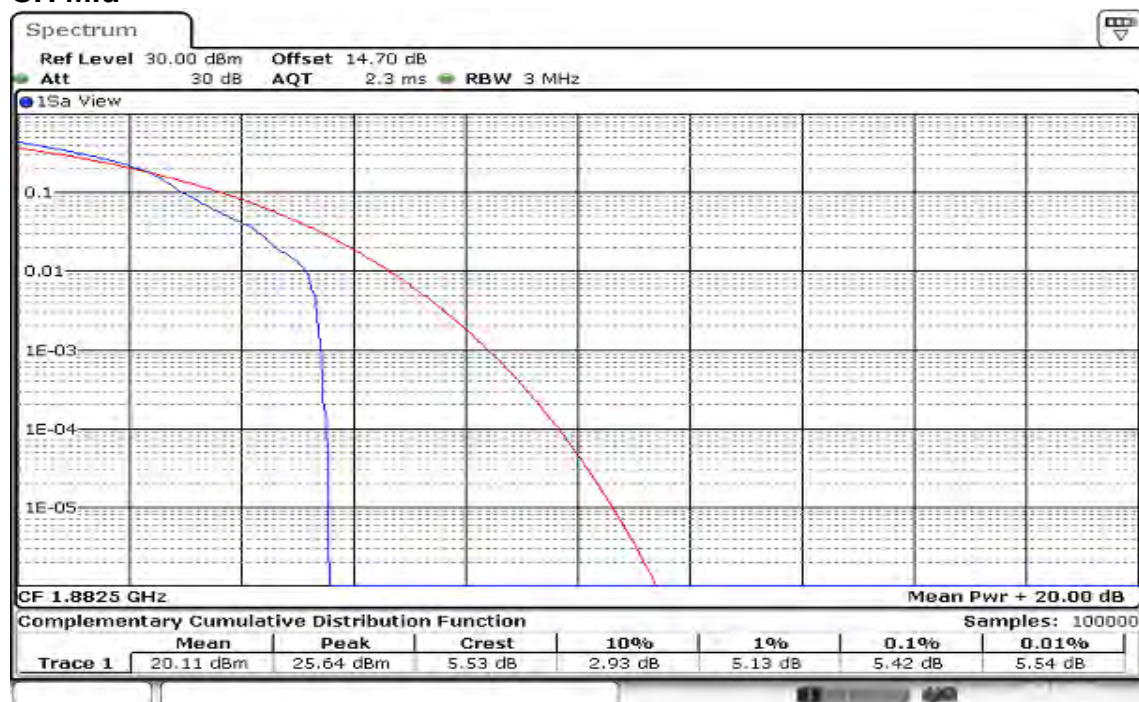


Date: 20.DEC.2019 09:49:08

Report No.: T191120D05-RP6

BW: 3MHz / QPSK / RB =1, RB Offset = 0
CH Mid


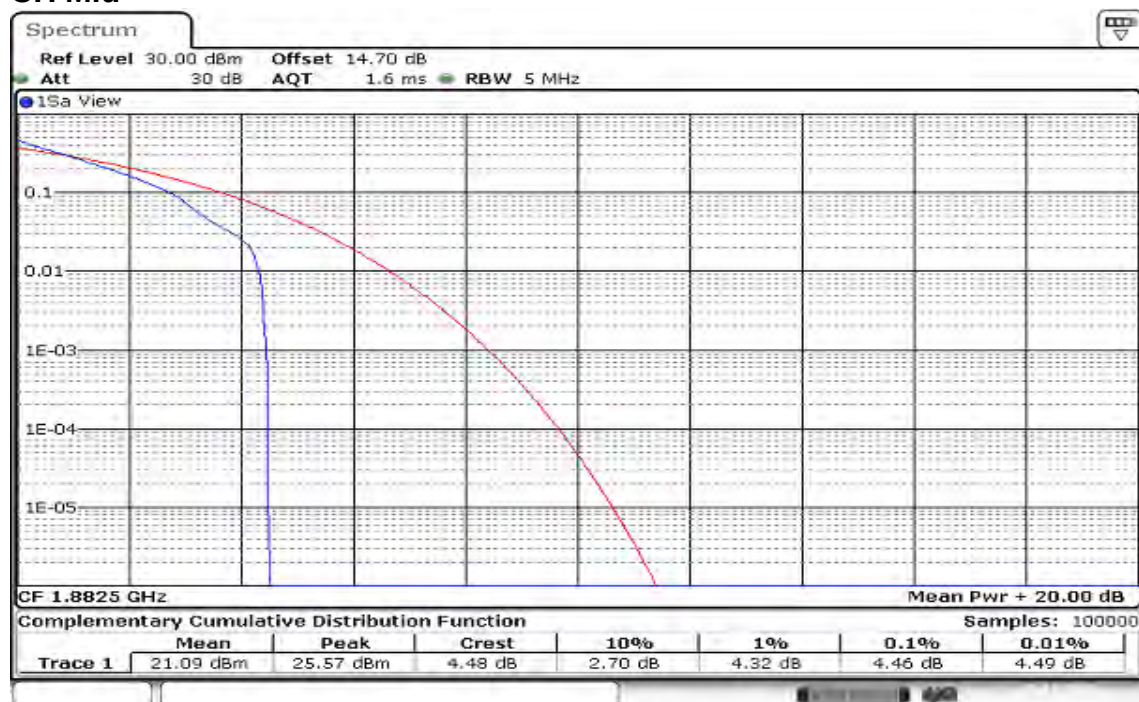
Date: 20.DEC.2019 09:50:50

BW: 3MHz / 16QAM / RB =1, RB Offset = 0
CH Mid


Date: 20.DEC.2019 09:50:31

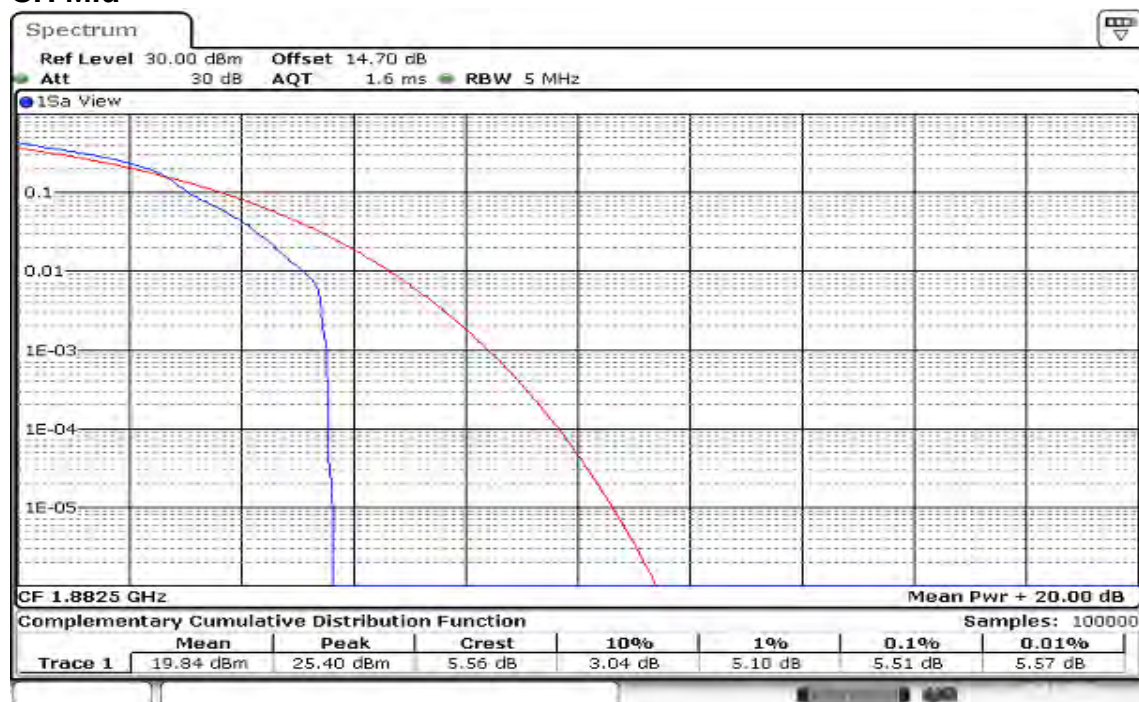
Report No.: T191120D05-RP6

BW: 5MHz / QPSK / RB =1, RB Offset = 0
CH Mid



Date: 20.DEC.2019 09:51:46

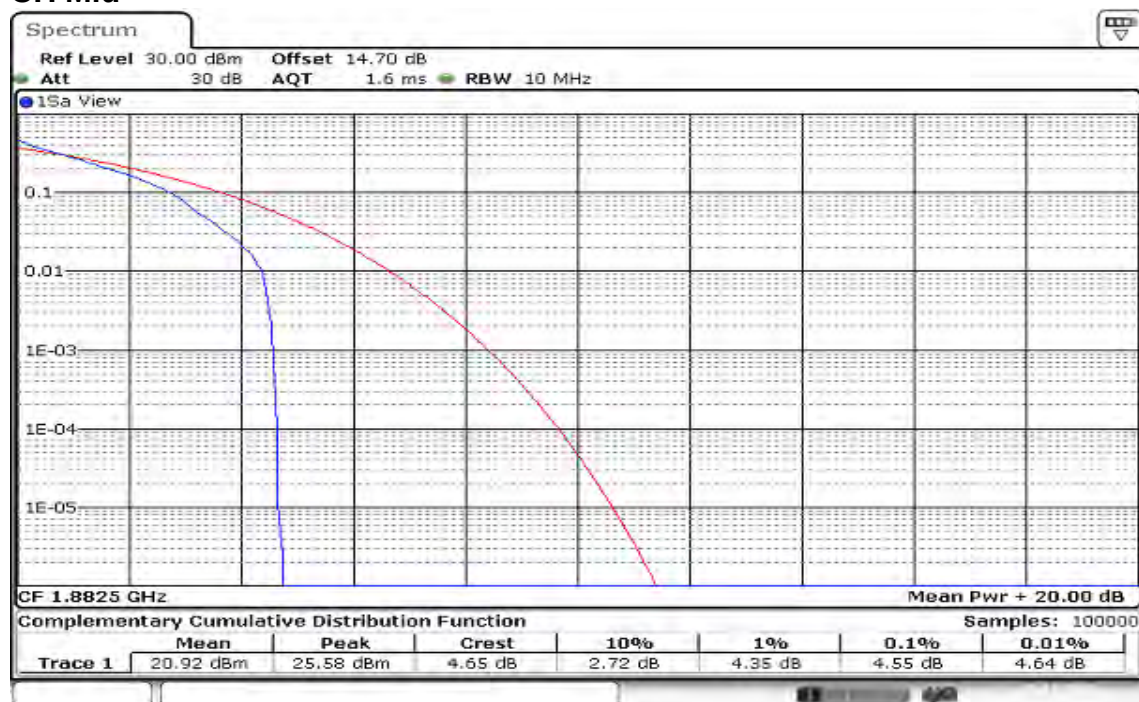
BW: 5MHz / 16QAM / RB =1, RB Offset = 0
CH Mid



Date: 20.DEC.2019 09:52:20

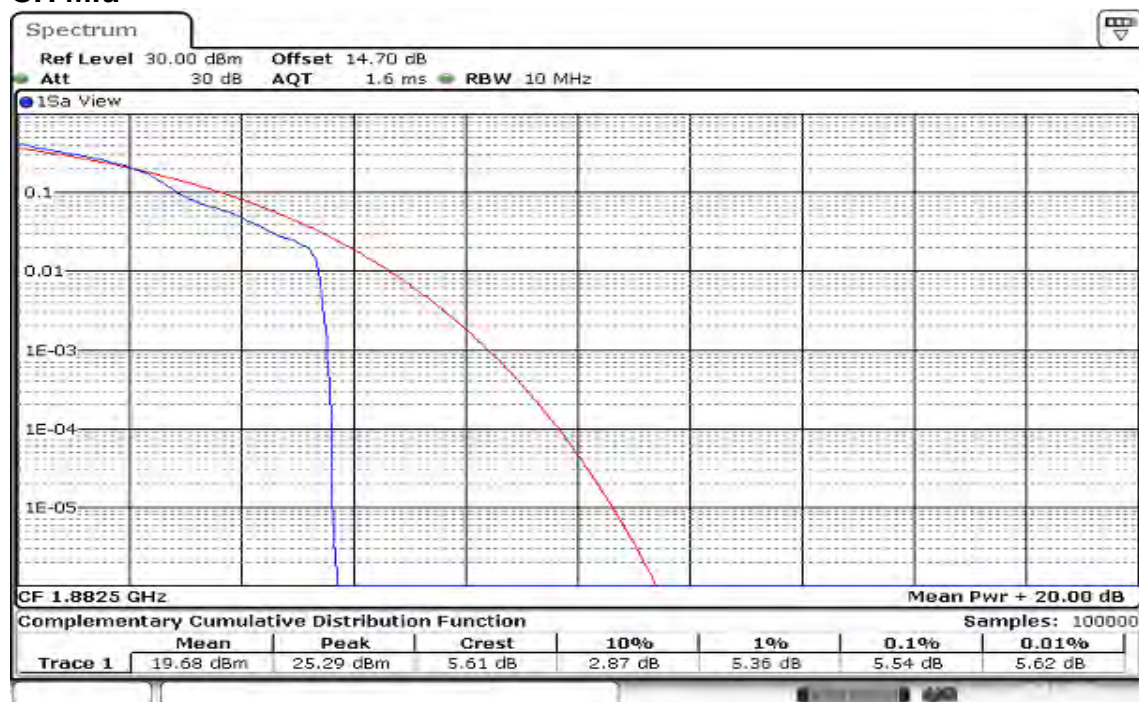
Report No.: T191120D05-RP6

BW: 10MHz / QPSK /RB =1, RB Offset = 0
CH Mid



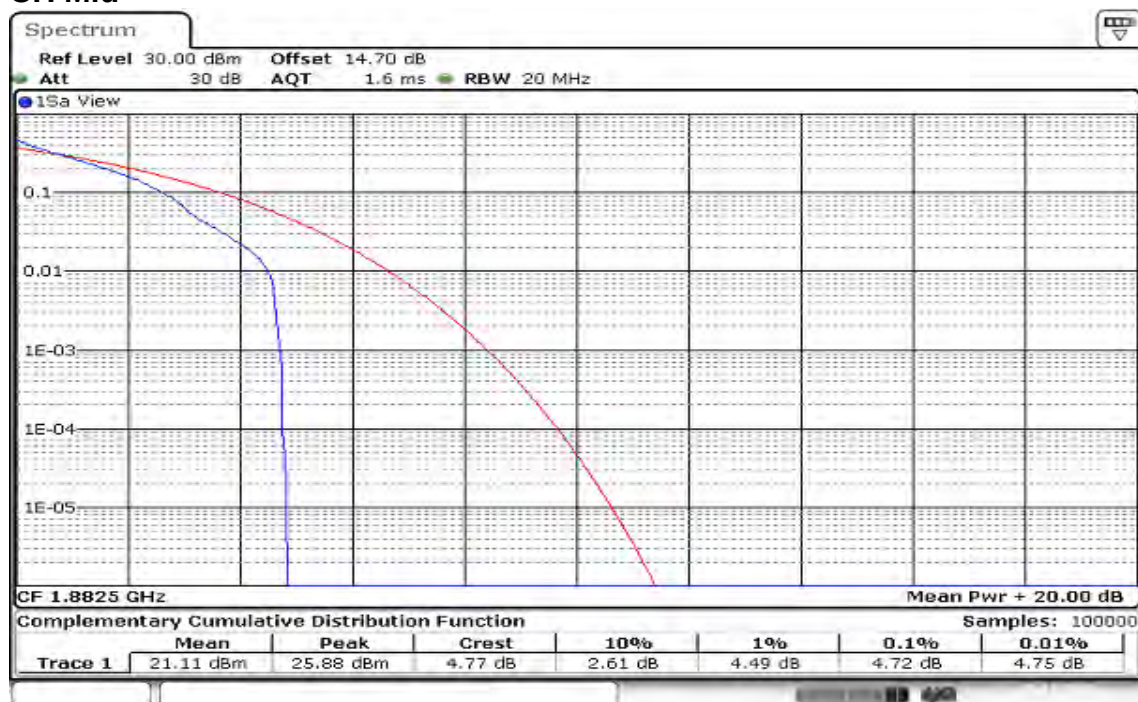
Date: 20.DEC.2019 09:54:10

BW: 10MHz / 16QAM /RB =1, RB Offset = 0
CH Mid

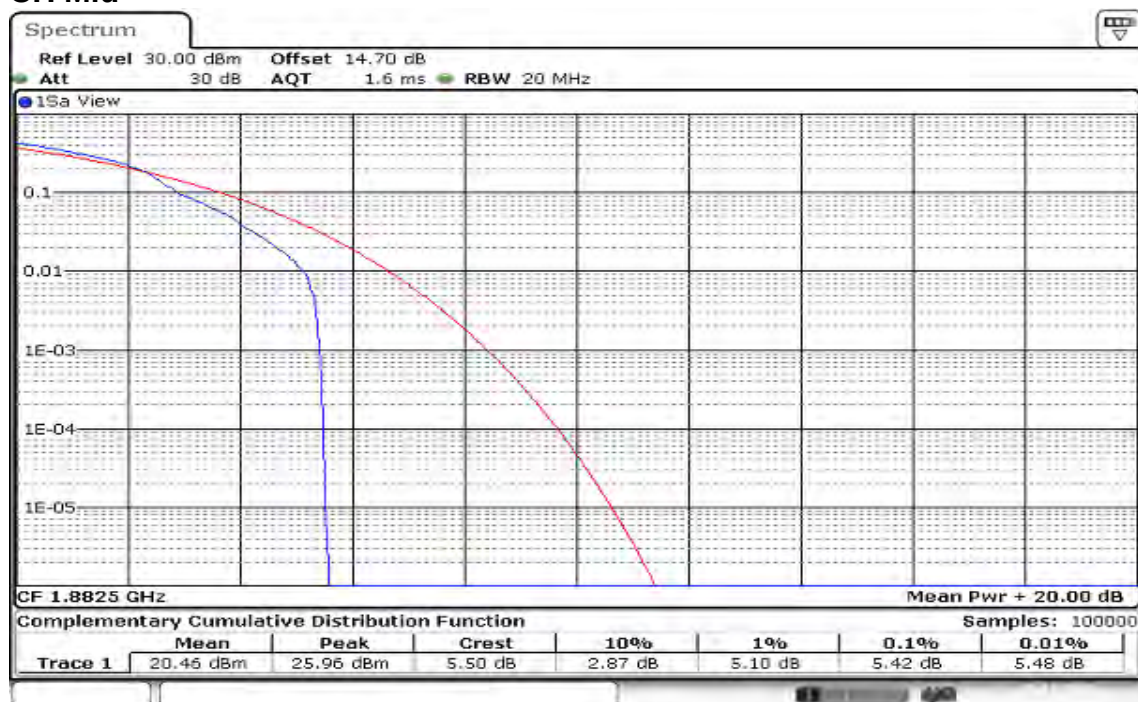


Date: 20.DEC.2019 09:53:42

Report No.: T191120D05-RP6

BW: 15MHz / QPSK /RB =1, RB Offset = 0
CH Mid


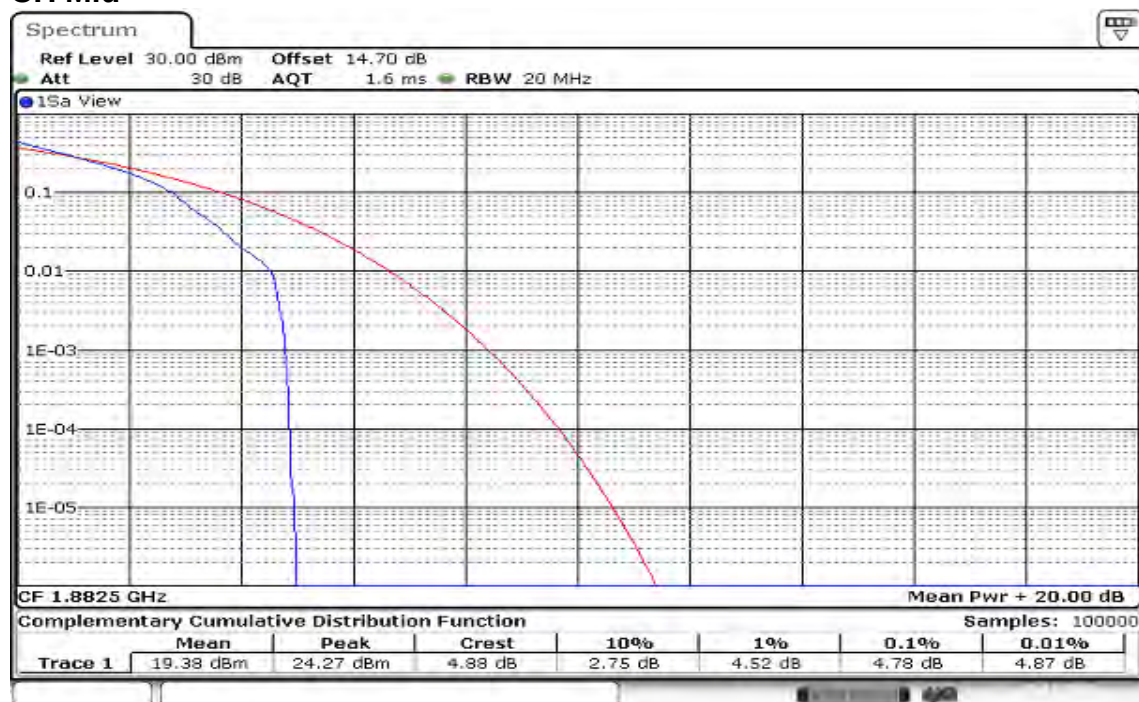
Date: 20.DEC.2019 09:58:03

BW: 15MHz / 16QAM /RB =1, RB Offset = 0
CH Mid


Date: 20.DEC.2019 09:57:38

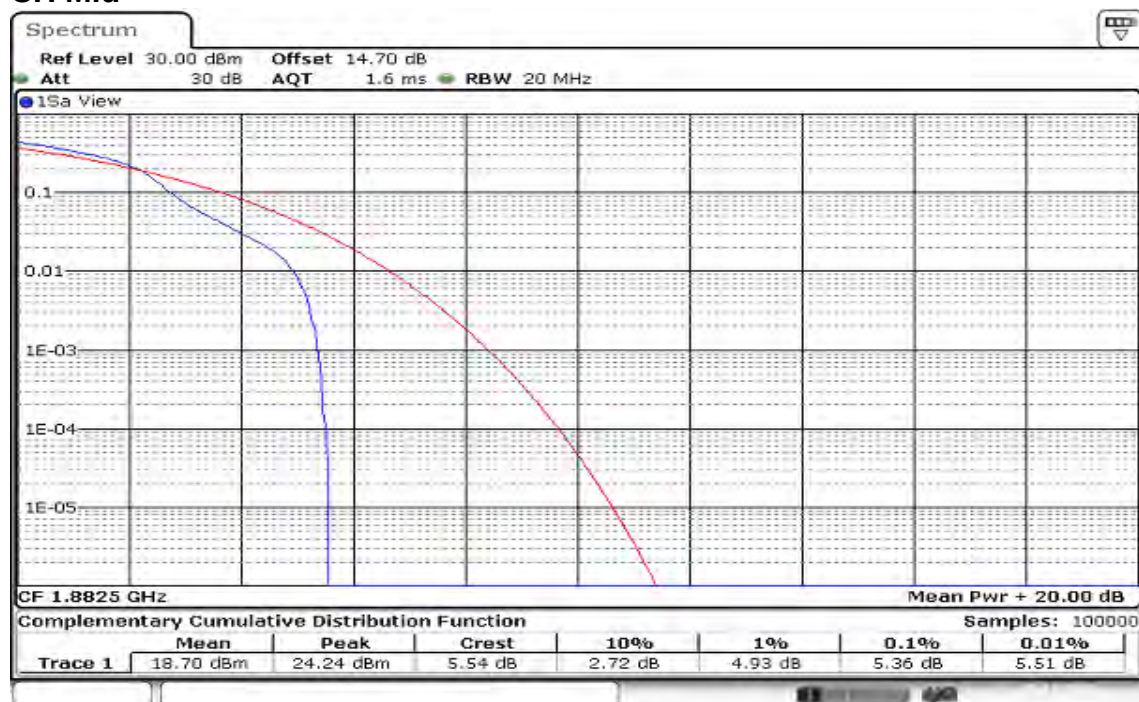
Report No.: T191120D05-RP6

BW: 20MHz / QPSK / RB =1, RB Offset = 0
CH Mid



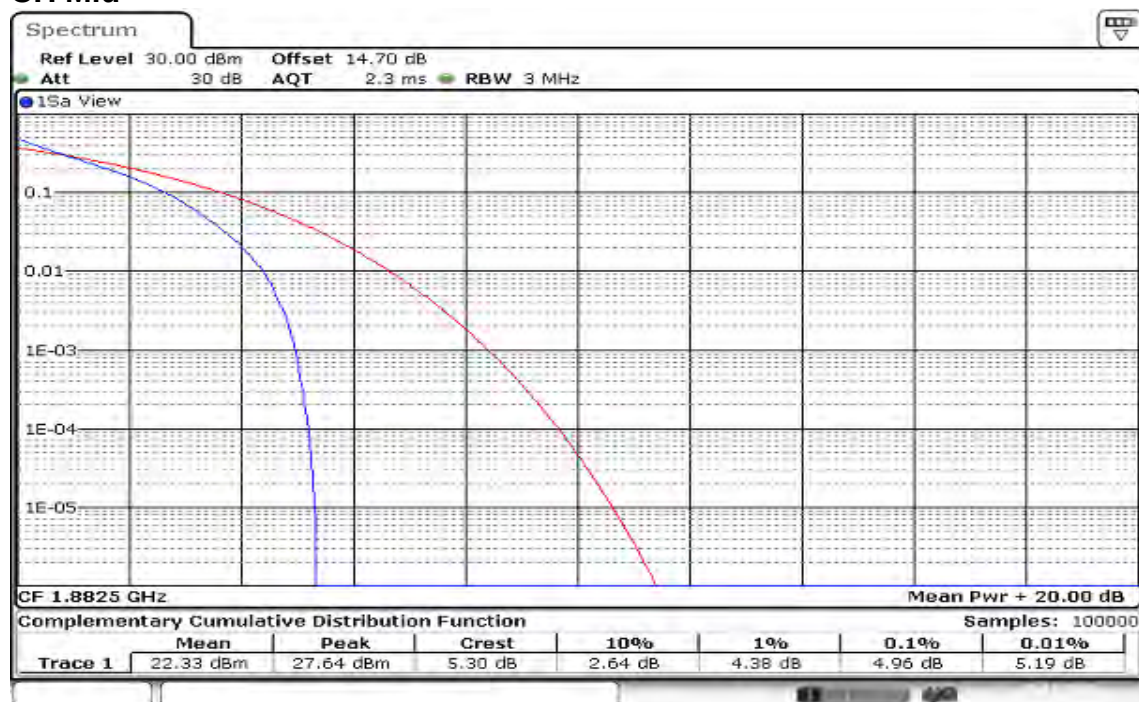
Date: 20.DEC.2019 10:00:08

BW: 20MHz / 16QAM / RB =1, RB Offset = 0
CH Mid

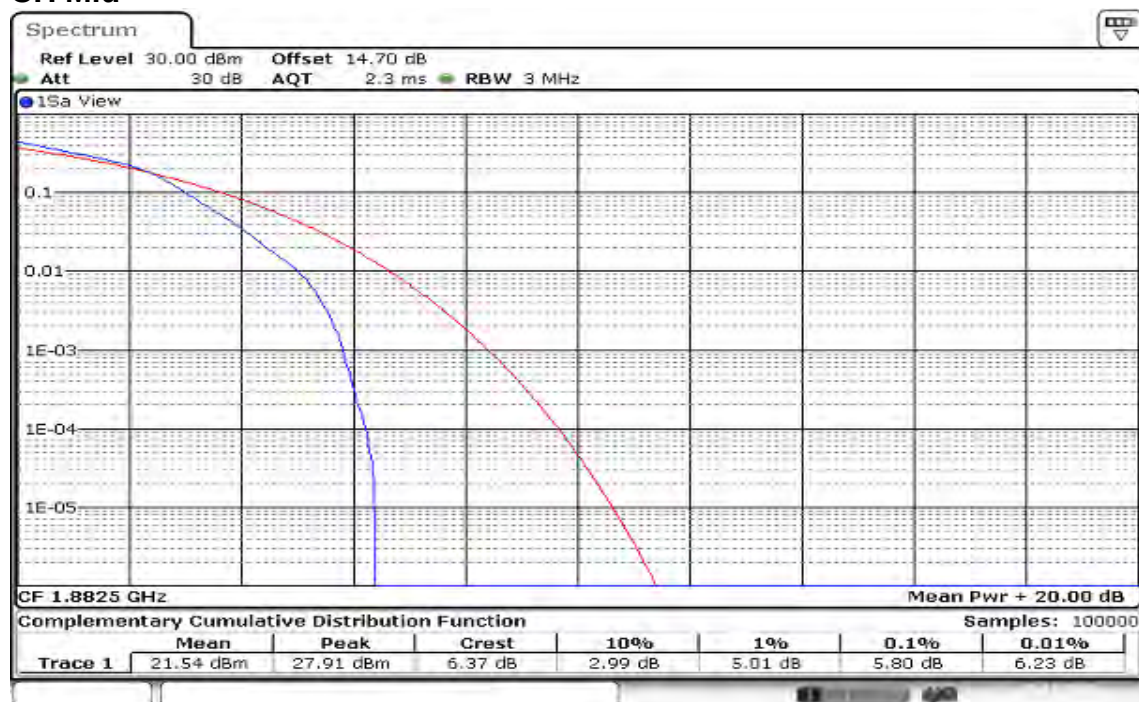


Date: 20.DEC.2019 09:59:44

Report No.: T191120D05-RP6

BW: 1.4MHz / QPSK / RB =100%, RB Offset = 0
CH Mid


Date: 20.DEC.2019 09:48:18

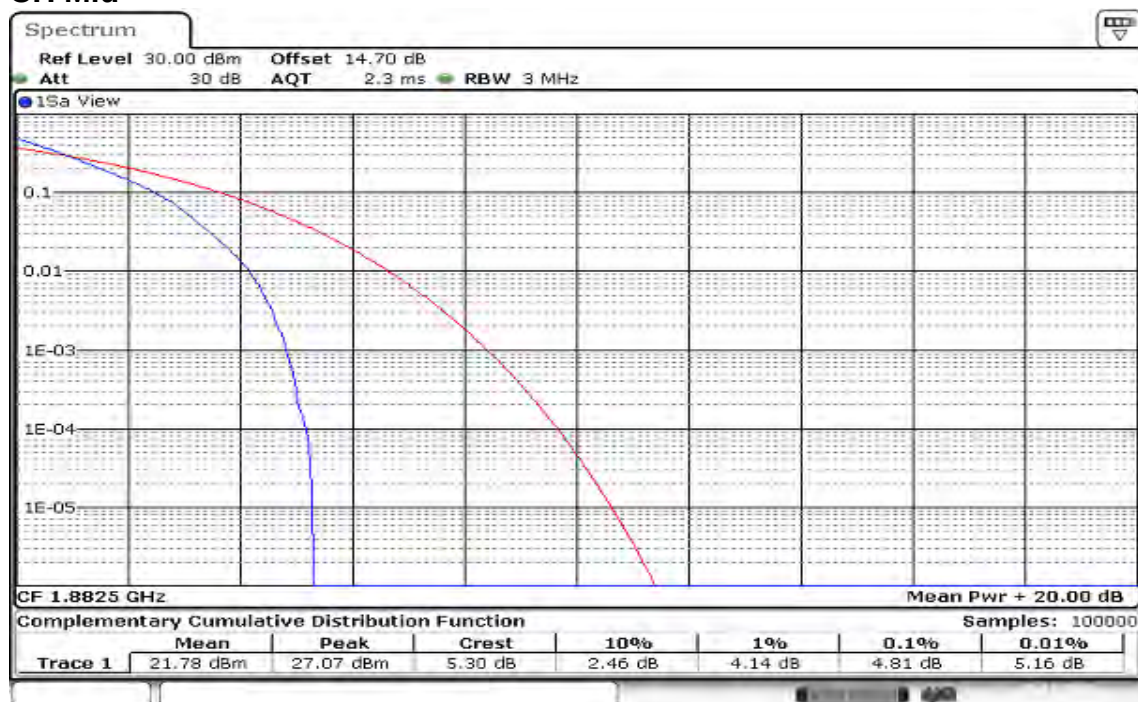
BW: 1.4MHz / 16QAM / RB =100%, RB Offset = 0
CH Mid


Date: 20.DEC.2019 09:49:31

Report No.: T191120D05-RP6

BW: 3MHz / QPSK / RB =100%, RB Offset = 0

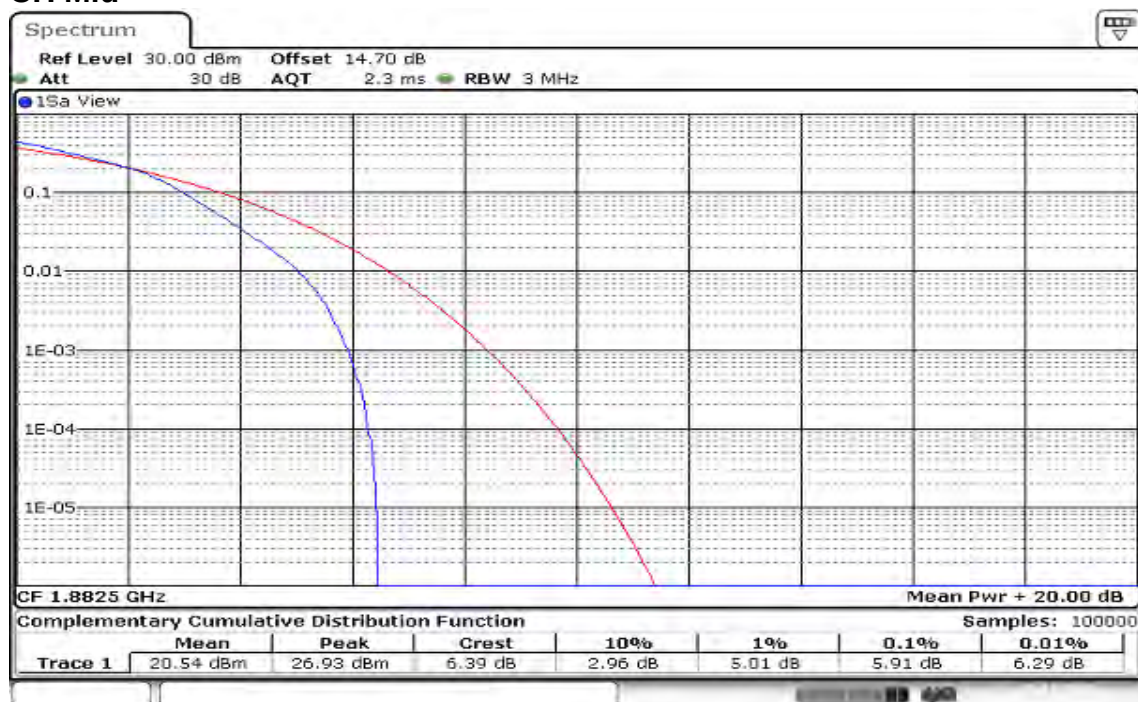
CH Mid



Date: 20.DEC.2019 09:51:11

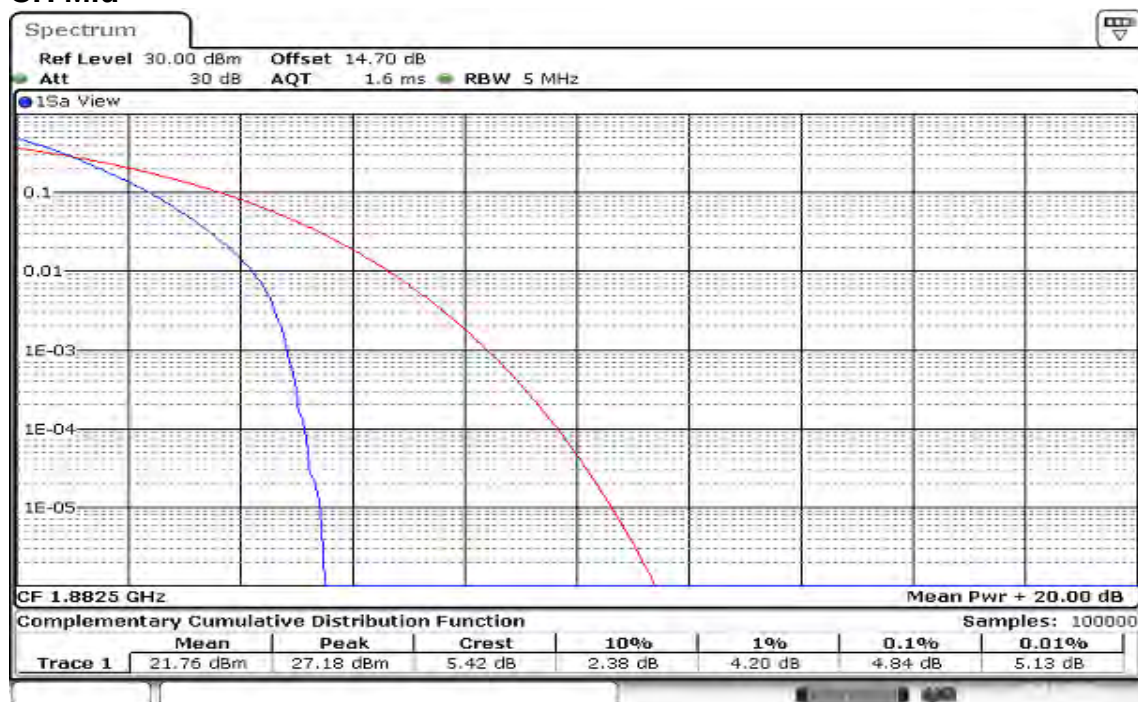
BW: 3MHz / 16QAM / RB =100%, RB Offset = 0

CH Mid

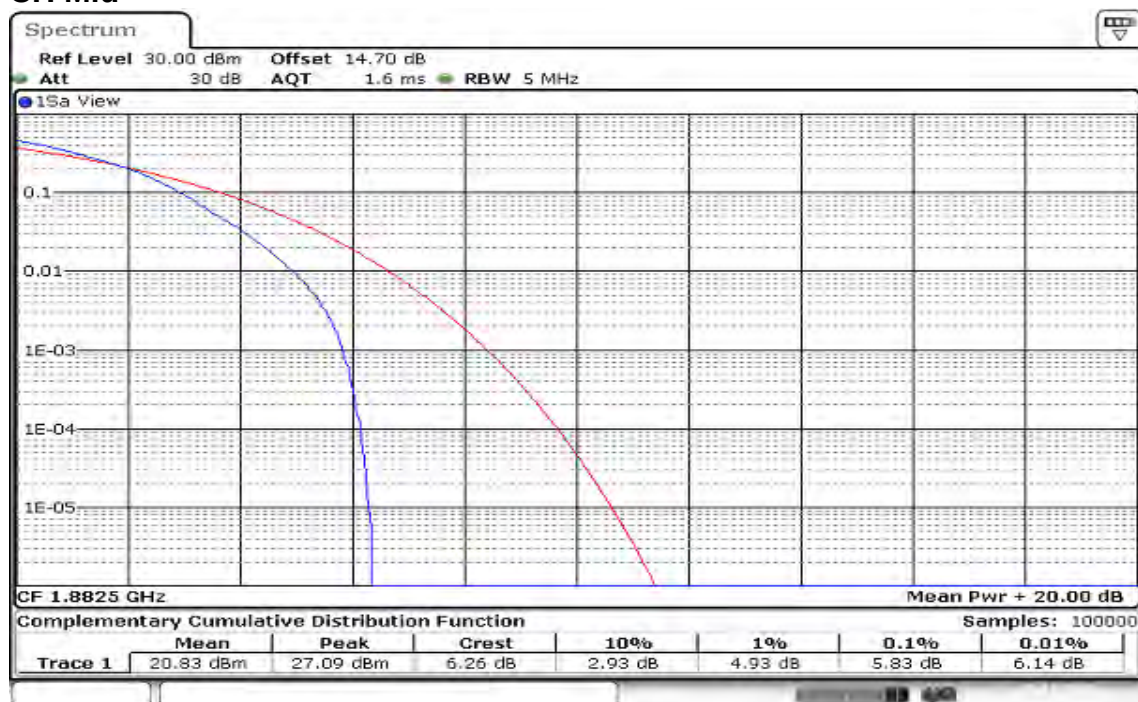


Date: 20.DEC.2019 09:50:06

Report No.: T191120D05-RP6

BW: 5MHz / QPSK / RB =100%, RB Offset = 0
CH Mid


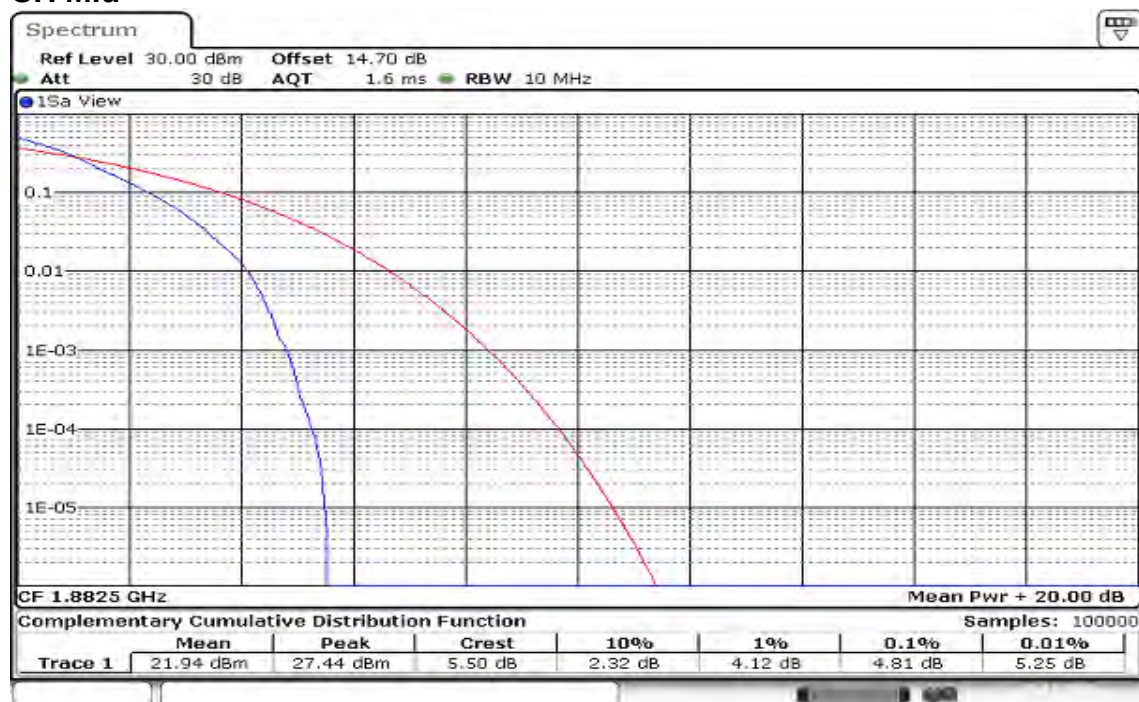
Date: 20.DEC.2019 09:53:02

BW: 5MHz / 16QAM / RB =100%, RB Offset = 0
CH Mid


Date: 20.DEC.2019 09:52:41

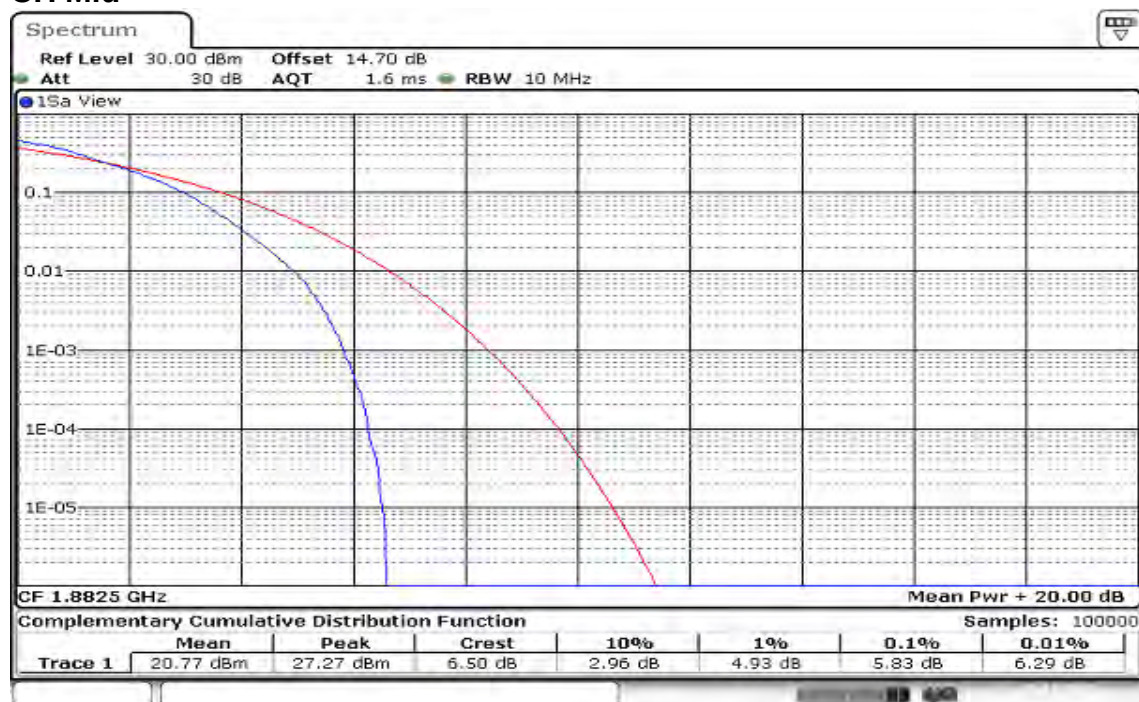
Report No.: T191120D05-RP6

BW: 10MHz / QPSK /RB =100%, RB Offset = 0
CH Mid



Date: 20.DEC.2019 09:54:38

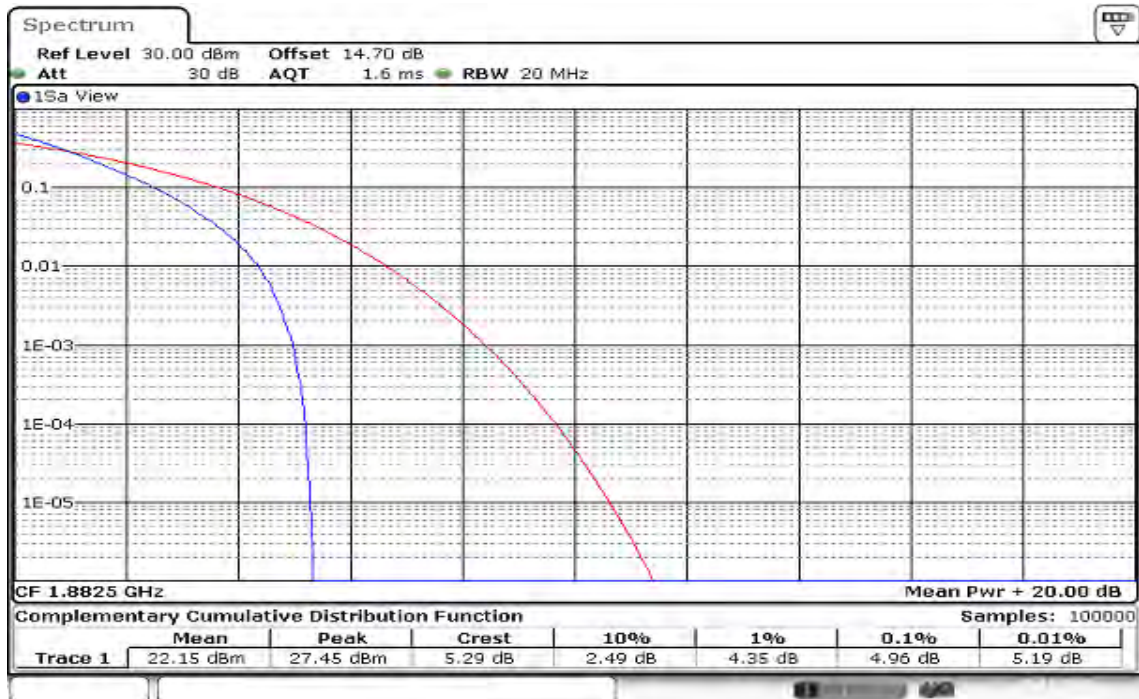
BW: 10MHz / 16QAM /RB =100%, RB Offset = 0
CH Mid



Date: 20.DEC.2019 09:54:59

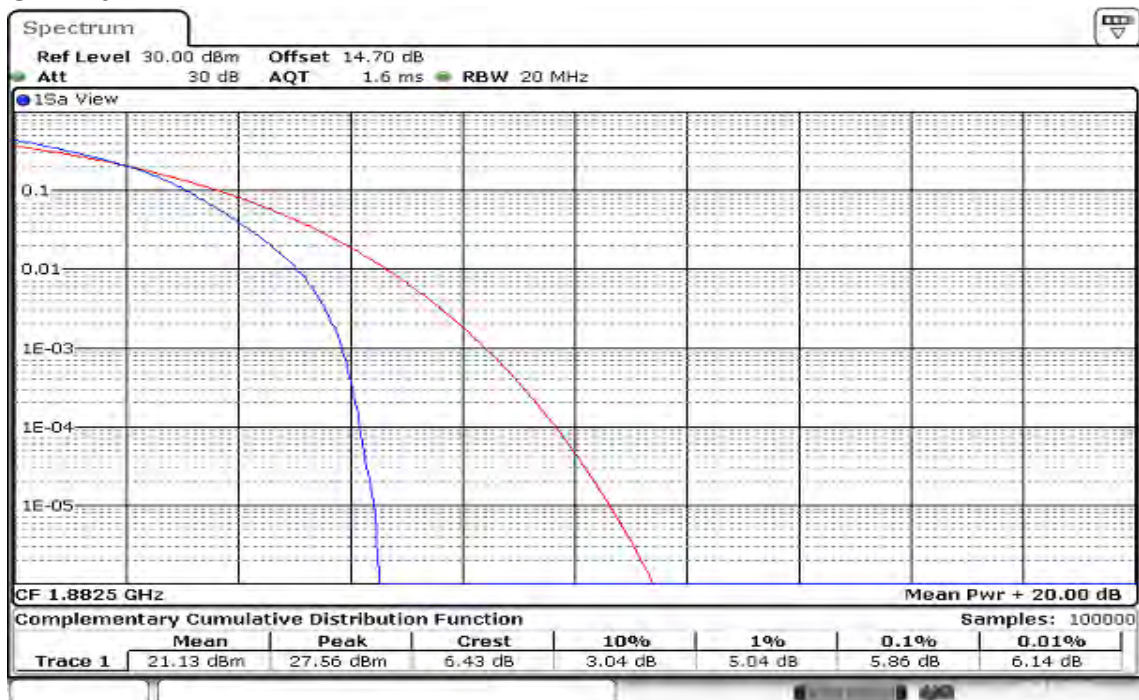
Report No.: T191120D05-RP6

BW: 15MHz / QPSK /RB =100%, RB Offset = 0
CH Mid



Date: 20.DEC.2019 09:56:09

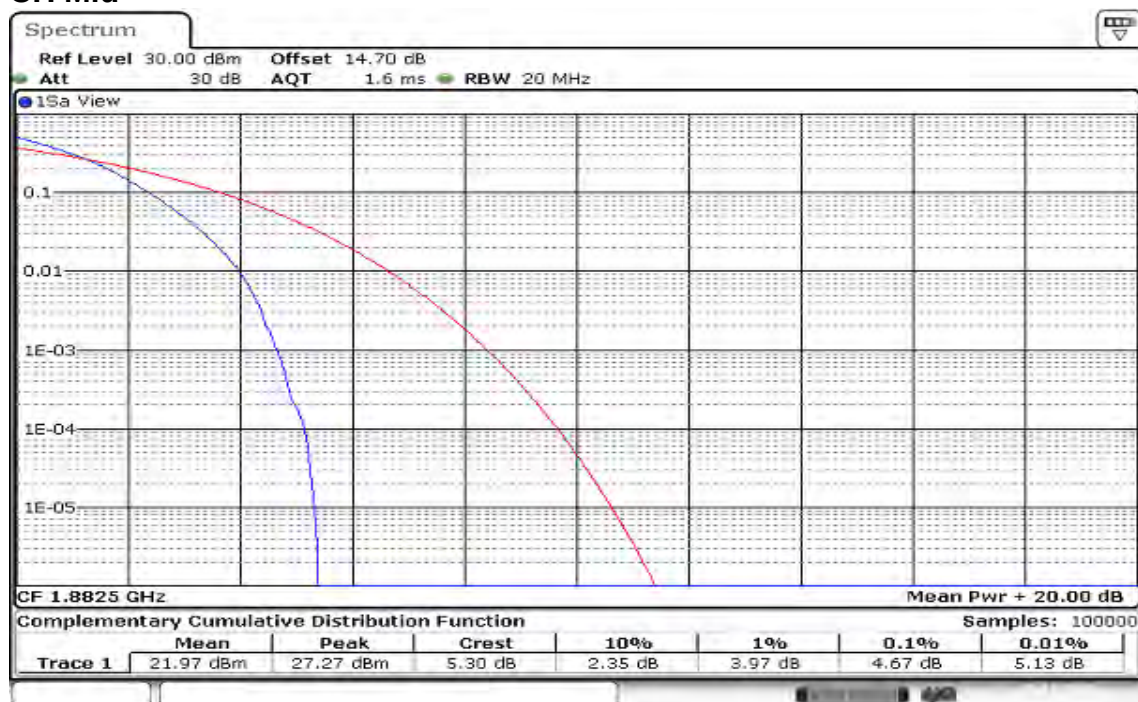
BW: 15MHz / 16QAM /RB =100%, RB Offset = 0
CH Mid



Date: 20.DEC.2019 09:56:43

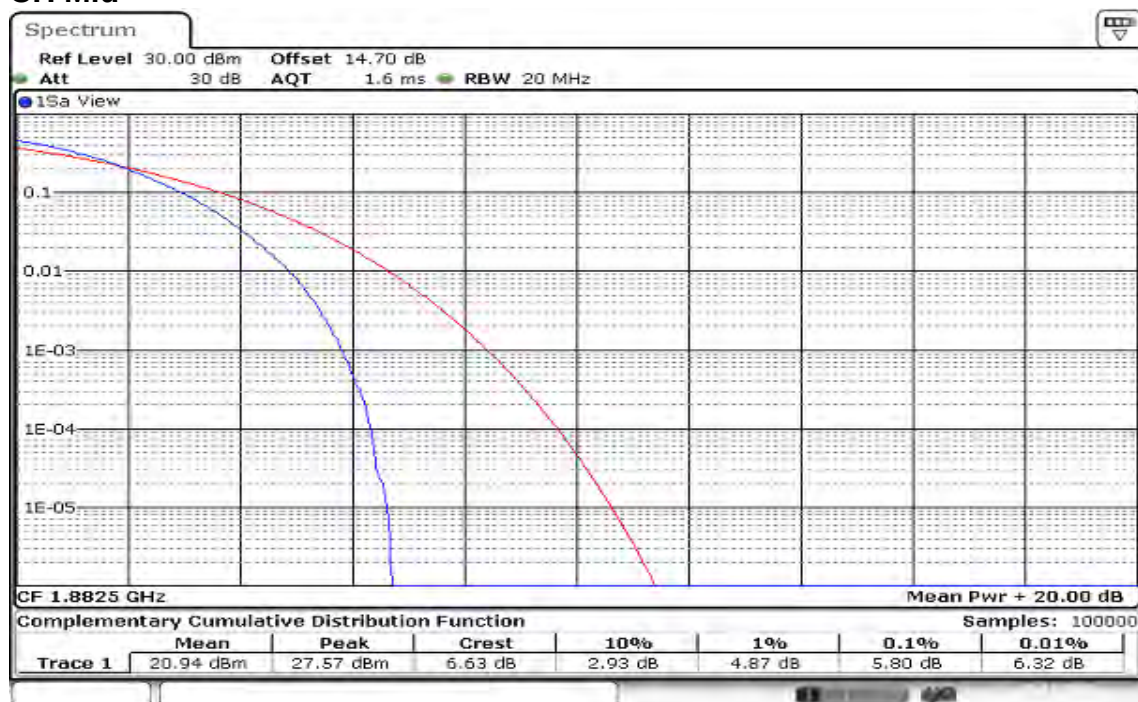
Report No.: T191120D05-RP6

BW: 20MHz / QPSK / RB =100%, RB Offset = 0
CH Mid



Date: 20.DEC.2019 09:58:26

BW: 20MHz / 16QAM / RB =100%, RB Offset = 0
CH Mid



Date: 20.DEC.2019 09:59:11

8.5 CONDUCTED BAND EDGE MEASUREMENT

Limit

FCC §24.238(a), Band 25

For operations in the 1850-1910 and 1930-1950 MHz band , 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.

RSS-133 section 6.5

In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts).

Test Procedures

KDB 971168 D01,

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.

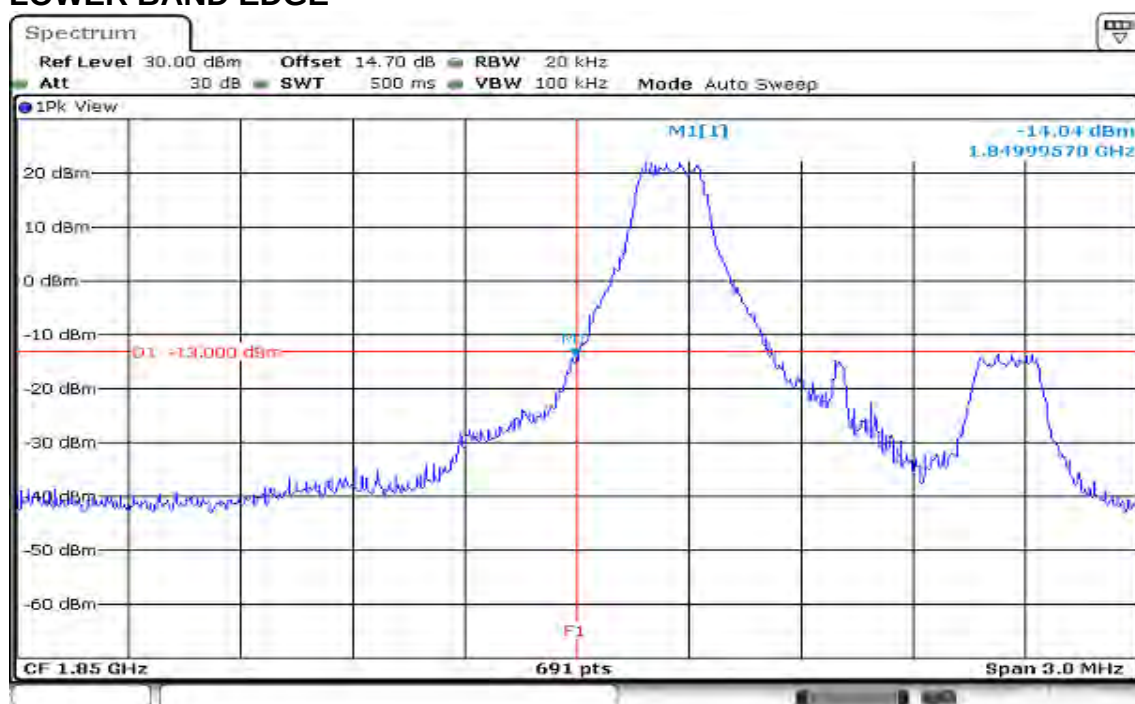
Report No.: T191120D05-RP6

Test Results:

LTE Band 25

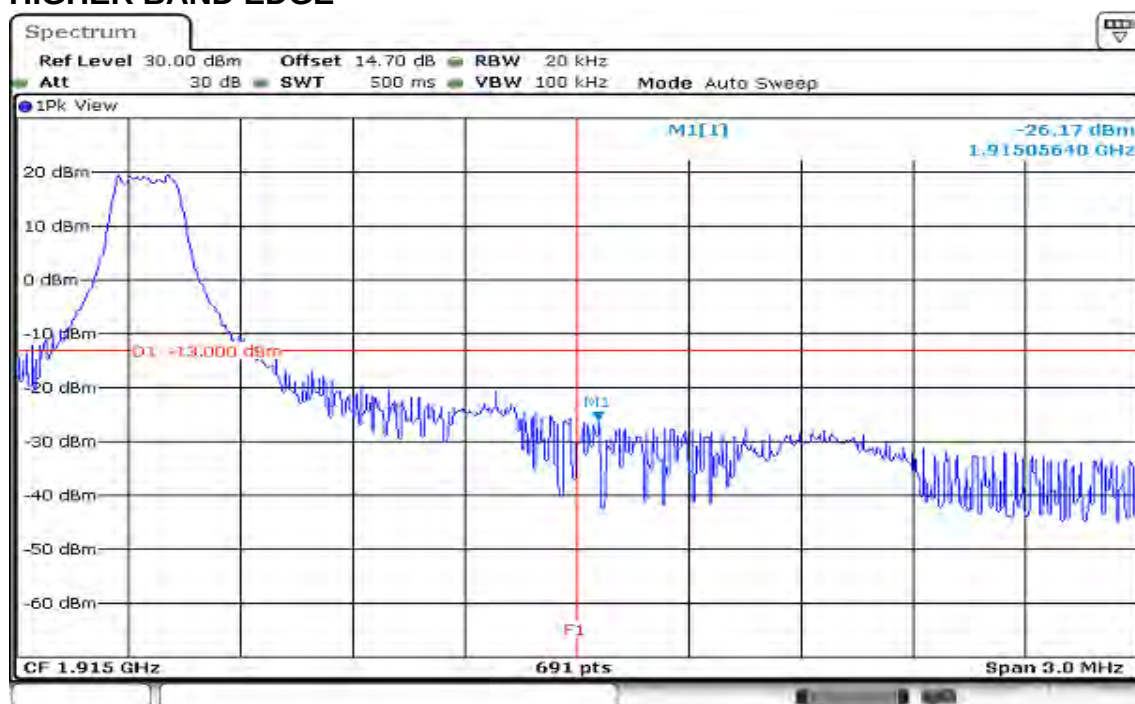
CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1RB ALLOCATED

LOWER BAND EDGE



Date: 20.DEC.2019 11:54:13

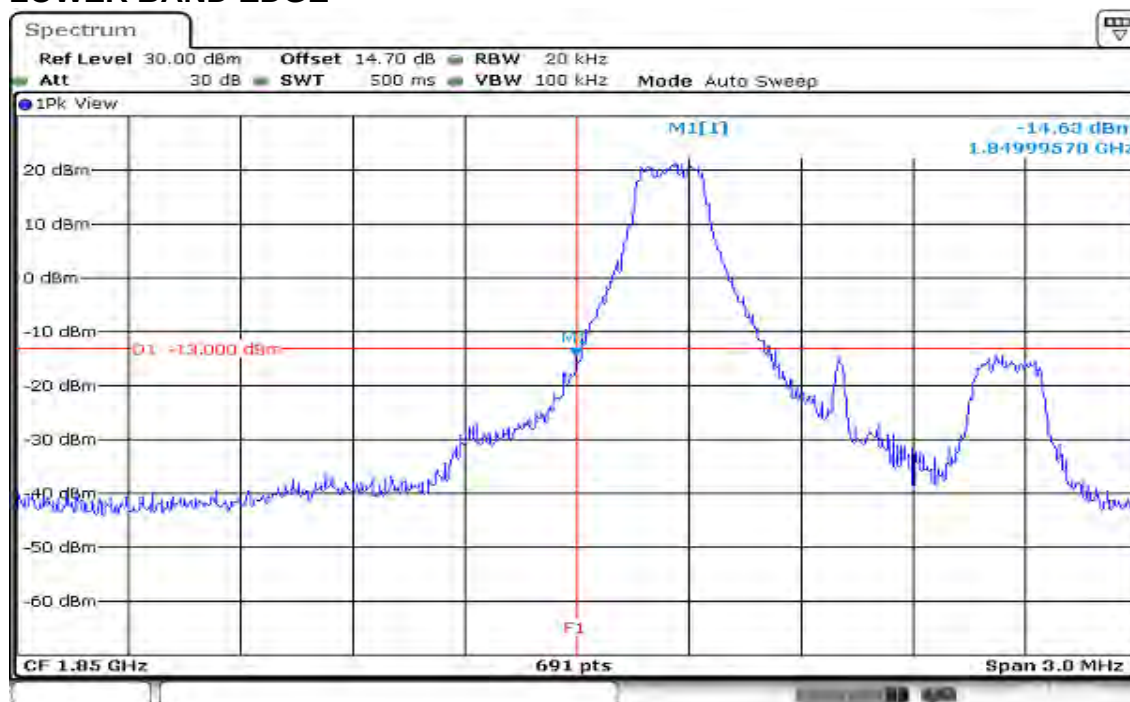
HIGHER BAND EDGE



Date: 20.DEC.2019 11:55:47

Report No.: T191120D05-RP6

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1RB ALLOCATED LOWER BAND EDGE



Date: 20.DEC.2019 11:53:15

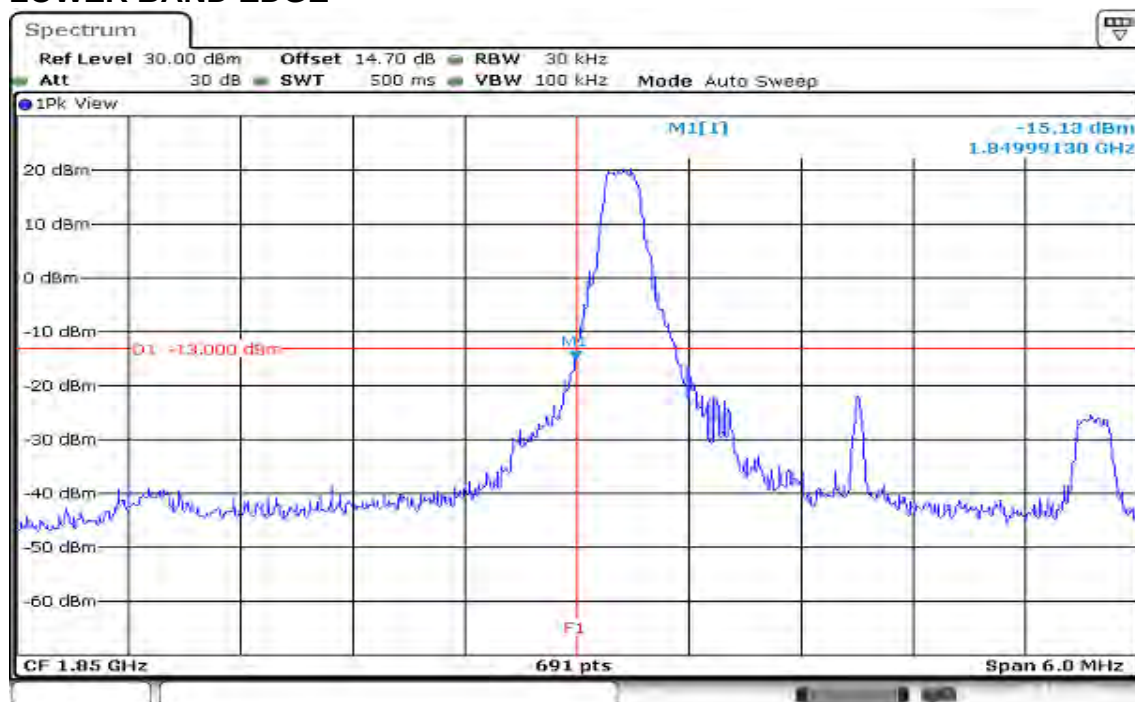
HIGHER BAND EDGE



Date: 20.DEC.2019 11:58:35

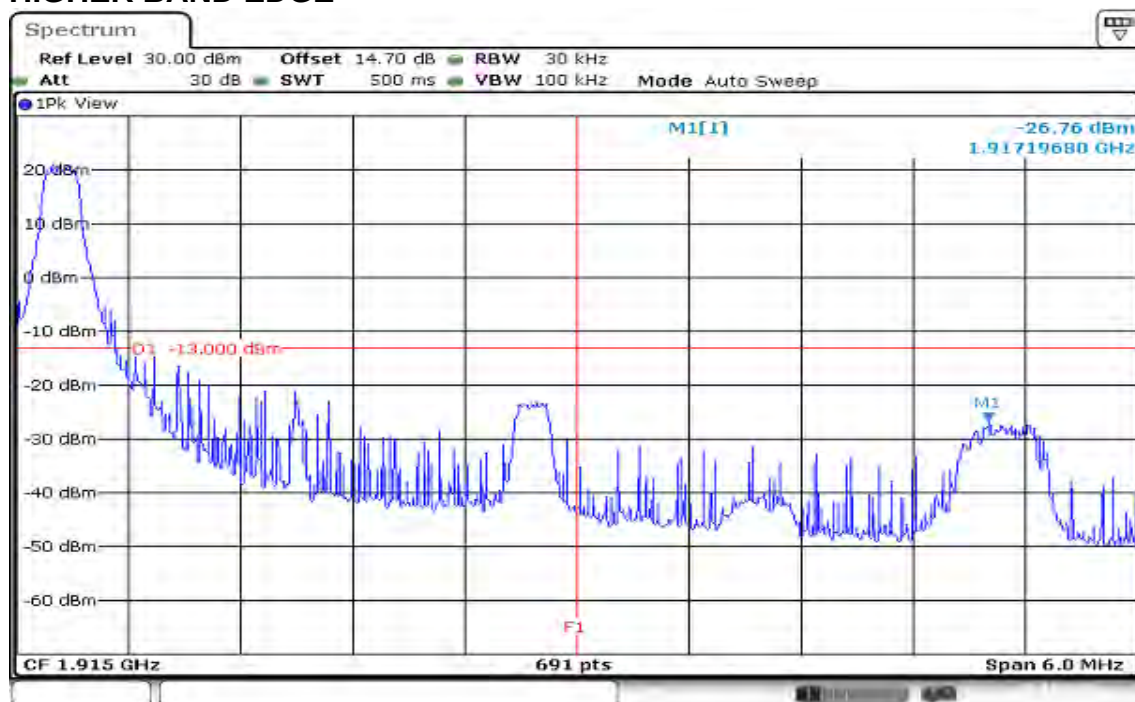
Report No.: T191120D05-RP6

CHANNEL BANDWIDTH: 3MHz / QPSK / 1RB ALLOCATED LOWER BAND EDGE



Date: 20.DEC.2019 12:07:10

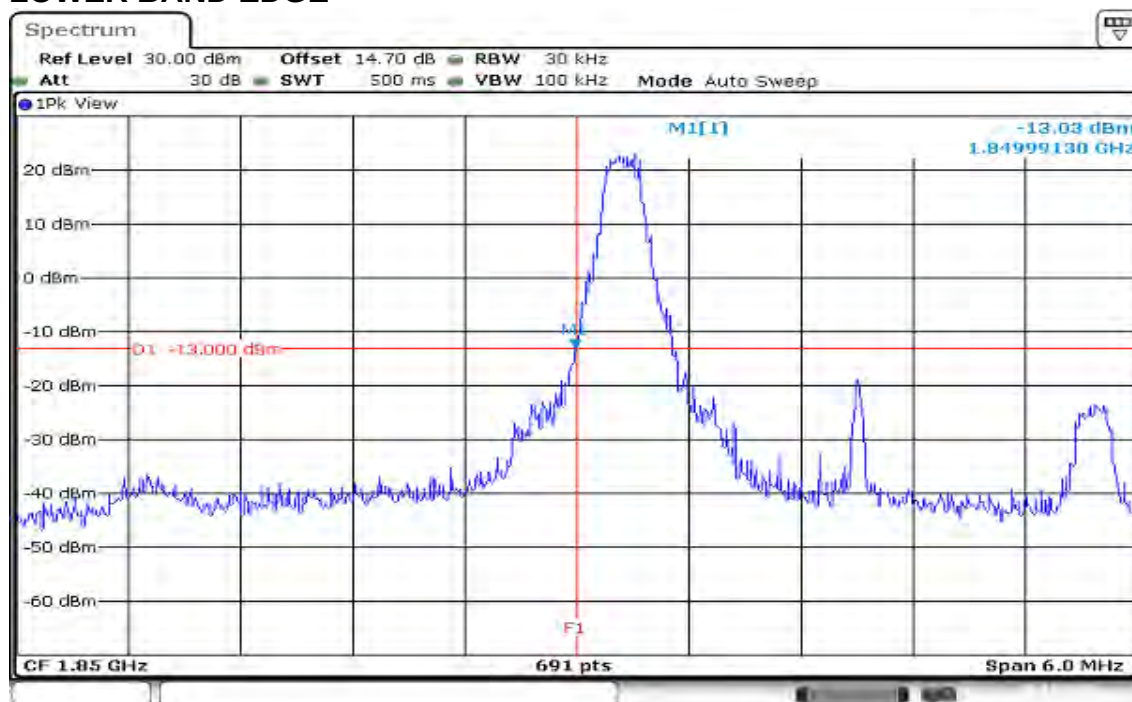
HIGHER BAND EDGE



Date: 20.DEC.2019 12:05:24

Report No.: T191120D05-RP6

CHANNEL BANDWIDTH: 3MHz / 16QAM / 1RB ALLOCATED LOWER BAND EDGE



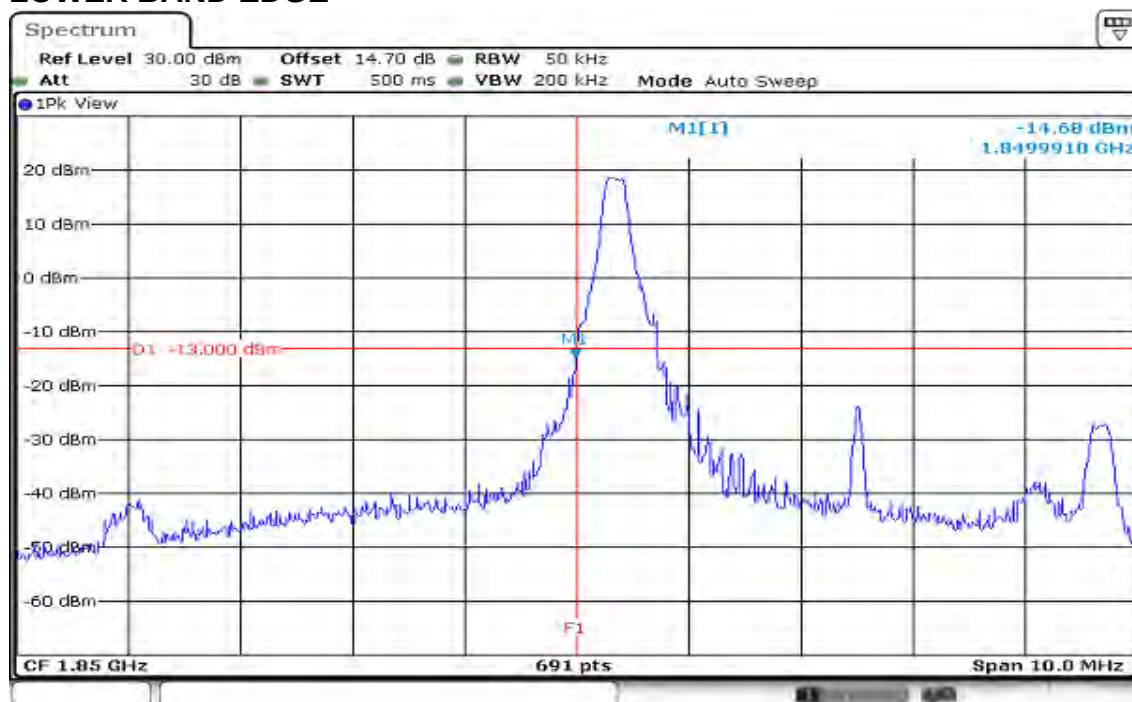
Date: 20.DEC.2019 12:06:26

HIGHER BAND EDGE



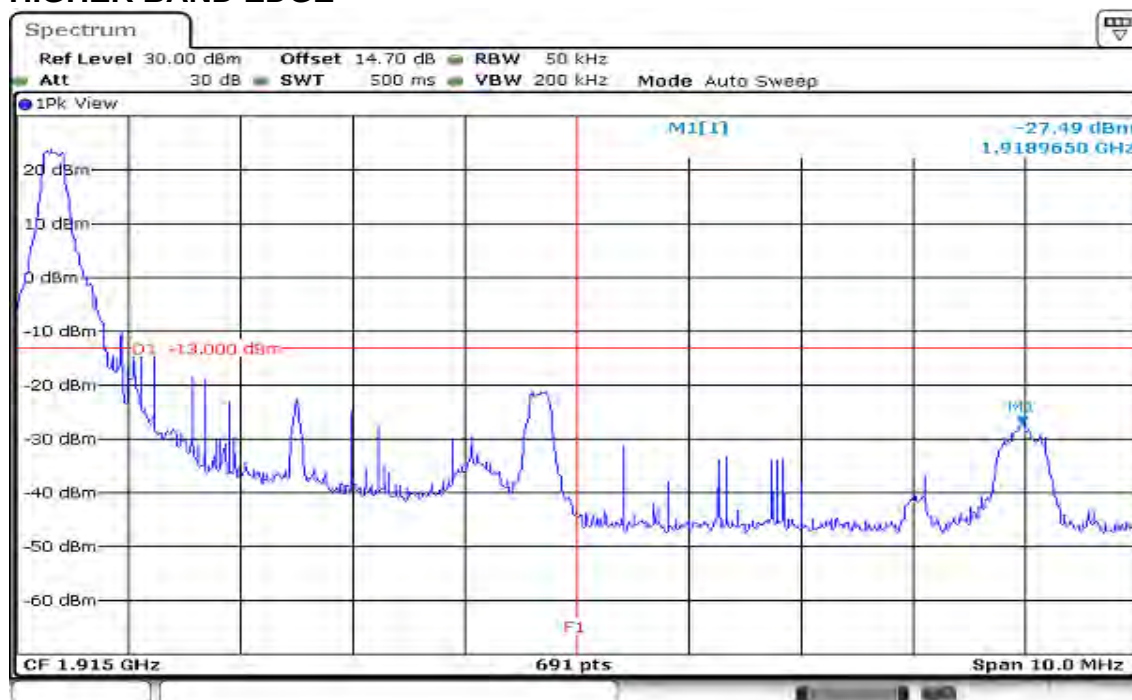
Date: 20.DEC.2019 12:04:48

CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB ALLOCATED LOWER BAND EDGE



Date: 20.DEC.2019 12:12:12

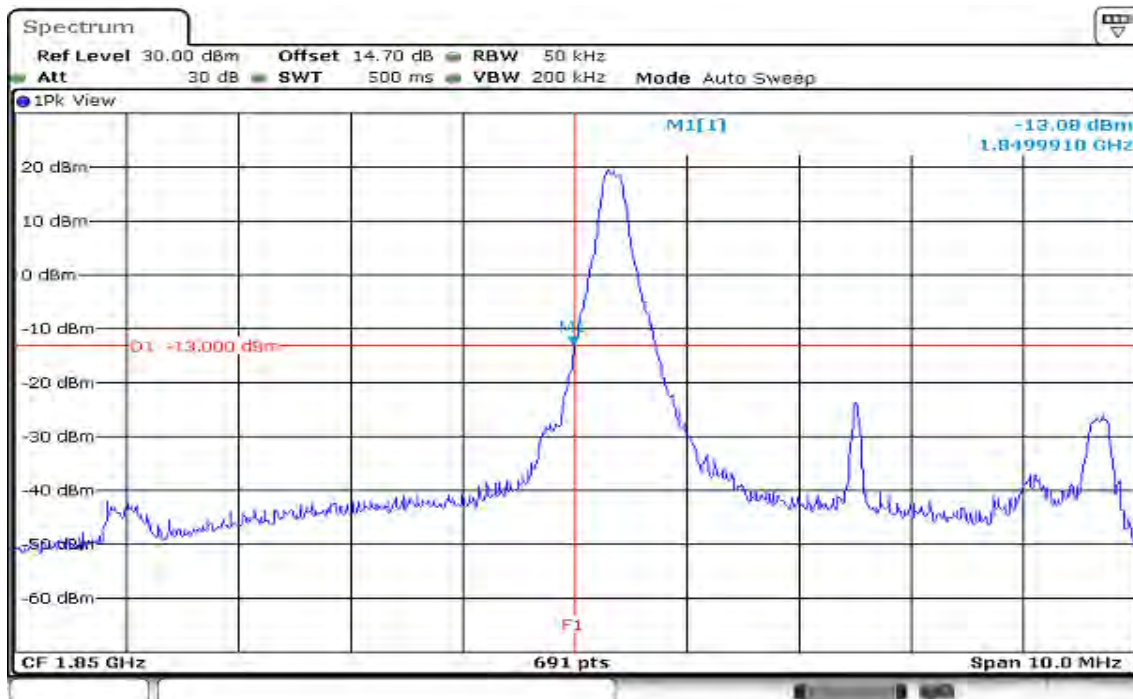
HIGHER BAND EDGE



Date: 20.DEC.2019 13:22:13

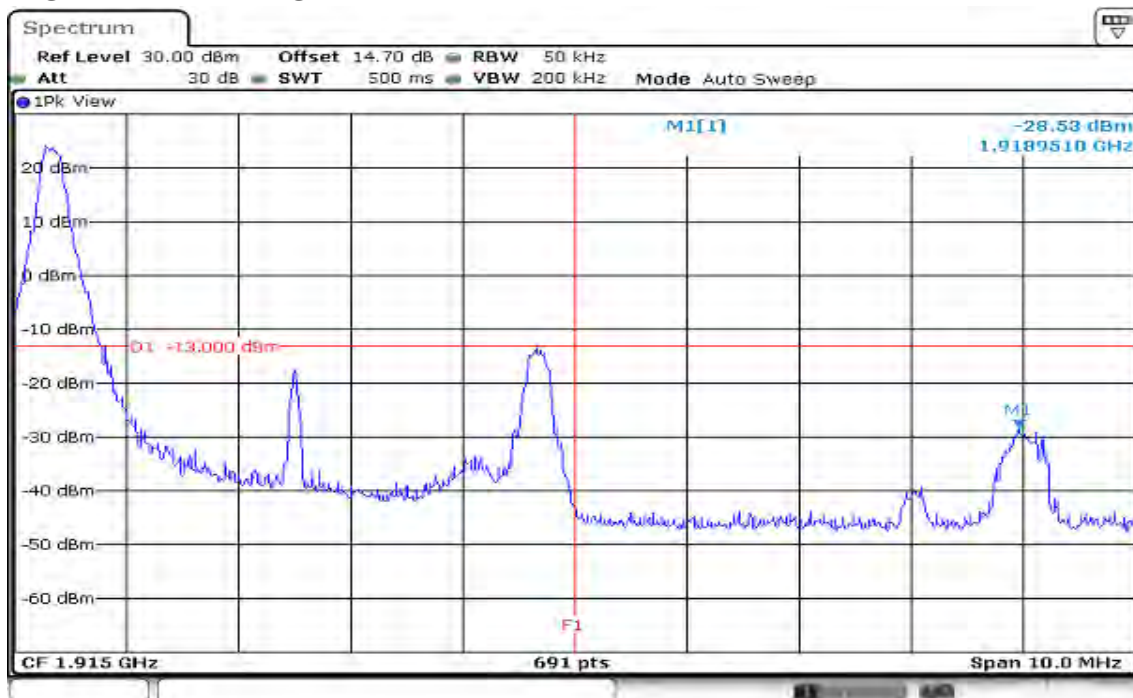
Report No.: T191120D05-RP6

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



Date: 20.DEC.2019 12:12:59

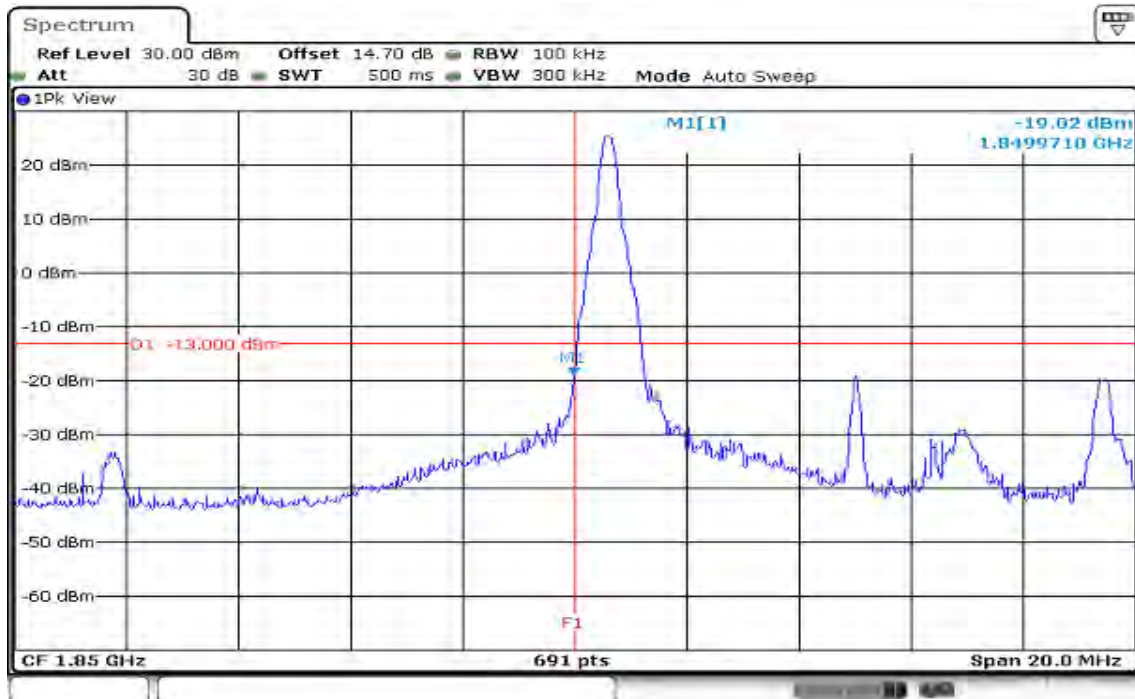
HIGHER BAND EDGE



Date: 20.DEC.2019 13:20:15

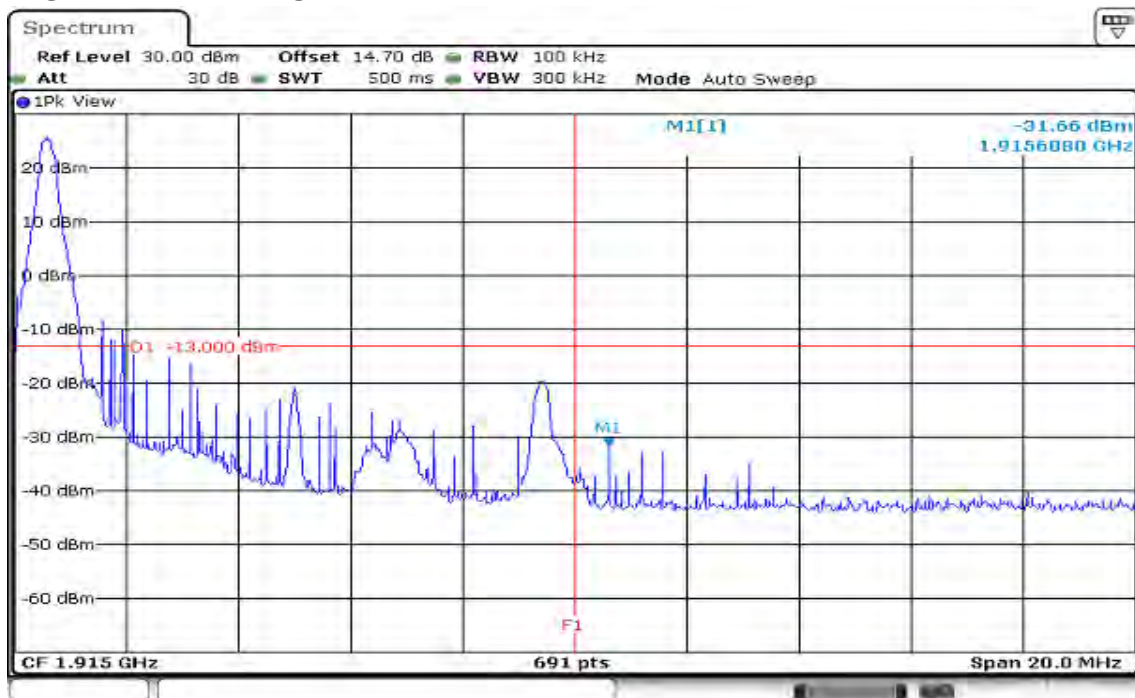
Report No.: T191120D05-RP6

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



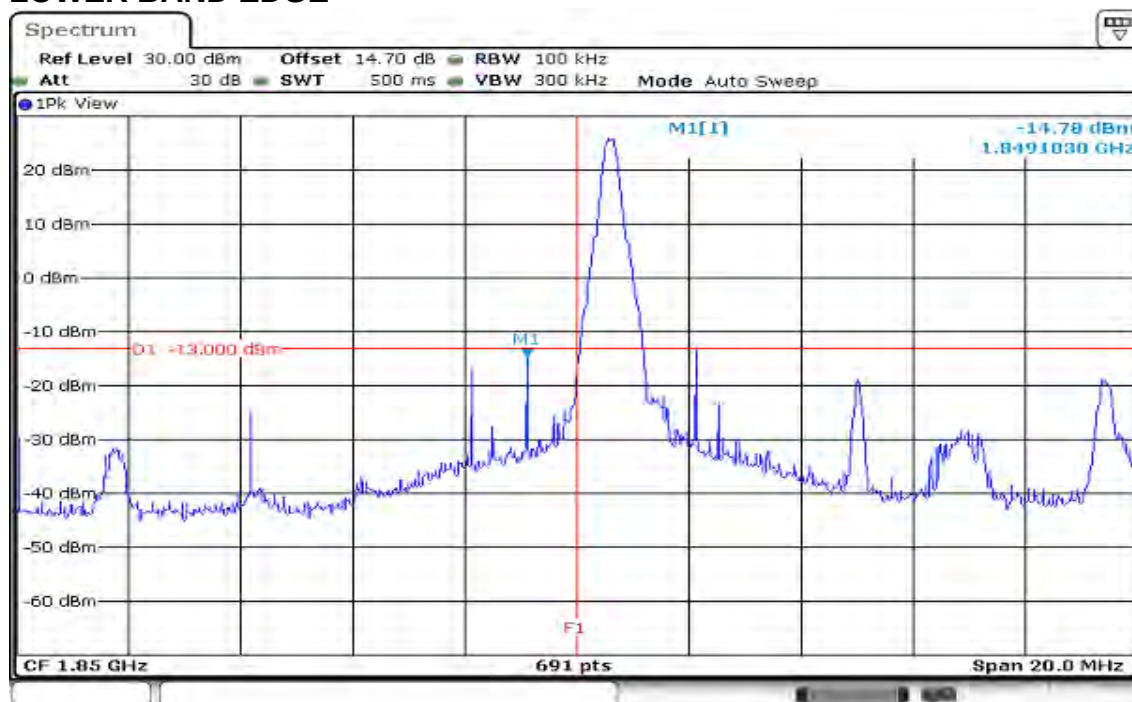
Date: 20.DEC.2019 13:27:36

HIGHER BAND EDGE



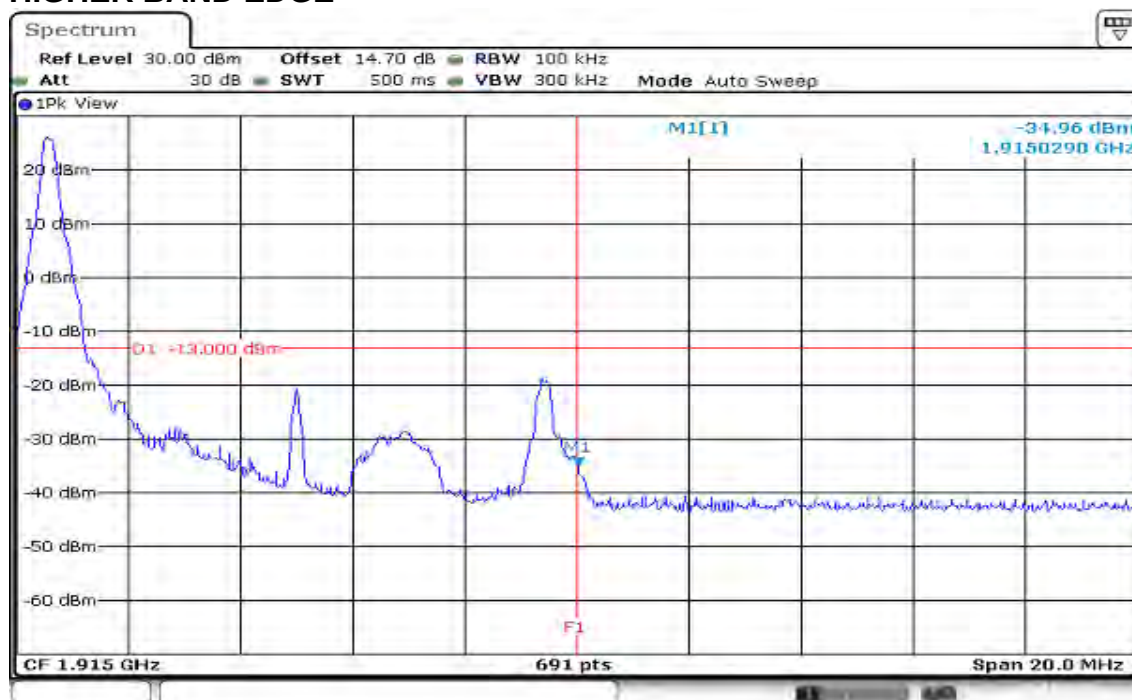
Date: 20.DEC.2019 13:26:33

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



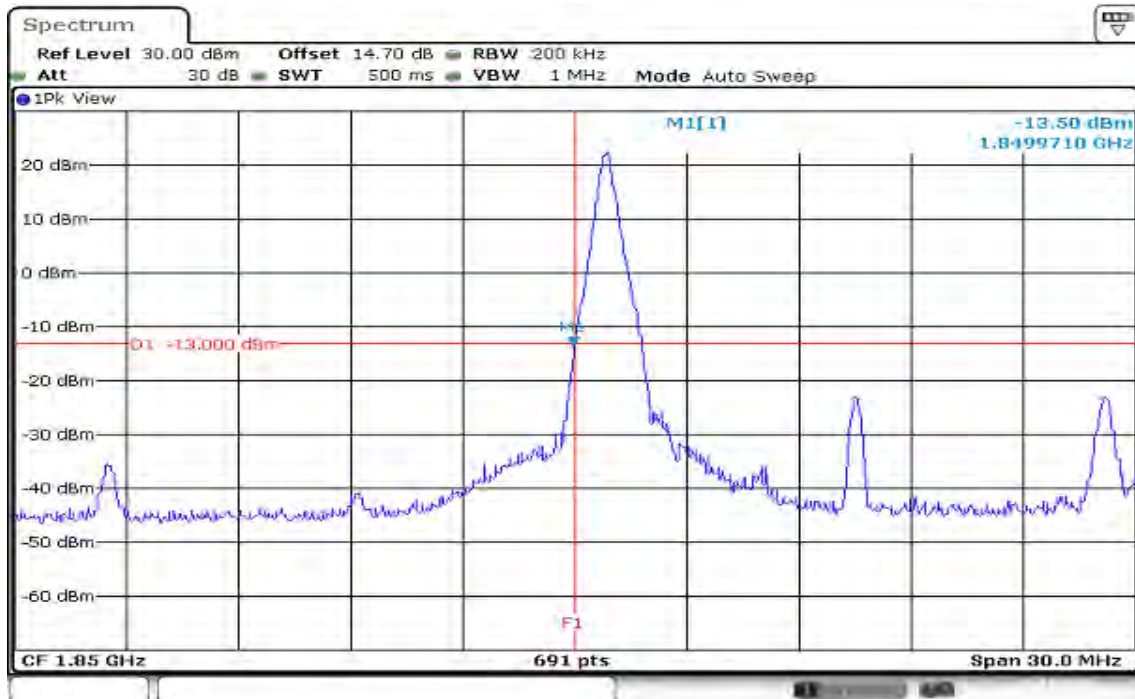
Date: 20.DEC.2019 13:28:06

HIGHER BAND EDGE



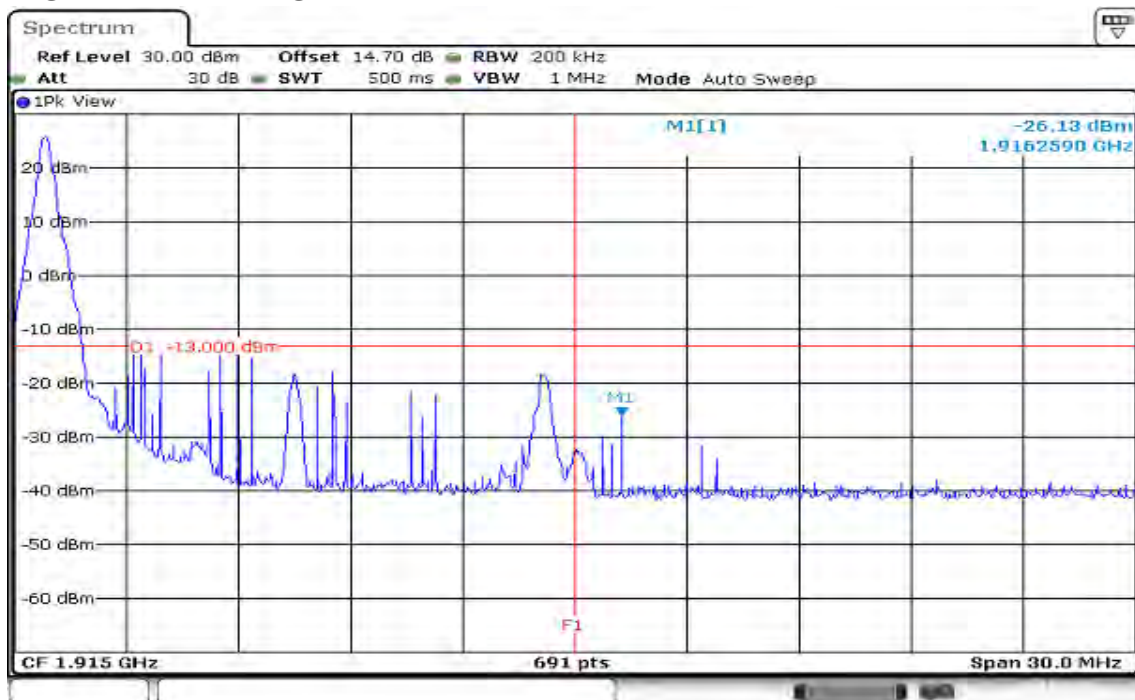
Date: 20.DEC.2019 13:25:52

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



Date: 20.DEC.2019 13:22:07

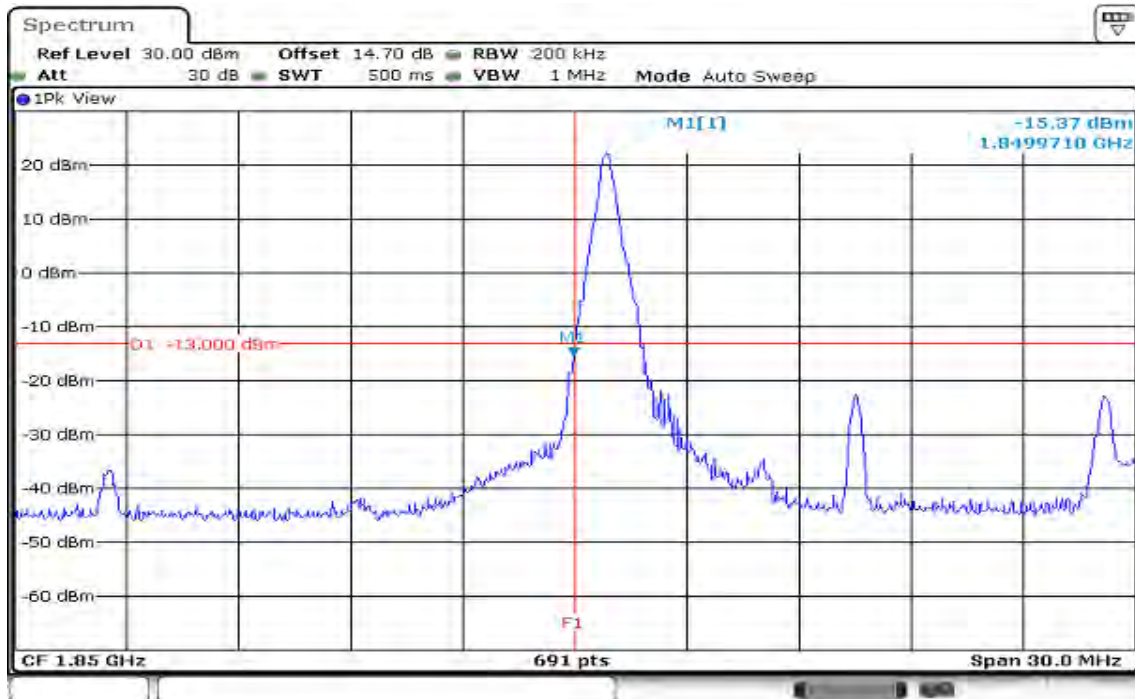
HIGHER BAND EDGE



Date: 20.DEC.2019 13:41:30

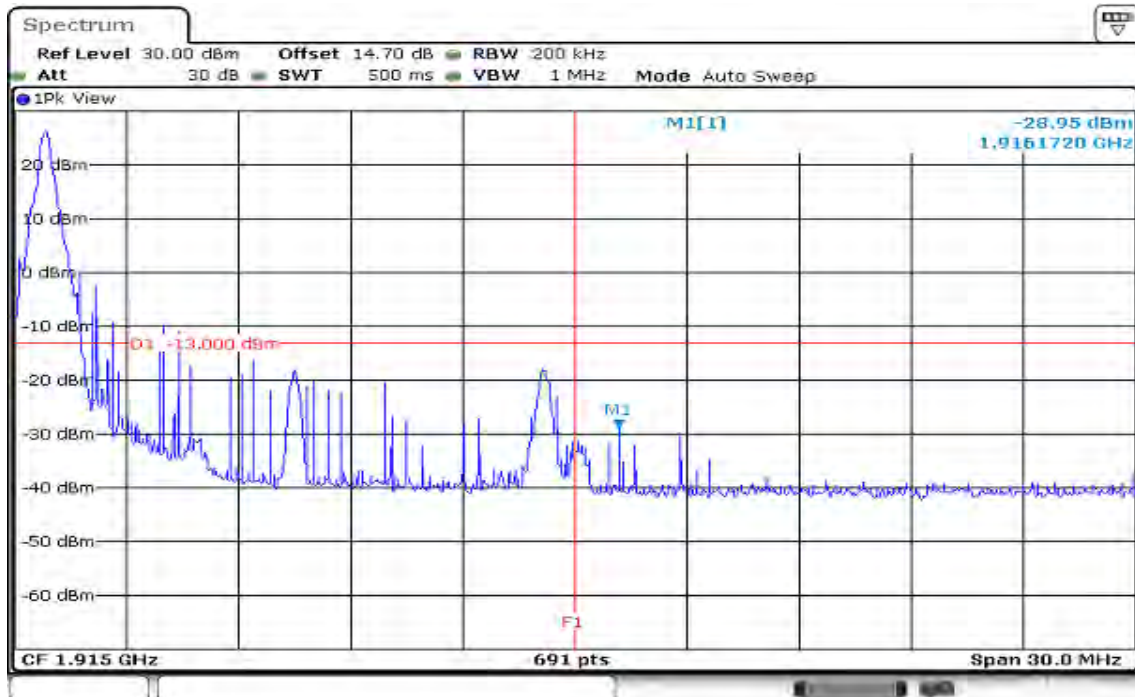
Report No.: T191120D05-RP6

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



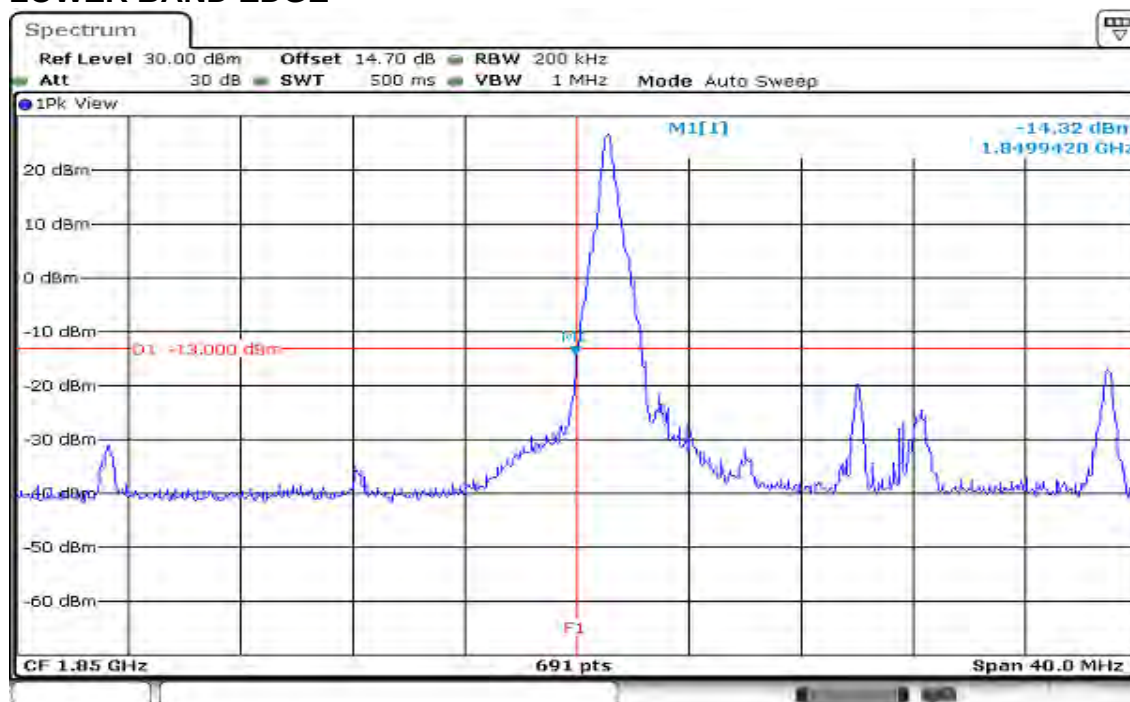
Date: 20.DEC.2019 13:22:28

HIGHER BAND EDGE



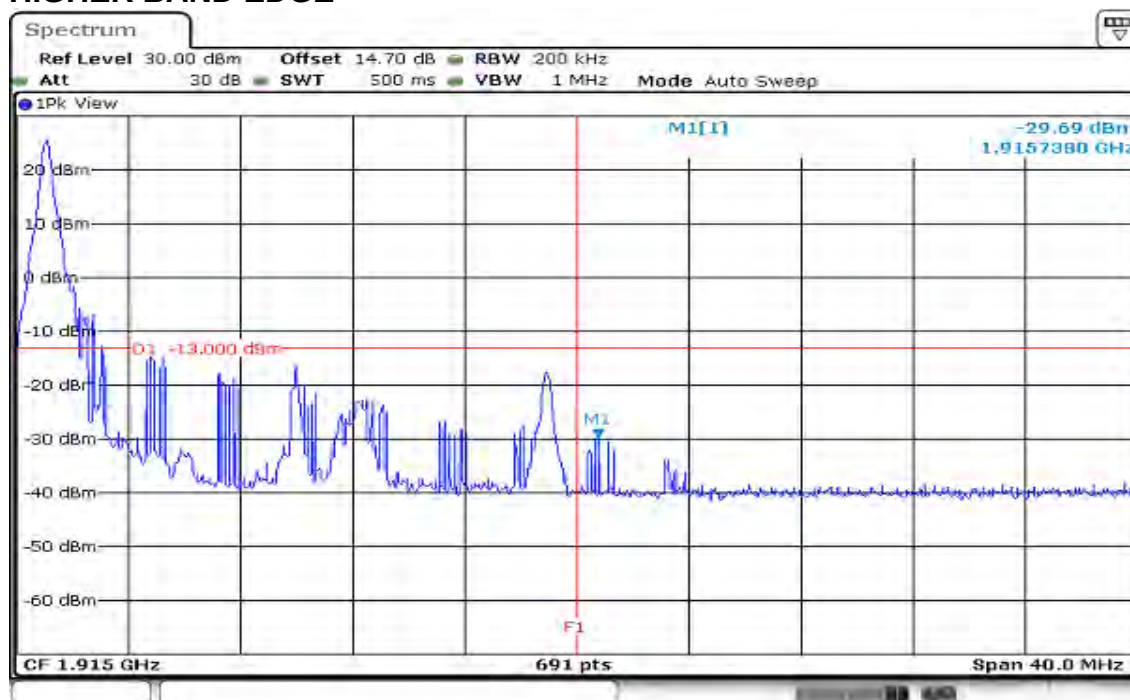
Date: 20.DEC.2019 13:40:44

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



Date: 20.DEC.2019 13:49:32

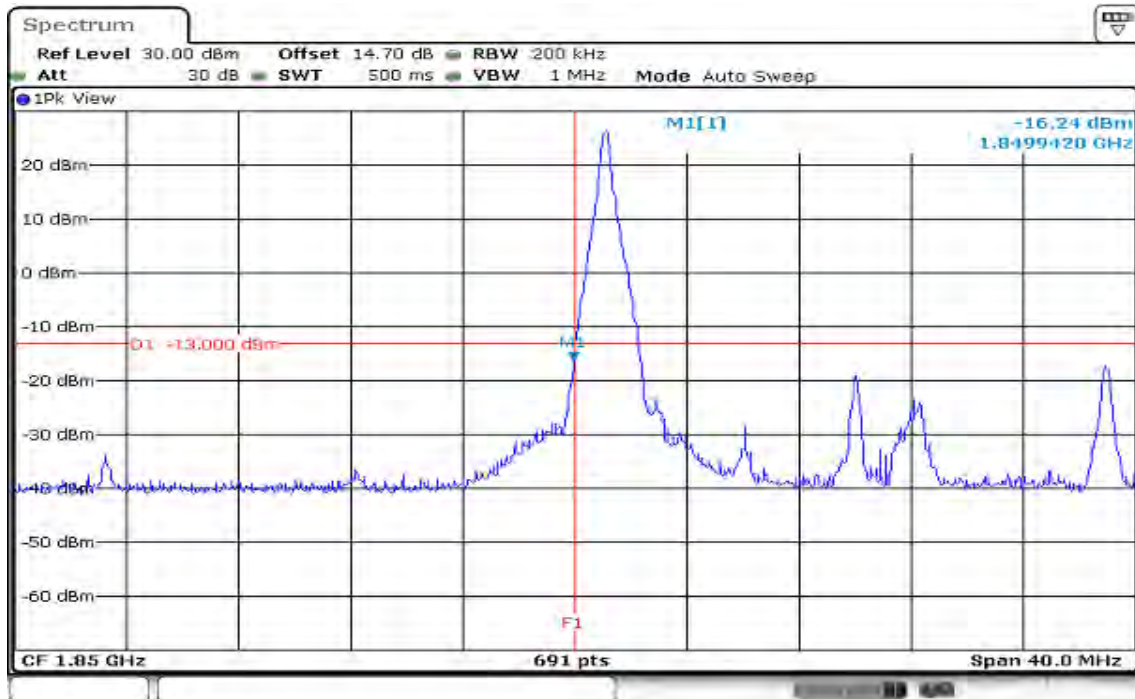
HIGHER BAND EDGE



Date: 20.DEC.2019 13:47:15

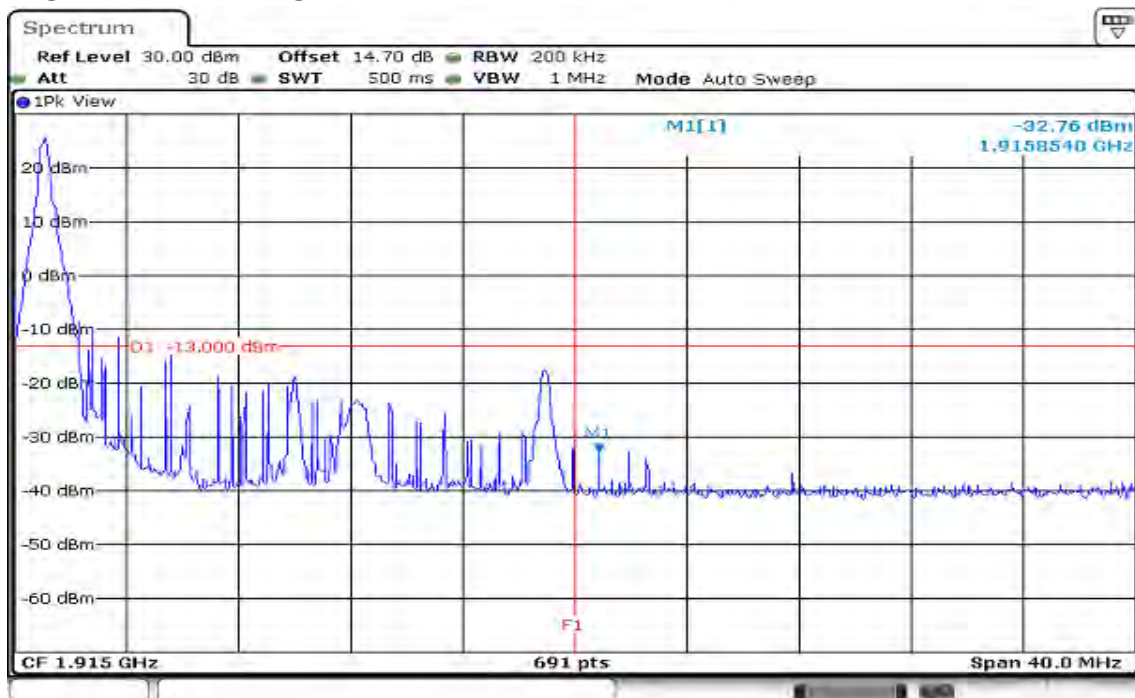
Report No.: T191120D05-RP6

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



Date: 20.DEC.2019 13:49:01

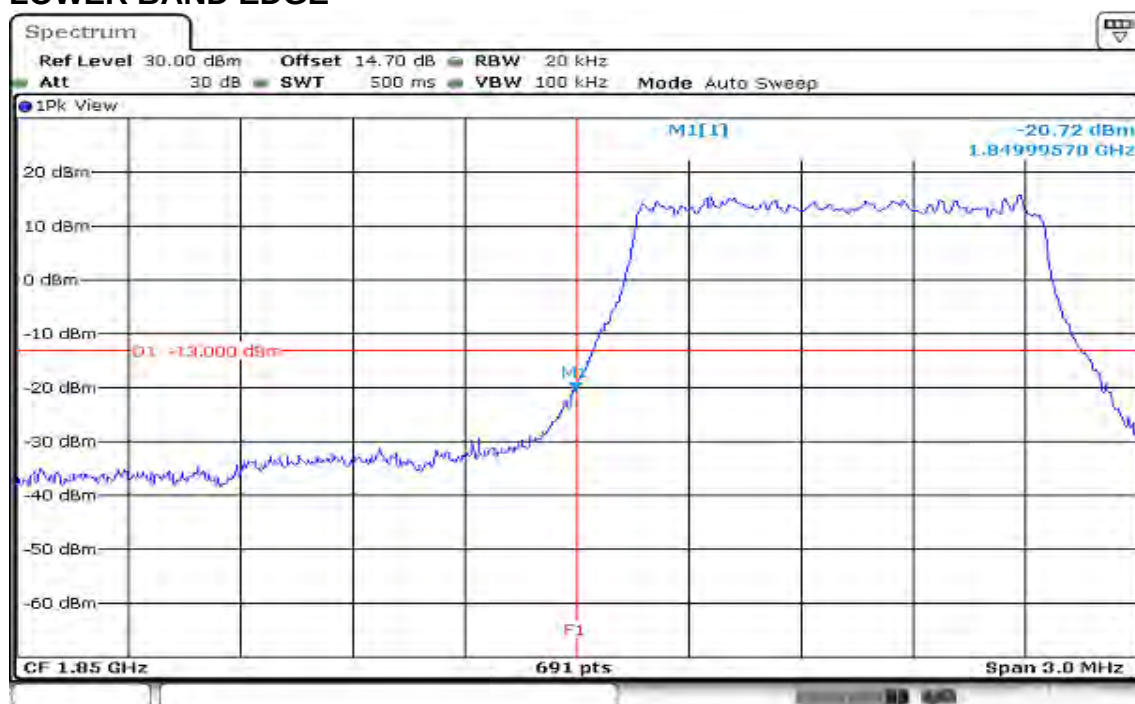
HIGHER BAND EDGE



Date: 20.DEC.2019 13:47:58

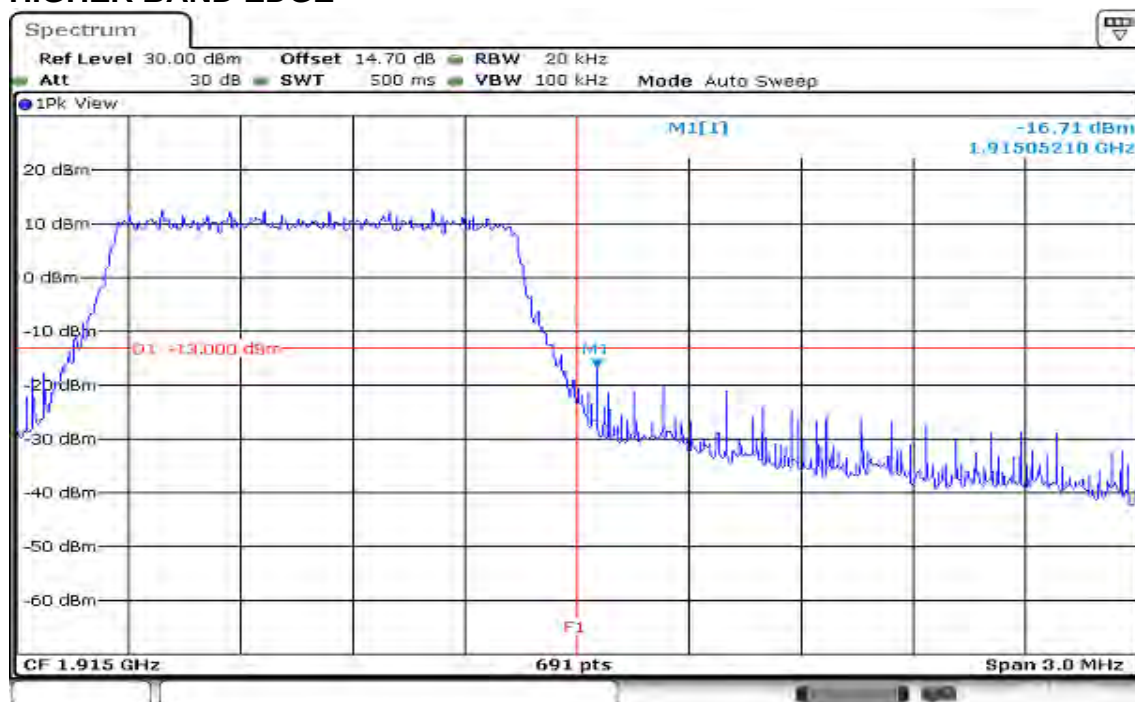
Report No.: T191120D05-RP6

CHANNEL BANDWIDTH: 1.4MHz / QPSK / Full RB ALLOCATED LOWER BAND EDGE



Date: 20.DEC.2019 11:36:39

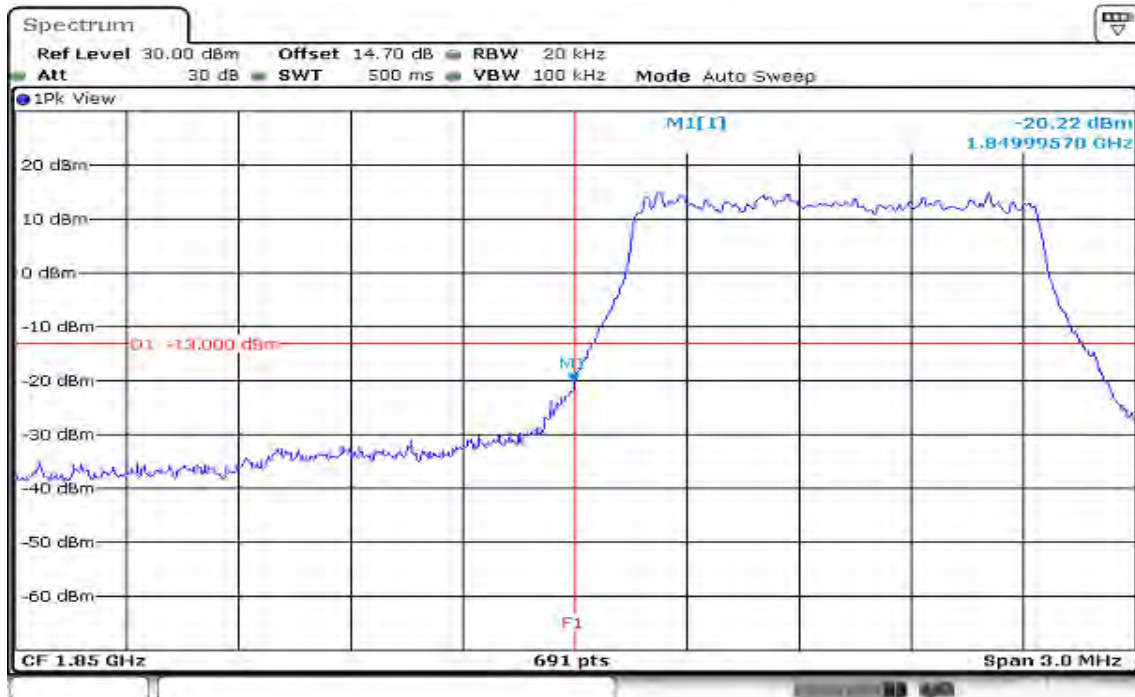
HIGHER BAND EDGE



Date: 20.DEC.2019 11:59:31

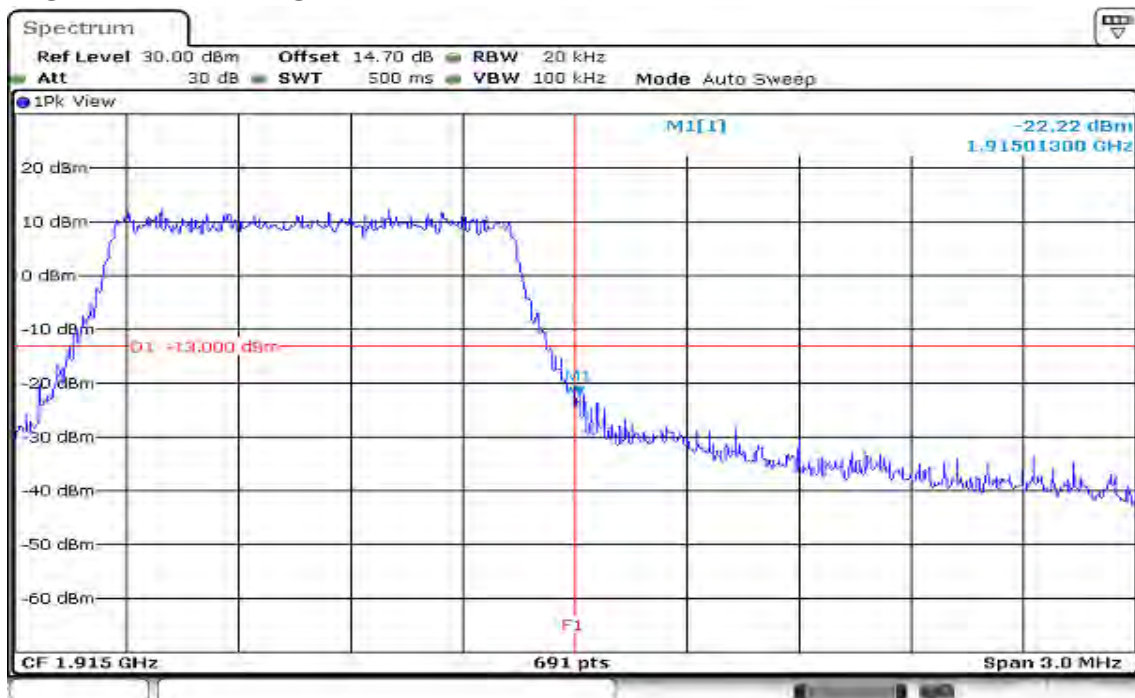
Report No.: T191120D05-RP6

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / Full RB ALLOCATED LOWER BAND EDGE



Date: 20.DEC.2019 11:52:42

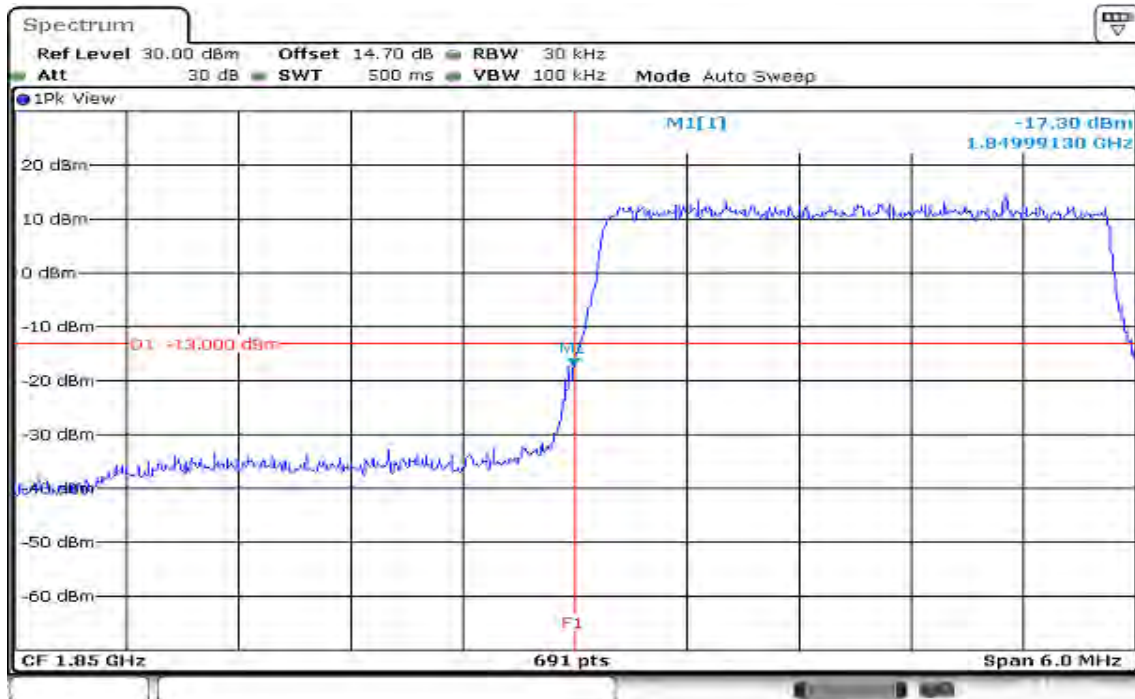
HIGHER BAND EDGE



Date: 20.DEC.2019 12:01:14

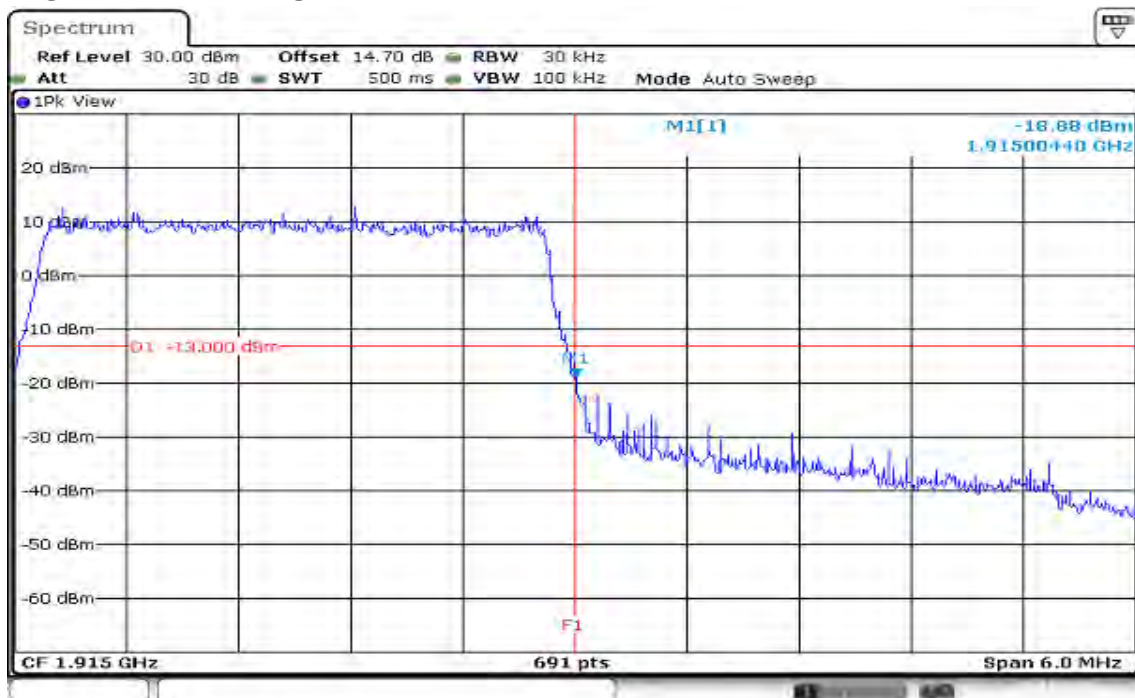
Report No.: T191120D05-RP6

CHANNEL BANDWIDTH: 3MHz / QPSK / Full RB ALLOCATED LOWER BAND EDGE



Date: 20.DEC.2019 12:07:56

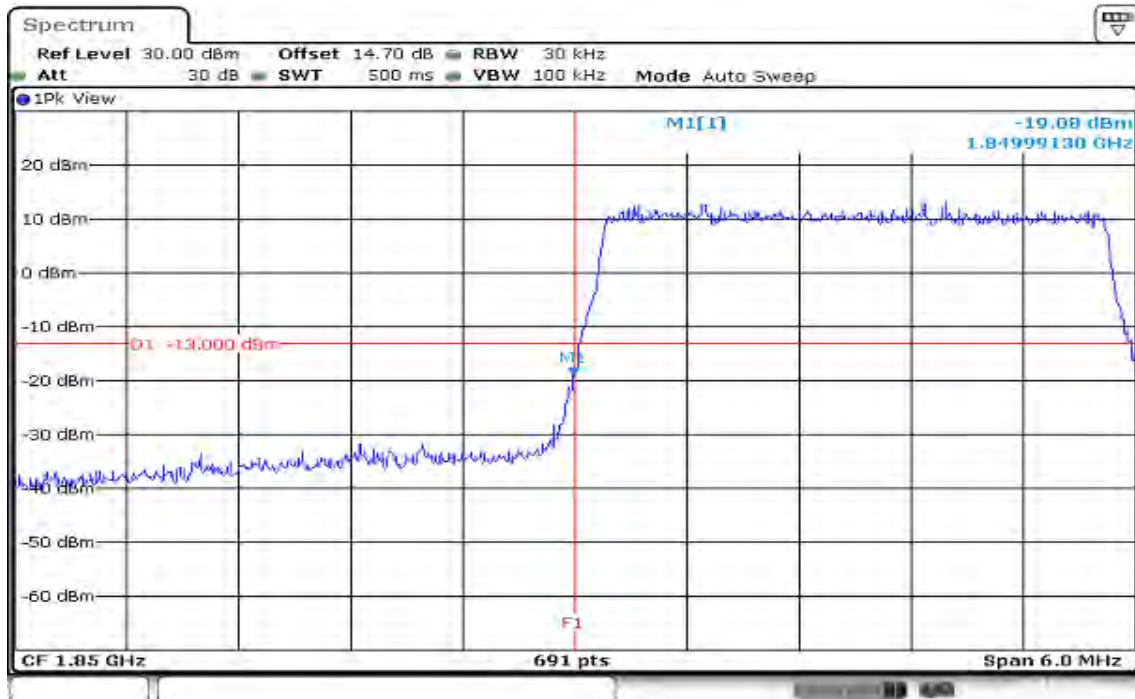
HIGHER BAND EDGE



Date: 20.DEC.2019 12:04:11

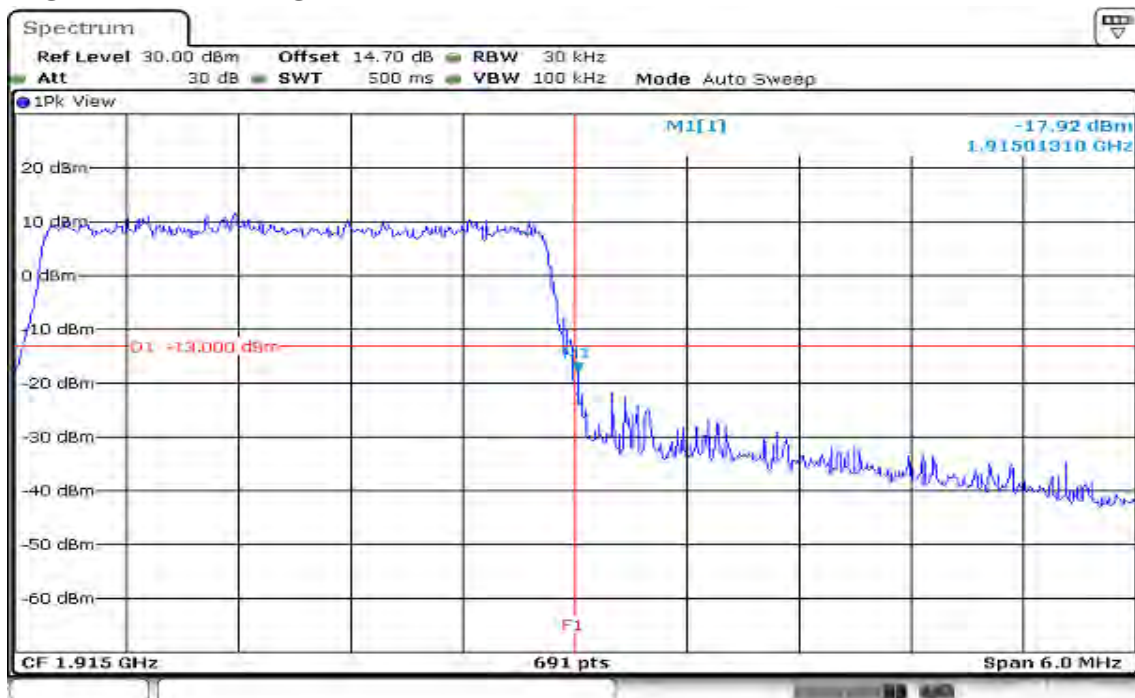
Report No.: T191120D05-RP6

CHANNEL BANDWIDTH: 3MHz / 16QAM / Full RB ALLOCATED LOWER BAND EDGE



Date: 20.DEC.2019 12:08:21

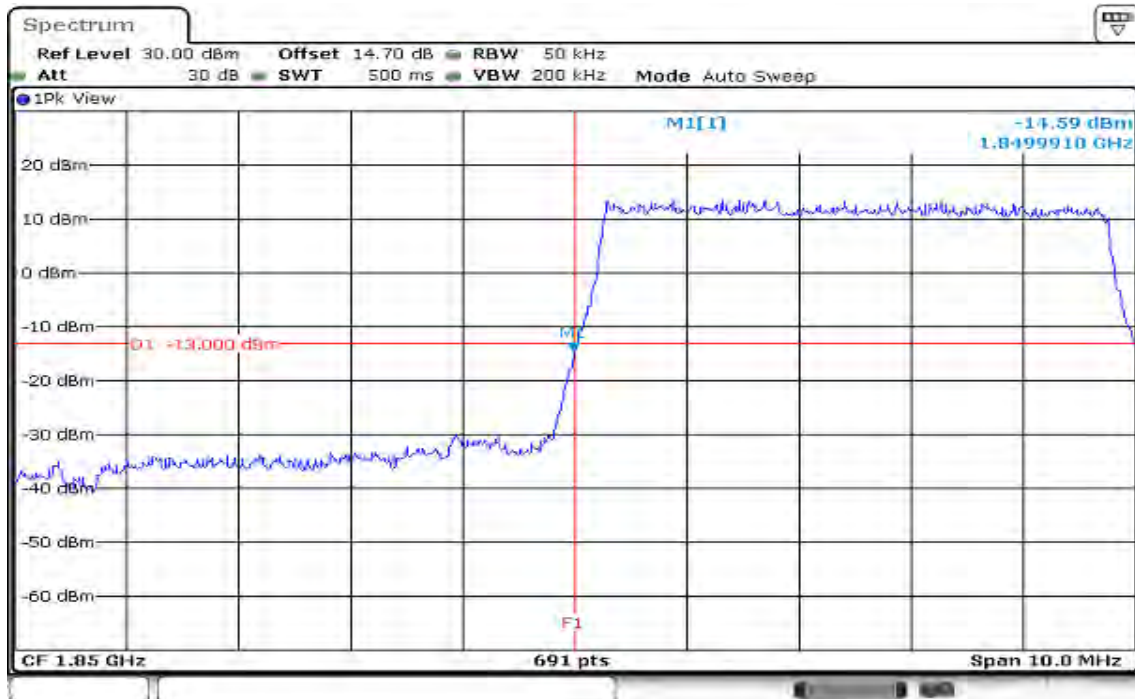
HIGHER BAND EDGE



Date: 20.DEC.2019 12:03:23

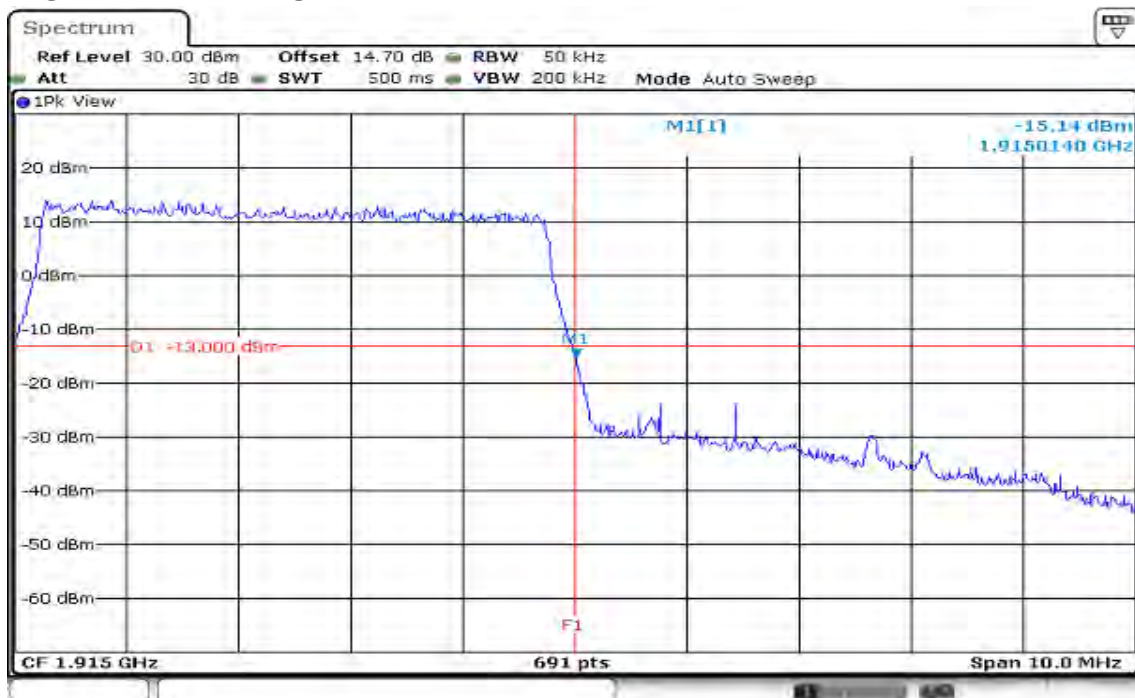
Report No.: T191120D05-RP6

CHANNEL BANDWIDTH: 5MHz / QPSK / Full RB ALLOCATED LOWER BAND EDGE



Date: 20.DEC.2019 12:11:12

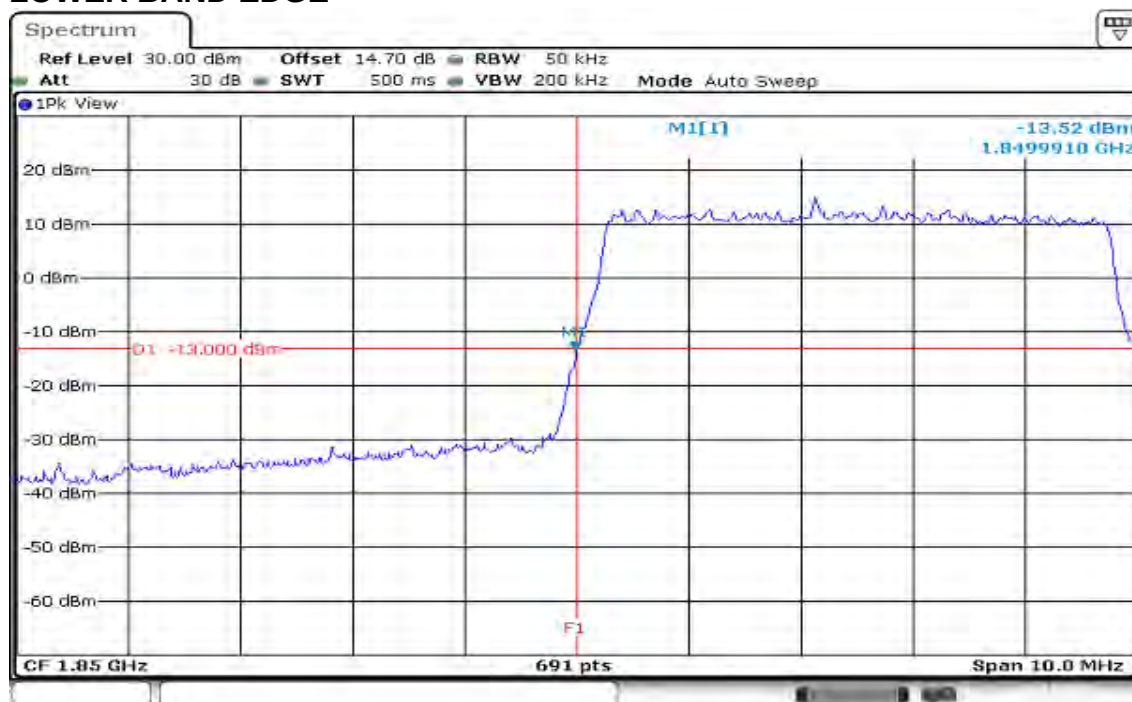
HIGHER BAND EDGE



Date: 20.DEC.2019 13:21:18

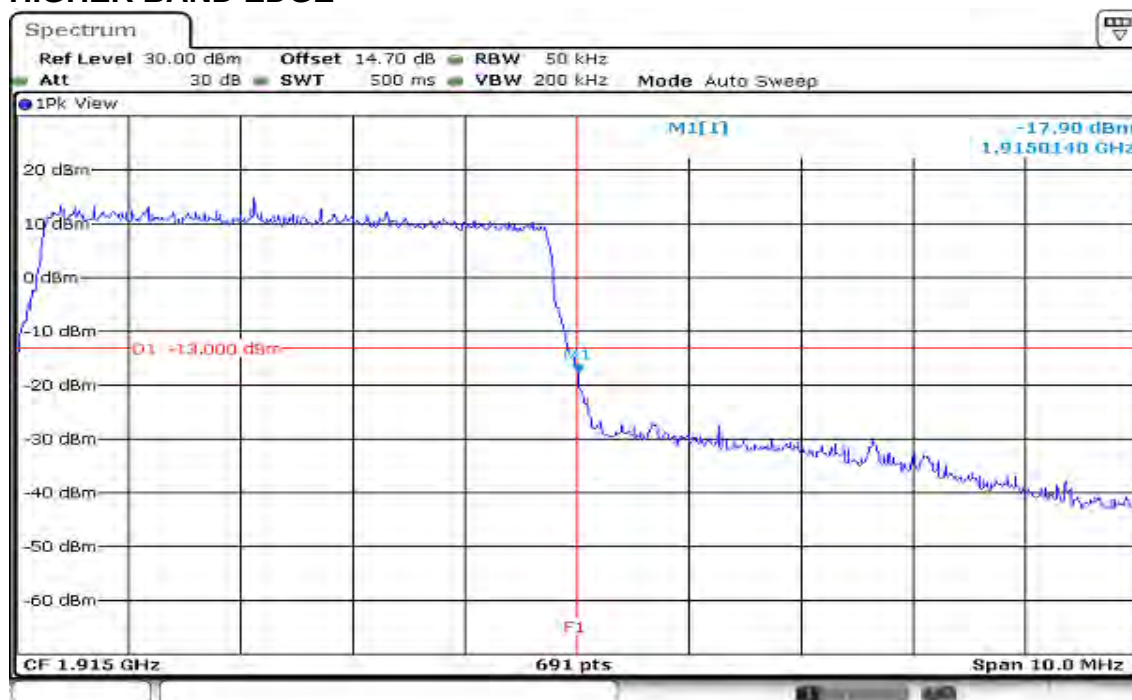
Report No.: T191120D05-RP6

CHANNEL BANDWIDTH: 5MHz / 16QAM / Full RB ALLOCATED LOWER BAND EDGE



Date: 20.DEC.2019 12:10:25

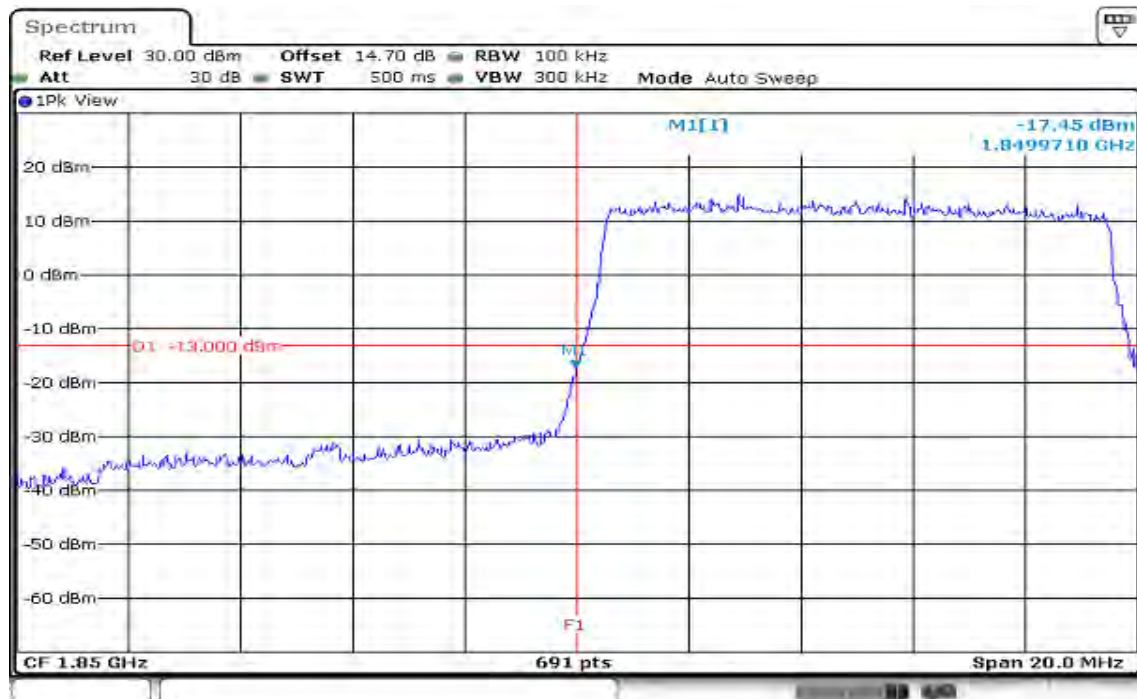
HIGHER BAND EDGE



Date: 20.DEC.2019 13:20:49

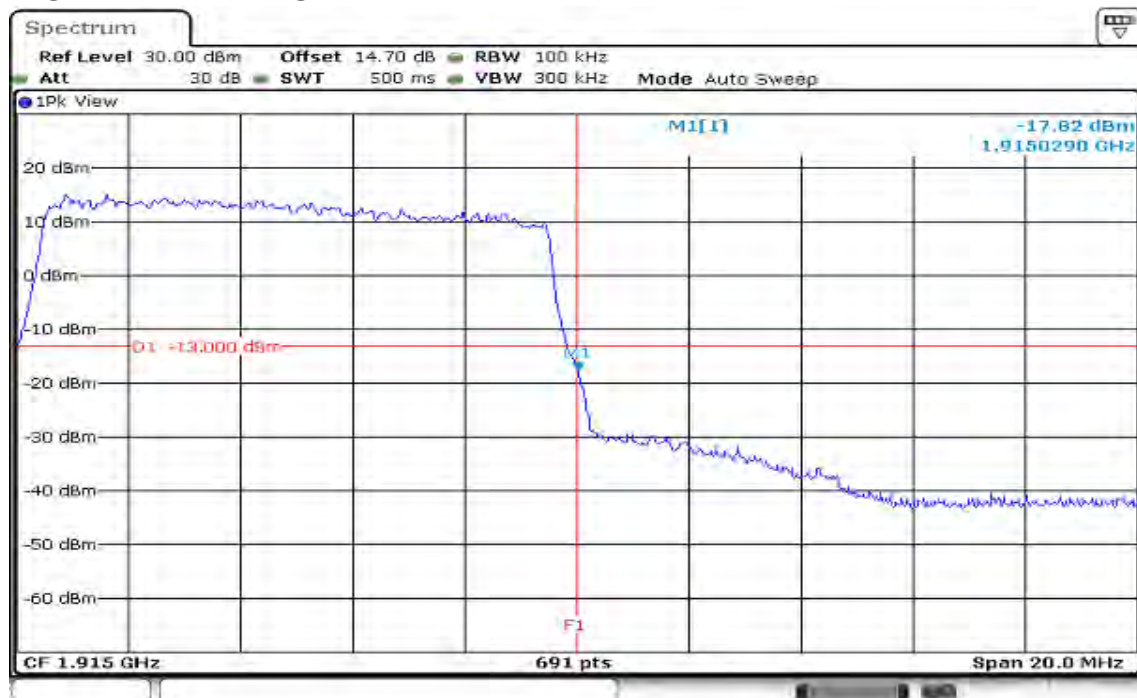
Report No.: T191120D05-RP6

CHANNEL BANDWIDTH: 10MHz / QPSK / Full RB ALLOCATED LOWER BAND EDGE



Date: 20.DEC.2019 13:29:10

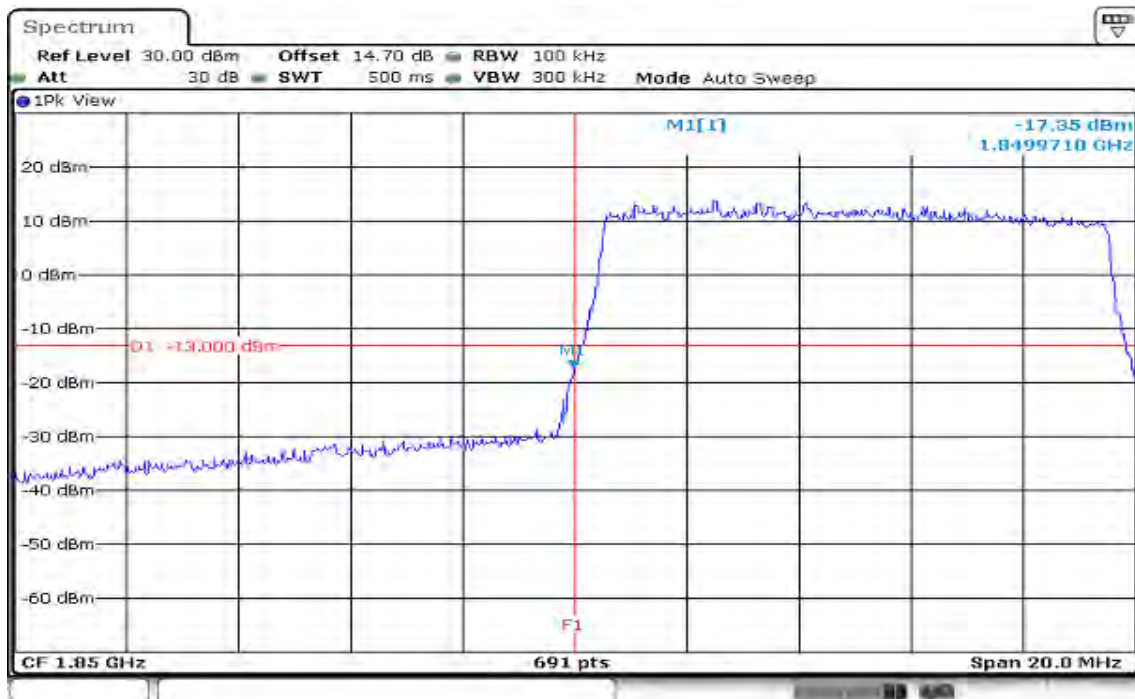
HIGHER BAND EDGE



Date: 20.DEC.2019 13:23:45

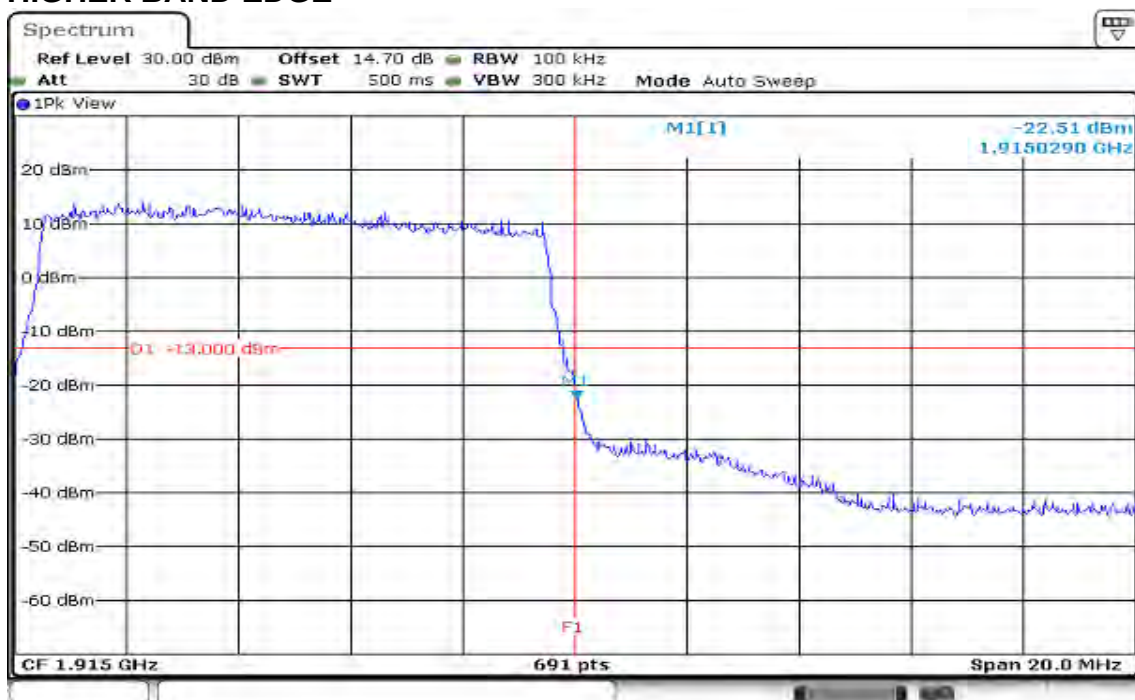
Report No.: T191120D05-RP6

CHANNEL BANDWIDTH: 10MHz / 16QAM / Full RB ALLOCATED LOWER BAND EDGE



Date: 20.DEC.2019 13:28:42

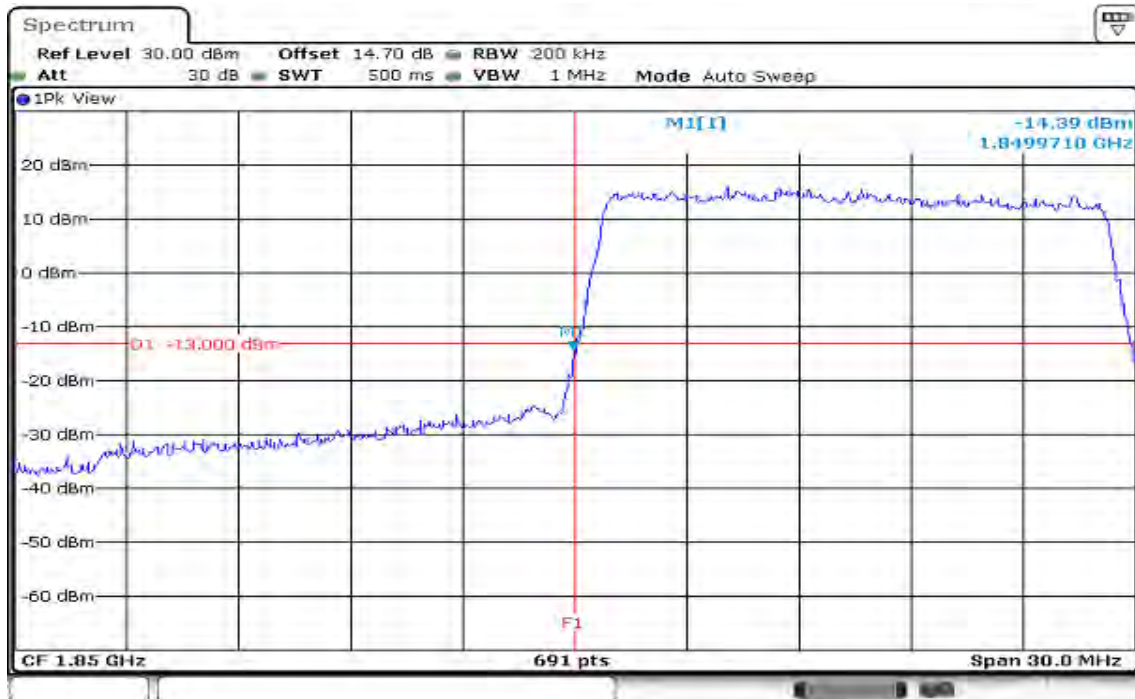
HIGHER BAND EDGE



Date: 20.DEC.2019 13:24:33

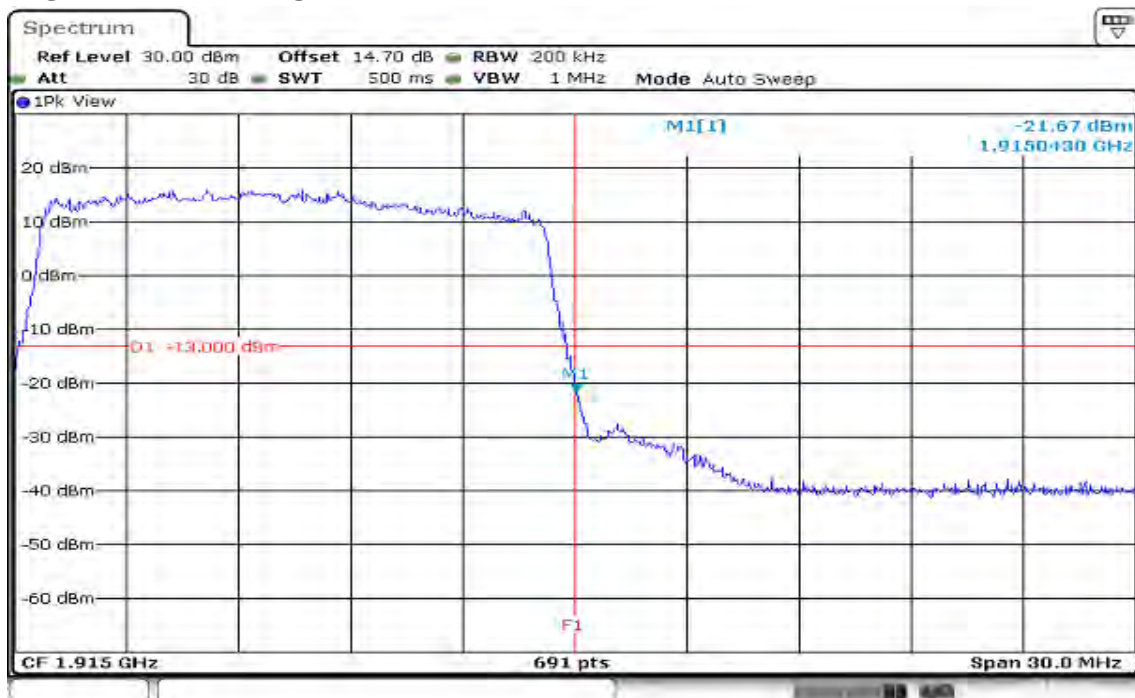
Report No.: T191120D05-RP6

CHANNEL BANDWIDTH: 15MHz / QPSK / Full RB ALLOCATED LOWER BAND EDGE



Date: 20.DEC.2019 13:21:29

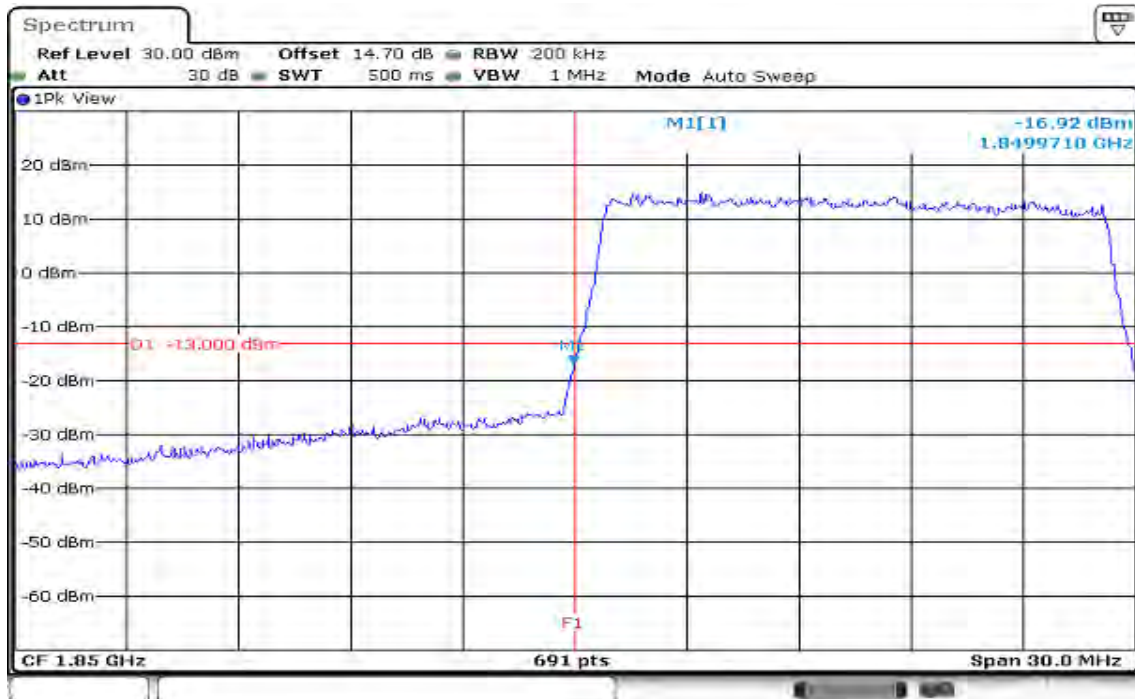
HIGHER BAND EDGE



Date: 20.DEC.2019 13:42:03

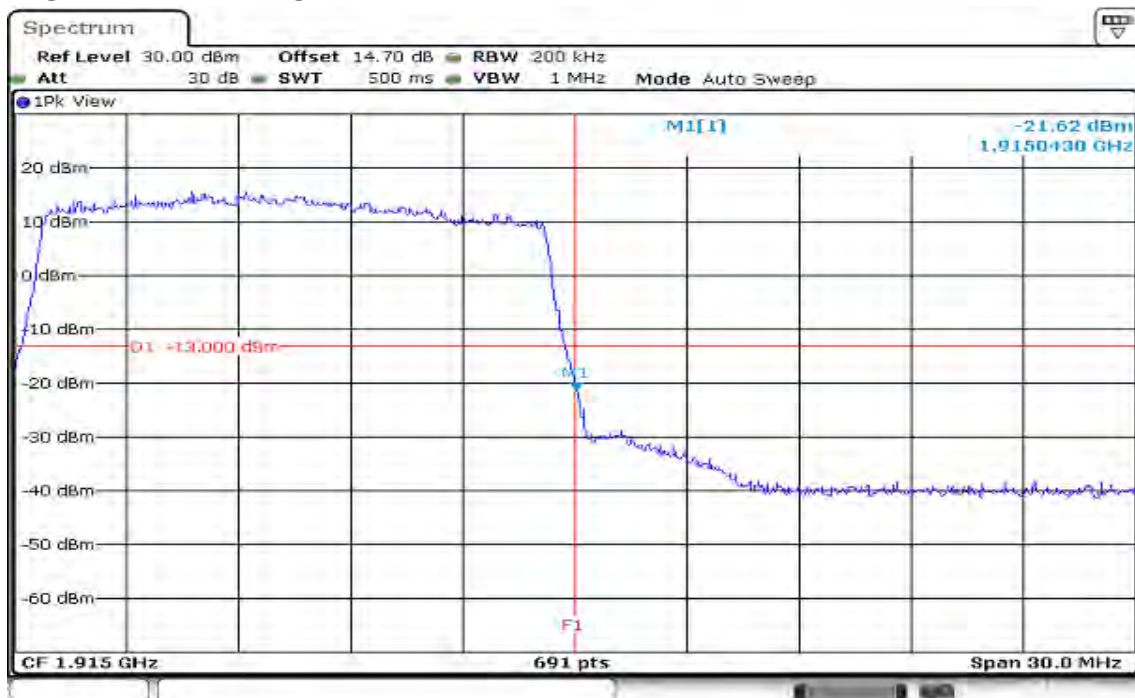
Report No.: T191120D05-RP6

CHANNEL BANDWIDTH: 15MHz / 16QAM / Full RB ALLOCATED LOWER BAND EDGE



Date: 20.DEC.2019 13:30:59

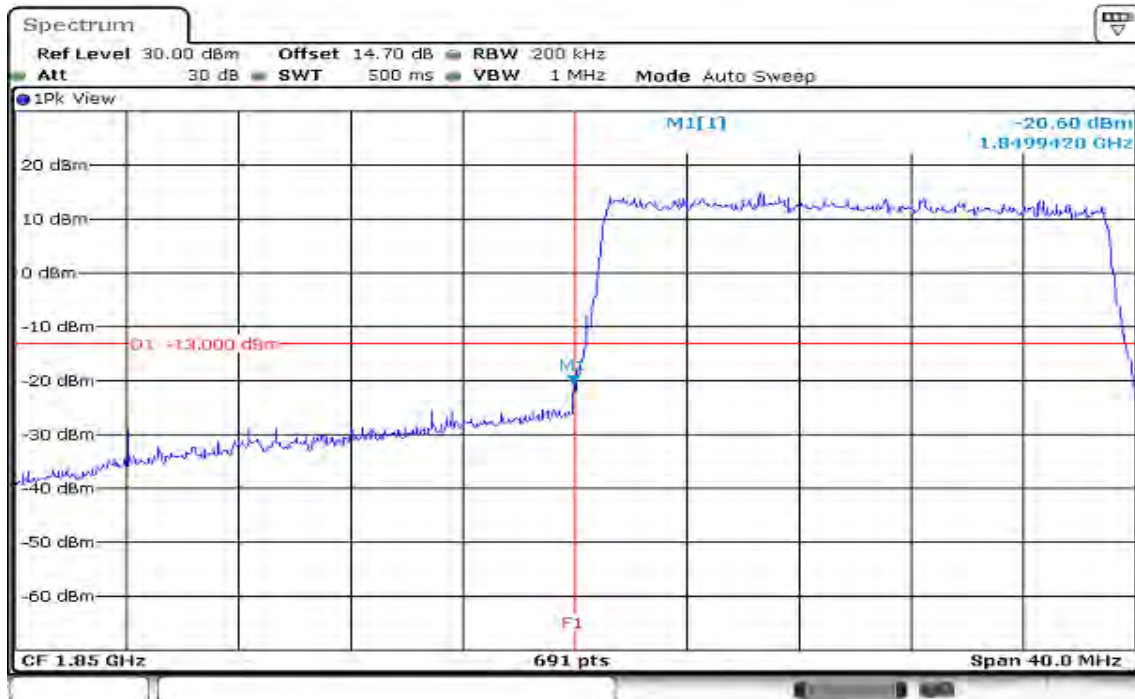
HIGHER BAND EDGE



Date: 20.DEC.2019 13:42:37

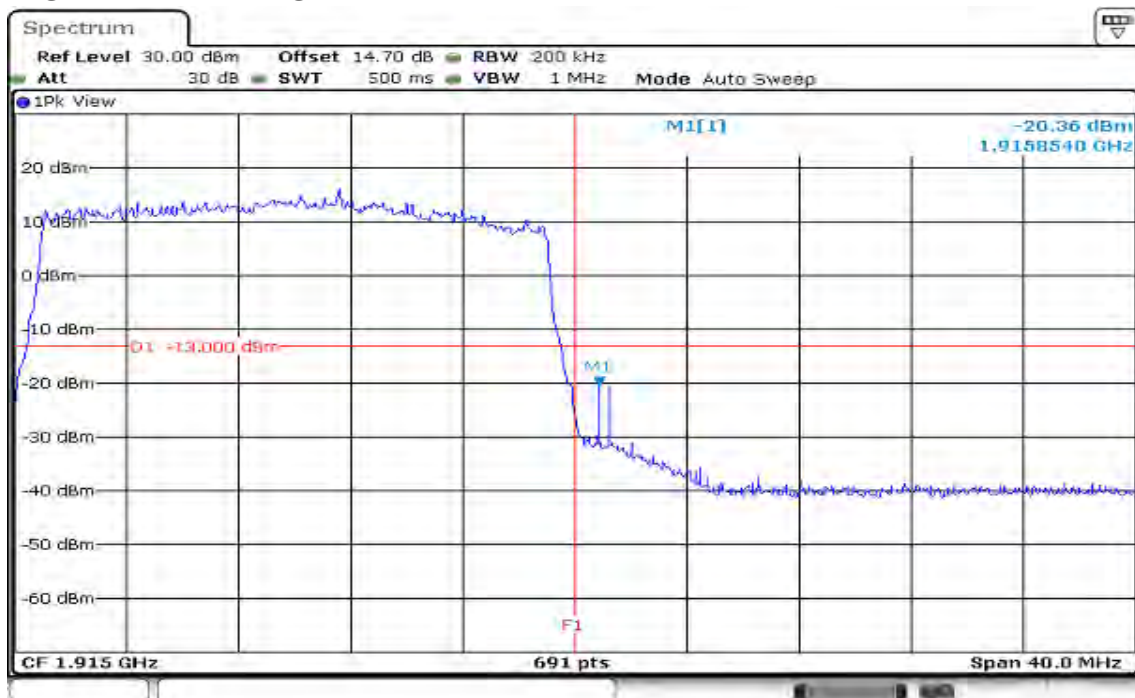
Report No.: T191120D05-RP6

CHANNEL BANDWIDTH: 20MHz / QPSK / Full RB ALLOCATED LOWER BAND EDGE



Date: 20.DEC.2019 13:50:30

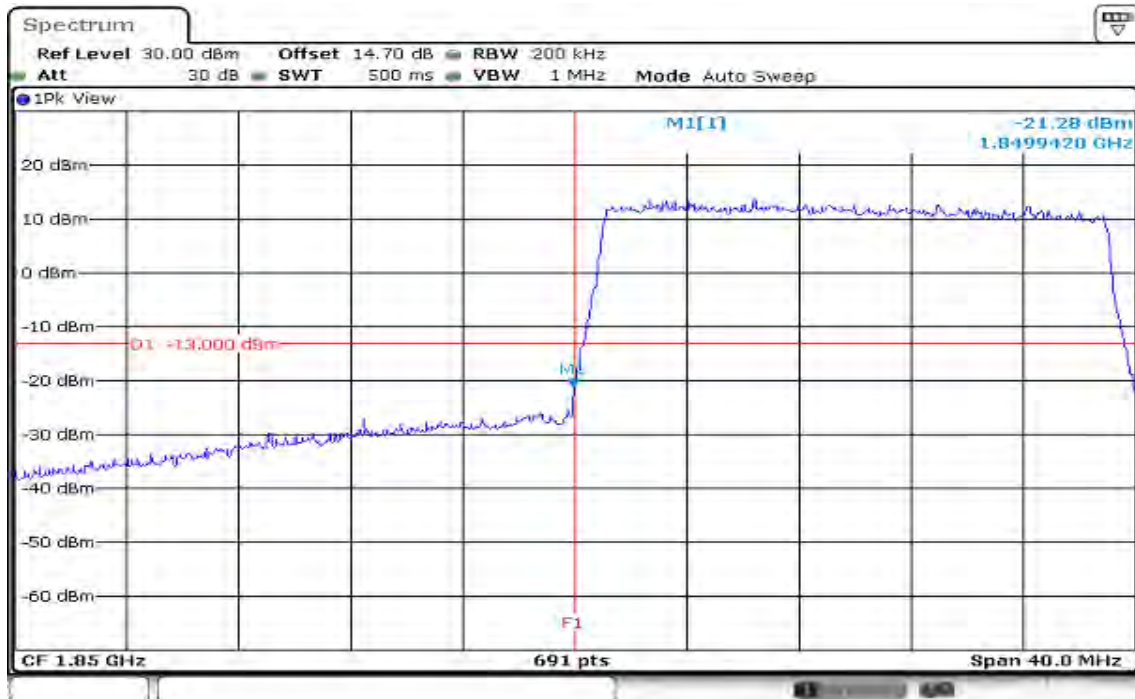
HIGHER BAND EDGE



Date: 20.DEC.2019 13:46:29

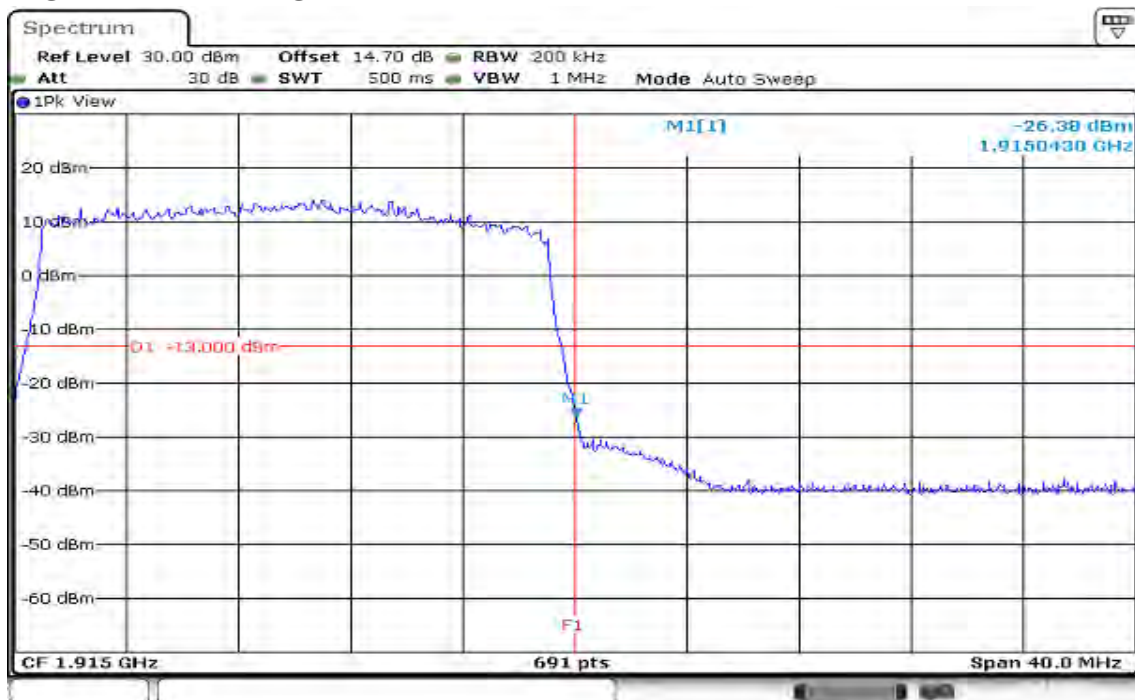
Report No.: T191120D05-RP6

CHANNEL BANDWIDTH: 20MHz / 16QAM / Full RB ALLOCATED LOWER BAND EDGE



Date: 20.DEC.2019 13:50:56

HIGHER BAND EDGE



Date: 20.DEC.2019 13:45:37



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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 -13dBm

Test Procedures

1. According to KDB 971168 D01,
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.

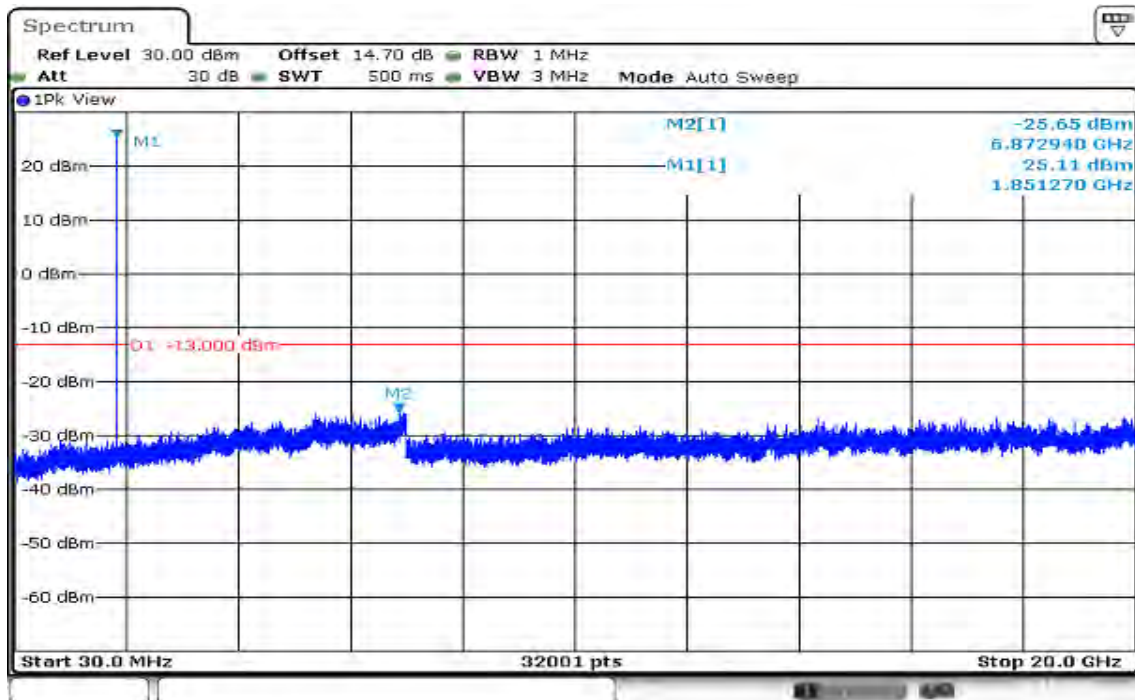
Report No.: T191120D05-RP6

Test Results

LTE Band 25

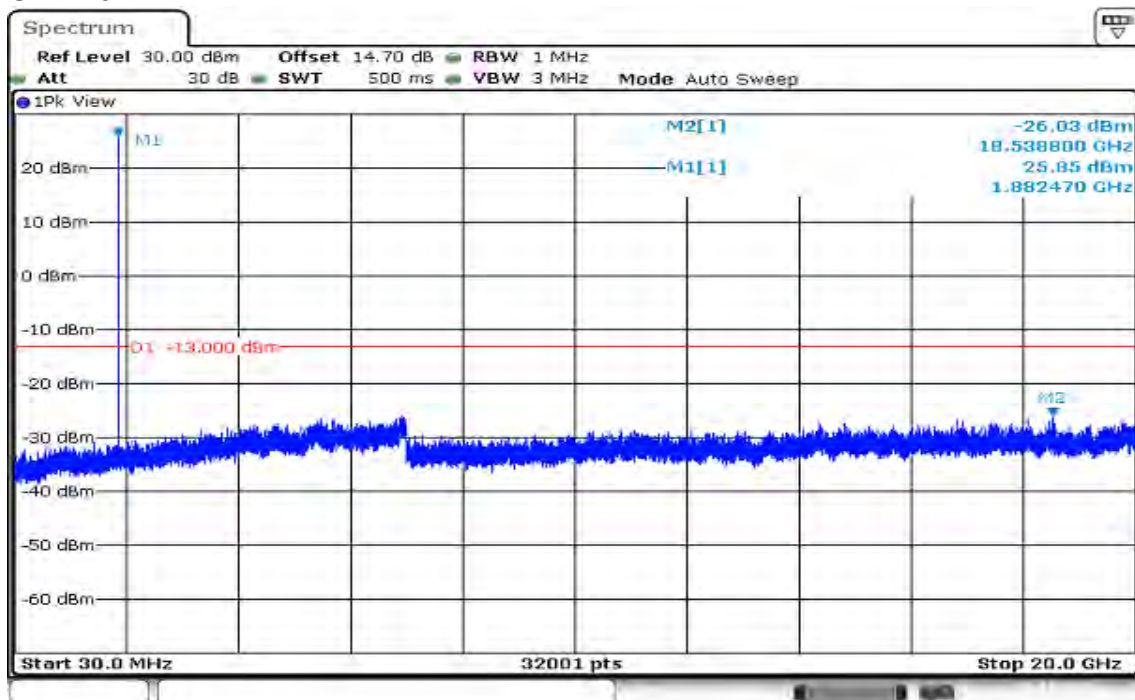
CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1RB

CH Low



Date: 20.DEC.2019 10:29:59

CH Mid



Date: 20.DEC.2019 10:33:53

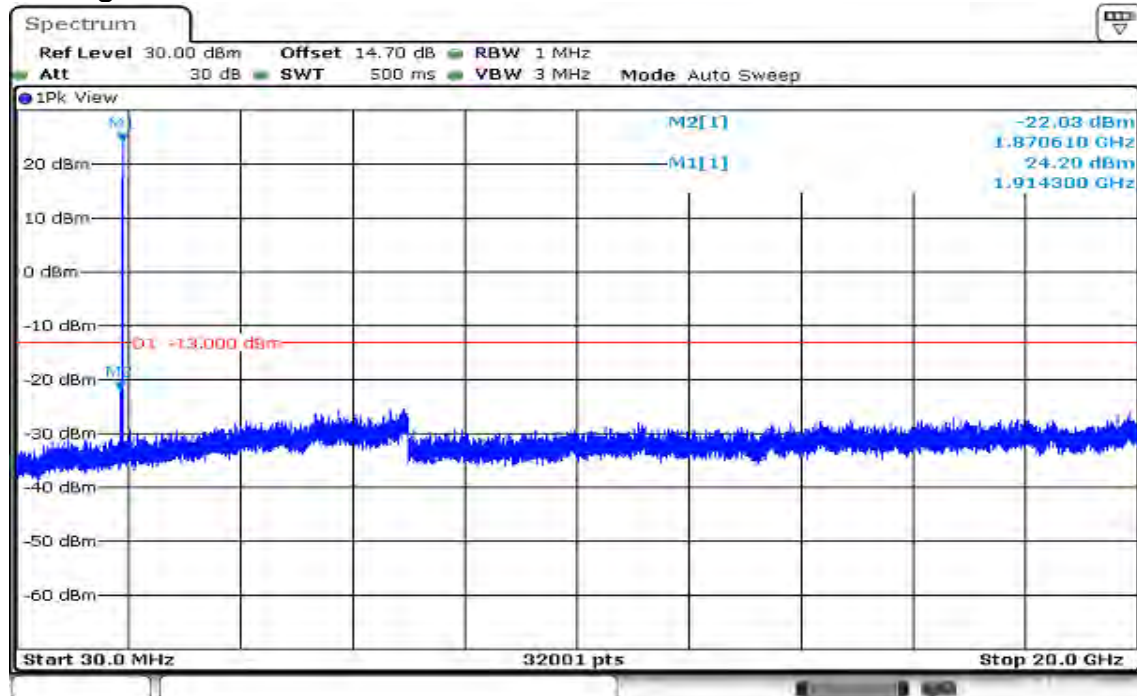


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CH High

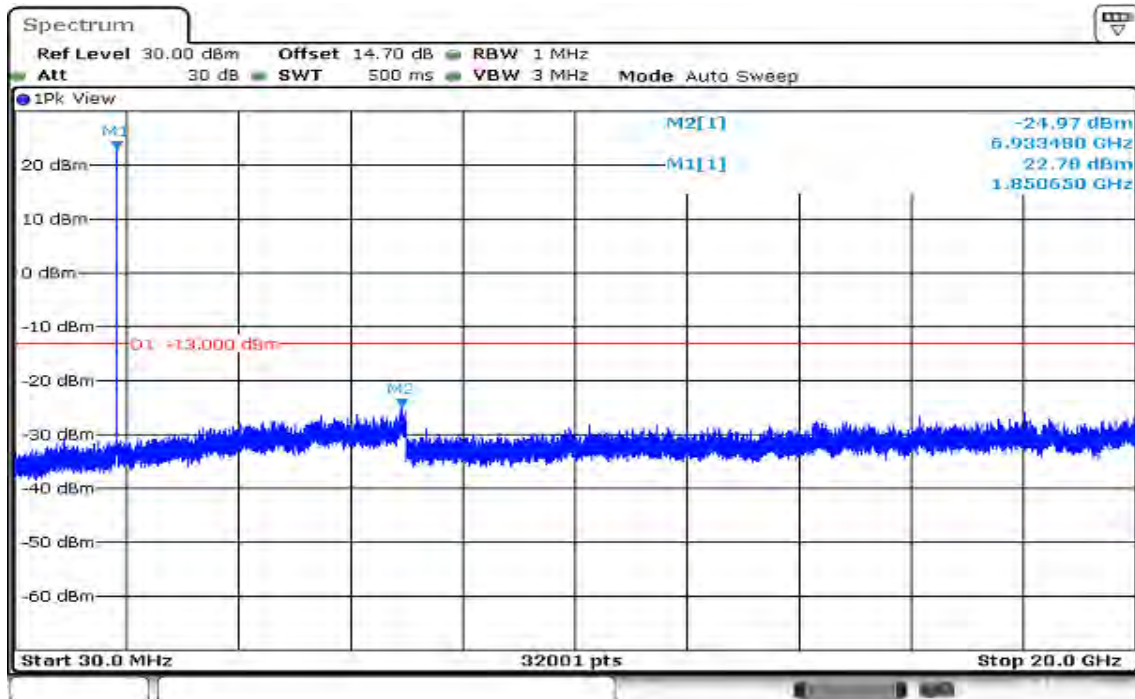


Date: 20.DEC.2019 10:30:43

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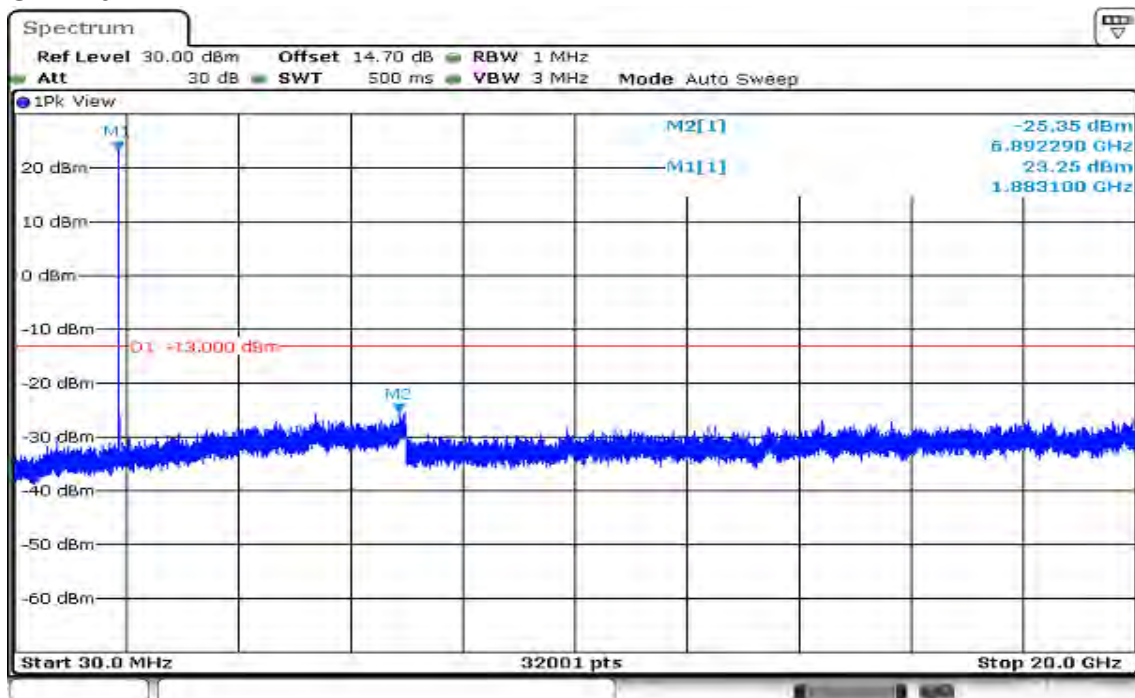
CHANNEL BANDWIDTH: 3MHz / QPSK / 1RB

CH Low



Date: 20.DEC.2019 10:25:23

CH Mid



Date: 20.DEC.2019 10:27:30

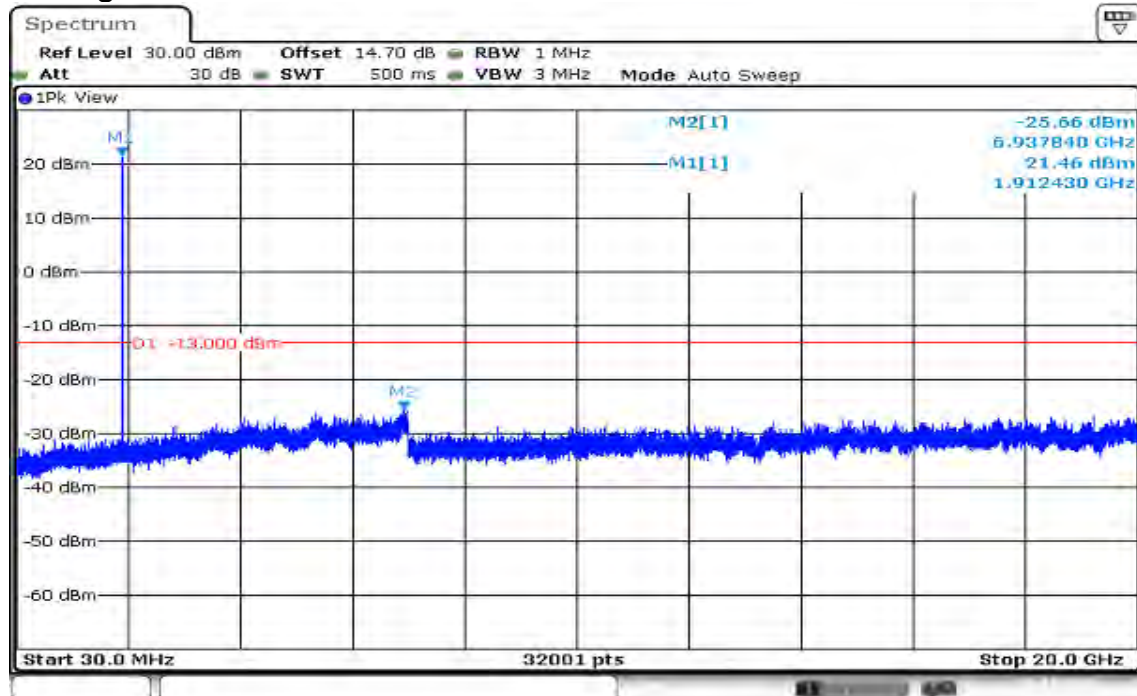


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CH High

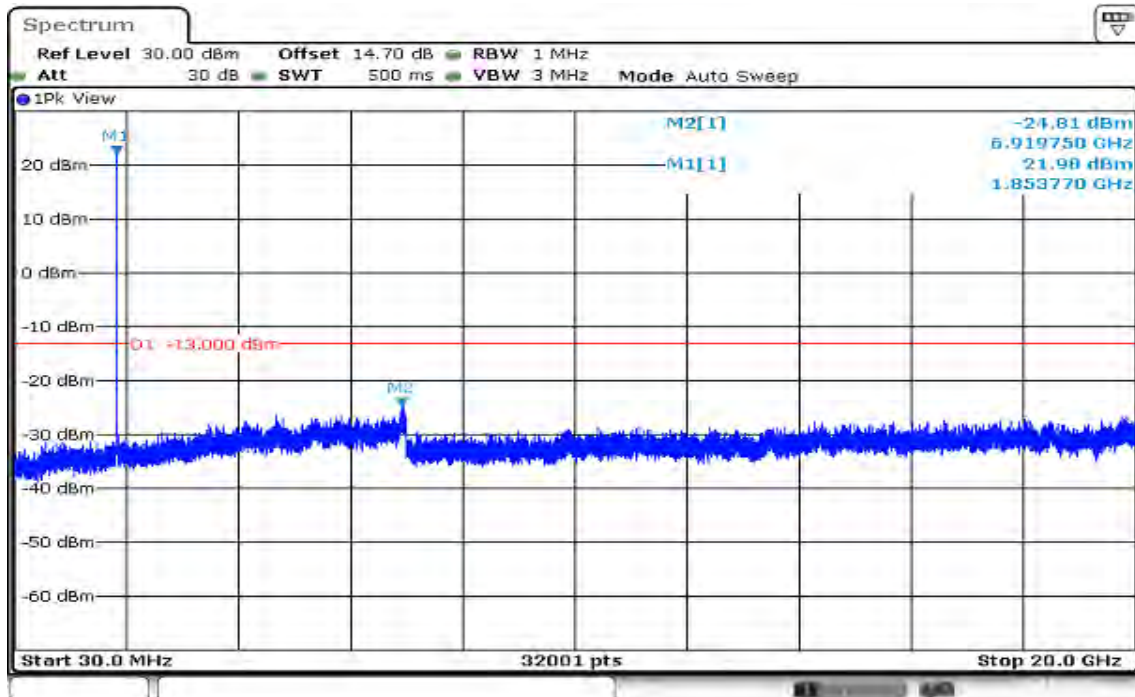


Date: 20.DEC.2019 10:28:03

Report No.: T191120D05-RP6

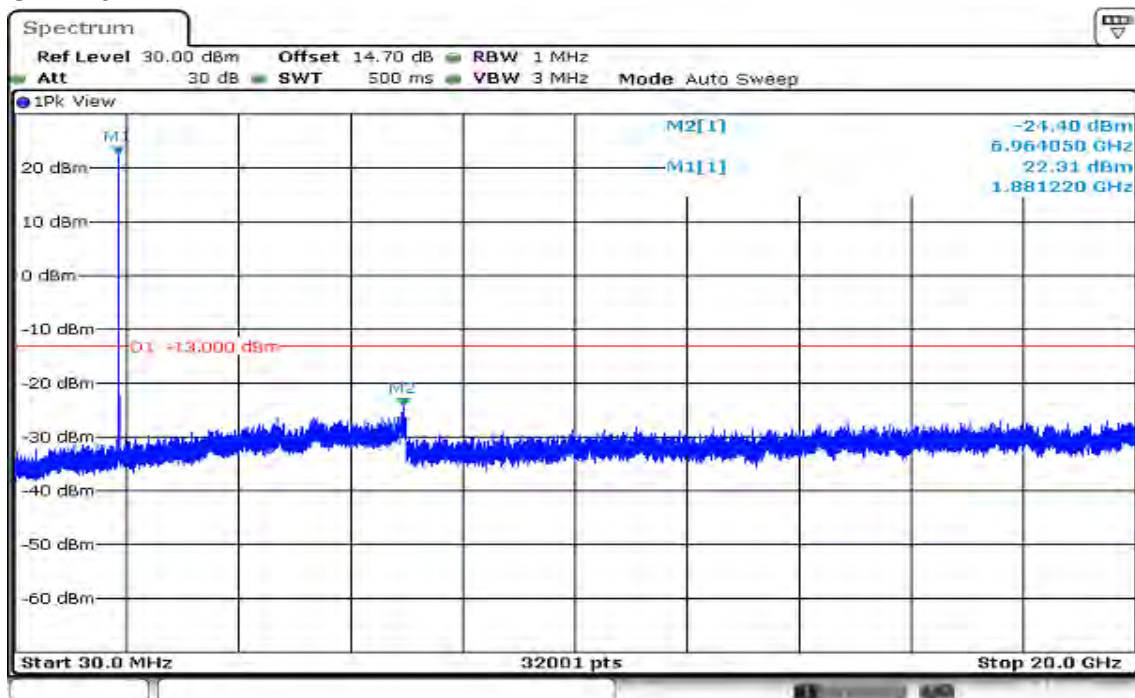
CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB

CH Low



Date: 20.DEC.2019 10:21:10

CH Mid



Date: 20.DEC.2019 10:21:56

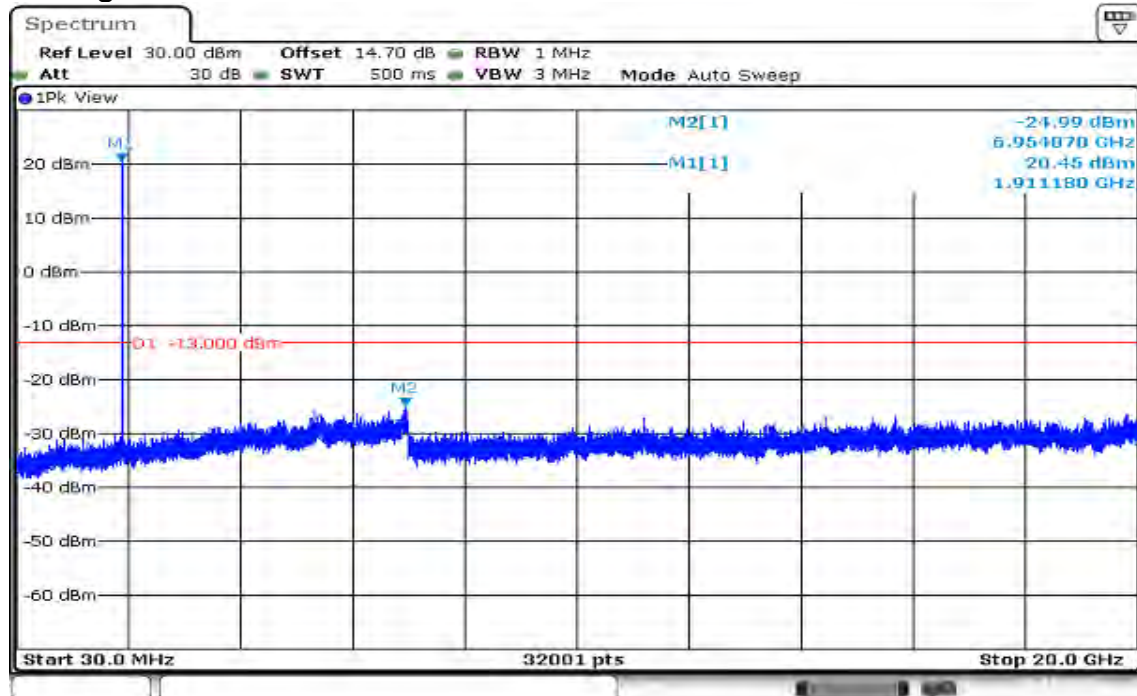


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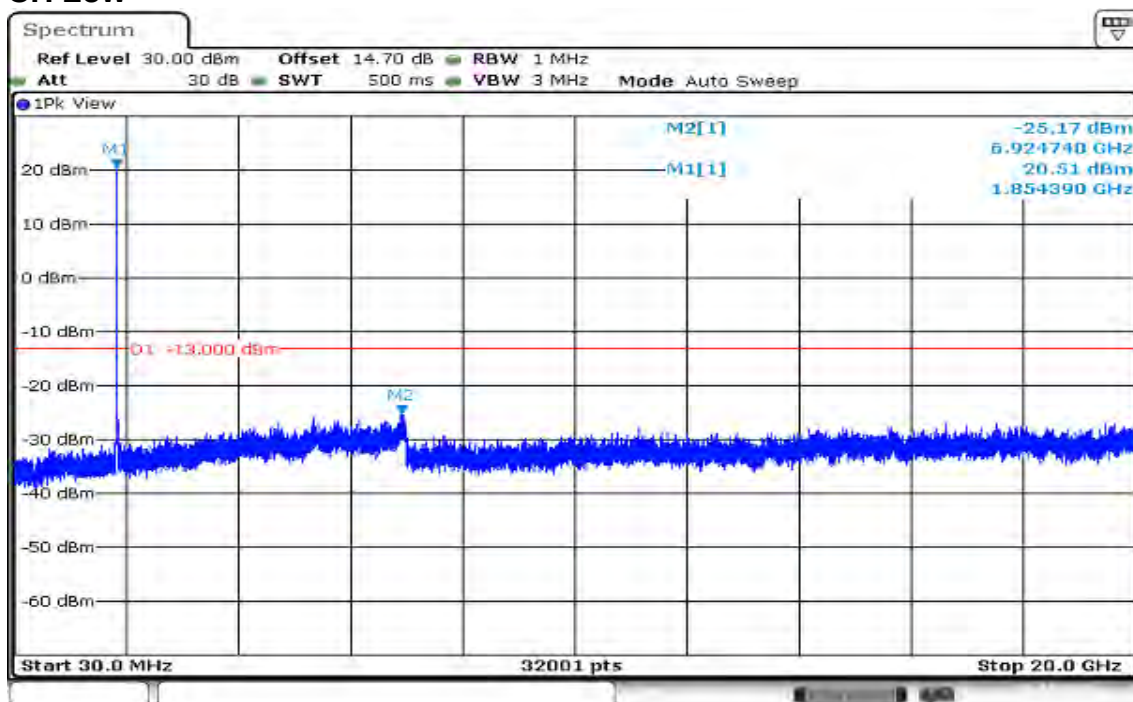
CH High



Date: 20.DEC.2019 10:23:16

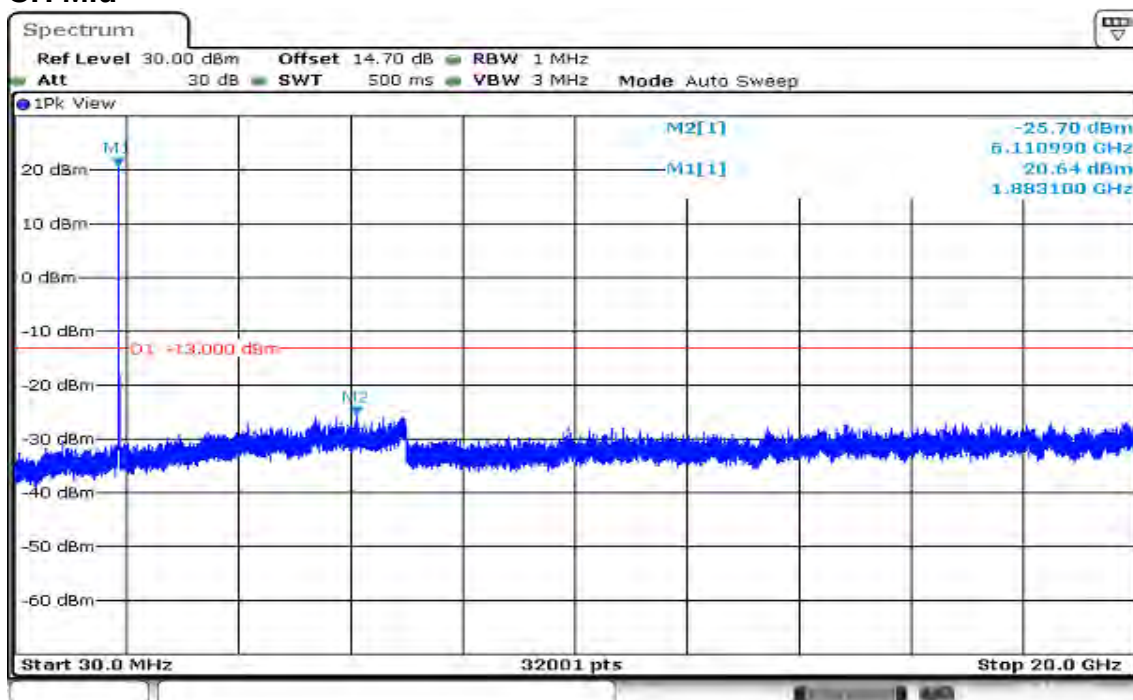
Report No.: T191120D05-RP6

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



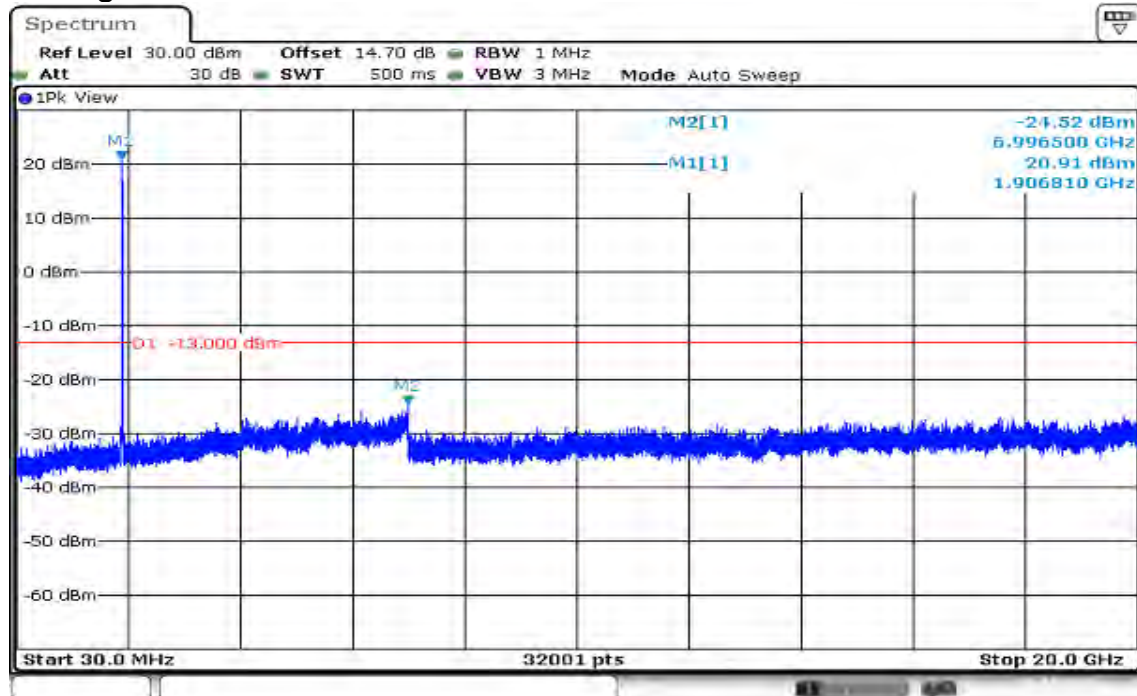
Date: 20.DEC.2019 10:12:20

CH Mid



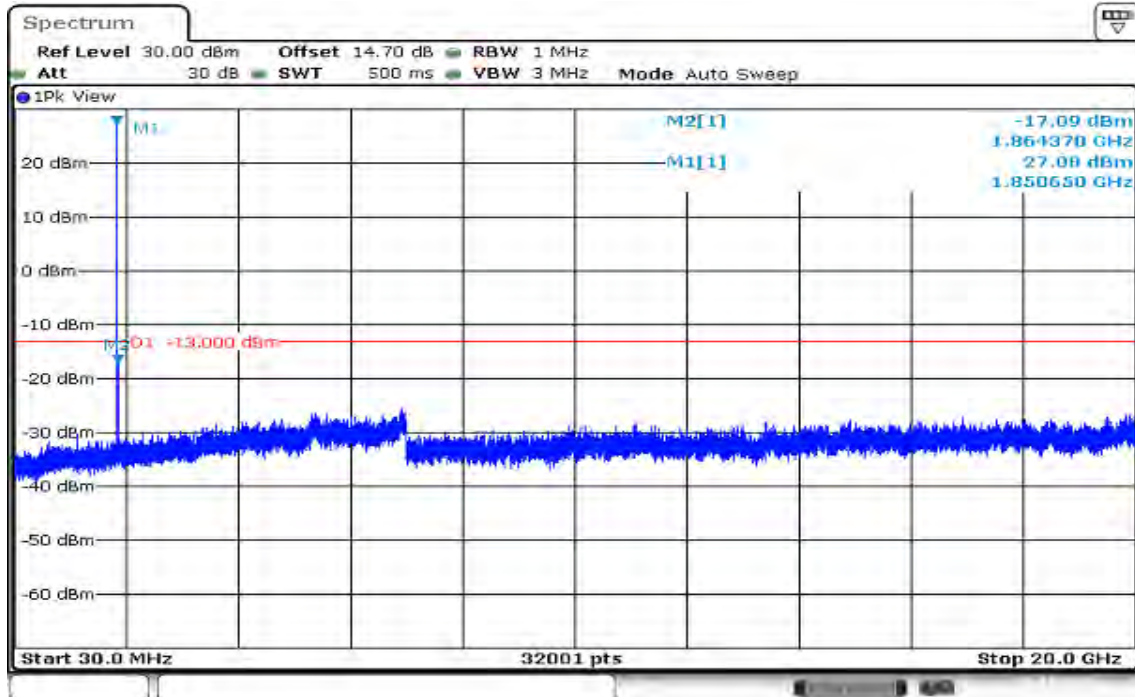
Date: 20.DEC.2019 10:13:44

CH High



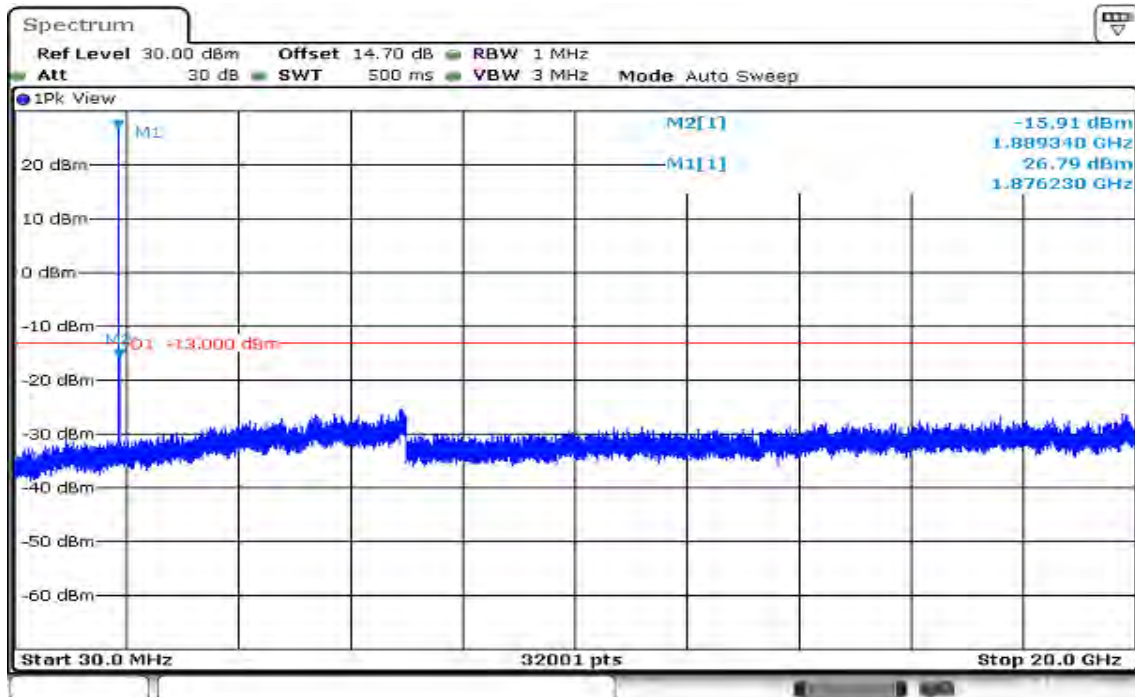
Date: 20.DEC.2019 10:14:25

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



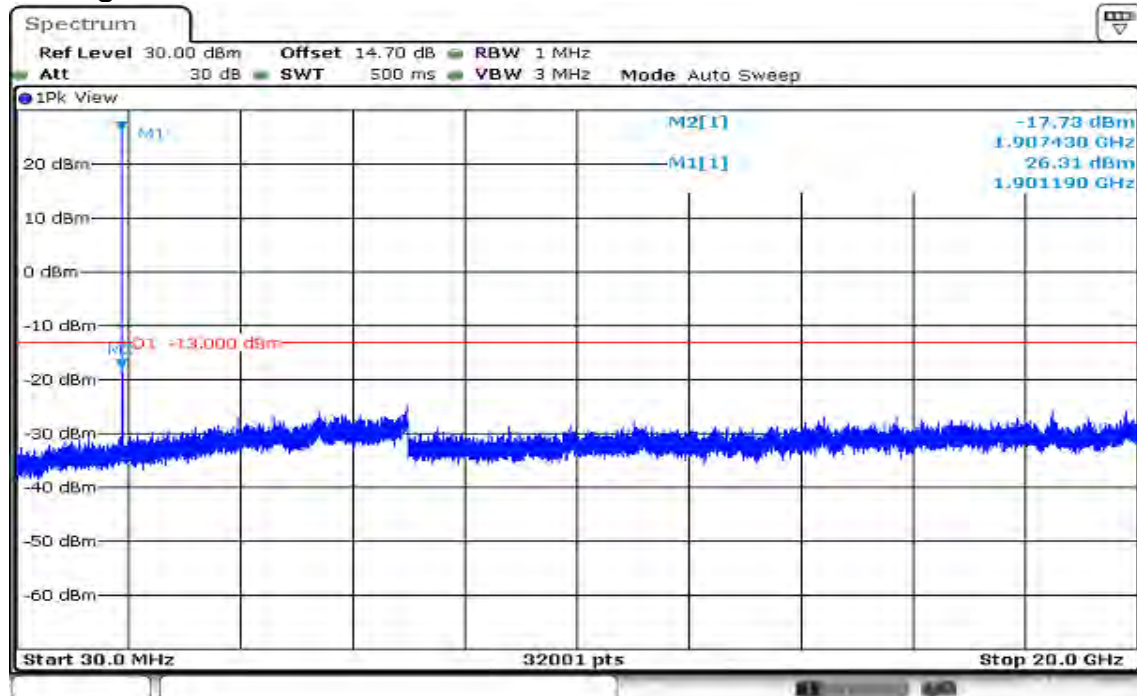
Date: 20.DEC.2019 10:08:42

CH Mid



Date: 20.DEC.2019 10:09:21

CH High

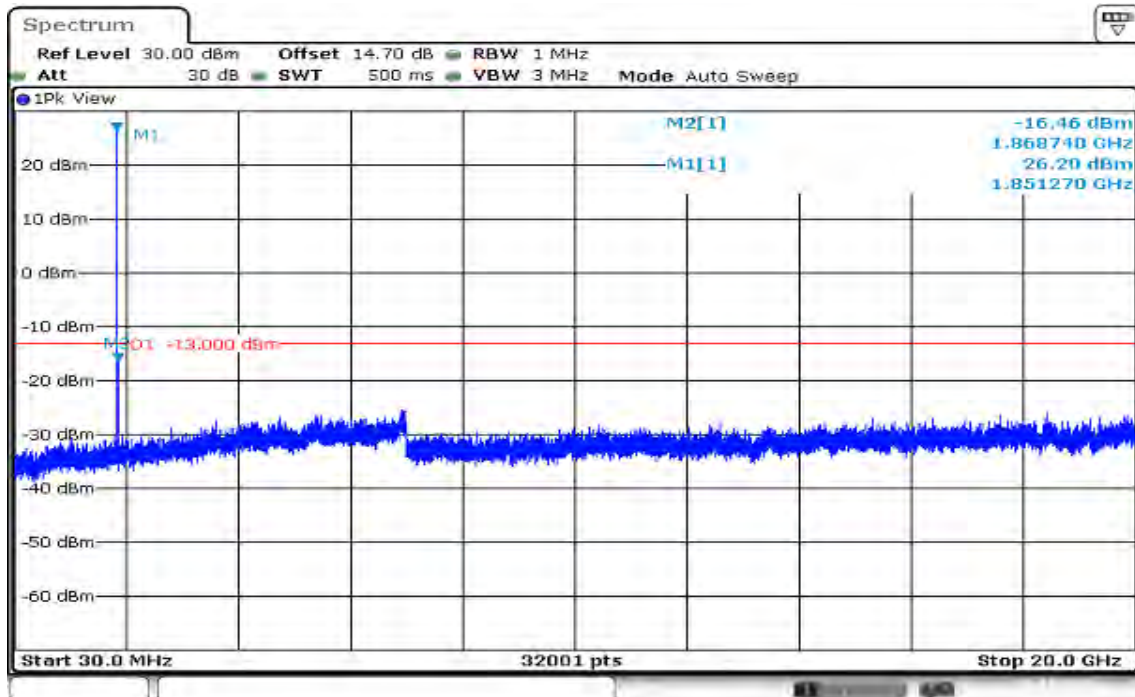


Date: 20.DEC.2019 10:10:46

Report No.: T191120D05-RP6

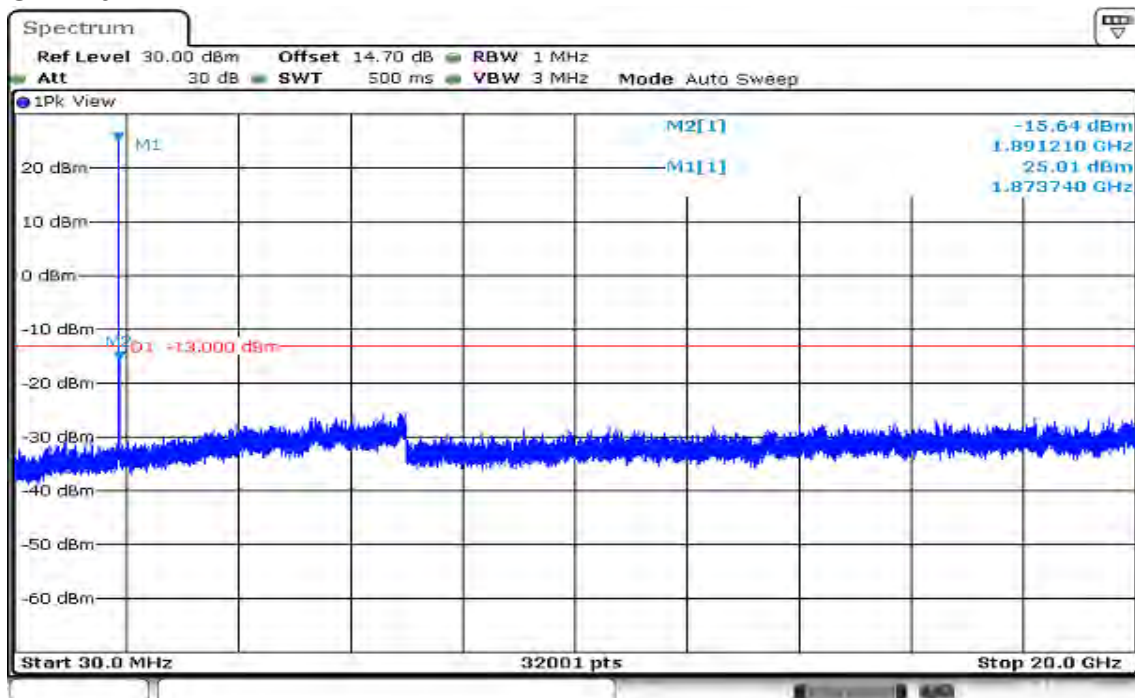
CHANNEL BANDWIDTH: 20MHz / QPSK / 1RB

CH Low



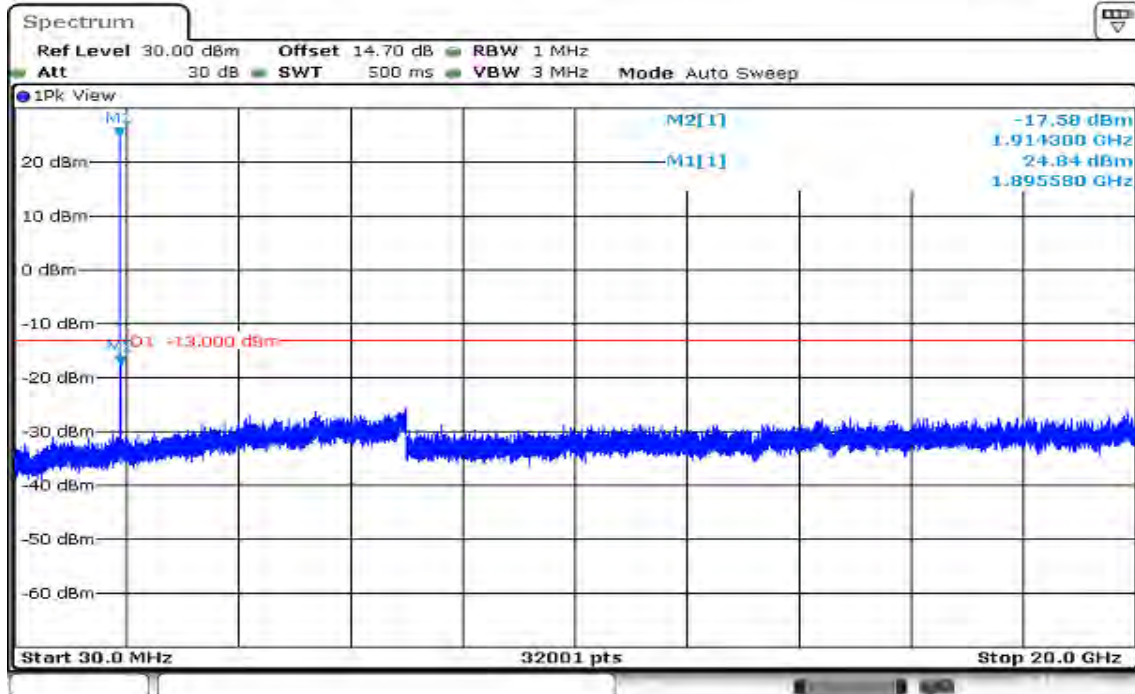
Date: 20.DEC.2019 10:05:04

CH Mid



Date: 20.DEC.2019 10:03:13

CH High

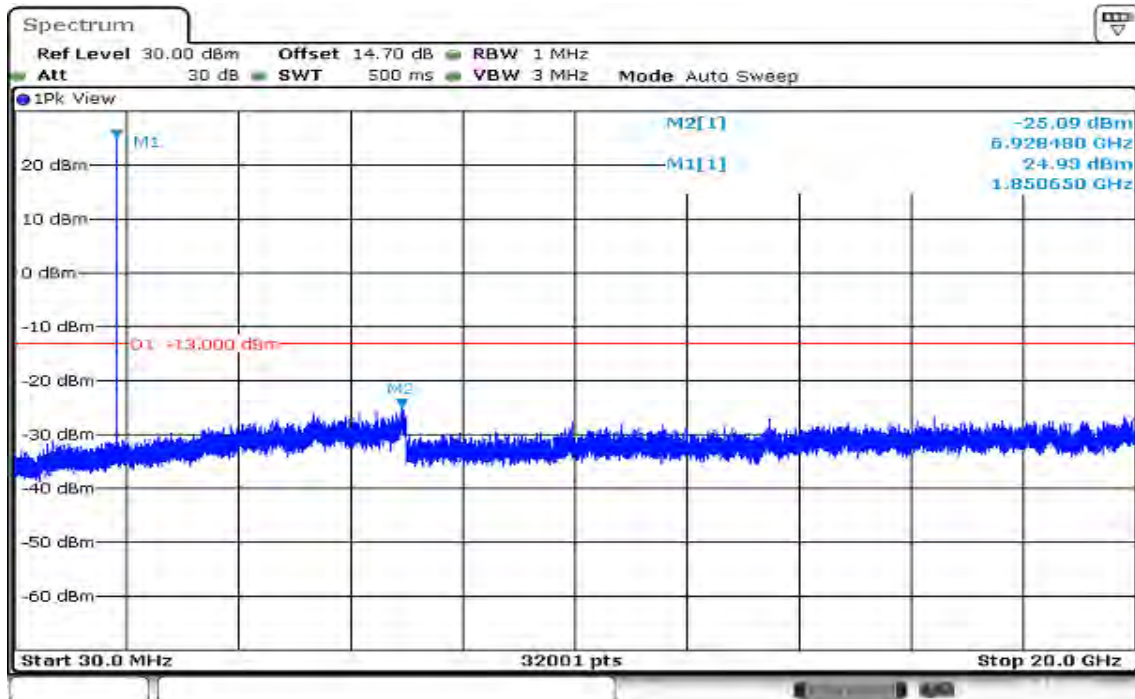


Date: 20.DEC.2019 10:05:33

Report No.: T191120D05-RP6

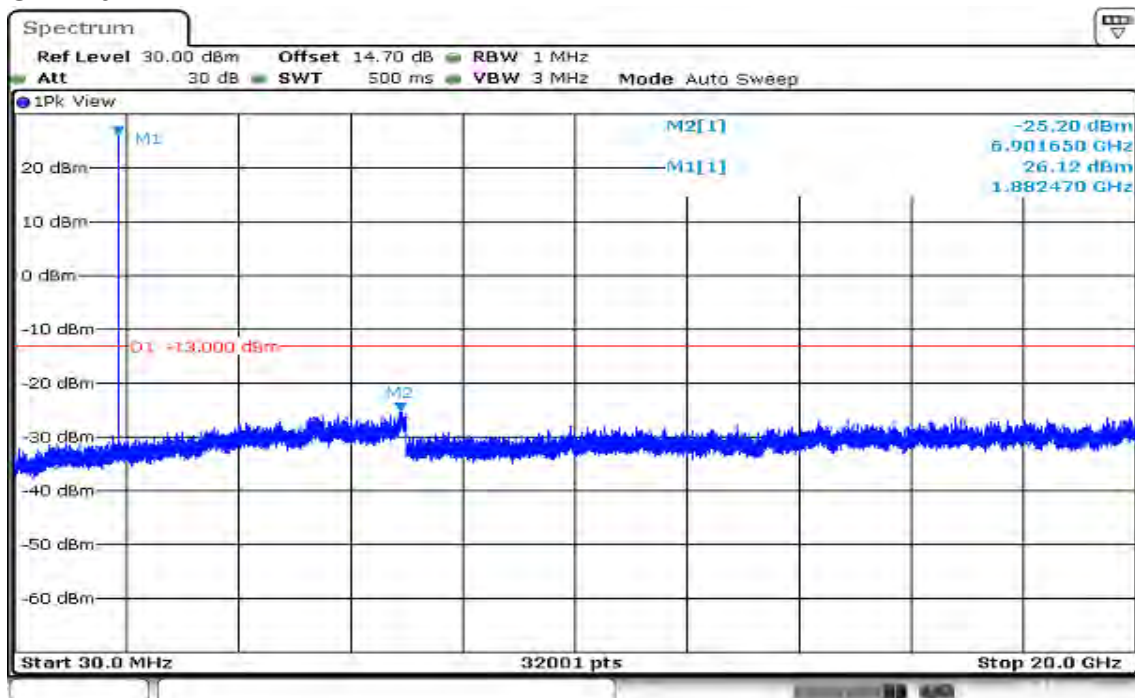
CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1RB

CH Low



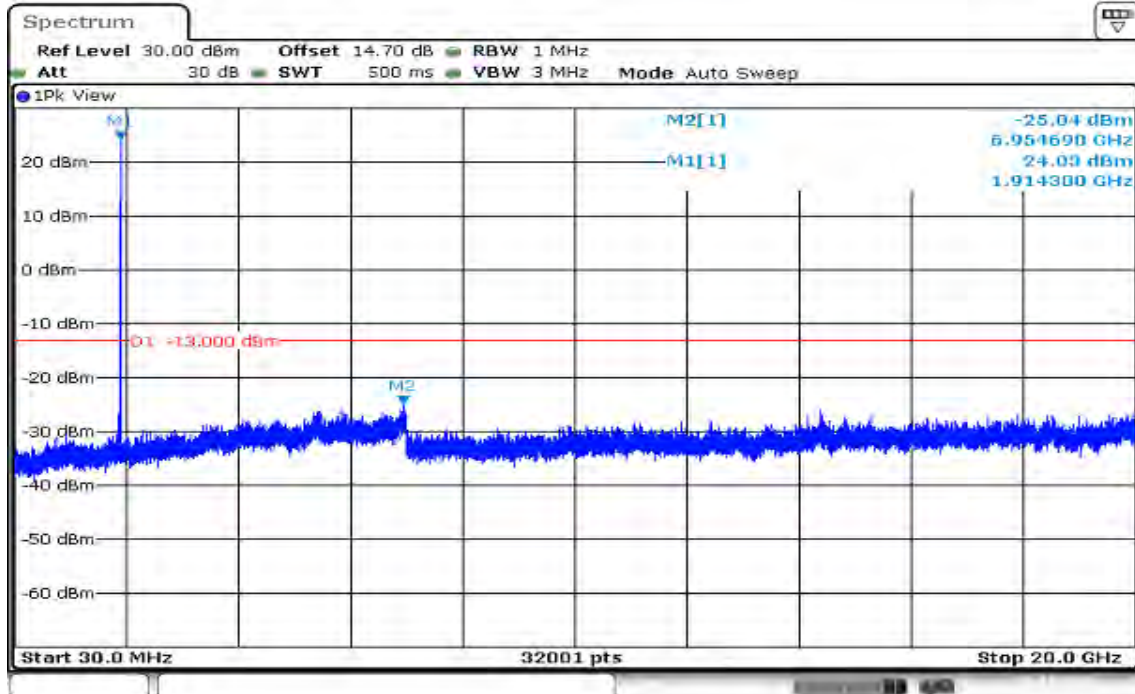
Date: 20.DEC.2019 10:29:35

CH Mid



Date: 20.DEC.2019 10:33:12

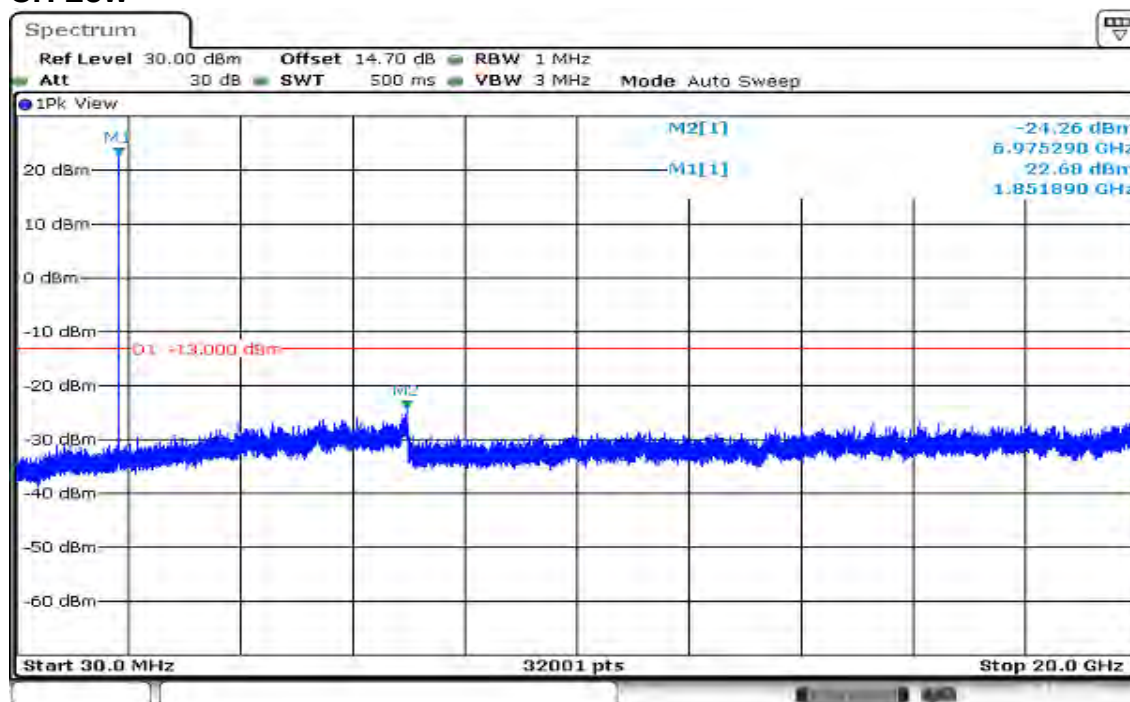
CH High



Date: 20.DEC.2019 10:32:23

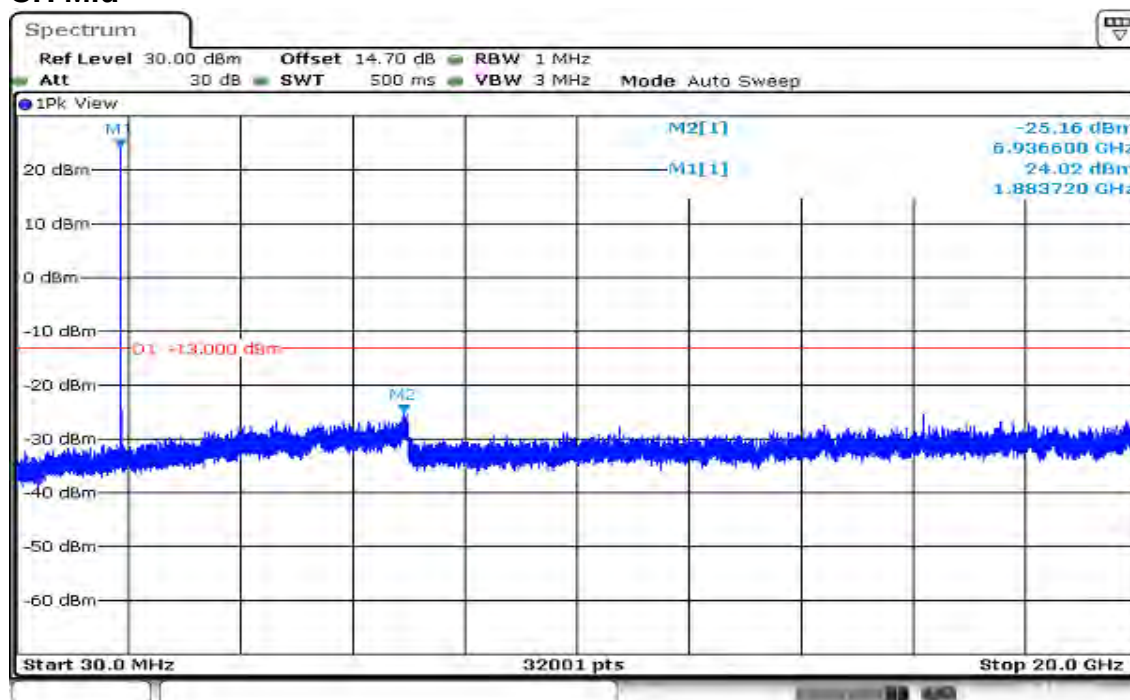
Report No.: T191120D05-RP6

CHANNEL BANDWIDTH: 3MHz / 16QAM / 1RB CH Low



Date: 20.DEC.2019 10:25:52

CH Mid



Date: 20.DEC.2019 10:26:58

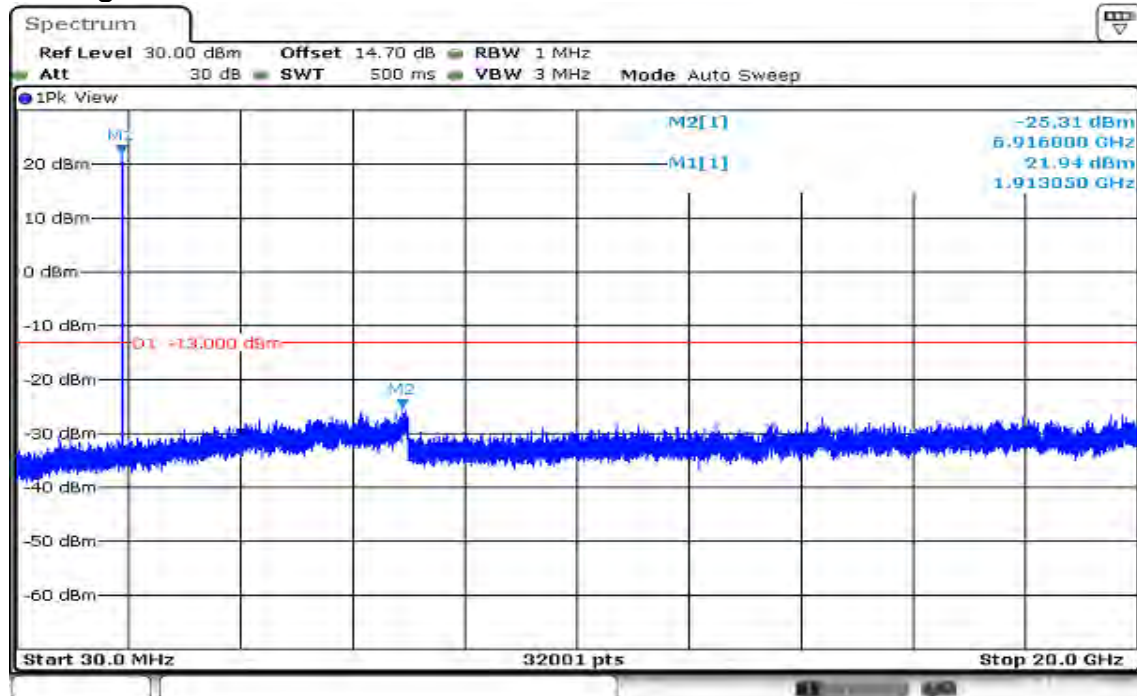


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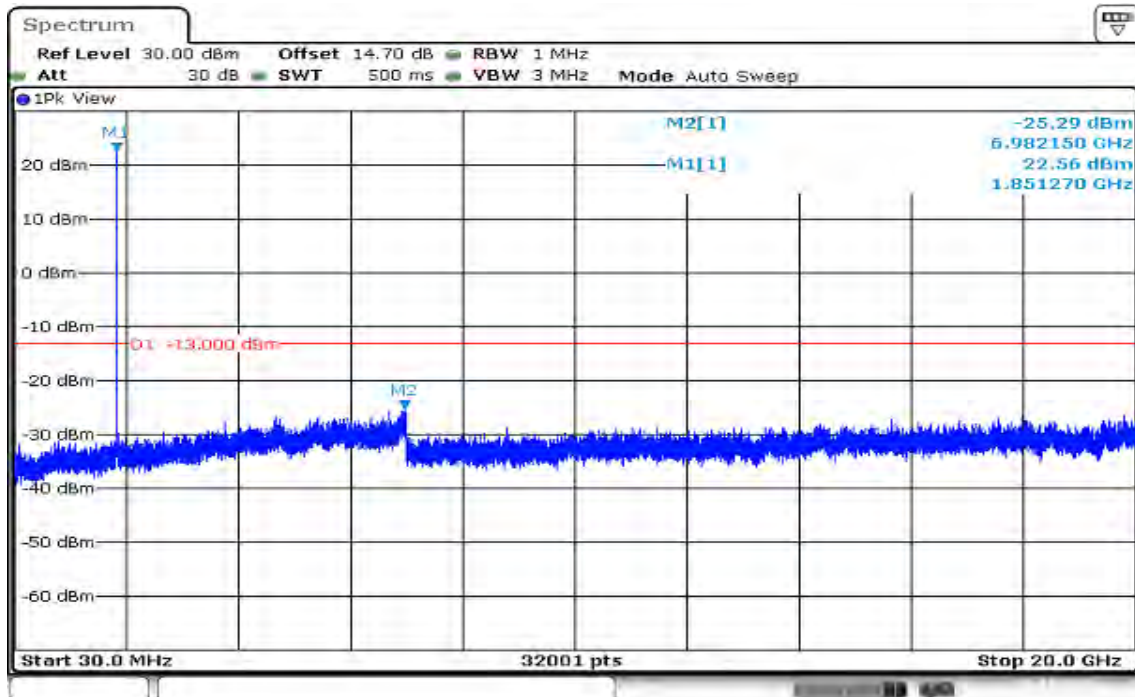
CH High



Date: 20.DEC.2019 10:28:30

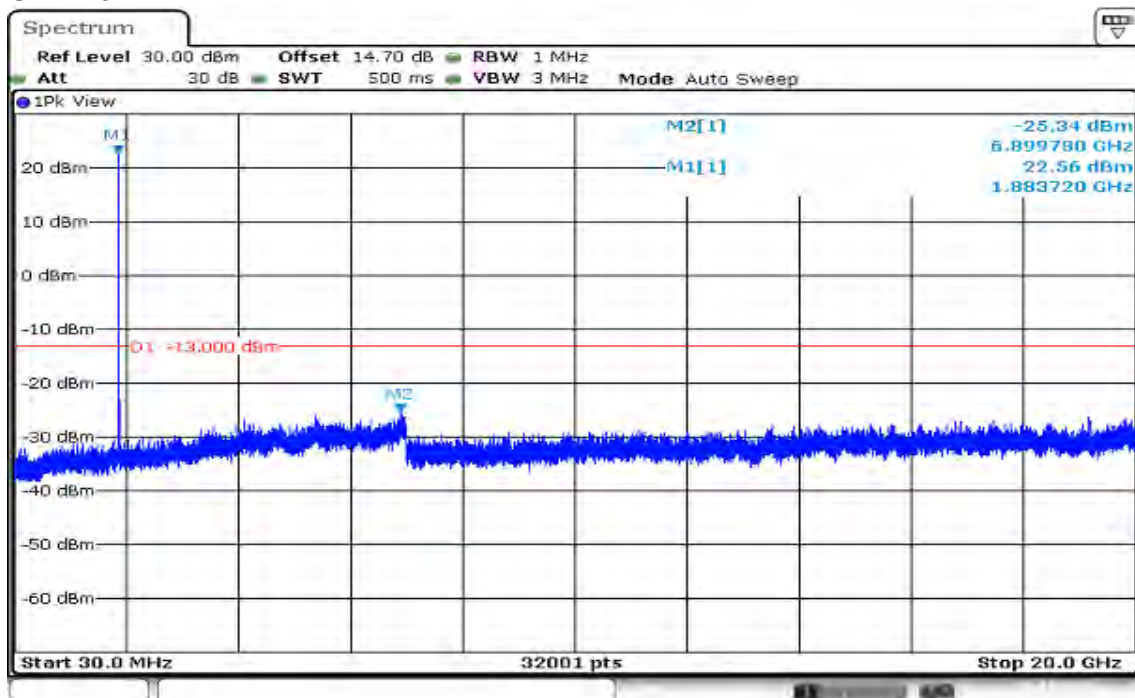
Report No.: T191120D05-RP6

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



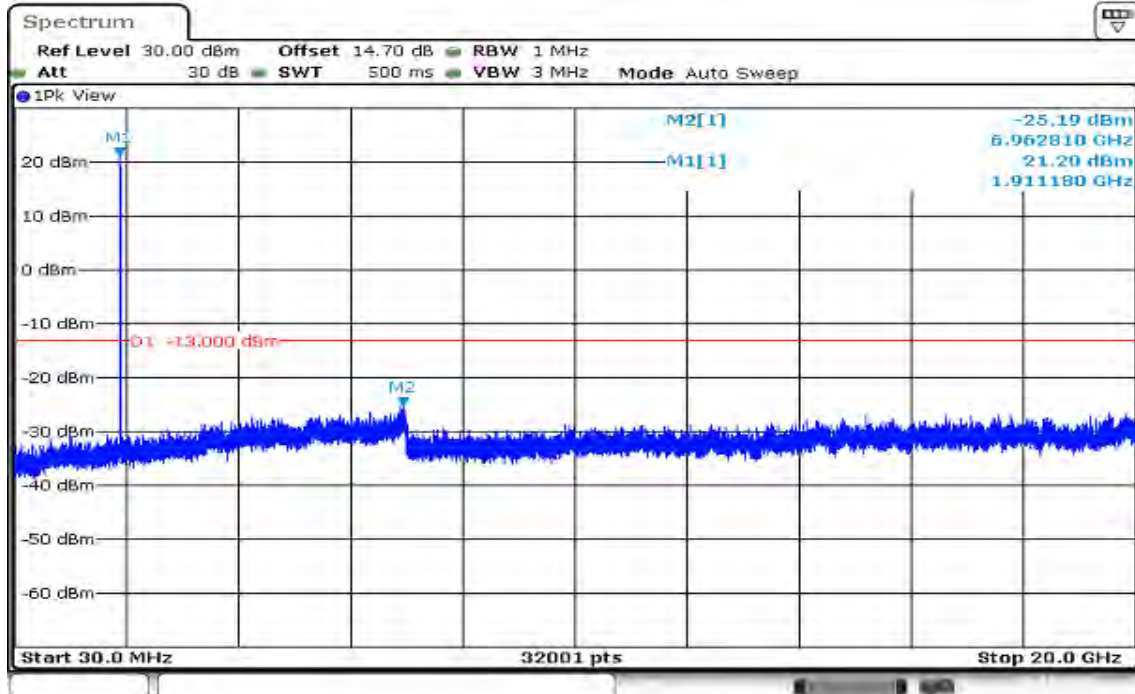
Date: 20.DEC.2019 10:20:39

CH Mid



Date: 20.DEC.2019 10:22:20

CH High

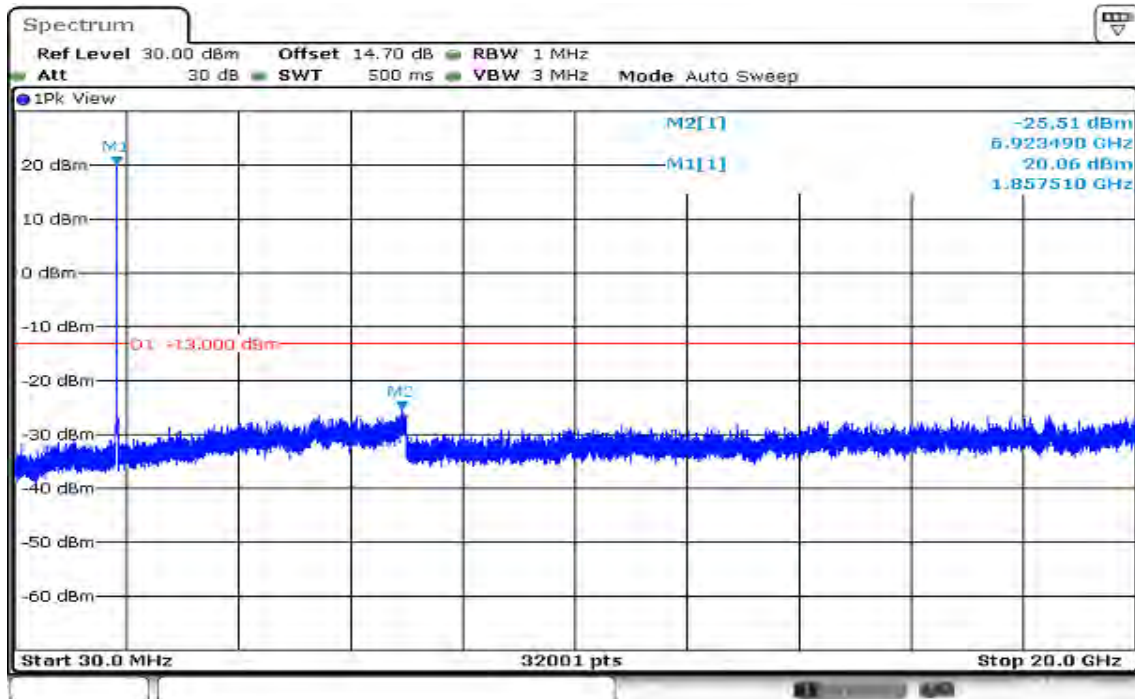


Date: 20.DEC.2019 10:22:52

Report No.: T191120D05-RP6

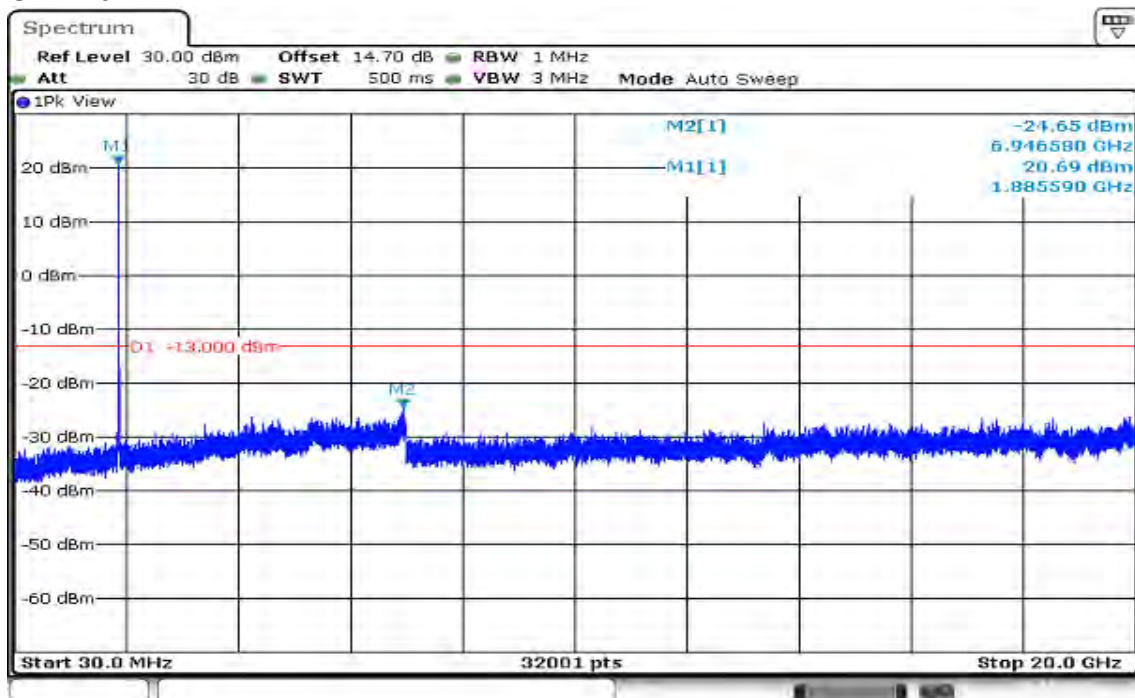
CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB

CH Low



Date: 20.DEC.2019 10:12:48

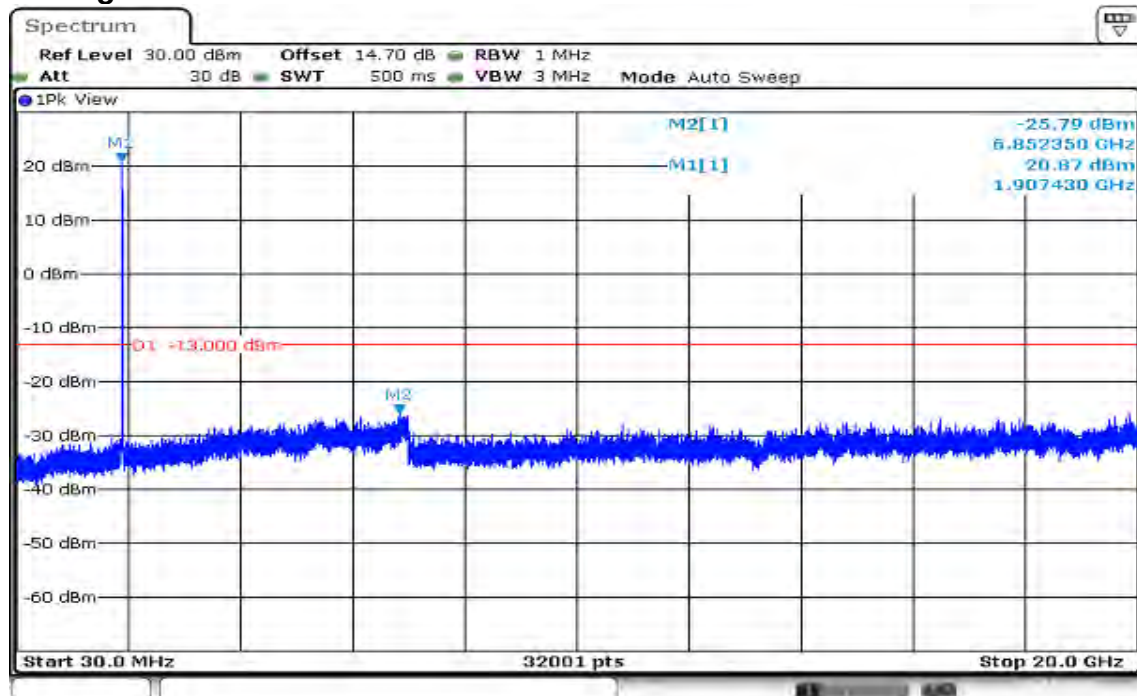
CH Mid



Date: 20.DEC.2019 10:13:22

Report No.: T191120D05-RP6

CH High

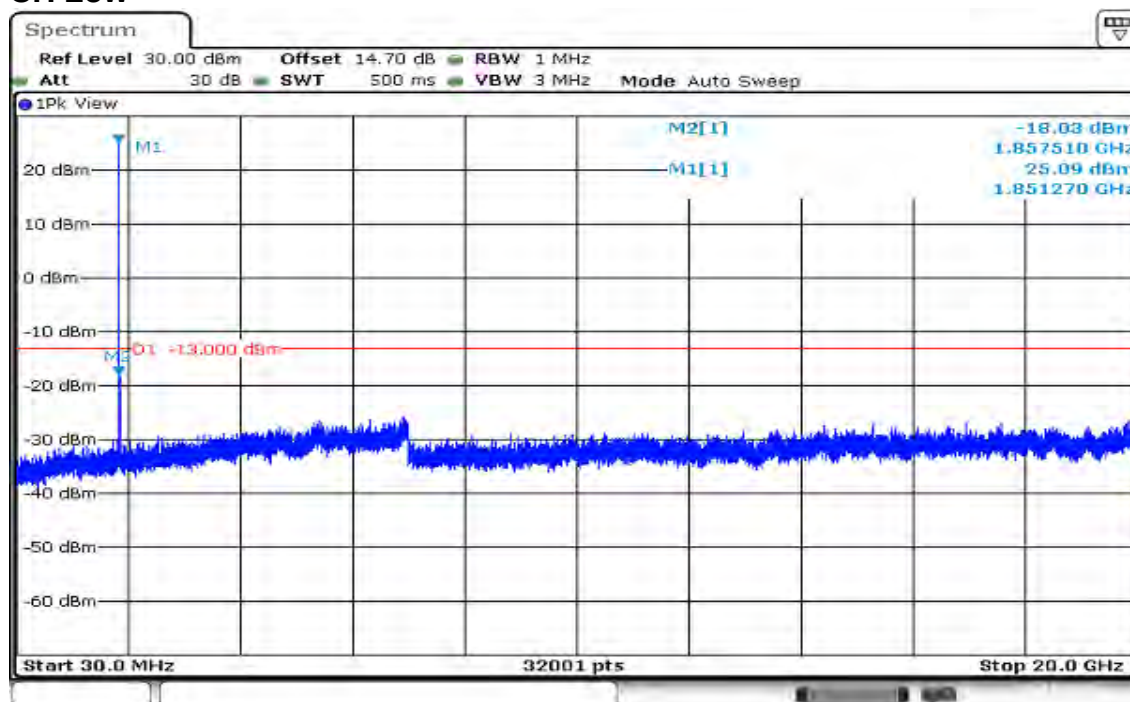


Date: 20.DEC.2019 10:19:38

Report No.: T191120D05-RP6

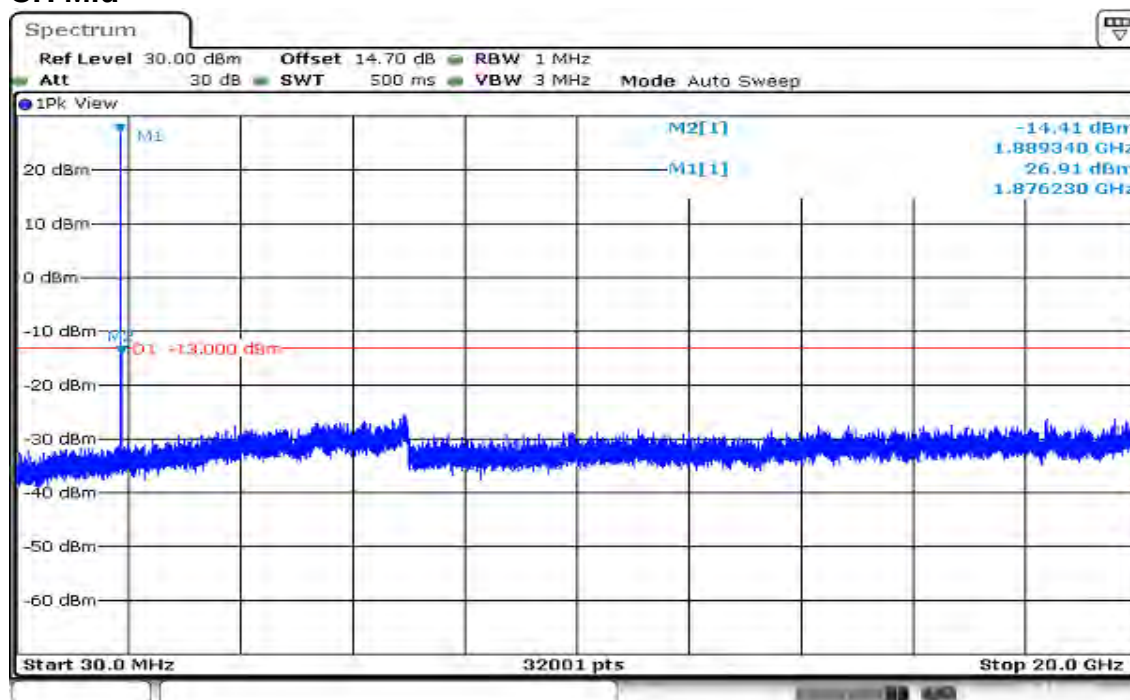
CHANNEL BANDWIDTH: 15MHz / 16QAM / 1RB

CH Low



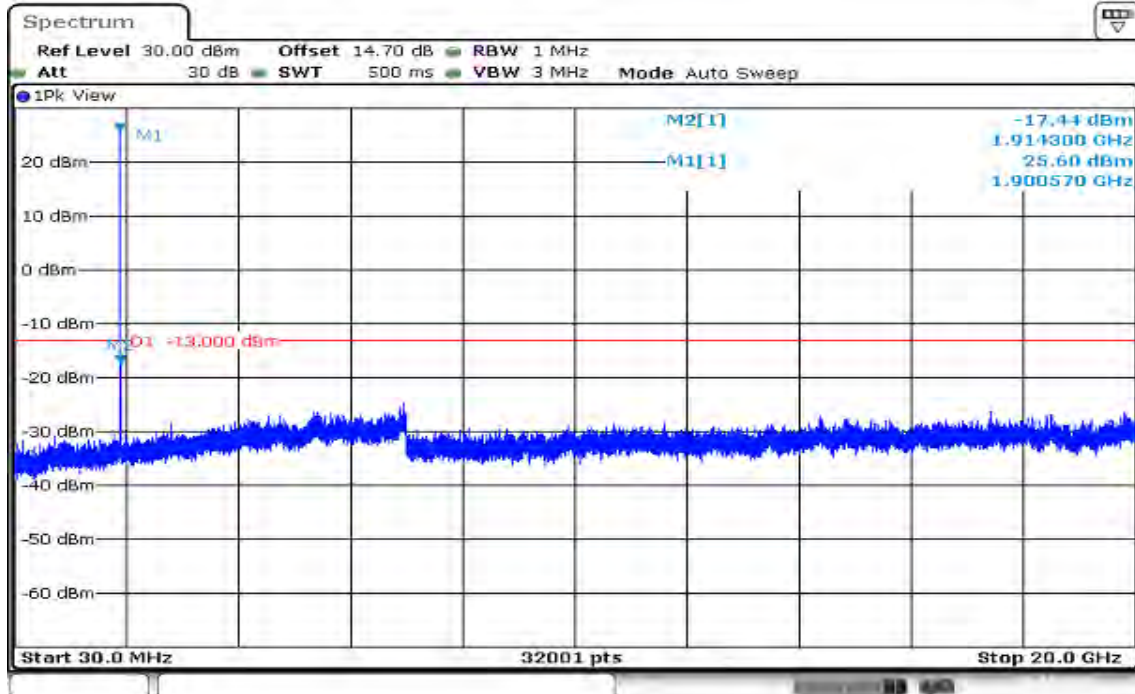
Date: 20.DEC.2019 10:08:16

CH Mid



Date: 20.DEC.2019 10:09:50

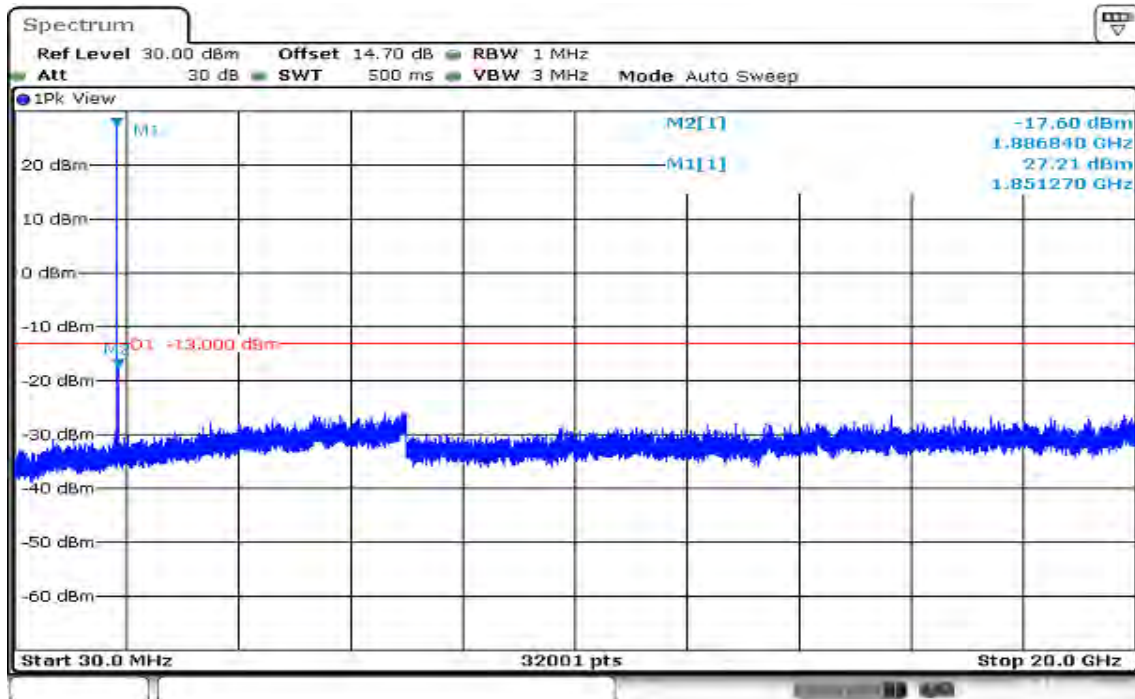
CH High



Date: 20.DEC.2019 10:10:24

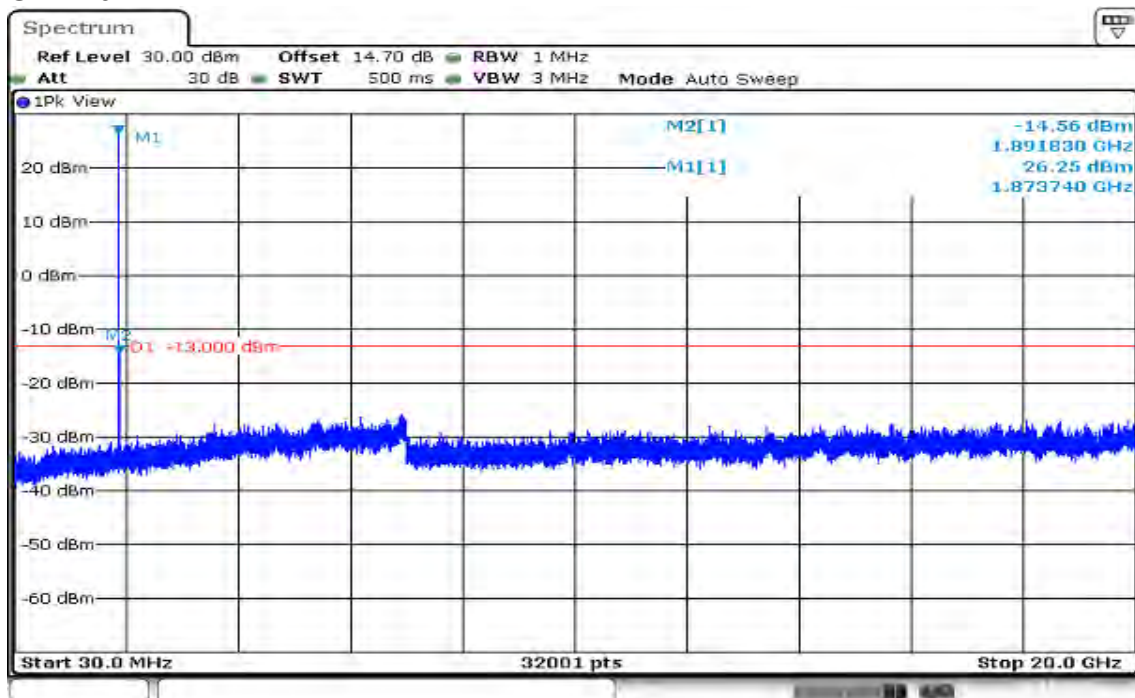
Report No.: T191120D05-RP6

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



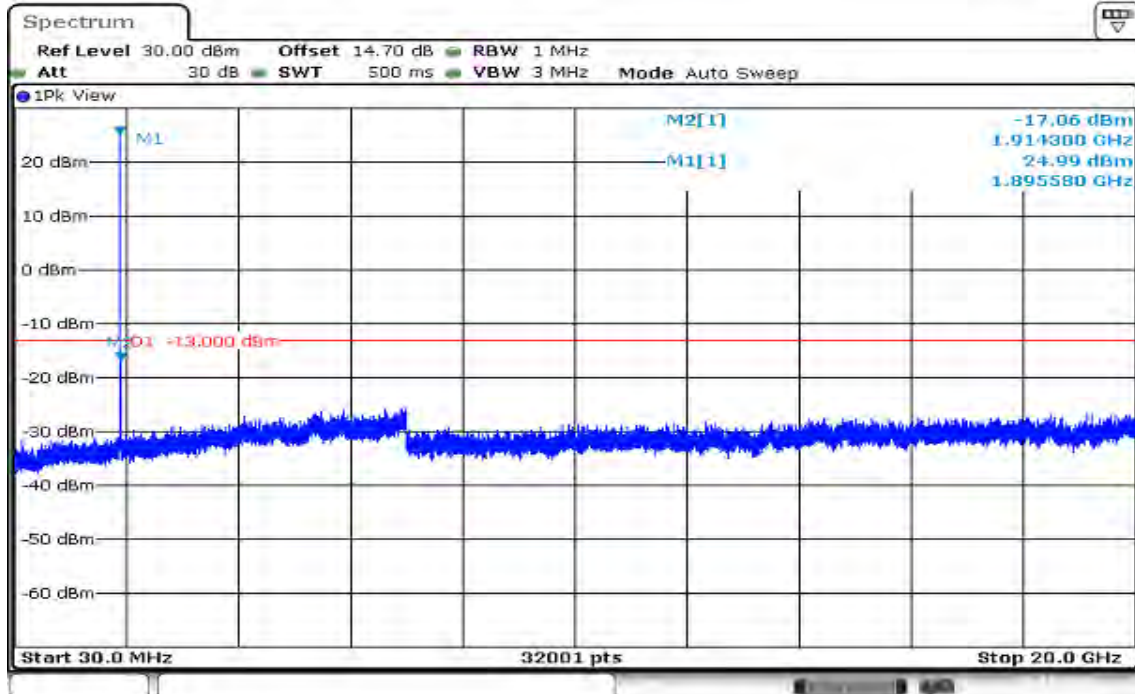
Date: 20.DEC.2019 10:04:32

CH Mid



Date: 20.DEC.2019 10:03:55

CH High



Date: 20.DEC.2019 10:06:00

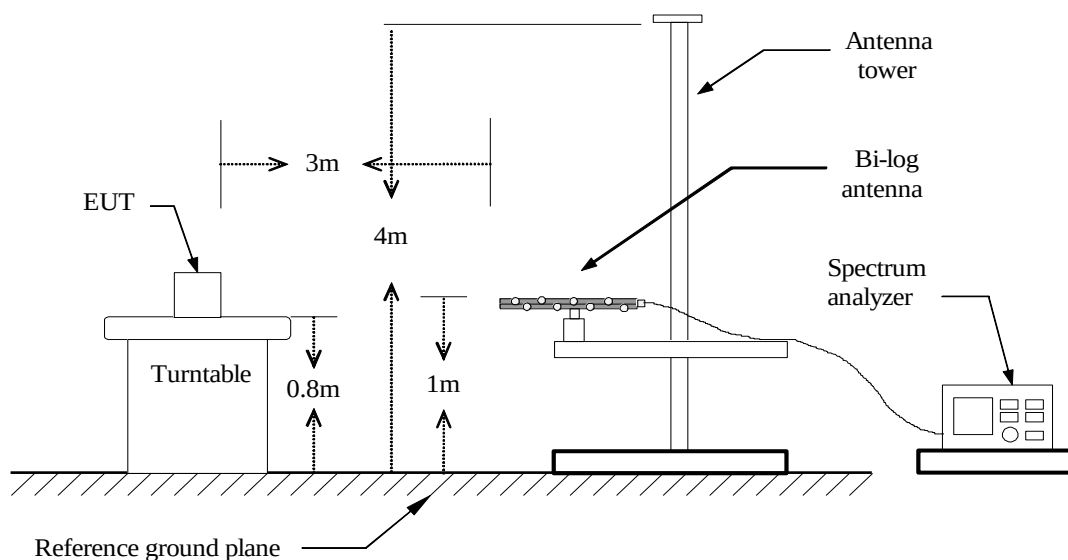
8.7 SPURIOUS RADIATION MEASUREMENT

LIMIT

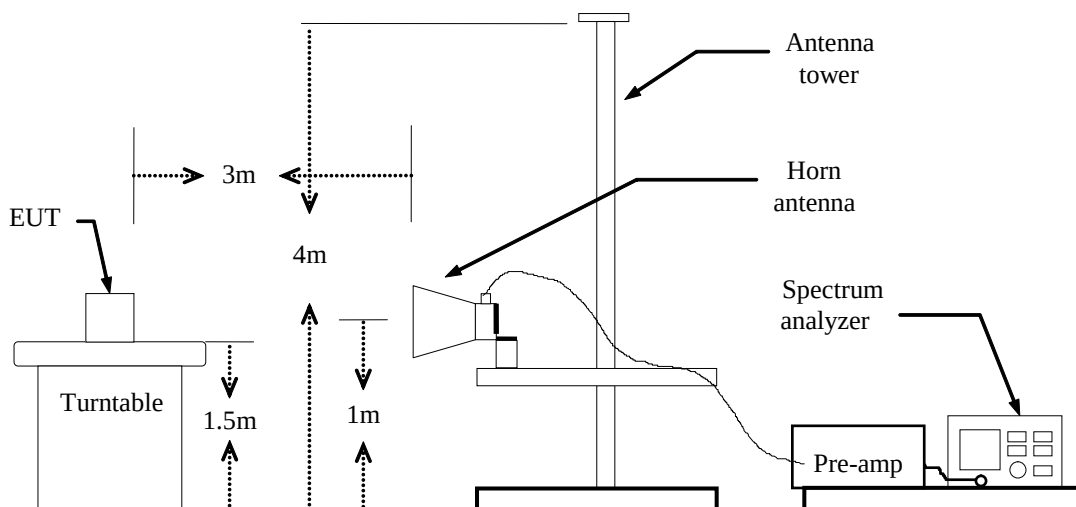
The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB. The limit of emission equal to -13dBm

Test Configuration

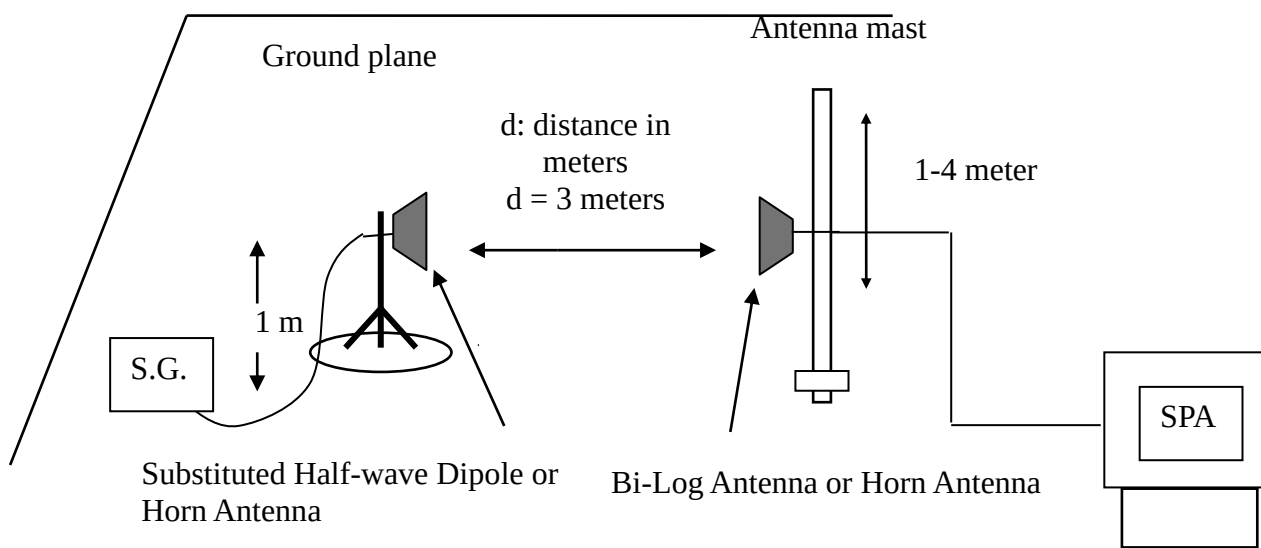
Below 1 GHz



Above 1 GHz



Substituted Method Test Set-up



TEST PROCEDURE

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

$$\text{ERP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)} - 2.15$$

$$\text{EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)}$$

TEST RESULTS

Refer to the attached tabular data sheets.

Remark: Above 1GHz

Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.



Report No.: T191120D05-RP6

Test Results

LTE Band 25 / BW: 20MHz / QPSK / RB =1, RB Offset = 0

Operation Mode: Tx / Low CH

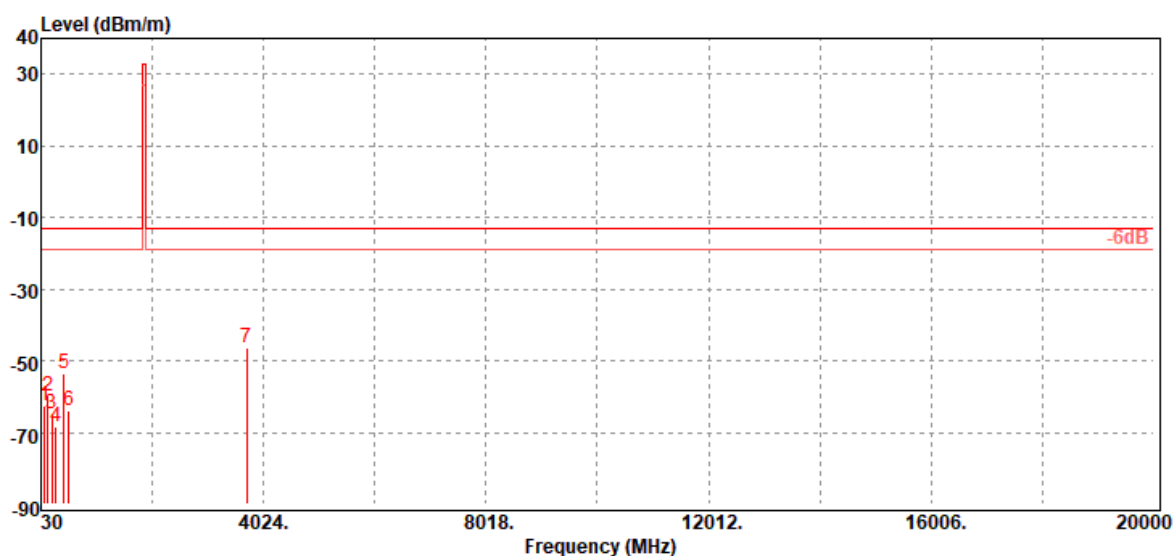
Test Date: January 8, 2020

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)
97.90	-62.76	-54.06	-7.89	-0.81	-13.00	-49.76	V
149.31	-59.67	-51.5	-7.17	-1.00	-13.00	-46.67	V
224.00	-64.96	-61.81	-1.92	-1.23	-13.00	-51.96	V
299.66	-68.48	-65.04	-2.01	-1.43	-13.00	-55.48	V
444.19	-53.59	-49.74	-2.10	-1.75	-13.00	-40.59	V
527.61	-64.01	-60.79	-1.30	-1.92	-13.00	-51.01	V
3720.00	-46.36	-53.09	12.46	-5.73	-13.00	-33.36	V

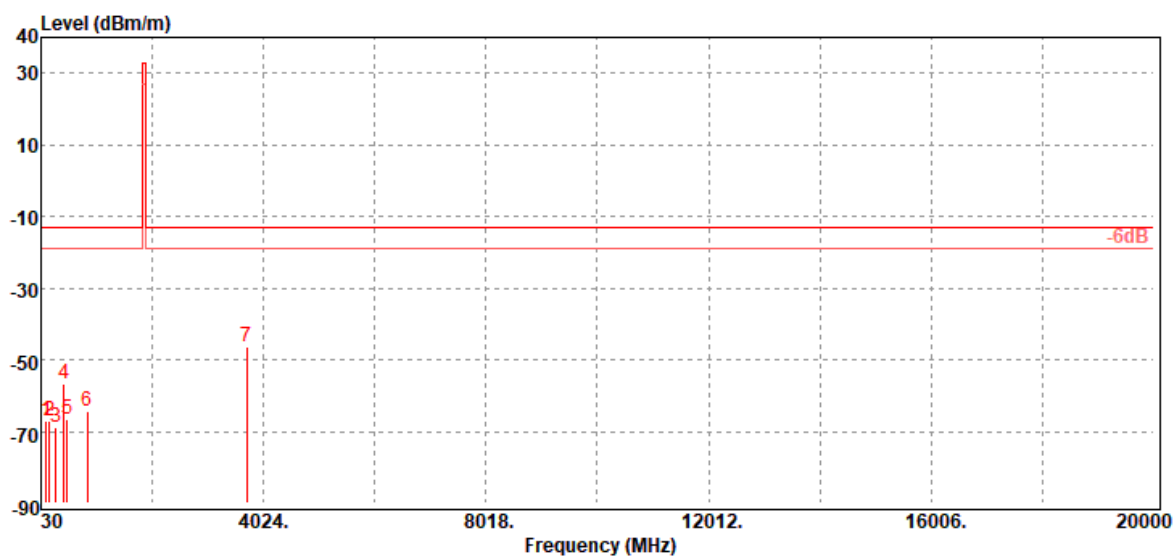
Operation Mode: Tx / Low CH

Test Date: January 8, 2020

Temperature: 18.6°C

Tested by: Jerry Chang

Humidity: 59% RH

Polarity: Hor.


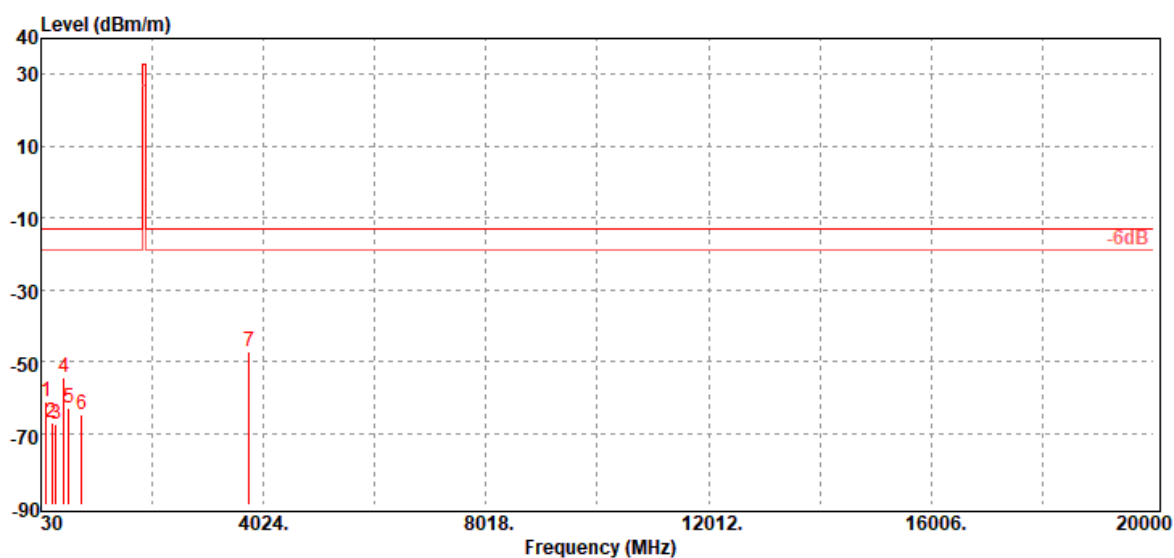
Freq. (MHz)	ERP/EIRP (dBm)	SG Output Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
124.09	-66.91	-55.5	-10.50	-0.91	-13.00	-53.91	H
188.11	-67.27	-62.24	-3.90	-1.13	-13.00	-54.27	H
299.66	-69.06	-65.62	-2.01	-1.43	-13.00	-56.06	H
444.19	-56.61	-52.76	-2.10	-1.75	-13.00	-43.61	H
500.45	-66.50	-62.64	-1.99	-1.87	-13.00	-53.50	H
861.29	-64.56	-60.79	-1.30	-2.47	-13.00	-51.56	H
3720.00	-46.29	-53.02	12.46	-5.73	-13.00	-33.29	H



Report No.: T191120D05-RP6

Operation Mode: Tx / Mid CH
Temperature: 18.6°C
Humidity: 59% RH

Test Date: January 8, 2020
Tested by: Jerry Chang
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)
124.09	-61.29	-49.88	-10.50	-0.91	-13.00	-48.29	V
224.00	-67.15	-64	-1.92	-1.23	-13.00	-54.15	V
299.66	-67.46	-64.02	-2.01	-1.43	-13.00	-54.46	V
447.10	-54.35	-50.5	-2.10	-1.75	-13.00	-41.35	V
524.70	-63.00	-59.78	-1.31	-1.91	-13.00	-50.00	V
757.50	-64.94	-61.22	-1.40	-2.32	-13.00	-51.94	V
3765.00	-47.22	-53.89	12.43	-5.76	-13.00	-34.22	V



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Operation Mode: Tx / Mid CH

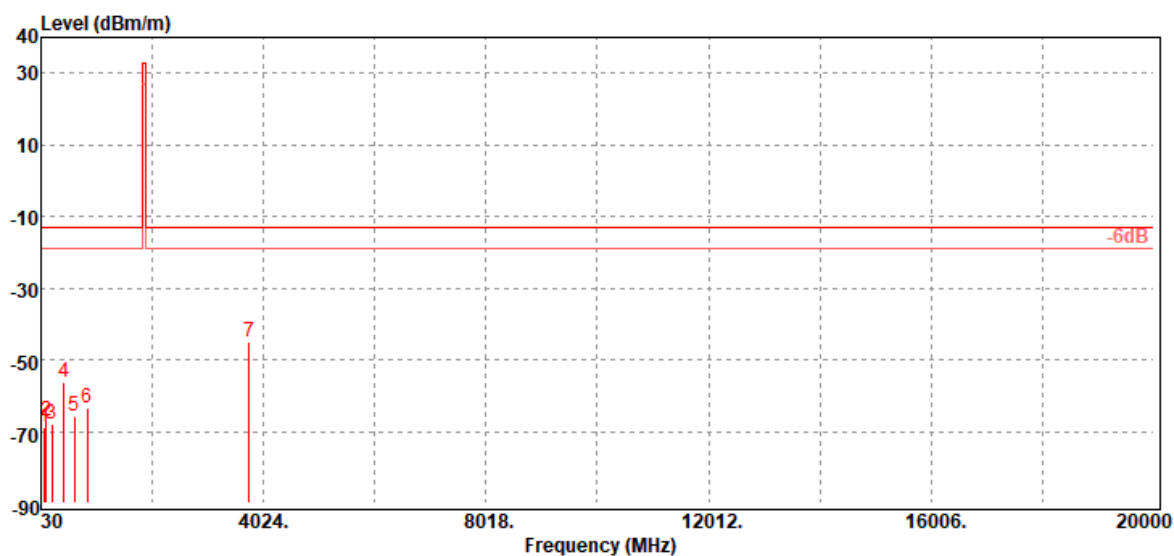
Test Date: January 8, 2020

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)
99.84	-68.74	-59.67	-8.25	-0.82	-13.00	-55.74	H
124.09	-67.07	-55.66	-10.50	-0.91	-13.00	-54.07	H
222.06	-68.00	-64.82	-1.96	-1.22	-13.00	-55.00	H
444.19	-56.37	-52.52	-2.10	-1.75	-13.00	-43.37	H
628.49	-65.60	-62.02	-1.47	-2.11	-13.00	-52.60	H
857.41	-63.30	-59.53	-1.30	-2.47	-13.00	-50.30	H
3765.00	-45.01	-51.68	12.43	-5.76	-13.00	-32.01	H

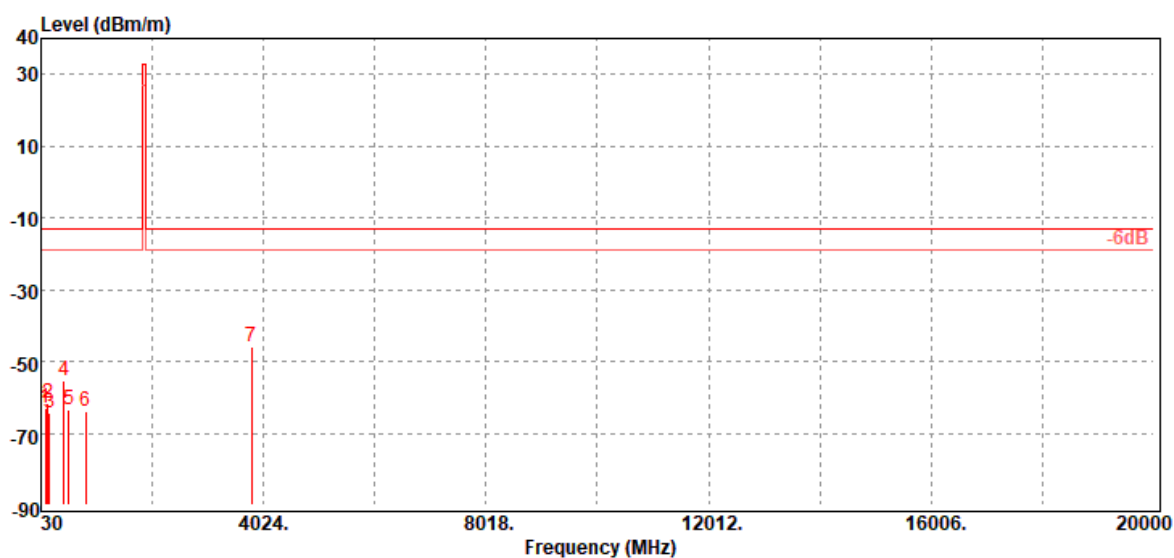


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Report No.: T191120D05-RP6

Operation Mode: Tx / High CH
Temperature: 18.6°C
Humidity: 59% RH

Test Date: January 8, 2020
Tested by: Jerry Chang
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	-62.90	-52.69	-9.37	-0.84	-13.00	-49.90	V
149.31	-61.57	-53.4	-7.17	-1.00	-13.00	-48.57	V
188.11	-64.17	-59.14	-3.90	-1.13	-13.00	-51.17	V
444.19	-55.21	-51.36	-2.10	-1.75	-13.00	-42.21	V
521.79	-63.43	-60.16	-1.36	-1.91	-13.00	-50.43	V
830.25	-64.01	-60.09	-1.50	-2.42	-13.00	-51.01	V
3810.00	-46.04	-52.72	12.48	-5.80	-13.00	-33.04	V



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Operation Mode: Tx / High CH

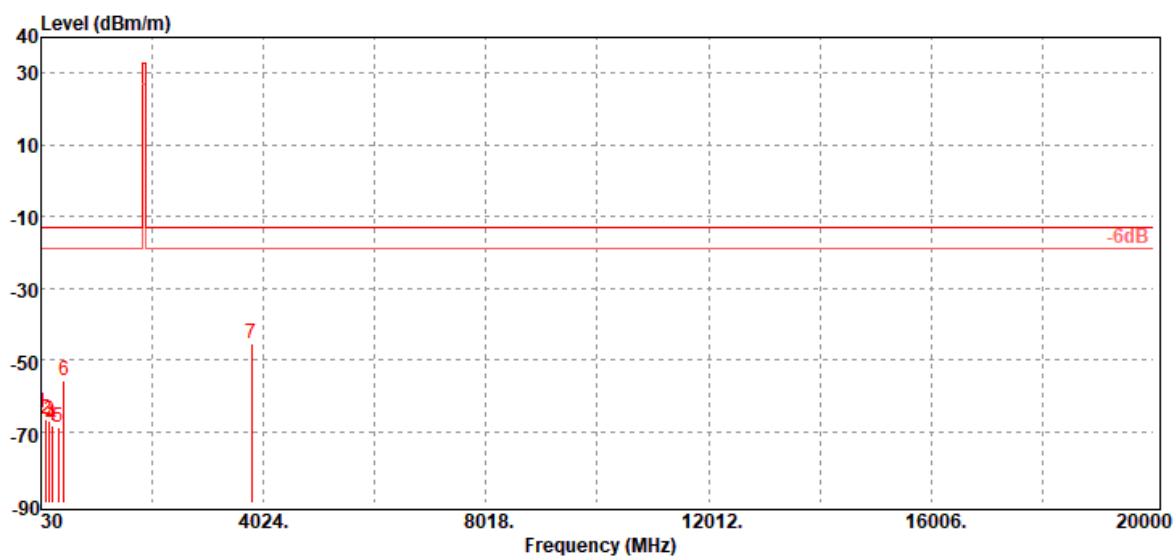
Test Date: January 8, 2020

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)
42.61	-65.03	-46.75	-17.75	-0.53	-13.00	-52.03	H
125.06	-66.71	-55.3	-10.49	-0.92	-13.00	-53.71	H
188.11	-67.18	-62.15	-3.90	-1.13	-13.00	-54.18	H
225.94	-68.61	-65.44	-1.94	-1.23	-13.00	-55.61	H
342.34	-68.78	-65.75	-1.50	-1.53	-13.00	-55.78	H
442.25	-55.90	-52.06	-2.10	-1.74	-13.00	-42.90	H
3810.00	-45.50	-52.18	12.48	-5.80	-13.00	-32.50	H

- End of Test Report -