



FCC ID: P4Q-N635A
Report No.: T191105W01-RP12

IC: 2420C-N635A

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**FCC 47 CFR PART 27 SUBPART L
&
INDUSTRY CANADA RSS-130 & RSS-139**

TEST REPORT

For

Chiron pro

Model No.: N635

Trade Name: Mitac, Mio, Navman, Magellan

Issued to

FCC:	Mitac Digital Technology Corporation No.200, Wen Hwa 2nd Rd.,Kuei Shan Dist. Taoyuan, 33383 Taiwan
IC:	MiTAC Digital Technology Corporation No.200, Wenhua 2nd Rd., Guishan Dist. Taoyuan City 333 Taiwan

Issued by

**Compliance Certification Services Inc.
Wugu Laboratory
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)
Issued Date: January 17, 2020**

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	January 17, 2020	Initial Issue	ALL	Allison Chen

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1. TEST RESULT CERTIFICATION

FCC Applicant: Mitac Digital Technology Corporation
No.200, Wen Hwa 2nd Rd.,Kuei Shan Dist. Taoyuan, 33383
Taiwan

IC Applicant: MiTAC Digital Technology Corporation
No.200, Wenhua 2nd Rd., Guishan Dist. Taoyuan City 333
Taiwan

Manufacturer: MITAC COMPUTER (KUNSHAN) CO., LTD.
No. 269, 2nd Avenue, District A, Comprehensive Free Trade
Zone, Kunshan, Jiangsu, P.R. China

Equipment Under Test: Chiron pro

Trade Name: Mitac, Mio, Navman, Magellan

Model No.: N635

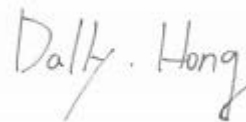
Date of Test: December 6 ~ 19, 2019

APPLICABLE STANDARDS	
Standard	TEST RESULT
FCC Part 27, Subpart C, L, FCC Part 2 & RSS-130 Issue 2 February 2019 & RSS-139 Issue 3 July 2015	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:

Tested by:



Kevin Tsai
Deputy Manager
Compliance Certification Services Inc.

Dally Hong
Engineer
Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	Chiron pro	
Model No.	N635	
Model Discrepancy	Difference of the those trade names (list on this report) are just for marketing purpose only.	
Trade	Mitac, Mio, Navman, Magellan	
Received Date	November 5, 2019	
Power Supply	1. Power from Rechargeable Li-ion Polymer Battery. Rating: 3.7VDC, 4000mAh, 14.8Wh 2. Power from Adapter. I/P: 100-240VAC, 50/60Hz, 0.5A O/P: 5.0VDC, 2A	
Modulation Technology	LTE Band 66	QPSK, 16QAM
	LTE Band 71	QPSK, 16QAM
	LTE Band 71 Channel Bandwidth: 5MHz	665.5MHz ~695.5MHz
	LTE Band 71 Channel Bandwidth: 10MHz	668.0MHz ~693.0MHz
	LTE Band 71 Channel Bandwidth: 15MHz	670.5MHz ~690.5MHz
	LTE Band 71 Channel Bandwidth: 20MHz	673.0MHz ~688.0MHz
	LTE Band 66 Channel Bandwidth: 1.4MHz	1710.7MHz ~1779.3MHz
	LTE Band 66 Channel Bandwidth: 3MHz	1711.5MHz ~1778.5MHz
	LTE Band 66 Channel Bandwidth: 5MHz	1712.5MHz ~1777.5MHz
	LTE Band 66 Channel Bandwidth: 10MHz	1715.0MHz ~1775.0MHz
	LTE Band 66 Channel Bandwidth: 15MHz	1717.5MHz ~1772.5MHz
	LTE Band 66 Channel Bandwidth: 20MHz	1720.0MHz ~1770.0MHz

Transmit Power (ERP & EIRP Power)	LTE Band 66 Channel Bandwidth: 1.4MHz	QPSK: 25.79 dBm 16QAM: 24.76 dBm
	LTE Band 66 Channel Bandwidth: 3MHz	QPSK: 25.88 dBm 16QAM: 24.78 dBm
	LTE Band 66 Channel Bandwidth: 5MHz	QPSK: 25.87 dBm 16QAM: 24.77 dBm
	LTE Band 66 Channel Bandwidth: 10MHz	QPSK: 25.84 dBm 16QAM: 24.88 dBm
	LTE Band 66 Channel Bandwidth: 15MHz	QPSK: 25.83 dBm 16QAM: 24.78 dBm
	LTE Band 66 Channel Bandwidth: 20MHz	QPSK: 25.94 dBm 16QAM: 24.99 dBm
	LTE Band 71 Channel Bandwidth: 5MHz	QPSK 18.18 dBm 16QAM 17.22 dBm
	LTE Band 71 Channel Bandwidth: 10MHz	QPSK 18.30 dBm 16QAM 17.43 dBm
	LTE Band 71 Channel Bandwidth: 15MHz	QPSK 18.32 dBm 16QAM 17.37 dBm
	LTE Band 71 Channel Bandwidth: 20MHz	QPSK 18.46 dBm 16QAM 17.44 dBm
Antenna Specification	Antenna type: Integral Band 66: 3.19 dBi Band 71: -2.35 dBi	

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.

3. TEST METHODOLOGY

3.1 DESCRIPTION OF TEST TYPE

The EUT (model: N635) had been tested under operating condition.

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

LTE Band 71: 665.5 MHz ~ 695.5 MHz

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 channel (L)	133147	665.5	133172	668	133197	670.5	133222	673
Middle channel (M)	133297	680.5	133297	680.5	133297	680.5	133297	680.5
High channel (H)	133447	695.5	133422	693	133397	690.5	133372	688

LTE Band 66: 1710.7MHz ~ 1779.3MHz

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 CH	131979	1710.7	131987	1711.5	131997	1712.5
Middle CH	132422	1755	132422	1755	132422	1755
High CH	132665	1779.3	132657	1778.5	132647	1777.5
Channel Bandwidth	10MHz		15MHz		20MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low CH	132022	1715	132047	1717.5	132072	1720
Middle CH	132422	1755	132422	1755	132422	1755
High CH	132622	1775	132597	1772.5	132572	1770

3.2 THE WORST MODE OF MEASUREMENT

3.2.1 The worst mode of measurement

Radiated Emission Measurement	
Test Condition	Band edge, Emission for Unwanted and Fundamental
Power supply Mode	Mode1: EUT Power by Battery (DC 3V) Mode2: EUT Power by Adapter + Type C USB Mode3: EUT Power by Type C USB+ CarCharge (DC12V) Mode4: EUT Power by Cradle(N564)+Micro USB+Adapter Mode5: EUT Power by Cradle(N564)+Micro USB+ CarCharge (DC12V) Mode6: EUT Power by Cradle(N564) + Cable(DC 12V) Mode7: EUT Power by Cradle(N564_TN)+Micro USB+Adapter Mode8: EUT Power by Cradle(N564_TN)+Micro USB+ CarCharge (DC12V) Mode9: EUT Power by Cradle(N564_TN) + Cable(DC 12V) Mode10: EUT Power by Cradle(N635_V)+Micro USB+Adapter Mode11: EUT Power by Cradle(N635_V)+Micro USB+ CarCharge (DC12V) Mode12: EUT Power by Cradle(N635_V) + Cable(DC 12V) Mode13: EUT Power by Cradle(N635_VL)+Micro USB+Adapter Mode14: EUT Power by Cradle(N635_VL)+Micro USB+ CarCharge (DC12V) Mode15: EUT Power by Cradle(N635_VL) + Cable(DC 12V) Mode16: EUT Power by Cradle(N635_VHG) + Cable(DC 12V)
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	Mode1: EUT Power by Battery (DC 3V) Mode2: EUT Power by Adapter + Type C USB Mode3: EUT Power by Type C USB+ CarCharge (DC12V) Mode4: EUT Power by Cradle(N564)+Micro USB+Adapter Mode5: EUT Power by Cradle(N564)+Micro USB+ CarCharge (DC12V) Mode6: EUT Power by Cradle(N564) + Cable(DC 12V) Mode7: EUT Power by Cradle(N564_TN)+Micro USB+Adapter Mode8: EUT Power by Cradle(N564_TN)+Micro USB+ CarCharge (DC12V) Mode9: EUT Power by Cradle(N564_TN) + Cable(DC 12V) Mode10: EUT Power by Cradle(N635_V)+Micro USB+Adapter Mode11: EUT Power by Cradle(N635_V)+Micro USB+ CarCharge (DC12V) Mode12: EUT Power by Cradle(N635_V) + Cable(DC 12V) Mode13: EUT Power by Cradle(N635_VL)+Micro USB+Adapter Mode14: EUT Power by Cradle(N635_VL)+Micro USB+ CarCharge (DC12V) Mode15: EUT Power by Cradle(N635_VL) + Cable(DC 12V) Mode16: EUT Power by Cradle(N635_VHG) + Cable(DC 12V)
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(Z-Plane) were recorded in this report



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4. TEST SUMMARY

FCC Standard Section	IC Standard Section	Report Section	Test Item	Result
-	-	2	Antenna Requirement	Pass
27.50(c), 27.50(d)	RSS-130, section 4.6 RSS-139, section 6.5	8.1	ERP and EIRP Measurement	Pass
2.1055, 27.54	RSS-130 section 4.5 RSS-139 section 6.4	8.2	Frequency Stability v.s. temperature measurement	Pass
2.1049	RSS-GEN 6.7	8.3	Occupied Bandwidth Measurement	Pass
27.50(d)	RSS-130 section 4.4 RSS-133, section 6.4	8.4	Peak to Average Ratio	Pass
27.53(c), 27.53(g), 27.53(h)	RSS-130 section 4.6 RSS-139 section 6.5	8.5	Conducted Band Edge	Pass
27.53(c), 27.53(g), 27.53(h)	RSS-130 section 4.6 RSS-139 section 6.5	8.6	Conducted Spurious Emission	Pass
27.53(c), 27.53(g), 27.53(h)	RSS-130 section 4.6 RSS-139 section 6.5	8.7	Spurious Radiation Measurement	Pass

5. INSTRUMENT CALIBRATION

5.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

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	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
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 24891, Taiwan. (R.O.C.)

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

☐ No.81-1, Lane 210, Bade 2nd Rd., Luchu Hsiang, Taoyuan Hsien 338, Taiwan

Tel: 886-3-324-0332 / Fax: 886-3-324-5235

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."



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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
	N/A				

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 ERP & EIRP MEASUREMENT

LIMIT

According to FCC §2.1046

FCC 27.50 (c) (10): The portable stations (hand-held devices) in the 600MHz uplink band and the 698-746MHz band, and fixed and mobile stations in the 600MHz uplink band are limited to 3 Watts ERP.

FCC 27.50 (d) (4): Fixed, mobile, and portable (handheld)stations operating in the 1710-1755MHz band and mobile and portable stations operating in the 1695-1710MHz and 1755-1780MHz bands are limited to 1 watt EIRP.

RSS-130 § 4.6,

The e.r.p. shall not exceed 30 watts for mobile equipment and outdoor fixed subscriber equipment. The e.r.p. shall not exceed 3 watts for portable equipment and indoor fixed subscriber equipment.

RSS-139 § 6.5,

The equivalent isotropically radiated power (e.i.r.p.) for mobile and portable transmitters shall not exceed one watt. The e.i.r.p. for fixed and base stations in the band 1710-1780 MHz shall not exceed one watt.

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 71**

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	ERP (dBm)	
20	QPSK	1 RB	0	673	133222	22.96	18.46	
				683	133322	22.71	18.21	
				688	133372	22.61	18.11	
			49	673	133222	22.52	18.02	
				683	133322	22.58	18.08	
				688	133372	22.51	18.01	
			99	673	133222	22.66	18.16	
				683	133322	22.51	18.01	
				688	133372	22.53	18.03	
		50 RB	0	673	133222	21.89	17.39	
				683	133322	21.58	17.08	
				688	133372	21.5	17.00	
			24	673	133222	21.46	16.96	
				683	133322	21.38	16.88	
				688	133372	21.47	16.97	
			50	673	133222	21.51	17.01	
				683	133322	21.32	16.82	
				688	133372	21.53	17.03	
		100RB			673	133222	21.77	17.27
					683	133322	21.68	17.18
					688	133372	21.47	16.97
20	16-QAM	1 RB	0	673	133222	21.94	17.44	
				683	133322	21.68	17.18	
				688	133372	21.59	17.09	
			49	673	133222	21.5	17.00	
				683	133322	21.55	17.05	
				688	133372	21.41	16.91	
			99	673	133222	21.61	17.11	
				683	133322	21.43	16.93	
				688	133372	21.44	16.94	
		50 RB	0	673	133222	20.81	16.31	
				683	133322	20.57	16.07	
				688	133372	20.49	15.99	
			24	673	133222	20.39	15.89	
				683	133322	20.28	15.78	
				688	133372	20.41	15.91	
			50	673	133222	20.44	15.94	
				683	133322	20.24	15.74	
				688	133372	20.43	15.93	
		100RB			673	133222	20.73	16.23
					683	133322	20.59	16.09
					688	133372	20.37	15.87



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20	64-QAM	1 RB	0	673	133222	20.96	16.46
				683	133322	20.65	16.15
				688	133372	20.54	16.04
			49	673	133222	20.42	15.92
				683	133322	20.56	16.06
				688	133372	20.44	15.94
			99	673	133222	20.63	16.13
				683	133322	20.46	15.96
				688	133372	20.43	15.93
		50 RB	0	673	133222	19.86	15.36
				683	133322	19.58	15.08
				688	133372	19.49	14.99
			24	673	133222	19.39	14.89
				683	133322	19.31	14.81
				688	133372	19.37	14.87
			50	673	133222	19.51	15.01
				683	133322	19.25	14.75
				688	133372	19.48	14.98
		100RB		673	133222	19.69	15.19
				683	133322	19.58	15.08
				688	133372	19.38	14.88

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	ERP (dBm)
15	QPSK	1 RB	0	670.5	133197	22.82	18.32
				680.5	133297	22.46	17.96
				690.5	133397	22.29	17.79
			37	670.5	133197	22.47	17.97
				680.5	133297	22.25	17.75
				690.5	133397	22.35	17.85
			74	670.5	133197	22.66	18.16
				680.5	133297	22.14	17.64
				690.5	133397	22.19	17.69
		12 RB	0	670.5	133197	21.5	17.00
				680.5	133297	21.58	17.08
				690.5	133397	21.44	16.94
			20	670.5	133197	21.38	16.88
				680.5	133297	21.25	16.75
				690.5	133397	21.08	16.58
			39	670.5	133197	21.31	16.81
				680.5	133297	21.27	16.77
				690.5	133397	21.47	16.97
		75RB	670.5	133197	21.67	17.17	
			680.5	133297	21.54	17.04	
			690.5	133397	21.32	16.82	
15	16-QAM	1 RB	0	670.5	133197	21.87	17.37
				680.5	133297	21.56	17.06
				690.5	133397	21.21	16.71
			37	670.5	133197	21.4	16.90
				680.5	133297	21.17	16.67
				690.5	133397	21.39	16.89
			74	670.5	133197	21.52	17.02
				680.5	133297	21.16	16.66
				690.5	133397	21.3	16.80
		12 RB	0	670.5	133197	20.49	15.99
				680.5	133297	20.3	15.80
				690.5	133397	20.33	15.83
			20	670.5	133197	20.3	15.80
				680.5	133297	20.18	15.68
				690.5	133397	20.08	15.58
			39	670.5	133197	20.18	15.68
				680.5	133297	20.01	15.51
				690.5	133397	20.14	15.64
		75RB	670.5	133197	20.68	16.18	
			680.5	133297	20.28	15.78	
			690.5	133397	20.34	15.84	



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15	64-QAM	1 RB	0	670.5	133197	20.94	16.44
				680.5	133297	20.55	16.05
				690.5	133397	20.51	16.01
			37	670.5	133197	20.25	15.75
				680.5	133297	20.34	15.84
				690.5	133397	20.35	15.85
			74	670.5	133197	20.59	16.09
				680.5	133297	20.26	15.76
				690.5	133397	20.13	15.63
		12 RB	0	670.5	133197	19.67	15.17
				680.5	133297	19.21	14.71
				690.5	133397	19.33	14.83
			20	670.5	133197	19.33	14.83
				680.5	133297	19.23	14.73
				690.5	133397	19.06	14.56
			39	670.5	133197	19.39	14.89
				680.5	133297	19.12	14.62
				690.5	133397	19.42	14.92
		75RB		670.5	133197	19.56	15.06
				680.5	133297	19.28	14.78
				690.5	133397	19.19	14.69

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	ERP (dBm)
10	QPSK	1 RB	0	668	133172	22.8	18.30
				678	133272	22.44	17.94
				693	133422	22.44	17.94
			25	668	133172	22.28	17.78
				678	133272	22.3	17.80
				693	133422	22.39	17.89
			49	668	133172	22.63	18.13
				678	133272	22.4	17.90
				693	133422	22.13	17.63
		25 RB	0	668	133172	21.49	16.99
				678	133272	21.25	16.75
				693	133422	21.37	16.87
			12	668	133172	21.38	16.88
				678	133272	20.99	16.49
				693	133422	21.47	16.97
			25	668	133172	21.2	16.70
				678	133272	21.18	16.68
				693	133422	21.44	16.94
		50RB	668	133172	21.59	17.09	
			678	133272	21.47	16.97	
			693	133422	21.42	16.92	
10	16-QAM	1 RB	0	668	133172	21.93	17.43
				678	133272	21.49	16.99
				693	133422	21.35	16.85
			25	668	133172	21.28	16.78
				678	133272	21.55	17.05
				693	133422	21.25	16.75
			49	668	133172	21.47	16.97
				678	133272	21.35	16.85
				693	133422	21.33	16.83
		25 RB	0	668	133172	20.81	16.31
				678	133272	20.55	16.05
				693	133422	20.09	15.59
			12	668	133172	20.39	15.89
				678	133272	20.1	15.60
				693	133422	20.03	15.53
			25	668	133172	20.31	15.81
				678	133272	20.07	15.57
				693	133422	20.38	15.88
		50RB	668	133172	20.69	16.19	
			678	133272	20.35	15.85	
			693	133422	20.17	15.67	

10	64-QAM	1 RB	0	668	133172	20.77	16.27
				678	133272	20.51	16.01
				693	133422	20.21	15.71
			25	668	133172	20.4	15.90
				678	133272	20.2	15.70
				693	133422	20.17	15.67
			49	668	133172	20.37	15.87
				678	133272	20.22	15.72
				693	133422	20.24	15.74
		25 RB	0	668	133172	19.68	15.18
				678	133272	19.36	14.86
				693	133422	19.29	14.79
			12	668	133172	19.28	14.78
				678	133272	19.17	14.67
				693	133422	19.12	14.62
			25	668	133172	19.33	14.83
				678	133272	19.01	14.51
				693	133422	19.2	14.70
		50RB		668	133172	19.33	14.83
				678	133272	19.47	14.97
				693	133422	19.15	14.65

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	ERP (dBm)	
5	QPSK	1 RB	0	665.5	133147	22.68	18.18	
				675.5	133247	22.54	18.04	
				695.5	133447	22.48	17.98	
			12	665.5	133147	22.43	17.93	
				675.5	133247	22.31	17.81	
				695.5	133447	22.48	17.98	
			24	665.5	133147	22.54	18.04	
				675.5	133247	22.30	17.80	
				695.5	133447	22.31	17.81	
		12 RB	0	665.5	133147	21.60	17.10	
				675.5	133247	21.41	16.91	
				695.5	133447	21.25	16.75	
			7	665.5	133147	21.25	16.75	
				675.5	133247	21.03	16.53	
				695.5	133447	21.47	16.97	
			13	665.5	133147	21.40	16.90	
				675.5	133247	20.96	16.46	
				695.5	133447	21.26	16.76	
		25RB			665.5	133147	21.44	16.94
					675.5	133247	21.43	16.93
					695.5	133447	21.11	16.61
5	16-QAM	1 RB	0	665.5	133147	21.72	17.22	
				675.5	133247	21.46	16.96	
				695.5	133447	21.34	16.84	
			12	665.5	133147	21.50	17.00	
				675.5	133247	21.46	16.96	
				695.5	133447	21.39	16.89	
			24	665.5	133147	21.32	16.82	
				675.5	133247	21.34	16.84	
				695.5	133447	21.34	16.84	
		12 RB	0	665.5	133147	20.56	16.06	
				675.5	133247	20.28	15.78	
				695.5	133447	20.20	15.70	
			7	665.5	133147	20.27	15.77	
				675.5	133247	20.08	15.58	
				695.5	133447	20.36	15.86	
			13	665.5	133147	20.40	15.90	
				675.5	133247	20.10	15.60	
				695.5	133447	20.09	15.59	
		25RB			665.5	133147	20.43	15.93
					675.5	133247	20.28	15.78
					695.5	133447	20.09	15.59



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5	64-QAM	1 RB	0	665.5	133147	20.78	16.28
				675.5	133247	20.60	16.10
				695.5	133447	20.46	15.96
			12	665.5	133147	20.03	15.53
				675.5	133247	20.34	15.84
				695.5	133447	20.31	15.81
			24	665.5	133147	20.48	15.98
				675.5	133247	20.29	15.79
				695.5	133447	20.30	15.80
		12 RB	0	665.5	133147	19.50	15.00
				675.5	133247	19.22	14.72
				695.5	133447	19.23	14.73
			7	665.5	133147	19.15	14.65
				675.5	133247	19.21	14.71
				695.5	133447	19.32	14.82
			13	665.5	133147	19.23	14.73
				675.5	133247	19.22	14.72
				695.5	133447	19.30	14.80
		25RB		665.5	133147	19.58	15.08
				675.5	133247	19.39	14.89
				695.5	133447	19.11	14.61

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BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	EIRP (dBm)
20	QPSK	1 RB	0	1720	132072	22.71	25.90
				1745	132322	22.68	25.87
				1770	132572	22.75	25.94
			50	1720	132072	22.57	25.76
				1745	132322	22.61	25.80
				1770	132572	22.72	25.91
			99	1720	132072	22.68	25.87
				1745	132322	22.38	25.57
				1770	132572	22.47	25.66
		50 RB	0	1720	132072	21.76	24.95
				1745	132322	21.73	24.92
				1770	132572	21.56	24.75
			25	1720	132072	21.51	24.70
				1745	132322	21.44	24.63
				1770	132572	21.81	25.00
			50	1720	132072	21.71	24.90
				1745	132322	21.44	24.63
				1770	132572	21.46	24.65
		100RB		1720	132072	21.53	24.72
				1745	132322	21.61	24.80
				1770	132572	21.67	24.86
20	16-QAM	1 RB	0	1720	132072	21.80	24.99
				1745	132322	21.53	24.72
				1770	132572	21.61	24.80
			50	1720	132072	21.55	24.74
				1745	132322	21.66	24.85
				1770	132572	21.60	24.79
			99	1720	132072	21.61	24.80
				1745	132322	21.48	24.67
				1770	132572	21.49	24.68
		50 RB	0	1720	132072	20.84	24.03
				1745	132322	20.74	23.93
				1770	132572	20.44	23.63
			25	1720	132072	20.43	23.62
				1745	132322	20.45	23.64
				1770	132572	20.75	23.94
			50	1720	132072	20.60	23.79
				1745	132322	20.50	23.69
				1770	132572	20.43	23.62
		100RB		1720	132072	20.40	23.59
				1745	132322	20.70	23.89
				1770	132572	20.53	23.72

20	64-QAM	1 RB	0	1720	132072	21.59	24.78
				1745	132322	21.56	24.75
				1770	132572	21.57	24.76
			50	1720	132072	21.55	24.74
				1745	132322	21.48	24.67
				1770	132572	21.64	24.83
			99	1720	132072	21.61	24.80
				1745	132322	21.42	24.61
				1770	132572	21.44	24.63
		50 RB	0	1720	132072	20.77	23.96
				1745	132322	20.69	23.88
				1770	132572	20.57	23.76
			25	1720	132072	20.31	23.50
				1745	132322	20.34	23.53
				1770	132572	20.63	23.82
			50	1720	132072	20.57	23.76
				1745	132322	20.36	23.55
				1770	132572	20.54	23.73
		100RB		1720	132072	20.37	23.56
				1745	132322	20.41	23.60
				1770	132572	20.68	23.87

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	EIRP (dBm)
15	QPSK	1 RB	0	1717.5	132047	22.54	25.73
				1745	132322	22.41	25.60
				1772.5	132597	22.64	25.83
			36	1717.5	132047	22.47	25.66
				1745	132322	22.57	25.76
				1772.5	132597	22.58	25.77
			74	1717.5	132047	22.36	25.55
				1745	132322	22.13	25.32
				1772.5	132597	22.26	25.45
		36 RB	0	1717.5	132047	21.67	24.86
				1745	132322	21.60	24.79
				1772.5	132597	21.36	24.55
			18	1717.5	132047	21.23	24.42
				1745	132322	21.39	24.58
				1772.5	132597	21.71	24.90
			37	1717.5	132047	21.68	24.87
				1745	132322	21.11	24.30
				1772.5	132597	21.28	24.47
		75RB	1717.5	132047	21.32	24.51	
			1745	132322	21.60	24.79	
			1772.5	132597	21.33	24.52	
15	16-QAM	1 RB	0	1717.5	132047	21.59	24.78
				1745	132322	21.14	24.33
				1772.5	132597	21.43	24.62
			36	1717.5	132047	21.48	24.67
				1745	132322	21.39	24.58
				1772.5	132597	21.59	24.78
			74	1717.5	132047	21.35	24.54
				1745	132322	21.46	24.65
				1772.5	132597	21.31	24.50
		36 RB	0	1717.5	132047	20.60	23.79
				1745	132322	20.47	23.66
				1772.5	132597	20.24	23.43
			18	1717.5	132047	20.38	23.57
				1745	132322	20.37	23.56
				1772.5	132597	20.64	23.83
			37	1717.5	132047	20.44	23.63
				1745	132322	20.23	23.42
				1772.5	132597	20.08	23.27
		75RB	1717.5	132047	20.29	23.48	
			1745	132322	20.65	23.84	
			1772.5	132597	20.20	23.39	



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15	64-QAM	1 RB	0	1717.5	132047	21.49	24.68
				1745	132322	21.35	24.54
				1772.5	132597	21.38	24.57
			36	1717.5	132047	21.23	24.42
				1745	132322	21.10	24.29
				1772.5	132597	21.46	24.65
			74	1717.5	132047	21.39	24.58
				1745	132322	21.13	24.32
				1772.5	132597	21.19	24.38
		36 RB	0	1717.5	132047	20.69	23.88
				1745	132322	20.66	23.85
				1772.5	132597	20.22	23.41
			18	1717.5	132047	20.06	23.25
				1745	132322	20.15	23.34
				1772.5	132597	20.32	23.51
			37	1717.5	132047	20.30	23.49
				1745	132322	20.09	23.28
				1772.5	132597	20.16	23.35
		75RB		1717.5	132047	20.09	23.28
				1745	132322	20.01	23.20
				1772.5	132597	20.56	23.75

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	EIRP (dBm)
10	QPSK	1 RB	0	1715	132022	22.62	25.81
				1745	132322	22.31	25.50
				1775	132622	22.54	25.73
			25	1715	132022	22.41	25.60
				1745	132322	22.52	25.71
				1775	132622	22.65	25.84
			49	1715	132022	22.52	25.71
				1745	132322	21.98	25.17
				1775	132622	22.26	25.45
		25 RB	0	1715	132022	21.49	24.68
				1745	132322	21.35	24.54
				1775	132622	21.31	24.50
			12	1715	132022	21.50	24.69
				1745	132322	21.42	24.61
				1775	132622	21.54	24.73
			25	1715	132022	21.69	24.88
				1745	132322	21.04	24.23
				1775	132622	21.37	24.56
		50RB	1715	132022	21.26	24.45	
			1745	132322	21.31	24.50	
			1775	132622	21.32	24.51	
10	16-QAM	1 RB	0	1715	132022	21.69	24.88
				1745	132322	21.28	24.47
				1775	132622	21.46	24.65
			25	1715	132022	21.38	24.57
				1745	132322	21.65	24.84
				1775	132622	21.26	24.45
			49	1715	132022	21.49	24.68
				1745	132322	21.15	24.34
				1775	132622	21.12	24.31
		25 RB	0	1715	132022	20.72	23.91
				1745	132322	20.60	23.79
				1775	132622	20.21	23.40
			12	1715	132022	20.35	23.54
				1745	132322	20.37	23.56
				1775	132622	20.48	23.67
			25	1715	132022	20.28	23.47
				1745	132322	20.40	23.59
				1775	132622	20.22	23.41
		50RB	1715	132022	20.34	23.53	
			1745	132322	20.41	23.60	
			1775	132622	20.40	23.59	



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10	64-QAM	1 RB	0	1715	132022	21.59	24.78
				1745	132322	21.34	24.53
				1775	132622	21.56	24.75
			25	1715	132022	21.39	24.58
				1745	132322	21.18	24.37
				1775	132622	21.58	24.77
			49	1715	132022	21.26	24.45
				1745	132322	21.09	24.28
				1775	132622	21.22	24.41
		25 RB	0	1715	132022	20.68	23.87
				1745	132322	20.53	23.72
				1775	132622	20.30	23.49
			12	1715	132022	20.27	23.46
				1745	132322	20.20	23.39
				1775	132622	20.27	23.46
			25	1715	132022	20.42	23.61
				1745	132322	20.09	23.28
				1775	132622	20.50	23.69
		50RB		1715	132022	20.30	23.49
				1745	132322	20.02	23.21
				1775	132622	20.56	23.75

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	EIRP (dBm)
5	QPSK	1 RB	0	1712.5	131997	22.48	25.67
				1745	132322	22.31	25.50
				1777.5	132647	22.68	25.87
			12	1712.5	131997	22.43	25.62
				1745	132322	22.36	25.55
				1777.5	132647	22.39	25.58
			24	1712.5	131997	22.65	25.84
				1745	132322	22.30	25.49
				1777.5	132647	22.34	25.53
		12 RB	0	1712.5	131997	21.71	24.90
				1745	132322	21.55	24.74
				1777.5	132647	21.35	24.54
			6	1712.5	131997	21.16	24.35
				1745	132322	21.35	24.54
				1777.5	132647	21.77	24.96
			13	1712.5	131997	21.60	24.79
				1745	132322	21.07	24.26
				1777.5	132647	21.42	24.61
		25RB	1712.5	131997	21.49	24.68	
			1745	132322	21.33	24.52	
			1777.5	132647	21.49	24.68	
5	16-QAM	1 RB	0	1712.5	131997	21.44	24.63
				1745	132322	21.45	24.64
				1777.5	132647	21.58	24.77
			12	1712.5	131997	21.51	24.70
				1745	132322	21.38	24.57
				1777.5	132647	21.20	24.39
			24	1712.5	131997	21.23	24.42
				1745	132322	21.29	24.48
				1777.5	132647	21.22	24.41
		12 RB	0	1712.5	131997	20.73	23.92
				1745	132322	20.66	23.85
				1777.5	132647	20.34	23.53
			6	1712.5	131997	20.37	23.56
				1745	132322	20.12	23.31
				1777.5	132647	20.38	23.57
			13	1712.5	131997	20.36	23.55
				1745	132322	20.42	23.61
				1777.5	132647	20.40	23.59
		25RB	1712.5	131997	20.37	23.56	
			1745	132322	20.58	23.77	
			1777.5	132647	20.24	23.43	

5	64-QAM	1 RB	0	1712.5	131997	21.35	24.54
				1745	132322	21.32	24.51
				1777.5	132647	21.52	24.71
			12	1712.5	131997	21.42	24.61
				1745	132322	21.32	24.51
				1777.5	132647	21.41	24.60
			24	1712.5	131997	21.31	24.50
				1745	132322	21.31	24.50
				1777.5	132647	21.35	24.54
		12 RB	0	1712.5	131997	20.52	23.71
				1745	132322	20.66	23.85
				1777.5	132647	20.25	23.44
			6	1712.5	131997	20.28	23.47
				1745	132322	19.97	23.16
				1777.5	132647	20.53	23.72
			13	1712.5	131997	20.44	23.63
				1745	132322	20.33	23.52
				1777.5	132647	20.50	23.69
		25RB		1712.5	131997	20.31	23.50
				1745	132322	20.12	23.31
				1777.5	132647	20.50	23.69

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	EIRP (dBm)
3	QPSK	1 RB	0	1711.5	131987	22.59	25.78
				1745	132322	22.31	25.50
				1778.5	132657	22.69	25.88
			7	1711.5	131987	22.40	25.59
				1745	132322	22.51	25.70
				1778.5	132657	22.59	25.78
			14	1711.5	131987	22.39	25.58
				1745	132322	22.00	25.19
				1778.5	132657	22.23	25.42
		8 RB	0	1711.5	131987	21.39	24.58
				1745	132322	21.59	24.78
				1778.5	132657	21.34	24.53
			4	1711.5	131987	21.18	24.37
				1745	132322	21.30	24.49
				1778.5	132657	21.54	24.73
			7	1711.5	131987	21.70	24.89
				1745	132322	21.44	24.63
				1778.5	132657	21.36	24.55
		15RB		1711.5	131987	21.53	24.72
				1745	132322	21.38	24.57
				1778.5	132657	21.57	24.76
3	16-QAM	1 RB	0	1711.5	131987	21.47	24.66
				1745	132322	21.32	24.51
				1778.5	132657	21.48	24.67
			7	1711.5	131987	21.34	24.53
				1745	132322	21.46	24.65
				1778.5	132657	21.59	24.78
			14	1711.5	131987	21.40	24.59
				1745	132322	21.29	24.48
				1778.5	132657	21.18	24.37
		8 RB	0	1711.5	131987	20.46	23.65
				1745	132322	20.64	23.83
				1778.5	132657	20.07	23.26
			4	1711.5	131987	20.04	23.23
				1745	132322	20.25	23.44
				1778.5	132657	20.65	23.84
			7	1711.5	131987	20.44	23.63
				1745	132322	20.27	23.46
				1778.5	132657	20.19	23.38
		15RB		1711.5	131987	20.39	23.58
				1745	132322	20.33	23.52
				1778.5	132657	20.15	23.34

3	64-QAM	1 RB	0	1711.5	131987	21.47	24.66
				1745	132322	21.23	24.42
				1778.5	132657	21.23	24.42
			7	1711.5	131987	21.48	24.67
				1745	132322	21.35	24.54
				1778.5	132657	21.30	24.49
			14	1711.5	131987	21.52	24.71
				1745	132322	21.10	24.29
				1778.5	132657	21.06	24.25
		8 RB	0	1711.5	131987	20.52	23.71
				1745	132322	20.30	23.49
				1778.5	132657	20.47	23.66
			4	1711.5	131987	20.27	23.46
				1745	132322	19.99	23.18
				1778.5	132657	20.50	23.69
			7	1711.5	131987	20.40	23.59
				1745	132322	20.21	23.40
				1778.5	132657	20.43	23.62
		15RB		1711.5	131987	20.08	23.27
				1745	132322	20.40	23.59
				1778.5	132657	20.57	23.76

BW(MHz)	Modulation	RB Size	RB Offset	Frequency (MHz)	Channel	Conducted power (dBm)	EIRP (dBm)
1.4	QPSK	1 RB	0	1710.7	131979	22.35	25.54
				1745	132322	22.55	25.74
				1779.3	132665	22.60	25.79
			2	1710.7	131979	22.29	25.48
				1745	132322	22.50	25.69
				1779.3	132665	22.59	25.78
			5	1710.7	131979	22.49	25.68
				1745	132322	22.21	25.40
				1779.3	132665	22.29	25.48
		3 RB	0	1710.7	131979	21.67	24.86
				1745	132322	21.59	24.78
				1779.3	132665	21.19	24.38
			2	1710.7	131979	21.19	24.38
				1745	132322	21.11	24.30
				1779.3	132665	21.76	24.95
			3	1710.7	131979	21.35	24.54
				1745	132322	21.35	24.54
				1779.3	132665	21.10	24.29
		6RB	1710.7	131979	21.29	24.48	
			1745	132322	21.53	24.72	
			1779.3	132665	21.31	24.50	
1.4	16-QAM	1 RB	0	1710.7	131979	21.50	24.69
				1745	132322	21.19	24.38
				1779.3	132665	21.30	24.49
			2	1710.7	131979	21.44	24.63
				1745	132322	21.26	24.45
				1779.3	132665	21.57	24.76
			5	1710.7	131979	21.22	24.41
				1745	132322	21.35	24.54
				1779.3	132665	21.31	24.50
		3 RB	0	1710.7	131979	20.74	23.93
				1745	132322	20.62	23.81
				1779.3	132665	20.06	23.25
			2	1710.7	131979	20.12	23.31
				1745	132322	20.19	23.38
				1779.3	132665	20.73	23.92
			3	1710.7	131979	20.60	23.79
				1745	132322	20.32	23.51
				1779.3	132665	20.23	23.42
		6RB	1710.7	131979	20.30	23.49	
			1745	132322	20.30	23.49	
			1779.3	132665	20.46	23.65	

1.4	64-QAM	1 RB	0	1710.7	131979	21.58	24.77
				1745	132322	21.46	24.65
				1779.3	132665	21.51	24.70
			2	1710.7	131979	21.31	24.50
				1745	132322	21.08	24.27
				1779.3	132665	21.47	24.66
			5	1710.7	131979	21.38	24.57
				1745	132322	21.03	24.22
				1779.3	132665	21.27	24.46
		3 RB	0	1710.7	131979	20.70	23.89
				1745	132322	20.35	23.54
				1779.3	132665	20.19	23.38
			2	1710.7	131979	20.30	23.49
				1745	132322	20.30	23.49
				1779.3	132665	20.29	23.48
			3	1710.7	131979	20.29	23.48
				1745	132322	20.22	23.41
				1779.3	132665	20.23	23.42
		6RB		1710.7	131979	20.01	23.20
				1745	132322	20.29	23.48
				1779.3	132665	20.45	23.64

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 -130 section 4.5,

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.

According to RSS -139 section 6.4,

The frequency stability shall be sufficient to ensure that the occupied bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

TEST PROCEDURE

Use Anritsu 8820 with frequency Error measurement capability.

Temp = -35 to +65°C

Voltage= 85% to 115% of the nominal value for AC powered equipment.

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

TEST RESULTS**FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT:
LTE Band 66**

Reference Frequency: LTE Band 66 Max Bandwidth QPSK, 1755 MHz				
Limit: ± 2.5 ppm = 4387.5 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
120	65	0.01	0.000006	+/- 2.5
120	50	-0.01	-0.000006	
120	40	0.00	0.000000	
120	30	-0.01	-0.000006	
120	20	0.01	0.000006	
120	10	-0.01	-0.000006	
120	0	0.01	0.000006	
120	-10	0.02	0.000011	
120	-20	0.01	0.000006	
120	-35	-0.01	-0.000006	

Reference Frequency: LTE Band 66 Max Bandwidth 16QAM, 1755 MHz				
Limit: ± 2.5 ppm = 4387.5 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
120	65	0.00	0.000000	+/- 2.5
120	50	-0.01	-0.000006	
120	40	0.00	0.000000	
120	30	0.02	0.000011	
120	20	0.01	0.000006	
120	10	-0.01	-0.000006	
120	0	0.00	0.000000	
120	-10	-0.01	-0.000006	
120	-20	0.01	0.000006	
120	-35	0.01	0.000006	

LTE Band 71

Reference Frequency: LTE Band 71 Max Bandwidth QPSK, 683 MHz				
Limit: ± 2.5 ppm = 1707.5 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
120	65	0.00	0.000000	+/- 2.5
120	50	-0.01	-0.000015	
120	40	0.02	0.000029	
120	30	-0.01	-0.000015	
120	20	0.00	0.000000	
120	10	0.01	0.000015	
120	0	0.02	0.000029	
120	-10	0.02	0.000029	
120	-20	0.00	0.000000	
120	-35	0.01	0.000015	

Reference Frequency: LTE Band 71 Max Bandwidth 16QAM, 683 MHz				
Limit: ± 2.5 ppm = 1707.5 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
120	65	0.02	0.000029	+/- 2.5
120	50	0.00	0.000000	
120	40	-0.01	-0.000015	
120	30	0.01	0.000015	
120	20	0.02	0.000029	
120	10	0.01	0.000015	
120	0	0.01	0.000015	
120	-10	0.00	0.000000	
120	-20	0.01	0.000015	
120	-35	-0.01	-0.000015	



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**FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT:
LTE Band 66**

Reference Frequency: LTE Band 66 Max Bandwidth QPSK, 1755 MHz				
Limit: ± 2.5 ppm = 4387.5 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
102	20	0.00	0.000000	+/- 2.5
120	20	0.01	0.000006	
138	20	-0.01	-0.000006	

Reference Frequency: LTE Band 66 Max Bandwidth 16QAM, 1755 MHz				
Limit: ± 2.5 ppm = 4387.5 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
102	20	-0.02	-0.000011	+/- 2.5
120	20	0.00	0.000000	
138	20	0.01	0.000006	



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LTE Band 71

Reference Frequency: LTE Band 71 Max Bandwidth QPSK, 683 MHz				
Limit: ± 2.5 ppm = 1707.5 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
102	20	0.02	0.000029	+/- 2.5
120	20	0.01	0.000015	
138	20	-0.01	-0.000015	

Reference Frequency: LTE Band 71 Max Bandwidth 16QAM, 683 MHz				
Limit: ± 2.5 ppm = 1707.5 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
102	20	0.01	0.000015	+/- 2.5
120	20	0.00	0.000000	
138	20	-0.01	-0.000015	

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

TEST RESULTS

LTE Band 71

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	OBW(99%)(MHz)	26 dB Bandwidth(MHz)
71	5	Middle	2535.0	QPSK	4.4717	4.906
		Middle	2535.0	16QAM	4.4717	4.92
	10	Middle	2535.0	QPSK	8.9146	9.74
		Middle	2535.0	16QAM	8.9146	9.768
	15	Middle	2535.0	QPSK	13.4153	14.674
		Middle	2535.0	16QAM	13.4153	14.631
	20	Middle	2535.0	QPSK	17.9450	19.667
		Middle	2535.0	16QAM	18.0028	19.725

LTE Band 66

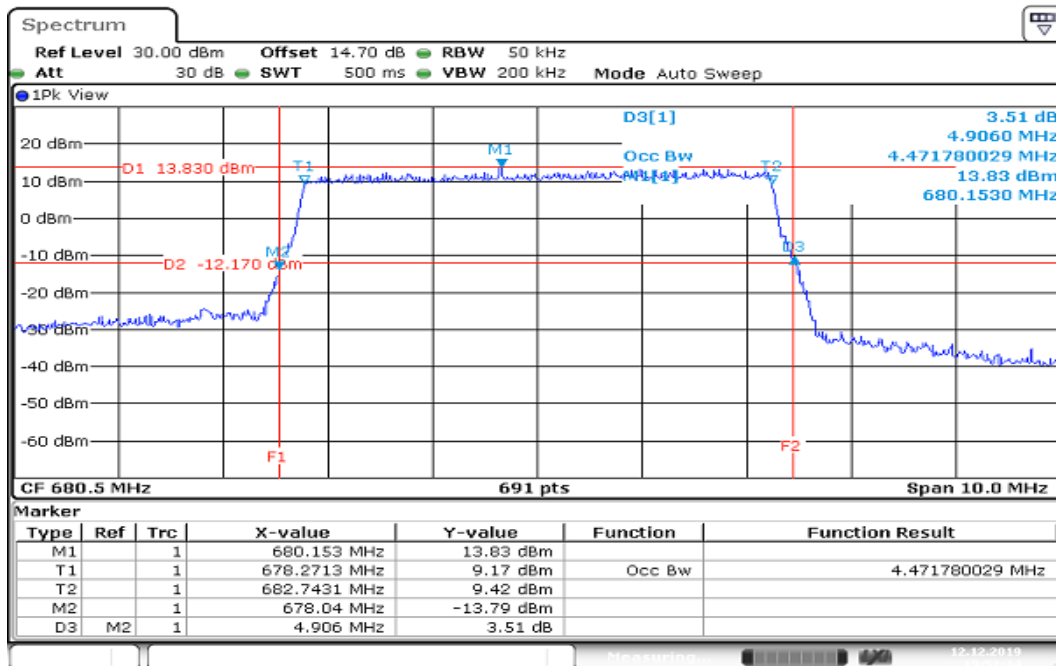
Band	BW (MHz)	Channel	Frequency (MHz)	Mode	OBW(99%)(MHz)	26 dB Bandwidth(MHz)
66	1.4	Middle	1732.5	QPSK	1.1070	1.4067
		Middle	1732.5	16QAM	1.1070	1.4674
	3	Middle	1732.5	QPSK	2.6917	2.9653
		Middle	1732.5	16QAM	2.6917	3.0087
	5	Middle	1732.5	QPSK	4.4862	4.977
		Middle	1732.5	16QAM	4.4717	4.919
	10	Middle	1732.5	QPSK	8.9435	9.781
		Middle	1732.5	16QAM	8.9435	9.724
	15	Middle	1732.5	QPSK	13.4587	14.687
		Middle	1732.5	16QAM	13.4153	14.601
	20	Middle	1732.5	QPSK	18.0607	19.781
		Middle	1732.5	16QAM	18.1186	19.666

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LTE Band 71

CHANNEL BANDWIDTH: 5MHz / QPSK

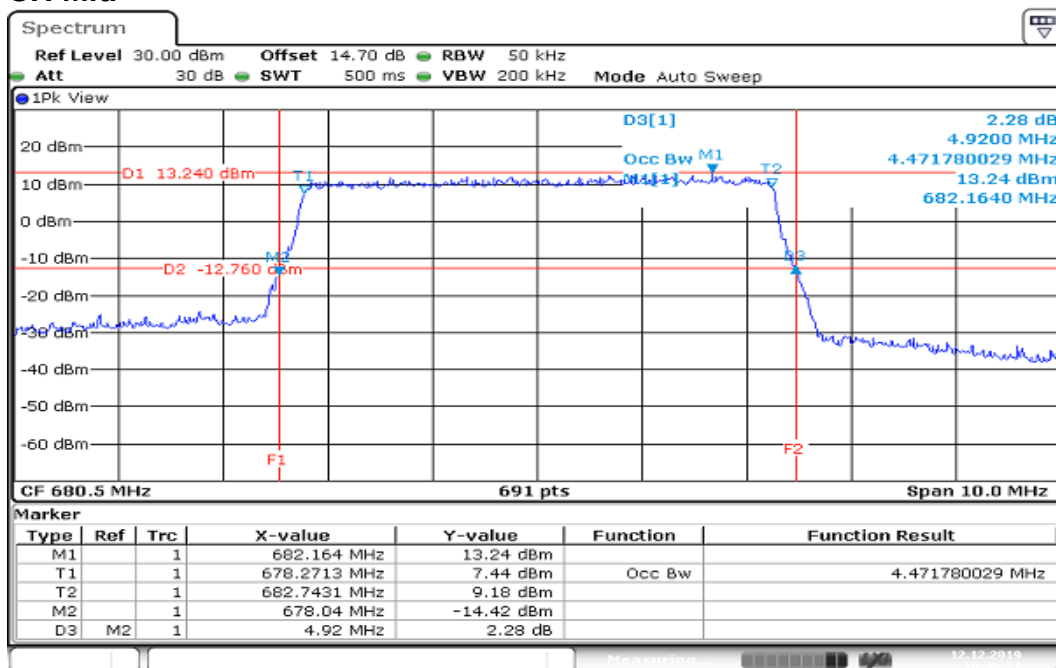
CH Mid



Date: 12.DEC.2019 19:51:14

CHANNEL BANDWIDTH: 5MHz / 16QAM

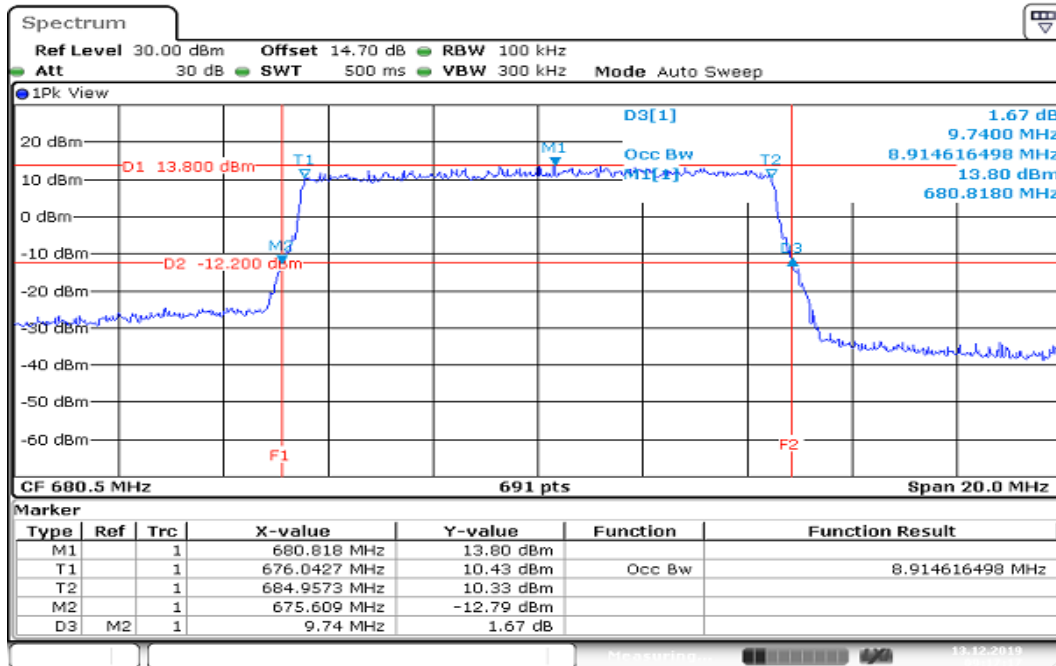
CH Mid



Date: 12.DEC.2019 19:49:11

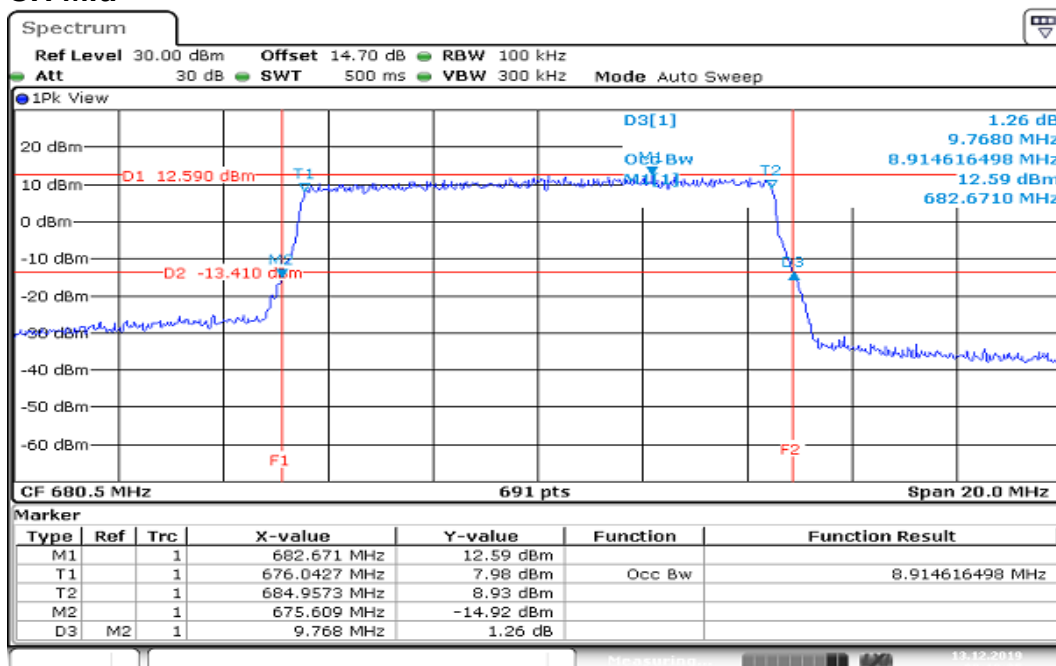
Report No.: T191105W01-RP12

CHANNEL BANDWIDTH: 10MHz / QPSK CH Mid



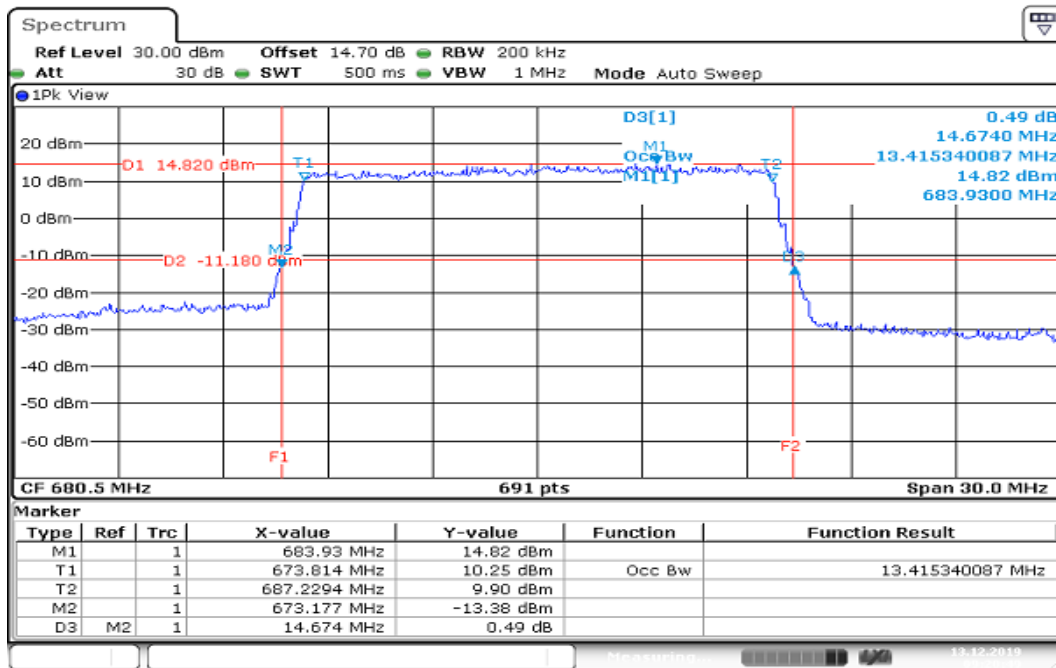
Date: 13.DEC.2019 09:17:17

CHANNEL BANDWIDTH: 10MHz / 16QAM CH Mid

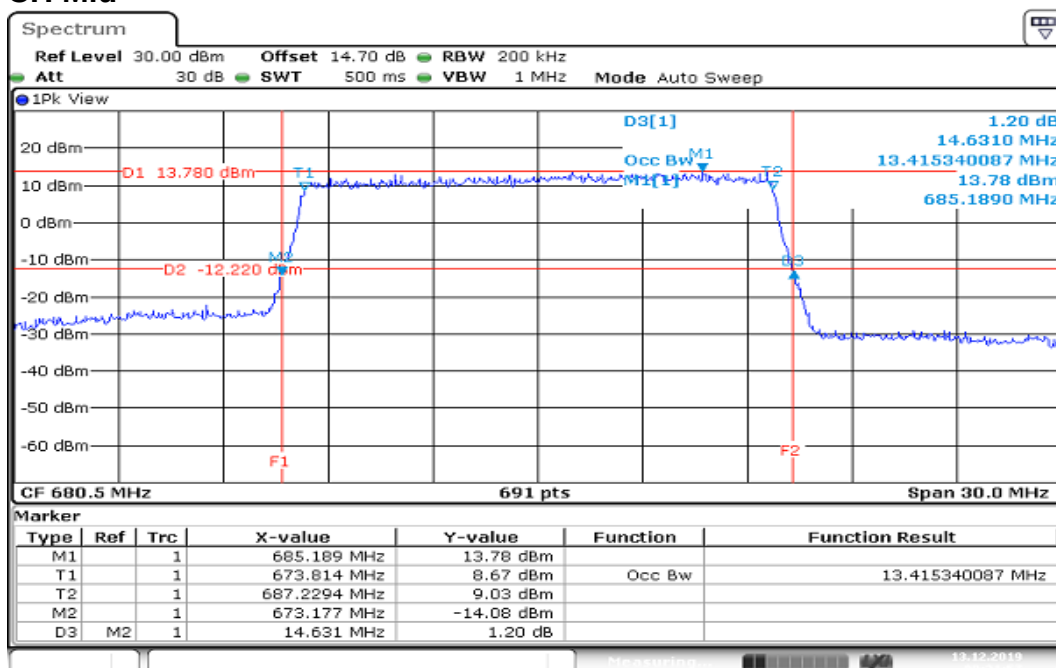


Date: 13.DEC.2019 09:18:24

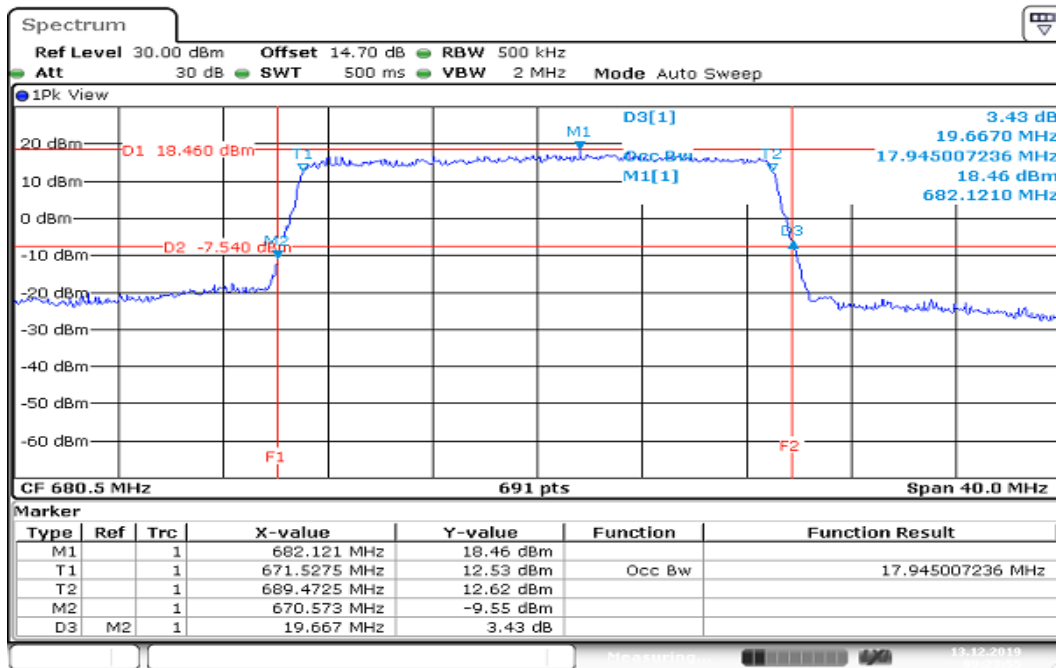
Report No.: T191105W01-RP12

CHANNEL BANDWIDTH: 15MHz / QPSK
CH Mid

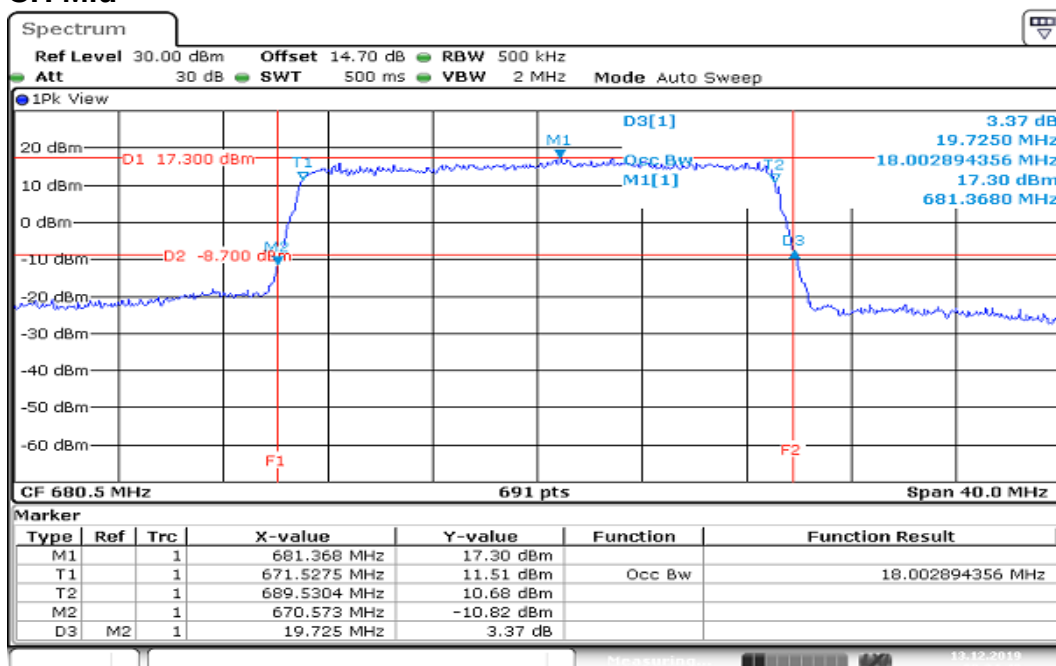
Date: 13.DEC.2019 09:20:49

CHANNEL BANDWIDTH: 15MHz / 16QAM
CH Mid

Date: 13.DEC.2019 09:21:56

CHANNEL BANDWIDTH: 20MHz / QPSK
CH Mid

Date: 13.DEC.2019 09:23:55

CHANNEL BANDWIDTH: 20MHz / 16QAM
CH Mid

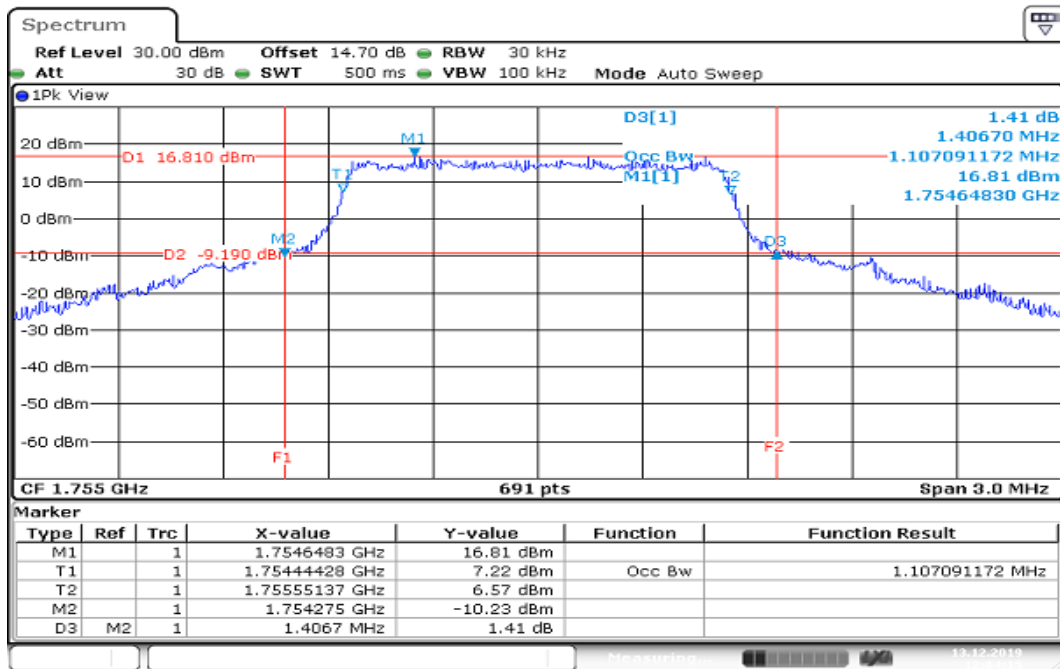
Date: 13.DEC.2019 09:24:48

Report No.: T191105W01-RP12

LTE Band 66

CHANNEL BANDWIDTH: 1.4MHz / QPSK

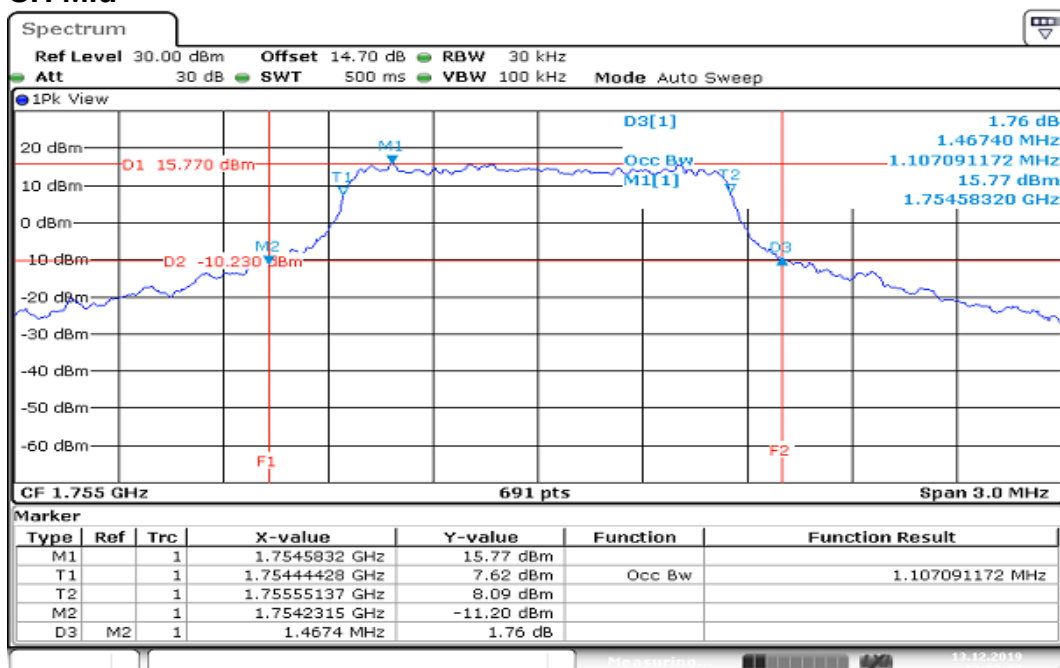
CH Mid



Date: 13.DEC.2019 12:04:15

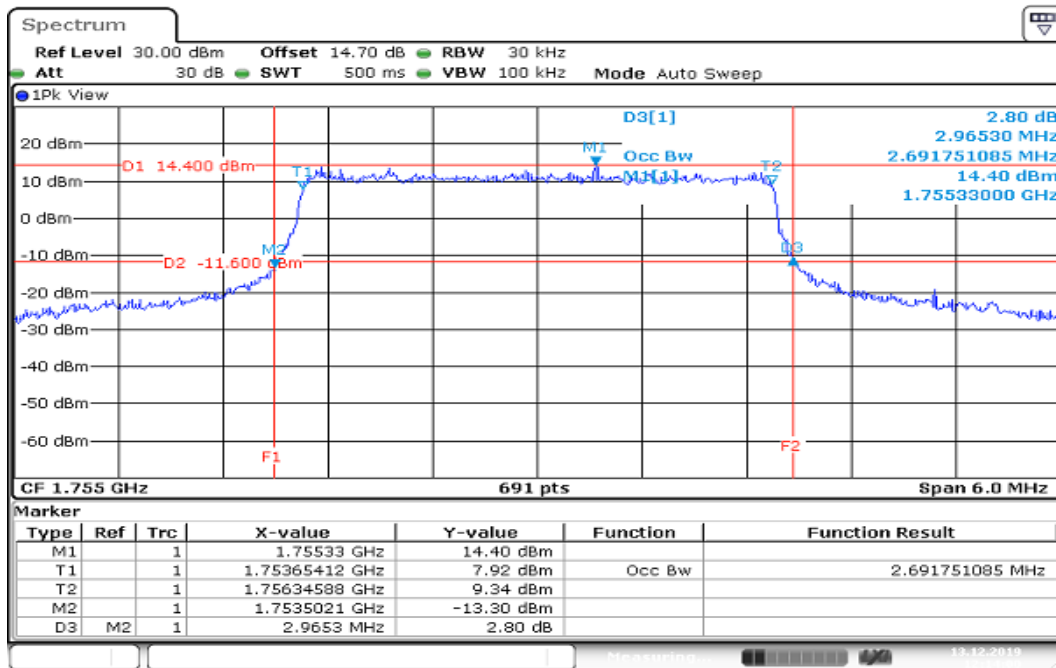
CHANNEL BANDWIDTH: 1.4MHz / 16QAM

CH Mid

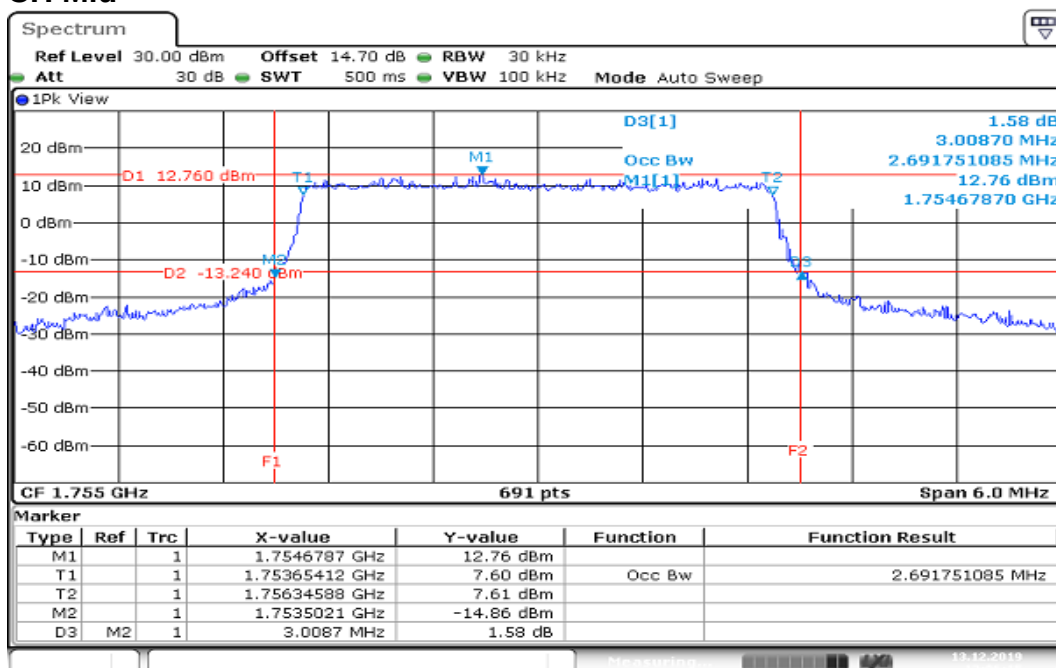


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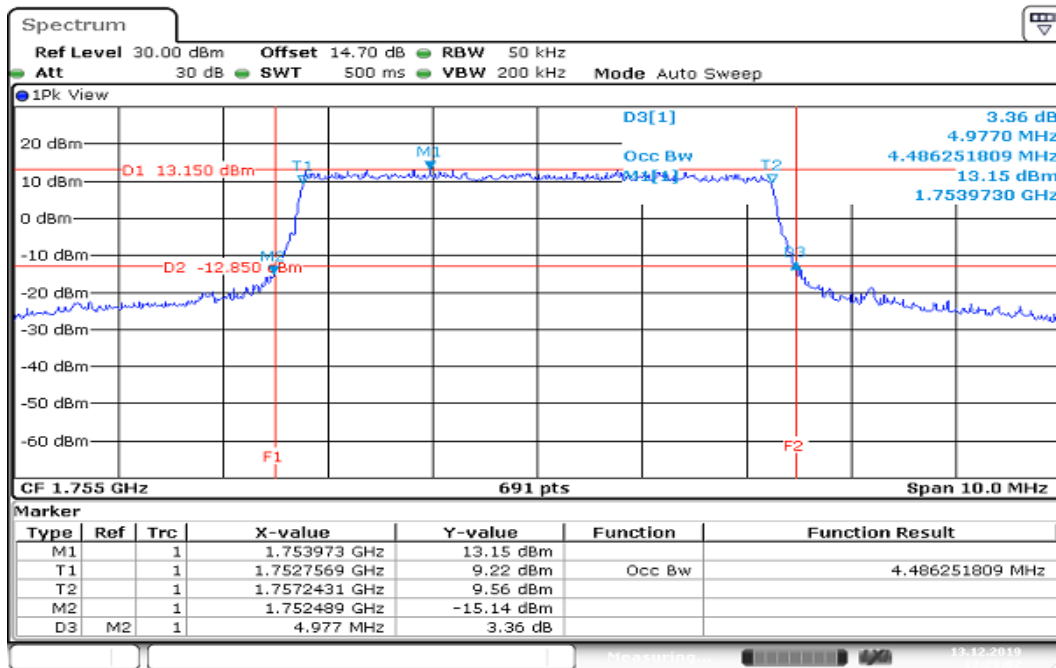
CHANNEL BANDWIDTH: 3MHz / QPSK
CH Mid

Date: 13.DEC.2019 12:14:00

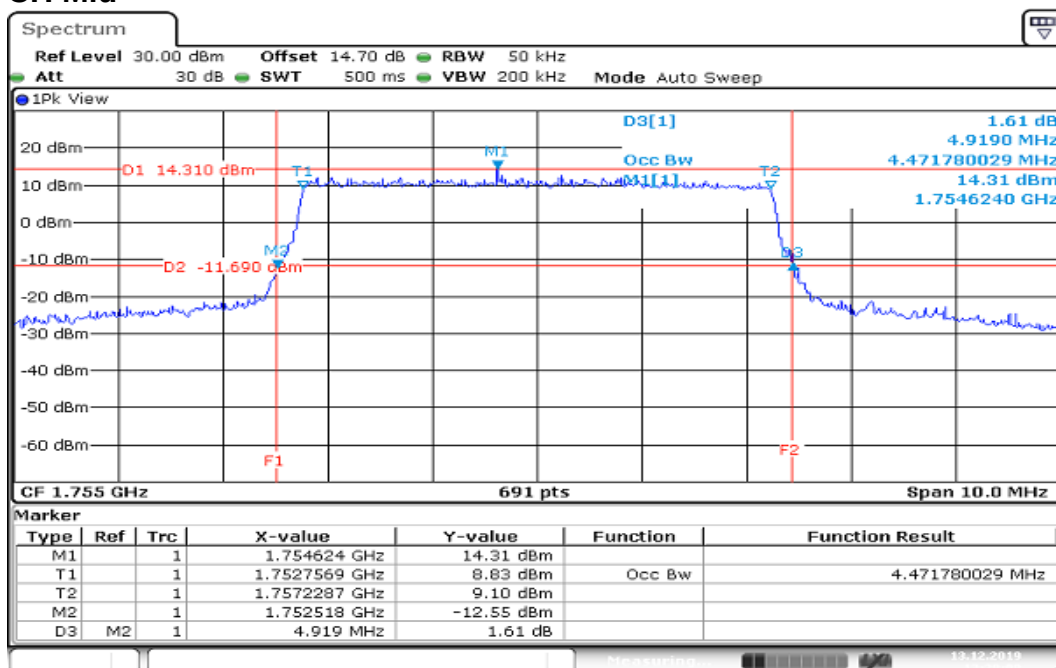
CHANNEL BANDWIDTH: 3MHz / 16QAM
CH Mid

Date: 13.DEC.2019 12:06:15

Report No.: T191105W01-RP12

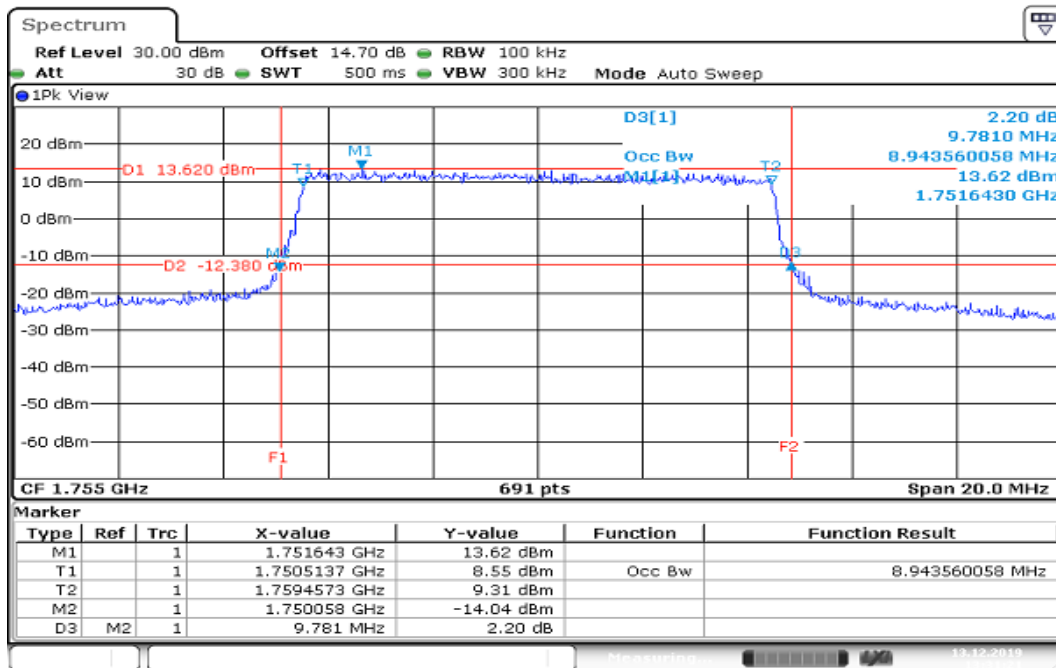
CHANNEL BANDWIDTH: 5MHz / QPSK
CH Mid

Date: 13.DEC.2019 13:29:02

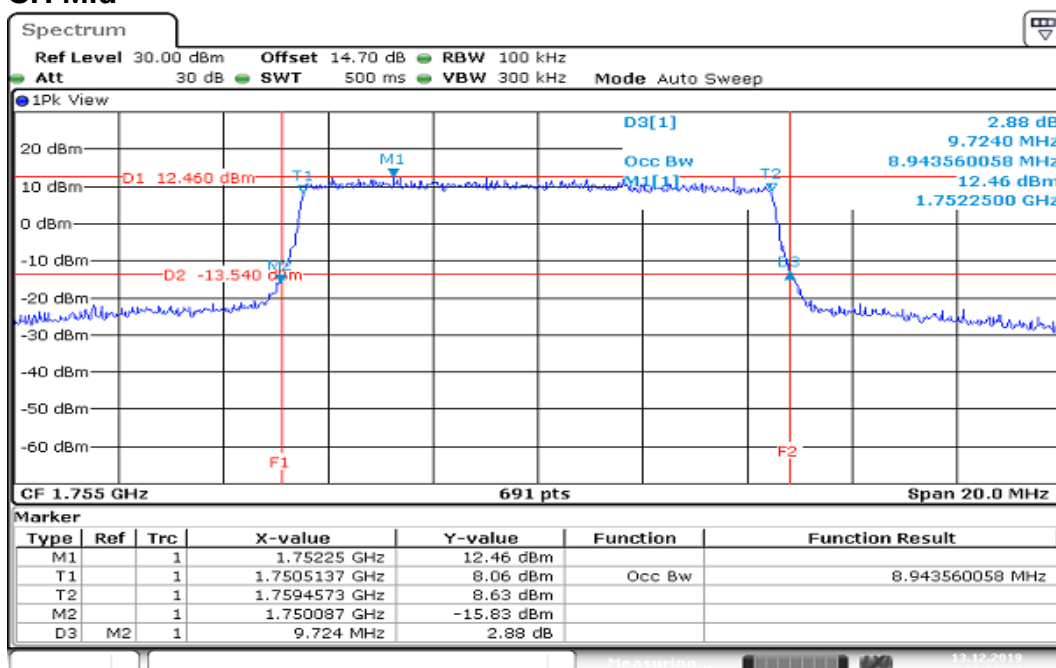
CHANNEL BANDWIDTH: 5MHz / 16QAM
CH Mid

Date: 13.DEC.2019 13:28:09

Report No.: T191105W01-RP12

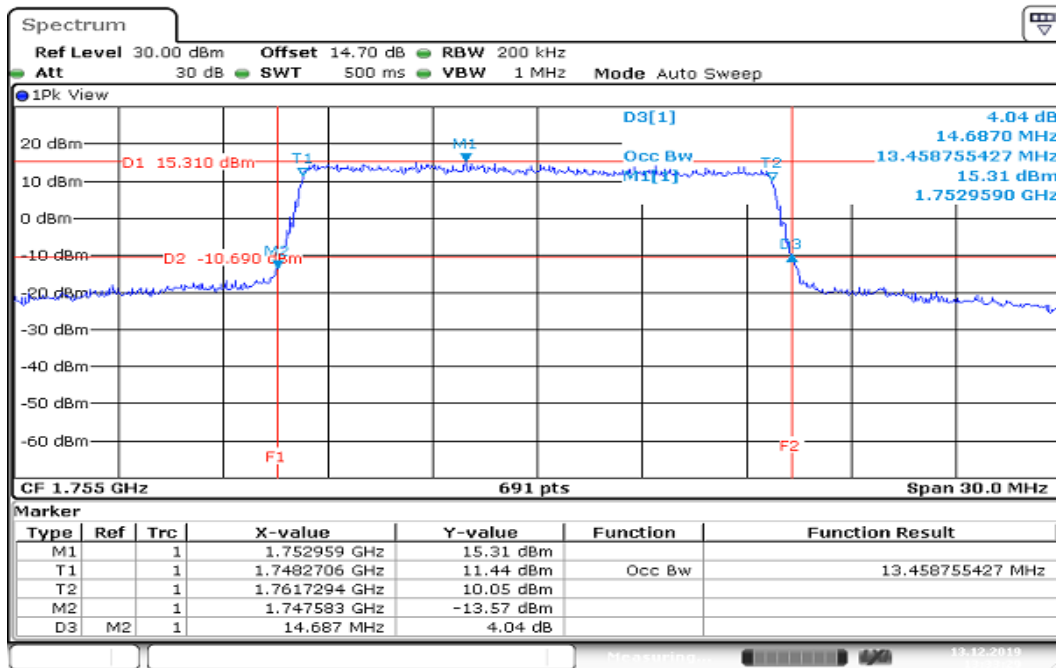
CHANNEL BANDWIDTH: 10MHz / QPSK
CH Mid

Date: 13.DEC.2019 13:31:21

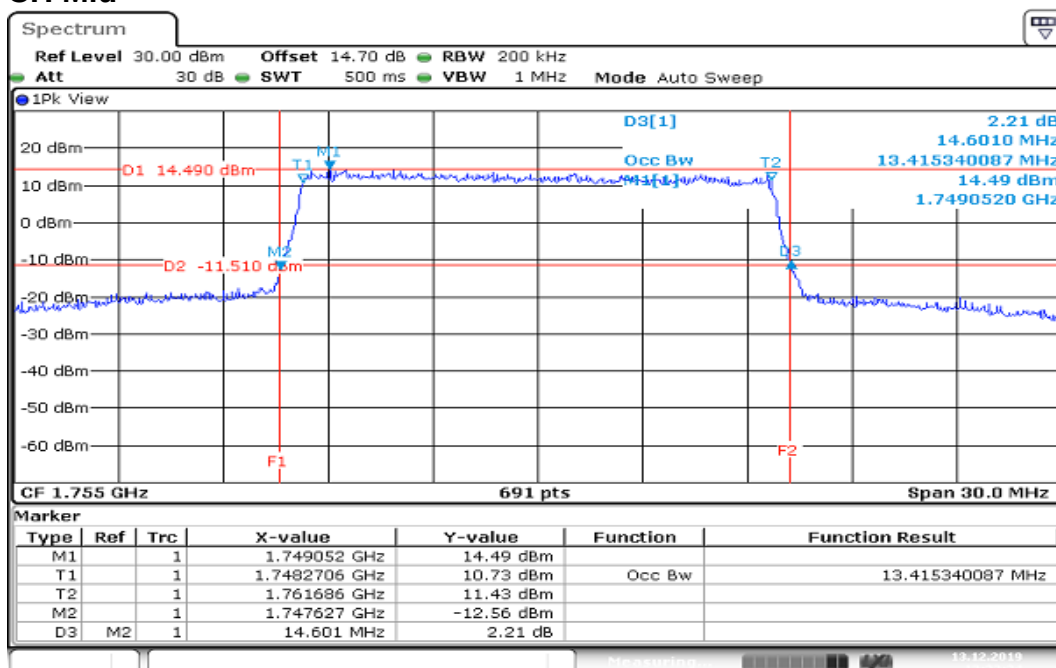
CHANNEL BANDWIDTH: 10MHz / 16QAM
CH Mid

Date: 13.DEC.2019 13:30:29

Report No.: T191105W01-RP12

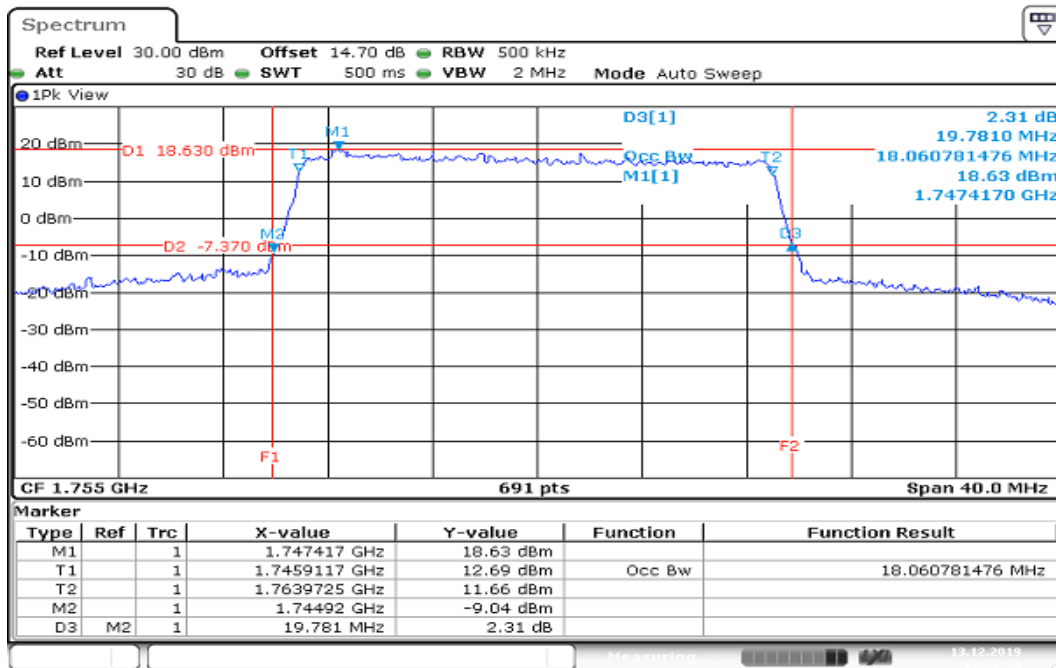
CHANNEL BANDWIDTH: 15MHz / QPSK
CH Mid

Date: 13.DEC.2019 13:33:29

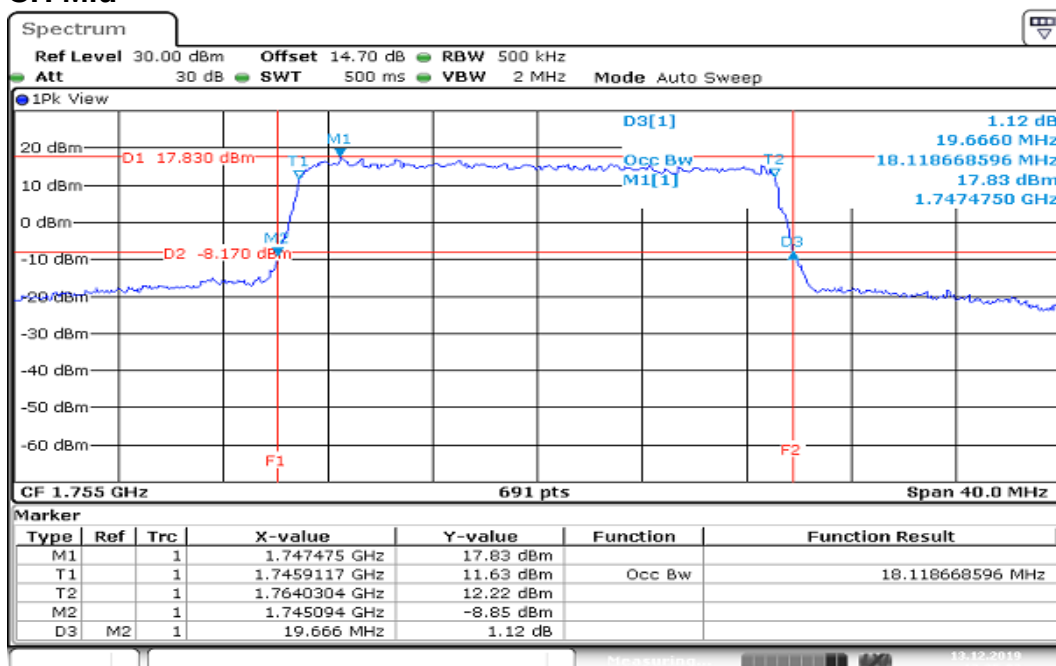
CHANNEL BANDWIDTH: 15MHz / 16QAM
CH Mid

Date: 13.DEC.2019 13:32:35

Report No.: T191105W01-RP12

CHANNEL BANDWIDTH: 20MHz / QPSK
CH Mid

Date: 13.DEC.2019 13:35:56

CHANNEL BANDWIDTH: 20MHz / 16QAM
CH Mid

Date: 13.DEC.2019 13:35:04

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.

TEST RESULTS**LTE Band 71****CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB**

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
133297	680.5	5.88

CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
133297	680.5	5.80

CHANNEL BANDWIDTH: 15MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
133297	680.5	5.45

CHANNEL BANDWIDTH: 20MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
133297	680.5	5.51

CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
133297	680.5	5.48

CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
133297	680.5	5.25

CHANNEL BANDWIDTH: 15MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
133297	680.5	5.62

CHANNEL BANDWIDTH: 20MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
133297	680.5	5.07

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)
133297	680.5	6.52

CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
133297	680.5	6.61

CHANNEL BANDWIDTH: 15MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
133297	680.5	6.49

CHANNEL BANDWIDTH: 20MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
133297	680.5	6.70

CHANNEL BANDWIDTH: 5MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
133297	680.5	6.26

CHANNEL BANDWIDTH: 10MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
133297	680.5	6.20

CHANNEL BANDWIDTH: 15MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
133297	680.5	6.29

CHANNEL BANDWIDTH: 20MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
133297	680.5	6.12

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

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CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	4.06

CHANNEL BANDWIDTH: 3MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	4.14

CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	4.00

CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	4.09

CHANNEL BANDWIDTH: 15MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	3.86

CHANNEL BANDWIDTH: 20MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	3.94

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

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	4.55

CHANNEL BANDWIDTH: 3MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	4.55

CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	4.41

CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	4.43

CHANNEL BANDWIDTH: 15MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	4.64

CHANNEL BANDWIDTH: 20MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	4.52

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

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	5.10

CHANNEL BANDWIDTH: 3MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	4.72

CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	4.93

CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	4.70

CHANNEL BANDWIDTH: 15MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	4.84

CHANNEL BANDWIDTH: 20MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	4.72

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

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	5.51

CHANNEL BANDWIDTH: 3MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	5.30

CHANNEL BANDWIDTH: 5MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	5.33

CHANNEL BANDWIDTH: 10MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	5.36

CHANNEL BANDWIDTH: 15MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	5.39

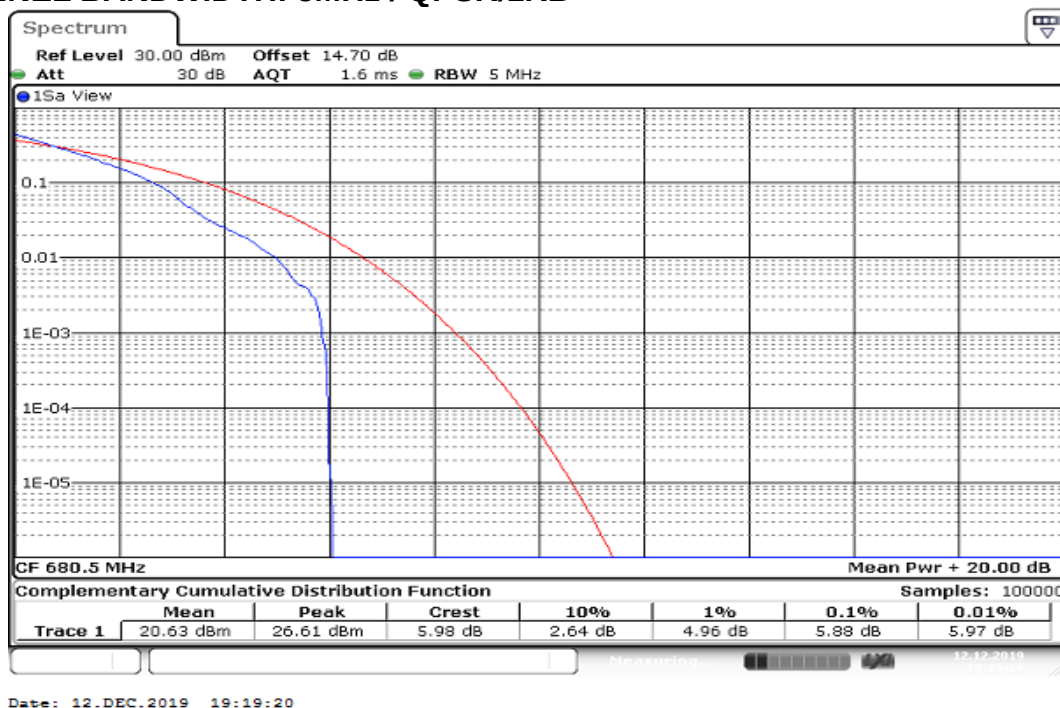
CHANNEL BANDWIDTH: 20MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
132422	1755	5.42

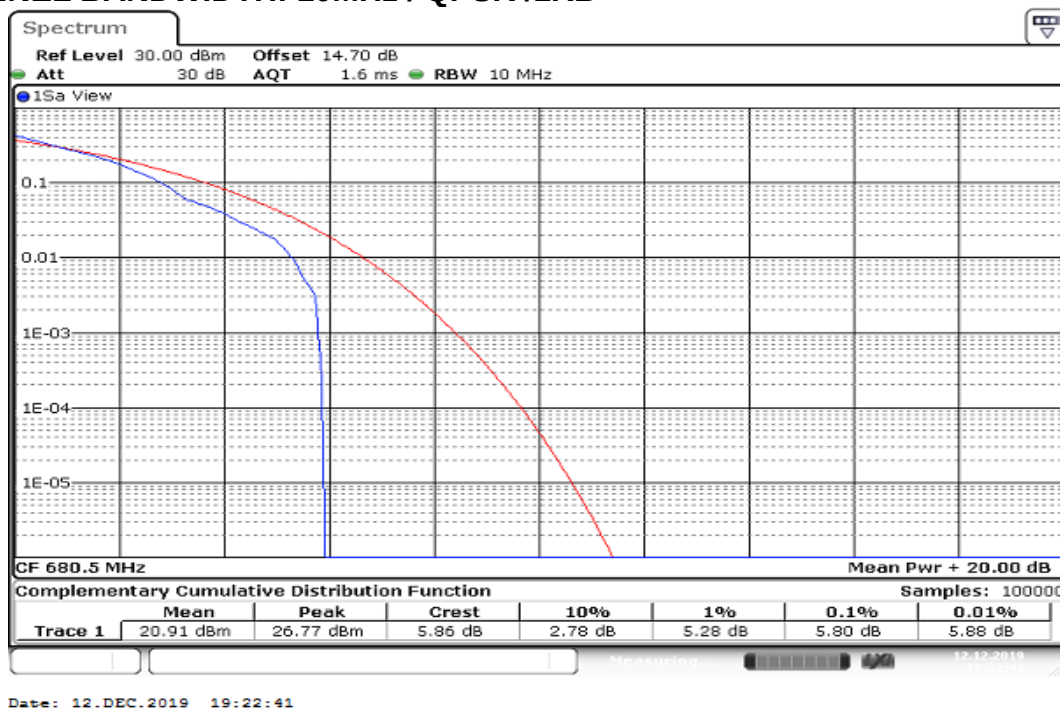
Note: We selected worst case to performed test in middle channel, the results can be meet other channel.

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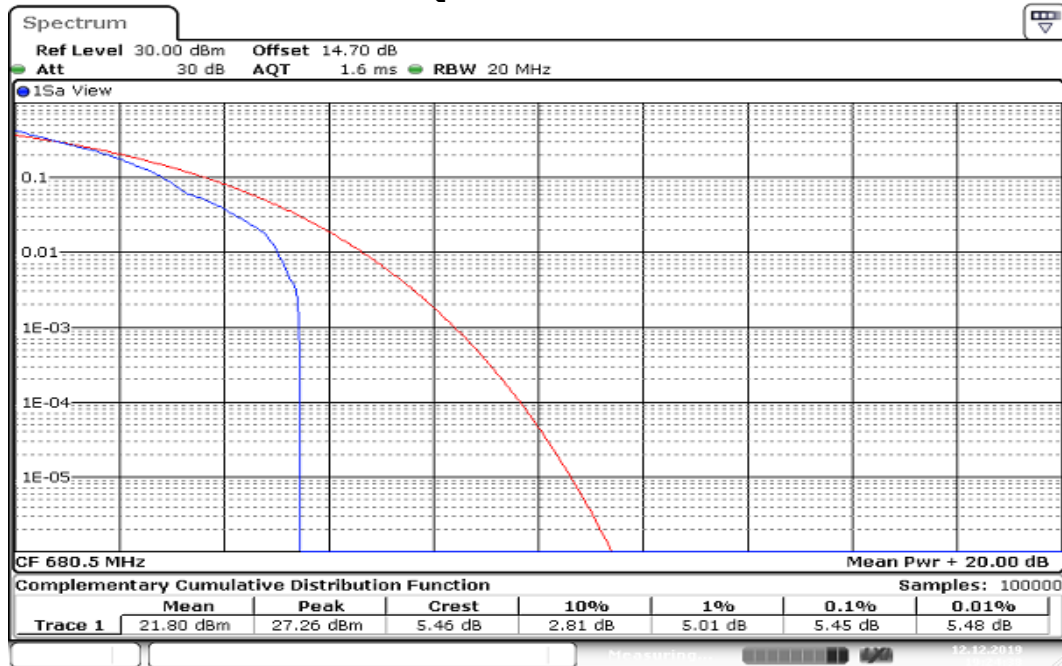
CHANNEL BANDWIDTH: 5MHz / QPSK/1RB



CHANNEL BANDWIDTH: 10MHz / QPSK /1RB

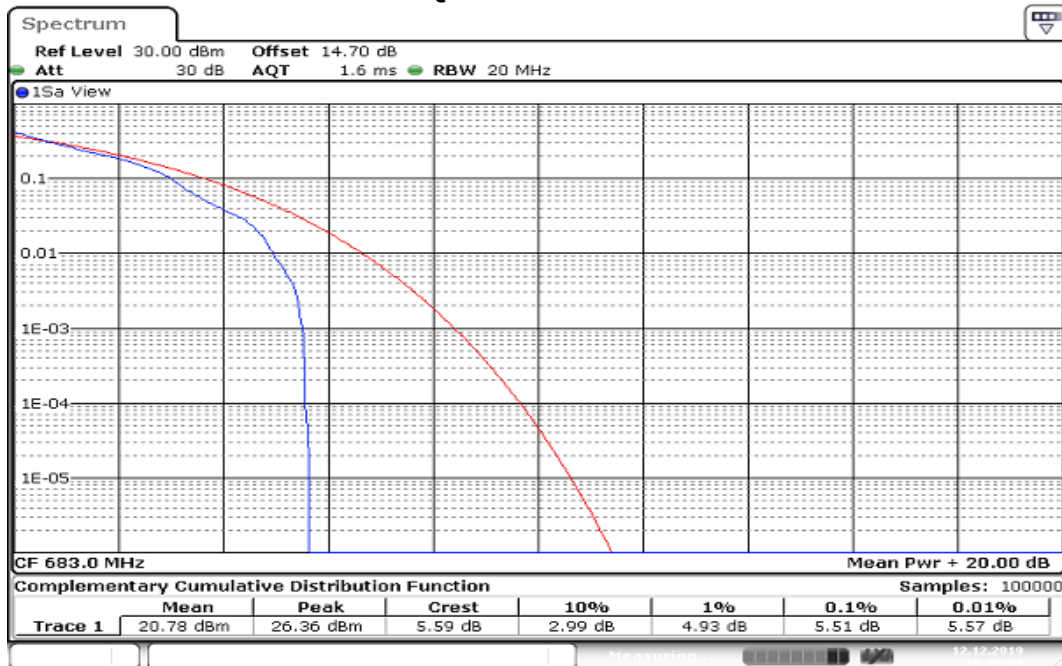


CHANNEL BANDWIDTH: 15MHz / QPSK/1RB



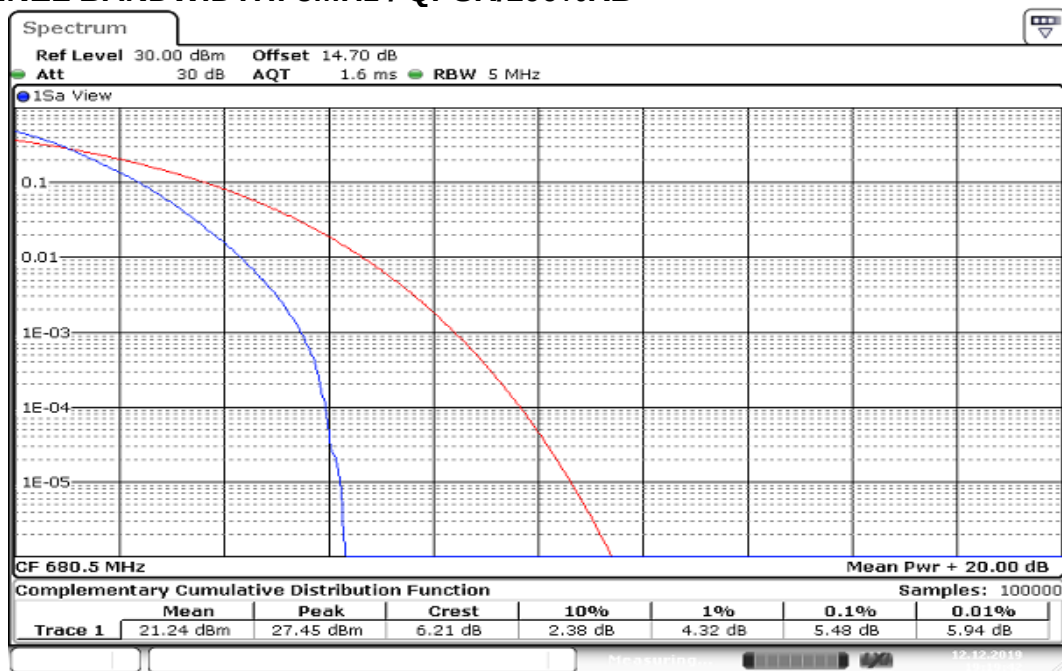
Date: 12.DEC.2019 19:24:38

CHANNEL BANDWIDTH: 20MHz / QPSK /1RB



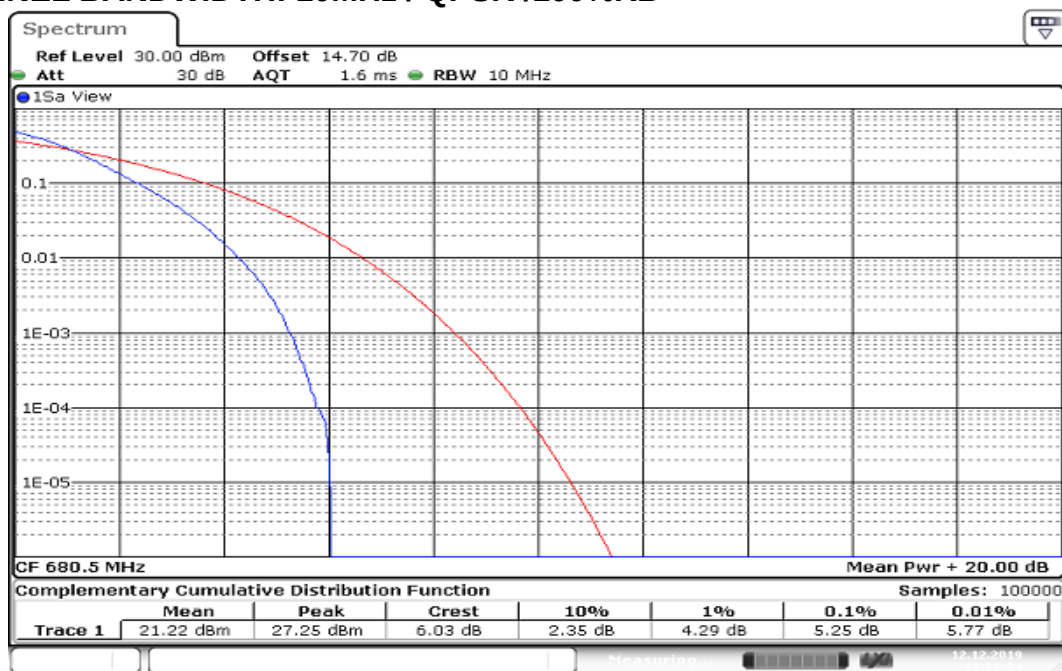
Date: 12.DEC.2019 19:27:07

CHANNEL BANDWIDTH: 5MHz / QPSK/100%RB



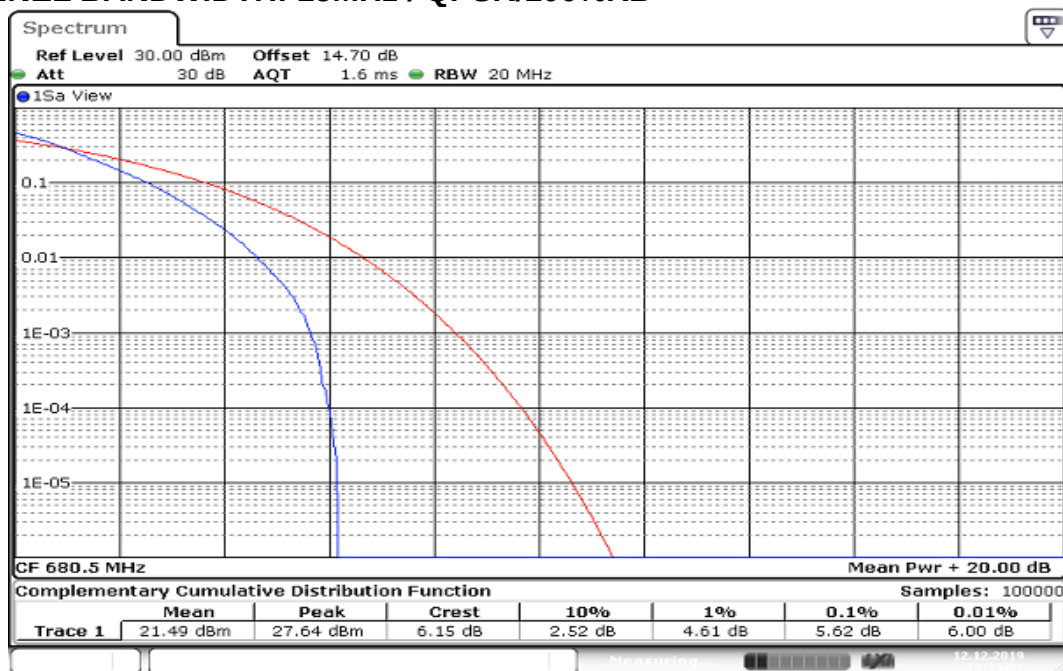
Date: 12.DEC.2019 19:19:43

CHANNEL BANDWIDTH: 10MHz / QPSK /100%RB



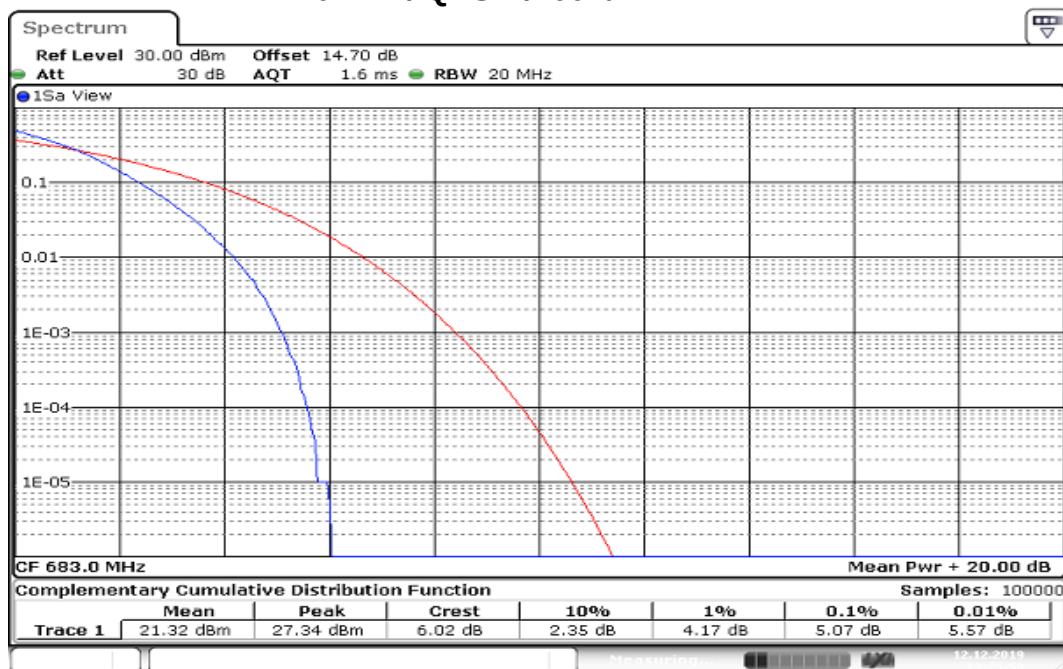
Date: 12.DEC.2019 19:20:54

CHANNEL BANDWIDTH: 15MHz / QPSK/100%RB



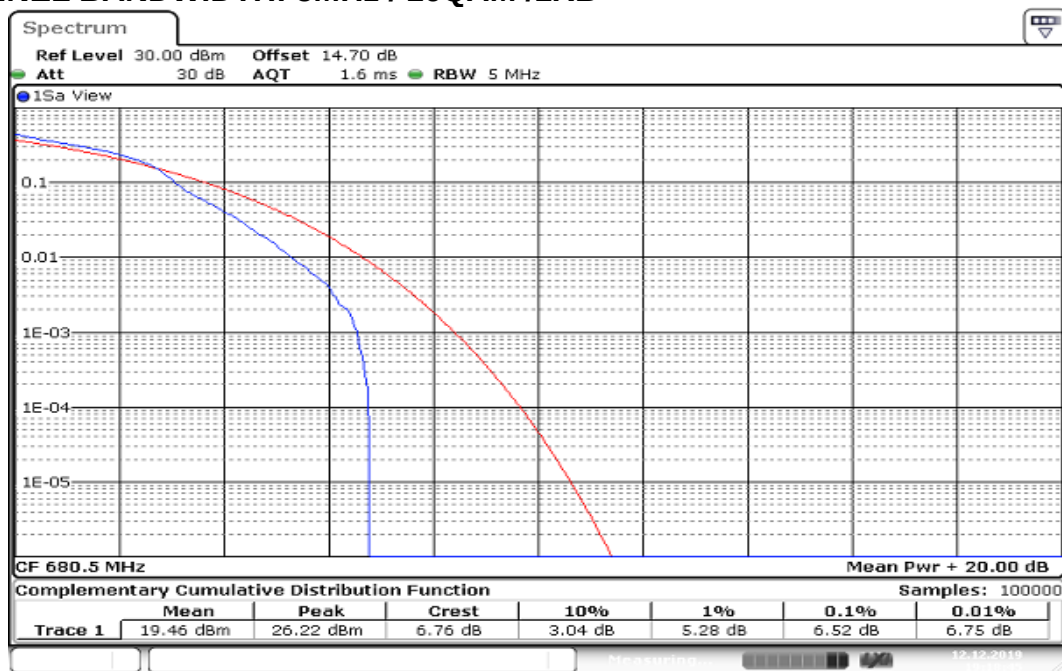
Date: 12.DEC.2019 19:23:22

CHANNEL BANDWIDTH: 20MHz / QPSK /100%RB



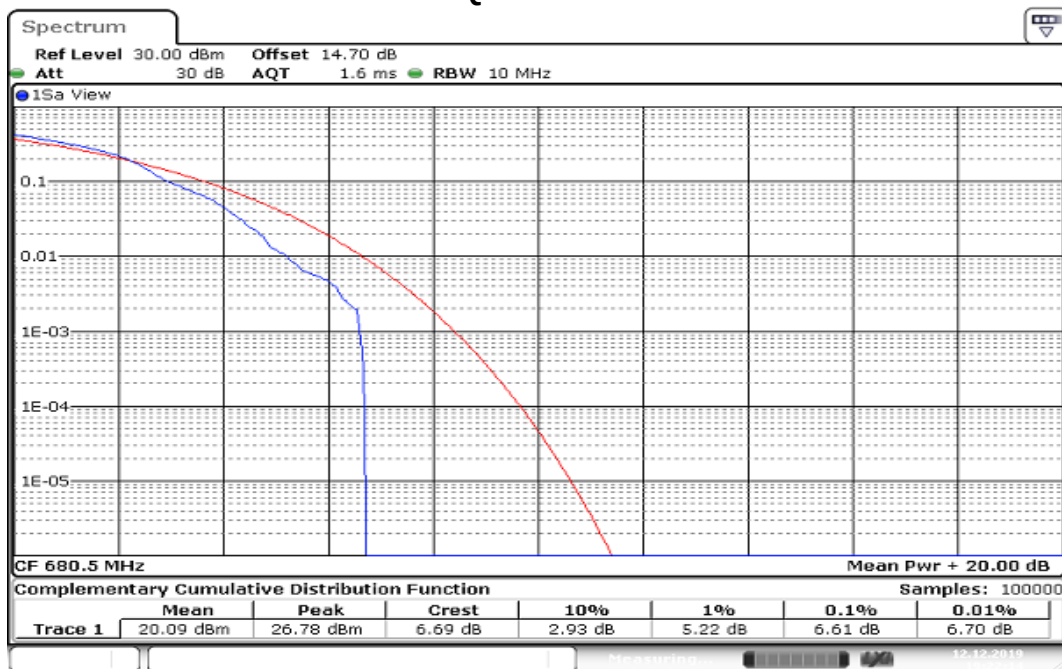
Date: 12.DEC.2019 19:25:58

CHANNEL BANDWIDTH: 5MHz / 16QAM /1RB



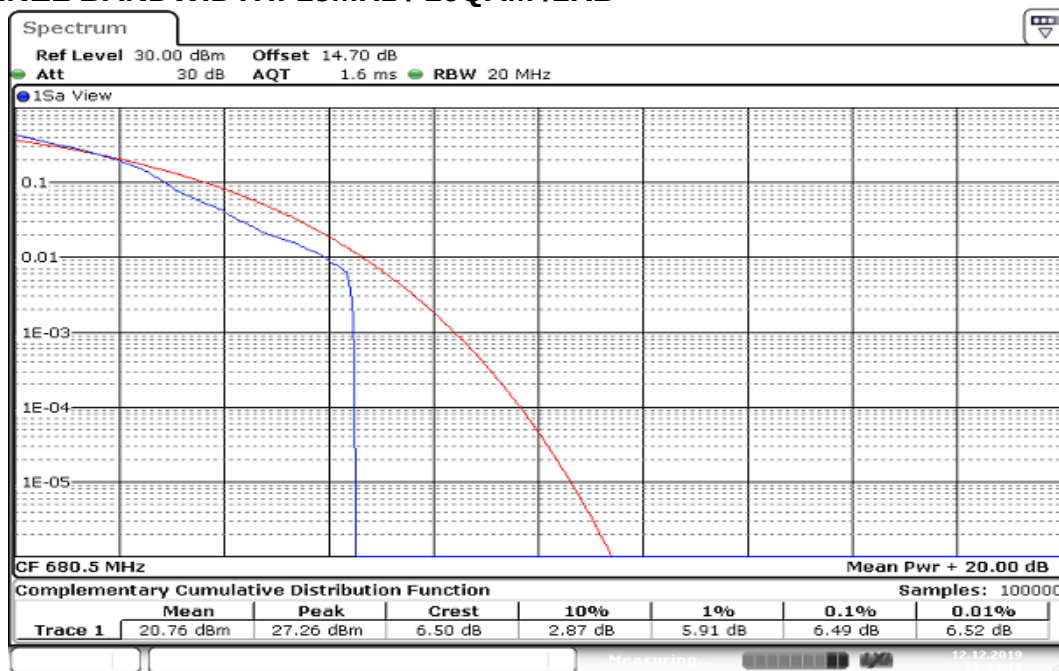
Date: 12.DEC.2019 19:18:46

CHANNEL BANDWIDTH: 10MHz / 16QAM /1RB



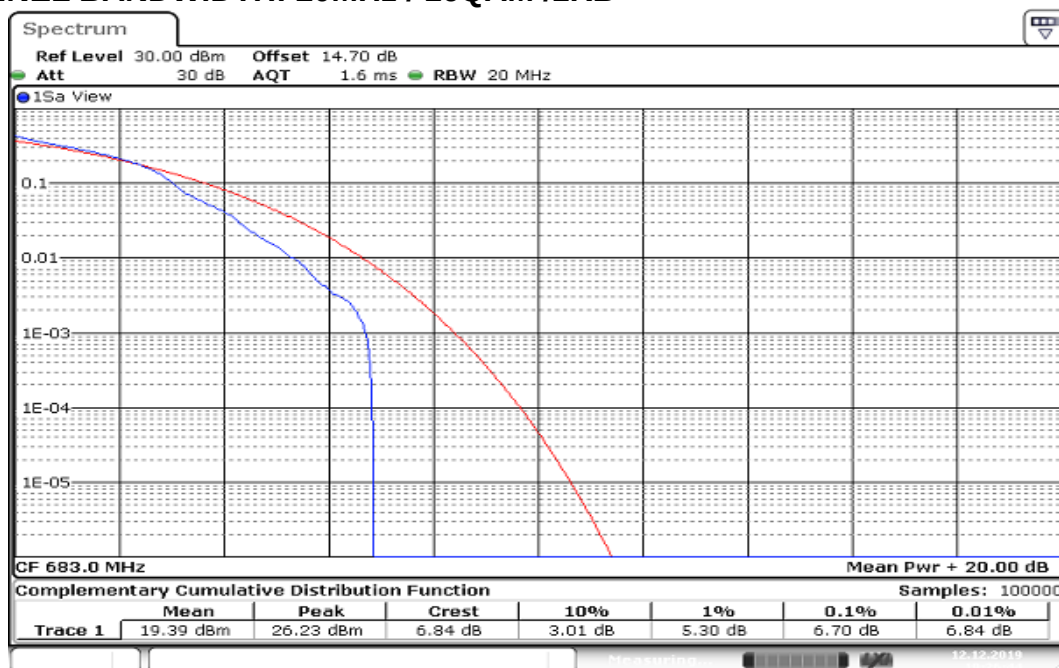
Date: 12.DEC.2019 19:22:14

CHANNEL BANDWIDTH: 15MHz / 16QAM /1RB



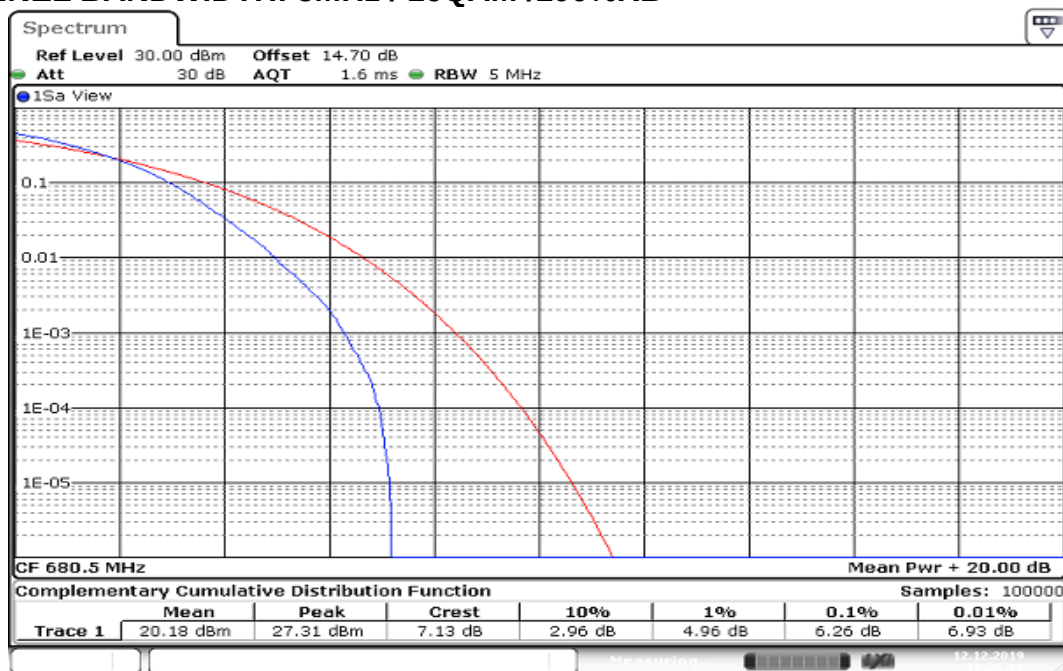
Date: 12.DEC.2019 19:24:18

CHANNEL BANDWIDTH: 20MHz / 16QAM /1RB



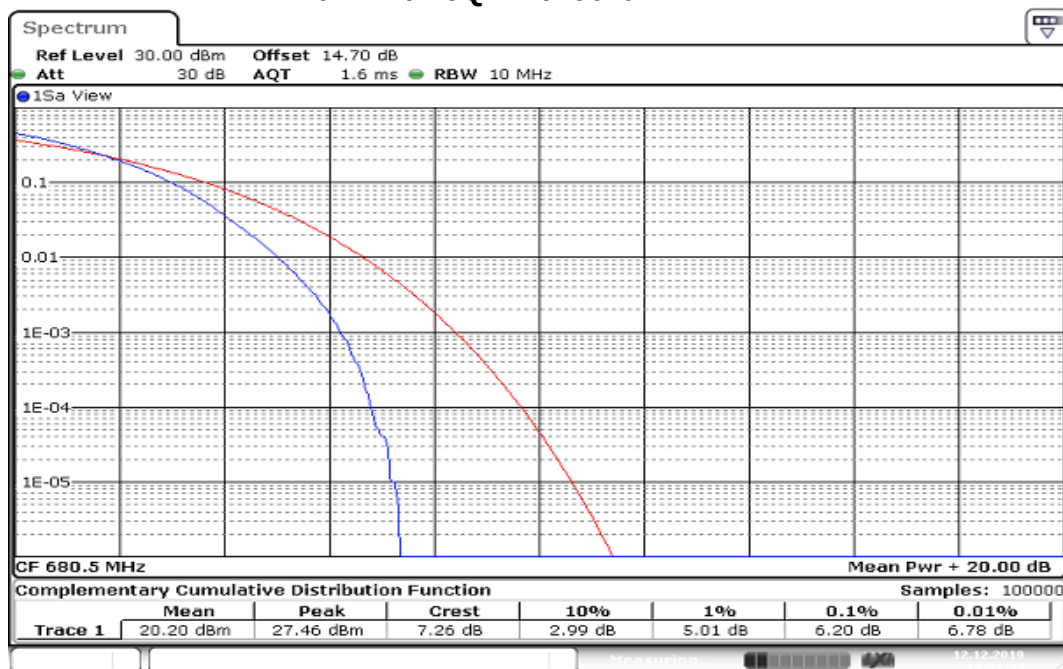
Date: 12.DEC.2019 19:26:44

CHANNEL BANDWIDTH: 5MHz / 16QAM /100%RB

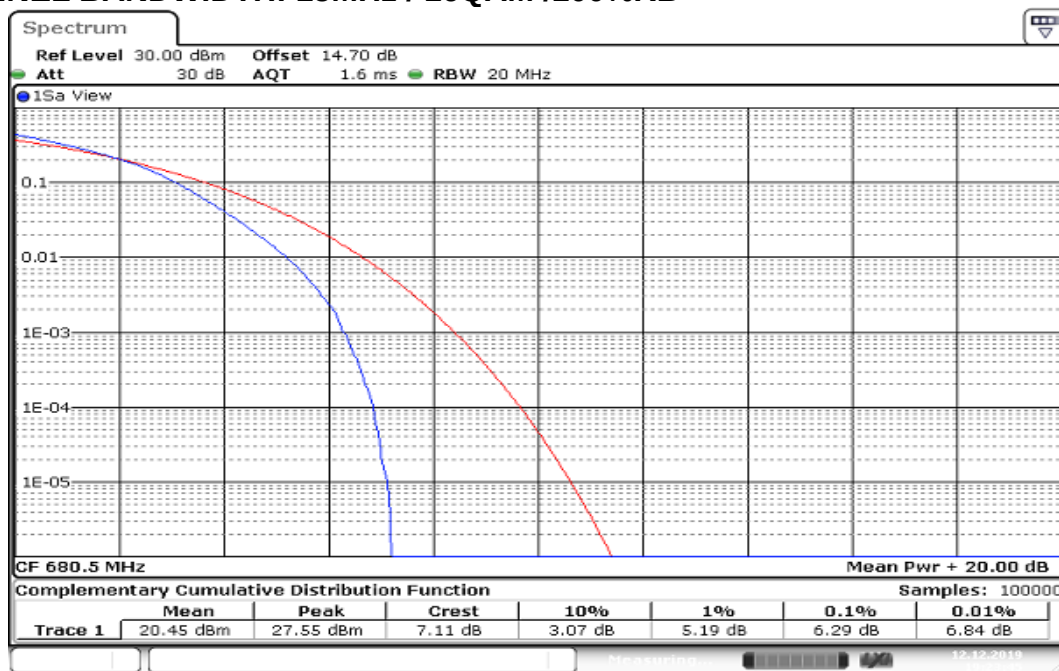


Date: 12.DEC.2019 19:20:06

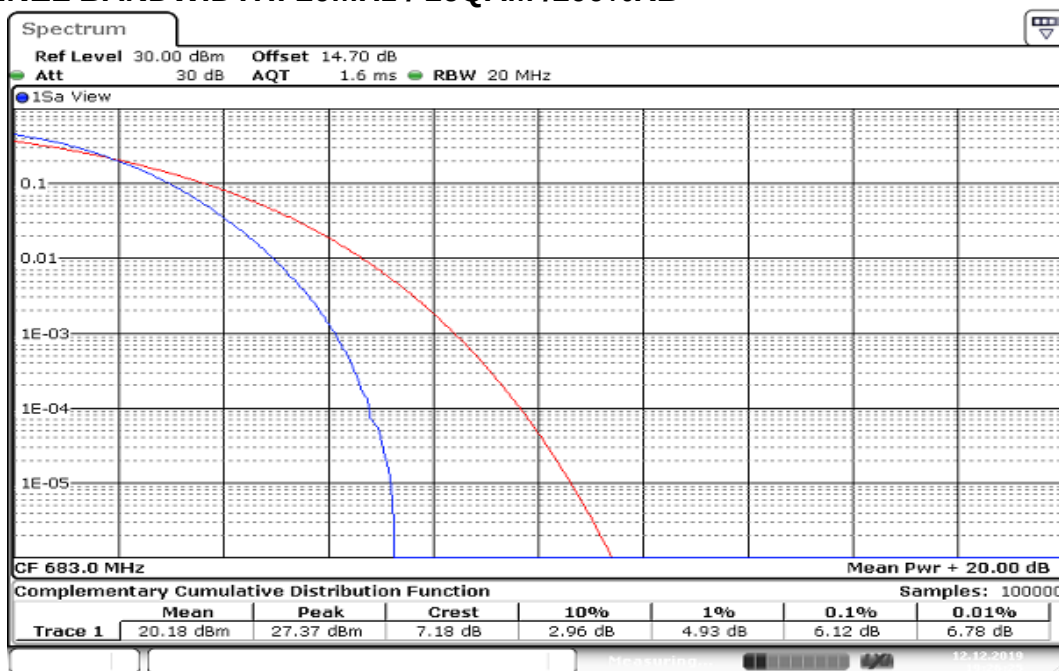
CHANNEL BANDWIDTH: 10MHz / 16QAM /100%RB



Date: 12.DEC.2019 19:21:49

CHANNEL BANDWIDTH: 15MHz / 16QAM /100%RB


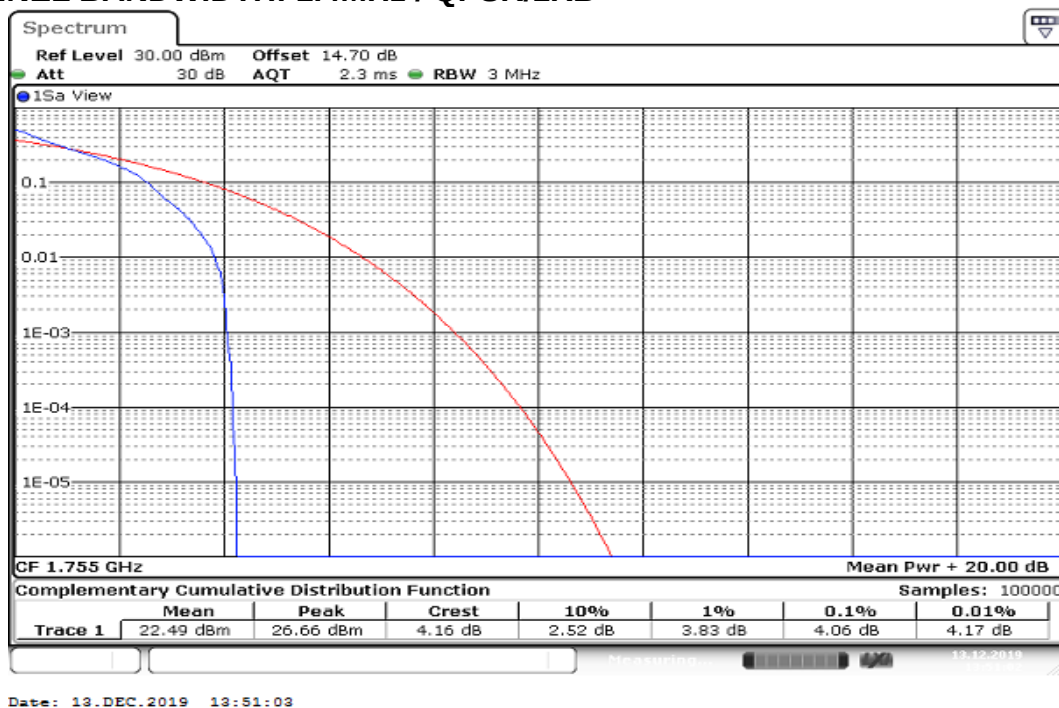
Date: 12.DEC.2019 19:23:45

CHANNEL BANDWIDTH: 20MHz / 16QAM /100%RB


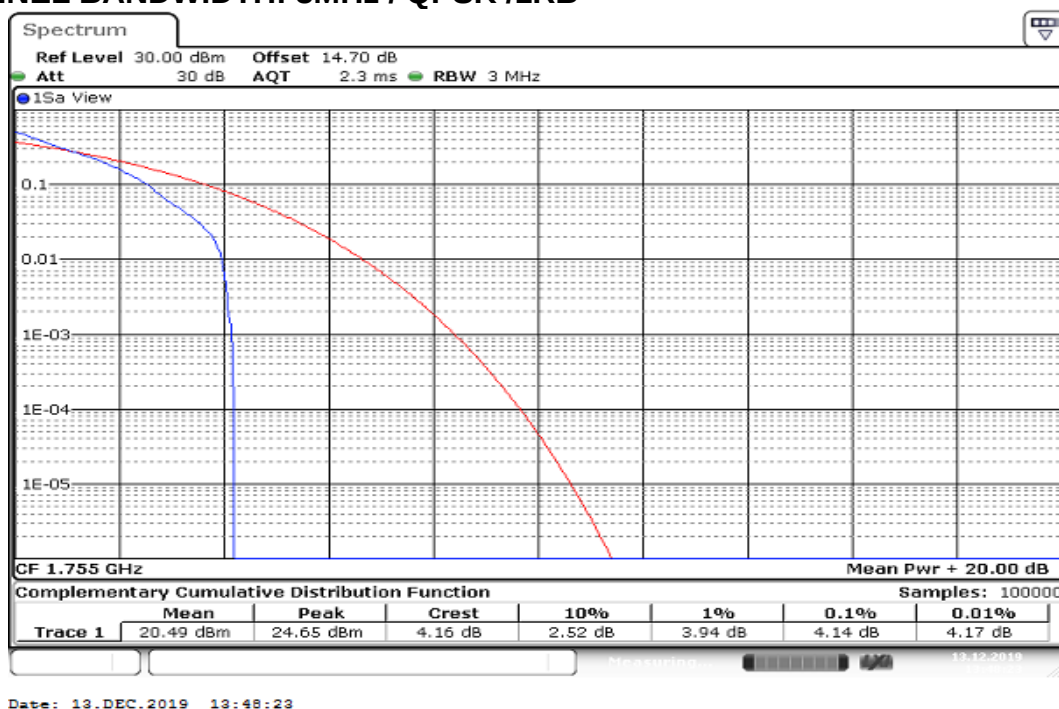
Date: 12.DEC.2019 19:26:25

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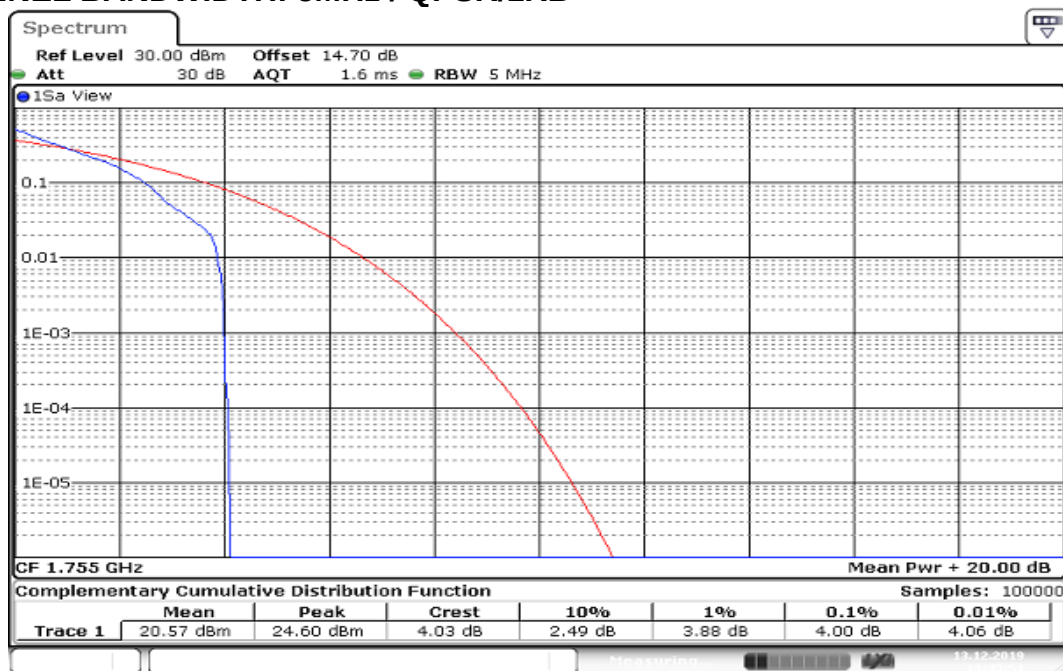
CHANNEL BANDWIDTH: 1.4MHz / QPSK/1RB



CHANNEL BANDWIDTH: 3MHz / QPSK /1RB

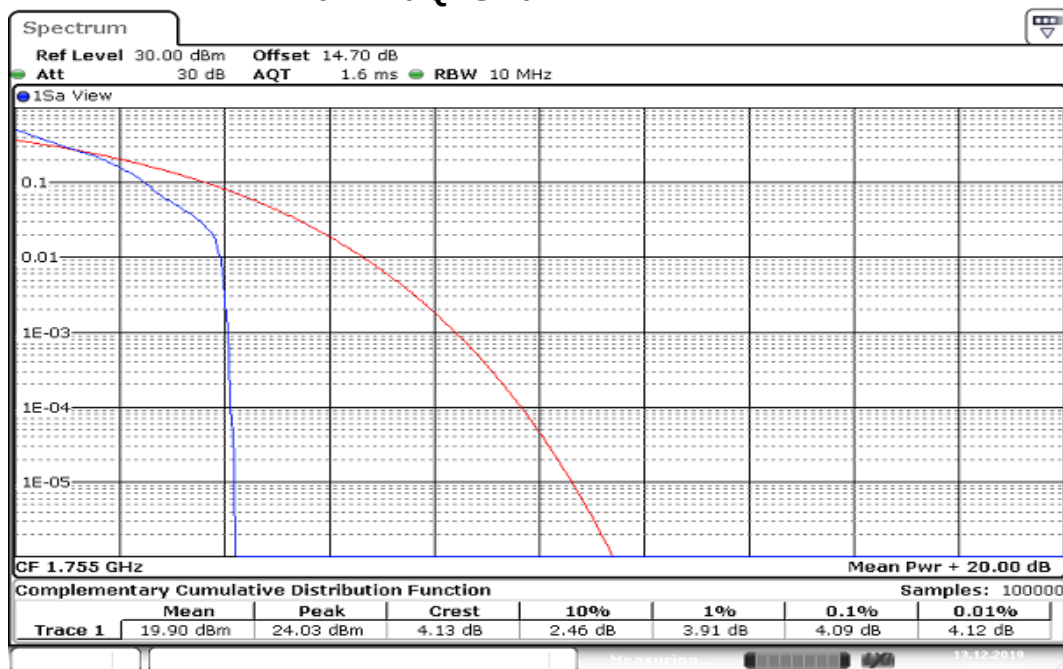


CHANNEL BANDWIDTH: 5MHz / QPSK/1RB



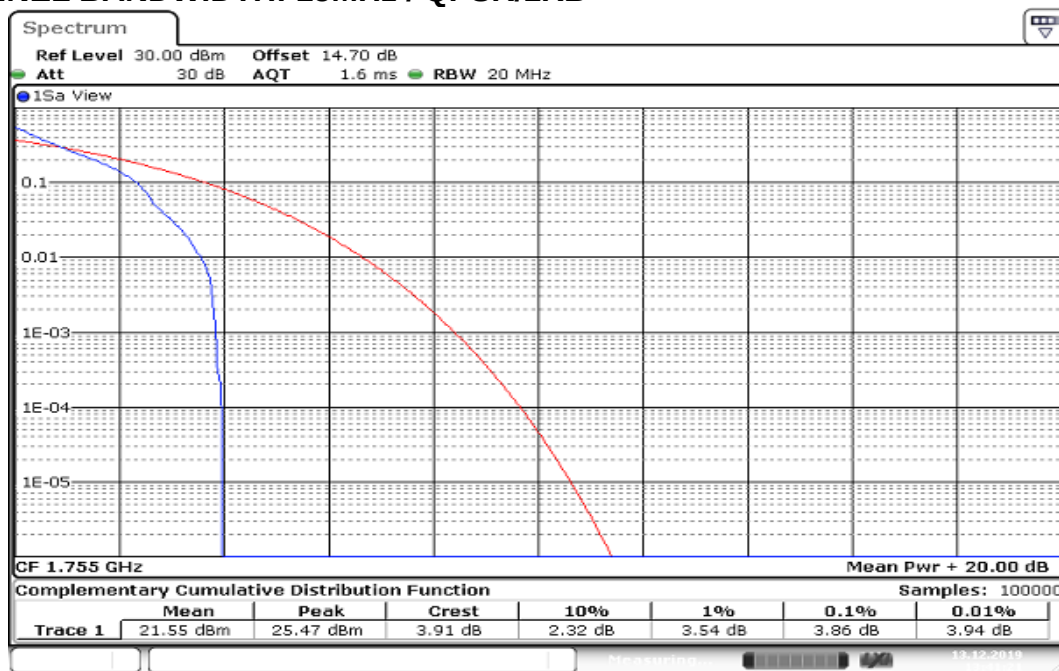
Date: 13.DEC.2019 13:45:52

CHANNEL BANDWIDTH: 10MHz / QPSK /1RB



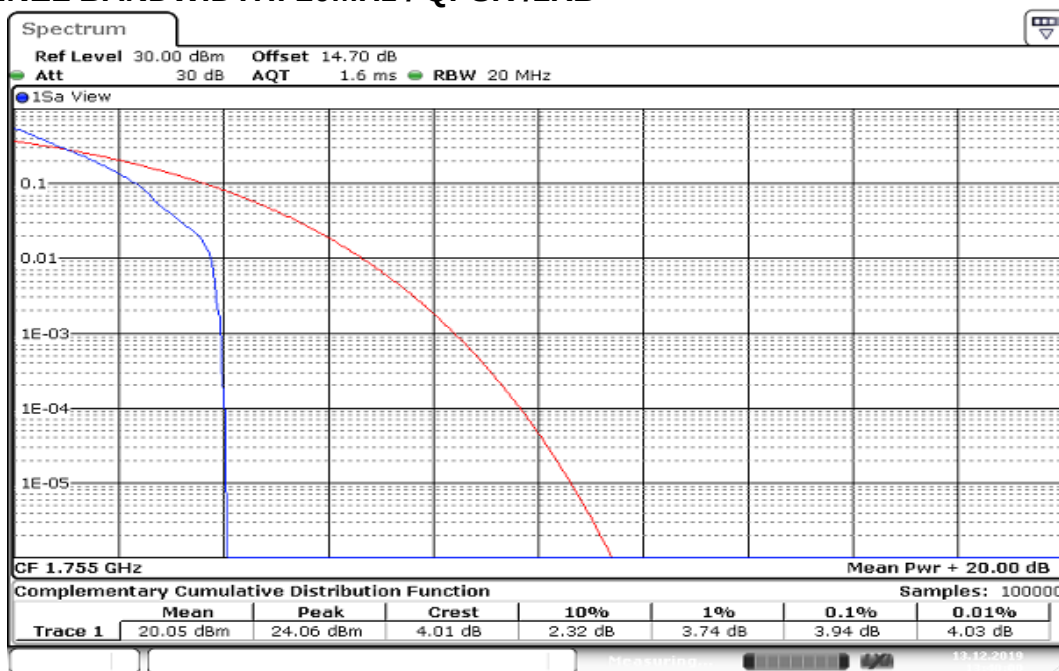
Date: 13.DEC.2019 13:44:20

CHANNEL BANDWIDTH: 15MHz / QPSK/1RB



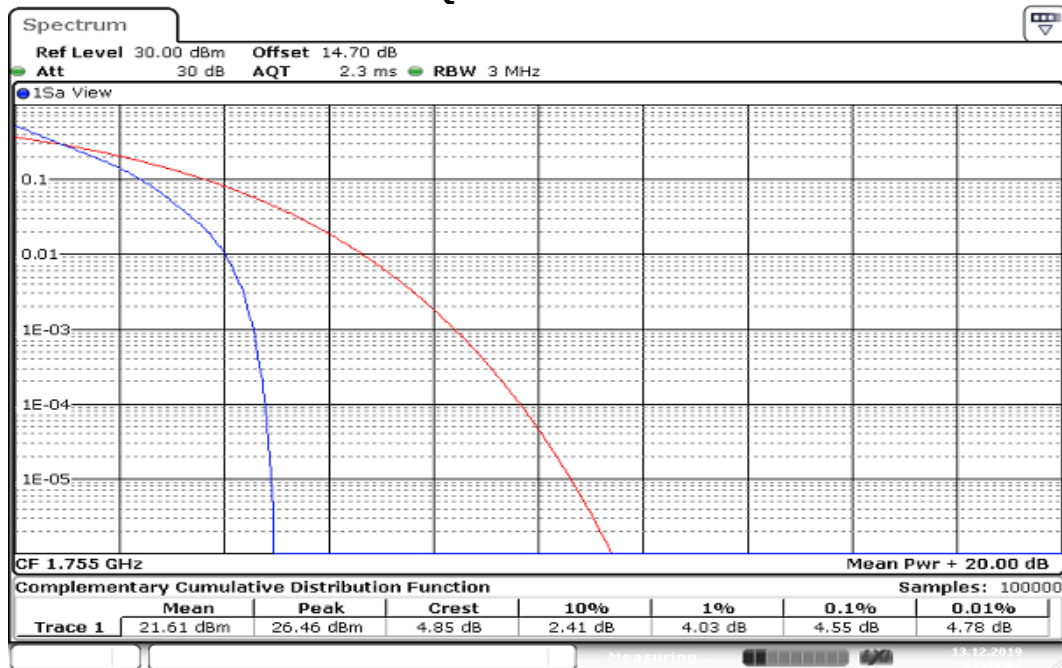
Date: 13.DEC.2019 13:41:22

CHANNEL BANDWIDTH: 20MHz / QPSK /1RB



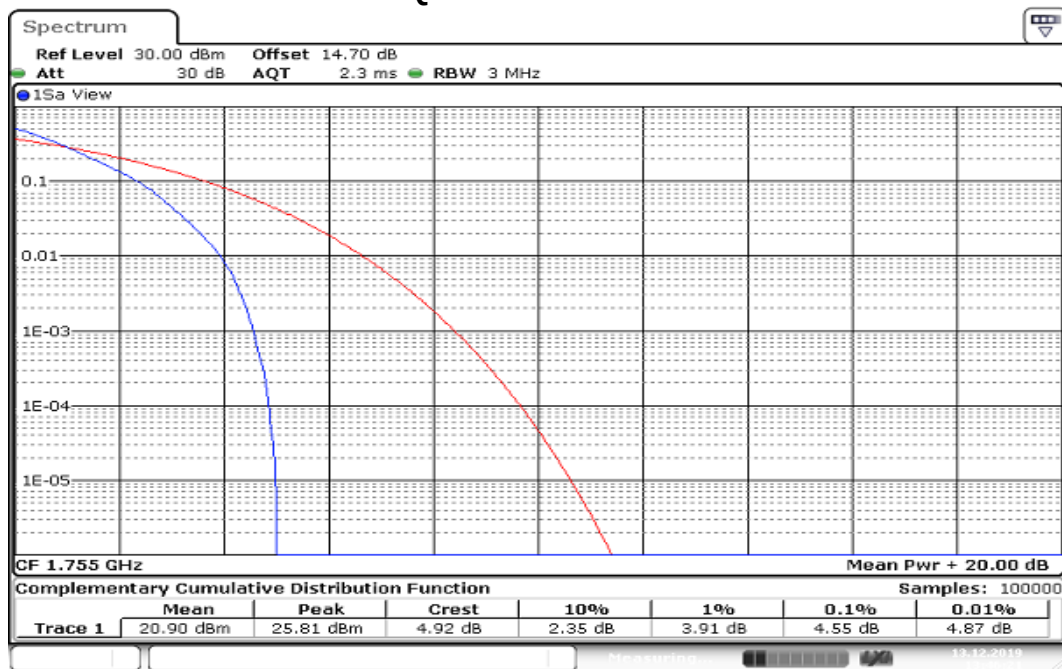
Date: 13.DEC.2019 13:40:00

CHANNEL BANDWIDTH: 1.4MHz / QPSK/100%RB



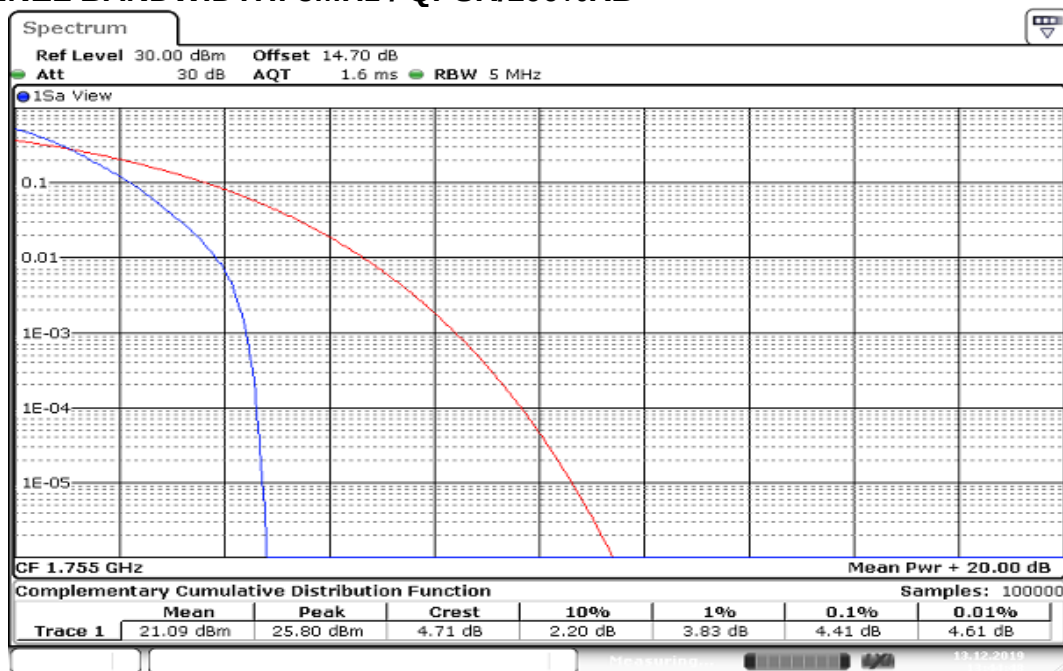
Date: 13.DEC.2019 13:49:08

CHANNEL BANDWIDTH: 3MHz / QPSK /100%RB



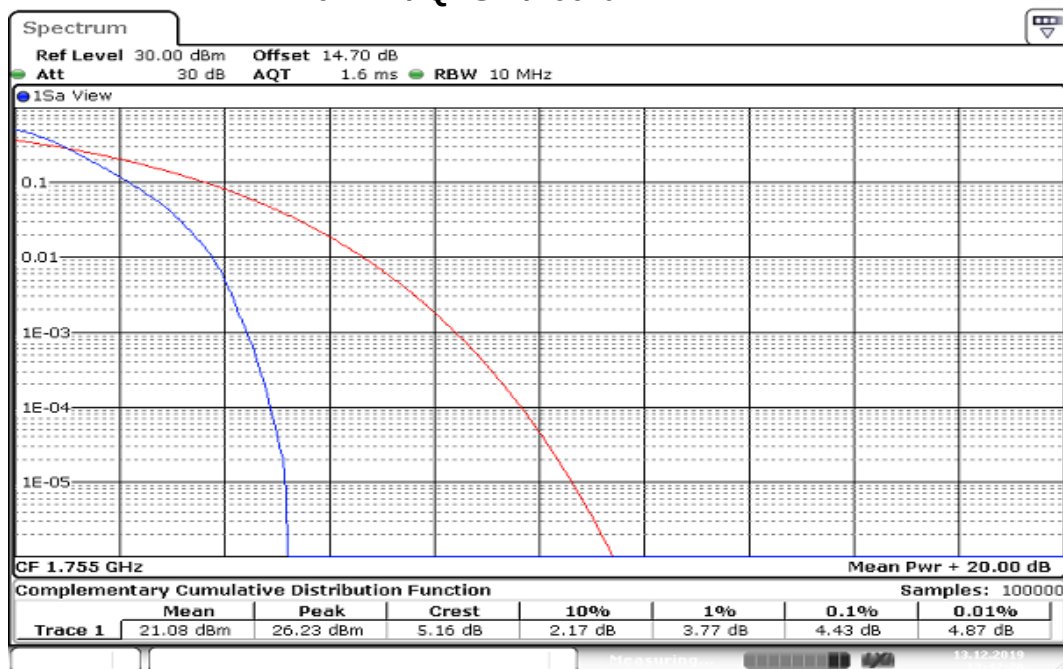
Date: 13.DEC.2019 13:46:21

CHANNEL BANDWIDTH: 5MHz / QPSK/100%RB



Date: 13.DEC.2019 13:44:48

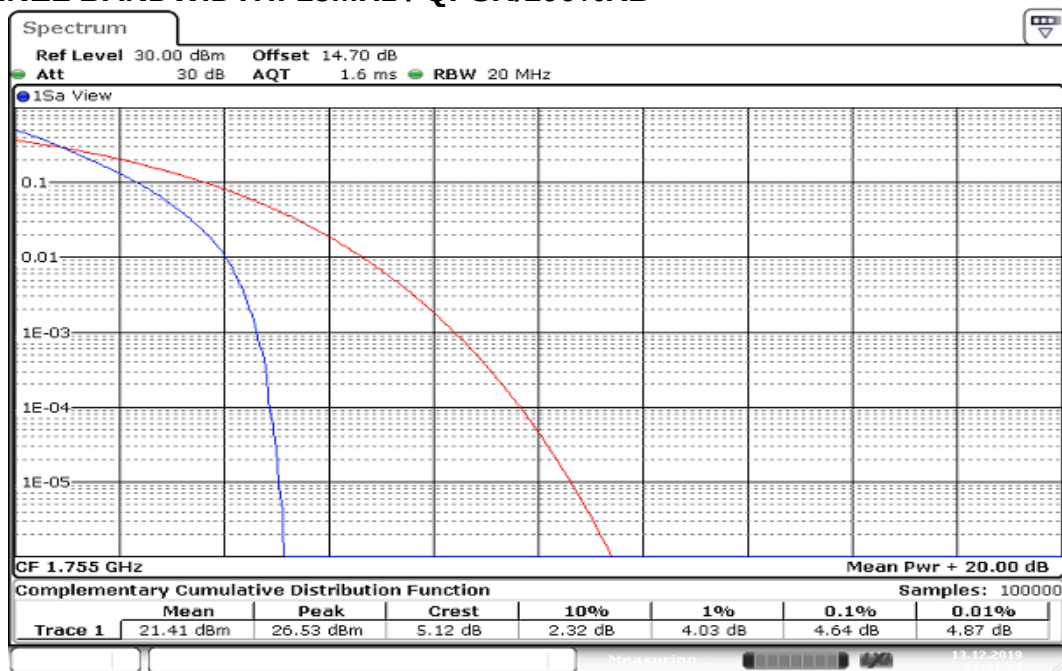
CHANNEL BANDWIDTH: 10MHz / QPSK /100%RB



Date: 13.DEC.2019 13:42:26

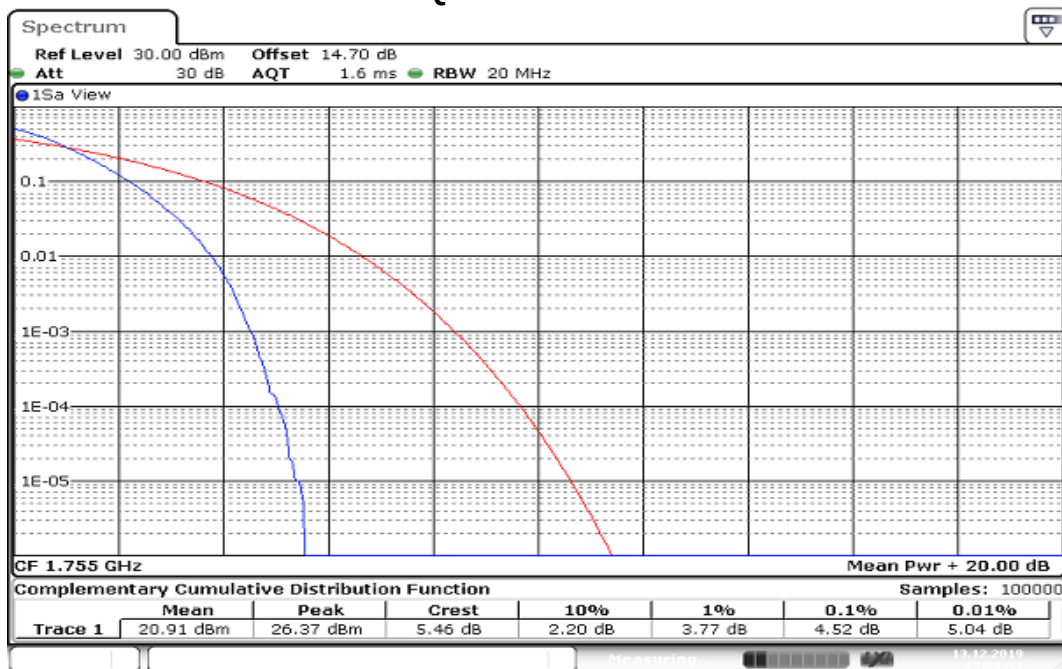
Report No.: T191105W01-RP12

CHANNEL BANDWIDTH: 15MHz / QPSK/100%RB



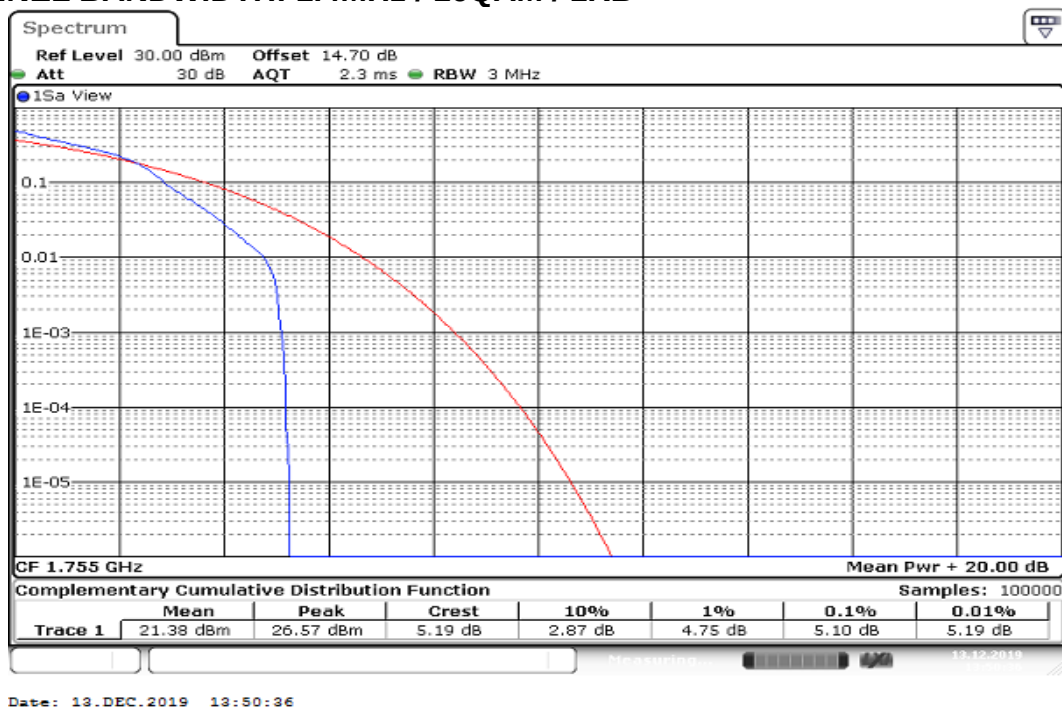
Date: 13.DEC.2019 13:41:00

CHANNEL BANDWIDTH: 20MHz / QPSK /100%RB

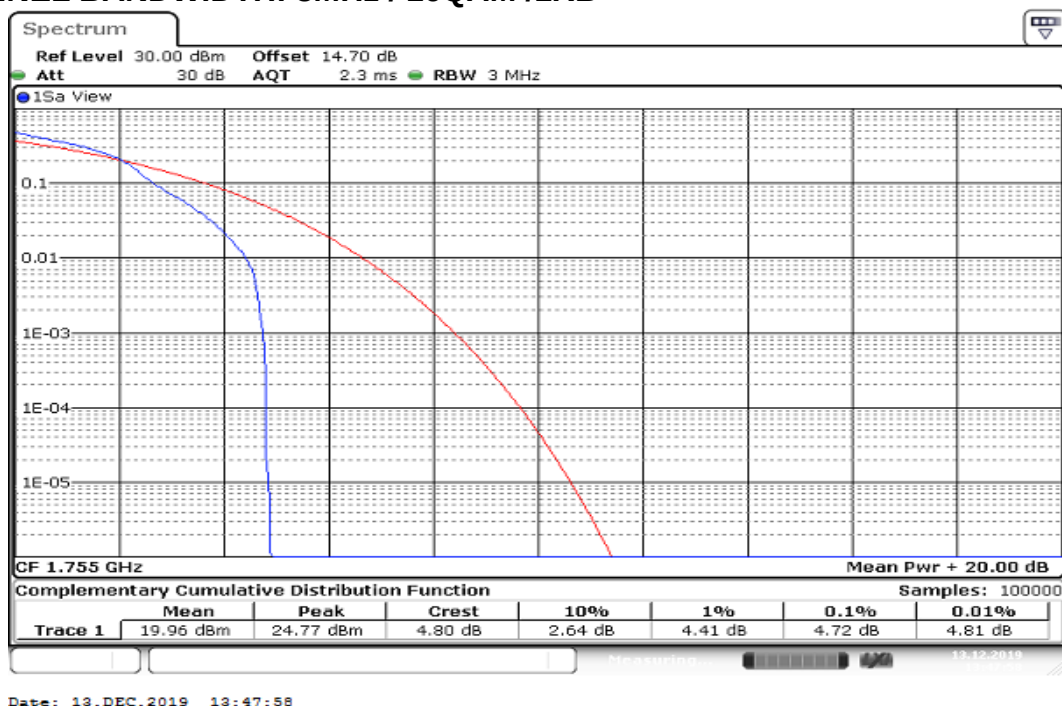


Date: 13.DEC.2019 13:38:51

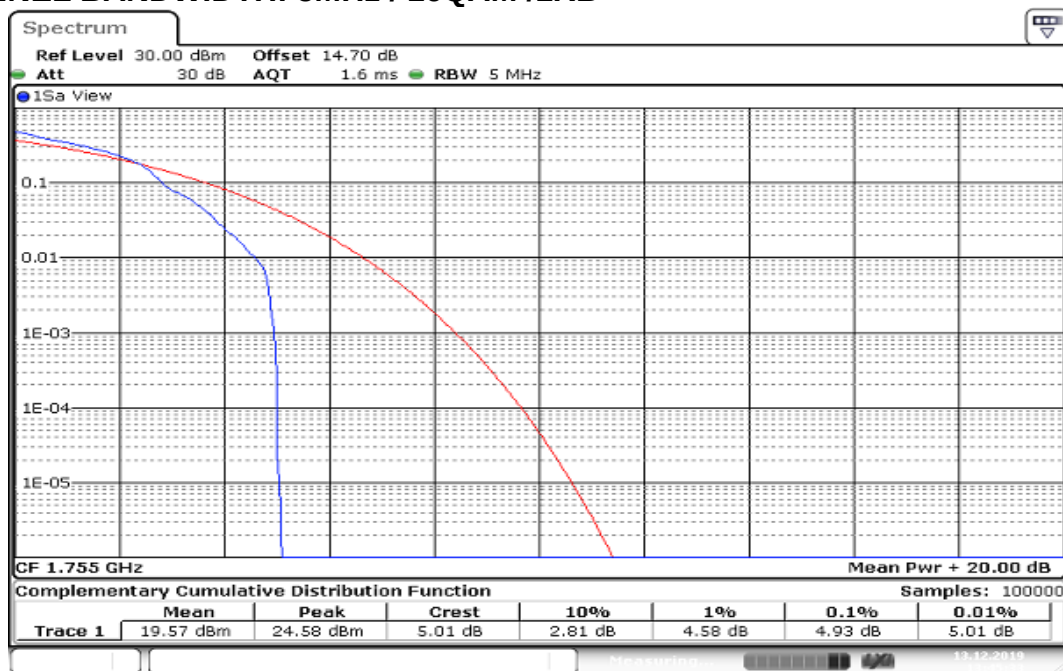
CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1RB



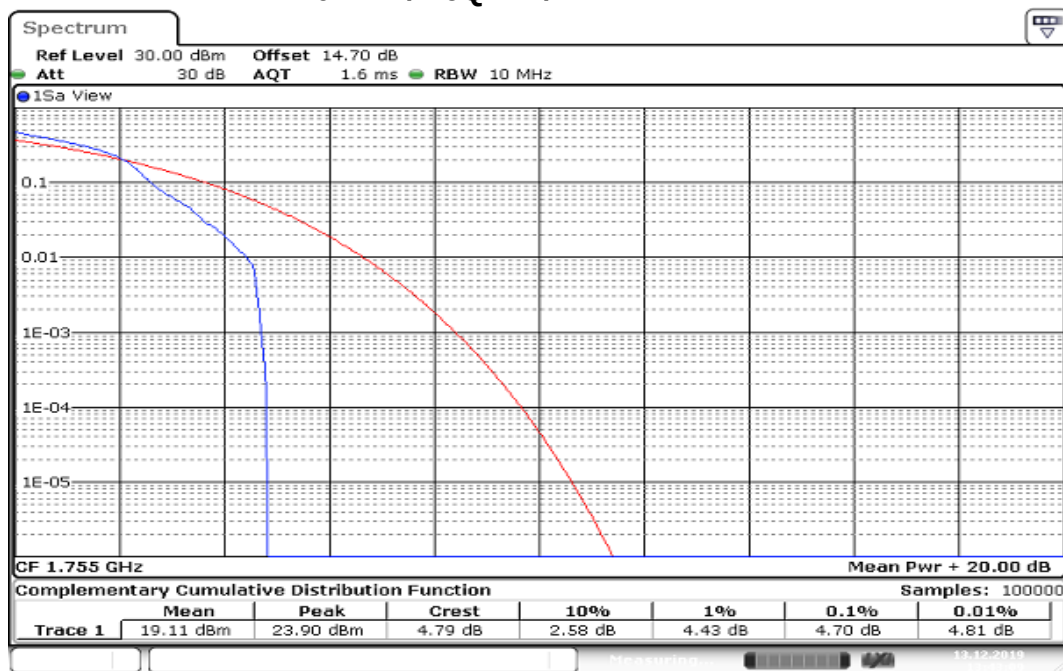
CHANNEL BANDWIDTH: 3MHz / 16QAM /1RB



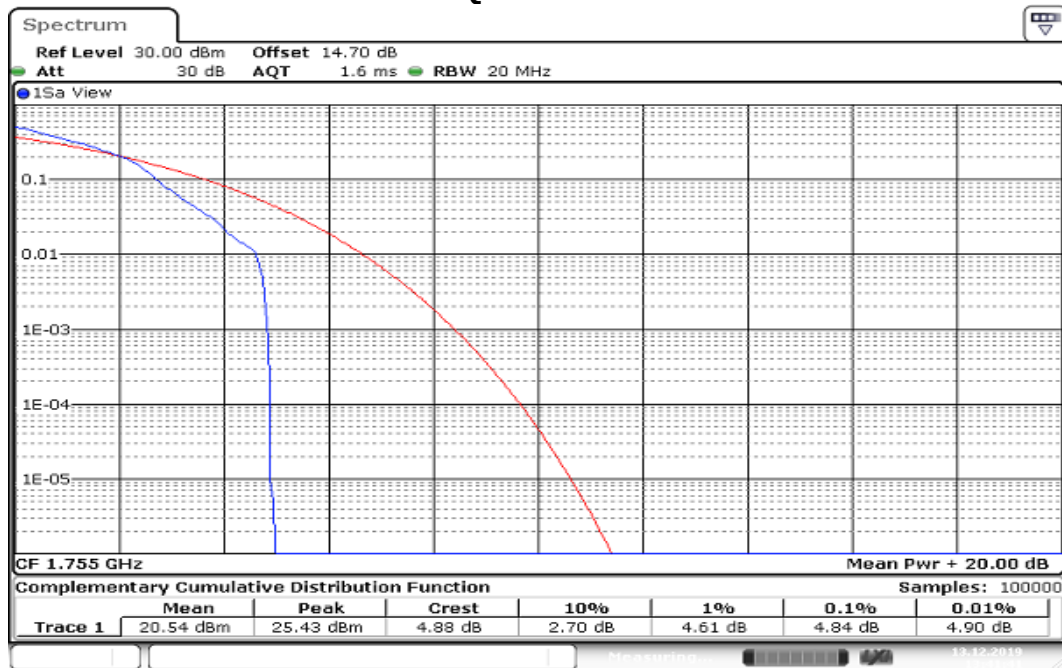
CHANNEL BANDWIDTH: 5MHz / 16QAM /1RB



CHANNEL BANDWIDTH: 10MHz / 16QAM /1RB

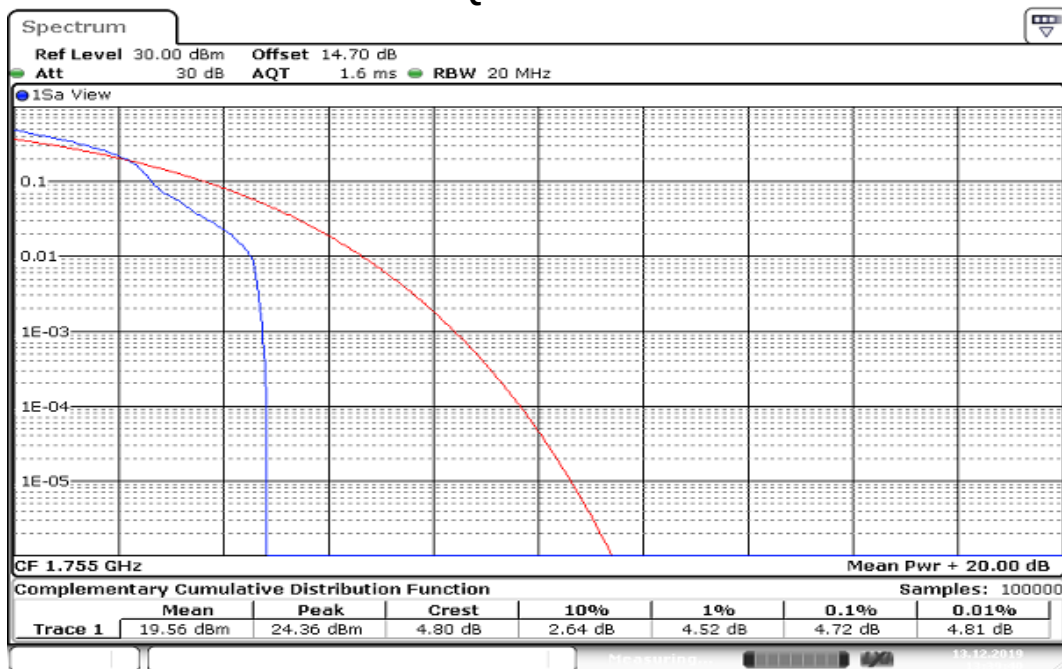


CHANNEL BANDWIDTH: 15MHz / 16QAM / 1RB



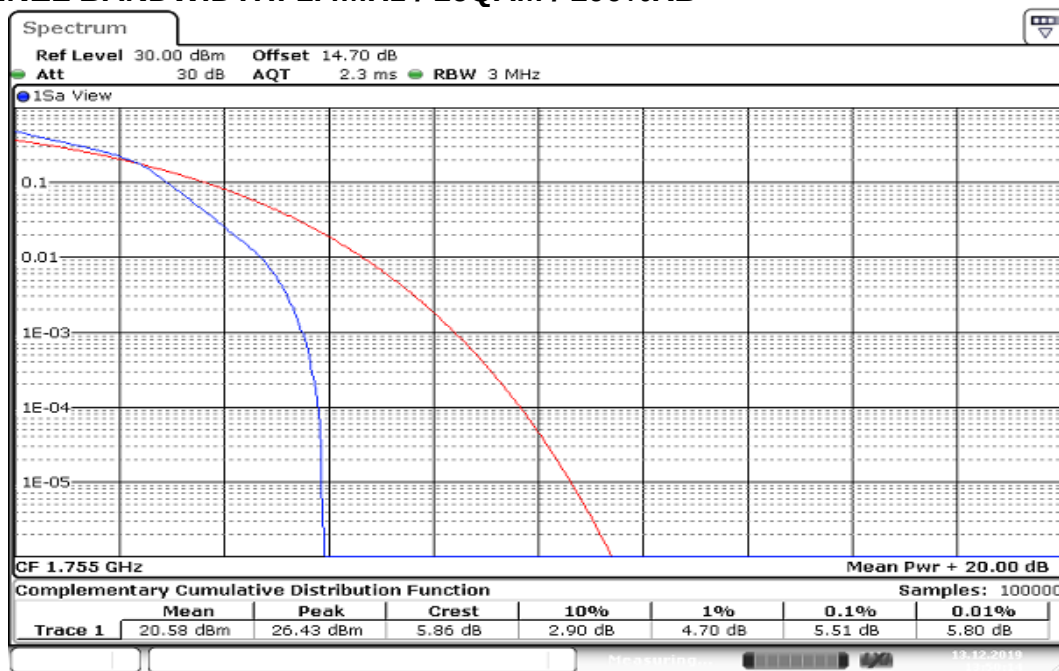
Date: 13.DEC.2019 13:41:42

CHANNEL BANDWIDTH: 20MHz / 16QAM / 1RB



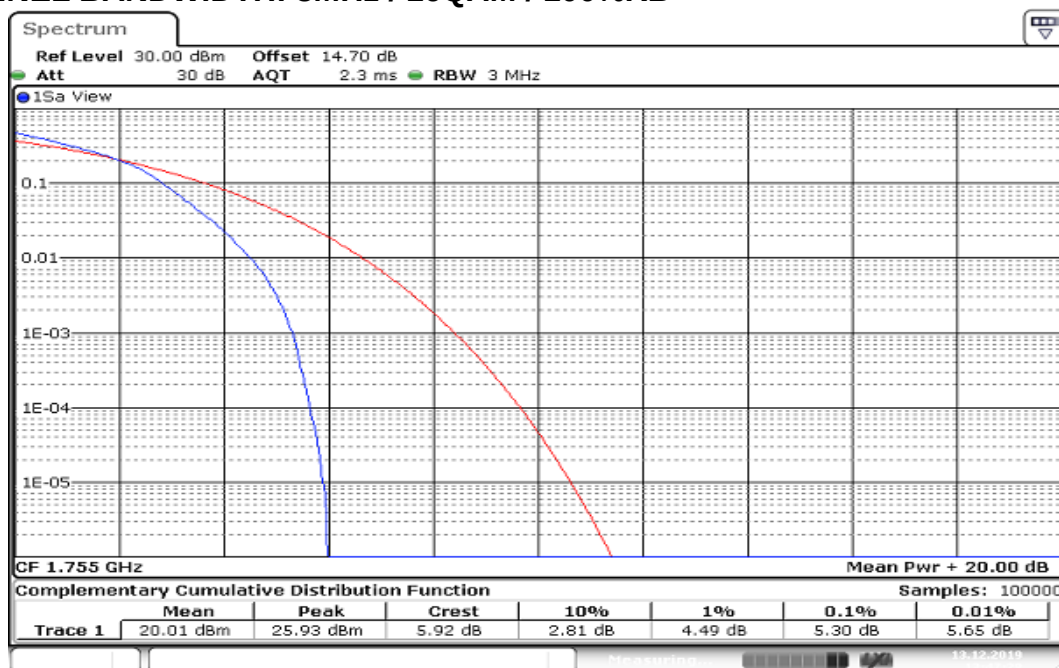
Date: 13.DEC.2019 13:39:40

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 100%RB



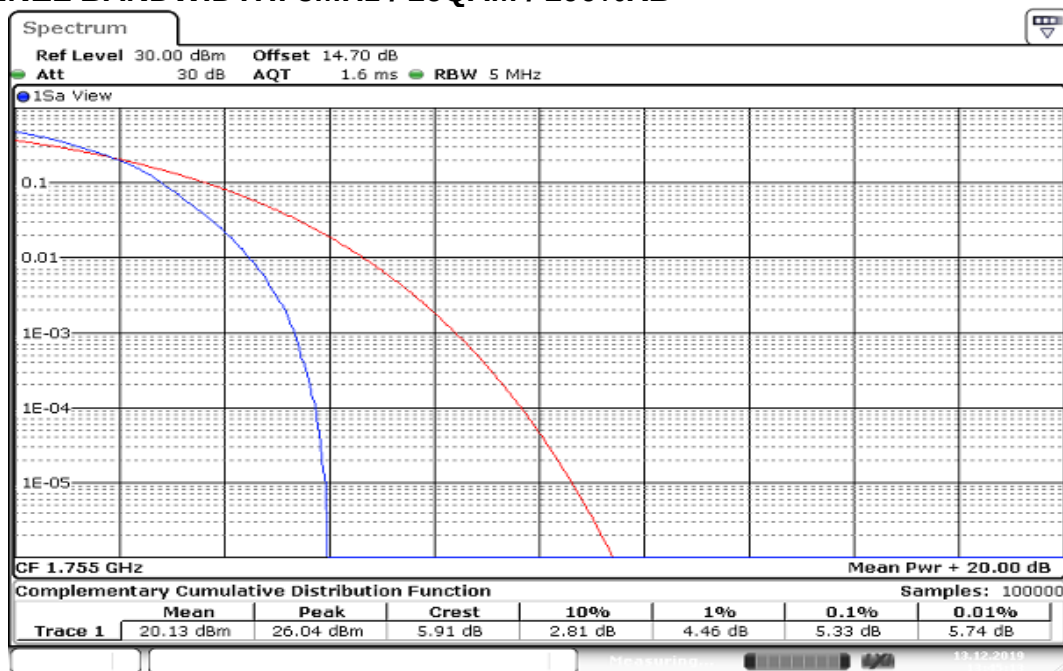
Date: 13.DEC.2019 13:50:14

CHANNEL BANDWIDTH: 3MHz / 16QAM / 100%RB



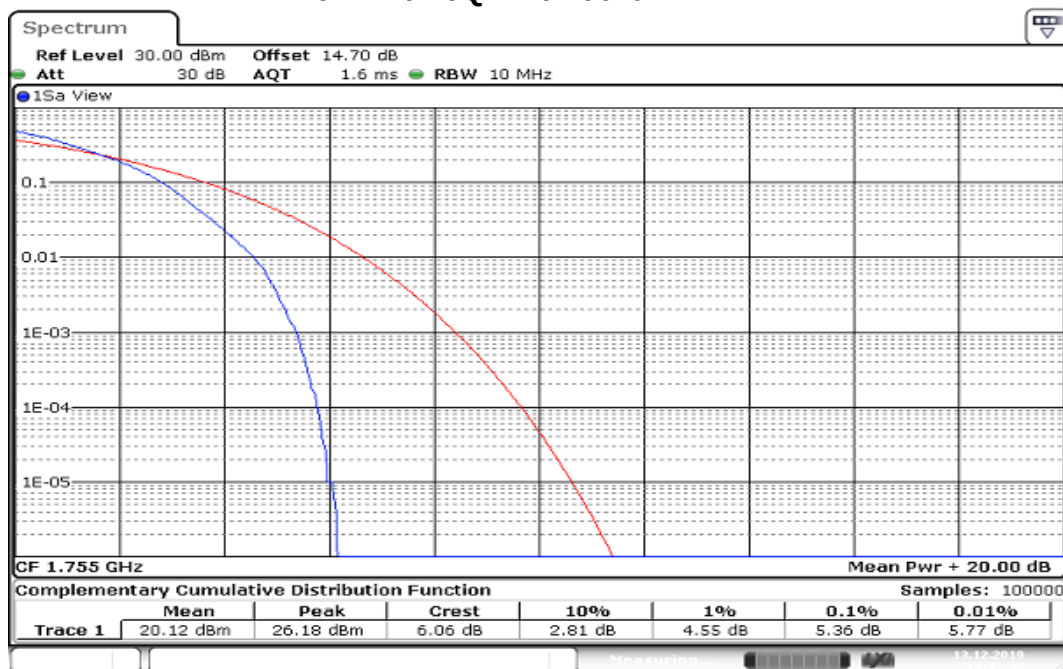
Date: 13.DEC.2019 13:47:29

CHANNEL BANDWIDTH: 5MHz / 16QAM / 100%RB



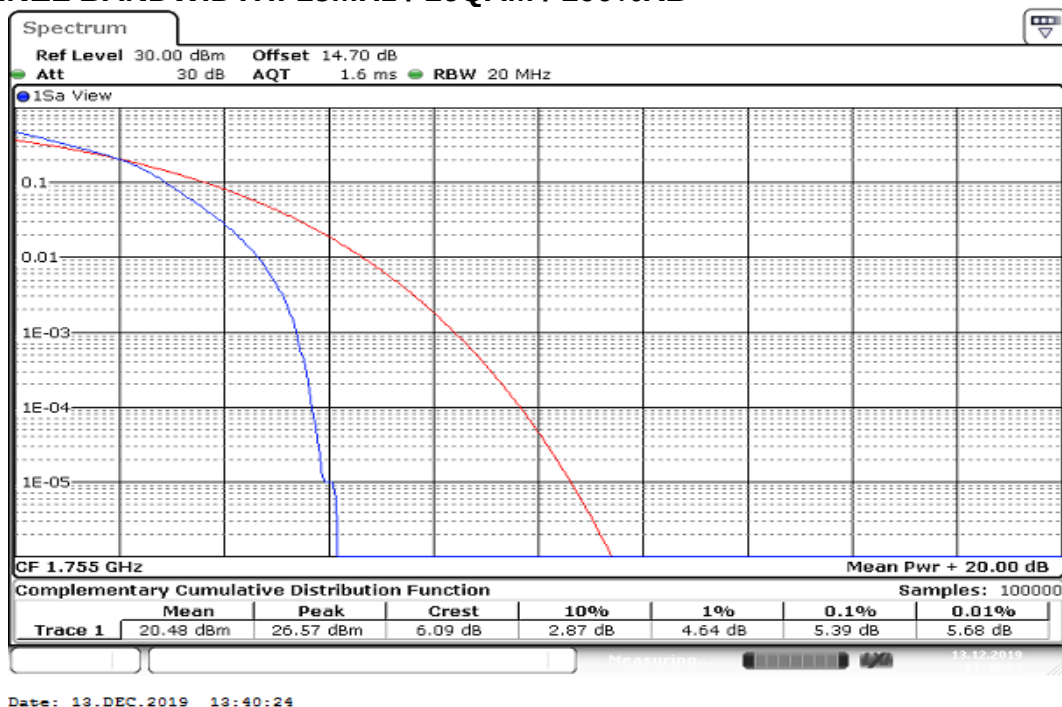
Date: 13.DEC.2019 13:45:13

CHANNEL BANDWIDTH: 10MHz / 16QAM / 100%RB



Date: 13.DEC.2019 13:42:49

CHANNEL BANDWIDTH: 15MHz / 16QAM / 100%RB



CHANNEL BANDWIDTH: 20MHz / 16QAM / 100%RB

