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

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

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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.7, P.8, P.12, P.14, P.16, P.23-24, P.25-29, P.43, P.41-61, P.62, P.126, P.95-125, P.127-128	Doris Chu
02	April 28, 2020	See the following Note Rev. (02)	P.6, P.16	Doris Chu
03	June 20, 2020	See the following Note Rev. (03)	P.1, P.4, P.6	Allison Chen

Rev (01):
1. Revised LTE Band 13 10MHz Frequency Range.
2. Revised Antenna type.
3. Revised section 3.1 LTE Band 13 5MHz Middle CH Frequency.
4. Revised section 5.2 DC Power Supplies Cal Due date indication.
5. Added section 6.3.
6. Revised section 8.1.
7. Revised LTE Band 13 EIRP Power to ERP Power.
8. Revised section 8.2 Limit.
9. Revised section 8.2 Test Procedure and Test Results.
10. Revised 100%RB to Full RB.
11. Revised section 8.5 and 8.7 Limit.
12. The worst case in section 8.6 is 1RB
13. Added section 8.7 Test Configuration.
Rev (02):
1. Revised section 2 power supply.
2. Revised section 8.1 RSS-130 § 4.4 to RSS-130 § 4.6.3.
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 19, 2019 ~ January 8, 2020

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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:

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.	
Modulation Technology	LTE Band 13	QPSK, 16QAM
	LTE Band 4	QPSK, 16QAM
Frequency Range	LTE Band 13 Channel Bandwidth: 5MHz	779.5MHz ~ 784.5MHz
	LTE Band 13 Channel Bandwidth: 10MHz	782 MHz – 782 MHz
	LTE Band 4 Channel Bandwidth: 1.4MHz	1710.7MHz ~1754.2MHz
	LTE Band 4 Channel Bandwidth: 3MHz	1711.5MHz ~ 1753.4MHz
	LTE Band 4 Channel Bandwidth: 5MHz	1712.5MHz ~1752.5MHz
	LTE Band 4 Channel Bandwidth: 10MHz	1715.0MHz ~1750.0MHz
	LTE Band 4 Channel Bandwidth: 15MHz	1717.5MHz ~ 1747.5MHz
	LTE Band 4 Channel Bandwidth: 20MHz	1720MHz ~1745MHz

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Transmit Power (ERP & EIRP Power)	LTE Band 4 Channel Bandwidth: 1.4MHz	QPSK: 16QAM:	23.17 22.51	dBm dBm
	LTE Band 4 Channel Bandwidth: 3MHz	QPSK: 16QAM:	23.18 22.52	dBm dBm
	LTE Band 4 Channel Bandwidth: 5MHz	QPSK: 16QAM:	23.19 22.53	dBm dBm
	LTE Band 4 Channel Bandwidth: 10MHz	QPSK: 16QAM:	23.22 22.55	dBm dBm
	LTE Band 4 Channel Bandwidth: 15MHz	QPSK: 16QAM:	23.24 22.57	dBm dBm
	LTE Band 4 Channel Bandwidth: 20MHz	QPSK: 16QAM:	23.29 22.63	dBm dBm
	LTE Band 13 Channel Bandwidth: 5MHz	QPSK: 16QAM:	20.90 20.43	dBm dBm
	LTE Band 13 Channel Bandwidth: 10MHz	QPSK: 16QAM:	20.96 20.45	dBm dBm
Antenna Specification	Dipole Antenna LTE Band 4 Antenna gain: 1.8 dBi LTE Band 13 Antenna gain: 1.0 dBi			
HW Version	V1			
SW Version	V9			

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

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3. TEST METHODOLOGY

3.1 DESCRIPTION OF TEST TYPE

The EUT had been tested under operating condition.

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

LTE Band 13: 777 MHz ~ 787 MHz

Three channels had been tested for each channel bandwidth.

Channel	5MHz		10MHz	
	Channel	Frequency(MHz)	Channel	Frequency(MHz)
Low CH	23205	779.5	-	-
Middle CH	23230	782.0	23230	782.0
High CH	23255	784.5	-	-

LTE Band 4: 1710MHz ~ 1755MHz

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	19957	1710.7	19965	1711.5	19975	1712.5
Middle CH	20175	1732.5	20175	1732.5	20175	1732.5
High CH	20393	1754.3	20384	1753.4	20375	1752.5
Channel Bandwidth	**10MHz**		**15MHz**		**20MHz**	
	Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
Low CH	20000	1715.0	20025	1717.5	20050	1720.00
Middle CH	20175	1732.5	20175	1732.5	20175	1732.50
High CH	20350	1750.0	20325	1747.5	20300	1745.00

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3.2 THE WORST MODE OF MEASUREMENT

Radiated Emission Measurement Above 1G	
Test Condition	**Radiated Emission Above 1G**
Power supply Mode	**Mode 1: EUT power by Power supply**
Worst Mode	☒ **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 Section	IC Standard Section	Report Section	Test Item	Result
-	-	2	Antenna Requirement	Pass
27.50(d), 27.50(b), 27.50(h)	RSS-130, section 4.4 RSS-139, section 6.5	8.1	ERP and EIRP Measurement	Pass
2.1055, 27.54	RSS-130 section 4.3 RSS-139 section 6.4	8.2	Frequency Stability v.s. temperature measurement	N/A
2.1049	RSS-GEN 6.7	8.3	Occupied Bandwidth Measurement	N/A
27.50(d)	RSS-130 section 4.4 RSS-133, section 6.4	8.4	Peak to Average Ratio	N/A
27.53(c), 27.53(g), 27.53(h)	RSS-130 section 4.6 RSS-139 section 6.5	8.5	Conducted Band Edge	N/A
27.53(c), 27.53(g), 27.53(h)	RSS-130 section 4.6 RSS-139 section 6.5	8.6	Conducted Spurious Emission	N/A
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

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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 I for the actual connections between EUT and support equipment.

7.2 SUPPORT EQUIPMENT

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

Remark:

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

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8. TEST PROCEDURE AND RESULT

8.1 ERP & EIRP MEASUREMENT

LIMIT

According to FCC §2.1046

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.

FCC 27.50 (b) (10): Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

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

RSS-130 § 4.6.3,

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.

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TEST RESULTS
LTE Band 4

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	EIRP Power (dBm)
Band 4	1.4M	19957	1710.7	QPSK	1	0	0	20.08	21.88
					1	2	0	20.37	22.17
					1	5	0	20.92	22.72
					3	0	1	20.11	21.91
					3	1	1	20.33	22.13
					3	2	1	20.22	22.02
					6	0	1	20.11	21.91
				16QAM	1	0	1	19.39	21.19
					1	2	1	19.92	21.72
					1	5	1	20.41	22.21
					3	0	2	19.22	21.02
					3	1	2	19.27	21.07
					3	2	2	19.40	21.20
					6	0	2	19.35	21.15
		20175	1732.5	QPSK	1	0	0	20.98	22.78
					1	2	0	21.23	23.03
					1	5	0	21.00	22.80
					3	0	1	20.15	21.95
					3	1	1	20.30	22.10
					3	2	1	20.18	21.98
					6	0	1	20.19	21.99
				16QAM	1	0	1	20.04	21.84
					1	2	1	20.31	22.11
					1	5	1	20.71	22.51
					3	0	2	19.16	20.96
					3	1	2	19.28	21.08
					3	2	2	19.21	21.01
					6	0	2	19.27	21.07
		20392	1754.2	QPSK	1	0	0	21.37	23.17
					1	2	0	21.28	23.08
					1	5	0	21.18	22.98
					3	0	1	20.46	22.26
					3	1	1	20.40	22.20
					3	2	1	20.19	21.99
					6	0	1	20.38	22.18
				16QAM	1	0	1	20.54	22.34
					1	2	1	20.35	22.15
					1	5	1	20.43	22.23
					3	0	2	19.46	21.26
					3	1	2	19.39	21.19
					3	2	2	19.21	21.01
					6	0	2	19.24	21.04

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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 4	3M	19965	1711.5	QPSK	1	0	0	20.09	21.89
					1	7	0	20.38	22.18
					1	14	0	20.93	22.73
					8	0	1	20.12	21.92
					8	4	1	20.34	22.14
					8	7	1	20.23	22.03
					15	0	1	20.12	21.92
				16QAM	1	0	1	19.40	21.20
					1	7	1	19.93	21.73
					1	14	1	20.42	22.22
					8	0	2	19.23	21.03
					8	4	2	19.28	21.08
					8	7	2	19.41	21.21
					15	0	2	19.36	21.16
		20175	1732.5	QPSK	1	0	0	20.99	22.79
					1	7	0	21.24	23.04
					1	14	0	21.01	22.81
					8	0	1	20.16	21.96
					8	4	1	20.31	22.11
					8	7	1	20.19	21.99
					15	0	1	20.20	22.00
				16QAM	1	0	1	20.05	21.85
					1	7	1	20.32	22.12
					1	14	1	20.72	22.52
					8	0	2	19.17	20.97
					8	4	2	19.29	21.09
					8	7	2	19.22	21.02
					15	0	2	19.28	21.08
		20384	1753.4	QPSK	1	0	0	21.38	23.18
					1	7	0	21.29	23.09
					1	14	0	21.19	22.99
					8	0	1	20.47	22.27
					8	4	1	20.41	22.21
					8	7	1	20.20	22.00
					15	0	1	20.39	22.19
				16QAM	1	0	1	20.55	22.35
					1	7	1	20.36	22.16
					1	14	1	20.44	22.24
					8	0	2	19.47	21.27
					8	4	2	19.40	21.20
					8	7	2	19.22	21.02
					15	0	2	19.25	21.05

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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 4	5M	19975	1712.5	QPSK	1	0	0	20.11	21.91
					1	12	0	20.40	22.20
					1	24	0	20.95	22.75
					12	0	1	20.14	21.94
					12	6	1	20.36	22.16
					12	11	1	20.25	22.05
					25	0	1	20.14	21.94
				16QAM	1	0	1	19.42	21.22
					1	12	1	19.95	21.75
					1	24	1	20.44	22.24
					12	0	2	19.25	21.05
					12	6	2	19.30	21.10
					12	11	2	19.43	21.23
					25	0	2	19.38	21.18
		20175	1732.5	QPSK	1	0	0	21.00	22.80
					1	12	0	21.25	23.05
					1	24	0	21.02	22.82
					12	0	1	20.17	21.97
					12	6	1	20.32	22.12
					12	11	1	20.20	22.00
					25	0	1	20.21	22.01
				16QAM	1	0	1	20.06	21.86
					1	12	1	20.33	22.13
					1	24	1	20.73	22.53
					12	0	2	19.18	20.98
					12	6	2	19.30	21.10
					12	11	2	19.23	21.03
					25	0	2	19.29	21.09
		20375	1752.5	QPSK	1	0	0	21.39	23.19
					1	12	0	21.30	23.10
					1	24	0	21.20	23.00
					12	0	1	20.48	22.28
					12	6	1	20.42	22.22
					12	11	1	20.21	22.01
					25	0	1	20.40	22.20
				16QAM	1	0	1	20.56	22.36
					1	12	1	20.37	22.17
					1	24	1	20.45	22.25
					12	0	2	19.48	21.28
					12	6	2	19.41	21.21
					12	11	2	19.23	21.03
					25	0	2	19.26	21.06

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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 4	10M	20000	1715.0	QPSK	1	0	0	20.12	21.92
					1	24	0	20.41	22.21
					1	49	0	20.96	22.76
					25	0	1	20.15	21.95
					25	12	1	20.37	22.17
					25	24	1	20.26	22.06
					50	0	1	20.15	21.95
				16QAM	1	0	1	19.43	21.23
					1	24	1	19.96	21.76
					1	49	1	20.45	22.25
					25	0	2	19.26	21.06
					25	12	2	19.31	21.11
					25	24	2	19.44	21.24
					50	0	2	19.39	21.19
		20175	1732.5	QPSK	1	0	0	21.02	22.82
					1	24	0	21.27	23.07
					1	49	0	21.04	22.84
					25	0	1	20.19	21.99
					25	12	1	20.34	22.14
					25	24	1	20.22	22.02
					50	0	1	20.23	22.03
				16QAM	1	0	1	20.08	21.88
					1	24	1	20.35	22.15
					1	49	1	20.75	22.55
					25	0	2	19.20	21.00
					25	12	2	19.32	21.12
					25	24	2	19.25	21.05
					50	0	2	19.31	21.11
		20350	1750.0	QPSK	1	0	0	21.42	23.22
					1	24	0	21.33	23.13
					1	49	0	21.23	23.03
					25	0	1	20.51	22.31
					25	12	1	20.45	22.25
					25	24	1	20.24	22.04
					50	0	1	20.43	22.23
				16QAM	1	0	1	20.59	22.39
					1	24	1	20.40	22.20
					1	49	1	20.48	22.28
					25	0	2	19.51	21.31
					25	12	2	19.44	21.24
					25	24	2	19.26	21.06
					50	0	2	19.29	21.09

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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 4	15M	20025	1717.5	QPSK	1	0	0	20.15	21.95
					1	37	0	20.44	22.24
					1	74	0	20.99	22.79
					36	0	1	20.18	21.98
					36	18	1	20.40	22.20
					36	35	1	20.29	22.09
					75	0	1	20.18	21.98
				16QAM	1	0	1	19.46	21.26
					1	37	1	19.99	21.79
					1	74	1	20.48	22.28
					36	0	2	19.29	21.09
					36	18	2	19.34	21.14
					36	35	2	19.47	21.27
					75	0	2	19.42	21.22
		20175	1732.5	QPSK	1	0	0	21.04	22.84
					1	37	0	21.29	23.09
					1	74	0	21.06	22.86
					36	0	1	20.21	22.01
					36	18	1	20.36	22.16
					36	35	1	20.24	22.04
					75	0	1	20.25	22.05
				16QAM	1	0	1	20.10	21.90
					1	37	1	20.37	22.17
					1	74	1	20.77	22.57
					36	0	2	19.22	21.02
					36	18	2	19.34	21.14
					36	35	2	19.27	21.07
					75	0	2	19.33	21.13
		20325	1747.5	QPSK	1	0	0	21.44	23.24
					1	37	0	21.35	23.15
					1	74	0	21.25	23.05
					36	0	1	20.53	22.33
					36	18	1	20.47	22.27
					36	35	1	20.26	22.06
					75	0	1	20.45	22.25
				16QAM	1	0	1	20.61	22.41
					1	37	1	20.42	22.22
					1	74	1	20.50	22.30
					36	0	2	19.53	21.33
					36	18	2	19.46	21.26
					36	35	2	19.28	21.08
					75	0	2	19.31	21.11

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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 4	20M	20050	1720.0	QPSK	1	0	0	20.23	22.03
					1	49	0	20.52	22.32
					1	99	0	21.07	22.87
					50	0	1	20.26	22.06
					50	24	1	20.48	22.28
					50	49	1	20.37	22.17
					100	0	1	20.26	22.06
				16QAM	1	0	1	19.54	21.34
					1	49	1	20.07	21.87
					1	99	1	20.56	22.36
					50	0	2	19.37	21.17
					50	24	2	19.42	21.22
					50	49	2	19.55	21.35
					100	0	2	19.50	21.30
		20175	1732.5	QPSK	1	0	0	21.10	22.90
					1	49	0	21.35	23.15
					1	99	0	21.12	22.92
					50	0	1	20.27	22.07
					50	24	1	20.42	22.22
					50	49	1	20.30	22.10
					100	0	1	20.31	22.11
				16QAM	1	0	1	20.16	21.96
					1	49	1	20.43	22.23
					1	99	1	20.83	22.63
					50	0	2	19.28	21.08
					50	24	2	19.40	21.20
					50	49	2	19.33	21.13
					100	0	2	19.39	21.19
		20300	1745.0	QPSK	1	0	0	21.49	23.29
					1	49	0	21.40	23.20
					1	99	0	21.30	23.10
					50	0	1	20.58	22.38
					50	24	1	20.52	22.32
					50	49	1	20.31	22.11
					100	0	1	20.50	22.30
				16QAM	1	0	1	20.66	22.46
					1	49	1	20.47	22.27
					1	99	1	20.55	22.35
					50	0	2	19.58	21.38
					50	24	2	19.51	21.31
					50	49	2	19.33	21.13
					100	0	2	19.36	21.16

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LTE Band 13

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	ERP Power (dBm)
Band 13	5M	23205	779.5	QPSK	1	0	0	21.97	20.82
					1	12	0	22.00	20.85
					1	24	0	22.05	20.90
					12	0	1	21.13	19.98
					12	6	1	21.18	20.03
					12	11	1	21.25	20.10
					25	0	1	21.26	20.11
				16QAM	1	0	1	21.38	20.23
					1	12	1	21.45	20.30
					1	24	1	21.54	20.39
					12	0	2	20.07	18.92
					12	6	2	20.09	18.94
					12	11	2	20.25	19.10
					25	0	2	20.22	19.07
		23230	782.0	QPSK	1	0	0	21.98	20.83
					1	12	0	21.95	20.80
					1	24	0	22.03	20.88
					12	0	1	21.11	19.96
					12	6	1	21.16	20.01
					12	11	1	21.23	20.08
					25	0	1	21.24	20.09
				16QAM	1	0	1	21.36	20.21
					1	12	1	21.43	20.28
					1	24	1	21.52	20.37
					12	0	2	20.05	18.90
					12	6	2	20.07	18.92
					12	11	2	20.23	19.08
					25	0	2	20.20	19.05
		23255	784.5	QPSK	1	0	0	22.01	20.86
					1	12	0	22.04	20.89
					1	24	0	22.09	20.94
					12	0	1	21.17	20.02
					12	6	1	21.22	20.07
					12	11	1	21.29	20.14
					25	0	1	21.30	20.15
				16QAM	1	0	1	21.42	20.27
					1	12	1	21.49	20.34
					1	24	1	21.58	20.43
					12	0	2	20.11	18.96
					12	6	2	20.13	18.98
					12	11	2	20.29	19.14
					25	0	2	20.26	19.11

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Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	ERP Power (dBm)
Band 13	10M	23230	782.0	QPSK	1	0	0	22.03	20.88
					1	24	0	22.06	20.91
					1	49	0	22.11	20.96
					25	0	1	21.19	20.04
					25	12	1	21.24	20.09
					25	24	1	21.31	20.16
					50	0	1	21.32	20.17
				16QAM	1	0	1	21.44	20.29
					1	24	1	21.51	20.36
					1	49	1	21.60	20.45
					25	0	2	20.13	18.98
					25	12	2	20.15	19.00
					25	24	2	20.31	19.16
					50	0	2	20.28	19.13

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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,

For equipment that is capable of transmitting numerous channels simultaneously for different applications (e.g. LTE and narrowband – Internet of Things (IoT)), the occupied bandwidth shall be the bandwidth representing the sum of the occupied bandwidths of these channels.
The frequency stability shall be sufficient to ensure that the occupied bandwidth remains within each frequency block range when tested at 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 = -40℃ to +65℃

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.*

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TEST RESULTS

FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT: LTE Band 13

Reference Frequency: LTE Band 13 Max Bandwidth QPSK, 782MHz				
Limit: ± 2.5 ppm = 1955 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
12	65	0.02	0.000026	+/- 2.5
12	50	0.01	0.000013	
12	40	0.00	0.000000	
12	30	-0.01	-0.000013	
12	20	0.00	0.000000	
12	10	0.01	0.000013	
12	0	-0.02	-0.000026	
12	-10	0.01	0.000013	
12	-20	-0.01	-0.000013	
12	-30	0.00	0.000000	
12	-40	-0.01	-0.000013	

Reference Frequency: LTE Band 13 Max Bandwidth 16QAM, 782MHz				
Limit: ± 2.5 ppm = 1955 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
12	65	0.03	0.000038	+/- 2.5
12	50	0.00	0.000000	
12	40	0.00	0.000000	
12	30	0.01	0.000013	
12	20	0.00	0.000000	
12	10	0.02	0.000026	
12	0	0.01	0.000013	
12	-10	0.00	0.000000	
12	-20	-0.01	-0.000013	
12	-30	0.01	0.000013	
12	-40	-0.02	-0.000026	

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LTE Band 4

Reference Frequency: LTE Band 4 Max Bandwidth QPSK, 1732.5 MHz				
Limit: ± 2.5 ppm = 4331.25 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
12	65	0.00	0.000000	+/- 2.5
12	50	0.01	0.000006	
12	40	0.01	0.000006	
12	30	0.00	0.000000	
12	20	0.00	0.000000	
12	10	0.01	0.000006	
12	0	-0.01	-0.000006	
12	-10	-0.01	-0.000006	
12	-20	-0.01	-0.000006	
12	-30	-0.01	-0.000006	
12	-40	-0.01	-0.000006	

Reference Frequency: LTE Band 4 Max Bandwidth 16QAM, 1732.5 MHz				
Limit: ± 2.5 ppm = 4331.25 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
12	65	-0.01	-0.000006	+/- 2.5
12	50	-0.01	-0.000006	
12	40	0.01	0.000006	
12	30	0.01	0.000006	
12	20	0.00	0.000000	
12	10	0.02	0.000012	
12	0	0.01	0.000006	
12	-10	0.00	0.000000	
12	-20	0.01	0.000006	
12	-30	0.01	0.000006	
12	-40	0.02	0.000012	

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FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT:
LTE Band 13

Reference Frequency: LTE Band 13 Max Bandwidth QPSK, 782MHz				
Limit: ± 2.5 ppm = 1955 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
10.2	20	0.00	0.000000	+/- 2.5
12	20	0.00	0.000000	
13.8	20	-0.02	-0.000026	

Reference Frequency: LTE Band 13 Max Bandwidth 16QAM, 782MHz				
Limit: ± 2.5 ppm = 1955 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
10.2	20	0.00	0.000000	+/- 2.5
12	20	0.00	0.000000	
13.8	20	0.01	0.000013	

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LTE Band 4

Reference Frequency: LTE Band 4 Max Bandwidth QPSK, 1732.5 MHz				
Limit: ± 2.5 ppm = 4331.25 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
10.2	20	0.01	0.000006	+/- 2.5
12	20	0.00	0.000000	
13.8	20	0.00	0.000000	

Reference Frequency: LTE Band 4 Max Bandwidth 16QAM, 1732.5 MHz				
Limit: ± 2.5 ppm = 4331.25 Hz				
Power Supply	Environment	Frequency Error	Frequency Error	Limit (ppm)
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)
10.2	20	0.00	0.000000	+/- 2.5
12	20	0.00	0.000000	
13.8	20	-0.01	-0.000006	

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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 ≥ 3 x RBW
4. Detector = Peak
5. Trace mode = max. hold

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TEST RESULTS

LTE Band 13

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	OBW(99%)(MHz)	26 dB Bandwidth(MHz)
13	5	Middle	752.0	QPSK	4.4573	4.9060
		Middle	752.0	16QAM	4.4863	4.8910
	10	Middle	752.0	QPSK	8.9436	9.7970
		Middle	752.0	16QAM	8.9146	9.6810

LTE Band 4

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	OBW(99%)(MHz)	26 dB Bandwidth(MHz)
4	1.4	Middle	1732.5	QPSK	1.0984	1.3025
		Middle	1732.5	16QAM	1.1027	1.3025
	3	Middle	1732.5	QPSK	2.6831	2.9349
		Middle	1732.5	16QAM	2.6831	2.9349
	5	Middle	1732.5	QPSK	4.4863	4.9320
		Middle	1732.5	16QAM	4.4718	4.8890
	10	Middle	1732.5	QPSK	8.9436	9.7220
		Middle	1732.5	16QAM	8.9146	9.6060
	15	Middle	1732.5	QPSK	13.4153	14.6860
		Middle	1732.5	16QAM	13.3285	14.5120
	20	Middle	1732.5	QPSK	17.8871	19.5480
		Middle	1732.5	16QAM	17.9450	19.6060

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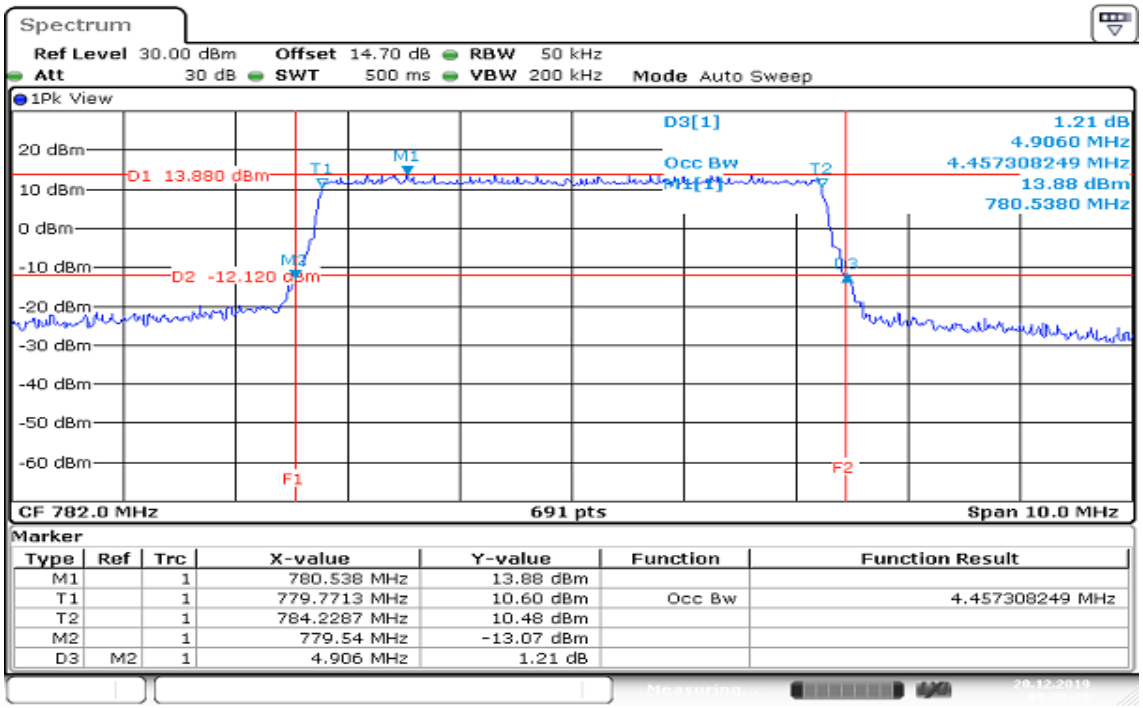
LTE Band 13

CHANNEL BANDWIDTH: 5MHz / QPSK

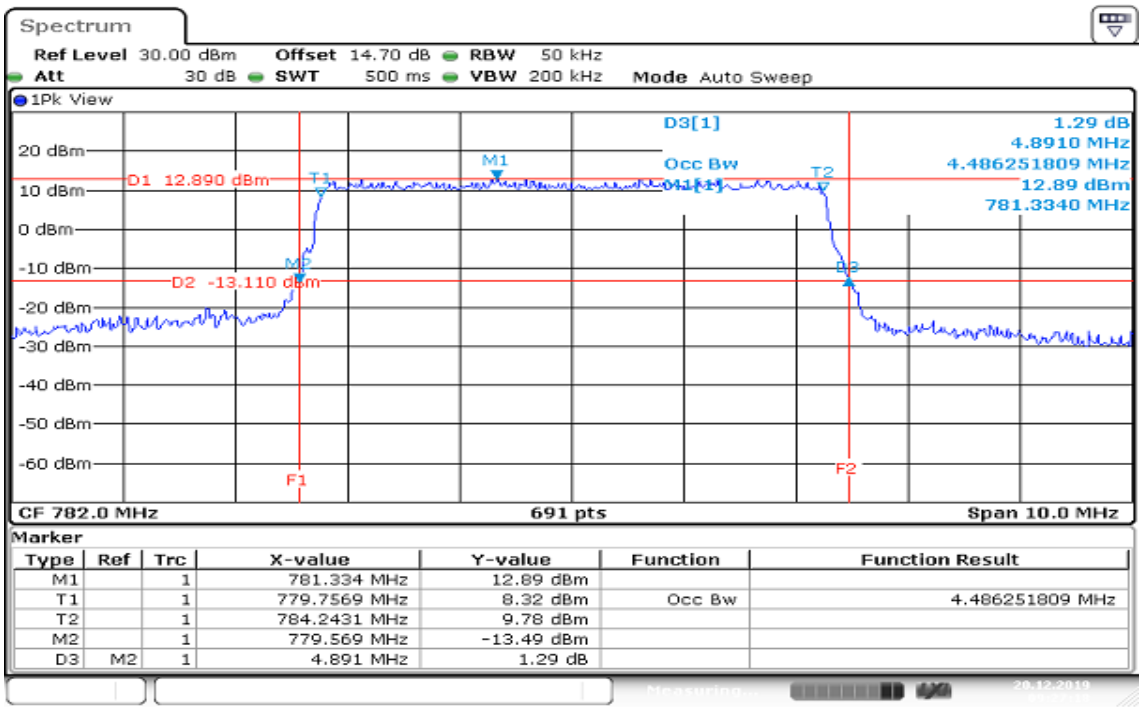
CH Mid



Date: 20.DEC.2019 09:28:20

CHANNEL BANDWIDTH: 5MHz / 16QAM

CH Mid



Date: 20.DEC.2019 09:27:18

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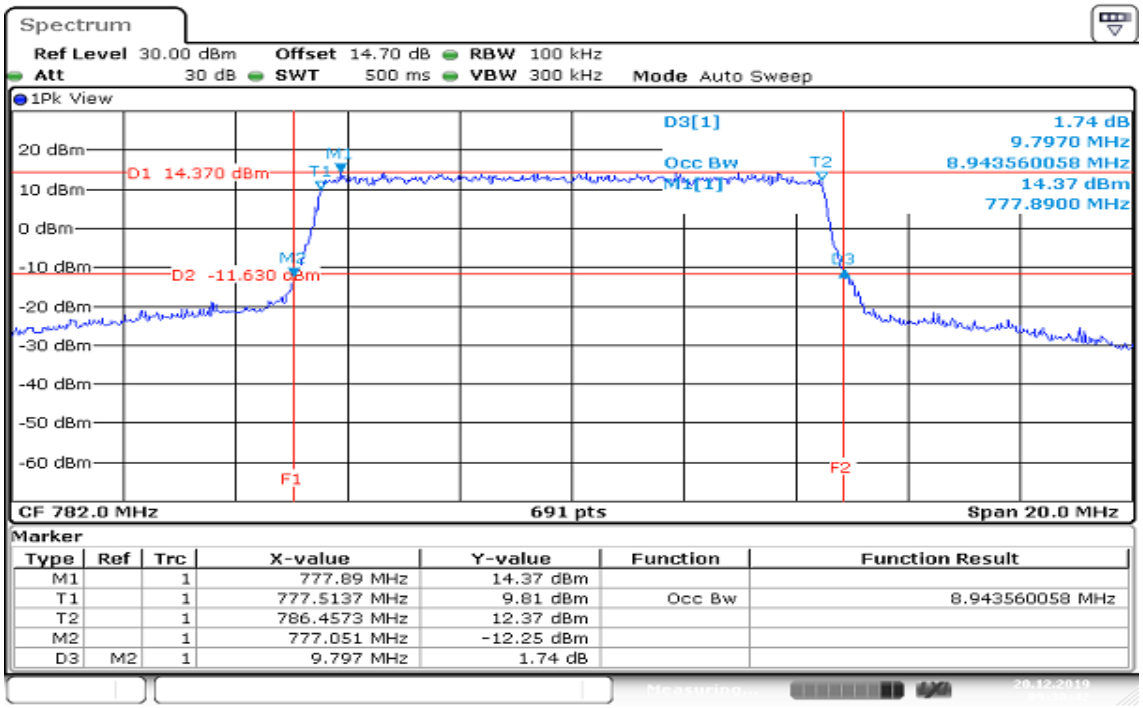
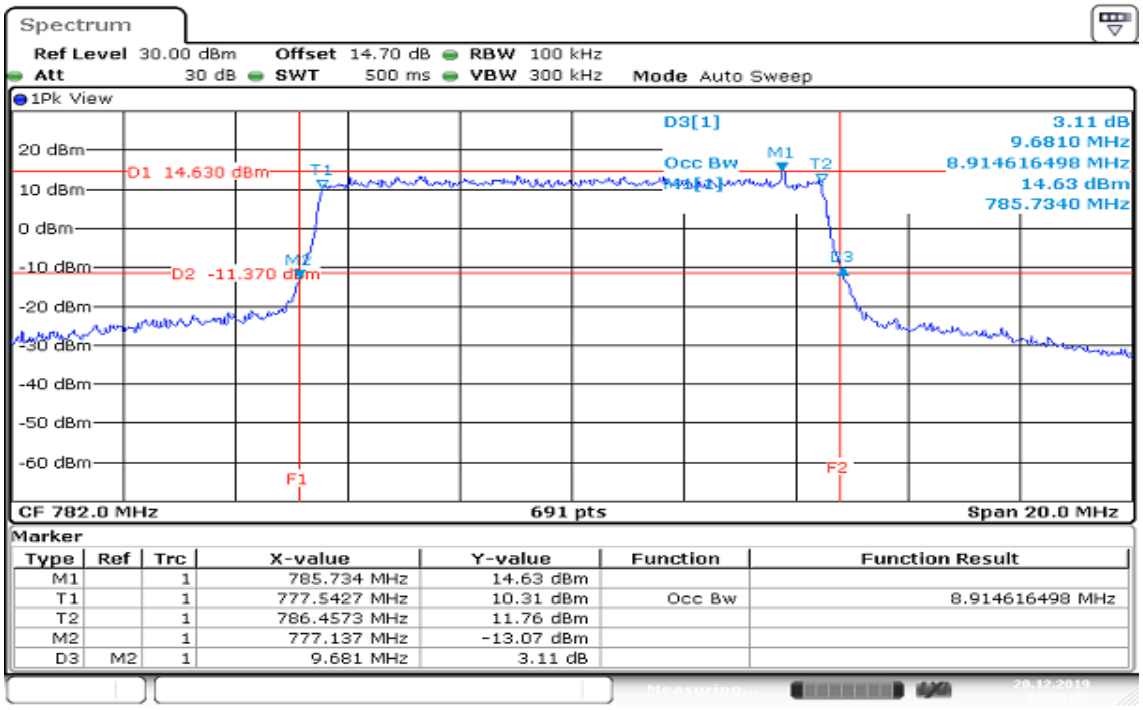
CHANNEL BANDWIDTH: 10MHz / QPSK
CH Mid



Date: 20.DEC.2019 09:30:42

CHANNEL BANDWIDTH: 10MHz / 16QAM
CH Mid



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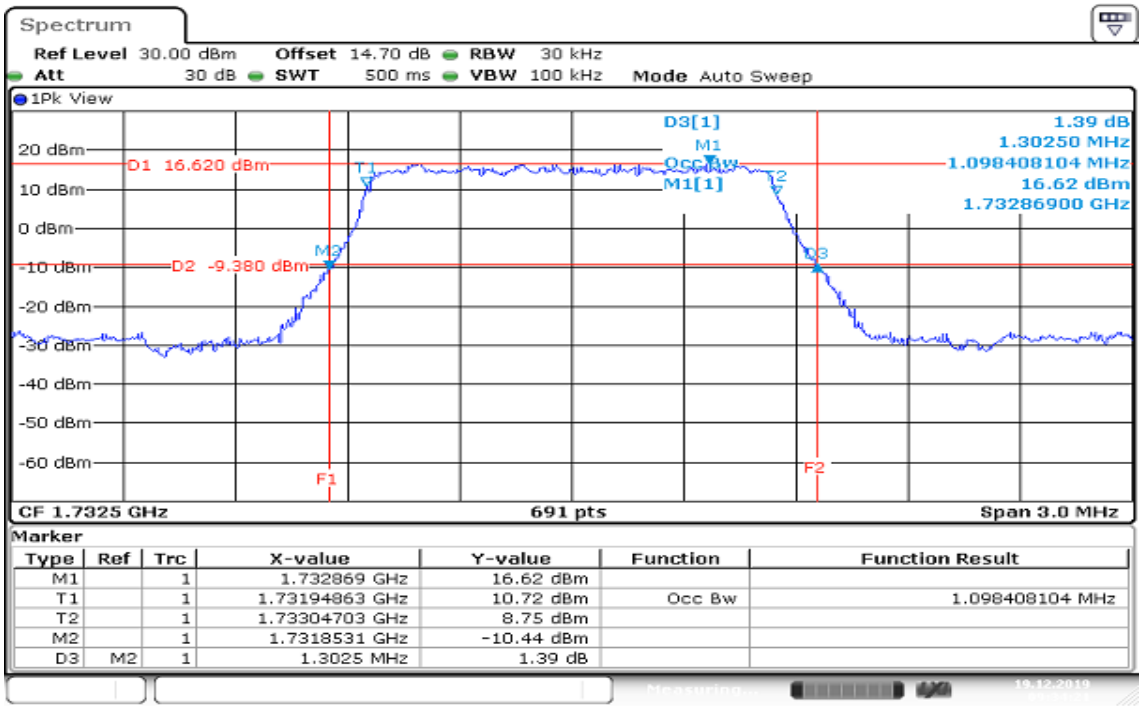
LTE Band 4

CHANNEL BANDWIDTH: 1.4MHz / QPSK

CH Mid



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.732869 GHz	16.62 dBm		
T1		1	1.73194863 GHz	10.72 dBm	Occ Bw	1.098408104 MHz
T2		1	1.73304703 GHz	8.75 dBm		
M2		1	1.7318531 GHz	-10.44 dBm		
D3	M2	1	1.3025 MHz	1.39 dB		

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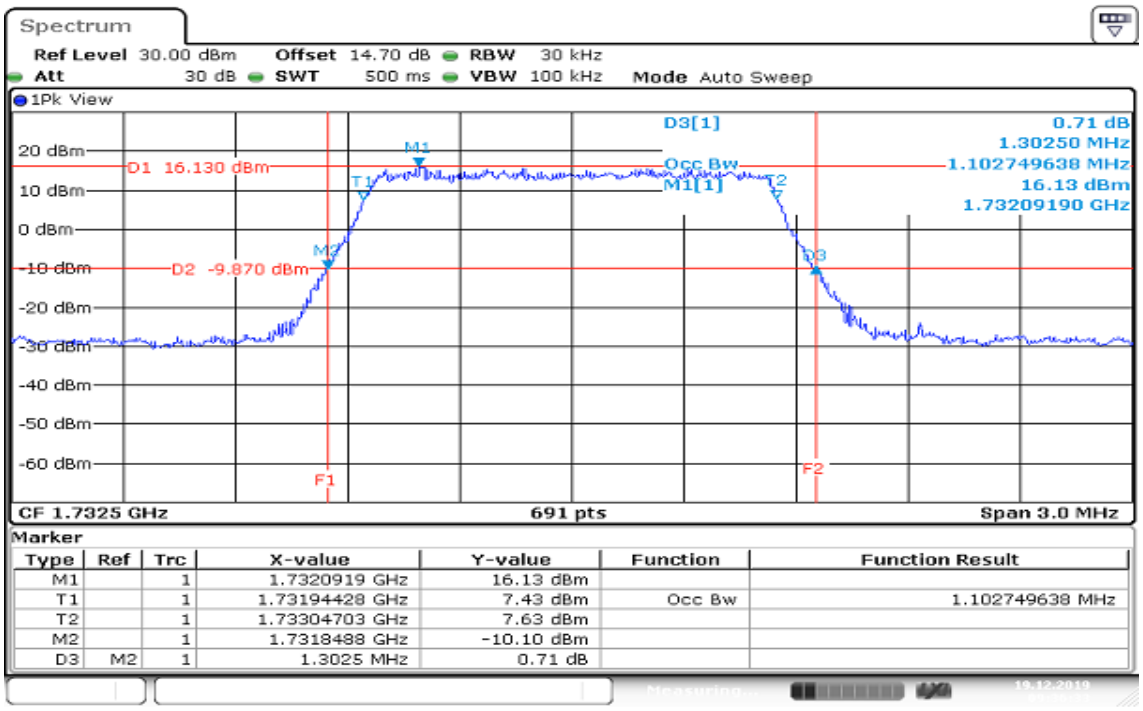
CHANNEL BANDWIDTH: 1.4MHz / 16QAM

CH Mid



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.7320919 GHz	16.13 dBm		
T1		1	1.73194428 GHz	7.43 dBm	Occ Bw	1.102749638 MHz
T2		1	1.73304703 GHz	7.63 dBm		
M2		1	1.7318488 GHz	-10.10 dBm		
D3	M2	1	1.3025 MHz	0.71 dB		

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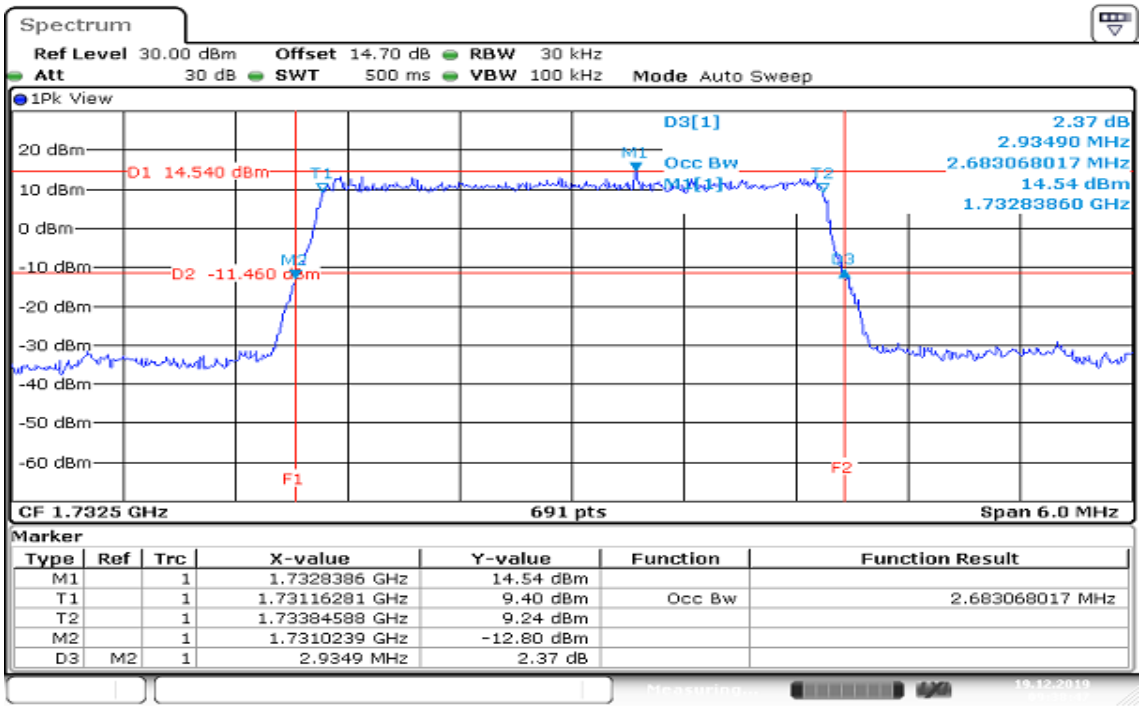
CHANNEL BANDWIDTH: 3MHz / QPSK
CH Mid



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.7328386 GHz	14.54 dBm		
T1		1	1.73116281 GHz	9.40 dBm	Occ Bw	2.683068017 MHz
T2		1	1.73384588 GHz	9.24 dBm		
M2		1	1.7310239 GHz	-12.80 dBm		
D3	M2	1	2.9349 MHz	2.37 dB		

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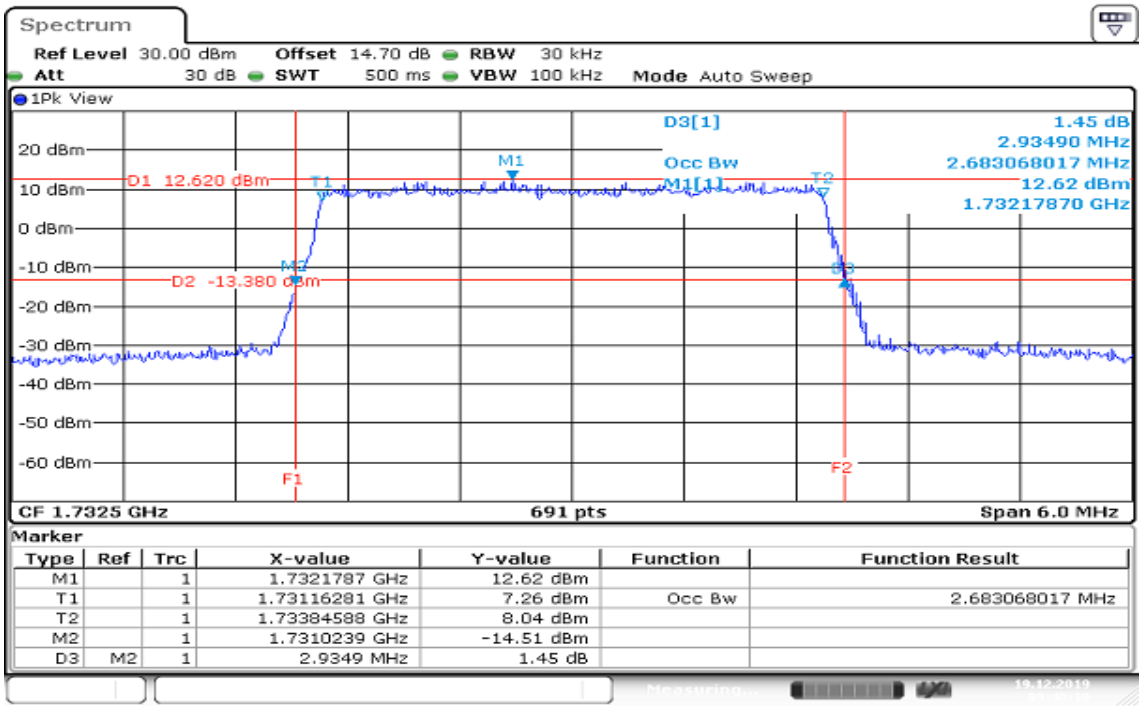
CHANNEL BANDWIDTH: 3MHz / 16QAM
CH Mid



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.7321787 GHz	12.62 dBm		
T1		1	1.73116281 GHz	7.26 dBm	Occ Bw	2.683068017 MHz
T2		1	1.73384588 GHz	8.04 dBm		
M2		1	1.7310239 GHz	-14.51 dBm		
D3	M2	1	2.9349 MHz	1.45 dB		

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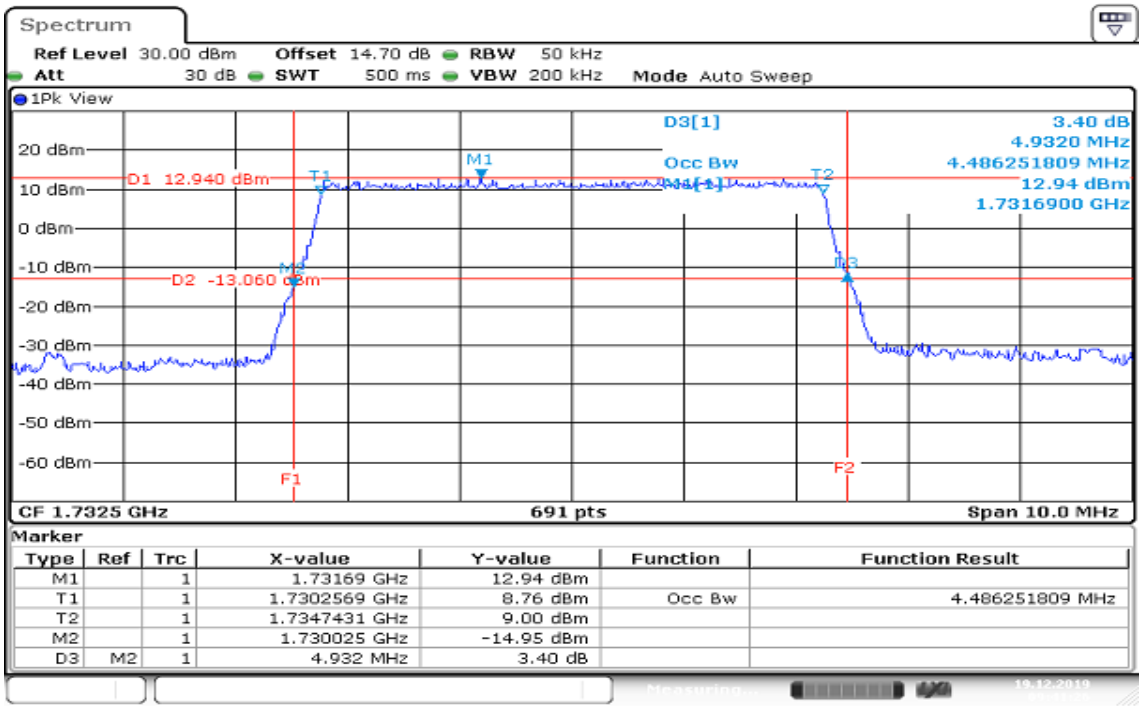
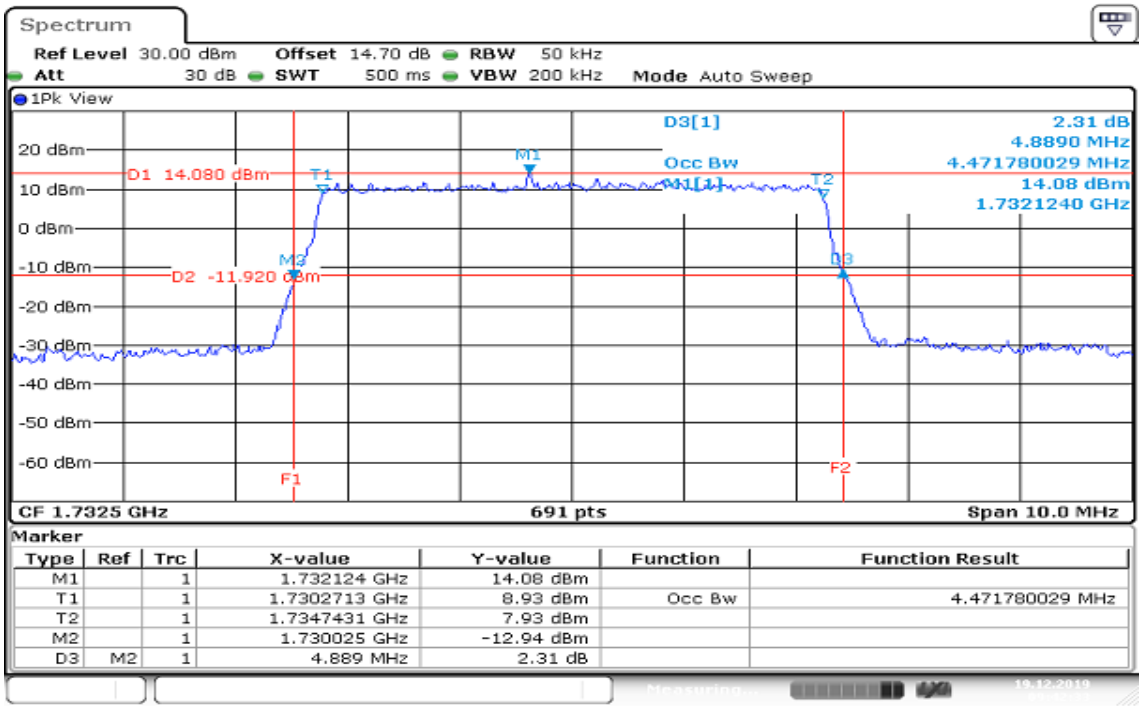
CHANNEL BANDWIDTH: 5MHz / QPSK
CH Mid



Date: 19.DEC.2019 09:41:26

CHANNEL BANDWIDTH: 5MHz / 16QAM
CH Mid



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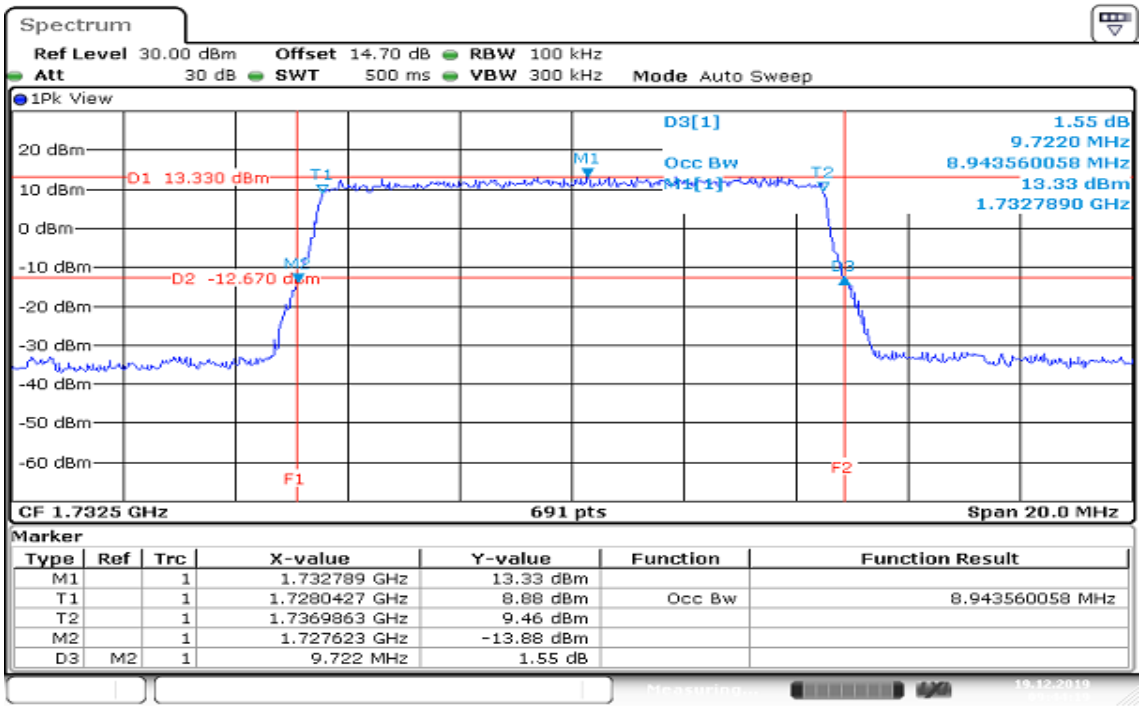
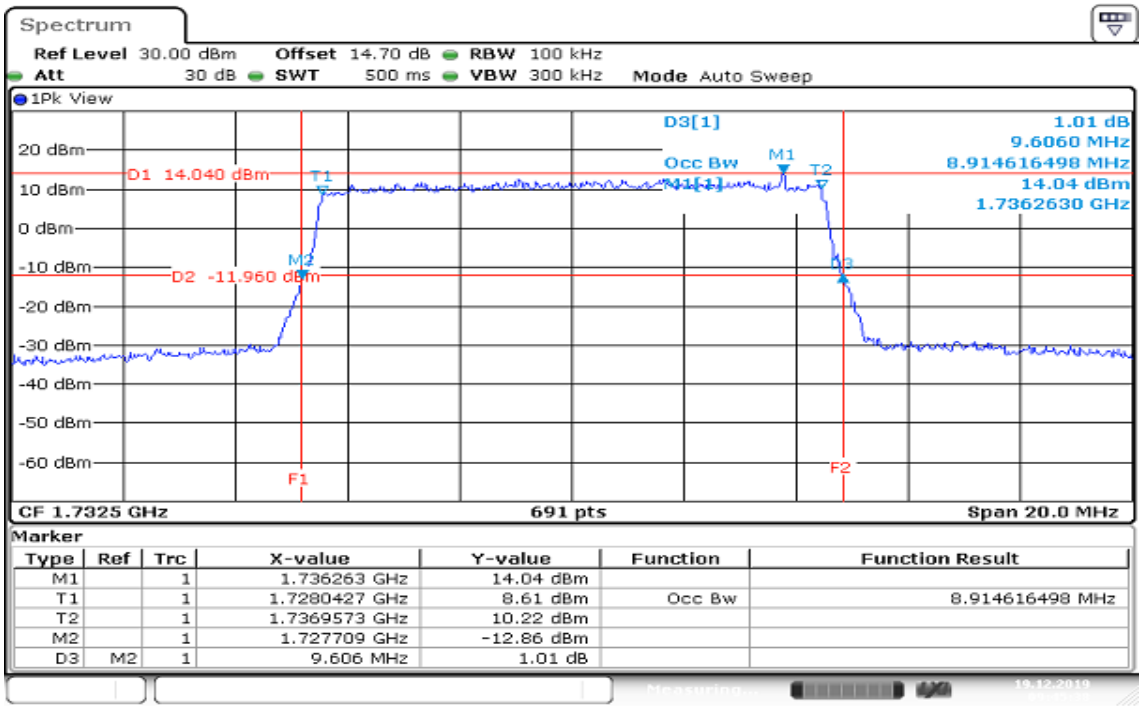
CHANNEL BANDWIDTH: 10MHz / QPSK
CH Mid



Date: 19.DEC.2019 09:44:20

CHANNEL BANDWIDTH: 10MHz / 16QAM
CH Mid



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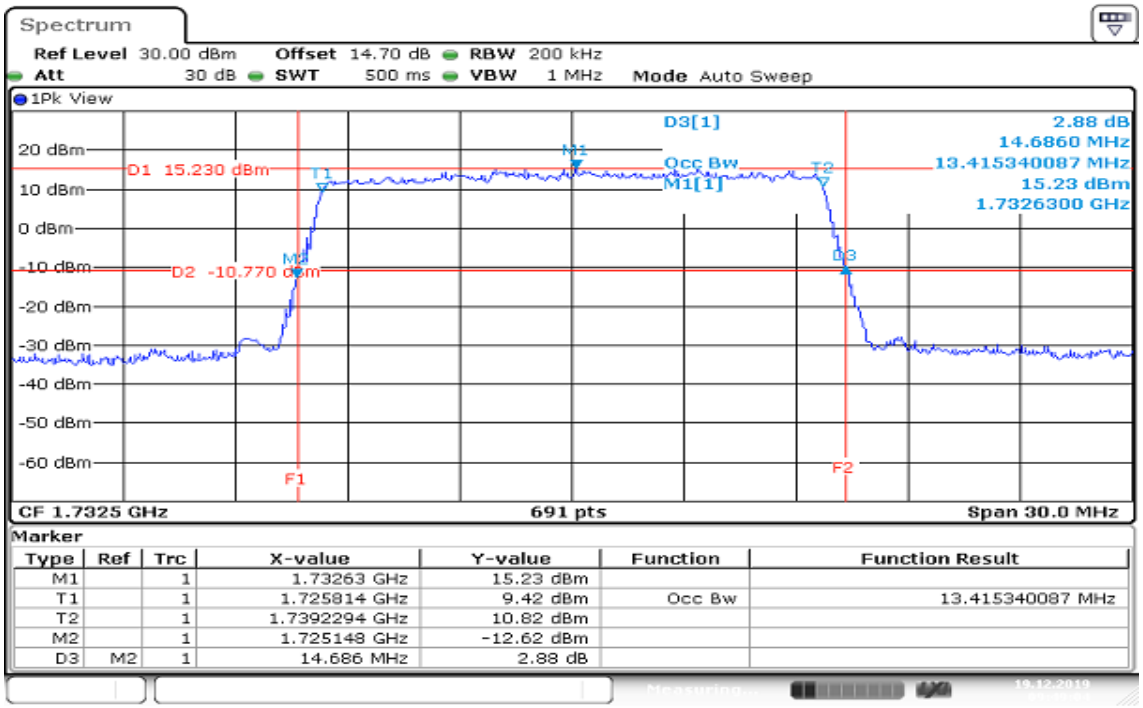
CHANNEL BANDWIDTH: 15MHz / QPSK
CH Mid



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.73263 GHz	15.23 dBm		
T1		1	1.725814 GHz	9.42 dBm	Occ Bw	13.415340087 MHz
T2		1	1.7392294 GHz	10.82 dBm		
M2		1	1.725148 GHz	-12.62 dBm		
D3	M2	1	14.686 MHz	2.88 dB		

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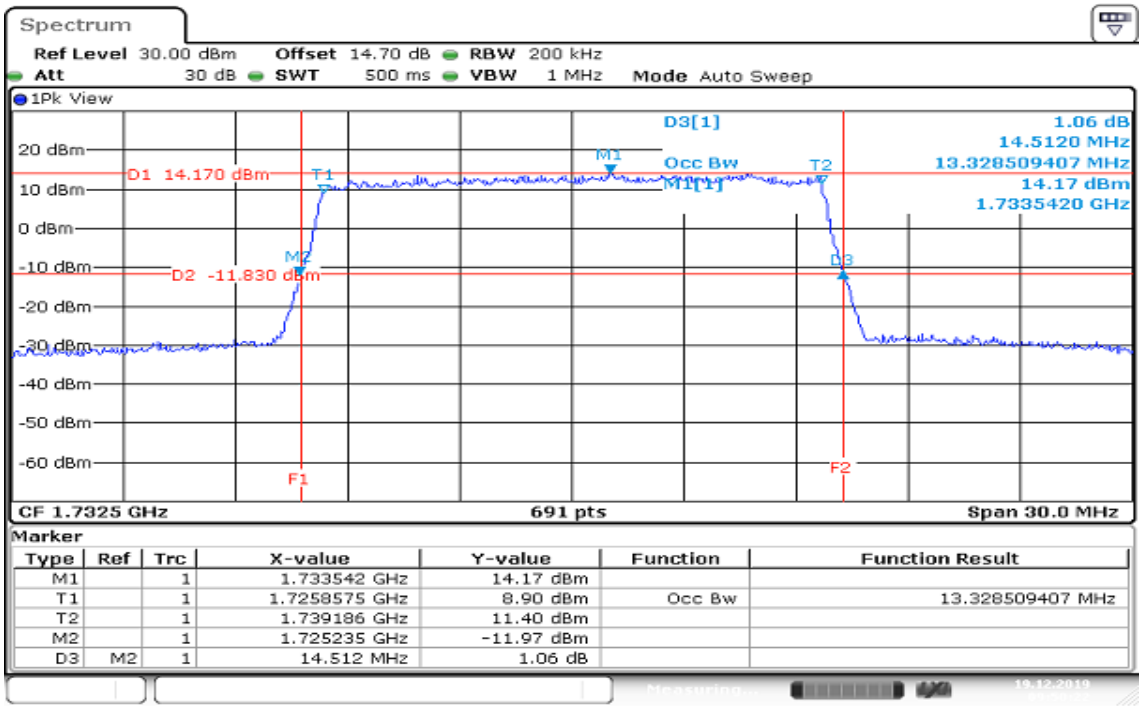
CHANNEL BANDWIDTH: 15MHz / 16QAM
CH Mid



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.733542 GHz	14.17 dBm		
T1		1	1.7258575 GHz	8.90 dBm	Occ Bw	13.328509407 MHz
T2		1	1.739186 GHz	11.40 dBm		
M2		1	1.725235 GHz	-11.97 dBm		
D3	M2	1	14.512 MHz	1.06 dB		

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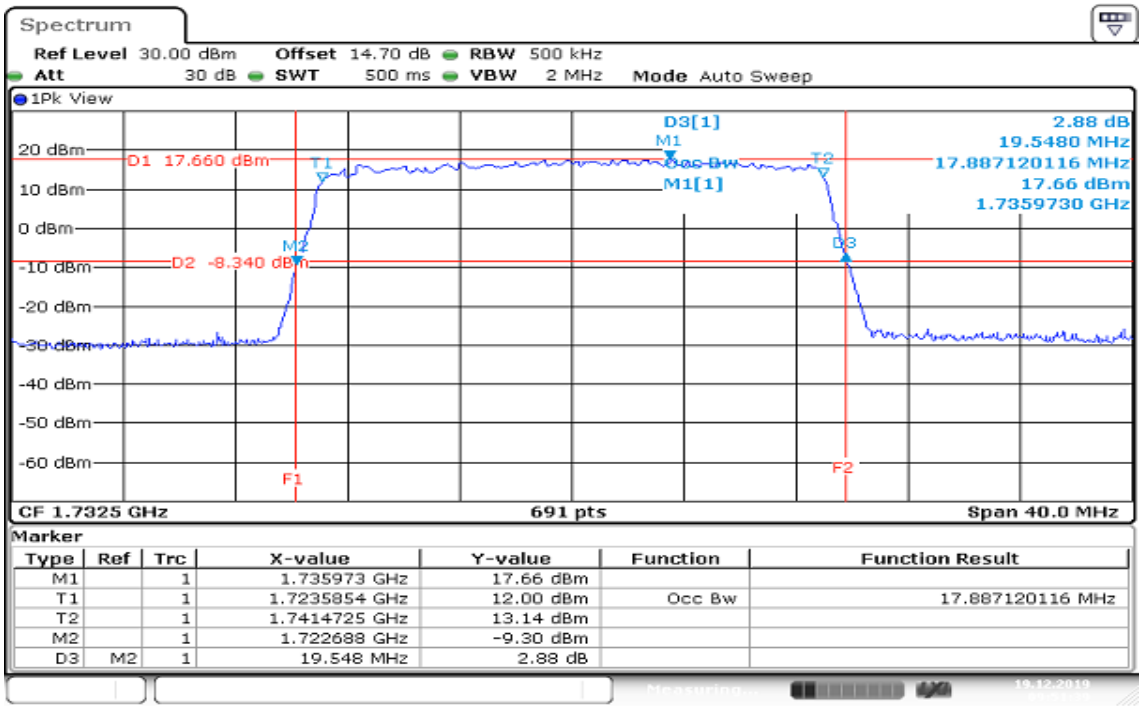
CHANNEL BANDWIDTH: 20MHz / QPSK
CH Mid



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.735973 GHz	17.66 dBm		
T1		1	1.7235854 GHz	12.00 dBm	Occ Bw	17.887120116 MHz
T2		1	1.7414725 GHz	13.14 dBm		
M2		1	1.722688 GHz	-9.30 dBm		
D3	M2	1	19.548 MHz	2.88 dB		

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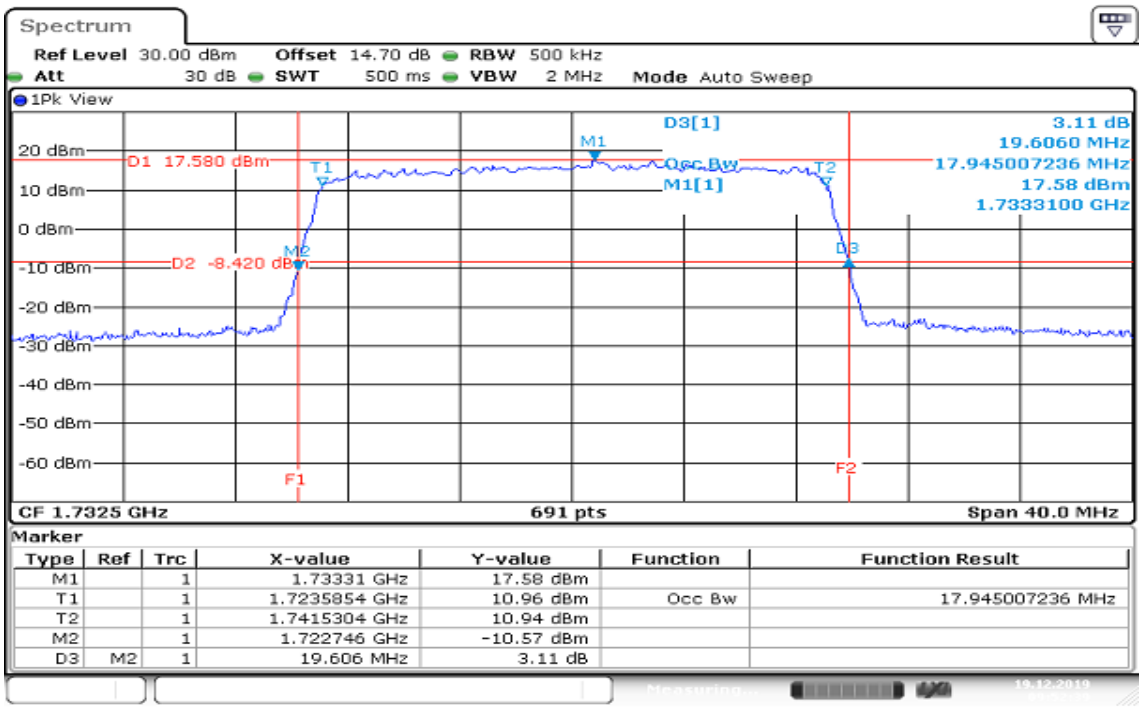
CHANNEL BANDWIDTH: 20MHz / 16QAM
CH Mid



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.73331 GHz	17.58 dBm		
T1		1	1.7235854 GHz	10.96 dBm	Occ Bw	17.945007236 MHz
T2		1	1.7415304 GHz	10.94 dBm		
M2		1	1.722746 GHz	-10.57 dBm		
D3	M2	1	19.606 MHz	3.11 dB		

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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.

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TEST RESULTS
LTE Band 13

CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23230	782.00	3.54

CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23230	782.00	3.19

CHANNEL BANDWIDTH: 5MHz / QPSK / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23230	782.00	4.46

CHANNEL BANDWIDTH: 10MHz / QPSK / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23230	782.00	4.46

CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23230	782.00	4.26

CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23230	782.00	3.83

CHANNEL BANDWIDTH: 5MHz / 16QAM / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23230	782.00	5.39

CHANNEL BANDWIDTH: 10MHz / 16QAM / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
23230	782.00	5.54

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

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LTE Band 4

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	4.72

CHANNEL BANDWIDTH: 3MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	4.87

CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	5.77

CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	4.90

CHANNEL BANDWIDTH: 15MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	4.96

CHANNEL BANDWIDTH: 20MHz / QPSK / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	4.87

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 / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	5.30

CHANNEL BANDWIDTH: 3MHz / QPSK / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	4.99

CHANNEL BANDWIDTH: 5MHz / QPSK / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	5.94

CHANNEL BANDWIDTH: 10MHz / QPSK / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	4.99

CHANNEL BANDWIDTH: 15MHz / QPSK / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	5.16

CHANNEL BANDWIDTH: 20MHz / QPSK / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	4.87

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 / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	5.77

CHANNEL BANDWIDTH: 3MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	5.83

CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	5.88

CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	5.83

CHANNEL BANDWIDTH: 15MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	5.71

CHANNEL BANDWIDTH: 20MHz / 16QAM / 1RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	5.80

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 / 16QAM / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	6.12

CHANNEL BANDWIDTH: 3MHz / 16QAM / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	5.97

CHANNEL BANDWIDTH: 5MHz / 16QAM / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	5.88

CHANNEL BANDWIDTH: 10MHz / 16QAM / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	5.91

CHANNEL BANDWIDTH: 15MHz / 16QAM / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	6.00

CHANNEL BANDWIDTH: 20MHz / 16QAM / Full RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20175	1732.50	5.88

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

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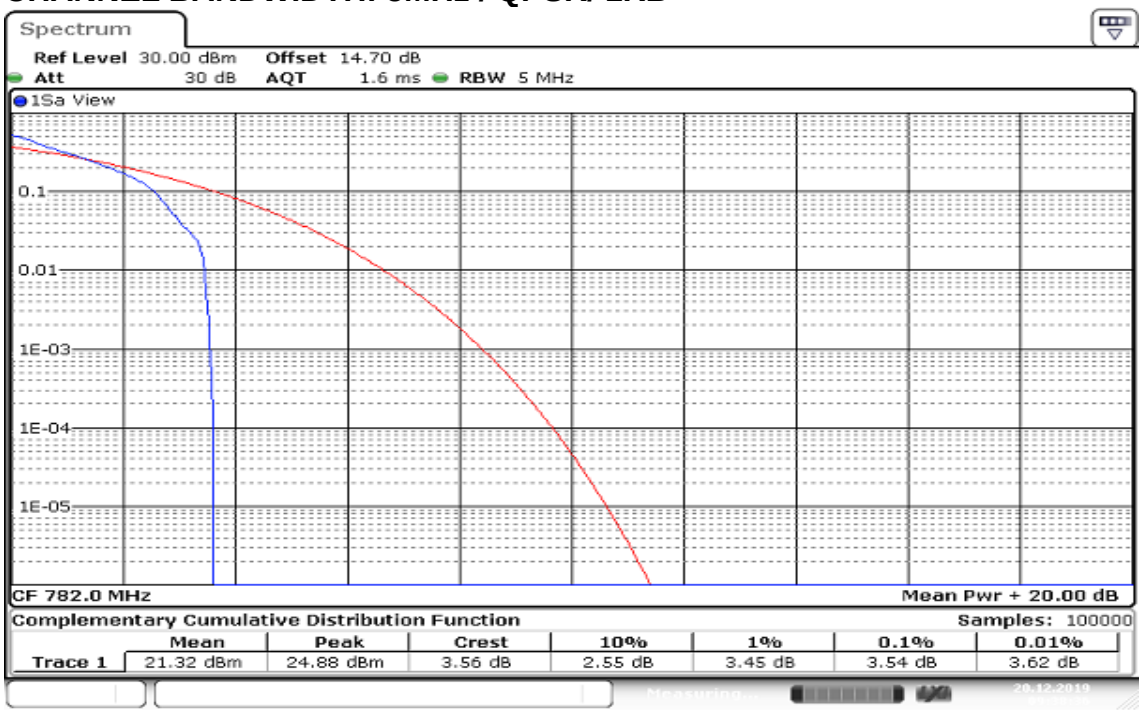
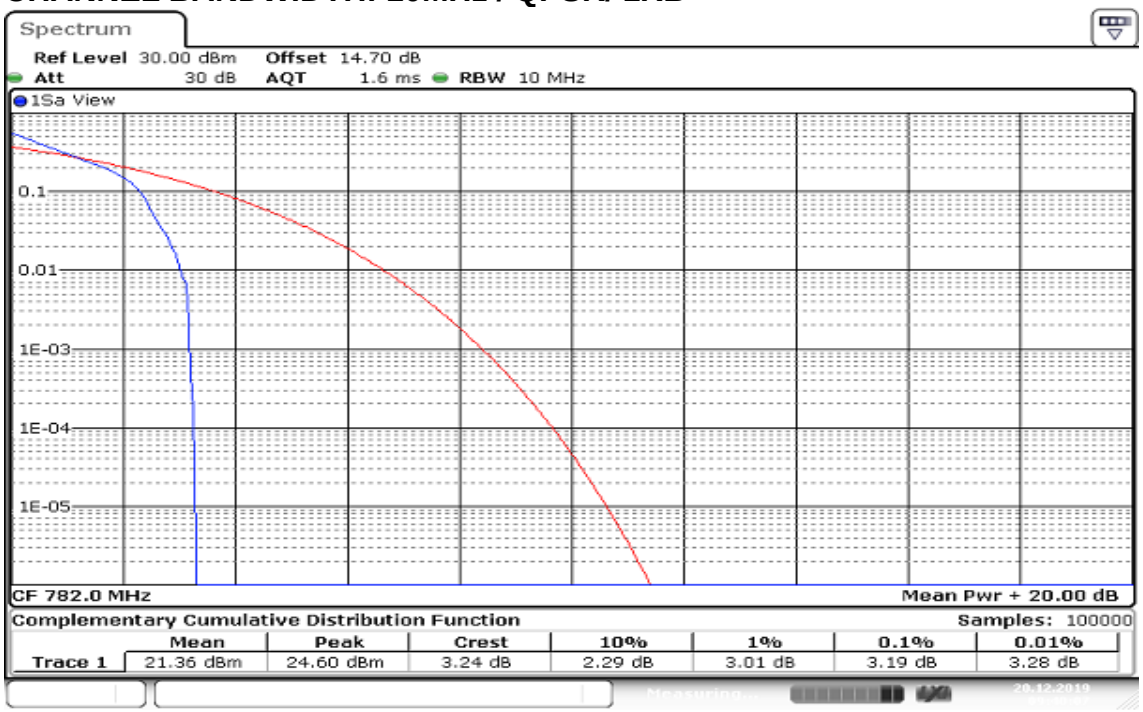
LTE Band 13

CHANNEL BANDWIDTH: 5MHz / QPSK/ 1RB



Date: 20.DEC.2019 09:38:36

CHANNEL BANDWIDTH: 10MHz / QPSK/ 1RB



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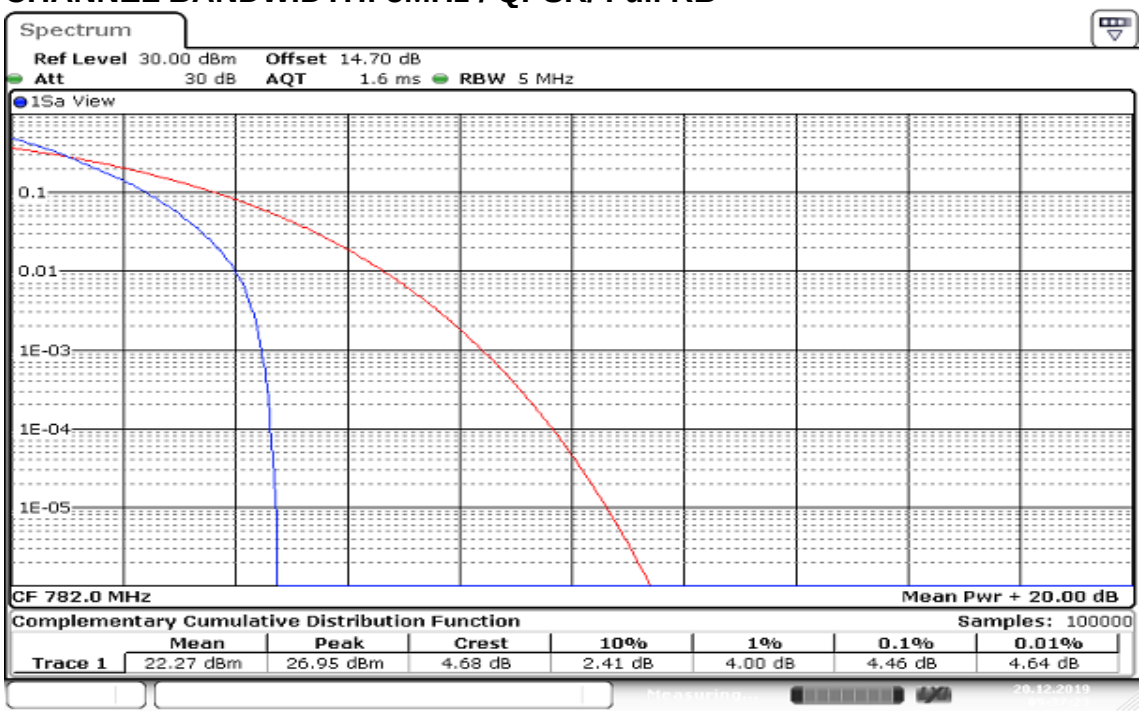
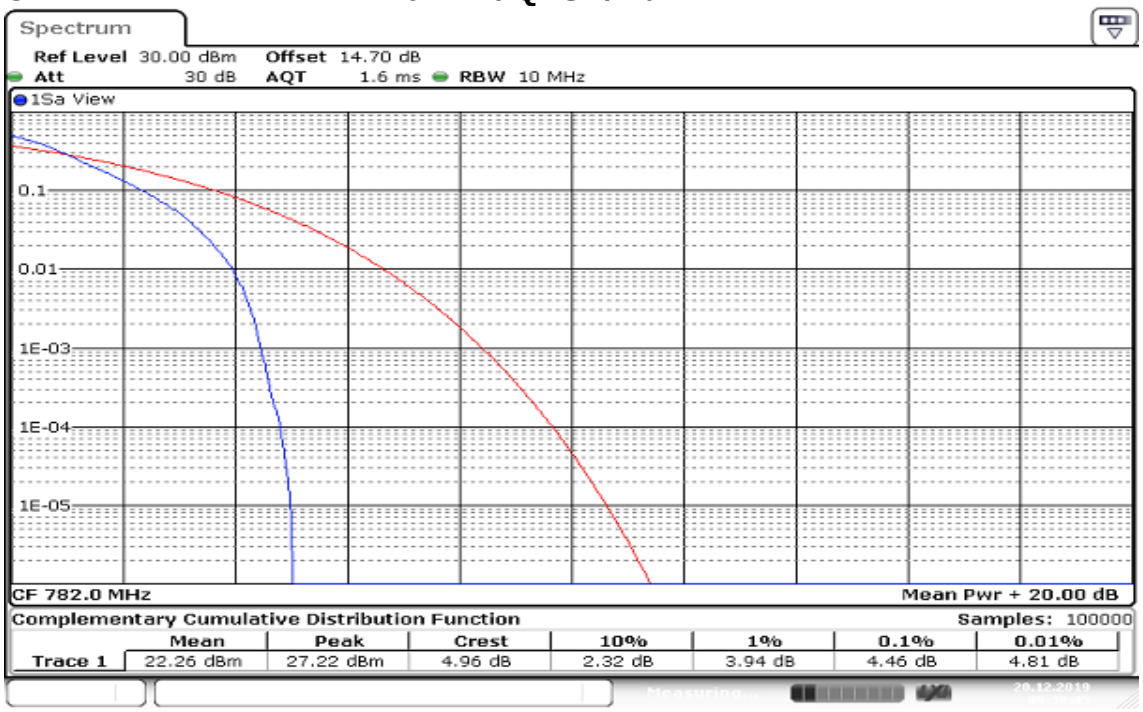
CHANNEL BANDWIDTH: 5MHz / QPSK/ Full RB



Date: 20.DEC.2019 09:37:24

CHANNEL BANDWIDTH: 10MHz / QPSK/ Full RB



Date: 20.DEC.2019 09:39:45

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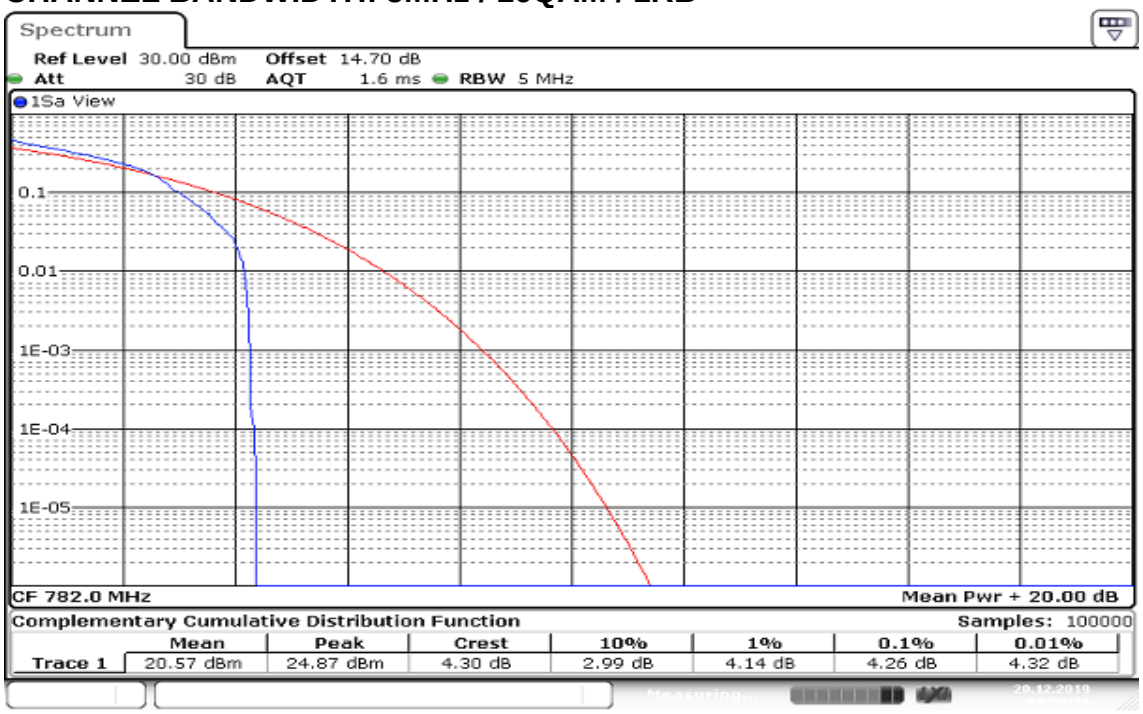
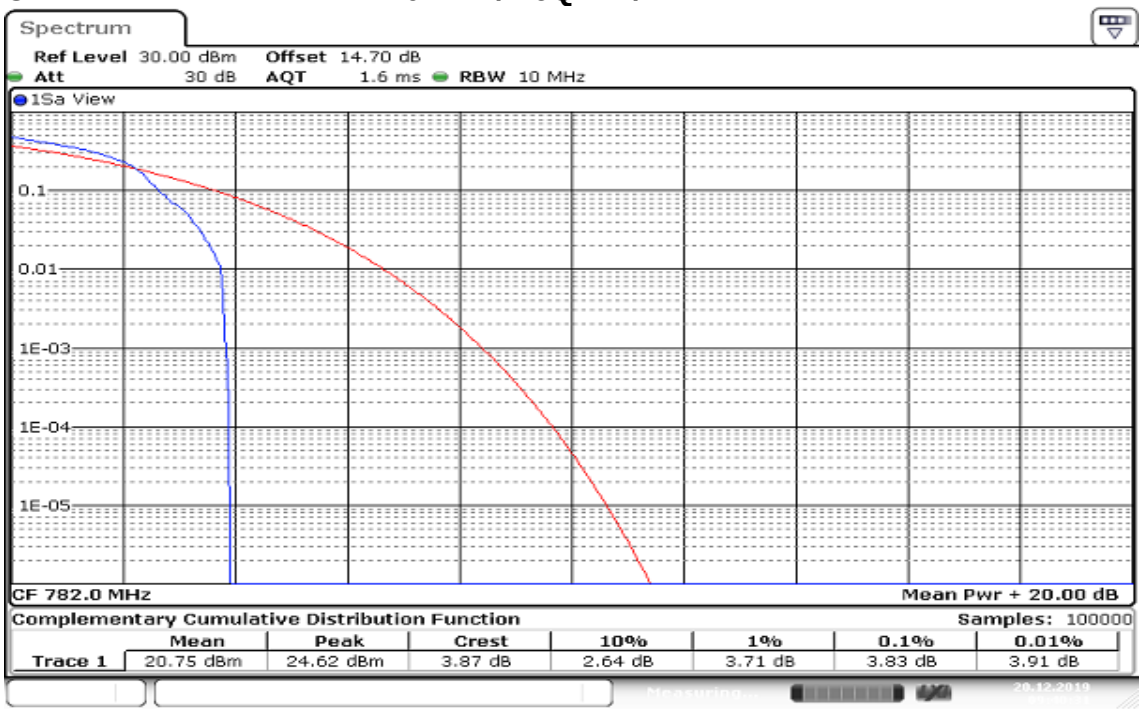
CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB



Date: 20.DEC.2019 09:38:16

CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB



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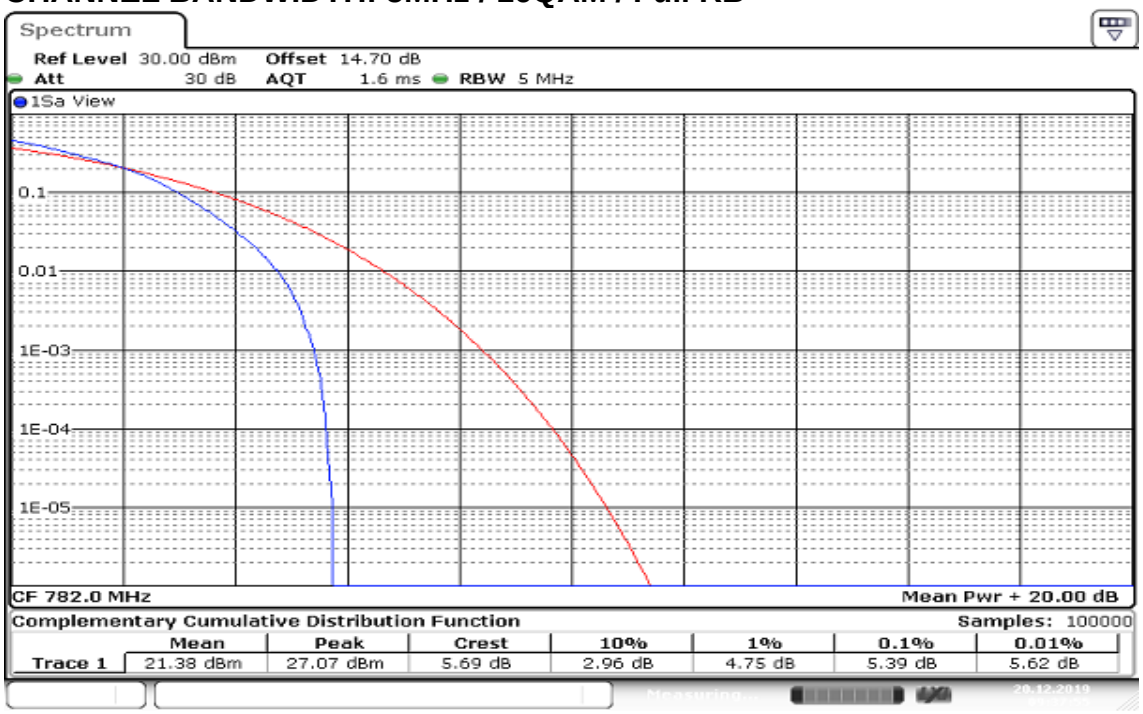
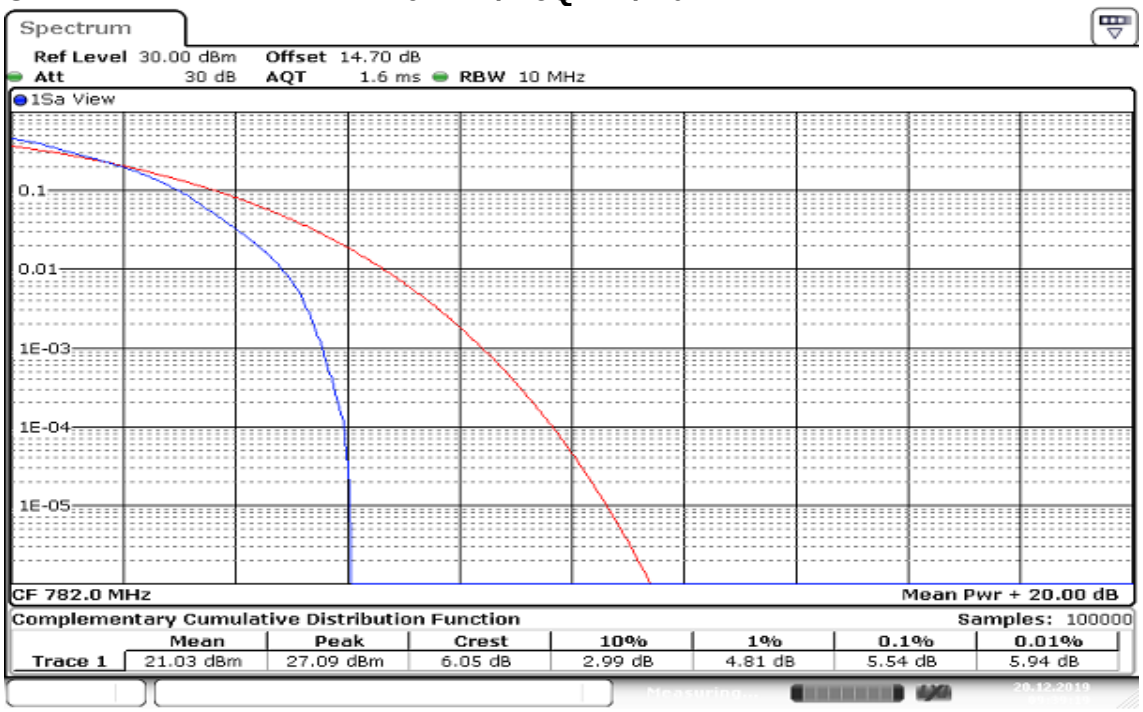
CHANNEL BANDWIDTH: 5MHz / 16QAM / Full RB



Date: 20.DEC.2019 09:37:55

CHANNEL BANDWIDTH: 10MHz / 16QAM / Full RB



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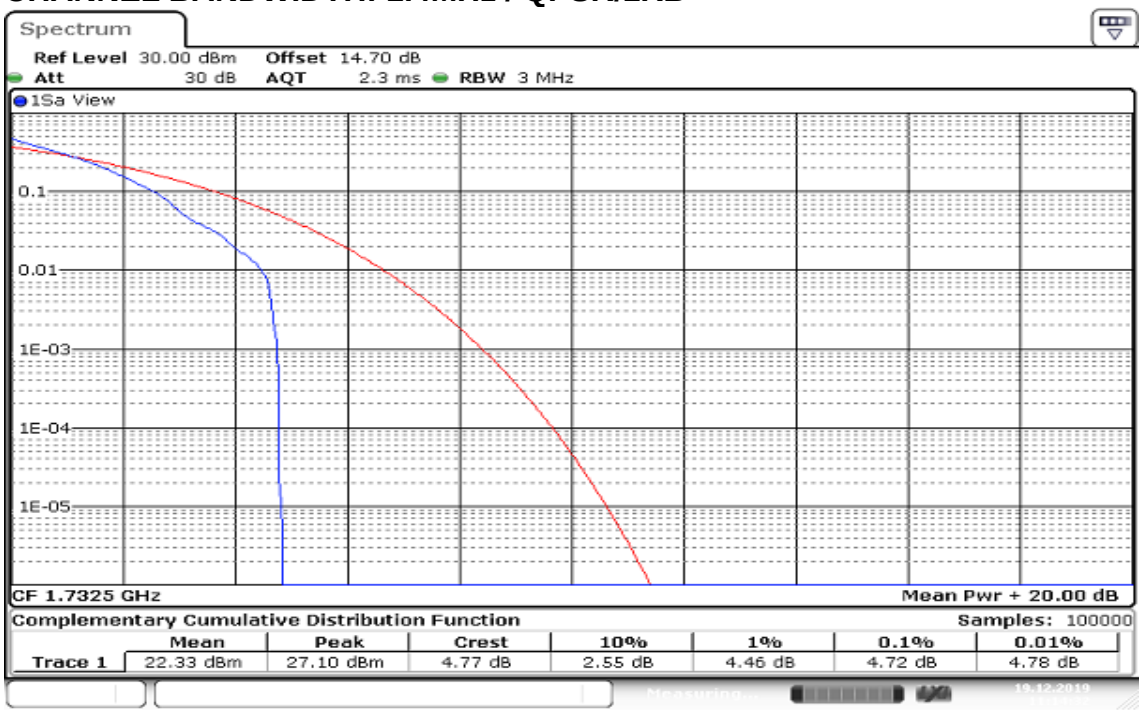
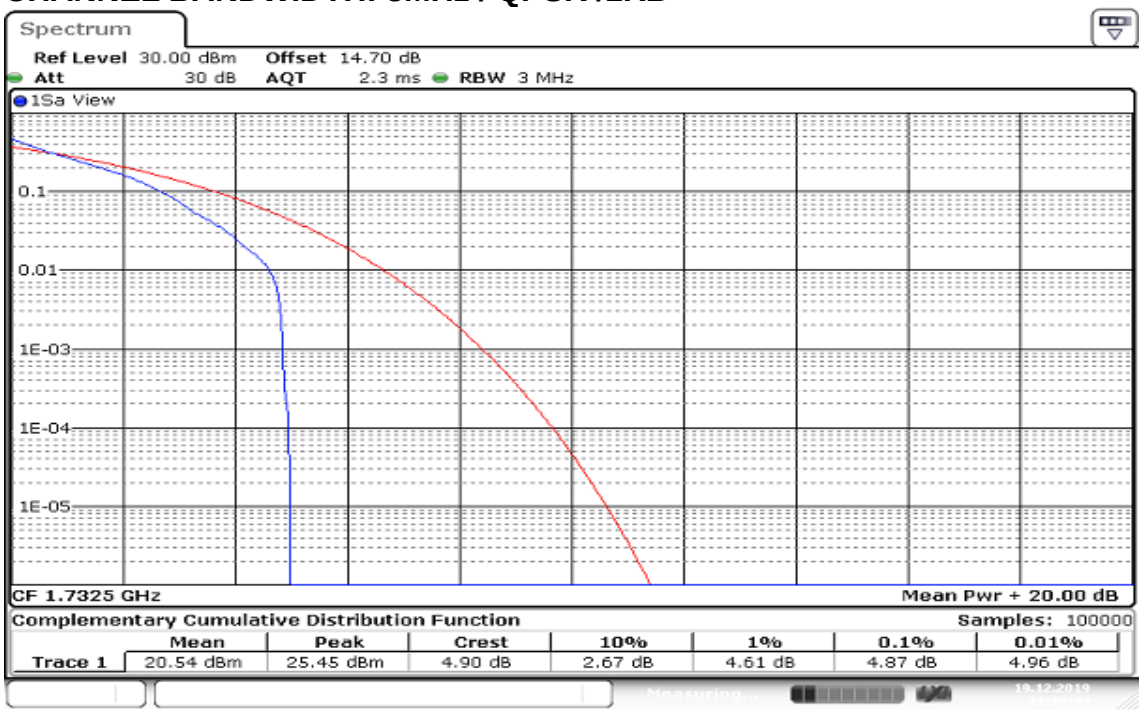
LTE Band 4

CHANNEL BANDWIDTH: 1.4MHz / QPSK/1RB



Date: 19.DEC.2019 11:14:32

CHANNEL BANDWIDTH: 3MHz / QPSK /1RB



Date: 19.DEC.2019 11:16:44

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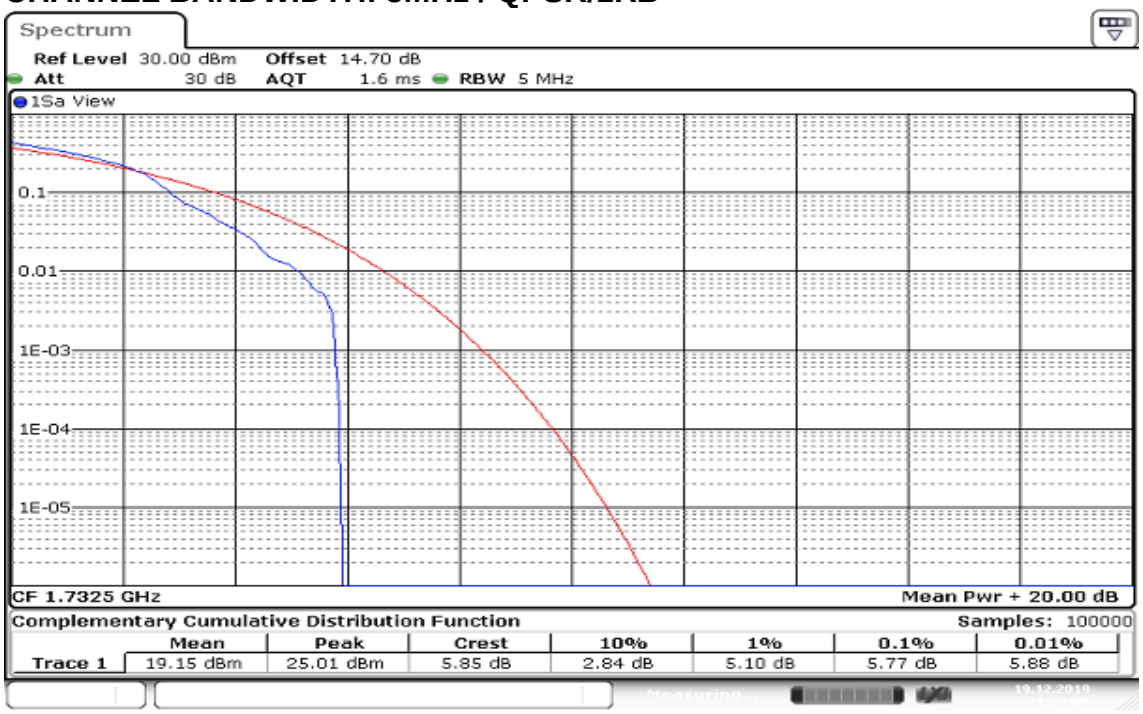
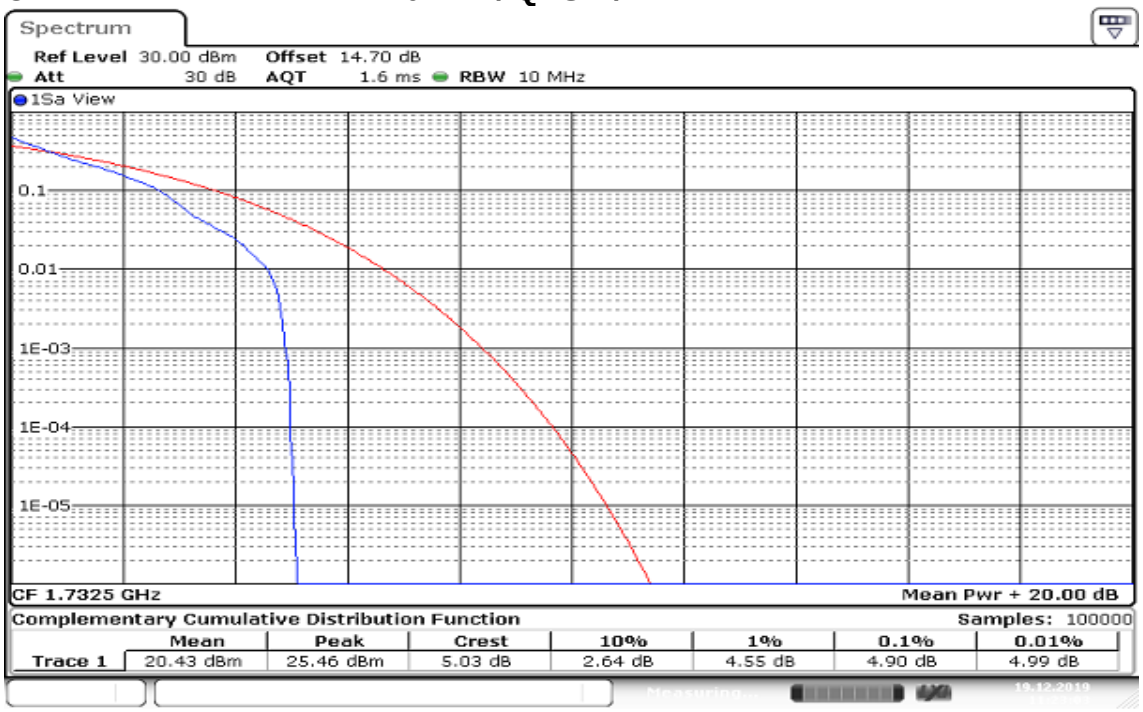
CHANNEL BANDWIDTH: 5MHz / QPSK/1RB



Date: 19.DEC.2019 11:20:10

CHANNEL BANDWIDTH: 10MHz / QPSK /1RB



Date: 19.DEC.2019 11:23:03

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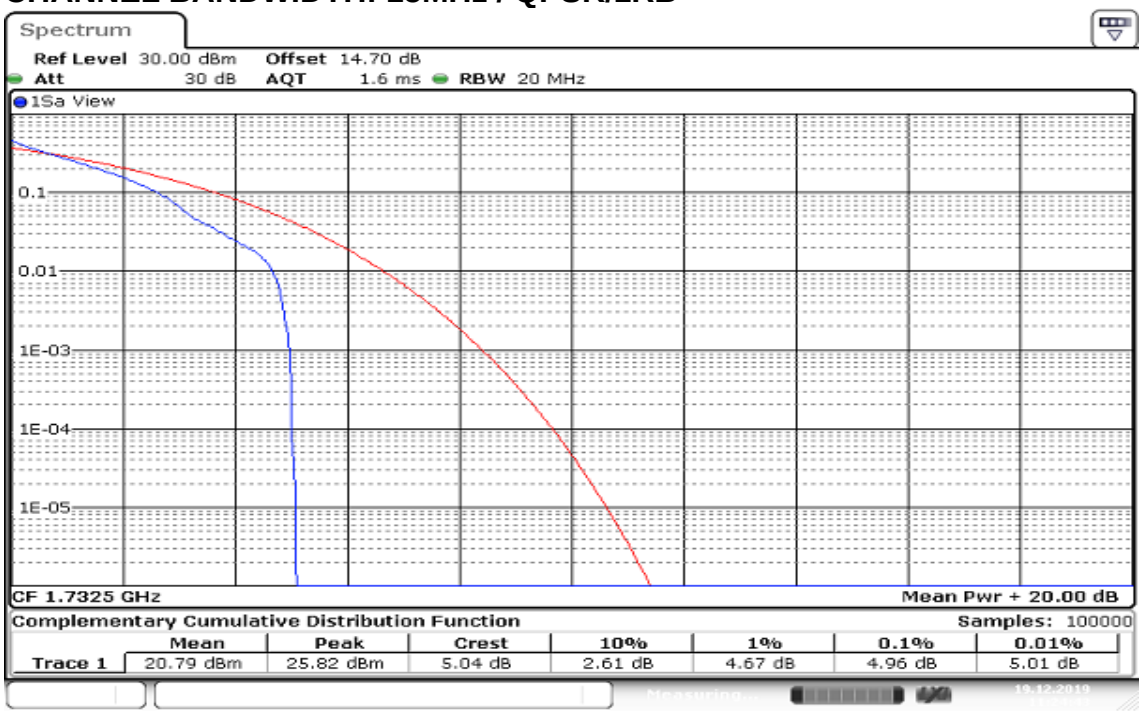
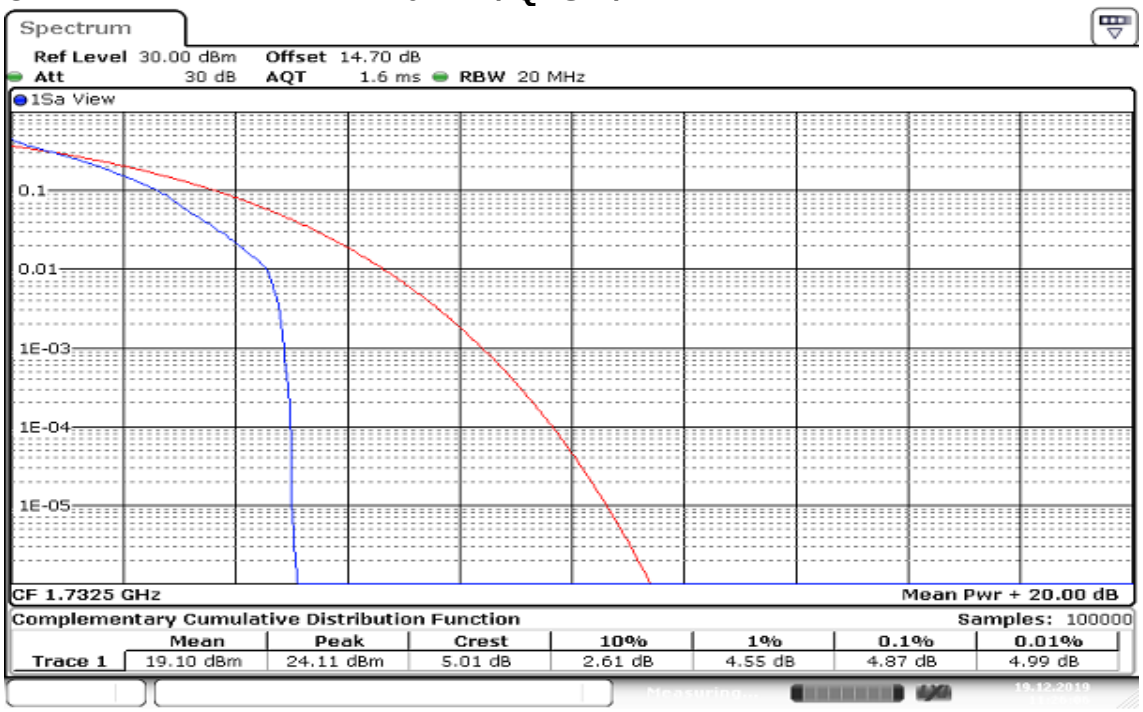
CHANNEL BANDWIDTH: 15MHz / QPSK/1RB



Date: 19.DEC.2019 11:24:44

CHANNEL BANDWIDTH: 20MHz / QPSK /1RB



Date: 19.DEC.2019 11:26:07

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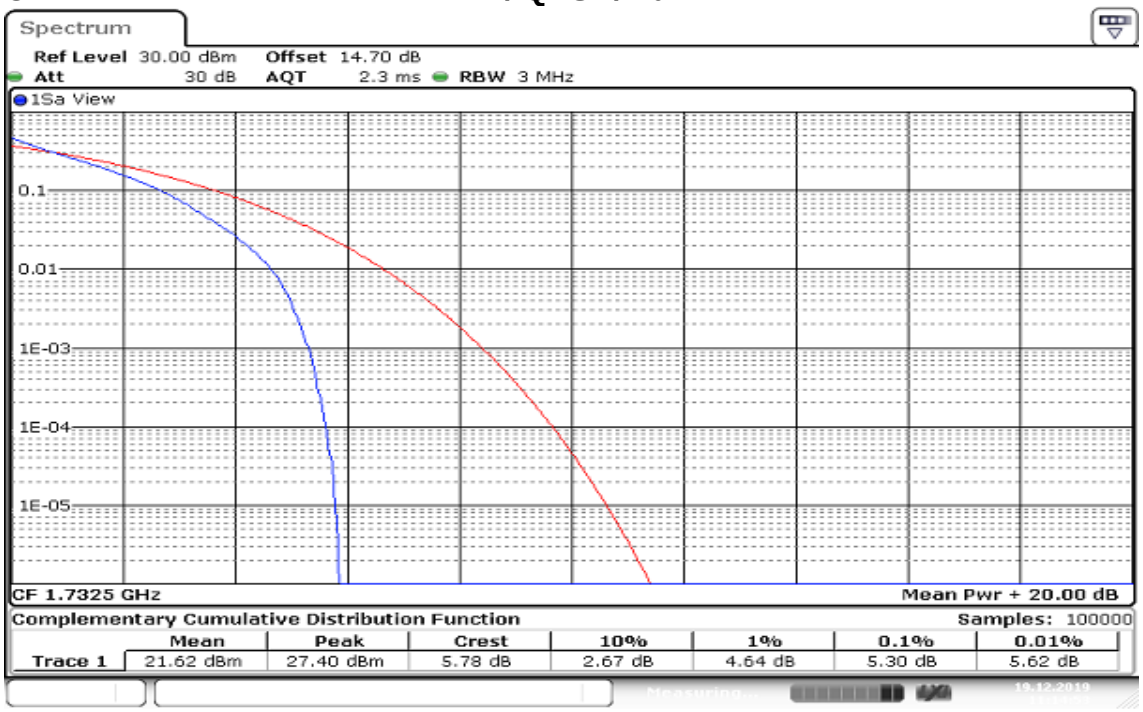
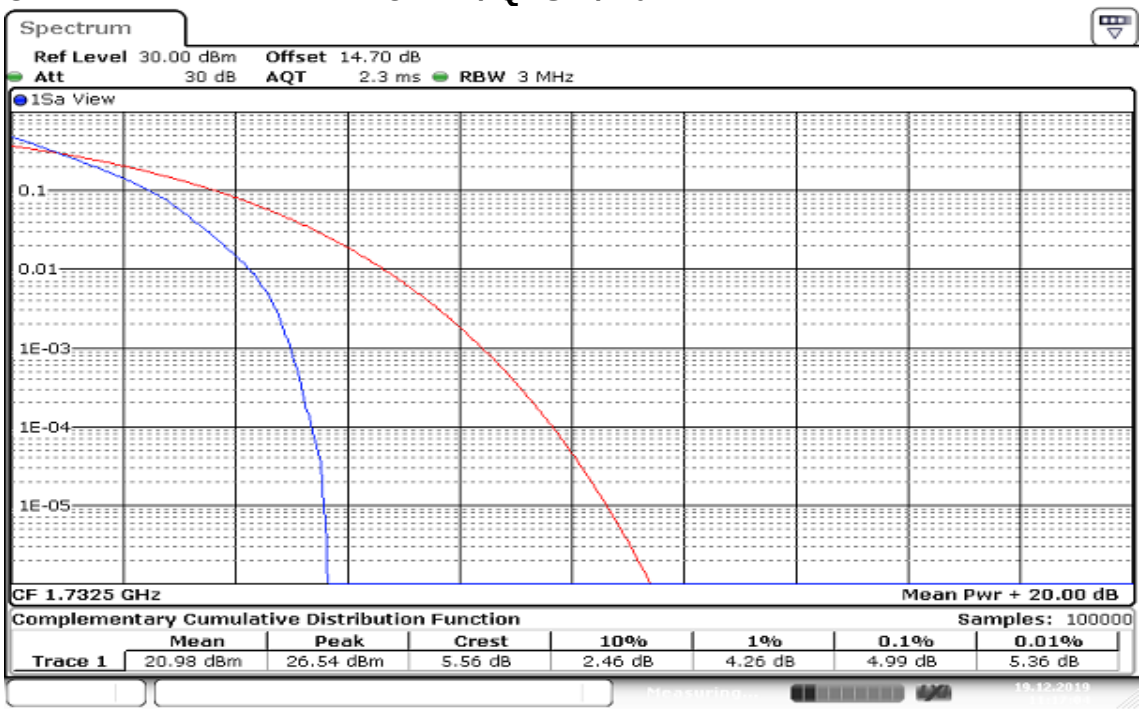
CHANNEL BANDWIDTH: 1.4MHz / QPSK/ Full RB



Date: 19.DEC.2019 11:14:53

CHANNEL BANDWIDTH: 3MHz / QPSK / Full RB



Date: 19.DEC.2019 11:17:05

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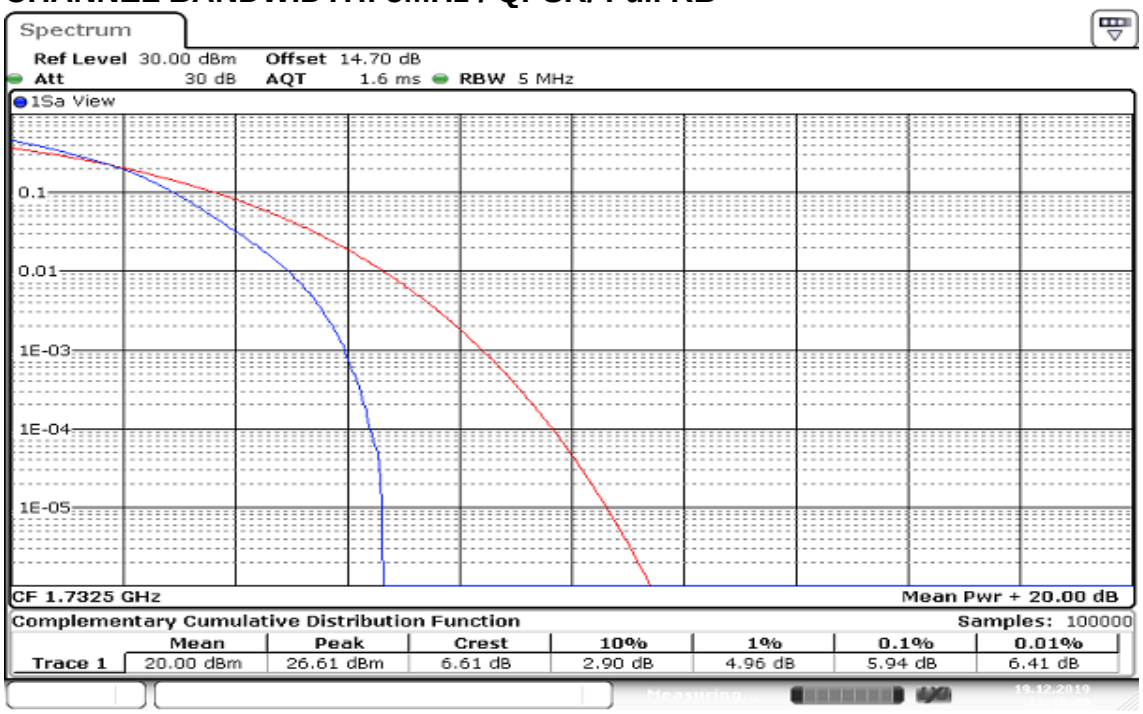
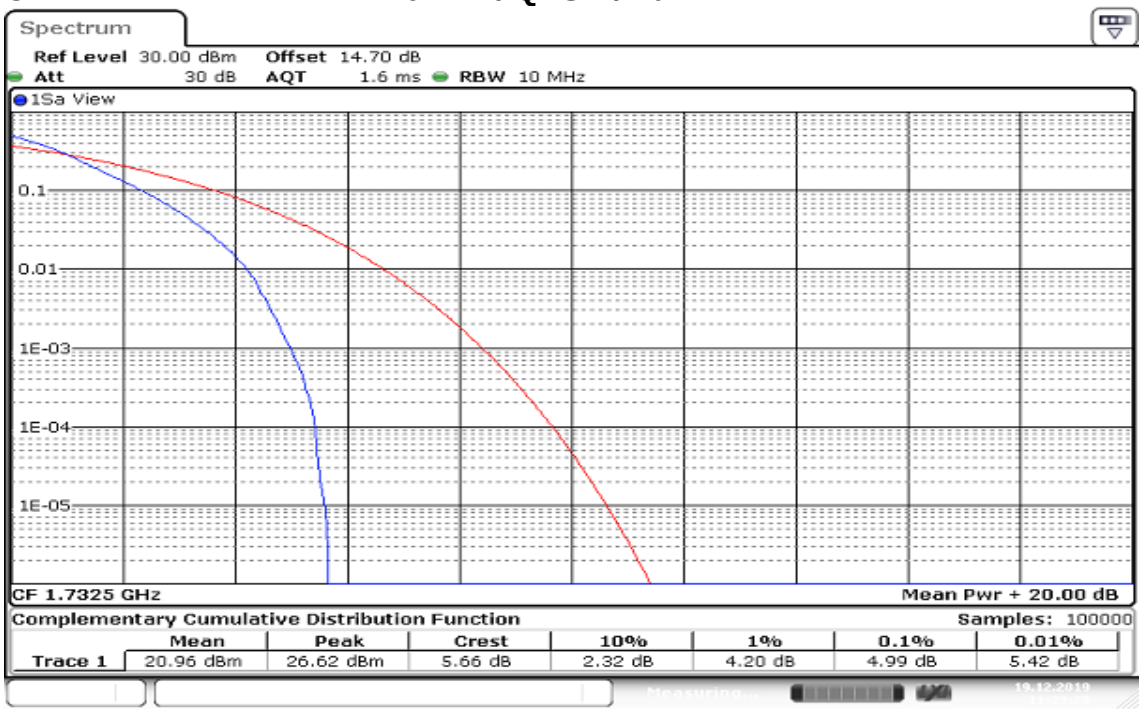
CHANNEL BANDWIDTH: 5MHz / QPSK/ Full RB



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

CHANNEL BANDWIDTH: 10MHz / QPSK / Full RB



Date: 19.DEC.2019 11:23:28

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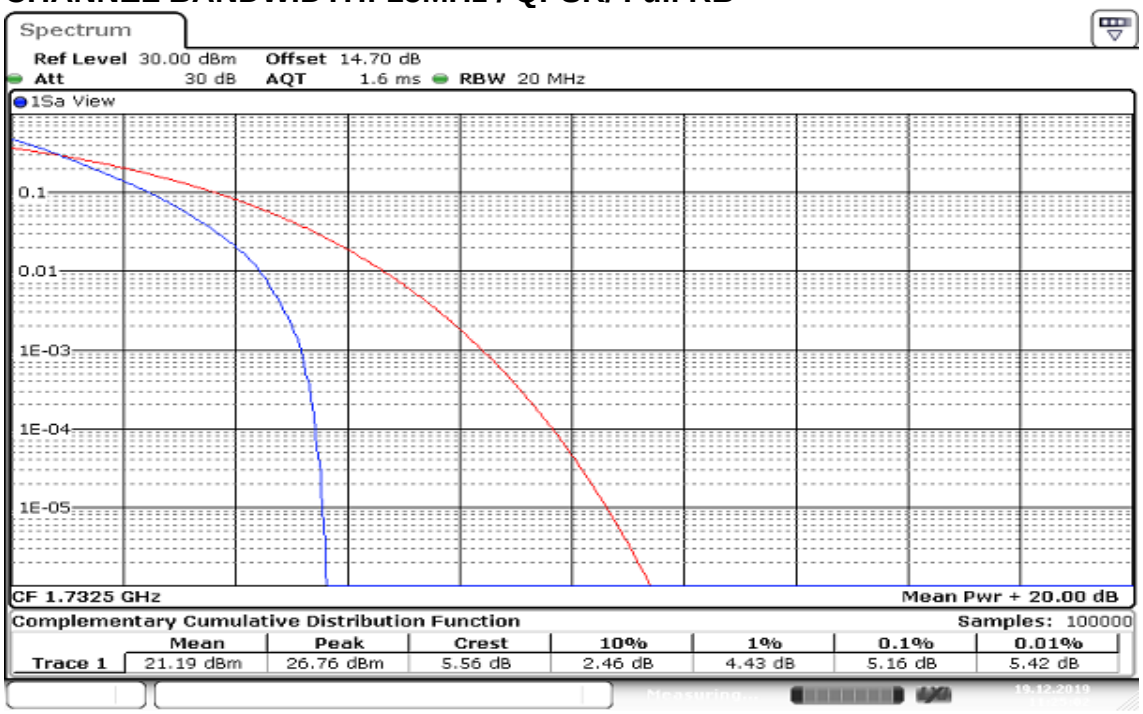
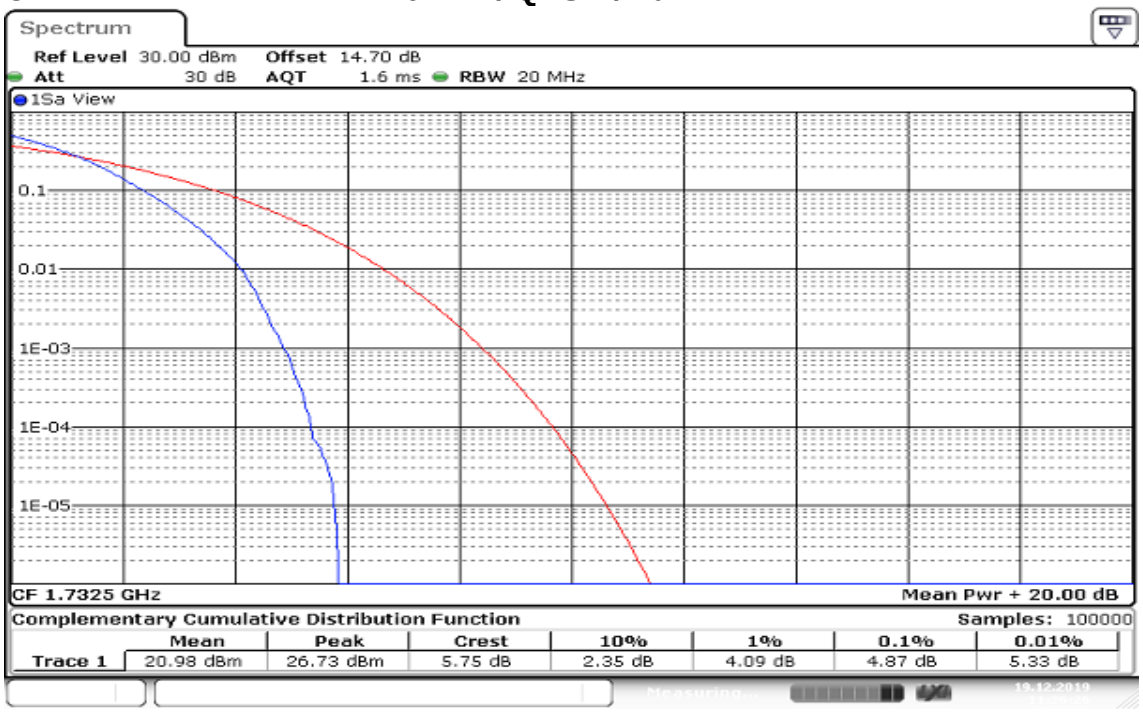
CHANNEL BANDWIDTH: 15MHz / QPSK/ Full RB



Date: 19.DEC.2019 11:25:03

CHANNEL BANDWIDTH: 20MHz / QPSK / Full RB



Date: 19.DEC.2019 11:26:26

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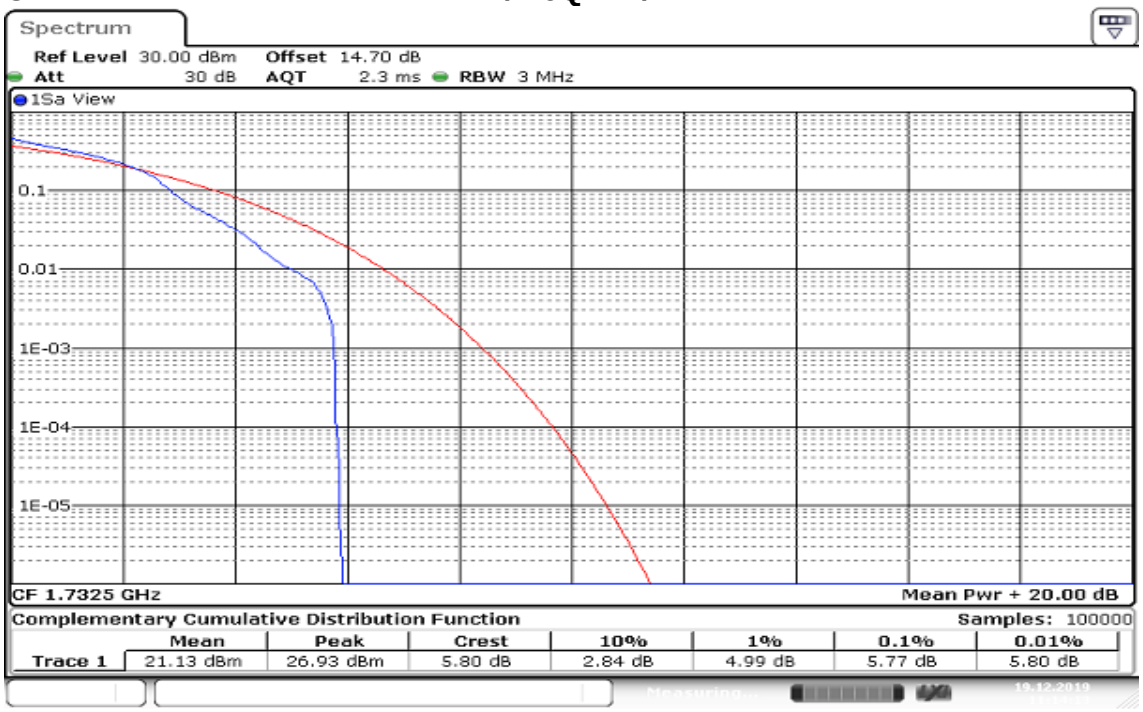
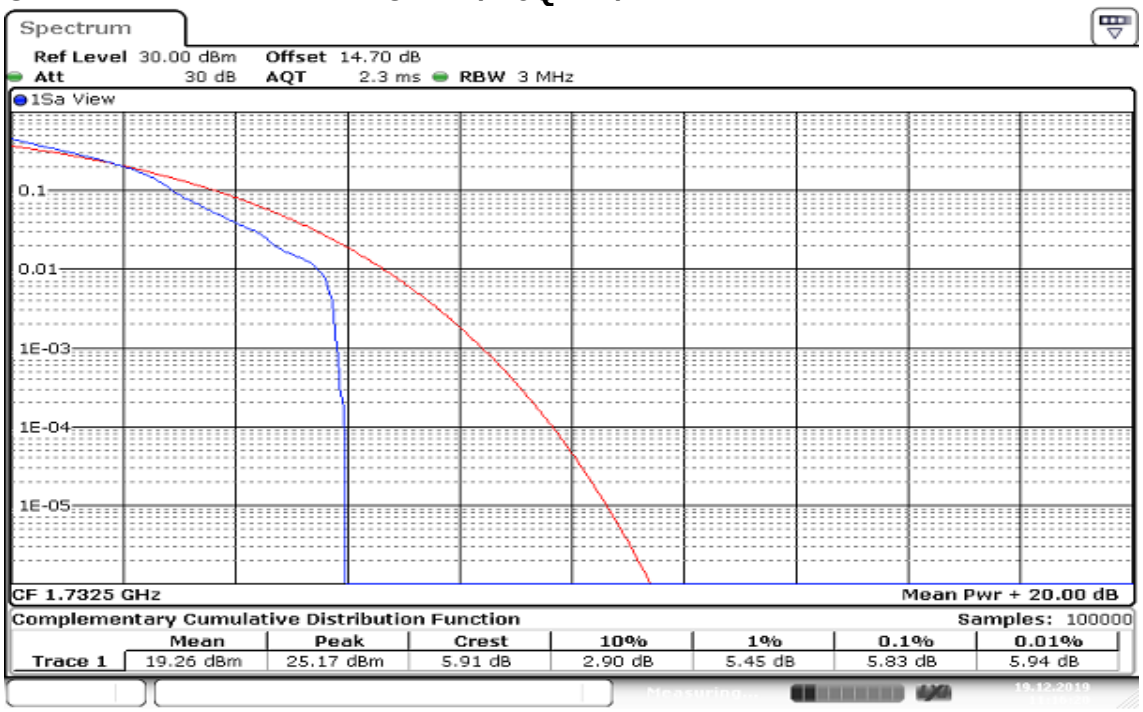
CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 1RB



Date: 19.DEC.2019 11:14:14

CHANNEL BANDWIDTH: 3MHz / 16QAM /1RB



Date: 19.DEC.2019 11:16:21

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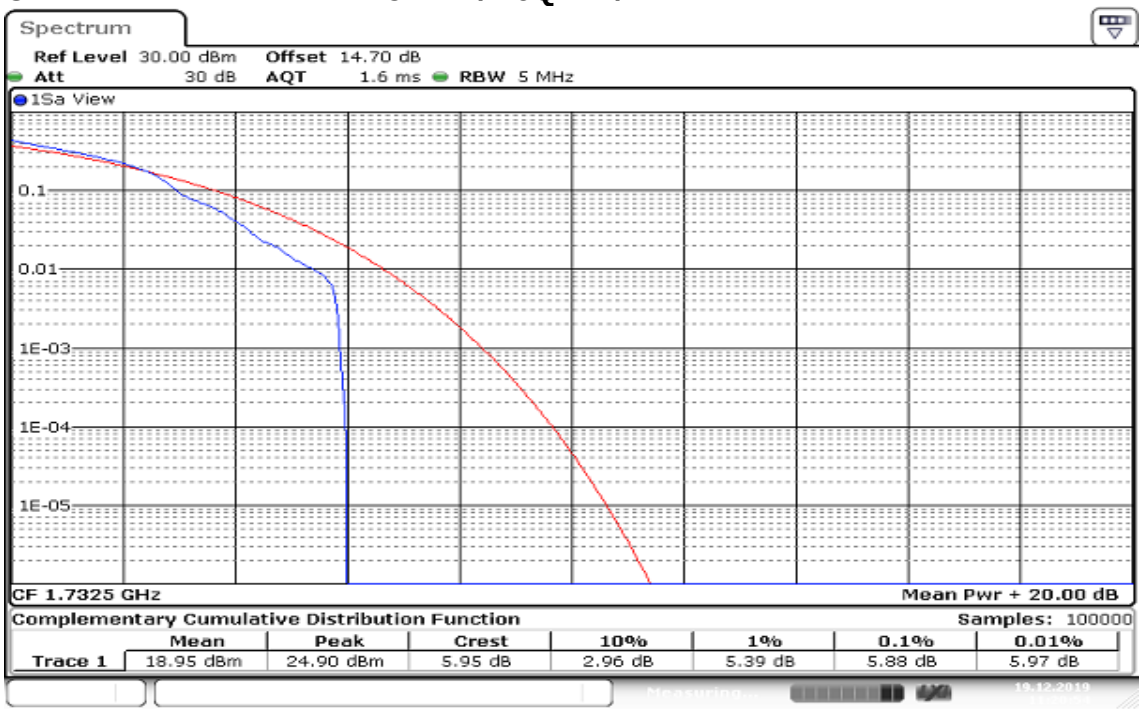
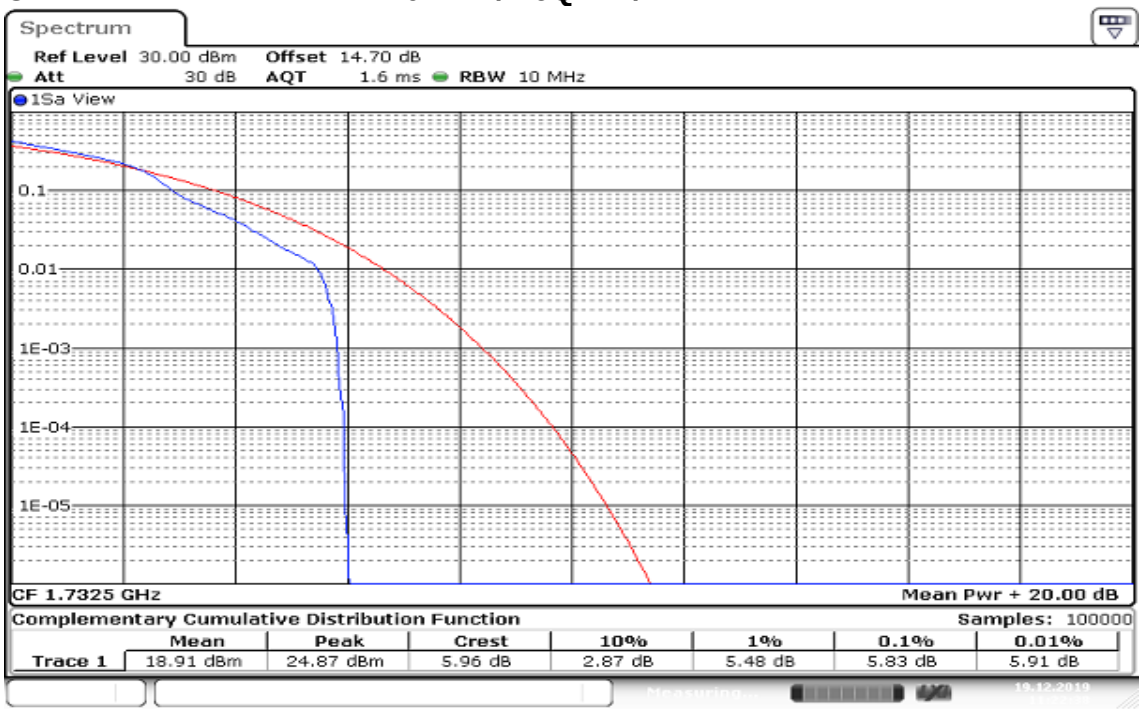
CHANNEL BANDWIDTH: 5MHz / 16QAM /1RB



Date: 19.DEC.2019 11:20:54

CHANNEL BANDWIDTH: 10MHz / 16QAM /1RB



Date: 19.DEC.2019 11:22:38

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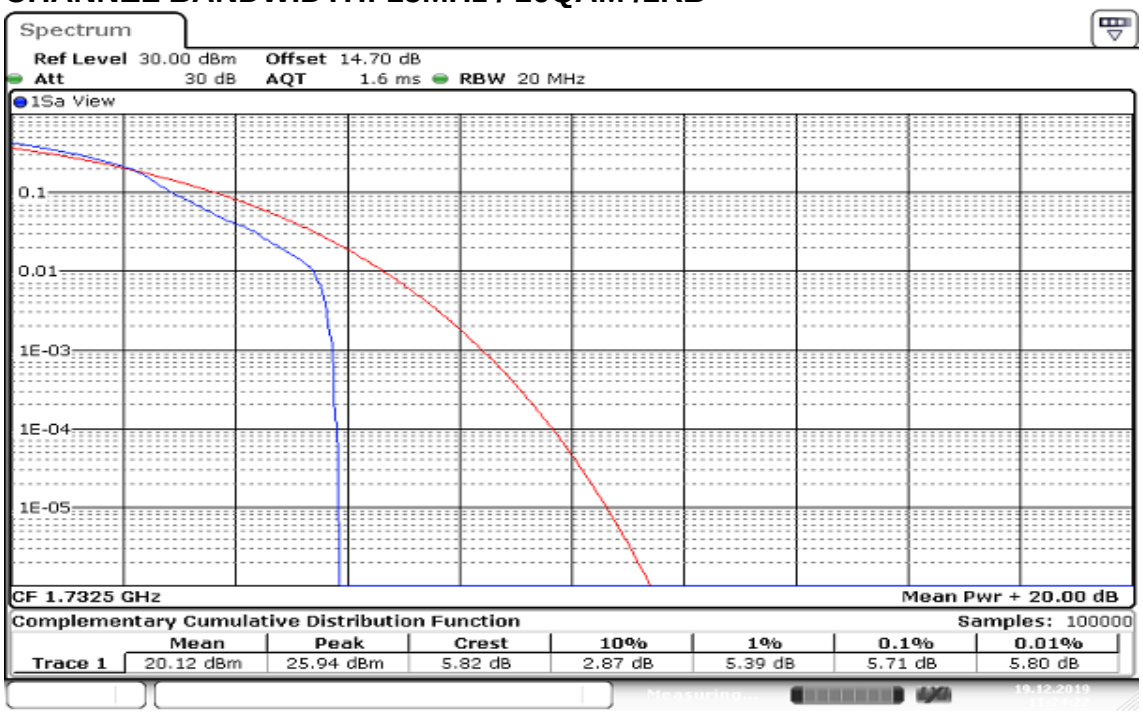
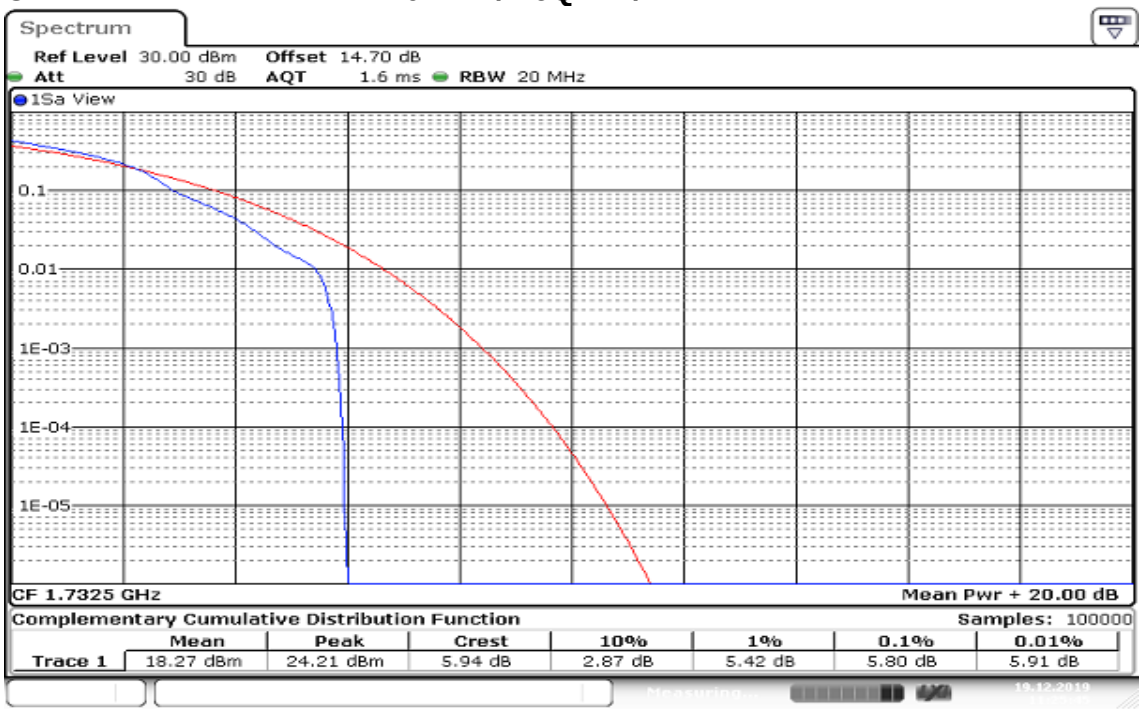
CHANNEL BANDWIDTH: 15MHz / 16QAM /1RB



Date: 19.DEC.2019 11:24:22

CHANNEL BANDWIDTH: 20MHz / 16QAM / 1RB



Date: 19.DEC.2019 11:25:46

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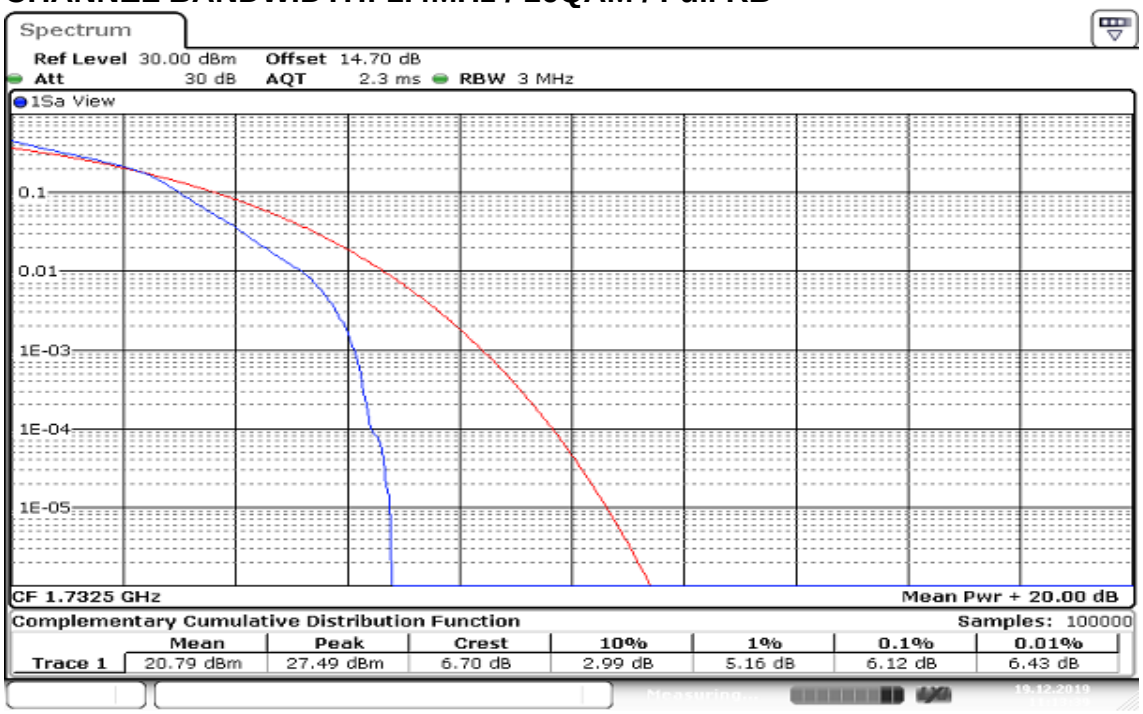
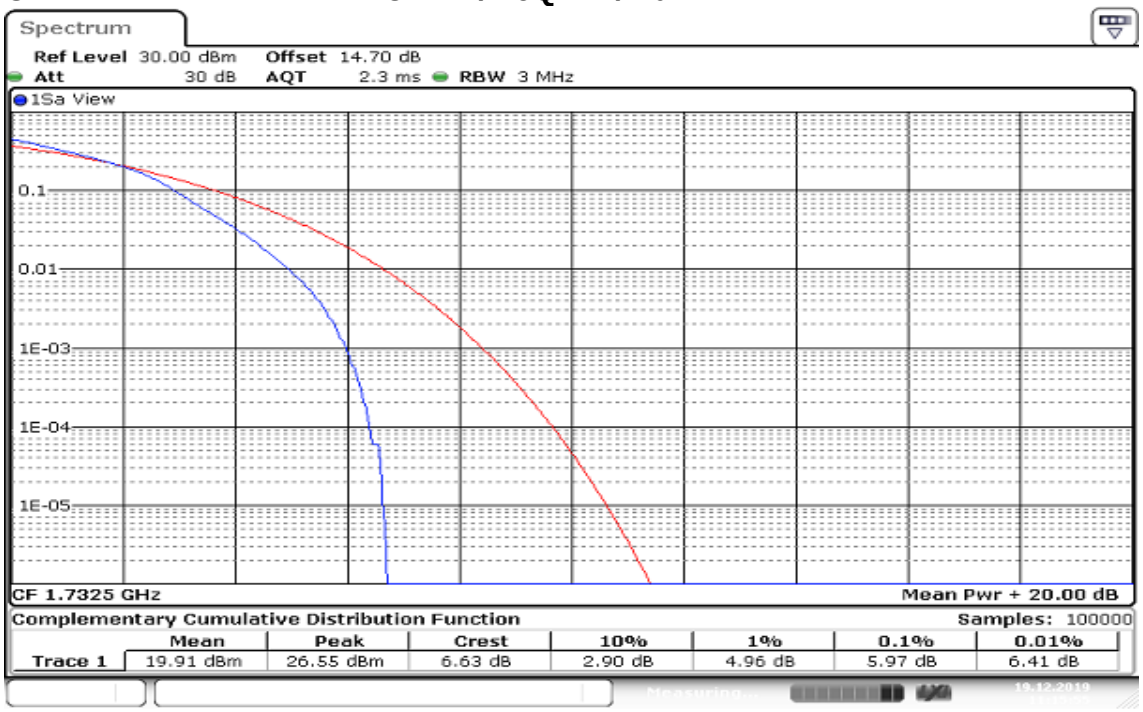
CHANNEL BANDWIDTH: 1.4MHz / 16QAM / Full RB



Date: 19.DEC.2019 11:13:40

CHANNEL BANDWIDTH: 3MHz / 16QAM / Full RB



Date: 19.DEC.2019 11:15:56

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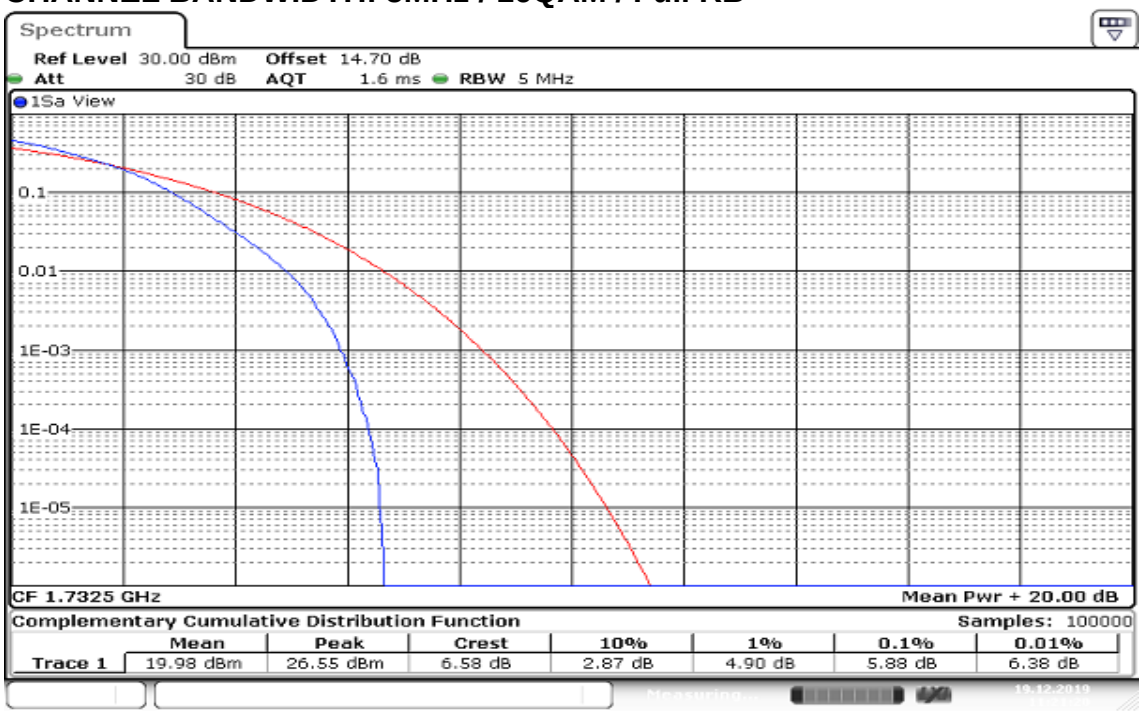
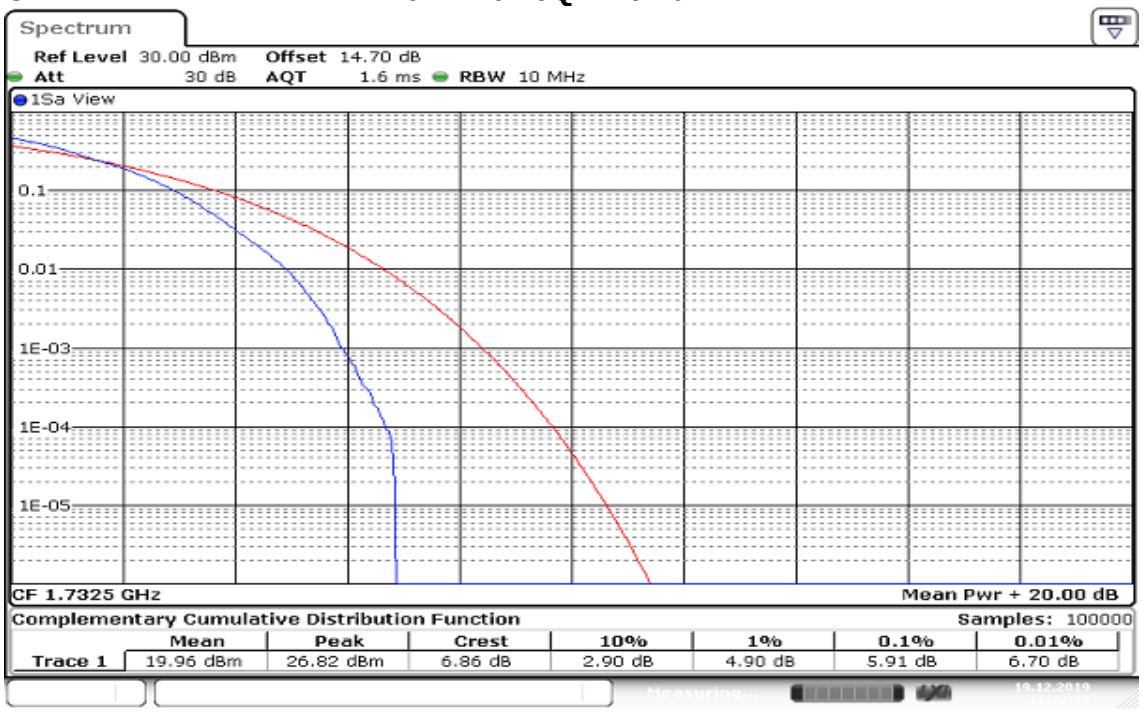
CHANNEL BANDWIDTH: 5MHz / 16QAM / Full RB



Date: 19.DEC.2019 11:21:20

CHANNEL BANDWIDTH: 10MHz / 16QAM / Full RB



Date: 19.DEC.2019 11:22:20

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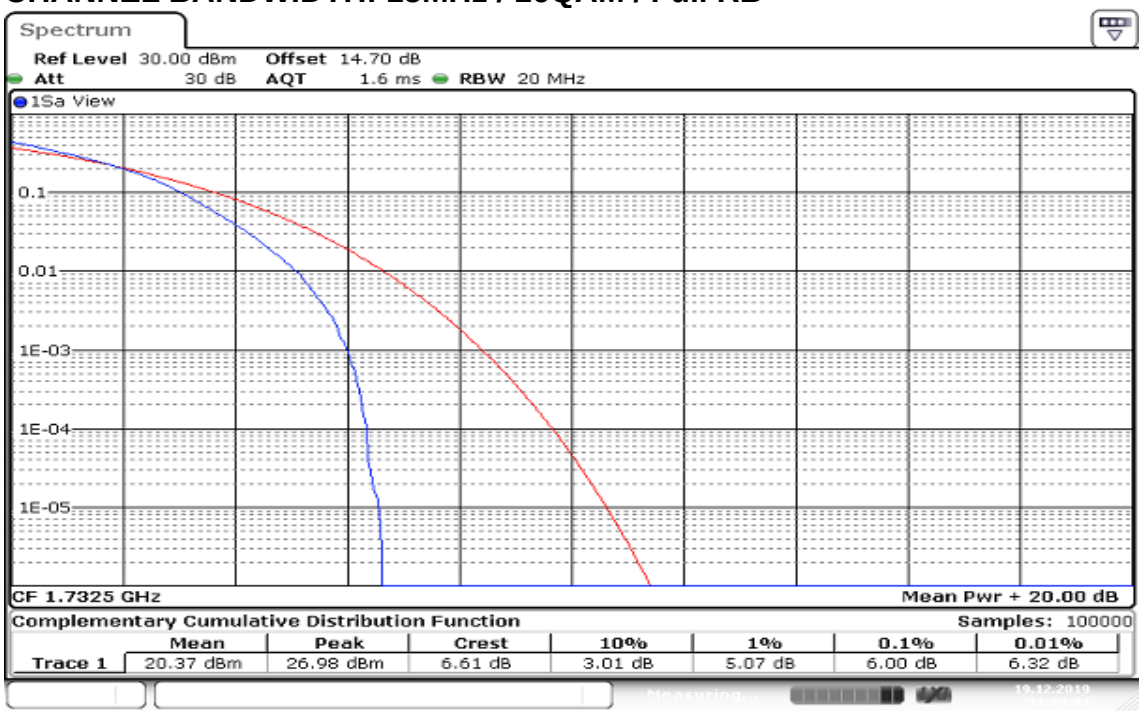
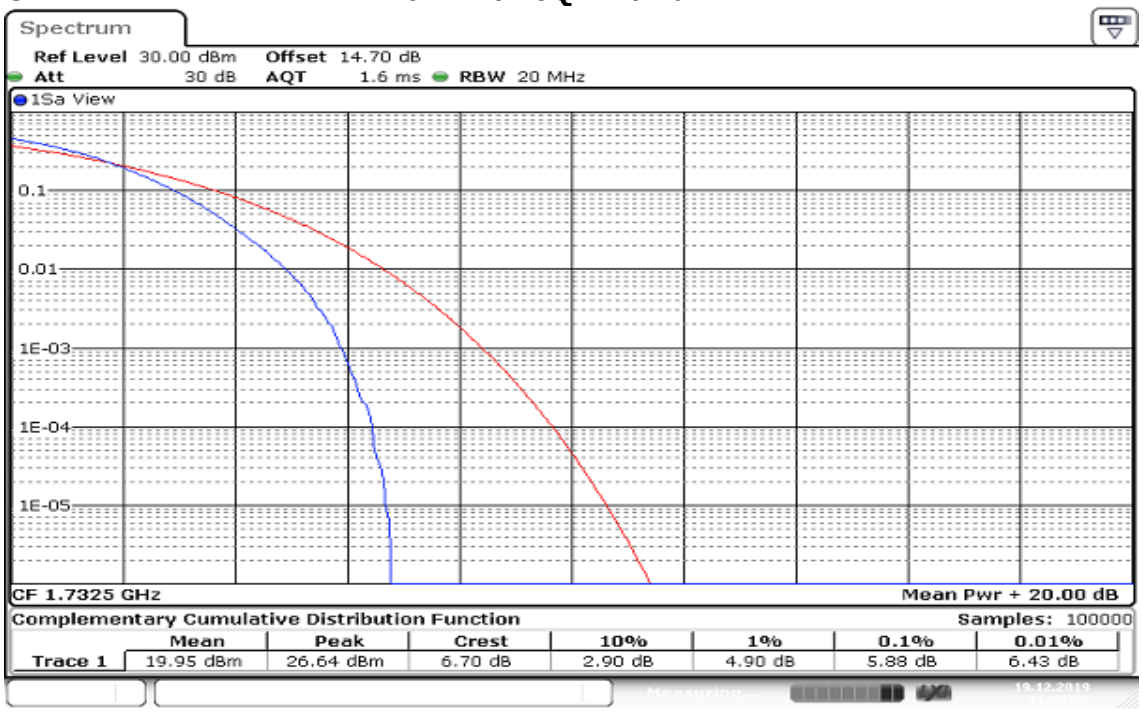
CHANNEL BANDWIDTH: 15MHz / 16QAM / Full RB



Date: 19.DEC.2019 11:24:01

CHANNEL BANDWIDTH: 20MHz / 16QAM / Full RB



Date: 19.DEC.2019 11:25:25

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