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

TEST REPORT

For

GUARDIAN SYSTEM LTE

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

Trade Name: GUARDIAN

Issued to

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

Issued by

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

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

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Revision History

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

Rev (01):

1. Revised Antenna type.

2. Revised section 5.2 DC Power Supplies Cal Due date indication.

3. Added section 6.3.

4. Revised section 8.2 Test Procedure and Test Results.

5. Revised 100%RB to Full RB.

6. The worst case in section 8.6 is 1RB

7. Added section 8.7 Test Configuration.

Rev (02):

1. Revised section 2 power supply.

Rev (03):

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



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1. TEST RESULT CERTIFICATION

FCC Applicant:	Seeing Machines Pty Ltd 80 Mildura Street, Fyshwick, ACT , Canberra 2609 Australia
IC Applicant:	Seeing Machines Ltd. 80 Mildura Street Fyshwick ACT 2609 Australia
Manufacturer:	ADLINK TECHNOLOGY INC. 9F, No. 166, Jian Yi Rd., Zhonghe Dist., New Taipei City, 235 Taiwan
Equipment Under Test:	GUARDIAN SYSTEM LTE
Trade Name:	GUARDIAN
FCC Model No.:	G2-SY-CON2
IC Model No.:	G2-SY-CON2-1002244
Date of Test:	December 23, 2019 ~ January 8, 2020



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APPLICABLE STANDARDS					
Standard	TEST RESULT				
FCC Part 27, Subpart C, M, FCC Part 2					
&	No non-compliance noted				
RSS-199 Issue 3 December 2016					
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:

Komil Tson

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 41	QPSK, 16	6 QAM		
	LTE Band 41 Channel Bandwidth: 5MHz	2498.5M	Hz ~2687	.5MHz	
	LTE Band 41 Channel Bandwidth: 10MHz	2501MHz ~2685MHz		Hz	
Frequency Range	LTE Band 41 Channel Bandwidth: 15MHz	2503.5MHz ~2682.5MHz			
	LTE Band 41 Channel Bandwidth: 20MHz	2506MHz ~2680MHz			
	LTE Band 41 Channel Bandwidth: 5MHz	QPSK 16QAM	22.39 21.94	dBm dBm	
Transmit Power	LTE Band 41 Channel Bandwidth: 10MHz	QPSK 16QAM	21.69	dBm dBm	
(EIRP Power)	LTE Band 41 Channel Bandwidth: 15MHz	QPSK 16QAM		dBm dBm	
	LTE Band 41 Channel Bandwidth: 20MHz	QPSK 16QAM	22.50 22.00	dBm dBm	
Antenna Specification	Dipole Antenna Band 41 Antenna gain: 0.1 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 41: 2496MHz ~ 2690MHz

Three channels had been tested for each channel bandwidth.

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



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3.2 THE WORST MODE OF MEASUREMENT

Radiated Emission Measurement Above 1G					
Test Condition	Radiated Emission Above 1G				
Power supply Mode	Mode 1: EUT power by Power supply				
Worst Mode	🛛 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	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
2.1046 27.50(h)(2)	RSS-199, section 4.4	8.1 ERP and EIRP Measurement		Pass
2.1055, 27.54	RSS-199 section 4.3	8.2	Frequency Stability v.s. temperature measurement	Pass
2.1049	RSS-GEN 6.7 RSS-199, section 4.2	8.3	Occupied Bandwidth Measurement	Pass
27.53(h)	RSS-199 section 4.5	8.4	Peak to Average Ratio	Pass
27.53(h)	RSS-199 section 4.5	8.5	Conducted Band Edge	Pass
27.53(h)	RSS-199 section 4.5	8.6	Conducted Spurious Emission	Pass
27.53(h)	Spurious Badiation		Spurious Radiation	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	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 EIRP MEASUREMENT

LIMIT

According to FCC §2.1046

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

RSS-199 § 4.4,

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

TEST PROCEDURES

CONDUCTED POWER MEASUREMENT:

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

TEST RESULTS

No non-compliance noted.



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LTE Band 41

	Bune								
Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	EIRP Power (dBm)
					1	0	0	22.04	22.14
					1	12	0	22.24	22.34
					1	24	0	21.94	22.04
				QPSK	12	0	1	21.84	21.94
				Q , D ,	12	6	1	22.24	22.34
					12	11	1	22.04	22.14
					25	0	1	21.54	21.64
		39675	2498.5		1	0	1	21.44	21.54
					1	12	1	21.34	21.44
					1	24	1	21.84	21.94
				16QAM		0	2	20.94	21.04
					12	6	2	21.54	21.64
					12	11	2	21.04	21.14
					25	0	2	20.94	21.04
					1	0	0	21.21	21.31
				QPSK	1	12	0	21.39	21.49
					1	24	0	21.11	21.21
					12	0	1	21.61	21.71
					12	6	1	21.91	22.01
					12	11	1	21.41	21.51
			2593.0		25	0	1	21.71	21.81
Band 41	5M	40620			1	0	1	21.11	21.21
					1	12	1	21.61	21.71
					1	24	1	20.91	21.01
				16QAM		0	2	20.81	20.91
					12	6	2	20.81	20.91
					12	11	2	20.51	20.61
					25	0	2	20.61	20.71
					1	0	0	20.89	20.99
					1	12	0	22.29	22.39
					1	24	0	21.19	21.29
				QPSK	12	0	1	21.39	21.49
					12	6	1	21.29	21.39
					12	11	1	21.49	21.59
			2607 5		25	0	1	21.39	21.49
		41565	41565 2687.5		1	0	1	19.99	20.09
					1	12	1	21.49	21.59
					1	24	1	20.89	20.99
				16QAM	12	0	2	20.39	20.49
					12	6	2	20.79	20.89
					12	11	2	20.49	20.59
					25	0	2	20.39	20.49



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Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	EIRP Power (dBm)
					1	0	0	20.09	20.19
					1	24	0	20.29	20.39
					1	49	0	20.11	20.21
				QPSK	25	0	1	20.05	20.15
					25	12	1	20.02	20.12
					25	24	1	19.99	20.09
		20700	2501.0		50	0	1	20.05	20.15
		39700	2501.0		1	0	1	20.04	20.14
					1	24	1	20.03	20.13
					1	49	1	20.89	20.99
				16QAM	25	0	2	19.99	20.09
					25	12	2	20.05	20.15
					25	24	2	20.09	20.19
					50	0	2	19.99	20.09
			QPS		1	0	0	21.23	21.33
					1	24	0	21.35	21.45
				QPSK	1	49	0	21.17	21.27
					25	0	1	21.15	21.25
					25	12	1	21.21	21.31
					25	24	1	21.17	21.27
Devil 11	1014	40620	2502.0		50	0	1	21.33	21.43
Band 41	10M	40620	2593.0		1	0	1	21.19	21.29
					1	24	1	21.59	21.69
					1	49	1	21.09	21.19
				16QAM	25	0	2	20.79	20.89
					25	12	2	20.69	20.79
					25	24	2	20.59	20.69
					50	0	2	20.49	20.59
					1	0	0	20.99	21.09
					1	24	0	21.39	21.49
					1	49	0	21.19	21.29
				QPSK	25	0	1	21.39	21.49
					25	12	1	21.29	21.39
					25	24	1	21.49	21.59
		41540	2605 0		50	0	1	21.59	21.69
		41540	1540 2685.0 -		1	0	1	20.19	20.29
					1	24	1	20.49	20.59
					1	49	1	20.59	20.69
				16QAM		0	2	20.59	20.69
					25	12	2	20.79	20.89
					25	24	2	20.69	20.79
					50	0	2	20.59	20.69



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Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	EIRP Power (dBm)	
					1	0	0	20.10	20.20	
					1	37	0	20.30	20.40	
					1	74	0	20.12	20.22	
				QPSK	36	0	1	20.06	20.16	
					36	18	1	20.03	20.13	
					36	35	1	20.00	20.10	
		39725	2503.5		75	0	1	20.06	20.16	
		55725	2303.5		1	0	1	20.05	20.15	
					1	37	1	20.04	20.14	
					1	74	1	20.90	21.00	
				16QAM	36	0	2	20.00	20.10	
					36	18	2	20.06	20.16	
					36	35	2	20.10	20.20	
					75	0	2	20.00	20.10	
					1	0	0	21.24	21.34	
				QPSK	1	37	0	21.36	21.46	
					1	74	0	21.18	21.28	
					36	0	1	21.16	21.26	
					36	18	1	21.22	21.32	
					36	35	1	21.18	21.28	
Band 41	15M	40620	2593.0		75	0	1	21.34	21.44	
Dana 41	13141	40020	2393.0	2333.0		1	0	1	21.20	21.30
					1	37	1	21.60	21.70	
					1	74	1	21.10	21.20	
				16QAM	36	0	2	20.80	20.90	
					36	18	2	20.70	20.80	
					36	35	2	20.60	20.70	
					75	0	2	20.50	20.60	
					1	0	0	21.00	21.10	
					1	37	0	21.40	21.50	
					1	74	0	21.20	21.30	
				QPSK	36	0	1	21.40	21.50	
					36	18	1	21.30	21.40	
					36	35	1	21.50	21.60	
		41515	2682.5		75	0	1	21.60	21.70	
		71313	41515 2682.5		1	0	1	20.20	20.30	
					1	37	1	20.50	20.60	
					1	74	1	20.60	20.70	
				16QAM	36	0	2	20.60	20.70	
					36	18	2	20.80	20.90	
					36	35	2	20.70	20.80	
					75	0	2	20.60	20.70	



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Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	EIRP Power (dBm)	
					1	0	0	22.10	22.20	
					1	49	0	22.30	22.40	
					1	99	0	22.00	22.10	
				QPSK	50	0	1	21.90	22.00	
					50	24	1	22.30	22.40	
					50	49	1	22.10	22.20	
		39750	2506.0		100	0	1	21.60	21.70	
		33730	2300.0		1	0	1	21.50	21.60	
					1	49	1	21.40	21.50	
					1	99	1	21.90	22.00	
				16QAM	50	0	2	21.00	21.10	
					50	24	2	21.60	21.70	
					50	49	2	21.10	21.20	
					100	0	2	21.00	21.10	
					1	0	0	21.30	21.40	
					1	49	0	21.48	21.58	
					1	99	0	21.20	21.30	
				QPSK	50	0	1	21.70	21.80	
					50	24	1	22.00	22.10	
					50	49	1	21.50	21.60	
Band 41	20M	40620	2593.0		100	0	1	21.80	21.90	
Ballu 41	20101	40020	2393.0	2393.0		1	0	1	21.20	21.30
				16QAM	1	49	1	21.70	21.80	
					1	99	1	21.00	21.10	
					50	0	2	20.90	21.00	
					50	24	2	20.90	21.00	
					50	49	2	20.60	20.70	
					100	0	2	20.70	20.80	
					1	0	0	21.00	21.10	
					1	49	0	22.40	22.50	
					1	99	0	21.30	21.40	
				QPSK	50	0	1	21.50	21.60	
					50	24	1	21.40	21.50	
					50	49	1	21.60	21.70	
		11/00	2680.0		100	0	1	21.50	21.60	
		41490 268	2000.0		1	0	1	20.10	20.20	
					1	49	1	21.60	21.70	
					1	99	1	21.00	21.10	
				16QAM	50	0	2	20.50	20.60	
					50	24	2	20.90	21.00	
					50	49	2	20.60	20.70	
					100	0	2	20.50	20.60	



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8.2 FREQUENCY STABILITY MEASUREMENT

<u>LIMIT</u>

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

According to RSS -199 section 4.3,

The transmitter frequency stability limit shall be determined as follows:

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

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

TEST PROCEDURE

Use Anritsu 8820 with frequency Error measurement capability.

Temp = -40° C to $+65^{\circ}$ C

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

The Worst case: DC 12V

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



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TEST RESULTS

FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT: LTE Band 41

R	Reference Frequency: LTE Band 41 Max Bandwidth QPSK, 2593 MHz								
Limit: ± 2.5 ppm = 6482.5 Hz									
Power Supply	Environment	Environment Frequency Error Frequency Error							
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)					
12	65	0.01	0.000004						
12	50	0.01	0.000004						
12	40	-0.01	-0.000004						
12	30	0.00	0.000000						
12	20	0.00	0.000000						
12	10	0.02	0.00008	+/- 2.5					
12	0	0.01	0.000004						
12	-10	-0.01	-0.000004						
12	-20	0.02	0.00008						
12	-30	0.01	0.000004						
12	-40	0.00	0.000000						

Re	Reference Frequency: LTE Band 41 Max Bandwidth 16QAM, 2593 MHz								
Limit: ± 2.5 ppm = 6482.5 Hz									
Power Supply	Environment	Limit (ppm)							
Vdc	Temperature (°C)	(Hz)	(ppm)	(ppm)					
12	65	0.01	0.000004						
12	50	-0.01	-0.000004						
12	40	0.01	0.000004						
12	30	0.00	0.000000						
12	20	0.00	0.000000						
12	10	0.02	0.00008	+/- 2.5					
12	0	0.02	0.00008						
12	-10	-0.01	-0.000004						
12	-20	-0.01	-0.000004						
12	-30	0.00	0.000000						
12	-40	0.01	0.000004						



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FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT:

LTE Band 41

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

Re	Reference Frequency: LTE Band 41 Max Bandwidth 16QAM, 2593 MHz								
	Limit: ± 2.5 ppm = 6482.5 Hz								
Power Supply Environment Frequency Error Frequency Error Limit (ppm)									
Vdc	dc Temperature (°C) (Hz)		(ppm)	(ppm)					
10.2	20	-0.01	-0.000004						
12 20		0.00	0.000000	+/- 2.5					
13.8	3 20 0.00 0.00000								



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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 \ge 3 x RBW
- 4. Detector = Peak
- 5. Trace mode = max. hold



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TEST RESULTS

LTE Band 41

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	OBW(99%)(MHz)	26 dB Bandwidth(MHz)
	F	Middle	2535.0	QPSK	4.4863	4.9490
	5	Middle	2535.0	16QAM	4.4718	4.9350
	10	Middle	2535.0	QPSK	8.9436	10.4920
44	10	Middle	2535.0	16QAM	8.9146	9.6240
41	15	Middle	2535.0	QPSK	13.4588	16.0490
	15	Middle	2535.0	16QAM	13.4588	16.7870
	20	Middle	2535.0	QPSK	18.0608	19.9710
	20	Middle	2535.0	16QAM	18.0029	20.2600



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

T Spectrum Ref Level 30.00 dBm Offset 14.70 dB 👄 RBW 50 kHz 500 ms 👄 VBW 200 kHz 30 dB 👄 SWT Att Mode Auto Sweep ⊖1Pk View D3[1] 1.78 dB 4.9490 MHz 20 dBm-MOcc Bw 4.486251809 MHz 01 13.280 dBm-Τ1 13.28 dBm 10 dBm-2.5937530 GHz 0 dBm--10 dBm--D2 -12.720 dBm--20 dBm al a -30 dBm -40 dBm--50 dBm--60 dBm-FI CF 2.593 GHz 691 pts Span 10.0 MHz Marker Type | Ref | Trc Function **Function Result** X-value Y-value 2.593753 GHz 13.28 dBm M1 1 2.5907569 GHz 2.5952431 GHz T1 T2 8.66 dBm 7.86 dBm 4.486251809 MHz Occ Bw 1 M2 2.590511 GHz -13.25 dBm 1 M2 D3 4.949 MHz 1.78 dB

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CHANNEL BANDWIDTH: 5MHz / 16QAM CH Mid

Spectrum							
Ref Level			14.70 dB				
Att	30) dB 👄 SWT	500 ms	VBW 200 kH	z Mode Auto	Sweep	
●1Pk View							
					D3[1]		2.47 d 4.9350 MH
20 d8m —					MOCC BW		4.471780029 MF
	1 12.3	90 dBm 1	- A		a a a a a a a a a a a a a a a a a a a	T2	12.39 dB
10 dBm		7		Apower -		my	2.5938100 GH
-10 dBm —		Ma				<u> </u>	
		-13.610 gBm-					and a state of the second s
-20 dBm	. ub	LAULUN C	1				
-30 dBm	w	11-					• • • • •
-30 0000							
-40 dBm							
-50 dBm			+				
-60 dBm							
-00 0800		F1				F2	
05 0 500 01							
CF 2.593 GF	1Z			691 p	(S		Span 10.0 MHz
Marker	1 - 1				1	_	
Type Ref M1	Trc 1	X-valu	e 381 GHz	<u>Y-value</u> 12.39 dBm	Function	F	unction Result
T1	1	2.593		8.28 dBm	Occ Bw		4.471780029 MHz
T2	1	2.59522		9.19 dBm			4.47 1700029 MHz
M2	1		196 GHz	-14.95 dBm			
D3 M2	1	4.9	35 MHz	2.47 dB			
	Π				Measuring.		23.12.2019

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CHANNEL BANDWIDTH: 10MHz / QPSK CH Mid

Spectrum						E.
Ref Level	30.00	Bm Offset 14.70 c	18 👄 RBW 100 kHz			· · · · · · · · · · · · · · · · · · ·
Att	30	dB 👄 SWT 500 m	ns 👄 VBW 300 kHz	Mode Auto	Sweep	
1Pk View						
				D3[1]		2.09 d
20 dBm —						10.4920 MH
		T1		Occ Bw	M1 T2	8.943560058 MH
10 dBm	01 13.0	UU dBm grow	v mmmm	WWW ANS [1]	my	13.00 dB
I						2.5967050 GH
0 dBm						
-10 dBm						
-10 UBIII	D2	-13.000 dBm				
-20 dBm	b Ile					a management
marthour	سالمهام	w				and a street
-30 dBm —						
-40 dBm						
-50 dBm						
-50 abiii						
-60 dBm —					F	,
I		F1			'ì	
CF 2.593 G	Ηz		691 pts	5		Span 20.0 MHz
1arker						
Type Ref	Trc	X-value	Y-value	Function	Fu	nction Result
M1	1	2.596705 GHz	13.00 dBm			
T1	1	2.5885427 GHz	9.18 dBm	Occ Bw		8.943560058 MHz
T2 M2	1	2.5974863 GHz 2.588065 GHz	9.64 dBm -14.35 dBm			
D3 M2		2.588065 GHZ 10.492 MHz	-14.35 dBm 2.09 dB			
00 102		201492 14112	2109 00			

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CHANNEL BANDWIDTH: 10MHz / 16QAM CH Mid

Spectrum											E
Ref Level 3	0.00 dBm	Offset 14	.70 dB 👄 I	RBW 100	kHz						
Att 🗧	30 dB	👄 SWT 5	00 ms 👄	VBW 300	kHz	Mode /	Auto S	Sweep			
o1Pk View											
						D3[:	1]				1.82 dE
20 dBm											9.6240 MH
	13.850					000	DV4	M1		8.914	516498 MH
10 dBm	13,0301	700	مهمد کوست		m	<u>~~~</u> ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	bl.vv	wit			13.85 dBn
						1				2.5	967630 GH
0 dBm											
-10 dBm		MZ						- A	3		
-10 UBIII-	-D2 -12	.150 dem									
-20 clam	~~~	www							\sim	w	<u> </u>
	- how	100 -							~	and	m
-30 dBm											+
-40 dBm											
-50 dBm											
-60 dBm								E			
		F1									
CF 2.593 GH	z			691	nts					Spa	n 20.0 MHz
Marker				071	0.00					0,00	2010 1111
Type Ref	Trel	X-value	1	Y-value	1	Functio	in 1		Euno	tion Resu	t
M1	1	2.596763		13.85 dB	m	- anotic			. and	Alon Rosu	~
T1	1	2.5885427	GHz	9.29 dB	m	Occ	Bw			8.9146	516498 MHz
T2	1	2.5974573	GHz	9.14 dB							
M2	1	2.58818		-13.26 dB							
D3 M2	1	9.6241	MHz	1.82 0	iB 📃						
						Measu	rin a			4.363	23.12.2019

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CHANNEL BANDWIDTH: 15MHz / QPSK CH Mid

Spectrum							
Ref Level	30.00	dBm Offset	14.70 dB	RBW 200 kH;	2		· · · · · · · · · · · · · · · · · · ·
Att	31	0 dB 👄 SWT	500 ms	VBW 1 MH;	Mode Auto	Sweep	
1Pk View							
					D3[1]		1.59 d
20 d8m							16.0490 MH
	11 14 9	90 dBm 71		The second second	Occ Bw	T2	13.458755427 MH
10 dBm	24 A.T.S	Yo doin Y		and and the second s	<u>^</u>	my	14.59 dBr
				1 1		. \	2.5895700 GH
0 dBm —				+ +			
		M2 ~				03	
-10 dBm	D2	-11.4 0 dBm-				-	
-20 dBm		\mathcal{A}					m
20 0000	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						
-30 dBm							
				1 1			
-40 dBm —							
50 d0				1 1			
-50 dBm							
-60 dBm							
		Fi		1 1		F2	
CF 2.593 G	47			691 pt			Span 30.0 MHz
larker	12			071 pt	3		0001 00:0 0012
	Trc	X-valu	e	Y-value	Function	E	Inction Result
M1	1		957 GHz	14.59 dBm	ranoción		incloir Result
T1	1	2.5862		10.14 dBm	Occ Bw		13.458755427 MHz
T2	1	2.59972	94 GHz	10.36 dBm			
M2	1		708 GHz	-12.46 dBm			
D3 M2	2 1	16.0	49 MHz	1.59 dB			
	1				Measuring.		23.12.2019

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CHANNEL BANDWIDTH: 15MHz / 16QAM CH Mid

Spectrum									Ē
Ref Level Att		dBm Offset DdB 👄 SWT	14.70 dB 500 ms	RBW 200	kHz MHz	Mode Auto S	Sweep		· · · ·
∋1Pk View									
						D3[1]			1.96 d
20 dBm					\perp				16.7870 MH
		20 dBm T1	M1			Occ Bw	т2	13.45	8755427 MF
10 dBm	1 13.5	20 0811	m	\sim	<u> </u>	MI 11	ming		13.52 dB
				1	1	1		2	.5888760 GF
0 dBm					+				_
		M2 /		1	1				
-10 dBm	D2	-12.480 dBm-			=				
-20 abra-	m	~~						The	and the second
20 dblight									~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
-30 dBm					+			<u> </u>	
				1	1				
-40 dBm					+				_
				1	1				
-50 dBm				1	+				
-60 dBm									
-00 ubm		F1					F	2	
CF 2.593 GH	łz			69)	l pts			st	oan 30.0 MHz
1arker									
	Trc	X-valu		Y-value	_	Function	F	unction Res	sult
M1	1		76 GHz	13.52 d					
T1	1	2.58627		8.84 d		Occ Bw		13.45	58755427 MHz
T2 M2	1	2.59972	47 GHz	9.36 d -12.97 d					
D3 M2			87 MHz	1.96					
00 102		10.7		1.90				_	
	Л					Measuring	THE OWNER WATER OF	4,40	2011002019

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CHANNEL BANDWIDTH: 20MHz / QPSK CH Mid

Spectrum										E
Ref Level	30.00 di	Bm Offset 1	14.70 dB 🧉	• RBW 500 k	Hz					
Att	30	dB 👄 SWT	500 ms 🧉	• VBW 2 M	Hz Mode	a Auto S	Sweep			
1Pk View										
20 dBm					M1	3[1]				1.30 de 9.9710 MH2
10 dBm	01 18.14	U dBm	~~~~			CG 8w. 1[1]				81476 MH; 18.14 dBn 46210 GH;
0 dBm		M2/						3		
-10 dBm	D2 -	7.860 dbm						men -	- And and a second second	m
-20 dBm	war									Mark
-30 dBm										
-40 dBm										
-50 dBm										
-60 dBm							F	2		
		F1		1 1						
CF 2.593 G	Ηz	· · ·		691	ots				Span	40.0 MHz
4arker										
Type Ref	Trc	X-value		Y-value	Func	tion		Funct	ion Result	1
M1	1	2.59462		18.14 dBr						
T1	1	2.583969		12.09 dBr		cc Bw			18.0607	81476 MHz
T2	1	2.602030		11.56 dBr						
M2	1	2.58282		-8.67 dBr						
D3 M2	1	19.97	1 MHz	1.30 d	B					
	Π				Mea	suring			444	23.12.2019

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CHANNEL BANDWIDTH: 20MHz / 16QAM CH Mid

Spect	um											R
Ref Le	evel 3	30.00 d	Bm Offse	t 14.70 dB	RBW 500 k	Hz						
Att		30	dB 👄 SWT	500 ms	VBW 2 M	1Hz	Mode A	uto S	weep			
1Pk Vie	эw											
							D3[1]]				2.49 d 20.2600 MH
20 dBm-	- 0	1 17.21	0 dBm			M1	1 220					894356 MH
10 dBm-	- 0.	17.21				~~	M1[1		~~**			17.21 dB
									\		. 2.5	938100 GH
0 dBm—	-		M2							3		
-10 dBm	-	D2 -	-8.790 dBm—	_						-		+
20 dBm	-	~~~~								· ····		1-1-2-m
-30 dBm	_								_			
-40 dBm	-											
-50 dBm	-											
-60 dBm	-								E	2		
			F1								1	
CF 2.59	93 GH	z		•	691	pts					Spa	n 40.0 MHz
1arker												
Туре	Ref	Trc	X-valu	ie	Y-value		Function			Fun	ction Resu	lt
M1		1	2.59	381 GHz	17.21 dB	m						
Τ1		1		696 GHz	10.66 dB	m	Occ E	3w			18.002	894356 MHz
T2		1		725 GHz	11.31 dB							
M2		1	2.582	537 GHz	-9.72 dB	m						
D3	M2	1	20	.26 MHz	2.49 d	IB						
							Measur	ing			14/4	23.12.2019

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8.4 PEAK TO AVERAGE POWER RATIO

<u>LIMIT</u>

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 41

CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB

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

CHANNEL BANDWIDTH: 10MHz / QPSK / 1RB

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

CHANNEL BANDWIDTH: 15MHz / QPSK / 1RB

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

CHANNEL BANDWIDTH: 20MHz / QPSK / 1RB

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

CHANNEL BANDWIDTH: 5MHz / QPSK / Full RB

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

CHANNEL BANDWIDTH: 10MHz / QPSK / Full RB

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

CHANNEL BANDWIDTH: 15MHz / QPSK / Full RB

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

CHANNEL BANDWIDTH: 20MHz / QPSK / Full RB

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

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



CHANNEL BANDWIDTH: 5MHz / 16QAM / 1RB

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

CHANNEL BANDWIDTH: 10MHz / 16QAM / 1RB

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

CHANNEL BANDWIDTH: 15MHz / 16QAM / 1RB

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

CHANNEL BANDWIDTH: 20MHz / 16QAM / 1RB

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

CHANNEL BANDWIDTH: 5MHz / 16QAM / Full RB

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

CHANNEL BANDWIDTH: 10MHz / 16QAM / Full RB

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

CHANNEL BANDWIDTH: 15MHz / 16QAM / Full RB

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

CHANNEL BANDWIDTH: 20MHz / 16QAM / Full RB

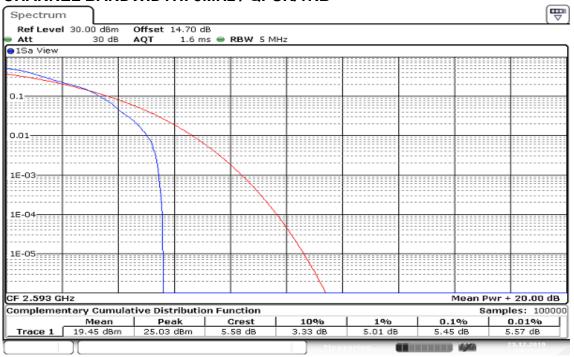
Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
40620	2593	6.78

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



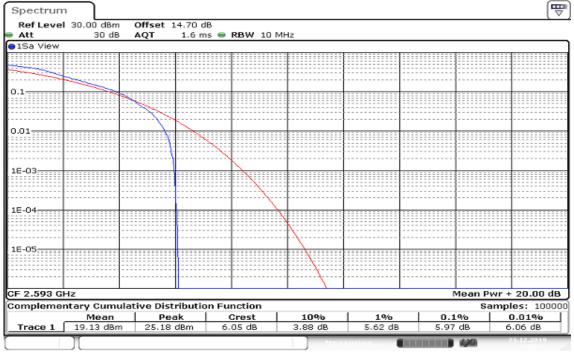
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LTE Band 41 CHANNEL BANDWIDTH: 5MHz / QPSK/1RB



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CHANNEL BANDWIDTH: 10MHz / QPSK /1RB

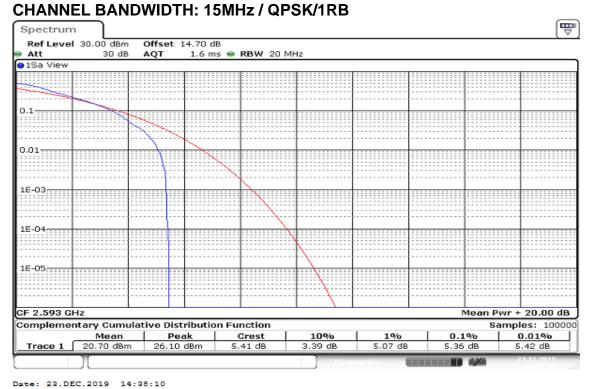


Date: 23.DEC.2019 14:35:16

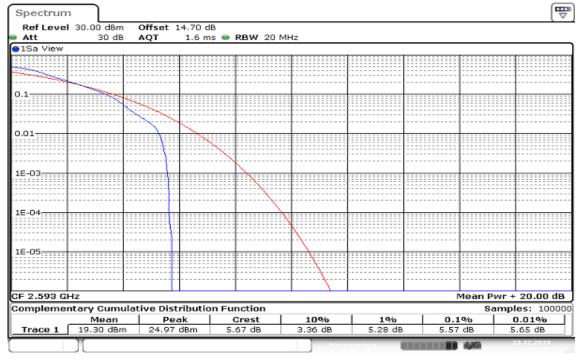


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CHANNEL BANDWIDTH: 20MHz / QPSK /1RB

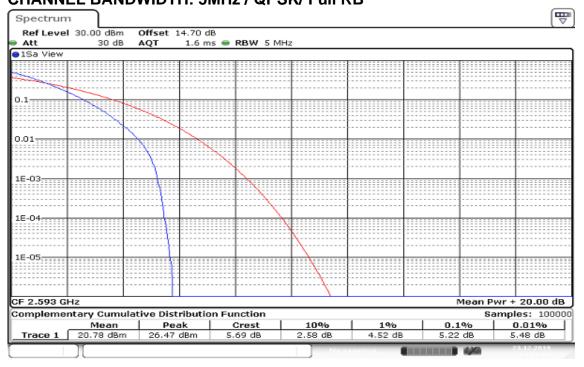


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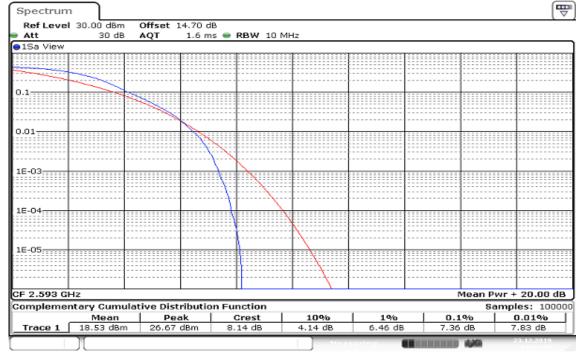
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CHANNEL BANDWIDTH: 5MHz / QPSK/ Full RB



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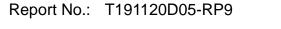
CHANNEL BANDWIDTH: 10MHz / QPSK / Full RB

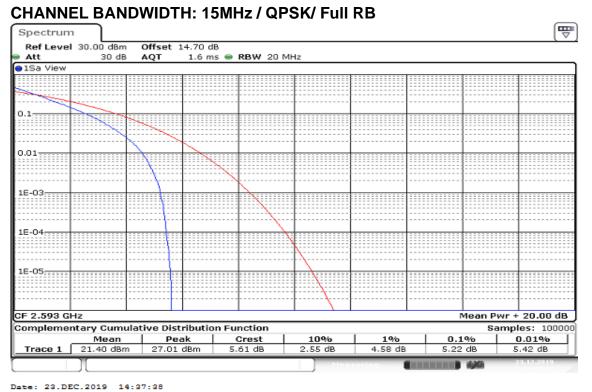


Date: 23.DEC.2019 14:34:50

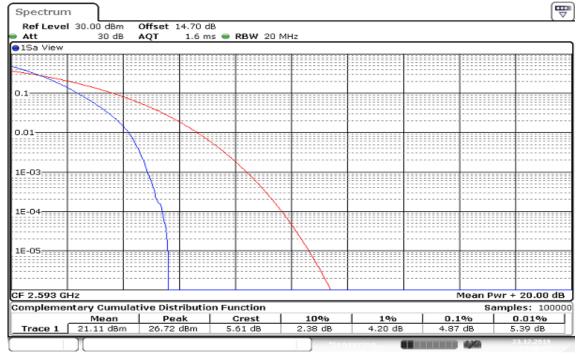


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CHANNEL BANDWIDTH: 20MHz / QPSK / Full RB

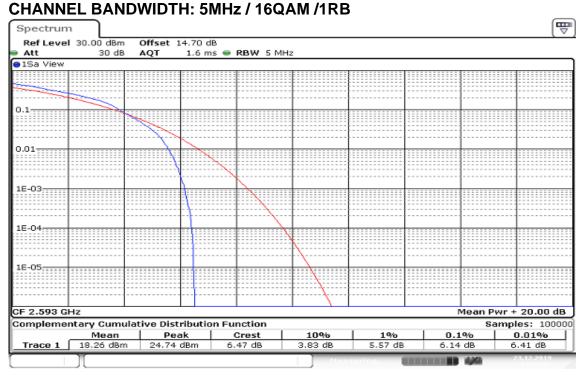


Date: 23.DEC.2019 14:40:38



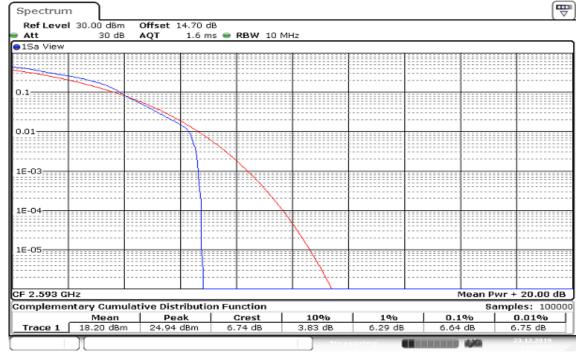
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Report No.: T191120D05-RP9



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

CHANNEL BANDWIDTH: 10MHz / 16QAM /1RB

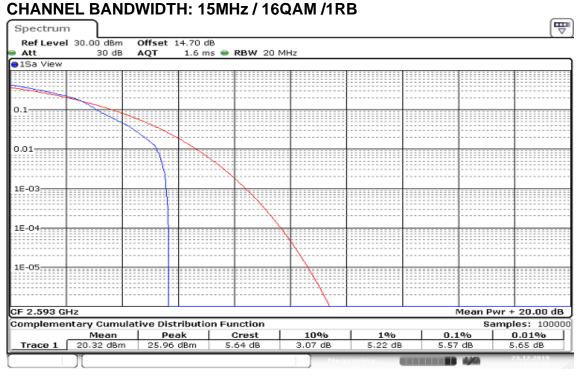


Date: 23.DEC.2019 14:35:50



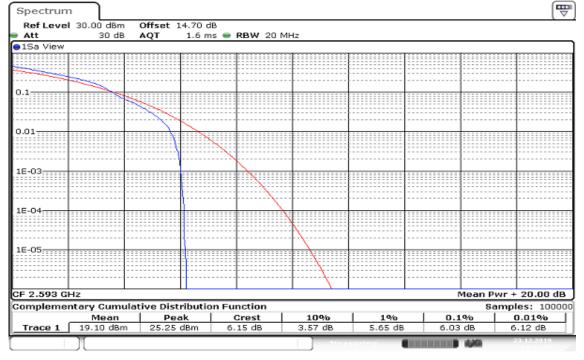
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Report No.: T191120D05-RP9



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

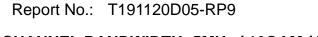
CHANNEL BANDWIDTH: 20MHz / 16QAM /1RB

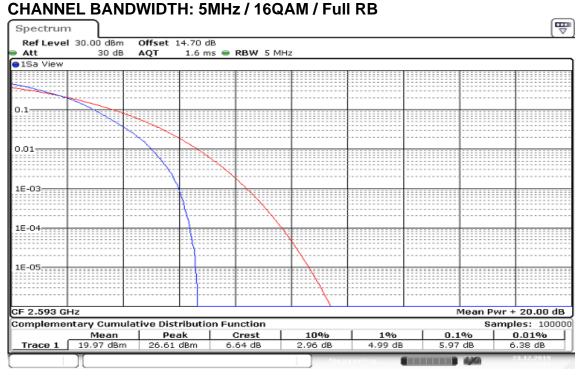


Date: 23.DEC.2019 14:41:38



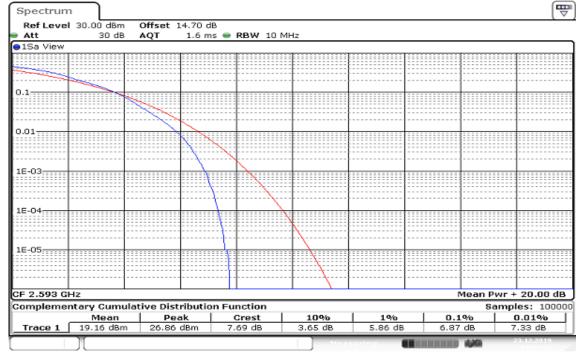
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Date: 23.DEC.2019 14:32:12

CHANNEL BANDWIDTH: 10MHz / 16QAM / Full RB

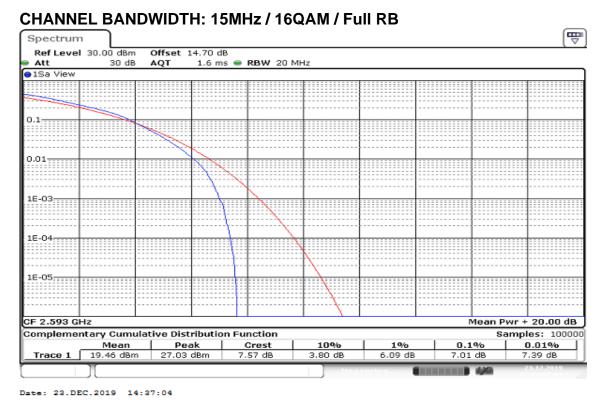


Date: 23.DEC.2019 14:34:23

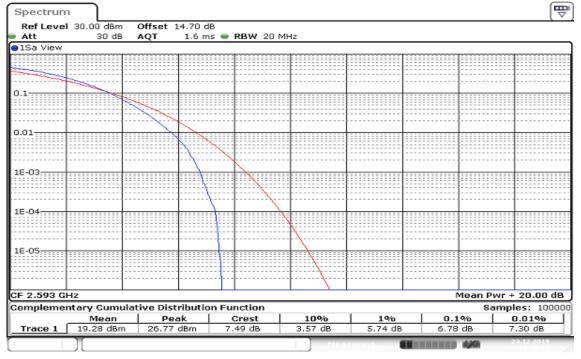


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CHANNEL BANDWIDTH: 20MHz / 16QAM / Full RB



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



8.5 BAND EDGE MEASUREMENT

<u>LIMIT</u>

Part 27.53(m) (4), Band 41

Specifies that "for BRS and EBS stations. For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(4) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

According to RSS-199, Band 41

For mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least: (i) 40 + 10 log10 p from the channel edges to 5 MHz away (ii) 43 + 10 log10 p between 5 MHz and X MHz from the channel edges, and (iii) 55 + 10 log10 p at X MHz and beyond from the channel edges

In addition, the attenuation shall not be less than 43 + 10 log10 p on all frequencies between 2490.5 MHz and 2496 MHz, and 55 + 10 log10 p at or below 2490.5 MHz.

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

TEST PROCEDURES

KDB 971168 D01 Power Meas License Digital Systems - Section 6.0

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

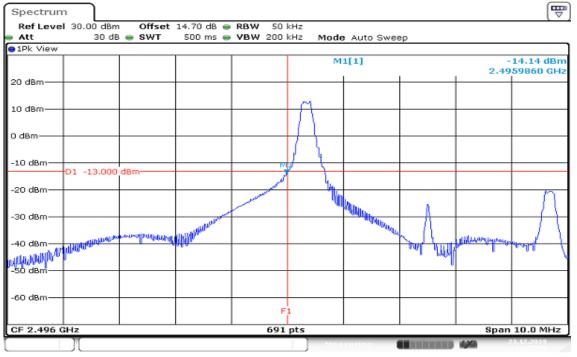
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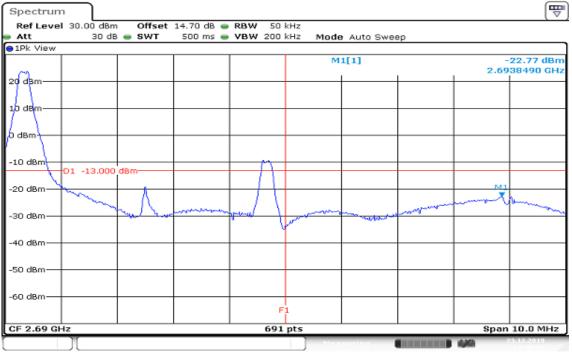
Report No.: T191120D05-RP9

TEST RESULTS: LTE Band 41 CHANNEL BANDWIDTH: 5MHz / QPSK / 1RB ALLOCATION LOWER BAND EDGE



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

HIGHER BAND EDGE



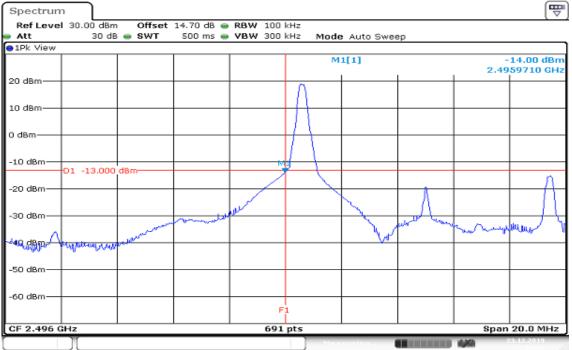
Date: 23.DEC.2019 11:40:33



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Report No.: T191120D05-RP9

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



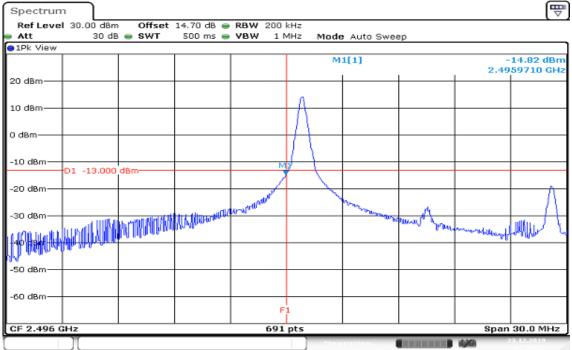
Date: 23.DEC.2019 12:00:26 **HIGHER BAND EDGE B** Spectrum Ref Level 30.00 dBm Offset 14.70 dB 👄 RBW 100 kHz 500 ms 👄 VBW 300 kHz Att 30 dB 👄 SWT Mode Auto Sweep 😑 1 Pk View M1[1] -18.42 dBm 2.6993200 GHz 20 dBm 10 dBm 0 dBn -10 dBm D1 -13.000 dBm M1 -20 dBm--30 dBm 40 dBm -50 dBm -60 dBm-F CF 2.69 GHz 691 pts Span 20.0 MHz Date: 23.DEC.2019 11:53:44



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Report No.: T191120D05-RP9

CHANNEL BANDWIDTH: 15MHz / QPSK / 1RB ALLOCATION



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

HIGHER BAND EDGE B Spectrum Ref Level 30.00 dBm Offset 14.70 dB 👄 RBW 200 kHz Att 30 dB 👄 SWT 500 ms 👄 VBW 1 MHz Mode Auto Sweep 😑 1 Pk View M1[1] -17.81 dBm 2.7033290 GHz 20 dBm 10 dam 0 dBm -10 dBm-D1 -13.000 dBm M1 Χ., -20 dBmman -30 dBm 40 dBm -50 dBm -60 dBm-F 691 pts CF 2.69 GHz Span 30.0 MHz

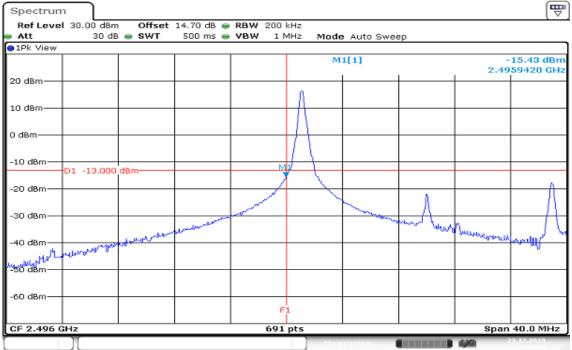
Date: 23.DEC.2019 13:24:33



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Report No.: T191120D05-RP9

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



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

HIGHER BAND EDGE B Spectrum Ref Level 30.00 dBm Offset 14.70 dB 👄 RBW 200 kHz Att 30 dB 👄 SWT 500 ms 👄 VBW 1 MHz Mode Auto Sweep 😑 1 Pk View M1[1] -14.52 dBm 2.7079450 GHz 20 dBm 10 dBm o dBr -10 dBm-М1 D1 -13.000 dBm -20 dBm--30 dBm-Million 40 dBm -50 dBm -60 dBm-F CF 2.69 GHz 691 pts Span 40.0 MHz

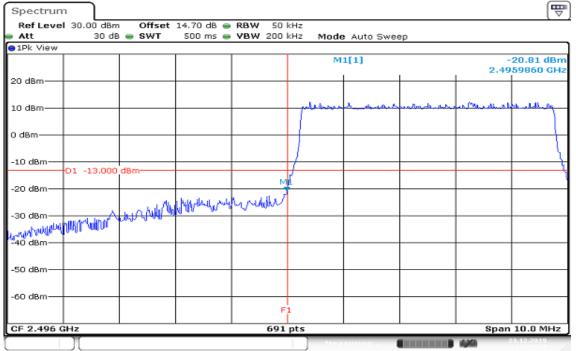
Date: 23.DEC.2019 13:42:43



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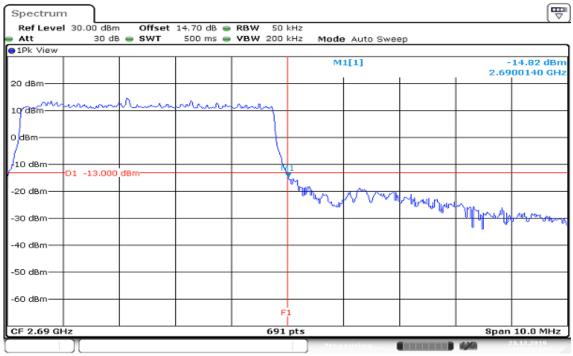
Report No.: T191120D05-RP9

CHANNEL BANDWIDTH: 5MHz / QPSK / FULLRB ALLOCATION



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

HIGHER BAND EDGE



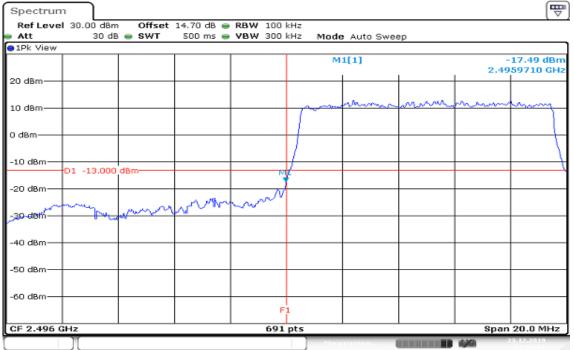
Date: 23.DEC.2019 11:41:32



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Report No.: T191120D05-RP9

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



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

HIGHER BAND EDGE

Spectrum									(4
Ref Level : Att		Offset SWT	14.70 dB 👄 500 ms 👄	RBW 100 VBW 300		e Auto Swe	ер		
1Pk View									
					м	1[1]			-13.07 dBi 000150 GH
20 dBm									
10, d8 %	0 V - V + V + V	- to-work	to war	many					
0 dBm					1				
	1 -13.000	dBm			~				
-30 dBm						vunn	myun	rar	
-40 dBm									
-50 dBm									
-60 dBm									
05.0 (0.0)									00.04
CF 2.69 GHz	2			691	pts			Span	20.0 MHz

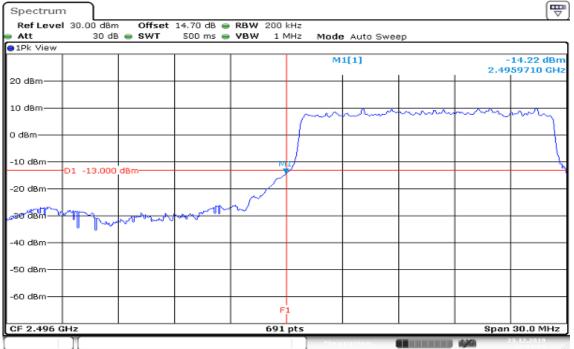
Date: 23.DEC.2019 11:52:21



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Report No.: T191120D05-RP9

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



Date: 23.DEC.2019 12:13:33

HIGHER BAND EDGE

Spectrum	ר								("
Ref Level 30. Att		Offset SWT	14.70 dB 👄 500 ms 👄			Auto Swe	ер		
1Pk View									
					M	1[1]			13.65 dBr 00430 GH
20 dBm									
10/ØBM	m	~~~~	mar	-					
0 dBm									
10 dBm	10.000 d	0			1				
-20 dBm	-13.000 d	Bm			m.	~			
-20 dBm					ζ		2	~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
-30 dBm									
-40 dBm									
-50 dBm									
-60 dBm									
				F	1				
CF 2.69 GHz				691	pts		•	Span	30.0 MHz

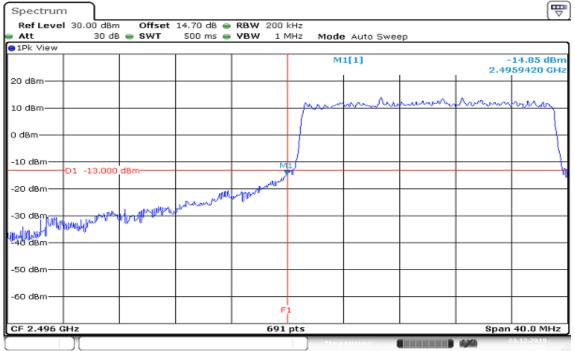
Date: 23.DEC.2019 13:29:59



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Report No.: T191120D05-RP9

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



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

HIGHER BAND EDGE

Spectrum Ref Level	30.00 dBm	Offset	14.70 dB 🧉	RBW 200) kHz				(5
Att	30 dB	swt 👄	500 ms 🦷	VBW 1	MHz Mode	a Auto Swee	ер		
1Pk View									
					м	1[1]			-18.12 dBr 00430 GH
20 dBm				<u> </u>					
	m	mony	mm	my					
0.dBm									
10 dBm	D1 -13.000	d8m			M1				
-20 dBm					Mun-	www.			
-30 dBm							Lowword	and the second	Marine M
-40 dBm									
-50 dBm									
-60 dBm									
CF 2.69 GH	-				F1 1 pts			0	40.0 MHz
2F 2.09 GH	2			09	1 prs			əpan	40.0 MH2

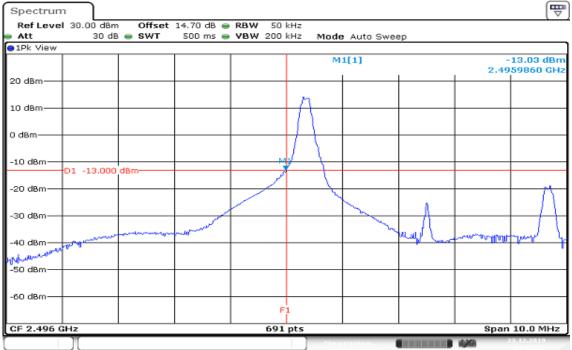
Date: 23.DEC.2019 13:41:24



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Report No.: T191120D05-RP9

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



Date: 23.DEC.2019 11:37:16

HIGHER BAND EDGE

Ref Level 30.00	dBm Offset	14.70 dB 😑 RBW 50) kHz			
	O dB 👄 SWT	500 ms 👄 VBW 200) kHz Mode Aut	o Sweep		
1Pk View			M1[1]	1		2.32 dBr 88060 GH
20 dBm						
-10 dBm 01 -13.	000 d8m				M1	
-30 dBm	-	manuf 1	veron and a second			J.
-40 dBm						
-50 dBm						
-60 dBm			F1			
CF 2.69 GHz		69	1 pts		Span	10.0 MHz

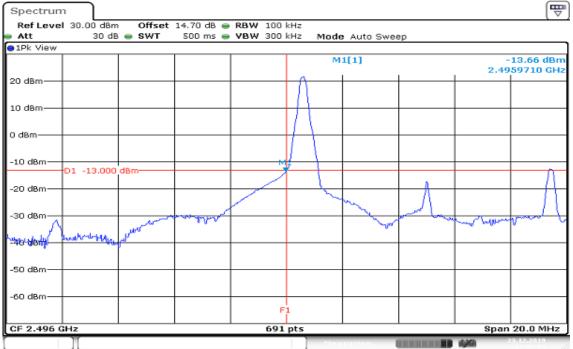
Date: 23.DEC.2019 11:39:20



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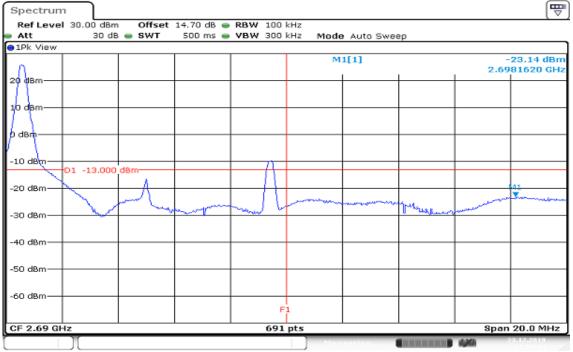
Report No.: T191120D05-RP9

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



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

HIGHER BAND EDGE



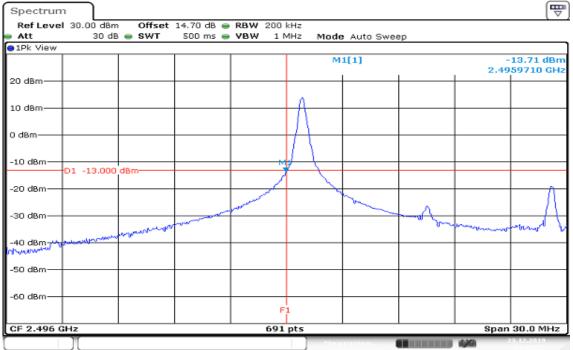
Date: 23.DEC.2019 11:55:14



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Report No.: T191120D05-RP9

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



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

HIGHER BAND EDGE

Att 30 db SWT 500 ms VBW 1 MHz Mode Auto Sweep 1Pk View M1[1] -16.17 dbr 2.7034150 GH 20 dbm 2.7034150 GH 10 dbm 0 0 10 dbm 0 0 -10 dbm 0 0 -20 dbm 0 0 -30 dbm 0 0 -60 dbm 0 F1	Spectrum Ref Level		Offcat	14 70 dB @	PRW	200 647					[4
1Pk View M1[1] -16.17 dBr 20 dBm 20 dBm 2.7034150 GH 10 dBm 0 dBm 0 -10 dBm 01 -13.000 dBm 0 -20 dBm 01 -13.000 dBm 0 -30 dBm 0 0 -60 dBm F1 0								Auto Swei	en		
M1[1] -16.17 dBr 20 dBm 2.7034150 GH 10 dBm 0 0 dBm 0 -10 dBm 01 -13.000 dBm -20 dBm 0 -30 dBm 0 -50 dBm -10 -60 dBm F1							Houd	1000 0110	ο μ		
10 dBm 0 dBm -10 dBm -10 dBm -20 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -60 dBm -60 dBm -10 dBm -10 dBm -10 dBm -10 dBm -10 dBm -10 dBm -10 dBm -11 dBm -11 dBm -11 dBm -12 dB	Λ						Mi	L[1]	1		
0 dBm -10 dBm -20 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -60 dBm -60 dBm -10 d	$\Lambda \perp$										
-20 dBm -20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -60 dBm -60 dBm -11	$ \rangle $										
-20 dBm -30 dBm -40 dBm -50 dBm -60 dBm -60 dBm -60 dBm -60 dBm -10 dBm -20			10								
-30 dBm	I	JI -13.000		-	- may	Arm	~~~~	- In a second	مسجلين بالم	41-41 Martine	T
-50 dBm	-30 dBm								- Charles	I	
-60 dBm	-40 dBm										
F1	-50 dBm										
CE 2.60 CHz 601 pts 9 an 30.0 MHz	-60 dBm					F1					
	CF 2.69 GH:	z	L	1		691 pts				Span	30.0 MHz

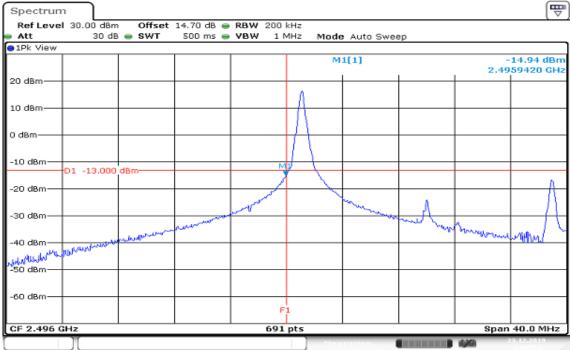
Date: 23.DEC.2019 13:23:38



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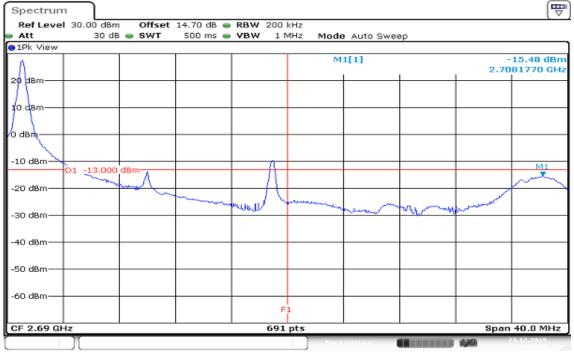
Report No.: T191120D05-RP9

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



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

HIGHER BAND EDGE



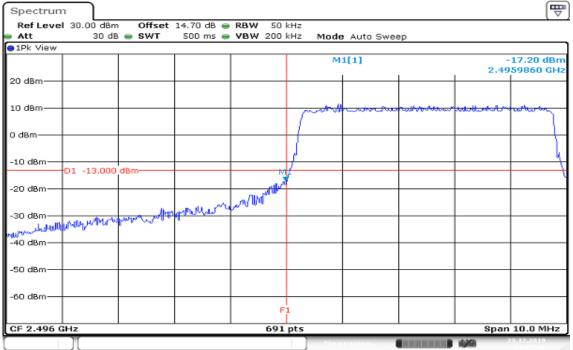
Date: 23.DEC.2019 13:45:50



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Report No.: T191120D05-RP9

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



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

HIGHER BAND EDGE

Att	30.00 dBm 30 dB	Offset	14.70 dB 👄 500 ms 👄	RBW 50 VBW 200		Auto Swee	90		
1Pk View							·P		
					м	1[1]			15.67 dBr 00140 GH
20 dBm									
10/88M	roman	more	m. man	my					
dBm				-+					
10 dBm—	D1 -13.000	d8m			1				
-20 dBm					hm	~~~~			
-30 dBm							~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	man	former
-40 dBm									
-50 dBm									
-60 dBm				F					
CF 2.69 GH				691					10.0 MHz

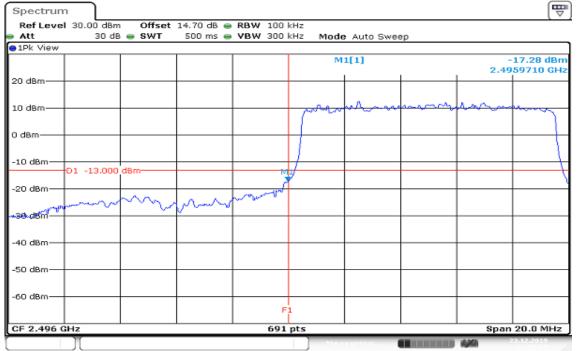
Date: 23.DEC.2019 11:47:16



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Report No.: T191120D05-RP9

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



Date: 23.DEC.2019 12:07:01

HIGHER BAND EDGE

Ref Level 30.00 dBm	Offset 14.70) dB 👄 RBW 10	00 kHz				
) ms 👄 VBW 30		e Auto Swee	ер		
1Pk View							
			м	1[1]			15.80 dBr 00150 GH
20 dBm							
I gelefinson man	man	ampaling					
Dd8m							
10 dBm-01 -13.000 c	18m	_	V.				
-20 dBm			- m	my	m	man	
-30 dBm						- when	
-40 dBm							
-50 dBm							
-60 dBm			F1				
CF 2.69 GHz		6	91 pts			Span	20.0 MHz

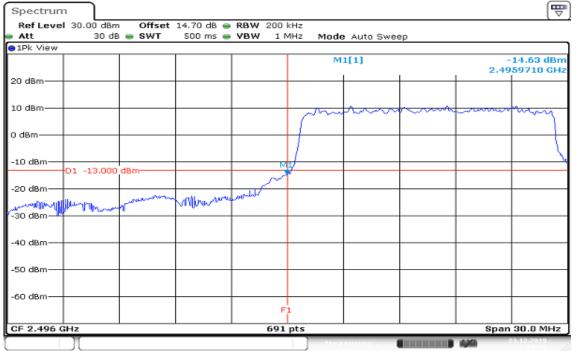
Date: 23.DEC.2019 11:50:21



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Report No.: T191120D05-RP9

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



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

HIGHER BAND EDGE

	Offset 14.70 dB 👄 R			
Att 30 dB 👄 S	WT 500 ms 👄 V	BW 1 MHz Mode	Auto Sweep	
		Mi	[1]	-13.93 dBr 2.6900430 GH
20 dBm				
10,d8m	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m		
0/d8m				
10 dBm 01 -13.000 dBm-				
-20 dBm			~~~~~	N.hr
-30 dBm				
-40 dBm				
-50 dBm				
-60 dBm				
CF 2.69 GHz		691 pts		Span 30.0 MHz

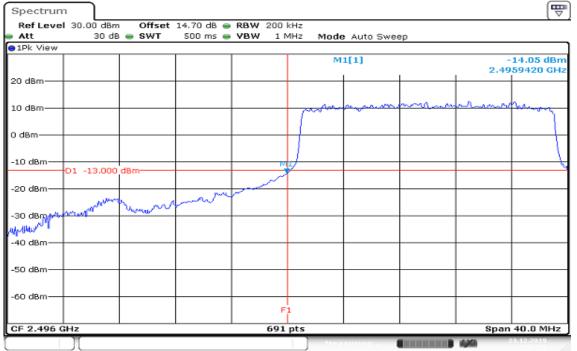
Date: 23.DEC.2019 13:36:10



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Report No.: T191120D05-RP9

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



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

HIGHER BAND EDGE

Ref Level	30.00 dBm		14.70 dB 😑	RBW 2	200 kHz	:				
Att	30 dB	🖷 SWT	500 ms 🖷	VBW	1 MHz	: Mode	Auto Swei	ep		
1Pk View		-	-	-						
						M	1[1]			-19.70 dBi 900430 GH
20 dBm										
LQ (DB)	www	mourie	moreno	han.						
dBm										
10 dBm-	D1 -13.000	40			+					
-20 dBm	01 -13.000	UBIII			A1					
					1	m	me	www.www.www	- martine	
-30 dBm									K	alongur.
-40 dBm										+
-50 dBm					_					
60 dBm										
					F1					
CF 2.69 GH	lz	I	1	· · · · ·	591 pt:	5	1		Span	40.0 MHz

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



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Report No.: T191120D05-RP9

8.6 CONDUCTED SPURIOUS EMISSIONS

LIMITS

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 +10 log10(P) dB. The limit of emission equal to -13dBm

TEST PROCEDURES

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

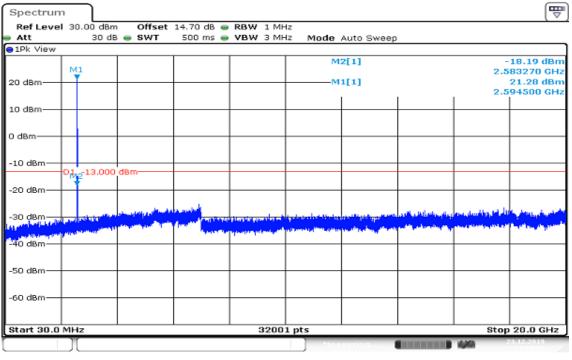


TEST RESULTS LTE Band 41 CHANNEL BANDWIDTH: 5MHz /QPSK / 1RB CH Low

T Spectrum Ref Level 30.00 dBm Offset 14.70 dB 👄 RBW 1 MHz 30 dB 👄 SWT 500 ms 👄 VBW 3 MHz Att Mode Auto Sweep ⊖1Pk View M2[1] -25.56 dBm М1 6.889170 GHz 20 dBm-M1[1] 21.28 dBm 2.497150 GHz 10 dBm-0 dBm--10 dBm--13.000 dBm Оľ -20 dBm--30 dBm--40 dBm--50 dBm -60 dBm-Stop 20.0 GHz 32001 pts Start 30.0 MHz 446

Date: 23.DEC.2019 14:24:04

CH Mid



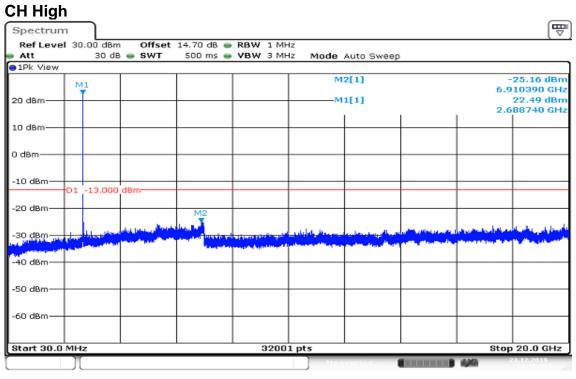
Date: 23.DEC.2019 14:29:18

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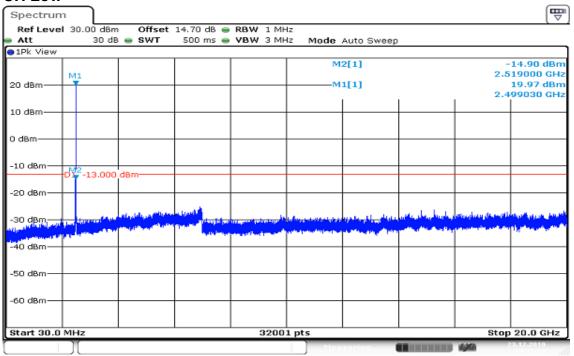


Date: 23.DEC.2019 14:25:41



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



Date: 23.DEC.2019 14:13:31

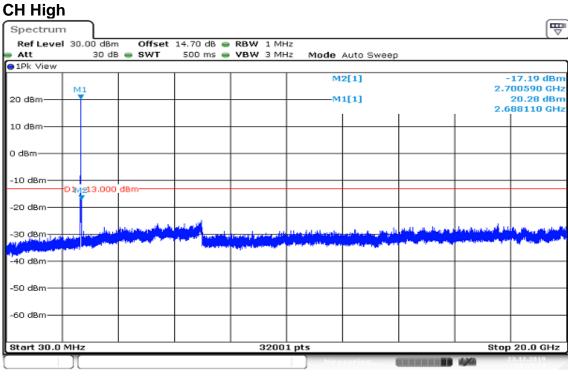
CH Mid

Spectrun Ref Level	' L I 30.00 dBm	Offset	14.70 dB 👄	RBW 1 MH	lz				(🗸
Att	30 dB	SWT		VBW 3 MF		Auto Sweep	1		
1Pk View									
					M	2[1]			14.46 dBn 01990 GH
20 d8m	M1				M	1[1]			19.04 dBr
20 40									93880 GH
10 dBm									
0 dBm									
-10 dBm	D1y-13.000								
	01-13.000	dBm							
-20 dBm									
		L. In Male	-Leiter				and the little sec	والمعالم والمعالية	والله والم
-30 dBm	PART PROPERTY AND	Press March 1994	The second s	alized a shirt of		والمالية المساقية		and a strength of the	
ALL DISCOUNTS AND INCOME.	And the factor								
-40 dBm									
50 d0 m									
-50 dBm									
-60 dBm									
00 0011									
Start 30.0	MH7			3200	1 nts			Stor	20.0 GHz
start 30.0	10.00			3200	T bra			atop	20.0 GH2

Date: 23.DEC.2019 14:14:07



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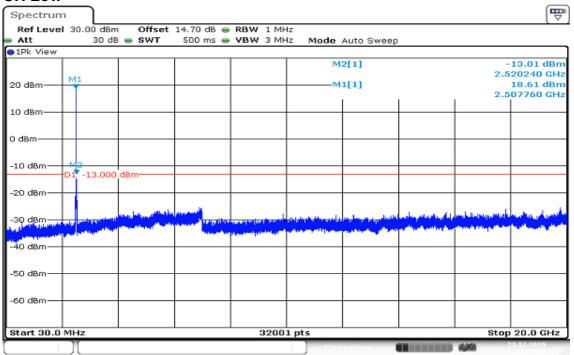


Date: 23.DEC.2019 14:15:20



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



Date: 23.DEC.2019 14:04:55

CH Mid

Spectrum				[₩
Ref Level 30.00 df			Auto Current	
1Pk View	ub 🖶 SWI SUU ms	VBW 3 MH2 Mode	Auto Sweep	
20 dBmM1			12[1]	-20.73 dBr 2.614470 GH 17.35 dBr
20 dBm			11[1]	2.597000 GH
10 dBm				
0 d8m				
-10 dBm01 -13.00	DO dBm			
-20 dBm				
-30 dBm			والمعاقر والالمحمل ومحمد ومراجع	a la da da ser a conserva de ser
-40 dBm				
-50 dBm				
-60 dBm				
Start 30.0 MHz		32001 pts		Stop 20.0 GHz

Date: 23.DEC.2019 14:07:08



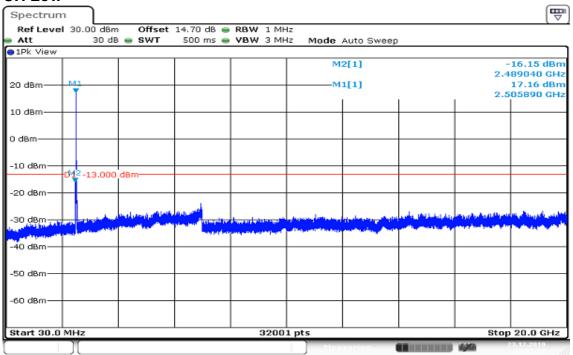
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CH High ඐ Spectrum Ref Level 30.00 dBm Offset 14.70 dB 👄 RBW 1 MHz Att 30 dB 👄 SWT 500 ms 👄 VBW 3 MHz Mode Auto Sweep ⊖1Pk View -15.57 dBm M2[1] 2.666890 GHz М1 18.69 dBm 2.676250 GHz 20 dBm--M1[1] 10 dBm-0 dBm--10 dBm-D1913.000 dBm -20 dBm--30 dBm--40 dBm--50 dBm--60 dBm-Start 30.0 MHz 32001 pts Stop 20.0 GHz Date: 23.DEC.2019 14:07:39



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



Date: 23.DEC.2019 13:56:52

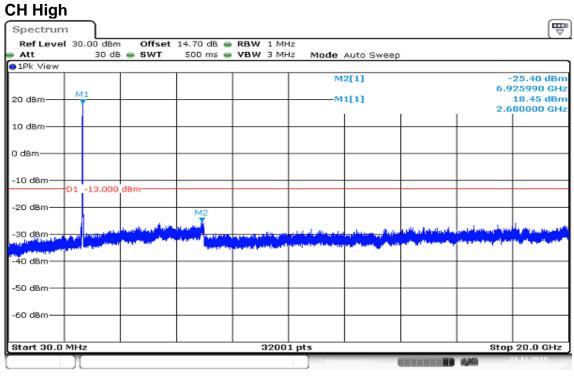
CH Mid

	14.70 dB 👄 RBW 1 MH			
Att 30 dB SWT	500 ms 👄 VBW 3 MH	Iz Mode Auto Sweep	3	
1Pk View		M2[1]	-25.70 6.922870	
20 dBm		M1[1]	17.20 2.600120	
10 dBm				
0 dBm				
-10 dBm-01 -13.000 dBm-				
-20 dBm	M2			
-30 dBm			م روز به ای الاحمد (الارو (الاروغ (الاروغ) , دور الاور الاروغ (الاروغ الاروغ)). و به محمد (الاروغ (الاروغ (الاروغ (الاروغ) , دور الاور (الاروغ)).	
-40 dBm				
-50 dBm				
-60 dBm				
Start 30.0 MHz	3200	1 pts	Stop 20.0 0	GHz

Date: 23.DEC.2019 13:57:36



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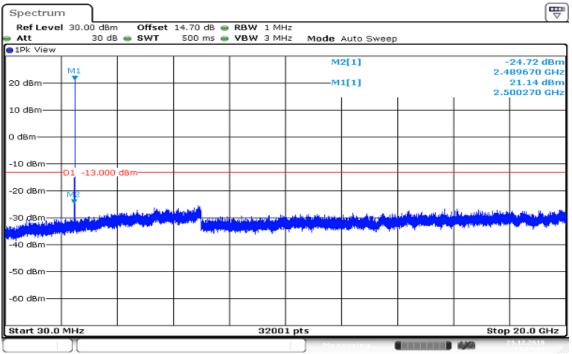


Date: 23.DEC.2019 14:02:55



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



Date: 23.DEC.2019 14:24:42

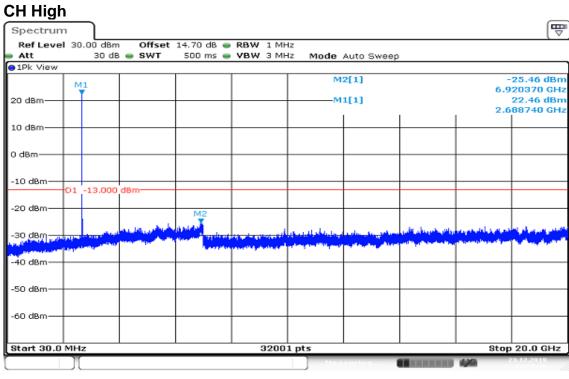
CH Mid

Spectrum Ref Level 30).00 dBm	Offset	14.70 dB 😑	RBW 1 M	łz				(🗸
Att	30 dB	👄 SWT	500 ms 👄	VBW 3 M	lz Mode	Auto Sweep	1		
1Pk View					-				
м	1				M	2[1]			24.11 dBn 08230 GH
20 dBm					M	1[1]			21.67 dBn 93880 GH
10 dBm									
0 dBm									
-10 dBm-01	-13.000	d8m							
-20 dBm 🕂 🗤	2								
-30 dBm	and a start of the			almerer and			and shares and	مريط ويقتمانه	
and the state of the state	and the second second			presentation and the second	Contraction of the second	and the shine of the shire			
-40 dBm									
-50 dBm									
-60 dBm									
Start 30.0 MH	Iz			3200	1 pts			Stop	20.0 GHz

Date: 23.DEC.2019 14:29:42



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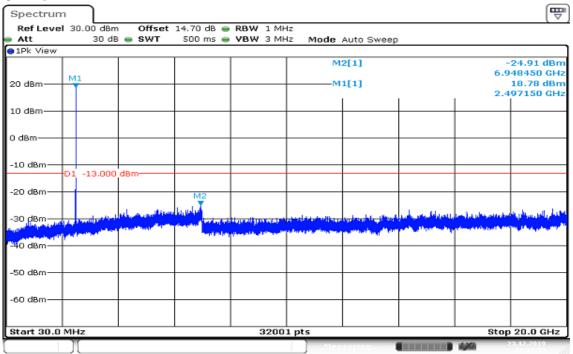


Date: 23.DEC.2019 14:25:16



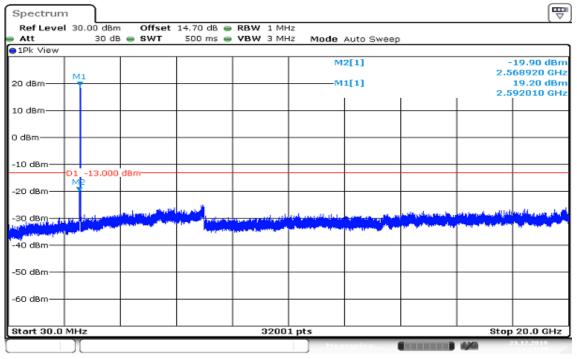
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CHANNEL BANDWIDTH:10MHz /16QAM / 1RB CH Low



Date: 23.DEC.2019 14:12:54

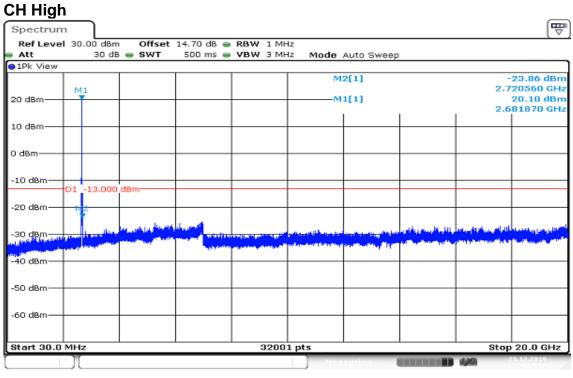
CH Mid



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



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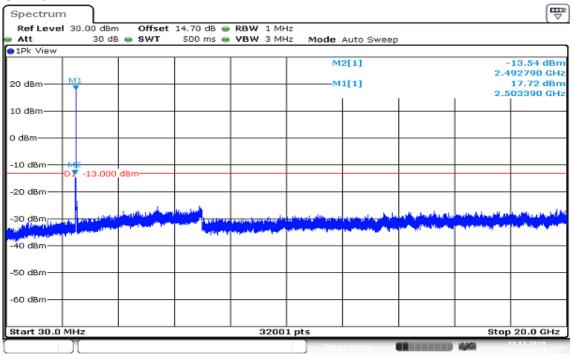


Date: 23.DEC.2019 14:14:56



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



Date: 23.DEC.2019 14:05:35

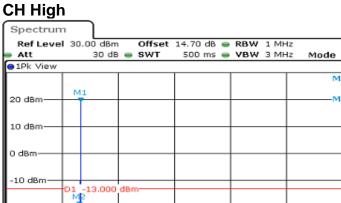
CH Mid

Ref Level 30.00 dBm Offset	14.70 dB 👄 RBW 1 M	Hz	(⊽
Att 30 dB 👄 SWT	500 ms 👄 VBW 3 M		J
1Pk View			
		M2[1]	-17.01 dBn
20 dBm		M1[1]	2.624460 GH 17.65 dBr 2.597000 GH
			2.397000 GH
10 dBm			
0 dBm			
-10 dBm			
-20 dBm			
-30 dBm		and the state of the	أفينه عنيراء قفر ومحدو الفعيط ومعارجه ومعرفي وقارر
	A LANDARE AND A LANDARE AND A LANDARE AND A	and the second	and a second a province of the last of the second
-40 dBm			
-50 dBm			
-60 dBm			
Start 30.0 MHz	3200	11 pts	Stop 20.0 GHz

Date: 23.DEC.2019 14:06:22



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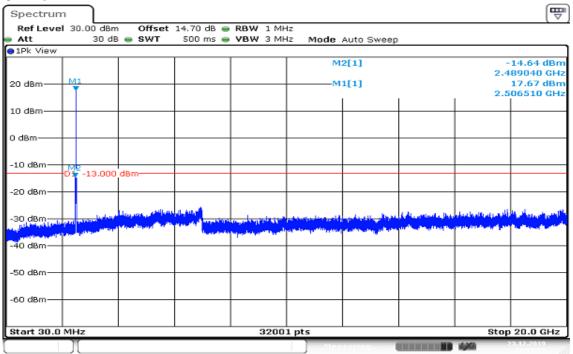
ඐ Mode Auto Sweep M2[1] -19.61 dBm 2.645680 GHz 19.11 dBm 2.688740 GHz -M1[1] -20 dBm--30 dBm--40 dBm -50 dBm--60 dBm-Start 30.0 MHz 32001 pts Stop 20.0 GHz

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



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



Date: 23.DEC.2019 13:55:51

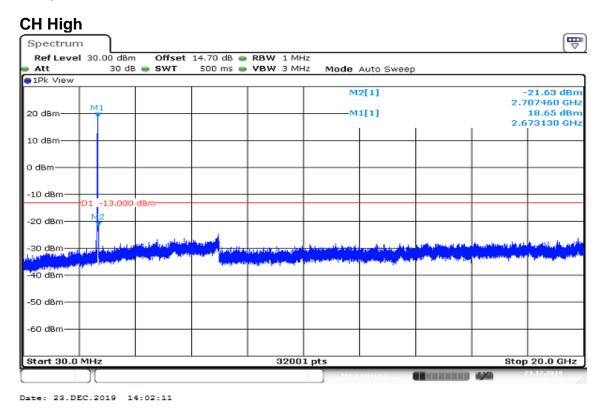
CH Mid

Spectrum Ref Level 30.00 dBm Offset	14.70 dB 👄 RBW 1 MH	+z	
Att 30 dB 👄 SWT	500 ms 👄 VBW 3 Mi		4
1Pk View			
M1		M2[1]	-15.57 dBr 2.613850 GH
20 dBm		M1[1]	18.69 dBn 2.592630 GH
10 dBm			
0 d8m			
-10 dBm			
-20 dBm			
-30 dBm			
-40 dBm	for a principal concept of a foregrid		
-50 dBm			
-60 dBm			
Start 30.0 MHz	3200	1 pts	Stop 20.0 GHz

Date: 23.DEC.2019 13:58:09



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8.7 RADIATED EMISSION MEASUREMENT

LIMITS

FCC §27.53(h), Band 41

General protection levels. Except as otherwise specified below, for operations in the 1710-1755MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB.

According to RSS-199, Band 41

For mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least: (i) 40 + 10 log10 p from the channel edges to 5 MHz away

(ii) 43 + 10 log10 p between 5 MHz and X MHz from the channel edges, and (iii) 55 + 10 log10 p at X MHz and beyond from the channel edges

In addition, the attenuation shall not be less than 43 + 10 log10 p on all frequencies between 2490.5 MHz and 2496 MHz, and 55 + 10 log10 p at or below 2490.5 MHz.

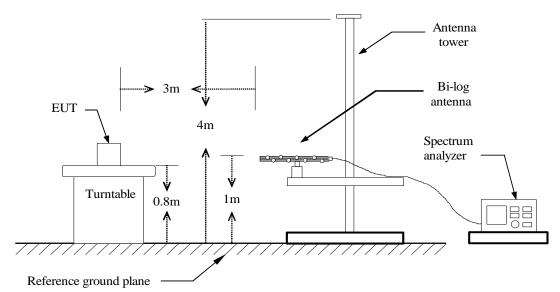
 ${f p}$ is the transmitter power measured in watts and ${f X}$ is 6 MHz or the equipment occupied bandwidth, whichever is greater.



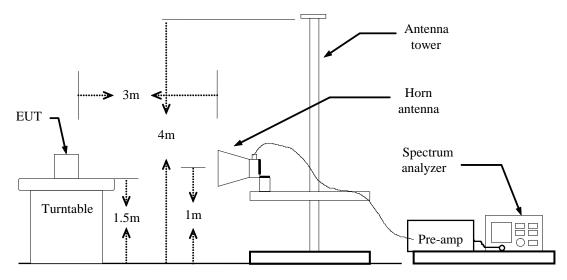
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Test Configuration

Below 1 GHz



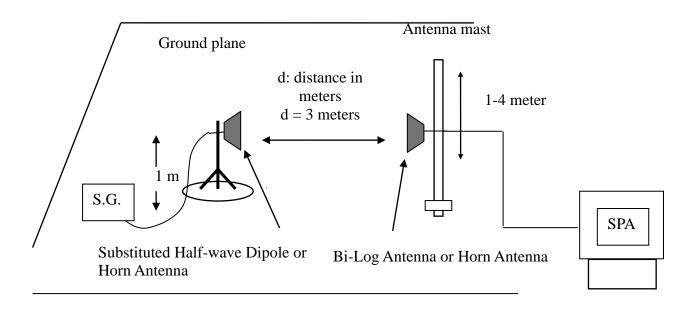
Above 1 GHz





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Substituted Method Test Set-up



TEST PROCEDURES

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

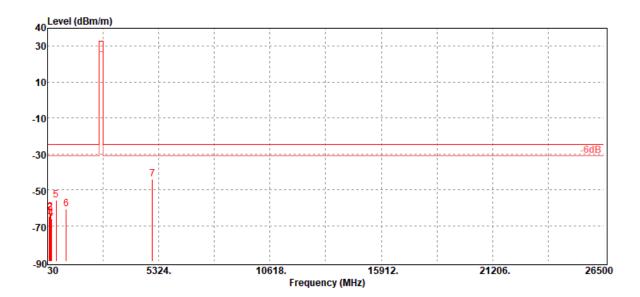


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Test Results

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

Operation Mode:	Tx / Low CH	Test Date:	January 8, 2020
Temperature:	18.6°C	Tested by:	Jerry Chang
Humidity:	59% RH	Polarity:	Ver.

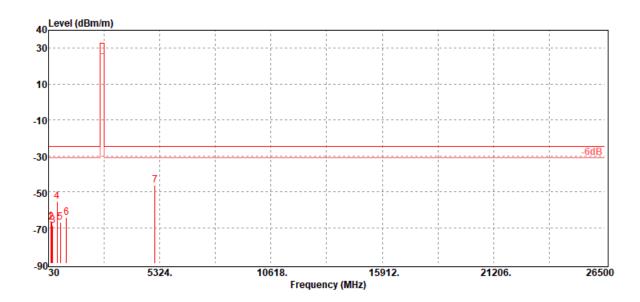


Freq.	ERP/EIRP	SG	Antenna	Cable	Limit	Margin	Antenna
		Output Level	Gain	Loss			Polarization
MHz	dBm	dBm	dBd/dBi	dB	dBm	dB	(V/H)
105.66	-64.60	-54.39	-9.37	-0.84	-25.00	-39.60	V
159.01	-62.74	-55.3	-6.40	-1.04	-25.00	-37.74	V
172.59	-62.80	-56.58	-5.14	-1.08	-25.00	-37.80	V
219.15	-66.14	-62.9	-2.02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



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Operation Mode:	Tx / Low CH	Test Date:	January 8, 2020
Temperature:	18.6°C	Tested by:	Jerry Chang
Humidity:	59% RH	Polarity:	Hor.

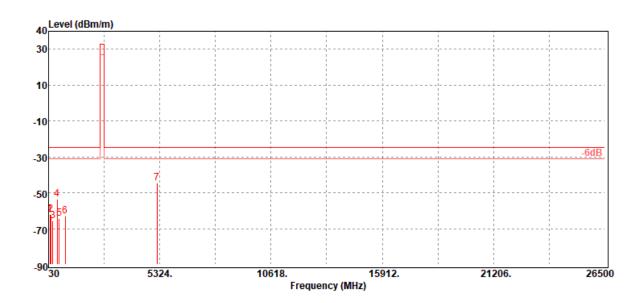


Freq.	ERP/EIRP	SG	Antenna	Cable	Limit	Margin	Antenna
		Output Level	Gain	Loss			Polarization
MHz	dBm	dBm	dBd/dBi	dB	dBm	dB	(V/H)
134.76	-66.41	-56.11	-9.35	-0.95	-25.00	-41.41	Н
180.35	-67.13	-61.67	-4.36	-1.10	-25.00	-42.13	Н
224.00	-68.88	-65.73	-1.92	-1.23	-25.00	-43.88	н
442.25	-55.56	-51.72	-2.10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



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Operation Mode:	Tx / Mid CH	Test Date:	January 8, 2020
Temperature:	18.6°C	Tested by:	Jerry Chang
Humidity:	59% RH	Polarity:	Ver.

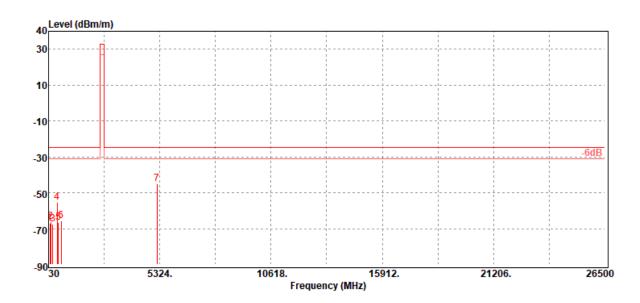


Freq.	ERP/EIRP	SG	Antenna	Cable	Limit	Margin	Antenna
		Output Level	Gain	Loss			Polarization
MHz	dBm	dBm	dBd/dBi	dB	dBm	dB	(V/H)
105.66	-62.26	-52.05	-9.37	-0.84	-25.00	-37.26	V
133.79	-62.16	-51.69	-9.52	-0.95	-25.00	-37.16	V
225.94	-65.53	-62.36	-1.94	-1.23	-25.00	-40.53	V
447.10	-53.48	-49.63	-2.10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



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Operation Mode:	Tx / Mid CH	Test Date:	January 8, 2020
Temperature:	18.6°C	Tested by:	Jerry Chang
Humidity:	59% RH	Polarity:	Hor.

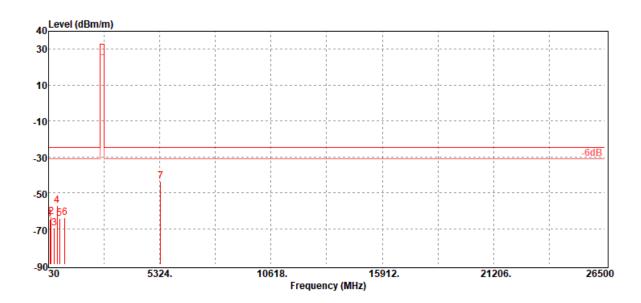


Freq.	ERP/EIRP	SG	Antenna	Cable	Limit	Margin	Antenna
		Output Level	Gain	Loss			Polarization
MHz	dBm	dBm	dBd/dBi	dB	dBm	dB	(V/H)
94.99	-67.14	-59.04	-7.30	-0.80	-25.00	-42.14	Н
134.76	-66.21	-55.91	-9.35	-0.95	-25.00	-41.21	Н
225.94	-67.44	-64.27	-1.94	-1.23	-25.00	-42.44	Н
444.19	-55.58	-51.73	-2.10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



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Operation Mode:	Tx / High CH	Test Date:	January 8, 2020
Temperature:	18.6°C	Tested by:	Jerry Chang
Humidity:	59% RH	Polarity:	Ver.

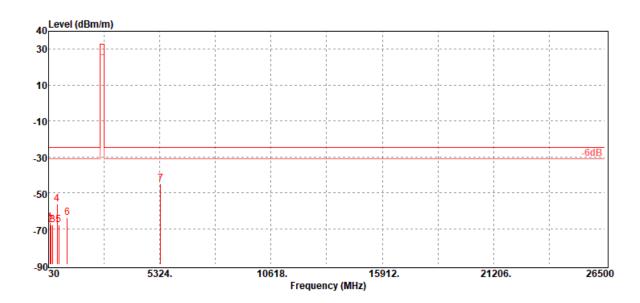


Freq.	ERP/EIRP	SG	Antenna	Cable	Limit	Margin	Antenna
		Output Level	Gain	Loss			Polarization
MHz	dBm	dBm	dBd/dBi	dB	dBm	dB	(V/H)
105.66	-64.99	-54.78	-9.37	-0.84	-25.00	-39.99	V
159.01	-63.67	-56.23	-6.40	-1.04	-25.00	-38.67	V
299.66	-69.79	-66.35	-2.01	-1.43	-25.00	-44.79	V
445.16	-56.95	-53.1	-2.10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



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Operation Mode:	Tx / High CH	Test Date:	January 8, 2020
Temperature:	18.6°C	Tested by:	Jerry Chang
Humidity:	59% RH	Polarity:	Hor.



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

- End of Test Report -