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Report No.: T180918D06-RP6

ISED: 2697A-W01R11

Page: 1 / 65
Rev.: 00

**FCC 47 CFR PART 27 SUBPART C, L
INDUSTRY CANADA RSS-130 & RSS-139
(CLASS II PERMISSIVE CHANGE)**

TEST REPORT

For

module

Model No.: EM7565

Trade Name: DURABOOK

Issued to

**TWINHEAD INTERNATIONAL CORP.
11F, No 550, Rueiguang Rd , Neihu, Taipei, Taiwan 11492, R.O.C.**

Issued by

**Compliance Certification Services Inc.
Wugu Laboratory
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)
Issued Date: January 29, 2019**

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Report No.: T180918D06-RP6

Page: 2 / 65

Rev.: 00

Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		January 29, 2019		Initial Issue	ALL	Allison Chen



Report No.: T180918D06-RP6

Page: 3 / 65

Rev.: 00

TABLE OF CONTENTS

1.	TEST RESULT CERTIFICATION	4
2.	EUT DESCRIPTION.....	5
3.	TEST SUMMARY	7
4.	TEST METHODOLOGY	8
4.1	DESCRIPTION OF TEST TYPE	8
4.2	THE WORST MODE OF MEASUREMENT	10
5.	INSTRUMENT CALIBRATION	11
5.1	MEASURING INSTRUMENT CALIBRATION	11
5.2	MEASUREMENT EQUIPMENT USED	11
5.3	MEASUREMENT UNCERTAINTY	12
6.	FACILITIES AND ACCREDITATIONS	13
6.1	FACILITIES	13
6.2	EQUIPMENT	13
7.	SETUP OF EQUIPMENT UNDER TEST	14
7.1	SETUP CONFIGURATION OF EUT	14
7.2	SUPPORT EQUIPMENT	14
8.	TEST PROCEDURE AND RESULT	15
8.1	ERP & EIRP MEASUREMENT	15
8.2	RADIATED EMISSION MEASUREMENT.....	23
APPENDIX -A PHOTOGRAPHS OF TEST SETUP		A-1



Report No.: T180918D06-RP6

Page: 4 / 65
Rev.: 00

1. TEST RESULT CERTIFICATION

Applicant: TWINHEAD INTERNATIONAL CORP.
11F, No 550, Rueiguang Rd , Neihu, Taipei, Taiwan 11492,
R.O.C.

Manufacturer: TWINHEAD INTERNATIONAL CORP.
11F, No 550, Rueiguang Rd , Neihu, Taipei, Taiwan 11492,
R.O.C.

Equipment Under Test: module

Trade Name: DURABOOK

Model: EM7565

Date of Test: November 6 ~ 8, 2018

APPLICABLE STANDARDS	
Standard	TEST RESULT
FCC Part 27, Subpart C, L, FCC Part 2 & RSS-130 Issue 1 October 2013 & RSS-139 Issue 3 July 2015	No non-compliance noted

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

Approved by:

Tested by:

Kevin Tsai
Deputy Manager

Jerry Chuang
Engineer



Report No.: T180918D06-RP6

Page: 5 / 65
Rev.: 00

2. EUT DESCRIPTION

Product	module	
Trade Name	DURABOOK	
Model	EM7565	
Model Discrepancy	N/A	
Received Date	September 18, 2018	
Power Supply	1. Power from AC Adapter FSP / FSP090-DIEBN2 Input: 100-240Vac, 1.5A, 50-60Hz Output: 19Vdc, 4.74A 2. Power from Battery	
Modulation Technology	LTE Band 4	QPSK, 16QAM
	LTE Band 13	QPSK, 16QAM
	LTE Band 66	QPSK, 16QAM
Frequency Range	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
	LTE Band 13 Channel Bandwidth: 5MHz	779.5MHz ~ 784.5MHz
	LTE Band 13 Channel Bandwidth: 10MHz	782MHz
	LTE Band 66 Channel Bandwidth: 5MHz	1712.5MHz ~ 1777.5MHz
	LTE Band 66 Channel Bandwidth: 10MHz	1715MHz ~ 1775MHz
	LTE Band 66 Channel Bandwidth: 15MHz	1717.5MHz ~ 1772.5MHz
	LTE Band 66 Channel Bandwidth: 20MHz	1720MHz ~ 1770MHz

Transmit Power (ERP & EIRP Power)	LTE Band 4 Channel Bandwidth: 1.4MHz	QPSK: 27.84 dBm 16QAM: 27.78 dBm
	LTE Band 4 Channel Bandwidth: 3MHz	QPSK: 27.74 dBm 16QAM: 27.80 dBm
	LTE Band 4 Channel Bandwidth: 5MHz	QPSK: 27.79 dBm 16QAM: 27.71 dBm
	LTE Band 4 Channel Bandwidth: 10MHz	QPSK: 27.74 dBm 16QAM: 27.70 dBm
	LTE Band 4 Channel Bandwidth: 15MHz	QPSK: 27.71 dBm 16QAM: 27.74 dBm
	LTE Band 4 Channel Bandwidth: 20MHz	QPSK: 27.68 dBm 16QAM: 27.67 dBm
	LTE Band 13 Channel Bandwidth: 5MHz	QPSK: 27.79 dBm 16QAM: 28.65 dBm
	LTE Band 13 Channel Bandwidth: 10MHz	QPSK: 27.62 dBm 16QAM: 28.47 dBm
	LTE Band 66 Channel Bandwidth: 5MHz	QPSK 24.83 dBm 16QAM 24.81 dBm
	LTE Band 66 Channel Bandwidth: 10MHz	QPSK 24.64 dBm 16QAM 24.61 dBm
	LTE Band 66 Channel Bandwidth: 15MHz	QPSK 24.61 dBm 16QAM 24.54 dBm
	LTE Band 66 Channel Bandwidth: 20MHz	QPSK 24.42 dBm 16QAM 24.48 dBm
Antenna Specification	PIFA Antenna Durabook Americas inc LTE Band 4: P/N: TWR11LTPB02+B / 2.55 dBi LTE Band 13: P/N: TWR11LTPB02+B / 0.89 dBi LTE Band 66: P/N: TWR11LTPB02+B / 2.55dBi	
Class II Permissive Change	1. The subject approved module is being used in a specific host. [Product: Tablet PC, brand name: DURABOOK, FCC model:/ R11XXXXXX (X=0-9, A-Z, a-z, Blank), IC model: R11AH6] 2. Power reduction per tune-up procedure is applied in order to comply with exposure requirements.	

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.



Report No.: T180918D06-RP6

Page: 7 / 65
Rev.: 00

3. TEST SUMMARY

FCC Standard Section	IC Standard Section	Report Section	Test Item	Result
-	-	2	Antenna Requirement	Pass
2.1046	RSS-GEN 6.12	-	Output Power measurement	N/A
27.50(c), 27.50(d), 27.50(b)	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	-	Frequency Stability v.s. temperature measurement	N/A
2.1049	RSS-GEN 6.7	-	Occupied Bandwidth Measurement	N/A
27.50(d)	RSS-130 section 4.4 RSS-133, section 6.4	-	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	-	Conducted Band Edge	N/A
27.53(c), 27.53(g), 27.53(h)	RSS-130 section 4.6 RSS-139 section 6.5	-	Conducted Spurious Emission	N/A
27.53(c), 27.53(g), 27.53(h)	RSS-130 section 4.6 RSS-139 section 6.6	8.2	Spurious Radiation Measurement	Pass

4. TEST METHODOLOGY

4.1 DESCRIPTION OF TEST TYPE

The EUT had been tested under operating condition.

TIA-603-E and KDB 971168 D01 Power Meas License Digital Systems

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

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	20000	1715.0
Middle CH	20175	1732.5	20175	1732.5	20175	1732.5
High CH	20350	1750.0	20325	1747.5	20350	1750.0

LTE Band 13: 777 MHz ~ 787 MHz

Three channels had been tested for each channel bandwidth.

Channel Bandwidth	5MHz		10MHz	
	Channel	Frequency(MHz)	Channel	Frequency(MHz)
Low CH	23205	779.5	-	-
Middle CH	23230	752.0	23230	782.0
High CH	23255	784.5	-	-

LTE Band 66: 1710MHz ~ 1780MHz

Three channels had been tested for each channel bandwidth.

Channel Bandwidth	5MHz		10MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low CH	131997	1712.5	132022	1715
Middle CH	132322	1745	132322	1745
High CH	132647	1777.5	132622	1775
Channel Bandwidth	15MHz		20MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low CH	132047	1717.5	132072	1720
Middle CH	132322	1745	132322	1745
High CH	132597	1772.5	132572	1770



Report No.: T180918D06-RP6

Page: 9 / 65

Rev.: 00

For test mode:

The conducted power be measured in 1, 50% and 100% RB allocation, offset to upper edge, centered and lower edge of the channel bandwidth of each required channel.

	QPSK	Worst Mode	16QAM	Worst Mode
Band4	1.4M	1 RB ALLOCATED AT THE UPPER EDGE	1.4M	1 RB ALLOCATED AT THE LOWER EDGE
	5M	1 RB ALLOCATED AT THE UPPER EDGE	5M	1 RB ALLOCATED AT THE CENTERED
	10M	1 RB ALLOCATED AT THE UPPER EDGE	10M	1 RB ALLOCATED AT THE UPPER EDGE
	20M	1 RB ALLOCATED AT THE UPPER EDGE	20M	1 RB ALLOCATED AT THE LOWER EDGE
Band13	5M	1 RB ALLOCATED AT THE UPPER EDGE	1.4M	1 RB ALLOCATED AT THE LOWER EDGE
	10M	1 RB ALLOCATED AT THE UPPER EDGE	5M	1 RB ALLOCATED AT THE UPPER EDGE
Band 66	5M	1 RB ALLOCATED AT THE UPPER EDGE	5M	1 RB ALLOCATED AT THE CENTERED
	10M	1 RB ALLOCATED AT THE UPPER EDGE	10M	1 RB ALLOCATED AT THE UPPER EDGE
	20M	1 RB ALLOCATED AT THE UPPER EDGE	20M	1 RB ALLOCATED AT THE LOWER EDGE

4.2 The worst mode of measurement

Radiated Emission Measurement	
Test Condition	Band edge, Emission for Unwanted and Fundamental
Power supply Mode	Mode 1: EUT Power by Adapter Mode 2: EUT Power by battery.
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4
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)

Remark:

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

5. INSTRUMENT CALIBRATION

5.1 MEASURING INSTRUMENT CALIBRATION

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

5.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

Wugu Fully Chamber					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Bilog Antenna	Sunol Sciences	JB1	A052609	03/14/2018	03/13/2019
Cable	HUBER SUHNER	SUCOFLEX 104PEA	23452	06/29/2018	06/28/2019
Cable	HUBER SUHNER	SUCOFLEX 104PEA	33960	06/29/2018	06/28/2019
Digital Radio Communication Tester	R&S	CMU200	116604	07/19/2018	07/18/2019
Digital Thermo-Hygro Meter	WISEWIND	1110	D06	02/08/2018	02/07/2019
Horn Antenna	SCHWARZBECK	BBHA 9120D	779	03/14/2018	03/13/2019
Pre-Amplifier	Anritsu	MH648A	M89145	06/29/2018	06/28/2019
Pre-Amplifier	EMEC	EM01G26G	060570	06/29/2018	06/28/2019
Signal Analyzer	Agilent	N9010A	MY52220817	03/22/2018	03/21/2019
Wideband Radio Communication Tester	R&S	CMW 500	116875	04/20/2018	04/19/2019
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	EZ-EMC (CCS-3A1RE)				



Report No.: T180918D06-RP6

Page: 12 / 65
Rev.: 00

5.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
Powerline Conducted Emission	N/A
3M Semi Anechoic Chamber / 30M~200M	+/- 3.20
3M Semi Anechoic Chamber / 200M~1000M	+/- 3.89
3M Semi Anechoic Chamber / 1G~8G	+/- 3.52
3M Semi Anechoic Chamber / 8G~18G	+/- 3.75
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 $k=2$.



Report No.: T180918D06-RP6

Page: 13 / 65

Rev.: 00

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.

☒ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan, R.O.C

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.

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."



Report No.: T180918D06-RP6

Page: 14 / 65
Rev.: 00

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	Data Cable
	N/A					

Remark:

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

8. TEST PROCEDURE AND RESULT

8.1 ERP & EIRP MEASUREMENT

LIMIT

According to FCC §2.1046

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

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

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.

RSS-130 § 4.4,

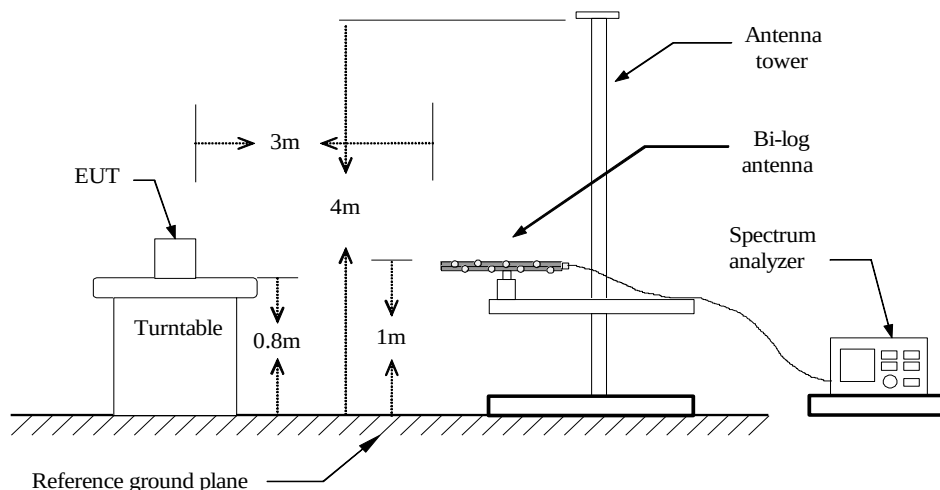
The e.i.r.p. shall not exceed 50 watts for mobile equipment or for outdoor fixed subscriber equipment, nor shall it exceed 5 watts for portable equipment or for indoor fixed subscriber equipment.

RSS-139 § 6.5,

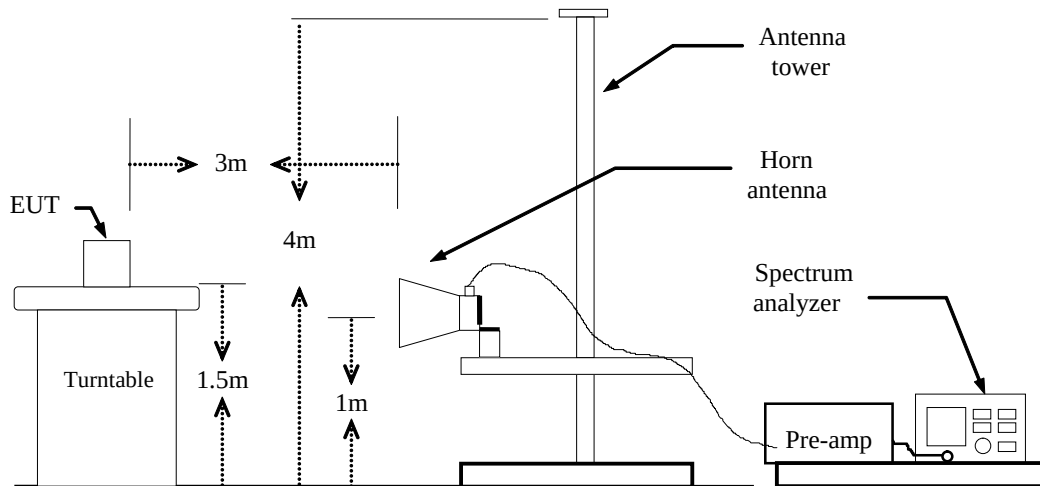
The equivalent isotropically radiated power (e.i.r.p.) for mobile and portable transmitters shall not exceed one watt. The e.i.r.p. for fixed and base stations in the band 1710-1780 MHz shall not exceed one watt.

Test Configuration

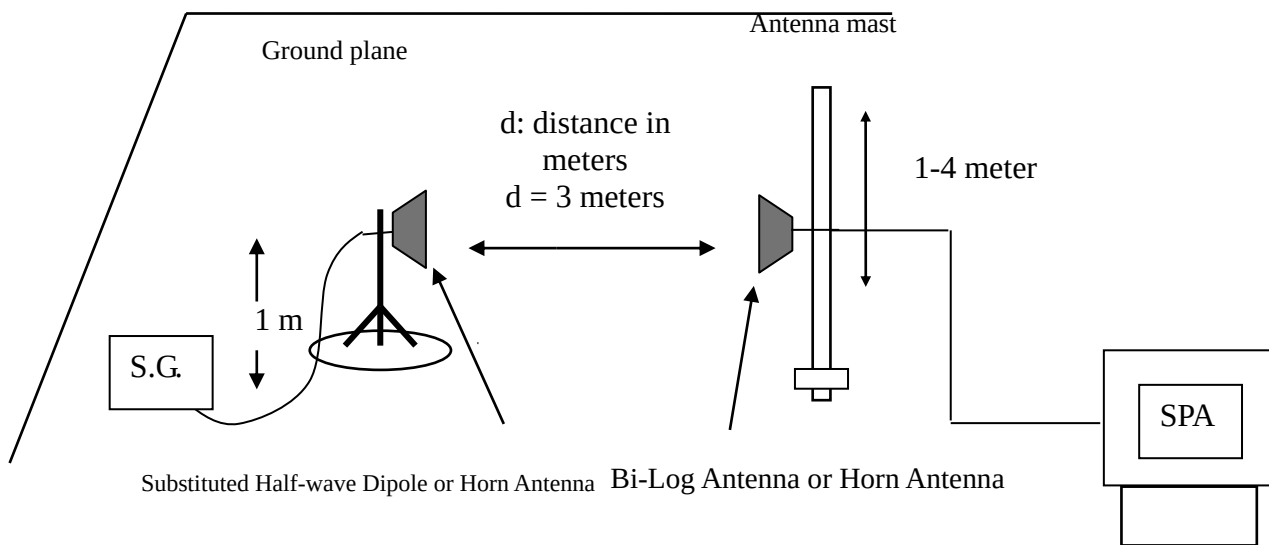
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP



TEST PROCEDURE

1. The EUT was placed on a non-conductive rotating platform (0.8m for below 1G and 1.5m for above 1G) in a semi-chamber. The radiated emission at the fundamental frequency was measured at 3m and SA with RMS detector per photograph 5, KDB 971168 D01 Power Meas License Digital Systems.
2. During the measurement, the call box parameters were set to get the maximum output power of the EUT. The maximum emission was recorded from spectrum analyzer power level (LVL) from 360 degrees rotation of turntable and the test antenna raised and lowered over a range from 1m to 4m in both horizontally and vertically polarized orientations.
3. EIRP was measured method according to TIA-603-E. The EUT was replaced by the substitution antenna at same location, and then record the maximum Analyzer reading through raised and lowered the test antenna.

ERP = S.G. output (dBm) + Antenna Gain (dBi) – Cable (dB) - 2.15

EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable (dB)

TEST RESULTS

No non-compliance noted.

EIRP POWER

LTE Band 4

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

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						EIRP (dBm)	EIRP (W)	EIRP (dBm)	EIRP (W)
4	1.4	Lowest	QPSK	1	0	9.78	0.0095	27.79	0.6012
		Middle		1	0	9.90	0.0098	27.84	0.6081
		Highest		1	0	12.00	0.0158	27.76	0.5970
		Lowest	16 QAM	1	0	9.97	0.0099	27.78	0.5998
		Middle		1	0	9.01	0.0080	27.78	0.5998
		Highest		1	0	12.46	0.0176	27.76	0.5970

BW: 3MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						EIRP (dBm)	EIRP (W)	EIRP (dBm)	EIRP (W)
4	3	Lowest	QPSK	1	0	9.82	0.0096	27.74	0.5943
		Middle		1	0	9.50	0.0089	27.52	0.5649
		Highest		1	0	12.14	0.0164	27.36	0.5445
		Lowest	16 QAM	1	0	9.88	0.0097	27.80	0.6026
		Middle		1	0	9.34	0.0086	27.63	0.5794
		Highest		1	0	12.27	0.0169	27.51	0.5636

BW: 5MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						EIRP (dBm)	EIRP (W)	EIRP (dBm)	EIRP (W)
4	5	Lowest	QPSK	1	0	9.95	0.0099	27.79	0.6012
		Middle		1	0	9.54	0.0090	27.63	0.5794
		Highest		1	0	12.15	0.0164	27.37	0.5458
		Lowest	16 QAM	1	0	9.77	0.0095	27.71	0.5902
		Middle		1	0	9.45	0.0088	27.48	0.5598
		Highest		1	0	12.18	0.0165	27.27	0.5333

BW: 10MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						EIRP (dBm)	EIRP (W)	EIRP (dBm)	EIRP (W)
4	10	Lowest	QPSK	1	0	9.79	0.0095	27.74	0.5943
		Middle		1	0	9.56	0.0090	27.58	0.5728
		Highest		1	0	11.91	0.0155	27.49	0.5610
		Lowest	16 QAM	1	0	9.73	0.0094	27.70	0.5888
		Middle		1	0	9.55	0.0090	27.57	0.5715
		Highest		1	0	12.05	0.0160	27.46	0.5572

BW: 15MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						EIRP (dBm)	EIRP (W)	EIRP (dBm)	EIRP (W)
4	15	Lowest	QPSK	1	0	9.98	0.0100	27.71	0.5902
		Middle		1	0	9.74	0.0094	27.55	0.5689
		Highest		1	0	10.65	0.0116	27.59	0.5741
		Lowest	16 QAM	1	0	9.85	0.0097	27.74	0.5943
		Middle		1	0	9.49	0.0089	27.52	0.5649
		Highest		1	0	10.57	0.0114	27.61	0.5768

BW: 20MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						EIRP (dBm)	EIRP (W)	EIRP (dBm)	EIRP (W)
4	20	Lowest	QPSK	1	0	9.98	0.0100	27.68	0.5861
		Middle		1	0	9.50	0.0089	27.62	0.5781
		Highest		1	0	9.59	0.0091	27.57	0.5715
		Lowest	16 QAM	1	0	10.02	0.0100	27.67	0.5848
		Middle		1	0	9.47	0.0089	27.60	0.5754
		Highest		1	0	9.65	0.0092	27.59	0.5741



Report No.: T180918D06-RP6

Page: 20 / 65

Rev.: 00

ERP POWER

LTE Band 13

BW: 5MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						ERP (dBm)	ERP (W)	ERP (dBm)	ERP (W)
13	5	Lowest	QPSK	1	0	9.56	0.0090	27.29	0.5358
		Middle		1	0	9.58	0.0091	27.73	0.5929
		Highest		1	0	9.98	0.0100	27.79	0.6012
		Lowest	16 QAM	1	0	9.53	0.0090	27.47	0.5585
		Middle		1	0	9.66	0.0092	28.07	0.6412
		Highest		1	0	10.83	0.0121	28.65	0.7328

BW: 10MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						ERP (dBm)	ERP (W)	ERP (dBm)	ERP (W)
13	10	Middle	QPSK	1	0	9.45	0.0088	27.62	0.5781
		Middle	16 QAM	1	0	9.49	0.0089	28.47	0.7031

EIRP POWER

LTE Band 66

BW: 5MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						EIRP (dBm)	EIRP (W)	EIRP (dBm)	EIRP (W)
66	5	Lowest	QPSK	1	0	4.74	0.0030	24.35	0.2723
		Middle		1	0	7.93	0.0062	23.63	0.2307
		Highest		1	0	8.39	0.0069	24.83	0.3041
		Lowest	16 QAM	1	0	4.87	0.0031	24.14	0.2594
		Middle		1	0	8.00	0.0063	23.56	0.2270
		Highest		1	0	8.28	0.0067	24.81	0.3027

BW: 10MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						EIRP (dBm)	EIRP (W)	EIRP (dBm)	EIRP (W)
66	10	Lowest	QPSK	1	0	4.18	0.0026	24.01	0.2518
		Middle		1	0	5.89	0.0039	23.84	0.2421
		Highest		1	0	8.47	0.0070	24.64	0.2911
		Lowest	16 QAM	1	0	4.37	0.0027	23.88	0.2443
		Middle		1	0	6.18	0.0041	23.69	0.2339
		Highest		1	0	8.66	0.0073	24.61	0.2891

BW: 15MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						EIRP (dBm)	EIRP (W)	EIRP (dBm)	EIRP (W)
66	15	Lowest	QPSK	1	0	4.59	0.0029	24.00	0.2512
		Middle		1	0	5.54	0.0036	23.79	0.2393
		Highest		1	0	8.72	0.0074	24.61	0.2891
		Lowest	16 QAM	1	0	4.60	0.0029	23.87	0.2438
		Middle		1	0	5.45	0.0035	23.77	0.2382
		Highest		1	0	8.40	0.0069	24.54	0.2844



Report No.: T180918D06-RP6

Page: 22 / 65

Rev.: 00

BW: 20MHz / RB=1, RB Offset=0

Band	BW (MHz)	Channel	Mode	UL RB Allocation	UL RB offset	Vertical		Horizontal	
						EIRP (dBm)	EIRP (W)	EIRP (dBm)	EIRP (W)
66	20	Lowest	QPSK	1	0	4.78	0.0030	24.05	0.2541
		Middle		1	0	4.94	0.0031	23.88	0.2443
		Highest		1	0	8.23	0.0067	24.42	0.2767
		Lowest	16 QAM	1	0	4.72	0.0030	24.01	0.2518
		Middle		1	0	4.87	0.0031	23.80	0.2399
		Highest		1	0	8.21	0.0066	24.48	0.2805

8.2 RADIATED EMISSION MEASUREMENT

LIMITS

FCC §27.53(h), Band 4 & Band 66

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

27.53(c)(2), Band 13

For operations in the 600 MHz band and the 698-746MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

Limit Line: -13dBm

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

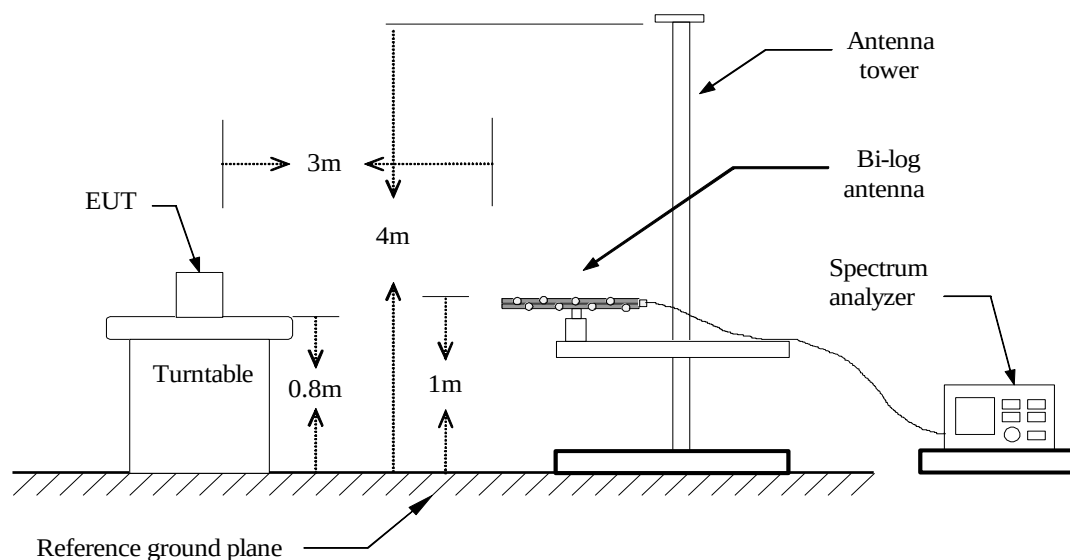
So the limit of emission is the same absolute specified line.

Limits	EQUIVALENT FIELD STRENGTH AT 3m (dBuV/m) (NOTE)
-13	82.22

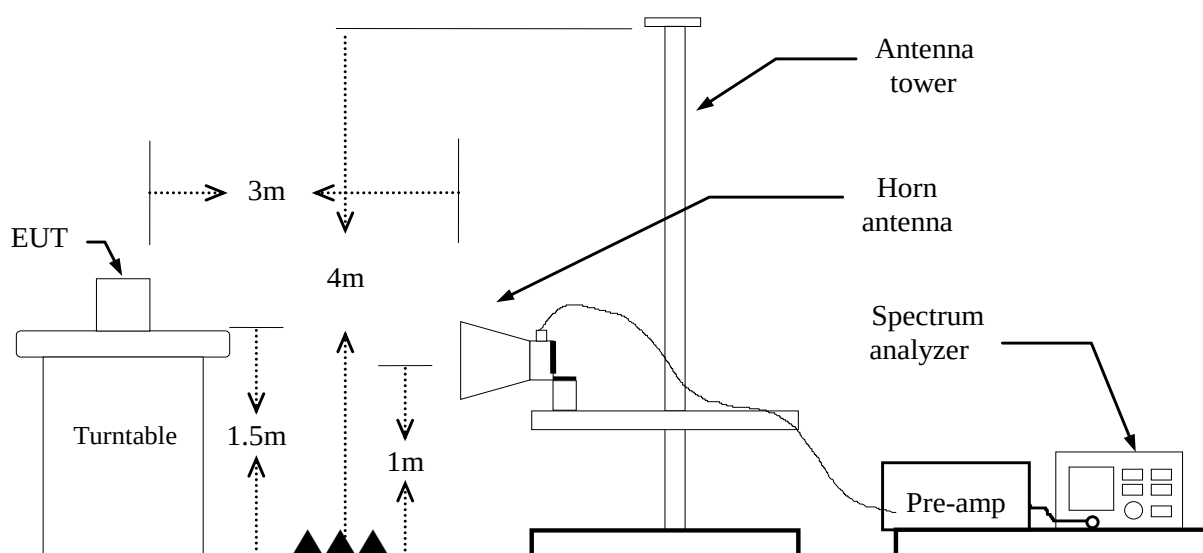
NOTE: $E(\text{dBuV/m}) = (-13) - 20\log(3) + 104.77 = 82.22$.

Test Configuration

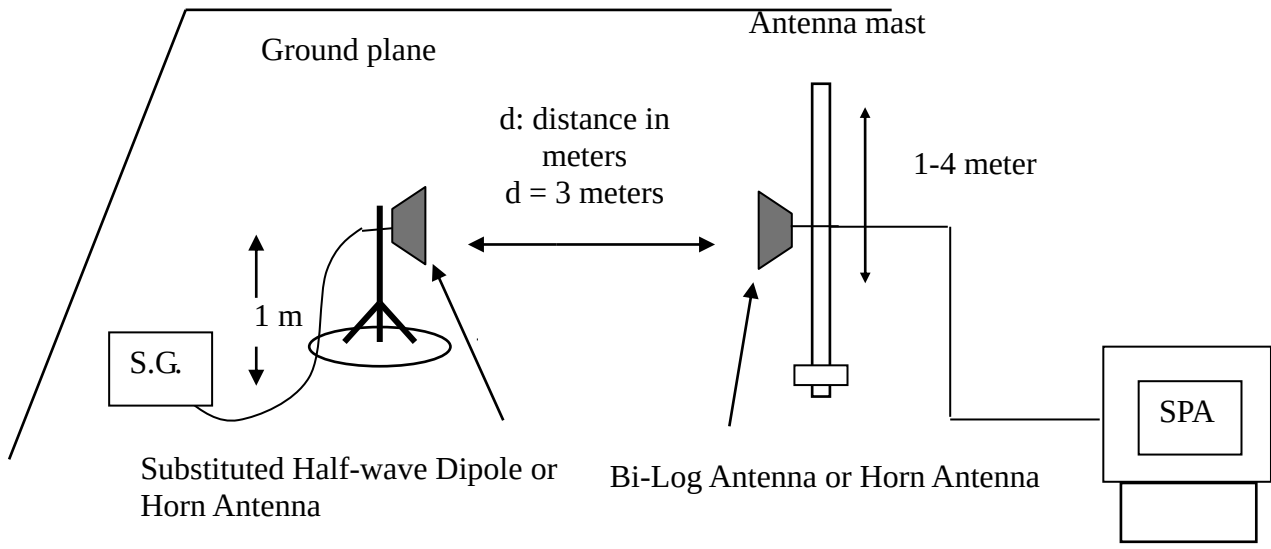
Below 1 GHz



Above 1 GHz



Substituted Method Test Set-up



TEST PROCEDURES

1. According to KDB 971168 D01 Power Meas License Digital Systems and TIA-603-E.
2. The EUT was placed on a turntable
 - (1) Below 1G : 0.8m
 - (2) Above 1G : 0.8m
 - (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

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

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

Test Results

Below 1GHz

LTE Band 4 / BW: 20MHz / QPSK / RB =1, RB Offset = 0

Operation Mode: Tx / Mid CH

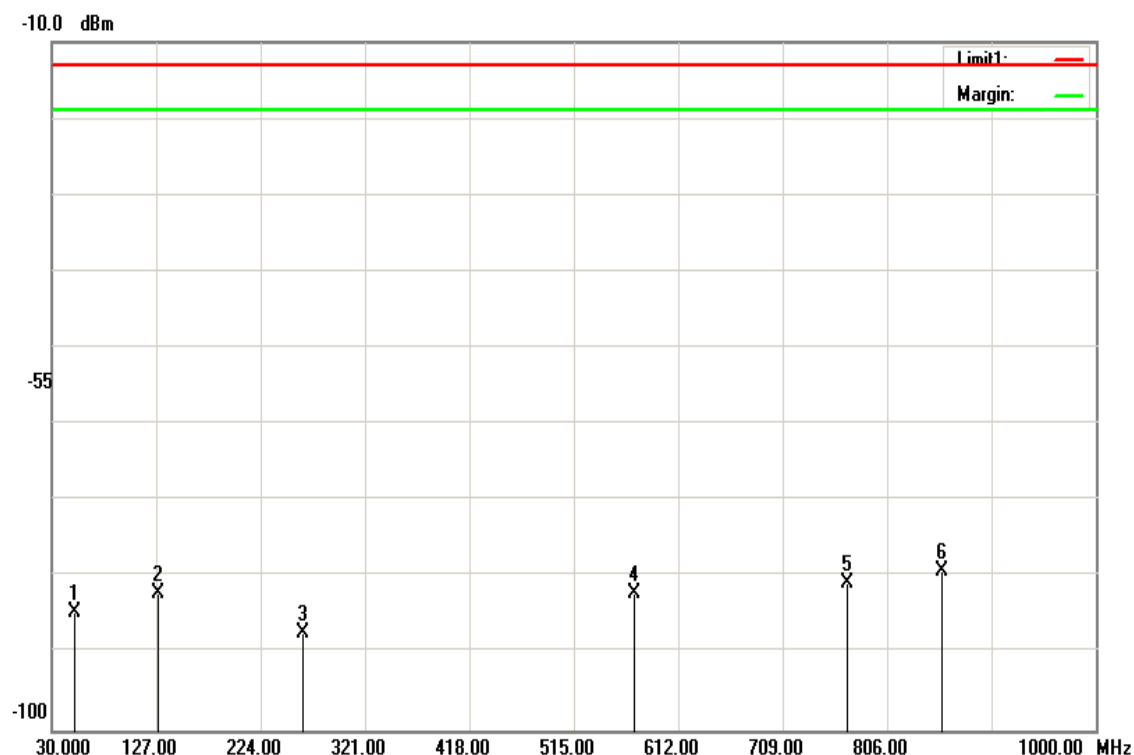
Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Ver.



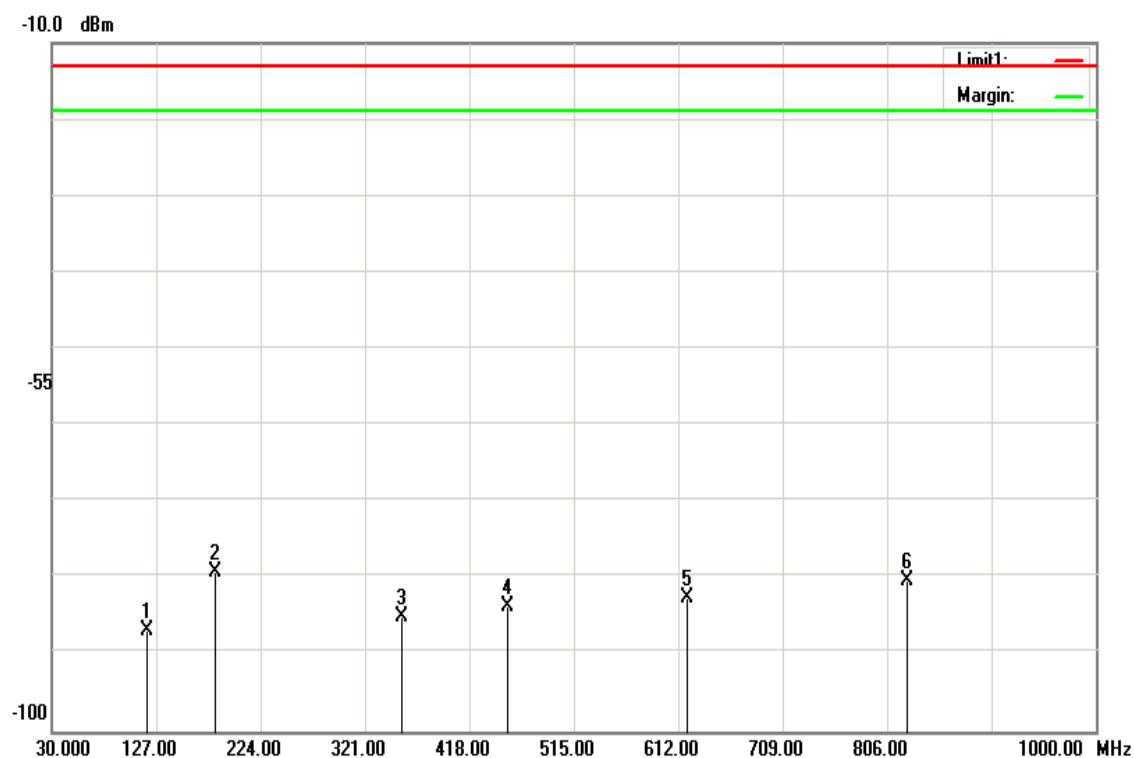
Frequency (MHz)	S.G. (dBm)	Ant. Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
51.3400	-83.95	0.71	-84.66	-13.00	-71.66	V
128.9400	-81.06	1.13	-82.19	-13.00	-69.19	V
264.2550	-85.66	1.62	-87.28	-13.00	-74.28	V
571.7450	-79.8	2.41	-82.21	-13.00	-69.21	V
769.6250	-78.03	2.82	-80.85	-13.00	-67.85	V
856.4400	-76.32	2.98	-79.30	-13.00	-66.30	V



Report No.: T180918D06-RP6

Operation Mode: Tx / Mid CH
Temperature: 23°C
Humidity: 46 %RH

Test Date: November 8, 2018
Tested by: Jerry Chuang
Polarity: Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
118.2700	-85.66	1.08	-86.74	-13.00	-73.74	H
181.8050	-77.79	1.34	-79.13	-13.00	-66.13	H
354.9500	-83.16	1.88	-85.04	-13.00	-72.04	H
454.3750	-81.62	2.14	-83.76	-13.00	-70.76	H
621.2150	-80.02	2.51	-82.53	-13.00	-69.53	H
824.9150	-77.44	2.92	-80.36	-13.00	-67.36	H



Report No.: T180918D06-RP6

LTE Band 4 / BW: 20MHz / 16QAM / RB =1, RB Offset = 0

Operation Mode: Tx / Mid CH

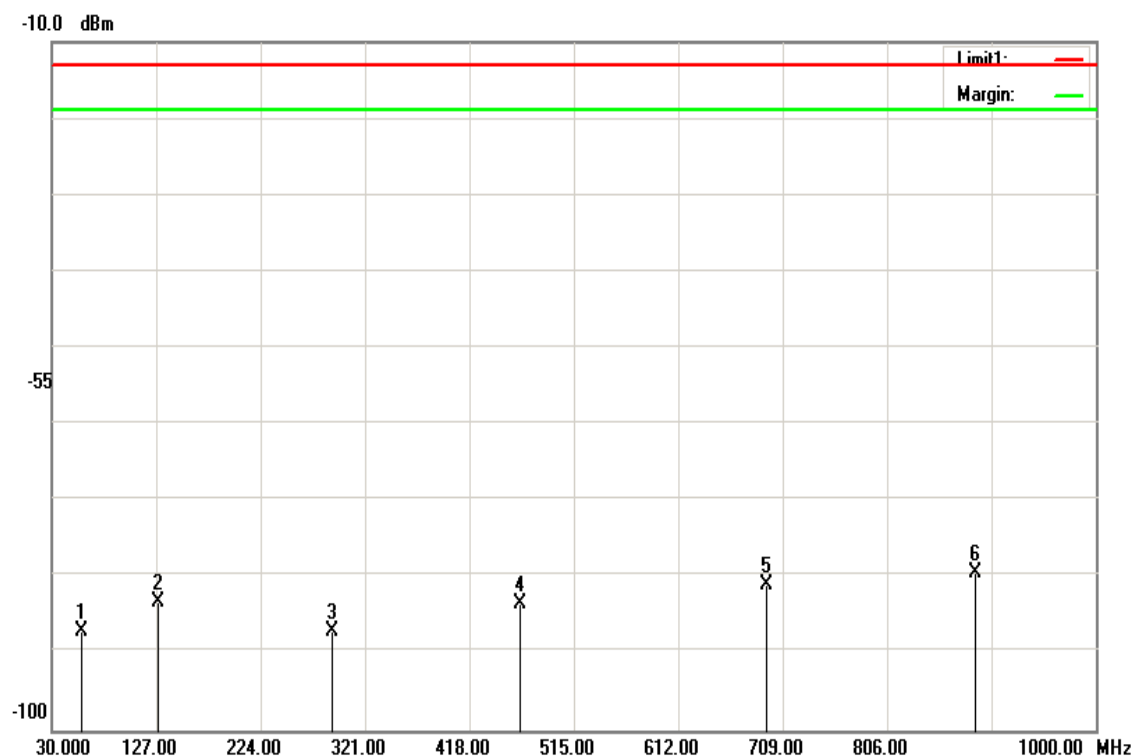
Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Ver.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
57.1600	-86.42	0.75	-87.17	-13.00	-74.17	V
128.9400	-82.19	1.13	-83.32	-13.00	-70.32	V
290.4450	-85.44	1.7	-87.14	-13.00	-74.14	V
465.0450	-81.25	2.17	-83.42	-13.00	-70.42	V
693.9650	-78.27	2.67	-80.94	-13.00	-67.94	V
888.4500	-76.3	3.04	-79.34	-13.00	-66.34	V



Report No.: T180918D06-RP6

Page: 29 / 65
Rev.: 00

Operation Mode: Tx / Mid CH

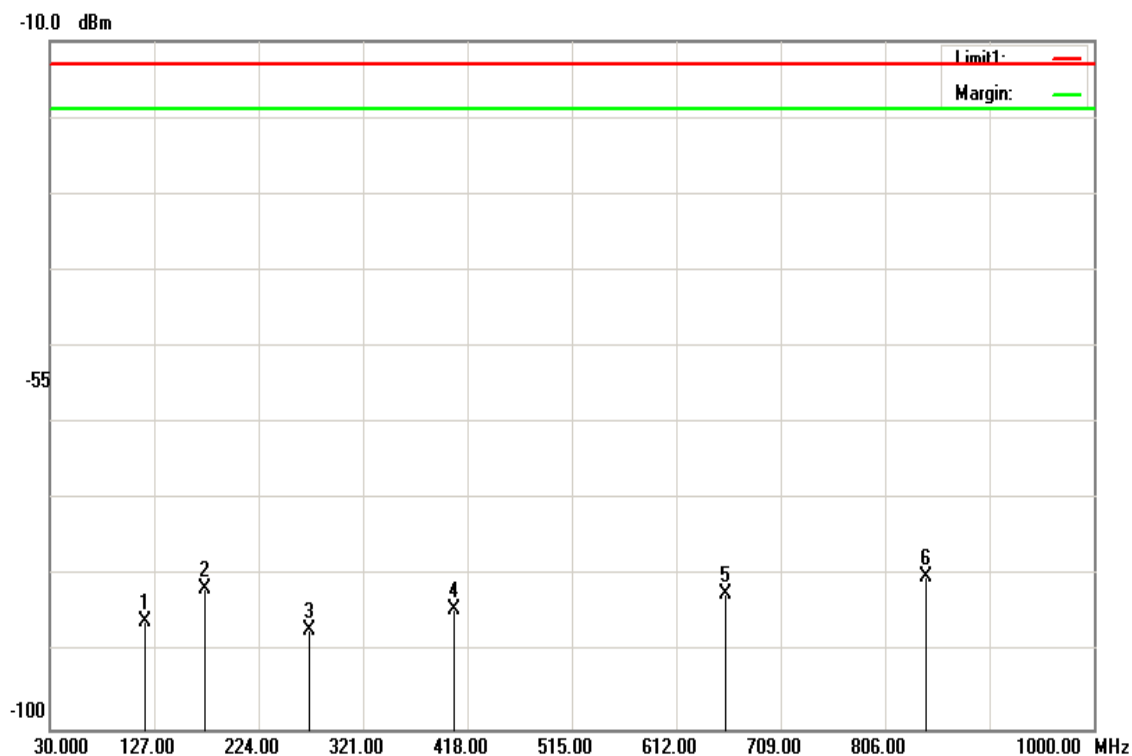
Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
118.7550	-84.8	1.08	-85.88	-13.00	-72.88	H
174.5300	-80.32	1.31	-81.63	-13.00	-68.63	H
271.5300	-85.43	1.64	-87.07	-13.00	-74.07	H
405.3900	-82.29	2.02	-84.31	-13.00	-71.31	H
657.5900	-79.79	2.59	-82.38	-13.00	-69.38	H
844.3150	-77.09	2.96	-80.05	-13.00	-67.05	H

Above 1GHz**LTE Band 4 / BW: 20MHz / QPSK RB =1, RB Offset = 0****Operation Mode:** Tx / Low CH**Test Date:**

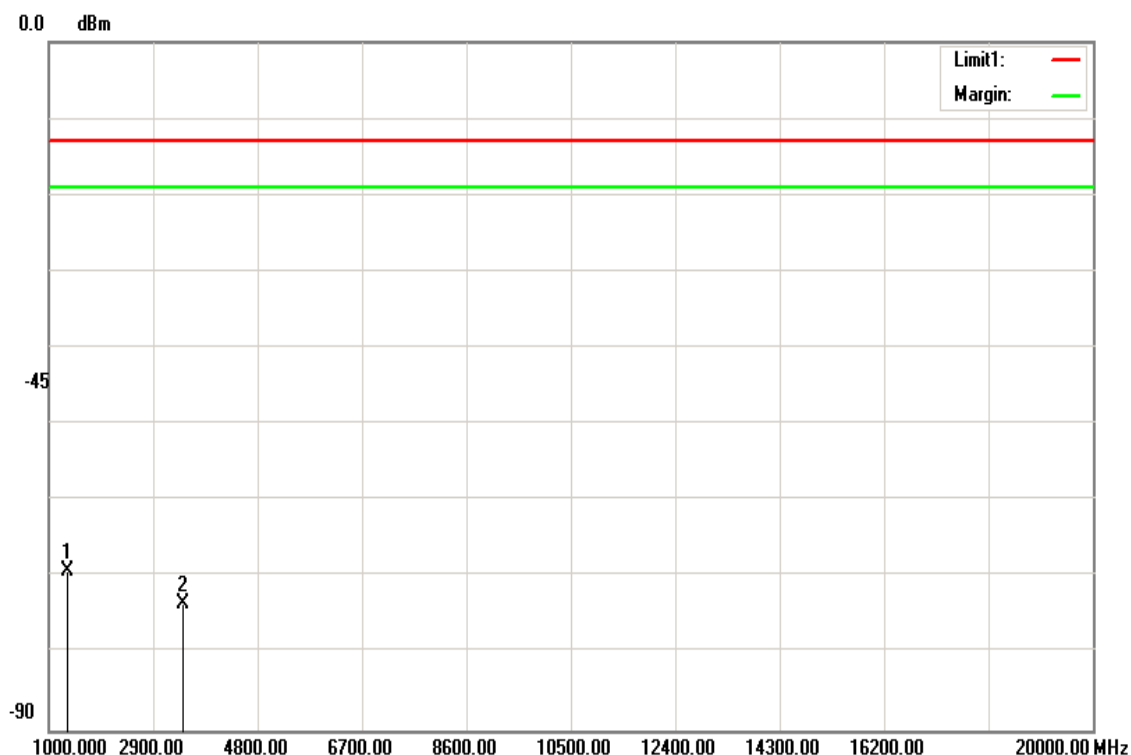
November 8, 2018

Temperature: 23°C**Tested by:**

Jerry Chuang

Humidity: 46 %RH**Polarity:**

Ver.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1332.500	-65.45	3.73	-69.18	-13.00	-56.18	V
3446.500	-67.15	6.37	-73.52	-13.00	-60.52	V
N/A						

Remark:

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



Report No.: T180918D06-RP6

Page: 31 / 65
Rev.: 00

Operation Mode: Tx / Low CH

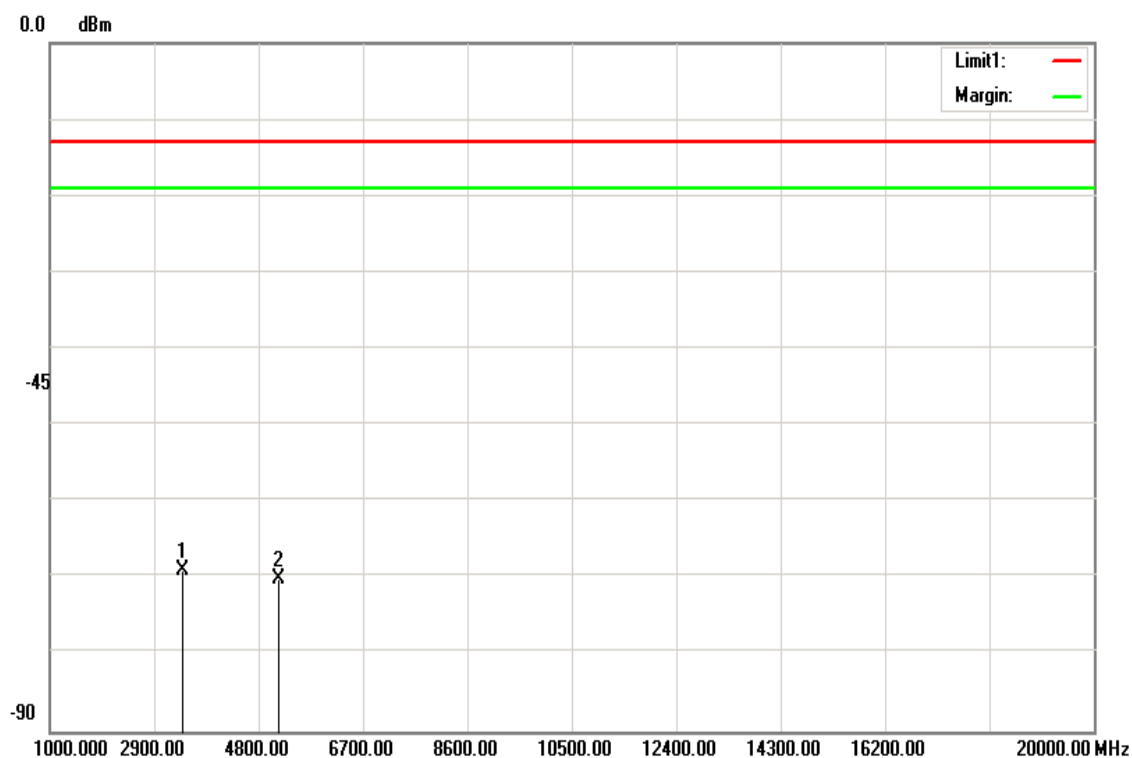
Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3422.000	-62.68	6.35	-69.03	-13.00	-56.03	H
5160.000	-62.23	7.95	-70.18	-13.00	-57.18	H
N/A						

Remark:

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



Report No.: T180918D06-RP6

Page: 32 / 65
Rev.: 00

Operation Mode: Tx / Mid CH

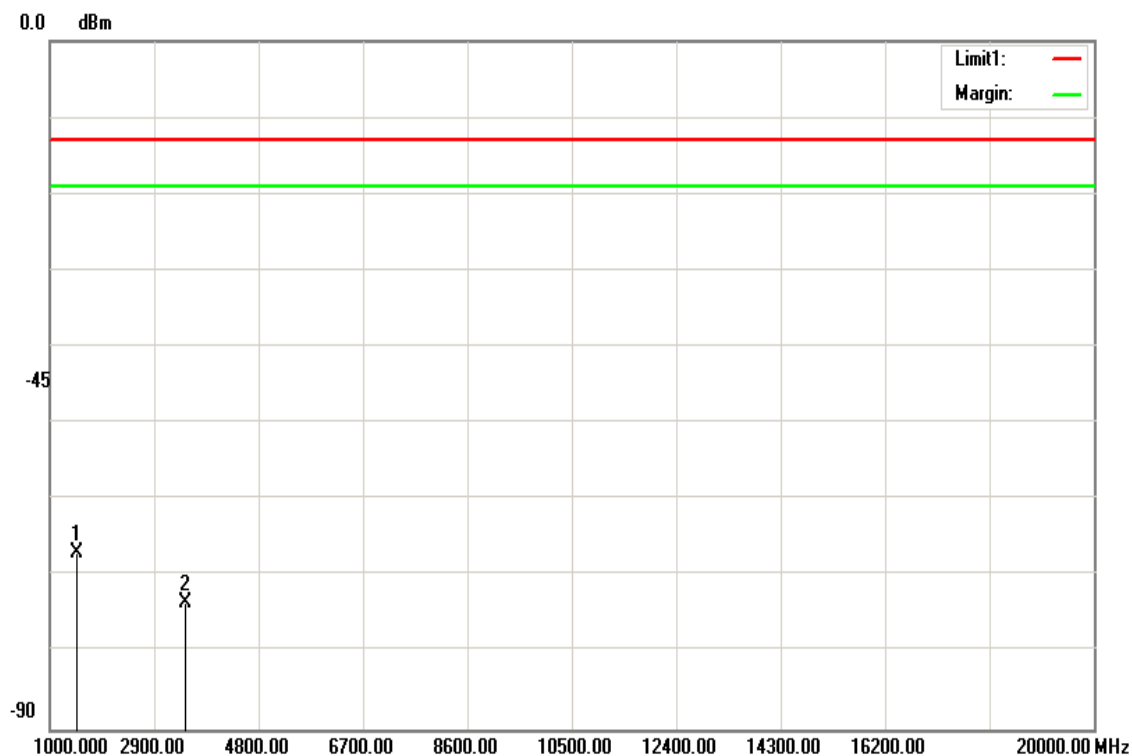
Temperature: 23°C

Humidity: 46 %RH

Test Date: November 8, 2018

Tested by: Jerry Chuang

Polarity: Ver.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1497.000	-62.93	3.99	-66.92	-13.00	-53.92	V
3465.000	-67.16	6.39	-73.55	-13.00	-60.55	V
N/A						

Remark:

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



Report No.: T180918D06-RP6

Page: 33 / 65
Rev.: 00

Operation Mode: Tx / Mid CH

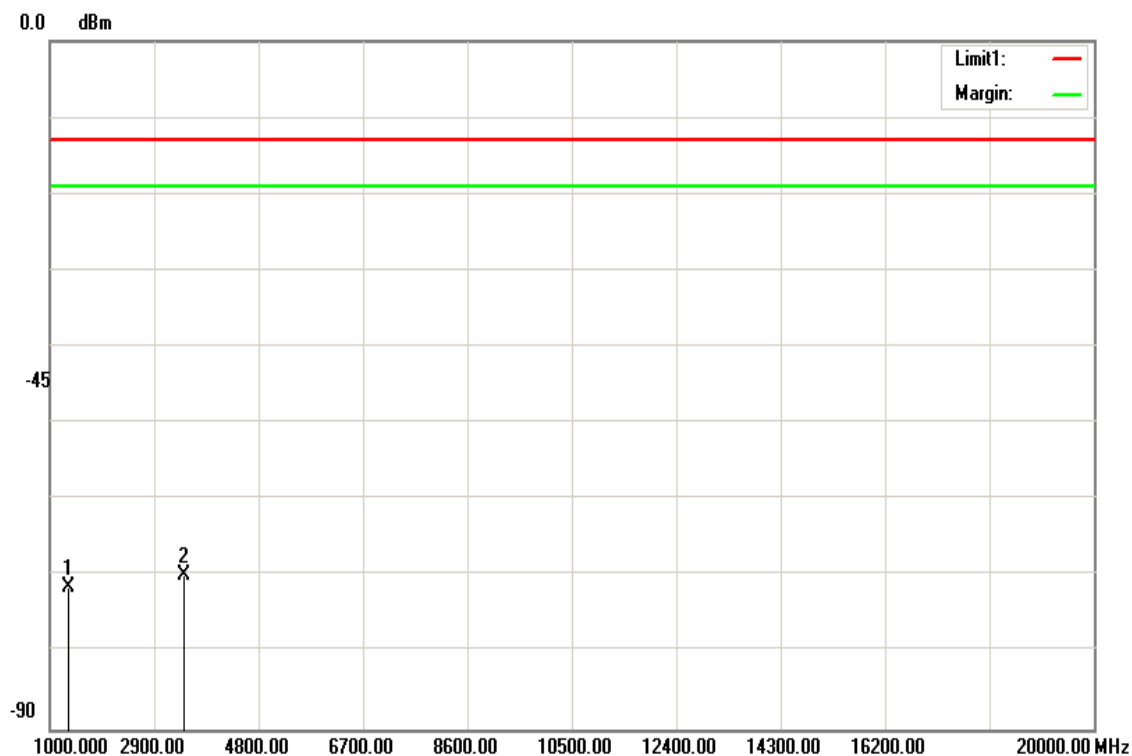
Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1332.500	-67.81	3.73	-71.54	-13.00	-58.54	H
3446.500	-63.58	6.37	-69.95	-13.00	-56.95	H
N/A						

Remark:

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

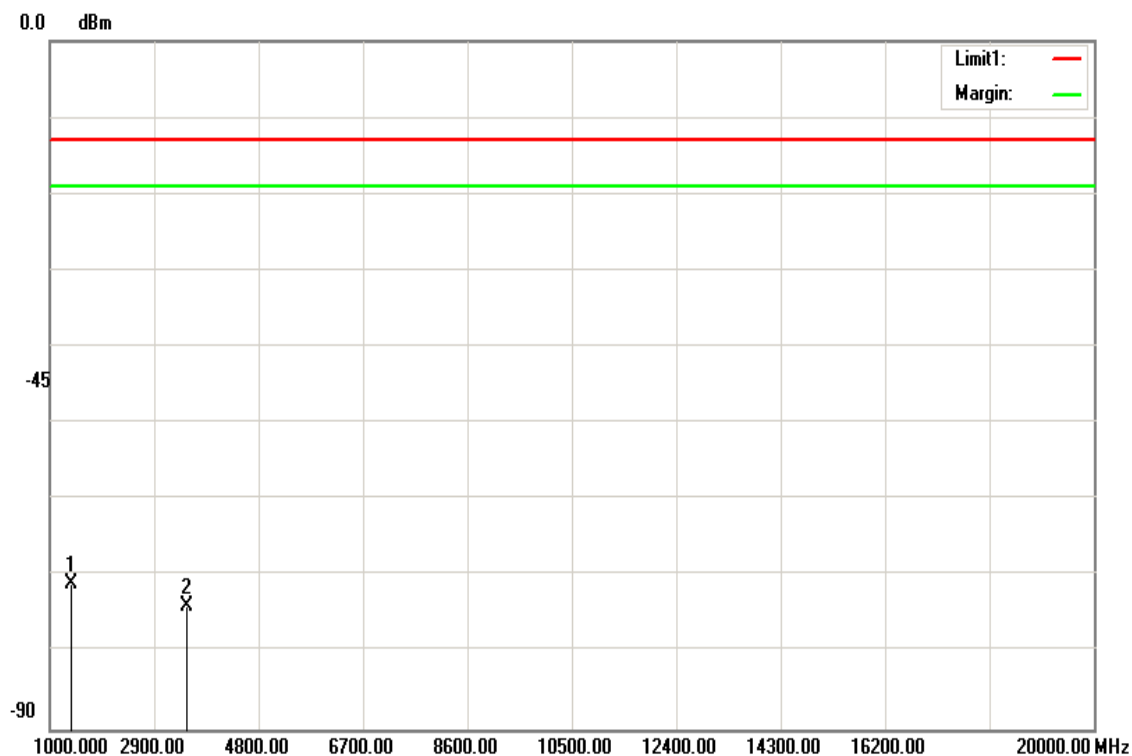
Operation Mode: Tx / High CH

Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Ver.


Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1399.000	-67.12	3.83	-70.95	-13.00	-57.95	V
3490.000	-67.6	6.42	-74.02	-13.00	-61.02	V
N/A						

Remark:

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



Report No.: T180918D06-RP6

Operation Mode: Tx / High CH

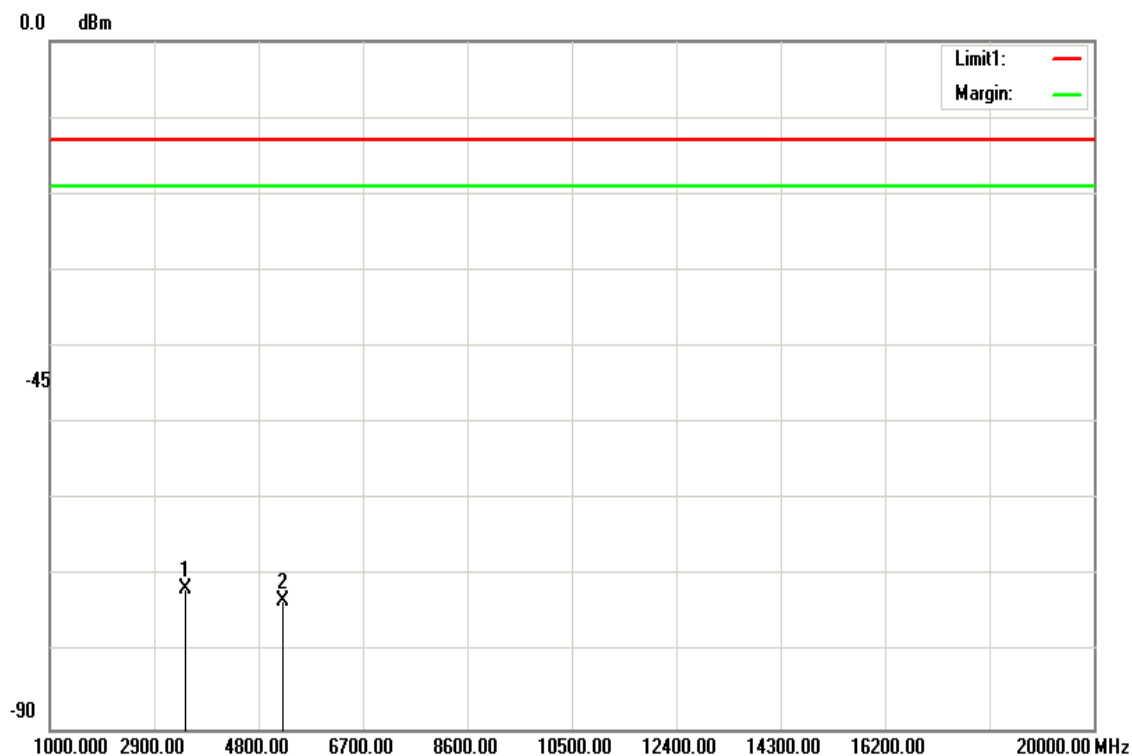
Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3471.000	-65.2	6.4	-71.60	-13.00	-58.60	H
5235.000	-65.26	8.01	-73.27	-13.00	-60.27	H
N/A						

Remark:

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

Report No.: T180918D06-RP6

LTE Band 4 / BW: 20MHz / 16QAM / RB =1, RB Offset = 0

Operation Mode: Tx / Low CH

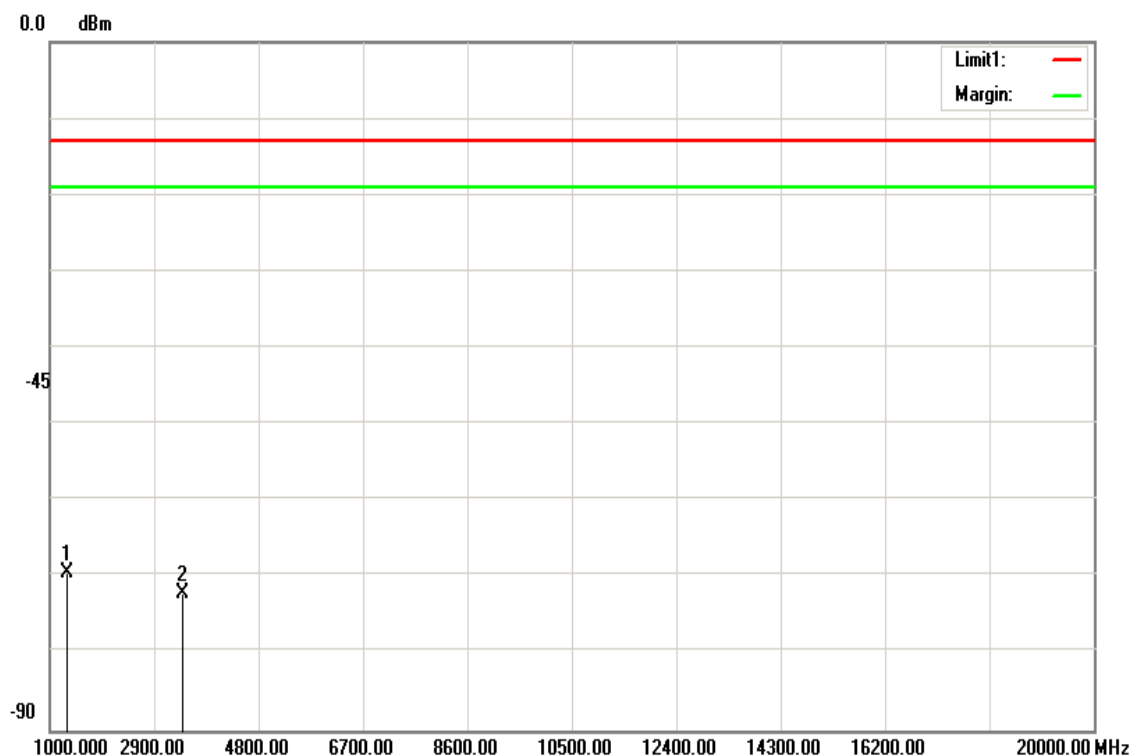
Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Ver.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1329.000	-65.69	3.72	-69.41	-13.00	-56.41	V
3422.000	-65.7	6.35	-72.05	-13.00	-59.05	V
N/A						

Remark:

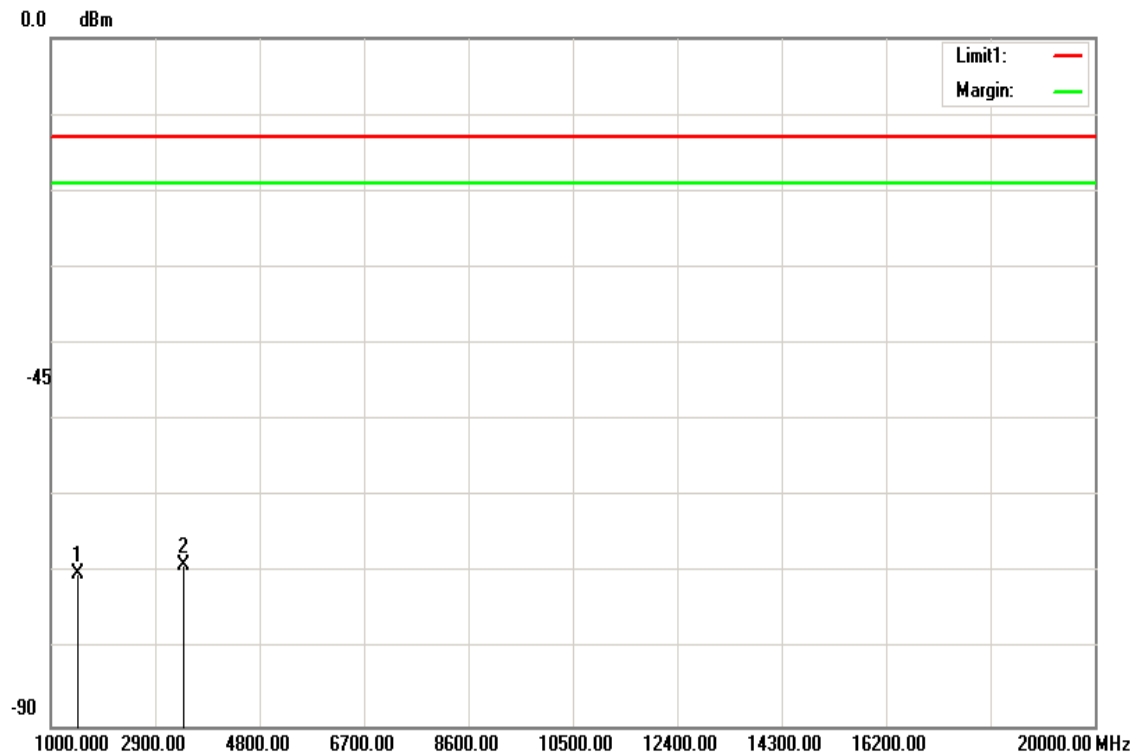
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.



Report No.: T180918D06-RP6

Operation Mode: Tx / Low CH
Temperature: 23°C
Humidity: 46 %RH

Test Date: November 8, 2018
Tested by: Jerry Chuang
Polarity: Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1500.500	-65.99	3.99	-69.98	-13.00	-56.98	H
3422.000	-62.59	6.35	-68.94	-13.00	-55.94	H
N/A						

Remark:

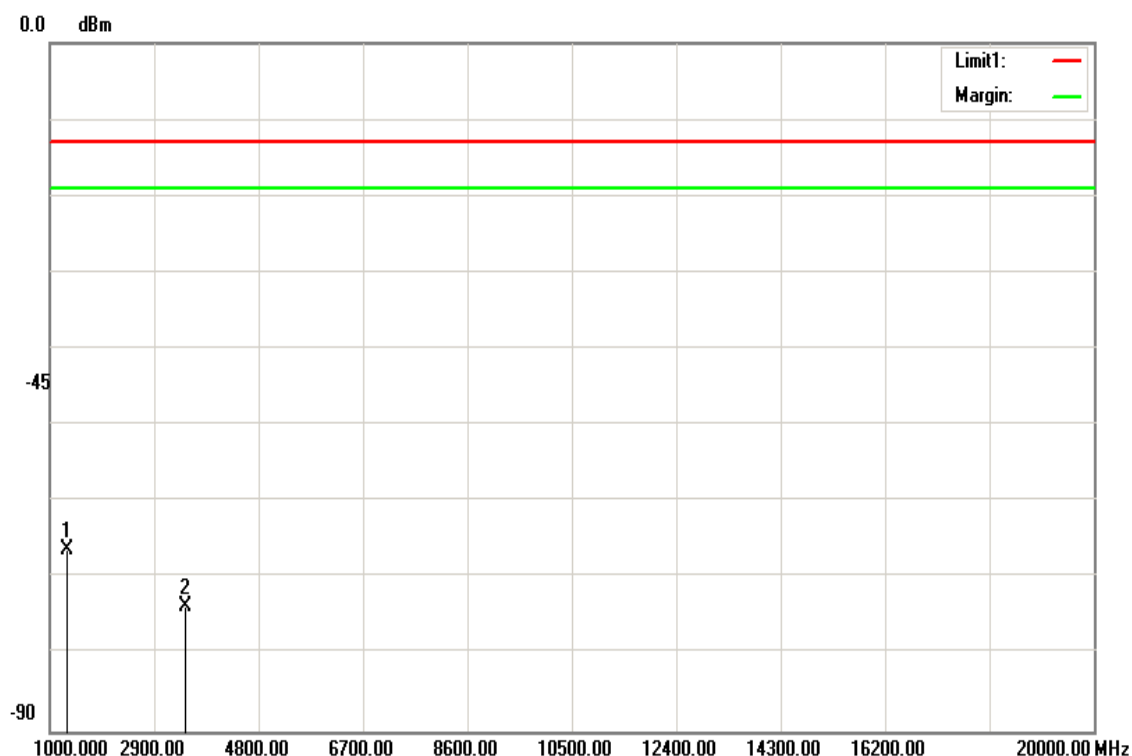
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.



Report No.: T180918D06-RP6

Operation Mode: Tx / Mid CH
Temperature: 23°C
Humidity: 46 %RH

Test Date: November 8, 2018
Tested by: Jerry Chuang
Polarity: Ver.



Frequency (MHz)	S.G. (dBm)	Ant. Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1329.000	-62.54	3.72	-66.26	-13.00	-53.26	V
3465.000	-67.37	6.39	-73.76	-13.00	-60.76	V
N/A						

Remark:

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



Report No.: T180918D06-RP6

Page: 39 / 65
Rev.: 00

Operation Mode: Tx / Mid CH

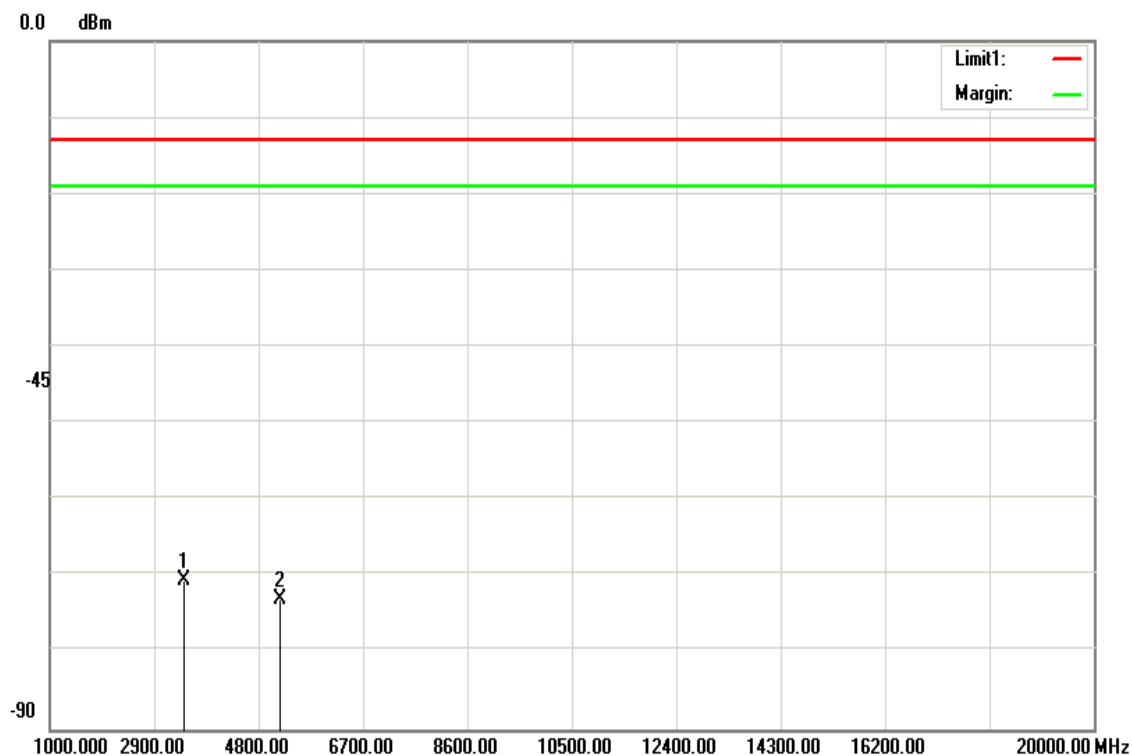
Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3446.500	-64.13	6.37	-70.50	-13.00	-57.50	H
5197.500	-65.07	7.98	-73.05	-13.00	-60.05	H
N/A						

Remark:

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



Report No.: T180918D06-RP6

Page: 40 / 65
Rev.: 00

Operation Mode: Tx / High CH

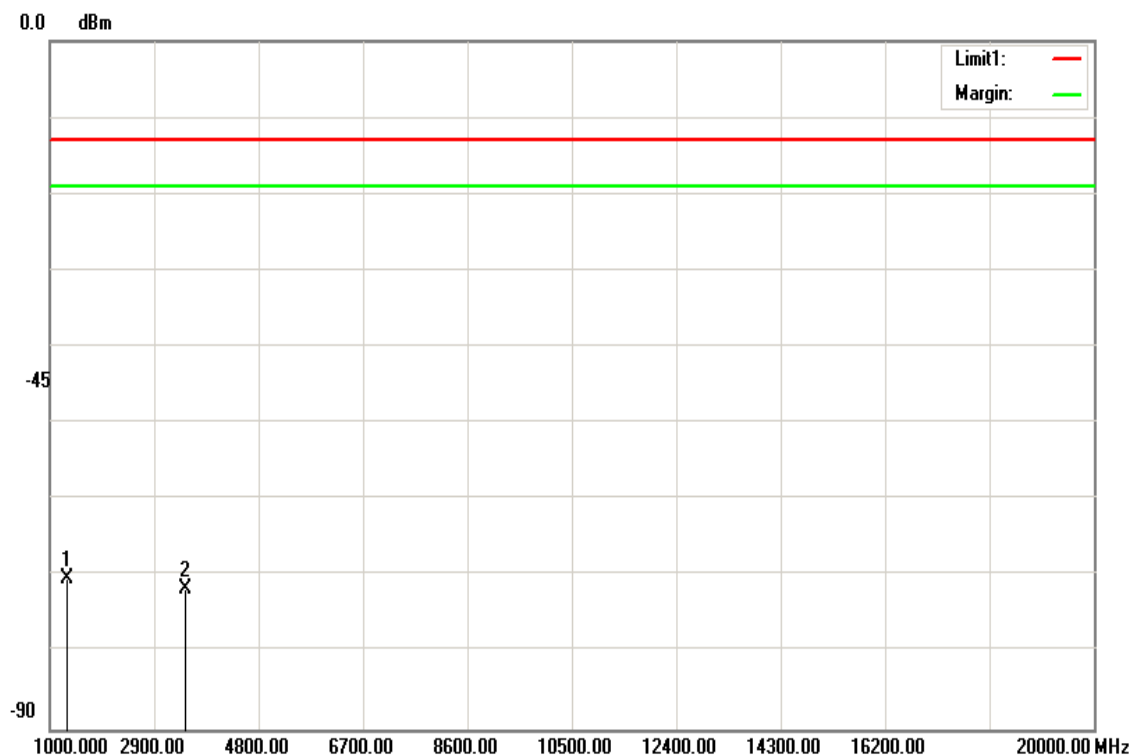
Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Ver.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1329.000	-66.6	3.72	-70.32	-13.00	-57.32	V
3471.000	-65.16	6.4	-71.56	-13.00	-58.56	V
N/A						

Remark:

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

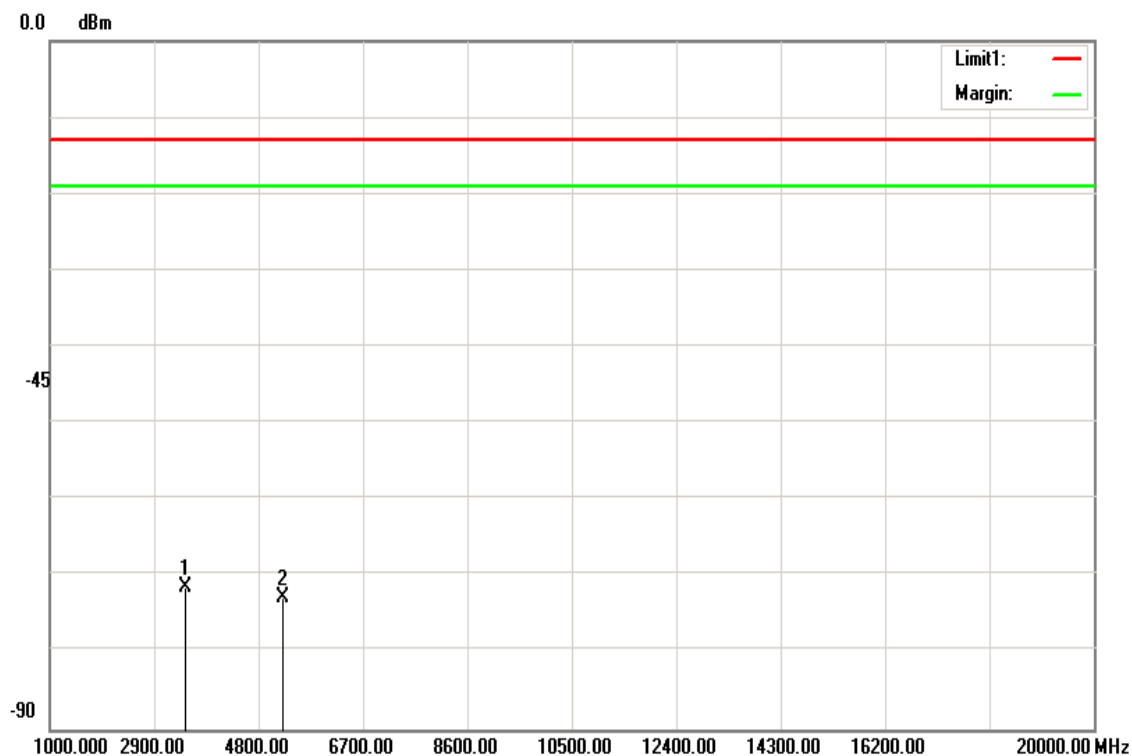
Operation Mode: Tx / High CH

Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Hor.


Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3471.000	-64.96	6.4	-71.36	-13.00	-58.36	H
5235.000	-64.83	8.01	-72.84	-13.00	-59.84	H
N/A						

Remark:

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



Report No.: T180918D06-RP6

Page: 42 / 65

Rev.: 00

Test Results

Below 1GHz

LTE Band 13 / BW: 10MHz / QPSK / RB =1, RB Offset = 0

Operation Mode: Tx / Mid CH

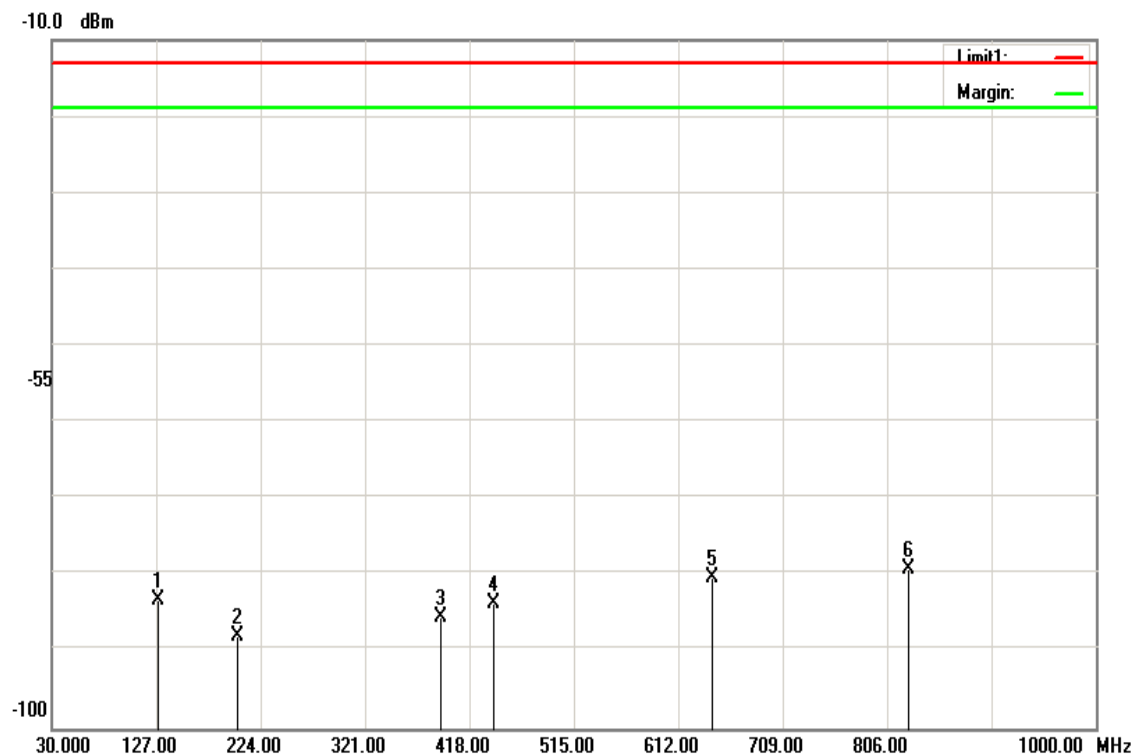
Test Date: November 6, 2018

Temperature: 22°C

Tested by: Jerry Chuang

Humidity: 43 %RH

Polarity: Ver.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
128.9400	-82.17	1.13	-83.30	-13.00	-70.30	V
203.1450	-86.61	1.41	-88.02	-13.00	-75.02	V
390.8400	-83.54	1.98	-85.52	-13.00	-72.52	V
440.3100	-81.54	2.11	-83.65	-13.00	-70.65	V
643.0400	-77.73	2.56	-80.29	-13.00	-67.29	V
826.3700	-76.18	2.92	-79.10	-13.00	-66.10	V



Report No.: T180918D06-RP6

Page: 43 / 65
Rev.: 00

Operation Mode: Tx / Mid CH

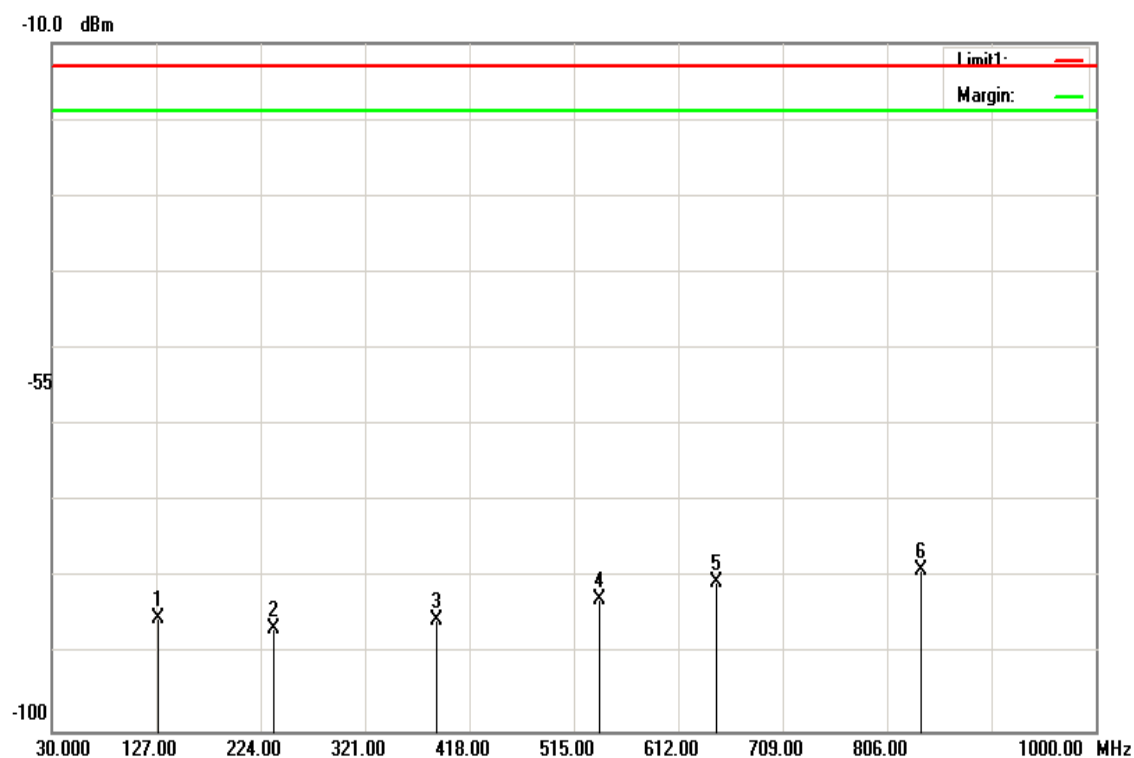
Test Date: November 6, 2018

Temperature: 22°C

Tested by: Jerry Chuang

Humidity: 43 %RH

Polarity: Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
128.9400	-84.19	1.13	-85.32	-13.00	-72.32	H
236.1250	-85.17	1.52	-86.69	-13.00	-73.69	H
387.4450	-83.41	1.97	-85.38	-13.00	-72.38	H
538.7650	-80.46	2.34	-82.80	-13.00	-69.80	H
648.3750	-77.92	2.57	-80.49	-13.00	-67.49	H
838.0100	-75.94	2.95	-78.89	-13.00	-65.89	H



Report No.: T180918D06-RP6

LTE Band 13 / BW: 10MHz / 16QAM / RB =1, RB Offset = 0

Operation Mode: Tx / Mid CH

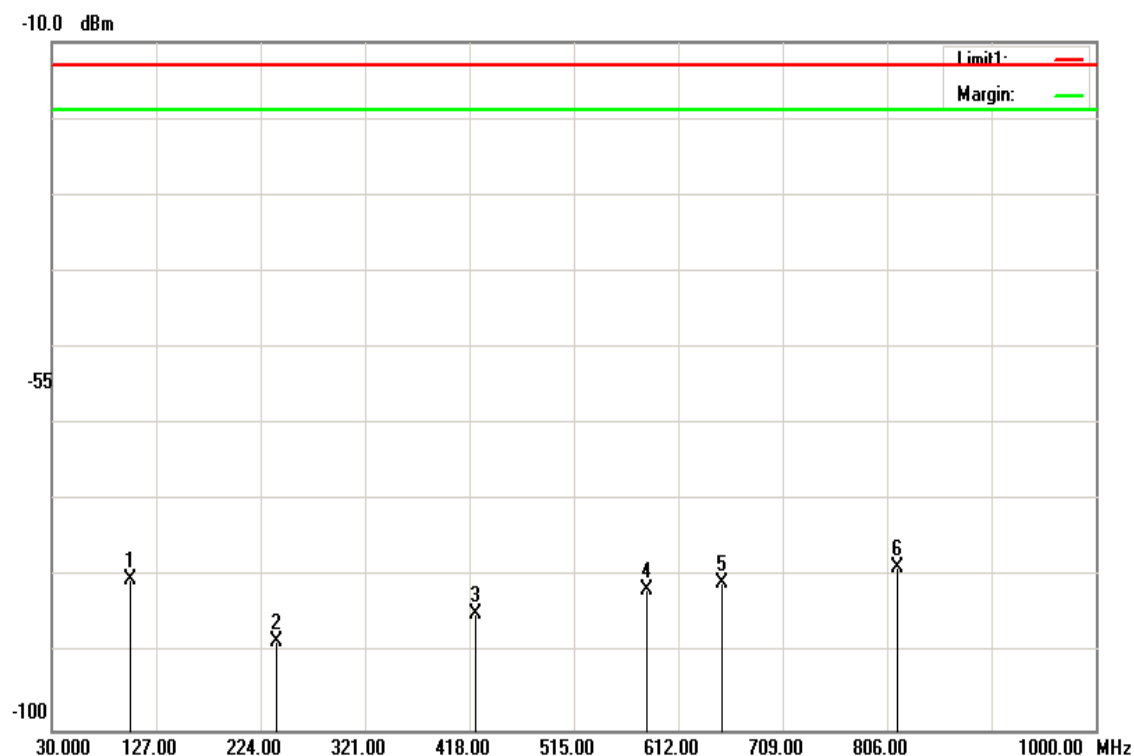
Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Ver.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
103.2350	-79.26	1.01	-80.27	-13.00	-67.27	V
239.0350	-86.92	1.53	-88.45	-13.00	-75.45	V
424.3050	-82.84	2.07	-84.91	-13.00	-71.91	V
582.9000	-79.24	2.43	-81.67	-13.00	-68.67	V
653.2250	-78.24	2.58	-80.82	-13.00	-67.82	V
815.7000	-75.78	2.9	-78.68	-13.00	-65.68	V



Report No.: T180918D06-RP6

Operation Mode: Tx / Mid CH

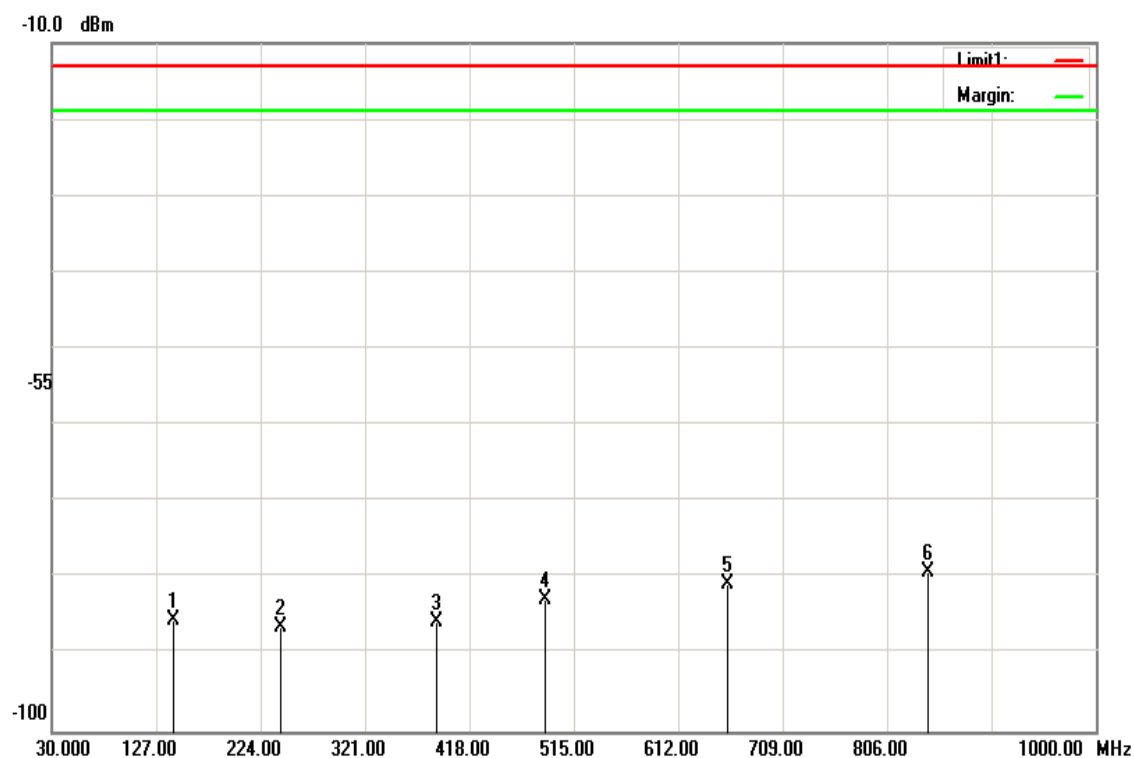
Temperature: 23°C

Humidity: 46 %RH

Test Date: November 8, 2018

Tested by: Jerry Chuang

Polarity: Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
142.5200	-84.24	1.18	-85.42	-13.00	-72.42	H
242.9150	-84.78	1.54	-86.32	-13.00	-73.32	H
386.9600	-83.81	1.97	-85.78	-13.00	-72.78	H
488.3250	-80.63	2.22	-82.85	-13.00	-69.85	H
658.0750	-78.13	2.59	-80.72	-13.00	-67.72	H
844.3150	-76.27	2.96	-79.23	-13.00	-66.23	H



Report No.: T180918D06-RP6

Above 1GHz

LTE Band 13 / BW: 10MHz / QPSK RB =1, RB Offset = 0

Operation Mode: Tx / Mid CH

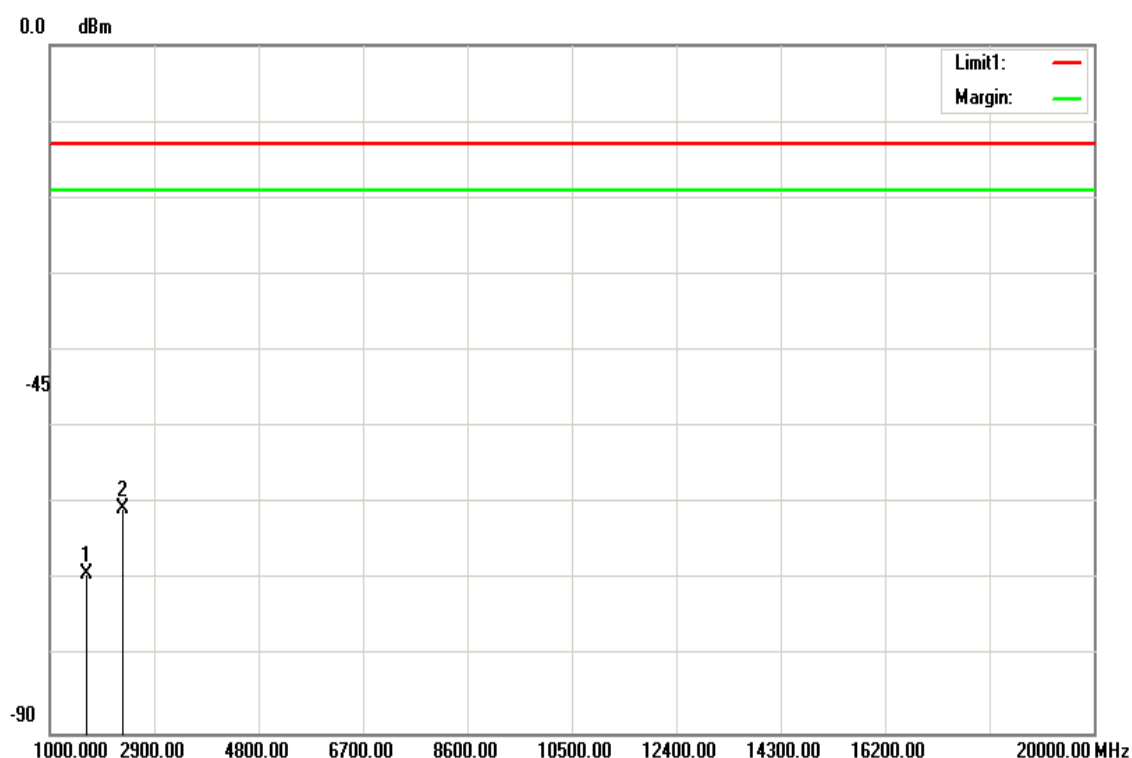
Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Ver.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1665.000	-64.95	4.22	-69.17	-13.00	-56.17	V
2333.500	-55.61	5.12	-60.73	-13.00	-47.73	V
N/A						

Remark:

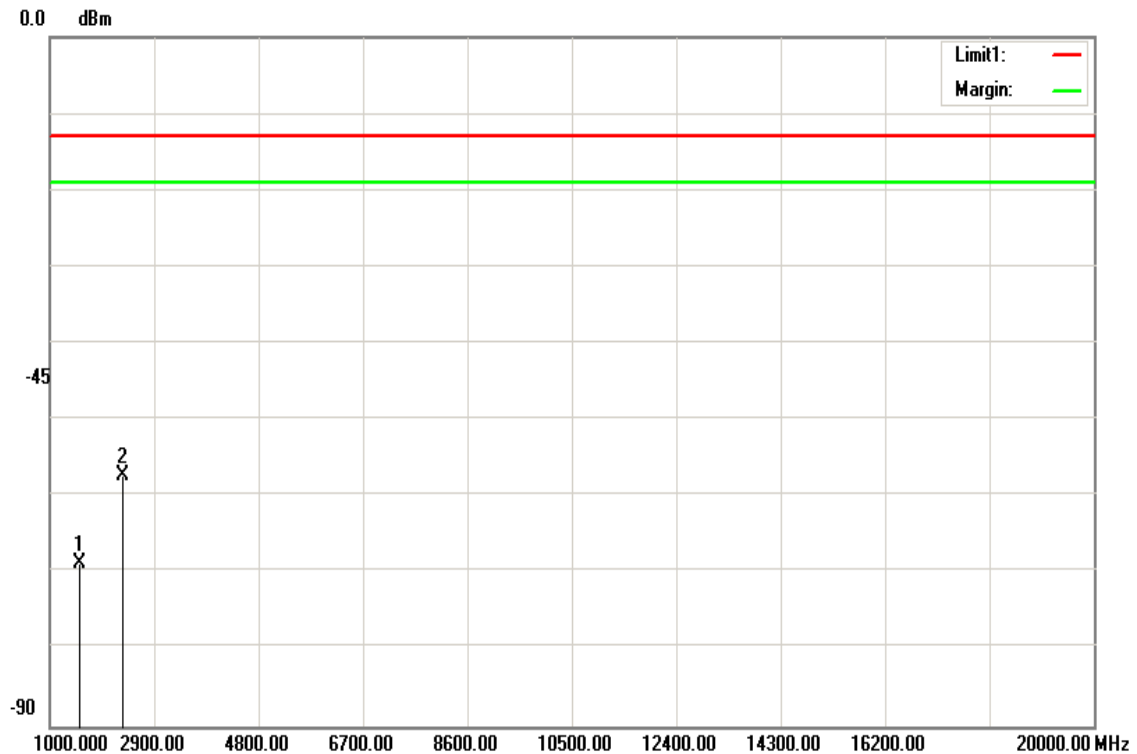
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.



Report No.: T180918D06-RP6

Operation Mode: Tx / Mid CH
Temperature: 23°C
Humidity: 46 %RH

Test Date: November 8, 2018
Tested by: Jerry Chuang
Polarity: Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1556.500	-64.63	4.07	-68.70	-13.00	-55.70	H
2333.500	-52.07	5.12	-57.19	-13.00	-44.19	H
N/A						

Remark:

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

Report No.: T180918D06-RP6

LTE Band 13 / BW: 10MHz / 16QAM RB =1, RB Offset = 0
Operation Mode: Tx / Mid CH

Test Date:

November 8, 2018

Temperature: 23°C

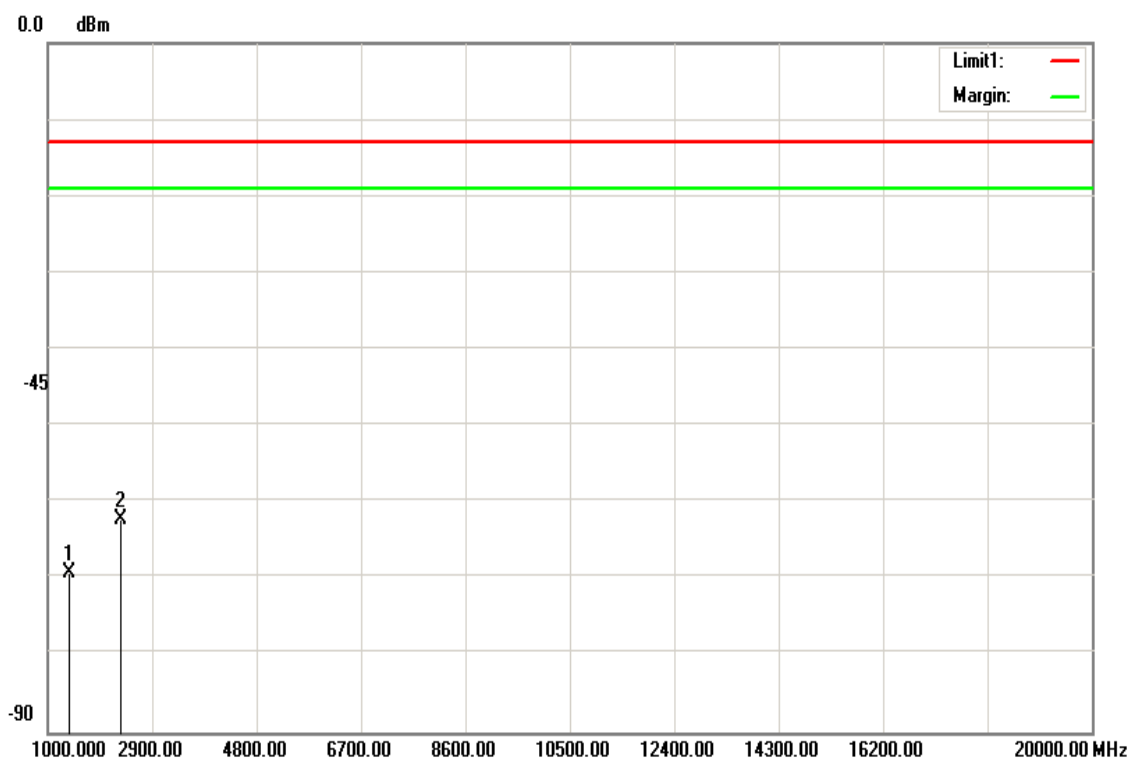
Tested by:

Jerry Chuang

Humidity: 46 %RH

Polarity:

Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1399.000	-65.45	3.83	-69.28	-13.00	-56.28	V
2333.500	-57.09	5.12	-62.21	-13.00	-49.21	V
N/A						

Remark:

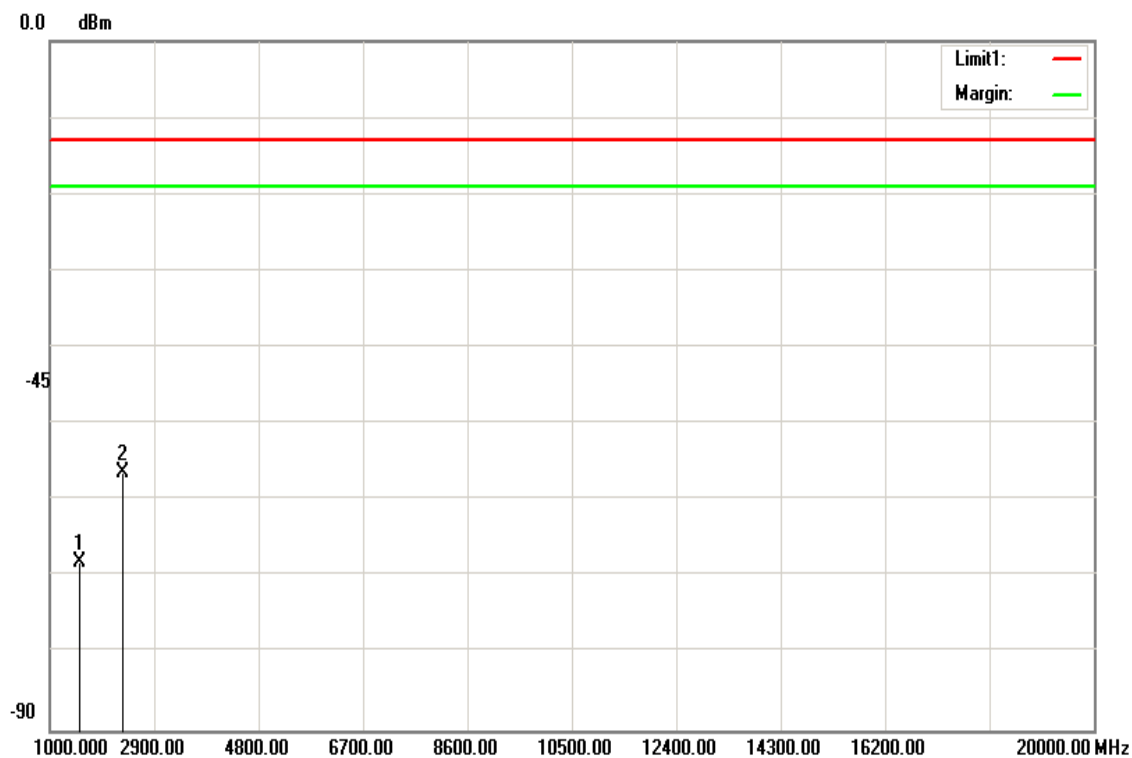
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.



Report No.: T180918D06-RP6

Operation Mode: Tx / Mid CH
Temperature: 23°C
Humidity: 46 %RH

Test Date: November 8, 2018
Tested by: Jerry Chuang
Polarity: Hor.



requeency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1556.500	-63.94	4.07	-68.01	-13.00	-55.01	H
2333.500	-51.19	5.12	-56.31	-13.00	-43.31	H
N/A						

Remark:

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



Report No.: T180918D06-RP6

Page: 50 / 65
Rev.: 00

Test Results

Below 1GHz

LTE Band 66 / BW: 20MHz / QPSK / RB =1, RB Offset = 0

Operation Mode: Tx / Mid CH

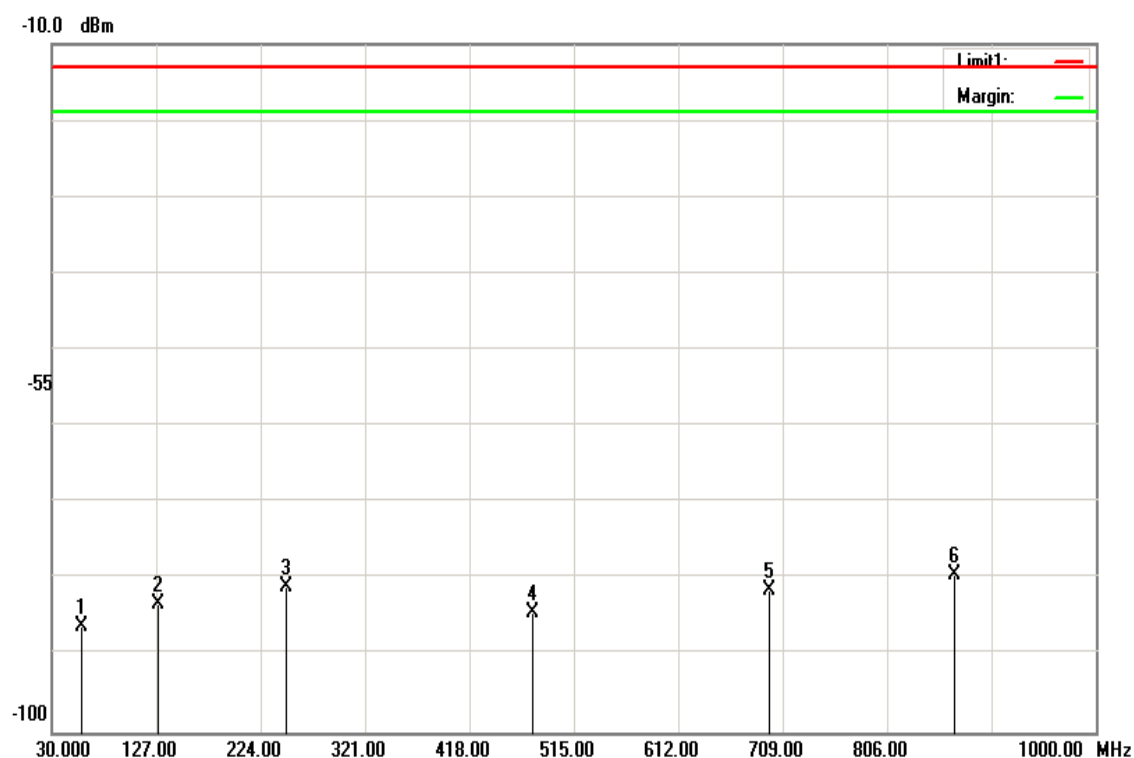
Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Ver.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
57.1600	-85.46	0.75	-86.21	-13.00	-73.21	V
128.9400	-82.02	1.13	-83.15	-13.00	-70.15	V
248.7350	-79.38	1.56	-80.94	-13.00	-67.94	V
477.6550	-82.14	2.2	-84.34	-13.00	-71.34	V
696.8750	-78.79	2.67	-81.46	-13.00	-68.46	V
869.5350	-76.46	3.01	-79.47	-13.00	-66.47	V



Report No.: T180918D06-RP6

Page: 51 / 65
Rev.: 00

Operation Mode: Tx / Mid CH

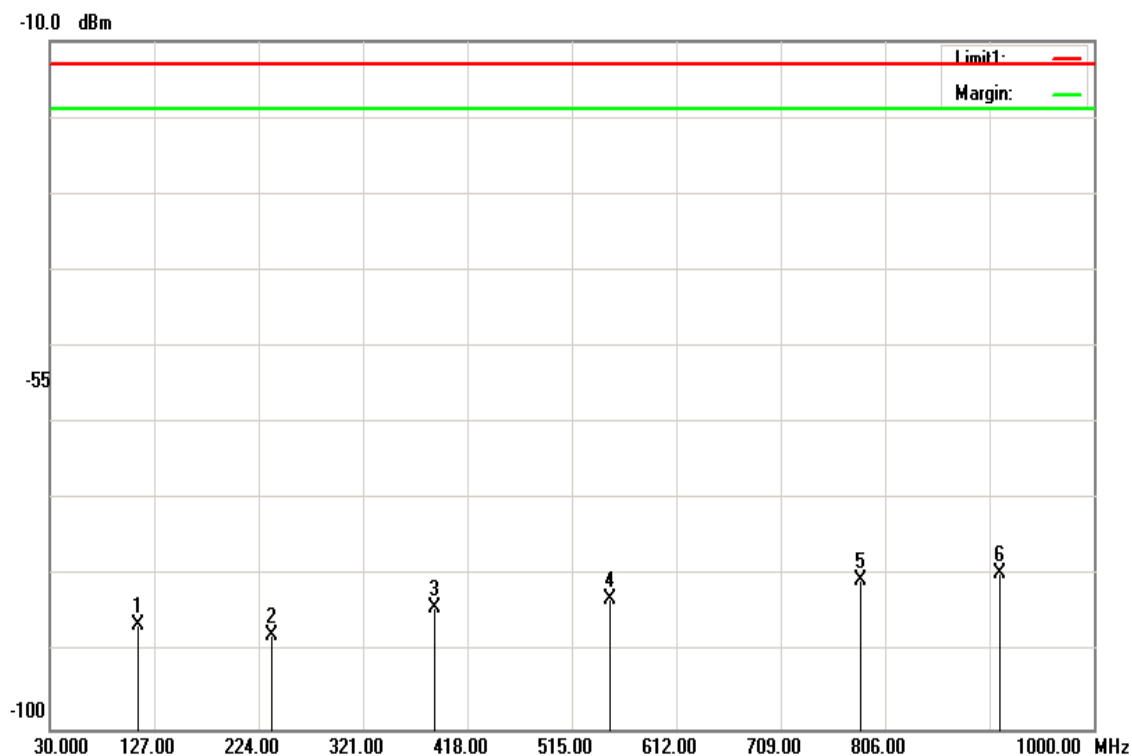
Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
112.4500	-85.36	1.05	-86.41	-13.00	-73.41	H
235.6400	-86.33	1.52	-87.85	-13.00	-74.85	H
386.9600	-82.26	1.97	-84.23	-13.00	-71.23	H
550.4050	-80.57	2.36	-82.93	-13.00	-69.93	H
784.1750	-77.77	2.84	-80.61	-13.00	-67.61	H
913.1850	-76.57	3.08	-79.65	-13.00	-66.65	H

LTE Band 66 / BW: 20MHz / 16QAM / RB =1, RB Offset = 0
Operation Mode: Tx / Mid CH

Test Date:

November 8, 2018

Temperature: 23°C

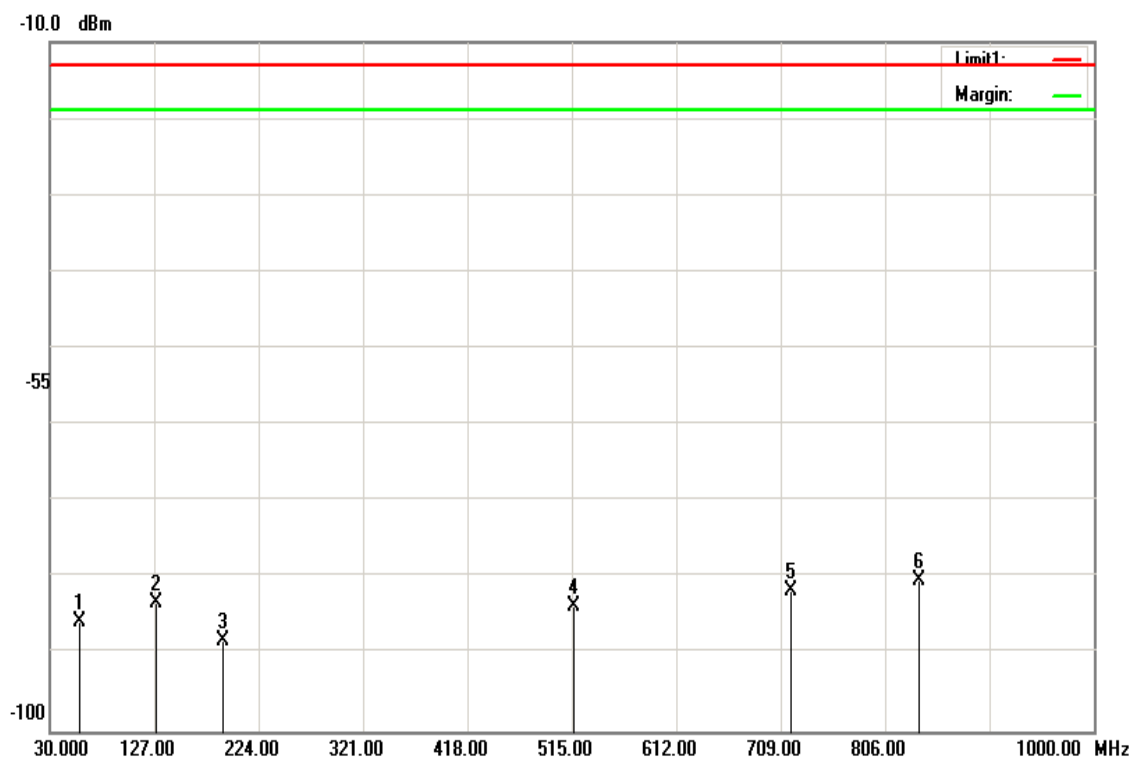
Tested by:

Jerry Chuang

Humidity: 46 %RH

Polarity:

Ver.



Frequency (MHz)	S.G. (dBm)	Ant. Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
57.1600	-85.02	0.75	-85.77	-13.00	-72.77	V
128.9400	-82.14	1.13	-83.27	-13.00	-70.27	V
191.0200	-86.72	1.37	-88.09	-13.00	-75.09	V
517.4250	-81.45	2.29	-83.74	-13.00	-70.74	V
718.7000	-79.05	2.72	-81.77	-13.00	-68.77	V
837.5250	-77.43	2.95	-80.38	-13.00	-67.38	V

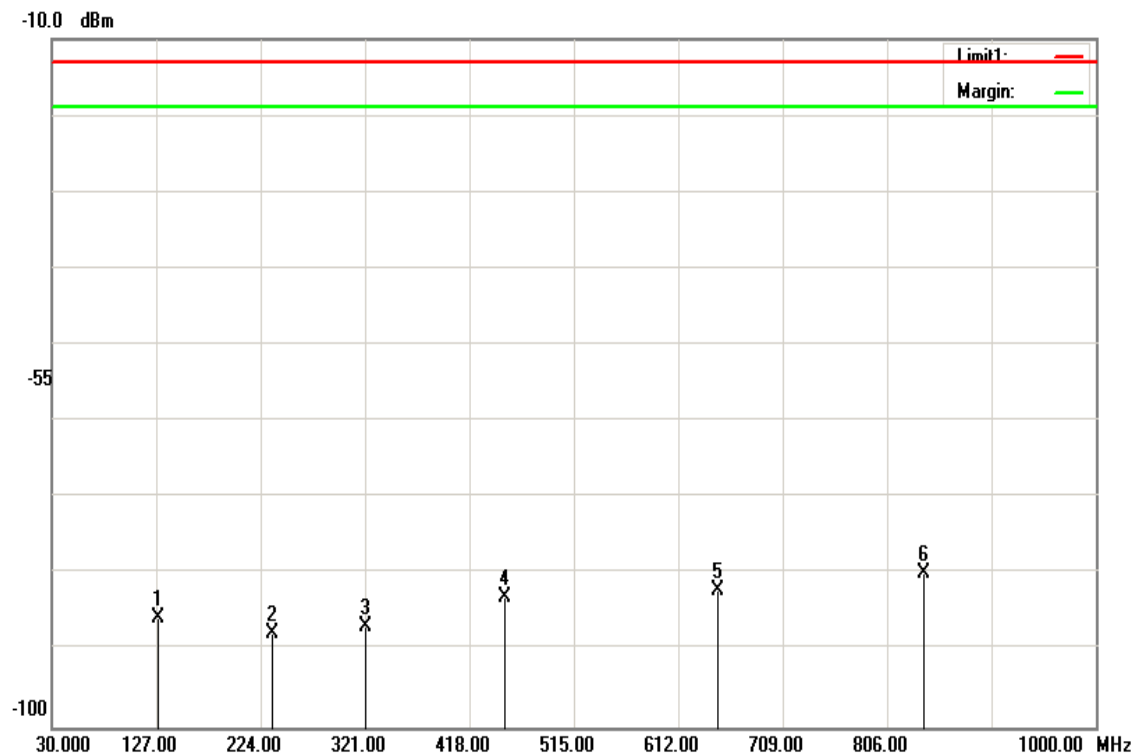


Report No.: T180918D06-RP6

Page: 53 / 65
Rev.: 00

Operation Mode: Tx / Mid CH
Temperature: 23°C
Humidity: 46 %RH

Test Date: November 8, 2018
Tested by: Jerry Chuang
Polarity: Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
128.9400	-84.55	1.13	-85.68	-13.00	-72.68	H
234.6700	-86.32	1.51	-87.83	-13.00	-74.83	H
322.4550	-85.1	1.79	-86.89	-13.00	-73.89	H
451.4650	-80.98	2.13	-83.11	-13.00	-70.11	H
648.8600	-79.44	2.57	-82.01	-13.00	-69.01	H
839.9500	-76.89	2.95	-79.84	-13.00	-66.84	H



Report No.: T180918D06-RP6

Above 1GHz

LTE Band 66 / BW: 20MHz / QPSK RB =1, RB Offset = 0

Operation Mode: Tx / Low CH

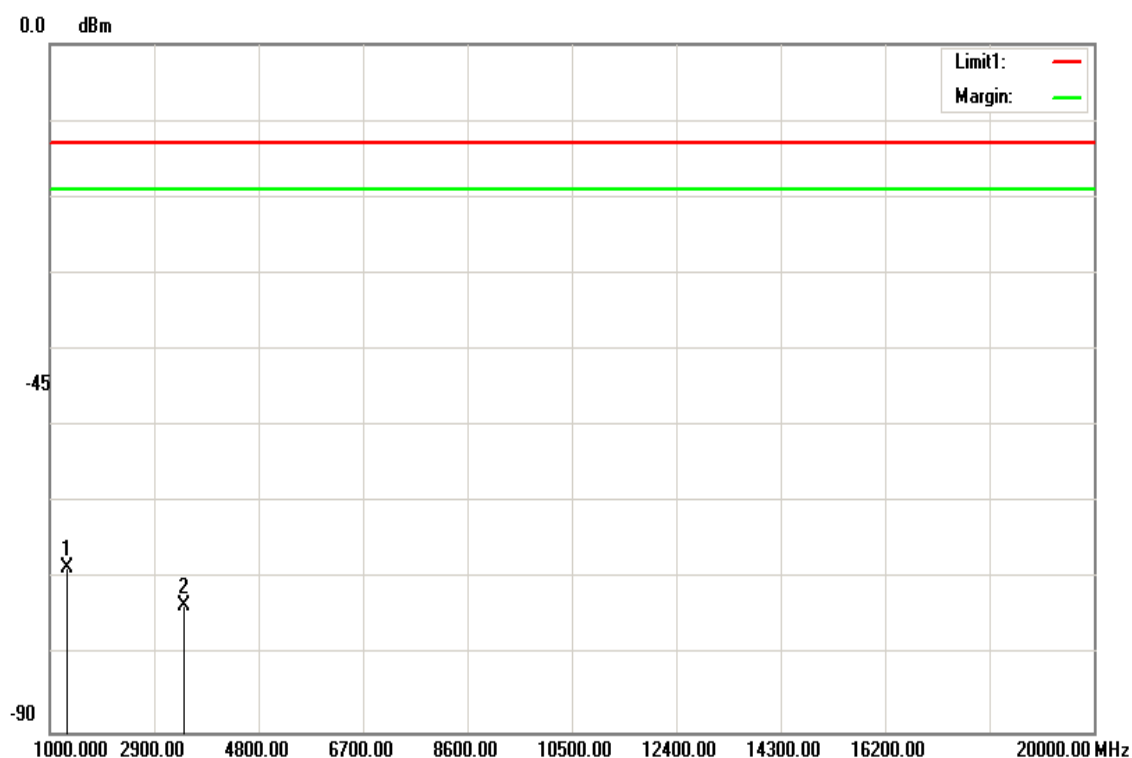
Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Ver.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1329.000	-64.86	3.72	-68.58	-13.00	-55.58	V
3440.000	-67.19	6.37	-73.56	-13.00	-60.56	V
N/A						

Remark:

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

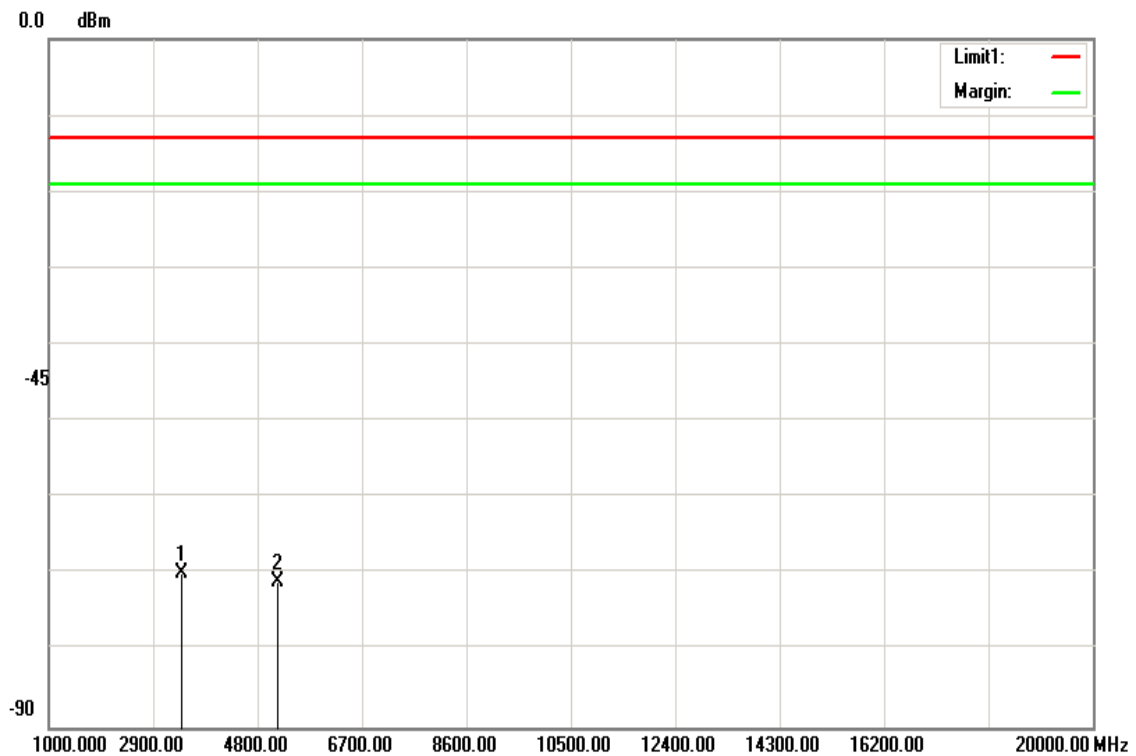


Report No.: T180918D06-RP6

Page: 55 / 65
Rev.: 00

Operation Mode: Tx / Low CH
Temperature: 23°C
Humidity: 46 %RH

Test Date: November 8, 2018
Tested by: Jerry Chuang
Polarity: Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3422.000	-63.6	6.35	-69.95	-13.00	-56.95	H
5160.000	-63.15	7.95	-71.10	-13.00	-58.10	H
N/A						

Remark:

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

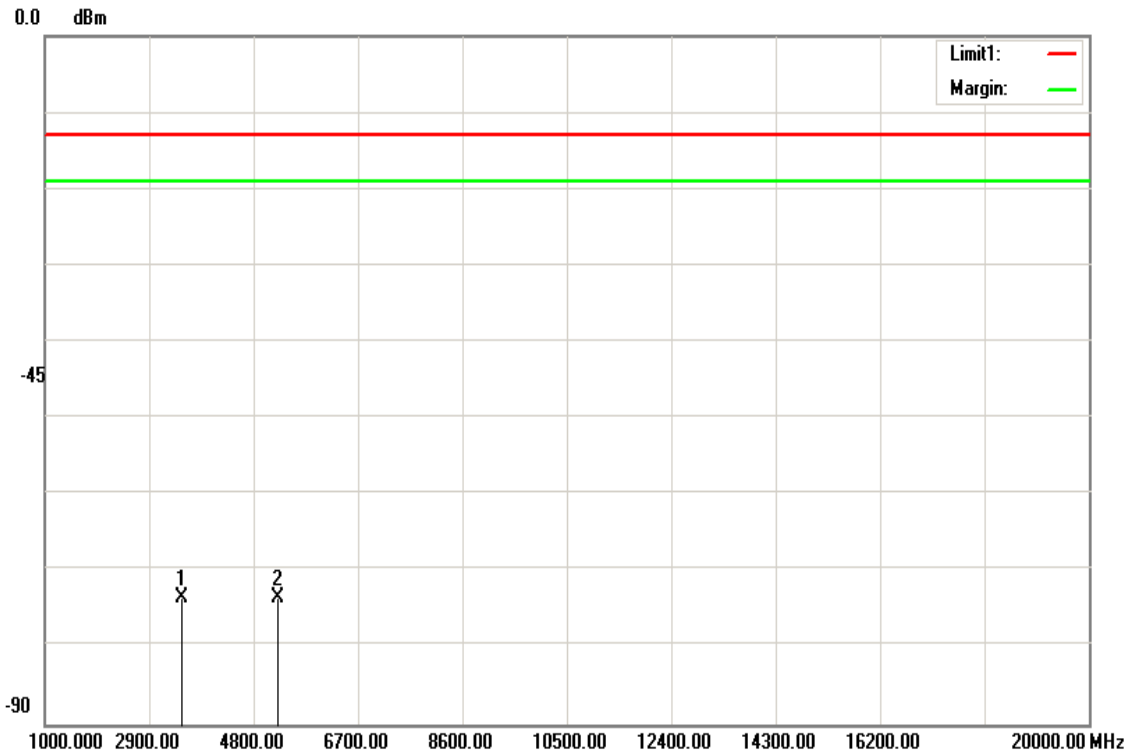


Report No.: T180918D06-RP6

Page: 56 / 65
Rev.: 00

Operation Mode: Tx / Mid CH
Temperature: 23°C
Humidity: 46 %RH

Test Date: November 8, 2018
Tested by: Jerry Chuang
Polarity: Ver.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3490.000	-66.99	6.42	-73.41	-13.00	-60.41	V
5235.000	-65.39	8.01	-73.40	-13.00	-60.40	V
N/A						

Remark:

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



Report No.: T180918D06-RP6

Page: 57 / 65
Rev.: 00

Operation Mode: Tx / Mid CH

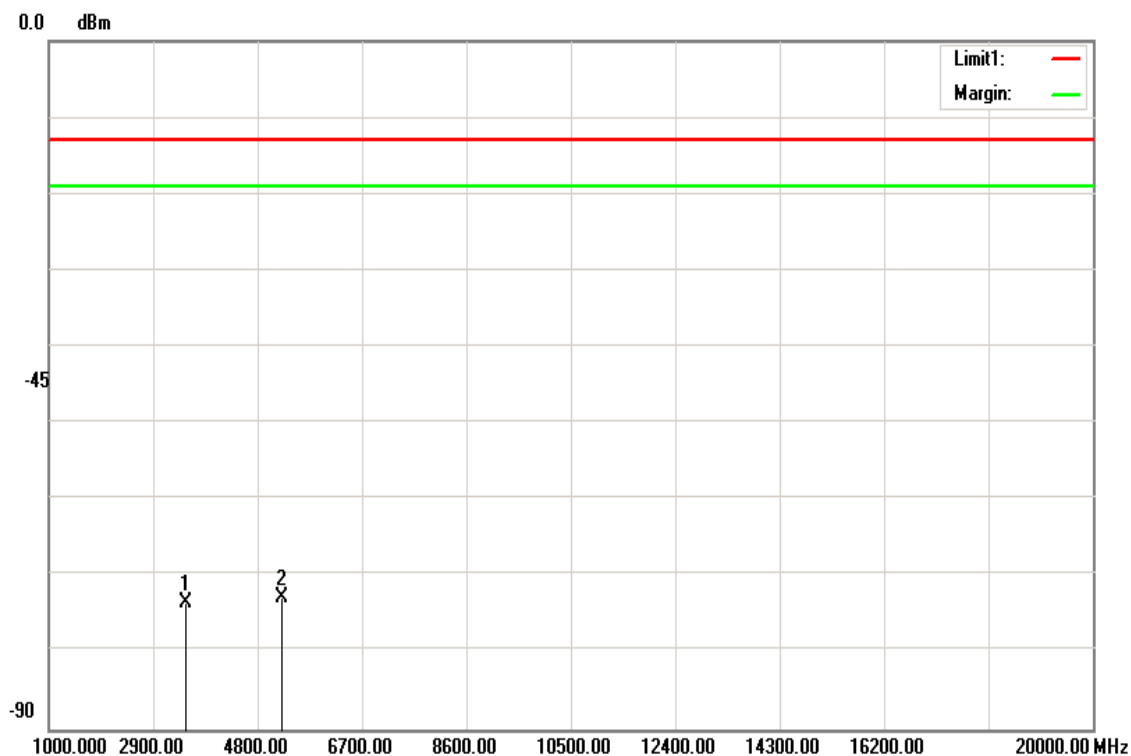
Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3490.000	-67	6.42	-73.42	-13.00	-60.42	H
5235.000	-64.7	8.01	-72.71	-13.00	-59.71	H
N/A						

Remark:

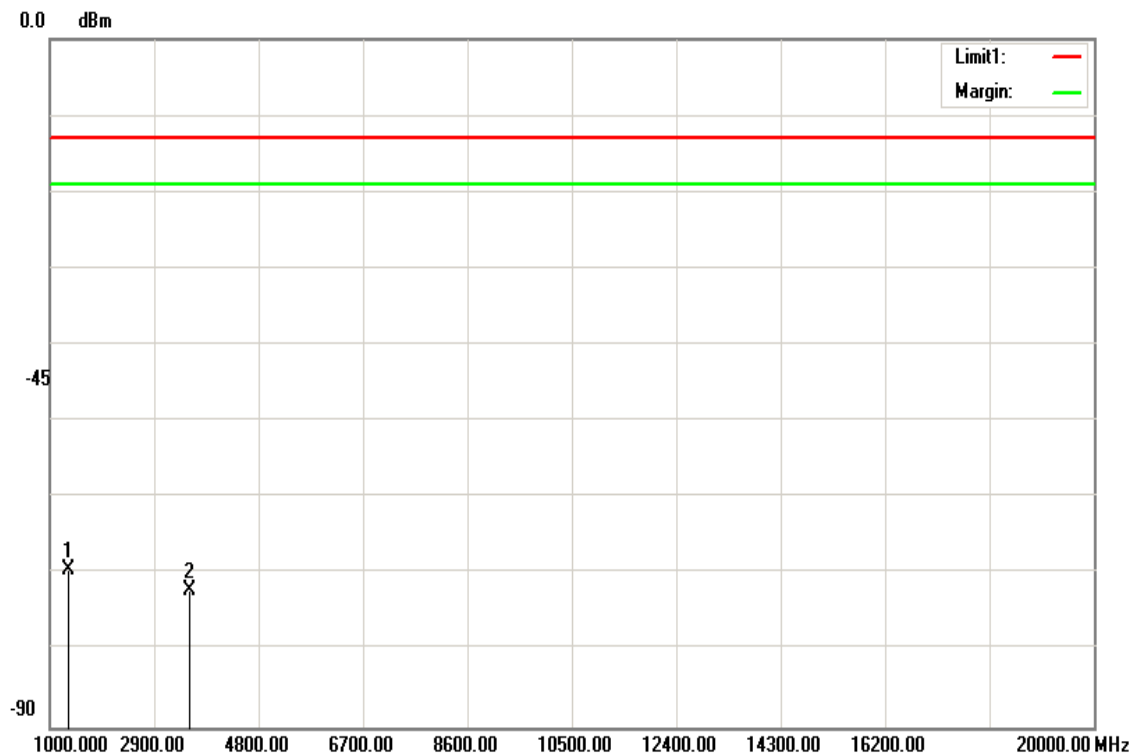
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.



Report No.: T180918D06-RP6

Page: 58 / 65
Rev.: 00

Operation Mode:	Tx / High CH	Test Date:	November 8, 2018
Temperature:	23°C	Tested by:	Jerry Chuang
Humidity:	46 %RH	Polarity:	Ver.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1332.500	-65.77	3.73	-69.50	-13.00	-56.50	V
3540.000	-65.6	6.47	-72.07	-13.00	-59.07	V
N/A						

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

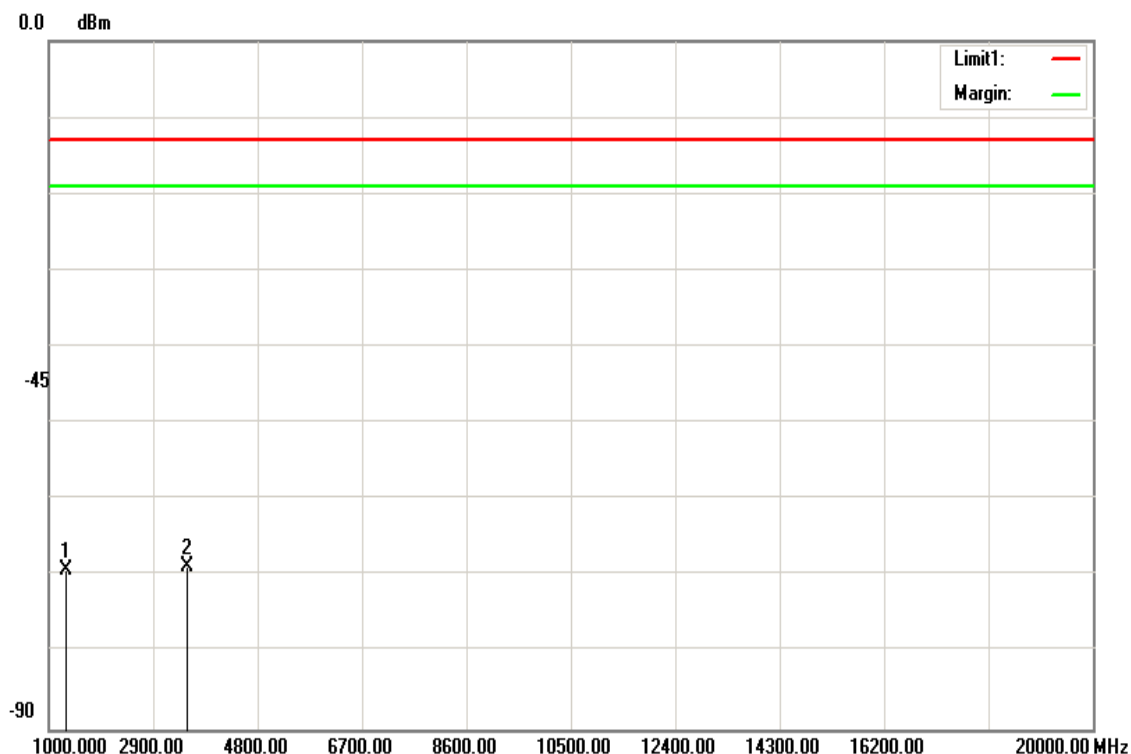


Report No.: T180918D06-RP6

Page: 59 / 65
Rev.: 00

Operation Mode: Tx / High CH
Temperature: 23°C
Humidity: 46 %RH

Test Date: November 8, 2018
Tested by: Jerry Chuang
Polarity: Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1329.000	-65.53	3.72	-69.25	-13.00	-56.25	H
3523.000	-62.39	6.45	-68.84	-13.00	-55.84	H
N/A						

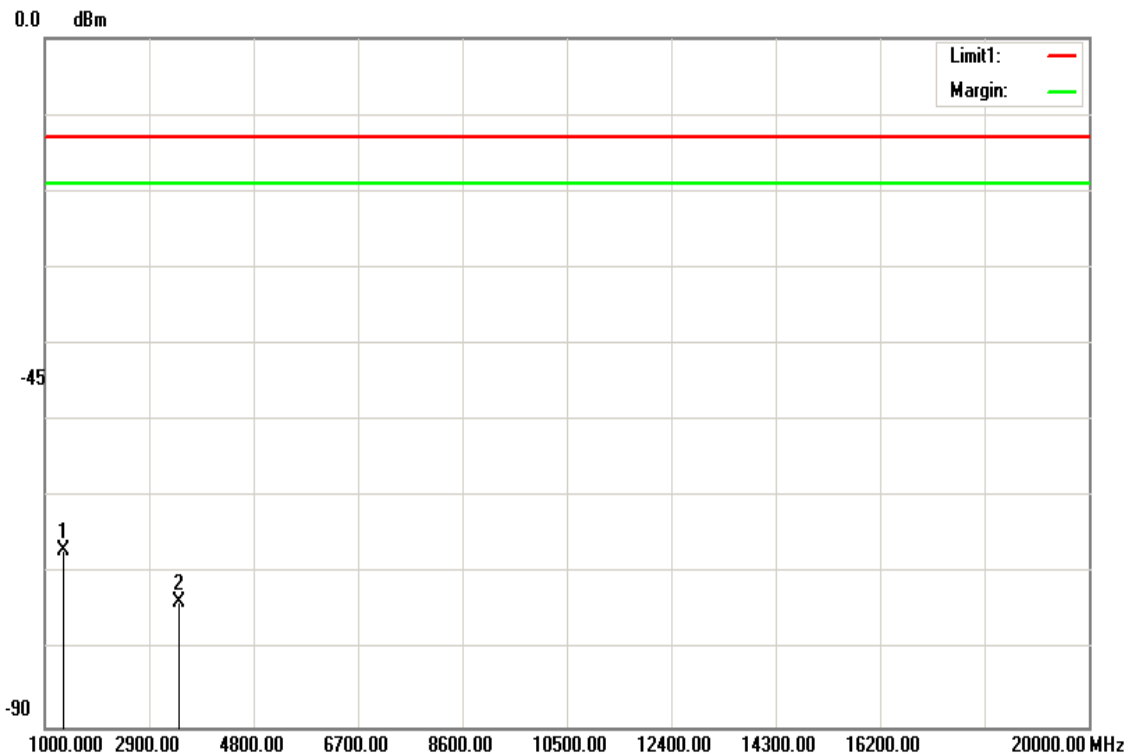
Remark:

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



LTE Band 66 / BW: 20MHz / 16QAM / RB =1, RB Offset = 0

Operation Mode:	Tx / Low CH	Test Date:	November 8, 2018
Temperature:	23°C	Tested by:	Jerry Chuang
Humidity:	46 %RH	Polarity:	Ver.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1332.500	-63.22	3.73	-66.95	-13.00	-53.95	V
3440.000	-67.33	6.37	-73.70	-13.00	-60.70	V
N/A						

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

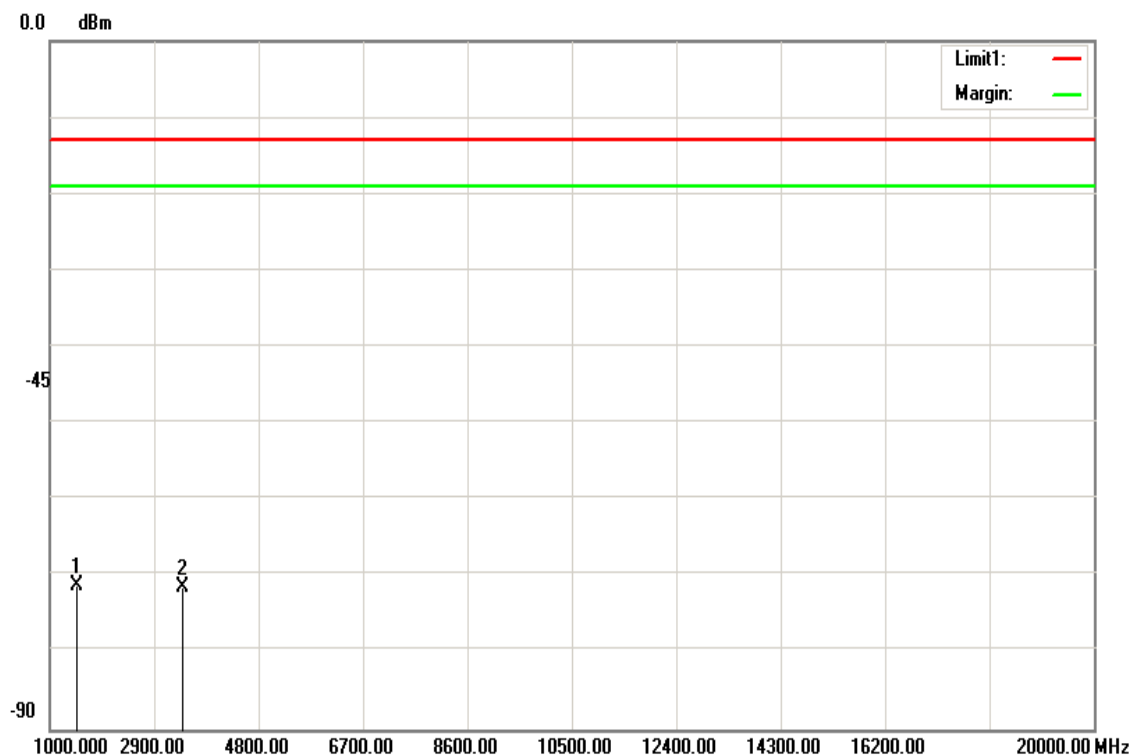


Report No.: T180918D06-RP6

Page: 61 / 65
Rev.: 00

Operation Mode: Tx / Low CH
Temperature: 23°C
Humidity: 46 %RH

Test Date: November 8, 2018
Tested by: Jerry Chuang
Polarity: Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1500.500	-67.31	3.99	-71.30	-13.00	-58.30	H
3422.000	-65.06	6.35	-71.41	-13.00	-58.41	H
N/A						

Remark:

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



Report No.: T180918D06-RP6

Page: 62 / 65
Rev.: 00

Operation Mode: Tx / Mid CH

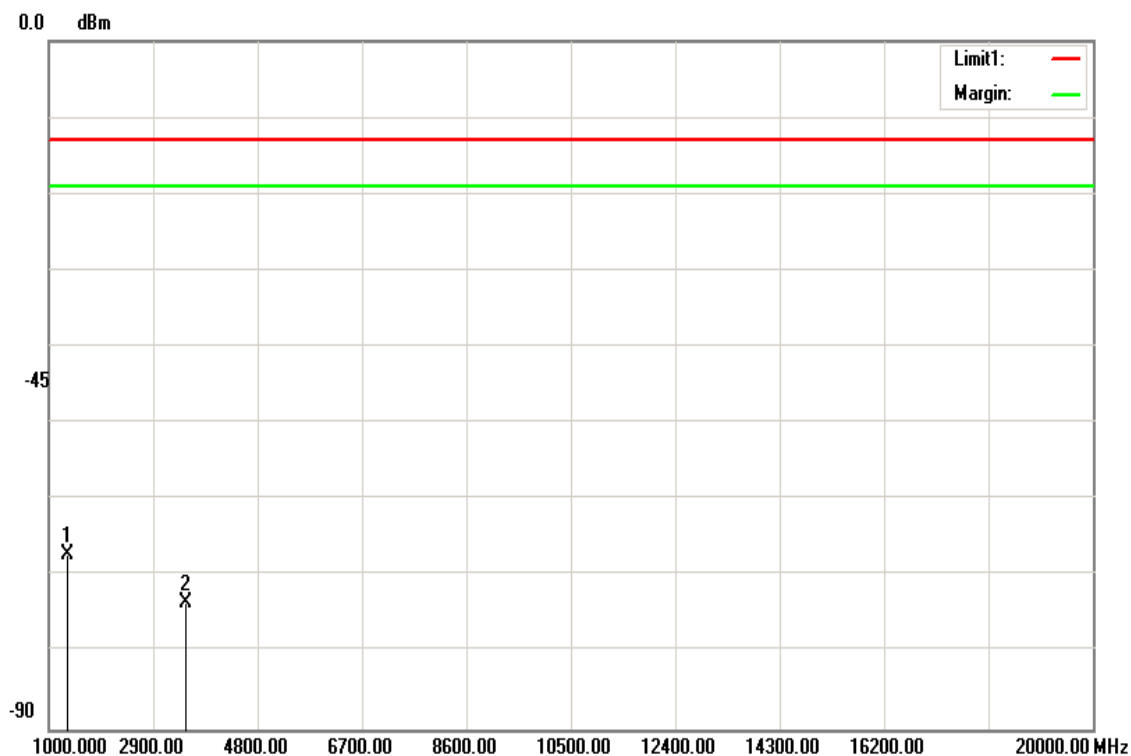
Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Ver.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1332.500	-63.33	3.73	-67.06	-13.00	-54.06	V
3490.000	-67.12	6.42	-73.54	-13.00	-60.54	V
N/A						

Remark:

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



Report No.: T180918D06-RP6

Page: 63 / 65
Rev.: 00

Operation Mode: Tx / Mid CH

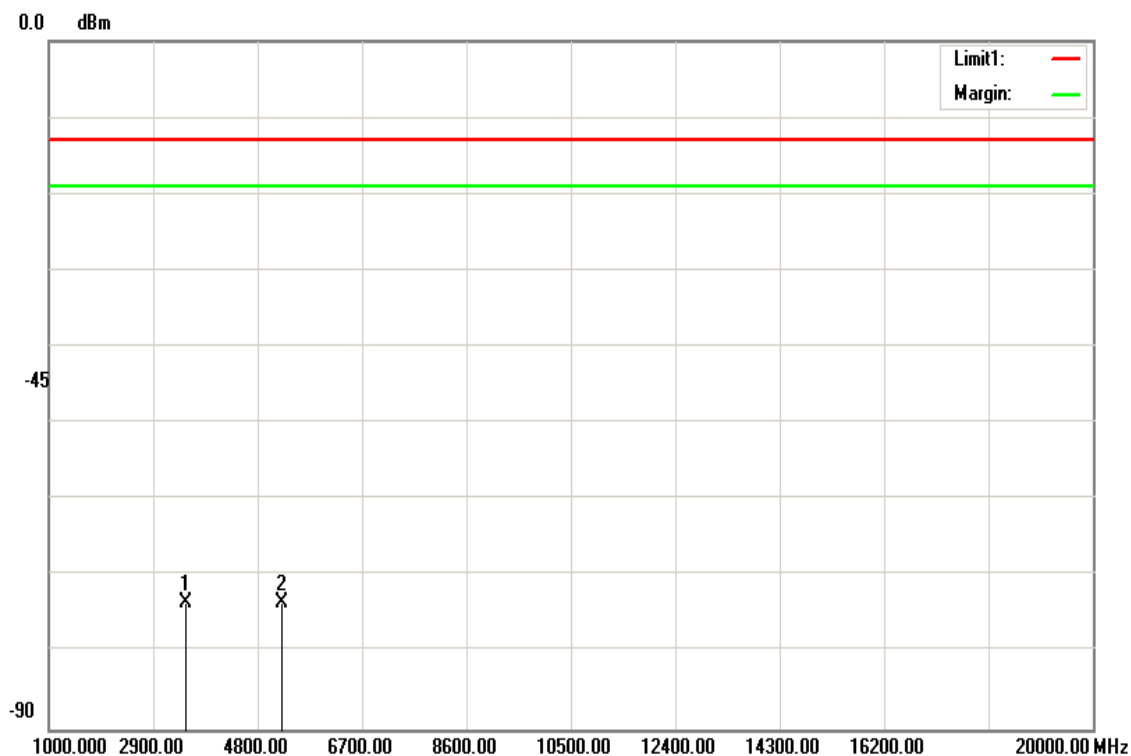
Test Date: November 8, 2018

Temperature: 23°C

Tested by: Jerry Chuang

Humidity: 46 %RH

Polarity: Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
3490.000	-67.06	6.42	-73.48	-13.00	-60.48	H
5235.000	-65.44	8.01	-73.45	-13.00	-60.45	H
N/A						

Remark:

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

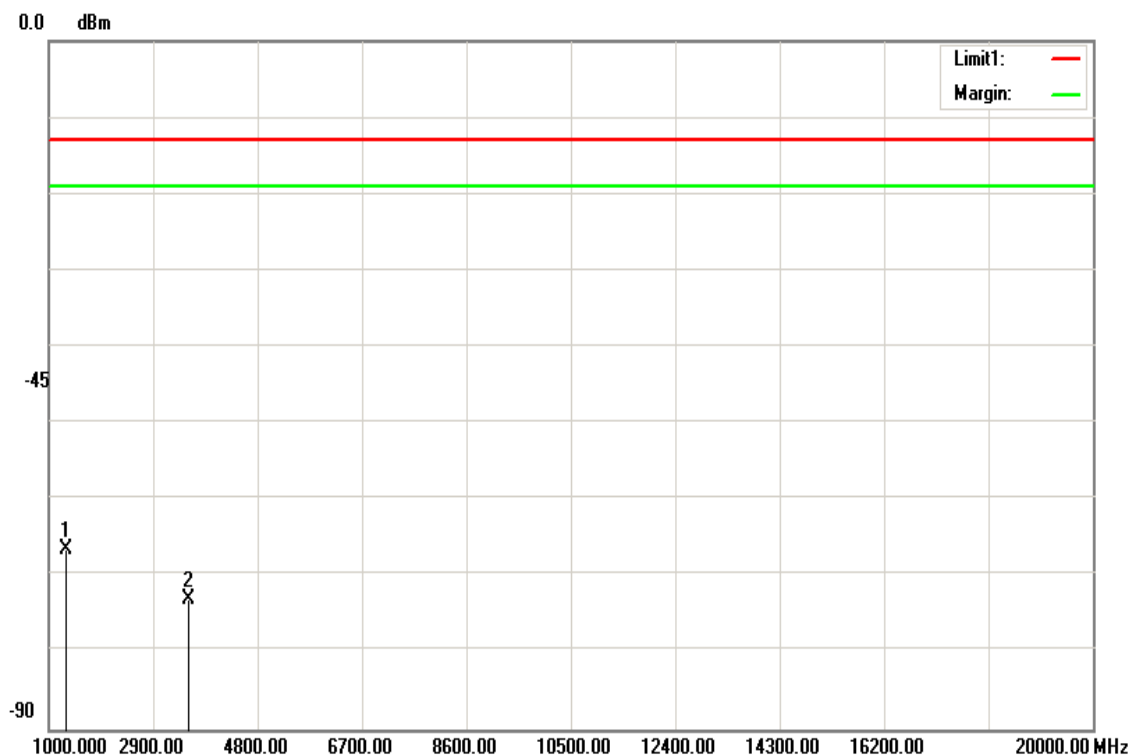


Report No.: T180918D06-RP6

Page: 64 / 65
Rev.: 00

Operation Mode: Tx / High CH
Temperature: 23°C
Humidity: 46 %RH

Test Date: November 8, 2018
Tested by: Jerry Chuang
Polarity: Ver.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1329.000	-62.76	3.72	-66.48	-13.00	-53.48	V
3540.000	-66.51	6.47	-72.98	-13.00	-59.98	V
N/A						

Remark:

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

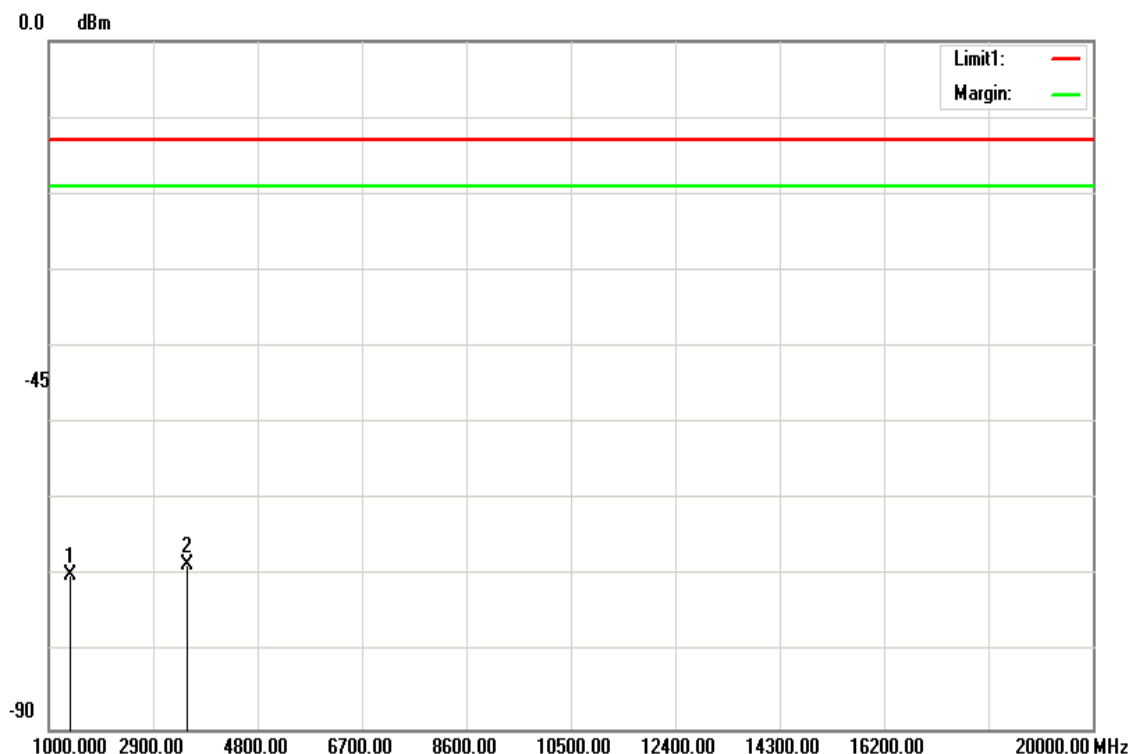


Report No.: T180918D06-RP6

Page: 65 / 65
Rev.: 00

Operation Mode: Tx / High CH
Temperature: 23°C
Humidity: 46 %RH

Test Date: November 8, 2018
Tested by: Jerry Chuang
Polarity: Hor.



Frequency (MHz)	S.G. (dBm)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)	Antenna Polarization (V/H)
1399.000	-66.09	3.83	-69.92	-13.00	-56.92	H
3523.500	-62.15	6.45	-68.60	-13.00	-55.60	H
N/A						

Remark:

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

-- End of Test Report --