

FCC TEST REPORT

(PART 27)

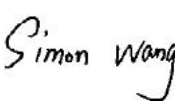
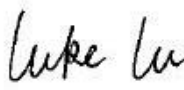
Applicant:	Lenovo (Shanghai) Electronics Technology Co., Ltd.
Address:	Section 304-305, Building No. 4, # 222, Meiyue Road, China (Shanghai) Pilot Free Trade Zone

Manufacturer or Supplier:	Lenovo PC HK Limited
Address:	23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong, China
Product:	Portable Tablet Computer
Brand Name:	Lenovo
Model Name:	TB311XU
FCC ID	O57TB311XU
Date of tests	Aug. 15, 2024~Sep. 24, 2024

The tests have been carried out according to the requirements of the following standard:

- | | |
|---|---|
| ☒ FCC Part 27 | ☒ ANSI/TIA/EIA-603-E |
| ☒ ANSI/TIA/EIA-603-D | ☒ ANSI C63.26-2015 |
| ☒ FCC Part 2 | |

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Prepared by Simon Wang Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
	
Date: Sep. 24, 2024	Date: Sep. 24, 2024

This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions>, and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.



TABLE OF CONTENTS

RELEASE CONTROL RECORD	5
1 SUMMARY OF TEST RESULTS	6
1.1 MEASUREMENT UNCERTAINTY	7
1.2 TEST SITE AND INSTRUMENTS	8
2 GENERAL INFORMATION	10
2.1 GENERAL DESCRIPTION OF EUT	10
2.2 CONFIGURATION OF SYSTEM UNDER TEST	16
2.3 DESCRIPTION OF SUPPORT UNITS	17
2.4 TEST ITEM AND TEST CONFIGURATION	17
2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS	22
3 TEST TYPES AND RESULTS	23
3.1 OUTPUT POWER MEASUREMENT	23
3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT	23
3.1.2 TEST PROCEDURES	23
3.1.3 TEST SETUP	24
3.1.4 TEST RESULTS	25
3.2 FREQUENCY STABILITY MEASUREMENT	54
3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT	54
3.2.2 TEST PROCEDURE	54
3.2.3 TEST SETUP	54
3.2.4 TEST RESULTS	55
3.3 OCCUPIED BANDWIDTH MEASUREMENT	56
3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT	56
3.3.2 TEST SETUP	56
3.3.3 TEST PROCEDURES	56
3.3.4 TEST RESULTS	57
3.4 BAND EDGE MEASUREMENT	58
3.4.1 LIMITS OF BAND EDGE MEASUREMENT	58
3.4.2 TEST SETUP	59
3.4.3 TEST PROCEDURES	60
3.4.4 TEST RESULTS	61
3.5 CONDUCTED SPURIOUS EMISSIONS	62
3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT	62
3.5.2 TEST PROCEDURE	63
3.5.3 TEST SETUP	63
3.5.4 TEST RESULTS	64
3.6 RADIATED EMISSION MEASUREMENT	65
3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT	65
3.6.2 TEST PROCEDURES	65
3.6.3 DEVIATION FROM TEST STANDARD	66
3.6.4 TEST SETUP	67
3.6.5 TEST RESULTS	69
3.7 PEAK TO AVERAGE RATIO	123
3.7.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT	123
3.7.2 TEST SETUP	123
3.7.3 TEST PROCEDURES	123
3.7.4 TEST RESULTS	124
4 INFORMATION ON THE TESTING LABORATORIES	125
5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB. 127	
6 APPENDIX	128
WCDMA B4	128



PEAK-TO-AVERAGE RATIO	128
TEST RESULT	128
TEST GRAPHS	129
26DB BANDWIDTH AND OCCUPIED BANDWIDTH.....	130
TEST RESULT	130
BAND EDGE.....	133
TEST RESULT	133
TEST GRAPHS	134
CONDUCTED SPURIOUS EMISSION	135
TEST RESULT	135
TEST GRAPHS	136
FREQUENCY STABILITY.....	137
TEST RESULT	137
LTE BAND7.....	139
PEAK-TO-AVERAGE RATIO(CCDF).....	139
TEST RESULT	139
TEST GRAPHS	141
26DB BANDWIDTH AND OCCUPIED BANDWIDTH.....	152
TEST RESULT	152
TEST GRAPHS	153
BAND EDGE.....	162
TEST RESULT	162
TEST GRAPHS	163
CONDUCTED SPURIOUS EMISSION	170
TEST RESULT	170
TEST GRAPHS	170
FREQUENCY STABILITY.....	177
TEST RESULT	177
LTE BAND12(INCLUDING LTE B17).....	178
PEAK-TO-AVERAGE RATIO(CCDF).....	178
TEST RESULT	178
TEST GRAPHS	180
26DB BANDWIDTH AND OCCUPIED BANDWIDTH.....	189
TEST RESULT	189
TEST GRAPHS	190
BAND EDGE.....	200
TEST RESULT	200
TEST GRAPHS	201
CONDUCTED SPURIOUS EMISSION	208
TEST RESULT	208
TEST GRAPHS	208
FREQUENCY STABILITY.....	214
TEST RESULT	214
LTE BAND13.....	216
PEAK-TO-AVERAGE RATIO(CCDF).....	216
TEST RESULT	216
TEST GRAPHS	217
26DB BANDWIDTH AND OCCUPIED BANDWIDTH.....	220
TEST RESULT	220
TEST GRAPHS	221
BAND EDGE.....	225
TEST RESULT	225
TEST GRAPHS	225
CONDUCTED SPURIOUS EMISSION	229
TEST RESULT	229
TEST GRAPHS	229
FREQUENCY STABILITY.....	232
TEST RESULT	232



LTE BAND41(INCLUDING LTE BAND38)	233
PEAK-TO-AVERAGE RATIO(CCDF)	233
TEST RESULT	233
TEST GRAPHS	235
26DB BANDWIDTH AND OCCUPIED BANDWIDTH	244
TEST RESULT	244
TEST GRAPHS	245
BAND EDGE	255
TEST RESULT	255
TEST GRAPHS	256
CONDUCTED SPURIOUS EMISSION	263
TEST RESULT	263
TEST GRAPHS	263
FREQUENCY STABILITY	269
TEST RESULT	269
LTE BAND7C	270
26DB BANDWIDTH AND OCCUPIED BANDWIDTH	270
TEST RESULT	270
TEST GRAPHS	273
OCCUPIED BANDWIDTH	273
TEST GRAPHS	282
26DB BANDWIDTH	282
BAND EDGE	292
TEST RESULT	292
TEST GRAPHS	292
CONDUCTED SPURIOUS EMISSION	295
TEST RESULT	295
TEST GRAPHS	295



RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
PSU-NQN2407300216RF03	Original release	Sep. 24, 2024



1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 27 & PART 2			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	TEST LAB*
§2.1046	Conducted Output Power	Compliance	A
§27.50(c)(10) §27.50(b)(10)	Effective Radiated Power (Band 12) (Band 17) (Band 13)	Compliance	A
§27.50(d)(4) §27.50(h)(2)	Equivalent Isotropically Radiated Power (WCMDA Band 4)(Band 7)	Compliance	A
§2.1055 §27.54	Frequency Stability	Compliance	A
§2.1049	Occupied Bandwidth	Compliance	A
§2.1051 §27.53(c)(2) §27.53(g) §27.53(h) §27.53(m)(4)	Conducted Band Edge Measurements (WCMDA Band 4) (Band 7) (Band 12) (Band 13) (Band 17)	Compliance	A
§2.1051 §27.53(g) §27.53(c)(2) §27.53(f) §27.53(h) §27.53(m)(4)	Conducted Spurious Emissions (WCMDA Band 4)(Band 7) (Band 12) (Band 13) (Band 17)	Compliance	A
§2.1053 §27.53(c)(2) §27.53(f) §27.53(g) §27.53(h) §27.53(m)(4)	Radiated Spurious Emissions (WCMDA Band 4)(Band 7) (Band 12) (Band 13) (Band 17)	Compliance	A
§27.50	Peak to average ratio*	Compliance	A

* Refer to KDB 971168 D01 Power Meas License Digital Systems v03r01.

*Test Lab Information Reference

Lab A:

Huarui 7Layers High Technology (Suzhou) Co., Ltd.

Lab Address:

Tower N, Innovation Center, 88 Zuyi Road, High-tech District, Suzhou City, Anhui Province

Accredited Test Lab Cert 6613.01

The FCC Site Registration No. is 434559; The Designation No. is CN1325.



1.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	UNCERTAINTY
Frequency Stability	±76.97Hz
Radiated emissions (9KHz~30MHz)	±2.68dB
Radiated emissions & Radiated Power (30MHz~1GHz)	±4.98dB
Radiated emissions & Radiated Power (1GHz ~6GHz)	±4.70dB
Radiated emissions (6GHz ~18GHz)	±4.60dB
Radiated emissions (18GHz ~40GHz)	±4.12dB
Conducted emissions	±4.01dB
Occupied Channel Bandwidth	±43.58KHz
Conducted Output power	±2.06dB
Band Edge Measurements	±4.70dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



1.2 TEST SITE AND INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Pre-Amplifier	R&S	SCU18F1	100815	Aug.30,22	Aug.29,24
Pre-Amplifier	R&S	SCU18F1	100815	Aug.29,24	Aug.28,26
Pre-Amplifier	R&S	SCU08F1	101028	Sep.16,22	Sep.15,24
Pre-Amplifier	R&S	SCU08F1	101028	Sep.15,24	Sep.14,26
Vector Signal Generator	R&S	SMBV100B	102176	Mar.29,24	Mar.28,26
Signal Generator	R&S	SMB100A	182185	Mar.29,24	Mar.28,26
3m Fully-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-01Chamber	Nov.25,22	Nov.24,25
3m Semi-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-02Chamber	Nov.25,22	Nov.24,25
EMI TEST Receiver	R&S	ESR26	101734	Mar.28,24	Mar.27,26
EMI TEST Receiver	R&S	ESW44	101973	Mar.28,24	Mar.27,26
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Dec.26,23	Dec.25,25
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.22,22	Aug.21,24
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.21,24	Aug.20,26
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Jul.15,24	Jul.14,26
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.22,22	Aug.21,24
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.21,24	Aug.20,26
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.22,24	Feb.21,26
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.19,24	Jun.18,26
Test Software	EMC32	EMC32	N/A	N/A	N/A
6DB attenuator	Tonscend Technology Co., Ltd	N/A	23062787	N/A	N/A
Test Software	ELEKTRA	ELEKTRA4.32	N/A	N/A	N/A
Open Switch and Control Unit	R&S	OSP220	101964	Oct.01,22	Sep.30,24
DC Source	HYELEC	HY3010B	551016	Aug.31,22	Aug.30,24
DC Source	HYELEC	HY3010B	551016	Aug.30,24	Aug.29,26
Hygrothermograph	DELI	20210528	SZ014	Sep.06,22	Sep.05,24
Hygrothermograph	DELI	20210528	SZ014	Sep.05,24	Sep.04,26
PC	LENOVO	E14	HRSW0024	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-7.00M	N/A	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-4.00M	N/A	N/A	N/A
CABLE	R&S	W13.02	N/A	Apr.27,24	Apr.26,25
CABLE	R&S	W12.14	N/A	Apr.27,24	Apr.26,25
CABLE	R&S	J12J103539-00-1	SEP-03-20-069	Apr.27,24	Apr.26,25
CABLE	R&S	J12J103539-00-1	SEP-03-20-070	Apr.27,24	Apr.26,25
Temperature Chamber	votsch	VT4002	58566078100050	May.30,24	May.29,26



BUREAU
VERITAS

Test Report No.: PSU-NQN2407300216RF03

- NOTE:**
1. The calibration interval of the above test instruments is 12/24/36 months and the calibrations are traceable to CEPREI/CHINA, GREGT/CHINA and NIM/CHINA.
 2. The test was performed in 3m Semi-anechoic Chamber and RF Oven Room.
 3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 434559; The Designation No. is CN1325.



2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT*	Portable Tablet Computer	
BRAND NAME*	Lenovo	
MODEL NAME*	TB311XU	
NOMINAL VOLTAGE*	5Vdc (Adapter or host equipment) 3.9Vdc (Li-Polymer, battery)	
MODULATION TECHNOLOGY	WCDMA IV	BPSK, QPSK
	LTE	QPSK, 16QAM, 64QAM
FREQUENCY RANGE	WCDMA IV	1712.4MHz ~ 1752.6MHz
	LTE Band 7 Channel Bandwidth: 5MHz	2502.5MHz ~ 2567.5MHz
	LTE Band 7 Channel Bandwidth: 10MHz	2505MHz ~ 2565MHz
	LTE Band 7 Channel Bandwidth: 15MHz	2507.5MHz ~ 2562.5MHz
	LTE Band 7 Channel Bandwidth: 20MHz	2510MHz ~ 2560MHz
	LTE Band 12 Channel Bandwidth: 1.4MHz	699.7MHz ~ 715.3MHz
	LTE Band 12 Channel Bandwidth: 3MHz	700.5MHz ~ 714.5MHz
	LTE Band 12 Channel Bandwidth: 5MHz	701.5MHz ~ 713.5MHz
	LTE Band 12 Channel Bandwidth: 10MHz	704MHz ~ 711MHz
	LTE Band 13 Channel Bandwidth: 5MHz	779.5MHz ~ 784.5MHz
	LTE Band 13 Channel Bandwidth: 10MHz	782MHz
	LTE Band 17 Channel Bandwidth: 5MHz	706.5MHz ~ 713.5MHz
	LTE Band 17 Channel Bandwidth: 10MHz	709MHz ~ 711 MHz
	LTE Band CA_7C Channel Bandwidth: 10MHz+20MHz	2505.5MHz ~ 2560MHz
	LTE Band CA_7C Channel Bandwidth: 15MHz+10MHz	2507.5MHz ~ 2564.7MHz
	LTE Band CA_7C Channel Bandwidth: 15MHz+15MHz	2507.5MHz ~ 2562.5MHz
	LTE Band CA_7C Channel Bandwidth: 15MHz+20MHz	2507.8MHz ~ 2560MHz



	LTE Band CA_7C Channel Bandwidth: 20MHz+10MHz	2510MHz ~ 2564.5MHz
	LTE Band CA_7C Channel Bandwidth: 20MHz+15MHz	2510MHz ~ 2562.5MHz
	LTE Band CA_7C Channel Bandwidth: 20MHz+20MHz	2510MHz ~ 2560MHz
MAX. EIRP/ERP POWER	WCDMA IV	202.3mW
	LTE Band 7 Channel Bandwidth: 5MHz	239.33mW
	LTE Band 7 Channel Bandwidth: 10MHz	237.68mW
	LTE Band 7 Channel Bandwidth: 15MHz	240.44mW
	LTE Band 7 Channel Bandwidth: 20MHz	242.66mW
	LTE Band 12 Channel Bandwidth: 1.4MHz	50mW
	LTE Band 12 Channel Bandwidth: 3MHz	50mW
	LTE Band 12 Channel Bandwidth: 5MHz	50mW
	LTE Band 12 Channel Bandwidth: 10MHz	50.93mW
	LTE Band 13 Channel Bandwidth: 5MHz	68.39mW
	LTE Band 13 Channel Bandwidth: 10MHz	68.87mW
	LTE Band 17 Channel Bandwidth: 5MHz	50.47mW
	LTE Band 17 Channel Bandwidth: 10MHz	50.7mW
	LTE Band CA_7C Channel Bandwidth: 10MHz+20MHz	211.35mW
	LTE Band CA_7C Channel Bandwidth: 15MHz+10MHz	216.27mW
	LTE Band CA_7C Channel Bandwidth: 15MHz+15MHz	210.38mW
	LTE Band CA_7C Channel Bandwidth: 15MHz+20MHz	210.38mW
	LTE Band CA_7C Channel Bandwidth: 20MHz+10MHz	212.81mW



	LTE Band CA_7C Channel Bandwidth: 20MHz+15MHz	212.32mW
	LTE Band CA_7C Channel Bandwidth: 20MHz+20MHz	216.77mW
EMISSION DESIGNATOR	WCDMA IV	4M17F9W
	LTE Band 7 Channel Bandwidth: 5MHz	QPSK: 4M49G7D
		16QAM: 4M48W7D
		64QAM: 4M48W7D
	LTE Band 7 Channel Bandwidth: 10MHz	QPSK: 8M95G7D
		16QAM: 8M96W7D
		64QAM: 8M95W7D
	LTE Band 7 Channel Bandwidth: 15MHz	QPSK: 13M5G7D
		16QAM: 13M4W7D
		64QAM: 13M5W7D
	LTE Band 7 Channel Bandwidth: 20MHz	QPSK: 17M9G7D
		16QAM: 17M9W7D
		64QAM: 17M9W7D
	LTE Band 12 Channel Bandwidth: 1.4MHz	QPSK: 1M09G7D
		16QAM: 1M09W7D
		64QAM: 1M09W7D
	LTE Band 12 Channel Bandwidth: 3MHz	QPSK: 2M68G7D
		16QAM: 2M68W7D
		64QAM: 2M68W7D
	LTE Band 12 Channel Bandwidth: 5MHz	QPSK: 4M50G7D
		16QAM: 4M50W7D
		64QAM: 4M49W7D
	LTE Band 12 Channel Bandwidth: 10MHz	QPSK: 8M98G7D
		16QAM: 8M96W7D
		64QAM: 8M96W7D
	LTE Band 13	QPSK: 4M49G7D



	Channel Bandwidth: 5MHz	16QAM: 4M50W7D
		64QAM: 4M49W7D
	LTE Band 13 Channel Bandwidth: 10MHz	QPSK: 8M98G7D
		16QAM: 8M96W7D
	LTE Band CA_7C Channel Bandwidth: 10MHz+20MHz	64QAM: 8M97W7D
		QPSK: 27M9G7D
	LTE Band CA_7C Channel Bandwidth: 15MHz +10MHz	16QAM: 27M8W7D
		64QAM: 27M8W7D
	LTE Band CA_7C Channel Bandwidth: 15MHz +10MHz	QPSK: 23M3G7D
		16QAM: 23M3W7D
	LTE Band CA_7C Channel Bandwidth: 15MHz +15MHz	64QAM: 23M3W7D
		QPSK: 28M5G7D
	LTE Band CA_7C Channel Bandwidth: 15MHz +20MHz	16QAM: 28M4W7D
		64QAM: 28M4W7D
	LTE Band CA_7C Channel Bandwidth: 15MHz +20MHz	QPSK: 32M7G7D
		16QAM: 32M7W7D
	LTE Band CA_7C Channel Bandwidth: 20MHz +10MHz	64QAM: 32M7W7D
		QPSK: 27M9G7D
	LTE Band CA_7C Channel Bandwidth: 20MHz +15MHz	16QAM: 27M9W7D
		64QAM: 27M9W7D
	LTE Band CA_7C Channel Bandwidth: 20MHz +20MHz	QPSK: 32M8G7D
		16QAM: 32M8W7D
	LTE Band CA_7C Channel Bandwidth: 20MHz +20MHz	64QAM: 32M7W7D
		QPSK: 38M0G7D
	LTE Band CA_7C Channel Bandwidth: 20MHz +20MHz	16QAM: 38M0W7D
		64QAM: 37M9W7D



ANTENNA TYPE*	ANT1: PIFA Antenna with -1.56dBi gain for WCDMA IV PIFA Antenna with 0.49dBi gain for LTE 7 PIFA Antenna with -4.13dBi gain for LTE12/ LTE17 PIFA Antenna with -2.68dBi gain for LTE13 ANT2: PIFA Antenna with -1.02dBi gain for WCDMA IV PIFA Antenna with -1.01dBi gain for LTE 7 PIFA Antenna with -7.67dBi gain for LTE12/ LTE17 PIFA Antenna with -3.18dBi gain for LTE13
HW VERSION*	TB311XU
SW VERSION*	TB311XU_RF01_20240921
I/O PORTS*	Refer to user's manual
CABLE SUPPLIED*	USB cable1: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable2: non-shielded cable, with w/o ferrite core, 1.0 meter
EXTREME TEMPERATURE*	-10-55 °C
EXTREME VOLTAGE*	3.5V – 4.5V

NOTE:

1. *Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information , Test Lab is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.
2. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
3. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receivers.

MODULATION MODE	TX FUNCTION
WCDMA	1TX/1RX
LTE	1TX/1RX

4. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in the test report.

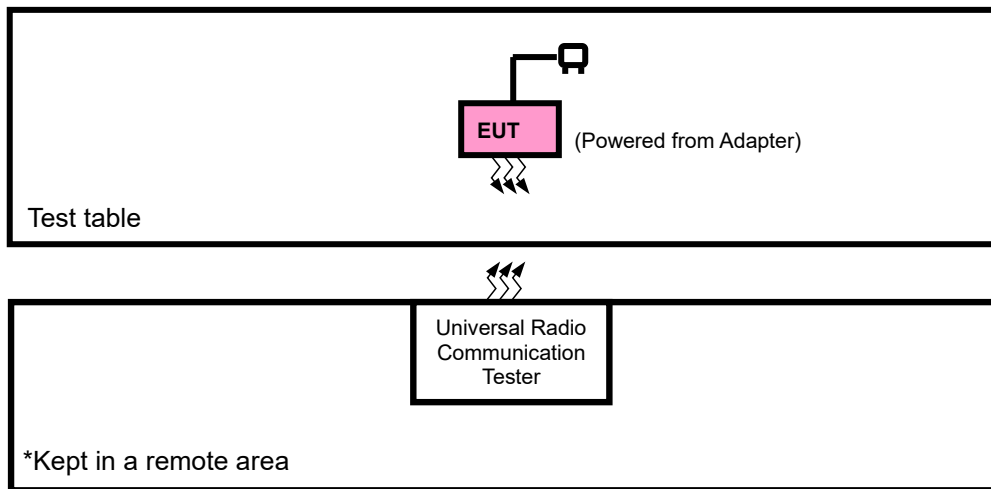
**5. List of Accessory:**

ACCESSORIES	BRAND	MANUFACTURER	MODEL	SPECIFICATION
Battery 1	N/A	Zhejiang Sunwoda Electronic Co., Ltd.	L24D1P32	Nominal Energy: 19.55Wh, Typical Energy: 19.95Wh
Battery 2	N/A	Ningde Amperex Technology Limited	L24D1P32	Nominal Energy: 19.55Wh, Typical Energy: 19.95Wh
AC Adapter 1	Salcomp	Salcomp (Shenzhen) Co., Ltd	MC-201L (US)	AC Input: 100-240V~, 50/60Hz, 0.7A DC Output: 5.0Vdc 3.0A 15W 10Vdc 2.0A 20W 12Vdc 1.67A 20W
AC Adapter 2	Aohai	Jiangxi Jian Aohai Technology Co., Ltd.	MC-201L (US)	AC Input: 100-240V~, 50/60Hz, 0.7A DC Output: 5.0Vdc 3.0A 15W 10Vdc 2.0A 20W 12Vdc 1.67A 20W
USB Cable 1 (support unit)	Saibao	Saibao (Jiangxi) Industrial Co., LTD	SLQ-A263A	Signal Line, 1.0meter
USB Cable 2	Jieye	Jiangxi Jieye Electronics Co., LTD	JY-C03-422	Signal Line, 1.0meter
Earphone(optional)	Lenovo	N/A	E310	N/A
Pen(optional)	Lenovo	N/A	passive pen	N/A



2.2 CONFIGURATION OF SYSTEM UNDER TEST

FOR RADIATION EMISSION TEST





2.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Laptop	Lenovo	ThinkPad E14	HRSW00024	N/A
2	Earphone	N/A	N/A	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	USB Line: Unshielded, Detachable, 1.0m;

2.4 TEST ITEM AND TEST CONFIGURATION

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports. The worst case was found when positioned on Y-plane for EIRP and X-axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	DESCRIPTION
A	EUT + Adapter with WCDMA or LTE link
B	EUT + DC Supply with WCDMA or LTE link

WCDMA MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
A	EIRP	1312 to 1513	1312, 1413, 1513	WCDMA
B	FREQUENCY STABILITY	1312 to 1513	1312, 1413, 1513	WCDMA
A	OCCUPIED BANDWIDTH	1312 to 1513	1312, 1413, 1513	WCDMA
A	BAND EDGE	1312 to 1513	1312, 1513	WCDMA
A	PEAK TO AVERAGE RATIO	1312 to 1513	1312, 1413, 1513	WCDMA
A	CONDUCTED EMISSION	1312 to 1513	1312, 1413, 1513	WCDMA
A	RADIATED EMISSION	1312 to 1513	1312, 1413, 1513	WCDMA



LTE BAND 7 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM	100 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM, 64QAM	75 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM	100 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 100 RB / 0 RB Offset
A	BAND EDGE	20775 to 21425	20775	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 25 RB / 0 RB Offset
			21425	5MHz	QPSK, 16QAM, 64QAM	1 RB / 24 RB Offset 25 RB / 0 RB Offset
		20800 to 21400	20800	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 50 RB / 0 RB Offset
			21400	10MHz	QPSK, 16QAM, 64QAM	1 RB / 49 RB Offset 50 RB / 0 RB Offset
		20825 to 21375	20825	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 75 RB / 0 RB Offset
			21375	15MHz	QPSK, 16QAM, 64QAM	1 RB / 74 RB Offset 75 RB / 0 RB Offset
		20850 to 21350	20850	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 100 RB / 0 RB Offset
			21350	20MHz	QPSK, 16QAM, 64QAM	1 RB / 99 RB Offset 100 RB / 0 RB Offset
		20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
A	CONDUCTED EMISSION	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	20775 to 21425	21100	5MHz	QPSK	1 RB / 0 RB Offset
		20800 to 21400	21100	10MHz	QPSK	1 RB / 0 RB Offset
		20825 to 21375	20825,21100,21375	15MHz	QPSK	1 RB / 0 RB Offset
		20850 to 21350	20775,21100,21425	20MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.



LTE BAND 12 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	23017 to 23173	23017, 23095 , 23173	1.4MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		23025 to 23165	23025, 23095 ,23165	3MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		23035 to 23155	23035, 23095 ,23155	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		23060 to 23130	23060, 23095 ,23130	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	23060 to 23130	23060, 23095 ,23130	10MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	23017 to 23173	23017, 23095 , 23173	1.4MHz	QPSK, 16QAM, 64QAM	6 RB / 0 RB Offset
		23025 to 23165	23025, 23095 ,23165	3MHz	QPSK, 16QAM, 64QAM	15 RB / 0 RB Offset
		23035 to 23155	23035, 23095 ,23155	5MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
		23060 to 23130	23060, 23095 ,23130	10MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	23060 to 23130	23060, 23095 ,23130	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 50 RB / 0 RB Offset
A	BAND EDGE	23017 to 23173	23017	1.4MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 6 RB / 0 RB Offset
			23173	1.4MHz	QPSK, 16QAM, 64QAM	1 RB / 5 RB Offset 6 RB / 0 RB Offset
		23025 to 23165	23025	3MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 15 RB / 0 RB Offset
			23165	3MHz	QPSK, 16QAM, 64QAM	1 RB / 14 RB Offset 15 RB / 0 RB Offset
		23035 to 23155	23035	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 25 RB / 0 RB Offset
			23155	5MHz	QPSK, 16QAM, 64QAM	1 RB / 24 RB Offset 25 RB / 0 RB Offset
		23060 to 23130	23060	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 50 RB / 0 RB Offset
			23130	10MHz	QPSK, 16QAM, 64QAM	1 RB / 49 RB Offset 50 RB / 0 RB Offset
A	CONDCUDED EMISSION	23017 to 23173	23017, 23095, 23173	1.4MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		23025 to 23165	23025, 23095 ,23165	3MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		23035 to 23155	23035, 23095 ,23155	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		23060 to 23130	23060, 23095 ,23130	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	23017 to 23173	23095	1.4MHz	QPSK	1 RB / 0 RB Offset
		23025 to 23165	23025,23095,23165	3MHz	QPSK	1 RB / 0 RB Offset
		23035 to 23155	23095	5MHz	QPSK	1 RB / 0 RB Offset
		23060 to 23130	23095	10MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.



LTE BAND 13 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	23205 to 23255	23205, 20175, 23255	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		23230	23230	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	23230	23230	10MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	23205 to 23255	23205, 20175, 23255	5MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
		23230	23230	10MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	23230	23230	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 50 RB / 0 RB Offset
A	BAND EDGE	23205 to 23255	23205	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 25 RB / 0 RB Offset
			23255	5MHz	QPSK, 16QAM, 64QAM	1 RB / 24 RB Offset 25 RB / 0 RB Offset
		23230	23230	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
A	CONDCUDED EMISSION	23205 to 23255	23205, 20175, 23255	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		23230	23230	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	23205 to 23255	23205, 23230, 23255	5MHz	QPSK	1 RB / 0 RB Offset
		23230	23230	10MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

LTE BAND CA_7C MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE PCC CHANNEL	AVAILABLE SCC CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE(PCC)	MODE(SCC)
A	EIRP	20805 to 21206	20949 to 21350	Low, Middle, High	10MHz+20MHz	QPSK, 16QAM, 64QAM	1RB/ 49RB Offset	1RB/ 0RB Offset
		20825 to 21277	20945 to 21397	Low, Middle, High	15MHz+10MHz	QPSK, 16QAM, 64QAM	1RB/ 74RB Offset	1RB/ 0RB Offset
		20825 to 21225	20975 to 21375	Low, Middle, High	15MHz+15MHz	QPSK, 16QAM, 64QAM	1RB/ 74RB Offset	1RB/ 0RB Offset
		20828 to 21179	20999 to 21350	Low, Middle, High	15MHz+20MHz	QPSK, 16QAM, 64QAM	1RB/ 74RB Offset	1RB/ 0RB Offset
		20850 to 21251	20994 to 21395	Low, Middle, High	20MHz+10MHz	QPSK, 16QAM, 64QAM	1RB/ 99RB Offset	1RB/ 0RB Offset
		20850 to 21201	21201 to 21372	Low, Middle, High	20MHz+15MHz	QPSK, 16QAM, 64QAM	1RB/ 99RB Offset	1RB/ 0RB Offset
		20850 to 21152	21048 to 21350	Low, Middle, High	20MHz+20MHz	QPSK, 16QAM, 64QAM	1RB/ 99RB Offset	1RB/ 0RB Offset
A	OCCUPIED BANDWIDTH	20805 to 21206	20949 to 21350	Low, Middle, High	10MHz+20MHz	QPSK, 16QAM, 64QAM	50RB/ 0RB Offset	100RB/ 0RB Offset
		20825 to 21277	20945 to 21397	Low, Middle, High	15MHz+10MHz	QPSK, 16QAM, 64QAM	75RB/ 0RB Offset	50RB/ 0RB Offset
		20825 to 21225	20975 to 21375	Low, Middle, High	15MHz+15MHz	QPSK, 16QAM, 64QAM	75RB/ 0RB Offset	75RB/ 0RB Offset
		20828 to 21179	20999 to 21350	Low, Middle, High	15MHz+20MHz	QPSK, 16QAM, 64QAM	75RB/ 0RB Offset	100RB/ 0RB Offset



		20850 to 21251	20994 to 21395	Low, Middle, High	20MHz+10MHz	QPSK, 16QAM, 64QAM	100RB/ 0RB Offset	50RB/ 0RB Offset
		20850 to 21201	21201 to 21372	Low, Middle, High	20MHz+15MHz	QPSK, 16QAM, 64QAM	100RB/ 0RB Offset	75RB/ 0RB Offset
		20850 to 21152	21048 to 21350	Low, Middle, High	20MHz+20MHz	QPSK, 16QAM, 64QAM	100RB/ 0RB Offset	100RB/ 0RB Offset
A	BAND EDGE	20850 to 21152	21048 to 21350	Low	20MHz+20MHz	QPSK, 16QAM, 64QAM	1RB/ 0RB Offset	1RB/ 99RB Offset
							1RB/ 99RB Offset	1RB/ 0RB Offset
							100RB/ 0RB Offset	100RB/ 0RB Offset
				High	20MHz+20MHz	QPSK, 16QAM, 64QAM	1RB/ 0RB Offset	1RB/ 99RB Offset
							1RB/ 99RB Offset	1RB/ 0RB Offset
							100RB/ 0RB Offset	100RB/ 0RB Offset
A	CONDUCTED EMISSION	20850 to 21152	21048 to 21350	Low, Middle, High	20MHz+20MHz	QPSK	1RB/ 99RB Offset	1RB/ 0RB Offset
A	RADIATED EMISSION	20805 to 21206	20949 to 21350	Middle	10MHz+20MHz	QPSK	1RB/ 49RB Offset	1RB/ 0RB Offset
		20825 to 21277	20945 to 21397	Middle	15MHz+10MHz	QPSK	1RB/ 74RB Offset	1RB/ 0RB Offset
		20825 to 21225	20975 to 21375	Low, Middle, High	15MHz+15MHz	QPSK	1RB/ 74RB Offset	1RB/ 0RB Offset
		20828 to 21179	20999 to 21350	Middle	15MHz+20MHz	QPSK	1RB/ 74RB Offset	1RB/ 0RB Offset
		20850 to 21152	21048 to 21350	Middle	20MHz+20MHz	QPSK	1RB/ 99RB Offset	1RB/ 0RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

**TEST CONDITION:**

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP	23deg. C, 70%RH	DC 3.9V By Battery	Jace Hu
FREQUENCY STABILITY	23deg. C, 70%RH	DC 5V By DC Source	James Fu
OCCUPIED BANDWIDTH	23deg. C, 70%RH	DC 3.9V By Battery	James Fu
BAND EDGE	23deg. C, 70%RH	DC 3.9V By Battery	James Fu
CONDUCTED EMISSION	23deg. C, 70%RH	DC 3.9 By Battery	James Fu
RADIATED EMISSION	23deg. C, 70%RH	AC 120V/60Hz	Jace Hu
PEAK TO AVERAGE RATIO	23deg. C, 70%RH	DC 3.9V By Battery	James Fu

2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2

FCC 47 CFR Part 27

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-D

ANSI/TIA/EIA-603-E

ANSI C63.26-2015

NOTE: All test items have been performed and recorded as per the above standards.



3 TEST TYPES AND RESULTS

3.1 OUTPUT POWER MEASUREMENT

3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

The radiated peak output power shall be according to the specific rule Part 27.50(h)(2) that “User stations are limited to 2 watts” and 27.50(i) specific that “Peak transmit power must be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage.”

Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1-watt EIRP.

According to the specific rule Part 27.50(c)(10) Portable stations (hand-held devices) in the 600 MHz uplink band and the 698–746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

Part 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.

3.1.2 TEST PROCEDURES

EIRP MEASUREMENT:

Per KDB 971168 D01 Power Meas License Digital Systems v03r01 or subclause 5.2.5.5 of ANSI C63.26-2015, the relevant equation for determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_T - L_C$$

Where:

ERP or EIRP = effective radiated power or equivalent isotropically radiated power, respectively

(expressed in the same units as P_{Meas} , typically dBW or dBm);

P_{Meas} = measured transmitter output power or PSD, in dBm or dBW;

G_T = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

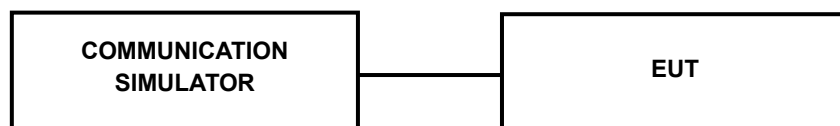
CONDUCTED POWER MEASUREMENT:

- The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
- Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.



3.1.3 TEST SETUP

CONDUCTED POWER MEASUREMENT:



For the actual test configuration, please refer to the attached file (Test Setup Photo).



3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

Band	WCDMA IV		
TX Channel	1312	1413	1513
Rx Channel	1537	1638	1738
Frequency	1712.4	1732.6	1752.6
RMC 12.2K	24.35	24.62	24.45
HSDPA Subtest-1	23.65	23.84	23.77
HSDPA Subtest-2	23.76	23.83	23.82
HSDPA Subtest-3	23.25	23.52	23.35
HSDPA Subtest-4	23.24	23.51	23.34
DC-HSDPA Subtest-1	23.69	23.78	23.79
DC-HSDPA Subtest-2	23.68	23.77	23.78
DC-HSDPA Subtest-3	23.26	23.46	23.29
DC-HSDPA Subtest-4	23.25	23.45	23.28
HSUPA Subtest-1	23.73	23.80	23.83
HSUPA Subtest-2	22.72	22.99	22.82
HSUPA Subtest-3	23.20	23.48	23.31
HSUPA Subtest-4	22.69	22.97	22.80
HSUPA Subtest-5	23.68	23.81	23.79
HSPA+ Subtest-1	23.24	23.53	23.36



LTE Band 7

Band/BW	Modulation	RB Size	RB Offset	Low CH 20775	Mid CH 21100	High CH 21425
				Frequency 2502.5 MHz	Frequency 2535 MHz	Frequency 2567.5 MHz
7/ 5	QPSK	1	0	23.01	23.05	23.19
		1	12	23.07	23.30	23.22
		1	24	22.93	22.98	22.99
		12	0	22.10	22.30	22.28
		12	6	22.19	22.33	22.17
		12	13	22.05	22.15	22.18
		25	0	22.11	22.12	22.12
	16QAM	1	0	22.05	22.29	22.36
		1	12	22.30	22.52	22.52
		1	24	22.20	22.31	22.08
		12	0	21.00	21.29	21.14
		12	6	21.02	21.18	21.25
		12	13	21.09	21.13	21.20
		25	0	21.07	21.13	21.10
	64QAM	1	0	21.12	21.16	21.22
		1	12	21.23	21.39	21.35
		1	24	21.07	21.05	20.96
		12	0	20.02	20.16	20.20
		12	6	20.05	20.30	20.24
		12	13	19.99	20.08	20.15
		25	0	20.02	20.09	20.14



Band/BW	Modulation	RB Size	RB Offset	Low CH 20800	Mid CH 21100	High CH 21400
				Frequency 2505 MHz	Frequency 2535 MHz	Frequency 2565 MHz
7/ 10	QPSK	1	0	23.01	23.11	23.17
		1	24	23.11	23.27	23.26
		1	49	22.94	22.99	23.01
		25	0	22.17	22.32	22.16
		25	12	22.17	22.26	22.25
		25	25	21.99	22.20	22.11
		50	0	22.07	22.26	22.13
	16QAM	1	0	22.15	22.28	22.40
		1	24	22.38	22.63	22.51
		1	49	22.21	22.31	22.07
		25	0	21.03	21.26	21.23
		25	12	21.11	21.28	21.24
		25	25	21.01	21.17	21.21
		50	0	21.01	21.17	21.15
	64QAM	1	0	21.15	21.20	21.21
		1	24	21.25	21.42	21.44
		1	49	21.02	21.03	20.97
		25	0	20.02	20.16	20.18
		25	12	20.13	20.26	20.23
		25	25	19.98	20.12	20.10
		50	0	20.06	20.14	20.16



Band/BW	Modulation	RB Size	RB Offset	Low CH 20825	Mid CH 21100	High CH 21375
				Frequency 2507.5 MHz	Frequency 2535 MHz	Frequency 2562.5 MHz
7/ 15	QPSK	1	0	22.90	22.98	23.15
		1	37	23.05	23.29	23.32
		1	74	22.92	22.95	22.94
		36	0	22.07	22.30	22.22
		36	19	22.08	22.31	22.19
		36	39	22.08	22.14	22.10
		75	0	22.05	22.23	22.22
	16QAM	1	0	22.09	22.35	22.45
		1	37	22.37	22.63	22.44
		1	74	22.19	22.36	22.13
		36	0	21.00	21.21	21.14
		36	19	21.00	21.18	21.16
		36	39	21.02	21.11	21.13
		75	0	20.95	21.15	21.18
	64QAM	1	0	21.08	21.11	21.23
		1	37	21.20	21.40	21.45
		1	74	20.99	21.10	21.08
		36	0	20.10	20.16	20.23
		36	19	20.14	20.24	20.15
		36	39	20.09	20.04	20.21
		75	0	20.11	20.15	20.15



BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03

Band/BW	Modulation	RB Size	RB Offset	Low CH 20850	Mid CH 21100	High CH 21350
				Frequency 2510 MHz	Frequency 2535 MHz	Frequency 2560 MHz
7/ 20	QPSK	1	0	23.02	23.13	23.24
		1	50	23.19	23.36	23.34
		1	99	22.97	23.07	23.07
		50	0	22.18	22.33	22.29
		50	25	22.21	22.37	22.32
		50	50	22.13	22.22	22.21
		100	0	22.15	22.27	22.25
	16QAM	1	0	22.19	22.37	22.49
		1	50	22.39	22.66	22.53
		1	99	22.25	22.38	22.16
		50	0	21.12	21.30	21.28
		50	25	21.15	21.31	21.27
		50	50	21.11	21.18	21.22
		100	0	21.09	21.23	21.24
	64QAM	1	0	21.16	21.22	21.33
		1	50	21.30	21.46	21.50
		1	99	21.11	21.18	21.11
		50	0	20.13	20.30	20.32
		50	25	20.18	20.31	20.28
		50	50	20.11	20.18	20.22
		100	0	20.12	20.24	20.26



Band/BW	Modulation	RB Size	RB Offset	Low CH 23017	Mid CH 23095	High CH 23173
				Frequency 699.7 MHz	Frequency 707.5 MHz	Frequency 715.3 MHz
12/ 1.4	QPSK	1	0	23.22	23.07	23.13
		1	2	23.24	23.19	23.27
		1	5	23.09	23.02	23.05
		3	0	23.14	23.22	23.09
		3	1	23.12	23.20	23.12
		3	3	23.15	23.14	23.09
		6	0	22.24	22.16	22.21
	16QAM	1	0	22.47	22.20	22.55
		1	2	22.61	22.57	22.59
		1	5	22.38	22.37	22.31
		3	0	22.29	22.25	22.24
		3	1	22.34	22.23	22.16
		3	3	22.21	22.22	22.27
		6	0	21.26	21.30	21.26
	64QAM	1	0	21.44	21.38	21.43
		1	2	21.45	21.46	21.49
		1	5	21.35	21.29	21.36
		3	0	21.21	21.16	21.22
		3	1	21.18	21.19	21.30
		3	3	21.24	21.26	21.28
		6	0	20.18	20.26	20.19



Band/BW	Modulation	RB Size	RB Offset	Low CH 23025	Mid CH 23095	High CH 23165
				Frequency 700.5 MHz	Frequency 707.5 MHz	Frequency 714.5 MHz
12/ 3	QPSK	1	0	23.27	23.15	23.20
		1	7	23.25	23.21	23.20
		1	14	23.14	23.01	23.07
		8	0	22.25	22.14	22.19
		8	3	22.12	22.08	22.15
		8	7	22.15	22.17	22.11
		15	0	22.17	22.13	22.13
	16QAM	1	0	22.47	22.20	22.54
		1	7	22.69	22.56	22.56
		1	14	22.44	22.28	22.31
		8	0	21.29	21.21	21.23
		8	3	21.32	21.26	21.22
		8	7	21.30	21.29	21.19
		15	0	21.37	21.23	21.30
	64QAM	1	0	21.44	21.43	21.46
		1	7	21.57	21.55	21.54
		1	14	21.34	21.23	21.27
		8	0	20.30	20.27	20.29
		8	3	20.27	20.25	20.26
		8	7	20.17	20.15	20.28
		15	0	20.26	20.21	20.26



Band/BW	Modulation	RB Size	RB Offset	Low CH 23035	Mid CH 23095	High CH 23155
				Frequency 701.5 MHz	Frequency 707.5 MHz	Frequency 713.5 MHz
12/ 5	QPSK	1	0	23.18	23.17	23.22
		1	12	23.27	23.24	23.23
		1	24	23.09	23.09	23.11
		12	0	22.20	22.11	22.15
		12	6	22.11	22.20	22.10
		12	13	22.11	22.08	22.09
		25	0	22.21	22.20	22.15
	16QAM	1	0	22.51	22.21	22.50
		1	12	22.55	22.64	22.52
		1	24	22.46	22.35	22.34
		12	0	21.29	21.27	21.25
		12	6	21.37	21.23	21.16
		12	13	21.29	21.17	21.20
		25	0	21.26	21.30	21.26
	64QAM	1	0	21.51	21.38	21.39
		1	12	21.45	21.48	21.48
		1	24	21.28	21.30	21.28
		12	0	20.25	20.20	20.21
		12	6	20.24	20.31	20.25
		12	13	20.19	20.16	20.25
		25	0	20.18	20.28	20.25



Band/BW	Modulation	RB Size	RB Offset	Low CH 23060	Mid CH 23095	High CH 23130
				Frequency 704 MHz	Frequency 707.5 MHz	Frequency 711 MHz
12/ 10	QPSK	1	0	23.31	23.20	23.28
		1	24	23.35	23.30	23.33
		1	49	23.20	23.13	23.18
		25	0	22.27	22.25	22.23
		25	12	22.26	22.22	22.21
		25	25	22.22	22.23	22.22
		50	0	22.29	22.28	22.25
	16QAM	1	0	22.55	22.35	22.56
		1	24	22.70	22.69	22.63
		1	49	22.49	22.41	22.38
		25	0	21.39	21.35	21.32
		25	12	21.38	21.33	21.31
		25	25	21.36	21.32	21.30
		50	0	21.41	21.35	21.32
	64QAM	1	0	21.54	21.44	21.48
		1	24	21.58	21.59	21.60
		1	49	21.41	21.34	21.37
		25	0	20.33	20.31	20.35
		25	12	20.32	20.33	20.34
		25	25	20.30	20.30	20.32
		50	0	20.31	20.32	20.33



LTE Band 13

Band/BW	Modulation	RB Size	RB Offset	Low CH 23205	Mid CH 23230	High CH 23255
				Frequency 779.5 MHz	Frequency 782.0 MHz	Frequency 784.5 MHz
13/ 5	QPSK	1	0	23.03	23.02	22.97
		1	12	23.14	23.18	23.17
		1	24	22.94	23.05	23.02
		12	0	22.19	22.25	22.17
		12	6	22.16	22.13	22.07
		12	13	22.18	22.16	22.13
		25	0	22.09	22.13	22.19
	16QAM	1	0	22.37	22.27	22.28
		1	12	22.32	22.42	22.40
		1	24	22.25	22.19	22.17
		12	0	21.18	21.18	21.20
		12	6	21.13	21.10	21.10
		12	13	21.05	21.18	21.18
		25	0	21.20	21.13	21.16
	64QAM	1	0	21.15	21.19	21.12
		1	12	21.33	21.36	21.28
		1	24	21.19	21.31	21.32
		12	0	20.22	20.25	20.27
		12	6	20.10	20.05	20.11
		12	13	20.18	20.17	20.13
		25	0	20.11	20.09	20.10



Band/BW	Modulation	RB Size	RB Offset	/	Mid CH 23230	/
				/	Frequency 782.0 MHz	/
13/ 10	QPSK	1	0	/	23.11	/
		1	24	/	23.21	/
		1	49	/	23.06	/
		25	0	/	22.27	/
		25	12	/	22.21	/
		25	25	/	22.20	/
		50	0	/	22.21	/
	16QAM	1	0	/	22.39	/
		1	24	/	22.44	/
		1	49	/	22.31	/
		25	0	/	21.27	/
		25	12	/	21.17	/
		25	25	/	21.20	/
		50	0	/	21.22	/
	64QAM	1	0	/	21.24	/
		1	24	/	21.38	/
		1	49	/	21.34	/
		25	0	/	20.31	/
		25	12	/	20.20	/
		25	25	/	20.23	/
		50	0	/	20.24	/



Band/BW	Modulation	RB Size	RB Offset	Low CH 23755	Mid CH 23790	High CH 23825
				Frequency 706.5 MHz	Frequency 710 MHz	Frequency 713.5 MHz
17/ 5	QPSK	1	0	23.14	23.14	22.99
		1	12	23.23	23.31	23.07
		1	24	22.93	22.94	22.97
		12	0	22.28	22.20	22.06
		12	6	22.15	22.18	22.06
		12	13	22.17	22.21	22.00
		25	0	22.24	22.19	22.07
	16QAM	1	0	22.44	22.41	22.25
		1	12	22.57	22.49	22.48
		1	24	22.20	22.25	21.87
		12	0	21.07	21.32	20.90
		12	6	21.15	21.25	21.06
		12	13	21.18	21.21	21.11
		25	0	21.16	21.26	21.11
	64QAM	1	0	21.17	21.33	21.19
		1	12	21.38	21.42	21.10
		1	24	21.17	21.21	20.99
		12	0	20.08	20.24	19.95
		12	6	20.07	20.23	20.04
		12	13	20.04	20.26	20.08
		25	0	20.03	20.20	20.02



Band/BW	Modulation	RB Size	RB Offset	Low CH 23780	Mid CH 23790	High CH 23800
				Frequency 709 MHz	Frequency 710 MHz	Frequency 711 MHz
17/ 10	QPSK	1	0	23.19	23.22	23.11
		1	24	23.27	23.33	23.21
		1	49	23.08	23.09	22.98
		25	0	22.29	22.30	22.21
		25	12	22.22	22.26	22.10
		25	25	22.23	22.27	22.06
		50	0	22.25	22.31	22.12
	16QAM	1	0	22.45	22.49	22.39
		1	24	22.63	22.63	22.52
		1	49	22.29	22.31	22.02
		25	0	21.22	21.34	21.02
		25	12	21.23	21.33	21.19
		25	25	21.23	21.29	21.16
		50	0	21.18	21.34	21.13
	64QAM	1	0	21.27	21.44	21.21
		1	24	21.41	21.52	21.25
		1	49	21.21	21.35	21.03
		25	0	20.16	20.31	20.04
		25	12	20.15	20.29	20.14
		25	25	20.08	20.30	20.11
		50	0	20.17	20.32	20.15



CA_7C Ant0

Combination 20MHz+20MHz (100RB+100RB)

PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)
					RB Size	RB offset	RB Size	RB offset	
20850	2510	21048	2529.8	QPSK	1	99	1	0	22.76
				16QAM	1	99	1	0	22.10
				64QAM	1	99	1	0	20.20
21001	2525.1	21199	2544.9	QPSK	1	99	1	0	22.87
				16QAM	1	99	1	0	22.18
				64QAM	1	99	1	0	20.31
21152	2540.2	21350	2560	QPSK	1	99	1	0	22.71
				16QAM	1	99	1	0	22.08
				64QAM	1	99	1	0	20.23

Combination 20MHz+15MHz (100RB+75RB)

PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)
					RB Size	RB offset	RB Size	RB offset	
20850	2510	21021	2527.1	QPSK	1	99	1	0	22.65
				16QAM	1	99	1	0	21.96
				64QAM	1	99	1	0	20.05
21026	2527.6	21197	2544.7	QPSK	1	99	1	0	22.78
				16QAM	1	99	1	0	22.03
				64QAM	1	99	1	0	20.28
21201	2545.1	21372	2562.2	QPSK	1	99	1	0	22.68
				16QAM	1	99	1	0	21.95
				64QAM	1	99	1	0	20.21

Combination 15MHz+20MHz (75RB+100RB)

PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)
					RB Size	RB offset	RB Size	RB offset	
20828	2507.8	20999	2524.9	QPSK	1	74	1	0	22.73
				16QAM	1	74	1	0	21.97
				64QAM	1	74	1	0	20.10
21003	2525.3	21174	2542.4	QPSK	1	74	1	0	22.74
				16QAM	1	74	1	0	22.09
				64QAM	1	74	1	0	20.16
21179	2542.9	21350	2560	QPSK	1	74	1	0	22.69
				16QAM	1	74	1	0	21.96
				64QAM	1	74	1	0	20.08

Combination 20MHz+10MHz (100RB+50RB)

PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)
					RB Size	RB offset	RB Size	RB offset	
20850	2510	20994	2524.4	QPSK	1	99	1	0	22.67
				16QAM	1	99	1	0	22.04
				64QAM	1	99	1	0	20.14
21051	2530.1	21195	2544.5	QPSK	1	99	1	0	22.79
				16QAM	1	99	1	0	22.14
				64QAM	1	99	1	0	20.27
21251	2550.1	21395	2564.5	QPSK	1	99	1	0	22.57
				16QAM	1	99	1	0	22.02
				64QAM	1	99	1	0	20.16

**Combination 10MHz+20MHz (50RB+100RB)**

PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)
					RB Size	RB offset	RB Size	RB offset	
20805	2505.5	20949	2519.9	QPSK	1	49	1	0	22.67
				16QAM	1	49	1	0	22.06
				64QAM	1	49	1	0	20.14
21006	2525.6	21150	2540	QPSK	1	49	1	0	22.76
				16QAM	1	49	1	0	22.12
				64QAM	1	49	1	0	20.19
21206	2545.6	21350	2560	QPSK	1	49	1	0	22.65
				16QAM	1	49	1	0	21.96
				64QAM	1	49	1	0	20.15

Combination 15MHz+15MHz (75RB+75RB)

PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)
					RB Size	RB offset	RB Size	RB offset	
20825	2507.5	20975	2522.5	QPSK	1	74	1	0	22.69
				16QAM	1	74	1	0	22.08
				64QAM	1	74	1	0	20.15
21025	2527.5	21175	2542.5	QPSK	1	74	1	0	22.74
				16QAM	1	74	1	0	22.12
				64QAM	1	74	1	0	20.25
21225	2547.5	21375	2562.5	QPSK	1	74	1	0	22.63
				16QAM	1	74	1	0	21.99
				64QAM	1	74	1	0	20.19

Combination 15MHz+10MHz (75RB+50RB)

PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)
					RB Size	RB offset	RB Size	RB offset	
20825	2507.5	20945	2519.5	QPSK	1	74	1	0	22.68
				16QAM	1	74	1	0	22.01
				64QAM	1	74	1	0	20.12
21051	2530.1	21171	2542.1	QPSK	1	74	1	0	22.86
				16QAM	1	74	1	0	22.11
				64QAM	1	74	1	0	20.17
21277	2552.7	21397	2564.7	QPSK	1	74	1	0	22.60
				16QAM	1	74	1	0	22.06
				64QAM	1	74	1	0	20.21



EIRP

WCDMA IV

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
1312	1712.4	24.35	-1.56	22.79	190.11	1
1413	1732.6	24.62	-1.56	23.06	202.3	1
1513	1752.6	24.45	-1.56	22.89	194.54	1

LTE BAND 7

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20775	2502.5	23.07	0.49	23.56	226.99	2
21100	2535	23.3	0.49	23.79	239.33	2
21425	2567.5	23.22	0.49	23.71	234.96	2

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20775	2502.5	22.3	0.49	22.79	190.11	2
21100	2535	22.52	0.49	23.01	199.99	2
21425	2567.5	22.52	0.49	23.01	199.99	2

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20775	2502.5	21.23	0.49	21.72	148.59	2
21100	2535	21.39	0.49	21.88	154.17	2
21425	2567.5	21.35	0.49	21.84	152.76	2



BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20800	2505	23.11	0.49	23.6	229.09	2
21100	2535	23.27	0.49	23.76	237.68	2
21400	2565	23.26	0.49	23.75	237.14	2

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20800	2505	22.38	0.49	22.87	193.64	2
21100	2535	22.63	0.49	23.12	205.12	2
21400	2565	22.51	0.49	23	199.53	2

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20800	2505	21.25	0.49	21.74	149.28	2
21100	2535	21.42	0.49	21.91	155.24	2
21400	2565	21.44	0.49	21.93	155.96	2



CHANNEL BANDWIDTH: 15MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	23.05	0.49	23.54	225.94	2
21100	2535	23.29	0.49	23.78	238.78	2
21375	2562.5	23.32	0.49	23.81	240.44	2

CHANNEL BANDWIDTH: 15MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	22.37	0.49	22.86	193.2	2
21100	2535	22.63	0.49	23.12	205.12	2
21375	2562.5	22.45	0.49	22.94	196.79	2

CHANNEL BANDWIDTH: 15MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	21.2	0.49	21.69	147.57	2
21100	2535	21.4	0.49	21.89	154.53	2
21375	2562.5	21.45	0.49	21.94	156.31	2



BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03

CHANNEL BANDWIDTH: 20MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510	23.19	0.49	23.68	233.35	2
21100	2535	23.36	0.49	23.85	242.66	2
21350	2560	23.34	0.49	23.83	241.55	2

CHANNEL BANDWIDTH: 20MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510	22.39	0.49	22.88	194.09	2
21100	2535	22.66	0.49	23.15	206.54	2
21350	2560	22.53	0.49	23.02	200.45	2

CHANNEL BANDWIDTH: 20MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510	21.3	0.49	21.79	151.01	2
21100	2535	21.46	0.49	21.95	156.68	2
21350	2560	21.5	0.49	21.99	158.12	2



BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03

LTE BAND 12

CHANNEL BANDWIDTH: 1.4MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	23.24	-4.13	16.96	49.66	3
23095	707.5	23.22	-4.13	16.94	49.43	3
23173	715.3	23.27	-4.13	16.99	50	3

CHANNEL BANDWIDTH: 1.4MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	22.61	-4.13	16.33	42.95	3
23095	707.5	22.57	-4.13	16.29	42.56	3
23173	715.3	22.59	-4.13	16.31	42.76	3

CHANNEL BANDWIDTH: 1.4MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23017	699.7	21.45	-4.13	15.17	32.89	3
23095	707.5	21.46	-4.13	15.18	32.96	3
23173	715.3	21.49	-4.13	15.21	33.19	3



BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03

CHANNEL BANDWIDTH: 3MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23025	700.5	23.27	-4.13	16.99	50	3
23095	707.5	23.21	-4.13	16.93	49.32	3
23165	714.5	23.2	-4.13	16.92	49.2	3

CHANNEL BANDWIDTH: 3MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23025	700.5	22.69	-4.13	16.41	43.75	3
23095	707.5	22.56	-4.13	16.28	42.46	3
23165	714.5	22.56	-4.13	16.28	42.46	3

CHANNEL BANDWIDTH: 3MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23025	700.5	21.57	-4.13	15.29	33.81	3
23095	707.5	21.55	-4.13	15.27	33.65	3
23165	714.5	21.54	-4.13	15.26	33.57	3



BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	23.27	-4.13	16.99	50	3
23095	707.5	23.24	-4.13	16.96	49.66	3
23155	713.5	23.23	-4.13	16.95	49.55	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	22.55	-4.13	16.27	42.36	3
23095	707.5	22.64	-4.13	16.36	43.25	3
23155	713.5	22.52	-4.13	16.24	42.07	3

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23035	701.5	21.51	-4.13	15.23	33.34	3
23095	707.5	21.48	-4.13	15.2	33.11	3
23155	713.5	21.48	-4.13	15.2	33.11	3



BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	23.35	-4.13	17.07	50.93	3
23095	707.5	23.3	-4.13	17.02	50.35	3
23130	711	23.33	-4.13	17.05	50.7	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	22.7	-4.13	16.42	43.85	3
23095	707.5	22.69	-4.13	16.41	43.75	3
23130	711	22.63	-4.13	16.35	43.15	3

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23060	704	21.58	-4.13	15.3	33.88	3
23095	707.5	21.59	-4.13	15.31	33.96	3
23130	711	21.6	-4.13	15.32	34.04	3

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).



LTE BAND 13

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	23.14	-2.68	18.31	67.76	3
23230	782	23.18	-2.68	18.35	68.39	3
23255	784.5	23.17	-2.68	18.34	68.23	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	22.37	-2.68	17.54	56.75	3
23230	782	22.42	-2.68	17.59	57.41	3
23255	784.5	22.4	-2.68	17.57	57.15	3

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	21.33	-2.68	16.5	44.67	3
23230	782	21.36	-2.68	16.53	44.98	3
23255	784.5	21.32	-2.68	16.49	44.57	3



BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23230	782	23.21	-2.68	18.38	68.87	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23230	782	22.44	-2.68	17.61	57.68	3

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23230	782	21.38	-2.68	16.55	45.19	3

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).



LTE BAND 17

CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23755	706.5	23.23	-4.13	16.95	49.55	3
23790	710	23.31	-4.13	17.03	50.47	3
23825	713.5	23.07	-4.13	16.79	47.75	3

CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23755	706.5	22.57	-4.13	16.29	42.56	3
23790	710	22.49	-4.13	16.21	41.78	3
23825	713.5	22.48	-4.13	16.2	41.69	3

CHANNEL BANDWIDTH: 5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23755	706.5	21.38	-4.13	15.1	32.36	3
23790	710	21.42	-4.13	15.14	32.66	3
23825	713.5	21.19	-4.13	14.91	30.97	3



BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23780	709	23.27	-4.13	16.99	50	3
23790	710	23.33	-4.13	17.05	50.7	3
23800	711	23.21	-4.13	16.93	49.32	3

CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23780	709	22.63	-4.13	16.35	43.15	3
23790	710	22.63	-4.13	16.35	43.15	3
23800	711	22.52	-4.13	16.24	42.07	3

CHANNEL BANDWIDTH: 10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23780	709	21.41	-4.13	15.13	32.58	3
23790	710	21.52	-4.13	15.24	33.42	3
23800	711	21.25	-4.13	14.97	31.41	3

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).



CA_7C Ant0

Combination 20MHz+20MHz (100RB+100RB)

PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)	Gain (dBi)	EIRP(dBm)	EIRP(mW)	Limit (W)
					RB Size	RB offset	RB Size	RB offset					
20850	2510	21048	2529.8	QPSK	1	99	1	0	22.76	0.49	23.25	211.35	2
				16QAM	1	99	1	0	22.10	0.49	22.59	181.55	2
				64QAM	1	99	1	0	20.20	0.49	20.69	117.22	2
21001	2525.1	21199	2544.9	QPSK	1	99	1	0	22.87	0.49	23.36	216.77	2
				16QAM	1	99	1	0	22.18	0.49	22.67	184.93	2
				64QAM	1	99	1	0	20.31	0.49	20.8	120.23	2
21152	2540.2	21350	2560	QPSK	1	99	1	0	22.71	0.49	23.2	208.93	2
				16QAM	1	99	1	0	22.08	0.49	22.57	180.72	2
				64QAM	1	99	1	0	20.23	0.49	20.72	118.03	2

Combination 20MHz+15MHz (100RB+75RB)

PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)	Gain (dBi)	EIRP(dBm)	EIRP(mW)	Limit (W)
					RB Size	RB offset	RB Size	RB offset					
20850	2510	21021	2527.1	QPSK	1	99	1	0	22.65	0.49	23.14	206.06	2
				16QAM	1	99	1	0	21.96	0.49	22.45	175.79	2
				64QAM	1	99	1	0	20.05	0.49	20.54	113.24	2
21026	2527.6	21197	2544.7	QPSK	1	99	1	0	22.78	0.49	23.27	212.32	2
				16QAM	1	99	1	0	22.03	0.49	22.52	178.65	2
				64QAM	1	99	1	0	20.28	0.49	20.77	119.4	2
21201	2545.1	21372	2562.2	QPSK	1	99	1	0	22.68	0.49	23.17	207.49	2
				16QAM	1	99	1	0	21.95	0.49	22.44	175.39	2
				64QAM	1	99	1	0	20.21	0.49	20.7	117.49	2

Combination 15MHz+20MHz (75RB+100RB)

PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)	Gain (dBi)	EIRP(dBm)	EIRP(mW)	Limit (W)
					RB Size	RB offset	RB Size	RB offset					
20828	2507.8	20999	2524.9	QPSK	1	74	1	0	22.73	0.49	23.22	209.89	2
				16QAM	1	74	1	0	21.97	0.49	22.46	176.2	2
				64QAM	1	74	1	0	20.10	0.49	20.59	114.55	2
21003	2525.3	21174	2542.4	QPSK	1	74	1	0	22.74	0.49	23.23	210.38	2
				16QAM	1	74	1	0	22.09	0.49	22.58	181.13	2
				64QAM	1	74	1	0	20.16	0.49	20.65	116.14	2
21179	2542.9	21350	2560	QPSK	1	74	1	0	22.69	0.49	23.18	207.97	2
				16QAM	1	74	1	0	21.96	0.49	22.45	175.79	2
				64QAM	1	74	1	0	20.08	0.49	20.57	114.02	2

Combination 20MHz+10MHz (100RB+50RB)

PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)	Gain (dBi)	EIRP(dBm)	EIRP(mW)	Limit (W)
					RB Size	RB offset	RB Size	RB offset					
20850	2510	20994	2524.4	QPSK	1	99	1	0	22.67	0.49	23.16	207.01	2
				16QAM	1	99	1	0	22.04	0.49	22.53	179.06	2
				64QAM	1	99	1	0	20.14	0.49	20.63	115.61	2
21051	2530.1	21195	2544.5	QPSK	1	99	1	0	22.79	0.49	23.28	212.81	2
				16QAM	1	99	1	0	22.14	0.49	22.63	183.23	2
				64QAM	1	99	1	0	20.27	0.49	20.76	119.12	2
21251	2550.1	21395	2564.5	QPSK	1	99	1	0	22.57	0.49	23.06	202.3	2
				16QAM	1	99	1	0	22.02	0.49	22.51	178.24	2
				64QAM	1	99	1	0	20.16	0.49	20.65	116.14	2



Combination 10MHz+20MHz (50RB+100RB)													
PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)	Gain (dBi)	EIRP(dBm)	EIRP(mW)	Limit (W)
					RB Size	RB offset	RB Size	RB offset					
20805	2505.5	20949	2519.9	QPSK	1	49	1	0	22.67	0.49	23.16	207.01	2
				16QAM	1	49	1	0	22.06	0.49	22.55	179.89	2
				64QAM	1	49	1	0	20.14	0.49	20.63	115.61	2
21006	2525.6	21150	2540	QPSK	1	49	1	0	22.76	0.49	23.25	211.35	2
				16QAM	1	49	1	0	22.12	0.49	22.61	182.39	2
				64QAM	1	49	1	0	20.19	0.49	20.68	116.95	2
21206	21206	21350	21220.4	QPSK	1	49	1	0	22.65	0.49	23.14	206.06	2
				16QAM	1	49	1	0	21.96	0.49	22.45	175.79	2
				64QAM	1	49	1	0	20.15	0.49	20.64	115.88	2
Combination 15MHz+15MHz (75RB+75RB)													
PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)	Gain (dBi)	EIRP(dBm)	EIRP(mW)	Limit (W)
					RB Size	RB offset	RB Size	RB offset					
20825	2507.5	20975	2522.5	QPSK	1	74	1	0	22.69	0.49	23.18	207.97	2
				16QAM	1	74	1	0	22.08	0.49	22.57	180.72	2
				64QAM	1	74	1	0	20.15	0.49	20.64	115.88	2
21025	2527.5	21175	2542.5	QPSK	1	74	1	0	22.74	0.49	23.23	210.38	2
				16QAM	1	74	1	0	22.12	0.49	22.61	182.39	2
				64QAM	1	74	1	0	20.25	0.49	20.74	118.58	2
21225	2547.5	21375	2562.5	QPSK	1	74	1	0	22.63	0.49	23.12	205.12	2
				16QAM	1	74	1	0	21.99	0.49	22.48	177.01	2
				64QAM	1	74	1	0	20.19	0.49	20.68	116.95	2
Combination 15MHz+10MHz (75RB+50RB)													
PCC Channel	PCC Frequency (MHz)	SCC Channel	SCC Frequency (MHz)	Modulation	PCC		SCC		Measured Power (dBm)	Gain (dBi)	EIRP(dBm)	EIRP(mW)	Limit (W)
					RB Size	RB offset	RB Size	RB offset					
20825	2507.5	20945	2519.5	QPSK	1	74	1	0	22.68	0.49	23.17	207.49	2
				16QAM	1	74	1	0	22.01	0.49	22.5	177.83	2
				64QAM	1	74	1	0	20.12	0.49	20.61	115.08	2
21051	2530.1	21171	2542.1	QPSK	1	74	1	0	22.86	0.49	23.35	216.27	2
				16QAM	1	74	1	0	22.11	0.49	22.6	181.97	2
				64QAM	1	74	1	0	20.17	0.49	20.66	116.41	2
21277	2552.7	21397	2564.7	QPSK	1	74	1	0	22.60	0.49	23.09	203.7	2
				16QAM	1	74	1	0	22.06	0.49	22.55	179.89	2
				64QAM	1	74	1	0	20.21	0.49	20.7	117.49	2

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

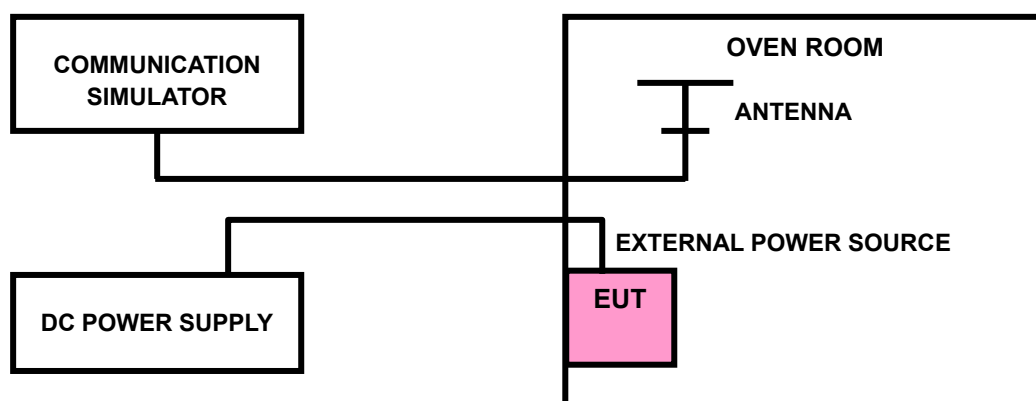
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

3.2.2 TEST PROCEDURE

- Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

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

3.2.3 TEST SETUP





BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03

3.2.4 TEST RESULTS

Please Refer to Appendix Of this test report.

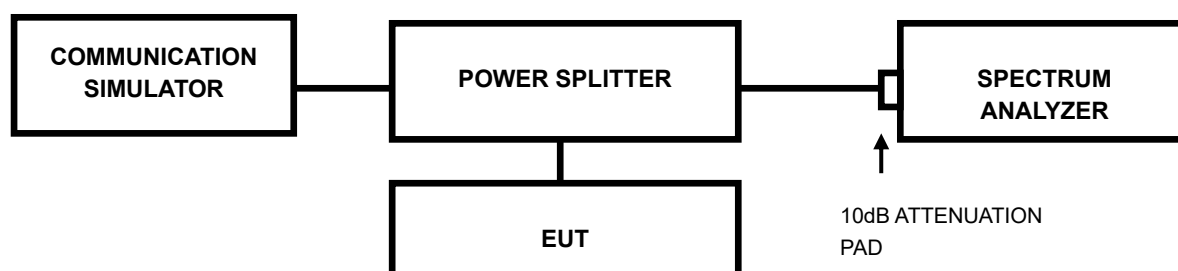


3.3 OCCUPIED BANDWIDTH MEASUREMENT

3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

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.

3.3.2 TEST SETUP



3.3.3 TEST PROCEDURES

- The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.



BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03

3.3.4 TEST RESULTS

Please Refer to Appendix Of this test report.



3.4 BAND EDGE MEASUREMENT

3.4.1 LIMITS OF BAND EDGE MEASUREMENT

According to FCC 27.53(g) specified that For operations in the 600 MHz band and the 698-746 MHz 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. 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.

According to FCC 27.53(h) specified that For operations in the 1710-1755 MHz 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. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

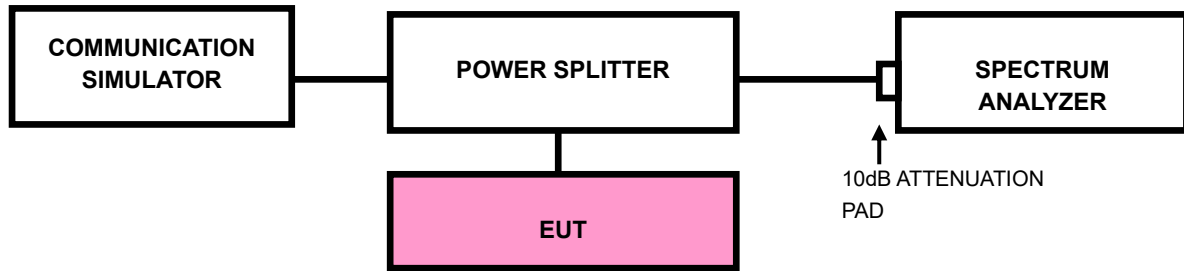
According to FCC 27.53(m)(4) specified that For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz 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)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ 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. For mobile digital stations, in the 1-megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed.

47 CFR 27.53(c)(2) : On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;

47 CFR 27.53(f) : For operations in the 746–758 MHz, 775–788 MHz, and 805–806 MHz bands, emissions in the band 1559–1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.



3.4.2 TEST SETUP





3.4.3 TEST PROCEDURES

- a) All measurements were done at low and high operational frequency range
- b) Connect the transmitter to the spectrum analyzer via coaxial cable while ensuring proper impedance matching.
- c) Tune the analyzer to the nominal center frequency of the emission bandwidth
(EBW)
- d) .Set the resolution bandwidth (RBW) $\geq 1\%$ EBW in the 1MHz band immediately outside and adjacent to the band edge.
- e) Beyond the 1MHz band from the band edge, RBW=1MHz was used.
- f) Set the video bandwidth (VBW) to $\geq 3 \times$ RBW.
- g) Select the average power (RMS) display detector.
- h) Set the number of measurement points to ≥ 1001 .
- i) Use auto-coupled sweep time.
- j) Perform the measurement over an interval of time when the transmission is continuous and at its maximum power level.
- k) The RF fundamental frequency should be excluded against the limit line in the operating frequency band and use RBW is 10KHz or 100KHz.
- l) Record the max trace plot into the test report.



BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03

3.4.4 TEST RESULTS

Please Refer to Appendix Of this test report.



CONDUCTED SPURIOUS EMISSIONS

3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

According to FCC 27.53(g) specified that For operations in the 600 MHz band and the 698-746 MHz 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. 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.

According to FCC 27.53(h) specified that For operations in the 1710-1755 MHz 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. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

According to FCC 27.53(m)(4) specified that 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)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ 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. For mobile digital stations, in the 1-megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed.

47 CFR 27.53(c)(2) : On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;

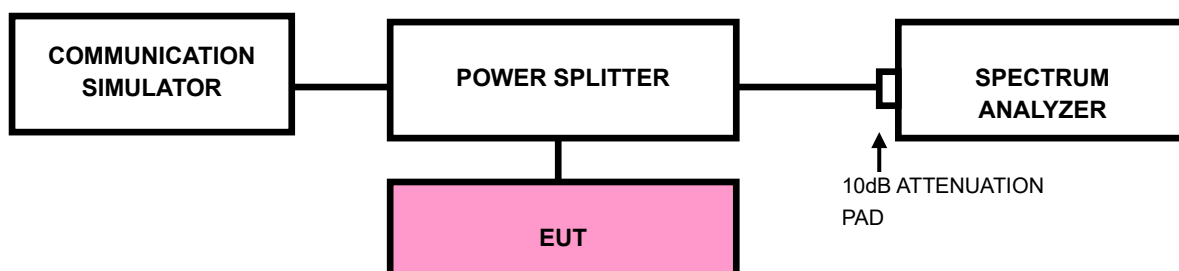
47 CFR 27.53(f) : For operations in the 746–758 MHz, 775–788 MHz, and 805–806 MHz bands, emissions in the band 1559–1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.



3.5.2 TEST PROCEDURE

- a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- b. Measuring frequency range is from 9kHz up to a frequency including its 10th harmonic. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

3.5.3 TEST SETUP





BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03

3.5.4 TEST RESULTS

NOTE : The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

Please Refer to Appendix Of this test report.



3.6 RADIATED EMISSION MEASUREMENT

3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

According to FCC 27.53(g) specified that For operations in the 600 MHz band and the 698-746 MHz 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. 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.

According to FCC 27.53(h) specified that For operations in the 1710-1755 MHz 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. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

According to FCC 27.53(m)(4) specified that 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)(6) 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. For mobile digital stations, in the 1-megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed.

47 CFR 27.53(c)(2) : On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;

47 CFR 27.53(f) : For operations in the 746–758 MHz, 775–788 MHz, and 805–806 MHz bands, emissions in the band 1559–1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

3.6.2 TEST PROCEDURES

a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic



chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.

- b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value " of step a. Record the power level of S.G.
- c. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}.$
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,
 $E.R.P \text{ power} = E.I.P.R \text{ power} - 2.15\text{dBi}.$

NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

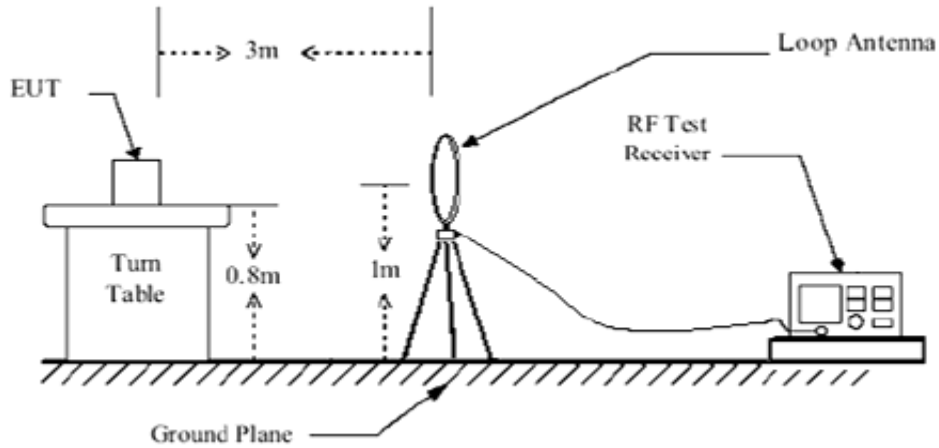
3.6.3 DEVIATION FROM TEST STANDARD

No deviation

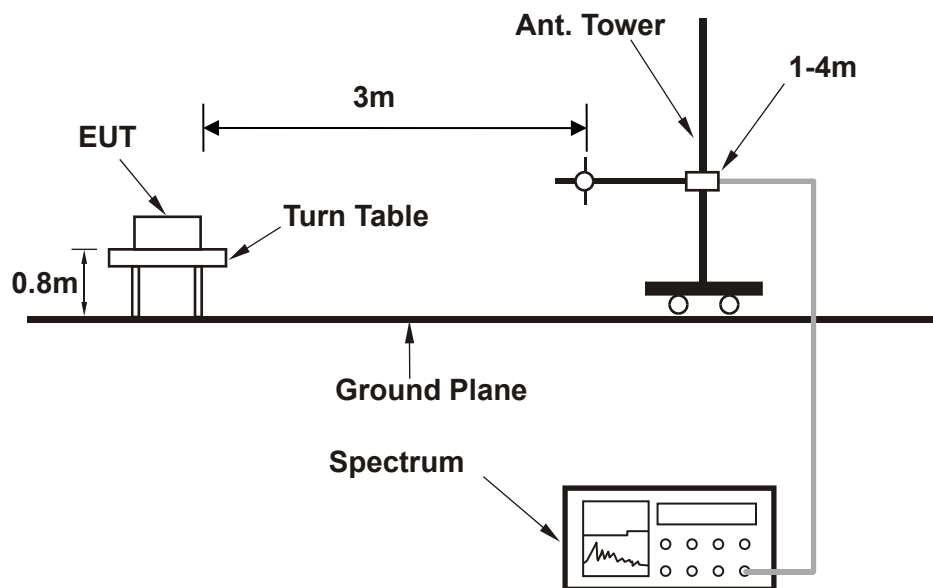


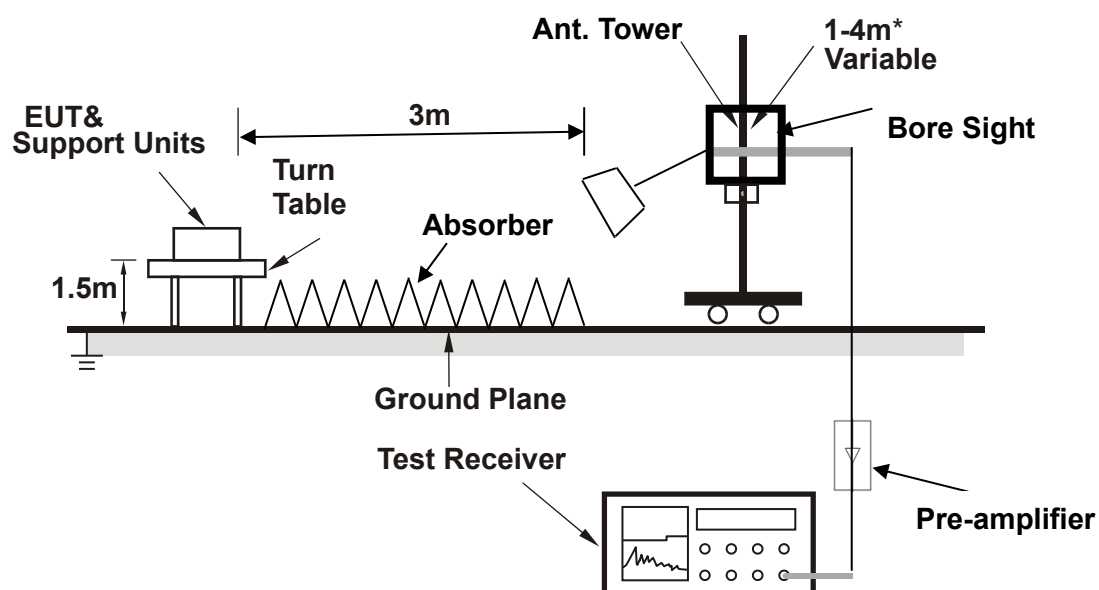
3.6.4 TEST SETUP

< Frequency Range below 30MHz >



< Frequency Range 30MHz~1GHz >





Note: Above 1G is a directional antenna depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

For the actual test configuration, please refer to the attached file (Test Setup Photo).



3.6.5 TEST RESULTS

NOTE : The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

BELOW 1GHz WORST-CASE DATA

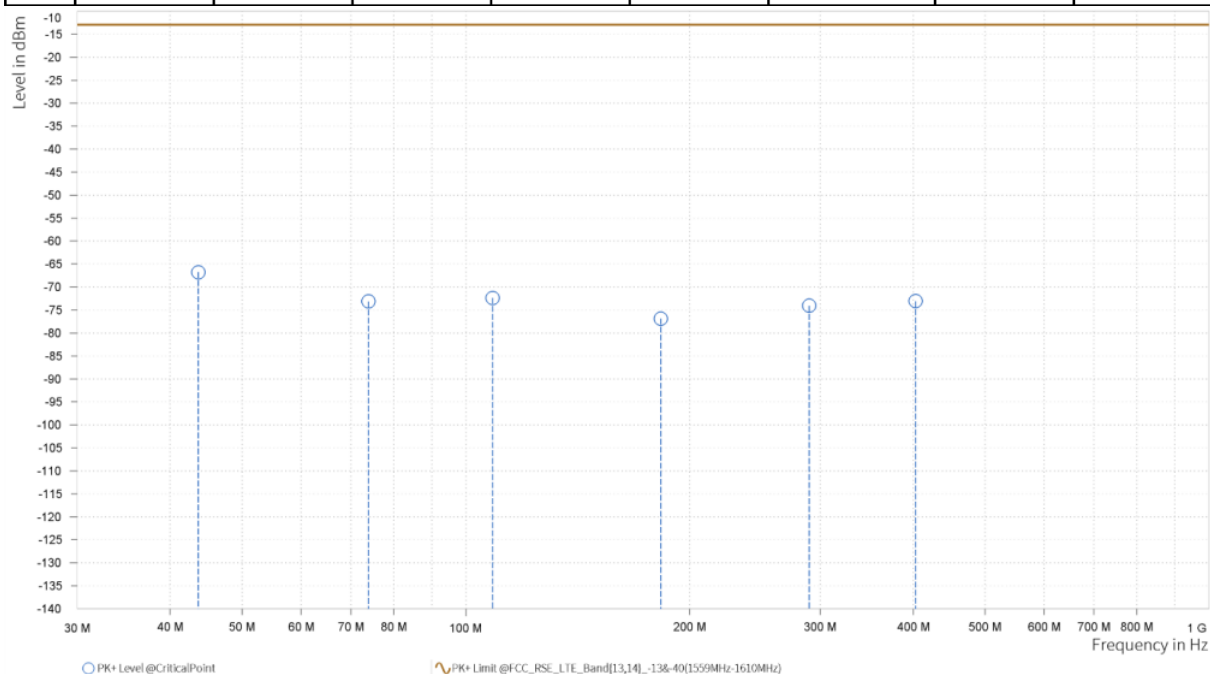
30 MHz – 1GHz data:

LTE Band 7

CHANNEL BANDWIDTH: 20MHz / QPSK

MODE	TX channel 21100	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

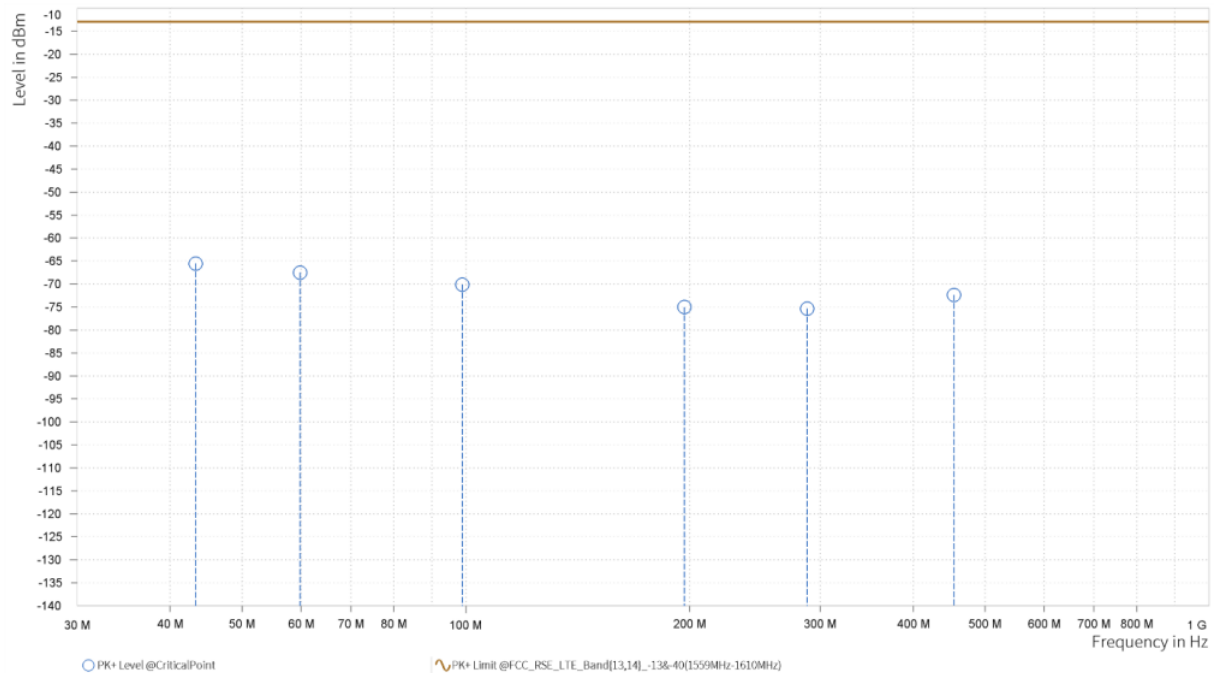
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	43.65	-66.77	-13.0	53.77	-0.67	H	172.6	2.0
1	73.95	-73.13	-13.0	60.13	-7.32	H	172.6	2.0
1	108.7	-72.36	-13.0	59.36	-5.36	H	359.9	2.0
1	183.0	-76.87	-13.0	63.87	-5.77	H	172.6	2.0
1	289.85	-74.09	-13.0	61.09	0.43	H	17.4	2.0
1	403.0	-73.05	-13.0	60.05	1.04	H	0.1	1.0





MODE	TX channel 21100	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	43.3	-65.54	-13.0	52.54	1.05	V	13.7	2.0
1	59.85	-67.5	-13.0	54.5	-0.51	V	4.9	1.0
1	98.95	-70.12	-13.0	57.12	-0.87	V	360.0	1.0
1	196.95	-75.02	-13.0	62.02	-3.21	V	345.0	1.0
1	287.95	-75.35	-13.0	62.35	-0.91	V	4.9	1.0
2	453.758	-72.35	-13.0	59.35	1.73	V	90.2	2.0





BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03

ABOVE 1GHz

Note: For higher frequency, the emission is too low to be detected.

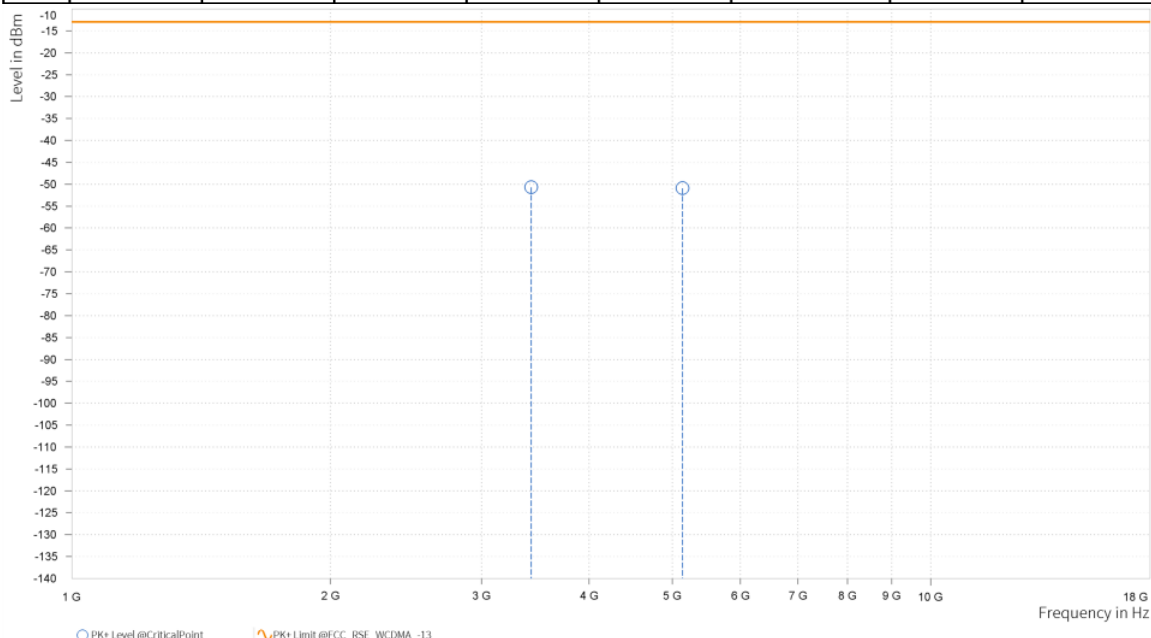
WCDMA Band IV:

CH 1312

MODE	TX channel 1312	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,424.800	-50.7	-13.0	37.7	20.64	H	101.0	1.0
4	5,137.200	-50.92	-13.0	37.92	23.11	H	169.7	2.0

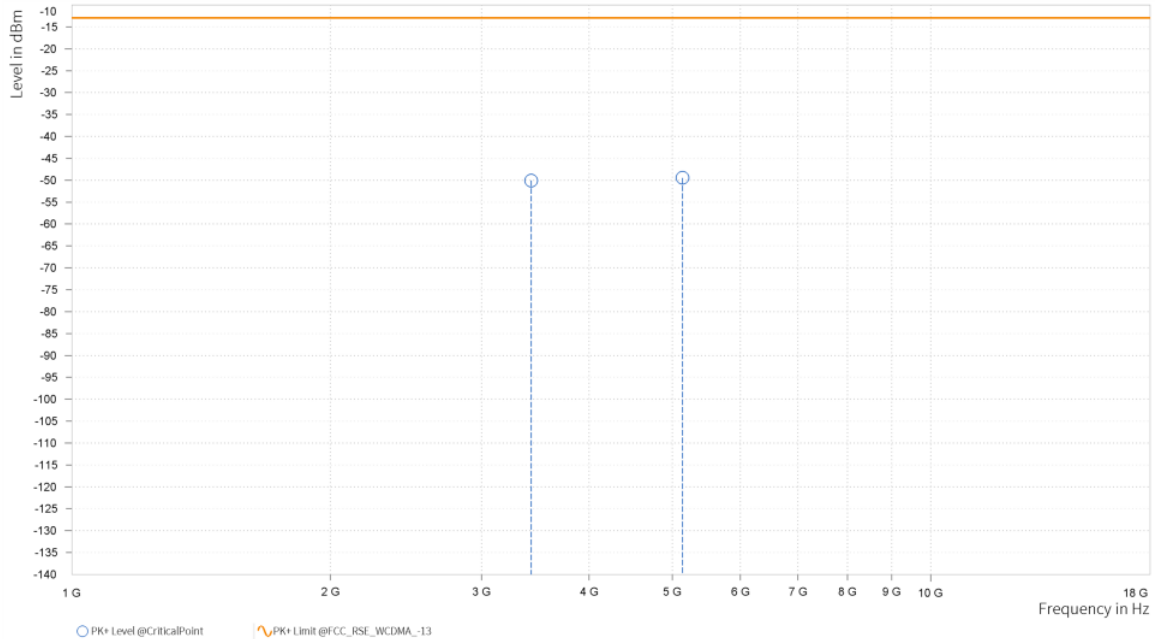




MODE	TX channel 1312	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

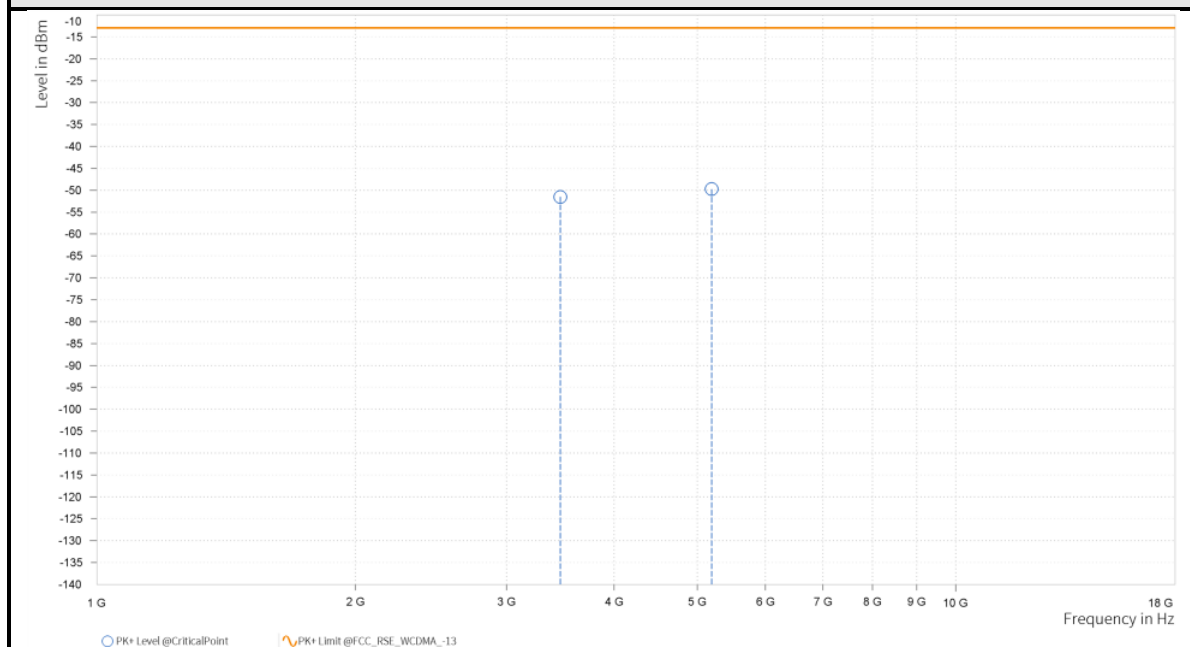
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,424.800	-50.09	-13.0	37.09	21.03	V	115.2	2.0
4	5,137.200	-49.44	-13.0	36.44	23.39	V	244.8	1.0





MODE	TX channel 1413	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M



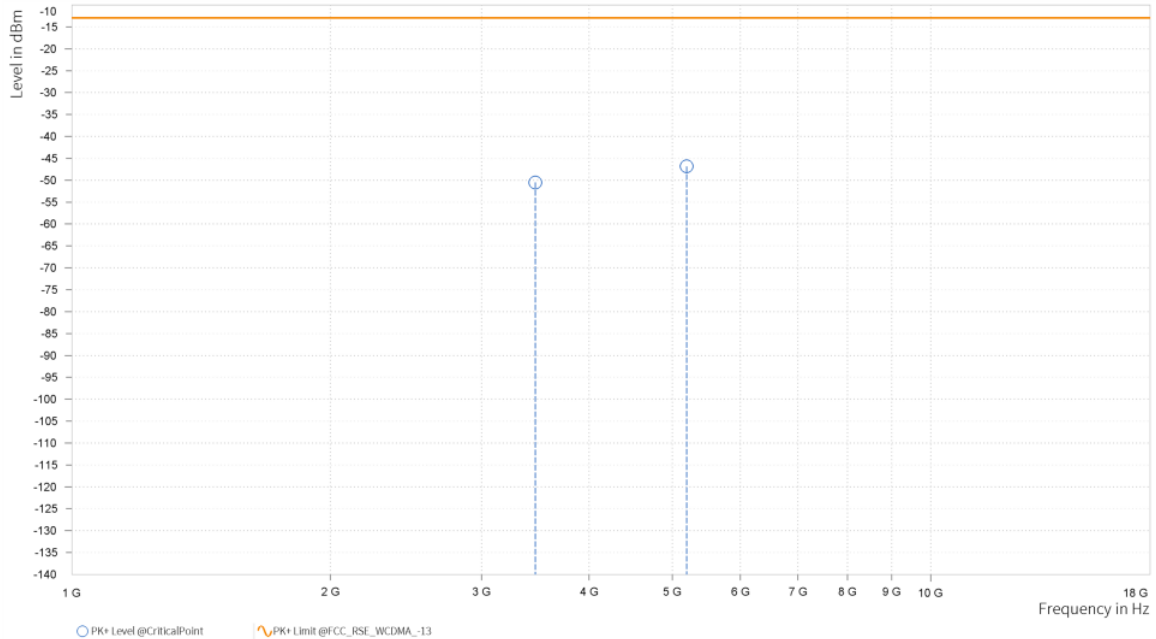
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,465.200	-51.52	-13.0	38.52	20.4	H	357.5	1.0
4	5,197.800	-49.75	-13.0	36.75	23.43	H	99.7	1.0



MODE	TX channel 1413	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,465.200	-50.49	-13.0	37.49	21.09	V	57.9	2.0
4	5,197.800	-46.84	-13.0	33.84	24.03	V	57.9	2.0



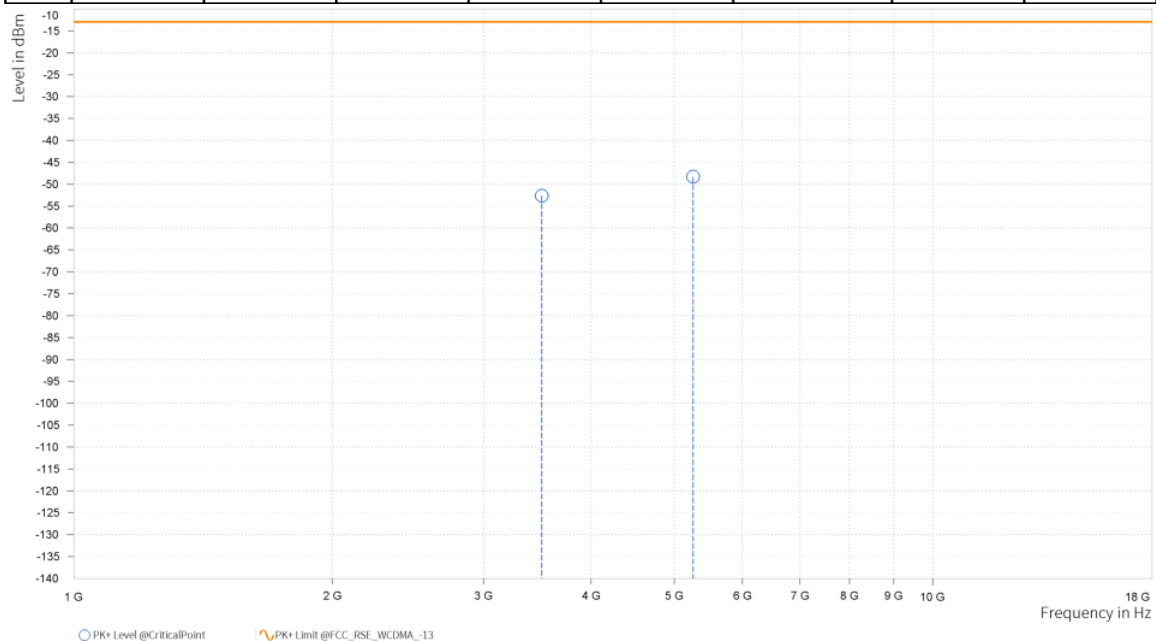


CH 1513

MODE	TX channel 1513	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,505.200	-52.66	-13.0	39.66	20.55	H	247.6	1.0
4	5,257.800	-48.28	-13.0	35.28	23.64	H	356.3	1.0

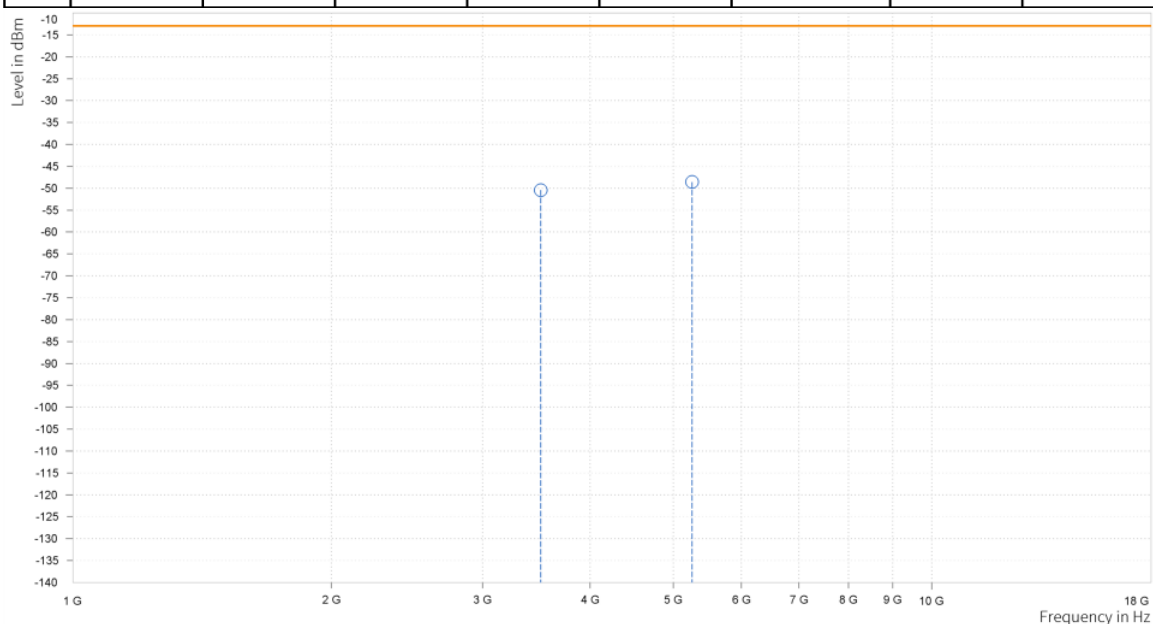




MODE	TX channel 1513	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,505.200	-50.42	-13.0	37.42	21.28	V	94.6	2.0
4	5,257.800	-48.59	-13.0	35.59	24.12	V	266.7	2.0





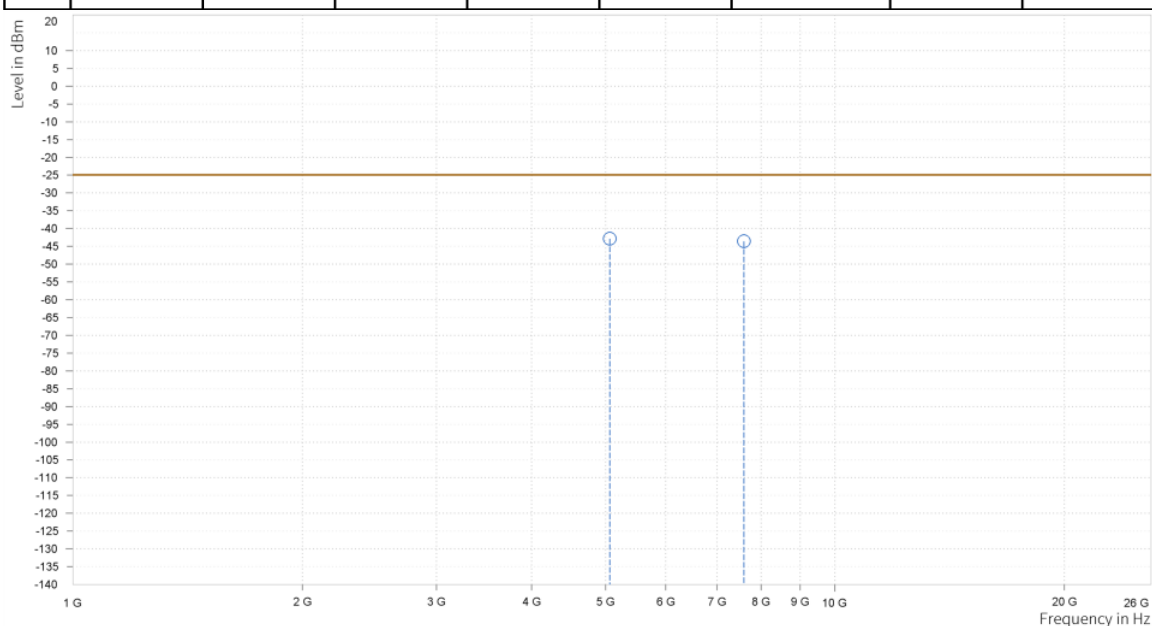
LTE Band 7

CHANNEL BANDWIDTH: 5MHz / QPSK

MODE	TX channel 21100	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,065.500	-42.85	-25.0	17.85	29.79	H	0.9	2.0
5	7,598.250	-43.59	-25.0	18.59	35.84	H	1.0	1.0





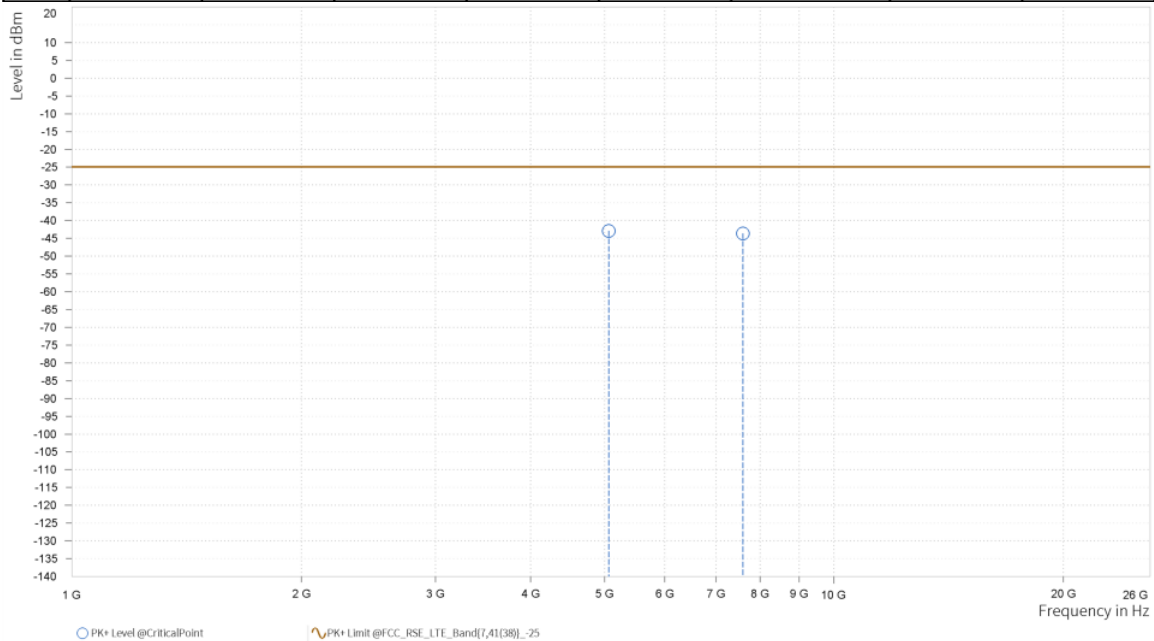
BUREAU
VERITAS

Test Report No.: PSU-NQN2407300216RF03

MODE	TX channel 21100	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

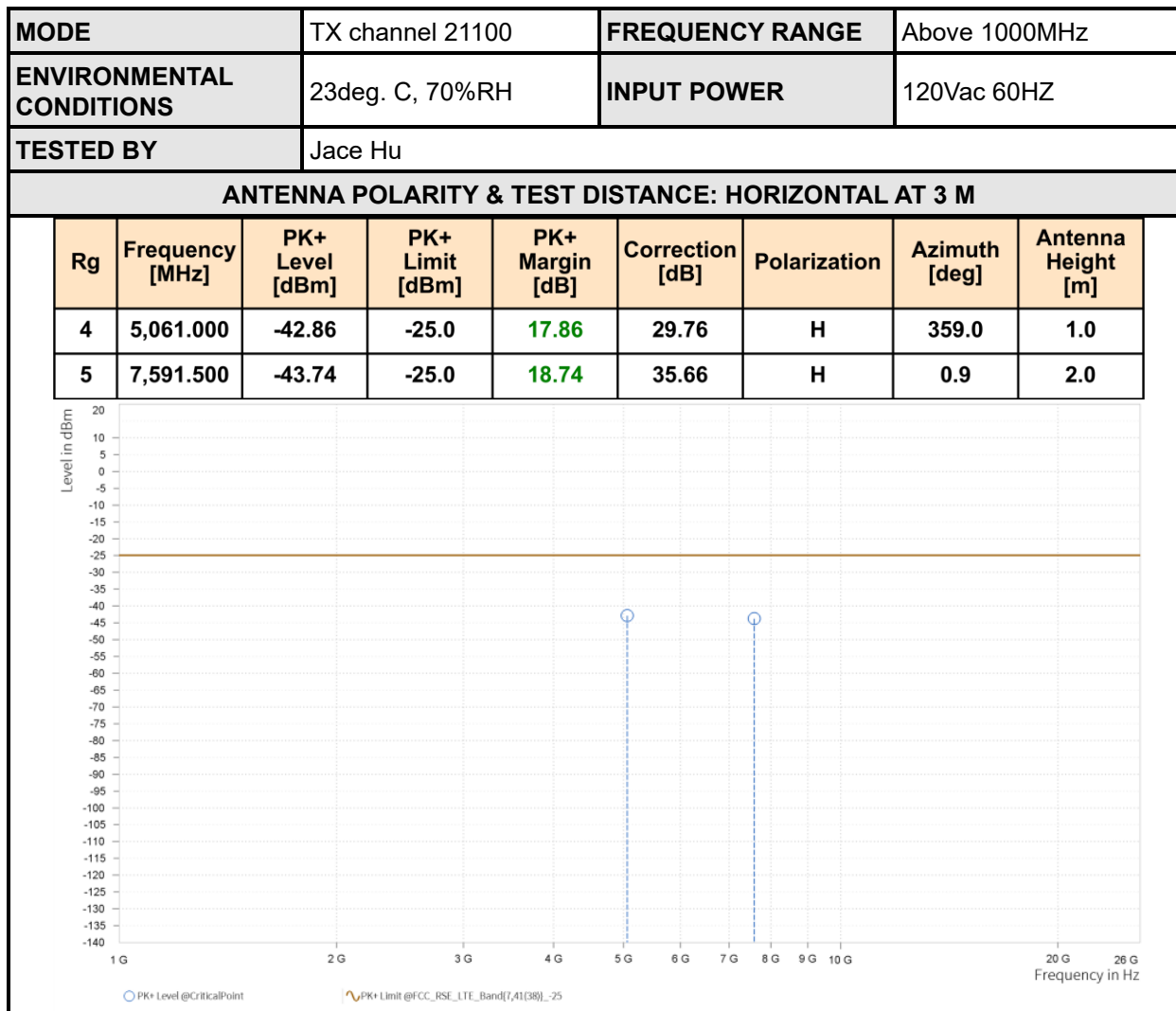
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,065.500	-42.92	-25.0	17.92	29.55	V	221.8	1.0
5	7,598.250	-43.64	-25.0	18.64	35.86	V	0.9	2.0





BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03
CHANNEL BANDWIDTH: 10MHz / QPSK

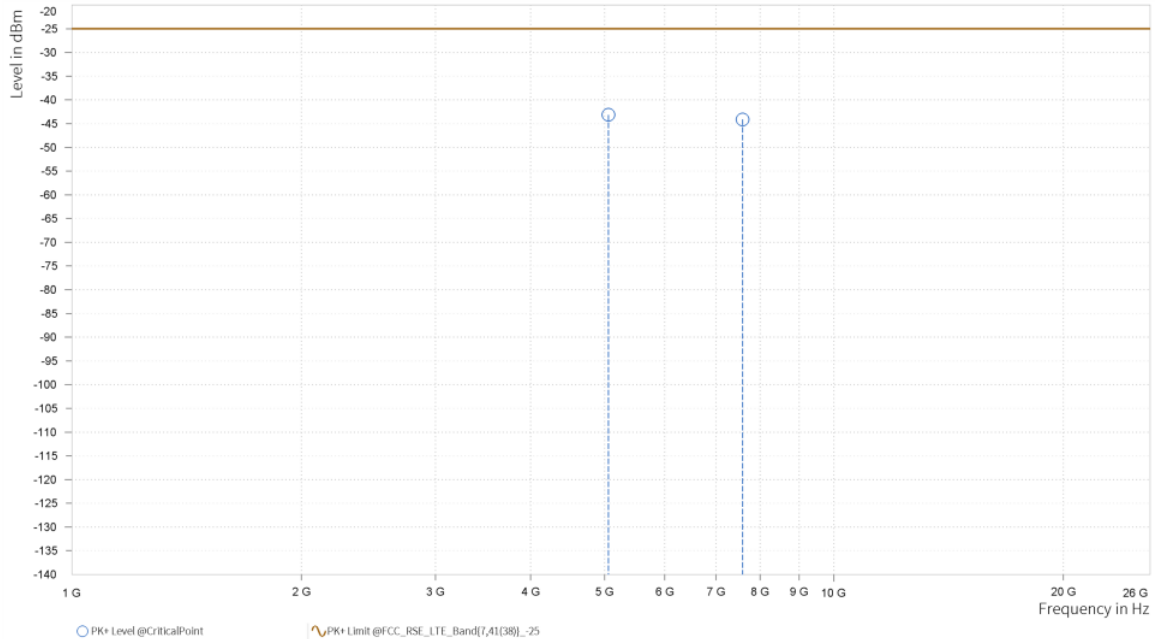


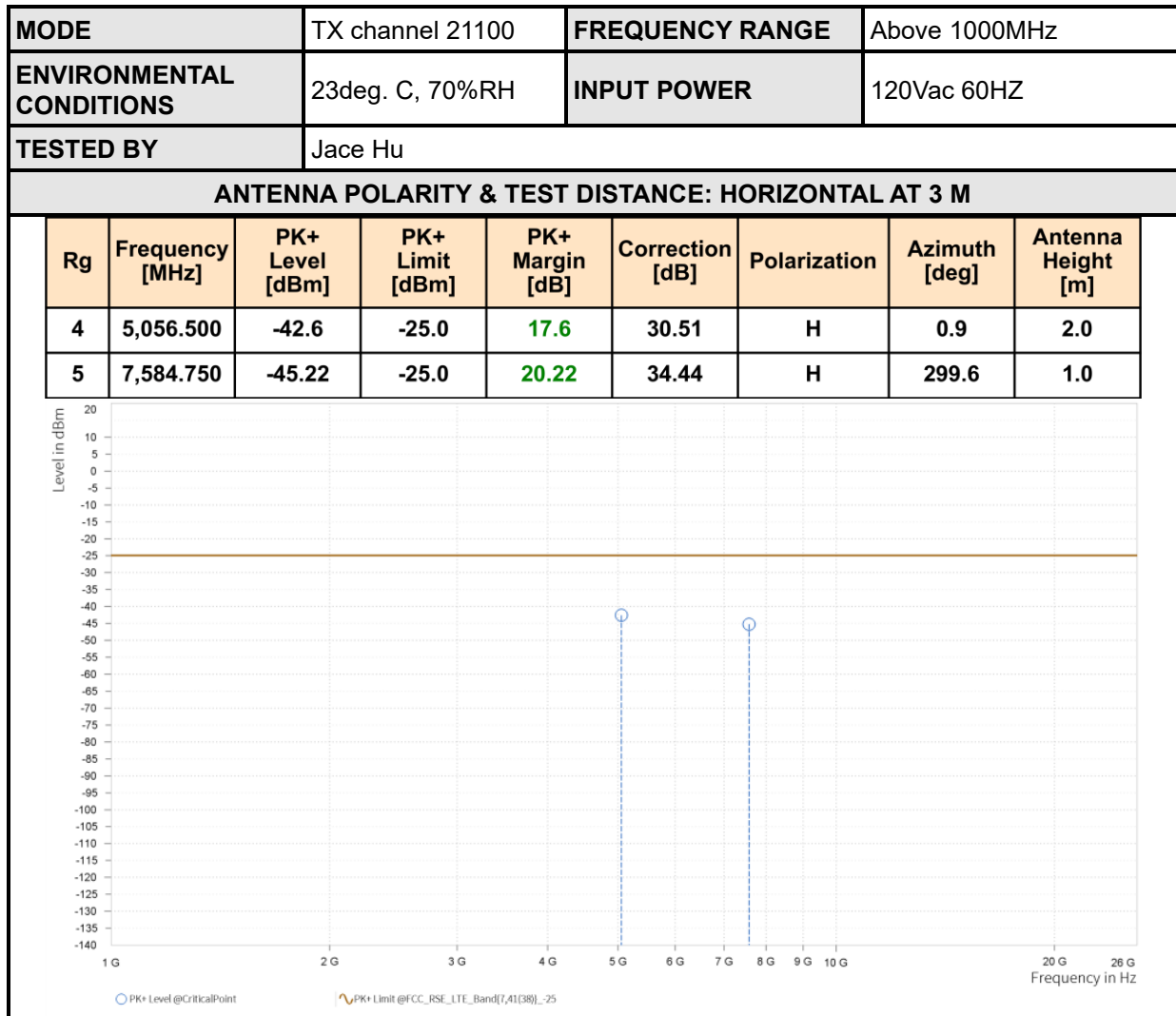


MODE	TX channel 21100	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,061.000	-43.14	-25.0	18.14	29.53	V	359.1	1.0
5	7,591.500	-44.1	-25.0	19.1	35.69	V	287.5	1.0



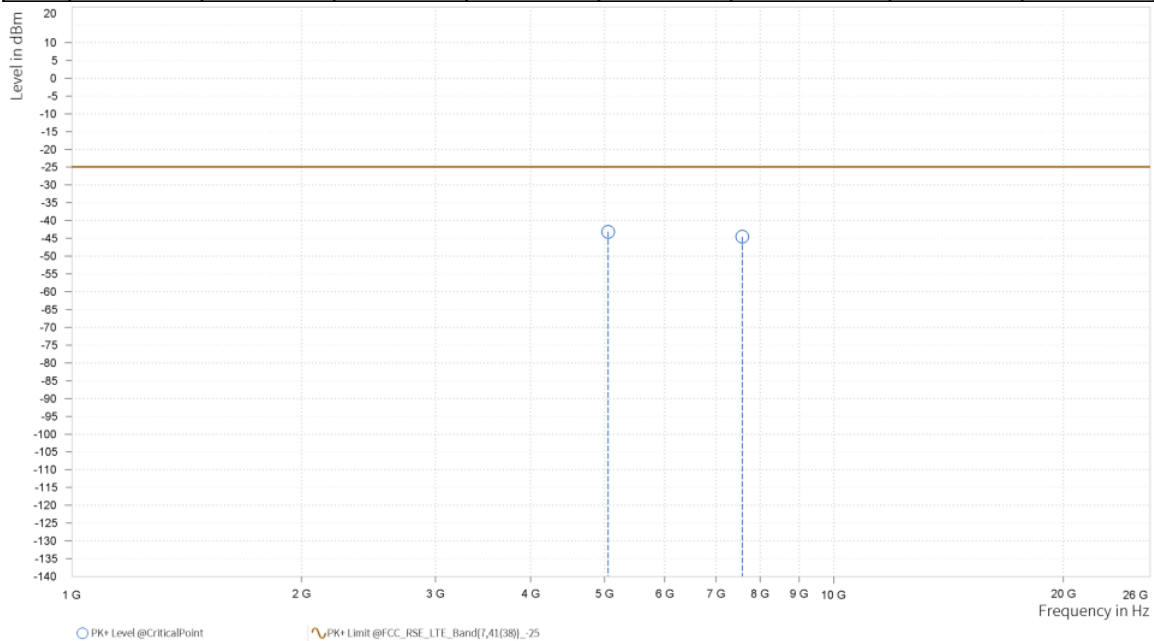




MODE	TX channel 21100	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,056.500	-43.17	-25.0	18.17	30.29	V	359.0	1.0
5	7,584.750	-44.55	-25.0	19.55	34.48	V	52.1	2.0



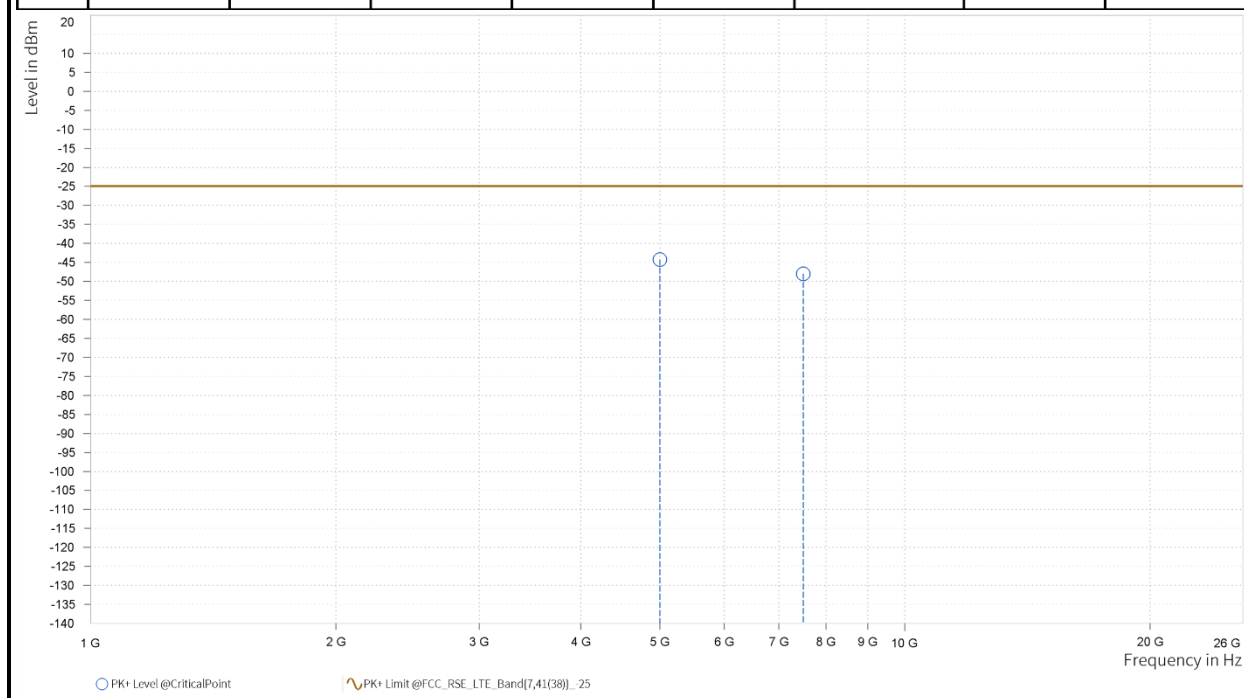


BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03
CHANNEL BANDWIDTH: 20MHz / QPSK
CH:20850

MODE	TX channel 20850	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,002.000	-44.22	-25.0	19.22	29.42	H	0.9	2.0
5	7,503.000	-48.01	-25.0	23.01	32.64	H	1.0	1.0

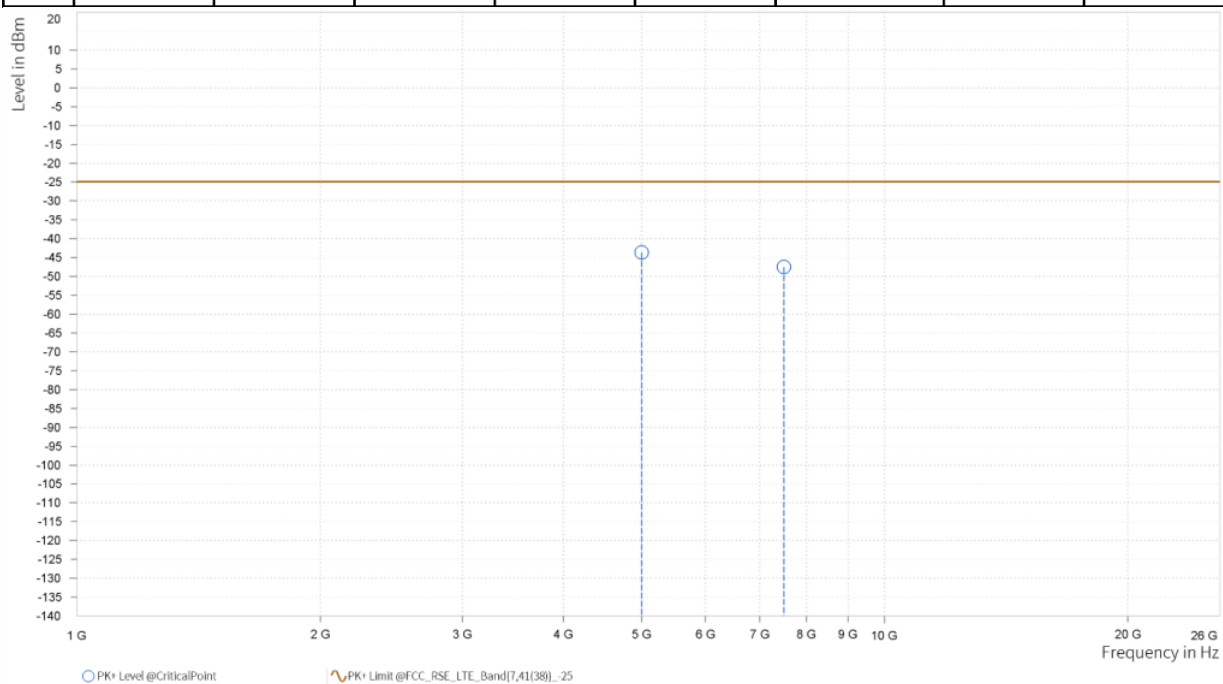




MODE	TX channel 20850	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,002.000	-43.67	-25.0	18.67	29.27	V	1.0	1.0
5	7,503.000	-47.5	-25.0	22.5	32.81	V	322.2	1.0

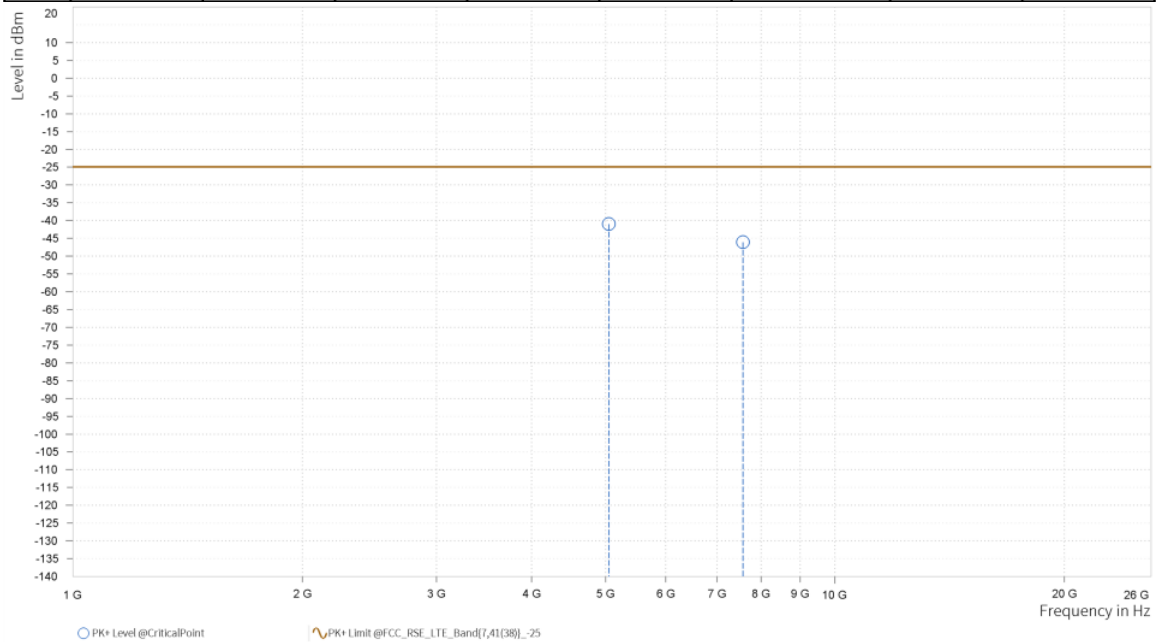




MODE	TX channel 21100	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,052.000	-40.96	-25.0	15.96	31.49	H	1.0	1.0
5	7,578.000	-46.06	-25.0	21.06	33.43	H	0.9	2.0

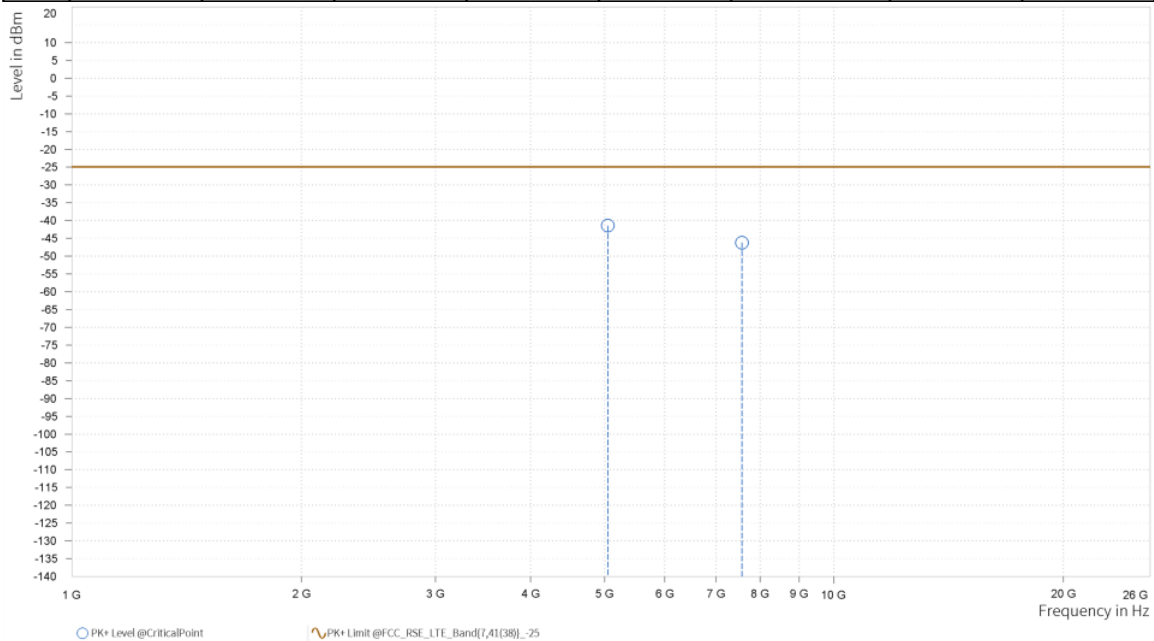




MODE	TX channel 21100	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,052.000	-41.41	-25.0	16.41	31.27	V	0.9	2.0
5	7,578.000	-46.19	-25.0	21.19	33.48	V	314.0	1.0

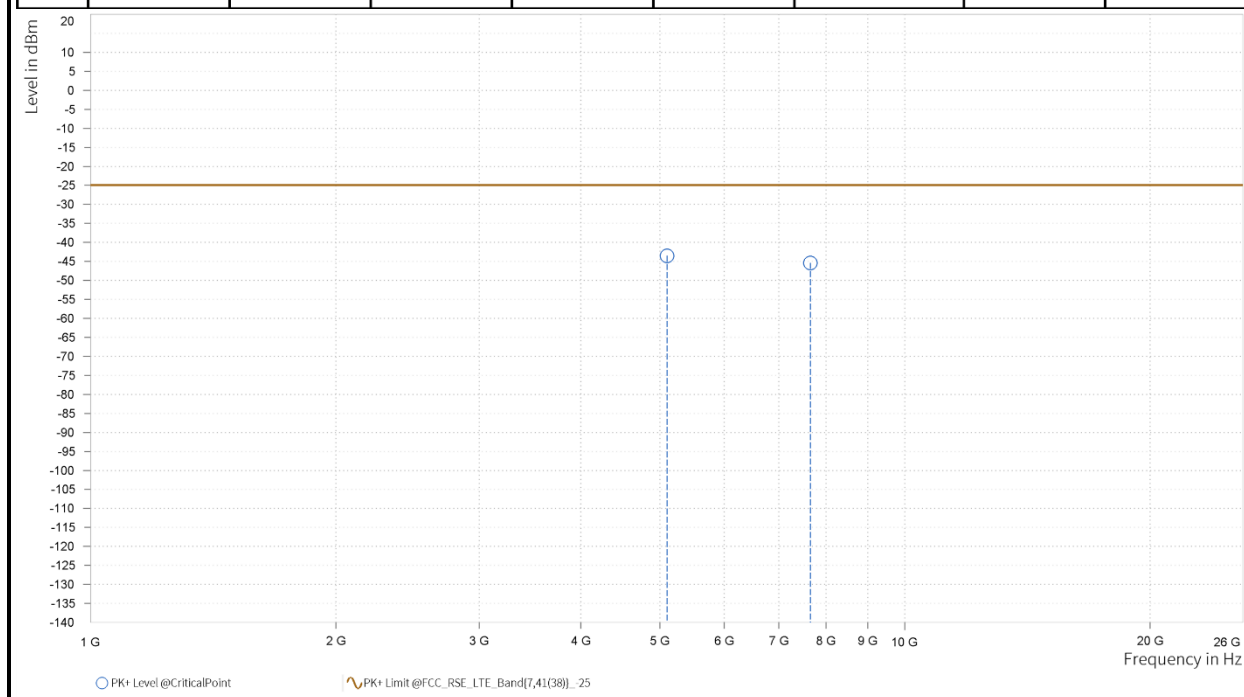




MODE	TX channel 21350	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,102.000	-43.51	-25.0	18.51	30.53	H	359	2.0
5	7,653.000	-45.41	-25.0	20.41	34.34	H	359	2.0

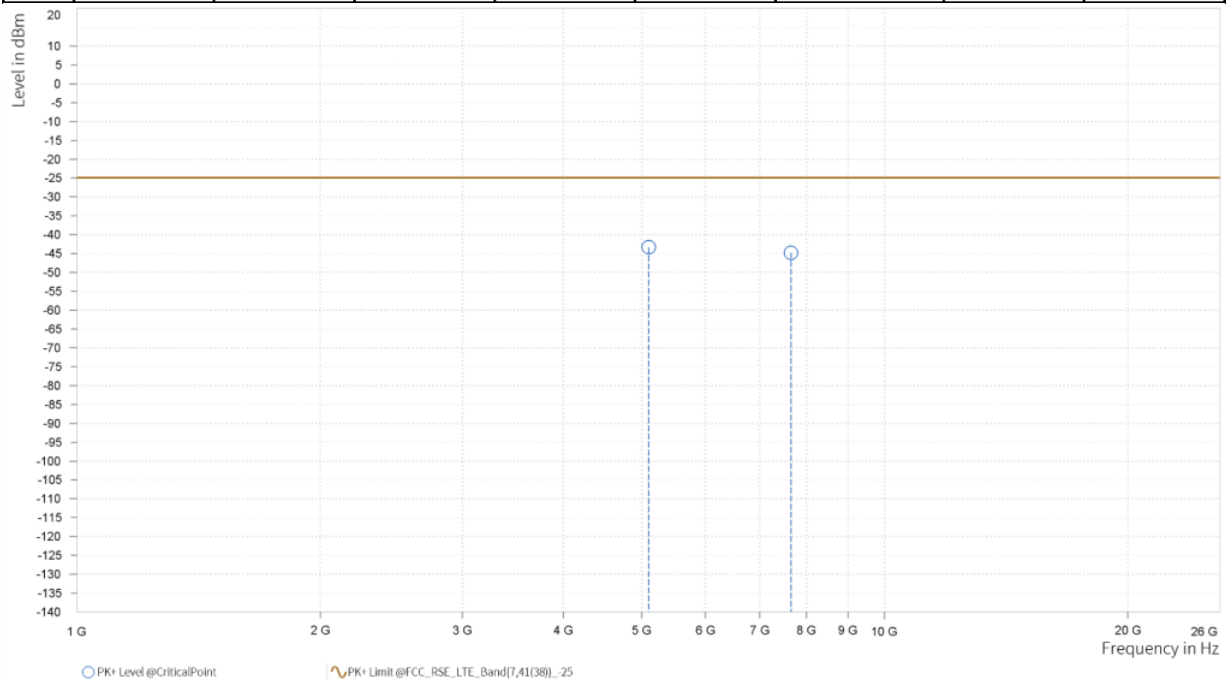




MODE	TX channel 21350	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,102.000	-43.33	-25.0	18.33	30.36	V	1	2.0
5	7,653.000	-44.76	-25.0	19.76	34.28	V	1	1.0



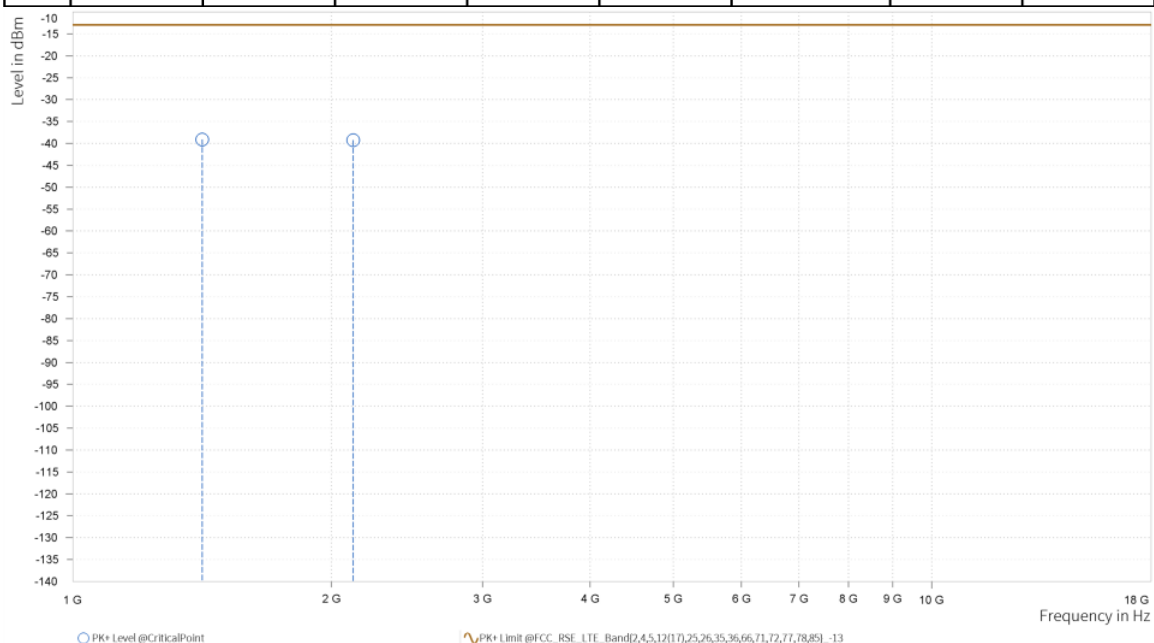
LTE BAND 12

CHANNEL BANDWIDTH: 1.4MHz / QPSK

MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,414.000	-39.12	-13.0	26.12	18.34	H	1	2.0
2	2,121.000	-39.24	-13.0	26.24	25.54	H	359	2.0

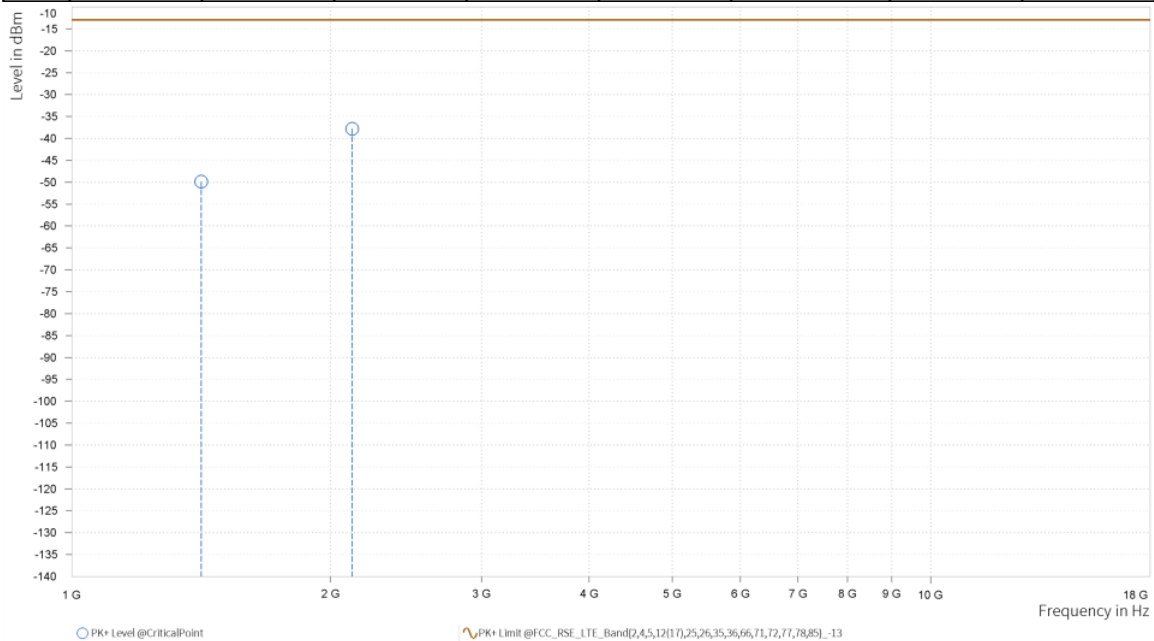




MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,414.000	-49.88	-13.0	36.88	18.24	V	359.1	1.0
2	2,121.000	-37.81	-13.0	24.81	25.18	V	0.9	2.0



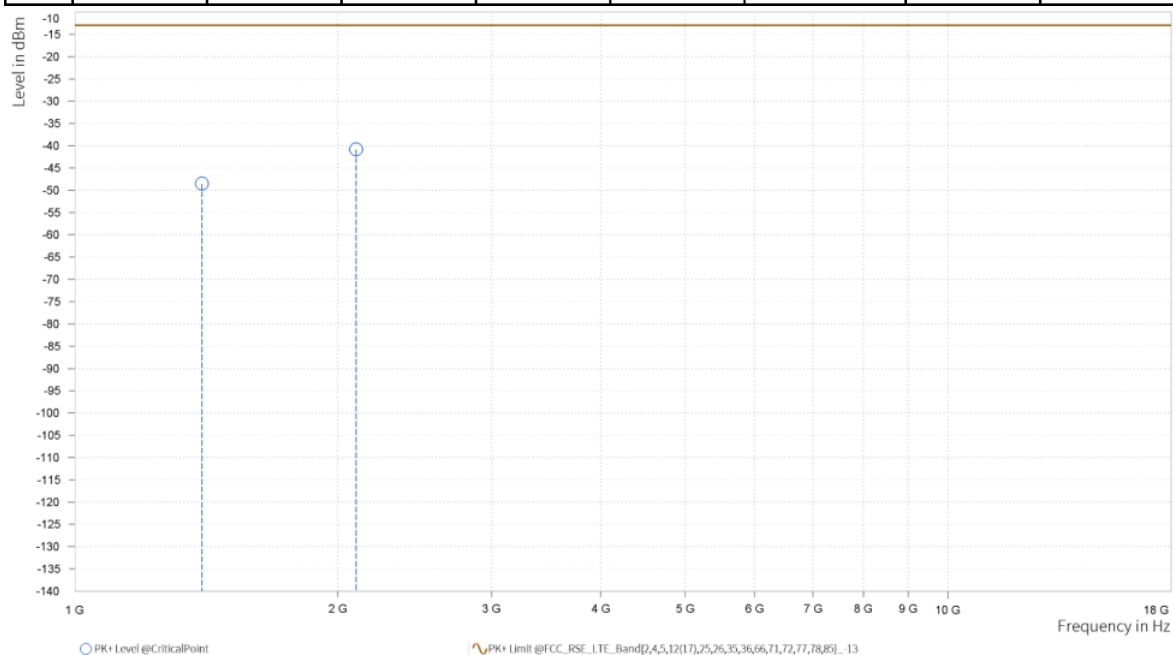


CH23025

MODE	TX channel 23025	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,398.500	-48.5	-13.0	35.5	19.69	H	359.1	1.0
2	2,098.000	-40.81	-13.0	27.81	24.7	H	359.0	2.0

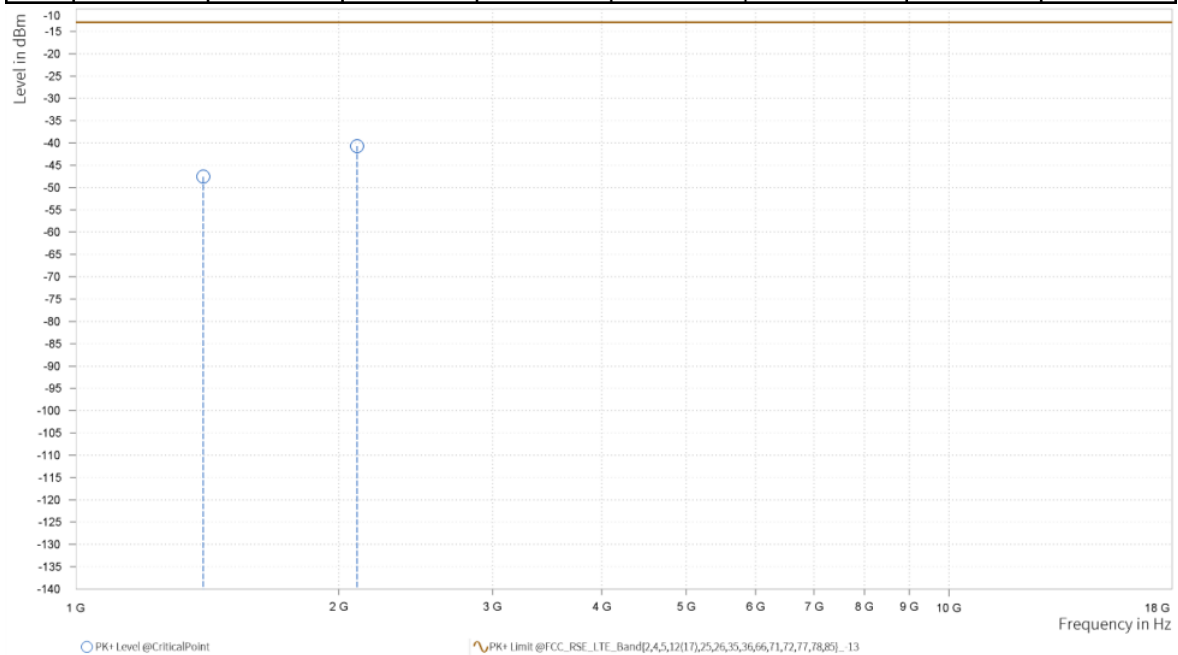




MODE	TX channel 23025	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,398.500	-47.57	-13.0	34.57	19.6	V	359.1	1.0
2	2,098.000	-40.69	-13.0	27.69	24.6	V	74.7	1.0





BUREAU
VERITAS

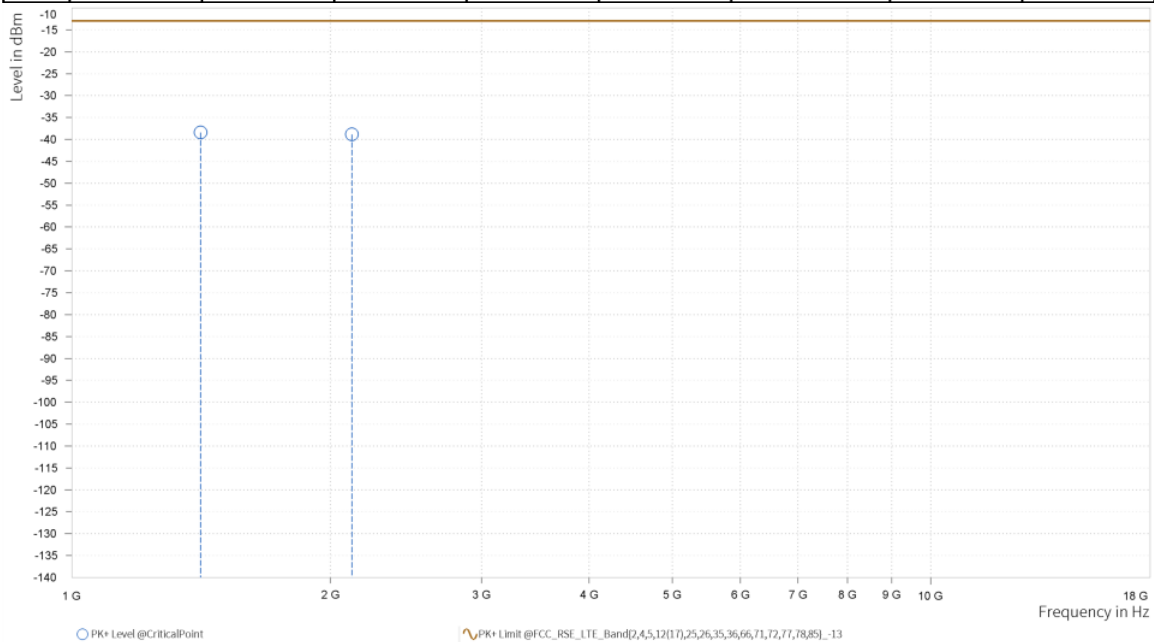
Test Report No.: PSU-NQN2407300216RF03

CH23095

MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,412.500	-38.41	-13.0	25.41	18.47	H	0.9	2.0
2	2,119.000	-38.86	-13.0	25.86	25.42	H	359.0	2.0

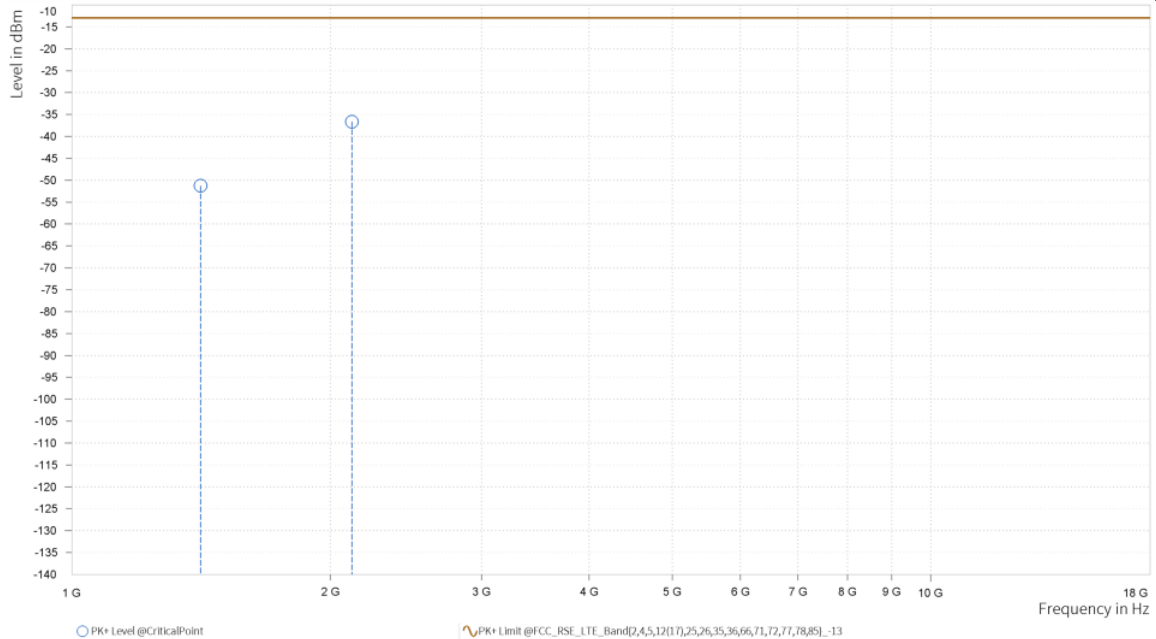




MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,412.500	-51.26	-13.0	38.26	18.42	V	290.0	2.0
2	2,119.000	-36.64	-13.0	23.64	25.08	V	71.2	1.0



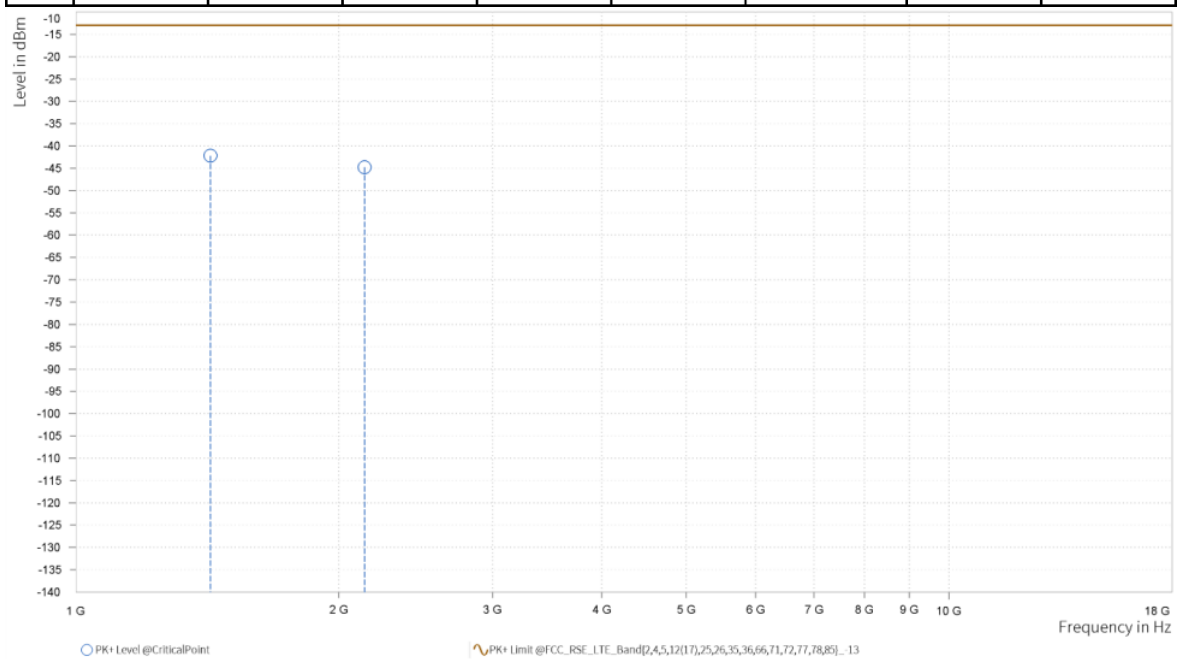


CH23165

MODE	TX channel 23165	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,426.000	-42.19	-13.0	29.19	16.54	H	359.1	1.0
2	2,139.450	-44.77	-13.0	31.77	26.76	H	77.1	1.0

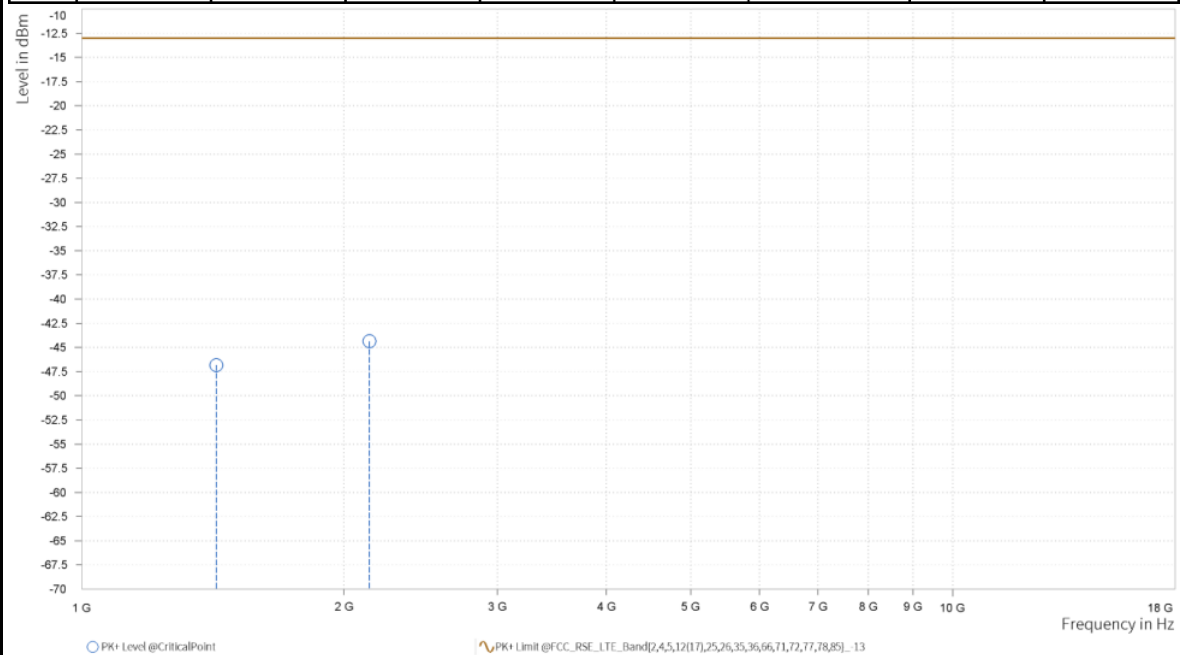




MODE	TX channel 23165	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,426.500	-46.83	-13.0	33.83	16.37	V	286.4	2.0
2	2,139.450	-44.36	-13.0	31.36	26.19	V	359.0	2.0



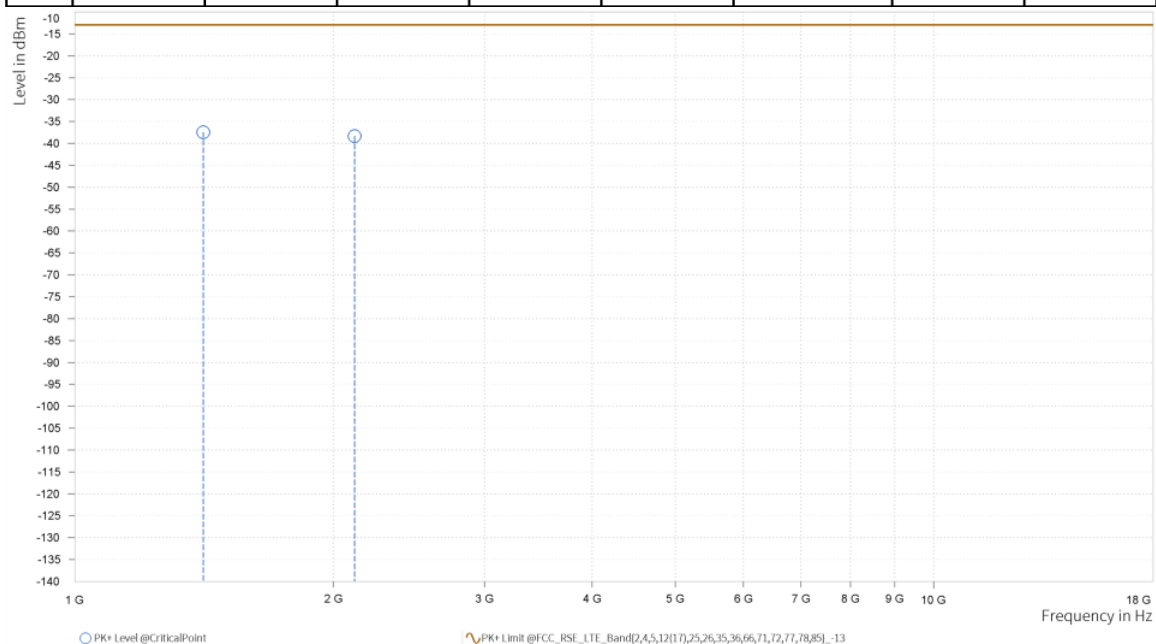


CHANNEL BANDWIDTH: 5MHz / QPSK

MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,411.000	-37.42	-13.0	24.42	18.6	H	1	1.0
2	2,116.000	-38.32	-13.0	25.32	25.17	H	359	2.0

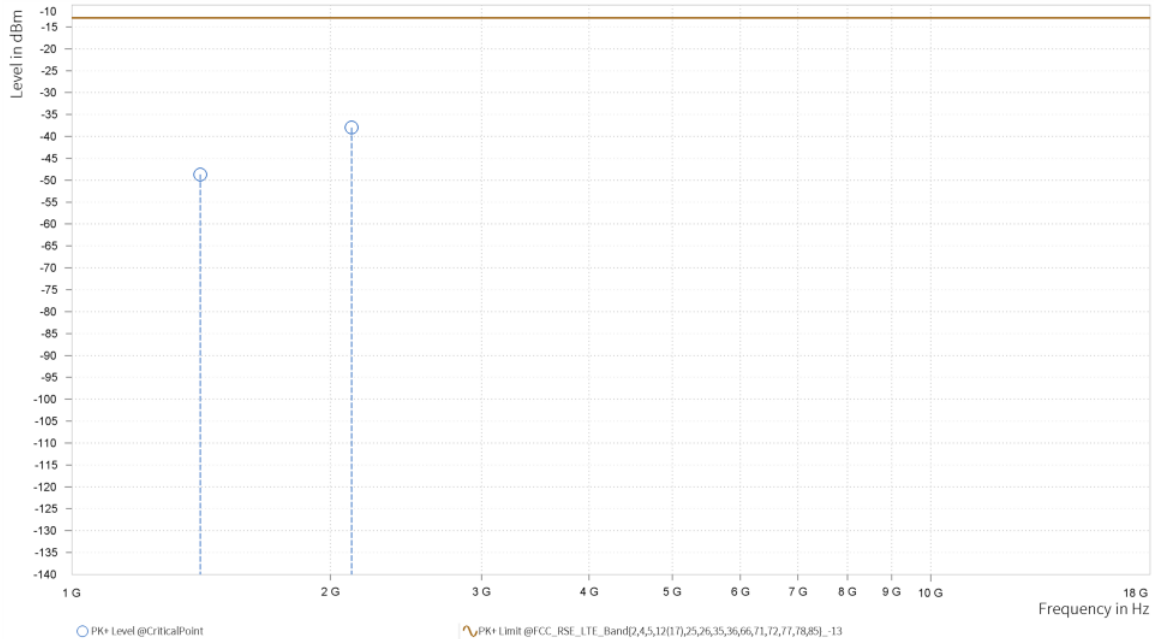




MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,410.500	-48.71	-13.0	35.71	18.56	V	0.9	2.0
2	2,116.000	-37.97	-13.0	24.97	24.9	V	0.9	2.0





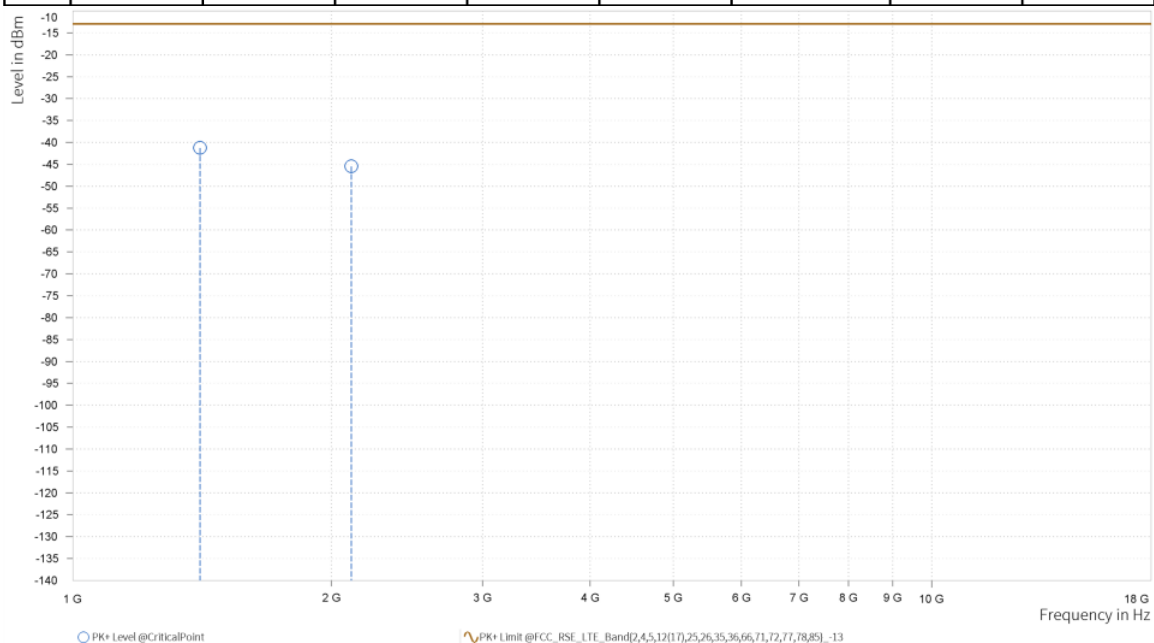
BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03

CHANNEL BANDWIDTH: 10MHz / QPSK

MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,406.000	-41.26	-13.0	28.26	18.95	H	359	1.0
2	2,109.000	-45.46	-13.0	32.46	24.67	H	359	1.0





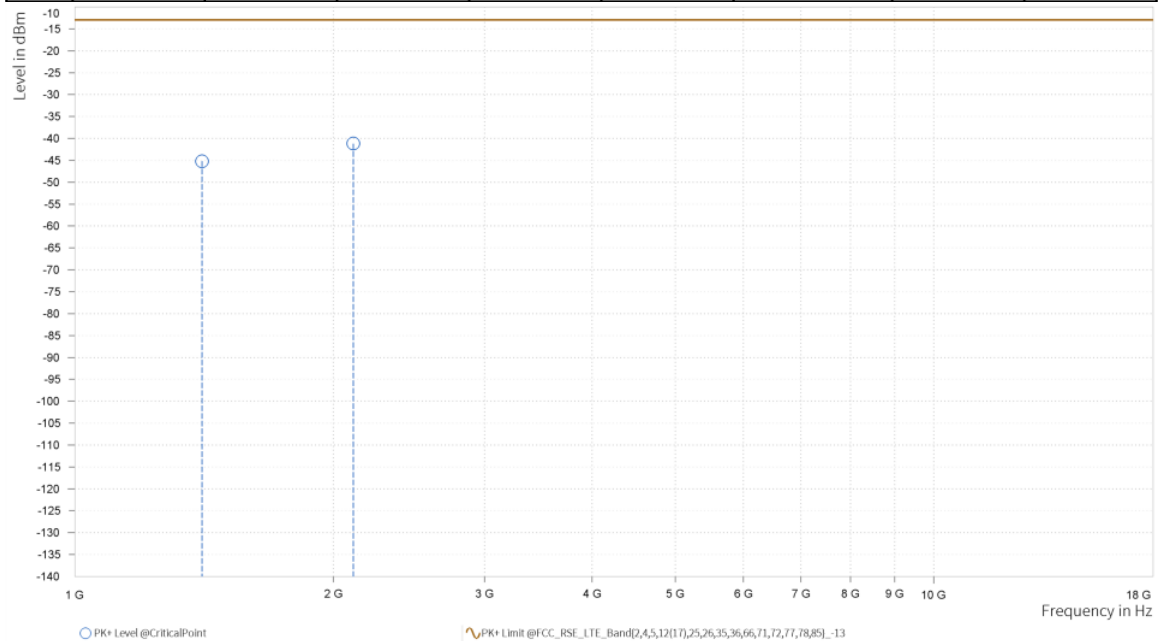
BUREAU
VERITAS

Test Report No.: PSU-NQN2407300216RF03

MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

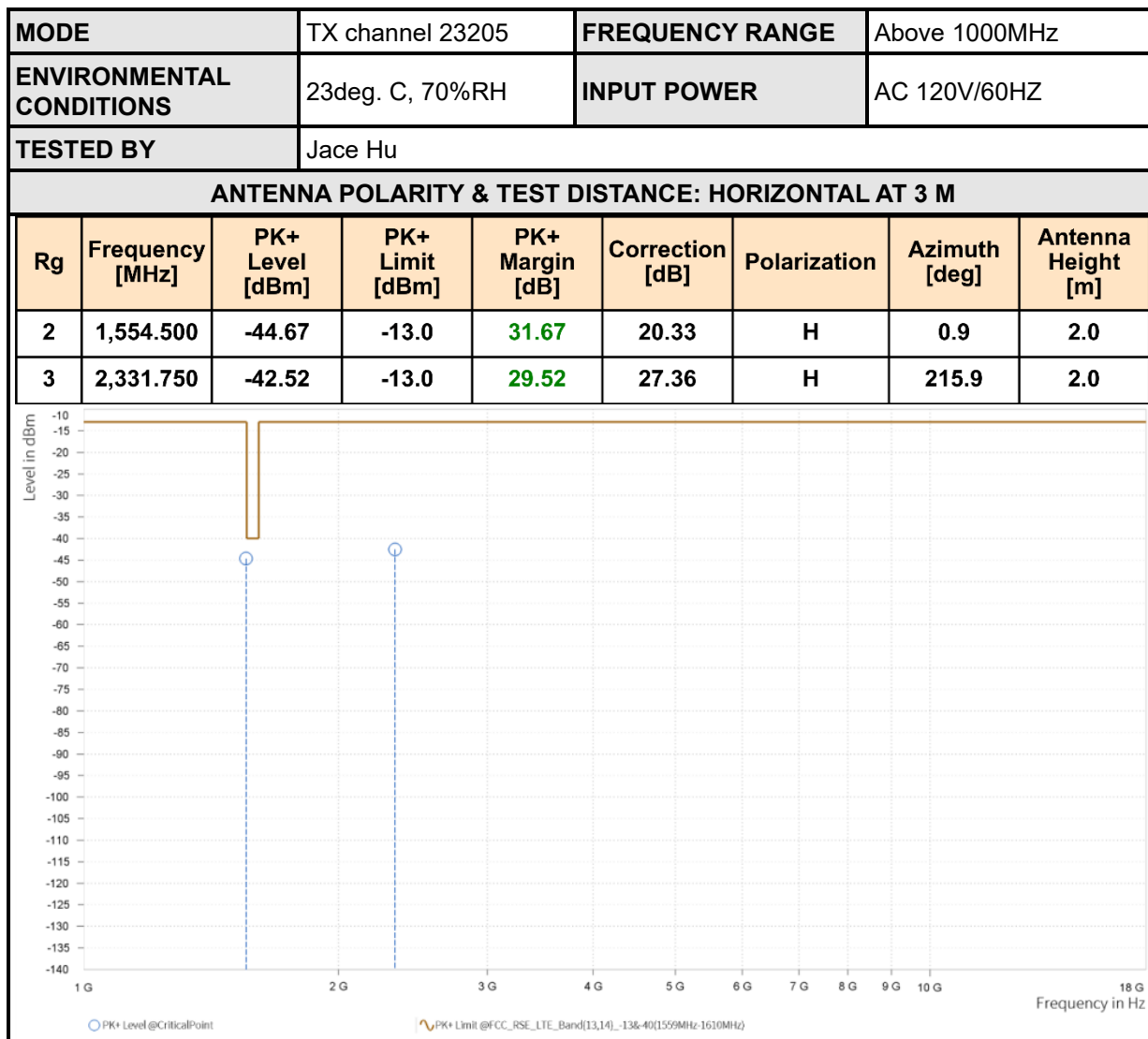
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,406.000	-45.19	-13.0	32.19	18.9	V	291.1	2.0
2	2,109.000	-41.18	-13.0	28.18	24.45	V	359.0	1.0





LTE B13

CHANNEL BANDWIDTH: 5MHz / QPSK

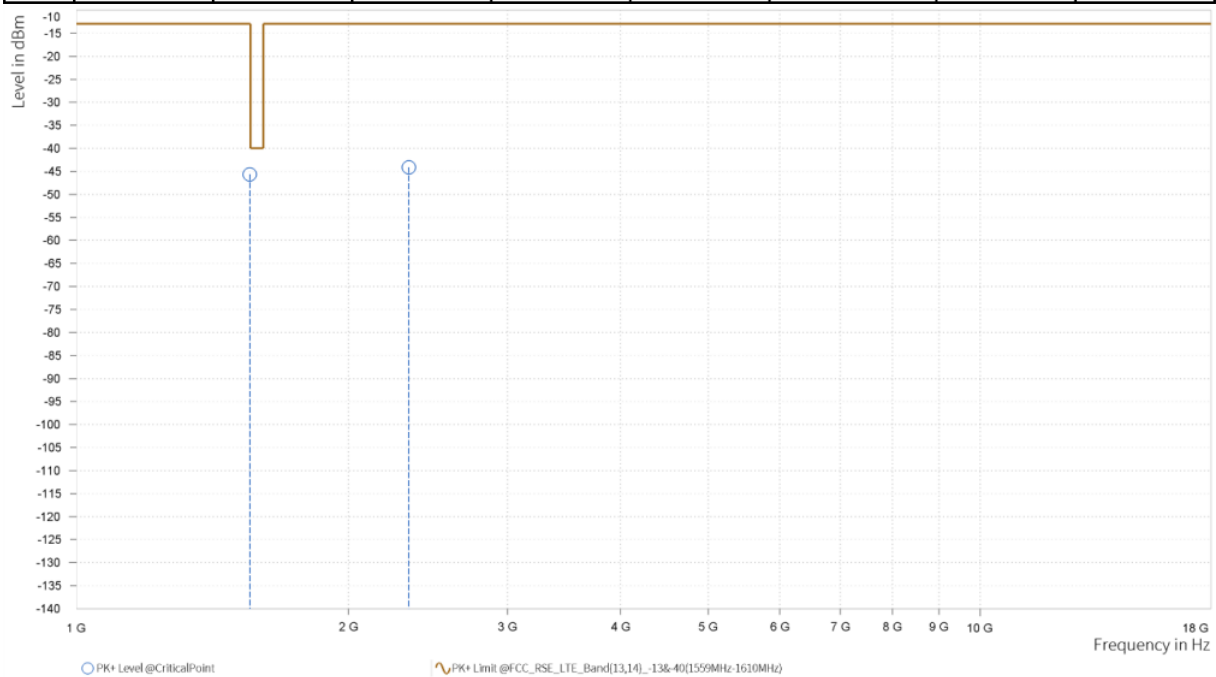




MODE	TX channel 23205	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		

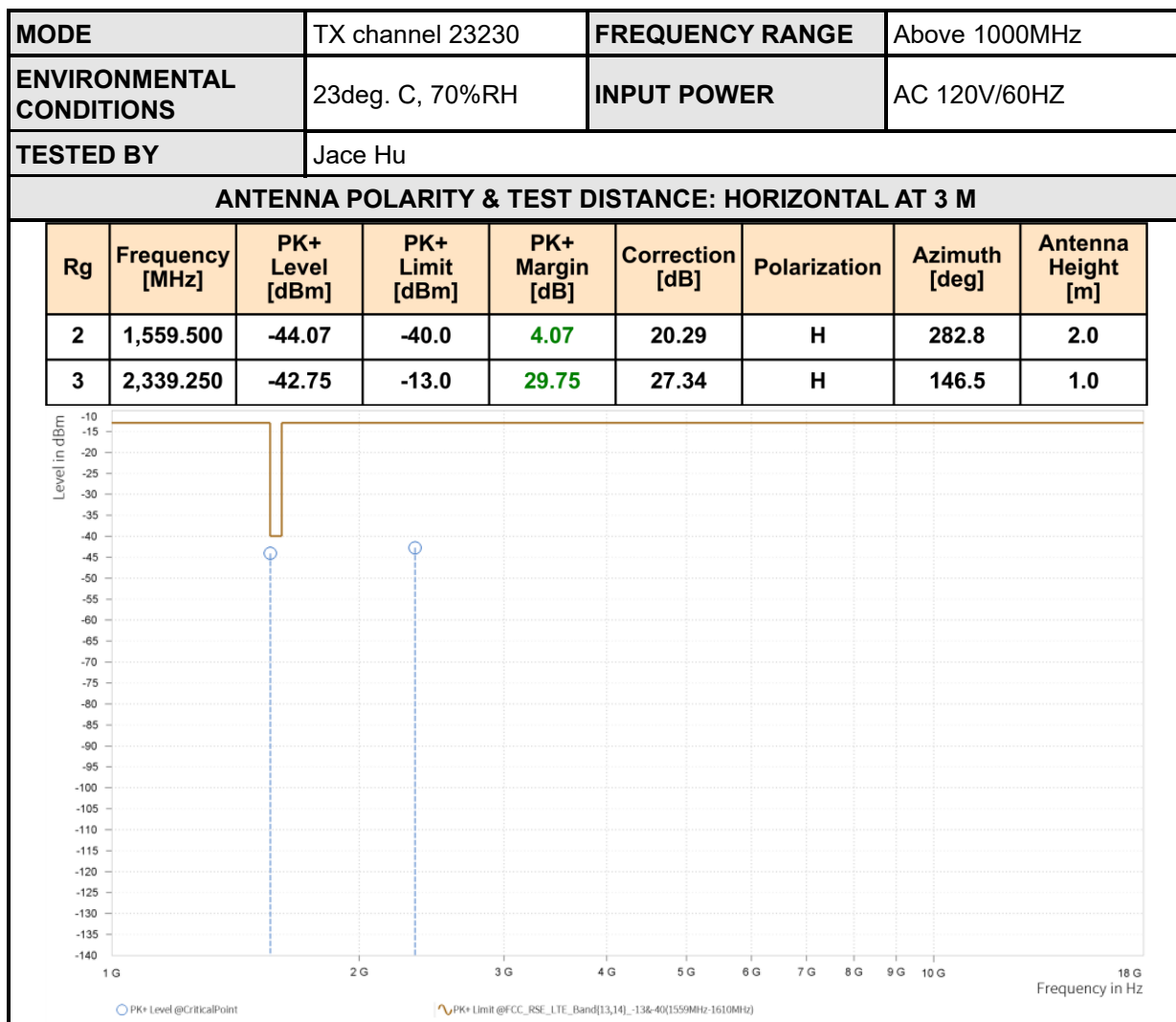
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,554.500	-45.62	-13.0	32.62	19.96	V	1.0	1.0
3	2,331.750	-44.11	-13.0	31.11	26.87	V	145.4	1.0





BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03
CHANNEL BANDWIDTH: 5MHz / QPSK

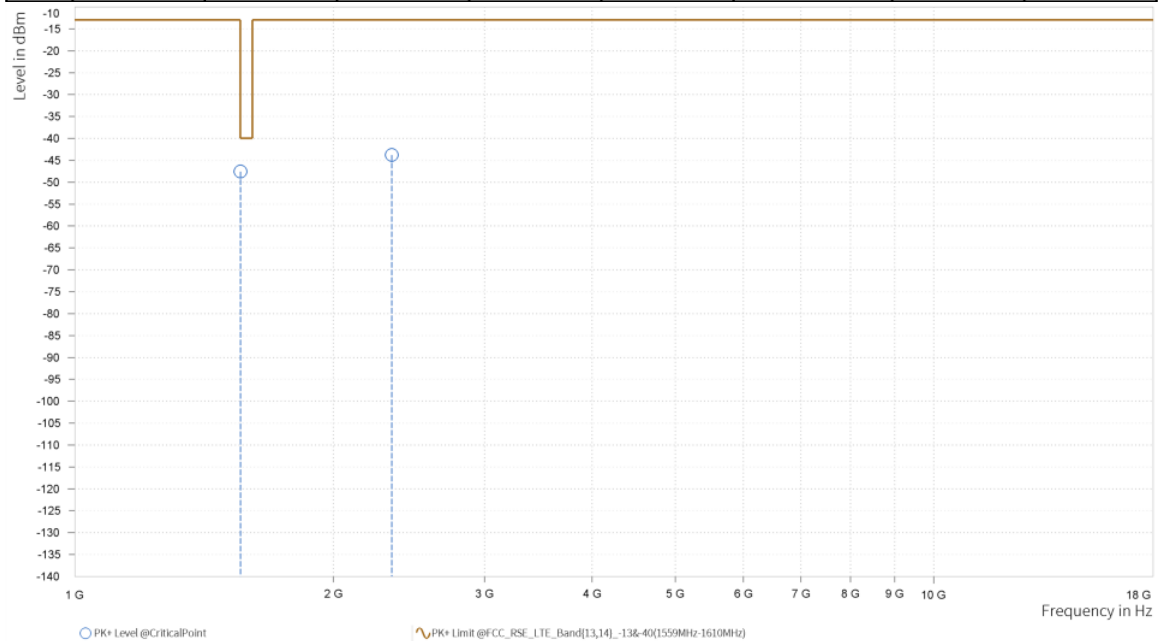




MODE	TX channel 23230	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,559.500	-47.57	-40.0	7.57	19.96	V	287.6	2.0
3	2,339.250	-43.81	-13.0	30.81	26.9	V	214.6	2.0



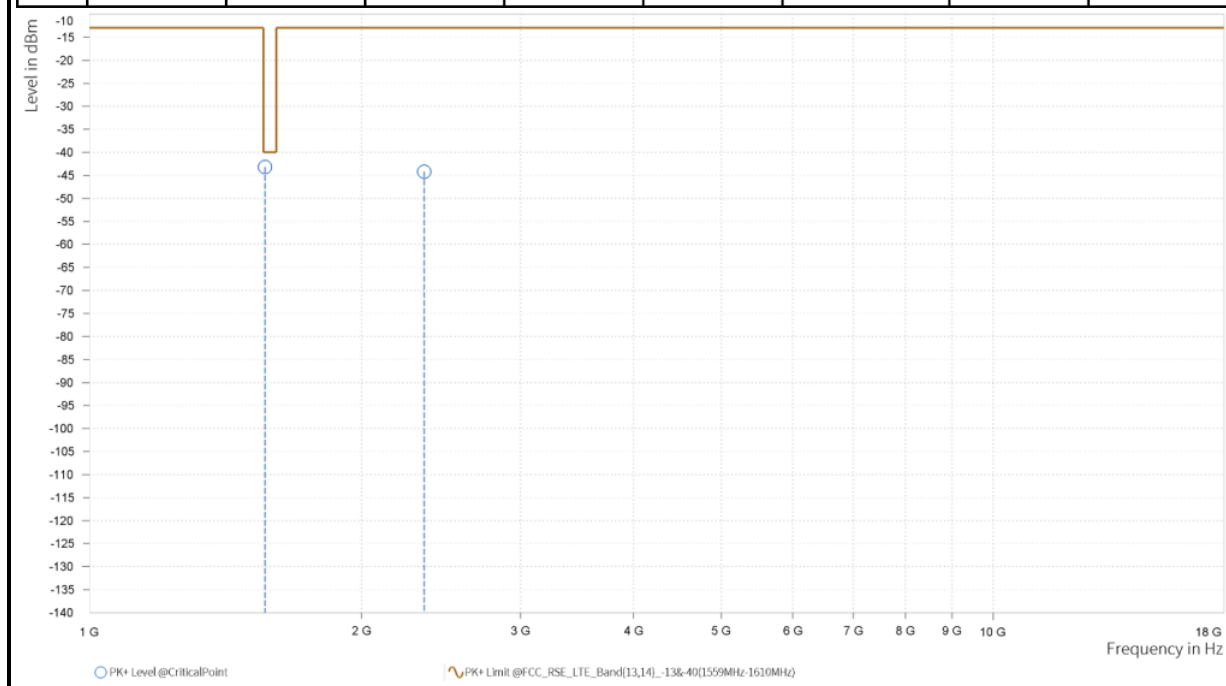


BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03
CHANNEL BANDWIDTH: 5MHz / QPSK

MODE	TX channel 23255	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,564.500	-43.16	-40.0	3.16	20.13	H	359.0	2.0
3	2,346.750	-44.2	-13.0	31.2	27.44	H	359.1	1.0

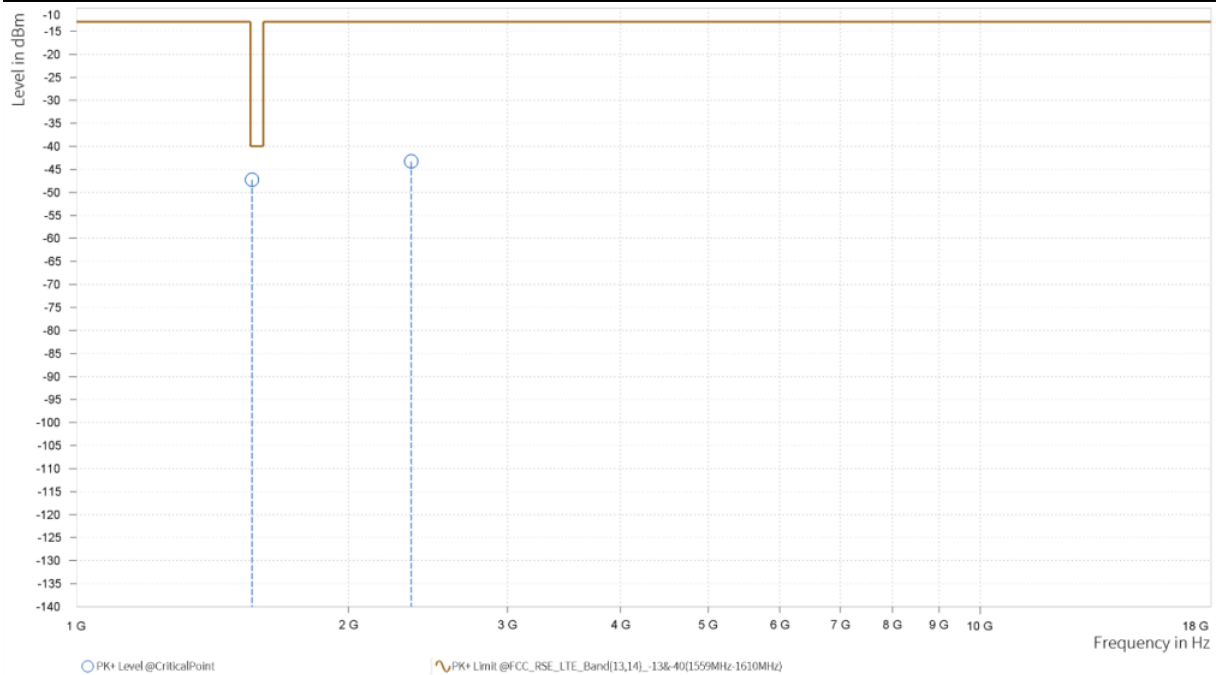




MODE	TX channel 23255	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,564.500	-47.28	-40.0	7.28	19.84	V	359.0	2.0
3	2,346.750	-43.29	-13.0	30.29	27.04	V	0.9	2.0



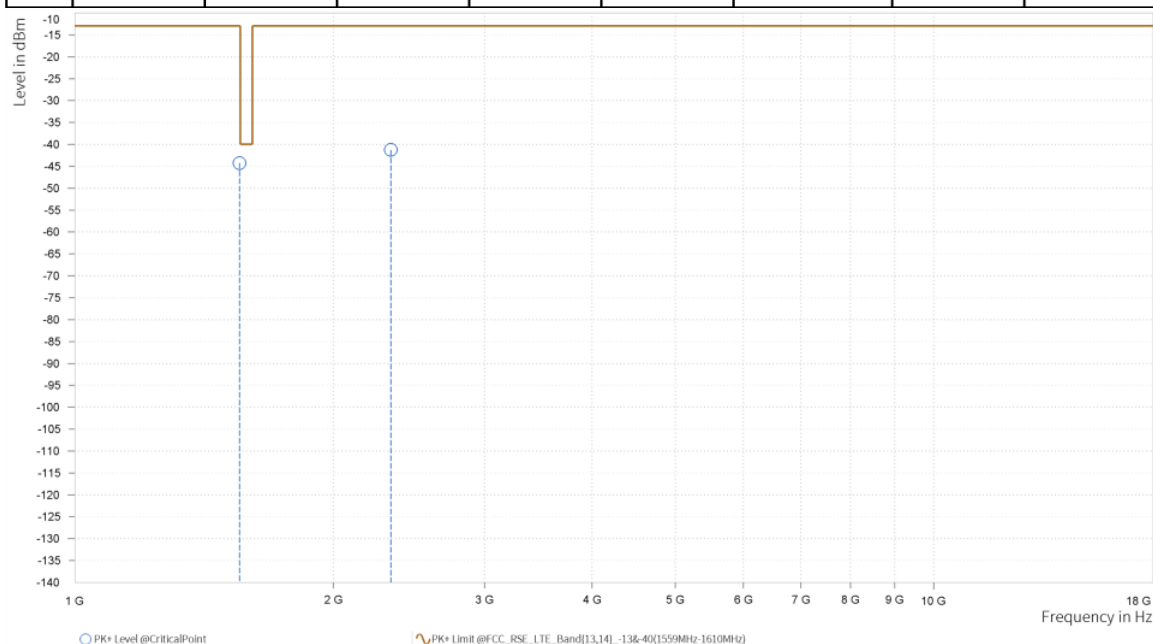


CHANNEL BANDWIDTH: 10MHz /QPSK

MODE	TX channel 23230	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,555.000	-44.27	-13.0	31.27	20.33	H	1.0	1.0
3	2,332.500	-41.25	-13.0	28.25	27.36	H	213.5	2.0

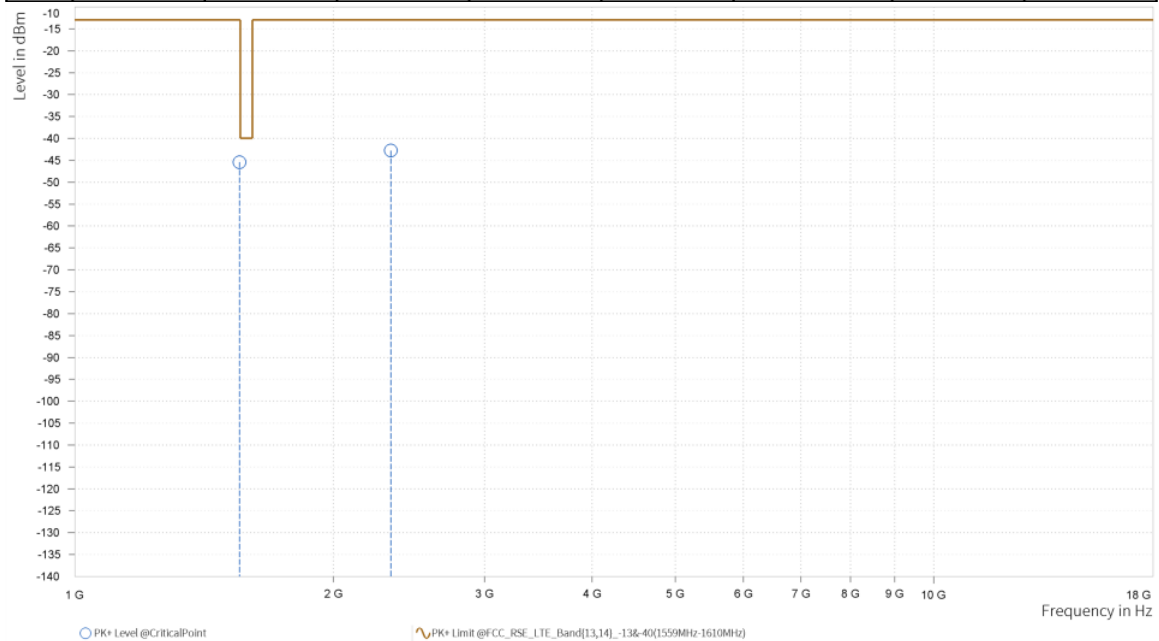




MODE	TX channel 23230	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,555.000	-45.44	-13.0	32.44	19.97	V	1.0	1.0
3	2,332.500	-42.77	-13.0	29.77	26.87	V	145.3	1.0





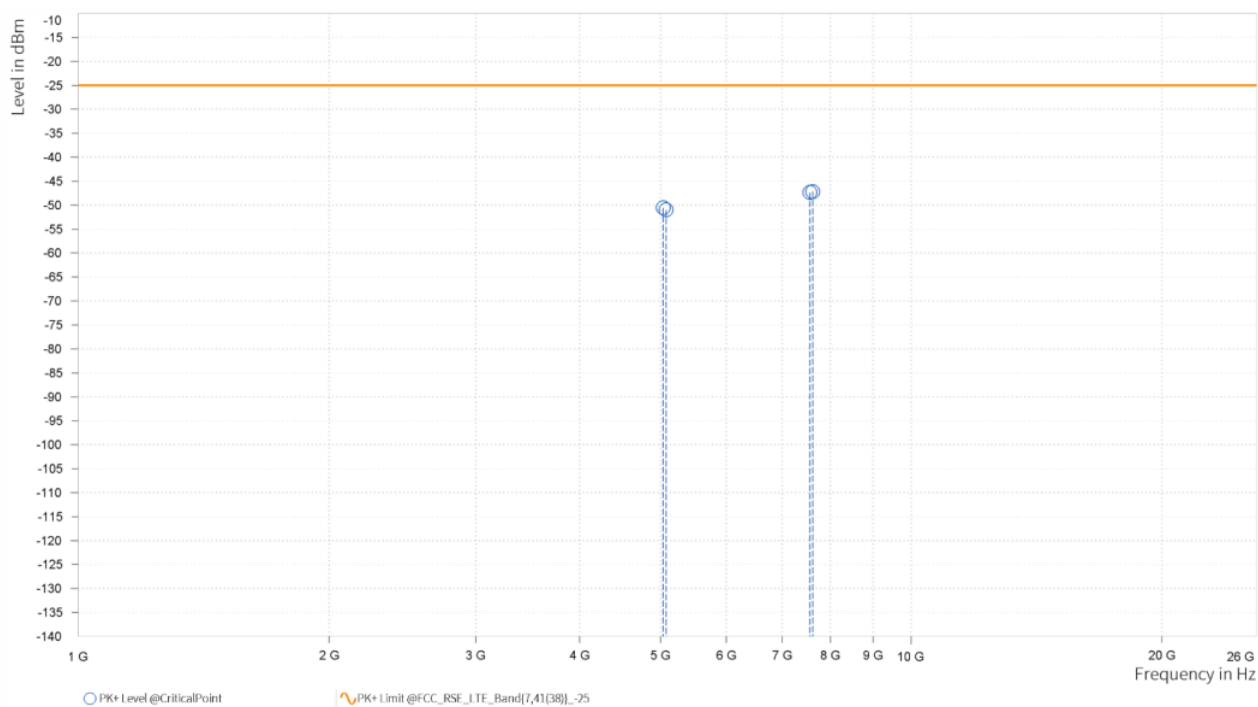
BUREAU VERITAS Test Report No.: PSU-NQN2407300216RF03

LTE Band CA_7C

CHANNEL BANDWIDTH: 10 MHz + 20MHz

MODE	TX channel PCC 21006	FREQUENCY RANGE	Above 1000MHz
	TX channel SCC 21150		
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

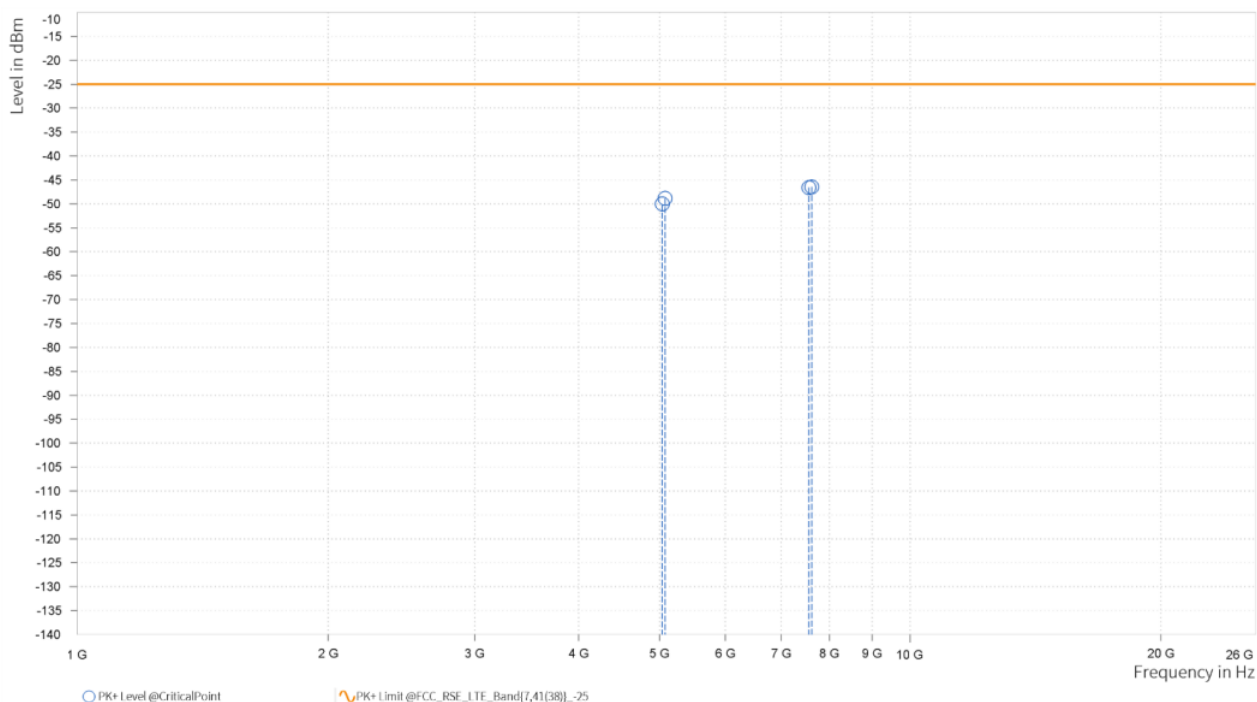
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,042.200	-50.55	-25.0	25.55	23.6	H	254.6	1.0
4	5,080.000	-50.99	-25.0	25.99	23.15	H	254.6	1.0
5	7,563.300	-47.36	-25.0	22.36	27.01	H	359.1	1.0
5	7,620.000	-47.15	-25.0	22.15	26.96	H	205.1	1.0





MODE	TX channel PCC 21006	FREQUENCY RANGE	Above 1000MHz
	TX channel SCC 21150		
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,042.200	-50.05	-25.0	25.05	23.97	V	101.8	2.0
4	5,080.000	-48.89	-25.0	23.89	23.64	V	359.0	2.0
5	7,563.300	-46.58	-25.0	21.58	26.84	V	0.9	2.0
5	7,620.000	-46.43	-25.0	21.43	26.77	V	359.1	1.0





CHANNEL BANDWIDTH: 15MHz + 10MHz

MODE	TX channel PCC 21051	FREQUENCY RANGE	Above 1000MHz
	TX channel SCC 21171		
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,046.700	-50.48	-25.0	25.48	23.62	H	196.6	1.0
4	5,075.200	-51.05	-25.0	26.05	23.22	H	196.6	1.0
5	7,570.050	-45.92	-25.0	20.92	26.98	H	94.0	2.0
5	7,612.800	-46.75	-25.0	21.75	26.95	H	205.1	1.0

