

VARIANT FCC TEST REPORT

(PART 27)

Applicant:	Honeywell International Inc Honeywell Safety and Productivity Solutions
Address:	9680 Old Bailes Road, Fort Mill, SC 29707 United States

Manufacturer or Supplier:	Honeywell International Inc Honeywell Safety and Productivity Solutions
Address:	9680 Old Bailes Road, Fort Mill, SC 29707 United States
Product:	Mobile Computer
Brand Name:	Honeywell
Model Name:	CT45P-L1N-E
FCC ID:	HD5-CT45PL1NE
Date of tests:	Oct. 14, 2021 ~ Nov. 04, 2021

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

☒ FCC Part 27, Subpart C, M ☒ ANSI/TIA/EIA-603-D
☒ FCC Part 2 ☒ ANSI/TIA/EIA-603-E ☒ ANSI C63.26-2015

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: Nov. 05, 2021	Date: Nov. 05, 2021

This report is governed by, and incorporates by reference, CPS Conditions of Service 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. 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.



Test Report No.: W7L-P21110007RF18

TABLE OF CONTENTS

RELEASE CONTROL RECORD	3
1 SUMMARY OF TEST RESULTS	4
1.1 MEASUREMENT UNCERTAINTY	5
1.2 TEST SITE AND INSTRUMENTS	6
2 GENERAL INFORMATION	7
2.1 GENERAL DESCRIPTION OF EUT	7
2.2 CONFIGURATION OF SYSTEM UNDER TEST	13
2.3 DESCRIPTION OF SUPPORT UNITS	14
2.4 TEST ITEM AND TEST CONFIGURATION	14
2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS	25
3 TEST TYPES AND RESULTS	26
3.1 RADIATED EMISSION MEASUREMENT	26
3.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT	26
3.1.2 TEST PROCEDURES	26
3.1.3 DEVIATION FROM TEST STANDARD	26
3.1.4 TEST SETUP	27
3.1.5 TEST RESULTS	28
4 INFORMATION ON THE TESTING LABORATORIES	38
5 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	39



Test Report No.: W7L-P21110007RF18

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P21080006RF18	Original release	Sep. 01, 2021
W7L-P21080009RF18	Based on the original report W7L-P21080006RF18 Changing the SIM to 1 Nano SIM and 1 E-SIM	Sep. 09, 2021
W7L-P21110007RF18	Based on the original report W7L-P21080009RF17 Changing components, added band CA_41C by Software.	Nov. 05, 2021

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
2.1046 27.50(h)(2)	Equivalent Isotropically Radiated Power	N.A
2.1055 27.54	Frequency Stability	N.A
2.1049 27.53(m)(6)	Occupied Bandwidth	N.A
2.1051 27.53(m)(4)(6)	Band Edge Measurements	N.A
2.1051 27.53(m)(4)(6)	Conducted Spurious Emissions	N.A
2.1053 27.53(m)(4)(6)	Radiated Spurious Emissions	Compliance

NOTE:

1.Per the change notice provide by manufactory, the difference is Changing components, added band CA_41C by Software., all the change no effect any RF parameter, Therefore only verify the radiated emission worse case and show the verify test data on this report. More test details please refer from the original report.

2. Pre-scan all band RSE, worst case is band 13 and Only this band is reflected in the report.

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	$\pm 76.97\text{Hz}$
Radiated emissions & Radiated Power (30MHz~1GMHz)	$\pm 4.98\text{dB}$
Radiated emissions & Radiated Power (1GMHz ~6GMHz)	$\pm 4.70\text{dB}$
Radiated emissions (6GMHz ~18GMHz)	$\pm 4.60\text{dB}$
Radiated emissions (18GMHz ~40GMHz)	$\pm 4.12\text{dB}$
Conducted emissions	$\pm 4.01\text{dB}$
Occupied Channel Bandwidth	$\pm 43.58\text{KHz}$
Conducted Output power	$\pm 2.06\text{dB}$
Band Edge Measurements	$\pm 4.70\text{dB}$

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.
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Apr. 22,21	Apr. 21,22
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	Jun. 04,20	Jun. 03,21
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	Jun. 03,21	Jun. 02,22
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Mar. 05,21	Mar. 04,22
Horn Antenna	ETS-LINDGREN	3117	00168728	Apr. 02,21	Apr. 01,22
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Aug. 26, 20	Aug. 25, 21
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K-SG/QMS-00361	15433	Aug. 25, 21	Aug. 24, 22
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 25,21	Feb. 24,22
Signal Pre-Amplifier	EMSI	EMC 9135	980249	Jun. 03,20	Jun. 02,21
Signal Pre-Amplifier	EMSI	EMC 9135	980249	Jun. 02,21	Jun. 01,22
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	Jun. 04,20	Jun. 03,21
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	Jun. 03,21	Jun. 02,22
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Apr. 22,21	Apr. 21,22
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn-CT0001143-1216	May. 19,20	May. 18,23
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	ADT	ADT_Radiated_V 7.6.15.9.2	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	1505	Jun. 04,20	Jun. 03,21
10dB Attenuator	JFW/USA	50HF-010-SMA	1505	Jun. 03,21	Jun. 02,22
Power Meter	Anritsu	ML2495A	1506002	Apr. 07,21	Apr. 06,22
Power Sensor	Anritsu	MA2411B	1339352	May. 07,21	May. 06,22
Temperature Chamber	ESPEC	SH-242	93000855	Jun. 03,20	Jun. 02,21
Temperature Chamber	ESPEC	SH-242	93000855	Jun. 02,21	Jun. 01,22
MXG Analog Microwave Signal Generator	KEYSIGHT	N5183A	MY50143024	Mar. 05,21	Mar. 04,22
Power Divider	MCLI/USA	PS2-15	24880	N/A	N/A

- NOTE:**
1. The calibration interval of the above test instruments is 12 months or 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/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 525120; The Designation No. is CN1171.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Mobile Computer	
BRAND NAME	Honeywell	
MODEL NAME	CT45P-L1N-E	
NOMINAL VOLTAGE	3.85Vdc (Lithium-ion cell, battery)	
MODULATION TECHNOLOGY	LTE	QPSK, 16QAM, 64QAM
FREQUENCY RANGE	LTE Band 4 Channel Bandwidth: 1.4MHz	1710.7MHz ~ 1754.3MHz
	LTE Band 4 Channel Bandwidth: 3MHz	1711.5MHz ~ 1753.5MHz
	LTE Band 4 Channel Bandwidth: 5MHz	1712.5MHz ~ 1752.5MHz
	LTE Band 4 Channel Bandwidth: 10MHz	1715MHz ~ 1750MHz
	LTE Band 4 Channel Bandwidth: 15MHz	1717.5MHz ~ 1747.5 MHz
	LTE Band 4 Channel Bandwidth: 20MHz	1720MHz ~ 1745MHz
	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 14 Channel Bandwidth: 5MHz	790.5MHz ~ 795.5MHz
	LTE Band 14 Channel Bandwidth: 10MHz	793MHz
	LTE Band 17 Channel Bandwidth: 5MHz	706.5MHz ~ 713.5MHz
	LTE Band 17 Channel Bandwidth: 10MHz	709MHz ~ 711 MHz

	LTE Band 30 Channel Bandwidth: 5MHz	2307.5MHz ~ 2312.5MHz
	LTE Band 30 Channel Bandwidth: 10MHz	2310MHz
	LTE Band 66 Channel Bandwidth: 1.4MHz	1710.7MHz ~ 1779.3MHz
	LTE Band 66 Channel Bandwidth: 3MHz	1711.5MHz ~ 1778.5MHz
	LTE Band 66 Channel Bandwidth: 5MHz	1712.5MHz ~ 1777.5MHz
	LTE Band 66 Channel Bandwidth: 10MHz	1715MHz ~ 1775MHz
	LTE Band 66 Channel Bandwidth: 15MHz	1717.5MHz ~ 1772.5MHz
	LTE Band 66 Channel Bandwidth: 20MHz	1720MHz ~ 1770MHz
	LTE Band 71 Channel Bandwidth: 5MHz	665.5MHz ~ 695.5MHz
	LTE Band 71 Channel Bandwidth: 10MHz	668MHz ~ 693MHz
	LTE Band 71 Channel Bandwidth: 15MHz	670.5MHz ~ 690.5MHz
	LTE Band 71 Channel Bandwidth: 20MHz	673MHz ~ 688MHz
EMISSION DESIGNATOR	LTE Band 4 Channel Bandwidth: 1.4MHz	QPSK: 1M10G7D
		16QAM: 1M10W7D
		64QAM: 1M10W7D
	LTE Band 4 Channel Bandwidth: 3MHz	QPSK: 2M71G7D
		16QAM: 2M69W7D
		64QAM: 2M69W7D
	LTE Band 4 Channel Bandwidth: 5MHz	QPSK: 4M49G7D
		16QAM: 4M48W7D
		64QAM: 4M49W7D
	LTE Band 4 Channel Bandwidth: 10MHz	QPSK: 9M00G7D
		16QAM: 8M99W7D
		64QAM: 8M98W7D
	LTE Band 4 Channel Bandwidth: 15MHz	QPSK: 13M4G7D
		16QAM: 13M4W7D
		64QAM: 13M4W7D
	LTE Band 4 Channel Bandwidth: 20MHz	QPSK: 17M9G7D
		16QAM: 17M9W7D
		64QAM: 17M9W7D
	LTE Band 12 Channel Bandwidth: 1.4MHz	QPSK: 1M09G7D
		16QAM: 1M09W7D
		64QAM: 1M09W7D

EMISSION DESIGNATOR	LTE Band 12 Channel Bandwidth: 3MHz	QPSK: 2M69G7D 16QAM: 2M69W7D 64QAM: 2M69W7D
	LTE Band 12 Channel Bandwidth: 5MHz	QPSK: 4M48G7D 16QAM: 4M49W7D 64QAM: 4M48W7D
	LTE Band 12 Channel Bandwidth: 10MHz	QPSK: 9M03G7D 16QAM: 9M01W7D 64QAM: 9M03W7D
	LTE Band 13 Channel Bandwidth: 5MHz	QPSK: 4M49G7D 16QAM: 4M48W7D 64QAM: 4M48W7D
	LTE Band 13 Channel Bandwidth: 10MHz	QPSK: 8M93G7D 16QAM: 8M93W7D 64QAM: 8M94W7D
	LTE Band 14 Channel Bandwidth: 5MHz	QPSK: 4M48G7D 16QAM: 4M48W7D 64QAM: 4M47W7D
	LTE Band 14 Channel Bandwidth: 10MHz	QPSK: 8M94G7D 16QAM: 8M93W7D 64QAM: 8M92W7D
	LTE Band 17 Channel Bandwidth: 5MHz	QPSK: 4M48G7D 16QAM: 4M48W7D 64QAM: 4M48W7D
	LTE Band 17 Channel Bandwidth: 10MHz	QPSK: 8M87G7D 16QAM: 8M85W7D 64QAM: 8M87W7D
	LTE Band 30 Channel Bandwidth: 5MHz	QPSK: 4M49G7D 16QAM: 4M47W7D 64QAM: 4M48W7D
	LTE Band 30 Channel Bandwidth: 10MHz	QPSK: 8M96G7D 16QAM: 8M94W7D 64QAM: 8M95W7D
	LTE Band 66 Channel Bandwidth: 1.4MHz	QPSK: 1M11G7D 16QAM: 1M11W7D 64QAM: 1M69W7D
	LTE Band 66 Channel Bandwidth: 3MHz	QPSK: 2M70G7D 16QAM: 2M69W7D 64QAM: 2M69W7D
	LTE Band 66 Channel Bandwidth: 5MHz	QPSK: 4M50G7D 16QAM: 4M49W7D 64QAM: 4M49W7D

	LTE Band 66 Channel Bandwidth: 10MHz	QPSK: 8M98G7D
		16QAM: 8M97W7D
		64QAM: 8M97W7D
	LTE Band 66 Channel Bandwidth: 15MHz	QPSK: 13M5G7D
		16QAM: 13M5W7D
		64QAM: 13M4W7D
	LTE Band 66 Channel Bandwidth: 20MHz	QPSK: 18M0G7D
		16QAM: 18M0W7D
		64QAM: 18M0W7D
	LTE Band 71 Channel Bandwidth: 5MHz	QPSK: 4M47G7D
		16QAM: 4M47W7D
		64QAM: 4M48W7D
	LTE Band 71 Channel Bandwidth: 10MHz	QPSK: 8M93G7D
		16QAM: 8M95W7D
		64QAM: 8M94W7D
MAX. EIRP POWER	LTE Band 71 Channel Bandwidth: 15MHz	QPSK: 13M5G7D
		16QAM: 13M5W7D
		64QAM: 13M5W7D
	CLTE Band 71 Channel Bandwidth: 20MHz	QPSK: 18M0G7D
		16QAM: 17M9W7D
		64QAM: 18M0W7D
	LTE Band 4 Channel Bandwidth: 1.4MHz	379.31mW
	LTE Band 4 Channel Bandwidth: 3MHz	210.38mW
	LTE Band 4 Channel Bandwidth: 5MHz	210.86mW
	LTE Band 4 Channel Bandwidth: 10MHz	209.41mW
	LTE Band 4 Channel Bandwidth: 15MHz	212.81mW
	LTE Band 4 Channel Bandwidth: 20MHz	213.30mW
	LTE Band 12 Channel Bandwidth: 1.4MHz	169.04mW
	LTE Band 12 Channel Bandwidth: 3MHz	162.93mW
	LTE Band 12 Channel Bandwidth: 5MHz	163.31mW
	LTE Band 12 Channel Bandwidth: 10MHz	165.20mW
	LTE Band 13 Channel Bandwidth: 5MHz	167.11mW
	LTE Band 13 Channel Bandwidth: 10MHz	168.66mW

	LTE Band 14 Channel Bandwidth: 5MHz	175.79mW
	LTE Band 14 Channel Bandwidth: 10MHz	177.83mW
	LTE Band 17 Channel Bandwidth: 5MHz	159.59mW
	LTE Band 17 Channel Bandwidth: 10MHz	161.44mW
	LTE Band 30 Channel Bandwidth: 5MHz	238.23mW
	LTE Band 30 Channel Bandwidth: 10MHz	240.99mW
	LTE Band 66 Channel Bandwidth: 1.4MHz	230.14mW
	LTE Band 66 Channel Bandwidth: 3MHz	230.67mW
	LTE Band 66 Channel Bandwidth: 5MHz	230.14mW
	LTE Band 66 Channel Bandwidth: 10MHz	230.67mW
	LTE Band 66 Channel Bandwidth: 15MHz	231.74mW
	LTE Band 66 Channel Bandwidth: 20MHz	233.35mW
	LTE Band 71 Channel Bandwidth: 5MHz	112.98mW
	LTE Band 71 Channel Bandwidth: 10MHz	112.98mW
	LTE Band 71 Channel Bandwidth: 15MHz	113.76mW
	LTE Band 71 Channel Bandwidth: 20MHz	114.55mW
ANTENNA TYPE	Fixed Internal Antenna with 2.55dBi gain for LTE B4 Fixed Internal Antenna with 1.11dBi gain for LTE B12/B17 Fixed Internal Antenna with 0.86dBi gain for LTE B13 Fixed Internal Antenna with 1dBi gain for LTE B14/B71 Fixed Internal Antenna with -0.56dBi gain for LTE B19 Fixed Internal Antenna with 1.17dBi gain for LTE B30 Fixed Internal Antenna with 2.91dBi gain for LTE B66	
HW VERSION	V1.0	
SW VERSION	OS.11.002-HON.11.002	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	USB cable: unshielded without ferrite, 1.25 meter Earphone cable: unshielded without ferrite, 1.27 meter	
EXTREME TEMPERATURE	-10-55 °C	
EXTREME VOLTAGE	3.4V- 4.4V	

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. This product includes the following four SKU which hardware is exactly same, the difference is described as following, Sample 1 was full test, sample 2 verify the worst case, check worst case Radiated emission:

SAMPLE	EUT CONFIGURATION INFORMATION
1	SKU ID:CT45-L1N-37D1E0G ,Assembled Scanner Imager: 7-S0703
2	SKU ID:CT45-L1N-38D1E0G ,Assembled Scanner Imager: 8 – N6803/S0803
3	SKU ID: CT45-L1N-38D1E0T , Assembled Scanner Imager: 8 – N6803/S0803 for Turkey Only
4	SKU ID: CT45-L1N-37D1E0T , Assembled with Scanner: 7-S0703 for Turkey Only

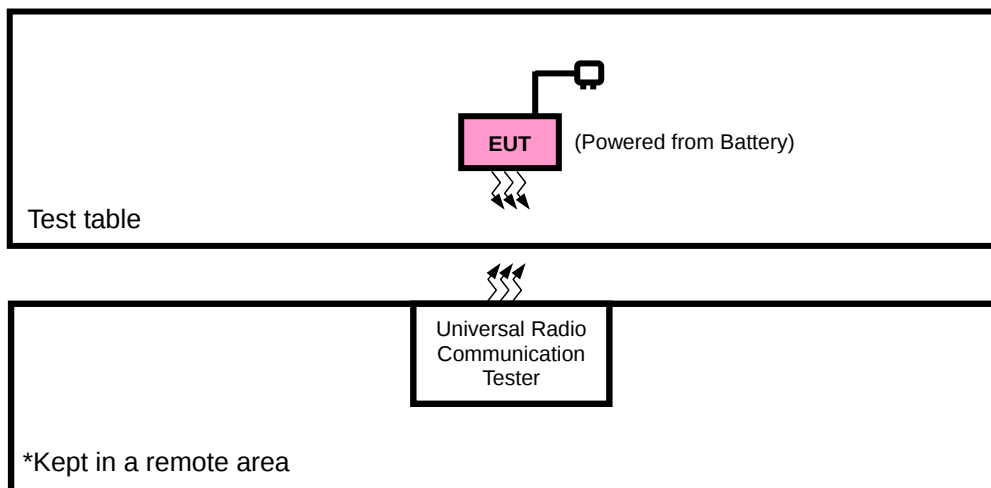
3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

List of Accessory:

ACCESSORIES	BRAND	MODEL	SPECIFICATION
Battery	Honeywell	CT50-BTSC	Capacity : 3.85vdc 4020mAh
AC Adapter	HONOR	ADS-12B-06 05010E	I/P:100-240Vac, 0.3A O/P: 5Vdc, 2A
USB Cable	Honeywell	CT40-SN	Shielded, 1.25meter
Earphone	VIVO	N/A	Shielded, 1.27meter
LCD Panel	CASIL	CTM10801920T01	5.0" FHD(1928*1080)

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	DC source	LONG WEI	PS-6403D	010934269	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC 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 + DC Source with GSM or WCDMA or LTE link

LTE BAND 4

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
B	EIRP	19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		19965 to 20385	19965, 20175, 20385	3MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	19957 to 20393	19957, 20393	1.4MHz	QPSK	1 RB / 0 RB Offset
		19965 to 20385	19965, 20385	3MHz	QPSK	1 RB / 0 RB Offset
		19975 to 20375	19975, 20375	5MHz	QPSK	1 RB / 0 RB Offset
		20000 to 20350	20000, 20350	10MHz	QPSK	1 RB / 0 RB Offset
		20025 to 20325	20025, 20325	15MHz	QPSK	1 RB / 0 RB Offset
		20050 to 20300	20050, 20300	20MHz	QPSK	1 RB / 0 RB Offset
B	OCCUPIED BANDWIDTH	19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK, 16QAM, 64QAM	6 RB / 0 RB Offset
		19965 to 20385	19965, 20175, 20385	3MHz	QPSK, 16QAM, 64QAM	15 RB / 0 RB Offset
		19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
		20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM, 64QAM	75 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM, 64QAM	100 RB / 0 RB Offset
B	PEAK TO AVERAGE RATIO	19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		19965 to 20385	19965, 20175, 20385	3MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		19975 to 20375	19975, 20175, 20375	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20025 to 20325	20025, 20175, 20325	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
B	BAND EDGE	19957 to 20393	19957	1.4MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
		19957 to 20393	20393	1.4MHz	QPSK, 16QAM, 64QAM	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		19965 to 20385	19965	3MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
						15 RB / 0 RB Offset
		19965 to 20385	20385	3MHz	QPSK, 16QAM, 64QAM	1 RB / 14 RB Offset
						15 RB / 0 RB Offset
		19975 to 20375	19975	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
		19975 to 20375	20375	5MHz	QPSK, 16QAM, 64QAM	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		20000 to 20350	20000	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
		20000 to 20350	20350	10MHz	QPSK, 16QAM, 64QAM	1 RB / 49 RB Offset
						50 RB / 0 RB Offset

B	BAND EDGE	20025 to 20325	20025	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
						75 RB / 0 RB Offset
		20050 to 20300	20325	15MHz	QPSK, 16QAM, 64QAM	1 RB / 74 RB Offset
						75 RB / 0 RB Offset
			20050	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
						100 RB / 0 RB Offset
B	CONDCUDED EMISSION	20050 to 20300	20300	20MHz	QPSK, 16QAM, 64QAM	1 RB / 99 RB Offset
						100 RB / 0 RB Offset
		19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK	1 RB / 0 RB Offset
		19965 to 20385	19965, 20175, 20385	3MHz	QPSK	1 RB / 0 RB Offset
		19975 to 20375	19975, 20175, 20375	5MHz	QPSK	1 RB / 0 RB Offset
		20000 to 20350	20000, 20175, 20350	10MHz	QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	20025 to 20325	20025, 20175, 20325	15MHz	QPSK	1 RB / 0 RB Offset
		20050 to 20300	20050, 20175, 20300	20MHz	QPSK	1 RB / 0 RB Offset
		19957 to 20393	19957, 20175, 20393	1.4MHz	QPSK	1 RB / 0 RB Offset
		19965 to 20385	20175	3MHz	QPSK	1 RB / 0 RB Offset
		19975 to 20375	20175	5MHz	QPSK	1 RB / 0 RB Offset
		20000 to 20350	20175	10MHz	QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	20025 to 20325	20175	15MHz	QPSK	1 RB / 0 RB Offset
		20050 to 20300	20175	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

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

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
B	ERP	23205 to 23255	20025, 20175, 20325	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		23230	23230	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	23205 to 23255	20025, 20325	1.4MHz	QPSK	1 RB / 0 RB Offset
		23230	23230	10MHz	QPSK	1 RB / 0 RB Offset
B	OCCUPIED BANDWIDTH	23205 to 23255	20025, 20175, 20325	5MHz	QPSK,16QAM,64QAM	25 RB / 0 RB Offset
		23230	23230	10MHz	QPSK,16QAM,64QAM	50 RB / 0 RB Offset
B	BAND EDGE	23205 to 23255	23250	5MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
		23230	23255	5MHz	QPSK,16QAM, 64QAM	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
			23230	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
B	CONDCUDED EMISSION	23205 to 23255	20025, 20175, 20325	5MHz	QPSK	1 RB / 0 RB Offset
		23230	23230	10MHz	QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	23205 to 23255	20025, 20175, 20325	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 14

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
B	ERP	23305 to 23355	23305, 23330, 23355	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		23330	23330	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	23305 to 23355	23305, 23355	5MHz	QPSK	1 RB / 0 RB Offset
		23330	23330	10MHz	QPSK	1 RB / 0 RB Offset
B	OCCUPIED BANDWIDTH	23305 to 23355	23305, 23330, 23355	5MHz	QPSK,16QAM,64QAM	25 RB / 0 RB Offset
		23330	23330	10MHz	QPSK,16QAM,64QAM	50 RB / 0 RB Offset
B	BAND EDGE	23305 to 23355	23305	5MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
		23305 to 23355	23355	5MHz	QPSK,16QAM, 64QAM	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		23300	23330	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
			/	10MHz	QPSK,16QAM, 64QAM	50 RB / 0 RB Offset
B	CONDCUETED EMISSION	23305 to 23355	23305, 23330, 23355	5MHz	QPSK	1 RB / 0 RB Offset
		23330	23330	10MHz	QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	23305 to 23355	23305, 23330, 23355	5MHz	QPSK	1 RB / 0 RB Offset
		23330	23330	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 17

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
B	ERP	23755 to 23825	23755, 23790, 23825	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		23780 to 23800	23780, 23790, 23800	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	23755 to 23825	23755, 23825	5MHz	QPSK	1 RB / 0 RB Offset
		23780 to 23800	23780, 23800	10MHz	QPSK	1 RB / 0 RB Offset
B	OCCUPIED BANDWIDTH	23755 to 23825	23755, 23790, 23825	5MHz	QPSK,16QAM,64QAM	25 RB / 0 RB Offset
		23780 to 23800	23780, 23790, 23800	10MHz	QPSK,16QAM,64QAM	50 RB / 0 RB Offset
B	BAND EDGE	23755 to 23825	23755	5MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
		23755 to 23825	23825	5MHz	QPSK,16QAM, 64QAM	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		23780 to 23800	23780	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
			23800	10MHz	QPSK,16QAM, 64QAM	50 RB / 0 RB Offset
B	CONDCUETED EMISSION	23755 to 23825	23755, 23790, 23825	5MHz	QPSK	1 RB / 0 RB Offset
		23780 to 23800	23780, 23790, 23800	10MHz	QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	23755 to 23825	23790	5MHz	QPSK	1 RB / 0 RB Offset
		23780 to 23800	23780, 23790, 23800	10MHz	QPSK	1 RB / 0 RB Offset



**BUREAU
VERITAS**

Test Report No.: W7L-P21110007RF18

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

LTE BAND 30

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
B	ERP	27685 to 27735	27685, 27710, 27735	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		27710	27710	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	27685 to 27735	27685, 27735	5MHz	QPSK	1 RB / 0 RB Offset
		27710	27710	10MHz	QPSK	1 RB / 0 RB Offset
B	OCCUPIED BANDWIDTH	27685 to 27735	27685, 27710, 27735	5MHz	QPSK,16QAM,64QAM	25 RB / 0 RB Offset
		27710	27710	10MHz	QPSK,16QAM,64QAM	50 RB / 0 RB Offset
B	BAND EDGE	27685 to 27735	27685	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
		27735	27735	5MHz	QPSK,16QAM,64QAM	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		27710	27710	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
B	CONDCUDED EMISSION	27685 to 27735	27685, 27710, 27735	5MHz	QPSK	1 RB / 0 RB Offset
		27710	27710	10MHz	QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	27685 to 27735	27685, 27710, 27735	5MHz	QPSK	1 RB / 0 RB Offset
		27710	27710	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 66

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
B	EIRP	131979 to 132665	131979,132322,132665	1.4MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		131987 to 132657	131987,132322,132657	3MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		131997 to 132647	131997,132322,132647	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		132022 to 132622	132022,132322,132622	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		132047 to 132597	132047,132322,132597	15MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		132072 to 132572	132072,132322,132572	20MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	131979 to 132665	131979,132665	1.4MHz	QPSK	1 RB / 0 RB Offset
		131987 to 132657	131987,132657	3MHz	QPSK	1 RB / 0 RB Offset
		131997 to 132647	131997,132647	5MHz	QPSK	1 RB / 0 RB Offset
		132022 to 132622	132022,132622	10MHz	QPSK	1 RB / 0 RB Offset
		132047 to 132597	132047,132597	15MHz	QPSK	1 RB / 0 RB Offset
		132072 to 132572	132072,132572	20MHz	QPSK	1 RB / 0 RB Offset
B	OCCUPIED BANDWIDTH	131979 to 132665	131979,132322,132665	1.4MHz	QPSK,16QAM,64QAM	6 RB / 0 RB Offset
		131987 to 132657	131987,132322,132657	3MHz	QPSK,16QAM,64QAM	15 RB / 0 RB Offset
		131997 to 132647	131997,132322,132647	5MHz	QPSK,16QAM,64QAM	25 RB / 0 RB Offset

		132022 to 132622	132022,132322,132622	10MHz	QPSK,16QAM,64QAM	50 RB / 0 RB Offset
		132047 to 132597	132047,132322,132597	15MHz	QPSK,16QAM,64QAM	75 RB / 0 RB Offset
		132072 to 132572	132072,132322,132572	20MHz	QPSK,16QAM,64QAM	100 RB / 0 RB Offset
B	BAND EDGE	131979 to 132322	131979	1.4MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						6 RB / 0 RB Offset
		131987 to 132657	132322	1.4MHz	QPSK,16QAM, 64QAM	1 RB / 5 RB Offset
						6 RB / 0 RB Offset
		131987 to 132657	131987	3MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						15 RB / 0 RB Offset
		131987 to 132657	132657	3MHz	QPSK,16QAM, 64QAM	1 RB / 14 RB Offset
						15 RB / 0 RB Offset
		131987 to 132657	131987	5MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
		131987 to 132657	132657	5MHz	QPSK,16QAM, 64QAM	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		131997 to 132647	131997	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
		132047 to 132597	132647	10MHz	QPSK,16QAM, 64QAM	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
B	CONDCUDED EMISSION	132047 to 132597	132047	15MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						75 RB / 0 RB Offset
		132072 to 132572	132597	15MHz	QPSK,16QAM, 64QAM	1 RB / 74 RB Offset
						75 RB / 0 RB Offset
		132072 to 132572	132072	20MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
						100 RB / 0 RB Offset
A	RADIATED EMISSION	132072 to 132572	132572	20MHz	QPSK,16QAM, 64QAM	1 RB / 99 RB Offset
						100 RB / 0 RB Offset
		131979 to 132665	131979,132322,132665	1.4MHz	QPSK	1 RB / 0 RB Offset
		131987 to 132657	131987,132322,132657	3MHz	QPSK	1 RB / 0 RB Offset
		131997 to 132647	131997,132322,132647	5MHz	QPSK	1 RB / 0 RB Offset
		132022 to 132622	132022,132322,132622	10MHz	QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	132047 to 132597	132047,132322,132597	15MHz	QPSK	1 RB / 0 RB Offset
		132072 to 132572	132072,132322,132572	20MHz	QPSK	1 RB / 0 RB Offset
		131979 to 132665	132322	1.4MHz	QPSK	1 RB / 0 RB Offset
		131987 to 132657	132322	3MHz	QPSK	1 RB / 0 RB Offset
		131997 to 132647	131997,132322,132647	5MHz	QPSK	1 RB / 0 RB Offset
		132022 to 132622	132322	10MHz	QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	132047 to 132597	132322	15MHz	QPSK	1 RB / 0 RB Offset
		132072 to 132572	132322	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 71

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
B	ERP	133147 to 133447	133147, 133247, 133447	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		133172 to 133172	133172, 133272, 133172	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		133197 to 133397	133197, 133297, 133397	15MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		133222 to 133372	133222, 133322, 133372	20MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	133147 to 133447	133147, 133447	5MHz	QPSK	1 RB / 0 RB Offset
		133172 to 133172	133172, 133172	10MHz	QPSK	1 RB / 0 RB Offset
		133197 to 133397	133197, 133397	15MHz	QPSK	1 RB / 0 RB Offset
		133222 to 133372	133222, 133372	20MHz	QPSK	1 RB / 0 RB Offset
B	OCCUPIED BANDWIDTH	133147 to 133447	133147, 133247, 133447	5MHz	QPSK,16QAM,64QAM	25 RB / 0 RB Offset
		133172 to 133172	133172, 133272, 133172	10MHz	QPSK,16QAM,64QAM	50 RB / 0 RB Offset
		133197 to 133397	133197, 133297, 133397	15MHz	QPSK,16QAM,64QAM	75 RB / 0 RB Offset
		133222 to 133372	133222, 133322, 133372	20MHz	QPSK,16QAM,64QAM	100 RB / 0 RB Offset
B	BAND EDGE	133147 to 133447	133147	5MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
			133447	5MHz	QPSK,16QAM, 64QAM	25 RB / 0 RB Offset
		133172 to 133172	133172	10MHz	QPSK,16QAM, 64QAM	1 RB / 24 RB Offset
			133172	10MHz	QPSK,16QAM, 64QAM	25 RB / 0 RB Offset
		133197 to 133397	133172	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
			133172	10MHz	QPSK,16QAM, 64QAM	50 RB / 0 RB Offset
		133222 to 133372	133197	15MHz	QPSK,16QAM, 64QAM	1 RB / 49 RB Offset
			133397	15MHz	QPSK,16QAM, 64QAM	50 RB / 0 RB Offset
		133222 to 133372	133197	15MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
			133397	15MHz	QPSK,16QAM, 64QAM	75 RB / 0 RB Offset
		133222 to 133372	133222	20MHz	QPSK,16QAM, 64QAM	1 RB / 74 RB Offset
			133372	20MHz	QPSK,16QAM, 64QAM	75 RB / 0 RB Offset
B	CONDCUETED EMISSION	133147 to 133447	133147, 133247, 133447	5MHz	QPSK	1 RB / 0 RB Offset
		133172 to 133172	133172, 133272, 133172	10MHz	QPSK	1 RB / 0 RB Offset
		133197 to 133397	133197, 133297, 133397	15MHz	QPSK	1 RB / 0 RB Offset
		133222 to 133372	133222, 133322, 133372	20MHz	QPSK	1 RB / 0 RB Offset



BUREAU
VERITAS

Test Report No.: W7L-P21110007RF18

A	RADIATED EMISSION	133147 to 133447	133247	5MHz	QPSK	1 RB / 0 RB Offset
		133172 to 133172	133272	10MHz	QPSK	1 RB / 0 RB Offset
		133197 to 133397	133297	15MHz	QPSK	1 RB / 0 RB Offset
		133222 to 133372	133222, 133322, 133372	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.

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP/EIRP	23deg. C, 70%RH	DC 3.85V By Battery	Jace Hu
FREQUENCY STABILITY	23deg. C, 70%RH	DC 3.85V By Battery	Lily Zhao
OCCUPIED BANDWIDTH	23deg. C, 70%RH	DC 3.85V By Battery	Lily Zhao
BAND EDGE	23deg. C, 70%RH	DC 3.85V By Battery	Lily Zhao
CONDCUDED EMISSION	23deg. C, 70%RH	DC 3.85V By Battery	Lily Zhao
RADIATED EMISSION	23deg. C, 70%RH	DC 3.85V By Battery	Jace Hu



Test Report No.: W7L-P21110007RF18

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 RADIATED EMISSION MEASUREMENT

3.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $55 + 10 \log_{10}(P)$ dB. The limit of emission is equal to -25dBm.

3.1.2 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, $E.R.P \text{ power} = E.I.P.R \text{ power} - 2.15\text{dBi.}$

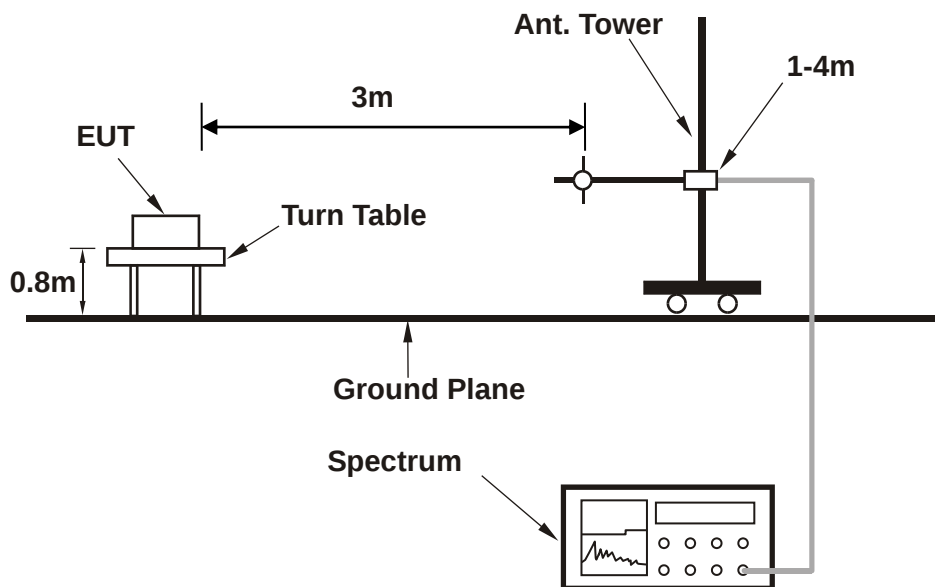
NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

3.1.3 DEVIATION FROM TEST STANDARD

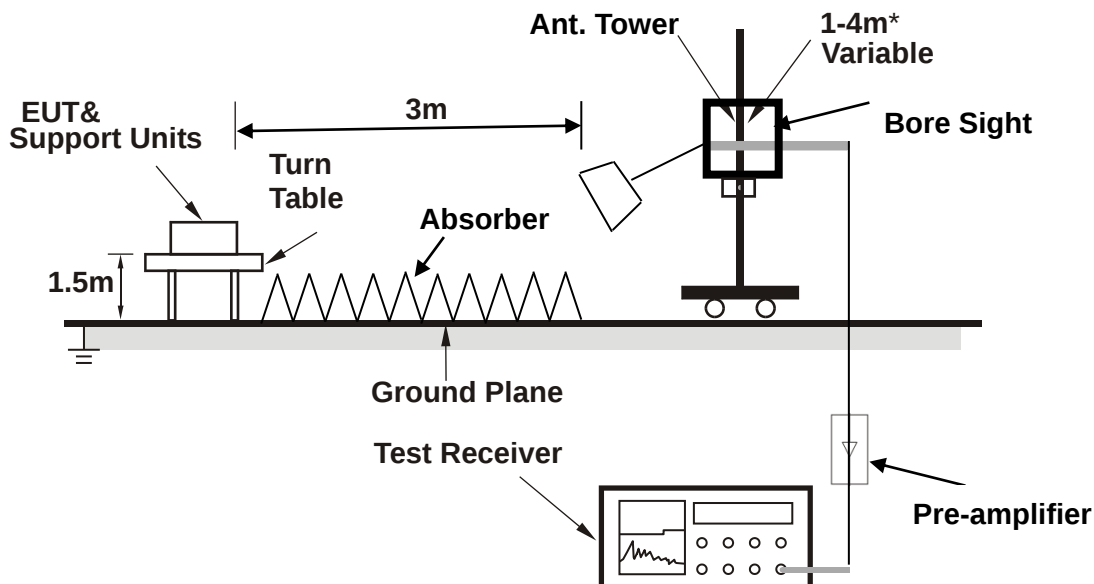
No deviation

3.1.4 TEST SETUP

< Frequency Range 30MHz~1GHz >



<Frequency Range above 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).

3.1.5 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

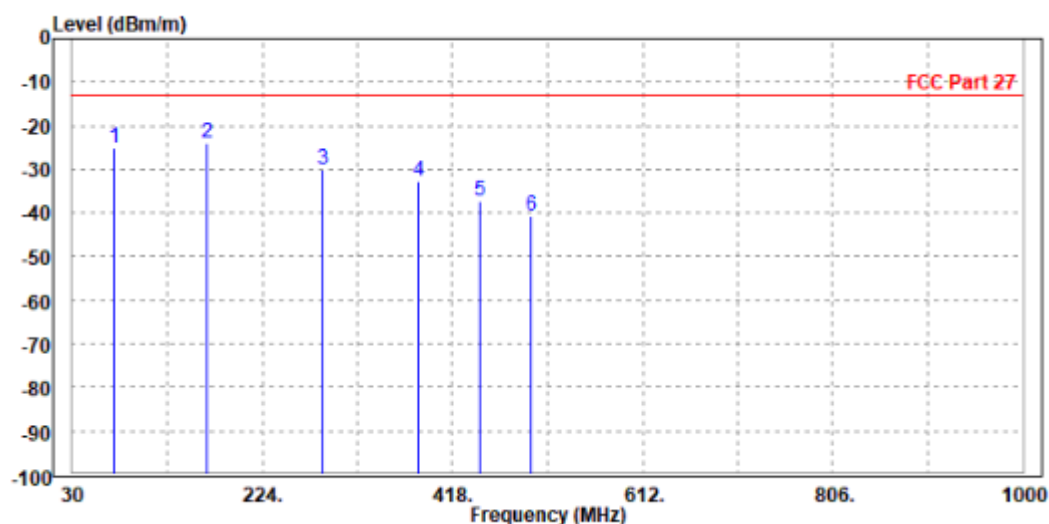
30 MHz – 1GHz data:

LTE Band 13

CHANNEL BANDWIDTH: 5MHz / QPSK

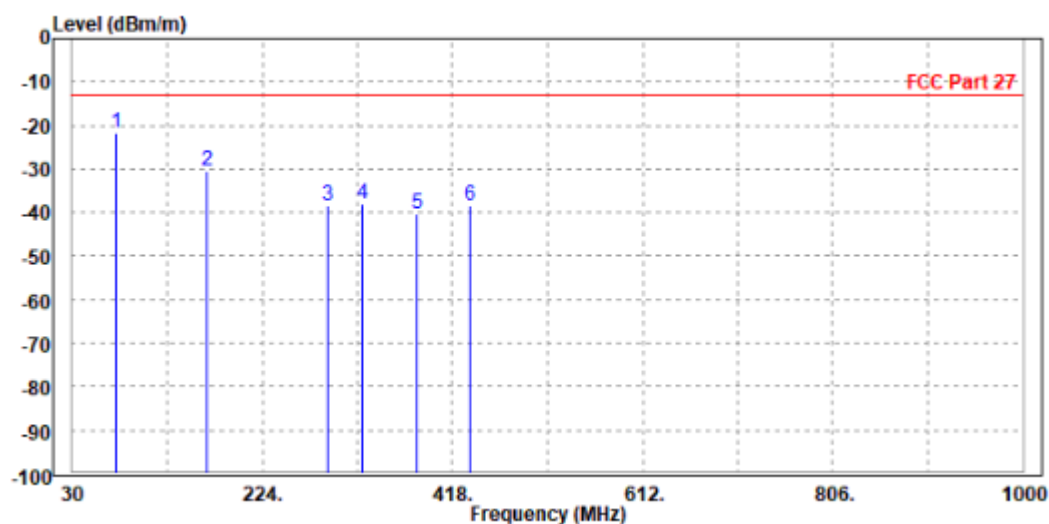
MODE	TX channel 23255	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	72.680	-24.91	-32.66	-13.00	-11.91	7.75	Peak	Horizontal
2 PP	166.770	-24.04	-34.70	-13.00	-11.04	10.66	Peak	Horizontal
3	286.080	-29.95	-43.73	-13.00	-16.95	13.78	Peak	Horizontal
4	384.050	-32.52	-48.96	-13.00	-19.52	16.44	Peak	Horizontal
5	445.160	-37.43	-55.14	-13.00	-24.43	17.71	Peak	Horizontal
6	497.540	-40.65	-59.31	-13.00	-27.65	18.66	Peak	Horizontal



MODE	TX channel 23255	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	74.620	-21.60	-29.68	-13.00	-8.60	8.08	Peak	Vertical
2	166.770	-30.56	-41.65	-13.00	-17.56	11.09	Peak	Vertical
3	289.960	-38.45	-53.21	-13.00	-25.45	14.76	Peak	Vertical
4	326.820	-38.17	-53.76	-13.00	-25.17	15.59	Peak	Vertical
5	381.140	-40.22	-57.01	-13.00	-27.22	16.79	Peak	Vertical
6	435.460	-38.53	-56.40	-13.00	-25.53	17.87	Peak	Vertical





**BUREAU
VERITAS**

Test Report No.: W7L-P21110007RF18

ABOVE 1GHz

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

WORST-CASE DATA

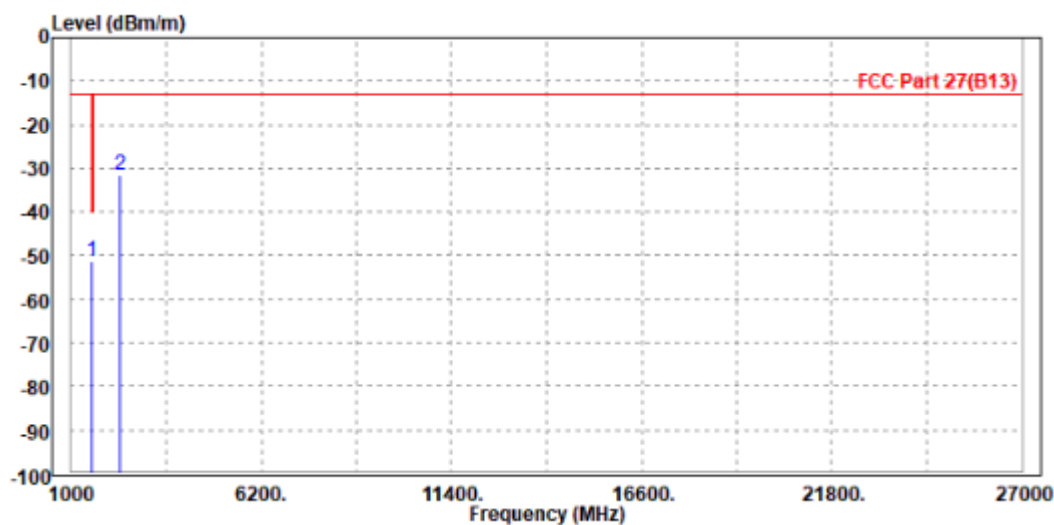
LTE B13

CHANNEL BANDWIDTH: 5MHz / QPSK

CH23205

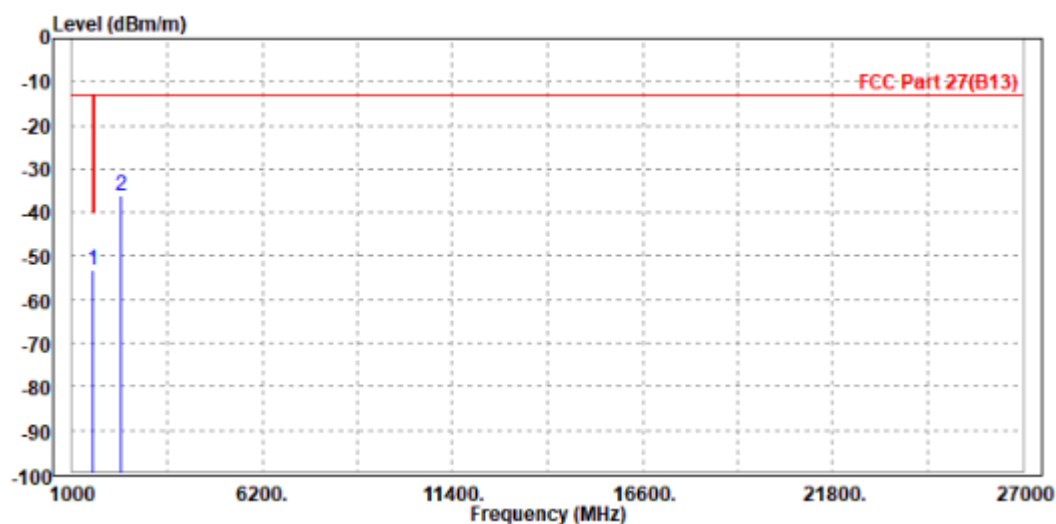
MODE	TX channel 23205	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 1572.000	-51.52	-53.84	-40.00	-11.52	2.32	Peak	Horizontal
2	2338.500	-31.42	-39.31	-13.00	-18.42	7.89	Peak	Horizontal



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			

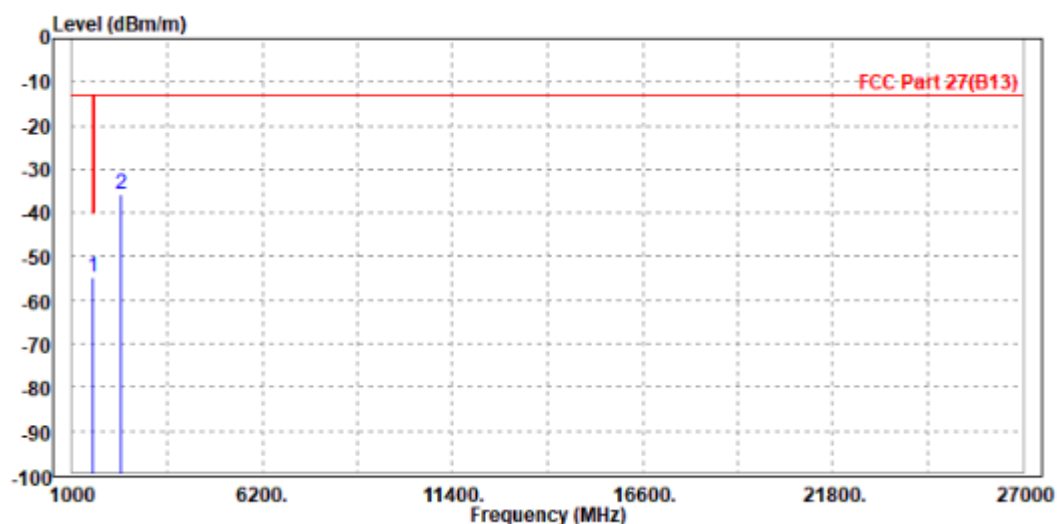
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1559.000	-53.12	-55.70	-40.00	-13.12	2.58	Peak	Vertical
2	2326.000	-36.00	-42.89	-13.00	-23.00	6.89	Peak	Vertical



CH23230

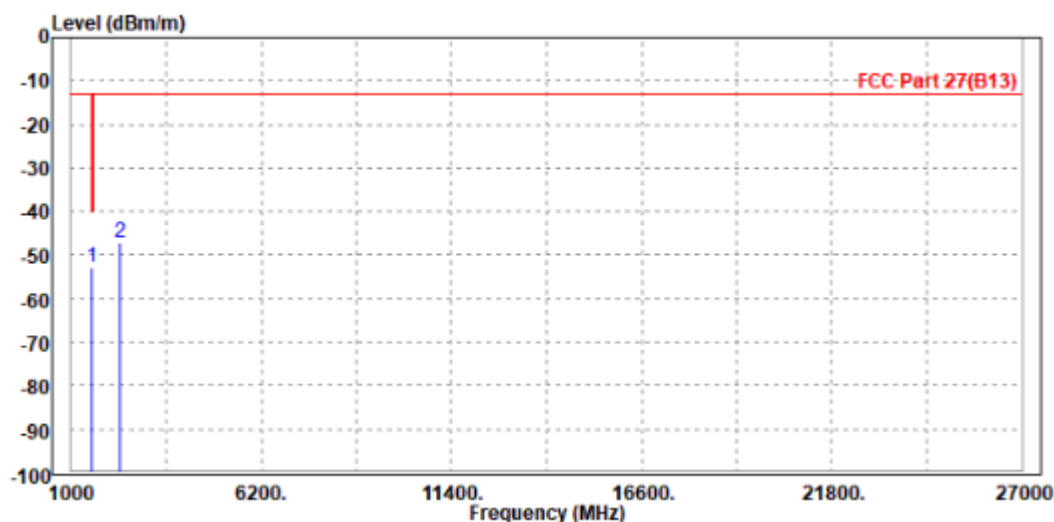
MODE	TX channel 23230	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	1572.000	-54.65	-56.97	-40.00	-14.65	2.32	Peak	Horizontal
2		2352.000	-35.58	-43.48	-13.00	-22.58	7.90	Peak	Horizontal



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			

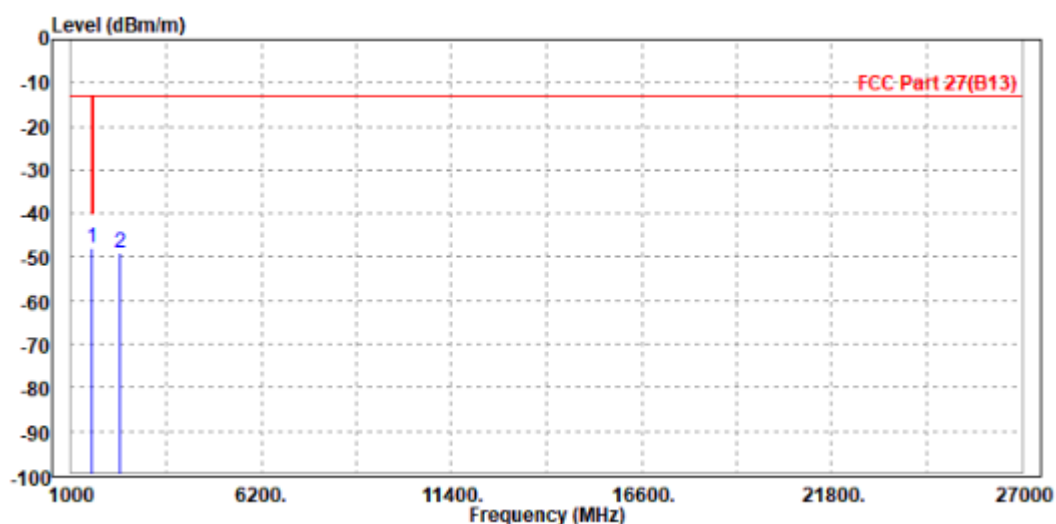
		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	1564.000	-52.79	-55.41	-40.00	-12.79	2.62	Peak	Vertical
2		2352.000	-47.11	-54.03	-13.00	-34.11	6.92	Peak	Vertical



CH23255

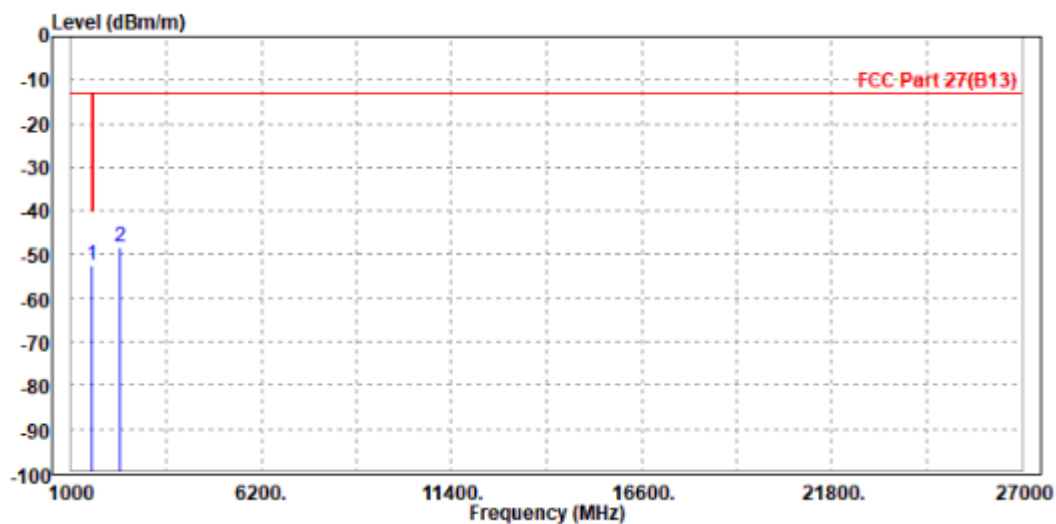
MODE	TX channel 23255	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP 1572.000	-47.87	-50.19	-40.00	-7.87	2.32	Peak	Horizontal
2	2352.000	-49.14	-57.04	-13.00	-36.14	7.90	Peak	Horizontal



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			

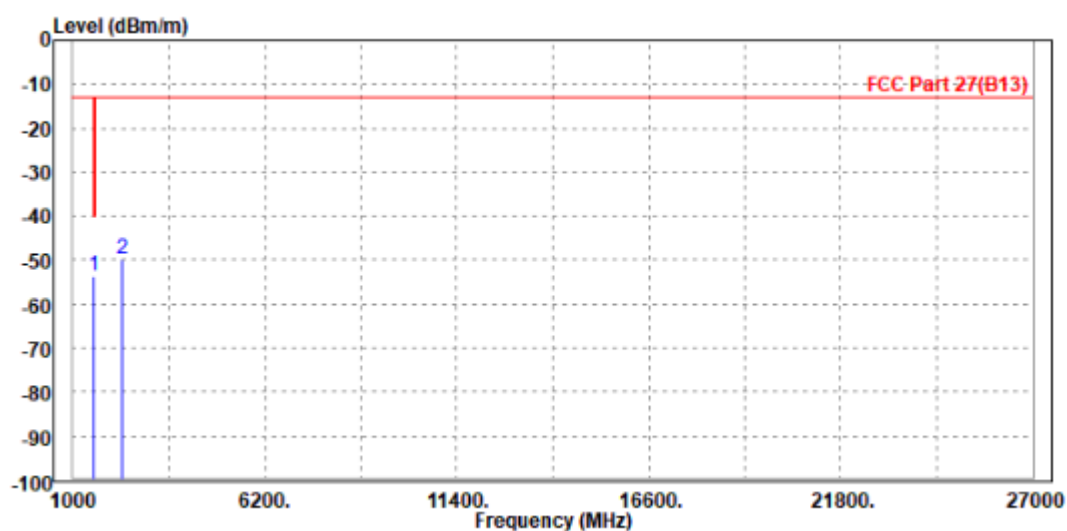
		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	1572.000	-52.63	-55.33	-40.00	-12.63	2.70	Peak	Vertical
2		2353.500	-48.30	-55.22	-13.00	-35.30	6.92	Peak	Vertical



CHANNEL BANDWIDTH: 10MHz /QPSK

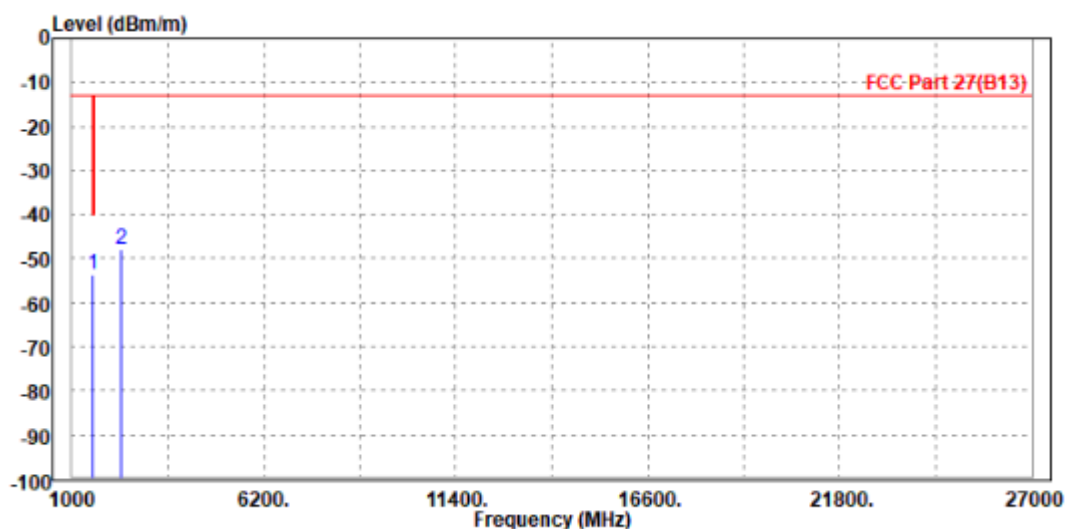
MODE	TX channel 23230	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60Hz
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	1572.000	-53.74	-56.06	-40.00	-13.74	2.32	Peak	Horizontal
2		2346.000	-49.66	-57.56	-13.00	-36.66	7.90	Peak	Horizontal



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			

		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	1572.000	-53.71	-56.41	-40.00	-13.71	2.70	Peak	Vertical
2		2346.000	-47.87	-54.78	-13.00	-34.87	6.91	Peak	Vertical





Test Report No.: W7L-P21110007RF18

4 INFORMATION ON THE TESTING LABORATORIES

We, BV 7LAYERS COMMUNICATIONS TECHNOLOGY (SHENZHEN) CO. LTD., were founded in 2015 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Shenzhen EMC/RF Lab:

Tel: +86-755-88696566

Fax: +86-755-88696577

Email: customerservice.sw@cn.bureauveritas.com

Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.



Test Report No.: W7L-P21110007RF18

5 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

---END---