



Test Report No.: W7L-P21110009RF18



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:	CT45-L1N-G
FCC ID:	HD5-CT45L1NG
Date of tests:	Oct. 25, 2021 ~ Nov. 08, 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. 09, 2021	Date: Nov. 09, 2021

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P21080006RF18	Original release	Sep. 01, 2021
W7L-P21040030RF18	Based on the original report W7L-P21080006RF18 Changed to screen is HD(1280*720) and removing a 2 nd BLE	Sep. 09, 2021
W7L-P21110009RF18	Based on the original report W7L-P21040030RF18 Changing components, add a new screen, added band CA_41C by Software.	Nov. 09, 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	1.1.1.1.1 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: Per the change notice provide by manufactory, the difference is changing components, add a new screen, 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.

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. 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. 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. 02,21	Jun. 01,22
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. 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. 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	CT45-L1N-G	
NOMINAL VOLTAGE	3.85Vdc (Lithium-ion cell, battery)	
MODULATION TECHNOLOGY	LTE	QPSK, 16QAM, 64QAM
FREQUENCY RANGE	WCDMA IV	1712.4MHz ~ 1752.6MHz
	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		



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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	



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	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
	LTE Band 71 Channel Bandwidth: 15MHz	QPSK: 13M5G7D
		16QAM: 13M5W7D
		64QAM: 13M5W7D
	CLTE Band 71 Channel Bandwidth: 20MHz	QPSK: 18M0G7D
		16QAM: 17M9W7D
		64QAM: 18M0W7D
MAX. EIRP POWER	LTE Band 4 Channel Bandwidth: 1.4MHz	379.31mW
	LTE Band 4 Channel Bandwidth: 3MHz	215.28mW
	LTE Band 4 Channel Bandwidth: 5MHz	214.29mW
	LTE Band 4 Channel Bandwidth: 10MHz	214.29mW
	LTE Band 4 Channel Bandwidth: 15MHz	216.27mW
	LTE Band 4 Channel Bandwidth: 20MHz	217.77mW
	LTE Band 12 Channel Bandwidth: 1.4MHz	169.43mW
	LTE Band 12 Channel Bandwidth: 3MHz	163.31mW
	LTE Band 12 Channel Bandwidth: 5MHz	163.68mW
	LTE Band 12 Channel Bandwidth: 10MHz	165.58mW
	LTE Band 13 Channel Bandwidth: 5MHz	171.79mW
	LTE Band 13 Channel Bandwidth: 10MHz	173.78mW



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	LTE Band 14 Channel Bandwidth: 5MHz	172.58mW
	LTE Band 14 Channel Bandwidth: 10MHz	174.58mW
	LTE Band 17 Channel Bandwidth: 5MHz	165.58mW
	LTE Band 17 Channel Bandwidth: 10MHz	166.34mW
	LTE Band 30 Channel Bandwidth: 5MHz	234.42mW
	LTE Band 30 Channel Bandwidth: 10MHz	235.50mW
	LTE Band 66 Channel Bandwidth: 1.4MHz	228.56mW
	LTE Band 66 Channel Bandwidth: 3MHz	229.09mW
	LTE Band 66 Channel Bandwidth: 5MHz	228.56mW
	LTE Band 66 Channel Bandwidth: 10MHz	229.09mW
	LTE Band 66 Channel Bandwidth: 15MHz	230.14mW
	LTE Band 66 Channel Bandwidth: 20MHz	231.74mW
	LTE Band 71 Channel Bandwidth: 5MHz	118.03mW
	LTE Band 71 Channel Bandwidth: 10MHz	117.76mW
	LTE Band 71 Channel Bandwidth: 15MHz	118.58mW
	LTE Band 71 Channel Bandwidth: 20MHz	118.85mW
ANTENNA TYPE	PIFA Antenna with 2.55dBi gain for LTE B4 PIFA Antenna with 1.11dBi gain for LTE B12/B17 PIFA Antenna with 0.86dBi gain for LTE B13 PIFA Antenna with 1dBi gain for LTE B14/B71 PIFA Antenna with 1.17dBi gain for LTE B30 PIFA 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	



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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 six 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-27D120G ,Assembled Scanner Imager: 7-S0703
2	SKU ID:CT45-L1N-28D120G ,Assembled Scanner Imager: 8 - N6803/S0803
3	SKU ID: CT45-L1N-28D120T, Assembled with Scanner: 8 - N6803/S0803 for Turkey Only
4	SKU ID: CT45-L1N-27D120T, Assembled with Scanner: 7-S0703 for Turkey Only
5	SKU ID:CT45-L1N-28D220C, Assembled with Scanner: 8 - N6803/S0803 for China Only with Android non-GMS
6	SKU ID:CT45-L1N-27D220C, Assembled with Scanner: 7-S0703 for China Only with Android non-GMS

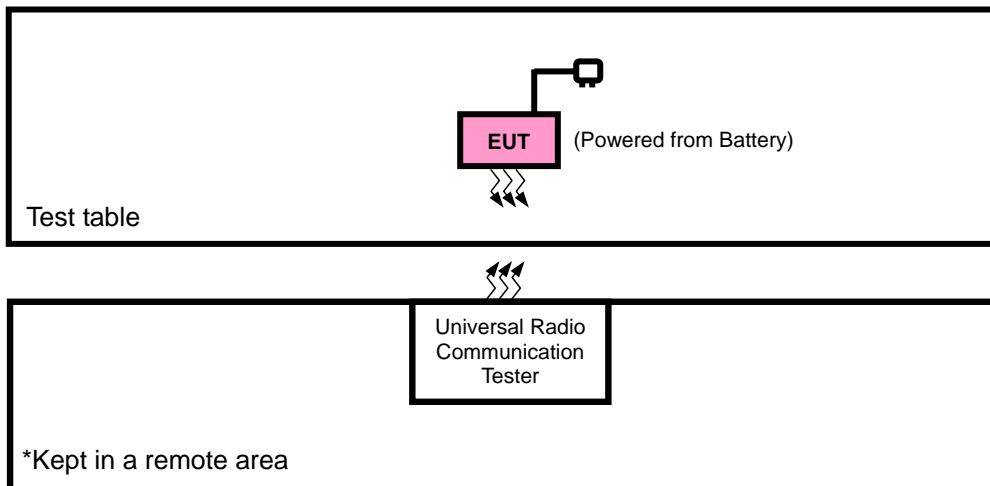
3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

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 1	TZD	TS5099	5.0" HD(1280*720)
LCD Panel 2	TIANMA	TM050JVZG53	5.0" HD(1280*720)

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
			20393	1.4MHz	QPSK, 16QAM, 64QAM	6 RB / 0 RB Offset
		19965 to 20385	19965	3MHz	QPSK, 16QAM, 64QAM	1 RB / 5 RB Offset
			20385	3MHz	QPSK, 16QAM, 64QAM	6 RB / 0 RB Offset
		19975 to 20375	19975	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
			20375	5MHz	QPSK, 16QAM, 64QAM	15 RB / 0 RB Offset
		20000 to 20350	19975	5MHz	QPSK, 16QAM, 64QAM	1 RB / 14 RB Offset
			20375	5MHz	QPSK, 16QAM, 64QAM	15 RB / 0 RB Offset
		20000 to 20350	19975	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
			20375	5MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
		20000 to 20350	20000	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
			20350	10MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
20000 to 20350	20000	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset		
	20350	10MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset		
20000 to 20350	20000	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset		
	20350	10MHz	QPSK, 16QAM, 64QAM	50 RB / 49 RB Offset		
20000 to 20350	20000	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset		
	20350	10MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset		

B	BAND EDGE	20025 to 20325	20025	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset		
			20325	15MHz	QPSK, 16QAM, 64QAM	75 RB / 0 RB Offset		
		20050 to 20300	20050	20MHz	QPSK, 16QAM, 64QAM	1 RB / 74 RB Offset		
			20300	20MHz	QPSK, 16QAM, 64QAM	75 RB / 0 RB Offset		
		B	CONDCUDETED EMISSION	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		
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		
A	RADIATED EMISSION	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		
		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		
		23060 to 23130	23060	10MHz	QPSK	1 RB / 0 RB Offset 50 RB / 0 RB Offset		
			23130	10MHz	QPSK	1 RB / 49 RB Offset 50 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
			23255	5MHz	QPSK,16QAM, 64QAM	25 RB / 0 RB Offset
		23230	23230	10MHz	QPSK,16QAM, 64QAM	1 RB / 24 RB Offset
			/	10MHz	QPSK,16QAM, 64QAM	25 RB / 0 RB Offset
			/	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
			/	10MHz	QPSK,16QAM, 64QAM	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
			23355	5MHz	QPSK,16QAM, 64QAM	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
						1 RB / 24 RB Offset
						25 RB / 0 RB Offset
B	CONDCUDED 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
			23825	5MHz	QPSK,16QAM, 64QAM	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
						1 RB / 24 RB Offset
						25 RB / 0 RB Offset
B	CONDCUDED 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



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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	5MHz	QPSK,16QAM,64QAM	1 RB / 24 RB Offset 25 RB / 0 RB Offset
			27710	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset 50 RB / 0 RB Offset
		27710	/	10MHz	QPSK,16QAM,64QAM	1 RB / 49 RB Offset 50 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	131979 to 132665	131979,132322,132665	1.4MHz	QPSK,16QAM,64QAM	6 RB / 0 RB Offset



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	BANDWIDTH	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		
			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		
			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		
			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		
			132647	10MHz	QPSK,16QAM, 64QAM	1 RB / 49 RB Offset 50 RB / 0 RB Offset		
		132047 to 132597	132047	15MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset 75 RB / 0 RB Offset		
			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		
			132572	20MHz	QPSK,16QAM, 64QAM	1 RB / 99 RB Offset 100 RB / 0 RB Offset		
		B	CONDCUETED EMISSION	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
				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
A	RADIATED EMISSION	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		
		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.



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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
		133172 to 133172	133172	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset
			133172	10MHz	QPSK,16QAM, 64QAM	50 RB / 0 RB Offset
		133197 to 133397	133197	15MHz	QPSK,16QAM, 64QAM	1 RB / 49 RB Offset
			133397	15MHz	QPSK,16QAM, 64QAM	50 RB / 0 RB Offset
		133197 to 133397	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
133222 to 133372	133222	20MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset		
	133372	20MHz	QPSK,16QAM, 64QAM	100 RB / 0 RB Offset		
B	CONDCUEDTED 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



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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.



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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



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

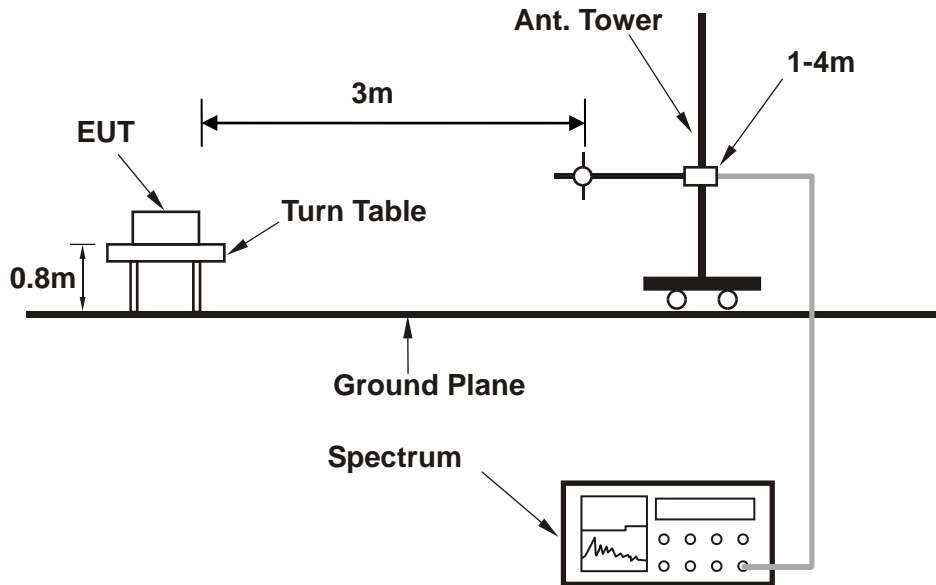
NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

3.1.3 DEVIATION FROM TEST STANDARD

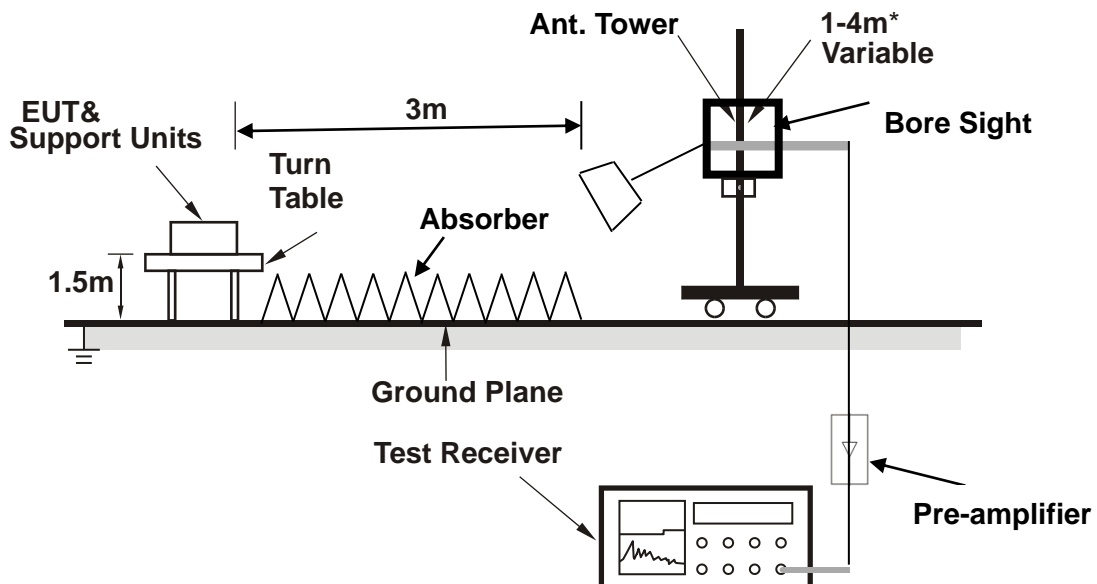
No deviation

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

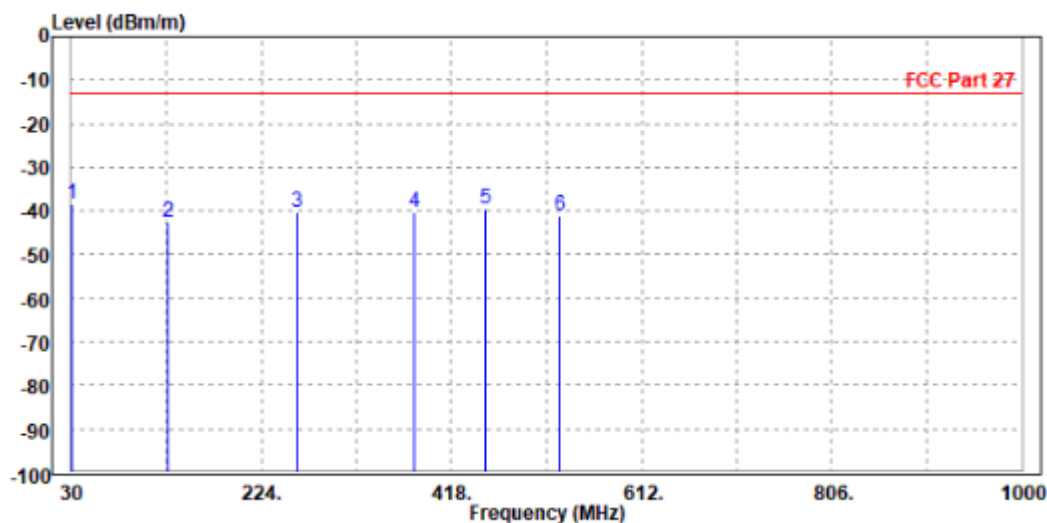
30 MHz – 1GHz data:

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 PP	30.970	-38.38	-58.39	-13.00	-25.38	20.01	Peak	Horizontal
2	128.940	-42.77	-50.22	-13.00	-29.77	7.45	Peak	Horizontal
3	260.860	-40.21	-53.58	-13.00	-27.21	13.37	Peak	Horizontal
4	380.170	-40.14	-56.46	-13.00	-27.14	16.32	Peak	Horizontal
5	452.920	-39.55	-57.40	-13.00	-26.55	17.85	Peak	Horizontal
6	528.580	-40.88	-60.15	-13.00	-27.88	19.27	Peak	Horizontal

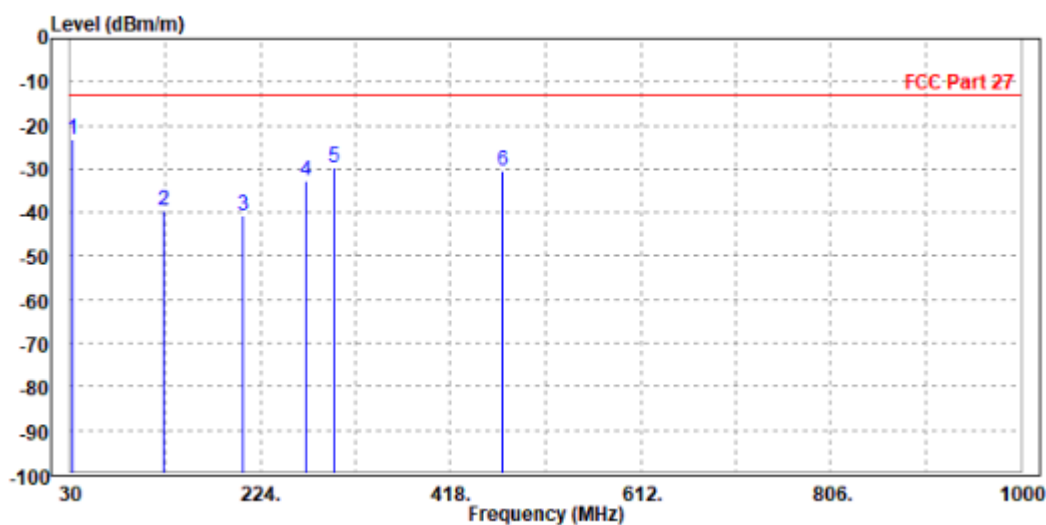




Test Report No.: W7L-P21110009RF18

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	32.910	-23.03	-41.95	-13.00	-10.03	18.92 Peak	Vertical
2		125.060	-39.51	-47.41	-13.00	-26.51	7.90 Peak	Vertical
3		206.540	-40.68	-52.48	-13.00	-27.68	11.80 Peak	Vertical
4		270.560	-32.54	-46.83	-13.00	-19.54	14.29 Peak	Vertical
5		298.690	-29.81	-44.78	-13.00	-16.81	14.97 Peak	Vertical
6		471.350	-30.47	-49.03	-13.00	-17.47	18.56 Peak	Vertical





BUREAU VERITAS

Test Report No.: W7L-P21110009RF18

ABOVE 1GHz

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

WORST-CASE DATA

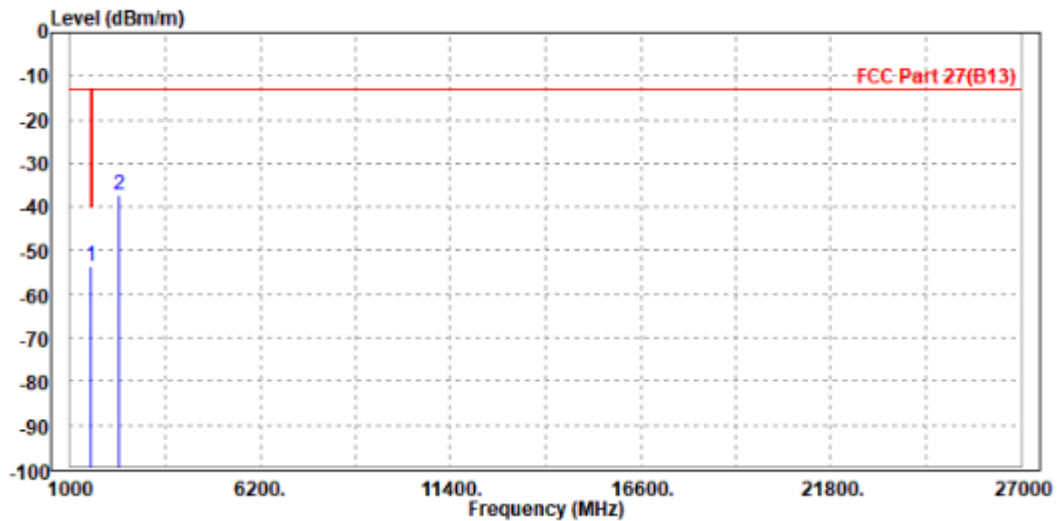
LTE B13

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	Read Level	Limit Level	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	PP 1559.000	-53.58	-55.75	-40.00	-13.58	2.17 Peak	Horizontal
2	2337.600	-37.31	-45.20	-13.00	-24.31	7.89 Peak	Horizontal

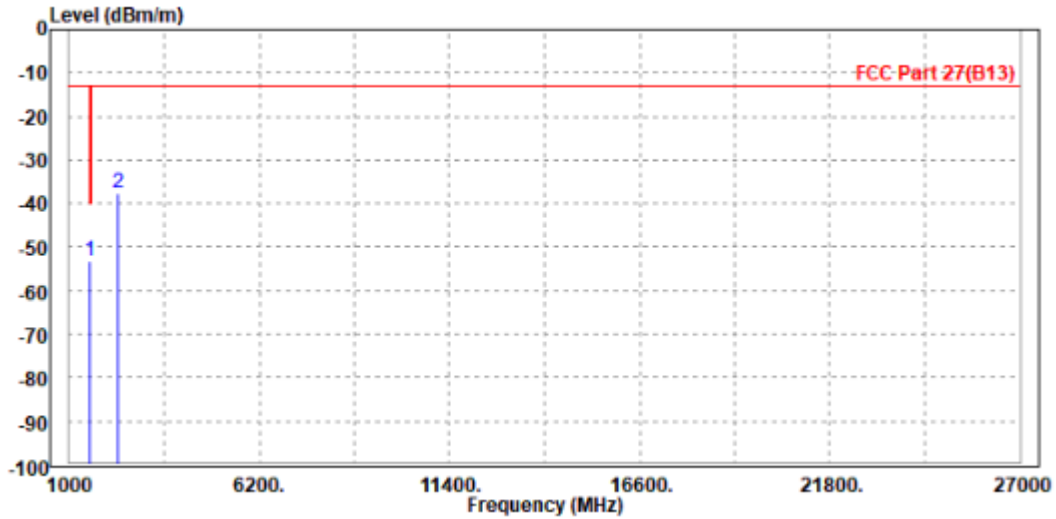




Test Report No.: W7L-P21110009RF18

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 1572.000	-53.41	-56.11	-40.00	-13.41	2.70	Peak	Vertical
2	2337.600	-37.60	-44.50	-13.00	-24.60	6.90	Peak	Vertical



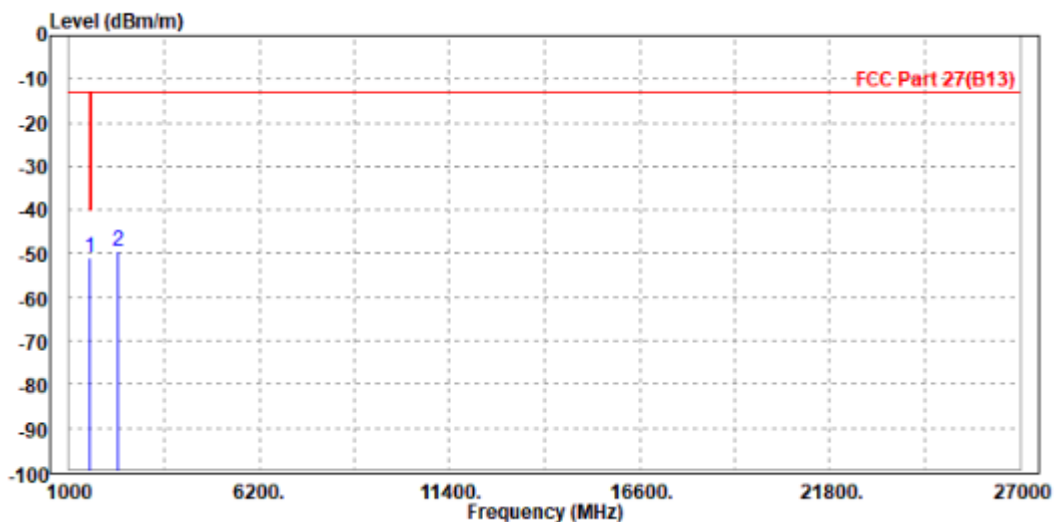


Test Report No.: W7L-P21110009RF18

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	-50.88	-53.20	-40.00	-10.88	2.32	Peak	Horizontal
2	2346.000	-49.54	-57.44	-13.00	-36.54	7.90	Peak	Horizontal

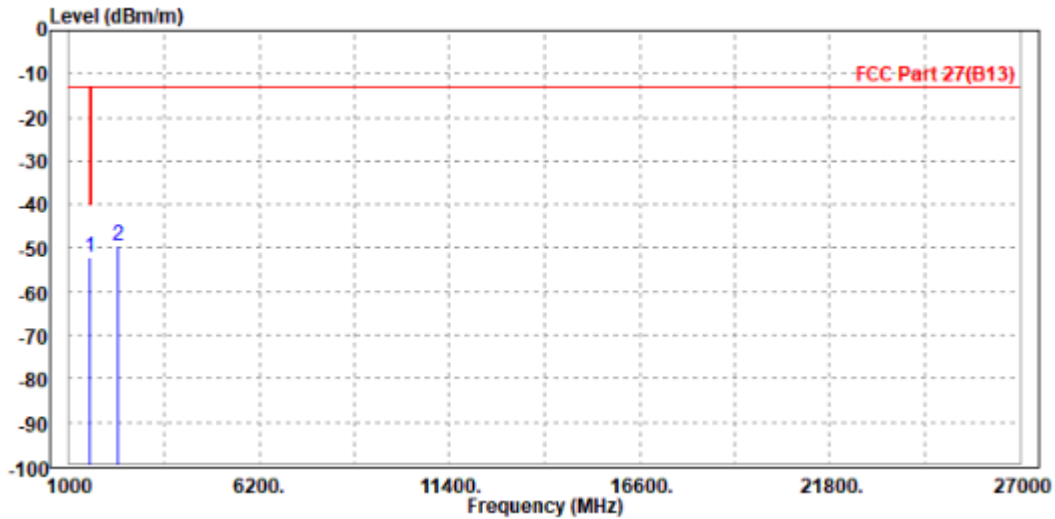




Test Report No.: W7L-P21110009RF18

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	-52.12	-54.82	-40.00	-12.12	2.70	Peak	Vertical
2	2346.000	-49.58	-56.49	-13.00	-36.58	6.91	Peak	Vertical



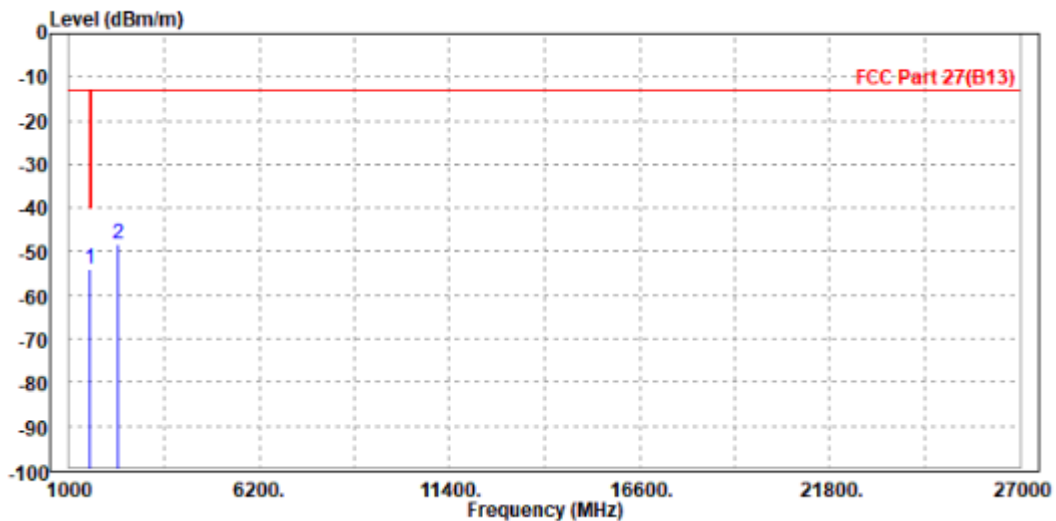


Test Report No.: W7L-P21110009RF18

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	1569.000	-54.03	-56.32	-40.00	-14.03	2.29	Peak	Horizontal
2	2352.000	-48.12	-56.02	-13.00	-35.12	7.90	Peak	Horizontal

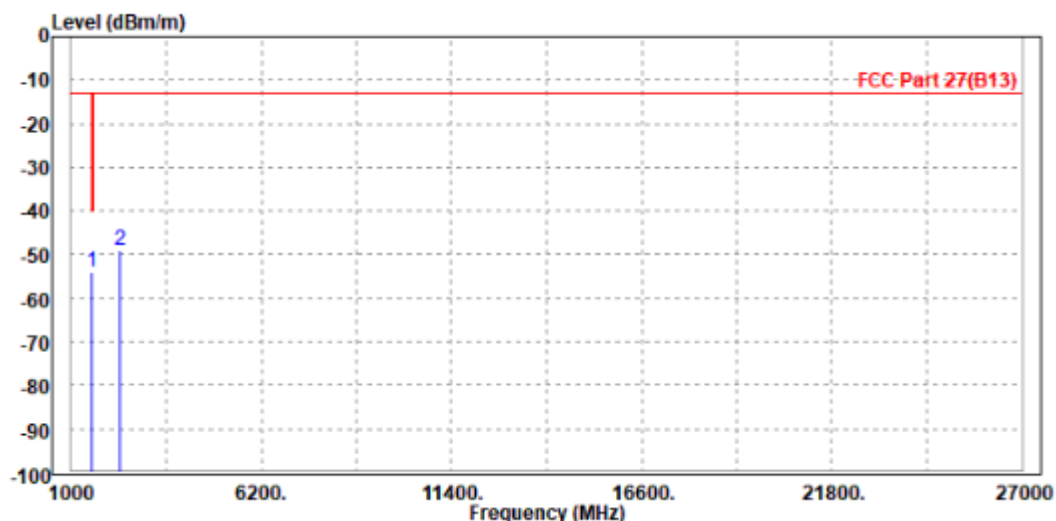




Test Report No.: W7L-P21110009RF18

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 1569.000	-53.88	-56.55	-40.00	-13.88	2.67	Peak	Vertical
2	2353.500	-49.01	-55.93	-13.00	-36.01	6.92	Peak	Vertical



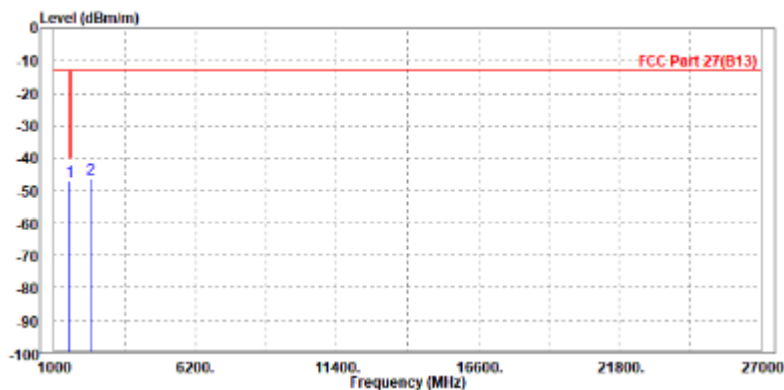


Test Report No.: W7L-P21110009RF18

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			

	Read	Limit	Over				
Freq	Level	Level	Line	Limit	Factor	Remark	Pol/Phase
MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP 1572.000	-47.16	-49.48	-40.00	-7.16	2.32	Peak	Horizontal
2 2346.000	-46.50	-54.40	-13.00	-33.50	7.90	Peak	Horizontal

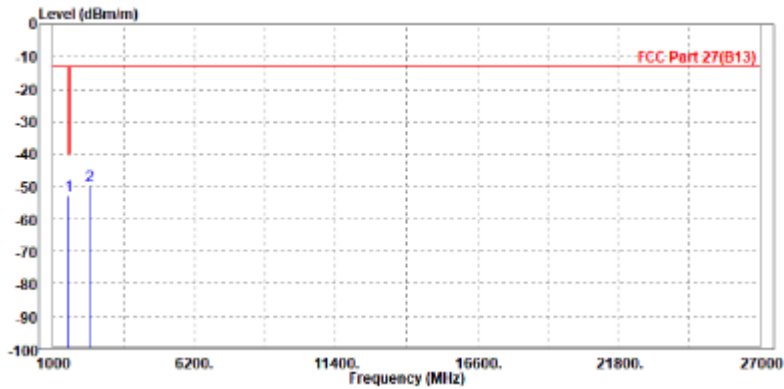




Test Report No.: W7L-P21110009RF18

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	-52.67	-55.37	-40.00	-12.67	2.70	Peak	Vertical
2	2346.000	-49.65	-56.56	-13.00	-36.65	6.91	Peak	Vertical





Test Report No.: W7L-P21110009RF18

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:

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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-P21110009RF18

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---