

VARIANT FCC TEST REPORT

(PART 27)

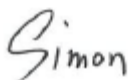

Applicant:	Honeywell International Inc Honeywell Safety and Productivity Solutions
Address:	9680 Old Bailes Road, Fort Mill, SC 29707 United States

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-2
FCC ID:	HD5-CT45PL1N2
Date of tests:	Oct. 25, 2021 ~ Jan. 14, 2022

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: Jan. 14, 2022	Date: Jan. 14, 2022
<small>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.</small>	



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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P21080006RF17	Original release	Sep. 01, 2021
W7L-P21110008RF17	Based on the original report W7L-P21080006RF17 add the band 41C, changing components.	Nov. 16, 2021
W7L-211129W002RF17	Based on the original report W7L-P21110008RF17 Changing components	Jan. 14, 2022

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	Compliance (See Note 1)
2.1055 27.54	Frequency Stability	(See Note 2)
2.1049 27.53(m)(6)	Occupied Bandwidth	(See Note 2)
2.1051 27.53(m)(4)(6)	Band Edge Measurements	(See Note 2)
2.1051 27.53(m)(4)(6)	Conducted Spurious Emissions	(See Note 2)
2.1053 27.53(m)(4)(6)	Radiated Spurious Emissions	Compliance (See Note 1)

NOTE:

1. Per the change notice provide by manufactory, the difference is changing components, all the change no effect any RF parameter and pre-scan all band radiated spurious emissions, worst case is reflected in the corresponding frequency band of other reports. This report only verify the power and only show the verify test data.

2. Please refer to original report W7L- P21110008RF17



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
Radiated emissions & Radiated Power (30MHz~1GMHz)	±4.98dB
Radiated emissions & Radiated Power (1GMHz ~6GMHz)	±4.70dB
Radiated emissions (6GMHz ~18GMHz)	±4.60dB
Radiated emissions (18GMHz ~40GMHz)	±4.12dB
Conducted Output power	±2.06dB

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	CT45P-L1N-2	
NOMINAL VOLTAGE	3.85Vdc (Lithium-ion cell, battery)	
MODULATION TECHNOLOGY	WCDMA IV	HSDPA, HSUPA, DC-HSDPA
	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 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
	LTE Band 38 Channel Bandwidth: 5MHz	2572.5MHz ~ 2617.5MHz
	LTE Band 38 Channel Bandwidth: 10MHz	2575MHz ~ 2615MHz



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FREQUENCY RANGE	LTE Band 38 Channel Bandwidth: 15MHz	2577.5MHz ~ 2612.5MHz
	LTE Band 38 Channel Bandwidth: 20MHz	2580MHz ~ 2610MHz
	LTE Band 41 Channel Bandwidth: 5MHz	2498.5MHz ~ 2687.5MHz
	LTE Band 41 Channel Bandwidth: 10MHz	2501MHz ~ 2685MHz
	LTE Band 41 Channel Bandwidth: 15MHz	2503.5MHz ~ 2682.5MHz
	LTE Band 41 Channel Bandwidth: 20MHz	2506MHz ~ 2680MHz
	LTE Band CA_41C Channel Bandwidth: 5MHz+20MHz	2499.3MHz ~ 2668.3MHz
	LTE Band CA_41C Channel Bandwidth: 10MHz+15MHz	2501.3MHz ~ 2670.5MHz
	LTE Band CA_41C Channel Bandwidth: 10MHz+20MHz	2501.5MHz ~ 2665.6MHz
	LTE Band CA_41C Channel Bandwidth: 15MHz+10MHz	2503.5MHz ~ 2672.7MHz
	LTE Band CA_41C Channel Bandwidth: 15MHz+15MHz	2503.5MHz ~ 2667.5MHz
	LTE Band CA_41C Channel Bandwidth: 15MHz+20MHz	2503.8MHz ~ 2662.9MHz
	LTE Band CA_41C Channel Bandwidth: 20MHz+5MHz	2506.0MHz ~ 2675.0MHz
	LTE Band CA_41C Channel Bandwidth: 20MHz+10MHz	2506.0MHz ~ 2670.1MHz
	LTE Band CA_41C Channel Bandwidth: 20MHz+15MHz	2506.0MHz ~ 2665.1MHz
	LTE Band CA_41C Channel Bandwidth: 20MHz+20MHz	2506.0MHz ~ 2660.2MHz
	EMISSION DESIGNATOR	WCDMA IV
LTE Band 7 Channel Bandwidth: 5MHz		QPSK: 4M49G7D
		16QAM: 4M48W7D
		64QAM: 4M49W7D
LTE Band 7 Channel Bandwidth: 10MHz		QPSK:9M01G7D
		16QAM: 8M97W7D
	64QAM: 8M99W7D	

EMISSION DESIGNATOR	LTE Band 7 Channel Bandwidth: 15MHz	QPSK: 13M6G7D
		16QAM: 13M5W7D
		64QAM: 13M5W7D
	LTE Band 7 Channel Bandwidth: 20MHz	QPSK: 18M0G7D
		16QAM: 18M0W7D
		64QAM: 18M0W7D
	LTE Band CA_7C Channel Bandwidth: 10MHz+20MHz	QPSK: 28M2G7D
		16QAM: 28M1W7D
		64QAM: 28M0W7D
	LTE Band CA_7C Channel Bandwidth: 15MHz +10MHz	QPSK: 23M6G7D
		16QAM: 23M6W7D
		64QAM: 23M6W7D
	LTE Band CA_7C Channel Bandwidth: 15MHz +15MHz	QPSK: 28M7G7D
		16QAM: 28M7W7D
		64QAM: 28M7W7D
	LTE Band CA_7C Channel Bandwidth: 15MHz +20MHz	QPSK: 32M9G7D
		16QAM: 32M9W7D
		64QAM: 32M8W7D
	LTE Band CA_7C Channel Bandwidth: 20MHz +10MHz	QPSK: 28M1G7D
		16QAM: 28M0W7D
		64QAM: 28M0W7D
	LTE Band CA_7C Channel Bandwidth: 20MHz +15MHz	QPSK: 32M8G7D
		16QAM: 32M8W7D
		64QAM: 32M8W7D
LTE Band CA_7C Channel Bandwidth: 20MHz +20MHz	QPSK: 37M6G7D	
	16QAM: 37M6W7D	
	64QAM: 37M6W7D	
LTE Band 38 Channel Bandwidth: 5MHz	QPSK: 4M48G7D	
	16QAM: 4M47W7D	
	64QAM: 4M47W7D	
LTE Band 38 Channel Bandwidth: 10MHz	QPSK: 8M97G7D	
	16QAM: 8M96W7D	
	64QAM: 8M96W7D	
LTE Band 38 Channel Bandwidth: 15MHz	QPSK: 13M4G7D	
	16QAM: 13M5W7D	
	64QAM: 13M5W7D	
LTE Band 38 Channel Bandwidth: 20MHz	QPSK: 17M9G7D	
	64QAM: 17M9W7D	
	16QAM: 17M9W7D	
LTE Band 41 Channel Bandwidth: 5MHz	QPSK: 4M48G7D	
	16QAM: 4M48W7D	
	64QAM: 4M47W7D	

EMISSION DESIGNATOR	LTE Band 41 Channel Bandwidth: 10MHz	QPSK: 8M97G7D
		16QAM: 8M96W7D
		64QAM: 8M96W7D
	LTE Band 41 Channel Bandwidth: 15MHz	QPSK: 13M5G7D
		16QAM: 13M5W7D
		64QAM: 13M4W7D
	LTE Band 41 Channel Bandwidth: 20MHz	QPSK: 17M9G7D
		16QAM: 17M9W7D
		64QAM: 17M9W7D
	LTE Band CA_41C Channel Bandwidth: 5MHz+20MHz	QPSK: 23M4G7D
		16QAM: 23M3W7D
		64QAM: 23M2W7D
	LTE Band CA_41C Channel Bandwidth: 10MHz+15MHz	QPSK: 23M5G7D
		16QAM: 23M7W7D
		64QAM: 23M6W7D
	LTE Band CA_41C Channel Bandwidth: 10MHz+20MHz	QPSK: 28M2G7D
		16QAM: 28M1W7D
		64QAM: 28M2W7D
	LTE Band CA_41C Channel Bandwidth: 15MHz +10MHz	QPSK: 23M7G7D
		16QAM: 23M7W7D
		64QAM: 23M7W7D
	LTE Band CA_41C Channel Bandwidth: 15MHz +15MHz	QPSK: 28M8G7D
		16QAM: 28M7W7D
		64QAM: 28M7W7D
	LTE Band CA_41C Channel Bandwidth: 15MHz +20MHz	QPSK: 32M8G7D
		16QAM: 32M8W7D
		64QAM: 32M7W7D
	LTE Band CA_41C Channel Bandwidth: 20MHz +5MHz	QPSK: 23M4G7D
		16QAM: 23M3W7D
		64QAM: 23M4W7D
LTE Band CA_41C Channel Bandwidth: 20MHz +10MHz	QPSK: 28M1G7D	
	16QAM: 28M3W7D	
	64QAM: 28M2W7D	
LTE Band CA_41C Channel Bandwidth: 20MHz +15MHz	QPSK: 32M9G7D	
	16QAM: 32M9W7D	
	64QAM: 32M8W7D	
LTE Band CA_41C Channel Bandwidth: 20MHz +20MHz	QPSK: 37M7G7D	
	16QAM: 37M6W7D	
	64QAM: 37M6W7D	



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MAX. EIRP POWER	WCDMA IV	148.94mW
	LTE Band 7 Channel Bandwidth: 5MHz	229.09mW
	LTE Band 7 Channel Bandwidth: 10MHz	230.67mW
	LTE Band 7 Channel Bandwidth: 15MHz	230.67mW
	LTE Band 7 Channel Bandwidth: 20MHz	232.81mW
	LTE Band CA_7C Channel Bandwidth: 10MHz+20MHz	230.14mW
	LTE Band CA_7C Channel Bandwidth: 15MHz+10MHz	225.4mW
	LTE Band CA_7C Channel Bandwidth: 15MHz+15MHz	221.82mW
	LTE Band CA_7C Channel Bandwidth: 15MHz+20MHz	221.31mW
	LTE Band CA_7C Channel Bandwidth: 20MHz+10MHz	221.82mW
	LTE Band CA_7C Channel Bandwidth: 20MHz+15MHz	224.91mW
	LTE Band CA_7C Channel Bandwidth: 20MHz+20MHz	232.27mW
	LTE Band 38 Channel Bandwidth: 5MHz	219.79mW
	LTE Band 38 Channel Bandwidth: 10MHz	220.29mW
	LTE Band 38 Channel Bandwidth: 15MHz	221.82mW
	LTE Band 38 Channel Bandwidth: 20MHz	222.33mW
	LTE Band 41 Channel Bandwidth: 5MHz	261.82mW
	LTE Band 41 Channel Bandwidth: 10MHz	261.82mW
	LTE Band 41 Channel Bandwidth: 15MHz	263.03mW
	LTE Band 41 Channel Bandwidth: 20MHz	264.85mW



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MAX. EIRP POWER	LTE Band CA_41C Channel Bandwidth: 5MHz+20MHz	250.61mW
	LTE Band CA_41C Channel Bandwidth: 20MHz+5MHz	251.19mW
	LTE Band CA_41C Channel Bandwidth: 10MHz+15MHz	250.03mW
	LTE Band CA_41C Channel Bandwidth: 15MHz+10MHz	250.61mW
	LTE Band CA_41C Channel Bandwidth: 15MHz+15MHz	251.77mW
	LTE Band CA_41C Channel Bandwidth: 10MHz+20MHz	252.93mW
	LTE Band CA_41C Channel Bandwidth: 20MHz+10MHz	253.51mW
	LTE Band CA_41C Channel Bandwidth: 15MHz+20MHz	251.77mW
	LTE Band CA_41C Channel Bandwidth: 20MHz+15MHz	252.93mW
	LTE Band CA_41C Channel Bandwidth: 20MHz+20MHz	260.02mW
ANTENNA TYPE	PIFA Antenna with 2.55 dBi gain for WCDMA IV PIFA Antenna with 2.02 dBi gain for LTE7/ LTE7C PIFA Antenna with 1.73 dBi gain for LTE38 PIFA Antenna with 2.02 dBi gain for LTE41 PIFA Antenna with 2.02 dBi gain for LTE41C	
HW VERSION	V1.0	
SW VERSION	OS.11.002-HON.11.002	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	USB CUP: 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 three 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-37D120G ,Assembled Scanner Imager: 7-S0703
2	SKU ID:CT45-L1N-38D120G ,Assembled Scanner Imager: 8 - N6803/S0803
3	SKU ID: CT45-L1N-37D220G , Assembled with Scanner: 7-S0703 for China Only with Android non-GMS

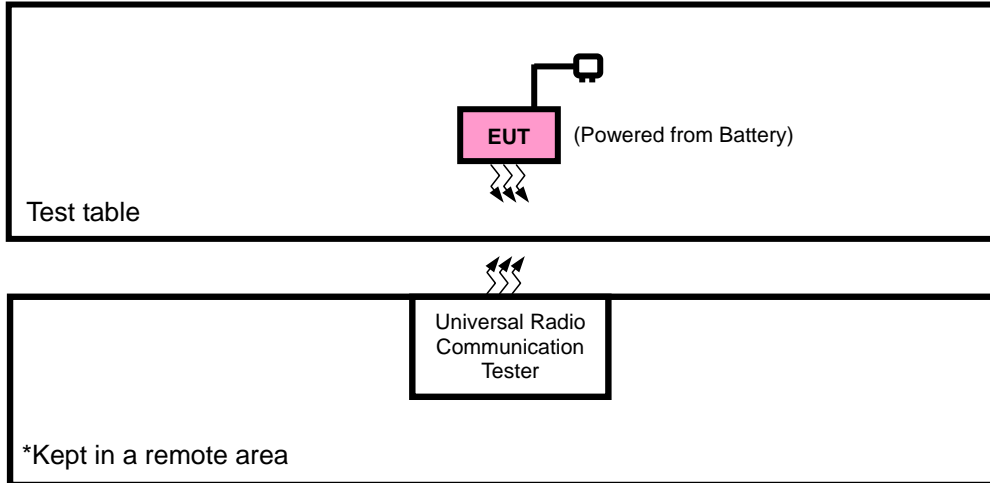
- 3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

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 CUP	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 1.8m

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:

DESCRIPTION
EUT + Battery with LTE link

WCDMA MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
EIRP	1312 to 1513	1312, 1413, 1513	WCDMA

LTE BAND 7 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
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

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

TEST ITEM	AVAILABLE PCC CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	20805 to 21206	Low, Middle, High	10MHz+20MHz	QPSK, 16QAM, 64QAM	1RB/ 49RB&1RB/ 0RB Offset
	20825 to 21277	Low, Middle, High	15MHz+10MHz	QPSK, 16QAM, 64QAM	1RB/ 74RB&1RB/ 0RB Offset
	20825 to 21225	Low, Middle, High	15MHz+15MHz	QPSK, 16QAM, 64QAM	1RB/ 74RB&1RB/ 0RB Offset
	20828 to 21179	Low, Middle, High	15MHz+20MHz	QPSK, 16QAM, 64QAM	1RB/ 74RB&1RB/ 0RB Offset
	20850 to 21251	Low, Middle, High	20MHz+10MHz	QPSK, 16QAM, 64QAM	1RB/ 99RB&1RB/ 0RB Offset
	20850 to 21201	Low, Middle, High	20MHz+15MHz	QPSK, 16QAM, 64QAM	1RB/ 99RB&1RB/ 0RB Offset
	20850 to 21152	Low, Middle, High	20MHz+20MHz	QPSK, 16QAM, 64QAM	1RB/ 99RB&1RB/ 0RB Offset

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

LTE BAND 38 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	37775 to 38225	37775, 38000, 38225	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
	37800 to 38200	37800, 38000, 38200	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0RB Offset
	37825 to 38175	37825, 38000, 38175	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
	37850 to 38150	37850, 38000, 38150	20MHz	QPSK, 16QAM, 64QAM	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 41 MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
EIRP	39675 to 41565	39675, 40620, 41565	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
	39700 to 41540	39700, 40620, 41540	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0RB Offset
	39725 to 41515	39725, 40620, 41515	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
	39750 to 41490	39750, 40620, 41490	20MHz	QPSK, 16QAM, 64QAM	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_41C MODE

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
TRANSMITTER OUTPUT POWER	39750 to 41341 39921 to 41512	39750 (2506MHz)+ 39921 (2523.1MHz), 40546 (2585.6MHz)+ 40717 (2602.7MHz) 41341 (2665.1MHz)+ 41512 (2682.2MHz),	20+15MHz	QPSK, 16QAM, 64QAM	1 RB / 99 RB Offset + 1 RB / 0 RB Offset
	39728 to 41319 39899 to 41490	39728 (2503.8MHz)+ 39899 (2520.9MHz), 40523 (2583.3MHz)+ 40694 (2600.4MHz) 41319 (2662.9MHz)+ 41490 (2680MHz),	15+20MHz	QPSK, 16QAM, 64QAM	1 RB / 74 RB Offset + 1 RB / 0 RB Offset
	39750 to 41391 39894 to 41535	39750 (2506MHz)+ 39894 (2520.4MHz), 40571 (2588.1MHz)+ 40715 (2602.5MHz) 41391 (2670.1MHz)+ 41535 (2684.5MHz),	20+10MHz	QPSK, 16QAM, 64QAM	1 RB / 99 RB Offset + 1 RB / 0 RB Offset N
	39705 to 41346 39849 to 41490	39705 (2501.5MHz)+ 39849 (2515.9MHz), 40526 (2583.6MHz)+ 40670 (2598.0MHz) 41346 (2665.6MHz)+ 41490 (2680MHz),	10+20MHz	QPSK, 16QAM, 64QAM	1 RB / 49 RB Offset + 1 RB / 0 RB Offset
	39725 to 41365 39875 to 41515	39725 (2503.5MHz)+ 39875 (2518.5MHz), 40545 (2585.5MHz)+ 40695 (2600.5MHz) 41365 (2667.5MHz)+ 41515 (2682.5MHz),	15+15MHz	QPSK, 16QAM, 64QAM	1 RB / 74 RB Offset + 1 RB / 0 RB Offset



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	39725 to 41417 39845 to 41537	39725 (2503.5MHz)+ 39845 (2515.5MHz), 40571 (2588.1MHz)+ 40691 (2600.1MHz) 41417 (2672.7MHz)+ 41537 (2684.7MHz),	15+10MHz	QPSK, 16QAM, 64QAM	1 RB / 74 RB Offset + 1 RB / 0 RB Offset
TRANSMITTER OUTPUT POWER	39703 to 41395 39823 to 41515	39703 (2501.3MHz)+ 39823 (2513.3MHz), 40549 (2585.9MHz)+ 40669 (2597.9MHz) 41395 (2670.5MHz)+ 41515 (2682.5MHz),	10+15MHz	QPSK, 16QAM, 64QAM	1 RB / 49 RB Offset + 1 RB / 0 RB Offset
	39750 to 41440 39867 to 41557	39750 (2506MHz)+ 39867 (2517.7MHz), 40595 (2590.5MHz)+ 40712 (2602.2MHz) 41440 (2675MHz)+ 41557 (2686.7MHz),	20+5MHz	QPSK, 16QAM, 64QAM	1 RB / 99 RB Offset + 1 RB / 0 RB Offset
	39683 to 41373 39800 to 41490	39683 (2499.3MHz)+ 39800 (2511MHz), 40528 (2583.8MHz)+ 40645 (2595.5MHz) 41373 (2668.3MHz)+ 41490 (2680MHz),	5+20MHz	QPSK, 16QAM, 64QAM	1 RB / 24 RB Offset + 1 RB / 0 RB Offset
	39750 to 41292 39948 to 41490	39750 (2506MHz)+ 39948 (2525.8MHz), 40521 (2583.1MHz)+ 40719 (2602.9MHz) 41292 (2660.2MHz)+ 41490 (2680MHz),	20+20MHz	QPSK, 16QAM, 64QAM	1 RB / 99 RB Offset , 1 RB / 0 RB Offset + 0 RB / 0 RB Offset , 1 RB / 99 RB Offset + 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	23deg. C, 70%RH	DC 3.85V By Battery	Jace Hu

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

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:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_{\text{T}} - L_{\text{C}}$$

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:

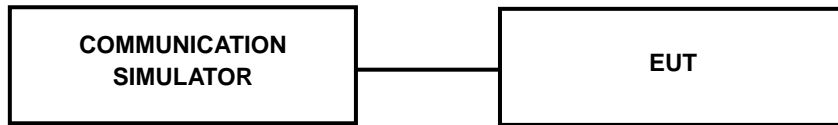
- a. The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
- b. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.



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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

Retested Data(For reference only,it's lower than the original report)

AVERAGE CONDUCTED OUTPUT POWER (dBm)

Band	WCDMA IV		
	1312	1413	1513
Channel	1712.4	1732.6	1752.6
Frequency (MHz)	1712.4	1732.6	1752.6
RMC 12.2K	21.19	21.27	21.17
HSDPA Subtest-1	20.30	20.31	20.18
HSDPA Subtest-2	20.19	20.26	20.18
HSDPA Subtest-3	19.70	19.86	19.70
HSDPA Subtest-4	19.71	19.85	19.60
DC-HSDPA Subtest-1	20.24	20.35	20.23
DC-HSDPA Subtest-2	20.31	20.32	20.17
DC-HSDPA Subtest-3	19.68	19.88	19.75
DC-HSDPA Subtest-4	19.71	19.78	19.73
HSUPA Subtest-1	20.27	20.33	20.22
HSUPA Subtest-2	18.17	18.27	20.15
HSUPA Subtest-3	18.69	18.91	19.67
HSUPA Subtest-4	17.72	17.79	19.71
HSUPA Subtest-5	20.31	20.43	20.23



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LTE Band 7

Band/BW	Modulation	RB Size	RB Offset	Low CH 20850	Mid CH 21100	High CH 21350	MPR
				Frequency 2510 MHz	Frequency 2535 MHz	Frequency 2560 MHz	
7/ 20	QPSK	1	0	21.52	21.58	21.42	0
		1	50	21.43	21.54	21.37	0
		1	99	21.40	21.51	21.38	0
		50	0	20.18	20.34	20.21	1
		50	25	20.25	20.32	20.19	1
		50	50	20.19	20.36	20.19	1
		100	0	20.22	20.27	20.18	1
	16QAM	1	0	20.68	20.77	20.55	1
		1	50	20.61	20.68	20.61	1
		1	99	20.46	20.56	20.43	1
		50	0	19.32	19.35	19.34	2
		50	25	19.31	19.45	19.32	2
		50	50	19.40	19.47	19.34	2
		100	0	19.20	19.26	19.13	2
	64QAM	1	0	19.37	19.55	19.36	2
		1	50	19.40	19.48	19.39	2
		1	99	19.40	19.46	19.34	2
		50	0	18.41	18.52	18.29	3
		50	25	18.35	18.46	18.31	3
		50	50	18.30	18.43	18.30	3
		100	0	18.36	18.45	18.37	3



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LTE Band CA_7C

CA_7C								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Measured Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
20850	21048	QPSK	1	0	1	99	1	11.61
			1	0	0	0	1	19.28
			1	99	1	0	2	21.45
		16QAM	1	0	1	99	1	11.34
			1	0	0	0	1	18.73
			1	99	1	0	2	20.76
		64QAM	1	0	1	99	1	11.02
			1	0	0	0	1	18.47
			1	99	1	0	2	19.79
21001	21199	QPSK	1	0	1	99	1	11.63
			1	0	0	0	1	19.17
			1	99	1	0	2	21.07
		16QAM	1	0	1	99	1	11.21
			1	0	0	0	1	18.52
			1	99	1	0	2	20.60
		64QAM	1	0	1	99	1	10.83
			1	0	0	0	1	18.17
			1	99	1	0	2	19.51
21152	21350	QPSK	1	0	1	99	1	11.68
			1	0	0	0	1	19.21
			1	99	1	0	2	21.64
		16QAM	1	0	1	99	1	11.44
			1	0	0	0	1	18.52
			1	99	1	0	2	20.92
		64QAM	1	0	1	99	1	10.98
			1	0	0	0	1	18.03
			1	99	1	0	2	19.87



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LTE Band 38

Band/BW	Modulation	RB Size	RB Offset	Low CH 37850	Mid CH 38000	High CH 38150	MPR
				Frequency 2580 MHz	Frequency 2595 MHz	Frequency 2610 MHz	
38/ 20	QPSK	1	0	21.52	21.62	21.59	0
		1	50	21.48	21.63	21.59	0
		1	99	21.54	21.69	21.69	0
		50	0	20.31	20.51	20.51	1
		50	25	20.58	20.69	20.69	1
		50	50	20.35	20.46	20.52	1
		100	0	20.44	20.53	20.57	1
	16QAM	1	0	20.77	20.90	20.81	1
		1	50	20.87	20.98	21.04	1
		1	99	20.83	20.97	20.97	1
		50	0	19.48	19.55	19.67	2
		50	25	19.45	19.63	19.63	2
		50	50	19.42	19.53	19.53	2
		100	0	19.45	19.55	19.55	2
	64QAM	1	0	19.61	19.83	19.77	2
		1	50	19.61	19.73	19.77	2
		1	99	19.67	19.77	19.78	2
		50	0	18.75	18.90	18.80	3
		50	25	18.68	18.83	18.81	3
		50	50	18.73	18.90	18.90	3
		100	0	18.67	18.80	18.85	3



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LTE Band 41

Band/BW	Modulation	RB Size	RB Offset	Low CH (39750)	Mid CH (40620)	High CH (41490)	MPR
				Frequency (2506)MHz	Frequency (2593)MHz	Frequency (2680)MHz	
41/ 20	QPSK	1	0	22.14	22.20	21.98	0
		1	50	21.96	22.02	21.83	0
		1	99	21.70	21.73	21.50	0
		50	0	20.87	21.02	20.79	1
		50	25	20.90	20.92	20.67	1
		50	50	20.70	20.89	20.62	1
		100	0	20.97	21.05	20.75	1
	16QAM	1	0	20.88	20.91	20.69	1
		1	50	21.19	21.23	20.98	1
		1	99	20.72	20.83	20.63	1
		50	0	20.02	20.11	19.82	2
		50	25	19.86	19.98	19.79	2
		50	50	19.77	19.87	19.58	2
		100	0	19.88	19.93	19.72	2
	64QAM	1	0	19.98	20.10	19.90	2
		1	50	19.97	20.08	19.82	2
		1	99	19.99	20.10	19.90	2
		50	0	19.05	19.12	18.90	3
		50	25	18.98	19.04	18.86	3
		50	50	19.08	19.12	18.91	3
		100	0	19.03	19.15	18.88	3



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LTE BAND CA 41C

CA_41C								
Combination 20MHz+20MHz (100RB+100RB)								
PCC Channel	SCC Channel	Modulation	PCC		SCC		Total RB Size	Measured Power (dBm)
			RB Size	RB offset	RB Size	RB offset		
39750	39948	QPSK	1	0	1	99	2	10.13
			1	0	0	0	1	22.33
			1	99	1	0	2	19.42
		16QAM	1	0	1	99	2	10.34
			1	0	0	0	1	21.53
			1	99	1	0	2	18.85
		64QAM	1	0	1	99	2	10.25
			1	0	0	0	1	20.88
			1	99	1	0	2	18.24
40521	40719	QPSK	1	0	1	99	2	10.56
			1	0	0	0	1	22.03
			1	99	1	0	2	18.91
		16QAM	1	0	1	99	2	10.26
			1	0	0	0	1	20.93
			1	99	1	0	2	17.82
		64QAM	1	0	1	99	2	10.02
			1	0	0	0	1	20.05
			1	99	1	0	2	16.95
41292	41490	QPSK	1	0	1	99	2	9.74
			1	0	0	0	1	21.38
			1	99	1	0	2	18.17
		16QAM	1	0	1	99	2	9.56
			1	0	0	0	1	20.61
			1	99	1	0	2	17.28
		64QAM	1	0	1	99	2	9.28
			1	0	0	0	1	19.83
			1	99	1	0	2	16.41



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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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Web Site: www.adt.com.tw

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



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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---