

# FCC Test Report

## (PART 27)

**Report No.:** RF150508C06A-2

**FCC ID:** A4R-WT2

**Test Model:** WT2

**Received Date:** Jul. 13, 2016

**Test Date:** Jul. 24, 2016 ~ Jul. 25, 2016

**Issued Date:** Aug. 05, 2016

**Applicant:** Google Inc.

**Address:** 1600 Amphitheatre Parkway Mountain View California United States 94043

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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( R.O.C )

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### Release Control Record

Issue No.	Description	Date Issued
RF150508C06A-2	Original Release	Aug. 05, 2016

## 1 Certificate of Conformity

**Product Name/Description:** Connectivity Bridge

**Brand:** Google

**Test Model:** WT2

**Sample Status:** Identical Prototype

**Company Name:** Google Inc.

**Test Date:** Jul. 24, 2016 ~ Jul. 25, 2016

**Standards:** FCC Part 27, Subpart C, L

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**Prepared by :** Evonne Liu , **Date:** Aug. 05, 2016  
Evonne Liu / Specialist

**Approved by :** Stanley Wu , **Date:** Aug. 05, 2016  
Stanley Wu / Assistant Manager

## 2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2 (LTE 4)			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(d)(4)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
2.1055 27.54	Frequency Stability	Not Applicable	Refer to Note
2.1049 27.53(h)	Occupied Bandwidth	Not Applicable	Refer to Note
27.50(d)(5)	Peak to Average Ratio	Not Applicable	Refer to Note
27.53(h)	Band Edge Measurements	Not Applicable	Refer to Note
2.1051 27.53(h)	Conducted Spurious Emissions	Not Applicable	Refer to Note
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -22.83 dB at 3465 MHz.

**NOTE:** Only the test item for EIRP Power and radiated emission had been tested for this addendum and the conducted data is referring to module report (Report No.: T140415W02-RP2).

Applied Standard: FCC Part 27 & Part 2 (LTE 17)			
FCC Clause	Test Item	Result	Remarks
2.1046 27.50(C)(10)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
2.1055 27.54	Frequency Stability	Not Applicable	Refer to Note
2.1049 27.53(g)	Occupied Bandwidth	Not Applicable	Refer to Note
27.50(d)(5)	Peak to Average Ratio	Not Applicable	Refer to Note
27.53(g)	Band Edge Measurements	Not Applicable	Refer to Note
2.1051 27.53(g)	Conducted Spurious Emissions	Not Applicable	Refer to Note
2.1053 27.53(g)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -44.81 dB at 38.73 MHz.

**NOTE:** Only the test item for ERP Power and radiated emission had been tested for this addendum and the conducted data is referring to module report (Report No.: T140415W02-RP2).

## 2.1 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	Frequency	Expanded Uncertainty (k=2) ( $\pm$ )
Radiated Emissions up to 1 GHz	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

## 2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Jan. 21, 2016	Jan. 20, 2017
Spectrum Analyzer Agilent	N9010A	MY52220314	Sep. 03, 2015	Sep. 02, 2016
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 17, 2015	Dec. 16, 2016
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Jan. 07, 2016	Jan. 06, 2017
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Jan. 04, 2016	Jan. 03, 2017
Double Ridge Guide Horn Antenna EMCO	3115	5619	Jan. 04, 2016	Jan. 03, 2017
BILOG Antenna SCHWARZBECK	VULB 9168	9168-153	Jan. 07, 2016	Jan. 06, 2017
Agilent Communications Tester-Wireless	8960 Series 10	MY53201073	Jul. 03, 2015	Jul. 02, 2017
Preamplifier EMCI	EMC 012645	980115	Dec. 21, 2015	Dec. 20, 2016
Preamplifier EMCI	EMC 184045	980116	Dec. 21, 2015	Dec. 20, 2016
Preamplifier EMCI	EMC 330H	980112	Dec. 28, 2015	Dec. 27, 2016
Power Meter Anritsu	ML2495A	1232002	Sep. 21, 2015	Sep. 20, 2016
Power Sensor Anritsu	MA2411B	1207325	Sep. 21, 2015	Sep. 20, 2016
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4 2950114	Oct. 12, 2015	Oct. 11, 2016
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 12, 2015	Oct. 11, 2016
RF Coaxial Cable Worken	8D-FB	Cable-Ch10-01	Oct. 12, 2015	Oct. 11, 2016
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
Radio Communication Analyzer	MT8820C	6201300640	Aug. 10, 2015	Aug. 09, 2017

- Note: 1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 10.
3. The horn antenna and preamplifier (model: EMC 184045) are used only for the measurement of emission frequency above 1 GHz if tested.
4. The FCC Site Registration No. is 690701.
5. The IC Site Registration No. is IC7450F-10.

### 3 General Information

#### 3.1 General Description of EUT

<b>Product Name/Description</b>	Connectivity Bridge	
<b>Brand</b>	Google	
<b>Test Model</b>	WT2	
<b>Status of EUT</b>	Identical Prototype	
<b>Power Supply Rating</b>	5.0 Vdc (adapter)	
<b>Modulation Type</b>	LTE	QPSK, 16QAM
<b>Frequency Range</b>	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	1710.7 ~ 1754.3 MHz
	LTE Band 4 (Channel Bandwidth: 3 MHz)	1711.5 ~ 1753.5 MHz
	LTE Band 4 (Channel Bandwidth: 5 MHz)	1712.5 ~ 1752.5 MHz
	LTE Band 4 (Channel Bandwidth: 10 MHz)	1715.0 ~ 1750.0 MHz
	LTE Band 4 (Channel Bandwidth: 15 MHz)	1717.5 ~ 1747.5 MHz
	LTE Band 4 (Channel Bandwidth: 20 MHz)	1720.0 ~ 1745.0 MHz
	LTE Band 17 (Channel Bandwidth: 5 MHz)	706.5 ~ 713.5 MHz
	LTE Band 17 (Channel Bandwidth: 10 MHz)	709 ~ 711 MHz
<b>Max. ERP Power</b>	LTE Band 17 (Channel Bandwidth: 5 MHz)	61.09mW
	LTE Band 17 (Channel Bandwidth: 10 MHz)	62.52mW
<b>Max. EIRP Power</b>	LTE Band 4 (Channel Bandwidth: 1.4 MHz)	118.30mW
	LTE Band 4 (Channel Bandwidth: 3 MHz)	121.34mW
	LTE Band 4 (Channel Bandwidth: 5 MHz)	124.45mW
	LTE Band 4 (Channel Bandwidth: 10 MHz)	128.20mW
	LTE Band 4 (Channel Bandwidth: 15 MHz)	131.83mW
	LTE Band 4 (Channel Bandwidth: 20 MHz)	136.46mW
<b>Antenna Type</b>	Fixed Internal Antenna	
<b>Accessory Device</b>	Refer to Note as below	
<b>Data Cable Supplied</b>	Refer to Note as below	

Note:

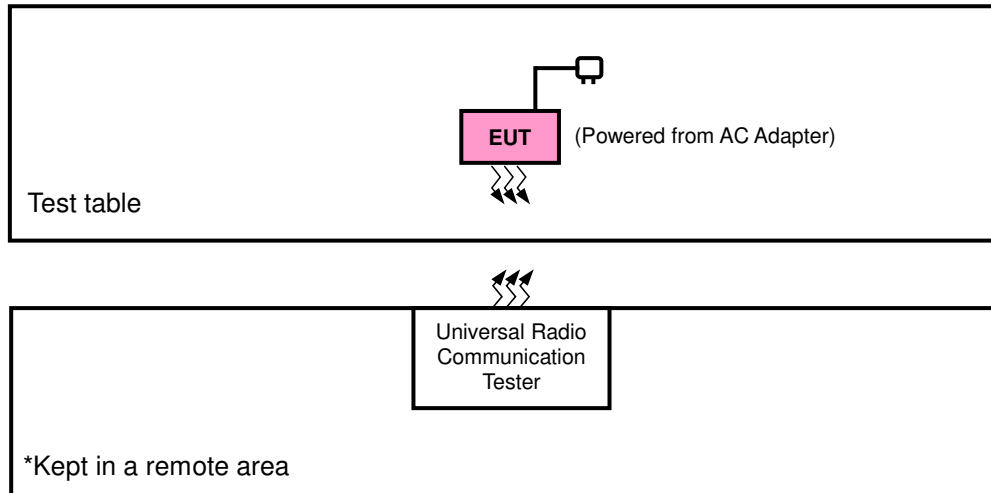
- The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter	TPT	MII050200	I/P: 100-240Vac, 50-60Hz, 0.3A O/P: 5Vdc, 2A
WWAN Module	Telit	LE910-NAG	--
WiFi Module	AzureWave	AW-CM389NF	--

- The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.



### 3.2 Configuration of System under Test



#### 3.2.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units.

### 3.3 Test Mode Applicability and Tested Channel Detail

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 as the table below. Following channel(s) was (were) selected for the final test as listed below:

Band	ERP / EIRP	Radiated Emission
LTE Band 4	Z-plane	Z-axis
LTE Band 17	X-plane	X-axis

#### LTE Band 4

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	19957 to 20393	19957, 20175, 20393	1.4 MHz	QPSK, 16QAM	1 RB / 5 RB Offset
		19965 to 20385	19965, 20175, 20385	3 MHz	QPSK, 16QAM	1 RB / 14 RB Offset
		19975 to 20375	19975, 20175, 20375	5 MHz	QPSK, 16QAM	1 RB / 24 RB Offset
		20000 to 20350	20000, 20175, 20350	10 MHz	QPSK, 16QAM	1 RB / 49 RB Offset
		20025 to 20325	20025, 20175, 20325	15 MHz	QPSK, 16QAM	1 RB / 74 RB Offset
		20050 to 20300	20050, 20175, 20300	20 MHz	QPSK, 16QAM	1 RB / 99 RB Offset
-	Radiated Emission	20050 to 20300	20175	20 MHz	QPSK	1 RB / 99 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
-	ERP	23755 to 23825	23755, 23790, 23825	5 MHz	QPSK, 16QAM	1 RB / 12 RB Offset
		23780 to 23800	23780, 23790, 23800	10 MHz	QPSK, 16QAM	1 RB / 24 RB Offset
-	Radiated Emission	23780 to 23800	23790	10 MHz	QPSK	1 RB / 24 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	25 deg. C, 65 % RH	5 Vdc	Getaz Yang
Radiated Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang

### **3.4 EUT Operating Conditions**

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

### **3.5 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 v02r02**

**ANSI/TIA/EIA-603-D 2010**

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

## 4 Test Types and Results

### 4.1 Output Power Measurement

#### 4.1.1 Limits of Output Power Measurement

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

Portable stations (hand-held devices) operating in the 704-716 MHz band are limited to 3 watts ERP

#### 4.1.2 Test Procedures

##### **EIRP / ERP Measurement:**

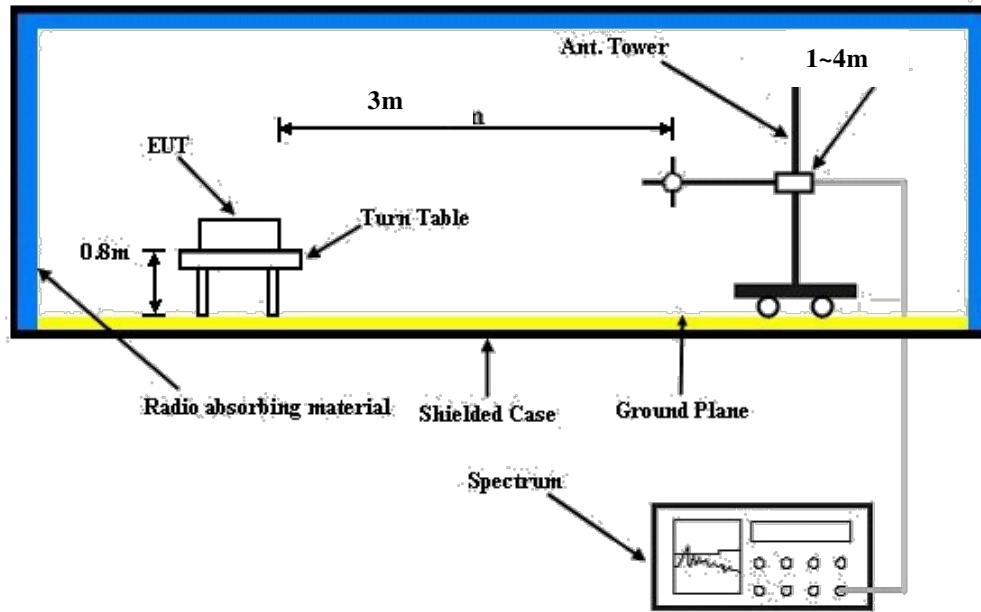
- a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 5 MHz for WCDMA and 10 MHz for LTE mode.
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
- c. 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 b. Record the power level of S.G.
- d.  $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$ . E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,  $E.R.P \text{ power} = E.I.P.R \text{ power} - 2.15 \text{ dBi}$ .

##### **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.

### 4.1.3 Test Setup

#### EIRP / ERP Measurement:



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

#### Conducted Power Measurement:



4.1.4 Test Results

**ERP Power (dBm)**

LTE Band 17							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
X	23755	706.5	-10.39	30.36	17.82	60.53	H
	23790	710.0	-10.16	30.17	17.86	61.09	
	23825	713.5	-10.24	30.17	17.78	60.03	
	23755	706.5	-18.45	32.03	11.43	13.90	V
	23790	710.0	-18.33	31.98	11.50	14.13	
	23825	713.5	-18.42	32.06	11.49	14.09	
Channel Bandwidth: 5 MHz / 16QAM							
X	23755	706.5	-11.48	30.36	16.73	47.10	H
	23790	710.0	-11.25	30.17	16.77	47.53	
	23825	713.5	-11.26	30.17	16.76	47.42	
	23755	706.5	-19.79	32.03	10.09	10.21	V
	23790	710.0	-19.70	31.98	10.13	10.30	
	23825	713.5	-19.81	32.06	10.10	10.23	

LTE Band 17							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (mW)	Polarization (H/V)
X	23780	709.0	-10.18	30.17	17.84	60.81	H
	23790	710.0	-10.06	30.17	17.96	62.52	
	23800	711.0	-10.09	30.18	17.94	62.23	
	23780	709.0	-18.31	31.96	11.50	14.13	V
	23790	710.0	-18.27	31.98	11.56	14.32	
	23800	711.0	-18.35	32.03	11.53	14.22	
Channel Bandwidth: 10 MHz / 16QAM							
X	23780	709.0	-11.21	30.17	16.81	47.97	H
	23790	710.0	-11.17	30.17	16.85	48.42	
	23800	711.0	-11.19	30.18	16.84	48.31	
	23780	709.0	-19.65	31.96	10.16	10.38	V
	23790	710.0	-19.59	31.98	10.24	10.57	
	23800	711.0	-19.70	32.03	10.18	10.42	

**EIRP Power (dBm)**

LTE Band 4							
Channel Bandwidth: 1.4 MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	19957	1710.7	-20.52	36.45	15.93	39.17	H
	20175	1732.5	-20.82	36.80	15.98	39.62	
	20393	1754.3	-20.99	36.94	15.95	39.38	
	19957	1710.7	-16.62	37.28	20.66	116.33	V
	20175	1732.5	-16.90	37.63	20.73	118.30	
	20393	1754.3	-16.93	37.64	20.71	117.76	
Channel Bandwidth: 1.4 MHz / 16QAM							
Z	19957	1710.7	-21.33	36.45	15.12	32.51	H
	20175	1732.5	-21.62	36.80	15.18	32.95	
	20393	1754.3	-21.79	36.94	15.15	32.76	
	19957	1710.7	-17.31	37.28	19.97	99.24	V
	20175	1732.5	-17.59	37.63	20.04	100.93	
	20393	1754.3	-17.61	37.64	20.03	100.69	

LTE Band 4							
Channel Bandwidth: 3 MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	19965	1711.5	-20.41	36.45	16.04	40.18	H
	20175	1732.5	-20.71	36.80	16.09	40.63	
	20385	1753.5	-20.89	36.94	16.05	40.30	
	19965	1711.5	-16.51	37.28	20.77	119.32	V
	20175	1732.5	-16.79	37.63	20.84	121.34	
	20385	1753.5	-16.82	37.64	20.82	120.78	
Channel Bandwidth: 3 MHz / 16QAM							
Z	19965	1711.5	-21.20	36.45	15.25	33.50	H
	20175	1732.5	-21.46	36.80	15.34	34.19	
	20385	1753.5	-21.65	36.94	15.29	33.83	
	19965	1711.5	-17.24	37.28	20.04	100.86	V
	20175	1732.5	-17.46	37.63	20.17	103.99	
	20385	1753.5	-17.52	37.64	20.12	102.80	



LTE Band 4							
Channel Bandwidth: 5 MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	19975	1712.5	-20.34	36.45	16.11	40.83	H
	20175	1732.5	-20.60	36.80	16.20	41.68	
	20375	1752.5	-20.76	36.94	16.18	41.52	
	19975	1712.5	-16.42	37.28	20.86	121.81	V
	20175	1732.5	-16.68	37.63	20.95	124.45	
	20375	1752.5	-16.73	37.64	20.91	123.31	
Channel Bandwidth: 5 MHz / 16QAM							
Z	19975	1712.5	-21.09	36.45	15.36	34.36	H
	20175	1732.5	-21.33	36.80	15.47	35.23	
	20375	1752.5	-21.51	36.94	15.43	34.94	
	19975	1712.5	-17.06	37.28	20.22	105.12	V
	20175	1732.5	-17.39	37.63	20.24	105.68	
	20375	1752.5	-17.43	37.64	20.21	104.95	

LTE Band 4							
Channel Bandwidth: 10 MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	20000	1715.0	-20.38	36.64	16.26	42.27	H
	20175	1732.5	-20.49	36.80	16.31	42.71	
	20350	1750.0	-20.50	36.80	16.30	42.66	
	20000	1715.0	-16.50	37.44	20.94	124.14	V
	20175	1732.5	-16.55	37.63	21.08	128.20	
	20350	1750.0	-16.65	37.64	20.99	125.46	
Channel Bandwidth: 10 MHz / 16QAM							
Z	20000	1715.0	-21.11	36.64	15.53	35.73	H
	20175	1732.5	-21.24	36.80	15.56	35.93	
	20350	1750.0	-21.29	36.80	15.51	35.56	
	20000	1715.0	-17.08	37.44	20.36	108.62	V
	20175	1732.5	-17.22	37.63	20.41	109.88	
	20350	1750.0	-17.27	37.64	20.37	108.77	

LTE Band 4							
Channel Bandwidth: 15 MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	20025	1717.5	-20.06	36.45	16.39	43.55	H
	20175	1732.5	-20.38	36.80	16.42	43.84	
	20325	1747.5	-20.53	36.94	16.41	43.78	
	20025	1717.5	-16.12	37.28	21.16	130.53	V
	20175	1732.5	-16.43	37.63	21.20	131.83	
	20325	1747.5	-16.46	37.64	21.18	131.22	
Channel Bandwidth: 15 MHz / 16QAM							
Z	20025	1717.5	-20.75	36.45	15.70	37.15	H
	20175	1732.5	-21.08	36.80	15.72	37.32	
	20325	1747.5	-21.26	36.94	15.68	37.01	
	20025	1717.5	-16.79	37.28	20.49	111.87	V
	20175	1732.5	-17.09	37.63	20.54	113.24	
	20325	1747.5	-17.16	37.64	20.48	111.69	

LTE Band 4							
Channel Bandwidth: 20 MHz / QPSK							
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)
Z	20050	1720.0	-19.94	36.45	16.51	44.77	H
	20175	1732.5	-20.15	36.80	16.65	46.23	
	20300	1745.0	-20.41	36.94	16.53	45.01	
	20050	1720.0	-16.01	37.28	21.27	133.88	V
	20175	1732.5	-16.28	37.63	21.35	136.46	
	20300	1745.0	-16.31	37.64	21.33	135.83	
Channel Bandwidth: 20 MHz / 16QAM							
Z	20050	1720.0	-20.63	36.45	15.82	38.19	H
	20175	1732.5	-20.92	36.80	15.88	38.72	
	20300	1745.0	-21.10	36.94	15.84	38.40	
	20050	1720.0	-16.69	37.28	20.59	114.47	V
	20175	1732.5	-16.98	37.63	20.65	116.14	
	20300	1745.0	-17.04	37.64	20.60	114.82	

## 4.2 Radiated Emission Measurement

### 4.2.1 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  $43 + 10 \log_{10}(P)$  dB. The limit of emission is equal to -13 dBm.

### 4.2.2 Test Procedure

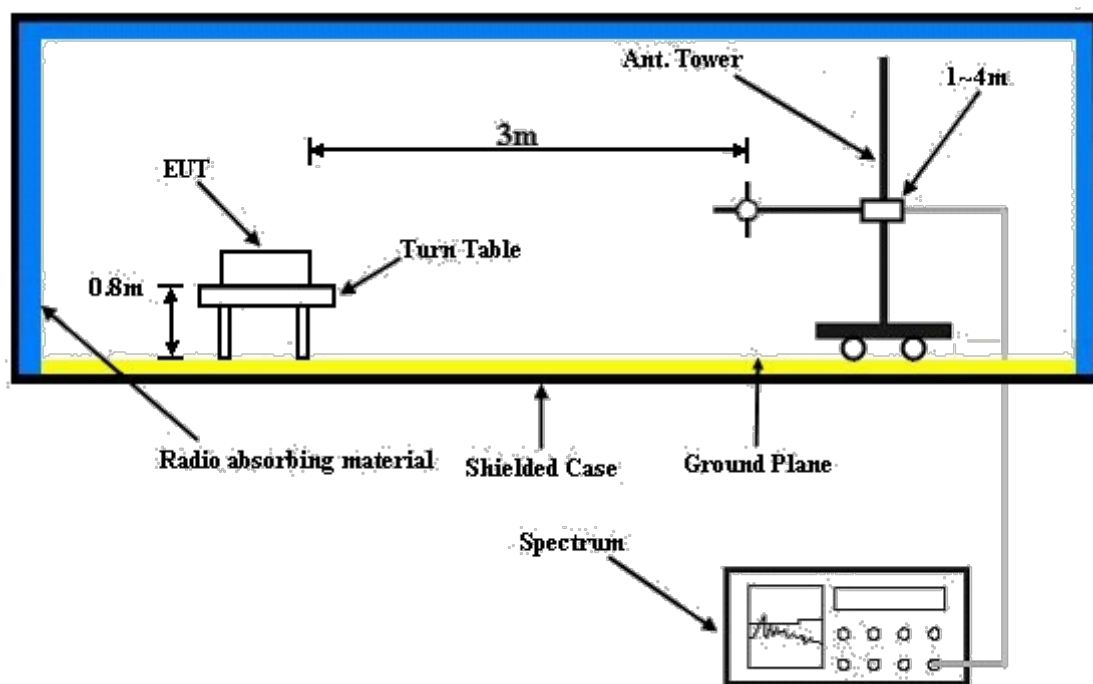
- Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- 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.
- $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$ .
- 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.

### 4.2.3 Deviation from Test Standard

No deviation.

### 4.2.4 Test Setup



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

4.2.5 Test Results

LTE Band 4

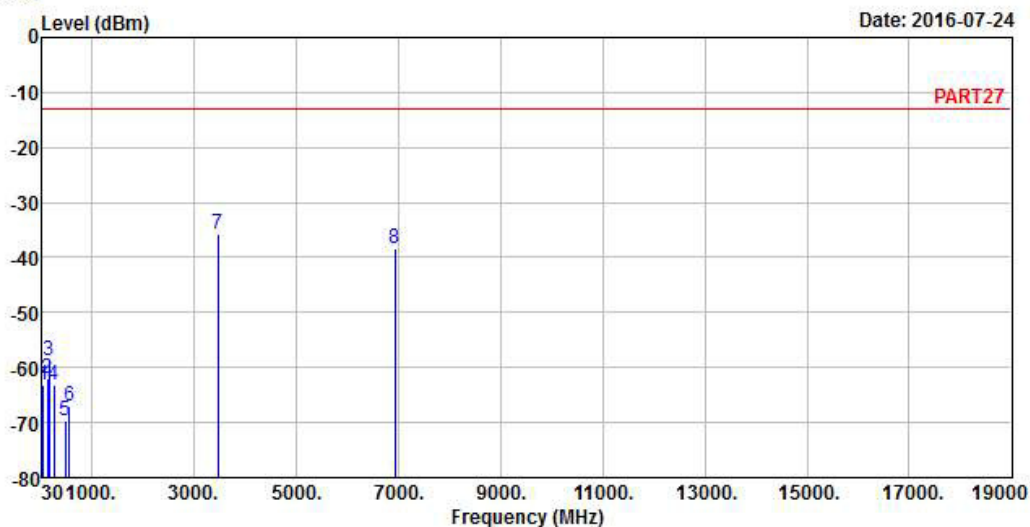
Channel Bandwidth: 20 MHz / QPSK



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 7



Site : 966 Chamber 5  
 Condition: PART27 HORIZONTAL  
 Remak : LTE Band 4\_QPSK\_20M Link  
 Tested by: Geetaz Yang

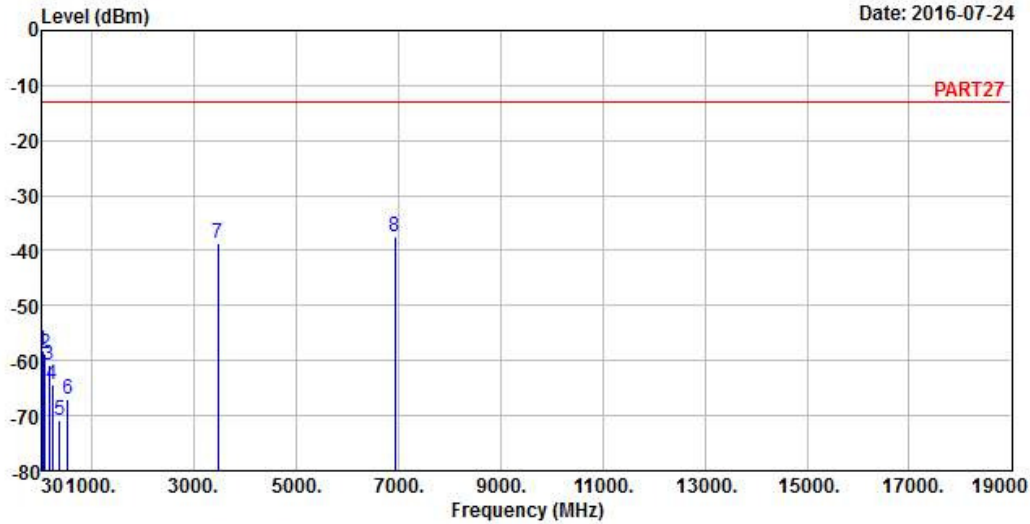
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	44.55	-63.25	-61.26	-13.00	-50.25	-1.99	Peak
2	128.94	-62.10	-53.29	-13.00	-49.10	-8.81	Peak
3	163.86	-58.76	-53.64	-13.00	-45.76	-5.12	Peak
4	259.89	-63.05	-56.86	-13.00	-50.05	-6.19	Peak
5	482.99	-69.63	-64.69	-13.00	-56.63	-4.94	Peak
6	563.50	-66.86	-64.58	-13.00	-53.86	-2.28	Peak
7 pp	3465.00	-35.83	-26.92	-13.00	-22.83	-8.91	Peak
8	6930.00	-38.35	-42.64	-13.00	-25.35	4.29	Peak



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

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Data: 8



Site : 966 Chamber 5  
 Condition: PART27 VERTICAL  
 Remak : LTE Band 4\_QPSK\_20M Link  
 Tested by: Geetaz Yang

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	38.73	-58.06	-58.16	-13.00	-45.06	0.10	Peak
2	75.59	-58.86	-49.11	-13.00	-45.86	-9.75	Peak
3	163.86	-60.71	-55.59	-13.00	-47.71	-5.12	Peak
4	223.03	-64.41	-57.33	-13.00	-51.41	-7.08	Peak
5	375.32	-70.75	-64.66	-13.00	-57.75	-6.09	Peak
6	533.43	-66.94	-63.50	-13.00	-53.94	-3.44	Peak
7	3465.00	-38.55	-29.64	-13.00	-25.55	-8.91	Peak
8 pp	6930.00	-37.61	-41.90	-13.00	-24.61	4.29	Peak

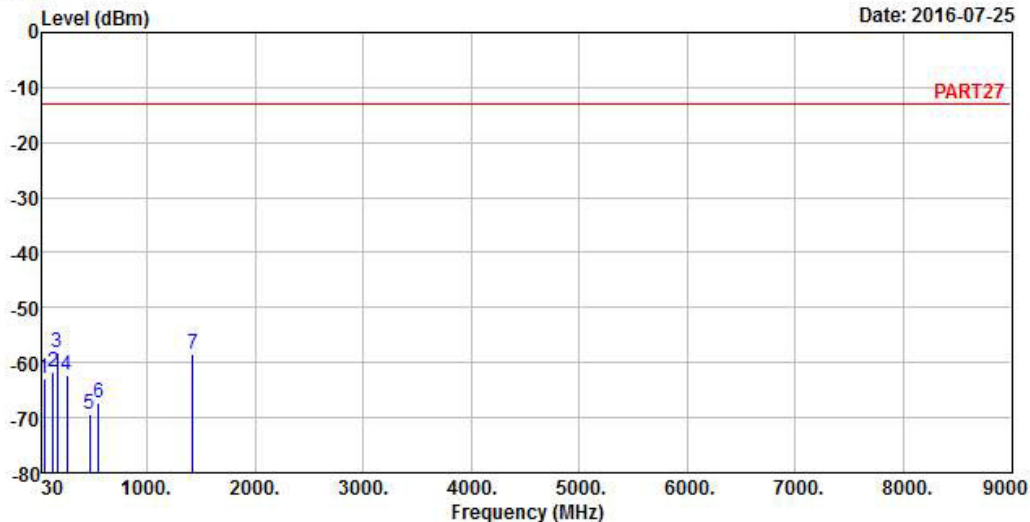
**LTE Band 17**  
**Channel Bandwidth: 10 MHz / QPSK**



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

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Data: 5



Site : 966 Chamber 5  
 Condition: PART27 HORIZONTAL  
 Remak : LTE Band 17\_QPSK\_10M Link  
 Tested by: Geetaz Yang

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1	44.55	-62.80	-60.81	-13.00	-49.80	-1.99	Peak
2	132.82	-61.60	-52.92	-13.00	-48.60	-8.68	Peak
3 pp	164.83	-58.28	-53.09	-13.00	-45.28	-5.19	Peak
4	257.95	-62.17	-56.02	-13.00	-49.17	-6.15	Peak
5	465.53	-69.46	-64.20	-13.00	-56.46	-5.26	Peak
6	552.83	-67.16	-64.43	-13.00	-54.16	-2.73	Peak
7	1420.00	-58.53	-44.19	-13.00	-45.53	-14.34	Peak

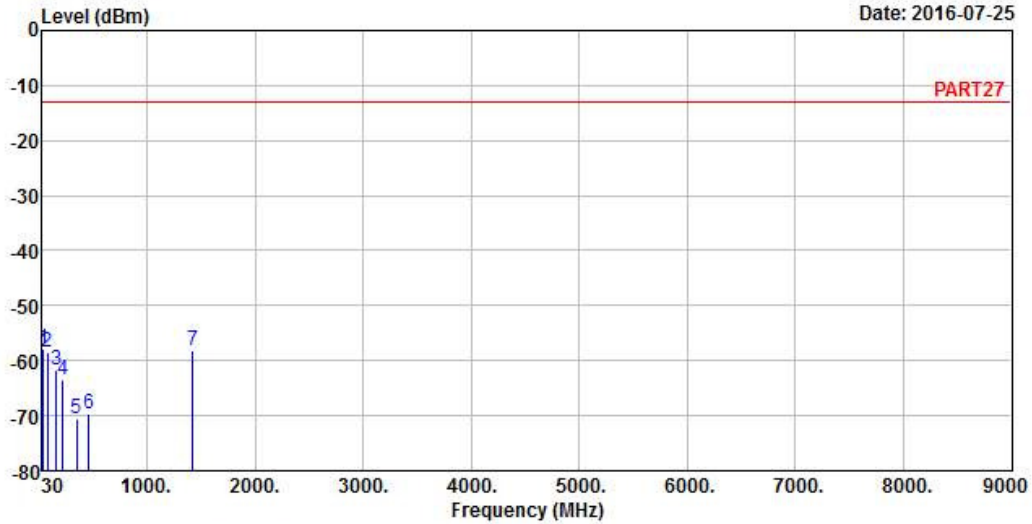


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

A D T

Data: 6

Date: 2016-07-25



Site : 966 Chamber 5  
 Condition: PART27 VERTICAL  
 Remak : LTE Band 17\_QPSK\_10M Link  
 Tested by: Geetaz Yang

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark
	MHz	dBm	dBm	dBm	dB	dB	
1 pp	38.73	-57.81	-57.91	-13.00	-44.81	0.10	Peak
2	74.62	-58.42	-48.89	-13.00	-45.42	-9.53	Peak
3	162.89	-61.62	-56.57	-13.00	-48.62	-5.05	Peak
4	223.03	-63.49	-56.41	-13.00	-50.49	-7.08	Peak
5	350.10	-70.69	-64.45	-13.00	-57.69	-6.24	Peak
6	460.68	-69.58	-64.23	-13.00	-56.58	-5.35	Peak
7	1420.00	-58.20	-43.86	-13.00	-45.20	-14.34	Peak

## 5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).



## Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

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

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