

# FCC TEST REPORT

## (PART 27)


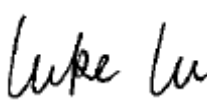
Applicant:	HMD Global Oy
Address:	Bertel Jungin aukio 9, 02600 Espoo, Finland

Manufacturer or Supplier:	HMD Global Oy
Address:	Bertel Jungin aukio 9, 02600 Espoo, Finland
Product:	GSM/WCDMA/LTE Mobile Phone
Brand Name:	Nokia
Model Name:	TA-1280
FCC ID:	2AJOTTA-1280
Date of tests:	Jul. 3, 2020 ~ Jul. 27, 2020

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

☒ FCC Part 27, Subpart C, L    ☒ 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 Alex Chen Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
	
Date: Jul. 29, 2020	Date: Jul. 29, 2020

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Test Report No.: RF200701W006-5

## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF200629W001-5	Original release	Jul. 21, 2020
RF200701W006-5	Based on the original report RF200629W001-5 remove back camera and 2pcs keymat LED, change Keypad materials and FCC ID, HW version and model name. In this report verify power and RSE worst case.	Jul. 29, 2020

## 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	REMARK
2.1046 27.50(d)(4)	Maximum Peak Output Power	Compliance	Meet the requirement of limit.
2.1055 27.54	Frequency Stability	N.A	See note
2.1049 27.53(h)	Occupied Bandwidth	N.A	See note
27.50(d)(5)	Peak to average ratio	N.A	See note
27.53(h)	Band Edge Measurements	N.A	See note
2.1051 27.53(h)	Conducted Spurious Emissions	N.A	See note
2.1053 27.53(h)	Radiated Spurious Emissions	Compliance	Meet the requirement of limit.

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

Note:

Per the change notice provide by manufactory, the difference is remove back camera and 2pcs keymat LED, change Keypad materials and FCC ID, HW version and model name., all the change no effect any RF parameter, Therefore only verify the radiated emission worse case, power and show the verify test data on this report.

Other test data re-use from test report RF200629W001-5, more details please refer test report RF200629W001-5 (FCC ID: 2AJOTTA-1282)

## 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	$\pm 4.70\text{dB}$
Peak to average ratio	$\pm 0.76\text{dB}$

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. 27,20	Apr. 26,21
EXA Signal Analyzer	KEYSIGHT	N9010A-526	MY54510322	Feb. 26,20	Feb. 25,21
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Mar. 27,20	Mar. 26,21
Horn Antenna (1GHz-18GHz)	ETS-LINDGREN	3117	00168692	Mar. 27,20	Mar. 26,21
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40 -K-SG/QMS-00 361	15433	Nov. 24, 19	Nov. 23, 20
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 27,20	Feb. 26,21
Signal Pre-Amplifier	EMSI	EMC 9135	980249	Jun. 02,20	Jun. 01,21
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	Jun. 02,20	Jun. 01,21
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Apr. 30,20	Apr. 29,21
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 _V7.6.15.9.2	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SM A	1505	Jun. 03,20	Jun. 02,21
Power Meter	Anritsu	ML2495A	1506002	Feb. 26,20	Feb. 25,21
Power Sensor	Anritsu	MA2411B	1339352	Feb. 26,20	Feb. 25,21
Humid & Temp Programmable Tester	Juyi	ITH-120-45-CP -AR	IAA1504-001	Jun. 02,20	Jun. 01,21
MXG Analog Microvave Signal Generator	KEYSIGHT	N5183A	MY50143024	Mar. 11,20	Mar. 10,21
Power Divider	MCLI/USA	PS2-15	24880	N/A	N/A

- NOTE:**
1. The calibration interval of the above test instruments is 12 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

<b>PRODUCT</b>	GSM/WCDMA/LTE Mobile Phone	
<b>BRAND NAME</b>	Nokia	
<b>MODEL NAME</b>	TA-1280	
<b>POWER SUPPLY</b>	5.0Vdc (adapter or host equipment) 3.7Vdc (Li-ion, battery)	
<b>MODULATION TECHNOLOGY</b>	LTE	QPSK, 16QAM
<b>FREQUENCY RANGE</b>	LTE Band 17 Channel Bandwidth: 5MHz	706.5MHz ~ 713.5MHz
	LTE Band 17 Channel Bandwidth: 10MHz	709.0MHz ~ 711.0MHz
<b>EMISSION DESIGNATOR</b>	LTE Band 17 Channel Bandwidth: 5MHz	QPSK: 4M48G7D
		16QAM: 4M49W7D
	LTE Band 17 Channel Bandwidth: 10MHz	QPSK: 8M96G7D
		16QAM: 8M97W7D
<b>MAX. ERP/EIRP POWER</b>	LTE Band 17 Channel Bandwidth: 5MHz	31mW
	LTE Band 17 Channel Bandwidth: 10MHz	32mW
<b>ANTENNA TYPE</b>	Fixed Internal Antenna with -5.58dBi gain for LTE B17	
<b>HW VERSION</b>	0144	
<b>SW VERSION</b>	0.2025.11.05	
<b>I/O PORTS</b>	Refer to user's manual	
<b>CABLE SUPPLIED</b>	USB cable: non-shielded, detachable, 1meter Earphone: non-shielded, detachable, 1.5meter	

**NOTE:**

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.





**BUREAU  
VERITAS**

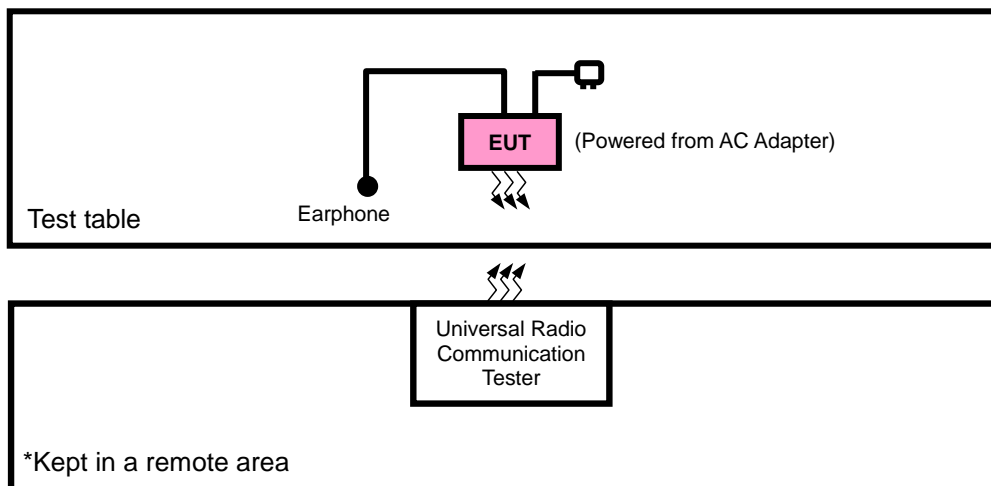
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**List of Accessory:**

ACCESSORIES	BRAND	MODEL	MANUFACTURER	SPECIFICATION
Battery 1	Nokia	BL-4WL	TM	Power Rating:3.7 Vdc, 1150 mAh
AC Adapter 1	Nokia	AC-18U	DVE	I/P: 100 - 240 Vac, 100mA, O/P: 5Vdc, 550 mA
AC Adapter 2	Nokia	AC-18U	Aohai	I/P: 100 - 240 Vac, 100mA, O/P: 5Vdc, 550 mA
Earphone 1	Nokia	WH-108	RTF	1.5m non-shielded cable w/ core
USB Cable 1	Nokia	CA-190CD	RTF	1m non-shielded cable w/ core

## 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

**NOTE:**

1. All power cords of the above support units are non shielded.

## 2.4 DESCRIPTION OF TEST MODES

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 in ERP/EIRP and radiated emission was found when positioned on X-plane for LTE. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	DESCRIPTION
A	EUT + Adapter + USB Cable+ Earphone with LTE link
B	EUT + Battery with LTE link

**LTE BAND 17**

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	RADIATED EMISSION	23780 to 23800	23790	10MHz	QPSK	1 RB / 0 RB Offset
B	ERP	23755 to 23825	23755, 23790, 23825	5MHz	QPSK, 16QAM	1 RB / 0 RB Offset
		23780 to 23800	23780, 23790, 23800	10MHz	QPSK, 16QAM	1 RB / 0 RB Offset

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

**TEST CONDITION:**

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RADIATED EMISSION	23deg. C, 70%RH	DC 5V By Adapter	Star Le
EIRP	23deg. C, 70%RH	DC 5V By Adapter	Star Le



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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 OUTPUT POWER MEASUREMENT

##### 3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

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

##### 3.1.2 TEST PROCEDURES

###### **EIRP / ERP MEASUREMENT:**

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

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

Where:

ERP or EIRP = effective radiated power or equivalent isotropically radiated power, respectively  
(expressed in the same units as  $P_{\text{Meas}}$ , typically dBW or dBm);

$P_{\text{Meas}}$  = 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.

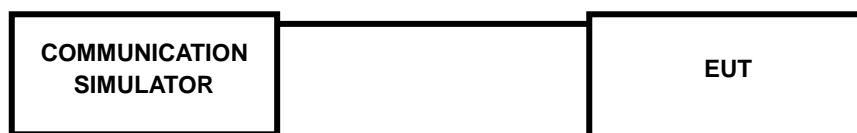
###### **CONDUCTED POWER MEASUREMENT:**

- 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.

### 3.1.3 TEST SETUP

#### EIRP MEASUREMENT:

#### CONDUCTED POWER MEASUREMENT:



### 3.1.4 TEST RESULTS

#### AVERAGE CONDUCTED OUTPUT POWER (dBm)

Band/BW	Modulation	RB Size	RB Offset	Low CH 23755	Mid CH 23790	High CH 23825	MPR
				Frequency 706.5 MHz	Frequency 710 MHz	Frequency 713.5 MHz	
17/ 5	QPSK	1	0	22.62	22.62	22.58	0
		1	12	22.71	22.67	22.67	0
		1	24	22.69	22.68	22.69	0
		12	0	21.71	21.72	21.66	1
		12	6	21.78	21.87	21.77	1
		12	13	21.67	21.68	21.66	1
		25	0	21.83	21.89	21.80	1
	16QAM	1	0	22.07	22.11	22.08	1
		1	12	22.10	22.18	22.09	1
		1	24	22.15	22.11	22.11	1
		12	0	21.02	21.06	20.98	2
		12	6	21.10	21.16	21.06	2
		12	13	21.12	21.16	21.13	2
		25	0	21.14	21.15	21.11	2

Band/BW	Modulation	RB Size	RB Offset	Low CH 23780	Mid CH 23790	High CH 23800	MPR
				Frequency 709 MHz	Frequency 710 MHz	Frequency 711 MHz	
17/ 10	QPSK	1	0	22.67	22.69	22.63	0
		1	24	22.73	22.75	22.69	0
		1	49	22.74	22.76	22.70	0
		25	0	21.75	21.77	21.71	1
		25	12	21.86	21.88	21.82	1
		25	25	21.71	21.73	21.67	1
		50	0	21.89	21.91	21.85	1
	16QAM	1	0	22.14	22.16	22.10	1
		1	24	22.18	22.20	22.14	1
		1	49	22.17	22.19	22.13	1
		25	0	21.10	21.12	21.06	2
		25	12	21.16	21.18	21.12	2
		25	25	21.19	21.21	21.15	2
		50	0	21.20	21.22	21.16	2



## EIRP

### LTE BAND 17

#### CHANNEL BANDWIDTH: 5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23755	706.5	22.71	-5.58	14.98	31.48	3
23790	710.0	22.68	-5.58	14.95	31.26	3
23825	713.5	22.69	-5.58	14.96	31.33	3

#### CHANNEL BANDWIDTH: 5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23755	706.5	22.15	-5.58	14.42	27.67	3
23790	710.0	22.18	-5.58	14.45	27.86	3
23825	713.5	22.11	-5.58	14.38	27.42	3

#### CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23780	709.0	22.74	-5.58	15.01	31.7	3
23790	710.0	22.76	-5.58	15.03	31.84	3
23800	711.0	22.70	-5.58	14.97	31.41	3

#### CHANNEL BANDWIDTH: 10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23780	709.0	22.18	-5.58	14.45	27.86	3
23790	710.0	22.20	-5.58	14.47	27.99	3
23800	711.0	22.14	-5.58	14.41	27.61	3

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

## 3.2 FREQUENCY STABILITY MEASUREMENT

### 3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

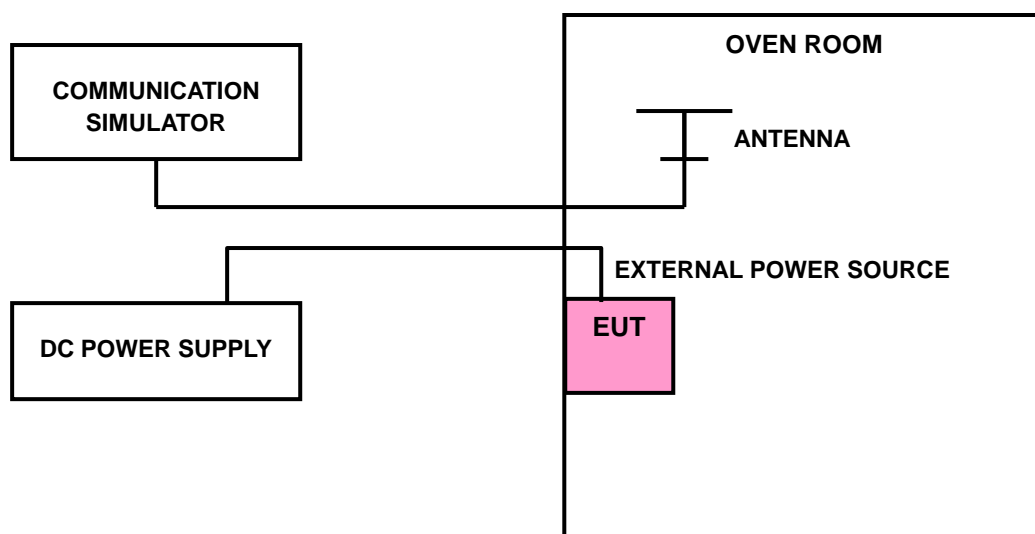
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

### 3.2.2 TEST PROCEDURE

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

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

### 3.2.3 TEST SETUP





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### 3.2.4 TEST RESULTS

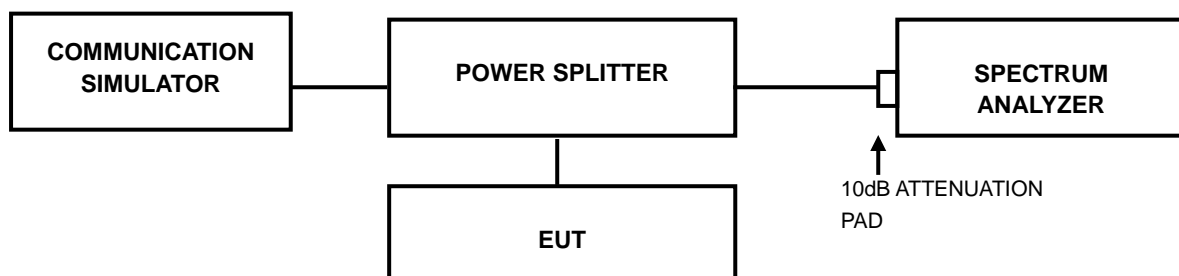
N/A

### 3.3 OCCUPIED BANDWIDTH MEASUREMENT

#### 3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

#### 3.3.2 TEST SETUP



#### 3.3.3 TEST PROCEDURES

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



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### 3.3.4 TEST RESULTS

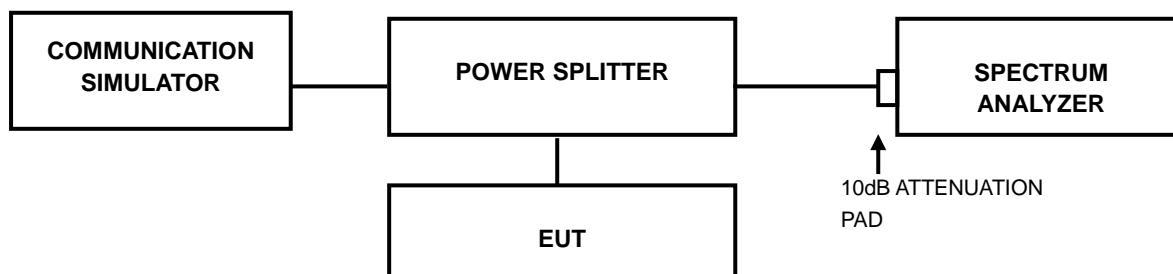
N/A

### 3.4 PEAK TO AVERAGE RATIO

#### 3.4.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

#### 3.4.2 TEST SETUP



#### 3.4.3 TEST PROCEDURES

1. Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.



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### 3.4.4 TEST RESULTS

N/A

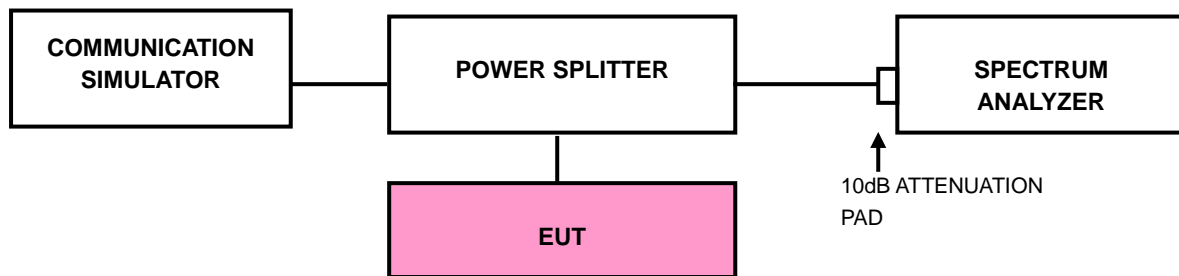
### 3.5 BAND EDGE MEASUREMENT

#### 3.5.1 LIMITS OF BAND EDGE MEASUREMENT

The power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least  $43 + 10 \log (P)$  dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater.

However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

#### 3.5.2 TEST SETUP





### 3.5.3 TEST PROCEDURES

- a. The EUT was set up for the maximum peak power with LTE link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 2 channels (low and high operational frequency range.).
- b. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- c. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 50kHz and VBW of the spectrum is 200kHz. (LTE bandwidth 5MHz)
- d. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz. (LTE bandwidth 10MHz)
- e. Record the max trace plot into the test report.

### 3.5.4 TEST RESULTS

N/A

### 3.6 CONDUCTED SPURIOUS EMISSIONS

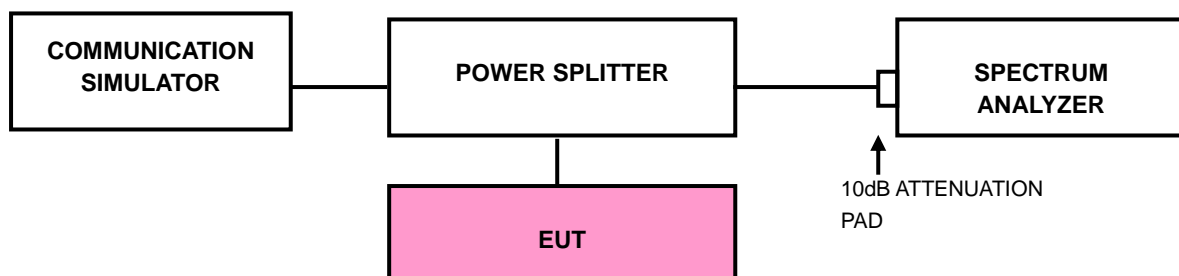
#### 3.6.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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 equal to  $-13\text{dBm}$

#### 3.6.2 TEST PROCEDURE

- a. The EUT makes a phone call to the communication simulator. All measurements were done at middle operational frequency range.
- b. Measuring frequency range is from 30 MHz to 7.2GHz for LTE Band 17. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz are used for conducted emission measurement.

#### 3.6.3 TEST SETUP





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### 3.6.4 TEST RESULTS

N/A

### 3.7 RADIATED EMISSION MEASUREMENT

#### 3.7.1 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 equal to  $-13\text{dBm}$

#### 3.7.2 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.  $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}.$
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,  $\text{E.R.P power} = \text{E.I.P.R power} - 2.15\text{dBi}.$

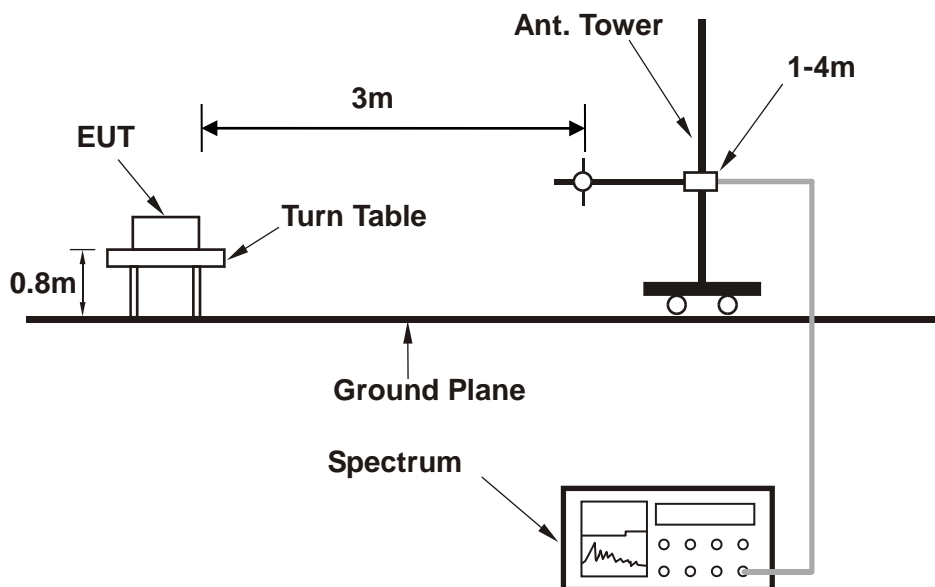
**NOTE:** The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

#### 3.7.3 DEVIATION FROM TEST STANDARD

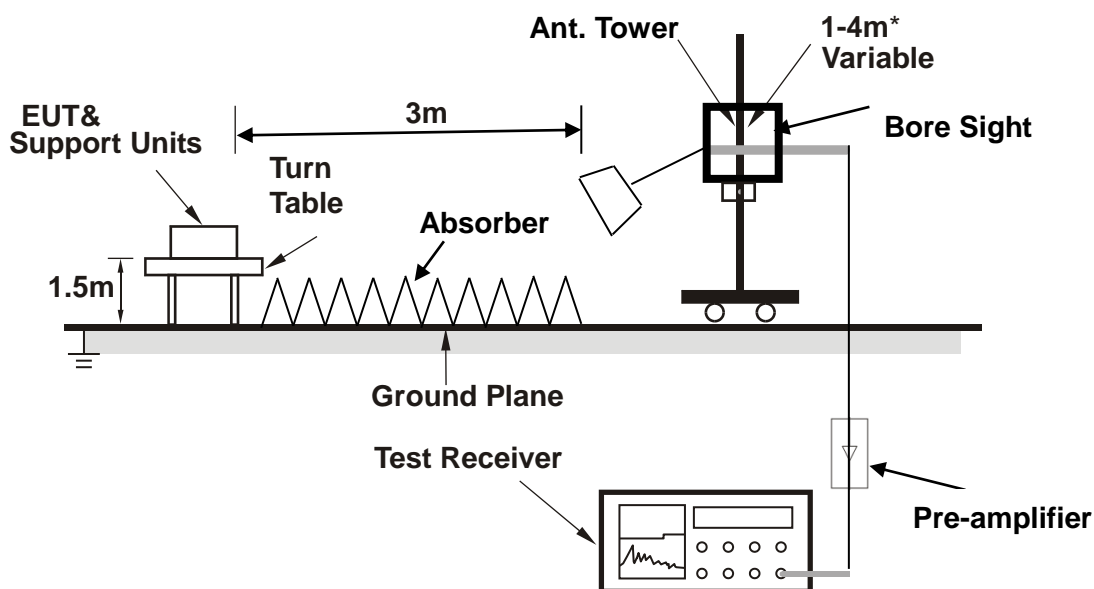
No deviation

### 3.7.4 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).

### 3.7.5 TEST RESULTS

#### BELOW 1GHz WORST-CASE DATA

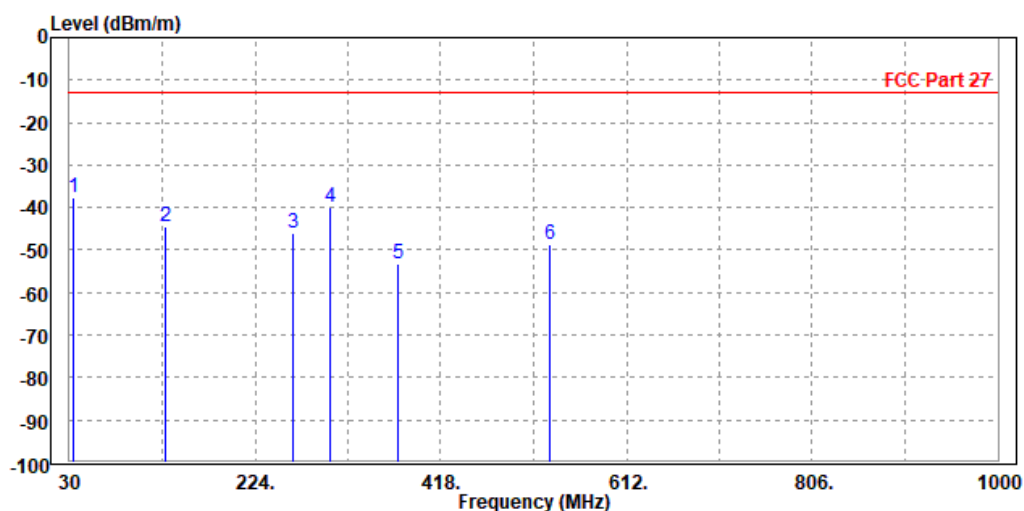
30 MHz – 1GHz data:

LTE BAND 17

CHANNEL BANDWIDTH: 10MHz / QPSK

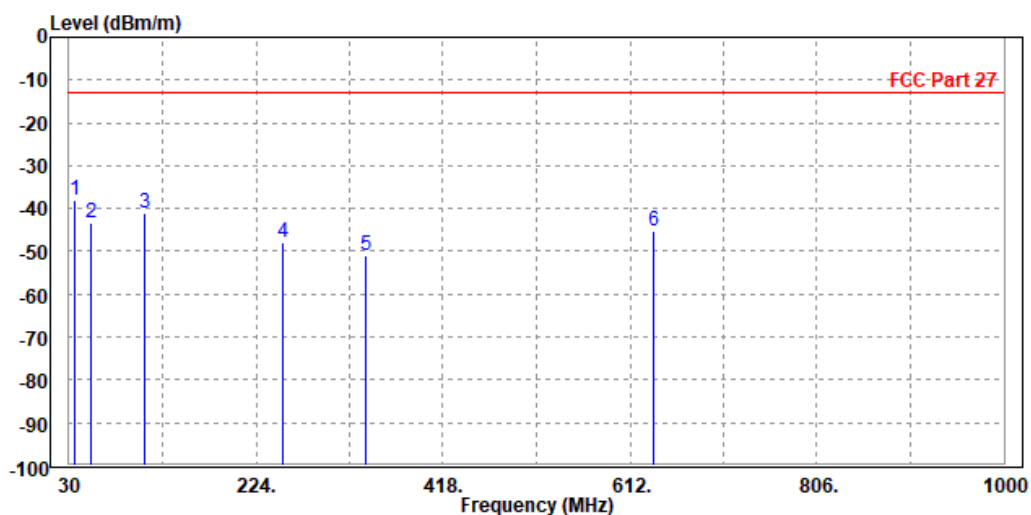
MODE	TX channel 23790	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	34.120	-37.68	-56.52	-13.00	-24.68	18.84	Peak	Horizontal
2	130.220	-44.52	-51.74	-13.00	-31.52	7.22	Peak	Horizontal
3	263.410	-46.04	-59.57	-13.00	-33.04	13.53	Peak	Horizontal
4	302.540	-40.06	-53.74	-13.00	-27.06	13.68	Peak	Horizontal
5	373.120	-53.11	-69.05	-13.00	-40.11	15.94	Peak	Horizontal
6	531.150	-48.83	-68.25	-13.00	-35.83	19.42	Peak	Horizontal



MODE	TX channel 23790	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5Vfrom adapter
TESTED BY	Star Le		
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	36.140	-37.94	-55.25	-13.00	-24.94	17.31	Peak	Vertical
2		52.850	-43.27	-51.24	-13.00	-30.27	7.97	Peak	Vertical
3		108.120	-41.09	-49.58	-13.00	-28.09	8.49	Peak	Vertical
4		251.220	-47.97	-61.47	-13.00	-34.97	13.50	Peak	Vertical
5		338.520	-50.91	-65.74	-13.00	-37.91	14.83	Peak	Vertical
6		637.140	-45.27	-66.25	-13.00	-32.27	20.98	Peak	Vertical



**ABOVE 1GHz WORST-CASE DATA**

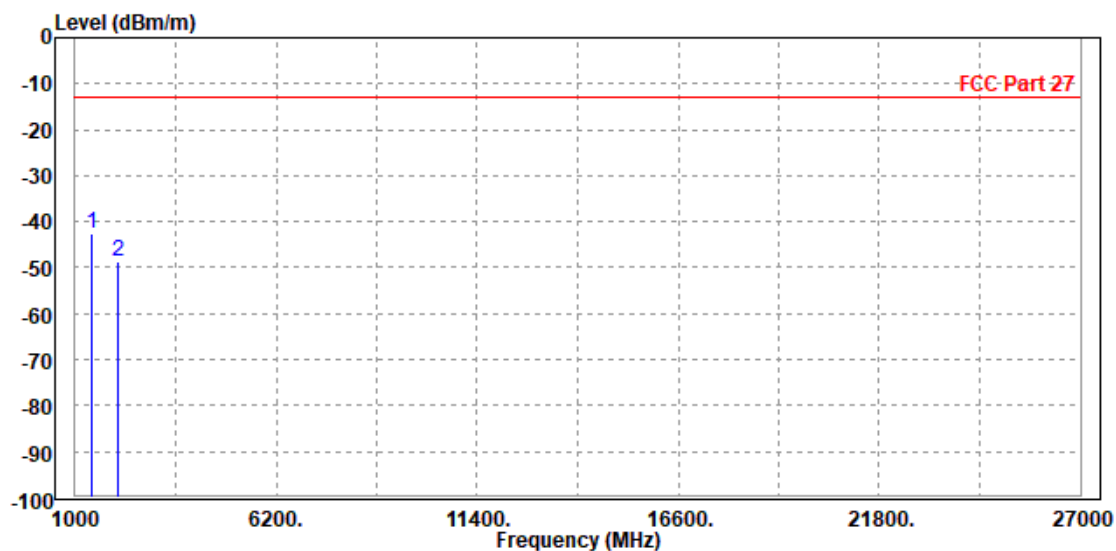
**LTE BAND 17**

**CHANNEL BANDWIDTH: 10MHz / QPSK**

**CH 23790**

MODE	TX channel 23790	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

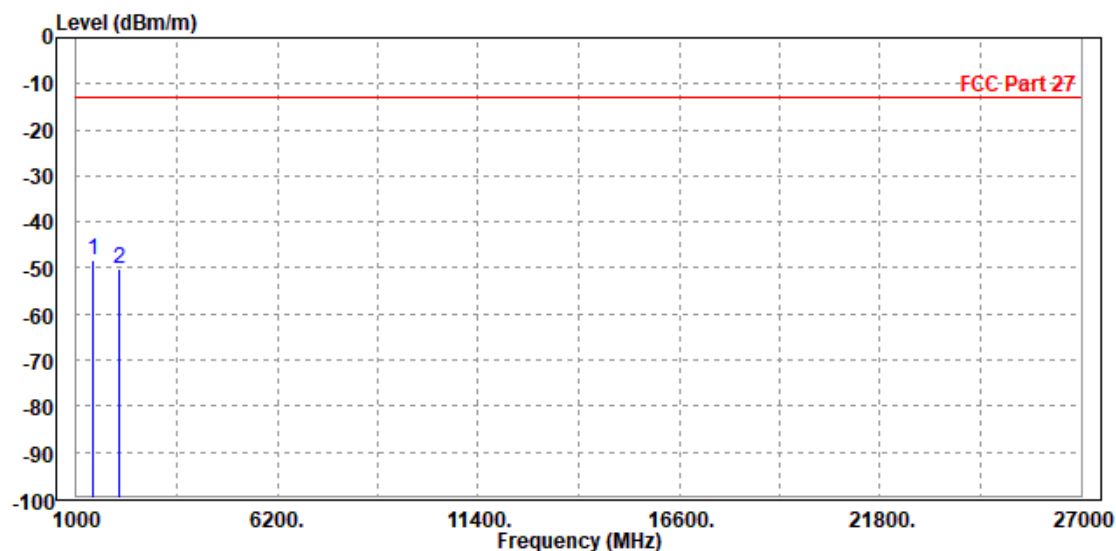
		Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
		MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	PP	1416.000	-42.56	-43.64	-13.00	-29.56	1.08	Peak	Horizontal
2		2130.000	-48.85	-56.53	-13.00	-35.85	7.68	Peak	Horizontal





MODE	TX channel 23790	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Star Le		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL 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	1416.000	-48.37	-50.06	-13.00	-35.37	1.69	Peak	Vertical
2	2130.000	-50.10	-56.80	-13.00	-37.10	6.70	Peak	Vertical





BUREAU  
VERITAS

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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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**Email:** [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)

**Web Site:** [www.adt.com.tw](http://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 modifications were made to the EUT by the lab during the test.

---END---