





# **EMC TEST REPORT**

Applicant:	HMD Global Oy			
Address:	Bertel Jungin aukio 9, 02600 Espoo, Finland			
Manufacturer or Supplier:	HMD Global Oy			
Address:	Bertel Jungin aukio 9, 02600 Espo	o, 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. 22, 2020			
The submitted sample of the above equipment has been tested for according to the requirements of the following standards:				
Killing FCC Part 15, S	☐ FCC Part 15, Subpart B, Class A ☑ FCC Part 15, Subpart B, Class B ☑ ANSI C63.4:2014			
CONCLUSION: Th	e submitted sample was found to	COMPLY with the test requirement		
-	Prepared by Alex Chen  Engineer / Mobile Department  Approved by Luke Lu  Manager / Mobile Department			
Alex luke lu				
	Date: Jul. 28, 2020 Date: Jul. 28, 2020			
This report is governed by, and incorporates by reference, CPS Conditions of Service as posted at the date of issuance of this report at				



# **TABLE OF CONTENTS**

RELEASE	CONTROL RECORD	3
1 GENE	RAL INFORMATION	4
1.1 G	ENERAL DESCRIPTION OF EUT	Δ
1.1 S	UMMARY OF TEST RESULTS	6
	EASUREMENT UNCERTAINTY	
	ESCRIPTION OF TEST MODES	
	ESCRIPTION OF SUPPORT UNITS	
2 EMISS	SION TEST	10
2.1 CO	NDUCTED EMISSION MEASUREMENT	10
2.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT	
2.1.2	TEST INSTRUMENTS	10
2.1.3	TEST PROCEDURES	11
2.1.4	DEVIATION FROM TEST STANDARD	11
2.1.5	TEST SETUP	12
2.1.6	EUT OPERATING CONDITIONS	12
2.1.7	TEST RESULTS	
3.2 R	ADIATED EMISSION MEASUREMENT	
2.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT	15
2.2.2	TEST INSTRUMENTS	16
2.2.3	TEST PROCEDURE	17
2.2.4	DEVIATION FROM TEST STANDARD	18
2.2.5	TEST SETUP	19
2.2.6	EUT OPERATING CONDITIONS	19
2.2.7	TEST RESULTS	20
3 APPE	NDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGE	S TO THE EUT



# RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FV200629W001	Original release	Jul. 16, 2020
FV200701W006	Based on the original report FV200629W001 remove back camera and 2pcs keymat LED, change Keypad materials and FCC ID, HW version and model name. In this report verify CE/RE worst case.	Jul. 28, 2020

Tel: +86 755 8869 6566 Fax: +86 755 8869 6577



# 1 GENERAL INFORMATION

# 1.1 GENERAL DESCRIPTION OF EUT

PRODUCT	GSM/WCDMA/LTE Mobile Phone		
BRAND NAME	Nokia		
MODEL NAME	TA-1280		
NOMINAL VOLTAGE	5.0Vdc (adapter or h 3.7Vdc (Li-ion, batter		
	Bluetooth	GFSK, π/4-DQPSK, 8DPSK	
	GSM	GMSK	
MODULATION TYPE	WCDMA	BPSK/QPSK	
	LTE	QPSK/16QAM	
	FM	FM	
	Bluetooth	2402MHz ~ 2480MHz	
	FM	87.5MHz ~ 108MHz	
	GSM	824.2MHz ~ 848.8MHz (FOR GSM 850) 1850.2MHz ~ 1909.8MHz (FOR GSM 1900)	
OPERATING	WCDMA	1852.4MHz ~ 1907.6MHz (FOR WCDMA Band 2) 1710.7MHz ~ 1754.3MHz (FOR WCDMA Band 4) 826.4MHz ~ 846.6MHz (FOR WCDMA Band 5)	
FREQUENCY	LTE	1850.7MHz ~ 1909.3MHz (FOR LTE Band2) 1710.7MHz ~ 1754.3MHz (FOR LTE Band4) 824.7MHz ~ 848.3MHz (FOR LTE Band5) 2502.5MHz ~ 2567.5MHz (FOR LTE Band7) 699.7MHz ~ 715.3MHz (FOR LTE Band12) 777MHz ~ 787MHz (FOR LTE Band13) 706.5MHz ~ 713.5MHz (FOR LTE Band17)	
HW VERSION	0144		
SW VERSION	0.2025.11.05		
I/O PORTS	Refer to user's manual		
CABLE SUPPLIED	USB cable: non-shielded, detachable,1meter Earphone: non-shielded, detachable, 1.5meter		
ACCESSORY DEVICES	Refer to note as below		

Tel: +86 755 8869 6566 Fax: +86 755 8869 6577



#### 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.

#### **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



# **SUMMARY OF TEST RESULTS**

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart B			
Standard Section Test Item Result			
FCC Part 15,	Conducted Test	Compliance	
Subpart B, Class B	Radiated Emission Test (30MHz ~ 1GHz)	Compliance	
ANSI C63.4:2014	Radiated Emission Test (Above 1GHz)	N/A	

Note: Test data re-use, more details please refer test report FV200629W001 (FCC ID: 2AJOTTA-1282).

#### **MEASUREMENT UNCERTAINTY** 1.3

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz ~ 30MHz	±2.70dB
	30MHz~1GMHz	±4.98dB
Radiated emissions	1GMHz ~6GMHz	±4.70dB
	6GMHz ~18GMHz	±4.60dB

**BV 7Layers Communications** 



# 1.4 DESCRIPTION OF TEST MODES

Test Mode		Test Condition			
	Radiated emission test				
1	TA-1282	GSM 850 Idle+ Adapter 1+ Earphone +Battery + BT Idle+ FM RX			
2	TA-1282	GSM 1900 Idle+ Adapter 2+ Earphone +Battery + BT Idle+ MPG4			
3	TA-1282	WCDMA B2 Idle+ Adapter 1+ Earphone +Battery + BT Idle+ Back Camera On			
4	TA-1282	WCDMA B4 Idle+ Adapter 2+ Earphone +Battery + BT Idle+ FM RX			
5	TA-1282	WCDMA B5 Idle+ Adapter 1+ Earphone +Battery + BT Idle+ MPG4			
6	TA-1282	LTE B2 Idle+ Adapter 2+ Earphone +Battery + BT Idle+ Back Camera On			
7	TA-1282	LTE B4 Idle+ Adapter 1+ Earphone +Battery + BT Idle+ FM RX			
8	TA-1282	LTE B5 Idle+ Adapter 2+ Earphone +Battery + BT Idle+ MPG4			
9	TA-1282	LTE B7 Idle+ Adapter 1+ Earphone +Battery + BT Idle+ Back Camera On			
10	TA-1282	LTE B12 Idle+ Adapter 2+ Earphone +Battery + BT Idle+ FM RX			
11	TA-1282	LTE B13 Idle+ Adapter 1+ Earphone +Battery + BT Idle+ MPG4			
12	TA-1282	LTE B17 Idle+ Adapter 2+ Earphone +Battery + BT Idle+ Back Camera On			
13	TA-1282	GSM 850 Idle+USB Link+Data Trasmission+EUT to PC+Earphone+BT Idle			
14	TA-1282	WCDMA B2 Idle+USB Link+Data Trasmission+SD to PC+Earphone+BT Idle			
15	TA-1280	GSM 850 Idle+ Adapter 1+ Earphone +Battery + BT Idle+ FM RX			



	Conducted emission test				
1	TA-1282	GSM 850 Idle+ Adapter 1+ Earphone +Battery + BT Idle+ FM RX			
2	TA-1282	GSM 1900 Idle+ Adapter 2+ Earphone +Battery + BT Idle+ MPG4			
3	TA-1282	WCDMA B2 Idle+ Adapter 1+ Earphone +Battery + BT Idle+ Back Camera On			
4	TA-1282	WCDMA B4 Idle+ Adapter 2+ Earphone +Battery + BT Idle+ FM RX			
5	TA-1282	WCDMA B5 Idle+ Adapter 1+ Earphone +Battery + BT Idle+ MPG4			
6	TA-1282	LTE B2 Idle+ Adapter 2+ Earphone +Battery + BT Idle+ Back Camera On			
7	TA-1282	LTE B4 Idle+ Adapter 1+ Earphone +Battery + BT Idle+ FM RX			
8	TA-1282	LTE B5 Idle+ Adapter 2+ Earphone +Battery + BT Idle+ MPG4			
9	TA-1282	LTE B7 Idle+ Adapter 1+ Earphone +Battery + BT Idle+ Back Camera On			
10	TA-1282	LTE B12 Idle+ Adapter 2+ Earphone +Battery + BT Idle+ FM RX			
11	TA-1282	LTE B13 Idle+ Adapter 1+ Earphone +Battery + BT Idle+ MPG4			
12	12 TA-1282 LTE B17 Idle+ Adapter 2+ Earphone +Battery + BT Idle+ Back Camera On				
13	TA-1282	GSM 850 Idle+USB Link+Data Trasmission+EUT to PC+Earphone+BT Idle			
14	TA-1282	WCDMA B2 Idle+USB Link+Data Trasmission+SD to PC+Earphone+BT Idle			
15	TA-1280	GSM 850 Idle+ Adapter 1+ Earphone +Battery + BT Idle+ FM RX			

### NOTE:

- 1. For conducted emission test, test mode 15 was the verification case and only this mode was presented in this report.
- 2. For radiated emission test, test mode15 was the verification case and only this mode was presented in this report



# 1.5 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.

### **FOR ALL TEST**

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Bluetooth Earphone	FAP00	H6080	12098	N/A
2	Universal radio communication tester	Rohde&Schw arz	CMW500	N/A	N/A
3	FM signal generator	Rohde & Schwarz	SMB100A	109279	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS		
1	N/A		
2	N/A		
3	N/A		



# 2 EMISSION TEST

# 2.1 CONDUCTED EMISSION MEASUREMENT

# 2.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

TEST STANDARD: FCC Part 15, Subpart B (Section: 15.107 a CLASS B)

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBµV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

TEST STANDARD: FCC Part 15, Subpart B (Section: 15.107 b CLASS A)

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBµV)				
	Quasi-peak	Average			
0.15 ~ 0.5	79	66			
0.5 ~ 30	73	60			

**NOTE**: 1.The lower limit shall apply at the transition frequencies.

- 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
- 3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

# 2.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR3	101900	Feb. 28,20	Feb. 27, 21
EMC32 test software	Rohde&Schwarz	EMC32	NA	NA	NA
LISN network	Rohde&Schwarz	ENV216	101922	Feb. 28,20	Feb. 27, 21

NOTE: 1. The test was performed in CE shielded room.

.

Page 10 of 22

hen51800, China Email: <a href="mailto:customerservice.sw@bureauveritas.com">customerservice.sw@bureauveritas.com</a>

**BV 7Layers Communications** 



# 2.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150 kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

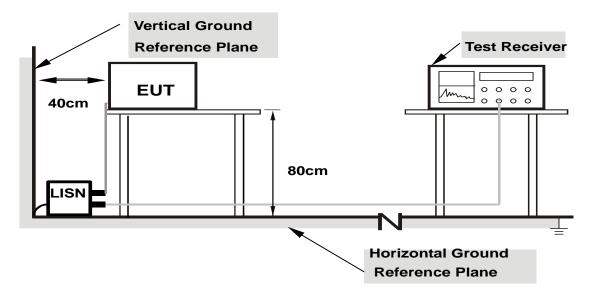
# 2.1.4 DEVIATION FROM TEST STANDARD

No deviation.

Tel: +86 755 8869 6566 Fax: +86 755 8869 6577



# 2.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN. 2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

# 2.1.6 EUT OPERATING CONDITIONS

- a. Turned on the power and connected of all equipment.
- b. EUT was operated according to the use type described in the manufacturer's specifications or the user's manual.

Email: customerservice.sw@bureauveritas.com

**BV 7Layers Communications** 



# 2.1.7 TEST RESULTS

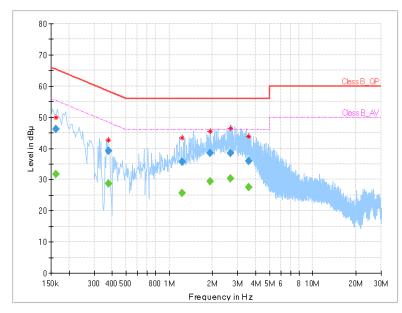
TEST VOLTAGE	DC 5V From Adapter Input 120 Vac, 60 Hz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz	
ENVIRONMENTAL CONDITIONS	24deg. C, 55%RH	TESTED BY	Chase Zhou	

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.162000		31.62	55.36	-23.74	L1	ON	9.7
0.162000	46.20		65.36	-19.16	L1	ON	9.7
0.376000		28.75	48.37	-19.62	L1	ON	9.7
0.376000	39.28		58.37	-19.08	L1	ON	9.7
1.224000		25.63	46.00	-20.37	L1	ON	9.7
1.224000	35.75		56.00	-20.25	L1	ON	9.7
1.928000		29.30	46.00	-16.70	L1	ON	9.8
1.928000	38.40		56.00	-17.60	L1	ON	9.8
2.680000		30.21	46.00	-15.79	L1	ON	9.8
2.680000	38.38		56.00	-17.62	L1	ON	9.8
3.572000		27.43	46.00	-18.57	L1	ON	9.8
3.572000	35.96		56.00	-20.04	L1	ON	9.8

**REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.

- 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
- 3. The emission levels of other frequencies were very low against the limit.
- 4. Margin value = Emission level Limit value
- 5. Correction factor = Insertion loss + Cable loss
- 6. Emission Level = Correction Factor + Reading Value.

Full Spectrum



Tel: +86 755 8869 6566 Fax: +86 755 8869 6577

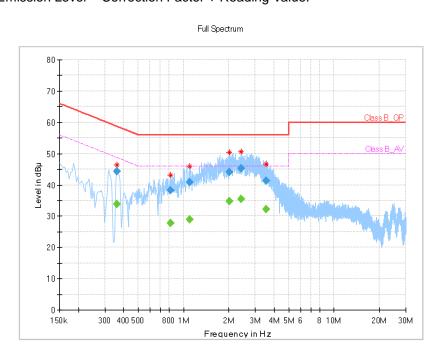


TEST VOLTAGE DC 5V From Adapter Input 120 Vac, 60 Hz		Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
ENVIRONMENTAL CONDITIONS	24deg. C, 55%RH	TESTED BY	Chase Zhou

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.360000		33.93	48.73	-14.79	N	ON	9.8
0.360000	44.38		58.73	-14.35	N	ON	9.8
0.820000		27.69	46.00	-18.31	N	ON	9.8
0.820000	38.22		56.00	-17.78	N	ON	9.8
1.098000		28.82	46.00	-17.18	N	ON	9.8
1.098000	40.89		56.00	-15.11	N	ON	9.8
2.008000		34.81	46.00	-11.19	N	ON	9.8
2.008000	44.18		56.00	-11.82	N	ON	9.8
2.420000		35.36	46.00	-10.64	N	ON	9.8
2.420000	45.15		56.00	-10.85	N	ON	9.8
3.552000		32.17	46.00	-13.83	N	ON	9.9
3.552000	41.20		56.00	-14.80	N	ON	9.9

**REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.

- 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
- 3. The emission levels of other frequencies were very low against the limit.
- 4. Margin value = Emission level Limit value
- 5. Correction factor = Insertion loss + Cable loss
- 6. Emission Level = Correction Factor + Reading Value.



No.B102, Dazu Chuangxin Mansion, North of Beihuan Avenue, North Area, Hi-Tech Industrial Park, Nanshan District, Shenzhen51800, China Tel: +86 755 8869 6566 Fax: +86 755 8869 6577



## 2.2 RADIATED EMISSION MEASUREMENT

### 2.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

TEST STANDARD: FCC Part 15, Subpart B (Section: 15.109)

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

Radiated Emissions Limits at 3 meters (dBµV/m)						
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B				
30-88	49	40				
88-216	53.5	43.5				
216-960	56	46				
960-1000	59.5	54				
Above 1000	Avg: 59.5 Peak: 79.5	Avg: 54 Peak: 74				

Frequency Range (For unintentional radiators)

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)		
Below 1.705	30		
1.705-108	1000		
108-500	2000		
500-1000	5000		
Above 1000	5 <sup>th</sup> harmonic of the highest frequency or 40GHz, whichever is lower		

**NOTE:** 1. The lower limit shall apply at the transition frequencies.

- 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
- 3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
- 4. QP detector shall be applied if not specified.

Page 15 of 22



# 2.2.2 TEST INSTRUMENTS

# Frequency range below1GHz

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.	
3m Semi-anechoic	ETS-LINDGREN	Om*6m*6m	Euroshieldpn-	Feb. 28,20	Feb. 27,21	
Chamber	E I S-LINDGKEN	9111 0111 0111	CT0001143-1216	reb. 20,20		
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Feb. 28,20	Feb. 27,21	
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Feb. 28,20	Feb. 27,21	
Signal Pre-Amplifier	EMSI	EMC 9135	980249	Jun. 02,20	Jun. 01,21	

# Frequency range above 1GHz

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.	
3m Semi-anechoic	ETS-LINDGREN	0m*6m*6m	Euroshieldpn-	Feb. 28,20	Feb. 27,21	
Chamber	E I S-LINDGKEN	9111 0111 0111	CT0001143-1216	reb. 20,20		
Horn Antenna	ETS-LINDGREN	3117	00168728	Feb. 28,20	Feb. 27,21	
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Feb. 28,20	Feb. 27,21	
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	Jun. 02,20	Jun. 01,21	

**NOTE:** 1. The test was performed in 3m chamber.

2. The FCC Site Registration No. is 525120; The Designation No. is CN1171.



# 2.2.3 TEST PROCEDURE

# <Frequency Range below 1GHz>

The basic test procedure was in accordance with ANSI C63.4:2014 (section 12).

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.

#### NOTE:

**BV 7Layers Communications** 

Technology (Shenzhen) Co. Ltd

- 1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- 2. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
- 3. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) (if the raw value not contains the amplifier);
- 4. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) Amplifier Gain(dB) (if the raw value contains the amplifier).
- 5. Margin value = Emission level Limit value.



# <Frequency Range above 1GHz>

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter fully-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. The bore sight should be used during the test above 1GHz.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz

#### NOTE:

- 1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- 2. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth of test receiver/spectrum analyzer is 1Hz for Average detection (AV) at frequency above 1GHz.
- 3. For measurement of frequency above 1000 MHz, the EUT was set 3 meters away from the receiver antenna.
- 4. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
- 5. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) (if the raw value not contains the amplifier);
- 6. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) Amplifier Gain(dB) (if the raw value contains the amplifier)
- 7. Margin value = Emission level Limit value.

# 2.2.4 DEVIATION FROM TEST STANDARD

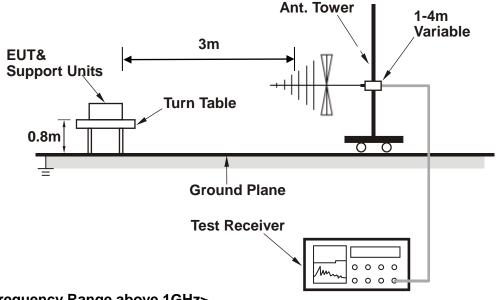
No deviation.

**BV 7Layers Communications** 

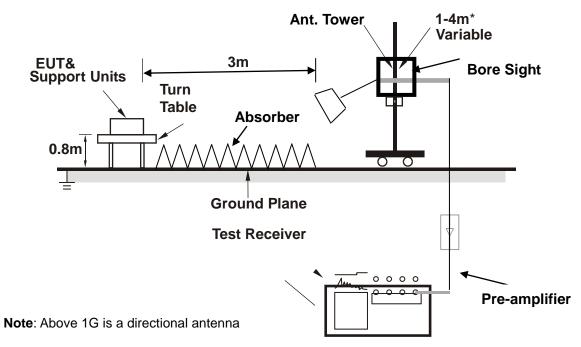


# 2.2.5 TEST SETUP

# <Frequency Range below 1GHz>



<Frequency Range above 1GHz>



depends on the EUT height and the antenna 3dB bandwidth both, refer to section 7.3 of CISPR 16-2-3.

# 2.2.6 EUT OPERATING CONDITIONS

Same as item 2.1.6.

**BV 7Layers Communications** Technology (Shenzhen) Co. Ltd

No.B102, Dazu Chuangxin Mansion, North of Beihuan Avenue, North Area, Hi-Tech Industrial Park, Nanshan District, Shenzhen51800, China

Tel: +86 755 8869 6566 Fax: +86 755 8869 6577

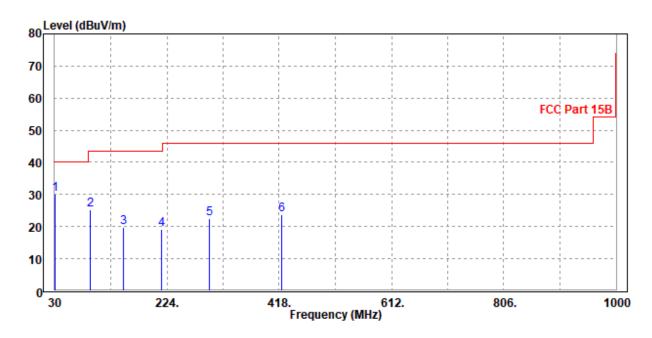


# 2.2.7 TEST RESULTS

TEST VOLTAGE	DC 5V From Adapter Input 120 Vac, 60 Hz	FREQUENCY RANGE	30-1000 MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70 %RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120 kHz
TESTED BY	Jacky Liu		

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
30.97	30.15	46.54	40	-9.85	20.41	0.79	37.59	200	78	QP
91.11	25.35	52.72	43.5	-18.15	8.39	1.28	37.04	200	102	QP
148.34	19.78	45.59	43.5	-23.72	9.43	1.56	36.8	200	134	QP
214.3	19.25	43.01	43.5	-24.25	11	1.86	36.62	200	158	QP
296.75	22.44	43.26	46	-23.56	13.59	2.2	36.61	200	166	QP
422.85	23.75	40.56	46	-22.25	17.35	2.7	36.86	200	198	QP

- REMARKS: 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
  - 2. Negative sign (-) in the margin column signify levels below the limit.
  - 3. Frequency range scanned: 30MHz to 1000MHz.
  - 4. Only emissions significantly above equipment noise floor are reported.



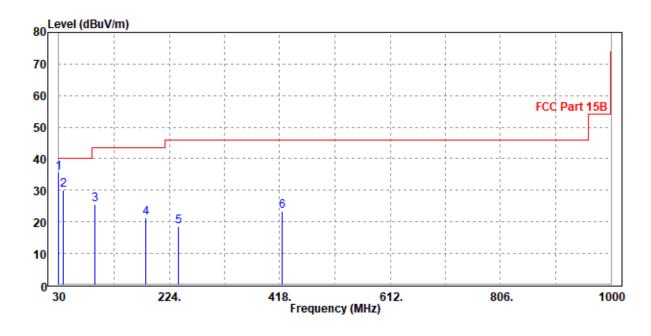
Tel: +86 755 8869 6566 Fax: +86 755 8869 6577



TEST VOLTAGE	DC 5V From Adapter Input 120 Vac, 60 Hz	FREQUENCY RANGE	30-1000 MHz	
ENVIRONMENTAL CONDITIONS	23deg. C, 70 %RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120 kHz	
TESTED BY	Jacky Liu			

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M												
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK		
30	35.7	51.63	40	-4.3	20.9	0.77	37.6	100	65	QP		
37.76	30.11	51.01	40	-9.89	15.75	0.89	37.54	100	105	QP		
93.05	25.54	52.74	43.5	-17.96	8.54	1.29	37.03	100	133	QP		
183.26	21.19	46.24	43.5	-22.31	9.92	1.71	36.68	100	165	QP		
239.52	18.68	40.54	46	-27.32	12.77	1.99	36.62	100	188	QP		
422.85	23.51	40.32	46	-22.49	17.35	2.7	36.86	100	205	QP		

- REMARKS: 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
  - 2. Negative sign (-) in the margin column signify levels below the limit.
  - 3. Frequency range scanned: 30MHz to 1000MHz.
  - 4. Only emissions significantly above equipment noise floor are reported.



Tel: +86 755 8869 6566 Fax: +86 755 8869 6577



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

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

---END---

Tel: +86 755 8869 6566 Fax: +86 755 8869 6577 Email: <u>customerservice.sw@bureauveritas.com</u>

Strict, Shenzhens 1800, China