Certificate #6613.01

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 Espoo, Finland
Product:	Smart Phone
Brand Name:	NOKIA
Model Name:	TA-1584
FCC ID:	2AJOTTA-1584
Date of tests:	May. 04, 2023 ~ Jun. 01, 2023

The submitted sample of the above equipment has been tested for according to the requirements of the following standards:

☒ **FCC Part 15, Subpart C, Section 15.247** ☒ **ANSI C63.10-2013**
☒ **FCC Part 15, Subpart E, Section 15.407**
☒ **FCC Part 22** ☒ **FCC Part 24**
☒ **FCC Part 27** ☒ **FCC Part 90**
☒ **FCC Part 2**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Prepared by Chao Wu Engineer / Mobile Department	Approved by Peibo Sun Manager / Mobile Department
Chao Wu Date: Jun. 01, 2023	Sun Peibo Date: Jun. 01, 2023

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
PSZ-NQN2303280110RF11	Original release	Jun. 01, 2023

1 GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Smart Phone	
BRAND NAME	NOKIA	
MODEL NAME	TA-1584	
NOMINAL VOLTAGE	5.0Vdc(adapter) 3.85Vdc (Li-ion, battery)	
MODULATION TYPE	**BT_LE**	GFSK
	Bluetooth	GFSK, π/4-DQPSK, 8DPSK
	FM	FM
	WLAN	DSSS, OFDM
	GPS/GALILEO/GLONASS/BDS/SBAS	BPSK
	GSM/GPRS/EDGE	GMSK, 8PSK
	WCDMA	HSDPA/HSUPA/DC-HSDPA/HSPA+
	LTE	QPSK/16QAM/64QAM
OPERATING FREQUENCY	**Bluetooth/BT_LE**	2402MHz ~ 2480MHz
	FM	87.5MHz ~ 108MHz
	WLAN	2412 ~ 2462MHz for 11b/g/n(HT20)
	GPS	1559MHz ~ 1610MHz
	GSM/GPRS/EDGE	824.2MHz ~ 848.8MHz (FOR GSM 850) 1850.2MHz ~ 1909.8MHz (FOR GSM 1900)
	WCDMA	1852.4MHz ~ 1907.6MHz(FOR WCDMA Band 2) 1712.4MHz ~ 1752.6MHz(FOR WCDMA Band 4) 826826.4MHz ~ 846.6MHz (FOR WCDMA Band 5)
	LTE	1850.7MHz ~ 1909.3MHz (FOR LTE Band2) 1710.7MHz ~ 1754.3MHz (FOR LTE Band4) 824.7MHz ~ 848.3MHz (FOR LTE Band5) 699.7MHz ~ 715.3MHz (FOR LTE Band12) 1850.7MHz ~ 1914.3 MHz (FOR LTE Band25) 814.7MHz ~ 848.3MHz (FOR LTE Band26) 2498.5MHz~ 2687.5MHz (FOR LTE Band41) 1710.7MHz ~ 1779.3MHz (FOR LTE Band66) 665.5MHz ~695.5MHz (FOR LTE Band71) 2499.3MHz ~2686.7MHz (FOR LTE Band41C)
HW VERSION	V1.0	

SW VERSION	04US_0_023
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB cable: non-shielded cable, with w/o ferrite core, 1 meter
ACCESSORY DEVICES	Refer to note as below

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.

3. The product of TA-1584(FCC ID: 2AJOTTA-1584) only the following manufacturer of key parts is different between the first and second supply, other parameters are the same:

NO.	Change Description		specificatons	first supplier	specificatons	second supplier
1	PCBA	3GB LPDDR	3GB	Longsys	RAM;DDR4;3GB ;4266Mbps;FBG A-200;10*15*0.9	Samsung
2		32GB EMMC	32GB	Longsys	32GB	Biwin
3		PCB	105X131.6MM	Huashen	105X131.6MM	SUNTAK
4	LCM	LCD	6.3"HKC incell，720X1560 FocalTech: FT8006S-AN，GG3	TCL	6.3" HKC incell，720X1560 Chipone: ICNL9911C	Icetron
5	Front camera	Camera	5M;FF	Holitech	5M;FF	TXD
6	Macro CAM	Camera	13M;PDAF;	Sunwin	13M;PDAF;	TXD
7		Camera	2M;FF	Imaging	2M;FF	Holitech
8	Acoustic	Vibrator	Φ8*3mm	ChaoYing	Φ8*3mm	HONGZHIFA
9		FPC	N/A	ZRXD	N/A	XINYE
10	LED		P2016F-W55WM0M2AB5C2-0002	RUNLITE	SJ-FT2016-DH Z1N5257-01	SUIJING

11	Battery	3000mAh	Highpower	3000mAh	GAOYUAN
12	Glass	30.09X12.02X0.50 mm	Dottone	30.09X12.02X0.50mm	Lesu

4. **List of Accessory:**

ACCESSORIES	BRAND	MANUFACTURER	MODEL	SPECIFICATION
Battery 1	Highpower	Huizhou Highpower Technology Co., Ltd.	CH396078	Capacity：3.85 Vdc, 3000mAh
Battery 2	GaoYuan	HUNAN GAOYUAN BATTERY CO.,LTD	CH396078	Capacity：3.85 Vdc, 3000mAh
AC Adapter	Baijunda	Baijunda Group Co., Ltd	AD-010U	I/P: 100-240Vac, 0.35A, O/P: 5.0Vdc, 2.0A
USB Cable	Saibao	Saibao (Jiangxi) Industrial Co., Ltd	SZN-A018A	Signal Line, 1.0meter

2 SUMMARY OF TEST RESULTS

2.1 TEST RESULTS

TEST TYPE	Result	Test lab*
Radiated Emissions	Pass	A

***Test Lab Information Reference**

Lab A:

Huarui 7Layers High Technology (Suzhou) Co., Ltd.

Lab Address:

Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province

Accredited Test Lab Cert 6613.01

The FCC Site Registration No. is 434559; The Designation No. is CN1325.

2.2 MEASREMENT 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

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

2.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Pre-Amplifier	R&S	SCU18F1	100815	Aug.30,22	Aug.29,24
Pre-Amplifier	R&S	SCU08F1	101028	Sep.16,22	Sep.15,24
Signal Generator	R&S	SMB100A	182185	Feb.16,22	Feb.15,24
3m Fully-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-01Chamber	Nov.25,22	Nov.24,25
3m Semi-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-02Chamber	Nov.25,22	Nov.24,25
EMI TEST Receiver	R&S	ESW44	101973	Feb.25,22	Feb.24,24
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Feb.28,22	Feb.27,24
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.22,22	Aug.21,24
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Feb.23,22	Feb.22,24
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.22,22	Aug.21,24
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.23,22	Feb.22,24
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.27,22	Jun.26,24
Test Software	ELEKTRA	ELEKTRA4.32	N/A	N/A	N/A
Open Switch and Control Unit	R&S	OSP220	101964	N/A	N/A
DC Source	HYELEC	HY3010B	551016	Aug.31,22	Aug.30,24
Hygrothermograph	DELI	20210528	SZ014	Sep.06,22	Sep.05,24
PC	LENOVO	E14	HRSW0024	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-7.00M	N/A	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-4.00M	N/A	N/A	N/A
CABLE	R&S	W13.02	N/A	Apr.28,23	Oct.27,23
CABLE	R&S	W12.14	N/A	Apr.28,23	Oct.27,23

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NOTE: 1.The calibration interval of the above test instruments is 6 months or 24 months or 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

2. The test was performed in 3m Chamber.

3. The test was performed in 3m Semi-anechoic Chamber and RF Oven Room.

4. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.

2.4 REFERENCED STANDARDS

The fellowing referenced standards are necessary for the report.For undated references in this report,the cited version applies.

No.	Identify	Note
1	FCC Part 15, Subpart C, Section 15.247	For 2.4G WIFI
2	FCC Part 15, Subpart E, Section 15.407	For 5G WIFI
3	FCC PART 22, Subpart H	For WWAN
4	FCC Part 27	For WWAN

Note: More informations and test procedures pls refer to 15.247/15.407/Part22/Part24/ Part27 reports.

2.5 TEST CONFIGURATIONS

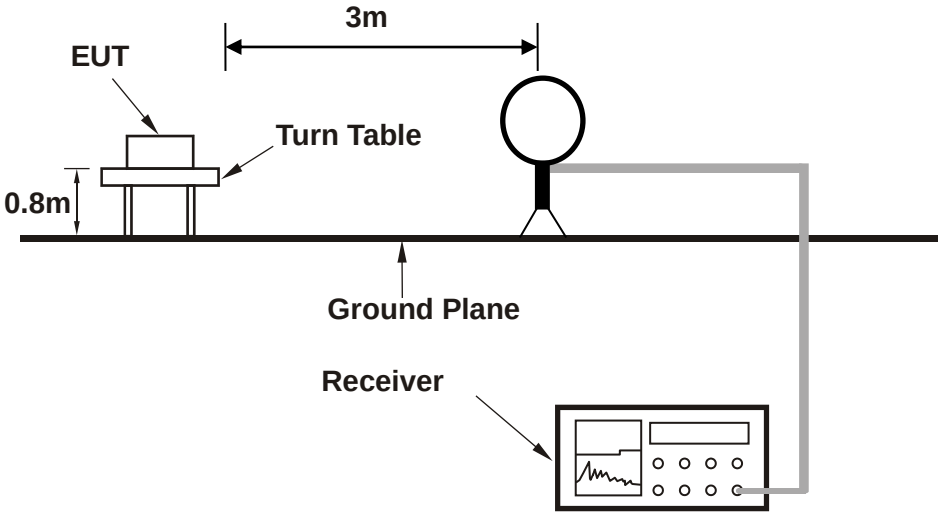
Test Configurations	Description
Worst case test Mode	
1	WCDMA B5 Link+5G WIFI_11A_TX_CH52
2	LTE B41 Link+ BT2.0_TX_CH0_1DH5

Note: 1. Test equipment and site refer to Referenced Standards report

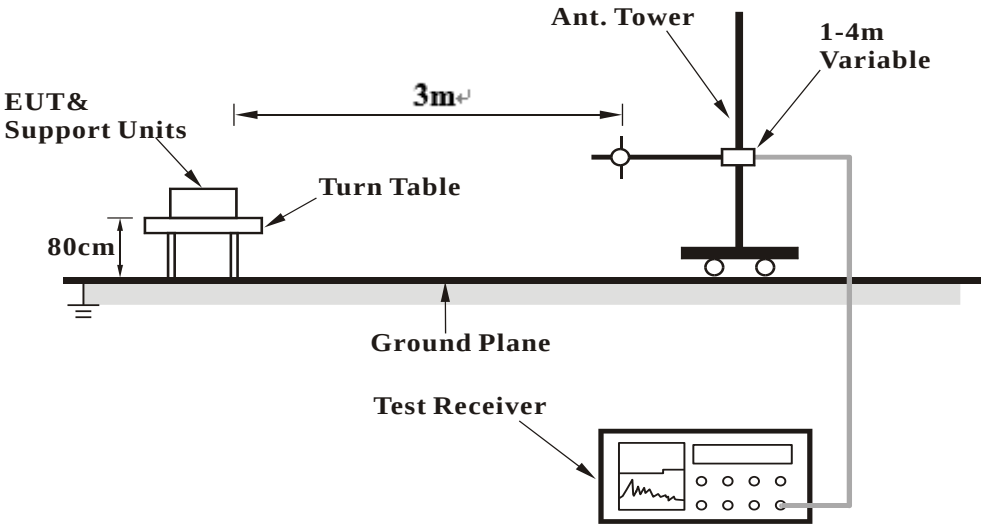
2. For higher frequency, the emission is 20dB below the limit was not record

2.6 TEST DATA

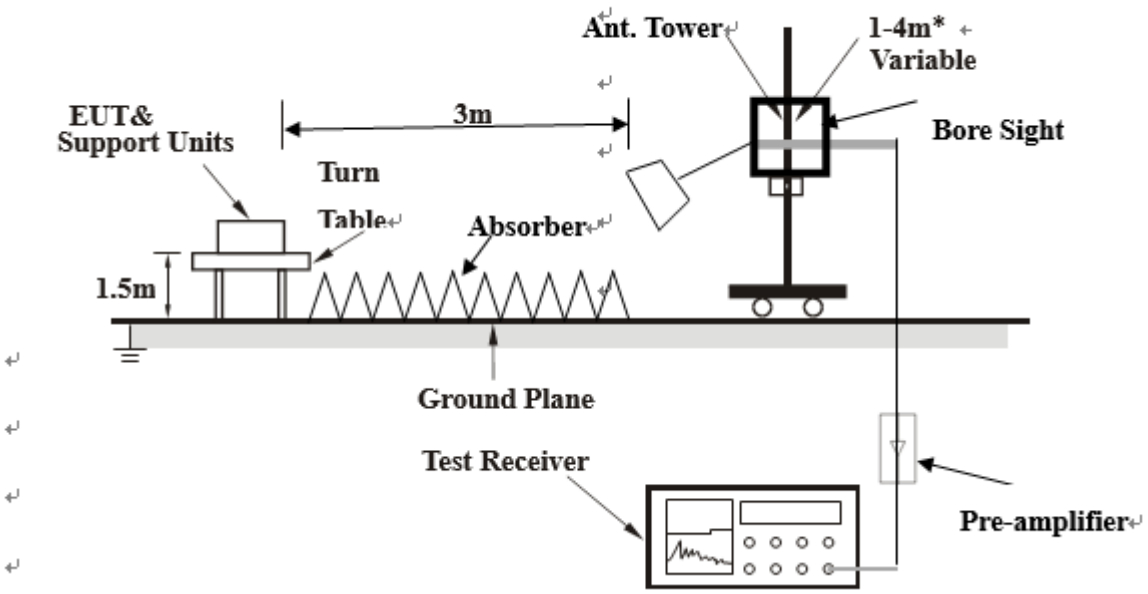
<Frequency Range 9KHz~30MHz >



< 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).

2.6.1 EUT OPERATING CONDITIONS

a. Set the EUT under full load condition and placed them on a testing table.

b. Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.

c. The necessary accessories enable the EUT in full functions.

2.6.2 TEST RESULTS

NOTE ： The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

WCDMA B5 Link+5G WIFI_11A_TX_CH52:

BELOW 1GHz WORST-CASE DATA:

30MHz – 1GHz data:

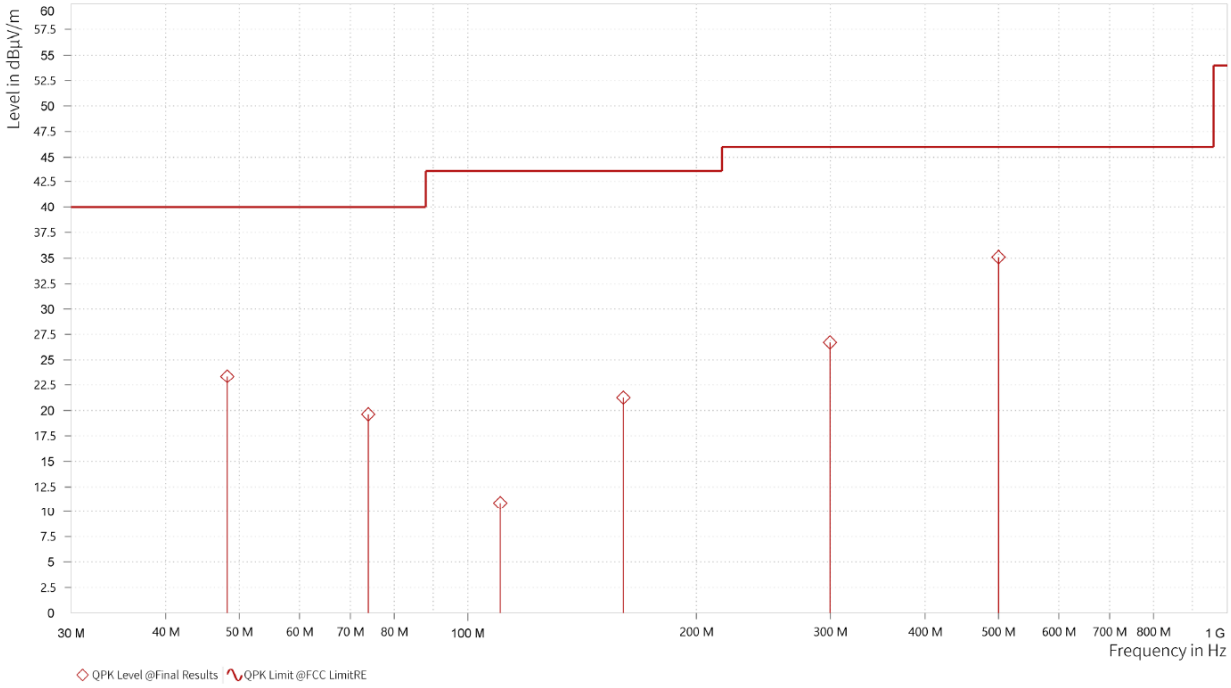
CHANNEL	WCDMA B5 Link+5G WIFI_11A_TX_CH52	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	QPK Level [dBµV/m]	QPK Limit [dBµV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]
1	48.188	23.35	40.00	16.65	-15.85	H	0.9	2	120.000
1	73.893	19.62	40.00	20.38	-21.49	H	195	1	120.000
1	110.268	10.90	43.50	32.60	-17.69	H	291.7	2	120.000
1	160.271	21.26	43.50	22.24	-19.97	H	195	1	120.000
1	299.951	26.71	46.00	19.29	-13.91	H	195	1	120.000
1	500.014	35.11	46.00	10.89	-11.80	H	355	2	120.000

REMARKS:

1. Emission level (dBuV/m) = Read level (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value =Limit value– Emission level.


Level in dBµV/m
60
57.5
55
52.5
50
47.5
45
42.5
40
37.5
35
32.5
30
27.5
25
22.5
20
17.5
15
12.5
10
7.5
5
2.5
0
30 M
40 M
50 M
60 M
70 M
80 M
100 M
200 M
300 M
400 M
500 M
600 M
700 M
800 M
1 G
Frequency in Hz
QPK Level @Final Results
QPK Limit @FCC LimitRE

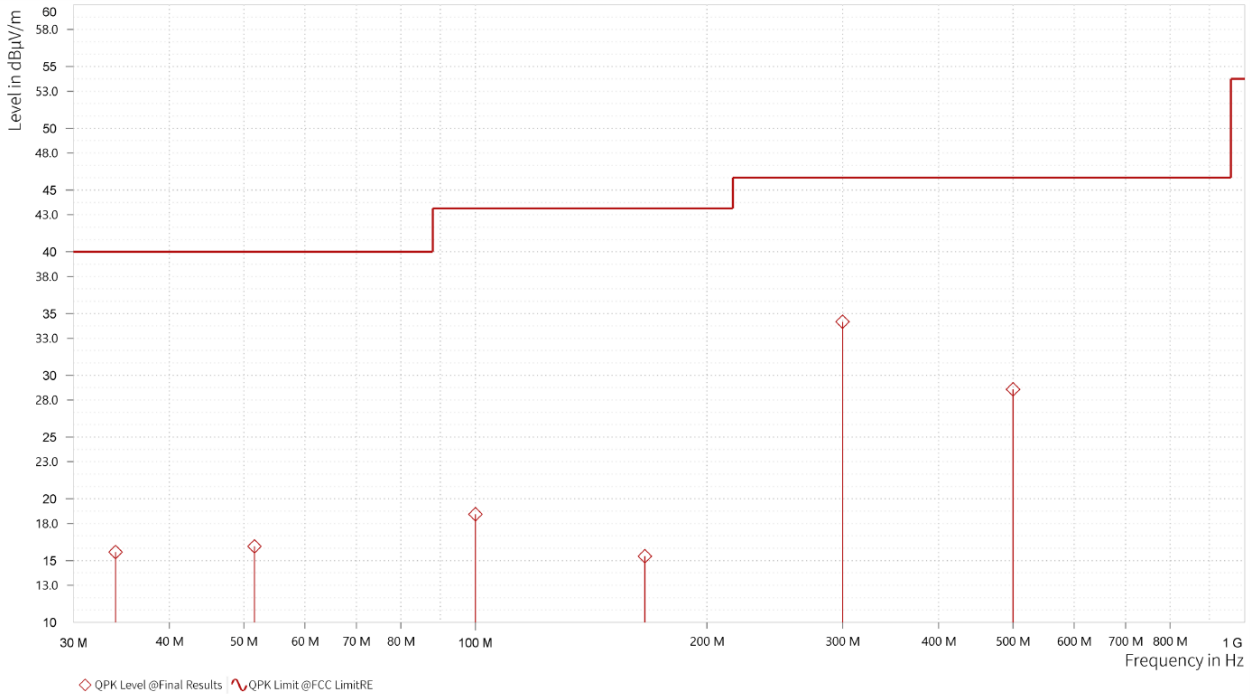
CHANNEL	WCDMA B5 Link+5G WIFI_11A_TX_CH52	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	QPK Level [dBµV/m]	QPK Limit [dBµV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]
1	34.026	15.69	40.00	24.31	-18.53	V	199.8	1	120.000
1	51.583	16.14	40.00	23.86	-15.95	V	266.1	1	120.000
1	99.986	18.75	43.50	24.75	-17.68	V	359	1	120.000
1	166.043	15.36	43.50	28.14	-19.60	V	134.7	2	120.000
1	300.000	34.33	46.00	11.67	-13.91	V	5	1	120.000
1	500.062	28.85	46.00	17.15	-11.80	V	266.1	1	120.000

REMARKS:

1. Emission level (dBuV/m) = Read level (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value =Limit value– Emission level.



ABOVE 1GHz WORST-CASE DATA:

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

CHANNEL	WCDMA B5 Link+5G WIFI_11A_TX_CH52	**DETECTOR FUNCTION**	Peak (PK)
FREQUENCY RANGE	1GHz ~ 18GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	1,695.656	60.60	74.00	13.40	49.87	54.00	4.13	11.10	H	5.4	1
2	2,540.640	49.29	74.00	24.71	37.00	54.00	17.00	13.19	H	1	1
5	10,522.000	35.21	74.00	38.79	24.60	54.00	29.40	10.24	H	1	1
5	15,784.000	40.89	74.00	33.11	29.07	54.00	24.93	14.34	H	359.1	1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	1,695.656	59.81	74.00	14.19	49.01	54.00	4.99	11.10	V	1	1
2	2,541.600	48.73	74.00	25.27	36.92	54.00	17.08	13.08	V	62.2	1
5	10,523.500	35.55	74.00	38.45	24.24	54.00	29.76	10.24	V	1	1
5	15,783.000	39.80	74.00	34.20	29.34	54.00	24.66	14.34	V	1	1

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value =Limit value– Emission level.

NOTE ： The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

LTE B41 Link+ BT2.0_TX_CH0_1DH5:

BELOW 1GHz WORST-CASE DATA:

30MHz – 1GHz data:

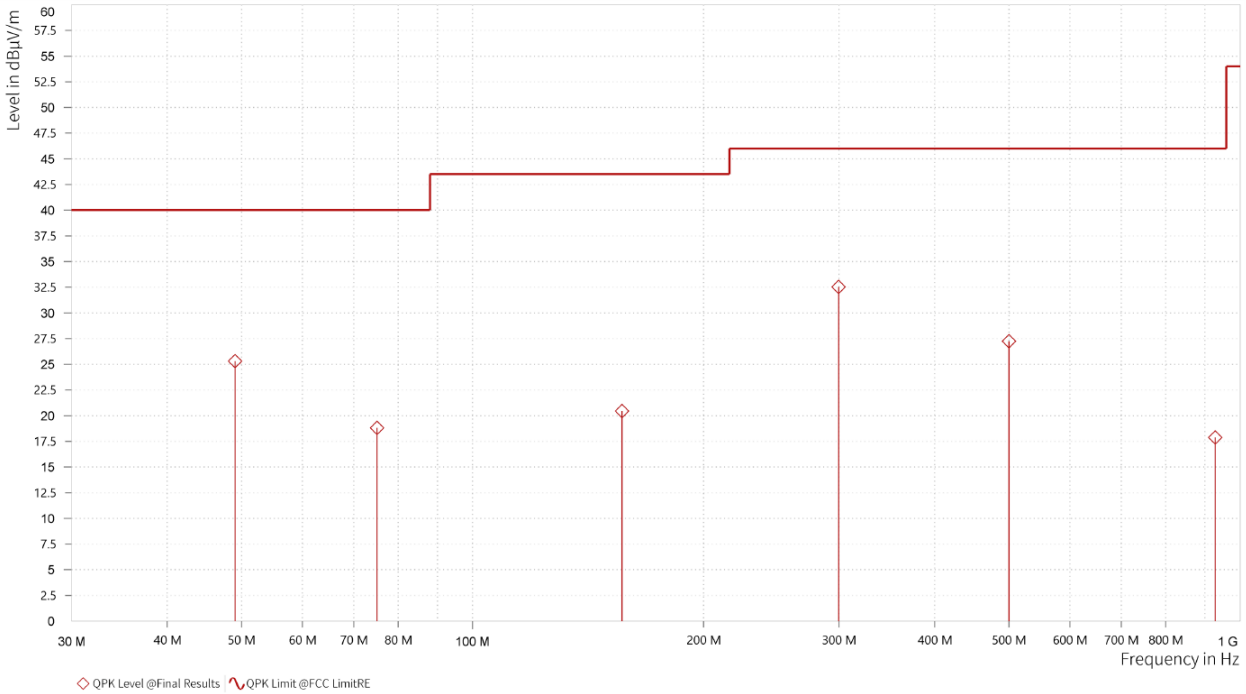
CHANNEL	LTE B41 Link+ BT2.0_TX_CH0_1DH5	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	QPK Level [dBµV/m]	QPK Limit [dBµV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]
1	49.012	25.29	40.00	14.71	-15.81	H	354	2	120.000
1	75.057	18.81	40.00	21.19	-21.76	H	225.6	2	120.000
1	156.585	20.46	43.50	23.04	-20.22	H	225.6	2	120.000
1	299.951	32.54	46.00	13.46	-13.91	H	267	1	120.000
1	499.965	27.25	46.00	18.75	-11.80	H	354	2	120.000
1	928.317	17.88	46.00	28.12	-5.45	H	1	1	120.000

REMARKS:

1. Emission level (dBuV/m) = Read level (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value =Limit value– Emission level.



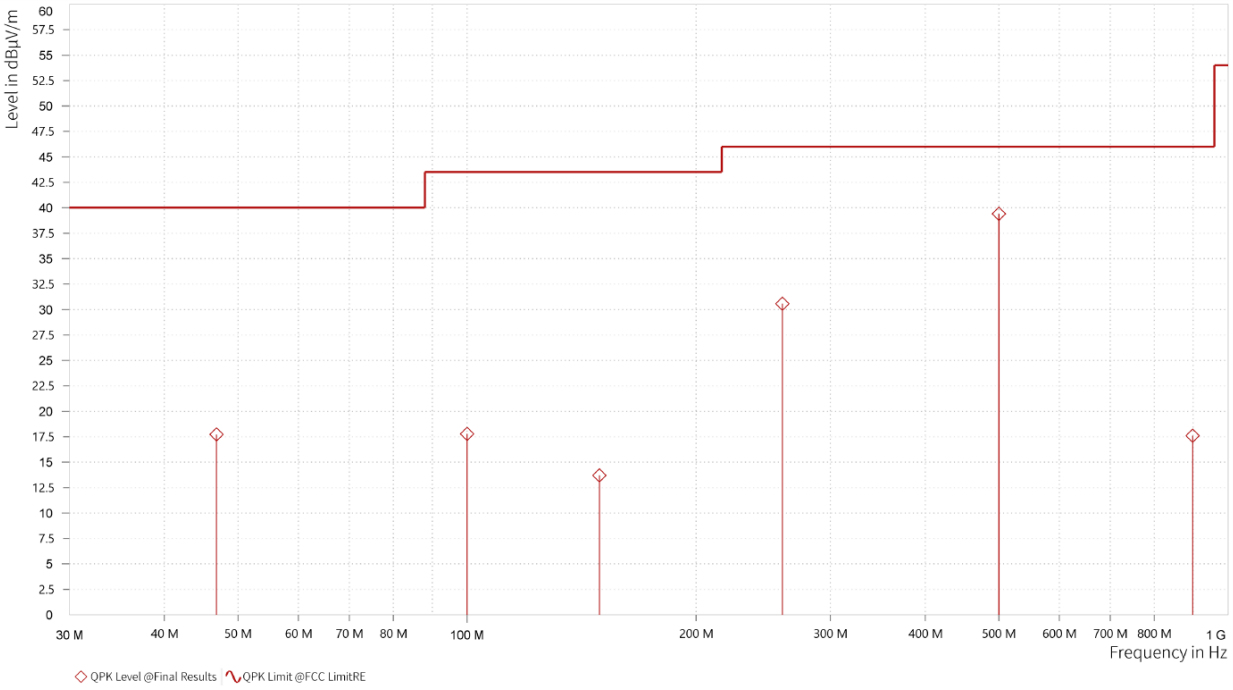
CHANNEL	LTE B41 Link+ BT2.0_TX_CH0_1DH5	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	QPK Level [dBµV/m]	QPK Limit [dBµV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]
1	46.830	17.72	40.00	22.28	-15.87	V	92.8	2	120.000
1	99.937	17.79	43.50	25.71	-17.68	V	225.3	2	120.000
1	149.213	13.70	43.50	29.80	-20.55	V	225.3	2	120.000
1	259.551	30.56	46.00	15.44	-15.07	V	291.6	2	120.000
1	499.965	39.41	46.00	6.59	-11.80	V	27	2	120.000
1	898.587	17.61	46.00	28.39	-5.65	V	355	2	120.000

REMARKS:

1. Emission level (dBuV/m) = Read level (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value =Limit value– Emission level.



ABOVE 1GHz WORST-CASE DATA:

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

CHANNEL	LTE B41 Link+ BT2.0_TX_CH0_1DH5	**DETECTOR FUNCTION**	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,803.838	49.79	74.00	24.21	39.13	54.00	14.87	14.48	H	1	2
3	5,168.294	59.23	74.00	14.77	45.63	54.00	8.37	15.68	H	359	2
4	7,203.550	49.35	74.00	24.65	37.24	54.00	16.76	17.68	H	359	2
4	7,752.225	49.33	74.00	24.67	37.38	54.00	16.62	18.00	H	1	2

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
3	4,804.324	49.06	74.00	24.94	39.25	54.00	14.75	14.48	V	243.8	2
3	5,168.294	54.44	74.00	19.56	46.92	54.00	7.08	15.68	V	359.1	1
4	7,204.400	49.24	74.00	24.76	37.44	54.00	16.56	17.69	V	359	2
4	7,753.075	49.54	74.00	24.46	37.36	54.00	16.64	18.00	V	1	2

REMARKS:

1. Emission Level = Read Level+ Antenna Factor + Cable Loss- Preamp Factor
   Margin value =Limit value– Emission level.

---END---