

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:	GSM/WCDMA/LTE Mobile Phone
Brand Name:	NOKIA
Model Name:	TA-1545
FCC ID:	2AJOTTA-1545
Date of tests:	Feb. 14, 2023 ~ Feb. 28, 2023

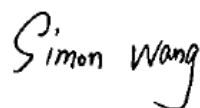
The submitted sample of the above equipment has been tested for according to the requirements of the following standards:

- FCC Part 15, Subpart C, Section 15.247 ANSI C63.10-2013
 FCC Part 15, Subpart E, Section 15.407
 FCC Part 27 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: Feb. 28, 2023



Date: Feb. 28, 2023

This report is governed by, and incorporates by reference, the Conditions of Testing 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. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. 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.



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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P22120012-1RF06	Original release	Feb. 28, 2023



1 GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF EUT

PRODUCT	GSM/WCDMA/LTE Mobile Phone		
BRAND NAME	NOKIA		
MODEL NAME	TA-1545		
NOMINAL VOLTAGE	5.0Vdc(adapter or host equipment) 3.7Vdc (Li-ion, battery)		
MODULATION TYPE	Bluetooth	GFSK, $\pi/4$ -DQPSK, 8DPSK	
	GSM/GPRS	GMSK	
	WCDMA	BPSK,QPSK	
	LTE	QPSK/16QAM	
OPERATING FREQUENCY	Bluetooth	2402MHz ~ 2480MHz	
	GSM	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) 826.4MHz ~ 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) 2502.5MHz ~ 2567.5MHz (FOR LTE Band7) 1710.7MHz ~ 1779.3MHz (FOR LTE Band66)	
HW VERSION	V0.2		
SW VERSION	HMDSW_TA-1545_0.2		
I/O PORTS	Refer to user's manual		
CABLE SUPPLIED	USB cable: non-shielded cable, with w/o ferrite core, 1.0 meter Earphone cable: non-shielded cable, with w/o ferrite core, 1.5 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. There were Sample 1 and 2 for this project, the difference is as below:

SAMPLE	EUT CONFIGURATION INFORMATION
1	LCD Panel 1 (SICHUAN)+Photo Camera 1(Chengxiangtong) +PCB 1(Zhiboxin)+ Speaker 1 (Xingrongda)
2	LCD Panel 2 (Zhongxian intelligent)+Photo Camera 2(Union Image) + PCB (Honggao) + Speaker 2 (Guanyintai)

List of Accessory:

ACCESSORIES	BRAND	MANUFACTURER	MODEL	SPECIFICATION
Battery 1	FHE	Guangdong Fenghua New Energy Co.,Ltd.	BL-L5H	Capacity: 3.7Vdc, 1400mAh
Battery 2	/	Shenzhen Aerospace Electronic Co., Ltd..	BL-L5H	Capacity: 3.7Vdc, 1400mAh
AC Adapter 1	/	Shenzhen BaiJunda Electronics Co., Ltd.	AC-18U	I/P: 100-240Vac, 0.1A, O/P: 5.0Vdc, 0.55A
AC Adapter 2	/	JIANGXI JIAN AOHA TECHNOLOGY CO.,LTD	AC-18U	I/P: 100-240Vac, 0.1A, O/P: 5.0Vdc, 0.55A
USB Cable	/	Saibao(Jiangxi) Communication Industrial Co.,Ltd	SAT-A002A	Signal Line,1.0meter
Earphone Cable	/	HUIZHOU JUWEI ELECTRONICS CO.,LTD	WH-108	Signal Line,1.5meter

2 SUMMARY OF TEST RESULTS

2.1 TEST RESULTS

TEST TYPE	Result
Radiated Emissions	Pass

Note: This report refers to the data of W7L-P22120012RF06 (model:TA-1563), the difference of TA-1563 and TA-1545 is model, FCC ID and SW version. TA-1563 is double card, TA-1545 is single card. It doesn't affect RF function. So all the test data is copied from the original report.

2.2 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~1GHz)	±4.98dB
Radiated emissions & Radiated Power (1GHz ~6GHz)	±4.70dB
Radiated emissions (6GHz ~18GHz)	±4.60dB
Radiated emissions (18GHz ~40GHz)	±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.
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Feb. 21,22	Feb. 20,23
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Feb. 20,23	Feb. 19,24
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May.15,22	May.14,23
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.04,22	Sep.03,23
Bilog Antenna	ETS-LINDGRE N	3143B	00161965	Mar. 06,22	Mar. 05,23
Horn Antenna	ETS-LINDGRE N	3117	00168692	Mar. 06,22	Mar. 05,23
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K- SG/QMS-00361	15433	Sep.04,22	Sep.03,23
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 14,23	Feb. 13,24
Signal Pre-Amplifier	EMSI	EMC 9135	980249	May.12,22	May.11,23
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	May.12,22	May.11,23
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 21,22	Feb.20,23
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 20,23	Feb.19,24
3m Semi-anechoic Chamber	ETS-LINDGRE N	9m*6m*6m	Euroshieldpn- CT0001143-121 6	May. 19,20	May. 18,23
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	JS1120	3.1.36	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	1505	May. 07,22	May. 06,23
Power Meter	Anritsu	ML2495A	1506002	Feb. 22,22	Feb. 21,23
Power Meter	Anritsu	ML2495A	1506002	Feb. 21,23	Feb. 20,24
Power Sensor	Anritsu	MA2411B	1339352	May. 07,22	May. 06,23
Temperature Chamber	ESPEC	SH-242	93000855	May. 12,22	May. 11,23
MXG Analog Microvave Signal Generator	KEYSIGHT	N5183A	MY50143024	Feb. 18,22	Feb. 17,23
MXG Analog Microvave Signal Generator	KEYSIGHT	N5183A	MY50143024	Feb. 17,23	Feb. 16,24
Base station R&S CMW500	Rohde&Schwa rz	CMW500	153085	May.12,22	May.11,23
DC Source	Kikusui/JP	PMX18-5A	0000001	Aug. 24,22	Aug. 23,23

- 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 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.
 5. The FCC Site Registration No. is 525120; The Designation No. is CN1171.

2.4 Referenced Standards

The following 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 BT
2	FCC PART 22, Subpart H	For WWAN
3	FCC PART 24, Subpart E	For WWAN
4	FCC Part 27	For WWAN

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

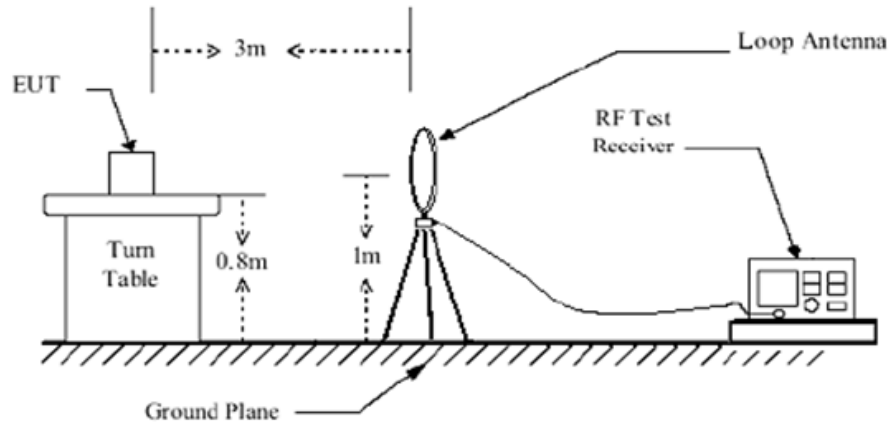
2.5 Test Configurations

Test Configurations	Description
Worst case test Mode	
1	GSM 850 High 251+BT 2.0 8DPSK CH 0
2	LTE B7 20M High 21350+BT 2.0 8DPSK CH 0
3	WCDMA B2 High 9538+BT 2.0 8DPSK CH 0

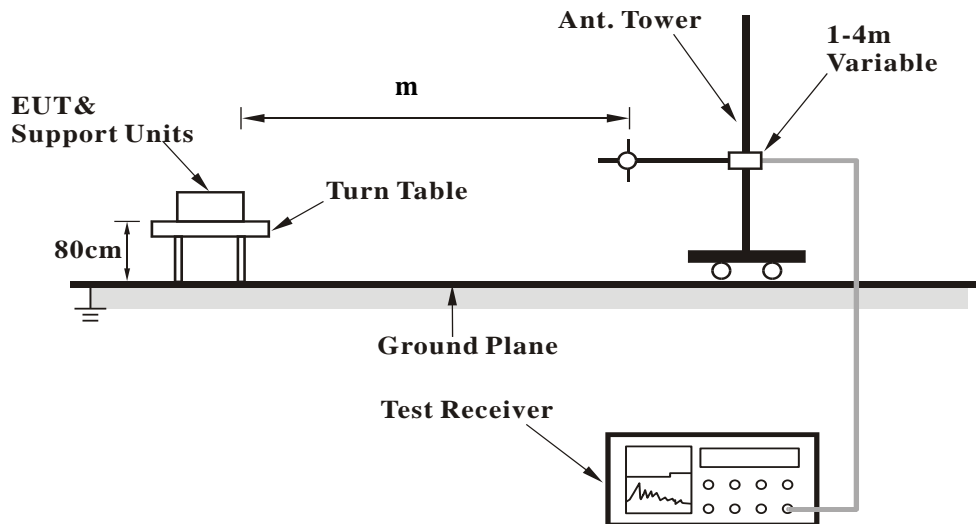
- Note:**
1. Test equipment and site refer to Referenced Standards report
 2. For higher frequency, the emission is 20dB below the limit was not record

2.6 Test Data

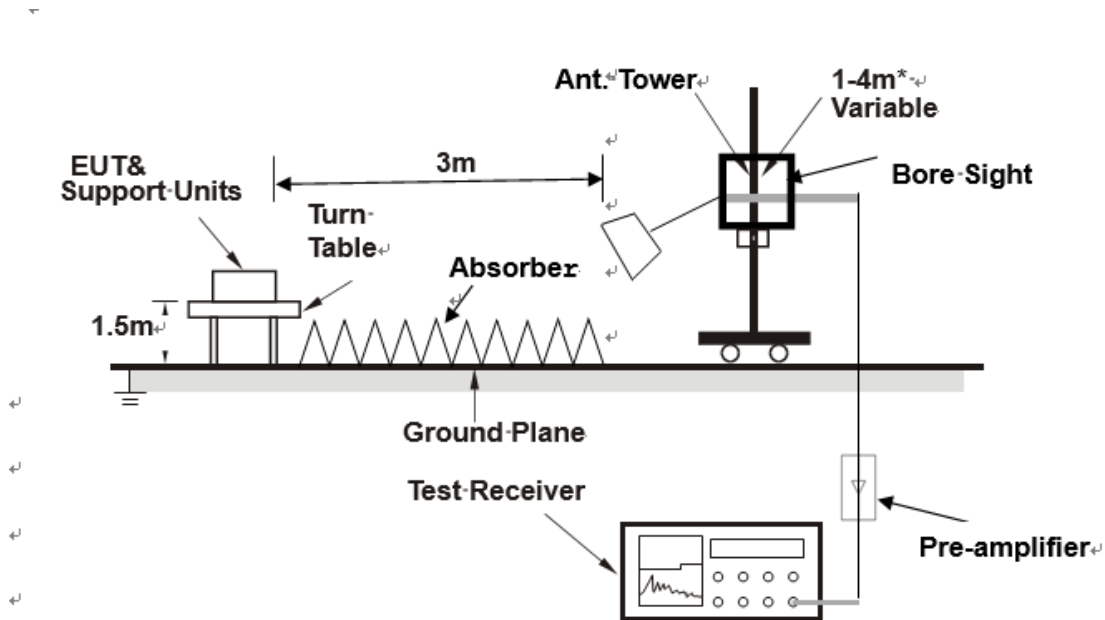
<Frequency Range 9KHz~30MHz >



< 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

- Set the EUT under full load condition and placed them on a testing table.
- Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.
- 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.

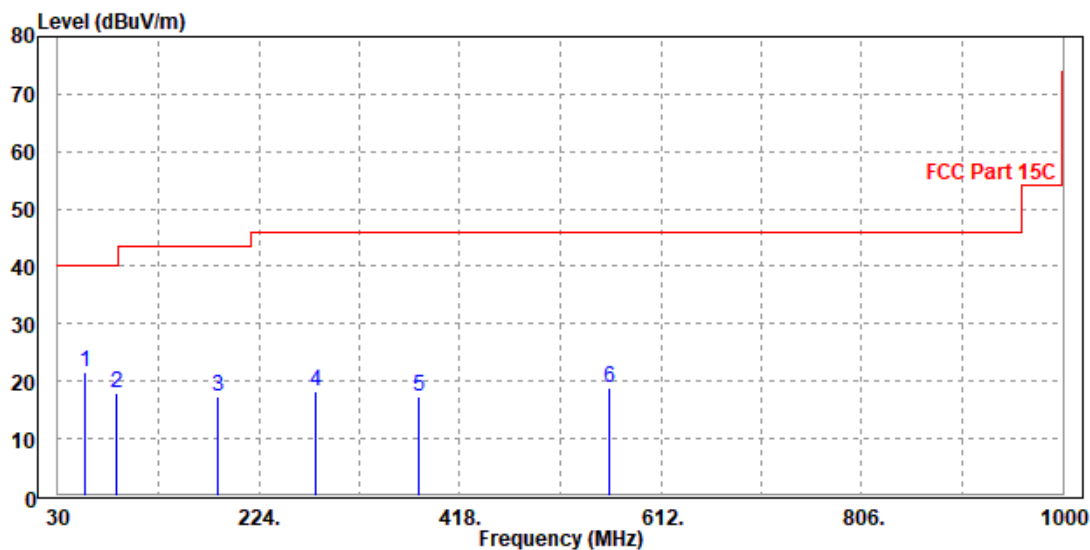
GSM 850 High 251+BT 2.0 8DPSK CH 0:

BELOW 1GHz WORST-CASE DATA:

30 MHz – 1GHz data:

CHANNEL	GSM 850 High 251+BT 2.0 8DPSK CH 0	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

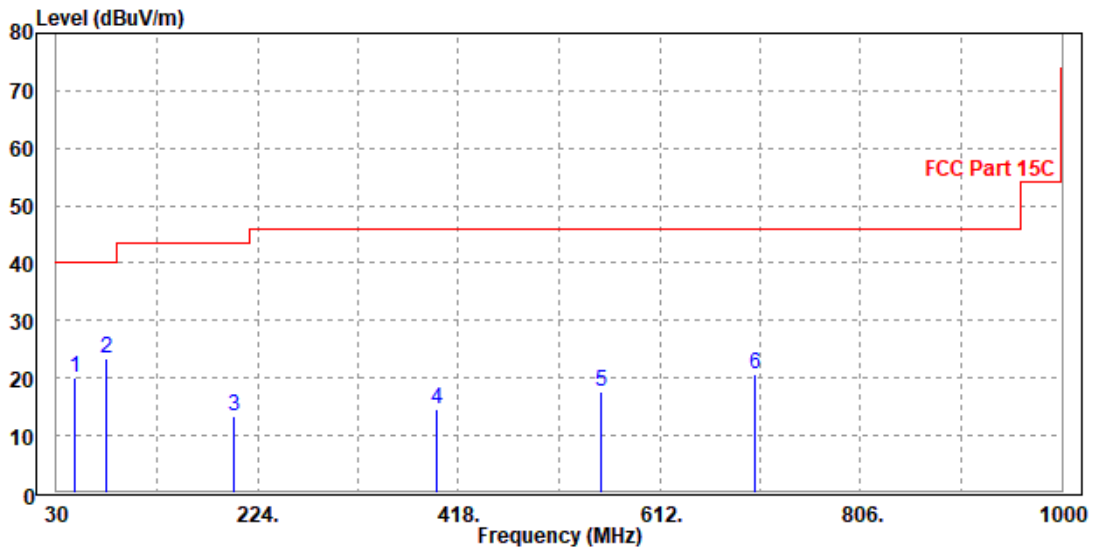
	Read	Limit	Over			Remark	Pol/Phase	
Freq	Level	Level	Line	Limit	Factor			
MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m			
1 PP	56.190	21.49	48.44	40.00	-18.51	-26.95	Peak	Horizontal
2	87.230	17.80	45.66	40.00	-22.20	-27.86	Peak	Horizontal
3	185.200	17.36	41.65	43.50	-26.14	-24.29	Peak	Horizontal
4	278.320	18.23	39.84	46.00	-27.77	-21.61	Peak	Horizontal
5	378.230	17.27	36.90	46.00	-28.73	-19.63	Peak	Horizontal
6	562.530	18.77	35.12	46.00	-27.23	-16.35	Peak	Horizontal





CHANNEL	GSM 850 High 251+BT 2.0 8DPSK CH 0	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	48.430	20.21	46.58	40.00	-19.79	-26.37	Peak	Vertical
2 PP	77.530	23.48	52.25	40.00	-16.52	-28.77	Peak	Vertical
3	200.720	13.25	37.28	43.50	-30.25	-24.03	Peak	Vertical
4	397.630	14.57	33.67	46.00	-31.43	-19.10	Peak	Vertical
5	555.740	17.57	34.31	46.00	-28.43	-16.74	Peak	Vertical
6	703.180	20.66	35.76	46.00	-25.34	-15.10	Peak	Vertical



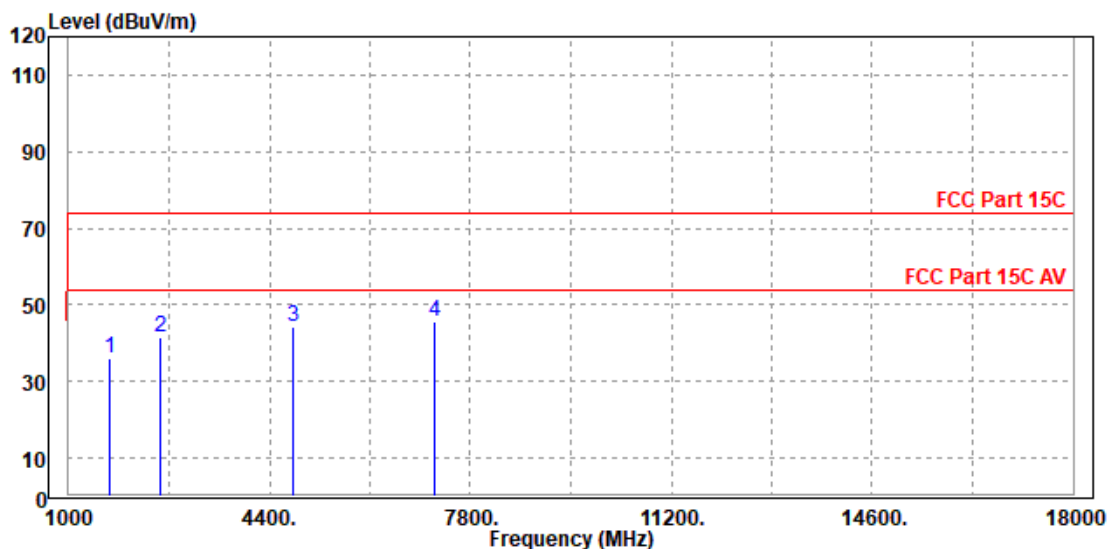
ABOVE 1GHz WORST-CASE DATA:

Note: 1. For radiated emissions testing, the full testing range of different modes have been scanned, only the worst case harmonic data is reported in the sheet.

2. All other emissions that more than 20dB below the limit were not recorded

CHANNEL	GSM 850 High 251+BT 2.0 8DPSK CH 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

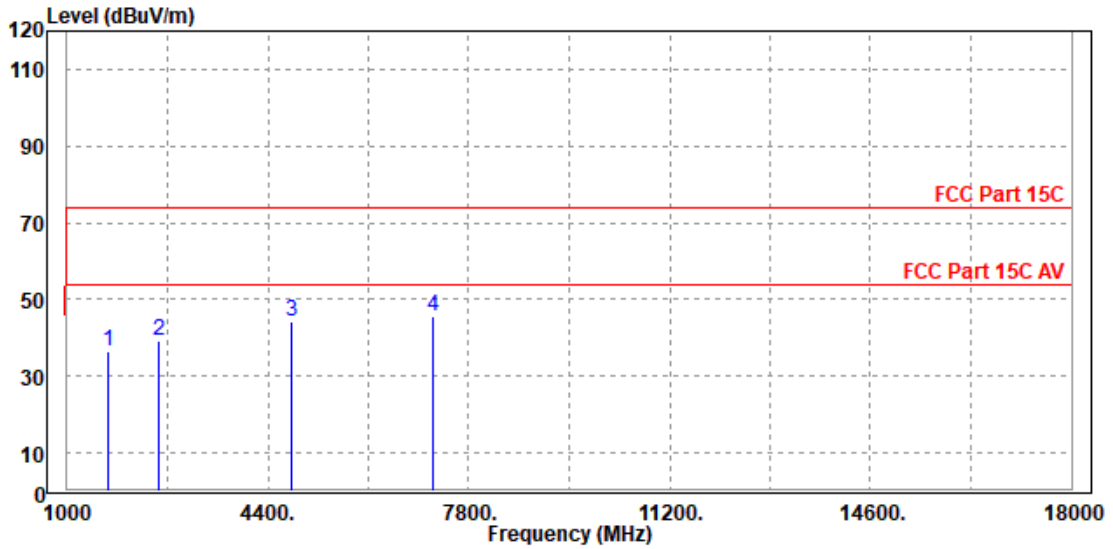
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	1697.000	35.94	47.88	74.00	-38.06	-11.94	Peak	Horizontal
2	2547.000	41.34	48.69	74.00	-32.66	-7.35	Peak	Horizontal
3	4808.000	44.21	45.65	74.00	-29.79	-1.44	Peak	Horizontal
4 PP	7206.000	45.43	43.69	74.00	-28.57	1.74	Peak	Horizontal





CHANNEL	GSM 850 High 251+BT 2.0 8DPSK CH 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	1697.000	36.51	48.36	74.00	-37.49	-11.85	Peak	Vertical
2	2546.400	39.43	46.49	74.00	-34.57	-7.06	Peak	Vertical
3	4804.000	44.38	45.62	74.00	-29.62	-1.24	Peak	Vertical
4 PP	7206.000	45.57	43.71	74.00	-28.43	1.86	Peak	Vertical



Note: For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet.

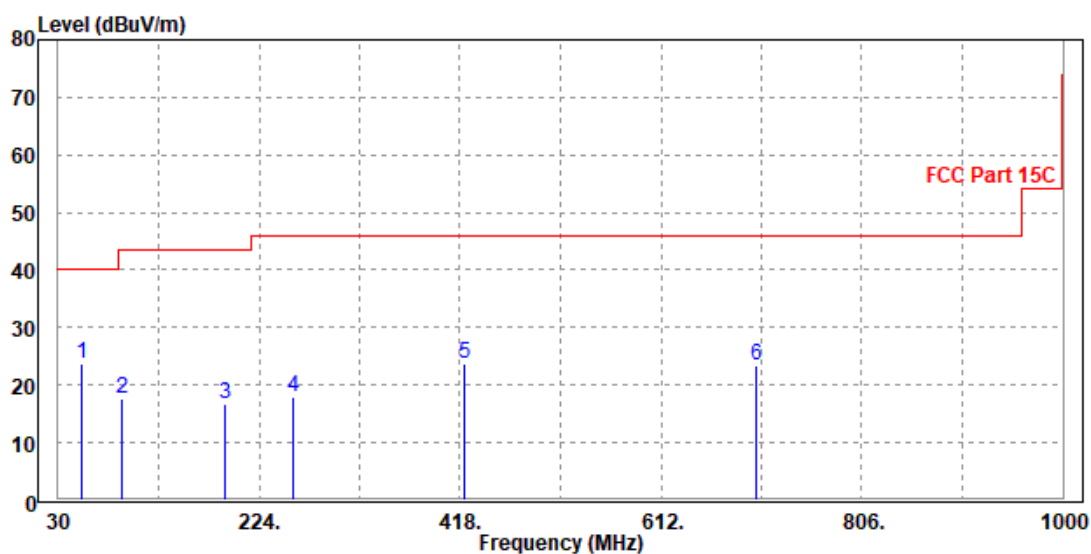
LTE B7 20M High 21350+BT 2.0 8DPSK CH 0:

BELOW 1GHz WORST-CASE DATA:

30 MHz – 1GHz data:

CHANNEL	LTE B7 20M High 21350+BT 2.0 8DPSK CH 0	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

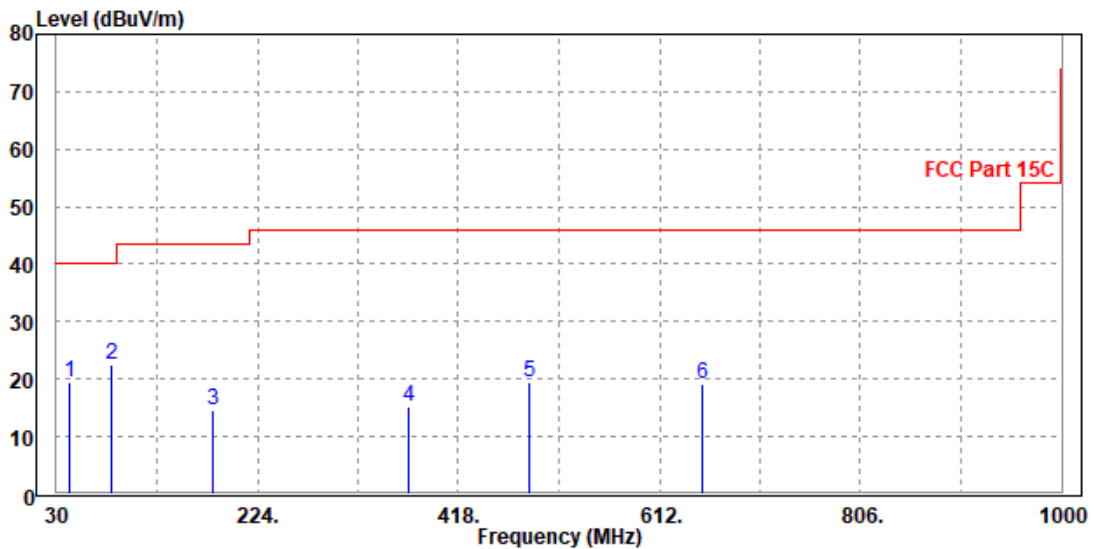
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m			
1	PP	52.310	23.75	50.36	40.00	-16.25	-26.61	Peak	Horizontal
2		92.080	17.54	44.69	43.50	-25.96	-27.15	Peak	Horizontal
3		191.020	16.81	41.09	43.50	-26.69	-24.28	Peak	Horizontal
4		256.980	17.91	39.77	46.00	-28.09	-21.86	Peak	Horizontal
5		422.850	23.83	42.56	46.00	-22.17	-18.73	Peak	Horizontal
6		703.180	23.44	37.54	46.00	-22.56	-14.10	Peak	Horizontal





CHANNEL	LTE B7 20M High 21350+BT 2.0 8DPSK CH 0	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	42.610	19.38	44.34	40.00	-20.62	-24.96	Peak	Vertical
2 PP	82.380	22.49	51.12	40.00	-17.51	-28.63	Peak	Vertical
3	181.320	14.70	39.16	43.50	-28.80	-24.46	Peak	Vertical
4	370.470	15.08	34.81	46.00	-30.92	-19.73	Peak	Vertical
5	486.870	19.34	37.30	46.00	-26.66	-17.96	Peak	Vertical
6	652.740	19.05	34.54	46.00	-26.95	-15.49	Peak	Vertical



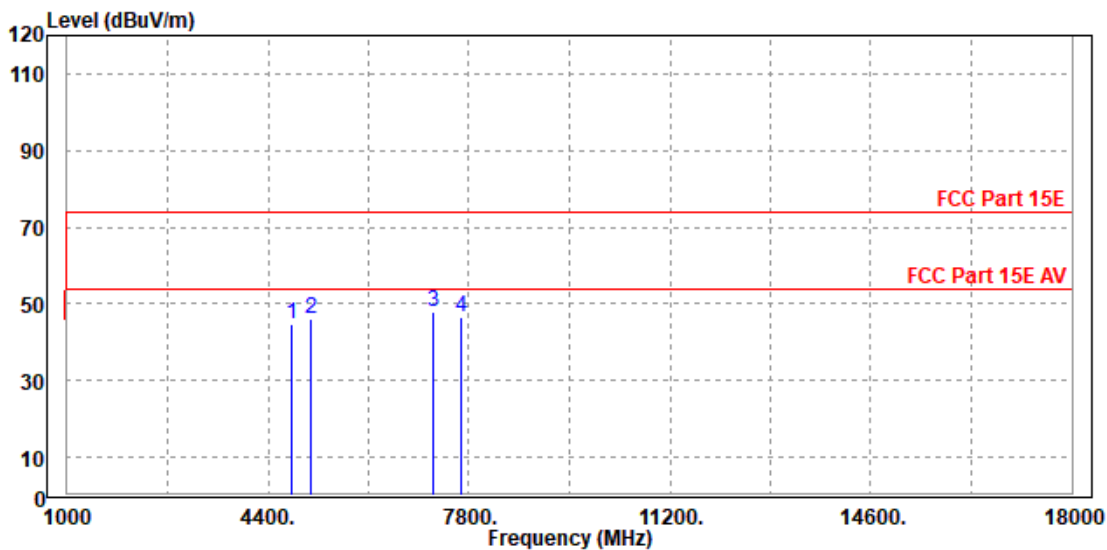
ABOVE 1GHz WORST-CASE DATA:

Note: 1. For radiated emissions testing, the full testing range of different modes have been scanned, only the worst case harmonic data is reported in the sheet.

2. All other emissions that more than 20dB below the limit were not recorded

CHANNEL	LTE B7 20M High 21350+BT 2.0 8DPSK CH 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

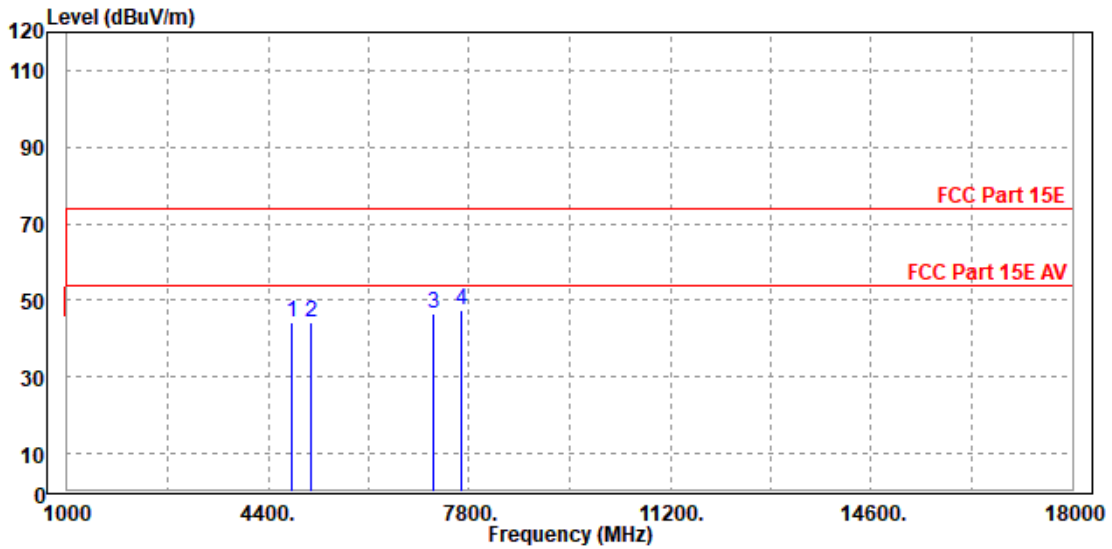
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4804.000	44.91	43.70	74.00	-29.09	1.21	Peak	Horizontal
2	5114.000	45.94	44.46	74.00	-28.06	1.48	Peak	Horizontal
3 PP	7206.000	47.88	43.66	74.00	-26.12	4.22	Peak	Horizontal
4	7680.000	46.33	41.40	74.00	-27.67	4.93	Peak	Horizontal





CHANNEL	LTE B7 20M High 21350+BT 2.0 8DPSK CH 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	4804.000	44.12	44.49	74.00	-29.88	-0.37	Peak	Vertical
2	5114.000	44.46	44.79	74.00	-29.54	-0.33	Peak	Vertical
3	7206.000	46.34	43.24	74.00	-27.66	3.10	Peak	Vertical
4 PP	7680.000	47.46	43.60	74.00	-26.54	3.86	Peak	Vertical



Note: For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet.

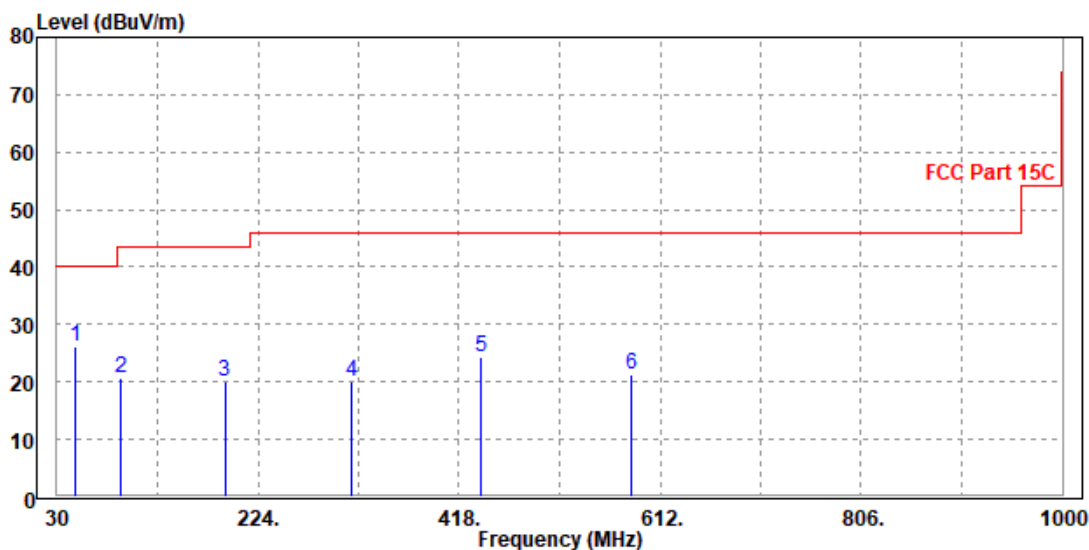
WCDMA B2 High 9538+BT 2.0 8DPSK CH 0:

BELOW 1GHz WORST-CASE DATA:

30 MHz – 1GHz data:

CHANNEL	WCDMA B2 High 9538+BT 2.0 8DPSK CH 0	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

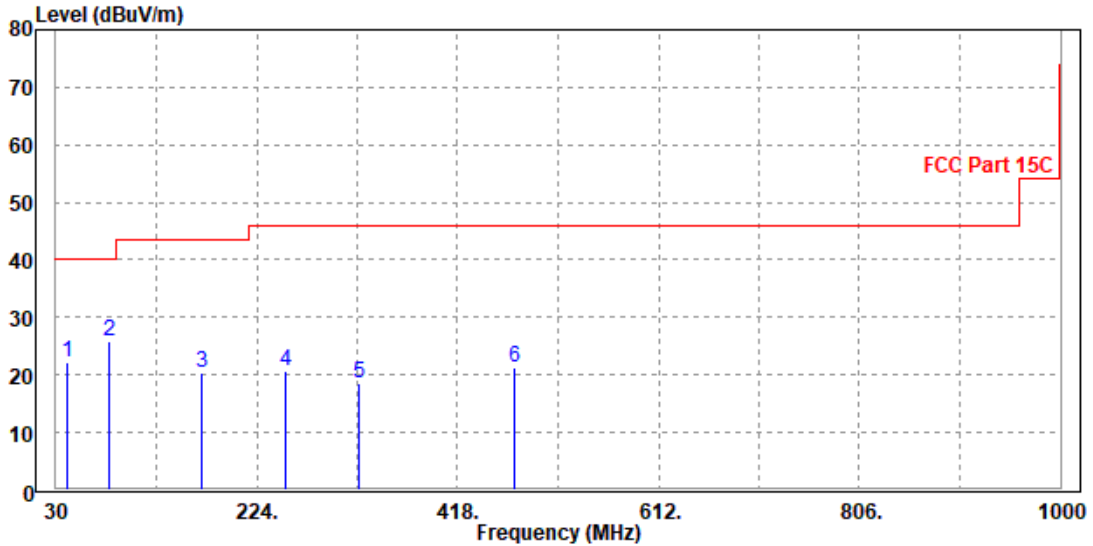
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m			
1	PP	48.430	26.20	52.55	40.00	-13.80	-26.35	Peak	Horizontal
2		92.080	20.54	47.69	43.50	-22.96	-27.15	Peak	Horizontal
3		191.990	20.15	44.42	43.50	-23.35	-24.27	Peak	Horizontal
4		314.210	20.04	41.08	46.00	-25.96	-21.04	Peak	Horizontal
5		438.370	24.39	42.83	46.00	-21.61	-18.44	Peak	Horizontal
6		583.870	21.36	37.39	46.00	-24.64	-16.03	Peak	Horizontal





CHANNEL	WCDMA B2 High 9538+BT 2.0 8DPSK CH 0	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	40.670	22.27	47.00	40.00	-17.73	-24.73	Peak	Vertical
2 PP	81.410	25.77	54.51	40.00	-14.23	-28.74	Peak	Vertical
3	170.650	20.25	44.95	43.50	-23.25	-24.70	Peak	Vertical
4	251.160	20.83	43.63	46.00	-25.17	-22.80	Peak	Vertical
5	321.970	18.67	39.51	46.00	-27.33	-20.84	Peak	Vertical
6	473.290	21.39	39.53	46.00	-24.61	-18.14	Peak	Vertical



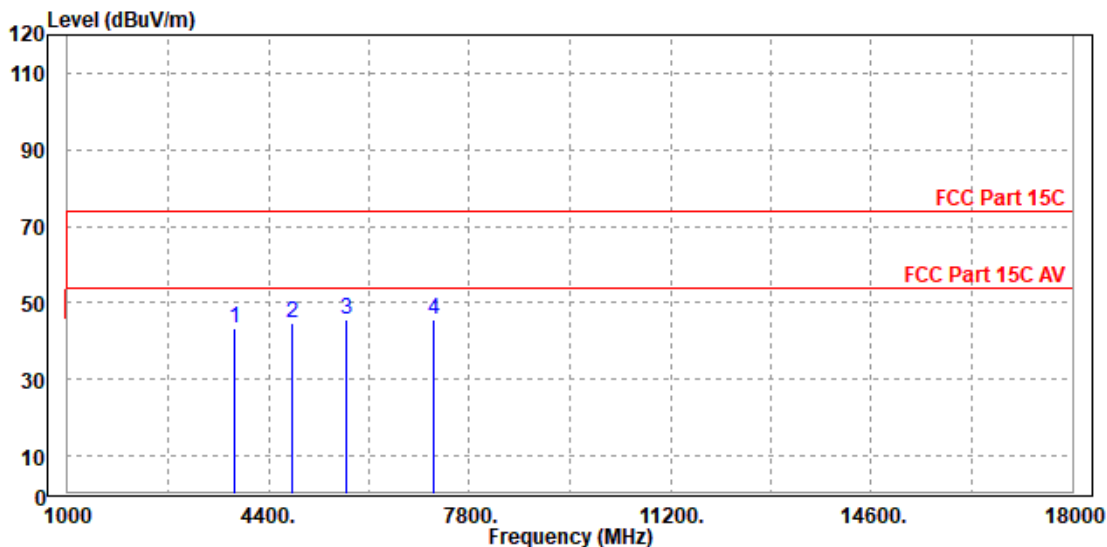
ABOVE 1GHz WORST-CASE DATA:

Note: 1. For radiated emissions testing, the full testing range of different modes have been scanned, only the worst case harmonic data is reported in the sheet.

2. All other emissions that more than 20dB below the limit were not recorded

CHANNEL	WCDMA B2 High 9538+BT 2.0 8DPSK CH 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

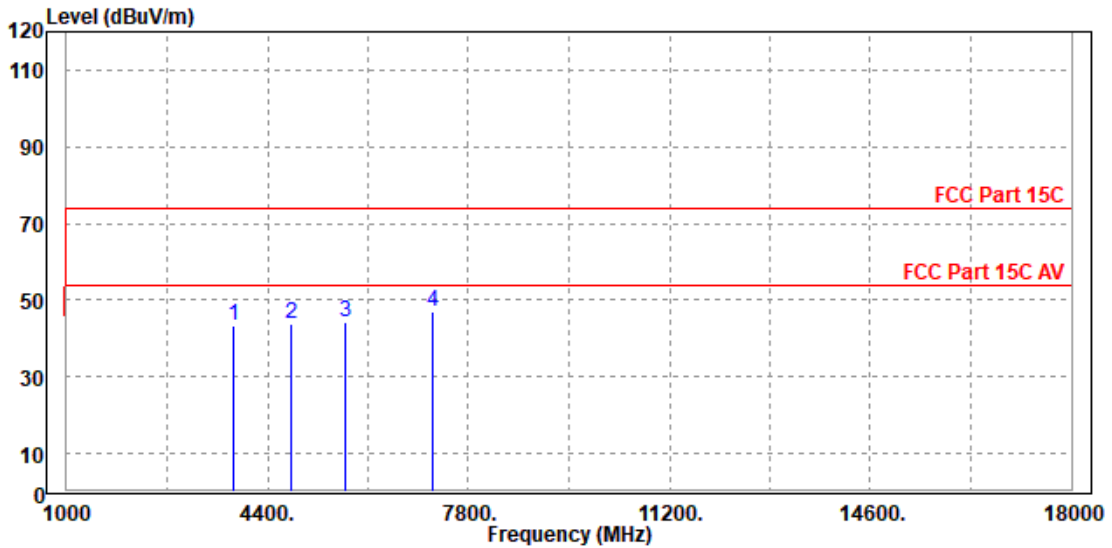
	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	3822.000	43.51	47.66	74.00	-30.49	-4.15	Peak	Horizontal
2	4804.000	44.89	46.33	74.00	-29.11	-1.44	Peak	Horizontal
3 PP	5722.800	45.85	46.40	74.00	-28.15	-0.55	Peak	Horizontal
4	7206.000	45.73	43.99	74.00	-28.27	1.74	Peak	Horizontal





CHANNEL	WCDMA B2 High 9538+BT 2.0 8DPSK CH 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dBuV/m	dB	dB/m		
1	3822.000	43.26	47.51	74.00	-30.74	-4.25	Peak	Vertical
2	4804.000	43.64	44.88	74.00	-30.36	-1.24	Peak	Vertical
3	5722.800	44.47	45.22	74.00	-29.53	-0.75	Peak	Vertical
4 PP	7206.000	47.02	45.16	74.00	-26.98	1.86	Peak	Vertical



Note: For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet.

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