FCC REPORT
(Bluetooth)

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

Equipment Under Test (EUT)

Product Name:	Smart Phone
Model No.:	TA-1367
Trade mark:	NOKIA
FCC ID:	2AJOTTA-1367
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247
Date of sample receipt:	19 Aug., 2021
Date of Test:	20 Aug., to 28 Aug., 2021
Date of report issued:	16 Sep., 2021
Test Result:	PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Bruce Zhang
Laboratory Manager

2 Version

Version No.	Date	Description
00	*16 Sep., 2021*	*Original*

According to the declaration from the applicant, the models: TA-1370 and TA-1367 are identical in specifications, only different SIM adapter, TA-1370 supports daul sim mode,TA-1367 supports only single sim mode.

Therefore in this report all items do not need to retest and all test data in this report are based on the previous report with report number: JYTSZB-R12-2101702

Tested by: Mike.ou ***Date:*** *16 Sep., 2021*

Test Engineer

Reviewed by: Winner Zhang ***Date:*** *16 Sep., 2021*

Project Engineer

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4 Test Summary

Test Items	Section in CFR 47	Test Data	Result
Antenna Requirement	15.203 & 15.247 (b)	See Section 6.1	Pass
AC Power Line Conducted Emission	15.207	See Section 6.2	Pass
Conducted Peak Output Power	15.247 (b)(1)	Refer to the report:SRTC2021-9004(F)-21082802(D)	Refer to the report:SRTC2021-9004(F)-21082802(D)
20dB Occupied Bandwidth	15.247 (a)(1)	Refer to the report:SRTC2021-9004(F)-21082802(D)	Refer to the report:SRTC2021-9004(F)-21082802(D)
Carrier Frequencies Separation	15.247 (a)(1)	Refer to the report:SRTC2021-9004(F)-21082802(D)	Refer to the report:SRTC2021-9004(F)-21082802(D)
Hopping Channel Number	15.247 (a)(1)	Refer to the report:SRTC2021-9004(F)-21082802(D)	Refer to the report:SRTC2021-9004(F)-21082802(D)
Dwell Time	15.247 (a)(1)	Refer to the report:SRTC2021-9004(F)-21082802(D)	Refer to the report:SRTC2021-9004(F)-21082802(D)
Conducted Band Edge	15.205 & 15.209 & 15.247(d)	Refer to the report:SRTC2021-9004(F)-21082802(D)	Refer to the report:SRTC2021-9004(F)-21082802(D)
Radiated Band Edge		See Section 6.3.1	Pass
Conducted Spurious Emission	15.209 & 15.247(d)	Refer to the report:SRTC2021-9004(F)-21082802(D)	Refer to the report:SRTC2021-9004(F)-21082802(D)
Radiated Spurious Emission		See Section 6.4.1	Pass

Remark:

1. Pass: The EUT complies with the essential requirements in the standard.

2. The report: SRTC2021-9004(F)-21082802(D), issued by The State Radio_monitoring_center Testing Center.

Test Method:	*ANSI C63.10-2013* *KDB 558074 D01 15.247 Meas Guidance v05r02*

5 General Information

5.1 Client Information

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

5.2 General Description of E.U.T.

Product Name:	Smart Phone
Model No.:	TA-1367
Operation Frequency:	2402MHz~2480MHz
Transfer rate:	1/2/3 Mbits/s
Number of channel:	79
Modulation type:	GFSK, π/4-DQPSK, 8DPSK
Modulation technology:	FHSS
Antenna Type:	Internal Antenna
Antenna gain:	-2.5 dBi
Power supply:	Rechargeable Lithium ion Polymer Battery DC3.85V, 4.85Ah
AC adapter:	Adapter 1: Model: TN-050200U3, TN-050200E3, TN-050200C3A Input: AC100-240V, 50/60Hz, 0.35A Output: DC 5.0V, 2.0A 10.0W Note: Only the pins are different between different models Adapter 2: Model: TN-050200U3, TN-050200A3, TN-050200C3A Input: AC100-240V, 50/60Hz, 0.35A Output: DC 5.0V, 2.0A 10.0W Note: Only the pins are different between different models Adapter 3: Model: AD-010A, AD-010X Input: AC100-240V, 50/60Hz, 0.35A Output: DC 5.0V, 2.0A 10.0W Note: Only the pins are different between different models
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

Operation Frequency each of channel for GFSK, π/4-DQPSK, 8DPSK							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	20	2422MHz	40	2442MHz	60	2462MHz
1	2403MHz	21	2423MHz	41	2443MHz	61	2463MHz
2	2404MHz	22	2424MHz	42	2444MHz	62	2464MHz
3	2405MHz	23	2425MHz	43	2445MHz	63	2465MHz
4	2406MHz	24	2426MHz	44	2446MHz	64	2466MHz
5	2407MHz	25	2427MHz	45	2447MHz	65	2467MHz
…	…	…	…	…	…	…	…
15	2417MHz	35	2437MHz	55	2457MHz	75	2477MHz
16	2418MHz	36	2438MHz	56	2458MHz	76	2478MHz
17	2419MHz	37	2439MHz	57	2459MHz	77	2479MHz
18	2420MHz	38	2440MHz	58	2460MHz	78	2480MHz
19	2421MHz	39	2441MHz	59	2461MHz		
Remark: Channel 0, 39 &78 selected for GFSK, π/4-DQPSK and 8DPSK.							

5.3 Test environment and mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test Modes:	
Non-hopping mode:	Keep the EUT in continuous transmitting mode with worst case data rate.
Hopping mode:	Keep the EUT in hopping mode.
Remark	GFSK (1 Mbps) is the worst case mode.
Radiated Emission: The sample was placed 0.8m (below 1GHz)/1.5m (above 1GHz) above the ground plane of 3m chamber*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.	

5.4 Description of Support Units

The EUT has been tested as an independent unit.

5.5 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95%(U = 2Uc(y)))
Conducted Emission (9kHz ~ 30MHz)	±2.62 dB (k=2)
Radiated Emission (9kHz ~ 30MHz) (3m SAC)	±3.13 dB
Radiated Emission (30MHz ~ 1000MHz) (3m SAC)	±4.45 dB
Radiated Emission (1GHz ~ 18GHz) (3m SAC)	±5.34 dB
Radiated Emission (18GHz ~ 40GHz) (3m SAC)	±5.34 dB
Note: *The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.26-2015. All the measurement uncertainty value were shown with a coverage k=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.*	

5.6 Additions to, deviations, or exclusions from the method

No

5.7 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

5.8 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.
Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info-JYTee@lets.com, Website: http://www.ccis-cb.com

5.9 Test Instruments list

Radiated Emission:					
Test Equipment	**Manufacturer**	**Model No.**	**Management Number**	**Cal.Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
3m SAC	SAEMC	9m*6m*6m	WXJ001-1	01-19-2021	01-18-2024
BiConiLog Antenna	SCHWARZBECK	VULB9163	WXJ002	03-03-2021	03-02-2022
Biconical Antenna	SCHWARZBECK	VUBA9117	WXJ002-1	06-20-2021	06-19-2022
Horn Antenna	SCHWARZBECK	BBHA9120D	WXJ002-2	03-03-2021	03-02-2022
Horn Antenna	SCHWARZBECK	BBHA9120D	WXJ002-3	06-18-2021	06-17-2022
Loop Antenna	SCHWARZBECK	FMZB 1519 B	WXJ002-4	03-07-2021	03-06-2022
Pre-amplifier (30MHz ~ 1GHz)	HP	8447D	WXG001-2	03-07-2021	03-06-2022
Pre-amplifier (1GHz ~ 18GHz)	SKET	LNPA_0118G-50	WXG001-3	03-07-2021	03-06-2022
Pre-amplifier (18GHz ~ 40GHz)	RF System	TRLA-180400G45B	WXG001-9	03-07-2021	03-06-2022
EMI Test Receiver	Rohde & Schwarz	ESRP7	WXJ003-1	03-03-2021	03-02-2022
Spectrum analyzer	Rohde & Schwarz	FSP30	WXJ004	03-03-2021	03-02-2022
Spectrum Analyzer	KEYSIGHT	N9010B	WXJ004-2	11-27-2020	11-26-2021
Coaxial Cable (30MHz ~ 1GHz)	JYT	JYT3M-1G-NN-8M	WXG001-4	03-07-2021	03-06-2022
Coaxial Cable (1GHz ~ 18GHz)	JYT	JYT3M-18G-NN-8M	WXG001-5	03-07-2021	03-06-2022
Coaxial Cable (9kHz ~ 30MHz)	JYT	JYT3M-1G-BB-5M	WXG001-6	03-07-2021	03-06-2022
Coaxial Cable (1GHz ~ 18GHz)	JYT	JYT3M-40G-SS-8M	WXG001-7	03-07-2021	03-06-2022
RF Switch Unit	Tonscend	JS0806-F	WXJ089	N/A	
Test Software	Tonscend	TS+	Version: 3.0.0.1		

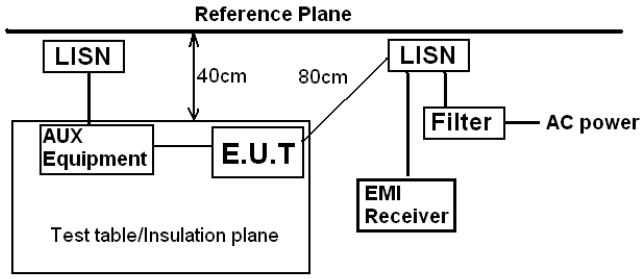
Conducted Emission:					
Test Equipment	**Manufacturer**	**Model No.**	**Management Number**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
EMI Test Receiver	Rohde & Schwarz	ESCI	WXJ003	03-03-2021	03-02-2022
LISN	Rohde & Schwarz	ENV432	WXJ005-2	04-06-2021	04-05-2022
LISN	Rohde & Schwarz	ESH3-Z5	WXJ005-1	06-17-2020	06-16-2022
Coaxial Cable	JYT	JYTCE-1G-NN-2M	WXG003-1	03-03-2021	03-02-2022
RF Switch	Top Precision	RSU0301	WXG003	N/A	N/A
EMI Test Software	AUDIX	E3	Version: 6.110919b		

6 Test results and measurement data

6.1 Antenna Requirement

Standard requirement:	FCC Part 15 C Section 15.203 & 247(b)
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. 15.247(b) (4) requirement: (4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.	
E.U.T Antenna:	
The Bluetooth antenna is an Internal antenna which permanently attached, and the best case gain of the antenna is -2.5 dBi.	

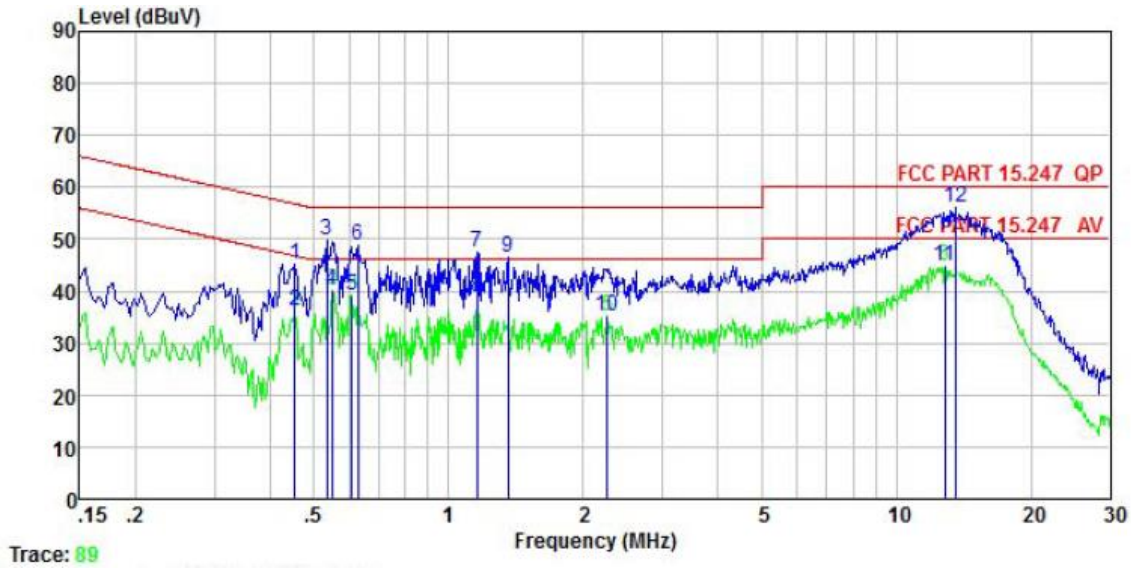
6.2 Conducted Emissions

<table>
<tr><td>Test Requirement:</td><td colspan="3">FCC Part 15 C Section 15.207</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="3">150 kHz to 30 MHz</td></tr>
<tr><td>Class / Severity:</td><td colspan="3">Class B</td></tr>
<tr><td>Receiver setup:</td><td colspan="3">RBW=9 kHz, VBW=30 kHz, Sweep time=auto</td></tr>
<tr><td rowspan="6">Limit:</td><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
<tr><td colspan="3">* Decreases with the logarithm of the frequency.</td></tr>
<tr><td>Test setup:</td><td colspan="3"> 

Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m</td></tr>
<tr><td>Test procedure:</td><td colspan="3">1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.
2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).
3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10(latest version) on conducted measurement.</td></tr>
<tr><td>Test Instruments:</td><td colspan="3">Refer to section 5.9 for details</td></tr>
<tr><td>Test mode:</td><td colspan="3">Hopping mode</td></tr>
<tr><td>Test results:</td><td colspan="3">1. Pre-Scan all adapter and all modulation , And the report only reflects the worst mode
2. The test data in this report are based on the previous report with report number JYTSZB-R12-2101702</td></tr>
</table>

Measurement Data(worst case):

Product name:	Smart Phone	**Product model:**	TA-1370
Test by:	Mike	**Test mode:**	BT Tx mode
Test frequency:	150 kHz ~ 30 MHz	**Phase:**	Line
Test voltage:	AC 120 V/60 Hz	**Environment:**	Temp: 22.5℃ Huni: 55%

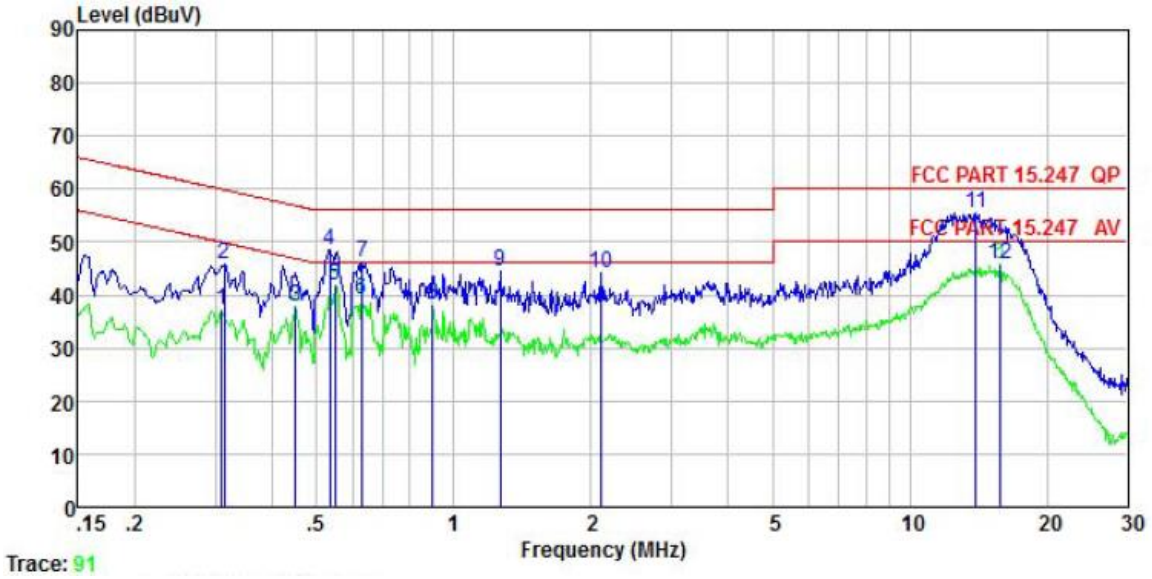


	Freq	Read Level	LISN Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.454	35.01	10.28	-0.01	0.03	45.31	56.80	-11.49	QP
2	0.454	25.90	10.28	-0.01	0.03	36.20	46.80	-10.60	Average
3	0.535	39.94	10.29	-0.36	0.03	49.90	56.00	-6.10	QP
4	0.549	30.38	10.29	-0.36	0.02	40.33	46.00	-5.67	Average
5	0.608	29.39	10.30	-0.38	0.02	39.33	46.00	-6.67	Average
6	0.627	38.88	10.30	-0.38	0.02	48.82	56.00	-7.18	QP
7	1.160	36.67	10.32	0.29	0.08	47.36	56.00	-8.64	QP
8	1.160	28.32	10.32	0.29	0.08	39.01	46.00	-6.99	Average
9	1.359	35.78	10.32	0.11	0.12	46.33	56.00	-9.67	QP
10	2.261	25.00	10.34	-0.29	0.17	35.22	46.00	-10.78	Average
11	12.852	30.91	10.70	2.95	0.11	44.67	50.00	-5.33	Average
12	13.551	41.95	10.73	3.18	0.12	55.98	60.00	-4.02	QP

Notes:

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level = Receiver Read level + LISN Factor + Aux Factor + Cable Loss.*

Product name:	Smart Phone	Product model:	TA-1370
Test by:	Mike	Test mode:	BT Tx mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Neutral
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5℃ Huni: 55%



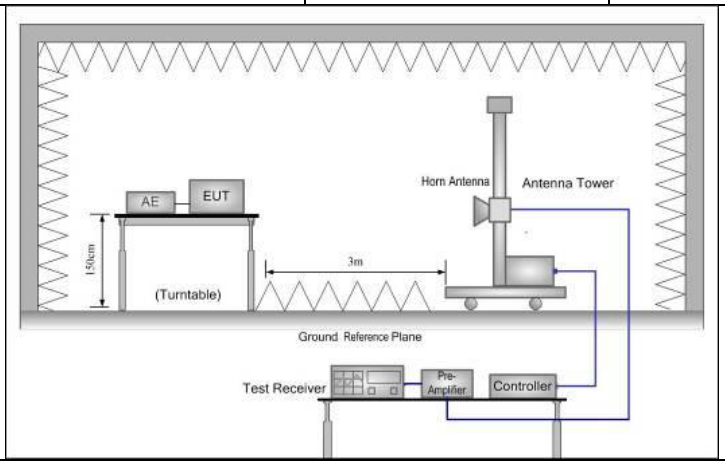
	Freq	Read Level	LISN Factor	Aux Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.310	26.81	10.25	0.00	0.03	37.09	49.97	-12.88	Average
2	0.313	35.46	10.25	0.00	0.03	45.74	59.88	-14.14	QP
3	0.449	27.53	10.27	-0.01	0.03	37.82	46.89	-9.07	Average
4	0.535	38.24	10.28	0.03	0.03	48.58	56.00	-7.42	QP
5	0.549	31.46	10.29	0.03	0.02	41.80	46.00	-4.20	Average
6	0.627	28.67	10.29	0.04	0.02	39.02	46.00	-6.98	Average
7	0.630	35.82	10.29	0.04	0.02	46.17	56.00	-9.83	QP
8	0.899	27.76	10.31	0.07	0.04	38.18	46.00	-7.82	Average
9	1.262	34.04	10.31	0.11	0.10	44.56	56.00	-11.44	QP
10	2.110	33.49	10.32	0.19	0.19	44.19	56.00	-11.81	QP
11	13.989	41.92	10.70	2.81	0.12	55.55	60.00	-4.45	QP
12	15.718	32.16	10.75	2.71	0.15	45.77	50.00	-4.23	Average

Notes:

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Aux Factor + Cable Loss.*

6.3 Band Edge

6.3.1 Radiated Emission Method

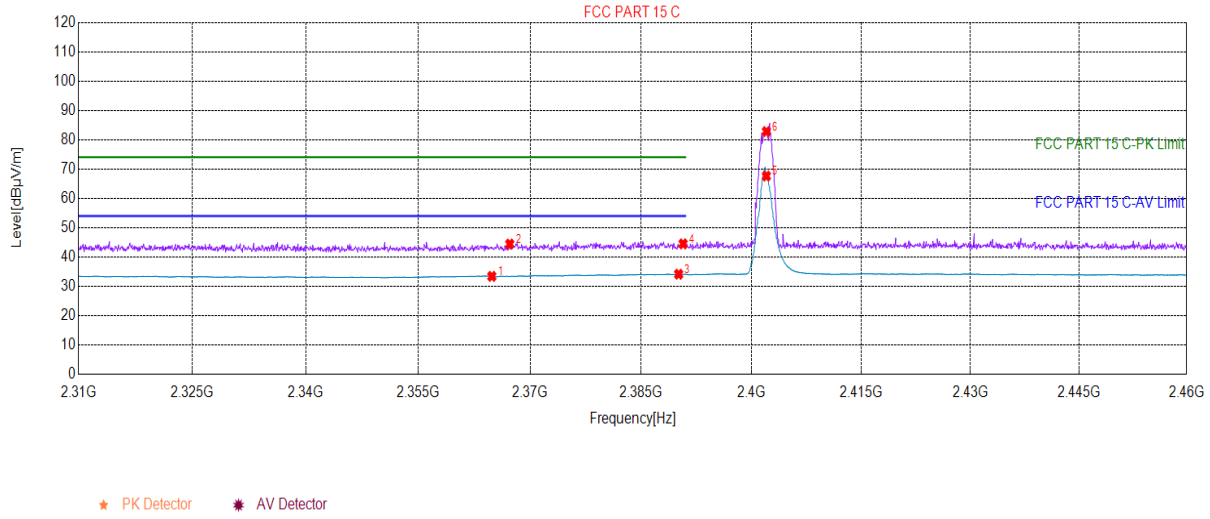
<table>
<tr><td>Test Requirement:</td><td colspan="5">FCC Part 15 C Section 15.209 and 15.205</td></tr>
<tr><td>Test Frequency Range:</td><td colspan="5">2310 MHz to 2390 MHz and 2483.5 MHz to 2500 MHz</td></tr>
<tr><td>Test Distance:</td><td colspan="5">3m</td></tr>
<tr><td rowspan="3">Receiver setup:</td><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>RMS</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr>
<tr><td rowspan="3">Limit:</td><td colspan="2">Frequency</td><td colspan="2">Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td colspan="2" rowspan="2">Above 1GHz</td><td colspan="2">54.00</td><td>Average Value</td></tr>
<tr><td colspan="2">74.00</td><td>Peak Value</td></tr>
<tr><td>Test setup:</td><td colspan="5"> 
</td></tr>
<tr><td>Test Procedure:</td><td colspan="5">1. The EUT was placed on the top of a rotating table 1.5meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height 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.
4. 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 rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</td></tr>
<tr><td>Test Instruments:</td><td colspan="5">Refer to section 5.9 for details</td></tr>
<tr><td>Test mode:</td><td colspan="5">Non-hopping mode</td></tr>
<tr><td>Test results:</td><td colspan="5">Passed</td></tr>
<tr><td>Remark:</td><td colspan="5">The test data in this report are based on the previous report with report number JYTSZB-R12-2101702</td></tr>
</table>

GFSK Mode:

Product Name:	Smart Phone	**Product Model:**	TA-1370
Test By:	Mike	**Polarization:**	Vertical
Test Voltage:	AC 120V/60Hz	**Environment:**	Temp: 24℃ Huni: 57%

GFSK _Channel 0

Test Graph



Suspected List

Suspected List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2364.85	25.92	33.41	7.49	54.00	20.59	263	25	Vertical
2	2367.25	36.87	44.42	7.55	74.00	29.58	211	272	Vertical
3	2390.06	26.02	34.13	8.11	54.00	19.87	231	286	Vertical
4	2390.66	36.36	44.49	8.13	74.00	29.51	287	9	Vertical
5	2402.00	59.25	67.60	8.35	0.00	-67.60	264	263	Vertical
6	2402.00	74.43	82.78	8.35	0.00	-82.78	261	11	Vertical

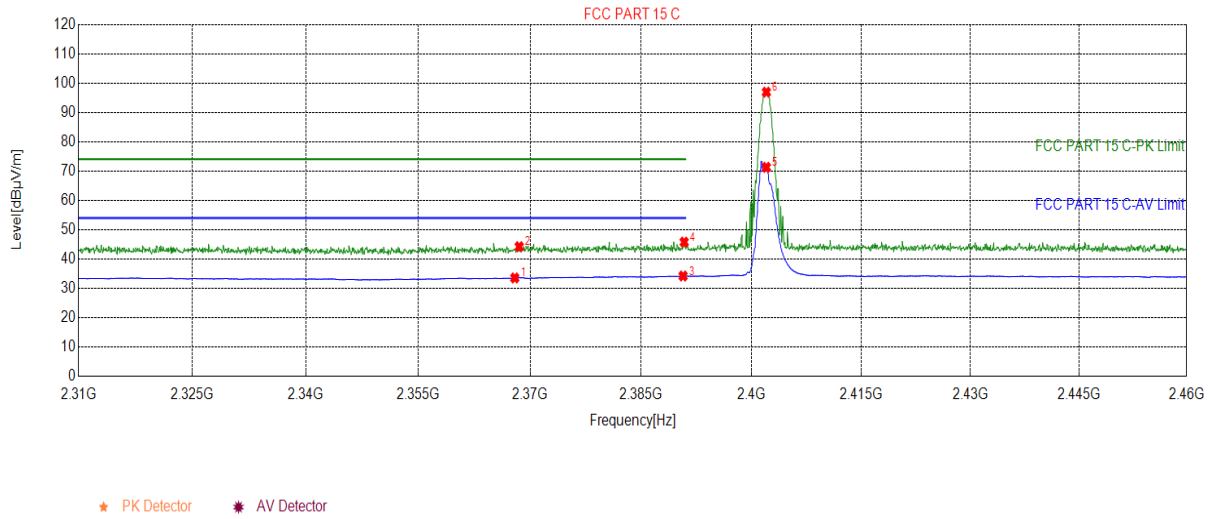
Remark:

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Product Name:	Smart Phone	Product Model:	TA-1370
Test By:	Mike	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24℃ Huni: 57%

GFSK_Channel 0

Test Graph



Suspected List

Suspected List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2367.92	25.98	33.54	7.56	54.00	20.46	263	41	Horizonta
2	2368.52	36.62	44.20	7.58	74.00	29.80	211	85	Horizonta
3	2390.66	26.06	34.19	8.13	54.00	19.81	288	16	Horizonta
4	2390.81	37.63	45.76	8.13	74.00	28.24	296	211	Horizonta
5	2402.00	62.92	71.27	8.35	0.00	-71.27	152	275	Horizonta
6	2367.92	25.98	33.54	7.56	54.00	20.46	263	41	Horizonta

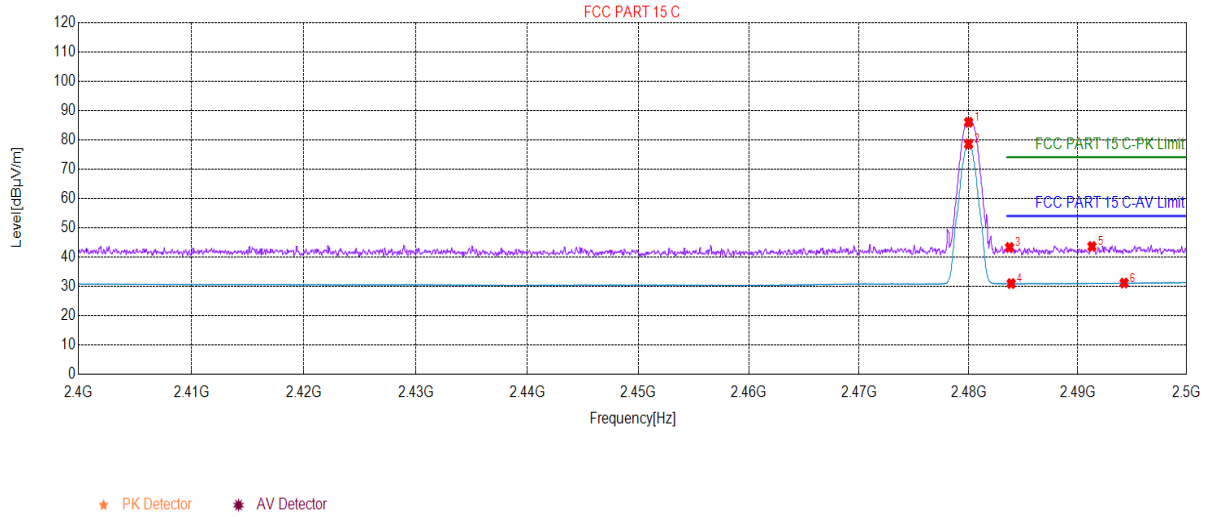
Remark:

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Product Name:	Smart Phone	Product Model:	TA-1370
Test By:	Mike	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24℃ Huni: 57%

GFSK _Channel 78

Test Graph



Suspected List

Suspected List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2480.00	79.16	95.60	6.79	0.00	-95.60	152	311	Vertical
2	2480.00	71.74	82.69	6.79	0.00	-82.69	166	272	Vertical
3	2483.74	36.45	42.85	6.79	74.00	31.15	175	6	Vertical
4	2483.89	24.17	30.98	6.79	54.00	23.02	186	287	Vertical
5	2491.29	36.76	43.78	6.79	74.00	30.22	199	19	Vertical
6	2494.24	24.25	31.13	6.87	54.00	22.87	163	28	Vertical

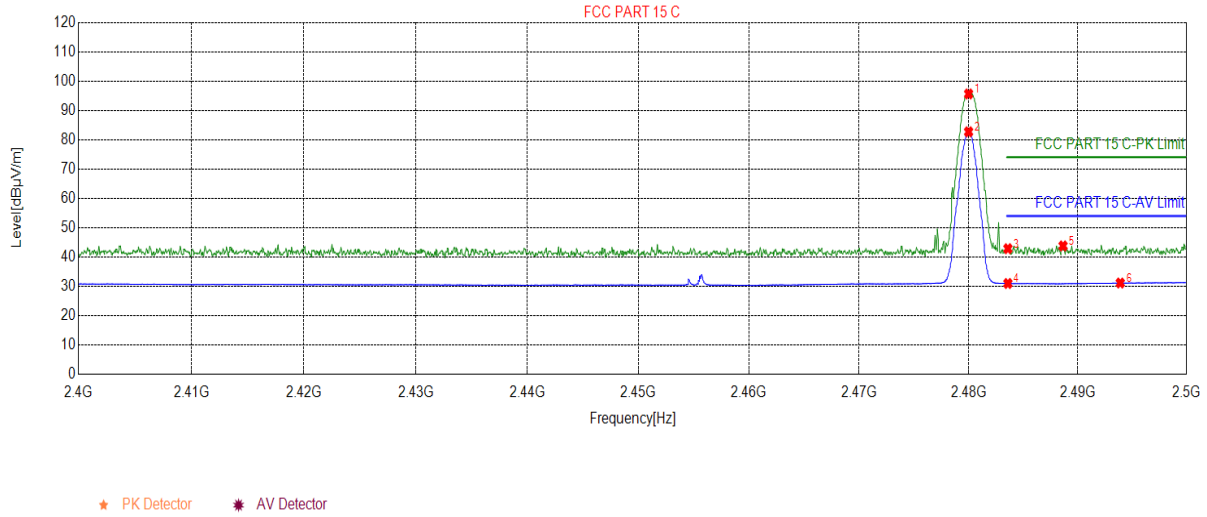
Remark:

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Product Name:	Smart Phone	Product Model:	TA-1370
Test By:	Mike	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24℃ Huni: 57%

GFSK _Channel 78

Test Graph



Suspected List

Suspected List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2480.00	88.81	95.60	6.79	0.00	-95.60	152	311	Horizonta
2	2480.00	75.90	82.69	6.79	0.00	-82.69	166	272	Horizonta
3	2483.59	36.06	42.85	6.79	74.00	31.15	175	6	Horizonta
4	2483.59	24.19	30.98	6.79	54.00	23.02	186	287	Horizonta
5	2488.64	36.99	43.78	6.79	74.00	30.22	199	19	Horizonta
6	2493.89	24.26	31.13	6.87	54.00	22.87	163	28	Horizonta

Remark:

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Remark: All modulation had been tested, but only the worst case data displayed in this report.

6.4 Spurious Emission

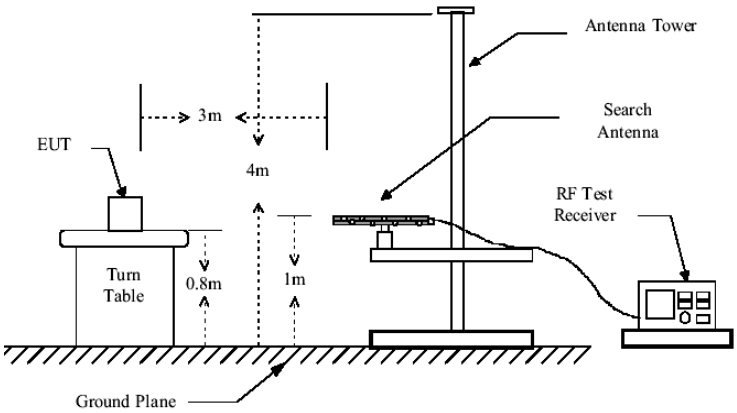
6.4.1 Radiated Emission Method

Test Requirement:	FCC Part 15 C Section 15.209				
Test Frequency Range:	9 kHz to 25 GHz				
Test Distance:	3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		RMS	1MHz	3MHz	Average Value

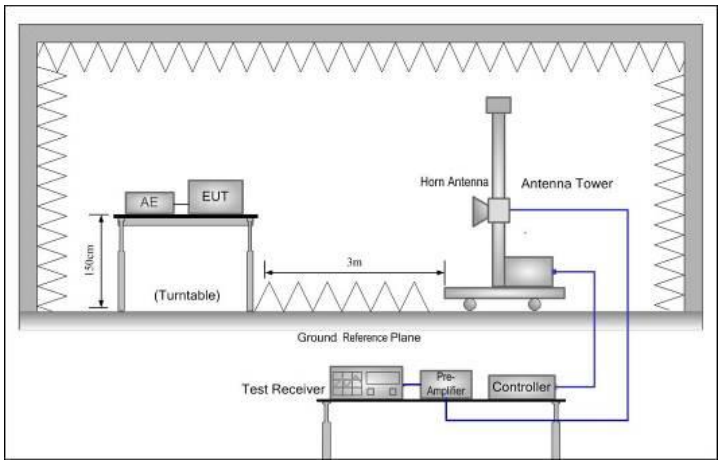
Limit:	Frequency	Limit (dBuV/m @3m)	Remark
	30MHz-88MHz	40.0	Quasi-peak Value
	88MHz-216MHz	43.5	Quasi-peak Value
	216MHz-960MHz	46.0	Quasi-peak Value
	960MHz-1GHz	54.0	Quasi-peak Value
	Above 1GHz	54.0	Average Value
		74.0	Peak Value

Test setup:

Below 1GHz



Above 1GHz



Test Procedure:

1. The EUT was placed on the top of a rotating table 0.8m(below 1GHz) /1.5m(above 1GHz) above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

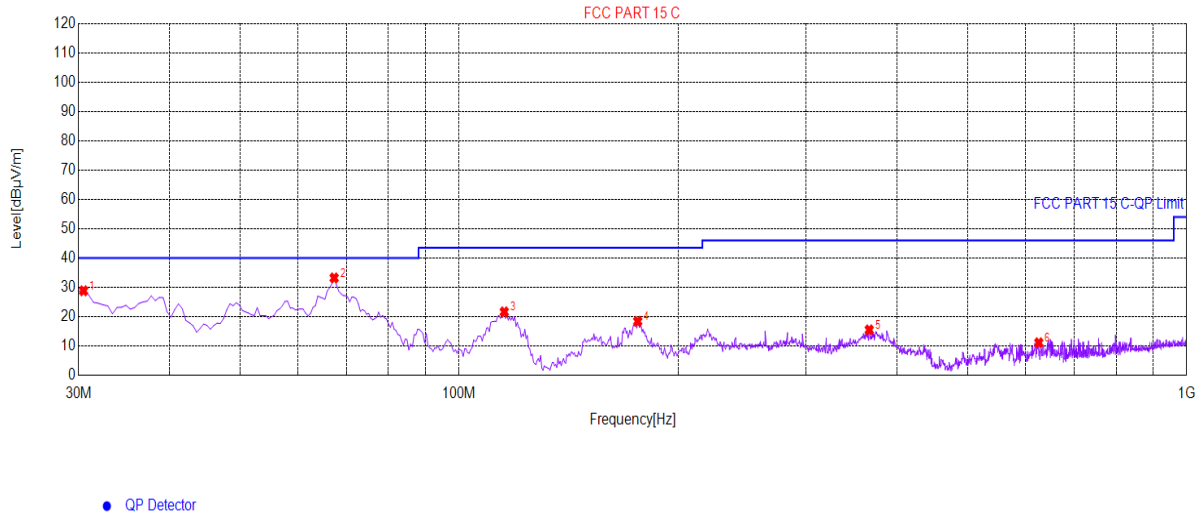
	2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. 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 rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test Instruments:	Refer to section 5.9 for details
Test mode:	Non-hopping mode
Test results:	Passed (The test data in this report are based on the previous report with report number JYTSZB-R12-2101702)
Remark:	1. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Z-axis is the worst case. 2. Pre-Scan all adapter, And the report only reflects the worst mode. 3. 9 kHz to 30 MHz is noise floor and lower than the limit 20dB, so only shows the data of above 30MHz in this report.

Measurement Data (worst case):

Below 1GHz:

TA-1390：

Product Name:	Smart Phone	**Product Model:**	TA-1390
Test By:	Mike	**Test mode:**	BT Tx mode
Test Frequency:	30 MHz ~ 1 GHz	**Polarization:**	Vertical
Test Voltage:	AC 120V/60Hz	**Environment:**	Temp: 24℃ Huni: 57%



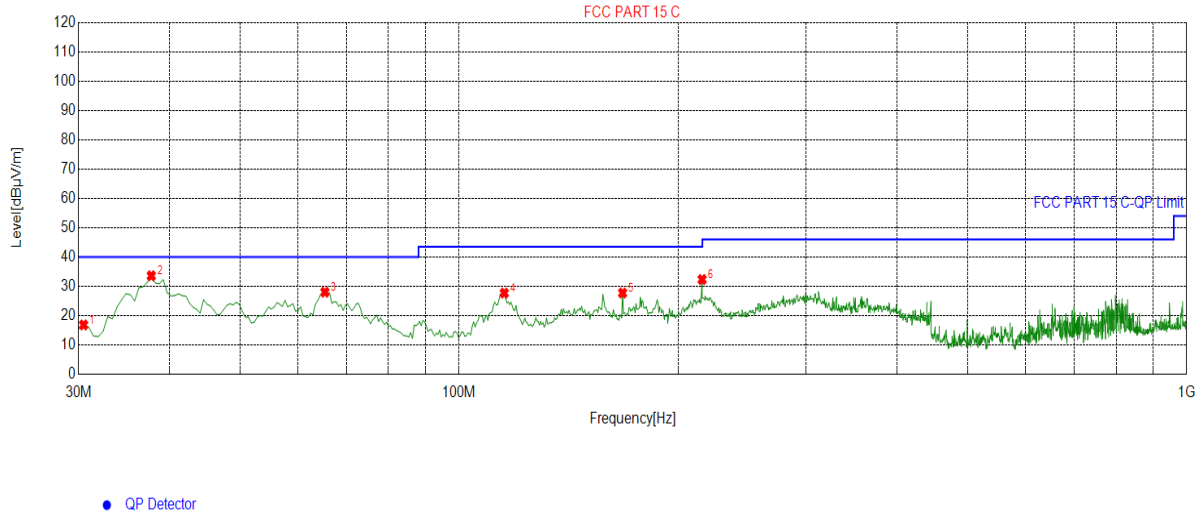
Suspected List

Suspected List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	30.4852	-63.92	28.83	-23.92	40.00	11.17	125	166	Vertical
2	67.3637	-63.38	33.19	-23.38	40.00	6.81	115	2	Vertical
3	115.402	-66.32	21.62	-22.82	43.50	21.88	163	358	Vertical
4	176.058	-67.17	18.40	-23.67	43.50	25.10	178	208	Vertical
5	366.273	-63.59	15.49	-17.59	46.00	30.51	168	229	Vertical
6	626.363	-58.23	11.09	-12.23	46.00	34.91	199	80	Vertical

Remark:

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Product Name:	Smart Phone	Product Model:	TA-1390
Test By:	Mike	Test mode:	BT Tx mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24℃ Huni: 57%



Suspected List

Suspected List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	30.4852	40.76	16.84	-23.92	40.00	23.16	263	306	Horizonta
2	37.7639	56.85	33.60	-23.25	40.00	6.40	272	3	Horizonta
3	65.4227	51.09	28.00	-23.09	40.00	12.00	125	274	Horizonta
4	115.402	50.51	27.69	-22.82	43.50	15.81	133	64	Horizonta
5	167.808	51.64	27.73	-23.91	43.50	15.77	196	100	Horizonta
6	215.847	53.78	32.33	-21.45	43.50	11.17	171	313	Horizonta

Remark:

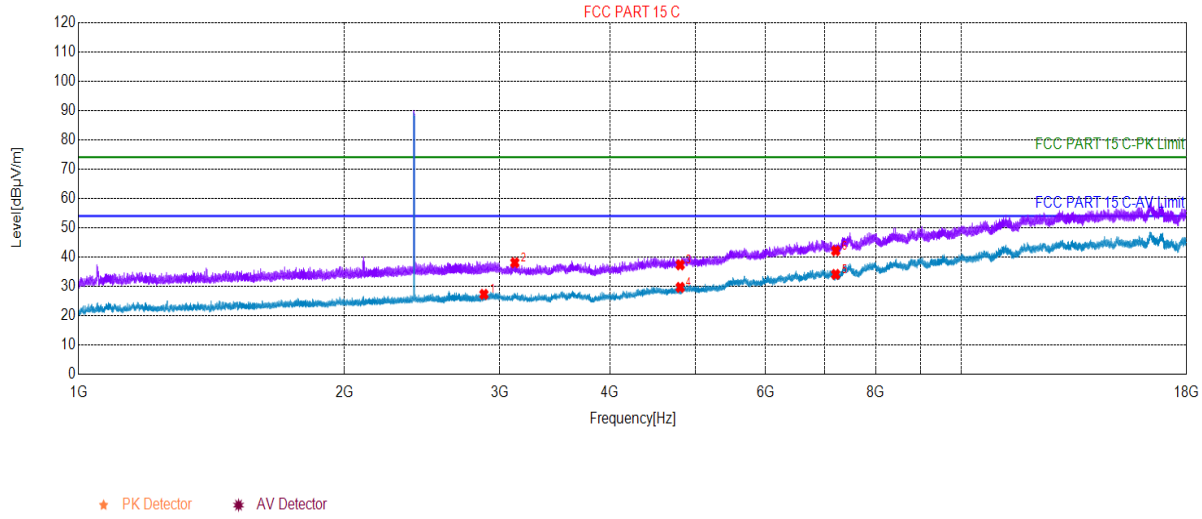
1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are lower than the limit 20dB and not show in test report.*

Above 1GHz:

Product Name:	Smart Phone	Product Model:	TA-1390
Test By:	Mike	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24℃ Huni: 57%

GFSK _Channel 0

Test Graph



Suspected List

Suspected List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2879.09	19.82	27.27	7.45	54.00	26.73	263	125	Vertical
2	3120.60	61.73	38.04	-23.69	74.00	35.96	201	26	Vertical
3	4804.00	55.60	37.31	-18.29	74.00	36.69	272	336	Vertical
4	4804.00	47.94	29.65	-18.29	54.00	24.35	296	229	Vertical
5	7206.00	44.72	34.07	-10.65	54.00	19.93	203	2	Vertical
6	7206.00	52.78	42.13	-10.65	74.00	31.87	242	2	Vertical

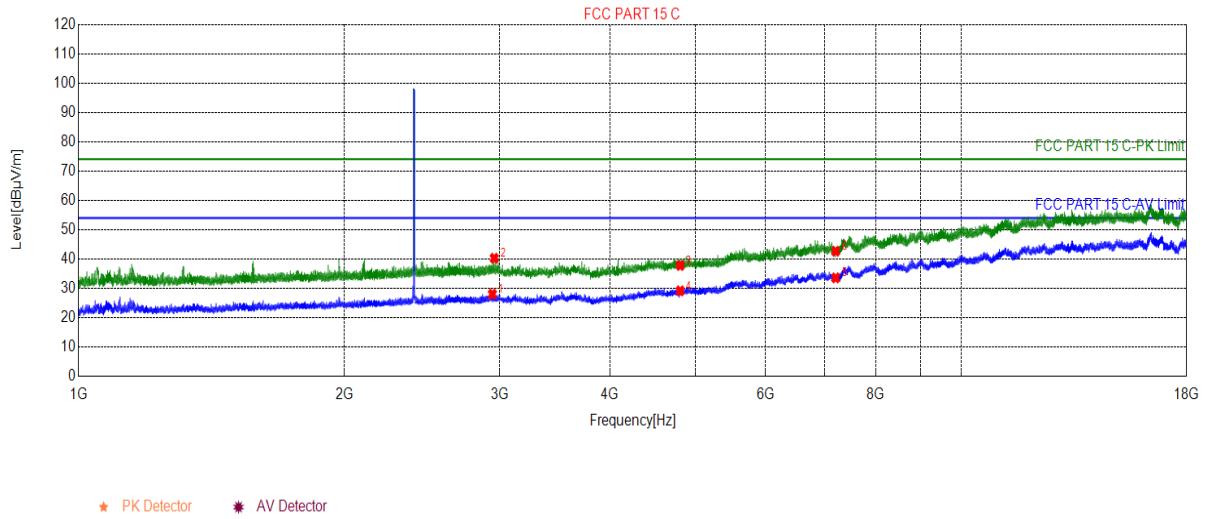
Remark:

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Product Name:	Smart Phone	Product Model:	TA-1390
Test By:	Mike	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24℃ Huni: 57%

GFSK_Channel 0

Test Graph



Suspected List

Suspected List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2943.39	20.08	28.03	7.95	54.00	25.97	161	0	Horizonta
2	2957.69	32.33	40.26	7.93	74.00	33.74	172	276	Horizonta
3	4804.00	56.11	37.82	-18.29	74.00	36.18	189	2	Horizonta
4	4804.00	47.44	29.15	-18.29	54.00	24.85	133	149	Horizonta
5	7206.00	44.22	33.57	-10.65	54.00	20.43	128	29	Horizonta
6	7206.00	53.30	42.65	-10.65	74.00	31.35	179	12	Horizonta

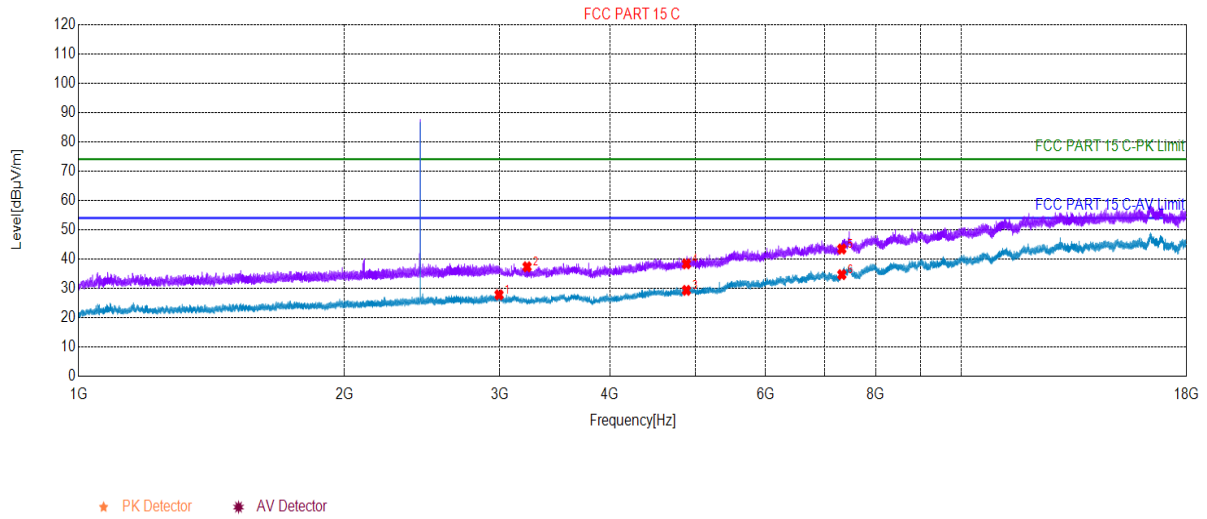
Remark:

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Product Name:	Smart Phone	Product Model:	TA-1390
Test By:	Mike	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24℃ Huni: 57%

GFSK _Channel 39

Test Graph



Suspected List

Suspected List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2994.69	19.82	27.79	7.97	54.00	26.21	263	212	Vertical
2	3222.00	61.31	37.33	-23.98	74.00	36.67	202	157	Vertical
3	4882.00	47.30	29.31	-17.99	54.00	24.69	211	2	Vertical
4	4882.00	56.33	38.34	-17.99	74.00	35.66	230	357	Vertical
5	7323.00	53.84	43.43	-10.41	74.00	30.57	272	143	Vertical
6	7323.00	45.07	34.66	-10.41	54.00	19.34	222	216	Vertical

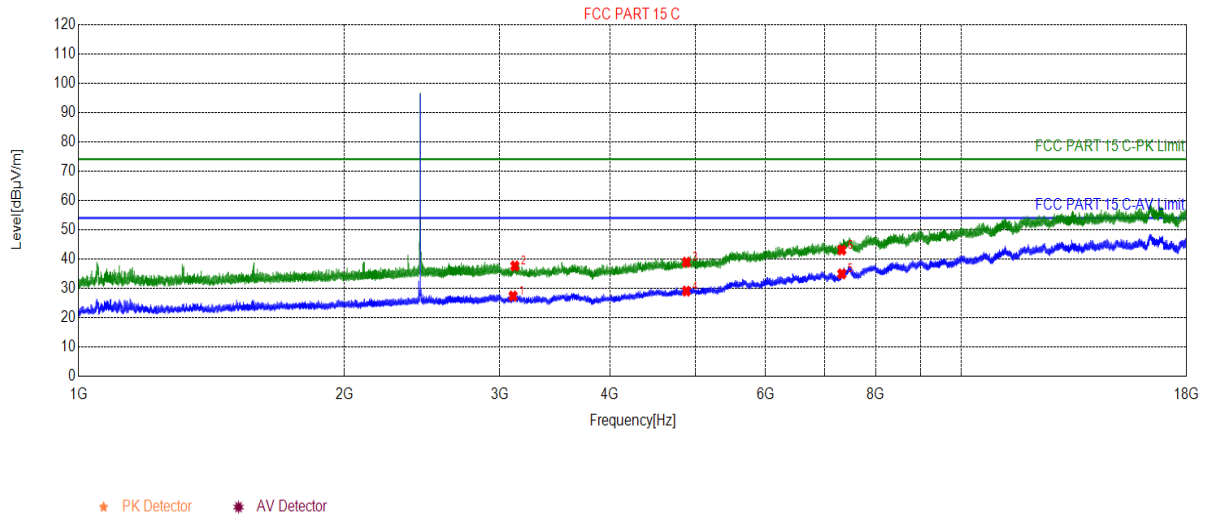
Remark:

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Product Name:	Smart Phone	Product Model:	TA-1390
Test By:	Mike	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24℃ Huni: 57%

GFSK _Channel 39

Test Graph



Suspected List

Suspected List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3106.20	51.30	27.37	-23.93	54.00	26.63	163	360	Horizonta
2	3120.60	61.31	37.62	-23.69	74.00	36.38	174	98	Horizonta
3	4882.00	56.92	38.93	-17.99	74.00	35.07	172	69	Horizonta
4	4882.00	47.03	29.04	-17.99	54.00	24.96	133	228	Horizonta
5	7323.00	45.33	34.92	-10.41	54.00	19.08	183	329	Horizonta
6	7323.00	53.47	43.06	-10.41	74.00	30.94	177	26	Horizonta

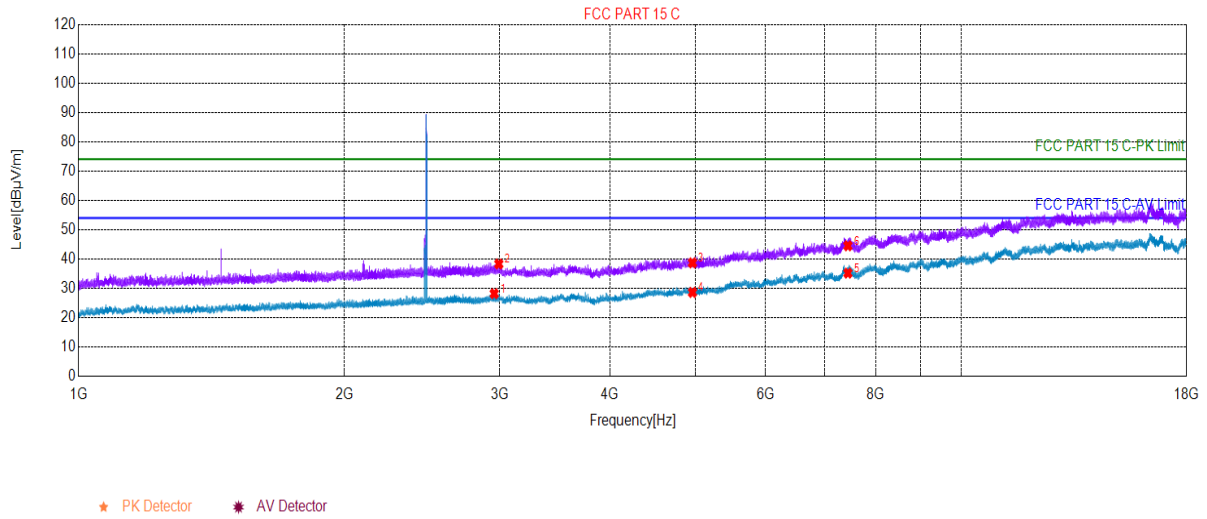
Remark:

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Product Name:	Smart Phone	Product Model:	TA-1390
Test By:	Mike	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24℃ Huni: 57%

GFSK _Channel 78

Test Graph



Suspected List

Suspected List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2957.29	20.25	28.18	7.93	54.00	25.82	263	48	Vertical
2	2993.09	30.38	38.30	7.92	74.00	35.70	266	174	Vertical
3	4960.00	56.07	38.69	-17.38	74.00	35.31	291	84	Vertical
4	4960.00	45.99	28.61	-17.38	54.00	25.39	231	332	Vertical
5	7440.00	44.18	35.18	-9.00	54.00	18.82	287	2	Vertical
6	7440.00	53.50	44.50	-9.00	74.00	29.50	264	40	Vertical

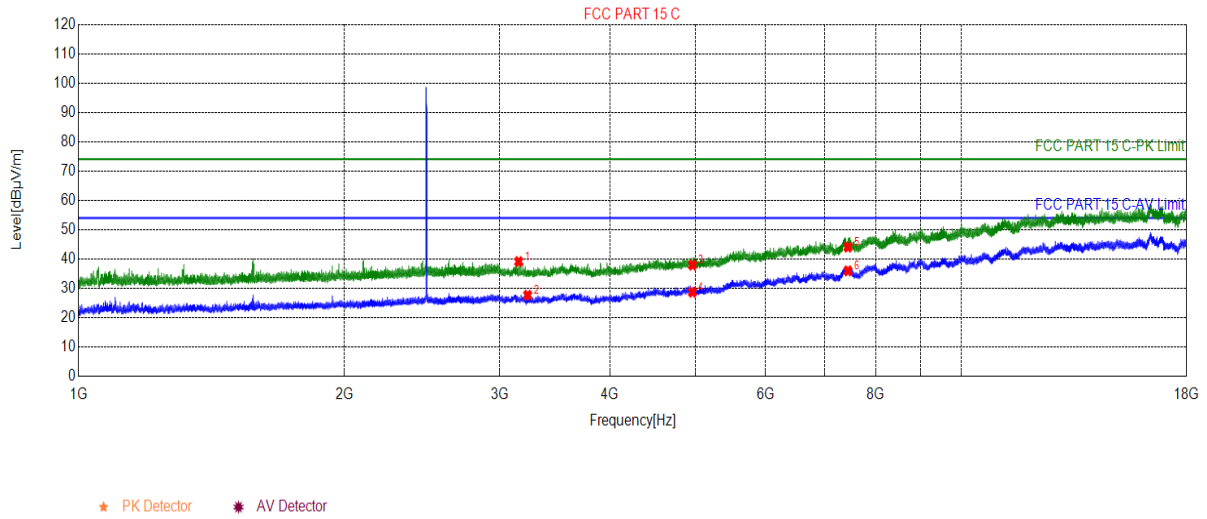
Remark:

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Product Name:	Smart Phone	Product Model:	TA-1390
Test By:	Mike	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24℃ Huni: 57%

GFSK _Channel 78

Test Graph



Suspected List

Suspected List									
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3152.40	62.36	39.12	-23.24	74.00	34.88	122	273	Horizonta
2	3226.80	51.61	27.65	-23.96	54.00	26.35	171	287	Horizonta
3	4960.00	55.32	37.94	-17.38	74.00	36.06	263	357	Horizonta
4	4960.00	46.05	28.67	-17.38	54.00	25.33	201	201	Horizonta
5	7440.00	53.06	44.06	-9.00	74.00	29.94	296	156	Horizonta
6	7440.00	44.95	35.95	-9.00	54.00	18.05	155	2	Horizonta

Remark:

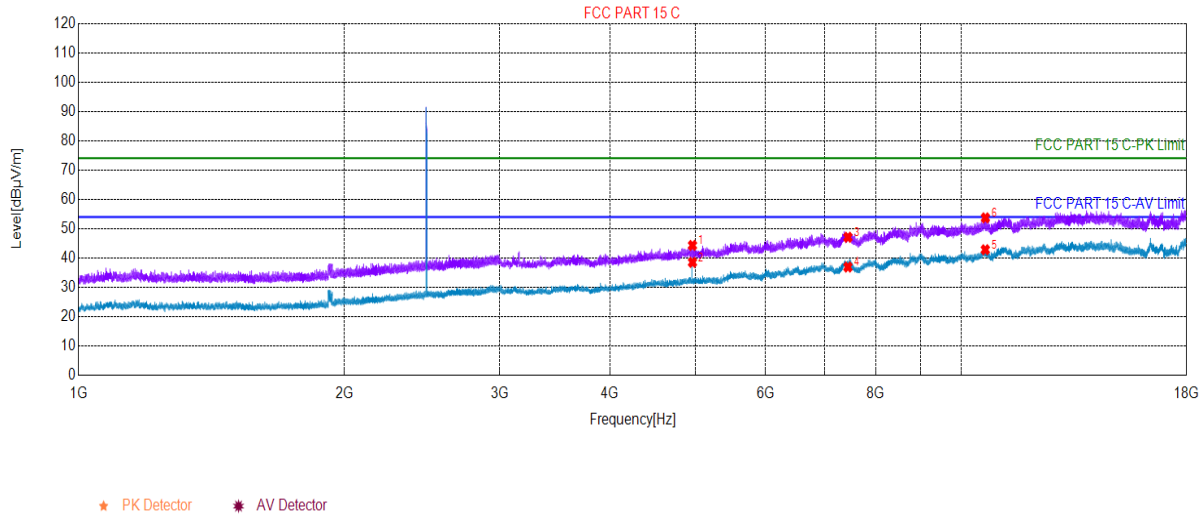
1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

TA-1370(Spot check):

Product Name:	Smart Phone	**Product Model:**	TA-1370
Test By:	Mike	**Polarization:**	Vertical
Test Voltage:	AC 120V/60Hz	**Environment:**	Temp: 24℃ Huni: 57%

GFSK_Channel78

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4960.0000	44.30	-14.40	74.00	29.70	233	72	Vertical
2	4960.0000	38.52	-14.40	54.00	15.48	245	28	Vertical
3	7440.0000	47.07	-7.31	74.00	26.93	175	358	Vertical
4	7440.0000	36.92	-7.31	54.00	17.08	285	304	Vertical
5	10646.1058	42.83	-1.58	54.00	11.17	261	203	Vertical
6	10649.1060	53.69	-1.58	74.00	20.31	287	319	Vertical

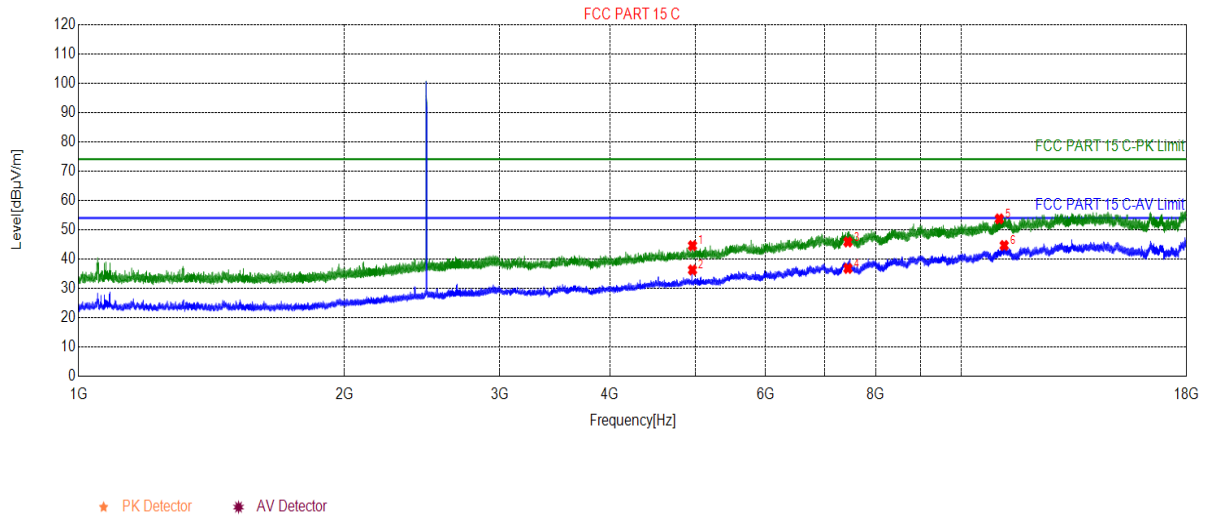
Remark:

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Product Name:	Smart Phone	Product Model:	TA-1370
Test By:	Mike	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz	Environment:	Temp: 24℃ Huni: 57%

GFSK _Channel78

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4960.0000	44.55	-14.40	74.00	29.45	263	4	Horizontal
2	4960.0000	36.25	-14.40	54.00	17.75	152	219	Horizontal
3	7440.0000	45.82	-7.31	74.00	28.18	175	103	Horizontal
4	7440.0000	36.78	-7.31	54.00	17.22	188	334	Horizontal
5	11042.7217	53.69	-0.56	74.00	20.31	169	348	Horizontal
6	11183.7273	44.62	-0.35	54.00	9.38	172	233	Horizontal

Remark:

1. *Final Level = Receiver Read level + Factor (Antenna Factor + Cable Loss – Preamplifier Factor).*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

7 Test Setup Photo

Reference to the test setup photos:: BT & Wi-Fi & NII Setup Photos.

8 EUT Constructional Details

Reference to the External Photo and Internal Photo

------End of report------