

# **FCC REPORT**

## **(Bluetooth)**

**Applicant:** Shenzhen Huafurui Technology Co., Ltd.

**Address of Applicant:** Unit 1401 &1402, 14/F, Jinqi zhigu mansion (No. 4 building of Chongwen Garden), Crossing of the Liuxian street and Tangling road, Taoyuan street, Nanshan district, Shenzhen, P.R. China

**Equipment Under Test (EUT)**

Product Name: Smartphone

Model No.: C30

Trade mark: CUBOT

**FCC ID:** 2AHZ5C30

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart C Section 15.247

**Date of sample receipt:** 22 Jul., 2020

**Date of Test:** 22 Jul., to 10 Aug., 2020

**Date of report issued:** 17 Aug., 2020

**Test Result:** PASS \*

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

Authorized Signature:



Bruce Zhang  
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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## 2 Version

Version No.	Date	Description
00	17 Aug., 2020	Original

Tested by:



Test Engineer

Date:

17 Aug., 2020

Reviewed by:



Project Engineer

Date:

17 Aug., 2020

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## 4 General Information

### 4.1 Client Information

Applicant:	Shenzhen Huafurui Technology Co., Ltd.
Address:	Unit 1401 &1402, 14/F, Jinqi zhigu mansion (No. 4 building of Chongwen Garden), Crossing of the Liuxian street and Tangling road, Taoyuan street, Nanshan district, Shenzhen, P.R. China
Manufacturer/ Factory:	Shenzhen Huafurui Technology Co., Ltd.
Address:	Unit 1401 &1402, 14/F, Jinqi zhigu mansion (No. 4 building of Chongwen Garden), Crossing of the Liuxian street and Tangling road, Taoyuan street, Nanshan district, Shenzhen, P.R. China

### 4.2 General Description of E.U.T.

Product Name:	Smartphone
Model No.:	C30
Operation Frequency:	2402MHz~2480MHz
Transfer rate:	1/2/3 Mbits/s
Number of channel:	79
Modulation type:	GFSK, $\pi/4$ -DQPSK, 8DPSK
Modulation technology:	FHSS
Antenna Type:	Internal Antenna
Antenna gain:	-1.8 dBi
Power supply:	Rechargeable Li-ion Battery DC3.85V-4200mAh
AC adapter:	Model: HJ-0502000W2-US Input: AC100-240V, 50/60Hz, 0.3A Output: DC 5.0V, 2A
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

### 4.3 Test environment and mode, and test samples plans

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.

### 4.4 Description of Support Units

The EUT has been tested as an independent unit.

### 4.5 Measurement Uncertainty

Parameters	Expanded Uncertainty
Conducted Emission (9kHz ~ 30MHz)	±1.60 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	±3.12 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	±4.32 dB (k=2)
Radiated Emission (1GHz ~ 18GHz)	±5.16 dB (k=2)
Radiated Emission (18GHz ~ 40GHz)	±3.20 dB (k=2)

### 4.6 Additions to, deviations, or exclusions from the method

No

### 4.7 Laboratory Facility

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

● **FCC - Designation No.: CN1211**

Shenzhen Zhongjian Nanfang Testing 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 Shenzhen Zhongjian Nanfang Testing 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 17025:2005 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>

### 4.8 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.  
Address: No.110~116, Building B, Jinyuan Business Building, Xixiang Road,  
Bao'an District, Shenzhen, Guangdong, China  
Tel: +86-755-23118282, Fax: +86-755-23116366  
Email: info@ccis-cb.com, Website: <http://www.ccis-cb.com>

## 4.9 Test Instruments list

Radiated Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m SAC	SAEMC	9m*6m*6m	966	07-21-2020	07-20-2021
Loop Antenna	SCHWARZBECK	FMZB1519B	044	03-07-2020	03-06-2021
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-07-2020	03-06-2021
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-07-2020	03-06-2021
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	06-20-2020	06-19-2021
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170582	11-18-2019	11-17-2020
EMI Test Software	AUDIX	E3	Version: 6.110919b		
Pre-amplifier	HP	8447D	2944A09358	03-07-2020	03-06-2021
Pre-amplifier	CD	PAP-1G18	11804	03-07-2020	03-06-2021
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-05-2020	03-04-2021
Spectrum analyzer	Rohde & Schwarz	FSP40	100363	11-18-2019	11-17-2020
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-05-2020	03-04-2021
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-07-2020	03-06-2021
Cable	MICRO-COAX	MFR64639	K10742-5	03-07-2020	03-06-2021
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-07-2020	03-06-2021
RF Switch Unit	MWRFTEST	MW200	N/A	N/A	N/A
Test Software	MWRFTEST	MTS8200	Version: 2.0.0.0		

Conducted Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
EMI Test Receiver	Rohde & Schwarz	ESCI	101189	03-05-2020	03-04-2021
Pulse Limiter	SCHWARZBECK	OSRAM 2306	9731	03-05-2020	03-04-2021
LISN	CHASE	MN2050D	1447	03-05-2020	03-04-2021
LISN	Rohde & Schwarz	ESH3-Z5	8438621/010	06-18-2020	07-17-2021
Cable	HP	10503A	N/A	03-05-2020	03-04-2021
EMI Test Software	AUDIX	E3	Version: 6.110919b		

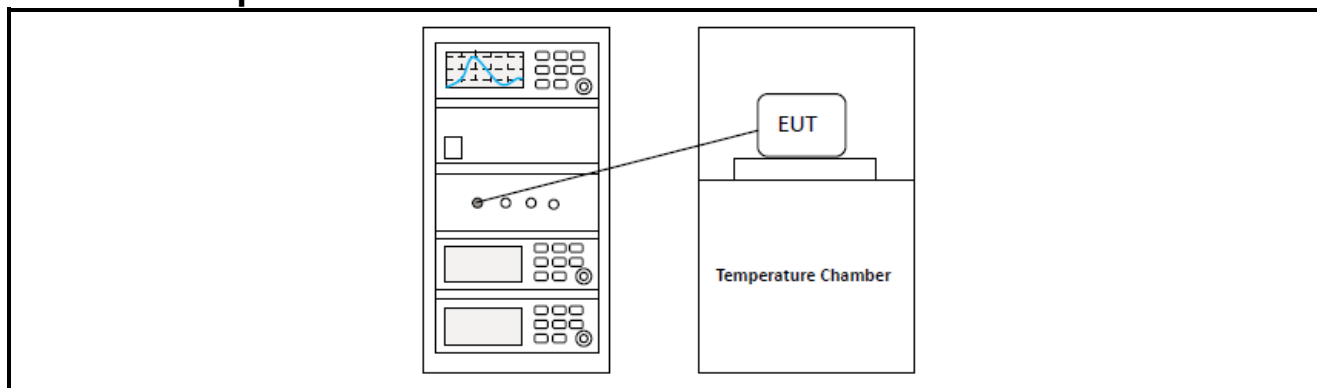
## 5 Test results and measurement data

### 5.1 Test Configuration of EUT

Operation Frequency each of channel for GFSK, $\pi/4$ -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,  $\pi/4$ -DQPSK and 8DPSK.

### 5.2 Test Setup Block



### 5.3 Test Result Summary

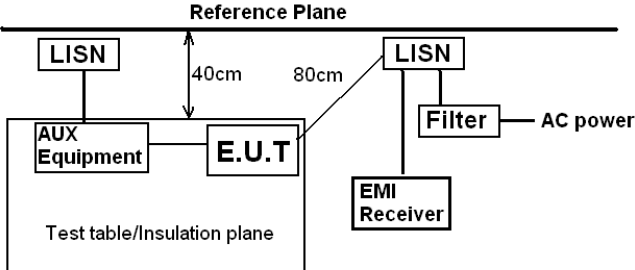
Test Items		Section in CFR 47	Test Data	Result
Antenna requirement		15.203 & 15.247 (b)	See Section 5.4	Pass
AC Power Line Conducted Emission		15.207	See Section 5.5	Pass
Conducted Peak Output Power		15.247 (b)(1)	Appendix A – BT	Pass
20dB Occupied Bandwidth		15.247 (a)(1)	Appendix A – BT	Pass
Carrier Frequencies Separation		15.247 (a)(1)	Appendix A – BT	Pass
Hopping Channel Number		15.247 (a)(1)	Appendix A – BT	Pass
Dwell Time		15.247 (a)(1)	Appendix A – BT	Pass
Band Edge	Conducted Emission Method	15.247 (d)	Appendix A – BT	Pass
	Radiated Emission Method		See Section 5.6.1	
Spurious Emission	Conducted Emission Method	15.205 & 15.209	Appendix A – BT	Pass
	Radiated Emission Method		See Section 5.7.1	
Remark:	1. Pass: The EUT complies with the essential requirements in the standard. 2. The cable insertion loss used by “RF Output Power” and other conduction measurement items is 0.5dB (provided by the customer).			
Test Method:	1. ANSI C63.10-2013 2. KDB 558074 D01 15.247 Meas Guidance v05r02			

## 5.4 Antenna Requirement

<b>Standard requirement:</b>	FCC Part 15 C Section 15.203 & 247(b)
<p>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.</p> <p>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.</p>	
<b>E.U.T Antenna:</b>	
The Bluetooth antenna is an Internal antenna which permanently attached, and the best case gain of the antenna is -1.8 dBi.	

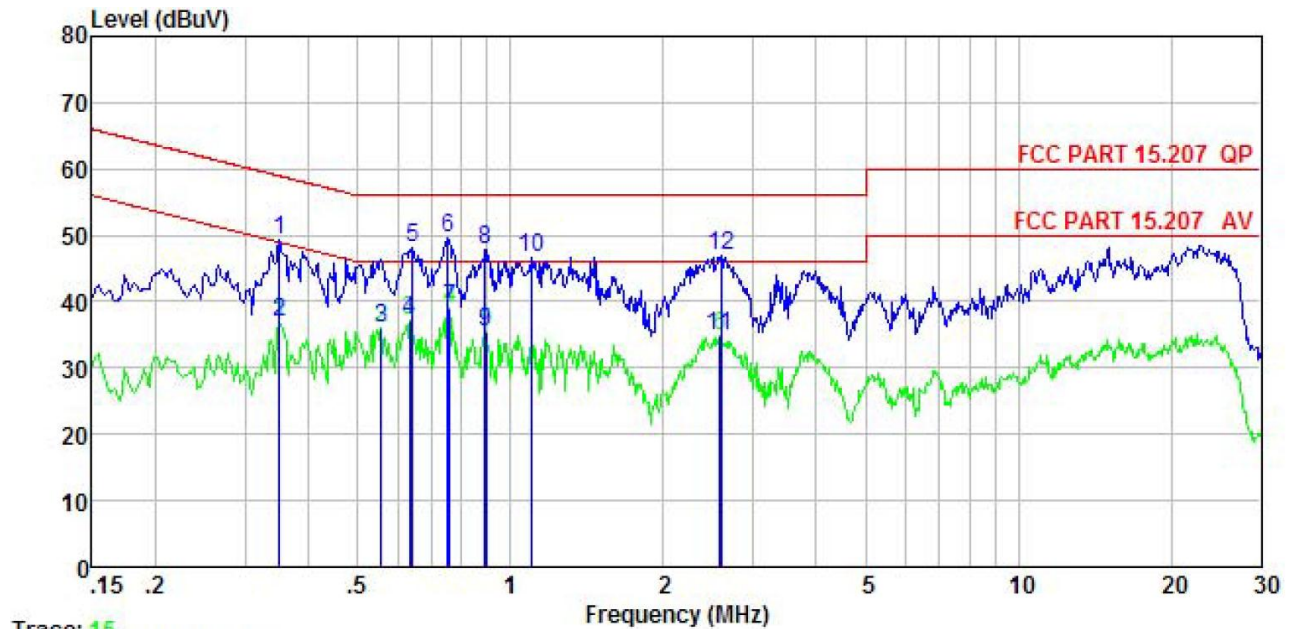


## 5.5 Conducted Emissions

Test Requirement:	FCC Part 15 C Section 15.207		
Test Frequency Range:	150 kHz to 30 MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test setup:	 <p>Remark E.U.T.: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>		
Test procedure:	<ol style="list-style-type: none"> <li>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.</li> <li>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).</li> <li>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.</li> </ol>		
Test Instruments:	Refer to section 5.9 for details		
Test mode:	Hopping mode		
Test results:	Pass		

## Measurement Data:

Product name:	Smartphone	Product model:	C30
Test by:	Yaro	Test mode:	BT Tx mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Line
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5°C Humi: 55%

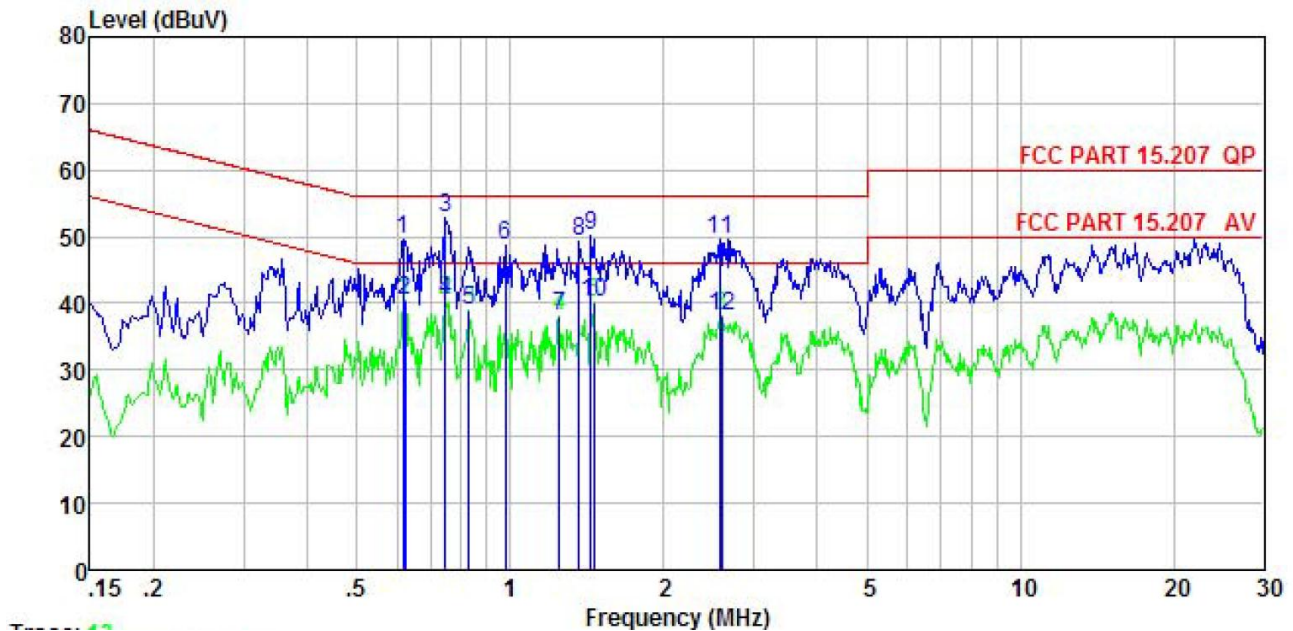


	Freq	Read Level	LISN Factor	Cable Loss	Aux Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.350	39.08	-0.51	10.73	0.10	49.40	58.96	-9.56	QP
2	0.350	26.64	-0.51	10.73	0.10	36.96	48.96	-12.00	Average
3	0.555	26.21	-0.46	10.76	-0.37	36.14	46.00	-9.86	Average
4	0.634	27.26	-0.50	10.77	-0.38	37.15	46.00	-8.85	Average
5	0.641	38.29	-0.50	10.77	-0.39	48.17	56.00	-7.83	QP
6	0.751	39.47	-0.55	10.79	-0.24	49.47	56.00	-6.53	QP
7	0.759	28.82	-0.55	10.80	-0.20	38.87	46.00	-7.13	Average
8	0.890	37.47	-0.59	10.84	0.17	47.89	56.00	-8.11	QP
9	0.894	25.11	-0.59	10.84	0.19	35.55	46.00	-10.45	Average
10	1.100	36.05	-0.61	10.88	0.36	46.68	56.00	-9.32	QP
11	2.581	24.51	-0.46	10.93	-0.25	34.73	46.00	-11.27	Average
12	2.594	36.77	-0.46	10.93	-0.25	46.99	56.00	-9.01	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:	Smartphone	Product model:	C30
Test by:	Yaro	Test mode:	BT Tx mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Neutral
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5°C Humi: 55%



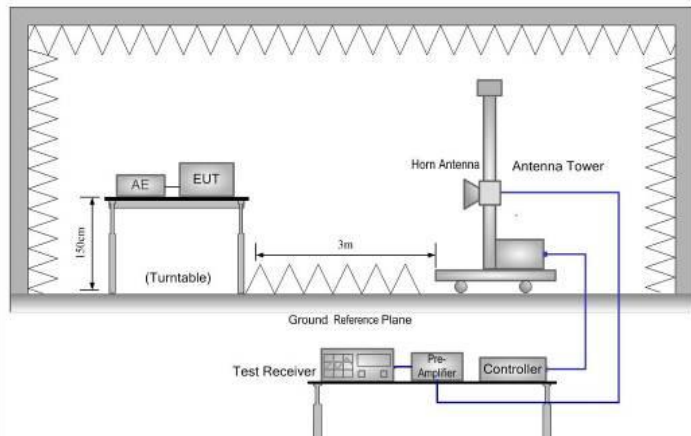
	Freq	Read Level	LISN Factor	Cable Loss	Aux Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.617	39.43	-0.64	10.77	0.04	49.60	56.00	-6.40	QP
2	0.621	30.27	-0.64	10.77	0.04	40.44	46.00	-5.56	Average
3	0.747	42.51	-0.65	10.79	0.05	52.70	56.00	-3.30	QP
4	0.747	30.39	-0.65	10.79	0.05	40.58	46.00	-5.42	Average
5	0.830	28.75	-0.66	10.82	0.06	38.97	46.00	-7.03	Average
6	0.979	38.40	-0.68	10.86	0.08	48.66	56.00	-7.34	QP
7	1.249	27.71	-0.69	10.90	0.11	38.03	46.00	-7.97	Average
8	1.367	38.97	-0.69	10.91	0.12	49.31	56.00	-6.69	QP
9	1.441	39.93	-0.70	10.92	0.13	50.28	56.00	-5.72	QP
10	1.456	29.75	-0.70	10.92	0.13	40.10	46.00	-5.90	Average
11	2.581	39.05	-0.67	10.93	0.26	49.57	56.00	-6.43	QP
12	2.594	27.55	-0.67	10.93	0.26	38.07	46.00	-7.93	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.

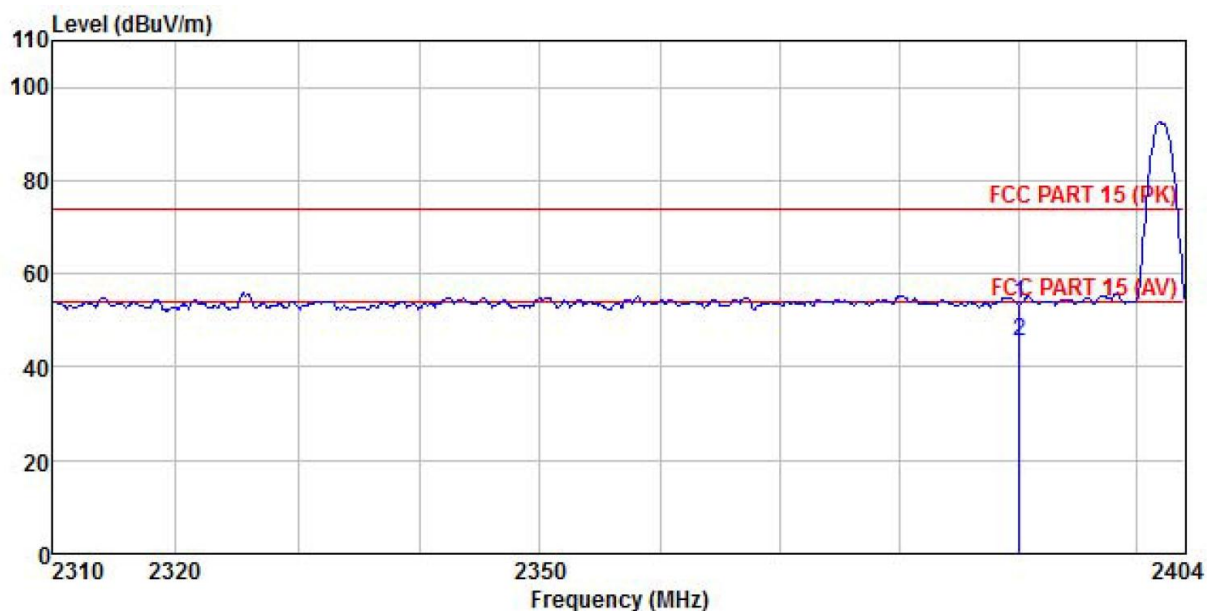
## 5.6 Band Edge

### 5.6.1 Radiated Emission Method

Test Requirement:	FCC Part 15 C Section 15.209 and 15.205				
Test Frequency Range:	2310 MHz to 2390 MHz and 2483.5 MHz to 2500 MHz				
Test Distance:	3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		RMS	1MHz	3MHz	Average Value
Limit:	Frequency		Limit (dBuV/m @3m)		Remark
	Above 1GHz		54.00		Average Value
			74.00		Peak Value
Test setup:					
Test Procedure:	<ol style="list-style-type: none"><li>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.</li><li>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.</li><li>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.</li><li>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.</li><li>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li><li>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.</li></ol>				
Test Instruments:	Refer to section 5.9 for details				
Test mode:	Non-hopping mode				
Test results:	Passed				

## GFSK Mode:

Product Name:	Smartphone	Product Model:	C30
Test By:	Yaro	Test mode:	DH1 Tx mode
Test Channel:	Lowest channel	Polarization:	Vertical
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24°C Humi: 57%



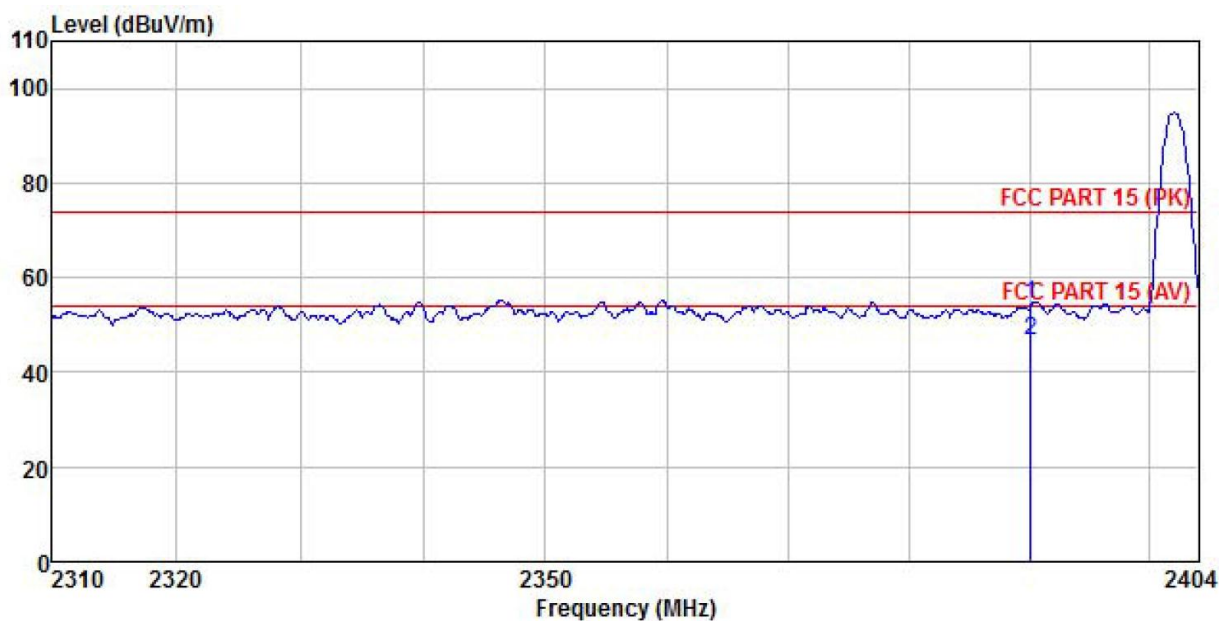
	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	20.75	27.03	4.28	1.68	0.00	53.74	74.00	-20.26	Peak
2	2390.000	12.46	27.03	4.28	1.68	0.00	45.45	54.00	-8.55	Average

## Remark:

1. Final Level = Receiver Read level + 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:	Smartphone	Product Model:	C30
Test By:	Yaro	Test mode:	DH1 Tx mode
Test Channel:	Lowest channel	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Humi: 57%

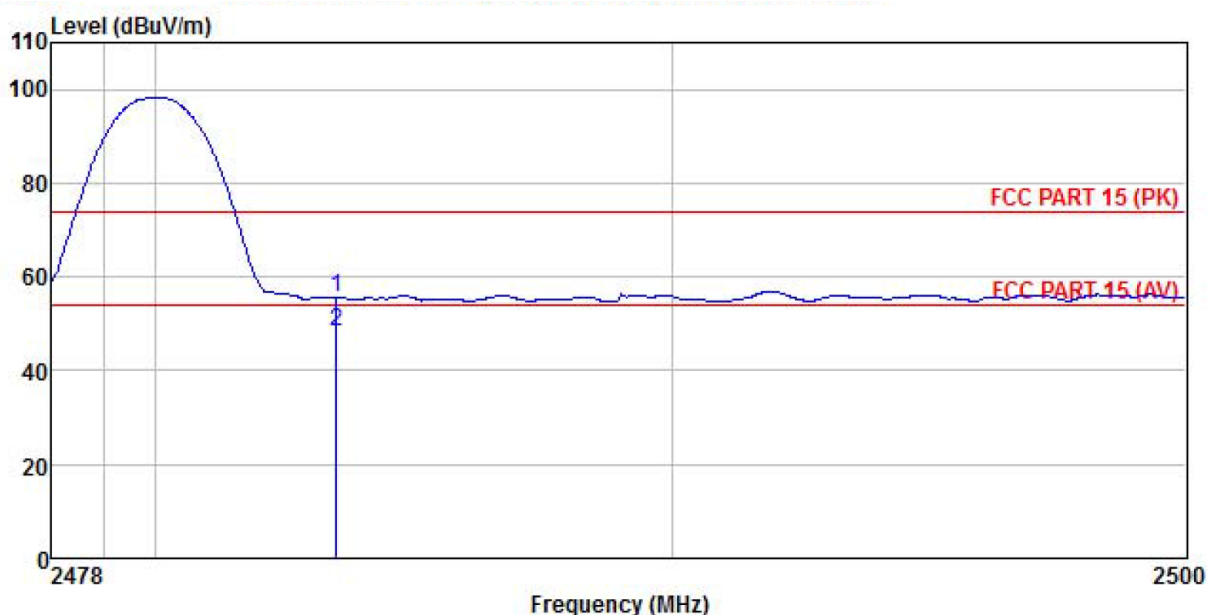


	Freq	ReadAntenna	Cable	Aux	Preamp	Level	Limit	Over	Remark
	MHz	Level	Factor	Loss	Factor	Factor	Line	Limit	
		dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB
1	2390.000	21.58	27.03	4.28	1.68	0.00	54.57	74.00	-19.43 Peak
2	2390.000	13.89	27.03	4.28	1.68	0.00	46.88	54.00	-7.12 Average

**Remark:**

1. Final Level = Receiver Read level + 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:	Smartphone	Product Model:	C30
Test By:	Yaro	Test mode:	DH1 Tx mode
Test Channel:	Highest channel	Polarization:	Vertical
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Humi: 57%

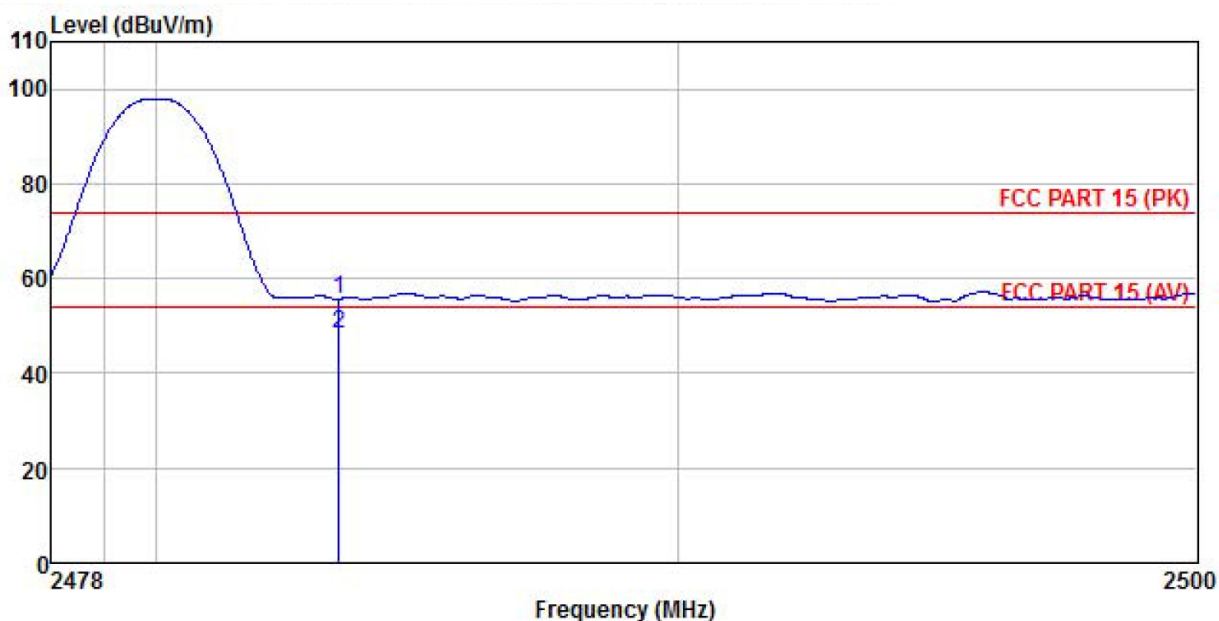


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	22.07	27.27	4.38	1.70	0.00	55.42	74.00	-18.58	Peak
2	2483.500	14.82	27.27	4.38	1.70	0.00	48.17	54.00	-5.83	Average

**Remark:**

1. Final Level = Receiver Read level + 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:	Smartphone	Product Model:	C30
Test By:	Yaro	Test mode:	DH1 Tx mode
Test Channel:	Highest channel	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Humi: 57%



	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	22.38	27.27	4.38	1.70	0.00	55.73	74.00	-18.27	Peak
2	2483.500	14.92	27.27	4.38	1.70	0.00	48.27	54.00	-5.73	Average

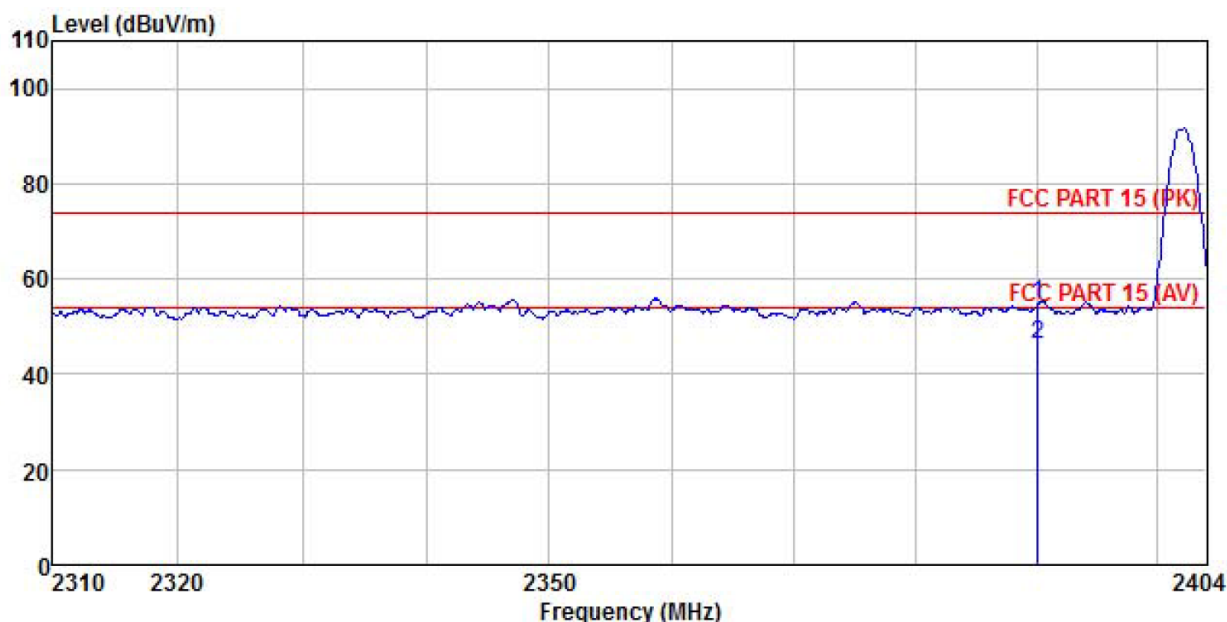
## Remark:

1. Final Level = Receiver Read level + 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.



$\pi/4$ -DQPSK mode

Product Name:	Smartphone	Product Model:	C30
Test By:	Yaro	Test mode:	2DH1 Tx mode
Test Channel:	Lowest channel	Polarization:	Vertical
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24°C Humi: 57%

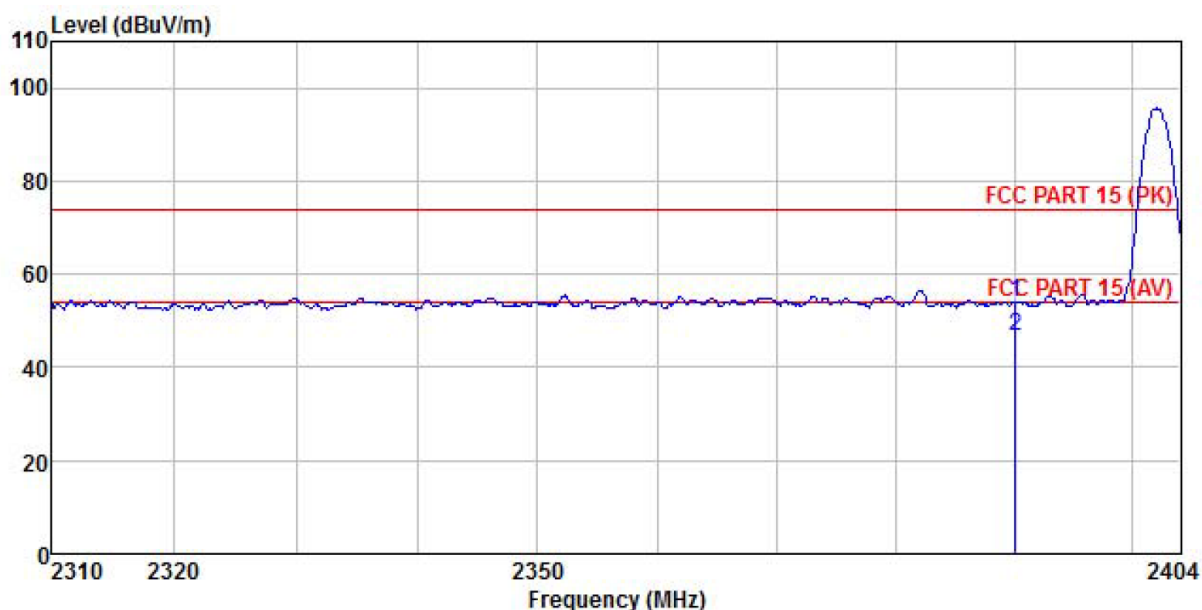


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	21.99	27.03	4.28	1.68	0.00	54.98	74.00	-19.02	Peak
2	2390.000	13.47	27.03	4.28	1.68	0.00	46.46	54.00	-7.54	Average

## Remark:

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

Product Name:	Smartphone	Product Model:	C30
Test By:	Yaro	Test mode:	2DH1 Tx mode
Test Channel:	Lowest channel	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Humi: 57%

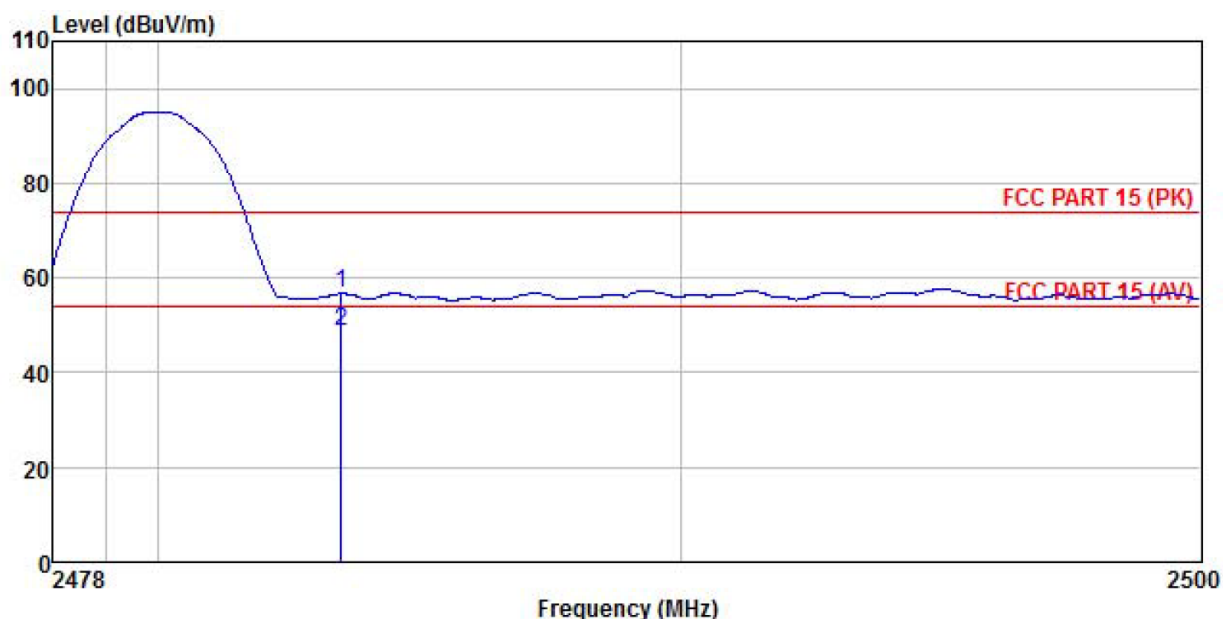


	ReadAntenna	Cable	Aux	Preamp		Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
-----	-----	-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB
1	2390.000	21.08	27.03	4.28	1.68	0.00	54.07	74.00 -19.93 Peak
2	2390.000	13.59	27.03	4.28	1.68	0.00	46.58	54.00 -7.42 Average

**Remark:**

1. Final Level = Receiver Read level + 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:	Smartphone	Product Model:	C30
Test By:	Yaro	Test mode:	2DH1 Tx mode
Test Channel:	Highest channel	Polarization:	Vertical
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Humi: 57%

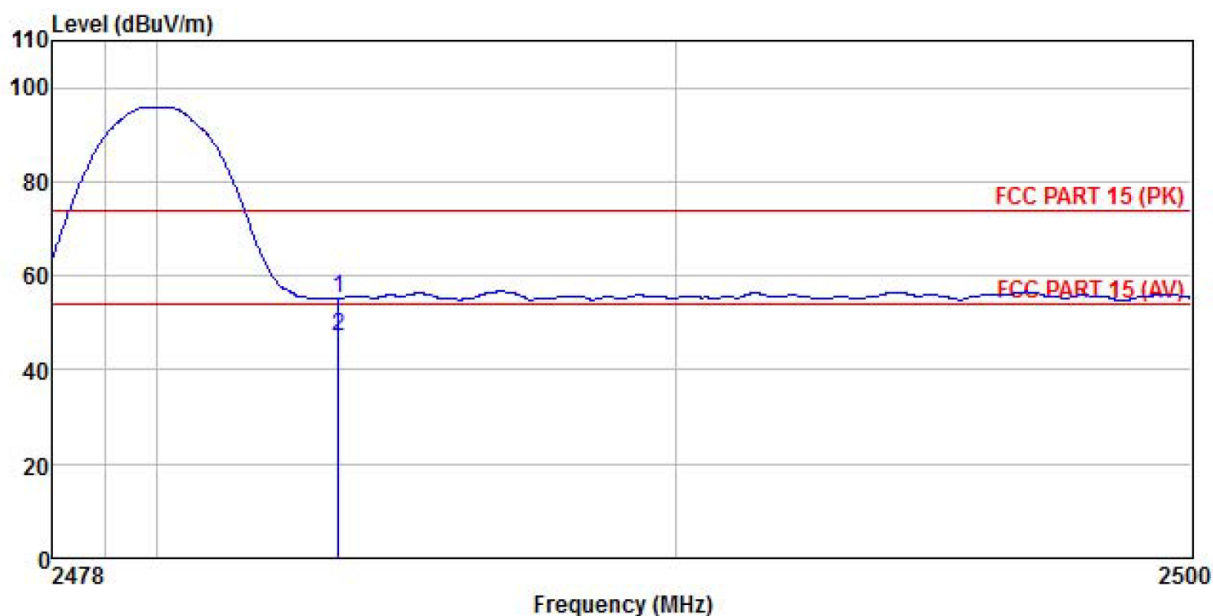


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	23.34	27.27	4.38	1.70	0.00	56.69	74.00	-17.31	Peak
2	2483.500	15.46	27.27	4.38	1.70	0.00	48.81	54.00	-5.19	Average

**Remark:**

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

Product Name:	Smartphone	Product Model:	C30
Test By:	Yaro	Test mode:	2DH1 Tx mode
Test Channel:	Highest channel	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Humi: 57%



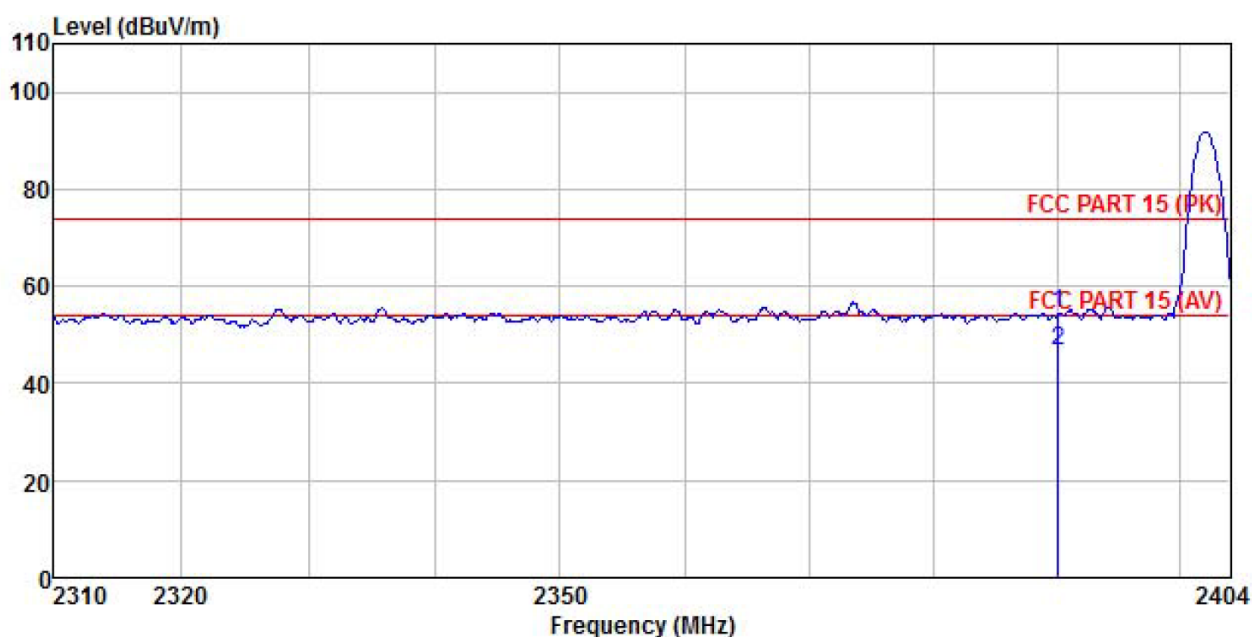
	Freq	ReadAntenna	Cable	Aux	Preamp	Level	Limit	Over	
	MHz	Level	Factor	Loss	Factor	Factor	Line	Limit	Remark
		dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB
1	2483.500	21.93	27.27	4.38	1.70	0.00	55.28	74.00	-18.72 Peak
2	2483.500	13.68	27.27	4.38	1.70	0.00	47.03	54.00	-6.97 Average

**Remark:**

1. Final Level = Receiver Read level + 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.

## 8DPSK mode

Product Name:	Smartphone	Product Model:	C30
Test By:	Yaro	Test mode:	3DH1 Tx mode
Test Channel:	Lowest channel	Polarization:	Vertical
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24°C Humi: 57%

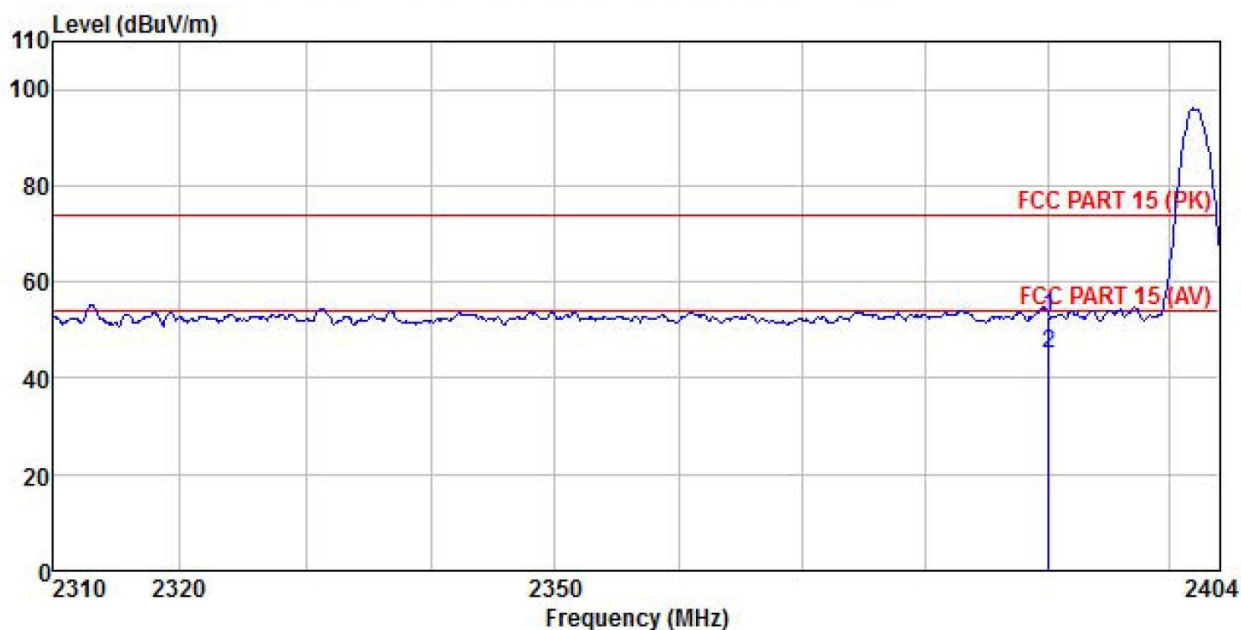


	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	21.44	27.03	4.28	1.68	0.00	54.43	74.00	-19.57	Peak
2	2390.000	13.72	27.03	4.28	1.68	0.00	46.71	54.00	-7.29	Average

## Remark:

1. Final Level = Receiver Read level + 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:	Smartphone	Product Model:	C30
Test By:	Yaro	Test mode:	3DH1 Tx mode
Test Channel:	Lowest channel	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Humi: 57%

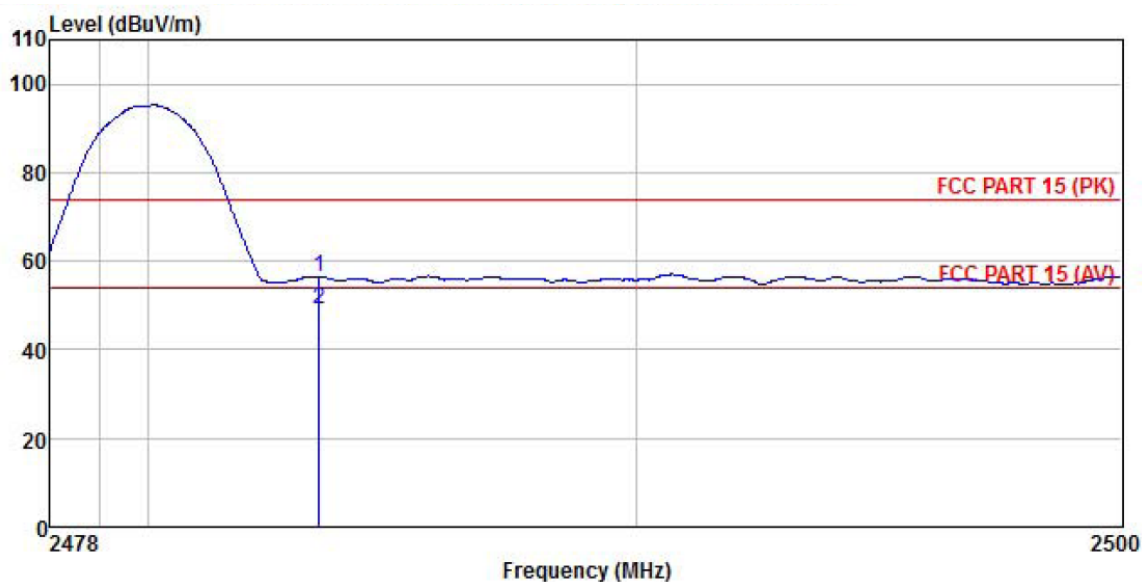


	Freq	ReadAntenna	Cable	Aux	Preamp	Level	Limit	Over	
	MHz	Level	Factor	Loss	Factor	Factor	Line	Limit	Remark
		dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB
1	2390.000	19.61	27.03	4.28	1.68	0.00	52.60	74.00	-21.40 Peak
2	2390.000	11.99	27.03	4.28	1.68	0.00	44.98	54.00	-9.02 Average

**Remark:**

1. Final Level = Receiver Read level + 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:	Smartphone	Product Model:	C30
Test By:	Yaro	Test mode:	3DH1 Tx mode
Test Channel:	Highest channel	Polarization:	Vertical
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Humi: 57%



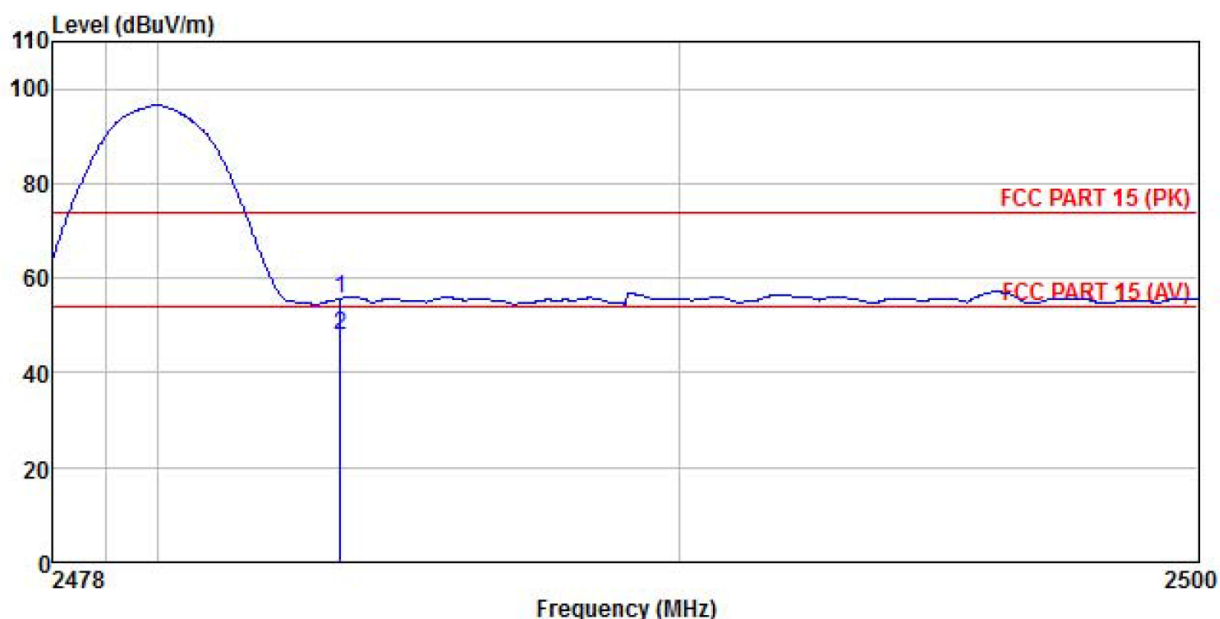
	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	23.10	27.27	4.38	1.70	0.00	56.45	74.00	-17.55	Peak
2	2483.500	15.96	27.27	4.38	1.70	0.00	49.31	54.00	-4.69	Average

## Remark:

1. Final Level = Receiver Read level + 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:	Smartphone	Product Model:	C30
Test By:	Yaro	Test mode:	3DH1 Tx mode
Test Channel:	Highest channel	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Humi: 57%



	Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamplifier Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	22.45	27.27	4.38	1.70	0.00	55.80	74.00	-18.20	Peak
2	2483.500	14.57	27.27	4.38	1.70	0.00	47.92	54.00	-6.08	Average

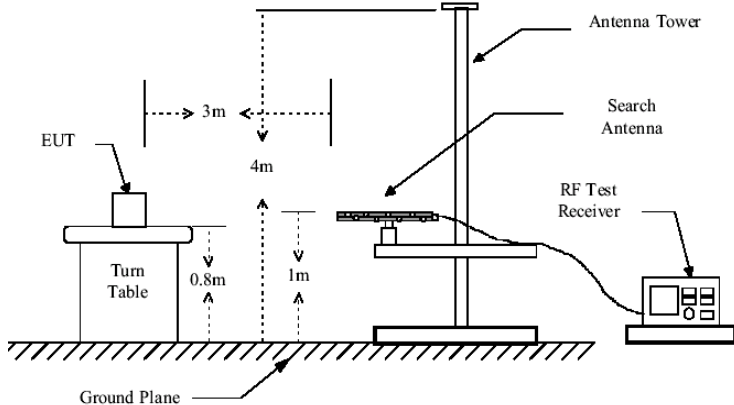
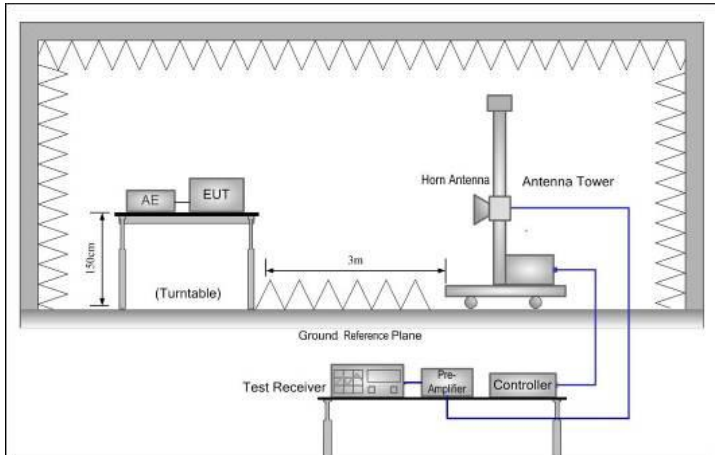
## Remark:

1. Final Level = Receiver Read level + 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.



## 5.7 Spurious Emission

### 5.7.1 Radiated Emission Method

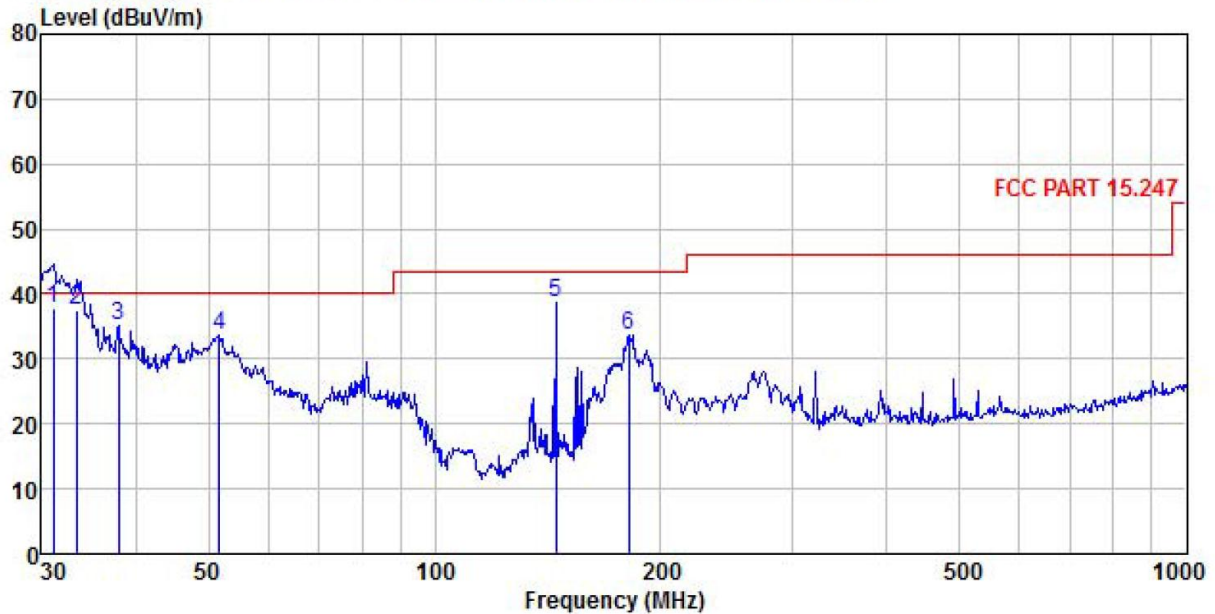
Test Requirement:	FCC Part 15 C Section 15.209				
Test Frequency Range:	9 kHz to 25 GHz				
Test Distance:	3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		RMS	1MHz	3MHz	Average Value
Limit:	Frequency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

	<ol style="list-style-type: none"><li>The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li><li>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.</li><li>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.</li><li>The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li><li>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.</li></ol>
Test Instruments:	Refer to section 5.9 for details
Test mode:	Non-hopping mode
Test results:	Pass
Remark:	<ol style="list-style-type: none"><li>Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case.</li><li>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.</li></ol>

## Measurement Data (worst case):

## Below 1GHz:

Product Name:	Smartphone	Product Model:	C30
Test By:	Yaro	Test mode:	BT Tx mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Vertical
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Humi: 57%

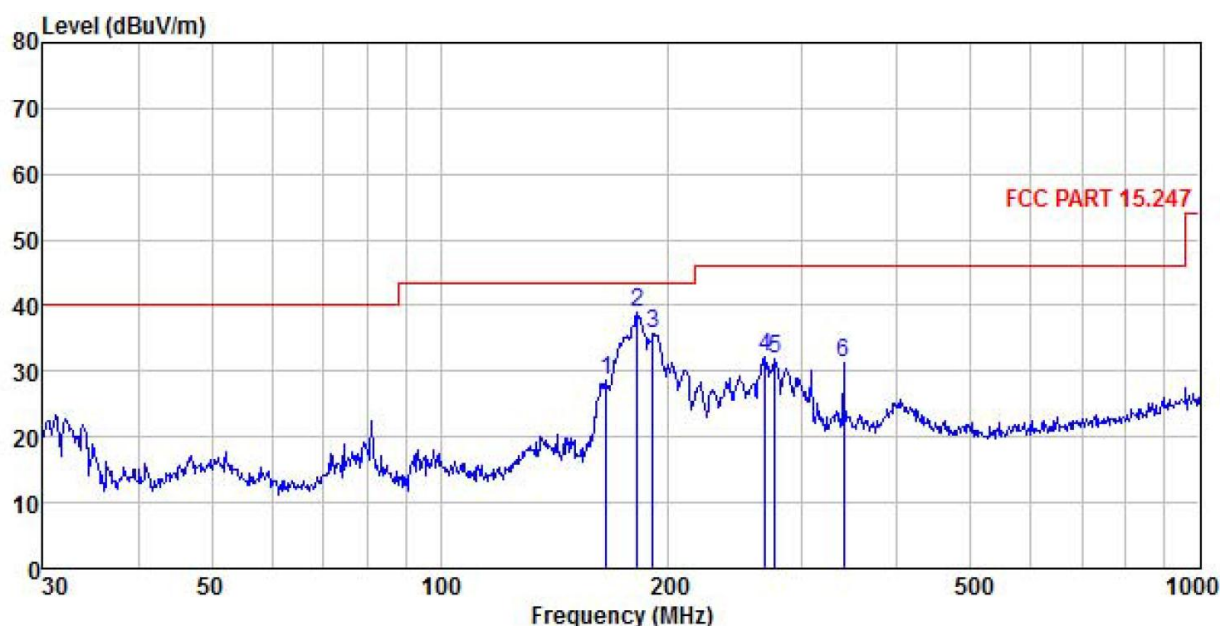


	Freq	ReadAntenna	Cable	Aux	Preamp	Level	Limit	Over	Remark
	MHz	Level	Factor	Loss	Factor	Factor	dBuV/m	dBuV/m	dB
		dBuV	dB/m	dB	dB	dB			
1	31.071	55.31	11.98	0.39	0.00	29.97	37.71	40.00	-2.29 QP
2	33.328	54.81	12.35	0.36	0.00	29.96	37.56	40.00	-2.44 QP
3	37.945	52.03	12.72	0.35	0.00	29.92	35.18	40.00	-4.82 QP
4	51.662	50.47	12.57	0.39	0.00	29.81	33.62	40.00	-6.38 QP
5	144.842	53.52	13.90	0.61	0.00	29.25	38.78	43.50	-4.72 QP
6	181.283	44.89	16.98	0.68	0.00	28.96	33.59	43.50	-9.91 QP

## Remark:

1. Final Level = Receiver Read level + 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.
3. The Aux Factor is a notch filter switch box loss, this item is not used.

Product Name:	Smartphone	Product Model:	C30
Test By:	Yaro	Test mode:	BT Tx mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24℃ Humi: 57%



	Freq	ReadAntenna	Cable	Aux	Preamp	Level	Limit	Over	Remark
	MHz	Level	Factor	Loss	Factor	Factor	dBuV/m	dBuV/m	dB
		dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB
1	165.487	41.27	15.70	0.64	0.00	29.09	28.52	43.50	-14.98 QP
2	181.920	50.26	17.01	0.68	0.00	28.96	38.99	43.50	-4.51 QP
3	190.405	46.46	17.45	0.70	0.00	28.90	35.71	43.50	-7.79 QP
4	267.546	41.37	18.57	0.82	0.00	28.51	32.25	46.00	-13.75 QP
5	276.124	40.91	18.61	0.83	0.00	28.49	31.86	46.00	-14.14 QP
6	339.589	40.27	18.78	0.92	0.00	28.54	31.43	46.00	-14.57 QP

**Remark:**

1. Final Level = Receiver Read level + 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.
3. The Aux Factor is a notch filter switch box loss, this item is not used.

## Above 1GHz:

Test channel: Lowest channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4804.00	47.91	30.78	6.80	2.44	41.81	46.12	74.00	-27.88	Vertical
4804.00	48.03	30.78	6.80	2.44	41.81	46.24	74.00	-27.76	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4804.00	39.81	30.78	6.80	2.44	41.81	38.02	54.00	-15.98	Vertical
4804.00	40.27	30.78	6.80	2.44	41.81	38.48	54.00	-15.52	Horizontal
Test channel: Middle channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4882.00	48.33	30.96	6.86	2.47	41.84	46.78	74.00	-27.22	Vertical
4882.00	48.37	30.96	6.86	2.47	41.84	46.82	74.00	-27.18	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4882.00	39.94	30.96	6.86	2.47	41.84	38.39	54.00	-15.61	Vertical
4882.00	39.80	30.96	6.86	2.47	41.84	38.25	54.00	-15.75	Horizontal
Test channel: Highest channel									
Detector: Peak Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4960.00		31.32	6.91	2.49	41.87	-1.15	74.00	-75.15	Vertical
4960.00		31.32	6.91	2.49	41.87	-1.15	74.00	-75.15	Horizontal
Detector: Average Value									
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Aux Factor (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4960.00	39.61	31.11	6.91	2.49	41.87	38.25	54.00	-15.75	Vertical
4960.00	39.67	31.11	6.91	2.49	41.87	38.31	54.00	-15.69	Horizontal
Remark:									
1. Final Level = Receiver Read level + Antenna Factor + Cable Loss + Aux Factor – Preamplifier Factor.									
2. The emission levels of other frequencies are lower than the limit 20dB and not show in test report.									



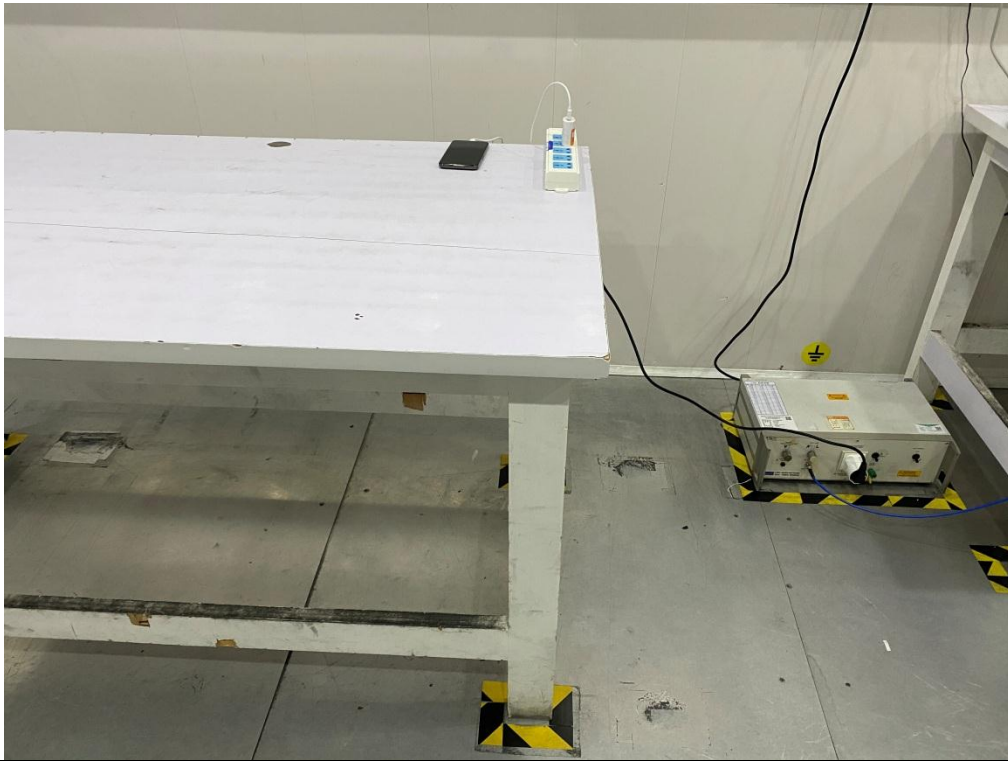
## 6 Test Setup Photo

Radiated Spurious Emission  
Below 1GHz



Above 1GHz



**Conducted Emission**

## 7 EUT Constructional Details

Reference to the test report No.: CCISE200707501

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