



# FCC 47 CFR PART 15 SUBPART B

## TEST REPORT

*For*

**Applicant: WOO Global Markets, S.L.**

**Address: Calle Amado Nervo, 3 Local 28007 - MADRID - SPAIN**

**Product Name: SMARTPHONE**

**Model Number: SP5540, SP5540-8519, SP5540-9021, PQ556M**

**Brand Name: Only difference in the model name.**

**FCC ID: 2AFEVWOOSP5540**

**Report No.: MTE/DYY/S16050786**

**Date of Issue: Dec. 29, 2015**

**Issued by: Most Technology Service Co., Ltd.**

**Address: No.5, Langshan 2nd Rd., North Hi-Tech Industrial park, Nanshan, Shenzhen, Guangdong, China**

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**1. VERIFICATION OF CONFORMITY****Equipment Under Test:** SMARTPHONE**Brand Name:** WOO**Model Number:** SP5540**Series Number:** SP5540-8519, SP5540-9021, PQ556M**FCC ID:** 2AFEVWOOSP5540**Applicant:** WOO Global Markets, S.L.

Calle Amado Nervo, 3 Local 28007 - MADRID - SPAIN

**Manufacturer:** Shen Zhen Cheng Fong Digital-Tech Ltd

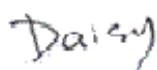
Rm1701, Tower A, High-Tech Plaza Phase1, Tian An Cyber Park, Futian District, Shenzhen

**Technical Standards:** FCC Part 15 B**File Number:** MTE/DYY/S16050786**Date of test:** Apr. 20, 2016 - Apr. 26, 2016**Deviation:** None**Condition of Test Sample:** Normal

The above equipment was tested by MOST for compliance with the requirements set forth in FCC Part 15 and the Technical Standards mentioned above. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment and the level of the immunity endurance of the equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Tested by (+ signature):



Daisy Yu

Apr. 20-26, 2016

Review by (+ signature):



Henry Chen

Apr. 26, 2016

Approved by (+ signature):



Yvette Zhou (Manager)

Apr. 26, 2016

**2. GENERAL INFORMATION****2.1 PRODUCT INFORMATION**

Description:	SMARTPHONE
Model Name:	SP5540
Series Number:	SP5540-8519, SP5540-9021, PQ556M
Model Difference description:	Only difference in the model name.
Power Supply:	DC 5 V by Adapter DC 3.7 V by Battery
Temperature Range:	-20° C ~ +60° C
Software version:	WOO_SP5540_20160510_Peru
Hardware version:	AL_T5_MB_V20

**NOTE:**

1. For a more detailed features description about the EUT, please refer to User's Manual.

## 2.2 OBJECTIVE

Perform FCC Part 15 Subpart B tests for FCC Marking.

## 2.3 TEST STANDARDS AND RESULTS

Test items and the results are as below:

EMISSION			
Standard	Item	Result	Remarks
FCC15.107	Conducted	PASS	Meet Class B limit
FCC15.109	Radiated	PASS	Meet Class B limit

Note: 1. The test result judgment is decided by the limit of measurement standard  
 2. The information of measurement uncertainty is available upon the customer's request.

## 2.4 ENVIRONMENTAL CONDITIONS

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 15-35°C
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

## 2.5 MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

The report uncertainty of measurement  $y \pm U$ , where expended uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , Providing a level of confidence of approximately 95%

- Uncertainty of Conducted Emission,  $U_c = \pm 1.8 \text{dB}$
- Uncertainty of Radiated Emission,  $U_c = \pm 3.2 \text{dB}$

### 3. TEST METHODOLOGY

#### 3. 1 TEST FACILITY

Test Site: Most Technology Service Co., Ltd.

Location: No.5, Langshan 2nd Rd, North Hi-Tech Industrial park, Nanshan, Shenzhen, Guangdong, China

Description: There is one 3m semi-anechoic an area test sites and two line conducted labs for final test. The Open Area Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2014 and CISPR 16 requirements. The FCC Registration Number is **490827**.  
The **CNAS** Registration Number is **CNAS L3573**.

Site Filing: The site description is on file with the Federal Communications Commission, 7435 Oakland Mills Road, Columbia, MD 21046.

Instrument Tolerance: All measuring equipment is in accord with ANSI C63.4:2014 and CISPR 16 requirements that meet industry regulatory agency and accreditation agency requirement.

Ground Plane: Two conductive reference ground planes were used during the Line Conducted Emission, one in vertical and the other in horizontal. The dimensions of these ground planes are as below. The vertical ground plane was placed distancing 40 cm to the rear of the wooden test table on where the EUT and the support equipment were placed during test. The horizontal ground plane projected 50 cm beyond the footprint of the EUT system and distanced 80 cm to the wooden test table. For Radiated Emission Test, one horizontal conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest measuring antenna, and covered the entire area between the EUT and the antenna. It has no holes or gaps having longitudinal dimensions larger than one-tenth of a wavelength at the highest frequency of measurement up to 1GHz.

#### 3.2 GENERAL TEST PROCEDURES

##### Radiated Emissions

The EUT is placed on a turn table, which is 1.5 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 8.3.1.1 and 8.3.1.2 of ANSI C63.4:2014.

##### Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 7.3.3 of ANSI C63.4:2014, Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

### 3.3 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

- (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	( <sup>2</sup> )
13.36 - 13.41			

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup> Above 38.6

- (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.109. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.109 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.109 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

## 4 SETUP OF EQUIPMENT UNDER TEST

### 4.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

### 4.2 EUT configuration

Interface cables:

Interface cable	Length [m]	Type	Line shielded	Line unshielded	Line termination
Power cord	1.5	three wires	<input type="checkbox"/>	<input checked="" type="checkbox"/>	PC
Power cord	1.5	three wires	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Printer
VGA Cord	1.8	Video type	<input type="checkbox"/>	<input checked="" type="checkbox"/>	PC

Peripheral devices:

List out all peripheral not inclued with EuT used during the test

Kind of equipment	Manufacturer	Model no.
Mouse	Lenovo	M-UAE96
Keyboard	HP	SK-2880
PC	Lenovo	SS05750640
Printer	Canon	L11121E
Monitor	PHILIPS	HEW8220Q
Hard disc	Seagate	8T3800 13AS

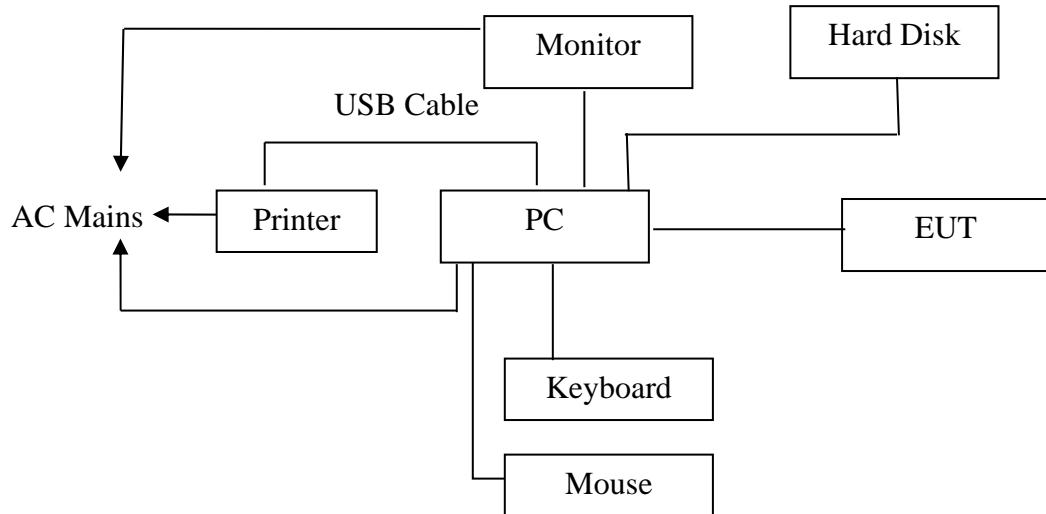
Remark:

*All the equipment/cables were placed in the worst-case [-configuration to maximize the emission during the test.*

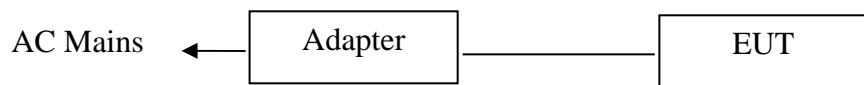
*Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use*

#### 4.3 Block Diagram of connection between EUT and simulation

Data transmitting mode:



FM+charging/ GPS+charging/ SD card playing+charging mode:



#### 4. 3 TEST EQUIPMENT LIST

**Instrumentation:** The following list contains equipment used at Most for testing. The equipment conforms to the CISPR 16-1 / ANSI C63.2 Specifications for Electromagnetic Interference and Field Strength Instrumentation from 10 kHz to 1.0 GHz or above.

No.	Equipment	Manufacturer	Model No.	S/N	Calibration date	Calibration Interval
1	Test Receiver	Rohde & Schwarz	ESCI	100492	2016/03/10	1 Year
2	Spectrum Analyzer	Agilent	E7405A	US44210471	2016/03/14	1 Year
3	L.I.S.N.	Rohde & Schwarz	ENV216	100093	2016/03/10	1 Year
4	Coaxial Switch	Anritsu Corp	MP59B	6200283933	2016/03/07	1 Year
5	Terminator	Hubersuhner	50Ω	No.1	2016/03/07	1 Year
6	RF Cable	SchwarzBeck	N/A	No.1	2016/03/07	1 Year
7	Test Receiver	Rohde & Schwarz	ESPI	101202	2016/03/10	1 Year
8	Bilog Antenna	Sunol	JB3	A121206	2016/03/14	1 Year
9	Horn Antenna	SCHWARZBECK	BBHA9120D	756	2016/03/14	1 Year
10	Horn Antenna	Penn Engineering	9034	8376	2016/03/14	1 Year
11	Cable	Resenberger	N/A	NO.1	2016/03/07	1 Year
12	Cable	SchwarzBeck	N/A	NO.2	2016/03/07	1 Year
13	Cable	SchwarzBeck	N/A	NO.3	2016/03/07	1 Year
14	Single Phase Power Line Filter	DuoJi	FNF 202B30	N/A	2016/03/07	1 Year
15	Test Receiver	Rohde & Schwarz	ESCI	100492	2016/03/10	1 Year
16	Loop antenna	ARA	PLA-1030/B	1039	2016/03/14	1 Year

**NOTE:** Equipments listed above have been calibrated and are in the period of validation.

## 5. 47 CFR PART 15B REQUIREMENTS

### 5.1 GENERAL INFORMATION

The field strength of radiation emission was measured in the following position: EUT stand-up position (Y axis), lie-down position (X, Z axis).

The following data show only with the worst case setup.

The worst case of X axis was reported.

Based on client request, all normal using modes of the normal function were tested but only the worst test data of the worst mode is reported by this report.

#### **EUT Test Procedure:**

1. Put EUT on the test table.
2. Power on the EUT.
3. Make sure the EUT operates normally during the test.

#### **Mode 1: Data transmitting**

The EUT configuration of the emission test was **PC+ Mouse + Keyboard + Printer + Monitor + EUT**.

#### **Mode 2: FM +charging**

The EUT configuration of the emission test was **EUT+Adapter**.

#### **Mode 3: GPS +charging**

The EUT configuration of the emission test was **EUT+Adapter**.

#### **Mode 2: FM +charging**

The EUT configuration of the emission test was **EUT+Adapter**.

#### **Mode 3: SD Card playing +charging**

The EUT configuration of the emission test was **EUT+Adapter**.

## 6. LINE CONDUCTED EMISSION TEST

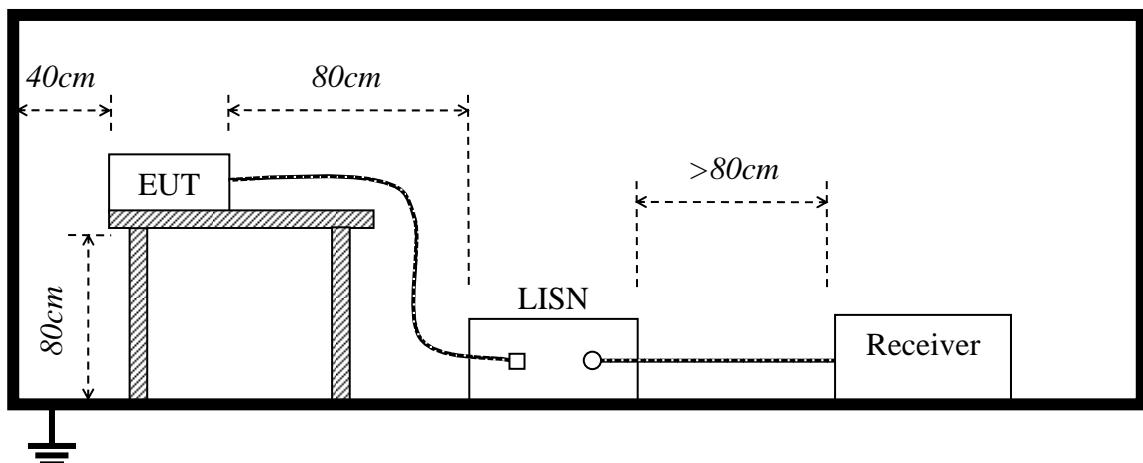
### 6.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P. ( dBuV)	Average( dBuV)
150kHz-500kHz	66-56	56-46
500kHz-5MHz	56	46
5MHz-30MHz	60	50

**\*\*Note:** 1. the lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

### 6.2. BLOCK DIAGRAM OF TEST SETUP



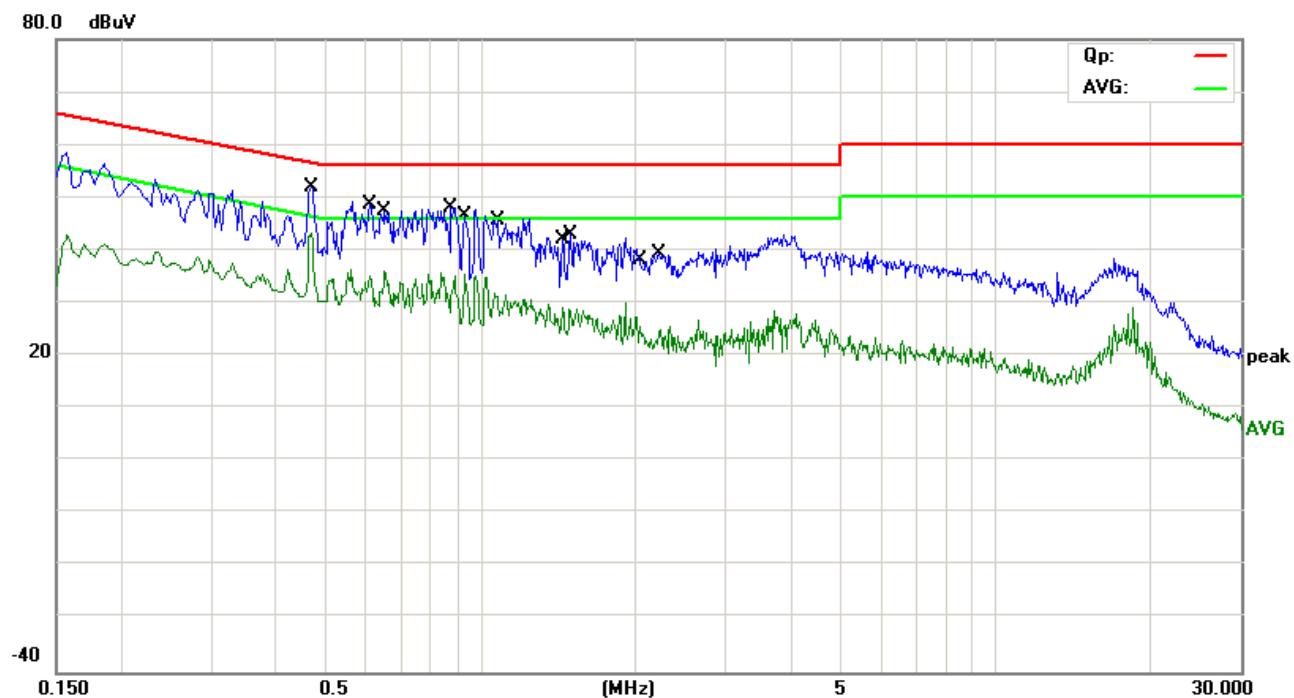
### **6.3. Test procedure**

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. Exploratory measurements were made to identify the frequency of the emission that has the highest amplitude relative to the limit;
3. 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).
4. 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 C63.4: 2014 on conducted measurement.
5. The bandwidth of test receiver (ESCI) set at 9 KHz.
6. All data was recorded in the Quasi-peak and average detection mode.

### **6.4. Test Result**

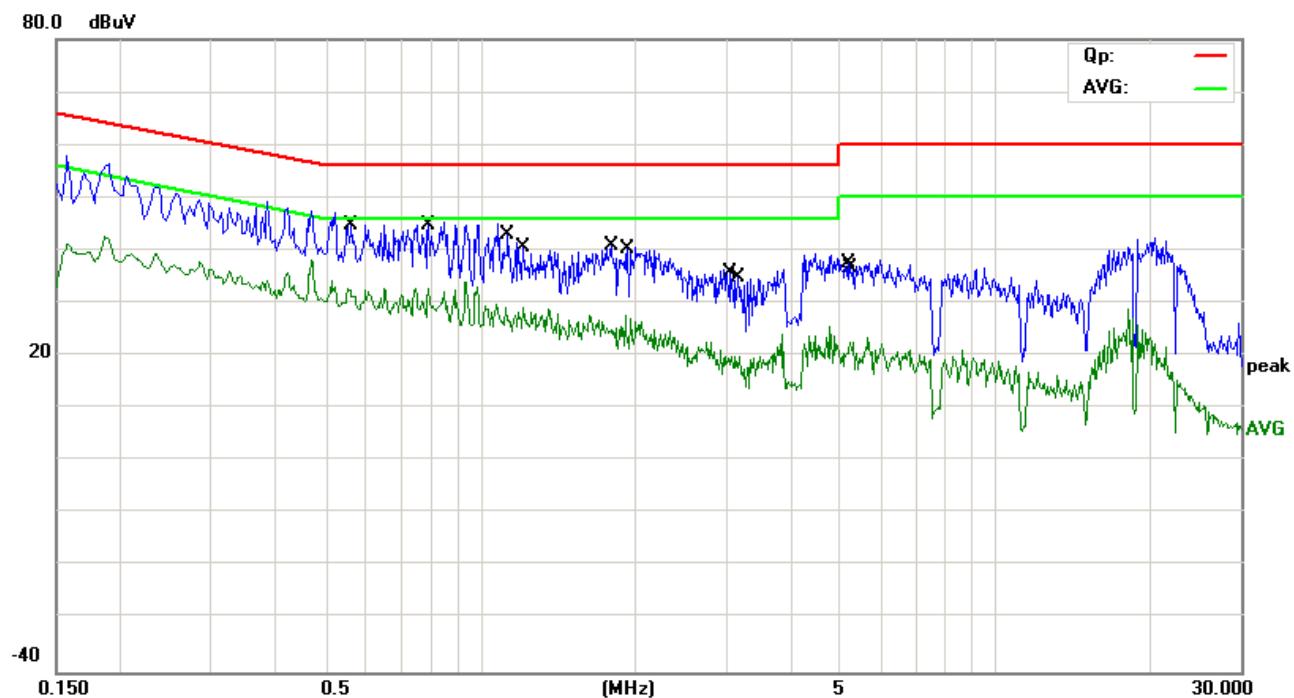
PASS

<b>EUT:</b>	<b>Smartphone</b>	<b>M/N:</b>	<b>SP5540</b>
<b>Mode:</b>	<b>FM+Charging</b>	<b>Phase:</b>	<b>L</b>
<b>Test by:</b>	<b>John</b>	<b>Power:</b>	<b>DC 5 V by Adapter</b>
<b>Temperature: / Humidity</b>	<b>22.7°C / 48%</b>	<b>Test date:</b>	<b>2016-04-20</b>



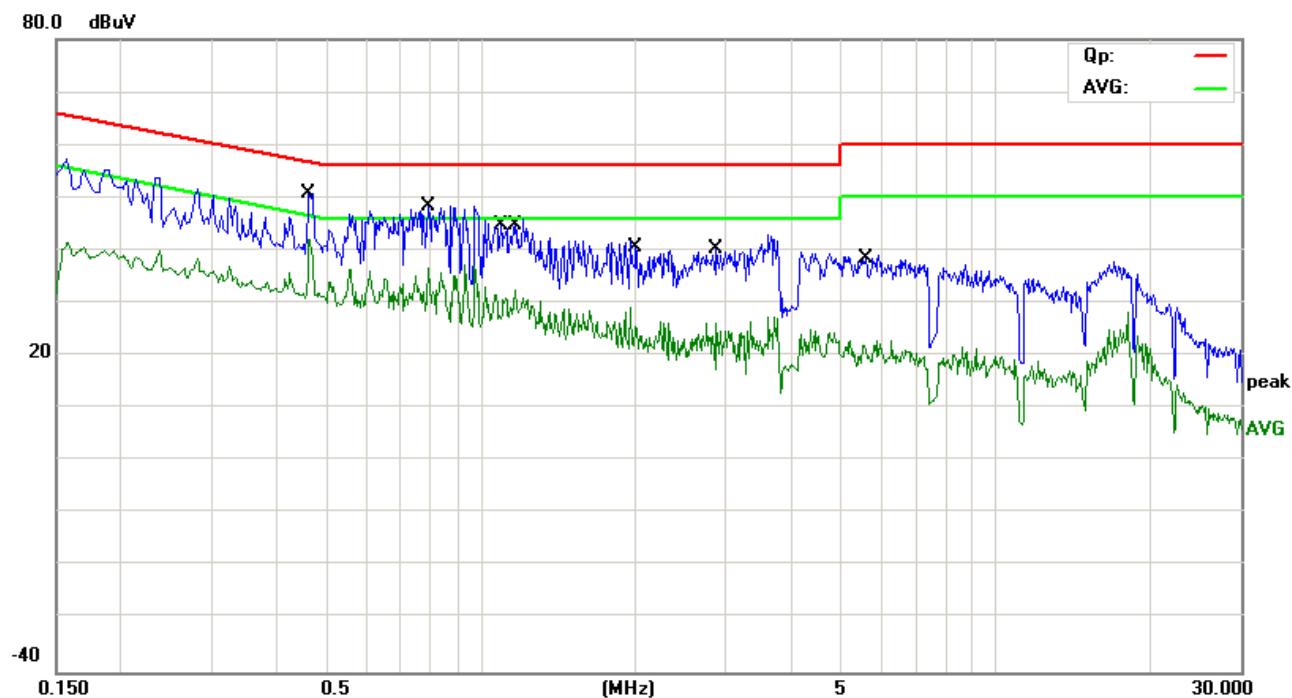
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.4700	42.51	9.59	52.10	56.51	-4.41	QP	
2	*	0.4700	33.53	9.59	43.12	46.51	-3.39	AVG	
3		0.6540	26.49	9.60	36.09	46.00	-9.91	AVG	
4		0.6100	39.11	9.59	48.70	56.00	-7.30	QP	
5		0.8780	38.58	9.60	48.18	56.00	-7.82	QP	
6		0.9300	25.91	9.60	35.51	46.00	-10.49	AVG	
7		1.0700	22.18	9.60	31.78	46.00	-14.22	AVG	
8		1.0780	36.04	9.60	45.64	56.00	-10.36	QP	
9		1.4980	33.24	9.60	42.84	56.00	-13.16	QP	
10		1.4460	19.60	9.60	29.20	46.00	-16.80	AVG	
11		2.0540	15.92	9.60	25.52	46.00	-20.48	AVG	
12		2.2340	29.88	9.60	39.48	56.00	-16.52	QP	

<b>EUT:</b>	<b>Smartphone</b>	<b>M/N:</b>	<b>SP5540</b>
<b>Mode:</b>	<b>FM+Charging</b>	<b>Phase:</b>	<b>N</b>
<b>Test by:</b>	<b>John</b>	<b>Power:</b>	<b>DC 5 V by Adapter</b>
<b>Temperature: / Humidity</b>	<b>22.7°C / 48%</b>	<b>Test date:</b>	<b>2016-04-20</b>



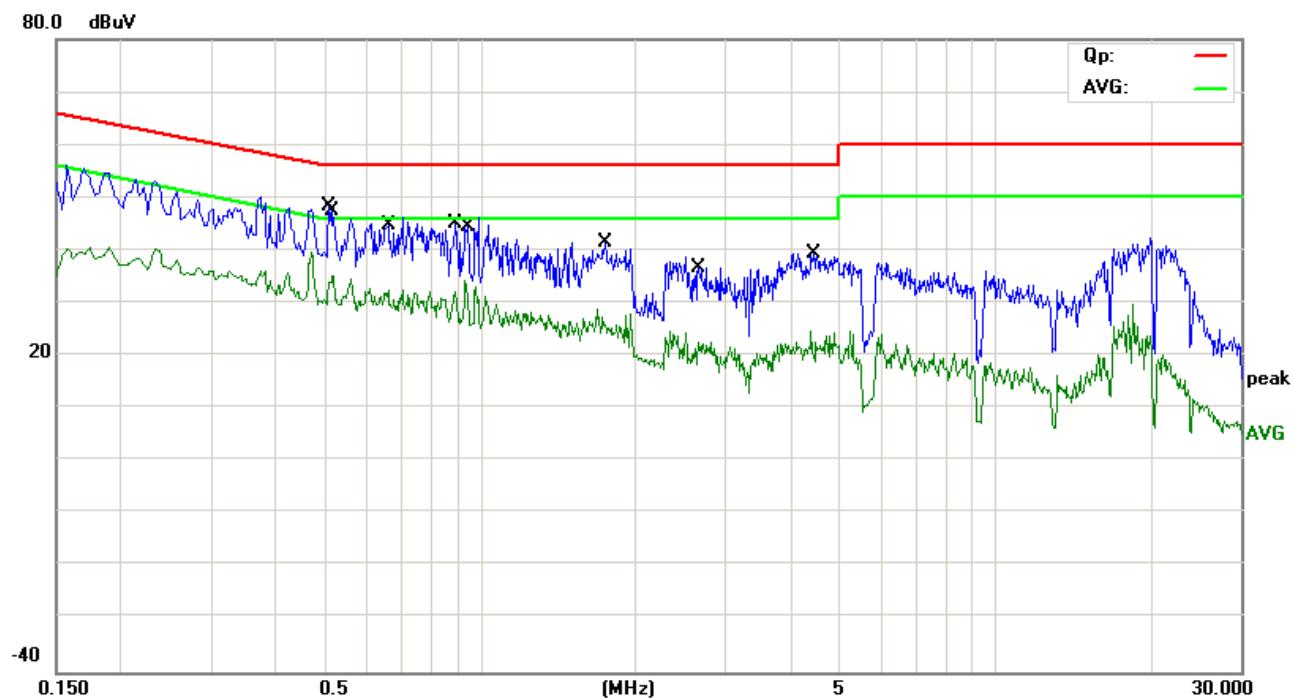
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
1		0.5540	23.25	9.59	32.84	46.00	-13.16	AVG	
2		0.5620	35.13	9.59	44.72	56.00	-11.28	QP	
3	*	0.7940	35.23	9.60	44.83	56.00	-11.17	QP	
4		0.7940	23.05	9.60	32.65	46.00	-13.35	AVG	
5		1.1340	33.29	9.60	42.89	56.00	-13.11	QP	
6		1.2140	19.64	9.60	29.24	46.00	-16.76	AVG	
7		1.7980	31.25	9.60	40.85	56.00	-15.15	QP	
8		1.9140	18.02	9.60	27.62	46.00	-18.38	AVG	
9		3.0620	26.21	9.61	35.82	56.00	-20.18	QP	
10		3.1740	10.28	9.61	19.89	46.00	-26.11	AVG	
11		5.1860	27.96	9.63	37.59	60.00	-22.41	QP	
12		5.2300	13.03	9.63	22.66	50.00	-27.34	AVG	

<b>EUT:</b>	<b>Smartphone</b>	<b>M/N:</b>	<b>SP5540</b>
<b>Mode:</b>	<b>GPS+Charging</b>	<b>Phase:</b>	<b>L</b>
<b>Test by:</b>	<b>John</b>	<b>Power:</b>	<b>DC 5V by Adapter AC 120V/60Hz</b>
<b>Temperature: / Humidity</b>	<b>22.7°C / 48%</b>	<b>Test date:</b>	<b>2016-04-20</b>



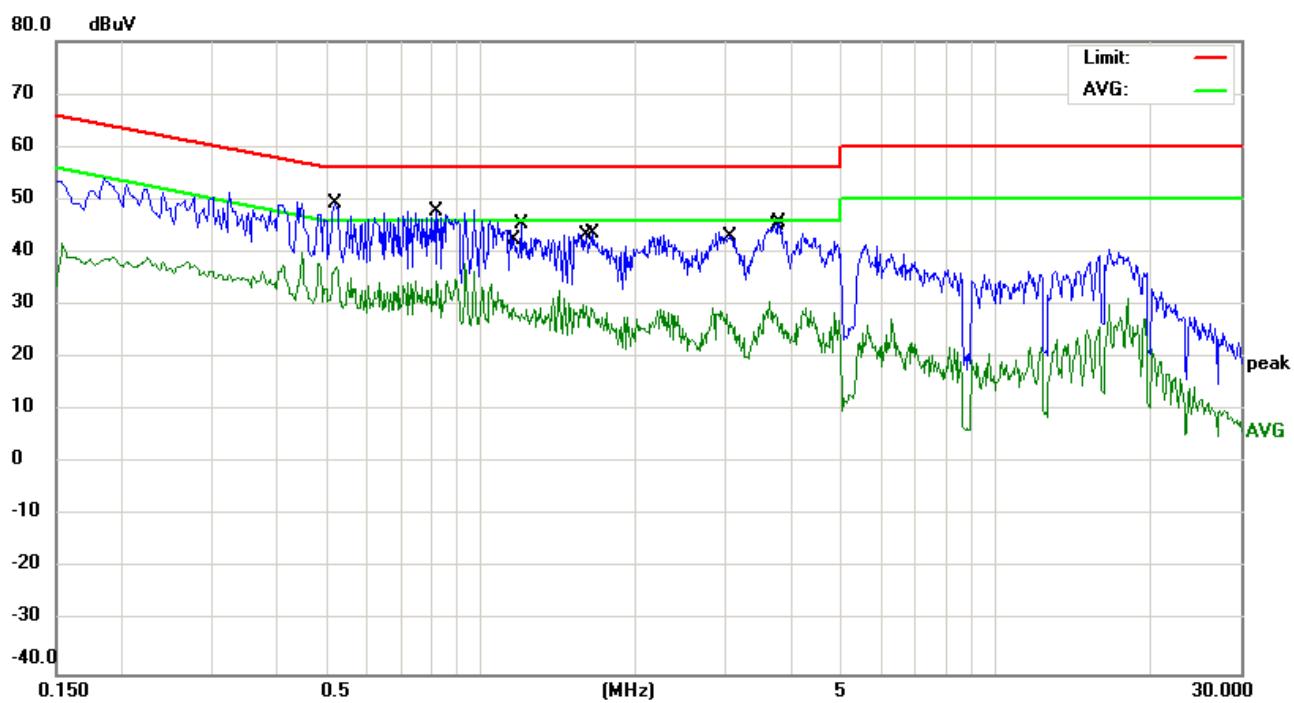
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.4660	41.24	9.59	50.83	56.58	-5.75	QP	
2	*	0.4660	32.51	9.59	42.10	46.58	-4.48	AVG	
3		0.7940	38.68	9.60	48.28	56.00	-7.72	QP	
4		0.7940	26.94	9.60	36.54	46.00	-9.46	AVG	
5		1.0940	35.10	9.60	44.70	56.00	-11.30	QP	
6		1.1660	22.80	9.60	32.40	46.00	-13.60	AVG	
7		2.0100	31.03	9.60	40.63	56.00	-15.37	QP	
8		2.0100	15.91	9.60	25.51	46.00	-20.49	AVG	
9		2.8780	30.65	9.61	40.26	56.00	-15.74	QP	
10		2.8780	16.53	9.61	26.14	46.00	-19.86	AVG	
11		5.5220	12.44	9.64	22.08	50.00	-27.92	AVG	
12		5.5940	28.77	9.64	38.41	60.00	-21.59	QP	

<b>EUT:</b>	<b>Smartphone</b>	<b>M/N:</b>	<b>SP5540</b>
<b>Mode:</b>	<b>GPS+Charging</b>	<b>Phase:</b>	<b>N</b>
<b>Test by:</b>	<b>John</b>	<b>Power:</b>	<b>DC 5V by Adapter AC 120V/60Hz</b>
<b>Temperature: / Humidity</b>	<b>22.7°C / 48%</b>	<b>Test date:</b>	<b>2016-04-20</b>



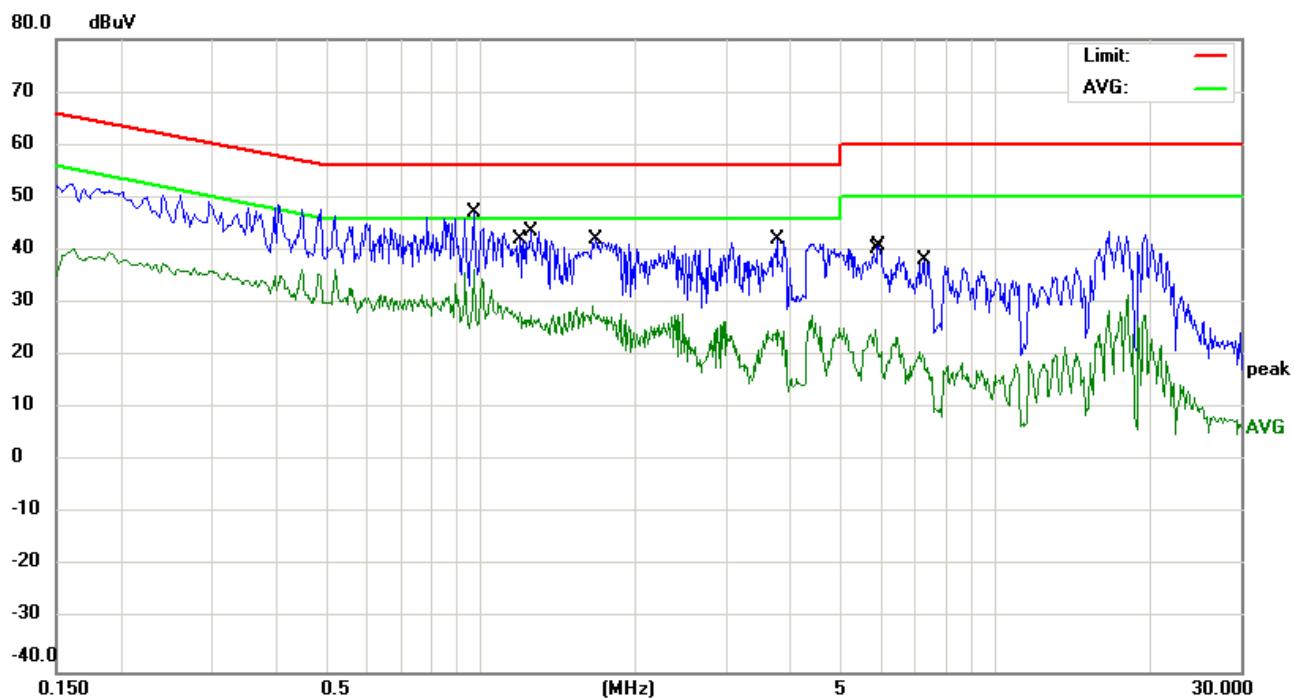
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	0.5100	38.72	9.59	48.31	56.00	-7.69	QP	
2		0.5180	25.69	9.59	35.28	46.00	-10.72	AVG	
3		0.6620	35.23	9.60	44.83	56.00	-11.17	QP	
4		0.6620	22.77	9.60	32.37	46.00	-13.63	AVG	
5		0.8980	35.50	9.60	45.10	56.00	-10.90	QP	
6		0.9340	24.62	9.60	34.22	46.00	-11.78	AVG	
7		1.7500	31.95	9.60	41.55	56.00	-14.45	QP	
8		1.7500	16.40	9.60	26.00	46.00	-20.00	AVG	
9		2.6580	27.06	9.61	36.67	56.00	-19.33	QP	
10		2.6580	13.02	9.61	22.63	46.00	-23.37	AVG	
11		4.3860	15.03	9.62	24.65	46.00	-21.35	AVG	
12		4.4340	29.60	9.62	39.22	56.00	-16.78	QP	

<b>EUT:</b>	<b>Smartphone</b>	<b>M/N:</b>	<b>SP5540</b>
<b>Mode:</b>	<b>SD card playing+Charging</b>	<b>Phase:</b>	<b>L</b>
<b>Test by:</b>	<b>John</b>	<b>Power:</b>	<b>DC 5 V by Adapter</b>
<b>Temperature: / Humidity</b>	<b>22.7°C / 48%</b>	<b>Test date:</b>	<b>2016-04-20</b>



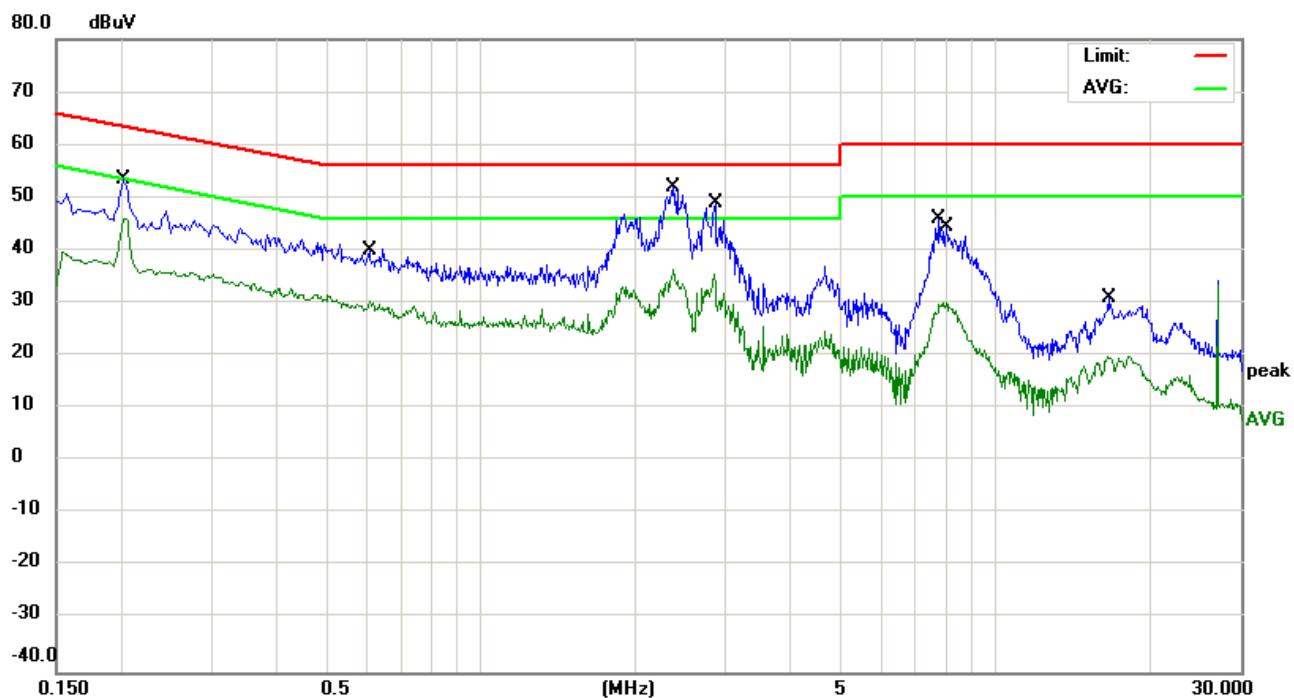
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
1	*	0.5220	39.72	9.59	49.31	56.00	-6.69	QP	
2		0.5260	27.67	9.59	37.26	46.00	-8.74	AVG	
3		0.8220	38.20	9.60	47.80	56.00	-8.20	QP	
4		0.8220	24.96	9.60	34.56	46.00	-11.44	AVG	
5		1.1620	19.73	9.60	29.33	46.00	-16.67	AVG	
6		1.2020	35.62	9.60	45.22	56.00	-10.78	QP	
7		1.5859	20.60	9.60	30.20	46.00	-15.80	AVG	
8		1.6620	33.96	9.60	43.56	56.00	-12.44	QP	
9		3.0220	18.55	9.61	28.16	46.00	-17.84	AVG	
10		3.0500	33.43	9.61	43.04	56.00	-12.96	QP	
11		3.7580	18.68	9.62	28.30	46.00	-17.70	AVG	
12		3.8060	36.06	9.62	45.68	56.00	-10.32	QP	

<b>EUT:</b>	<b>Smartphone</b>	<b>M/N:</b>	<b>SP5540</b>
<b>Mode:</b>	<b>SD card playing+Charging</b>	<b>Phase:</b>	<b>N</b>
<b>Test by:</b>	<b>John</b>	<b>Power:</b>	<b>DC 5 V by Adapter</b>
<b>Temperature: / Humidity</b>	<b>22.7°C / 48%</b>	<b>Test date:</b>	<b>2016-04-20</b>



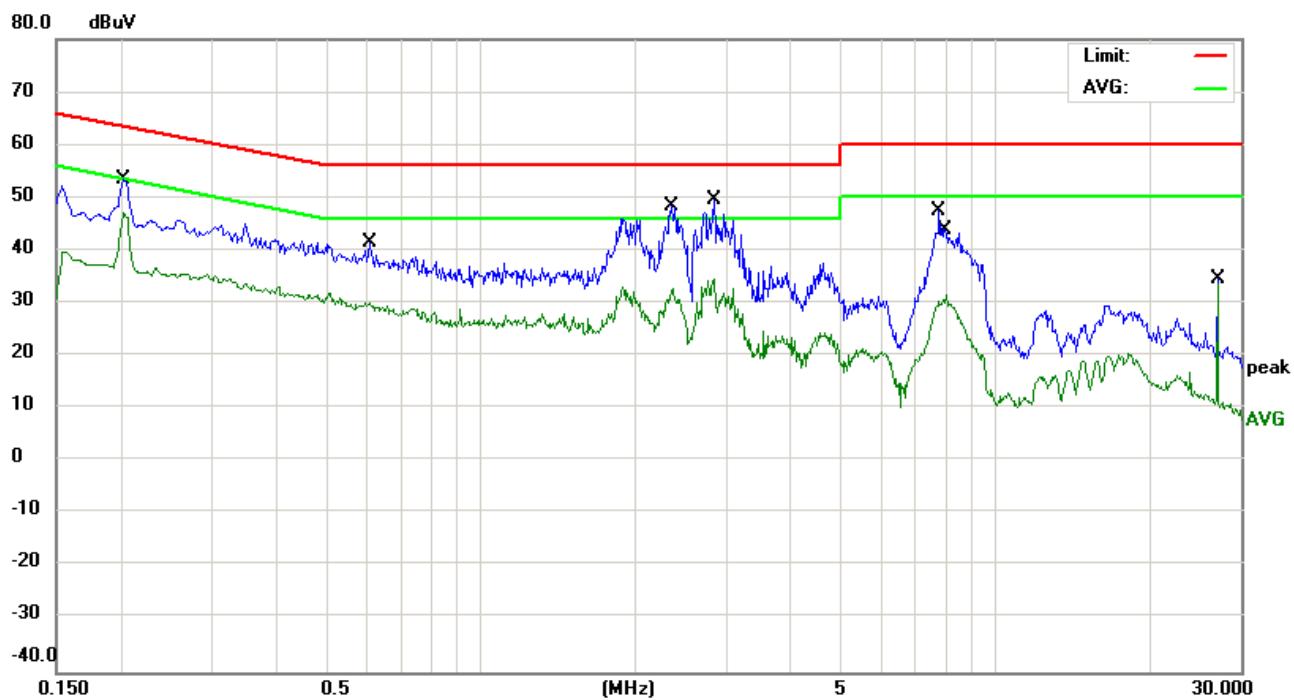
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	0.9700	37.41	9.60	47.01	56.00	-8.99	QP	
2		0.9740	26.73	9.60	36.33	46.00	-9.67	AVG	
3		1.1940	18.60	9.60	28.20	46.00	-17.80	AVG	
4		1.2620	34.09	9.60	43.69	56.00	-12.31	QP	
5		1.6620	18.86	9.60	28.46	46.00	-17.54	AVG	
6		1.6780	32.43	9.60	42.03	56.00	-13.97	QP	
7		3.7780	32.36	9.62	41.98	56.00	-14.02	QP	
8		3.7820	15.33	9.62	24.95	46.00	-21.05	AVG	
9		5.8380	15.34	9.64	24.98	50.00	-25.02	AVG	
10		5.9540	31.12	9.64	40.76	60.00	-19.24	QP	
11		7.2180	10.47	9.65	20.12	50.00	-29.88	AVG	
12		7.2540	28.44	9.65	38.09	60.00	-21.91	QP	

<b>EUT:</b>	<b>Smartphone</b>	<b>M/N:</b>	<b>SP5540</b>
<b>Mode:</b>	<b>Data transmitting</b>	<b>Phase:</b>	<b>L</b>
<b>Test by:</b>	<b>John</b>	<b>Power:</b>	<b>DC 5V by USB Port</b>
<b>Temperature: / Humidity</b>	<b>22.7°C / 48%</b>	<b>Test date:</b>	<b>2016-04-20</b>



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.2020	43.78	9.60	53.38	63.52	-10.14	QP	
2		0.2020	36.44	9.60	46.04	53.52	-7.48	AVG	
3		0.6100	30.21	9.59	39.80	56.00	-16.20	QP	
4		0.6100	20.87	9.59	30.46	46.00	-15.54	AVG	
5	*	2.3780	42.48	9.61	52.09	56.00	-3.91	QP	
6		2.3780	26.65	9.61	36.26	46.00	-9.74	AVG	
7		2.8500	25.90	9.61	35.51	46.00	-10.49	AVG	
8		2.8580	39.37	9.61	48.98	56.00	-7.02	QP	
9		7.7780	36.17	9.66	45.83	60.00	-14.17	QP	
10		8.0340	20.46	9.66	30.12	50.00	-19.88	AVG	
11		16.5660	10.01	9.71	19.72	50.00	-30.28	AVG	
12		16.6580	21.22	9.71	30.93	60.00	-29.07	QP	

<b>EUT:</b>	<b>Smartphone</b>	<b>M/N:</b>	<b>SP5540</b>
<b>Mode:</b>	<b>Data transmitting</b>	<b>Phase:</b>	<b>N</b>
<b>Test by:</b>	<b>John</b>	<b>Power:</b>	<b>DC 5V by USB Port</b>
<b>Temperature: / Humidity</b>	<b>22.7°C / 48%</b>	<b>Test date:</b>	<b>2016-04-20</b>



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.2020	44.00	9.60	53.60	63.52	-9.92	QP	
2	*	0.2020	37.56	9.60	47.16	53.52	-6.36	AVG	
3		0.6100	31.83	9.59	41.42	56.00	-14.58	QP	
4		0.6100	20.55	9.59	30.14	46.00	-15.86	AVG	
5		2.3500	38.63	9.61	48.24	56.00	-7.76	QP	
6		2.3699	23.25	9.61	32.86	46.00	-13.14	AVG	
7		2.8460	39.90	9.61	49.51	56.00	-6.49	QP	
8		2.8460	25.07	9.61	34.68	46.00	-11.32	AVG	
9		7.7860	37.68	9.66	47.34	60.00	-12.66	QP	
10		8.0420	21.79	9.66	31.45	50.00	-18.55	AVG	
11		27.0020	24.84	9.76	34.60	60.00	-25.40	QP	
12		27.0020	23.90	9.76	33.66	50.00	-16.34	AVG	

## 7. RADIATED EMISSION TEST

### 7.1. LIMITS OF RADIATED DISTURBANCES AT 3M DISTANCES FOR CLASS B

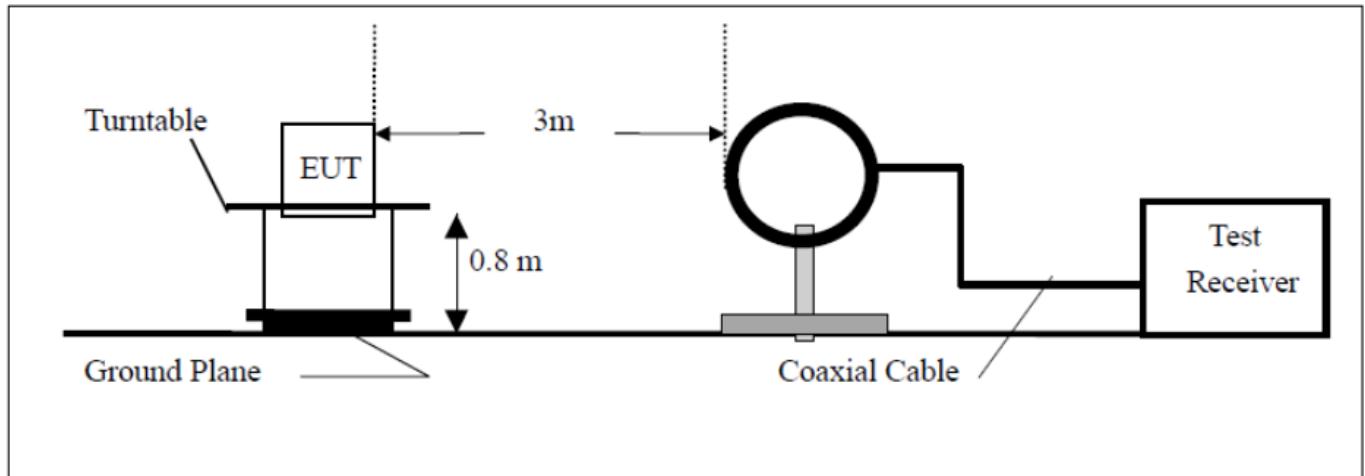
According to FCC section 15.109 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength ( $\mu$ V/m)	Measurement Distance (m)
0.009 - 0.490	$2400/F(\text{kHz})$	300
0.490 - 1.705	$24000/F(\text{kHz})$	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

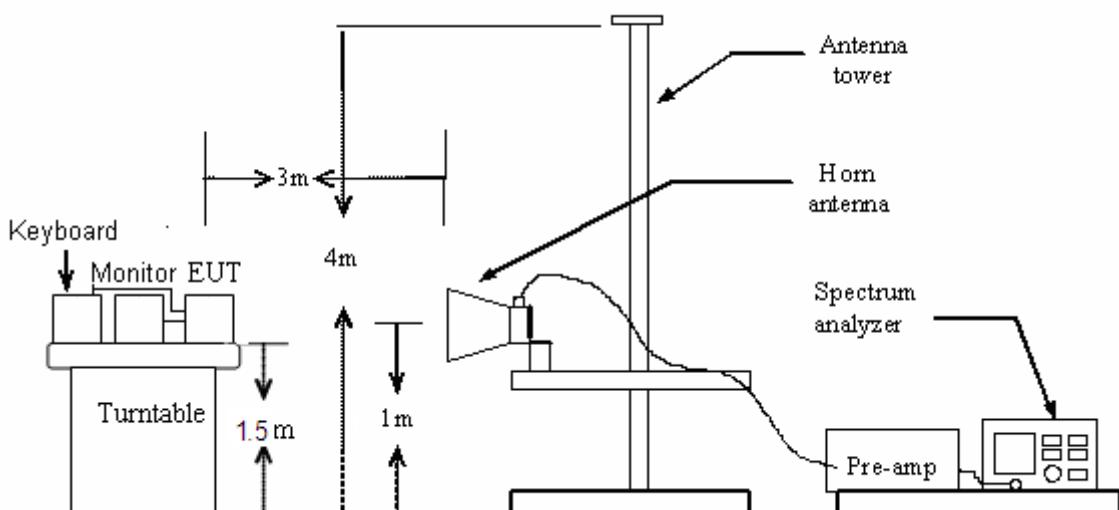
As shown in FCC section 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector. When average radiated emission measurements are specified in this part, including emission measurements below 1000MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.

## 7.2 TEST DESCRIPTION

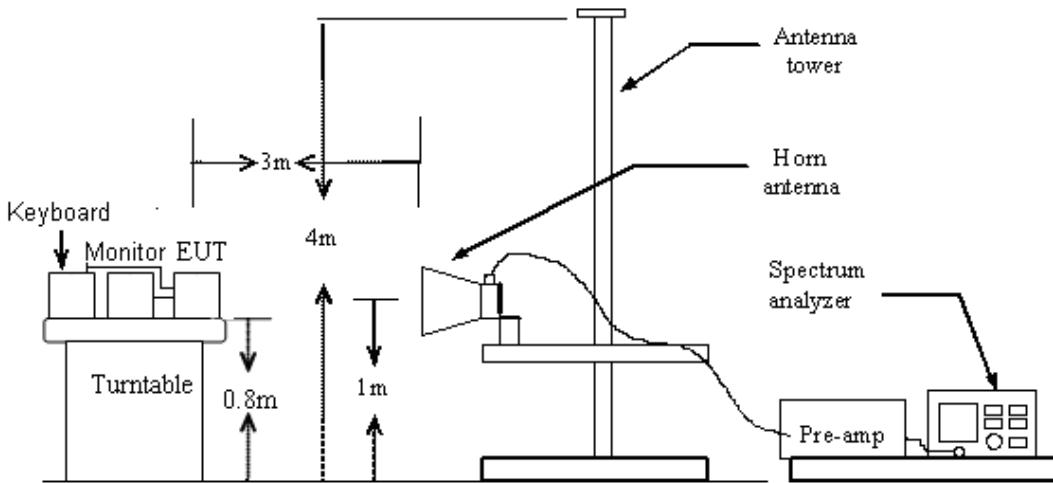
- 1) For radiated emissions from 9kHz to 30MHz



- 2) For radiated emissions from 30MHz to 1GHz



## 3) For radiated emissions above 1GHz

**7.3 Test Procedure:**

1. For frequencies above 1GHz, the frequencies of maximum emission was recorded by manually positioning the antenna close to the EUT and by moving the antenna over all sides of the EUT while observing a spectral display.
2. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
3. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
4. 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.
5. 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 rote table was turned from 0 degrees to 360 degrees to find the maximum reading.

6. For frequencies above 1GHz, horn antenna mouth should face to the EUT all the time when rise or fall.

7. Set the spectrum analyzer in the following setting as:

Below 1GHz: PEAK: RBW=100 kHz / VBW=300 kHz / Sweep=AUTO QP: RBW=120 kHz / Sweep=AUTO

Above 1GHz: (a)PEAK: RBW=VBW=1MHz / Sweep=AUTO

(b)AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

8. 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.

## 7.4 TEST RESULT

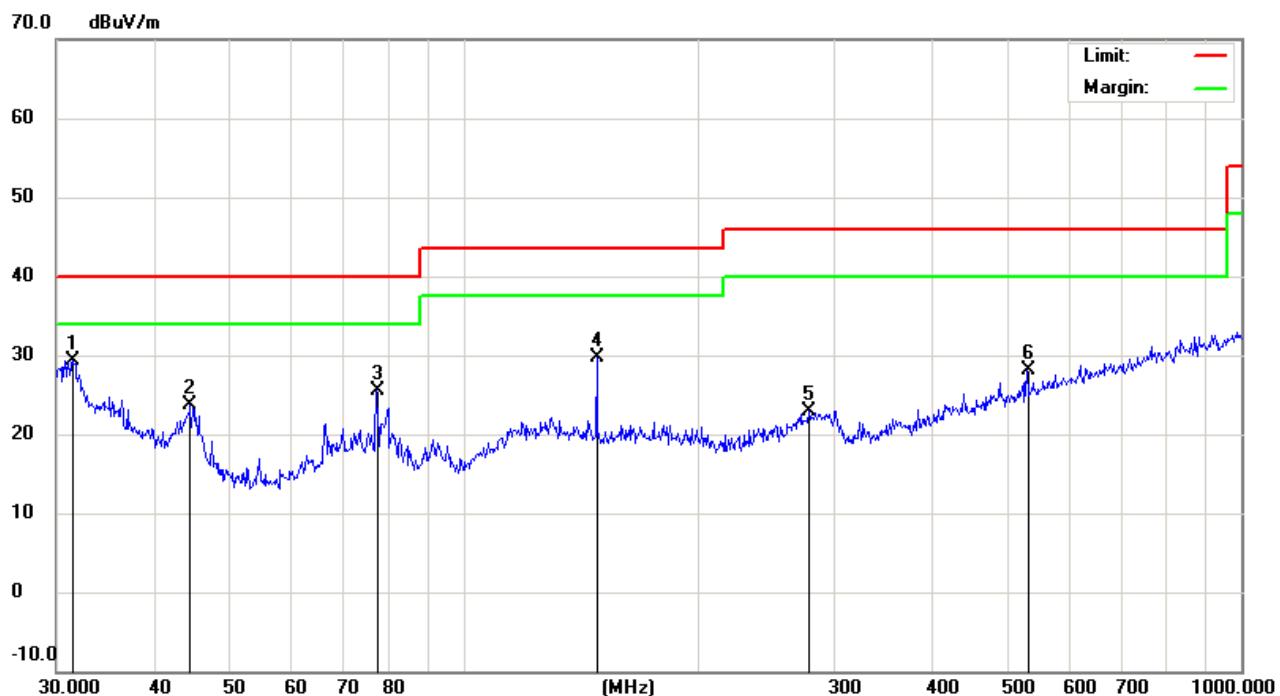
Pass

**Note:**

The test modes were carried out for all operation modes, The worst data was shown as the follow.

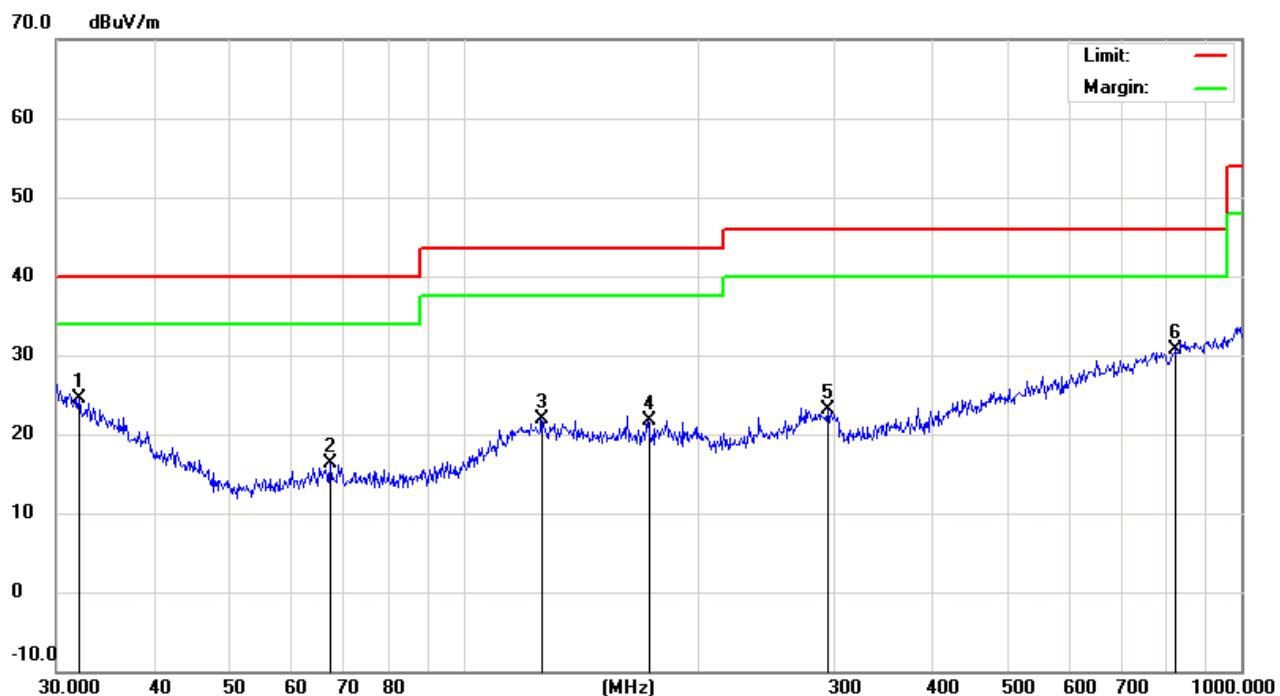
**Below 1GHz**

<b>EUT:</b>	<b>Smartphone</b>	<b>M/N:</b>	<b>SP5540</b>
<b>Mode:</b>	<b>FM+Charging</b>	<b>Polarization:</b>	<b>Vertical</b>
<b>Test by:</b>	<b>John</b>	<b>Power:</b>	<b>DC 5V by Adapter AC 120V/60Hz</b>
<b>Temperature: / Humidity</b>	<b>23.9°C / 51.1%</b>	<b>Test date:</b>	<b>2016-04-21</b>



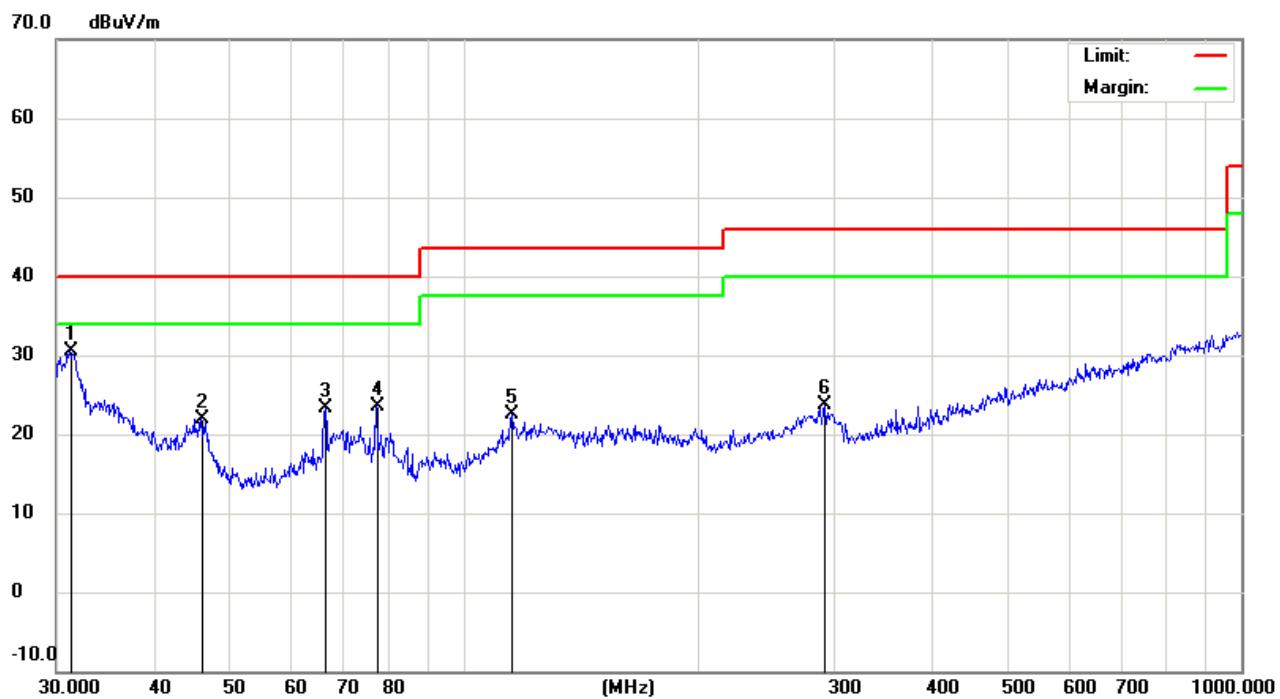
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table			
			Level	Factor	ment							
			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	31.5095	7.19	22.11	29.30	40.00	-10.70	QP				
2		44.5868	10.34	13.39	23.73	40.00	-16.27	QP				
3		77.3212	14.10	11.48	25.58	40.00	-14.42	QP				
4		148.4410	13.10	16.61	29.71	43.50	-13.79	QP				
5		278.0668	3.68	19.30	22.98	46.00	-23.02	QP				
6		530.1014	5.91	22.10	28.01	46.00	-17.99	QP				

<b>EUT:</b>	<b>Smartphone</b>	<b>M/N:</b>	<b>SP5540</b>
<b>Mode:</b>	<b>FM+Charging</b>	<b>Polarization:</b>	<b>Horizontal</b>
<b>Test by:</b>	<b>John</b>	<b>Power:</b>	<b>DC 5V by Adapter AC 120V/60Hz</b>
<b>Temperature: / Humidity</b>	<b>23.9°C / 51.1%</b>	<b>Test date:</b>	<b>2016-04-21</b>



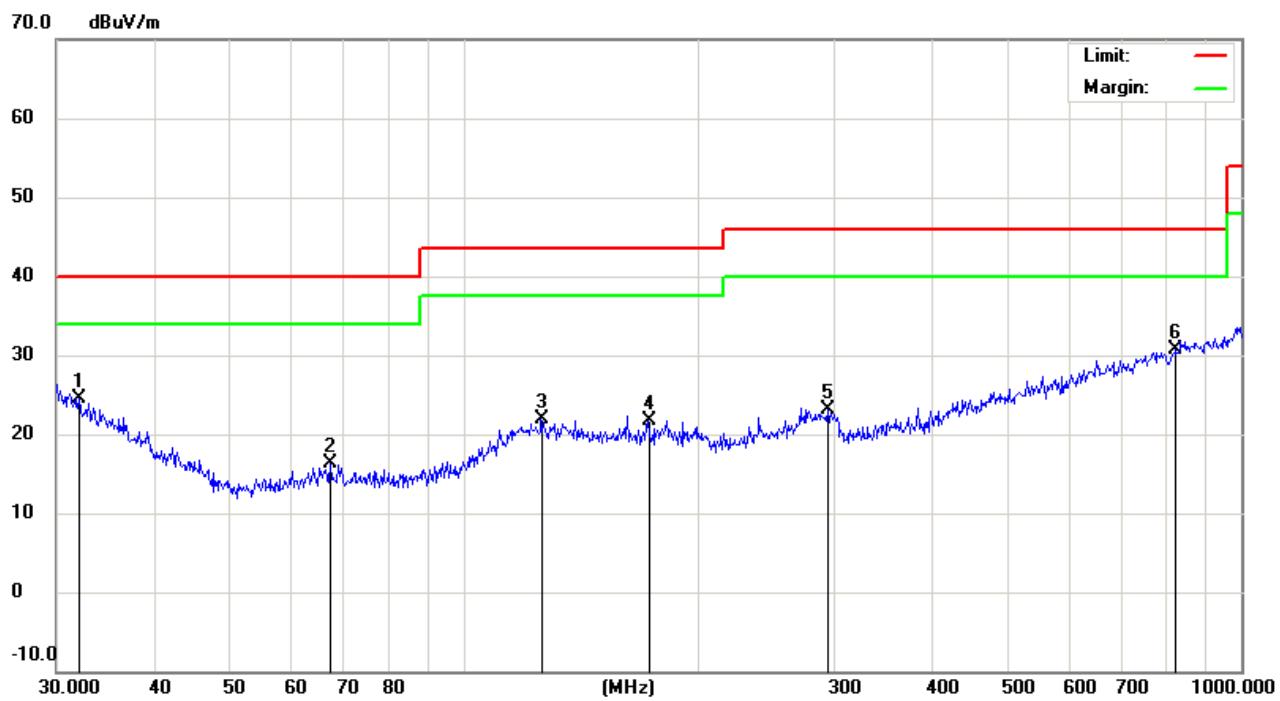
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table		
			Level	Factor	ment					Degree	
			MHz	dBuV	dB	dBuV/m	dBuV/m	Detector	cm	degree	Comment
1		32.0667	3.88	20.69	24.57	40.00	-15.43	QP			
2		67.4382	4.86	11.47	16.33	40.00	-23.67	QP			
3		125.8864	4.34	17.62	21.96	43.50	-21.54	QP			
4		172.5988	4.56	17.07	21.63	43.50	-21.87	QP			
5		294.1137	3.83	19.36	23.19	46.00	-22.81	QP			
6	*	824.5968	4.02	26.73	30.75	46.00	-15.25	QP			

<b>EUT:</b>	<b>Smartphone</b>	<b>M/N:</b>	<b>SP5540</b>
<b>Mode:</b>	<b>GPS+Charging</b>	<b>Polarization:</b>	<b>Vertical</b>
<b>Test by:</b>	<b>John</b>	<b>Power:</b>	<b>DC 5V by Adapter AC 120V/60Hz</b>
<b>Temperature: / Humidity</b>	<b>23.9°C / 51.1%</b>	<b>Test date:</b>	<b>2016-04-21</b>



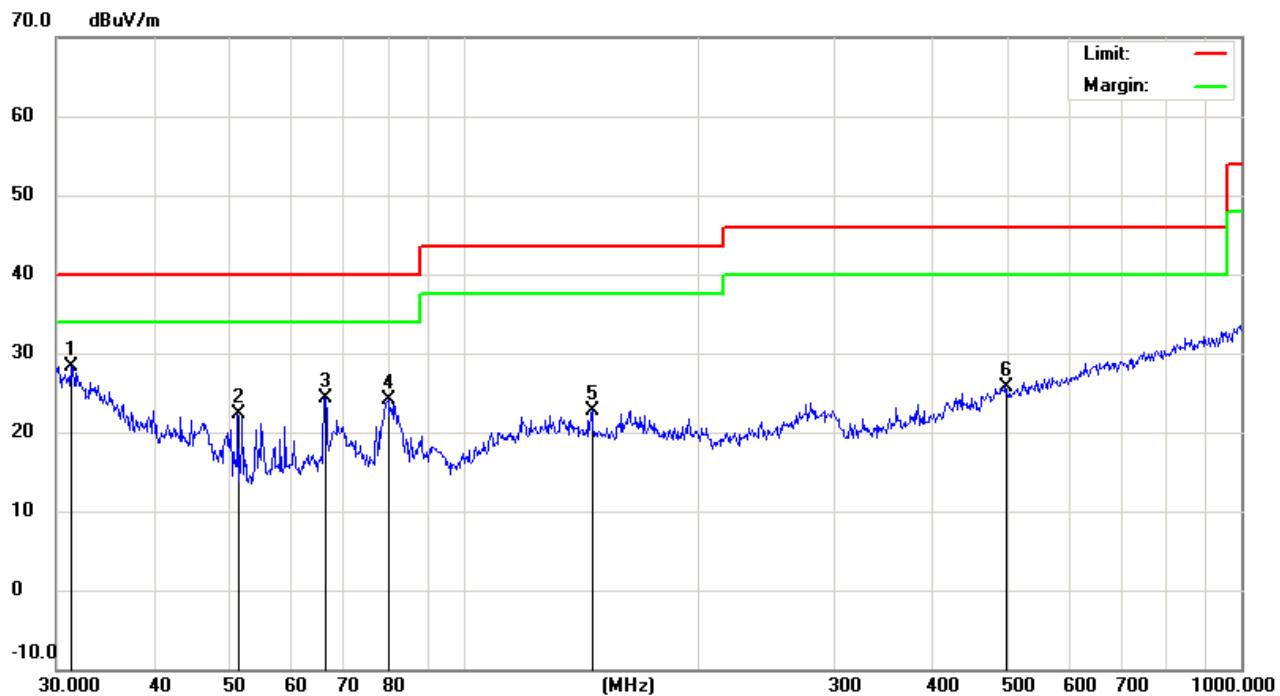
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table		
			Level	Factor	ment						
			MHz	dBuV	dB	dBuV/m	dB	Detector	cm	degree	Comment
1	*	31.1798	8.09	22.35	30.44	40.00	-9.56	QP			
2		46.0164	9.32	12.57	21.89	40.00	-18.11	QP			
3		66.4989	11.92	11.38	23.30	40.00	-16.70	QP			
4		77.3212	12.03	11.48	23.51	40.00	-16.49	QP			
5		115.7256	5.59	16.90	22.49	43.50	-21.01	QP			
6		291.0360	4.31	19.39	23.70	46.00	-22.30	QP			

<b>EUT:</b>	<b>Smartphone</b>	<b>M/N:</b>	<b>SP5540</b>
<b>Mode:</b>	<b>GPS+Charging</b>	<b>Polarization:</b>	<b>Horizontal</b>
<b>Test by:</b>	<b>John</b>	<b>Power:</b>	<b>DC 5V by Adapter AC 120V/60Hz</b>
<b>Temperature: / Humidity</b>	<b>23.9°C / 51.1%</b>	<b>Test date:</b>	<b>2016-04-21</b>



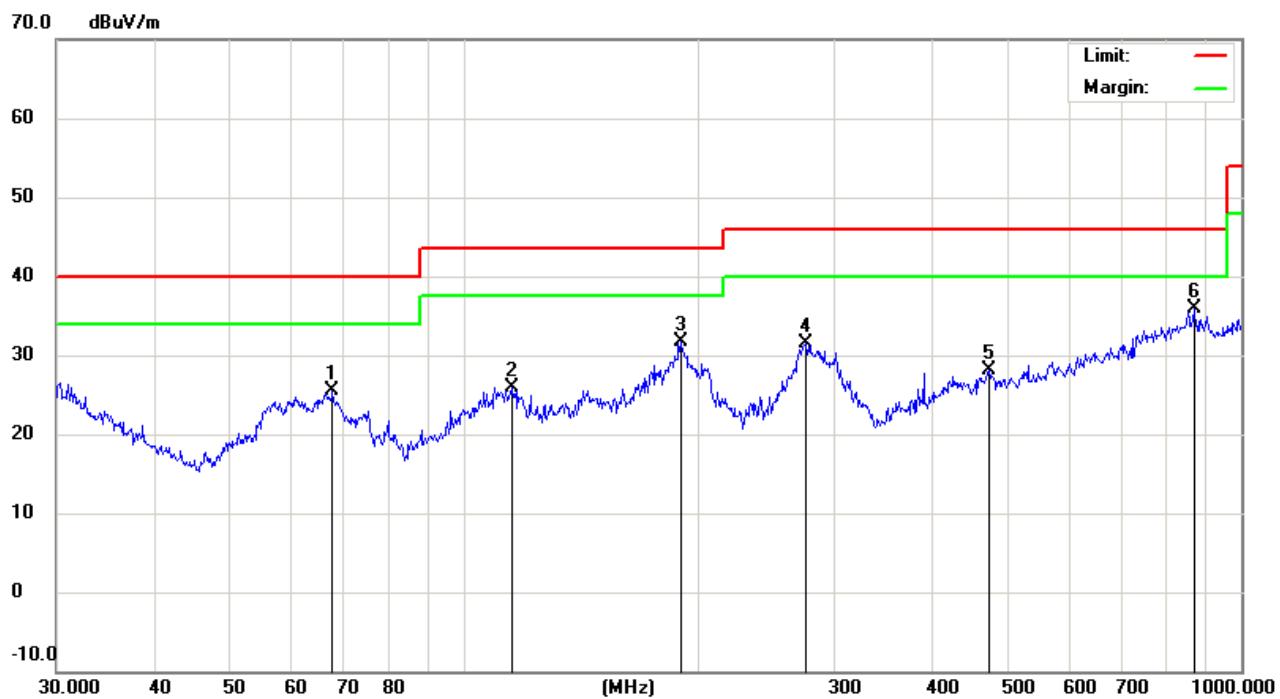
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table		
			Level	Factor	ment						
			MHz	dBuV	dB	dBuV/m	dBuV/m	Detector	cm	degree	Comment
1		32.0667	3.88	20.69	24.57	40.00	-15.43	QP			
2		67.4382	4.86	11.47	16.33	40.00	-23.67	QP			
3		125.8864	4.34	17.62	21.96	43.50	-21.54	QP			
4		172.5988	4.56	17.07	21.63	43.50	-21.87	QP			
5		294.1137	3.83	19.36	23.19	46.00	-22.81	QP			
6	*	824.5968	4.02	26.73	30.75	46.00	-15.25	QP			

EUT:	Smartphone	M/N:	SP5540
Mode:	SD Card playing+Charging	Polarization:	Vertical
Test by:	John	Power:	DC 5V by Adapter AC 120V/60Hz
Temperature: / Humidity	23.9°C/ 51.1%	Test date:	2016-04-21



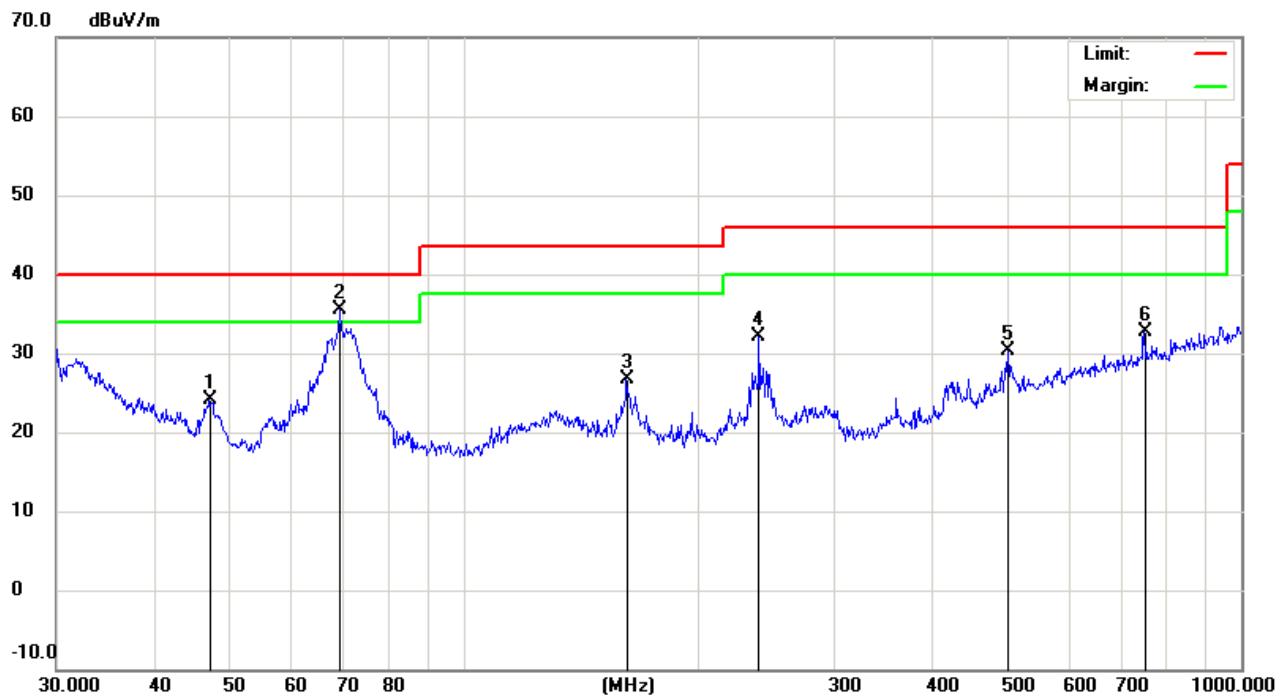
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table		
			Level	Factor	ment						
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	31.2893	6.00	22.27	28.27	40.00	-11.73	QP			
2		51.3005	11.91	10.36	22.27	40.00	-17.73	QP			
3		66.2662	13.01	11.37	24.38	40.00	-15.62	QP			
4		80.0806	12.64	11.40	24.04	40.00	-15.96	QP			
5		146.3735	5.89	16.75	22.64	43.50	-20.86	QP			
6		497.6765	4.33	21.47	25.80	46.00	-20.20	QP			

<b>EUT:</b>	<b>Smartphone</b>	<b>M/N:</b>	<b>SP5540</b>
<b>Mode:</b>	<b>SD Card playing+Charging</b>	<b>Polarization:</b>	<b>Horizontal</b>
<b>Test by:</b>	<b>John</b>	<b>Power:</b>	<b>DC 5V by Adapter AC 120V/60Hz</b>
<b>Temperature: / Humidity</b>	<b>23.9°C / 51.1%</b>	<b>Test date:</b>	<b>2016-04-21</b>



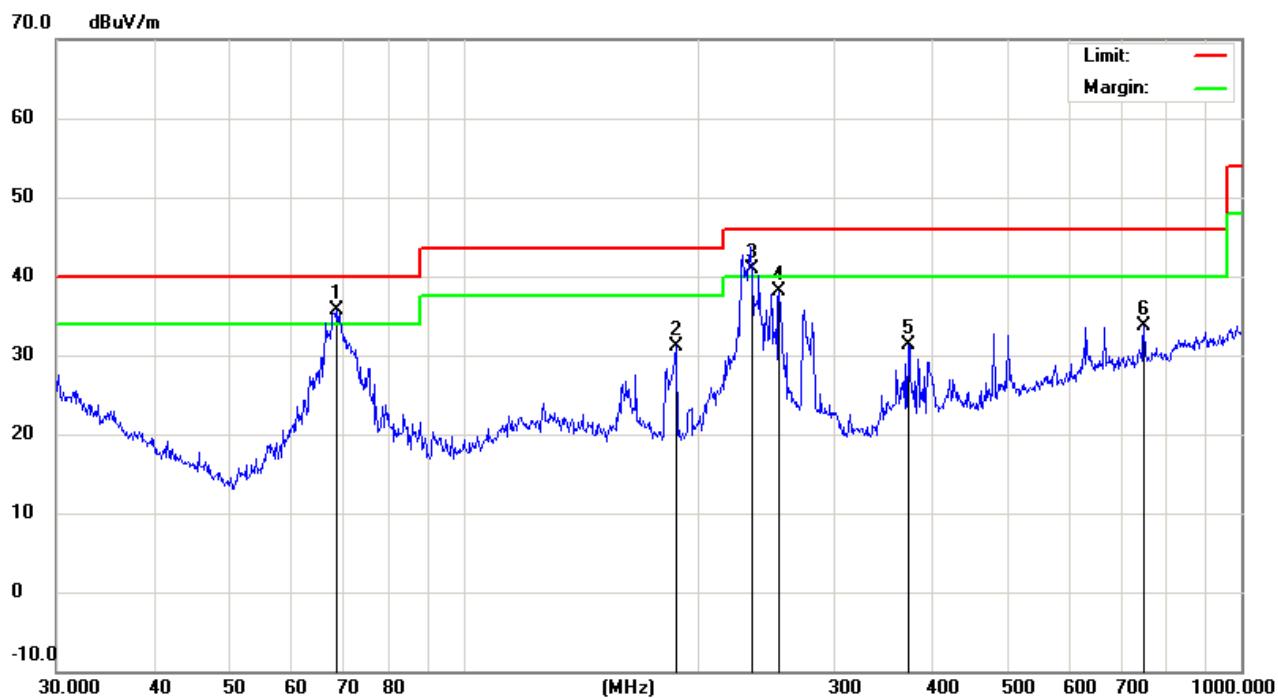
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table		
			Level	Factor	ment					Degree	
			MHz	dBuV	dB	dBuV/m	dBuV/m	Detector	cm	degree	Comment
1		67.9128	13.99	11.51	25.50	40.00	-14.50	QP			
2		115.7256	8.96	16.90	25.86	43.50	-17.64	QP			
3		190.4050	14.98	16.63	31.61	43.50	-11.89	QP			
4		276.1235	12.30	19.21	31.51	46.00	-14.49	QP			
5		473.8346	6.69	21.39	28.08	46.00	-17.92	QP			
6	*	869.1302	8.92	27.00	35.92	46.00	-10.08	QP			

EUT:	Smartphone	M/N:	SP5540
Mode:	Data transmitting	Polarization:	Vertical
Test by:	John	Power:	DC 5V by USB Port
Temperature: / Humidity	23.9°C/ 51.1%	Test date:	2016-04-21



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table		
			Level	Factor	ment						
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		47.1599	12.15	11.92	24.07	40.00	-15.93	QP			
2	*	69.3568	23.89	11.64	35.53	40.00	-4.47	QP			
3		162.0414	9.38	17.28	26.66	43.50	-16.84	QP			
4		239.9873	14.87	17.20	32.07	46.00	-13.93	QP			
5		501.1790	8.83	21.41	30.24	46.00	-15.76	QP			
6		750.1083	6.86	25.80	32.66	46.00	-13.34	QP			

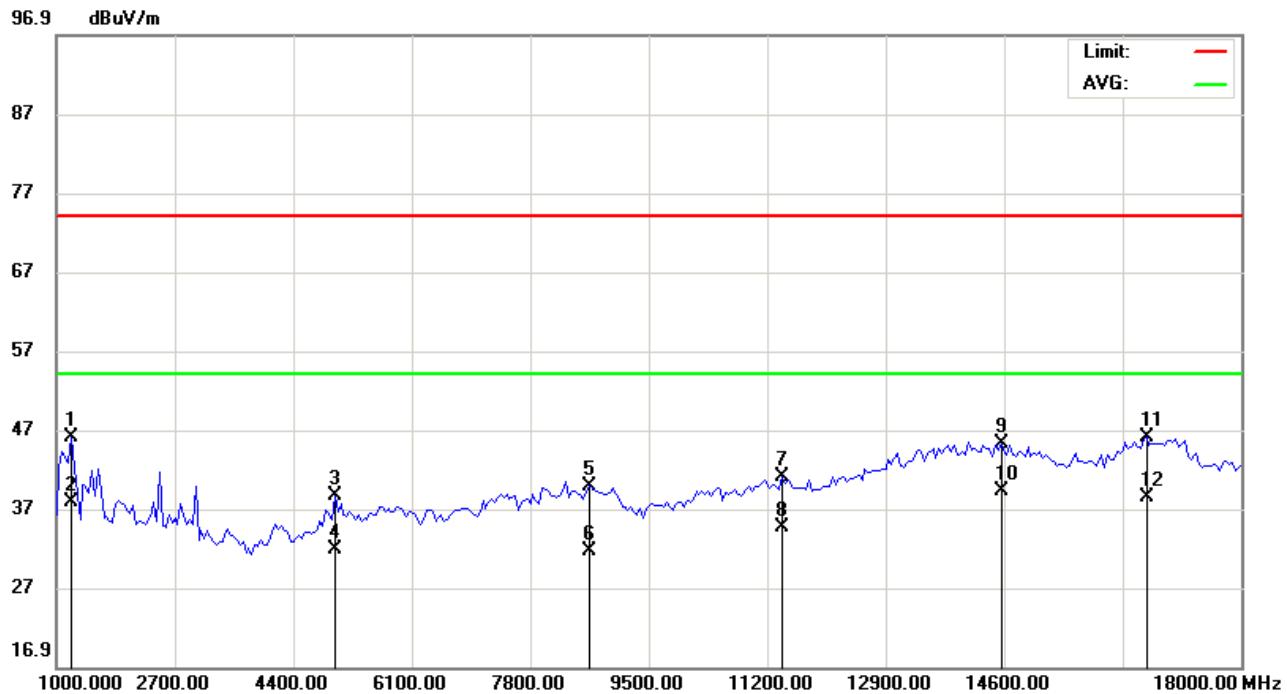
<b>EUT:</b>	<b>Smartphone</b>	<b>M/N:</b>	<b>SP5540</b>
<b>Mode:</b>	<b>Data transmitting</b>	<b>Polarization:</b>	<b>Horizontal</b>
<b>Test by:</b>	<b>John</b>	<b>Power:</b>	<b>DC 5V by USB Port</b>
<b>Temperature: / Humidity</b>	<b>23.9°C / 51.1%</b>	<b>Test date:</b>	<b>2016-04-21</b>



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	68.8721	24.09	11.60	35.69	40.00	-4.31	QP		
2		187.7529	14.56	16.62	31.18	43.50	-12.32	QP		
3	!	234.1684	24.10	16.79	40.89	46.00	-5.11	QP		
4		254.7283	20.64	17.49	38.13	46.00	-7.87	QP		
5		373.3112	13.15	18.16	31.31	46.00	-14.69	QP		
6		750.1082	7.84	25.80	33.64	46.00	-12.36	QP		

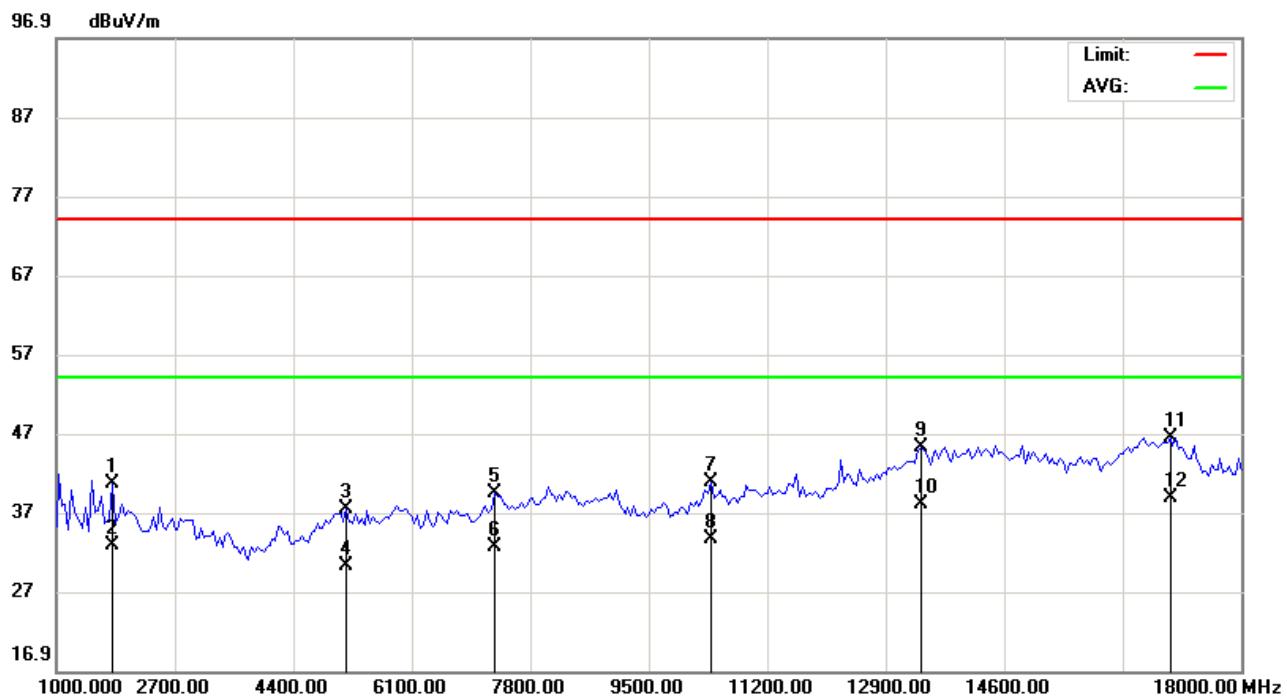
**Above 1GHz**

<b>EUT:</b>	<b>Smartphone</b>	<b>M/N:</b>	<b>SP5540</b>
<b>Mode:</b>	<b>Data transmitting</b>	<b>Polarization:</b>	<b>Horizontal</b>
<b>Test by:</b>	<b>John</b>	<b>Power:</b>	<b>DC 5V by Adapter AC 120V/60Hz</b>
<b>Temperature: / Humidity</b>	<b>23.7°C/ 51.6%</b>	<b>Test date:</b>	<b>2016-04-21</b>



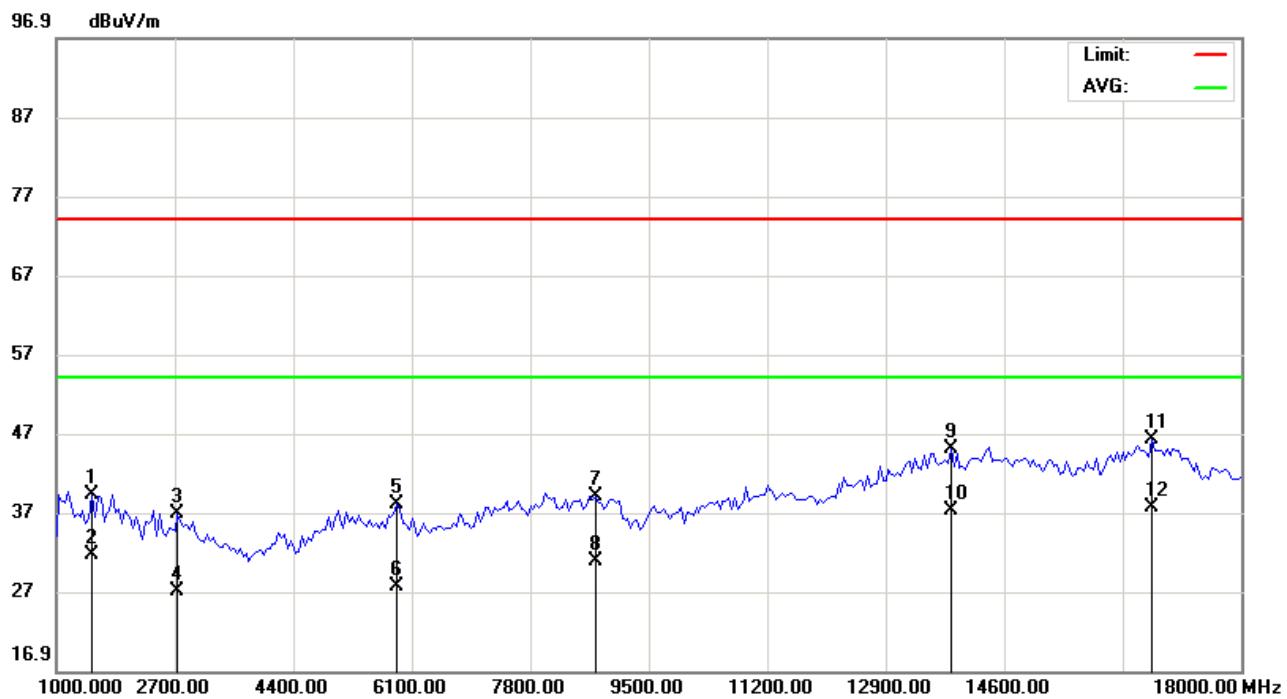
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table
			Level	Factor	ment				
MHz			dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm
1		1212.500	54.63	-8.71	45.92	74.00	-28.08	peak	
2		1212.500	46.53	-8.71	37.82	54.00	-16.18	AVG	
3		4995.000	42.50	-3.85	38.65	74.00	-35.35	peak	
4		4995.000	35.71	-3.85	31.86	54.00	-22.14	AVG	
5		8650.000	40.58	-0.84	39.74	74.00	-34.26	peak	
6		8650.000	32.46	-0.84	31.62	54.00	-22.38	AVG	
7		11412.50	41.83	-0.92	40.91	74.00	-33.09	peak	
8		11412.50	35.43	-0.92	34.51	54.00	-19.49	AVG	
9		14557.50	41.21	4.02	45.23	74.00	-28.77	peak	
10	*	14557.50	35.10	4.02	39.12	54.00	-14.88	AVG	
11		16640.00	40.33	5.73	46.06	74.00	-27.94	peak	
12		16640.00	32.76	5.73	38.49	54.00	-15.51	AVG	

<b>EUT:</b>	<b>Smartphone</b>	<b>M/N:</b>	<b>SP5540</b>
<b>Mode:</b>	<b>Data transmitting</b>	<b>Polarization:</b>	<b>Horizontal</b>
<b>Test by:</b>	<b>John</b>	<b>Power:</b>	<b>DC 5V by Adapter AC 120V/60Hz</b>
<b>Temperature: / Humidity</b>	<b>23.7°C/ 51.6%</b>	<b>Test date:</b>	<b>2016-04-21</b>



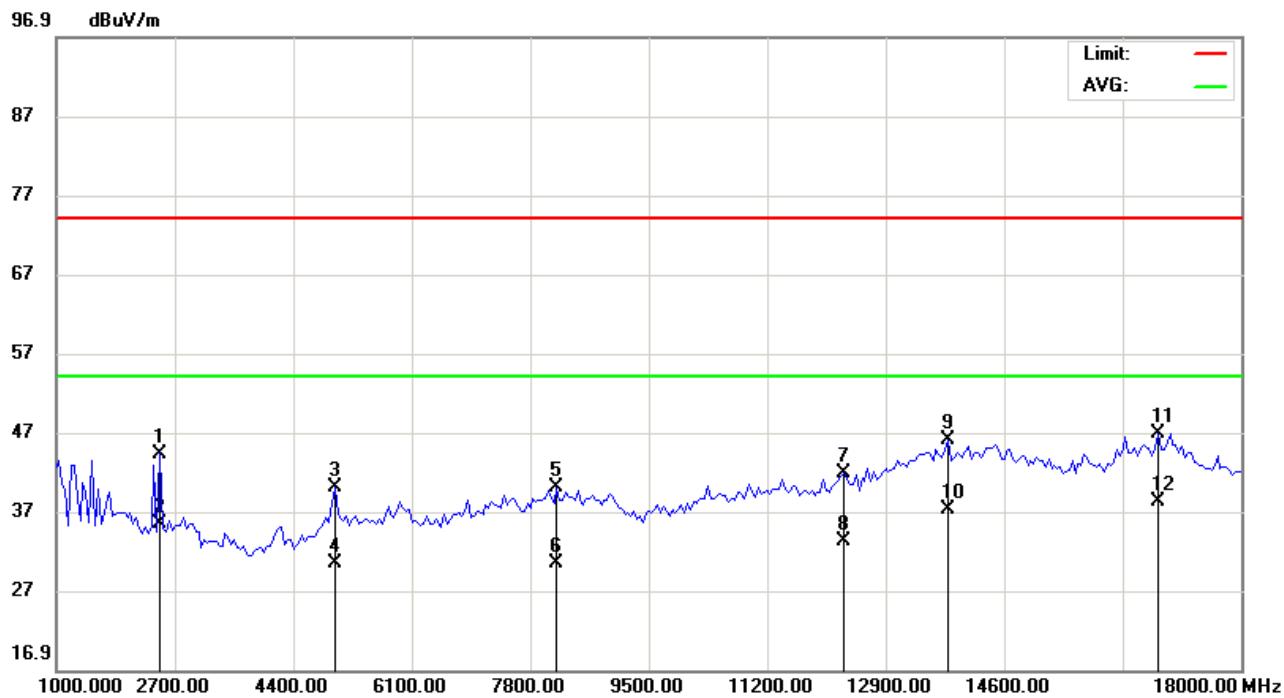
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table		
			Level	Factor	ment					Comment	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	
1		1807.500	48.09	-7.53	40.56	74.00	-33.44	peak			
2		1807.500	40.43	-7.53	32.90	54.00	-21.10	AVG			
3		5165.000	41.87	-4.37	37.50	74.00	-36.50	peak			
4		5165.000	34.61	-4.37	30.24	54.00	-23.76	AVG			
5		7290.000	42.38	-3.04	39.34	74.00	-34.66	peak			
6		7290.000	35.71	-3.04	32.67	54.00	-21.33	AVG			
7		10392.50	42.43	-1.68	40.75	74.00	-33.25	peak			
8		10392.50	35.26	-1.68	33.58	54.00	-20.42	AVG			
9		13410.00	41.90	3.29	45.19	74.00	-28.81	peak			
10		13410.00	34.81	3.29	38.10	54.00	-15.90	AVG			
11		16980.00	39.56	6.86	46.42	74.00	-27.58	peak			
12 *		16980.00	31.94	6.86	38.80	54.00	-15.20	AVG			

<b>EUT:</b>	Smartphone	<b>M/N:</b>	SP5540
<b>Mode:</b>	GPS+charging	<b>Polarization:</b>	Vertical
<b>Test by:</b>	John	<b>Power:</b>	DC 5V by Adapter AC 120V/60Hz
<b>Temperature: / Humidity</b>	23.7°C/ 51.6%	<b>Test date:</b>	2016-04-21



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table		
			Level	Factor	ment					Comment	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	
1		1510.000	47.69	-8.42	39.27	74.00	-34.73	peak			
2		1510.000	40.03	-8.42	31.61	54.00	-22.39	AVG			
3		2742.500	45.01	-8.23	36.78	74.00	-37.22	peak			
4		2742.500	35.16	-8.23	26.93	54.00	-27.07	AVG			
5		5887.500	40.91	-2.92	37.99	74.00	-36.01	peak			
6		5887.500	30.46	-2.92	27.54	54.00	-26.46	AVG			
7		8735.000	40.15	-1.08	39.07	74.00	-34.93	peak			
8		8735.000	31.86	-1.08	30.78	54.00	-23.22	AVG			
9		13835.00	41.51	3.46	44.97	74.00	-29.03	peak			
10		13835.00	33.71	3.46	37.17	54.00	-16.83	AVG			
11		16725.00	40.14	6.02	46.16	74.00	-27.84	peak			
12 *		16725.00	31.61	6.02	37.63	54.00	-16.37	AVG			

<b>EUT:</b>	<b>Smartphone</b>	<b>M/N:</b>	<b>SP5540</b>
<b>Mode:</b>	<b>GPS+Charging</b>	<b>Polarization:</b>	<b>Vertical</b>
<b>Test by:</b>	<b>John</b>	<b>Power:</b>	<b>DC 5V by Adapter AC 120V/60Hz</b>
<b>Temperature: / Humidity</b>	<b>23.7°C / 51.6%</b>	<b>Test date:</b>	<b>2016-04-21</b>



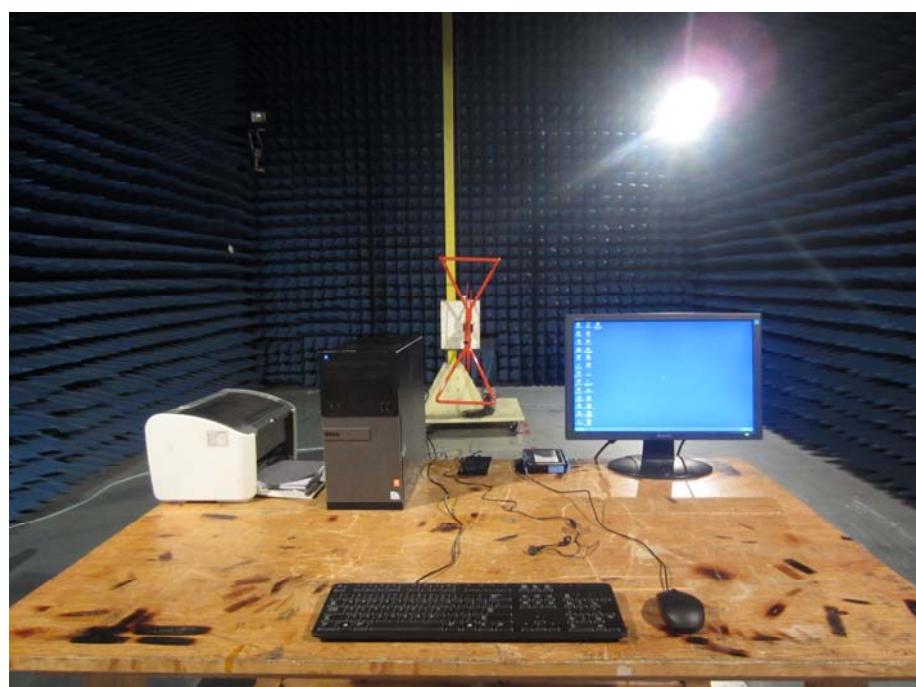
No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table		
			Level	Factor	ment			Height	Degree		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		2487.500	52.59	-8.29	44.30	74.00	-29.70	peak			
2		2487.500	43.61	-8.29	35.32	54.00	-18.68	AVG			
3		4995.000	43.84	-3.85	39.99	74.00	-34.01	peak			
4		4995.000	34.16	-3.85	30.31	54.00	-23.69	AVG			
5		8182.500	40.81	-0.72	40.09	74.00	-33.91	peak			
6		8182.500	31.06	-0.72	30.34	54.00	-23.66	AVG			
7		12305.00	41.29	0.61	41.90	74.00	-32.10	peak			
8		12305.00	32.64	0.61	33.25	54.00	-20.75	AVG			
9		13792.50	42.52	3.45	45.97	74.00	-28.03	peak			
10		13792.50	33.76	3.45	37.21	54.00	-16.79	AVG			
11		16810.00	40.50	6.30	46.80	74.00	-27.20	peak			
12	*	16810.00	31.83	6.30	38.13	54.00	-15.87	AVG			

**APPENDIX 1**  
**PHOTOGRAPHS OF TEST SETUP**

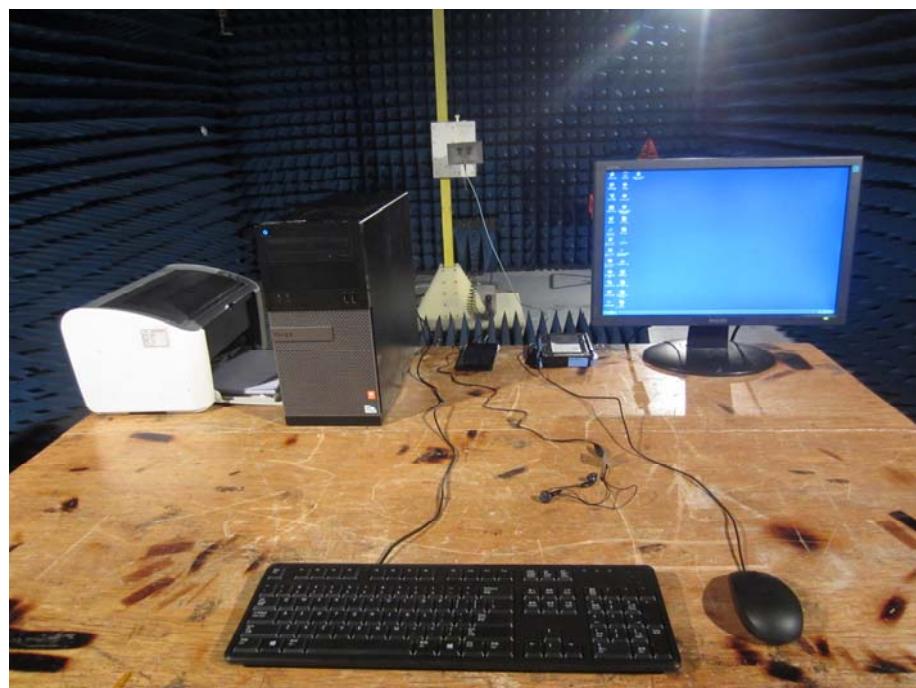
CE TEST SETUP



RE TEST SETUP



RE TEST SETUP



-----END OF REPORT-----