



FCC RADIO TEST REPORT

FCC ID:2AHHH-GP70020

Product : Android POS

Trade Name : Pintron

Model Name : GP7002

Serial Model : N/A

Report No. : NTEK-2015NT12113414F3

Prepared for

Pintron Company Limited

RM 1302, 13/F, Building A3, LeeLang Software Park, No.31,Rd.BuLan,
LongGang District,City ShenZhen,518112,P.R. C.

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.

1/F, Building E, Fenda Science Park, Sanwei Community,Xixiang Street
Bao'an District, Shenzhen P.R. China

Tel.: +86-0755-61156588 Fax.: +86-0755-61156599

Website:www.ntek.org.cn

TEST RESULT CERTIFICATION

Applicant's name : Pintron Company Limited
Address : RM 1302, 13/F, Building A3, LeeLang Software Park, No.31,Rd.
BuLan,LongGang District,City ShenZhen,518112,P.R. C.
Manufacture's Name..... : Pintron Company Limited
Address : RM 1302, 13/F, Building A3, LeeLang Software Park, No.31,Rd.
BuLan,LongGang District,City ShenZhen,518112,P.R. C.

Product description

Product name : Android POS
Model and/or type reference : GP7002
Serial Model : N/A

Standards : FCC Part15.225:01 Oct. 2015

Test procedure ANSI C63.10-2013

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

This report shall not be reproduced except in full, without the written approval of NTEK, this document may be altered or revised by NTEK, personnel only, and shall be noted in the revision of the document.

Date of Test :

Date (s) of performance of tests : 11 Dec. 2015 ~28 Jan. 2016

Date of Issue..... : 28 Jan. 2016

Test Result..... : **Pass**

Testing Engineer :

Eileen Liu.

(Eileen Liu)

Technical Manager :

Brown Lu

(Brown Lu)

Authorized Signatory :

Sam. Chen

(Sam Chen)

Table of Contents	Page
1 . SUMMARY OF TEST RESULTS	4
1.1 TEST FACILITY	5
1.2 MEASUREMENT UNCERTAINTY	5
2 . GENERAL INFORMATION	6
2.1 GENERAL DESCRIPTION OF EUT	6
2.2 DESCRIPTION OF TEST MODES	7
2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	8
2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)	9
2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS	10
3 . ANTENNA REQUIREMENT	11
3.1 STANDARD REQUIREMENT	11
3.2 EUT ANTENNA	11
4 . EMC EMISSION TEST	12
4.1 CONDUCTED EMISSION MEASUREMENT	12
4.1.1 POWER LINE CONDUCTED EMISSION LIMITS	12
4.1.2 TEST PROCEDURE	13
4.1.3 DEVIATION FROM TEST STANDARD	13
4.1.4 TEST SETUP	13
4.2 RADIATED EMISSION MEASUREMENT	22
4.2.1 RADIATED EMISSION LIMITS	22
4.2.2 TEST PROCEDURE	23
4.2.3 DEVIATION FROM TEST STANDARD	23
4.2.4 TEST SETUP	24
4.2.5 TEST RESULTS (BELOW 30MHZ)	25
4.2.6 TEST RESULTS (BETWEEN 30 – 1000 MHZ)	27
5 . BANDWIDTH TEST	29
5.1 TEST PROCEDURE	29
5.2 DEVIATION FROM STANDARD	29
5.3 TEST SETUP	29
5.4 TEST RESULTS	30
6. FREQUENCY TOLERANCE	31
7. EUT TEST PHOTO	33
APPENDIX-PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS	

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15, Subpart C (15.231)			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	Pass	
15.205(a) 15.209 15.225	Radiated Spurious Emission	Pass	
15.225	20dB Bandwidth	Pass	
15.225	Frequency Tolerance	Pass	
15.203	Antenna Requirement	Pass	

NOTE:

(1) " N/A" denotes test is not applicable in this Test Report.

1.1 TEST FACILITY

NTEK Testing Technology Co., Ltd

Add. : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.

FCC Registration No.:238937; IC Registration No.:9270A-1

CNAS Registration No.:L5516

1.2 MEASUREMENT UNCERTAINTY

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

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 1.38\text{dB}$
2	RF power,conducted	$\pm 0.16\text{dB}$
3	Spurious emissions,conducted	$\pm 0.21\text{dB}$
4	All emissions,radiated(<1G)	$\pm 4.68\text{dB}$
5	All emissions,radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^{\circ}\text{C}$
7	Humidity	$\pm 2\%$

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Android POS	
Trade Name	Pintron	
Model Name	GP7002	
Serial Model	N/A	
Model Difference	N/A	
Product Description	The EUT is a Android POS	
	Operation Frequency:	13.56MHz
	Modulation Type:	ASK
	Number Of Channel	1CH.
	Antenna Designation:	FPCB Antenna
	Antenna Gain(Peak)	1.0 dBi
Adapter	Model:YN36W-0900300UW Input: AC100-240V~, 50/60Hz,1.0A Output: 9V---, 3A	
Battery	DC 7.4V,4000mAh	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.

Table for Filed Antenna

Ant	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	N/A	N/A	FPCB Antenna	N/A	1.0	Antenna

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

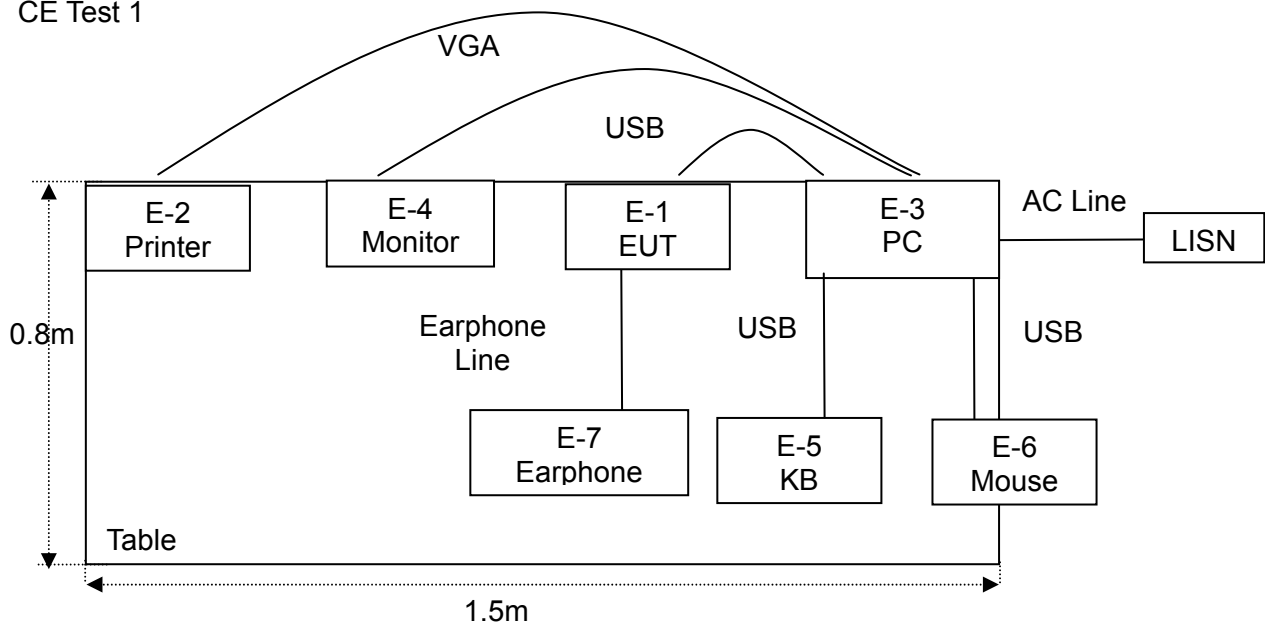
Pretest Mode	Description
Mode 1	TX

For Conducted Emission	
Final Test Mode	Description
Mode 1	TX

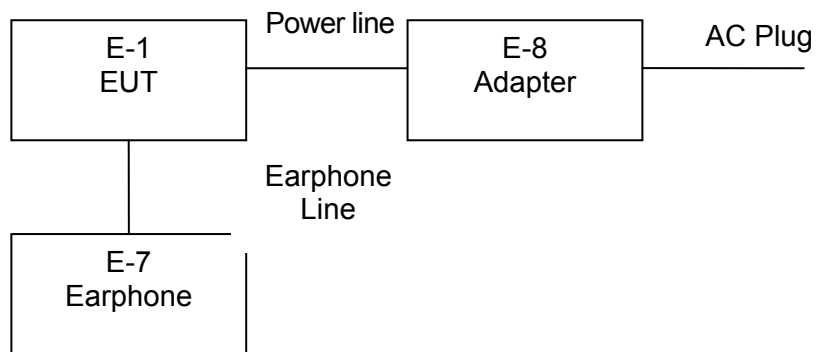
For Radiated Emission	
Final Test Mode	Description
Mode 1	TX

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

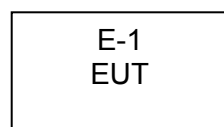
CE Test 1



CE Test 2



Radiated Spurious Emission Test



2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Brand	Model/Type No.	Series No.	Note
E-1	Android POS	Pintron	GP7002	N/A	
E-2	Printer	Canon	L11121E	LBP2900	
E-3	Personal computer	DELL	FT4Y23X	34413561645	
E-4	Monitor	DELL	IN2020MB	cn-0y6mhx-74261-11f-67es	
E-5	Keyboard	DELL	SK-8185	OY526KUS	
E-6	Mouse	DELL	MS111-P	cn-011d3v-71581-11e-1th7	
E-7	Earphone	N/A	2688	N/A	
E-8	Adapter	N/A	YN36W-0900300UW	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
USB	NO	NO	1.2m	
USB	NO	NO	1.0m	
USB	NO	NO	1.0m	
USB	NO	NO	1.0m	
VGA	NO	NO	1.0m	
Earphone Line	NO	NO	1.0m	
Power line	NO	YES	1.2m	

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY45108040	2015.07.06	2016.07.05	1 year
2	Test Receiver	R&S	ESPI	101318	2015.06.07	2016.06.06	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2015.07.06	2016.07.05	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2015.06.07	2016.06.06	1 year
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	2015.06.07	2016.06.06	1 year
6	Horn Antenna	EM	EM-AH-10180	2011071402	2015.07.06	2016.07.05	1 year
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2015.07.06	2016.07.05	1 year
8	Amplifier	EM	EM-30180	060538	2015.12.22	2016.12.21	1 year
9	Loop Antenna	ARA	PLA-1030/B	1029	2015.06.08	2016.06.07	1 year
10	Power Meter	R&S	NRVS	100696	2015.07.06	2016.07.05	1 year
11	Power Sensor	R&S	URV5-Z4	0395.1619.05	2015.07.06	2016.07.05	1 year

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2015.06.06	2016.06.05	1 year
2	LISN	R&S	ENV216	101313	2015.08.24	2016.08.23	1 year
3	LISN	EMCO	3816/2	00042990	2015.08.24	2016.08.23	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2015.06.07	2016.06.06	1 year
5	Passive Voltage Probe	R&S	ESH2-Z3	100196	2015.06.07	2016.06.06	1 year
6	Absorbing clamp	R&S	MOS-21	100423	2015.06.08	2016.06.07	1 year

3. ANTENNA REQUIREMENT

3.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: 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.

3.2 EUT ANTENNA

The EUT antenna is permanent attached antenna. It comply with the standard requirement.

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5			66 - 56 *	56 - 46 *	CISPR
0.50 -5.0			56.00	46.00	CISPR
5.0 -30.0			60.00	50.00	CISPR

0.15 -0.5			66 - 56 *	56 - 46 *	LP002.
0.50 -5.0			56.00	46.00	LP002.
5.0 -30.0			60.00	50.00	LP002.

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

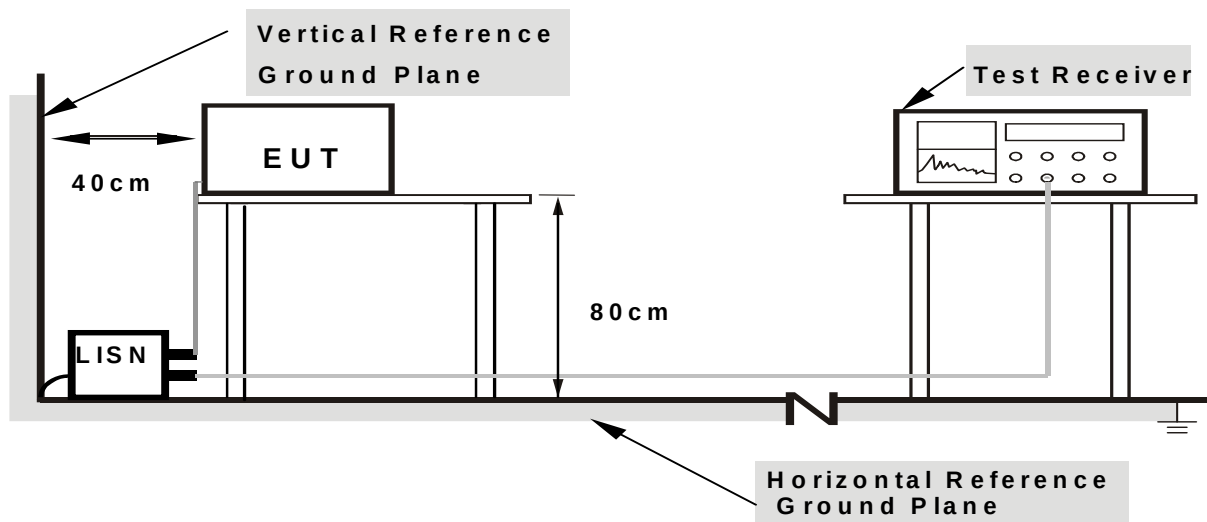
4.1.2 TEST PROCEDURE

- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

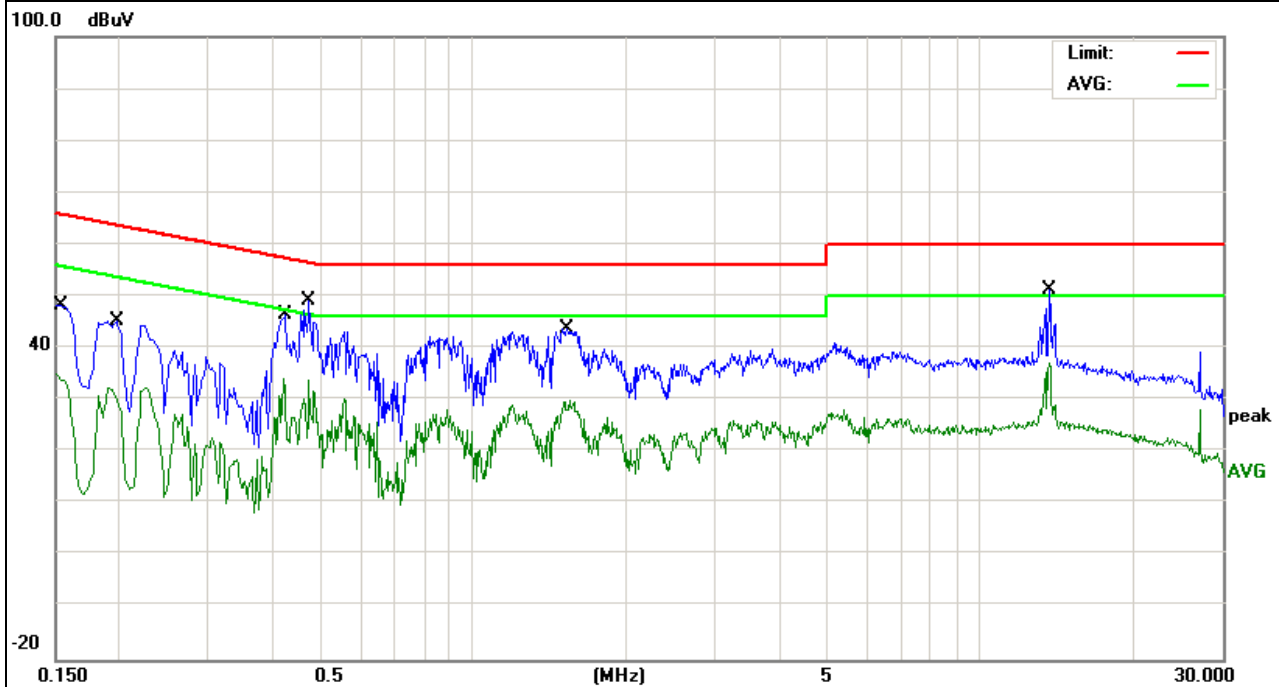
4.1.5 TEST RESULT

EUT :	Android POS	Model Name :	GP7002
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 9V from adapter AC 120V/60Hz	Test Mode :	Mode 1

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1539	38.03	10.12	48.15	65.78	-17.63	QP
0.1539	25.02	10.12	35.14	55.78	-20.64	AVG
0.1980	35.23	10.13	45.36	63.69	-18.33	QP
0.1980	22.33	10.13	32.46	53.69	-21.23	AVG
0.4259	36.52	9.98	46.50	57.33	-10.83	QP
0.4259	24.21	9.98	34.19	47.33	-13.14	AVG
0.4737	39.22	9.86	49.08	56.45	-7.37	QP
0.4737	23.95	9.86	33.81	46.45	-12.64	AVG
1.5300	34.02	9.79	43.81	56.00	-12.19	QP
1.5300	20.09	9.79	29.88	46.00	-16.12	AVG
13.6339	41.49	9.84	51.33	60.00	-8.67	QP
13.6339	27.35	9.84	37.19	50.00	-12.81	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

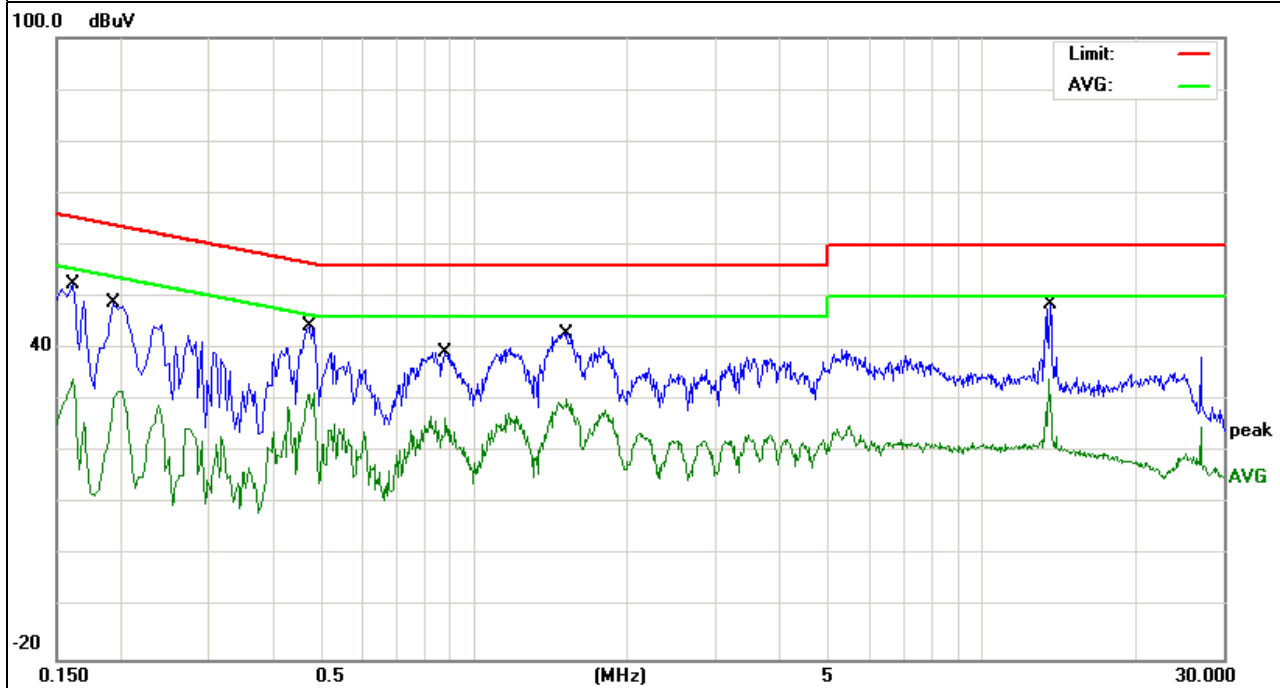


EUT :	Android POS	Model Name :	GP7002
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 9V from adapter AC 120V/60Hz	Test Mode :	Mode 1

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1620	42.53	10.07	52.60	65.36	-12.76	QP
0.1620	24.10	10.07	34.17	55.36	-21.19	AVG
0.1940	38.94	10.03	48.97	63.86	-14.89	QP
0.1940	21.67	10.03	31.70	53.86	-22.16	AVG
0.4737	34.40	9.88	44.28	56.45	-12.17	QP
0.4737	21.62	9.88	31.50	46.45	-14.95	AVG
0.8739	29.49	9.84	39.33	56.00	-16.67	QP
0.8739	17.02	9.84	26.86	46.00	-19.14	AVG
1.5260	33.06	9.81	42.87	56.00	-13.13	QP
1.5260	20.33	9.81	30.14	46.00	-15.86	AVG
13.6379	38.66	9.79	48.45	60.00	-11.55	QP
13.6379	24.31	9.79	34.10	50.00	-15.90	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

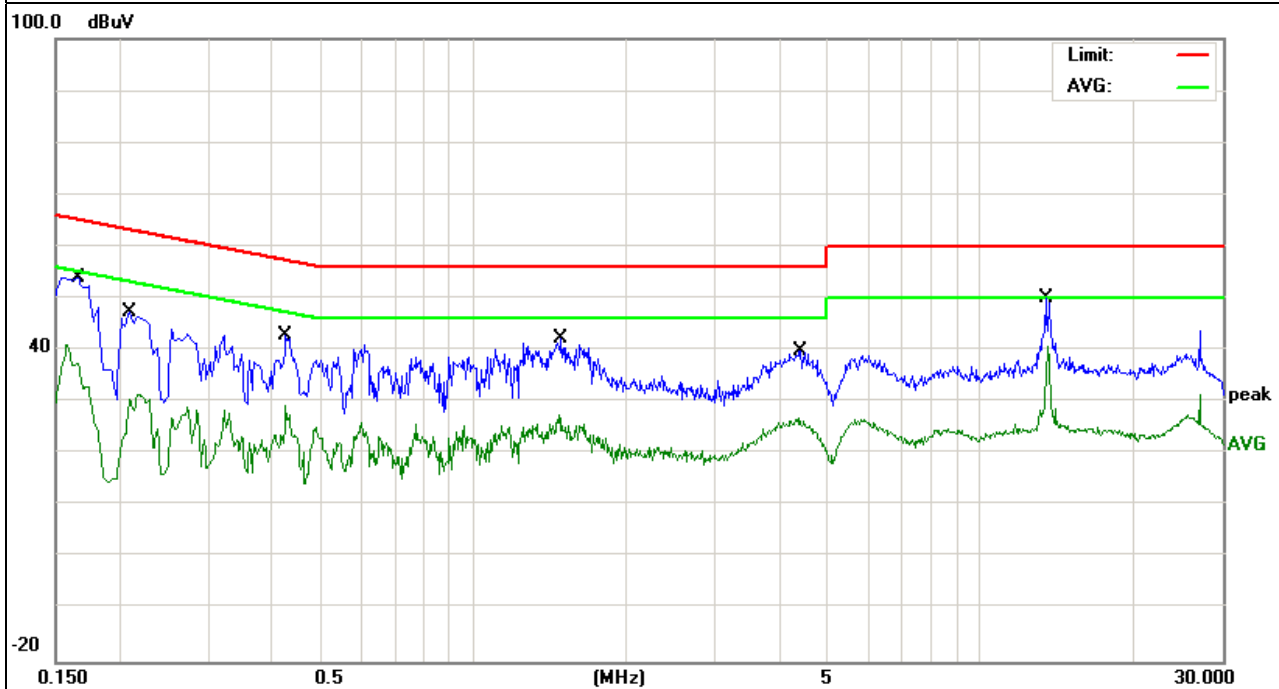


EUT :	Android POS	Model Name :	GP7002
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 9V from adapter AC 240V/60Hz	Test Mode :	Mode 1

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1660	43.89	10.12	54.01	65.15	-11.14	QP
0.1660	31.03	10.12	41.15	55.15	-14.00	AVG
0.2099	37.25	10.13	47.38	63.21	-15.83	QP
0.2099	21.45	10.13	31.58	53.21	-21.63	AVG
0.4259	32.78	9.98	42.76	57.33	-14.57	QP
0.4259	19.42	9.98	29.40	47.33	-17.93	AVG
1.4939	32.40	9.79	42.19	56.00	-13.81	QP
1.4939	17.81	9.79	27.60	46.00	-18.40	AVG
4.4179	30.15	9.75	39.90	56.00	-16.10	QP
4.4179	17.10	9.75	26.85	46.00	-19.15	AVG
13.5579	40.17	9.84	50.01	60.00	-9.99	QP
13.5579	30.90	9.84	40.74	50.00	-9.26	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

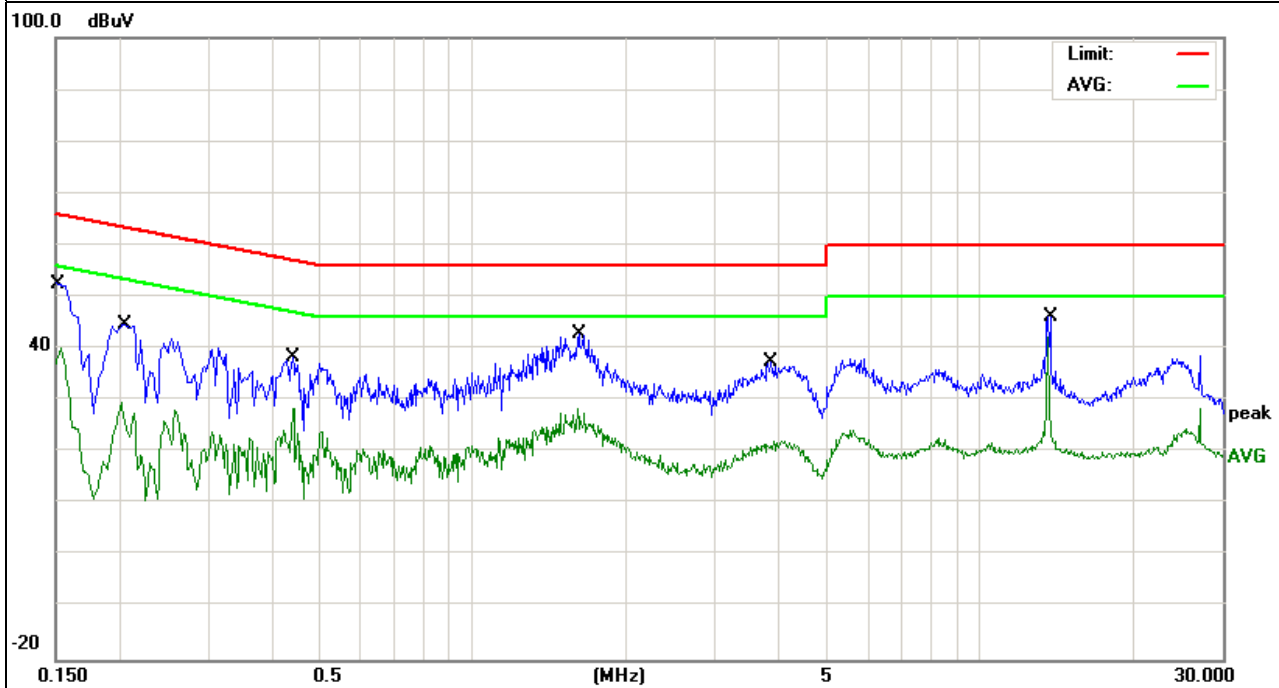


EUT :	Android POS	Model Name :	GP7002
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 9V from adapter AC 240V/60Hz	Test Mode :	Mode 1

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1539	42.64	10.08	52.72	65.78	-13.06	QP
0.1539	30.05	10.08	40.13	55.78	-15.65	AVG
0.2059	34.55	10.03	44.58	63.37	-18.79	QP
0.2059	19.75	10.03	29.78	53.37	-23.59	AVG
0.4420	28.29	9.95	38.24	57.02	-18.78	QP
0.4420	18.62	9.95	28.57	47.02	-18.45	AVG
1.6180	33.09	9.80	42.89	56.00	-13.11	QP
1.6180	18.51	9.80	28.31	46.00	-17.69	AVG
3.8620	27.71	9.72	37.43	56.00	-18.57	QP
3.8620	12.46	9.72	22.18	46.00	-23.82	AVG
13.5618	36.25	9.79	46.04	60.00	-13.96	QP
13.5618	32.32	9.79	42.11	50.00	-7.89	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

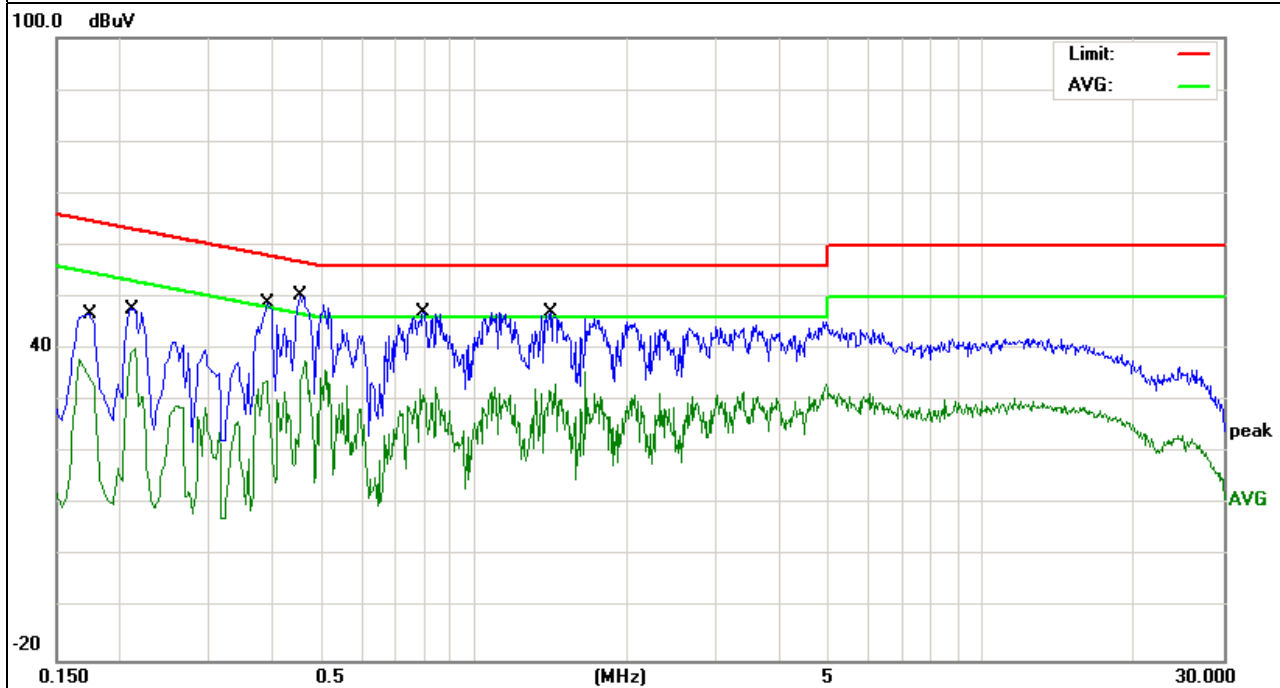


EUT :	Android POS	Model Name :	GP7002
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5.0V from PC AC 120V/60Hz	Test Mode :	Mode 1

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1739	36.78	10.12	46.90	64.77	-17.87	QP
0.1739	27.83	10.12	37.95	54.77	-16.82	AVG
0.2139	37.67	10.13	47.80	63.05	-15.25	QP
0.2139	29.98	10.13	40.11	53.05	-12.94	AVG
0.3899	38.79	10.05	48.84	58.06	-9.22	QP
0.3899	23.78	10.05	33.83	48.06	-14.23	AVG
0.4540	40.29	9.91	50.20	56.80	-6.60	QP
0.4540	27.84	9.91	37.75	46.80	-9.05	AVG
0.7940	37.19	9.80	46.99	56.00	-9.01	QP
0.7940	22.75	9.80	32.55	46.00	-13.45	AVG
1.4179	37.14	9.80	46.94	56.00	-9.06	QP
1.4179	25.89	9.80	35.69	46.00	-10.31	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

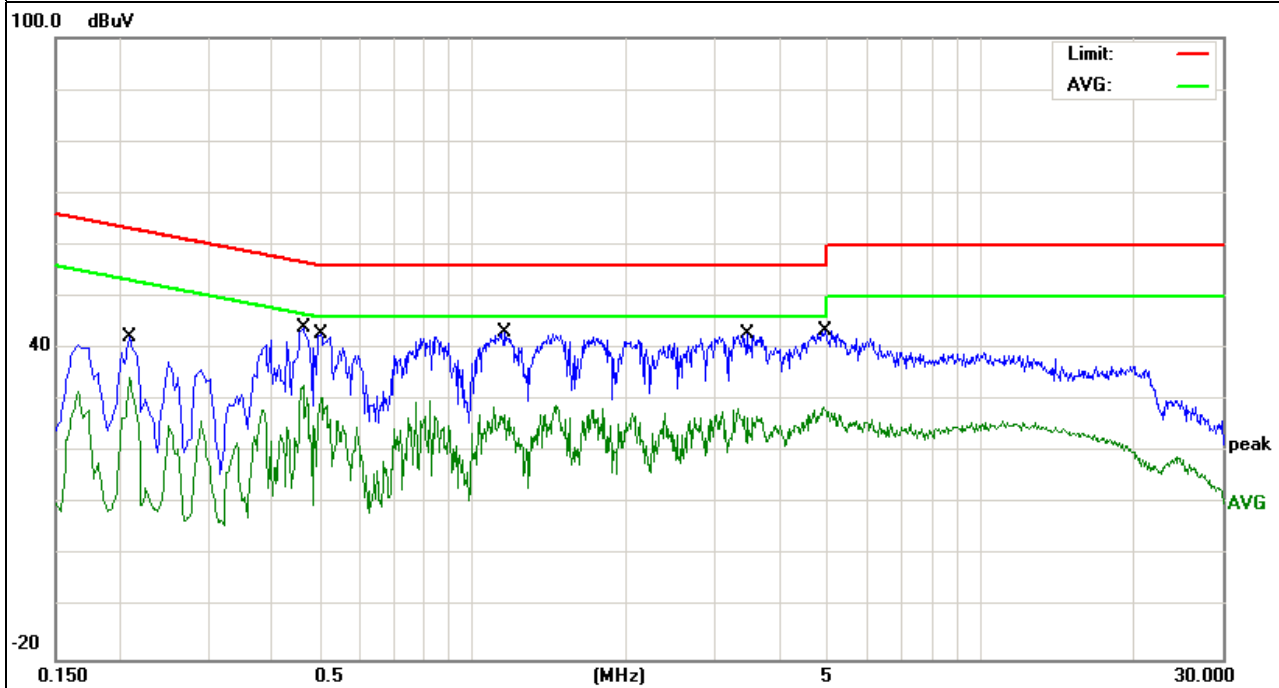


EUT :	Android POS	Model Name :	GP7002
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5.0V from PC AC 120V/60Hz	Test Mode :	Mode 1

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.2099	32.13	10.03	42.16	63.21	-21.05	QP
0.2099	24.30	10.03	34.33	53.21	-18.88	AVG
0.4620	34.24	9.91	44.15	56.66	-12.51	QP
0.4620	22.93	9.91	32.84	46.66	-13.82	AVG
0.5020	33.06	9.82	42.88	56.00	-13.12	QP
0.5020	20.87	9.82	30.69	46.00	-15.31	AVG
1.1539	33.16	9.85	43.01	56.00	-12.99	QP
1.1539	18.92	9.85	28.77	46.00	-17.23	AVG
3.4540	33.00	9.73	42.73	56.00	-13.27	QP
3.4540	18.82	9.73	28.55	46.00	-17.45	AVG
4.9298	33.85	9.73	43.58	56.00	-12.42	QP
4.9298	18.94	9.73	28.67	46.00	-17.33	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

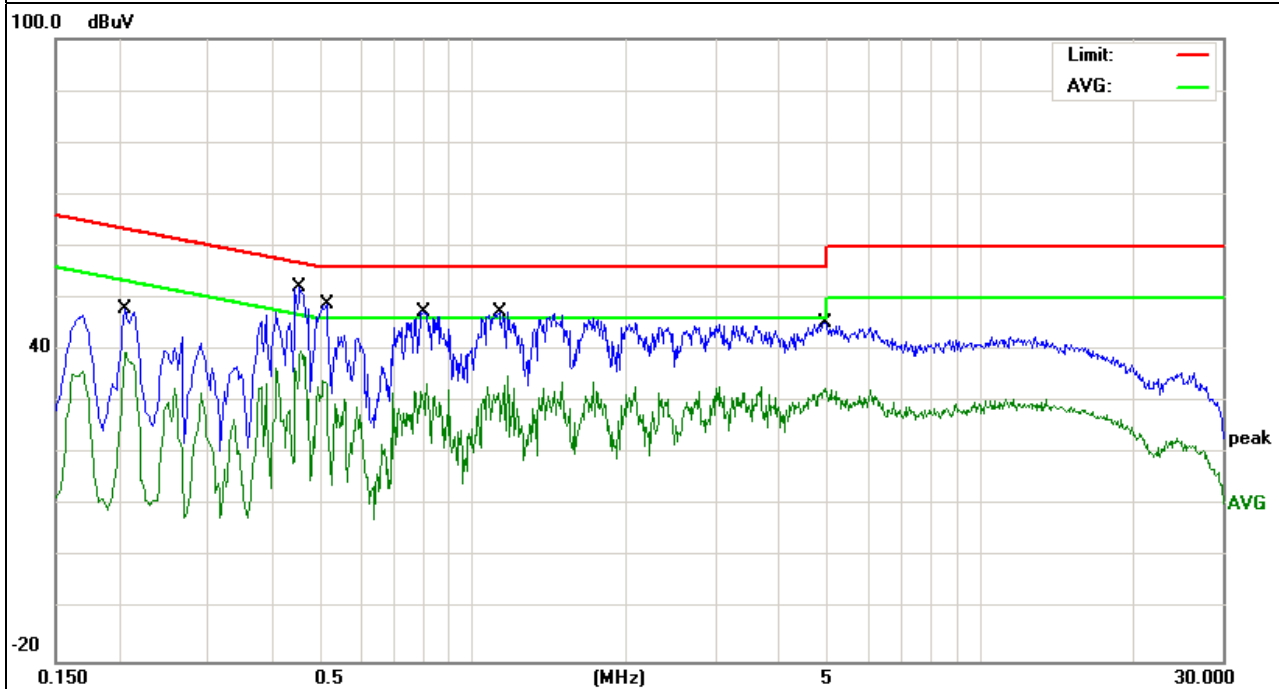


EUT :	Android POS	Model Name :	GP7002
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5.0V from PC AC 240V/60Hz	Test Mode :	Mode 1

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.2058	37.91	10.13	48.04	63.37	-15.33	QP
0.2058	29.45	10.13	39.58	53.37	-13.79	AVG
0.4540	42.17	9.91	52.08	56.80	-4.72	QP
0.4540	29.82	9.91	39.73	46.80	-7.07	AVG
0.5140	38.97	9.80	48.77	56.00	-7.23	QP
0.5140	24.43	9.80	34.23	46.00	-11.77	AVG
0.7980	37.56	9.80	47.36	56.00	-8.64	QP
0.7980	23.71	9.80	33.51	46.00	-12.49	AVG
1.1258	37.47	9.83	47.30	56.00	-8.70	QP
1.1258	25.29	9.83	35.12	46.00	-10.88	AVG
4.9419	35.53	9.76	45.29	56.00	-10.71	QP
4.9419	22.75	9.76	32.51	46.00	-13.49	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

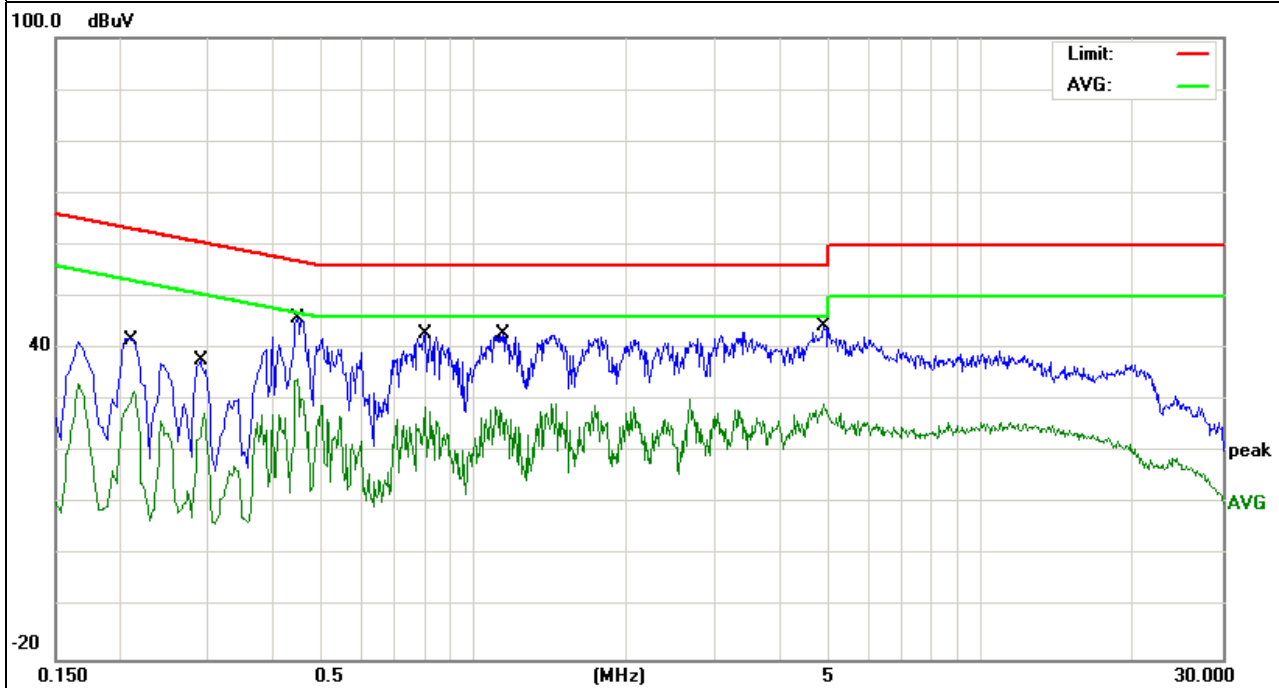


EUT :	Android POS	Model Name :	GP7002
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5.0V from PC AC 240V/60Hz	Test Mode :	Mode 1

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.2139	31.90	10.04	41.94	63.05	-21.11	QP
0.2139	21.84	10.04	31.88	53.05	-21.17	AVG
0.2899	27.59	10.12	37.71	60.52	-22.81	QP
0.2899	17.44	10.12	27.56	50.52	-22.96	AVG
0.4500	35.88	9.94	45.82	56.87	-11.05	QP
0.4500	24.20	9.94	34.14	46.87	-12.73	AVG
0.8020	32.96	9.83	42.79	56.00	-13.21	QP
0.8020	18.91	9.83	28.74	46.00	-17.26	AVG
1.1459	32.85	9.85	42.70	56.00	-13.30	QP
1.1459	18.76	9.85	28.61	46.00	-17.39	AVG
4.9138	34.60	9.73	44.33	56.00	-11.67	QP
4.9138	19.73	9.73	29.46	46.00	-16.54	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 Radiated Emission Limits (FCC 15.209)

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission level (dBuV/m)=20log Emission level (uV/m).

LIMITS OF RADIATED EMISSION MEASUREMENT (FCC 15.225)

- (a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters, equal to 124dBuV/m at 3 meters.
- (b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters, equal to 90.5dBuV/m at 3 meters.
- (c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters, equal to 80.5dBuV/m at 3 meters..
- (d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

4.2.2 TEST PROCEDURE

- The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz And above 1GHz,
- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m meter. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

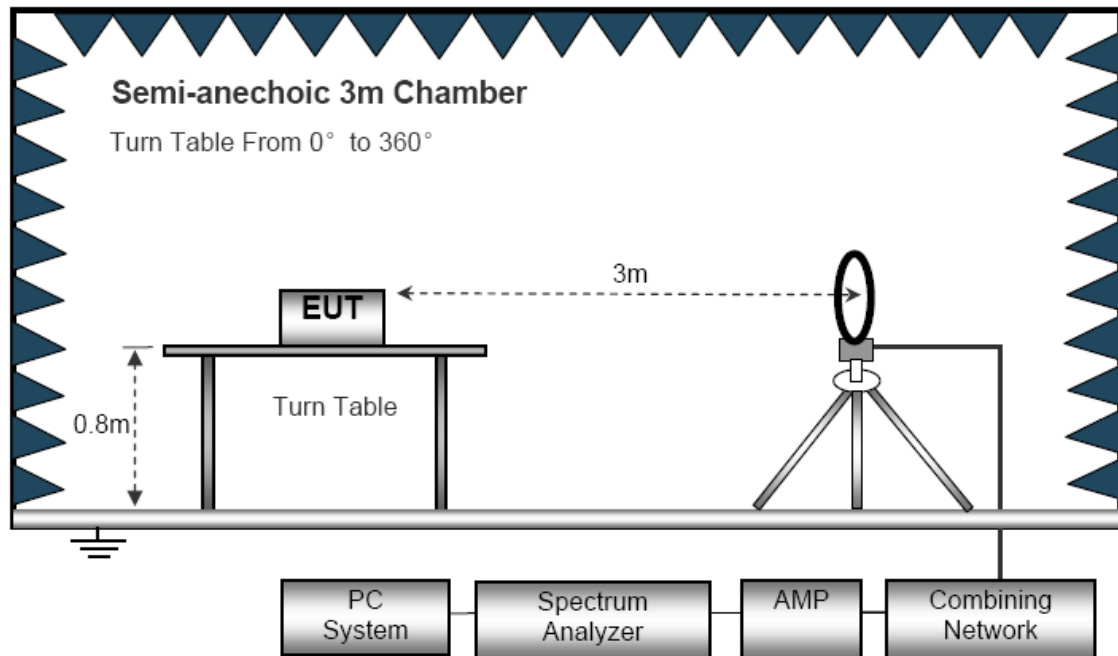
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

4.2.3 DEVIATION FROM TEST STANDARD

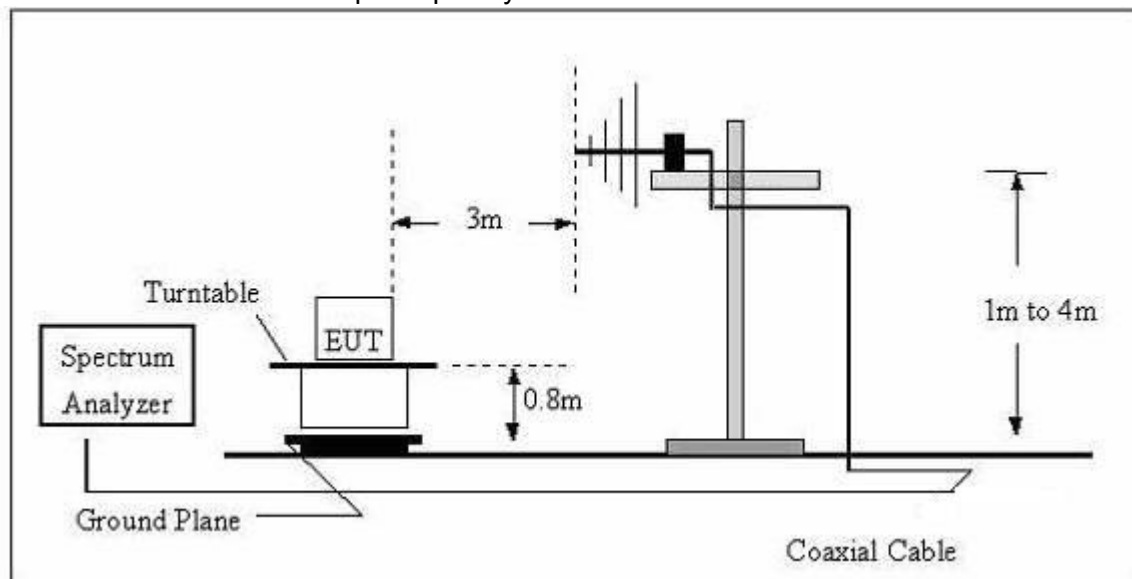
No deviation

4.2.4 TEST SETUP

(A) Radiated Emission Test-Up Frequency Below 30MHz



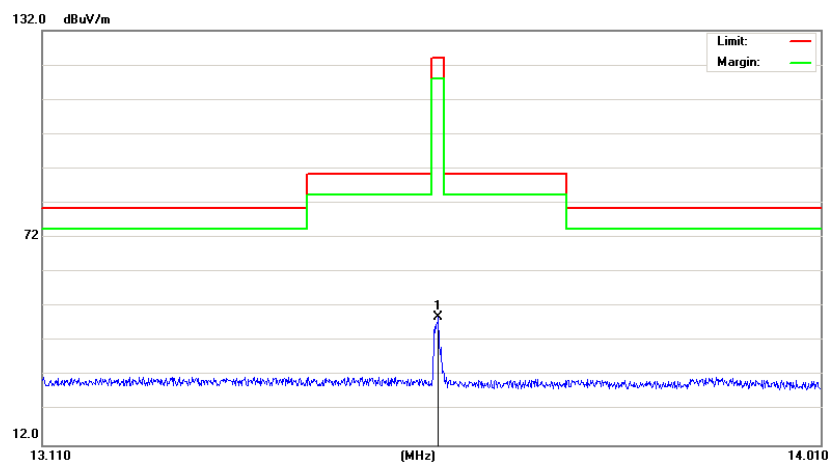
(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



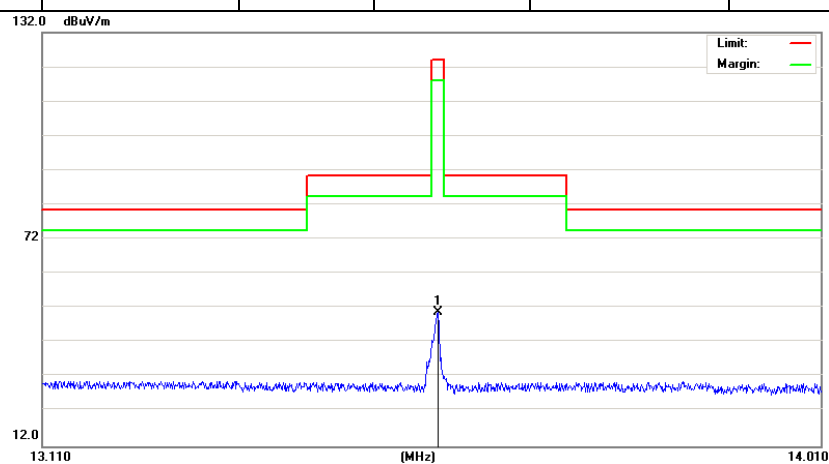
4.2.5 TEST RESULTS (BELOW 30MHz)

EUT :	Android POS	Model Name. :	GP7002
Temperature :	20 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Voltage :	DC 7.4V
Test Mode :	TX		

Freq.	Reading	Factor	Emission Level	Limit	Margin	Polar
(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/@3m)	(dB)	
13.56	38.84	13.03	51.87	124	-72.13	H



Freq.	Reading	Factor	Emission Level	Limit	Margin	Polar
(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/@3m)	(dB)	
13.56	38.93	13.03	51.96	124	-72.04	V



Freq.	Reading	Factor	Emission Level	Extrapolation factor	Measurement results (calculated)	Limits	Margin
(MHz)	dB μ V@3m	(dB)	(dB μ V/m)	(dB)	dB μ V/m @300m&30m	dB μ V/m @300m	(dB)
26.69	15.87	13.14	29.01	40	-10.99	29.54	-40.53

Frequency Range	Frequency	Reading	Factor	Extrapolation factor	Measurement results (calculated)	Limits	Margin
(MHz)	(MHz)	dB μ V @3m	(dB)	(dB)	dB μ V/m &30m	dB μ V/m @30m	(dB)
13.110~13.41	13.362	29.61	21.55	40	11.16	40.5	-29.34
13.410~13.553	13.542	40.17	21.55	40	21.72	50.5	-28.78
13.553~13.567	13.536	65.35	21.55	40	46.9	84	-37.1
13.567~13.71	13.552	38.93	21.55	40	20.48	50.5	-30.02
13.710~14.01	13.818	30.44	21.55	40	11.99	40.5	-28.51

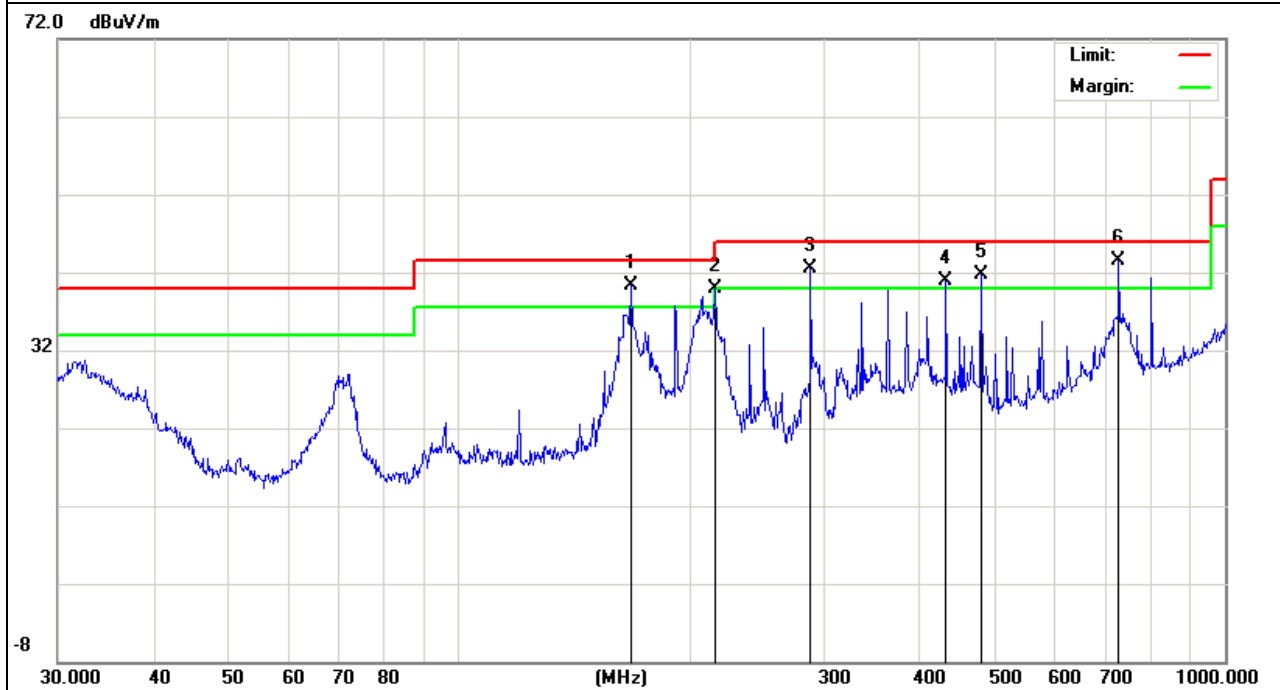
4.2.6 TEST RESULTS (BETWEEN 30 – 1000 MHZ)

EUT :	Android POS	Model Name :	GP7002
Temperature :	20 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Voltage :	DC 7.4V
Test Mode :	TX	Polarization :	Horizontal

Freq. (MHz)	Reading (dBμV/m)	Factor (dB)	Measurement (dBμV/m)	Limit (dBμV/m)	Over (dB)	Detector
167.82	28.04	12.20	40.24	43.50	-3.26	QP
216.02	28.88	11.00	39.88	46.00	-6.12	QP
287.99	30.34	12.08	42.42	46.00	-3.58	QP
432.55	25.75	15.08	40.83	46.00	-5.17	QP
480.5276	25.05	16.56	41.61	46.00	-4.39	QP
726.8052	21.81	21.66	43.47	46.00	-2.53	QP

Remark:

Factor = Antenna Factor + Cable Loss.

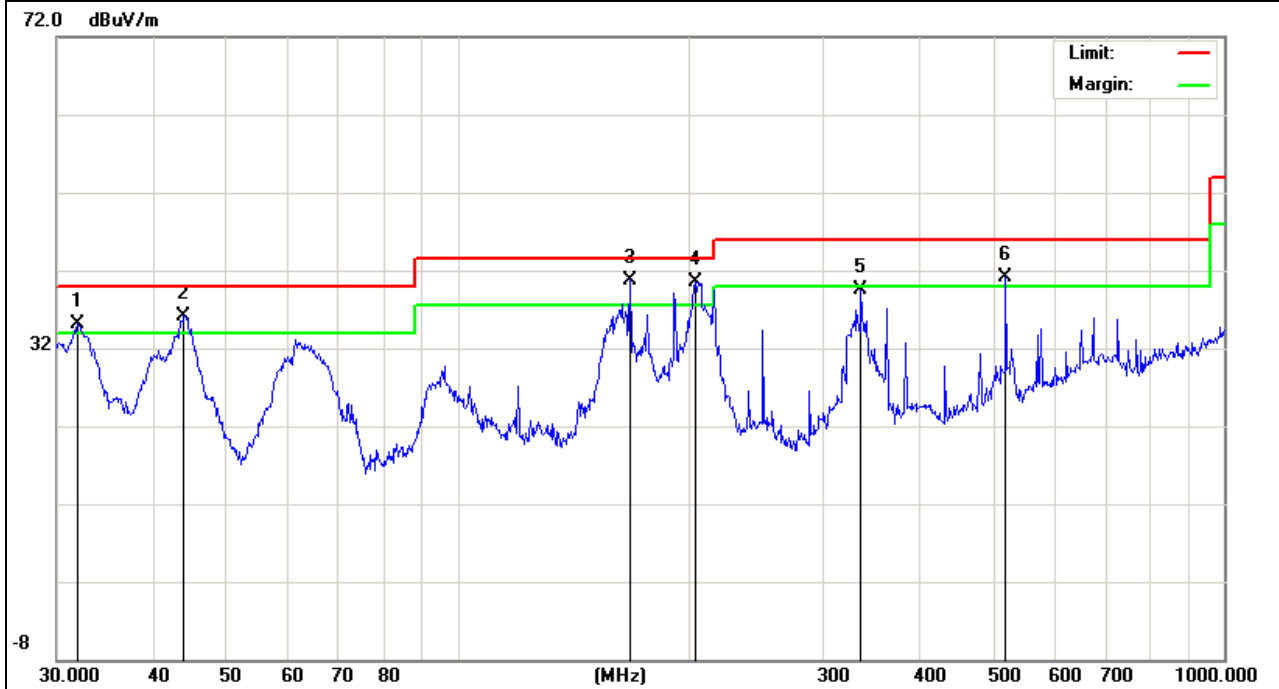


EUT :	Android POS	Model Name :	GP7002
Temperature :	20 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Voltage :	DC 7.4V
Test Mode :	TX	Polarization :	Vertical

Freq. (MHz)	Reading (dBμV/m)	Factor (dB)	Measurement (dBμV/m)	Limit (dBμV/m)	Over (dB)	Detector
31.95	16.25	18.87	35.12	40.00	-4.88	QP
43.97	23.51	12.67	36.18	40.00	-3.82	QP
167.82	28.60	12.20	40.80	43.50	-2.70	QP
204.24	29.02	11.56	40.58	43.50	-2.92	QP
336.035	25.76	13.82	39.58	46.00	-6.42	QP
519.0647	23.90	17.19	41.09	46.00	-4.91	QP

Remark:

Factor = Antenna Factor + Cable Loss.



5. BANDWIDTH TEST

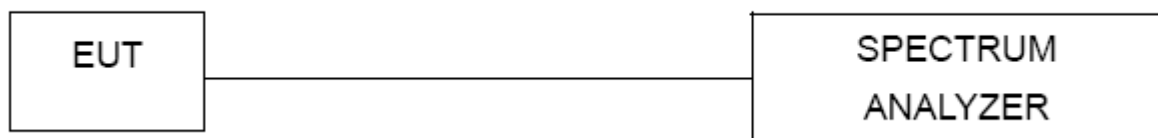
5.1 TEST PROCEDURE

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak mode.
2. 20dB Bandwidth the resolution bandwidth of 1 kHz and the video bandwidth of 1 kHz were used.
3. Measured the spectrum width with power higher than 20dB below carrier.

5.2 DEVIATION FROM STANDARD

FCC Part15.225

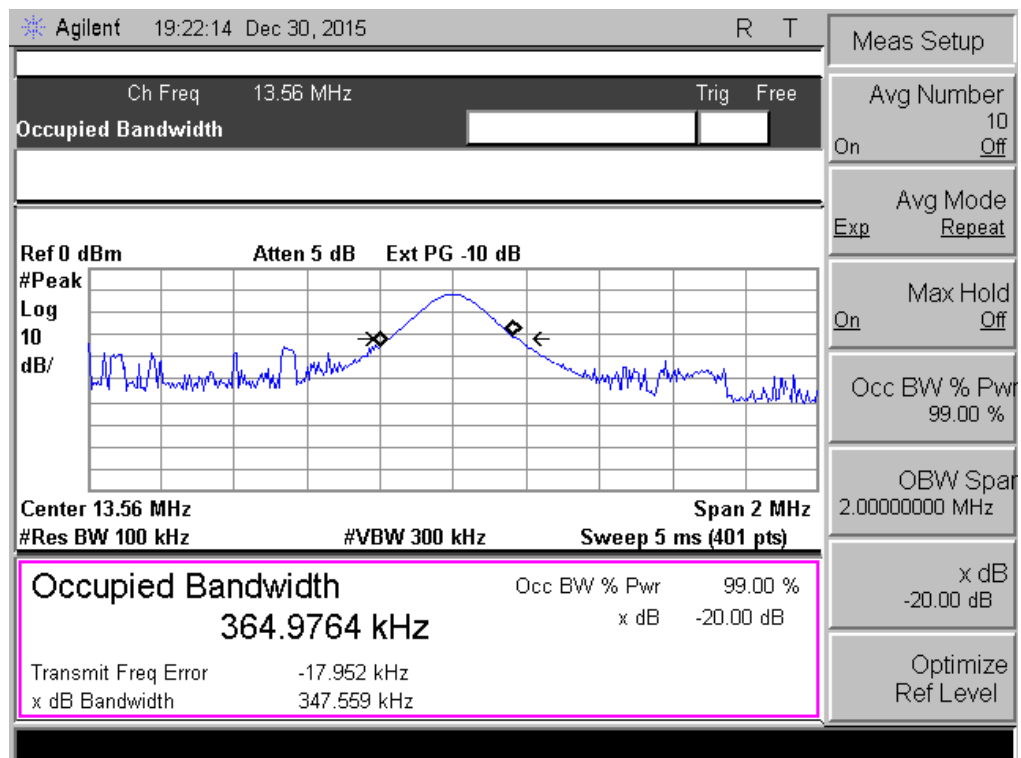
5.3 TEST SETUP



5.4 TEST RESULTS

EUT :	Android POS	Model Name :	GP7002
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1020 hPa	Test Power :	DC 7.4V
Test Mode :	TX CH 1		

Test Channel	Frequency (MHz)	20 dBc Bandwidth (kHz)
CH01	13.56	347.56



6. FREQUENCY TOLERANCE

6.1 Requirement:

Test Requirement: FCC Part15.225

Requirement:

Test Method: ANSI C63.4:2003

Requirement: The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

6.2 Test Procedure

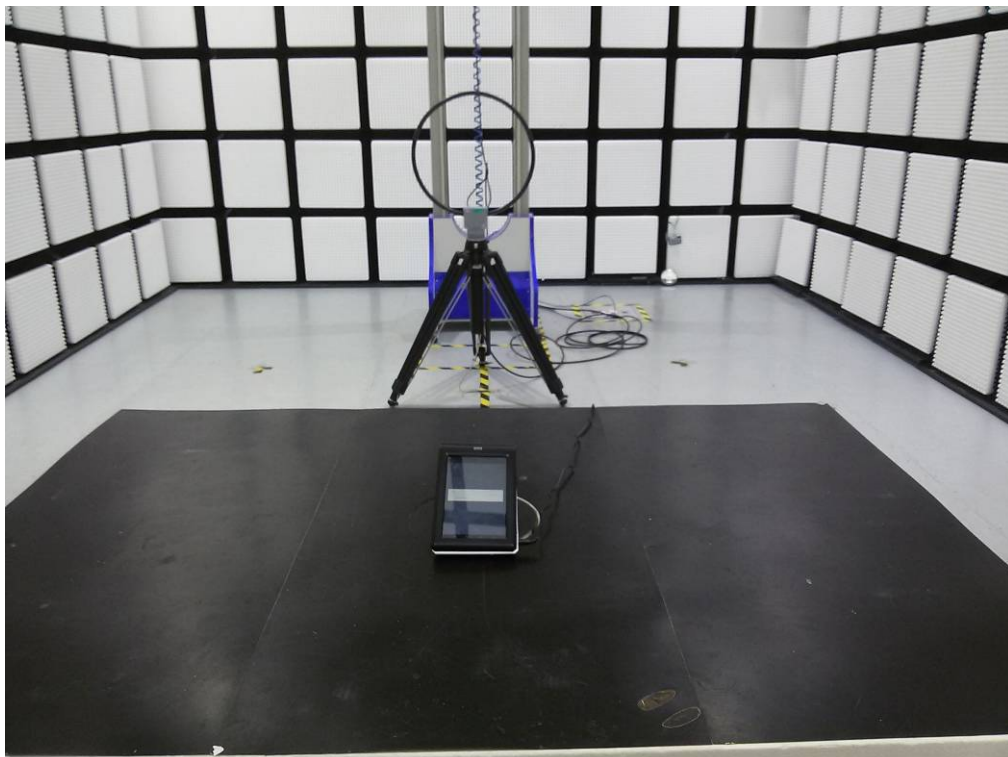
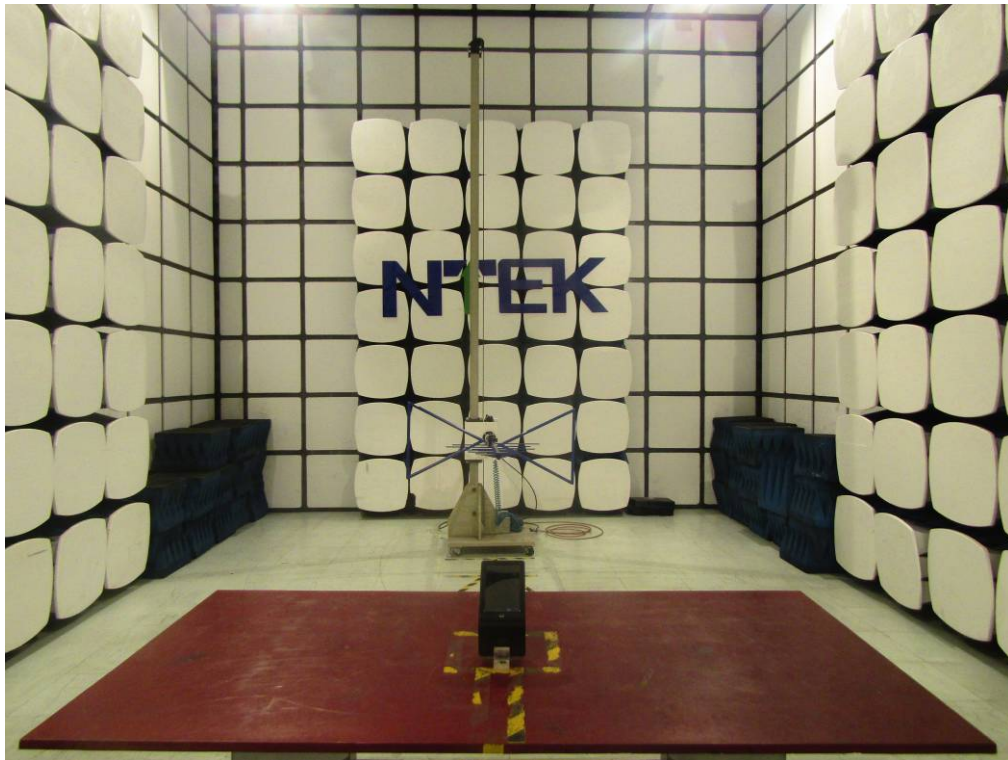
- 1.The EUT was placed on a turn table which is 0.8m above ground plane.
- 2.Set EUT as normal operation
- 3.Set SPA Center Frequency = fundamental frequency, RBW, VBW= 10kHz, Span =100kHz.
- 4.Set SPA Max hold. Mark peak.

Test Result

Power Supply	Temperature (°C)	Measured Frequency (MHz)	Frequency Error (MHz)	Result %	Part 15.225 Limit
DC 7.4V	-20	13.560104	0.000104	0.000767	+/- 0.01%
	20	13.560095	0.000095	0.000701	+/- 0.01%
	50	13.560083	0.000083	0.000612	+/- 0.01%
DC 8.5V	-20	13.560102	0.000102	0.000752	+/- 0.01%
	20	13.560106	0.000106	0.000782	+/- 0.01%
	50	13.560098	0.000098	0.000723	+/- 0.01%
DC 6.7V	-20	13.560094	0.000094	0.000693	+/- 0.01%
	20	13.5601	0.000100	0.000737	+/- 0.01%
	50	13.560093	0.000093	0.000686	+/- 0.01%

7. EUT TEST PHOTO

Radiated Measurement Photos



Conducted Measurement Photos