FCC EMC Test Report

FCC ID: 2AAWC-920TPC

For

Electromagnetic Interference

Of

Product： Mobile Internet Device

Trade Name： iView

Model Number： 920TPC

Prepared for

Wiltronic Corporation

13939 Central Ave, Chino, CA 91710

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

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Website: www.ntek.org.cn

TEST RESULT CERTIFICATION

Applicant's name	:	Wiltronic Corporation
Address	:	13939 Central Ave, Chino, CA 91710
Manufacturer's Name	:	Wiltronic Corporation
Address	:	13939 Central Ave, Chino, CA 91710

Product description

Product name	:	Mobile Internet Device
Model and/or type reference	:	920TPC
Standards	:	FCC Part15B:2012 ANSI C63.4:2009

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with Part 15 of FCC Rules. And it is applicable only to the tested sample identified in the report.

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Date of Test	:	
Date (s) of performance of tests	:	21 Aug. 2013 ~10 Sep. 2013
Date of Issue	:	10 Sep. 2013
Test Result	:	**Pass**

Testing Engineer : Jason chen

(Jason Chen)

Technical Manager : Jim He

(Jim He)

Authorized Signatory : Bovey Yang

(Bovey Yang)

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1. TEST SUMMARY

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
FCC Part15B:2012 ANSI C63.4: 2009	Conducted Emission	Class B	PASS	
	Radiated Emission	Class B	PASS	

NOTE:

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

(2) For client's request and manual description, the test will not be executed.

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 Number:238937; IC Registration Number:9270A-1
CNAS Registration Number:L5516

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **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** %.

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
NTEKC01	ANSI	150 KHz ~ 30MHz	3.2	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
NTEKA01	ANSI	30MHz ~ 1000MHz	4.7	
		1GHz ~6GHz	5.0	

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Mobile Internet Device
Model Name	920TPC
Serial No	N/A
Model Difference	N/A
Product Description	The EUT is a Mobile Internet Device. Operating frequency: 24MHz Connecting I/O port: USB Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.
Adapter	Model: JK050150-802USD AC Power Input: 100-240V~, 50/60Hz, 0.3A Output: 5.0V ⎓ 1500mA
Battery	Capacitance: 5000mAh Rated Voltage: 3.7V Charge Limit: 4.2V

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.

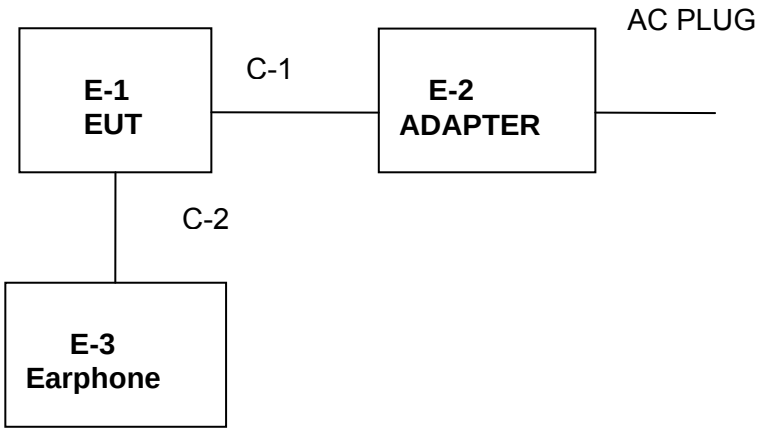
Pretest Mode	Description
Mode 1	Charge + TF Card Playing video Mode
Mode 2	Charge + OTG Playing video Mode
Mode 3	Charge + TF Card Playing video HDMI Out Mode
Mode 4	Charge+ Downloading

For Conducted Test	
Final Test Mode	Description
Mode 1	Charge + TF Card Playing video Mode

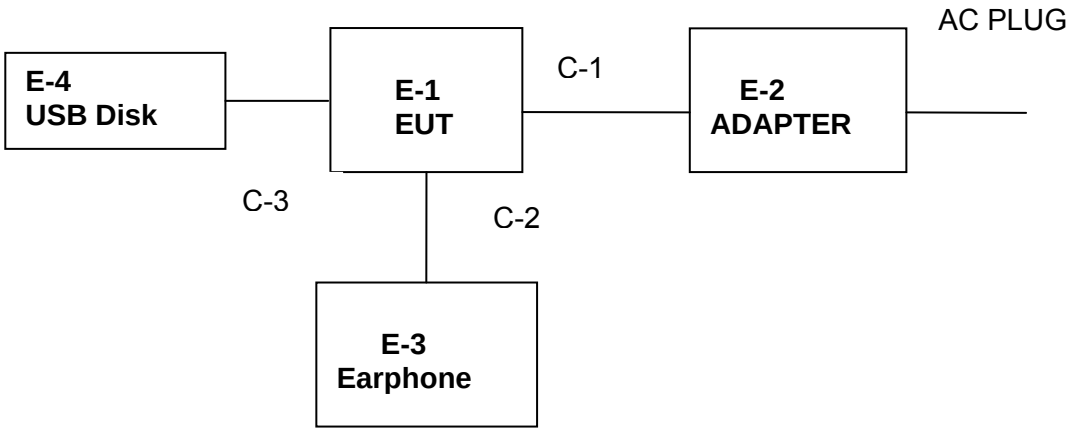
For Radiated Test	
Final Test Mode	Description
Mode 1	Charge + TF Card Playing video Mode
Mode 2	Charge + OTG Playing video Mode
Mode 3	Charge + TF Card Playing video HDMI Out Mode
Mode 4	Charge+ Downloading

2.3 DESCRIPTION OF TEST SETUP

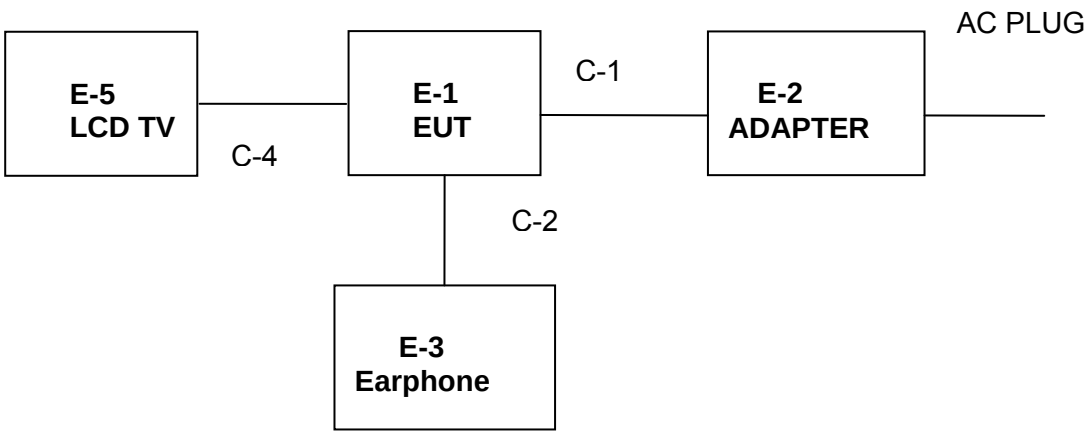
Mode 1:



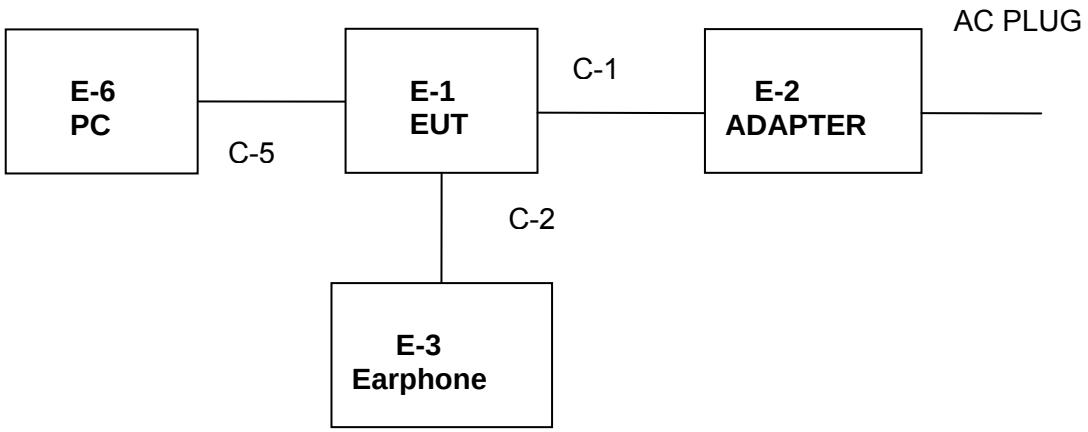
Mode 2:



Mode 3:


AC PLUG
E-5
LCD TV
C-4
E-1
EUT
C-1
E-2
ADAPTER
C-2
E-3
Earphone

Mode 4:


AC PLUG
E-6
PC
C-5
E-1
EUT
C-1
E-2
ADAPTER
C-2
E-3
Earphone

2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

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	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Mobile Internet Device	iView	920TPC	N/A	EUT
E-2	Adapter	N/A	N/A	JK050150-802USD	accessory equipment
E-3	Earphone	N/A	S879	N/A	
E-4	USB Disk	N/A	4G	N/A	
E-5	LCD TV	SONY	TL25L	N/A	
E-6	PC	IBM	T43	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	1.0m	Power cable
C-2	NO	NO	1.0m	Earphone cable
C-3	Yes	NO	2.0cm	OTG cable
C-4	Yes	NO	3m	HDMI cable
C-5	Yes	Yes	1 m	USB cable

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.
(3) “YES” means “shielded” “with core”; “NO” means “unshielded” “without core”.

2.5 MEASUREMENT INSTRUMENTS LIST

2.5.1 CONDUCTED TEST SITE

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	R&S	ENV216	101313	Jul. 06, 2014
2	LISN	EMCO	3816/2	00042990	Jul. 06, 2014
3	50Ω Switch	ANRITSU CORP	MP59B	6200983704	Jul. 06, 2014
4	Test Cable	N/A	C01	N/A	Jul. 06, 2014
5	Test Cable	N/A	C02	N/A	Jul. 06, 2014
6	Test Cable	N/A	C03	N/A	Jul. 06, 2014
7	EMI Test Receiver	R&S	ESCI	101160	Jul. 06, 2014
8	Passive Voltage Probe	ESH2-Z3	R&S	100196	Jul. 06, 2014
9	Triple-Loop Antenna	EVERFINE	LIA-2	11020003	Jul. 06, 2014
10	Absorbing Clamp	R&S	MDS-21	100423	Jul. 08, 2014

2.5.2 RADIATED TEST SITE

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Bilog Antenna	TESEQ	CBL6111D	31216	Jul. 06, 2014
2	Test Cable	N/A	R-01	N/A	Jul. 06, 2014
3	Test Cable	N/A	R-02	N/A	Jul. 06, 2014
4	EMI Test Receiver	R&S	ESCI-7	101318	Jul. 06, 2014
5	Antenna Mast	EM	SC100_1	N/A	N/A
6	Turn Table	EM	SC100	060531	N/A
7	50Ω Switch	Anritsu Corp	MP59B	6200983705	Jul. 06, 2014
8	Spectrum Analyzer	Aglient	E4407B	MY45108040	Jul. 06. 2014
9	Horn Antenna	EM	EM-AH-10180	2011071402	Jul. 06. 2014
10	Amplifier	EM	EM-30180	060538	Jul. 06. 2014

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

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

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

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.

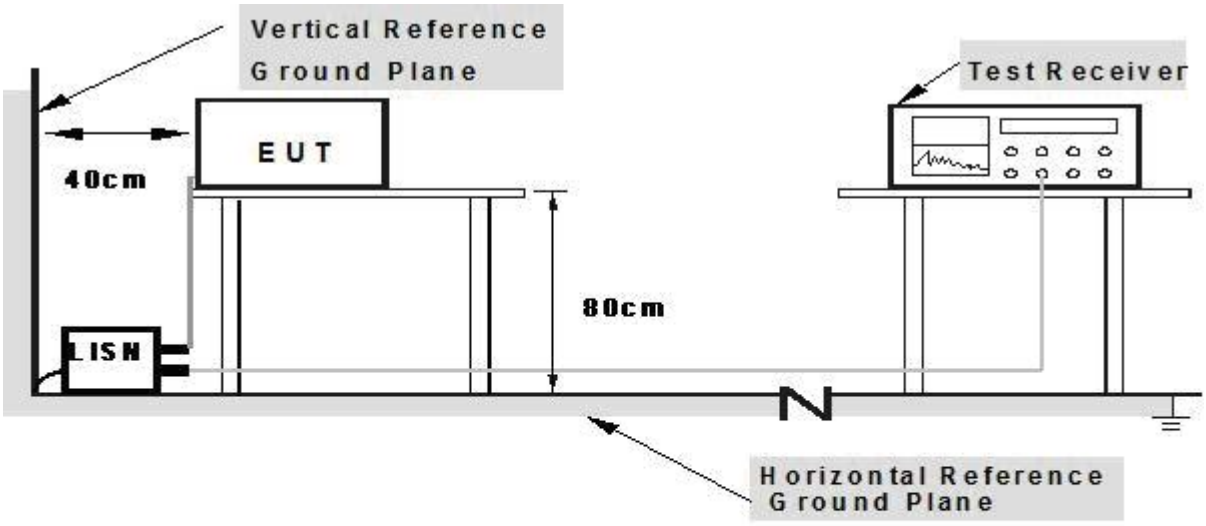
The following table is the setting of the receiver

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

3.1.2 TEST PROCEDURE

a. The EUT was placed 0.4 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.
b. 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.
c. 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.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 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 from other units and other metal planes

3.1.4 EUT OPERATING CONDITIONS

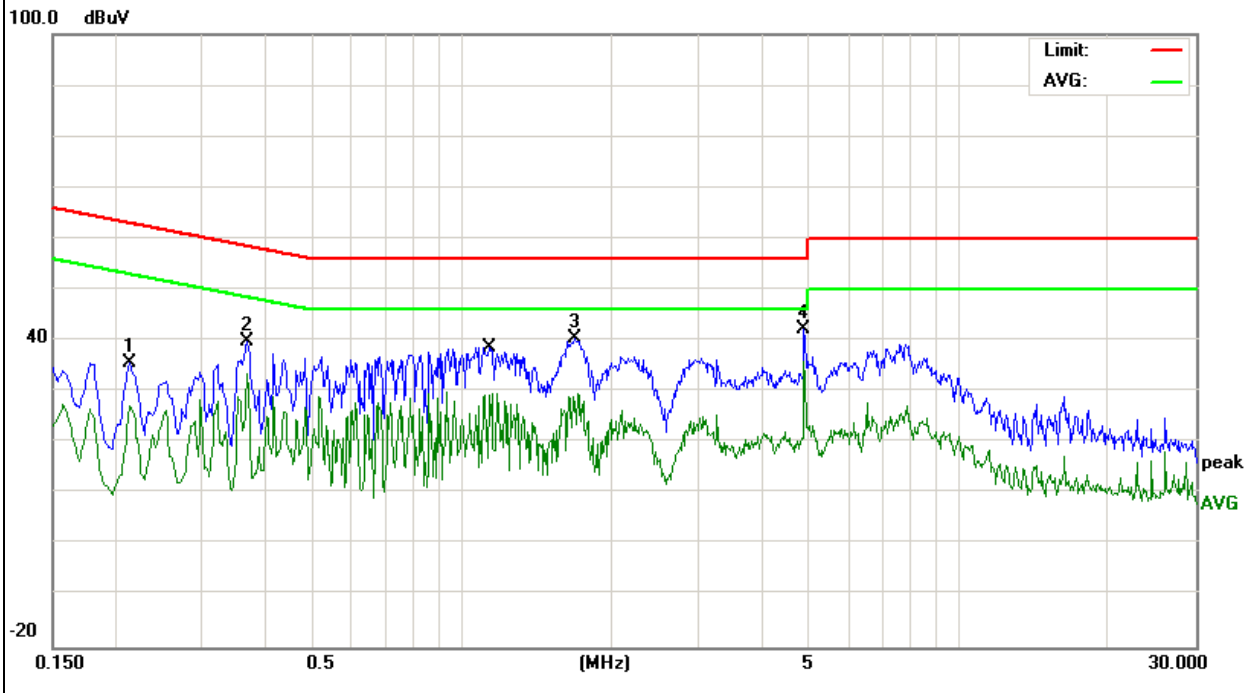
The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

3.1.5 TEST RESULTS

EUT：	Mobile Internet Device	Model Name. ：	920TPC
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Test Date：	2013-08-29
Test Mode：	Charging and discharging	Phase：	L
Test Voltage ：	DC 5V from adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
0.214	24.8	10.71	35.51	63.04	-27.53	peak
0.37	28.95	10.78	39.73	58.5	-18.77	peak
1.69	29.89	10.52	40.41	56	-15.59	peak
4.8979	31.53	10.64	42.17	56	-13.83	peak
0.37	22.87	10.78	33.65	48.5	-14.85	AVG
1.15	19.15	10.52	29.67	46	-16.33	AVG
4.8979	25.23	10.64	35.87	46	-10.13	AVG

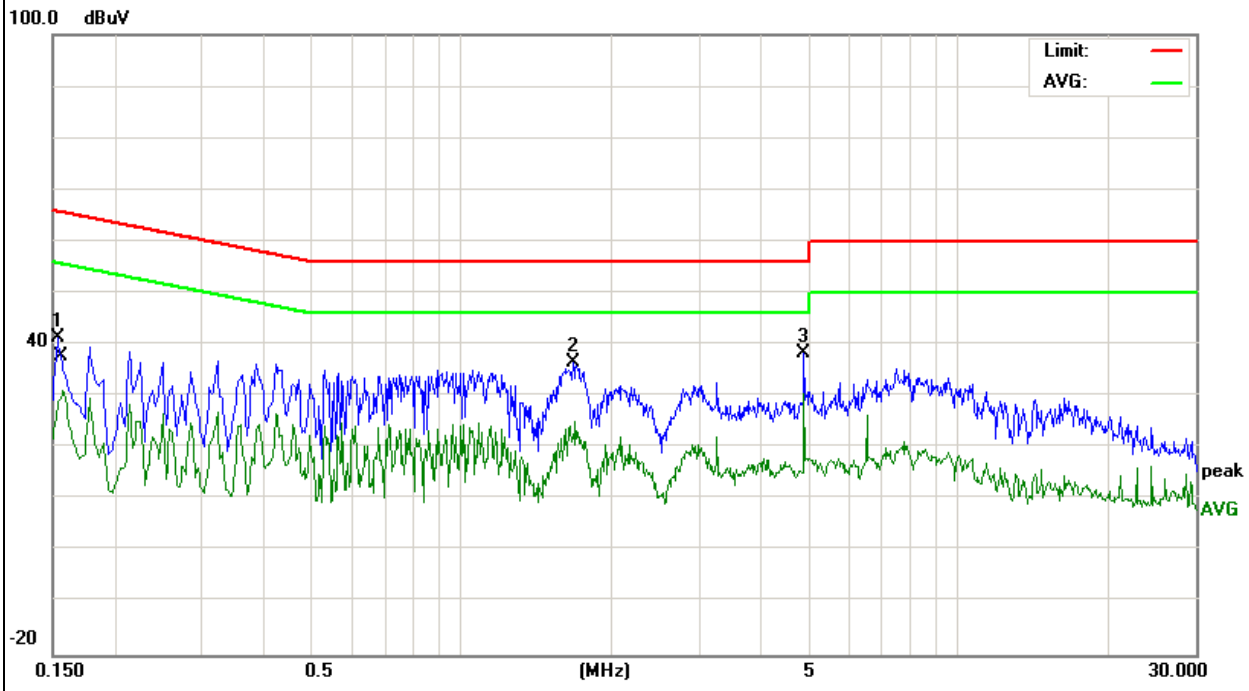
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. N/A means All Data have pass Limit



EUT：	Mobile Internet Device	Model Name. ：	920TPC
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Test Date：	2013-08-29
Test Mode：	Charging and discharging	Phase：	N
Test Voltage ：	DC 5V from adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
0.15	29.61	11.59	41.20	65.78	-24.58	peak
1.67	26.13	10.52	36.65	56.00	-19.35	peak
4.89	27.63	10.63	38.26	56.00	-17.74	peak
0.16	19.68	11.54	31.22	55.56	-24.34	AVG
1.70	14.59	10.52	25.11	46.00	-20.89	AVG
4.89	19.98	10.63	30.61	46.00	-15.39	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. N/A means All Data have pass Limit



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 3m)
	dBuV/m	dBuV/m
30 ~ 88	39.0	40.0
88 ~ 216	43.5	43.5
216 ~ 960	46.5	46.0
Above 960	49.5	54.0

Notes:

(1) The limit for radiated test was performed according to as following: FCC PART 15B /ICES-003.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

3.2.2 TEST PROCEDURE

a. The measuring distance of at 10 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.

b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

c. 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. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

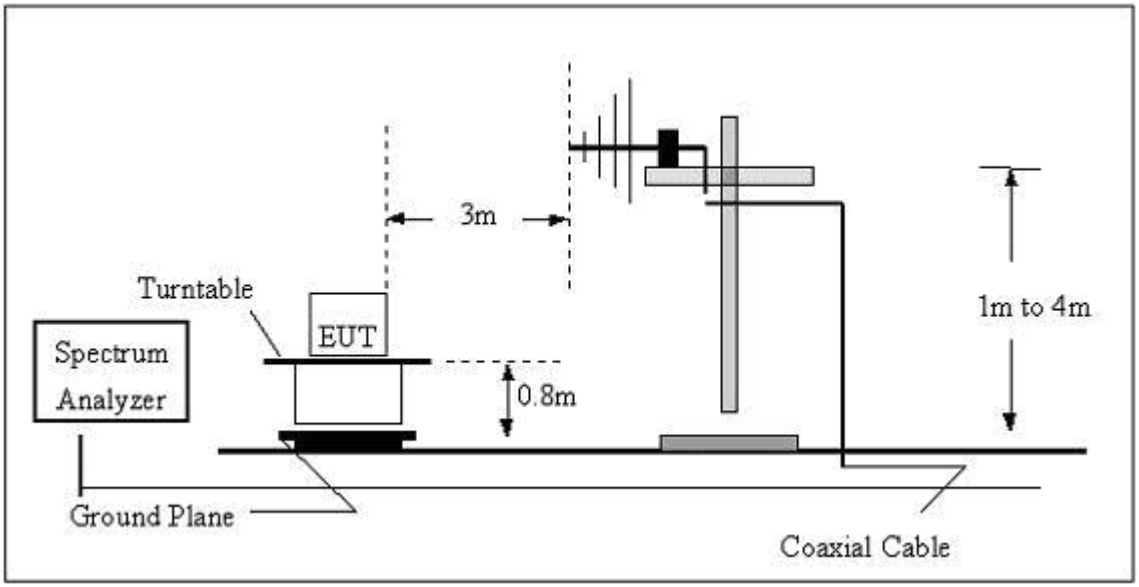
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured, above 1G Average detector mode will be instead.

e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP(AV) Limits and then no additional QP Mode measurement performed.

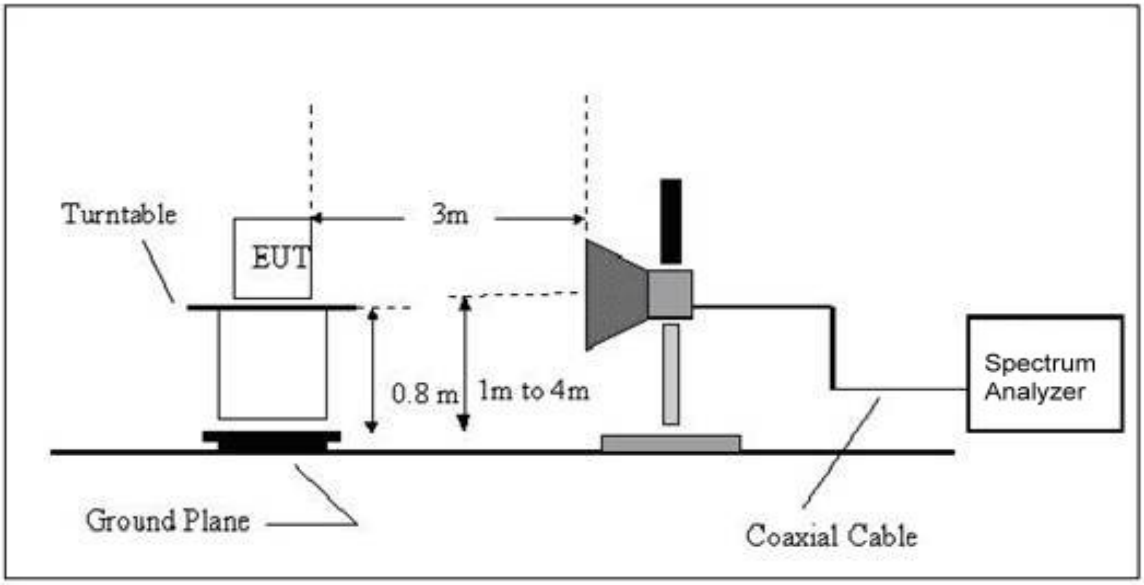
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.2.3 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1GHz



3.2.4 EUT OPERATING CONDITIONS

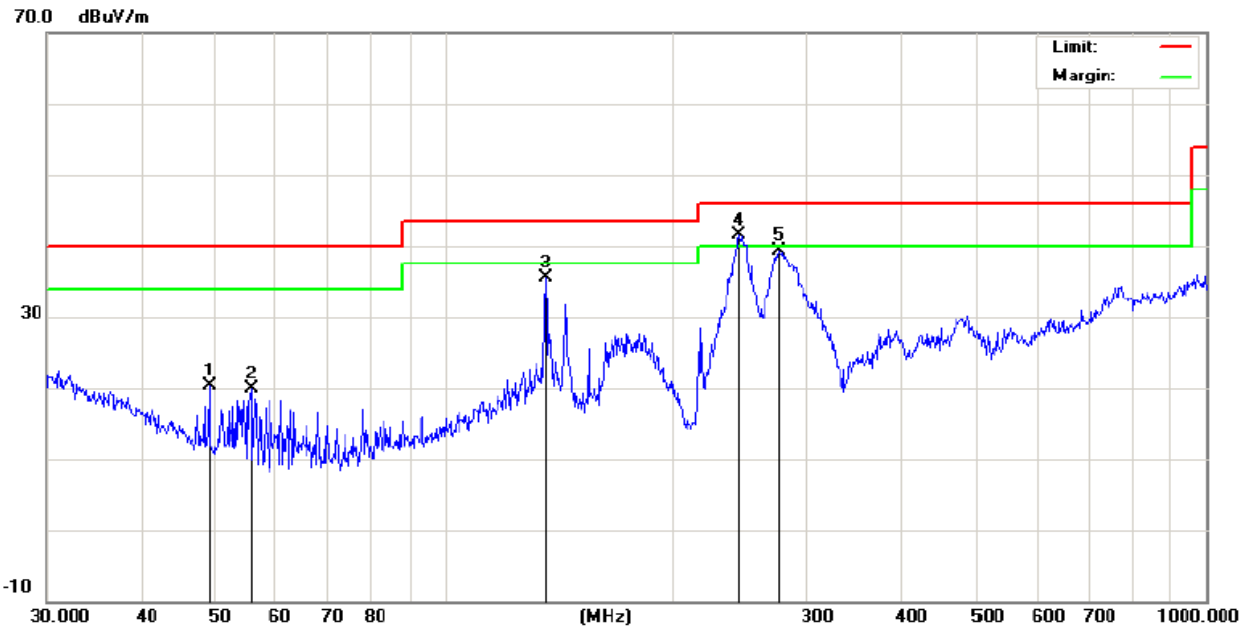
The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.5 TEST RESULTS

EUT：	Mobile Internet Device	Model Name ：	920TPC
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	2013-08-30
Test Mode ：	Mode 1	Polarization：	Horizontal
Test Power ：	DC 5V from adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
49.0145	11.59	8.70	20.29	40.00	-19.71	peak
55.6094	13.79	6.10	19.89	40.00	-20.11	peak
135.9822	23.27	12.23	35.50	43.50	-8.00	peak
244.2321	28.93	12.51	41.44	46.00	-4.56	peak
275.1570	25.25	14.07	39.32	46.00	-6.68	peak

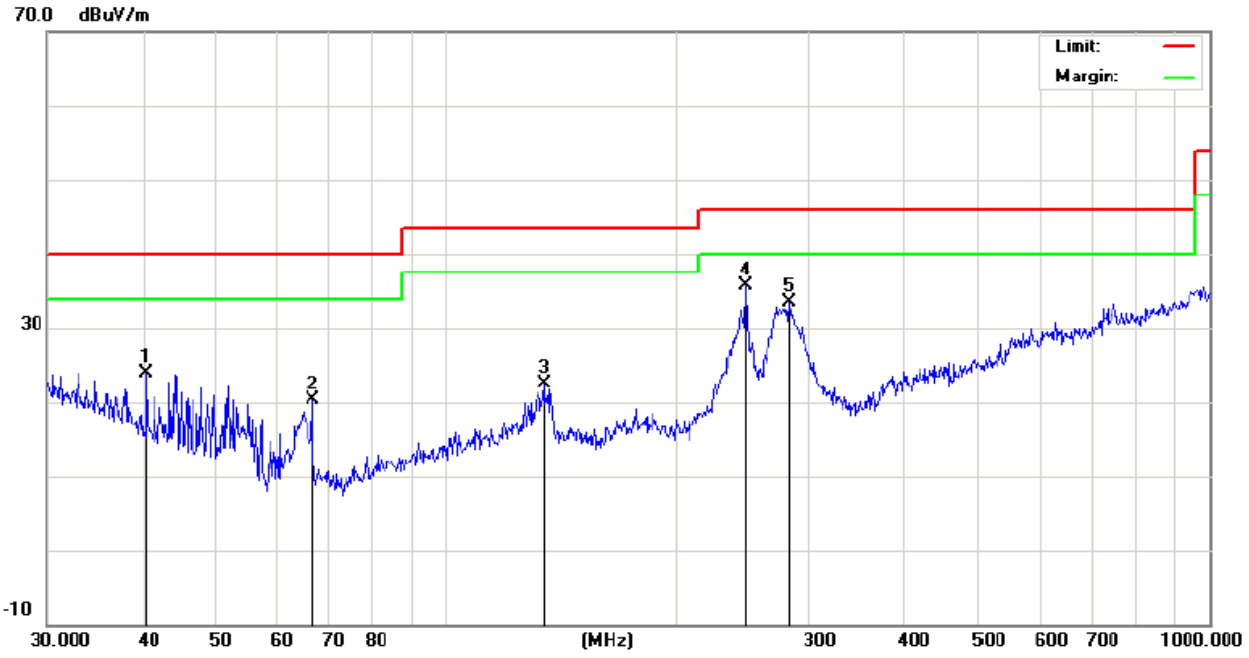
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Antenna Factor + Cable Loss.
3. N/A means All Data have pass Limit



EUT：	Mobile Internet Device	Model Name ：	920TPC
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	2013-08-30
Test Mode ：	Mode 1	Polarization：	Vertical
Test Power ：	DC 5V from adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
40.4172	10.68	13.15	23.83	40.00	-16.17	peak
66.7325	14.65	5.61	20.26	40.00	-19.74	peak
134.5592	10.29	12.25	22.54	43.50	-20.96	peak
247.6819	22.53	13.11	35.64	46.00	-10.36	peak
281.9946	19.36	14.09	33.45	46.00	-12.55	peak

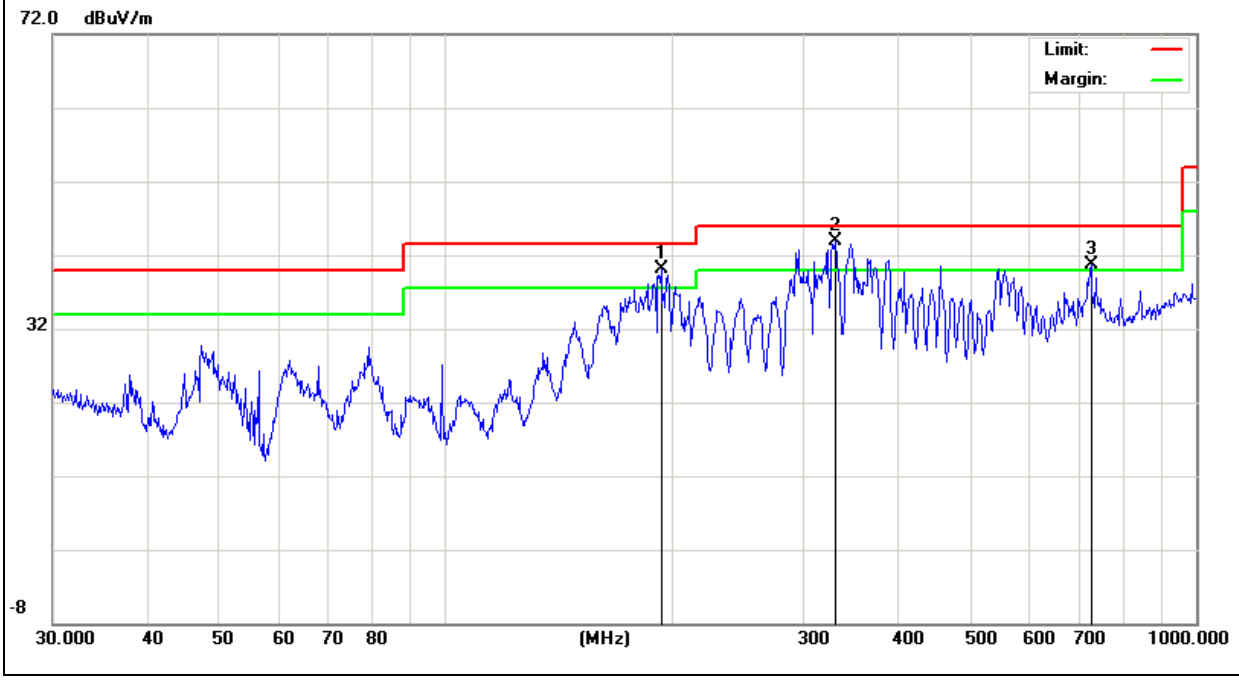
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Antenna Factor + Cable Loss.
3. N/A means All Data have pass Limit



EUT：	Mobile Internet Device	Model Name ：	920TPC
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	2013-08-30
Test Mode ：	Mode 2	Polarization：	Horizontal
Test Power ：	DC 5V from adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
193.7726	31.12	8.98	40.1	43.5	-3.4	peak
331.3546	28.03	15.88	43.91	46	-2.09	peak
724.2611	14.85	25.79	40.64	46	-5.36	peak

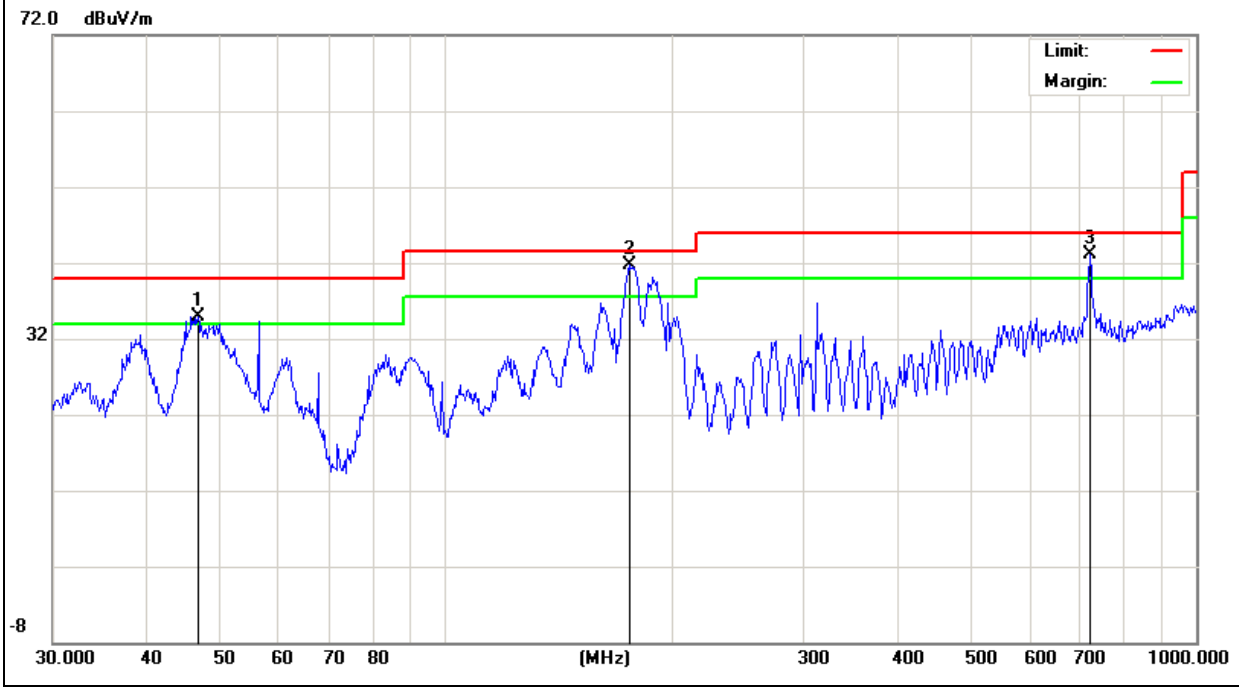
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Antenna Factor + Cable Loss.
3. N/A means All Data have pass Limit



EUT：	Mobile Internet Device	Model Name ：	920TPC
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	2013-08-30
Test Mode ：	Mode 2	Polarization：	Vertical
Test Power ：	DC 5V from adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
46.8303	25.16	9.69	34.85	40	-5.15	peak
175.6516	31.59	10.08	41.67	43.5	-1.83	peak
721.7259	17.61	25.59	43.2	46	-2.8	peak

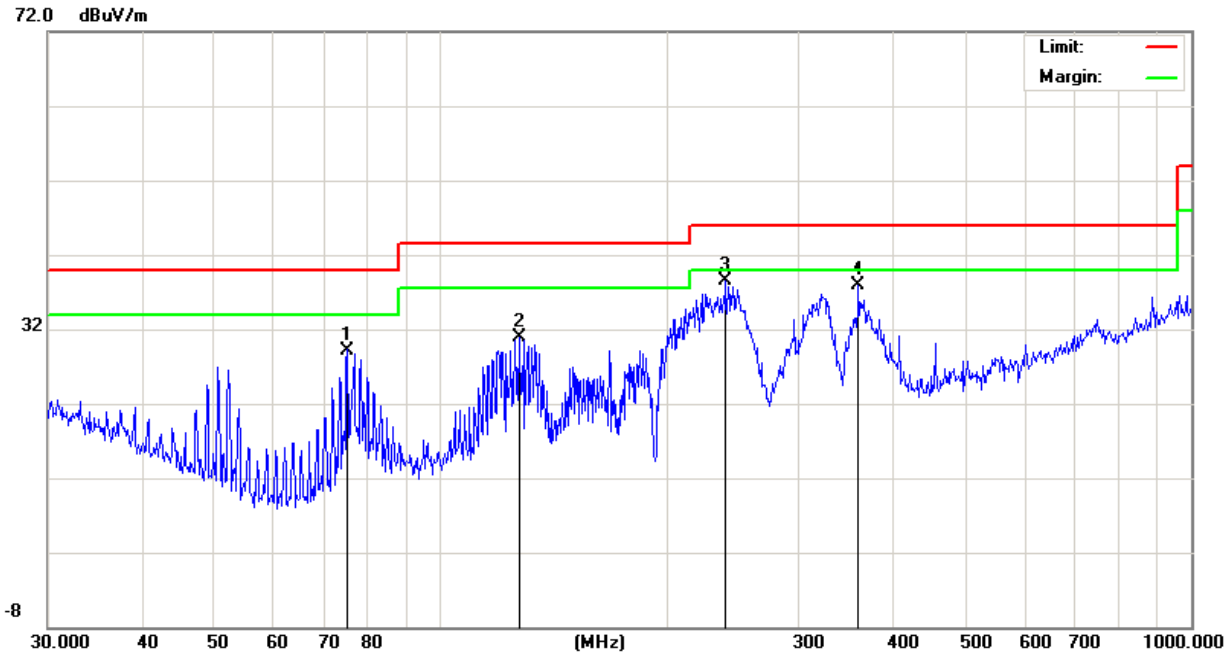
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Antenna Factor + Cable Loss.
3. N/A means All Data have pass Limit



EUT：	Mobile Internet Device	Model Name ：	920TPC
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	2013-08-30
Test Mode ：	Mode 3	Polarization：	Horizontal
Test Power ：	DC 5V from adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
75.1822	22.35	6.85	29.2	40	-10.8	peak
127.2176	18.64	12.21	30.85	43.5	-12.65	peak
239.9874	26.81	11.65	38.46	46	-7.54	peak
360.4476	21.5	16.46	37.96	46	-8.04	peak

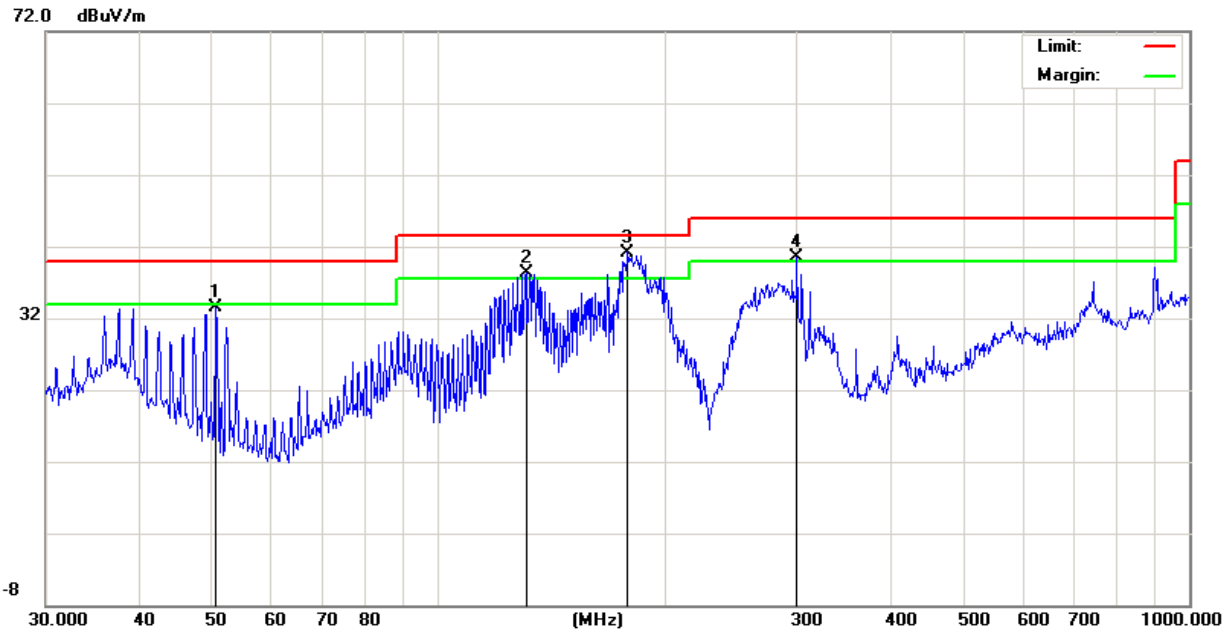
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Antenna Factor + Cable Loss.
3. N/A means All Data have pass Limit



EUT：	Mobile Internet Device	Model Name ：	920TPC
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	2013-08-30
Test Mode ：	Mode 3	Polarization：	Vertical
Test Power ：	DC 5V from adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
50.5859	25.57	7.99	33.56	40	-6.44	peak
130.8369	26.02	12.2	38.22	43.5	-5.28	peak
178.7583	31.14	10.06	41.2	43.5	-2.3	peak
300.3673	25.8	14.75	40.55	46	-5.45	peak

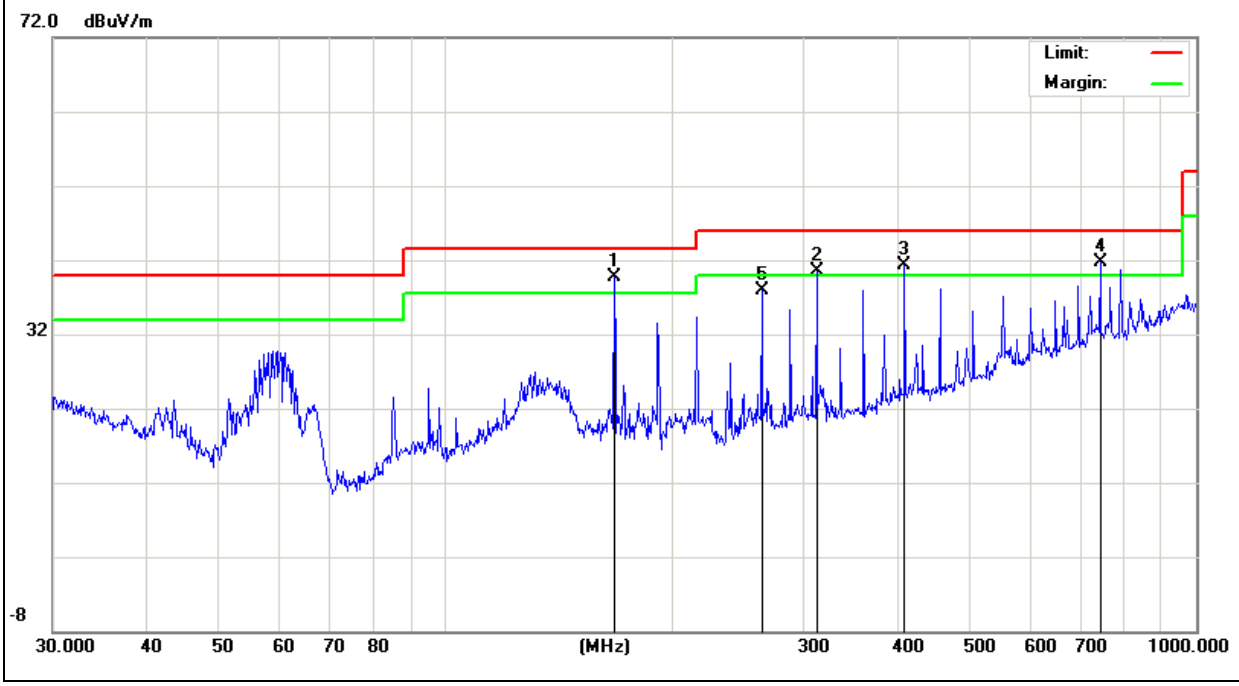
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Antenna Factor + Cable Loss.
3. N/A means All Data have pass Limit



EUT：	Mobile Internet Device	Model Name ：	920TPC
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	2013-08-30
Test Mode ：	Mode 4	Polarization：	Horizontal
Test Power ：	DC 5V from adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
167.8243	29.02	10.59	39.61	43.5	-3.89	peak
312.1793	25.4	15.13	40.53	46	-5.47	peak
408.946	22.55	18.68	41.23	46	-4.77	peak
744.866	15.27	26.43	41.7	46	-4.3	peak
263.819	23.32	14.62	37.94	46	-8.06	peak

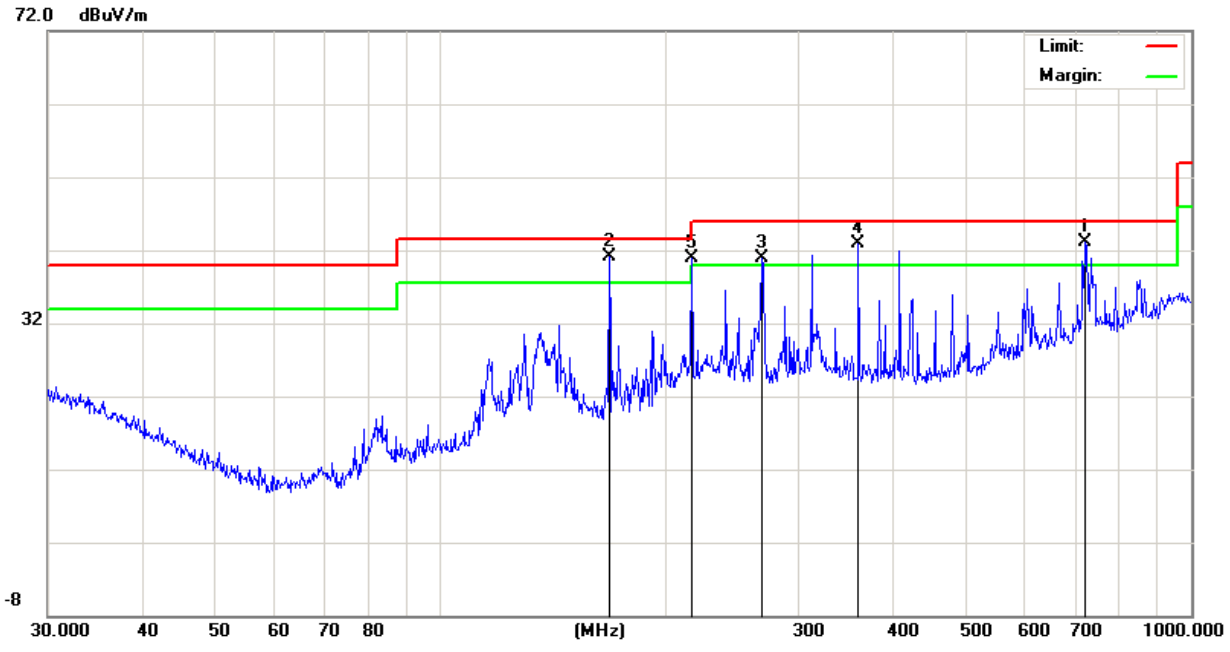
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Antenna Factor + Cable Loss.
3. N/A means All Data have pass Limit



EUT：	Mobile Internet Device	Model Name ：	920TPC
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	2013-08-30
Test Mode ：	Mode 4	Polarization：	Vertical
Test Power ：	DC 5V from adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
721.7259	17.45	25.59	43.04	46	-2.96	peak
167.8243	30.47	10.59	41.06	43.5	-2.44	peak
268.4852	26.68	14.22	40.9	46	-5.1	peak
360.4476	26.47	16.46	42.93	46	-3.07	peak
216.024	30.91	9.98	40.89	46	-5.11	peak

Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Antenna Factor + Cable Loss.
3. N/A means All Data have pass Limit

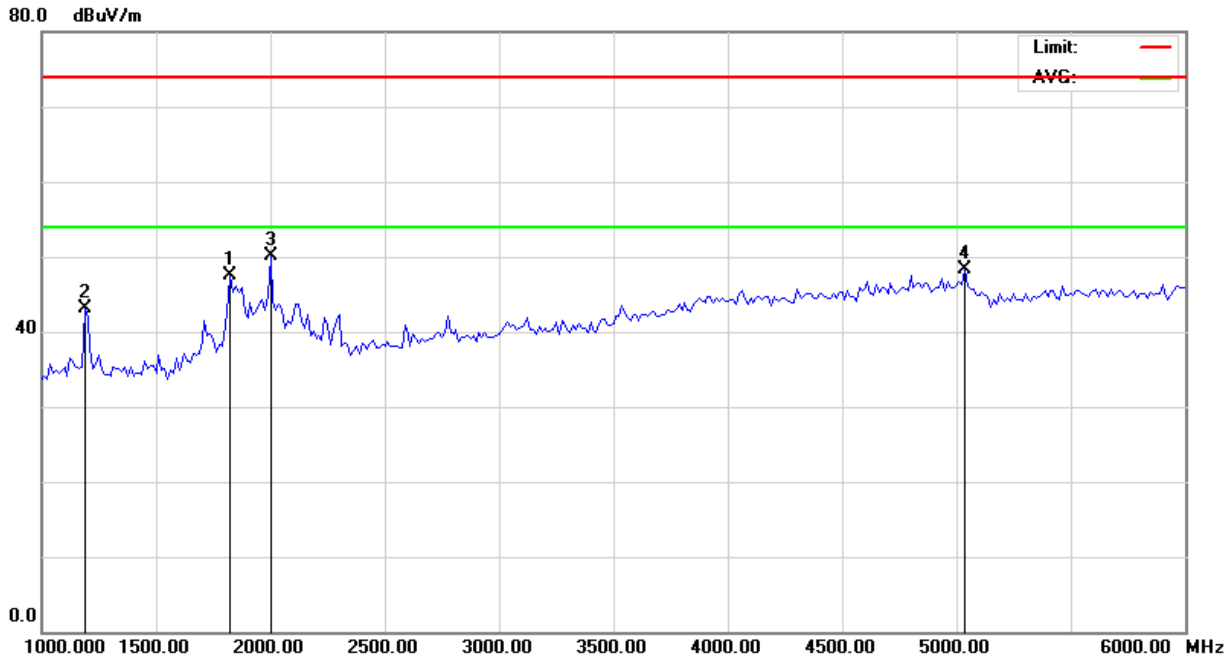


3.2.6 TEST RESULTS(Above 1GHz)

EUT：	Mobile Internet Device	Model Name ：	920TPC
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	2013-08-30
Test Mode ：	Mode 1	Polarization：	Horizontal
Test Power ：	DC 5V from adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
1825	62.2	-14.79	47.41	74	-26.59	peak
1187.5	61.39	-18.27	43.12	74	-30.88	peak
2000	63.39	-13.3	50.09	74	-23.91	peak
5037.5	52.18	-3.83	48.35	74	-25.65	peak

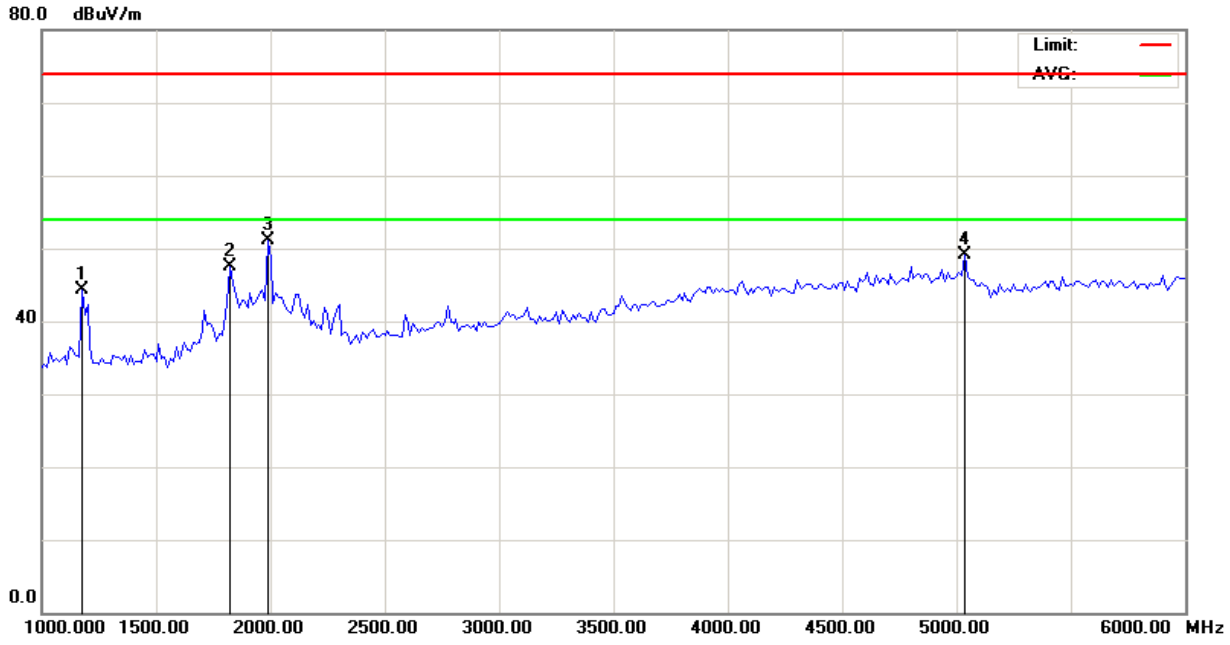
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Antenna Factor + Cable Loss.
3. N/A means All Data have pass Limit



EUT：	Mobile Internet Device	Model Name ：	920TPC
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	2013-08-30
Test Mode ：	Mode 1	Polarization：	Vertical
Test Power ：	DC 5V from adapter AC 120V/60Hz		

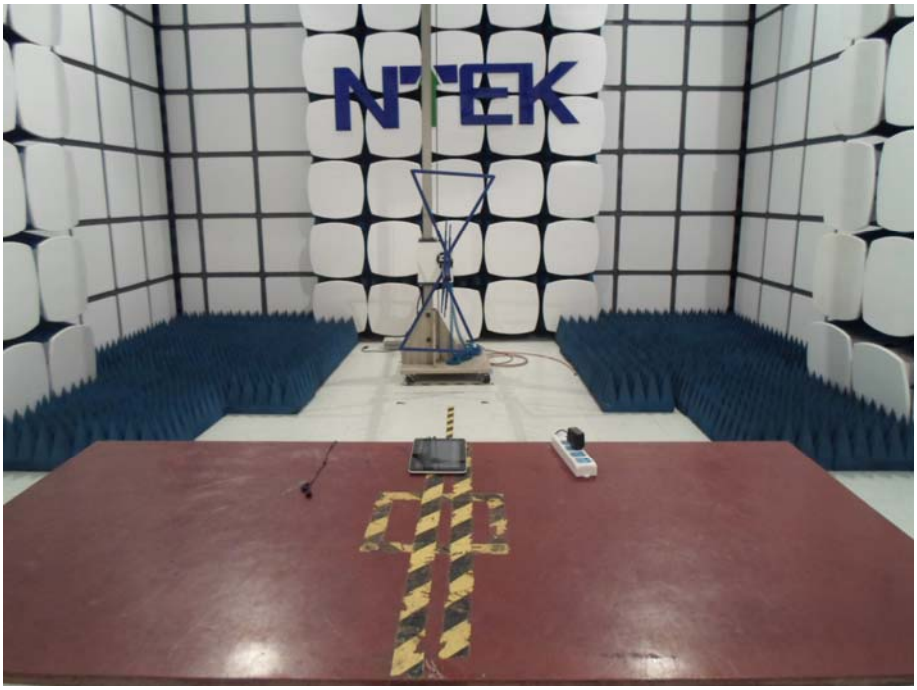
Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
1175	62.77	-18.47	44.3	74	-29.7	peak
1825	62.2	-14.79	47.41	74	-26.59	peak
1987.5	64.63	-13.53	51.1	74	-22.9	peak
5037.5	52.93	-3.83	49.1	74	-24.9	peak

Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Antenna Factor + Cable Loss.
3. N/A means All Data have pass Limit



4. EUT TEST PHOTO

Radiated Measurement Photos



Conducted Measurement Photos