

FCC Test Report

FCC ID: 2ACEK-HYBRID2

Product : Tablet PC

Trade Name : N/A

Model Number : M600

MXXX

Serial Model : (XXX in the model designation may be any alphanumeric characters denoting different configuration options)

Report No. : NTEK-2014NT0507682F3

Prepared for

South Holdings Industrial Ltd.

Building 1, Hao'er Jiashitai Industrial Park, Fengtang Rd., Tangwei,
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Prepared by

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TEST RESULT CERTIFICATION

Applicant's name : South Holdings Industrial Ltd.
Address : Building 1, Hao'er Jiashitai Industrial Park, Fengtang Rd.,
Tangwei, Fuyong Town, Bao'an District, Shenzhen, China
Manufacturer's Name : South Holdings Industrial Ltd.
Address : Building 1, Hao'er Jiashitai Industrial Park, Fengtang Rd.,
Tangwei, Fuyong Town, Bao'an District, Shenzhen, China

Product description

Product name : Tablet PC
Model and/or type reference : M600
FCC Part15B:2013
Standards : ANSI C63.4:2003

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 : 07 May 2014 ~27 May 2014
Date of Issue : 27 May 2014
Test Result : **Pass**

Testing Engineer : Apple Huang
(Apple Huang)

Technical Manager : Brown Lu
(Brown Lu)

Authorized Signatory : Bin
(Bill Yao)

Table of Contents	Page
1 . TEST SUMMARY	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 SETUP	8
2.3 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL	9
2.4 MEASUREMENT INSTRUMENTS LIST	10
3 . EMC EMISSION TEST	11
3.1 CONDUCTED EMISSION MEASUREMENT	11
3.1.1 POWER LINE CONDUCTED EMISSION	11
3.1.2 TEST PROCEDURE	12
3.1.3 TEST SETUP	12
3.1.4 EUT OPERATING CONDITIONS	12
3.1.5 TEST RESULTS	13
3.2 RADIATED EMISSION MEASUREMENT	15
3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT	15
3.2.2 TEST PROCEDURE	15
3.2.3 TEST SETUP	16
3.2.4 EUT OPERATING CONDITIONS	16
3.2.5 TEST RESULTS	17
3.2.6 TEST RESULTS(Above 1GHz)	19
4 . EUT TEST PHOTO	20

1. TEST SUMMARY

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
FCC Part15B:2012 ANSI C63.4: 2003	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 $y \pm U$, 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** %.

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	Tablet PC	
Model Name	M600	
Additional Model Number(s)	MXXX (XXX in the model designation may be any alphanumeric characters denoting different configuration options)	
Model Difference	All the model are the same circuit and RF module, except the model name and colour.	
Product Description	The EUT is a Tablet PC .	
	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.	
Power Source	DC Voltage	
Adapter	Model:JY-05200 Input: 100-240V~,50/60Hz,0.3A Output: 5.0V---, 2A	
Battery	DC 3.7V, 2600mAh,19.62Wh	

2.1.1 DESCRIPTION OF TEST MODES

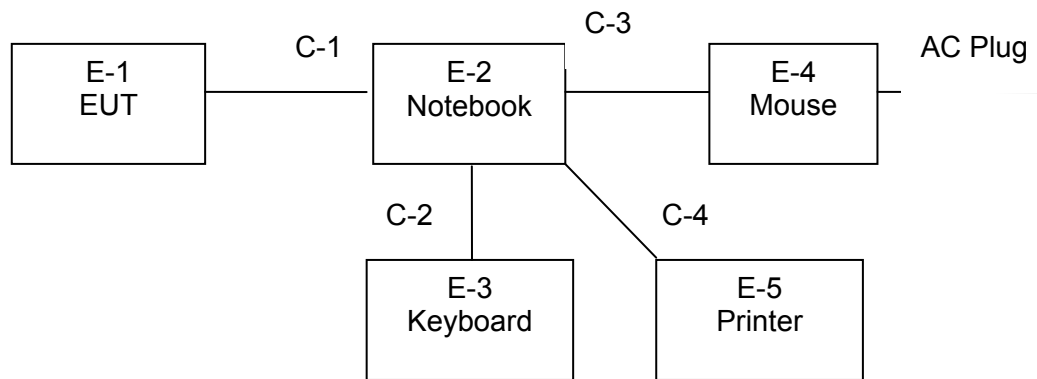
To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration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

Pretest Mode	Description
Mode 1	Downloading

For Conducted Test	
Final Test Mode	Description
Mode 1	Downloading

For Radiated Test	
Final Test Mode	Description
Mode 1	Downloading

2.2 DESCRIPTION OF TEST SETUP



2.3 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	Brand	Model/Type No.	Series No.	Note
E-1	Tablet PC	N/A	M600	N/A	EUT
E-2	Notebook	DELL	PP10L	N/A	
E-3	Keyboard	HP	KB-0318	434820-AA2SVH	
E-4	Mouse	HP	MS-SBF96	417441-002REV.OC	
E-5	Printer	Canon	L11121E	LBP2900	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0.8m	
C-2	NO	NO	1.2m	
C-3	NO	NO	1.5m	
C-4	NO	NO	1.5m	

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”.

2.4 MEASUREMENT INSTRUMENTS LIST

2.4.1 CONDUCTED TEST SITE

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	LISN	R&S	ENV216	101313	Jul. 06, 2013	Jul. 05, 2014	1 year
2	LISN	SCHWARZBECK	NNLK 8129	8129245	Dec. 25, 2013	Dec. 24, 2014	1 year
3	Pulse Limiter	SCHWARZBECK	VTSD 9561F	9716	Dec. 25, 2013	Dec. 24, 2014	1 year
4	50Ω Switch	ANRITSU CORP	MP59B	6200983704	Jul. 06, 2013	Jul. 05, 2014	1 year
5	Test Cable	N/A	C01	N/A	Jul. 06, 2013	Jul. 05, 2014	1 year
6	Test Cable	N/A	C02	N/A	Jul. 06, 2013	Jul. 05, 2014	1 year
7	Test Cable	N/A	C03	N/A	Jul. 06, 2013	Jul. 05, 2014	1 year
8	EMI Test Receiver	R&S	ESCI	101160	Jul. 06, 2013	Jul. 05, 2014	1 year
9	Passive Voltage Probe	ESH2-Z3	R&S	100196	Jul. 06, 2013	Jul. 05, 2014	1 year
10	Triple-Loop Antenna	EVERFINE	LIA-2	11020003	Jul. 06, 2013	Jul. 05, 2014	1 year
11	Absorbing Clamp	R&S	MDS-21	100423	Jul. 08, 2013	Jul. 07, 2014	1 year

2.4.2 RADIATED TEST SITE

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Bilog Antenna	TESEQ	CBL6111D	31216	Jul. 06, 2013	Jul. 05, 2014	1 year
2	Test Cable	N/A	R-01	N/A	Dec. 25, 2013	Dec. 24, 2014	1 year
3	Test Cable	N/A	R-02	N/A	Dec. 25, 2013	Dec. 24, 2014	1 year
4	EMI Test Receiver	R&S	ESCI-7	101318	Jul. 06, 2013	Jul. 05, 2014	1 year
5	Antenna Mast	EM	SC100_1	N/A	N/A	N/A	N/A
6	Turn Table	EM	SC100	060531	N/A	N/A	N/A
7	50Ω Switch	Anritsu Corp	MP59B	6200983705	Jul. 06, 2013	Jul. 05, 2014	1 year
8	Spectrum Analyzer	Aglient	E4407B	MY45108040	Jul. 06, 2013	Jul. 05, 2014	1 year
9	Horn Antenna	EM	EM-AH-10180	2011071402	Jul. 06, 2013	Jul. 05, 2014	1 year
10	Amplifier	EM	EM-30180	060538	Jul. 06, 2013	Jul. 05, 2014	1 year

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.

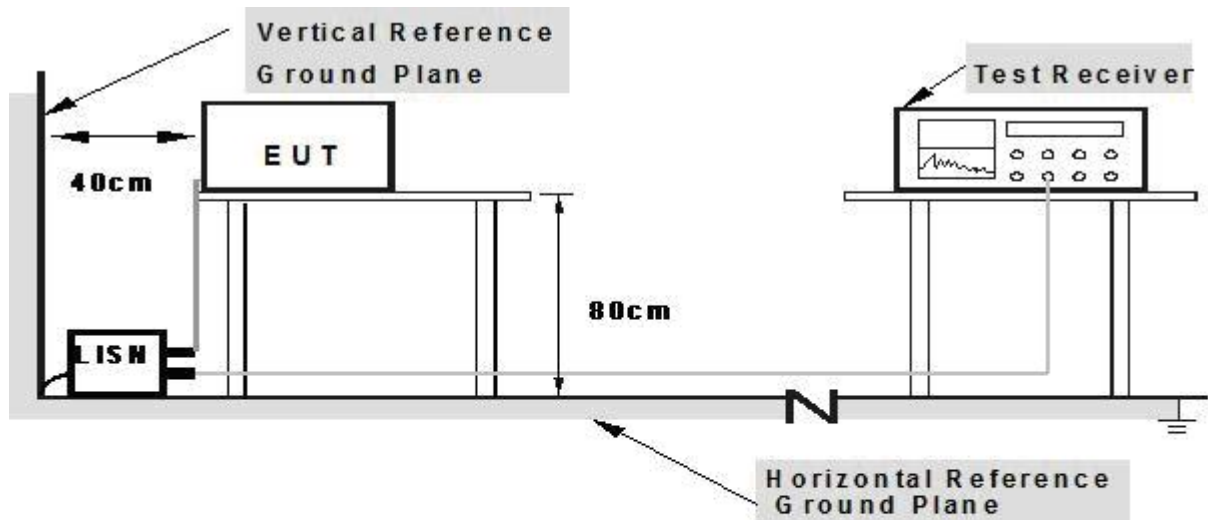
The following table is the setting of the receiver

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

3.1.2 TEST PROCEDURE

- 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.

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 cm 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

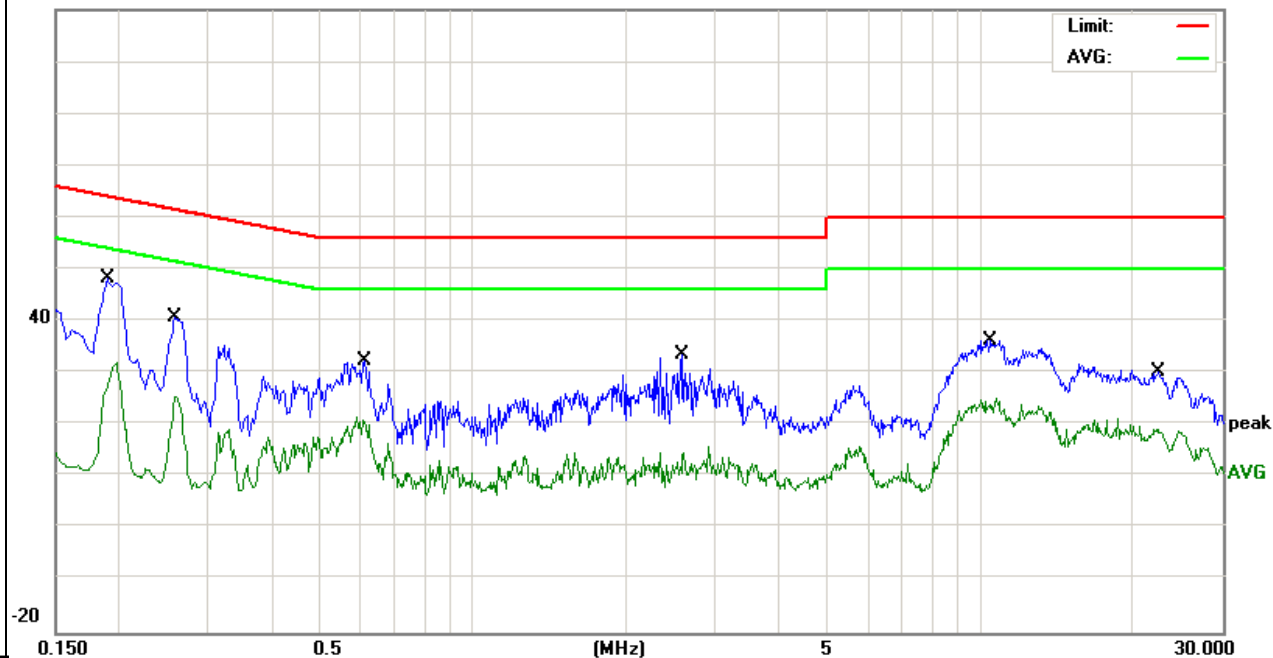
EUT :	Tablet PC	Model Name. :	M600
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2014-05-12
Test Mode :	Mode 1	Phase :	L
Test Voltage :	DC 5V From Notebook AC 120V/60Hz		

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Detector Type
0.1900	37.37	10.83	48.20	64.03	-15.83	QP
0.1900	21.21	10.83	32.04	54.03	-21.99	AVG
0.2580	29.93	10.83	40.76	61.49	-20.73	QP
0.2580	14.72	10.83	25.55	51.49	-25.94	AVG
0.6099	21.80	10.55	32.35	56.00	-23.65	QP
0.6099	11.01	10.55	21.56	46.00	-24.44	AVG
2.5899	23.08	10.54	33.62	56.00	-22.38	QP
2.5899	3.96	10.54	14.50	46.00	-31.50	AVG
10.4778	25.42	10.85	36.27	60.00	-23.73	QP
10.4778	14.25	10.85	25.10	50.00	-24.90	AVG
22.4340	19.01	11.10	30.11	60.00	-29.89	QP
22.4340	8.17	11.10	19.27	50.00	-30.73	AVG

Remark:

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

100.0 dBμV

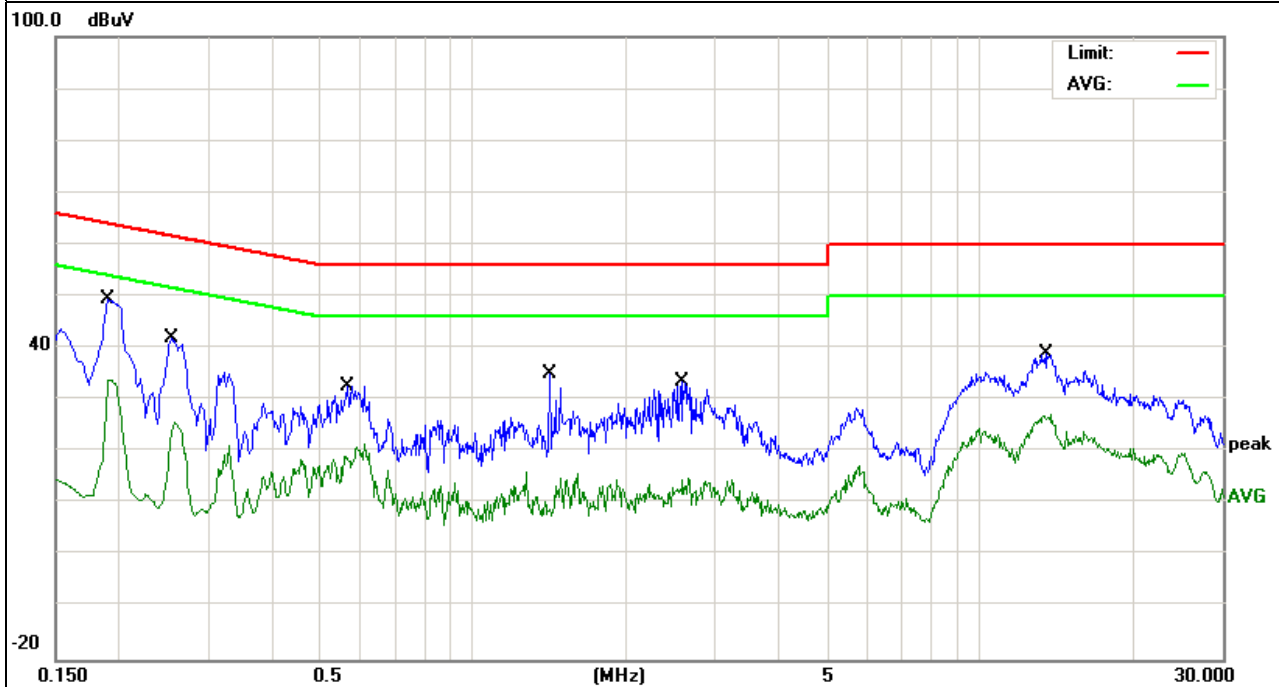


EUT :	Tablet PC	Model Name. :	M600
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2014-05-12
Test Mode :	Mode 1	Phase :	N
Test Voltage :	DC 5V From Notebook AC 120V/60Hz		

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Detector Type
0.19	38.25	11.19	49.44	64.03	-14.59	QP
0.19	22.62	11.19	33.81	54.03	-20.22	AVG
0.25	30.95	10.96	41.91	61.62	-19.71	QP
0.25	14.69	10.96	25.65	51.62	-25.97	AVG
0.57	22.22	10.56	32.78	56.00	-23.22	QP
0.57	10.91	10.56	21.47	46.00	-24.53	AVG
1.42	24.67	10.52	35.19	56.00	-20.81	QP
1.42	5.48	10.52	16.00	46.00	-30.00	AVG
2.59	23.08	10.53	33.61	56.00	-22.39	QP
2.59	4.56	10.53	15.09	46.00	-30.91	AVG
13.52	28.05	10.89	38.94	60.00	-21.06	QP
13.52	16.26	10.89	27.15	50.00	-22.85	AVG

Remark:

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



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:

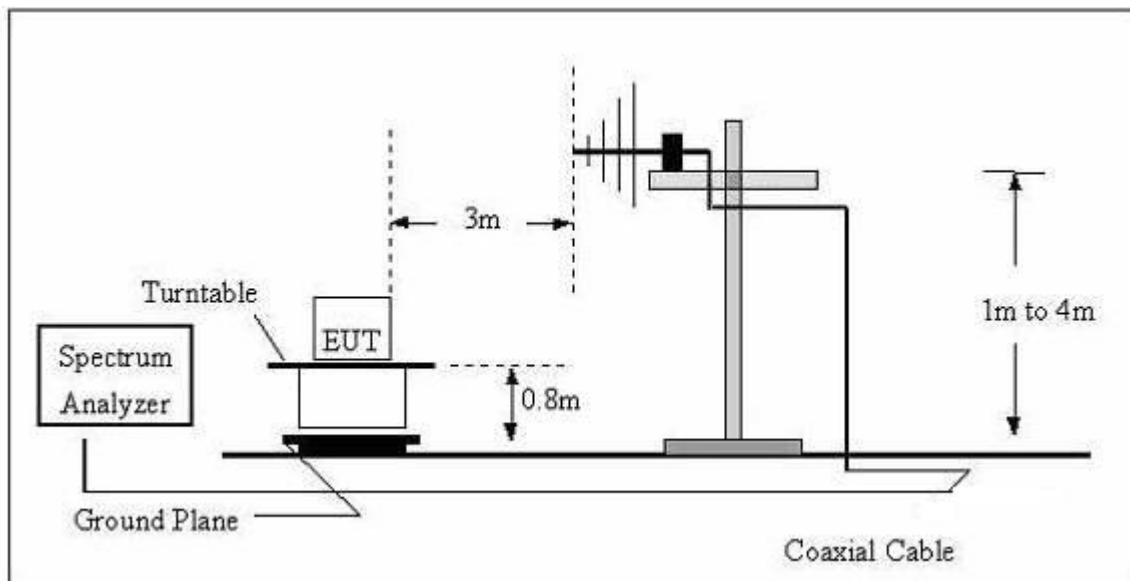
- (1) The limit for radiated test was performed according to as following:
FCC PART 15B /ICES-003.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

3.2.2 TEST PROCEDURE

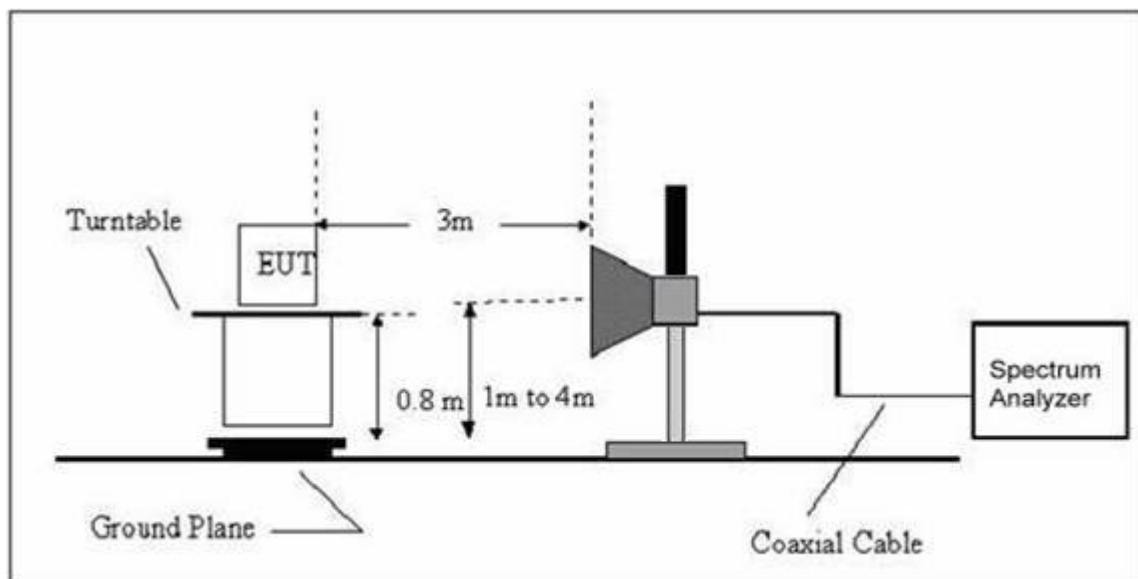
- a. The measuring distance of at 10 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 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.

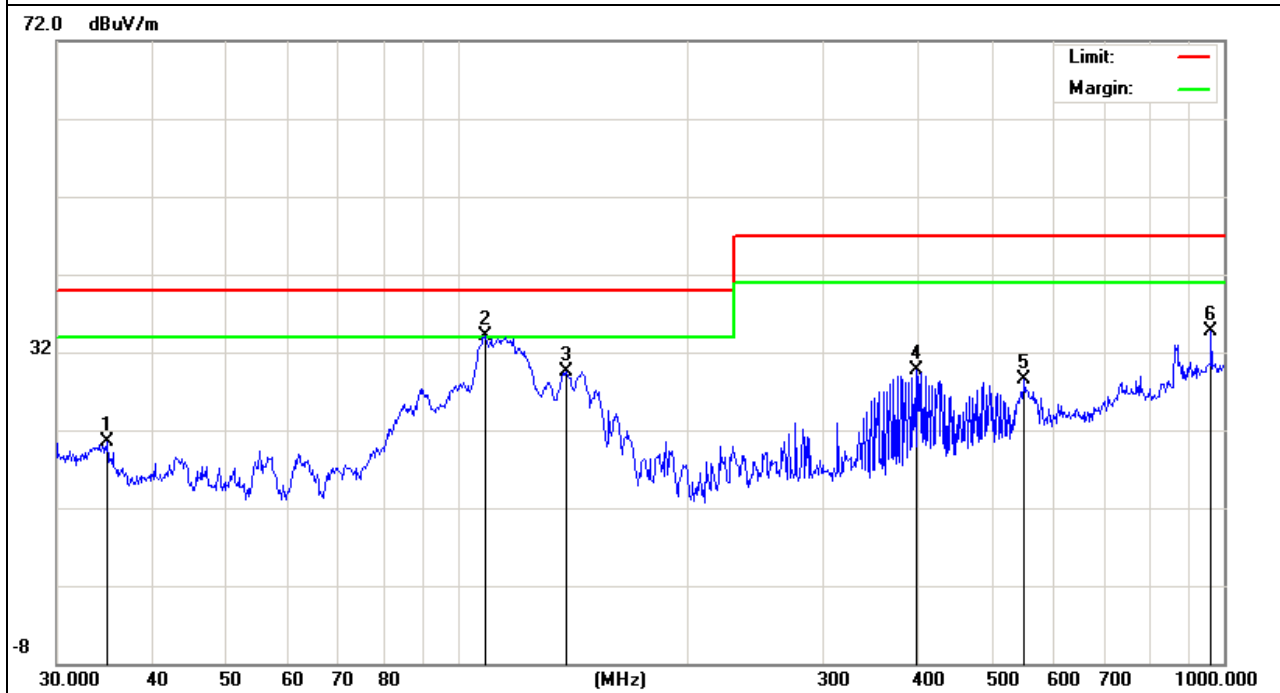
3.2.5 TEST RESULTS

EUT :	Tablet PC	Model Name :	M600
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2014-05-12
Test Mode :	Mode 1	Polarization :	Horizontal
Test Power :	DC 5V From Notebook AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
34.8823	4.63	15.93	20.56	40.00	-19.44	QP
108.6470	22.57	11.47	34.04	40.00	-5.96	QP
138.3873	17.32	12.19	29.51	40.00	-10.49	QP
396.2412	11.72	18.05	29.77	47.00	-17.23	QP
549.0193	4.86	23.59	28.45	47.00	-18.55	QP
962.1621	4.81	29.87	34.68	47.00	-12.32	QP

Remark:

1. Factor = Antenna Factor + Cable Loss - Amplifier.

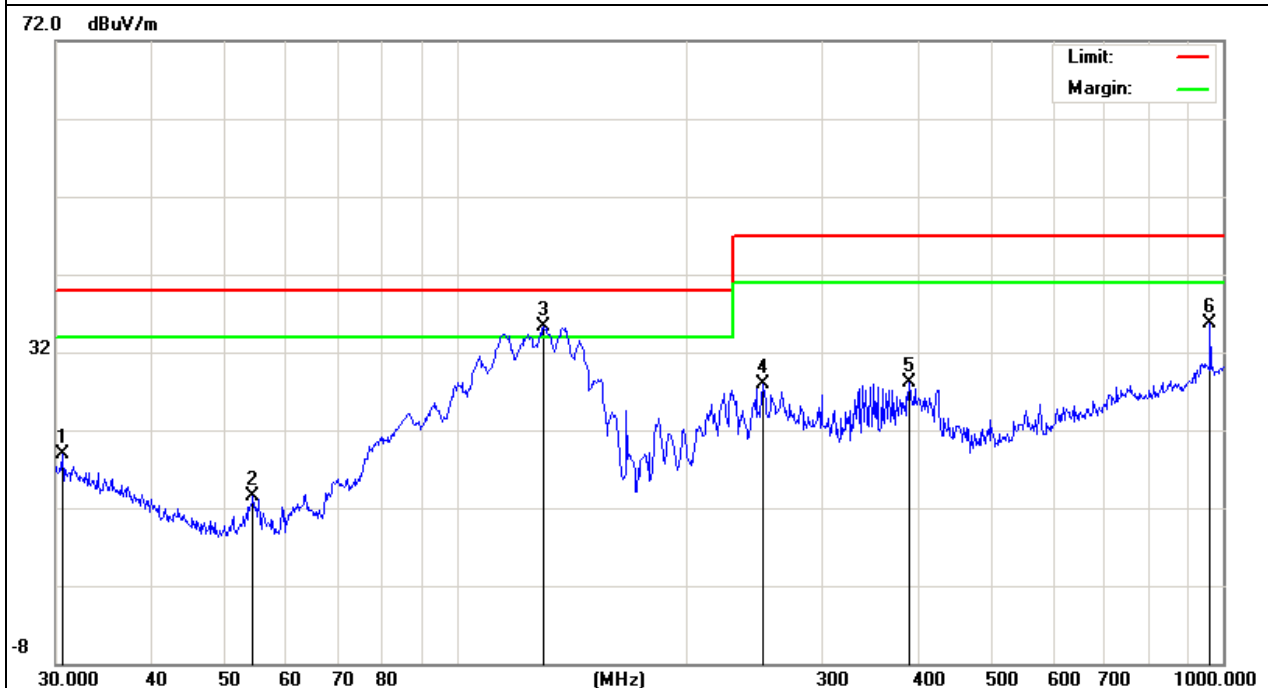


EUT :	Tablet PC	Model Name :	M600
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2014-05-12
Test Mode :	Mode 1	Polarization :	Vertical
Test Power :	DC 5V From Notebook AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
30.6377	0.85	18.04	18.89	40.00	-21.11	QP
54.2610	7.04	6.50	13.54	40.00	-26.46	QP
129.9225	23.17	12.20	35.37	40.00	-4.63	QP
251.1802	14.32	13.68	28.00	47.00	-19.00	QP
389.3548	10.33	17.70	28.03	47.00	-18.97	QP
962.1621	5.82	29.87	35.69	47.00	-11.31	QP

Remark:

1. Factor = Antenna Factor + Cable Loss - Amplifier.



3.2.6 TEST RESULTS(Above 1GHz)

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	
V	1286.527	63.86	-17.84	46.02	74.00	-27.98	peak
V	1787.665	63.21	-15.04	48.17	74.00	-25.83	peak
V	3148.500	69.33	-11.37	57.96	74.00	-16.04	peak
V	3148.500	51.46	-11.37	40.09	54.00	-13.91	peak
V	4576.580	65.35	-5.46	59.89	74.00	-14.11	peak
V	4576.580	45.68	-5.46	40.22	54.00	-13.78	peak
H	1267.582	67.12	-17.79	49.33	74.00	-24.67	peak
H	1867.584	63.05	-14.49	48.56	74.00	-25.44	peak
H	3435.656	67.55	-9.80	57.75	74.00	-16.25	peak
H	3435.656	47.46	-9.80	37.66	54.00	-16.34	peak
H	4725.380	64.32	-4.46	59.86	74.00	-14.14	peak
H	4725.380	42.59	-4.46	38.13	54.00	-15.87	peak

Remark:

Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit

4. EUT TEST PHOTO

Radiated Measurement Photos



Conducted Measurement Photos

