FCC Test Report

FCC ID: 2ABQR-M100

Product： Tablet PC

Trade Name：

Model Number： M100

Serial Model： N/A

Report No.： NTEK-2014NT0114980F4

Prepared for

Touch Electronics LLC

4849 Massachusetts Boulevard, College Park, GA 30337 USA

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.

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TEST RESULT CERTIFICATION

Applicant's name	:	Touch Electronics LLC
Address	:	4849 Massachusetts Boulevard, College Park, GA 30337 USA
Manufacturer's Name	:	Ebot Digital Technology Co.,Ltd.
Address	:	Flat/Rm.1101,11F,San Toi Bldg.,139Connauught Rd.,Central, HongKong

Product description

Product name	:	Tablet PC
Model and/or type reference	:	M100
Standards	:	FCC Part15B:2012 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	:	20 Jan. 2014 ~10 Feb. 2014
Date of Issue	:	11 Feb. 2014
Test Result	:	**Pass**

Testing Engineer : Apple Huang

(Apple Huang)

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: 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** ± **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	Tablet PC
Model Name	M100
Additional Model Number(s)	N/A
Model Difference	N/A
Product Description	The EUT is a Tablet PC. Operating frequency: N/A 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:FLD0710-5.0V1.50A-Z Input: 100-240V~50/60Hz, 0.3A Output: 5V⎓, 2A
Battery	DC 3.7V, 3000mAh

2.1.1 DESCRIPTION OF TEST MODES

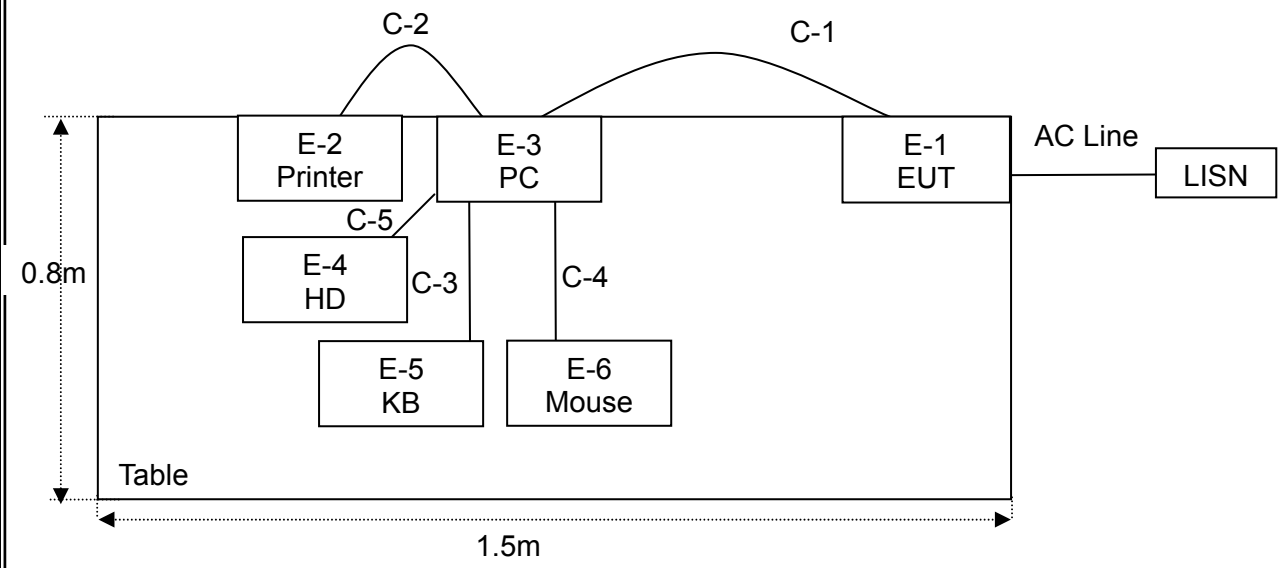
To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration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

Pretest Mode	Description
Mode 1	Data transmission
Mode 2	Charging and playing

For Conducted Test	
Final Test Mode	Description
Mode 1	Data transmission
Mode 2	Charging and playing

For Radiated Test	
Final Test Mode	Description
Mode 1	Data transmission
Mode 2	Charging and playing

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	TOUCH ELECTRONICS	M100	N/A	EUT
E-2	Printer	Canon	L11121E	LBP2900	
E-3	PC	FT4Y23X	34413561645	PC1	
E-4	HD	Buffalo inc.	HD-PET320U2	55571500924085	
E-5	KB	HP	KB-0318	434820-AA2SVH	
E-6	Mouse	Logi	M-U0026	810-002181	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0.8m	
C-2	NO	NO	0.8m	
C-3	NO	NO	1.2m	
C-4	NO	NO	1.2m	
C-5	NO	NO	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.
(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. 24, 2013	Dec. 23, 2014	1 year
3	Pulse Limiter	SCHWARZBECK	VTSD 9561F	9716	Dec. 24, 2013	Dec. 23, 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. 24, 2013	Dec. 23, 2014	1 year
3	Test Cable	N/A	R-02	N/A	Dec. 24, 2013	Dec. 23, 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.

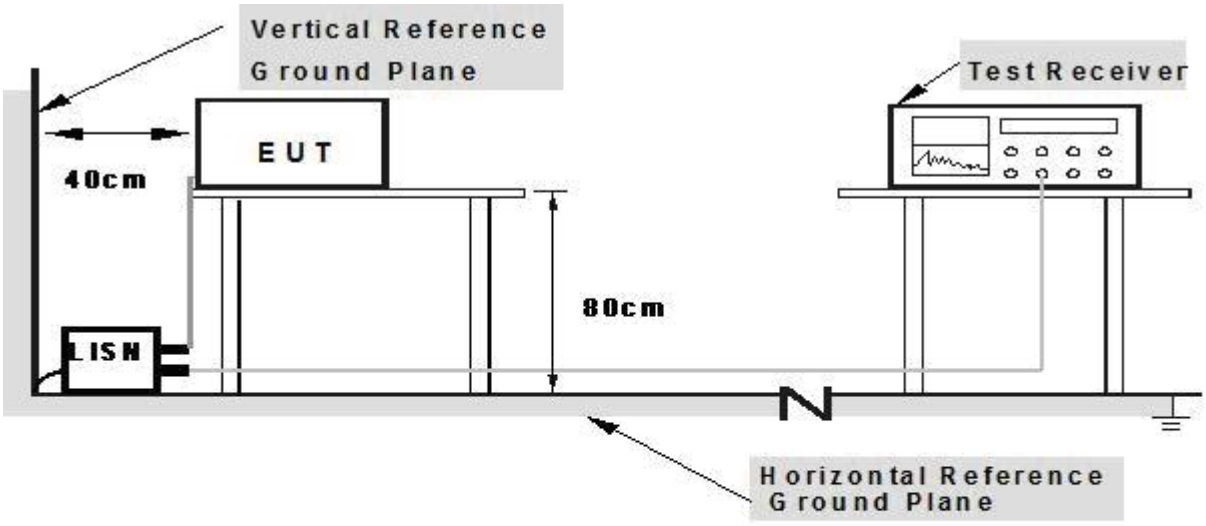
The following table is the setting of the receiver

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

3.1.2 TEST PROCEDURE

a. 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.
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

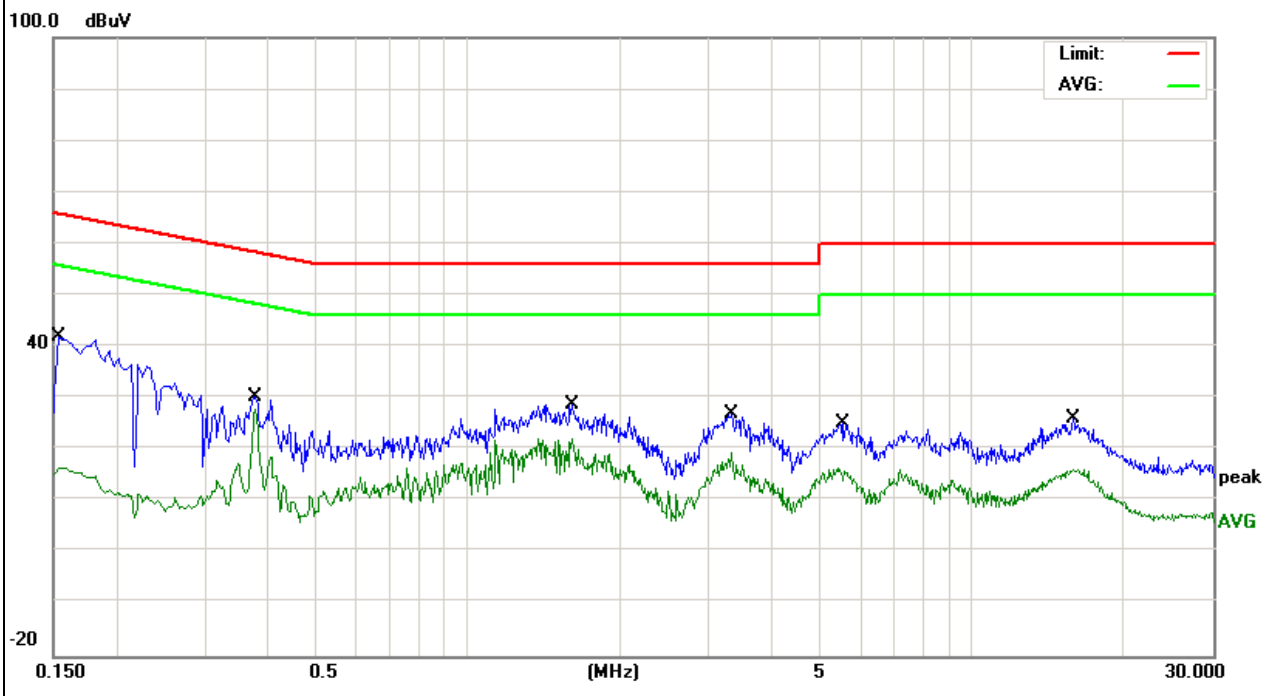
The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

3.1.5 TEST RESULTS

EUT：	Tablet PC	Model Name. ：	M100
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Test Date：	2014-02-10
Test Mode：	Mode 1	Phase：	L
Test Voltage ：	DC 5V From Notebook AC 120V/60Hz		

(MHz)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	Detector
0.1539	32.19	9.82	42.01	65.78	-23.77	QP
0.1539	6.69	9.82	16.51	55.78	-39.27	AVG
0.378	20.38	10.02	30.4	58.32	-27.92	AVG
0.378	17.94	10.02	27.96	48.32	-20.36	QP
1.61	18.56	10.21	28.77	56	-27.23	QP
1.61	11.82	10.21	22.03	46	-23.97	AVG
3.338	16.58	10.31	26.89	56	-29.11	QP
3.338	9.02	10.31	19.33	46	-26.67	AVG
5.5499	14.7	10.4	25.1	60	-34.9	AVG
5.5499	6.07	10.4	16.47	50	-33.53	QP
15.8739	15.56	10.54	26.1	60	-33.9	QP
15.8739	5.62	10.54	16.16	50	-33.84	AVG

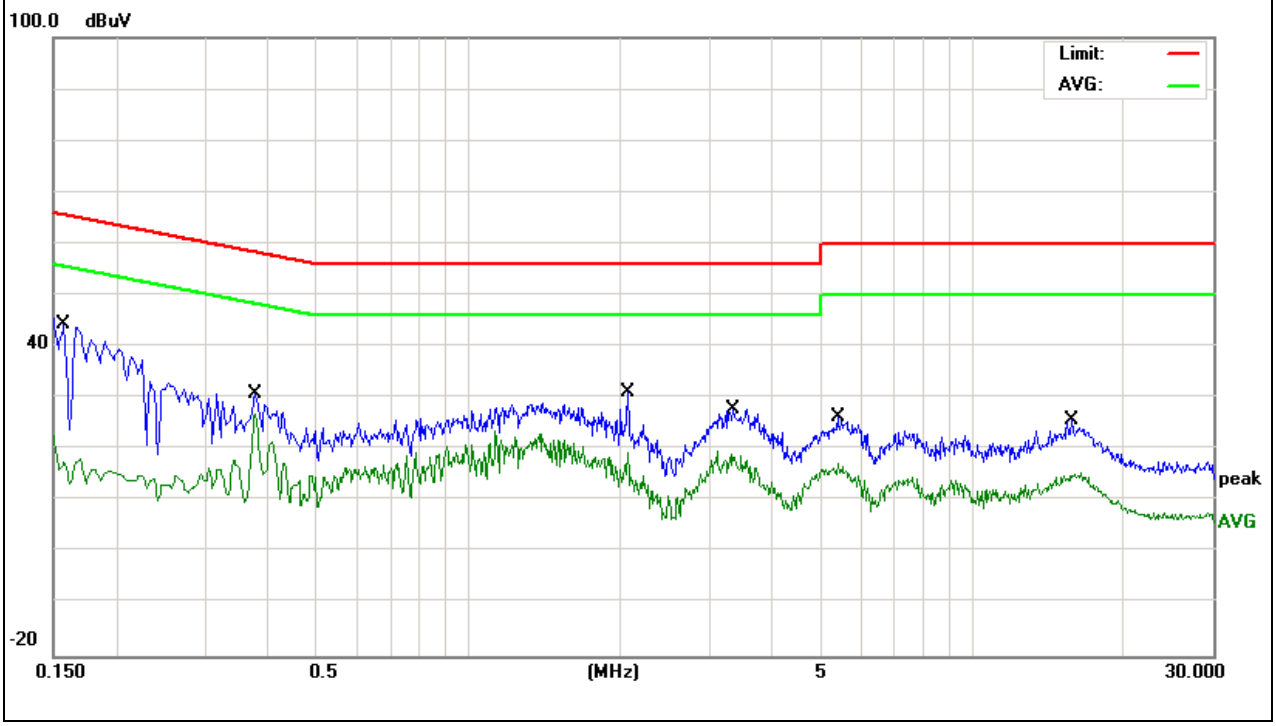
Remark:
Factor = Insertion Loss + Cable Loss.



EUT：	Tablet PC	Model Name. ：	M100
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Test Date：	2014-02-10
Test Mode：	Mode 1	Phase：	N
Test Voltage ：	DC 5V From Notebook AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
0.158	34.52	9.81	44.33	65.56	-21.23	QP
0.158	7.97	9.81	17.78	55.56	-37.78	AVG
0.378	20.75	10.02	30.77	58.32	-27.55	QP
0.378	16.82	10.02	26.84	48.32	-21.48	AVG
2.066	20.97	10.25	31.22	56	-24.78	AVG
2.066	9.31	10.25	19.56	46	-26.44	QP
3.358	17.56	10.31	27.87	56	-28.13	QP
3.358	8.97	10.31	19.28	46	-26.72	AVG
5.4019	15.85	10.39	26.24	60	-33.76	QP
5.4019	7.06	10.39	17.45	50	-32.55	AVG
15.7419	15.24	10.54	25.78	60	-34.22	AVG
15.7419	4.92	10.54	15.46	50	-34.54	QP

Remark:
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.

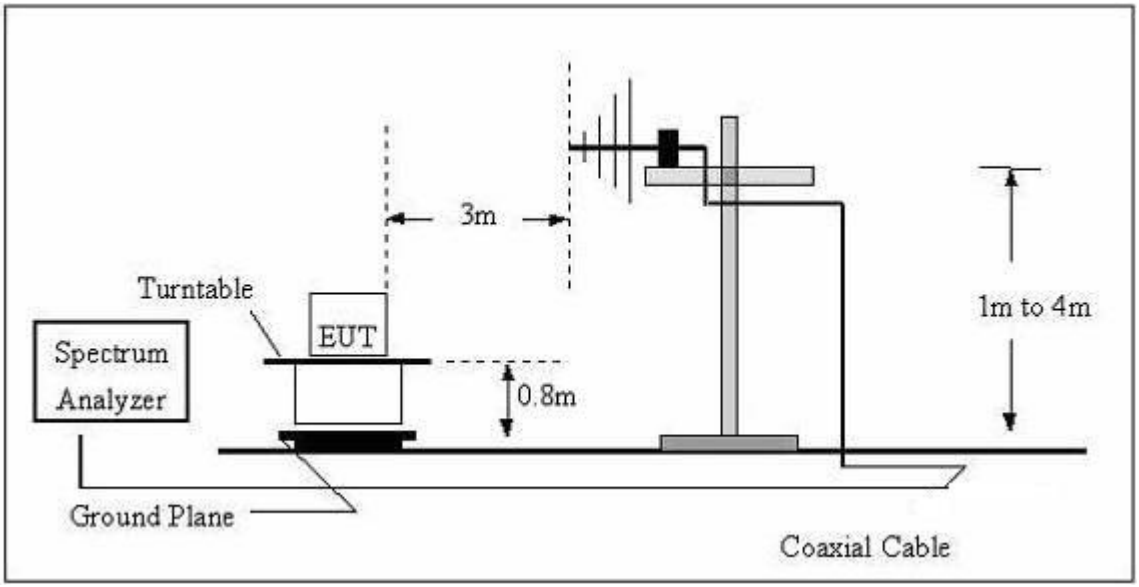
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured, above 1G Average detector mode will be instead.

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.

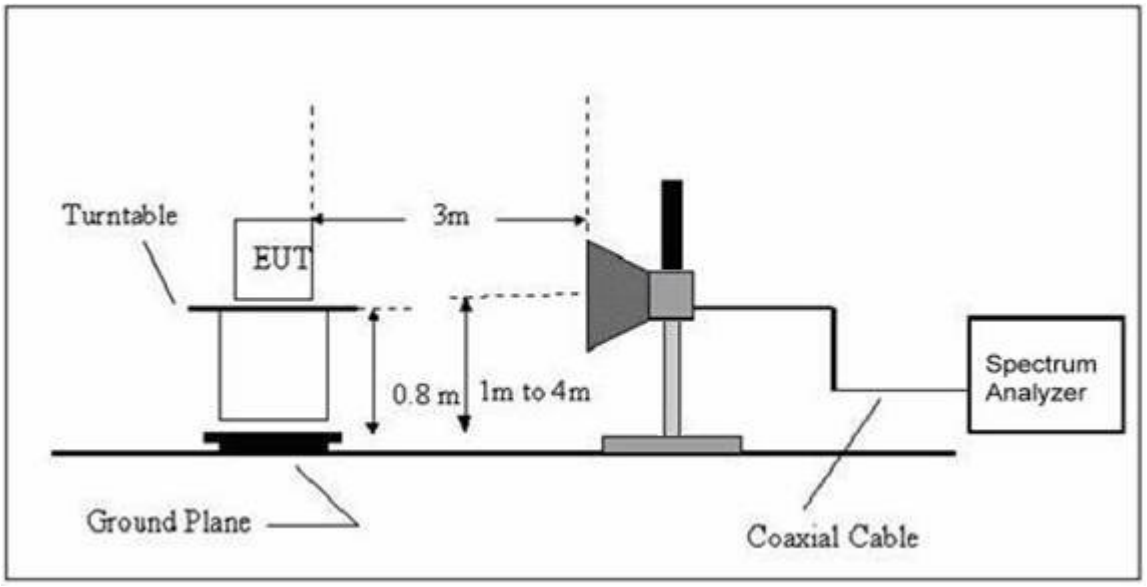
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

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

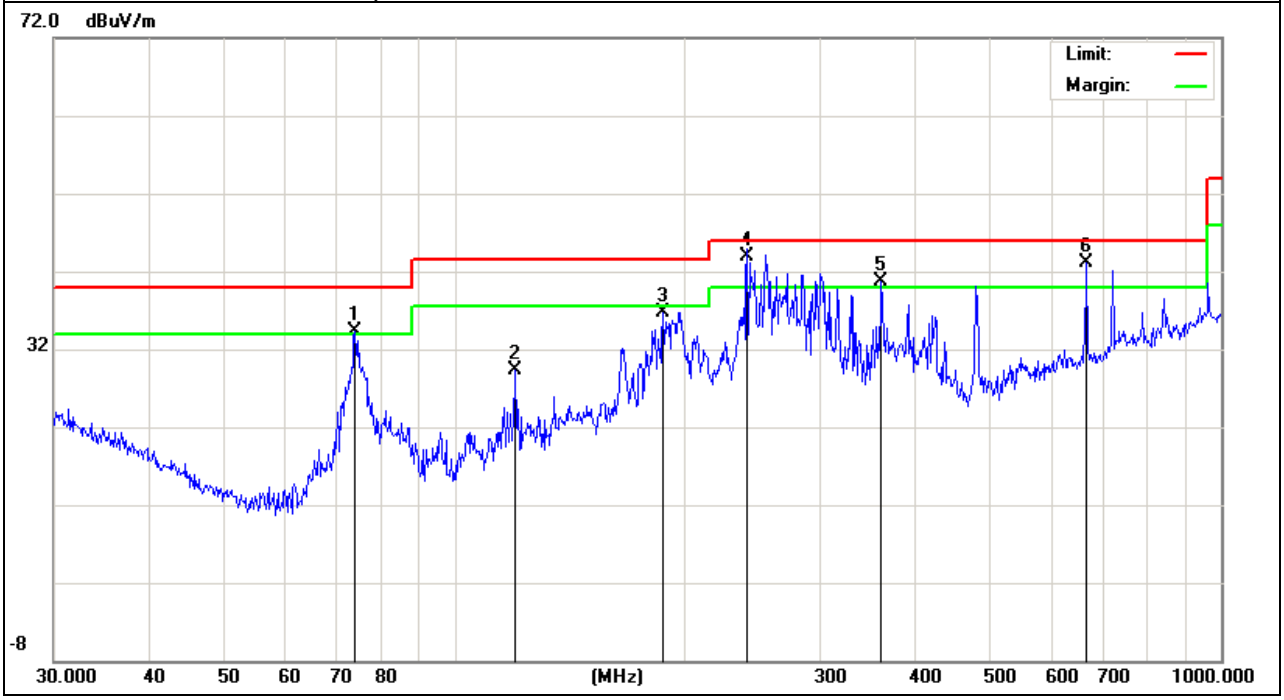
The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.5 TEST RESULTS

EUT：	Tablet PC	Model Name ：	M100
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	N/A
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
74.135	27.61	6.69	34.3	40	-5.7	QP
119.8555	17.15	12.09	29.24	43.5	-14.26	QP
187.0956	27.39	9.41	36.8	43.5	-6.7	QP
240.8302	32.08	11.82	43.9	46	-2.1	QP
360.4476	24.29	16.46	40.75	46	-5.25	QP
668.1422	19.32	23.81	43.13	46	-2.87	QP

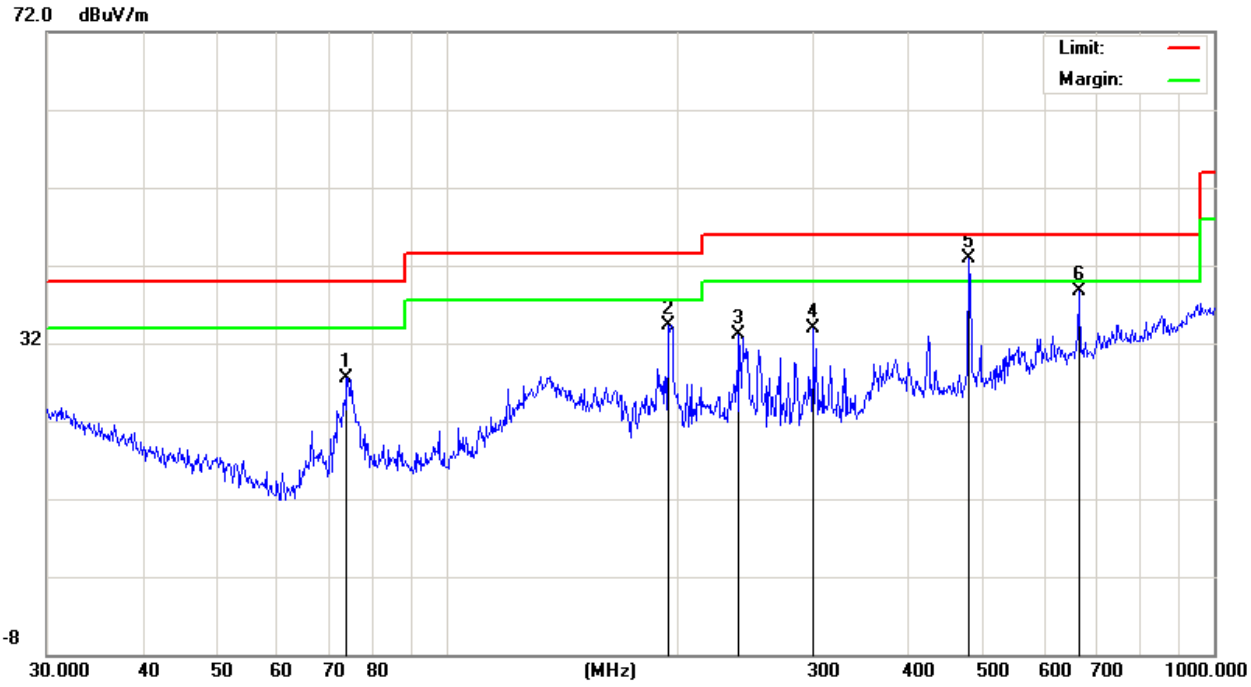
Remark:
1. All readings are Peak and Average values.
2. Factor = Antenna Factor + Cable Loss - Amplifier.
3. N/A means All Data have pass Limit



EUT：	Tablet PC	Model Name ：	M100
Temperature：	24 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Date：	N/A
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
73.8756	20.93	6.65	27.58	40.00	-12.42	QP
194.4533	25.37	8.97	34.34	43.50	-9.16	QP
239.9874	21.43	11.65	33.08	46.00	-12.92	QP
300.3672	19.13	14.75	33.88	46.00	-12.12	QP
478.8455	23.02	19.98	43.00	46.00	-3.00	QP
665.8034	15.02	23.77	38.79	46.00	-7.21	QP

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

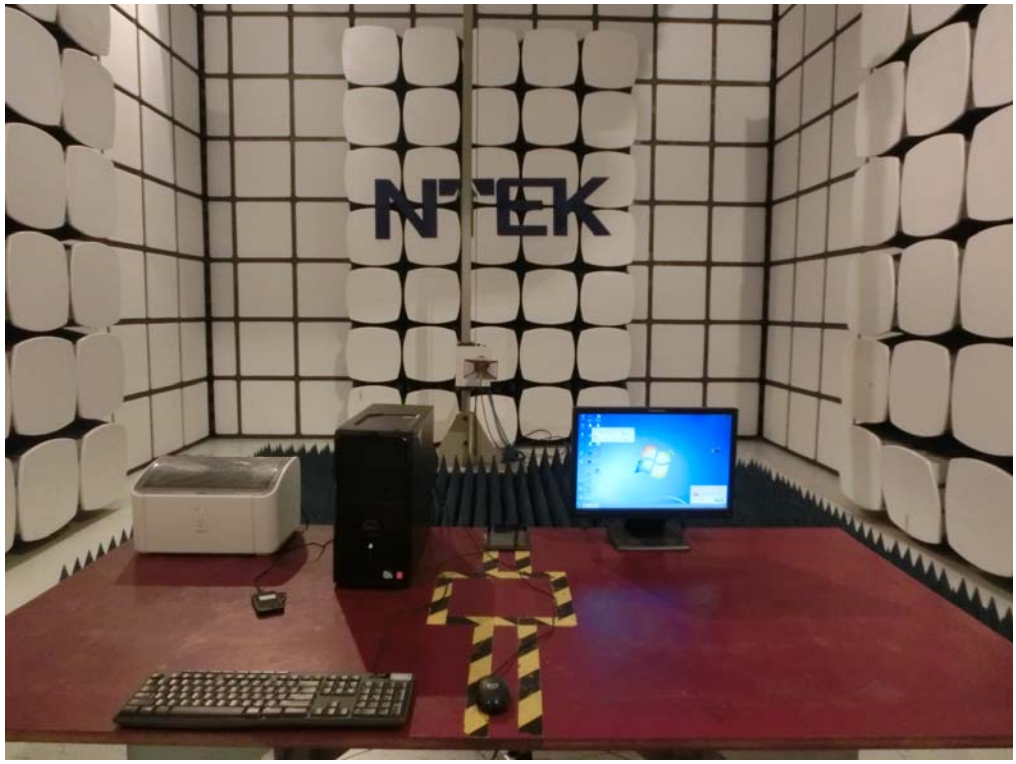


3.2.6 TEST RESULTS(Above 1GHz)

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type	Comment
1187.688	57.92	-18.27	39.65	74	-34.35	QP	Vertical
1636.784	56.73	-16.06	40.67	74	-33.33	QP	Vertical
2453.883	56.89	-12.91	43.98	74	-30.02	QP	Vertical
2806.824	55.18	-11.69	43.49	74	-30.51	QP	Vertical
3924.004	53.81	-6.76	47.05	74	-26.95	QP	Vertical
4874.002	52.37	-3.64	48.73	74	-25.27	QP	Vertical
1187.688	65.53	-18.27	47.26	74	-26.74	QP	Horizontal
1433.535	62.64	-17.12	45.52	74	-28.48	QP	Horizontal
1979.136	66	-13.69	52.31	74	-21.69	QP	Horizontal
2462.692	56.66	-12.88	43.78	74	-30.22	QP	Horizontal
2771.839	56.24	-11.59	44.65	74	-29.35	QP	Horizontal
4926.683	53.26	-3.64	49.62	74	-24.38	QP	Horizontal

4. EUT TEST PHOTO

Radiated Measurement Photos



Conducted Measurement Photos