

# **FCC Test Report**

## **FCC ID: COJTALPV2B7I1**

**Product :** LeafPresenter Tablet

**Trade Name :** Leaf

**Model Number :** V2

**Serial Model :** N/A

**Report No. :** NTEK-2014NT0610898F3

**Prepared for**

Leaf Holdings, Inc.

215 1st Street, 4th Floor, Cambridge, MA 02142, United States

**Prepared by**

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## TEST RESULT CERTIFICATION

**Applicant's name** ..... : Leaf Holdings, Inc.  
**Address** ..... : 215 1st Street, 4th Floor, Cambridge, MA 02142, United States  
**Manufacturer's Name** ..... : Leaf Holdings, Inc.  
**Address** ..... : 215 1st Street, 4th Floor, Cambridge, MA 02142, United States

### Product description

**Product name** ..... : LeafPresenter Tablet  
**Model and/or type reference** : V2

**Standards** ..... : FCC Part15B:2013  
 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** ..... : 10 Jun. 2014 ~20 Jun. 2014

**Date of Issue**..... : 20 Jun. 2014

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

**Testing Engineer** : Kyle Xu  
 (Kyle Xu)

**Technical Manager** : Brown Lu  
 (Brown Lu)

**Authorized Signatory** : Bill Yao  
 (Bill Yao)

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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  $y \pm U$ , 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** %.

### 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	LeafPresenter Tablet	
Model Name	V2	
Additional Model Number(s)	N/A	
Model Difference	N/A	
Product Description	The EUT is a LeafPresenter Tablet .	
	Connecting I/O port:	DC Port
	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	Mode: ASSA2-050250	
	Input: 100-240V~,50/60Hz,0.5A Output: 5.0V---,2.5A	
Battery	DC3.7V, 4500mAh	

## 2.1.1 DESCRIPTION OF TEST MODES

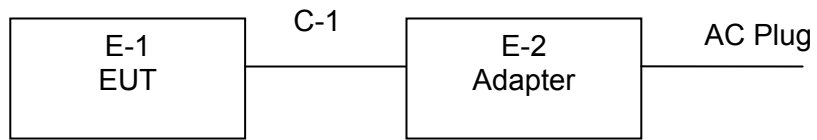
To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration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

Pretest Mode	Description
Mode 1	Charging and playing

For Conducted Test	
Final Test Mode	Description
Mode 1	Charging and playing

For Radiated Test	
Final Test Mode	Description
Mode 1	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	LeafPresenter Tablet	Leaf	V2	N/A	EUT
E-2	Adapter	N/A	ASSA2-050250	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0.8m	

### 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.

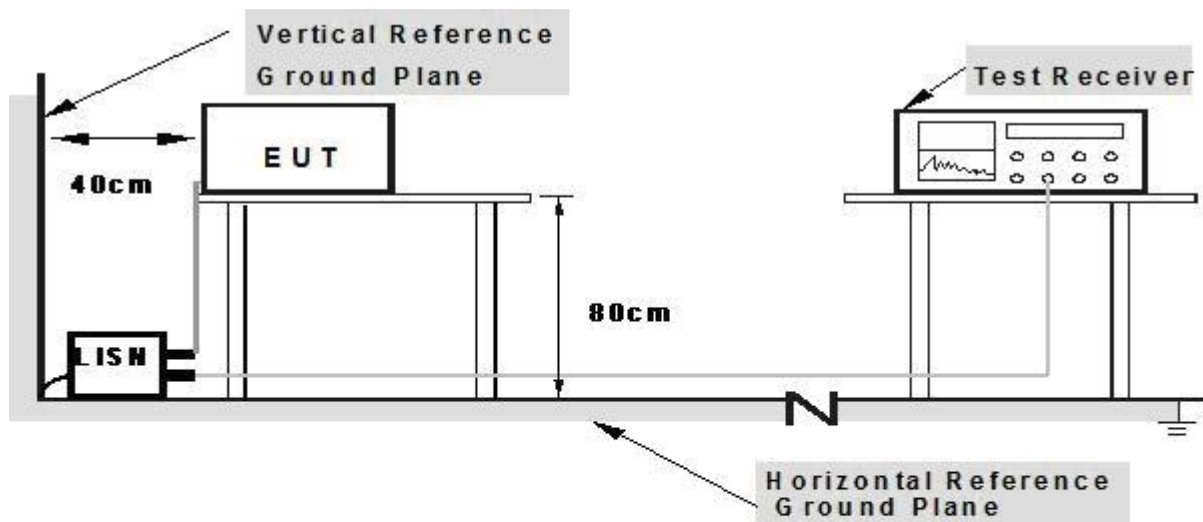
The following table is the setting of the receiver

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.

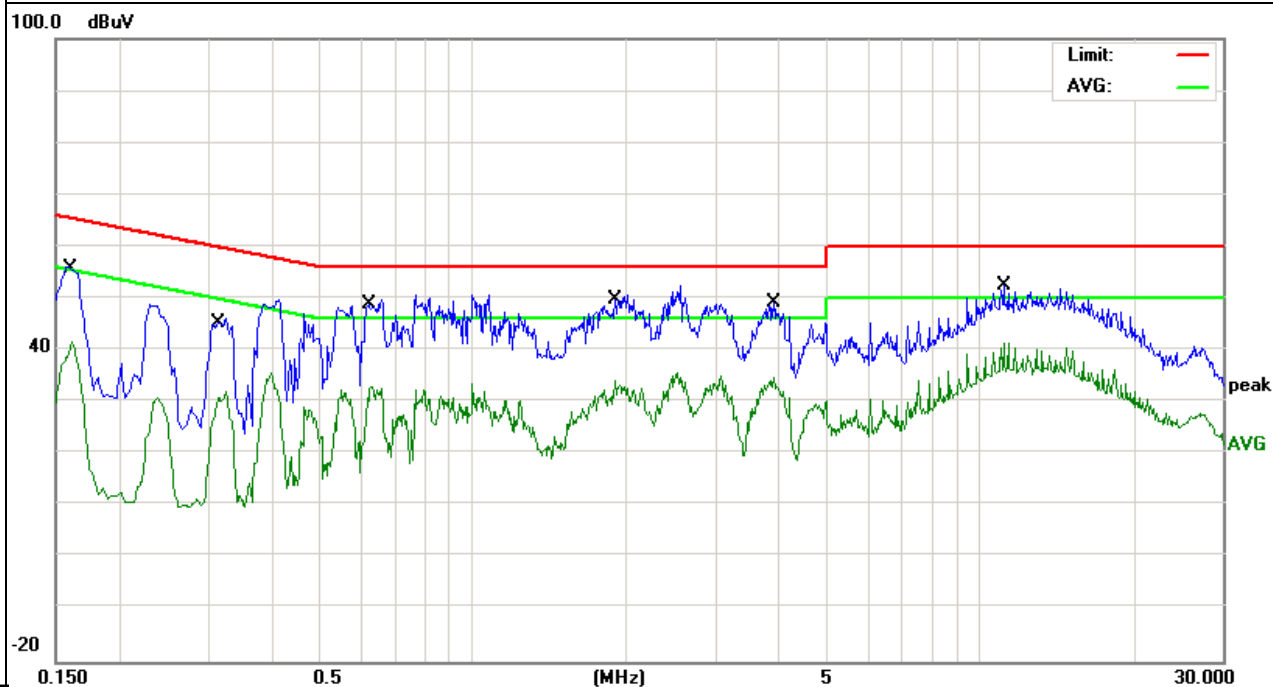
### 3.1.5 TEST RESULTS

EUT :	LeafPresenter Tablet	Model Name. :	V2
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2014-06-20
Test Mode :	Mode 1	Phase :	L
Test Voltage :	DC 5V From adapter AC 120V/60Hz		

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Detector Type
0.1620	45.94	9.62	55.56	65.36	-9.80	QP
0.1620	32.02	9.62	41.64	55.36	-13.72	AVG
0.3140	35.65	9.51	45.16	59.86	-14.70	QP
0.3140	21.41	9.51	30.92	49.86	-18.94	AVG
0.6300	40.47	9.53	50.00	56.00	-6.00	QP
0.6300	25.47	9.53	35.00	46.00	-11.00	AVG
1.9020	44.22	9.57	53.79	56.00	-2.21	QP
1.9020	28.45	9.57	38.02	46.00	-7.98	AVG
3.9180	39.49	9.59	49.08	56.00	-6.92	QP
3.9180	25.11	9.59	34.70	46.00	-11.30	AVG
11.1299	42.75	9.76	52.51	60.00	-7.49	QP
11.1299	31.54	9.76	41.30	50.00	-8.70	AVG

Remark:

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



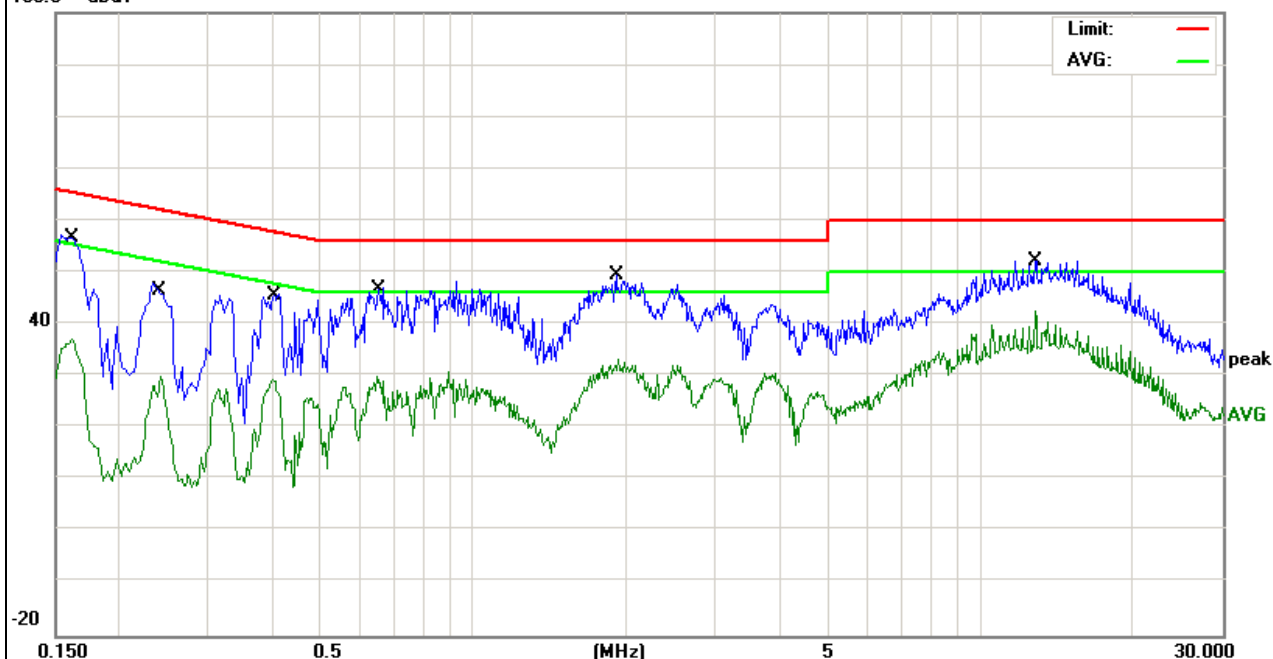
EUT :	LeafPresenter Tablet	Model Name. :	V2
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Test Date :	2014-06-20
Test Mode :	Mode 1	Phase :	N
Test Voltage :	DC 5V From adapter AC 120V/60Hz		

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1620	47.07	9.62	56.69	65.36	-8.67	QP
0.1620	27.54	9.62	37.16	55.36	-18.20	AVG
0.2420	36.48	9.50	45.98	62.02	-16.04	QP
0.2420	20.44	9.50	29.94	52.02	-22.08	AVG
0.4020	35.51	9.52	45.03	57.81	-12.78	QP
0.4020	19.77	9.52	29.29	47.81	-18.52	AVG
0.6460	34.94	9.53	44.47	56.00	-11.53	QP
0.6460	20.54	9.53	30.07	46.00	-15.93	AVG
1.9340	37.45	9.57	47.02	56.00	-8.98	QP
1.9340	23.53	9.57	33.10	46.00	-12.90	AVG
12.8019	42.50	9.80	52.30	60.00	-7.70	QP
12.8019	32.64	9.80	42.44	50.00	-7.56	AVG
0.1620	47.07	9.62	56.69	65.36	-8.67	QP
0.1620	27.54	9.62	37.16	55.36	-18.20	AVG

#### Remark:

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

100.0 dBμV



## 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

#### Test Arrangement for Radiated Emissions up to 1 GHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited test facility. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its 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.
- d. 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for quasi-peak detection (QP) at frequency below 1GHz.

#### Test Arrangement for Radiated Emissions above 1 GHz.

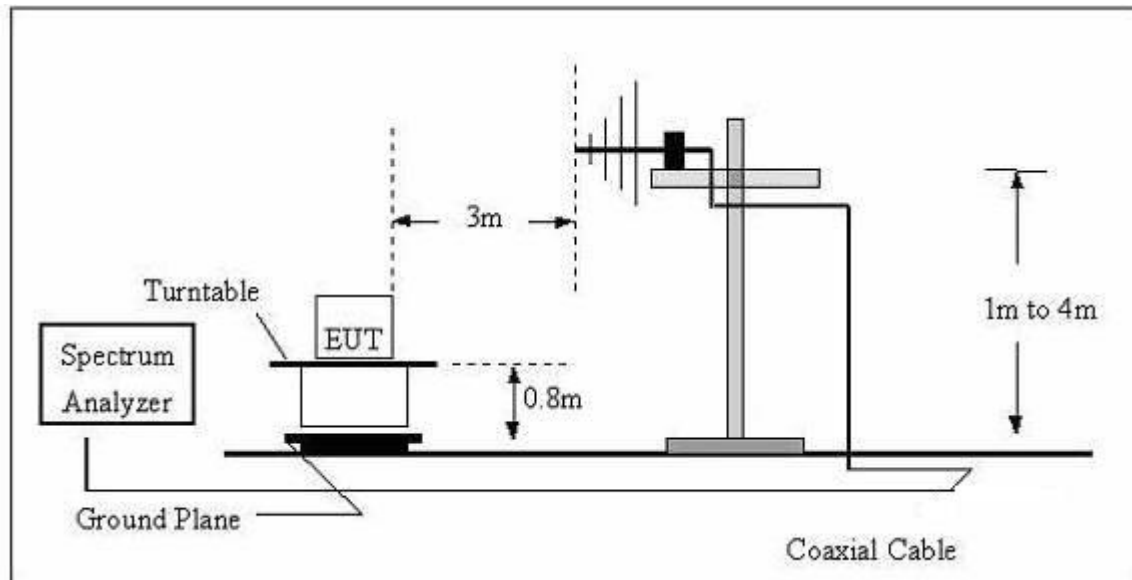
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna can be varied from one meter to four meters, the height of adjustment depends on the EUT height and the antenna 3dB beamwidth both, to detect the maximum value of the field strength.Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights and the rotatable table was turned from 0 degrees to 360 degrees to find

the maximum reading.

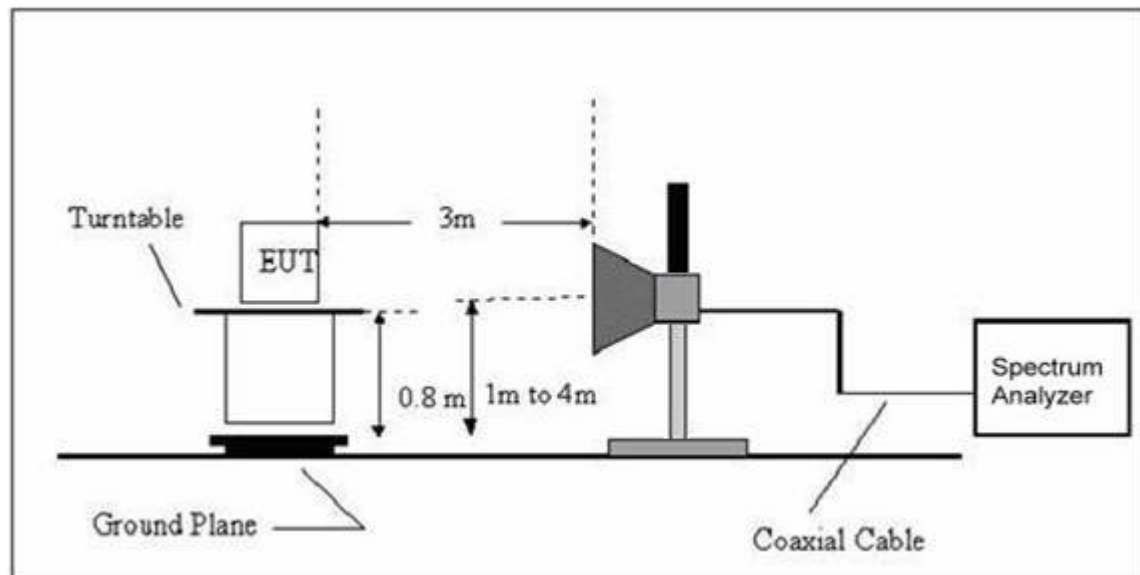
- e. The spectrum analyzer system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz

### 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.



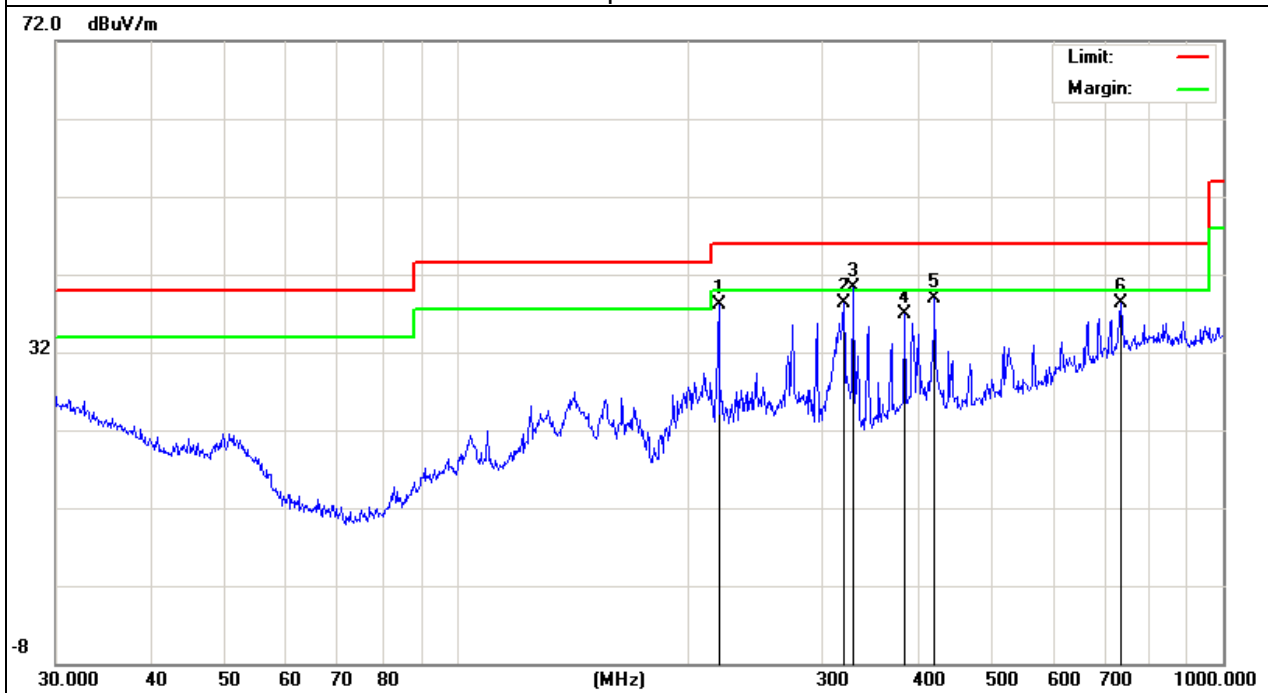
### 3.2.5 TEST RESULTS

EUT :	LeafPresenter Tablet	Model Name :	V2
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2014-06-20
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
219.8449	25.96	12.12	38.08	46.00	-7.92	QP
319.9370	23.37	14.98	38.35	46.00	-7.65	QP
329.039	25.01	15.36	40.37	46.00	-5.63	QP
383.9318	19.30	17.64	36.94	46.00	-9.06	QP
420.5803	20.27	18.72	38.99	46.00	-7.01	QP
734.4913	12.57	25.70	38.27	46.00	-7.73	QP

Remark:

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

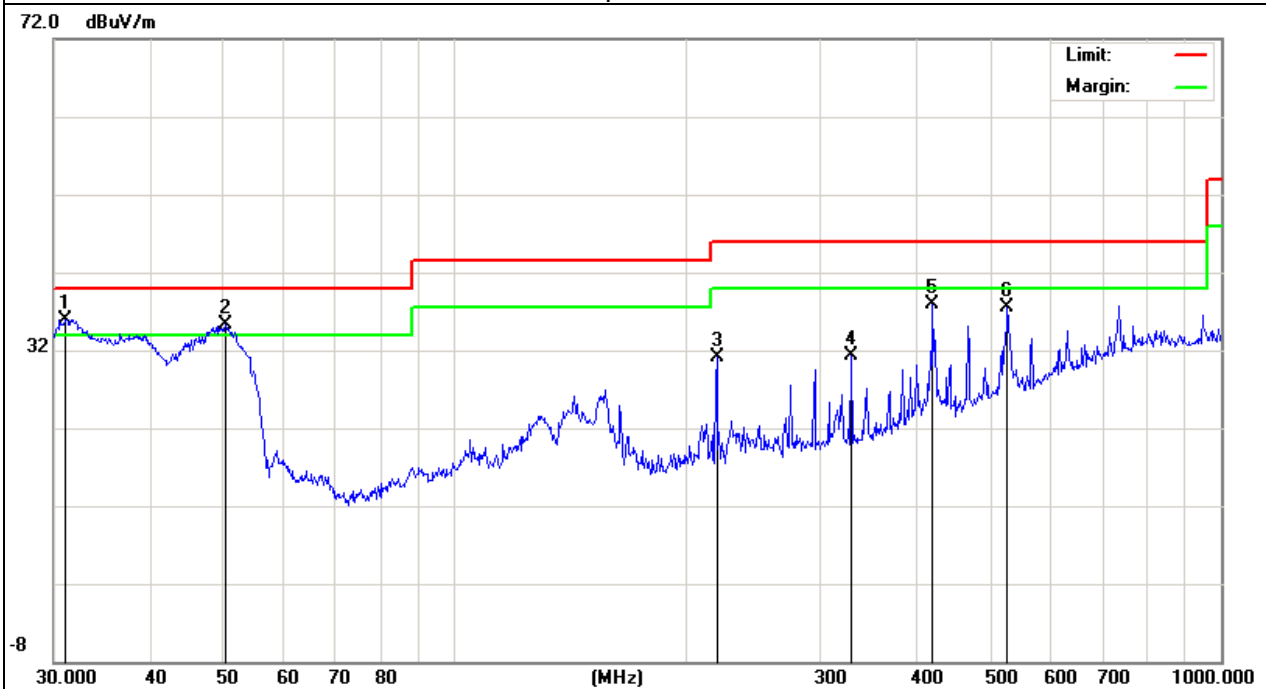


EUT :	LeafPresenter Tablet	Model Name :	V2
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2014-06-20
Test Mode :	Mode 1	Polarization :	Vertical
Test Power :	DC 5V From adapter AC 120V/60Hz		

Freq. (MHz)	Reading (dBuV)	Factor (dBuV)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
31.0706	17.16	18.84	36.00	40.00	-4.00	QP
50.2324	24.74	10.62	35.36	40.00	-4.64	QP
219.8446	18.98	12.12	31.10	46.00	-14.90	QP
329.0389	16.02	15.36	31.38	46.00	-14.62	QP
420.5803	19.20	18.72	37.92	46.00	-8.08	QP
526.3967	16.61	20.84	37.45	46.00	-8.55	QP

Remark:

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



### 3.2.6 TEST RESULTS(Above 1GHz)

EUT :	LeafPresenter Tablet	Model Name :	V2
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2014-06-20
Test Mode :	Mode 1	Test Power :	DC 5V From adapter AC 120V/60Hz

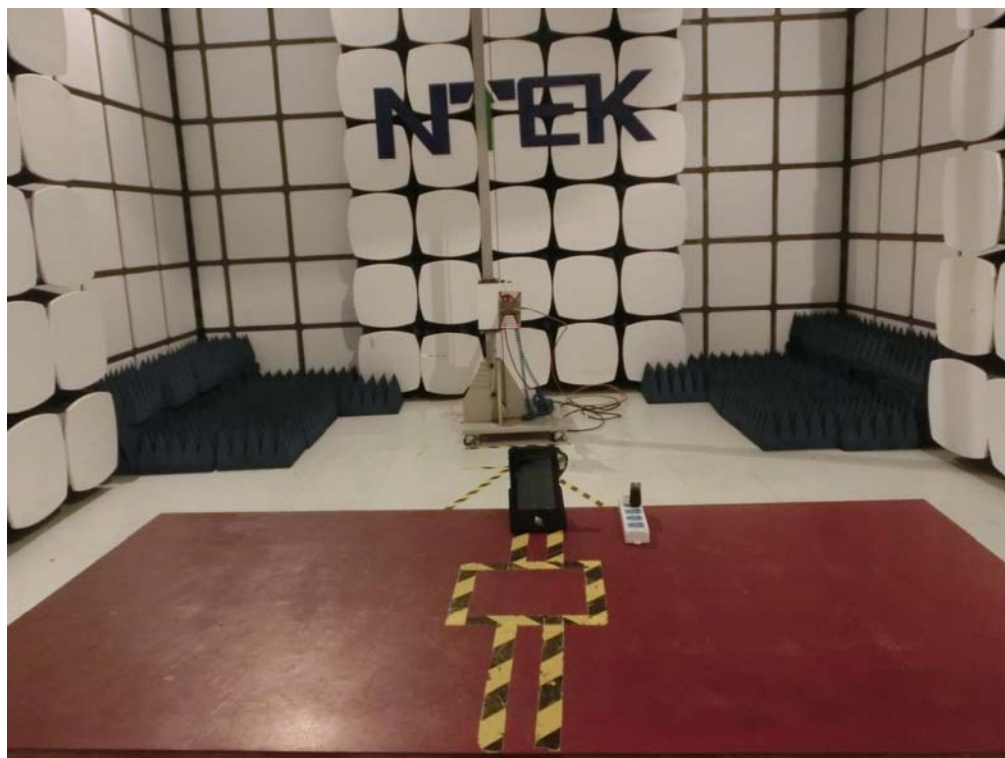
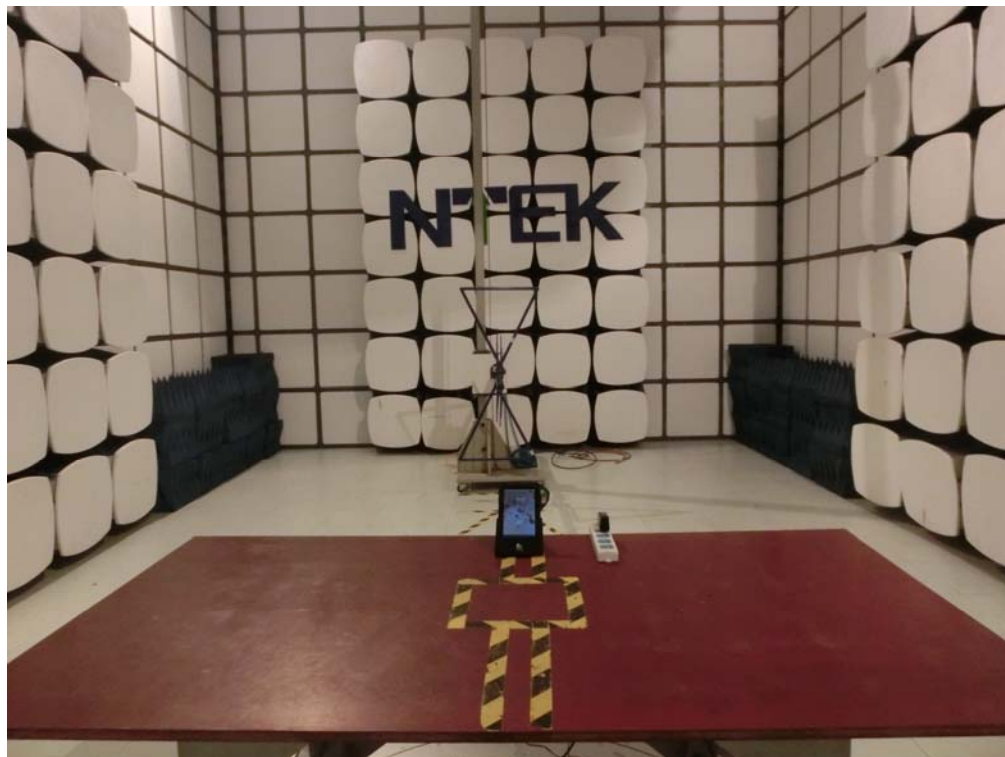
Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	
V	1894.621	85.96	-17.15	68.81	74.00	-5.19	peak
V	1894.621	60.82	-17.15	43.67	54.00	-10.33	AVG
V	2657.389	82.37	-15.76	66.61	74.00	-7.39	peak
V	2657.389	59.34	-15.76	43.58	54.00	-10.42	AVG
V	4013.629	76.71	-11.22	65.49	74.00	-8.51	peak
V	4013.629	53.98	-11.22	42.76	54.00	-11.24	AVG
H	1896.351	81.81	-17.14	64.67	74.00	-9.33	peak
H	1896.351	58.40	-17.14	41.26	54.00	-12.74	AVG
H	3116.378	82.03	-15.54	66.49	74.00	-7.51	peak
H	3116.378	58.51	-15.54	42.97	54.00	-11.03	AVG
H	4361.254	75.44	-10.13	65.31	74.00	-8.69	peak
H	4361.254	51.49	-10.13	41.36	54.00	-12.64	AVG

**Remark:**

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

#### 4. EUT TEST PHOTO

**Radiated Measurement Photos**



**Conducted Measurement Photos**

