

**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT  
INTENTIONAL RADIATOR CERTIFICATION TO  
FCC PART 15 SUBPART C REQUIREMENT AND CANADIAN RSS 210  
ISSUE 8 REQUIREMENTS**

*OF*

**Tablet**

**MODEL No.: DMTAB-NV08B**

**FCC ID: ZYQ-DMTAB-NV08B**

**IC: 10558B-DMTABNV08B**

**Trademark: dreamtab**

**REPORT NO.: ES140304032E5**

**ISSUE DATE: March 20, 2014**

*Prepared for*

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## VERIFICATION OF COMPLIANCE

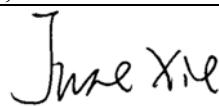
Applicant:	KEEN HIGH HOLDING (HK) LIMITED Unit 13, 7/F Technology Park, 18 On Lai street Shatin New Territories HK
Manufacturer:	KEEN HIGH HOLDING (HK) LIMITED Unit 13, 7/F Technology Park, 18 On Lai street Shatin New Territories HK
Product Description:	Tablet
Model Number:	DMTAB-NV08B
File Number:	ES140304032E5
Date of Test:	March 4, 2014 to March 19, 2014

### We hereby certify that:

The above equipment was tested by SHENZHEN EMTEK CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2009) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.225 and Canadian RSS 210 Issue 8 Requirements..

The test results of this report relate only to the tested sample identified in this report.

Date of Test : March 4, 2014 to March 19, 2014



June Xie /Editor

Prepared by :



Joe Xia /Supervisor

Reviewer :



Lisa Wang/Manager

Approve & Authorized Signer :

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## 1 General Information

### 1.1 Product Description

A major technical descriptions of EUT is described as following:

A). Operation Frequency:

2.4G 802.11b/g/n(HT20):2412MHz-2462MHz; 802.11n(HT40): 2422MHz-2452MHz  
5G 802.11a/n(HT20):5180-5240 MHz; 5745-5805 MHz;  
802.11n(HT40): 5190-5230 MHz; 5755-5795 MHz;  
Bluetooth 4.0: 2402-2480MHz; RFID: 13.56MHz

B). Modulation:

GFSK, 1/4  $\Pi$ -DQPSK, 8DPSK for Bluetooth DSS+EDR;

GFSK for Bluetooth DTS(BLE)

OFDM with BPSK/QPSK/16QAM/64QAM for 802.11a/g/n,

DSSS with DBPSK/DQPSK/CCK for 802.11b; ASK for RFID;

C). Number of Channel: 2.4G 802.11b/g/n(HT20): 11channels; 802.11n(HT40): 7channels

5G 802.11a/n(HT20): 8channels; 802.11n(HT40): 4 channels; RFID: 1channel;

Bluetooth 4.0 DSS: 79 channels; Bluetooth 4.0 DTS: 40 channels;

D). Max Peak Conducted Power: 2.4G wifi 15.11dBm, 5G wifi 7.91dBm, Bluetooth 4.0  
DSS: -1.86dBm; Bluetooth 4.0 DTS:0.139dBm

E) Antenna Gain: 1.4dBi for 2.4G WIFI&BT; 2.3dBi for 5G WIFI;

F). Antenna Type: Ceramics antenna

G). Power Supply: DC 3.7V from Li-ion Battery and DC 5V from AC adapter

H). Adapter : Model: W12-010N3A

Input: AC 100-240V, 50/60Hz, 0.3A

Output: DC 5.0V, 2A

Note: for a more detailed features description, please refer to the manufacturer's  
specifications or the User's Manual.

### 1.2 Related Submittal(s) / Grant(s)

This submittal(s) (test report) is intended for FCC ID: ZYQ-DMTAB-NV08B filing to  
comply with Section 15.247 of the FCC Part 15, Subpart C Rules and also intended for IC ID:  
10558B-DMTABNV08B filing to comply with Canadian RSS 210 Issue 8.0.

The composite system is compliance with Subpart B is authorized under a DOC procedure.

### **1.3 Test Methodology**

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2009). Radiated testing was performed at an antenna to EUT distance 3 meters.

### **1.4 Special Accessories**

Not available for this EUT intended for grant.

### **1.5 Equipment Modifications**

Not available for this EUT intended for grant.

### **1.6 Test Facility**

#### **Site Description**

EMC Lab. : Accredited by CNAS, 2013.10.29  
The certificate is valid until 2016.10.28  
The Laboratory has been assessed and proved to be in compliance with CNAS/CL01: 2006(identical to ISO/IEC17025: 2005)  
The Certificate Registration Number is L2291

Accredited by TUV Rheinland Shenzhen 2010.5.25  
The Laboratory has been assessed according to the requirements ISO/IEC 17025

Accredited by FCC, October 28, 2010  
The Certificate Registration Number is 406365.

Accredited by Industry Canada, March 05, 2010  
The Certificate Registration Number is 46405-4480.

#### **Name of Firm**

: SHENZHEN EMTEK CO., LTD.

#### **Site Location**

: Bldg 69, Majialong Industry Zone,  
Nanshan District, Shenzhen, Guangdong, China

## 2 System Test Configuration

### 2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

### 2.2 EUT Exercise

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

### 2.3 Test Procedure

#### 2.3.1 Conducted Emissions

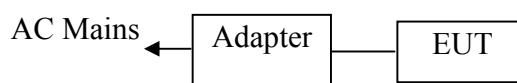
The EUT is placed on a turn table which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4-2009 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.

#### 2.3.2 Radiated Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.4-2009.

### 2.4 Configuration of Tested System

**Fig. 2-1 Configuration of Tested System**



**Table 2-1 Equipment Used in Tested System**

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	IC ID	Series No.	Note
1.	Tablet	dreamtab	DMTAB-N V08B	ZYQ-DMTAB- NV08B	10558B-DMTABN V08B	N/A	EUT

**Note:**

(1) Unless otherwise denoted as EUT in 『Remark』 column, device(s) used in tested system is a support equipment.

### 3 Summary of Test Results

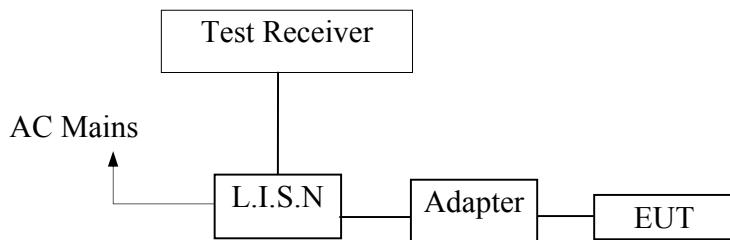
<b>FCC Rules</b>	<b>IC Rules</b>	<b>Description Of Test</b>	<b>Result</b>
§15.207	RSS-GEN, Section 7.2.2	AC Power Conducted Emission	Compliant
§15.225, §15.209	RSS-210 A2.6	Radiated Emission	Compliant
§15.225(e)	RSS-210 A2.6	Frequency Stability	Compliant
§15.203	N/A	Antenna Application	Compliant

## 4 Conducted Emissions Test

### 4.1 Measurement Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured was complete.

### 4.2 Test SET-UP (Block Diagram of Configuration)



### 4.3 Measurement Equipment Used

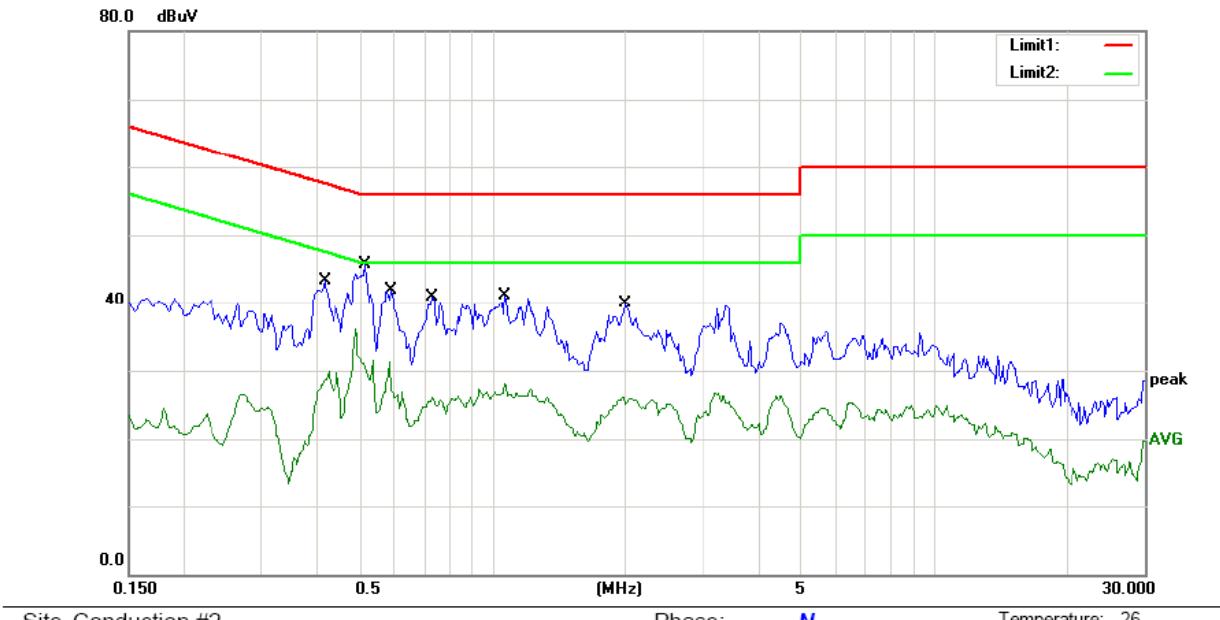
Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Test Receiver	Rohde & Schwarz	ESCS30	828985/018	05/29/2013	05/28/2014
L.I.S.N.	Schwarzbeck	NNLK8129	8129203	05/29/2013	05/28/2014
50Ω Coaxial Switch	Anritsu	MP59B	M20531	N/A	N/A
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100006	05/29/2013	05/28/2014
Voltage Probe	Rohde & Schwarz	TK9416	N/A	05/29/2013	05/28/2014
I.S.N	Rohde & Schwarz	ENY22	1109.9508.02	05/29/2013	05/28/2014

### 4.4 Conducted Emission Limit

Conducted Emission Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

**Note:** 1. The lower limit shall apply at the transition frequencies  
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

## 4.5 Measurement Result



Site Conduction #2

Phase: **N**

Temperature: 26

Limit: (CE)FCC PART 15 class B\_QP

Power: AC 120V/60Hz

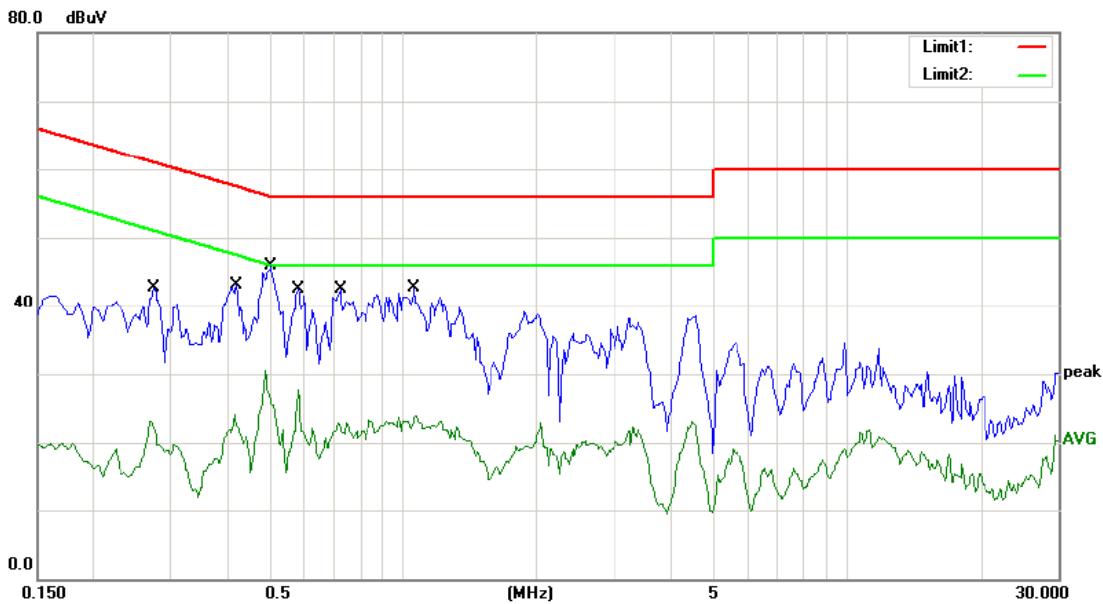
Humidity: 60 %

Mode: Bluetooth & WIFI& RFID on

Note:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.4150	43.28	0.00	43.28	57.55	-14.27	QP	
2		0.4150	30.00	0.00	30.00	47.55	-17.55	AVG	
3	*	0.5150	45.63	0.00	45.63	56.00	-10.37	QP	
4		0.5150	31.45	0.00	31.45	46.00	-14.55	AVG	
5		0.5900	41.80	0.00	41.80	56.00	-14.20	QP	
6		0.5900	30.94	0.00	30.94	46.00	-15.06	AVG	
7		0.7300	40.93	0.00	40.93	56.00	-15.07	QP	
8		0.7300	26.06	0.00	26.06	46.00	-19.94	AVG	
9		1.0700	41.03	0.00	41.03	56.00	-14.97	QP	
10		1.0700	28.07	0.00	28.07	46.00	-17.93	AVG	
11		2.0000	39.94	0.00	39.94	56.00	-16.06	QP	
12		2.0000	26.01	0.00	26.01	46.00	-19.99	AVG	

\*:Maximum data    x:Over limit    !:over margin    Comment: Factor build in receiver.    Operator: XY



Site Conduction #2

Phase: **L1**

Temperature: 26

Limit: (CE)FCC PART 15 class B\_QP

Power: AC 120V/60Hz

Humidity: 60 %

Mode: Bluetooth & WIFI& RFID on

Note:

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.2750	42.77	0.00	42.77	60.97	-18.20	QP	
2		0.2750	23.06	0.00	23.06	50.97	-27.91	AVG	
3		0.4200	43.10	0.00	43.10	57.45	-14.35	QP	
4		0.4200	24.15	0.00	24.15	47.45	-23.30	AVG	
5	*	0.5050	45.81	0.00	45.81	56.00	-10.19	QP	
6		0.5050	30.58	0.00	30.58	46.00	-15.42	AVG	
7		0.5800	42.52	0.00	42.52	56.00	-13.48	QP	
8		0.5800	27.67	0.00	27.67	46.00	-18.33	AVG	
9		0.7200	42.41	0.00	42.41	56.00	-13.59	QP	
10		0.7200	22.81	0.00	22.81	46.00	-23.19	AVG	
11		1.0600	42.73	0.00	42.73	56.00	-13.27	QP	
12		1.0600	23.91	0.00	23.91	46.00	-22.09	AVG	

\*:Maximum data    x:Over limit    !:over margin    Comment: Factor build in receiver.    Operator: XY

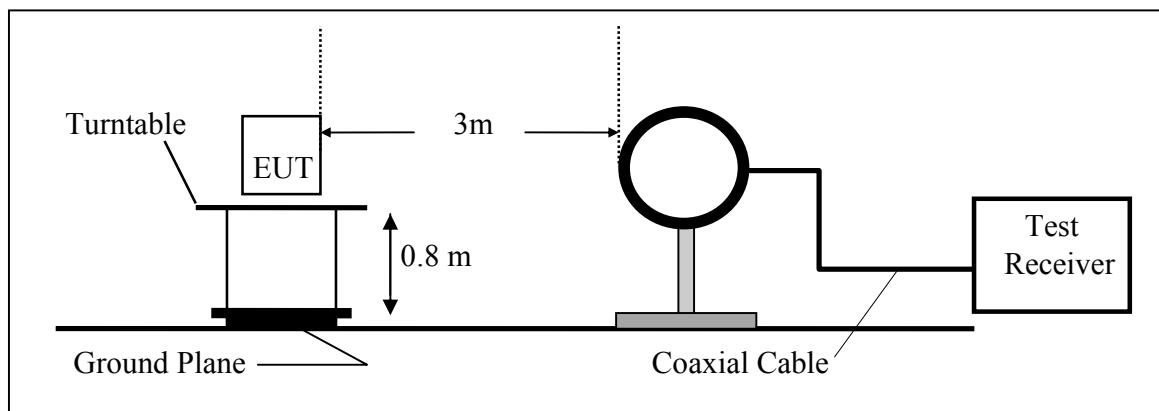
## 5 Radiated Emission Test

### 5.1 Measurement Procedure

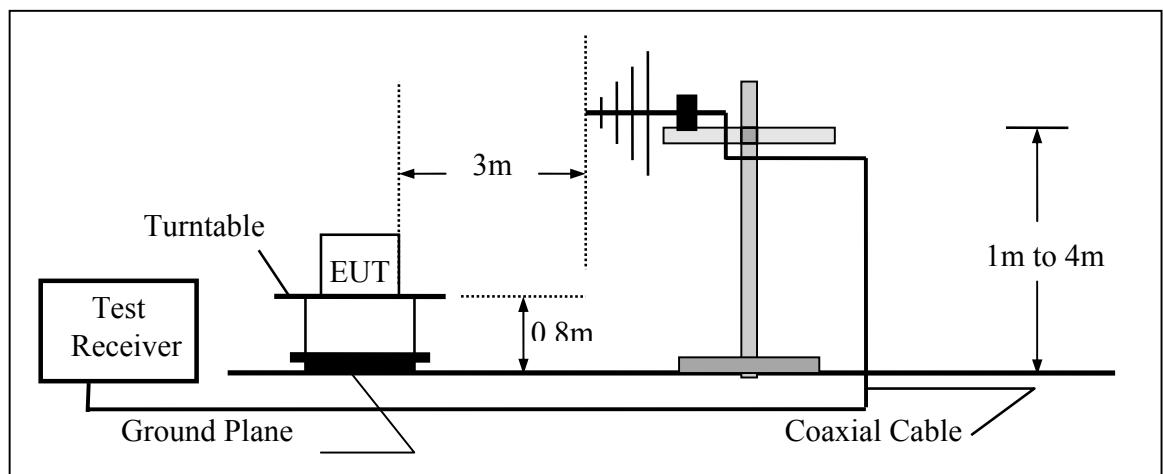
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured were complete.

### 5.2 Test SET-UP (Block Diagram of Configuration)

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



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



### 5.3 Measurement Equipment Used

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	Rohde & Schwarz	ESU	1302.6005.26	May 29, 2013	05/28/2014
Pre-Amplifier	HP	8447D	2944A07999	May 29, 2013	05/28/2014
Bilog Antenna	Schwarzbeck	VULB9163	142	May 29, 2013	05/28/2014
Loop Antenna	Schwarzbeck	FMZB 1519	012	May 29, 2013	05/28/2014
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170399	May 29, 2013	05/28/2014
Horn Antenna	Schwarzbeck	BBHA 9120	D143	May 29, 2013	05/28/2014
Cable	Schwarzbeck	AK9513	ACRX1	May 29, 2013	05/28/2014
Cable	Rosenberger	N/A	FP2RX2	May 29, 2013	05/28/2014
Cable	Schwarzbeck	AK9513	CRPX1	May 29, 2013	05/28/2014
Cable	Schwarzbeck	AK9513	CRRX2	May 29, 2013	05/28/2014

### 5.4 Radiated Emission Limit

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table 15.209(a):

FCC Part 15.209				
Frequency (MHz)	Field Strength Limitation		Field Strength Limitation Frequency at 3m Measurement Dist	
	(uV/m)	Dist	(uV/m)	(dBuV/m)
0.009 – 0.490	2400 / F(KHz)	300m	10000 * 2400/F(KHz)	20log 2400/F(KHz) + 80
0.490 – 1.705	24000 / F(KHz)	30m	100 * 24000/F(KHz)	20log 24000/F(KHz) + 40
1.705 – 30.00	30	30m	100* 30	20log 30 + 40
30.0 – 88.0	100	3m	100	20log 100
88.0 – 216.0	150	3m	150	20log 150
216.0 – 960.0	200	3m	200	20log 200
Above 960.0	500	3m	500	20log 500

FCC Part 15.225(a)/(b)/(c)				
Frequency (MHz)	Field Strength Limitation		Field Strength Limitation Frequency at 3m Measurement Dist	
	(uV/m)	Dist	(uV/m)	(dBuV/m)
13.553 – 13.567	15,848	30 m	15,848*100	124
13.567 – 13.710	334	30 m	334*100	90.5
13.110 – 13.410	106	30 m	106*100	80.5
13.710 – 14.010	106	30 m	106*100	80.5

15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	( <sup>2</sup> )

Remark: 1. Emission level in dBuV/m=20 log (uV/m)

2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of  $\xi$  15.205, and the emissions located in restricted bands also comply with 15.209 limit.

## 5.5 Measurement Result

Operation Mode: TX Mode Test Date : March 4, 2014  
 Frequency Range: 9KHz~30MHz Temperature : 28°C  
 Test Result: PASS Humidity : 65 %  
 Measured Distance: 3m Test By: WOLF

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)	Note
11.64	V	30.54	69.54	-39.00	PK
14.60	V	29.62	69.54	-39.92	PK
19.77	V	30.75	69.54	-38.79	PK
20.18	V	32.17	69.54	-37.37	PK
21.22	V	34.26	69.54	-35.28	PK
13.21	H	30.70	69.54	-38.84	PK
16.90	H	31.77	69.54	-37.77	PK
20.37	H	31.29	69.54	-38.25	PK
26.47	H	30.02	69.54	-39.52	PK
28.07	H	31.51	69.54	-38.03	PK

Operation Mode: TX Mode Test Date : March 4, 2014  
 Frequency Range: 30~1000MHz Temperature : 28°C  
 Test Result: PASS Humidity : 65 %  
 Measured Distance: 3m Test By: WOLF  
 Model: FS3

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)	Note
39.33	V	33.72	40.00	-6.28	PK
87.52	V	30.69	40.00	-9.31	PK
124.82	V	28.90	43.50	-14.60	PK
159.02	V	27.09	43.50	-16.41	PK
180.79	V	27.01	43.50	-16.49	PK
570.96	V	27.90	46.00	-18.10	PK
87.52	H	24.90	40.00	-15.10	PK
160.58	H	26.31	43.50	-17.19	PK
188.56	H	30.91	43.50	-12.59	PK
266.28	H	30.42	46.00	-15.58	PK

Operation Mode: TX Mode Test Date : March 4, 2014  
Frequency Range: 13.110MHz~14.010 MHz Temperature : 28°C  
Test Result: PASS Humidity : 65 %  
Measured Distance: 3m Test By: WOLF

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)	Note
13.56	V	68.28	124	-55.72	PK
13.59	V	44.71	90.5	-45.79	PK
13.23	V	40.28	80.5	-40.22	PK
13.75	V	42.85	80.5	-37.65	PK
13.89	V	42.52	80.5	-37.98	PK
13.56	H	64.63	124	-59.37	PK
13.63	H	43.87	90.5	-46.63	PK
13.21	H	41.88	80.5	-38.62	PK
13.75	H	44.06	80.5	-36.44	PK
13.86	H	40.52	80.5	-39.98	PK

## 6 FREQUENCY STABILITY MEASUREMENT

### 6.1 FREQUENCY STABILITY LIMITS

FCC Part 15.225(e)

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 w battery.

### 6.2 MEASUREMENT INSTRUMENTS LIST

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4407B	88156318	05/29/2013	05/28/2014

### 6.3 TEST PROCEDURE

- a. The equipment under test was connected to an external AC power supply and the RF output was connected to a frequency counter via feed through attenuators. The EUT was placed inside the temperature chamber. After the temperature stabilized for approximately 20 minutes, the frequency of the output signal was recorded from the counter.
- b. At room temperature (25±5°C), an external variable DC power supply was connected to the EUT. The frequency of the transmitter was measured for 115%, 100% and 85% of the nominal operating input voltage.
- c. For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 6.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

## 6.5 TEST RESULTS

E.U.T :	Tablet	Test Mode :	TX Mode
Test Voltage :	AC 120V/60Hz		

Frequency Stability Versus Environmental Temperature					
Temperature (°C)	Voltage (Vac)	Frequency (MHz)	Freq Error (KHz)	Limit (KHz)	Results
-20	120V	13.5623	0.004	+/- 1.356	PASS
-10	120V	13.5623	0.004	+/- 1.356	PASS
0	120V	13.5619	0.000	+/- 1.356	PASS
10	120V	13.5621	0.002	+/- 1.356	PASS
<b>20</b>	<b>120V</b>	<b>13.5619</b>	<b>0.000</b>	+/- 1.356	PASS
30	120V	13.5621	0.002	+/- 1.356	PASS
40	120V	13.5622	0.003	+/- 1.356	PASS
50	120V	13.5618	-0.001	+/- 1.356	PASS

Frequency Stability Versus Input Voltage						
Temperature (°C)	Voltage (Vac)	Frequency (MHz)	Freq Error (KHz)	Limit (KHz)	Results	
20	<b>V-nom</b>	120	13.5618			
20	<b>V-min</b>	102	13.5618	0.00	+/- 1.356	PASS
20	<b>V-max</b>	138	13.5619	0.001	+/- 1.356	PASS

## 7 EMISSION BANDWIDTH

### EMISSION BANDWIDTH LIMIT

Intentional radiators must be designed to ensure that the 20 dB bandwidth of the emissions in the specific band (13.553 – 13.567 MHz).

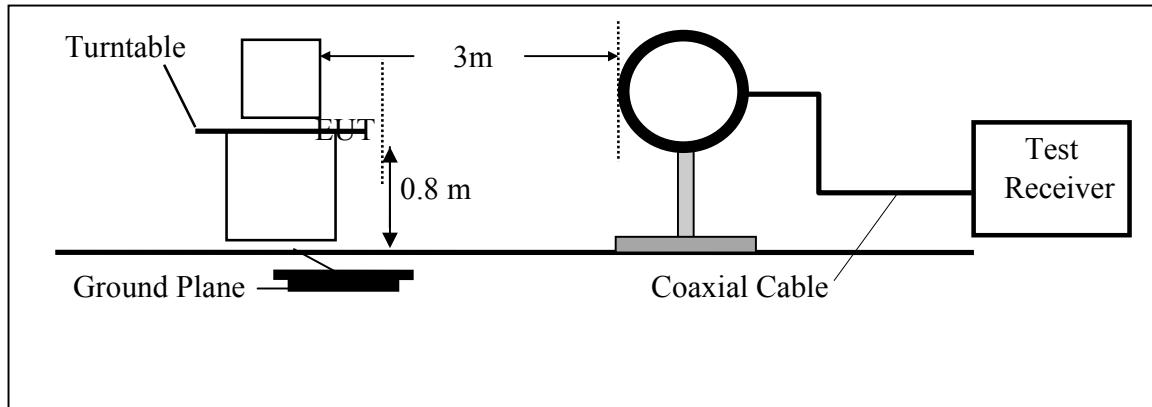
### TEST INSTRUMENTS

Refer a test equipment and calibration data table in this test report.

### TEST PROCEDURE

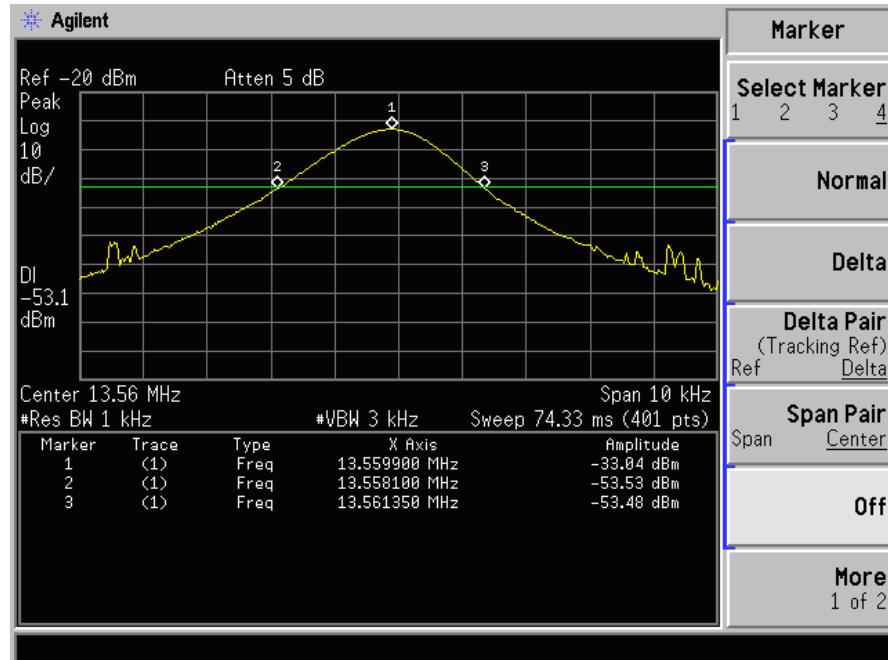
The bandwidth of the fundamental frequency was measured by spectrum analyzer with 1kHz RBW and 3kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

### TEST SETUP



Occupied Channel Bandwidth Result					
Frequency (MHz)	20dB Bandwidth (kHz)	FL at 20dB BW (MHz)	FH at 20dB BW (MHz)	99%Bandwidth (kHz)	Results
13.56	2.66	13.5581	13.5613	3.25	
Limit	N/A	13.553	13.567	N/A	PASS

## TEST PLOT



## 8 Antenna Application

### 8.1 Antenna Requirement

For intentional device, according to FCC 47 CFR Section 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. If transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

### 8.2. Result

The EUT'S antenna is Integral Antenna. The antenna's gain is 0dBi and meets the requirement.