

**ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
INTENTIONAL RADIATOR CERTIFICATION TO
FCC PART 15 SUBPART C REQUIREMENT**

OF

Mobile Internet Device

MODEL No.: NABIXD-NV10A, MT799-XD

FCC ID: ZYQ--NABIXD-NV10A

Trademark: nabi

REPORT NO: ES130109035E4

ISSUE DATE: March 19, 2013

Prepared for

**KEEN HIGH HOLDING (HK) LIMITED
Unit 13, 7/F Technology Park, 18 On Lai street Shatin New Territories HK**

Prepared by

SHENZHEN EMTEK CO., LTD.

**Bldg 69, Majialong Industry Zone, Nanshan District,
Shenzhen, Guangdong, China
TEL: 86-755-26954280
FAX: 86-755-26954282**

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:	Mobile Internet Device
Model Number:	NABIXD-NV10A, MT799-XD
Trademark:	nabi
File Number:	ES130109035E4
Date of Test:	February 12, 2013 to March 17, 2013

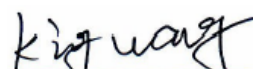
We hereby certify that:

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.

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

Date of Test : February 12, 2013 to March 17, 2013

Prepared by : 
Jessie hu /Editor

Reviewer : 
King Wang/Supervisor


Approve & Authorized Signer : 
Lisa Wang/Manager



Table of Contents

1	GENERAL INFORMATION.....	4
1.1	PRODUCT DESCRIPTION	4
1.2	RELATED SUBMITTAL(S) / GRANT(S).....	4
1.3	TEST METHODOLOGY	5
1.4	SPECIAL ACCESSORIES.....	5
1.5	EQUIPMENT MODIFICATIONS	5
1.6	TEST FACILITY.....	5
2	SYSTEM TEST CONFIGURATION.....	6
2.1	EUT CONFIGURATION	6
2.2	EUT EXERCISE	6
2.3	TEST PROCEDURE	6
2.4	CONFIGURATION OF TESTED SYSTEM	6
3	SUMMARY OF TEST RESULTS.....	8
4	CONDUCTED EMISSIONS TEST	9
4.1	MEASUREMENT PROCEDURE	9
4.2	TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION).....	9
4.3	MEASUREMENT EQUIPMENT USED	9
4.4	CONDUCTED EMISSION LIMIT	9
4.5	MEASUREMENT RESULT	10
5	RADIATED EMISSION TEST.....	11
5.1	MEASUREMENT PROCEDURE	11
5.2	TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION).....	11
5.3	MEASUREMENT EQUIPMENT USED	12
5.4	RADIATED EMISSION LIMIT	12
5.5	MEASUREMENT RESULT	15
6	FREQUENCY STABILITY MEASUREMENT	17
6.1	FREQUENCY STABILITY LIMITS	17
6.2	MEASUREMENT INSTRUMENTS LIST	17
6.3	TEST PROCEDURE.....	17
6.4	EUT OPERATING CONDITIONS	17
6.5	TEST RESULTS.....	18
7	EMISSION BANDWIDTH.....	19
8	ANTENNA APPLICATION	21
8.1	ANTENNA REQUIREMENT	21
8.2.	RESULT	21

1 General Information

1.1 Product Description

A major technical descriptions of EUT is described as following:

- A). Operation Frequency:
Bluetooth: 2402-2480MHz, WIFI 802.11b/g/n : 2412-2462MHz;
802.11a/n :5745MHz~5805MHz; RFID:13.56MHz
- B). Modulation:
Bluetooth: GFSK, 1/4 -DQPSK, 8DPSK for Bluetooth
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: 1 channel for RFID
- D). Antenna Type: PIFA antenna
- E). Antenna GAIN: 0dBi (RFID)
- F). Power Supply: DC 5V with AC Adapter and DC 3.7V from Li-ion Battery.
- H). Adapter : Model: KSA29A0500300D5
Input: AC 100-240V, 50/60Hz, 0.5A MAX
Output: DC 5.0V, 3A

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--NABIXD-NV10A filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

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, 2010.10.29
The certificate is valid until 2013.10.28
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

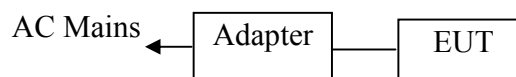


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
1.	Mobile Internet Device	Nabi	NABIXD-NV10 A	ZYQ--NABI XD-NV10A	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

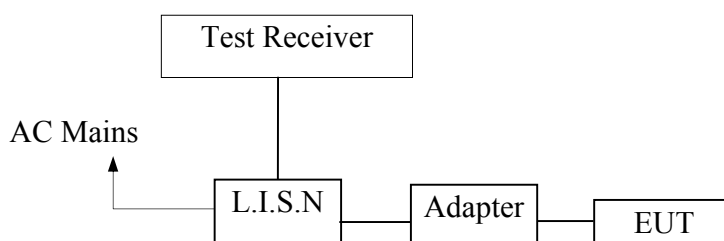
FCC Rules	Description Of Test	Result
§15.207	AC Power Conducted Emission	Compliant
§15.225, §15.209	Radiated Emission	Compliant
§15.225(e)	Frequency Stability	Compliant
§15.203	Antenna Application	Compliant

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	05/29/2012	05/28/2013
L.I.S.N.	Schwarzbeck	NNLK8129	8129203	05/29/2012	05/28/2013
50Ω Coaxial Switch	Anritsu	MP59B	M20531	N/A	N/A
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100006	05/29/2012	05/28/2013
Voltage Probe	Rohde & Schwarz	TK9416	N/A	05/29/2012	05/28/2013
I.S.N	Rohde & Schwarz	ENY22	1109.9508.02	05/29/2012	05/28/2013

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

Date of Test:	March 05, 2013	Temperature:	22
Frequency Detector:	0.15~30MHz	Humidity:	50%
Test Result:	PASS	Test Mode:	TX Mode

Test Line	Frequency MHz	Emission Level QP dB(μV)	Emission Level AV dB(μV)	Limits QP dB(μV)	Limits AV dB(μV)	Over QP dB(μV)	Over AV dB(μV)
Line	0.41	47.61	34.82	57.65	47.65	-10.04	-12.83
	0.56	43.15	27.78	56.17	46.17	-13.02	-18.39
	1.19	40.83	24.78	56	46	-15.17	-21.22
	1.68	44.62	29.32	56	46	-11.38	-16.68
	2.50	43.84	31.4	56	46	-12.16	-14.6
	13.56	43.49	41.24	56	46		
Neutral	0.41	49.96	37.41	57.75	47.75	-7.79	-10.34
	0.56	45.42	29.24	56.23	46.23	-10.81	-16.99
	0.64	43.41	27.02	56	46	-12.59	-18.98
	1.19	39.64	24.47	56	46	-16.36	-21.53
	1.68	45.47	30.13	56	46	-10.53	-15.87
	13.56	42.61	41.82	56	46		

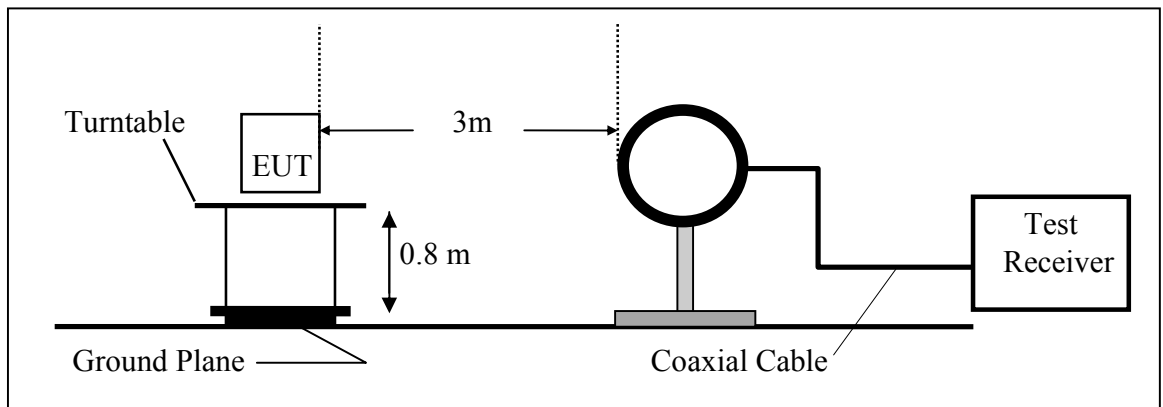
5 Radiated Emission Test

5.1 Measurement Procedure

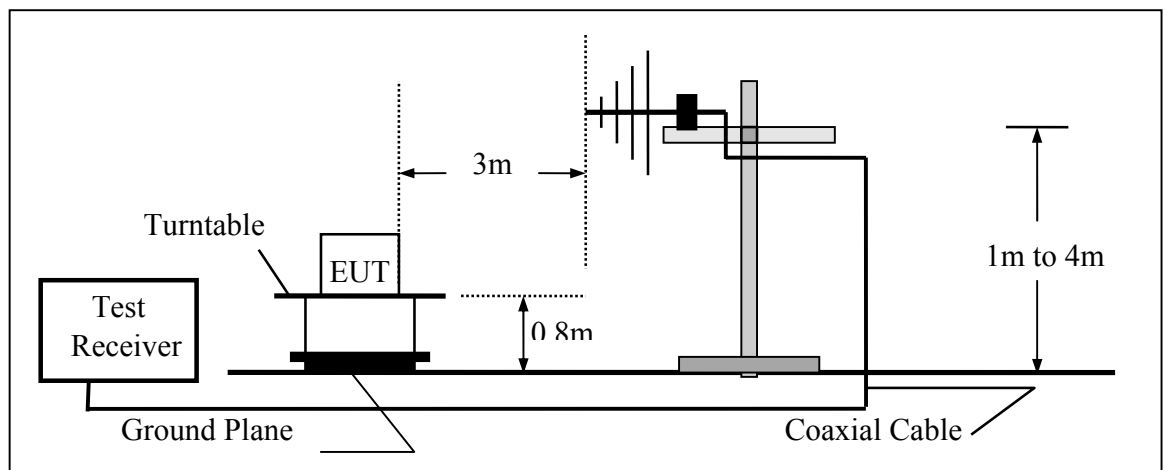
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above 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, 2012	05/28/2013
Pre-Amplifier	HP	8447D	2944A07999	May 29, 2012	05/28/2013
Bilog Antenna	Schwarzbeck	VULB9163	142	May 29, 2012	05/28/2013
Loop Antenna	Schwarzbeck	FMZB 1519	012	May 29, 2012	05/28/2013
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170399	May 29, 2012	05/28/2013
Horn Antenna	Schwarzbeck	BBHA 9120	D143	May 29, 2012	05/28/2013
Cable	Schwarzbeck	AK9513	ACRX1	May 29, 2012	05/28/2013
Cable	Rosenberger	N/A	FP2RX2	May 29, 2012	05/28/2013
Cable	Schwarzbeck	AK9513	CRPX1	May 29, 2012	05/28/2013
Cable	Schwarzbeck	AK9513	CRRX2	May 29, 2012	05/28/2013

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 tion 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 tion 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
¹ 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	(²)

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 § 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 05, 2013
Frequency Range: 9KHz~30MHz Temperature : 28
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
12.53	V	29.42	69.54	-40.12	PK
15.83	V	29.37	69.54	-40.17	PK
17.66	V	29.42	69.54	-40.12	PK
18.97	V	30.05	69.54	-39.49	PK
21.89	V	31.61	69.54	-37.93	PK
14.42	H	29.65	69.54	-39.89	PK
17.79	H	29.72	69.54	-39.82	PK
21.60	H	29.44	69.54	-40.10	PK
24.36	H	29.00	69.54	-40.54	PK
26.86	H	29.83	69.54	-39.71	PK

Operation Mode: TX Mode Test Date : March 05, 2013
Frequency Range: 30~1000MHz Temperature : 28
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
95.29	V	25.85	43.50	-17.65	PK
219.65	V	25.64	46.00	-20.36	PK
384.42	V	32.58	46.00	-13.42	PK
480.80	V	35.74	46.00	-10.26	PK
672.00	V	33.52	46.00	-12.48	PK
179.23	H	38.38	43.50	-5.12	PK
199.44	H	36.18	43.50	-7.32	PK
219.65	H	36.10	46.00	-9.90	PK
672.00	H	38.08	46.00	-7.92	PK
720.19	H	37.20	46.00	-8.80	PK

Operation Mode: TX Mode Test Date : March 05, 2013
 Frequency Range: 13.110MHz~14.010 MHz Temperature : 28
 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	65.85	124.00	-58.15	PK
13.45	V	45.10	90.50	-45.40	PK
13.61	V	40.71	90.50	-49.79	PK
13.25	V	42.49	80.50	-38.01	PK
13.76	V	41.80	80.50	-38.70	PK
13.56	H	63.48	124.00	-60.52	PK
13.44	H	42.85	90.50	-47.65	PK
13.60	H	40.90	90.50	-49.60	PK
13.22	H	43.71	80.50	-36.79	PK
13.72	H	41.54	80.50	-38.96	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 $\pm 0.01\%$ 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	05/29/2012	05/28/2013

6.3 TEST PROCEDURE

- 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.
- At room temperature ($25 \pm 5^\circ\text{C}$), 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.
- 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 :	Mobile Internet Device	Test Mode :	TX Mode
Test Voltage :	AC 120V/60Hz		

Frequency Stability Versus Environmental Temperature					
Temperature ()	Voltage (Vac)	Frequency (MHz)	Freq Error (KHz)	Limit (KHz)	Results
-20	120V	13.56168	0.080	+/- 1.356	PASS
-10	120V	13.56150	-0.100	+/- 1.356	PASS
0	120V	13.56250	0.900	+/- 1.356	PASS
10	120V	13.56070	-0.900	+/- 1.356	PASS
20	120V	13.56170	0.100	+/- 1.356	PASS
30	120V	13.56144	-0.160	+/- 1.356	PASS
40	120V	13.56165	0.050	+/- 1.356	PASS
50	120V	13.56141	-0.190	+/- 1.356	PASS

Frequency Stability Versus Input Voltage						
Temperature ()	Voltage (Vac)		Frequency (MHz)	Freq Error (KHz)	Limit (KHz)	Results
20	V-nom	120	13.56160			
20	V-min	102	13.5616	0.003	+/- 1.356	PASS
20	V-max	138	13.5616	0.003	+/- 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).

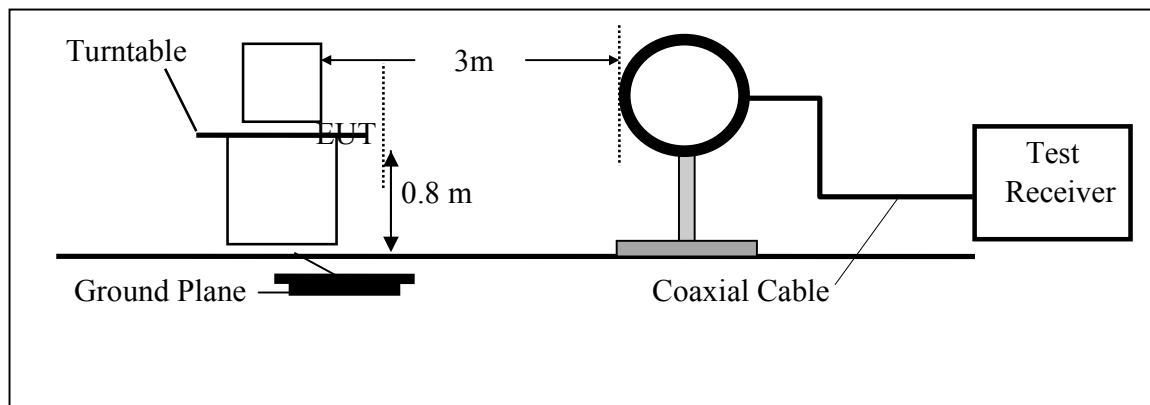
TEST INSTRUMENTS

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

TEST PROCEDURE

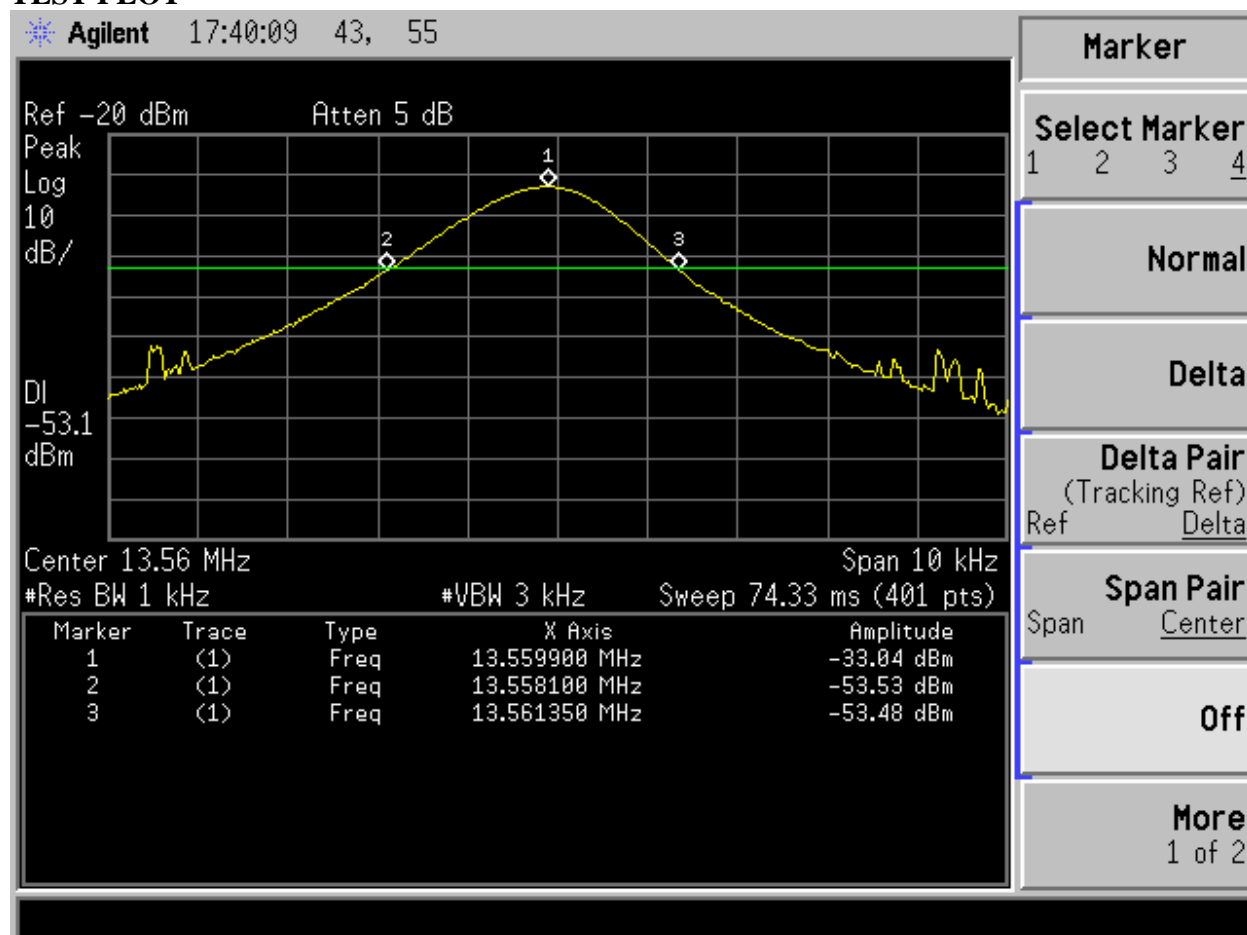
The bandwidth of the fundamental frequency was measured by spectrum analyzer with 1kHz RBW and 3kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

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.