Shenzhen Certification Technology Service Co., Ltd.
2F, Building B, East Area of Nanchang Second Industrial Zone, Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China

TEST REPORT

FCC ID: 2ABUF-LM127

Applicant : Shenzhen Xin Kingbrand Enterprises Co., Ltd

Address : Kingbrand Industrial Zone, Nanpu Road, Shang liao ling pi keng, Shajing Town, Baoan District, Shenzhen City, Guangdong

Equipment Under Test (EUT):

Name : LM127 Rugged Phone

Model : LM127

In Accordance with: FCC PART 15, SUBPART C : 2013 (Section 15.247)

Report No : CST-TCB140118001-1

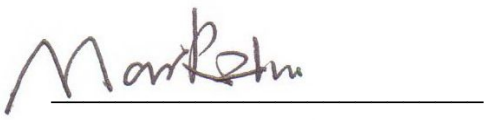
Date of Test : February 10-16, 2014

Date of Issue : February 17, 2014

Test Result: **PASS**

In the configuration tested, the EUT complied with the standards specified above

Authorized Signature



(Mark Zhu)
General Manager

Contents

1. General Information

1.1. Description of Device (EUT)

EUT	:	LM127 Rugged Phone
Model No.	:	LM127
DIFF	:	N/A
Trade mark	:	
Power supply	:	DC 3.7V Supply by battery DC 5V from adapter with AC 120V/60Hz adapter
Adapter	:	Manufacturer: Shenzhen Xin Kingbrand Enterprises Co., Ltd Model No.: AC-DC ADAPTER
Radio Technology	:	Bluetooth 2.1+EDR, GSM 850/1900
Operation frequency	:	Bluetooth 2.1+EDR: 2402-2480MHz
Modulation	:	Bluetooth 2.1+EDR: GFSK, π/4 DQPSK, 8-DPSK, GSM: GMSK,
Antenna Type	:	Dipole Antenna, max gain 0 dBi for BT. PIFA Antenna, max gain 1.34 dBi for GSM
Applicant	:	Shenzhen Xin Kingbrand Enterprises Co., Ltd
Address	:	Kingbrand Industrial Zone, Nanpu Road, Shang liao ling pi keng, Shajing Town, Baoan District, Shenzhen City, Guangdong
Manufacturer	:	Shenzhen Xin Kingbrand Enterprises Co., Ltd
Address	:	K building, Sheng Guang industrial, Nan Dong Dong Huan road, Huang Pu community, Sha Jing town, Bao An district, Shenzhen

Note: This report only test for Bluetooth 2.1+EDR, for other radio test see other test report.

1.2. Accessories of device (EUT)

Accessories 1	:	Adapter
Type	:	AC-DC ADAPTER

1.3. Test Lab information

Shenzhen Certification Technology Service Co., Ltd.
2F, Building B, East Area of Nanchang Second Industrial Zone,
Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China
FCC Registered No.:197647
IC Registered No.: 8528B

2. Summary of test

2.1. Summary of test result

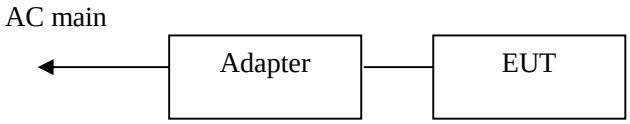
Description of Test Item	Standard	Results
Maximum Peak Output Power	FCC Part 15: 15.247(b)(1) ANSI C63.4 :2003	PASS
Bandwidth	FCC Part 15: 15.215 ANSI C63.4 :2003	PASS
Carrier Frequency Separation	FCC Part 15: 15.247(a)(1) ANSI C63.4 :2003	PASS
Number Of Hopping Channel	FCC Part 15: 15.247(a)(1)(iii) ANSI C63.4 :2003	PASS
Dwell Time	FCC Part 15: 15.247(a)(1)(iii) ANSI C63.4 :2003	PASS
Radiated Emission	FCC Part 15: 15.209 FCC Part 15: 15.247(d) ANSI C63.4 :2003	PASS
Band Edge Compliance	FCC Part 15: 15.247(d) ANSI C63.4 :2003	PASS
Power Line Conducted Emissions	FCC Part 15: 15.207 ANSI C63.4 :2003	PASS
Antenna requirement	FCC Part 15: 15.203	PASS
Note: Test with the test procedure adb.exe.		

2.2. Assistant equipment used for test

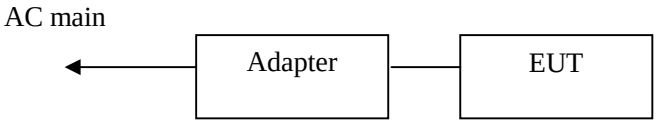
Description : Adapter
Manufacturer : Shenzhen Xin Kingbrand Enterprises Co., Ltd
Model No. : AC-DC ADAPTER

2.3. Block Diagram

1, For radiated emissions test: EUT was placed on a turn table, which is 0.8 meter high above ground. EUT was be set into BT test mode by adb.exe software before test.



2, For Power Line Conducted Emissions Test: EUT was connected to power adapter by 1m USB line



2.4. Test mode

The test software "*#3646633#" was used to control EUT work in Continuous TX mode, and select test channel, wireless mode

Tested mode, channel, and data rate information		
Mode	Channel	Frequency (MHz)
BDR:GFSK	Low :CH1	2402
	Middle: CH40	2441
	High: CH79	2480
EDR:π/4 DQPSK	Low :CH1	2402
	Middle: CH40	2441
	High: CH79	2480
EDR:8-DPSK	Low :CH1	2402
	Middle: CH40	2441
	High: CH79	2480

Note: For π/4 DQPSK its same modulation type with 8-DPSK, and based exploratory test, there is no significant difference of that two types test result, so except output power, all other items final test were only performed with 8-DPSK and GFSK.

2.5. Test Conditions

Temperature range	21-25℃
Humidity range	40-75%
Pressure range	86-106kPa

2.6. Measurement Uncertainty (95% confidence levels, k=2)

Item	MU	Remark
Uncertainty for Power point Conducted Emissions Test	2.42dB	
Uncertainty for Radiation Emission test in 3m chamber (below 30MHz)	2.13 dB	Polarize: V
	2.57dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.54dB	Polarize: V
	4.1dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz)	2.08dB	Polarize: H
	2.56dB	Polarize: V
Uncertainty for radio frequency	1×10-9	
Uncertainty for conducted RF Power	0.65dB	
Uncertainty for temperature	0.2℃	
Uncertainty for humidity	1%	
Uncertainty for DC and low frequency voltages	0.06%	

2.7. Test Equipment

Equipment	Manufacture	Model No.	Serial No.	Last cal.	Cal Interval
3m Semi-Anechoic	ETS-LINDGREN	N/A	SEL0017	Nov. 16, 13	1Year
Spectrum analyzer	Agilent	E4407B	MY49510055	Oct. 30, 13	1Year
Receiver	R&S	ESCI	101165	Oct. 30, 13	1Year
Receiver	R&S	ESCI	101202	Oct. 30, 13	1Year
Bilog Antenna	SCHWARZBECK	VULB 9168	9168-438	Mar.12, 13	1Year
Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D(1201)	Mar.12, 13	1Year
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170 D(1432)	Mar.12, 13	1Year
Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	Mar.12, 13	1Year
L.I.S.N.	SCHWARZBECK	NSLK8126	8126466	Oct. 30, 13	1Year
Cable	Resenberger	N/A	No.1	Oct. 30, 13	1Year
Cable	SCHWARZBECK	N/A	No.2	Oct. 30, 13	1Year
Cable	SCHWARZBECK	N/A	No.3	Oct. 30, 13	1Year
Power Meter	Anritsu	ML2487A	6K00001491	Oct. 30, 13	1Year
Power sensor	Anritsu	ML2491A	32516	Oct. 30, 13	1Year
Pre-amplifier	SCHWARZBECK	BBV9743	9743-019	Oct. 30, 13	1Year
Pre-amplifier	Quietek	AP-180C	CHM-0602012	Oct. 30, 13	1Year

3. Maximum Peak Output power

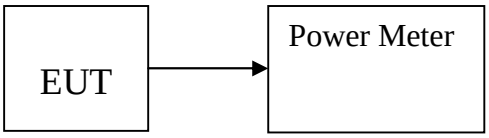
3.1. Limit

Please refer section15.247.
For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts, the e.i.r.p shall not exceed 4W

3.2. Test Procedure

The transmitter output is connected to the RF Power Meter. The RF Power Meter is set to the peak power detection.

3.3. Test Setup



3.4. Test Result

EUT: LM127 Rugged Phone M/N: LM127					
Test date: 2014-02-11		Test site: RF site Tested by: Store Chu			
Mode	Freq (MHz)	PK Output Power (dBm)	PK Output Power (mW)	Limit (dBm)	Margin (dB)
GFSK	2402	3.21	2.09	21	-17.79
	2441	3.79	2.39	21	-17.21
	2480	3.47	2.22	21	-17.53
π/4 DQPSK	2402	2.12	1.63	21	-18.88
	2441	2.57	1.81	21	-18.43
	2480	2.31	1.70	21	-18.69
8-DPSK	2402	2.58	1.81	21	-18.42
	2441	2.93	1.96	21	-18.07
	2480	2.69	1.86	21	-18.31
Conclusion: PASS					

4. Bandwidth

4.1. Limit

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

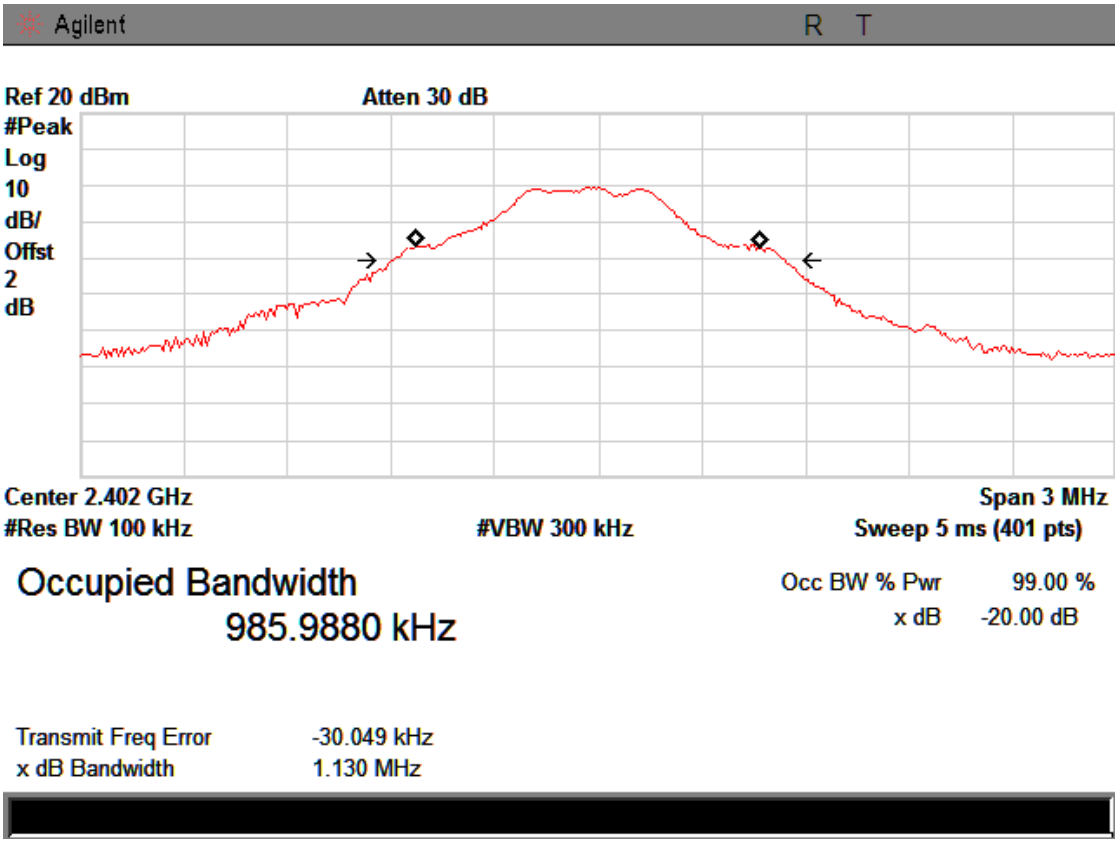
4.2. Test Procedure

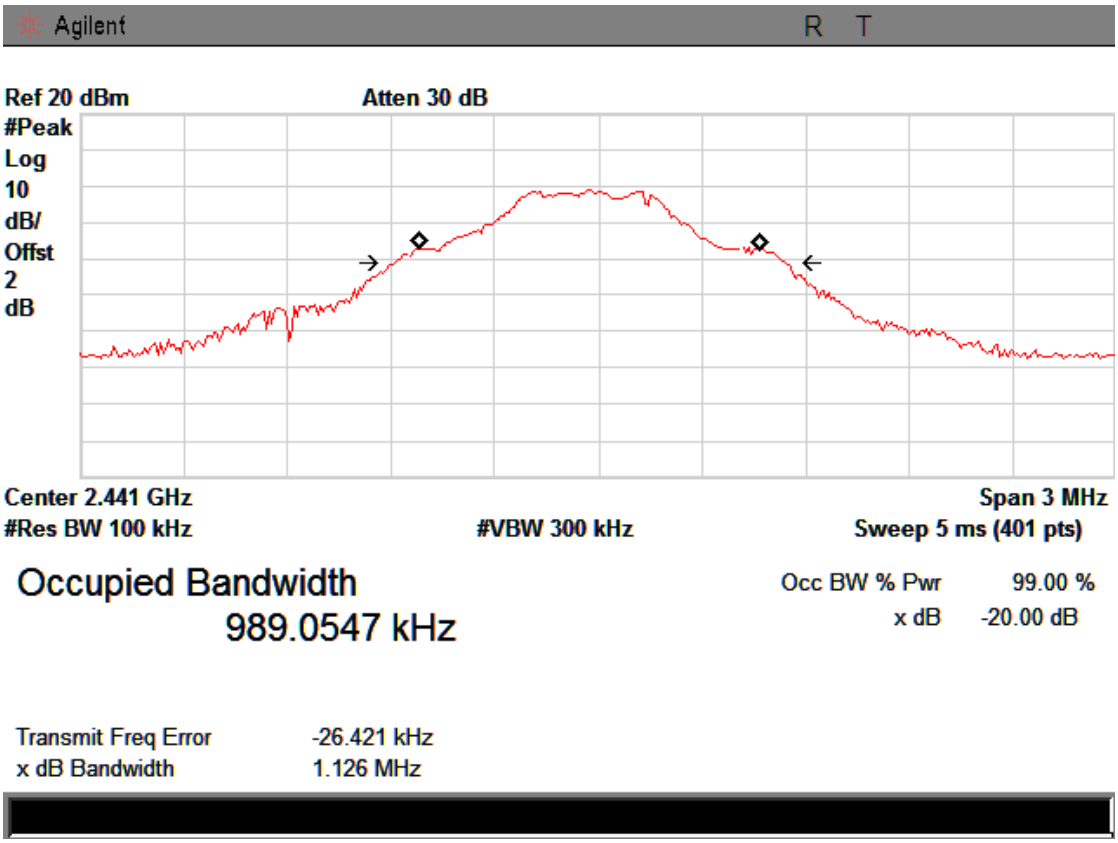
The transmitter output was coupled to a spectrum analyzer via a antenna. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30kHz RBW and 30kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

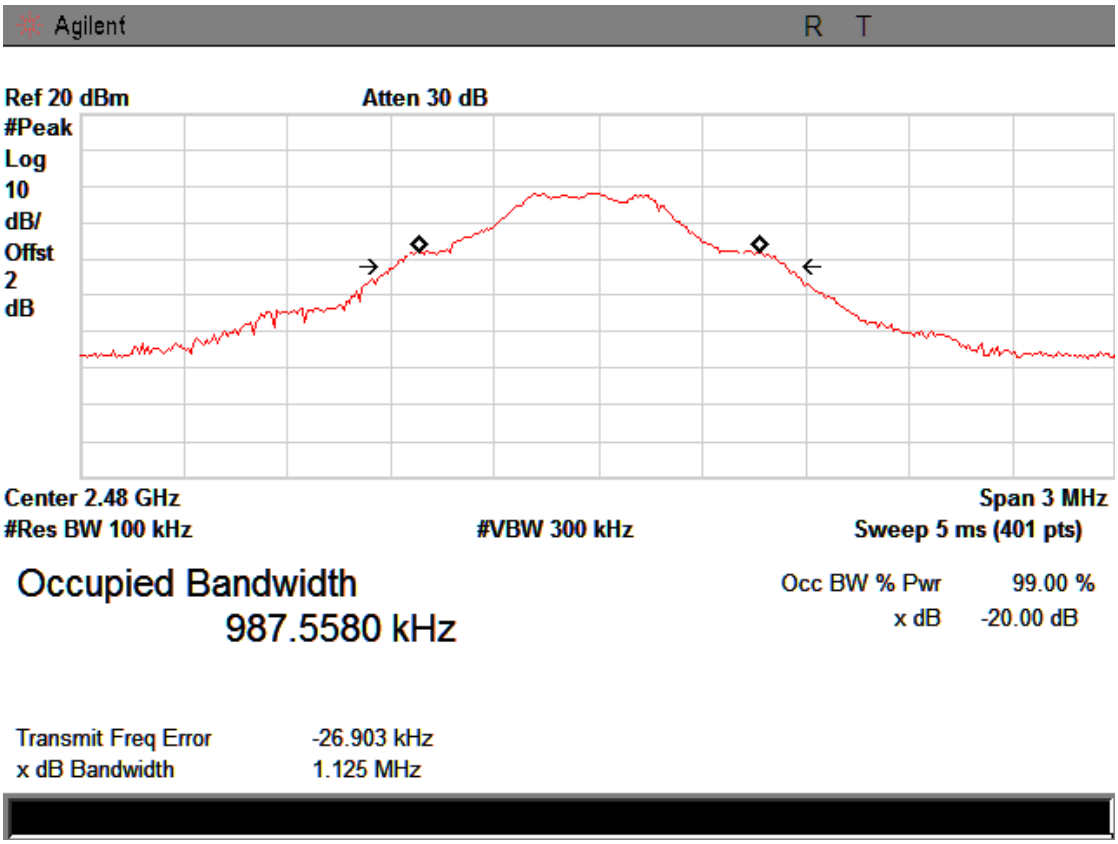
4.3. Test Result

EUT: LM127 Rugged Phone		M/N: LM127		
Test date: 2014-02-12		Test site: RF site	Tested by: Anna Fan	
Mode	Freq (MHz)	20dB Bandwidth (MHz)	Limit (kHz)	Conclusion
GFSK	2402	1.130	/	PASS
	2441	1.126	/	PASS
	2480	1.125	/	PASS
8-DPSK	2402	1.389	/	PASS
	2441	1.402	/	PASS
	2480	1.403	/	PASS

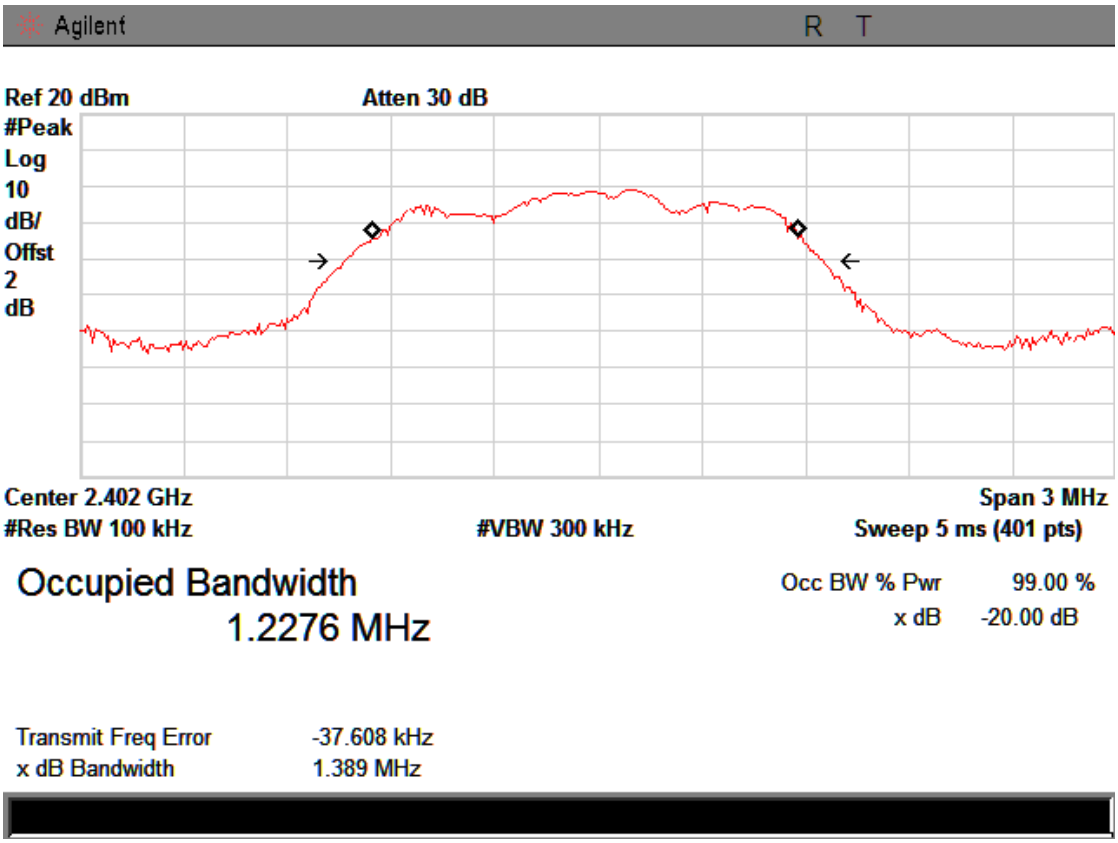
Orginal Test data For 20dB bandwidth
GFSK

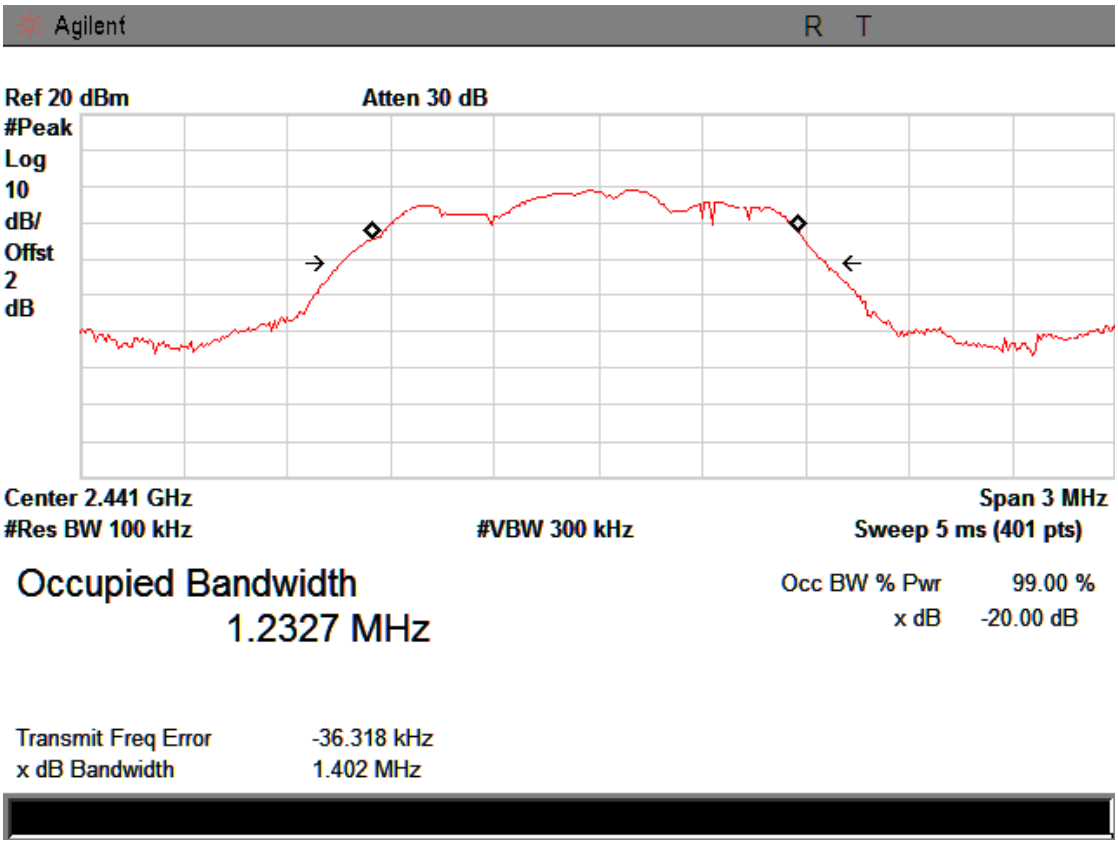


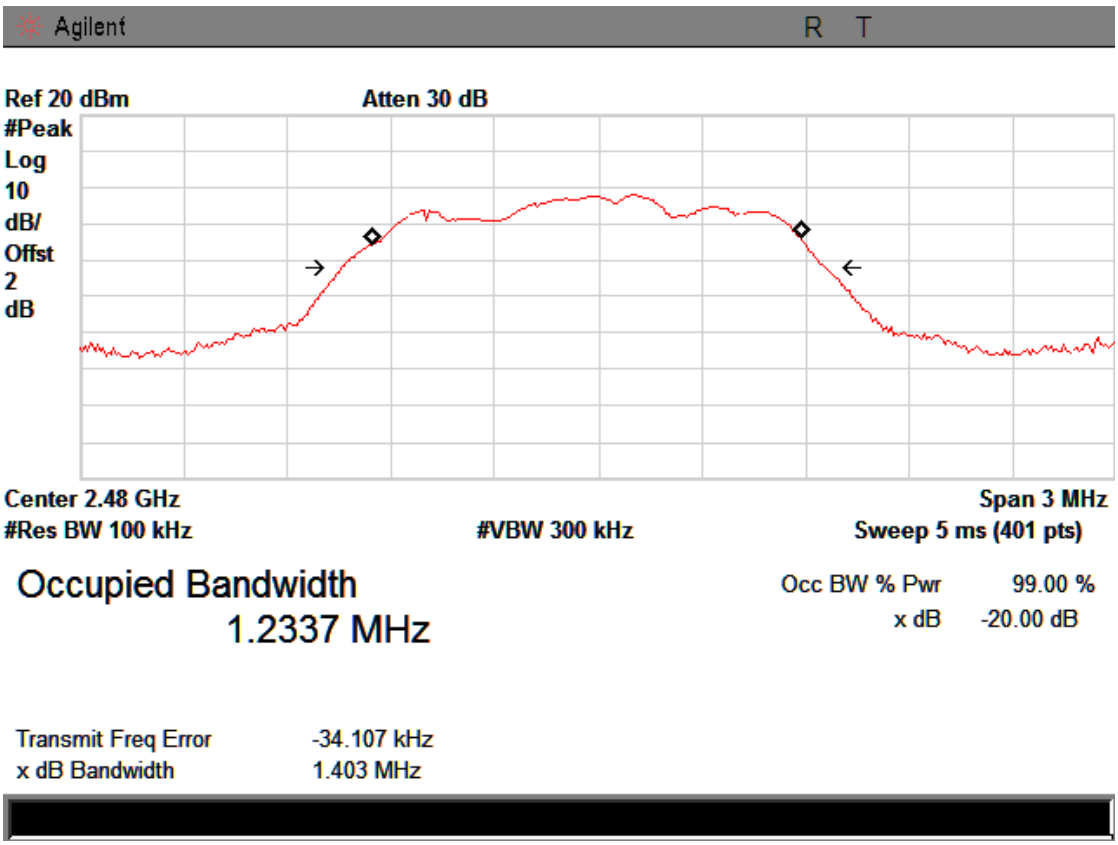



Agilent
R T
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
2
dB
Center 2.48 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 3 MHz
Sweep 5 ms (401 pts)
Occupied Bandwidth
987.5580 kHz
Occ BW % Pwr 99.00 %
x dB -20.00 dB
Transmit Freq Error -26.903 kHz
x dB Bandwidth 1.125 MHz

8-DPSK


Agilent
R T
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
2
dB
Center 2.402 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 3 MHz
Sweep 5 ms (401 pts)
Occupied Bandwidth
1.2276 MHz
Occ BW % Pwr 99.00 %
x dB -20.00 dB
Transmit Freq Error -37.608 kHz
x dB Bandwidth 1.389 MHz


Agilent
R T
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
2
dB
Center 2.441 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 3 MHz
Sweep 5 ms (401 pts)
Occupied Bandwidth
1.2327 MHz
Occ BW % Pwr 99.00 %
x dB -20.00 dB
Transmit Freq Error -36.318 kHz
x dB Bandwidth 1.402 MHz


Agilent
R T
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
2
dB
Center 2.48 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 3 MHz
Sweep 5 ms (401 pts)
Occupied Bandwidth
1.2337 MHz
Occ BW % Pwr 99.00 %
x dB -20.00 dB
Transmit Freq Error -34.107 kHz
x dB Bandwidth 1.403 MHz

5. Carrier Frequency Separation

5.1. Limit

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW

5.2. Test Procedure

The transmitter output was coupled to a spectrum analyzer via a antenna. The carrier frequency was measured by spectrum analyzer with 30kHz RBW and 30kHz VBW.

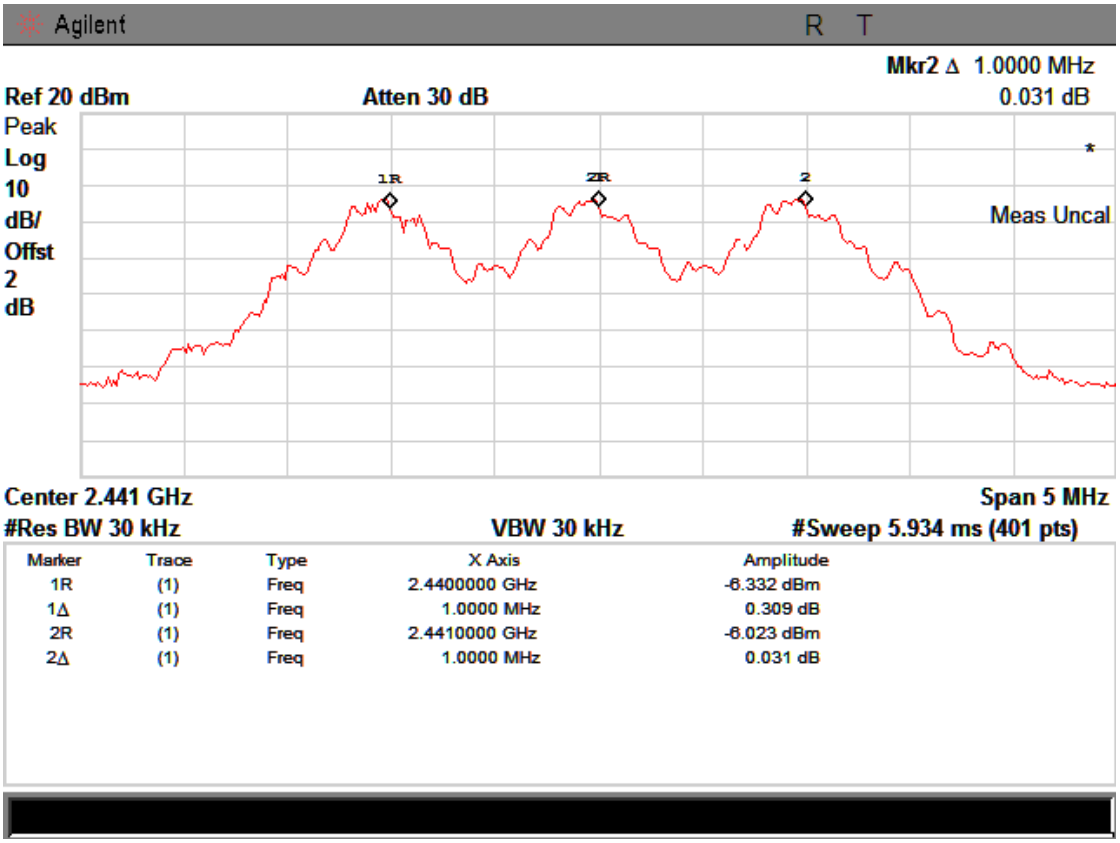
5.3. Test Result

EUT: LM127 Rugged Phone		M/N: LM127		
Test date: 2014-02-11		Test site: RF site	Tested by: Simple	
Mode	Channel separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz) 2/3 20dB bandwidth	Conclusion
GFSK	1.0	1.130	0.753	PASS

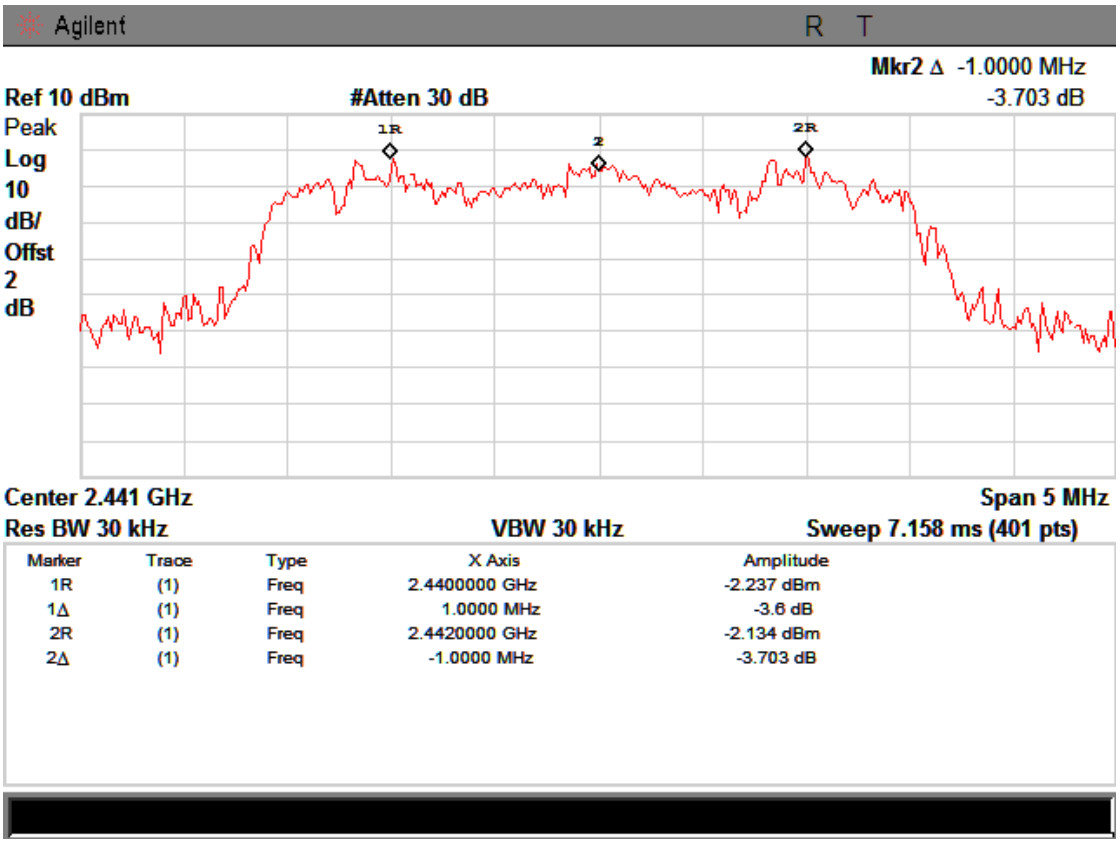
EUT: LM127 Rugged Phone		M/N: LM127		
Test date: 2014-02-11		Test site: RF site	Tested by: Simple	
Mode	Channel separation (MHz)	20dB Bandwidth (MHz)	Limit (MHz) 2/3 20dB bandwidth	Conclusion
8-DPSK	1.0	1.403	0.935	PASS

Orginal test data for channel separation

GFSK



8-DPSK



6. Number Of Hopping Channel

6.1. Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels

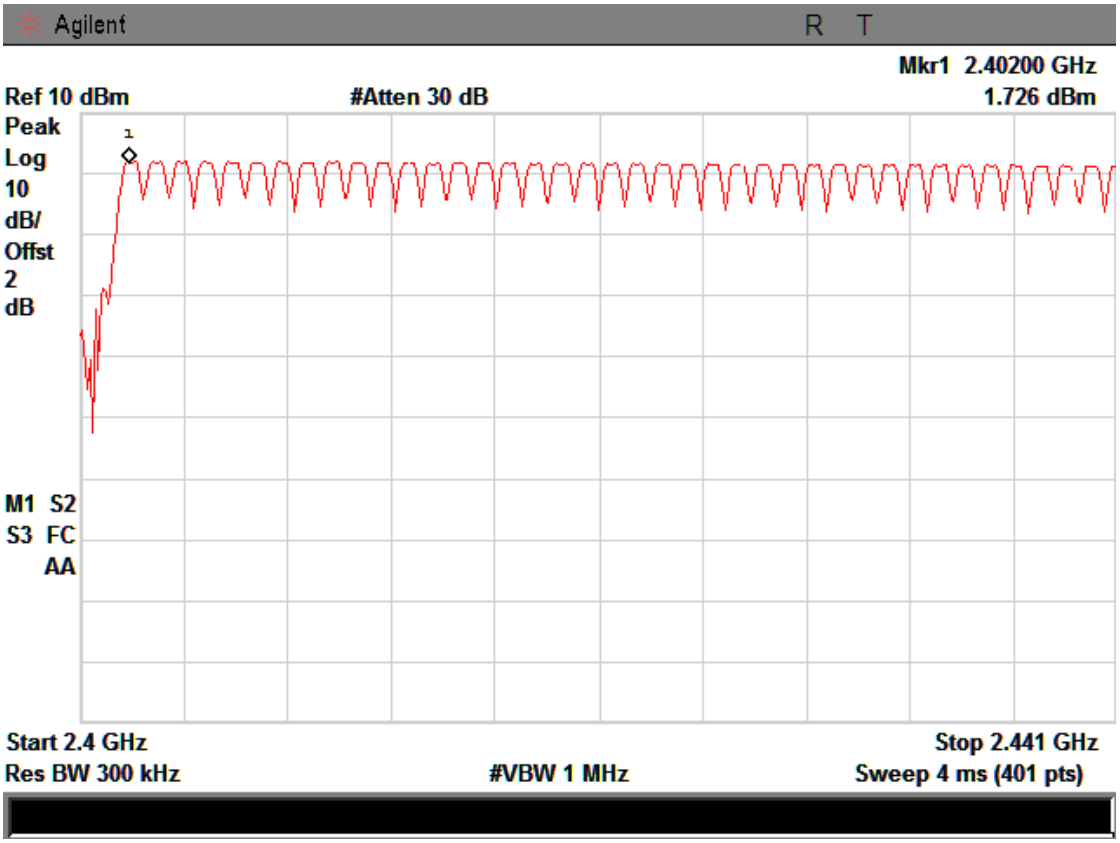
6.2. Test Procedure

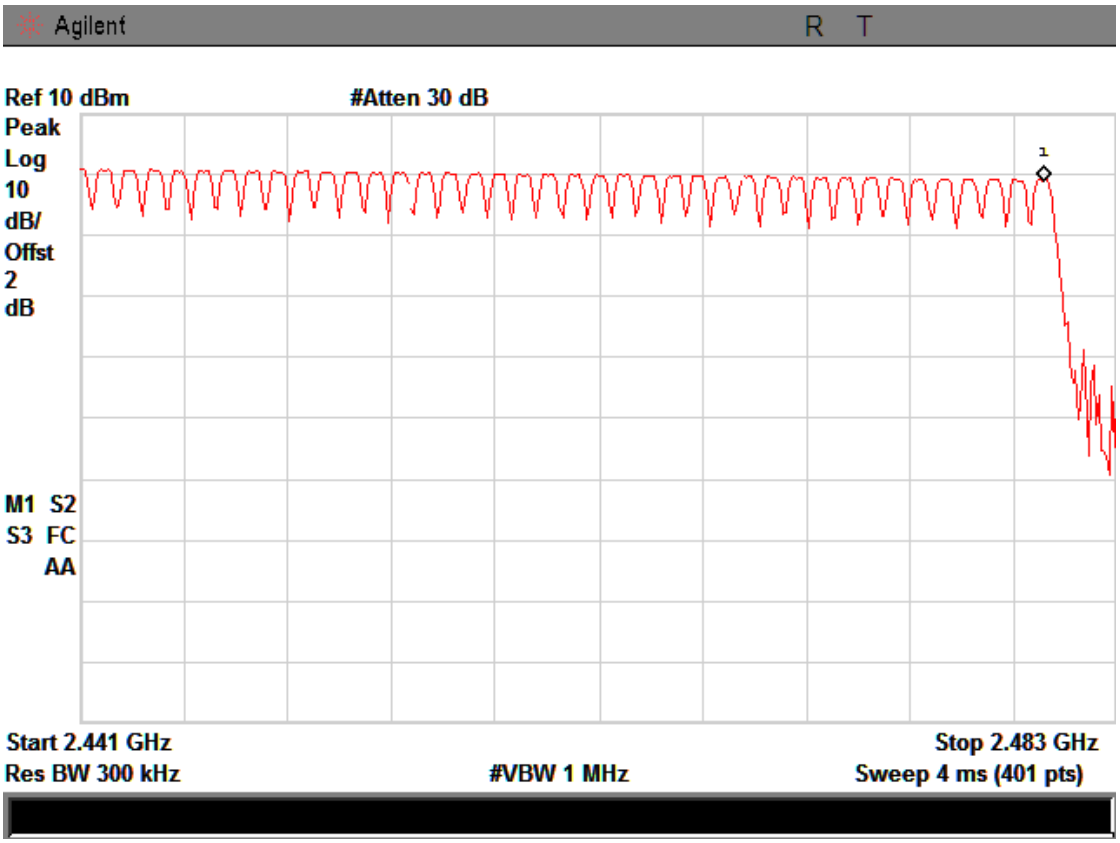
The transmitter output was coupled to a spectrum analyzer via a antenna. The number of hopping channel was measured by spectrum analyzer with 300kHz RBW and 1MHz VBW.

6.3. Test Result

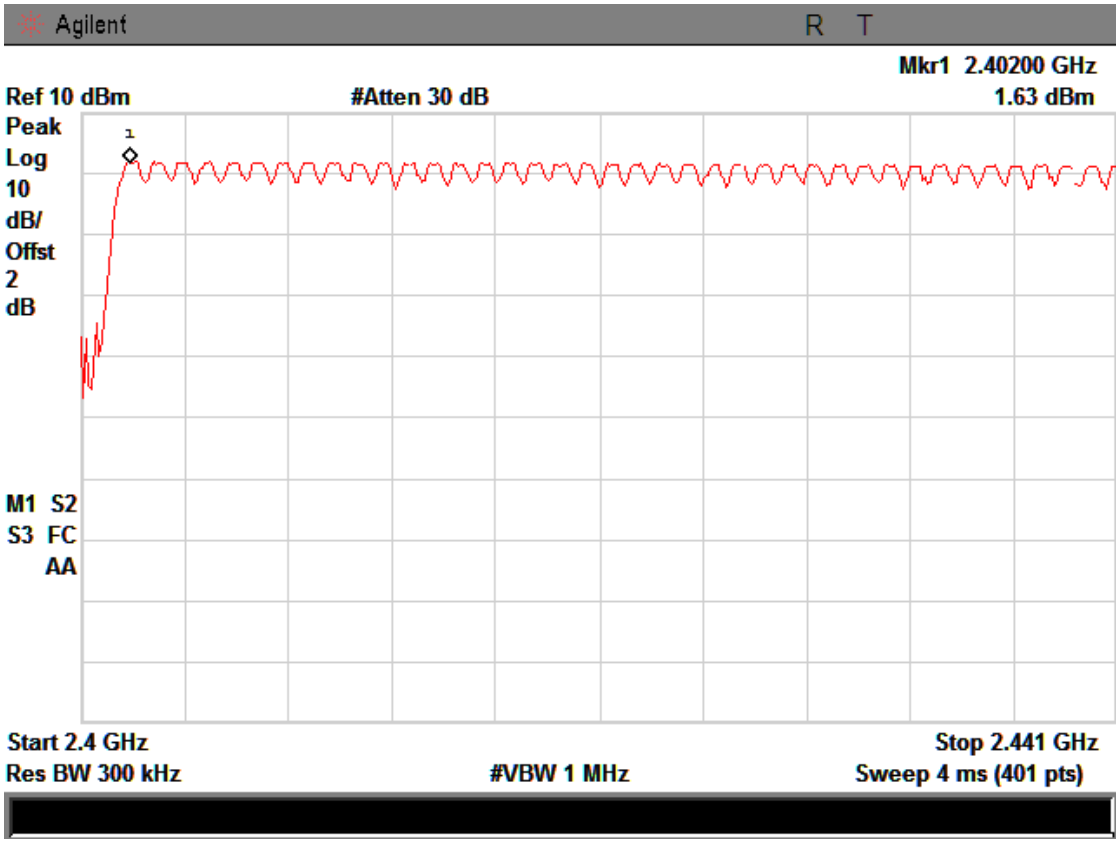
EUT: LM127 Rugged Phone	M/N: LM127		
Test date: 2014-02-11	Test site: RF site	Tested by: Stro Chu	
Mode	Number of hopping channel	Limit	Conclusion
GFSK	79	>15	PASS
8-DPSK	79	>15	PASS

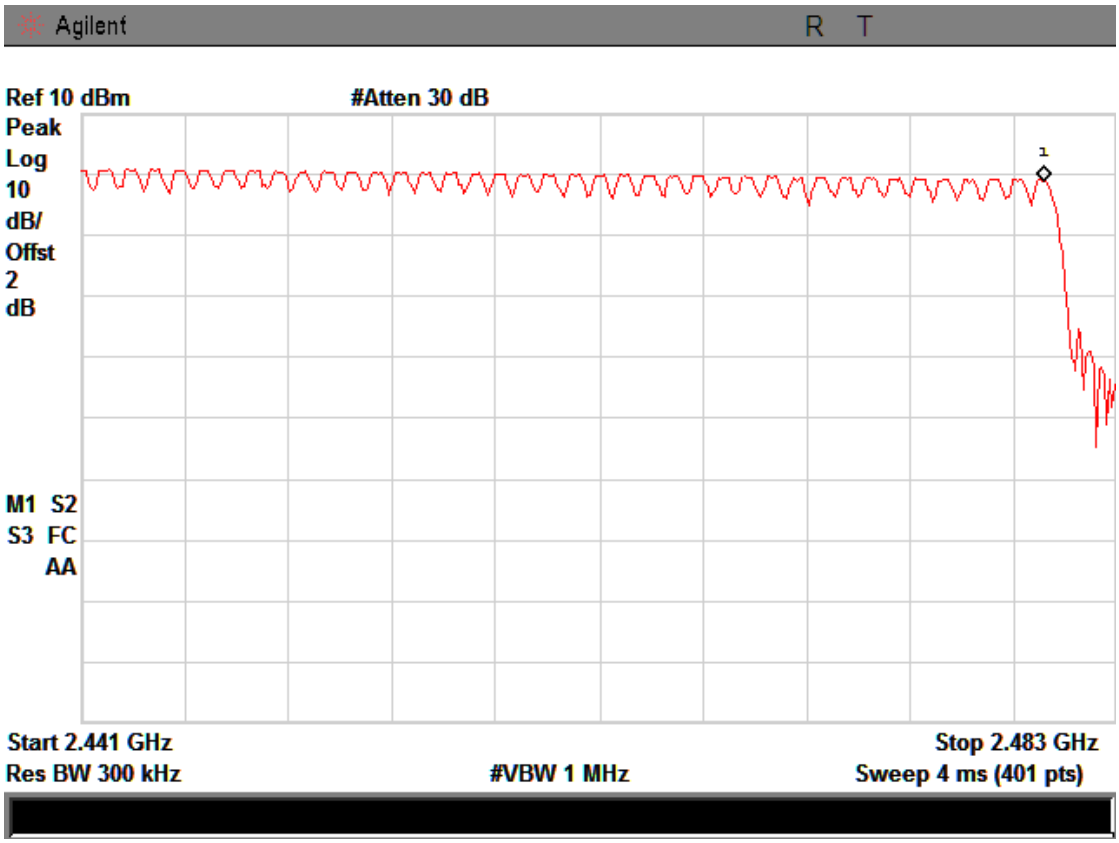
Original test data for hopping channel number
GFSK





8-DPSK


Agilent
R T
Mkr1 2.40200 GHz
Ref 10 dBm
#Atten 30 dB
1.63 dBm
Peak
Log
10
dB/
Offst
2
dB
M1 S2
S3 FC
AA
Start 2.4 GHz
Res BW 300 kHz
#VBW 1 MHz
Stop 2.441 GHz
Sweep 4 ms (401 pts)


Agilent
R T
Ref 10 dBm
#Atten 30 dB
Peak
Log
10
dB/
Offst
2
dB
M1 S2
S3 FC
AA
Start 2.441 GHz
Res BW 300 kHz
#VBW 1 MHz
Stop 2.483 GHz
Sweep 4 ms (401 pts)

7. Dwell Time

7.1. Test limit

Please refer section15.247

According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz. The average time of occupancy on any frequency shall not greater than 0.4 s within period of 0.4 sec- onds multiplied by the number of hopping channel employed.

7.2. Test Procedure

7.2.1. Place the EUT on the table and set it in transmitting mode.

7.2.2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

7.2.3. Set center frequency of spectrum analyzer = operating frequency.

7.2.4. Set the spectrum analyzer as RBW, VBW=1MHz, Span = 0Hz, Sweep = auto.

7.2.5. Repeat above procedures until all frequency measured were complete.

7.3. Test Results

PASS.

Detailed information please see the following page.

EUT: LM127 Rugged Phone M/N: LM127						
Test date: 2014-02-11		Test site: RF site		Tested by: Stro Chu		
Mode	Data Packet	Frequency (MHz)	Pulse Duration (ms)	Dwell Time (s)	Limit (s)	Conclusion
GFSK	DH1	2402	0.400	0.256	<0.4	PASS
		2441	0.375	0.240	<0.4	PASS
		2480	0.416	0.266	<0.4	PASS
	DH3	2402	1.632	0.348	<0.4	PASS
		2441	1.650	0.352	<0.4	PASS
		2480	1.654	0.353	<0.4	PASS
	DH5	2402	2.905	0.372	<0.4	PASS
		2441	2.891	0.370	<0.4	PASS
		2480	2.891	0.370	<0.4	PASS
8-DPSK	3-DH1	2402	0.390	0.250	<0.4	PASS
		2441	0.390	0.250	<0.4	PASS
		2480	0.390	0.250	<0.4	PASS
	3-DH3	2402	1.627	0.347	<0.4	PASS
		2441	1.641	0.350	<0.4	PASS
		2480	1.641	0.350	<0.4	PASS
	3-DH5	2402	2.891	0.370	<0.4	PASS
		2441	2.891	0.370	<0.4	PASS
		2480	2.891	0.370	<0.4	PASS

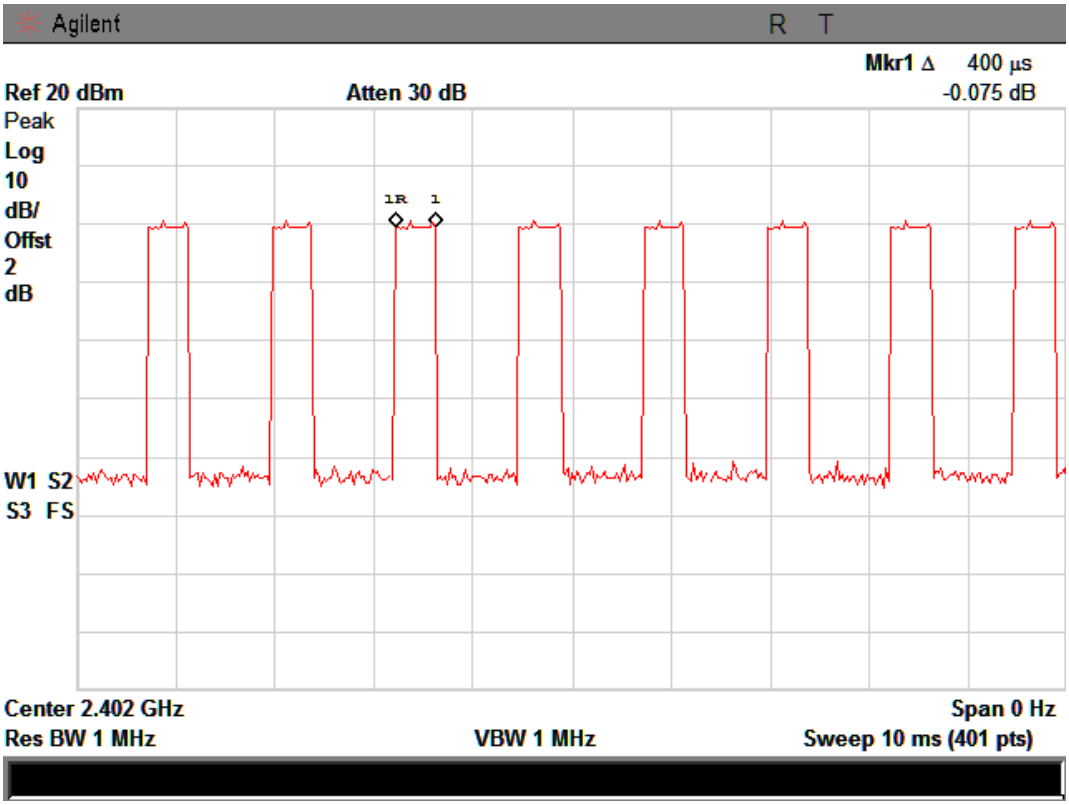
Note: 1 A period time = 0.4 (s) * 79 = 31.6(s)

2 DH1 time slot = Pulse Duration * (1600/(1*79)) * A period time

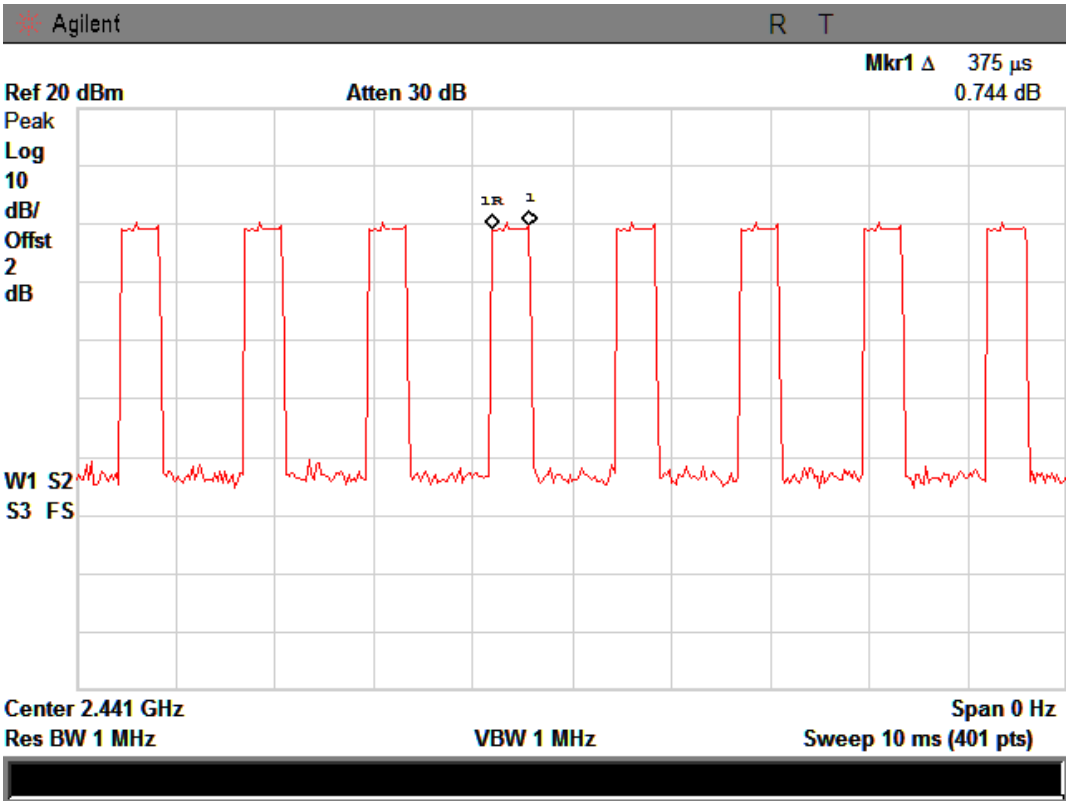
DH3 time slot = Pulse Duration * (1600/(3*79)) * A period time

DH5 time slot = Pulse Duration * (1600/(5*79)) * A period time

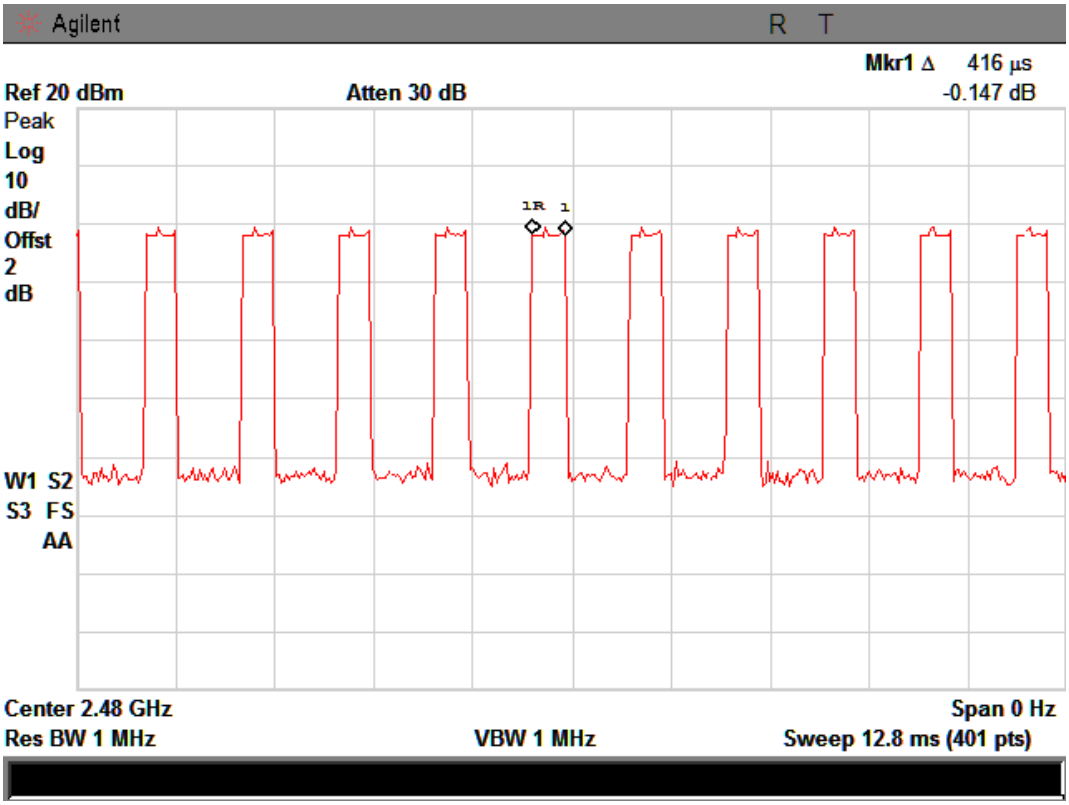
DH1: CH Low



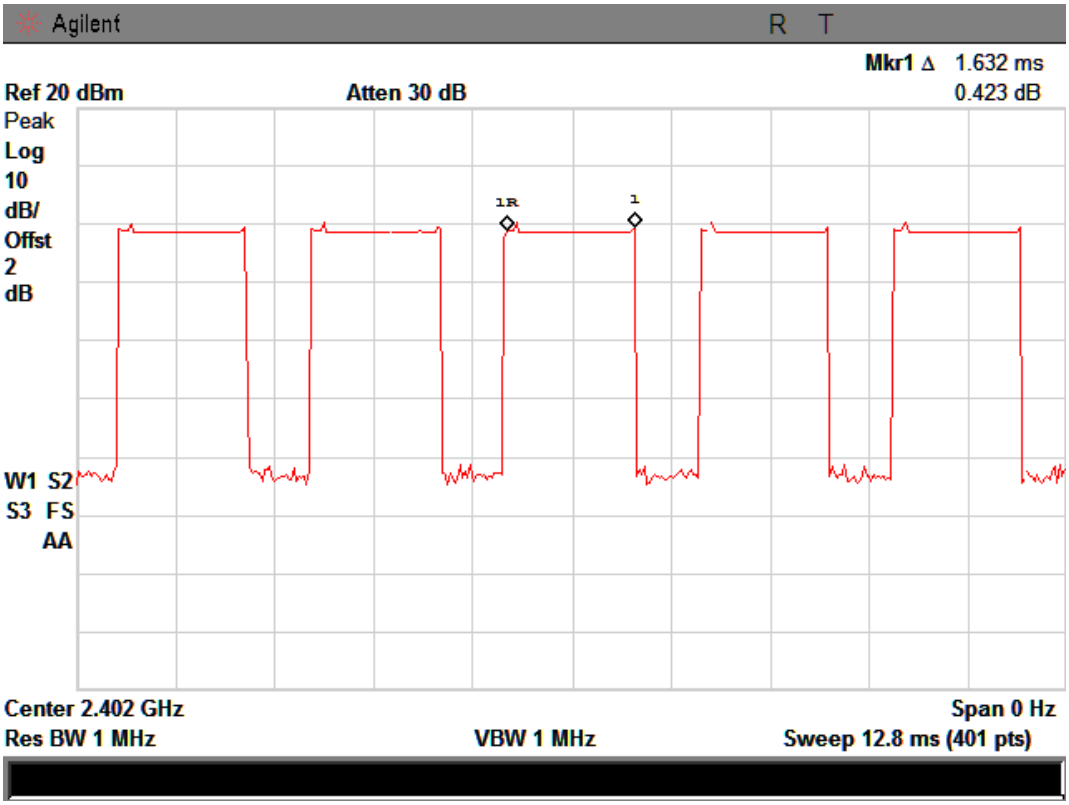
DH1: CH Mid



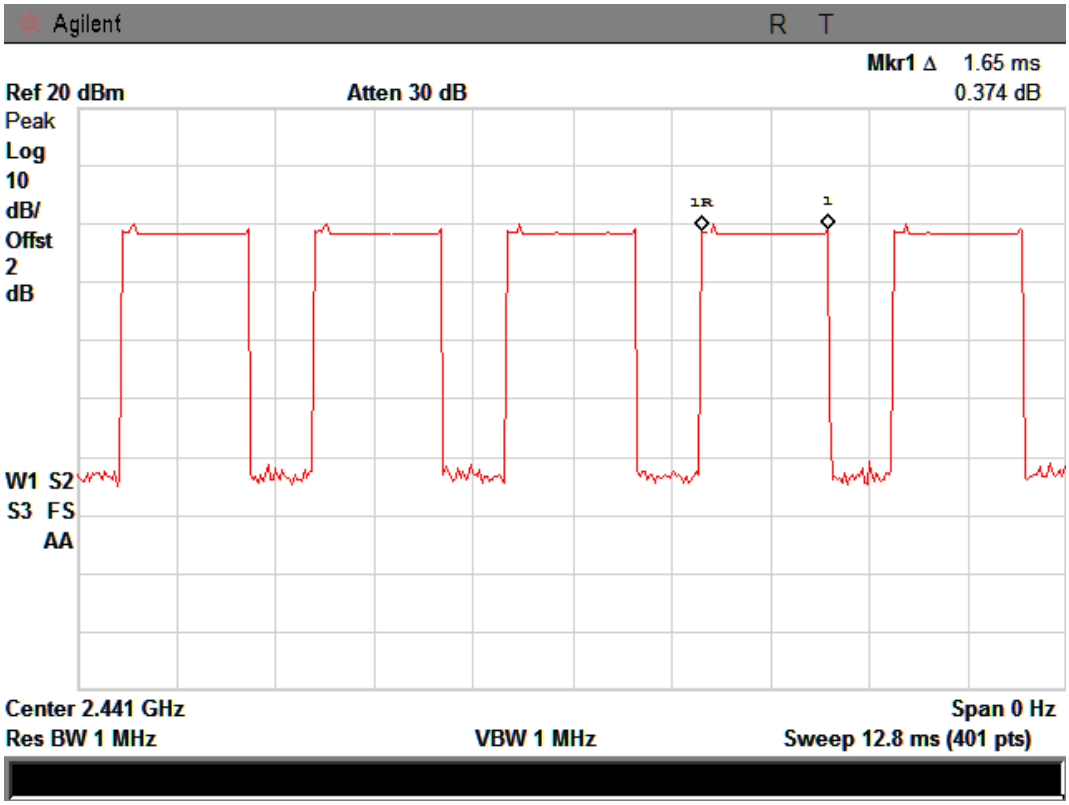
DH1: CH High



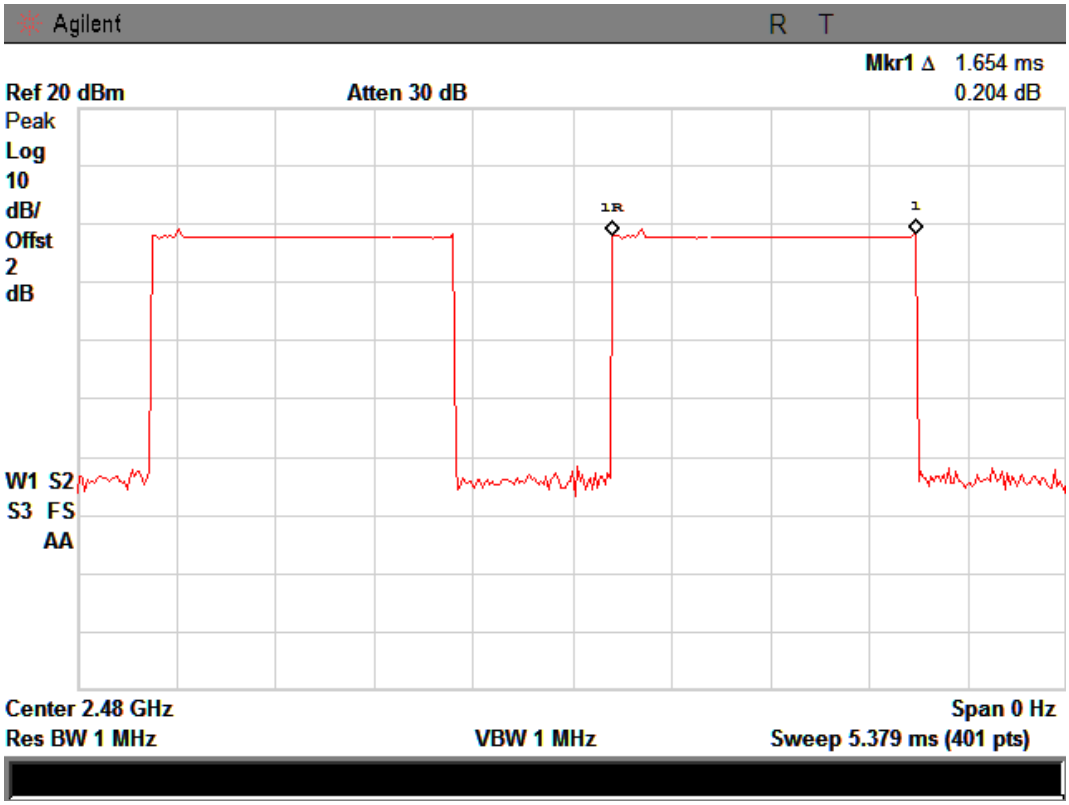
DH3: CH Low:



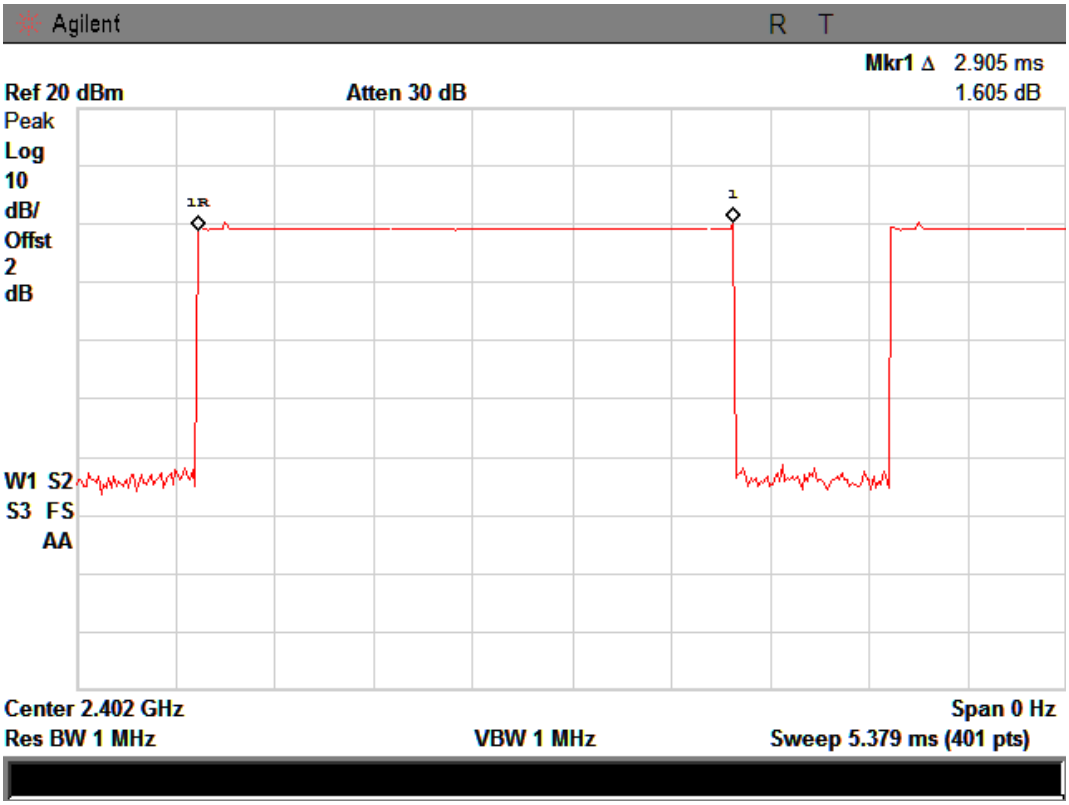
DH3: CH Mid



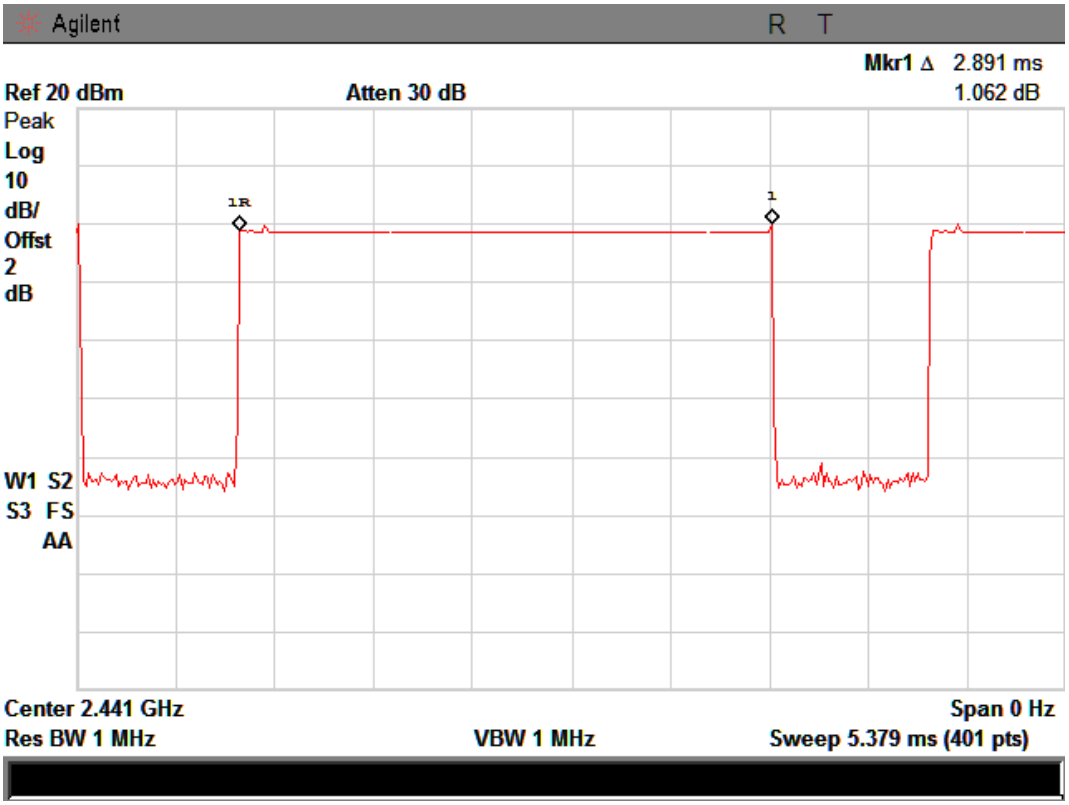
DH3 CH High



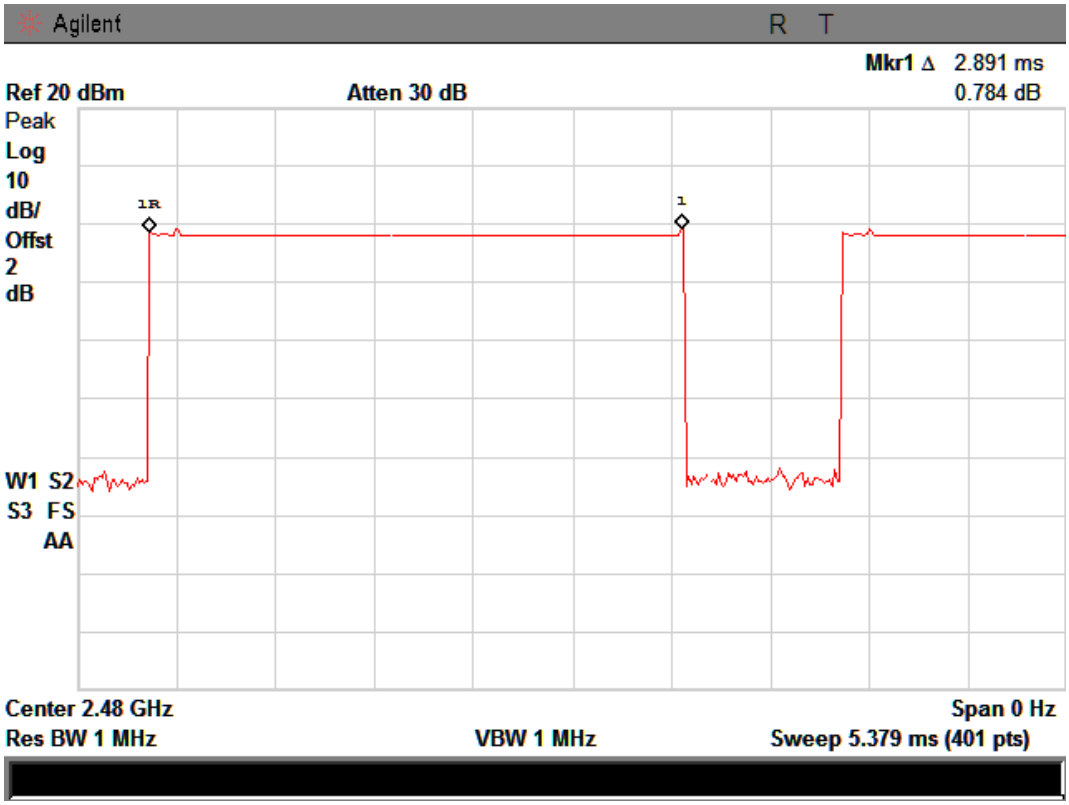
DH5 CH Low



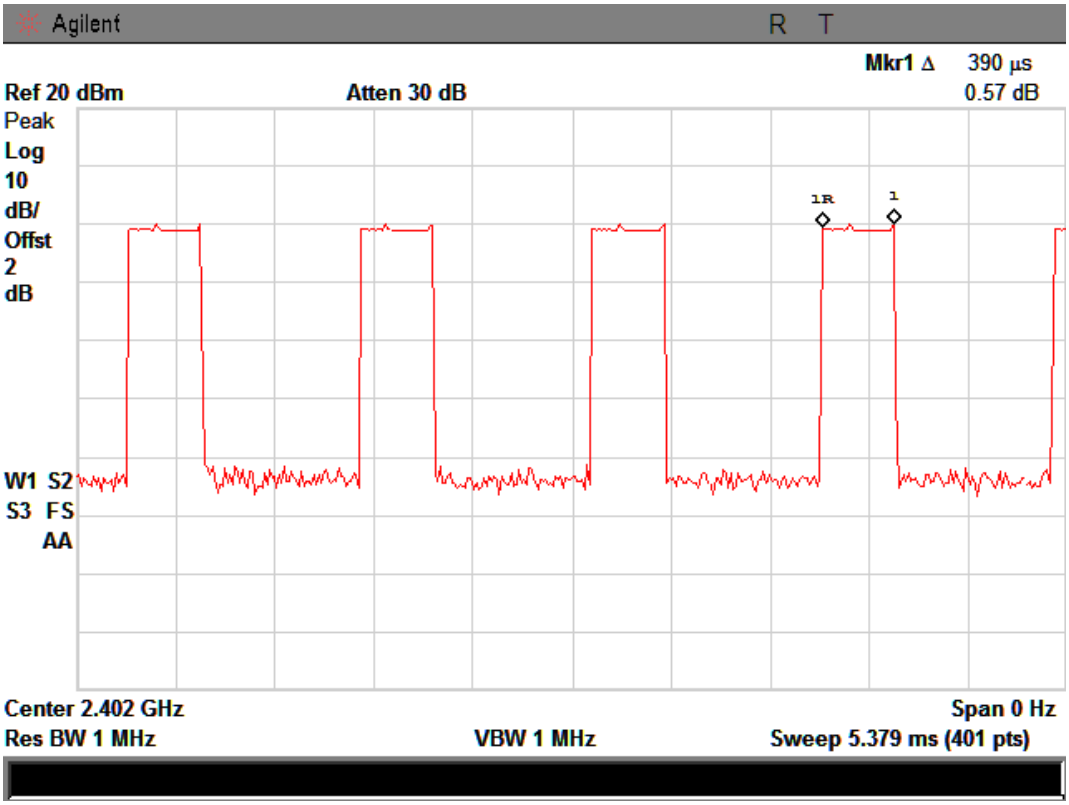
DH5 CH Mid



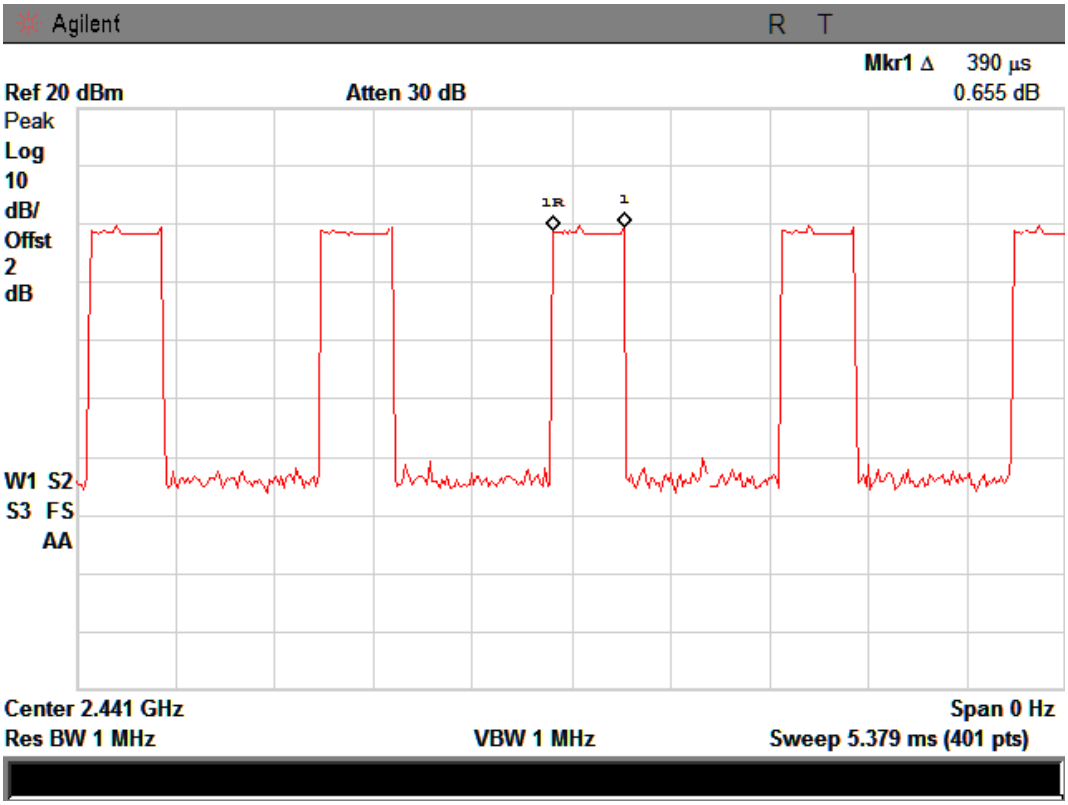
DH5 CH High



3-DH1: CH Low



3-DH1: CH Mid



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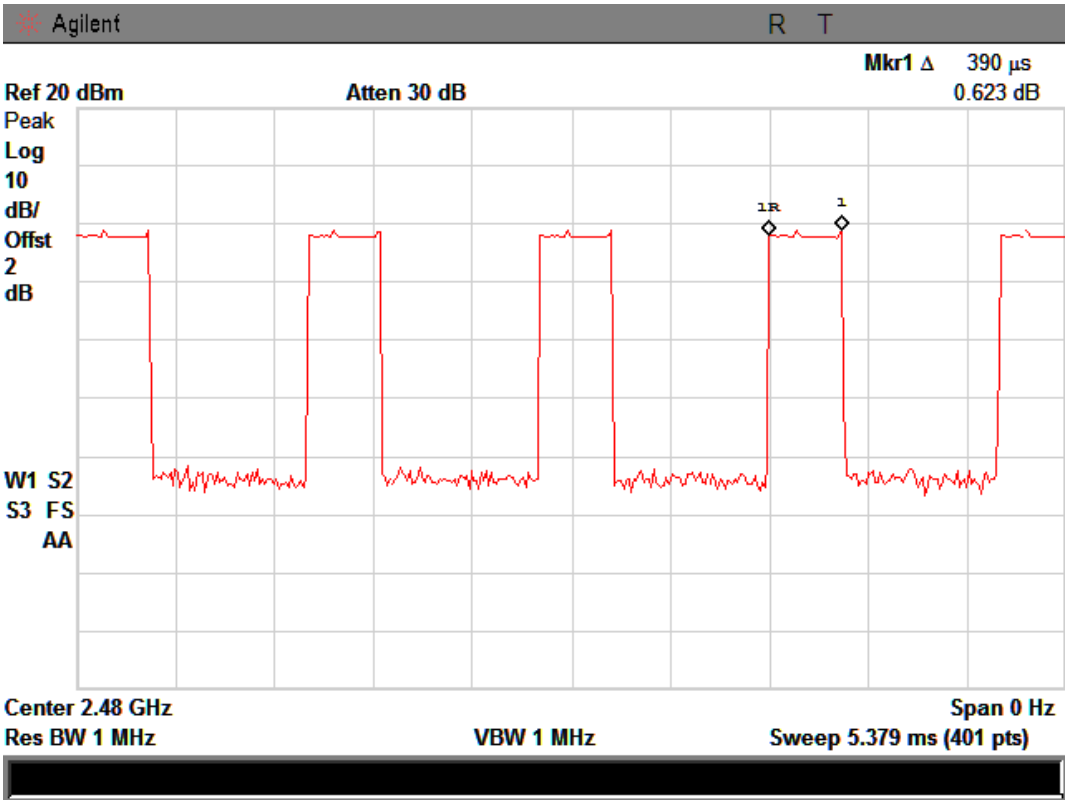
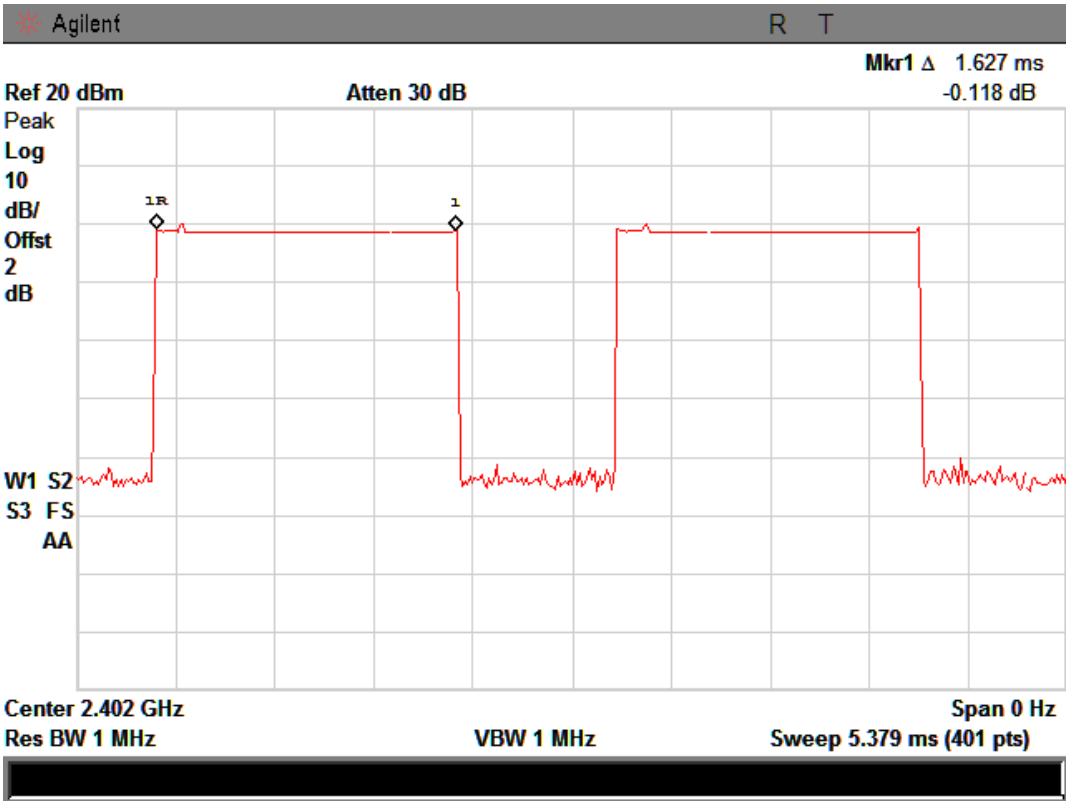
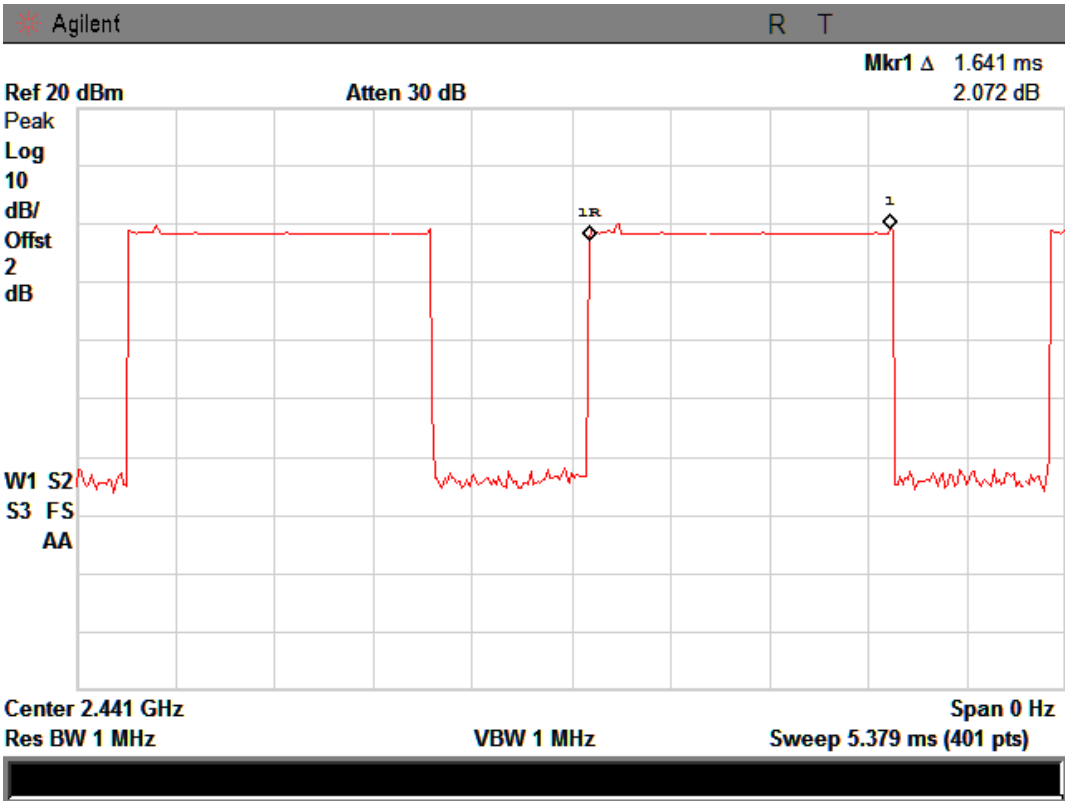


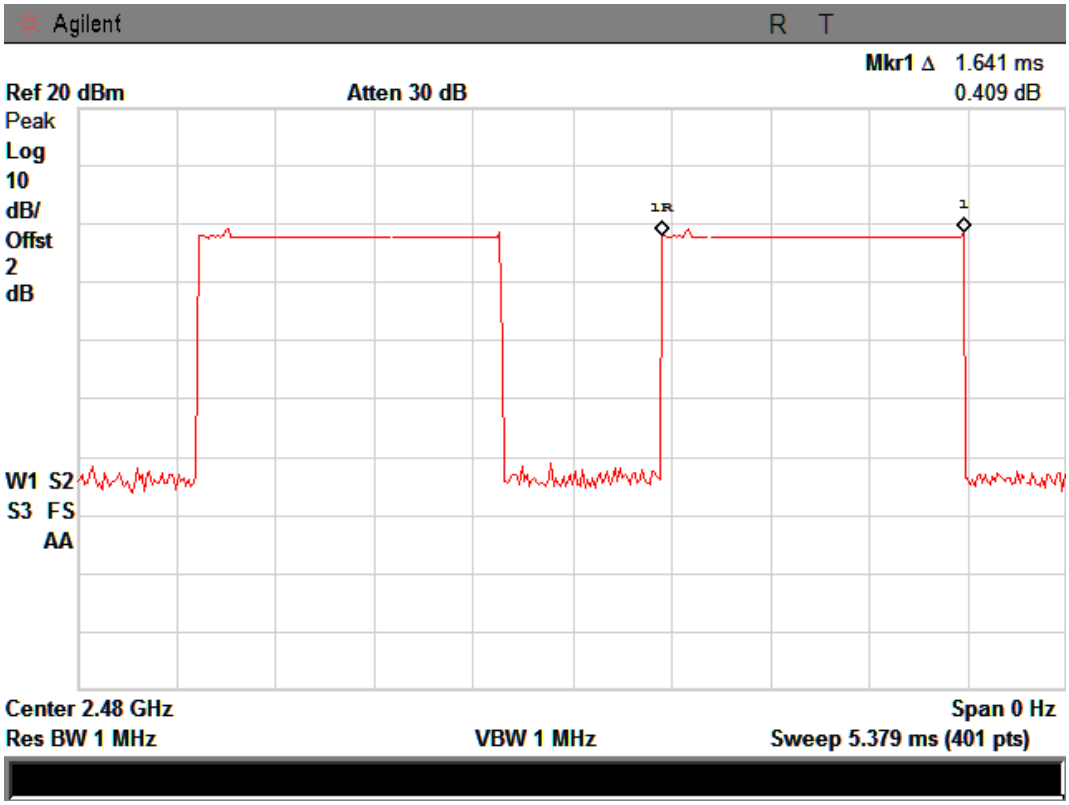
3-DH3: CH Low



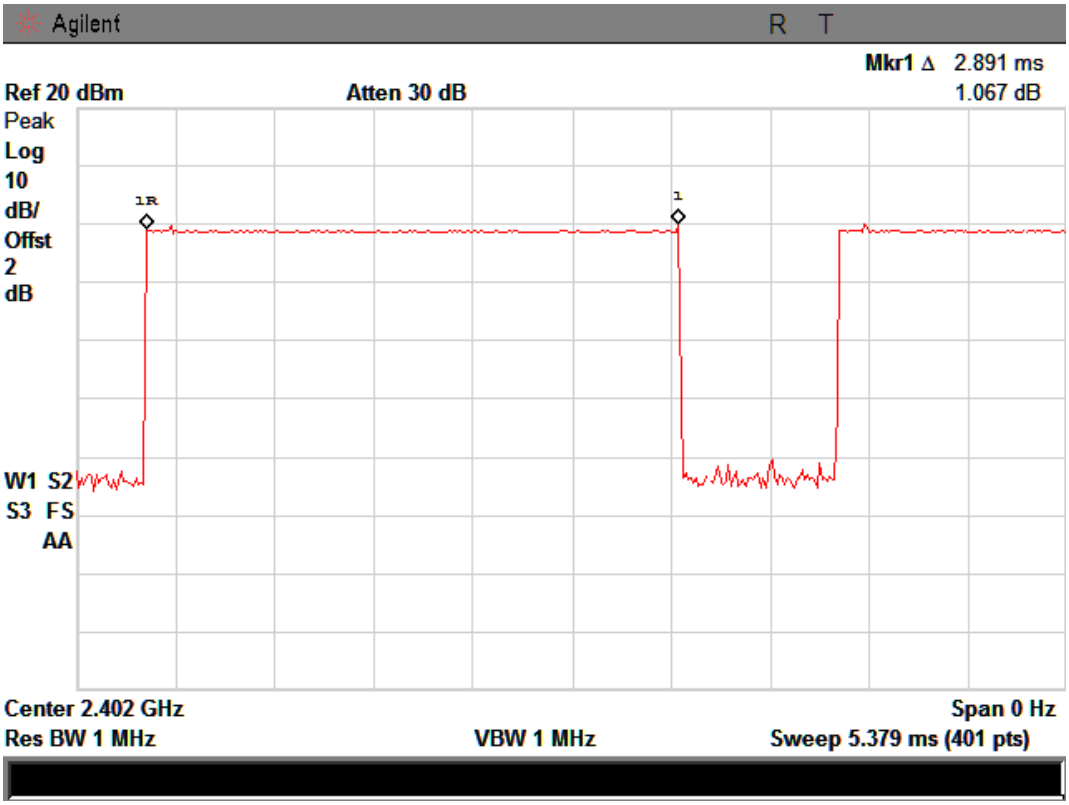
3-DH3: CH Mid



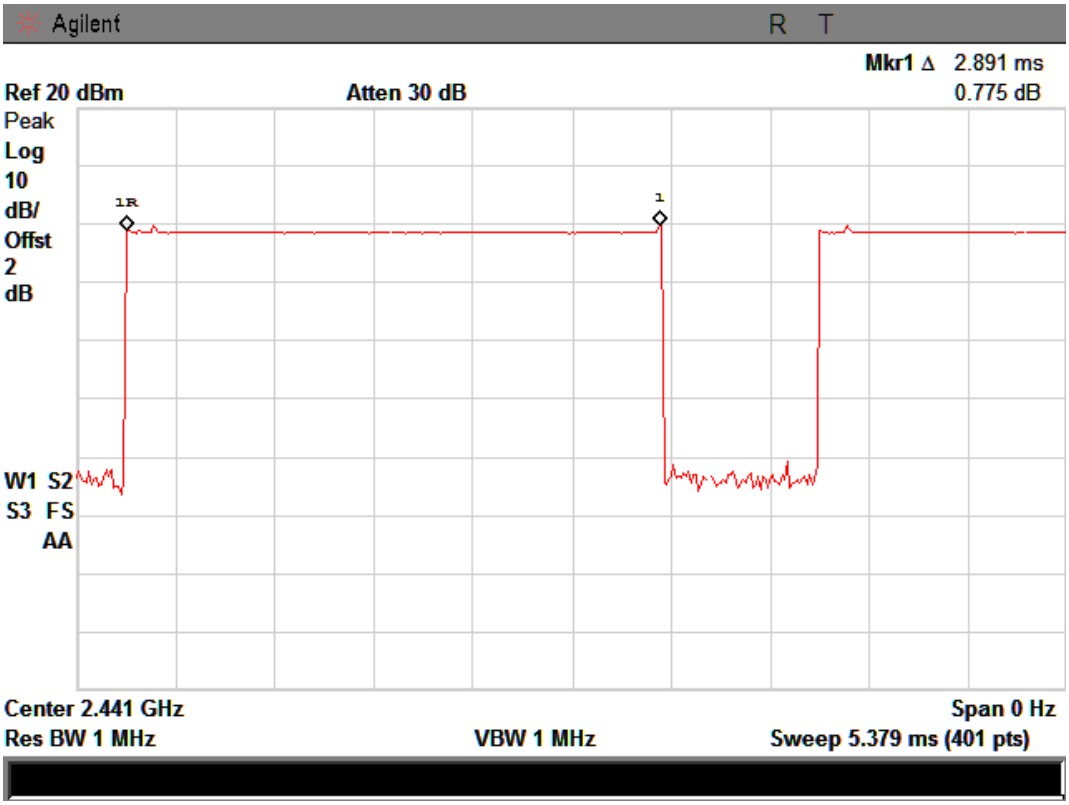
3-DH3: CH High



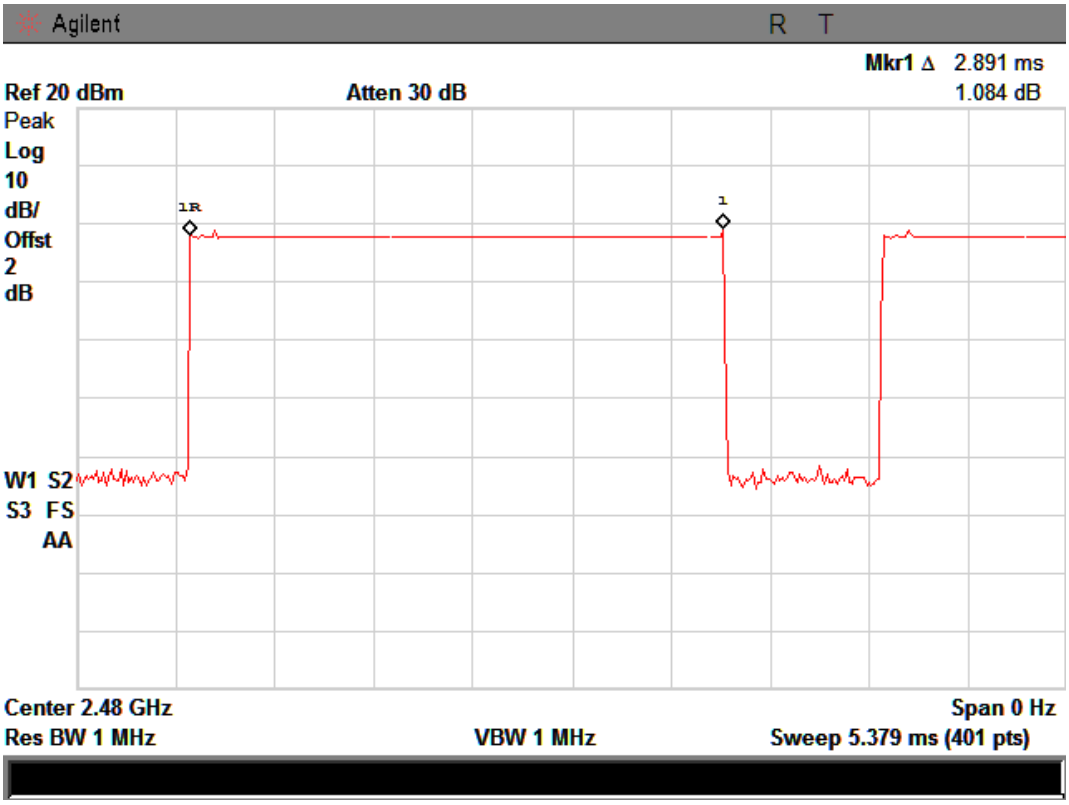
3-DH5: CH Low



3-DH5: CH Mid



3-DH5: CH High



8. Radiated emissions

8.1. Limit

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

15.205 Restricted frequency band

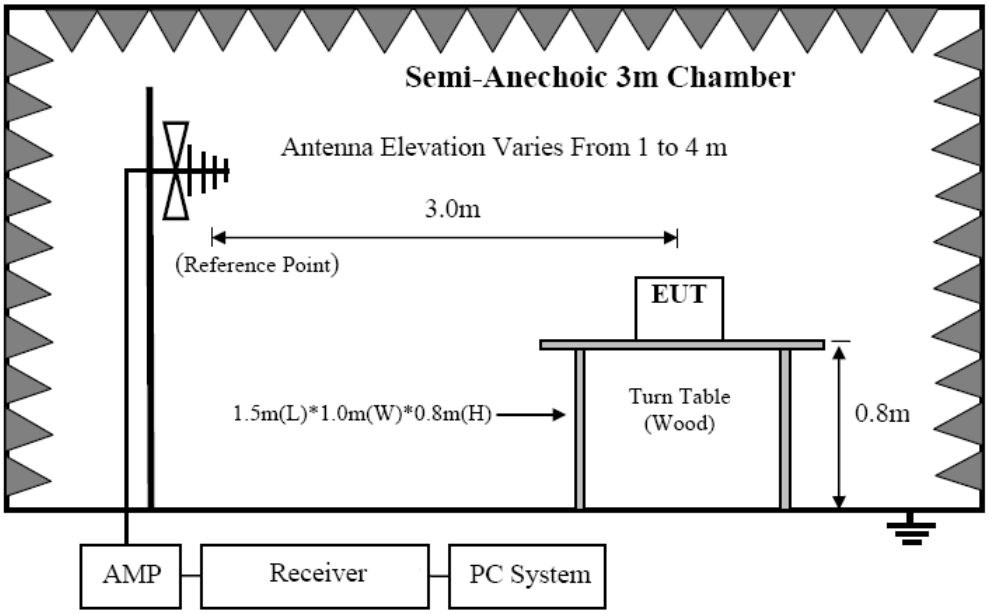
MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 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])

15.209 Limit

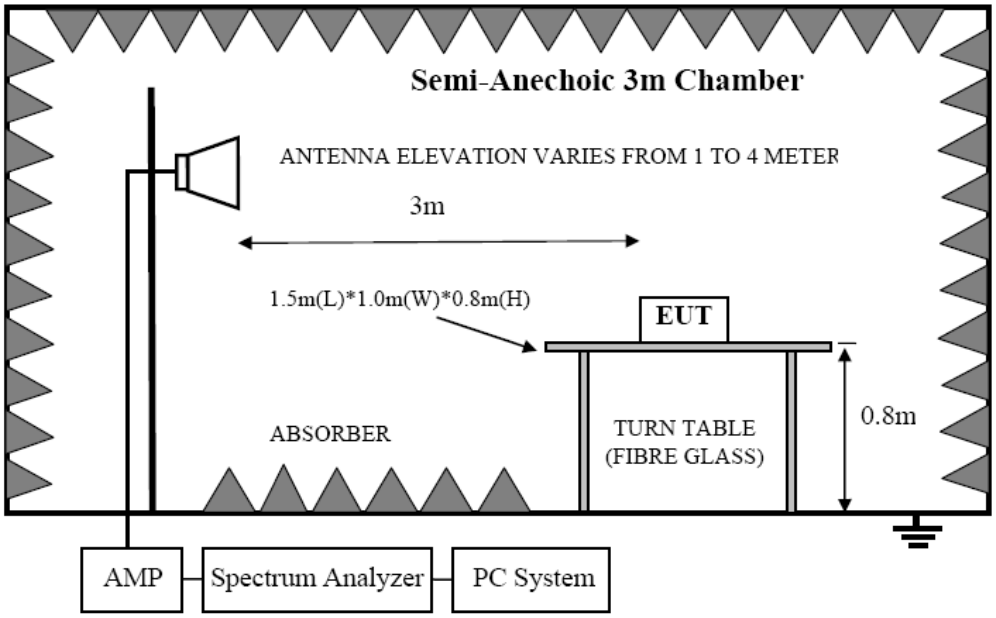
FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
0.009-0.490	300	2400/F(KHz)	/
0.490-1.705	30	24000/F(KHz)	/
1.705-30	30	30	29.5
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

8.2. Block Diagram of Test setup

8.2.1. In 3m Anechoic Chamber Test Setup Diagram for below 1GHz



8.2.2. In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz



Note: For harmonic emissions test a appropriate high pass filter was inserted in the input port of AMP.

8.3. Test Procedure

(1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.

(2) Setup EUT and simulator as shown in section 1.4 and 6.1

(3) Test antenna was located 3m from the EUT on an adjustable mast. Below pre-scan procedure was first performed in order to find prominent radiated emissions.
(a) Change work frequency or channel of device if practicable.
(b) Change modulation type of device if practicable.
(c) Change power supply range from 85% to 115% of the rated supply voltage for AC power supply.
(d) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions
(4) Spectrum frequency from 9KHz to 25GHz (tenth harmonic of fundamental frequency) was investigated
(5) For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4 2003 on Radiated Emission test.
(6) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1MHz, VBW is set at 3MHz for Peak measure; RBW is set at 1MHz, VBW is set at 10Hz for Average measure.

8.4. Test Result

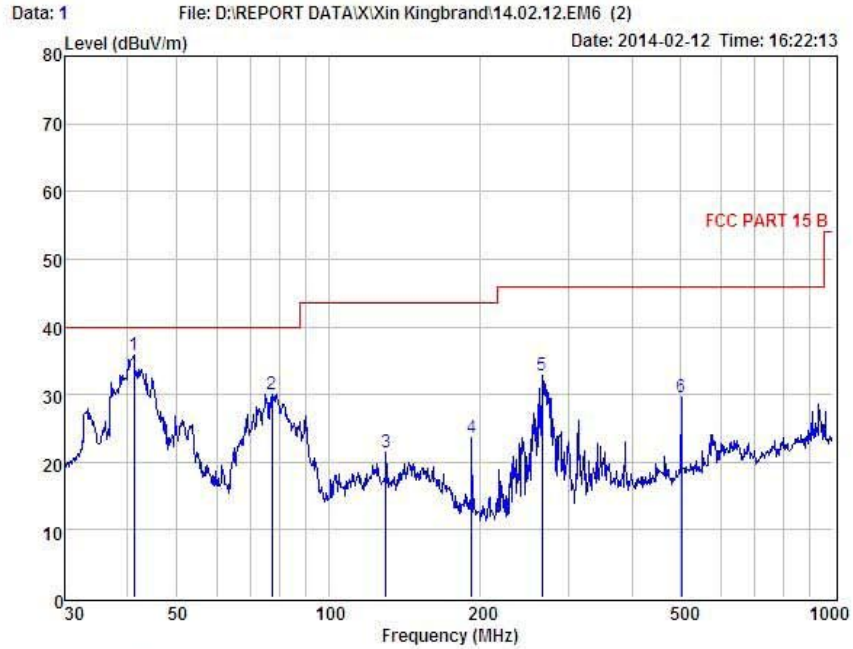
We have scanned the 10th harmonic from 9KHz to the EUT.
Detailed information please see the following page.

From 9KHz to 30MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

From 30MHz to 1000MHz: Conclusion: PASS

Shenzhen Certification Technology Service Co., Ltd.
2F, Building B, East Area of Nanchang Second Industrial Zone,
Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China
Tel: 4006786199 FAX: +86-755-26736857
Website: http://www.cessz.com Email: Service@cessz.com



Condition : FCC PART 15 B 3m POL: VERTICAL
EUT : LM127 Rugged Phone
Model No : LM127
Test Mode : Link mode
Power : DC 5V FROM ADAPTER WITH AC 120V/60Hz
Test Engineer : Stro Chu
Remark :
Temp : 24.2℃
Hum : 54%

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	41.13	49.42	13.93	27.81	0.18	35.72	40.00	-4.28	QP
2	77.32	46.98	9.60	26.78	0.29	30.09	40.00	-9.91	QP
3	129.92	35.03	12.79	26.89	0.44	21.37	43.50	-22.13	QP
4	192.42	39.54	10.36	26.95	0.58	23.53	43.50	-19.97	QP
5	264.75	47.44	11.96	27.13	0.57	32.84	46.00	-13.16	QP
6	501.18	39.91	16.54	27.62	0.76	29.59	46.00	-16.41	QP

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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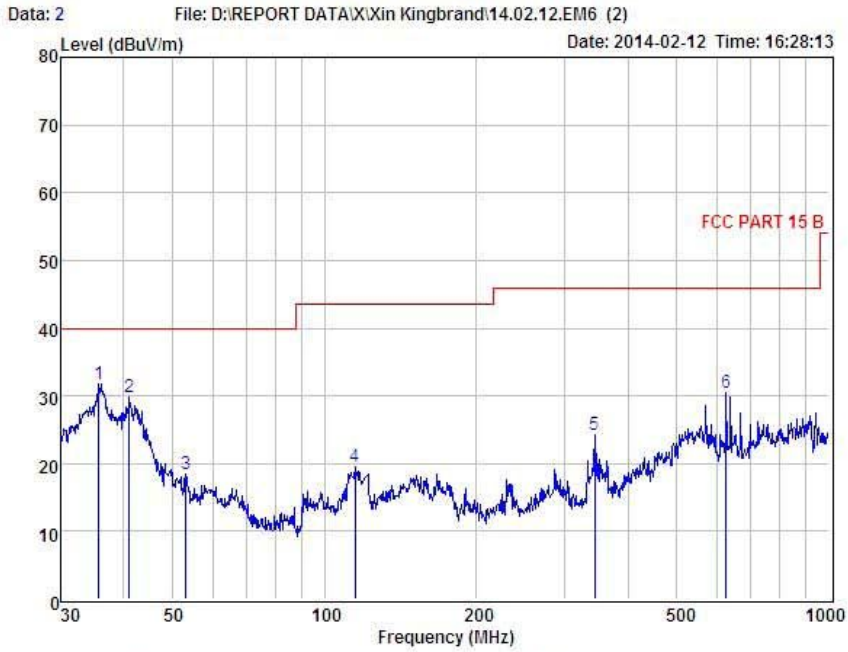
Website: http://www.cessz.com Email: Service@cessz.com



Condition : FCC PART 15 B 3m POL: HORIZONTAL
EUT : LM127 Rugged Phone
Model No : LM127
Test Mode : Link mode
Power : DC 5V FROM ADAPTER WITH AC 120V/60Hz
Test Engineer : Stro Chu
Remark :
Temp : 24.2℃
Hum : 54%

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	35.75	45.94	13.39	27.66	0.11	31.78	40.00	-8.22	QP
2	40.99	43.51	13.93	27.81	0.18	29.81	40.00	-10.19	QP
3	53.13	32.91	13.22	27.84	0.22	18.51	40.00	-21.49	QP
4	114.92	34.26	11.68	26.87	0.38	19.45	43.50	-24.05	QP
5	343.18	36.90	13.71	27.25	0.80	24.16	46.00	-21.84	QP
6	625.08	38.45	18.80	27.82	1.11	30.54	46.00	-15.46	QP

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

1GHz—25GHz Radiated emissison Test result									
EUT: LM127 Rugged Phone M/N: LM127									
Power: DC 5V From adapter with AC 120V/60Hz adapter									
Test date: 2014-02-13 Test site: 3m Chamber Tested by: Anna Fan									
Test mode: GFSK Tx CH1 2402MHz									
Antenna polarity: Vertical									
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804	46.26	33.95	10.18	34.26	56.13	74.00	17.87	PK
2	4804	35.71	33.95	10.18	34.26	45.58	54.00	8.42	AV
3	7206	/							
4	9608	/							
5	12010	/							
Antenna Polarity: Horizontal									
1	4804	42.84	33.95	10.18	34.26	52.71	74.00	21.29	PK
2	4804	31.93	33.95	10.18	34.26	41.80	54.00	12.20	AV
3	7206	/							
4	9608	/							
5	12010	/							
Note: 1, Measuring frequency from 1GHz to 25GHz 2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK 3, Result = Read level + Antenna factor + cable loss-Amp factor 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.									

1GHz—25GHz Radiated emissison Test result									
EUT: LM127 Rugged Phone M/N: LM127									
Power: DC 5V From adapter with AC 120V/60Hz adapter									
Test date: 2014-02-13 Test site: 3m Chamber Tested by: Anna Fan									
Test mode: GFSK Tx CH40 2441MHz									
Antenna polarity: Vertical									
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4882	43.75	33.93	10.20	34.29	53.59	74.00	20.41	PK
2	4882	32.86	33.93	10.20	34.29	42.70	54.00	11.30	AV
3	7323	/							
4	9764	/							
5	12205	/							
Antenna Polarity: Horizontal									
1	4882	41.89	33.93	10.20	34.29	51.73	74.00	22.27	PK
2	4882	30.74	33.93	10.20	34.29	40.58	54.00	13.42	AV
3	7323	/							
4	9764	/							
5	12205	/							
Note: 1, Measuring frequency from 1GHz to 25GHz 2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK 3, Result = Read level + Antenna factor + cable loss-Amp factor 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.									

1GHz—25GHz Radiated emissison Test result									
EUT: LM127 Rugged Phone M/N: LM127									
Power: DC 5V From adapter with AC 120V/60Hz adapter									
Test date: 2014-02-13 Test site: 3m Chamber Tested by: Anna Fan									
Test mode: GFSK Tx CH79 2480MHz									
Antenna polarity: Vertical									
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960	43.53	33.98	10.22	34.25	53.48	74.00	20.52	PK
2	4960	31.84	33.98	10.22	34.25	41.79	54.00	12.21	AV
3	7440	/							
4	9920	/							
5	12400	/							
Antenna Polarity: Horizontal									
1	4960	38.86	33.98	10.22	34.25	48.81	74.00	25.19	PK
2	4960	29.75	33.98	10.22	34.25	39.70	54.00	14.30	AV
3	7440	/							
4	9920	/							
5	12400	/							
Note: 1, Measuring frequency from 1GHz to 25GHz 2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK 3, Result = Read level + Antenna factor + cable loss-Amp factor 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.									

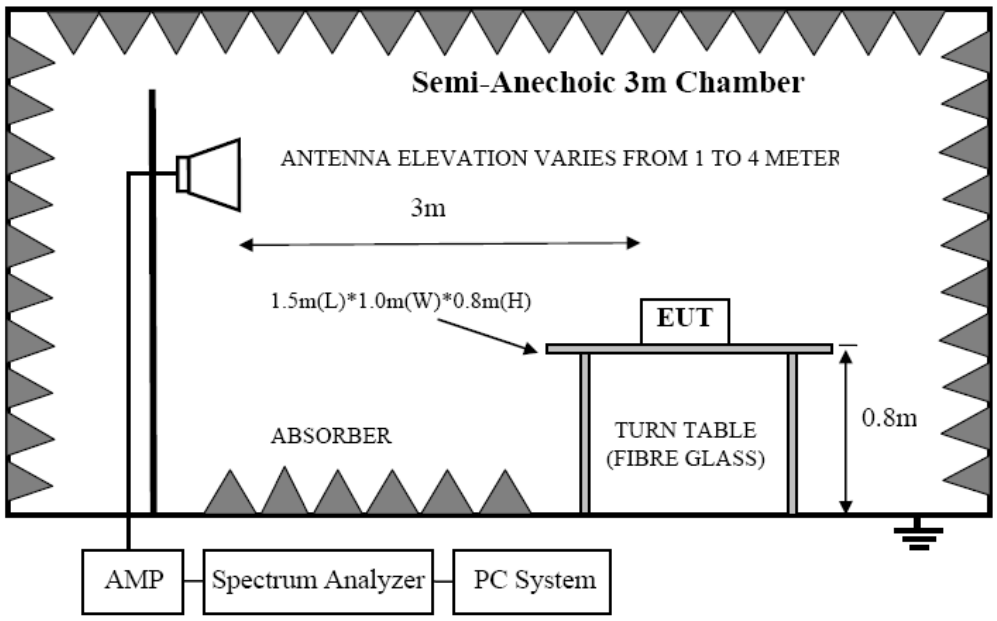
1GHz—25GHz Radiated emissison Test result									
EUT: LM127 Rugged Phone M/N: LM127									
Power: DC 5V From adapter with AC 120V/60Hz adapter									
Test date: 2014-02-13 Test site: 3m Chamber Tested by: Anna Fan									
Test mode: 8-DPSK Tx CH1 2402MHz									
Antenna polarity: Vertical									
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804	46.14	33.95	10.18	34.26	56.01	74.00	17.99	PK
2	4804	32.57	33.95	10.18	34.26	42.44	54.00	11.56	AV
3	7206	/							
4	9608	/							
5	12010	/							
Antenna Polarity: Horizontal									
1	4804	41.18	33.95	10.18	34.26	51.05	74.00	22.95	PK
2	4804	30.92	33.95	10.18	34.26	40.79	54.00	13.21	AV
3	7206	/							
4	9608	/							
5	12010	/							
Note: 1,Measuring frequency from 1GHz to 25GHz 2,Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK 2,Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK 3,Result = Read level + Antenna factor + cable loss-Amp factor 4,All the other emissions not reported were too low to read and deemed to comply with FCC limit.									

1GHz—25GHz Radiated emissison Test result									
EUT: LM127 Rugged Phone M/N: LM127									
Power: DC 5V From adapter with AC 120V/60Hz adapter									
Test date: 2014-02-13 Test site: 3m Chamber Tested by: Anna Fan									
Test mode: 8-DPSK Tx CH40 2441MHz									
Antenna polarity: Vertical									
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4882	43.54	33.93	10.20	34.29	53.38	74.00	20.62	PK
2	4882	32.79	33.93	10.20	34.29	42.63	54.00	11.37	AV
3	7323	/							
4	9764	/							
5	12205	/							
Antenna Polarity: Horizontal									
1	4882	40.56	33.93	10.20	34.29	50.40	74.00	23.60	PK
2	4882	31.48	33.93	10.20	34.29	41.32	54.00	12.68	AV
3	7323	/							
4	9764	/							
5	12205	/							
Note: 1, Measuring frequency from 1GHz to 25GHz 2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK 3, Result = Read level + Antenna factor + cable loss-Amp factor 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.									

1GHz—25GHz Radiated emissison Test result									
EUT: LM127 Rugged Phone M/N: LM127									
Power: DC 5V From adapter with AC 120V/60Hz adapter									
Test date: 2014-02-13 Test site: 3m Chamber Tested by: Anna Fan									
Test mode: 8-DPSK Tx CH79 2480MHz									
Antenna polarity: Vertical									
No	Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960	43.72	33.98	10.22	34.25	53.67	74.00	20.33	PK
2	4960	30.68	33.98	10.22	34.25	40.63	54.00	13.37	AV
3	7440	/							
4	9920	/							
5	12400	/							
Antenna Polarity: Horizontal									
1	4960	42.57	33.98	10.22	34.25	52.52	74.00	21.48	PK
2	4960	31.18	33.98	10.22	34.25	41.13	54.00	12.87	AV
3	7440	/							
4	9920	/							
5	12400	/							
Note: 1, Measuring frequency from 1GHz to 25GHz 2, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK 2, Spectrum Set for AV measure: RBW=1MHz, VBW=10Hz, Sweep time=Auto, Detector: PK 3, Result = Read level + Antenna factor + cable loss-Amp factor 4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.									

9. Band Edge Compliance

9.1. Block Diagram of Test Setup



9.2. Limit

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz and 5725MHz to 5850MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

9.3. Test Procedure

Same with clause 6.3 except change investigated frequency range from 2310MHz to 2415MHz, 2475MHz to 2500MHz.

9.4. Test Result

NOTE : The Band Edge is showed the maximum power data of all mode(GFSK, Π/4 DQPSK, 8-DPSK)

PASS. (See below detailed test data)

GFSK
CH LOW :

Shenzhen Certification Technology Service Co., Ltd.
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Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China
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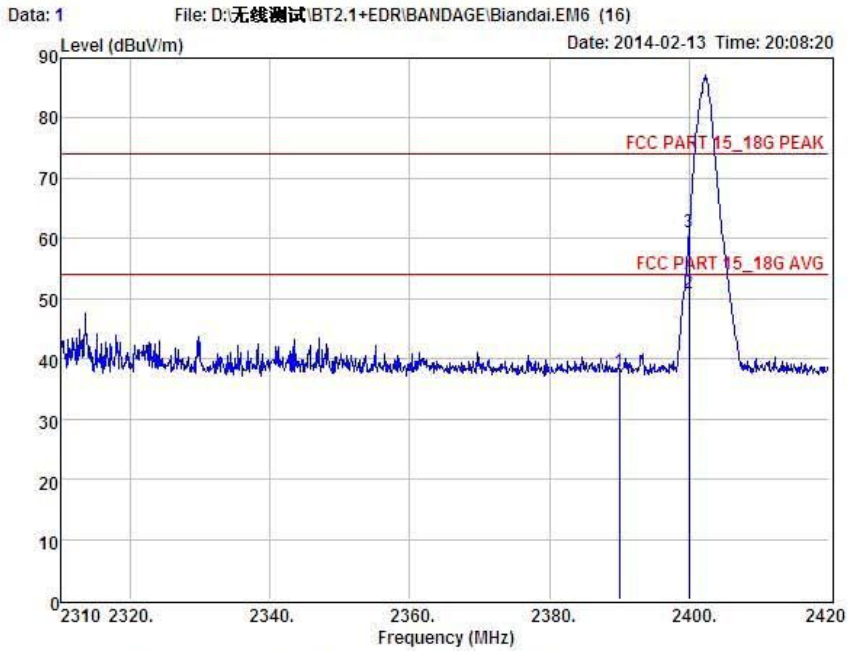

Condition : FCC PART 15_18G PEAK 3m POL: HORIZONTAL
EUT : LM127 Rugged Phone
Model No : LM127
Test Mode : GFSK TX 2402MHz
Power : DC 5V From adapter with AC 120V/60Hz
Test Engineer : Stro Chu
Remark :
Temp :
Hum :

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	2390.00	41.19	27.62	34.97	3.92	37.76	74.00	-36.24	Peak
2	2400.00	54.24	27.62	34.97	3.94	50.83	54.00	-3.17	Average
3	2400.00	64.50	27.62	34.97	3.94	61.09	74.00	-12.91	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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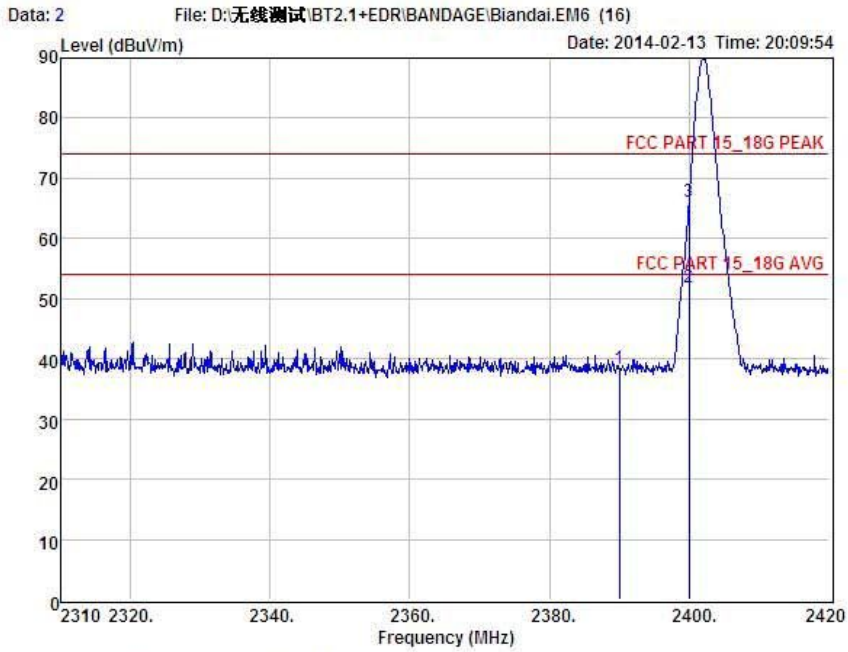

Condition : FCC PART 15_18G PEAK 3m POL: VERTICAL
EUT : LM127 Rugged Phone
Model No : LM127
Test Mode : GFSK TX 2402MHz
Power : DC 5V From adapter with AC 120V/60Hz
Test Engineer : Stro Chu
Remark :
Temp :
Hum :

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	2390.00	41.71	27.62	34.97	3.92	38.28	74.00	-35.72	Peak
2	2400.00	55.20	27.62	34.97	3.94	51.79	54.00	-2.21	Average
3	2400.00	69.64	27.62	34.97	3.94	66.23	74.00	-7.77	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

CH High :

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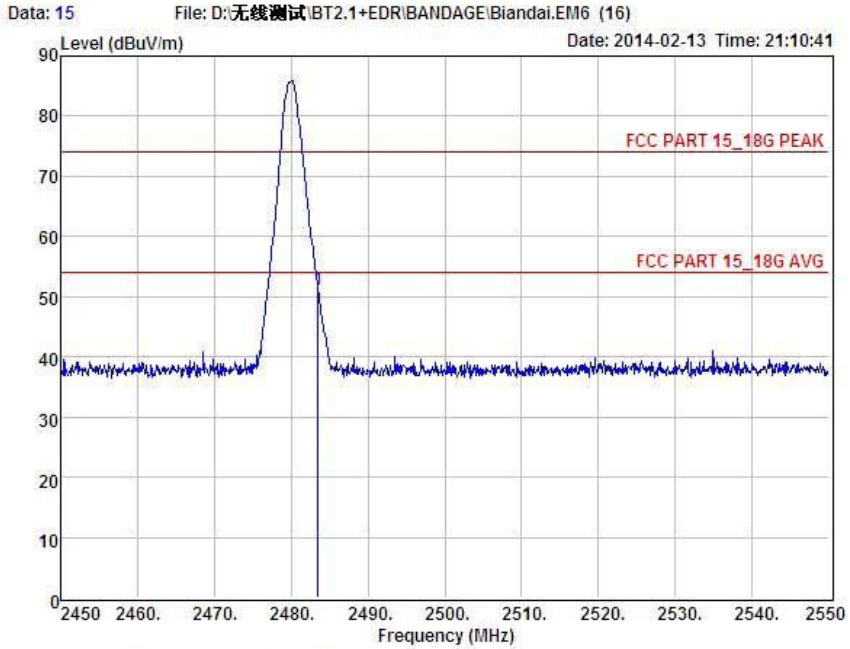


```
Condition      : FCC PART 15_18G PEAK 3m       POL: VERTICAL
EUT            : LM127 Rugged Phone
Model No       : LM127
Test Mode      : GFSK TX 2480MHz
Power          : DC 5V From adapter  with AC 120V/60Hz
Test Engineer  : Stro Chu
Remark         :
Temp           :
Hum            :
```

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	2483.50	54.61	27.59	34.97	4.00	51.23	74.00	-22.77	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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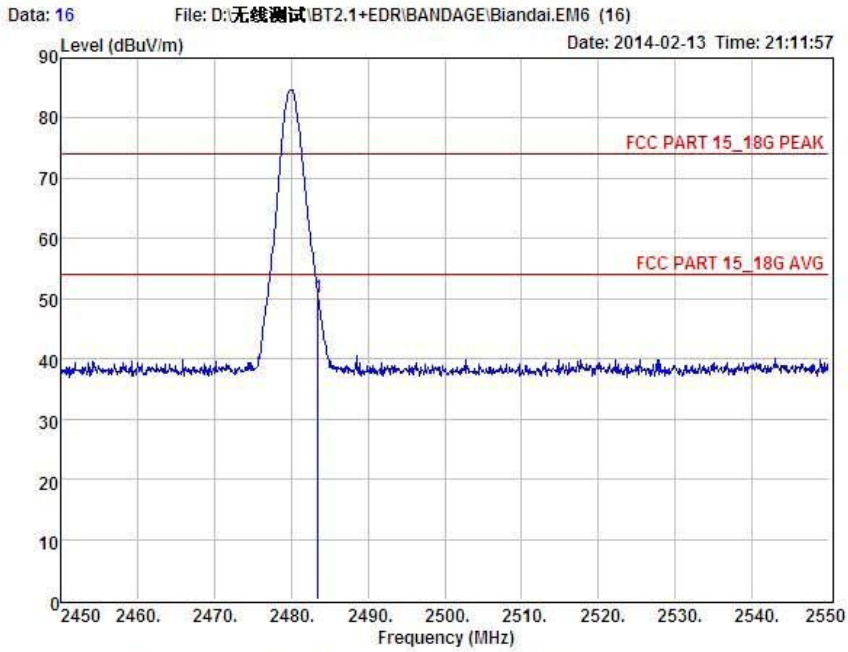


```
Condition      : FCC PART 15_18G PEAK 3m       POL: HORIZONTAL
EUT            : LM127 Rugged Phone
Model No       : LM127
Test Mode      : GFSK TX 2480MHz
Power          : DC 5V From adapter  with AC 120V/60Hz
Test Engineer  : Stro Chu
Remark         :
Temp           :
Hum            :
```

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	2483.50	53.65	27.59	34.97	4.00	50.27	74.00	-23.73	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

Hopping

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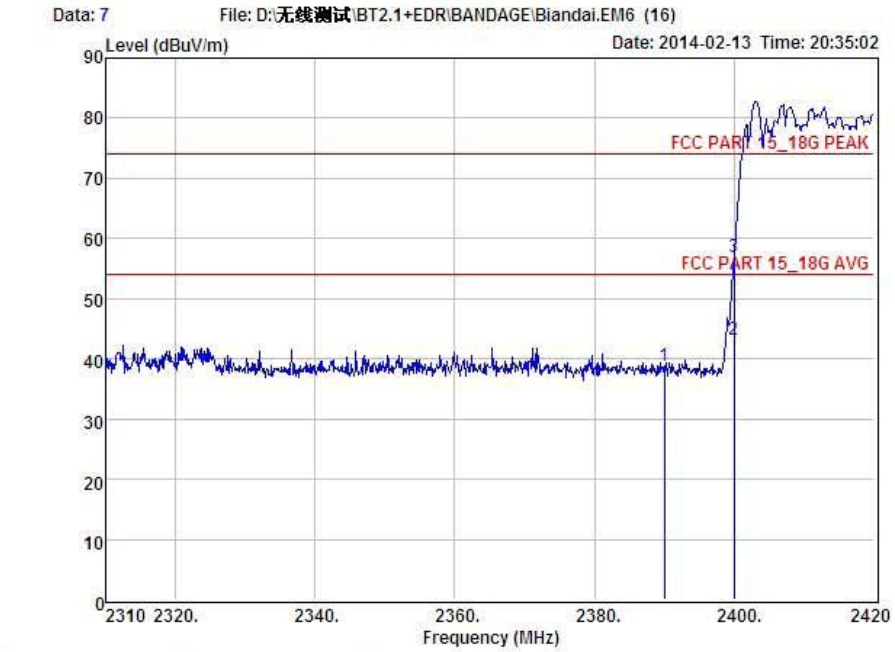

Condition : FCC PART 15_18G PEAK 3m POL: VERTICAL
EUT : LM127 Rugged Phone
Model No : LM127
Test Mode : GFSK TX 2402MHz Hopping
Power : DC 5V From adapter with AC 120V/60Hz
Test Engineer : Stro Chu
Remark :
Temp :
Hum :

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	2390.00	42.19	27.62	34.97	3.92	38.76	74.00	-35.24	Peak
2	2400.00	46.67	27.62	34.97	3.94	43.26	54.00	-10.74	Average
3	2400.00	60.25	27.62	34.97	3.94	56.84	74.00	-17.16	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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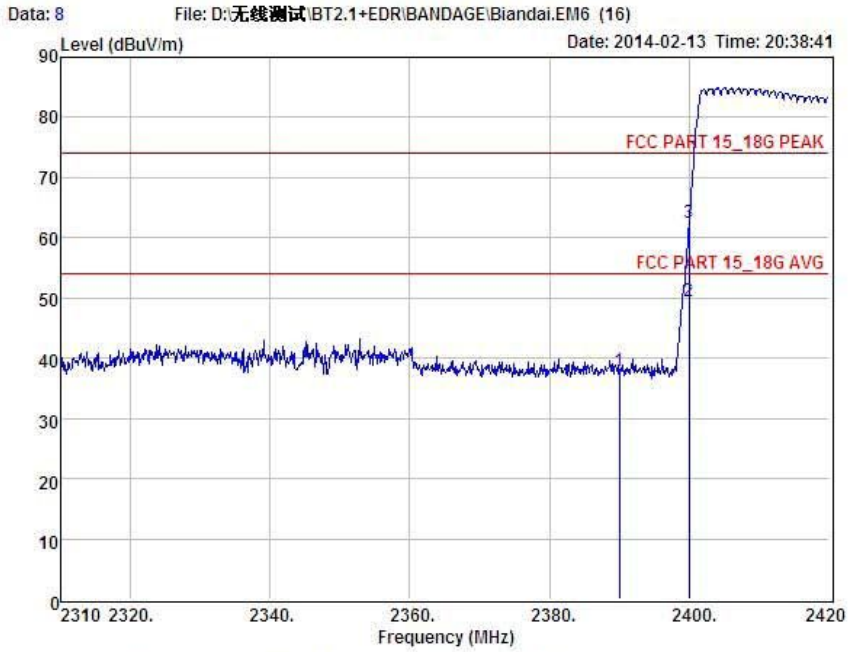

Condition : FCC PART 15_18G PEAK 3m POL: HORIZONTAL
EUT : LM127 Rugged Phone
Model No : LM127
Test Mode : GFSK TX 2402MHz Hopping
Power : DC 5V From adapter with AC 120V/60Hz
Test Engineer : Stro Chu
Remark :
Temp :
Hum :

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	2390.00	41.37	27.62	34.97	3.92	37.94	74.00	-36.06	Peak
2	2400.00	52.76	27.62	34.97	3.94	49.35	54.00	-4.65	Average
3	2400.00	65.80	27.62	34.97	3.94	62.39	74.00	-11.61	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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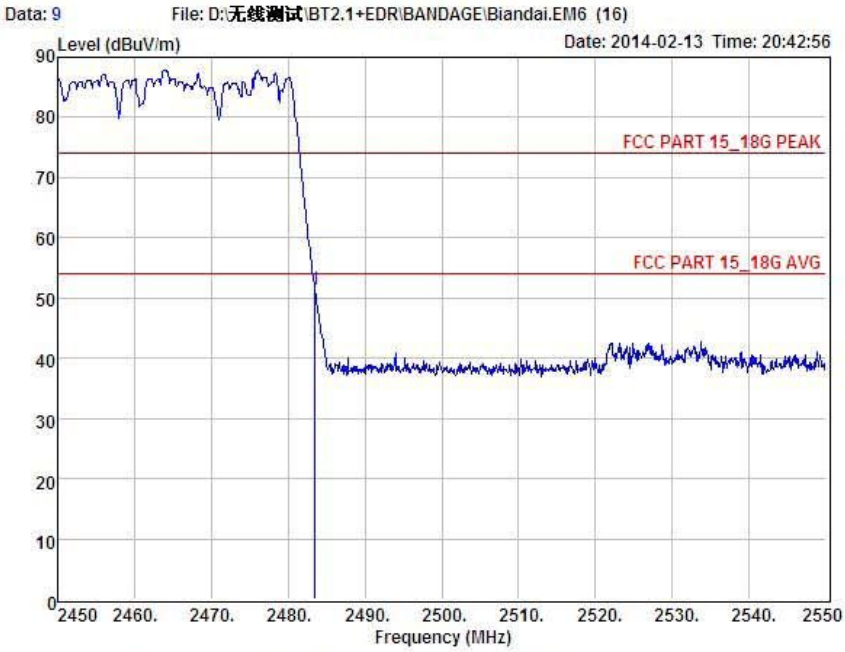

Condition : FCC PART 15_18G PEAK 3m POL: HORIZONTAL
EUT : LM127 Rugged Phone
Model No : LM127
Test Mode : GFSK TX 2480MHz Hopping
Power : DC 5V From adapter with AC 120V/60Hz
Test Engineer : Stro Chu
Remark :
Temp :
Hum :

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	2483.50	54.82	27.59	34.97	4.00	51.44	74.00	-22.56	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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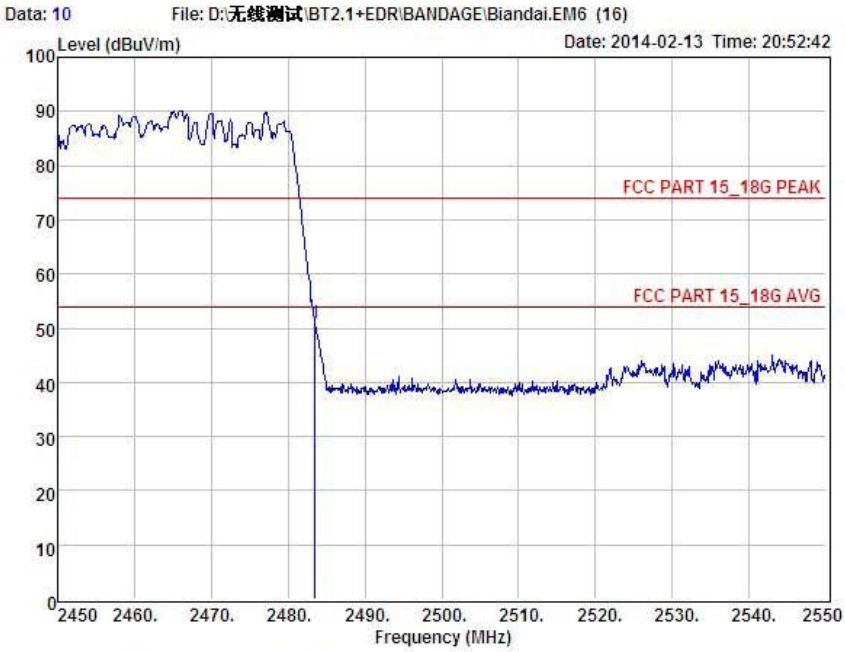


```
Condition      : FCC PART 15_18G PEAK 3m       POL: VERTICAL
EUT            : LM127 Rugged Phone
Model No       : LM127
Test Mode      : GFSK TX 2480MHz Hopping
Power          : DC 5V From adapter  with AC 120V/60Hz
Test Engineer  : Stro Chu
Remark         :
Temp           :
Hum            :
```

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	2483.50	54.33	27.59	34.97	4.00	50.95	74.00	-23.05	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

8-DPSK
CH LOW :

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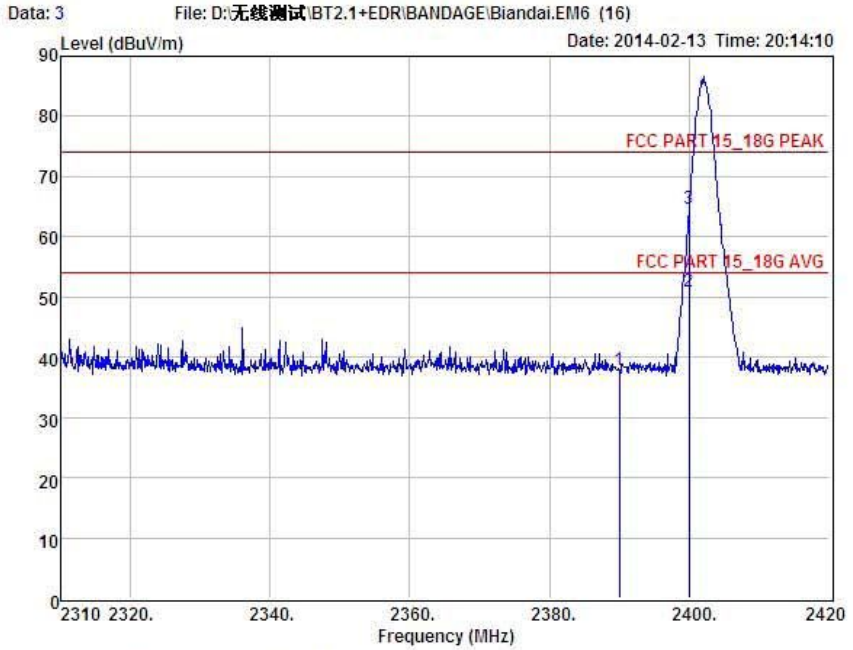

Condition : FCC PART 15_18G PEAK 3m POL: VERTICAL
EUT : LM127 Rugged Phone
Model No : LM127
Test Mode : DPSK TX 2402MHz
Power : DC 5V From adapter with AC 120V/60Hz
Test Engineer : Stro Chu
Remark :
Temp :
Hum :

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	2390.00	41.34	27.62	34.97	3.92	37.91	74.00	-36.09	Peak
2	2400.00	54.27	27.62	34.97	3.94	50.86	54.00	-3.14	Average
3	2400.00	68.04	27.62	34.97	3.94	64.63	74.00	-9.37	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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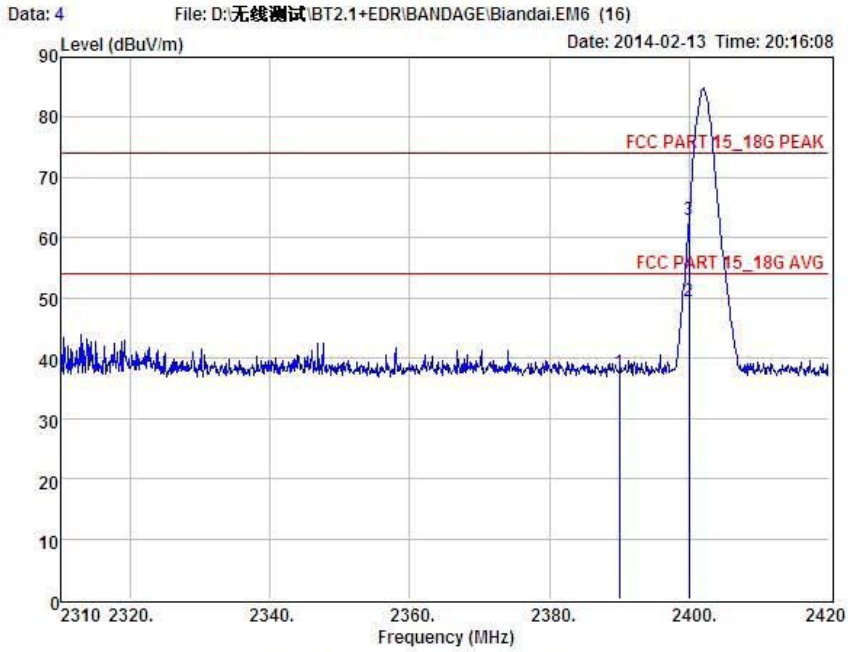

Condition : FCC PART 15_18G PEAK 3m POL: HORIZONTAL
EUT : LM127 Rugged Phone
Model No : LM127
Test Mode : DPSK TX 2402MHz
Power : DC 5V From adapter with AC 120V/60Hz
Test Engineer : Stro Chu
Remark :
Temp :
Hum :

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	2390.00	41.10	27.62	34.97	3.92	37.67	74.00	-36.33	Peak
2	2400.00	52.99	27.62	34.97	3.94	49.58	54.00	-4.42	Average
3	2400.00	66.36	27.62	34.97	3.94	62.95	74.00	-11.05	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

CH High:

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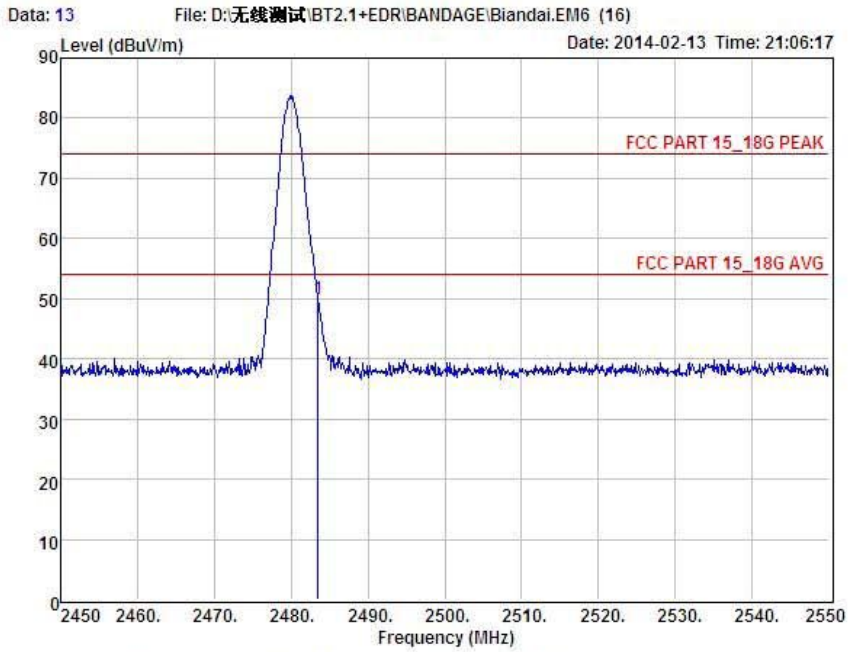

Condition : FCC PART 15_18G PEAK 3m POL: HORIZONTAL
EUT : LM127 Rugged Phone
Model No : LM127
Test Mode : DPSK TX 2480MHz
Power : DC 5V From adapter with AC 120V/60Hz
Test Engineer : Stro Chu
Remark :
Temp :
Hum :

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	2483.50	53.34	27.59	34.97	4.00	49.96	74.00	-24.04	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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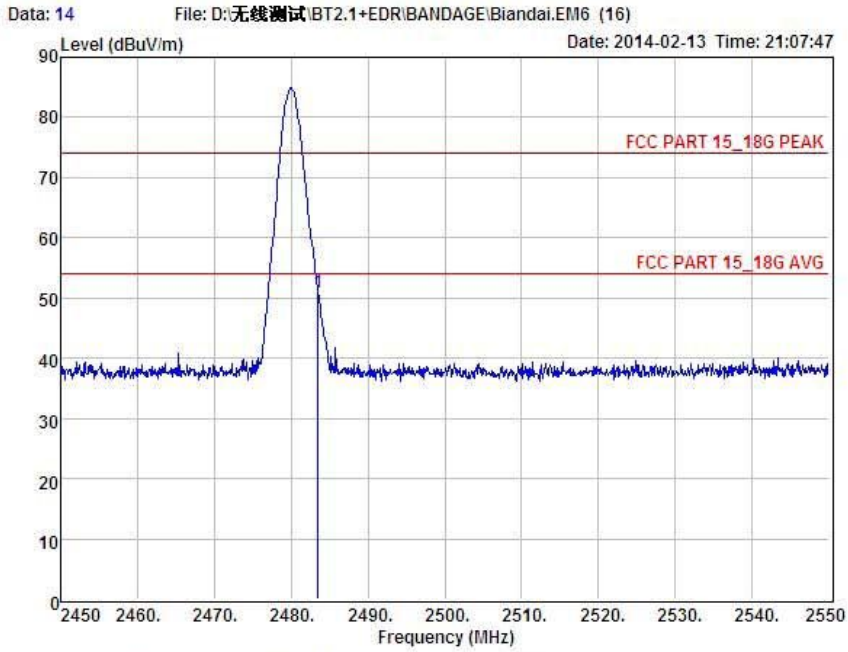

Condition : FCC PART 15_18G PEAK 3m POL: VERTICAL
EUT : LM127 Rugged Phone
Model No : LM127
Test Mode : DPSK TX 2480MHz
Power : DC 5V From adapter with AC 120V/60Hz
Test Engineer : Stro Chu
Remark :
Temp :
Hum :

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	2483.50	54.19	27.59	34.97	4.00	50.81	74.00	-23.19	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

Hopping

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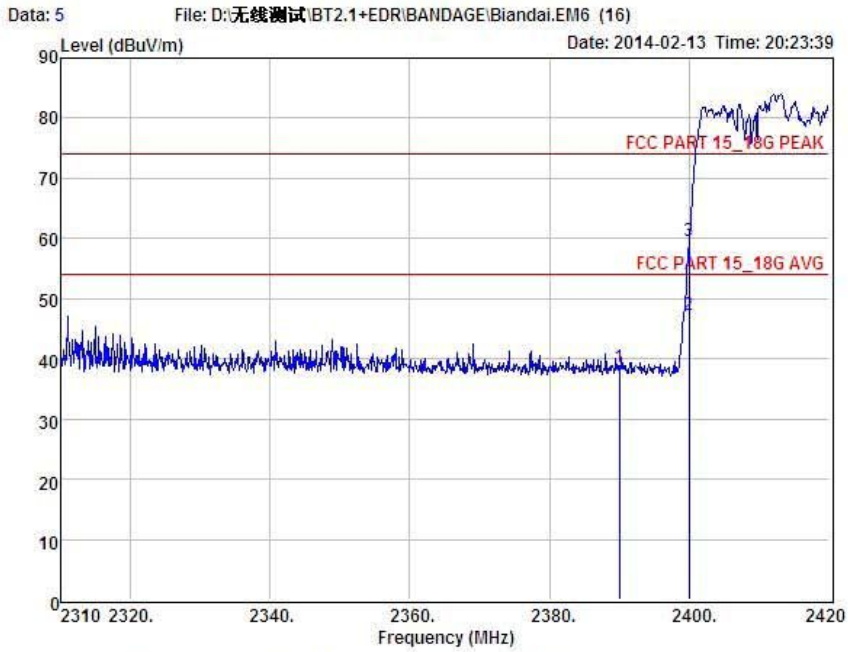

Condition : FCC PART 15_18G PEAK 3m POL: HORIZONTAL
EUT : LM127 Rugged Phone
Model No : LM127
Test Mode : DPSK TX 2402MHz Hopping
Power : DC 5V From adapter with AC 120V/60Hz
Test Engineer : Stro Chu
Remark :
Temp :
Hum :

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	2390.00	42.02	27.62	34.97	3.92	38.59	74.00	-35.41	Peak
2	2400.00	50.76	27.62	34.97	3.94	47.35	54.00	-6.65	Average
3	2400.00	63.10	27.62	34.97	3.94	59.69	74.00	-14.31	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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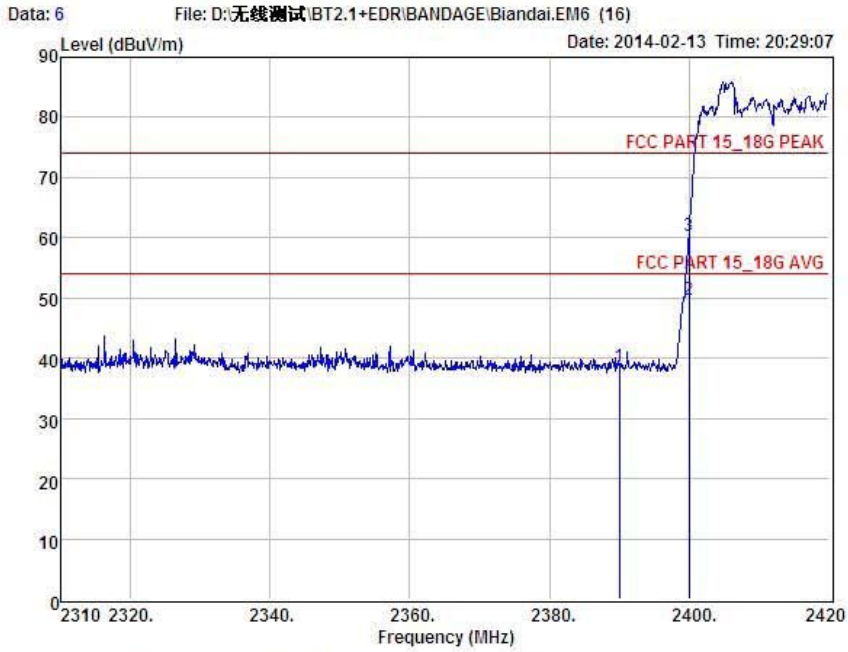

Condition : FCC PART 15_18G PEAK 3m POL: VERTICAL
EUT : LM127 Rugged Phone
Model No : LM127
Test Mode : DPSK TX 2402MHz Hopping
Power : DC 5V From adapter with AC 120V/60Hz
Test Engineer : Stro Chu
Remark :
Temp :
Hum :

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	2390.00	42.06	27.62	34.97	3.92	38.63	74.00	-35.37	Peak
2	2400.00	53.14	27.62	34.97	3.94	49.73	54.00	-4.27	Average
3	2400.00	63.79	27.62	34.97	3.94	60.38	74.00	-13.62	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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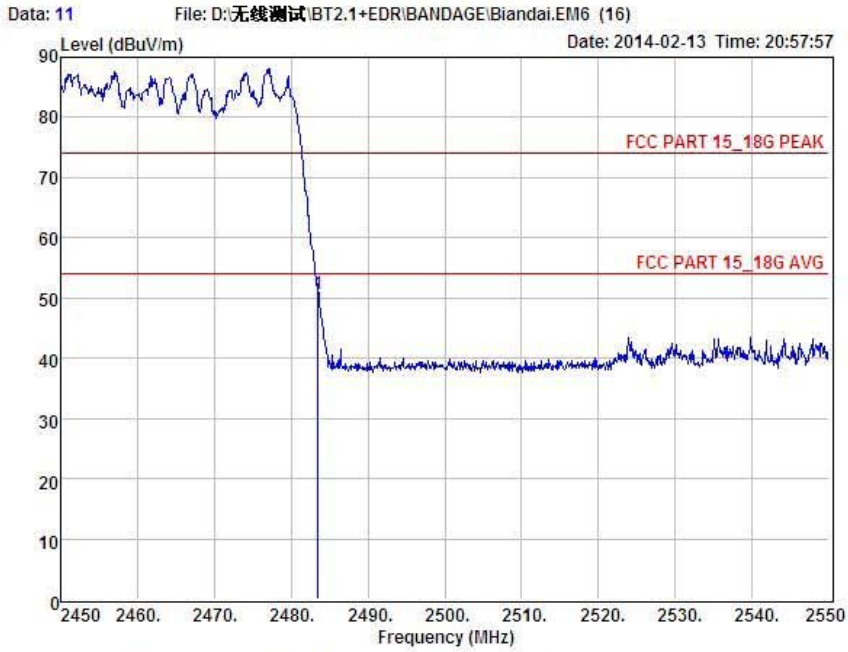

Condition : FCC PART 15_18G PEAK 3m POL: VERTICAL
EUT : LM127 Rugged Phone
Model No : LM127
Test Mode : DPSK TX 2480MHz Hopping
Power : DC 5V From adapter with AC 120V/60Hz
Test Engineer : Stro Chu
Remark :
Temp :
Hum :

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	2483.50	53.97	27.59	34.97	4.00	50.59	74.00	-23.41	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

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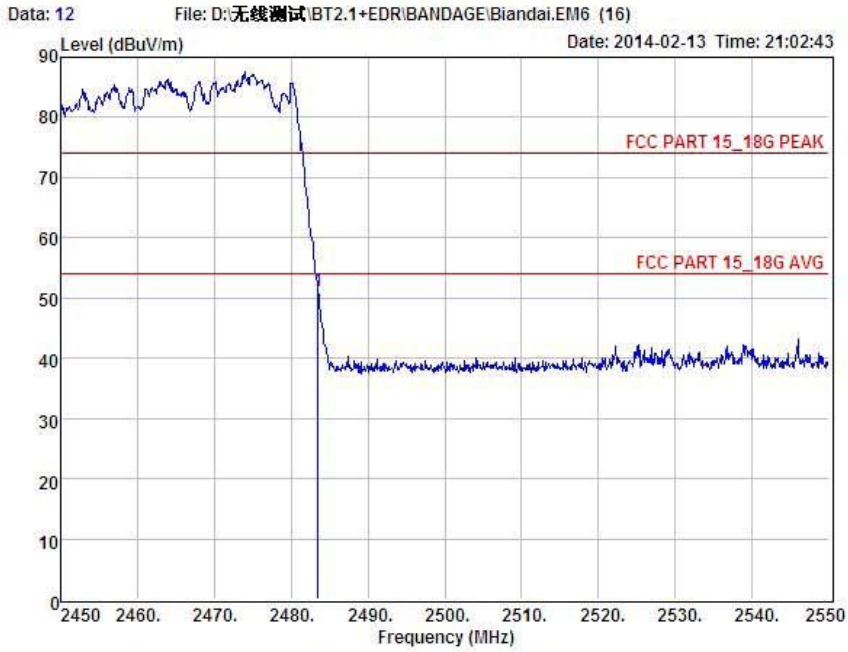


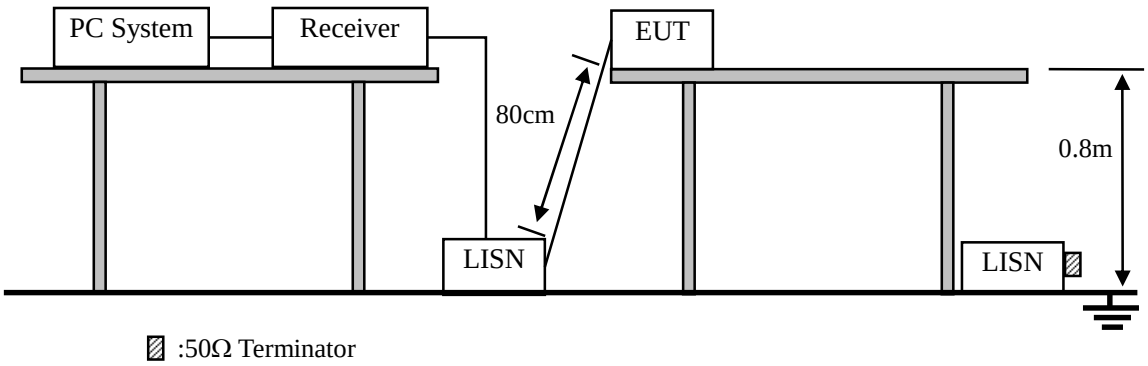
Condition : FCC PART 15_18G PEAK 3m POL: HORIZONTAL
EUT : LM127 Rugged Phone
Model No : LM127
Test Mode : DPSK TX 2480MHz Hopping
Power : DC 5V From adapter with AC 120V/60Hz
Test Engineer : Stro Chu
Remark :
Temp :
Hum :

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	2483.50	54.53	27.59	34.97	4.00	51.15	74.00	-22.85	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

10. Power Line Conducted Emissions

10.1. Block Diagram of Test Setup



10.2. Limit

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

10.3. Test Procedure

(1) The EUT was placed on a non-metallic table, 80cm above the ground plane.
(2) Setup the EUT and simulator as shown in 10.1
(3) The EUT Power connected to the power mains through a power adapter and a line impedance stabilization network (L.I.S.N1). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N2), this provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4 2003 on conducted Emission test.
(4) The bandwidth of test receiver is set at 10KHz.
(5) The frequency range from 150 KHz to 30MHz is checked.

10.4. Test Result

PASS. (See below detailed test data)

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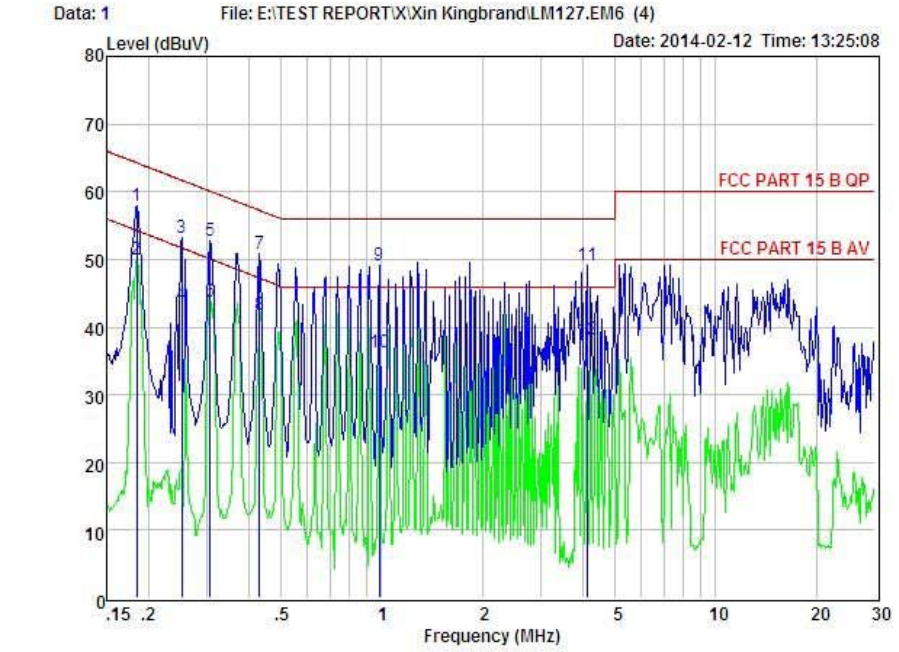

Condition : FCC PART 15 B QP POL: NEUTRAL Temp: Hum:
EUT : LM127 Rugged Phone
Model No : LM127
Test Mode : Link mode
Power : DC 5V FROM ADAPTER WITH AC 120V/60Hz
Test Engineer: Stro Chu
Remark :

Item	Freq	Read	AUX Factor	Cable Lose	Level	Limit	Margin	Remark
	MHz	dBuA	dB	dB	dBuA	dBuA	dBuA	
1	0.184	48.04	0.00	0.10	57.89	64.28	-6.39	QP
2	0.184	40.04	0.00	0.10	49.89	54.28	-4.39	Average
3	0.252	43.38	0.00	0.10	53.23	61.69	-8.46	QP
4	0.252	33.38	0.00	0.10	43.23	51.69	-8.46	Average
5	0.307	42.89	0.00	0.10	52.74	60.06	-7.32	QP
6	0.307	33.89	0.00	0.10	43.74	50.06	-6.32	Average
7	0.431	40.95	0.00	0.10	50.80	57.24	-6.44	QP
8	0.431	31.95	0.00	0.10	41.80	47.24	-5.44	Average
9	0.984	39.33	0.00	0.10	49.18	56.00	-6.82	QP
10	0.984	26.33	0.00	0.10	36.18	46.00	-9.82	Average
11	4.114	39.21	0.00	0.12	49.10	56.00	-6.90	QP
12	4.114	28.21	0.00	0.12	38.10	46.00	-7.90	Average

Remarks: Level = Read + AUX Factor + Cable loss

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2F, Building B, East Area of Nanchang Second Industrial Zone,
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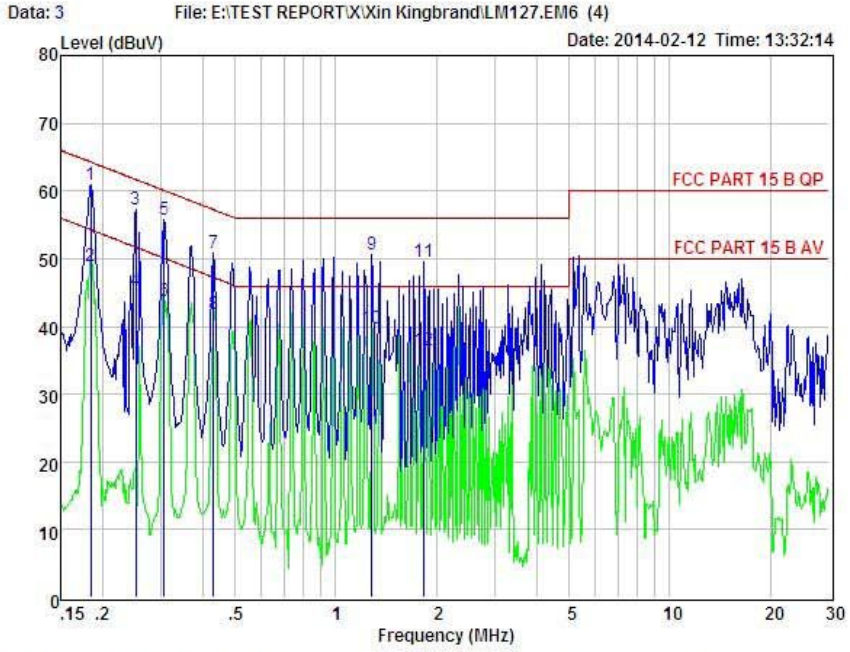


Condition : FCC PART 15 B QP POL: LINE Temp: Hum:
EUT : LM127 Rugged Phone
Model No : LM127
Test Mode : Link mode
Power : DC 5V FROM ADAPTER WITH AC 120V/60Hz
Test Engineer: Stro Chu
Remark :

Item	Freq	Read	AUX Factor	Cable Lose	Level	Limit	Margin	Remark
	MHz	dBuA	dB	dB	dBuA	dBuA	dBuA	
1	0.184	51.04	0.00	0.10	60.89	64.28	-3.39	QP
2	0.184	39.04	0.00	0.10	48.89	54.28	-5.39	Average
3	0.252	47.38	0.00	0.10	57.23	61.69	-4.46	QP
4	0.252	35.38	0.00	0.10	45.23	51.69	-6.46	Average
5	0.307	45.89	0.00	0.10	55.74	60.06	-4.32	QP
6	0.307	33.89	0.00	0.10	43.74	50.06	-6.32	Average
7	0.431	40.95	0.00	0.10	50.80	57.24	-6.44	QP
8	0.431	31.95	0.00	0.10	41.80	47.24	-5.44	Average
9	1.282	40.74	0.00	0.10	50.60	56.00	-5.40	QP
10	1.282	29.74	0.00	0.10	39.60	46.00	-6.40	Average
11	1.839	39.63	0.00	0.10	49.48	56.00	-6.52	QP
12	1.839	26.63	0.00	0.10	36.48	46.00	-9.52	Average

Remarks: Level = Read + AUX Factor + Cable loss

- 3 -

Note: If QP Result comply with AV limit, AV Result is deemed to comply with AV limit

11. Antenna Requirements

11.1. Limit

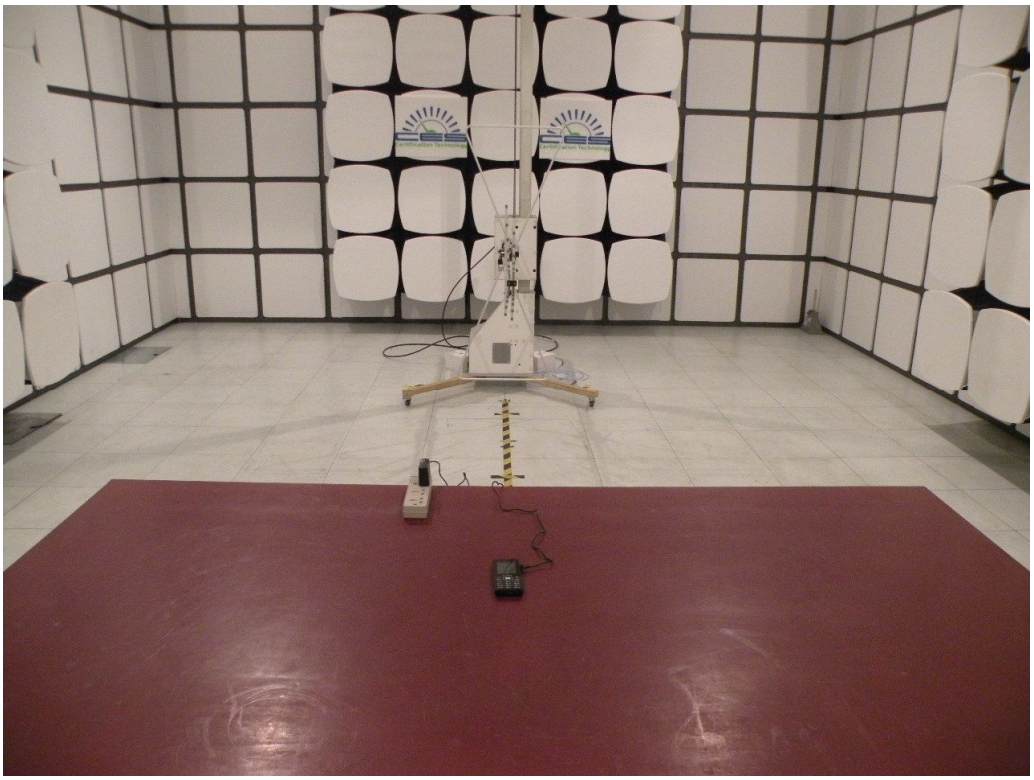
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional 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.

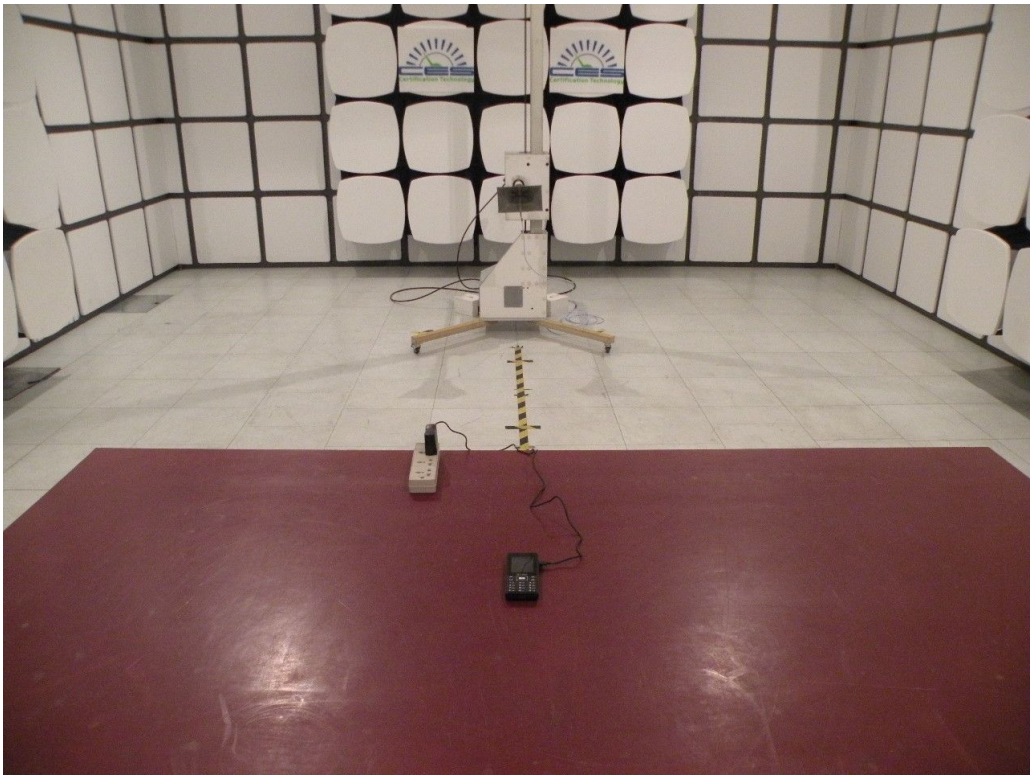
11.2. Result

The antennas used for this product are Dipole Antenna for Bluetooth, PIFA Antenna For GSM and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 0dBi for Bluetooth and 1.34dBi for GSM .

12. Test setup photo

12.1. Photos of Radiated emission



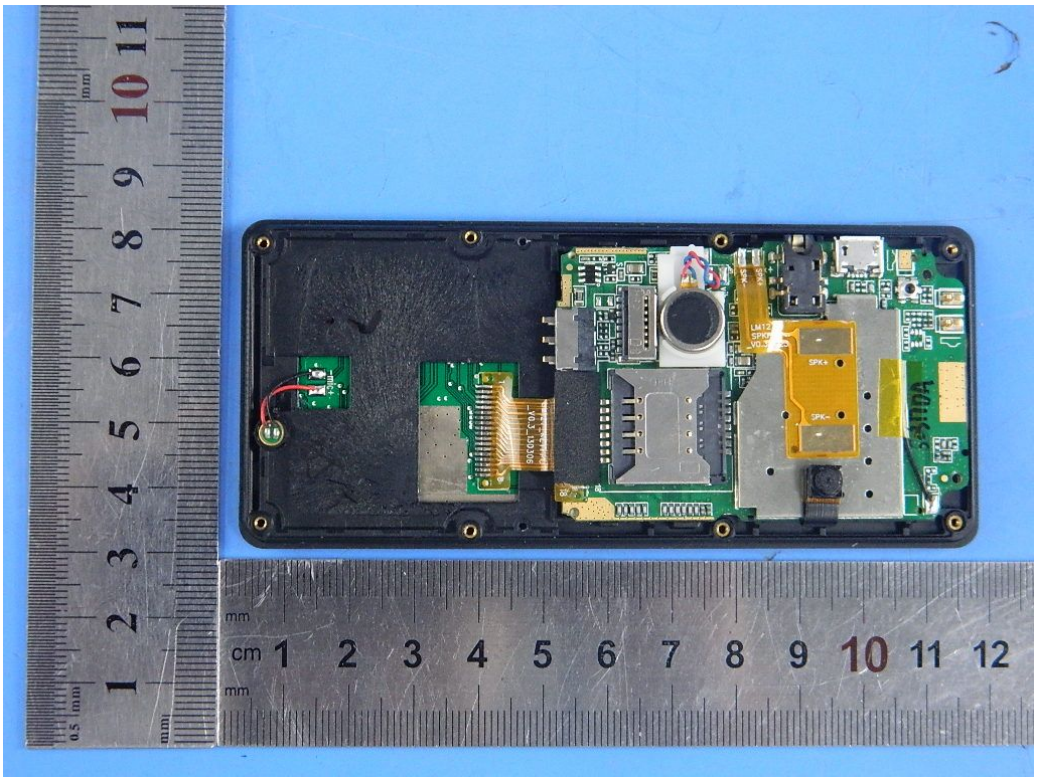


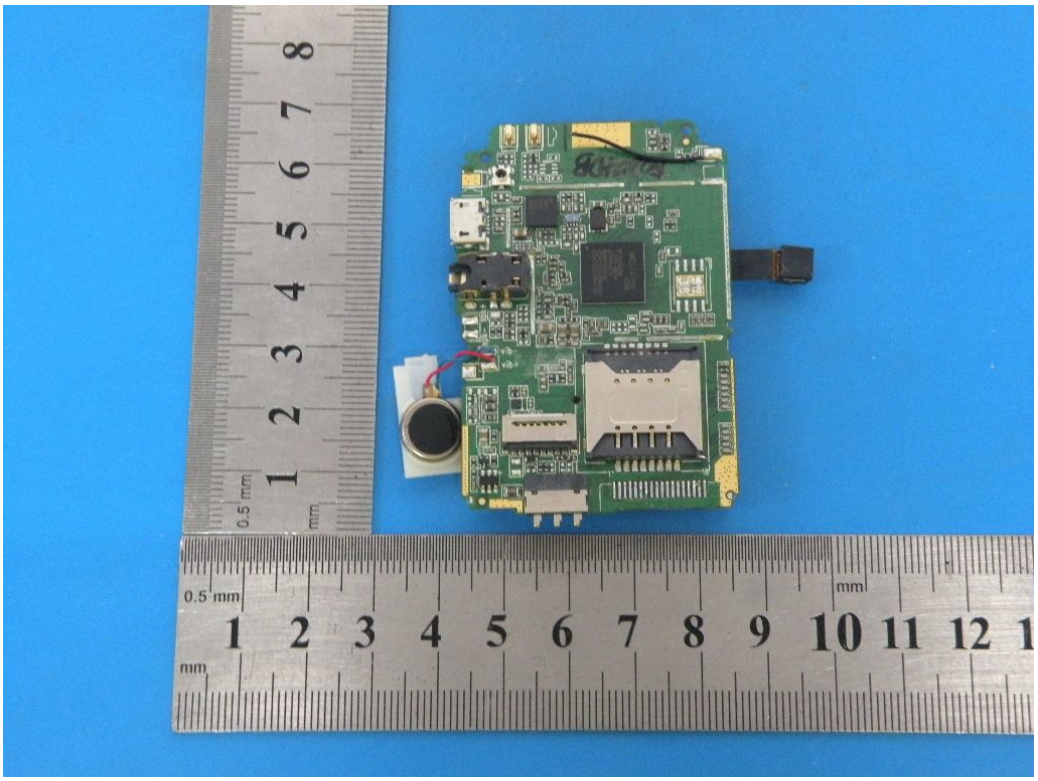
12.2.Photos of Conducted Emission test

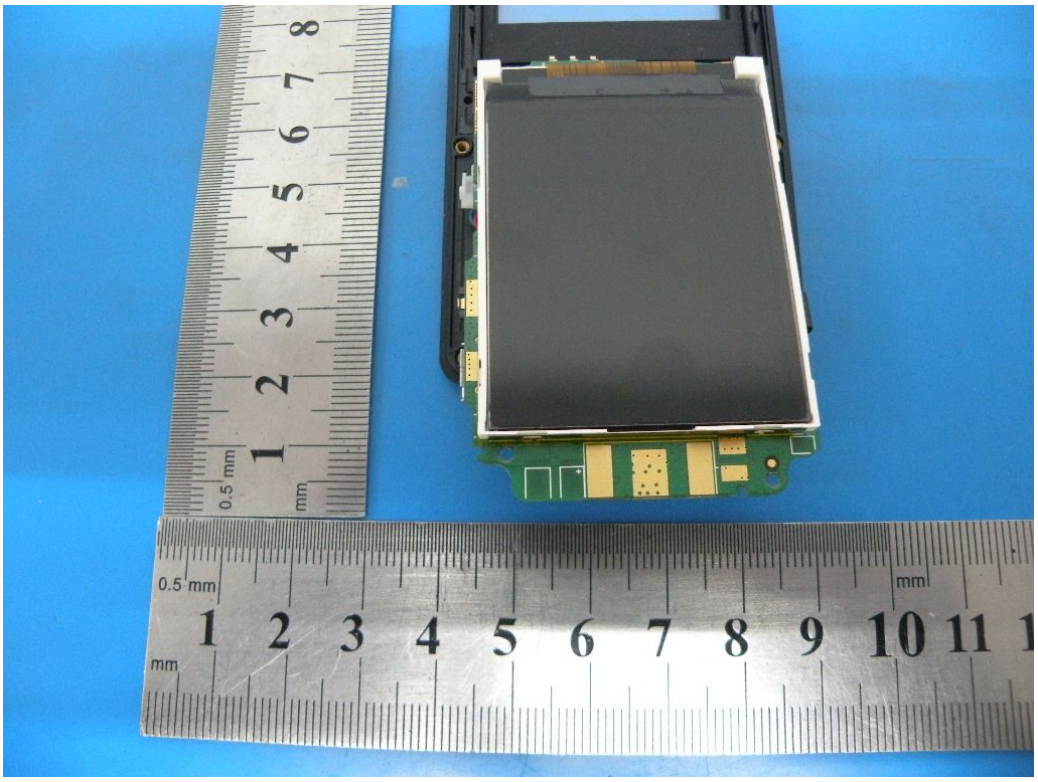
13. Photos of EUT

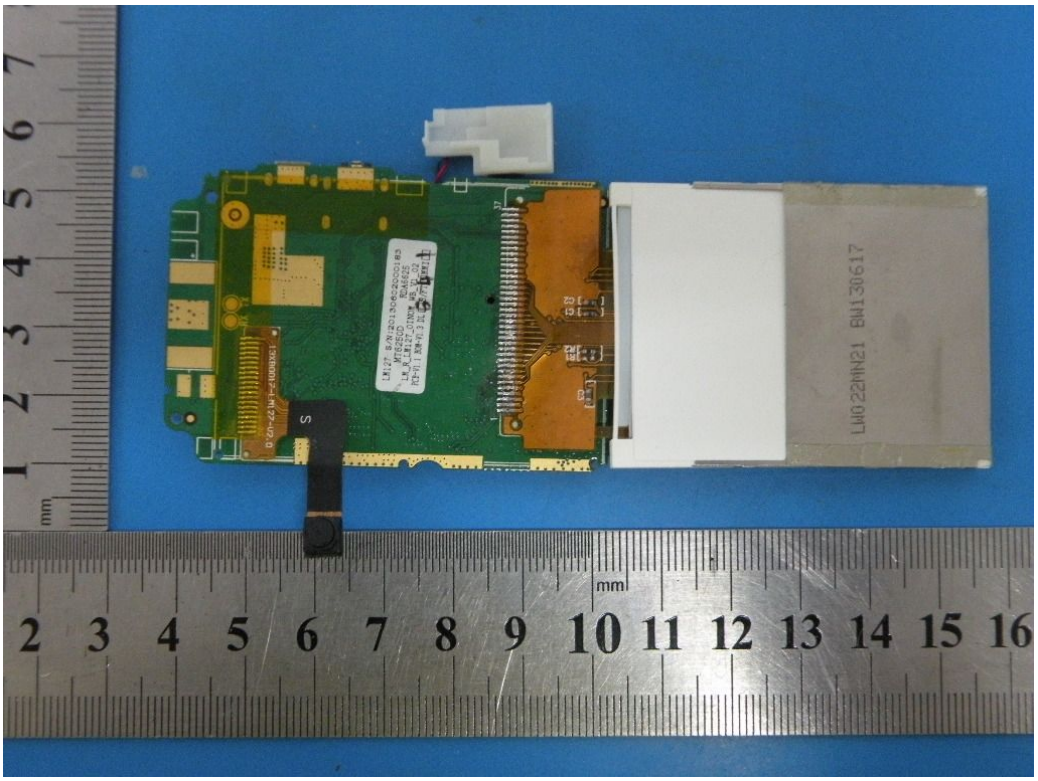

inomu
1
2 ABC
3 DEF
4 GHI
5 JKL
6 MNO
7 PQRS
8 TUV
9 WXYZ
0
mm
1 2 3 4 5 6 7 8 9 10 11 12 13

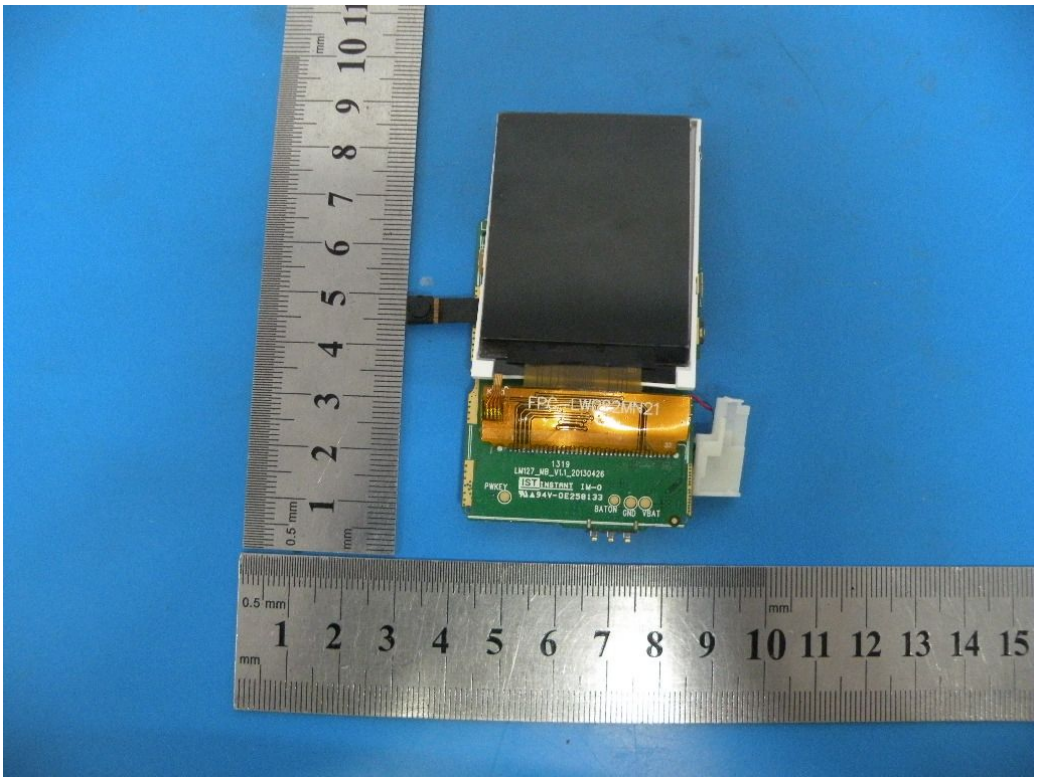

inomu
mm
2 3 4 5 6 7 8 9 10 11 12 13 14

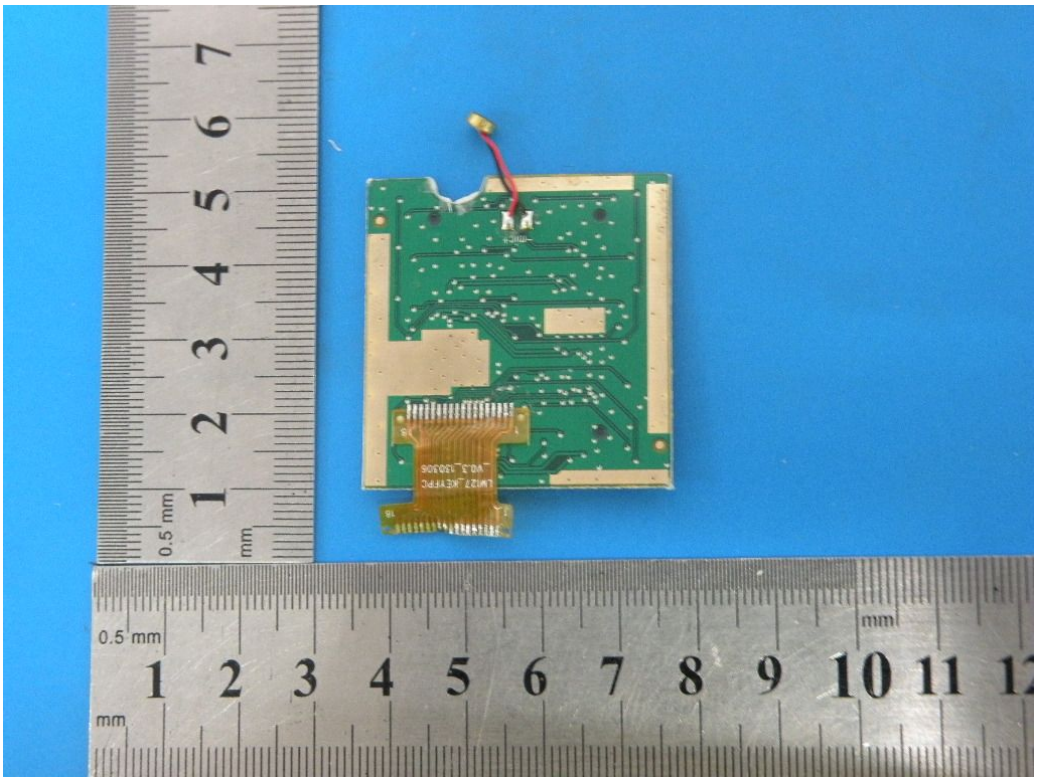


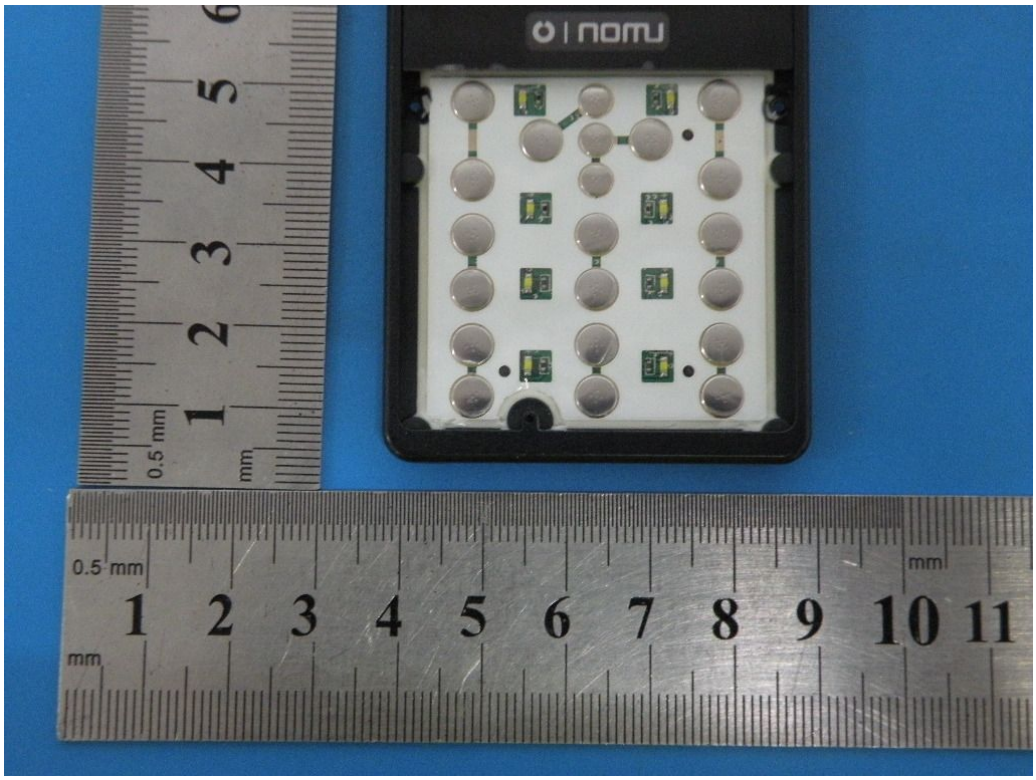





LW022NN21 BW130617
mm
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16


0.5 mm
mm
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15





---------END OF THE REPORT-------