Report No: CCIS15050032107

FCC REPORT

Applicant: Shenzhen siswoo mobile technology co., Itd

Address of Applicant: room 1701, haisong building, tairang road 9, futian district

shenzhen city, China

Equipment Under Test (EUT)

Product Name: Mobile Phone

C50, C50A, C55A, C5, C45, A4, A4+, A5, A5+, A6, i7, C55, Model No.:

C60, M3, MG12

Trade mark: APRIX, SISWOO

FCC ID: 2AEW7SISWOOC50A

Applicable standards: FCC CFR Title 47 Part 15 Subpart E Section 15.407

Date of sample receipt: 13 May, 2015

Date of Test: 14 May, to 10 Jun., 2015

Date of report issued: 11 Jun., 2015

Test Result: PASS*

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

Authorized Signature:



Bruce Zhang Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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Version

Version No.	Date	Description
00	11 Jun., 2015	Original

Luna Gao
Report Clerk Prepared by: 11 Jun., 2015 Date:

Reviewed by: Date: 11 Jun., 2015

Project Engineer



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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.407 (g)	Pass
AC Power Line Conducted Emission	15.207/15.407(b)(6)	Pass
Conducted Peak Output Power	15.407 (a)(1)(iv)	Pass
26dB Occupied Bandwidth	15.407 (a)	Pass
Power Spectral Density	15.407 (a)(1)(iv)	Pass
Band Edge	15.407(b)(1)	Pass
Spurious Emission	15.205/15.209/15.407(b)(6)(7)	Pass
Frequency Stability	15.407(g)	Pass

Pass: The EUT complies with the essential requirements in the standard.



5 General Information

5.1 Client Information

Applicant:	Shenzhen siswoo mobile technology co., ltd	
Address of Applicant:	room 1701, haisong building, tairang road 9, futian district shenzhen city, China	
Manufacturer/Factory:	Shenzhen siswoo mobile technology co., ltd	
Address of Manufacturer/ Factory:	room 1701, haisong building, tairang road 9, futian district shenzhen city, China	

5.2 General Description of E.U.T.

Product Name:	Mobile Phone	
Model No.:	C50, C50A, C55A, C5, C45, A4, A4+, A5, A5+, A6, i7, C55, C60, M3, MG12	
Operation Frequency:	UNII 1: 5180MHz-5240MHz	
Operation mode:	Portable	
Channel numbers:	802.11a/802.11n20: 4	
Channel separation:	802.11a/802.11n20: 20MHz	
Modulation technology: (IEEE 802.11a)	BPSK, QPSK,16-QAM, 64-QAM	
Modulation technology: (IEEE 802.11n)	BPSK, QPSK, 16-QAM, 64-QAM	
Data speed(IEEE 802.11a)	6Mbps, 9Mbps,12Mbps,18Mbps, 24Mbps,36Mbps,48Mbps, 54Mbps	
Data speed (IEEE 802.11n20):	MCS0: 6.5Mbps, MCS1:13Mbps, MCS2:19.5Mbps, MCS3:26Mbps, MCS4:39Mbps, MCS5:52Mbps, MCS6:58.5Mbps, MCS7:65Mbps	
Antenna Type:	Internal	
Antenna gain:	0 dBi	
AC adapter:	Model:KA25-0501000US Input:100-240V AC,50/60Hz 0.25A Output:5V DC MAX 1A	
Power supply:	Rechargeable Li-ion Battery DC3.8V-3000mAh	
Remark:	Model No.: C50, C50A, C55A, C5, C45, A4, A4+, A5, A5+, A6, i7, C55, C60, M3, MG12 were identical inside, the electrical circuit design, layout, components used and internal wiring, with only difference being model name and Color in plastic.	





Operation Frequency each of channel

Band 1			
802.11a/802.11n20			
Channel	Frequency		
36	5180MHz		
40	5200MHz		
44	5220MHz		
48	5240MHz		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Band 1			
802.11a/802.11n20			
Channel Frequency			
The lowest channel 5180MHz			
The middle channel 5200MHz			
The highest channel 5240MHz			



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5.3 Test environment and mode

Operating Environment:			
Temperature:	24.0 °C		
Humidity:	54 % RH		
Atmospheric Pressure:	1010 mbar		
Test mode:			
Continuously transmitting mode	Keep the EUT in 100% duty cycle transmitting with modulation.		

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	Data rate
802.11a	6 Mbps
802.11n20	6.5 Mbps

Final Test Mode:

According to ANSI C63.10 standards, the test results are both the "worst case" and "worst setup" 6 Mbps for 802.11a, 6.5 Mbps for 802.11n20. All test items for 802.11a and 802.11n were performed in MIMO mode and duty cycle all above 98%, meet the requirements of KDB789033.

5.4 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

● FCC - Registration No.: 817957

Shenzhen Zhongjian Nanfang Testing Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in out files. Registration 817957, February 27, 2012.

● IC - Registration No.: 10106A-1

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

CNAS - Registration No.: CNAS L6048

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

5.5 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,

Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755-23118282 Fax: +86-755-23116366

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road, Bao'an District, Shenzhen, Guangdong, China
Telephone: +86 (0) 755 23118282 Fax: +86 (0) 755 23116366





5.6 Test Instruments list

Radia	Radiated Emission:					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	08-23-2014	08-22-2017
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	CCIS0002	N/A	N/A
3	Loop antenna	Laplace instrument	RF300	EMC0701	04-01-2015	03-31-2016
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	03-28-2015	03-28-2016
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	03-28-2015	03-28-2016
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	04-01-2015	03-31-2016
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	04-01-2015	03-31-2016
9	Amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	04-01-2015	03-31-2016
10	Pre-amplifier (18-40GHz)	A.H System	PAM-1840	GTS219	04-01-2015	03-31-2016
11	Spectrum analyzer (9k-30GHz)	Rohde & Schwarz	FSP	CCIS0023	03-28-2015	03-28-2016
12	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	03-28-2015	03-28-2016
13	Spectrum Analyzer	HP	8564E	CCIS0150	03-28-2015	03-28-2016

Cond	Conducted Emission:					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	06-09-2015	06-08-2016
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	03-28-2015	03-28-2016
3	LISN	CHASE	MN2050D	CCIS0074	03-28-2015	03-28-2016
4	Coaxial Cable	CCIS	N/A	CCIS0086	04-01-2015	03-31-2016
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A



6 Test results and Measurement Data

6.1 Justification

According to section 5.2 of this report, the EUT have 1 type of antenna, so all radiated method test items was performed with the 0 dBi panel antenna.

6.2 Antenna requirement

Standard requirement: FCC Part15 E Section 15.203 /407(a)

15.203 requirement:

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

F II T Antenna

The 5G WiFi antenna is an internal antenna which cannot replace by end-user, the best case gain of the antenna is 0 dBi.







6.3 Conducted Emission

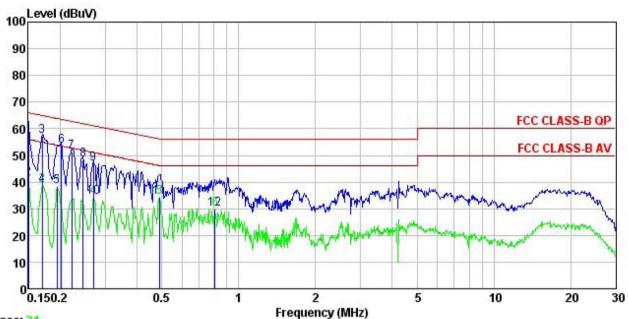
Test Requirement:	FCC Part15 C Section 15.207	,		
Test Method:	ANSI C63.4: 2014			
Test Frequency Range:	150 kHz to 30 MHz			
Class / Severity:	Class B			
Receiver setup:	RBW=9 kHz, VBW=30 kHz			
Limit:		Limit (c	dBuV)	
	Frequency range (MHz)	Quasi-peak	Average	
	0.15-0.5	66 to 56*	56 to 46*	
	0.5-5	56	46	
	5-30 * Decreases with the logarithm	60	50	
Test estate	 The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). It provides a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement. 			
Test setup:	Reference Plane LISN 40cm 80cm Filter AC power Equipment Test table/Insulation plane Remark E.U.T. Equipment Under Test LISN Line Impedence Stabilization Network Test table height=0.8m			
Test Instruments:	Refer to section 5.6 for details			
Test mode:	Refer to section 5.3 for details.			
Test results:	Passed			

Measurement Data





Line:



Trace: 21 Site

: CCIS Shielding Room : FCC CLASS-B QP LISN LINE : 321RF Condition

Pro

EUT : Moblie Phone

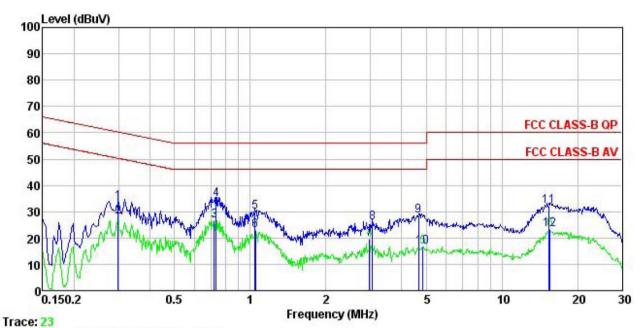
Model : C50
Test Mode : WIFI TX mode
Power Rating : AC 120/60Hz
Environment : Temp: 23 °C Huni:56% Atmos:101KPa
Test Engineer: Carey

Remark	:							
		Read	LISN	Cable		Limit	Over	
	Freq	Level	Factor	Loss	Level	Line	Limit	Remark
	MHz	dBu∀	<u>dB</u>	₫B	dBu∀	dBu∀	<u>dB</u>	
1	0.150	50.70	0.27	10.78	61.75	66.00	-4.25	QP
2	0.150	30.44	0.27	10.78	41.49	56.00	-14.51	Average
3	0.170	46.01	0.27	10.77	57.05		-7.89	
4	0.170	27.66	0.27	10.77	38.70	54.94	-16.24	Average
5	0.194	27.42	0.28	10.76	38.46	53.84	-15.38	Average
6	0.202	42.42	0.28	10.76	53.46	63.54	-10.08	QP
4 5 6 7 8 9	0.222	40.21	0.27	10.75	51.23	62.74	-11.51	QP
8	0.246	37.44	0.27	10.75	48.46	61.91	-13.45	QP
9	0.270	35.89	0.27	10.75	46.91	61.12	-14.21	QP
10	0.270	23.33	0.27	10.75	34.35	51.12	-16.77	Average
11	0.489	23.28	0.29	10.76	34.33			Average
12	0.809	18.95	0.23	10.81	29.99			Average





Neutral:



Site

: CCIS Shielding Room : FCC CLASS-B QP LISN NEUTRAL : 321RF Condition

Pro EUT : Moblie Phone : C50

Model : WIFI TX mode Test Mode

Power Rating: AC 120/60Hz Environment: Temp: 23°C Huni:56% Atmos:101KPa

Test Engineer: Carey

lemark	:							
		Read	LISN	Cable		Limit	Over	
	Freq	Level	Factor	Loss	Level	Line	Limit	Remark
7.5	MHz	dBu∜	<u>dB</u>	₫B	dBu₹	dBu∜	<u>dB</u>	
1	0.299	22.65	0.26	10.74	33.65	60.28	-26.63	QP
1 2 3	0.299	16.92	0.26	10.74	27.92	50.28	-22.36	Average
3	0.720	15.72	0.18	10.78	26.68	46.00	-19.32	Average
4	0.731	23.62	0.18	10.78	34.58	56.00	-21.42	QP
4 5 6 7	1.043	18.81	0.22	10.88	29.91	56.00	-26.09	QP
6	1.049	11.69	0.22	10.88	22.79	46.00	-23.21	Average
7	2.978	8.34	0.29	10.92	19.55	46.00	-26.45	Average
8	3.058	14.72	0.29	10.92	25.93	56.00	-30.07	QP
9	4.672	17.17	0.28	10.86	28.31	56.00	-27.69	QP
10	4.848	5.61	0.28	10.86	16.75	46.00	-29.25	Average
11	15.307	21.09	0.25	10.90	32.24	60.00	-27.76	QP
12	15.552	12.12	0.25	10.90	23.27	50.00	-26.73	Average

Notes:

- 1. An initial pre-scan was performed on the live and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level = Receiver Read level + LISN Factor + Cable Loss





6.4 Conducted Output Power

Test Requirement:	FCC Part15 E Section 15.407 (a) (1) (iv)						
Test Method:	ANSI C63.10:2013, KDB 789033 D02						
Limit:	Band 1: 250mW (Maximum antenna gain less than 6 dB, If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.)						
Test setup:							
	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane						
Test Instruments:	Refer to section 5.6 for details						
Test mode:	Refer to section 5.3 for details						
Test results:	Passed						

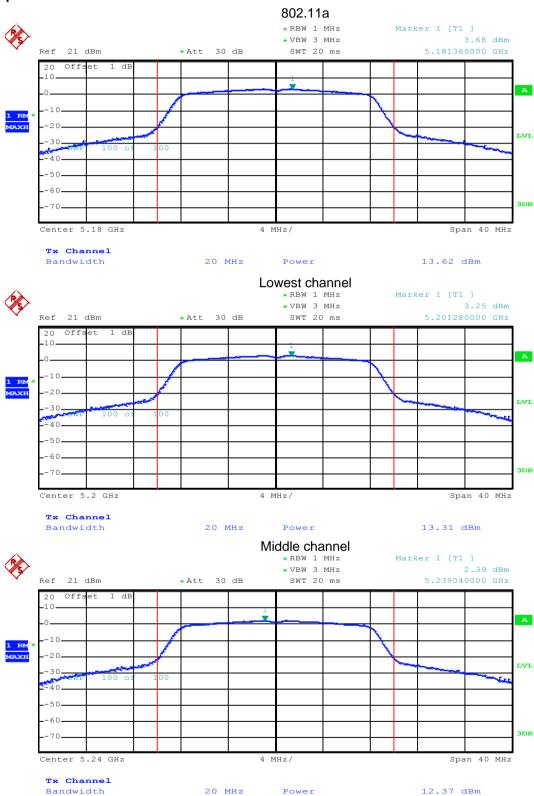
Measurement Data

Band 1:

Test CH	Conducted Output power (dBm)	Limit (dBm)	Result
Lowest	13.62	24.0	Pass
Middle 13.31		24.0	Pass
Highest	12.37	24.0	Pass
Lowest	13.61	24.0	Pass
Middle	13.24	24.0	Pass
Highest	12.47	24.0	Pass
	Lowest Middle Highest Lowest Middle	Lowest 13.62	Test CH (dBm) (dBm) Lowest 13.62 24.0 Middle 13.31 24.0 Highest 12.37 24.0 Lowest 13.61 24.0 Middle 13.24 24.0

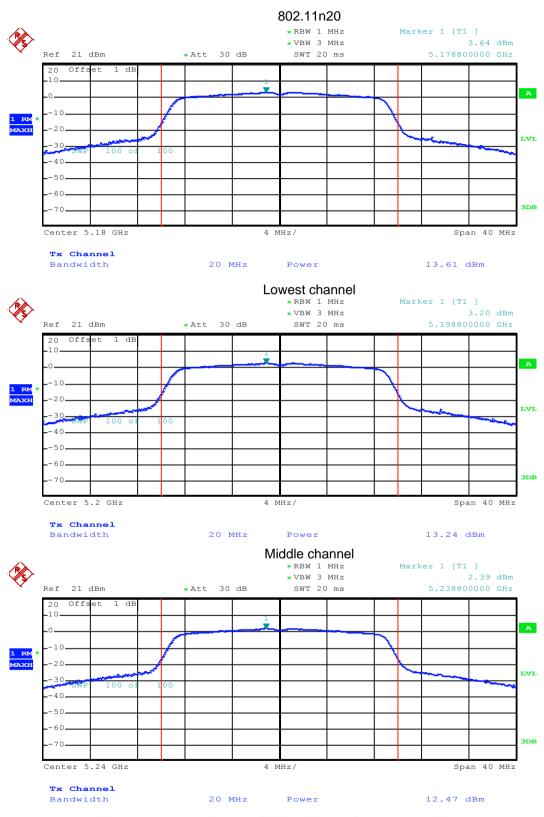


Test plot as follows:



Highest channel





Highest channel





6.5 Occupy Bandwidth

Test Requirement:	FCC Part15 E Section 15.407							
Test Method:	ANSI C63.10:2013 and KDB 789033 D02							
Limit:	Band 1: N/A(26dB Emission Bandwidth and 99% Occupy Bandwidth)							
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane							
Test Instruments:	Refer to section 5.6 for details							
Test mode:	Refer to section 5.3 for details							
Test results:	Passed							

Measurement Data

Band 1:

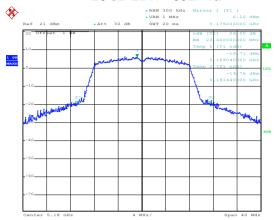
Toot Channel	26dB Emission I	Limit	Result	
Test Channel	802.11a 802.11n20			
Lowest	22.40	22.08		
Middle	22.56	22.88	N/A	N/A
Highest	23.12	23.44		

Test Channel	99% Occupy B	Limit	Result		
rest Chamilei	802.11a	802.11n20	LIIIII	Result	
Lowest	17.12	17.92			
Middle	17.04	18.00	N/A	N/A	
Highest	17.20	18.00			



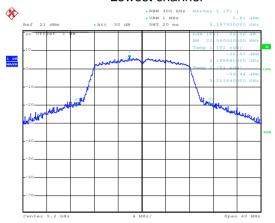
Test plot as follows:

26 dB EBW - 802.11a



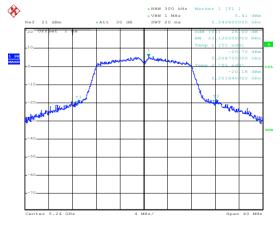
Date: 25.MAY.2015 21:08:58

Lowest channel



Date: 25.MAY.2015 21:10:02

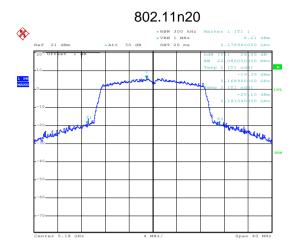
Middle channel



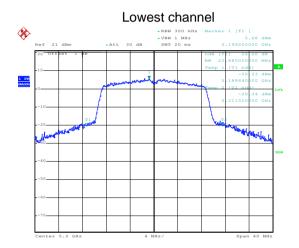
Date: 25.MAY.2015 21:10:24

Highest channel

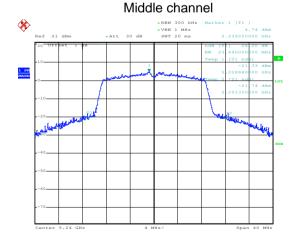




Date: 25.MAY.2015 21:08:31



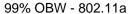
Date: 25.MAY.2015 21:07:46

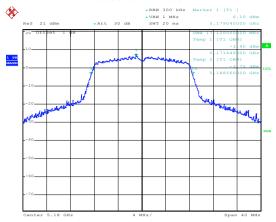


Date: 25.MAY.2015 21:07:28

Highest channel

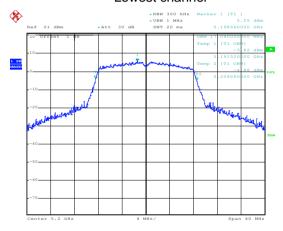






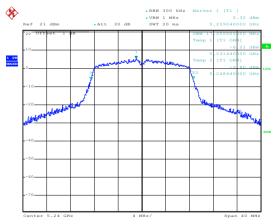
Date: 25.MAY.2015 21:09:23

Lowest channel



Date: 25.MAY.2015 21:09:46

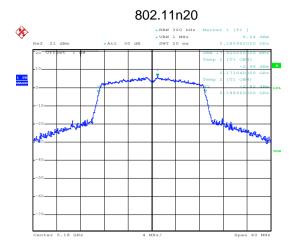
Middle channel



Date: 25.MAY.2015 21:10:36

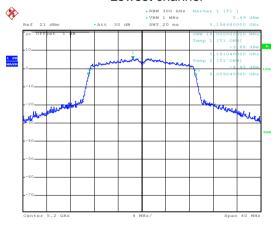
Highest channel





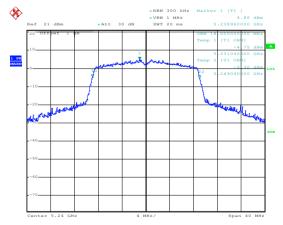
Date: 25.MAY.2015 21:08:17

Lowest channel



Date: 25.MAY.2015 21:08:00

Middle channel



Date: 25.MAY.2015 21:07:19

Highest channel





6.6 Power Spectral Density

Test Requirement:	FCC Part15 E Section 15.407 (a) (1) (iv)					
Test Method:	ANSI C63.10:2013, KDB 789033 D02					
Limit:	Band 1: 11 dBm/MHz (Maximum antenna gain less than 6 dB, If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.)					
Test setup:						
	Spectrum Analyzer E.U.T Non-Conducted Table					
Test Instruments:	Ground Reference Plane Refer to section 5.6 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Passed					

Measurement Data





Band 1:

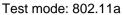
Mode	Test CH	PSD (dBm/MHz)	Limit (dBm/MHz)	Result
	Lowest	3.64	11.00	Pass
802.11a	Middle	3.47	11.00	Pass
	Highest	2.39	11.00	Pass
	Lowest	3.73	11.00	Pass
802.11n20	Middle	3.20	11.00	Pass
	Highest	2.33	11.00	Pass

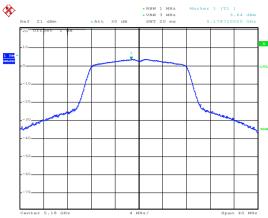
Remark:

The gain of antenna is less than 6 dBi, so the limit of power spectral density is 11 dBm.



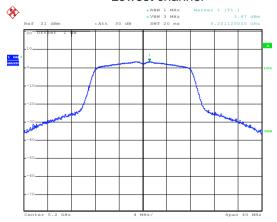
Test plot as follows:





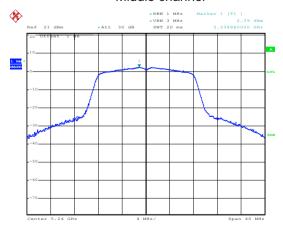
Date: 25.MAY.2015 21:04:57

Lowest channel



Date: 25.MAY.2015 21:05:21

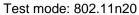
Middle channel

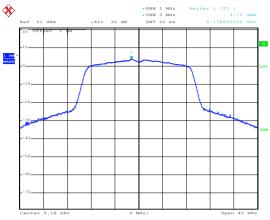


Date: 25.MAY.2015 21:05:40

Highest channel

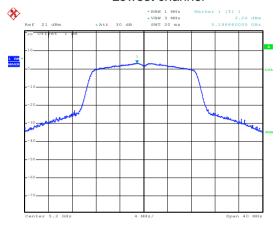






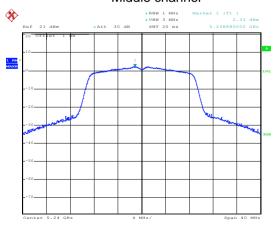
Date: 25.MAY.2015 21:06:09

Lowest channel



Date: 25.MAY.2015 21:06:24

Middle channel



Date: 25.MAY.2015 21:06:38

Highest channel





6.7 Band Edge

Limit: Peak	•	Dana Lago									
Receiver setup: Detector RBW VBW Remark Quasi-peak 100kHz 300kHz Quasi-peak Value Peak 1MHz 3MHz 3MHz Peak Value Limit Band 1 Limit (dBuV/m @3m) Remark Band 1 ElRP [dBm] + 95.2=68.2 dBuV/m, for EIPR [dBm]=.27dBm. Fedsy/m] = EIRP [dBm] + 95.2=68.2 dBuV/m, for EIPR [dBm]=.27dBm. Test Procedure: 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degree to determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenn tower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.		Test Requirement:	FCC Part15 E Section 15.407 (b)								
Quasi-peak 100kHz 300kHz Quasi-peak Value Peak 1MHz 3MHz Peak Value 1MHz 3MHz Peak Value 1MHz 3MHz Peak Value 68.20 Peak Value 54.00 Average Value S4.00 Average Value Avera		Test Method:	ANSI C63.10:2013, KDB 789033 D02								
Limit: Band 1 Limit (dBuV/m @3m) Remark		Receiver setup:	Detector	RBW	VBW	Remark					
Limit: Band 1 Limit (dBuV/m @3m) Remark Band 1 limit: E (dBuV/m] = EIRP (dBm) + 95.2=68.2 dBuV/m, for EIPR (dBm)= .27dBm. Test Procedure: 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field staepove the ground to determine the maximum value of the field staepove the ground to determine the maximum value of the field staepove the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degree to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10d8 lower than the limit specified, then testing could be stopped and the peak value of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quas peak or average method as specified and then reported in a data sheet. Test setup: Refer to section 5.6 for details Refer to section 5.3 for details		·	Quasi-peak			Quasi-peak Value					
Remark: Band 1 limit: E GBpU/m = EIRP GBm + 95.2=68.2 dBuV/m, for EIPR GBm = -27dBm. Test Procedure: 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was placed on the top of a variable-height antenna which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degree to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak value of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quas peak or average method as specified and then reported in a data sheet. Test setup: Refer to section 5.6 for details Refer to section 5.3 for details			Peak	1MHz	3MHz	Peak Value					
Remark: Band 1 limit: E [dBµV/m] = EIRP [dBm] + 95.2=68.2 dBuV/m, for EIPR [dBm]= -27dBm. 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was turned to heights from 1 meter to 4 meters and he rota table was turned from 0 degrees to 360 degree to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak value of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quas peak or average method as specified and then reported in a data sheet. Test setup: Test setup: Refer to section 5.6 for details Refer to section 5.3 for details		Limit:									
Remark: Band 1 limit: E [dBpU/m] = EIRP [dBm] + 95.2=68.2 dBuV/m, for EIPR [dBm]=-27dBm. Test Procedure: 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenn tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degree to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak value of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quas peak or average method as specified and then reported in a data sheet. Test setup: Refer to section 5.6 for details Refer to section 5.3 for details			Band 1								
Test Procedure: 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degree to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak value of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quas peak or average method as specified and then reported in a data sheet. Test setup: Refer to section 5.6 for details Refer to section 5.3 for details				54.0	0	Average Value					
the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenn tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degree to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak value of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quas peak or average method as specified and then reported in a data sheet. Test setup: Refer to section 5.6 for details Refer to section 5.3 for details			Band 1 limit: Ε [dBμV/m] = EIRP [dBm] + 95.2=68.2 dBuV/m, for EIPR [d								
Test Instruments: Refer to section 5.6 for details Test mode: Refer to section 5.3 for details		Test Procedure:	 The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak value of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi- 								
Test mode: Refer to section 5.3 for details		Test setup:	Antenna Tower Horn Antenna Spectrum Analyzer Turn 0.8m								
		Test Instruments:	Refer to section 5.6 for deta	nils							
Test results: Passed		Test mode:	Refer to section 5.3 for details								
		Test results:	ılts: Passed								





802.11a									
Test ch	annel		Lowest		Le	Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/ m)	Limit Line (dBuV/ m)	Over Limit (dB)	Polarization	
5150.00	41.77	32.07	10.96	40.06	44.74	68.20	-23.46	Vertical	
5150.00	41.41	32.07	10.96	40.06	44.38	68.20	-23.82	Horizontal	
				802.11a					
Test ch	annel		Lowest		Le	vel	1	Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/ m)	Limit Line (dBuV/ m)	Over Limit (dB)	Polarization	
5150.00	31.61	32.07	10.96	40.06	34.58	54.00	-19.42	Vertical	
5150.00	31.41	32.07	10.96	40.06	34.38	54.00	-19.62	Horizontal	
				802.11a					
Test ch	annel	Highest			Level			Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/ m)	Limit Line (dBuV/ m)	Over Limit (dB)	Polarization	
5350.00	44.33	31.78	11.19	40.18	47.12	68.20	-21.08	Vertical	
5350.00	43.65	31.78	11.19	40.18	46.44	68.20	-21.76	Horizontal	
				802.11a					
Test channel			Highest		Le	vel	1	Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/ m)	Limit Line (dBuV/ m)	Over Limit (dB)	Polarization	
5350.00	34.72	31.78	11.19	40.18	37.51	54.00	-16.49	Vertical	
5350.00	33.89	31.78	11.19	40.18	36.68	54.00	-17.32	Horizontal	

Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.





802.11n-HT20										
Test ch	nannel	Lowest		Level		Peak				
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization		
5150.00	41.43	32.07	10.96	40.06	44.4	68.20	-23.80	Vertical		
5150.00	41.36	32.07	10.96	40.06	44.33	68.20	-23.87	Horizontal		
802.11n-HT20										
Test ch	nannel		Lowest		Le	vel	ı	Average		
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization		
5150.00	31.09	32.07	10.96	40.06	34.06	54.00	-19.94	Vertical		
5150.00	31.99	32.07	10.96	40.06	34.96	54.00	-19.04	Horizontal		
				802.11n-HT	20					
Test ch	nannel	Highest			Le	vel		Peak		
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization		
5350.00	44.4	31.78	11.19	40.18	47.19	68.20	-21.01	Vertical		
5350.00	43.98	31.78	11.19	40.18	46.77	68.20	-21.43	Horizontal		
				802.11n-HT	20					
Test ch	nannel		Highest		Le	vel	ı	Average		
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization		
5350.00	34.49	31.78	11.19	40.18	37.47	54.00	-16.53	Vertical		
5350.00	33.97	31.78	11.19	40.18	37.99	54.00	-16.01	Horizontal		

Remark:

^{3.} Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

^{4.} The emission levels of other frequencies are very lower than the limit and not show in test report.



6.8 Spurious Emission

6.8.1 Restricted Band

0.8.1										
	Test Requirement:	FCC Part15 C	Section 15.2	05						
	Test Method:	ANSI C63.10:2	.013							
	Test Frequency Range:	4.5 GHz to 5.1	5 GHz and 5	35GHz to 5.46	GHz					
	Test site:	Measurement I	Distance: 3m							
	Receiver setup:	Frequency	Detector	RBW	VBW	Remark				
		Above 1GHz	Peak	1MHz	3MHz	Peak Value				
			RMS	1MHz	3MHz	Average Value				
	Limit:	Freque	ency	Limit (dBuV		Remark				
		Above '	1GHz	74.0 54.0		Peak Value Average Value				
	Test Procedure:	the ground to determing to determing to determing antenna, we tower. 3. The antennate ground Both horizy make the 4. For each so case and meters and to find the 5. The test-round Specified 6. If the emistante limit spot the EUT have 10dE peak or an sheet.	d at a 3 meterne the position was set 3 meterne which was meterne and the internet and the rota take maximum respected enternet and the rota take maximum respectively. The would be respected in the rota take and the rota take maximum respectively. The rotation is a maximum respectively and the rotation is a maximum respectively. The rotation is a maximum respectively.	r camber. The on of the higher ters away from punted on the to varied from once the maximuntical polarization. The EU nna was turned ading. In was set to Fith Maximum Fithe EUT in peatesting could ported. Otherwood of the counter	table was rest radiation. In the interferop of a variation of the analysis of the emit one by one and then restaurant to the analysis of the emit one by one and then restaurant analysis of the emit one by one and then restaurant analysis of the emit one by one and then restaurant analysis of the emit one by one and then restaurant analysis of the emit one by one and then restaurant analysis of the emit of the analysis of the a	rence-receiving lable-height antenna our meters above the field strength. Intenna are set to anged to its worst from 1 meter to 4 rees to 360 degrees				
	Test Instruments:	Refer to section 5.6 for details								
	Test mode:	Refer to section	n 5.3 for deta	ils						
	Test results:	Passed								





802.11a

Test ch	nannel		Lowest		Le	vel		Peak
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	43.08	30.72	10.22	40.67	43.35	68.20	-24.85	Vertical
5150.00	41.77	32.07	10.96	40.06	44.74	68.20	-23.46	Vertical
4500.00	43.45	30.72	10.22	40.67	43.72	68.20	-24.48	Horizontal
5150.00	41.41	32.07	10.96	40.06	44.38	68.20	-23.82	Horizontal
Test ch	nannel		Lowest		Le	vel		Average
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	33.54	30.72	10.22	40.67	33.81	54.00	-20.19	Vertical
5150.00	31.61	32.07	10.96	40.06	34.58	54.00	-19.42	Vertical
4500.00	33.36	30.72	10.22	40.67	33.63	54.00	-20.37	Horizontal
5150.00	31.41	32.07	10.96	40.06	34.38	54.00	-19.62	Horizontal
Test ch	nannel		Highest		Le	vel		Peak
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	44.33	31.78	11.19	40.18	47.12	68.20	-21.08	Vertical
5460.00	43.29	31.99	11.32	40.23	46.37	68.20	-21.83	Vertical
5350.00	43.65	31.78	11.19	40.18	46.44	68.20	-21.76	Horizontal
5460.00	43.41	31.99	11.32	40.23	46.49	68.20	-21.71	Horizontal
Test ch	nannel		Highest		Le	vel		Average
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	34.72	31.78	11.19	40.18	37.51	54.00	-16.49	Vertical
5460.00	33.66	31.99	11.32	40.23	36.74	54.00	-17.26	Vertical
5350.00	33.89	31.78	11.19	40.18	36.68	54.00	-17.32	Horizontal
5460.00	33.47	31.99	11.32	40.23	36.55	54.00	-17.45	Horizontal

Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.





802.11n-HT20

Test cl	nannel		Lowest		Le	vel		Peak
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	42.62	30.72	10.22	40.67	42.89	68.20	-25.31	Vertical
5150.00	41.43	32.07	10.96	40.06	44.40	68.20	-23.80	Vertical
4500.00	42.67	30.72	10.22	40.67	42.94	68.20	-25.26	Horizontal
5150.00	41.36	32.07	10.96	40.06	44.33	68.20	-23.87	Horizontal
Test cl	nannel		Lowest		Le	vel		Average
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	32.87	30.72	10.22	40.67	33.14	54.00	-20.86	Vertical
5150.00	31.09	32.07	10.96	40.06	34.06	54.00	-19.94	Vertical
4500.00	32.04	30.72	10.22	40.67	32.31	54.00	-21.69	Horizontal
5150.00	31.99	32.07	10.96	40.06	34.96	54.00	-19.04	Horizontal
Test cl	nannel		Highest		Le	vel		Peak
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	44.40	31.78	11.19	40.18	47.19	68.20	-21.01	Vertical
5460.00	43.38	31.99	11.32	40.23	46.46	68.20	-21.74	Vertical
5350.00	43.98	31.78	11.19	40.18	46.77	68.20	-21.43	Horizontal
5460.00	42.43	31.99	11.32	40.23	45.51	68.20	-22.69	Horizontal
Test cl	nannel		Highest		Le	vel	,	Average
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	34.49	31.78	11.19	40.18	37.28	54.00	-16.72	Vertical
5460.00	33.56	31.99	11.32	40.23	36.64	54.00	-17.36	Vertical
5350.00	33.97	31.78	11.19	40.18	36.76	54.00	-17.24	Horizontal
5460.00	32.69	31.99	11.32	40.23	35.77	54.00	-18.23	Horizontal

Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.



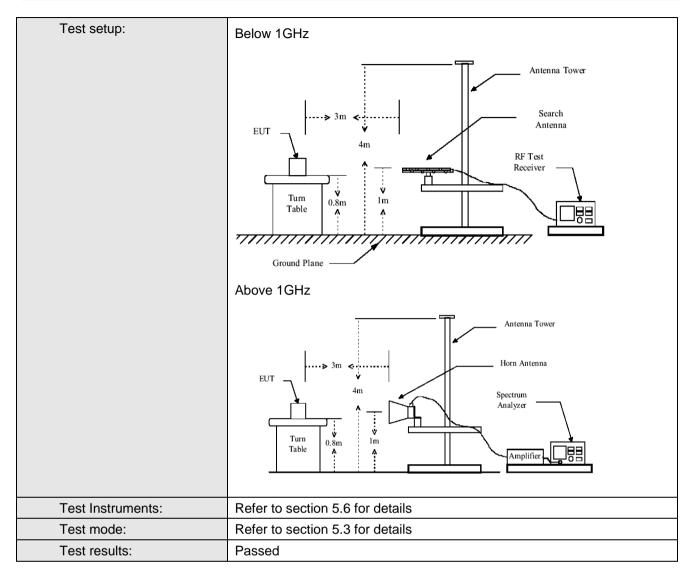


6.8.2 Unwanted Emissions outside the Restricted Bands

Test Method: Test Frequency Range: 30MHz to 40GHz Test site: Measurement Distance: 3m Receiver setup: Frequency Detector BW VBW Remark 30MHz-1GHz Quasi-peak Value Above 1GHz Peak Limit: Frequency Limit (dBuV/m @3m) Remark 30MHz-88MHz 40.0 Quasi-peak Value 88MHz-216MHz 43.5 Quasi-peak Value 216MHz-960MHz 46.0 Quasi-peak Value 960MHz-1GHz Frequency Limit (dBm/MHz) Remark Above 1GHz Frequency Limit (dBm/MHz) Remark 1. Above 1GHz limit: E[dBµV/m] = EIRP[dBm] + 95.2=68.2 dBuV/m, for EIPR[dBm]=-27dBm. Test Procedure: Test Procedure: Test Procedure: 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and then the antenna was tuned to heights from 1 meter to 4 meters and then the antenna was tuned to heights from 1 meter to 4 meters	Test Requirement:	FCC Part15 C Section 15.209 and 15.205								
Test site: Measurement Distance: 3m Frequency Detector RBW VBW Remark 30MHz-1GHz Quasi-peak 100kHz 300kHz Quasi-peak Value Above 1GHz Peak 1MHz 3MHz Peak Value	Test Method:	ANSI C63.10:20)13							
Frequency Detector RBW VBW Remark 30MHz-1GHz Quasi-peak 100kHz 300kHz Quasi-peak Value	Test Frequency Range:	30MHz to 40GH	lz							
Som Som	Test site:	Measurement D	istance: 3m				_			
SomHz-1GHz Quasi-peak 100kHz 300kHz Quasi-peak Value	Receiver setup:	Frequency	Detector	RBW	VBW	Remark	_			
Limit: Frequency			Quasi-peak			•				
30MHz-88MHz 40.0 Quasi-peak Value 88MHz-216MHz 43.5 Quasi-peak Value 216MHz-960MHz 46.0 Quasi-peak Value 960MHz-1GHz 54.0 Quasi-peak Value 960MHz-1GHz 54.0 Quasi-peak Value		Above 1GHz	Peak	1MHz	3MHz	Peak Value				
Remark	Limit:	Freque	ncy	Limit (dBuV/	m @3m)	Remark				
216MHz-960MHz		30MHz-8	8MHz	40.0)	Quasi-peak Value				
Frequency Limit (dBm/MHz) Remark Above 1GHz 68.20 Peak Value Remark: 1. Above 1GHz limit: E[dBµV/m] = EIRP[dBm] + 95.2=68.2 dBuV/m, for EIPR[dBm]=-27dBm. 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case.		88MHz-21	6MHz	43.5	5	Quasi-peak Value				
Frequency Limit (dBm/MHz) Remark Above 1GHz 68.20 Peak Value Feat Procedure: 1. Above 1GHz limit: E[dBμV/m] = EIRP[dBm] + 95.2=68.2 dBuV/m, for EIPR[dBm]=-27dBm. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.										
Above 1GHz Above 1GHz 68.20 Peak Value		960MHz-1GHz 54.0 Quasi-peak Value								
Above 1GHz Above 1GHz 68.20 Peak Value										
Above 1GHz Remark: 1. Above 1GHz limit: E[dBμV/m] = EIRP[dBm] + 95.2=68.2 dBuV/m, for EIPR[dBm]=-27dBm. 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case.		Freque	ncy		•					
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 Above 1GHz limit: [E[dBμV/m]] = EIRP[dBm] + 95.2=68.2 dBuV/m, for EIPR[dBm]=-27dBm. Test Procedure: 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. For each suspected emission, the EUT was arranged to its worst case. 				54.0	0	Average Value				
 E[dBμV/m] = EIRP[dBm] + 95.2=68.2 dBuV/m, for EIPR[dBm]=-27dBm. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. For each suspected emission, the EUT was arranged to its worst case. 			11. 14							
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ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case.										
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4. For each suspected emission, the EUT was arranged to its worst case			•	anzalions or	ine antenn	ia are set to make the				
				sion, the EU	T was arrar	nged to its worst case				
and the rota table was turned from 0 degrees to 360 degrees to find		and the rot	a table was tur	ned from 0 c	legrees to 3	360 degrees to find the	е			
maximum reading.										
		5. The test-receiver system was set to Peak Detect Function and								
Specified Bandwidth with Maximum Hold Mode.		Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the								
		limit specified, then testing could be stopped and the peak values of								
		the EUT would be reported. Otherwise the emissions that did not have								
		10dB margin would be re-tested one by one using peak, quasi-peak or								
average method as specified and then reported in a data sheet.										





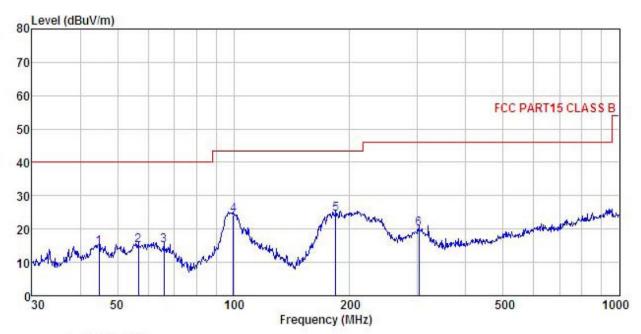






Below 1GHz

Horizontal:



Site

: 3m chamber : FCC PART15 CLASS B 3m VULB9163(30M1G) HORIZONTAL Condition

EUT : Moblie Phone

: C50 Model

: Wifi -TX Mode Test mode Power Rating : AC120V/60Hz

Environment : Temp: 25.5°C Huni:55%

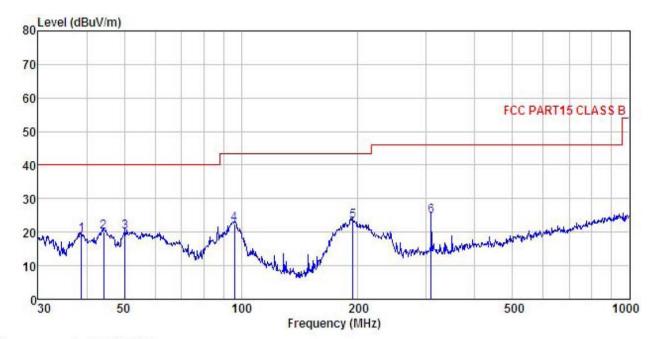
Test Engineer: Carey REMARK :

	Freq		Antenna Factor						Remark
_	MHz	dBu∜	<u>dB</u> /π		<u>d</u> B	$\overline{dBuV/m}$	$\overline{dBuV/m}$	<u>dB</u>	
1	44.743	30.26	13.55	0.56	29.86	14.51	40.00	-25.49	QP
2	56.593	31.18	12.93	0.66	29.79	14.98	40.00	-25.02	QP
3	66.034	33.74	10.30	0.76	29.75	15.05	40.00	-24.95	QP
4 5	99.878	39.57	13.16	0.96	29.53	24.16	43.50	-19.34	QP
5	183.844	42.06	10.00	1.36	28.94	24.48	43.50	-19.02	QP
	302.481	33.62							





Vertical:



Site

: 3m chamber : FCC PART15 CLASS B 3m VULB9163(30M1G) VERTICAL Condition

EUT : Moblie Phone : C50 Model

Test mode : Wifi -TX Mode Power Rating : AC120V/60Hz Environment : Temp:25.5°C Huni:55%

Test Engineer: Carey

REMARK

Free								Remark
rred	rever	1000-000						Kemark
MHz	dBu∀	dB/m	dB	dВ	dBuV/m	dBuV/m	dB	
38.752	35.35	13.25	0.51	29.91	19.20	40.00	-20.80	QP
44.275	35.82	13.55	0.55	29.87	20.05	40.00	-19.95	QP
50.232	36.04	13.25	0.61	29.82	20.08	40.00	-19.92	QP
96.099	38.14	12.90	0.94	29.55	22.43	43.50	-21.07	QP
193.773	40.13	10.56	1.37	28.87	23.19	43.50	-20.31	QP
308.913	38.39	13.17	1.80	28.47	24.89	46.00	-21.11	QP
	MHz 38. 752 44. 275 50. 232 96. 099 193. 773	MHz dBuV 38.752 35.35 44.275 35.82 50.232 36.04 96.099 38.14 193.773 40.13	Freq Level Factor MHz dBuV dB/m 38.752 35.35 13.25 44.275 35.82 13.55 50.232 36.04 13.25 96.099 38.14 12.90 193.773 40.13 10.56	Freq Level Factor Loss MHz dBuV dB/m dB 38.752 35.35 13.25 0.51 44.275 35.82 13.55 0.55 50.232 36.04 13.25 0.61 96.099 38.14 12.90 0.94 193.773 40.13 10.56 1.37	Freq Level Factor Loss Factor MHz dBuV dB/m dB dB 38.752 35.35 13.25 0.51 29.91 44.275 35.82 13.55 0.55 29.87 50.232 36.04 13.25 0.61 29.82 96.099 38.14 12.90 0.94 29.55 193.773 40.13 10.56 1.37 28.87	MHz dBuV dB/m dB dB dBuV/m 38.752 35.35 13.25 0.51 29.91 19.20 44.275 35.82 13.55 0.55 29.87 20.05 50.232 36.04 13.25 0.61 29.82 20.08 96.099 38.14 12.90 0.94 29.55 22.43 193.773 40.13 10.56 1.37 28.87 23.19	Freq Level Factor Loss Factor Level Line MHz dBuV dB/m dB dB dBuV/m dBuV/m 38.752 35.35 13.25 0.51 29.91 19.20 40.00 44.275 35.82 13.55 0.55 29.87 20.05 40.00 50.232 36.04 13.25 0.61 29.82 20.08 40.00 96.099 38.14 12.90 0.94 29.55 22.43 43.50 193.773 40.13 10.56 1.37 28.87 23.19 43.50	Freq Level Factor Loss Factor Level Line Limit MHz dBuV dB/m dB dB dBuV/m dBuV/m dB 38.752 35.35 13.25 0.51 29.91 19.20 40.00 -20.80 44.275 35.82 13.55 0.55 29.87 20.05 40.00 -19.95 50.232 36.04 13.25 0.61 29.82 20.08 40.00 -19.92 96.099 38.14 12.90 0.94 29.55 22.43 43.50 -21.07 193.773 40.13 10.56 1.37 28.87 23.19 43.50 -20.31



Above 1GHz:

Band 1:

		802.	11a mode l	Lowest cha	annel (Peak	Value)		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	43.41	39.23	13.84	41.34	55.14	68.20	-13.06	Vertical
10360.00	42.31	39.23	13.84	41.34	54.04	68.20	-14.16	Horizontal
		802.1	1a mode Lo	west chan	nel (Average	e Value)		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	31.93	39.23	13.84	41.34	43.66	54.00	-10.34	Vertical
10360.00	29.30	39.23	13.84	41.34	41.03	54.00	-12.97	Horizontal

		802	.11a mode	Middle cha	nnel (Peak '	Value)		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	41.56	39.36	13.85	41.27	53.50	68.20	-14.70	Vertical
10400.00	41.77	39.36	13.85	41.27	53.71	68.20	-14.49	Horizontal
		802.1	1a mode M	iddle chan	nel (Average	e Value)		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	29.27	39.36	13.85	41.27	41.21	54.00	-12.79	Vertical
10400.00	28.63	39.36	13.85	41.27	40.57	54.00	-13.43	Horizontal

		802.	11a mode l	Highest cha	annel (Peak	Value)		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	41.48	39.56	13.90	41.06	53.88	68.20	-14.32	Vertical
10480.00	40.10	39.56	13.90	41.06	52.50	68.20	-15.70	Horizontal
		802.1	1a mode Hi	ghest char	nel (Averag	e Value)		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	29.36	39.56	13.90	41.06	41.76	54.00	-12.24	Vertical
10480.00	28.38	39.56	13.90	41.06	40.78	54.00	-13.22	Horizontal

Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.



		802.1	1n20 mode	Lowest ch	nannel (Peak	(Value)		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	42.95	39.23	13.84	41.34	54.68	68.20	-13.52	Vertical
10360.00	45.03	39.23	13.84	41.34	56.76	68.20	-11.44	Horizontal
		802.11	n20 mode L	owest cha	nnel (Avera	ge Value)		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	29.38	39.23	13.84	41.34	41.11	54.00	-12.89	Vertical
10360.00	31.37	39.23	13.84	41.34	43.10	54.00	-10.90	Horizontal

		802.1	1n20 mode	Middle ch	annel (Peak	Value)		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	42.76	39.36	13.85	41.27	54.70	68.20	-13.50	Vertical
10400.00	42.69	39.36	13.85	41.27	54.63	68.20	-13.57	Horizontal
		802.11	n20 mode l	Middle cha	nnel (Averaç	ge Value)		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	30.16	39.36	13.85	41.27	42.10	54.00	-11.90	Vertical
10400.00	30.48	39.36	13.85	41.27	42.42	54.00	-11.58	Horizontal

		802.1	1n20 mode	Highest ch	nannel (Peal	k Value)					
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization			
10480.00	41.68	39.56	13.90	41.06	54.08	68.20	-14.12	Vertical			
10480.00	41.18	39.56	13.90	41.06	53.58	68.20	-14.62	Horizontal			
	802.11n20 mode Highest channel (Average Value)										
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization			
10480.00	29.64	39.56	13.90	41.06	42.04	54.00	-11.96	Vertical			
10480.00	30.87	39.56	13.90	41.06	43.27	54.00	-10.73	Horizontal			

Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.





6.9 Frequency stability

Test Requirement:	FCC Part15 E Section 15.407 (g)		
Limit:	Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.		
Test setup:	Temperature Chamber		
	Spectrum analyzer EUT Att. Variable Power Supply		
Test procedure:	Note: Measurement setup for testing on Antenna connector 1. The EUT is installed in an environment test chamber with external		
	 power source. Set the chamber to operate at 50 centigrade and external power source to output at nominal voltage of EUT. A sufficient stabilization period at each temperature is used prior to each frequency measurement. When temperature is stabled, measure the frequency stability. The test shall be performed under -30 to 50 centigrade and 85 to 115 percent of the nominal voltage. Change setting of chamber and external power source to complete all conditions. 		
Test Instruments:	Refer to section 5.6 for details		
Test mode:	Refer to section 5.3 for details, and all channels have been tested, only shows the worst channel data in this report.		
Test results:	Passed		





Measurement Data (Worst case):

Band 1:

Voltage vs. Frequency Stability

Test conditions		From series (BALLe)	May Davieties (mass)	
Temp(°C)	Voltage(DC)	Frequency(MHz)	Max. Deviation (ppm)	
	5180MHz			
	3.7V	5179.986700	-2.568	
20	3.4V	5179.984600	-2.973	
	4.1V	5179.983500	-3.185	
	5240MHz			
	3.7V	5239.990300	-1.851	
	3.4V	5239.987100	-2.462	
	4.1V	5239.980800	-3.664	

Temperature vs. Frequency Stability

mperature vs. Frequency Stability					
Test conditions		Frequency(MHz)	Max. Deviation (ppm)		
Voltage(DC)	Temp(°C)	i requericy(wiriz)	wax. Deviation (ppin)		
	5180MHz				
3.7V	-20	5179.982500	-3.378		
	-10	5179.981400	-3.591		
	0	5179.983200	-3.243		
	10	5179.984100	-3.069		
	20	5179.985700	-2.761		
	30	5179.986400	-2.625		
	40	5179.987200	-2.471		
	50	5179.988300	-2.259		
	5240MHz				
	-20	5239.981100	-3.607		
	-10	5239.983400	-3.168		
	0	5239.984900	-2.882		
	10	5239.986300	-2.615		
	20	5239.987500	-2.385		
	30	5239.988300	-2.233		
	40	5239.988900	-2.118		
	50	5239.989700	-1.966		