FCC RF Test Report

(U-NII)

Report No.:	JYTSZ-R12-2400053
Applicant:	INFINIX MOBILITY LIMITED
Address of Applicant:	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG
Equipment Under Test (EUT)	
Product Name:	Mobile Phone
Model No.:	X6851B
Trade Mark:	Infinix
FCC ID:	2AIZN-X6851B
Applicable Standards:	FCC CFR Title 47 Part 15E (§15.407)
Date of Sample Receipt:	11 Jan., 2024
Date of Test:	12 Jan., to 12 Mar., 2024
Date of Report Issued:	17 Mar., 2024
Test Result:	PASS

Tested by:	***Project Engineer***	***Date:***	*17 Mar., 2024*
Reviewed by:	***Senior Engineer***	***Date:***	*17 Mar., 2024*
Approved by:	***Manager***	***Date:***	*17 Mar., 2024*

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in above the application standard version. Test results reported herein relate only to the item(s) tested.

1 Version

Version No.	Date	Description
00	*17 Mar., 2024*	*Original*

2 Contents

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3 General Information

3.1 Client Information

Applicant:	INFINIX MOBILITY LIMITED
Address:	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG
Manufacturer:	INFINIX MOBILITY LIMITED
Address:	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG
Factory:	SHENZHEN TECNO TECHNOLOGY CO., LTD.
Address:	101, Building 24, Waijing Industrial Park, Fumin Community, Fucheng Street, Longhua District, Shenzhen City, P.R.China

3.2 General Description of E.U.T.

Product Name:	Mobile Phone
Model No.:	X6851B
Operation Frequency:	Band 1: 5150 MHz - 5250 MHz
	Band 4: 5725 MHz - 5850 MHz
Channel Numbers:	Band 1: 4, Band 4: 5 (802.11a, n-HT20, ac-VHT20)
	Band 1, 4: 2 (802.11n-HT40, ac-VHT40)
	Band 1, 4: 1 (802.11ac-VHT80)
Modulation Technology: (IEEE 802.11a/802.11n)	OFDM-BPSK, QPSK, 16QAM, 64QAM
Modulation Technology: (IEEE 802.11ac)	OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM
Antenna Type:	Internal Antenna
Antenna Gain:	-1.54 dBi (declare by applicant)
Antenna Transmit Mode:	SISO (1TX, 1RX)
Power Supply:	Rechargeable Li-ion Polymer Battery DC3.91V, 4500mAh
AC Adapter:	Model: U1000XSA Input: AC100-240V, 50/60Hz, 2.3A Output: DC 5.0V, 3.0A 15.0W or DC 5.0V-11.0V, 9.1A or DC 4.0V-20.0V, 5.0A 100.0W MAX
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

3.3 Test Mode and Environment

Test Mode:	
Transmitting mode:	Keep the EUT in continuous transmitting with modulation

Per-scan all kind of data rate, the follow list were the worst case:

Mode	Data rate
802.11a	6.0 Mbps
802.11n-HT20	6.5 Mbps
802.11n-HT40	13.5 Mbps
802.11ac-VHT20	6.5 Mbps
802.11ac-VHT40	13.5 Mbps
802.11ac-VHT80	29.3 Mbps

Remark: *For AC power line conducted emission and radiated spurious emission (below 1GHz), pre-scan 802.11a, n, ac modulation mode, found 802.11a modulation mode was worse case mode. The report only reflects the test data of worst mode.*

Operating Environment:	
Temperature:	15℃ ~ 35℃
Humidity:	20 % ~ 75 % RH
Atmospheric Pressure:	1008 mbar
Voltage:	Nominal: 3.91 Vdc, Extreme: Low 3.45 Vdc, High 4.50 Vdc
Test Engineer:	Logan Li(Conducted measurement)

3.4 Description of Test Auxiliary Equipment

The EUT has been tested as an independent unit.

3.5 Measurement Uncertainty

Please refer to FCC ID: 2AIZN-X6851, report No.: JYTSZ-R12-2301776.

3.6 Additions to, Deviations, or Exclusions from the Method

No

3.7 Laboratory Facility

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

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen 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 L15527**

JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

3.8 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.
Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info-JYTee@lets.com, Website: http://jyt.lets.com

3.9 Test Instruments List

Conducted Method:					
Test Equipment	**Manufacturer**	**Model No.**	**Manage No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
Spectrum Analyzer	Keysight	N9010B	WXJ004-3	11-01-2023	10-31-2024
Temperature Humidity Chamber	ZHONG ZHI	CZ-A-80D	WXJ032-3	01-09-2023	01-08-2025
Power Detector Box	MWRFTEST	MW100-PSB	WXJ007-4	09-25-2023	09-24-2024
RF Control Unit	MWRFTEST	MW100-RFCB	WXG006	N/A	
RF Switch	TOP PRECISION	RSU0301	WXG003	N/A	
DC Power Supply	Keysight	E3642A	WXJ025-2	N/A	
Test Software	MWRFTEST	MTS 8310	Version: 2.0.0.0		

4 Measurement Setup and Procedure

4.1 Test Channel

According to ANSI C63.10-2013 chapter 5.6.1 Table 4 requirement, select lowest channel, middle channel, and highest channel in the frequency range in which device operates for testing. The detailed frequency points are as follows:

Operation frequency: 5150 MHz – 5250 MHz

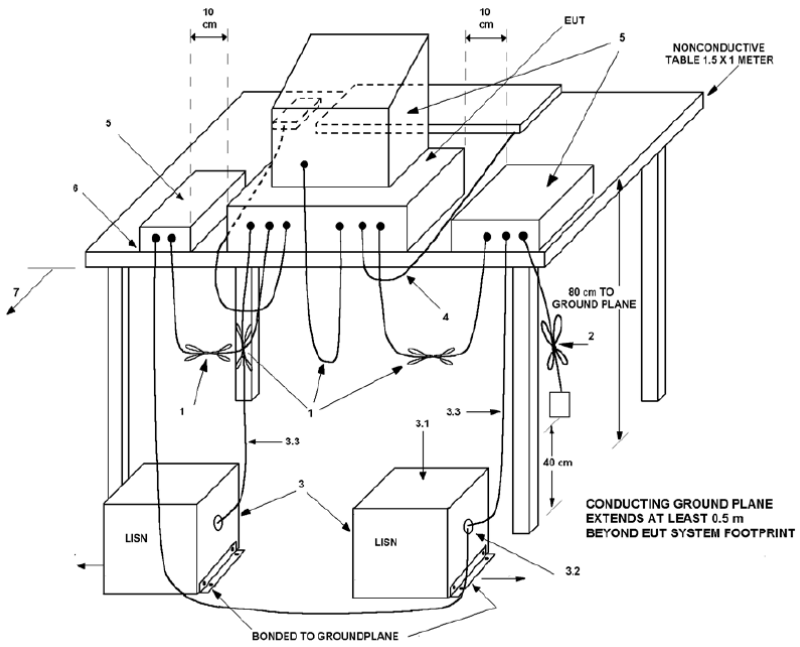
Modulation mode	Lowest channel		Middle channel		Highest channel	
	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
802.11a, n-HT20, ac-VHT20	36	5180	40	5200	48	5240
802.11n-HT40, ac-VHT40	38	5190	/	/	46	5230
802.11ac-VHT80	/	/	42	5210	/	/

Operation frequency: 5725 MHz – 5850 MHz

Modulation mode	Lowest channel		Middle channel		Highest channel	
	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
802.11a, n-HT20, ac-VHT20	149	5745	157	5785	165	5825
802.11n-HT40, ac-VHT40	151	5755	/	/	159	5795
802.11ac-VHT80	/	/	155	5775	/	/

4.2 Test Setup

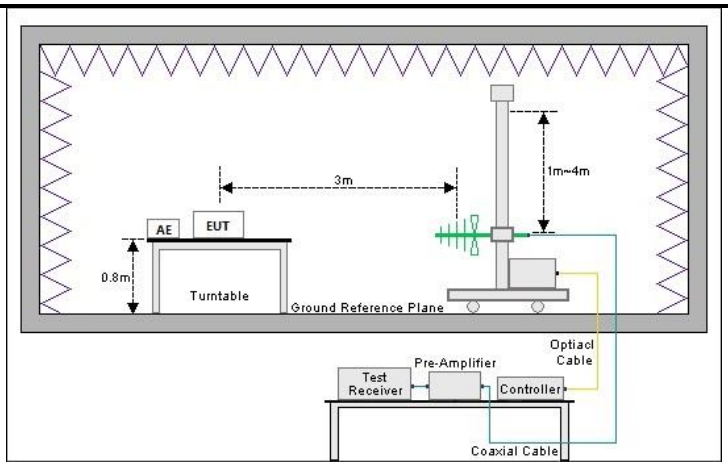
1) Conducted emission measurement:



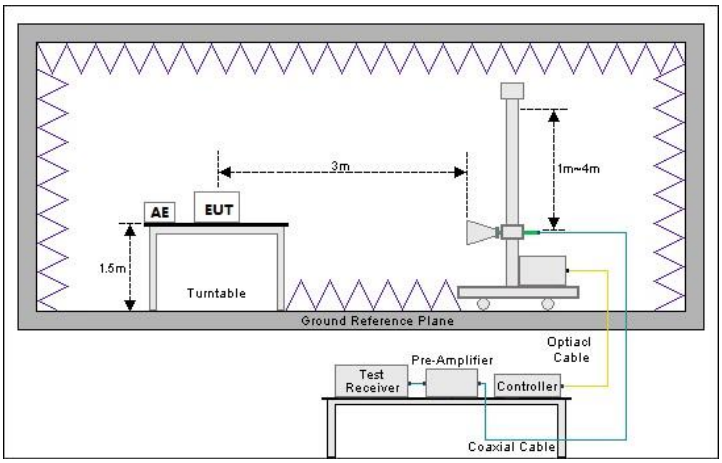
Note: The detailed descriptions please refer to Figure 8 of ANSI C63.4:2014.

2) Radiated emission measurement:

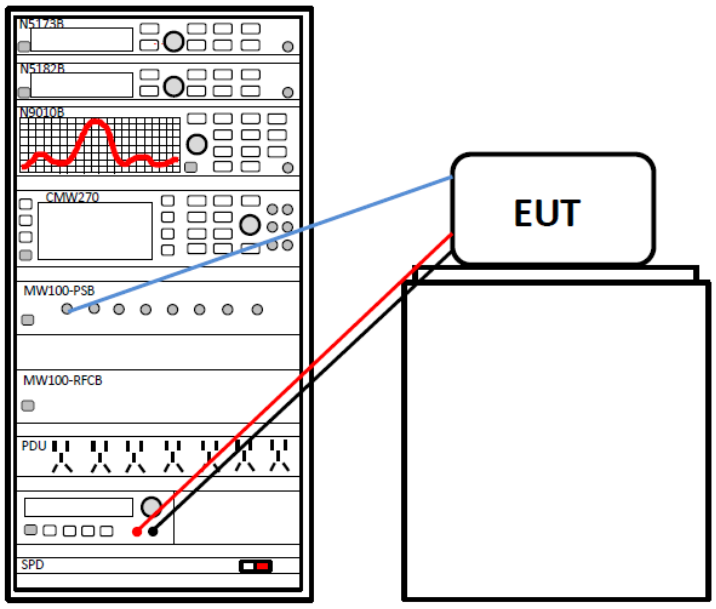
Below 1GHz (3m SAC)



Above 1GHz (3m FAR)



3) Conducted test method



4.3 Test Procedure

Test method	Test step
Conducted emission	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. 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). 3. 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 C63.10 on conducted measurement.
Radiated emission	**For below 1GHz:** 1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m. 2. EUT works in each mode of operation that needs to be tested，and having the EUT continuously working, respectively on 3 axis (X, Y & Z) and considered typical configuration to obtain worst position. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations. 3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data. **For above 1GHz:** 1. The EUT was placed on the tabletop of a rotating table 1.5 m the ground at a 3 m fully anechoic room. The measurement distance from the EUT to the receiving antenna is 3 m. 2. EUT works in each mode of operation that needs to be tested，and having the EUT continuously working, respectively on 3 axis (X, Y & Z) and considered typical configuration to obtain worst position. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations. 3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.
Conducted test method	1. The Wi-Fi antenna port of EUT was connected to the test port of the test system through an RF cable. 2. The EUT is keeping in continuous transmission mode and tested in all modulation modes. 3. Open the test software, prepare a test plan, and control the system through the software. After the test is completed, the test report is exported through the test software.

5 Test Results

5.1 Summary

5.1.1 Clause and Data Summary

This report is revised according to the JYTSZ-R12-2301776 report, FCC ID: 2AIZN-X6851 issued by JianYan Testing Group Shenzhen Co., Ltd. Differences: The X6851B has one more HL3179 fast charge chip and peripheral devices than the X6851. The X6851B and X6851 battery connectors are different. The X6851 charges 45W and the X6851B charges 100W. The appearance of the prototype is different in color. And model update, so need to spot-check WiFi Conducted Output Power.

Test items	Standard clause	Test data	Result
Antenna Requirement	15.203	Please refer to report No.: JYTSZ-R12-2301776.	Please refer to report No.: JYTSZ-R12-2301776.
AC Power Line Conducted Emission	15.207 15.407 (b)(9)	Please refer to report No.: JYTSZ-R12-2301776.	Please refer to report No.: JYTSZ-R12-2301776.
Duty Cycle	ANSI C63.10-2013	Please refer to report No.: JYTSZ-R12-2301776.	Please refer to report No.: JYTSZ-R12-2301776.
Conducted Peak Output Power Power Spectral Density	15.407 (a)(1)(iv) (a)(3)(i)	Please refer to report No.: JYTSZ-R12-2301776.	Please refer to report No.: JYTSZ-R12-2301776.
26dB Emission Bandwidth 99% Occupied Bandwidth	15.407 (a)(12)	Please refer to report No.: JYTSZ-R12-2301776.	Please refer to report No.: JYTSZ-R12-2301776.
6dB Emission Bandwidth	15.407 (e)	Please refer to report No.: JYTSZ-R12-2301776.	Please refer to report No.: JYTSZ-R12-2301776.
Unwanted Emissions	15.205 15.209 15.407 (b)(1), (4), (9), (10)	Please refer to report No.: JYTSZ-R12-2301776.	Please refer to report No.: JYTSZ-R12-2301776.
Frequency Stability	15.407 (g)	Please refer to report No.: JYTSZ-R12-2301776.	Please refer to report No.: JYTSZ-R12-2301776.
Dynamic frequency selection	15.407 (h)(2)	N/A	N/A
Remark: *1. Please refer to FCC ID: 2AIZN-X6851, report No.: JYTSZ-R12-2301776 issue by JianYan Testing Group Shenzhen Co., Ltd.* *2. The cable insertion loss used by "RF Output Power" and other conduction measurement items is 1.0dB (provided by the customer).*			
Test Method:	*ANSI C63.10-2013* *KDB 789033 D02 General U-NII Test Procedures New Rules v02r01*		

5.1.2 Test Limit

<table>
<tr><th>Test items</th><th>Limit</th></tr>
<tr><td>AC Power Line Conducted Emission</td><td>
<table>
<tr><th rowspan="2">Frequency (MHz)</th><th colspan="2">Limit (dBµV)</th></tr>
<tr><th>Quasi-Peak</th><th>Average</th></tr>
<tr><td>0.15 – 0.5</td><td>66 to 56 Note 1</td><td>56 to 46 Note 1</td></tr>
<tr><td>0.5 – 5</td><td>56</td><td>46</td></tr>
<tr><td>5 – 30</td><td>60</td><td>50</td></tr>
<tr><td colspan="3">Note 1: The limit level in dBµV decreases linearly with the logarithm of frequency.
Note 2: The more stringent limit applies at transition frequencies.</td></tr>
</table>
</td></tr>
<tr><td>Conducted Peak Output Power

Power Spectral Density</td><td>For the 5.15-5.25 GHz band:
For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. 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.

For the band 5.725-5.895 GHz:
For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. 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. However, Fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.</td></tr>
<tr><td>26dB Emission Bandwidth
99% Occupied Bandwidth</td><td>N/A</td></tr>
<tr><td>6dB Emission Bandwidth</td><td>Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.</td></tr>
</table>

<table>
<tr>
<td>Unwanted Emissions</td>
<td>
(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of ?27 dBm/MHz.
(2) For transmitters operating solely in the 5.725-5.850 GHz band: All emissions shall be limited to a level of ?27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
(3) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209. The provisions of § 15.205 apply to intentional radiators operating under this section:
<table>
<tr><th rowspan="2">Frequency (MHz)</th><th colspan="2">Limit (dBµV/m)</th><th rowspan="2">Detector</th></tr>
<tr><th>@ 3m</th><th>@ 10m</th></tr>
<tr><td>30 – 88</td><td>40.0</td><td>30.0</td><td>Quasi-peak</td></tr>
<tr><td>88 – 216</td><td>43.5</td><td>33.5</td><td>Quasi-peak</td></tr>
<tr><td>216 – 960</td><td>46.0</td><td>36.0</td><td>Quasi-peak</td></tr>
<tr><td>960 – 1000</td><td>54.0</td><td>44.0</td><td>Quasi-peak</td></tr>
<tr><td colspan="4">Note: The more stringent limit applies at transition frequencies.</td></tr>
<tr><th rowspan="2">Frequency</th><th colspan="3">Limit (dBµV/m) @ 3m</th></tr>
<tr><th colspan="2">Average</th><th>Peake</th></tr>
<tr><td>Above 1 GHz</td><td colspan="2">54.0</td><td>74.0</td></tr>
<tr><td colspan="4">Note: The measurement bandwidth shall be 1 MHz or greater.</td></tr>
</table>
</td>
</tr>
<tr>
<td>Frequency Stability</td>
<td>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 users manual.</td>
</tr>
</table>

5.2 Conducted Peak Output Power Spot-check

Appendix – 5.2G Wi-Fi

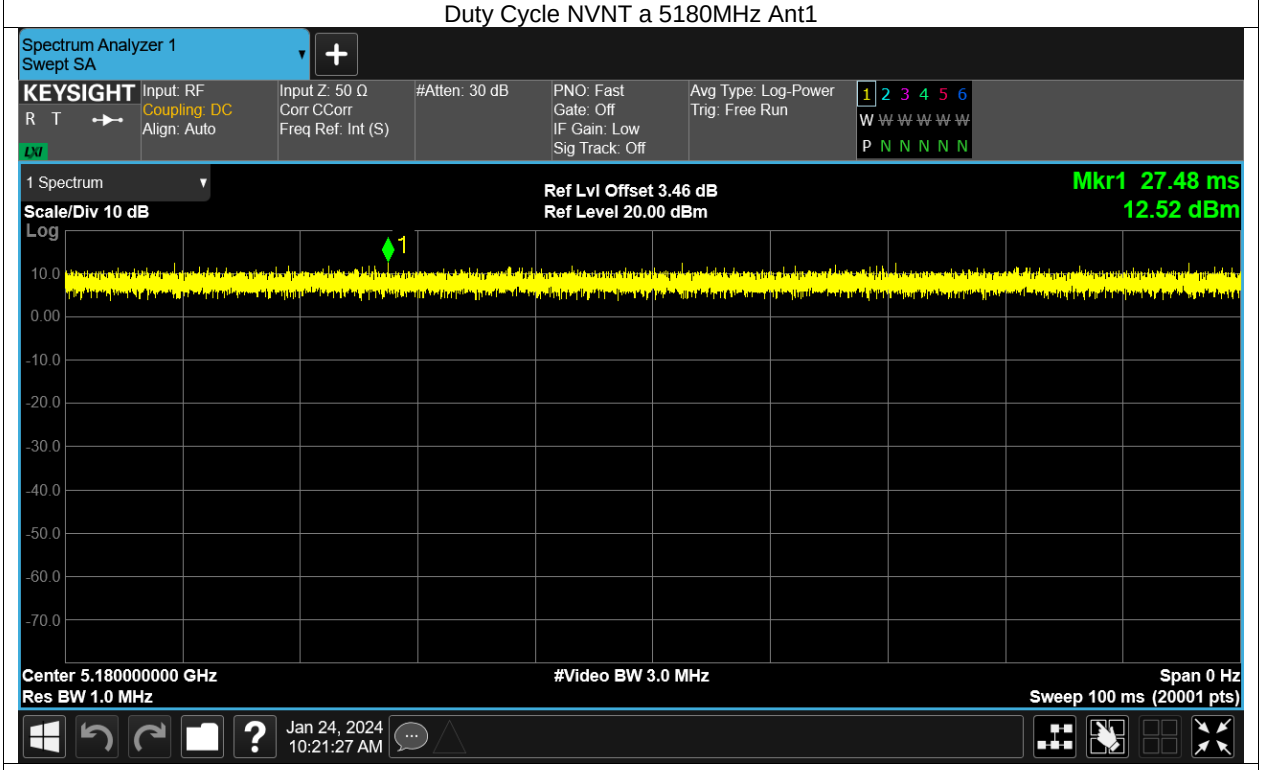
Test Data

Duty Cycle

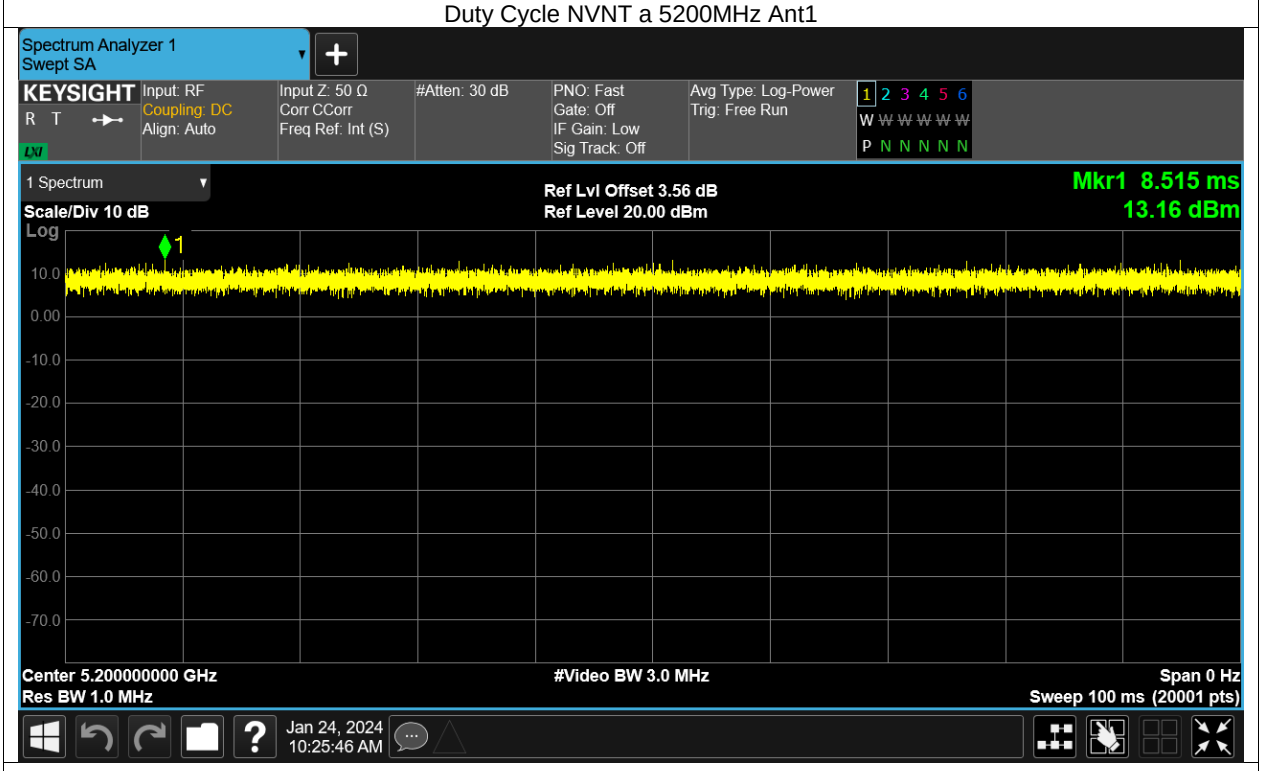
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)
NVNT	a	5180	Ant1	100	0
NVNT	a	5200	Ant1	100	0
NVNT	a	5240	Ant1	100	0

Test Graphs

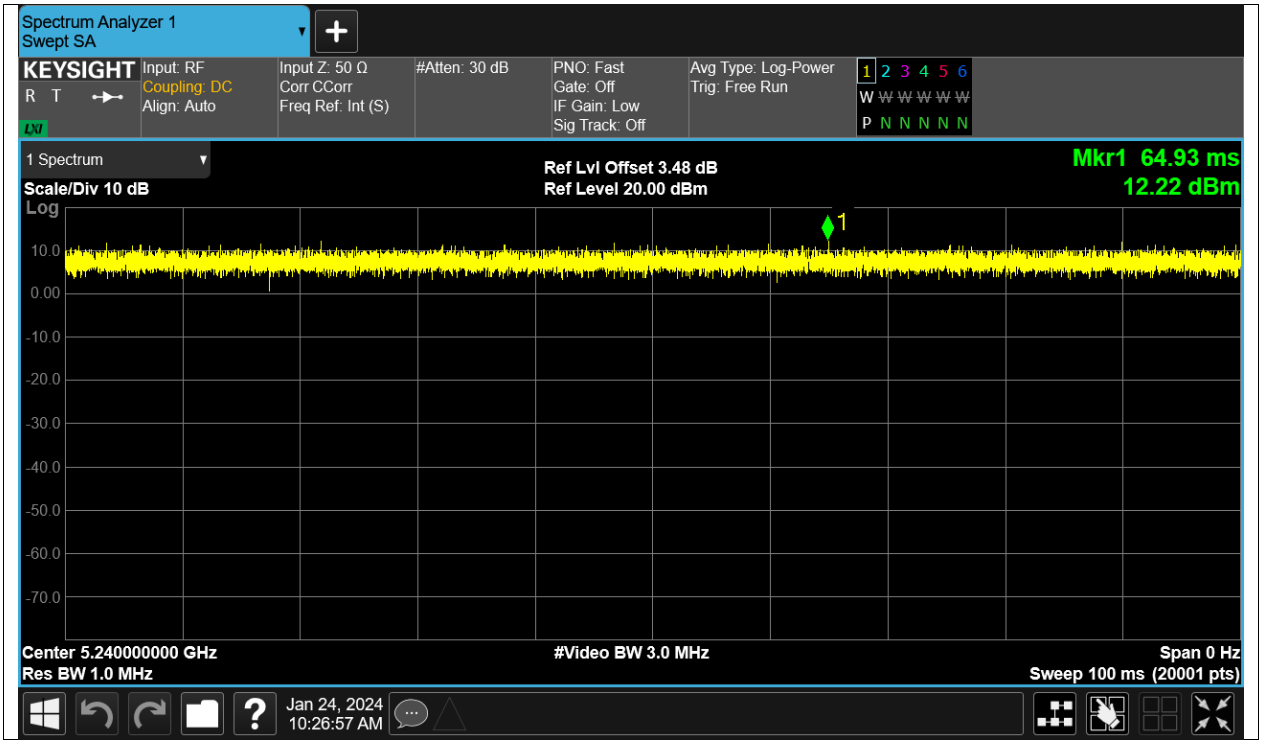
Duty Cycle NVNT a 5180MHz Ant1



Duty Cycle NVNT a 5200MHz Ant1



Duty Cycle NVNT a 5240MHz Ant1



Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	15.5	0	15.5	24	Pass
NVNT	a	5200	Ant1	15.3	0	15.3	24	Pass
NVNT	a	5240	Ant1	15.62	0	15.62	24	Pass

Appendix – 5.8G Wi-Fi

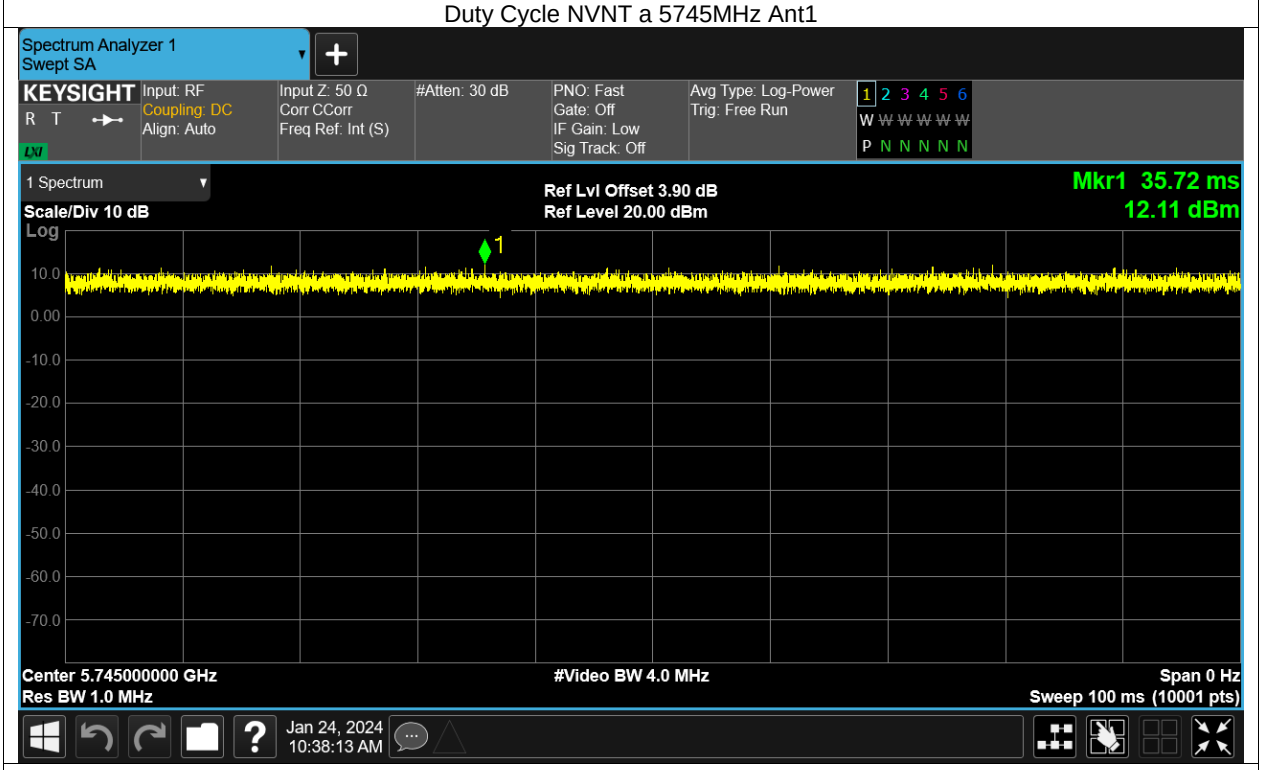
Test Data

Duty Cycle

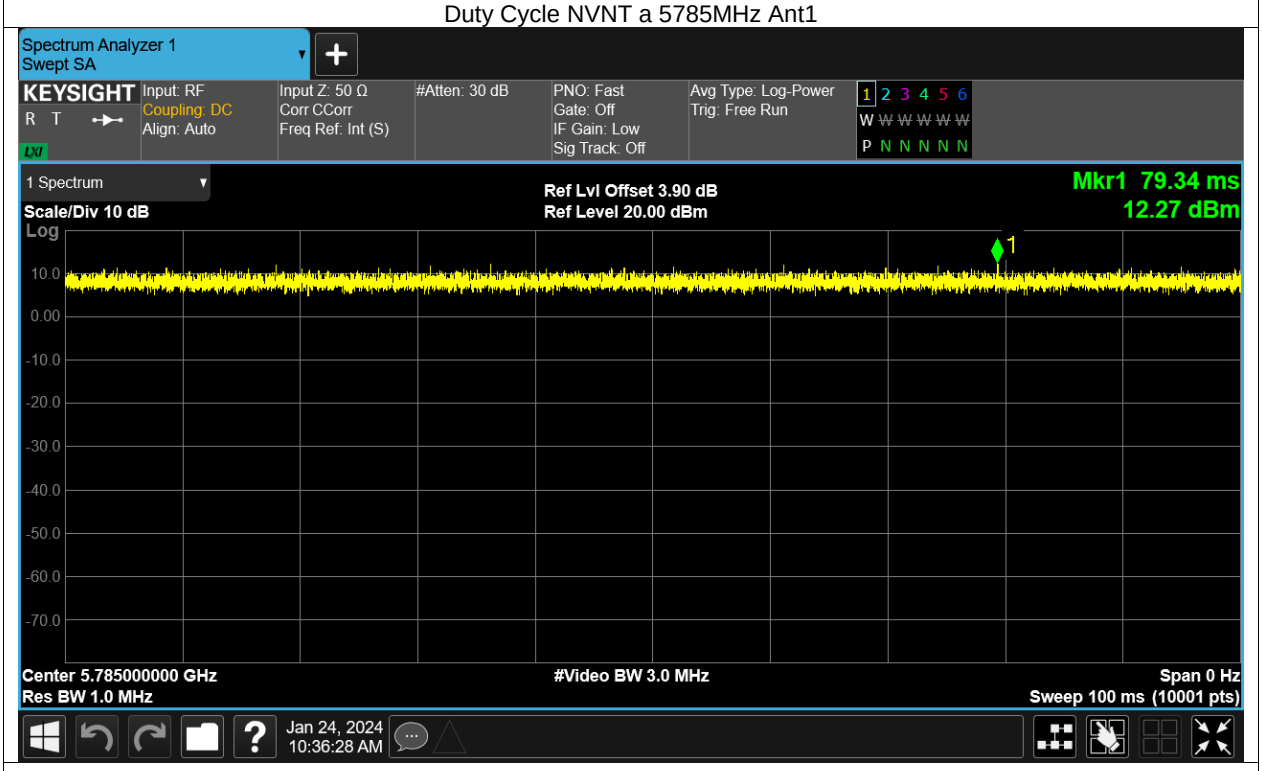
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)
NVNT	a	5745	Ant1	100	0
NVNT	a	5785	Ant1	100	0
NVNT	a	5825	Ant1	100	0

Test Graphs

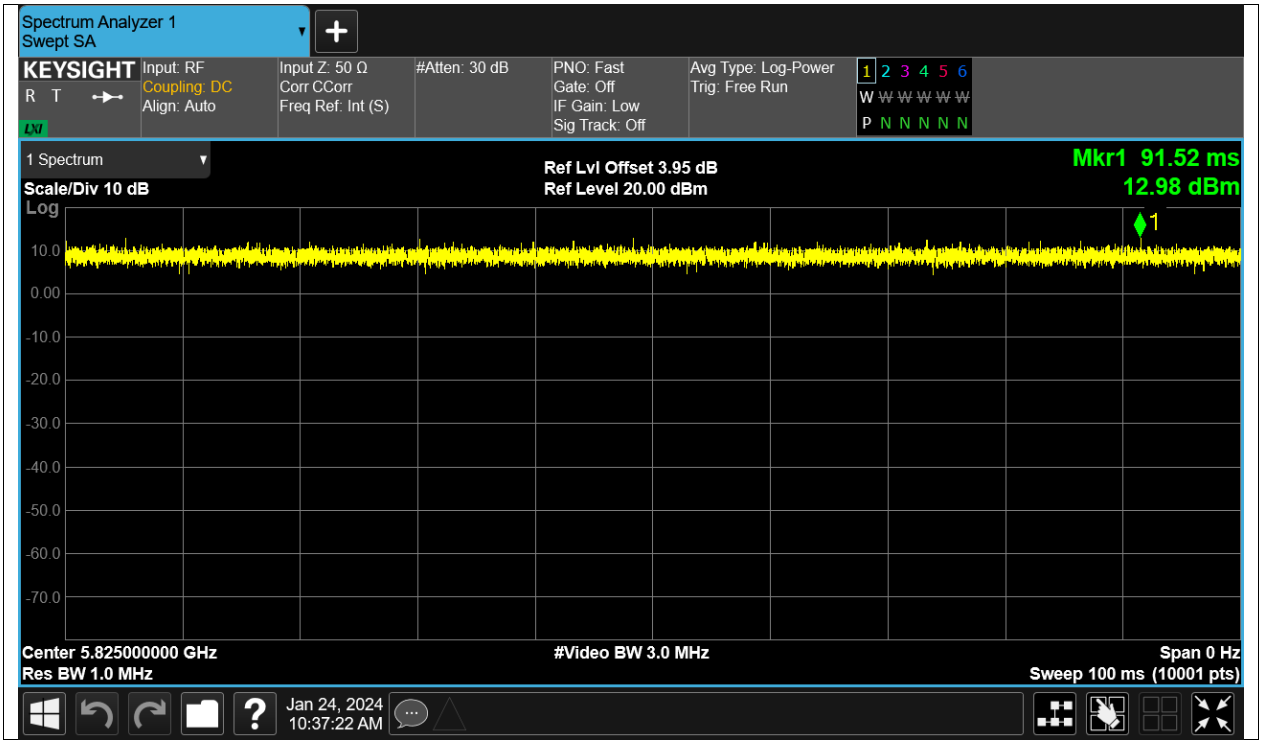
Duty Cycle NVNT a 5745MHz Ant1



Duty Cycle NVNT a 5785MHz Ant1



Duty Cycle NVNT a 5825MHz Ant1



Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	Ant1	14.21	0	14.21	30	Pass
NVNT	a	5785	Ant1	15.32	0	15.32	30	Pass
NVNT	a	5825	Ant1	15.41	0	15.41	30	Pass

------End of report------