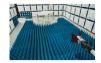


Element Materials Technology

(Formerly PCTEST) 18855 Adams Court, Morgan Hill, CA 95037 USA Tel. 408.538.5600 http://www.element.com



MEASUREMENT REPORT FCC PART 15.247 / ISED RSS-247 Bluetooth (Low Energy)

Applicant Name:

Apple Inc. One Apple Park Way Cupertino, CA 95014 United States

FCC ID:

APPLICANT:

IC:

Date of Testing: 11/28/2023 – 3/13/2024 Test Report Issue Date: 3/26/2024 Test Site/Location: Element Materials Technology, Morgan Hill, CA, USA Test Report Serial No.: 1C2311270064-19.BCG

BCGA2903

579C-A2903

Apple Inc.

Application Type:
Model/HVIN:
EUT Type:
Max. RF Output Power:
Frequency Range:
FCC Classification:
FCC Rule Part(s):
ISED Specification:
Test Procedure(s):

Certification A2903, A2904 Tablet Device 43.451 mW (16.38 dBm) Peak Conducted 2402 – 2480MHz Digital Transmission System (DTS) Part 15 Subpart C (15.247) RSS-247 Issue 3 ANSI C63.10-2013, KDB 558074 D01 v05r02

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 ANSI C63.10-2013 and KDB 558074 D01 v05r02. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

RJ Ortanez Executive Vice President

Prepared by: WKR0000006193

Reviewed by: WKR0000005805



FCC ID: BCGA2903 IC: 579C-A2903	element MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 1 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 1 of 102
			V/ 10 6 00/12/2023



TABLE OF CONTENTS

1.0	INTRO	DDUCTION	3
	1.1	Scope	3
	1.2	Element Materials Technology Test Location	3
	1.3	Test Facility / Accreditations	3
2.0	PROD	UCT INFORMATION	4
	2.1	Equipment Description	4
	2.2	Device Capabilities	4
	2.3	Antenna Description	5
	2.4	Test Support Equipment	6
	2.5	Test Configuration	6
	2.6	Software and Firmware	6
	2.7	EMI Suppression Device(s)/Modifications	6
3.0	DESC	RIPTION OF TESTS	7
	3.1	Evaluation Procedure	7
	3.2	AC Line Conducted Emissions	7
	3.3	Radiated Emissions	8
	3.4	Environmental Conditions	8
4.0	ANTE	NNA REQUIREMENTS	9
5.0	MEAS	UREMENT UNCERTAINTY	. 10
6.0	TEST	EQUIPMENT CALIBRATION DATA	. 11
7.0	TEST	RESULTS	. 12
	7.1	Summary	12
	7.2	Bandwidth Measurement – Bluetooth (LE)	13
	7.3	Output Power Measurement – Bluetooth (LE)	23
	7.4	Power Spectral Density – Bluetooth (LE)	27
	7.5	Conducted Authorized Band Edge	56
	7.6	Conducted Spurious Emissions	61
	7.7	Radiated Spurious Emissions – Above 1GHz	69
	7.8	Radiated Spurious Emissions – Below 1GHz	94
	7.9	AC Line-Conducted Emissions Measurement	98
8.0	CONC	CLUSION	102

FCC ID: BCGA2903 IC: 579C-A2903	element	element MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 2 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 2 of 102
			V 10 6 09/12/2023



1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2 Element Materials Technology Test Location

These measurement tests were conducted at the Element Materials Technology facility located at 18855 Adams Court, Morgan Hill, CA 95037. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014 and KDB 414788 D01 v01r01.

1.3 Test Facility / Accreditations

Measurements were performed at Element Materials Technology.

- Element Materials Technology is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.02 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- Element Washington DC LLC TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).
- Element Materials Technology facility is a registered (22831) test laboratory with the site description on file with ISED.
- Element Washington DC LLC is a Recognized U.S. Certification Assessment Body (CAB # US0110) for ISED Canada as designated by NIST under the U.S. and Canada Mutual Recognition Agreements (MRAs).

FCC ID: BCGA2903 IC: 579C-A2903	element	element MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 2 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 3 of 102
		·	V 10 6 09/12/2023



2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Apple Tablet Device FCC ID: BCGA2903 and IC: 579C-A2903**. The data found in this test report was taken with the EUT operating in Bluetooth low energy mode. While in low energy mode, the Bluetooth transmitter hops pseudo-randomly between 40 channels, three of which are "advertising channels". When the transmitter is hopping only between the three advertising channels, the EUT does not fall under the category of a "hopper" as defined in 15.247(a)(iii) which states that a "frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels." As operation on only the advertising channels does not qualify the EUT as a hopper, the EUT is certified as a DTS device in this mode. The data found in this report is representative of the device when it transmits on its advertising channels. Typical Bluetooth operation is covered under the DSS report found with this application.

Test Device Serial No.: T2KCJ6QJ92, LVQ4HQQVPM, RH779H9653, DLXGYH0000A0000EVL

2.2 Device Capabilities

This device contains the following capabilities:

850/1700/1900 WCDMA/HSPA, Multi-band LTE, 5G NR (FR1), 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII, 802.11a/ax WIFI 6E, 802.15.4, Bluetooth (1x, EDR, LE1M, LE2M, HDR4, HDR8), WPT, NB UNII (1x, HDR4, HDR8).

This device supports BT Beamforming

	BLE-1M		BLE-2M
Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
00	2402	01	2404
:	:	:	:
19	2440	19	2440
:	:	:	:
39	2480	38	2478

Table 2-1. Bluetooth LE Frequency / Channel Operations

Note: This device is capable of operating in hopping and non-hopping mode. The EUT can hop between 40 different channels in the 2400 – 2483.5MHz band.

Measured Duty Cycles					
802.11 Mode/Band Duty Cycle [%]					
802.11 Mode/Ballu		Antenna 3a Antenna 1a TxBF			
1M	ePA	100	100	100	
	iPA	100	100	100	
2M	ePA	100	100	100	
	iPA	100	100	100	

Table 2-2. Measured Duty Cycles

FCC ID: BCGA2903 IC: 579C-A2903	element	element MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 4 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 4 of 102
	•		V 10.6 09/12/2023



This device supports simultaneous transmission operations, which allows for multiple transmitters to transmit simultaneously on the same antenna. The table below shows all configurations possible.

		Wifi 2GHz	Bluetooth	Thread	Wifi 5GHz	Wifi 6GHz	NB UNII	LTE/FF	R1 NR
Antenna	Simultaneous Tx Config	802.11 b/g/n/ax	BDR, EDR, HDR4/8, LE1/2M	802.15.4	802.11 a/n/ac/ax	802.11 a/ax	BDR, HDR4/8	MB/HB	UHB
3a	Config 1	X	√	Х	√	X	X	\checkmark	Х
3a	Config 2	X	√	X	X	\checkmark	X	\checkmark	X
3a	Config 3	\checkmark	X	X	X	X	\checkmark	~	X
3a	Config 4	X	X	\checkmark	\checkmark	X	X	\checkmark	X
3a	Config 5	X	X	\checkmark	X	\checkmark	X	\checkmark	X
3a	Config 6	\checkmark	X	X	X	X	\checkmark	X	X
3a	Config 7	\checkmark	X	X	X	X	X	\checkmark	X
3a	Config 8	X	\checkmark	X	\checkmark	X	X	Х	X
3a	Config 9	X	√	X	X	\checkmark	X	X	X
3a	Config 10	X	√	X	X	X	X	\checkmark	X
3a	Config 11	X	X	\checkmark	\checkmark	X	X	X	X
3a	Config 13	X	X	\checkmark	X	√	X	X	X
3a	Config 14	X	X	\checkmark	X	X	X	~	X
3a	Config 15	X	X	X	\checkmark	X	X	\checkmark	X
3a	Config 16	X	X	X	X	\checkmark	X	\checkmark	X
3a	Config 17	X	X	X	X	X	\checkmark	\checkmark	X
1a	Config 18	\checkmark	X	X	X	X	X	X	\checkmark
1a	Config 15	X	√	Х	X	X	X	X	\checkmark
1a	Config 16	X	X	\checkmark	X	X	X	X	\checkmark
1b	Config 17	X	X	X	\checkmark	X	X	\checkmark	X
1b	Config 18	X	X	X	X	\checkmark	X	\checkmark	X
1b	Config 19	X	X	X	X	X	\checkmark	\checkmark	X

Table 2-3. Simultaneous Transmission Configurations

\checkmark = Support; * = Not Support

Note:

All the above simultaneous transmission configurations have been tested and the worst-case configuration was found to be Config 1 and reported in RF UNII OFDM, RF Bluetooth, RF FCC Part 27b and RSS-199 test reports.

Specific 2.4GHz Wi-Fi antenna that can only transmit simultaneously with 2.4GHz Bluetooth antenna is listed in the SAR test report. For BT (2.4GHz) in connected mode and Wi-Fi (2.4GHz) - Wi-Fi max power will not exceed minimum of (13.5dBm, SAR max cap, Reg max cap) power. For BT (2.4GHz) in disconnected mode and Wi-Fi (2.4GHz) - BT will be using iPA only and Wi-Fi max power will not exceed minimum of (SAR max cap, Reg max cap) power. Bluetooth can simultaneously transmit with IEEE 802.11a/n/ac/ax 5/6 GHz on separate antenna.

2.3 Antenna Description

Following antennas gains provided by manufacturer were used for testing.

Frequency	Antenna Gain (dBi)		
[GHz]	Antenna 3a	Antenna 1a	
2.4	2.6	1.5	

Table 2-4. Highest Ar	ntenna Gain
-----------------------	-------------

FCC ID: BCGA2903 IC: 579C-A2903	element	element MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N:	Test Dates:	EUT Type:	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 5 of 102
	•		V 10.6 09/12/2023



2.4 Test Support Equipment

1	Apple MacBook Pro	Model:	A2141	S/N:	C02H604EQ05D
	w/AC/DC Adapter	Model:	A2166	S/N:	C4H042705ZNPM0WA6
2	Apple USB-C Cable	Model:	Spartan	S/N:	GXK1336018XKTR024
3	USB-C Cable	Model:	A246C	S/N:	DWH80115BK826GV19
	w/ AC Adapter	Model:	A2305	S/N:	C4H95160004PF4F4V
4	Apple Pencil	Model:	A2538	S/N:	KJ26TCFXJW
5	DC Power Supply	Model:	KPS3010D	S/N:	N/A
	Ta		oot Summart E		lat

 Table 2-5. Test Support Equipment List

2.5 Test Configuration

The EUT was tested per the guidance of ANSI C63.10-2013 and KDB 558074 D01 v05r02. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing. See Sections 3.2 for AC line conducted emissions test setups, 3.3 for radiated emissions test setups, and 7.1, 7.3, 7.4, 7.5, and 7.6 for antenna port conducted emissions test setups.

There are two vendors of the WiFi/Bluetooth radio modules, variant 1 and variant 2. Both radio modules have the same mechanical outline, same on-board antenna matching circuit, identical antenna structure, and are built and tested to conform to the same specifications and to operate within the same tolerances. The worst case configuration was found between the two variants. The EUT was also investigated with and without charger.

For emissions from 1GHz – 18GHz, low, mid, and high channels were tested with highest power and worst case configuration. The emissions below 1GHz and above 18GHz were tested with the highest transmitting power and the worst case channel.

The EUT was manipulated through three orthogonal planes of X-orientation (flatbed), Y-orientation (landscape), and Z-orientation (portrait) during the testing. Only the worst case emissions were reported in this test report.

For AC line conducted and radiated test below 1GHz, following configuration were investigated and the worst case was reported.

- EUT powered by AC/DC adaptor via USB-C cable with wire charger
- EUT powered by host PC via USB-C cable with wire charger

2.6 Software and Firmware

The test was conducted with firmware version 21E8197 installed on the EUT.

2.7 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage C of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 6 of 102
	·	·	V 10.6 09/12/2023



3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedures described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013) and the guidance provided in KDB 558074 D01 v05r02 were used in the measurement of the EUT.

Deviation from measurement procedure.....None

3.2 AC Line Conducted Emissions

The line-conducted facility is located inside a 7m x 3.66m x 2.7m shielded enclosure. The shielded enclosure is manufactured by AP Americas. The shielding effectiveness of the shielded room is in accordance with MIL-Std-285 or NSA 65-6. A 1m x 1.5m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, $50\Omega/50\mu$ H Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. The external power line filter is EPCOS 2X60A Power Line Filter (100dB Attenuation, 14kHz-18GHz) and the two EPCOS 2X48A filters (100dB Minimum Insertion Loss, 14kHz - 10GHz). These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. If the EUT is a DC-powered device, power will be derived from the source power supply it normally will be powered from and this supply line(s) will be connected to the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference groundplane. Power cables for support equipment were routed down to the second LISN while ensuring that the cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the spectrum analyzer and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The spectrum was scanned from 150kHz to 30MHz with a spectrum analyzer. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 10kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions is used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

Line conducted emissions test results are shown in Section 7.9. Automated test software was used to perform the AC line conducted emissions testing. Automated measurement software utilized is Rohde & Schwarz EMC32, Version 10.50.40.

FCC ID: BCGA2903 IC: 579C-A2903	element	element MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N:	Test Dates:	EUT Type:	Dana 7 a(400
1C2311270064-19.BCG 11/28/2023 - 3/4/2024 Tab		Tablet Device	Page 7 of 102
	•		V 10.6 09/12/2023



3.3 Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. An 80cm tall test table made of Styrodur is placed on top of the turn table. For measurements above 1GHz, an additional Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

Per KDB 414788 D01 v01r01, radiated emission test sites other than open-field test sites (e.g., shielded anechoic chambers), may be employed for emission measurements below 30MHz if characterized so that the measurements correspond to those obtained at an open-field test site. To determine test site equivalency, a reference sample transmitting at 149kHz was measured on an open field test site (asphalt with no ground plane) and then measured in the 3m semi-anechoic chamber. A calibrated 60cm loop antenna was rotated about its vertical axis while the reference device was rotated through the X, Y and Z axis in order to capture the worst case level. A maximum deviation of 2.77dB at 149kHz was measured when comparing the 3 meter semi-anechoic chamber to the open field site.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33 depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up was placed on top of the 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, mode of operation, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions.

3.4 Environmental Conditions

The temperature is controlled within range of 15°C to 35°C. The relative humidity is controlled within range of 10% to 75%. The atmospheric pressure is monitored within the range 86-106kPa (860-1060mbar).

FCC ID: BCGA2903 IC: 579C-A2903	element	element MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N:	Test Dates:	EUT Type:	Page 8 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	/28/2023 – 3/4/2024 Tablet Device	
			V/ 10 6 00/12/2022



4.0 ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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 shall be considered sufficient to comply with the provisions of this section."

- The antenna(s) of the EUT are **permanently attached**.
- There are no provisions for connection to an external antenna.

Conclusion:

The EUT complies with the requirement of §15.203.

FCC ID: BCGA2903 IC: 579C-A2903	element	element MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N:	Test Dates:	EUT Type:	Page 9 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 9 01 102
			V/ 10 6 00/12/2023



5.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.23-2012. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (±dB)
Conducted Bench Top Measurements	2.07
Line Conducted Disturbance	1.91
Radiated Disturbance (<30MHz)	4.12
Radiated Disturbance (30MHz - 1GHz)	4.85
Radiated Disturbance (1 - 18GHz)	5.08
Radiated Disturbance (>18GHz)	4.59

FCC ID: BCGA2903 IC: 579C-A2903	element	element MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N:	Test Dates:	EUT Type:	Dega 10 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 10 of 102
		·	V 10.6 09/12/2023



6.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent Technologies	N9030A	3Hz-44GHz PXA Signal Analyzer	6/21/2023	Annual	6/21/2024	MY49430244
Anritsu	ML2496A	Power Meter	4/4/2023	Annual	4/4/2024	1840005
Anritsu	MA2411B	Pulse Power Sensor	8/22/2023	Annual	8/22/2024	1726262
Anritsu	MA2411B	Pulse Power Sensor	4/5/2023	Annual	4/5/2024	1726261
ETS-Lindgren	3117	Double Ridged Guide Antenna (1-18 GHz)	3/30/2023	Annual	3/30/2024	00218555
Keysight Technology	N9040B	UXA Signal Analyzer	3/10/2023	Annual	3/10/2024	MY57212015
Rohde & Schwarz	TS-PR18	Pre-Amplifier (1GHz - 18GHz)	8/31/2023	Annual	8/31/2024	100052
Rohde & Schwarz	FSV40	Signal Analyzer (10Hz-40GHz)	5/11/2023	Annual	5/11/2024	101619
Rohde & Schwarz	ESW44	EMI Test Receiver	6/6/2023	Annual	6/6/2024	101668
Rohde & Schwarz	TS-PR8	Pre-Amplifier (30MHz - 8GHz)	6/22/2023	Annual	6/22/2024	102356
Rohde & Schwarz	TS-PR1840	Pre-Amplifier (18GHz - 40GHz)	6/2/2023	Annual	6/2/2024	100050
Rohde & Schwarz	HFH2-Z2	Loop Antenna	5/1/2023	Annual	5/1/2024	100519
Rohde & Schwarz	ENV216	Two-Line V-Network	6/8/2023	Annual	6/8/2024	192052
Schwarzbeck	VULB 9162	Bilog Antenna (30MHz - 6GHz)	4/17/2023	Annual	4/17/2024	00304

Table 6-1. Test Equipment List

Note:

For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 11 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	28/2023 – 3/4/2024 Tablet Device	
1	-	•	V 10.6 09/12/2023



7.0 TEST RESULTS

7.1 Summary

Company Name:	<u>Apple Inc.</u>
FCC ID:	BCGA2903
IC:	<u>579C-A2903</u>
FCC Classification:	Digital Transmission System (DTS)
Number of Channels:	40

FCC Part Test Test RSS Section(s) **Test Description Test Limit** Reference Section(s) Condition Result 6dB Bandwidth > 500kHz Section 7.2 15.247(a)(2) RSS-247 [5.2] PASS 2.1049 RSS-Gen [6.7] Occupied Bandwidth N/A N/A Section 7.2 15.247(b)(3) RSS-247 [5.4(d)] Transmitter Output Power < 1 Watt PASS Sections 7.3 CONDUCTED **Transmitter Power** < 8dBm / 3kHz Band 15.247(e) RSS-247 [5.2] PASS Section 7.4 Spectral Density Band Edge / Sections 7.5, PASS 15.247(d) RSS-247 [5.5] ≥ 20dBc Out-of-Band Emissions 7.6 General Field Strength Emissions in restricted Sections 7.7, 15.205 Limits (Restricted Bands bands must meet the RADIATED RSS-Gen [8.9] PASS 15.209 and Radiated Emission radiated limits detailed in 7.7.4.7.8 Limits) 15.209 (RSS-Gen [8.9]) AC Conducted Emissions < FCC 15.207 limits LINE 15.207 RSS-Gen [8.8] PASS Section 7.9 150kHz – 30MHz CONDUCTED (RSS-Gen[8.8])

Table 7-1. Summary of Test Results

Notes:

- 1. All modes of operation were investigated. The test results shown in the following sections represent the worst case emissions.
- 2. The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 3. All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables and attenuators.
- 4. For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is Element "Bluetooth LE Automation," Version 4.0.
- 5. For radiated band edge, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is Element "Chamber Automation," Version 3.0.

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 12 of 102	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 12 of 102	
<u>.</u>	•	·	V 10.6 09/12/2023	



7.2 Bandwidth Measurement – Bluetooth (LE)

§2.1049; §15.247(a.2); RSS-247 [5.2]; RSS-Gen [6.7]

Test Overview and Limit

The bandwidth at 6dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the transmitter antenna terminal of the EUT while the EUT is operating at maximum power and at the appropriate frequencies. All modes of operation were investigated and the worst case configuration results are reported in this section.

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible 6dB bandwidth is 500 kHz.

Test Procedure Used

ANSI C63.10-2013 – Subclause 11.8.2 Option 2 KDB 558074 D01 v05r02 – Section 8.2 RSS-Gen [6.7]

Test Settings

- The signal analyzers' automatic bandwidth measurement capability of the spectrum analyzer was used to perform the 99% occupied bandwidth and the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 6. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
- 2. RBW = 100kHz
- 3. VBW \geq 3 x RBW
- 4. Detector = Peak
- 5. Trace mode = max hold
- 6. Sweep = auto couple
- 7. The trace was allowed to stabilize
- 8. If necessary, steps 2 7 were repeated after changing the RBW such that it would be within 1 5% of

the 99% occupied bandwidth observed in Step 7

FCC ID: BCGA2903 IC: 579C-A2903	element	element MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N:	Test Dates:	EUT Type:	Dage 12 of 102
1C2311270064-19.BCG	11/28/2023 – 3/4/2024 Tablet Device		Page 13 of 102
		-	V 10 6 09/12/2023



Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-1. Test Instrument & Measurement Setup

Test Notes

All supported modulation, antenna (including TxBF mode) and power schemes have been tested on the unit and only worst case configuration is reported.

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 14 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 14 of 102
-		•	V 10.6 09/12/2023



Antenna 3a

Frequency [MHz]	Data Rate [Mbps]	Power Scheme	Channel	Measured 99% Occupied Bandwidth [MHz]	Measured 6dB Bandwidth [MHz]	Minimum 6dB Bandwidth [MHz]	Pass/Fail
2402	1.0	ePA	0	1.057	0.720	0.50	Pass
2440	1.0	ePA	19	1.056	0.722	0.50	Pass
2480	1.0	ePA	39	1.057	0.723	0.50	Pass
2404	2.0	ePA	1	2.123	1.411	0.50	Pass
2440	2.0	ePA	19	2.121	1.414	0.50	Pass
2478	2.0	ePA	38	2.123	1.410	0.50	Pass

Table 7-2. 6dB BW & 99% OBW Measurements Antenna 3a

FCC ID: BCGA2903 IC: 579C-A2903	element 🕞	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege 15 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 15 of 102
			V/ 10 6 00/12/2023





Plot 7-1. 6dB BW & 99% OBW Plot Antenna 3a (Bluetooth (LE), 1Mbps, ePA - Ch. 0)



Plot 7-2. 6dB BW & 99% OBW Plot Antenna 3a (Bluetooth (LE), 1Mbps, ePA - Ch. 19)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Baga 16 at 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 16 of 102
•	·	•	V 10.6 09/12/2023





Plot 7-3. 6dB BW & 99% OBW Plot Antenna 3a (Bluetooth (LE), 1Mbps, ePA - Ch. 39)



Plot 7-4. 6dB BW & 99% OBW Plot Antenna 3a (Bluetooth (LE), 2Mbps, ePA – Ch. 1)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 17 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 17 of 102
	<u>.</u>	·	V 10.6 09/12/2023





Plot 7-5. 6dB BW & 99% OBW Plot Antenna 3a (Bluetooth (LE), 2Mbps, ePA – Ch. 19)



Plot 7-6. 6dB BW & 99% OBW Plot Antenna 3a (Bluetooth (LE), 2Mbps, ePA – Ch. 38)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 10 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 18 of 102
	·	·	V 10.6 09/12/2023



Antenna 1a

Frequency [MHz]	Data Rate [Mbps]	Power Scheme	Channel	Measured 99% Occupied Bandwidth [MHz]	Measured 6dB Bandwidth [MHz]	Minimum 6dB Bandwidth [MHz]	Pass/Fail
2402	1.0	ePA	0	1.059	0.721	0.50	Pass
2440	1.0	ePA	19	1.058	0.724	0.50	Pass
2480	1.0	ePA	39	1.059	0.722	0.50	Pass
2404	2.0	ePA	1	2.127	1.410	0.50	Pass
2440	2.0	ePA	19	2.125	1.410	0.50	Pass
2478	2.0	ePA	38	2.127	1.410	0.50	Pass

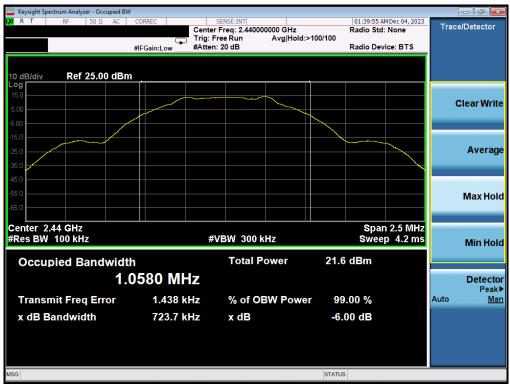
Table 7-3. 6dB BW & 99% OBW Measurements Antenna 1a

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 10 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 19 of 102
			V 10 6 09/12/2023





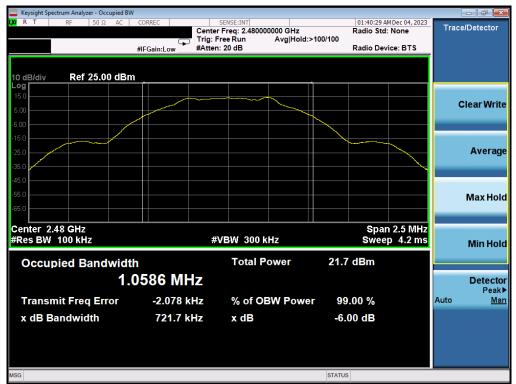
Plot 7-7. 6dB BW & 99% OBW Plot Antenna 1a (Bluetooth (LE), 1Mbps, ePA - Ch. 0)



Plot 7-8. 6dB BW & 99% OBW Plot Antenna 1a (Bluetooth (LE), 1Mbps, ePA - Ch. 19)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 20 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 20 01 102
		·	V 10.6.09/12/2023





Plot 7-9. 6dB BW & 99% OBW Plot Antenna 1a (Bluetooth (LE), 1Mbps, ePA – Ch. 39)



Plot 7-10. 6dB BW & 99% OBW Plot Antenna 1a (Bluetooth (LE), 2Mbps, ePA – Ch. 1)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 21 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 21 of 102
	·	·	V 10.6 09/12/2023





Plot 7-11. 6dB BW & 99% OBW Plot Antenna 1a (Bluetooth (LE), 2Mbps, ePA – Ch. 19)



Plot 7-12. 6dB BW & 99% OBW Plot Antenna 1a (Bluetooth (LE), 2Mbps, ePA - Ch. 38)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 22 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 22 of 102
	-	·	V 10.6 09/12/2023



7.3 Output Power Measurement – Bluetooth (LE)

§15.247(b.3); RSS-247 [5.4(d)]

Test Overview and Limits

The transmitter antenna terminal of the EUT is connected to the input of a spectrum analyzer. Measurements are made while the EUT is operating at maximum power and at the appropriate frequencies.

The maximum peak conducted output power of digital modulation systems operating in the 2400-2483.5 MHz band is 1 Watt.

The conducted output power limit on paragraph above is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For DTSs employing digital modulation techniques operating in the band 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W. The e.i.r.p. shall not exceed 4 W.

Test Procedure Used

ANSI C63.10-2013 – Subclause 11.9.1.3 ANSI C63.10-2013 – Subclause 11.9.2.3.2 KDB 558074 D01 v05r02 – Section 8.3.1.3, 8.3.2.3 ANSI C63.10-2013 – Subclause 14.2 Measure-and-Sum Technique KDB 662911 D01 v02r01 – Section E)1) Measure-and-Sum Technique

Test Settings

Method PKPM1 (Peak Power Measurement)

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

Method AVGPM-G (Average Power Measurement)

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-2. Test Instrument & Measurement Setup for Peak and Average Power Measurement

Test Notes

None

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 22 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 23 of 102
			V/ 10 6 00/12/2023



7.3.1 Peak Output Power Measurement – Bluetooth (LE)

Frequency	Data Rate	Power Scheme	Channel	Peak Condu	cted Power	Bower Limit Power Margin		Ant. Gain	EIRP	EIRP Limit	EIRP Margin
[MHz]	[Mbps]	Fower Scheme	No.	[dBm]	[mW]	[dBm]	[dB]	[dBi]	[dBm]	[dBm]	[dB]
2402	1.0	ePA	0	13.26	21.164	30.00	-16.74	2.60	15.86	36.02	-20.16
2440	1.0	ePA	19	12.90	19.485	30.00	-17.10	2.60	15.50	36.02	-20.52
2480	1.0	ePA	39	13.34	21.568	30.00	-16.66	2.60	15.94	36.02	-20.08
2402	1.0	iPA	0	10.47	11.143	30.00	-19.53	2.60	13.07	36.02	-22.95
2440	1.0	iPA	19	10.33	10.789	30.00	-19.67	2.60	12.93	36.02	-23.09
2480	1.0	iPA	39	10.44	11.066	30.00	-19.56	2.60	13.04	36.02	-22.98
2404	2.0	ePA	1	13.29	21.321	30.00	-16.71	2.60	15.89	36.02	-20.13
2440	2.0	ePA	19	13.36	21.682	30.00	-16.64	2.60	15.96	36.02	-20.06
2478	2.0	ePA	38	13.46	22.156	30.00	-16.55	2.60	16.06	36.02	-19.97
2404	2.0	iPA	1	10.55	11.350	30.00	-19.45	2.60	13.15	36.02	-22.87
2440	2.0	iPA	19	10.34	10.814	30.00	-19.66	2.60	12.94	36.02	-23.08
2478	2.0	iPA	38	10.73	11.820	30.00	-19.27	2.60	13.33	36.02	-22.69

Table 7-4. Peak Conducted Output Power Measurements Antenna 3a (Bluetooth LE)

Frequency	Data Rate	Power Scheme	Channel	Peak Condu	onducted Power Condu Power		Conducted Power Margin	Ant. Gain	EIRP	EIRP Limit	EIRP Margin
[MHz]	[Mbps]	Fower Scheme	No.	[dBm]	[mW]	[dBm]	[dB]	[dBi]	[dBm]	[dBm]	[dB]
2402	1.0	ePA	0	13.07	20.272	30.00	-16.93	1.50	14.57	36.02	-21.45
2440	1.0	ePA	19	13.25	21.120	30.00	-16.75	1.50	14.75	36.02	-21.27
2480	1.0	ePA	39	13.30	21.375	30.00	-16.70	1.50	14.80	36.02	-21.22
2402	1.0	iPA	0	10.17	10.402	30.00	-19.83	1.50	11.67	36.02	-24.35
2440	1.0	iPA	19	10.28	10.668	30.00	-19.72	1.50	11.78	36.02	-24.24
2480	1.0	iPA	39	10.31	10.742	30.00	-19.69	1.50	11.81	36.02	-24.21
2404	2.0	ePA	1	13.17	20.754	30.00	-16.83	1.50	14.67	36.02	-21.35
2440	2.0	ePA	19	13.21	20.922	30.00	-16.79	1.50	14.71	36.02	-21.31
2478	2.0	ePA	38	13.07	20.253	30.00	-16.94	1.50	14.57	36.02	-21.46
2404	2.0	iPA	1	10.10	10.242	30.00	-19.90	1.50	11.60	36.02	-24.42
2440	2.0	iPA	19	10.23	10.539	30.00	-19.77	1.50	11.73	36.02	-24.29
2478	2.0	iPA	38	10.24	10.561	30.00	-19.76	1.50	11.74	36.02	-24.28

Table 7-5. Peak Conducted Output Power Measurements Antenna 1a (Bluetooth LE)

						Peak Cond	ucted Power			Conducted	Conducted	Directional			
Frequency [MHz]	Data Rate [Mbps]	Power Scheme	Channel No.	Ant	t 3a	An	t 1a	Sum	nmed	Power Limit	Power Margin	Ant. Gain	EIRP [dBm]	EIRP Limit [dBm]	EIRP Margin [dB]
[wriz]				[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dBm]	[dB]	[dBi]	Lapul	[ubiii]	[ub]
2402	1.0	ePA	0	13.21	20.917	13.08	20.333	16.15	41.210	30.00	-13.85	5.08	21.23	36.02	-14.79
2440	1.0	ePA	19	13.12	20.512	12.55	17.972	15.85	38.459	30.00	-14.15	5.08	20.93	36.02	-15.09
2480	1.0	ePA	39	13.42	21.968	13.21	20.927	16.32	42.855	30.00	-13.68	5.08	21.40	36.02	-14.62
2402	1.0	iPA	0	10.41	10.982	9.99	9.966	13.21	20.941	30.00	-16.79	5.08	18.29	36.02	-17.73
2440	1.0	iPA	19	10.75	11.882	10.25	10.585	13.52	22.491	30.00	-16.48	5.08	18.60	36.02	-17.42
2480	1.0	iPA	39	10.43	11.048	10.00	10.007	13.23	21.038	30.00	-16.77	5.08	18.31	36.02	-17.71
2404	2.0	ePA	1	13.25	21.125	13.39	21.822	16.33	42.954	30.00	-13.67	5.08	21.41	36.02	-14.61
2440	2.0	ePA	19	13.32	21.468	13.41	21.948	16.38	43.451	30.00	-13.62	5.08	21.46	36.02	-14.56
2478	2.0	ePA	38	13.07	20.291	13.43	22.039	16.27	42.364	30.00	-13.73	5.08	21.35	36.02	-14.67
2404	2.0	iPA	1	10.58	11.434	10.08	10.177	13.35	21.627	30.00	-16.65	5.08	18.43	36.02	-17.59
2440	2.0	iPA	19	10.73	11.825	10.27	10.644	13.52	22.491	30.00	-16.48	5.08	18.60	36.02	-17.42
2478	2.0	iPA	38	10.62	11.532	10.02	10.051	13.34	21.577	30.00	-16.66	5.08	18.42	36.02	-17.60
	Table 7.C. Deals Canduated Output Device Measurements TyDE (Divete ath LE)														

Table 7-6. Peak Conducted Output Power Measurements TxBF (Bluetooth LE)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 04 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 24 of 102
			V 10 6 09/12/2023



7.3.2 Average Output Power Measurement – Bluetooth (LE)

Frequency	Data Rate	Power Scheme	Channel	Average Cond	ducted Power	Conducted Conducted A Power Limit Power Margin		Ant. Gain	EIRP	EIRP Limit	EIRP Margin
[MHz]	[Mbps]	Fower Scheme	No.	[dBm]	[mW]	[dBm]	[dB]	[dBi]	[dBm]	[dBm]	[dB]
2402	1.0	ePA	0	12.96	19.756	30.00	-17.04	2.60	15.56	36.02	-20.46
2440	1.0	ePA	19	12.60	18.193	30.00	-17.40	2.60	15.20	36.02	-20.82
2480	1.0	ePA	39	13.00	19.953	30.00	-17.00	2.60	15.60	36.02	-20.42
2402	1.0	iPA	0	10.22	10.520	30.00	-19.78	2.60	12.82	36.02	-23.20
2440	1.0	iPA	19	10.06	10.139	30.00	-19.94	2.60	12.66	36.02	-23.36
2480	1.0	iPA	39	10.20	10.471	30.00	-19.80	2.60	12.80	36.02	-23.22
2404	2.0	ePA	1	12.94	19.665	30.00	-17.06	2.60	15.54	36.02	-20.48
2440	2.0	ePA	19	13.00	19.953	30.00	-17.00	2.60	15.60	36.02	-20.42
2478	2.0	ePA	38	13.00	19.953	30.00	-17.00	2.60	15.60	36.02	-20.42
2404	2.0	iPA	1	10.27	10.641	30.00	-19.73	2.60	12.87	36.02	-23.15
2440	2.0	iPA	19	10.06	10.139	30.00	-19.94	2.60	12.66	36.02	-23.36
2478	2.0	iPA	38	10.48	11.179	30.00	-19.52	2.60	13.08	36.02	-22.94

Table 7-7. Average Conducted Output Power Measurements Antenna 3a (Bluetooth LE)

Frequency	Data Rate Power		Channel No.	Average Con	ducted Power	Conducted Power Limit	Conducted Power Margin	Ant. Gain	EIRP	EIRP Limit	EIRP Margin
[MHz]	[Mbps]	Scheme	Channel No.	[dBm]	[mW]	[dBm]	[dB]	[dBi]	[dBm]	[dBm]	[dB]
2402	1.0	ePA	0	12.76	18.876	30.00	-17.24	1.50	14.26	36.02	-21.76
2440	1.0	ePA	19	12.95	19.733	30.00	-17.05	1.50	14.45	36.02	-21.57
2480	1.0	ePA	39	12.99	19.920	30.00	-17.01	1.50	14.49	36.02	-21.53
2402	1.0	iPA	0	9.90	9.770	30.00	-20.10	1.50	11.40	36.02	-24.62
2440	1.0	iPA	19	9.97	9.924	30.00	-20.03	1.50	11.47	36.02	-24.55
2480	1.0	iPA	39	10.05	10.125	30.00	-19.95	1.50	11.55	36.02	-24.47
2404	2.0	ePA	1	12.83	19.173	30.00	-17.17	1.50	14.33	36.02	-21.69
2440	2.0	ePA	19	12.86	19.324	30.00	-17.14	1.50	14.36	36.02	-21.66
2478	2.0	ePA	38	12.71	18.659	30.00	-17.29	1.50	14.21	36.02	-21.81
2404	2.0	iPA	1	9.81	9.581	30.00	-20.19	1.50	11.31	36.02	-24.71
2440	2.0	iPA	19	9.96	9.899	30.00	-20.04	1.50	11.46	36.02	-24.56
2478	2.0	iPA	38	9.96	9.915	30.00	-20.04	1.50	11.46	36.02	-24.56

Table 7-8. Average Conducted Output Power Measurements Antenna 1a (Bluetooth LE)

						Average Con	ducted Power			Conducted	Conducted	Directional			
Frequency [MHz]	Data Rate [Mbps]	Power Scheme	Channel No.	An	t 3a	An	t 1a	Sum	imed	Power Limit	Power Margin	Ant. Gain	EIRP [dBm]	EIRP Limit [dBm]	EIRP Margin [dB]
[WIT2]				[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]	[dBm]	[dB]	[dBi]	Lapul	[ubiii]	[ub]
2402	1.0	ePA	0	12.91	19.561	12.78	18.954	15.86	38.548	30.00	-14.14	5.08	20.94	36.02	-15.08
2440	1.0	ePA	19	12.82	19.160	12.24	16.753	15.55	35.892	30.00	-14.45	5.08	20.63	36.02	-15.39
2480	1.0	ePA	39	13.00	19.953	12.90	19.503	15.96	39.446	30.00	-14.04	5.08	21.04	36.02	-14.98
2402	1.0	iPA	0	10.14	10.323	9.73	9.406	12.95	19.724	30.00	-17.05	5.08	18.03	36.02	-17.99
2440	1.0	iPA	19	10.50	11.220	9.94	9.865	13.24	21.086	30.00	-16.76	5.08	18.32	36.02	-17.70
2480	1.0	iPA	39	10.23	10.532	9.79	9.519	13.02	20.045	30.00	-16.98	5.08	18.10	36.02	-17.92
2404	2.0	ePA	1	12.88	19.413	13.00	19.953	15.95	39.355	30.00	-14.05	5.08	21.03	36.02	-14.99
2440	2.0	ePA	19	12.97	19.802	13.00	19.953	15.99	39.719	30.00	-14.01	5.08	21.07	36.02	-14.95
2478	2.0	ePA	38	12.72	18.707	13.00	19.953	15.87	38.637	30.00	-14.13	5.08	20.95	36.02	-15.07
2404	2.0	iPA	1	10.31	10.730	9.79	9.535	13.07	20.277	30.00	-16.93	5.08	18.15	36.02	-17.87
2440	2.0	iPA	19	10.42	11.018	9.97	9.920	13.21	20.941	30.00	-16.79	5.08	18.29	36.02	-17.73
2478	2.0	iPA	38	10.37	10.899	9.73	9.389	13.07	20.277	30.00	-16.93	5.08	18.15	36.02	-17.87

Table 7-9. Average Conducted Output Power Measurements TxBF (Bluetooth LE)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 25 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 25 of 102
			V 10 6 09/12/2023



Note:

Per ANSI C63.10-2013 and KDB 662911 D01 v02r01 Section E)1), the conducted powers at Antenna 3a and Antenna 1a were first measured separately during TxBF transmission as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

Per ANSI C63.10-2013 Section 14.4.3, the directional gain is calculated using the following formula, where G_N is the gain of the nth antenna and N_{ANT} , the total number of antennas used.

Directional gain = $10 \log[(10^{G_{1/20}} + 10^{G_{2/20}} + ... + 10^{G_{N/20}})^2 / N_{ANT}] dBi$

Sample TxBF Calculation:

At 2402MHz the average conducted output power was measured to be 12.91 dBm for Antenna 3a and 12.78 dBm for Antenna 1a.

Antenna 3a + Antenna 1a = TxBF

(12.91 dBm + 12.78 dBm) = (19.561 mW + 18.954 mW) = 38.548 mW = 15.86 dBm

Sample e.i.r.p. Calculation:

At 2402MHz, the average conducted output power was calculated to be 12.96 dBm with antenna gain of 2.60 dBi.

e.i.r.p. (dBm) = Conducted Power (dBm) + Ant gain (dBi)

12.96 dBm + 2.60 dBi = 15.56 dBm

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 26 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 26 of 102
			V 10.6 09/12/2023



7.4 Power Spectral Density – Bluetooth (LE)

§15.247(e); RSS-247 [5.2]

Test Overview and Limit

The peak power density is measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power and at the appropriate frequencies.

The maximum permissible power spectral density is 8 dBm in any 3 kHz band.

Test Procedure Used

ANSI C63.10-2013 – Subclause 11.10.2 Method PKPSD KDB 558074 D01 v05r02 – Section 8.4 DTS Maximum Power Spectral Density level in the fundamental emission ANSI C63.10-2013 – Subclause 14.3.2.2 Measure-and-Sum Technique KDB 662911 D01 v02r01 – Section E)2) Measure-and-Sum Technique

Test Settings

- 1. Analyzer was set to the center frequency of the DTS channel under investigation
- 2. Span = 1.5 times the DTS channel bandwidth
- 3. RBW = 3kHz
- 4. VBW = 1MHz
- 5. Detector = peak
- 6. Sweep time = auto couple
- 7. Trace mode = max hold
- 8. Trace was allowed to stabilize

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-3. Test Instrument & Measurement Setup

Test Notes

None

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 07 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 27 of 102
	·	·	V 10.6 09/12/2023



Antenna 3a

Frequency [MHz]	Data Rate [Mbps]	Power Scheme	Channel No.	Measured Power Density [dBm/3kHz]	Max Power Density [dBm/3kHz]	Margin [dB]
2402	1.0	ePA	0	-4.99	8.0	-12.99
2440	1.0	ePA	19	-5.21	8.0	-13.21
2480	1.0	ePA	39	-5.18	8.0	-13.18
2402	1.0	iPA	0	-6.65	8.0	-14.65
2440	1.0	iPA	19	-6.61	8.0	-14.61
2480	1.0	iPA	39	-6.63	8.0	-14.63
2404	2.0	ePA	1	-9.98	8.0	-17.98
2440	2.0	ePA	19	-10.53	8.0	-18.53
2478	2.0	ePA	38	-10.40	8.0	-18.40
2404	2.0	iPA	1	-12.18	8.0	-20.18
2440	2.0	iPA	19	-12.11	8.0	-20.11
2478	2.0	iPA	38	-12.04	8.0	-20.04

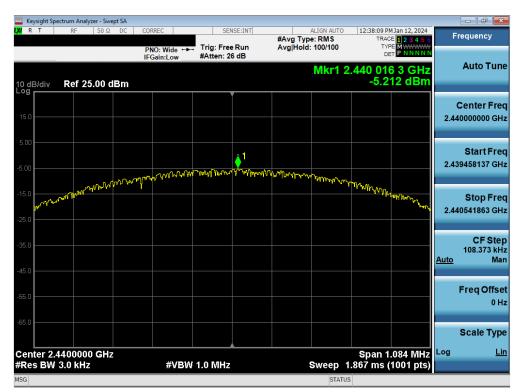
Table 7-10. Conducted Power Density Measurements Antenna 3a

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 20 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 28 of 102
			V 10 6 09/12/2023





Plot 7-13. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 1Mbps, ePA - Ch. 0)



Plot 7-14. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 1Mbps, ePA – Ch. 19)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 20 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 29 of 102
<u></u>	•		V 10.6 09/12/2023





Plot 7-15. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 1Mbps, ePA - Ch. 39)



Plot 7-16. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 1Mbps, iPA - Ch. 0)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 20 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 30 of 102
	•		V 10.6 09/12/2023





Plot 7-17. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 1Mbps, iPA - Ch. 19)



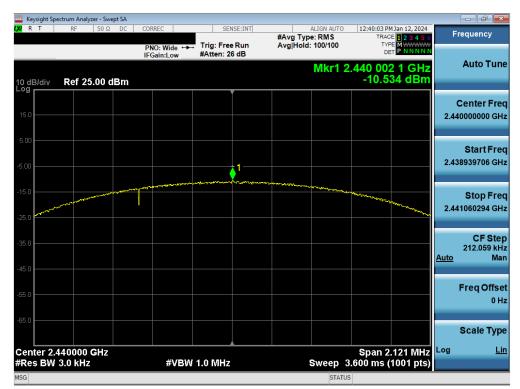
Plot 7-18. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 1Mbps, iPA - Ch. 39)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 21 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 31 of 102
<u>.</u>	•	·	V 10.6 09/12/2023



	ectrum Analyzer - Swe										
L <mark>XI</mark> RT	RF 50 Ω	DC CO	RREC	SEI	NSE:INT	#Avg Typ	ALIGN AUTO		MJan 12, 2024 E 1 2 3 4 5 6	Fr	equency
10 dB/div	Ref 25.00 d	IF	NO: Wide ↔ Gain:Low	Trig: Free #Atten: 2		Avg Hold		TYF DE 2.404 004			Auto Tune
15.0											Center Freq 4000000 GHz
-5.00					1					2.40	Start Freq 2941241 GHz
-15.0	and the second se							and the second second	and the second sec	2.40	Stop Freq 5058759 GHz
-35.0										<u>Auto</u>	CF Step 211.752 kHz Man
-55.0											Freq Offset 0 Hz
-65.0											Scale Type
Center 2.4 #Res BW	404000 GHz 3.0 kHz		#VB\	N 1.0 MHz			Sweep	Span 2 3.533 ms (.118 MHz 1001 pts)	Log	<u>Lin</u>
MSG							STATU				

Plot 7-19. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 2Mbps, ePA - Ch. 1)



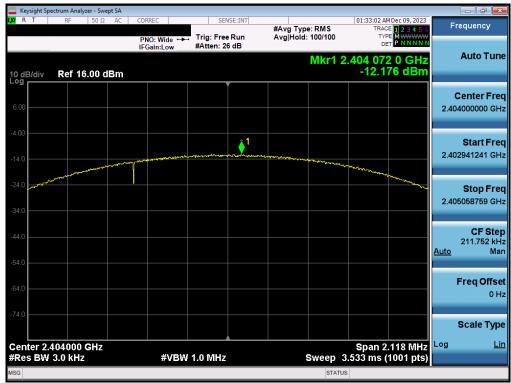
Plot 7-20. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 2Mbps, ePA - Ch. 19)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 22 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 32 of 102
<u>.</u>		•	V 10.6 09/12/2023



	rum Analyzer - Swe										
LXVIRT	RF 50 Ω	DC	CORREC	SEI	ISE:INT	#Avg Typ	ALIGN AUTO		MJan 12, 2024	F	equency
10 dB/div	Ref 25.00 d		PNO: Wide ↔ IFGain:Low	Trig: Free #Atten: 2		Avg Hold		TYP			Auto Tune
15.0											Center Freq 8000000 GHz
-5.00					1					2.47	Start Freq 6942185 GHz
-15.0	and and a second se	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						Current of the contract of the	Contraction of the second s	2.47	Stop Freq 9057815 GHz
-35.0										<u>Auto</u>	CF Step 211.563 kHz Man
-55.0											Freq Offset 0 Hz
-65.0											Scale Type
Center 2.47 #Res BW 3			#VBV	V 1.0 MHz			Sweep	Span 2 3.533 ms (.116 MHz 1001 pts)	Log	<u>Lin</u>
MSG							STAT	US			

Plot 7-21. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 2Mbps, ePA - Ch. 38)



Plot 7-22. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 2Mbps, iPA - Ch. 1)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 22 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 33 of 102
	•	·	V 10.6 09/12/2023





Plot 7-23. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 2Mbps, iPA - Ch. 19)



Plot 7-24. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 2Mbps, iPA - Ch. 38)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 04 of 400
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 34 of 102
	·	·	V 10.6 09/12/2023



Antenna 1a

Frequency [MHz]	Data Rate [Mbps]	Power Scheme	Channel No.	Measured Power Density [dBm/3kHz]	Max Power Density [dBm/3kHz]	Margin [dB]
2402	1.0	ePA	0	-4.78	8.0	-12.78
2440	1.0	ePA	19	-5.06	8.0	-13.06
2480	1.0	ePA	39	-5.37	8.0	-13.37
2402	1.0	iPA	0	-6.97	8.0	-14.97
2440	1.0	iPA	19	-6.95	8.0	-14.95
2480	1.0	iPA	39	-6.82	8.0	-14.82
2404	2.0	ePA	1	-10.33	8.0	-18.33
2440	2.0	ePA	19	-10.68	8.0	-18.68
2478	2.0	ePA	38	-10.79	8.0	-18.79
2404	2.0	iPA	1	-12.57	8.0	-20.57
2440	2.0	iPA	19	-12.47	8.0	-20.47
2478	2.0	iPA	38	-12.45	8.0	-20.45

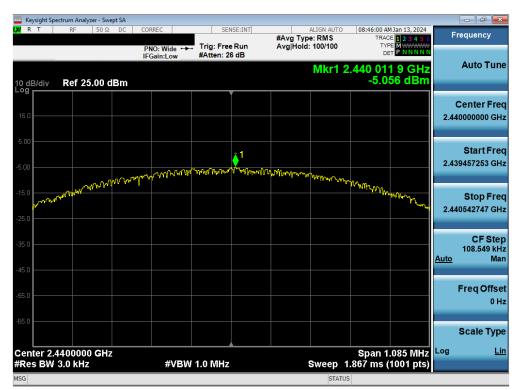
Table 7-11. Conducted Power Density Measurements Antenna 1a

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 25 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 35 of 102
			V 10.6.09/12/2023





Plot 7-25. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 1Mbps, ePA - Ch. 0)



Plot 7-26. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 1Mbps, ePA - Ch. 19)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 26 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 36 of 102
			V 10.6 09/12/2023



				zer - Swe												
R		F	RF.	50 Ω	DC	CORF	EC		SE	NSE:INT	#Ave T	ALIGN AUTO ype: RMS		M Jan 13, 2024 DE 1 2 3 4 5 6	E	requency
							D: Wid ain:Lo	e ⊶⊷ w	Trig: Fre #Atten: 2			Id: 100/100	TY	PE MWWWW PE NNNNN		
0 dE	3/div	Re	ef 25	i.00 d	Bm							Mkr1	2.480 00 -5.3	9 7 GHz 66 dBm		Auto Tur
15.0																Center Fre
5.00 5.00				- 0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	مالىمىمار	VMA	ww	างฟฟาโปไหนจะก	ົ ¹ 1	(Marnanar	White	.		2.47	Start Fr 79458740 G
5.0 5.0	rnr	ur Yr _{we}	fm/~~V	ሳሥኒ խլ n									ᠬᡁ	M. March Constant	2.48	Stop Fr 30541260 G
5.0 5.0															Auto	CF St 108.252 k M
5.0																Freq Offs 0
5.0																Scale Ty
) GHz			-44	(5).47	4.0 8411-			0	Span 1	.083 MHz	Log	<u> </u>
14	s BV	/ 3.0	KHZ				<i>#</i> 1	ЛЫW	1.0 MHz			sweep	1.867 ms (1001 pts)		

Plot 7-27. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 1Mbps, ePA – Ch. 39)



Plot 7-28. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 1Mbps, iPA - Ch. 0)

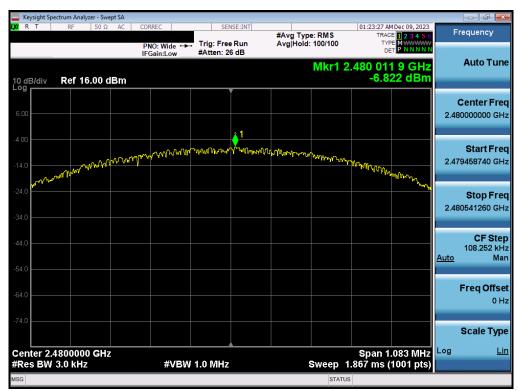
FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 27 of 102	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 37 of 102	

V 10.6 09/12/2023





Plot 7-29. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 1Mbps, iPA – Ch. 19)



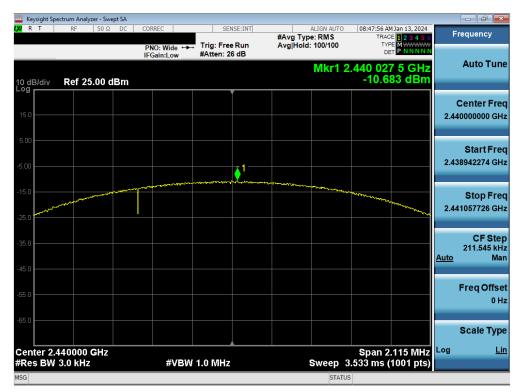
Plot 7-30. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 1Mbps, iPA - Ch. 39)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 20 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 38 of 102
	·	·	V 10.6 09/12/2023



X R T RF 50	PNO: Wi IFGain:Lo	de 🛶 Trig: Free	Run A	ALIGN AU #Avg Type: RMS Avg Hold: 100/100 MIKr*	TRAC TYI DI 1 2.404 06	Man 13,2024	C 2.404	Auto Tune enter Frec 000000 GH: Start Frec
• o g 15.0 5.00	IFGain:Lo		Run A	Avg Hold: 100/100	ס דיז וס 1 2.404 06		Co 2.404	enter Fre 000000 GH
• 0 .	dBm			Mkr	1 2.404 06 -10.3	7 7 GHz 27 dBm	Co 2.404	enter Fre 000000 GH
5.00							2.404	000000 GH
5.00								Start Ero
5.0			1					942613 GH
server and a server and a server a s		and the second		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	marana a a a a a a a a a a a a a a a a a	and the second s		Stop Fre 057387 Gi
5.0							Auto	CF Ste 211.477 k M
5.0							F	req Offs 0
.6.0							s	Scale Ty
enter 2.404000 GH					Span 2		Log	L
Res BW 3.0 kHz	#	VBW 1.0 MHz		Sweep	o 3.533 ms	(1001 pts)		

Plot 7-31. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 2Mbps, ePA – Ch. 1)



Plot 7-32. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 2Mbps, ePA - Ch. 19)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 20 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 39 of 102
L	-	·	V 10.6 09/12/2023



R T RF		CORREC		SE:INT		ALIGN AUTO	00-40-25 1	4 Jan 13, 2024	_	
K I RF	50 Ω DC	CORREC	SEN	ISE:INT	#Avg Ty			E 1 2 3 4 5 6	F	requency
		PNO: Wide ↔ IFGain:Low	Trig: Free #Atten: 20			d: 100/100	TYP			
dB/div Ref 2	5.00 dBm					Mkr1 2	.478 02 -10.7	5 4 GHz 91 dBm		Auto Tur
									(Center Fre
5.0									2.47	8000000 G
.00										
.00									2.47	Start Fr 6942609 G
			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	<b>§</b> ¹						
5.0	warmen and a second				a many the second	and the second s	and all all all all all all all all all al			Stop Fr
5.0								and the second	2.47	9057391 G
5.0										CF St 211.478 k
5.0									<u>Auto</u>	N
										Freq Offs
5.0										0
5.0										
										Scale Ty
enter 2.478000							Span 2	.115 MHz	Log	ļ
Res BW 3.0 kHz		#VBW	1.0 MHz			sweep :	3.533 ms (	1001 pts)		

Plot 7-33. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 2Mbps, ePA – Ch. 38)



Plot 7-34. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 2Mbps, iPA - Ch. 1)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 40 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 40 of 102
	-	·	V 10.6 09/12/2023



Keysight Sp R T	RF 5	·Swept SA 0 Ω AC	CORREC		NSE:INT	#Avg Type Avg Hold:		TRAC	M Dec 09, 2023 E 1 2 3 4 5 6 E M WWWW	F	requency
0 dB/div	Ref 16.0	0 dBm	IFGain:Low			, rightera		.440 029	9 6 GHz 74 dBm		Auto Tun
.og 6.00											Center Fre 0000000 G⊦
4.00		~~~~~			2 ¹	And and a start of the start of		Ministry Maria		2.43	<b>Start Fre</b> 8942274 GF
24.0 <b></b> 34.0 <b></b>									and a second and a s	2.44	<b>Stop Fre</b> 1057726 GF
44.0 <u> </u>										<u>Auto</u>	<b>CF Ste</b> 211.545 k M
64.0											Freq Offs 0
	440000 GH	łz						Span 2		Log	Scale Tyr
Res BW	3.0 kHz		#V	BW 1.0 MHz			Sweep 3		1001 pts)		

Plot 7-35. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 2Mbps, iPA – Ch. 19)



Plot 7-36. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 2Mbps, iPA - Ch. 38)

FCC ID: BCGA2903 IC: 579C-A2903		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Page 41 of 102	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device		

V 10.6 09/12/2023



# TxBF

Frequency [MHz]	Data Rate [Mbps]	Power Scheme	Channel No.	Antenna 3a Power Density [dBm/3kHz]	Antenna 1a Power Density [dBm/3kHz]	Summed Power Density [dBm/3kHz]	Max Power Density [dBm/3kHz]	Margin [dB]
2402	1.0	ePA	0	-4.73	-4.99	-1.85	8.0	-9.85
2440	1.0	ePA	19	-4.95	-4.80	-1.87	8.0	-9.87
2480	1.0	ePA	39	-5.16	-5.23	-2.18	8.0	-10.18
2402	1.0	iPA	0	-6.92	-7.05	-3.97	8.0	-11.97
2440	1.0	iPA	19	-6.55	-7.04	-3.78	8.0	-11.78
2480	1.0	iPA	39	-6.72	-6.90	-3.80	8.0	-11.80
2404	2.0	ePA	1	-10.35	-10.33	-7.33	8.0	-15.33
2440	2.0	ePA	19	-10.13	-10.45	-7.28	8.0	-15.28
2478	2.0	ePA	38	-10.46	-10.61	-7.53	8.0	-15.53
2404	2.0	iPA	1	-12.41	-12.56	-9.48	8.0	-17.48
2440	2.0	iPA	19	-12.05	-12.46	-9.24	8.0	-17.24
2478	2.0	iPA	38	-12.19	-12.54	-9.35	8.0	-17.35

Table 7-12. Conducted Power Density Measurements TxBF

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 42 of 102	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 42 of 102	
			V 10 6 09/12/2023	





Plot 7-37. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 1Mbps, ePA - Ch. 0)



Plot 7-38. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 1Mbps, ePA - Ch. 0)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: Test Dates:		EUT Type:	Dage 42 of 402
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 43 of 102
<b></b>	•	•	V 10.6 09/12/2023





Plot 7-39. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 1Mbps, ePA - Ch. 19)

RT	m Analyzer - Swept SA RF 50 Ω D		SEI	NSE:INT		ALIGN AUTO	08:49:56 A	MJan 13, 2024	_	
		PNO: Wide ↔ IFGain:Low	Trig: Fre #Atten: 2		#Avg Typ Avg Hold		TRAC TYI DI	E 1 2 3 4 5 6 E M WWW T P N N N N N	F	requency
dB/div R	ef 25.00 dBr	n				Mkr1 2		0 9 GHz 03 dBm		Auto Tui
5.0				Í						Center Fr
									2.44	40000000 G
00				<u>^</u> 1						Start Fr
00	0. AAAA	hander Andrenga	and Banker	Mrould mark	᠈ᢤᠬᢀᡃᡗᡟᢛᠬᢇᠬᠬ	ᢉᡅᠰᡁᠬᡳᠰ	ገራጉ _{የዩ -}		2.43	39457253 G
i.0	Reference	hand hand have					1 WIT WOULD	Mallan Ya		Stop Fr
5.0									2.44	10542747 G
5.0										CF St 108.549 k
5.0									<u>Auto</u>	N
5.0										Freq Offs
										0
5.0										Scale Ty
enter 2.440	00000 GHz						Span 1	.085 MHz	Log	ļ
les BW 3.0	) kHz	#VBV	N 1.0 MHz			Sweep_1	.867 ms	1001 pts)		

Plot 7-40. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 1Mbps, ePA - Ch. 19)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 44 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 44 of 102
		•	V 10.6 09/12/2023



Keysight Spectrum Analyzer - Swept R T RF 50 Ω	DC CORREC	SENSE:INT	ALIGN AUTO	12:42:39 PM Jan 12, 2024	
NF 50 32			#Avg Type: RMS	TRACE 1 2 3 4 5 6	Frequency
	PNO: Wide ↔ IFGain:Low	Trig: Free Run #Atten: 26 dB	Avg Hold: 100/100		
dB/div Ref 25.00 dE	3m		Mkr1 2	.480 013 0 GHz -5.158 dBm	Auto Tur
		Ĭ			<b>0</b>
.0					Center Fre 2.480000000 GI
					2.400000000
00					Start Fre
		<b>≜</b> 1			2.479457968 G
		Mr. Marine Virenal	MnMhrever mhrowy		
0 Man Marine				Wherpy WWWWW	Stop Fr
Mur and .				Land and a set of the	2.480542032 G
0					
0					CF St
					108.406 k Auto N
o					<u>Auto</u> II
					Freq Offs
0					0
0					
					Scale Ty
nter 2.4800000 GHz				Span 1.084 MHz	Log l
es BW 3.0 kHz	#VBW	1.0 MHz	Sweep 1	.867 ms (1001 pts)	

Plot 7-41. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 1Mbps, ePA – Ch. 39)



Plot 7-42. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 1Mbps, ePA - Ch. 39)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 45 of 100	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 45 of 102	
	•	·	V 10.6 09/12/2023	





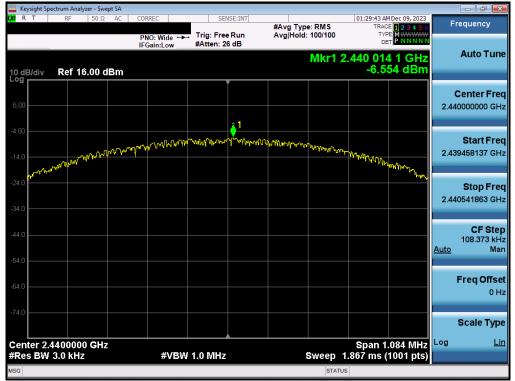
Plot 7-43. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 1Mbps, iPA - Ch. 0)



Plot 7-44. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 1Mbps, iPA - Ch. 0)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 46 of 100	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 46 of 102	
<u>.</u>	•	•	V 10.6 09/12/2023	





Plot 7-45. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 1Mbps, iPA - Ch. 19)



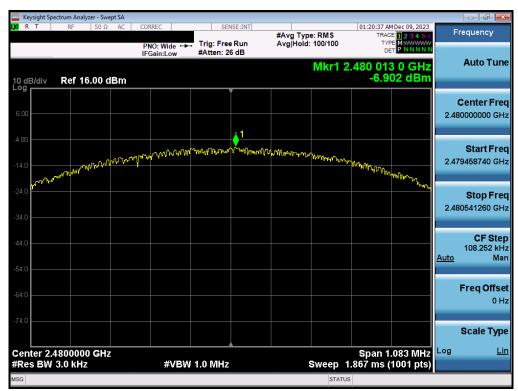
Plot 7-46. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 1Mbps, iPA - Ch. 19)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 47 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 47 of 102
<u>.</u>	•	•	V 10.6 09/12/2023





Plot 7-47. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 1Mbps, iPA – Ch. 39)



Plot 7-48. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 1Mbps, iPA – Ch. 39)

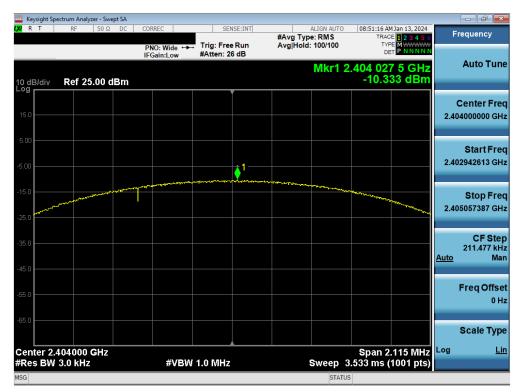
FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N: Test Dates:		EUT Type:	Dega 49 of 100	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 48 of 102	

V 10.6 09/12/2023



Keysight Spectrum A												
R T RF	50 Ω	DC	CORREC		SEN	NSE:INT	#A	ALIGN AUTO		MJan 12, 2024	F	requency
			PNO: W IFGain:L	ide ⊶⊷ ₋ow	Trig: Free #Atten: 2			Id: 100/100	TYP	E MWWWW PE NNNNN TPNNNNN		
dB/div Ref	25.00 d	Bm						Mkr1	2.404 00 -10.3	4 2 GHz 51 dBm		Auto Tur
5.0												Center Fre
.00						÷1					2.40	<b>Start Fr</b> 02941241 G
5.0	ang	~~~~~		*****		homone	and the second	Mar and a factor of the factor	er warden and the second s	Constant of the second	2.40	<b>Stop Fr</b> 05058759 G
5.0											Auto	CF St 211.752 F
5.0												Freq Offs 0
5.0												Scale Ty
enter 2.40400									Span 2	. 1 10 191112	Log	<u> </u>
Res BW 3.0 k	Hz		1	ŧνΒ₩	1.0 MHz			Sweep	3.533 ms (	1001 pts)		

Plot 7-49. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 2Mbps, ePA – Ch. 1)



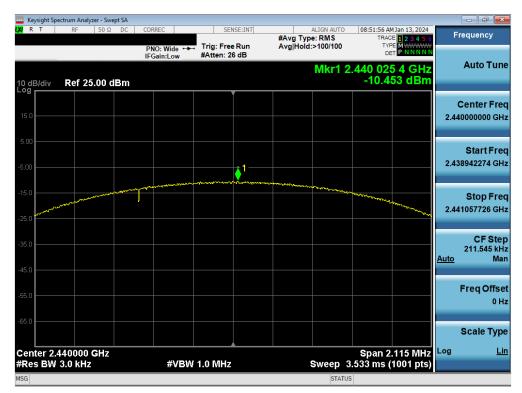
Plot 7-50. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 2Mbps, ePA - Ch. 1)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 40 of 100	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 49 of 102	
<u> </u>	·	·	V 10.6 09/12/2023	



	m Analyzer - Sw	ept SA									
RT	RF 50 Ω	DC	CORREC		SEI	SE:INT	 ALIGN AUTO		4 Jan 12, 2024	F	requency
			PNO: V IFGain:	Vide ↔ Low	Trig: Free #Atten: 2		ype: RMS Id: 100/100	TYP	E 1 2 3 4 5 6 E M WWWW T P N N N N N		
0 dB/div R	ef 25.00 (	dBm				_	Mkr1 2	.440 002 -10.1	2 1 GHz 25 dBm		Auto Tun
											Center Fre
5.00						1				2.43	Start Fre 8939706 GI
25.0		~~~~~						Margan Margaret	and	2.44	Stop Fr 1060294 G
5.0										<u>Auto</u>	CF Sto 212.059 k M
5.0											Freq Offs 0
5.0											Scale Ty
enter 2.440 Res BW 3.0				#VBW	1.0 MHz		Sween_2	Span 2 1.600 ms (	.121 MHz 1001 pts)	Log	L
					1.0 1011/2		oncep c	100001110	1001 pt3)		

Plot 7-51. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 2Mbps, ePA – Ch. 19)



Plot 7-52. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 2Mbps, ePA - Ch. 19)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 50 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 50 of 102
	•	·	V 10.6 09/12/2023



R T	ectrum Analyz RF	er - swep 50 Ω		CORREC	_	0.00	NSE:INT		ALIGN AUTO	12-14-26 0	M Jan 12, 2024	_	
K I	RF	20.22	DC	CURREC		SEI	NSE:INT	#Ava T	vpe: RMS		DE 1 2 3 4 5 6	F	requency
				PNO: W IFGain:	/ide ↔ Low	Trig: Free #Atten: 2			ld: 100/100	TYI DI			
0 dB/div og r	Ref 25	.00 d	Bm						Mkr1 :	2.478 00 -10.4	0 0 GHz 63 dBm		Auto Tur
													Center Fre
15.0												2.47	'8000000 GI
.00													Start Fr
.00							÷ 1 ——					2.47	6942185 G
					when	www.www.www.	harmon	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					
5.0	and the second second		~~~~~~~							and a second second	Contraction of the second second	2.47	Stop Fr 9057815 G
5.0											- marca	2.41	303/013 0
5.0													CF St 211.563 k
5.0												<u>Auto</u>	211.303 K
5.0													Freq Offs
5.0													0
5.0													
													Scale Ty
	478000 0	GHz								Span 2	.116 MHz	Log	<u> </u>
Res BW	3.0 kHz				#VBW	1.0 MHz			Sweep	3.533 ms (	1001 pts)		

Plot 7-53. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 2Mbps, ePA – Ch. 38)



Plot 7-54. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 2Mbps, ePA - Ch. 38)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dege 51 of 102	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 51 of 102	
	·	·	V 10.6 09/12/2023	



Keysight Sp R T	RF 5	- Swept SA	CORREC	SEI	SE:INT			01:30:10 M	4 Dec 09, 2023	_	
	10 5	O 32 AC	PNO: Wide ↔		Run	#Avg Typ Avg Hold:		TRAC	E 1 2 3 4 5 6 E M	F	requency
0 dB/div	Ref 16.0	0 dBm	IFGain:Low	#Atten: 2	o u D		Mkr1 2	.404 03 -12.4	1 8 GHz 13 dBm		Auto Tur
. <b>og</b>											<b>Center Fr</b> 04000000 G
14.0	and a second sec		T	hand and a start	<mark>1</mark>	han and the second	- and the second	and a second second		2.40	<b>Start Fr</b> 02941241 G
24.0 <b></b> 34.0 <b></b>									and the second s	2.40	<b>Stop Fr</b> 5058759 G
14.0 54.0										<u>Auto</u>	CF St 211.752 k M
4.0											Freq Offs 0
^{4.0}	404000 GI	łz						Span 2		Log	Scale Ty
Res BW	3.0 kHz		#VBV	1.0 MHz			Sweep 3	.533 ms (	1001 pts)		

Plot 7-55. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 2Mbps, iPA – Ch. 1)



Plot 7-56. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 2Mbps, iPA - Ch. 1)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 52 of 102	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 52 of 102	
<b>-</b>	•	·	V 10.6 09/12/2023	





Plot 7-57. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 2Mbps, iPA – Ch. 19)



Plot 7-58. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 2Mbps, iPA – Ch. 19)

FCC ID: BCGA2903 IC: 579C-A2903	element	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Daga 52 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 53 of 102

V 10.6 09/12/2023



Keysight Si XI R T	RF 5	- Swept SA 0 Ω AC	CORREC	SENSE:IN	#Avg Ty		TRACE	Dec 09, 2023	Freque	
I0 dB/div	Ref 16.0	0 dBm	PNO: Wide ↔ IFGain:Low	⊶ Trig: Free Run #Atten: 26 dB	Avg Hold	i: 100/100 Mkr1 2	DET .478 027	PNNNNN	Auto	o Tun
6.00									Cente 2.4780000	
4.00		and the second	1	1 1	for and the second second				<b>Sta</b> 2.4769421	rt Fre 185 GH
24.0 محمد 34.0								and a second and and a second and	<b>Sto</b> 2.4790578	<b>p Fre</b> 315 GH
44.0 <u> </u>										F Ste 563 kl M
64.0									Freq	Offs 0 I
	.478000 Gł 7 3.0 kHz	lz	#\/B\	V 1.0 MHz		Sween_?	Span 2. 8.533 ms (1	V 17112	Scal	е Тур <u>L</u>
#Res BW	3.0 KHZ		#VB\	V 1.0 MHz		Sweep 3	·	001 pts)		

Plot 7-59. Power Spectral Density Plot Antenna 3a (Bluetooth (LE), 2Mbps, iPA – Ch. 38)



Plot 7-60. Power Spectral Density Plot Antenna 1a (Bluetooth (LE), 2Mbps, iPA - Ch. 38)

FCC ID: BCGA2903 IC: 579C-A2903	element	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Daga 54 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 54 of 102

V 10.6 09/12/2023



### Note:

Per ANSI C63.10-2013 Subclause 14.3.2.2 and KDB 662911 D01 v02r01 Section E)2), the power spectral density at Antenna 3a and Antenna 1a were first measured separately as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

### Sample TxBF Calculation:

At 2402MHz the average conducted power spectral density was measured to be -4.73 dBm for Antenna 3a and - 4.99 dBm for Antenna 1a.

Antenna 3a + Antenna 1a = TxBF

(-4.73 dBm + -4.99 dBm) = (0.337 mW + -0.317 mW) = 0.654 mW = -1.85 dBm

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo EE of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 55 of 102
			V 10 6 00/12/2023



# 7.5 Conducted Authorized Band Edge §15.247(d); RSS-247 [5.5]

### **Test Overview and Limit**

For the following out of band conducted spurious emissions plots at the band edge, the EUT was set to transmit at maximum power with the largest packet size available. These settings produced the worst-case emissions.

The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100kHz bandwidth.

#### **Test Procedure Used**

ANSI C63.10-2013 – Subclause 11.11.3 KDB 558074 D01 v05r02 – Section 8.7.2

### **Test Settings**

- 1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
- 2. Span was set large enough so as to capture all out of band emissions near the band edge
- 3. RBW = 100kHz
- 4. VBW = 300kHz
- 5. Detector = Peak
- 6. Number of sweep points  $\geq 2 \times \text{Span/RBW}$
- 7. Trace mode = max hold
- 8. Sweep time = auto couple
- 9. The trace was allowed to stabilize

#### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-4. Test Instrument & Measurement Setup

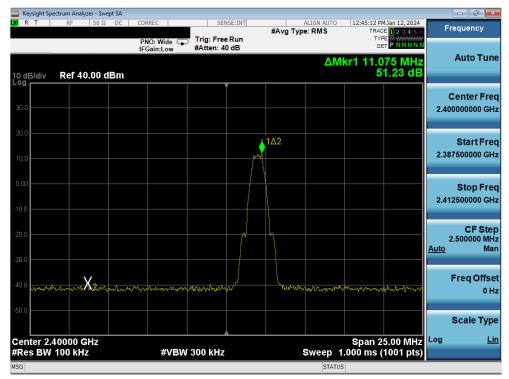
### Test Notes

All supported modulation, antenna (including TxBF mode) and power schemes have been tested on the unit and only worst case configuration is reported.

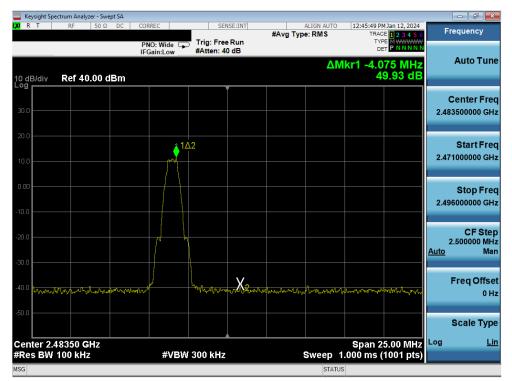
FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 56 of 102
			V 10.6 09/12/2023



# Antenna 3a





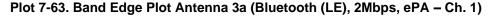


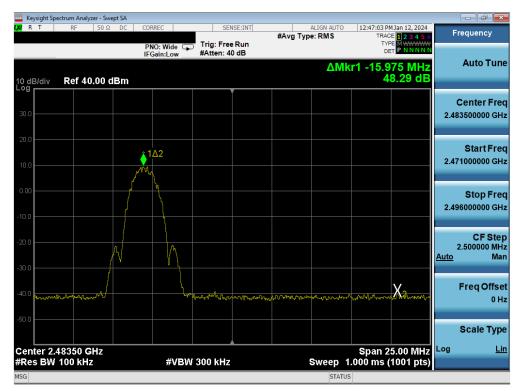
Plot 7-62. Band Edge Plot Antenna 3a (Bluetooth (LE), 1Mbps, ePA – Ch. 39)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo EZ of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 57 of 102
			V 10.6 09/12/2023



	ctrum Analyze	er - Swept	SA										
RT	RF	50 Ω	DC CC	ORREC		SE	NSE:INT		ALIGN AUTO		M Jan 12, 2024	F	requency
			F	PNO: W Gain:L	ide 🖵 .ow	Trig: Fre #Atten: 4		#Avg Ty	pe: RMS	TY	DE 1 2 3 4 5 6 PE M WWWW ET P N N N N N		
0 dB/div	Ref 40.	00 dB	m						Δ	Mkr1 8.8. 4	875 MHz 9.49 dB		Auto Tun
30.0													Center Fre 10000000 GH
20.0								¢12	12			2.38	Start Fre
10.0												2.41	Stop Fre 2500000 Gi
20.0												Auto	CF Ste 2.500000 M
10.0	ander	um	wallhow	X2~	ᡀᢧᠬᠰᡗᢑᢋ	antaryountart	nonna			ralunger grange	all and a harman		Freq Offs 0 I
50.0													Scale Ty
enter 2.4 Res BW				\$	≠VBW	300 kH;	z		Sweep	Span 2 1.000 ms (	5.00 MHz (1001 pts)	Log	L
SG									STAT	US			



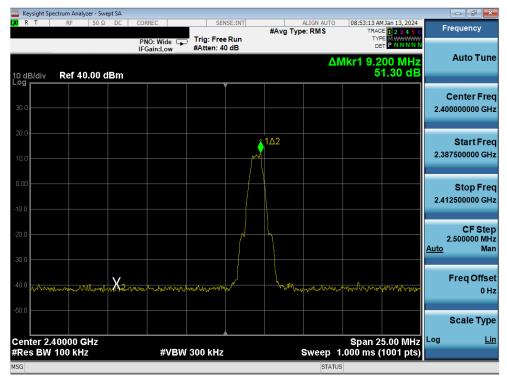


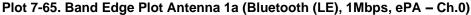
Plot 7-64. Band Edge Plot Antenna 3a (Bluetooth (LE), 2Mbps, ePA - Ch. 38)

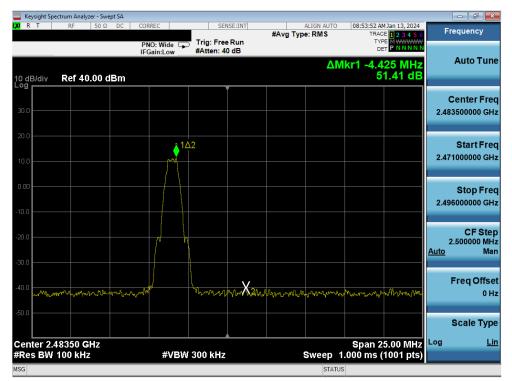
FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 59 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 58 of 102
L	-	·	V 10.6 09/12/2023



# Antenna 1a





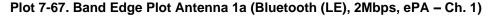


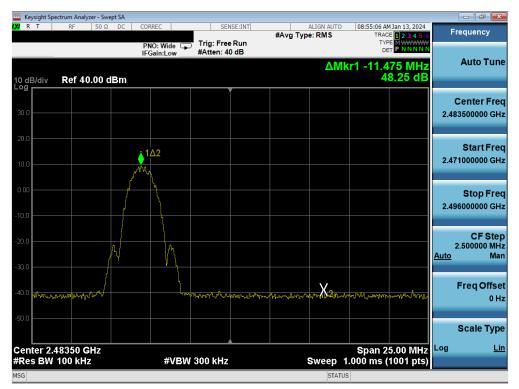
Plot 7-66. Band Edge Plot Antenna 1a (Bluetooth (LE), 1Mbps, ePA – Ch. 39)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 50 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 59 of 102
			V 10.6 09/12/2023



	ectrum Analyz	er - Swept	t SA										- ¢ ×
URT	RF	50 Ω	DC	CORREC		SEI	NSE:INT	#Avg Typ	ALIGN AUTO		MJan 13, 2024	F	requency
				PNO: W IFGain:	/ide ⊂ Low	Trig: Free #Atten: 4		#CV9 191	e. Rivis	TYP	PE MWWWWW TP NNNNN		
0 dB/div	Ref 40	.00 dE	3m						ΔN	/kr1 14.3 4	75 MHz 9.38 dB		Auto Tun
30.0													Center Fre 0000000 GH
20.0								<b>1∆</b> ۲ [™] ۰	.2			2.38	Start Fre
0.00												2.41	Stop Fre 2500000 GH
20.0							^					Auto	CF Ste 2.500000 MI Ma
30.0 40.0 <mark>مارايرمي</mark>		Mrunn-	whim	nhm	ww.yliww	nn h-h-h-n	neter		-	July Josephy Con	mount		Freq Offs 0 I
50.0 Center 2.4	40000 G	Hz								Span 2	5.00 MHz		Scale Typ L
Res BW					#VBW	300 kHz			Sweep	1.000 ms (	1001 pts)		
SG									STAT	US			





Plot 7-68. Band Edge Plot Antenna 1a (Bluetooth (LE), 2Mbps, ePA - Ch. 38)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 60 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 60 of 102
	•	·	V 10.6 09/12/2023



# 7.6 Conducted Spurious Emissions §15.247(d); RSS-247 [5.5]

### **Test Overview and Limit**

For the following out of band conducted spurious emissions plots, the EUT was set to transmit at maximum power with the largest packet size available. The worst case spurious emissions were found in this configuration.

The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100kHz bandwidth per the procedure in Section 8.5 of KDB 558074 D01 v05r02 and Section 11.11 of ANSI C63.10-2013.

### Test Procedure Used

ANSI C63.10-2013 – Subclause 11.11.3 KDB 558074 D01 v05r02 – Section 8.5

### **Test Settings**

- 1. Start frequency was set to 30MHz and stop frequency was set to 25GHz (separated into two plots per channel)
- 2. RBW = 1MHz
- 3. VBW = 3MHz
- 4. Detector = Peak
- 5. Trace mode = max hold
- 6. Sweep time = auto couple
- 7. The trace was allowed to stabilize

#### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-5. Test Instrument & Measurement Setup

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dama 01 af 100	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 61 of 102	
<b></b>	·	·	V 10.6 09/12/2023	



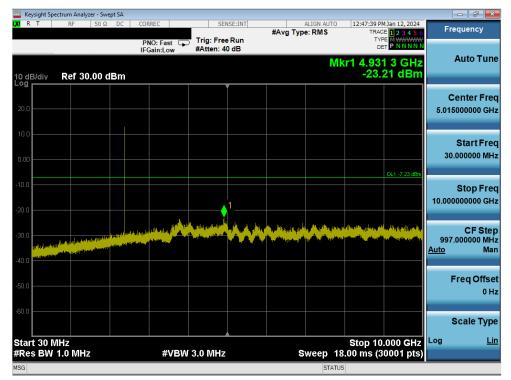
# Test Notes

- 1. RBW was set to 1MHz rather than 100kHz in order to increase the measurement speed.
- 2. The display line shown in the following plots denotes the limit at 20dB below the fundamental emission level measured in a 100kHz bandwidth. However, since the traces in the following plots are measured with a 1MHz RBW, the display line may not necessarily appear to be 20dB below the level of the fundamental in a 1MHz bandwidth.
- 3. For plots showing conducted spurious emissions near the limit, the frequencies were investigated with a reduced RBW to ensure that no emissions were present.
- 4. All supported modulation, antenna (including TxBF mode) and power schemes have been tested on the unit and only worst case configuration is reported.

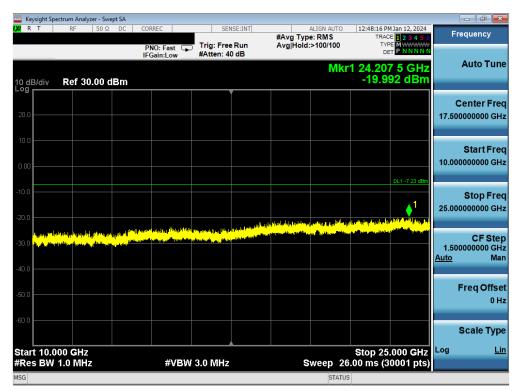
FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege 62 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 62 of 102
			V 10 6 00/12/2023



# Antenna 3a



Plot 7-69. Conducted Spurious Plot Antenna 3a (Bluetooth (LE), 1Mbps, ePA - Ch. 0)



Plot 7-70. Conducted Spurious Plot Antenna 3a (Bluetooth (LE), 1Mbps, ePA – Ch. 0)

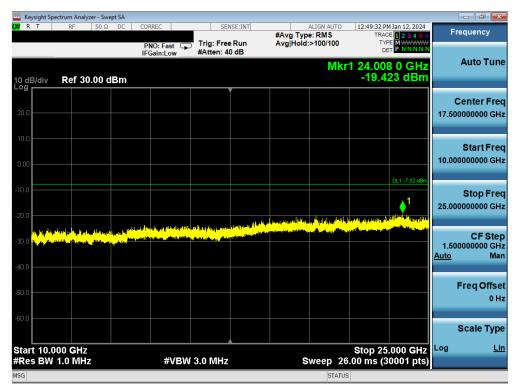
FCC ID: BCGA2903 IC: 579C-A2903	element	element MEASUREMENT REPORT (CERTIFICATION)			
Test Report S/N:	Test Dates:	EUT Type:	Dega 62 of 102		
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 63 of 102		

V 10.6 09/12/2023



	um Analyzer - Swept SA								
LXV/RT	RF 50 Ω DC	CORREC	SE	NSE:INT	#Avg Typ	ALIGN AUTO		MJan 12, 2024 E <b>1 2 3 4 5 6</b>	Frequency
10 dB/div	Ref 30.00 dBm	PNO: Fast IFGain:Low					TYF DE kr1 3.83		Auto Tune
20.0									Center Freq 5.015000000 GHz
0.00								DL1 -7.82 dBm	Start Freq 30.000000 MHz
-10.0			_ <b>↓</b> 1					ULT -7.02 (UBN)	Stop Freq 10.000000000 GHz
-30.0 -40.0	i i ( v jeloči svenoval i od pravil i v jeloči svenoval i od pravil i svenoval i od pravil i svenoval i od i s Na svenoval i od pravil svenoval i od i od i od pravil i svenoval i od i od pravil i svenoval i od i od pravil i			~~~					CF Step 997.000000 MHz <u>Auto</u> Man
-50.0									Freq Offset 0 Hz
-60.0							Ston 40		Scale Type
Start 30 MH: #Res BW 1.0		#V	BW 3.0 MHz		S	weep 1	8.00 ms (3	000 0112	
MSG						STATU	JS		

Plot 7-71. Conducted Spurious Plot Antenna 3a (Bluetooth (LE), 1Mbps, ePA - Ch. 19)



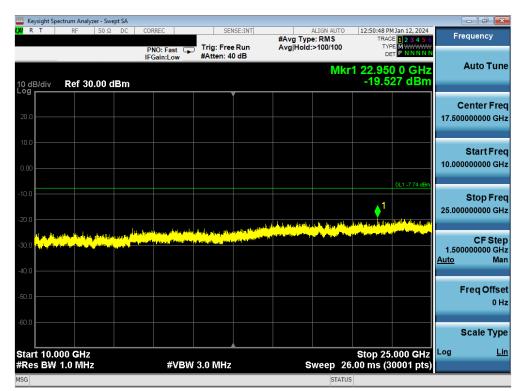
Plot 7-72. Conducted Spurious Plot Antenna 3a (Bluetooth (LE), 1Mbps, ePA - Ch. 19)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 04 at 400
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 64 of 102
	·	·	V 10.6 09/12/2023



	ctrum Analyzer - Sw									
L <mark>XI</mark> RT	RF 50 Ω	DC	CORREC		NSE:INT	#Avg Typ	ALIGN AUTO e: RMS		MJan 12, 2024	Frequency
10 dB/div	Ref 30.00 (	dBm	PNO: Fast IFGain:Low	Trig: Free #Atten: 4			M	DE	3 1 GHz 84 dBm	Auto Tune
20.0										Center Freq 5.015000000 GHz
0.00									DL1 -7.74 dBm	Start Freq 30.000000 MHz
-10.0				<b>↓</b> 1						Stop Freq 10.000000000 GHz
-30.0	and a second							al principal de la constanción Agente positiva que transporte que tra		CF Step 997.000000 MHz <u>Auto</u> Man
-50.0										Freq Offset 0 Hz
-60.0 Start 30 N	Hz			,				Stop 10	.000 GHz	Scale Type
#Res BW			#VBW	3.0 MHz		s	weep 1	8.00 ms (3		
MSG							STAT	US		

Plot 7-73. Conducted Spurious Plot Antenna 3a (Bluetooth (LE), 1Mbps, ePA - Ch. 39)

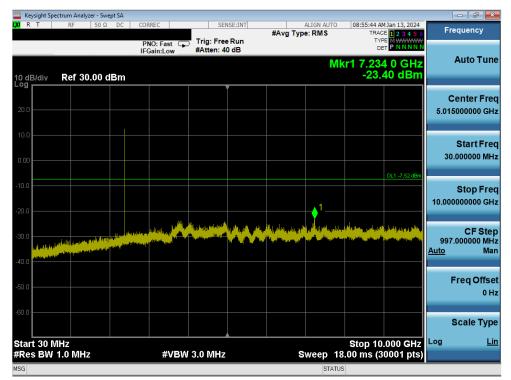


Plot 7-74. Conducted Spurious Plot Antenna 3a (Bluetooth (LE), 1Mbps, ePA - Ch. 39)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 65 of 100	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 65 of 102	
	•	·	V 10.6 09/12/2023	



# Antenna 1a



Plot 7-75. Conducted Spurious Plot Antenna 1a (Bluetooth (LE), 1Mbps, ePA – Ch. 0)



Plot 7-76. Conducted Spurious Plot Antenna 1a (Bluetooth (LE), 1Mbps, ePA - Ch. 0)

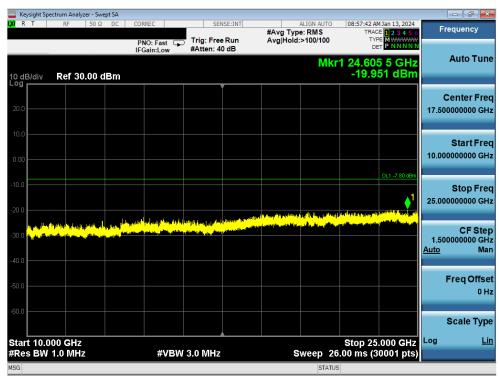
FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 66 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 66 of 102

V 10.6 09/12/2023



	ectrum Analyze	r - Swept SA									
X R T	RF	50 Ω DC	CO	RREC	SEN	ISE:INT	#Avg Typ	ALIGN AUT		AM Jan 13, 2024	Frequency
			P	NO: Fast 🕞 Gain:Low	Trig: Free #Atten: 4				T		
10 dB/div Log	Ref 30.0	00 dBm	n					Ν	/lkr1 3.61 -23	0 2 GHz .89 dBm	Auto Tu
20.0											Center Fr 5.015000000 G
0.00											Start Fr 30.000000 M
-10.0				1_						DL1 -7.80 dBm	Stop Fr 10.000000000 G
-30.0			n an the state of							hardenstlårsjöldenst Tud Masseland Mas	CF St 997.000000 M <u>Auto</u> M
-50.0											Freq Offs 0
-60.0											Scale Ty
Start 30 N #Res BW				#VBM	3.0 MHz		2	ween	Stop 10 18.00 ms (	0.000 GHz	Log
THE DY	1.0 191112			#VDV	0.0 191112			weep	10.00 1113 (	5000 i pis)	

Plot 7-77. Conducted Spurious Plot Antenna 1a (Bluetooth (LE), 1Mbps, ePA – Ch. 19)



Plot 7-78. Conducted Spurious Plot Antenna 1a (Bluetooth (LE), 1Mbps, ePA – Ch. 19)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 67 of 102	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 67 of 102	
		·	V 10 6 09/12/2023	



Keysight Spectrum Analyzer - Swept SA							- ¢ ×
LX/R T RF 50Ω DC	CORREC	SENSE		ALIGN AUTO Type: RMS	TRAC	I Jan 13, 2024	Frequency
	PNO: Fast 😱 IFGain:Low	Trig: Free R #Atten: 40 d			TYP DE		
	II Guilleow		_	М	kr1 4.958	5 GHz	Auto Tune
10 dB/div Ref 30.00 dBm					-24.0	00 dBm	
		Ĭ					Center Freq
20.0							5.015000000 GHz
10.0							Start Freq
0.00							30.000000 MHz
						DL1 -8.04 dBm	
-10.0							Stop Freq
-20.0		<b>1</b>					10.00000000 GHz
20.0		a	م الحد الحد ا	n 1912 1911	ماتين الم		
-30.0						en openen en dere der Gebeungen von Afrika	CF Step 997.000000 MHz
And a state of the							<u>Auto</u> Man
-40.0							
-50.0							Freq Offset
							0 Hz
-60.0							Scale Type
Start 30 MHz #Res BW 1.0 MHz	#\/B\M	3.0 MHz		Swoon 1	Stop 10. 8.00 ms (3	000 GHz	Log <u>Lin</u>
	#VDVV	3.0 MHZ		Sweep 1		ooor pis)	

Plot 7-79. Conducted Spurious Plot Antenna 1a (Bluetooth (LE), 1Mbps, ePA – Ch. 39)



Plot 7-80. Conducted Spurious Plot Antenna 1a (Bluetooth (LE), 1Mbps, ePA - Ch. 39)

FCC ID: BCGA2903 IC: 579C-A2903	element	element MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N:	Test Dates:	EUT Type:	Dage C0 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 68 of 102
	•	•	V 10.6 09/12/2023



# 7.7 Radiated Spurious Emissions – Above 1GHz §15.205 §15.209 §15.247(d); RSS-Gen [8.9]

### **Test Overview and Limit**

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at maximum power and at the appropriate frequencies. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR and Table 7 of RSS-Gen (8.10) must not exceed the limits shown in Table 7-13 per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [μV/m]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 7-13. Radiated Limits

### Test Procedures Used

ANSI C63.10-2013 - Subclause 6.6.4.3

KDB 558074 D01 v05r02 - Section 8.6, 8.7

### **Test Settings**

### **Average Field Strength Measurements**

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. RBW = 1MHz
- 3. VBW = 3MHz
- 4. Detector = power average (RMS)
- 5. Number of measurement points = 1001 (Number of points must be  $\geq 2 \times \text{span/RBW}$ )
- 6. Sweep time = auto
- 7. Trace (RMS) averaging was performed over at least 100 traces

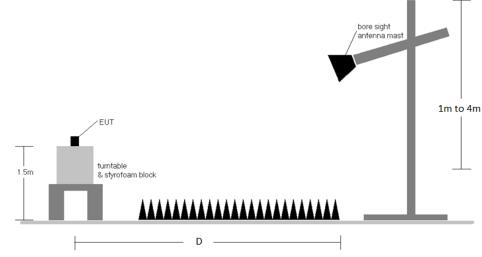
#### Peak Field Strength Measurements

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. RBW = 1MHz
- 3. VBW = 3MHz
- 4. Detector = peak
- 5. Sweep time = auto couple
- 6. Trace mode = max hold
- 7. Trace was allowed to stabilize

FCC ID: BCGA2903 IC: 579C-A2903	element	element MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N:	Test Dates:	EUT Type:	Daga 60 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 69 of 102
		·	V 10.6 09/12/2023



# Test Setup



The EUT and measurement equipment were set up as shown in the diagram below.

Figure 7-6. Radiated Test Setup >1GHz

# Test Notes

- The optional test procedures for antenna port conducted measurements of unwanted emissions per the guidance of KDB 558074 D01 v05r02 were not used to evaluate this device for compliance to radiated limits. All radiated spurious emissions levels were measured in a radiated test setup.
- 2. All emissions lying in restricted bands specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-13.
- 3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- 4. This unit was tested with its standard battery.
- 5. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas.
- D is the measurement test distance and emissions 1-18GHz were measured at a 3 meters test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 7. The "-" shown in the following RSE tables are used to denote a noise floor measurement.
- 8. All supported modulation, antenna (including TxBF mode) and power schemes have been tested on the unit and only worst case configuration is reported.

FCC ID: BCGA2903 IC: 579C-A2903	element	element MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N:	Test Dates:	EUT Type:	Daga 70 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 70 of 102
		·	V/ 10 6 00/12/2023



### Sample Calculations

# **Determining Spurious Emissions Levels**

- ο Field Strength Level [dB_μV/m] = Analyzer Level [dBm] + 107 + AFCL [dB/m]
- AFCL [dB/m] = Antenna Factor [dB/m] + Cable Loss [dB] Preamplifier Gain [dB]
- Margin [dB] = Field Strength Level [dBμV/m] Limit [dBμV/m]

### Radiated Band Edge Measurement Offset

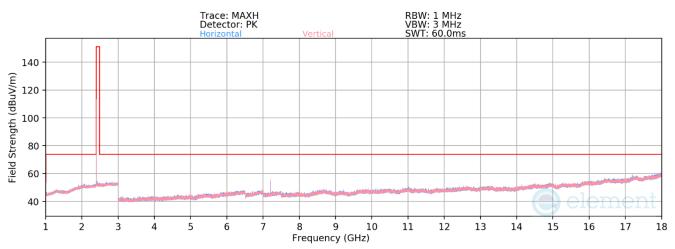
• The amplitude offset shown in the radiated restricted band edge plots in Section 7.7.4 was calculated using the formula:

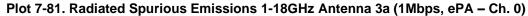
Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

FCC ID: BCGA2903 IC: 579C-A2903	element	lement MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N:	Test Dates:	EUT Type:	Dega 71 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 71 of 102
			V 10 6 09/12/2023



# 7.7.1 Antenna 3a Radiated Spurious Emission Measurements (1 – 18GHz) §15.205 §15.209 §15.247(d); RSS-Gen [8.9]





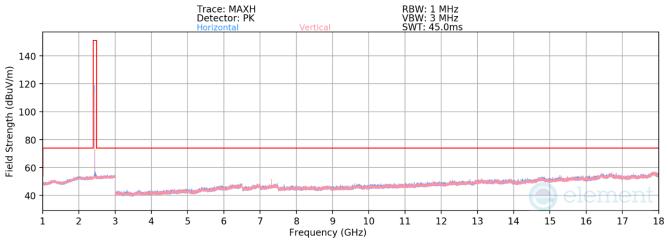
Bluetooth Mode:	LE	
Data Rate:	1Mbps	
Power Scheme	ePA	
Distance of Measurements:	3 Meters	
Operating Frequency:	2402MHz	
Channel:	0	

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4804.00	Avg	Н	-	-	-78.66	4.73	33.07	53.98	-20.91
4804.00	Peak	Н	-	-	-67.17	4.73	44.56	73.98	-29.42
12010.00	Avg	V	-	-	-81.14	12.74	38.60	53.98	-15.38
12010.00	Peak	V	-	-	-69.30	12.74	50.44	73.98	-23.54

Table 7-14. Radiated Measurements Antenna 3a

FCC ID: BCGA2903 IC: 579C-A2903	element	element MEASUREMENT REPORT Approved by (CERTIFICATION) Technical Mai	
Test Report S/N:	Test Dates:	EUT Type:	Dage 72 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 72 of 102
		·	V 10 6 09/12/2023







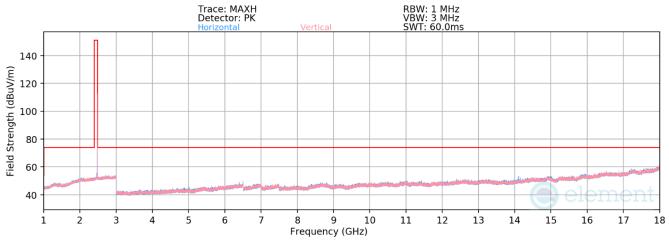
Bluetooth Mode:	LE
Data Rate:	1Mbps
Power Scheme	ePA
Distance of Measurements:	3 Meters
Operating Frequency:	2440MHz
Channel:	19

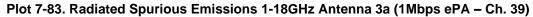
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4880.00	Avg	V	-	-	-78.45	4.53	32.82	53.98	-21.16
4880.00	Peak	V	-	-	-66.87	4.56	45.39	73.98	-28.59
7320.00	Avg	V	298	83	-74.19	8.91	36.29	53.98	-17.69
7320.00	Peak	V	298	83	-65.58	8.91	48.00	73.98	-25.97
12200.00	Avg	V	-	-	-81.48	13.92	39.50	53.98	-14.48
12200.00	Peak	V	-	-	-69.80	13.92	51.02	73.98	-22.96

Table 7-15. Radiated Measurements Antenna 3a

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 72 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 73 of 102
		•	V 10 6 09/12/2023







Bluetooth Mode:	LE
Data Rate:	1Mbps
Power Scheme	ePA
Distance of Measurements:	3 Meters
Operating Frequency:	2480MHz
Channel:	39

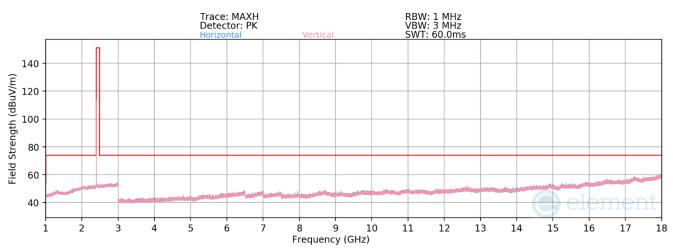
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4960.00	Avg	Н	-	-	-78.67	4.73	33.06	53.98	-20.92
4960.00	Peak	Н	-	-	-67.08	4.73	44.65	73.98	-29.33
7440.00	Avg	V	263	93	-73.50	4.73	38.23	53.98	-15.75
7440.00	Peak	V	263	93	-63.16	4.73	48.57	73.98	-25.41
12400.00	Avg	Н	-	-	-72.85	4.73	38.88	53.98	-15.10
12400.00	Peak	Н	-	-	-60.73	4.73	51.00	73.98	-22.98

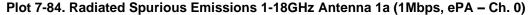
Table 7-16. Radiated Measurements Antenna 3a

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 74 of 102	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 74 of 102	
			V 10 6 09/12/2023	



### 7.7.2 Antenna 1a Radiated Spurious Emission Measurements (1 – 18GHz) §15.205 §15.209 §15.247(d); RSS-Gen [8.9]





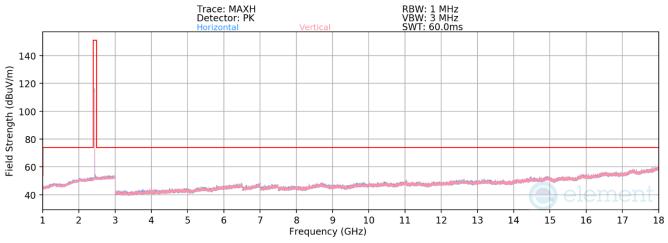
Bluetooth Mode:	LE
Data Rate:	1Mbps
Power Scheme	ePA
Distance of Measurements:	3 Meters
Operating Frequency:	2402MHz
Channel:	0

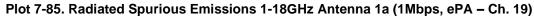
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4804.00	Avg	Н	-	-	-78.73	4.73	33.00	53.98	-20.98
4804.00	Peak	Н	-	-	-66.96	4.73	44.77	73.98	-29.21
12010.00	Avg	Н	-	-	-81.13	12.74	38.61	53.98	-15.37
12010.00	Peak	Н	-	-	-69.29	12.74	50.45	73.98	-23.53

Table 7-17. Radiated Measurements Antenna 1a

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 75 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 75 of 102
		·	V 10.6 09/12/2023







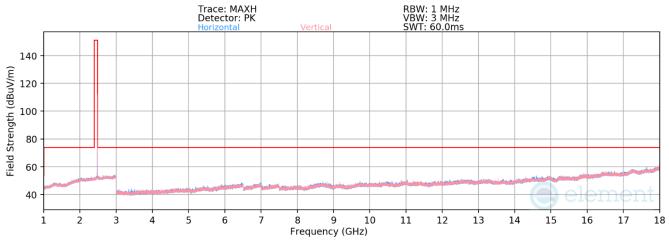
Bluetooth Mode:	LE
Data Rate:	1Mbps
Power Scheme	ePA
Distance of Measurements:	3 Meters
Operating Frequency:	2440MHz
Channel:	19

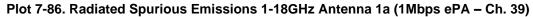
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4880.00	Avg	Н	-	-	-78.24	4.57	33.33	53.98	-20.65
4880.00	Peak	Н	-	-	-66.90	4.57	44.67	73.98	-29.31
7320.00	Avg	Н	-	-	-79.44	8.30	35.86	53.98	-18.12
7320.00	Peak	Н	-	-	-67.02	8.30	48.28	73.98	-25.70
12200.00	Avg	Н	-	-	-80.95	13.14	39.19	53.98	-14.79
12200.00	Peak	Н	-	-	-69.64	13.14	50.50	73.98	-23.48

Table 7-18. Radiated Measurements Antenna 1a

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 76 of 100	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 76 of 102	
			V 10 6 09/12/2023	







Bluetooth Mode:	LE
Data Rate:	1Mbps
Power Scheme	ePA
Distance of Measurements:	3 Meters
Operating Frequency:	2480MHz
Channel:	39

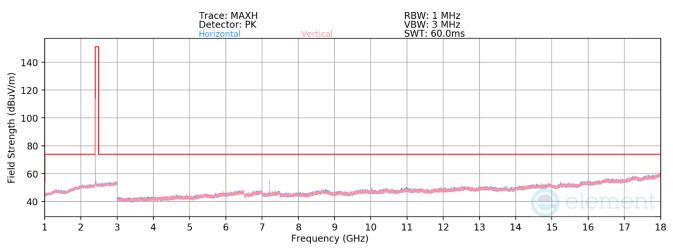
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4960.00	Avg	Н	-	-	-78.37	4.73	33.36	53.98	-20.62
4960.00	Peak	Н	-	-	-67.06	4.73	44.67	73.98	-29.31
7440.00	Avg	V	-	-	-76.09	4.73	35.64	53.98	-18.34
7440.00	Peak	V	-	-	-63.73	4.73	48.00	73.98	-25.98
12400.00	Avg	Н	-	-	-72.71	4.73	39.02	53.98	-14.96
12400.00	Peak	Н	-	-	-60.97	4.73	50.76	73.98	-23.22

Table 7-19. Radiated Measurements Antenna 1a

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 77 of 100	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 77 of 102	
			V 10 6 09/12/2023	



## 7.7.3 TxBF Radiated Spurious Emission Measurements (1-18GHz) §15.205 §15.209 §15.247(d); RSS-Gen [8.9]





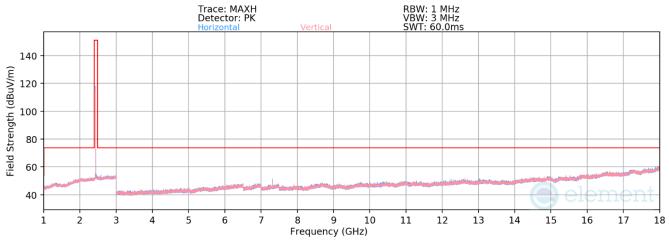
Bluetooth Mode:	LE
Data Rate:	1Mbps
Power Scheme	ePA
Distance of Measurements:	3 Meters
Operating Frequency:	2402MHz
Channel:	0

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4804.00	Avg	Н	-	-	-78.56	4.73	33.17	53.98	-20.81
4804.00	Peak	Н	-	-	-66.71	4.73	45.02	73.98	-28.96
12010.00	Avg	V	-	-	-81.05	12.74	38.69	53.98	-15.29
12010.00	Peak	V	-	-	-69.45	12.74	50.29	73.98	-23.69

Table 7-20. Radiated Measurements TxBF

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 70 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 78 of 102
	<u>.</u>	•	V 10.6 09/12/2023







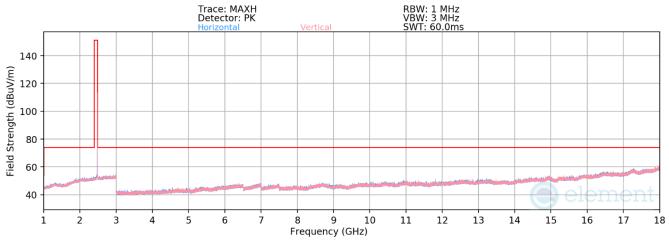
Bluetooth Mode:	LE
Data Rate:	1Mbps
Power Scheme	ePA
Distance of Measurements:	3 Meters
Operating Frequency:	2440MHz
Channel:	19

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4880.00	Avg	V	-	-	-78.18	4.57	33.39	53.98	-20.59
4880.00	Peak	V	-	-	-66.41	4.57	45.16	73.98	-28.82
7320.00	Avg	V	264	173	-76.86	8.30	38.44	53.98	-15.54
7320.00	Peak	V	264	173	-66.89	8.30	48.41	73.98	-25.57
12200.00	Avg	V	-	-	-80.95	13.14	39.19	53.98	-14.79
12200.00	Peak	V	-	-	-70.00	13.14	50.14	73.98	-23.84

Table 7-21. Radiated Measurements TxBF

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 70 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 79 of 102
			V/ 10 6 00/12/2023







Bluetooth Mode:	LE
Data Rate:	1Mbps
Power Scheme	ePA
Distance of Measurements:	3 Meters
Operating Frequency:	2480MHz
Channel:	39

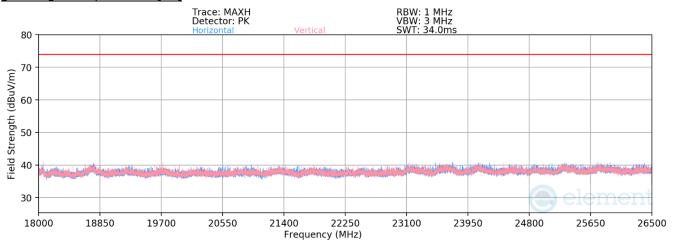
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
4960.00	Avg	V	-	-	-78.41	4.85	33.44	53.98	-20.54
4960.00	Peak	V	-	-	-66.87	4.85	44.98	73.98	-29.00
7440.00	Avg	V	222	102	-77.94	8.27	37.33	53.98	-16.65
7440.00	Peak	V	222	102	-67.20	8.27	48.07	73.98	-25.91
12400.00	Avg	V	-	-	-81.51	13.43	38.92	53.98	-15.06
12400.00	Peak	V	-	-	-70.07	13.43	50.36	73.98	-23.62

Table 7-22. Radiated Measurements TxBF

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 80 of 100	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 80 of 102	
		·	V 10 6 09/12/2023	



## TxBF Radiated Spurious Emission Measurements (Above 18GHz) §15.205 §15.209 ; RSS-Gen [8.9]



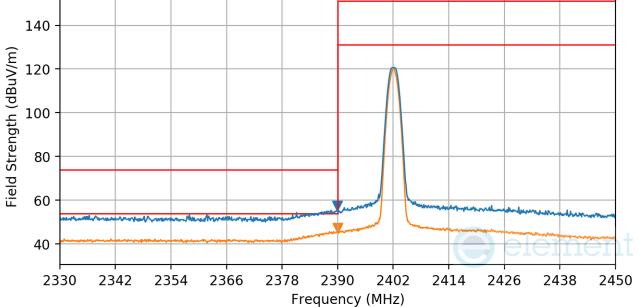
Plot 7-90. Radiated Spurious Emissions Above 18GHz TxBF (1Mbps, ePA - Ch. 19)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege 01 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 81 of 102
	-	•	V 10.6 09/12/2023



#### Antenna 3a

I	Bluetooth Mode:		LE						
	Data Rate:	ta Rate:		1Mbps					
	Power Scheme:		ePA						
I	Measurement Distance:		3 Met	ers					
(	Operating Frequency:		2402MHz						
(	Channel:		0						
	PASS Peak Avg. Peak	age Trace Trace Offset: 11 Offset: 11	RB . _{8dB} VB 8dB SV	W: 1 MH W: 3 MH /T: 1.0m	z Pea z Avç			88 dBµ\ 5 dBµV	
40 -							 		

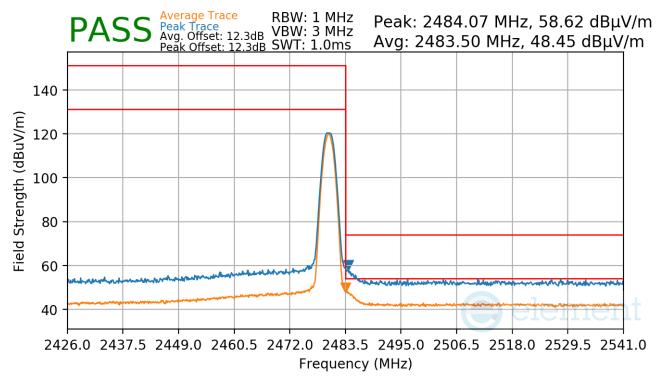


Plot 7-91. Radiated Restricted Lower Band Edge Measurement Antenna 3a (Average & Peak)

FCC ID: BCGA2903 IC: 579C-A2903	element MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 92 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 82 of 102
		-	V 10.6.09/12/2023



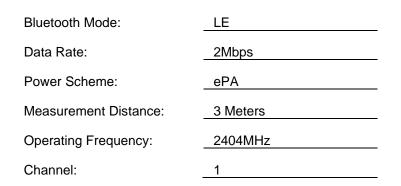
Bluetooth Mode:	LE
Data Rate:	1Mbps
Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2480MHz
Channel:	39

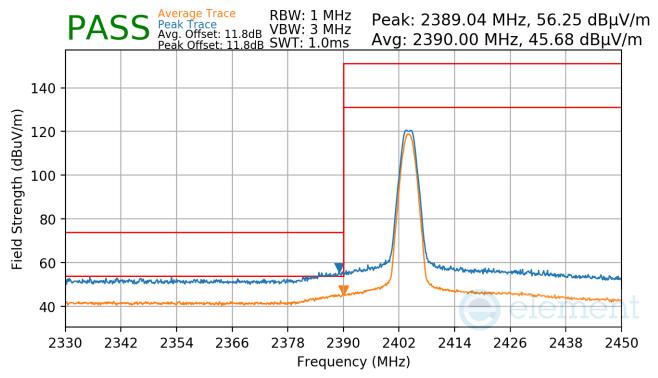


Plot 7-92. Radiated Restricted Upper Band Edge Measurement Antenna 3a (Average & Peak)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Daga 92 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 83 of 102
		·	V 10 6 09/12/2023





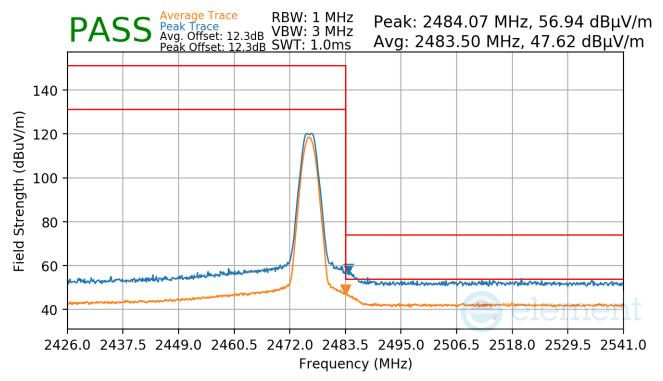




FCC ID: BCGA2903 IC: 579C-A2903	element	element MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N:	Test Dates:	EUT Type:	Dega 94 of 102
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 84 of 102
			V 10.6 09/12/2023



Bluetooth Mode:	LE
Data Rate:	2Mbps
Power Scheme:	ePA
Measurement Distance:	3 Meters
Operating Frequency:	2478MHz
Channel:	38

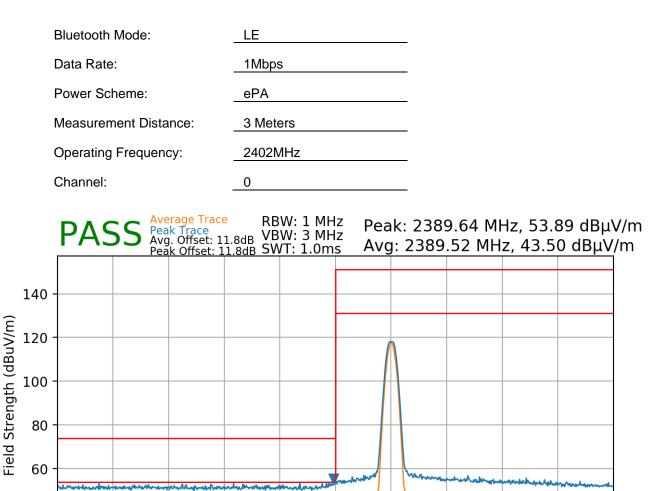


Plot 7-94. Radiated Restricted Upper Band Edge Measurement Antenna 3a (Average & Peak)

FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 85 of 102
		-	V 10 6 09/12/2023



#### Antenna 1a



FCC ID: BCGA2903 IC: 579C-A2903	element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 86 of 100
1C2311270064-19.BCG	11/28/2023 - 3/4/2024	Tablet Device	Page 86 of 102
	-	·	V 10.6 09/12/2023

Plot 7-95. Radiated Restricted Lower Band Edge Measurement Antenna 1a (Average & Peak)

Frequency (MHz)