



Abbott Laboratories

Jupiter-Gemini System

FCC 15.247:2025

Bluetooth Radio

Report: TJNC0044.0 Rev. 01, Issue Date: September 22, 2025



CERTIFICATE OF TEST



Last Date of Test: February 11, 2025
Abbott Laboratories
EUT: Jupiter-Gemini System

Radio Equipment Testing

Standards

Specification	Method
FCC 15.247:2025	ANSI C63.10:2013

Guidance

FCC KDB 558074 v05r02:2019

Results

Test Description	Result	Specification Section(s)	Method Section(s)	Comments
Powerline Conducted Emissions	N/A	15.207	6.2	Not included for a C2PC based on manufacturers product changes
Duty Cycle	N/A	KDB 558074 -6.0	11.6	Not included for a C2PC based on manufacturers product changes
DTS Bandwidth (6 dB)	N/A	15.247(a)(2), KDB 558074 -8.2	11.8.2	Not included for a C2PC based on manufacturers product changes
Occupied Bandwidth (99%)	N/A	KDB 558074 -2.1	6.9.3	Not included for a C2PC based on manufacturers product changes
Output Power	Pass	15.247(b)(3), KDB 558074 -8.3.1	11.9.1.1	
Equivalent Isotropic Radiated Power	Pass	15.247(b)(3), KDB 558074 -8.3.1	11.9.1.1	
Power Spectral Density	N/A	15.247(e), KDB 558074 -8.4	11.10.2	Not included for a C2PC based on manufacturers product changes
Band Edge Compliance	N/A	15.247(d), KDB 558074 -8.5	11.11	Not included for a C2PC based on manufacturers product changes
Spurious Conducted Emissions	N/A	15.247(d), KDB 558074 -8.5	11.11	Not included for a C2PC based on manufacturers product changes
Spurious Radiated Emissions	Pass	15.247(d), KDB 558074 - 8.6, 8.7	11.12.1, 11.13.2, 6.5, 6.6	

Deviations From Test Standards

None

Approved By:

Johnny Candelas, Operations Manager
Signed for and on behalf of Element

Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information. As indicated in the Statement of Work sent with the quotation, Element's standard process is to always use the latest published version of the test methods even when earlier versions are cited in the test specification. Issuance of a purchase order was de facto acceptance of this approach. Otherwise, the client would have advised Element in writing of the specific version of the test methods they wanted applied to the subject testing.

REVISION HISTORY



Revision Number	Description	Date (yyyy-mm-dd)	Page Number
01	Added Measurement Uncertainty for OC10	2025-09-19	6
	Adjusted Y scale graph title	2025-09-19	22

ACCREDITATIONS AND AUTHORIZATIONS



United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Each laboratory is accredited by A2LA to ISO / IEC 17025, and as a product certifier to ISO / IEC 17065 which allows Element to certify transmitters to FCC and IC specifications.

FDA - Recognized by the FDA as an Accreditation Scheme for Conformity Assessment (ASCA)-accredited testing laboratory for basic safety and essential performance.

Canada

ISED - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB) and as a CAB for the acceptance of test data.

European Union

European Commission – Recognized as an EU Notified Body validated for the EMCD and RED Directives.

United Kingdom

BEIS – Recognized by the UK as an Approved Body under the UK Radio Equipment and UK EMC Regulations.

Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

Korea

MSIT / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

NCC - Recognized by NCC as a CAB for the acceptance of test data.

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Israel

MOC – Recognized by MOC as a CAB for the acceptance of test data.

Hong Kong

OFCA – Recognized by OFCA as a CAB for the acceptance of test data.

SCOPE

For details on the Scopes of our Accreditations, please visit:

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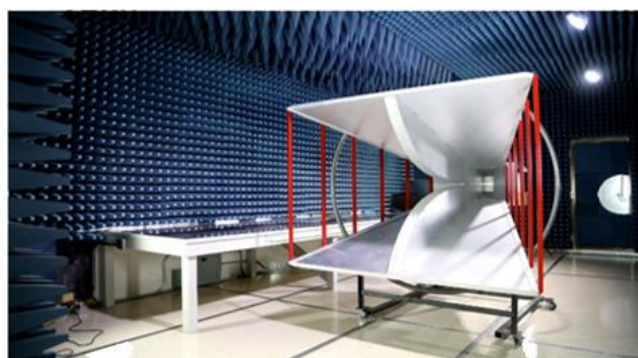
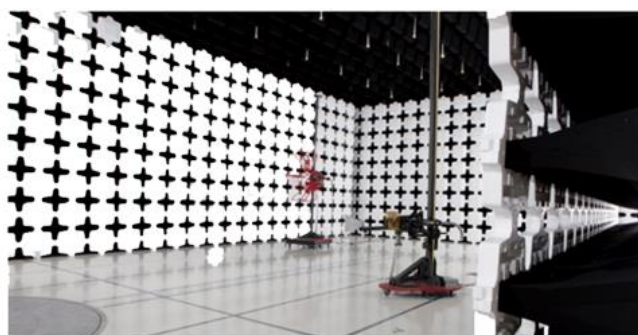
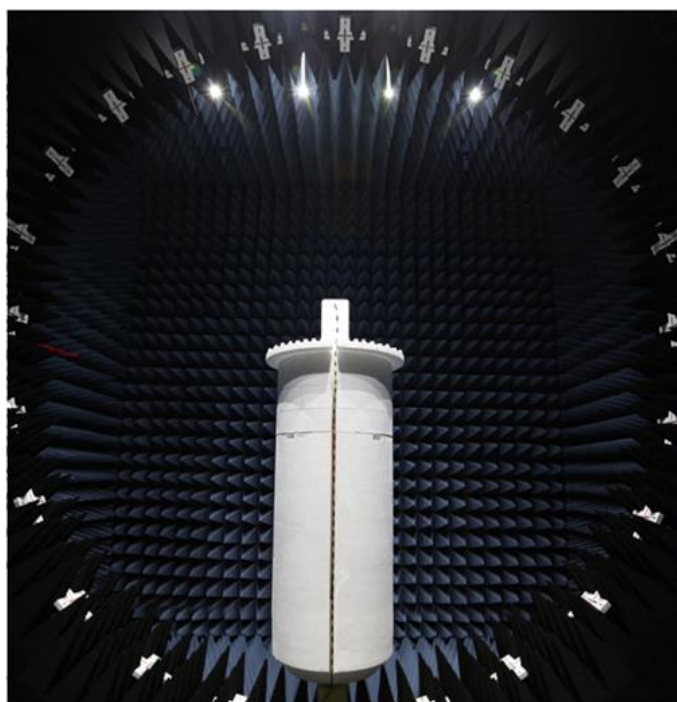
FACILITIES

Testing was performed at the following location(s)

	Location	Labs ⁽¹⁾	Address	A2LA ⁽²⁾	ISED ⁽³⁾	BSMI ⁽⁴⁾	VCCI ⁽⁵⁾	CAB ⁽⁶⁾	FDA ⁽⁷⁾
☒	California	OC01-17	41 Tesla Irvine, CA 92618 (949) 861-8918	3310.04	2834B	SL2-IN-E-1154R	A-0029	US0158	TL-55
☐	Minnesota	MN01-11	9349 W Broadway Ave. Brooklyn Park, MN 55445 (612) 638-5136	3310.05	2834E	SL2-IN-E-1152R	A-0109	US0175	TL-57
☐	Oregon	EV01-12	6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	3310.02	2834D	SL2-IN-E-1017	A-0108	US0017	TL-56
☐	Washington	NC01-05	19201 120th Ave NE Bothell, WA 98011 (425) 984-6600	3310.06	2834F	SL2-IN-E-1153R	A-0110	US0157	TL-67
☐	Offsite	N/A	See Product Description	N/A	N/A	N/A	N/A	N/A	N/A

See data sheets for specific labs

- (1) The lab designations denote individual rooms within each location. (OC01, OC02, OC03, etc.)
- (2) A2LA Certificate No.
- (3) ISED Company No.
- (4) BSMI No.
- (5) VCCI Site Filing No.
- (6) CAB Identifier. Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MOC, NCC, OFCA
- (7) FDA ASCA No.



MEASUREMENT UNCERTAINTY

Measurement Uncertainty

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

A measurement uncertainty estimation reported is based on statistical analysis that was performed by the laboratory. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty ($k=2$) can be found in the table below. A lab specific value may also be found in the applicable test description section. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable) and are available upon request.

The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

Various Measurements

Test	All Labs (+/-)
Frequency Accuracy (%)	0.0007
Amplitude Accuracy (dB)	1.2
Conducted Power (dB)	1.2
Radiated Power via Substitution (dB)	0.7
Temperature (degrees C)	0.7
Humidity (% RH)	2.5
Voltage (AC) (%)	1
Voltage (DC) (%)	0.7

Field Strength Measurements (dB)

Range	OC10 (+/-)
10kHz-30MHz	1.8
30MHz-1GHz 3m	4.6
30MHz-1GHz 10m	N/A
1GHz-6GHz	5
6GHz-40GHz	5.1

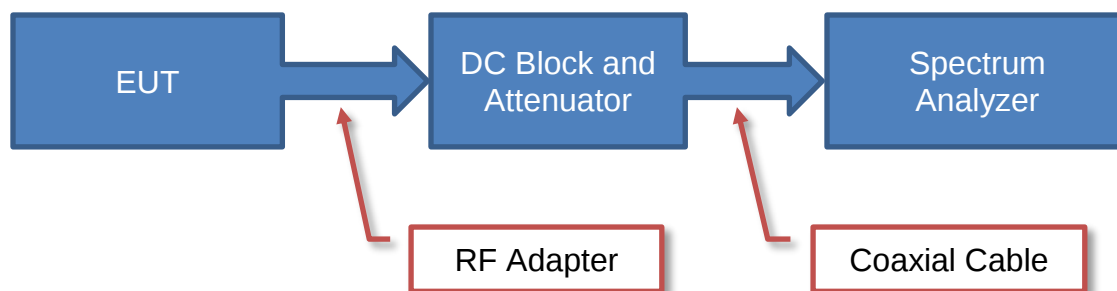
TEST SETUP BLOCK DIAGRAMS

Measurement Bandwidths

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

Unless otherwise stated, measurements were made using the bandwidths and detectors specified. No video filter was used.

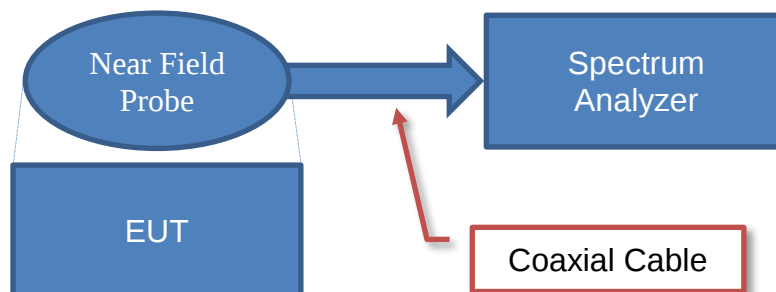
Antenna Port Conducted Measurements



Sample Calculation (logarithmic units)

Measured Value		Measured Level		Reference Level Offset
71.2	=	42.6	+	28.6

Near Field Test Fixture Measurements

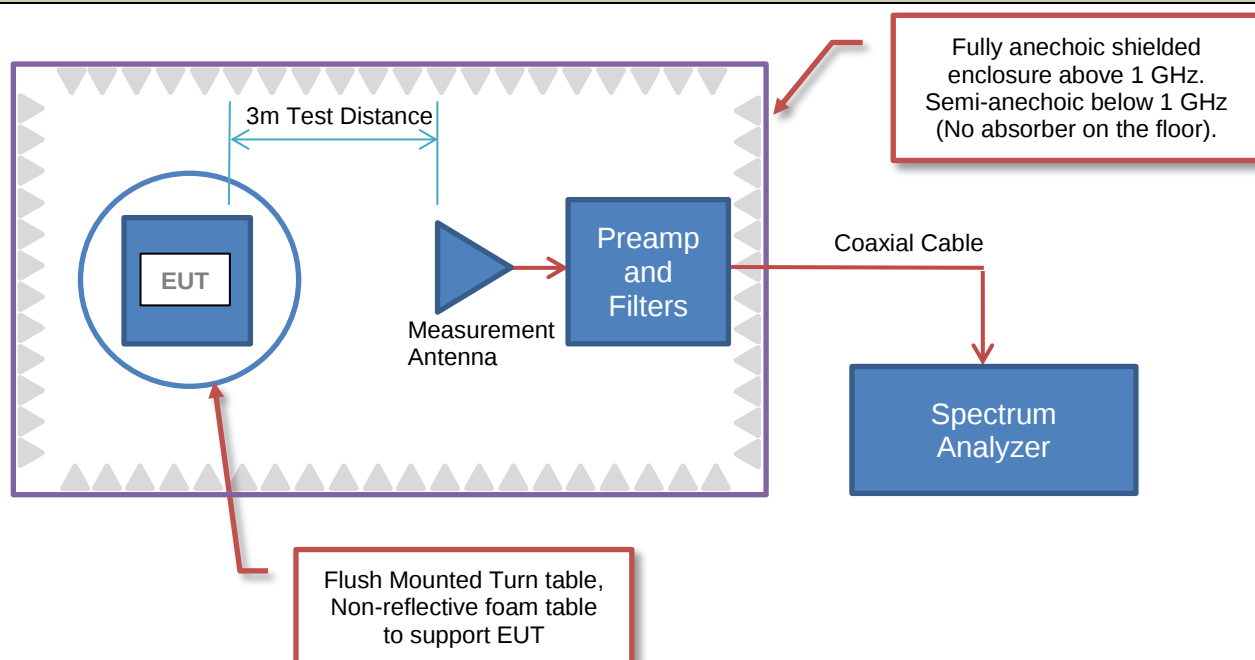


Sample Calculation (logarithmic units)

Measured Value		Measured Level		Reference Level Offset
71.2	=	42.6	+	28.6

TEST SETUP BLOCK DIAGRAMS

Emissions Measurements



Sample Calculation (logarithmic units)

Radiated Emissions:

Measured Level (Amplitude)	Factor			Distance Adjustment Factor	External Attenuation	Field Strength
	Antenna Factor	Cable Factor	Amplifier Gain			
42.6	28.6	3.1	40.8	0.0	0.0	33.5

Conducted Emissions:

Measured Level (Amplitude)	Factor		External Attenuation	Adjusted Level
	Transducer Factor	Cable Factor		
26.7	0.3	0.1	20.0	47.1

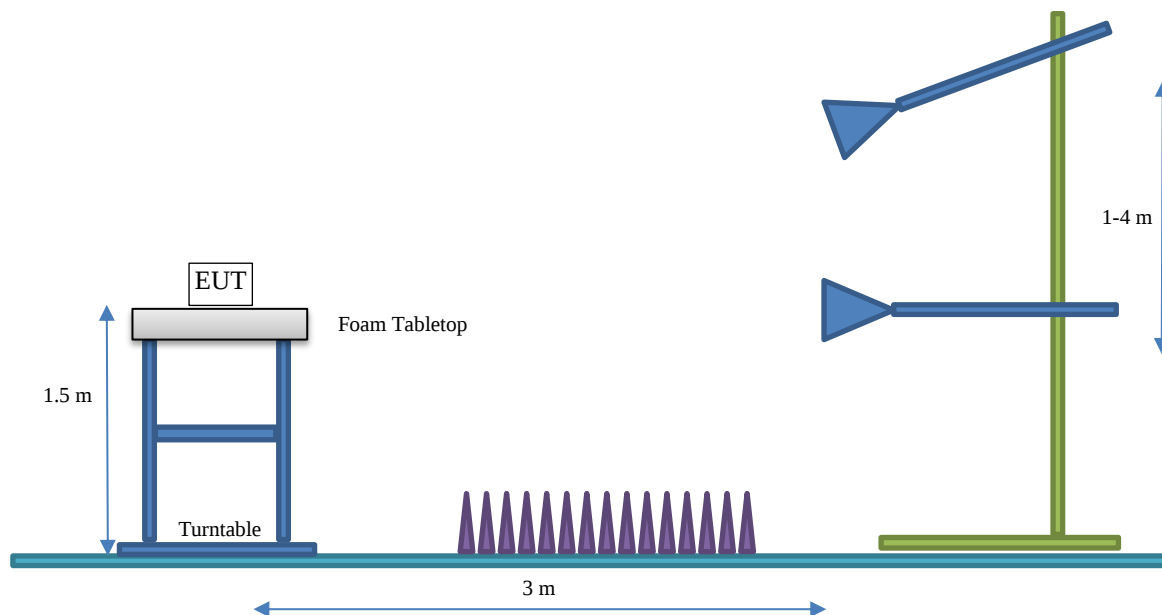
Radiated Power (ERP/EIRP) – Substitution Method:

Measured Level into Substitution Antenna (Amplitude dBm)	Substitution Antenna Factor (dBi)	EIRP to ERP (if applicable)	Measured power (dBm ERP/EIRP)
10.0	6.0	2.15	13.9/16.0

TEST SETUP BLOCK DIAGRAMS

Bore Sighting (>1GHz)

The diameter of the illumination area is the dimension of the line tangent to the EUT formed by 3 dB beamwidth of the measurement antenna at the measurement distance. At a 3 meter test distance, the diameter of the illumination area was 3.8 meters at 1 GHz and greater than 2.1 meters up to 6 GHz. Above 1 GHz, when required by the measurement standard, the antenna is pointed for both azimuth and elevation to maintain the receive antenna within the cone of radiation from the EUT. The specified measurement detectors were used for comparison of the emissions to the peak and average specification limits.



POWER SETTINGS AND ANTENNAS



The power settings, antenna gain value(s) and cable loss (if applicable) used for the testing contained in this report were provided by the customer and will affect the validity of the results. Element assumes no responsibility for the accuracy of this information. The power settings below reflect the maximum power that the EUT is allowed to transmit at during normal operation.

ANTENNA GAIN (dBi)

Type	Provided by:	Frequency Range (MHz)	Gain (dBi)
Modified Monopole, 10.7mm x 4.3mm x 3mm	Juno Pacific	2400-2480	-2.92

The EUT was tested using the power settings provided by the manufacturer which were based upon:

- ☐ Test software settings Test software/firmware installed on EUT: **90820561 radio firmware, rev B**
☒ Rated power settings

SETTINGS FOR ALL TESTS IN THIS REPORT

Modulation Types / Data Rates	Type	Channel	Frequency (MHz)	Power Setting
BLE GFSK	DTS	0 or 37	2402	+6 dBm
		20 or 18	2440	+6 dBm
		39	2480	+6 dBm

PRODUCT DESCRIPTION

Client and Equipment under Test (EUT) Information

Company Name:	Abbott Laboratories
Address:	6901 Preston Rd
City, State, Zip:	Plano, TX 75024
Test Requested By:	John-Paul Bedinger
EUT:	Jupiter-Gemini System
First Date of Test:	February 11, 2025
Last Date of Test:	February 13, 2025
Receipt Date of Samples:	February 11, 2025
Equipment Design Stage:	Prototype
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:

The Jupiter/Gemini System is a rechargeable neuromodulation system capable of delivering Spinal Cord Stimulation (SCS) or Deep Brain Stimulation (DBS). Jupiter/Gemini system components include a small rechargeable Implantable Pulse Generator (IPG), wireless portable Charger (Chgr) and Programmer software application for iOS-based Clinician Programmer (CP) and Patient Controller (PC) hardware. System components will be designed for compatibility with existing Proclaim and Infinity leads, extensions and accessories, with an extensible architecture for future system component integration.

Testing Objective:

To demonstrate compliance of the Bluetooth radio to FCC 15.247 requirements.

CONFIGURATIONS



Configuration TJNC0044-1

Software/Firmware Running During Test	
Description	Version
Radio Firmware	90820561 Rev B

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
IPG	Abbott Laboratories	32400	20460220

Peripherals in Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop PC	Dell	Precision 7670	JXWB5X3

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
USB Cable	Yes	1m	No	Laptop PC	IPG

Configuration TJNC0044-2

Software/Firmware Running During Test	
Description	Version
Test Software (radio control)	34.0_1.0_OTA_FW_dev.bundle.zip

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
IPG	Abbott Laboratories	32400	20460222

Peripherals in Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Octrode Lead (90 cm)	Abbott Laboratories	45-0042-30	Asset #: 10714
Load Board	Abbott Laboratories	90705099	ID#: 250331

MODIFICATIONS



Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2025-02-11	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
2	2025-02-11	Equivalent Isotropic Radiated Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
3	2025-02-13	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

OUTPUT POWER

TEST DESCRIPTION

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum.

Prior to measuring peak transmit power the DTS bandwidth (B) was measured.

The method found in ANSI C63.10:2013 Section 11.9.1.1 was used because the RBW on the analyzer was greater than the DTS Bandwidth of the radio.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	E4443A	AAR	2024-11-07	2025-11-07
Cable	Micro-Coax	UFD150A-1-070-200200	OC6	2024-10-02	2025-10-02
Attenuator	Fairview Microwave	SA18H-20	UAX	2024-07-11	2025-07-11
Block - DC	Fairview Microwave	SD3379	ANG	2024-10-03	2025-10-03
Generator - Signal	Agilent	N5183A	TID	2023-05-12	2025-05-12

OUTPUT POWER

EUT:	Jupiter-Gemini System	Work Order:	TJNC0044
Serial Number:	20460220	Date:	2025-02-11
Customer:	Abbott Laboratories	Temperature:	20.2°C
Attendees:	John Paul Bedinger	Relative Humidity:	42.8%
Customer Project:	None	Bar. Pressure (PMSL):	1015 mbar
Tested By:	Nolan De Ramos	Job Site:	OC13
Power:	Battery (nominal voltage: 3.6VDC)	Configuration:	TJNC0044-1

COMMENTS

Reference level offset: DC block + 20 dB attenuator + test cable + pigtail

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

Pass

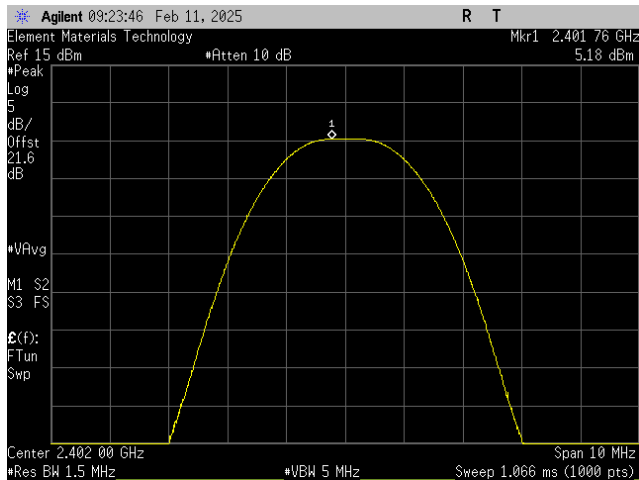


Tested By

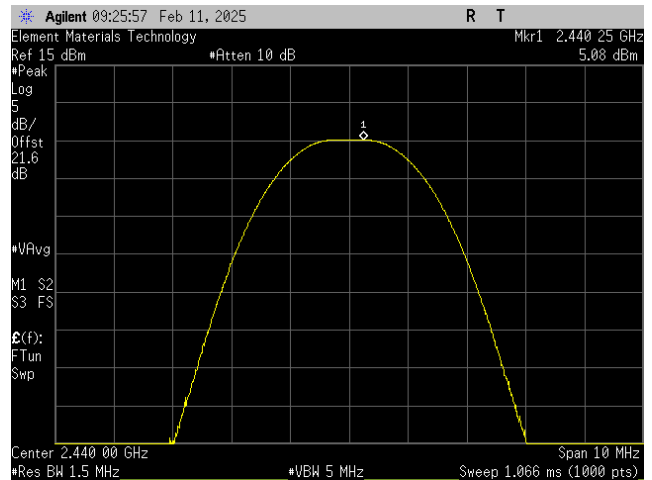
TEST RESULTS

		Out Pwr (dBm)	Limit (dBm)	Result
BLE/GFSK 1 Mbps				
	Low Channel, 2402 MHz	5.18	30	Pass
	Mid Channel, 2440 MHz	5.078	30	Pass
	High Channel, 2480 MHz	4.92	30	Pass
BLE/GFSK 2 Mbps				
	Low Channel, 2402 MHz	5.253	30	Pass
	Mid Channel, 2440 MHz	5.123	30	Pass
	High Channel, 2480 MHz	4.955	30	Pass

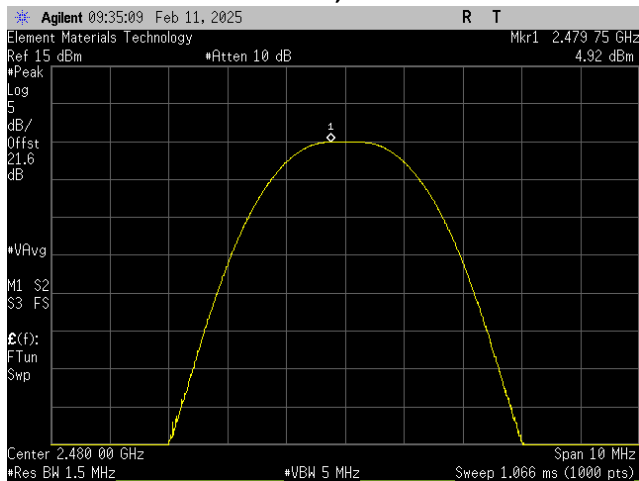
OUTPUT POWER



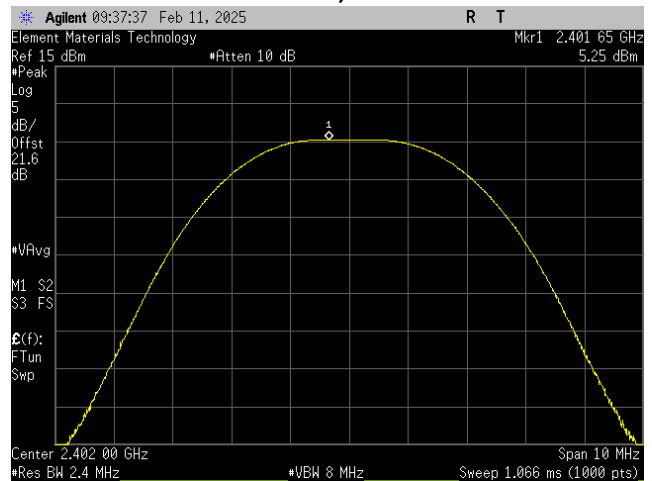
**BLE/GFSK 1 Mbps
Low Channel, 2402 MHz**



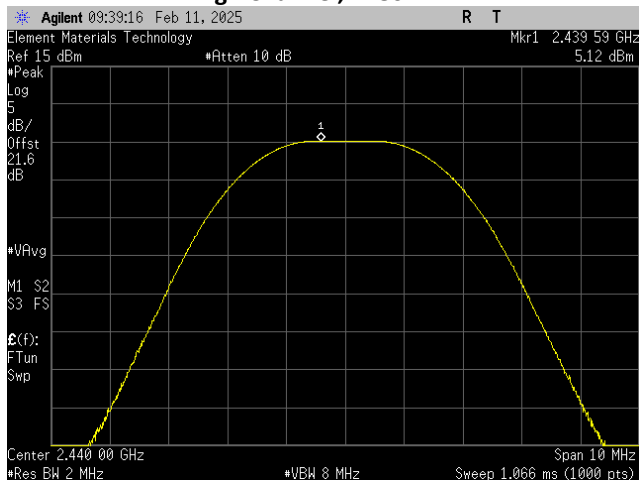
**BLE/GFSK 1 Mbps
Mid Channel, 2440 MHz**



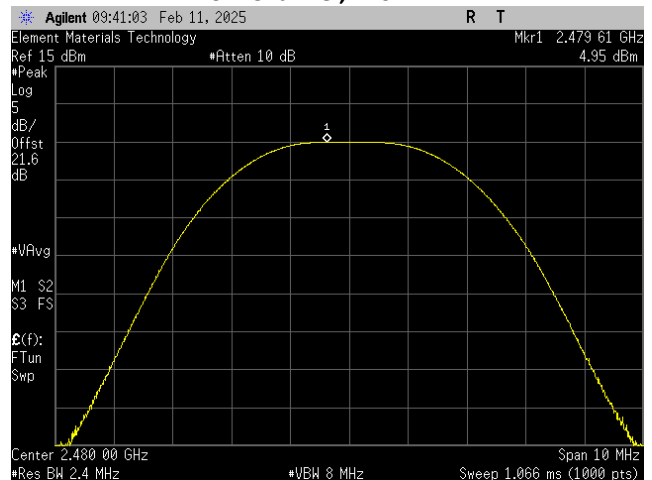
**BLE/GFSK 1 Mbps
High Channel, 2480 MHz**



**BLE/GFSK 2 Mbps
Low Channel, 2402 MHz**



**BLE/GFSK 2 Mbps
Mid Channel, 2440 MHz**



**BLE/GFSK 2 Mbps
High Channel, 2480 MHz**

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



TEST DESCRIPTION

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum.

Prior to measuring peak transmit power the DTS bandwidth (B) was measured.

The method found in ANSI C63.10:2013 Section 11.9.1.1 was used because the RBW on the analyzer was greater than the DTS Bandwidth of the radio.

Equivalent Isotropic Radiated Power (EIRP) = Max Measured Power + Antenna gain (dBi)

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	E4443A	AAR	2024-11-07	2025-11-07
Cable	Micro-Coax	UFD150A-1-070-200200	OC6	2024-10-02	2025-10-02
Attenuator	Fairview Microwave	SA18H-20	UAX	2024-07-11	2025-07-11
Block - DC	Fairview Microwave	SD3379	ANG	2024-10-03	2025-10-03
Generator - Signal	Agilent	N5183A	TID	2023-05-12	2025-05-12

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



EUT:	Jupiter-Gemini System	Work Order:	TJNC0044
Serial Number:	20460220	Date:	2025-02-11
Customer:	Abbott Laboratories	Temperature:	20.1°C
Attendees:	John Paul Bedinger	Relative Humidity:	43%
Customer Project:	None	Bar. Pressure (PMSL):	1015 mbar
Tested By:	Nolan De Ramos	Job Site:	OC13
Power:	Battery (nominal voltage: 3.6VDC)	Configuration:	TJNC0044-1

COMMENTS

Reference level offset: DC block + 20 dB attenuator + test cable + pigtail

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

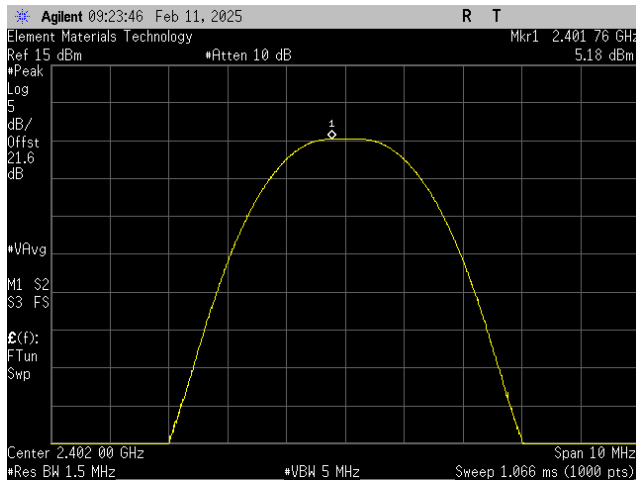
Pass

Tested By

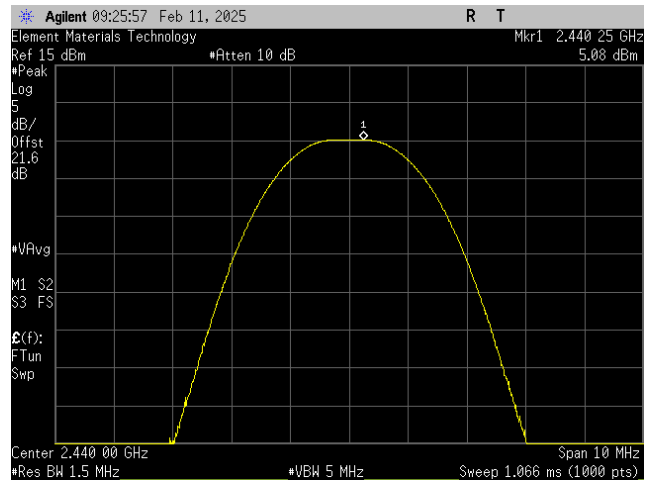
TEST RESULTS

	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
BLE/GFSK 1 Mbps					
Low Channel, 2402 MHz	5.18	-2.92	2.260	36	Pass
Mid Channel, 2440 MHz	5.078	-2.92	2.158	36	Pass
High Channel, 2480 MHz	4.92	-2.92	2.000	36	Pass
BLE/GFSK 2 Mbps					
Low Channel, 2402 MHz	5.253	-2.92	2.333	36	Pass
Mid Channel, 2440 MHz	5.123	-2.92	2.203	36	Pass
High Channel, 2480 MHz	4.955	-2.92	2.035	36	Pass

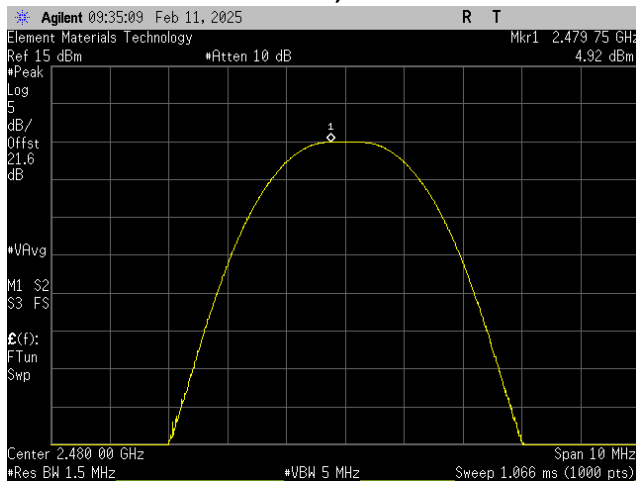
EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



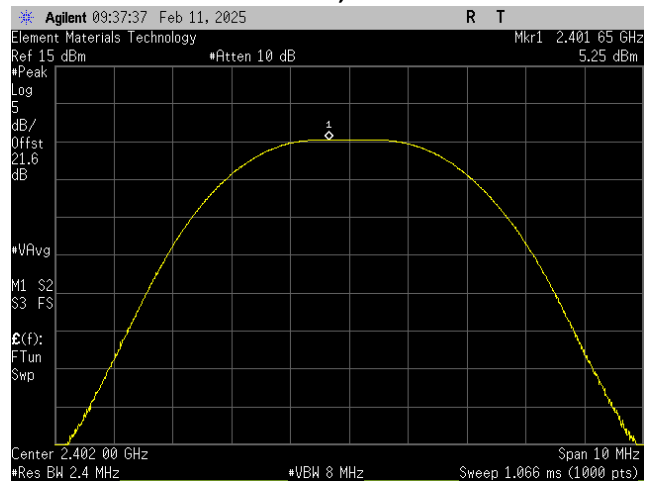
**BLE/GFSK 1 Mbps
Low Channel, 2402 MHz**



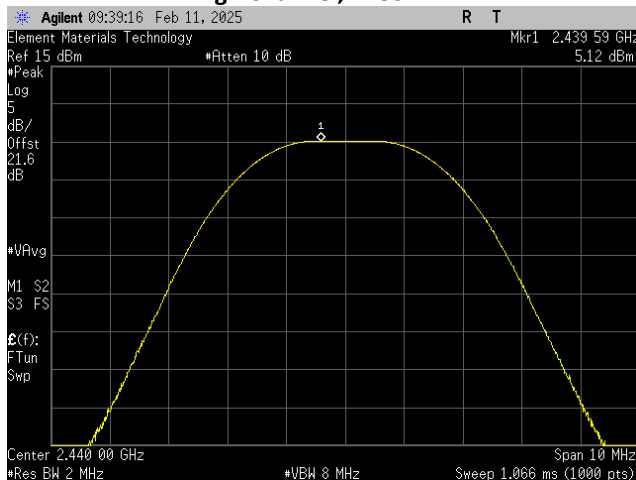
**BLE/GFSK 1 Mbps
Mid Channel, 2440 MHz**



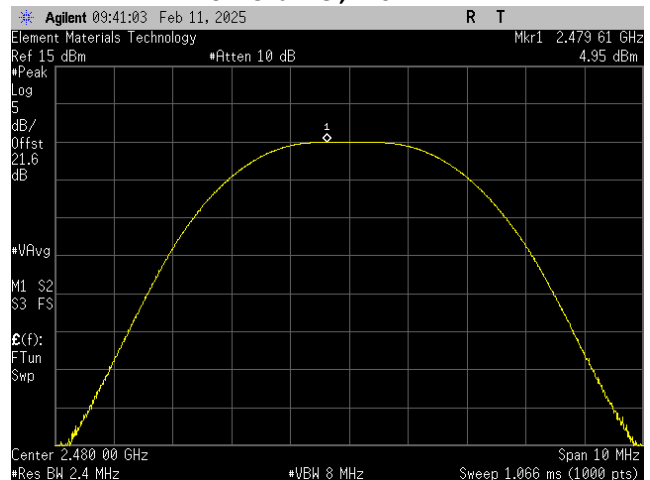
**BLE/GFSK 1 Mbps
High Channel, 2480 MHz**



**BLE/GFSK 2 Mbps
Low Channel, 2402 MHz**



**BLE/GFSK 2 Mbps
Mid Channel, 2440 MHz**



**BLE/GFSK 2 Mbps
High Channel, 2480 MHz**

SPURIOUS RADIATED EMISSIONS

TEST DESCRIPTION

The highest gain antenna of each type to be used with the EUT was tested. The EUT was configured for the required transmit frequencies and the modes as showed in the data sheets.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. A reference preview scan (pre-scan) is included in the report. Final measurements on individual emissions were then made and included in this test report.

The individual emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis if required, and adjusting the measurement antenna height and polarization (per ANSI C63.10). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector
PK = Peak Detector
AV = RMS Detector

Measurements were made to satisfy the specific requirements of the test specification for out of band emissions as well as the restricted band requirements.

If there are no detectable emissions above the noise floor, the data included may show noise floor measurements for reference only.

Measurements within 2 MHz of the allowable band may have been taken using the integration method from ANSI C63.10 clause 11.13.3. This procedure uses the channel power feature of the spectrum analyzer to integrate the power of the emission within a 1 MHz bandwidth.

Where the radio test software does not provide for a duty cycle at continuous transmit conditions (> 98%) and the RMS (power average) measurements were made across the on and off times of the EUT transmissions, a duty cycle correction is added to the measurements using the formula of $10 \cdot \log(1/dc)$.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Antenna - Double Ridge	ETS Lindgren	3115	AIR	2024-07-23	2026-07-23
Cable	Northwest EMC	1-8GHz RE Cables	OCJ	2024-05-08	2025-05-08
Amplifier - Pre-Amplifier	Cernex	CBL01084020-xx	PAX	2024-05-08	2025-05-08
Attenuator	Fairview Microwave	SA18H-20	TKQ	2024-05-08	2025-05-08
Filter - High Pass	Micro-Tronics	HPM50111	HHX	2024-05-08	2025-05-08
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	2023-12-05	2025-12-05
Attenuator	Fairview Microwave	SA18H-20	TKQ	2024-05-08	2025-05-08
Antenna - Standard Gain	ETS Lindgren	3160-07	AHR	2024-12-03	2025-12-03
Cable	Northwest EMC	8-18GHz RE Cables	OCO	2024-03-19	2025-03-19
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AOE	2024-03-19	2025-03-19
Antenna - Standard Gain	ETS Lindgren	3160-08	AHT	2024-12-03	2025-12-03
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AOF	2024-03-19	2025-03-19

SPURIOUS RADIATED EMISSIONS

FREQUENCY RANGE INVESTIGATED

1 GHz TO 18 GHz

POWER INVESTIGATED

Battery (nominal voltage 3.6 VDC)

CONFIGURATIONS INVESTIGATED

TJNC0044-2

MODES INVESTIGATED

Transmitting Bluetooth Low Energy. High Ch. 2480 MHz. 1 Mbps

Transmitting Bluetooth Low Energy. Low Ch. 2402 MHz, Mid Ch. 2440 MHz, High Ch. 2480 MHz. 1 Mbps, 2 Mbps. Duty Cycle 100%

SPURIOUS RADIATED EMISSIONS

EUT:	Jupiter-Gemini System	Work Order:	TJNC0044
Serial Number:	20460223	Date:	2025-02-13
Customer:	Abbott Laboratories	Temperature:	20.1°C
Attendees:	John Paul Bedinger	Relative Humidity:	59%
Customer Project:	None	Bar. Pressure (PMSL):	1016 mb
Tested By:	Nolan De Ramos	Job Site:	OC10
Power:	Battery (nominal voltage 3.6 VDC)	Configuration:	TJNC0044-2

TEST PARAMETERS

Run #:	15	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)
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COMMENTS

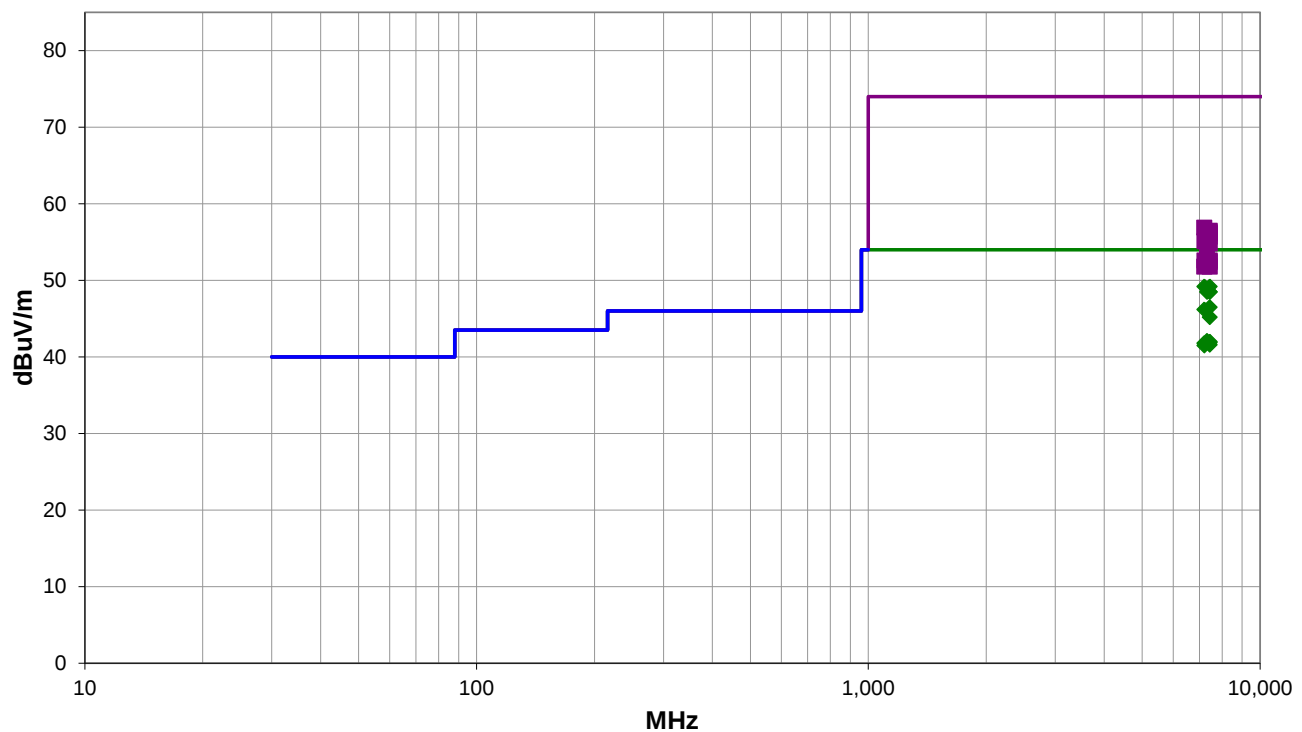
Spot Check on worst case harmonics found in prescans

EUT OPERATING MODES

Transmitting Bluetooth Low Energy. Low Ch. 2402 MHz, Mid Ch. 2440 MHz, High Ch. 2480 MHz. 1 Mbps, 2 Mbps. Duty cycle 100%

DEVIATIONS FROM TEST STANDARD

None



Run #: 15

PK AV QP

SPURIOUS RADIATED EMISSIONS

RESULTS - Run #15

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
7439.400	42.3	6.9	2.4	171.0	3.0	0.0	Horz	AV	0.0	49.2	54.0	-4.8	Tx 2480 MHz, 1 Mbps, EUT on Side
7205.417	43.0	6.2	2.1	315.0	3.0	0.0	Horz	AV	0.0	49.2	54.0	-4.8	Tx 2402 MHz, 1 Mbps, EUT on Side
7439.317	41.6	6.9	1.5	350.0	3.0	0.0	Vert	AV	0.0	48.5	54.0	-5.5	Tx 2480 MHz, 1 Mbps, EUT Horz
7439.467	41.6	6.9	2.3	159.0	3.0	0.0	Vert	AV	0.0	48.5	54.0	-5.5	Tx 2480 MHz, 1 Mbps, EUT Vert
7320.667	41.9	6.6	1.9	0.0	3.0	0.0	Horz	AV	0.0	48.5	54.0	-5.5	Tx 2440 MHz, 1 Mbps, EUT on Side
7438.700	39.6	6.9	2.8	348.0	3.0	0.0	Horz	AV	0.0	46.5	54.0	-7.5	Tx 2480 MHz, 2 Mbps, EUT on Side
7204.758	40.0	6.2	2.7	122.0	3.0	0.0	Horz	AV	0.0	46.2	54.0	-7.8	Tx 2402 MHz, 2 Mbps, EUT on Side
7439.417	38.3	6.9	1.5	97.0	3.0	0.0	Horz	AV	0.0	45.2	54.0	-8.8	Tx 2480 MHz, 1 Mbps, EUT Horz
7319.450	35.6	6.5	1.5	41.0	3.0	0.0	Vert	AV	0.0	42.1	54.0	-11.9	Tx 2440 MHz, 1 Mbps, EUT on Side
7437.858	35.1	6.9	1.5	108.0	3.0	0.0	Horz	AV	0.0	42.0	54.0	-12.0	Tx 2480 MHz, 1 Mbps, EUT Vert
7438.467	35.0	6.9	1.5	325.0	3.0	0.0	Vert	AV	0.0	41.9	54.0	-12.1	Tx 2480 MHz, 1 Mbps, EUT on Side
7204.750	35.6	6.2	1.5	214.0	3.0	0.0	Vert	AV	0.0	41.8	54.0	-12.2	Tx 2402 MHz, 2 Mbps, EUT on Side
7438.292	34.7	6.9	1.5	15.0	3.0	0.0	Vert	AV	0.0	41.6	54.0	-12.4	Tx 2480 MHz, 2 Mbps, EUT on Side
7206.608	35.3	6.2	1.5	217.0	3.0	0.0	Vert	AV	0.0	41.5	54.0	-12.5	Tx 2402 MHz, 1 Mbps, EUT on Side
7205.175	50.7	6.2	2.1	315.0	3.0	0.0	Horz	PK	0.0	56.9	74.0	-17.1	Tx 2402 MHz, 1 Mbps, EUT on Side
7440.508	49.6	6.9	2.3	159.0	3.0	0.0	Vert	PK	0.0	56.5	74.0	-17.5	Tx 2480 MHz, 1 Mbps, EUT Vert
7440.925	49.4	6.9	2.4	171.0	3.0	0.0	Horz	PK	0.0	56.3	74.0	-17.7	Tx 2480 MHz, 1 Mbps, EUT on Side
7319.175	49.7	6.5	1.9	0.0	3.0	0.0	Horz	PK	0.0	56.2	74.0	-17.8	Tx 2440 MHz, 1 Mbps, EUT on Side
7439.500	49.2	6.9	1.5	350.0	3.0	0.0	Vert	PK	0.0	56.1	74.0	-17.9	Tx 2480 MHz, 1 Mbps, EUT Horz
7441.608	48.8	6.9	2.8	348.0	3.0	0.0	Horz	PK	0.0	55.7	74.0	-18.3	Tx 2480 MHz, 2 Mbps, EUT on Side
7207.125	48.9	6.2	2.7	122.0	3.0	0.0	Horz	PK	0.0	55.1	74.0	-18.9	Tx 2402 MHz, 2 Mbps, EUT on Side
7441.025	47.9	6.9	1.5	97.0	3.0	0.0	Horz	PK	0.0	54.8	74.0	-19.2	Tx 2480 MHz, 1 Mbps, EUT Horz
7321.275	46.5	6.6	1.5	41.0	3.0	0.0	Vert	PK	0.0	53.1	74.0	-20.9	Tx 2440 MHz, 1 Mbps, EUT on Side
7441.108	45.7	6.9	1.5	108.0	3.0	0.0	Horz	PK	0.0	52.6	74.0	-21.4	Tx 2480 MHz, 1 Mbps, EUT Vert
7205.525	46.4	6.2	1.5	214.0	3.0	0.0	Vert	PK	0.0	52.6	74.0	-21.4	Tx 2402 MHz, 2 Mbps, EUT on Side
7438.367	45.5	6.9	1.5	325.0	3.0	0.0	Vert	PK	0.0	52.4	74.0	-21.6	Tx 2480 MHz, 1 Mbps, EUT on Side
7205.167	45.6	6.2	1.5	217.0	3.0	0.0	Vert	PK	0.0	51.8	74.0	-22.2	Tx 2402 MHz, 1 Mbps, EUT on Side
7442.067	44.9	6.9	1.5	15.0	3.0	0.0	Vert	PK	0.0	51.8	74.0	-22.2	Tx 2480 MHz, 2 Mbps, EUT on Side

CONCLUSION

Pass



Tested By

SPURIOUS RADIATED EMISSIONS

EUT:	Jupiter-Gemini System	Work Order:	TJNC0044
Serial Number:	20460223	Date:	2025-02-13
Customer:	Abbott Laboratories	Temperature:	20.1°C
Attendees:	John Paul Bedinger	Relative Humidity:	59%
Customer Project:	None	Bar. Pressure (PMSL):	1016 mb
Tested By:	Nolan De Ramos	Job Site:	OC10
Power:	Battery (nominal voltage 3.6 VDC)	Configuration:	TJNC0044-2

TEST PARAMETERS

Run #:	20	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)
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COMMENTS

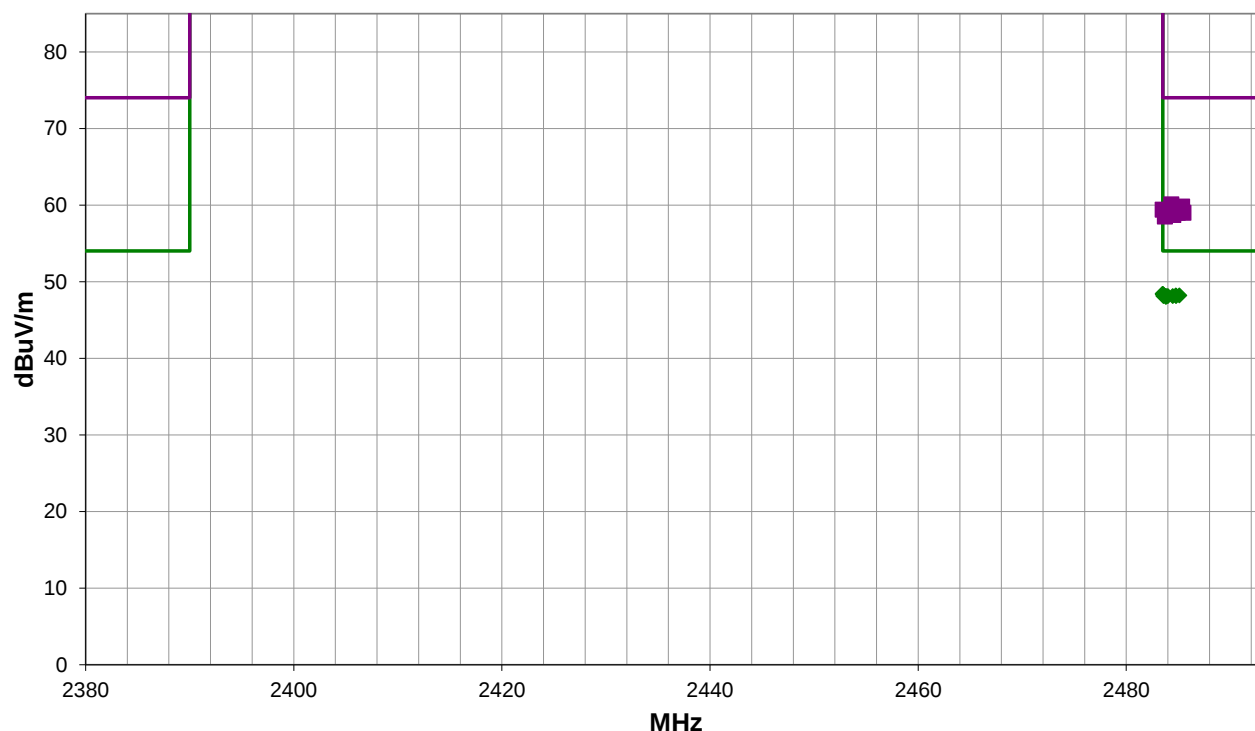
Spot check on high band edge

EUT OPERATING MODES

Transmitting Bluetooth Low Energy. High Ch. 2480 MHz. 1 Mbps, 2 Mbps. Duty cycle: 100%

DEVIATIONS FROM TEST STANDARD

None



Run #: 20

PK AV QP

SPURIOUS RADIATED EMISSIONS

RESULTS - Run #20

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2483.500	40.5	-12.1	1.5	148.0	3.0	20.0	Vert	AV	0.0	48.4	54.0	-5.6	Tx 2480 MHz, 2 Mbps, EUT on Side
2483.527	40.5	-12.1	1.5	99.0	3.0	20.0	Horz	AV	0.0	48.4	54.0	-5.6	Tx 2480 MHz, 2 Mbps, EUT Horz
2483.667	40.3	-12.1	1.5	168.0	3.0	20.0	Vert	AV	0.0	48.2	54.0	-5.8	Tx 2480 MHz, 2 Mbps, EUT Vert
2484.770	40.3	-12.1	2.07	228.0	3.0	20.0	Vert	AV	0.0	48.2	54.0	-5.8	Tx 2480 MHz, 2 Mbps, EUT Horz
2485.100	40.3	-12.1	1.5	187.0	3.0	20.0	Horz	AV	0.0	48.2	54.0	-5.8	Tx 2480 MHz, 1 Mbps, EUT on Side
2483.577	40.3	-12.1	1.5	25.0	3.0	20.0	Vert	AV	0.0	48.2	54.0	-5.8	Tx 2480 MHz, 1 Mbps, EUT on Side
2483.577	40.2	-12.1	1.5	227.0	3.0	20.0	Horz	AV	0.0	48.1	54.0	-5.9	Tx 2480 MHz, 2 Mbps, EUT on Side
2483.860	40.2	-12.1	1.5	96.0	3.0	20.0	Horz	AV	0.0	48.1	54.0	-5.9	Tx 2480 MHz, 2 Mbps, EUT Vert
2484.007	40.2	-12.1	1.5	359.0	3.0	20.0	Vert	AV	0.0	48.1	54.0	-5.9	Tx 2480 MHz, 1 Mbps, EUT Vert
2484.470	40.2	-12.1	1.5	98.0	3.0	20.0	Horz	AV	0.0	48.1	54.0	-5.9	Tx 2480 MHz, 1 Mbps, EUT Horz
2484.787	40.2	-12.1	1.5	13.0	3.0	20.0	Vert	AV	0.0	48.1	54.0	-5.9	Tx 2480 MHz, 1 Mbps, EUT Horz
2483.820	40.1	-12.1	3.83	34.0	3.0	20.0	Horz	AV	0.0	48.0	54.0	-6.0	Tx 2480 MHz, 1 Mbps, EUT Vert
2484.333	52.2	-12.1	1.5	227.0	3.0	20.0	Horz	PK	0.0	60.1	74.0	-13.9	Tx 2480 MHz, 2 Mbps, EUT on Side
2485.353	51.9	-12.1	1.5	168.0	3.0	20.0	Vert	PK	0.0	59.8	74.0	-14.2	Tx 2480 MHz, 2 Mbps, EUT Vert
2484.673	51.8	-12.1	1.5	99.0	3.0	20.0	Horz	PK	0.0	59.7	74.0	-14.3	Tx 2480 MHz, 2 Mbps, EUT Horz
2484.267	51.5	-12.1	1.5	187.0	3.0	20.0	Horz	PK	0.0	59.4	74.0	-14.6	Tx 2480 MHz, 1 Mbps, EUT Vert
2483.503	51.5	-12.1	1.5	359.0	3.0	20.0	Vert	PK	0.0	59.4	74.0	-14.6	Tx 2480 MHz, 1 Mbps, EUT on Side
2483.877	51.4	-12.1	1.5	148.0	3.0	20.0	Vert	PK	0.0	59.3	74.0	-14.7	Tx 2480 MHz, 2 Mbps, EUT on Side
2484.783	51.2	-12.1	1.5	98.0	3.0	20.0	Horz	PK	0.0	59.1	74.0	-14.9	Tx 2480 MHz, 1 Mbps, EUT Horz
2484.390	51.1	-12.1	1.5	25.0	3.0	20.0	Vert	PK	0.0	59.0	74.0	-15.0	Tx 2480 MHz, 1 Mbps, EUT Vert
2485.493	51.1	-12.1	3.83	34.0	3.0	20.0	Horz	PK	0.0	59.0	74.0	-15.0	Tx 2480 MHz, 1 Mbps, EUT on Side
2484.943	51.1	-12.1	1.5	13.0	3.0	20.0	Vert	PK	0.0	59.0	74.0	-15.0	Tx 2480 MHz, 1 Mbps, EUT Horz
2484.513	50.8	-12.1	2.07	228.0	3.0	20.0	Vert	PK	0.0	58.7	74.0	-15.3	Tx 2480 MHz, 2 Mbps, EUT Horz
2483.710	50.6	-12.1	1.5	96.0	3.0	20.0	Horz	PK	0.0	58.5	74.0	-15.5	Tx 2480 MHz, 2 Mbps, EUT Vert

CONCLUSION

Pass

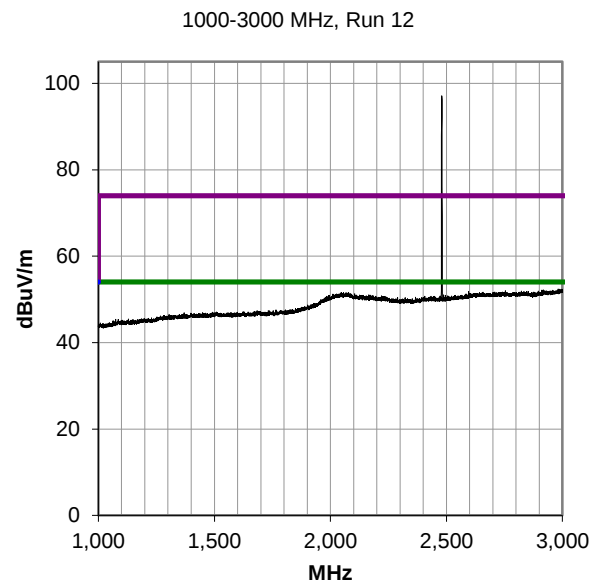
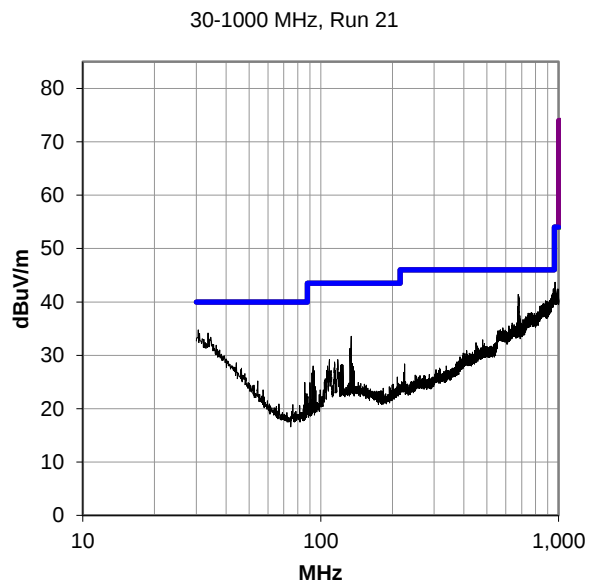
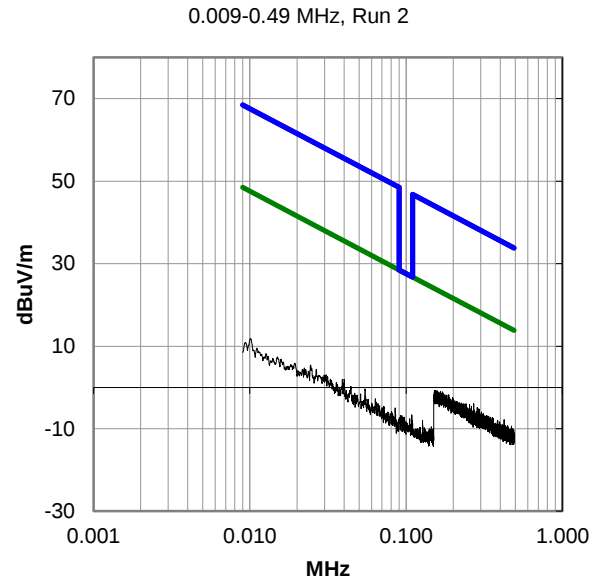
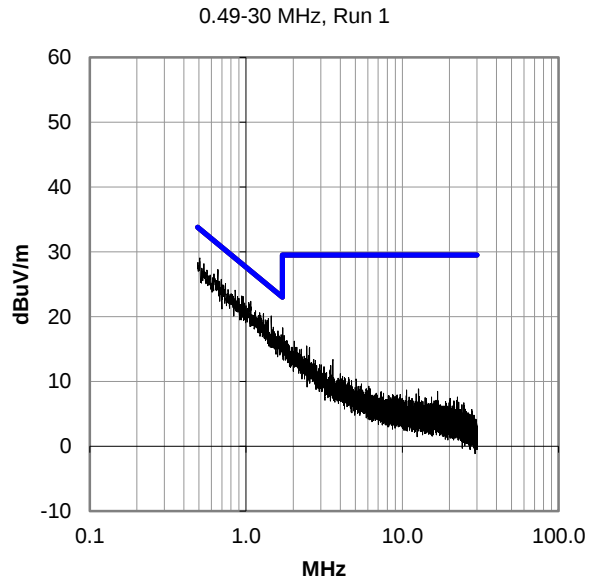


Tested By

SPURIOUS RADIATED EMISSIONS

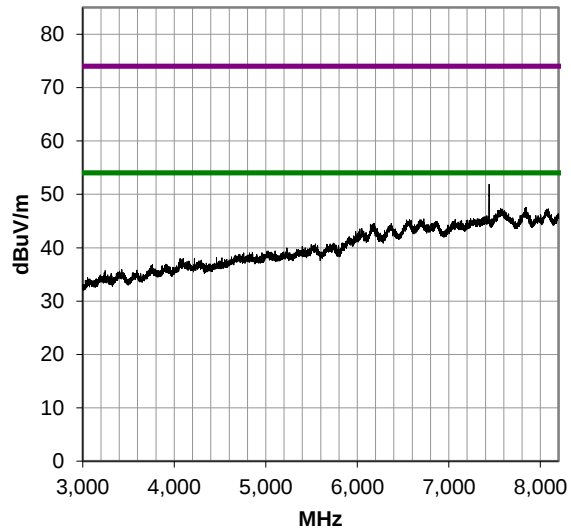
PRESCAN DATA

Radiated spurious emissions from the EUT are initially reviewed with Pre-scans (Preview scans). Pre-scans are performed, with the EUT transmitting on the lowest applicable data rate, for both vertical and horizontal polarizations. The Pre-scan plots below are shown with a peak detector and RBW for the following frequency ranges: 9 kHz RBW (< 30 MHz); 120 kHz RBW (30 - 1000 MHz); 1 MHz RBW (> 1 GHz). In the case where unintentional emissions are observed, an ambient or idle pre-scan with the radio off, will be shown for comparison.

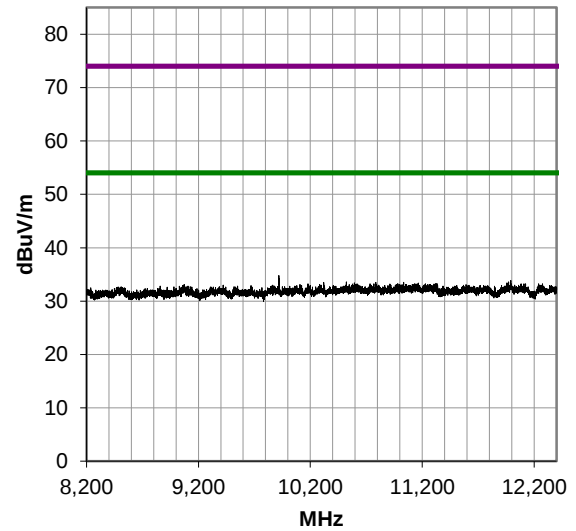


SPURIOUS RADIATED EMISSIONS

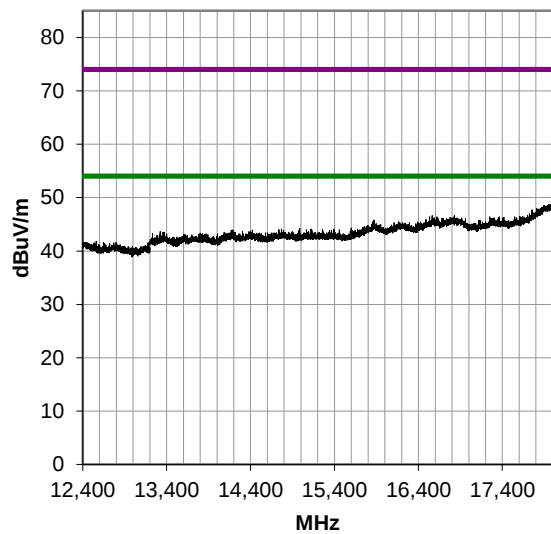
3000-8200 MHz, Run 13



8200-12400 MHz, Run 14



12400-18000 MHz, Run 15



End of Test Report