

TEST REPORT

Report Number: 15496277-E2V3

Applicant : APPLE, INC.
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A.

Model : A3258 (PARENT)
A3519, A3520, A3521 (VARIANTS)

Brand : APPLE

FCC ID : BCG-E8947A (PARENT)
BCG-E8951A, BCG-E8952A, BCG-E8953A (VARIANTS)

IC : 579C-E8947A (PARENT)
579C-E8951A, 579C-E8952A, 579C-E8953A (VARIANTS)

EUT Description : SMARTPHONE

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
ISED RSS-247 ISSUE 3
ISED RSS-GEN ISSUE 5 + A1 + A2

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REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	08/05/25	Initial Issue	Francisco Guarnero
V2	08/18/25	Addressed TCB Feedback and questions for page 1, sections 9.3, 9.4 and 10. HDT3 data added.	Francisco Guarnero
V3	08/20/25	Addressed TCB feedback for sections 9.4, 9.6, 9.7, 10 & Appendix A.	Francisco Guarnero

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: APPLE INC.
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A

EUT DESCRIPTION: SMARTPHONE

MODEL: A3258 (PARENT)
A3519, A3520, A3521 (VARIANTS)

BRAND: APPLE

SERIAL NUMBER: J6HHCW000670000YAV (Conducted)
J3XKVHG144 (Radiated)

SAMPLE RECEIPT DATE: 2025/02/28

DATE TESTED: APRIL 4 – AUGUST 18, 2025

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Complies
ISED RSS-247 Issue 3	Complies
ISED RSS-GEN Issue 5 + A1 + A2	Complies

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested can demonstrate compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to ensure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not considered unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, any agency of the Federal Government, or any agency of the U.S. government.

Approved & Released For
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2. TEST SUMMARY

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for correctly integrating customer-provided data with measurements performed by UL Verification Services Inc.

Below is a list of the data provided by the customer:

1. Antenna gain and type (see section 6.4)
2. Cable loss (see section 6.4)

FCC Clause	ISED Clause	Requirement	Result	Comment
See Comment		Duty Cycle	Reporting purposes only	ANSI C63.10 Section 11.6.
-	RSS-GEN 6.7	99% OBW	Reporting purposes only	ANSI C63.10 Section 6.9.3.
15.247 (a) (2)	RSS-247 5.2 (a)	6dB BW	Complies	None.
15.247 (b) (3)	RSS-247 5.4 (d)	Output Power	Complies	None.
See Comment		Average power	Reporting purposes only	Per ANSI C63.10, Section 11.9.2.3.2.
15.247 (e)	RSS-247 5.2 (b)	PSD	Complies	None.
15.247 (d)	RSS-247 5.5	Conducted Spurious Emissions	Complies	None.
15.209, 15.205	RSS-GEN 8.9, 8.10	Radiated Emissions	Complies	None.
15.207	RSS-Gen 8.8	AC Mains Conducted Emissions	Complies	None.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with:

- FCC 47 CFR Part 2
- FCC 47 CFR Part 15C
- *ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024
- KDB 558074 D01 15.247 Meas Guidance
- KDB 414788 D01 Radiated Test Site
- KDB 662911 D01 Multiple Transmitter Output
- KDB 484596 D01 Referencing Test Data
- RSS-GEN Issue 5 + A1 + A2
- RSS-247 Issue 3

*Note: The use of ANSI C63.10-2020 + Cor. 1-2023 + C63.10a-2024 does not deviate from the testing procedures of ANSI C63.10-2020

4. FACILITIES AND ACCREDITATION

UL Verification Services Inc.is accredited by A2LA, certification #0751.05, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
☒	Building 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	550739
☒	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA			
☒	Building 3: 843 Auburn Court, Fremont, CA 94538 USA			
☒	Building 4: 47658 Kato Rd, Fremont, CA 94538 USA			
☒	Building 5: 47670 Kato Rd, Fremont, CA 94538 USA			

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

5.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U _{LAB}
Conducted Antenna Port Emission Measurement	1.94
Power Spectral Density	2.466
Time Domain Measurements Using SA	3.39
RF Power Measurement Direct Method Using Power Meter	1.30 (PK), 0.450 (Ave)
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	1.2%
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.87 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB

Uncertainty figures are valid to a confidence level of 95%.

6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The Apple iPhone is a smartphone with cellular GSM, GPRS, EGPRS, WCDMA, LTE, 5GNR1, 5GNR2, IEEE 802.11a/b/g/n/ac/ax/be, Bluetooth (BT), Ultra-Wideband (UWB), Global Positioning System (GPS), Near-Field Communication (NFC), Narrow-Band (NB) UNII, 802.15.4, 802.15.4ab-Narrow Band (NB), Wireless Power Transfer (WPT) and Mobile Satellite Service (MSS) technologies. The rechargeable battery is not user accessible. This device is not user-serviceable and requires special tools to disassemble.

6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Antenna	Configuration	Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
ANT 4	High Power	2402 - 2480	LELR2	12.94	19.68
	Low Power			8.92	7.80
	High Power	2402 - 2480	LE1M	20.44	110.66
	Low Power			8.94	7.83
	High Power	2404 - 2478	LE2M	20.54	113.24
	Low Power			8.91	7.78
	High Power	2404 - 2476	HDT3	16.59	45.60
	Low Power			8.86	7.69
	High Power	2404 - 2476	HDT8	11.87	15.38
	Low Power			2.62	1.83
ANT 3	High Power	2402 - 2480	LELR2	12.90	19.50
	Low Power			9.31	8.53
	High Power	2402 - 2480	LE1M	20.19	104.47
	Low Power			9.15	8.22
	High Power	2404 - 2478	LE2M	20.25	105.93
	Low Power			9.23	8.38
	High Power	2404 - 2476	HDT3	16.25	42.17
	Low Power			9.21	8.34
	High Power	2404 - 2476	HDT8	11.49	14.09
	Low Power			3.28	2.13
BF, ANT 4 + ANT 3	High Power	2402 - 2480	LELR2	12.89	19.45
	Low Power			12.03	15.96
	High Power	2402 - 2480	LE1M	22.93	196.34
	Low Power			12.09	16.18
	High Power	2404 - 2478	LE2M	23.31	214.29
	Low Power			12.10	16.22
	High Power	2404 - 2476	HDT3	19.55	90.16
	Low Power			11.92	15.56
	High Power	2404 - 2476	HDT8	14.66	29.24
	Low Power			5.90	3.89

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The antenna(s) gain, type and cable loss, as provided by the manufacturer' are as follows:

Frequency Band (GHz)	Antenna Type	Antenna Peak Gain ANT 4 (dBi)	Antenna Peak Gain ANT 3 (dBi)	Cable Loss ANT 4 (dB)	Cables Loss ANT 3 (dB)
2.4	IFA	0.0	-3.5	1.56	2.29

The cables were used for RF antenna port tests that had been offset to the test equipment during testing.

6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version 23A258.

6.5. WORST-CASE CONFIGURATION AND MODE

The EUT was investigated in three orthogonal orientations X, Y and Z on ANT 4, ANT 3 and 2TX beamforming. It was determined that X (Flatbed) orientation was the worst-case orientation for ANT 4, ANT 3 and 2TX beamforming.

Radiated band edge, harmonic, and spurious emissions from 1GHz to 18GHz were performed with the EUT was set to transmit at highest power on Low/Middle/High channels.

Radiated emissions below 30MHz, below 1GHz, 18-26GHz and power line conducted emissions were performed with the EUT transmits at the channel with the highest output power as worst-case scenario.

For below 1GHz, tests were performed with EUT connected to AC power adapter as the worst case; and for above 1GHz, the worst-case configuration reported was tested with EUT only. For AC line conducted emission, test was investigated with AC power adapter and with laptop.

For simultaneous transmission of multiple channels in the 2.4GHz BLE and 5GHz bands. No noticeable emission was found.

The output power and PSD for the BLE were investigated among all different modulations, and we found that worst-case on highest power and PSD readings as shown below table.

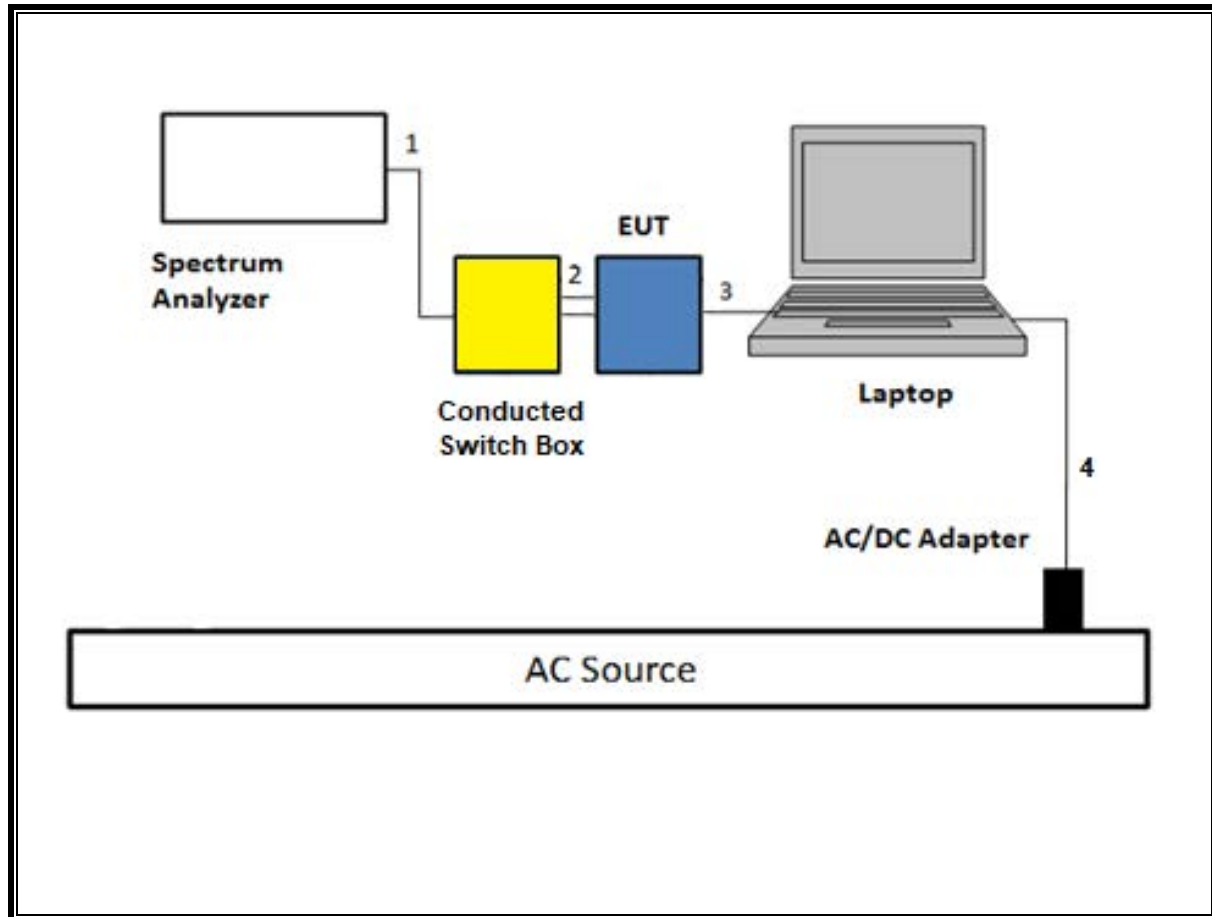
Technology	Mode	Data Rate	Frequency Range (MHz)	Worst Case Tone	
				Power	PSD
LE	LE Adv	1Mbps	2402-2480		
	LE1M	1Mbps		x	
	LELR2	500Kbps			x
	LELR8	125Kbps			
	BTCSM1_LE1M	1Mbps			
	LE2M	2Mbps	2404-2478	x	x
	BTCSM1_LE2M	2Mbps			
	HDT2	2Mbps	2404-2476		
	HDT3	3Mbps		x	
	HDT4	4Mbps			
	HDT6	6Mbps			
	HDT8	8Mbps			x

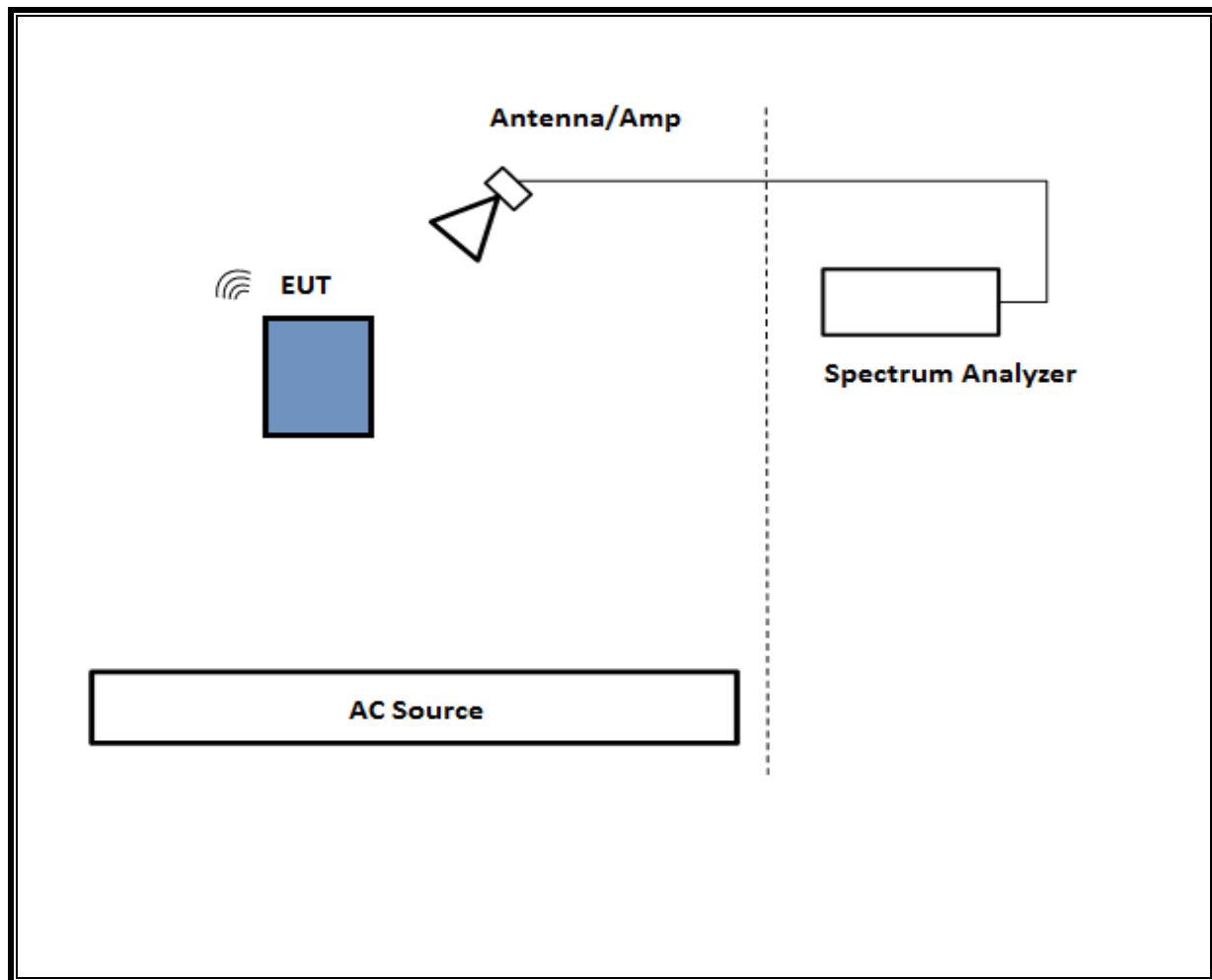
6.6. DESCRIPTION OF TEST SETUP

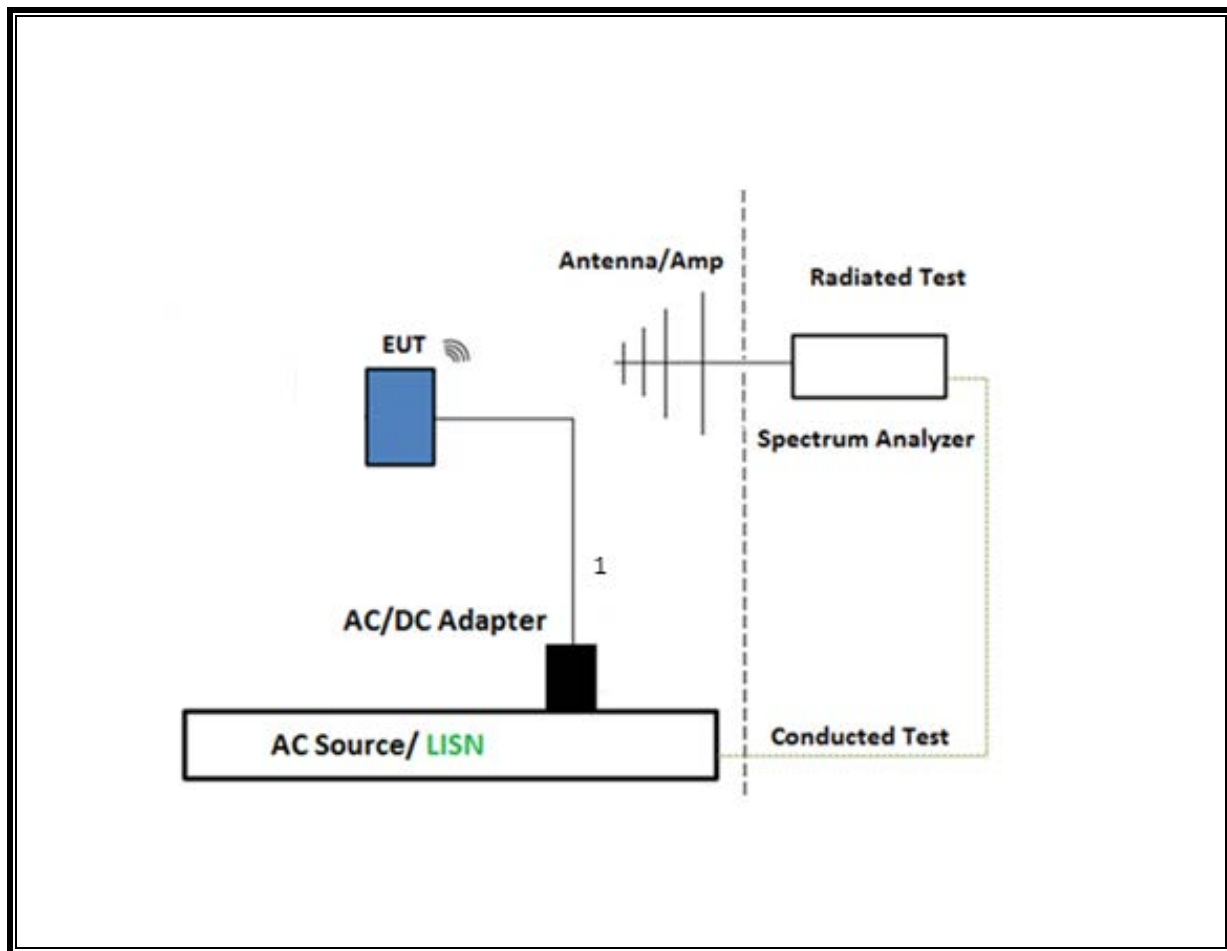
SUPPORT TEST EQUIPMENT						
Description		Manufacturer	Model	Serial Number		FCC ID/ DoC
Laptop		Apple	Macbook	G2YKJ9LWH5		N/A
Laptop AC/DC adapter		Apple	N/A	C4H238408AEPM0WAS		DoC
EUT AC/DC adapter		Apple	N/A	C4H238505ARPM0WAP		DoC
Conducted Switch Box		UL	N/A	245782		N/A
I/O CABLES (RF CONDUCTED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	Antenna	1	SMA	Un-shielded	0.2	To spectrum Analyzer
2	USB	1	USB	Shielded	1.0	N/A
3	AC	1	AC	Un-shielded	2	N/A
I/O CABLES (RF RADIATED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Un-shielded	2	N/A
2	USB	1	USB	Un-shielded	1	N/A

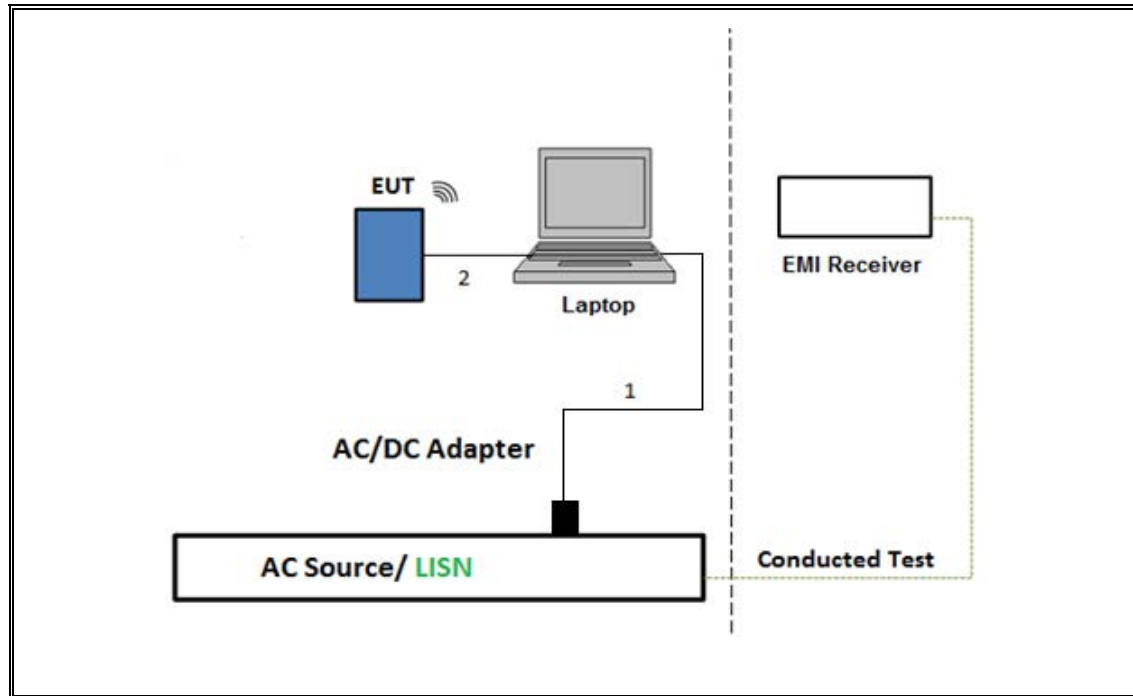
TEST SETUP

The EUT is connected to a test laptop during the tests. Test software exercised the radio card.

SETUP DIAGRAM FOR CONDUCTED TESTS

SETUP DIAGRAM FOR RADIATED TESTS Above 1 GHz

SETUP DIAGRAM FOR Below 1GHz and AC LINE CONDUCTED TEST

TEST SETUP- AC LINE CONDUCTED: LAPTOP CONFIGURATION

7. MEASUREMENT METHOD

On Time and Duty Cycle: ANSI C63.10 Section 11.6

6 dB BW: ANSI C63.10 Section 11.8.1 RBW $\geq$ DTS BW

Occupied BW (99%): ANSI C63.10 Section 6.9.3

Output Power: ANSI C63.10 Section 11.9.1.2 Method PKPM1 Peak-reading power meter

Output Power: ANSI C63.10 Section 11.9.2.3.2 Measurement using gated average power meter

PSD: ANSI C63.10 Section 11.10.2 Method PKPSD (peak PSD)

Radiated emissions restricted frequency bands: ANSI C63.10 Section 11.12.1 and 13

Conducted emissions in restricted frequency bands: ANSI C63.10 Section 11.12.2

Band-edge: ANSI C63.10 Section 11.12.2.4 and 13: Peak Measurement

Band-edge: ANSI C63.10 Section 11.12.2.5 and 13: Average Measurement

AC Power Line Conducted Emissions: ANSI C63.10 Section 6.2

Radiated emissions non-restricted frequency bands ANSI C63.10 Section 11.11 and 13

Radiated Spurious Emissions Below 30MHz: ANSI C63.10 Section 6.4 and 13

NOTE: For all conducted antenna port tests for Beamforming, the same test procedures from BLE LE1M, LELR2, LE2M, HDT3 and HDT8 normal modes were applied.

8. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment were utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	ID Num	Cal Due
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	222740	2025/8/31
RF Filter Box, 1-18GHz, 12 Port	UL-FR1	Frankenstein	171389	2026/3/30
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	201497	2026/2/28
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	80707	2026/6/30
RF Filter Box, 1-18GHz, 12 Port	UL-FR1	N/A	171875	2026/3/31
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	245268	2026/2/28
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	226673	2026/2/28
Filter Box	UL-FR1	Frankenstein, 1 Amp, 12 Port	231874	2026/6/29
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	235670	2026/2/28
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	226671	2027/7/31
RF Filter Box, 1-18GHz, 17 Ports	UL-FR1	RAT 2	236726	2025/10/31
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	223460	2026/2/28
Antenna, Passive Loop, 30Hz - 1MHz	Electro-Metrics	EM-6871	170014	2025/8/31
Antenna, Passive Loop, 100kHz to 30MHz	Electro-Metrics	EM-6872	170016	2025/8/31
Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	170649	2025/8/31
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	169937	2026/2/28
Amplifier 9 KHz - 1 GHz	SONOMA INSTRUMENT	310N	230311	2026/5/31
Antenna, Broadband Hybrid, 30MHz to 3GHz	Sunol Sciences Corp.	JB3	80813	2025/9/29
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	235670	2026/2/28
Antenna, Horn 18-26.5GHz	A.R.A	MWH-1826/B	172353	2026/7/31
Link File, RF Amplifier Assembly, 18-26.5GHz, 60dB Gain	Amplical	AMP18G26.5-60	220194	2026/4/29
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	226078	2026/2/28
Spectrum Analyzer, PXA, 3Hz to 44GHz	N9030A	Keysight Technologies Inc	80397	2026/01/31
Spectrum Analyzer, PXA, 3Hz to 44GHz	N9030A	Keysight Technologies Inc	125179	2026/02/28
Conducted Switch Box	UL-FR1	CSB	245782	*2025/07/31
Conducted Switch Box	UL-FR1	CSB	208281	*2025/05/31
Power Meter, P-series single channel	Keysight Technologies Inc	N1911A	90715	2026/01/31
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	81319	2026/01/31
Power Meter, P-series single channel	Keysight Technologies Inc	N1911A	90718	2026/01/31
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	90419	2026/01/31

AC Line Conducted				
Description	Manufacturer	Model	ID Num	Cal Due
EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESR	171646	2026/02/28
LISN for Conducted Emissions CISPR-16	FISCHER CUSTOM COMMUNICATIONS	FCC-LISN-50/250-25-2-01-480V	175765	2026/01/31
Transient Limiter	TE	TBFL1	207996	2025/09/30
UL AUTOMATION SOFTWARE				
Radiated Software	UL	UL EMC	Ver 9.5, May 1, 2023	
Conducted Software	UL	UL EMC	2020.8.16	
AC Line Conducted Software	UL	UL EMC	Ver 9.5, Mar 3, 2023	

*Testing was completed before equipment calibration date

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

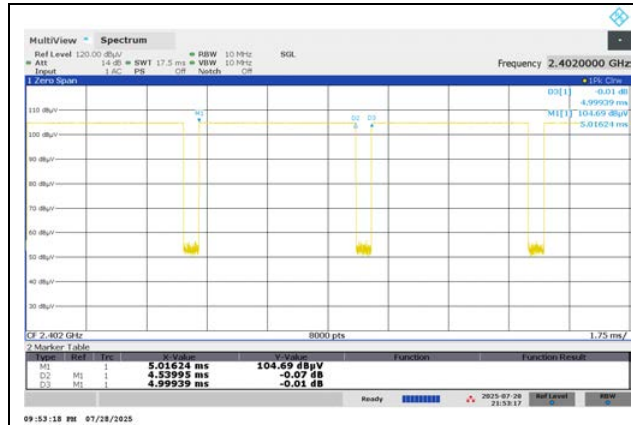
PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4GHz Band						
BLE, LELR2, 500Kbps	4.540	4.999	0.908	90.80%	0.42	0.220
BLE, LE1M, 1Mbps	2.12	2.50	0.849	84.91%	0.71	0.471
BLE, LE2M, 2Mbps	1.07	1.88	0.569	56.90%	2.45	0.937
BLE, HDT3, 3Mbps	1.52	1.60	0.949	94.88%	0.23	0.659
BLE, HDT8, 8Mbps	1.44	1.53	0.943	94.26%	0.26	0.692

Note: The same DCCF was used for both 1TX and 2TX.

DUTY CYCLE PLOTS

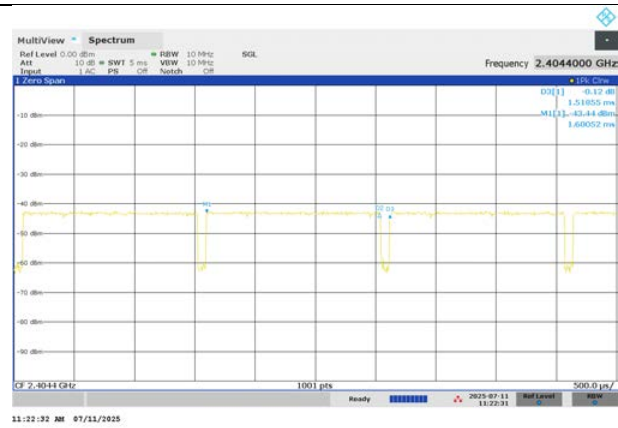
BLE LELR2 500Kbps



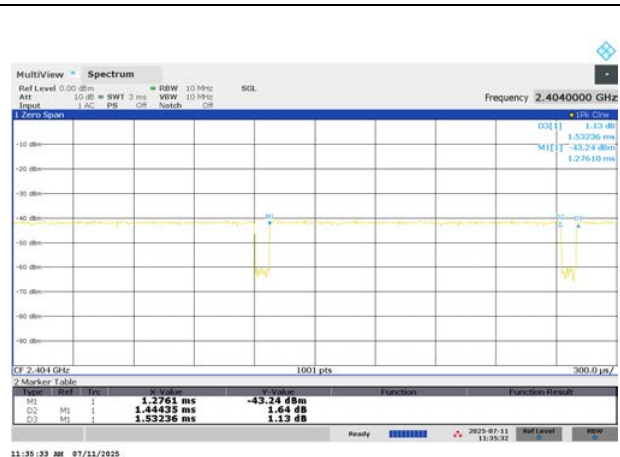
BLE LE1M 1Mbps



BLE LE2M 2Mbps



BLE HDT3 3Mbps



BLE HDT8 8Mbps

9.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

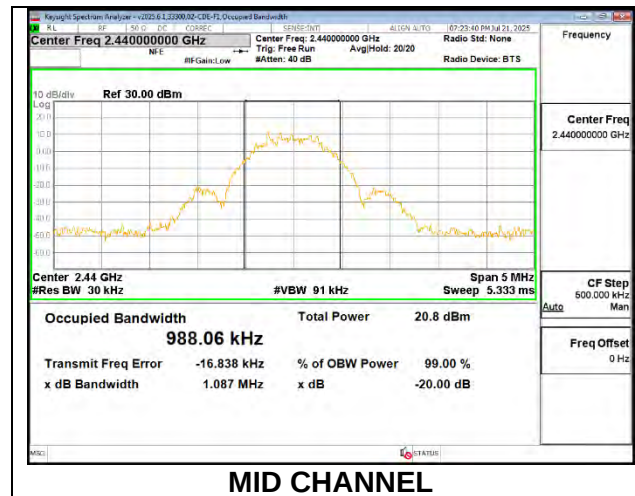
RESULTS

Only High-Power modes results are reported; it covers all Low Power modes. Only Mid channel plot is reported to show the analyzer's settings.

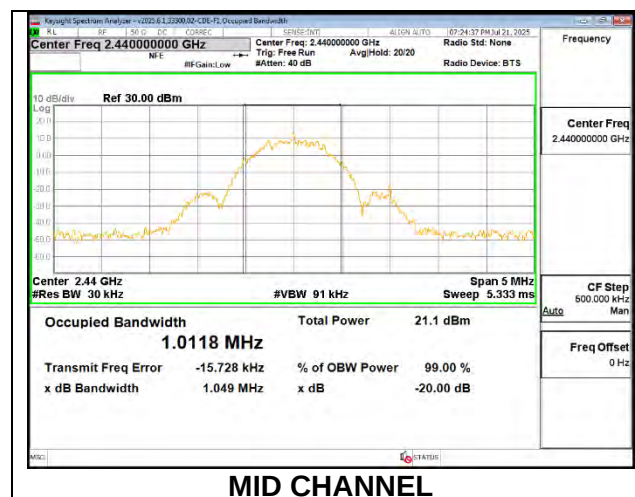
9.2.1. HIGH POWER BLE (LELR2)

ANT 4

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0134
Middle	2440	0.9881
High	2480	1.0126

**ANT 3**

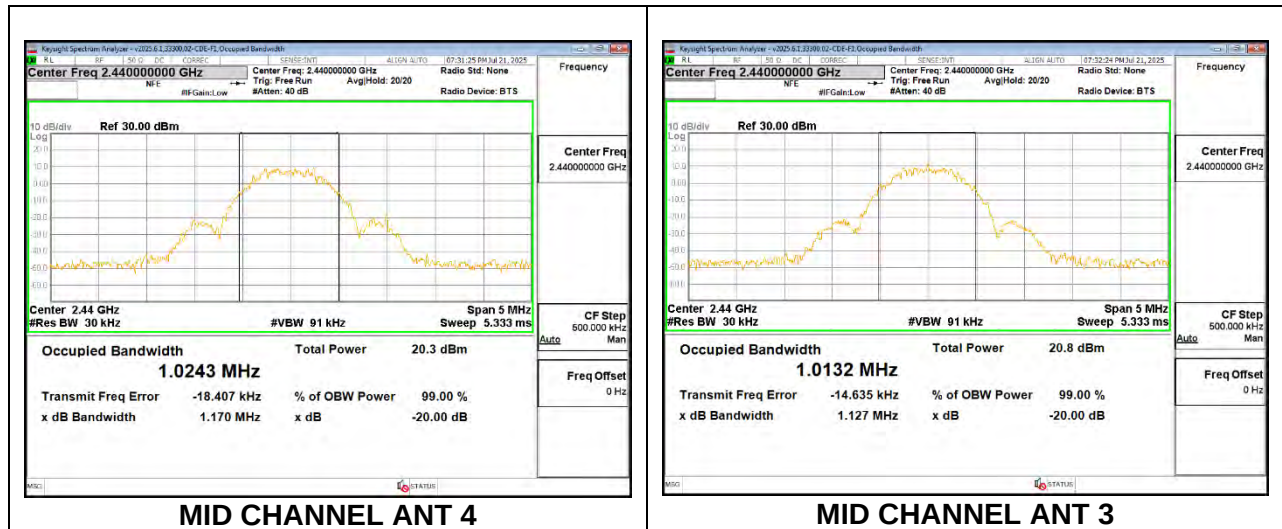
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0155
Middle	2440	1.0118
High	2480	1.0128



9.2.2. HIGH POWER BLE TXBF (LELR2)

Channel	Frequency (MHz)	99% Bandwidth ANT 4 (MHz)	99% Bandwidth ANT 3 (MHz)
Low	2402	1.0255	1.0039
Mid	2440	1.0243	1.0132
High	2480	1.0079	1.0243

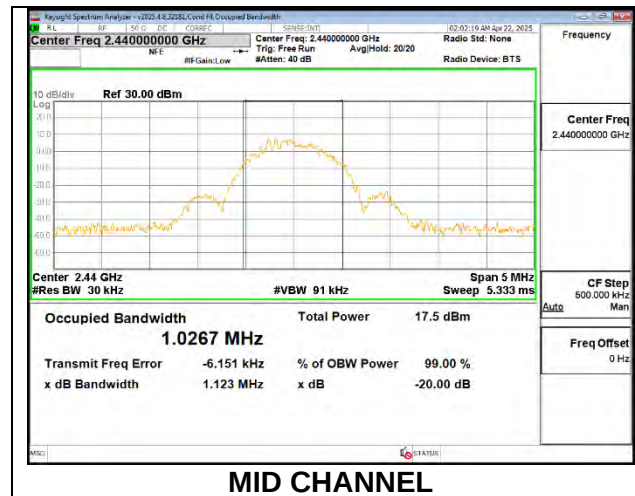
Note: Test procedures and setting are same as BLE normal mode.



9.2.3. HIGH POWER BLE (LE1M)

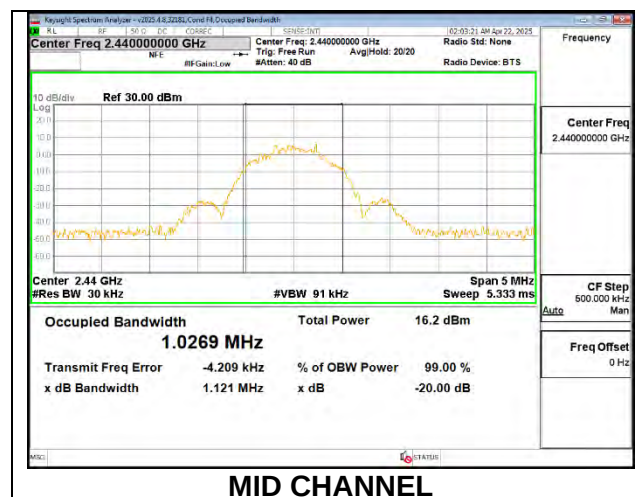
ANT 4

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0366
Middle	2440	1.0267
High	2480	1.0033



ANT 3

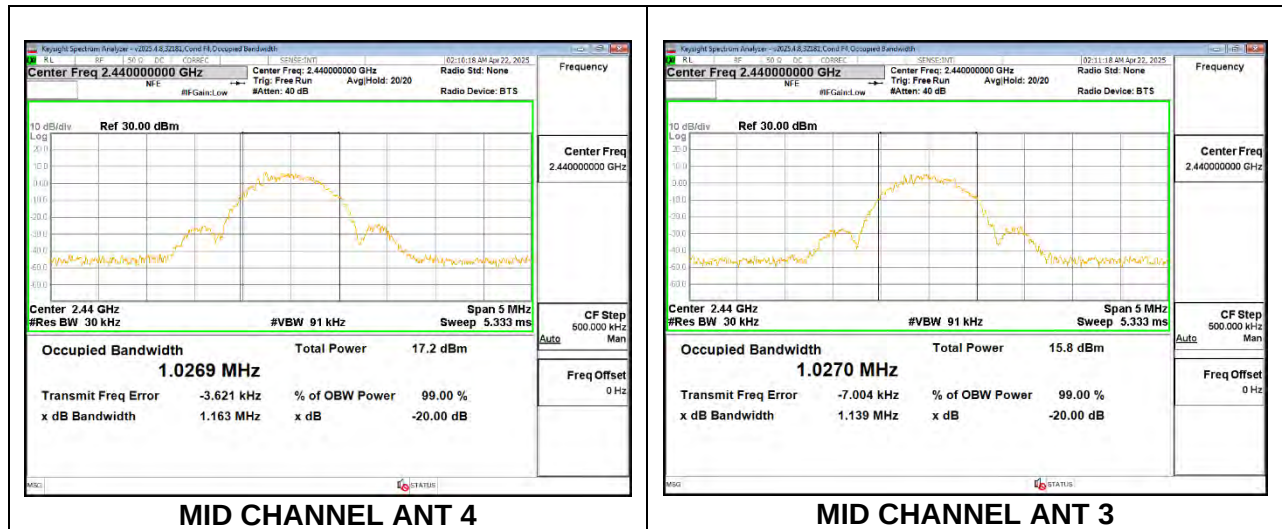
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0305
Middle	2440	1.0269
High	2480	1.0069



9.2.4. HIGH POWER BLE TXBF (LE1M)

Channel	Frequency (MHz)	99% Bandwidth ANT 4 (MHz)	99% Bandwidth ANT 3 (MHz)
Low	2402	1.0408	1.0299
Mid	2440	1.0269	1.0270
High	2480	1.0270	1.0132

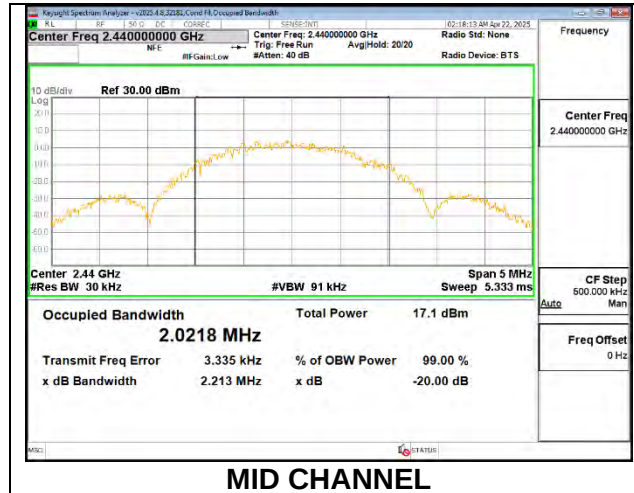
Note: Test procedures and setting are same as BLE normal mode.



9.2.5. HIGH POWER BLE (LE2M)

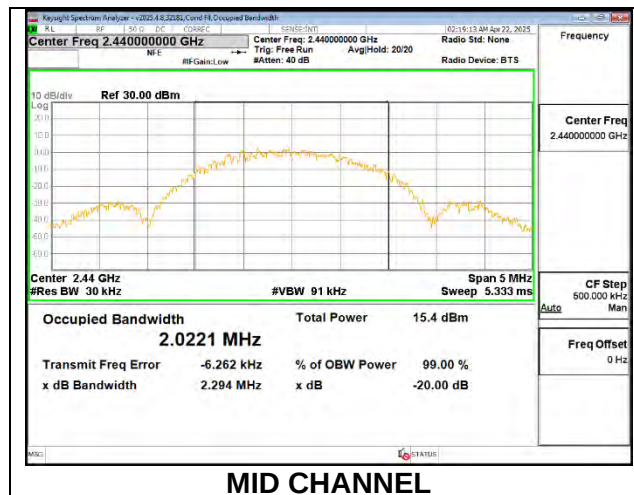
ANT 4

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2404	2.0294
Middle	2440	2.0218
High	2478	2.0404



ANT 3

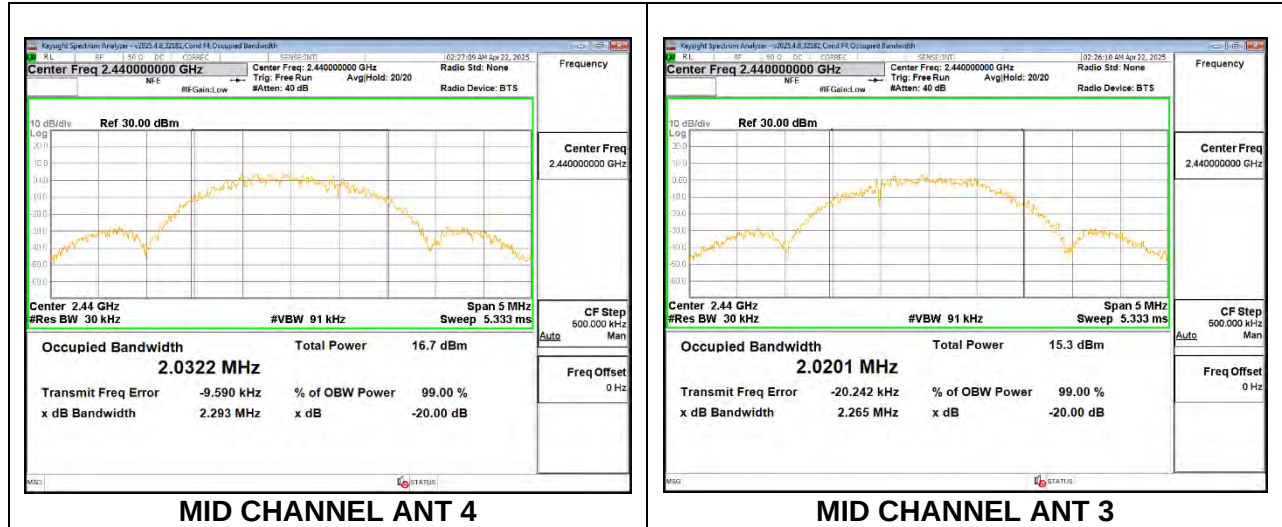
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2404	2.0621
Middle	2440	2.0221
High	2478	2.0191



9.2.6. HIGH POWER BLE TXBF (LE2M)

Channel	Frequency (MHz)	99% Bandwidth ANT 4 (MHz)	99% Bandwidth ANT 3 (MHz)
Low	2404	2.0353	2.0500
Mid	2440	2.0322	2.0201
High	2478	2.0437	2.0541

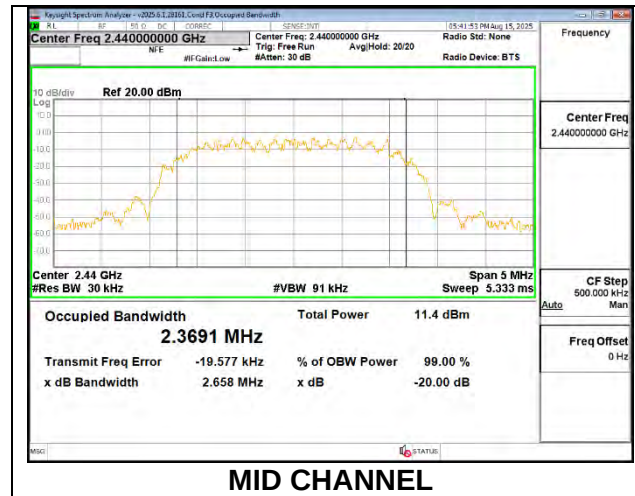
Note: Test procedures and setting are same as BLE normal mode.



9.2.7. HIGH POWER BLE (HDT3)

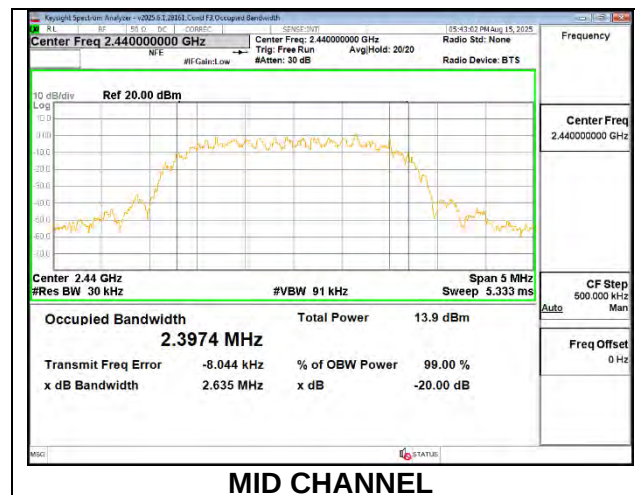
ANT 4

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2404	2.3940
Middle	2440	2.3691
High	2476	2.3628



ANT 3

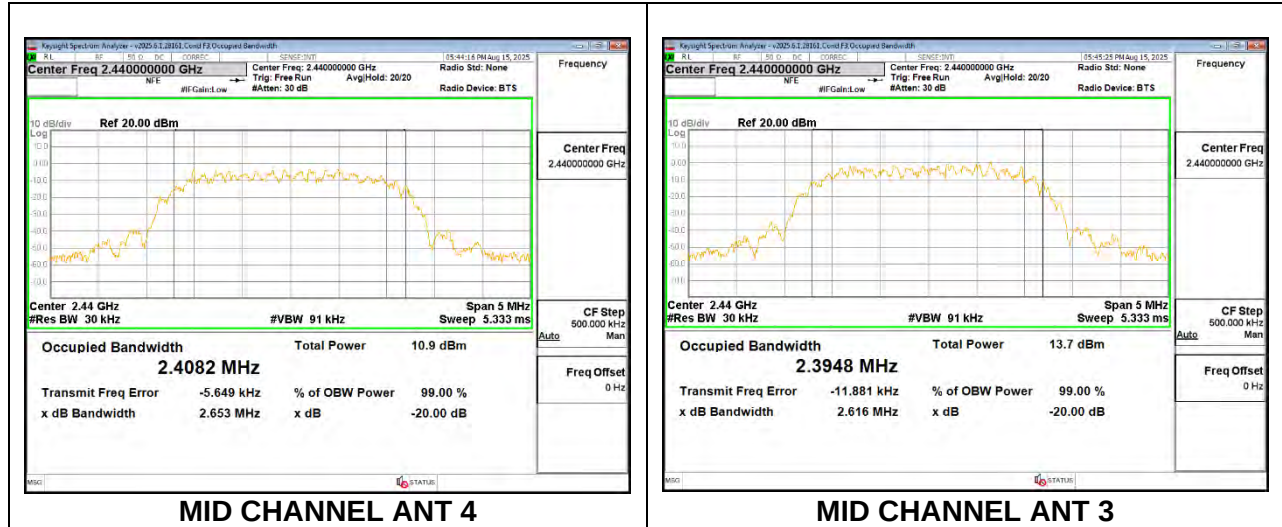
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2404	2.3974
Middle	2440	2.3974
High	2476	2.3787



9.2.8. HIGH POWER BLE TXBF (HDT3)

Channel	Frequency (MHz)	99% Bandwidth ANT 4 (MHz)	99% Bandwidth ANT 3 (MHz)
Low	2404	2.3998	2.4099
Mid	2440	2.4082	2.3948
High	2478	2.3944	2.4035

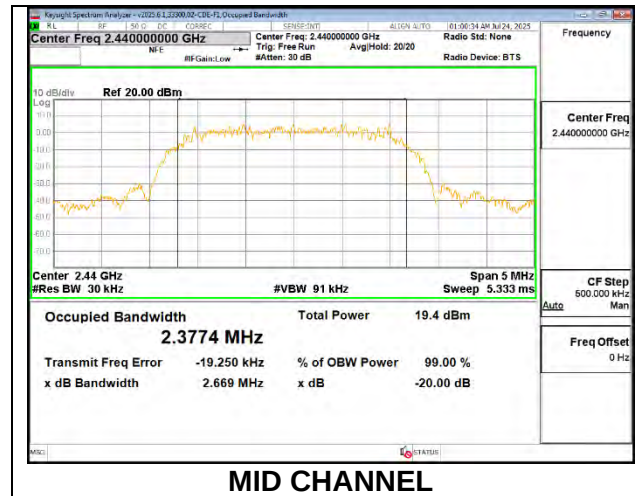
Note: Test procedures and setting are same as BLE normal mode.



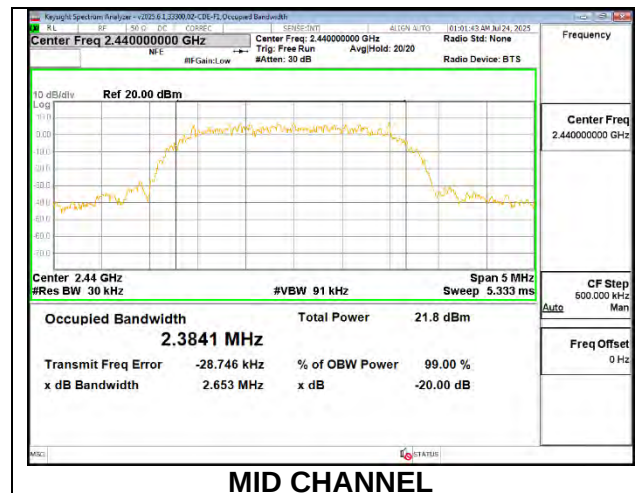
9.2.9. HIGH POWER BLE (HDT8)

ANT 4

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2404	2.3815
Middle	2440	2.3774
High	2476	2.3923

**ANT 3**

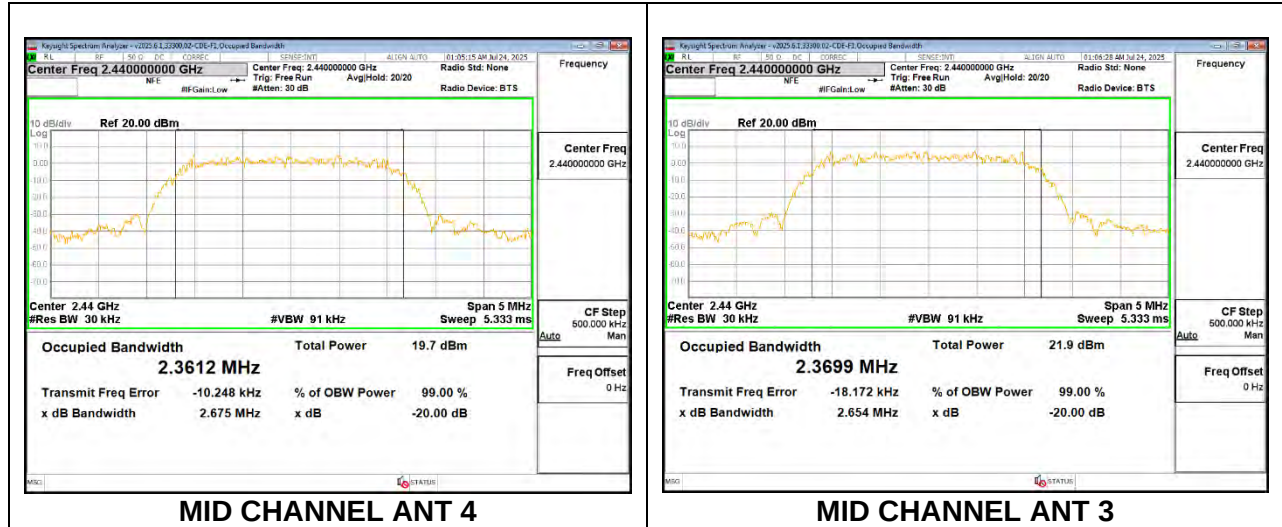
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2404	2.3616
Middle	2440	2.3841
High	2476	2.3822



9.2.10. HIGH POWER BLE TXBF (HDT8)

Channel	Frequency (MHz)	99% Bandwidth ANT 4 (MHz)	99% Bandwidth ANT 3 (MHz)
Low	2404	2.3707	2.3966
Mid	2440	2.3612	2.3699
High	2478	2.3762	2.3776

Note: Test procedures and setting are same as BLE normal mode.



9.3. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

RSS-247 5.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

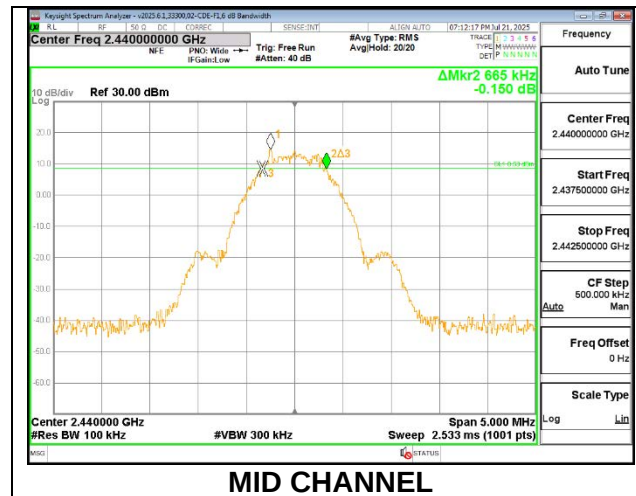
All narrow bandwidths have been investigated, only the worst-case test results of LELR2 have been reported.

Only Mid channel plot is reported to show the analyzer's settings.

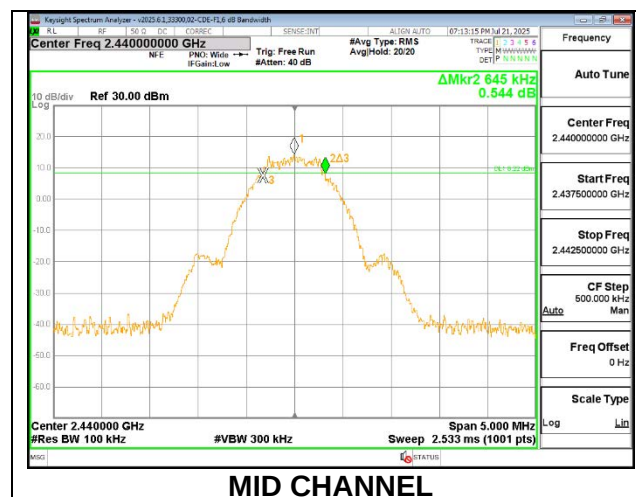
9.3.1. HIGH POWER BLE (LELR2)

ANT 4

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.690	0.5
Middle	2440	0.665	0.5
High	2480	0.665	0.5

**ANT 3**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.670	0.5
Middle	2440	0.645	0.5
High	2480	0.670	0.5



9.4. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)

RSS-247 5.4 (d)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

Measurements were performed using a wideband RF power meter.

The power output was measured on the EUT antenna port using SMA cable with 10dB attenuator connected to a power meter via wideband power sensor. Peak output power was read directly from the power meter.

DIRECTIONAL ANTENNA GAIN

For 1 TX:

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

For 2TX:

Tx chains are correlated for power and PSD due to the device supporting Beamforming mode. The directional gains are as follows:

Band (GHz)	ANT 4 Gain (dBi)	ANT 3 Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
2.4	0.0	-3.5	-1.41	1.44

Directional Gain Calculation:

ANSI C63.10-2020 section 14.6.3

Uncorrelated directional gain= $10 \cdot \log((10^{(Ant4/10)} + 10^{(Ant3/10)})/2)$

Correlated directional Gain= $10 \cdot \log(((10^{(Ant4/20)} + 10^{(Ant3/20)})^2)/2)$

Sample Calculation:

Ant1= 0.0, Ant2= -3.5

Uncorrelated Antenna gain= $10 \log[(10^{(0/10)} + 10^{(-3.5/10)})/2] = -1.41 \text{ dBi}$

Correlated Antenna gain= $10 \log[(10^{(0/20)} + 10^{(-1.41/20)})^2/2] = 1.44$

9.4.1. HIGH POWER BLE (LELR2)**ANT 4**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	12.94	30	-17.06
Middle	2440	12.87	30	-17.13
High	2480	12.79	30	-17.21

ANT 3

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	12.90	30	-17.10
Middle	2440	12.87	30	-17.13
High	2480	12.89	30	-17.11

9.4.2. HIGH POWER BLE TXBF (LELR2)**ANT 4 + ANT 3**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Output Power ANT 4 (dBm)	Output Power ANT 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	9.91	9.84	12.89	30	-17.11
Middle	2440	9.79	9.74	12.78	30	-17.22
High	2480	9.84	9.87	12.87	30	-17.13

9.4.3. HIGH POWER BLE (LE1M)**ANT 4**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	20.42	30	-9.58
Middle	2440	20.44	30	-9.56
High	2480	20.29	30	-9.71

ANT 3

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	20.18	30	-9.82
Middle	2440	20.15	30	-9.85
High	2480	20.19	30	-9.81

9.4.4. HIGH POWER BLE TXBF (LE1M)**ANT 4 + ANT 3**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Output Power ANT 4 (dBm)	Output Power ANT 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	19.96	19.87	22.93	30	-7.07
Middle	2440	19.87	19.83	22.86	30	-7.14
High	2480	19.81	19.90	22.87	30	-7.13

9.4.5. HIGH POWER BLE (LE2M)**ANT 4**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	20.54	30	-9.46
Middle	2440	20.47	30	-9.53
High	2478	20.46	30	-9.54

ANT 3

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	20.14	30	-9.86
Middle	2440	20.25	30	-9.75
High	2478	20.21	30	-9.79

9.4.6. HIGH POWER BLE TXBF (LE2M)**ANT 4 + ANT 3**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Output Power ANT 4 (dBm)	Output Power ANT 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2404	20.40	20.18	23.30	30	-6.70
Middle	2440	20.34	20.21	23.29	30	-6.71
High	2478	20.42	20.17	23.31	30	-6.69

9.4.7. HIGH POWER BLE (HDT3)**ANT 4**

Tested By:	32181
Date:	8/15/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	16.50	30	-13.50
Middle	2440	16.59	30	-13.41
High	2476	16.52	30	-13.48

ANT 3

Tested By:	32181
Date:	8/15/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	16.25	30	-13.75
Middle	2440	16.24	30	-13.76
High	2476	16.23	30	-13.77

9.4.8. HIGH POWER BLE TXBF (HDT3)**ANT 4 + ANT 3**

Tested By:	32181
Date:	8/15/2025

Channel	Frequency (MHz)	Output Power ANT 4 (dBm)	Output Power ANT 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2404	16.64	16.20	19.44	30	-10.56
Middle	2440	16.69	16.17	19.45	30	-10.55
High	2476	16.82	16.23	19.55	30	-10.45

9.4.9. HIGH POWER BLE (HDT8)**ANT 4**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	11.87	30	-18.13
Middle	2440	11.65	30	-18.35
High	2476	11.51	30	-18.49

ANT 3

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	11.28	30	-18.72
Middle	2440	11.28	30	-18.72
High	2476	11.49	30	-18.51

9.4.10. HIGH POWER BLE TXBF (HDT8)**ANT 4 + ANT 3**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Output Power ANT 4 (dBm)	Output Power ANT 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2404	11.75	11.27	14.53	30	-15.47
Middle	2440	11.75	11.51	14.64	30	-15.36
High	2476	11.70	11.59	14.66	30	-15.34

9.4.11. **LOW POWER BLE (LELR2)****ANT 4**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	8.92	30	-21.08
Middle	2440	8.89	30	-21.11
High	2480	8.91	30	-21.09

ANT 3

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	9.14	30	-20.86
Middle	2440	9.31	30	-20.69
High	2480	9.21	30	-20.79

9.4.12. **LOW POWER BLE TXBF (LELR2)****ANT 4 + ANT 3**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Output Power ANT 4 (dBm)	Output Power ANT 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	8.91	9.13	12.03	30	-17.97
Middle	2440	8.78	9.03	11.92	30	-18.08
High	2480	8.86	9.17	12.03	30	-17.97

9.4.13. **LOW POWER BLE (LE1M)****ANT 4**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	8.94	30	-21.06
Middle	2440	8.88	30	-21.12
High	2480	8.91	30	-21.09

ANT 3

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	9.10	30	-20.90
Middle	2440	9.12	30	-20.88
High	2480	9.15	30	-20.85

9.4.14. **LOW POWER BLE TXBF (LE1M)****ANT 4 + ANT 3**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Output Power ANT 4 (dBm)	Output Power ANT 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	8.91	8.99	11.96	30	-18.04
Middle	2440	8.93	8.99	11.97	30	-18.03
High	2480	8.93	9.22	12.09	30	-17.91

9.4.15. **LOW POWER BLE (LE2M)****ANT 4**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	8.85	30	-21.15
Middle	2440	8.80	30	-21.20
High	2478	8.91	30	-21.09

ANT 3

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	9.23	30	-20.77
Middle	2440	9.07	30	-20.93
High	2478	9.18	30	-20.82

9.4.16. **LOW POWER BLE TXBF (LE2M)****ANT 4 + ANT 3**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Output Power ANT 4 (dBm)	Output Power ANT 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2404	8.99	9.15	12.08	30	-17.92
Middle	2440	8.81	9.12	11.98	30	-18.02
High	2478	8.98	9.19	12.10	30	-17.90

9.4.17. **LOW POWER BLE (HDT3)****ANT 4**

Tested By:	32181
Date:	8/15/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	8.86	30	-21.14
Middle	2440	8.76	30	-21.24
High	2476	8.80	30	-21.20

ANT 3

Tested By:	32181
Date:	8/15/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	9.13	30	-20.87
Middle	2440	9.21	30	-20.79
High	2476	9.09	30	-20.91

9.4.18. **LOW POWER BLE TXBF (HDT3)****ANT 4 + ANT 3**

Tested By:	32181
Date:	8/15/2025

Channel	Frequency (MHz)	Output Power ANT 4 (dBm)	Output Power ANT 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2404	8.37	8.93	11.67	30	-18.33
Middle	2440	8.7	9.02	11.87	30	-18.13
High	2476	8.32	9.43	11.92	30	-18.08

9.4.19. **LOW POWER BLE (HDT8)****ANT 4**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	2.57	30	-27.43
Middle	2440	2.62	30	-27.38
High	2476	2.58	30	-27.42

ANT 3

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	3.20	30	-26.80
Middle	2440	3.28	30	-26.72
High	2476	3.28	30	-26.72

9.4.20. **LOW POWER BLE TXBF (HDT8)****ANT 4 + ANT 3**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Output Power ANT 4 (dBm)	Output Power ANT 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2404	2.56	3.04	5.82	30	-24.18
Middle	2440	2.60	3.17	5.90	30	-24.10
High	2476	2.61	3.10	5.87	30	-24.13

9.5. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements were performed using a wideband RF power meter.

The power output was measured on the EUT antenna port using SMA cable with 10dB attenuator connected to a power meter via wideband power sensor. Gated average output power was read directly from power meter.

RESULTS

9.5.1. HIGH POWER BLE (LELR2)**ANT 4**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	12.74
Middle	2440	12.68
High	2480	12.60

ANT 3

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	12.66
Middle	2440	12.64
High	2480	12.72

9.5.2. HIGH POWER BLE TXBF (LELR2)**ANT 4 + ANT 3**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2402	9.74	9.64	12.70
Middle	2440	9.59	9.54	12.58
High	2480	9.62	9.65	12.65

9.5.3. HIGH POWER BLE (LE1M)**ANT 4**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	20.22
Middle	2440	20.22
High	2480	20.11

ANT 3

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	19.97
Middle	2440	19.94
High	2480	19.98

9.5.4. HIGH POWER BLE TXBF (LE1M)**ANT 4 + ANT 3**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2402	19.72	19.61	22.68
Middle	2440	19.63	19.61	22.63
High	2480	19.61	19.68	22.66

9.5.5. HIGH POWER BLE (LE2M)**ANT 4**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	20.23
Middle	2440	20.22
High	2478	20.24

ANT 3

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	19.93
Middle	2440	19.97
High	2478	19.97

9.5.6. HIGH POWER BLE TXBF (LE2M)**ANT 4 + ANT 3**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2404	20.2	19.99	23.11
Middle	2440	20.16	19.93	23.06
High	2478	20.2	19.94	23.08

9.5.7. HIGH POWER BLE (HDT3)**ANT 4**

Tested By:	32181
Date:	8/15/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	13.21
Middle	2440	13.24
High	2476	13.24

ANT 3

Tested By:	32181
Date:	8/15/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	12.89
Middle	2440	12.99
High	2476	12.95

9.5.8. HIGH POWER BLE TXBF (HDT3)**ANT 4 + ANT 3**

Tested By:	32181
Date:	8/15/2025

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2404	13.27	12.96	16.13
Middle	2440	13.24	12.9	16.08
High	2476	13.24	12.99	16.13

9.5.9. HIGH POWER BLE (HDT8)**ANT 4**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	11.09
Middle	2440	11.21
High	2476	11.13

ANT 3

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	10.91
Middle	2440	10.98
High	2476	10.89

9.5.10. HIGH POWER BLE TXBF (HDT8)**ANT 4 + ANT 3**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2404	11.17	10.90	14.05
Middle	2440	11.22	10.99	14.12
High	2476	11.14	10.85	14.01

9.5.11. **LOW POWER BLE (LELR2)****ANT 4**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	8.73
Middle	2440	8.64
High	2480	8.68

ANT 3

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	8.88
Middle	2440	8.97
High	2480	8.96

9.5.12. **LOW POWER BLE TXBF (LELR2)****ANT 4 + ANT 3**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2402	8.74	8.93	11.85
Middle	2440	8.58	8.80	11.70
High	2480	8.65	8.94	11.81

9.5.13. **LOW POWER BLE (LE1M)****ANT 4**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	8.74
Middle	2440	8.71
High	2480	8.69

ANT 3

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	8.90
Middle	2440	8.93
High	2480	8.87

9.5.14. **LOW POWER BLE TXBF (LE1M)****ANT 4 + ANT 3**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2402	8.7	8.79	11.76
Middle	2440	8.73	8.81	11.78
High	2480	8.72	8.99	11.87

9.5.15. **LOW POWER BLE (LE2M)****ANT 4**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	8.66
Middle	2440	8.53
High	2478	8.69

ANT 3

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	8.99
Middle	2440	8.79
High	2478	8.84

9.5.16. **LOW POWER BLE TXBF (LE2M)****ANT 4 + ANT 3**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2404	8.74	8.84	11.80
Middle	2440	8.61	8.87	11.75
High	2478	8.73	8.87	11.81

9.5.17. **LOW POWER BLE (HDT3)****ANT 4**

Tested By:	32181
Date:	8/15/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	5.49
Middle	2440	5.39
High	2476	5.48

ANT 3

Tested By:	32181
Date:	8/15/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	5.99
Middle	2440	5.94
High	2476	5.95

9.5.18. **LOW POWER BLE TXBF (HDT3)****ANT 4 + ANT 3**

Tested By:	32181
Date:	8/15/2025

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2404	5.48	5.94	8.73
Middle	2440	5.43	5.92	8.69
High	2476	5.47	5.98	8.74

9.5.19. **LOW POWER BLE (HDT8)****ANT 4**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	2.37
Middle	2440	2.49
High	2476	2.41

ANT 3

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	2.99
Middle	2440	2.97
High	2476	2.95

9.5.20. **LOW POWER BLE TXBF (HDT8)****ANT 4 + ANT 3**

Tested By:	33300
Date:	7/24/2025

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2404	2.47	2.99	5.75
Middle	2440	2.40	2.89	5.66
High	2476	2.47	2.99	5.75

9.6. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

RSS-247 (5.2) (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

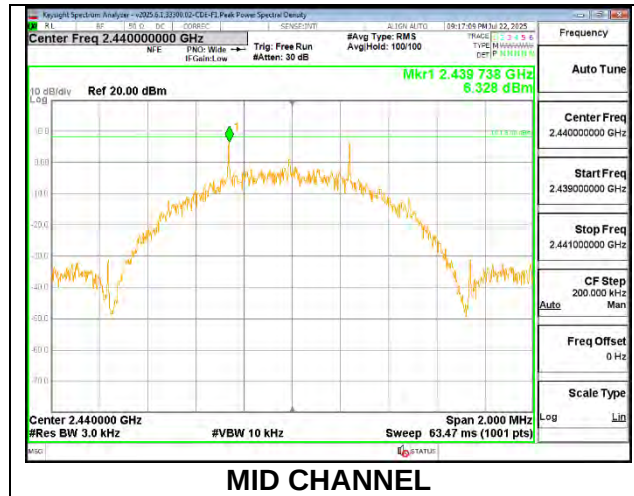
Only Mid channel plot is reported to show the analyzer's settings.

Only High-Power modes results are reported; it covers all Low Power modes.

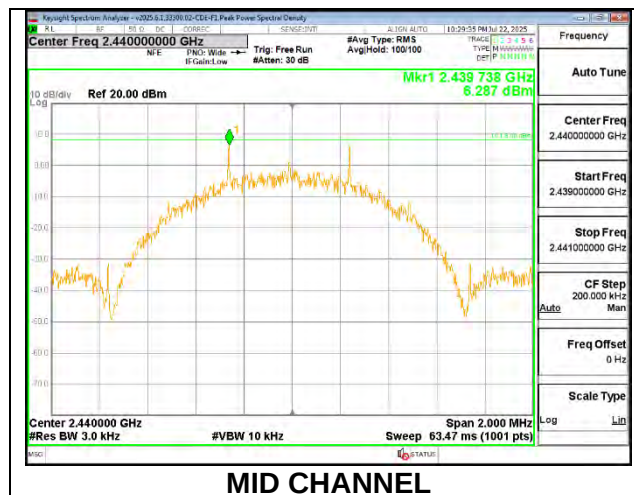
9.6.1. HIGH POWER BLE (LELR2)

ANT 4

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	6.285	8	-1.72
Middle	2440	6.328	8	-1.67
High	2480	6.293	8	-1.71

**ANT 3**

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	6.114	8	-1.89
Middle	2440	6.287	8	-1.71
High	2480	6.307	8	-1.69

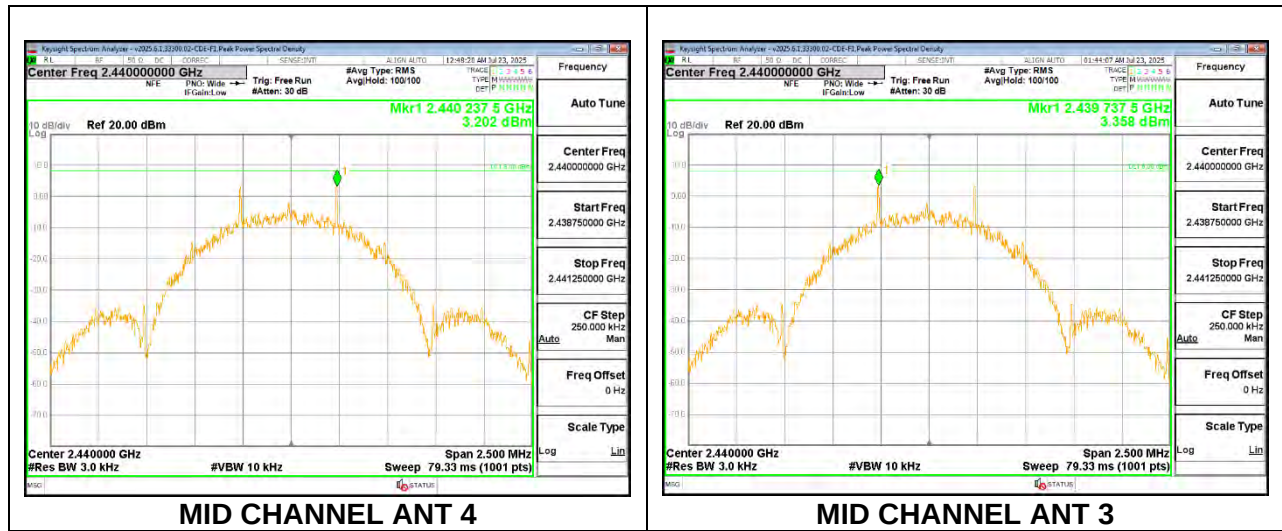


9.6.2. HIGH POWER BLE TXBF (LELR2)

PSD Results

Channel	Frequency (MHz)	ANT 4 Meas (dBm/ 3kHz)	ANT 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low	2402	3.594	3.184	6.40	8.0	-1.6
Mid	2440	3.202	3.358	6.29	8.0	-1.7
Hjigh	2480	3.261	3.519	6.40	8.0	-1.6

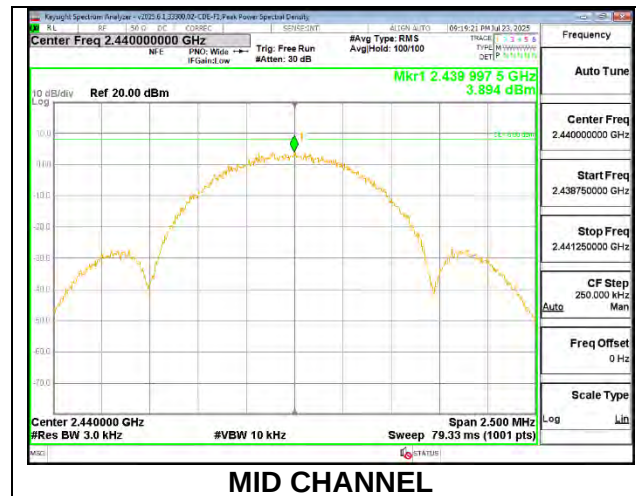
Note: Test procedures and setting are same as BLE normal mode.



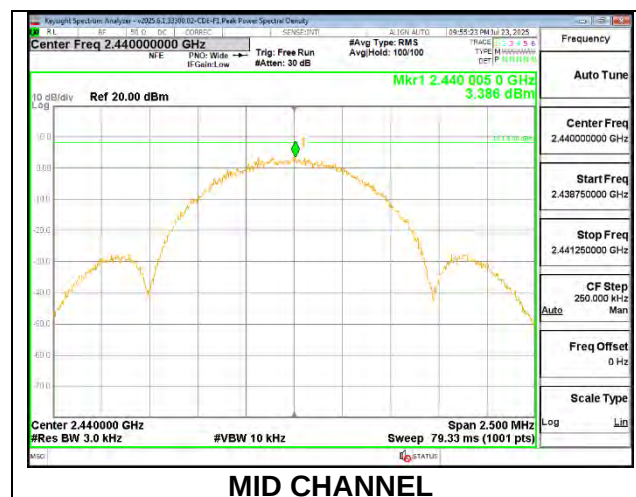
9.6.3. HIGH POWER BLE (LE1M)

ANT 4

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	3.652	8	-4.35
Middle	2440	3.894	8	-4.11
High	2480	3.335	8	-4.67

**ANT 3**

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	3.375	8	-4.63
Middle	2440	3.386	8	-4.61
High	2480	3.389	8	-4.61



9.6.4. HIGH POWER BLE TXBF (LEM1)

PSD Results

Channel	Frequency (MHz)	ANT 4 Meas (dBm/ 3kHz)	ANT 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low	2402	3.074	2.970	6.03	8.0	-2.0
Mid	2440	3.097	3.137	6.13	8.0	-1.9
Hjigh	2480	2.970	3.100	6.05	8.0	-2.0

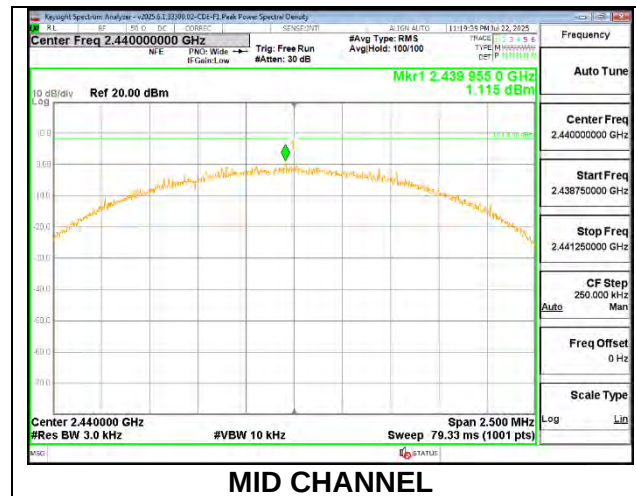
Note: Test procedures and setting are same as BLE normal mode.



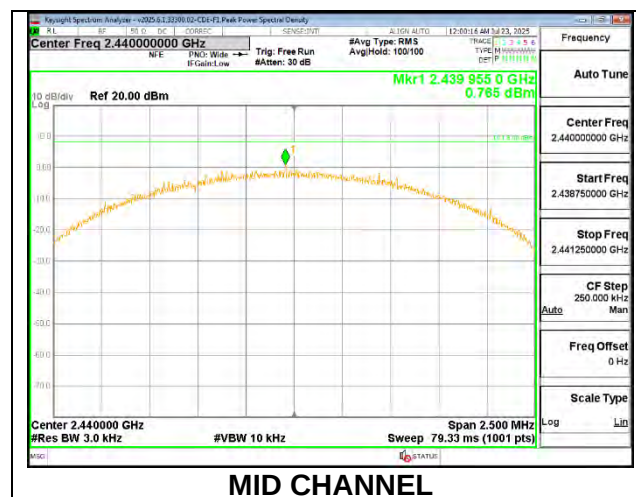
9.6.5. HIGH POWER BLE (LEM2)

ANT 4

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2404	1.042	8	-6.96
Middle	2440	1.115	8	-6.89
High	2478	1.047	8	-6.95

ANT 3

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2404	0.688	8	-7.31
Middle	2440	0.765	8	-7.24
High	2478	0.725	8	-7.28



9.6.6. HIGH POWER BLE TXBF (LEM2)

PSD Results

Channel	Frequency (MHz)	ANT 4 Meas (dBm/ 3kHz)	ANT 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low	2404	1.092	0.882	4.00	8.0	-4.0
Mid	2440	1.015	0.831	3.93	8.0	-4.1
Hjigh	2478	1.048	0.832	3.95	8.0	-4.0

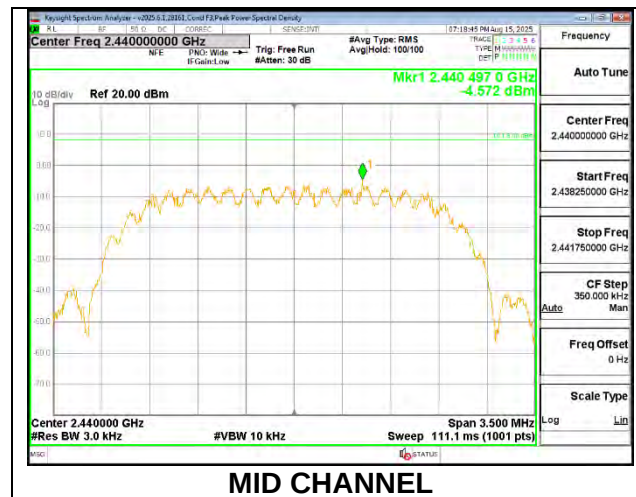
Note: Test procedures and setting are same as BLE normal mode.



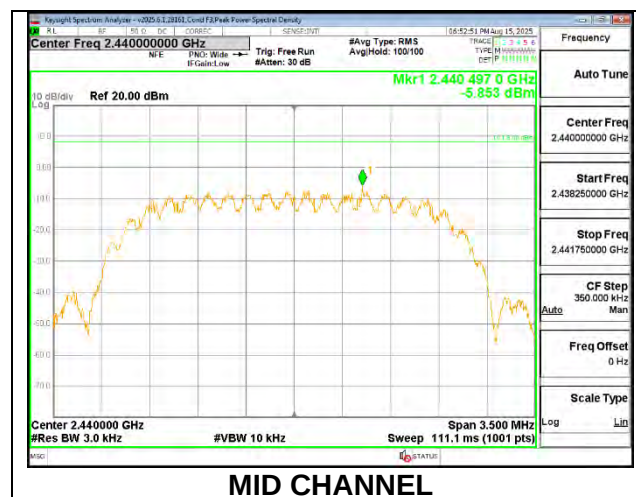
9.6.7. HIGH POWER BLE (HDT3)

ANT 4

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2404	-5.018	8	-13.02
Middle	2440	-4.572	8	-12.57
High	2476	-5.236	8	-13.24

**ANT 3**

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2404	-5.974	8	-13.97
Middle	2440	-5.853	8	-13.85
High	2476	-6.104	8	-14.10

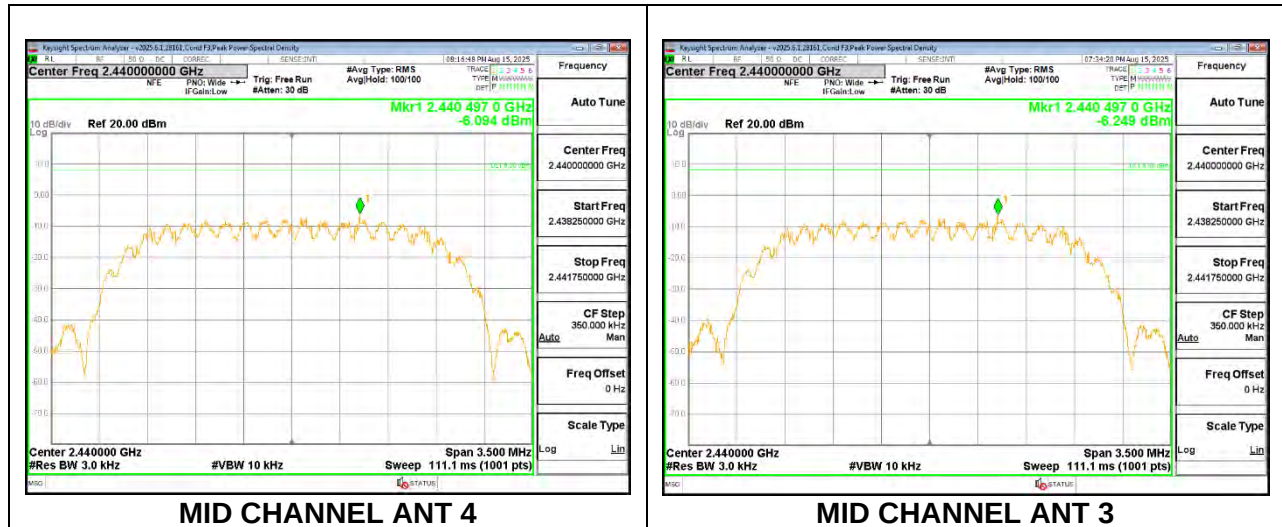


9.6.8. HIGH POWER BLE TXBF (HDT3)

PSD Results

Channel	Frequency (MHz)	ANT 4 Meas (dBm/ 3kHz)	ANT 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low	2404	-5.711	-6.114	-2.90	8.0	-10.9
Mid	2440	-6.094	-6.249	-3.16	8.0	-11.2
Hjigh	2476	-5.810	-6.397	-3.08	8.0	-11.1

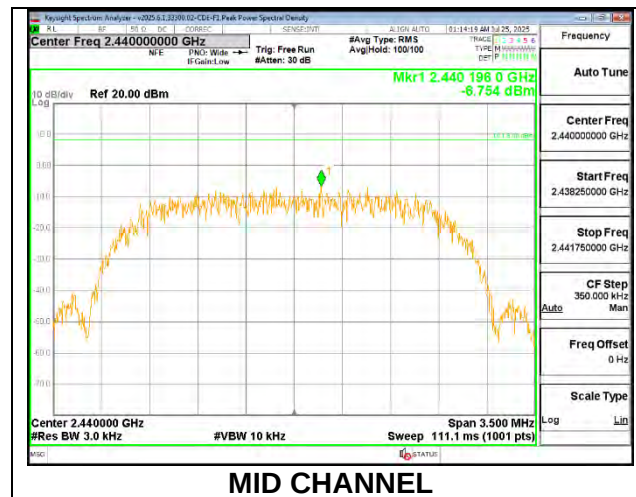
Note: Test procedures and setting are same as BLE normal mode.



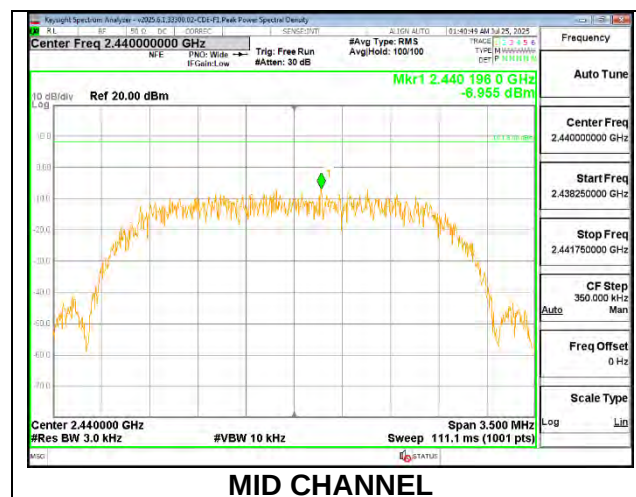
9.6.9. HIGH POWER BLE (HDT8)

ANT 4

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2404	-6.729	8	-14.73
Middle	2440	-6.754	8	-14.75
High	2476	-6.780	8	-14.78

**ANT 3**

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2404	-7.055	8	-15.06
Middle	2440	-6.955	8	-14.96
High	2476	-6.708	8	-14.71

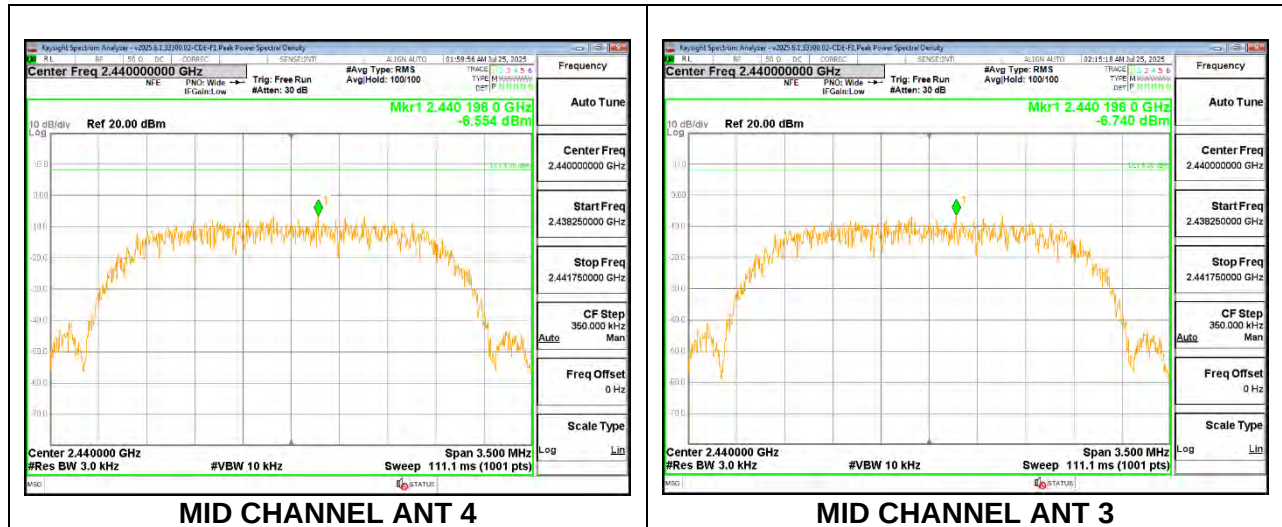


9.6.10. HIGH POWER BLE TXBF (HDT8)

PSD Results

Channel	Frequency (MHz)	ANT 4 Meas (dBm/ 3kHz)	ANT 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low	2404	-6.468	-7.050	-3.74	8.0	-11.7
Mid	2440	-6.554	-6.740	-3.64	8.0	-11.6
Hjigh	2476	-6.512	-6.664	-3.58	8.0	-11.6

Note: Test procedures and setting are same as BLE normal mode.



9.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

RSS-247 5.5

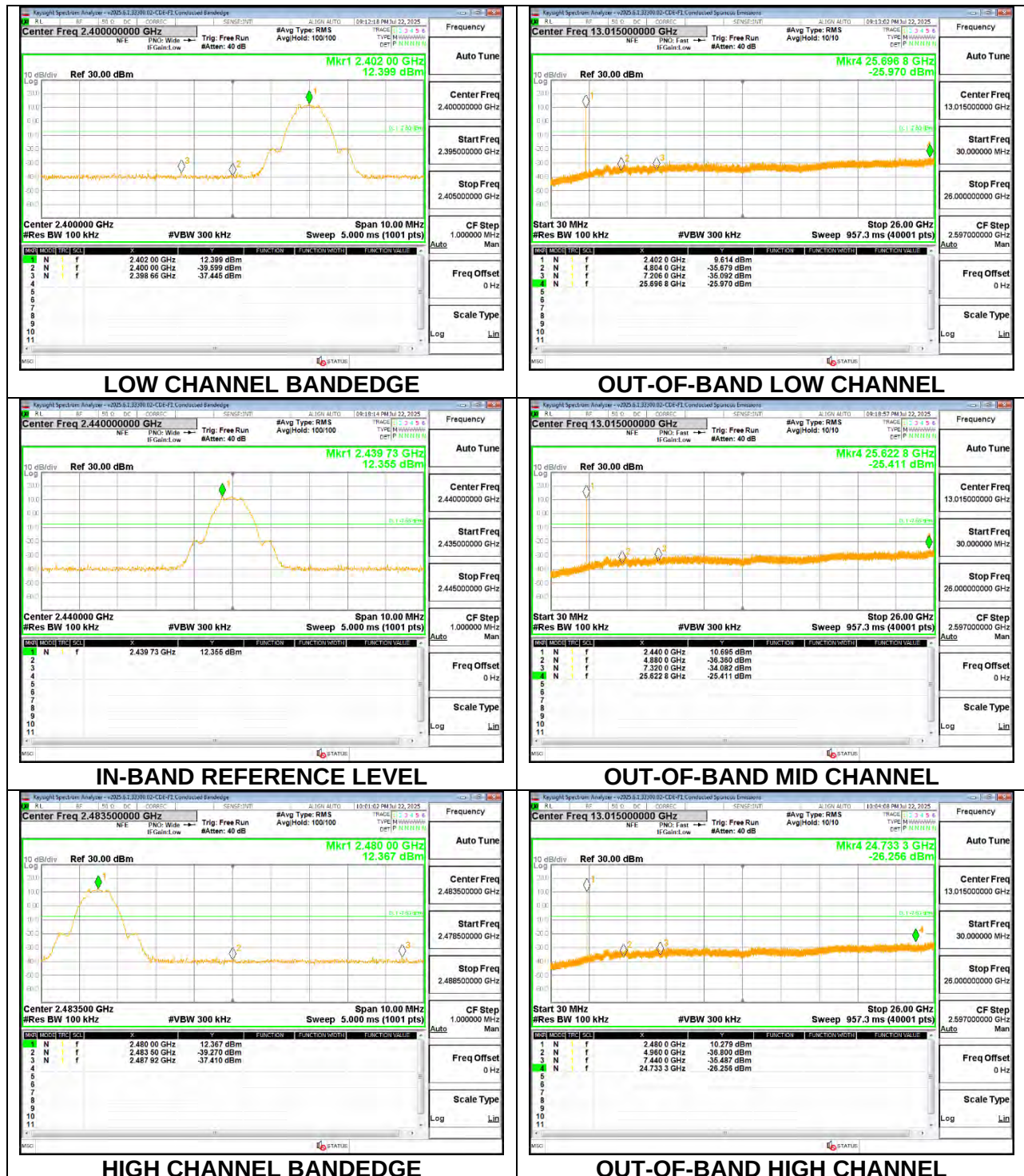
Output power was measured based on the use of a peak measurement; therefore, the required attenuation is 20 dBc.

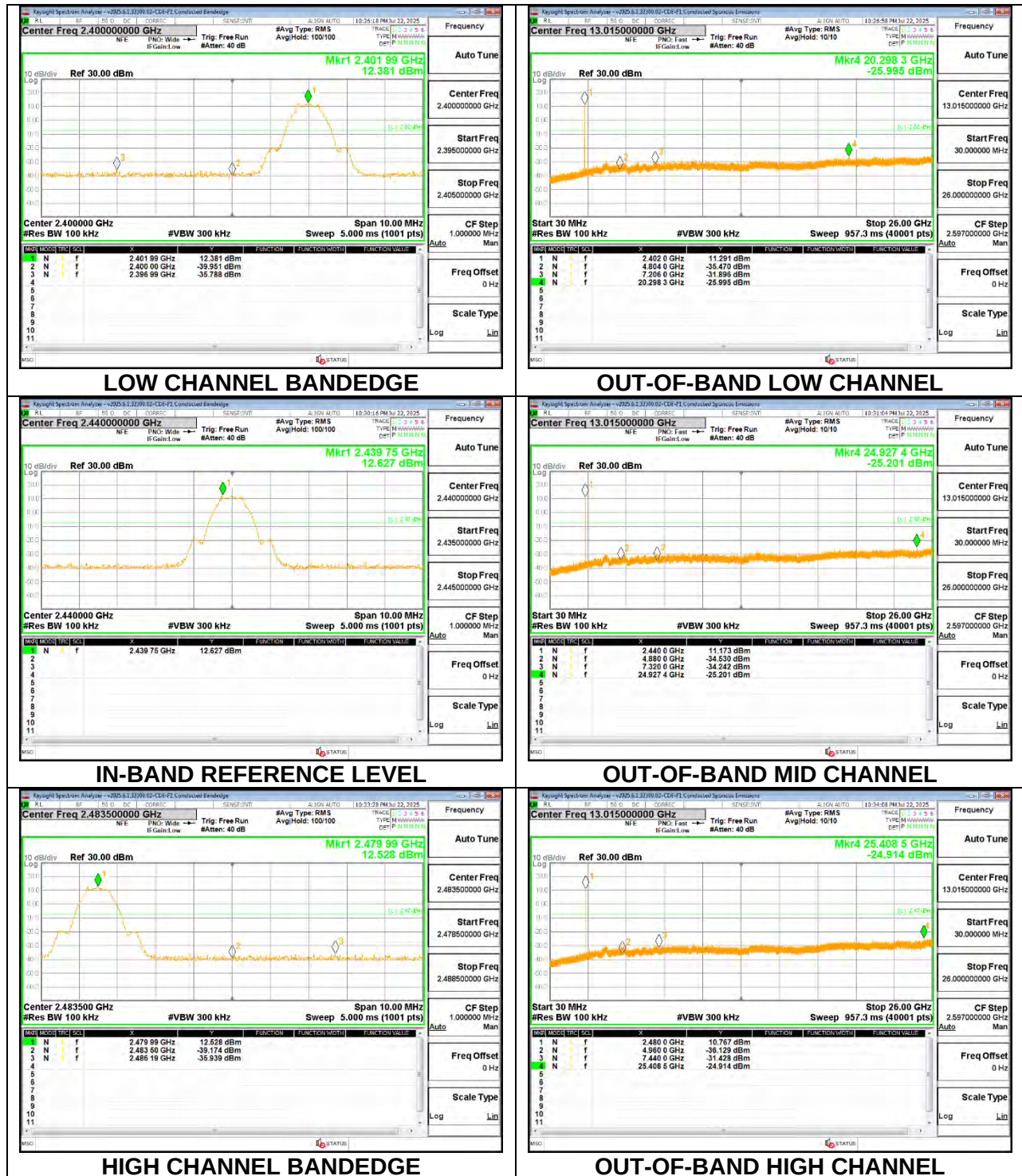
Note: Test procedures and setting are same as BLE normal mode.

RESULTS

9.7.1. HIGH POWER BLE (LELR2)

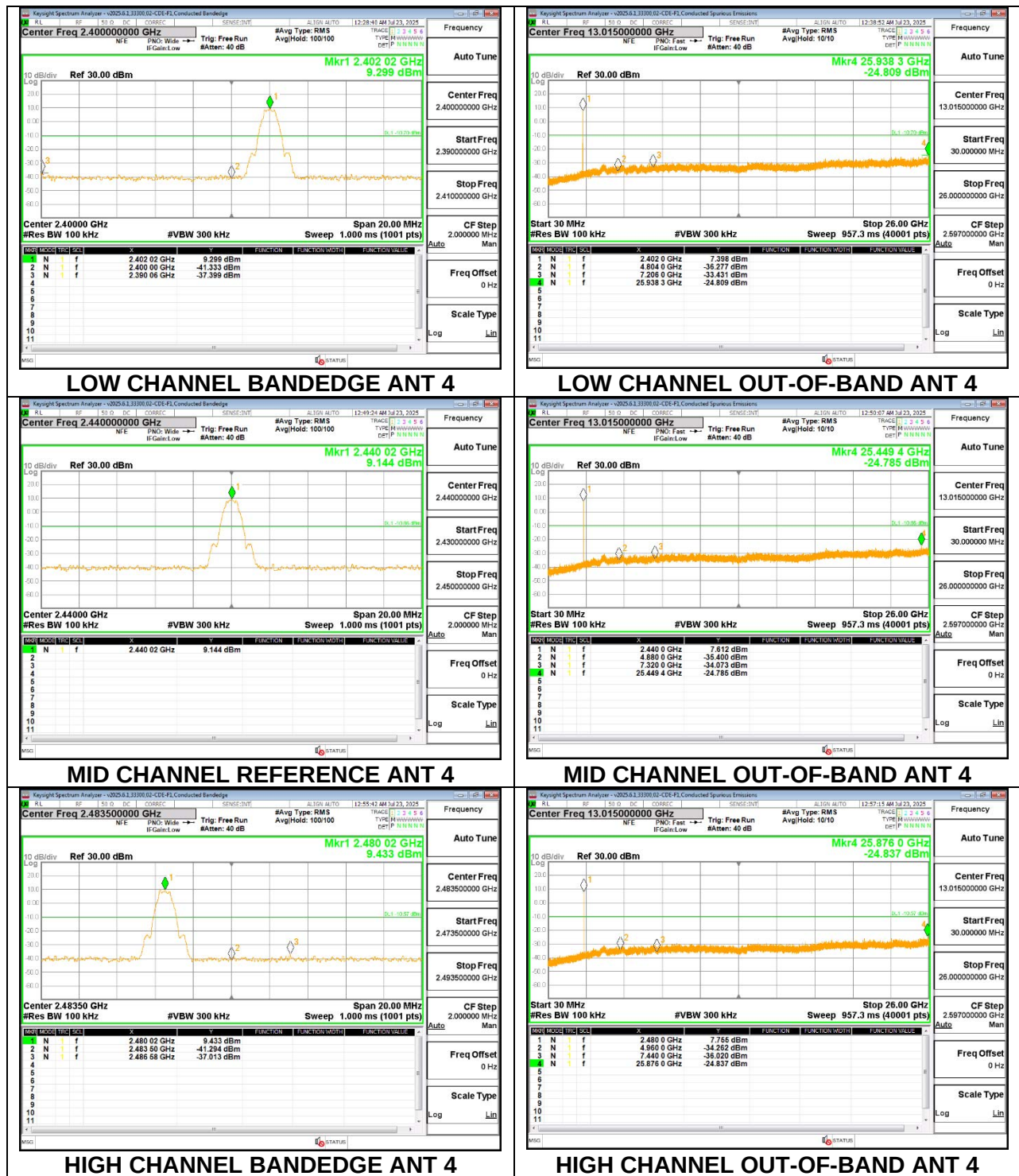
ANT 4

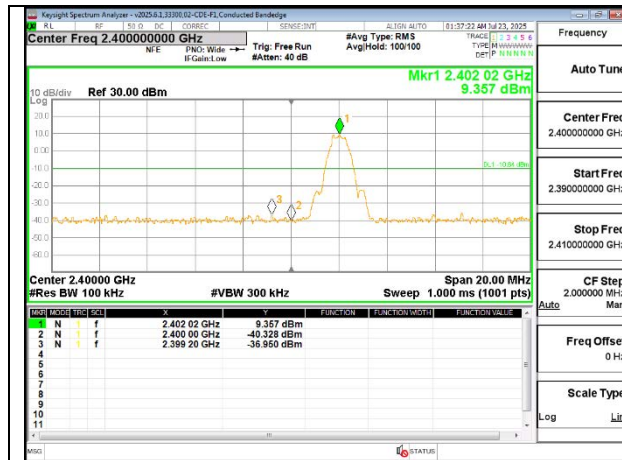
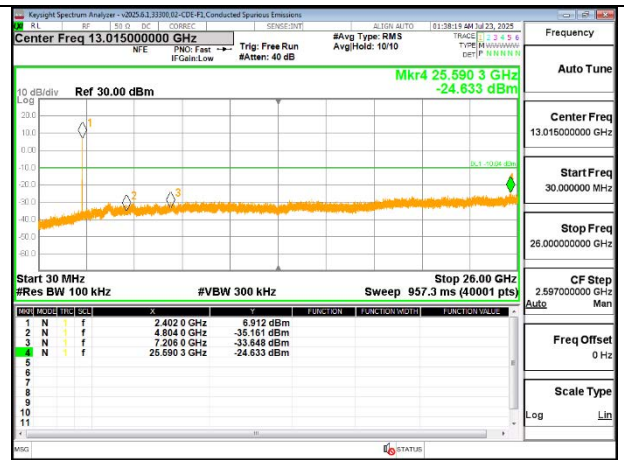
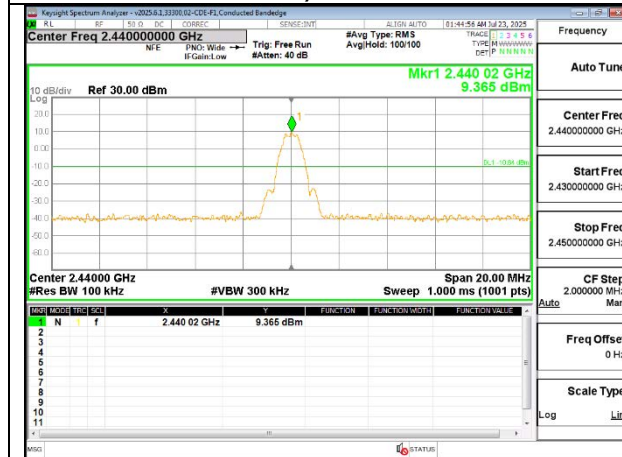
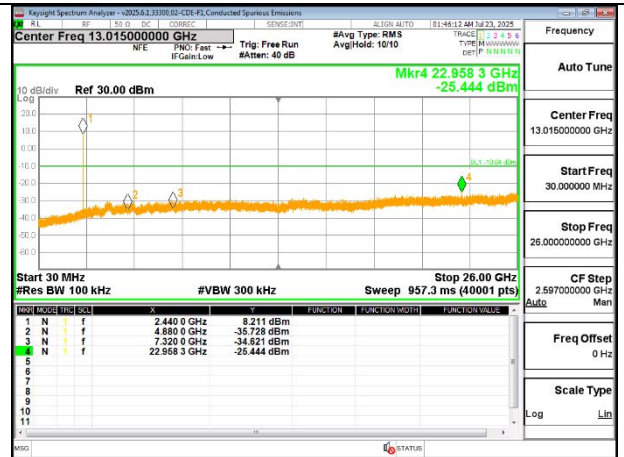
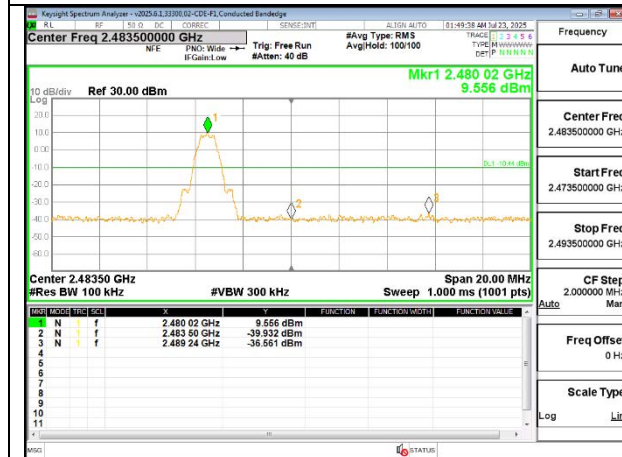
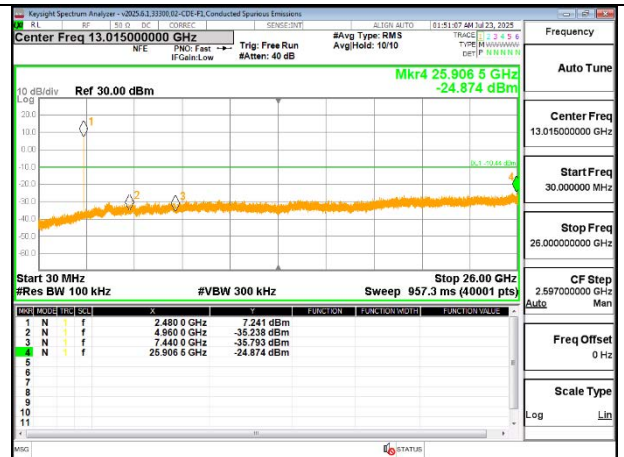


ANT 3

9.7.2. HIGH POWER BLE TXBF (LELR2)

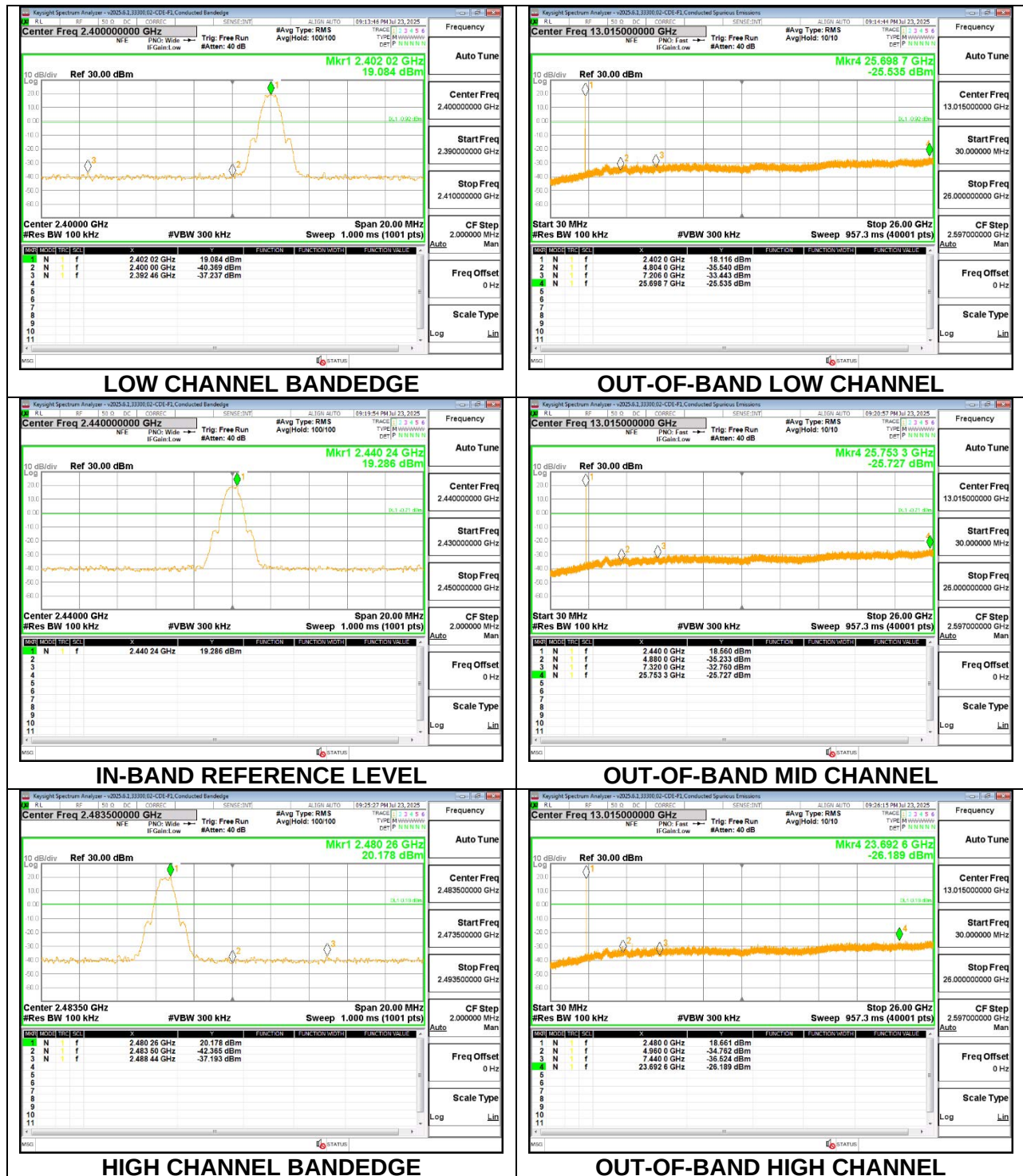
Note: Test procedures and setting are same as BLE normal mode.

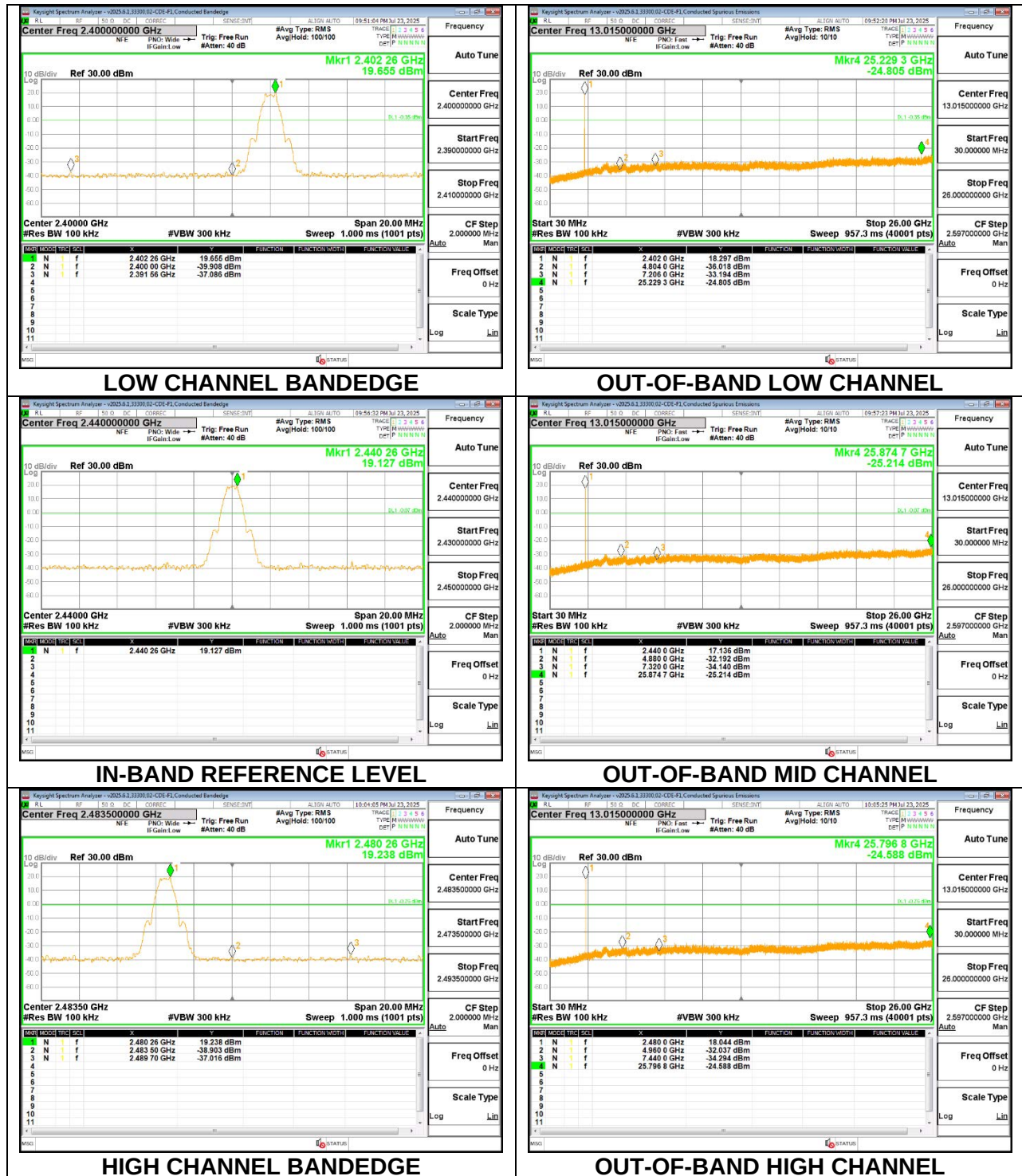


ANT 3**LOW CHANNEL , BANDEDGE ANT 3****LOW CHANNEL OUT-OF-BAND ANT 3****MID CHANNEL REFERENCE ANT 3****MID CHANNEL OUT-OF-BAND ANT 3****HIGH CHANNEL REFERENCE ANT 3****HIGH CHANNEL OUT-OF-BAND ANT 3**

9.7.3. HIGH POWER BLE (LE1M)

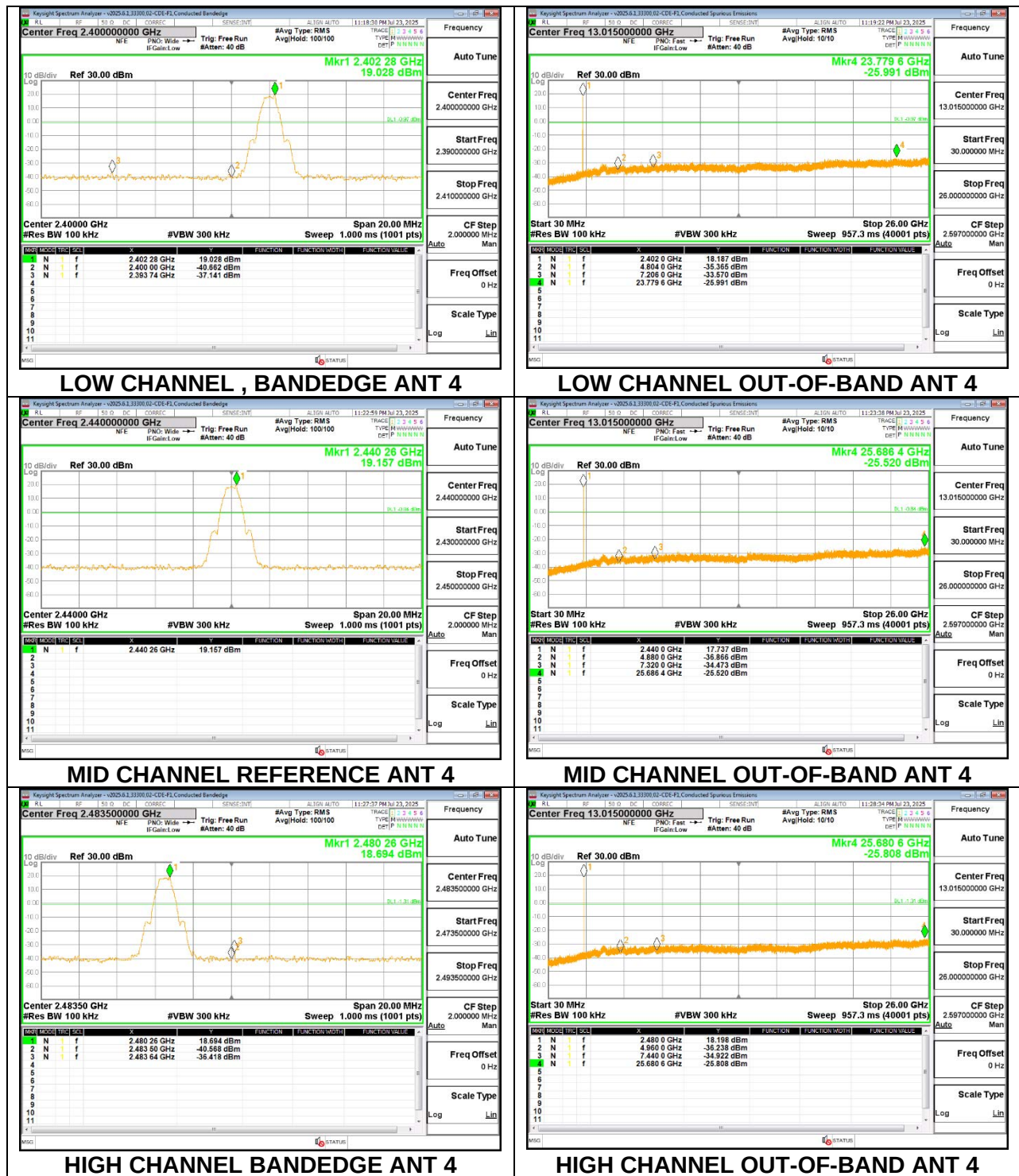
ANT 4

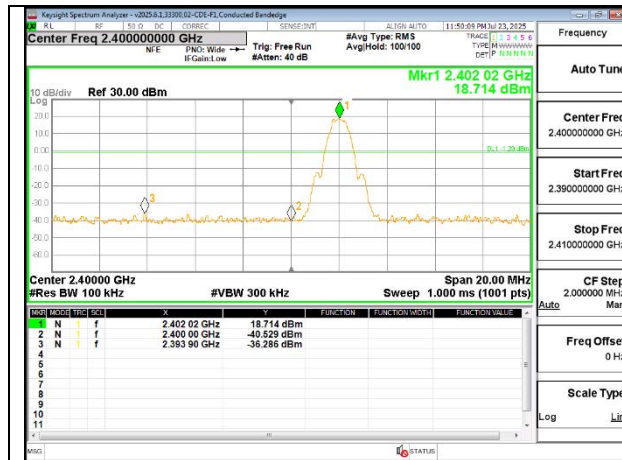
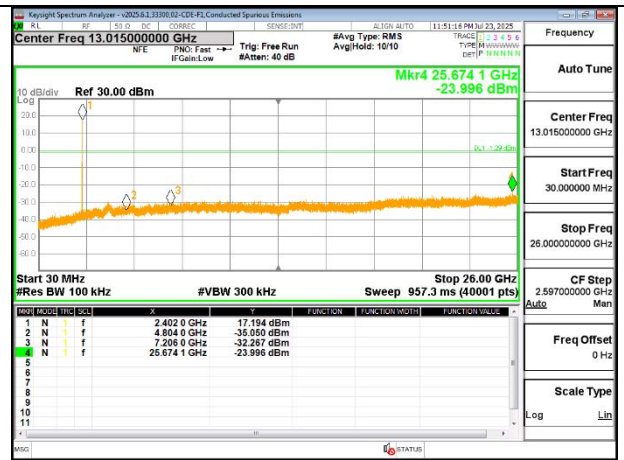
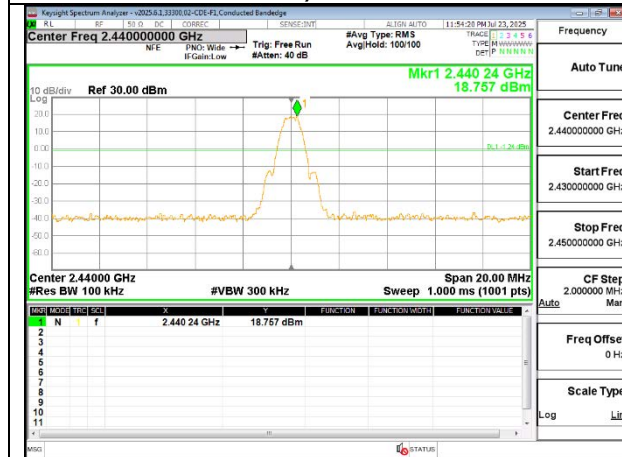
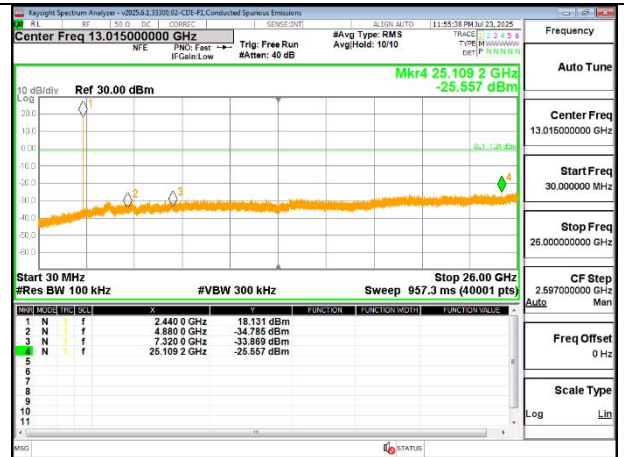
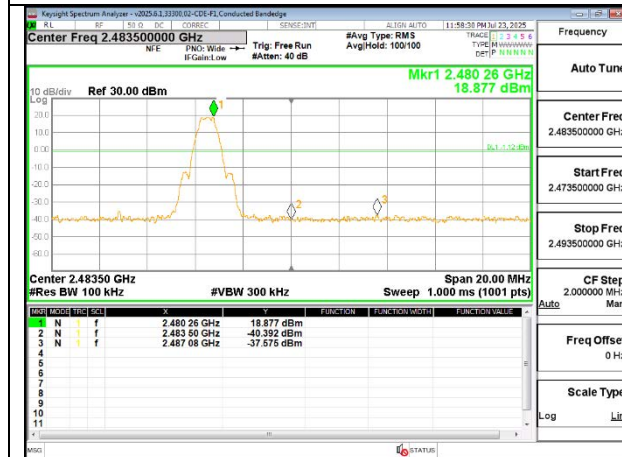
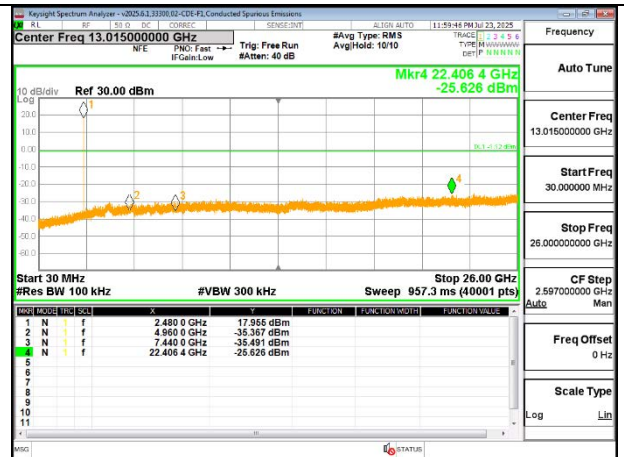


ANT 3

9.7.4. HIGH POWER BLE TXBF (LE1M)

Note: Test procedures and setting are same as BLE normal mode.



ANT 3**LOW CHANNEL , BANDEDGE ANT 3****LOW CHANNEL OUT-OF-BAND ANT 3****MID CHANNEL REFERENCE ANT 3****MID CHANNEL OUT-OF-BAND ANT 3****HIGH CHANNEL REFERENCE ANT 3****HIGH CHANNEL OUT-OF-BAND ANT 3**

9.7.5. HIGH POWER BLE (LE2M)

ANT 4

