

TEST REPORT

Report Number: 16064952– E3V2

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

Model : A3447 (Parent)
A3719, A3720, A3721 (Variants)

Brand : APPLE

FCC ID : BCG-E9188A (Parent)
BCG-E9198A, BCG-E9203A, BCG-E9204A (Variants)

IC : 579C-E9188A (Parent)
579C-E9198A, 579C-E9203A, 579C-E9204A (Variants)

EUT Description : SMARTPHONE

Test Standard(s) : FCC 47 CFR Part 15 SUBPART C
ISED RSS-247 ISSUE 4
ISED RSS-GEN ISSUE 5 + A1 + A2

Date Of Issue:
2026-07-11

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REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2026-07-08	Initial Issue	--
V2	2026-07-11	Addressed TCB Questions: Sections 3, 7, 9.4, 10.1.10, 10.1.12, 11, 13.1	Chris Xiong

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1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	APPLE INC. 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.	
Model	A3447 (Parent) A3719, A3720, A3721 (Variants)	
Brand	APPLE	
FCC ID	BCG-E9188A (Parent) BCG-E9198A, BCG-E9203A, BCG-E9204A (Variants)	
IC	579C-E9188A (Parent) 579C-E9198A, 579C-E9203A, 579C-E9204A (Variants)	
EUT Description	SMARTPHONE	
Serial Number	C07HQ0000H50001B5H, C07HTH000DS0001B59 (Conducted) K2DLVM4C2D, J0C02TN797 (Radiated)	
Sample Receipt Date	2026-02-19	
Date Tested	2026-02-26 to 2026-06-09	
Applicable Standards	FCC 47 CFR Part 15 Subpart C ISED RSS-247 Issue 4 ISED RSS-GEN Issue 5 + A1 + A2	
Test Results	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 is capable of demonstrating 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 taken into account 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 duly 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.		
Approved & Released By: 		Prepared & Reviewed By: 
Frank Ibrahim Staff Engineer UL Verification Services Inc.		Chris Xiong Lab Supervisor UL Verification Services Inc.

2. TEST RESULTS SUMMARY

This report contains data provided by the customer, which can impact the validity of the 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 6.3)
2. Cable loss (see Section 6.3)

Requirement Description	Requirement Clause Number (FCC)	Requirement Clause Number (ISED)	Result
Duty Cycle	See Comment		Reporting purposes only
99% OBW	-	RSS-GEN 6.7	Complies
6dB BW	15.247 (a) (2)	RSS-247 6.3.1 (a)	Complies
Output Power	15.247 (b) (3)	RSS-247 6.3.2	Complies
PSD	15.247 (e)	RSS-247 6.3.1 (b)	Complies
Conducted Spurious Emissions	15.247 (d)	RSS-247 6.6	Complies
Radiated Emissions	15.209, 15.205	RSS-GEN 8.9, 8.10	Complies
AC Mains Conducted Emissions	15.207	RSS-Gen 8.8	Complies

3. TEST METHODOLOGY

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

- FCC 47 CFR Part 2
- FCC 47 CFR Part 15 C
- 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 4
- ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024

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 regularly, with a maximum time between calibrations of one year or the manufacturer's 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 dB
Time Domain Measurements Using SA	3.39 %
RF Power Measurement Direct Method Using Power Meter	0.450 dB (Average) 1.30 dB (Peak)
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	1.22 %
Carrier Frequency Separation	19.70 Hz
Number of Hopping Frequencies	0.000 dB
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%.

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \\ &\text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Final Voltage (dBuV)} &= \text{Measured Voltage (dBuV)} + \text{Cable Loss (dB)} + \text{Limiter Factor (dB)} + \text{LISN Insertion Loss.} \\ 36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} &= 46.6 \text{ dBuV} \end{aligned}$$

6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The Apple iPhone is a smartphone (foldable) 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. It can be operated in two unique operating states – phone “fully closed” (State A) and phone “fully open” (State B).

6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Antenna	Configuration	Output Power (dBm)	Output Power (mW)
2404 - 2476	HDR4	ANT 4	High Power	16.81	47.97
		ANT 3	High Power	16.35	43.15
		BF, ANT 4 + ANT 3	High Power	19.53	89.74
2404 - 2476	HDR8	ANT 4	High Power	16.78	47.64
		ANT 3	High Power	16.39	43.55
		BF, ANT 4 + ANT 3	High Power	19.56	90.36

6.3. DESCRIPTION OF AVAILABLE ANTENNAS AND CABLE LOSS

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

Frequency Range (GHz)	Antenna Type	Configuration	Antenna Peak Gain				Cable Loss	
			ANT 4 (dBi)	ANT 3 (dBi)	Uncorrelated Chains (dBi)	Correlated Chains (dBi)	ANT 4 (dB)	ANT 3 (dB)
2.4	IFA	STATE A	-4.40	-4.30	-5.20	-2.20	3.15	3.03
		STATE B	-3.40	-3.60	-3.70	-0.70	3.15	3.03

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 and software installed during testing were 24A343.

6.5. WORST-CASE CONFIGURATION AND MODE

The EUT was evaluated in two configurations: State A (fully closed) and State B (fully open), and in three orthogonal orientations: X (Flatbed), Y (Landscape), and Z (Portrait). The table below identifies the worst-case orientation for each configuration, and full testing was conducted in those orientations.

Band	State	ANT 4	ANT 3	ANT 4 + 3
2.4 GHz	A	Z (Portrait)	Z (Portrait)	Z (Portrait)
	B	Z (Portrait)	Y (Landscape)	X (Flatbed)

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

Radiated emissions below 30MHz, below 1 GHz, 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. There were no emissions found below 30MHz within 20dB of the limit.

For below 1 GHz tests, EUT was connected to AC power adapter as the worst case; and for above 1 GHz, 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.

All simultaneous transmission combinations have been investigated, and no signal emissions were observed.

The plots presented in this report are representative of the test methods and parameter settings used during the evaluation.

Based on the above investigations, the worst-case power levels and PSD modes selected for final testing are summarized in the table below.

Band	Mode	Frequency Range (MHz)	Worst Case	
			Power	PSD
2.4 GHz	HDR4	2404 - 2476	X	X
	HDRPS2			
	XHDRPS2			
	HDR8	2404 - 2476	X	X
	HDRPM4			
	HDRPM6			
	HDRPM8			
	XHDRPM4			
	XHDRPM6			
	XHDRPM8			
	HDRPM12			
	HDRPM16			
	XHDRPM12			
	XHDRPM16			

The output power for ANT 4 and ANT 3 (SISO and TxBF) between State A and State B are identical. Both State A and B were evaluated, and no significant differences were observed between the two states for SISO and TxBF. Therefore only a single representative set of conducted test results is presented. Where applicable, the higher antenna gain of the two States has been used to assess compliance. However, due to variations in antenna gain between State A and State B, full radiated testing was performed for both states.

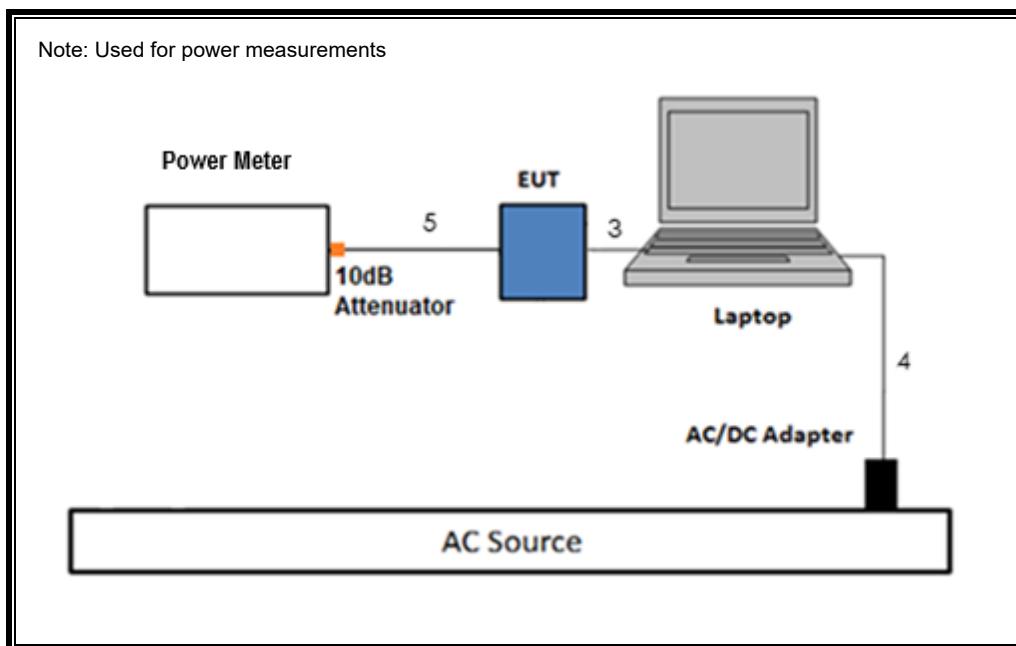
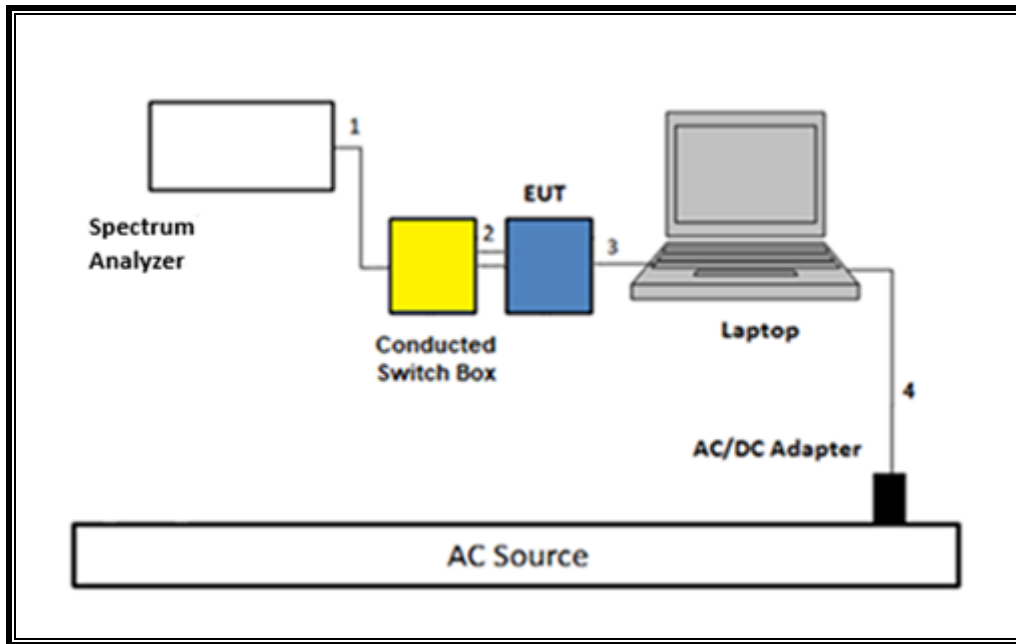
For AC line conducted emissions, radiated emissions below 1 GHz, and radiated emissions above 18 GHz, only the worst-case test results are included in this report.

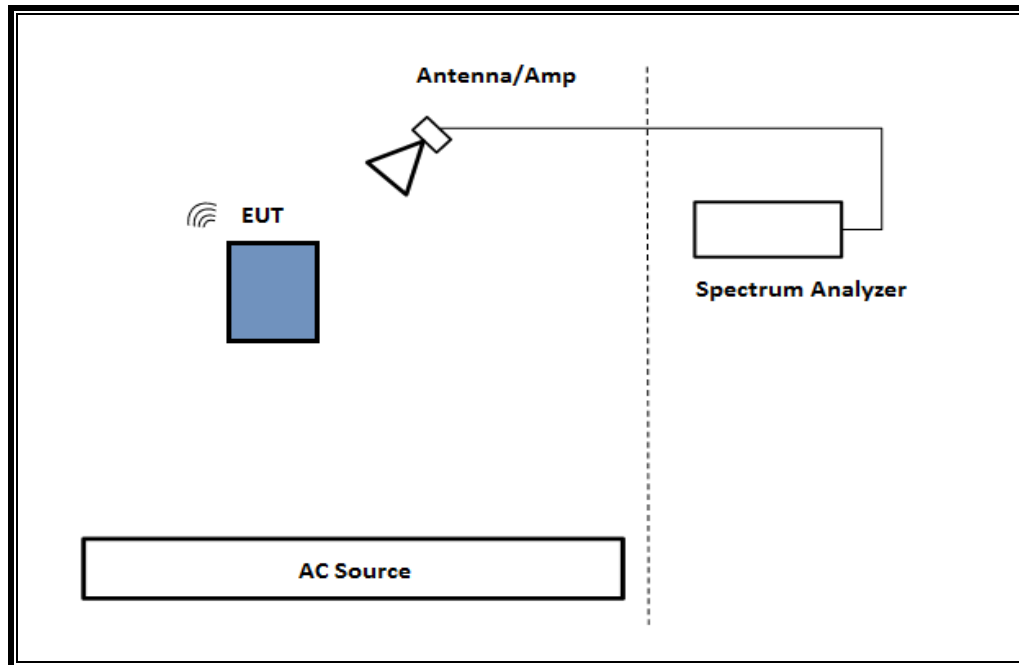
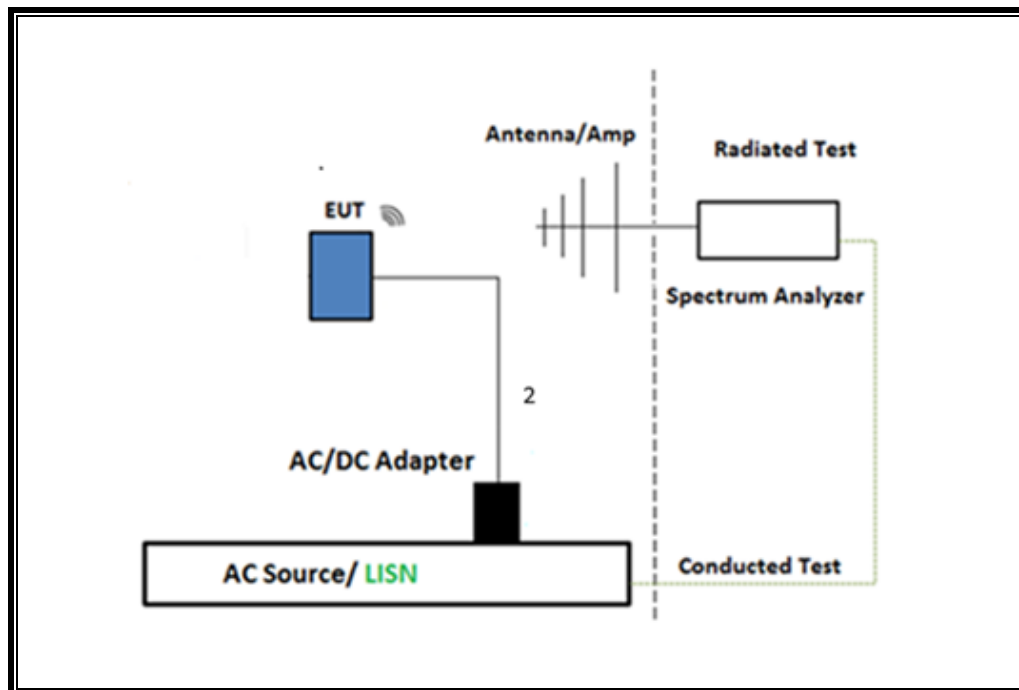
6.6. DESCRIPTION OF TEST SETUP

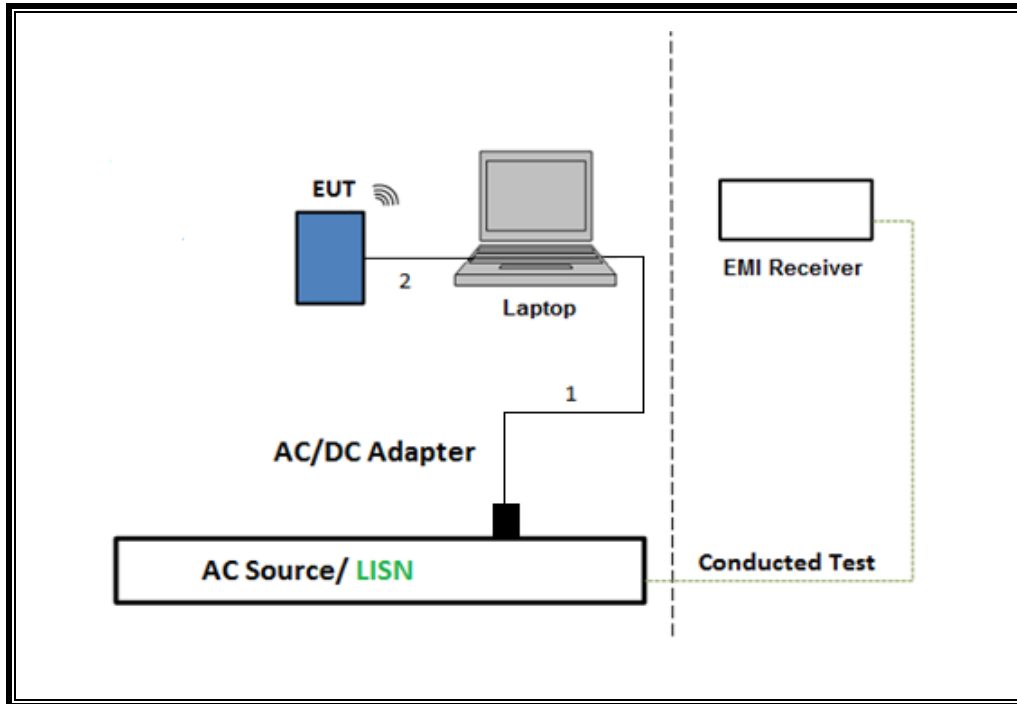
SUPPORT TEST EQUIPMENT						
Description		Manufacturer	Model	Serial Number		FCC ID/ DoC
Macbook Pro		Apple	A2992	DVJJ642FYM		BCGA2992
96W USB-C Power Adapter		Apple	A2166	C4H238408ABPMOWAV		DoC
Conducted Switch Box		UL	CSB	235779		N/A
20W USB-C Power Adapter		Apple	A2305	C4H951600C3PF4F4U		DoC
10dB Fixed Attenuator		Pasternack Enterprises	PE7087-10	236360		N/A
I/O CABLES (RF CONDUCTED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	SMA	1	SMA	Shielded	0.2	To the spectrum Analyzer
2	Antenna	1	SMA	Shielded	0.2	EUT to Switchbox
3	USB	1	USB-C	Shielded	1.0	N/A
4	DC	1	DC	Shielded	2.0	N/A
5	Antenna	1	SMA	Shielded	0.1	EUT to Power Meter
I/O CABLES (RF RADIATED AND AC LINE CONDUCTED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC	1	DC	Shielded	2.0	N/A
2	USB	1	USB-C	Shielded	1.0	N/A

TEST SETUP

The EUT setup is shown below. Test software exercised the radio card.

SETUP DIAGRAM FOR CONDUCTED TESTS

SETUP DIAGRAM FOR RADIATED TESTS 1 GHz - 26 GHz**SETUP DIAGRAM FOR RADIATED TESTS 30 MHz - 1 GHz and AC LINE CONDUCTED TEST**

TEST SETUP- AC LINE CONDUCTED: LAPTOP CONFIGURATION

7. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	ID Num	Cal Due
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	225683	2027-03-31
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	81886	2027-03-31
Filter Box	UL-FR1	R103, 2 Amp, 12 Port	237597	2027-05-31
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	201499	2027-03-30
Antenna, Horn 18 to 26.5GHz	A.R.A.	MWH-1826/B	172354	2027-05-31
RF Amplifier Assembly, 18-26.5GHz, 60dB Gain	AMPLICAL	AMP18G26.5-60	221832	2027-04-30
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	223460	2027-02-28
Antenna, Broadband Hybrid, 30MHz to 3GHz	Sunol Sciences Corp.	JB3	204045	2027-05-31
Amplifier 9 KHz - 1 GHz	SONOMA INSTRUMENT	310N	224489	2026-09-30
Antenna, Passive Loop 30Hz - 1MHz	ELECTRO-METRICS	EM-6871	170014	2027-09-30
Antenna, Passive Loop 100KHz - 30MHz	ELECTRO-METRICS	EM-6872	170016	2027-09-30
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	226079	2027-02-28
Antenna, Horn 18 to 26.5GHz	A.R.A.	MWH-1826/B	81139	2027-10-31
RF Amplifier Assembly, 18-26.5GHz, 60dB Gain	AMPLICAL	AMP18G26.5-60	220194	2027-06-30
PXA Signal Analyzer 2Hz to 44GHz	Keysight Technologies Inc	N9030B	231912	2027-01-31
Conducted Switch Box	UL	CSB	187984	2027-01-31
Spectrum Analyzer, PXA, 3Hz-44GHz	Keysight Technologies Inc	N9030A	85214	2027-01-31
Conducted Switch Box	UL	CSB	245783	2027-01-31
Spectrum Analyzer, PXA, 3Hz-44GHz	Keysight Technologies Inc	N9030A	85313	2027-01-31
Conducted Switch Box	UL	CSB	235779	2027-01-31
P-Series Power Meter	Keysight Technologies Inc	N1912A-CFG003	259286	2027-01-31
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	90389	2027-01-31
P-Series Power Meter	Keysight Technologies Inc	N1911A	90731	2027-01-31
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	257705	2027-01-31
10dB Fixed Attenuator	Pasternack Enterprises	PE7087-10	236360	Verified
10dB Fixed Attenuator	Pasternack Enterprises	PE7024-10	238180	Verified

AC LINE CONDUCTED				
Description	Manufacturer	Model	ID Num	Cal Due
EMI TEST RECEIVER	Rohde & Schwarz	ESCI7	82297	2027-02-28
LISN	Fischer Custom Communications	FCC-LISN-50/250-25-2-01-480V	175765	2027-01-31
Transient Limiter	TE	TBFL1	207996	2026-12-30

UL AUTOMATION SOFTWARE				
Description	Manufacturer	Model	ID Num	Cal Due
Radiated Software	UL	UL EMC	Ver 9.5, Aug 15, 2025	
Conducted Software	UL	Station Tool	Ver 9.5, Dec 15, 2025	
AC Line Conducted Software	UL	UL EMC	V2026.6.0	
			Ver 9.5, Aug 25, 2025	

*Testing is completed before equipment expiration date.

8. MEASUREMENT METHOD

Test Item	Test Method
On Time and Duty Cycle	ANSI C63.10 Subclause - 11.6
6 dB BW	ANSI C63.10 Subclause - 11.8.1 RBW $\geq$ DTS BW
99% BW	ANSI C63.10 Subclause 6.9.3
Conducted Output Power	ANSI C63.10 Subclause - 11.9.2.3.2 Method AVGPM G (Measurement using an RF average-reading power meter) -11.9.1.2 Method PKPM1 Peak-reading power meter
Power Spectral Density	ANSI C63.10 Subclause - 11.10.2 Method PKPSD (peak PSD)
Radiated emissions non-restricted frequency bands	ANSI C63.10 Subclause - 11.11 and 13
Radiated emissions restricted frequency bands	ANSI C63.10 Subclause - 11.12.1 and 13
Conducted emissions in restricted frequency bands	ANSI C63.10 Subclause - 11.12.2
Band-edge (Peak Detection)	ANSI C63.10 Subclause - 11.12.2.4 and 13: Peak Measurement
Band-edge (Trace Averaging)	ANSI C63.10 Subclause - 11.12.2.5 and 13: Average Measurement
Radiated Spurious Emissions Below 30MHz	ANSI C63.10 Subclause - 6.4 and 13
AC Power Line Conducted Emissions	ANSI C63.10, Subclause - 6.2

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

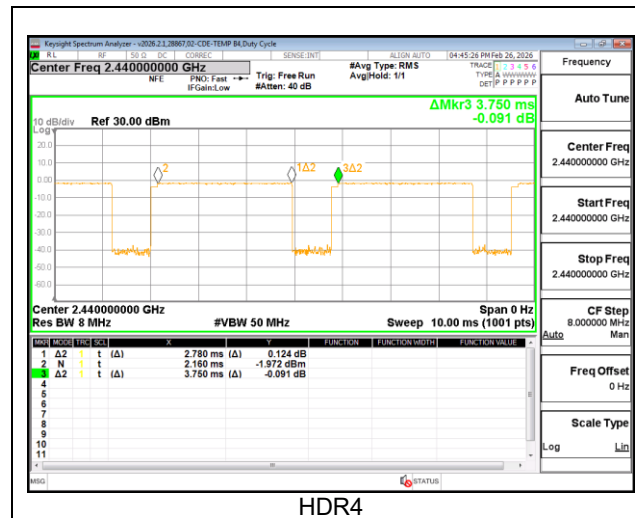
PROCEDURE

ANSI C63.10, Subclause 11.6.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time T (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)
HDR4	2.780	3.750	0.741	74.1	1.30	0.360
HDR8	2.790	3.750	0.744	74.4	1.28	0.358

Note: The duty cycle is identical for both 1TX and 2TX configurations.



9.2. 99% BANDWIDTH

LIMITS

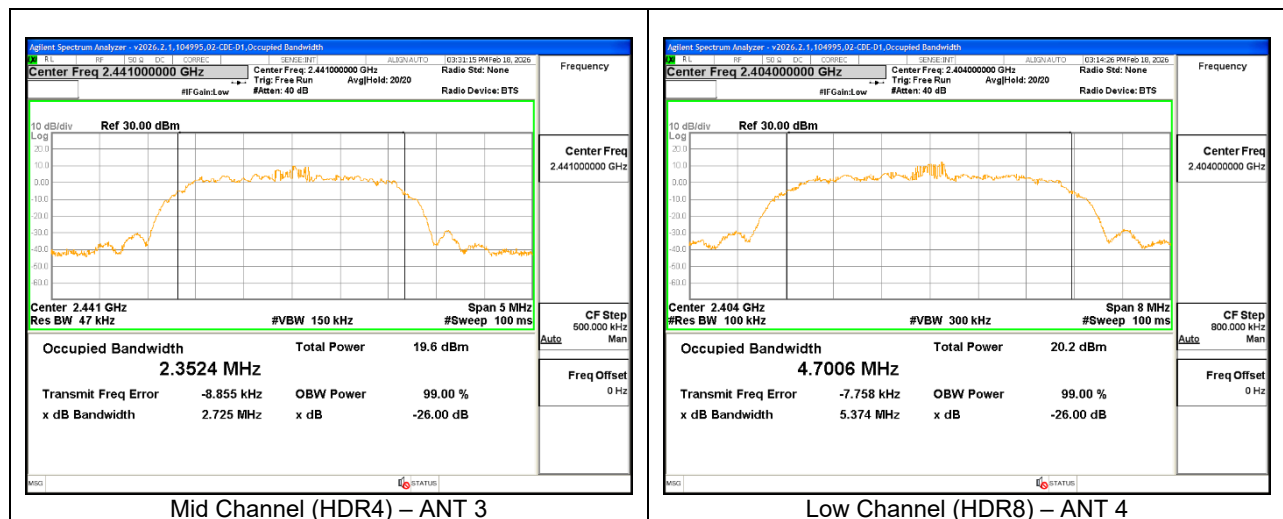
None; for reporting purposes only.

RESULTS

Both SISO and MIMO TXBF modes were evaluated, and no significant differences were observed. Accordingly, only the SISO high-power results are presented.

Mode (SISO)	Frequency (MHz)	Channel	99% Bandwidth (MHz)	
			ANT 4	ANT 3
HDR4	2404	Low	2.3455	2.3502
	2441	Mid	2.3502	2.3524
	2476	High	2.3520	2.3467
HDR8	2404	Low	4.7006	4.6748
	2441	Mid	4.6939	4.6741
	2476	High	4.6838	4.6719

WORST MAXIMUM PLOTS



9.3. 6dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

RSS-247 6.3.1 (a)

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

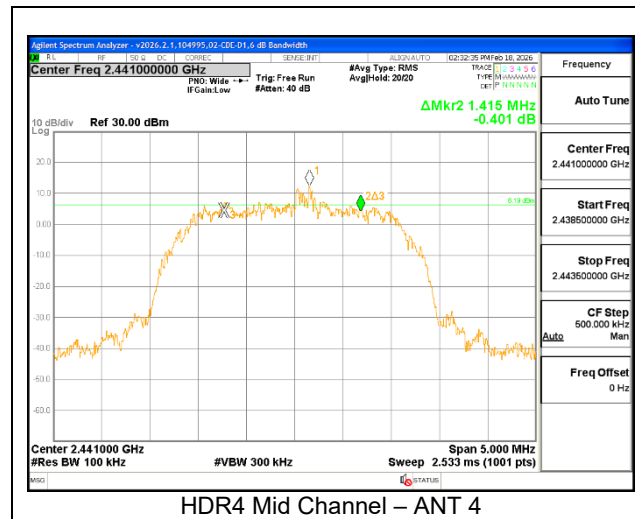
RESULTS

The 6 dB bandwidth was measured in the narrowest bandwidth mode (HDR4), which represents the worst-case condition, to demonstrate compliance with the minimum required bandwidth of 500 kHz across all modes.

9.3.1. HDR4 – HIGH POWER

Mode (SISO)	Frequency (MHz)	Channel	6dB Bandwidth (MHz)	
			ANT 4	ANT 3
HDR4	2404	Low	1.675	1.575
	2441	Mid	1.415	2.115
	2476	High	1.810	2.065

WORST MINIMUM PLOT



9.4. OUTPUT POWER AND POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (b) (3) & (e)

RSS-247 6.3.2 & 6.3.1 (b)

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, 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.

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.

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 2 TX:

Tx chains are correlated for power and PSD due to the device supporting beamforming modes.

The directional gains are as follows:

Frequency Range (GHz)	Antenna Type	Configuration	Antenna Peak Gain			
			ANT 4 (dBi)	ANT 3 (dBi)	Uncorrelated Chains (dBi)	Correlated Chains (dBi)
2.4	IFA	STATE A	-4.40	-4.30	-5.20	-2.20
		STATE B	-3.40	-3.60	-3.70	-0.70

RESULTS

Only the mid-channel plot is presented to illustrate the analyzer settings.

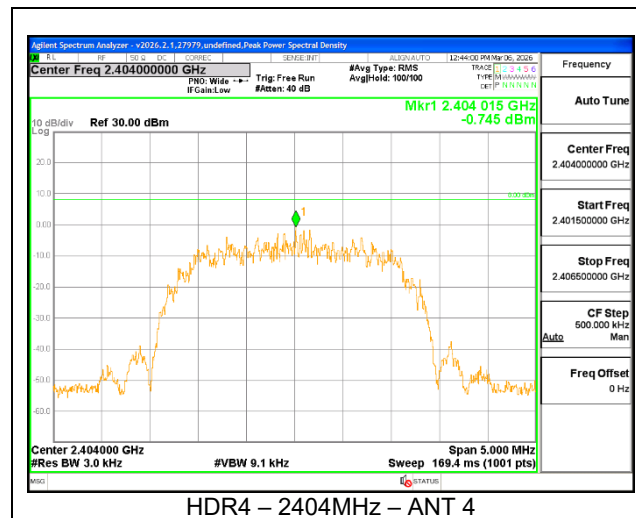
Note: The RBW setting used for PSD measurement is greater than or equal to 3 kHz.

9.4.1. SISO

2.4G (SISO)	
ANT 4 (dBi)	-3.40
ANT 3 (dBi)	-3.60

Mode (SISO)	Power Config.	Frequency (MHz)	Channel	Power Limit (dBm)		Output Power (dBm)		PSD Limit (dBm/3kHz)		PSD (dBm/kHz)	
				ANT 4	ANT 3	ANT 4	ANT 3	ANT 4	ANT 3	ANT 4	ANT 3
HDR4	High	2404	Low	30	30	16.81	16.15	8	8	-0.745	-0.948
		2441	Mid			16.72	16.35			-0.822	-1.018
		2476	High			16.67	16.21			-0.833	-0.995
	Low	2404	Low			8.64	8.29			-9.282	-9.853
		2441	Mid			8.62	8.24			-9.118	-9.513
		2476	High			8.65	8.12			-9.303	-9.447
HDR8	High	2404	Low			16.71	16.39			-2.424	-2.677
		2441	Mid			16.78	16.37			-2.629	-2.848
		2476	High			16.65	16.38			-2.703	-2.806
	Low	2404	Low			8.53	8.28			-10.906	-11.207
		2441	Mid			8.59	8.28			-10.853	-11.529
		2476	High			8.61	8.22			-10.656	-11.284

Worst-Case Plot:



2.4G (MIMO TXBF)	
Un-Correlated Gain (dBi)	-3.70
Correlated Gain (dBi)	-0.70

Mode (MIMO TXBF)	Power Config.	Frequency (MHz)	Channel	Power Limit (dBm)	Output Power (dBm)		Total MIMO Corrected Power (dBm)	PSD Limit (dBm/3kHz)	PSD (dBm/kHz)		Total MIMO Corrected PSD (dBm/kHz)
					ANT 4	ANT 3			ANT 4	ANT 3	
HDR4	High	2404	Low	30	16.85	16.14	19.52	8	-0.755	-1.204	2.037
		2441	Mid		16.72	16.31	19.53		-0.824	-0.917	2.140
		2476	High		16.59	16.30	19.46		-0.767	-1.020	2.119
	Low	2404	Low		8.63	8.11	11.39		-9.446	-9.710	-6.566
		2441	Mid		8.64	8.24	11.45		-9.071	-9.884	-6.448
		2476	High		8.63	8.11	11.39		-9.369	-9.515	-6.431
HDR8	High	2404	Low		16.69	16.41	19.56		-2.500	-2.639	0.441
		2441	Mid		16.69	16.31	19.51		-2.456	-2.540	0.513
		2476	High		16.62	16.26	19.45		-2.365	-2.613	0.523
	Low	2404	Low	8.63	8.28	11.47	-11.088	-11.103	-8.085		
		2441	Mid	8.61	8.26	11.45	-10.631	-11.549	-8.055		
		2476	High	8.62	8.13	11.39	-11.082	-11.504	-8.278		

The figure consists of two side-by-side screenshots of a Spectrum Analyzer interface. Both displays show a power spectrum with a prominent peak at 2.441015 GHz. The left display is labeled 'HDR4 - HIGH POWER - 2441MHz - ANT 4' and the right display is labeled 'HDR4 - HIGH POWER - 2441MHz - ANT 3'. Both displays show a peak at 2.441015 GHz with a power level of approximately -0.824 dBm (left) and -0.917 dBm (right). The displays include various parameters such as Center Freq, Span, Res BW, and Sweep rate.

Parameter	Left Display (ANT 4)	Right Display (ANT 3)
Center Freq	2.441000000 GHz	2.441000000 GHz
Span	5.000 MHz	5.000 MHz
Res BW	3.0 kHz	3.0 kHz
Sweep	169.4 ms (1001 pts)	169.4 ms (1001 pts)
Peak Power	-0.824 dBm	-0.917 dBm

9.5. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband RF power meter.

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

RESULTS

9.5.1. SISO

Mode (SISO)	Power Config.	Frequency (MHz)	Channel	Average Power (Gated) (dBm)	
				ANT 4	ANT 3
HDR4	High	2404	Low	13.99	13.38
		2441	Mid	13.97	13.49
		2476	High	13.89	13.42
	Low	2404	Low	5.73	5.46
		2441	Mid	5.74	5.49
		2476	High	5.72	5.37
HDR8	High	2404	Low	13.94	13.47
		2441	Mid	13.99	13.45
		2476	High	13.88	13.46
	Low	2404	Low	5.73	5.45
		2441	Mid	5.73	5.50
		2476	High	5.71	5.37

9.5.2. MIMO TXBF

Mode (MIMO TXBF)	Power Config.	Frequency (MHz)	Channel	Average Power (Gated) (dBm)		Total MIMO Average Power (Gated) (dBm)
				ANT 4	ANT 3	
HDR4	High	2404	Low	13.95	13.41	16.70
		2441	Mid	13.98	13.48	16.75
		2476	High	13.87	13.49	16.69
	Low	2404	Low	5.74	5.42	8.59
		2441	Mid	5.71	5.47	8.60
		2476	High	5.73	5.38	8.57
HDR8	High	2404	Low	13.97	13.48	16.74
		2441	Mid	13.96	13.44	16.72
		2476	High	13.85	13.45	16.66
	Low	2404	Low	5.72	5.42	8.58
		2441	Mid	5.73	5.43	8.59
		2476	High	5.74	5.43	8.60

9.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

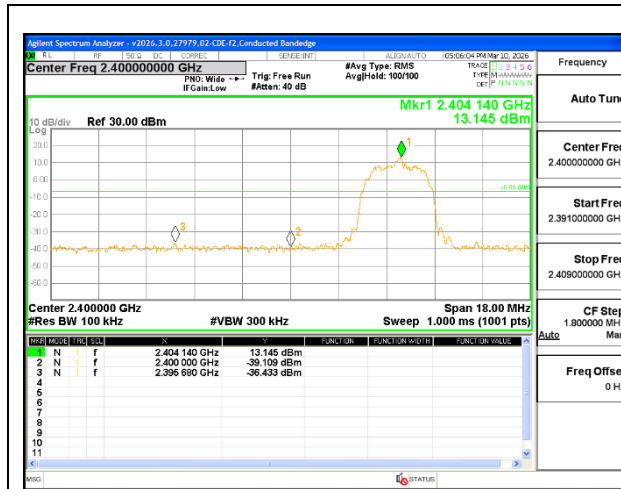
RSS-247 6.6

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

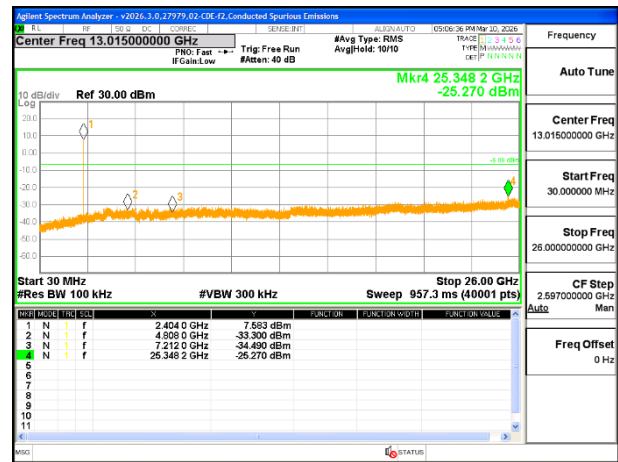
RESULTS

9.6.1. HDR4 – HIGH POWER – SISO

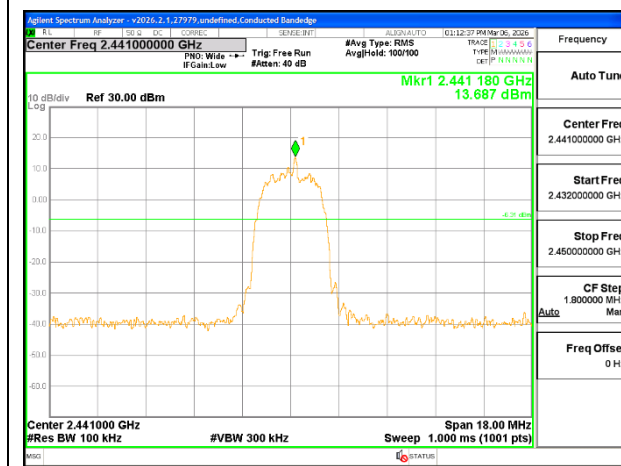
ANT 4



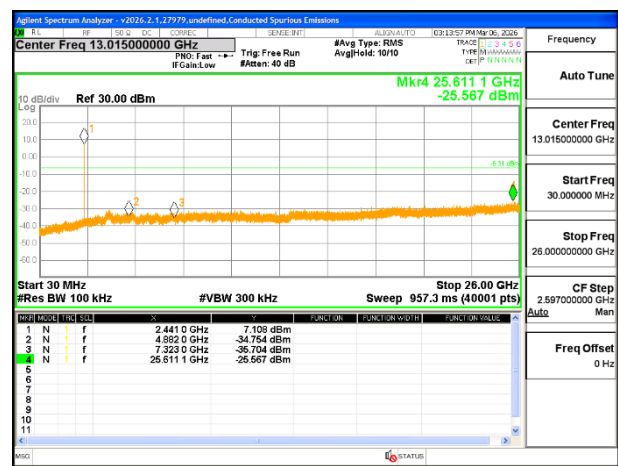
LOW CHANNEL BAND EDGE



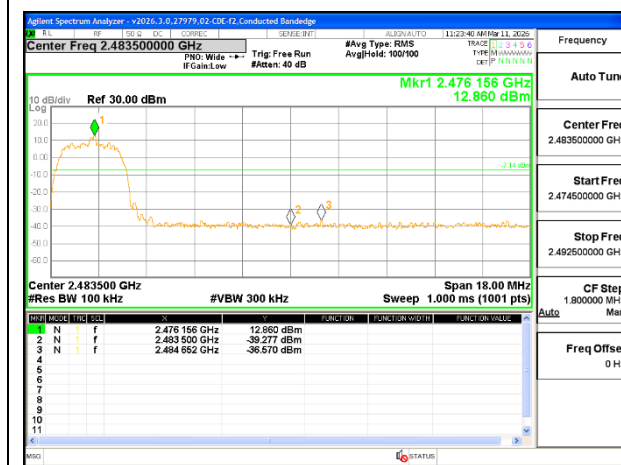
LOW CHANNEL OUT-OF-BAND



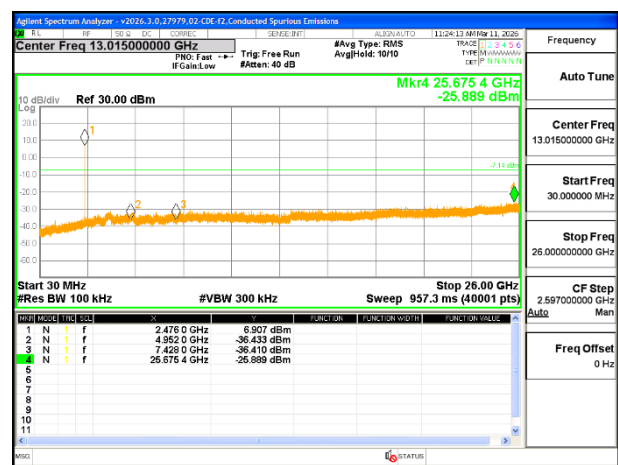
IN-BAND REFERENCE LEVEL



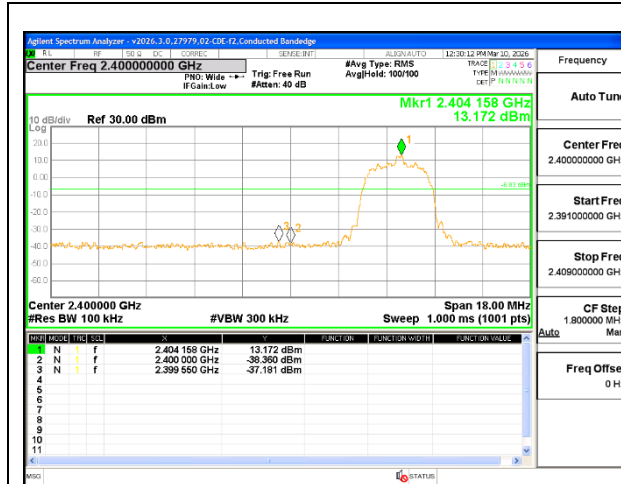
MID CHANNEL OUT-OF-BAND



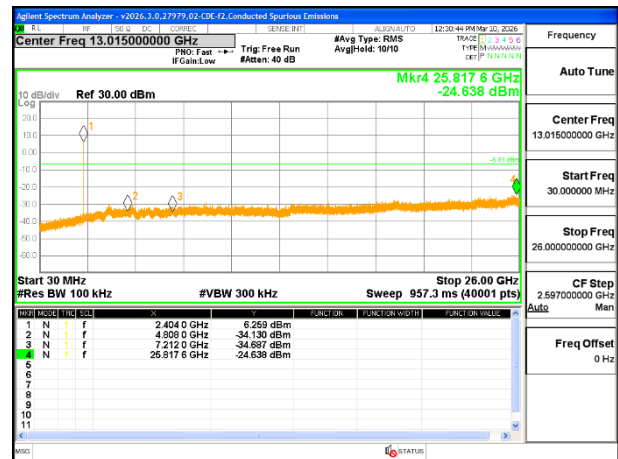
HIGH CHANNEL BAND EDGE



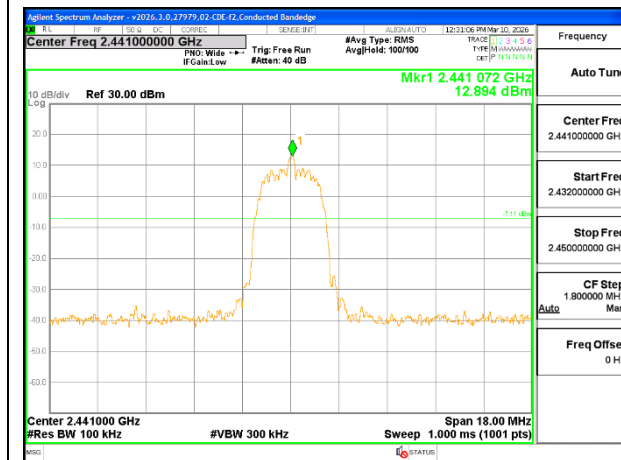
HIGH CHANNEL OUT-OF-BAND

ANT 3

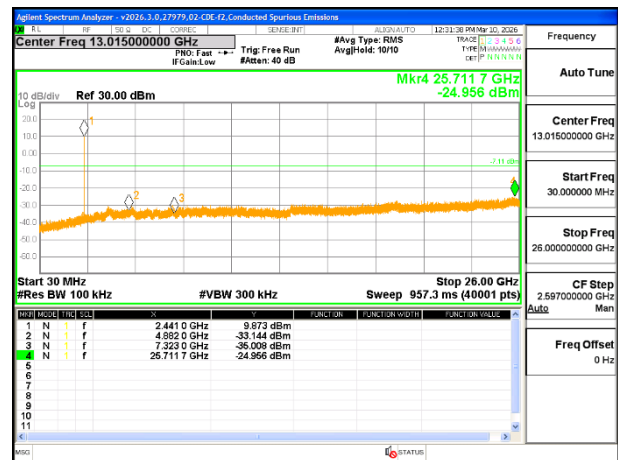
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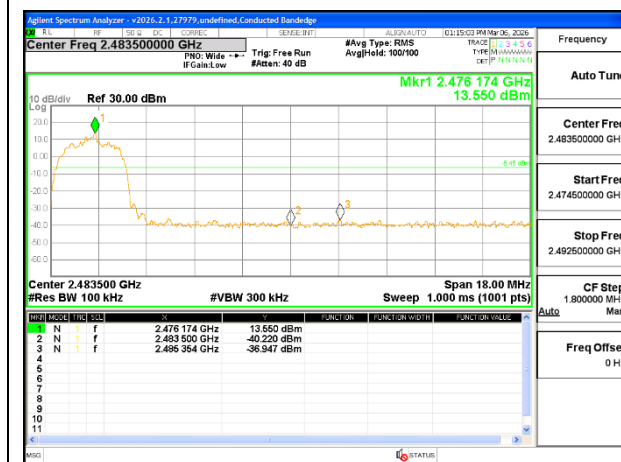
LOW CHANNEL OUT-OF-BAND



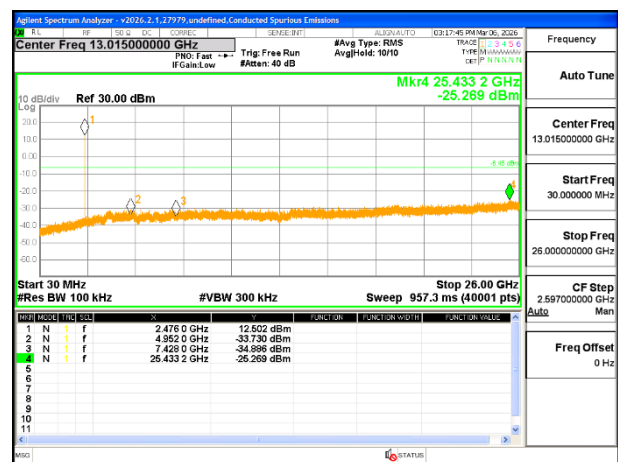
IN-BAND REFERENCE LEVEL



MID CHANNEL OUT-OF-BAND



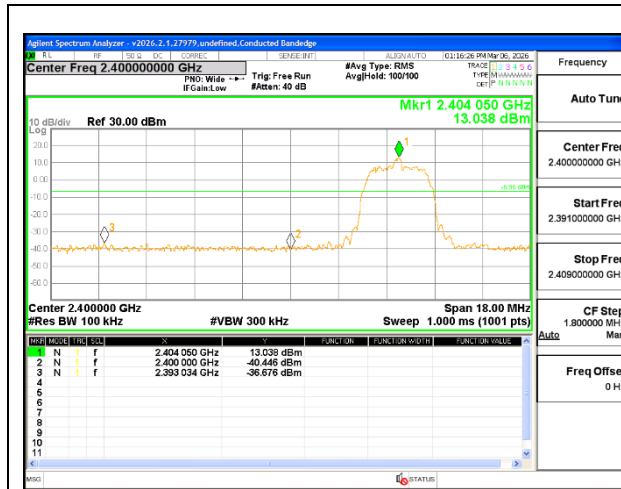
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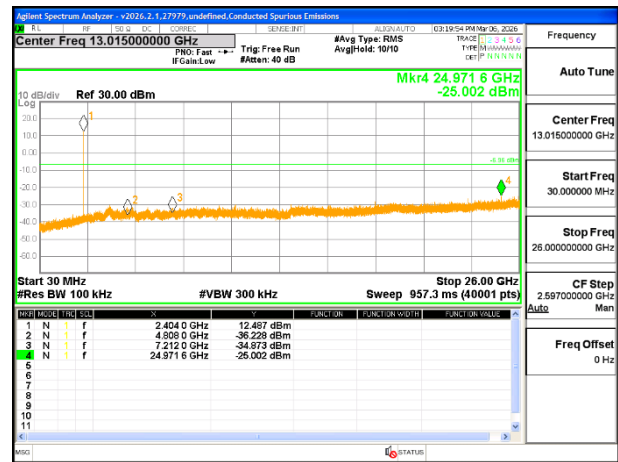
HIGH CHANNEL OUT-OF-BAND

9.6.2. HDR4 – HIGH POWER – MIMO TXBF

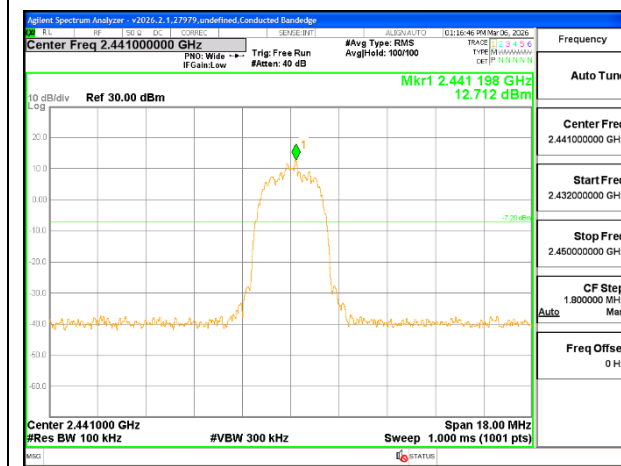
ANT 4



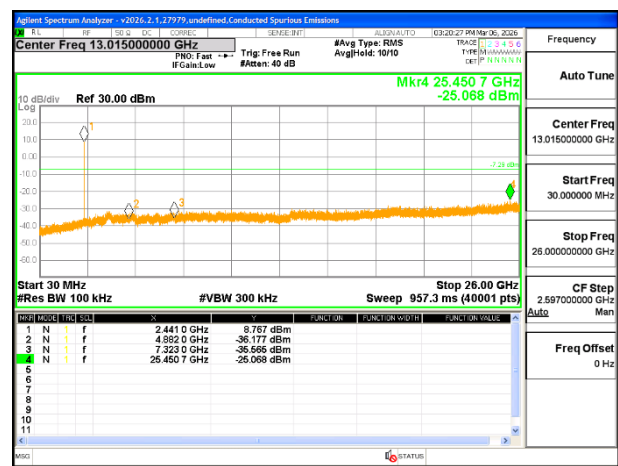
LOW CHANNEL BAND EDGE



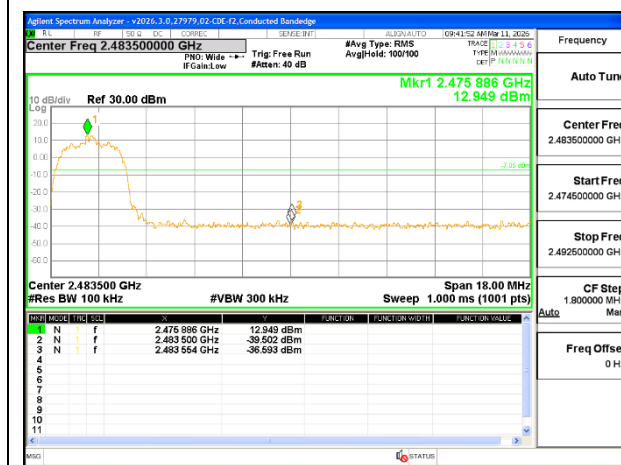
LOW CHANNEL OUT-OF-BAND



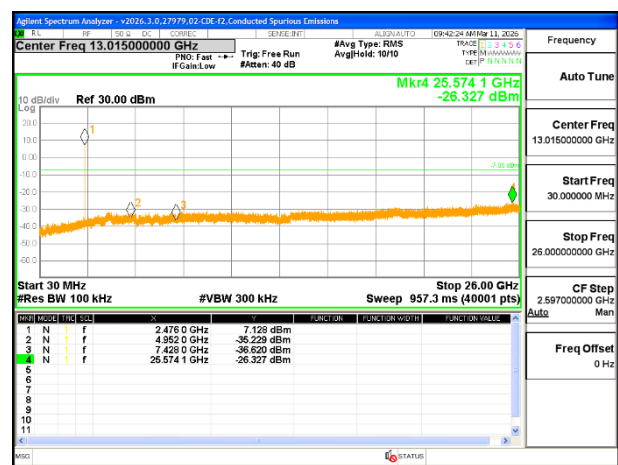
IN-BAND REFERENCE LEVEL



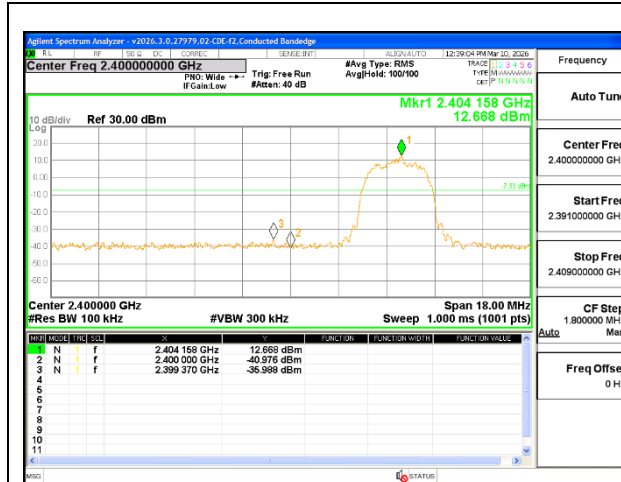
MID CHANNEL OUT-OF-BAND



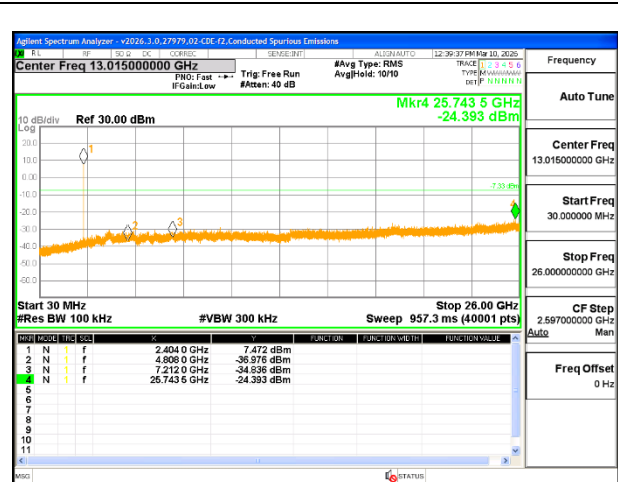
HIGH CHANNEL BAND EDGE



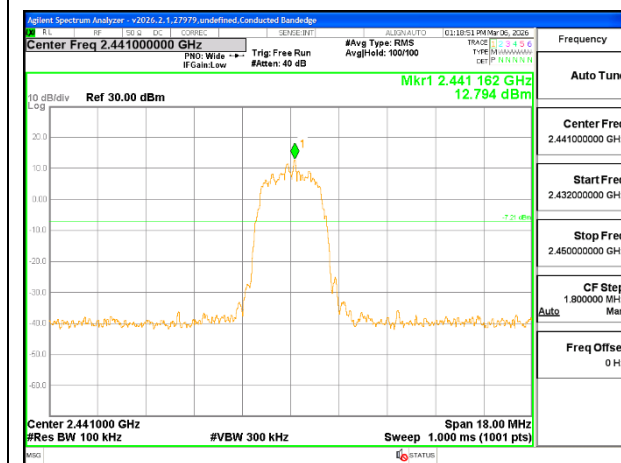
HIGH CHANNEL OUT-OF-BAND

ANT 3

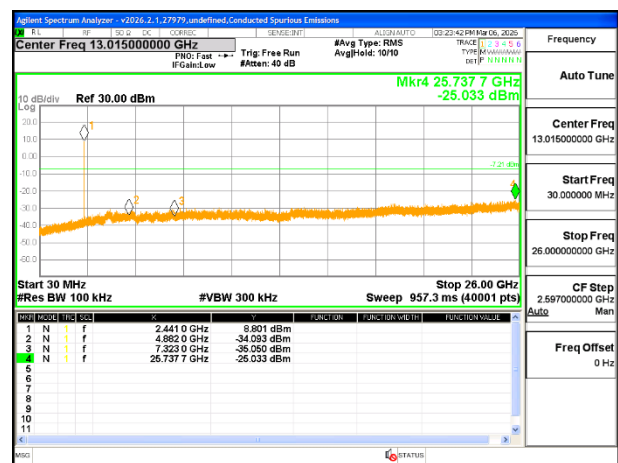
LOW CHANNEL BAND EDGE



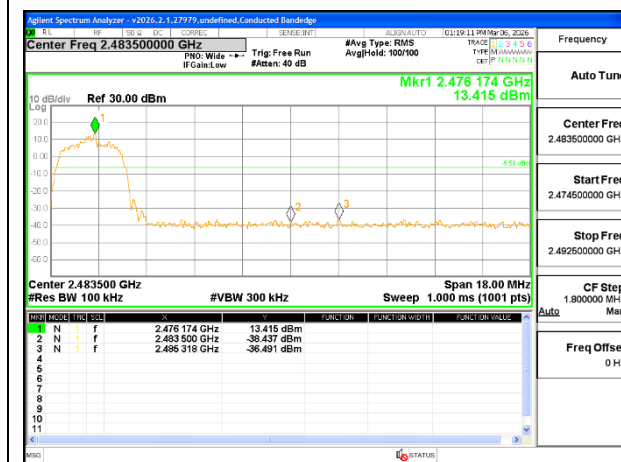
LOW CHANNEL OUT-OF-BAND



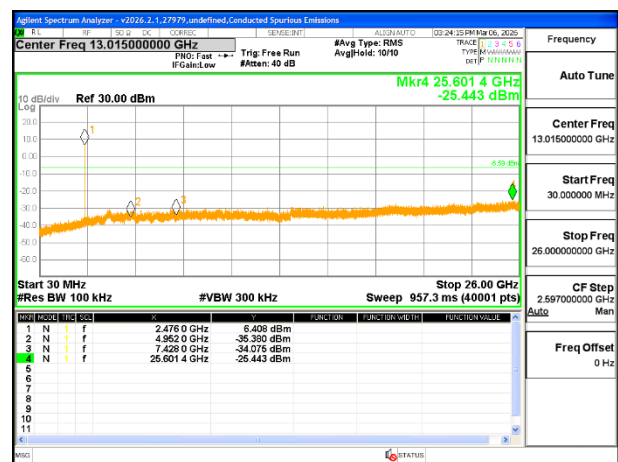
IN-BAND REFERENCE LEVEL



MID CHANNEL OUT-OF-BAND



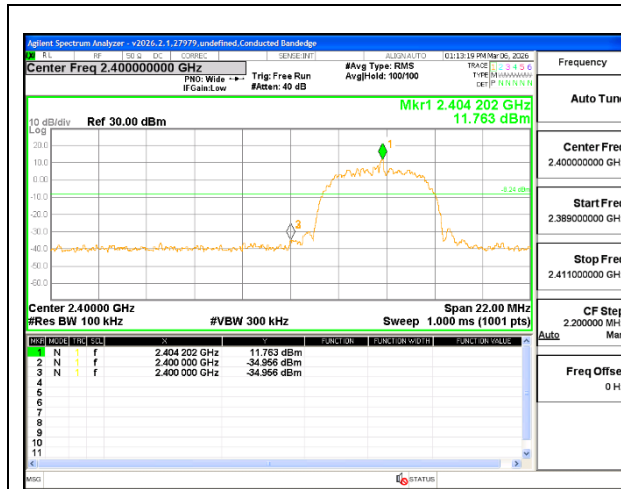
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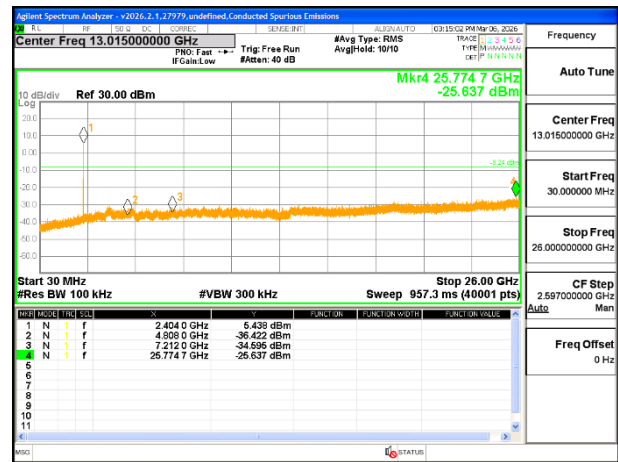
HIGH CHANNEL OUT-OF-BAND

9.6.3. HDR8 – HIGH POWER – SISO

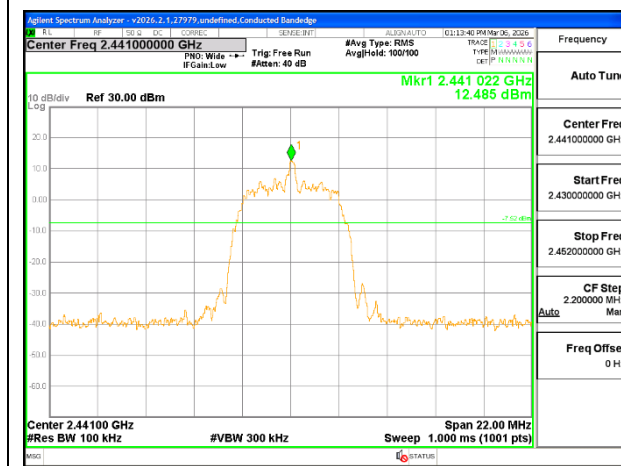
ANT 4



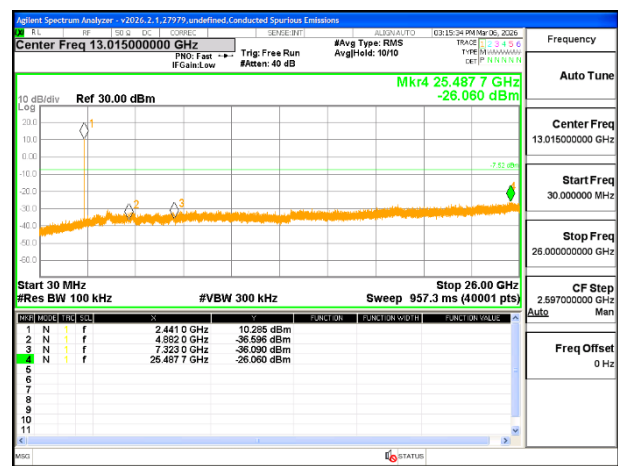
LOW CHANNEL BAND EDGE



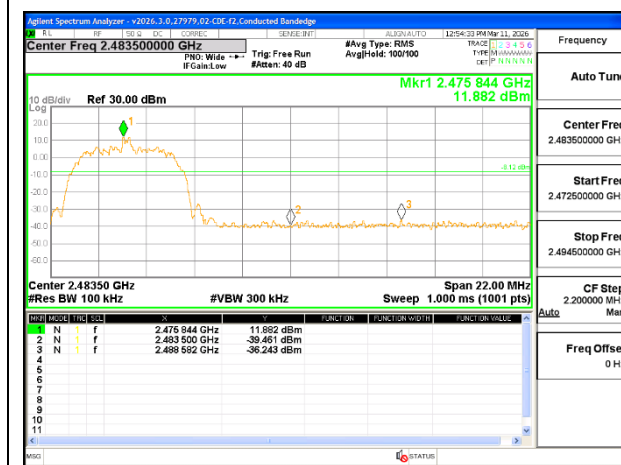
LOW CHANNEL OUT-OF-BAND



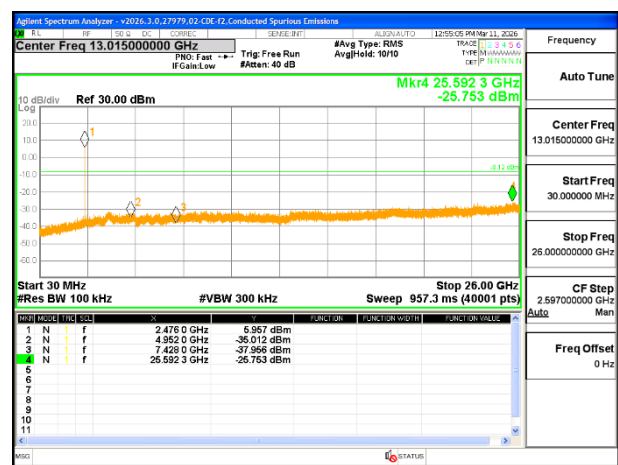
IN-BAND REFERENCE LEVEL



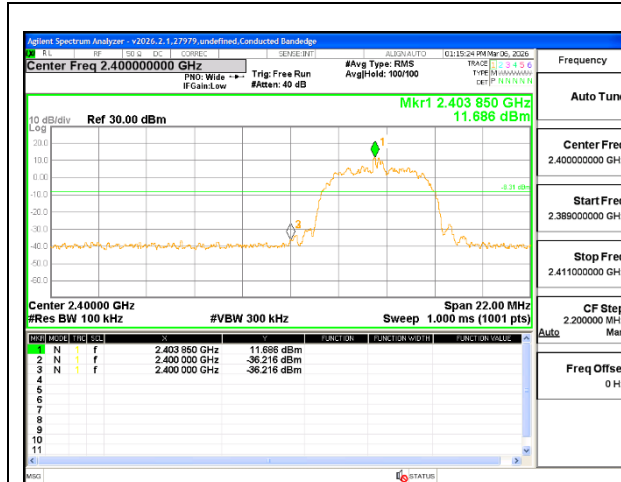
MID CHANNEL OUT-OF-BAND



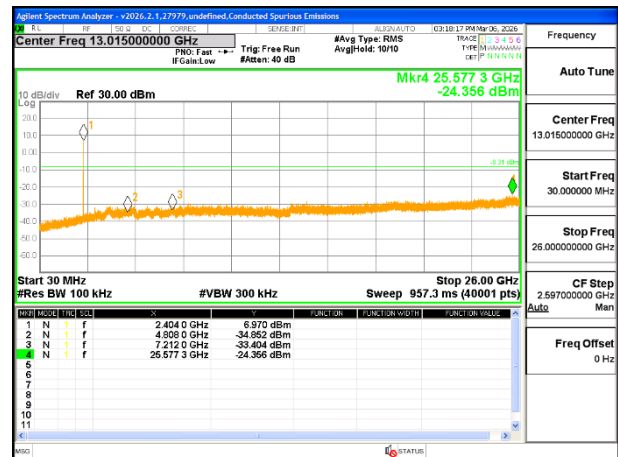
HIGH CHANNEL BAND EDGE



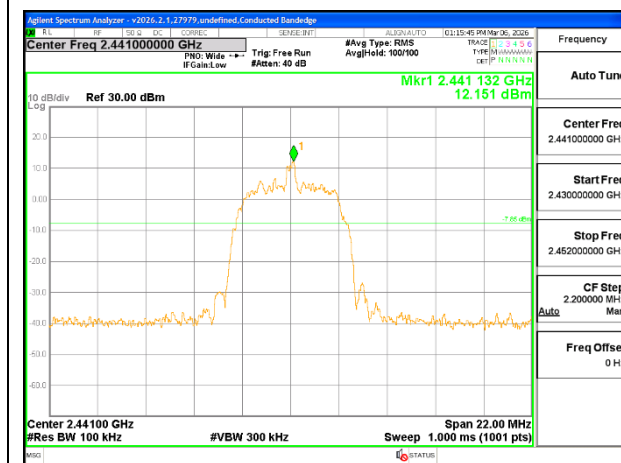
HIGH CHANNEL OUT-OF-BAND

ANT 3

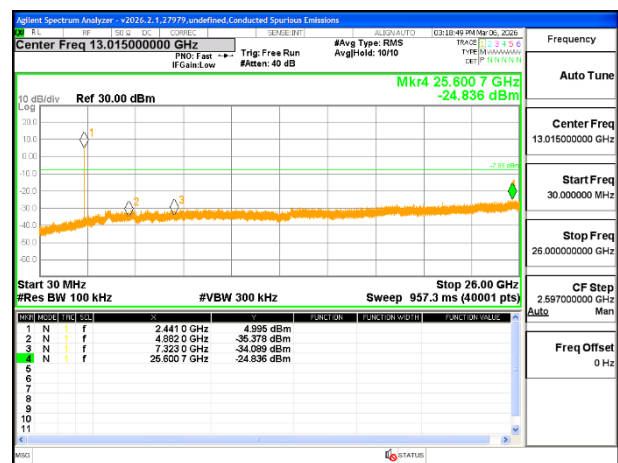
LOW CHANNEL BAND EDGE



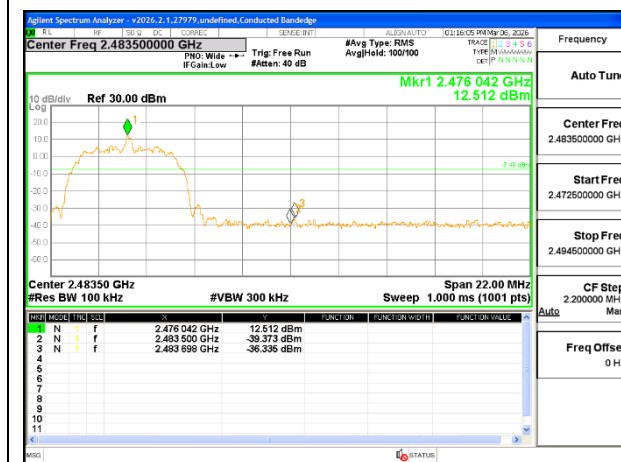
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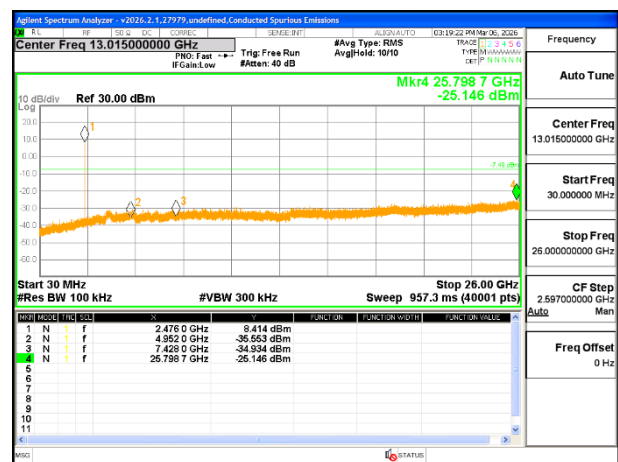
IN-BAND REFERENCE LEVEL



MID CHANNEL OUT-OF-BAND



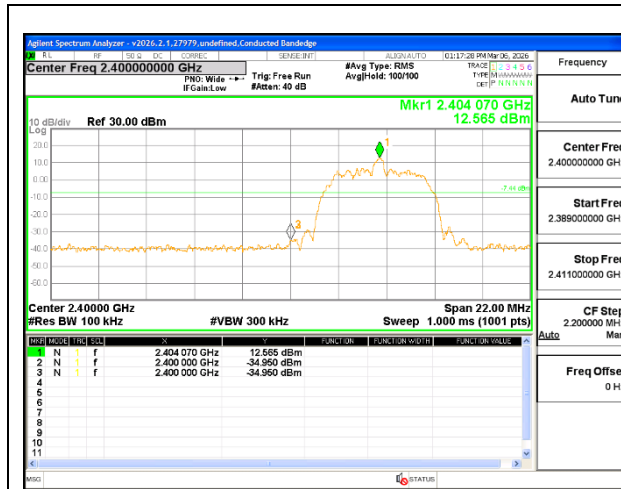
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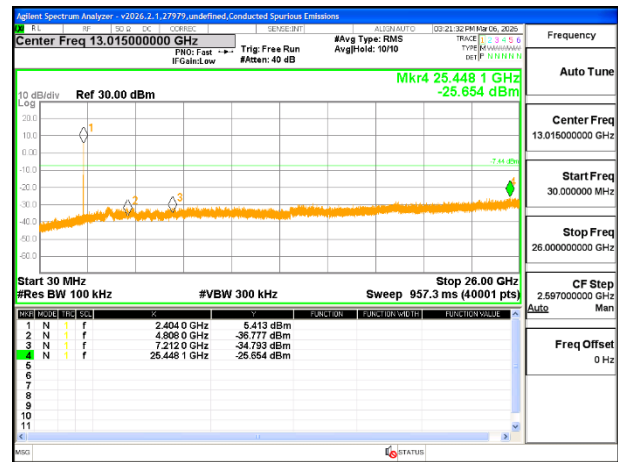
HIGH CHANNEL OUT-OF-BAND

9.6.4. HDR8 – HIGH POWER – MIMO TXBF

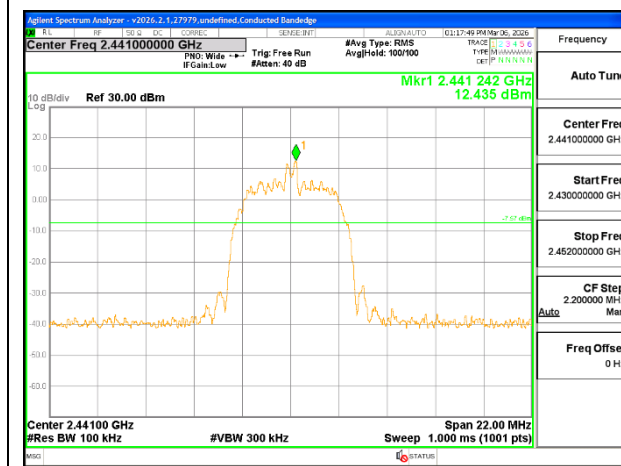
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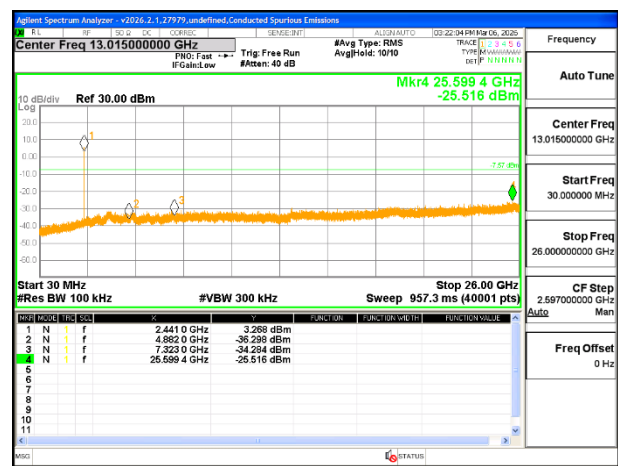
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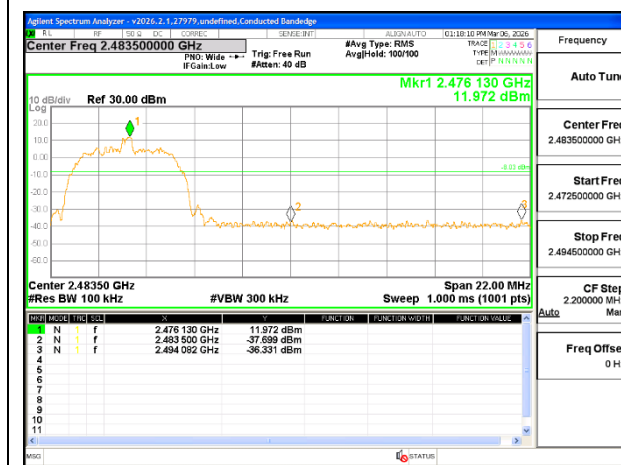
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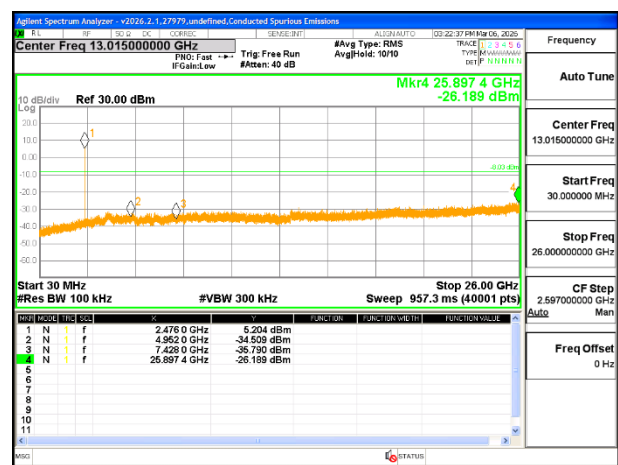
IN-BAND REFERENCE LEVEL



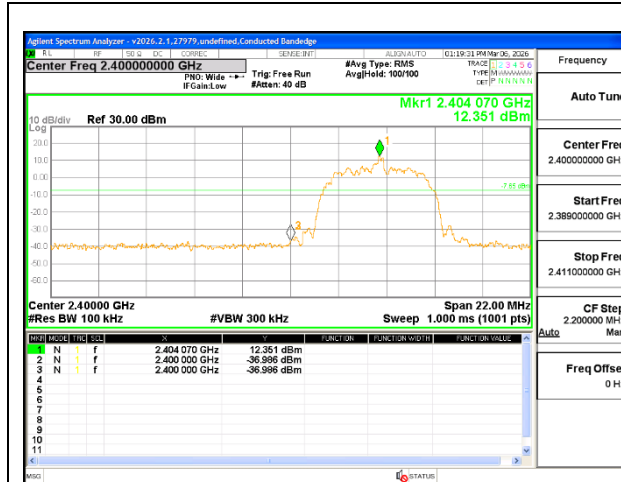
MID CHANNEL OUT-OF-BAND



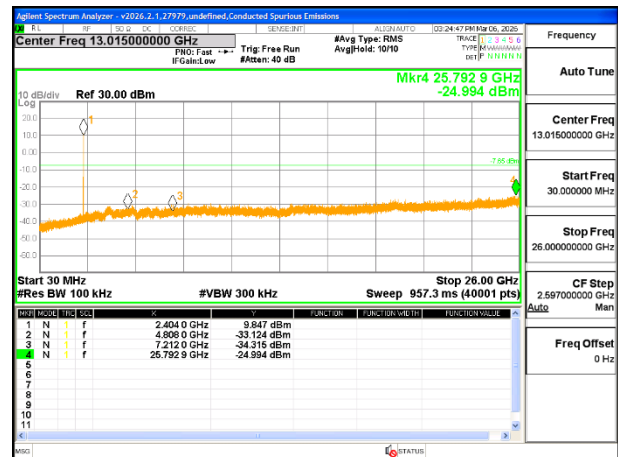
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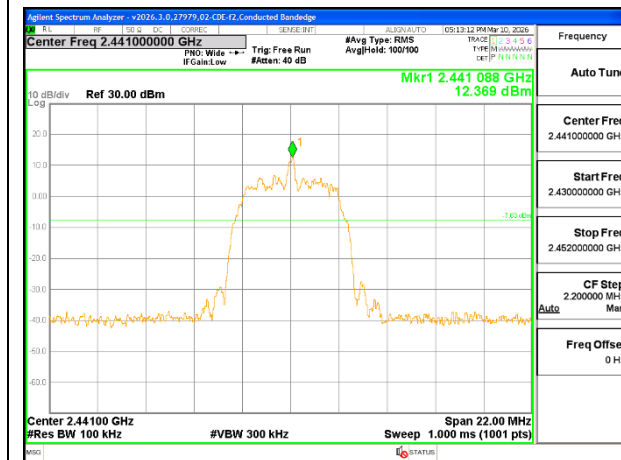
HIGH CHANNEL OUT-OF-BAND

ANT 3

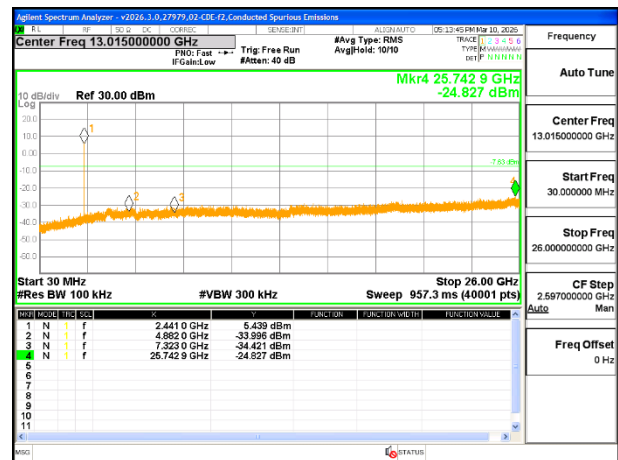
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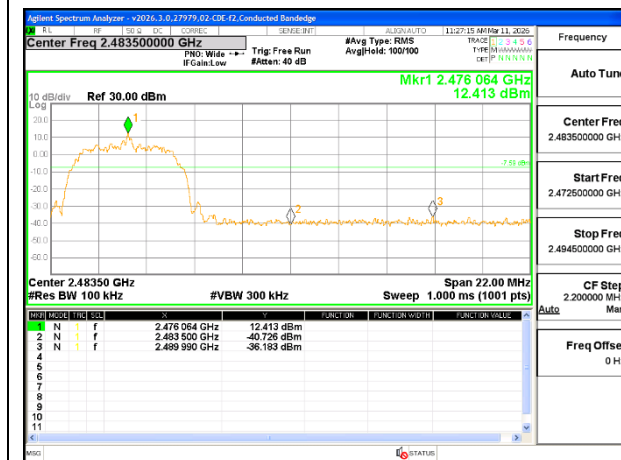
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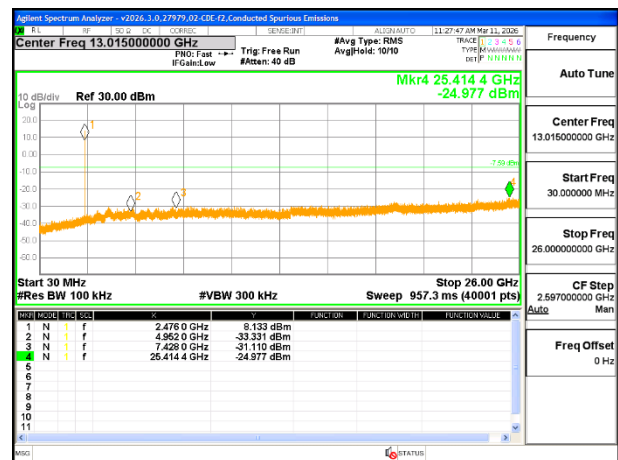
IN-BAND REFERENCE LEVEL



MID CHANNEL OUT-OF-BAND



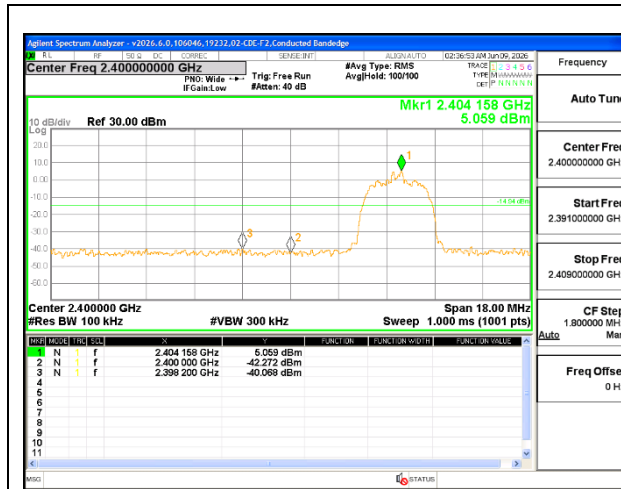
HIGH CHANNEL BAND EDGE



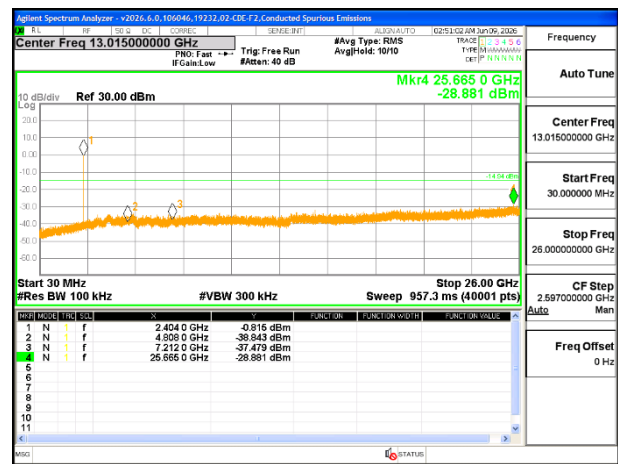
HIGH CHANNEL OUT-OF-BAND

9.6.5. HDR4 – LOW POWER – SISO

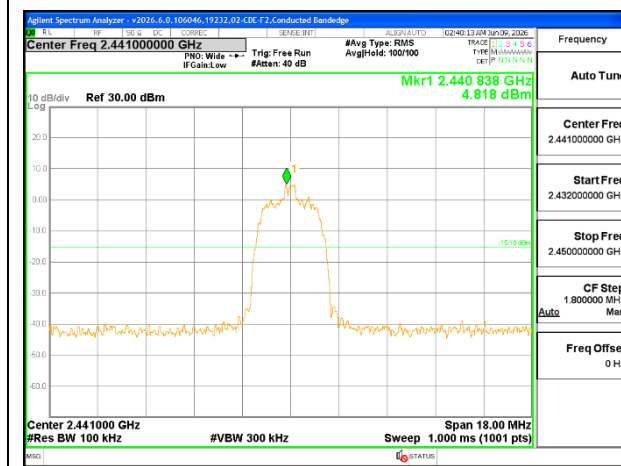
ANT 4



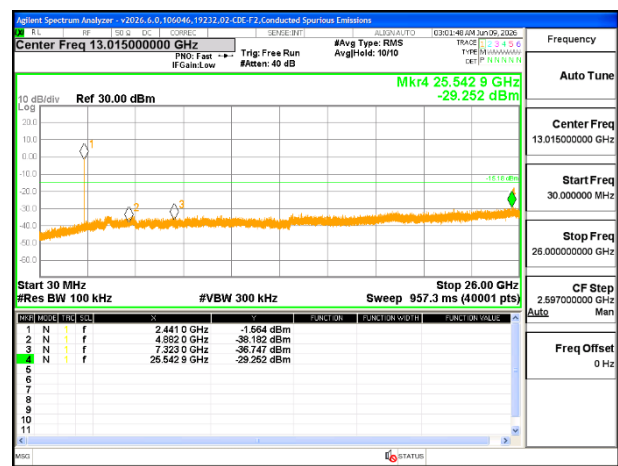
LOW CHANNEL BAND EDGE



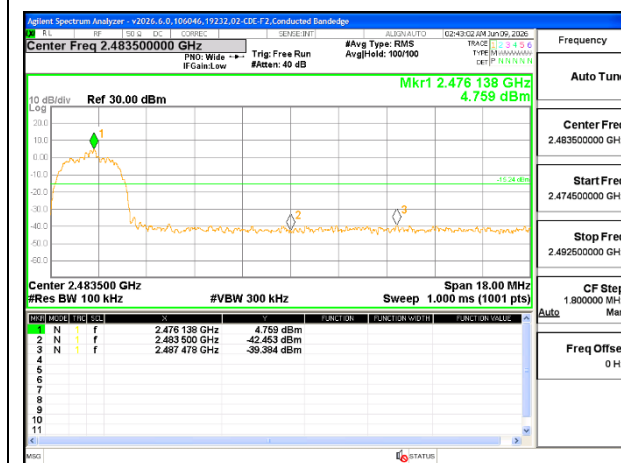
LOW CHANNEL OUT-OF-BAND



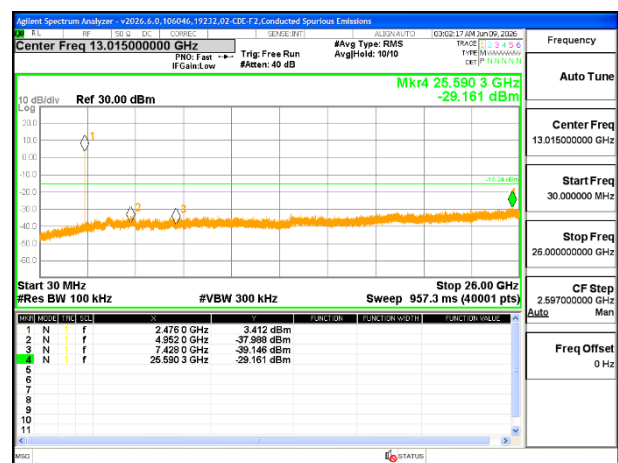
IN-BAND REFERENCE LEVEL



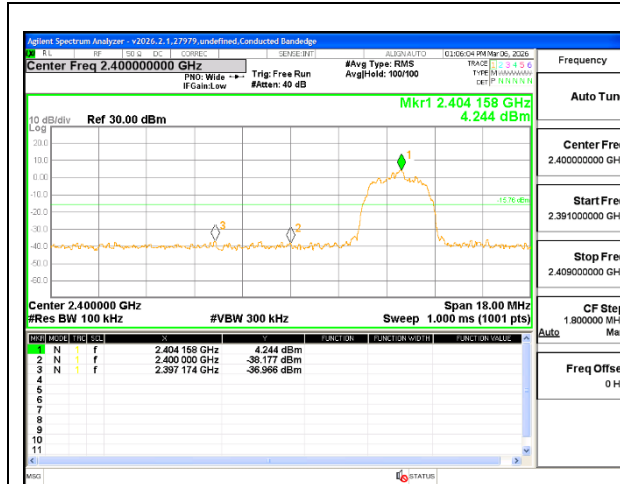
MID CHANNEL OUT-OF-BAND



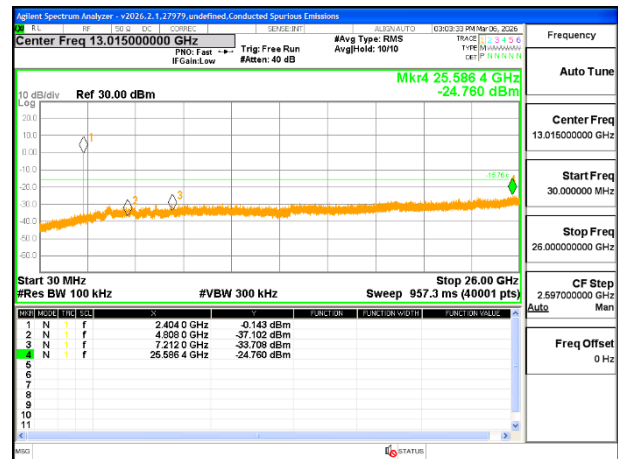
HIGH CHANNEL BAND EDGE



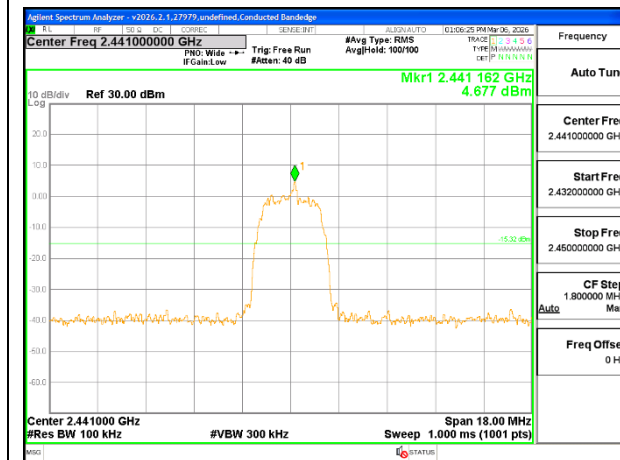
HIGH CHANNEL OUT-OF-BAND

ANT 3

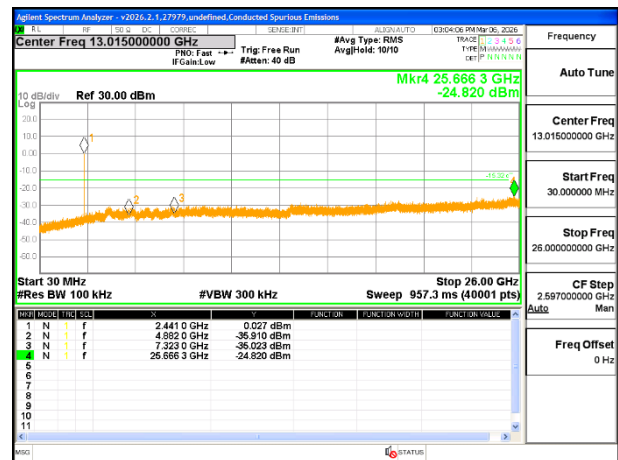
LOW CHANNEL BAND EDGE



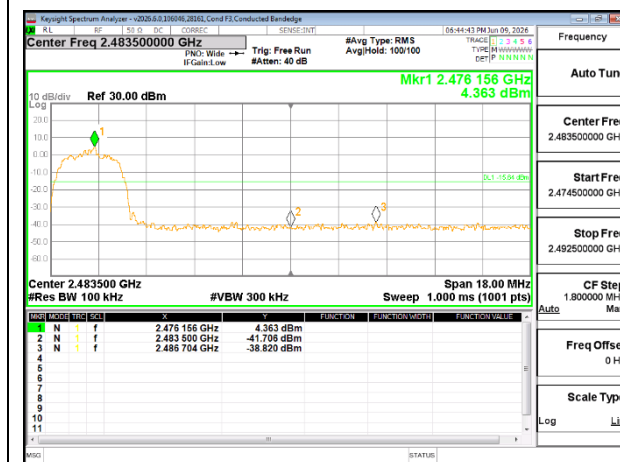
LOW CHANNEL OUT-OF-BAND



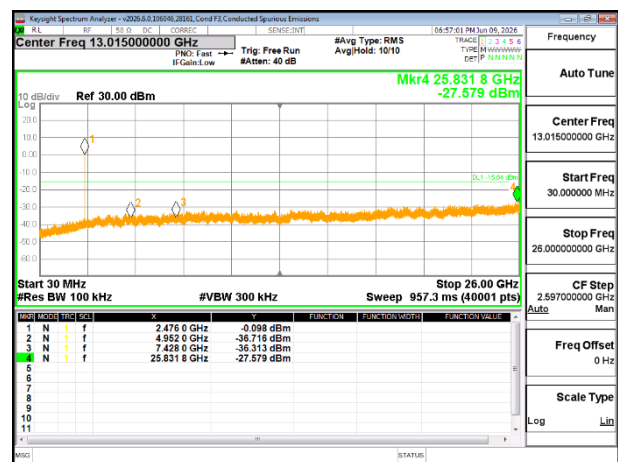
IN-BAND REFERENCE LEVEL



MID CHANNEL OUT-OF-BAND



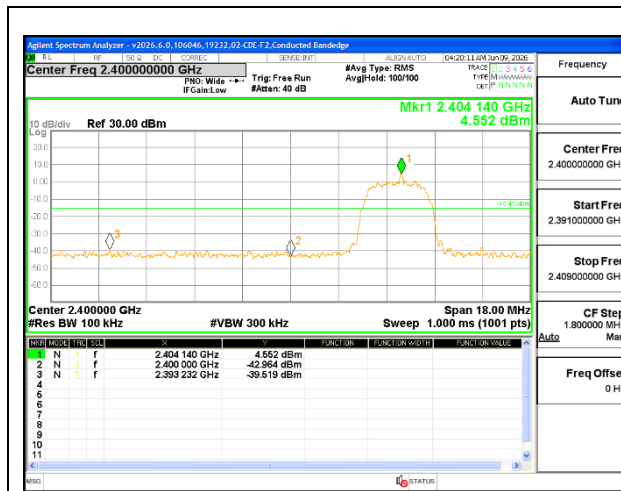
HIGH CHANNEL BAND EDGE



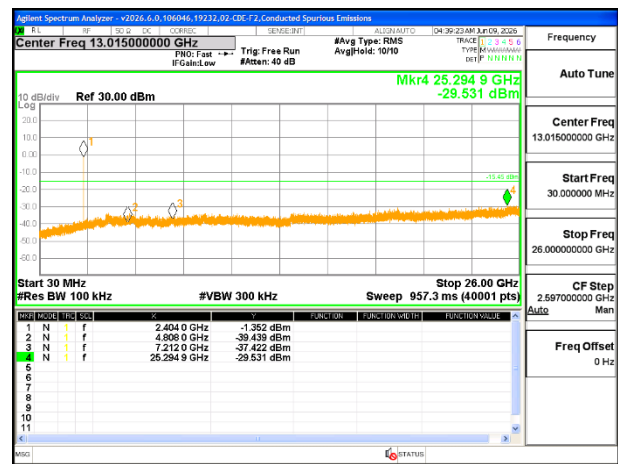
HIGH CHANNEL OUT-OF-BAND

9.6.6. HDR4 – LOW POWER – MIMO TXBF

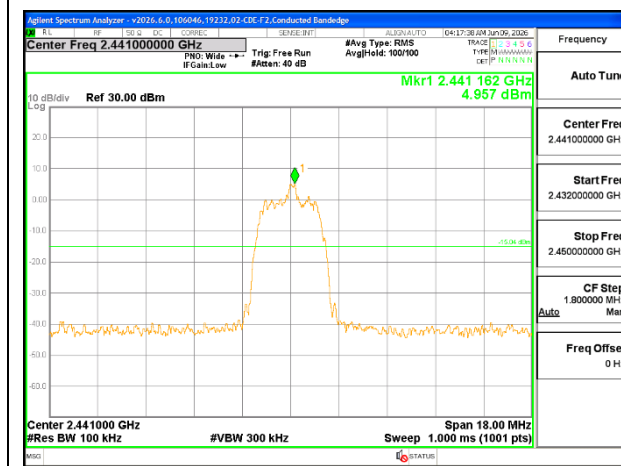
ANT 4



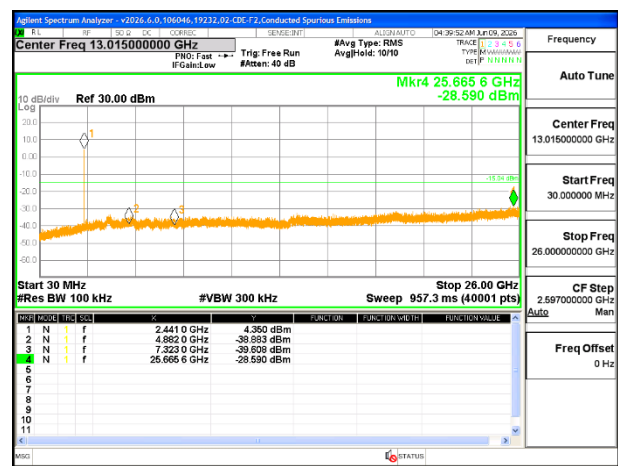
LOW CHANNEL BAND EDGE



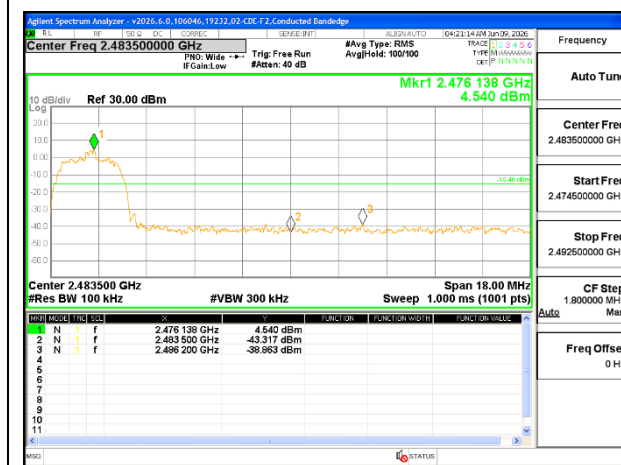
LOW CHANNEL OUT-OF-BAND



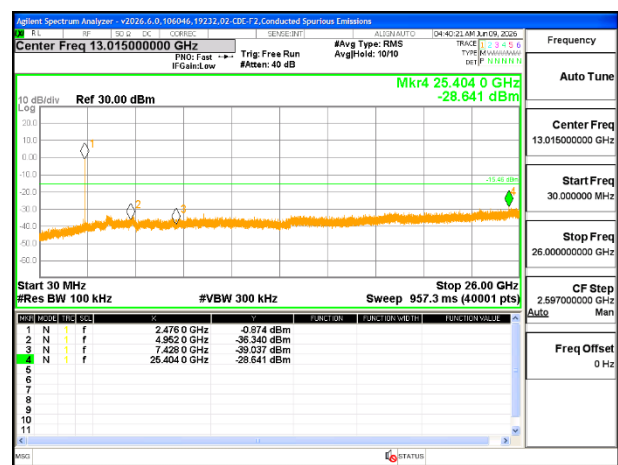
IN-BAND REFERENCE LEVEL



MID CHANNEL OUT-OF-BAND



HIGH CHANNEL BAND EDGE



HIGH CHANNEL OUT-OF-BAND