

TEST REPORT

Report Number: R15607055-E1

Applicant : Garmin International Inc.
1200 East 151st Street
Olathe, KS 66062-3426, USA

Model : A04909

FCC ID : IPH-04909

IC : 1792A-04909

EUT Description : Extremity Worn Digital Transceiver

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

Date Of Issue:
2025-04-17

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REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2025-01-17	Initial Issue	Chandler Stanley
V2	2025-04-17	Revised Operational Duty Cycle	Charles Moody

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Garmin International Inc.
1200 East 151st Street
Olathe, KS 66062-3426, USA

EUT DESCRIPTION: Extremity Worn Digital Transceiver

MODEL: A04909

SERIAL NUMBER: 3493239303, 3493238982

SAMPLE RECEIPT DATE: 2024-10-21 and 2024-12-04

DATE TESTED: 2024-10-21 to 2025-01-03

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Refer to Section 2
ISED RSS-247 Issue 3	
ISED RSS-GEN Issue 5 + A1 + A2	

UL LLC 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 assure 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 LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document.

Approved & Released
For UL LLC By:

Prepared By:



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Project Engineer
Consumer, Medical and IT Segment
UL LLC



Chandler Stanley
Engineer
Consumer, Medical and IT Segment
UL LLC

2. TEST RESULTS SUMMARY

This report contains info provided by the customer which can impact the validity of results. UL LLC is only responsible for the validity of results after the integration of the data provided by the customer.

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

- 1) Antenna gain and type (see section 6.3)
- 2) Worst-case data rates (see section 6.5)

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	Compliant	None
15.247 (b) (3)	RSS-247 5.4 (d)	Output Power		
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	Compliant	None
15.247 (d)	RSS-247 5.5	Conducted Spurious Emissions		
15.209, 15.205	RSS-GEN 8.9, 8.10	Radiated Emissions		
15.207	RSS-Gen 8.8	AC Mains Conducted Emissions		

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC 47 CFR Part 2, FCC 47 CFR Part 15, ANSI C63.10-2020, KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 414788 D01 Radiated Test Site v01r01, RSS-GEN Issue 5 + A1 + A2, and RSS-247 Issue 3.

4. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, certification # 0751.06, 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: 12 Laboratory Dr RTP, NC 27709, U.S.A	US0067	2180C	825374
☒	Building: 2800 Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A		27265	

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	UNCERTAINTY
Radio Frequency (Spectrum Analyzer)	141.2 Hz
Occupied Channel Bandwidth	1.22%
RF output power, conducted	1.3 dB (PK) 0.45 dB (AV)
Power Spectral Density, conducted	2.47 dB
Unwanted Emissions, conducted	1.94 dB
All emissions, radiated	6.01 dB
Conducted Emissions (0.150-30MHz) - LISN	3.40 dB
Temperature	0.57°C
Humidity	3.39%
DC Supply voltages	1.70%
Time	3.39%

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

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

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

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

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

6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The EUT is an extremity worn digital transceiver with BT, BLE, ANT/ANT+, 802.11b/g/n 2.4GHz WLAN, NFC, and Global Navigation Satellite System (GNSS) receiver. This report covers testing on the ANT/ANT+, BLE, and 2.4GHz WLAN radios.

6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2472	802.11b	12.69	18.58
2412 - 2472	802.11g	20.69	117.22
2412 - 2472	802.11n HT20	21.02	126.47
2402 - 2480	ANT/ANT+	2.79	1.90
2402 - 2480	BLE 1Mbps	2.77	1.89
2402 - 2480	BLE 2Mbps	2.89	1.95

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The antenna(s) gain and type, as provided by the manufacturer' are as follows:
The radio utilizes an antenna with the following type and maximum gain:

Type	Frequency Range (MHz)	Maximum Gain (dBi)
Bezel Antenna	2402-2480	-3.3

6.4. SOFTWARE AND FIRMWARE

The software version installed on radiated units during testing was 3.51.
The software version installed on conducted units during testing was 53.07.

6.5. WORST-CASE CONFIGURATION AND MODE

Radiated emissions below 1GHz, above 18GHz, and power line conducted emission were performed with the EUT set to transmit at the channel with highest PSD as worst-case scenario.

For 2.4 WLAN, PSD was taken at the mid channel power setting (highest) for all channels.

Power is not distributed equally among all channels and therefore radiated spurious emissions between 1GHz and 18GHz were performed on mid channel and the highest power low and high channels. Band edge scans were performed on all inner/outer channels up to mid channel power.

The fundamental of the EUT was investigated in three orthogonal axes, X, Y, and Z. The worst-case orientation was determined to be the Z orientation. Therefore, all testing was performed with the EUT in the Z orientation.

The client has elected to declare operational duty cycles of 86% for BLE and 13% for ANT/ANT+ resulting in duty cycle correction factors of -1.31dB and -17.72dB respectively. FAQ#3c from the KDB 558074 was used to determine the average emissions for BLE and ANT/ANT+.

6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adaptor	Garmin/Phihong	AQ27A-59CFA	N/A	N/A

I/O CABLES

I/O Cable List						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	Proprietary	1	4 pin Proprietary	Non-Shielded	<3m	Used for charging only

TEST SETUP

EUT was configured using its own built-in push buttons prior to testing. For final emissions testing, the EUT was connected to AC mains.

SETUP DIAGRAMS

Please refer to R15607055-EP1 for setup diagrams

7. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
Common Equipment					
Conducted Room 1					
90410	Spectrum Analyzer	Keysight Technologies	N9030A	2024-06-14	2025-06-14
245765	Environmental Meter	Fisher Scientific	06-662-4	2024-01-24	2025-01-24
211058	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2024-08-01	2025-08-01
SOFTEMI	Antenna Port Software	UL	Version 2024.2.23	NA	NA
Power Software	Boonton Power Analyzer	Boonton	Version 3.0.13.0	NA	NA
Additional Equipment used					
CBL028	SMA Cable	Sucoflex	104PEA	2024-02-16	2025-02-16

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 1)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
0.009-30MHz					
135144	Active Loop Antenna	ETS-Lindgren	6502	2024-10-02	2025-10-02
1-18 GHz					
135143	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2024-02-07	2026-02-07
Gain-Loss Chains					
91974	Gain-loss string: 0.009-30MHz	Various	Various	2024-05-08	2025-05-08
91979	Gain-loss string: 1-18GHz	Various	Various	2024-05-08	2025-05-08
Receiver & Software					
206496	Spectrum Analyzer	Rohde & Schwarz	ESW44	2024-08-29	2025-08-29
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
Additional Equipment used					
241205	Environmental Meter	Fisher Scientific	15-077-963	2023-09-05	2025-09-05

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 2)

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
30-1000 MHz					
159203	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2024-03-05	2026-03-05
Gain-Loss Chains					
91978	Gain-loss string: 25-1000MHz	Various	Various	2024-05-10	2025-05-10
Receiver & Software					
197954	Spectrum Analyzer	Rohde & Schwarz	ESW44	2024-08-29	2025-08-29
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
Additional Equipment used					
200540	Environmental Meter	Fisher Scientific	15-077-963	2023-07-19	2025-07-19

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 4)

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
1-18 GHz					
89509	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2023-05-23	2025-05-23
18-26.5 GHz					
204704	Horn Antenna, 18-26.5GHz	Com-Power	AH-826	2023-07-20	2025-07-20
Gain-Loss Chains					
207640	Gain-loss string: 1-18GHz	Various	Various	2024-05-22	2025-05-22
225795	Gain-loss string: 18-40GHz	Various	Various	2024-05-22	2025-05-22
Receiver & Software					
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2024-04-16	2025-04-16
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
Additional Equipment used					
241204	Environmental Meter	Fisher Scientific	15-077-963	2023-09-05	2025-09-05

Test Equipment Used - Line-Conducted Emissions – Voltage (Morrisville – Conducted 1)

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
CBL087	Coax cable, RG223, N-male to BNC-male, 20-ft.	Pasternack	PE3W06143-240	2024-04-04	2025-04-04
179892	Environmental Meter	Fisher Scientific	15-077-963	2024-08-12	2025-08-12
80391	LISN, 50-ohm/50-uH, 250uH 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50/250-25-2-01	2024-08-01	2025-08-01
70374	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2024-07-30	2025-07-30
52859	Transient Limiter, 0.009-100MHz	Electro-Metrics	EM-7600	2024-04-04	2025-04-04
PS216	AC Power Source	Elgar	CW2501M	NA	NA
84681	ANSI C63.4 1m extension cable	UL	Per Annex B of ANSI C63.4	2024-04-04	2025-04-04
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		

8. MEASUREMENT METHOD

On Time and Duty Cycle: ANSI C63.10-2020 Section 11.6

6 dB BW: ANSI C63.10-2020 Subclause -11.8.2

Occupied BW (99%): ANSI C63.10-2020 Section 6.9.3

Output Power: ANSI C63.10-2020 Subclause -11.9.1.2 Method PKPM1 Peak-reading power meter
ANSI C63.10-2020 Subclause -11.9.2.3.2 Method AVGPM-G (Measurement using a gated RF average-reading power meter)

PSD: ANSI C63.10-2020 Subclause -11.10.2 Method PKPSD (peak PSD)

Conducted emissions non-restricted frequency bands: ANSI C63.10-2020 Subclause -11.11 and 6.10.4

Radiated emissions restricted frequency bands: ANSI C63.10-2020 Subclause -11.12.1 and 6.10.5

General radiated emissions: ANSI C63.10 Subclause - 6.3-6.6

AC Power-line conducted emissions: ANSI C63.10-2020, Section 6.2.

9. ANTENNA PORT TEST RESULTS

Note: To reduce file size of report, only representative plots are included for some conducted test data in section 9.

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

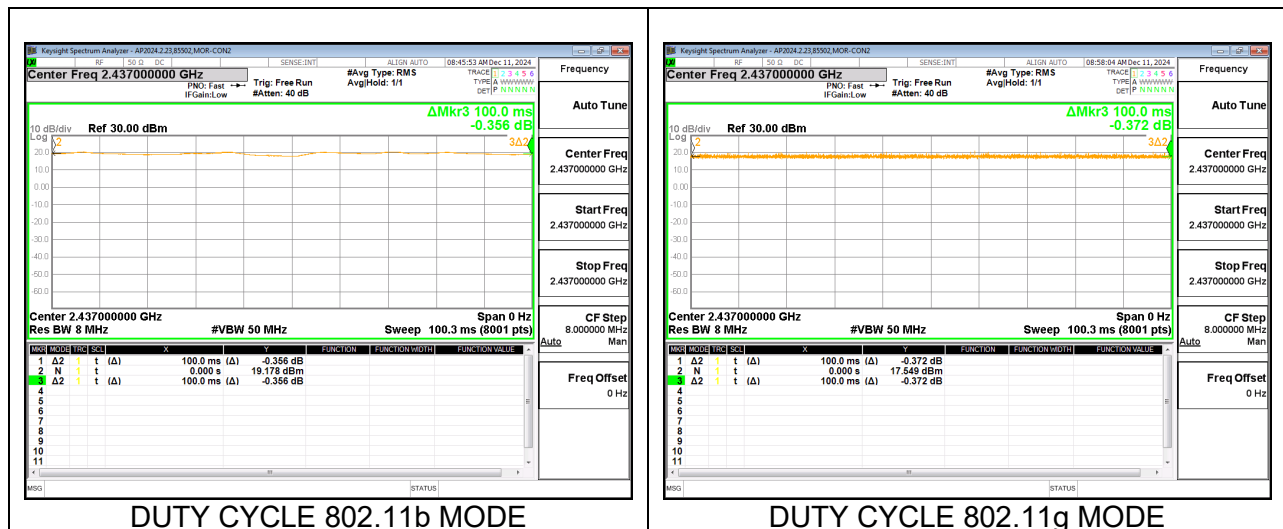
KDB 558074 Zero-Span Spectrum Analyzer Method.

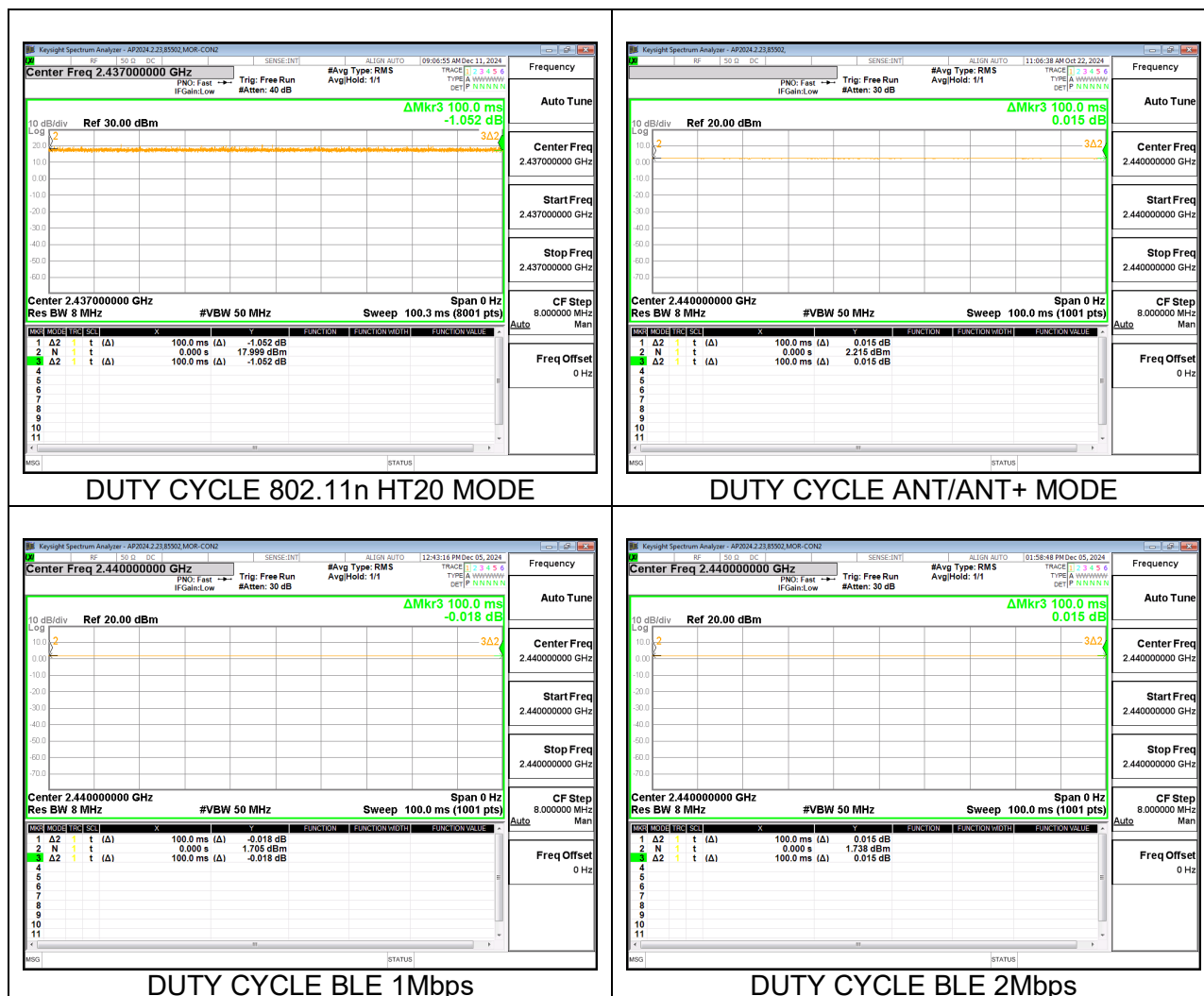
Mode	ON Time B (ms)	Period (ms)	Duty Cycle x (linear)	Duty Cycle (%)	Voltage Duty Cycle Correction Factor (dB)	RMS Duty Cycle Correction Factor (dB)
802.11b	100.00	100.00	1.000	100.00	0.00	0.00
802.11g	100.00	100.00	1.000	100.00	0.00	0.00
802.11n HT20	100.00	100.00	1.000	100.00	0.00	0.00
ANT/ANT+	100.00	100.00	1.000	100.00	0.00	0.00
BLE 1Mbps	100.00	100.00	1.000	100.00	0.00	0.00
BLE 2Mbps	100.00	100.00	1.000	100.00	0.00	0.00

The client has declared operational duty cycles of 86% for BLE and 13% for ANT/ANT+.

BLE DCCF = $20\log(0.85) = -1.41\text{dB}$

ANT/ANT+ DCCF = $20\log(0.13) = -17.72\text{dB}$





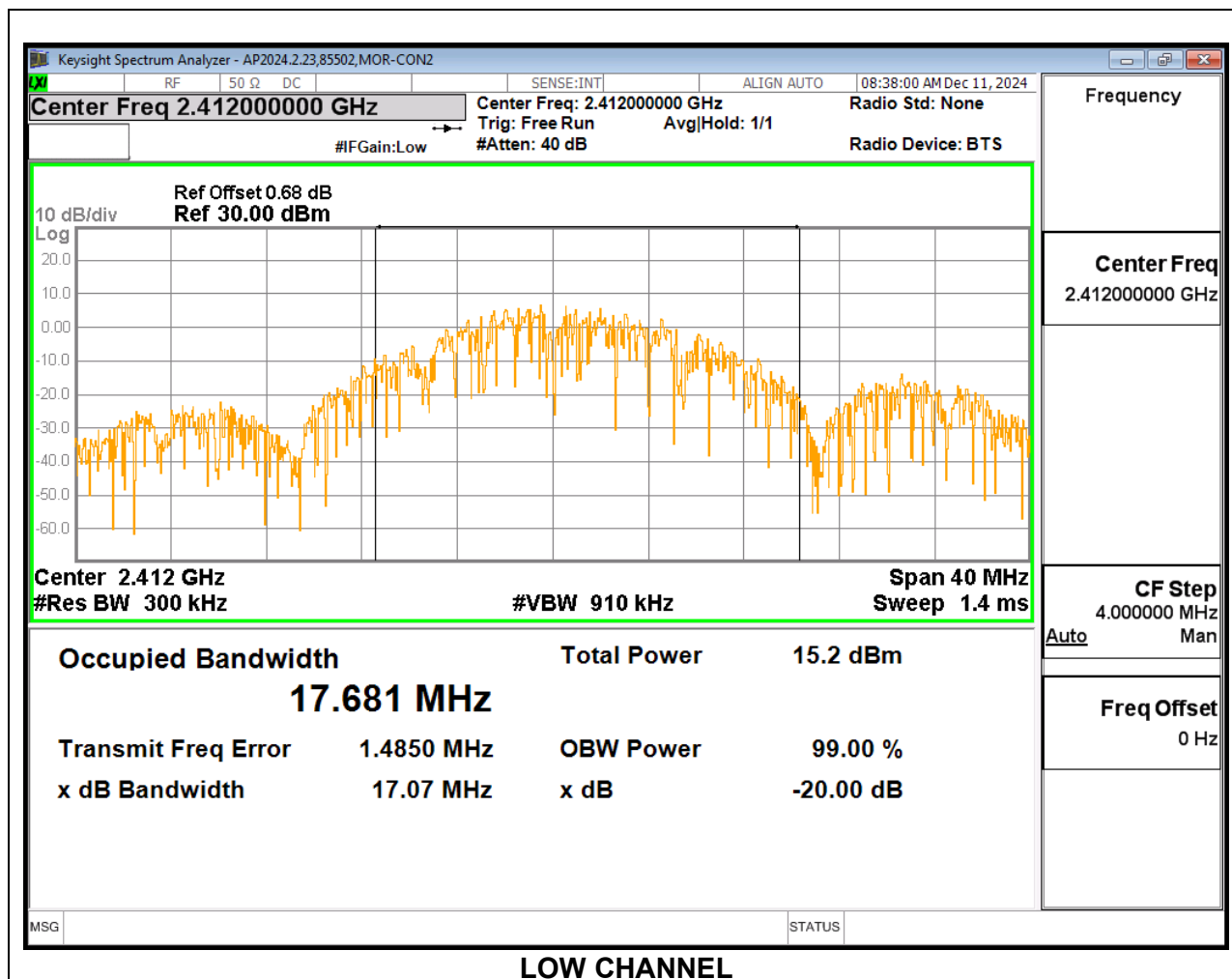
9.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

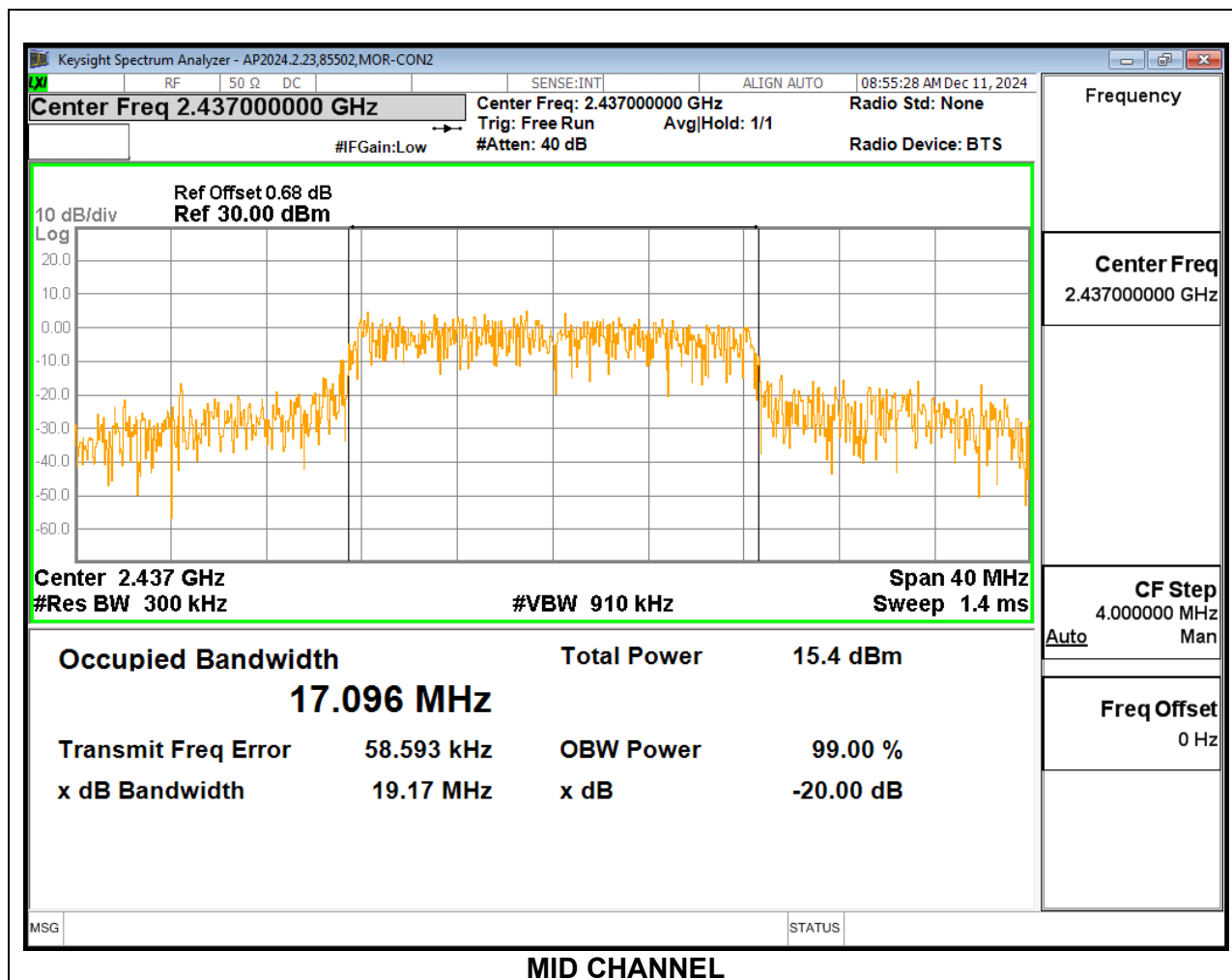
9.2.1. 802.11b MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)
Low 1	2412	17.681
Mid 6	2437	16.145
High 13	2472	15.011



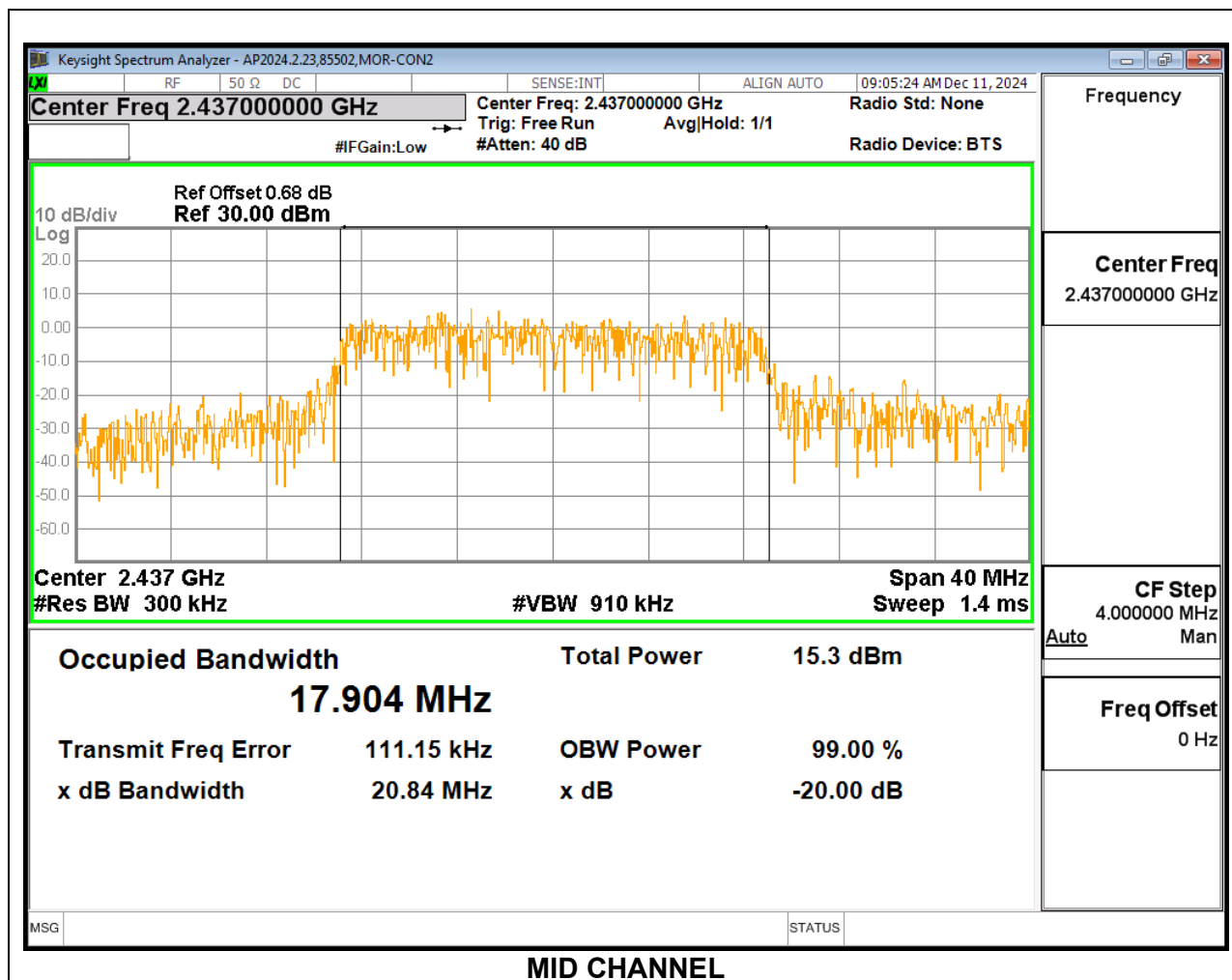
9.2.2. 802.11g MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)
Low 1	2412	16.620
Mid 6	2437	17.096
High 13	2472	16.255



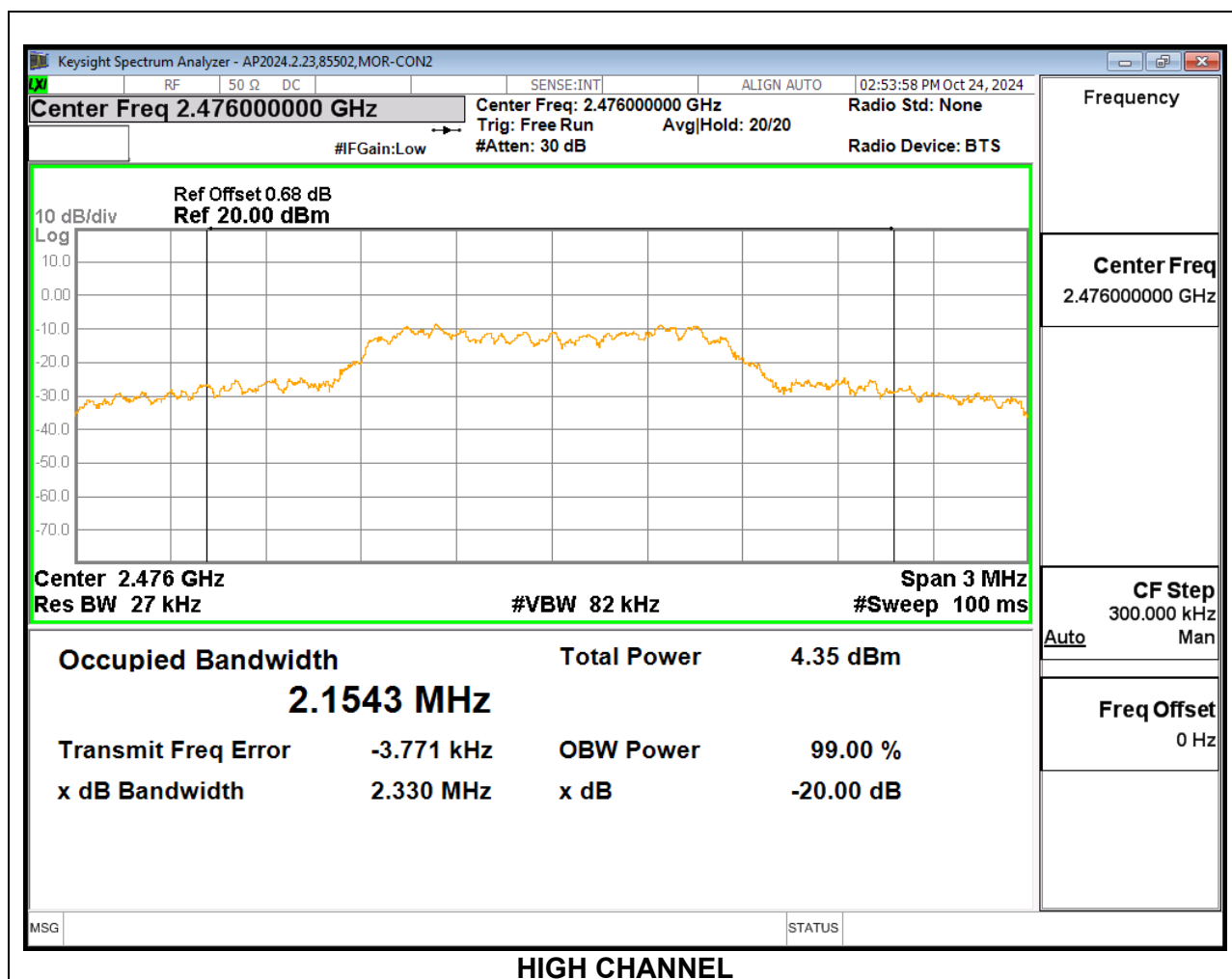
9.2.3. 802.11n HT20 MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)
Low 1	2412	17.515
Mid 6	2437	17.904
High 13	2472	17.131



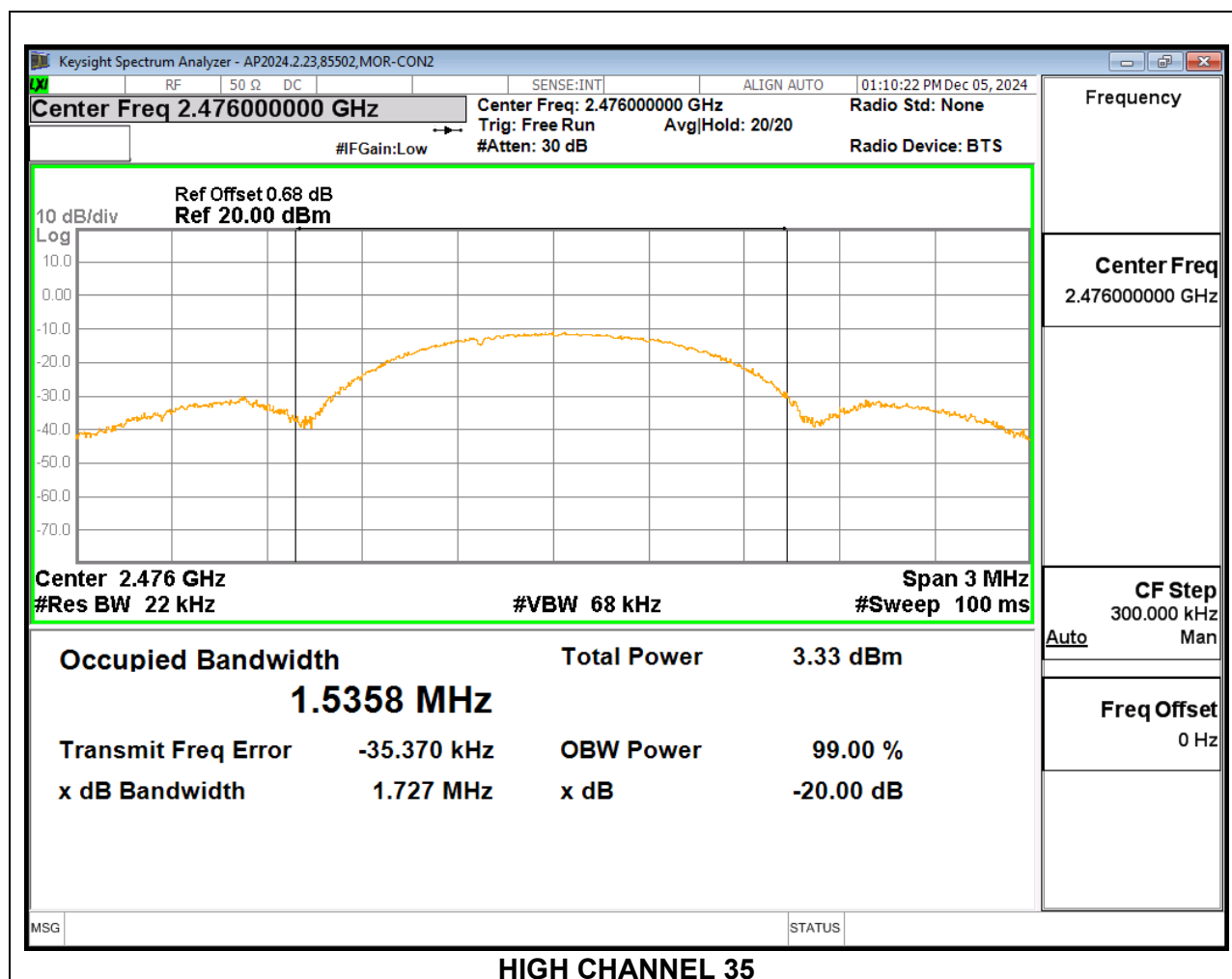
9.2.4. ANT/ANT+ MODE

Frequency (MHz)	99% Bandwidth Chain 0 (MHz)
2402	1.2369
2404	1.2148
2440	1.4061
2476	2.1543
2478	2.0328
2480	1.8066



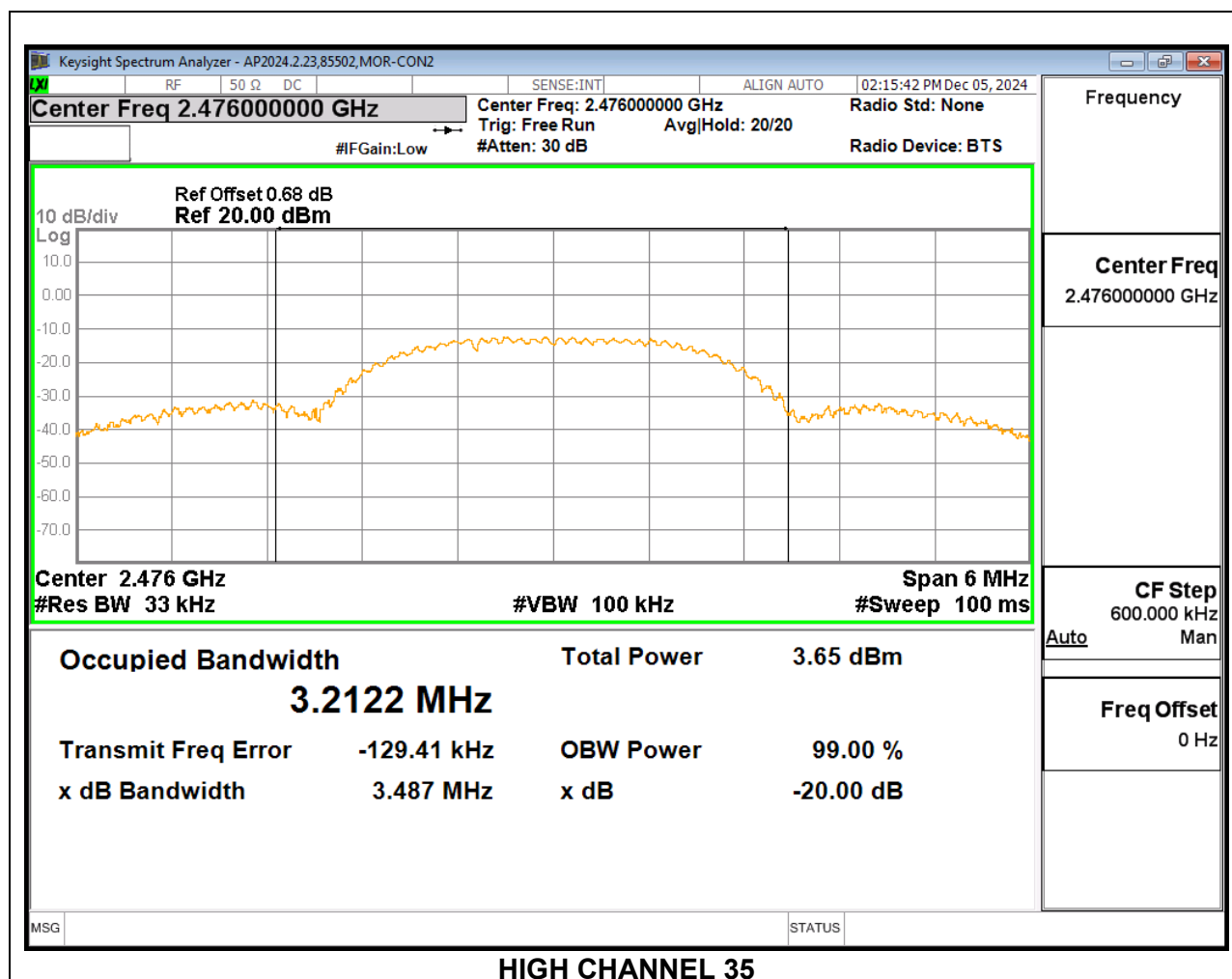
9.2.5. BLE 1Mbps MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)
Low 37	2402	1.2451
Low 0	2404	1.1737
Mid 17	2440	1.2731
High 35	2476	1.5358
High 36	2478	1.3325
High 39	2480	1.3305



9.2.6. BLE 2Mbps MODE

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)
Low 37	2402	2.4403
Low 0	2404	2.2860
Mid 17	2440	2.5299
High 35	2476	3.2122
High 36	2478	2.7144
High 39	2480	2.6272



9.3. 6 dB BANDWIDTH

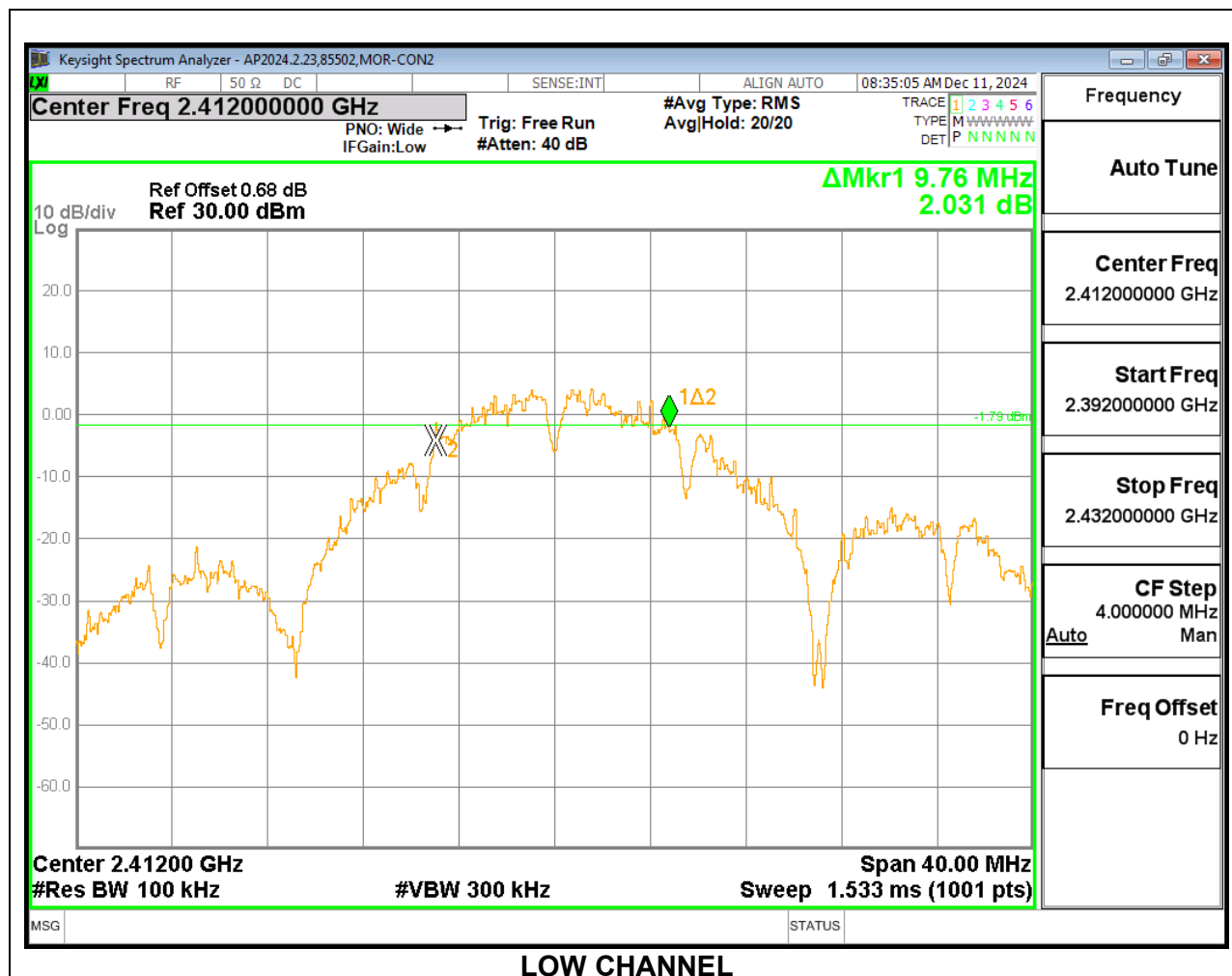
LIMITS

FCC §15.247 (a) (2)
RSS-247 5.2 (a)

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

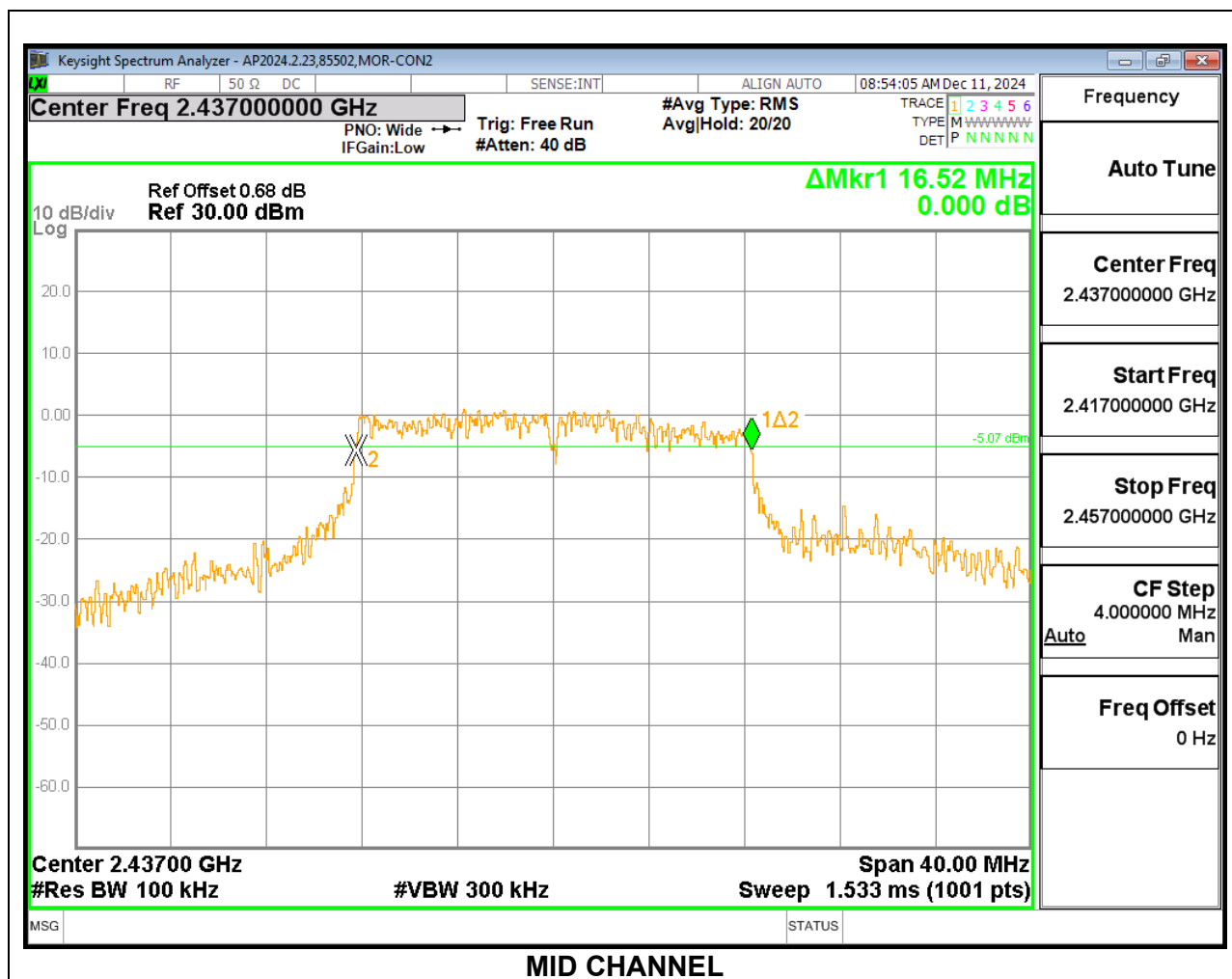
9.3.1. 802.11b MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	Minimum Limit (MHz)
Low 1	2412	9.76	0.5
Mid 6	2437	8.16	0.5
High 13	2472	9.16	0.5



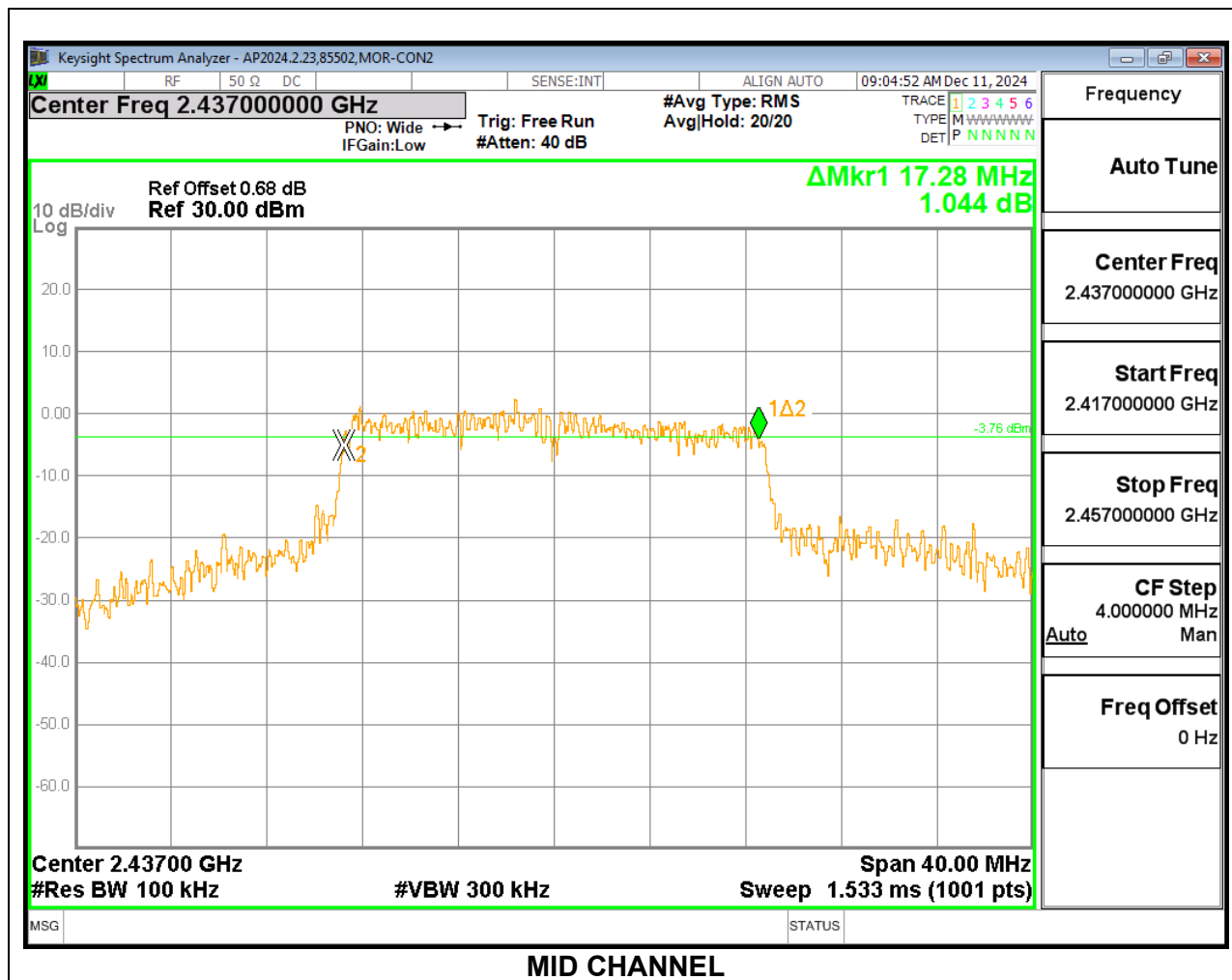
9.3.2. 802.11g MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	Minimum Limit (MHz)
Low 1	2412	16.20	0.5
Mid 6	2437	16.52	0.5
High 13	2472	16.12	0.5



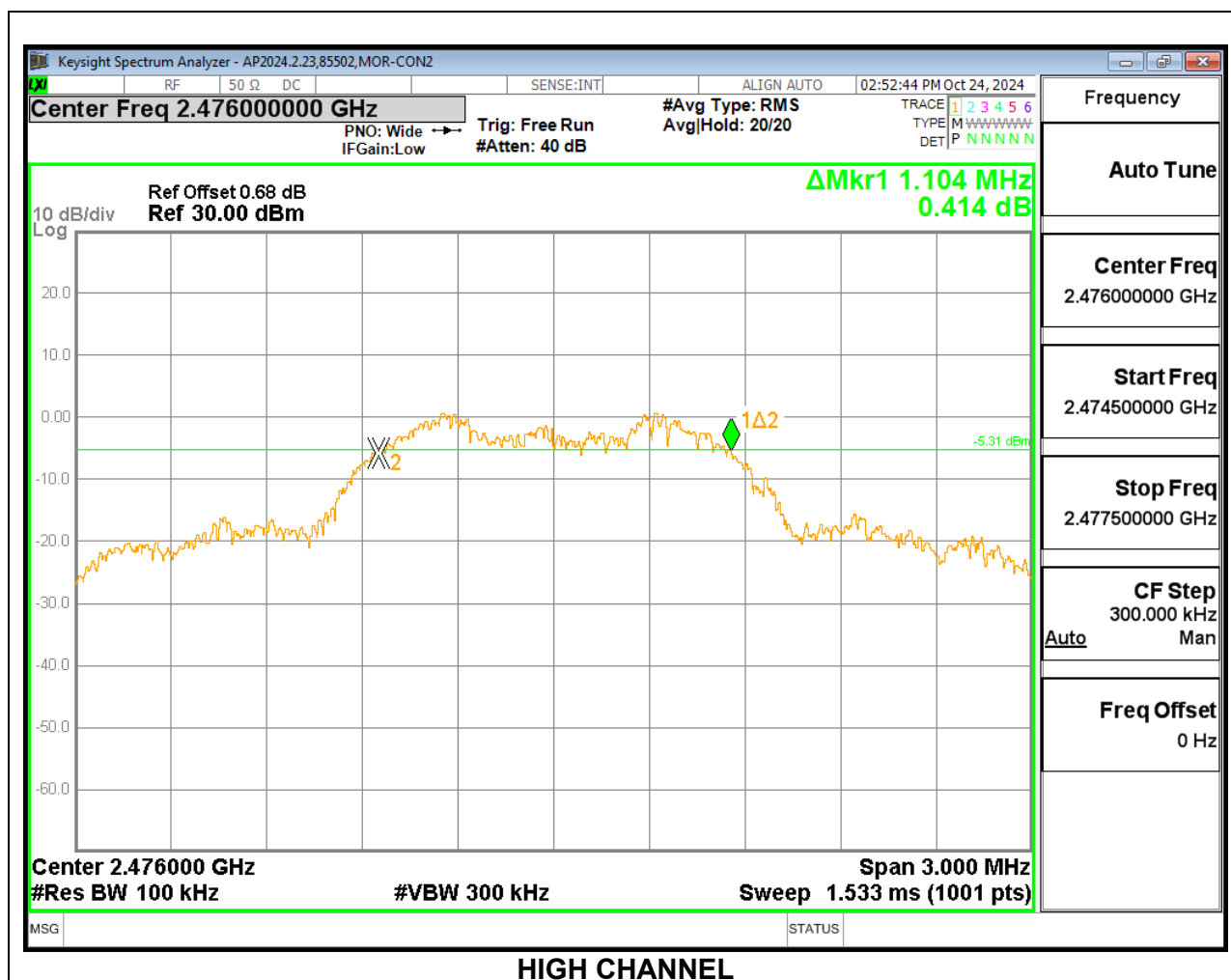
9.3.3. 802.11n HT20 MODE

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	Minimum Limit (MHz)
Low 1	2412	16.36	0.5
Mid 6	2437	17.28	0.5
High 13	2472	16.60	0.5



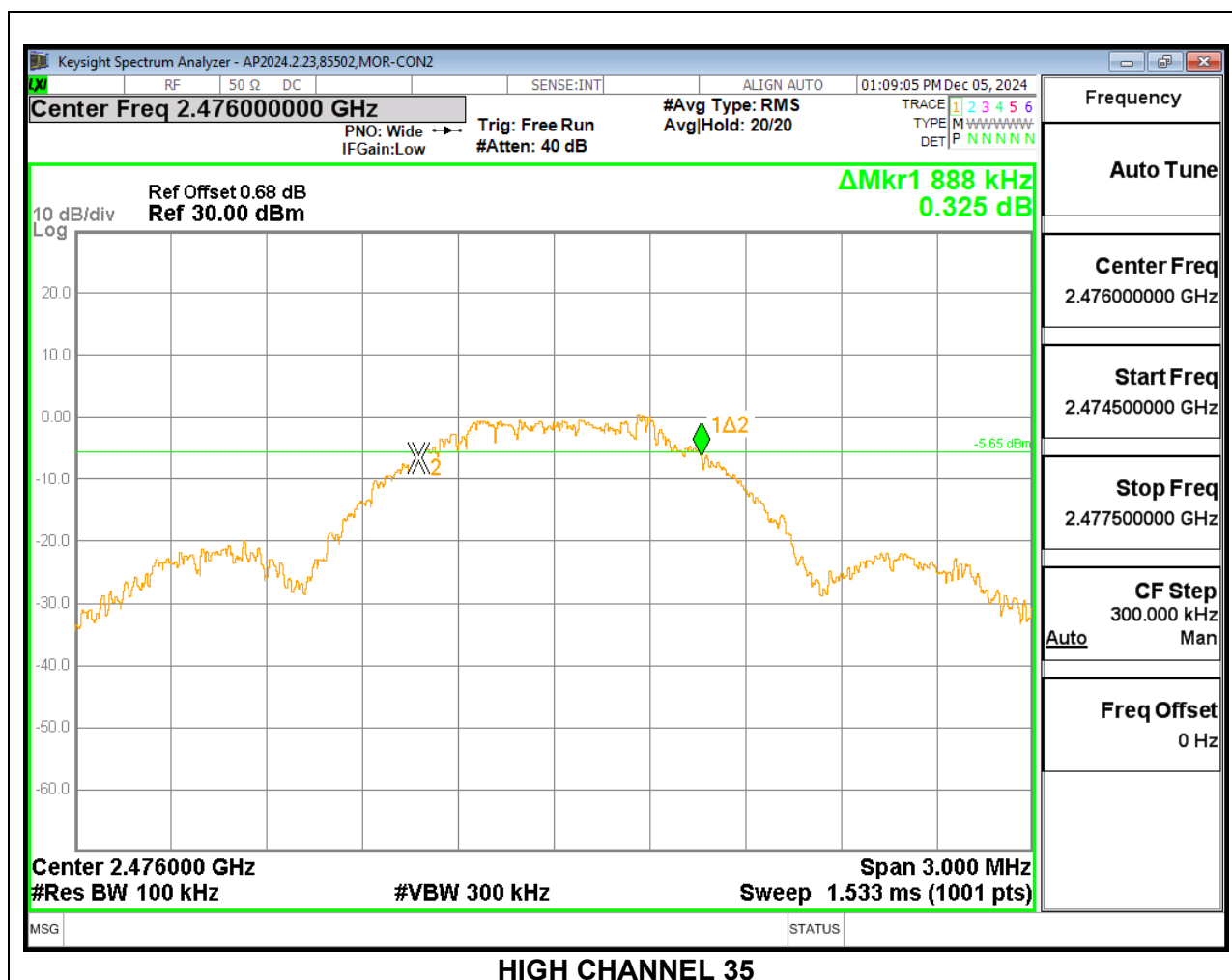
9.3.4. ANT/ANT+ MODE

Frequency (MHz)	6 dB Bandwidth Chain 0 (MHz)	Minimum Limit (MHz)
2402	0.681	0.5
2404	0.621	0.5
2440	0.867	0.5
2476	1.104	0.5
2478	1.05	0.5
2480	0.951	0.5



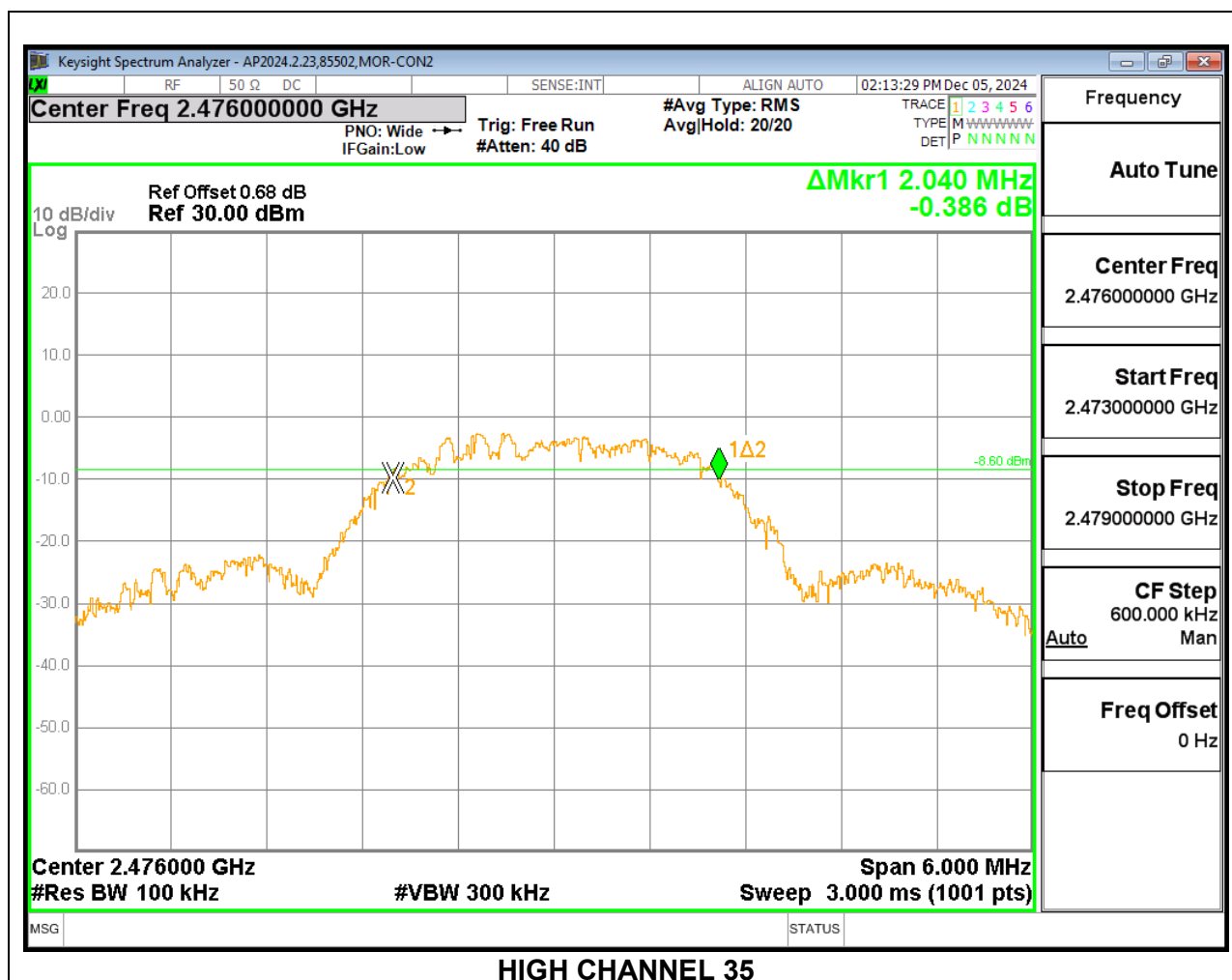
9.3.5. BLE 1Mbps MODE

Channel	Frequency (MHz)	6 dB Bandwidth Chain 0 (MHz)	Minimum Limit (MHz)
Low 37	2402	0.663	0.5
Low 0	2404	0.669	0.5
Mid 17	2440	0.729	0.5
High 35	2476	0.888	0.5
High 36	2478	0.798	0.5
High 39	2480	0.858	0.5



9.3.6. BLE 2Mbps MODE

Channel	Frequency (MHz)	6 dB Bandwidth Chain 0 (MHz)	Minimum Limit (MHz)
Low 37	2402	1.302	0.5
Low 0	2404	1.050	0.5
Mid 17	2440	1.404	0.5
High 35	2476	2.040	0.5
High 36	2478	1.782	0.5
High 39	2480	1.764	0.5



9.4. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)
RSS-247 5.4 (d)

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of .68 dB (cable) was entered as an offset in the power meter.

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

RESULTS

9.4.1. 802.11b MODE

Test Engineer:	85502
Test Date:	2024-12-12

Results:

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	12.26	30.00	-17.74
Mid 6	2437	12.19	30.00	-17.81
High 12	2467	12.69	30.00	-17.31
High 13	2472	12.18	30.00	-17.82

9.4.2. 802.11g MODE

Test Engineer:	85502
Test Date:	2024-12-12

Results:

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	17.52	30.00	-12.48
Low 2	2417	19.25	30.00	-10.75
Low 3	2422	20.1	30.00	-9.9
Mid 6	2437	20.69	30.00	-9.31
High 7	2442	20.16	30.00	-9.84
High 8	2447	19.18	30.00	-10.82
High 9	2452	18.26	30.00	-11.74
High 10	2457	17.88	30.00	-12.12
High 11	2462	16.96	30.00	-13.04
High 12	2467	15.35	30.00	-14.65
High 13	2472	14.04	30.00	-15.96

9.4.3. 802.11n HT20 MODE

Test Engineer:	85502
Test Date:	2024-12-12

Results:

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 1	2412	16.84	30.00	-13.16
Low 2	2417	19.91	30.00	-10.09
Low 3	2422	20.68	30.00	-9.32
Mid 6	2437	21.02	30.00	-8.98
High 7	2442	20.56	30.00	-9.44
High 8	2447	18.79	30.00	-11.21
High 9	2452	18.46	30.00	-11.54
High 10	2457	18.28	30.00	-11.72
High 11	2462	16.41	30.00	-13.59
High 12	2467	15.61	30.00	-14.39
High 13	2472	14.62	30.00	-15.38

9.4.4. ANT/ANT+ MODE

Test Engineer:	85502
Test Date:	2024-10-21

Frequency (MHz)	Chain 0 Meas Power (dBm)	Power Limit (dBm)	Margin (dB)
2402	-2.14	30.00	-32.14
2404	2.47	30.00	-27.53
2440	2.74	30.00	-27.26
2476	2.79	30.00	-27.21
2478	2.46	30.00	-27.54
2480	-2.20	30.00	-32.20

9.4.5. BLE 1Mbps MODE

Test Engineer:	85502
Test Date:	2024-12-05

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 37	2402	-2.31	30.00	-32.31
Low 0	2404	2.45	30.00	-27.55
Mid 17	2440	2.69	30.00	-27.31
High 35	2476	2.77	30.00	-27.23
High 36	2478	-2.40	30.00	-32.40
High 39	2480	-2.80	30.00	-32.80

9.4.6. BLE 2Mbps MODE

Test Engineer:	85502
Test Date:	2024-12-05

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Power Limit (dBm)	Margin (dB)
Low 37	2402	-2.69	30.00	-32.69
Low 0	2404	2.53	30.00	-27.47
Mid 17	2440	2.77	30.00	-27.23
High 35	2476	2.89	30.00	-27.11
High 36	2478	-2.31	30.00	-32.31
High 39	2480	-2.77	30.00	-32.77

9.5. AVERAGE POWER

LIMITS

None; for reporting purposes only

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of .68 dB (cable) was entered as an offset in the 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.

9.5.1. 2.4 WLAN Results

Test Engineer:	85502
Test Date:	2024-12-12

Mode	Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)
802.11b	Low 1	2412	9.74
	Mid 6	2437	9.75
	High 12	2467	10.42
	High 13	2472	9.55
802.11g	Low 1	2412	12.23
	Low 2	2417	14.56
	Low 3	2422	15.35
	Mid 6	2437	15.66
	High 7	2442	14.87
	High 8	2447	13.57
	High 9	2452	13.11
	High 10	2457	13.22
	High 11	2462	11.44
	High 12	2467	9.31
	High 13	2472	7.81
802.11nHT20	Low 1	2412	10.67
	Low 2	2417	15.45
	Low 3	2422	16.16
	Mid 6	2437	16.09
	High 7	2442	15.09
	High 8	2447	13.19
	High 9	2452	13.02
	High 10	2457	13.16
	High 11	2462	10.42
	High 12	2467	9.18
	High 13	2472	8.03

9.5.2. ANT/ANT+

Test Engineer:	85502
Test Date:	2024-10-21

Frequency (MHz)	Chain 0 Meas Power (dBm)
2402	-2.42
2404	2.19
2440	2.52
2476	2.49
2478	2.15
2480	-2.53

9.5.3. BLE 1Mbps Mode

Test Engineer:	85502
Test Date:	2024-12-05

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)
Low 37	2402	-2.56
Low 0	2404	2.19
Mid 17	2440	2.48
High 35	2476	2.49
High 36	2478	-2.74
High 39	2480	-3.15

9.5.4. BLE 2Mbps Mode

Test Engineer:	85502
Test Date:	2024-12-05

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)
Low 37	2402	-2.98
Low 0	2404	2.21
Mid 17	2440	2.49
High 35	2476	2.50
High 36	2478	-2.73
High 39	2480	-3.13

9.6. POWER SPECTRAL DENSITY

LIMITS

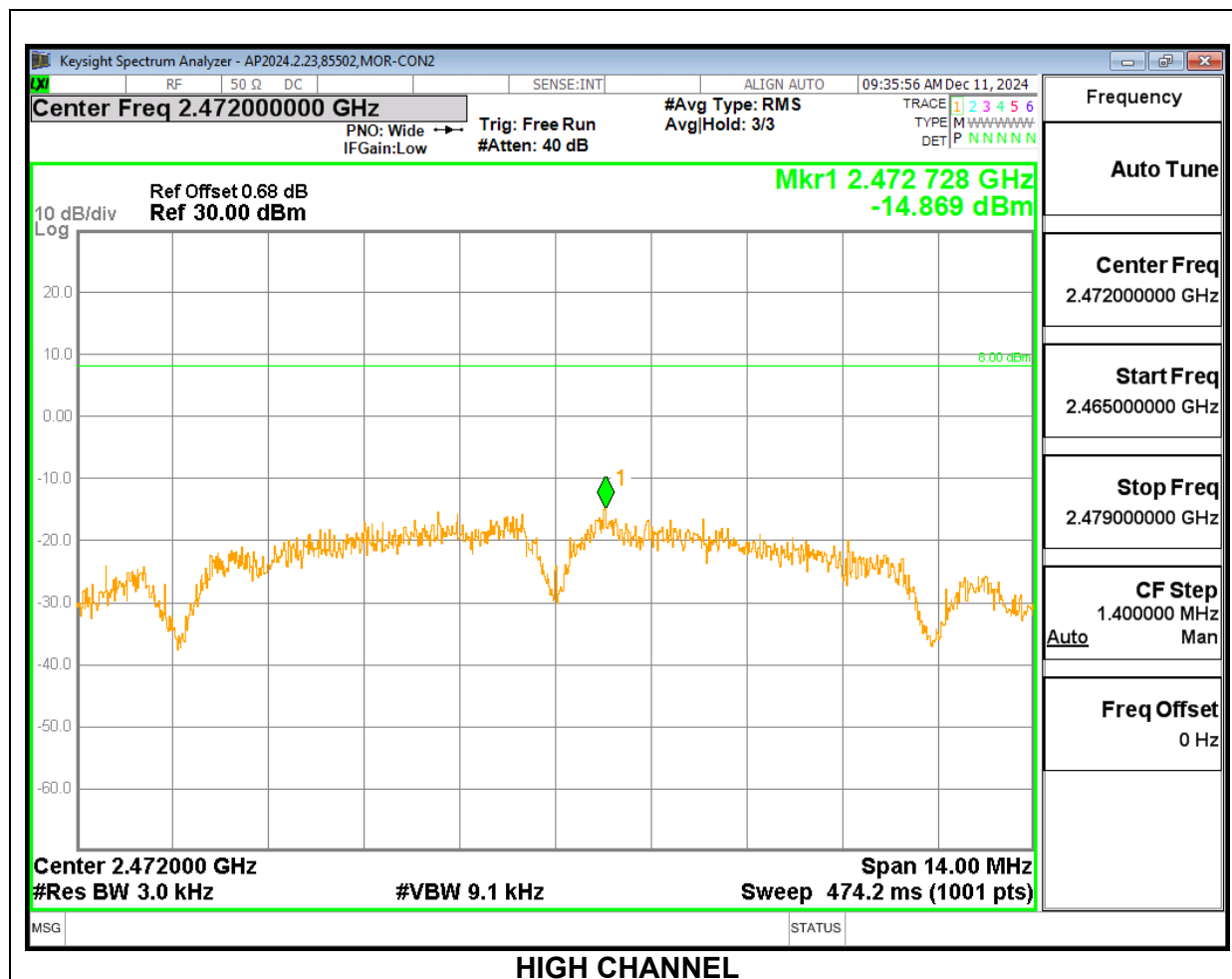
FCC §15.247 (e)
RSS-247 (5.2) (b)

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.

9.6.1. 802.11b MODE

PSD Results

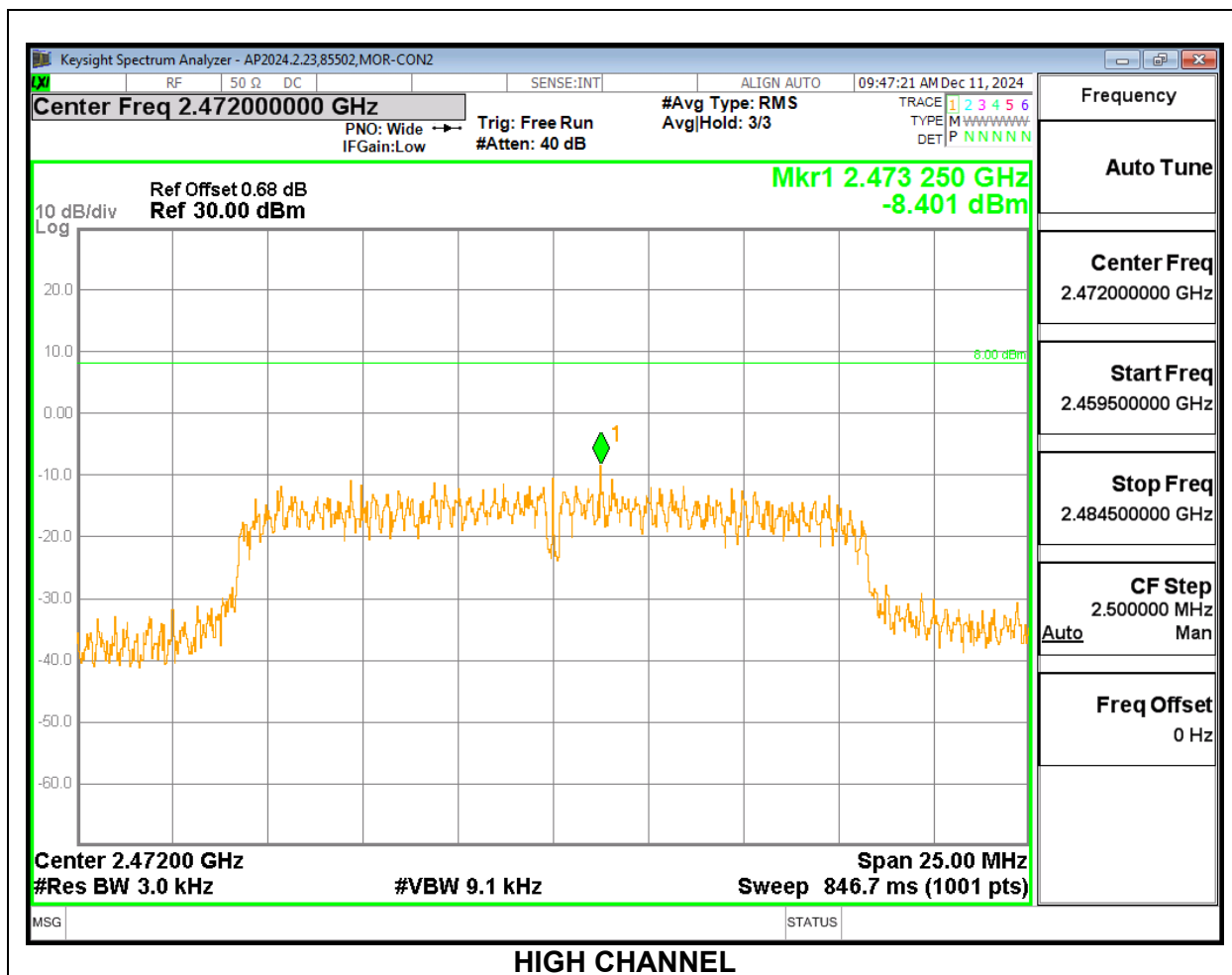
Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-15.49	8.0	-23.5
Mid 6	2437	-17.08	8.0	-25.1
High 13	2472	-14.87	8.0	-22.9



9.6.2. 802.11g MODE

PSD Results

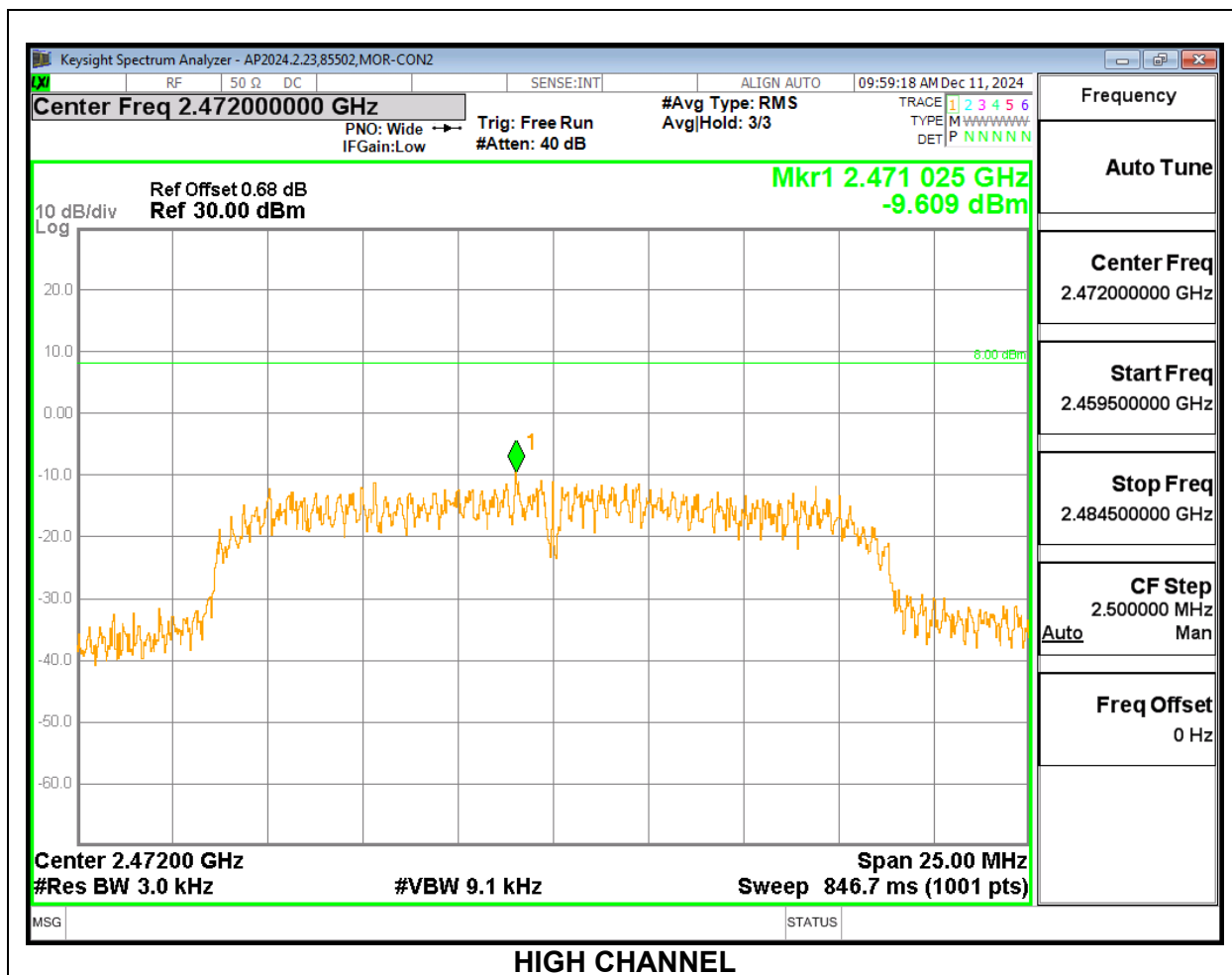
Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-13.84	8.0	-21.8
Mid 6	2437	-11.69	8.0	-19.7
High 13	2472	-8.40	8.0	-16.4



9.6.3. 802.11n HT20 MODE

PSD Results

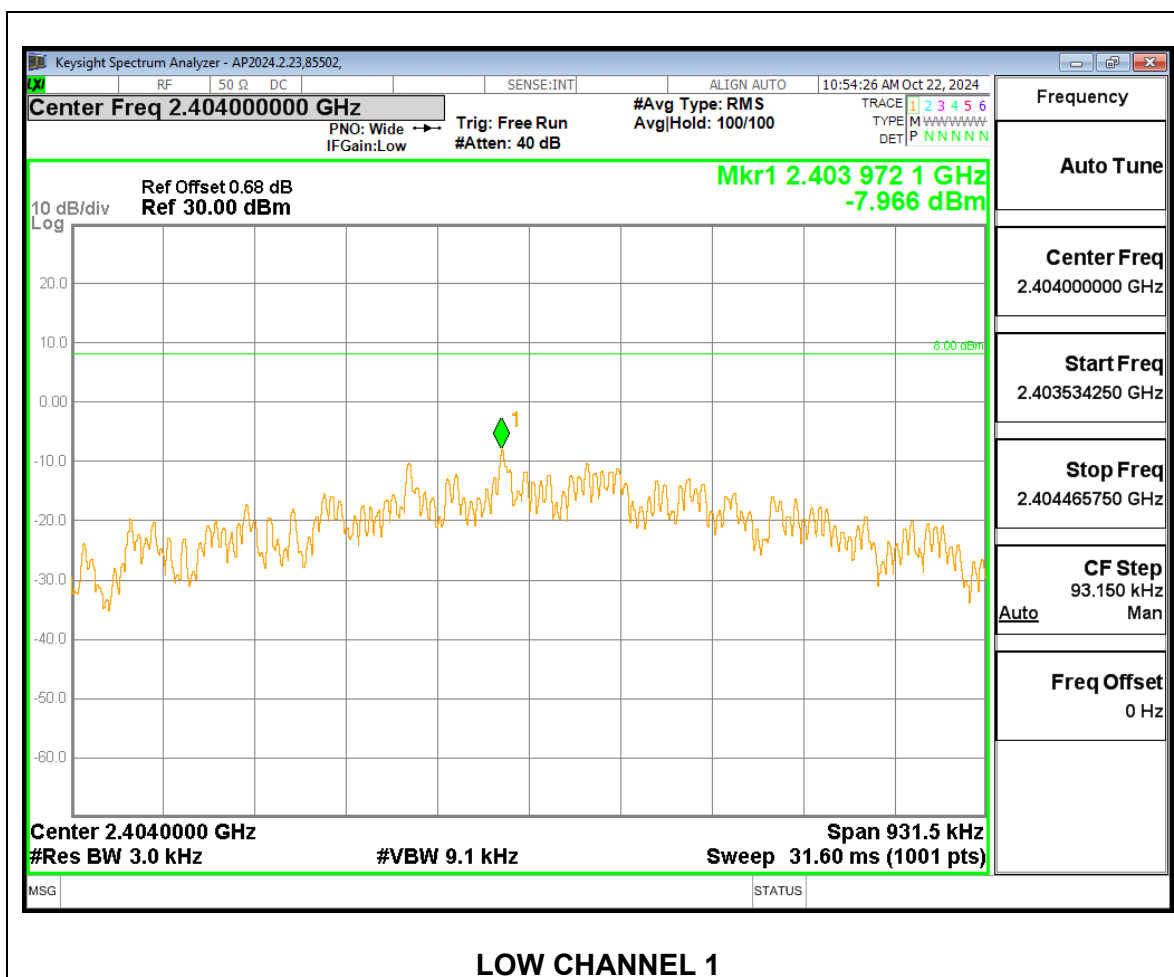
Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 1	2412	-11.70	8.0	-19.7
Mid 6	2437	-9.99	8.0	-18.0
High 13	2472	-9.61	8.0	-17.6



9.6.4. ANT/ANT+ MODE

PSD Results

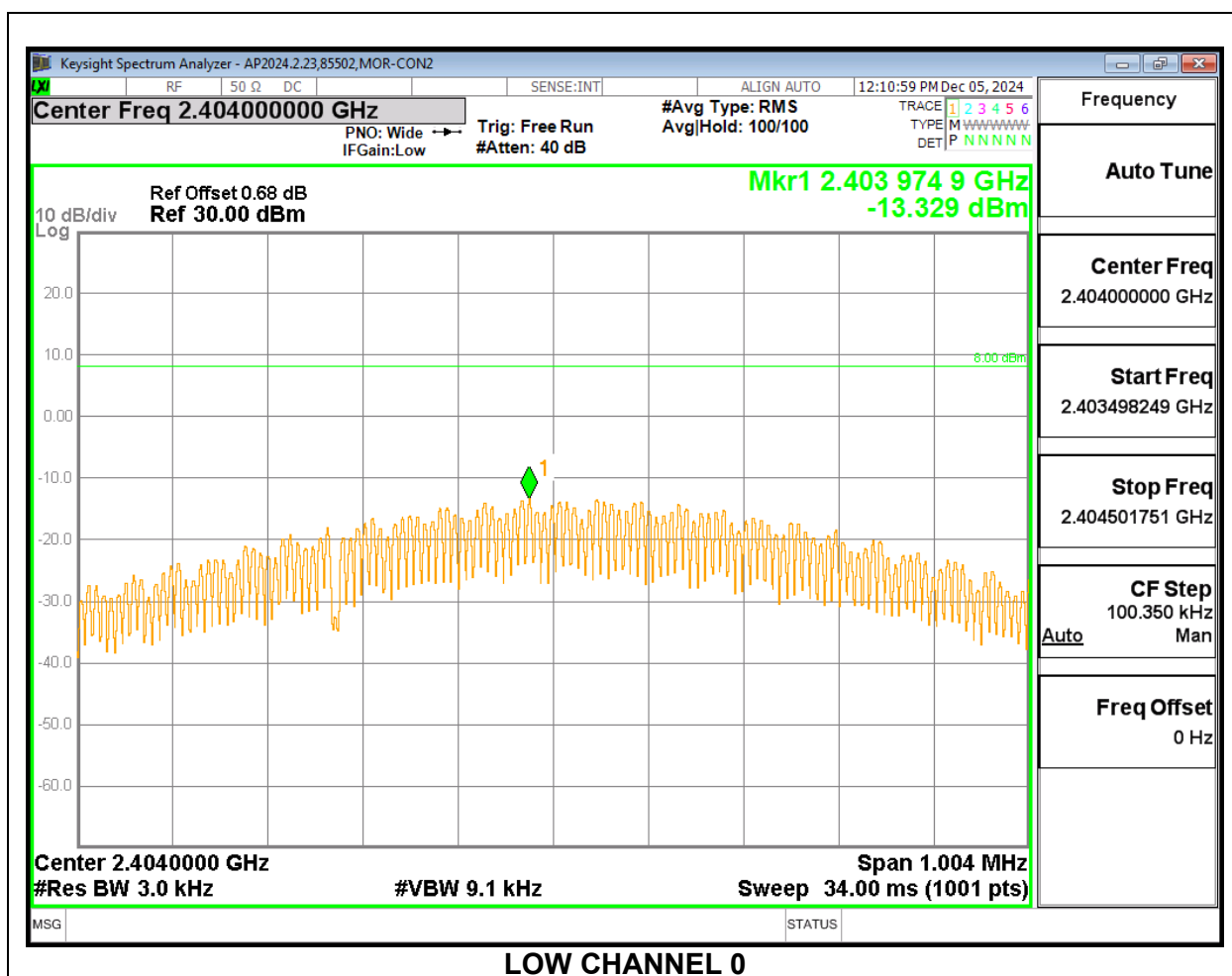
Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
2402	-16.29	8.0	-24.3
2404	-7.97	8.0	-16.0
2440	-13.14	8.0	-21.1
2476	-10.39	8.0	-18.4
2478	-11.67	8.0	-19.7
2480	-19.09	8.0	-27.1



9.6.5. BLE 1Mbps MODE

PSD Results

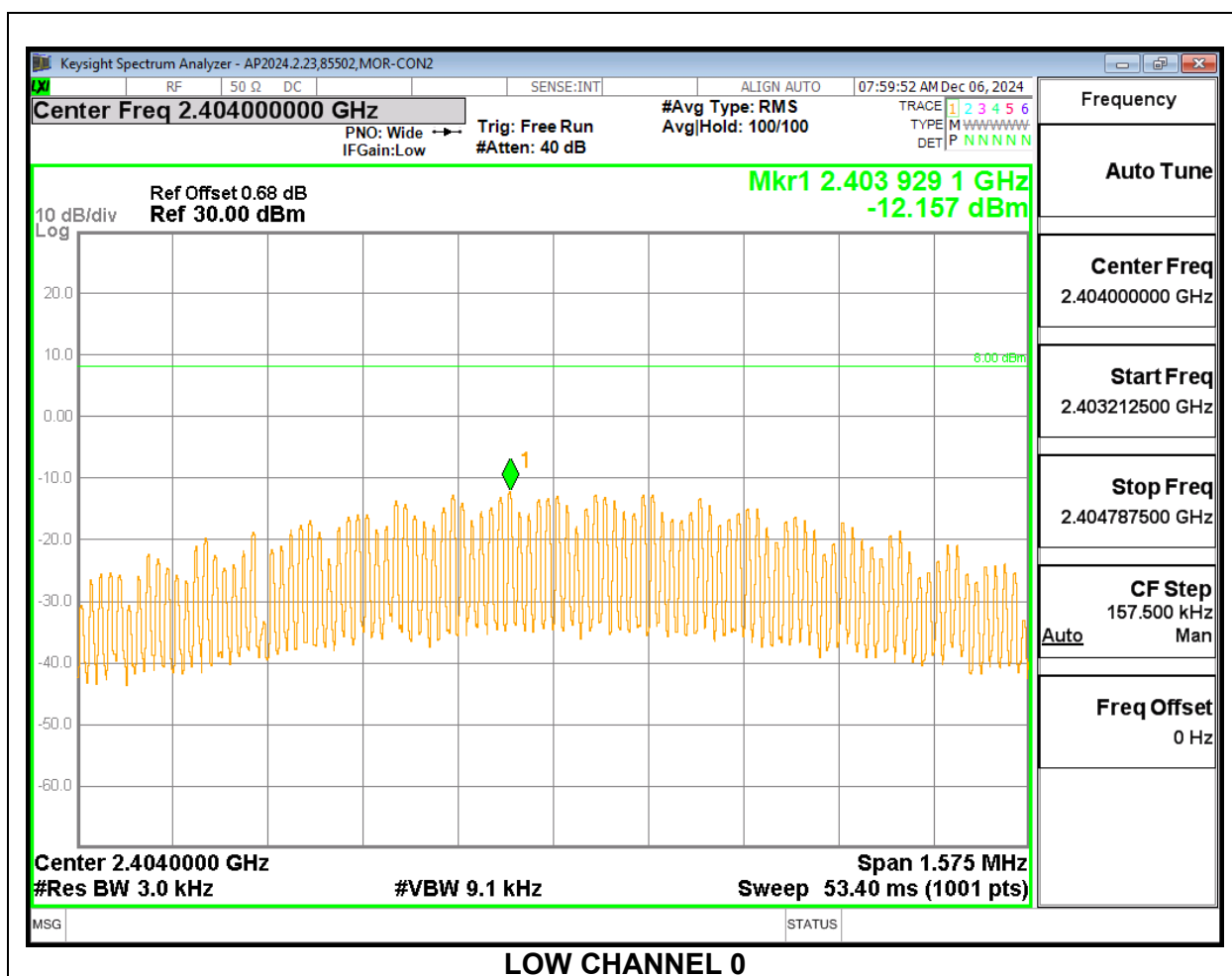
Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 37	2402	-19.63	8.0	-27.6
Low 0	2404	-13.33	8.0	-21.3
Mid 17	2440	-14.60	8.0	-22.6
High 35	2476	-16.08	8.0	-24.1
High 36	2478	-20.28	8.0	-28.3
High 39	2480	-20.91	8.0	-28.9



9.6.6. BLE 2Mbps MODE

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low 37	2402	-19.30	8.0	-27.3
Low 0	2404	-12.16	8.0	-20.2
Mid 17	2440	-14.98	8.0	-23.0
High 35	2476	-16.11	8.0	-24.1
High 36	2478	-20.71	8.0	-28.7
High 39	2480	-20.92	8.0	-28.9



9.7. CONDUCTED SPURIOUS EMISSIONS

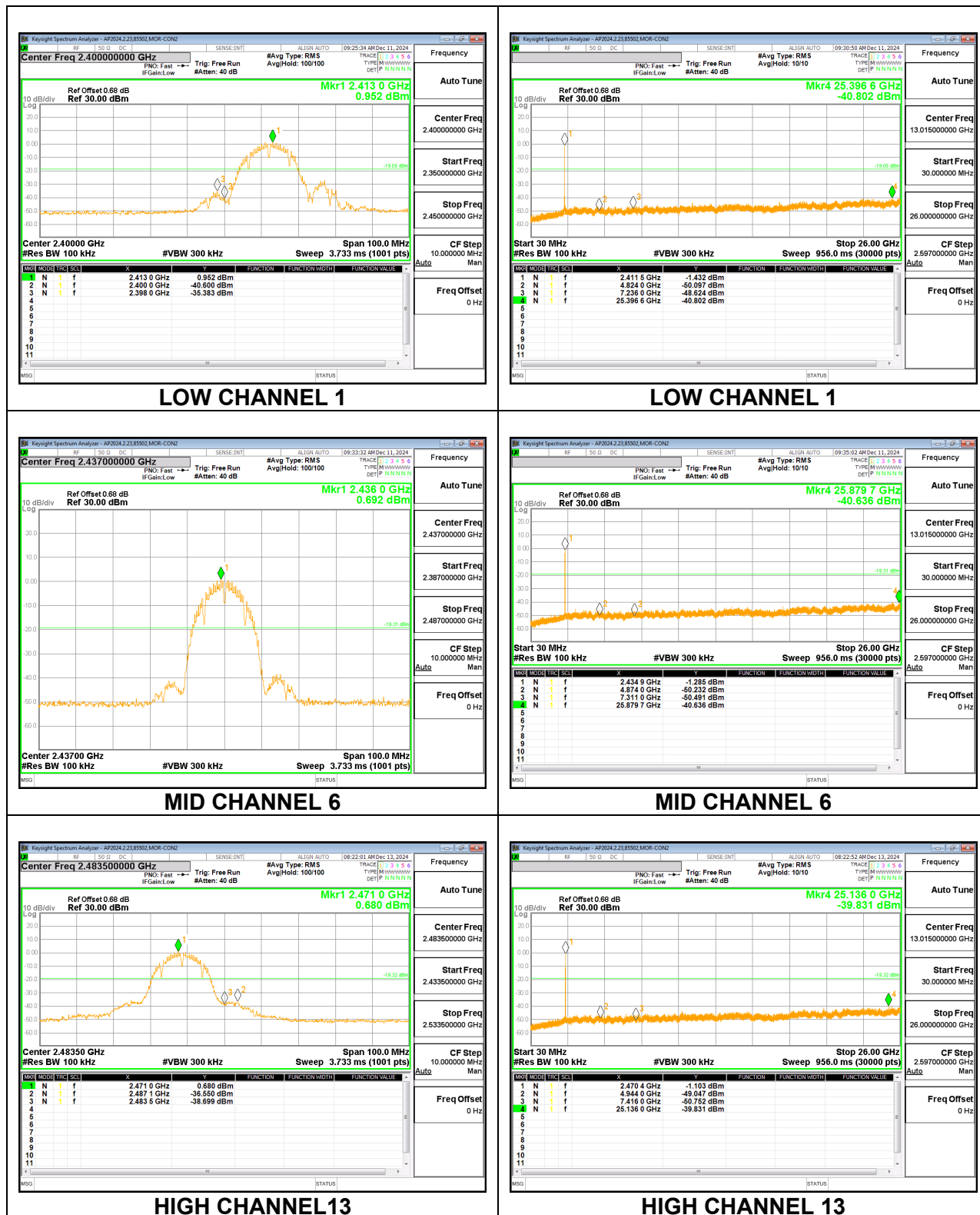
LIMITS

FCC §15.247 (d)
RSS-247 5.5

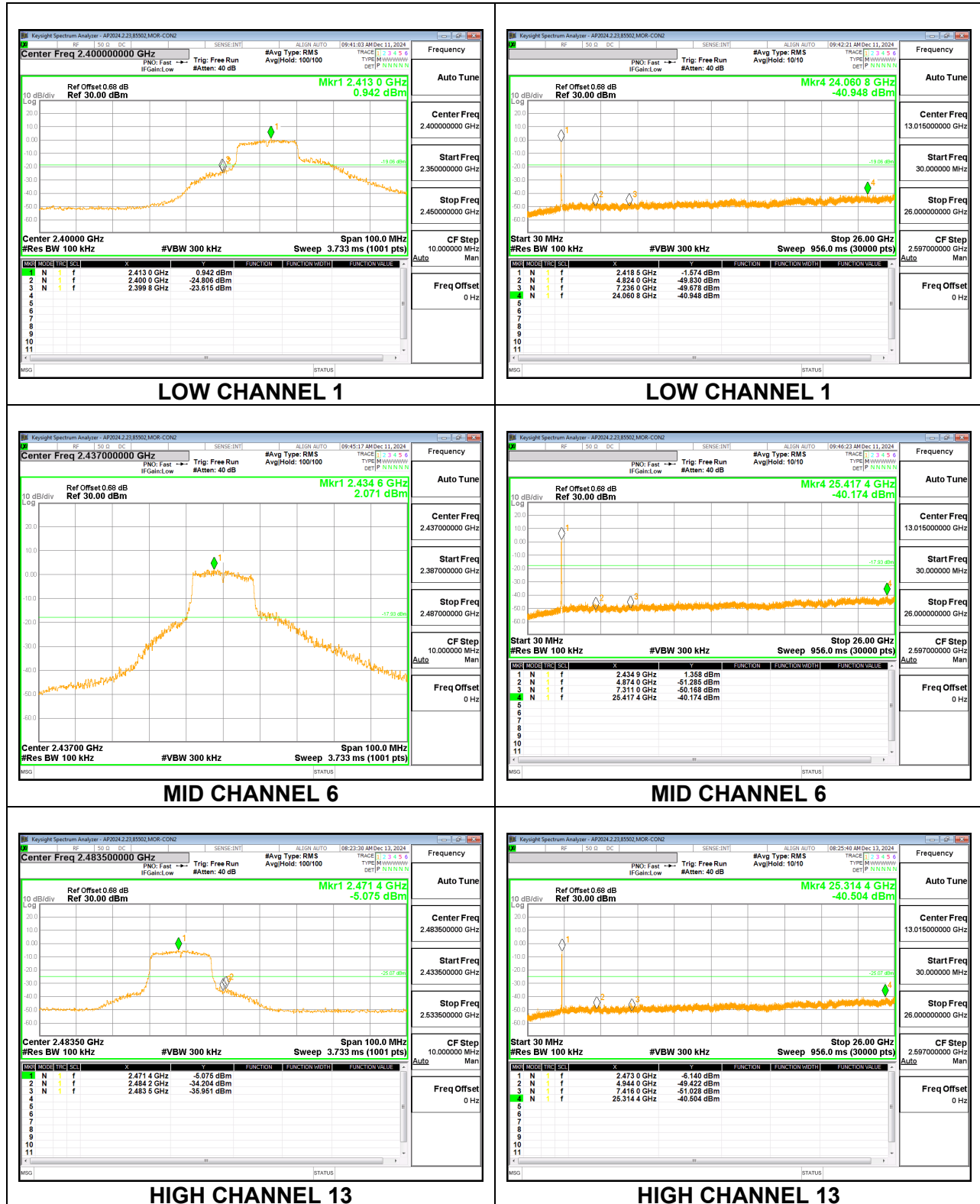
Output power was measured based on the use of peak measurement, therefore the required attenuation is -20 dBc.

RESULTS

9.7.1. 802.11b MODE



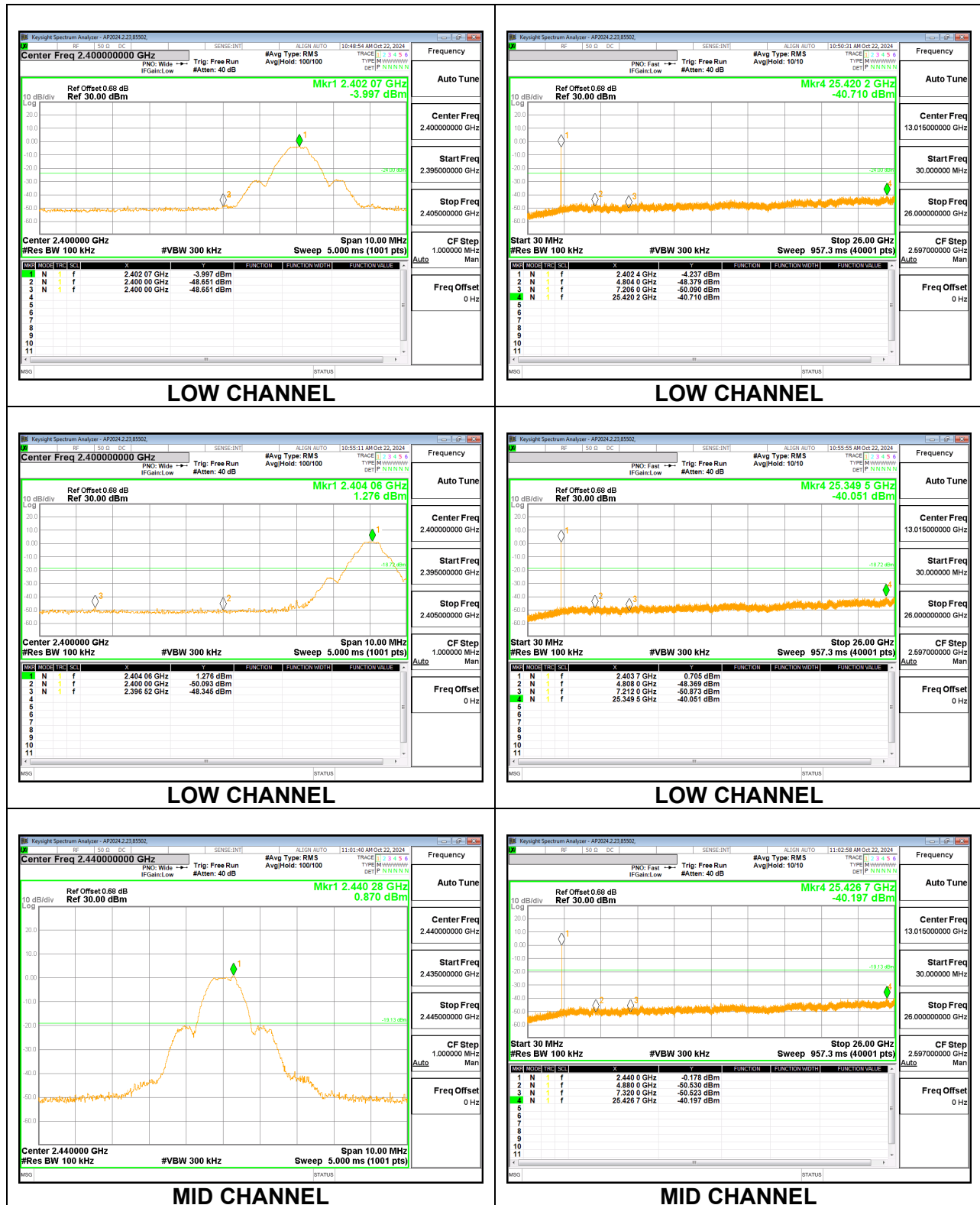
9.7.2. 802.11g MODE

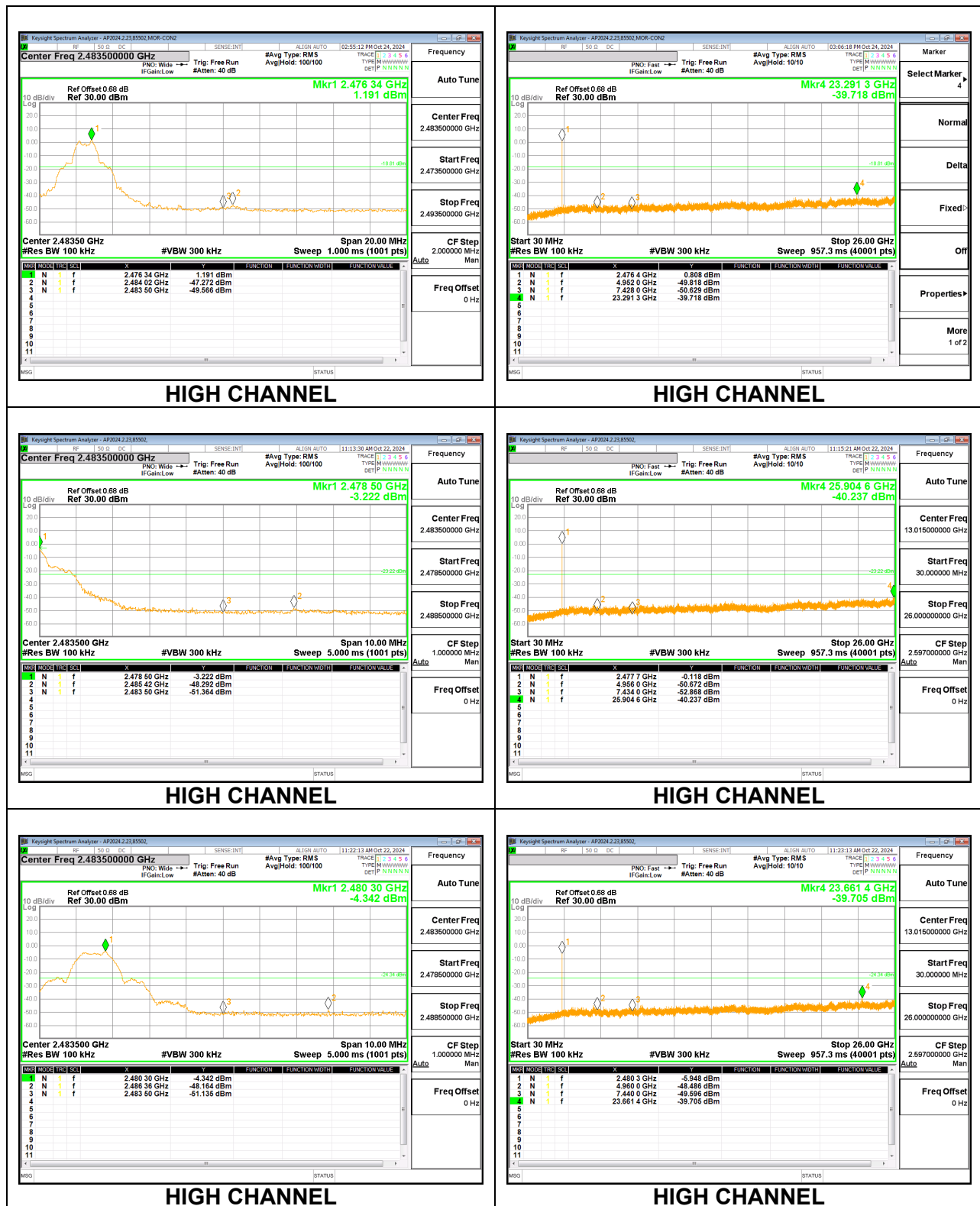


9.7.3. 802.11n HT20 MODE

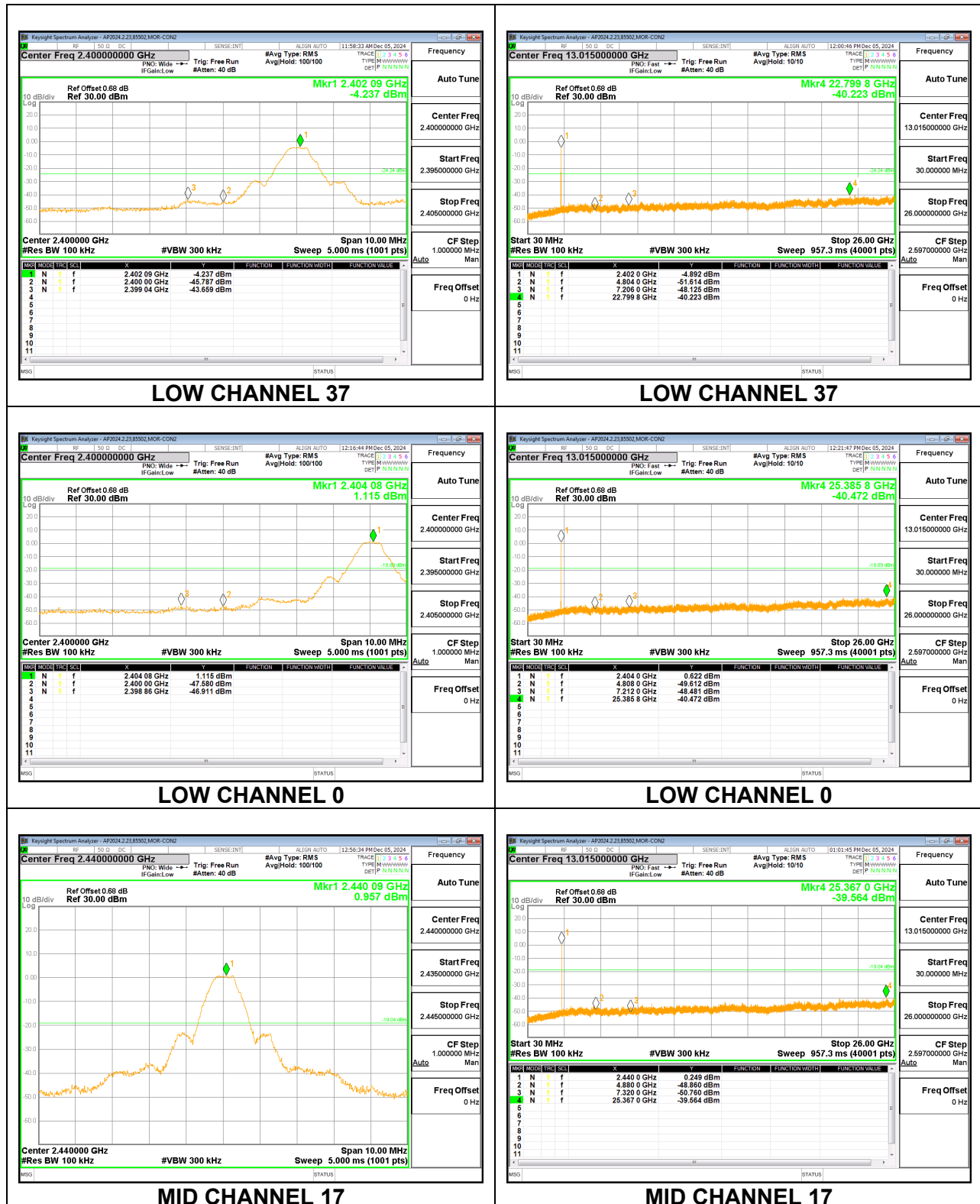


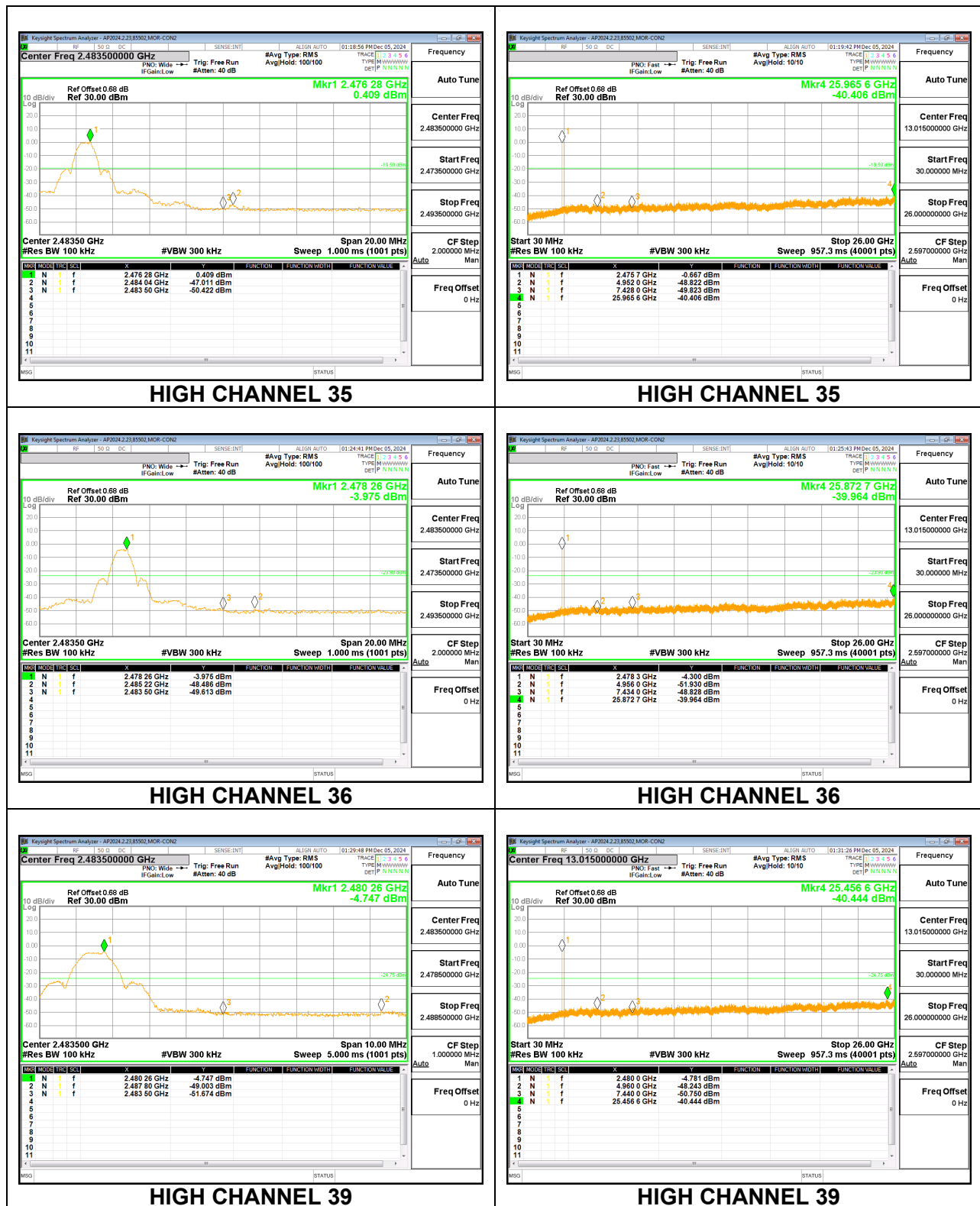
9.7.4. ANT/ANT+ MODE



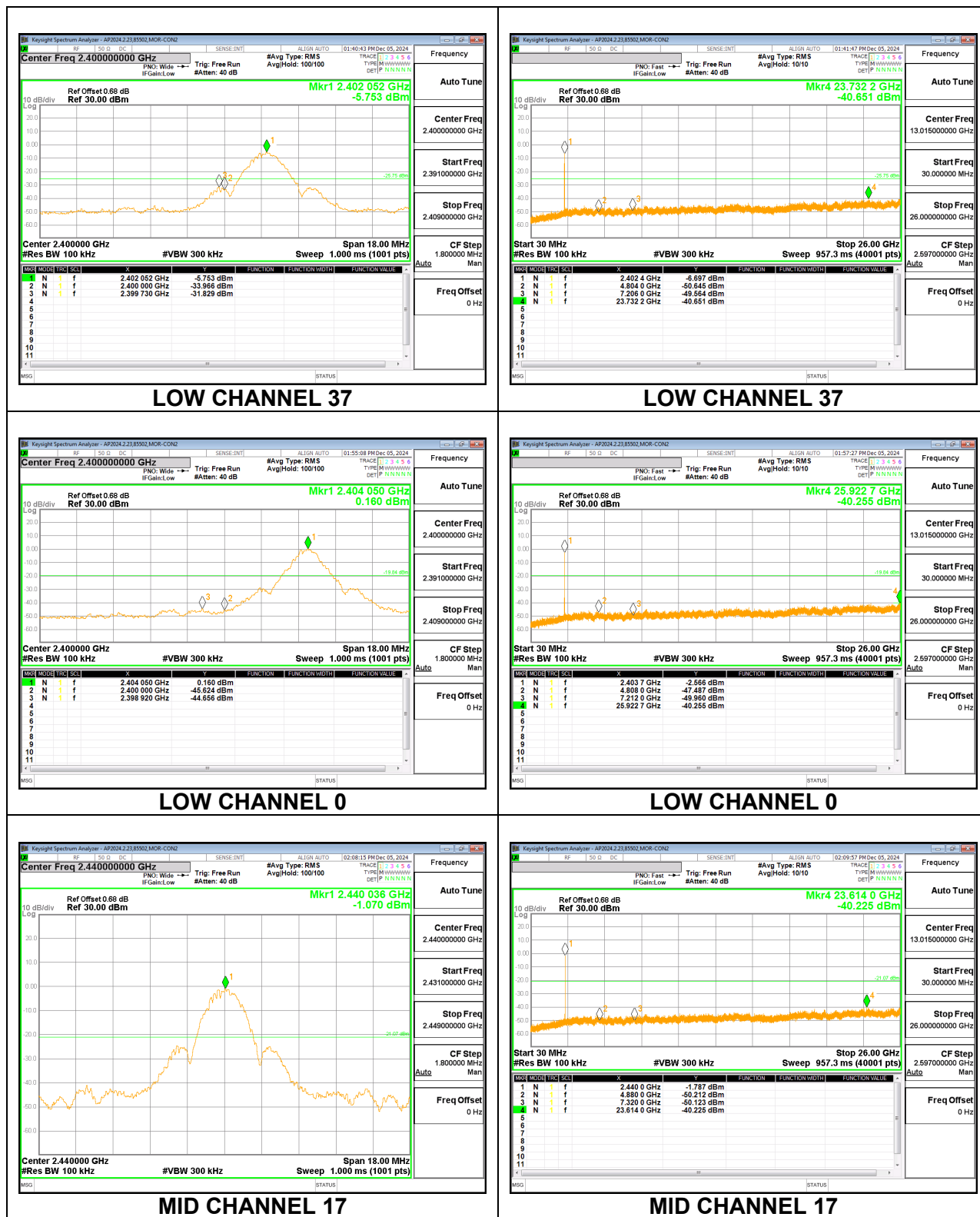


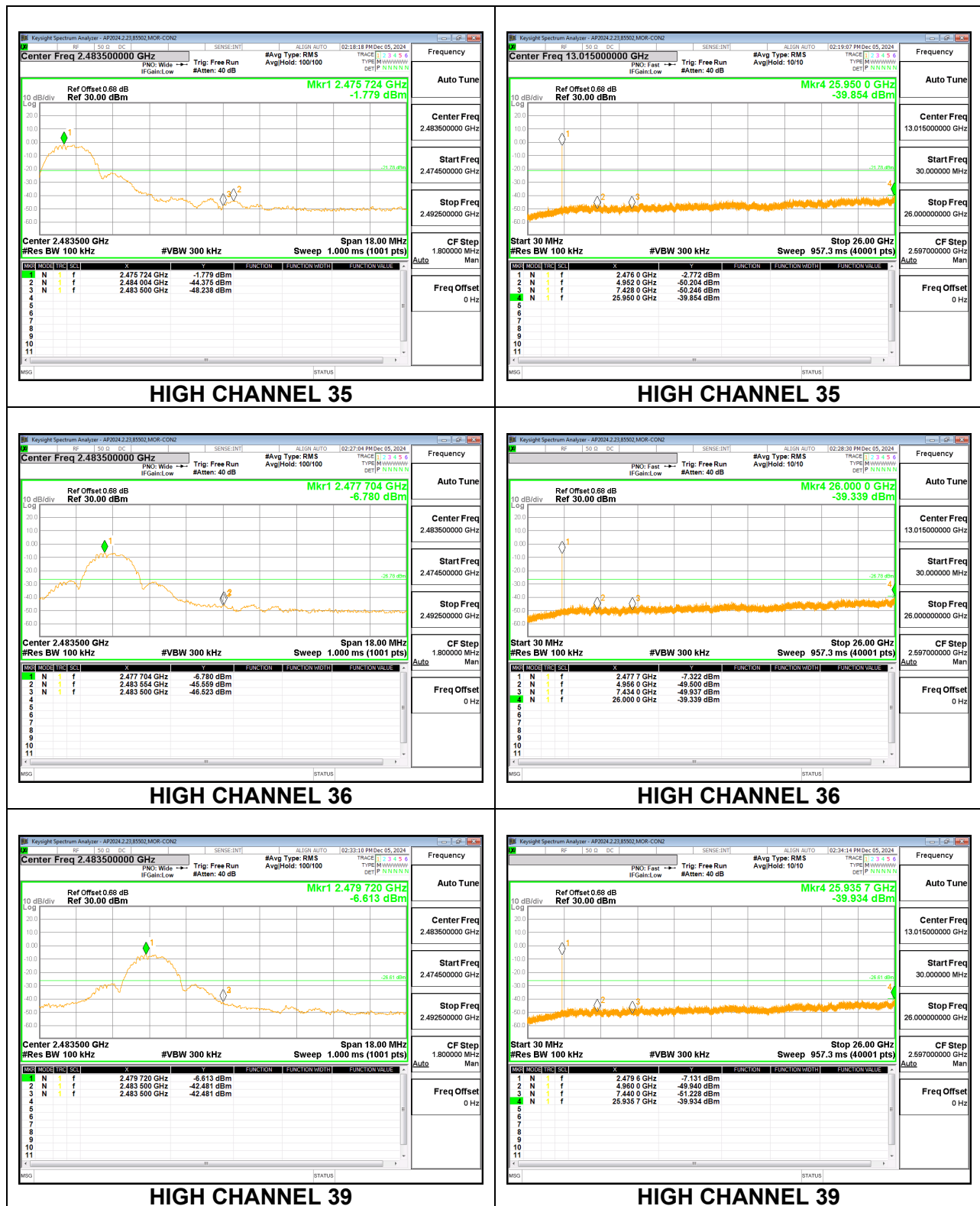
9.7.5. BLE 1Mbps MODE





9.7.6. BLE 2Mbps MODE





10. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300 m	-
0.490-1.705	24000/F(kHz) @ 30 m	-
1.705 - 30	30 @ 30m	-
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

IC RSS-GEN Clause 8.9 and 8.10

Frequency Range (kHz)	Field Strength Limit (uA/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	6.37/F(kHz) @ 300 m	-
0.490-1.705	63.7/F(kHz) @ 30 m	-
1.705 - 30	0.08 @ 30m	-
Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements in the 30-1000MHz range, 9kHz for peak and/or quasi-peak detection measurements in the 0.15-30MHz range and 200Hz for peak and/or quasi-peak detection measurements in the 9 to 150kHz range. Peak detection is used unless otherwise noted as quasi-peak or average (9-90kHz and 110-490kHz).

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3MHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for linear voltage average

measurements. For ANT and BLE, AV measurements are being corrected using DCCF per KDB 558074 FAQ#3(c).

The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to low, middle, and high channels in each applicable band. Below 1GHz and above 18GHz emissions, the channel with the highest PSD was tested.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

3D antenna use - For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel).

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

KDB 414788 Open Field Site (OFS) and Chamber Correlation Justification

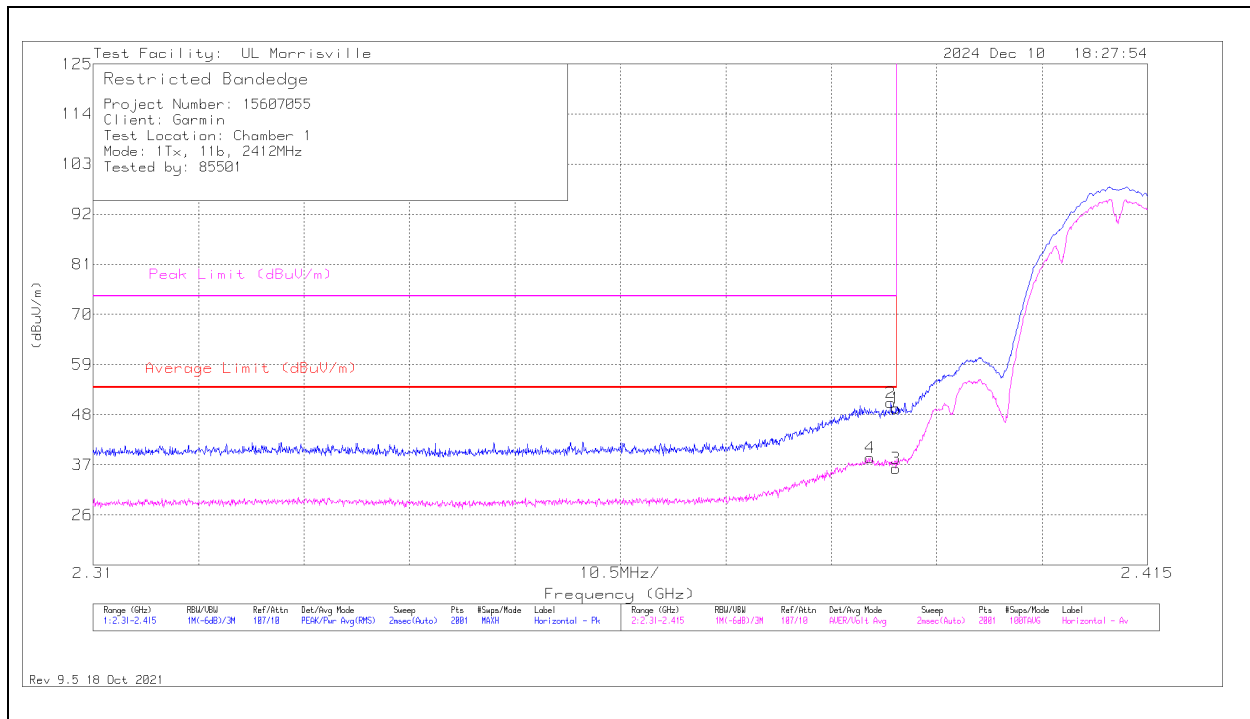
OFS and chamber correlation testing had been performed and chamber measured test result is the worst-case test result.

10.1. TRANSMITTER ABOVE 1 GHz

10.1.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND

BANDEDGE (LOW CHANNEL, 2412MHz)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.38996	41.51	Pk	31.9	-24	49.41	-	-	74	-24.59	136	162	H
2	*** 2.38943	42.69	Pk	31.9	-24	50.59	-	-	74	-23.41	136	162	H
3	*** 2.38996	28.29	ADV	31.9	-24	36.19	54	-17.81	-	-	136	162	H
4	*** 2.38739	30.5	ADV	31.9	-23.9	38.5	54	-15.5	-	-	136	162	H

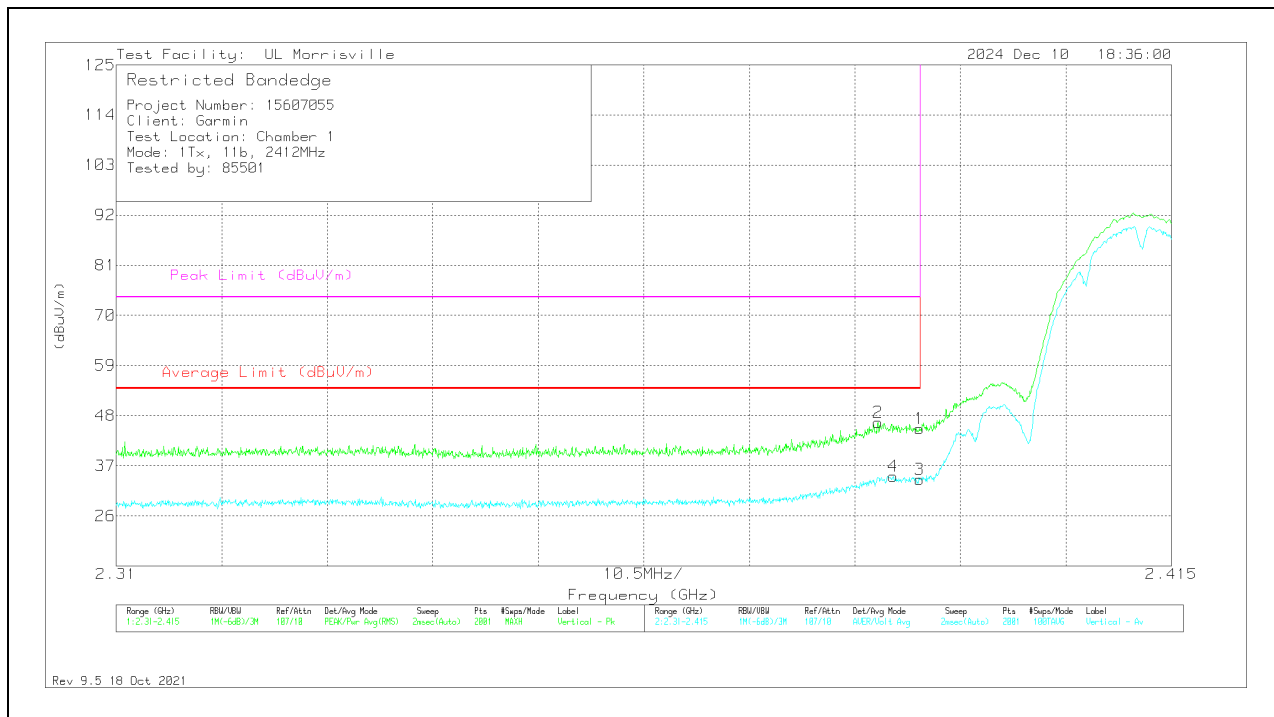
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	37.21	Pk	31.9	-24	45.11	-	-	74	-28.89	209	145	V
2	* ** 2.38581	38.51	Pk	31.9	-23.9	46.51	-	-	74	-27.49	209	145	V
3	* ** 2.38996	26.09	ADV	31.9	-24	33.99	54	-20.01	-	-	209	145	V
4	* ** 2.38733	26.66	ADV	31.9	-23.9	34.66	54	-19.34	-	-	209	145	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

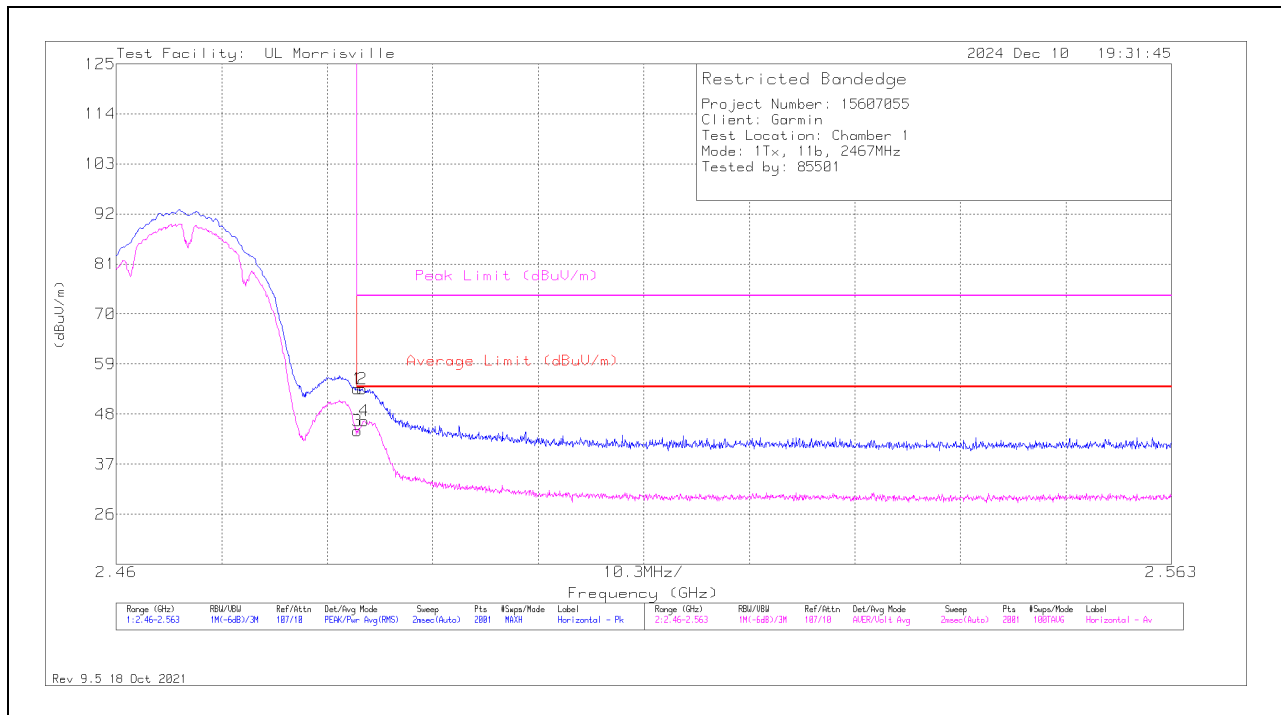
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

BANDEDGE (HIGH CHANNEL, 2467MHz)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	45.04	Pk	32.2	-23.7	53.54	-	-	74	-20.46	139	132	H
2	* ** 2.484	45.11	Pk	32.2	-23.8	53.51	-	-	74	-20.49	139	132	H
3	* ** 2.48354	35.83	ADV	32.2	-23.7	44.33	54	-9.67	-	-	139	132	H
4	* ** 2.48421	38.13	ADV	32.2	-23.8	46.53	54	-7.47	-	-	139	132	H

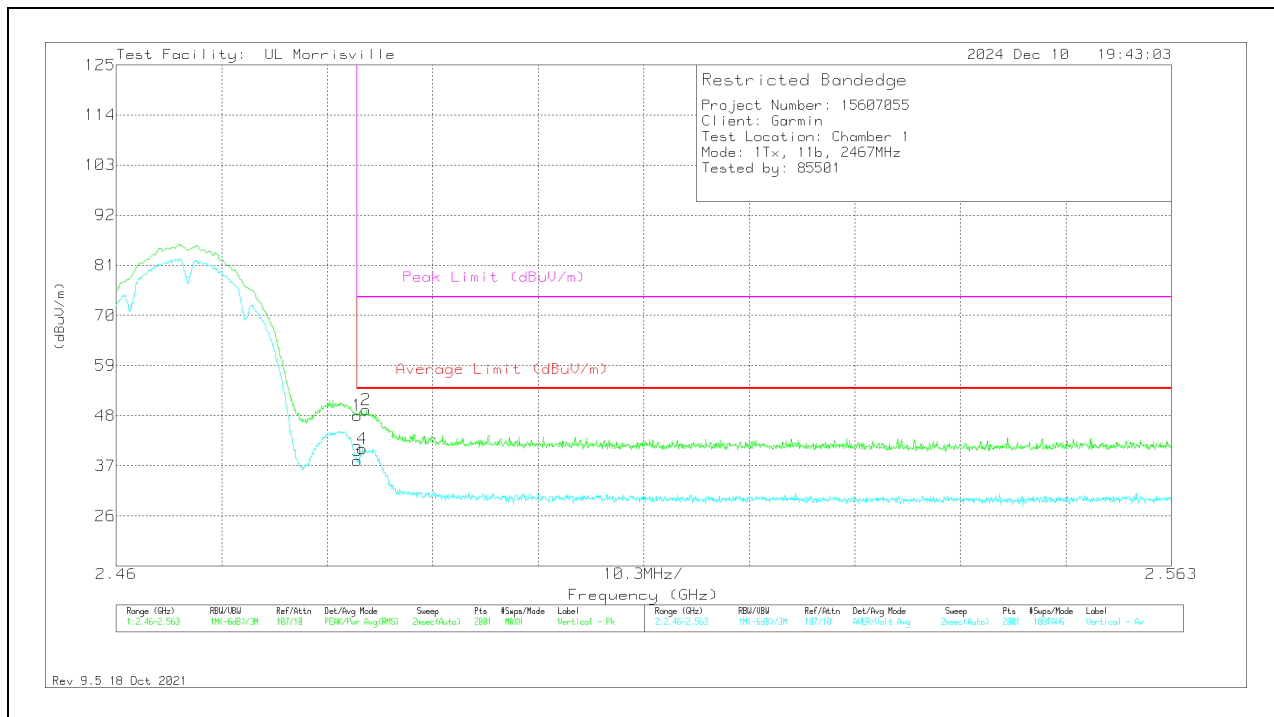
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	39.59	Pk	32.2	-23.7	48.09	-	-	74	-25.91	139	172	V
2	* ** 2.48441	40.84	Pk	32.2	-23.8	49.24	-	-	74	-24.76	139	172	V
3	* ** 2.48354	29.59	ADV	32.2	-23.7	38.09	54	-15.91	-	-	139	172	V
4	* ** 2.48405	32.3	ADV	32.2	-23.8	40.7	54	-13.3	-	-	139	172	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

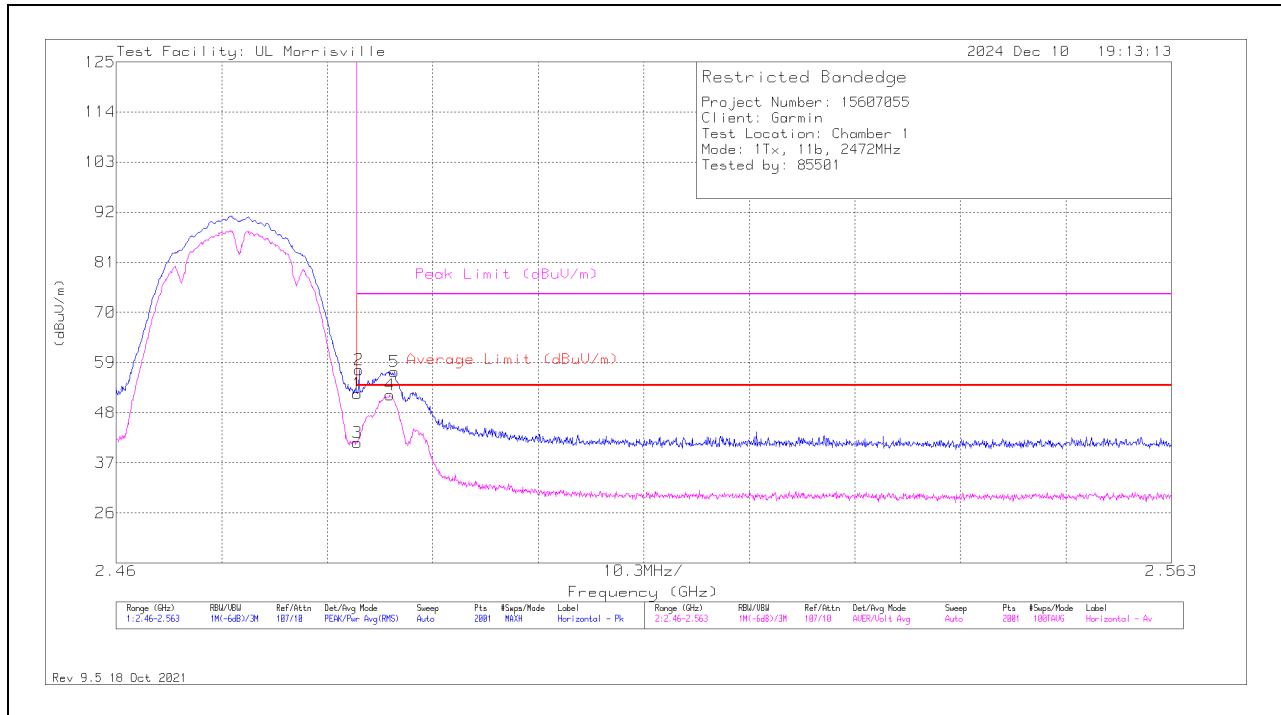
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

BANEDGE (HIGH CHANNEL, 2472MHz)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.48354	43.65	Pk	32.2	-23.7	52.15	-	-	74	-21.85	137	135	H
2	*** 2.48369	48.9	Pk	32.2	-23.7	57.4	-	-	74	-16.6	137	135	H
5	*** 2.48714	48.75	Pk	32.2	-24	56.95	-	-	74	-17.05	137	135	H
3	*** 2.48354	32.89	ADV	32.2	-23.7	41.39	54	-12.61	-	-	137	135	H
4	*** 2.48673	43.65	ADV	32.2	-23.9	51.95	54	-2.05	-	-	137	135	H

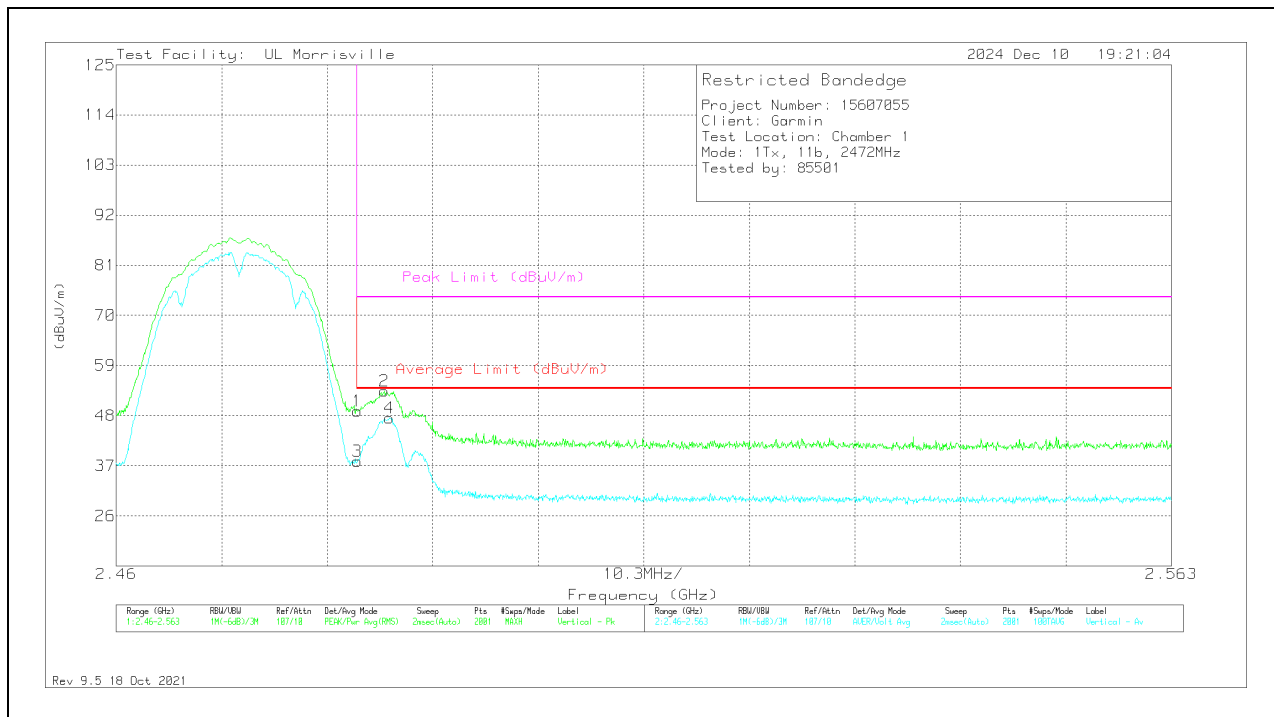
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	40.46	Pk	32.2	-23.7	48.96	-	-	74	-25.04	220	168	V
2	* ** 2.48616	45.13	Pk	32.2	-23.9	53.43	-	-	74	-20.57	220	168	V
3	* ** 2.48354	29.47	ADV	32.2	-23.7	37.97	54	-16.03	-	-	220	168	V
4	* ** 2.48668	39.16	ADV	32.2	-23.9	47.46	54	-6.54	-	-	220	168	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

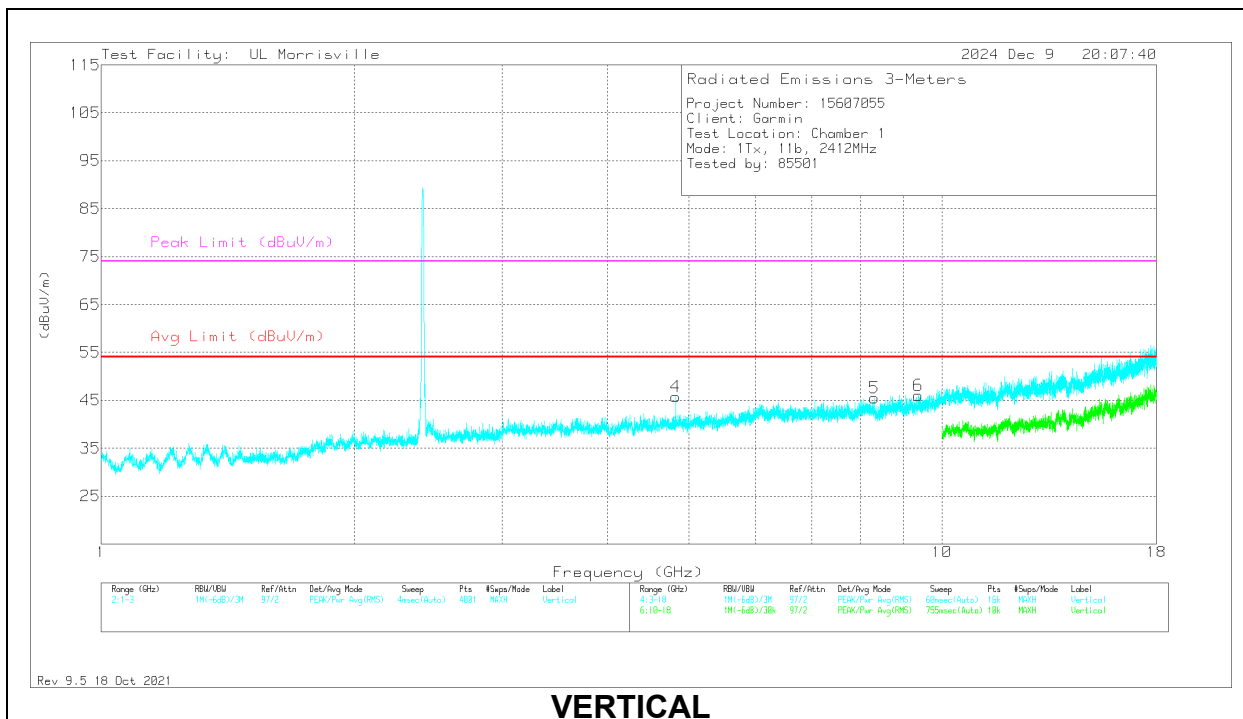
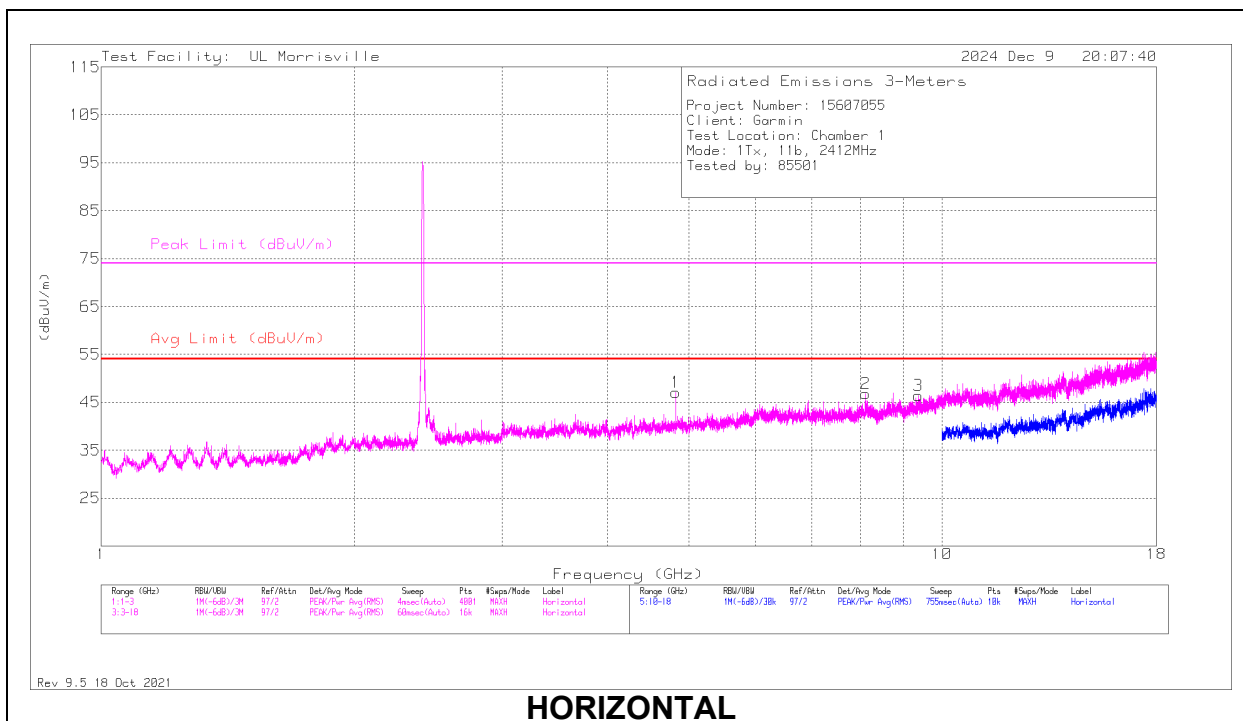
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL



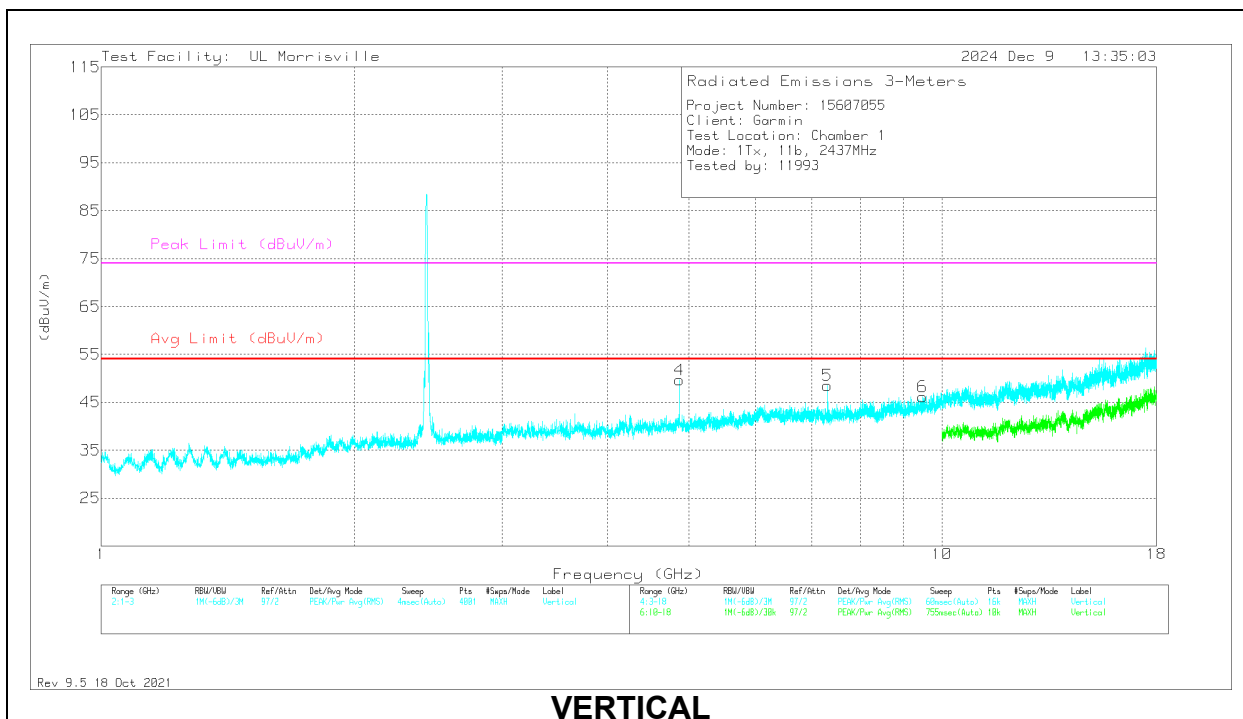
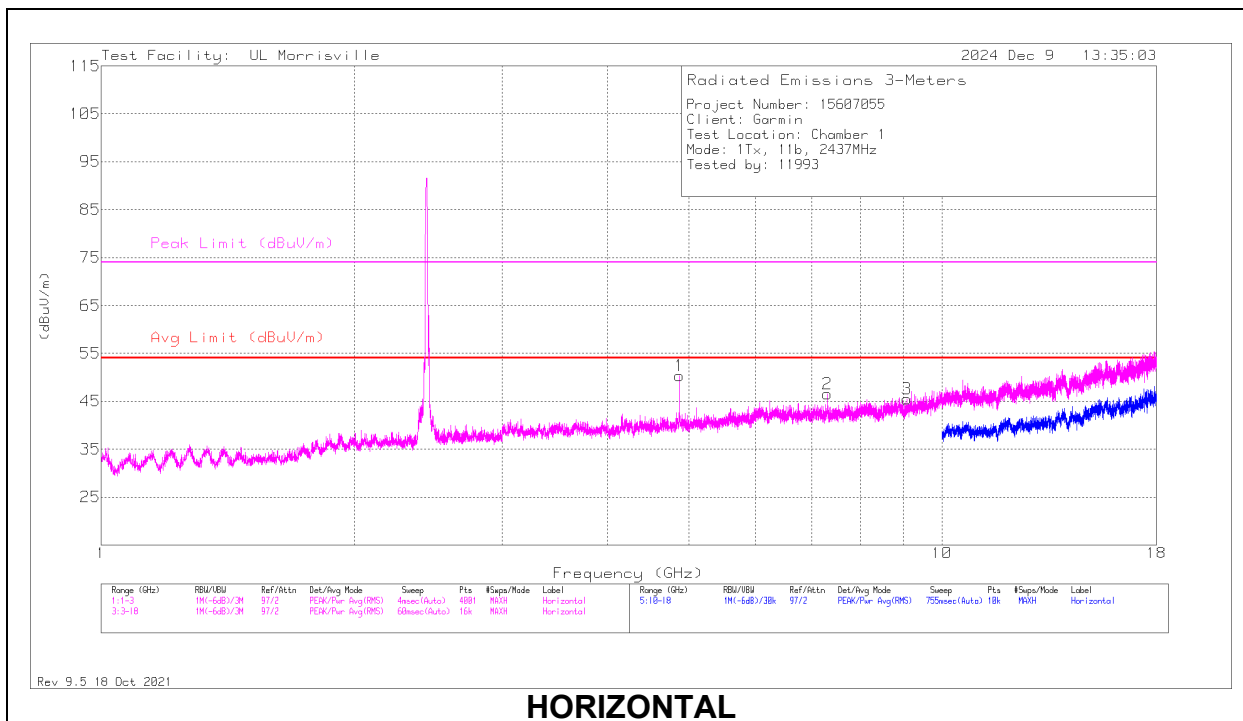
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.82344	58.52	Pk	33.9	-45.4	47.02	54	-6.98	74	-26.98	0-360	101	H
2	* ** 8.10938	51.87	Pk	35.9	-41	46.77	54	-7.23	74	-27.23	0-360	200	H
3	* ** 9.37594	50.46	Pk	36.2	-40.3	46.36	54	-7.64	74	-27.64	0-360	200	H
4	* ** 4.82344	57.28	Pk	33.9	-45.4	45.78	54	-8.22	74	-28.22	0-360	101	V
5	* ** 8.31375	50.39	Pk	35.8	-40.7	45.49	54	-8.51	74	-28.51	0-360	200	V
6	* ** 9.37219	50.13	Pk	36.2	-40.3	46.03	54	-7.97	74	-27.97	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

MID CHANNEL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.874	63.94	PK2	34	-44.8	53.14	-	-	74	-20.86	191	127	H
	* ** 4.87401	60.66	ADV	34	-44.8	49.86	54	-4.14	-	-	191	127	H
2	* ** 7.3125	52.88	Pk	35.4	-41.7	46.58	54	-7.42	74	-27.42	0-360	101	H
3	* ** 9.09375	49.94	Pk	35.9	-40.3	45.54	54	-8.46	74	-28.46	0-360	101	H
4	* ** 4.87389	63.15	PK2	34	-44.8	52.35	-	-	74	-21.65	155	138	V
	* ** 4.87396	59.43	ADV	34	-44.8	48.63	54	-5.37	-	-	155	138	V
5	* ** 7.31163	57.88	PK2	35.4	-41.7	51.58	-	-	74	-22.42	201	230	V
	* ** 7.31168	50.77	ADV	35.4	-41.7	44.47	54	-9.53	-	-	201	230	V
6	* ** 9.495	50.19	Pk	36.4	-40.4	46.19	54	-7.81	74	-27.81	0-360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

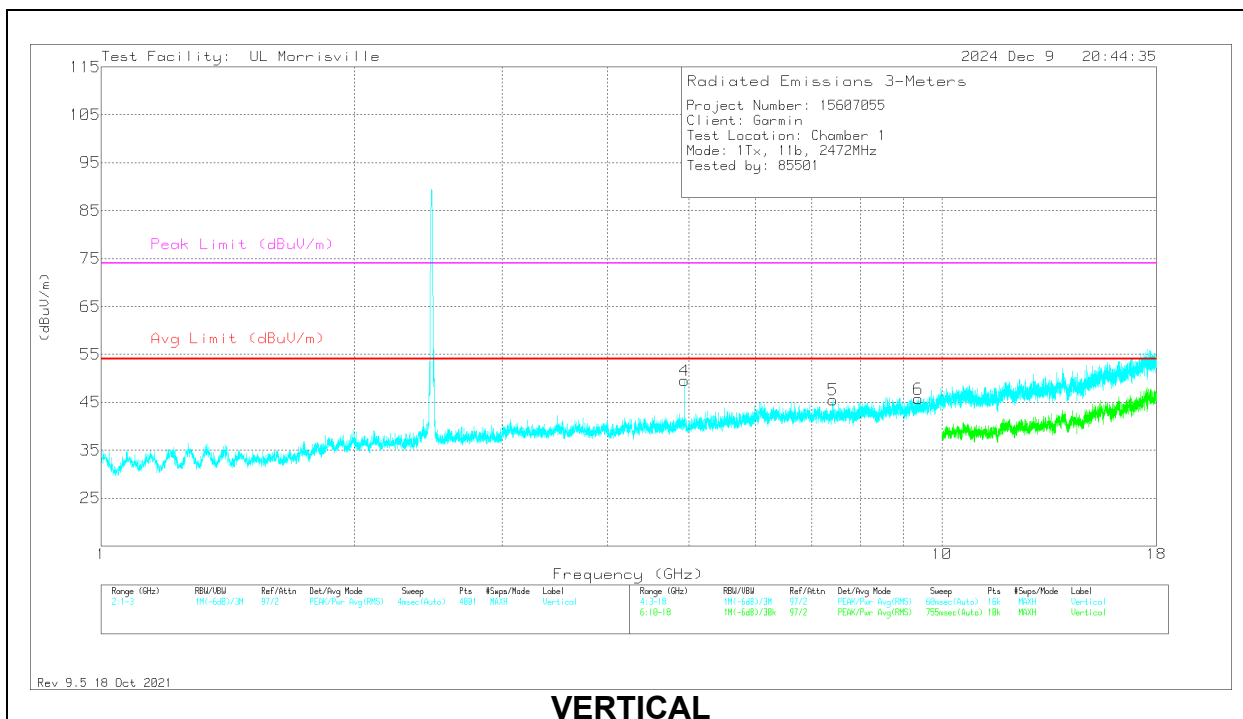
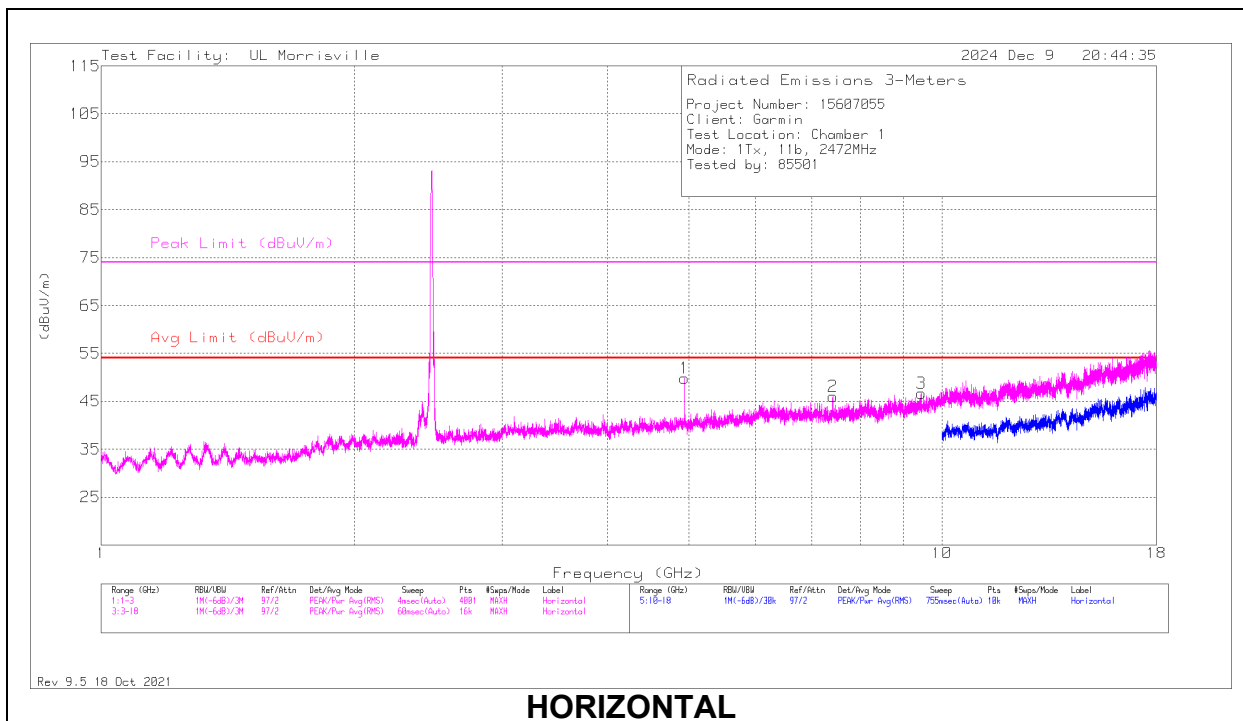
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

PK2 - Maximum Peak

ADV - Linear Voltage Average

HIGH CHANNEL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 4.94386	61.6	PK2	34.1	-44.4	51.3	-	-	74	-22.7	191	121	H
	* ** 4.94398	57.95	ADV	34.1	-44.4	47.65	54	-6.35	-	-	191	121	H
2	* ** 7.4175	51.77	Pk	35.4	-41.2	45.97	54	-8.03	74	-28.03	0-360	101	H
3	* ** 9.45469	51.05	Pk	36.4	-40.8	46.65	54	-7.35	74	-27.35	0-360	200	H
4	* ** 4.94395	62.43	PK2	34.1	-44.4	52.13	-	-	74	-21.87	148	109	V
	* ** 4.94402	58.46	ADV	34.1	-44.4	48.16	54	-5.84	-	-	148	109	V
5	* ** 7.41656	51.3	Pk	35.4	-41.2	45.5	54	-8.5	74	-28.5	0-360	101	V
6	* ** 9.37031	49.89	Pk	36.2	-40.4	45.69	54	-8.31	74	-28.31	0-360	200	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

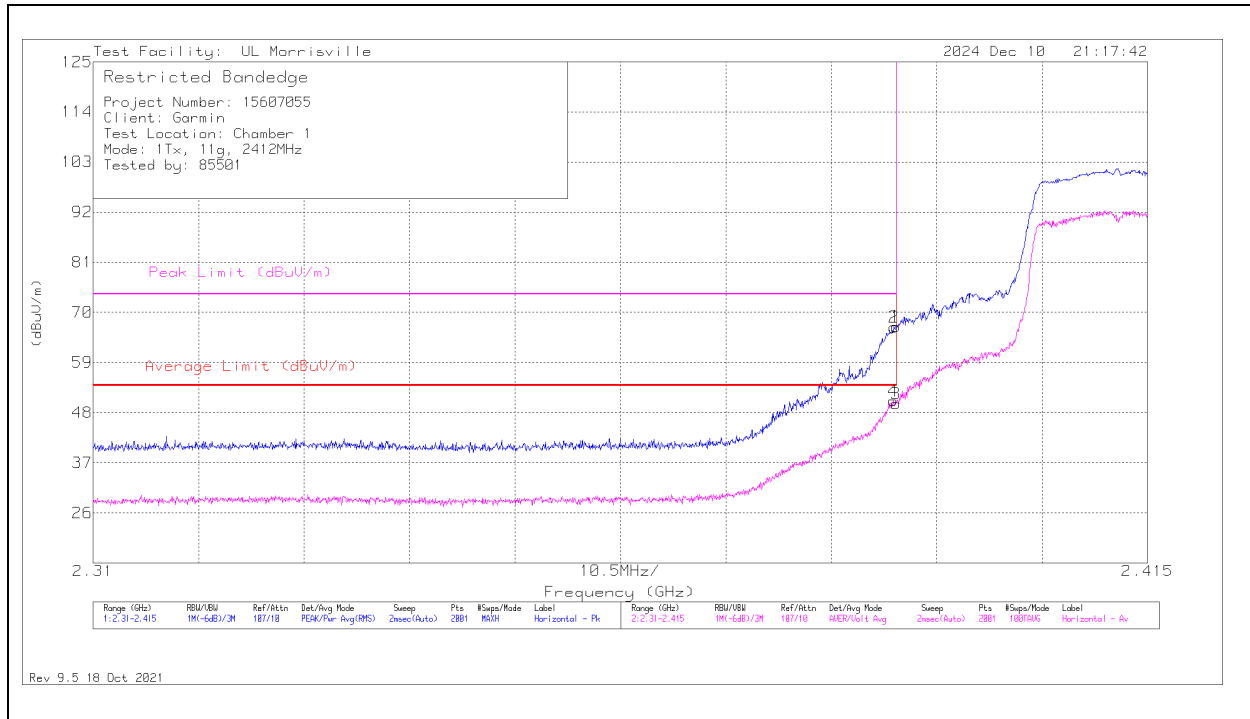
PK2 - Maximum Peak

ADV - Linear Voltage Average

10.1.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

BANDEDGE (LOW CHANNEL, 2412MHz)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.38996	59.04	Pk	31.9	-24	66.94	-	-	74	-7.06	308	138	H
2	*** 2.38975	58.87	Pk	31.9	-24	66.77	-	-	74	-7.23	308	138	H
3	*** 2.38996	42.12	ADV	31.9	-24	50.02	54	-3.98	-	-	308	138	H
4	*** 2.3897	42.68	ADV	31.9	-24	50.58	54	-3.42	-	-	308	138	H

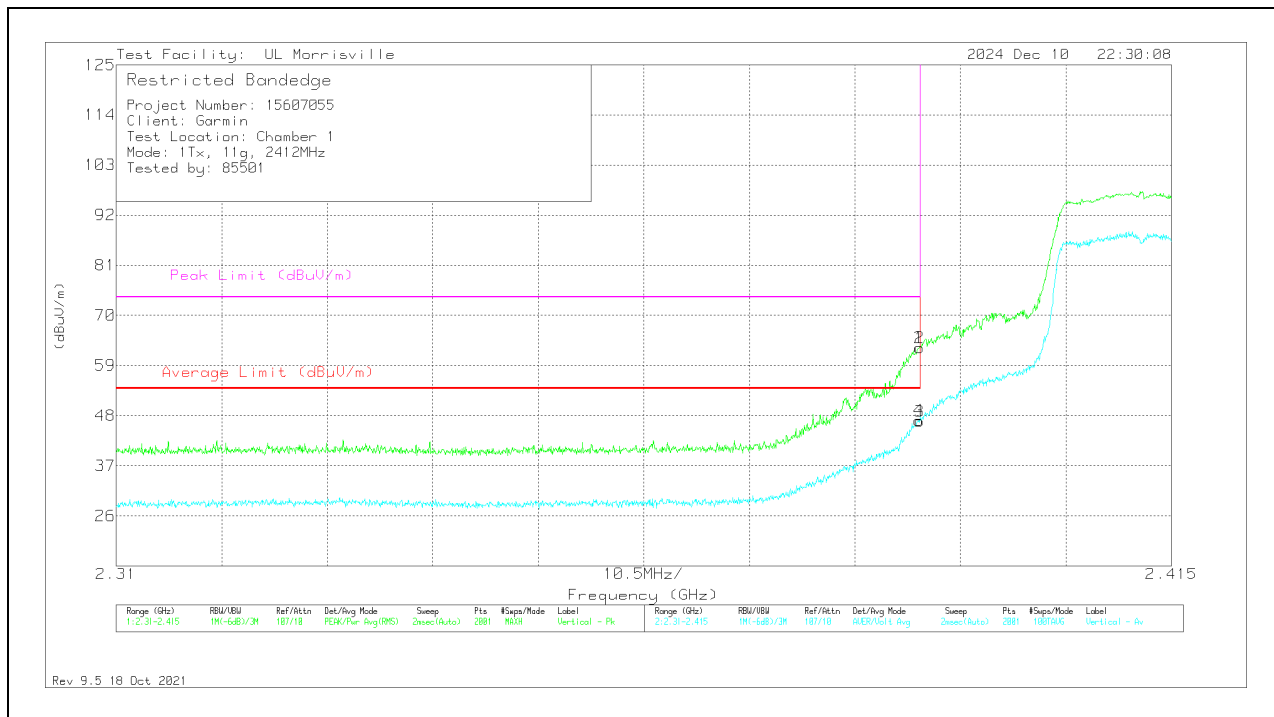
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.38996	54.99	Pk	31.9	-24	62.89	-	-	74	-11.11	229	326	V
2	*** 2.38991	55.01	Pk	31.9	-24	62.91	-	-	74	-11.09	229	326	V
3	*** 2.38996	38.84	ADV	31.9	-24	46.74	54	-7.26	-	-	229	326	V
4	*** 2.38985	39.02	ADV	31.9	-24	46.92	54	-7.08	-	-	229	326	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

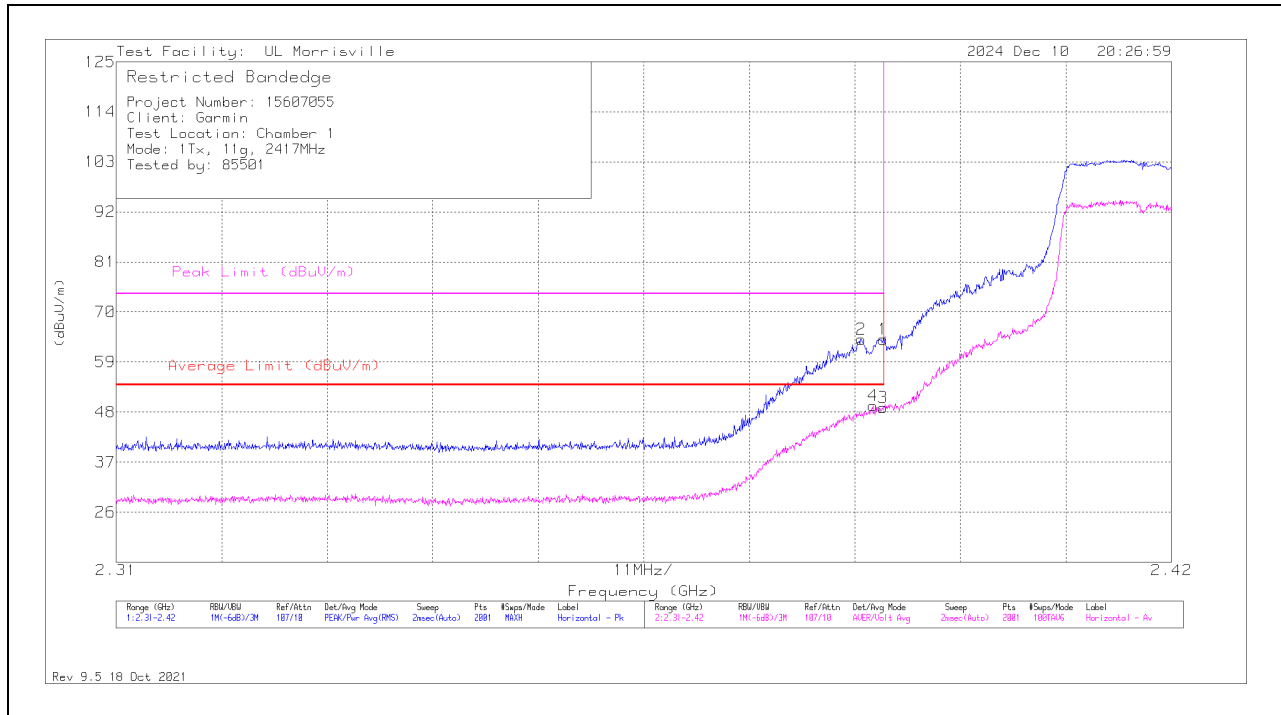
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Voltage Average

BANEDGE (LOW CHANNEL, 2417MHz)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38997	56.12	Pk	31.9	-24	64.02	-	-	74	-9.98	130	169	H
2	* ** 2.38766	56.02	Pk	31.9	-23.9	64.02	-	-	74	-9.98	130	169	H
3	* ** 2.38997	41.09	ADV	31.9	-24	48.99	54	-5.01	-	-	130	169	H
4	* ** 2.38887	41.57	ADV	31.9	-24	49.47	54	-4.53	-	-	130	169	H

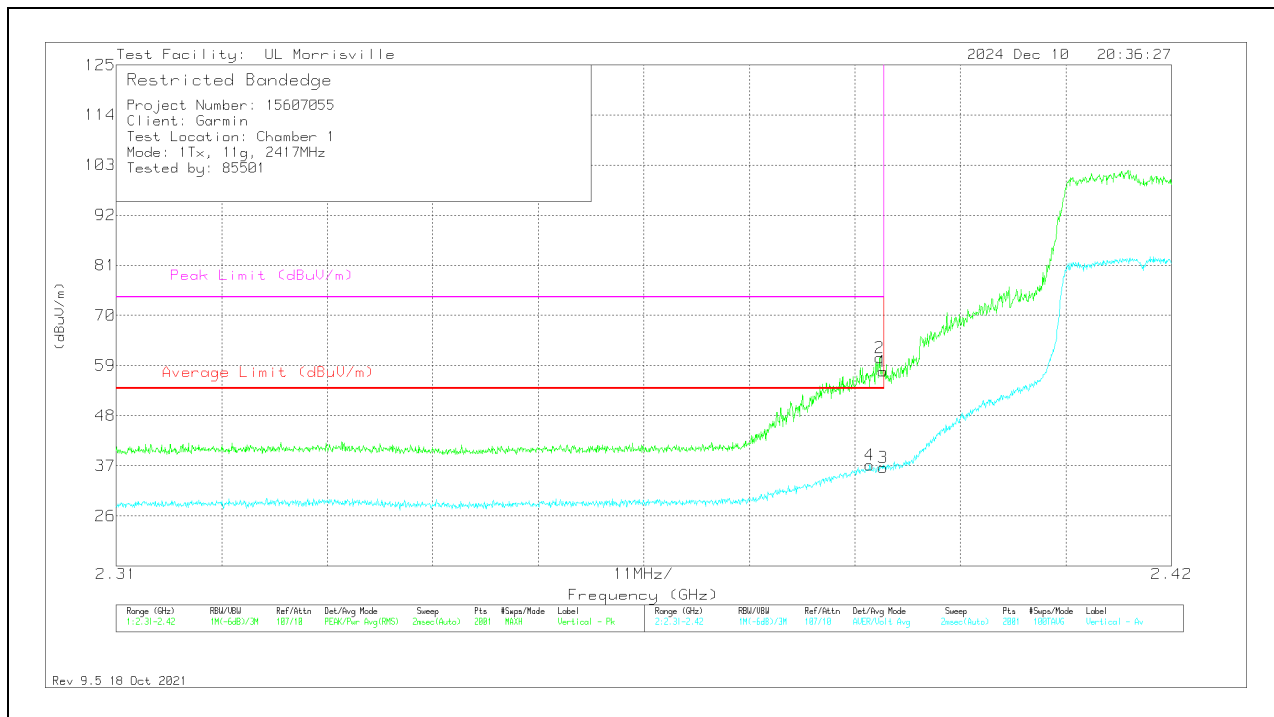
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38997	49.84	Pk	31.9	-24	57.74	-	-	74	-16.26	130	169	V
2	* ** 2.38959	52.83	Pk	31.9	-24	60.73	-	-	74	-13.27	130	169	V
3	* ** 2.38997	28.76	ADV	31.9	-24	36.66	54	-17.34	-	-	130	169	V
4	* ** 2.38854	29.31	ADV	31.9	-24	37.21	54	-16.79	-	-	130	169	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

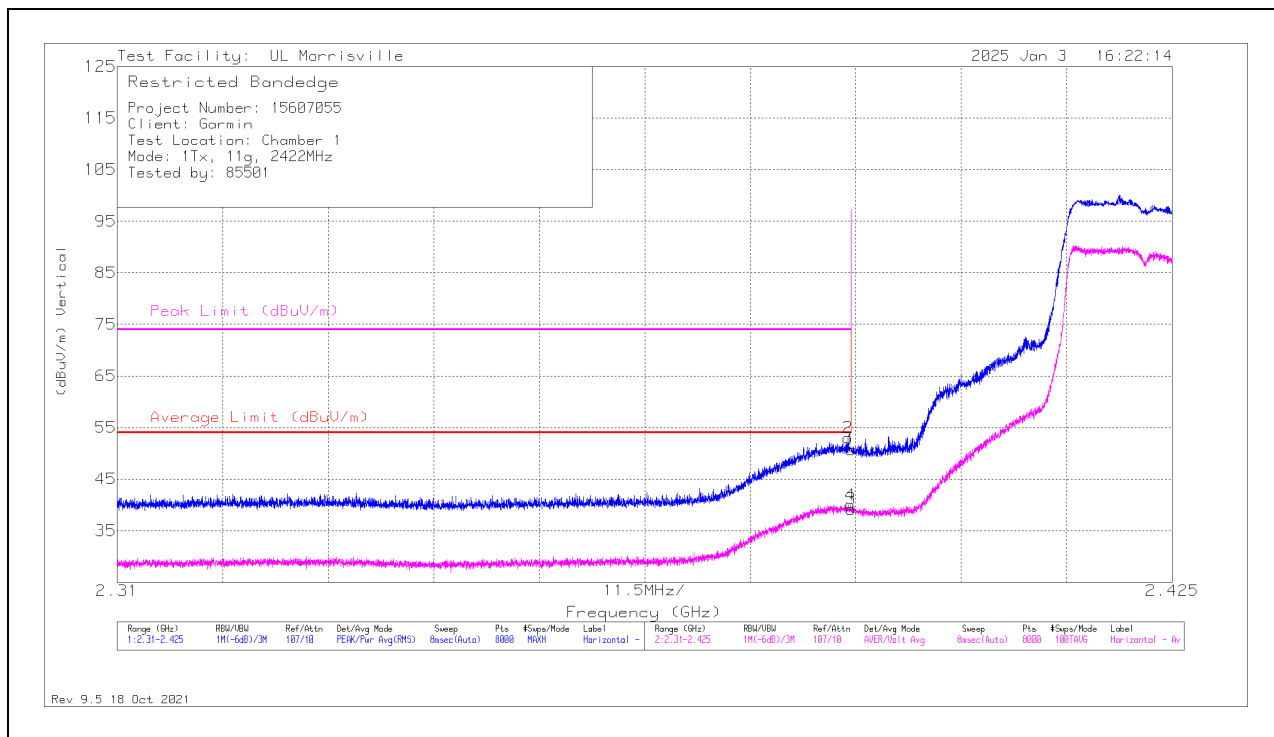
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

BANEDGE (LOW CHANNEL, 2422MHz)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38999	42.88	Pk	31.9	-24.1	50.68	-	-	74	-23.32	117	182	H
2	* ** 2.38966	45.07	Pk	31.9	-24	52.97	-	-	74	-21.03	117	182	H
3	* ** 2.38999	31.4	ADV	31.9	-24.1	39.2	54	-14.8	-	-	117	182	H
4	* ** 2.38994	32.05	ADV	31.9	-24	39.95	54	-14.05	-	-	117	182	H

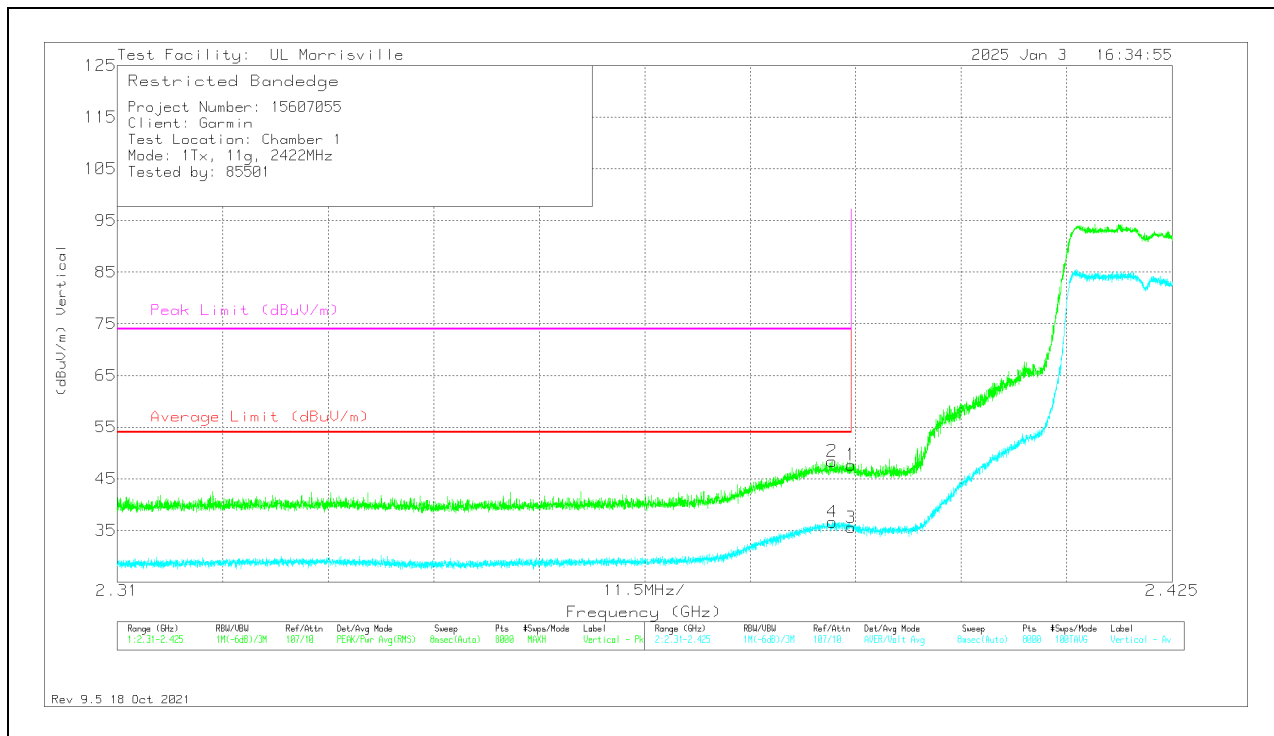
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*** 2.38999	39.86	Pk	31.9	-24.1	47.66	-	-	74	-26.34	117	286	V
2	*** 2.38791	40.4	Pk	31.9	-23.9	48.4	-	-	74	-25.6	117	286	V
3	*** 2.38999	27.75	ADV	31.9	-24.1	35.55	54	-18.45	-	-	117	286	V
4	** 2.38792	28.64	ADV	31.9	-23.9	36.64	54	-17.36	-	-	117	286	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

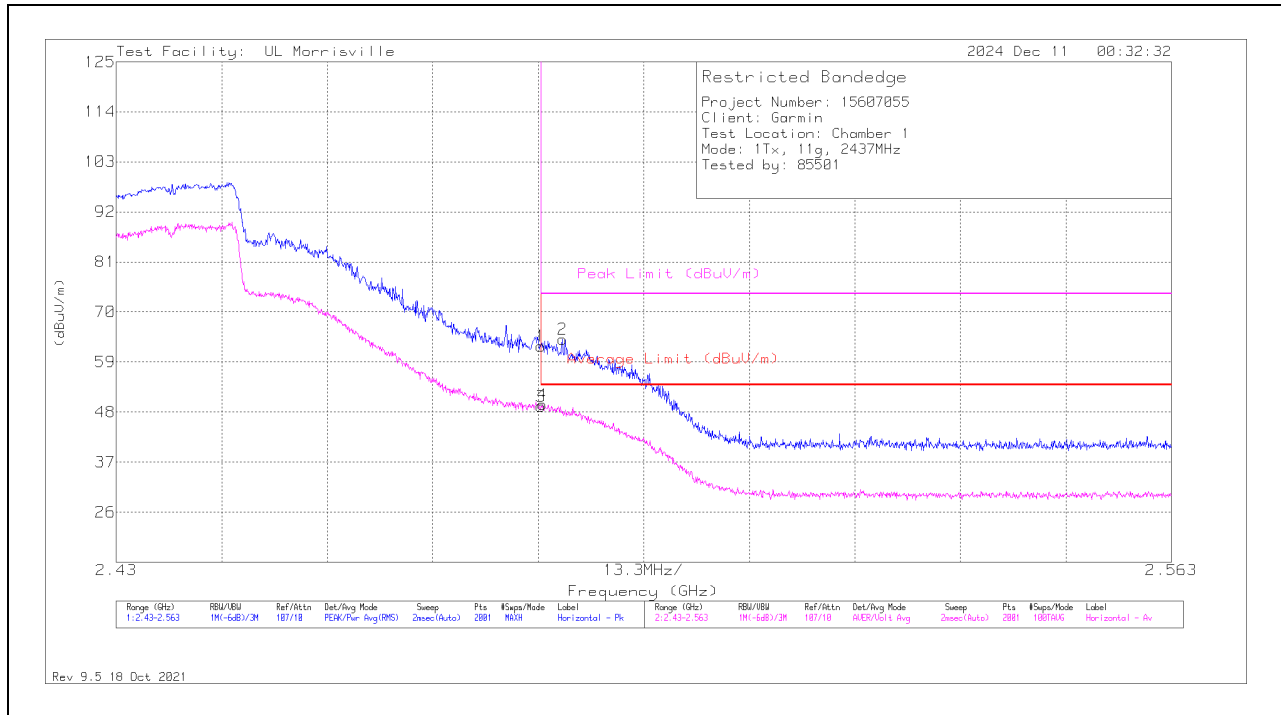
** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

BANDEDGE (MID CHANNEL, UPPER BAND, 2437MHz)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48353	54.05	Pk	32.2	-23.7	62.55	-	-	74	-11.45	13	139	H
2	* ** 2.48626	55.73	Pk	32.2	-23.9	64.03	-	-	74	-9.97	13	139	H
3	* ** 2.48353	40.71	ADV	32.2	-23.7	49.21	54	-4.79	-	-	13	139	H
4	* ** 2.48373	41.13	ADV	32.2	-23.7	49.63	54	-4.37	-	-	13	139	H

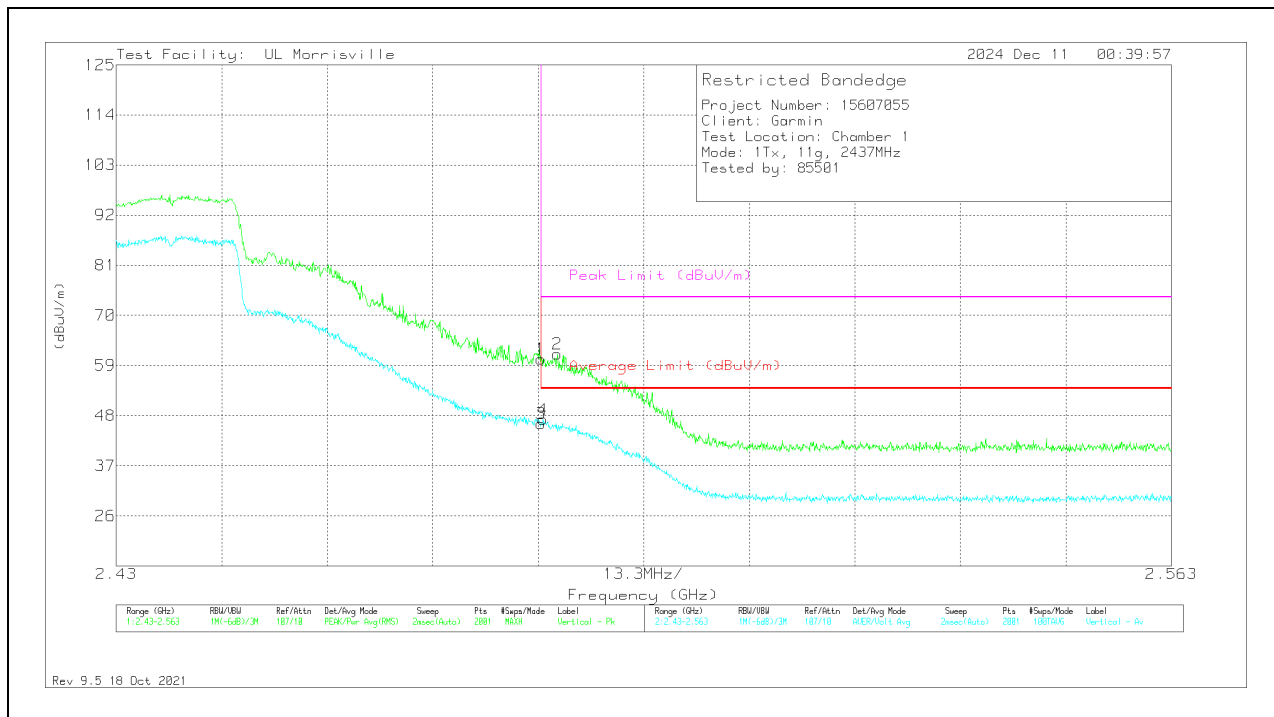
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	135143 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48353	51.96	Pk	32.2	-23.7	60.46	-	-	74	-13.54	221	169	V
2	* ** 2.48559	53.25	Pk	32.2	-23.9	61.55	-	-	74	-12.45	221	169	V
3	* ** 2.48353	37.79	ADV	32.2	-23.7	46.29	54	-7.71	-	-	221	169	V
4	* ** 2.4838	38.64	ADV	32.2	-23.7	47.14	54	-6.86	-	-	221	169	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

** - indicates frequency in Taiwan NCC LP0002 Restricted Band

Pk - Peak detector

ADV - Linear Voltage Average