

TEST REPORT

Report Number: R16238088-E13d

Applicant : Samsung Electronics Co Ltd
129, Samsung-ro, Yeongtong-gu, Suwon-si,
Gyeonggi-do, 16677, Rep. of Korea

Model : SM-F976B

FCC ID : A3LSMF976B

EUT Description : GSM/WCDMA/LTE/NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax/be,
UWB, WPT and NFC

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:
2026-05-08

Prepared by:
UL LLC
12 Laboratory Dr.
Durham, NC 27713 U.S.A.
TEL: (919) 549-1400



REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2026-05-08	Initial Issue	Brian Kiewra

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Samsung Electronics Co Ltd
19 Chapin Rd., Building D
Pine Brook, NJ 07058 USA

EUT DESCRIPTION: GSM/WCDMA/LTE/NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax/be,
UWB, WPT and NFC

MODEL: SM-F976B

SERIAL NUMBER: ZBK0296M, ZBK0465M, ZBK0278M

SAMPLE RECEIPT DATE: 2026-03-09

DATE TESTED: 2026-03-09 to 2026-03-19

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	
ISED RSS-247 Issue 4	Refer to section 2
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:



Michael Antola
Sr. Staff Engineer
Consumer, Medical and IT Segment
UL LLC



Brian Kiewra
Project 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	Per ANSI C63.10, Section 11.6.
See Comment	RSS-GEN 6.7	20dB BW/99% OBW	Reporting purposes only	ANSI C63.10 Sections 6.9.2 and 6.9.3
15.247 (a)(1)	RSS-247 (6.2.3.1) (a)	Hopping Frequency Separation	Compliant	None
15.247 (a)(1)(iii)	RSS-247 (6.2.3.1) (b)	Number of Hopping Channels		
15.247 (a)(1)(iii)	RSS-247 (6.2.3.1) (b)	Average Time of Occupancy		
15.247 (b)(1)	RSS-247 (6.2.3.2) (a)	Output Power		
See Comment		Average Power	Reporting purposes only	Per ANSI C63.10, Section 11.9.2.3.2.
15.247 (d)	RSS-247 (6.6)	Conducted Spurious Emissions	Compliant	None
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+Cor. 1-2023+C63.10a-2024, 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 4.

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 Durham, NC 27713, 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 a GSM/WCDMA/LTE/NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax/be, UWB, WPT and NFC. This report covers testing on the BT radio.

This report applies data referencing from FCC ID: A3LSMF976U. The test data to validate data referencing is included in Test Report R16238088-E29.

6.2. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
Chain 0			
2402 - 2480	Basic GFSK	19.96	99.08
2402 - 2480	Enhanced DQPSK	17.87	61.24
2402 - 2480	Enhanced 8PSK	18.21	66.22
Chain 1			
2402 - 2480	Basic GFSK	18.78	75.51
2402 - 2480	Enhanced DQPSK	16.86	48.53
2402 - 2480	Enhanced 8PSK	17.53	56.62
MIMO			
2402 - 2480	Basic GFSK	18.31	67.76
2402 - 2480	Enhanced DQPSK	17.08	51.05
2402 - 2480	Enhanced 8PSK	17.50	56.23

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The antenna(s) are with a gain, provided by the manufacturer, as follows:

Antenna	Frequency Range (MHz)	Maximum 3D Gain (dBi)	Type
0	2402-2480 MHz	-7.73	Inverted F type
1	2402-2480 MHz	-5.83	Inverted F type

6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was F976USQU0AZB7.

6.5. WORST-CASE CONFIGURATION AND MODE

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

Note: Frequency ranges of 9kHz – 30MHz and >18GHz were investigated and no emissions within 20dB of limit found.

Band edge and radiated emissions between 1GHz and 18GHz were performed with the EUT set to transmit at the highest power on low, middle and high channels. Only GFSK and QPSK were tested due to highest average output power.

The EUT was investigated in three orthogonal orientations: X,Y, and Z and folded, open, and 90° open. It was determined that the X-open orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in the X-open orientation.

Worst-case data rates:

GFSK mode: DH5

QPSK mode: 2-DH5

8PSK mode: 3-DH5

6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Power Adapter	Sony	XQZ-UC11-010-236-21	NA	NA

I/O CABLES

I/O Cable List						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	USB-C	1	USB-C	Shielded	<3m	Phone to power adapter

TEST SETUP

The EUT is tested as a standalone device connected to AC adaptor.

SETUP DIAGRAMS

Please refer to R16238088-EP1d for setup diagrams

7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment were 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.
90410	Spectrum Analyzer	Keysight Technologies	N9030A	2025-07-10	2026-07-10
211055	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2025-07-30	2026-07-30
211056	Real-Time Peak Power Sensor 50MHz to 8GHz	Boonton	RTP5000	2025-07-30	2026-07-30
248881	Environmental Meter	Control Company	06-662-4	2024-04-10	2026-04-10
SOFTEMI	Antenna Port Software	UL	Version 2024.2.23		
Power Software	Boonton Power Analyzer	Boonton	Version 3.0.13.0		
BT0001	CBT Bluetooth Tester	Rohde & Schwarz	1153.9000.35	N/A	N/A
259603	Conducted Switch Box	UL	CSB	2025-03-12	2026-03-30
226566	2.92mm Coaxial 10dB Attenuator 40GHz	Fairview Microwave	SA4014-10	2025-08-30	2026-08-30
226567	2.92mm Coaxial 10dB Attenuator 40GHz	Fairview Microwave	SA4014-10	2025-09-02	2026-09-02

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

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
0.009-30MHz					
65682	Active Loop Antenna	ETS-Lindgren	6502	2025-10-14	2027-10-14
30-1000 MHz					
159203	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2024-03-05	2026-03-31
1-18 GHz					
88761	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2025-11-19	2027-11-19
18-40 GHz					
91186	Horn Antenna, 18-26.5GHz	ARA	MWH-1826/B	2024-05-16	2026-05-16
Gain-Loss Chains					
91974	Gain-loss string: 0.009-30MHz	Various	Various	2025-05-31	2026-05-31
91976	Gain-loss string: 25-1000MHz	Various	Various	2025-05-31	2026-05-31
91979	Gain-loss string: 1-18GHz	Various	Various	2025-05-31	2026-05-31
135999	Gain-loss string: 18-40GHz	Various	Various	2025-05-31	2026-05-31
Receiver & Software					
206496	Spectrum Analyzer	Rohde & Schwarz	ESW44	2025-07-29	2026-07-29
90411	Spectrum Analyzer	Keysight	N9030A	2025-07-30	2026-07-30
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
Additional Equipment used					
241205	Environmental Meter	Fisher Scientific	15-077-963	2025-08-05	2027-08-05

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	2025-04-17	2026-04-17
179892	Environmental Meter	Fisher Scientific	15-077-963	2025-08-5	2026-08-06
80391	LISN, 50-ohm/50-uH, 250uH 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50/250-25-2-01	2025-09-29	2026-09-29
75141	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2025-7-30	2026-07-30
52859	Transient Limiter, 0.009-100MHz	Electro-Metrics	EM-7600	2025-7-30	2026-07-30
PS214	AC Power Source	Elgar	CW2501M	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
84681	ANSI C63.4 1m extension cable.	UL	Per Annex B of ANSI C63.4	2025-04-17	2026-04-17

8. MEASUREMENT METHODS

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

Occupied BW (20dB): ANSI C63.10-2020 Section 6.9.2

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

Carrier Frequency Separation: ANSI C63.10-2020 Section 7.8.2

Number of Hopping Frequencies: ANSI C63.10-2020 Section 7.8.3

Time of Occupancy (Dwell Time): ANSI C63.10-2020 Section 7.8.4

Output Power: ANSI C63.10-2020 Section 7.8.5

Conducted Spurious Emissions: ANSI C63.10-2020 Section 7.8.7

Conducted Band-Edge: ANSI C63.10-2020 Section 7.8.7.2 and 6.10.4

Radiated Band-edge: ANSI C63.10-2020 Section 6.10.5

Radiated Spurious Emissions: ANSI C63.10-2020 Sections 6.3 to 6.6 and 7.8.8

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

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

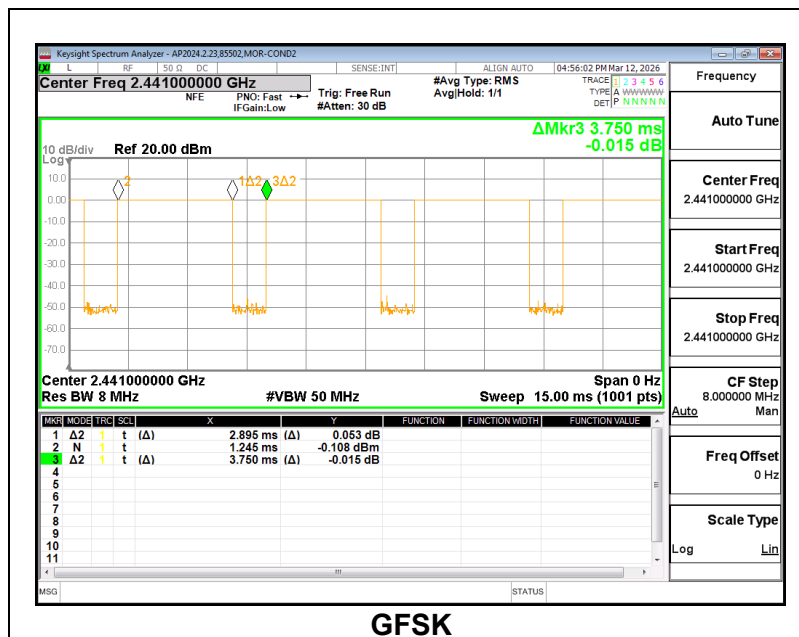
None; for reporting purposes only.

PROCEDURE

ANSI C63.10, Section 11.6: 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/T Minimum VBW (kHz)
Bluetooth GFSK	2.895	3.750	0.772	77.2	2.25	0.345
Bluetooth QFSK	2.880	3.750	0.768	76.8	2.29	0.347
Bluetooth 8PSK	2.895	3.750	0.772	77.2	2.25	0.345



Note: For MIMO mode testing, the actual DCCF used was calculated based on the worst case on-time when the device transmits DH5 packets and operates on 20 channels (5/1600 s per hop = 3.125 ms per channel). In this mode, the device will have a maximum of 2 hops on a channel in 100ms or 2x 3.125 ms = 6.25 ms on any channel. Therefore, $20\log(6.25 / 100) = -24\text{dB}$.

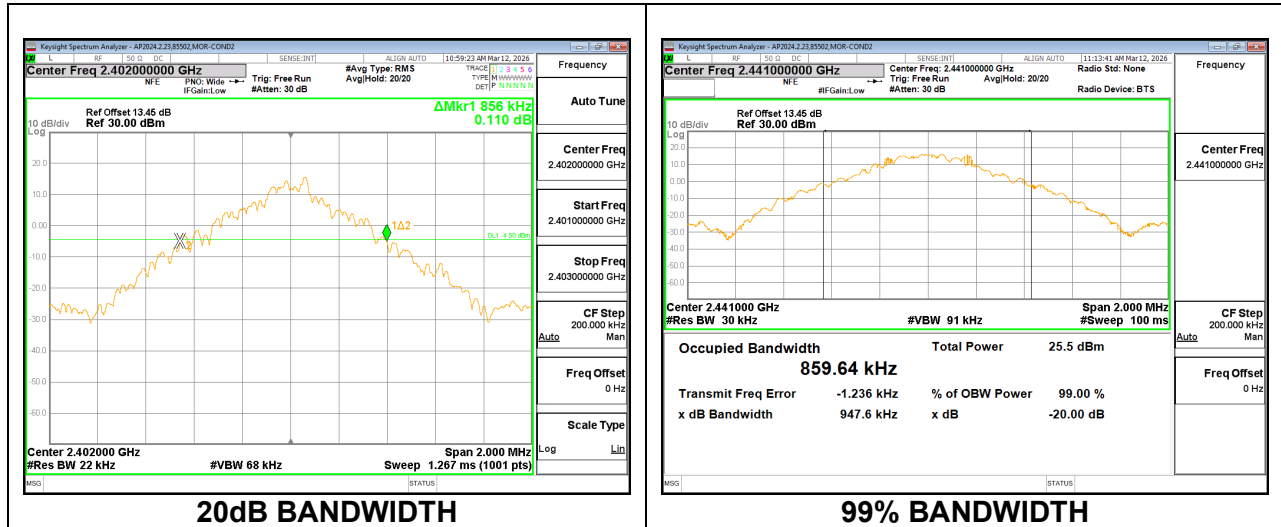
9.2. 20 dB AND 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 1-5% of the 20 dB bandwidth. The VBW is set to ≥ 3 times RBW. The sweep time is coupled.



9.2.1. 1TX CHAIN 0

Mode	Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
GFSK	Low	2402	0.856	0.878
	Mid	2441	0.864	0.860
	High	2480	0.934	0.890
8PSK	Low	2402	1.334	1.193
	Mid	2441	1.338	1.185
	High	2480	1.330	1.185
DQPSK	Low	2402	1.298	1.190
	Mid	2441	1.332	1.187
	High	2480	1.334	1.189

9.2.2. 1TX CHAIN 1

Mode	Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
GFSK	Low	2402	0.922	0.858
	Mid	2441	0.924	0.856
	High	2480	0.858	0.857
8PSK	Low	2402	1.346	1.187
	Mid	2441	1.318	1.186
	High	2480	1.348	1.186
DQPSK	Low	2402	1.344	1.187
	Mid	2441	1.328	1.183
	High	2480	1.354	1.180

9.2.3. 2TX CHAIN 0 + CHAIN 1

CHAIN 0

Mode	Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
GFSK	Low	2402	0.892	0.861
	Mid	2441	0.860	0.863
	High	2480	0.852	0.863
8PSK	Low	2402	1.364	1.205
	Mid	2441	1.346	1.189
	High	2480	1.350	1.191
DQPSK	Low	2402	1.352	1.207
	Mid	2441	1.360	1.190
	High	2480	1.308	1.188

CHAIN 1

Mode	Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
GFSK	Low	2402	0.942	0.859
	Mid	2441	0.938	0.858
	High	2480	0.934	0.863
8PSK	Low	2402	1.328	1.185
	Mid	2441	1.326	1.184
	High	2480	1.332	1.190
DQPSK	Low	2402	1.352	1.185
	Mid	2441	1.330	1.185
	High	2480	1.312	1.194

9.3. HOPPING FREQUENCY SEPARATION

LIMITS

FCC §15.247 (a) (1)
RSS-247 (6.2.3.1) (a)

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

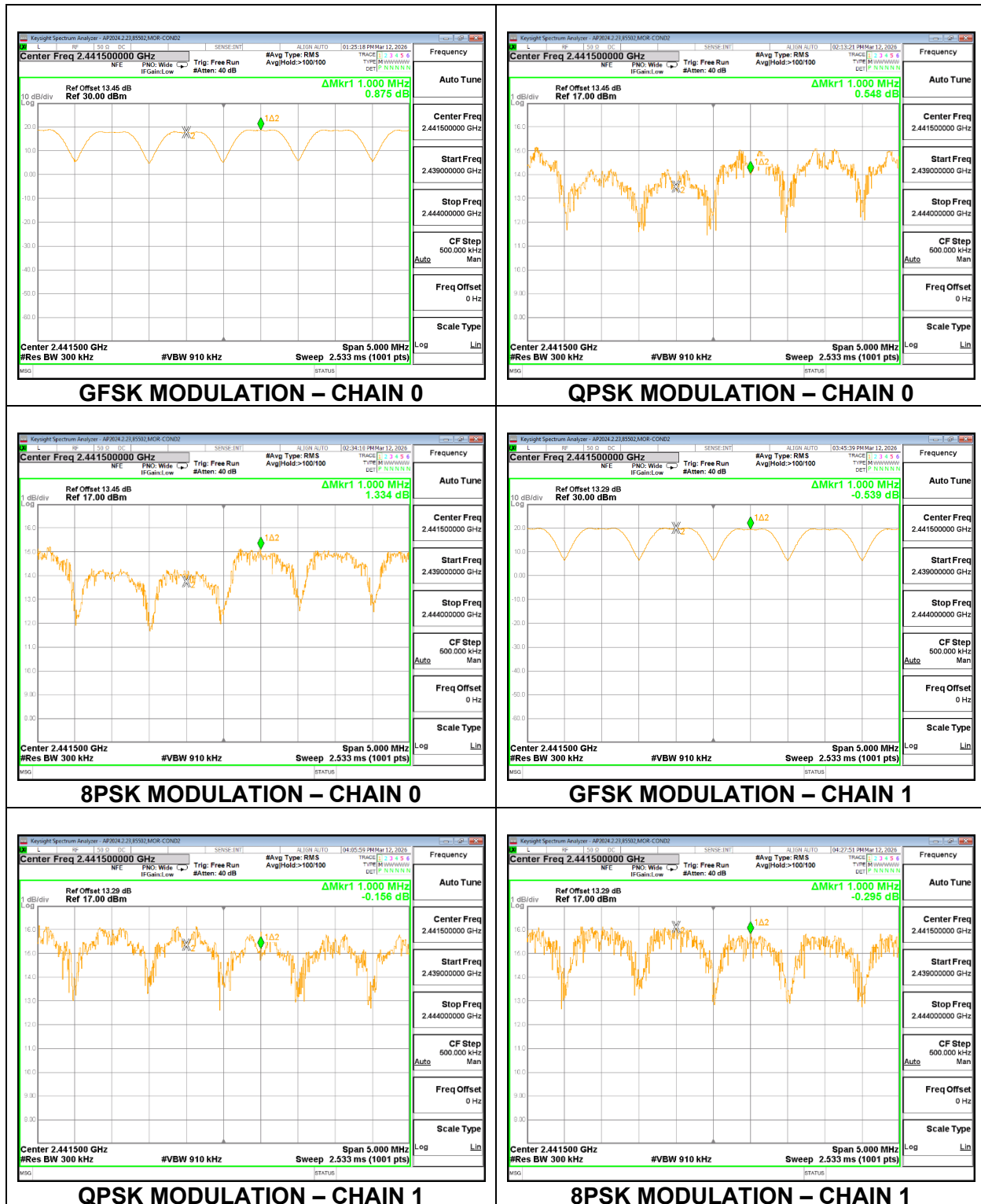
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 300 kHz and the VBW is set to $VBW \geq 3 \text{ times RBW}$. The sweep time is coupled.

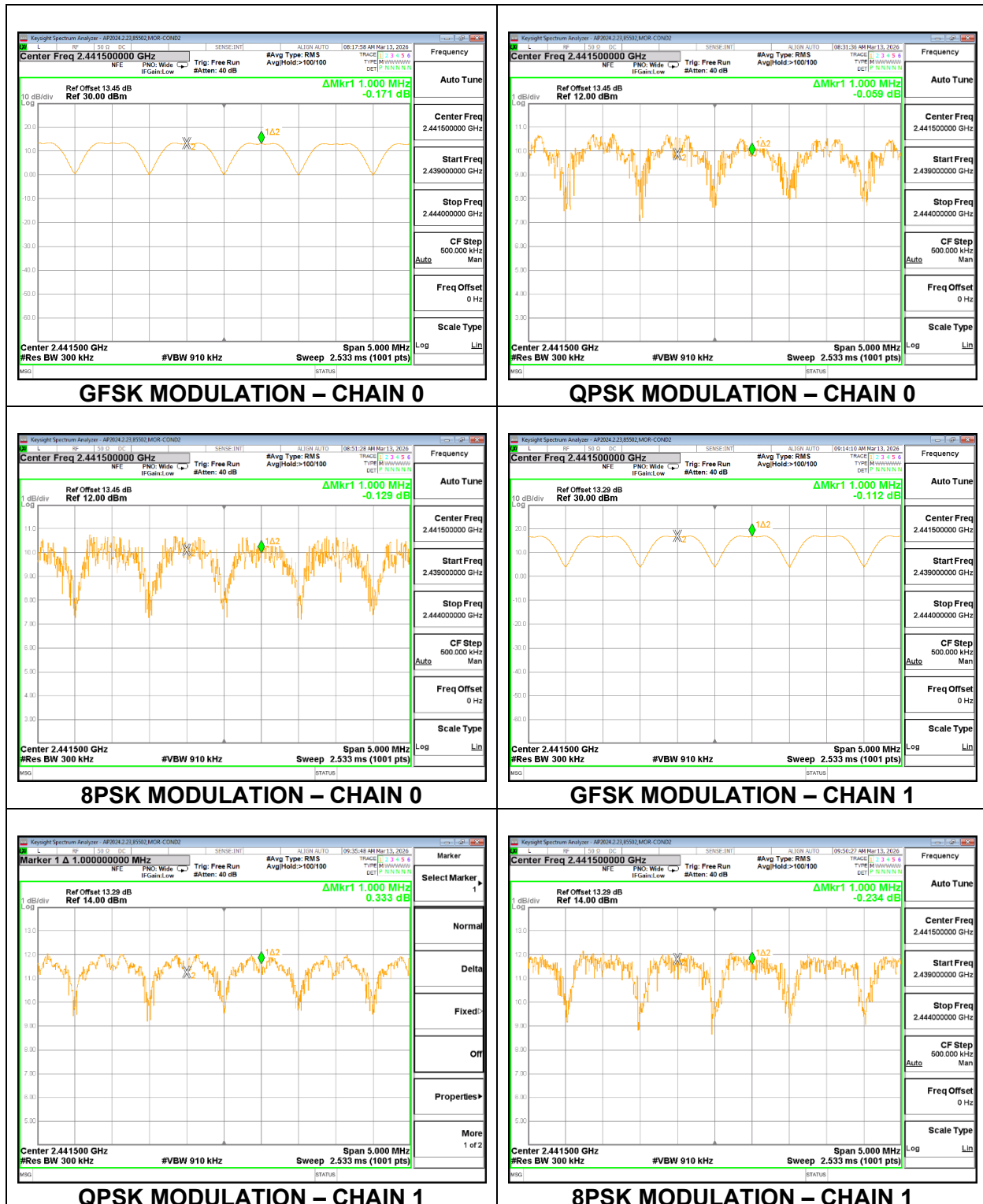
RESULTS

The largest 20 dB BW among all modes was 1.354 MHz and highest power (DQPSK/8PSK) was 18.65 dBm. Two-thirds of the highest BW is $1.354 \text{ MHz} \times (2/3) = 0.903 \text{ MHz}$. Since power < 21 dBm and the separation of 1.000 MHz > 0.903 MHz, the channel separation is compliant.

9.3.1. 1TX



9.3.2. 2TX CHAIN 0 + CHAIN 1



9.4. NUMBER OF HOPPING CHANNELS

LIMITS

FCC §15.247 (a) (1) (iii)
RSS-247 (6.2.3.1) (b)

Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels.

TEST PROCEDURE

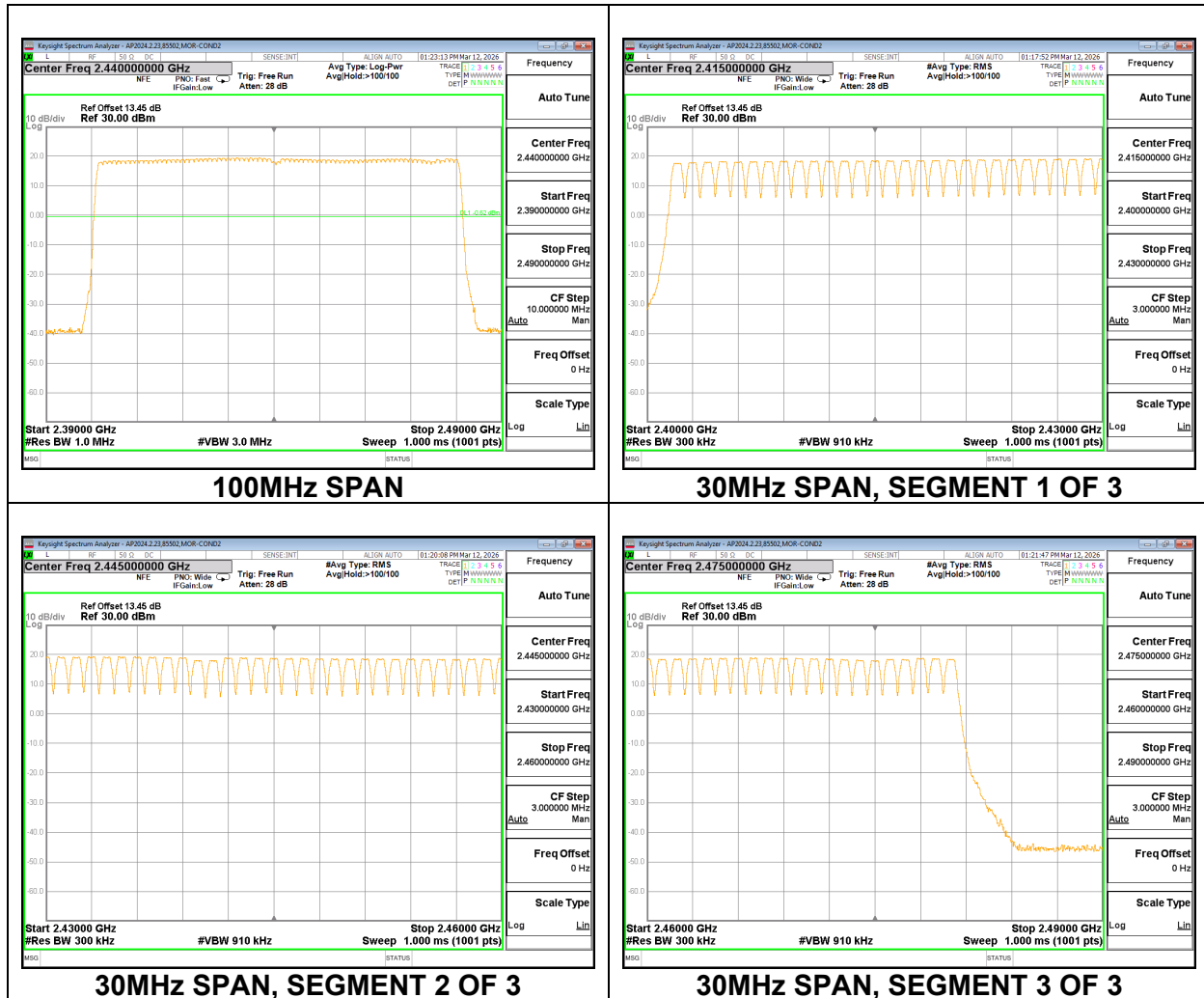
The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

RESULTS

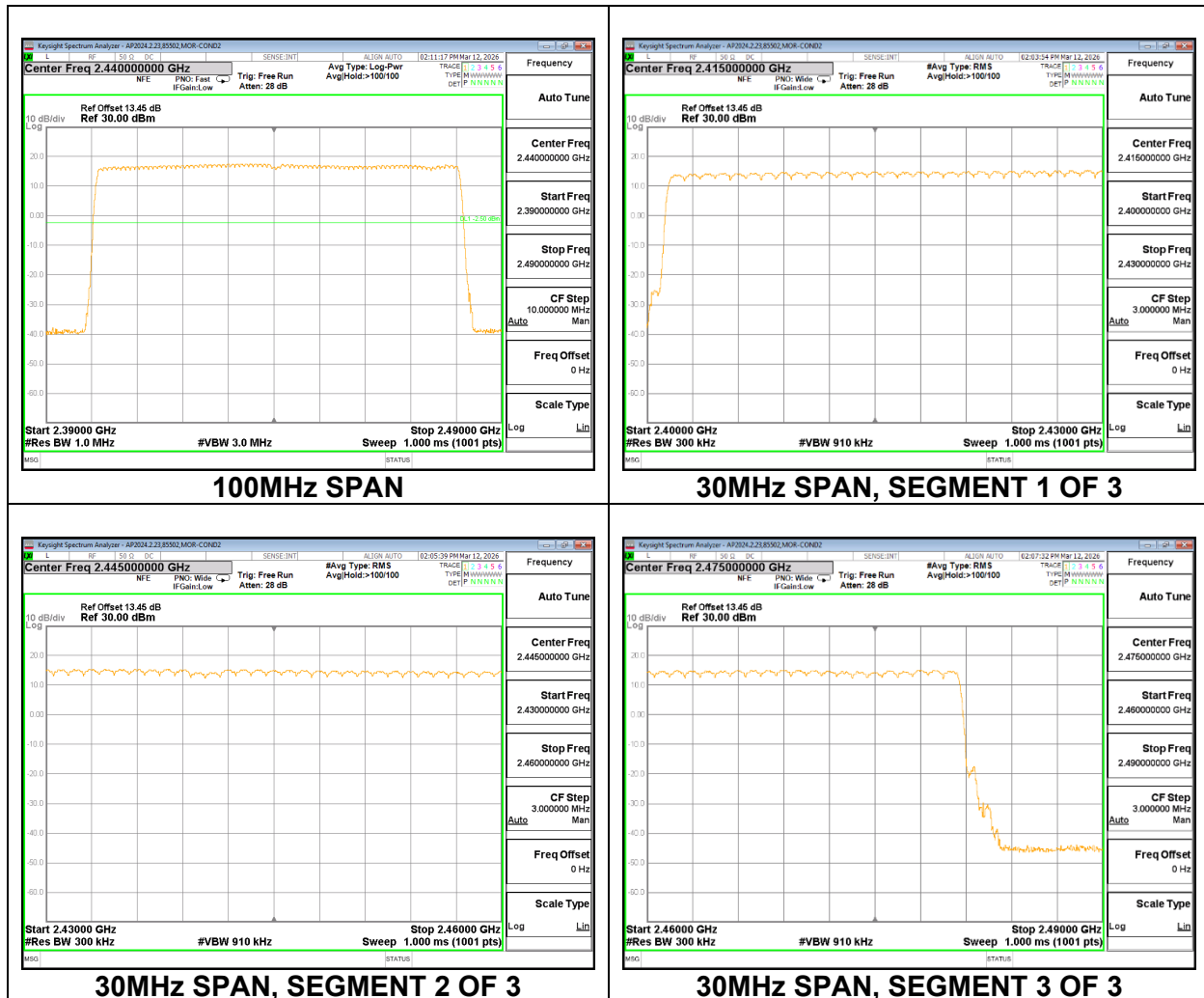
Normal Mode: 79 Channels Observed

9.4.1. 1TX CHAIN 0

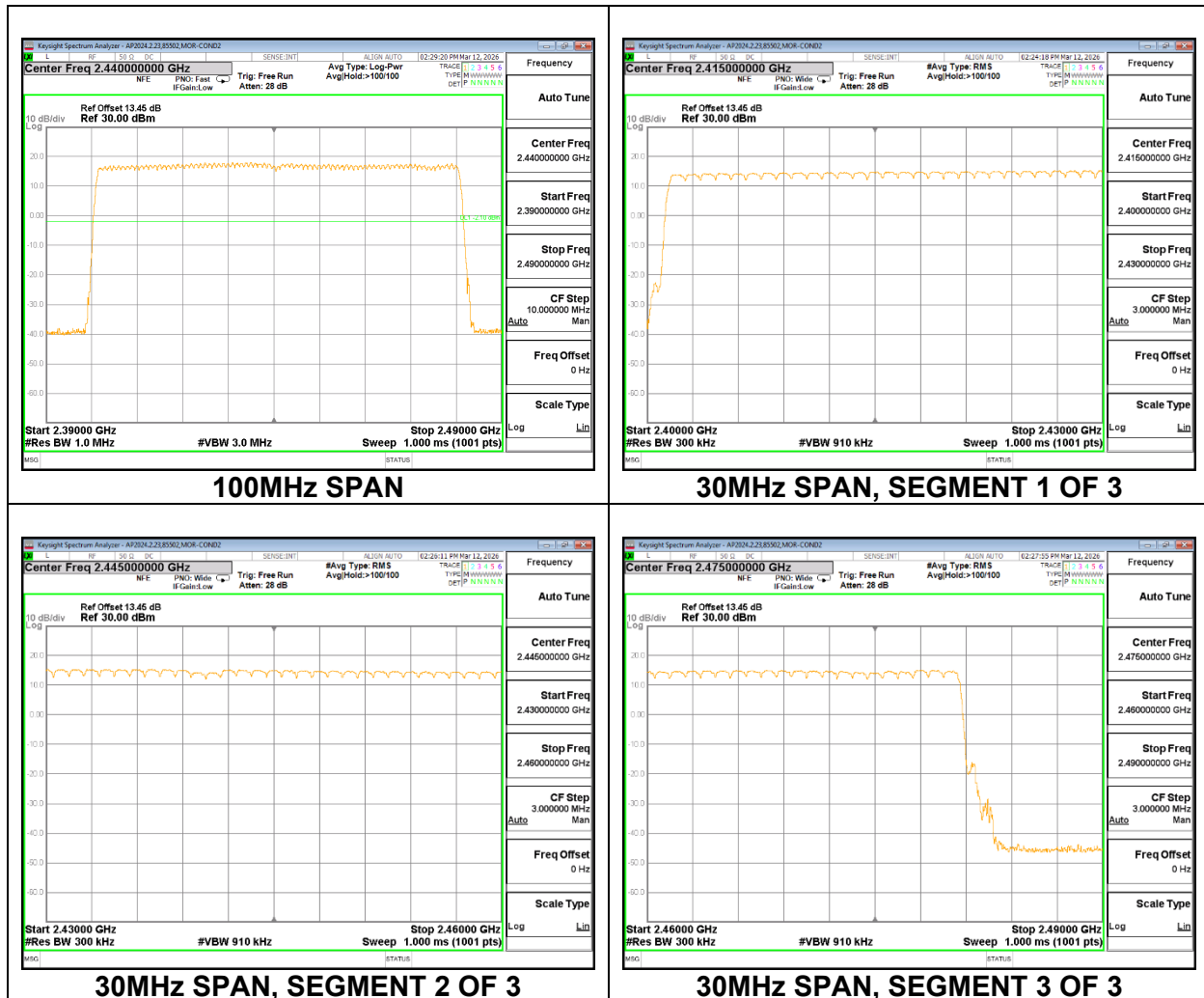
BLUETOOTH BASIC DATA RATE GFSK MODULATION



BLUETOOTH BASIC DATA RATE QPSK MODULATION

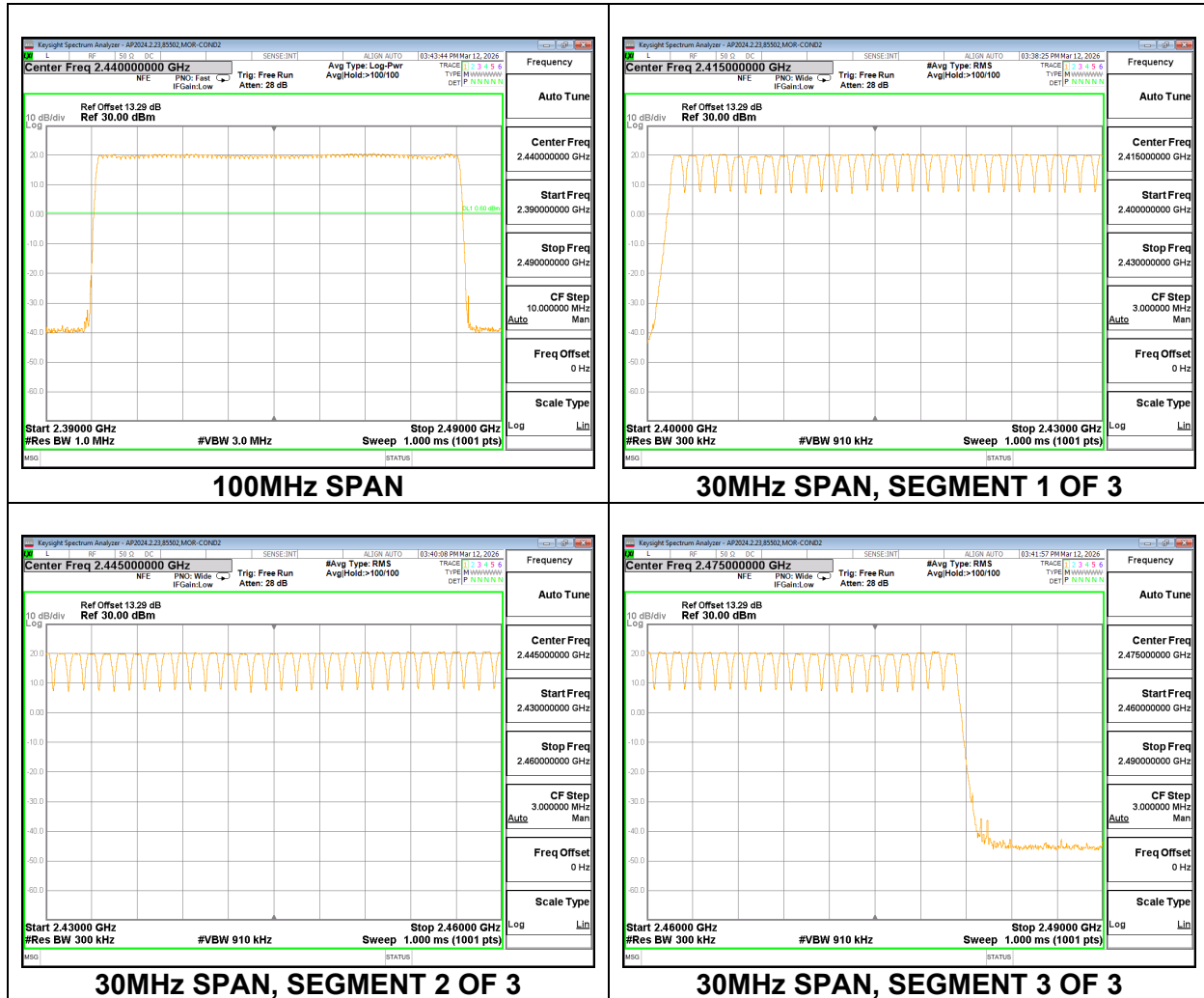


BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

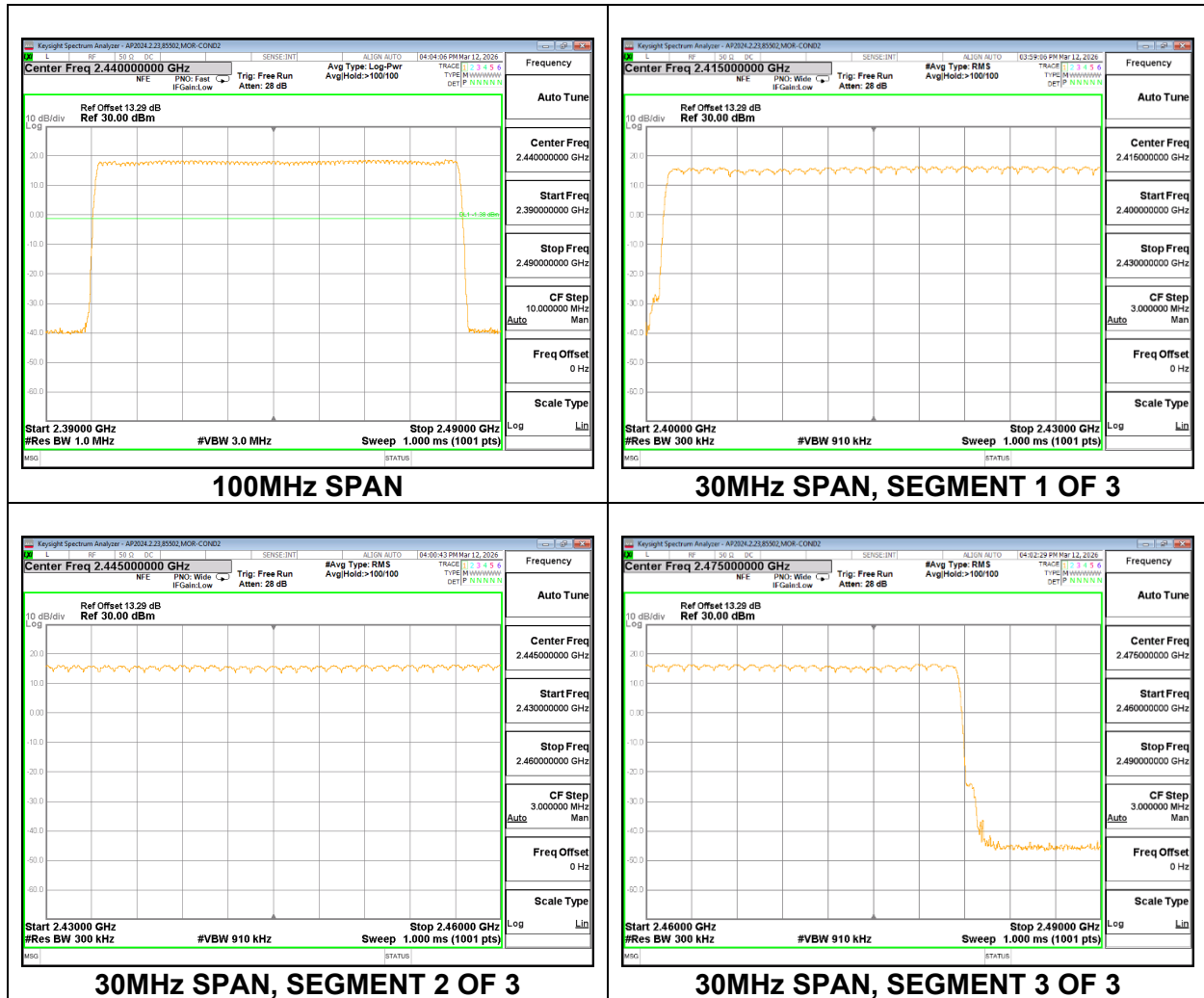


9.4.2. 1TX CHAIN 1

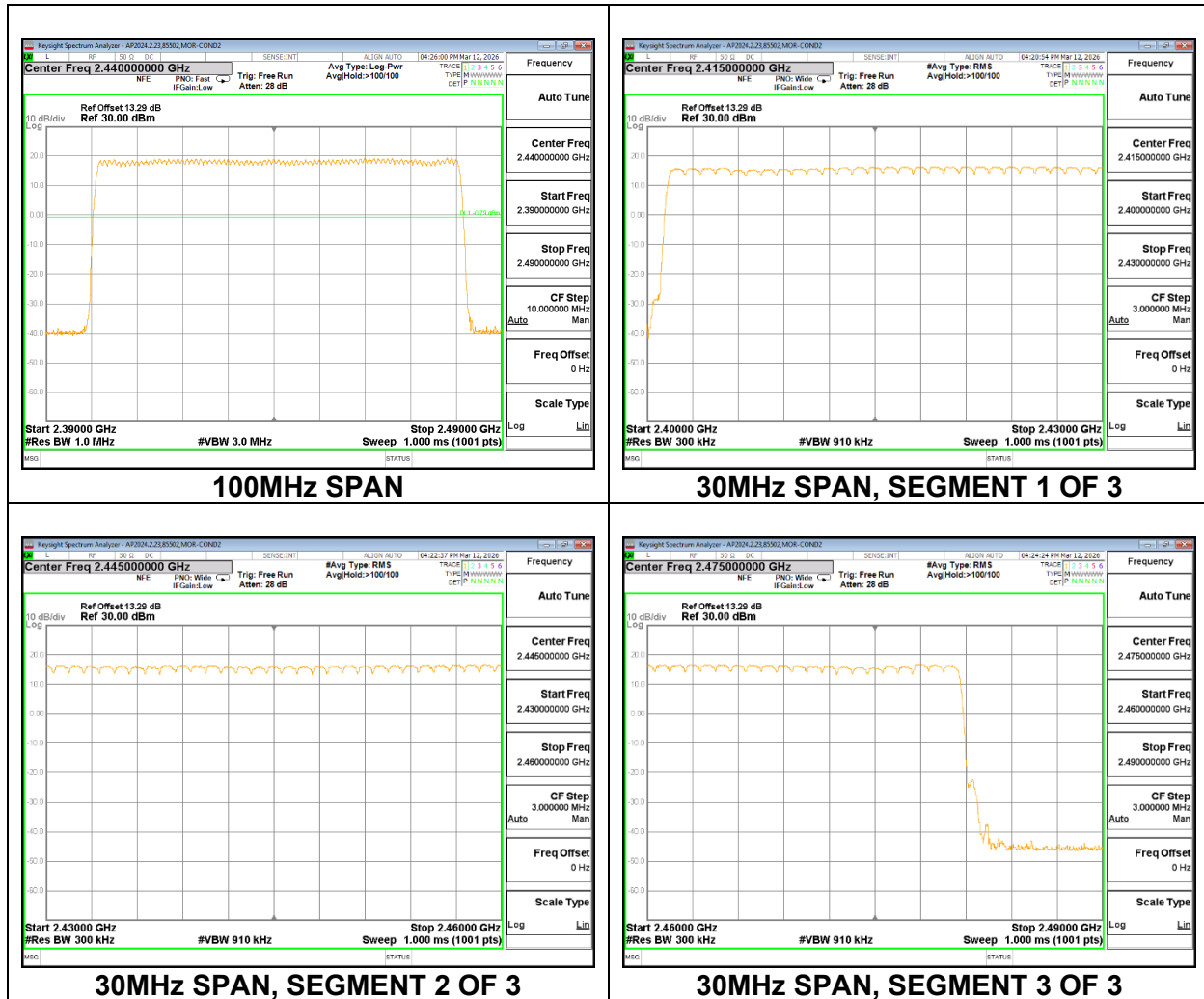
BLUETOOTH BASIC DATA RATE GFSK MODULATION



BLUETOOTH BASIC DATA RATE QPSK MODULATION

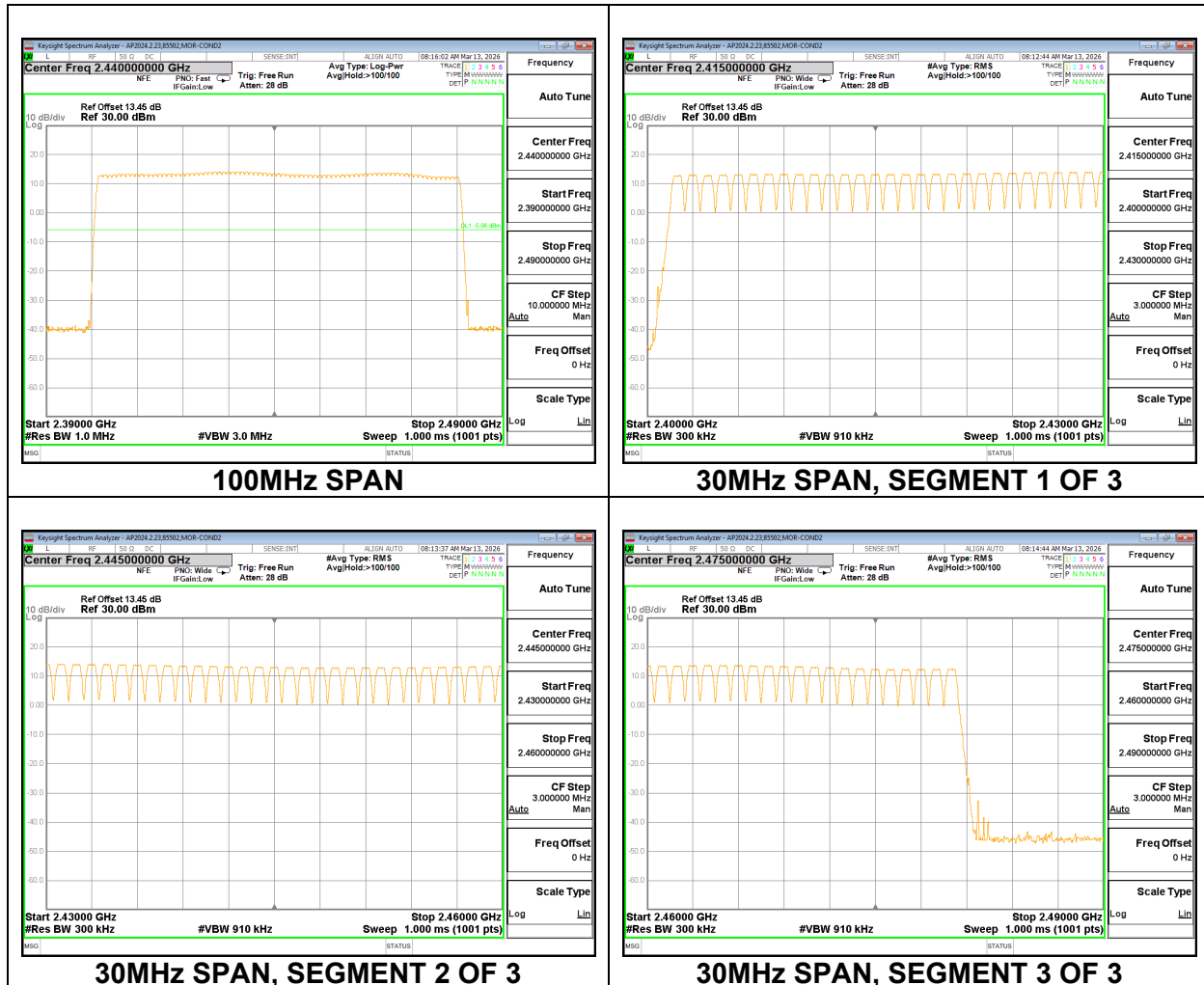


BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

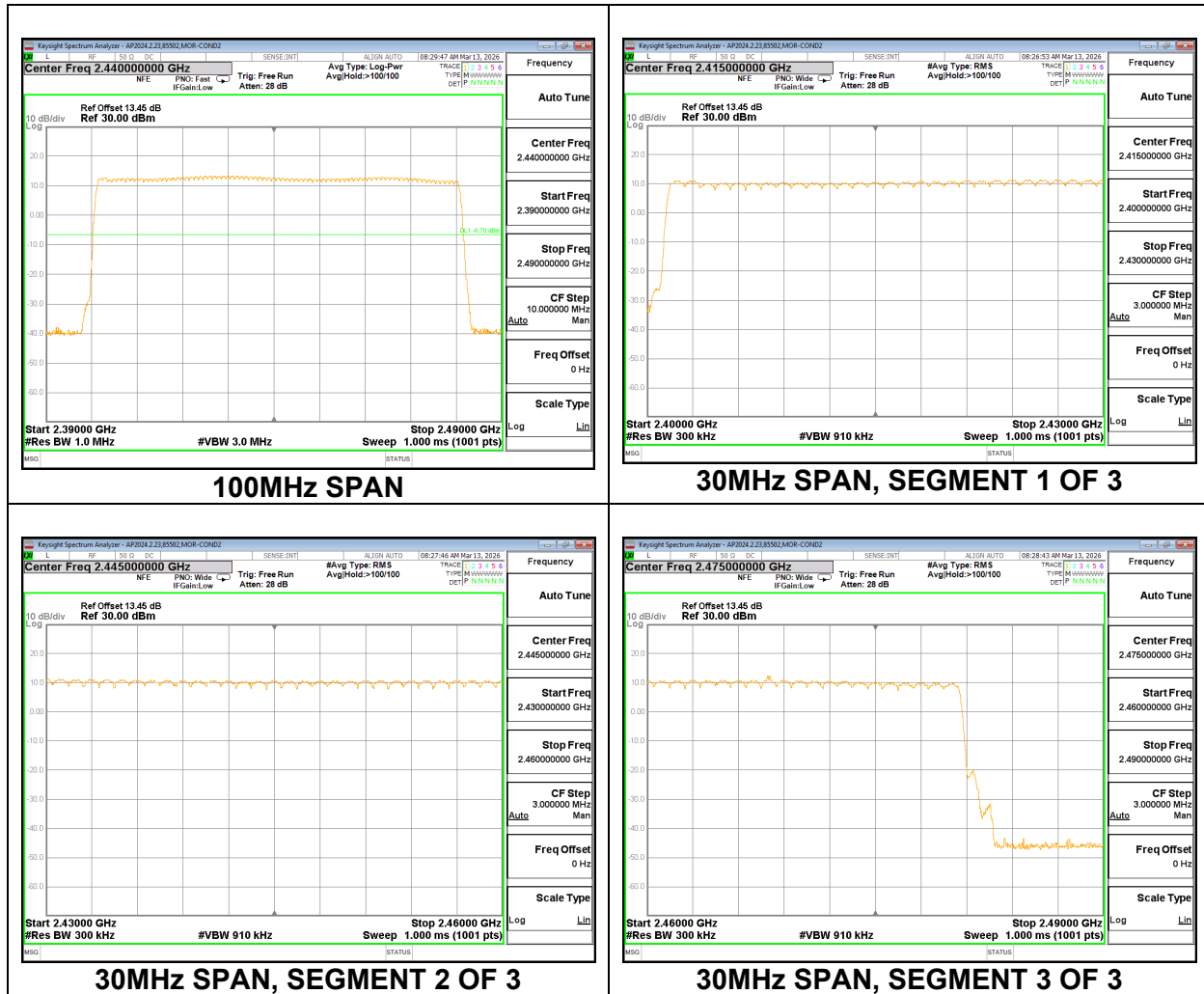


9.4.3. 2TX CHAIN 0 + CHAIN 1

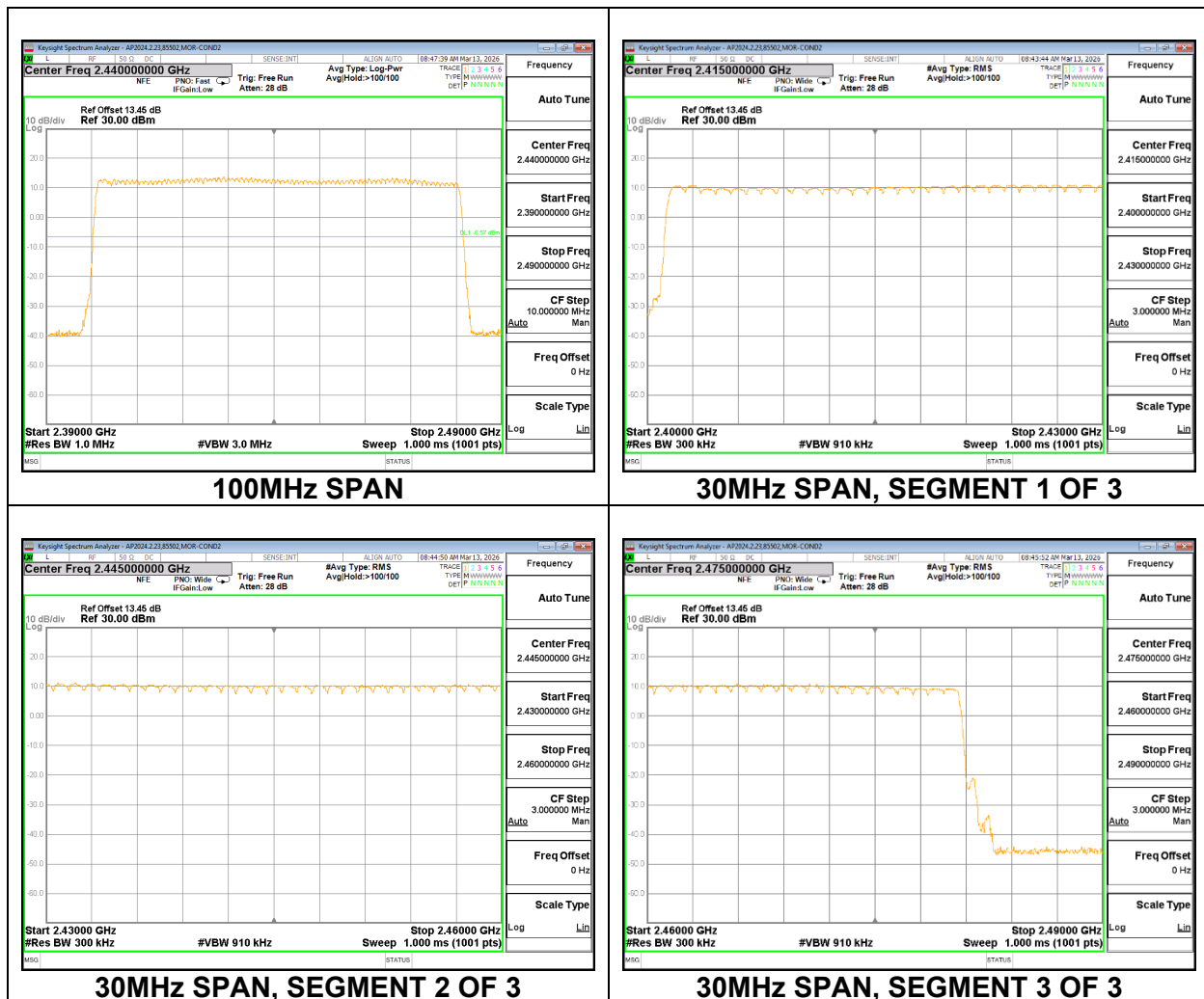
BLUETOOTH BASIC DATA RATE GFSK MODULATION – CHAIN 0



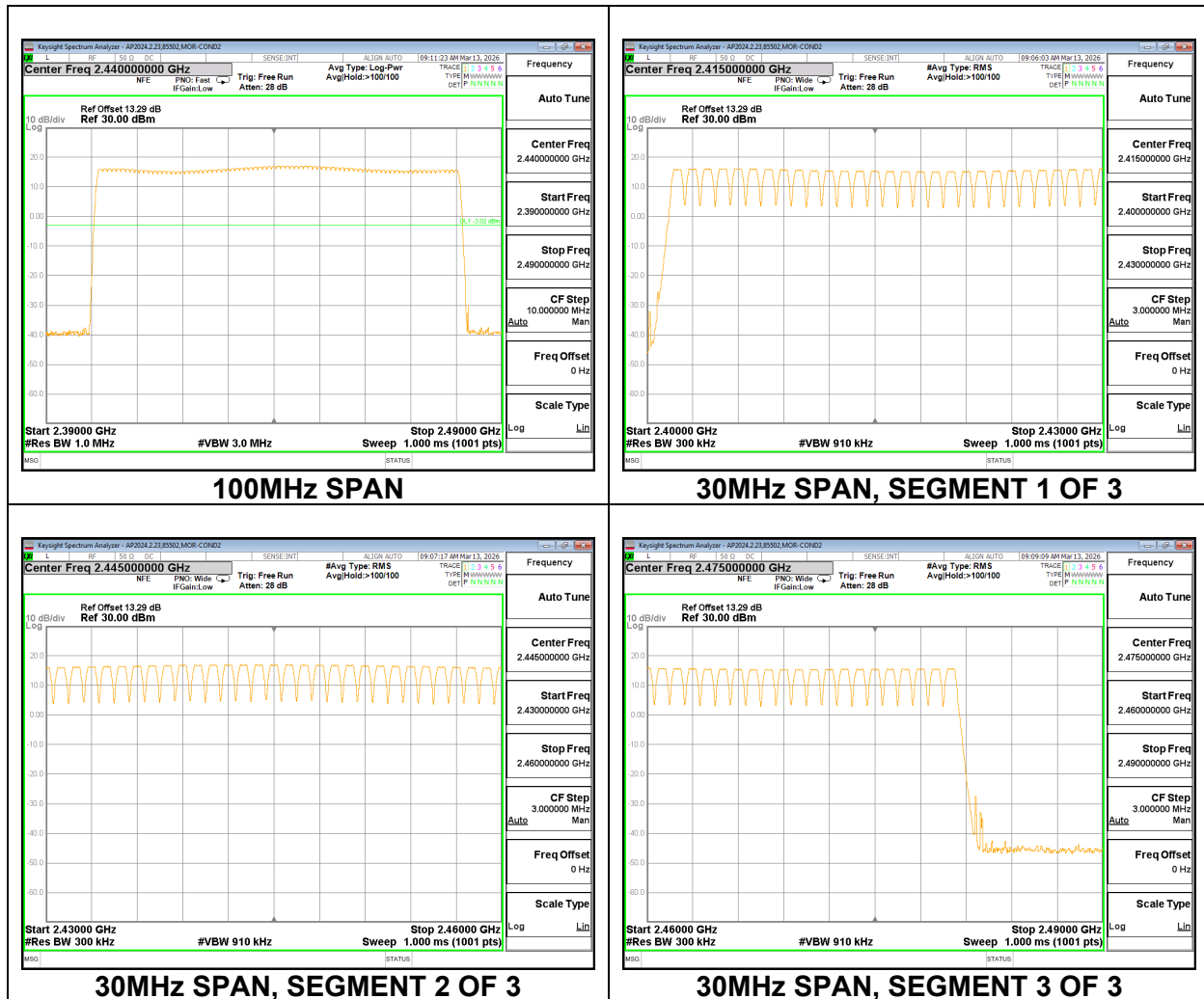
BLUETOOTH BASIC DATA RATE QPSK MODULATION – CHAIN 0



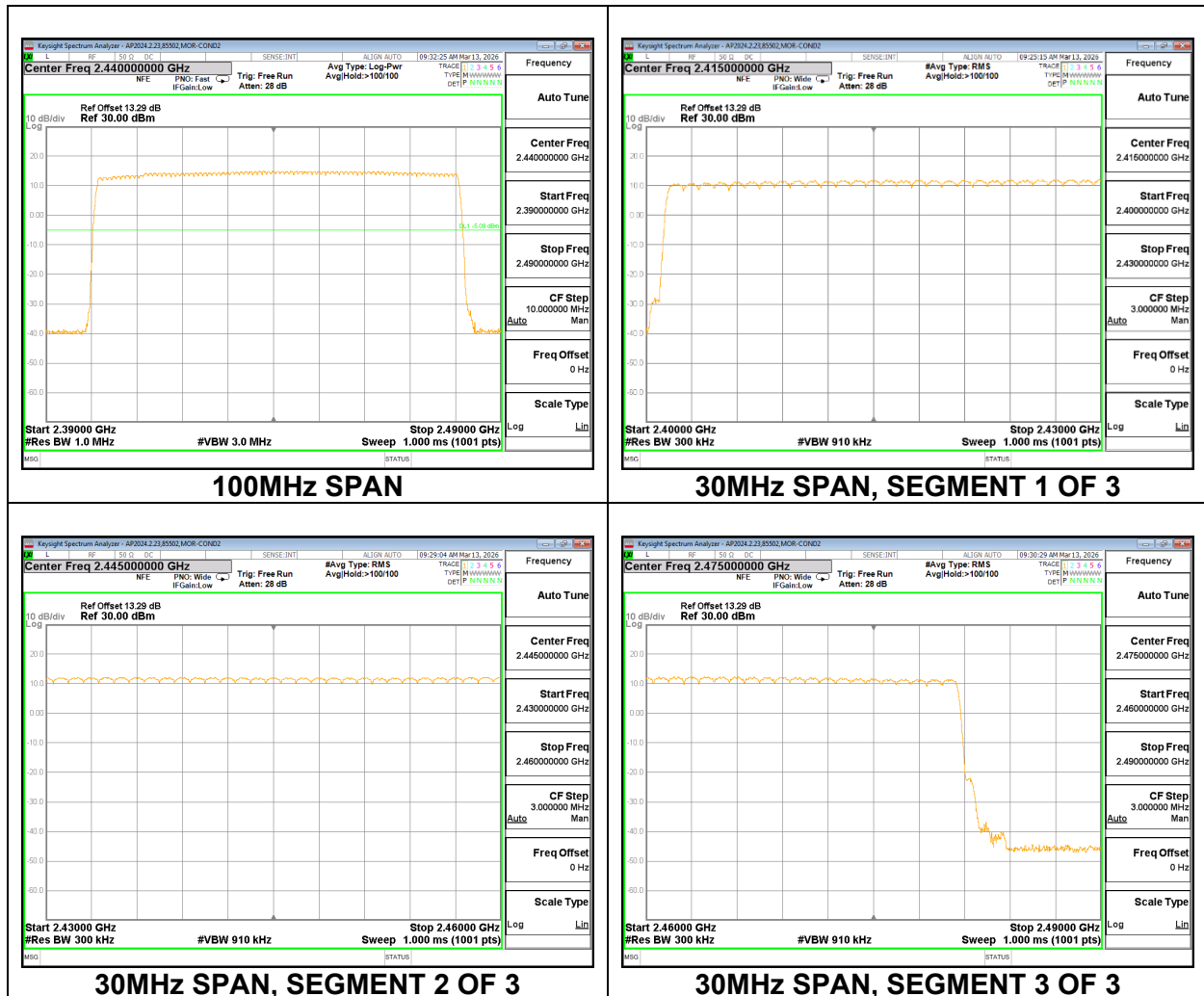
BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION – CHAIN 0



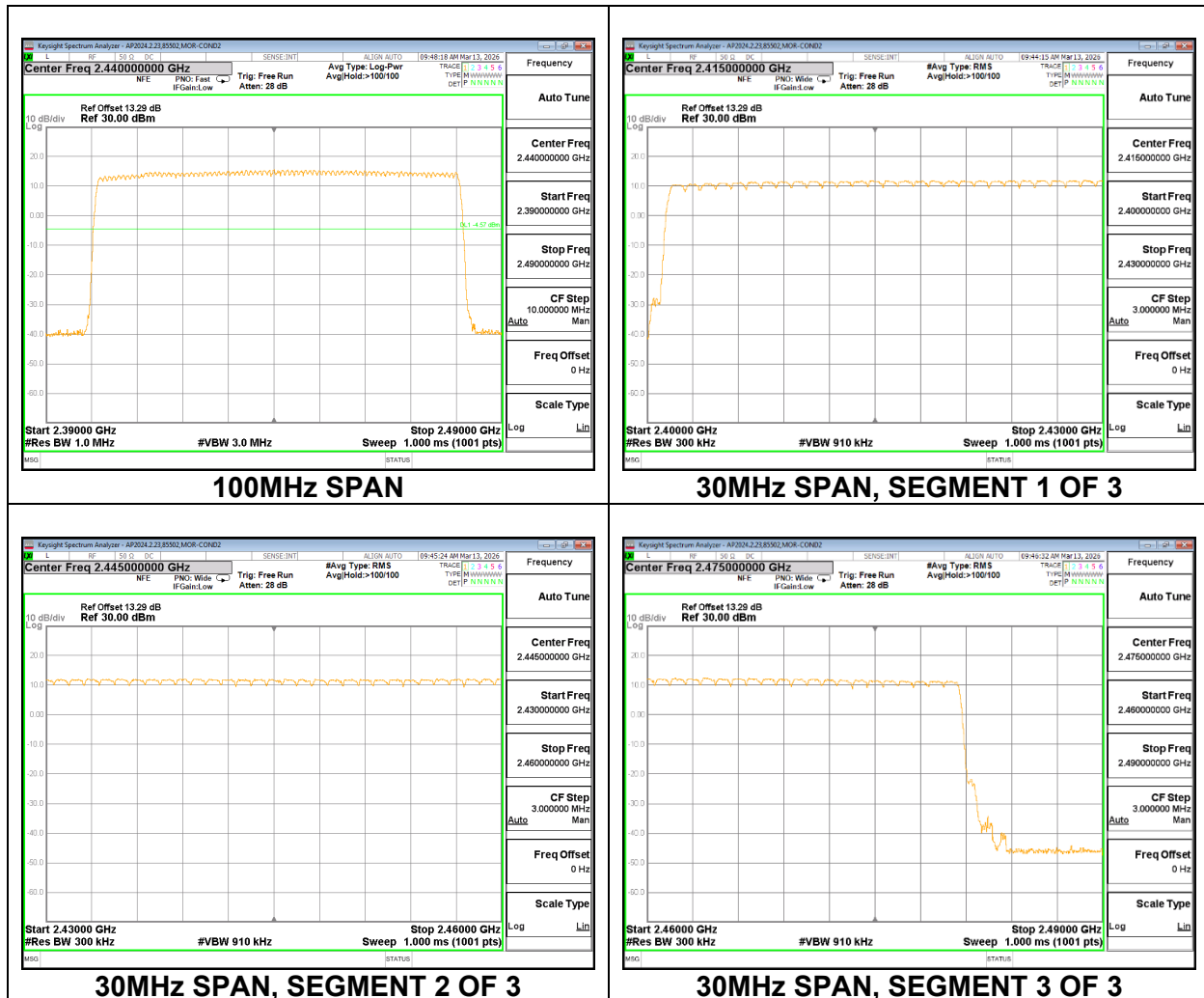
BLUETOOTH BASIC DATA RATE GFSK MODULATION – CHAIN 1



BLUETOOTH BASIC DATA RATE QPSK MODULATION – CHAIN 1



BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION – CHAIN 1



9.5. AVERAGE TIME OF OCCUPANCY

LIMITS

FCC §15.247 (a) (1) (iii)
RSS-247 (6.2.3.1) (b)

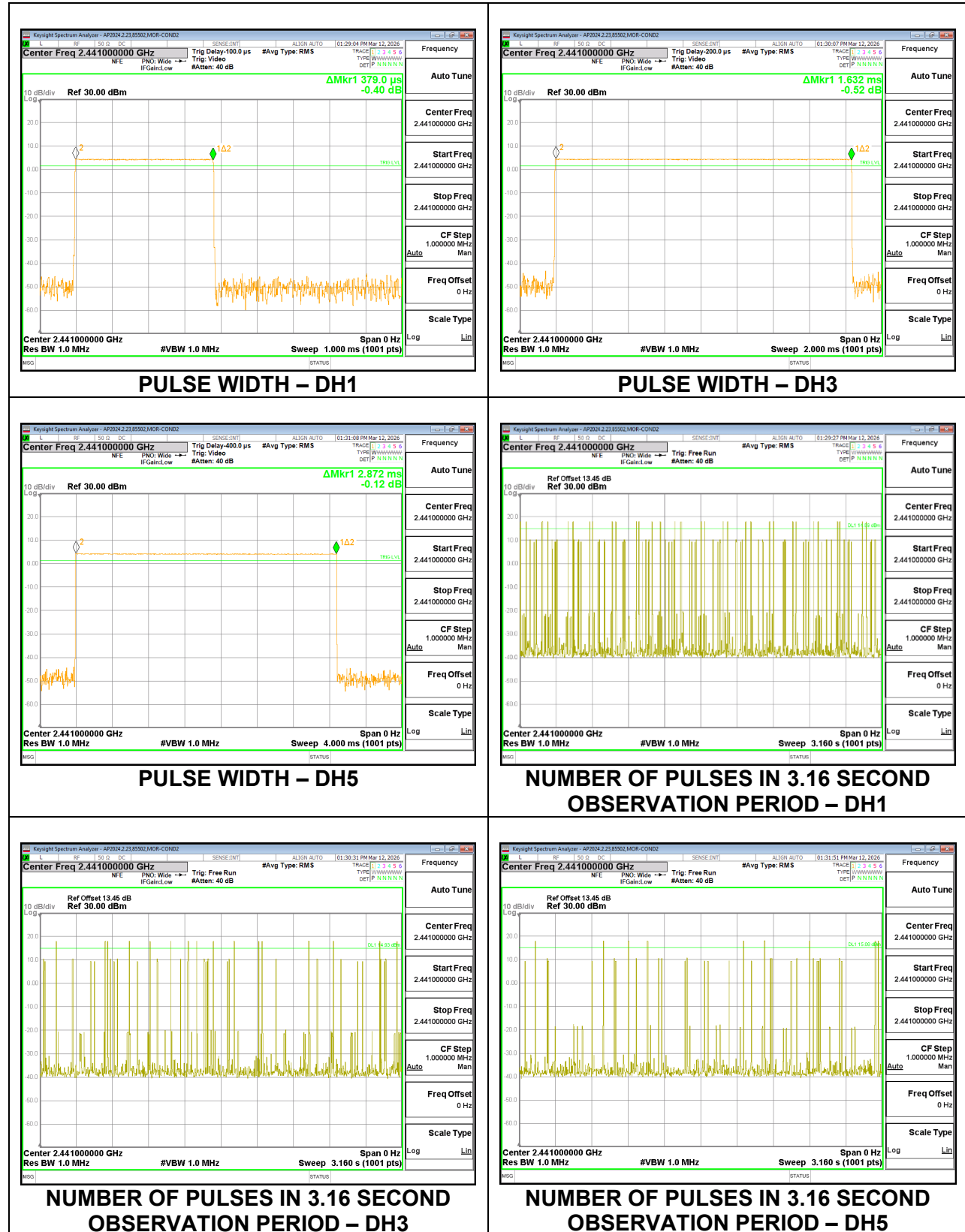
The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The span is set to 0 Hz, centered on a single, selected hopping channel. The width of a single pulse is measured in a fast scan. The number of pulses is measured in a 3.16-second window, to enable resolution of each occurrence.

The average time of occupancy in the specified 3.16 second period (79 channels * 0.4 s) is equal to $10 * (\# \text{ of pulses in } 3.16 \text{ s}) * \text{pulse width}$.

For AFH mode, the average time of occupancy in the specified 8 second period (20 channels * 0.4 seconds) is equal to $10 * (\# \text{ of pulses in } 0.8 \text{ s}) * \text{pulse width}$.



9.5.1. 1TX CHAIN 0

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK Normal Mode					
DH1	0.379	32	0.1213	0.4	-0.2787
DH3	1.632	16	0.2611	0.4	-0.1389
DH5	2.872	9	0.2585	0.4	-0.1415
QPSK Normal Mode					
2DH1	0.381	31	0.11811	0.4	-0.28189
2DH3	1.630	16	0.2608	0.4	-0.1392
2DH5	2.872	10	0.2872	0.4	-0.1128
8PSK Normal Mode					
3DH1	0.381	32	0.12192	0.4	-0.27808
3DH3	1.628	18	0.29304	0.4	-0.10696
3DH5	2.872	8	0.2298	0.4	-0.1702
DH Packet	Pulse Width (sec)	Number of Pulses in 0.8 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK AFH Mode					
DH1	0.379	8	0.03032	0.4	-0.3697
DH3	1.632	4	0.06528	0.4	-0.3347
DH5	2.872	3	0.08616	0.4	-0.3138

Note: for AFH(8PSK/QPSK) mode, please refer to the results of AFH(GFSK) mode; the channel selection and hopping rate are the same for both EDR and Basic Rate operation, data for Basic Rate demonstrates compliance with channel occupancy when AFH is employed.

9.5.2. 1TX CHAIN 1

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK Normal Mode					
DH1	0.379	31	0.1175	0.4	-0.2825
DH3	1.632	14	0.2285	0.4	-0.1715
DH5	2.876	8	0.2301	0.4	-0.1699
QPSK Normal Mode					
2DH1	0.381	32	0.12192	0.4	-0.27808
2DH3	1.63	16	0.2608	0.4	-0.1392
2DH5	2.872	7	0.20104	0.4	-0.19896
8PSK Normal Mode					
3DH1	0.381	31	0.11811	0.4	-0.28189
3DH3	1.628	14	0.22792	0.4	-0.17208
3DH5	2.782	9	0.2504	0.4	-0.1496
DH Packet	Pulse Width (sec)	Number of Pulses in 0.8 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK AFH Mode					
DH1	0.379	7.75	0.02937	0.4	-0.3706
DH3	1.632	4	0.06528	0.4	-0.3347
DH5	2.876	2	0.05752	0.4	-0.3425

Note: for AFH(8PSK/QPSK) mode, please refer to the results of AFH(GFSK) mode; the channel selection and hopping rate are the same for both EDR and Basic Rate operation, data for Basic Rate demonstrates compliance with channel occupancy when AFH is employed.

9.5.3. 2TX CHAIN 0 + CHAIN 1

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK Normal Mode - Chain 0					
DH1	0.379	30	0.1137	0.4	-0.2863
DH3	1.632	16	0.2611	0.4	-0.1389
DH5	2.876	8	0.2301	0.4	-0.1699
QPSK Normal Mode - Chain 0					
2DH1	0.381	32	0.12192	0.4	-0.27808
2DH3	1.630	16	0.2608	0.4	-0.1392
2DH5	2.872	11	0.31592	0.4	-0.08408
8PSK Normal Mode - Chain 0					
3DH1	0.381	32	0.12192	0.4	-0.27808
3DH3	1.628	17	0.27676	0.4	-0.12324
3DH5	2.872	10	0.2872	0.4	-0.1128
DH Packet	Pulse Width (sec)	Number of Pulses in 0.8 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK AFH Mode					
DH1	0.379	7.5	0.02843	0.4	-0.3716
DH3	1.632	4	0.06528	0.4	-0.3347
DH5	2.876	2	0.05752	0.4	-0.3425

Note: for AFH(8PSK/QPSK) mode, please refer to the results of AFH(GFSK) mode; the channel selection and hopping rate are the same for both EDR and Basic Rate operation, data for Basic Rate demonstrates compliance with channel occupancy when AFH is employed.

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK Normal Mode - Chain 1					
DH1	0.379	30	0.1137	0.4	-0.2863
DH3	1.632	18	0.2938	0.4	-0.1062
DH5	2.872	12	0.3446	0.4	-0.0554
QPSK Normal Mode - Chain 1					
2DH1	0.38	32	0.1216	0.4	-0.2784
2DH3	1.628	15	0.2442	0.4	-0.1558
2DH5	2.872	10	0.2872	0.4	-0.1128
8PSK Normal Mode - Chain 1					
3DH1	0.38	32	0.1216	0.4	-0.2784
3DH3	1.634	16	0.26144	0.4	-0.13856
3DH5	2.880	8	0.2304	0.4	-0.1696
DH Packet	Pulse Width (sec)	Number of Pulses in 0.8 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK AFH Mode					
DH1	0.379	7.5	0.02843	0.4	-0.3716
DH3	1.632	5	0.08160	0.4	-0.3184
DH5	2.872	3	0.08616	0.4	-0.3138

Note: for AFH(8PSK/QPSK) mode, please refer to the results of AFH(GFSK) mode; the channel selection and hopping rate are the same for both EDR and Basic Rate operation, data for Basic Rate demonstrates compliance with channel occupancy when AFH is employed.

9.6. OUTPUT POWER

LIMITS

§15.247 (b) (1)
RSS-247 (6.2.3.2) (a)

The maximum antenna gain is less than 6 dBi, therefore the limit is 30 dBm. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion losses of 12.29 dB (including 10.02 dB pad and 2.27 dB cable) for chain 0 and 12.30 dB (including 10.02 dB pad and 2.28 dB cable) for chain 1 were entered as an offset in the power meter.

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

Tested By:	85502
Test Date:	2026-03-09

9.6.1. 1 TX CHAIN 0

Mode	Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
GFSK	Low	2402	19.68	30	-10.32
	Middle	2441	19.10	30	-10.90
	High	2480	19.96	30	-10.04
8PSK	Low	2402	17.67	21	-3.85
	Middle	2441	17.88	21	-3.66
	High	2480	18.21	21	-3.13
DQPSK	Low	2402	17.15	21	-3.33
	Middle	2441	17.34	21	-3.12
	High	2480	17.87	21	-2.79

9.6.2. 1 TX CHAIN 1

Mode	Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
GFSK	Low	2402	18.57	30	-11.44
	Middle	2441	18.19	30	-11.81
	High	2480	18.78	30	-11.22
8PSK	Low	2402	16.80	21	-4.20
	Middle	2441	16.03	21	-4.97
	High	2480	16.86	21	-4.14
DQPSK	Low	2402	17.53	21	-3.47
	Middle	2441	17.05	21	-3.95
	High	2480	17.45	21	-3.55

9.6.3. 2TX CHAIN 0 + CHAIN 1

Mode	Channel	Frequency (MHz)	Measured Output Power		Total Output Power (MHz)	Limit (dBm)	Margin (dB)
			Chain 0 (dBm)	Chain 1 (dBm)			
GFSK	Low	2402	14.24	15.61	17.99	30	-12.01
	Middle	2441	14.23	16.15	18.31	30	-11.69
	High	2480	13.29	15.05	17.27	30	-12.73
8PSK	Low	2402	14.36	12.92	16.71	21	-4.29
	Middle	2441	14.87	14.07	17.50	21	-3.50
	High	2480	12.55	13.56	16.09	21	-4.91
DQPSK	Low	2402	14.17	12.41	16.39	21	-4.61
	Middle	2441	14.56	13.53	17.08	21	-3.92
	High	2480	12.15	12.91	15.55	21	-5.45

9.7. AVERAGE POWER

LIMITS

None; for reporting purposes only

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion losses of 12.29 dB (including 10.02 dB pad and 2.27 dB cable) for chain 0 and 12.30 dB (including 10.02 dB pad and 2.28 dB cable) for chain 1 were entered as an offset in the power meter.

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

Tested By:	85502
Test Date:	2026-03-09

9.7.1. 1 TX CHAIN 0

Mode	Channel	Frequency (MHz)	Average Power (dBm)
GFSK	Low	2402	18.54
	Middle	2441	18.54
	High	2480	18.69
8PSK	Low	2402	14.30
	Middle	2441	14.49
	High	2480	14.87
DQPSK	Low	2402	14.31
	Middle	2441	14.53
	High	2480	14.92

9.7.2. 1 TX CHAIN 1

Mode	Channel	Frequency (MHz)	Average Power (dBm)
GFSK	Low	2402	18.24
	Middle	2441	17.87
	High	2480	18.39
8PSK	Low	2402	14.03
	Middle	2441	13.60
	High	2480	14.08
DQPSK	Low	2402	14.01
	Middle	2441	13.36
	High	2480	14.04

9.7.3. 2TX CHAIN 0 + CHAIN 1

Mode	Channel	Frequency (MHz)	Measured Average Power		Total Average Power (MHz)
			Chain 0 (dBm)	Chain 1 (dBm)	
GFSK	Low	2402	14.02	15.37	17.76
	Middle	2441	14.02	15.93	18.09
	High	2480	13.08	14.82	17.05
8PSK	Low	2402	12.15	9.69	14.10
	Middle	2441	11.79	10.74	14.30
	High	2480	9.66	9.94	12.81
DQPSK	Low	2402	12.15	9.68	14.10
	Middle	2441	11.83	10.73	14.32
	High	2480	9.68	9.95	12.83

9.8. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)
RSS-247 6.6

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

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

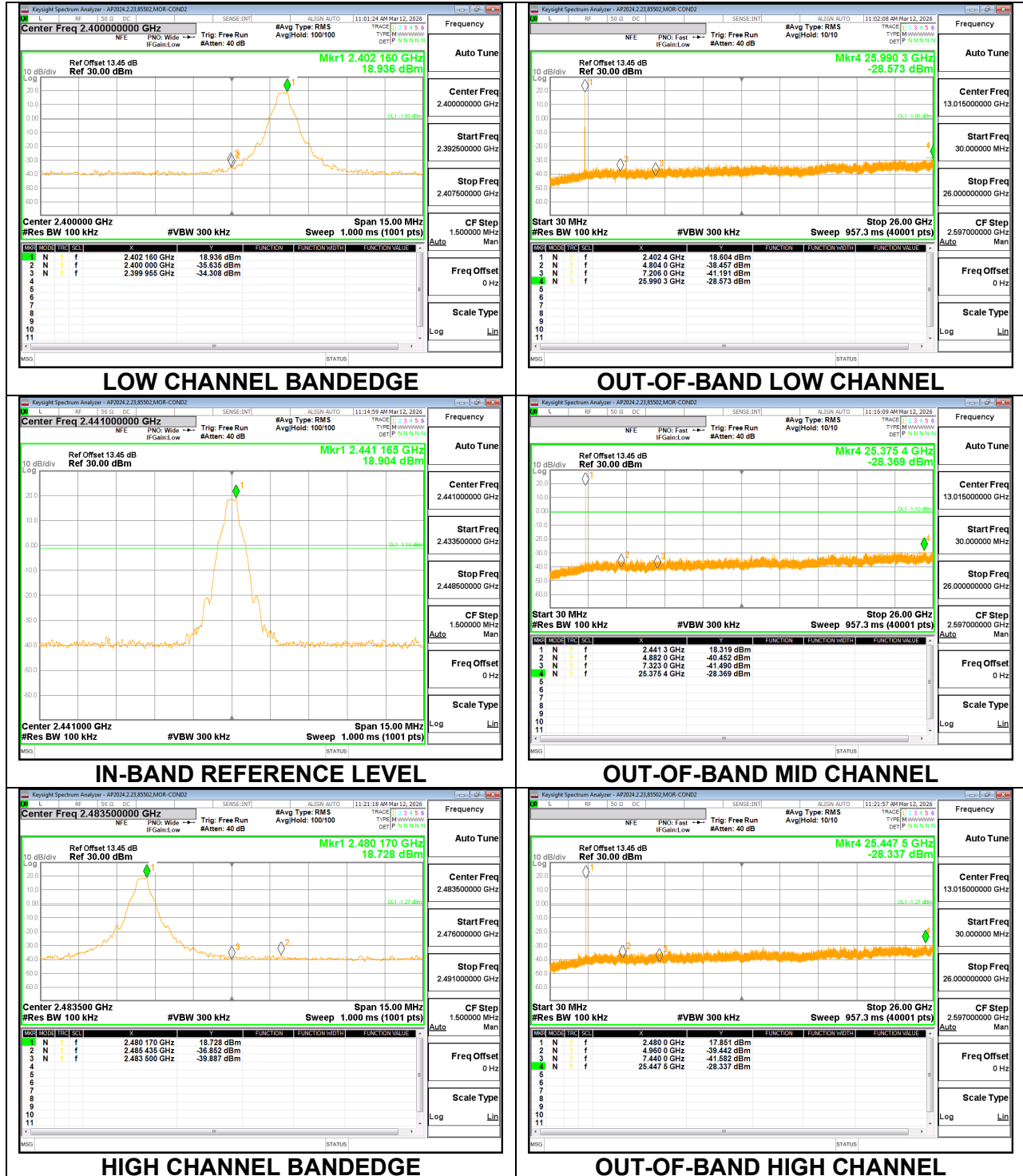
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

The bandedges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

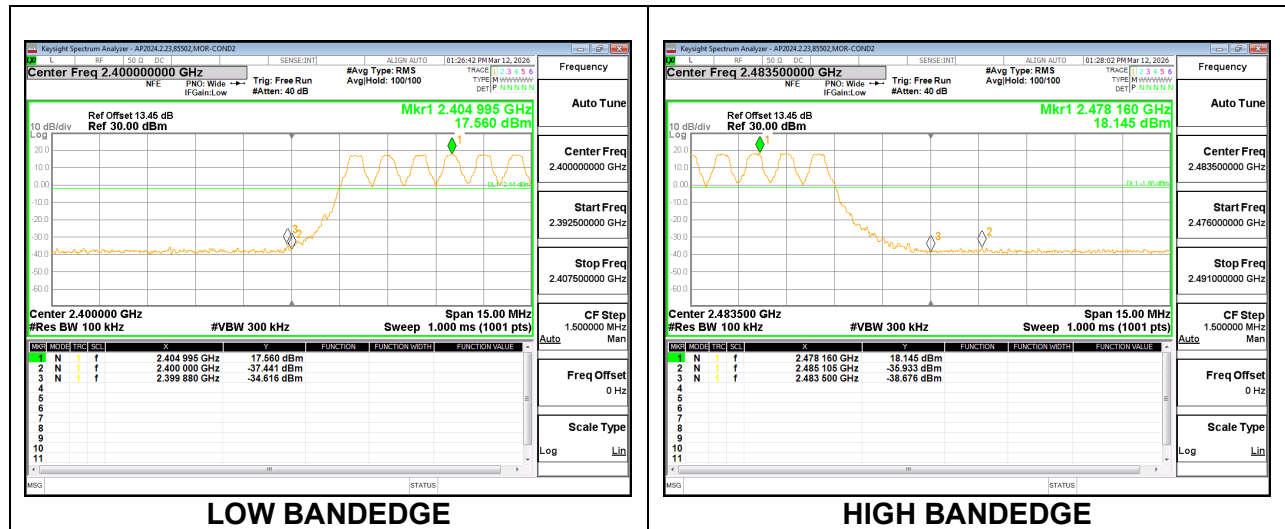
9.8.1. 1TX CHAIN 0

BLUETOOTH BASIC DATA RATE GFSK MODULATION

SPURIOUS EMISSIONS, NON-HOPPING

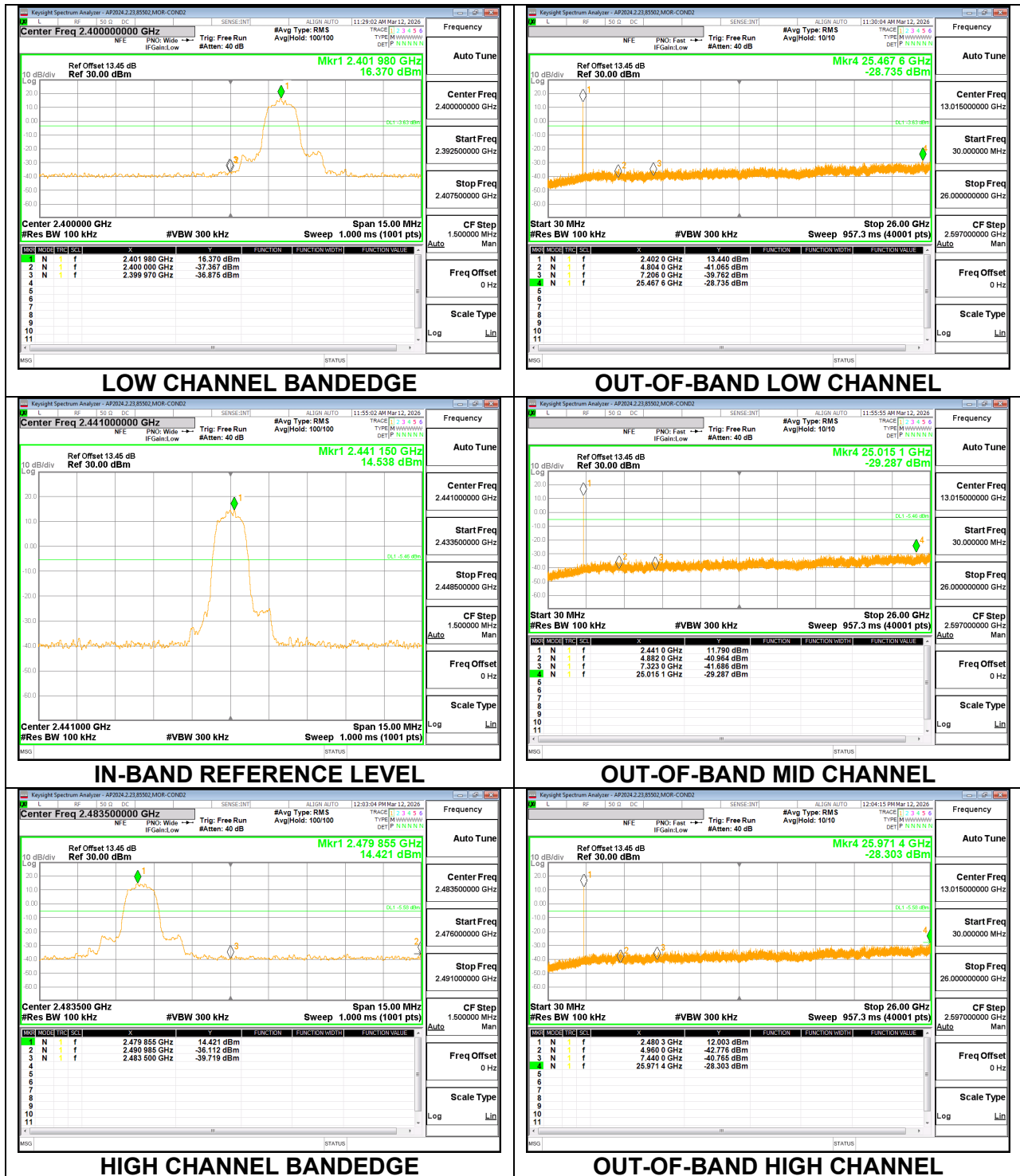


SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



BLUETOOTH BASIC DATA RATE QPSK MODULATION

SPURIOUS EMISSIONS, NON-HOPPING



SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

