Medtronic MiniMed

TEST REPORT FOR

Model: RF ID: 033686*

***(See Appendix A for Manufacturers Declaration)**

Tested to The Following Standards:

FCC Part 15 Subpart C Section(s)

15.207 & 15.247
(DTS 2400-2483.5 MHz)

Report No.: 110869-2

Date of issue: February 3, 2025

This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

Test Certificate # 803.01

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Administrative Information

Test Report Information

REPORT PREPARED FOR:

Medtronic MiniMed
18000 Devonshire Street
Northridge, CA 91325

Representative: Jonathan Tabalujan
Customer Reference Number: 6000022985

REPORT PREPARED BY:

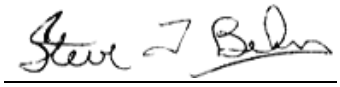
Stacey Noriega
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 110869

DATE OF EQUIPMENT RECEIPT: January 23, 2025
DATE(S) OF TESTING: January 23-25, 2025

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the equipment provided by the client, tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.



Steve Behm
Director of Quality Assurance & Engineering Services
CKC Laboratories, Inc.

Test Facility Information

Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):
CKC Laboratories, Inc.
22116 23rd Drive S.E. Suite A
Bothell, WA 98021

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.03.20

Site Registration & Accreditation Information

Location	*NIST CB #	FCC	Canada	Japan
Canyon Park, Bothell, WA	US0103	US1024	3082C	A-0136
Brea, CA	US0103	US1024	3082D	A-0136
Fremont, CA	US0103	US1024	3082B	A-0136
Mariposa, CA	US0103	US1024	3082A	A-0136

*CKC's list of NIST designated countries can be found at: https://standards.gov/cabs/designations.html

Summary of Results

Standard / Specification: FCC Part 15 Subpart C - 15.247 (DTS)

Test Procedure	Description	Modifications	Results
15.247(a)(2)	6dB Bandwidth	NA	Pass
15.247(b)(3)	Output Power	NA	Pass
15.247(e)	Power Spectral Density	NA	Pass
15.247(d)	RF Conducted Emissions & Band Edge	NA	NA1
15.247(d)	Radiated Emissions & Band Edge	NA	Pass
15.207	AC Conducted Emissions	NA	NA2

NA = Not Applicable
NA1 = The manufacturer declares the test is not applicable because EUT does not have an external antenna port.
NA2 = The manufacturer declares the test is not applicable because the EUT is battery powered.

ISO/IEC 17025 Decision Rule
The equipment sample utilized for testing is selected by the manufacturer. The declaration of pass or fail herein is a binary statement for simple acceptance rule (ILAC G8) based upon assessment to the specification(s) listed above, without consideration of measurement uncertainties. For performance related tests, equipment was monitored for specified criteria identified in that section of testing.

Modifications During Testing

This list is a summary of the modifications made to the equipment during testing.

Summary of Conditions
No modifications were made during testing.

Modifications listed above must be incorporated into all production units.

Conditions During Testing

This list is a summary of the conditions noted to the equipment during testing.

Summary of Conditions
None

Equipment Under Test (EUT)

During testing, numerous configurations may have been utilized. The configurations listed below support compliance to the standard(s) listed in the Summary of Results section.

Configuration 1

Equipment Under Test (EUT):

Device	Manufacturer	Model #	S/N
Synergy Enhanced	Medtronic MiniMed	RF ID: 033686	B343017772

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop	Dell	Latitude 5400	24KF433
Dongle	NA	NA	NA

Configuration 2

Equipment Under Test (EUT):

Device	Manufacturer	Model #	S/N
Synergy Enhanced	Medtronic MiniMed	RF ID: 033686	B343016735

Support Equipment:

Device	Manufacturer	Model #	S/N
Laptop	Dell	Latitude 5400	24KF433
Dongle	NA	NA	NA

General Product Information:

Description of EUT
Glucose Sensor Transmitter

Product Information	Manufacturer-Provided Details
Operating Frequencies Tested:	2402-2480 MHz
Equipment Type:	Stand-Alone Equipment
Type of Wideband System:	DTS
Maximum Duty Cycle:	100% (Tested worst case)
Modulation Type(s):	GFSK
Number of TX Chains:	1
Beamforming Type:	NA
Antenna Type(s) and Gain:	Inverted F / -4.6 dBi
Antenna Connection Type:	Integral
Nominal Input Voltage:	3VDC Internal Battery
Firmware / Software Version(s):	Sensor RF Test utility 3.0A
Firmware / Software Description:	NA
Firmware / Software Setting(s):	Set to 2dB power
Tune-up or Adjustment(s):	NA
The validity of results is dependent on the stated product details, the accuracy of which the manufacturer assumes full responsibility.	

EUT Photo(s)

EUT

Support Equipment Photo(s)

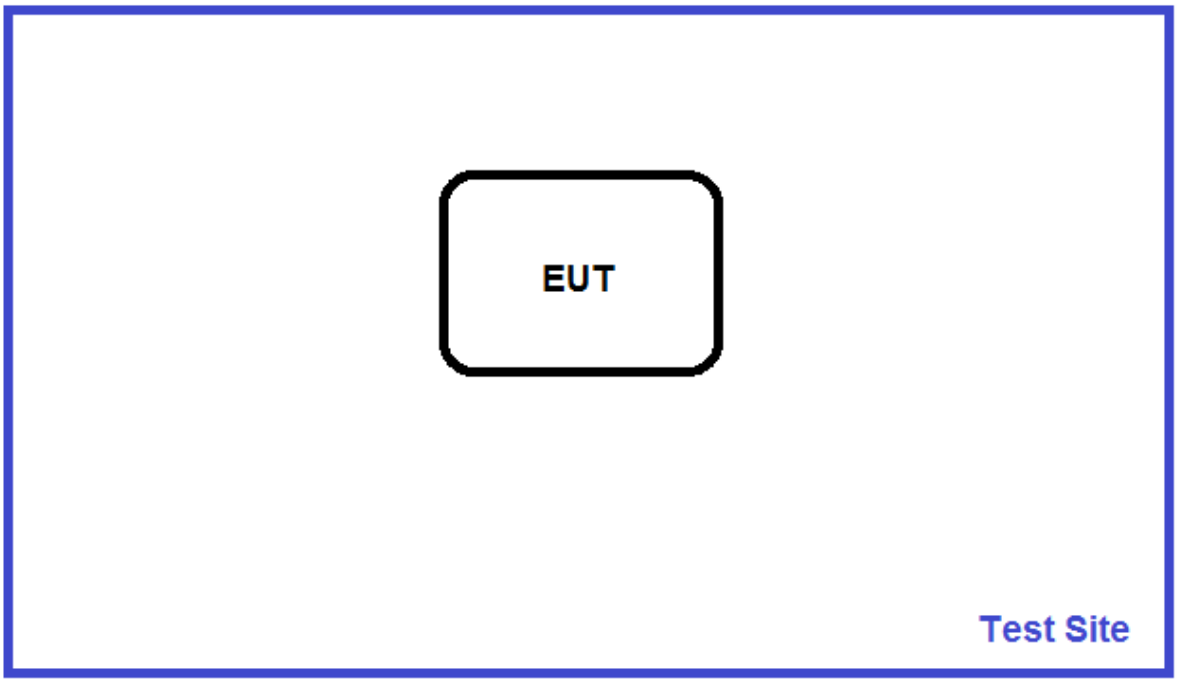
Support Equipment, Laptop

Support Equipment, Dongle

Block Diagram of Test Setup(s)

Config#	Setup Description of Block Diagram
Rad EM	EUT is on test bench powered by battery

Test Setup Block Diagram



FCC Part 15 Subpart C

15.247(a)(2) 6dB Bandwidth

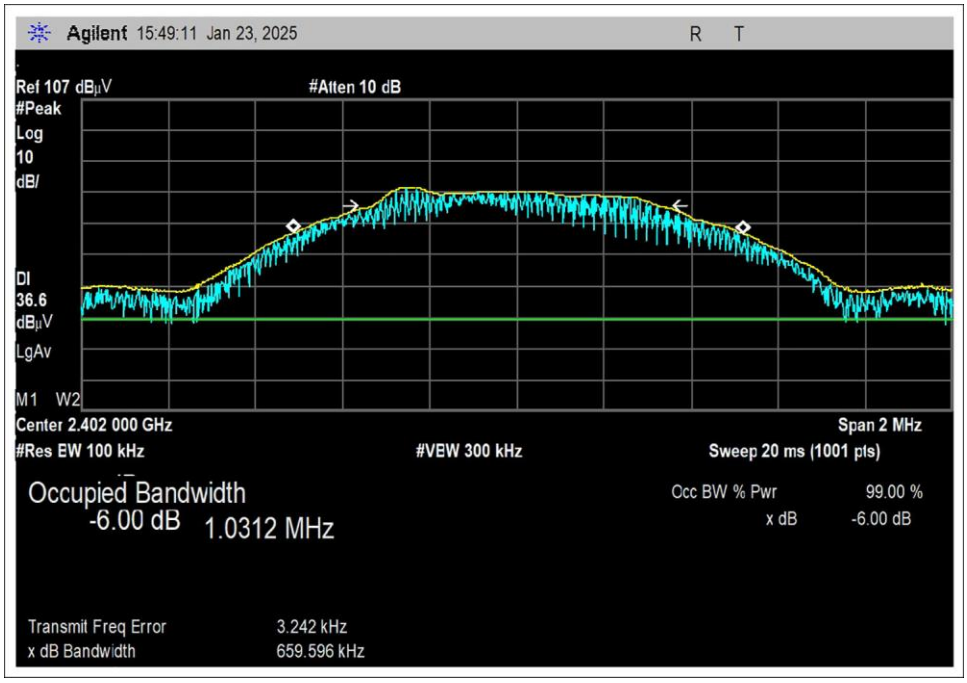
Test Setup/Conditions			
Test Location:	Bothell Lab C3	Test Engineer:	C. Plumadore
Test Method:	ANSI C63.10 (2020), KDB 558074	Test Date(s):	1/23/2025
Configuration:	1		
Test Setup:	EUT setup on 1.5m foam table transmitting at low, mid, and high frequencies.		

Environmental Conditions			
Temperature (ºC)	22.3	Relative Humidity (%):	28

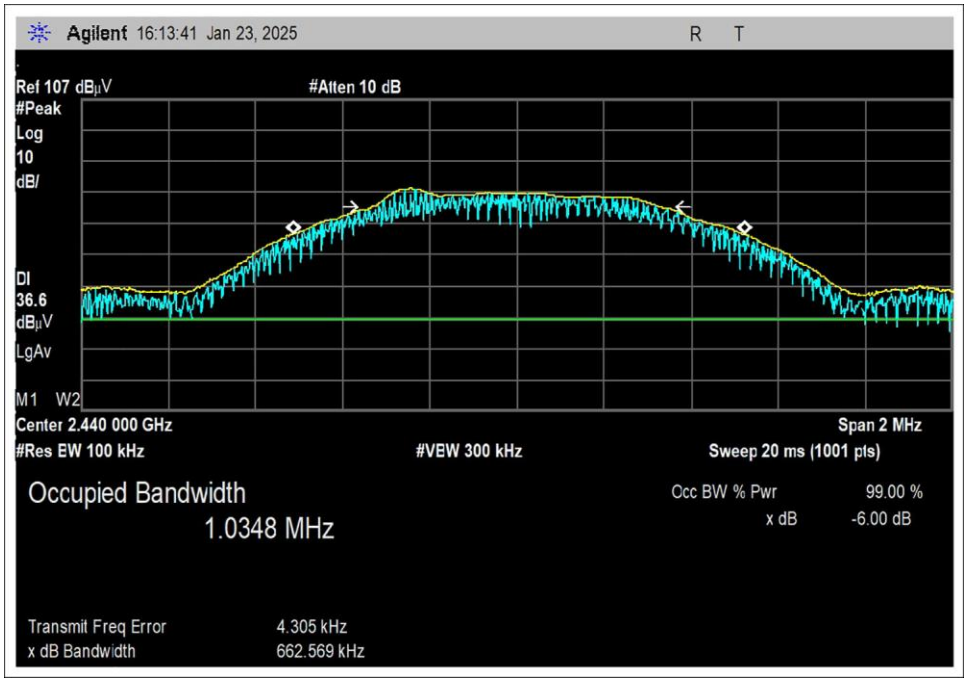
Test Equipment					
Asset#	**Description**	**Manufacturer**	**Model**	**Cal Date**	**Cal Due**
03540	Preamp	HP	83017A	1/7/2025	1/7/2027
02374ANSI	Horn Antenna	Electrometrics	RGA-60	5/26/2023	5/26/2025
P05546	Cable	Andrews	Heliax	5/9/2024	5/9/2026
P06515	Cable	Andrews	Heliax	2/28/2024	2/28/2026
P07504	Cable	TMS	CLU40-KMKM-02.00F	1/19/2024	1/19/2026
03807	Spectrum Analyzer	Agilent	E4440A	10/10/2023	10/10/2025

Test Data Summary					
Frequency (MHz)	**Antenna Port**	**Modulation**	**Measured (kHz)**	**Limit (kHz)**	**Results**
2402	1	GFSK	659.596	≥500	Pass
2440	1	GFSK	662.569	≥500	Pass
2480	1	GFSK	686.985	≥500	Pass

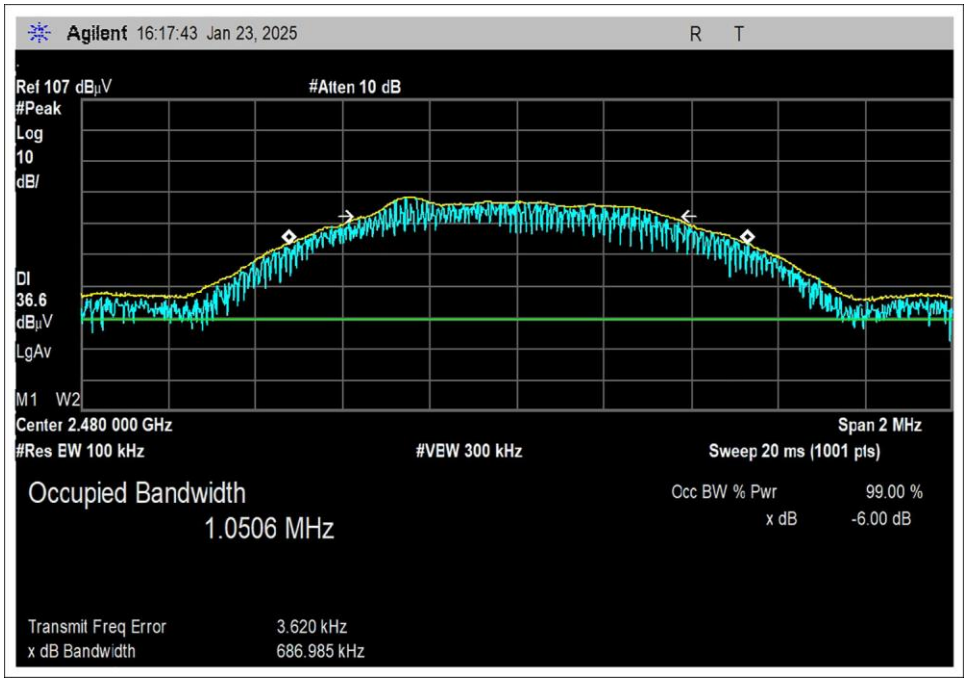
Plot(s)



Low Channel



Middle Channel



High Channel

Test Photos

15.247(b)(3) Output Power

Test Setup/Conditions			
Test Location:	Bothell Lab C3	Test Engineer:	C. Plumadore
Test Method:	ANSI C63.10 (2020), KDB 558074	Test Date(s):	1/23/2025
Configuration:	1		
Test Setup:	EUT set up on foam table 1.5m high transmitting on low, mid, and high channels.		

Environmental Conditions			
Temperature (ºC)	21.6	Relative Humidity (%):	29.4

Test Equipment					
Asset#	**Description**	**Manufacturer**	**Model**	**Cal Date**	**Cal Due**
03540	Preamp	HP	83017A	1/7/2025	1/7/2027
02374ANSI	Horn Antenna	Electrometrics	RGA-60	5/26/2023	5/26/2025
P05546	Cable	Andrews	Heliax	5/9/2024	5/9/2026
P06515	Cable	Andrews	Heliax	2/28/2024	2/28/2026
P07504	Cable	TMS	CLU40-KMKM-02.00F	1/19/2024	1/19/2026
03807	Spectrum Analyzer	Agilent	E4440A	10/10/2023	10/10/2025

Test Data Summary - Radiated Measurement							
Measurement Option: RBW > DTS Bandwidth							
Frequency (MHz)	**Modulation**	**Ant. Type / Gain (dBi)**	**RF Conducted (dBm)**		**EIRP (dBm)**		**Results**
			Calculated	**Limit**	**Calculated**	**Limit**	
2402	GFSK	-4.6	-3.028	≤30	-7.628	≤36	Pass
2440	GFSK	-4.6	-2.928	≤30	-7.528	≤36	Pass
2480	GFSK	-4.6	-2.628	≤30	-7.228	≤36	Pass

EIRP is calculated as RF conducted power (dBm) + antenna gain (dBi)

For fixed point-to-point antennas, the limit is calculated in accordance with 15.247(c)(1): $Limit = 30 - Roundup\left(\frac{G-6}{3}\right)$

For all other antennas, the RF conducted power limit is calculated according to a maximum of 1W (30 dBm) conducted power with a maximum of 6dBi gain antenna in accordance with 15.247(b)
$Limit = 30 - Roundup(G - 6)$

For directional beamforming antennas, the limit is calculated in accordance with 15.247(c)(2) and KDB 662911.

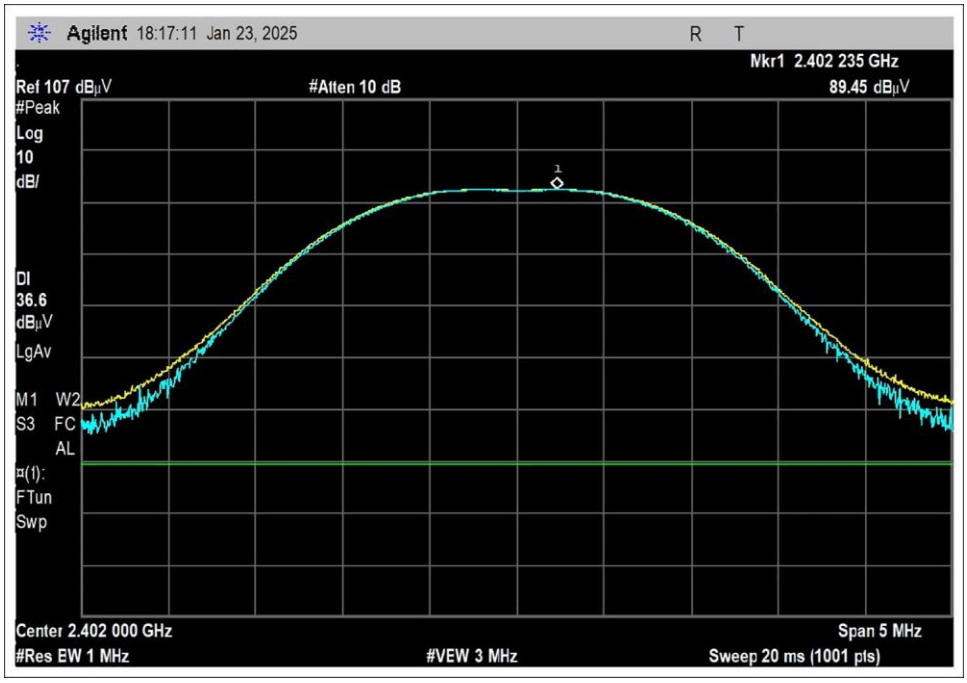
Conducted RF output power calculated in accordance with ANSI C63.10.

$$P(W) = \frac{(E \cdot d)^2}{30\ G}$$

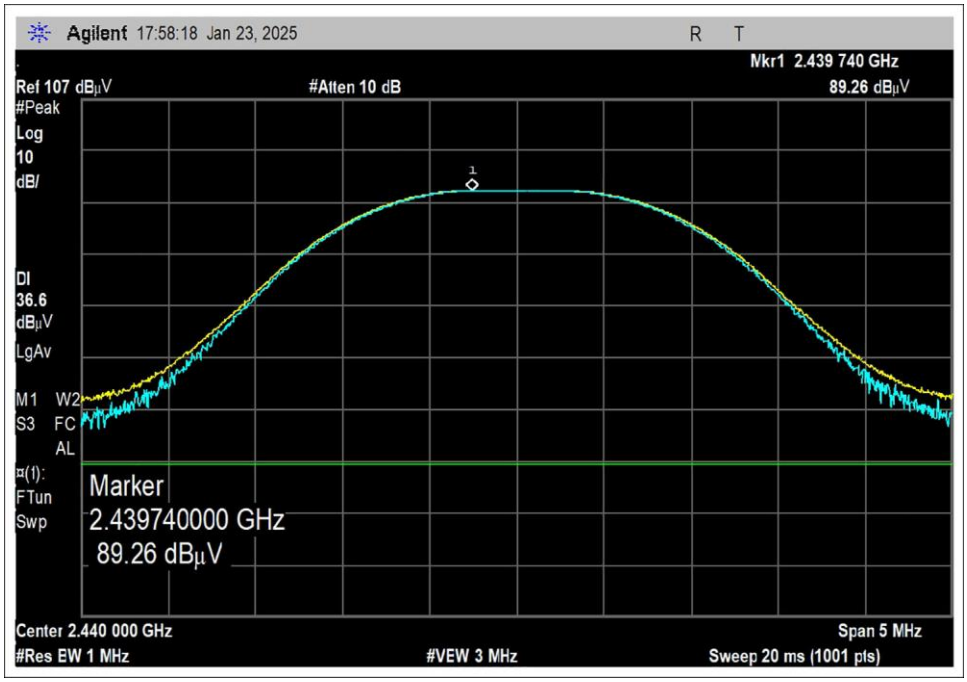
Or equivalently, in logarithmic form:

$$P(dBm) = E(dBuV/m) + 20LOG(d) - G\ - 104.77$$

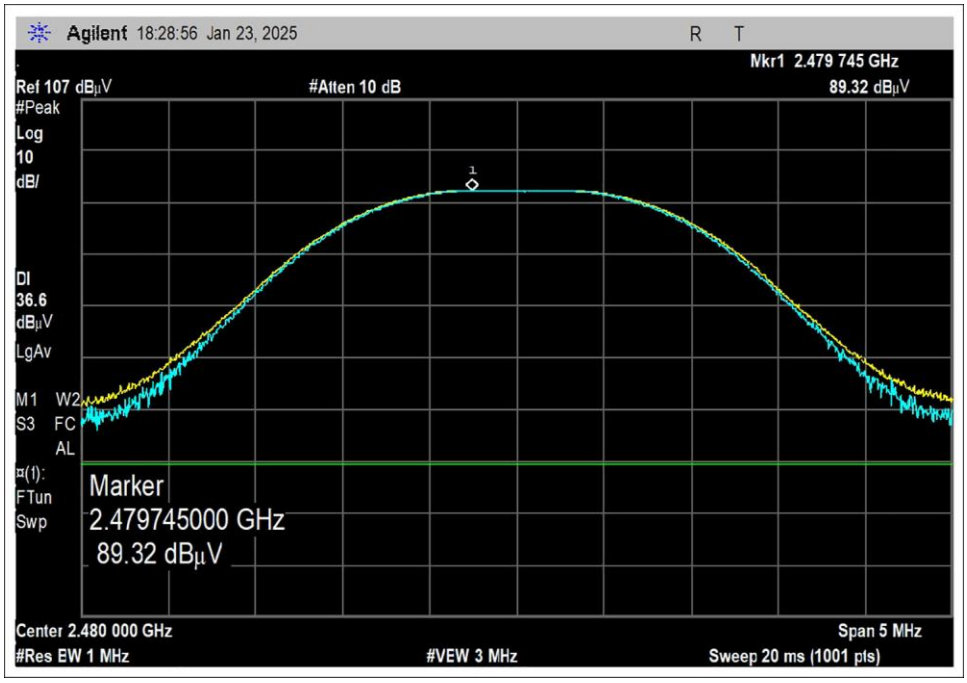
Plots



Low Channel



Middle Channel



High Channel

Test Setup / Conditions / Data

Test Location:	CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717		
Customer:	**Medtronic MiniMed**		
Specification:	**15.247(b) Power Output (2400-2483.5 MHz DTS)**		
Work Order #:	**110869**	Date:	1/23/2025
Test Type:	**Radiated Scan**	Time:	18:22:34
Tested By:	C. Plumadore	Sequence#:	1
Software:	EMITest 5.03.20		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

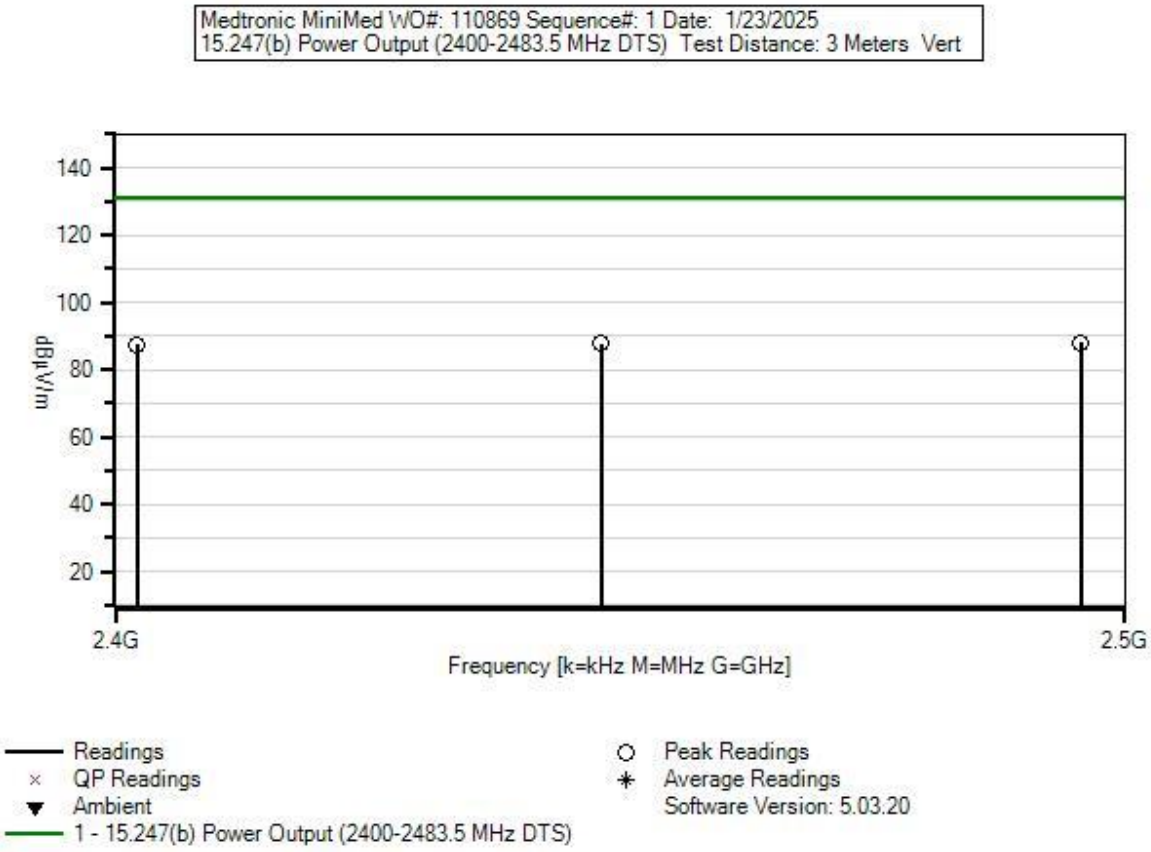
Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Test Setup:
EUT setup on 1.5m high foam table. transmitting on low, mid and high channel. X, Y, Z axes investigated worst case reported.

Test Environment Conditions:
Temperature: 22.1°C
Humidity: 28.4%
Pressure: 102.8 kPa

Test Method: ANSI 63.10



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03540	Preamp	83017A	1/7/2025	1/7/2027
T2	AN02374ANSI	Horn Antenna	RGA-60	5/26/2023	5/26/2025
T3	ANP05546	Cable	Heliax	5/9/2024	5/9/2026
T4	ANP06515	Cable	Heliax	1/8/2025	1/8/2027
T5	ANP07504	Cable	CLU40-KMKM-02.00F	1/7/2025	1/7/2027
T6	AN02673	Spectrum Analyzer	E4446A	3/8/2024	3/8/2026

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

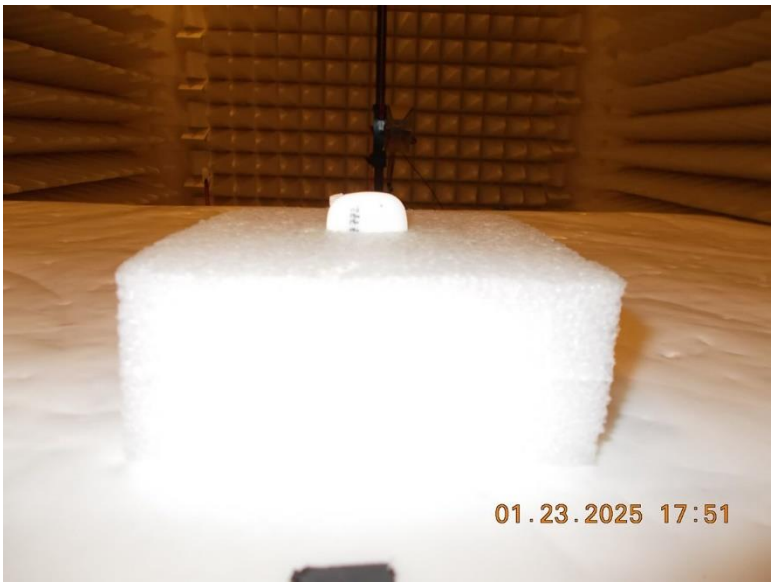
#	Freq	Rdng	T1 T5 T6	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	2479.745M	89.3	-34.6 +0.6	+29.0 +0.0	+1.1	+2.6	+0.0 210	88.0	131.2 Z-axes	-43.2	Horiz 145
2	2439.790M	89.3	-34.7 +0.6	+28.8 +0.0	+1.1	+2.6	+0.0 220	87.7	131.2 Z-axes	-43.5	Horiz 155
3	2401.770M	89.5	-34.7 +0.6	+28.6 +0.0	+1.1	+2.5	+0.0 40	87.6	131.2 Z-axes	-43.6	Horiz 145

Test Setup Photo(s)

Test Setup

X-Axis

Y-Axis



Z-Axis

15.247(e) Power Spectral Density

Test Setup/Conditions			
Test Location:	Bothell Lab C3	Test Engineer:	C. Plumadore
Test Method:	ANSI C63.10 (2020), KDB 558074	Test Date(s):	1/24/2025
Configuration:	1		
Test Setup:	EUT set up on foam table 1.5m high transmitting on low, mid, and high channels.		

Environmental Conditions			
Temperature (ºC)	21.5	Relative Humidity (%):	30

Test Equipment					
Asset#	**Description**	**Manufacturer**	**Model**	**Cal Date**	**Cal Due**
03540	Preamp	HP	83017A	1/7/2025	1/7/2027
02374ANSI	Horn Antenna	Electrometrics	RGA-60	5/26/2023	5/26/2025
P05546	Cable	Andrews	Heliax	5/9/2024	5/9/2026
P06515	Cable	Andrews	Heliax	2/28/2024	2/28/2026
P07504	Cable	TMS	CLU40-KMKM-02.00F	1/19/2024	1/19/2026
03807	Spectrum Analyzer	Agilent	E4440A	10/10/2023	10/10/2025

Test Data Summary - Radiated Measurement						
Measurement Method: PKPSD						
Frequency (MHz)	**Modulation**	**Ant. Type / Gain (dBi)**	**Field Strength (dBuV/m @3m)**	**Calculated (dBm/3kHz)**	**Limit (dBm/3kHz)**	**Results**
2402	GFSK	-4.6	72.6	-16.628	≤8	Pass
2440	GFSK	-4.6	72.5	-16.728	≤8	Pass
2480	GFSK	-4.6	73.1	-16.128	≤8	Pass

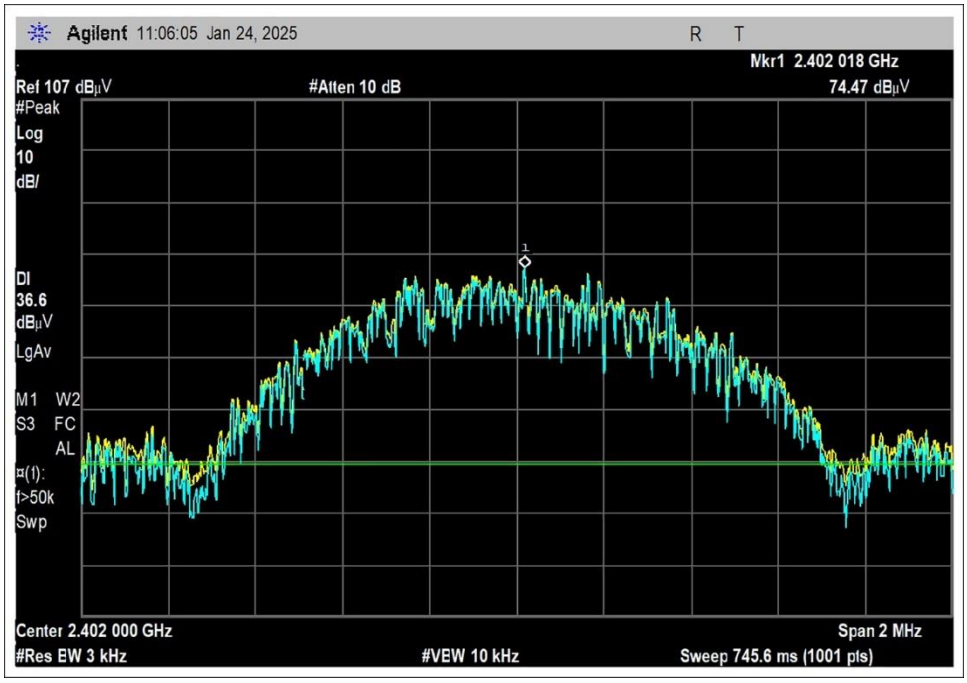
Conducted RF output power calculated in accordance with ANSI C63.10.

$$P(W) = \frac{(E \cdot d)^2}{30\ G}$$

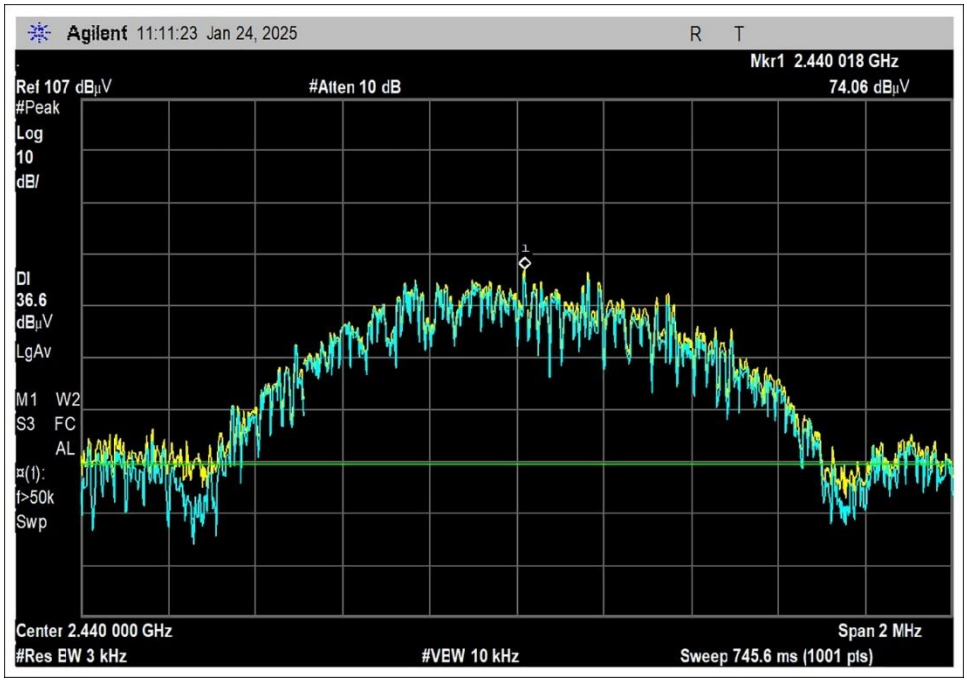
Or equivalently, in logarithmic form:

$$P(dBm) = E(dBuV/m) + 20LOG(d) - G\ - 104.77$$

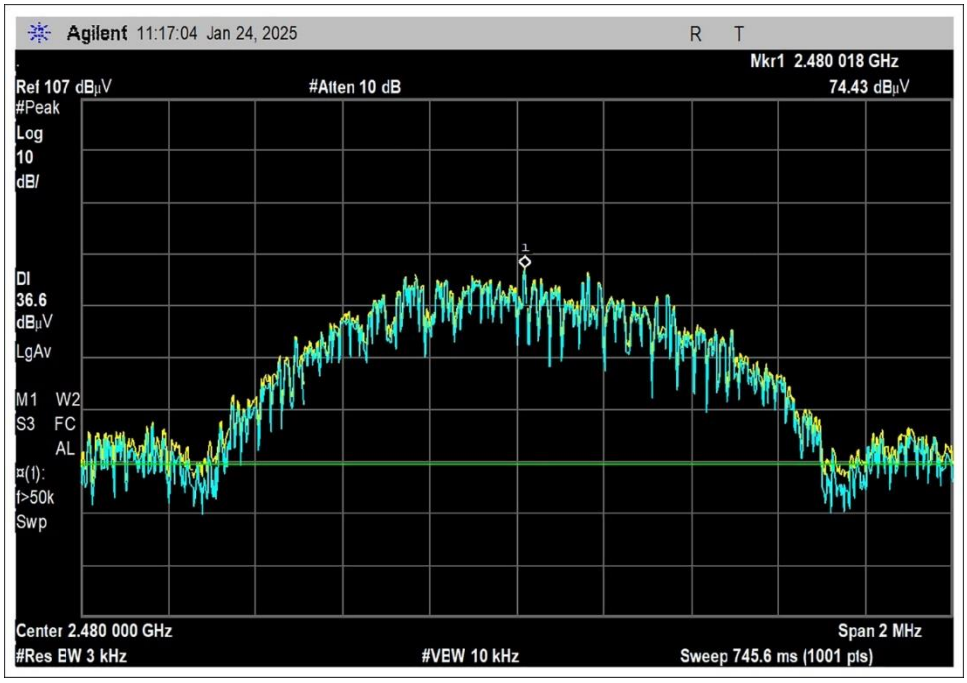
Plot(s)



Low Channel



Middle Channel



High Channel

Test Data

Test Location:	CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717		
Customer:	**Medtronic MiniMed**		
Specification:	**15.247(e) Peak Power Spectral Density (2400-2483.5 MHz DTS)**		
Work Order #:	**110869**	Date:	1/24/2025
Test Type:	**Radiated Scan**	Time:	11:11:35
Tested By:	C. Plumadore	Sequence#:	4
Software:	EMITest 5.03.20		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

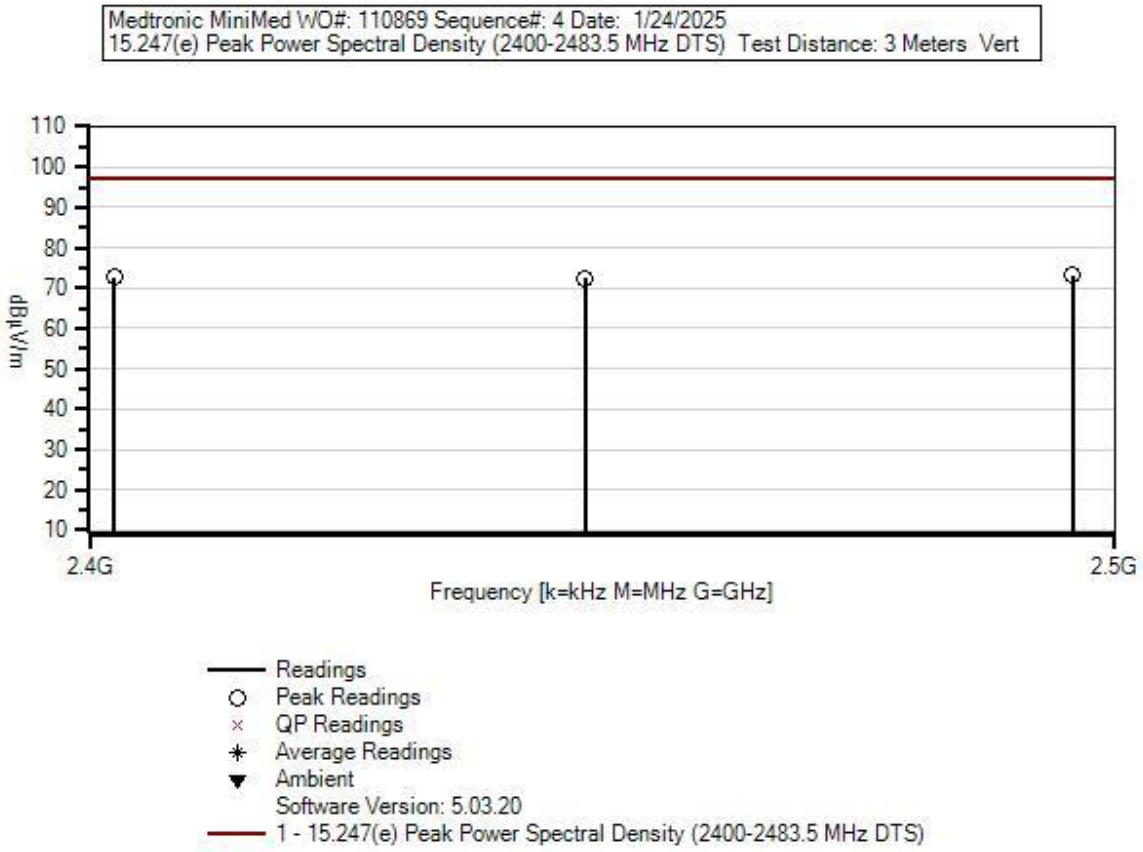
Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Test Setup:
EUT setup on 1.5m high foam table. transmitting on low, mid and high channel. X ,Y, Z axes investigated worst case reported.

Test Environment Conditions:
Temperature: 20.6°C
Humidity: 30.6%
Pressure: 102.8 kPa

Test Method: ANSI 63.10



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03540	Preamp	83017A	1/7/2025	1/7/2027
T2	AN02374ANSI	Horn Antenna	RGA-60	5/26/2023	5/26/2025
T3	ANP05546	Cable	Heliax	5/9/2024	5/9/2026
T4	ANP06515	Cable	Heliax	1/8/2025	1/8/2027
T5	ANP07504	Cable	CLU40-KMKM-02.00F	1/7/2025	1/7/2027
T6	AN02673	Spectrum Analyzer	E4446A	3/8/2024	3/8/2026

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	2480.018M	74.4	-34.6 +0.6	+29.0 +0.0	+1.1	+2.6	+0.0	73.1	97.2	-24.1	Vert
2	2402.018M	74.5	-34.7 +0.6	+28.6 +0.0	+1.1	+2.5	+0.0	72.6	97.2	-24.6	Vert
3	2440.018M	74.1	-34.7 +0.6	+28.8 +0.0	+1.1	+2.6	+0.0	72.5	97.2	-24.7	Vert

Test Setup Photo(s)

15.247(d) Radiated Emissions & Band Edge

Test Data

Test Location:	CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717		
Customer:	**Medtronic MiniMed**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**110869**	Date:	1/25/2025
Test Type:	**Radiated Scan**	Time:	14:42:04
Tested By:	C. Plumadore	Sequence#:	2
Software:	EMITest 5.03.20		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1 & 2			

Support Equipment:

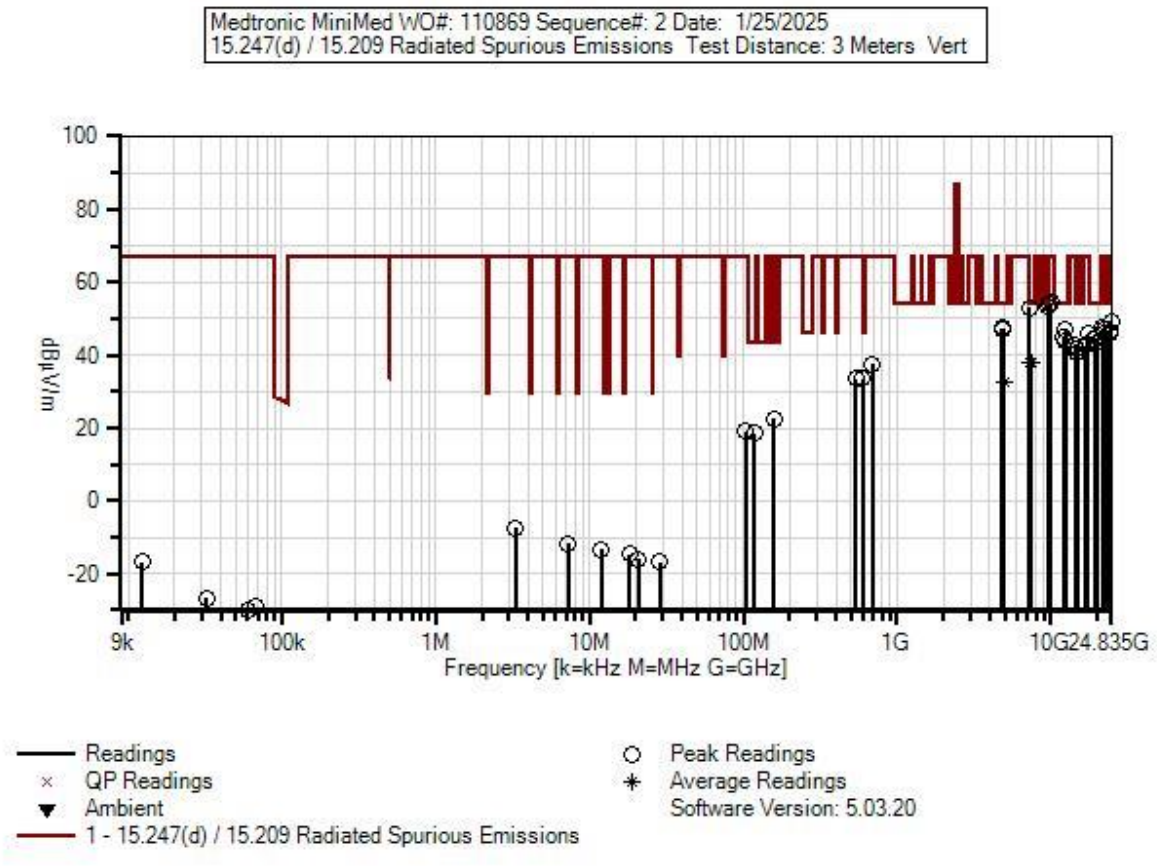
Device	Manufacturer	Model #	S/N
Configuration 1 & 2			

Test Conditions / Notes:

Test Setup:
EUT setup on 1.5m high foam table. transmitting on low, mid and high channel. X ,Y, Z axes investigated worst case reported.

Test Environment Conditions:
Temperature: 22.1°C
Humidity: 28.4%
Pressure: 102.8 kPa

Test Method: ANSI 63.10



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03540	Preamp	83017A	1/7/2025	1/7/2027
T2	AN02374ANSI	Horn Antenna	RGA-60	5/26/2023	5/26/2025
T3	ANP05546	Cable	Heliax	5/9/2024	5/9/2026
T4	ANP06515	Cable	Heliax	1/8/2025	1/8/2027
T5	ANP07504	Cable	CLU40-KMKM-02.00F	1/7/2025	1/7/2027
T6	AN02673	Spectrum Analyzer	E4446A	3/8/2024	3/8/2026
T7	AN02741	Active Horn Antenna	AMFW-5F-12001800-20-10P	5/26/2023	5/26/2025
T8	ANP07900	Cable	CLU40-KMKM-10.00F	8/8/2023	8/8/2025
T9	AN02763-69	Waveguide	Multiple	1/9/2024	1/9/2026
T10	ANP07901	Cable	CLU40-KMKM-10.00F	8/8/2023	8/8/2025
T11	AN02742	Active Horn Antenna	AMFW-5F-18002650-20-10P	12/2/2024	12/2/2026
T12	AN03824	Biconilog Antenna	3142E	5/9/2023	5/9/2025
T13	ANP05333	Cable	Heliax	1/8/2025	1/8/2027
T14	ANP05360	Cable	RG214	1/7/2025	1/7/2027
T15	AN02307	Preamp	8447D	8/9/2023	8/9/2025
T16	ANP08205	Cable	CBL-6FT-NMNM+	1/22/2025	1/22/2027
T17	AN00052	Loop Antenna	6502	4/19/2024	4/19/2026

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5 T9 T13 T17	T2 T6 T10 T14	T3 T7 T11 T15	T4 T8 T12 T16	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	4881.980M	41.6	-34.0 +1.0 +0.0 +0.0 +0.0	+33.4 +0.0 +0.0 +0.0	+1.6 +0.0 +0.0 +0.0	+3.9 +0.0 +0.0 +0.0	+0.0	47.5	54.0 X-axes mid channel	-6.5	Vert
2	12398.695 M	51.3	+0.0 +0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	+3.0 -13.7 +0.0 +0.0	+6.7 +0.0 +0.0 +0.0	+0.0	47.3	54.0 z-axes high channel	-6.7	Vert
3	4802.545M	41.7	-33.9 +1.1 +0.0 +0.0 +0.0	+33.1 +0.0 +0.0 +0.0	+1.5 +0.0 +0.0 +0.0	+3.8 +0.0 +0.0 +0.0	+0.0	47.3	54.0 x-axes low channel	-6.7	Vert
4	22322.055 M	49.7	+0.0 +0.0 +2.7 +0.0 +0.0	+0.0 +0.0 +5.6 +0.0 +0.0	+0.0 +0.0 -16.3 +0.0 +0.0	+0.0 +5.5 +0.0 +0.0	+0.0	47.2	54.0 x-axes high channel	-6.8	Vert
5	12011.280 M	48.3	+0.0 +0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0 +0.0	+3.3 -13.4 +0.0 +0.0 +0.0	+6.6 +0.0 +0.0 +0.0	+0.0	44.8	54.0 z-axes low channel	-9.2	Vert
6	19841.075 M	44.2	+0.0 +0.0 +2.9 +0.0 +0.0	+0.0 +0.0 +5.2 +0.0 +0.0	+0.0 +0.0 -12.7 +0.0 +0.0	+0.0 +5.2 +0.0 +0.0	+0.0	44.8	54.0 x-axes high channel	-9.2	Vert
7	19214.085 M	44.0	+0.0 +0.0 +2.9 +0.0 +0.0	+0.0 +0.0 +5.1 +0.0 +0.0	+0.0 +0.0 -12.9 +0.0 +0.0	+0.0 +5.1 +0.0 +0.0	+0.0	44.2	54.0 z-axea low channel	-9.8	Vert
8	12201.425 M	47.8	+0.0 +0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0 +0.0	+3.1 -13.4 +0.0 +0.0 +0.0	+6.5 +0.0 +0.0 +0.0 +0.0	+0.0	44.0	54.0 x-axes mid channel	-10.0	Vert
9	19518.550 M	43.0	+0.0 +0.0 +2.8 +0.0 +0.0	+0.0 +0.0 +5.1 +0.0 +0.0	+0.0 +0.0 -12.7 +0.0 +0.0	+0.0 +5.2 +0.0 +0.0 +0.0	+0.0	43.4	54.0 x-axes mid channel	-10.6	Vert

10	9920.000M	41.4	-34.5 +1.2 +0.0 +0.0 +0.0	+38.2 +0.0 +0.0 +0.0	+2.5 +0.0 +0.0 +0.0	+5.6 +0.0 +0.0 +0.0	+0.0	54.4	66.9 X-axes high channel	-12.5	Vert
11	9758.120M	41.1	-34.6 +1.3 +0.0 +0.0 +0.0	+38.0 +0.0 +0.0 +0.0	+2.5 +0.0 +0.0 +0.0	+5.5 +0.0 +0.0 +0.0	+0.0	53.8	66.9 Z-axes mid channel	-13.1	Vert
12	9607.330M	41.1	-34.7 +1.2 +0.0 +0.0 +0.0	+37.9 +0.0 +0.0 +0.0	+2.5 +0.0 +0.0 +0.0	+5.5 +0.0 +0.0 +0.0	+0.0	53.5	66.9 x-axes low channel	-13.4	Vert
13	7204.750M	42.7	-35.1 +1.1 +0.0 +0.0 +0.0	+36.7 +0.0 +0.0 +0.0	+2.2 +0.0 +0.0 +0.0	+5.4 +0.0 +0.0 +0.0	+0.0	53.0	66.9 x-axes low channel	-13.9	Vert
14	7441.595M Ave	27.2	-35.5 +1.1 +0.0 +0.0 +0.0	+37.4 +0.0 +0.0 +0.0	+2.4 +0.0 +0.0 +0.0	+5.6 +0.0 +0.0 +0.0	+0.0	38.2	54.0 Z-axes high channel	-15.8	Vert
^	7441.595M	43.0	-35.5 +1.1 +0.0 +0.0 +0.0	+37.4 +0.0 +0.0 +0.0	+2.4 +0.0 +0.0 +0.0	+5.6 +0.0 +0.0 +0.0	+0.0	54.0	54.0 Z-axes high channel	+0.0	Vert
16	7318.945M Ave	27.2	-35.3 +1.1 +0.0 +0.0 +0.0	+37.2 +0.0 +0.0 +0.0	+2.3 +0.0 +0.0 +0.0	+5.5 +0.0 +0.0 +0.0	+0.0	38.0	54.0 z-axes mid channel	-16.0	Vert
^	7318.945M	42.9	-35.3 +1.1 +0.0 +0.0 +0.0	+37.2 +0.0 +0.0 +0.0	+2.3 +0.0 +0.0 +0.0	+5.5 +0.0 +0.0 +0.0	+0.0	53.7	54.0 Z-axes mid channel	-0.3	Vert
18	24801.125 M	46.9	+0.0 +0.0 +2.5 +0.0 +0.0	+0.0 +0.0 +6.0 +0.0 +0.0	+0.0 +0.0 -11.9 +0.0 +0.0	+0.0 +5.9 +0.0 +0.0 +0.0	+0.0	49.4	66.9 z-axes high channel	-17.5	Vert
19	21615.960 M	49.1	+0.0 +0.0 +2.6 +0.0 +0.0	+0.0 +0.0 +5.4 +0.0 +0.0	+0.0 +0.0 -15.1 +0.0 +0.0	+0.0 +5.4 +0.0 +0.0 +0.0	+0.0	47.4	66.9 x-axes low channel	-19.5	Vert

20	24397.650 M	45.0	+0.0 +0.0 +2.5 +0.0 +0.0	+0.0 +0.0 +5.9 +0.0 +0.0	+0.0 +0.0 -12.7 +0.0 +0.0	+0.0 +5.8 +0.0	+0.0	46.5	66.9 y-axes mid channel	-20.4	Vert
21	21957.725 M	48.1	+0.0 +0.0 +2.7 +0.0 +0.0	+0.0 +0.0 +5.5 +0.0 +0.0	+0.0 +0.0 -15.7 +0.0 +0.0	+0.0 +5.5 +0.0	+0.0	46.1	66.9 x-axes mid channel	-20.8	Vert
22	24022.475 M	45.1	+0.0 +0.0 +2.5 +0.0 +0.0	+0.0 +0.0 +5.7 +0.0 +0.0	+0.0 +0.0 -13.3 +0.0 +0.0	+0.0 +5.9 +0.0	+0.0	45.9	66.9 x-axes low channel	-21.0	Vert
23	17358.615 M	46.3	+0.0 +0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0 +0.0	+3.8 -12.1 +0.0 +0.0 +0.0	+7.7 +0.0 +0.0	+0.0	45.7	66.9 x-axes high channel	-21.2	Vert
24	4959.945M Ave	26.5	-34.0 +0.9 +0.0 +0.0 +0.0	+33.6 +0.0 +0.0 +0.0 +0.0	+1.7 +0.0 +0.0 +0.0 +0.0	+3.9 +0.0 +0.0 +0.0	+0.0	32.6	54.0 Z-axes high channel	-21.4	Vert
^	4959.945M	43.0	-34.0 +0.9 +0.0 +0.0 +0.0	+33.6 +0.0 +0.0 +0.0 +0.0	+1.7 +0.0 +0.0 +0.0 +0.0	+3.9 +0.0 +0.0 +0.0	+0.0	49.1	54.0 Z-axes high channel	-4.9	Vert
26	17081.980 M	43.4	+0.0 +0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0 +0.0	+4.1 -12.4 +0.0 +0.0 +0.0	+7.9 +0.0 +0.0 +0.0	+0.0	43.0	66.9 x-axes mid channel	-23.9	Vert
27	16815.585 M	43.1	+0.0 +0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0 +0.0	+3.9 -12.4 +0.0 +0.0 +0.0	+8.0 +0.0 +0.0 +0.0	+0.0	42.6	66.9 z-axes low channel	-24.3	Vert
28	14413.175 M	46.5	+0.0 +0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0 +0.0	+3.6 -14.7 +0.0 +0.0 +0.0	+7.1 +0.0 +0.0 +0.0	+0.0	42.5	66.9 z-axes low channel	-24.4	Vert
29	14878.755 M	45.6	+0.0 +0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0 +0.0	+3.5 -14.1 +0.0 +0.0 +0.0	+6.9 +0.0 +0.0 +0.0	+0.0	41.9	66.9 x-axes high channel	-25.0	Vert

30	118.300M	31.0	+0.0 +0.0 +0.0 +0.5 +0.0	+0.0 +0.0 +0.0 +0.6	+0.0 +0.0 +0.0 -27.4	+0.0 +0.0 +13.4 +0.4	+0.0	18.5	43.5 mid channel	-25.0	Vert
31	14638.365 M	44.7	+0.0 +0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	+3.6 -14.4 +0.0 +0.0	+6.9 +0.0 +0.0 +0.0	+0.0	40.8	66.9 x-axes mid channel	-26.1	Vert
32	691.500M	31.7	+0.0 +0.0 +0.0 +1.2 +0.0	+0.0 +0.0 +0.0 +2.5	+0.0 +0.0 +0.0 -27.8	+0.0 +0.0 +29.1 +0.8	+0.0	37.5	66.9 high channel	-29.4	Vert
33	538.300M	30.5	+0.0 +0.0 +0.0 +1.1 +0.0	+0.0 +0.0 +0.0 +1.9	+0.0 +0.0 +0.0 -28.0	+0.0 +0.0 +27.1 +0.9	+0.0	33.5	66.9 mid channel	-33.4	Vert
34	597.400M	30.4	+0.0 +0.0 +0.0 +1.2 +0.0	+0.0 +0.0 +0.0 +2.2	+0.0 +0.0 +0.0 -27.9	+0.0 +0.0 +26.8 +0.8	+0.0	33.5	66.9 low channel	-33.4	Vert
35	159.000M	31.5	+0.0 +0.0 +0.0 +0.6 +0.0	+0.0 +0.0 +0.0 +0.8	+0.0 +0.0 +0.0 -27.2	+0.0 +0.0 +16.5 +0.4	+0.0	22.6	66.9 high channel	-44.3	Vert
36	102.800M	31.3	+0.0 +0.0 +0.0 +0.5 +0.0	+0.0 +0.0 +0.0 +0.6	+0.0 +0.0 +0.0 -27.5	+0.0 +0.0 +14.0 +0.3	+0.0	19.2	66.9 low channel	-47.7	Vert
37	3.314M	23.1	+0.0 +0.0 +0.0 +0.0 +9.3	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	+0.1 +0.0 +0.0 +0.0	-40.0	-7.5	66.9 high channel	-74.4	perp
38	7.284M	18.6	+0.0 +0.0 +0.0 +0.0 +9.6	+0.0 +0.0 +0.0 +0.0	+0.1 +0.0 +0.0 +0.0	+0.1 +0.0 +0.0 +0.0	-40.0	-11.6	66.9 low channel	-78.5	perp
39	11.971M	16.8	+0.0 +0.0 +0.0 +0.0 +9.7	+0.0 +0.0 +0.0 +0.0	+0.1 +0.0 +0.0 +0.0	+0.2 +0.0 +0.0 +0.0	-40.0	-13.2	66.9 low channel	-80.1	paral

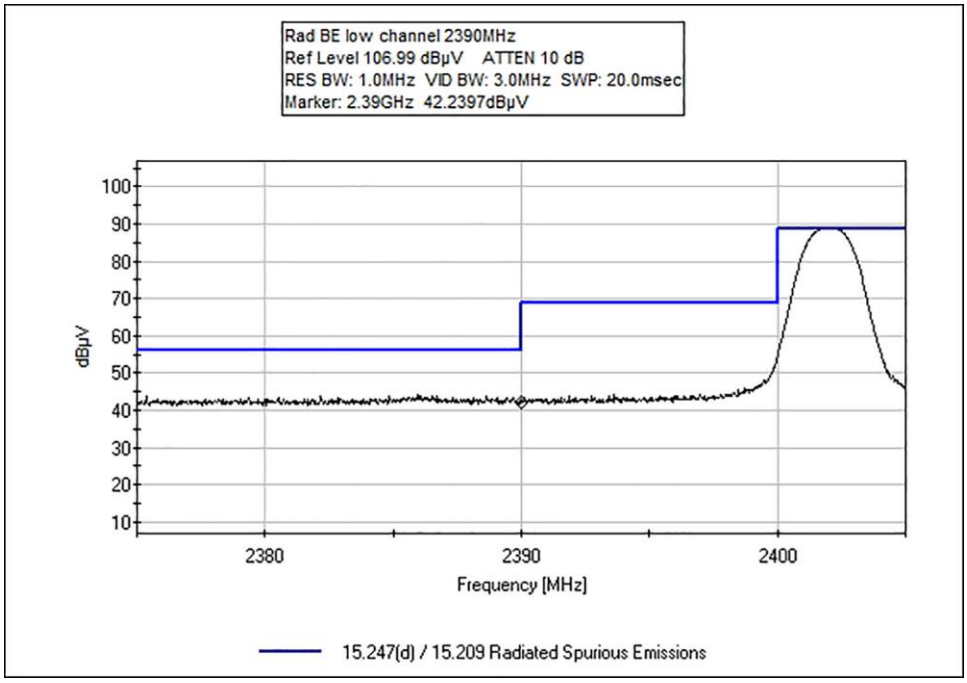
40	18.090M	16.5	+0.0 +0.0 +0.0 +0.0 +8.6	+0.0 +0.0 +0.0 +0.0	+0.1 +0.0 +0.0 +0.0	+0.2 +0.0 +0.0 +0.0	-40.0	-14.6	66.9 high channel	-81.5	paral
41	20.836M	15.6	+0.0 +0.0 +0.0 +0.0 +8.2	+0.0 +0.0 +0.0 +0.0	+0.1 +0.0 +0.0 +0.0	+0.2 +0.0 +0.0 +0.0	-40.0	-15.9	66.9 mid channel	-82.8	perp
42	12.243k	47.2	+0.0 +0.0 +0.0 +0.0 +16.0	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	-80.0	-16.8	66.9 high channel	-83.7	paral
43	28.806M	16.4	+0.0 +0.0 +0.0 +0.0 +6.4	+0.0 +0.0 +0.0 +0.0	+0.1 +0.0 +0.0 +0.0	+0.3 +0.0 +0.0 +0.0	-40.0	-16.8	66.9 mid channel	-83.7	paral
44	32.124k	42.2	+0.0 +0.0 +0.0 +0.0 +11.2	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	-80.0	-26.6	66.9 low channel	-93.5	perp
45	67.233k	41.2	+0.0 +0.0 +0.0 +0.0 +9.8	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	-80.0	-29.0	66.9 mid channel	-95.9	paral
46	59.760k	40.1	+0.0 +0.0 +0.0 +0.0 +10.0	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	-80.0	-29.9	66.9 low channel	-96.8	paral
47	79.923k	38.7	+0.0 +0.0 +0.0 +0.0 +9.7	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	-80.0	-31.6	66.9 mid channel	-98.5	perp
48	117.993k	35.6	+0.0 +0.0 +0.0 +0.0 +9.7	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	-80.0	-34.7	66.9 high channel	-101.6	perp

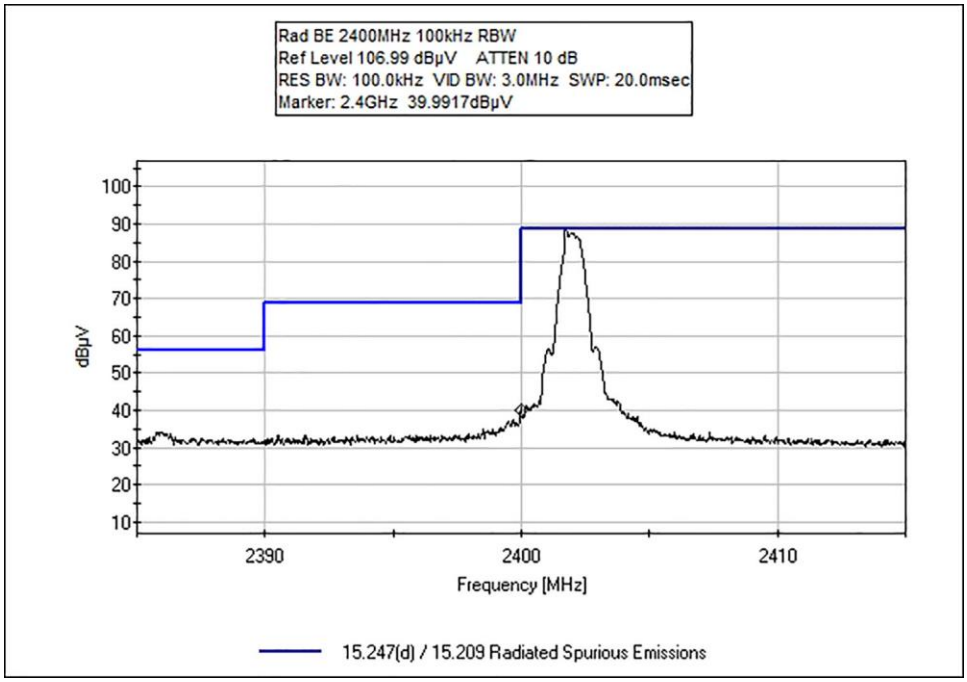
Band Edge

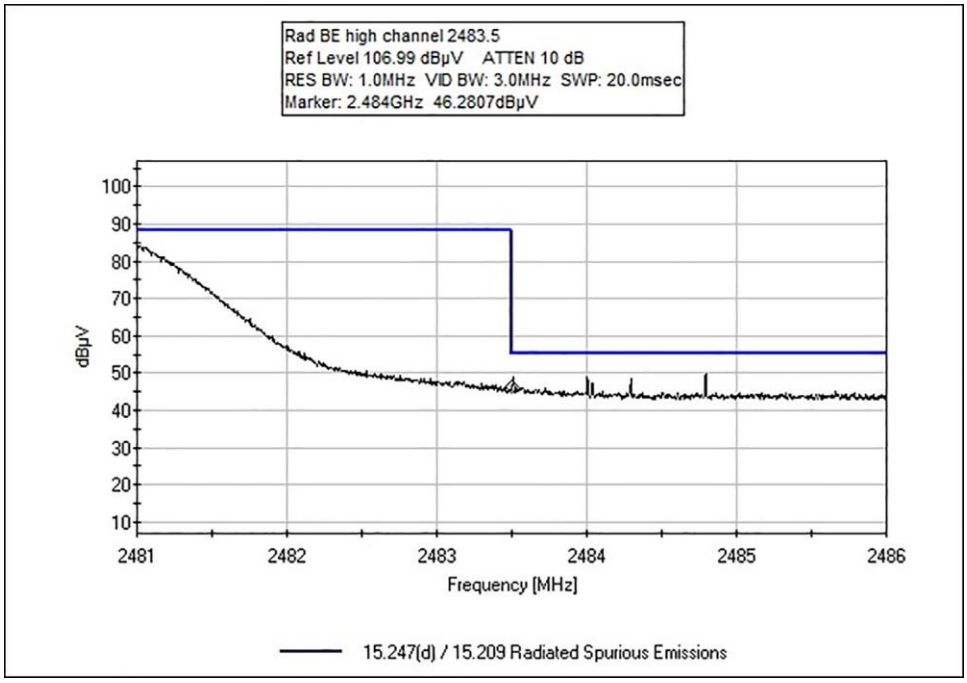
Band Edge Summary							
Limit applied at restricted bands: 15.209 Limit applied for other than restricted bands: Max Power/100kHz - 20dB.							
Frequency (MHz)	**Modulation**	**Ant. Type / Gain (dBi)**	**Average (dBuV/m @3m)**		**Peak (dBuV/m @3m)**		**Results**
			Measured	**Limit**	**Measured**	**Limit**	
2390.0	GFSK	-4.6	NA1	≤54	40.2	≤74	Pass
2400.0	GFSK	-4.6	NA2	NA2	38.1	≤66.9	Pass
2483.5	GFSK	-4.6	NA1	≤54	45	≤74	Pass

NA1 = Peak measurement meets average limit.
NA2 = Average limit not applicable when applying 20dBc limit.

Band Edge Plots






Rad BE high channel 2483.5
Ref Level 106.99 dBµV ATTEN 10 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.484GHz 46.2807dBµV
dBµV
100
90
80
70
60
50
40
30
20
10
2481
2482
2483
2484
2485
2486
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

Test Setup / Conditions / Data

Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717
Customer: **Medtronic MiniMed**
Specification: **15.247(d) / 15.209 Radiated Spurious Emissions**
Work Order #: **110869** Date: 1/24/2025
Test Type: **Radiated Scan** Time: 10:01:59
Tested By: C. Plumadore Sequence#: 3
Software: EMITest 5.03.20

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1 & 2			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1 & 2			

Test Conditions / Notes:

Test Setup:
EUT setup on 1.5m high foam table. transmitting on low, mid and high channel. X, Y, Z axes investigated worst case reported.

Test Environment Conditions:
Temperature: 20.6°C
Humidity: 30.6%
Pressure: 102.8 kPa

Test Method: ANSI 63.10

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03540	Preamp	83017A	1/7/2025	1/7/2027
T2	AN02374ANSI	Horn Antenna	RGA-60	5/26/2023	5/26/2025
T3	ANP05546	Cable	Heliax	5/9/2024	5/9/2026
T4	ANP06515	Cable	Heliax	1/8/2025	1/8/2027
T5	ANP07504	Cable	CLU40-KMKM-02.00F	1/7/2025	1/7/2027
T6	AN02673	Spectrum Analyzer	E4446A	3/8/2024	3/8/2026

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5 T6	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB dB dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	2483.500M	46.3	-34.6 +0.6	+29.0 +0.0	+1.1	+2.6	+0.0	45.0	54.0	-9.0	Vert
2	2390.000M	42.2	-34.7 +0.6	+28.5 +0.0	+1.1	+2.5	+0.0	40.2	54.0	-13.8	Vert
3	2400.000M	40.0	-34.7 +0.6	+28.6 +0.0	+1.1	+2.5	+0.0	38.1	66.9	-28.8	Vert

Test Setup Photo(s)

Below 1GHz

Above 1GHz, 1.5m

Appendix A: Manufacturer Declaration

The following models have been tested by CKC Laboratories:

Device: Synergy Enhanced
Model: RF ID: 033686

RF ID: 033686 represents the hardware of our disposable all-in-one serter, sensor and transmitter medical device for Continuous Glucose Monitoring (CGM). The Glucose Sensor Transmitter (GST) platform includes a variety of different brand names and model numbers supporting different use cases.

The manufacturer declares that the following models are identical electrically or any differences between them do not affect their RF and EMC characteristics, and therefore meets the level of testing equivalent to the tested model.

Glucose Sensor Transmitter (GST)	Brand name	Configuration
RF ID: 033686	*Disposable Sensor 5*	*MMT-5100CLX*
	Simplera™	*MMT-5100J*
	Simplera Sync™	*MMT-5120*

Note: The products identified in the table above have the same hardware but different software and firmware to function as components in different CGM systems. The GST models are used in a clinical (*MMT-5100CLX*), standalone (*MMT-5100J*), or integrated CGM insulin pump (*MMT-5120*) system.
All models above communicate with a compatible network device via Bluetooth Low Energy to provide glucose information for diabetes management. The software and firmware do not affect product radio or electromagnetic compatibility performance or compliance. Hardware documentation such as schematics, block diagram, printed circuit board and component layouts are identical between these models.
Additional configuration identifiers (*e.g., A, B, 1, 2…*) may be added to the base configuration number for inventory management/distribution purposes and pertain to different regions (US vs. OUS), packages (1-pack vs. 5-pack), and user guide language bundles.

Supplemental Information

Measurement Uncertainty

Uncertainty Value	Parameter
5.77 dB	Radiated Emissions
0.673 dB	RF Conducted Measurements
5.77×10^{-10}	Frequency Deviation
0.00005 s	Time Deviation
3.18 dB	Mains Conducted Emissions

Uncertainties reported are worst case for all CKC Laboratories' sites and represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Compliance is deemed to occur provided measurements are below the specified limits.

Emissions Test Details

TESTING PARAMETERS

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula. This reading was then compared to the applicable specification limit. Individual measurements were compared with the displayed limit value in the margin column. The margin was calculated based on subtracting the limit value from the corrected measurement value; a positive margin represents a measurement exceeding the limit, while a negative margin represents a measurement less than the limit.

SAMPLE CALCULATIONS		
	Meter reading	(dBµV)
+	Antenna Factor	(dB/m)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or caret ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the spectrum analyzer or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point, the measuring device is set into the linear mode and the scan time is reduced.

End of Report