



1. Scope

This engineering report covers antenna information required by FCC CFR part 15 certification for the 8XX Automated Insulin Delivery pump (AID).

2. Purpose

This engineering report summarizes the information required by FCC CFR part 15 certification for the 8XX Automated Insulin Delivery (AID) pump.

3. Relevant Documents

3.1. Reference Documents

N/A

3.2. List of Standards

FCC 47 CFR Part 15 - Radio Frequency Devices

3.3. External Documents

N/A

4. Terms and Definitions

Term	Definition
AID	Automated Insulin Delivery
CFR	Code of Federal Regulations
EM	ElectroMagnetic
EMC	ElectroMagnetic Compatibility
FCC	Federal Communication Commission
PCB	Printed Circuit Board
RF	Radio Frequency
TRP	Total Radiated Power

5. FCC Requirements

FCC requires the following information for all radio frequency devices that require 47 CFR Part 15.247 certification.

1. Identification of the antenna (i.e., part number, model number). [*]
2. Antenna specification (i.e., band(s) of operation, dimension, impedance).
3. For custom-built antennas, additional details on antenna design.
4. Antenna gain. [*]
5. Evidence in support of declared antenna gain. FCC declared that the manufacture shall submit substantiating evidence of declared gain when antenna gain is necessary for determination of compliance with FCC unlicensed transmitter rules. Acceptable evidence can be in the form of:
 - a. Antenna manufacturer's datasheet.
 - b. Data on the antenna from an antenna lab.
 - c. Gain and pattern data from an EMC lab.

Items marked with [*] are required by the FCC to be public documentation and cannot be held confidential. All other documentation may be contained within an operational description exhibit category and withheld from public inspection.

5.1. Antenna information

Items from 1 to 5 are listed in Table 1.

Table 1: Antenna information.

Parameter	Detail
Identification of the antenna	Custom-built Printed Inverted-F Antenna
Antenna specifications	Band(s) of operation: 2.4-2.4835GHz Dimension: 200mil (5.08mm) x 320mil (8.128mm) Impedance: 50Ω
Additional details on antenna design	PCB antenna
Antenna gain	Peak: 2.4dBi (max)



5.2. Antenna Gain Measurements

Antenna peak gain measurements for 12 devices, performed at a certified lab, are reported in Figure 2.

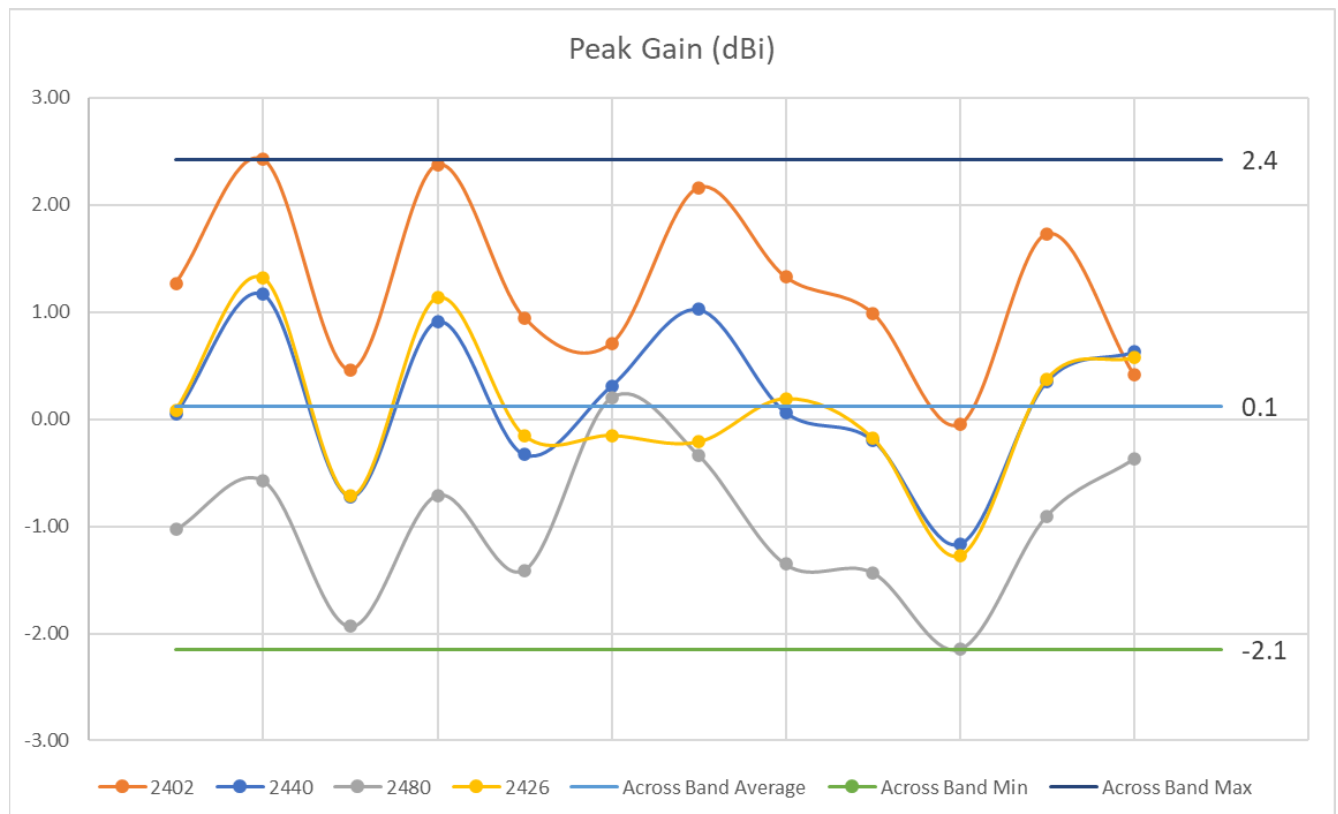


Figure 2: Antenna peak gain measurements.

6. Measurement Information

6.1. Test Laboratory

Company Name: Electro Magnetic Test, Inc.

Address: 1547 Plymouth Street Mountain View , CA

Postal Code: 94043

Telephone: +1 (650) 965-4000

Chamber Utilized EMT Lab B, (ETS 8923)

6.4. Block diagram for ETS 8923 Chamber



23 dual polarized antennas are mounted in a ring configuration, spaced 15 degrees apart.

The measurement uncertainty associated with the data collected in this report is 1.90 dB.

6.6. Test setup

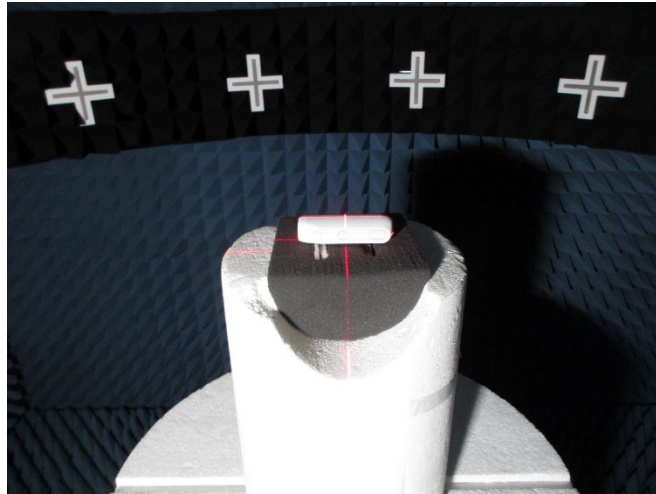


Figure 3: Measurements setup.

6.7. Test Equipment Utilized

8XX AID pump antenna information for devices subjected to FCC CFR part 15 certification

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Medtronic

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. CYCLE
Analyzer, Signal (EXA)	Agilent Technologies	N9010A	MY5400257	June 22, 2024	1 Year
Amplifier, Limiting	ETS-Lindgren	109646	001695339	N.C.R.	N.C.R.
Analyzer, Signal	Rohde & Schwarz	FSW8	104071	February 15, 2023	1 Year
Receive Antenna	ETS-Lindgren	7005275-001	N/A	N.C.R.	N.C.R.
EMQuest Data Acquisition and Analysis Software	ETS-Lindgren	Version 1.16 Build 14361	N/A	N/A	N/A
EMCenter 2-Slot RF System	ETS-Lindgren	7000-004	00116754	N/A	N/A
EMCenter 7-Slot RF System	ETS-Lindgren	7000-001	00159836	N/A	N/A
Emulator, Universal Network	Spirent Corporation	SR3420	UNE370U2	March 27, 2024	1 Year
LTE Test Set	Spirent Corporation	E2010S	BWTS370M5	March 27, 2024	1 Year
Server, 1U	Spirent Corporation	TAS3710 PDE	7KCZK02	N/A	N/A
System Amplifier Modules	ETS-Lindgren	SAM-01	00169708	N.C.R.	N.C.R.
System Amplifier Modules	ETS-Lindgren	SAM-01	00169709	N.C.R.	N.C.R.
System Amplifier Modules	ETS-Lindgren	SAM-01	00169710	N.C.R.	N.C.R.

7. Summary of Changes

Revision	Summary of Change
A	Initial Document Release