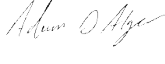


Test Report C-3939E

Equipment Under Test:	252.433.00.1T
Requirement(s):	FCC 15.247 RSS-247
Test Date(s):	12/4/2025 – 2/6/2026
Prepared for:	The Chicago Faucet Company Attn: Robert Bobek 2100 Clearwater Drive Des Plaines, IL 60018

Report Issued by: Mitchell Freund, EMC Test Engineer	
Signature: 	Date: 02/12/2026
Report Reviewed by: Adam Alger, Sr. Manager, EMC Laboratory	
Signature: 	Date: 02/12/2026
Report Constructed by: Mitchell Freund, EMC Test Engineer	
Signature: 	Date: 02/12/2026

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Company: The Chicago Faucet Company	Page 1 of 15	Name: 252.433.00.1T
Report: TR3939E		Model: IWT-07-B
Quote: NBO-01-2024-006892-4		Serial: Engineering Sample

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Ezurio Test Services in Review

The Ezurio laboratory located at W66 N220 Commerce Court Cedarburg, Wisconsin, 53012 USA is recognized through the following organizations:



A2LA – American Association for Laboratory Accreditation

Accreditation based on ISO/IEC 17025:2017 with Electrical (EMC) Scope

A2LA Certificate Number: 1255.01

Scope of accreditation includes all test methods listed herein unless otherwise noted



Federal Communications Commission (FCC) – USA

Accredited Test Firm Registration Number: 953492

Recognition of two 3 meter Semi-Anechoic Chambers



Innovation, Science and Economic Development Canada

Accredited U.S. Identification Number: US0218

Recognition of two 3 meter Semi-Anechoic Chambers

Company: The Chicago Faucet Company	Page 3 of 15	Name: 252.433.00.1T
Report: TR3939E		Model: IWT-07-B
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1 TEST REPORT SUMMARY

During **12/4/2025 – 2/6/2026** the Equipment Under Test (EUT), **252.433.00.1T**, as provided by **The Chicago Faucet Company**, was tested to the following requirements:

FCC 15.247 | RSS-247 Issue 4 – Bluetooth Low Energy

Requirements	Description	Method	Compliant
15.247 RSS-247	Field Strength Measurement for determining antenna gain	ANSI C63.10	Yes
15.247(b)(3) RSS-247 Clause 6.3.2	RF Output Power	ANSI C63.10	Yes

Notice:

The results relate only to the item tested as configured and described in this report. Any additional configurations, modes of operation, or modifications made to the equipment under test after the specified test date(s) are at the decision of the client and may not apply to the data seen in this test report.

The decision rule for Pass / Fail assessment to the specification or standard listed in this test report has been agreed upon by the client and laboratory to be as follows:

Measurement Type	Rule
Emissions – Amplitude	1 dB below specified limit
Emissions – Frequency	1% less than the specification
Immunity	Tested at specified level

2 CLIENT INFORMATION

Company Name	The Chicago Faucet Company
Contact Person	Robert Bobek
Address	2100 Clearwater Drive Des Plaines, IL 60018

2.1 Equipment Under Test (EUT) Information

The following information has been supplied by the client

Product Name	252.433.00.1T
Model Number	IWT-07-B
Serial Number	Engineering Sample
Date of Receipt	11/25/2025
Condition	Good
FCC ID	2APTX-CFC04
IC ID	31327-CFC04

2.2 Product Description

IR sensor with Bluetooth and BMS communication capabilities

2.3 Modifications Incorporated for Compliance

None noted at time of test

2.4 Deviations and Exclusions from Test Specifications

None noted at time of test

2.5 Additional Information

Input Power = draws 12-24V from the Gateway via BUS Converter which then provides 4.5 VDC to Sensor.

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Report: TR3939E		Model: IWT-07-B
Quote: NBO-01-2024-006892-4		Serial: Engineering Sample

2.6 EUT Programming

Equipment used for EUT programming (not part of the EUT)

HP EliteBook 840

Linksys E6900 V1.1 – Router

Program used on HP EliteBook – STM32CubeMonitor RF Version 2.14.0

Programmed Via USB and appears in the system as a virtual serial port.

2.7 Antenna Information

Johanson Technology 2.45 GHz Antenna

P/N 2450AT42A100

Frequency Range: 2400-2500 MHz

2.8 Test Channels

Channel	Frequency (MHz)	Data Rates
37	2402.0	LE 1M PHY LE 2M PHY
17	2440.0	
39	2480.0	

2.9 Power Table and Reduced Video Bandwidth

Data Rate	Minimum Average VBW (Hz)	Power Setting
LE 1M PHY	464	Power set to level 31 (+6dB)
LE 2M PHY	923	

3 REFERENCES

Publication	Edition	Date	AMD 1	AMD 2
FCC eCFR 47 Part 15		2026		
ANSI C63.10		2020	2024	
RSS-247	4	2025		

4 UNCERTAINTY SUMMARY

Using the guidance of the following publications the calculated measurement uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level, using a coverage factor of $k = 2$.

References
CISPR 16-4-1
CISPR 16-4-2
CISPR 32
ANSI C63.23
A2LA P103
A2LA P103c
ETSI TR 100-028

Measurement Type	Configuration	Uncertainty $\pm$
Radiated Emissions	Biconical Antenna	5.0 dB
Radiated Emissions	Log Periodic Antenna	5.3 dB
Radiated Emissions	Horn Antenna	4.7 dB
AC Line Conducted Emissions	Artificial Mains Network	3.4 dB
Telecom Conducted Emissions	Asymmetric Artificial Network	4.9 dB
Disturbance Power Emissions	Absorbing Clamp	4.1 dB
Radiated Immunity	3 Volts/meter	2.2 dB
Conducted Immunity	CDN/EM/BCI	2.4/3.5/3.4 dB
EFT Burst/Surge	Peak pulse voltage	164 volts
ESD Immunity	15 kV level	1377 Volts

Parameter	ETSI U.C. $\pm$	U.C. $\pm$
Radio Frequency, from F0	1×10^{-7}	0.55×10^{-7}
Occupied Channel Bandwidth	5 %	2 %
RF conducted Power (Power Meter)	1.5 dB	1.2 dB
RF conducted emissions (Spectrum Analyzer)	3.0 dB	1.7 dB
All emissions, radiated	6.0 dB	5.3 dB
Temperature	1° C	0.65° C
Humidity	5 %	2.9 %
Supply voltages	3 %	1 %

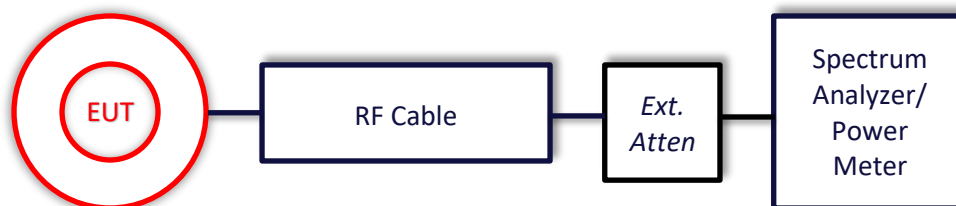
Company: The Chicago Faucet Company	Page 8 of 15	Name: 252.433.00.1T
Report: TR3939E		Model: IWT-07-B
Quote: NBO-01-2024-006892-4		Serial: Engineering Sample

5 TEST DATA

5.1 Antenna Port Conducted Emissions

Description of Measurement	The direct measurement of emissions at the antenna port of the EUT is achieved by use of a RF connection to a spectrum analyzer or power meter. The cable and attenuator factors are loaded into the analyzer or power meter allowing for direct measurement readings without the need for further corrections.
Example Calculations	Measurement (dBm) + Cable factor (dB) + External Attenuator (dB) = Corrected Reading (dBm) Margin (dB) = Limit (dBm) – Corrected Reading (dBm)

Block Diagram



5.1.1 RF Output Power

Operator	Mitchell Freund	QA	Adam Alger
Temperature	20.2°C	R.H. %	21.80%
Test Date	12/4/2025	Location	Cond. Bench
Requirement	15.247(b)(3) RSS-247 Clause 6.3.2	Method	ANSI C63.10 11.9.1

Limits: The maximum peak conducted output power of the intentional radiator shall not exceed 1 Watt.

Test Parameters

Frequency	2400-2483.5 MHz	Setup	Connected via Antenna Port
RBW	3 MHz	VBW	50 MHz
Detector(s)	Peak	Settings	Max Hold

Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960173	Cable	A.H. Systems, Inc.	SAC-26G- 1	388	1/28/2025	2/28/2026	Active Verification
EE 960067	Generator - Signal	HP	8648A	3636A02735	4/1/2025	4/1/2026	Active Calibration

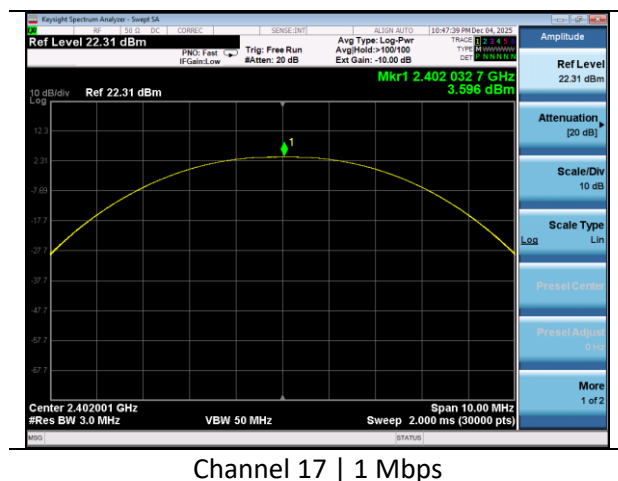
EUT Parameters

Input Power	120 VAC 60 Hz	Mode	BLE Tx
Frequency	2400-2483.5 MHz	Channel	37, 17, 39

Table

Rate	Frequency (MHz)	Channel	Peak Output Power (dBm)	Limit (dBm)	Margin (dB)
1 Mbps	2402.0	37	3.6	30	26.4

Plots



5.2 Radiated Emissions

Description of Measurement	The frequency spectrum is investigated for intentional and / or unintentional signals emanating from the EUT by use of a standardized test site and measurement antenna. The antenna, cable, pre-amp, and other necessary measurement system correction factors are loaded onto the EMI receiver / spectrum analyzer when the measurements are performed allowing the data to be gathered and reported as corrected values. The maximum emissions from the EUT are determined by turn-table azimuth rotation (360°) and scanning of the measurement antenna. Maximized levels are noted at degree values of azimuth, measurement antenna height, and measurement antenna polarity.
Example Calculations	Measurement (dBμV) + Cable factor (dB) + Other (dB) + Antenna Factor (dB/m) = Corrected Reading (dBμV/m) Margin (dB) = Limit (dBμV/m) - Corrected Reading (dBμV/m) Example at 4000 MHz: Reading = 40 dBμV + 3.4 dB + 0.9 dB + 6.5 dB/m = 50.8 dBμV/m Average Limit = 20 log (500) = 54 dBμV/m Margin = 54 dBμV/m - 50.8 dBμV/m = 3.2 dB

Block Diagram



5.2.1 Antenna Gain

Operator	Mitchell Freund	QA	Anthony Smith
Temperature	24.2°C	R.H. %	35.5%
Test Date	12/5/2025 -2/6/2026	Location	Chamber 3
Requirement	15.247 RSS-247	Method	ANSI C63.10

Test Parameters

Frequency	2402-2480 MHz	Distance	3 Meters
Detector(s)	Peak	Table height	150 cm
RBW	3 MHz	VBW	50 MHz

Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
LSC-300	Cable	Chamber 3 Emissions	-	-	1/24/2025	2/24/2026	Active Verification
AA 960081	Antenna - Double Ridge Horn	EMCO	3115	6907	10/8/2025	10/8/2026	Active Calibration
EE 960067	Generator - Signal	HP	8648A	3636A02735	4/1/2025	4/1/2026	Active Calibration
EE 960203	Analyzer - EMI Receiver	Keysight	N9038A	MY56400072	4/2/2025	4/2/2026	Active Calibration

EUT Parameters

Input Power	120 VAC 60 Hz	Mode	BLE Tx
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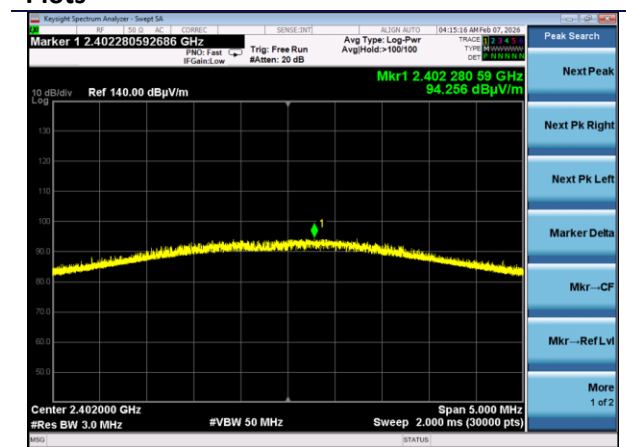
Maximum Radiated Field Strength Table

Channel	Mode	Output Power (dBuV/m)	Power Setting
37	1M	3.6	Power Setting 31 (+6dBm)

Antenna Gain Table

Channel	Mode	Output Power (dBuV/m)	Conducted Output Power (dBm)	Antenna gain (dBi)
37	1M	94.26	3.6	-4.54

Plots



Channel 37 | 1M | Power Setting 31 (+6dBm)

Example Calculation:

Antenna Gain (dBi) = Radiated Field Strength (dBuV/m @ 3m) – [Output Power (dBm) + 95.2 (conversion to dBuV/m @ 3m)]

6 REVISION HISTORY

Version	Date	Notes	Person
0.0	2/10/2026	Initial Draft	Mitchell Freund
1.0	2/12/2026	Revised Draft	Mitchell Freund

END OF REPORT