



## FCC PART 15.247 PERMISSIVE CHANGE TEST REPORT

for the

**YJ7-NA080801 BLE Module**

**WLL REPORT# 19367-01 REV 1**

Prepared for:

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for the

Stanley Black & Decker, Inc.  
YJ7-NA080801 BLE Module

WLL Report# 19367-01 Rev 1

September 10, 2025

Prepared by:

A handwritten signature in blue ink that reads "Ryan Mascaro".

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Ryan Mascaro  
RF Test Engineer

Reviewed by:

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Steven D. Koster  
President



## Abstract

This report has been prepared on behalf of Stanley Black & Decker, Inc. to support the attached application for a permissive change authorization under FCC Part 15.247. The test report and application are submitted for incorporating the NA080801 BLE Module into a host device. The information provided within this report is only applicable to the device herein documented as the EUT.

For this permissive change, the host device is a DeWalt cordless tool, Model(s): DCH735, DCH775, and DCH892. Please note that the embedded module is currently certified under FCC ID: YJ7-NA080801.

Radiated testing was performed in the Free-space Anechoic Chamber Test-site (FACT) 3m chamber of Washington Laboratories, Ltd., located at: 4840 Winchester Boulevard, Suite 5., Frederick, MD 21703. Site description and site attenuation data have been placed on file with the FCC's Sampling and Measurements Branch at the FCC laboratory in Columbia, MD. Washington Laboratories, Ltd. has been accepted by the FCC and approved by ANAB under Certificate AT-1448 as an independent FCC test laboratory. The ISED Canada number for Washington Laboratories is 3035A.

The Stanley Black & Decker, Inc., YJ7-NA080801 BLE Module complies with the requirements for a Digital Transmission System (DTS) transmitter device under FCC Part 15.247.

Revision History	Description of Change	Date
Rev 0	Initial Release	September 10, 2025
Rev 1	Add Note to 4.3.2 per ACB	September 15, 2025

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# 1 Introduction

## 1.1 Compliance Statement

The Stanley Black & Decker, Inc., YJ7-NA080801 BLE Module complies with the requirements for a Digital Transmission System (DTS) transmitter device under FCC Part 15.247.

## 1.2 Test Scope

Tests for radiated emissions were performed. All measurements were performed in accordance with the 2020 version of ANSI C63.10. The measurement equipment conforms to ANSI C63.2 Specifications for Electromagnetic Noise and Field Strength Instrumentation. The EUT module was tested while embedded in a host tool. The host was also evaluated for co-location and RF exposure.

## 1.3 Contract Information

Customer: Stanley Black & Decker, Inc.  
Purchase Order Number: 618618  
Quotation Number: 75488

## 1.4 Test and Support Personnel

Washington Laboratories, LTD: Ryan Mascaro  
Customer Representative: David Coleman

## 1.5 Testing Algorithm

The NA080801 was operated continuously in a transmit enabled steady-state mode. The embedded BLE module was exercised in both the 1Mbps and the 2Mbps modes, as necessary, to meet the requirements of the module's integration guide (dated: 05 Aug 2024) retrieved from the original filing exhibits. Please know that the module's integration guide has been appended to this test report for reference.

The host tool also contains two other modules. The other modules are FCC ID: YJ7-DCE045 (2.4GHz) and FCC ID: YJ7WTCTX (433.9MHz). The other two modules were set to transmit continuously during all testing. All three co-located modules were transmitting during the radiated testing. The AC powerline portion was not evaluated for this test report as the EUT module is a DC powered device that gets a voltage from the host tool. The host tool is a battery powered device only. The host tool is not sold with a battery charger. The worst-case emissions levels are provided throughout this report.

## 1.6 Test Location

All measurements herein were performed by Washington Laboratories in Frederick, Maryland. Site description and site attenuation data have been placed on file with the FCC's Sampling and Measurements Branch at the FCC laboratory in Columbia, MD. Washington Laboratories, Ltd. has been accepted by the FCC and approved by ANAB under Certificate AT-1448 as an independent FCC test laboratory. The ISED Canada number for Washington Laboratories is 3035A.

## 1.7 Customer Supplied Data or EUT Information

Please note that the applicant has provided the information regarding the EUT contents and configuration. The test laboratory is not responsible for verifying the accuracy of this information.

## 1.8 Software Employed by the Test Laboratory

The following test and measurement software were used by the Laboratory:

- (1) Amplifier Research, EMCWare Software Suite v7.0.4
- (2) Keysight 2019, Update Rev. A.25.08
- (3) Keysight 2023, Update Rev. A.33.03

## 1.9 Deviations to the Standard or Test Plan

There were no deviations to the requirements of the standard(s).

## 1.10 Reason for Permissive Change

This permissive change was performed due to the NA080801 module being incorporated into a host tool. The host tool is a DeWalt cordless demolition hammer, Model(s): DCH735, DCH775, and DCH892. Please note that the embedded module is currently certified under FCC ID: YJ7-NA080801.

## 1.11 Testing Dates

9/3/2025 to 9/4/2025

## 2 Equipment Under Test

### 2.1 EUT Identification

The results obtained relate only to the item(s) tested.

Table 1: EUT Device Summary

Manufacturer:	Stanley Black & Decker, Inc.
EUT Embedded Module:	FCC ID: YJ7-NA080801, IC ID: 9082A-NA080801
Other Embedded Module:	FCC ID: YJ7-DCE045, IC ID: 9082A-DCE045
Other Embedded Module:	FCC ID: YJ7WTCTX, IC ID: 9082A-WTCTX
Host Tool Platform:	DeWalt Cordless Demolition Hammer
Host Tool Model:	DCH735, DCH775, and DCH892
Host Tool Input Voltage:	60 VDC
Embedded Module Input Voltage:	3VDC to 5VDC
Host Tool Software Version:	<i>not declared by manufacturer</i>
Embedded Module Software Version:	<i>not declared by manufacturer</i>
FCC Rule Part:	§15.247
Testing Dates:	9/3/2025 to 9/4/2025

### 2.2 EUT Description and Testing Configuration

The NA080801 is DeWalt's Gen2 Bluetooth Low Energy Module (BLEM). The BLE transmitter module is designed for tracking, locating, enabling/disabling, and customizing DeWalt professional power tools via the DeWalt Site Manger App., and via DeWalt Asset Gateway. The module can operate off the internal CR2450 coin cell battery or alternately the DeWalt battery pack, when present. The NA080801 module was tested while embedded in a host device. The host device is a DeWalt cordless demolition hammer, model(s): DCH735, DCH775, and DCH892. The host device also contains two other embedded modules. The other modules are FCC ID: YJ7-DCE045 and FCC ID: YJ7WTCTX. All three co-located modules were transmitting during the radiated testing.

The host tool is a cordless demolition hammer. The DCH735 and DCH892 are identical except that DCH892 does not include rotary function. The DCH775 is similar to DCH735 but is lighter duty. For this test report, all three model types were investigated for worst-case emissions. There is no difference in module transmitter emissions between the host models. Only the worst-case emissions levels are provided throughout this report.

## 2.3 EUT and Host Platform Configuration

The EUT was comprised of the following equipment, provided on the following page. All Modules, PCBs, etc. listed were considered as part of the EUT, as tested.

Table 2: EUT and Host Configuration List

EUT Description	Model	Part Number	Serial Number	Revision
G2 BLEM (EUT)	NA080801	--	--	--
Tag (other module)	DCE045	--	--	--
WTC (other module)	WTCTX	--	--	--
Host Tool	DCH735 DCH892 DCH775	--	--	--

Table 3: EUT Port and Cable Configuration

Ref. ID	EUT Port Name	Cable/Port Description	Qty.	Length (meters)	Shielded	Term.
--	--	--	--	--	--	--

Table 4: Support Equipment

Item	Description for Test Mode	Note
20V/60V Battery	Host Tool Battery Pack	Not Sold with EUT Module

## 3 Measurements

### 3.1 References

ANSI C63.2 (Jan-2016) Specifications for Electromagnetic Noise and Field Strength Instrumentation

ANSI C63.4 (Jan-2014) American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

EN 55032 (CISPR 32:2015) Electromagnetic compatibility of multimedia equipment – Emission Requirements

### 3.2 Measurement Uncertainty

All results reported herein relate only to the equipment tested. The basis for uncertainty calculation uses ANSI/NCSL Z540-2-1997 (R2002) with a type B evaluation of the standard uncertainty. Elements contributing to the standard uncertainty are combined using the method described in Equation 1 to arrive at the total standard uncertainty. The standard uncertainty is multiplied by the coverage factor to determine the expanded uncertainty which is generally accepted for use in commercial, industrial, and regulatory applications and when health and safety are concerned (see Equation 2). A coverage factor was selected to yield a 95% confidence in the uncertainty estimation.

Equation 1: Standard Uncertainty

$$u_c = \pm \sqrt{\frac{a^2}{div_a^2} + \frac{b^2}{div_b^2} + \frac{c^2}{div_c^2} + \dots}$$

Where:

uc	= standard uncertainty
a, b, c	= individual uncertainty elements
Div <sub>a</sub> , b, c	= the individual uncertainty element divisor based on the probability distribution
Divisor	= 1.732 for rectangular distribution
Divisor	= 2 for normal distribution
Divisor	= 1.414 for trapezoid distribution

Equation 2: Expanded Uncertainty

$$U = k u_c$$

Where

U = expanded uncertainty  
k = coverage factor  
k  $\leq 2$  for 95% coverage (ANSI/NCSL Z540-2 Annex G)  
uc = standard uncertainty

The measurement uncertainty complies with the maximum allowed uncertainty from CISPR 16-4-2. Measurement uncertainty is not used to adjust the measurements to determine compliance. The expanded uncertainty values for the various scopes in the WLL accreditation are provided in Table 5 below.

Table 5: Expanded Uncertainty List

Scope	Standard(s)	Expanded Uncertainty
Conducted Emissions	CISPR11, CISPR32, CISPR14, FCC Part 15	$\pm 2.63$ dB
Radiated Emissions	CISPR11, CISPR32, CISPR14, FCC Part 15	$\pm 4.55$ dB

### 3.3 Test Equipment List

Table 6 provides a list of the test equipment used for data measurements along with the calibration information.

Table 6: Test Equipment List

Test Name: <b>Radiated Emissions Testing</b>		Test Date: 9/3/2025 to 9/4/2025	
Asset #	Manufacturer/Model	Description	Cal. Due
00644	SUNOL SCIENCES CORP	BICONALOG ANTENNA	12/2/2026
00993	KEYSIGHT N9020B	MXA SIGNAL ANALYZER	11/6/2025
00425	ARA DRG-118/A	HORN ANTENNA	6/25/2028
00276	ELECTRO-METRICS BPA-1000	RF PRE-AMPLIFIER	4/18/2026
00066	HP BZ-01002650	RF PRE-AMPLIFIER	8/25/2026
00825	CABLE ASSOCIATES, MTC1010	SMA-SMA COAXIAL CABLE	6/17/2026
00897	TELEDYNE DURATEST 921	SMA-SMA COAXIAL CABLE	6/6/2026
00683	MEC, INC. KMR-240	SMA-SMA COAXIAL CABLE	8/25/2026
00281	ITC, 21A-3A1	WAVEGUIDE BANDPASS	8/21/2027
00992	KEYSIGHT, N5173B	EXG SIGNAL GENERATOR	1/8/2028
N/A	MINICIRCUITS	25W, 10DB ATTENUATOR	Verify Before Use

### 3.4 Environmental Conditions During All Testing

Ambient Temperature	Between 16°C and 23°C
Relative Humidity	Between 39% and 60%

## 4 Test Results

The table below provides the compliance results for a DTS modular transmitter, in accordance with FCC Part 15.247. Full test results are shown in subsequent report sub-sections.

Table 7: Testing and Results Summary

FCC Rule Part	IC Rule Part	Description	Result
15.247(a)(2)	RSS-247 [5.2 (a)]	Occupied Channel Bandwidth	Pass
15.247 (b)(3)	RSS-247 [5.4 (d)]	Transmit Output Power	Pass
15.247 (e)	RSS-247 [5.2 (b)]	Power Spectral Density	Pass
15.247 (d)	RSS-247 [5.5]	Out-of-Band Emissions (Band Edge @ 20dB below)	Pass
15.205 15.209	RSS-Gen [8.9/8.10]	General Field Strength Limits (Restricted Bands & RE Limits)	Pass
15.207	RSS-Gen [8.8]	AC Conducted Emissions	N/A *

\* the EUT is not subject to the provisions of 15.207 for AC powerline emissions.

## 4.1 Occupied (DTS) Bandwidth

For a DTS operating in the 2.4GHz band, FCC Rule Part 15.247(a)(2) requires the minimum 6dB bandwidth be at least 500 kHz. The 99% BW shall also be recorded.

For this permissive change, the transmitter OBW of the embedded EUT module shall closely resemble the original filing test data for the module.

The OBW data from the original filing is as follows:

OET Module Data:

Modulation	Data Rate	Channel Frequency	6dB Bandwidth	99% Bandwidth
$\pi/4$ DQPSK	2 Mbps	2402 MHz	1.147 MHz	2.083MHz

### 4.1.1 Measurement Method

This test was performed in accordance with Clause 11.8.2, Option 2, of ANSI C63.10-2020.

This test was performed as a 3-meter radiated emissions measurement. The transmit signal was maximized by rotating the turntable and varying the height of the test antenna.

### 4.1.2 Test Data

The EUT was investigated across various channels, only the worst-case emissions are reported.

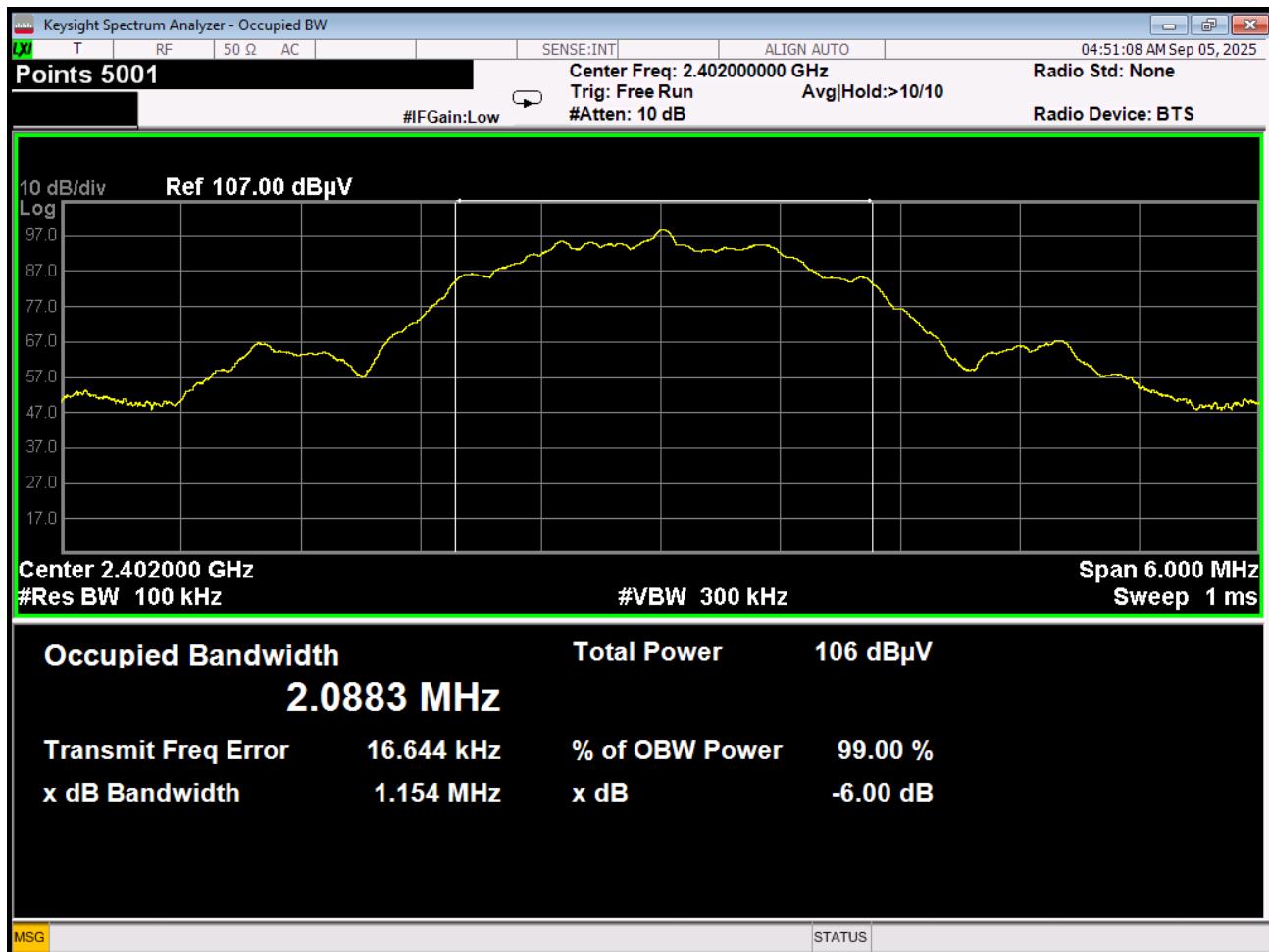
The EUT was configured to transmit a modulated signal, with channel hopping disabled.

The EUT is compliant with the requirements of this test.

The final permissive change test data is provided below.



Figure 1: Permissive Change, Occupied Bandwidth, Low Channel, 2Mbps



-6dB OBW = 1.154 MHz

99% OBW = 2.088 MHz

## 4.2 Peak Transmit Power

For a DTS operating in the 2.4GHz band, FCC Rule Part 15.247(b)(3) requires that the maximum peak conducted output power shall not exceed 30 dBm (1W). Additionally, the EIRP shall not exceed 36 dBm.

For this permissive change, the transmitter power of the embedded EUT module shall closely resemble the original filing test data for the module. The EUT employs a PCB trace antenna with -6.48 dBi of gain.

The transmit output power data from the original filing is as follows:

OET Module Data:

Modulation	Data Rate	Channel Frequency	Conducted Power (dBm)	EIRP (dBm)
GFSK	1 Mbps	2402 MHz	1.11	-5.37

### 4.2.1 Measurement Method

This test was performed as a 3-meter radiated field strength measurement. The transmit signal was maximized by rotating the turntable and varying the height of the test antenna. Testing and compliance calculations are performed based on the informative guidance provided in Annex G of ANSI C63.10-2020.

### 4.2.2 Test Data

The EUT was configured to transmit a modulated signal, with channel hopping disabled.

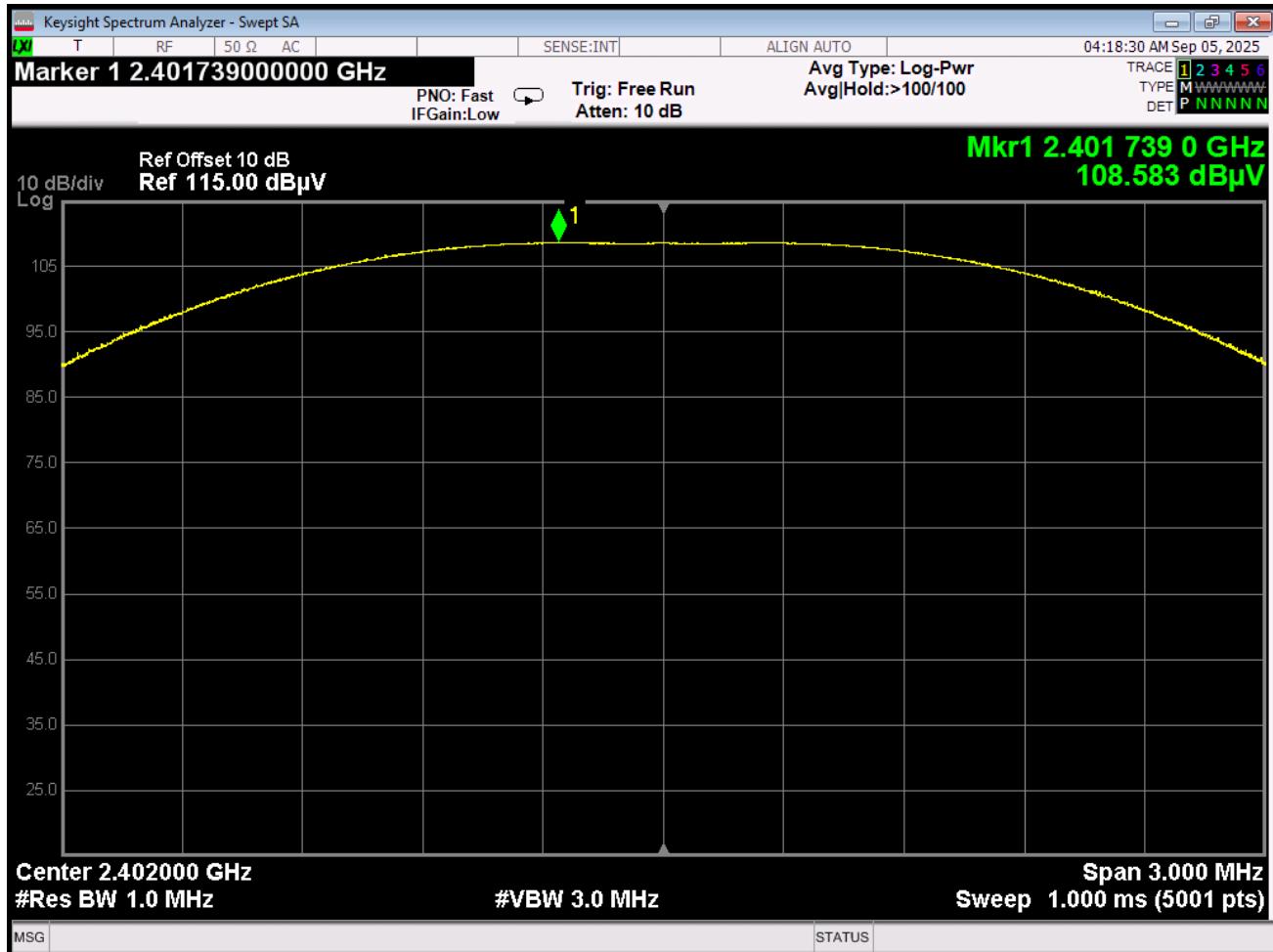
The EUT is compliant with the requirements of this test.

When comparing conducted power to radiated field strength, the final result is acceptable

The final permissive change test data is provided below.

Note that  $EIRP_{dBm} = FS_{dBuV/m} + 20\log(D_m) - 104.8$  where,  $D_m$  is the measurement distance in meters.

Figure 4: Permissive Change, Uncorrected Field Strength, Low Channel, 1Mbps



Permissive Change Data:

EUT TX (Mode)	SA Level (dB $\mu$ V)	Corr. Factors (dB/m)	Corr. Level (dB $\mu$ V/m)	Final EIRP (dBm)	EIRP Limit (dBm)	Final Result
1Mbps, 2402MHz	108.58	-18.69	89.90	-5.36	-5.37	Pass

## 4.3 Power Spectral Density

For a DTS operating in the 2.4GHz band, FCC Rule Part 15.247(e) requires that the maximum peak power spectral density (PSD) shall not exceed 8 dBm in any 3 kHz band.

For this permissive change, the transmitter PSD of the embedded EUT module shall closely resemble the original filing test data for the module. The EUT employs a PCB trace antenna with -6.48 dBi of gain.

The transmit output power data from the original filing is as follows:

OET Module Data:

Modulation	Data Rate	Channel Frequency	Conducted PSD
GFSK	1 Mbps	2402 MHz	0.99 dBm/100kHz

### 4.3.1 Measurement Method

This test was performed as a 3-meter radiated field strength measurement. The transmit signal was maximized by rotating the turntable and varying the height of the test antenna. The final measurement was performed in accordance with Clause 11.10.2 of ANSI C63.10-2020.

### 4.3.2 Test Data

The EUT was configured to transmit a modulated signal, with channel hopping disabled.

The EUT is compliant with the requirements of this test.

The EUT employs a PCB trace antenna with a peak gain of -6.48 dBi.

The final permissive change test data is provided below.

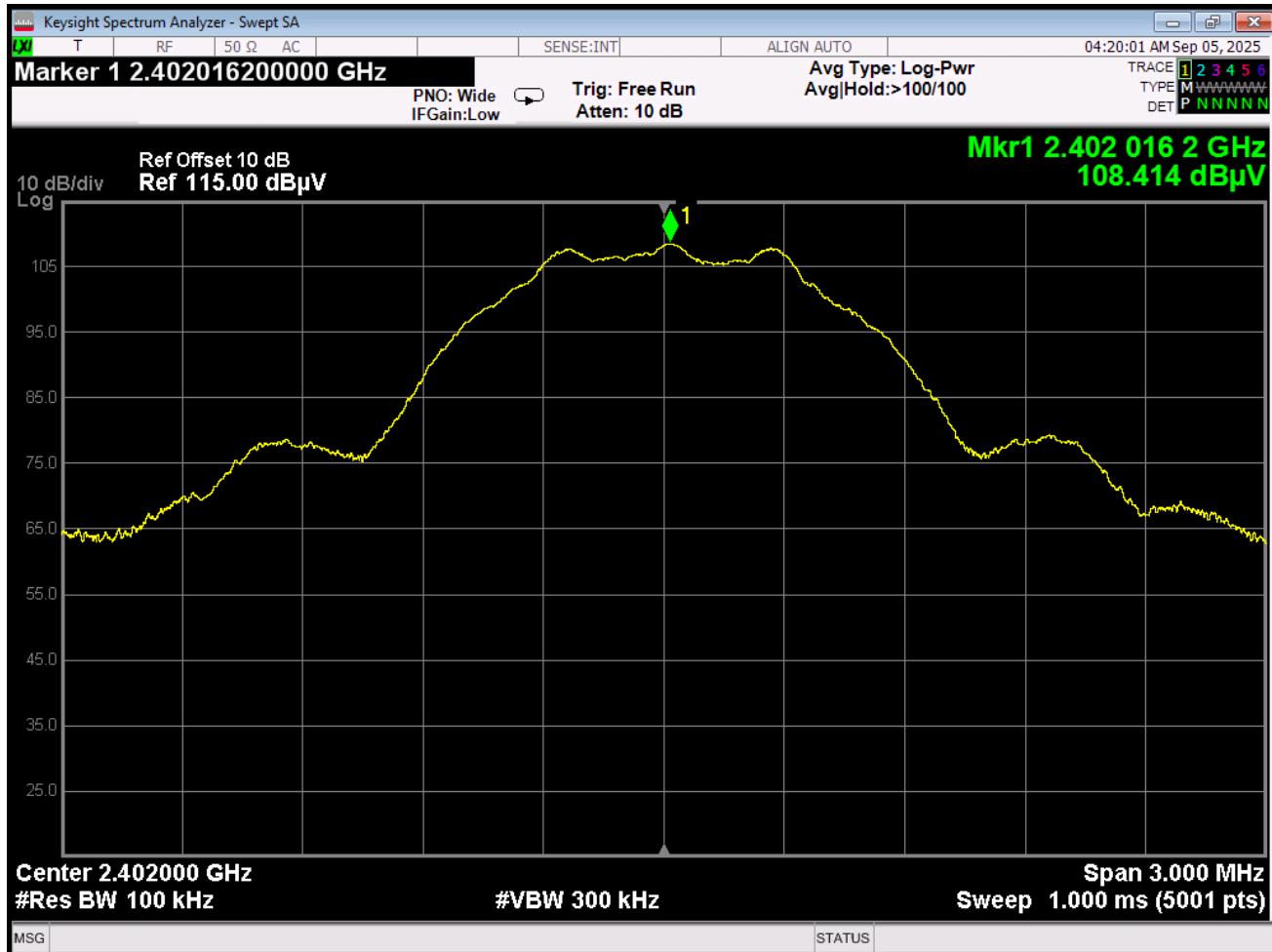
Note for calculations:

$$\text{EIRP}_{\text{dBm}} = \text{FS}_{\text{dBuV/m}} + 20\text{LOG}(\text{D}_m) - 104.8 \text{ where, } \text{D}_m \text{ is the measurement distance in meters.}$$

$$\text{EIRP}_{\text{dBm}} - \text{Gain}_{\text{dBi}} = \text{Conducted Equivalent}$$

$$-5.57_{\text{dBm}} - (-6.48_{\text{dBi}}) = .94 \text{ dBm/100kHz} = \text{final EUT PSD for this C2PC}$$

Figure 4: Permissive Change, Uncorrected PSD (Radiated), Low Channel, 1Mbps



Permissive Change Data:

EUT TX (Mode)	SA Level (dB $\mu$ V)	Corr. Factors (dB/m)	Corr. Level (dB $\mu$ V/m)	Final PSD (dBm)	PSD Limit (dBm)	Final Result
1Mbps, 2402MHz	108.414	-18.69	89.72	0.94	0.99	Pass

\* note: see 4.3.2 for sample calculations

## 4.4 Band-edge

This section provides close-up plots of the band-edge for the low channel of 2402 MHz.

For a DTS operating in the 2.4GHz band, FCC Rule Part 15.247(d) requires that in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the unwanted radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

### 4.4.1 Measurement Method

This test was performed as a 3-meter radiated field strength measurement. The transmit signal was maximized by rotating the turntable and varying the height of the test antenna. The final measurement was performed in accordance with Clause 6.10 through Clause 6.10.4 of ANSI C63.10-2020.

### 4.4.2 Test Data

The EUT was configured to transmit a modulated signal.

The EUT was evaluated in two modes, channel hopping enabled and channel hopping disabled.

The EUT is compliant with the requirements of this test.

The final permissive change test data is provided below.



Figure 2: Permissive Change, Band-edge, Low Channel, 1Mbps, Hopping Disabled

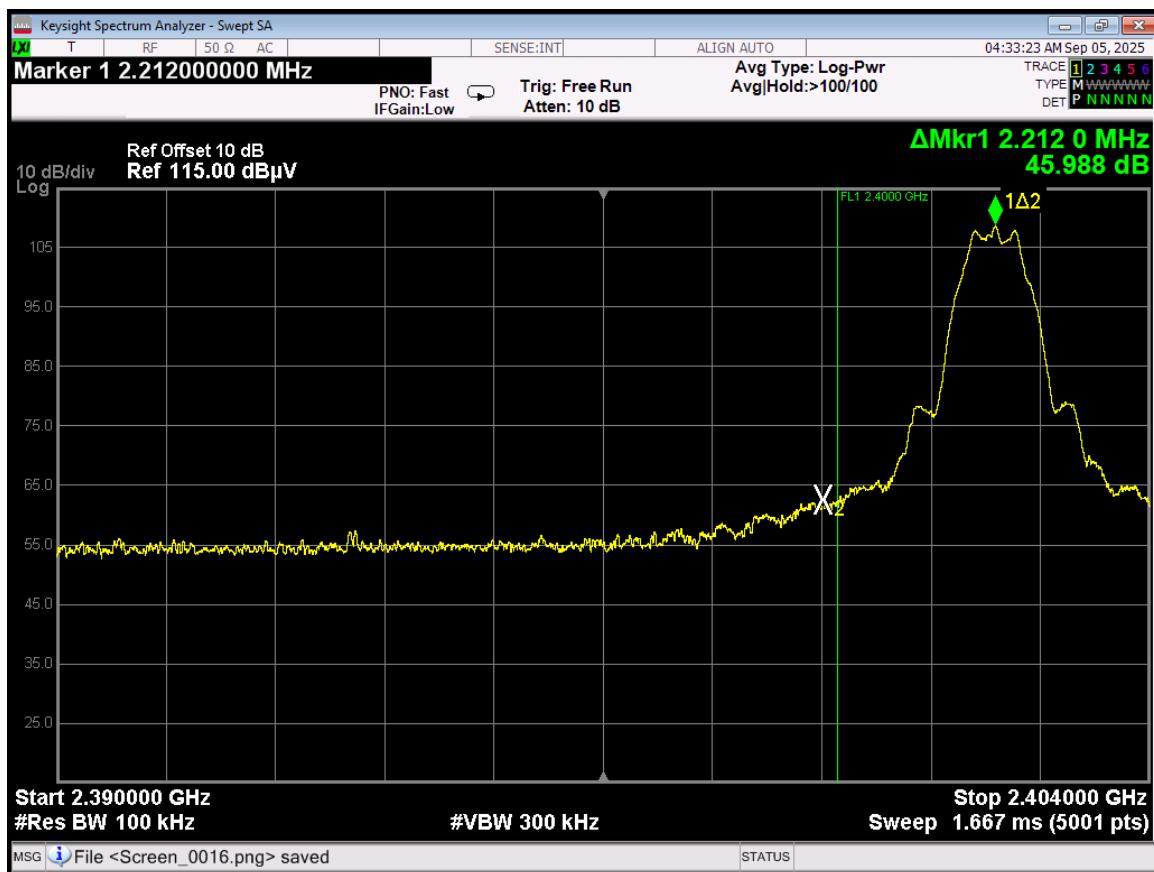
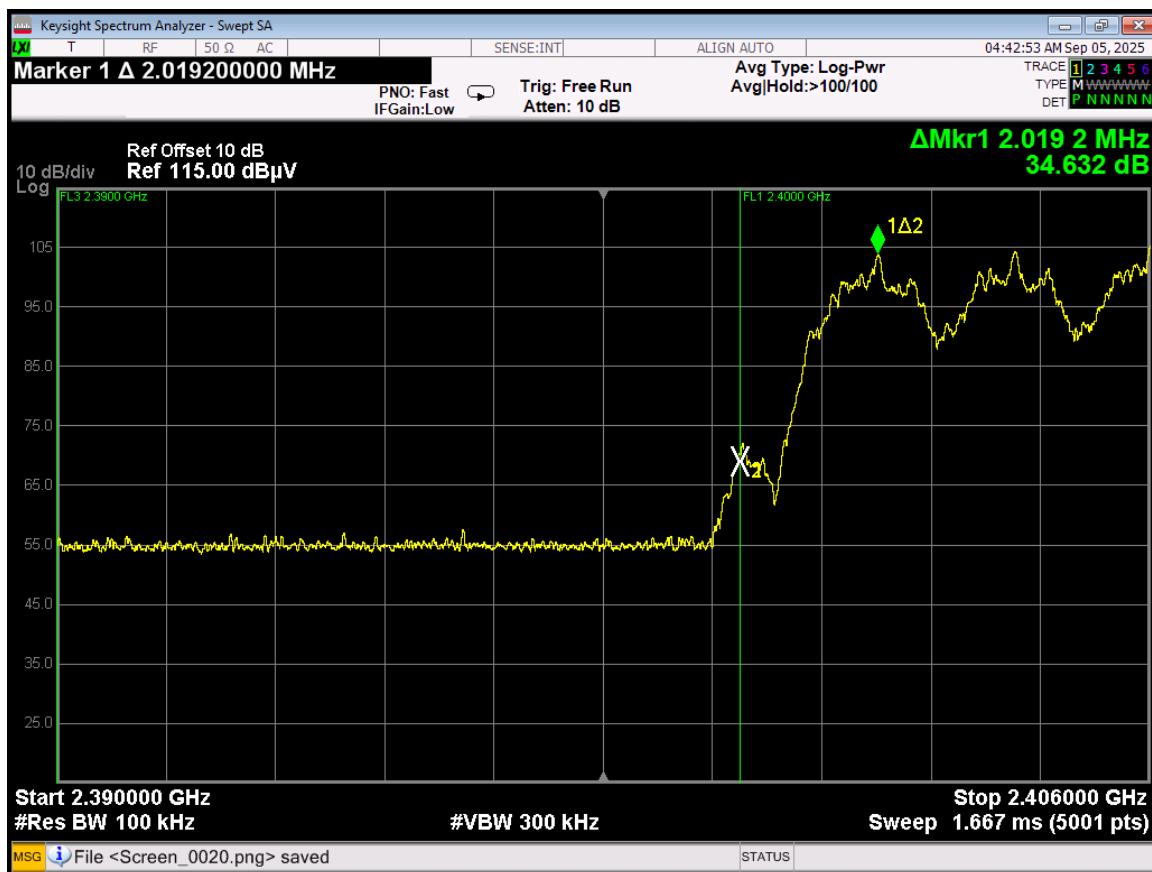


Figure 3: Permissive Change, Lower Band-edge, 2Mbps, Hopping Enabled



## 4.5 Radiated Emissions

### 4.5.1 Requirements

Compliance Standard: FCC Part(s) 15.209, 15.247, 15.205

Radiated Emissions, Compliance Limits	
Frequency Range	15.209 (3-meters)
30 to 88 MHz	100 $\mu$ V/m
88 to 216 MHz	150 $\mu$ V/m
216 to 960 MHz	200 $\mu$ V/m
> 960 MHz	500 $\mu$ V/m

### 4.5.2 Test Procedure

The requirements of FCC Part 15 call for the EUT to be placed on a 1 X 1.5 meters non-conductive motorized turntable for radiated testing on an open air test site. The height of the table is 80cm for testing below 1GHz. The height of the table is 150cm for testing above 1GHz. Please note the test distances: from 30MHz to 18GHz, 3-meters. From 18GHz to 26GHz, 1-meter.

An initial pre-scan of the EUT was performed to identify any emissions that exceed, or come within 6dB of, the applicable limit. This pre-scan was performed with the employment of a spectrum analyzer peak detector function. The highest amplitude (worst-case) emissions noted during the pre-scan were selected for final compliance measurements.

The emissions from the EUT were measured continuously at every azimuth by rotating the turntable. Broadband log periodic and double-ridged horn antennas were mounted on an antenna mast to determine the height of maximum emissions. The height of the antenna was varied between 1 and 4 meters. The output of the antenna was connected to the input of the spectrum analyzer and the emissions in the frequency range of 30MHz to 26GHz were measured. When applicable, any peripherals were placed on the table in accordance with ANSI C63.4 and cables are varied in position to produce maximum emissions. Both the horizontal and vertical field components were measured.

The detector function was set to quasi-peak for measurements below 1 GHz. The measurement bandwidth of the spectrum analyzer system was set to at least 120 kHz, with all post-detector filtering no less than 10 times the measurement bandwidth. For measurements above 1 GHz, the average levels are recorded, using a measurement bandwidth of 1 MHz, with a video bandwidth setting of 20 Hz, in the case of video averaging. Otherwise, an EMI AVG detector was employed.

#### 4.5.3 Radiated Data Reduction and Reporting

To convert the raw spectrum analyzer radiated data into a form that can be compared with the FCC limits, it is necessary to account for various calibration factors that are supplied with the antenna(s) and other measurement equipment. These factors include the antenna factor ((AF)(in dB/m)), cable loss factors ((CF)(in dB)), and the pre-amplifier gain [if applicable] ((G)(in dB)). These correction values are algebraically added to the raw Spectrum Analyzer Voltage (in dB $\mu$ V) to obtain the corrected radiated electric field, which shall be the final corrected logarithm amplitude ((Corr. Meas.)(in dB $\mu$ V/m)). This logarithm amplitude is then compared to the FCC limit, which has been converted to a unit of log in dB $\mu$ V/m.

Example:

Spectrum Analyzer Voltage:	VdB $\mu$ V (SA)
Antenna Correction Factor:	AFdB/m
Cable Correction Factor:	CFdB
Pre-Amplifier Gain (if applicable):	GdB
Electric Field:	$EdB\mu V/m = V dB\mu V (SA) + AFdB/m + CFdB - GdB$
To convert from linear units of measure:	$dBuV/m = 20LOG(uV/m)$
To convert limits, based on $D_{Measure}$ :	$3m \text{ Limit} = 10m \text{ Limit} + 20LOG(10/3)$

#### 4.5.4 Test Data

The EUT complies with the Radiated Emission requirements.

A complete investigation of the radiated fundamental field strength was performed. The EUT was evaluated in three orthogonal axes (x, y, z). The EUT position the produced the highest radiated power was maintained during all testing.

The EUT was investigated and scanned for radiated emissions in the range of 30MHz to 26GHz, which covers the tenth harmonic of the fundamental.

There were no emissions detected from the EUT above 6000 MHz.

Only the worst-case emissions levels are provided.

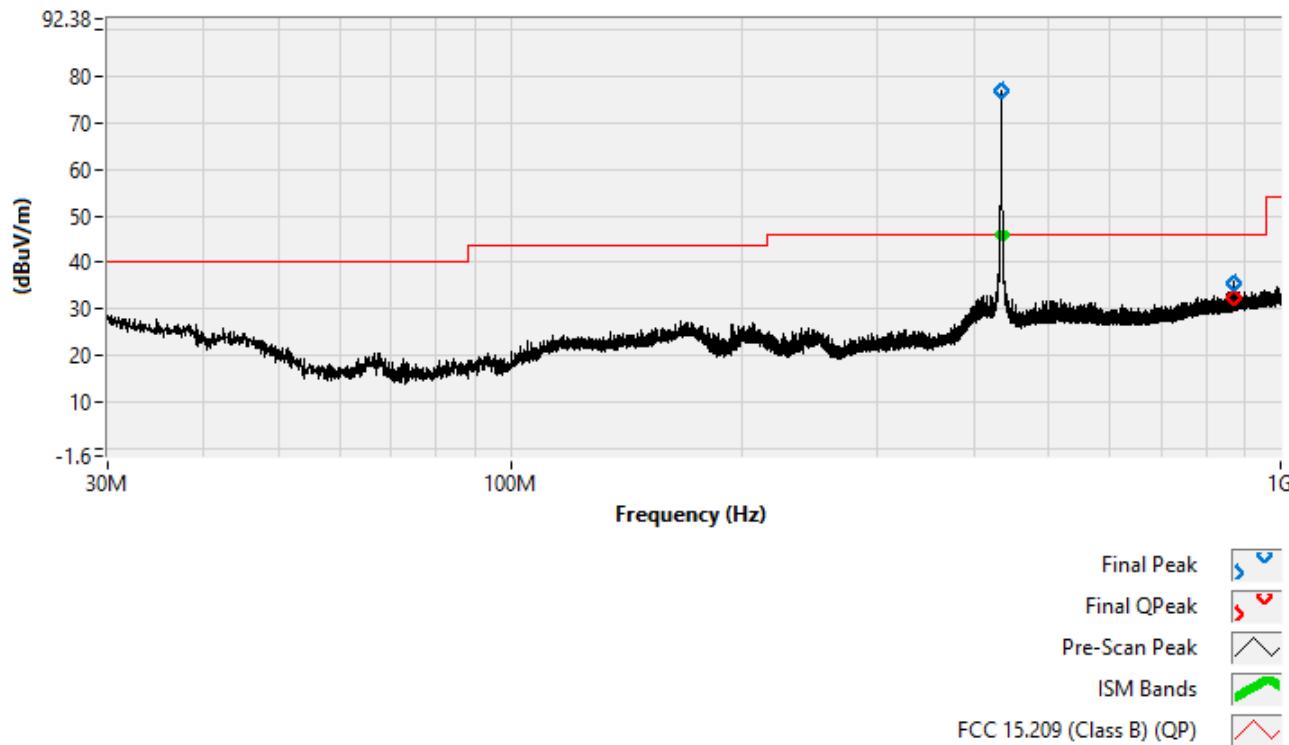
Table 8: Radiated Emissions Test Data, 30MHz to 26GHz

Frequency (MHz)	Detector	Corr. Meas. (dBuV/m)	Limit (dBuV/m)	Delta (dB)	Turn Table (deg)	Antenna (cm)
76.205	Peak	26.988	--	--	65	Horiz, 125
	QP	11.081	40	-28.919	65	Horiz, 125
263.723	Peak	31.965	--	--	65	Horiz, 125
	QP	19.634	46	-26.366	65	Horiz, 125
433.9 <sup>WTCTX</sup>	Peak	76.717	--	--	40	Vert, 100
	QP	--	--	--	--	--
867.887	Peak	35.555	--	--	40	Vert, 100
	QP	32.315	46	-13.685	40	Vert, 100
2390.0	Peak	38.555	74	-35.445	0	Vert, 220
	Avg	25.697	54	-28.303	0	Vert, 220
2402.0 <sup>NA080801</sup>	Peak	91.106	--	--	65	Horiz, 125
	Avg	--	--	--	65	Horiz, 125
5173.0 <sup>AMB</sup>	Peak	55.34	74	-18.66	0	Vert, 220
	Avg	36.121	54	-17.879	0	Vert, 220
8268.0 <sup>AMB</sup>	Peak	58.872	74	-15.128	0	Vert, 220
	Avg	42.568	54	-11.432	0	Vert, 220

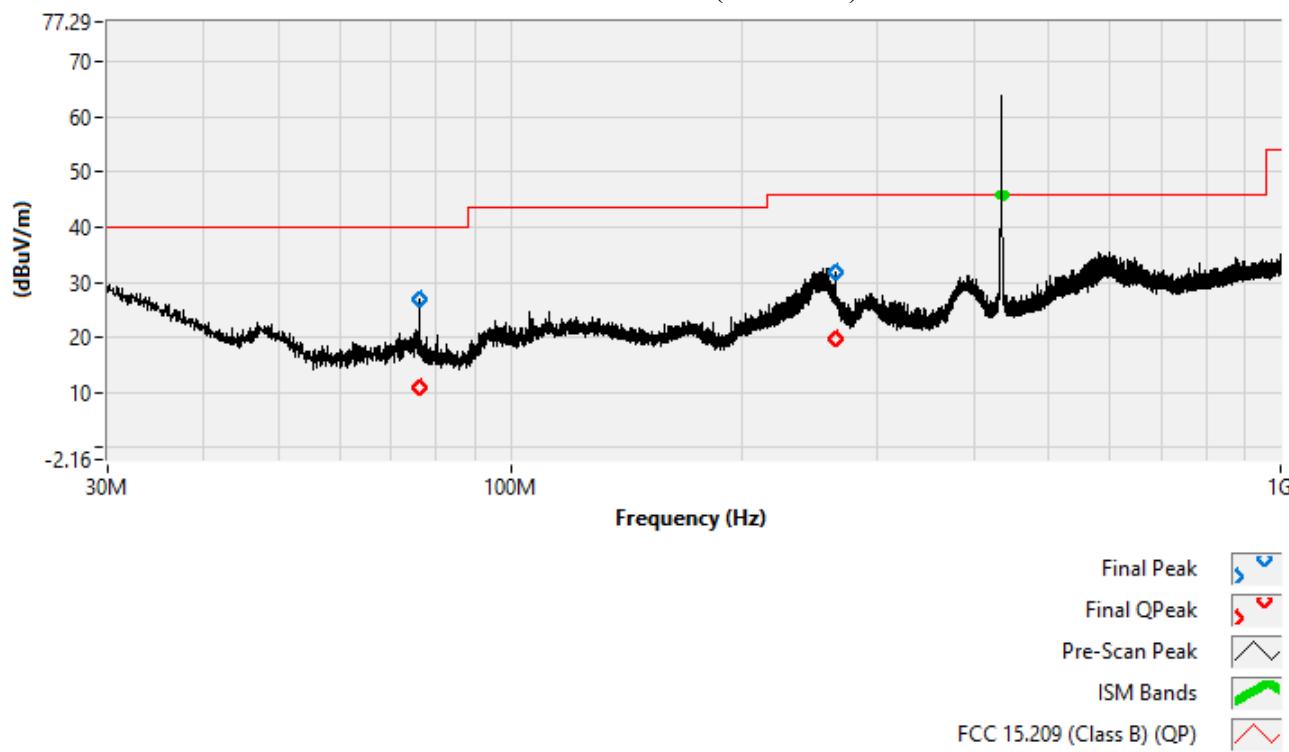
## Notes:

1. the signal at 433.9MHz is the fundamental of the WTC module.
2. there were no emissions detected in the range of 6GHz to 26GHz.
3. AMB indicates that no EUT emission was measured (this is ambient).

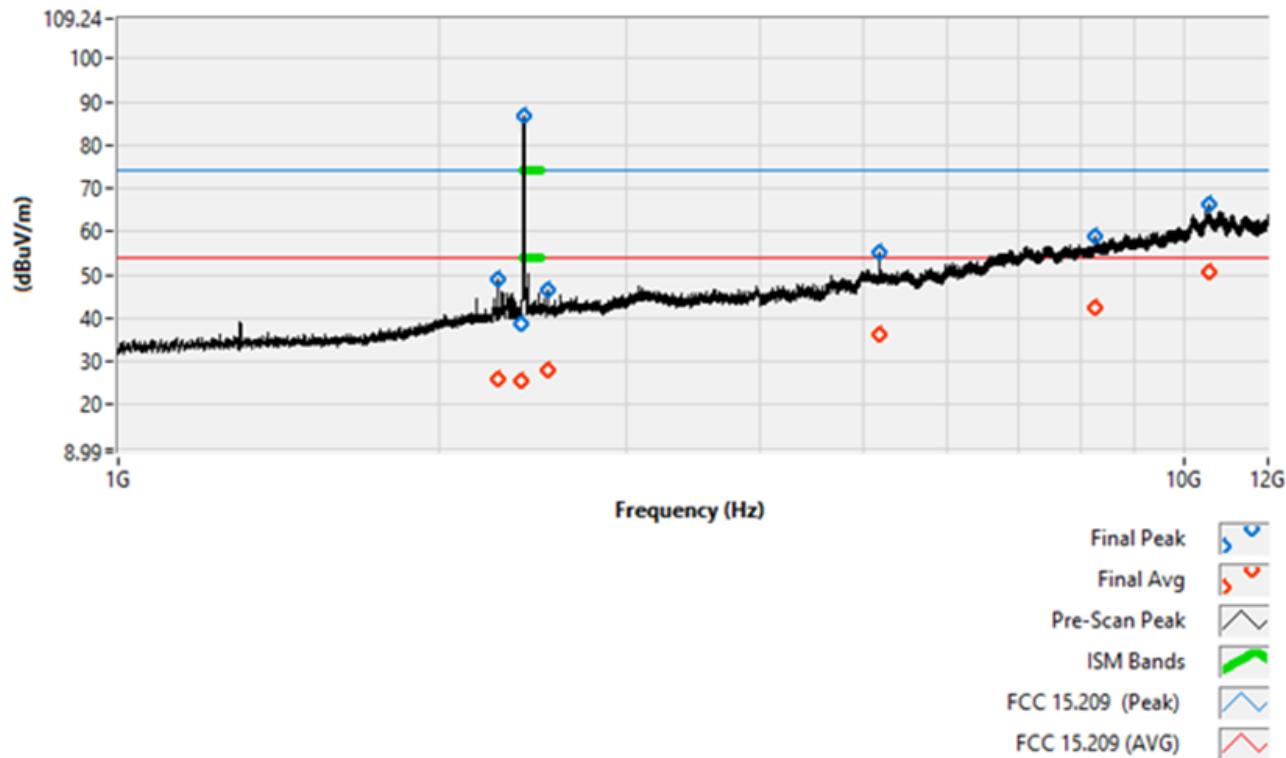
Pre-scan and Final Data (Vertical)



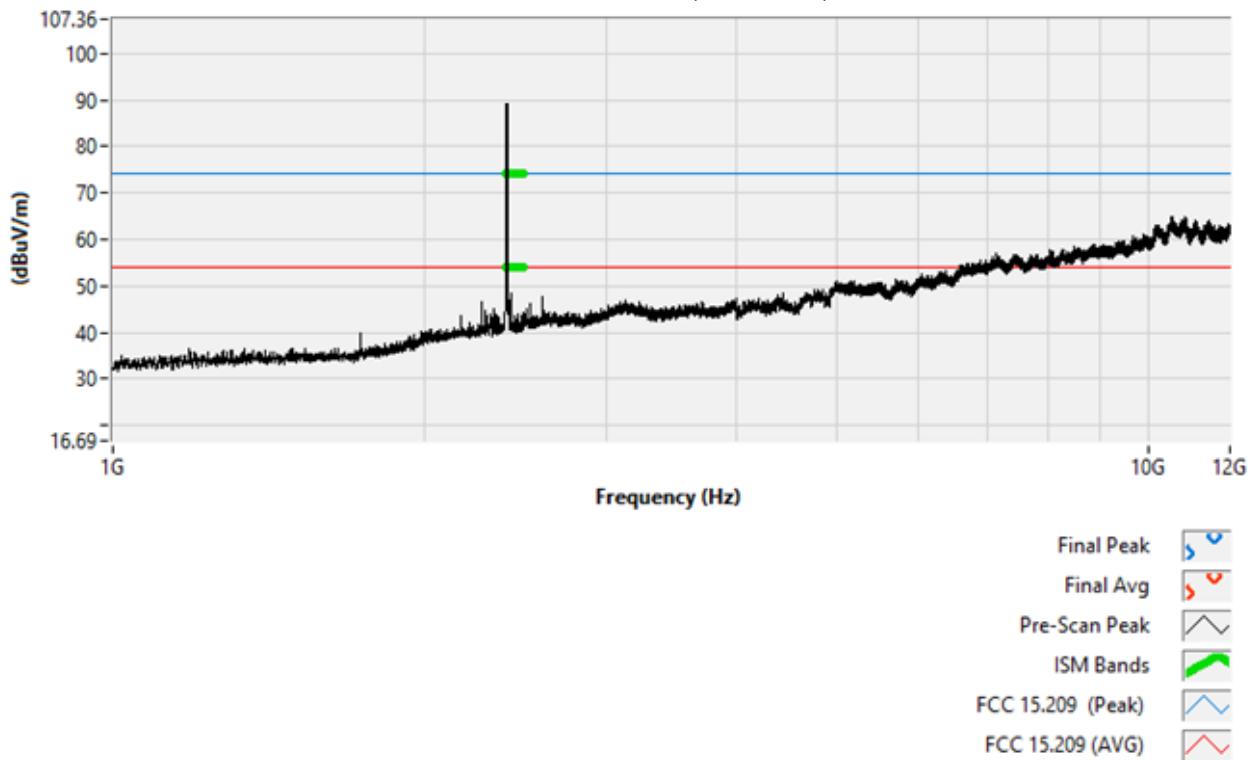
Pre-scan and Final Data (Horizontal)



Pre-scan and Final Data (Vertical)



Pre-scan and Final Data (Horizontal)



## 4.6 AC Powerline Conducted Emissions

### 4.6.1 Requirement

Compliance Standard: FCC Part 15.207.

FCC Compliance Limits				
Frequency Range	Class A Device		Class B Device	
	Quasi-peak	Average	Quasi-peak	Average
0.15 – 0.5 MHz	79 dB $\mu$ V	66 dB $\mu$ V	66 to 56 dB $\mu$ V	56 to 46 dB $\mu$ V
0.5 – 5 MHz	79 dB $\mu$ V	66 dB $\mu$ V	56 dB $\mu$ V	46 dB $\mu$ V
0.5 – 30 MHz	73 dB $\mu$ V	60 dB $\mu$ V	60 dB $\mu$ V	50 dB $\mu$ V

### 4.6.2 Test Summary

The EUT was not evaluated for AC powerline emissions.

The EUT is battery powered only and is not provided with a charger at the point of sale.

## Annex A

### NA080801 LMA BT Module Integration Manual (dated: August 5, 2024)

The NA080801 BT module is intended only for use in proprietary Stanley Black and Decker power tools and lighting products. It is not intended for sale to third parties and these integration instructions are internal, manufacturing documents.

#### FCC Part 15.212(a)(1) Modular Transmitter Requirements:

- (i) The module does not have its own shielding. The end-product host must be additionally tested to ensure continued RF compliance when this module is implemented. This testing must include spurious radiated emissions testing. See the host testing guidance in this integration manual.
- (ii) The module's data inputs are buffered internal to the Bluetooth IC on the module.
- (iii) The module contains its own power supply regulation, separate from the host.
- (iv) The antenna for the module is permanent and etched into the module PCB. The antenna design cannot be changed without a Class II permissive change application for this module.
- (v) The module has been tested in a stand-alone configuration, independent of any host device.
- (vi) The module is labeled with its FCC ID and IC number granted by the FCC and ISED after authorization. These identification numbers must appear on a permanent label on the host device. See the labeling instructions in this integration manual.
- (vii) The module complies with FCC Part 15C, Intentional Radiator requirements. § 15.247 describes operation requirements for the module transmit frequency range of 2400-2483.5 MHz.
- (viii) The module meets Portable exclusion levels.

#### Module Integration Instructions:

The NA080801 module is an intentional radiator and is therefore governed by the FCC rules 47 CFR Part 15, Subpart C. As a Bluetooth radio transmitting in the frequency range 2400-2483.5 MHz, § 15.247 applies. The module is not for sale and only to be used by the Grantee in their proprietary power tools without any modifications to the radio circuitry or PCB antenna.

The NA080801 Grant of Authorization is issued as a Limited Modular Approval because the module does not have its own RF shield. As such, deployment of the module in a host device requires a Class II Permissive Change filing for the module. The host product must also be evaluated for RF exposure.

A fixed PCB trace antenna is integral to this radio module. This antenna cannot be modified in any way without a Class II Permissive Change filing for the module.

Changes or modifications to the module not expressly approved by Stanley Black & Decker could void the user's authority to operate the device.

Host Device Testing Guidance:

Because of the Limited Modular Approval of the NA080801 due to the lack of a shield, extra care must be exercised when evaluating all end-product hosts incorporating this module. In particular, the host device must be evaluated using the following test plan to demonstrate compliance with the following:

FCC Rule Part: 15.247
Approval FCC ID: YJ7-NA080801
Modulation Modes: 1 Mb/s and 2 Mb/s
Maximum power: Low Channel, 1.23 mW (1 Mb/s)
Highest Spectral Density: Low Channel (1 Mb/s)
Highest Occupied Bandwidth: Low Channel (2 Mb/s)

Based on this test data from the module filing, confirm and then select the worst-case channel in the host for each band under each specific rule part and verify that each specific fundamental frequency remains in full compliance with the respective rule part (i.e. 15.247 for Bluetooth LE).

The host device must be investigated with the NA080801 module in each modulation mode (1 Mb/s and 2 Mb/s) to demonstrate full compliance with the specific rule part. The permissive change test data shall complement the test data from the original module filing with regard to the worst-case modulation.

With the NA080801 module set to hop between low-, mid-, and high-channels, record the radiated emissions band edge measurements for both the widest and narrowest BW available to ensure the host device is compliant.

Per Part 15.31(m), one frequency near the low-end, one frequency near the middle, and one frequency near the high-end of the frequency range of the module must be evaluated in the host device. The worst-case channel may be confirmed through an approved investigation. The widest BW, highest aggregate power, and highest power spectral density conditions shall be investigated. If these conditions do not occur within the same operating mode of the module, then multiple modes require testing. Only the data for worst-case condition among the modes needs to be included in the permissive change report if the overall testing strategy is explained and justified. For the LMA NA080801, since it has no shield, testing of radiated spurious emissions shall cover the 10<sup>th</sup> harmonic of the fundamental, per the requirements in Part 15.247, to confirm no additional parasitic non-compliant emissions exist. In all cases, a test of each worst-case modulation is required for channels over the frequency range defined in Part 15.33(a).

Lastly, confirm and demonstrate with the host radiated testing that no additional parasitic, non-compliant emissions exist due to ingress (parasitic oscillations, radiation of stray signals within a host, etc.). This can be based on ANSI C63.10 and C63.26. Complete FCC Part 15, Subpart B testing as necessary.

If the host device contains additional intentional radiator devices, modular or otherwise, all transmitter devices must be operated simultaneous to ensure that the transmitters can be co-located. The host device is otherwise operated in a typical user mode. The antenna used for this transmitter must not transmit simultaneously with any other antenna or transmitter, except in accordance with FCC multi-transmitter product procedures.

This modular transmitter is ONLY authorized for the specific FCC and ISED intentional radiator rules listed in the grants of authorization. The host device must be evaluated for RF compliance to any other FCC and ISED rules that apply to the host device and not covered by the modular transmitter grant. At a minimum, the host device must be evaluated for compliance to 47 CFR Part 15, Subpart B with the module installed.

**All new host configurations require a Class II Permissive Change filing to the LMA authorization of this module.**

Refer to the FCC KDB 996369 D04 Module Integration Guide for additional guidance.

Host Device Labeling Instructions:

The host device employing the NA080801 module shall be permanently marked with a label stating, “Contains FCC ID: YJ7-NA080801” and “Contains IC: 9082A-NA080801”. If the host device employs additional certified modules, the FCC ID and IC number for each additional module can be appended to each statement. The two statements can be combined so that only one “Contains” is used, but the other text is required. E-labeling of the host device is also allowed. Check current agency regulations for e-labeling.

Host devices that comply with the RF requirements must follow the Labeling requirements in §15.19 of 47 CFR Part 15 and bear the following compliance statement in a conspicuous location on the device if space allows. If there isn’t enough space to accommodate this compliance statement in at least 4 point size, the statement must be included in the user manual and on the packaging of the host device.

“This device complies with part 15 of the FCC Rules and Industry Canada License-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.”