

Prüfbericht-Nr.: <i>Test Report No.:</i>	JP26Y9Z8 001	Auftrags-Nr.: <i>Order No.:</i>	150326743	Seite 1 von 43 <i>Page 1 of 43</i>
Kunden-Referenz-Nr.: <i>Client Reference No.:</i>	N/A	Auftragsdatum: <i>Order Date:</i>	2026-02-09	
Auftraggeber: <i>Client:</i>	TOTO USA, Inc. 5351 E. Jurupa St., Ontario, CA 91761 United States			
Prüfgegenstand: <i>Test Item:</i>	Zigbee Module			
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	EMBD1124	Serien-Nr.: <i>Serial No.:</i>	No.1 (for Radiated Test), No.2 (for Conducted Test)	
Auftrags-Inhalt: <i>Order Content:</i>	Radio Testing			
Prüfgrundlage: <i>Test Specification:</i>	FCC 47 CFR Part 15, Subpart C, Section 15.247 ANSI C63.10-2020 KDB Publication No. 558074 D01: Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247			
Wareneingangsdatum: <i>Date of Receipt:</i>	2026-03-13, 2026-03-25			
Prüfmuster-Nr.: <i>Test Sample No.:</i>	A004224661			
Prüfzeitraum: <i>Testing Period:</i>	2026-04-01 to 2026-04-03			
Ort der Prüfung: <i>Place of Testing:</i>	Yokohama EMC Laboratory			
Prüflaboratorium: <i>Testing Laboratory:</i>	TÜV Rheinland Japan Ltd.			
Prüfergebnis*: <i>Test Result*:</i>	Pass			
Überprüft von: <i>Reviewed by:</i>		Genehmigt von: <i>Authorized by:</i>		
Datum: 2026-04-28 <i>Date:</i>	Daisuke Watanuki	Datum: 2026-04-28 <i>Date:</i>	Akira Abe	
Stellung / Position:	Inspector	Stellung / Position:	Authorizer	
Sonstiges / Other: The EUT is subject to Single Modular Approval application.				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the Test Item at Delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende: P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet * Legend: P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested				
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REVISIONS

Report No.	Issue date	Changes / Remarks
JP26Y9Z8 001	2026-04-28	Original document

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1. General Remarks

1.1 Test Specifications

Table 1: Test Summary

Test	Specifications	Result
Radio: FCC 47 CFR Part 15, Subpart C, Section 15.247 ANSI C63.10-2020		
Maximum Peak Output Power	FCC 15.247(b)(3)	Pass
6dB Bandwidth	FCC 15.215(c), 15.247(a)(2)	Pass
99% Bandwidth	For reference	Performed
Conducted Spurious Emissions	FCC 15.247(d)	Pass
Peak Power Spectral Density	FCC 15.247(e)	Pass
Radiated Spurious Emissions of Transmitter	FCC 15.247(d)	Pass
Conducted Emission on AC Power Ports	FCC 15.207	Pass

1.2 Test Report Purpose

The purpose of this test report is to show compliance of the EUT (Equipment Under Test) with the requirements of the FCC rules listed in section 1.1 for original grant application under Single Modular condition.

1.3 Complementary Materials

There is no attachment to this test report.

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2. Test Sites

2.1 Test Facilities

TÜV Rheinland Japan Ltd. – Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku, Yokohama 224-0021, Japan

The test instruments used are in accordance with CISPR 16 for measurement of radio interference.

The test facility is recognized by the Federal Communications Commission (FCC) as Accredited Testing Laboratory under designation number JP0017.

The test facility is accredited by VLAC (member of ILAC) under number VLAC-017 according to ISO/IEC 17025:2017.

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2.2 List of Test and Measurement Instruments

Table 2: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Model Name	Serial Number	Equip. ID	Cal. Interval	Cal. Date	Next Cal.
For Antenna Port Conducted Emission							
EMI Receiver	Rohde & Schwarz	ESW 26	101316	RF-0812	1 year	2025-06-10	2026-06-10
For Power Port and Telecommunication Port Conducted Emission (CE)							
Path Loss Correction Factors for CE	-	-	-	RF-0597	1 year	2026-01-29	2027-01-29
CE Measurement Software	Toyo Corporation	ES10/CE-AJ	0700-0183-35	RF-1262	N/A	N/A	N/A
EMI Receiver EPL1000	Rohde & Schwarz	EPL1000	100969	RF-1249	1 year	2025-05-23	2026-05-23
LISN	Rohde & Schwarz	ENV216	101958	RF-0708	1 year	2025-05-21	2026-05-21
For Radiated Emission (RE)							
Path Loss Correction Factors for RE below 1GHz	-	-	-	RF-0596	1 year	2026-01-29	2027-01-29
Path Loss Correction Factors for RE above 1GHz	-	-	-	RF-0995	1 year	2025-11-06	2026-11-06
RE Meas. Software	Toyo Corporation	ES10/RE-AJ	0600-0179-80	RF-1263	N/A	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESW 44	103396	RF-1250	1 year	2025-05-22	2026-05-22
RF Selector (10m Chamber)	Toyo Corporation	NS4900	0703-182	RF-0029	N/A	N/A	N/A
Loop Antenna with Amplifier, 9kHz-30MHz	Rohde & Schwarz	HFH2-Z2	100139	RF-0048	1 year	2025-07-18	2026-07-18
Trilog Antenna No. 2, 30-1000MHz	Schwarzbeck	VULB 9168	9168-475	RF-0462	1 year	2025-05-26	2026-05-26
5dB Attenuator	Pasternack	PE7047-5	-	RF-0731	1 year	2025-05-30	2026-05-30
Low Noise Preamplifier, 9kHz-1GHz	TSJ	MLA-10K01-B01-35	1370750	RF-0253	1 year	2025-12-25	2026-12-25
Band Pass Filter	Microwave Factory	MBP301	224969	RF-1015	1 year	2026-03-09	2027-03-09
Horn Antenna, 1-8GHz	Schwarzbeck	BBHA9120 D	9120D-2280	RF-0845	1 year	2026-02-27	2027-02-27
MMW PreAmp 0-50GHz	NEXTEM	RFA-1050000-40	RFA-1905-01	RF-1140	1 year	2025-11-06	2026-11-06
Horn Antenna, 1-18GHz	Schwarzbeck	BBHA9120 D	9120D-2280	RF-0845	1 year	2026-02-27	2027-02-27
Band Reject Filter, 1-8GHz	Nitsuki	NF-49BT	027	RF-0131	1 year	2025-11-06	2026-11-06
Horn Antenna, 6-18GHz (RX)	Schwarzbeck Mess-Elektronik	BBHA9120 C	00775	RF-1315	2 years	2025-10-31	2027-10-31

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Kind of Equipment	Manufacturer	Model Name	Serial Number	Equip. ID	Cal. Interval	Cal. Date	Next Cal.
Pre-amplifier for RF-1315 (6-18 GHz)	TOYO Corporation	HAP06-18W	B1510452 210-123	RF-1318	1 year	2025-11-05	2026-11-05
High Pass Filter, 8-18GHz	Micro-Tronics	HPM50107	G089	RF-1095	1 year	2025-11-05	2026-11-05
Horn Antenna, 18-26.5GHz (RX)	AMETEK	ANT-SGH-18-26.5	11568	RF-1316	1 year	2025-10-31	2026-10-31
Pre-amplifier for RF-1316 (18-26.5 GHz)	Toyo Corporation	HAP18-26W	B2010482 210-125	RF-1319	1 year	2025-11-05	2026-11-05
Constant Voltage Constant Frequency Stabilizers and Power Accessories							
CVCF (Shielded Room)	NF Corporation	ES2000S	9075612	RF-0210	1 year	2026-03-06	2027-03-06
CVCF Booster (Shielded Room)	NF Corporation	ES2000B	9074403	RF-0211	1 year	2026-03-06	2027-03-06
CVCF (10m Chamber)	NF Corporation	ES2000U	9067307	RF-0212	1 year	2026-03-06	2027-03-06
CVCF Booster (10m Chamber)	NF Corporation	ES2000B	9074408	RF-0213	1 year	2026-03-06	2027-03-06
DC Power Supply (*)	Agilent	E3646A	MY503500 07	RF-0412	N/A	N/A	N/A
True RMS Multimeter (10m Chamber)	Fluke	87V	97680450	RF-0282	1 year	2025-04-08	2026-04-08

Conformance of the used measurement and test equipment with the requirements of ISO/IEC 17025 has been confirmed before testing.

(*) This equipment is calibrated or validated before testing by using calibrated equipment.

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2.3 Measurement Uncertainty

Table 3: Emission Measurement Uncertainty

Measurement Type	Frequency	Uncertainty
Antenna Port Conducted Measurement	< 40GHz	±2.58dB
Radiated Emission	9k - 30MHz	±4.79dB
	30M - 1GHz, Vertical	±6.05dB
	30M - 1GHz, Horizontal	±4.95dB
	1 - 6GHz	±5.17dB
	6 - 18GHz	±4.96dB
	18 – 40GHz	±5.05dB
AC Power Line Conducted Emission	150k – 30MHz	±3.31dB

Note:

The measurement instrumentation uncertainty (MIU) was determined according to CISPR 16-4-2 and ETSI TR 100-028. All MIU values mentioned in the above table are smaller than the uncertainty budgets specified by CISPR 16-4-2 and ETSI TR 100-028, therefore compliance for all emission measurements is deemed to occur if no measured disturbance level exceeds the disturbance limit.

3. General Product Information

3.1 Product Function and Intended Use

EUT (**E**quipment **U**nder **T**est) is a Zigbee module to be integrated into various hosts under single modular approval.

3.2 Ratings and System Details

Radio standard:	Zigbee (IEEE 802.15.4)
Frequency range:	2405 – 2480MHz
Antenna gain:	2.14dBi
Antenna type:	PCB Pattern Antenna
Antenna mounting type:	Internal
Modulation type:	O-QPSK
Signal spreading:	DSSS
Transmit speed:	250kbps
Number of channels:	16
Channel spacing:	5MHz
Rated temperature:	-10 to +60°C
Rated voltage:	1.8 ~ 5.5VDC, 5.0VDC for normal
Rated input Current:	Not specified
Protection class:	III
Test voltage:	DC 3V

3.3 Noise Generating and Noise Suppressing Parts

The highest frequency generated or used by the EUT is 2480MHz as maximum fundamental frequency of incorporated Zigbee SoC.

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3.4 Submitted Documents and Information

Following information provided in this test report has been submitted by the client:

- client name and address;
- EUT identification, ratings, system details, and description of product function and intended use;
- information related to noise generating and noise suppressing parts (if any).

4. Test Setup and Operation Modes

4.1 Test Methodology

The test methodology used is based on the requirements of 47 CFR Part 15, Sections 15.31, 15.33, 15.35, 15.205, 15.207, 15.209, 15.247.

The test methods, which have been used, are based on ANSI C63.10.

For details, see under each test item.

4.2 Operation Modes

Testing was performed at the lowest operating frequency (2405MHz), at the operating frequency in the middle of the specified frequency band (2445MHz) and at the highest operating frequency (2480MHz).

The basic operation modes used for testing are:

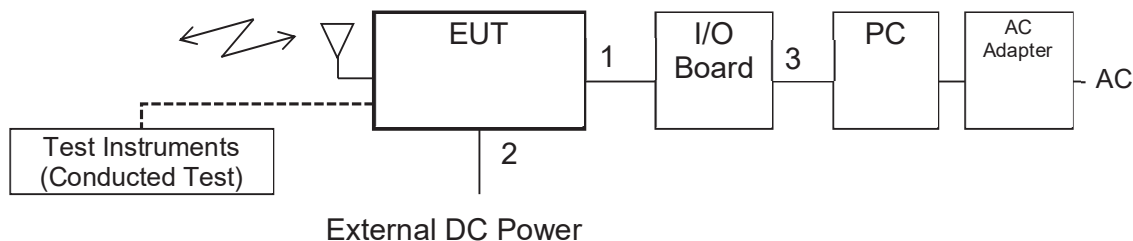
- A. EUT transmits a modulated signal at lowest channel (2405MHz)
- B. EUT transmits a modulated signal at middle channel (2445MHz)
- C. EUT transmits a modulated signal at middle channel (2480MHz)

4.3 Physical Configuration for Testing

The test system was configured in a typical fashion (as a customer would normally use it).

The justification and manipulation of cables and equipment in order to simulate a worst-case behavior of the test setup has been carried out as prescribed in ANSI C63.10.

Figure 1: Block Diagram



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Note:

- The interfaces No.1 and 2 are connected to the same harness cable.
- EUT can keep RF transmission after disconnecting the USB cable for stand-alone test condition.
- The RF connector on the EUT is a temporary one for the conducted tests. This is not mounted on the final product.
- The USB cable shall be disconnected after making continuous RF transmission to achieve stand-alone test conditions.

Table 4: Interfaces present on the EUT

No.	Interface(s):	Max. Cable Length, Shielding	Cable Classification
1.	Control	0.5m, Un-shielded	Signal Line
2.	DC Input	0.4m, Un-shielded	DC Power Line
3.	USB	0.7m, Shielded	Signal Line

Note:

For more details, refer to section: Photographs of the Test Set-Up.

4.4 Test Software

The EUT was provided by the manufacturer with suitable software to allow operation in all the required modes.

Software used for testing: SSR160_260226.hex by Sanwa Electronic Instrument

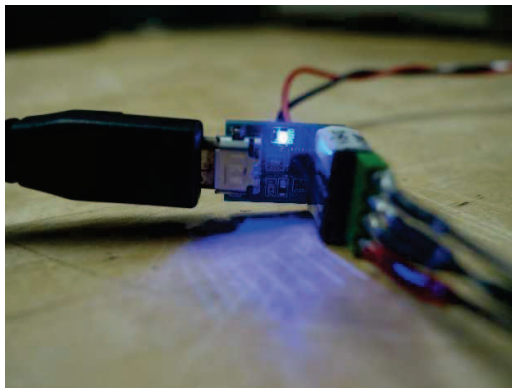
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4.5 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

1. Product: I/O Board
Manufacturer: Sanwa Electronic Instrument
Model: N/A

Photograph 1: I/O Board



2. Product: PC
Manufacturer: HP
Model: ProBook 430G1
Rated Voltage: DC19.5V
Input Current: 3.33A
Protection Class: III
Serial Number: JPA427PWND
3. Product: AC Adapter
Manufacturer: HP
Model: HSTNN-CA41
Rated Voltage: AC100-240V
Input Current: 1.4A
Frequency: 50-60Hz
Protection Class: I
Serial Number: CT:WDVTP0BGC6QC0L

4.6 Countermeasures to achieve Compliance

No additional measures were employed to achieve compliance.

5. Test Results RADIO

5.1 Technical Requirements

5.1.1 Supply Voltage Requirements

RESULT: **PASS**

Requirements:

FCC 15.31(e)

For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

Verdict:

EUT has an internal voltage regulator to supply the RF circuit. Hence it complies with the supply voltage requirements.

5.1.2 Antenna Requirements

RESULT: **PASS**

Requirements:

FCC 15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Verdict:

EUT has a PCB pattern antenna which is not easily accessible for modification. Hence it complies with the antenna requirements.

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5.1.3 Restricted Bands of Operation

RESULT:**PASS**

Requirements:

FCC 15.205

Only spurious emissions are permitted in any of the restricted frequency bands, unless otherwise specified.

Verdict:

The EUT operation frequency range is 2400-2483.5MHz. Therefore, only spurious emissions may be found in the restricted bands of operation and the EUT complies with the restricted frequency band requirement.

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5.2 Conducted Measurements at Antenna Port

5.2.1 Maximum Peak Output Power

RESULT:
PASS

Date of testing: 2026-04-02

Ambient temperature: 22°C

Relative humidity: 53%

Atmospheric pressure: 998hPa

Operation Modes: A ~ C

Requirements:

FCC 15.247(b)(3)

For systems using digital modulation in the 2400-2483.5MHz band, the maximum peak output power is 1W (30dBm).

If transmitting antennas of directional gain greater than 6dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Test procedure:

KDB Publication No. 558074 D01.

The maximum peak output power was measured at the antenna port with a spectrum analyzer using a peak detector. The resolution bandwidth and the video bandwidth were set to 3MHz and 10MHz.

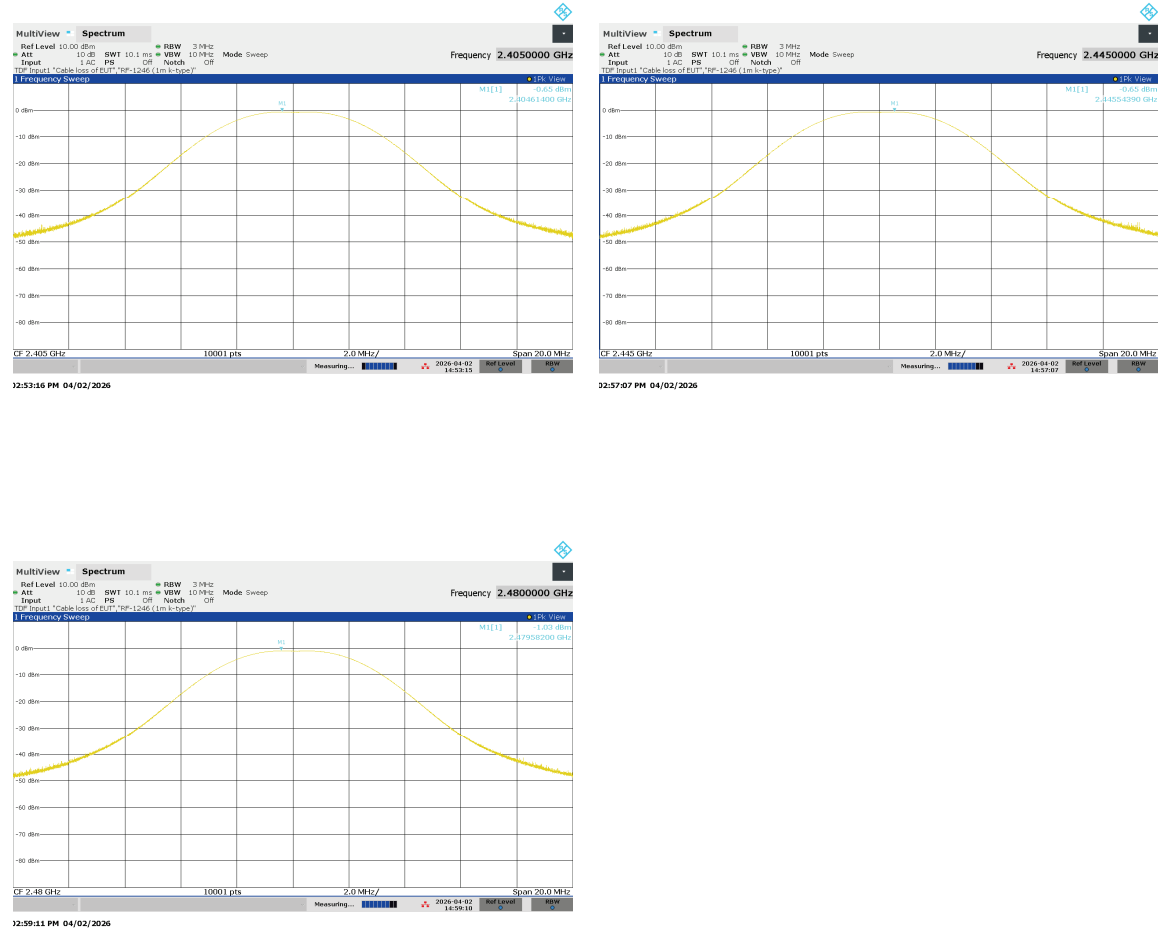
The readings of the measurements consider the loss generated by all the involved cables.

Table 5: Maximum Peak Output Power

Freq. [MHz]	Peak Output Power [dBm]	Limit [dBm]	Margin [dB]
2405	-0.65	30	29.35
2445	-0.65	30	29.35
2480	-1.03	30	28.97

Note: These measured values in the tables above were corrected with extra RF cable loss 1.48dB.

Figure 2: Maximum Peak Output Power, Mode A ~ C



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Page 19 of 43**5.2.2 6dB Bandwidth****RESULT:****PASS**

Date of testing: 2026-04-02

Ambient temperature: 22°C
Relative humidity: 53%
Atmospheric pressure: 998hPa

Operation Modes: A ~ C

Requirements:

FCC 15.215(c) and 15.247(a)(2)

For systems using digital modulation in the 2400-2483.5MHz band, the 6dB bandwidth shall be at least 500kHz.

Test procedure:

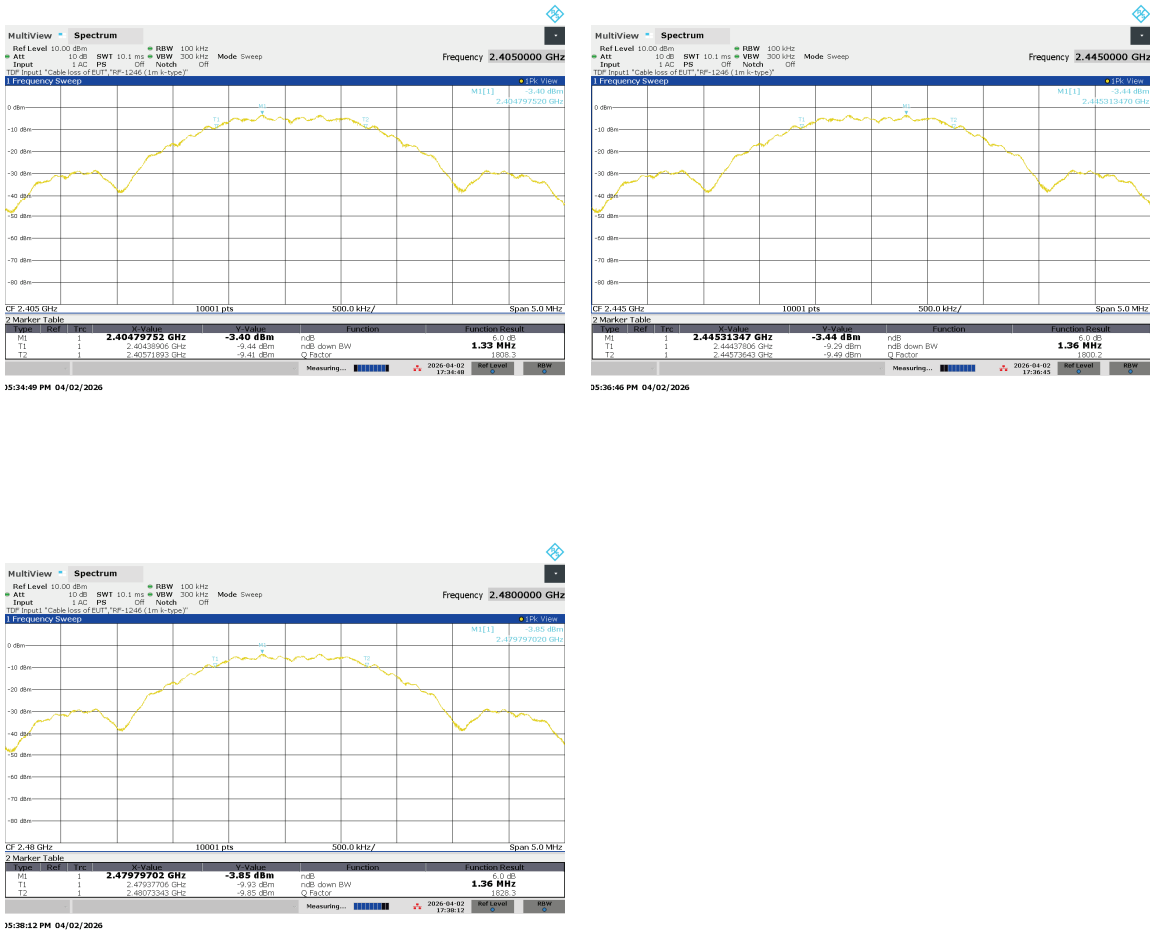
KDB Publication No. 558074 D01.

The 6dB bandwidth was measured at the antenna port with a spectrum analyzer using a peak detector. The resolution bandwidth was set to 100kHz and the video bandwidth to 300kHz. Markers placed at the lowest and highest intersections of the trace with a 6dBc line were used to calculate the emission bandwidth.

Table 6: 6dB Bandwidth

Operating Frequency [MHz]	6dB Bandwidth [MHz]	Limit [MHz]
2405	1.33	0.5
2445	1.36	0.5
2480	1.36	0.5

Figure 3: 6dB Bandwidth, Mode A ~ C



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Page 21 of 43**5.2.3 99% Bandwidth****RESULT:****PERFORMED**

Date of testing: 2026-04-02

Ambient temperature: 22°C

Relative humidity: 53%

Atmospheric pressure: 998hPa

Operation Modes: A ~ C

Test procedure:

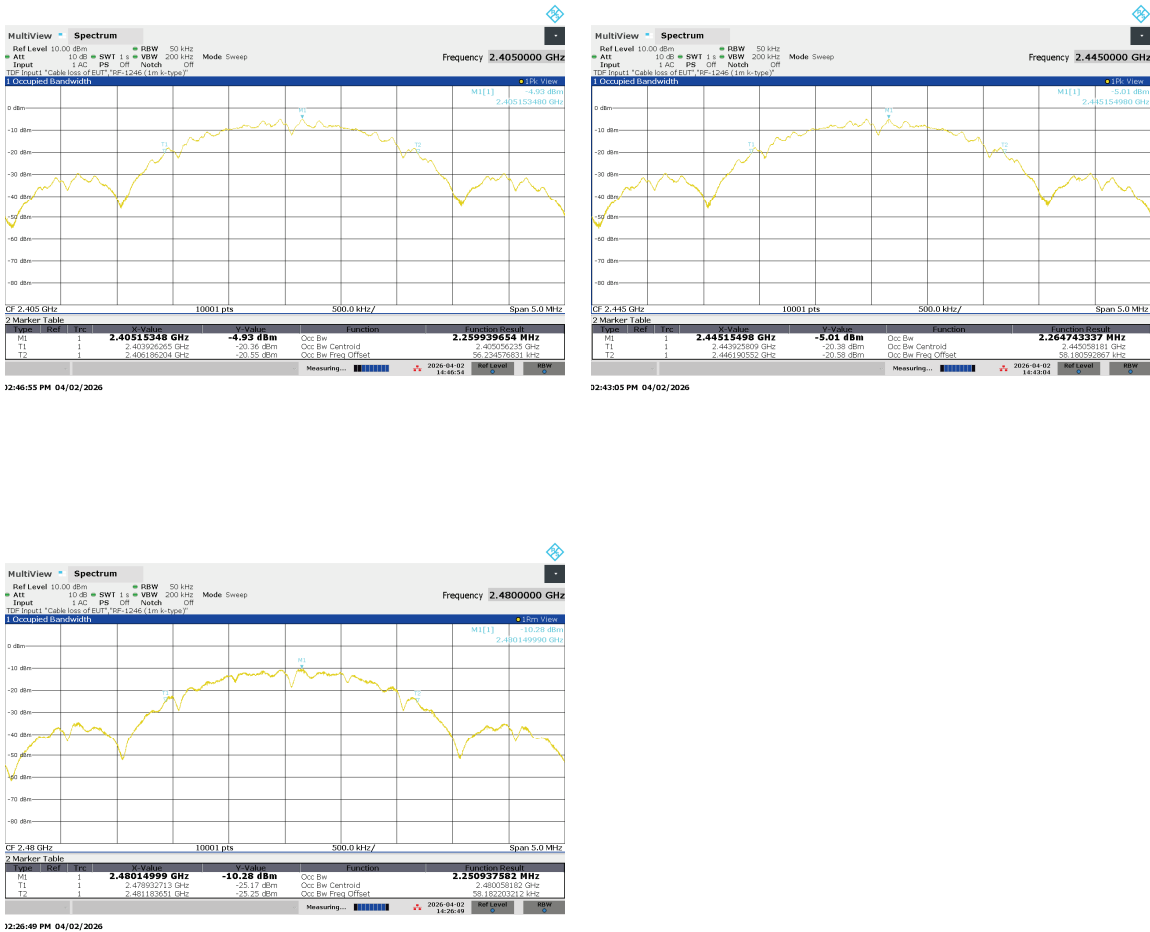
ANSI C63.10 §6.9.3

The 99% bandwidth was measured at the antenna port with a spectrum analyzer using a peak detector. The value of the emission bandwidth was obtained by using the OBW function of the analyzer with a 99% coverage setting.

Table 7: 99% Bandwidth and Edge Frequencies

Operating Frequency [MHz]	99% Bandwidth [MHz]	Edge Frequency [MHz]	Limit [MHz]	Margin [MHz]
2405	2.26	2405.2	2400	5.2
2445	2.26	---	---	---
2480	2.25	2481.2	2483.5	2.3

Figure 4: 99% Bandwidth, Mode A ~ C



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Page 23 of 43**5.2.4 Conducted Spurious Emissions****RESULT:****PASS**

Date of testing: 2026-04-02

Ambient temperature: 22°C
 Relative humidity: 53%
 Atmospheric pressure: 998hPa

Operation Modes: A ~ C

Requirements:

FCC 15.247(d)

In any 100kHz bandwidth outside the frequency band in which the intentional radiator is operating, the RF power shall be at least 20dB below that of the maximum in-band 100kHz emission.

Test procedure:

ANSI C63.10 §7.8.8.

The conducted spurious emissions were measured at the antenna port with a spectrum analyzer using a peak detector. The resolution bandwidth was set to 100kHz and the video bandwidth to 300kHz. Measurements were performed from 30MHz to 25GHz (10th harmonics).

The readings of the measurements consider the loss generated by all the involved cables.

Table 8: Conducted Spurious Emissions, 30MHz – 25GHz, -20dB Limit to Peak Power

Operating Frequency [MHz]	Fundamental Level [dBm]	Spurious Limit [dBm]	Measured Frequency [MHz]	Measured Level [dBm]	Margin [dB]
2405	-4.33	-24.33	4809.09	-65.27	40.94
2445	-4.59	-24.59	7393.45	-66.45	41.86
2480	-4.67	-24.67	7438.65	-65.81	41.14

Table 9: Conducted Spurious Emissions, Band Edge, -20dB Limit to Peak Power

Operating Frequency [MHz]	Fundamental Level [dBm]	Spurious Limit [dBm]	Measured Frequency [MHz]	Measured Level [dBm]	Margin [dB]
2405	-3.46	-23.46	2400.00	-53.86	30.40
2480	-3.89	-23.89	2483.50	-53.49	29.6

Figure 5: Conducted Spurious Emissions, 30MHz – 25GHz, Mode A ~ C

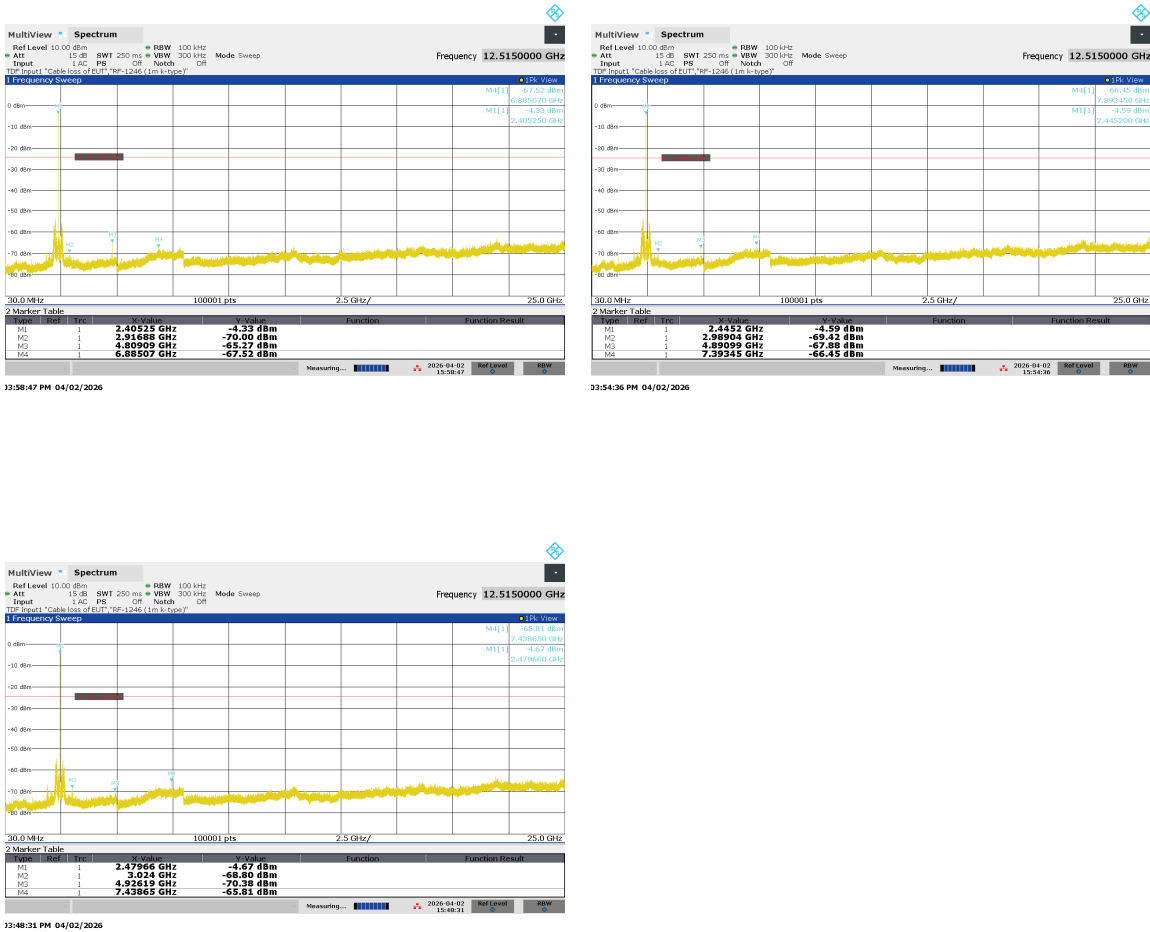
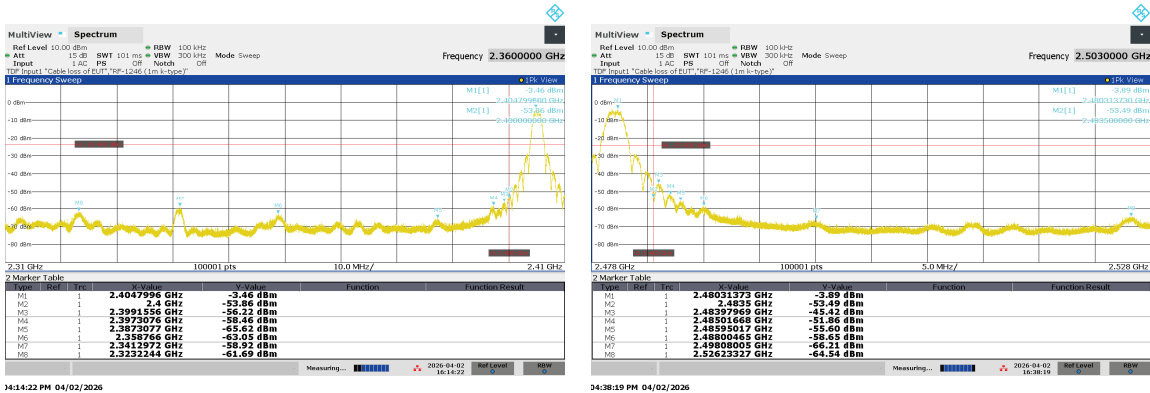


Figure 6: Conducted Emissions at Band Edge, Spectral Diagram, Modes A (2405MHz) and C (2480MHz)



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Page 26 of 43**5.2.5 Peak Power Spectral Density****RESULT:****PASS**

Date of testing: 2026-04-02

Ambient temperature: 22°C

Relative humidity: 53%

Atmospheric pressure: 998hPa

Operation Modes: A ~ C

Requirements:

FCC 15.247€

For digitally modulated systems, the power spectral density (PSD) conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

Test procedure:

KDB Publication No. 558074 D01.

The peak power spectral density was measured at the antenna port with a spectrum analyzer using a peak detector with a resolution bandwidth of 3kHz and a video bandwidth of 10kHz.

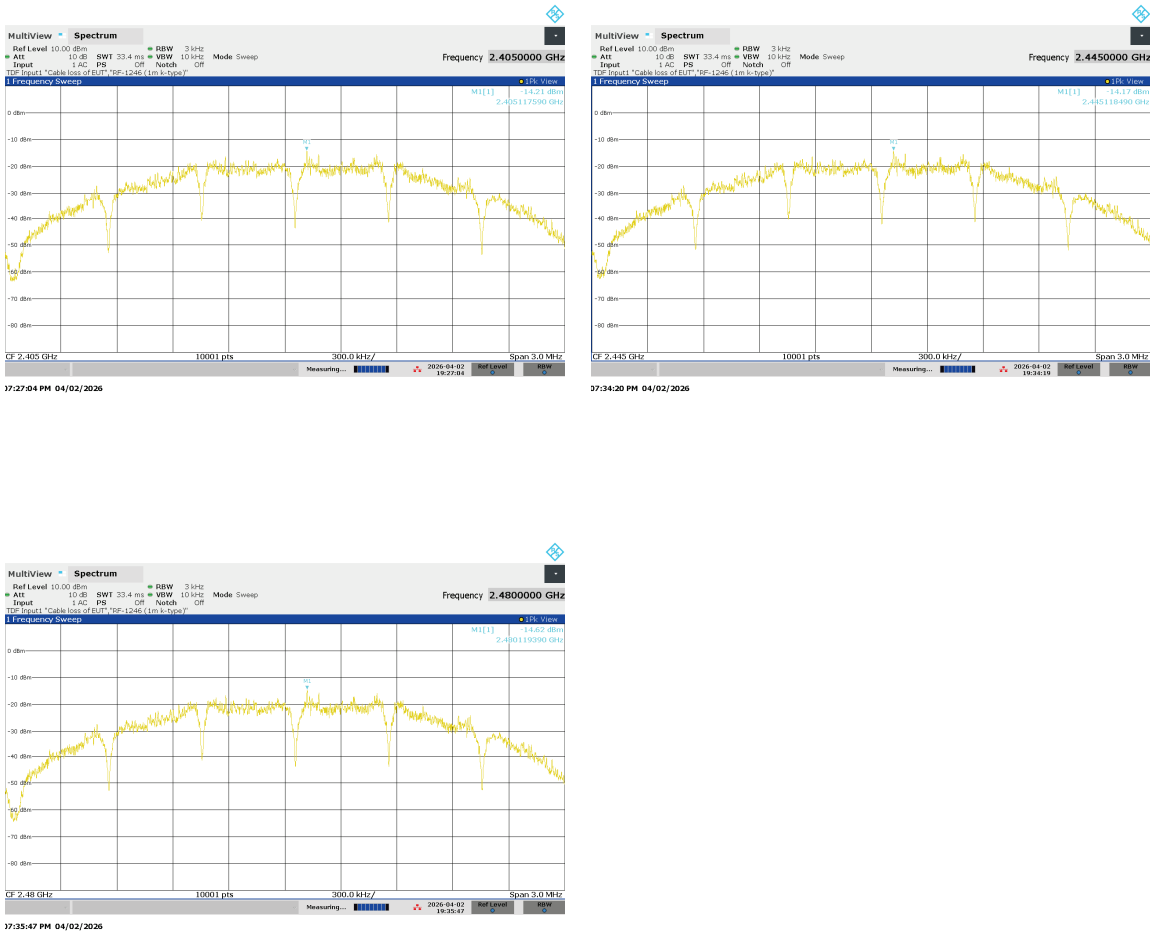
The readings of the measurements consider the loss generated by all the involved cables.

Table 10: Peak Power Spectral Density

Operating Frequency [MHz]	Max PSD Frequency [MHz]	Max PSD [dBm]	Limit [dBm]	Margin [dB]
2405	2405.12	-14.21	8.0	22.21
2440	2445.12	-14.17	8.0	22.17
2480	2480.12	-14.62	8.0	22.62

Note: These measured values in the tables above were corrected with extra RF cable loss 1.48dB.

Figure 7: Power Spectral Density, Mode A ~ C



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5.3 Radiated Measurements

5.3.1 Radiated Spurious Emissions of Transmitter

RESULT:**PASS**

Date of testing: 2026-04-01, 2026-04-02, 2026-04-03

Ambient temperature: 24, 22, 23°C

Relative humidity: 51, 53, 52%

Atmospheric pressure: 1007, 998, 1001hPa

Frequency range: 9kHz - 25GHz

Measurement distance: 3m

Kind of test site: Semi Anechoic Chamber

Operation Modes: A ~ C

Requirements:

FCC 15.205, FCC 15.209, FCC 15.247(d).

Radiated emissions which fall in the restricted bands, as defined in FCC 15.205(a), must comply with the radiated emission limits specified in FCC 15.209(a).

Radiated emissions which fall outside the operation frequency band and outside restricted bands shall either meet the limit specified in FCC 15.209(a) or be attenuated at least 20dB below the power level in the 100kHz bandwidth within the band that contains the highest level of the desired power (the less severe limit applies).

Test procedure:

The EUT was placed on a nonconductive turntable. The table height was 0.8m for measurements below 1GHz and 1.5m for measurements above 1GHz. Before final measurements of radiated emissions were performed, the EUT was scanned to determine its emission spectrum profile. The physical arrangement of the test system, the associated wiring was varied to ensure that maximum emission amplitudes were attained.

The spectrum was examined from 9kHz to the 10th harmonic of the highest fundamental transmitter frequency (25GHz). Finally, radiated emission measurements were made at 3m distance.

At each frequency where a spurious emission was found, the EUT was rotated 360° to determine the emission's maximum level. For frequencies above 30MHz, the antenna was raised and lowered from 1 to 4m and measurements were taken using both horizontal and vertical antenna polarizations.

For emissions between 30MHz and 1GHz, measurements were performed with a test receiver operating in the CISPR quasi-peak detection mode with a 20dB Bandwidth set

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to 120kHz. For emissions above 1GHz, measurements were performed with a spectrum analyzer using Peak and Average detector.

Absorbers have been placed on the floor between the EUT and the measuring antenna for testing above 1GHz.

The highest emission amplitudes relative to the appropriate limit were recorded in this report. Emissions other than those mentioned are small or not detectable.

Pre-check was performed to determine the worst orientation of the EUT from X, Y and Z axis in each test case and the final measurements were performed with the worst orientations.

For emissions below 1GHz, final measurements were performed with the worst case which was determined by pre-check.

Table 11: Radiated Emissions, Quasi Peak Data, 9kHz - 30MHz, Mode B (2445MHz), Z axis

Freq. [MHz]	Reading QP [dBμV]	Factor [dB(1/m)]	Level QP [dBμV/m]	Limit [dBμV/m]	Margin QP [dB]	Angle [°]
0.568	6.0	19.4	25.4	72.5	47.1	2

Table 12: Radiated Emissions, Quasi Peak Data, 30MHz - 1GHz, Horizontal and Vertical Antenna Orientations, Mode B (2445MHz), Z axis

Freq. [MHz]	Antenna Orientation	Reading QP [dBμV]	Factor [dB(1/m)]	Level QP [dBμV/m]	Limit [dBμV/m]	Margin QP [dB]	Height [cm]	Angle [°]
923.031	V	30.6	-7.1	23.5	46.0	22.5	326	326
944.891	H	30.4	-6.6	23.8	46.0	22.2	377	262

Note: Only noise floor was observed.

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Page 30 of 43**Table 13: Radiated Emissions, Peak Data, 1 - 25GHz, Horizontal and Vertical Antenna Orientations, Mode A (2405MHz), Z axis**

Freq. [MHz]	ANT Orientation	Reading PK [dBµV]	Factor [dB(1/m)]	Level PK [dBµV/m]	Limit [dBµV/m]	Margin PK [dB]	Height [cm]	Angle [°]
1266.463	H	56.9	-19.8	37.1	74.0	36.9	148	359
2277.033	H	61.6	-17.2	44.4	74.0	29.6	183	1
2533.033	H	65.0	-16.1	48.9	74.0	25.1	214	166
3842.083	V	56.7	-12.3	44.4	74.0	29.6	331	359
4901.200	H	55.4	-9.4	46.0	74.0	28.0	319	326
7044.603	H	53.3	-4.1	49.2	74.0	24.8	339	1
7094.480	V	53.8	-3.9	49.9	74.0	24.1	101	359
7739.790	V	53.3	-2.9	50.4	74.0	23.6	400	278
12880.750	V	47.1	0.0	47.1	74.0	26.9	200	234
14627.690	H	47.6	1.0	48.6	74.0	25.4	200	1
15170.370	V	46.6	1.0	47.6	74.0	26.4	196	156
15915.300	H	45.6	2.3	47.9	74.0	26.1	200	102
17317.790	H	44.2	4.6	48.8	74.0	25.2	199	1
17771.230	V	43.0	5.4	48.4	74.0	25.6	199	0
21845.590	H	48.0	-6.4	41.6	74.0	32.4	200	359
22168.755	V	47.1	-6.1	41.0	74.0	33.0	199	301
23458.630	H	46.6	-5.2	41.4	74.0	32.6	201	1
23510.270	V	46.8	-5.1	41.7	74.0	32.3	200	1
25277.610	V	47.4	-4.6	42.8	74.0	31.2	199	1
25338.890	H	47.4	-4.6	42.8	74.0	31.2	200	359

Table 14: Radiated Emissions, Average Data, 1 - 25GHz, Horizontal and Vertical Antenna Orientations, Mode A (2405MHz), Z axis

Freq. [MHz]	ANT Orientation	Reading AV [dBµV]	Factor [dB(1/m)]	Level AV [dBµV/m]	Limit [dBµV/m]	Margin AV [dB]	Height [cm]	Angle [°]
1266.463	H	50.8	-19.8	31.0	54.0	23.0	148	359
2277.033	H	55.4	-17.2	38.2	54.0	15.8	183	1
2533.033	H	59.5	-16.1	43.4	54.0	10.6	214	166
3842.083	V	50.5	-12.3	38.2	54.0	15.8	331	359
4901.200	H	46.7	-9.4	37.3	54.0	16.7	319	326
7044.603	H	45.2	-4.1	41.1	54.0	12.9	339	1
7094.480	V	46.8	-3.9	42.9	54.0	11.1	101	359
7739.790	V	45.3	-2.9	42.4	54.0	11.6	400	278
12880.750	V	40.0	0.0	40.0	54.0	14.0	200	234
14627.690	H	38.2	1.0	39.2	54.0	14.8	200	1
15170.370	V	38.2	1.0	39.2	54.0	14.8	196	156
15915.300	H	36.6	2.3	38.9	54.0	15.1	200	102
17317.790	H	35.3	4.6	39.9	54.0	14.1	199	1
17771.230	V	35.4	5.4	40.8	54.0	13.2	199	0
21845.590	H	42.8	-6.4	36.4	54.0	17.6	200	359
22168.755	V	42.8	-6.1	36.7	54.0	17.3	199	301
23458.630	H	41.0	-5.2	35.8	54.0	18.2	201	1
23510.270	V	43.0	-5.1	37.9	54.0	16.1	200	1
25277.610	V	42.1	-4.6	37.5	54.0	16.5	199	1
25338.890	H	43.6	-4.6	39.0	54.0	15.0	200	359

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Page 31 of 43**Table 15: Radiated Emissions, Peak Data, 1 - 25GHz, Horizontal and Vertical Antenna Orientations, Mode B (2445MHz), Z axis**

Freq. [MHz]	ANT Orientation	Reading PK [dBμV]	Factor [dB(1/m)]	Level PK [dBμV/m]	Limit [dBμV/m]	Margin PK [dB]	Height [cm]	Angle [°]
2317.033	H	63.2	-17.1	46.1	74.0	27.9	400	163
2573.017	H	63.6	-15.9	47.7	74.0	26.3	129	160
4909.513	V	55.8	-9.4	46.4	74.0	27.6	400	359
7162.887	V	53.9	-3.4	50.5	74.0	23.5	100	334
7330.517	H	56.6	-3.1	53.5	74.0	20.5	104	355
7927.563	V	52.7	-2.4	50.3	74.0	23.7	258	22
14025.850	H	45.6	0.1	45.7	74.0	28.3	200	1
14717.340	V	45.7	0.9	46.6	74.0	27.4	201	1
15986.930	V	44.8	2.4	47.2	74.0	26.8	199	359
16067.100	H	45.4	2.5	47.9	74.0	26.1	199	118
17714.850	H	42.7	5.4	48.1	74.0	25.9	199	219
17765.490	V	43.2	5.4	48.6	74.0	25.4	200	54
19415.520	V	50.3	-9.0	41.3	74.0	32.7	199	37
19437.055	H	49.9	-9.0	40.9	74.0	33.1	200	97
21843.245	V	47.9	-6.4	41.5	74.0	32.5	199	1
21940.105	H	47.3	-6.4	40.9	74.0	33.1	199	121
24566.155	V	46.7	-4.7	42.0	74.0	32.0	100	1
24574.340	H	46.6	-4.7	41.9	74.0	32.1	199	359

Table 16: Radiated Emissions, Average Data, 1 - 25GHz, Horizontal and Vertical Antenna Orientations, Mode B (2445MHz), Z axis

Freq. [MHz]	ANT Orientation	Reading AV [dBμV]	Factor [dB(1/m)]	Level AV [dBμV/m]	Limit [dBμV/m]	Margin AV [dB]	Height [cm]	Angle [°]
2317.033	H	55.8	-17.1	38.7	54.0	15.3	400	163
2573.017	H	57.4	-15.9	41.5	54.0	12.5	129	160
4909.513	V	47.6	-9.4	38.2	54.0	15.8	400	359
7162.887	V	45.5	-3.4	42.1	54.0	11.9	100	334
7330.517	H	48.4	-3.1	45.3	54.0	8.7	104	355
7927.563	V	43.9	-2.4	41.5	54.0	12.5	258	22
14025.850	H	37.5	0.1	37.6	54.0	16.4	200	1
14717.340	V	37.3	0.9	38.2	54.0	15.8	201	1
15986.930	V	37.0	2.4	39.4	54.0	14.6	199	359
16067.100	H	36.5	2.5	39.0	54.0	15.0	199	118
17714.850	H	34.7	5.4	40.1	54.0	13.9	199	219
17765.490	V	34.6	5.4	40.0	54.0	14.0	200	54
19415.520	V	44.6	-9.0	35.6	54.0	18.4	199	37
19437.055	H	44.7	-9.0	35.7	54.0	18.3	200	97
21843.245	V	43.5	-6.4	37.1	54.0	16.9	199	1
21940.105	H	43.4	-6.4	37.0	54.0	17.0	199	121
24566.155	V	42.7	-4.7	38.0	54.0	16.0	100	1
24574.340	H	41.8	-4.7	37.1	54.0	16.9	199	359

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Page 32 of 43**Table 17: Radiated Emissions, Peak Data, 1 - 25GHz, Horizontal and Vertical Antenna Orientations, Mode C (2480MHz), Z axis**

Freq. [MHz]	ANT Orientation	Reading PK [dBμV]	Factor [dB(1/m)]	Level PK [dBμV/m]	Limit [dBμV/m]	Margin PK [dB]	Height [cm]	Angle [°]
2352.017	H	61.6	-17.0	44.6	74.0	29.4	400	157
2608.067	H	62.7	-15.8	46.9	74.0	27.1	230	172
4822.810	H	56.1	-9.9	46.2	74.0	27.8	400	1
4931.223	V	55.6	-9.3	46.3	74.0	27.7	400	266
7441.250	V	56.2	-3.3	52.9	74.0	21.1	400	124
7441.483	H	59.7	-3.3	56.4	74.0	17.6	101	359
12842.580	H	47.1	-0.1	47.0	74.0	27.0	199	320
14494.350	H	47.1	0.8	47.9	74.0	26.1	200	275
14721.520	V	46.2	0.9	47.1	74.0	26.9	199	1
17090.510	V	44.1	3.7	47.8	74.0	26.2	200	317
17216.680	H	44.2	4.1	48.3	74.0	25.7	200	359
17672.170	V	43.4	5.3	48.7	74.0	25.3	200	359
19840.200	H	50.6	-8.7	41.9	74.0	32.1	199	359
22380.625	V	48.3	-6.0	42.3	74.0	31.7	199	359
24801.070	V	46.4	-4.7	41.7	74.0	32.3	200	1
24805.850	H	46.6	-4.7	41.9	74.0	32.1	139	1

Table 18: Radiated Emissions, Average Data, 1 - 25GHz, Horizontal and Vertical Antenna Orientations, Mode C (2480MHz), Z axis

Freq. [MHz]	ANT Orientation	Reading AV [dBμV]	Factor [dB(1/m)]	Level AV [dBμV/m]	Limit [dBμV/m]	Margin AV [dB]	Height [cm]	Angle [°]
2352.017	H	54.1	-17.0	37.1	54.0	16.9	400	157
2608.067	H	56.0	-15.8	40.2	54.0	13.8	230	172
4822.810	H	49.1	-9.9	39.2	54.0	14.8	400	1
4931.223	V	46.9	-9.3	37.6	54.0	16.4	400	266
7441.250	V	47.4	-3.3	44.1	54.0	9.9	400	124
7441.483	H	51.3	-3.3	48.0	54.0	6.0	101	359
12842.580	H	38.8	-0.1	38.7	54.0	15.3	199	320
14494.350	H	36.5	0.8	37.3	54.0	16.7	200	275
14721.520	V	38.5	0.9	39.4	54.0	14.6	199	1
17090.510	V	36.6	3.7	40.3	54.0	13.7	200	317
17216.680	H	36.8	4.1	40.9	54.0	13.1	200	359
17672.170	V	34.4	5.3	39.7	54.0	14.3	200	359
19840.200	H	46.1	-8.7	37.4	54.0	16.6	199	359
22380.625	V	43.1	-6.0	37.1	54.0	16.9	199	359
24801.070	V	38.2	-4.7	33.5	54.0	20.5	200	1
24805.850	H	42.2	-4.7	37.5	54.0	16.5	139	1

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Page 33 of 43**Table 19: Band Edge, Modes A (2405MHz) and C (2480MHz), -20dB Limit to Peak Power**

Operating Frequency [MHz]	ANT / EUT Orien.	Fundamental Level [dBm]	Band Edge Limit [dBm]	Band Edge Frequency [MHz]	Band Edge Level [dBm]	Margin [dB]
2405	V/X	-15.47	-35.47	2400.0	-55.16	39.69
2480	V/Y	-15.40	-35.40	2483.5	-56.02	40.62

Table 20: Band Edge, Modes A (2405MHz) and C (2480MHz), Restricted Band

Operating Frequency [MHz]	ANT / EUT Orien.	Band Edge Frequency [MHz]	Average Limit [dBuV/m]	Peak Limit [dBuV/m]	Average Level [dBuV/m]	Peak Level [dBuV/m]	Average Margin [dB]	Peak Margin [dB]
2405	V/X	2390.0	54	74	46.8	56.1	7.2	17.9
2480	H/Y	2483.5	54	74	52.5	62.8	1.5(*)	11.2

Notes:

(*) The measured result is below the specification limit by a margin less than the measurement uncertainty; it is therefore not possible to determine compliance at a level of confidence of 95%. However, the measured result indicates a high probability that the tested product complies with the specification limit.

Figure 8: Radiated Emissions at Band Edge, Spectral Diagram, Modes A (2405MHz) and C (2480MHz)

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5.4 AC Power Line Conducted Measurements

5.4.1 AC Power Line Conducted Emission of Transmitter

RESULT:**PASS**

Date of testing: 2026-04-03

Ambient temperature: 21°C

Relative humidity: 51%

Atmospheric pressure: 1014hPa

Frequency range: 0.15 - 30MHz

Kind of test site: Shielded Room

Operation Modes: B

Requirements:

FCC 15.207

The AC power line conducted emission at any frequency within the band 150kHz to 30MHz shall not exceed the limits specified in FCC 15.207.

Test procedure:

ANSI C63.10 §6.2

The EUT was placed on a wooden table raised 80cm above the reference ground plane. A vertical conducting plane of the screened room was located 40cm to the rear of the EUT. The AC adapter of the EUT was connected to a Line Impedance Stabilization Network (LISN).

The physical arrangement of the test system and associated wiring was varied to determine the effect on the EUT's emissions in amplitude and frequency to ensure that maximum emission amplitudes were attained.

The measurements were performed with a test receiver operating in the CISPR quasi-peak and average detection modes. The receiver's 6dB bandwidth was set to 9kHz.

Disturbances other than those mentioned are small or not detectable.

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Page 35 of 43**Table 21: AC Power Line Conducted Emission, Quasi Peak and Average Data,
0.15 - 30MHz, Phase N (N) and L1 (L), Mode B (2445MHz)**

Freq. [MHz]	Phase	Reading QP [dBμV]	Reading AV [dBμV]	Factor [dB]	Level QP [dBμV]	Level AV [dBμV]	Limit QP [dBμV]	Limit AV [dBμV]	Margin QP [dB]	Margin AV [dB]
2.594	N	22.2	21.0	9.9	32.1	30.9	56.0	46.0	23.9	15.1
2.596	L1	23.8	23.1	9.9	33.7	33.0	56.0	46.0	22.3	13.0
5.960	L1	13.1	9.6	10.0	23.1	19.6	60.0	50.0	36.9	30.4
11.918	N	24.0	22.8	10.1	34.1	32.9	60.0	50.0	25.9	17.1
11.918	L1	26.1	25.2	10.1	36.2	35.3	60.0	50.0	23.8	14.7
16.868	N	8.0	1.6	10.2	18.2	11.8	60.0	50.0	41.8	38.2
23.836	N	31.7	29.0	10.3	42.0	39.3	60.0	50.0	18.0	10.7
23.836	L1	29.3	26.2	10.3	39.6	36.5	60.0	50.0	20.4	13.5
29.794	N	21.1	14.1	10.4	31.5	24.5	60.0	50.0	28.5	25.5
29.794	L1	14.5	9.0	10.4	24.9	19.4	60.0	50.0	35.1	30.6

Note: Level QP = Reading QP + Factor, Level AV = Reading AV + Factor

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