

Test Report Prepared By:

Electronics Test Centre
27 East Lake Hill
Airdrie, Alberta
Canada
T4A 2K3

sales@etc-mpbtech.com
<http://www.etc-mpb.com>

Telephone: 1-403-912-0037

ETC Report #: s01e26a267 Release 1

Report date: July 21, 2026

**EMC testing of the SMART Technologies ULC SAT-1 in accordance with
FCC Part 15 Subpart C (15.247, 15.209, 15.205)**

ANSI C63.10: 2020

ANSI C63.4: 2014

FCC ID: QCI-AATMOD1

Test Dates: June 30, 2026, July 2-6, 2026

Test Personnel: Imran Akram, Joseph Yumol

Prepared for: SMART Technologies ULC
Suite 600, 214 11 Ave SW
Calgary, Alberta
Canada
T2R 0K1



Imran Akram
iakram@etc-mpbtech.com
EMC Technologist
Electronics Test Centre (Airdrie)



Marc Rousseau
marc.rousseau@mpbc.ca
QA Manager
Electronics Test Centre (Airdrie)

REVISION RECORD

ISSUE	DATE	AUTHOR	REVISIONS (Description)
DRAFT 1	2026/07/08	I. Akram	Initial draft submitted for review.
Release 1	2026/07/21	I. Akram	Sign Off

TABLE OF CONTENTS

1.0	INTRODUCTION	5
1.1	Scope	5
1.2	Applicant	5
1.3	Test Sample Description	5
1.4	General Test Conditions	5
1.6	Test Methodology.....	6
1.6.1	Variations in Test Methodology.....	6
1.6.2	Test Sample Verification, Configuration & Modifications	6
1.6.3	Uncertainty of Measurement:	6
2.0	TEST CONCLUSION	7
2.1	Duty Cycle.....	8
2.1.1	Test Guidance: ANSI C63.10, Clause 11.6 / FCC OET KDB 558074	8
2.1.2	Deviations From The Standard:	8
2.1.3	Test Equipment.....	8
2.1.4	Test Sample Verification, Configuration & Modifications	8
2.1.5	Measurement Result (Test Mode 1Mbps)	9
2.1.6	Measurement Result (Test Mode 2Mbps)	10
2.2	6dB Bandwidth	11
2.2.1	Test Guidance: ANSI C63.10, Clause 11.8 / FCC OET KDB 558074	11
2.2.2	Deviations From The Standard:	11
2.2.3	Test Equipment.....	12
2.2.4	Test Sample Verification, Configuration & Modifications	12
2.2.5	Channel Bandwidth Data:	12
2.2.6	Channel Bandwidth Data Antenna	14
2.3	Max Average Output Power	16
2.3.1	ANSI C63.10, Clause 11.9.2.2.4/ FCC OET KDB 558074.....	16
2.3.2	Deviations From The Standard:	16
2.3.3	Test Equipment.....	17
2.3.4	Test Sample Verification, Configuration & Modifications	17
2.3.5	Max Average Output Power Data:	17
2.3.6	Max Average Output Power Data:	20
2.4	Band Edge Attenuation	22
2.4.1	ANSI C63.10 Clause 11.12.3.1 & 6.10.5, 6.10.6 / FCC OET KDB 558074	22
2.4.2	Deviations From The Standard:	22
2.4.3	Test Equipment.....	23
2.4.4	Test Sample Verification, Configuration & Modifications	23
2.4.5	Band Edge Data.....	23
2.5	Power Spectral Density.....	26
2.5.1	ANSI C63.10, Clause 11.10.5 / FCC OET KDB 558074.....	26
2.5.2	Deviations From The Standard:	26
2.5.3	Test Equipment.....	27
2.5.4	Test Sample Verification, Configuration & Modifications	27
2.5.5	Average PSD Data.....	27
2.5.6	Average PSD Data.....	29

2.6	Conducted Spurious Emissions (Non-Restricted Band)	31
2.6.1	Test Guidance: ANSI C63.10, Clause 6.7	31
2.6.2	Deviations From The Standard:	31
2.6.3	Test Equipment.....	31
2.6.4	Test Sample Verification, Configuration & Modifications	31
2.6.5	Conducted Emissions Data: Test Mode: 1Mbps.....	32
2.6.6	Conducted Emissions Data: Test Mode: 2Mbps.....	35
2.7	EUT Positioning Assessment.....	38
2.8	Radiated Spurious Emissions (within restricted band).....	39
2.8.1	Test Guidance: ANSI C63.10, Clause 5.9	41
2.8.2	Deviations From The Standard:	41
2.8.3	Test Equipment.....	41
2.8.4	Test Sample Verification, Configuration & Modifications	42
2.8.5	Test Mode: 1Mbps	43
2.8.6	Test Mode: 2Mbps	55
2.9	AC Main Power Line Conducted Emissions:	67
2.9.1	Test Guidance:.....	67
2.9.2	Deviations From The Standard:	67
2.9.3	Test Equipment.....	67
2.9.4	Test Sample Verification, Configuration & Modifications	68
2.9.6	Conducted Emissions Data:.....	69
2.10	Radiated Emissions (RX Mode).....	73
2.10.1	Test Guidance:.....	73
2.10.2	Deviations From The Standard:	73
2.10.3	Test Equipment.....	74
2.10.4	Test Sample Verification, Configuration & Modifications	74
2.10.5	Radiated Emissions Data:.....	76
2.11	AC Main Power Line Conducted Emissions:	81
2.11.1	Test Guidance: ANSI C63.4-2014, Clause 7.3.1	81
2.11.2	Deviations From The Standard:	81
2.11.3	Test Equipment.....	81
2.11.4	Test Sample Verification, Configuration & Modifications	82
2.11.6	Conducted Emissions Data:.....	83
2.12	RF Exposure	86
3.0	TEST FACILITY	87
3.1	Location.....	87
3.2	Grounding Plan	87
3.3	Power Supply	87
Appendix A – Test Setup Block Diagram		88

1.0 INTRODUCTION

1.1 Scope

The purpose of this report is to present the results of compliance testing performed in accordance with FCC Part 15.247 and ANSI C63.10 to gain FCC new Authorization for Low-Power License-Exempt transmitters.

All test procedures, limits, criteria, and results described in this report apply only to the SMART Technologies ULC SAT-1 test sample, referred to herein as the EUT (Equipment Under Test).

The samples have been provided by the customer and in a good condition.

This report does not imply product endorsement by the Electronics Test Centre, A2LA, nor any Canadian Government agency.

1.2 Applicant

This test report has been prepared for SMART Technologies ULC, located in Calgary, Alberta, Canada.

1.3 Test Sample Description

As provided to ETC (Airdrie) by SMART Technologies ULC:

Product Name:		SoundFlow Audio Broadcasting System
Radio		BT
Frequency Band		2400 – 2483.5 MHz
Frequency Range		2402– 2480 MHz
Operating Mode		BLE
Max Transmit Power (Conducted)		6.65 dBm (0.00463 W)
Associated Internal Antenna	BLE	Antenova P/N: SR4W030, Polarization: Linear Max Gain: 2.6dBi
Detachable/Non Detachable		Non Detachable (internal to enclosure)
Model#		SAT-1
Serial#		N/A
Power supply:		USB 5VDC

Note: Radiated spurious emission compliance testing performed on all channels for both data rates.

1.4 General Test Conditions

The EUT was set up and exercised using the configurations, modes of operation and arrangements defined in this report only. All inputs and outputs to and from other equipment associated with the EUT were adequately simulated. In order to meet the operational requirements during testing as per KDB 558074 D01 15.247 Meas Guidance v05r02 and ANSI C63.10 the device was programmed with a special firmware to transmit at maximum achievable duty cycle. The special firmware is strictly for testing purpose only and not available to end user. The environmental conditions are recorded during each test, and are reported in the relevant sections of this document. For BLE radio parameter analysis, the UFL to SMA pigtail cable was provided to connect the S/A directly at the antenna UFL connector.

1.5 Reference Standards

Standards	Description
FCC, title 47 CFR § 15.247	Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.
FCC, title 47 CFR § 15.207	Conducted limits for an intentional radiator that is designed to be connected to the public utility (AC) power line.
FCC, title 47 CFR § 15.107	Conducted limits for equipment that is designed to be connected to the public utility (AC) power line.
FCC, title 47 CFR § 15.209	Radiated emission limits; general requirements
FCC, title 47 CFR § 15.109	Radiated emission limits; from unintentional radiators digital devices.
ANSI C63.10:2020	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
ANSI C63.4-2014	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
558074 D01 15.247 Meas Guidance v05r02	Guidance For Compliance Measurements On Digital Transmission System, Frequency Hopping Spread Spectrum System, And Hybrid System Devices Operating Under Section 15.247 Of The FCC Rules

1.6 Test Methodology

Test methods are specified in the Basic Standard as referenced and/or modified by the Product Standard in the part of Section 2 of this report associated with each particular test case. EUT is tested in RX mode to cover FCC Part 15 Sub Part B (Digital Circuitry) and the result is included in this test report.

1.6.1 Variations in Test Methodology

Any variance in methodology or deviation from the reference Standard is documented in the part of Section 2 of this report associated with each particular Test Case.

1.6.2 Test Sample Verification, Configuration & Modifications

EUT setup, configuration, protocols for operation and monitoring of EUT functions, and any modifications performed in order to meet the requirements, are detailed in each Test Case of Section 2 of this report.

1.6.3 Uncertainty of Measurement:

The factors contributing to measurement uncertainty are identified and calculated in accordance with CISPR 16-4-2: 2011.

This uncertainty estimate represents an expended uncertainty expressed at approximately 95% confidence using a coverage factor of $k = 2$.

Test Method	Uncertainty
Radiated Emissions Level (9 KHz – 1 GHz)	±5.8 dB
Radiated Emissions Level (1 GHz – 18 GHz)	±4.9 dB
Radiated Emissions Level (18 GHz – 26.5 GHz)	±5.0 dB
Uncertainty Conducted Power level	±0.5 dB
Uncertainty Conducted Spurious emission level	±0.6 dB
Uncertainty for Bandwidth test	±1.5 %

2.0 TEST CONCLUSION

STATEMENT OF COMPLIANCE

The customer equipment referred to in this report was found to comply with the requirements, as summarized below.

The EUT was subjected to the following tests. Compliance status is reported as **Compliant** or **Non-compliant**. **N/A** indicates the test was Not Applicable to the EUT.

The measurement uncertainty is not accounted for determination of the statement of compliance. The statement of compliance is based only on the measurement value recorded.

Note: Maintenance of compliance is the responsibility of the Manufacturer. Any modifications to the product should be assessed to determine their potential impact on the compliance status of the EUT with respect to the standards detailed in this test report.

The following table summarizes the tests performed in terms of the specification, class or performance criterion applied, and the EUT modification state.

Test Case	Test Type	Specification	Test Sample	Modifications	Config.	Result
2.1	Duty Cycle	ANSI C63.10	SAT-1	none	see § 2.1	Measured
2.2	6dB Bandwidth	15.247(a)	SAT-1	none	see § 2.2	Compliant
2.3	Max Output Power	15.247(d)	SAT-1	none	see § 2.3	Compliant
2.4	Band Edge	15.247(d)	SAT-1	none	see § 2.4	Compliant
2.5	Power Spectral Density	15.247(e)	SAT-1	none	see § 2.5	Compliant
2.6	Conducted Spurious Emissions (Non-Restricted Band)	15.247(d)	SAT-1	none	see § 2.6	Compliant
2.7	EUT Position	ANSI C63.4	SAT-1	none	see § 2.7	Fix one position
2.8	Radiated Spurious Emission (Restricted Band)	15.205, 15.209 15.247(d)	SAT-1	none	see § 2.8	Compliant
2.9	AC Main Conducted Emissions	15.207	SAT-1	none	see § 2.9	Compliant
2.10	Radiated Emission	15.109	SAT-1	none	see § 2.10	Compliant
2.11	AC Main Conducted Emissions	15.107	SAT-1	none	see § 2.11	Complaint
2.12	RF Exposure	15.247(i)	SAT-1	none	see § 2.12	Exempt

Refer to the test data for applicable test conditions.

2.1 Duty Cycle

Test Lab: Electronics Test Centre, Airdrie	EUT: SAT-1
Test Personnel: Imran Akram	Basic Standard: ANSI C63.10
Date: 2026-06-30 (24.4°C, 48.1 % RH)	
Comments: BLE radio Duty cycle < 98%.	

2.1.1 Test Guidance: ANSI C63.10, Clause 11.6 / FCC OET KDB 558074

- Set the center frequency of the instrument to the center frequency of the transmission.
- Set RBW $\geq$ OBW if possible; otherwise, set RBW to the largest available value.
- Set VBW $\geq$ RBW. Set detector = peak or average.
- The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$ and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring the duty cycle shall not be used if $T \leq 16.7 \mu s$.)

2.1.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.1.3 Test Equipment

Testing was performed with the following equipment:

Equipment	Manufacturer	Model #	Asset #	Cal. Date	Cal. Due
EMI receiver	Agilent	N9038A (FW A.22.08)	6906	2026-02-17	2027-02-17
Temp/Humid Data Logger	LASCAR	EL-WIFI-TH	7033	2025-12-05	2026-12-05
Attenuator (DC to 26 GHz)	Mini-Circuits	BW-S10-2W263+	6932	2025-10-14	2028-10-14
Coaxial Cables (RF)	W.L. GORE	PGR01R01036	7024	2026-01-09	2027-01-09
DC Blocker (9 KHz - 27 GHz)	Centric RF	C0927 SMA	6987	2026-01-09	2027-01-09

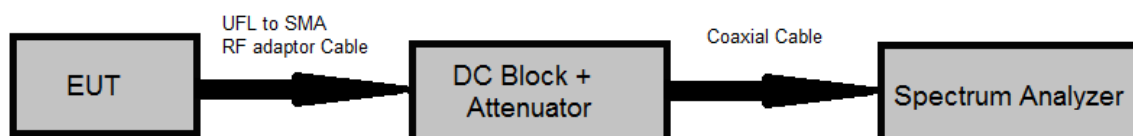
2.1.4 Test Sample Verification, Configuration & Modifications

The EUT was set to transmit continuously on a selected channel with test-specific software. The output was modulated as in normal operation.

The EUT met the requirements without modification.

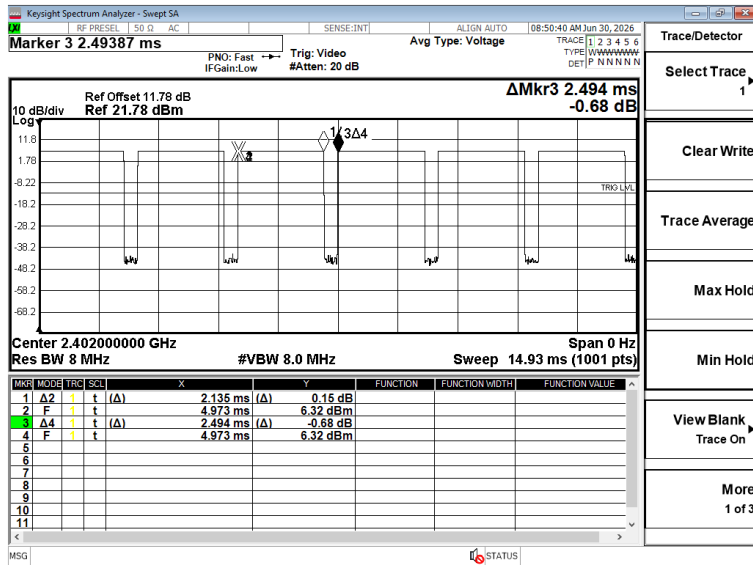
Test setup diagrams for Occupied Bandwidth testing:

Conducted:

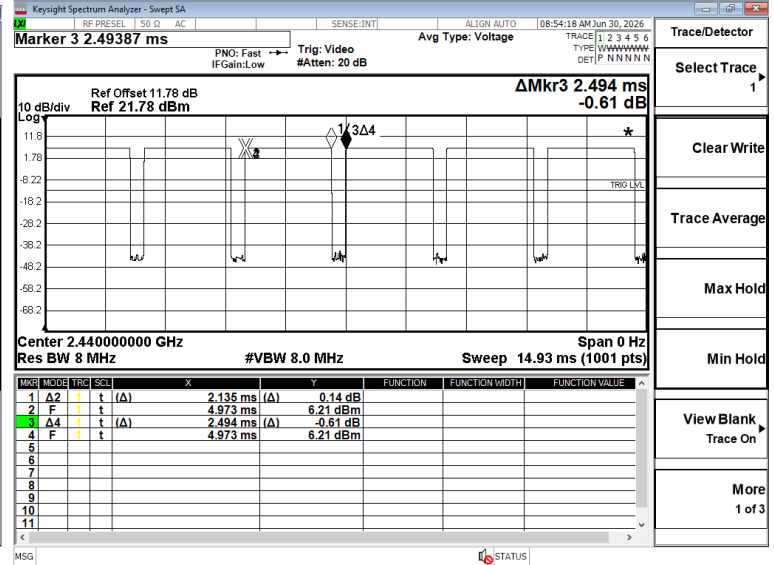


2.1.5 Measurement Result (Test Mode 1Mbps)

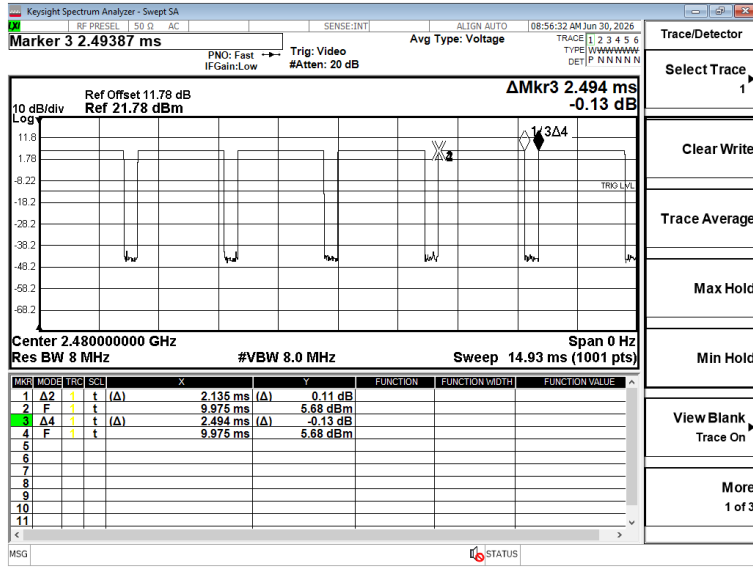
LOW Channel



MID Channel



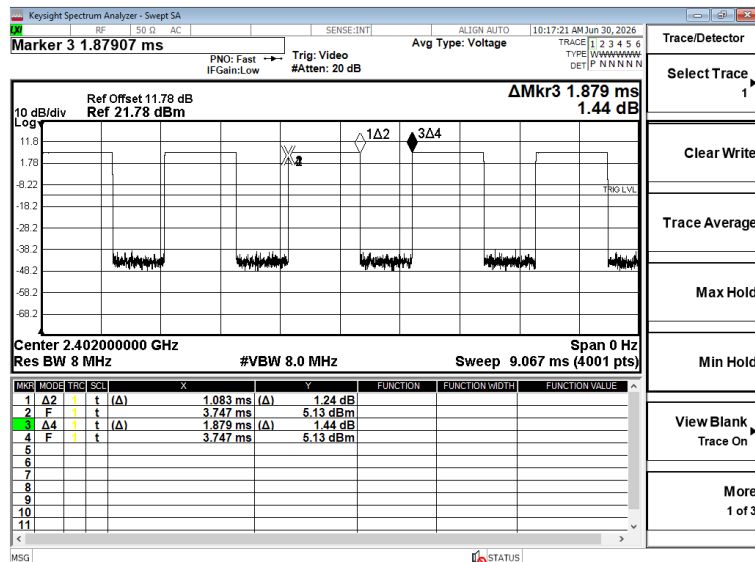
High Channel



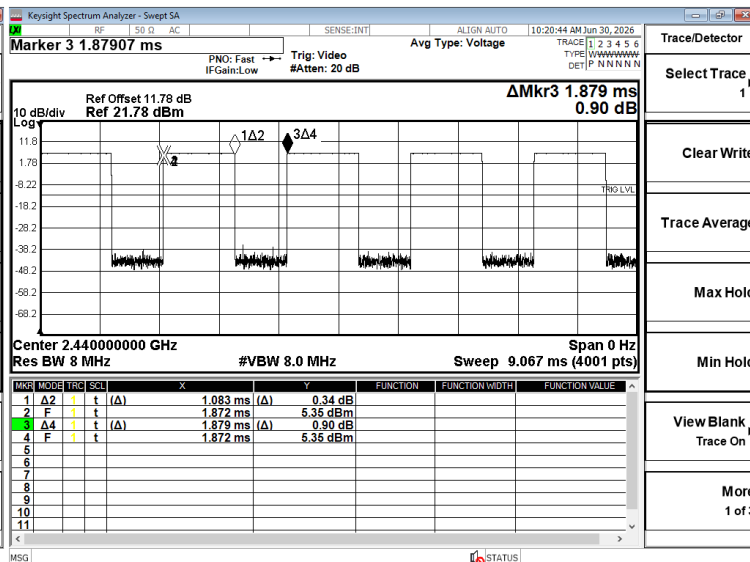
Channel	ON Time (t _{ms})	Time Period (T _{ms})	Duty Cycle (D = t/T)	Duty Cycle %	Correction Factor (10log(1/D))	Duty Cycle Correction Factor (dB)
2402	2.135	2.494	0.86	86	0.655015487	0.66
2440	2.135	2.494	0.86	86	0.655015487	
2480	2.135	2.494	0.86	86	0.655015487	

2.1.6 Measurement Result (Test Mode 2Mbps)

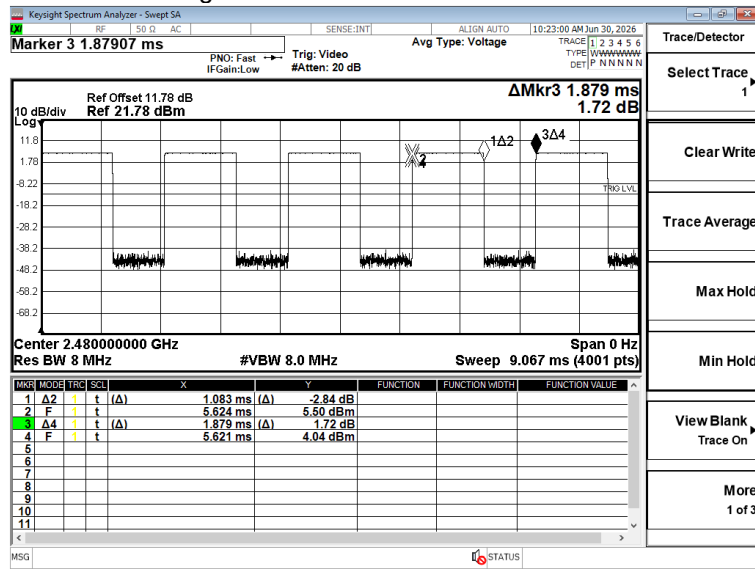
LOW Channel



MID Channel



High Channel



Channel	ON Time (t _{ms})	Time Period (T _{ms})	Duty Cycle (D = t/T)	Duty Cycle %	Correction Factor (10log(1/D))	Duty Cycle Correction Factor (dB)
2402	1.083	1.879	0.58	58	2.365720064	2.37
2440	1.083	1.879	0.58	58	2.365720064	
2480	1.083	1.879	0.58	58	2.365720064	

2.2 6dB Bandwidth

Test Lab: Electronics Test Centre, Airdrie	EUT: SAT-1
Test Personnel: Imran Akram	Standard: FCC PART 15.247
Date: 2026-06-30 (24.4°C, 48.1 % RH)	Basic Standard: ANSI C63.10 FCC OET KDB 558074
EUT status: Compliant	

Specification: FCC Part 15.247 (a, 2), FCC 15.215 (c)

Criteria: Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

2.2.1 Test Guidance: ANSI C63.10, Clause 11.8 / FCC OET KDB 558074

This measurement is performed at low, mid and high frequencies, with modulation.

The RF output of EUT with an antenna connector is fed to the input of the spectrum analyzer through appropriate attenuation. The loss from the cables and the attenuator were added on the analyzer as gain offset setting there by allowing direct measurements, without the need for any further corrections.

11.8.2 Option 2 (For DTS)	
The steps for the first option are as follows:	
Span	$\geq (2 * \text{OBW}), \leq (5 * \text{OBW})$
Set RBW	100 kHz.
Set the VBW	$\geq [3 \times \text{RBW}]$.
Detector	peak
Trace mode	max-hold
Sweep	No faster than coupled (auto) time.
Trace	Allow the trace to stabilize.
The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described in 11.8.1 (i.e., $\text{RBW} = 100 \text{ kHz}$, $\text{VBW} \geq 3 \times \text{RBW}$, and peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be $\geq 6 \text{ dB}$.	

2.2.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.2.3 Test Equipment

Testing was performed with the following equipment:

Equipment	Manufacturer	Model #	Asset #	Cal. Date	Cal. Due
EMI receiver	Agilent	N9038A (FW A.22.08)	6906	2026-02-17	2027-02-17
Temp/Humidity	Extech	42270	5871	2025-05-01	2026-05-01
Attenuator (DC to 26 GHz)	Mini-Circuits	BW-S10-2W263+	6932	2025-10-14	2028-10-14
Coaxial Cables (RF)	W.L. GORE	PGR01R01036	7024	2026-01-09	2027-01-09
DC Blocker (9 KHz - 27 GHz)	Centric RF	C0927 SMA	6987	2026-01-09	2027-01-09

2.3.4 Test Sample Verification, Configuration & Modifications

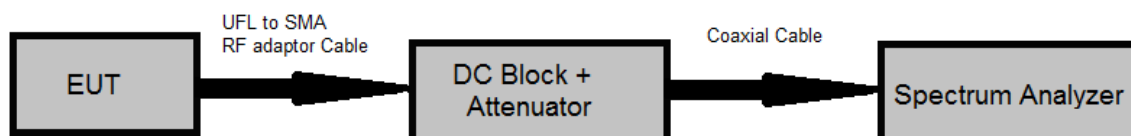
The EUT was set to transmit continuously on a selected channel with test-specific software.

The output was modulated as in normal operation.

The EUT met the requirements without modification.

Test setup diagrams for Occupied Bandwidth testing:

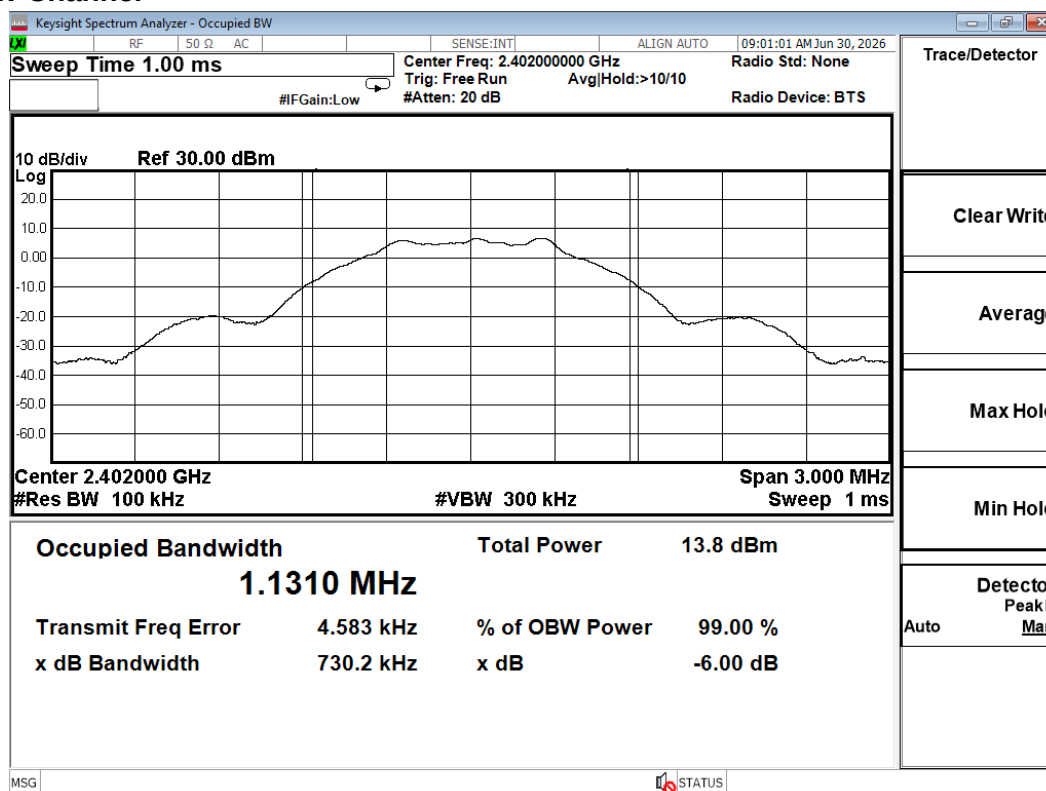
Conducted:



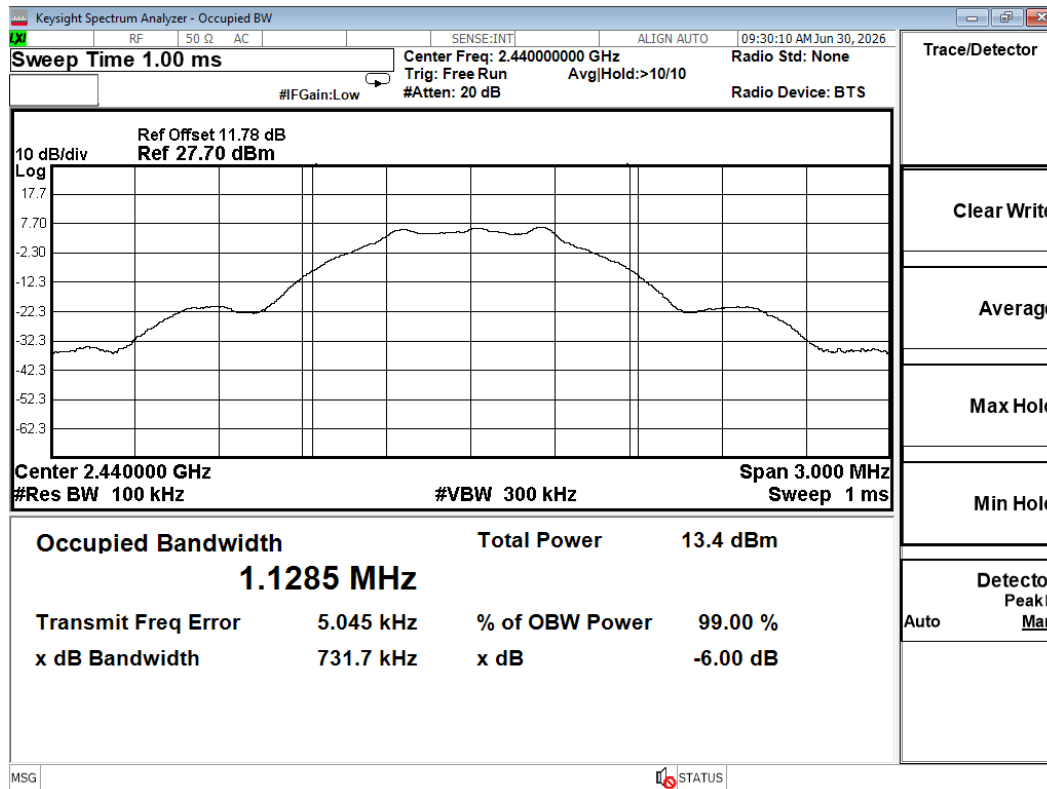
2.2.5 Channel Bandwidth Data:

Mode of operation	Channel	Freq. [MHz]	6 dB BW [KHz]	Limit BW [KHz]
BLE (1Mbps)	Low	2402	730.2	≥ 500
	Mid	2440	731.7	
	High	2480	727.6	

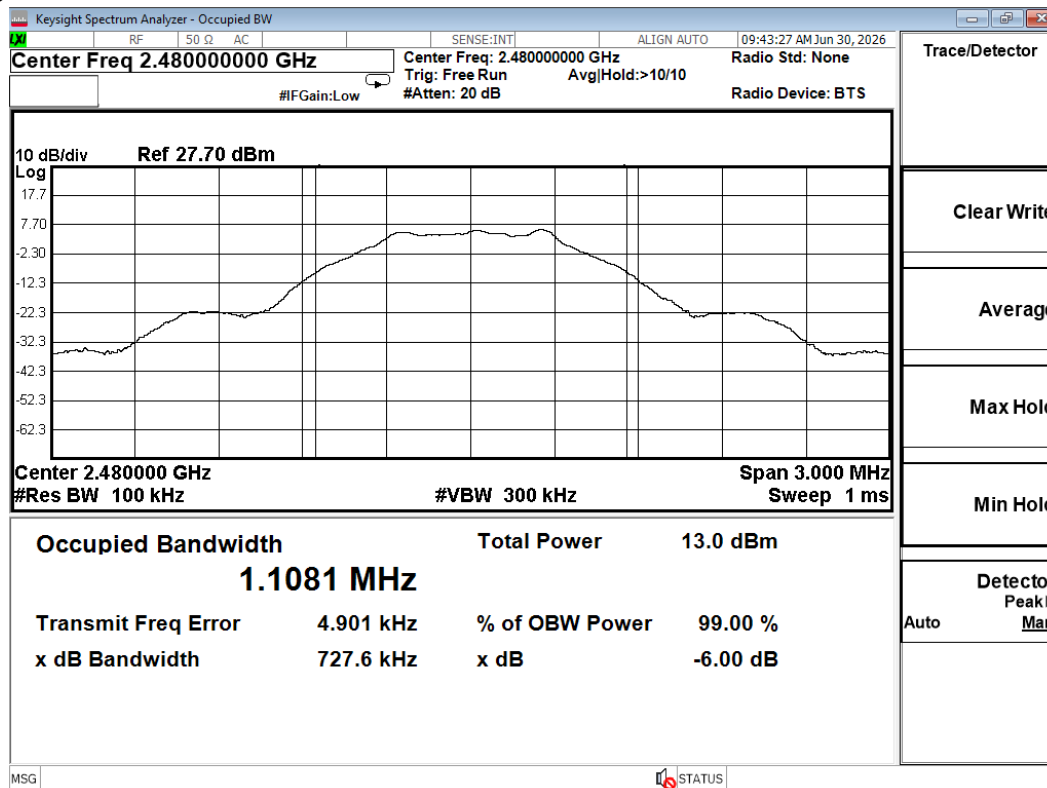
Low Channel



MID Channel



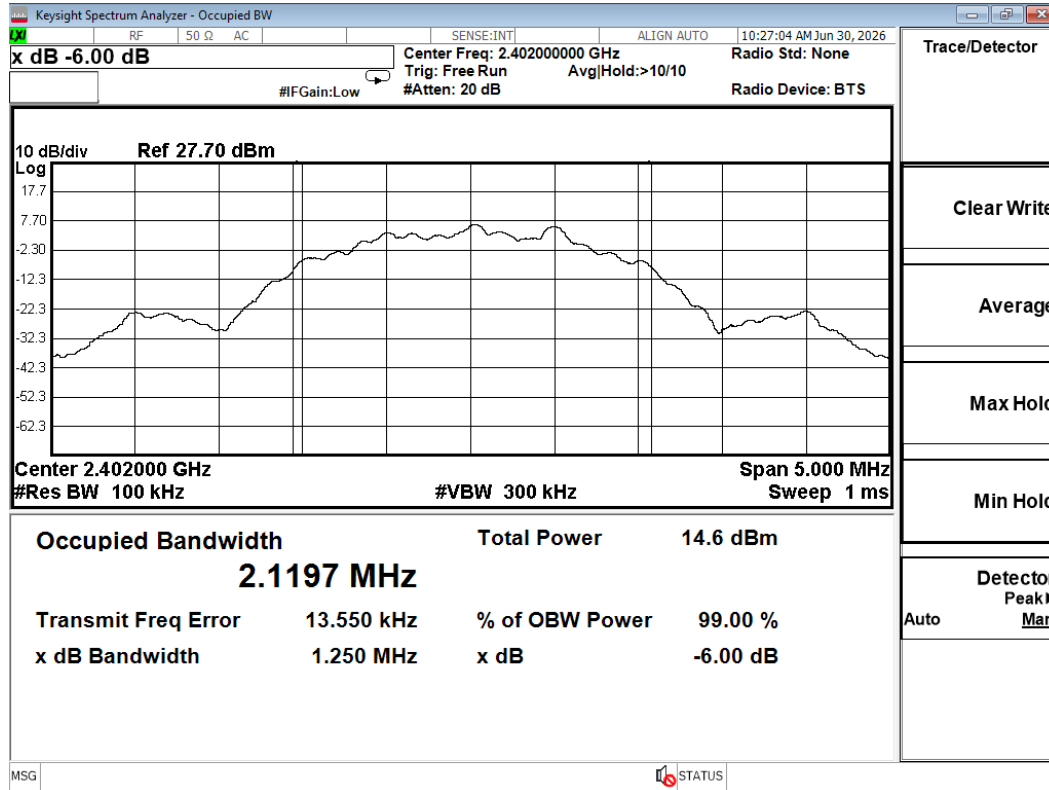
High Channel



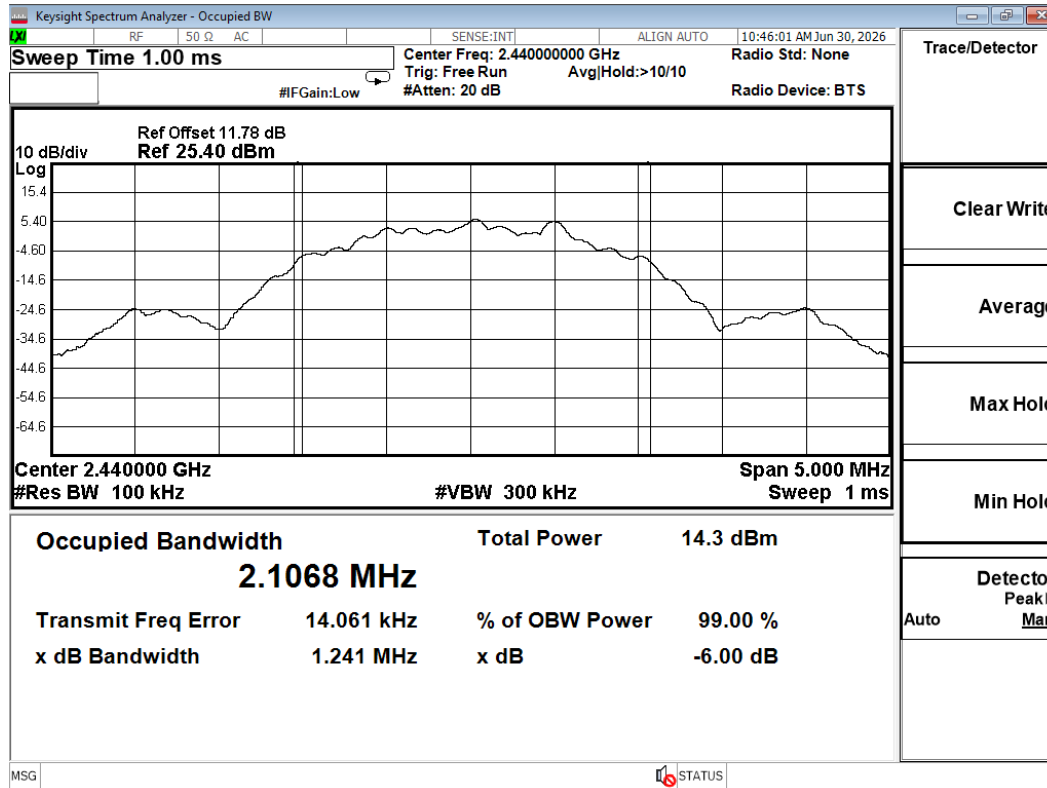
2.2.6 Channel Bandwidth Data Antenna

Mode of operation	Channel	Freq. [MHz]	6 dB BW [KHz]	Limit BW [KHz]
BLE (2Mbps)	Low	2402	1250	≥ 500
	Mid	2440	1241	
	High	2480	1247	

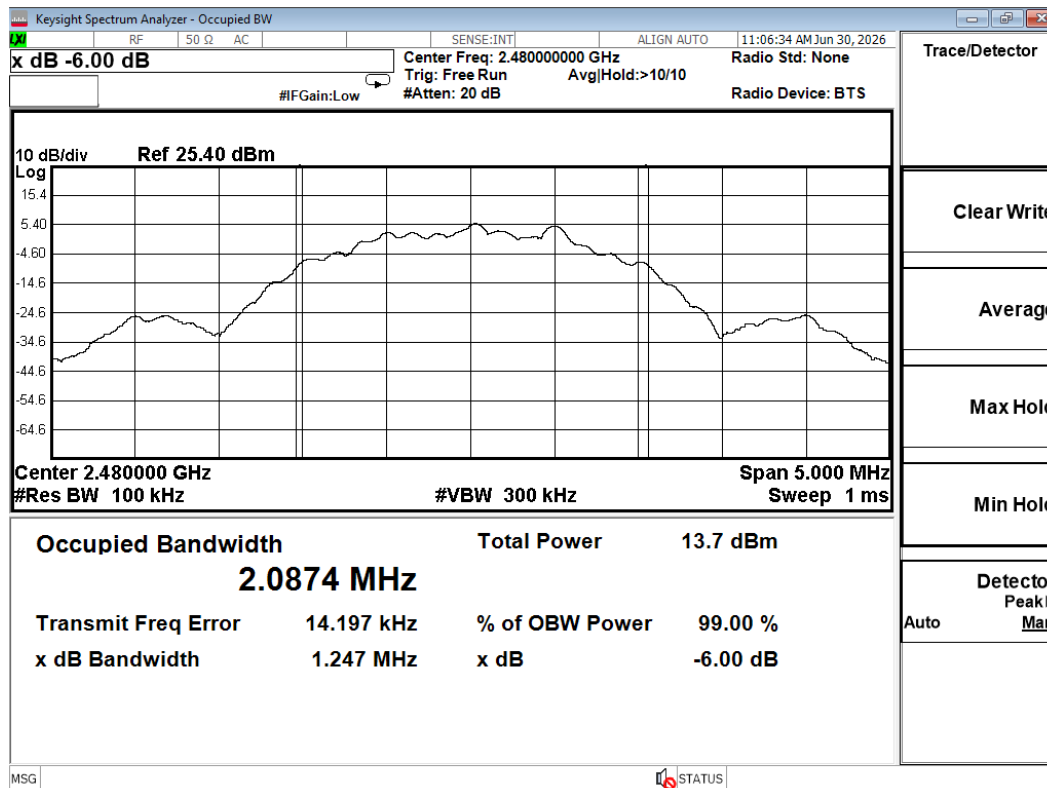
Low Channel



MID Channel



High Channel



2.3 Max Average Output Power

Test Lab: Electronics Test Centre, Airdrie	EUT: SAT-1
Test Personnel: Imran Akram	Standard: FCC PART 15.247
Date: 2026-06-30 (24.4°C,48.1% RH)	Basic Standard: ANSI C63.10 FCC OET KDB 558074

EUT status: Compliant

Specification: FCC Part 15.247(b, 3)

Criteria (3) For systems using digital modulation in the 2400-2483.5 MHz bands: 1 Watt.

2.3.1 ANSI C63.10, Clause 11.9.2.2.4/ FCC OET KDB 558074

This measurement is performed at low, mid and high frequencies, with modulation.

The RF output of EUT with an antenna connector is fed to the input of the spectrum analyzer through appropriate attenuation. The loss from the cable and the attenuator were added on the analyzer as gain offset setting there by allowing direct measurements, without the need for any further corrections. The EUT transmits with a duty cycle = 86%.

Output Power Method AVGSA-2	
Measure the duty cycle D of the transmitter output signal	
Span	≥ 1.5 times the OBW
RBW	1 – 5 % of the OBW, ≤ 1 MHz
VBW	$\geq 3 \times$ RBW
Number of Points in sweep	$\geq 2 \times$ Span / RBW
Sweep time	Auto
Detector	RMS (Power Averaging)
Sweep trigger	Free Run (Duty Cycle <98%)
Trace Average	100 traces in power Averaging (RMS)
Compute power by integrating the spectrum across the OBW of the signal using the instrument's band-power measurement function with band limits set equal to the OBW band-edges.	
Add $[10 \log (1 / D)]$, where D is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both the ON and OFF times of the transmission).	

2.3.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.3.3 Test Equipment

Testing was performed with the following equipment:

Equipment	Manufacturer	Model #	Asset #	Cal. Date	Cal. Due
EMI receiver	Agilent	N9038A (FW A.22.08)	6906	2026-02-17	2027-02-17
Temp/Humidity	Extech	42270	5871	2025-05-01	2026-05-01
Attenuator (DC to 26 GHz)	Mini-Circuits	BW-S10-2W263+	6932	2025-10-14	2028-10-14
Coaxial Cables (RF)	W.L. GORE	PGR01R01036	7024	2026-01-09	2027-01-09
DC Blocker (9 KHz - 27 GHz)	Centric RF	C0927 SMA	6987	2026-01-09	2027-01-09

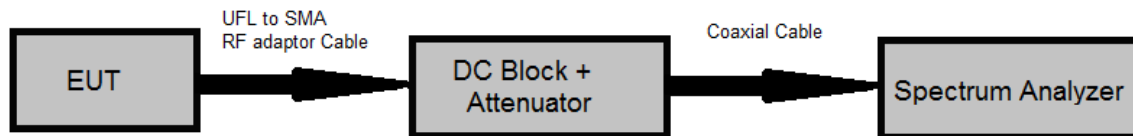
2.3.4 Test Sample Verification, Configuration & Modifications

The EUT was set to a selected channel with test-specific software. The output was modulated as in normal operation.

The EUT met the requirements without modification.

Test setup diagrams for Power testing:

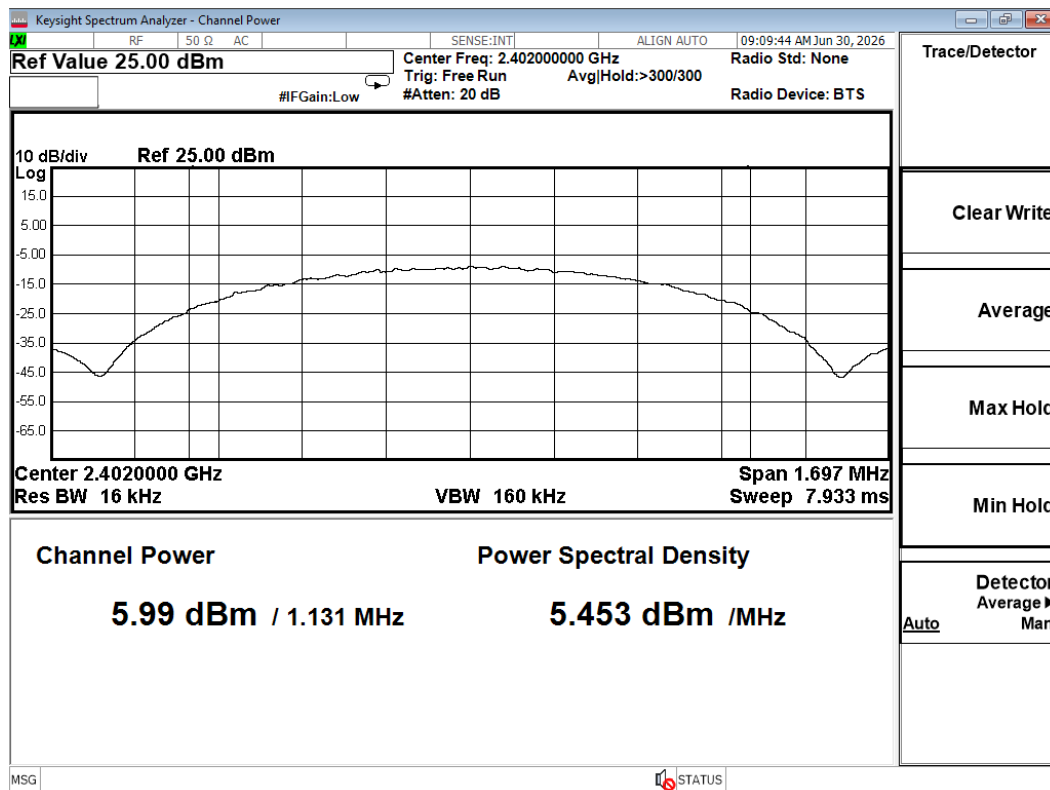
Conducted:



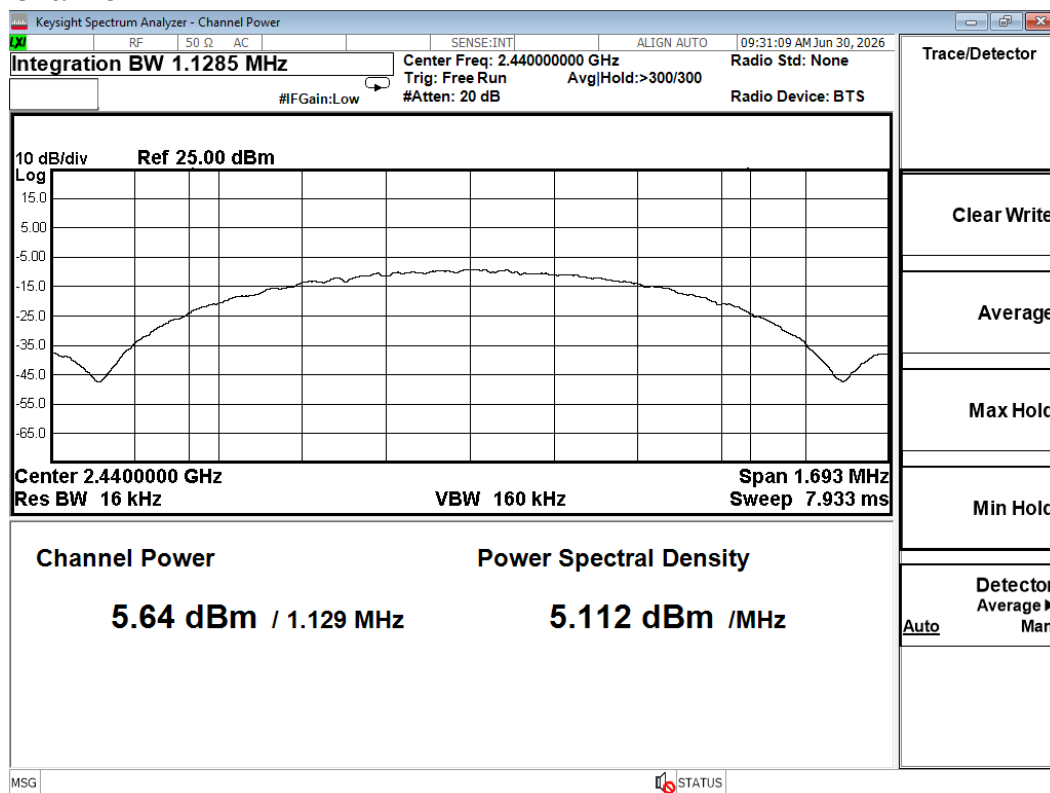
2.3.5 Max Average Output Power Data: 1Mbps

Mode of operation	Channel	Freq. [MHz]	Measured Average Power [dBm]	Duty Cycle Correction Factors (dB)	Corrected Average Power [dBm]	Limit Power [dBm]
BLE (1Mbps)	Low	2402	5.99	0.66	6.65	≤ 30 (1Watt)
	Mid	2440	5.64		6.30	
	High	2480	5.15		5.81	

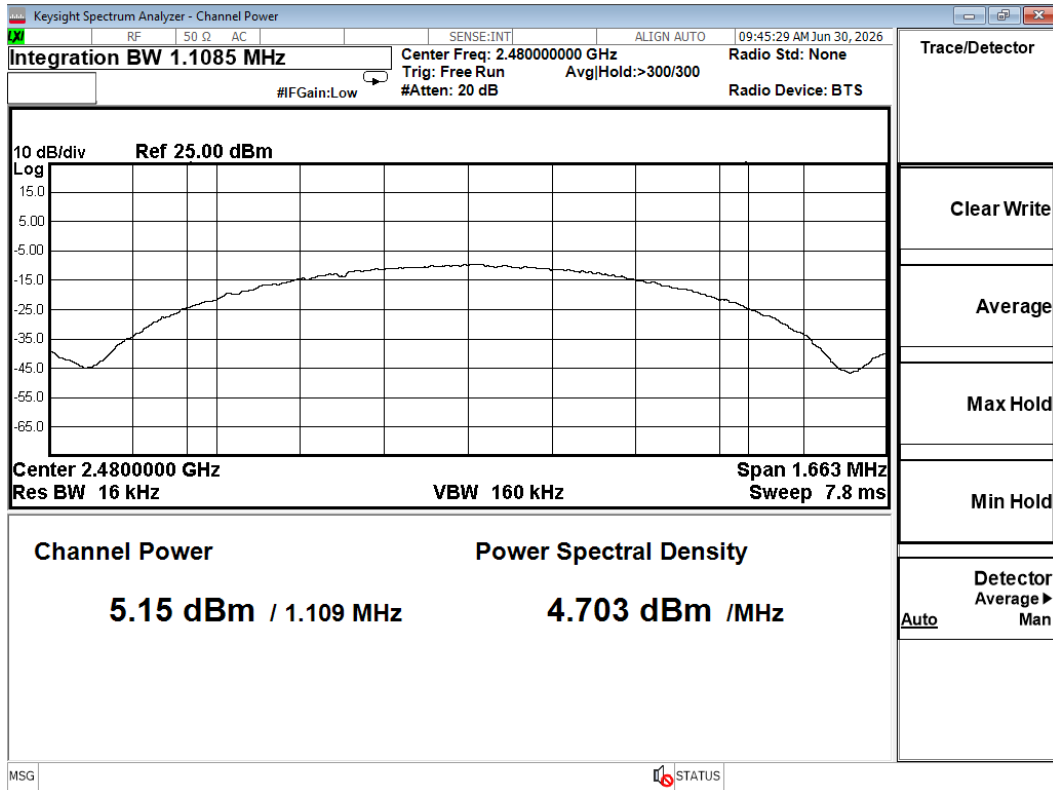
Low Channel



MID Channel



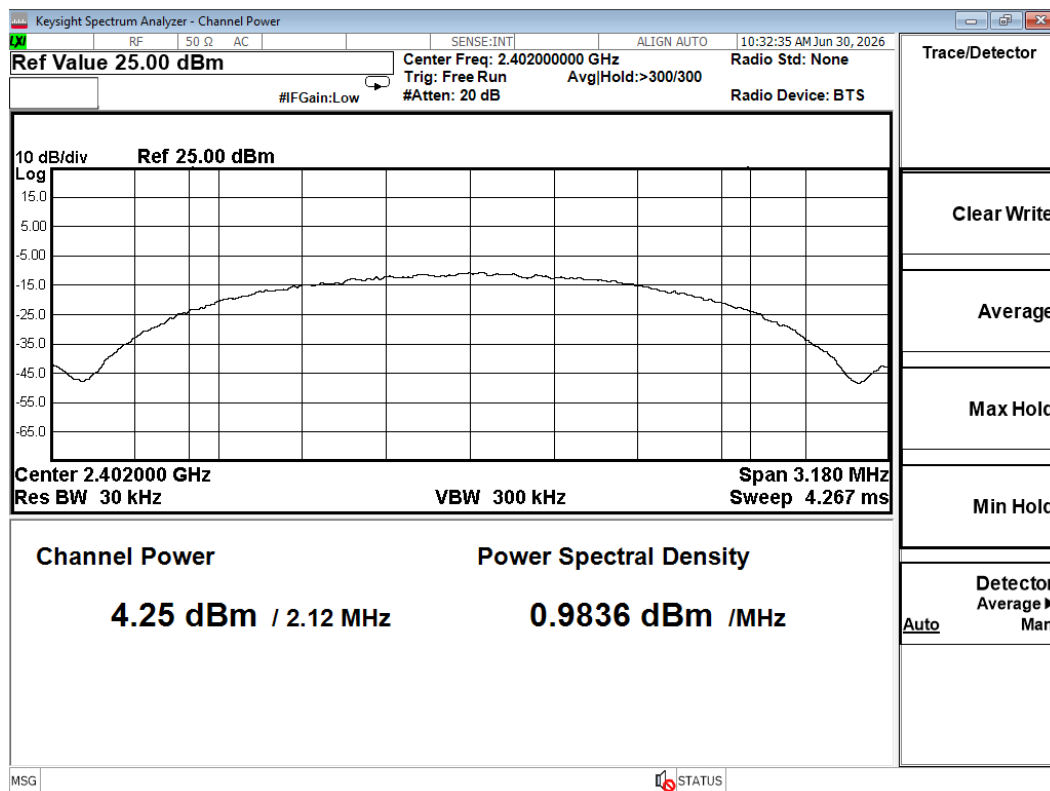
High Channel



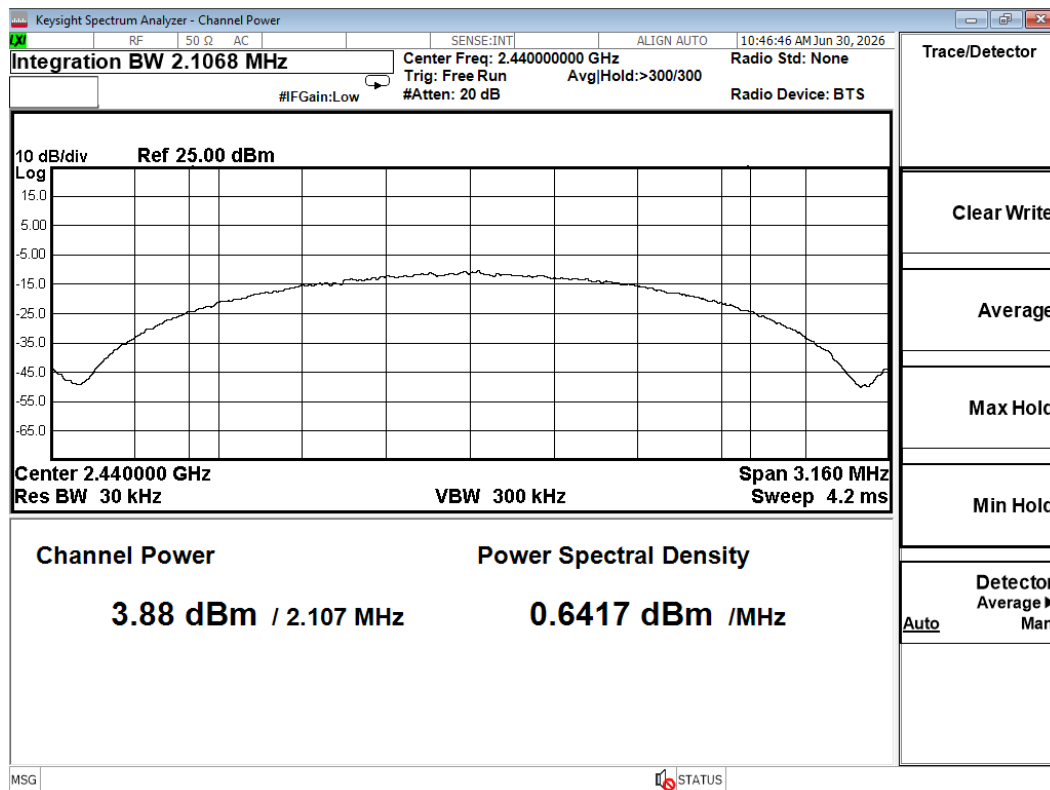
2.3.6 Max Average Output Power Data: 2Mbps

Mode of operation	Channel	Freq. [MHz]	Measured Average Power [dBm]	Duty Cycle Correction Factors (dB)	Corrected Average Power [dBm]	Limit Power [dBm]
BLE (2Mbps)	Low	2402	4.25	2.37	6.62	≤ 30 (1Watt)
	Mid	2440	3.88		6.25	
	High	2480	3.40		5.77	

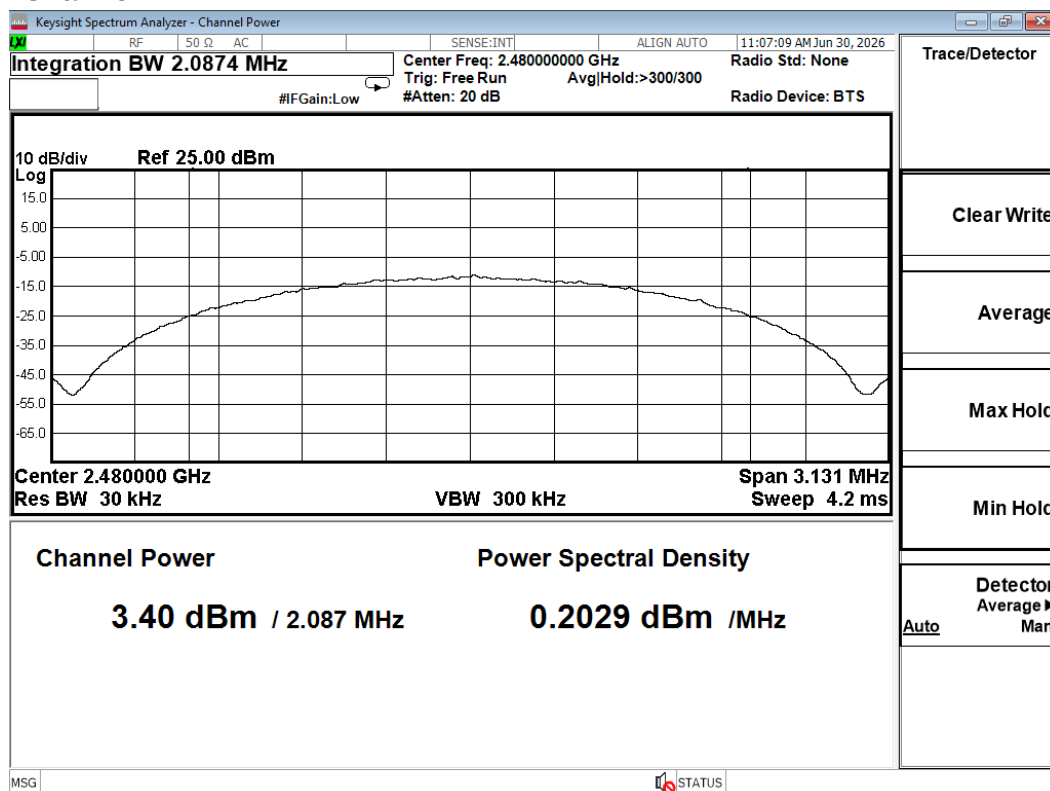
Low Channel



MID Channel



High Channel



2.4 Band Edge Attenuation

Test Lab: Electronics Test Centre, Airdrie

EUT: SAT-1

Test Personnel: Imran Akram

Standard: FCC PART 15.247

Date: 2026-06-30 (24.4°C, 48.1% RH)

Basic Standard: ANSI C63.10
FCC OET KDB 558074

EUT status: Compliant

Specification: FCC Part 15.247(d)

Criteria: In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the 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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

2.4.1 ANSI C63.10 Clause 11.12.3.1 & 6.10.5, 6.10.6 / FCC OET KDB 558074

This measurement is performed at the low and high frequencies, with modulation.

The RF output of EUT with an antenna connector is fed to the input of the spectrum analyzer through appropriate attenuation. The loss from the cable and the attenuator were added on the analyzer as gain offset setting there by allowing direct measurements, without the need for any further corrections.

The spectrum analyzer is set for a frequency span to show the band edge and the nearest channel. The RBW is set to ≥ 100 kHz. The VBW is set to $\geq (\text{RBW} * 3)$. The Peak detector is used, with the trace set to Max Hold.

The attenuation is measured with the Marker Delta function.

2.4.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.4.3 Test Equipment

Testing was performed with the following equipment:

Equipment	Manufacturer	Model #	Asset #	Cal. Date	Cal. Due
EMI receiver	Agilent	N9038A (FW A.22.08)	6906	2026-02-17	2027-02-17
Temp/Humidity	Extech	42270	5871	2025-05-01	2026-05-01
Attenuator (DC to 26 GHz)	Mini-Circuits	BW-S10-2W263+	6932	2025-10-14	2028-10-14
Coaxial Cables (RF)	W.L. GORE	PGR01R01036	7024	2026-01-09	2027-01-09
DC Blocker (9 KHz - 27 GHz)	Centric RF	C0927 SMA	6987	2026-01-09	2027-01-09

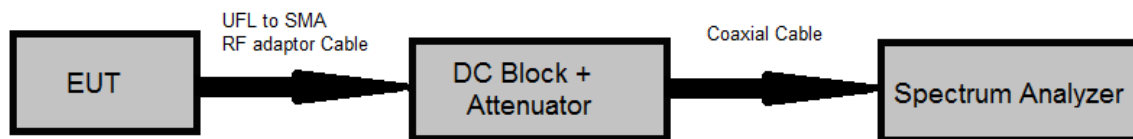
2.4.4 Test Sample Verification, Configuration & Modifications

The EUT was set to transmit continuously on a selected channel with test-specific software. The output was modulated as in normal operation.

The EUT met the requirements without modification.

Test setup diagrams for Band Edge Attenuation testing:

Conducted:

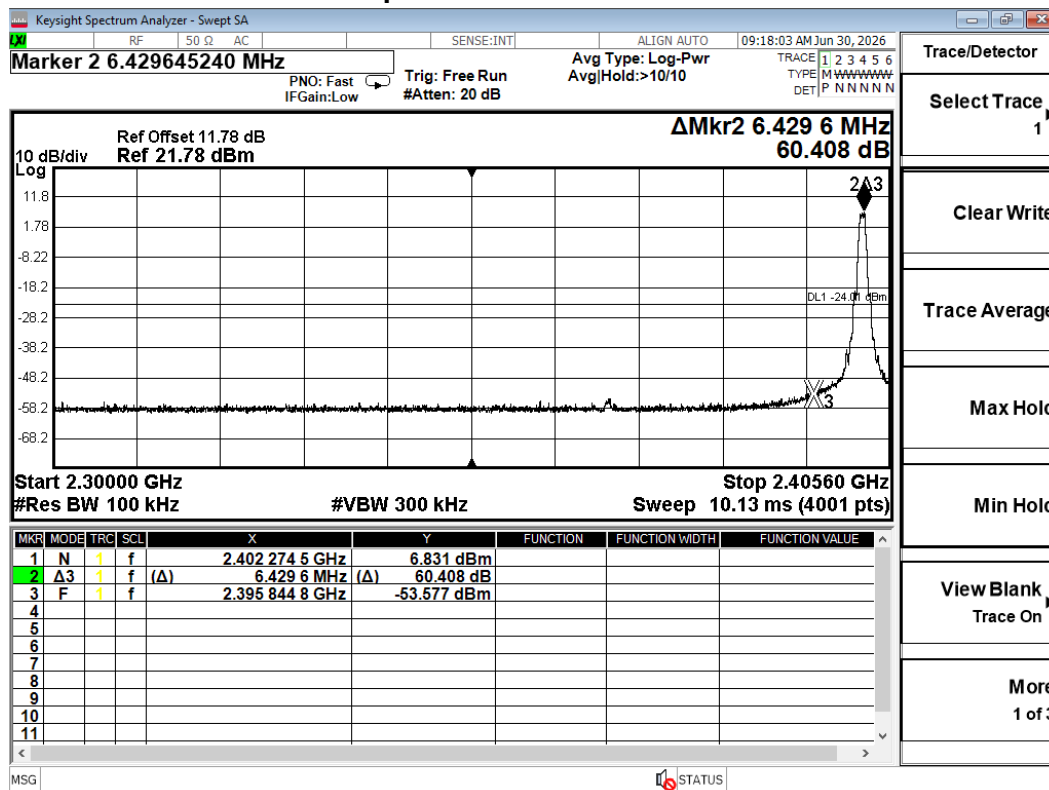


2.4.5 Band Edge Data

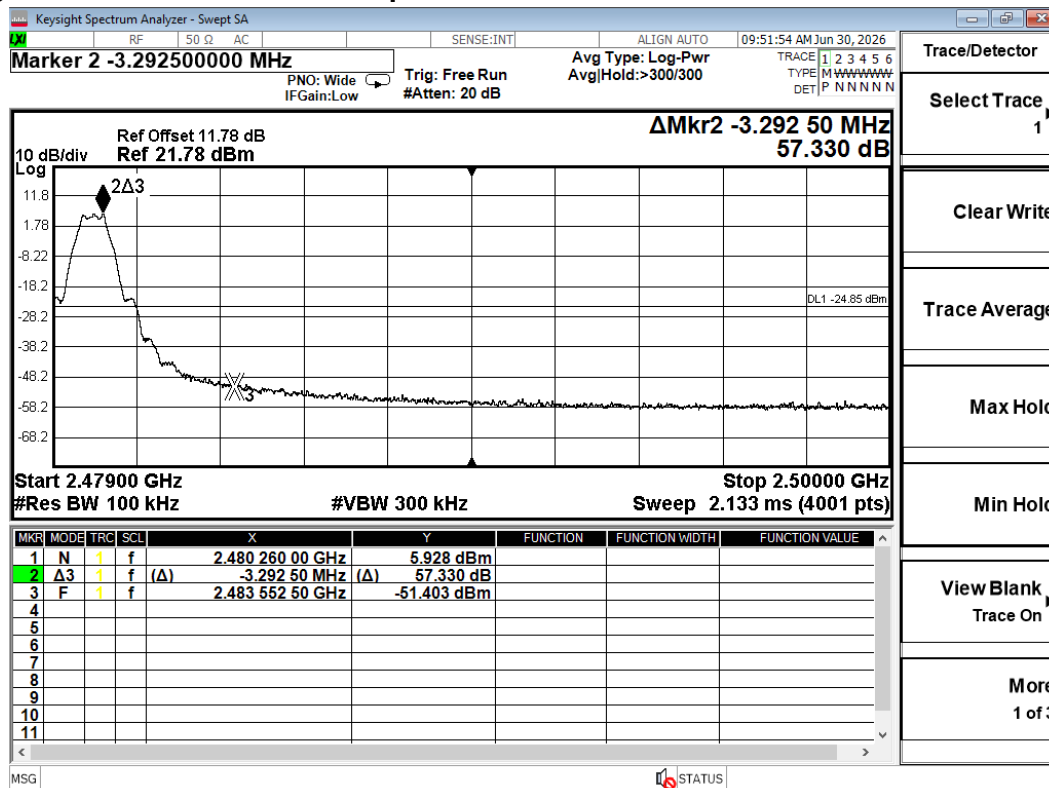
Mode of operation	Channel	Freq. (MHz)	Attenuation at Band Edge	Attenuation Limit at Band Edge
BLE (1Mbps)	Low	2402	60.408 dBc	≥ 30 dBc
	High	2480	57.330 dBc	

Mode of operation	Channel	Freq. (MHz)	Attenuation at Band Edge	Attenuation Limit at Band Edge
BLE (2Mbps)	Low	2402	60.379 dBc	≥ 30 dBc
	High	2480	55.069 dBc	

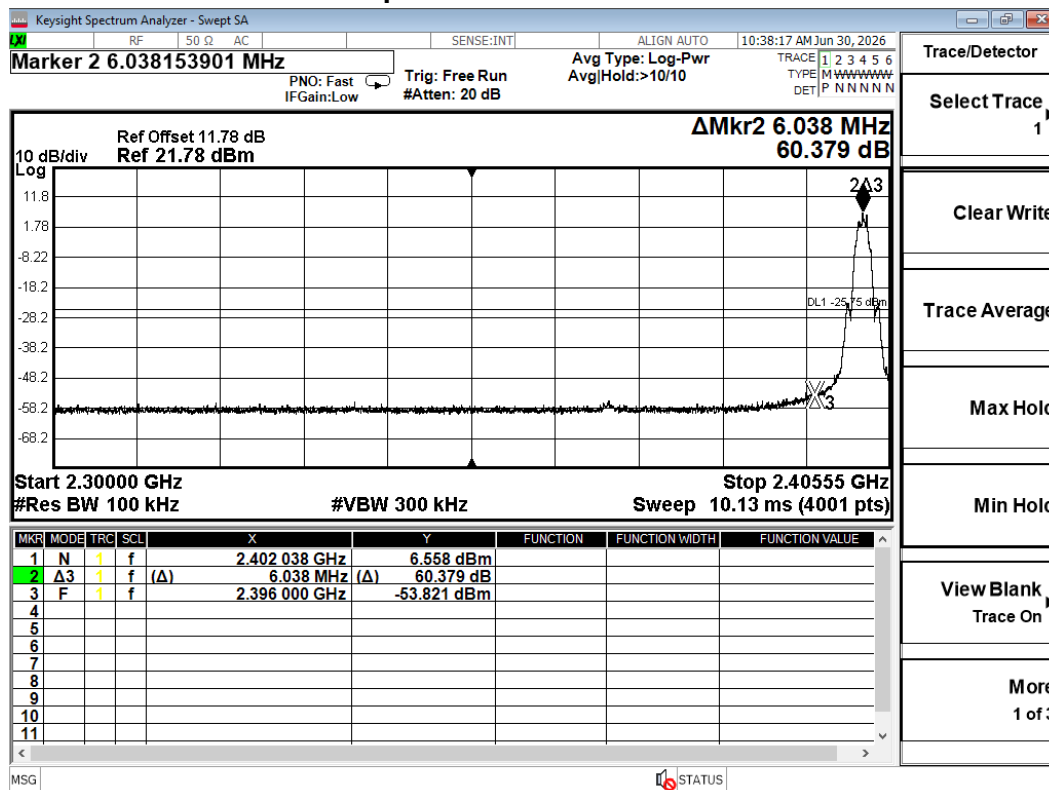
Low Channel: Test Mode: 1Mbps



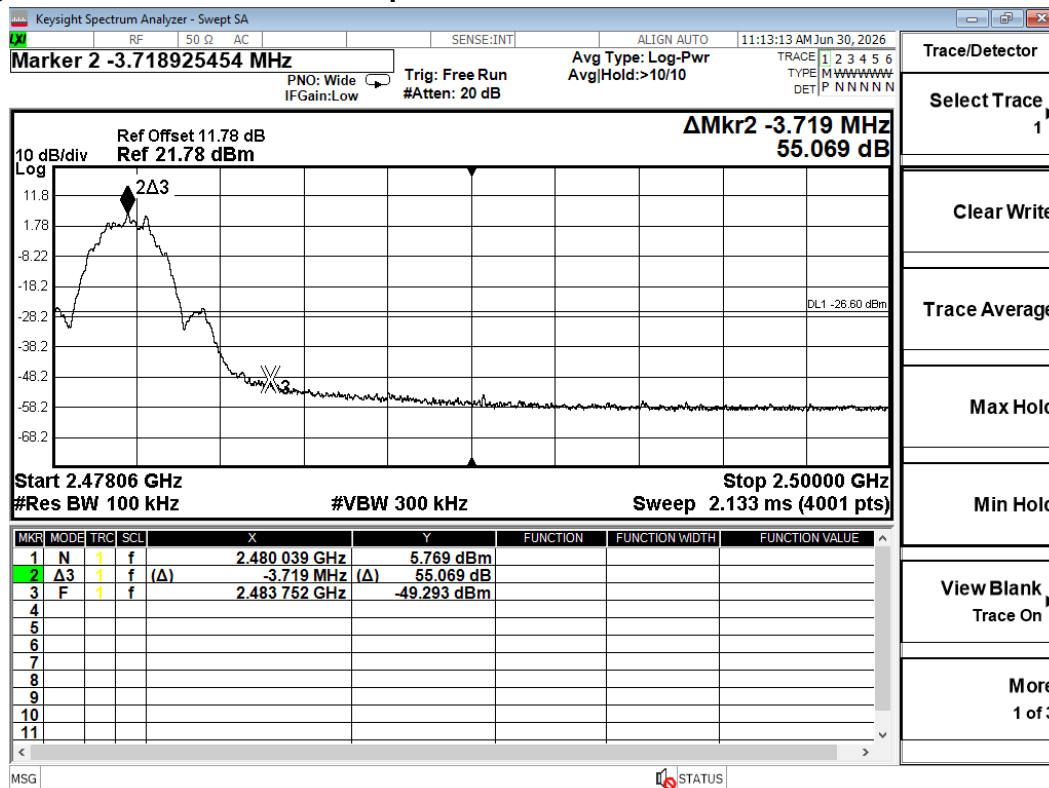
High Channel: Test Mode: 1Mbps



Low Channel: Test Mode: 2Mbps



High Channel: Test Mode: 2Mbps



2.5 Power Spectral Density

Test Lab: Electronics Test Centre, Airdrie	EUT: SAT-1
Test Personnel: Imran Akram	Standard: FCC PART 15.247
Date: 2026-06-30 (24.4°C,48.1% RH)	Basic Standard: ANSI C63.10
EUT status: Compliant	

Specification: FCC Part 15.247(e)

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

2.5.1 ANSI C63.10, Clause 11.10.5 / FCC OET KDB 558074

This measurement is performed at low, mid and high frequencies, in continuous transmission, with modulation.

The RF output of EUT with an antenna connector is fed to the input of the spectrum analyzer through appropriate attenuation. The loss from the cable and the attenuator were added on the analyzer as gain offset setting there by allowing direct measurements, without the need for any further corrections. The EUT is transmitting continuously (D = 86.4%).

Method AVGPSD-2 For DTS	
Measure the duty cycle (D) of the transmitter output signal	
Span	≥ 1.5 times the OBW
RBW	$3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
VBW	$\geq 3 \times \text{RBW}$
Number of Points in sweep	$\geq 2 \times \text{Span} / \text{RBW}$
Sweep time	auto couple
Detector	RMS (Power Averaging)
Sweep trigger	Free Run (Duty Cycle < 98%)
Trace Average	Minimum 100 traces in power Averaging (RMS)
PSD measured	Use the peak marker function to determine the maximum amplitude level.
Add $[10 \log (1 / D)]$, where D is the duty cycle measured in step a), to the measured PSD to compute the average PSD during the actual transmission time.	
If the measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat (note that this may require zooming in on the emission of interest and reducing the span to meet the minimum measurement point requirement as the RBW is reduced).	

2.5.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.5.3 Test Equipment

Testing was performed with this equipment:

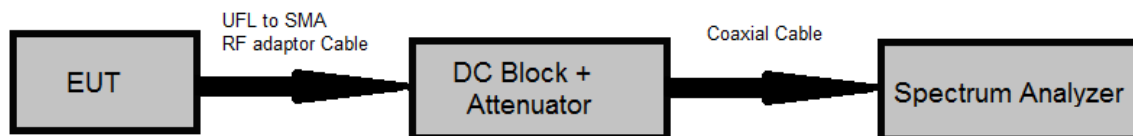
Equipment	Manufacturer	Model #	Asset #	Cal. Date	Cal. Due
EMI receiver	Agilent	N9038A (FW A.22.08)	6906	2026-02-17	2027-02-17
Temp/Humidity	Extech	42270	5871	2025-05-01	2026-05-01
Attenuator (DC to 26 GHz)	Mini-Circuits	BW-S10-2W263+	6932	2025-10-14	2028-10-14
Coaxial Cables (RF)	W.L. GORE	PGR01R01036	7024	2026-01-09	2027-01-09
DC Blocker (9 KHz - 27 GHz)	Centric RF	C0927 SMA	6987	2026-01-09	2027-01-09

2.5.4 Test Sample Verification, Configuration & Modifications

The EUT was set to transmit continuously on a selected channel with test-specific software. The output was modulated as in normal operation.

The EUT met the requirements without modification.

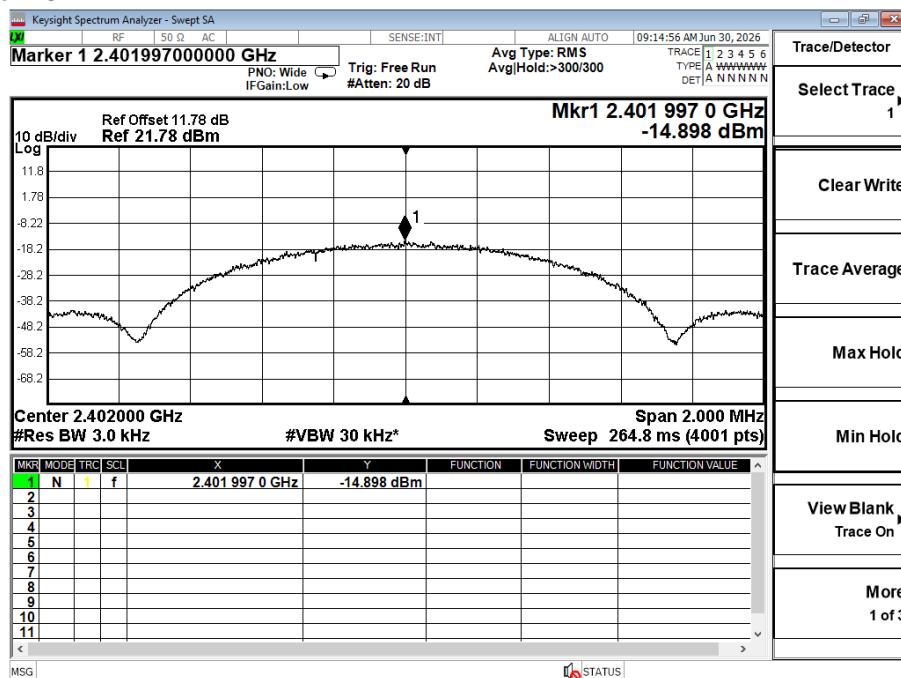
Test setup diagrams for Power Spectral Density testing:
Conducted:



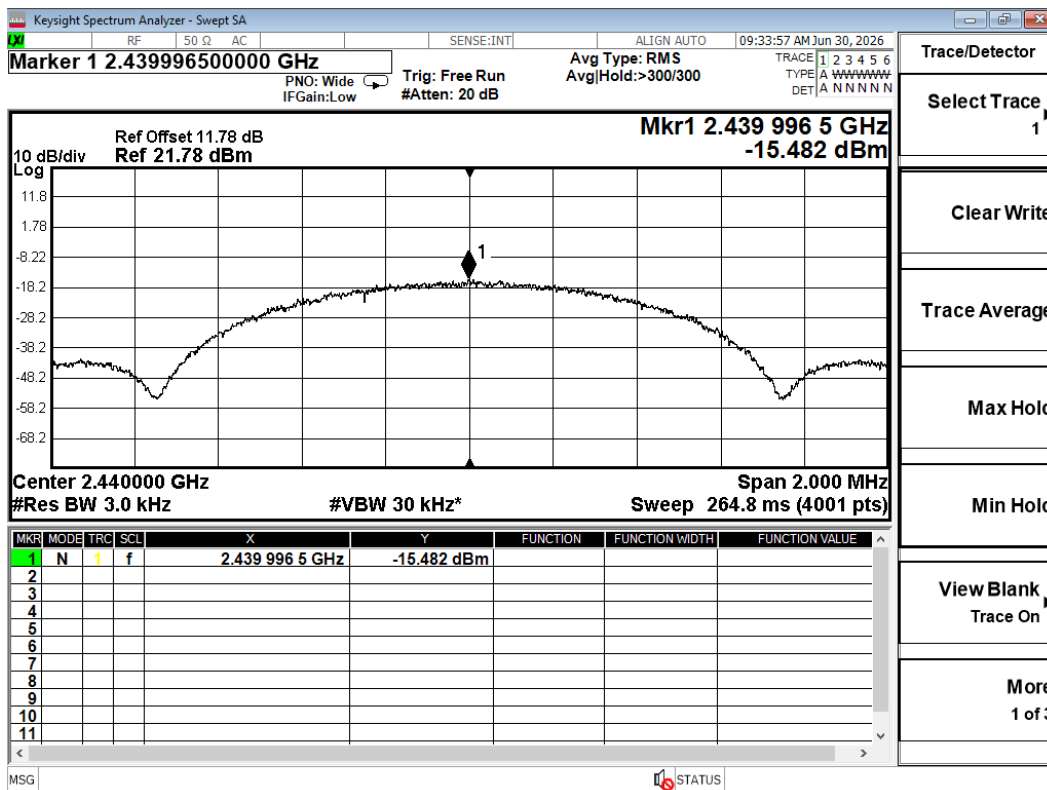
2.5.5 Average PSD Data: 1Mbps

Mode	Channel	Frequency (MHz)	Measured Average PSD (dBm)	Duty Cycle Correction Factor (dB)	Corrected Average PSD (dBm)	Limit
BLE (1Mbps)	Low	2402	-14.898	0.66	-14.238	≤ 8 dBm/ 3KHz
	Mid	2440	-15.482		-14.822	
	High	2480	-15.825		-15.165	

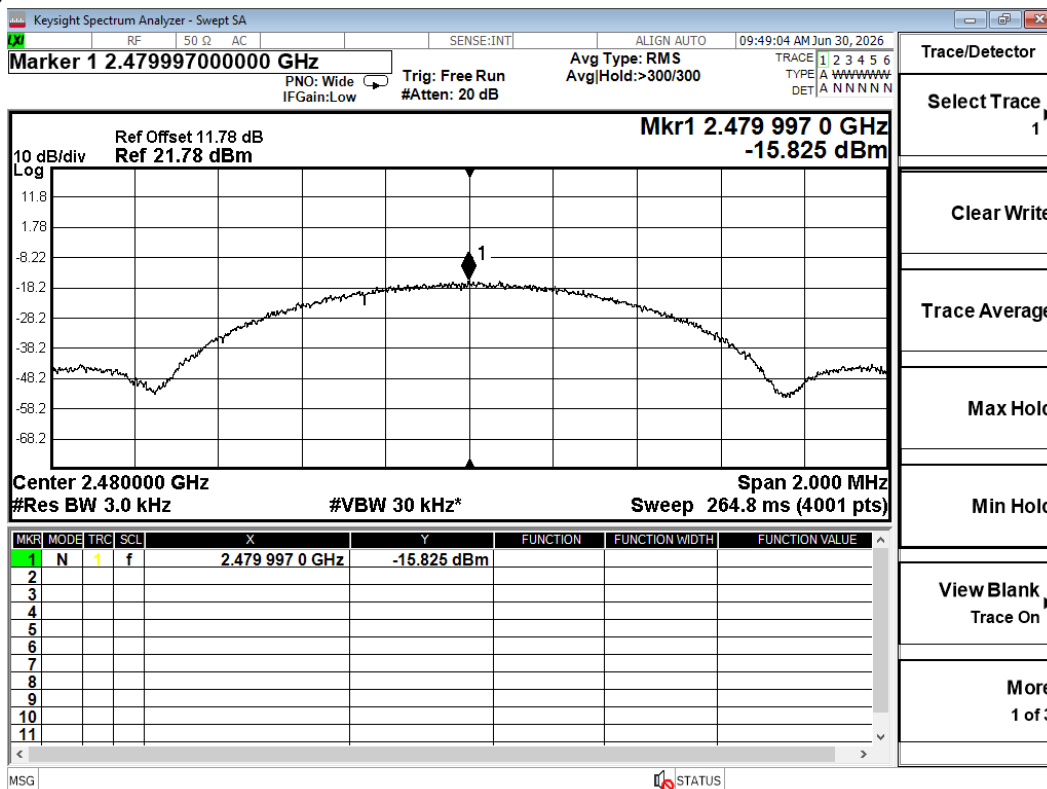
Low Channel:



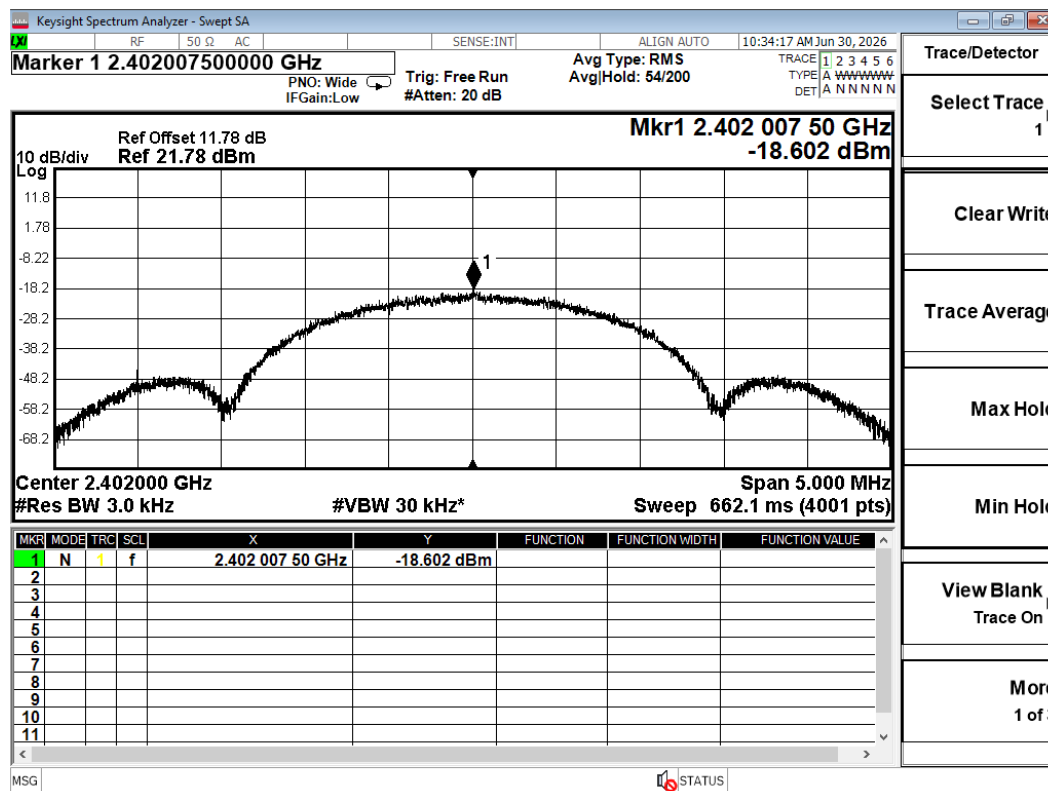
Mid Channel:



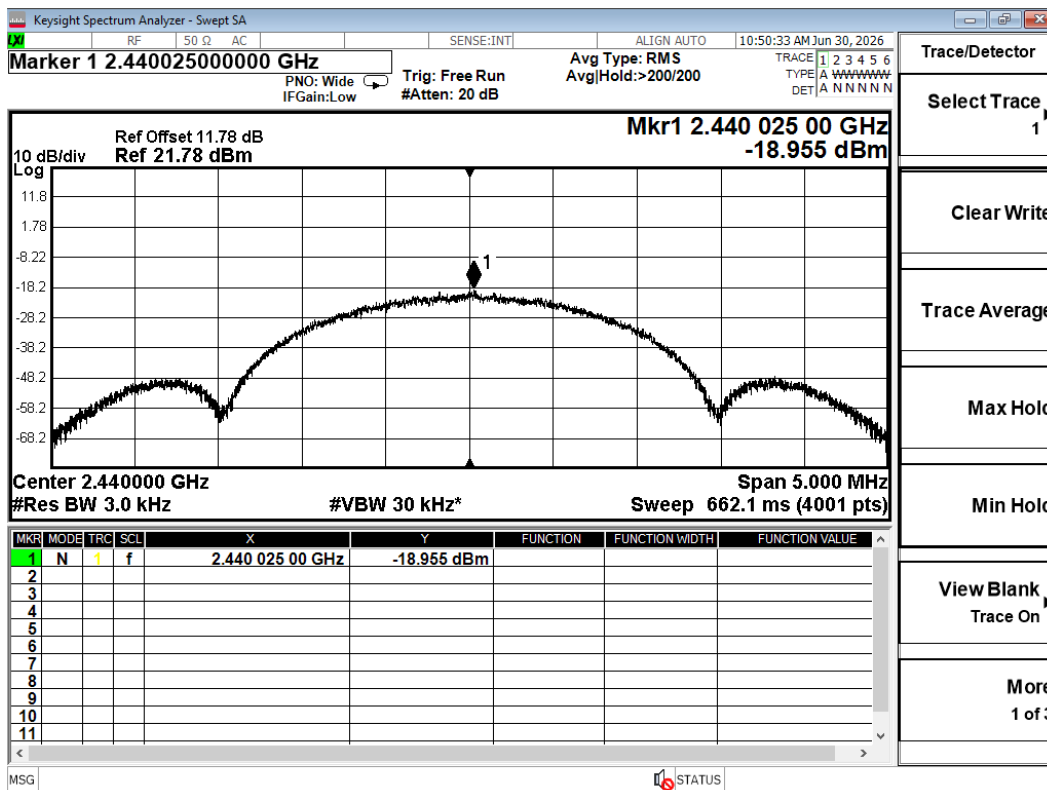
High Channel:



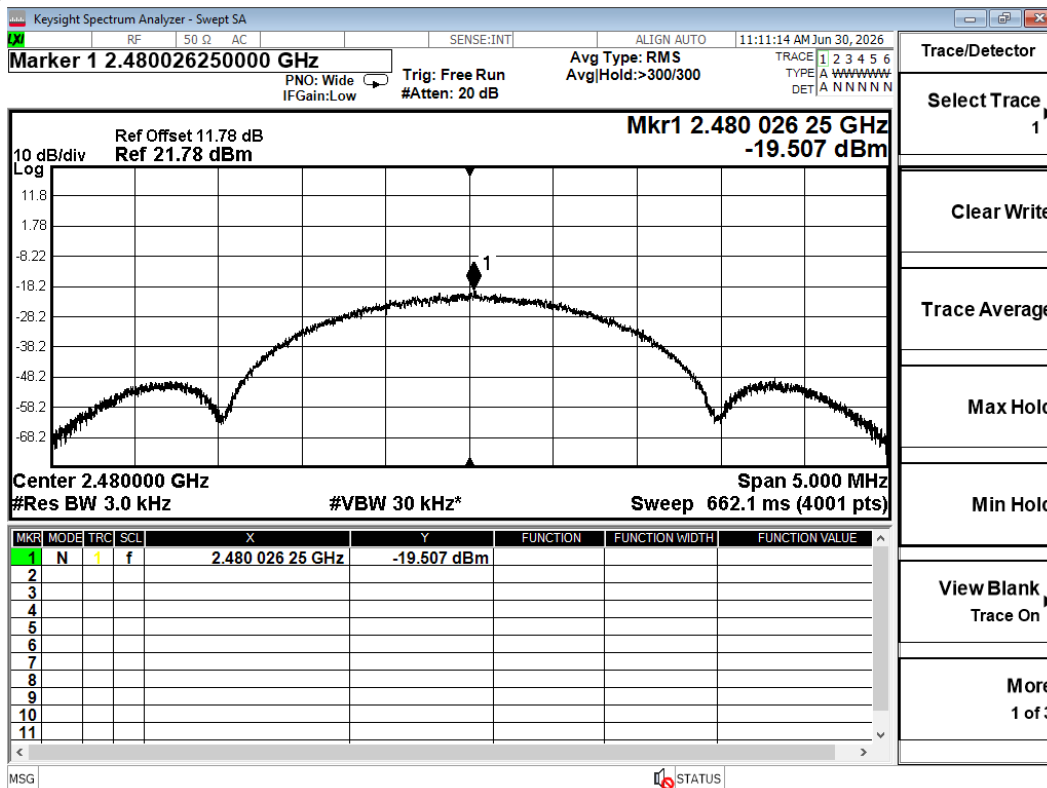
Mode	Channel	Frequency (MHz)	Measured Average PSD (dBm)	Duty Cycle Correction Factor (dB)	Corrected Average PSD (dBm)	Limit
BLE (2Mbps)	Low	2402	-18.602	2.37	-16.232	≤ 8 dBm/ 3KHz
	Mid	2440	-18.955		-16.585	
	High	2480	-19.507		-17.137	



Mid Channel:



High Channel:



2.6 Conducted Spurious Emissions (Non-Restricted Band)

Test Lab: Electronics Test Centre, Airdrie	EUT: SAT-1
Test Personnel: Imran Akram	Standard: FCC PART 15.247
Date: 2026-06-30 (24.4°C,48.1% RH)	Basic Standard: ANSI C63.10 FCC OET KDB 558470 v04 DTS

EUT status: Compliant

Specification: FCC Part 15.247(d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the 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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

2.6.1 Test Guidance: ANSI C63.10, Clause 6.7

This measurement is performed at the low, mid and high frequencies, with modulation. The RF output of EUT with an antenna connector is fed to the input of the spectrum analyzer through appropriate attenuation. The loss from the cable and the attenuator were added on the analyzer as gain offset setting there by allowing direct measurements, without the need for any further corrections.

The spectrum analyzer is stepped through the spectrum in frequency spans selected to ensure acceptable frequency resolution. The RBW is set to 100 kHz. The VBW is set to ≥ 300 kHz. The Peak detector is used, with the trace set to Max Hold.

2.6.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.6.3 Test Equipment

Testing was performed with the following equipment:

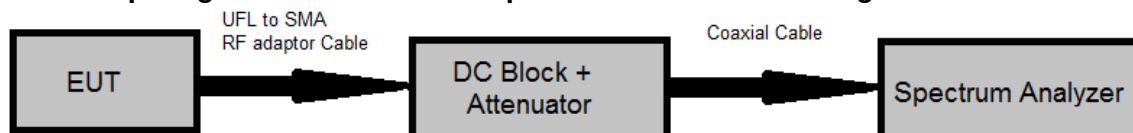
Equipment	Manufacturer	Model #	Asset #	Cal. Date	Cal. Due
EMI receiver	Agilent	N9038A (FW A.22.08)	6906	2026-02-17	2027-02-17
Temp/Humidity	Extech	42270	5871	2025-05-01	2026-05-01
Attenuator (DC to 26 GHz)	Mini-Circuits	BW-S10-2W263+	6932	2025-10-14	2028-10-14
Coaxial Cables (RF)	W.L. GORE	PGR01R01036	7024	2026-01-09	2027-01-09
DC Blocker (9 KHz - 27 GHz)	Centric RF	C0927 SMA	6987	2026-01-09	2027-01-09

2.6.4 Test Sample Verification, Configuration & Modifications

The EUT was set to a selected channel with test-specific software. The output was modulated as in normal operation.

The EUT met the requirements without modification.

Test setup diagram for Conducted Spurious Emissions testing:

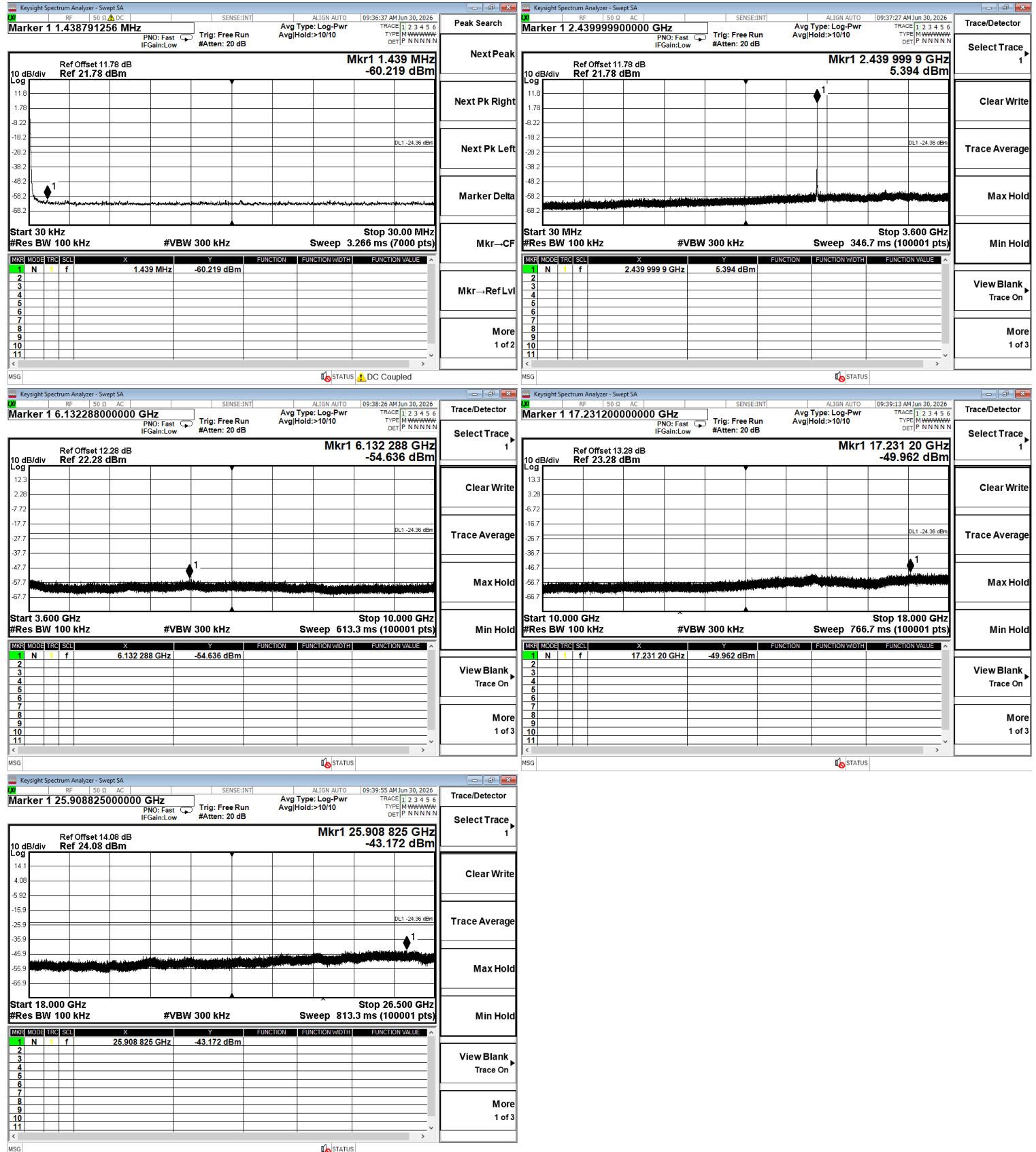


2.6.5 Conducted Emissions Data: Test Mode: 1Mbps

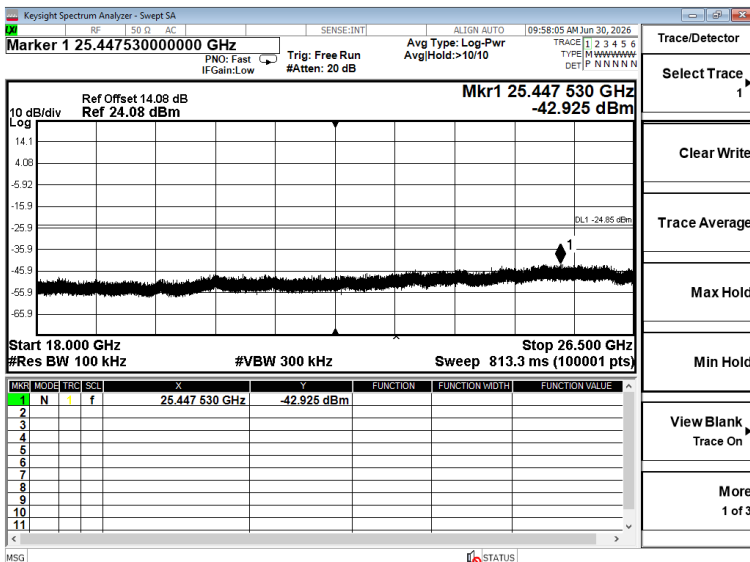
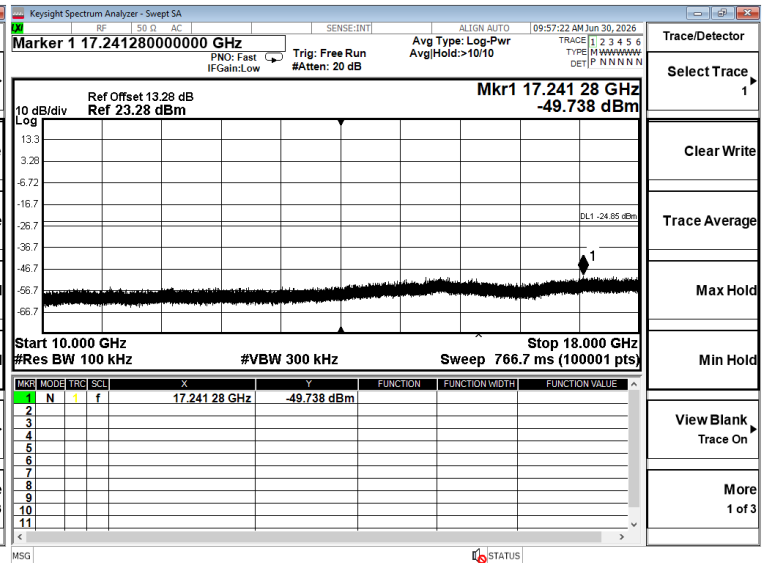
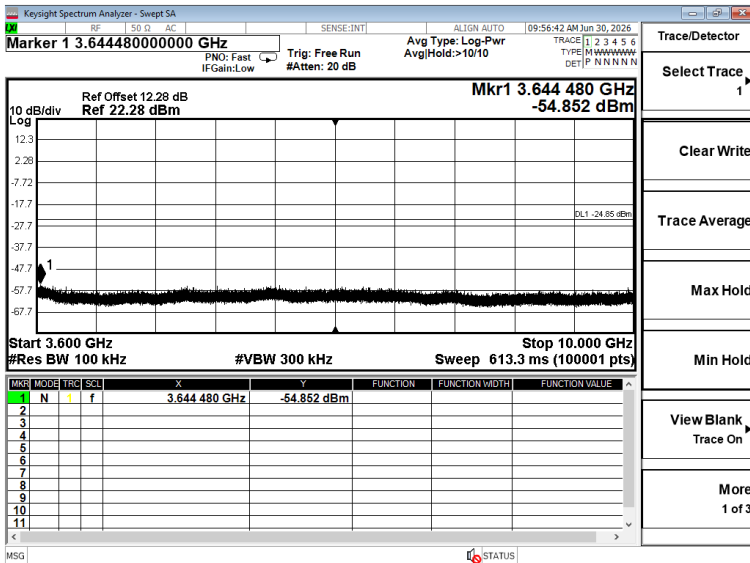
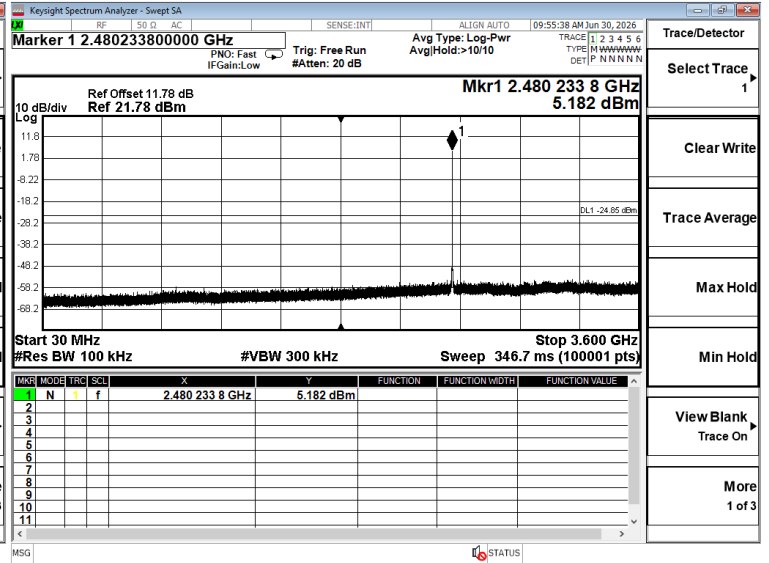
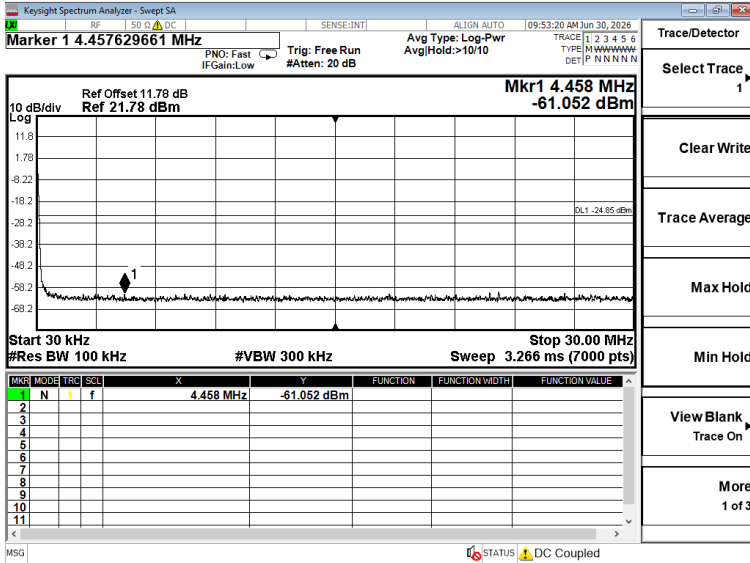
Low Channel



Mid Channel

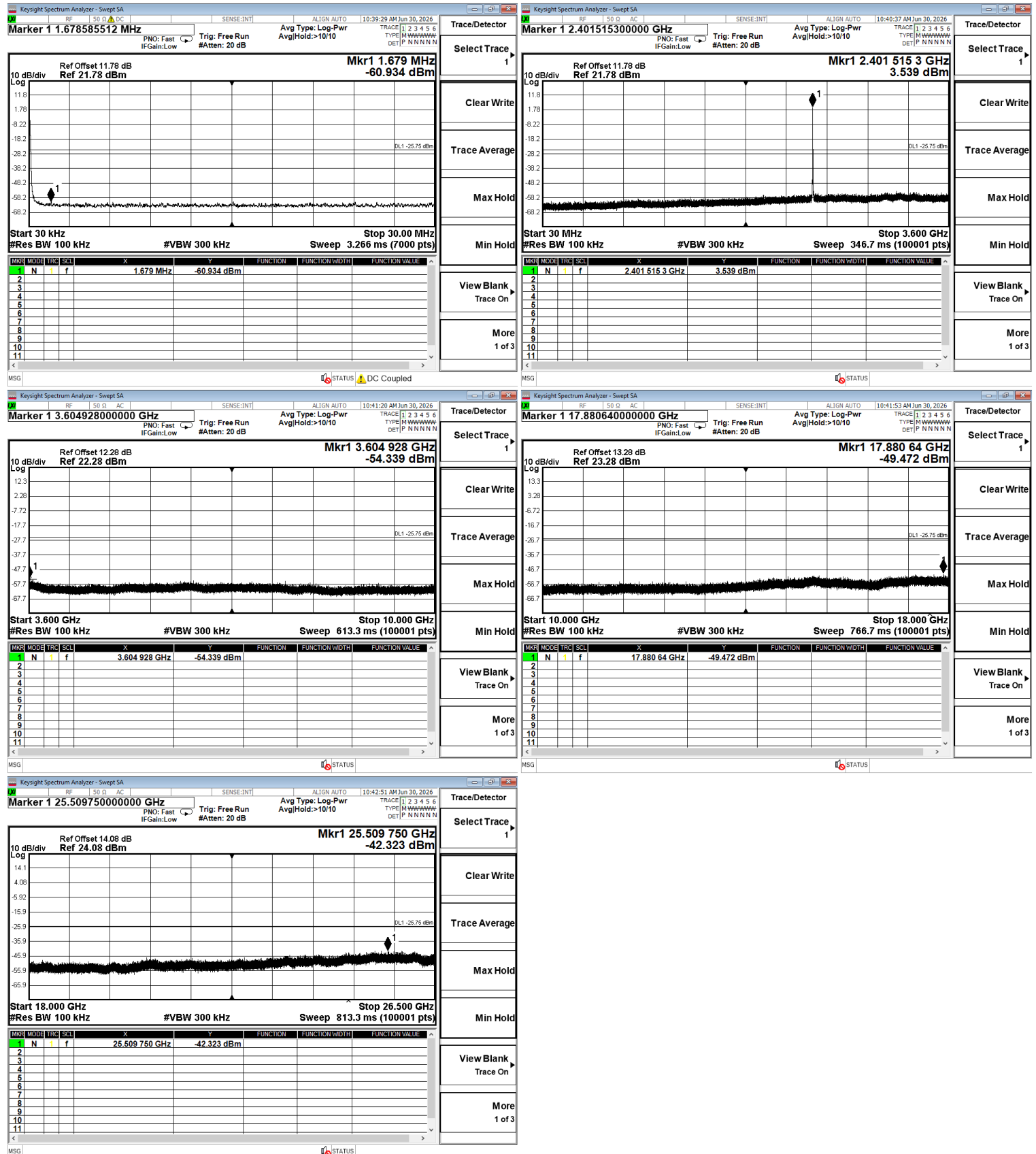


High Channel

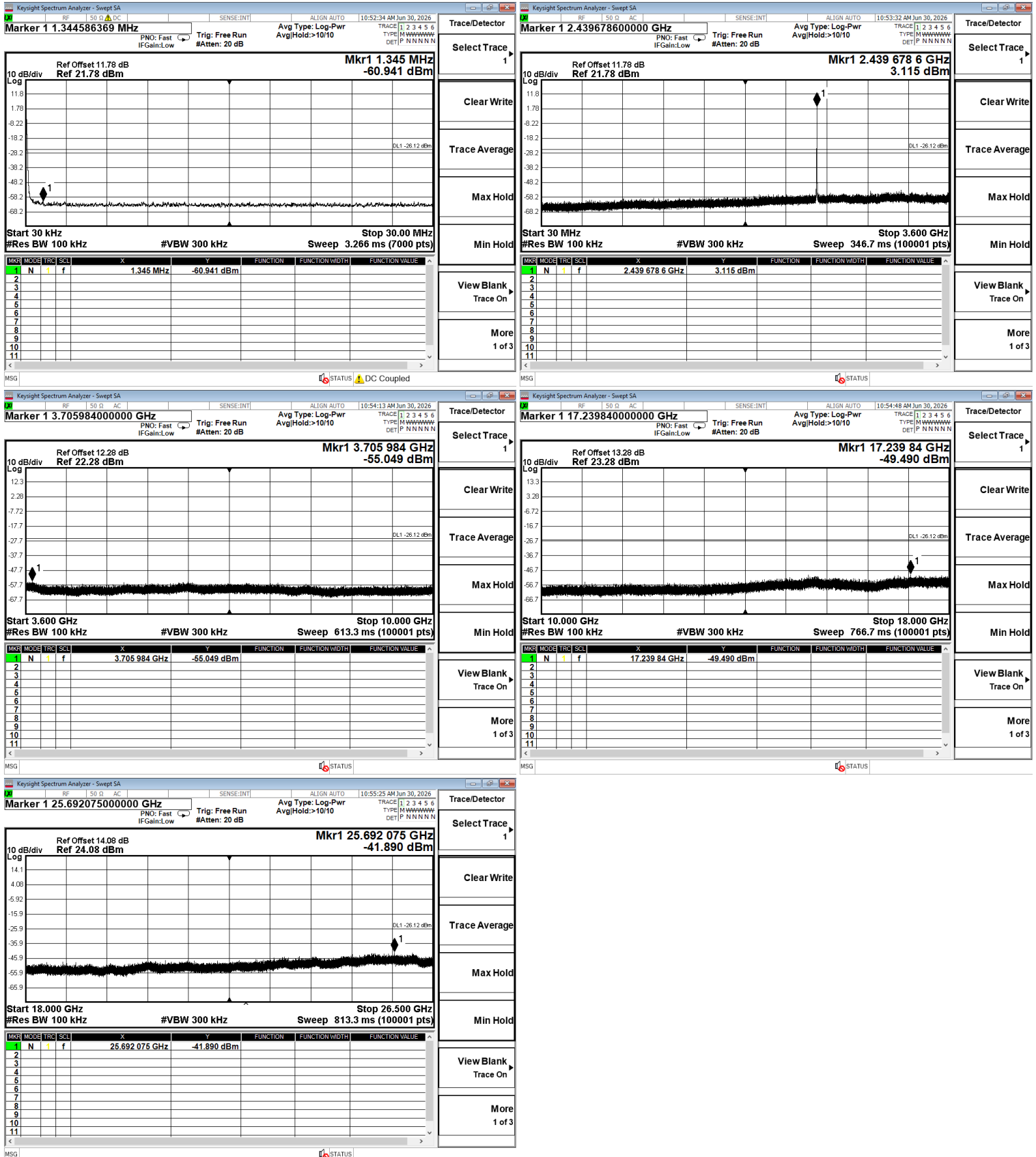


2.6.6 Conducted Emissions Data: Test Mode: 2Mbps

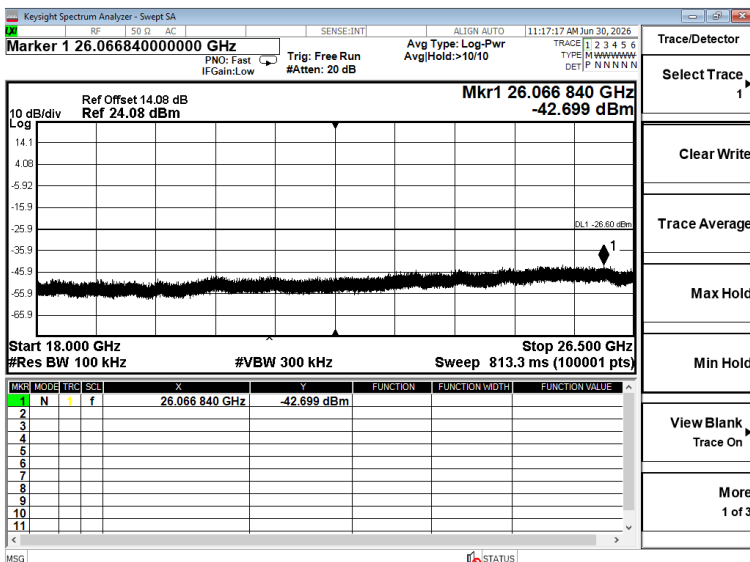
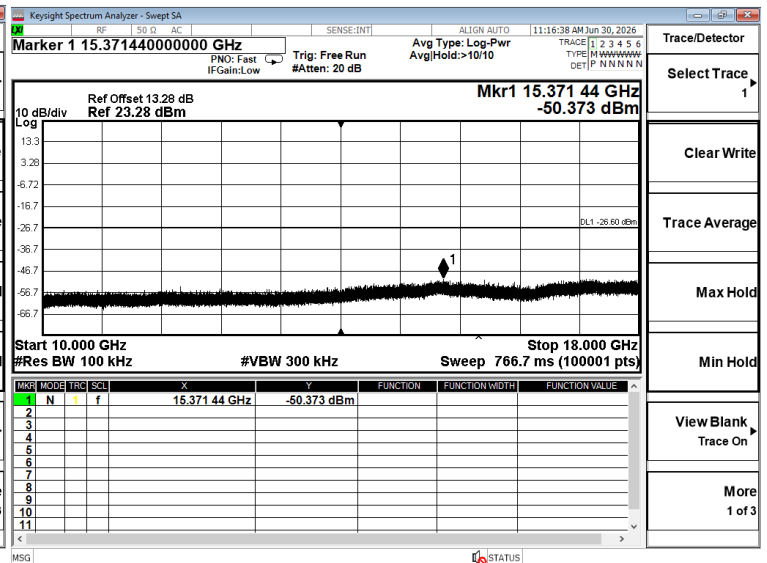
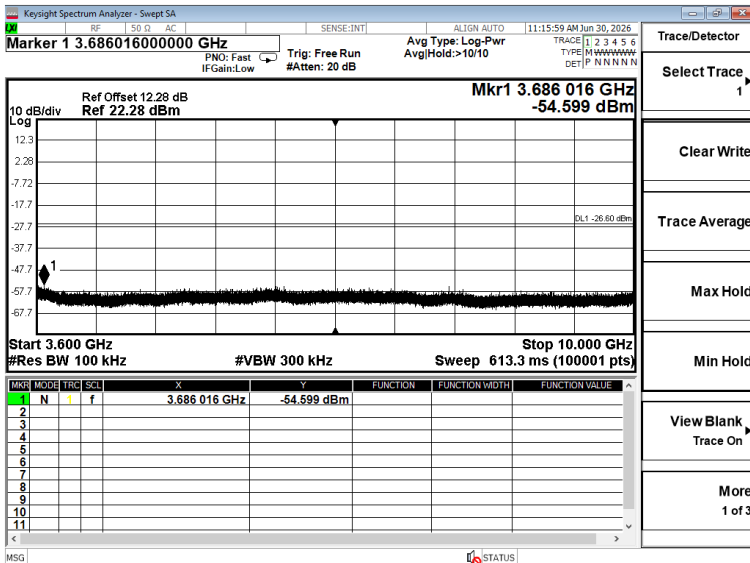
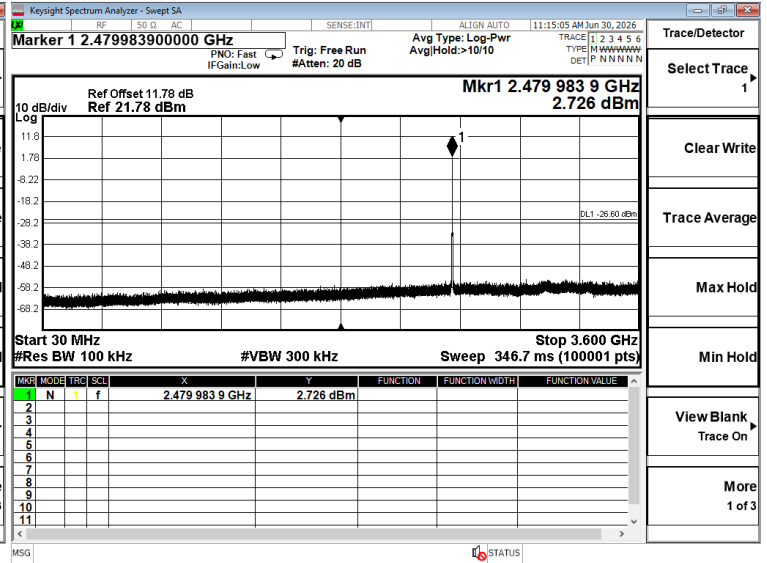
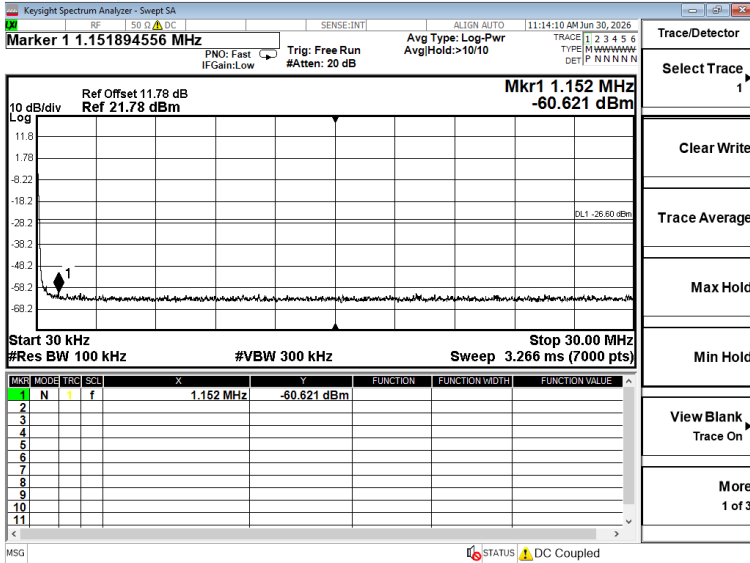
Low Channel



Mid Channel



High Channel



2.7 EUT Positioning Assessment

Test Lab: Electronics Test Centre, Airdrie

EUT: SAT-1

Test Personnel:

Standard: FCC PART 15.247

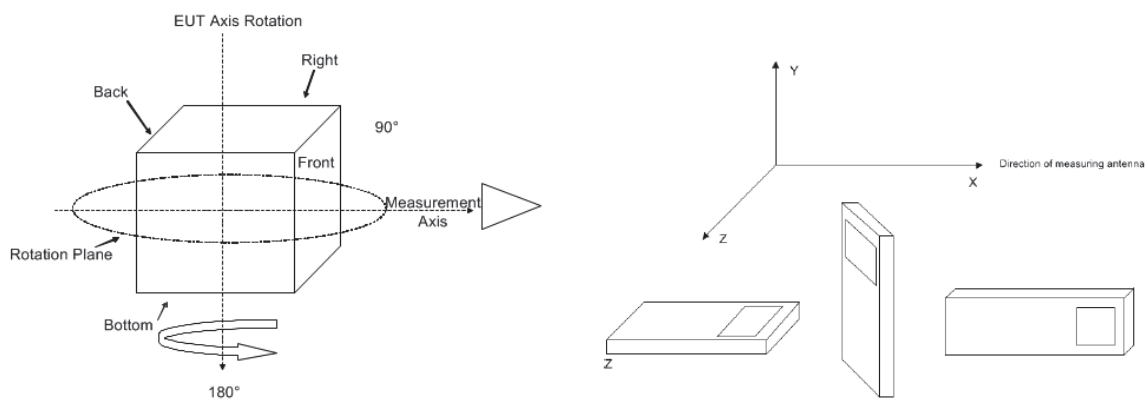
Date:

Basic Standard: ANSI C63.4

Comments: At the final installation, the unit will be mounted in one fixed position. It will be at its Y-Axis.

Specification: ANSI C63.4, Clause 6.3.2.1

Portable, small, lightweight, or modular devices that may be handheld, worn on the body, or placed on a table during operation shall be positioned on a non-conducting platform, the top of which is 80 cm above the reference ground plane. The preferred area occupied by the EUT arrangement is 1 m by 1.5 m, but it may be larger or smaller to accommodate various sized EUTs (see Figure 6, Figure 7, and Figure 9). For testing purposes, ceiling- and wall-mounted devices also shall be positioned on a tabletop (see also 6.3.4 and 6.3.5). In making any tests involving handheld, body-worn, or ceiling-mounted equipment, it is essential to recognize that the measured levels may be dependent on the orientation (attitude) of the three orthogonal axes of the EUT. Thus, exploratory tests as specified in 8.3.1 shall be carried out for various axes orientations to determine the attitude having maximum or near-maximum emission level.



Z - Axis

Y - Axis

X - Axis

N/A



N/A

2.8 Radiated Spurious Emissions (within restricted band)

Test Lab: Electronics Test Centre, Airdrie	EUT: SAT-1
Test Personnel: Imran Akram/Joseph Yumol	Standard: FCC PART 15.247/15.209
Date: 2026-07-02/03/06 (23.52°C, 36.9% RH)	Basic Standard: ANSI C63.10
EUT status: Compliant	

Specification: FCC PART 15.247(d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the 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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

FCC Part 15.209 Limit

Frequency (MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance (m)
0.009 – 0.490	266.666 – 4.897959184	48.52 – 13.80	300
0.490 – 1.705	48.97959184 – 14.07624633	33.80 – 22.97	30
1.705 – 30	30	29.54	30
30 – 88	100**	40	3
88 – 216	150**	43.52	3
216 – 960	200**	46.02	3
Above 960	500	53.98	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.

Restricted Bands of Operation:

MHz	MHz	MHz	MHz	MHz	GHz	GHz
0.0900000 – 0.1100000	8.2910000 - 8.2940000	16.804250 - 16.804750	162.01250 - 167.17000	1660.0000 – 1710.0000	3.6000000 – 4.4000000	14.470000 – 14.500000
0.4950000 - 0.5050000	8.3620000 - 8.3660000	25.500000 - 25.670000	167.72000 - 173.20000	1718.8000 – 1722.2000	4.5000000 – 5.1500000	15.350000 – 16.200000
2.1735000 - 2.1905000	8.3762500 - 8.3867500	37.500000 - 38.250000	240.00000 – 285.00000	2200.0000 – 2300.0000	5.3500000 – 5.4600000	17.700000 – 21.400000
4.1250000 - 4.1280000	8.4142500 - 8.4147500	73.000000 - 74.600000	322.00000 - 335.40000	2310.0000 – 2390.0000	7.2500000 – 7.7500000	22.010000 – 23.120000
4.1772500 - 4.1777500	12.290000 - 12.293000	74.800000 - 75.200000	399.90000 – 410.00000	2483.5000 – 2500.0000	8.0250000 – 8.5000000	23.600000 – 24.000000
4.2072500 - 4.2077500	12.519750 - 12.520250	108.00000 - 121.94000	608.00000 – 614.00000	2655.0000 – 2900.0000	9.0000000 – 9.2000000	31.200000 – 31.800000
5.6770000 - 5.6830000	12.576750 - 12.577250	123.00000 - 138.00000	960.00000 – 1240.0000	3260.0000 – 3267.0000	9.3000000 – 9.5000000	36.430000 – 36.500000
6.2150000 - 6.2180000	13.360000 - 13.410000	149.90000 - 150.05000	1300.0000 – 1427.0000	3332.0000 – 3339.0000	10.600000 – 12.700000	Above 38.600000
6.2677500 - 6.2682500	16.420000 - 16.423000	156.52475- 156.52525	1435.0000 – 1626.5000	3345.8000 – 3358.0000	13.250000 – 13.400000	
6.3117500 - 6.3122500	16.694750 - 16.695250	156.70000 - 156.90000	1645.5000 – 1646.5000	3500.0000 – 3600.0000		

US only

** Canada 108 – 138 MHz

*** Canada 960 – 1427 MHz

**** Canada only

2.8.1 Test Guidance: ANSI C63.10, Clause 5.9

From 9 kHz to 150 kHz (resolution bandwidth of 200 Hz) and from 150 kHz to 30 MHz (resolution bandwidth 9 kHz) measurements are performed with a loop antenna (as per KDB 460108).

From 30 MHz to 1000 MHz, measurements are performed with a broadband biconilog antenna and a resolution bandwidth of 120 kHz.

Above 1000 MHz, measurements are performed with a DRG Horn antenna or a Standard Gain horn, and a resolution bandwidth of 1 MHz. The EUT is raised to 150 cm above the ground plane, and the area between the EUT and the antenna mast is covered with RF absorbent material. The diameter of the illumination area is the dimension of the line tangent to the EUT formed by 3 dB beamwidth of the measurement antenna at the measurement distance of 3 meter. The antenna is pointed for both azimuth and elevation to maintain the receive antenna within (Bore Sight) the cone of radiation from the EUT.

The scan is performed at discreet increments of turntable azimuth and antenna height, which are selected in accordance with the applicable standard in order to assure capture of frequencies of interest. Optimization is performed based on the scan data.

Frequencies having peak emissions within 10dB of the limits are optimized. The EUT is rotated in azimuth over 360 degrees and the direction of maximum emission is noted.

Antenna height is varied from 1 – 4 meters at this azimuth to obtain the maximum emission. Then the maximum level is measured with the appropriate detector and recorded. Up to 1 GHz, measurements are performed with a Quasi-Peak detector. Above 1 GHz, measurements are recorded with Peak and Average detectors, as applicable.

2.8.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.8.3 Test Equipment

Testing was performed with the following equipment:

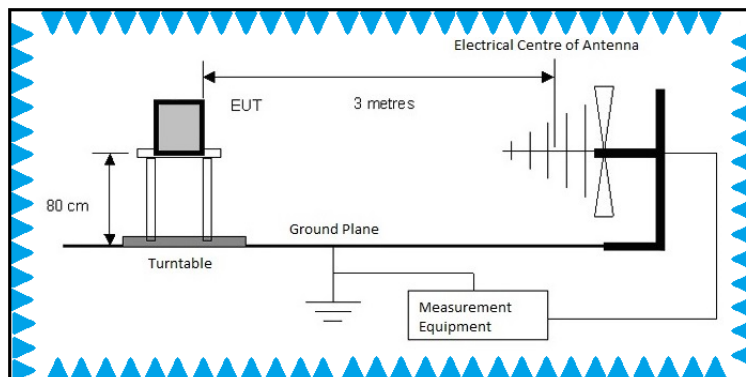
Equipment	Manufacturer	Model #	Asset #	Cal. Date (yyyy-mm-dd)	Cal. Due (yyyy-mm-dd)
EMC Software	UL	Ver. 9.5	SWC 021	N/A	
EMI receiver	Agilent	N9038A (FW A.22.08)	6906	2026-02-17	2027-02-17
Biconilog Antenna (30 – 1000 MHz)	AR	JB1	6905	2026-01-08	2027-01-08
DRG Horn (1 – 18 GHz)	EMCO	3115	19357	2025-11-18	2027-11-18
STD Horn (18-26 GHz)	Quinstar	QWH-KRPS00	6163	2025-11-20	2027-11-20
Humidity/Temp Logger	Extech Ins. Corp.	42270	5892	2025-05-01	2026-05-01
Pre-Amplifier (30 – 1400 MHz)	HP	8447D	9291	2026-01-21	2027-01-21
L.N. Amplifier (1 – 18 GHz)	MITEQ	JS43-01001800-21-5P	4354	2026-01-21	2027-01-21
L.N. Amplifier (18 – 26 GHz)	MITEQ	JS44-01002650-33-3P	6163	2026-01-21	2027-01-21
RE Cable below 1GHz	Insulated Wire Inc.	KPS-1501A-3600- KPA-01102006	4419	2026-01-21	2027-01-21
Re Cable Above 1 GHz	A.H. System Inc.	SAC-26G-8.23	6187	2026-01-21	2027-01-21
2.4GHz Notch Filter	Microtronics	BRM50702	6953	2026-01-09	2027-01-09

2.8.4 Test Sample Verification, Configuration & Modifications

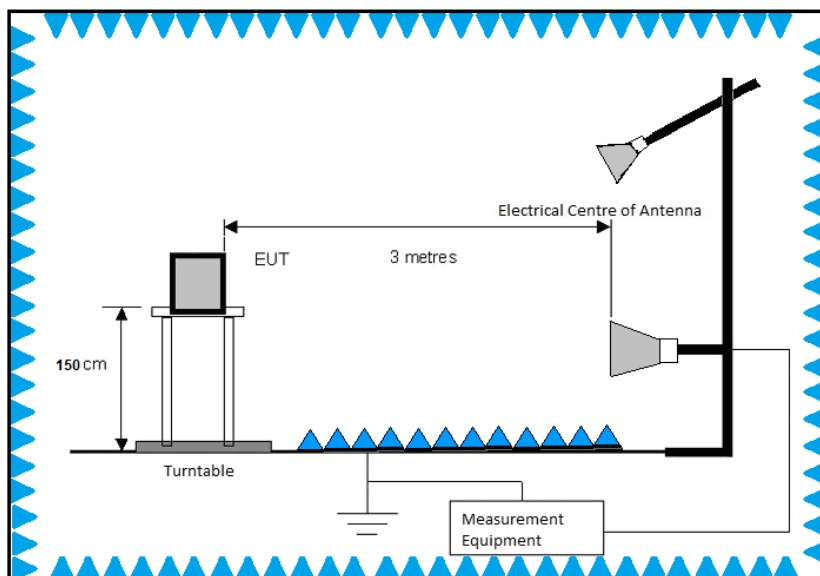
The EUT was set to selected channels with test-specific software. The output was modulated as in normal operation.

The EUT met the requirements without modification.

Test setup diagram for Radiated Spurious Emissions testing (below 1GHz):



Test setup diagram for Radiated Spurious Emissions testing (above 1GHz):



2.8.5 Test Mode: 1Mbps

Radiated Emissions Data for Low Channel

The emissions data are presented in tabular form, showing turntable azimuth, antenna height and polarization, the uncorrected spectrum analyzer reading, the correction factors applied, the net result, the value of the limit at the frequency investigated, and the Delta between the result and the limit.

Meter Reading in dBμV + Antenna Factor in dB/m + Gain/Loss Factor in dB = Corrected Field Strength in dBμV/m.

Delta = Field Strength – Limit

Notes:

- When a preamp is used, the resulting gain is compensated, producing a negative value for the Cable Loss.
- Measurements reported are the result of adjusting the turntable azimuth and antenna height to obtain the maximum EUT emission. This may produce a different reading than the plot trace. The plot is a Peak Hold function obtained at discreet increments of height and azimuth, while the reported measurement is obtained with the appropriate Quasi Peak or Average detector after the height and azimuth have been adjusted for maximum emission.
- In Transmit mode, the EUT was assessed up to 26.5 GHz.

Negative values for Delta indicate compliance.

Freq. Marker	Freq. [MHz]	Raw reading [dBμV]	Det	Antenna Factor [dB/m]	Pre amp Gain [dB]	Corrected Reading [dBμV/m]	FCC 15.209 Limit [dBμV/m]	Delta [dB]	Azimuth [Deg]	Height [cm]	Polarization
Channel-37 LOW (2402MHz)											
1	¹ 471.83	26.34	QP	21.6	-20.9	27.04	46.02	-18.98	41	100	Horizontal
2	¹ 47.2275	42.45	QP	13.1	-24.7	30.85	40	-9.15	45	108	Vertical
3	*1328.2	55.12	PK	25.30	-34.20	46.22	74.00	-27.78	10	383	Vertical
		36.49	Av			27.59	54.00	-26.41			
4	*1711.0	44.91	PK	26.30	-33.20	38.01	74.00	-35.99	335	328	Vertical
		28.41	Av			21.51	54.00	-32.49			
1	*4804.1	42.69	PK	33.10	-30.10	45.69	74.00	-28.31	137	181	Horizontal
		33.76	Av			36.76	54.00	-17.24			
2	¹ 5316.0	44.15	PK	34.00	-29.10	49.05	74.00	-24.95	34	328	Horizontal
		22.77	Av			27.67	54.00	-26.33			
5	*3995.9	45.11	PK	32.50	-31.50	46.11	74.00	-27.89	48	273	Vertical
		25.74	Av			26.74	54.00	-27.26			
6	*4804.5	48.09	PK	33.10	-30.10	51.09	74.00	-22.91	188	204	Vertical
		39.10	Av			42.10	54.00	-11.90			
7	¹ 5318.8	51.16	PK	34.00	-29.10	56.06	74.00	-17.94	30	183	Vertical
		24.45	Av			29.35	54.00	-14.65			
8	¹ 7974.8	41.93	PK	36.80	-25.0	53.73	74.00	-20.27	24	150	Vertical
		19.19	Av			30.99	54.00	-23.01			

QP: Quasi Peak detector

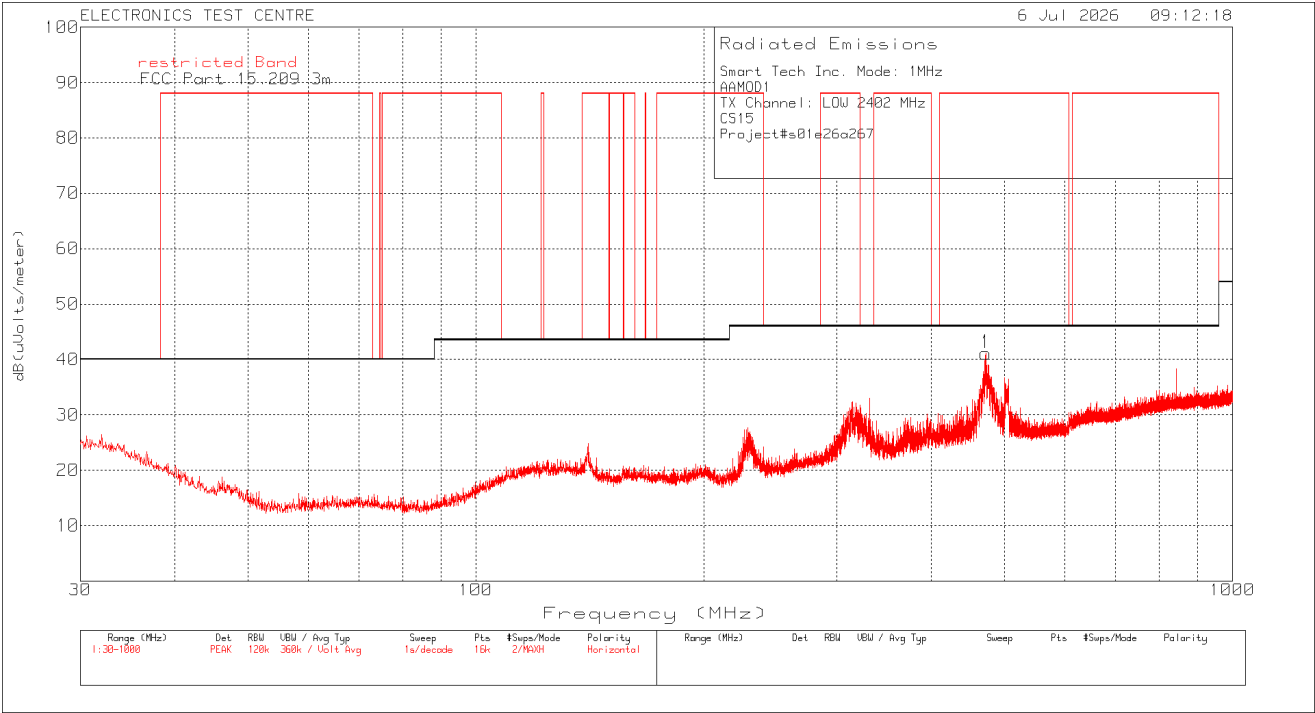
AV: Average detector

*** Frequencies falling in restricted bands**

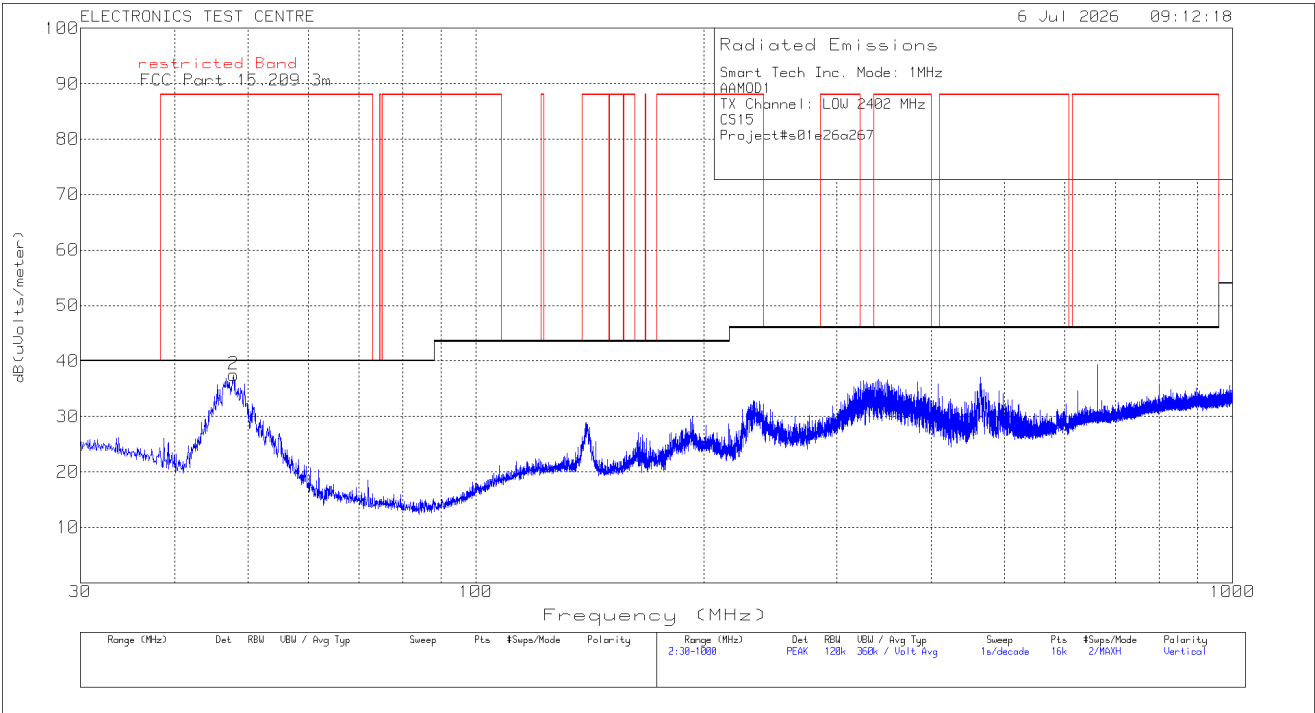
¹Frequencies not falling in restricted bands

TX Channels-37: 2402 MHz

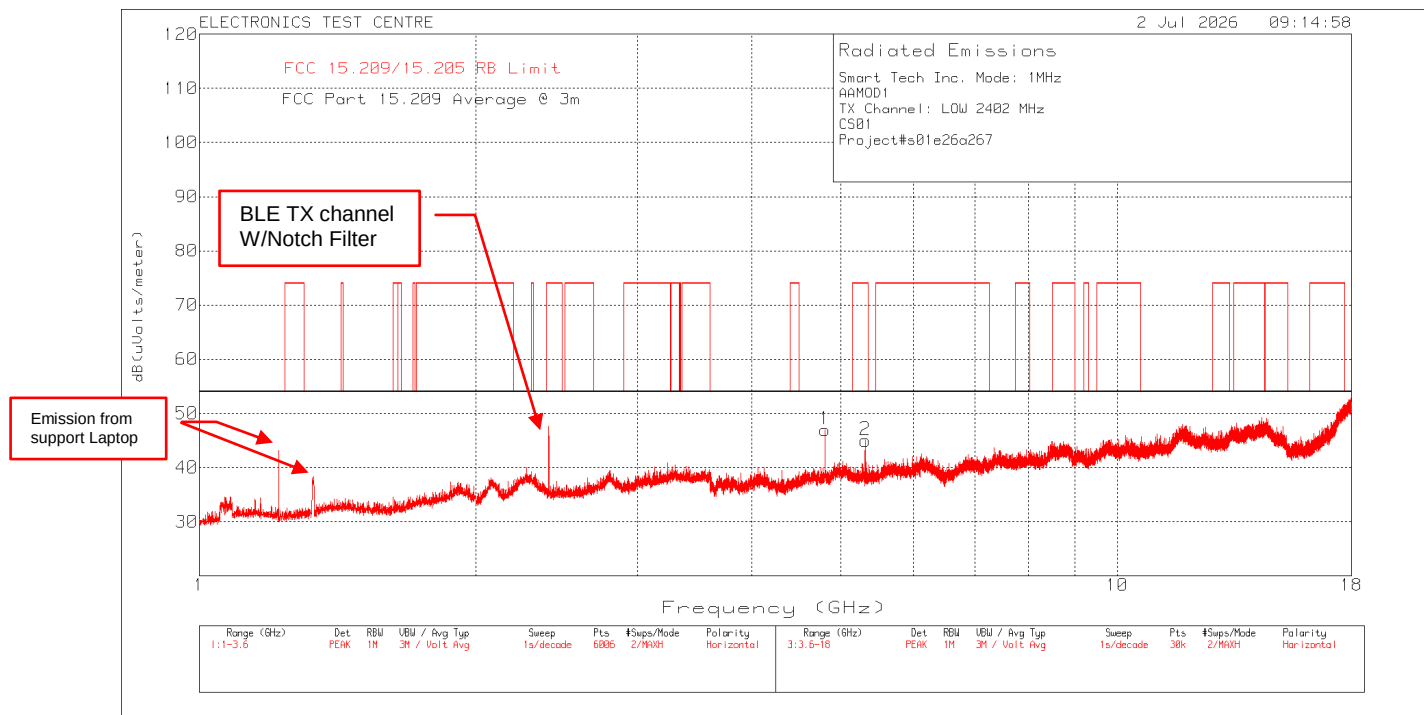
Plot of Radiated Emissions: Horizontal polarization



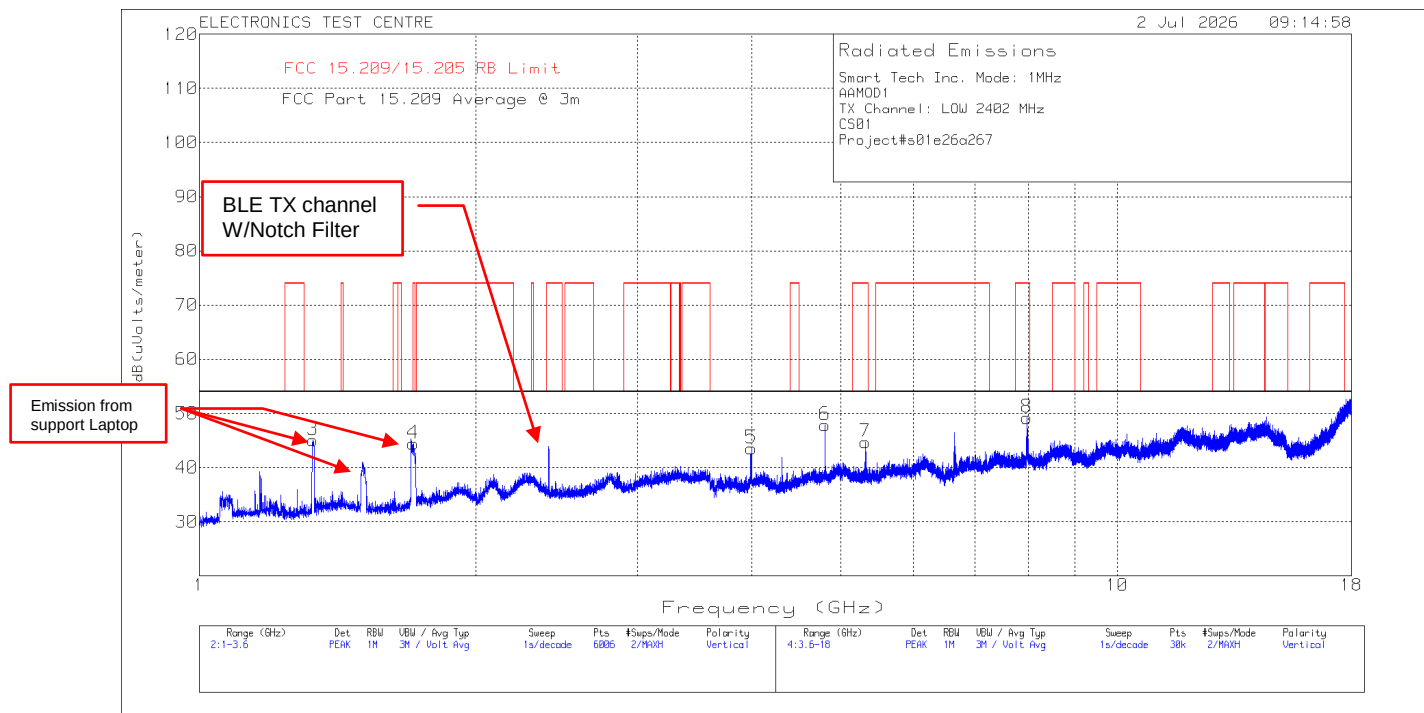
Plot of Radiated Emissions: Vertical polarization



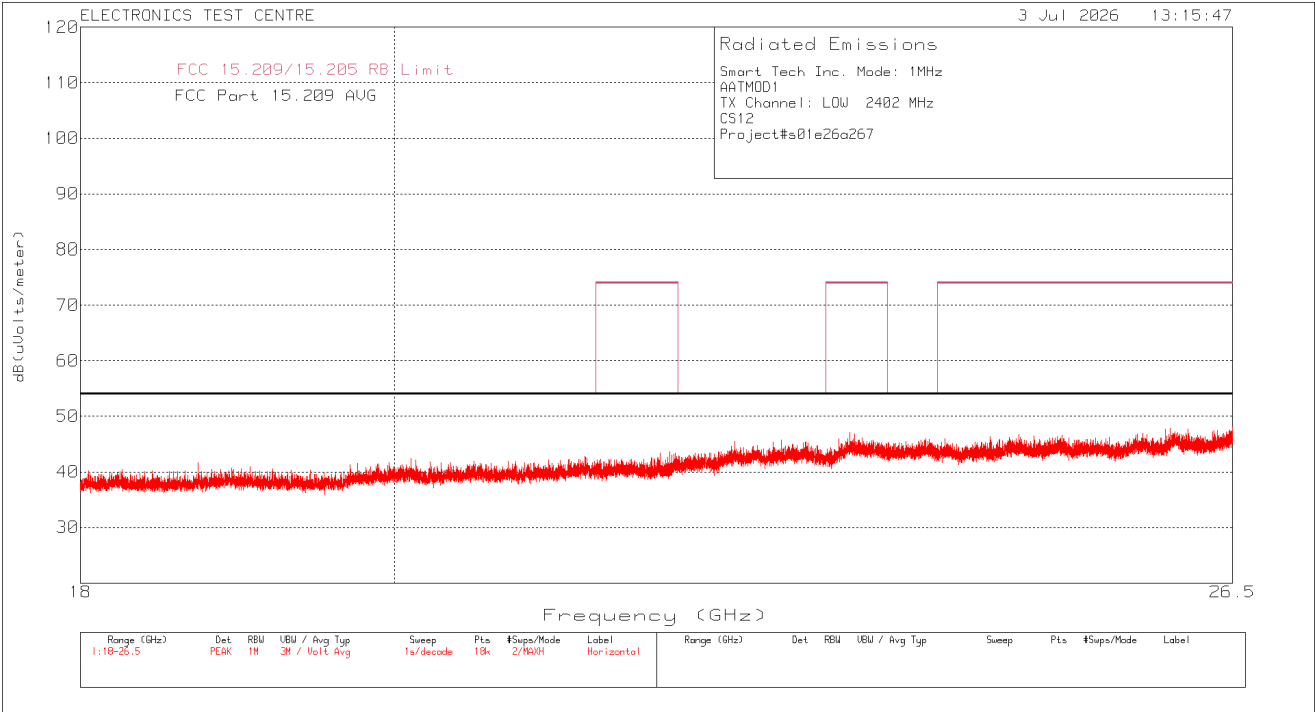
Plot of Radiated Emissions: Horizontal polarization



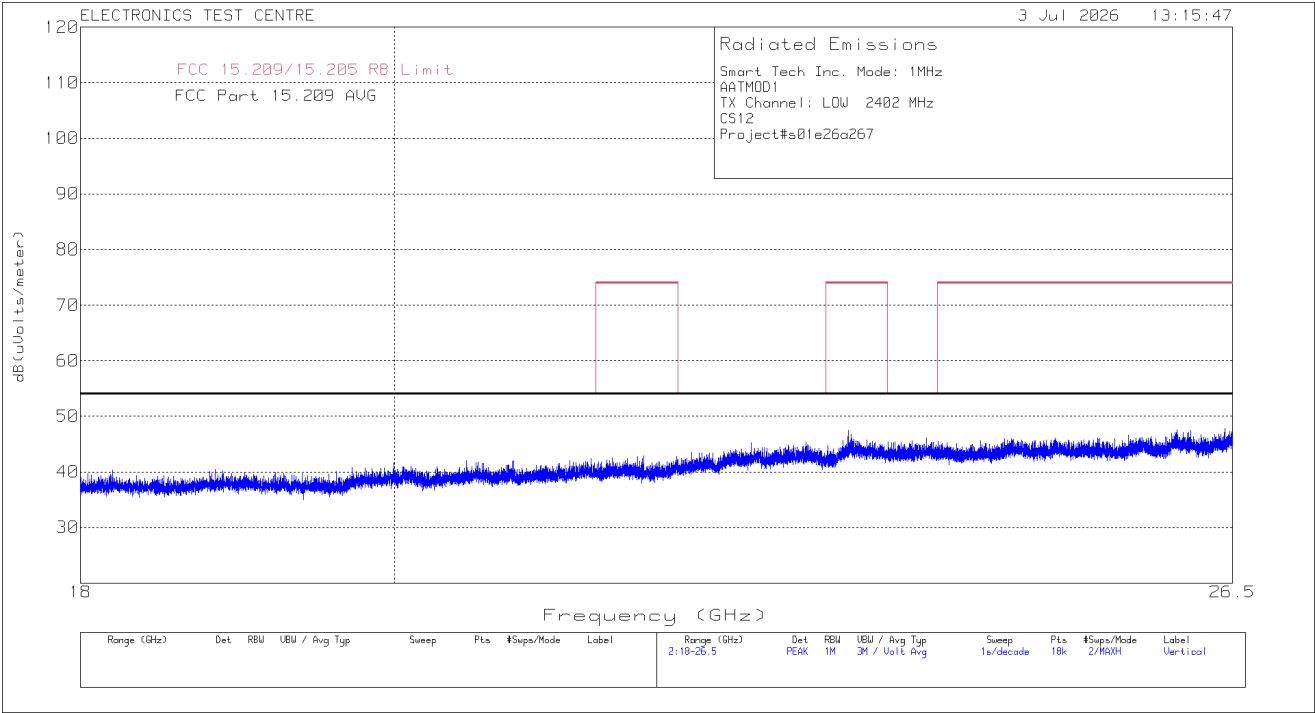
Plot of Radiated Emissions: Vertical polarization



Plot of Radiated Emissions: Horizontal polarization



Plot of Radiated Emissions: Vertical polarization



Radiated Emissions Data for MID Channel

The emissions data are presented in tabular form, showing turntable azimuth, antenna height and polarization, the uncorrected spectrum analyzer reading, the correction factors applied, the net result, the value of the limit at the frequency investigated, and the Delta between the result and the limit.

Meter Reading in dBμV + Antenna Factor in dB/m + Gain/Loss Factor in dB = Corrected Field Strength in dBμV/m.

Delta = Field Strength – Limit

Notes:

- When a preamp is used, the resulting gain is compensated, producing a negative value for the Cable Loss.
- Measurements reported are the result of adjusting the turntable azimuth and antenna height to obtain the maximum EUT emission. This may produce a different reading than the plot trace. The plot is a Peak Hold function obtained at discreet increments of height and azimuth, while the reported measurement is obtained with the appropriate Quasi Peak or Average detector after the height and azimuth have been adjusted for maximum emission.
- In Transmit mode, the EUT was assessed up to 26.5 GHz.

Negative values for Delta indicate compliance.

Freq. Marker	Freq. [GHz]	Raw reading [dBμv]	Det	Antenna Factor [dB/m]	Pre amp Gain [dB]	Corrected Reading [dBμv/m]	FCC 15.209 Limit [dBμv/m]	Delta [dB]	Azimuth [Deg]	Height [cm]	Polarization
Channel-17 MID (2440 MHz)											
1	*4.8798	44.43	PK	33.40	-29.80	48.03	74.00	-25.97	115	270	Horizontal
		36.19	Av			39.79	54.00	-14.21			
1	*4.8793	46.87	PK	33.40	-29.80	50.47	74.00	-23.53	149	228	Vertical
		36.92	Av			40.52	54.00	-13.48			
2	¹ 7.9710	38.90	PK	36.80	-25.0	50.70	74.00	-23.30	82	279	Vertical
		18.54	Av			30.34	54.00	-23.66			

QP: Quasi Peak detector

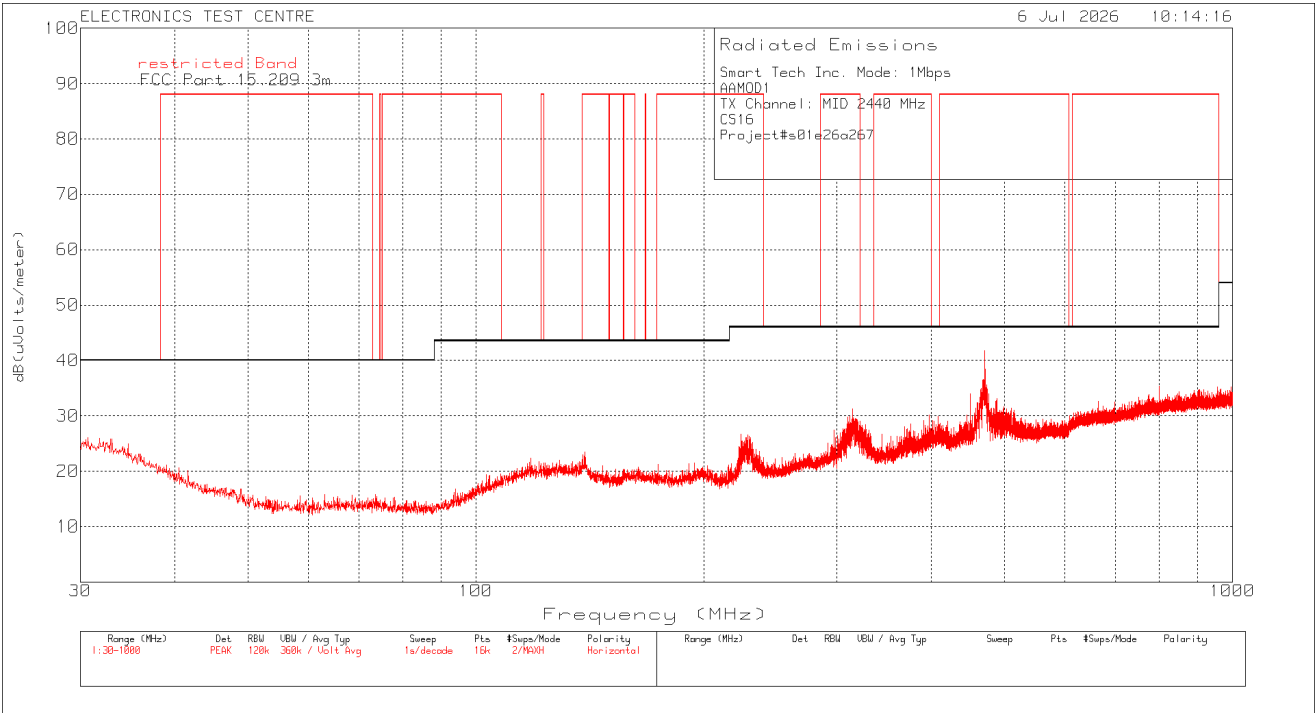
AV: Average detector

*** Frequencies falling in restricted bands**

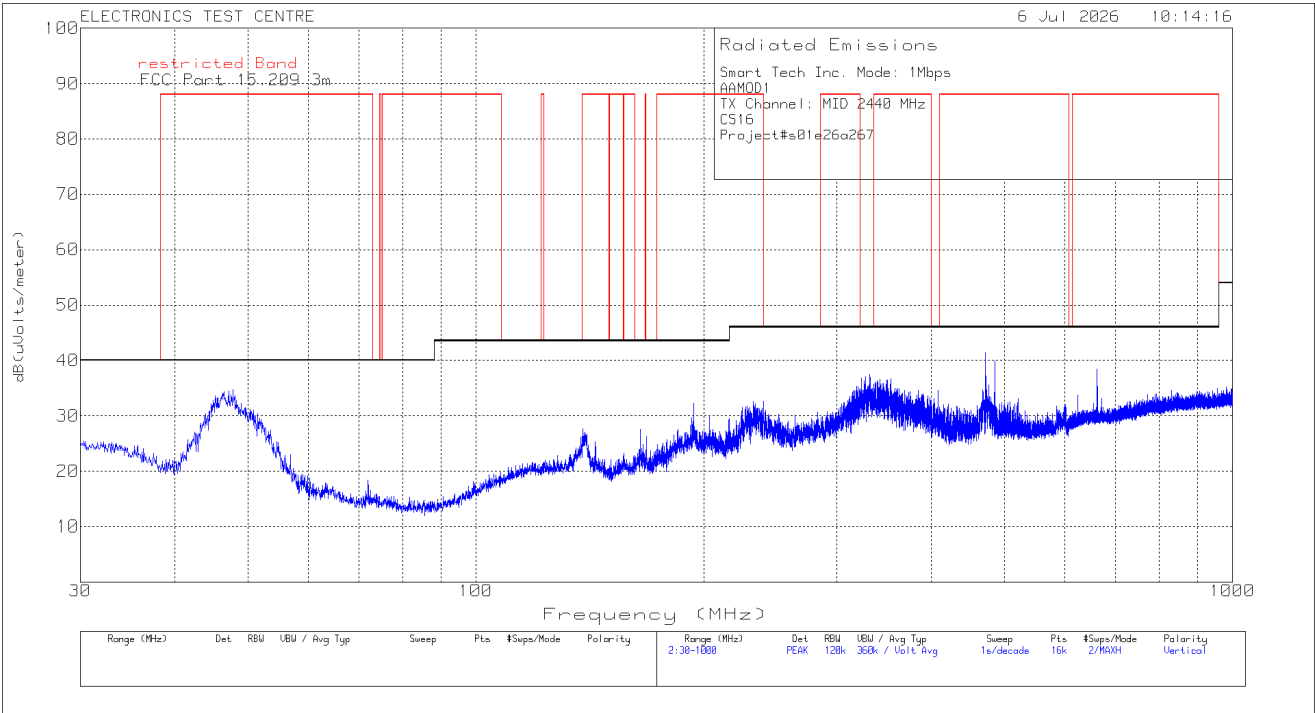
¹Frequencies not falling in restricted bands

TX Channels-17: 2440 MHz

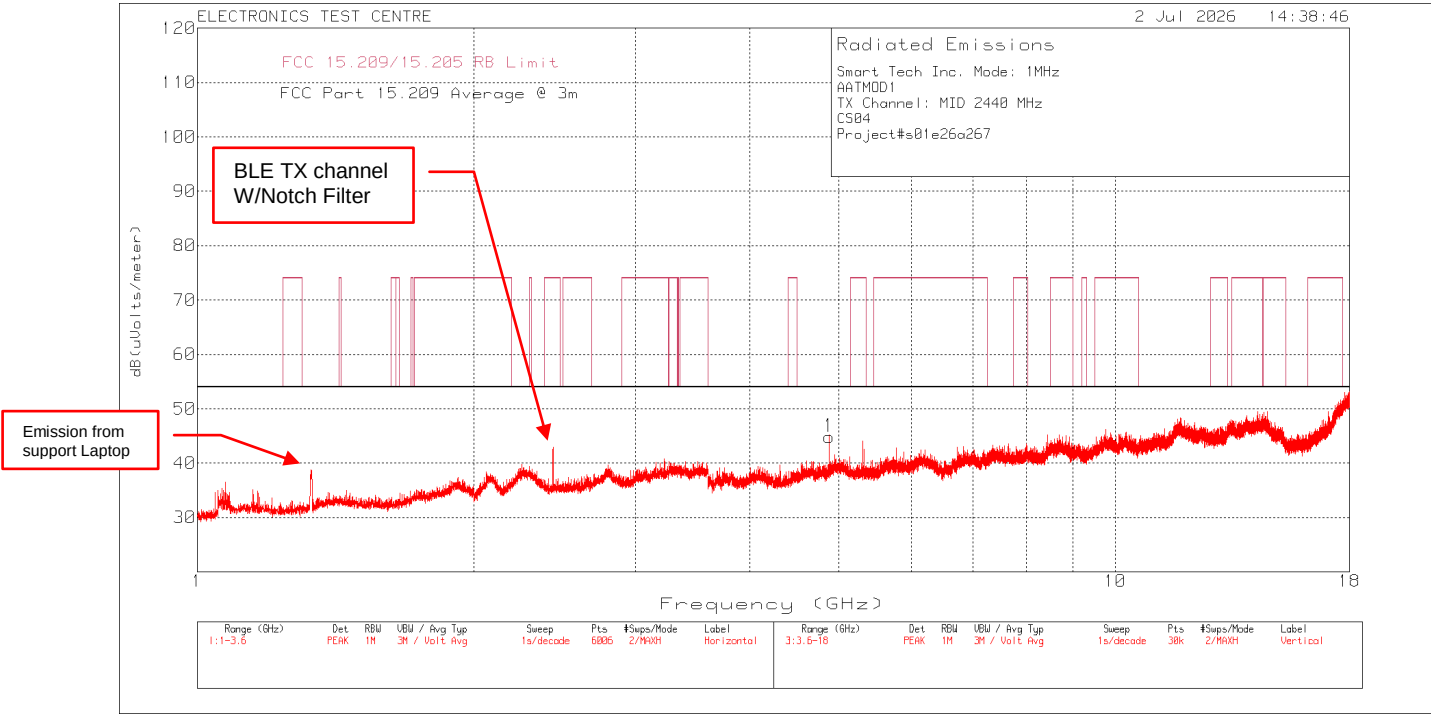
Plot of Radiated Emissions: Horizontal polarization



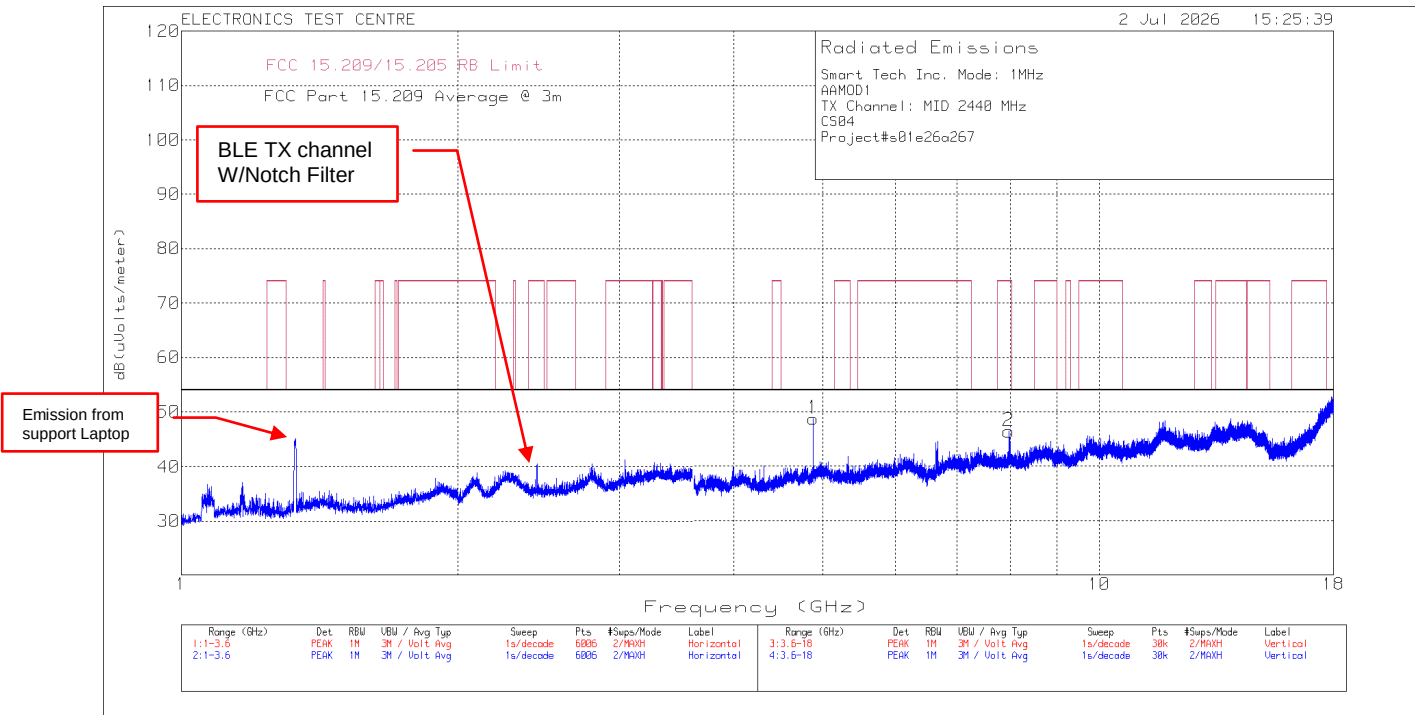
Plot of Radiated Emissions: Vertical polarization



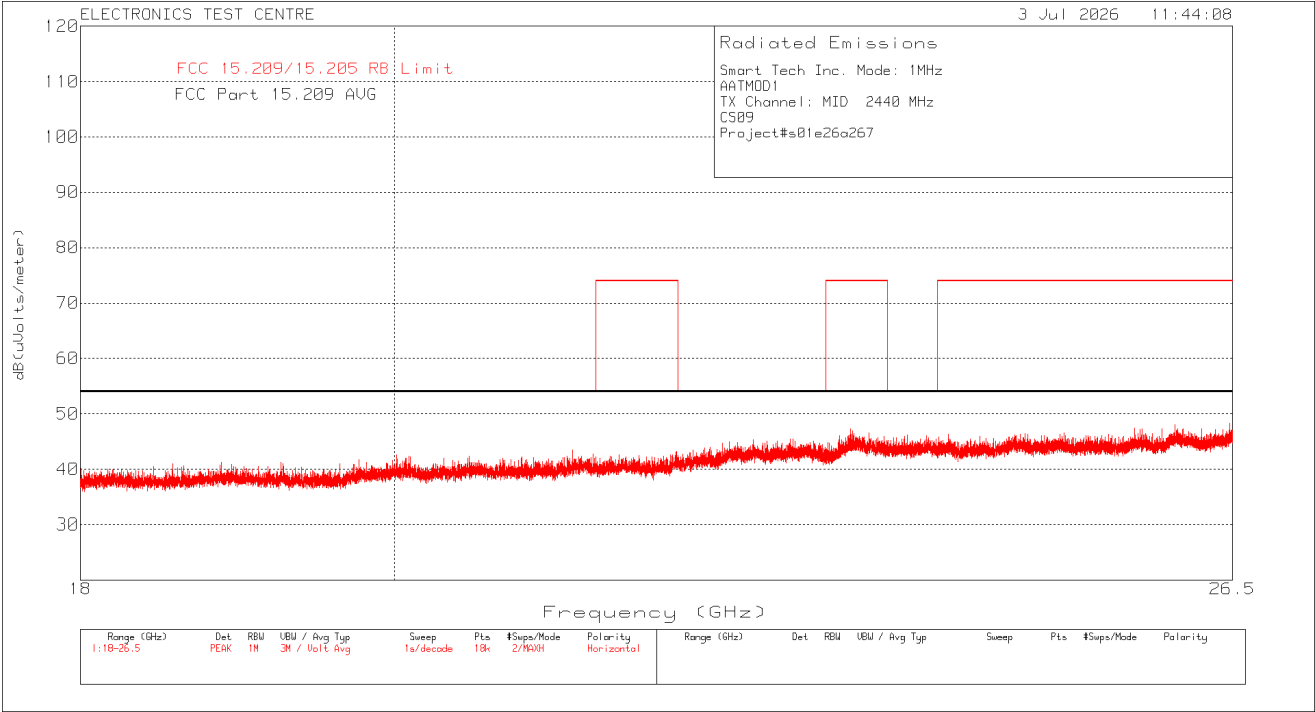
Plot of Radiated Emissions: Horizontal polarization



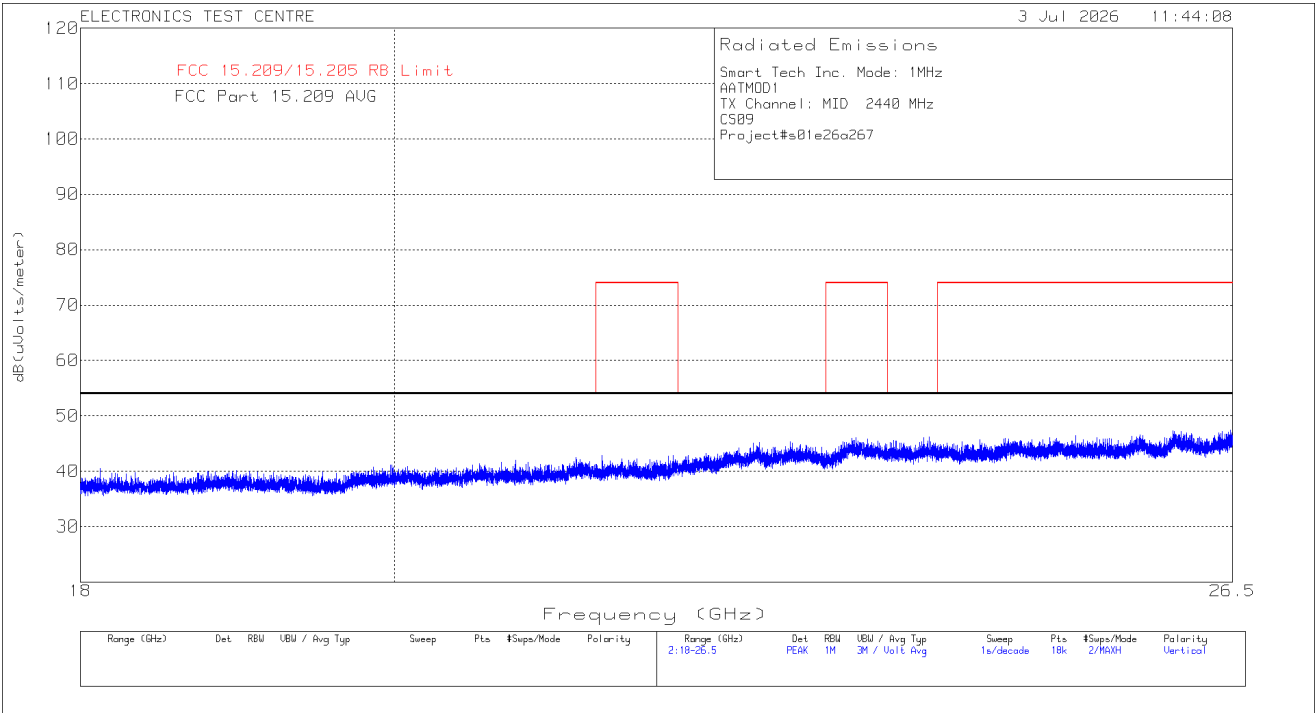
Plot of Radiated Emissions: Vertical polarization



Plot of Radiated Emissions: Horizontal polarization



Plot of Radiated Emissions: Vertical polarization



Radiated Emissions Data for High Channel

The emissions data are presented in tabular form, showing turntable azimuth, antenna height and polarization, the uncorrected spectrum analyzer reading, the correction factors applied, the net result, the value of the limit at the frequency investigated, and the Delta between the result and the limit.

Meter Reading in dBμV + Antenna Factor in dB/m + Gain/Loss Factor in dB = Corrected Field Strength in dBμV/m.

Delta = Field Strength – Limit

Notes:

- When a preamp is used, the resulting gain is compensated, producing a negative value for the Cable Loss.
- Measurements reported are the result of adjusting the turntable azimuth and antenna height to obtain the maximum EUT emission. This may produce a different reading than the plot trace. The plot is a Peak Hold function obtained at discreet increments of height and azimuth, while the reported measurement is obtained with the appropriate Quasi Peak or Average detector after the height and azimuth have been adjusted for maximum emission.
- In Transmit mode, the EUT was assessed up to 26.5 GHz.

Negative values for Delta indicate compliance.

Freq. Marker	Freq. [GHz]	Raw reading [dBμv]	Det	Antenna Factor [dB/m]	Pre amp Gain [dB]	Corrected Reading [dBμv/m]	FCC 15.209 Limit [dBμv/m]	Delta [dB]	Azimuth [Deg]	Height [cm]	Polarization
Channel-39 High (2480MHz)											
3	*1.3325	54.75	PK	25.30	-34.20	45.85	74.00	-28.15	12	238	Vertical
		37.90	Av			29.00	54.00	-25.00			
4	*1.5183	44.80	PK	25.30	-33.40	36.70	74.00	-37.30	71	251	Vertical
		29.14	Av			21.04	54.00	-32.96			
1	*4.9599	43.89	PK	33.70	-29.80	47.79	74.00	-26.21	265	114	Horizontal
		35.00	Av			38.90	54.00	-15.10			
2	*17.7428	23.78	PK	44.70	-15.90	52.58	74.00	-21.42	238	350	Horizontal
		9.71	Av			38.51	54.00	-15.49			
5	*4.9590	46.30	PK	33.70	-29.80	50.20	74.00	-23.80	185	198	Vertical
		35.63	Av			39.53	54.00	-14.47			
6	*17.8911	22.91	PK	45.10	-15.30	52.71	74.00	-21.29	95	255	Vertical
		9.20	Av			39.00	54.00	-15.00			

QP: Quasi Peak detector

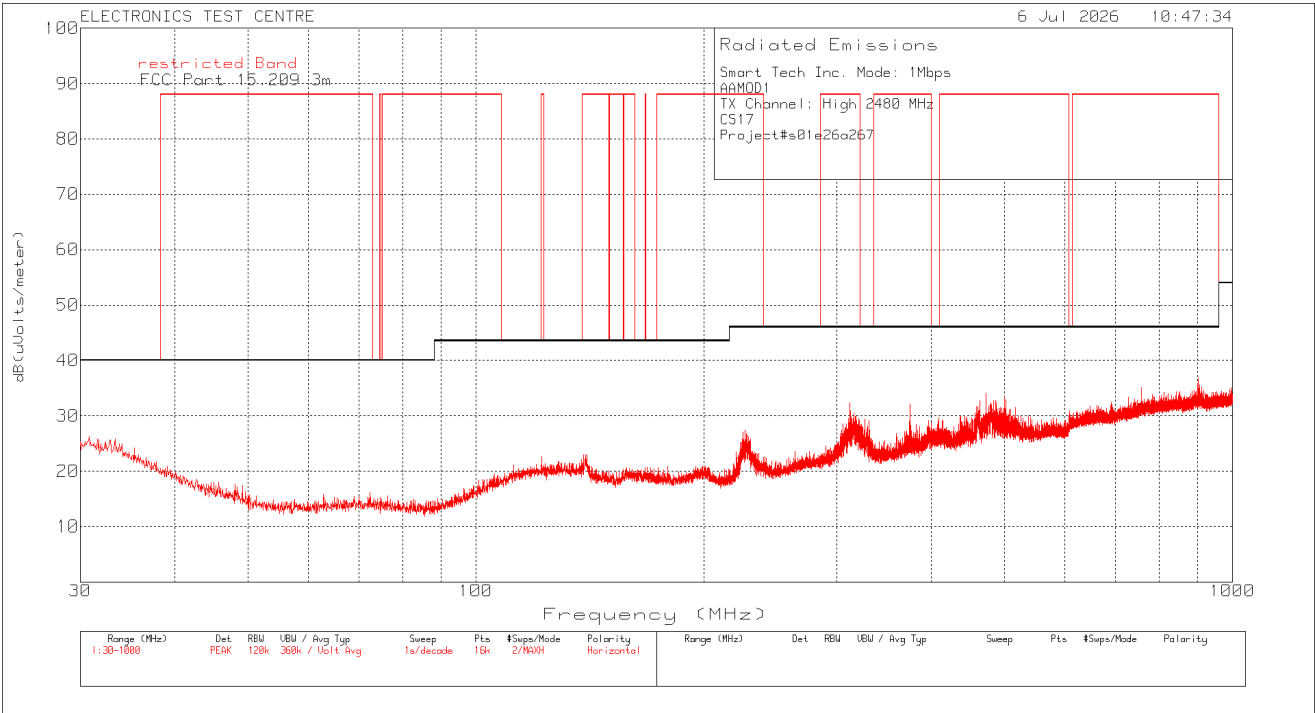
AV: Average detector

*** Frequencies falling in restricted bands**

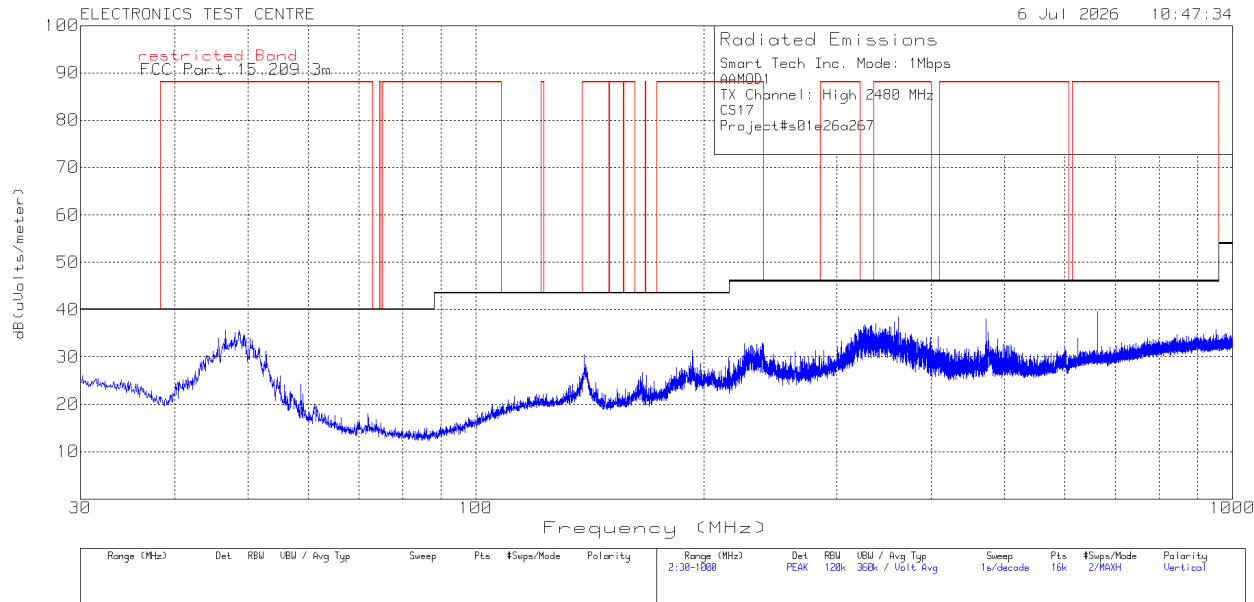
¹Frequencies not falling in restricted bands

TX Channels-39 = 2480

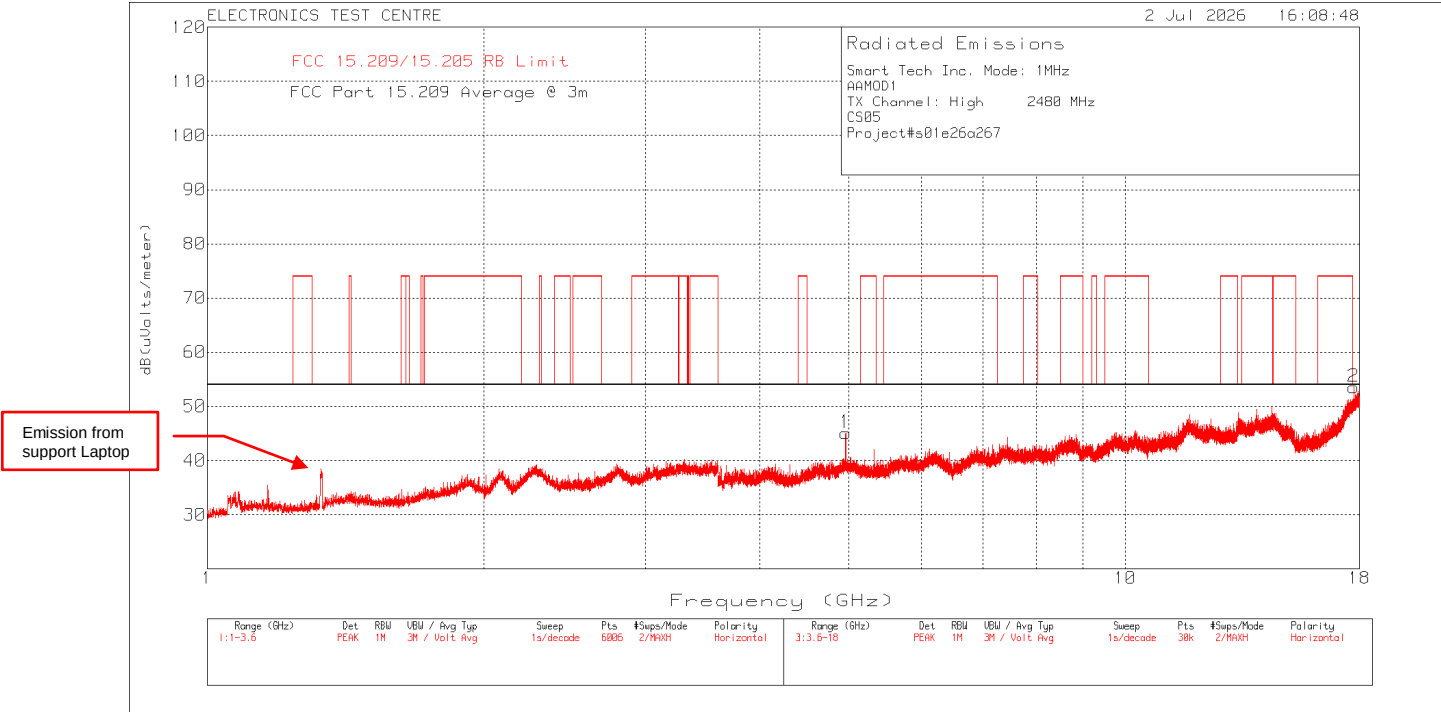
Plot of Radiated Emissions: Horizontal polarization



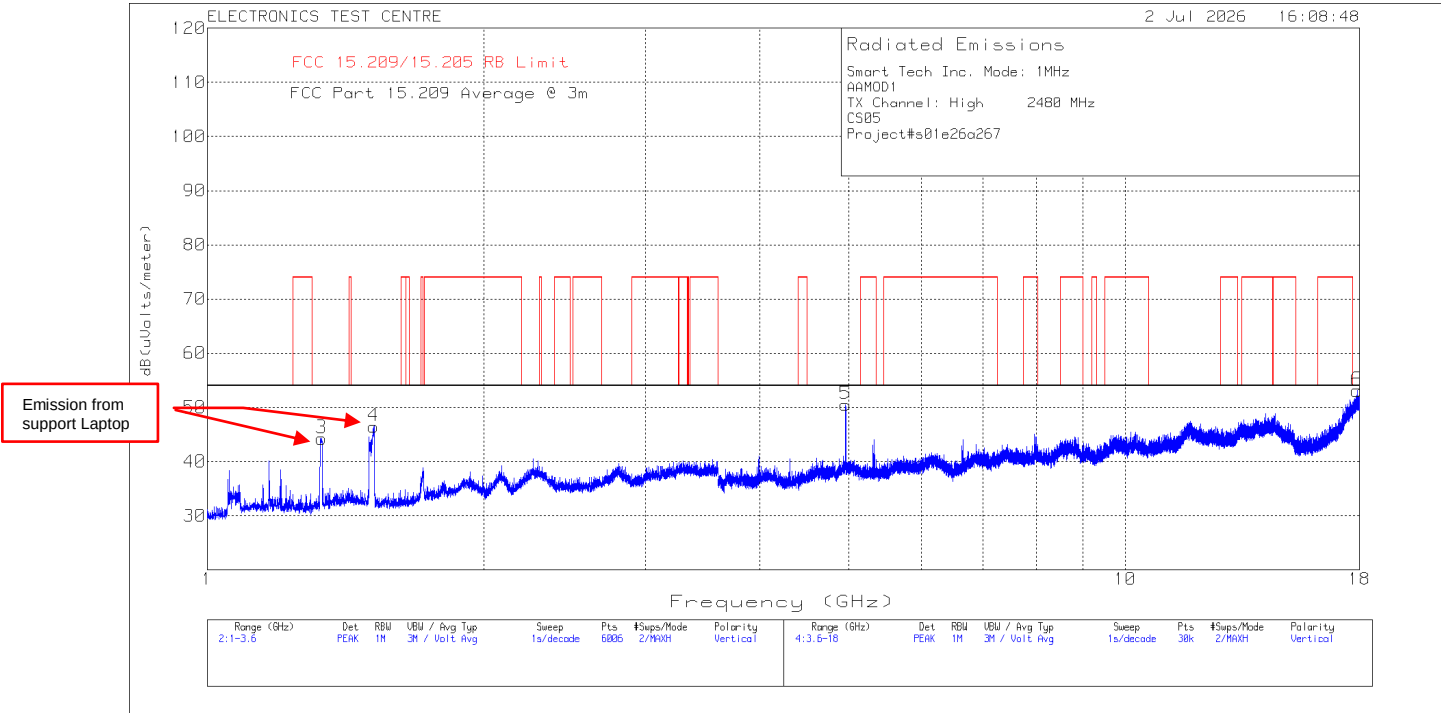
Plot of Radiated Emissions: Vertical polarization



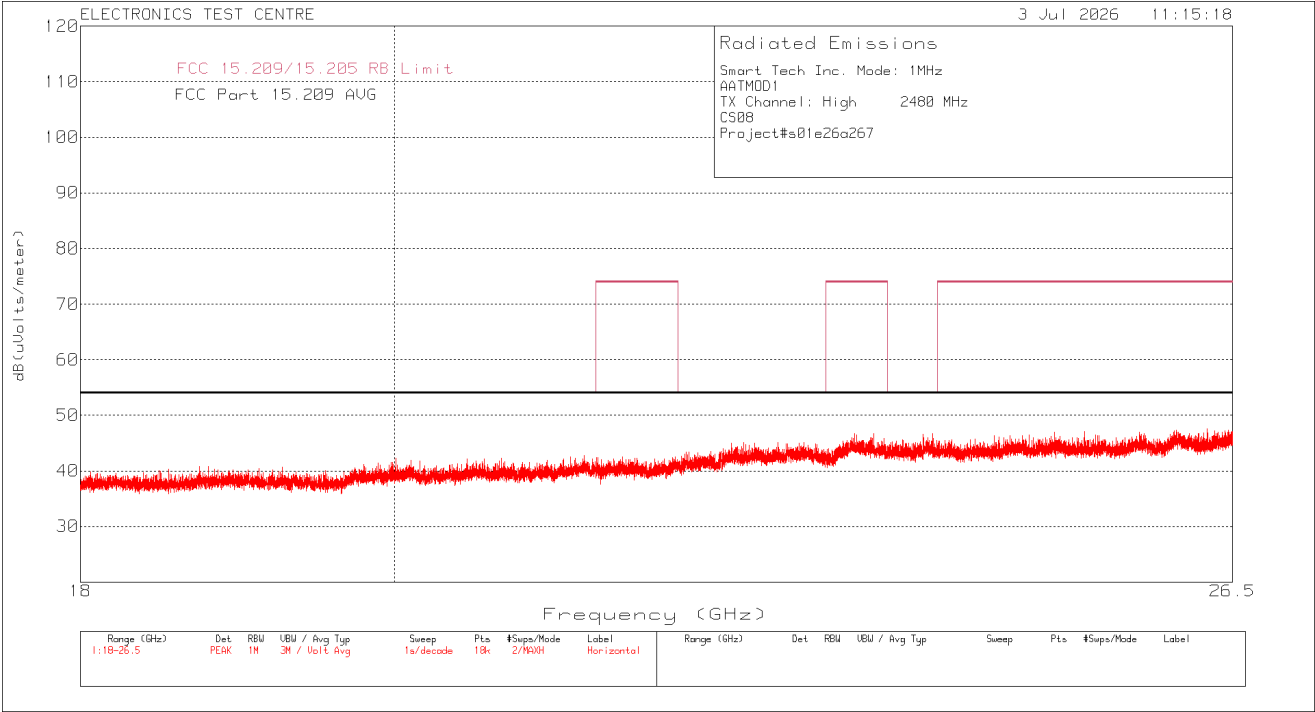
Plot of Radiated Emissions: Horizontal polarization



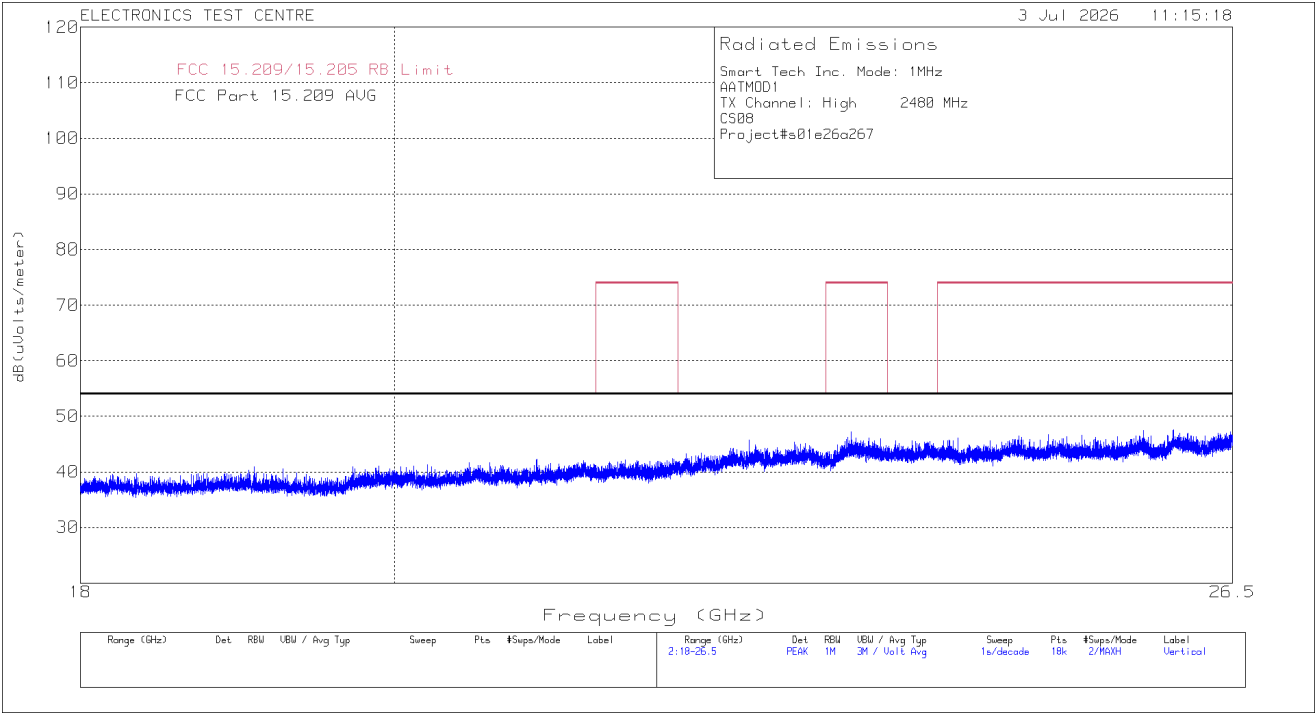
Plot of Radiated Emissions: Vertical polarization



Plot of Radiated Emissions: Horizontal polarization



Plot of Radiated Emissions: Vertical polarization



2.8.6 Test Mode: 2Mbps

Radiated Emissions Data for LOW channel

The emissions data are presented in tabular form, showing turntable azimuth, antenna height and polarization, the uncorrected spectrum analyzer reading, the correction factors applied, the net result, the value of the limit at the frequency investigated, and the Delta between the result and the limit.

Meter Reading in dBμV + Antenna Factor in dB/m + Gain/Loss Factor in dB = Corrected Field Strength in dBμV/m.

Delta = Field Strength – Limit

Notes:

- When a preamp is used, the resulting gain is compensated, producing a negative value for the Cable Loss.
- Measurements reported are the result of adjusting the turntable azimuth and antenna height to obtain the maximum EUT emission. This may produce a different reading than the plot trace. The plot is a Peak Hold function obtained at discreet increments of height and azimuth, while the reported measurement is obtained with the appropriate Quasi Peak or Average detector after the height and azimuth have been adjusted for maximum emission.
- In Transmit mode, the EUT was assessed up to 26.5 GHz.

Negative values for Delta indicate compliance.

Freq. Marker	Freq. [MHz]	Raw reading [dBμV]	Det	Antenna Factor [dB/m]	Pre amp Gain [dB]	Corrected Reading [dBμV/m]	FCC 15.209 Limit [dBμV/m]	Delta [dB]	Azimuth [Deg]	Height [cm]	Polarization
Channel-37 LOW (2402MHz)											
1	¹ 48.2078	41.21	QP	12.70	-24.60	29.31	40.00	-10.69	60	113	Vertical
2	*331.8631	35.30	QP	18.10	-21.70	31.70	46.02	-14.32	194	101	Vertical
3	¹ 467.5675	23.98	QP	21.40	-20.90	24.48	46.02	-21.54	57	126	Vertical
1	*4805.0	44.72	PK	33.10	-30.10	47.72	74.00	-26.28	121	255	Horizontal
		31.77	AV			34.77	54.00	-19.23			
2	*4805.0	47.42	PK	33.10	-30.10	50.42	74.00	-23.58	182	193	Vertical
		34.92	AV			37.92	54.00	-16.08			
3	¹ 7992.6	42.75	PK	36.80	-24.90	54.65	74.00	-19.35	24	144	Vertical
		18.93	AV			30.83	54.00	-23.17			

QP: Quasi Peak detector

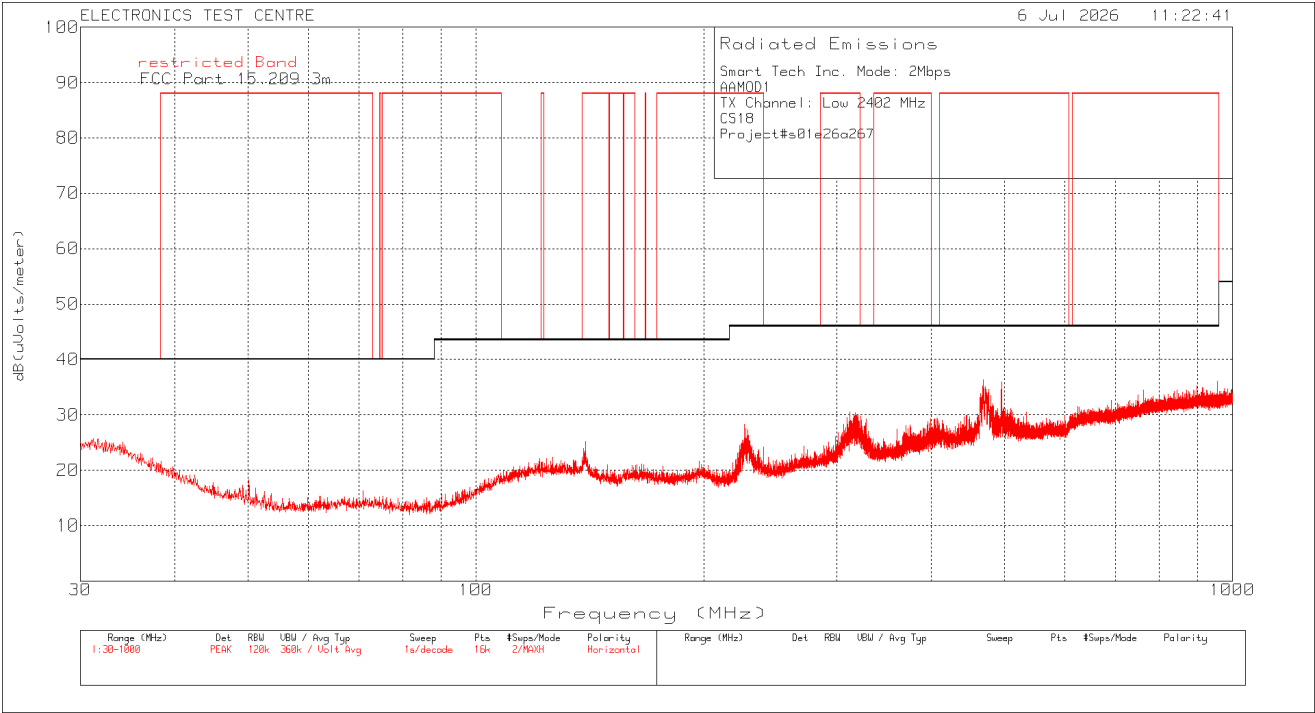
AV: Average detector

*** Frequencies falling in restricted bands**

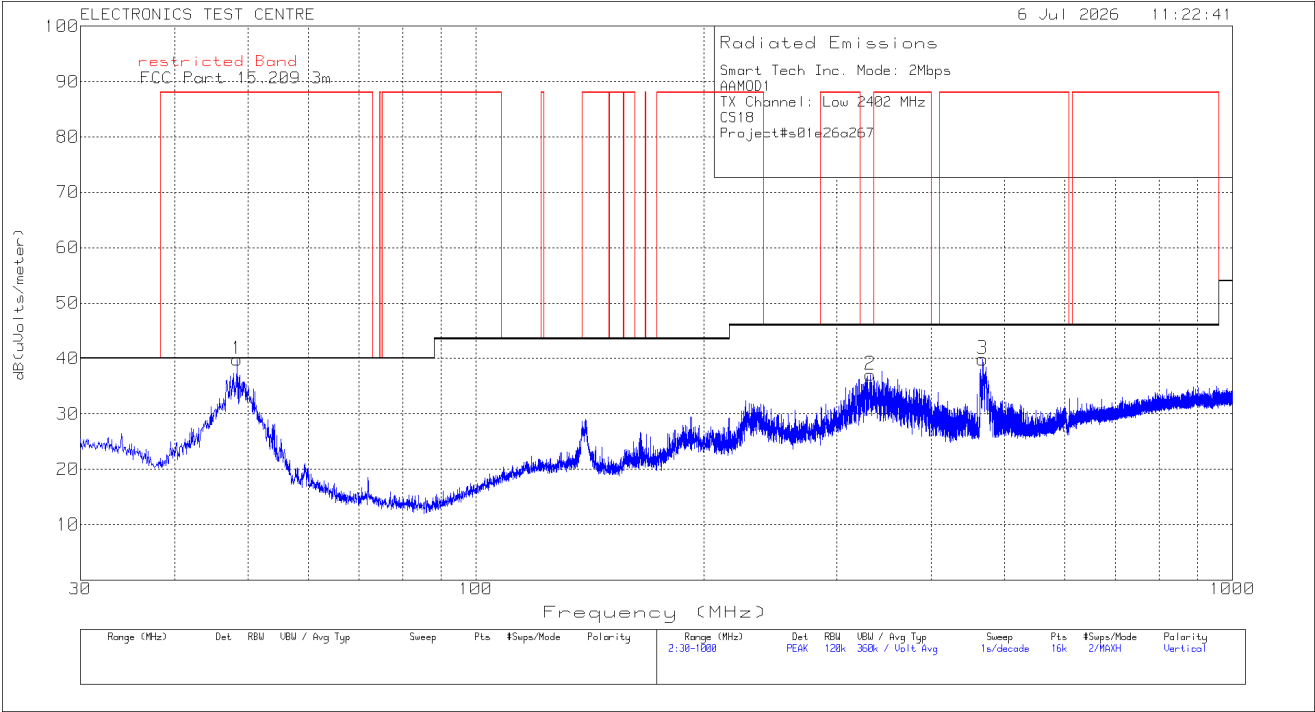
¹Frequencies not falling in restricted bands

TX Channels-37: 2402 MHz

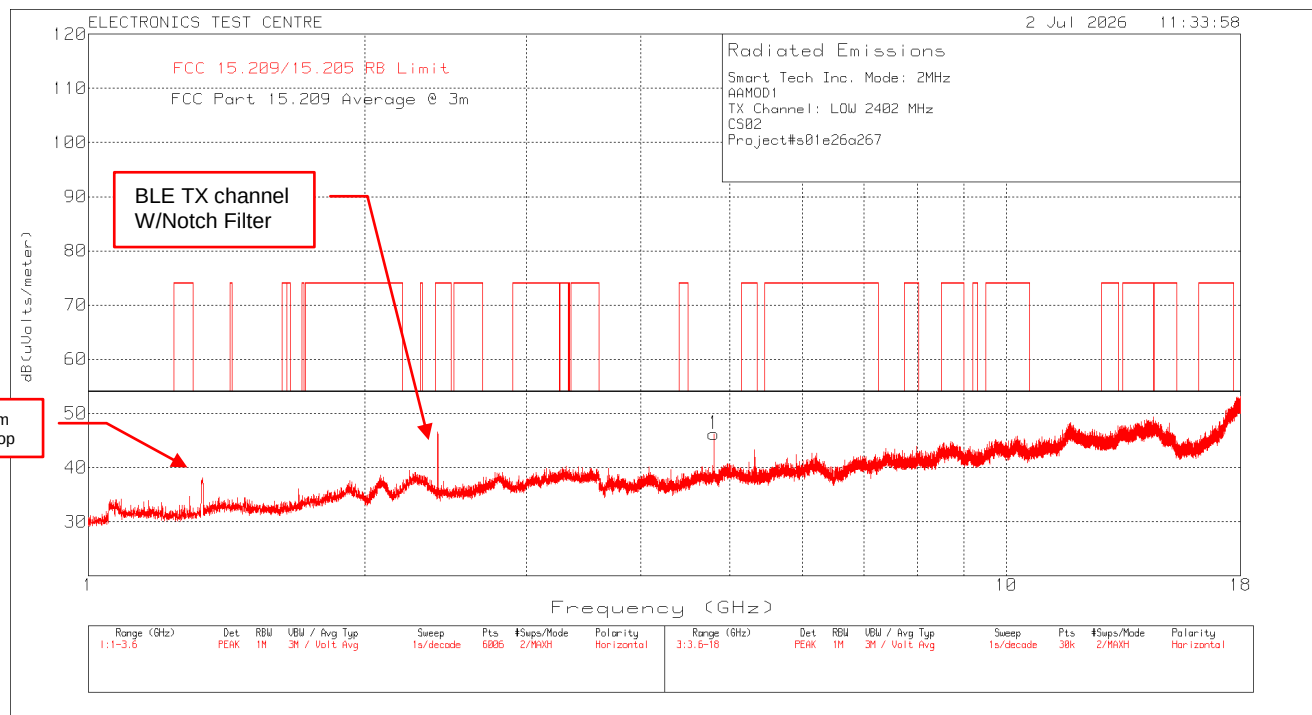
Plot of Radiated Emissions: Horizontal polarization



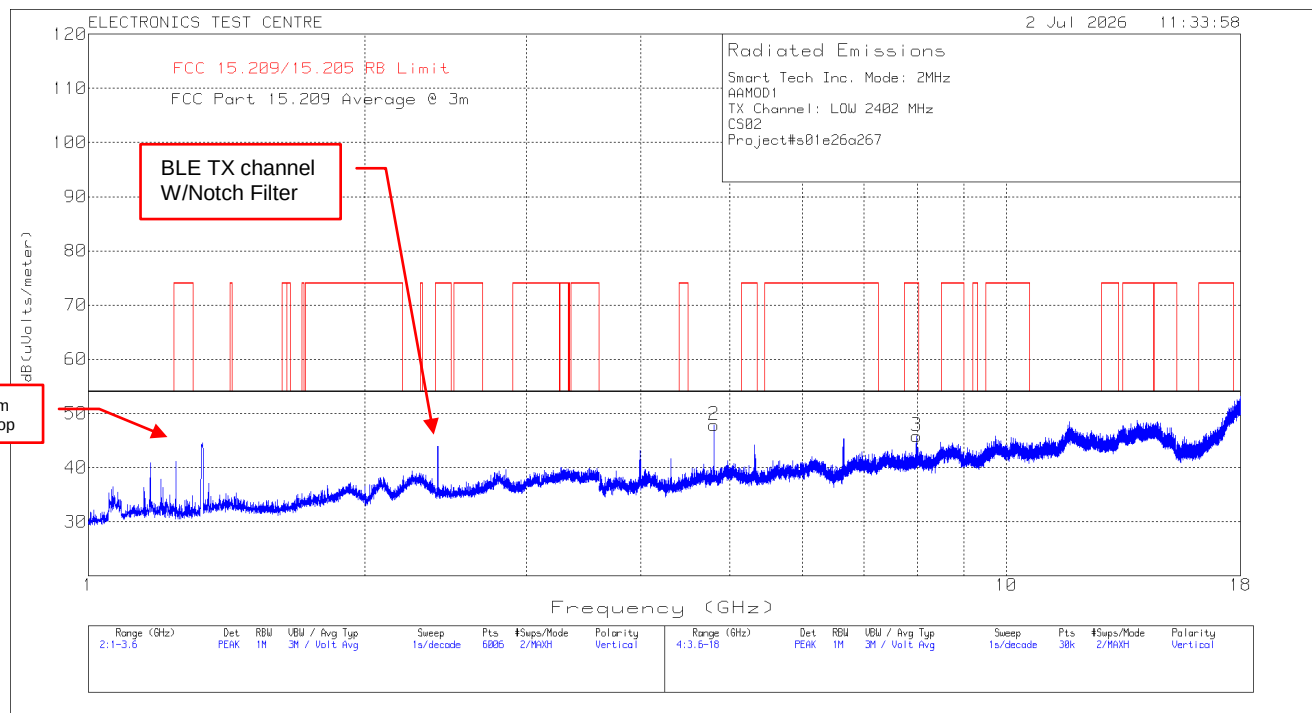
Plot of Radiated Emissions: Vertical polarization



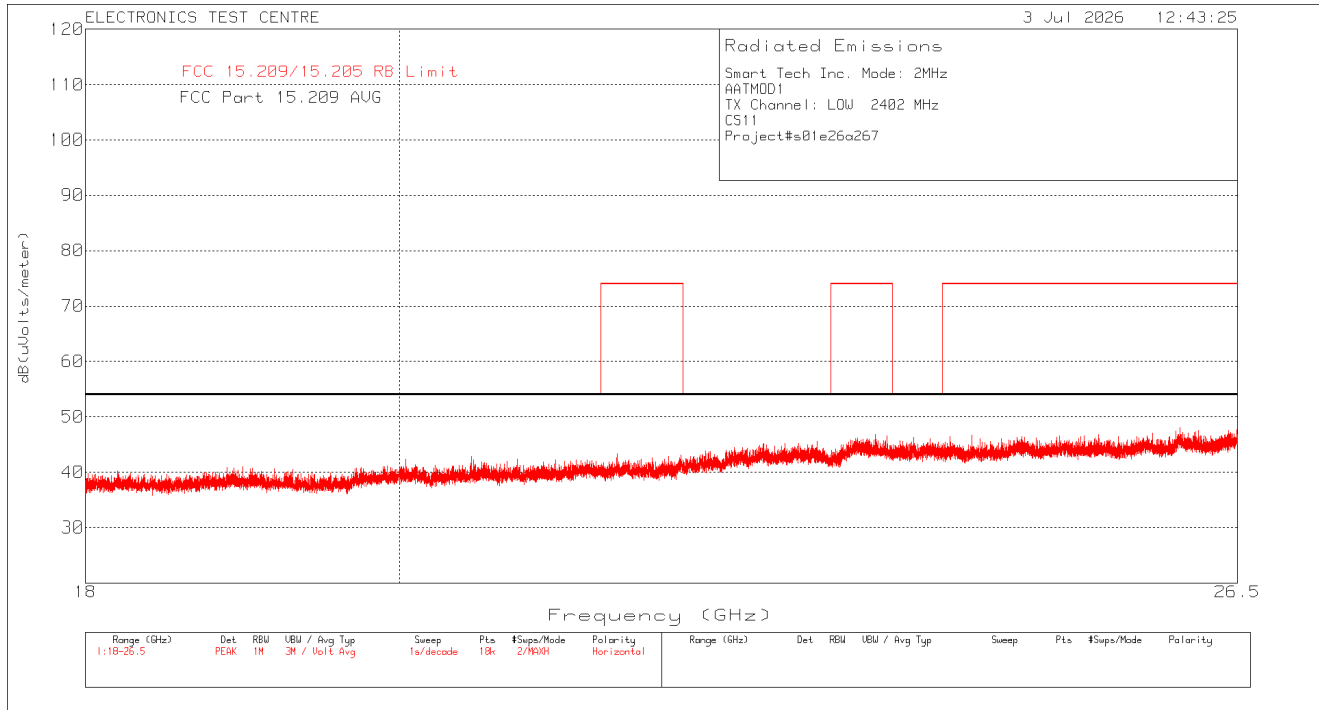
Plot of Radiated Emissions: Horizontal polarization



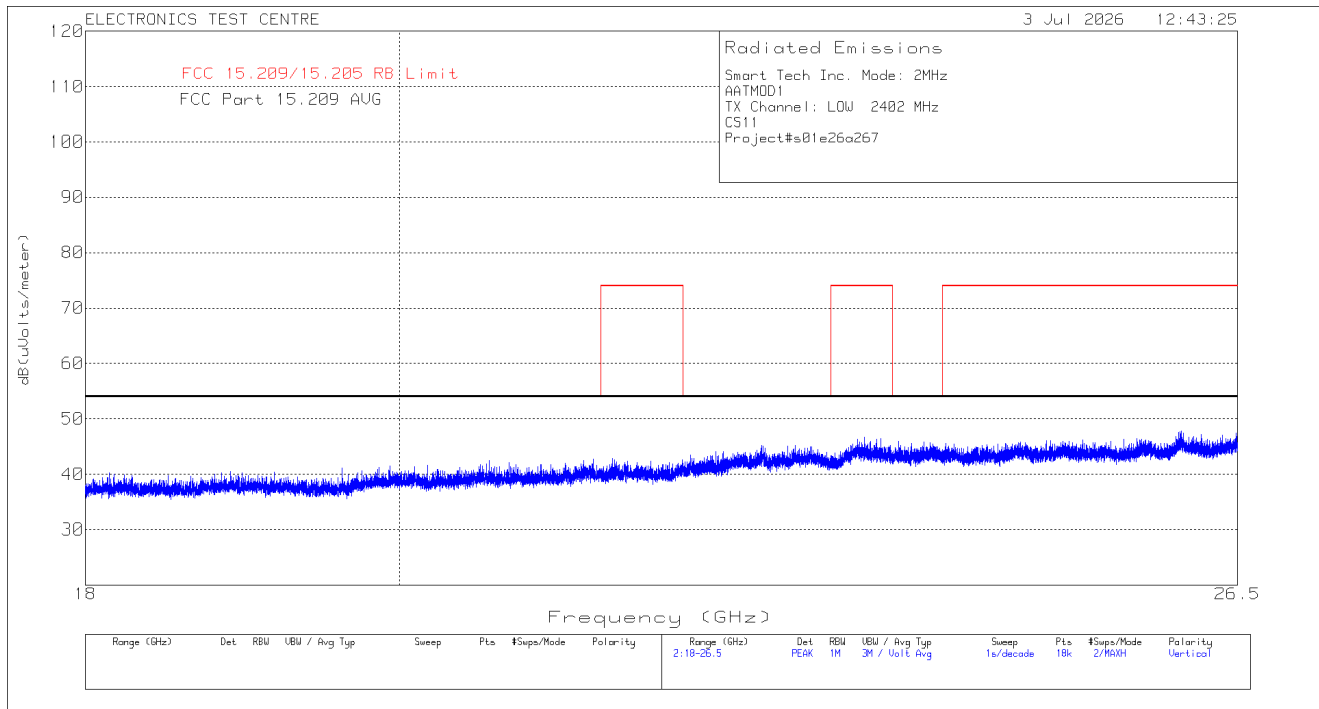
Plot of Radiated Emissions: Vertical polarization



Plot of Radiated Emissions: Horizontal polarization



Plot of Radiated Emissions: Vertical polarization



Radiated Emissions Data for MID channel

The emissions data are presented in tabular form, showing turntable azimuth, antenna height and polarization, the uncorrected spectrum analyzer reading, the correction factors applied, the net result, the value of the limit at the frequency investigated, and the Delta between the result and the limit.

Meter Reading in dBμV + Antenna Factor in dB/m + Gain/Loss Factor in dB = Corrected Field Strength in dBμV/m.

Delta = Field Strength – Limit

Notes:

- When a preamp is used, the resulting gain is compensated, producing a negative value for the Cable Loss.
- Measurements reported are the result of adjusting the turntable azimuth and antenna height to obtain the maximum EUT emission. This may produce a different reading than the plot trace. The plot is a Peak Hold function obtained at discreet increments of height and azimuth, while the reported measurement is obtained with the appropriate Quasi Peak or Average detector after the height and azimuth have been adjusted for maximum emission.
- In Transmit mode, the EUT was assessed up to 26.5 GHz.

Negative values for Delta indicate compliance.

Freq. Marker	Freq. [GHz]	Raw reading [dBμv]	Det	Antenna Factor [dB/m]	Pre amp Gain [dB]	Corrected Reading [dBμv/m]	FCC 15.209 Limit [dBμv/m]	Delta [dB]	Azimuth [Deg]	Height [cm]	Polarization
Channel-17 MID (2440 MHz)											
1	*4.8807	43.54	PK	33.40	-29.80	47.14	74.00	-26.86	143	388	Horizontal
		31.11	AV			34.71	54.00	-19.29			
2	*17.8805	24.10	PK	45.10	-15.40	53.80	74.00	-20.20	119	396	Horizontal
		9.85	AV			39.55	54.00	-14.45			
3	*4.8807	45.27	PK	33.40	-29.80	48.87	74.00	-25.13	111	159	Vertical
		32.64	AV			36.24	54.00	-17.76			
4	¹ 7.9672	41.13	PK	36.80	-25.00	52.93	74.00	-21.07	21	127	Vertical
		19.46	AV			31.26	54.00	-22.74			
5	*17.8834	23.39	PK	45.10	-15.40	53.09	74.00	-20.91	248	394	Vertical
		9.40	AV			39.10	54.00	-14.90			

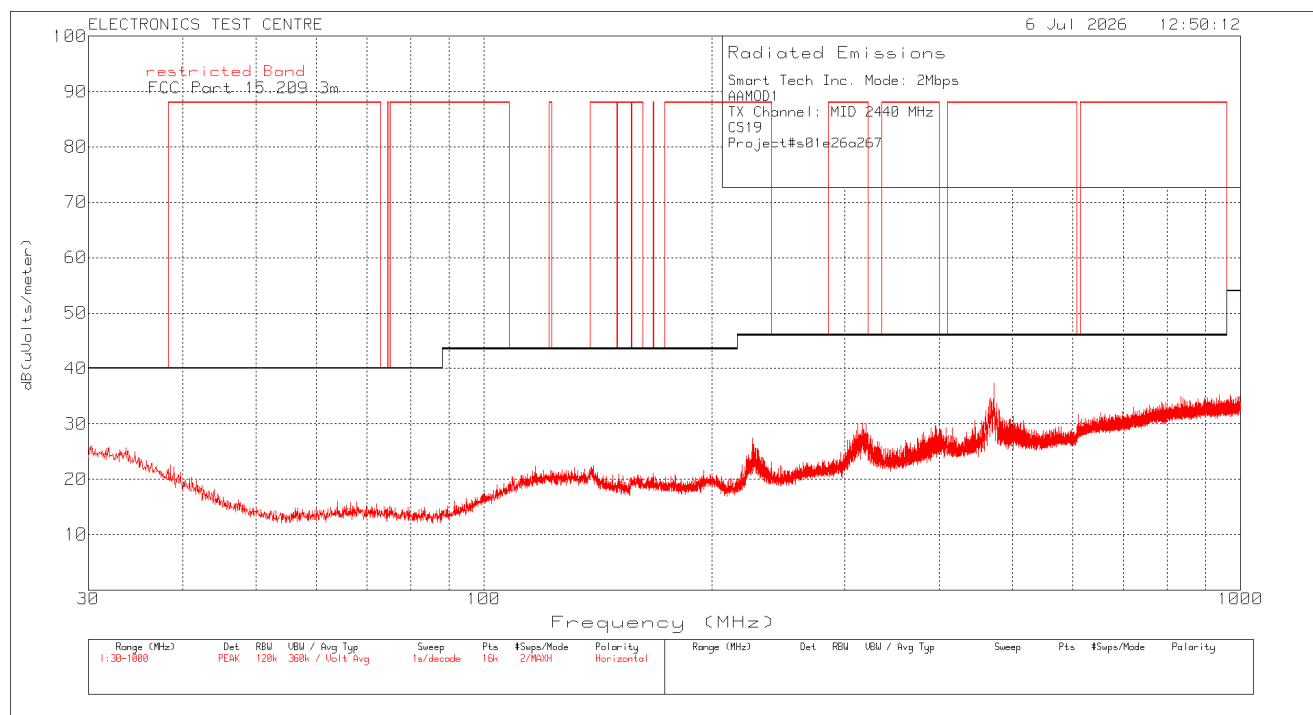
QP: Quasi Peak detector

AV: Average detector

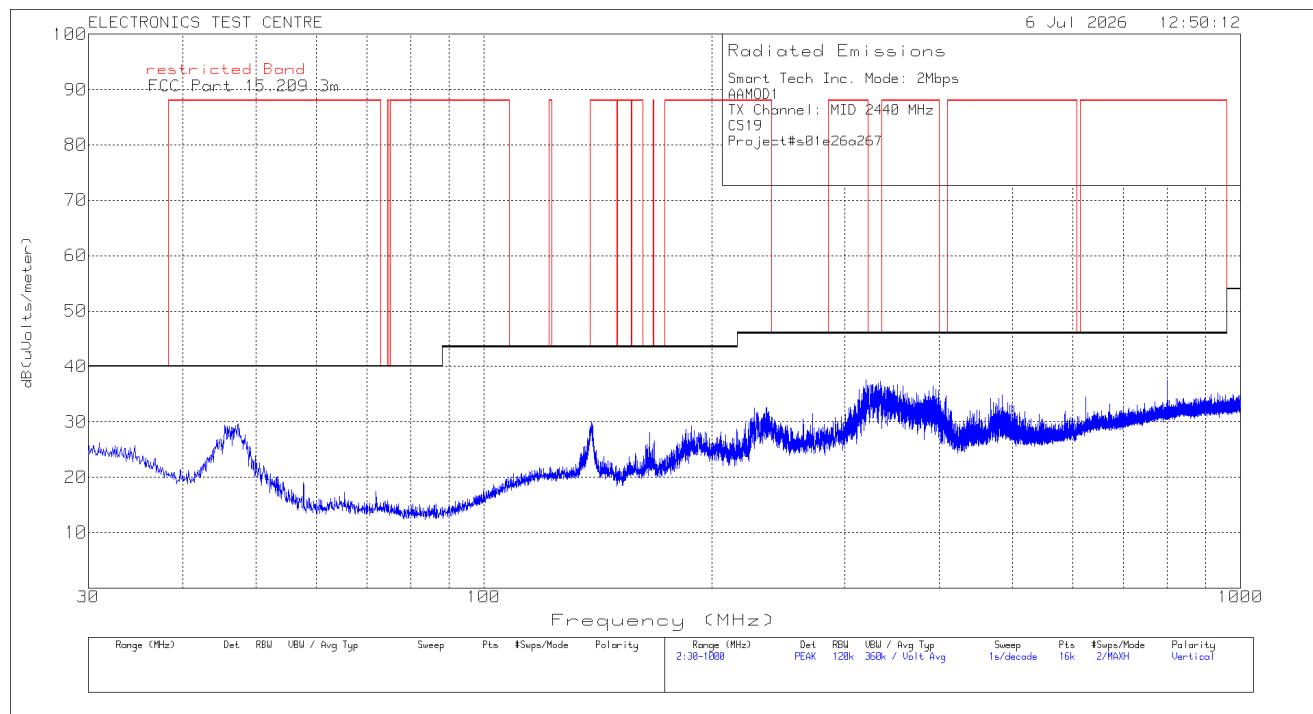
*** Frequencies falling in restricted bands**

¹Frequencies not falling in restricted bands

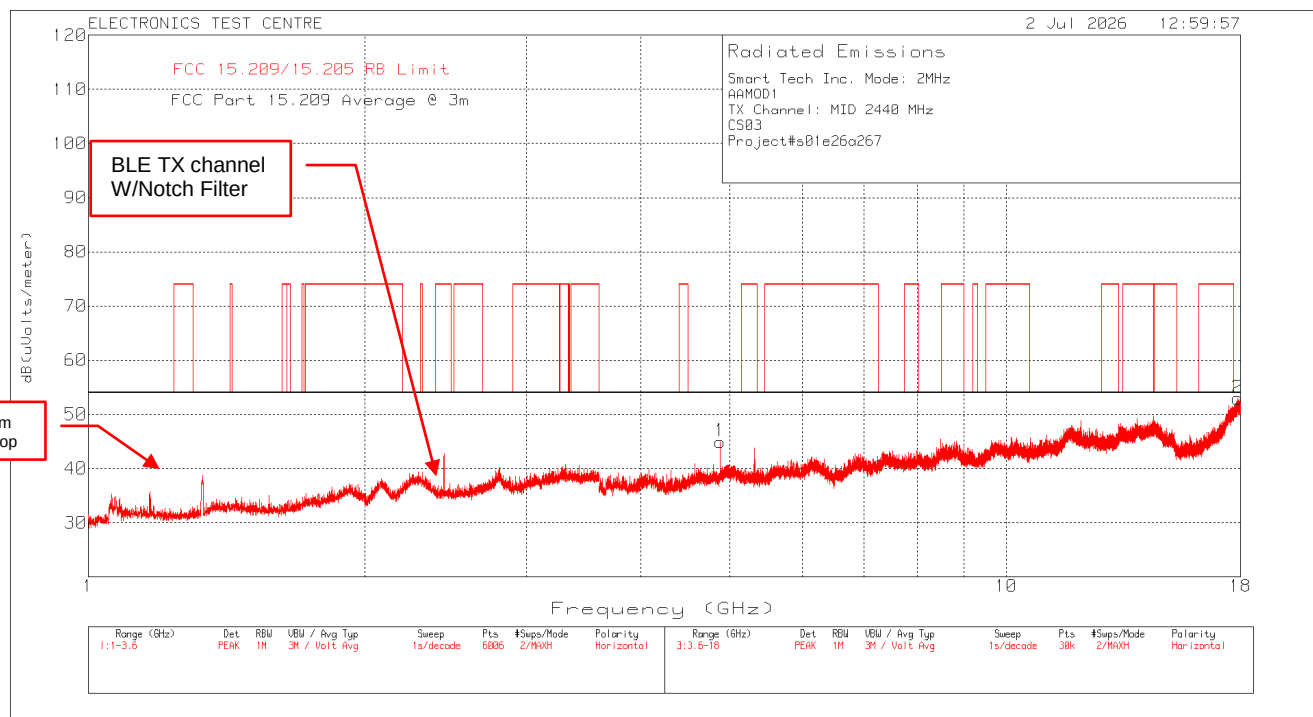
TX Channels-17: 2440 MHz
Plot of Radiated Emissions: Horizontal polarization



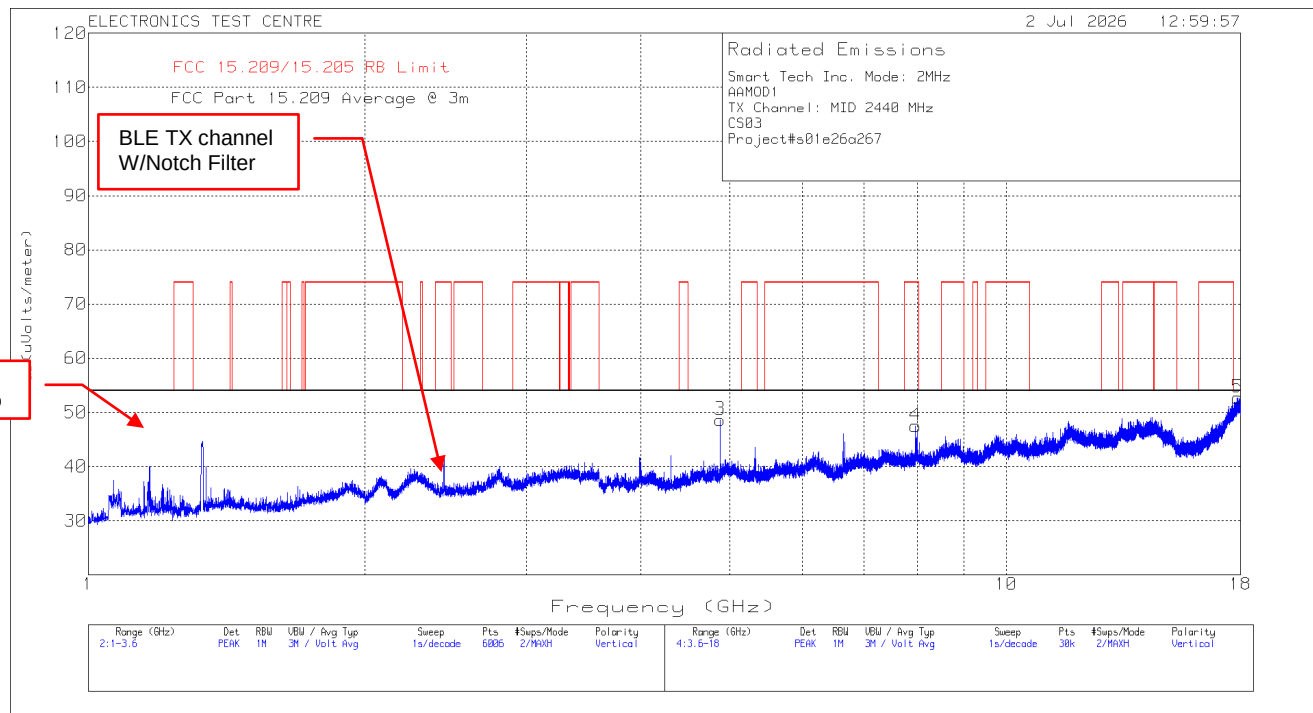
Plot of Radiated Emissions: Vertical polarization



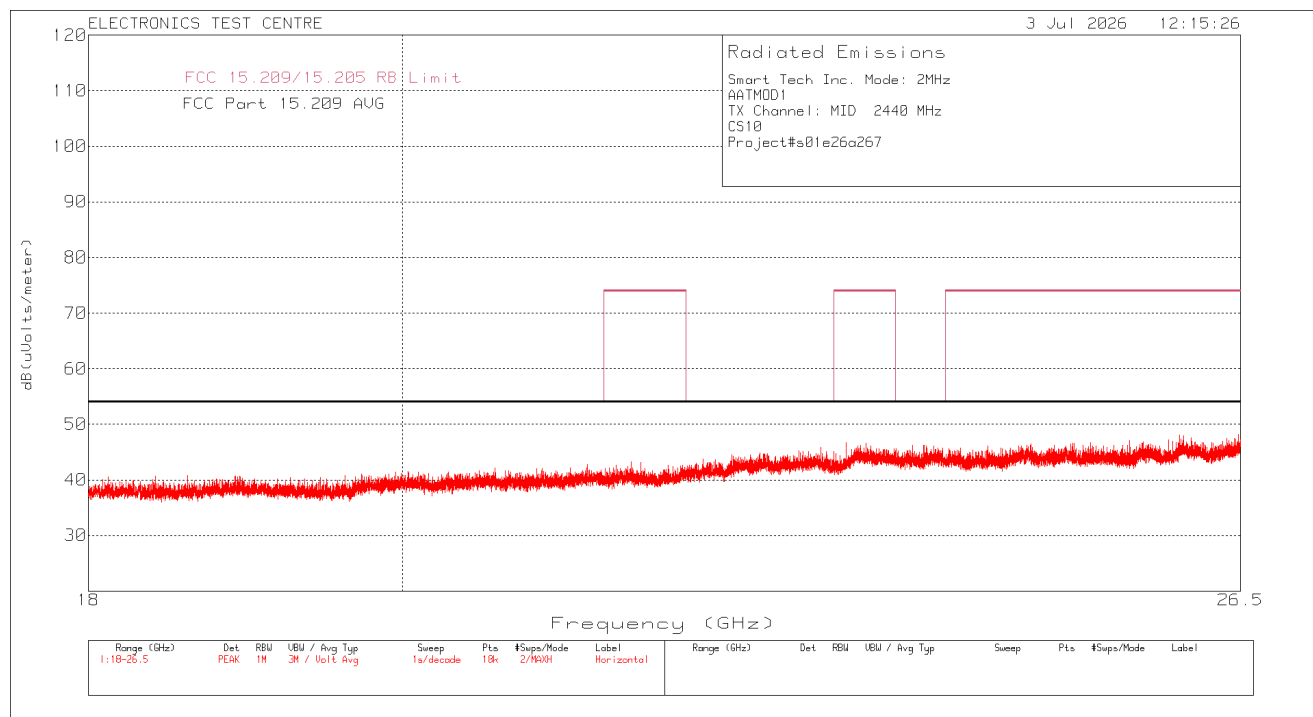
Plot of Radiated Emissions: Horizontal polarization



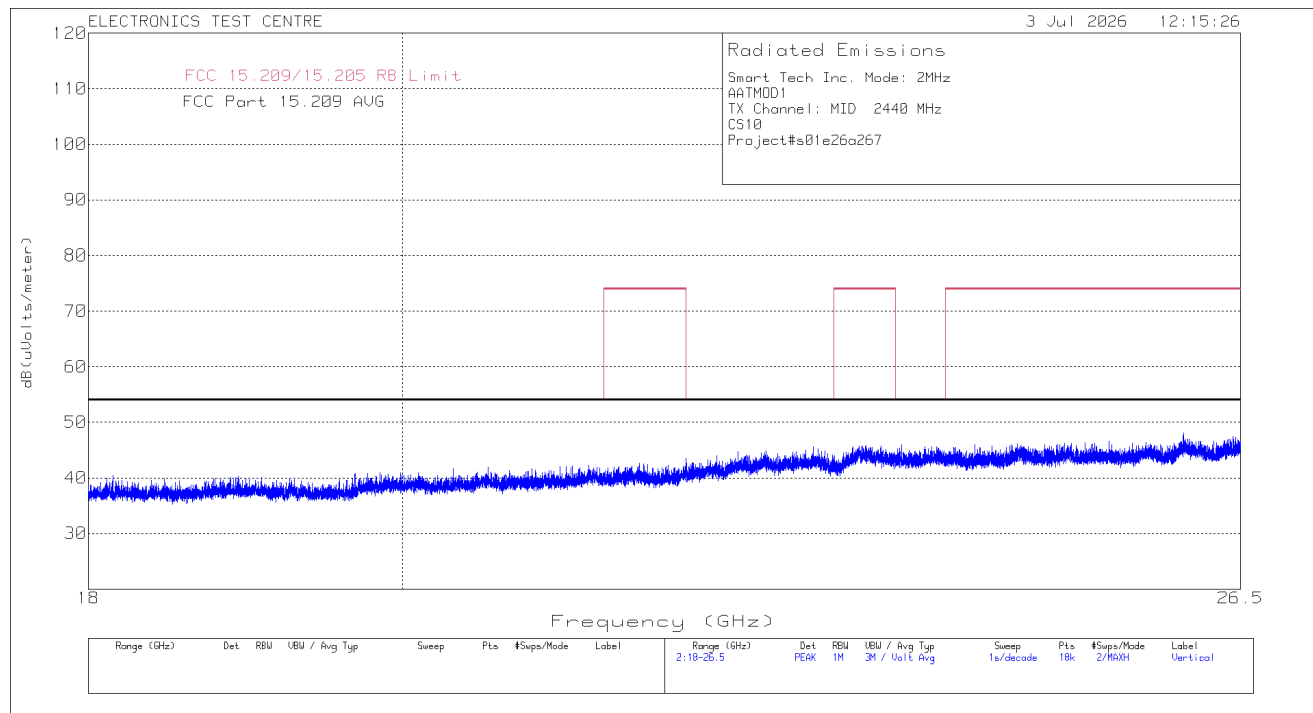
Plot of Radiated Emissions: Vertical polarization



Plot of Radiated Emissions: Horizontal polarization



Plot of Radiated Emissions: Vertical polarization



Radiated Emissions Data for High channel

The emissions data are presented in tabular form, showing turntable azimuth, antenna height and polarization, the uncorrected spectrum analyzer reading, the correction factors applied, the net result, the value of the limit at the frequency investigated, and the Delta between the result and the limit.

Meter Reading in dBμV + Antenna Factor in dB/m + Gain/Loss Factor in dB = Corrected Field Strength in dBμV/m.

Delta = Field Strength – Limit

Notes:

- When a preamp is used, the resulting gain is compensated, producing a negative value for the Cable Loss.
- Measurements reported are the result of adjusting the turntable azimuth and antenna height to obtain the maximum EUT emission. This may produce a different reading than the plot trace. The plot is a Peak Hold function obtained at discreet increments of height and azimuth, while the reported measurement is obtained with the appropriate Quasi Peak or Average detector after the height and azimuth have been adjusted for maximum emission.
- In Transmit mode, the EUT was assessed up to 26.5 GHz.

Negative values for Delta indicate compliance.

Freq. Marker	Freq. [MHz]	Raw reading [dBμv]	Det	Antenna Factor [dB/m]	Pre amp Gain [dB]	Corrected Reading [dBμv/m]	FCC 15.209 Limit [dBμv/m]	Delta [dB]	Azimuth [Deg]	Height [cm]	Polarization
Channel-39 High (2480 MHz)											
1	*4.9585	40.47	PK	33.70	-29.80	44.37	74.00	-29.63	288	152	Horizontal
		26.72	AV			30.62	54.00	-23.38			
2	¹ 5.3088	43.20	PK	34.00	-29.30	47.90	74.00	-26.10	26	225	Horizontal
		22.23	AV			26.93	54.00	-27.07			
3	*4.9604	48.20	PK	33.70	-29.80	52.10	74.00	-21.90	199	204	Vertical
		36.50	AV			40.40	54.00	-13.60			
4	¹ 7.9629	39.04	PK	36.80	-25.00	50.84	74.00	-23.16	355	236	Vertical
		18.34	AV			30.14	54.00	-23.86			

QP: Quasi Peak detector

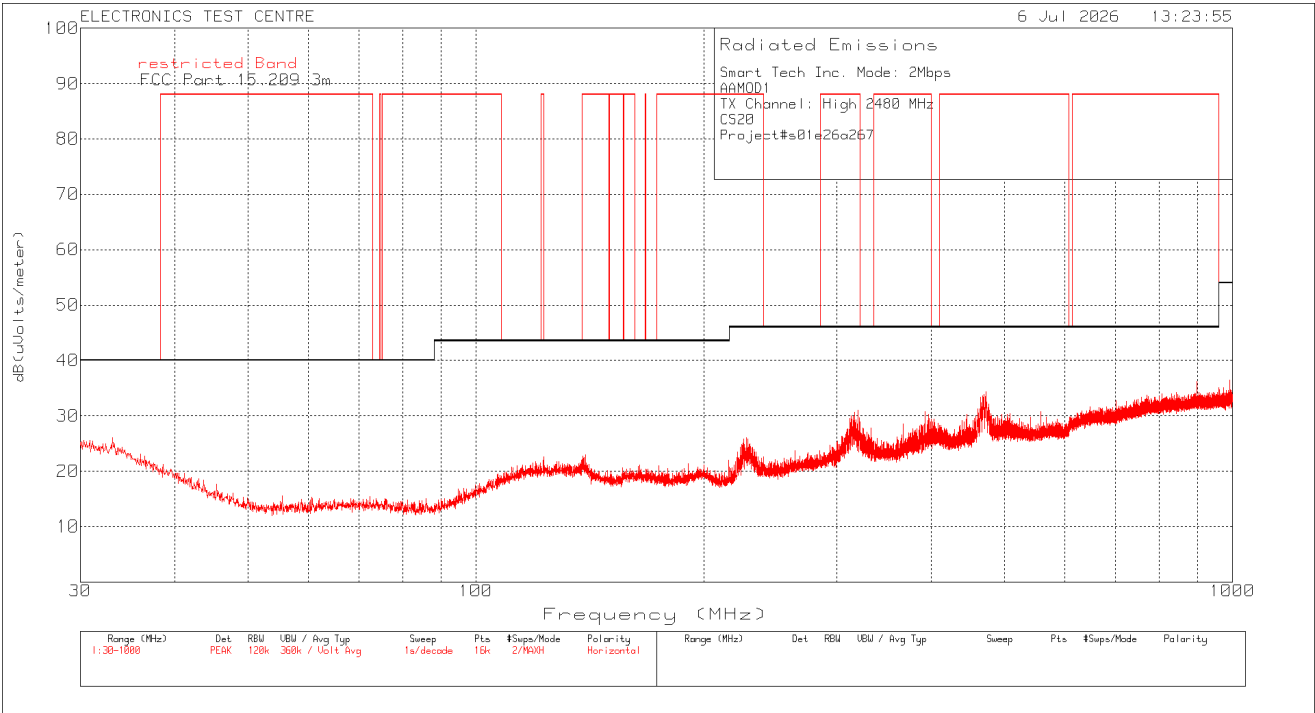
AV: Average detector

*** Frequencies falling in restricted bands**

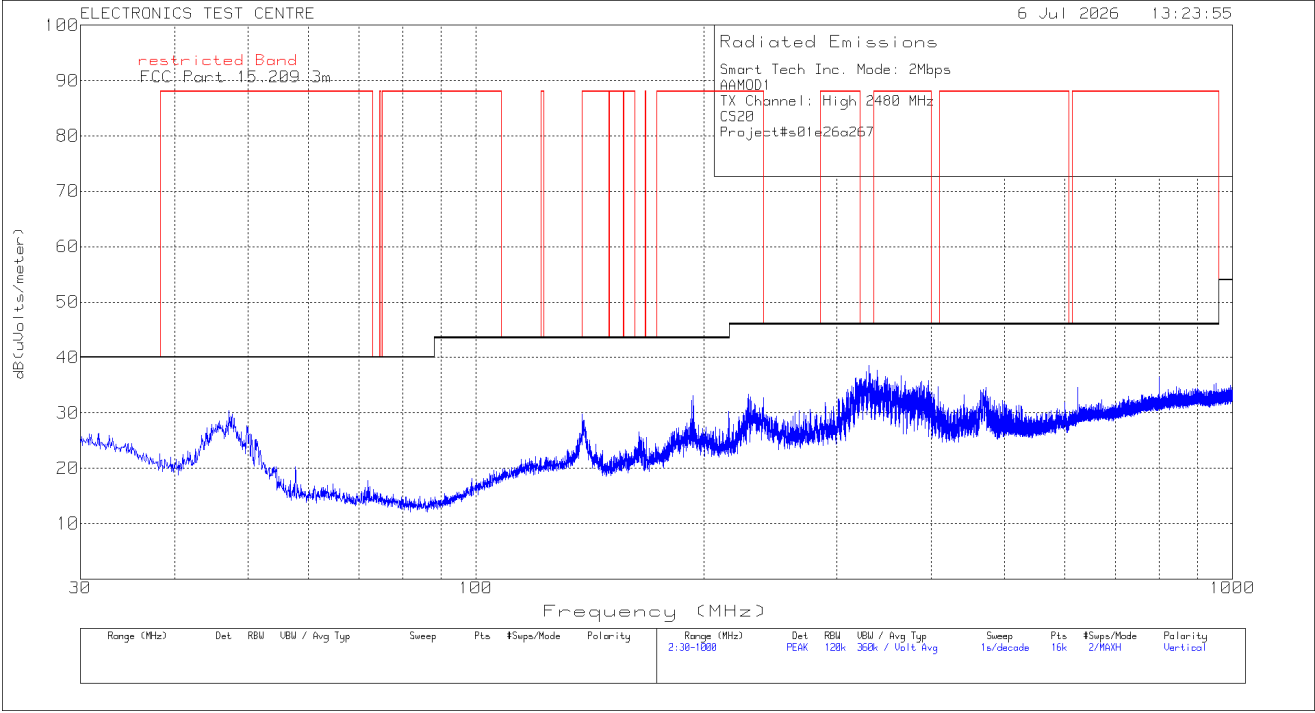
¹Frequencies not falling in restricted bands

TX Channels-39 = 2480

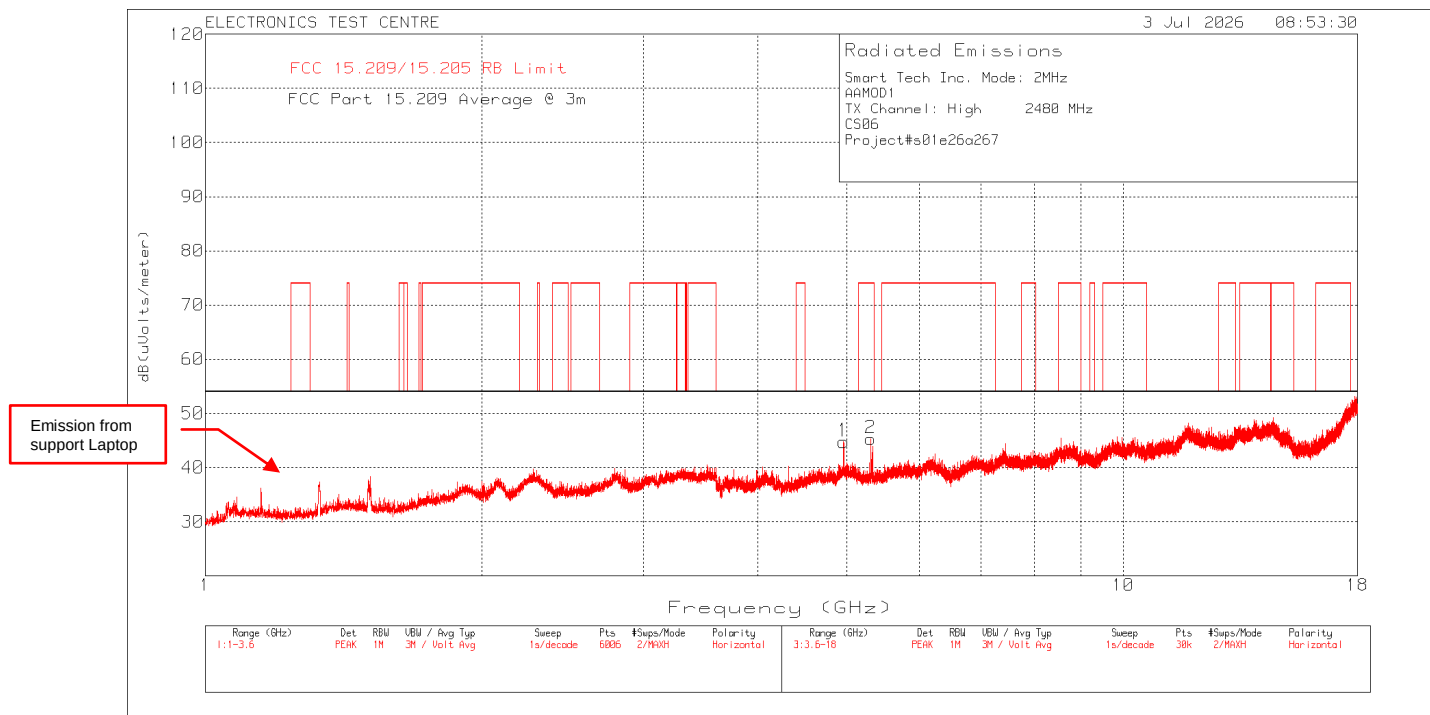
Plot of Radiated Emissions: Horizontal polarization



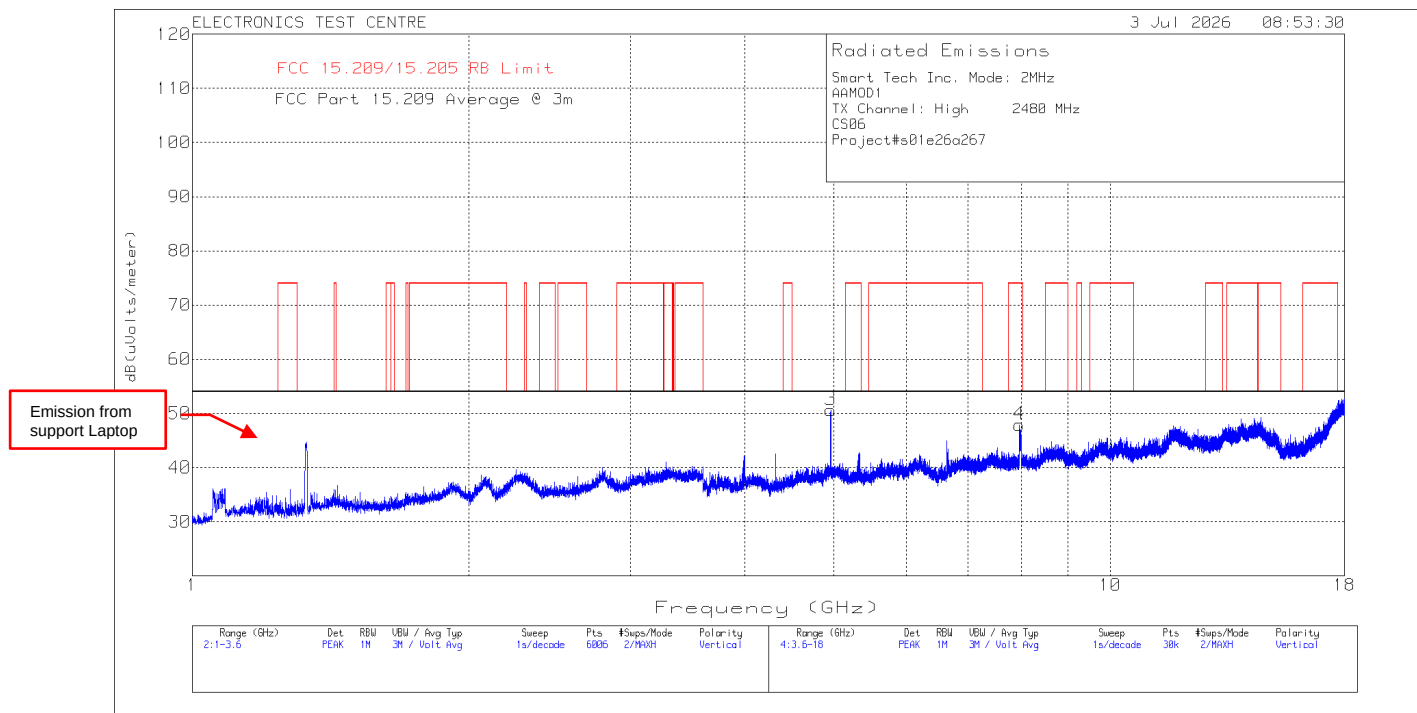
Plot of Radiated Emissions: Vertical polarization



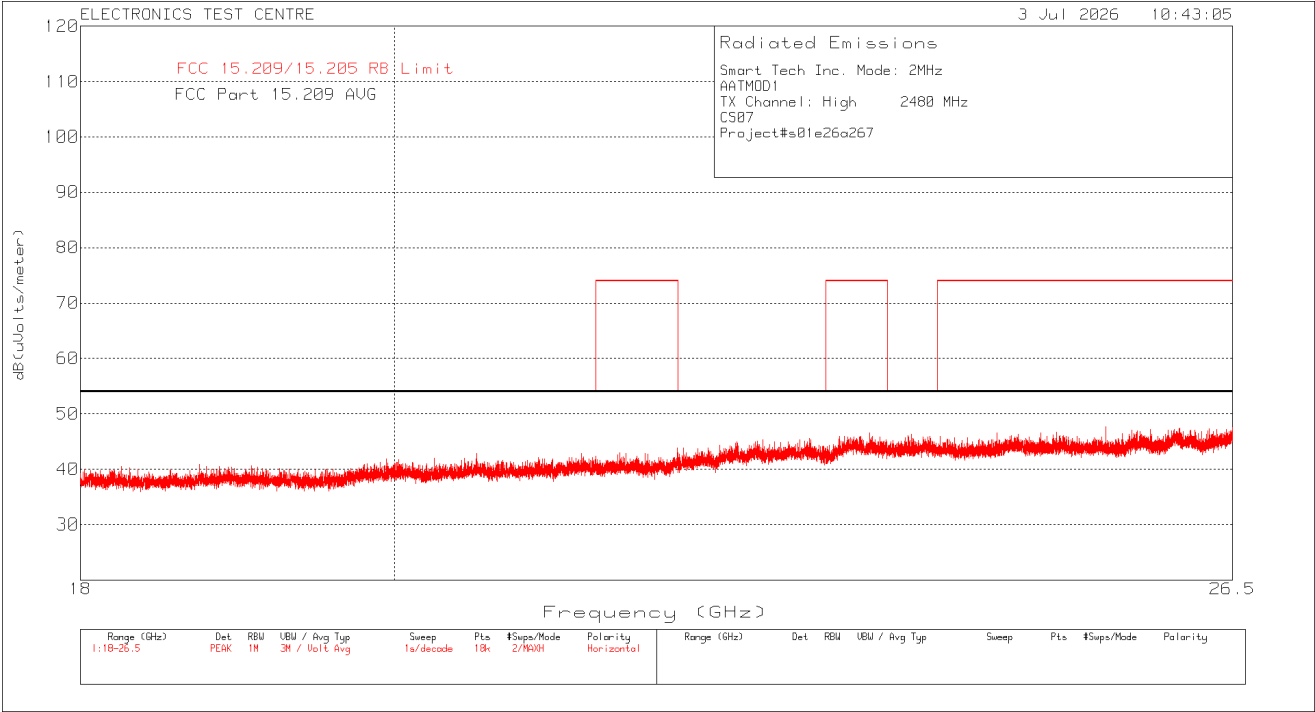
Plot of Radiated Emissions: Horizontal polarization



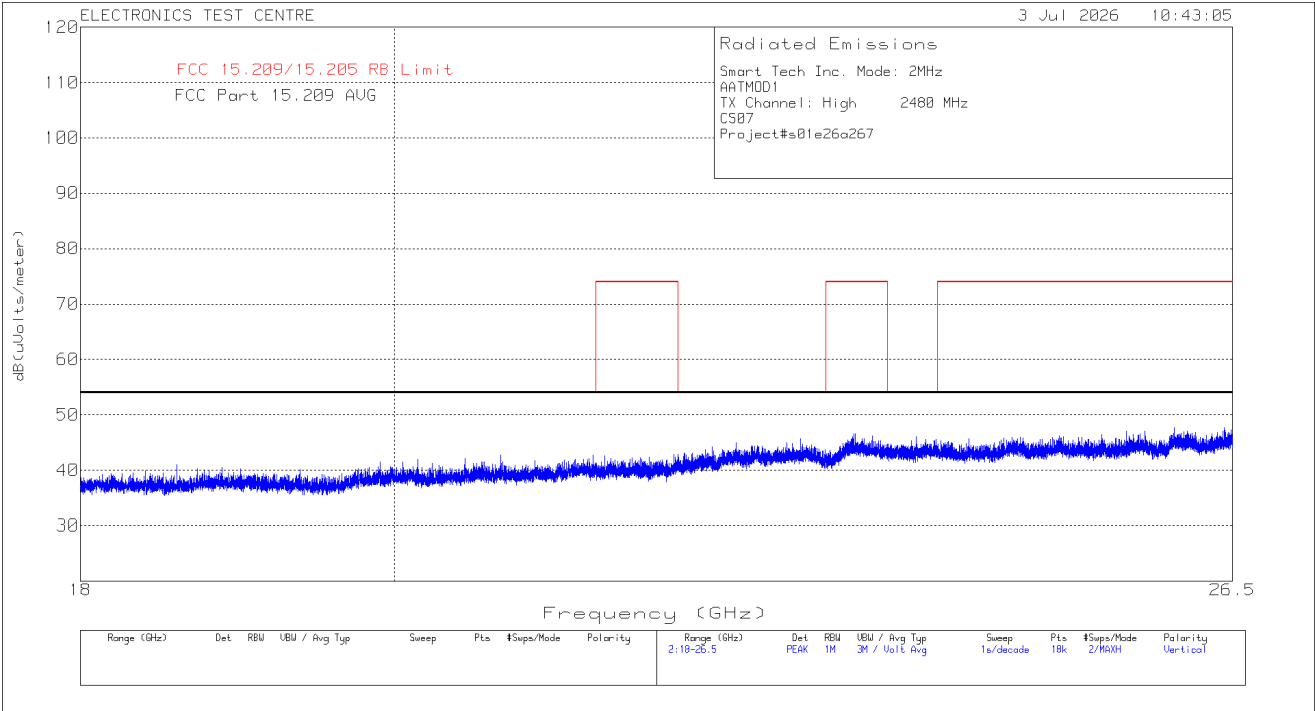
Plot of Radiated Emissions: Vertical polarization



Plot of Radiated Emissions: Horizontal polarization



Plot of Radiated Emissions: Vertical polarization



2.9 AC Main Power Line Conducted Emissions:

Test Lab: Electronics Test Centre, Airdrie	EUT: SAT-1
Test Personnel: Joseph Yumol	Standard: FCC Part 15.207
Date: 2026-07-06 (21.7°C,45.1% RH)	Basic Standard: ANSI C63.10
EUT status: Compliant	
Comments: EUT is powered via USB 5V DC from the connected laptop. An AC main conducted emission test was performed at the AC/DC adaptor of the connected laptop.	

Specification:

Frequency (MHz)	Quasi-Peak Limit (dBµV)	Average Limit (dBµV)
0.15 – 0.5	66 – 56	56 – 46
0.5 – 5	56	46
5 – 30	60	50
Criteria: The conducted emissions produced by a device shall not exceed the limits as specified.		

2.9.1 Test Guidance:

Before any testing is performed, the Ambient (measurement noise floor) is recorded, and a QC check is performed to show that the system is functioning correctly.

Testing starts with a scan, performed under software control. After this is complete, the list of frequencies of interest is generated. These frequencies are then investigated for quasi-peak and average amplitude, as applicable. Emissions measured with a QP detector that fall below the Average limit are deemed to meet both requirements.

2.9.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.9.3 Test Equipment

Testing was performed with the following equipment:

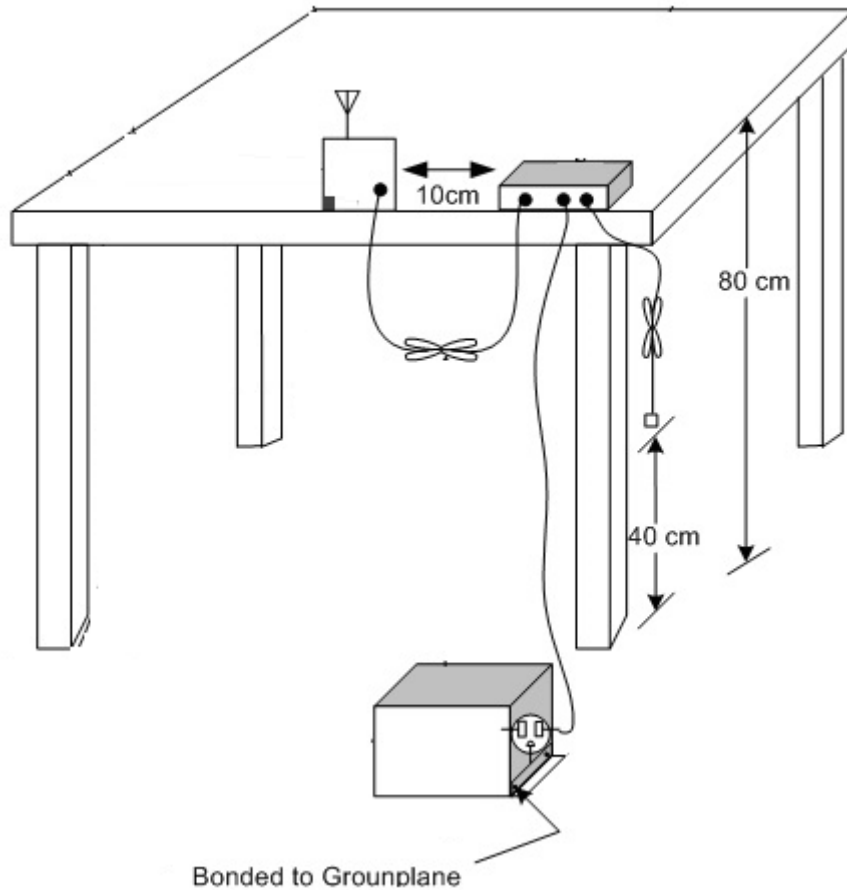
Equipment	Manufacturer	Model #	Asset #	Cal. Date (yyyy-mm-dd)	Cal. Due (yyyy-mm-dd)
EMC Software	UL	Ver. 9.5	SWC 021	N/A	N/A
EMI receiver	Keysight Technologies Inc.	N9038A (FW A.22.08)	6906	2026-02-17	2027-02-17
LISN	Com-Power	LI-215A	6180	2024-08-28	2026-08-28
Temp/RH logger	LASCAR	EL-WIFI-TH	7033	2025-12-05	2026-12-05
Emission Cable	Insulated Wire Inc.	KPS-1501A-3600- KPA-01102006	4436	2026-01-07	2027-01-07
Transient Limiter	Electro-Metrics	EM-7600	4454	2026-01-07	2027-01-07

2.9.4 Test Sample Verification, Configuration & Modifications

The EUT was set to selected worse channel with test-specific software. The output was modulated as in normal operation.

The EUT met the requirements without modification.

Test setup diagram:



2.9.6 Conducted Emissions Data:

The EUT was evaluated in all transmit mode. Test is done on worse LOW-channel for both modes.

Freq. Marker	Freq. (MHz)	Raw reading (dBμV)	Det.	LISN Factor (dB/m)	Cable Loss (dB)	Corrected Reading (dBμV)	FCC 15.207 AV Limit (dBμV)	Delta (dB)	L / N
1Mbps Mode									
1	0.15373	33.39	AV	0.10	9.80	43.29	55.80	-12.51	Line
2	0.16864	27.98	AV	0.10	9.80	37.88	55.03	-17.15	Line
3	0.17982	26.38	AV	0.10	9.80	36.28	54.49	-18.21	Line
4	0.20219	25.02	AV	0.10	9.80	34.92	53.52	-18.60	Line
5	0.21338	24.44	AV	0.10	9.80	34.34	53.07	-18.73	Line
6	7.31892	24.36	AV	0.00	10.20	34.56	50.00	-15.44	Line
1	0.16118	32.83	AV	0.00	9.80	42.63	55.40	-12.77	Neutral
2	0.1761	26.66	AV	0.00	9.80	36.46	54.67	-18.21	Neutral
3	0.19101	25.59	AV	0.00	9.80	35.39	53.99	-18.60	Neutral
4	0.20592	24.78	AV	0.00	9.80	34.58	53.37	-18.79	Neutral
5	0.22456	26.14	AV	0.00	9.80	35.94	52.65	-16.71	Neutral
6	0.23947	27.98	AV	0.00	9.80	37.78	52.11	-14.33	Neutral
7	0.25066	23.40	AV	0.00	9.80	33.20	51.74	-18.54	Neutral
8	0.26184	22.27	AV	0.00	9.80	32.07	51.37	-19.30	Neutral
9	3.88544	17.77	AV	0.00	10.10	27.87	46.00	-18.13	Neutral
2Mbps Mode									
1	0.16491	28.11	AV	0.10	9.80	38.01	55.21	-17.20	Line
2	0.1761	27.04	AV	0.10	9.80	36.94	54.67	-17.73	Line
3	0.18355	26.03	AV	0.10	9.80	35.93	54.32	-18.39	Line
4	0.19101	25.72	AV	0.10	9.80	35.62	53.99	-18.37	Line
5	0.19846	26.20	AV	0.10	9.80	36.10	53.67	-17.57	Line
6	0.21338	24.79	AV	0.10	9.80	34.69	53.07	-18.38	Line
7	0.22456	24.37	AV	0.10	9.80	34.27	52.65	-18.38	Line
8	0.2432	23.85	AV	0.10	9.80	33.75	51.99	-18.24	Line
9	7.31519	25.90	AV	0.00	10.20	36.10	50.00	-13.90	Line
1	0.15746	29.71	AV	0.00	9.80	39.51	55.60	-16.09	Neutral
2	0.17237	27.40	AV	0.00	9.80	37.20	54.85	-17.65	Neutral
3	0.18728	26.01	AV	0.00	9.80	35.81	54.16	-18.35	Neutral
4	0.19474	26.59	AV	0.00	9.80	36.39	53.83	-17.44	Neutral
5	0.20219	26.51	AV	0.00	9.80	36.31	53.52	-17.21	Neutral
6	0.20965	25.20	AV	0.00	9.80	35.00	53.22	-18.22	Neutral
7	0.2171	24.73	AV	0.00	9.80	34.53	52.93	-18.40	Neutral
8	0.22456	24.33	AV	0.00	9.80	34.13	52.65	-18.52	Neutral
9	3.3337	15.70	AV	0.00	10.10	25.80	46.00	-20.20	Neutral
10	3.919	13.20	AV	0.00	10.10	23.30	46.00	-22.70	Neutral

Av = Average Detector

Raw Reading in dBμV + LISN Factor in dB + Gain/Loss Factor in dB = Corrected Value dBμV.

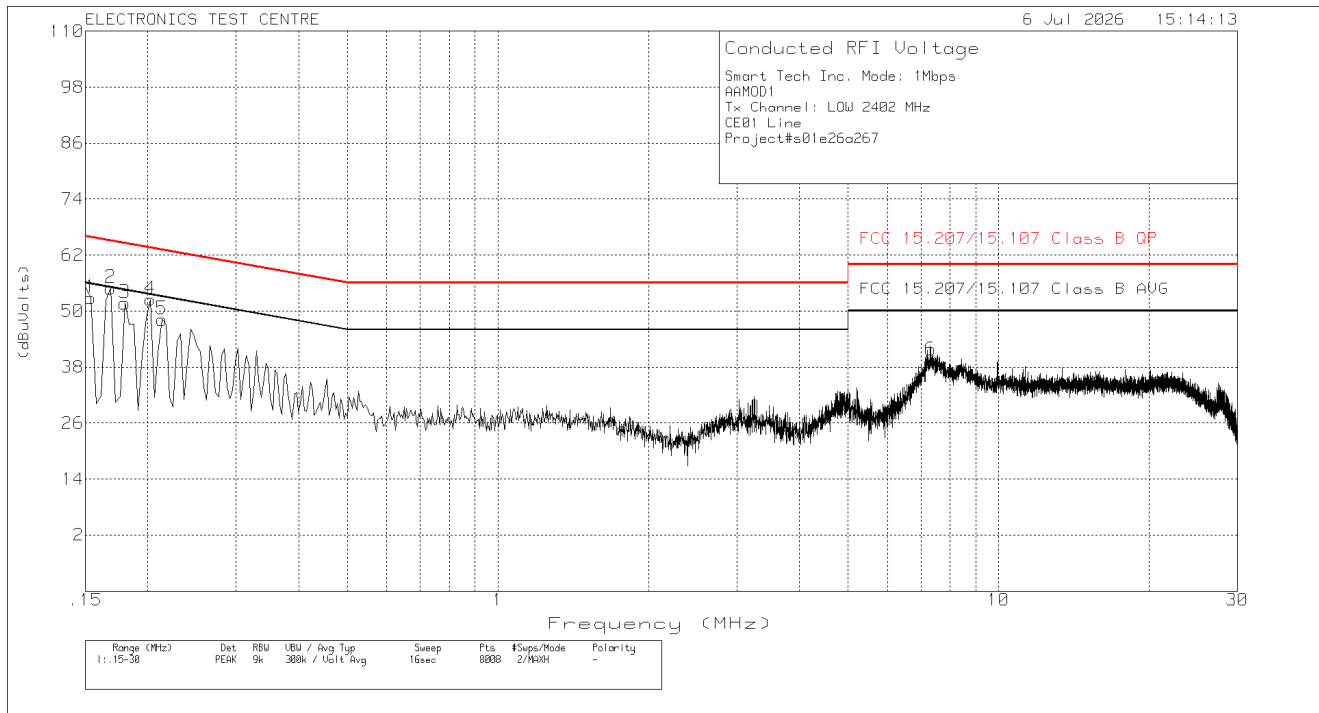
Negative values for Delta indicate compliance.

The Ground Bond was measured and found to be 1.25 mΩ.

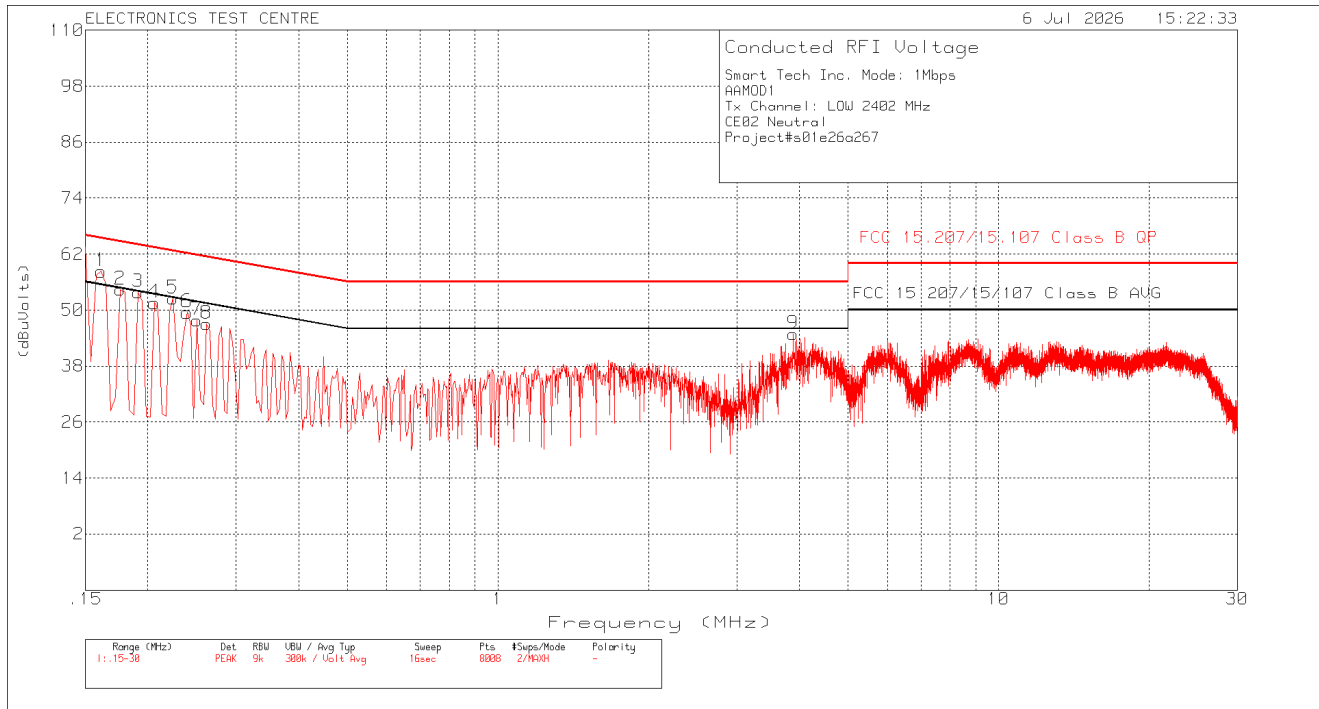
Plots for AC/DC Adaptor

Test Mode: 1Mbps

Plot of Conducted Emissions: Line

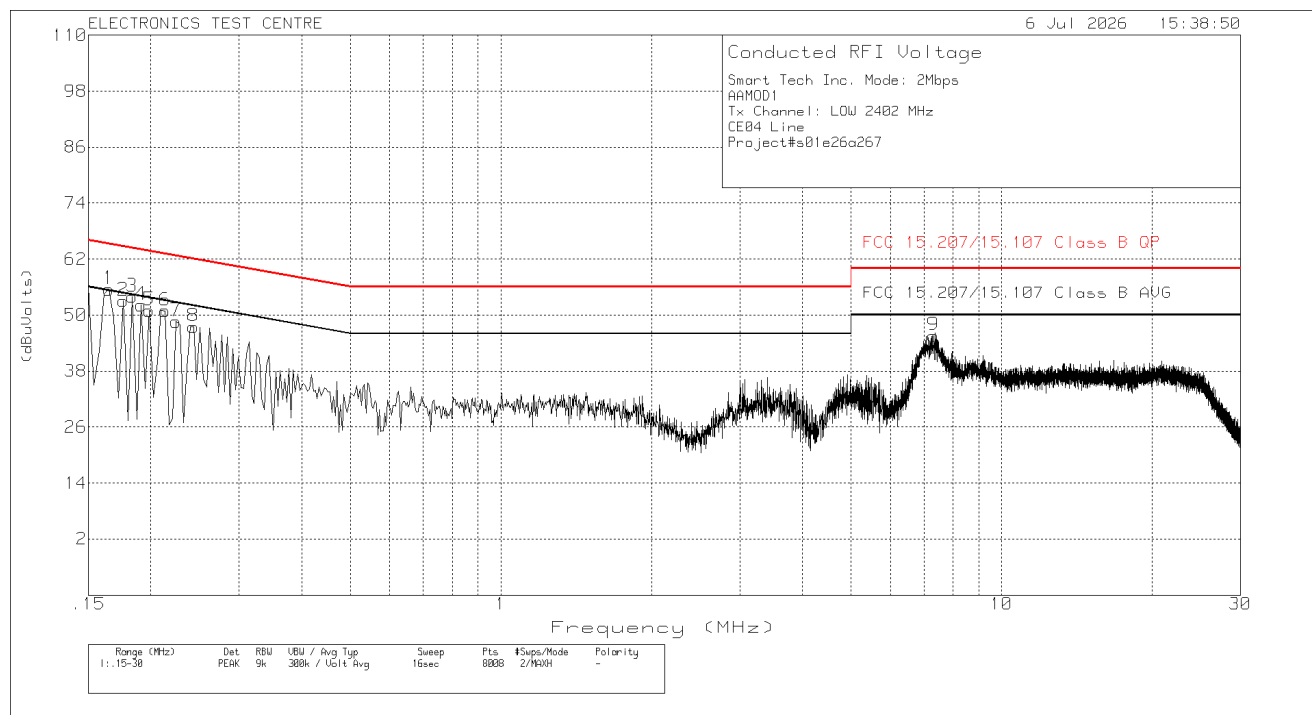


Plot of Conducted Emissions: Neutral

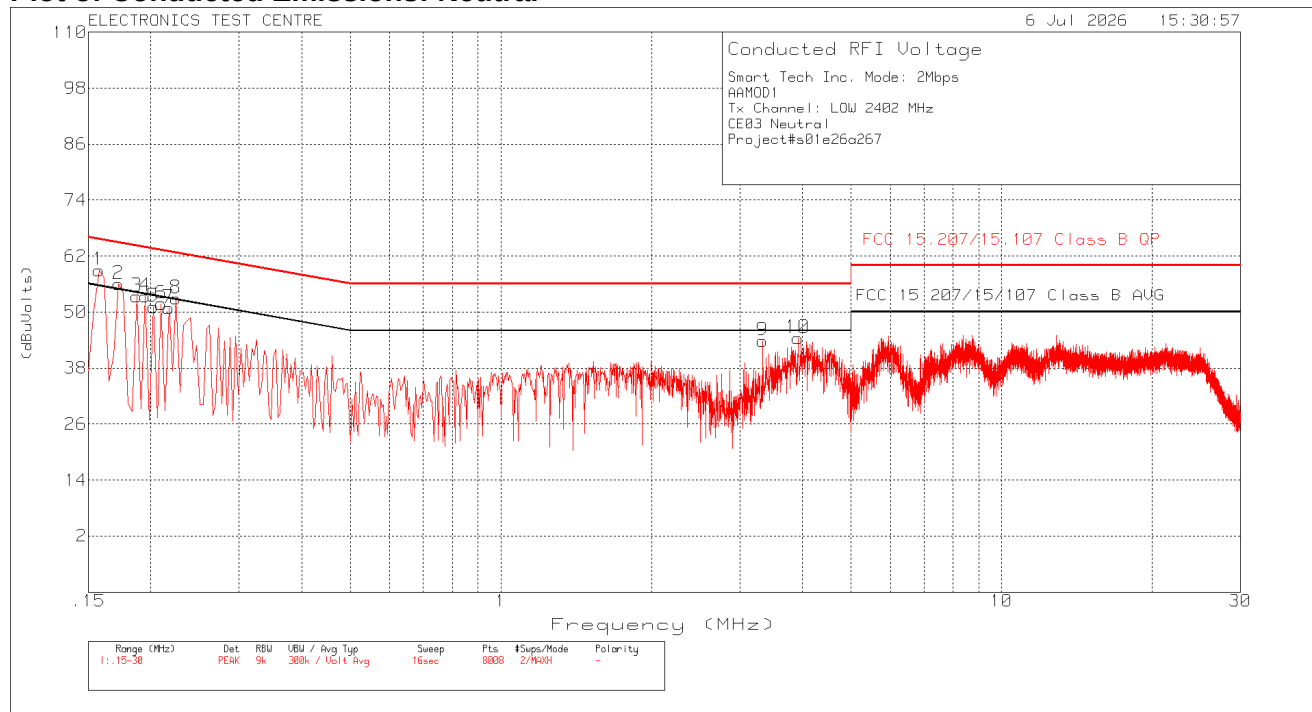


Test Mode: 2Mbps

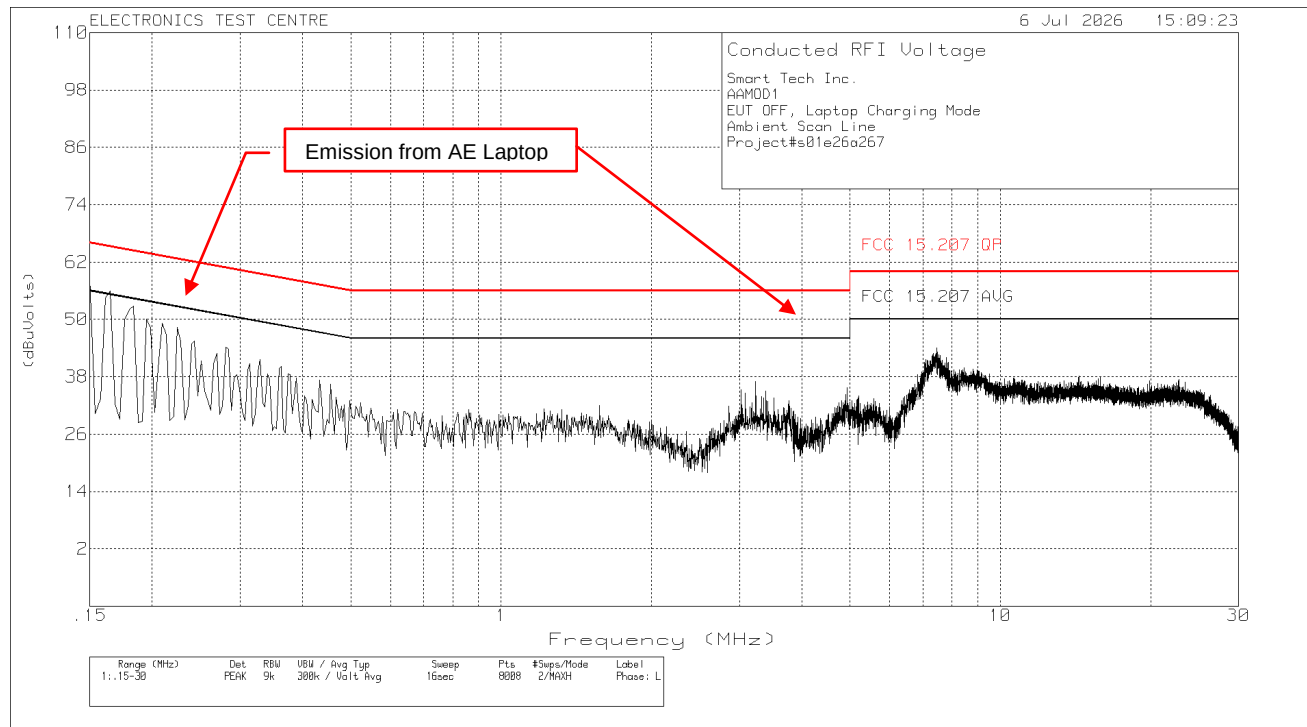
Plot of Conducted Emissions: Line



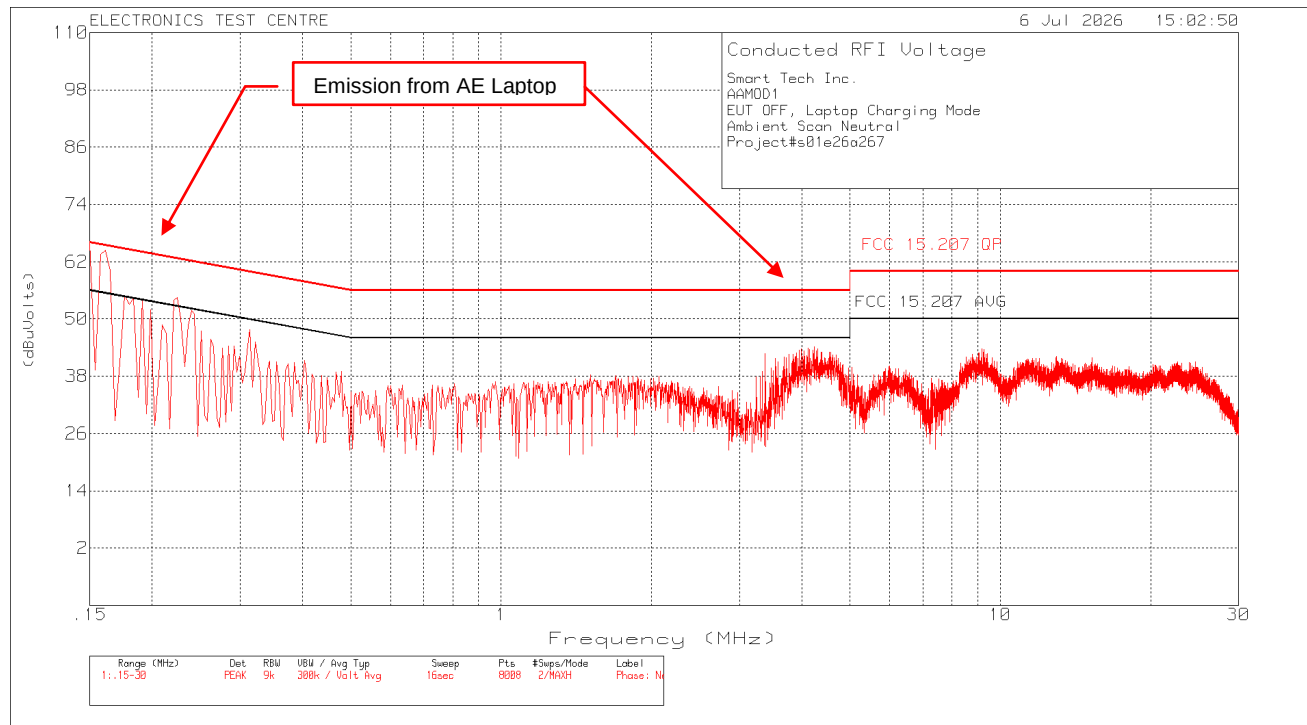
Plot of Conducted Emissions: Neutral



Plot of Conducted Emissions: Line Ambient (Emission from support Laptop)



Plot of Conducted Emissions: Neutral Ambient (Emission from support Laptop)



2.10 Radiated Emissions (RX Mode)

Test Lab: Electronics Test Centre, Airdrie	EUT: SAT-1
Test Personnel: Joseph Yumol / Imran Akram	Standard: ICES-003
Date: 2026-07-03 (23.52°C, 36.9% RH)	Basic Standard: ANSI C63.4
	Class: B
EUT status: Compliant	

Frequency (MHz)	FCC Part 15.109 Class B Limit (3m)
30 – 88	40 (dBµV/m)
88 – 216	43.52 (dBµV/m)
216 – 960	46.02 (dBµV/m)
Above 960	53.98 (dBµV/m)
Criteria: The radiated emissions produced by a device, measured at a distance of 3 meters, shall not exceed the limits as specified.	

2.10.1 Test Guidance:

From 30 MHz to 1000 MHz, measurements are performed with a broadband biconilog antenna and a resolution bandwidth of 120 kHz.

Above 1000 MHz, measurements are performed with a DRG Horn antenna, and a resolution bandwidth of 1 MHz. The area between the EUT and the antenna mast is covered with RF absorbent material. The diameter of the illumination area is the dimension of the line tangent to the EUT formed by 3 dB beamwidth of the measurement antenna at the measurement distance of 3 meter. The antenna is pointed for both azimuth and elevation to maintain the receive antenna within (Bore Sight) the cone of radiation from the EUT.

The scan is performed at discreet increments of turntable azimuth and stepped antenna height, with peak detector and Max Hold function which are selected in accordance with the applicable standard in order to assure capture of frequencies of interest. Optimization is performed based on the scan data.

After the pre-scan is completed, the frequencies of interest are optimized. The EUT is rotated in azimuth over 360 degrees and the direction of maximum emission is noted.

Antenna height is varied from 1 – 4 meters at this azimuth to obtain the maximum emission. Then the maximum level is measured with the appropriate detector and recorded. This may produce a different reading than the pre scan trace. Up to 1 GHz, measurements are performed with a Quasi-Peak detector. Above 1 GHz, measurements are recorded with Peak and/or Average detectors, as applicable.

2.10.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.10.3 Test Equipment

Testing was performed with the following equipment:

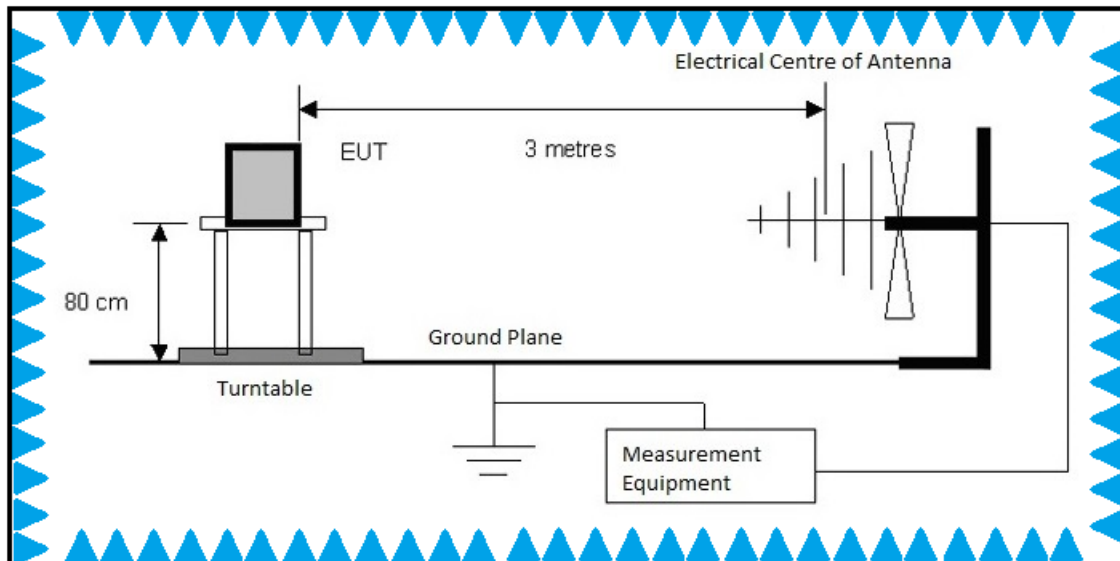
Equipment	Manufacturer	Model #	Asset #	Cal. Date (yyyy-mm-dd)	Cal. Due (yyyy-mm-dd)
EMC Software	UL	Ver. 9.5	SWC 021	N/A	
EMI receiver	Agilent	N9038A (FW A.22.08)	6906	2026-02-17	2027-02-17
Biconilog Antenna (30 – 1000 MHz)	AR	JB1	6905	2026-01-08	2027-01-08
DRG Horn (1 – 18 GHz)	EMCO	3115	19357	2025-11-18	2027-11-18
Temp/Humid Data Logger	LASCAR	EL-WIFI-TH	7033	2025-12-05	2026-12-05
Pre-Amplifier (30 – 1400 MHz)	HP	8447D	9291	2026-01-21	2027-01-21
L.N. Amplifier (1 – 18 GHz)	MITEQ	JS43-01001800-21-5P	4354	2026-01-21	2027-01-21
RE Cable below 1GHz	Insulated Wire Inc.	KPS-1501A-3600- KPA-01102006	4419	2026-01-21	2027-01-21
Re Cable Above 1 GHz	A.H. System Inc.	SAC-26G-8.23	6187	2026-01-21	2027-01-21

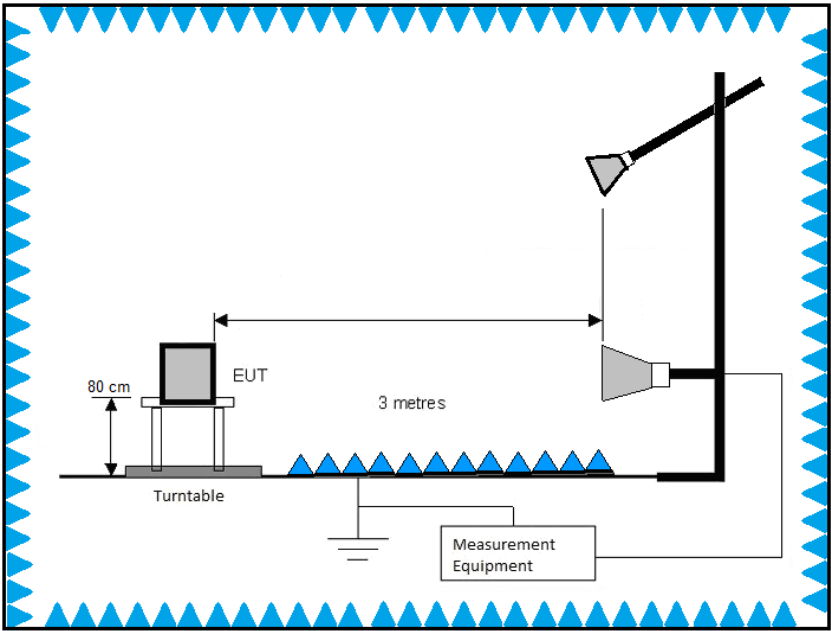
2.10.4 Test Sample Verification, Configuration & Modifications

To cover the unintentional radiated emission. The EUT was configured in receive mode. Unit was placed at the center of turntable in semi-anechoic chamber 80cm above the ground plane and at a distance of 3m from the test receive antenna.

The EUT met the requirements without modification.

EUT RX configuration Block Diagram for Radiated Emissions testing:





2.10.5 Radiated Emissions Data:

The emissions data are presented in tabular form, showing turntable azimuth, antenna height and polarization, the uncorrected spectrum analyzer reading, the correction factors applied, the net result, the value of the limit at the frequency investigated, and the Delta between the result and the limit.

Meter Reading in dBμV + Antenna Factor in dB/m + Gain/Loss Factor in dB = Corrected Field Strength in dBμV/m.

Delta = Field Strength – Limit

Notes:

- When a preamp is used, the resulting gain is compensated, producing a negative value for the Cable Loss.
- Measurements reported are the result of adjusting the turntable azimuth and antenna height to obtain the maximum EUT emission. This may produce a different reading than the plot trace. The plot is a Peak Hold function obtained at discreet increments of height and azimuth, while the reported measurement is obtained with the appropriate Quasi Peak or Average detector after the height and azimuth have been adjusted for maximum emission.
- In receive mode, the EUT was assessed up to 13.0 GHz.

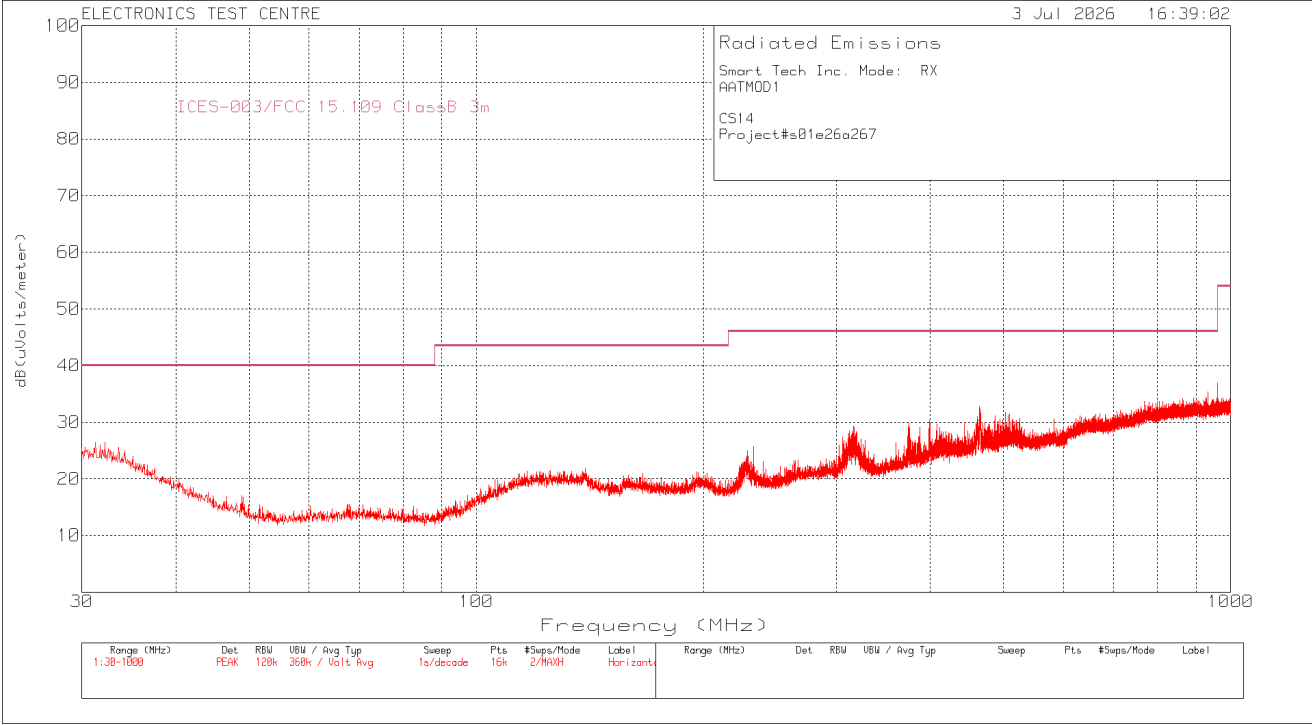
Negative values for Delta indicate compliance.

Freq. Marker	Freq. [MHz]	Raw reading [dBμV]	Det	Antenna Factor [dB/m]	Pre amp Gain [dB]	Corrected Reading [dBμV/m]	FCC Class B Limit [dBμV/m]	Delta [dB]	Azimuth [Deg]	Height [cm]	Polarization
1	48.3305	38.94	QP	12.60	-24.60	26.94	40.00	-13.06	80	119	Vertical
2	464.1079	31.20	QP	21.30	-20.90	31.60	46.02	-14.42	61	126	Vertical
3	472.9965	32.03	QP	21.60	-20.80	32.83	46.02	-13.19	342	110	Vertical
1	1327.7	35.90	AV	25.30	-34.90	26.30	53.98	-27.68	96	400	Horizontal
2	1150.3	29.20	AV	24.60	-35.10	18.70	53.98	-35.28	31	357	Horizontal
3	1330.3	30.18	AV	25.30	-34.90	20.58	53.98	-33.40	115	236	Horizontal
4	2657.3	26.43	AV	29.20	-33.30	22.33	53.98	-31.65	305	131	Vertical
5	3990.8	25.95	AV	32.50	-31.90	26.55	53.98	-27.43	5	368	Vertical
6	5319.1	22.72	AV	34.00	-29.80	26.92	53.98	-27.06	322	185	Vertical
7	3999.6	25.99	AV	32.50	-31.90	26.59	53.98	-27.39	82	123	Vertical
8	5320.4	23.41	AV	34.00	-29.80	27.61	53.98	-26.37	4	244	Vertical
9	8000.5	18.68	AV	36.80	-25.40	30.08	53.98	-23.90	53	302	Vertical

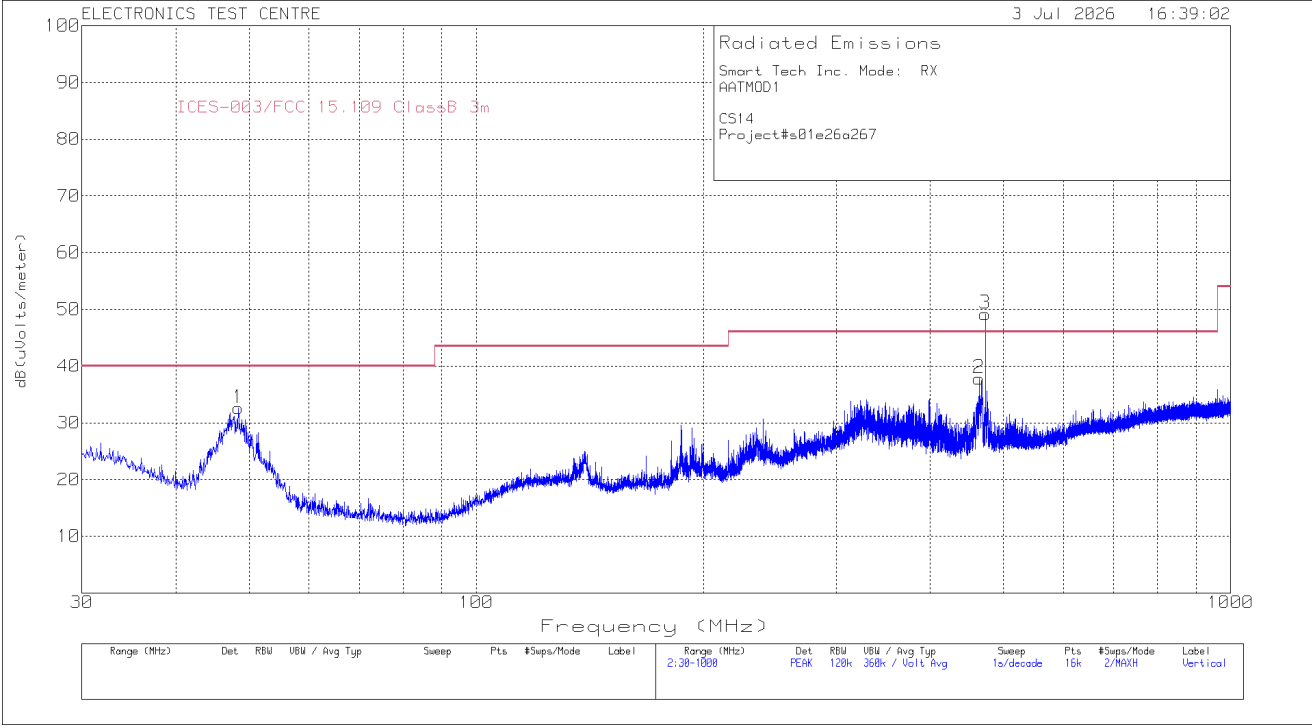
QP: Quasi Peak detector

AV: Average detector

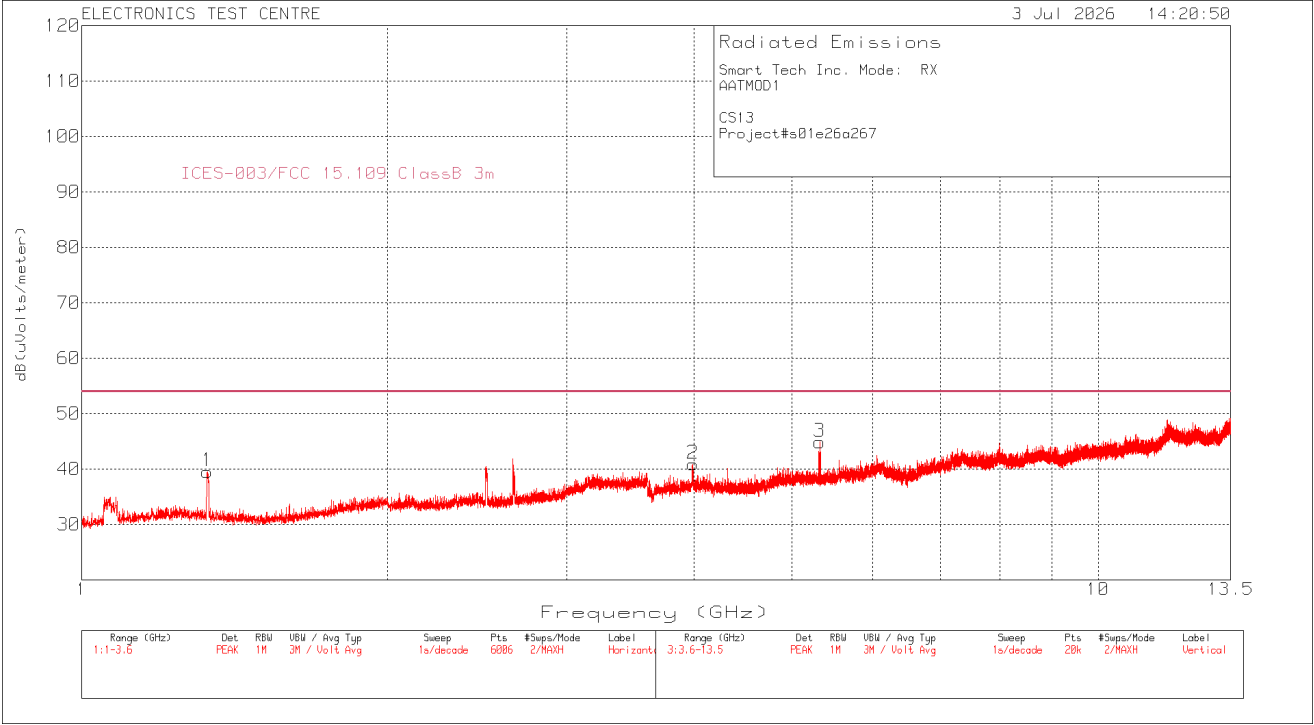
Plot of Radiated Emissions: Horizontal polarization



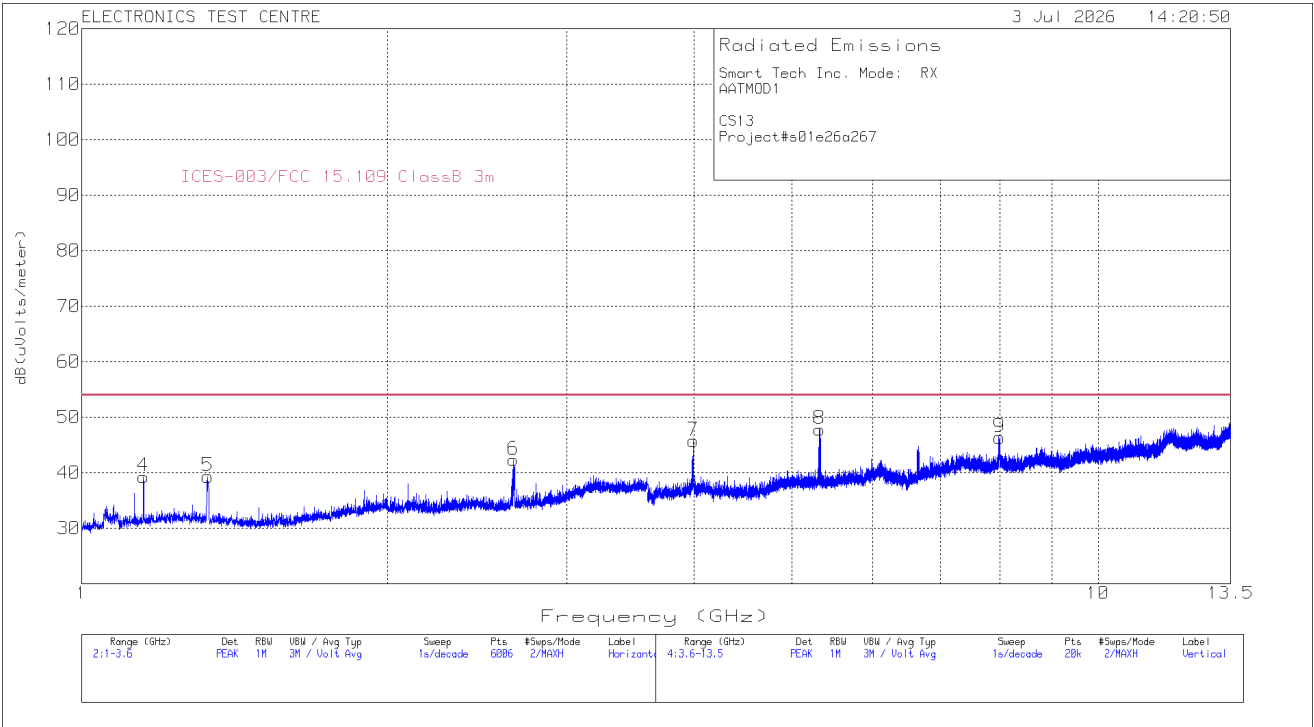
Plot of Radiated Emissions: Vertical polarization



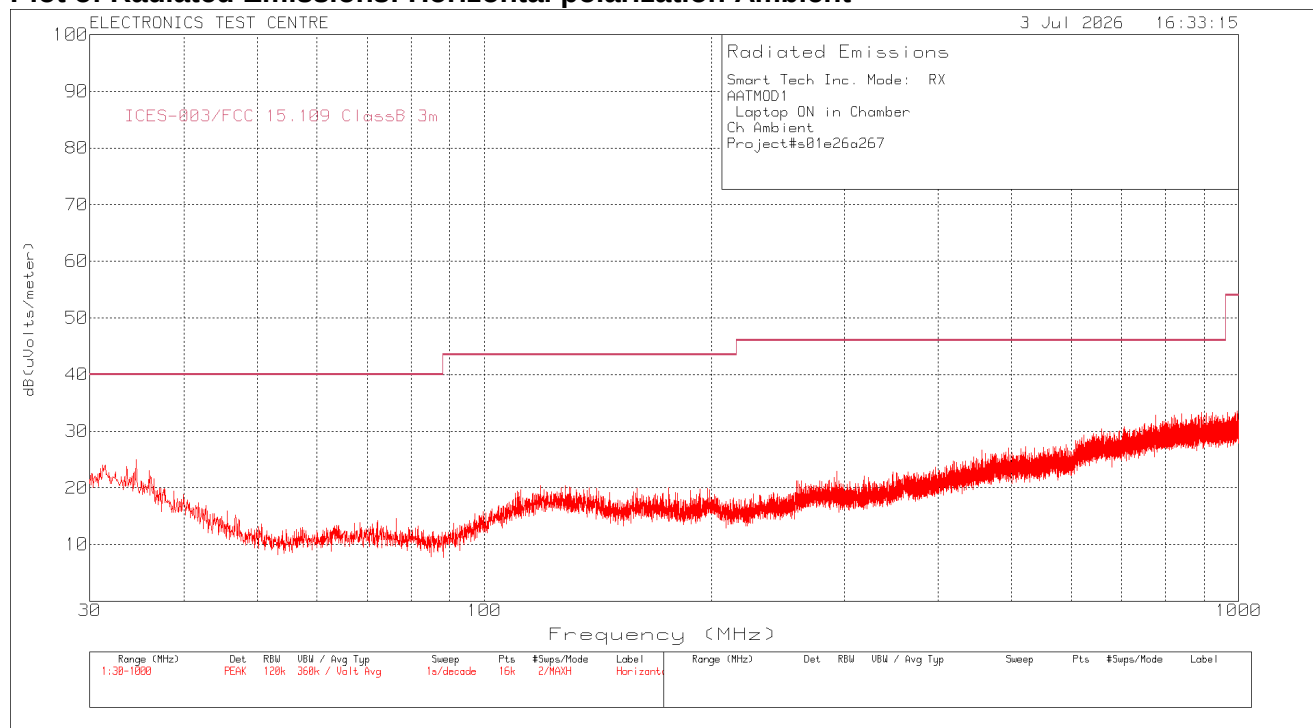
Plot of Radiated Emissions: Horizontal polarization



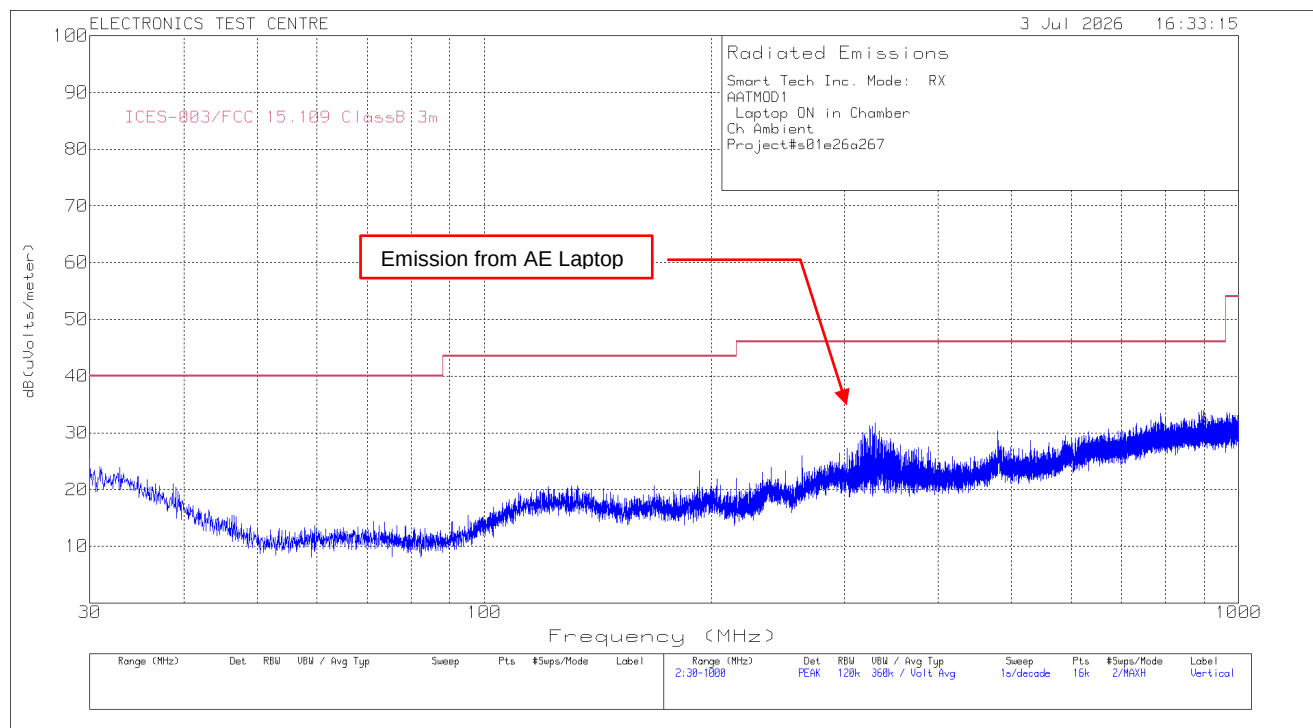
Plot of Radiated Emissions: Vertical polarization



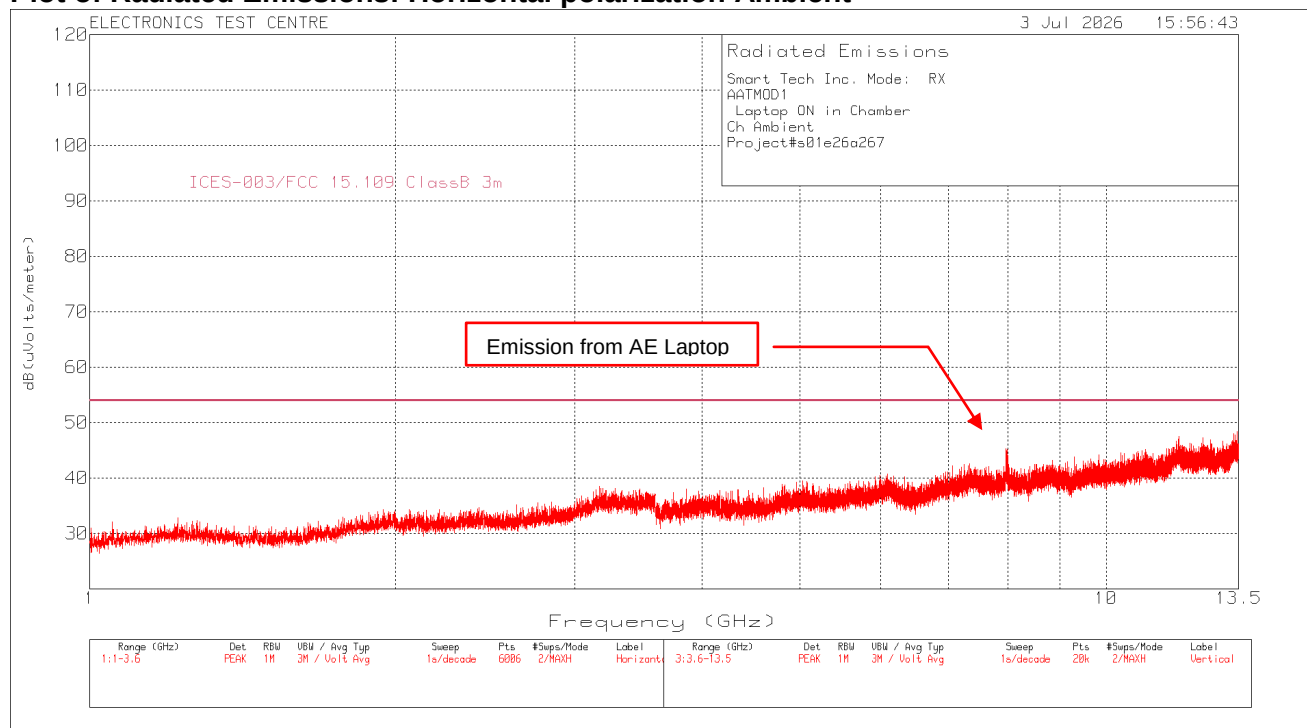
Plot of Radiated Emissions: Horizontal polarization Ambient



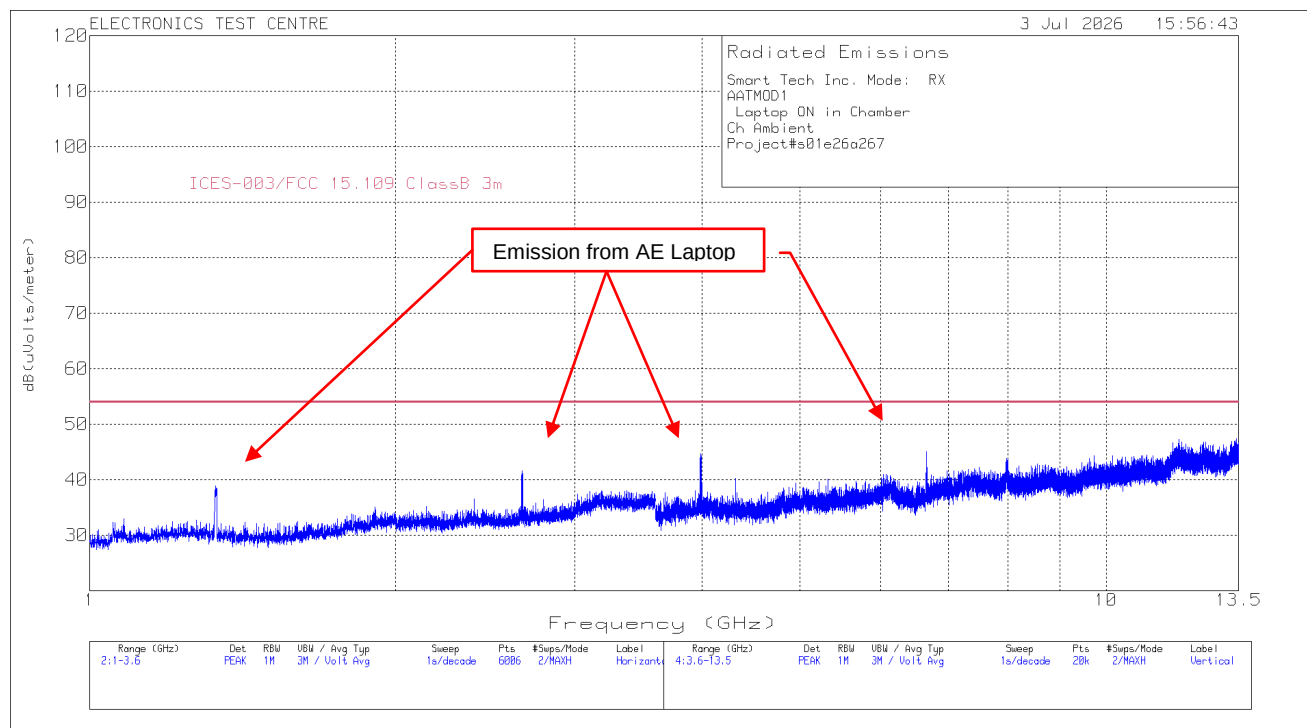
Plot of Radiated Emissions: Vertical polarization Ambient



Plot of Radiated Emissions: Horizontal polarization Ambient



Plot of Radiated Emissions: Vertical polarization Ambient



2.11 AC Main Power Line Conducted Emissions:

Test Lab: Electronics Test Centre, Airdrie	EUT: SAT-1
Test Personnel: Joseph Yumol	Standard: FCC part 15.107
Date: 2026-07-06 (21.7°C,45.1% RH)	Basic Standard: ANSI C63.4
EUT status: Compliant	
Comments: EUT is powered via USB 5V DC from the connected laptop. An AC main conducted emission test was performed at the AC/DC adaptor of the connected laptop.	

Specification: Class B

Frequency (MHz)	Quasi-Peak Limit (dBµV)	Average Limit (dBµV)
0.15 – 0.5	66 – 56	56 – 46
0.5 – 5	56	46
5 – 30	60	50
Criteria: The conducted emissions produced by a device shall not exceed the limits as specified.		

2.11.1 Test Guidance: ANSI C63.4-2014, Clause 7.3.1

Before any testing is performed, the Ambient (measurement noise floor) is recorded, and a QC check is performed to show that the system is functioning correctly.

Testing starts with a scan, performed under software control. After this is complete, the list of frequencies of interest is generated. These frequencies are then investigated for quasi-peak and average amplitude, as applicable. Emissions measured with a QP detector that fall below the Average limit are deemed to meet both requirements.

2.11.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.11.3 Test Equipment

Testing was performed with the following equipment:

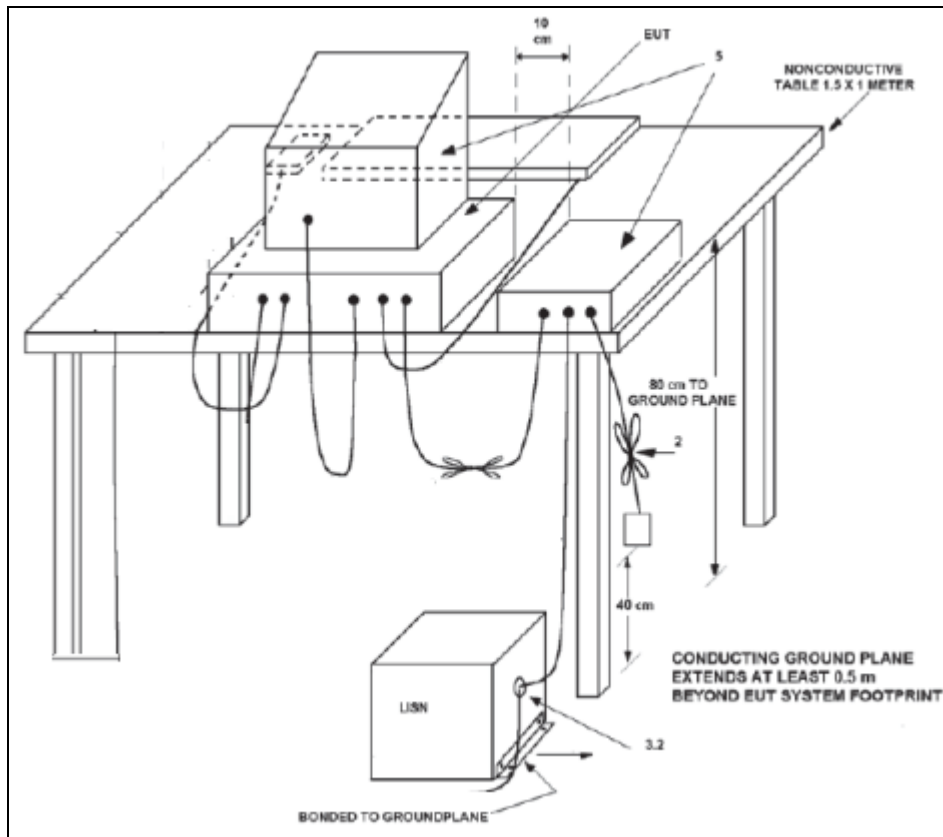
Equipment	Manufacturer	Model #	Asset #	Cal. Date (yyyy-mm-dd)	Cal. Due (yyyy-mm-dd)
EMC Software	UL	Ver. 9.5	SWC 021	N/A	N/A
EMI receiver	Keysight Technologies Inc.	N9038A (FW A.22.08)	6906	2026-02-17	2027-02-17
LISN	Com-Power	LI-215A	6180	2024-08-28	2026-08-28
Temp/RH logger	LASCAR	EL-WIFI-TH	7033	2025-12-05	2026-12-05
Emission Cable	Insulated Wire Inc.	KPS-1501A-3600-KPA-01102006	4436	2026-01-07	2027-01-07
Transient Limiter	Electro-Metrics	EM-7600	4454	2026-01-07	2027-01-07

2.11.4 Test Sample Verification, Configuration & Modifications

The EUT was set to RX mode with test-specific software.

The EUT met the requirements without modification.

Test setup diagram:



2.11.6 Conducted Emissions Data:

The EUT was evaluated in RX mode.

The emissions data are presented in tabular form, showing the uncorrected spectrum analyzer reading, the correction factors applied, the net result, the value of the limit at the frequency investigated, and the Delta between the result and the limit.

Freq. Marker	Freq. (MHz)	Raw reading (dBμV)	Det.	LISN Factor (dB/m)	Cable Loss (dB)	Corrected Reading (dBμV)	FCC 15.107 AV Limit (dBμV)	Delta (dB)	L / N
RX Mode									
1	0.15373	28.29	AV	0.10	9.80	38.19	55.80	-17.61	Line
2	0.16864	27.96	AV	0.10	9.80	37.86	55.03	-17.17	Line
3	0.18355	26.26	AV	0.10	9.80	36.16	54.32	-18.16	Line
4	0.19474	25.34	AV	0.10	9.80	35.24	53.83	-18.59	Line
5	0.2171	24.59	AV	0.10	9.80	34.49	52.93	-18.44	Line
6	0.23202	23.73	AV	0.10	9.80	33.63	52.38	-18.75	Line
7	7.25927	23.16	AV	0.00	10.20	33.36	50.00	-16.64	Line
1	0.16118	27.79	AV	0.00	9.80	37.59	55.40	-17.81	Neutral
2	0.17237	27.87	AV	0.00	9.80	37.67	54.85	-17.18	Neutral
3	0.18728	26.08	AV	0.00	9.80	35.88	54.16	-18.28	Neutral
4	0.20219	25.67	AV	0.00	9.80	35.47	53.52	-18.05	Neutral
5	0.22083	24.46	AV	0.00	9.80	34.26	52.79	-18.53	Neutral
6	0.23574	24.18	AV	0.00	9.80	33.98	52.24	-18.26	Neutral
7	0.25811	23.22	AV	0.00	9.80	33.02	51.49	-18.47	Neutral
8	3.36353	11.35	AV	0.00	10.10	21.45	46.00	-24.55	Neutral
9	7.21081	13.98	AV	0.00	10.20	24.18	50.00	-25.82	Neutral

Av = Average Detector

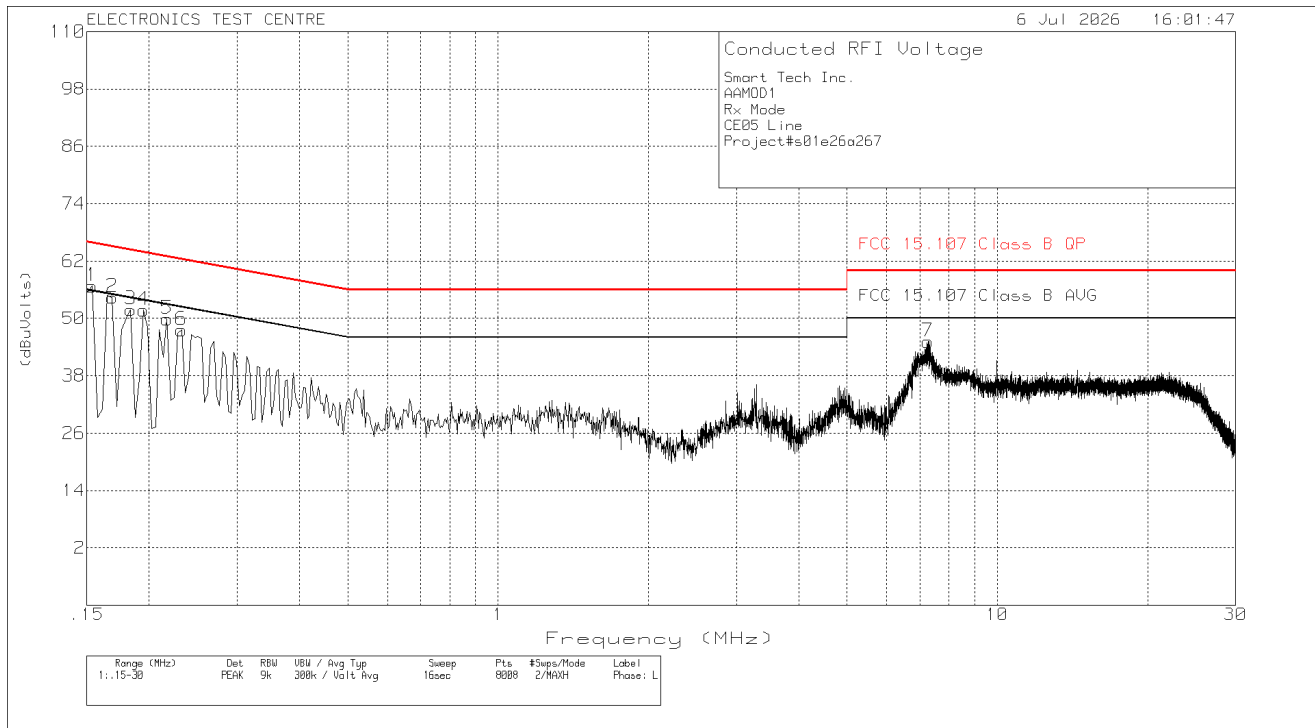
Raw Reading in dBμV + LISN Factor in dB + Gain/Loss Factor in dB = Corrected Value dbμV.

Negative values for Delta indicate compliance.

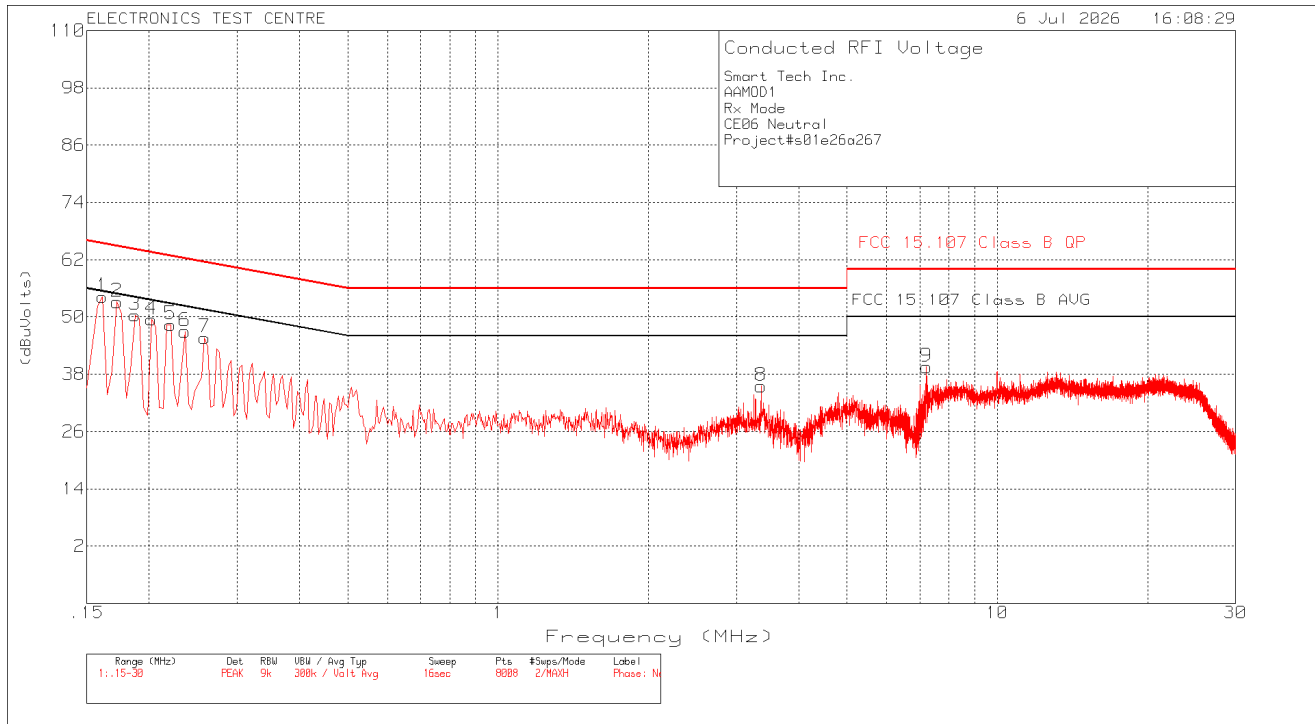
The Ground Bond was measured and found to be 1.25 mΩ.

Plots for AC/DC Adaptor

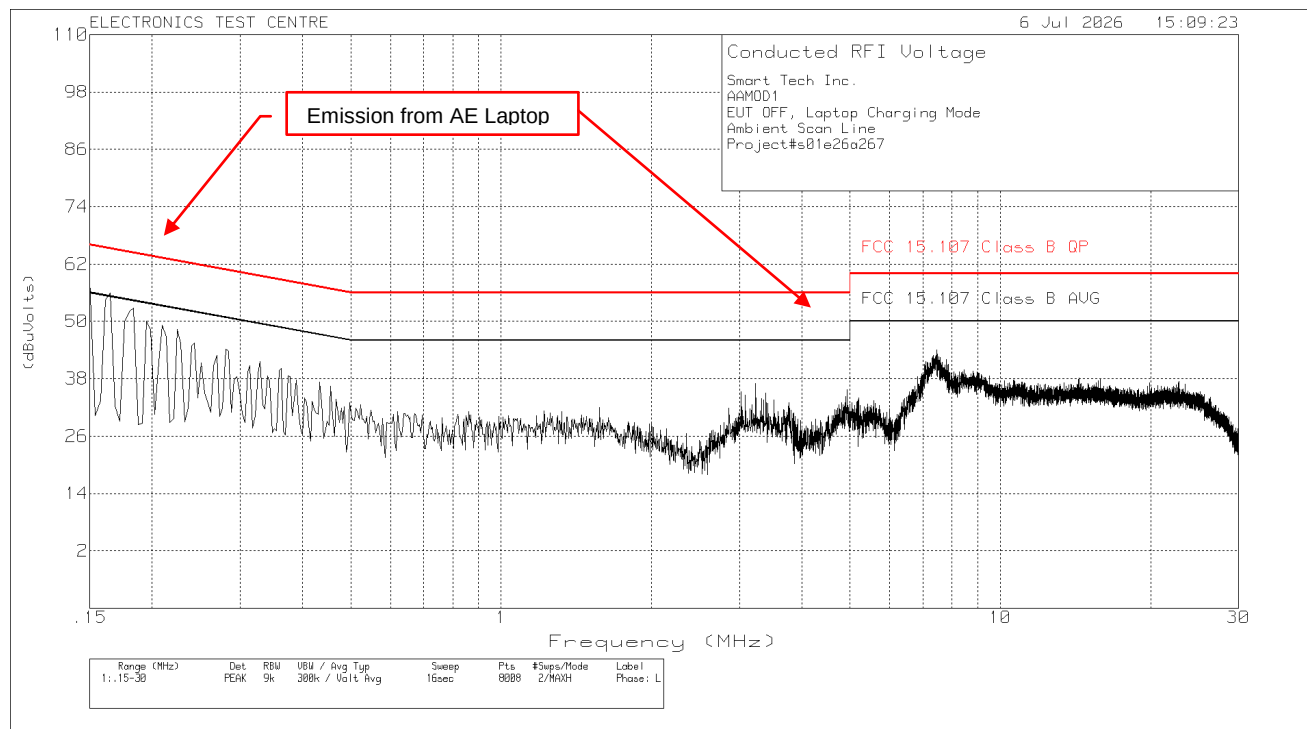
Plot of Conducted Emissions: Line



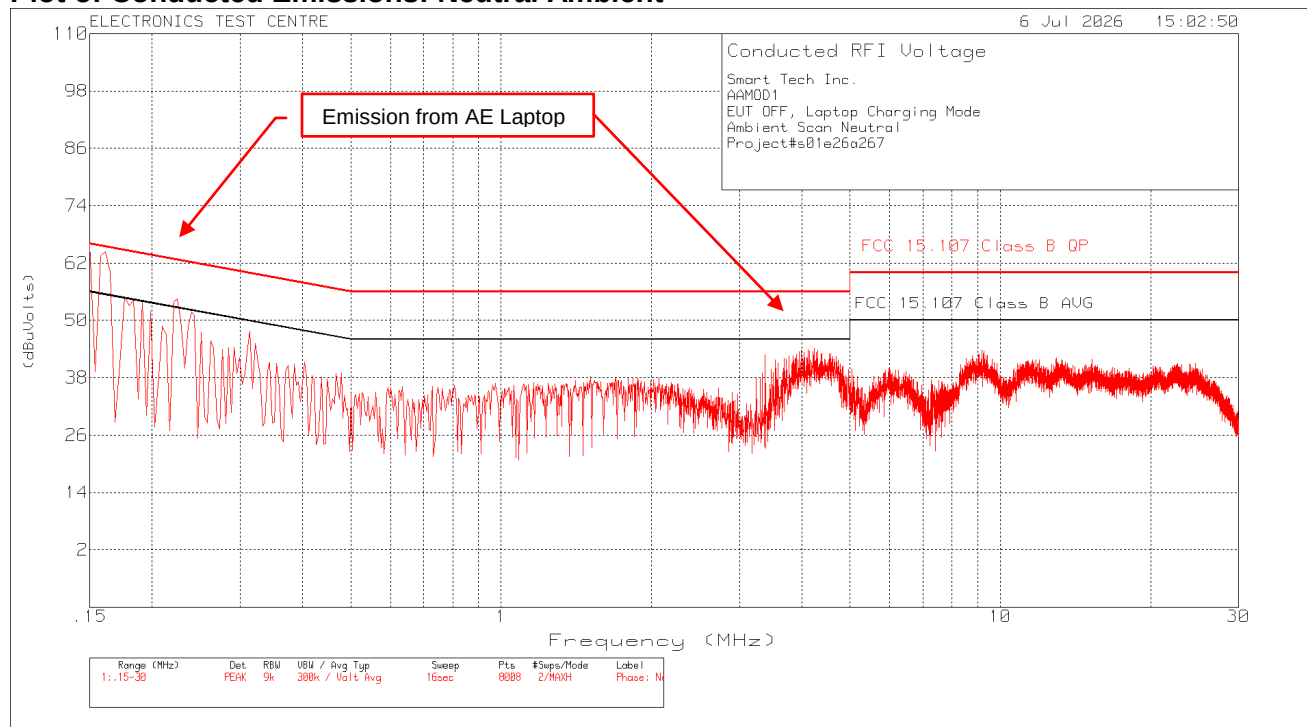
Plot of Conducted Emissions: Neutral



Plot of Conducted Emissions: Line Ambient



Plot of Conducted Emissions: Neutral Ambient



2.12 RF Exposure

Test Lab: Electronics Test Centre, Airdrie	EUT: SAT-1
Test Personnel:	Standard: FCC PART 15.247, Part 1.1307
Date:	

EUT status: Exempt from SAR Evaluation

Compliant: RF exposure assessment to be provided in a separate Exhibit.

3.0 TEST FACILITY

3.1 Location

The SAT-1 was tested at the Electronics Test Centre laboratory located in Airdrie, Alberta, Canada. The Radio Frequency Anechoic Chamber (RFAC), identified as Chamber 1, has a usable working space measuring 10.6 m long x 7.3 m wide x 6.5 m high.

The test site is listed with Industry Canada as per company # 2046A and its CAB Identifier number is CA2046. This site is also listed with the FCC under Registration Number 175004 and the MRA designation number is CA2046.

The floor, walls and ceiling consist of annealed steel panels. The walls and ceiling are covered with ferrite tile, augmented by RF absorbant foam material on the end wall nearest the turntable, and on the adjacent walls and the ceiling. The chamber floor supports a 15 cm high internal floor, constructed of annealed steel panels, that forms the ground plane, and is bonded to the chamber walls.

The 3-m diameter turntable is flush-mounted with the floor. A sub-floor cable-way is provided to route cables between the turntable pit and EUT support equipment located in the Control Room. Cables reach the EUT through an opening in the centre of the turntable.

Test instrumentation and EUT support equipment is located in the Control Room, consisting of two shielded vestibules joined together at the side of the main room. Cables are routed through bulkhead panels between the rooms and the test chamber as required. Power feeds are routed into the main room and vestibules through line filters providing at least 100 dB of attenuation between 10 kHz and 10 GHz.

Either floor mounted or table-top equipment can be tested at this facility.

3.2 Grounding Plan

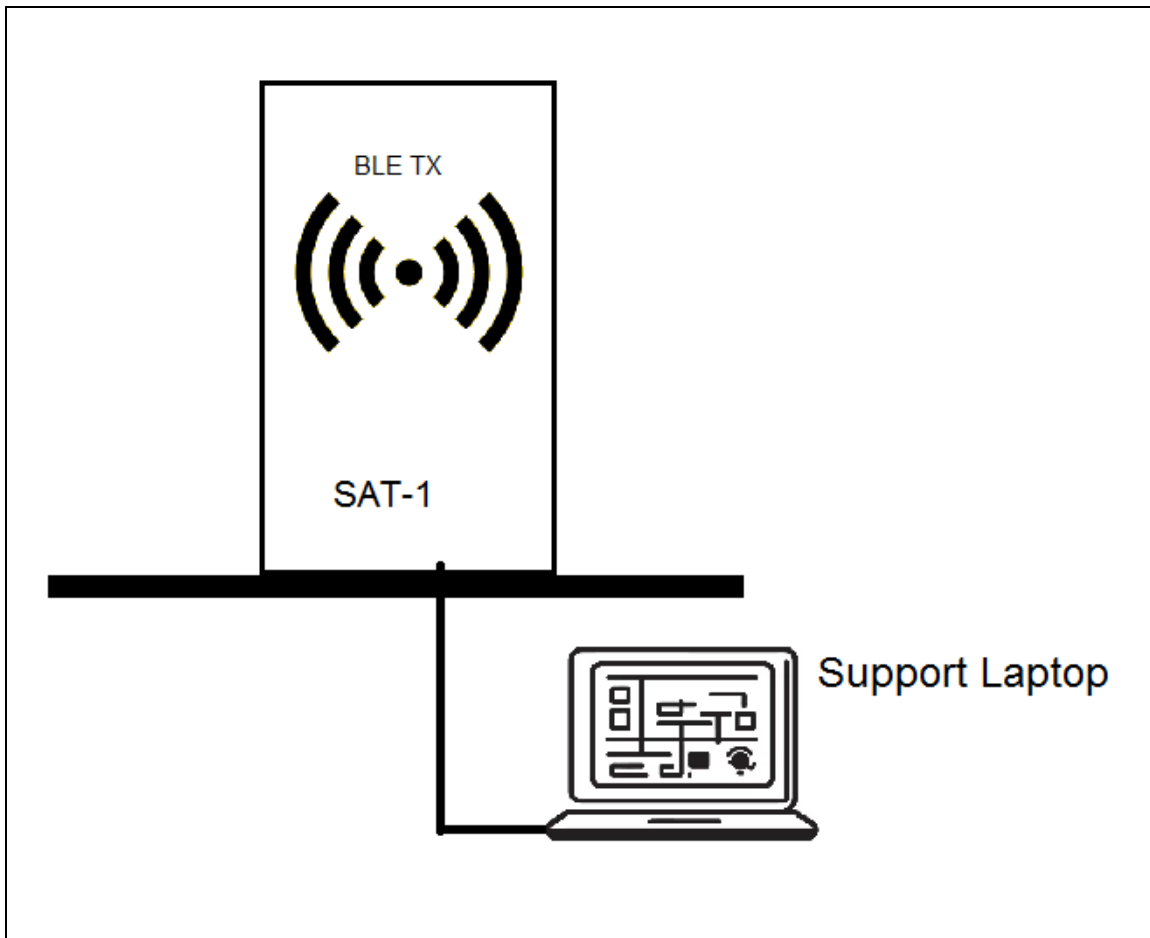
The SAT-1 was placed at the center of the test chamber turntable 80-cm high below 1GHz and at 1.5m high above 1 GHz for transmits mode and 80cm high for RX mode from ground reference plane. SAT-1 is not grounded.

3.3 Power Supply

Power supplied via connected support laptop USB cable.

Appendix A – Test Setup Block Diagram

TX MODE:



End of Document