

Report on the Testing of the

InVue Security Products, Inc.
Watch Sensor Bracelet
P05BRLT

In accordance with:
FCC Part 15 Subpart C §15.223, §15.209
ISED RSS-210

Prepared for: InVue Security Products, Inc.
15015 Lancaster Highway
Charlotte, North Carolina, 28277 USA



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Thierry Jean-Charles	Senior Engineer TUV SUD America Inc.	Authorized Signatory	2/21/2024

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FCC Accreditation Designation Number US1233
FCC Test Site Registration Number 967699
Innovation, Science, and Economic Development Canada Lab Code 23932

EXECUTIVE SUMMARY

A sample of this product was tested and found to be compliant with the standards listed above.



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1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Table 1.1-1 – Modification Record

Issue	Description of Change	Date of Issue
0	First Issue	2/21/2024

1.2 Introduction

The purpose of this report is to demonstrate compliance with Part 15 Subpart C of the FCC’s Code of Federal Regulations Section 15.223 and FCC 15.209 and Innovation Science and Economic Development Canada’s Radio Standards Specification RSS-21010 for the tests documented herein.

Applicant	Rob Spadafore
Manufacturer	InVue Security Products Inc
Applicant’s Email Address	rob.spadafore@invue.com
Host Model Name	P05BRLT
Host Model Number(s):	DAW700
Serial Number	N/A
Radio FCC ID	2AFR8-P05BRLT
Radio ISSED ID	23313-P05BRLT
Product Marketing Name (PMN)	Watch Sensor Bracelet
Hardware Version(s)	F2300133
Software Version(s)	F2300
Number of Samples Tested	2
Test Specification/Issue/Date	US Code of Federal Regulation (CFR): Title 47, Part 15, Subpart C: §15.223 - Operation in the band 1.705 - 10 MHz, 2023 US Code of Federal Regulation (CFR): Title 47, Part 15, Subpart C: §15.209 - Radiated emission limit; general requirement,2024. US Code of Federal Regulations (CFR): Title 47, Part 15, Subpart C: §15.207 Conducted limits,2024



RSS-210-License Exempt Radip Apparatus: Category I
Equipment, Issue 10, Dec 2019

Order Number	72193348
Date of Receipt of EUT	12/11/2023
Start of Test	1/4/2024
Finish of Test	1/17/2024
Related Document(s)	ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Device. US Code of Federal Regulations (CFR): Title 47, Part 2, Subpart J: Equipment Authorization Procedures, 2024. ISED Canada Radio Standards Specification: RSS-GEN – General Requirements for Compliance of Radio Apparatus, Issue 5, Amendment 1 (March 2019), Amendment 2 (February 2021)



1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC Part 15C is shown below.

Table 1.3-1: Test Result Summary

Test Parameter	Test Plan (Yes/No)	Test Result	FCC 47 CFR Rule Part	ISED Canada's RSS	Test Report Page No
Antenna Requirement	Yes	Pass	15.203, 15.204	-----	11
Occupied bandwidth & *6dB Bandwidth	Yes	Pass	FCC 15.223	RSS-GEN 6.7	17
Radiated Spurious Emissions	Yes	Pass	15.209, 15.223(b)	RSS-GEN 8.9, 8.10	19
AC Power Line Conducted Emissions	Yes	Pass	15.207(a)	RSS-GEN 8.8	12

*Note: 6dB Bandwidth applies only to 1.778 MHz Fundamental Frequency.



1.4 Product Information

1.4.1 Technical Description

The 2300-W with Model number DAW700 is used by a retailer to display, protect, and charge watches. If an unauthorized individual were to remove the product, such as those attempting to steal it, an alarm would sound to alert retail staff. The product includes an LED to indicate status, a piezo to indicate an alarm, and an interface for the InVue proprietary OneKEY system. The OneKEY is used by authorized personnel to silence alarms or disarm the product. Wireless charging is accomplished with the Apple MFi Fast Watch Charger module, C962.

Table 1.4.1-1 – Wireless Technical Information

Detail	Description
Radio FCC ID	2AFR8-P05BRLT
Host Model Name	P05BRLT
Host Model Number(s)	DAW700
Host Product Marketing Name (PMN)	Watch Sensor Bracelet
Transmit Frequency	326.5 kHz and 1.778 MHz
*Antenna Type / Gain:	Inductive Coil Type/0 dBi It has 9 turns with outer diameter of ~21.34mm

*Note: Declared by the Customer.

A full description and detailed product specification details are available from the manufacturer.



Figure 1.4.1-1 – Front View of the EUT with watch series SE operates at 326.5 kHz

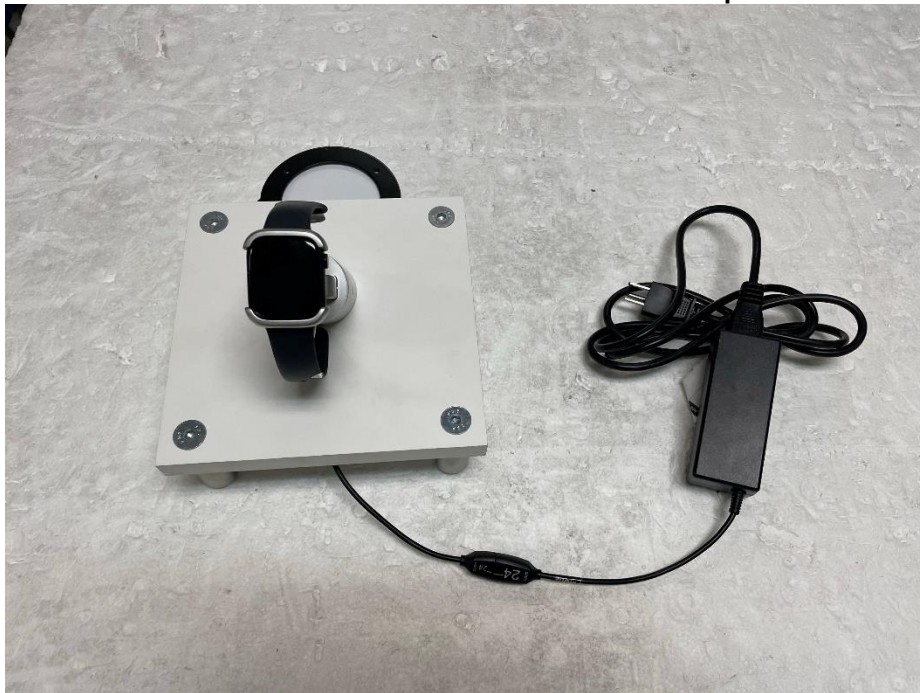


Figure 1.4.1-2 – Front View of the EUT with watch series 8 operates at 1.778 MHz

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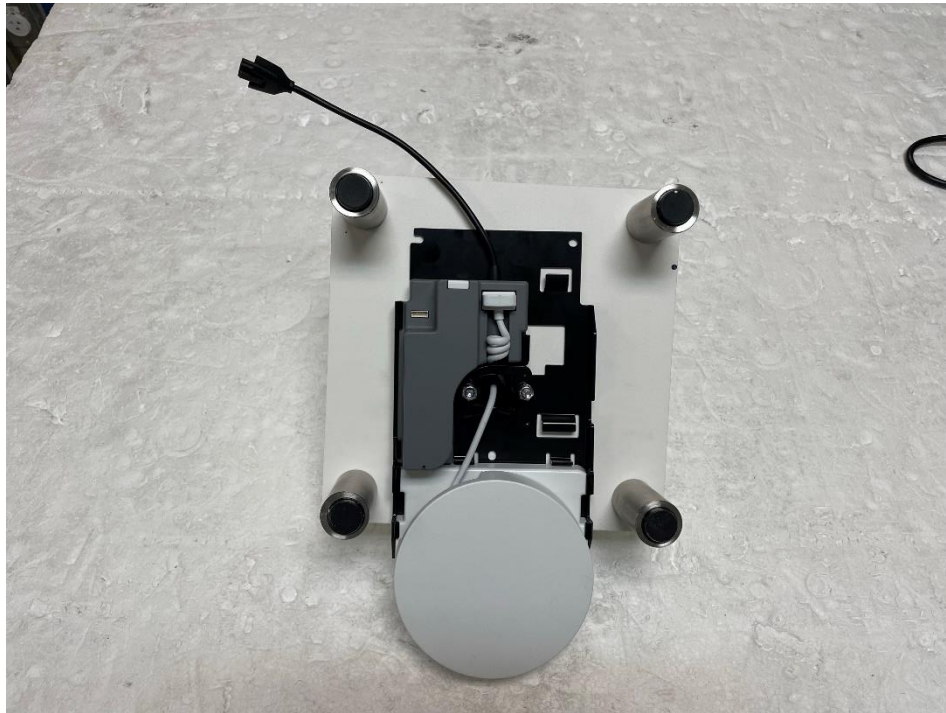


Figure 1.4.1-3 – Back View of the EUT fixture

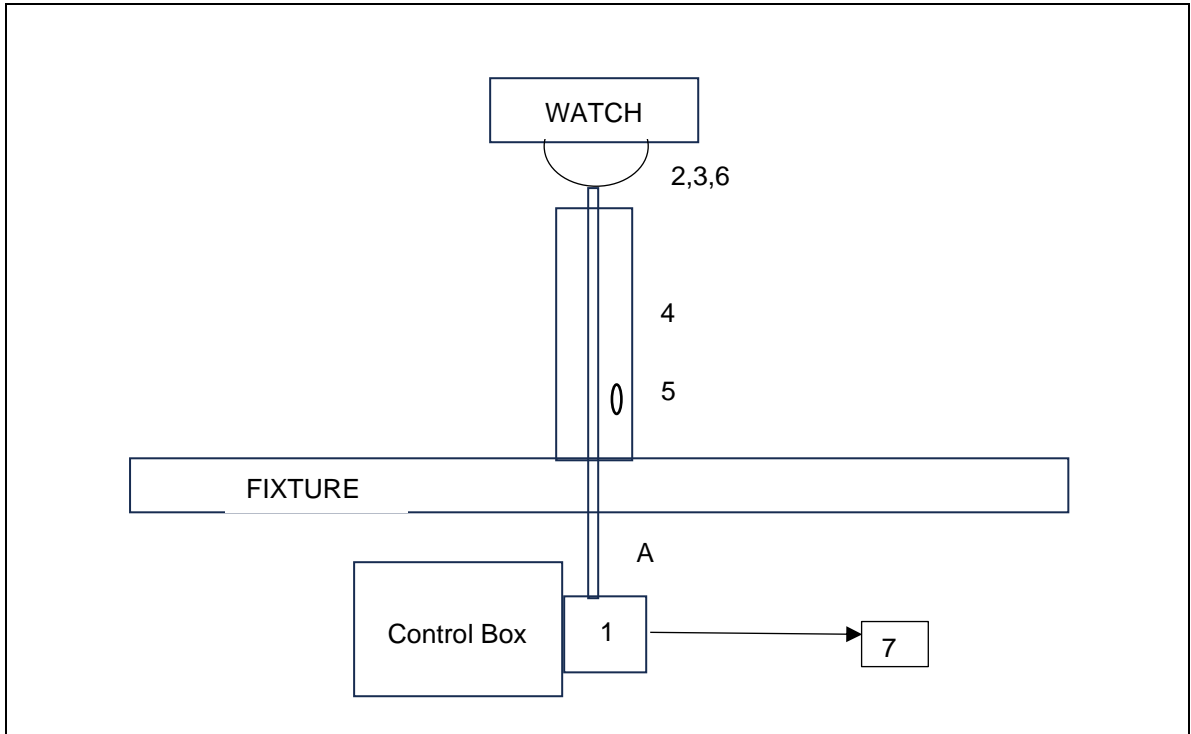


Figure 1.4.1-4 – Test Setup Block Diagram

Table 1.4.1-2 – Support Equipment Descriptions

Item	Make/Model	Description
1	InVue P02RTCR (DAR300)	Retractor
2	InVue P04SNSR (DAS200)	Sensor Puck
3	InVue P05BRLT (DAW700)	Watch Sensor Bracelet
4	InVue P03STEM (DAD100)	Watch Stem
5	InVue P01ALRM (DAA400)	Alarm Module
6	InVue DAW7XX	Watch Brackets
7	InVue PS566	Input - 100-240~1.5A Output=2.08A

Note: X indicates various sized mechanical differences which do not affect electrical design or testing

Table 1.4.1-3: Cable Description

Item	Cable Type	Description
A	Retractor cable	Cable connected between sensor puck and retractor



1.4.2 Modes of Operation

The tested mode of operation was: For Test loads of 2300-W, Apple SE watch (40mm) operate at 326.5 kHz and the watch series-8 (44 mm) will operate at 1.778 MHz.

1.4.3 Monitoring of Performance

For radiated emissions, the EUT was evaluated in orientation of typical use. See test setup photos for more information.

1.5 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

1.6 EUT Modification Record

The table below details modifications made to the EUT during the test program. The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
0	Initial State		

1.7 Test Location

TÜV SÜD conducted the following tests at our Alpharetta, GA test laboratory.

Test Name	Name of Engineer(s)	Accreditation
Antenna Requirement	Divya Adusumilli	A2LA
Occupied Bandwidth	Divya Adusumilli	A2LA
Spurious Radiated Emissions	Bhagyashree Chaudhary	A2LA
AC Power Line Conducted Emissions	Divya Adusumilli	A2LA

Office address:
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 Alpharetta, GA 30005, USA



2 Test Details

2.1 Antenna Requirement

2.1.1 Specification Reference

FCC Section: 15.203, 15.204

2.1.2 Equipment Under Test and Modification State

As shown in §1.4 with modification state "0", as noted in §1.6.

2.1.3 Date of Observation

1/10/2024

2.1.4 Test Method

N/A

2.1.5 Environmental Conditions

N/A

2.1.6 Test Results

The host device utilizes an Inductive Coil Antenna which has 9 turns and an outer diameter of ~21.34 mm with 0 dBi antenna gain which is soldered direct to the pads, therefore satisfying the requirements of Section 15.203.



2.2 Power Line Conducted Emissions

2.2.1 Specification Reference

FCC Section: 15.207
ISED Canada: RSS-210 8.8

2.2.2 Equipment Under Test and Modification State

As shown in §1.4 with modification state “0”, as noted in §1.6.

2.2.3 Date of Test

1/04/2024 – 1/17/2024

2.2.4 Test Method

ANSI C63.10 section 6 was the guiding documents for this evaluation. Conducted emissions were performed from 150kHz to 30MHz with the spectrum analyzer’s resolution bandwidth set to 9kHz and the video bandwidth set to 30kHz. The calculation for the conducted emissions is as follows:

Corrected Reading = Analyzer Reading + LISN Loss + Cable Loss
Margin = Corrected Reading - Applicable Limit

2.2.5 Environmental Conditions

The EUT was evaluated within the temperature, humidity and pressure range of the EUT as specified by the standard. The laboratory shall have an ambient temperature range of 15°C to 35°C, relative humidity range of 30% to 60% and atmospheric pressure range of 86 kPa to 106 kPa.

Ambient Temperature	24 °C
Relative Humidity	43 %
Atmospheric Pressure	982.1 mbar



2.2.6 Test Results

TUV SUD America

Conducted RF Emissions, 150 kHz to 30 MHz

Line Under Test Number 1 Results

EUT Name - 72193348 - InVue

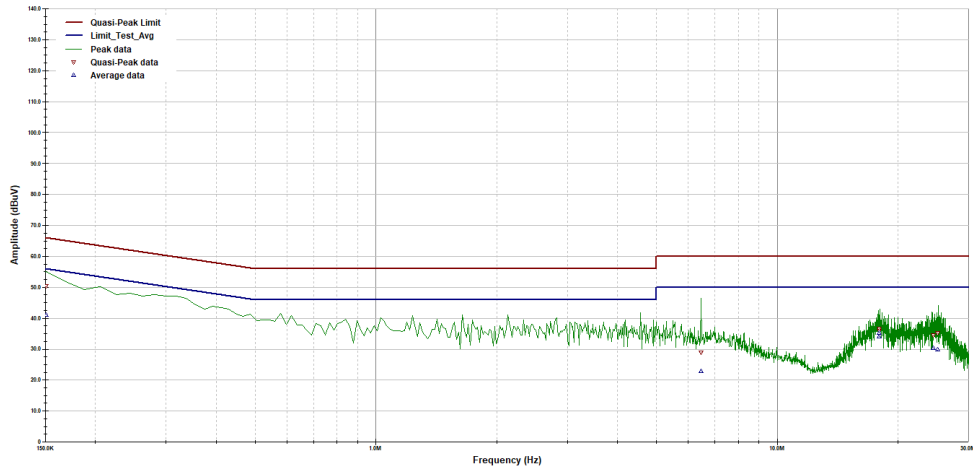
Model Number - F2300-W

Part Number - N/A

Serial Number - N/A

Voltage - FCC/IC Class B; 120Vac/60Hz

Operating Mode - Charging:326.5kHz Tx



Operator: DA

CE-AC Mains Class B.ttl

Last Data Update 09:14:47 AM, Thursday, January 04, 2024

Temperature - 25C
Relative Humidity - 42%

RF Bandwidth: 9kHz
VBW if Analyzer: 30kHz

Figure 2.2.6-1 – Graphical Results – AC Mains L1 Plot – 326.5kHz

Table 2.2.6-1 – Conducted Emissions Results on the AC Power Port (L1)

Frequency (MHz)	Avg Limit	Avg Level Corr	Avg Level	Corr Fact.	Avg Margin	Result
0.15	56	41.1	31.4	9.682	-14.9	PASS
6.46	50	22.9	13	9.81	-27.1	PASS
17.96	50	34.1	24.1	10.029	-15.9	PASS
17.96	50	35.2	25.2	10.029	-14.8	PASS
24.49	50	30.3	20.2	10.01	-19.7	PASS
25.14	50	29.7	19.7	10.014	-20.3	PASS

Frequency (MHz)	QP Limit	QP Level Corr	QP Level	Corr Fact.	QP Margin	Result
0.15	66	50.3	40.6	9.682	-15.7	PASS
6.46	60	29	19.2	9.81	-31	PASS
17.96	60	35.9	25.9	10.029	-24.1	PASS
17.96	60	36.5	26.5	10.029	-23.5	PASS
24.49	60	34.6	24.6	10.01	-25.4	PASS
25.14	60	35.1	25.1	10.014	-24.9	PASS

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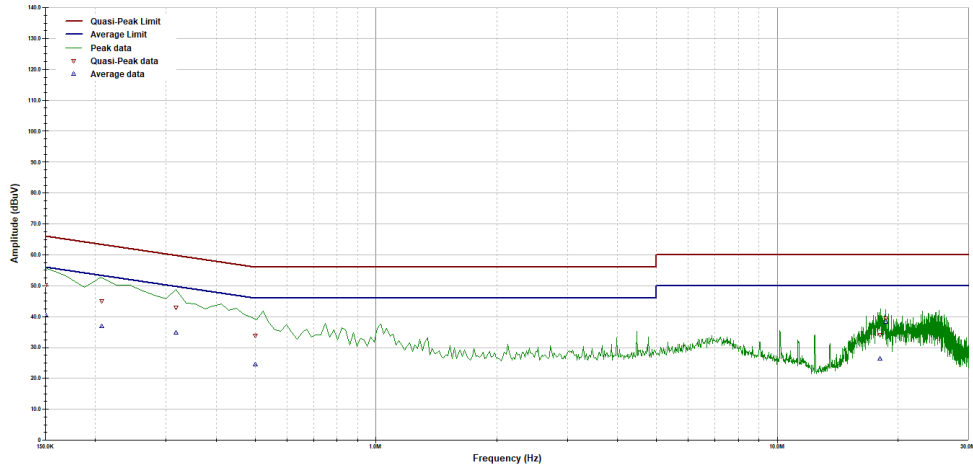


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Conducted RF Emissions, 150 kHz to 30 MHz

Line Under Test Number 2 Results

EUT Name - 72193348 - InVue
 Model Number - F2300-W
 Part Number - N/A
 Serial Number - N/A
 Voltage - FCC/IC Class B; 120Vac/60Hz
 Operating Mode - Charging;326.5kHz Tx



Operator: DA

CE-AC Mains Class B.ttl

Last Data Update 09:33:13 AM, Thursday, January 04, 2024

Temperature - 25C
 Relative Humidity = 42%

RF Bandwidth: 9kHz
 VBW if Analyzer: 30kHz

Figure 2.2.6-2 – Graphical Results – AC Mains N Plot – 326.5kHz

Table 2.2.6-2 – Conducted Emissions Results on the AC Power Port (N)

Frequency (MHz)	Avg Limit	Avg Level Corr	Avg Level	Corr Fact.	Avg Margin	Result
0.15	56	40.6	30.9	9.675	-15.4	PASS
0.21	54.4	36.8	27.1	9.669	-17.6	PASS
0.32	51.2	34.7	25	9.657	-16.5	PASS
0.5	46	24.4	14.8	9.63	-21.6	PASS
18	50	26.3	16.2	10.09	-23.7	PASS
18.61	50	38.2	28.2	10.066	-11.8	PASS

Frequency (MHz)	QP Limit	QP Level Corr	QP Level	Corr Fact.	QP Margin	Result
0.15	66	50.2	40.5	9.675	-15.8	PASS
0.21	64.4	45.1	35.4	9.669	-19.3	PASS
0.32	61.2	42.8	33.2	9.657	-18.4	PASS
0.5	56	33.7	24.1	9.63	-22.3	PASS
18	60	34	23.9	10.09	-26	PASS
18.61	60	39.5	29.5	10.066	-20.5	PASS

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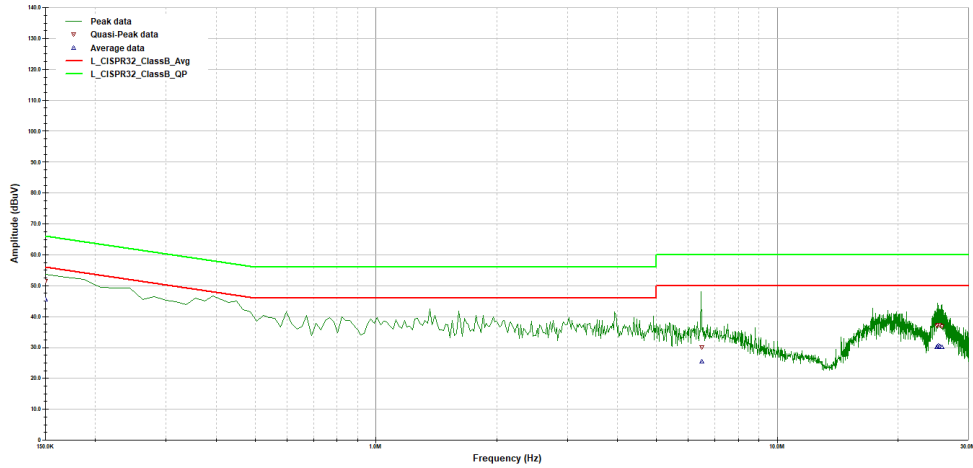


FCC Part 15, Class B

Conducted RF Emissions, 150 kHz to 30 MHz

Line Under Test Number 1 Results

EUT Name - 72193348 InVue F2300
 Model Number - F2300-W
 Part Number -
 Serial Number - N/A
 Voltage - Class A; 120V/60Hz
 Operating Mode - Powered on; Config 9:Tx on 1.778MHz



Operator: DA

CE_Watch_Config 9-120V60Hz-Class B.ttl

Last Data Update 09:21:36 AM, Wednesday, January 17, 2024

Temperature - 25C
 Relative Humidity - 44%
 RF Bandwidth: 9kHz
 VBW if Analyzer: 30kHz

Figure 2.2.6-3 – Graphical Results – AC Mains L1 Plot – 1.778 MHz

Table 2.2.6-3 – Conducted Emissions Results on the AC Power Port (L1)

Frequency (MHz)	Avg Limit	Avg Level Corr	Avg Level	Corr Fact.	Avg Margin	Result
0.15	56	45.5	35.9	9.555	-10.5	PASS
6.5	50	25.5	15.7	9.77	-24.5	PASS
25.05	50	30.1	20.1	9.971	-19.9	PASS
25.23	50	30.7	20.7	9.975	-19.3	PASS
25.44	50	30.4	20.5	9.979	-19.6	PASS
25.74	50	30.1	20.1	9.985	-19.9	PASS

Frequency (MHz)	QP Limit	QP Level Corr	QP Level	Corr Fact.	QP Margin	Result
0.15	66	51.6	42.1	9.555	-14.4	PASS
6.5	60	30	20.2	9.77	-30	PASS
25.05	60	37	27	9.971	-23	PASS
25.23	60	37.2	27.2	9.975	-22.8	PASS
25.44	60	37.3	27.3	9.979	-22.7	PASS
25.74	60	36.8	26.8	9.985	-23.2	PASS

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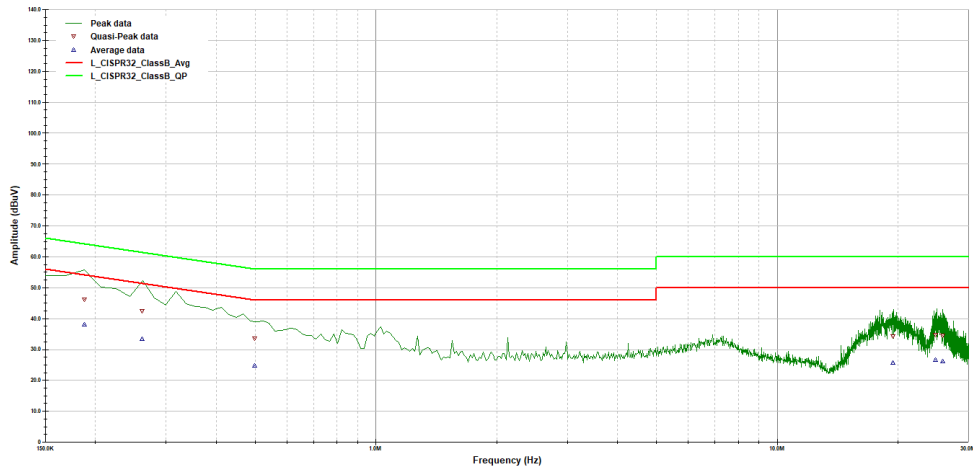


FCC Part 15, Class B

Conducted RF Emissions, 150 kHz to 30 MHz

Line Under Test Number 2 Results

EUT Name - 72193348 InVue F2300
 Model Number - F2300-W
 Part Number -
 Serial Number - N/A
 Voltage - Class A; 120V/60Hz
 Operating Mode - Powered on; Config 9:Tx on 1.778MHz



Operator: DA

CE_Watch_Config 9-120V60Hz-Class B.ttl

Last Data Update 09:36:16 AM, Wednesday, January 17, 2024

Temperature - 25C
 Relative Humidity = 44%
 RF Bandwidth: 9kHz
 VDW if Analyzer: 30kHz

Figure 2.2.6-4 – Graphical Results – AC Mains N Plot – 1.778 MHz

Table 2.2.6-4 – Conducted Emissions Results on the AC Power Port (N)

Frequency (MHz)	Avg Limit	Avg Level Corr	Avg Level	Corr Fact.	Avg Margin	Result
0.19	56	38	28.4	9.549	-18	PASS
0.26	56	33.4	23.9	9.556	-22.6	PASS
0.5	46	24.8	15.2	9.57	-21.2	PASS
19.43	50	25.6	15.6	10.004	-24.4	PASS
24.81	50	26.6	16.6	10.03	-23.4	PASS
25.85	50	26.2	16.2	10.047	-23.8	PASS

Frequency (MHz)	QP Limit	QP Level Corr	QP Level	Corr Fact.	QP Margin	Result
0.19	66	46.3	36.7	9.549	-19.7	PASS
0.26	66	42.5	32.9	9.556	-23.5	PASS
0.5	56	33.5	23.9	9.57	-22.5	PASS
19.43	60	34.4	24.4	10.004	-25.6	PASS
24.81	60	34.8	24.7	10.03	-25.2	PASS
25.85	60	34.6	24.6	10.047	-25.4	PASS

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2.3 99% Bandwidth

2.3.1 Specification Reference

FCC Sections: 15.215(c) and 15.223(a)
ISED Canada: RSS-GEN 6.7

2.3.2 Equipment Under Test and Modification State

As shown in §1.4 with modification state “0”, as noted in §1.6.

2.3.3 Date of Test

1/10/2024

2.3.4 Test Method

The RF output port of the EUT was directly connected to the input of the spectrum analyzer with suitable attenuation. The occupied bandwidth measurement function of the spectrum analyzer was used to measure the 99% bandwidth. The span of the analyzer was set to capture all products of the modulation process, including the emission sidebands. The resolution bandwidth was set to 1% to 5% of the occupied bandwidth. The video bandwidth was set to 3 times the resolution bandwidth. A peak detector was used.

6dB Bandwidth is measured following the method stated in the ANSI C63.10 section 11.8 for the purpose of evaluating the Field Strength of any emission within the band 1.705 MHz – 10.0 MHz

2.3.5 Environmental Conditions

The EUT was evaluated within the temperature, humidity and pressure range of the EUT as specified by the standard. The laboratory shall have an ambient temperature range of 15°C to 35°C, relative humidity range of 30% to 60% and atmospheric pressure range of 86 kPa to 106 kPa.

Ambient Temperature	22.3 °C
Relative Humidity	53.8 %
Atmospheric Pressure	972.2 mbar

2.3.6 Test Results

Test Summary: EUT was set to transmit mode.

Test Results: Pass

See data below for detailed results.



Table 2.3.6-1: 99% Bandwidth & 6dB Bandwidth

Frequency [MHz]	99% Bandwidth (kHz)	6 dB Bandwidth (kHz)
0.3265	4.855	NA
1.778	4.616	147.85

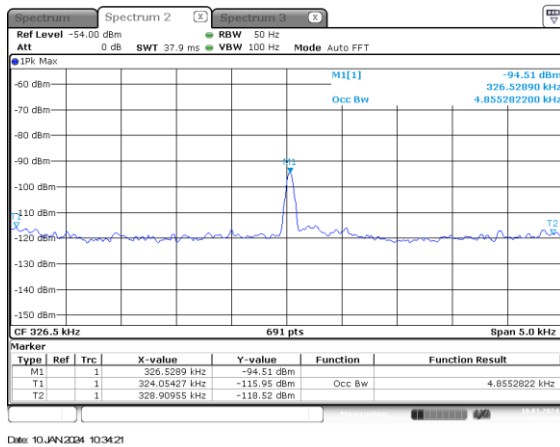


Figure 2.3.6-1: 99% OBW – 326.5kHz

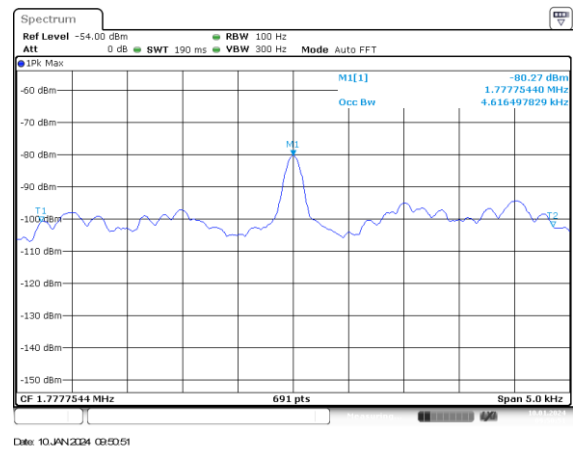


Figure 2.3.6-2: 99% OBW – 1.778 MHz



Figure 2.3.6-3: 6 dB Bandwidth – 1.778 MHz

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2.4 Radiated Spurious Emissions

2.4.1 Specification Reference

FCC Sections: 15.223, 15.209
ISED RSS-210

2.4.2 Equipment Under Test and Modification State

As shown in §1.4 with modification state "0", as noted in §1.6.

2.4.3 Date of Test

01/08/2024

2.4.4 Test Method

Radiated emissions tests were made over the frequency range of 9 kHz to 1000 MHz, greater than 10 times the fundamental frequency. Each emission found was compared to the radiated emission limits as defined in Section 15.209.

The EUT was rotated through 360° and the receive antenna height was varied from 1m to 4m so that the maximum radiated emissions level would be detected. For frequencies below 150 kHz, quasi-peak measurements were made using a resolution bandwidth RBW of 300 Hz and a video bandwidth VBW of 1 kHz and frequencies between 150 kHz and 30MHz, average measurements were made using a resolution bandwidth RBW of 10 kHz and a video bandwidth VBW of 30 kHz. For frequencies between 30 MHz and 1000 MHz, quasi-peak measurements were made using a resolution bandwidth RBW of 100 kHz and a video bandwidth VBW of 300 kHz.

2.4.5 Environmental Conditions

The EUT was evaluated within the temperature, humidity and pressure range of the EUT as specified by the standard. The laboratory shall have an ambient temperature range of 15°C to 35°C, relative humidity range of 30% to 60% and atmospheric pressure range of 86 kPa to 106 kPa.

Ambient Temperature	24 °C
Relative Humidity	43 %
Atmospheric Pressure	982.1 mbar

2.4.6 Sample Calculation (Limits)

Limit @ 1.778 MHz:	
Fundamental Field Strength	= 83.15 uV/m @ 30m
	= 20 log(83.15 μV/m)
	= 38.39 dB μV/m @30 meters
Using 40dB/decade extrapolation rule:	= 40 log (30m/3m)
Measuring distance correction factor:	= 40 dB
Calculated limit @ 3 meters:	= 38.39 dB μV/m + 40 dB
	= 78.39 dB μV/m



Limit @ 326.5 kHz: $= (2400/326.5) = 7.35 \mu\text{V/m}$ @300 meters
 $= 20 \log(7.35 \mu\text{V/m})$
 $= 17.32 \text{ dB } \mu\text{V/m}$ @300 meters
 Using 40dB/decade extrapolation rule: $= 40 \log(300\text{m}/3\text{m})$
 Measuring distance correction factor: $= 80 \text{ dB}$
 Calculated limit @ 3 meters: $= 17.32 \text{ dB } \mu\text{V/m} + 80 \text{ dB}$
 $= 97.32 \text{ dB } \mu\text{V/m}$

2.4.7 Test Results

Test Summary: EUT was set to transmit mode.

Test Results: Pass

See data below for detailed results.

Table 2.4.7-1: Radiated Spurious Emissions Tabulated Data – 326.5 kHz

Frequency	QP/Avg Value	QP/Avg Limit	QP/Avg Margin	Antenna Polarity	QP/Avg Limit Results
MHz	dB $\mu\text{V/m}$	dB $\mu\text{V/m}$	dB	Co-axial/co-planer/H/V	Pass/Fail
0.329	46.486	97.7	-51.22	Co-axial	PASS
0.462	42.831	94.5	-51.64	Co-axial	PASS
0.658	39.305	71.6	-32.27	Co-axial	PASS
0.976	36.573	67.8	-31.25	Co-axial	PASS
1.308	33.18	65.6	-32.4	Co-axial	PASS
1.627	30.606	63.5	-32.88	Co-axial	PASS
32.886	14.252	40	-25.75	H	PASS
158.042	19.621	43.5	-23.88	H	PASS
340.256	20.881	46	-25.12	H	PASS
347.944	21.53	46	-24.47	H	PASS
816.207	24.627	46	-21.37	H	PASS
32.716	26.151	40	-13.85	V	PASS
41.788	30.379	40	-9.62	V	PASS
48.572	28.836	40	-11.16	V	PASS
55.901	24.49	40	-15.51	V	PASS
66.691	17.528	40	-22.47	V	PASS
168.807	19.464	43.5	-24.04	V	PASS

Note: Peak Emissions were > 20 dB below the limits. Hence, no peak measurements were recorded in the above table.

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Radiated Emissions, Under 1GHz

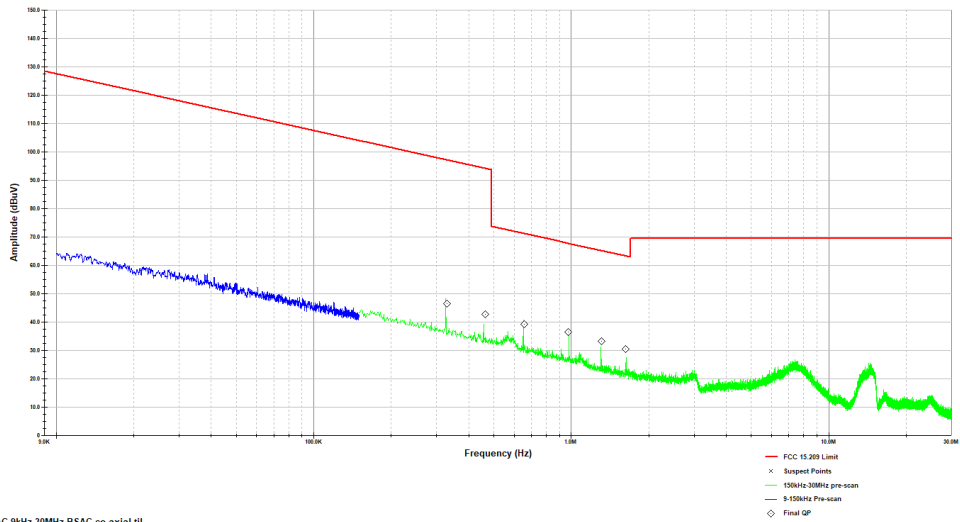
HV Graph

Company - 72193348 Invue

Model - F2300

Config - TX mode:326.5 kHz 40mm watch

Operator - Shree



FCC 15.209 BSAC 9kHz-30MHz BSAC co-axial.ttl

Last Data Update 12:12:09 PM, Monday, January 08, 2024

Figure 2.4.7-1: Radiated Spurious Emissions – 9 kHz – 30 MHz – 326.5 kHz

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Radiated Emissions, Under 1GHz

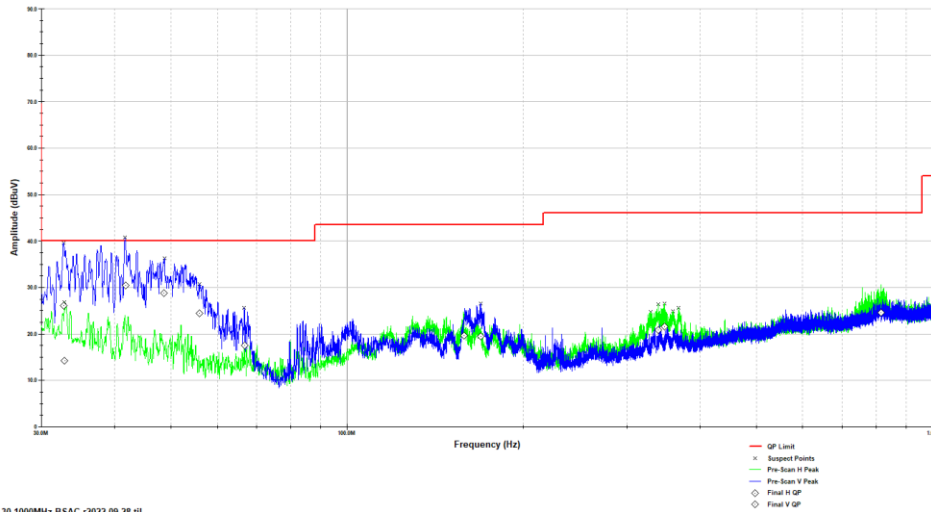
HV Graph

Company - 72193348 Invue

Model - F2300

Config - TX mode 326.5kHz

Operator - Shree



FCC 15 209 RSE 30-1000MHz BSAC r2022-09-28.ttl

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Figure 2.4.7-2: Radiated Spurious Emissions – 30 MHz – 1 GHz – 326.5 kHz

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**Table 2.4.7-2: Radiated Spurious Emissions Tabulated Data – 1.778 MHz**

Frequency	QP/Avg Value	QP/Avg Limit	QP/Avg Margin	Antenna Polarity	QP/Avg Limit Results
MHz	dB μ V/m	dB μ V/m	dB	Co-axial/co-planer/H/V	Pass/Fail
0.465	44.553	94.4	-49.85	Co-axial	PASS
1.554	36.017	64	-27.94	Co-axial	PASS
1.738	30.158	69.5	-39.38	Co-axial	PASS
1.779	45.638	78.39	-32.75	Co-axial	PASS
1.999	32.539	69.5	-37	Co-axial	PASS
33.01	13.702	40	-26.3	H	PASS
42.003	13.593	40	-26.41	H	PASS
137.692	14.852	43.5	-28.65	H	PASS
144.095	18.744	43.5	-24.76	H	PASS
150.643	18.888	43.5	-24.61	H	PASS
161.82	18.896	43.5	-24.6	H	PASS
33.151	26.07	40	-13.93	V	PASS
40.766	27.33	40	-12.67	V	PASS
46.493	26.709	40	-13.29	V	PASS
51.609	27.091	40	-12.91	V	PASS
58.03	18.705	40	-21.29	V	PASS
163.178	22.301	43.5	-21.2	V	PASS

Note: Peak Emissions were > 20 dB below the limits. Hence, no peak measurements were recorded in the above table.



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Radiated Emissions, Under 1GHz

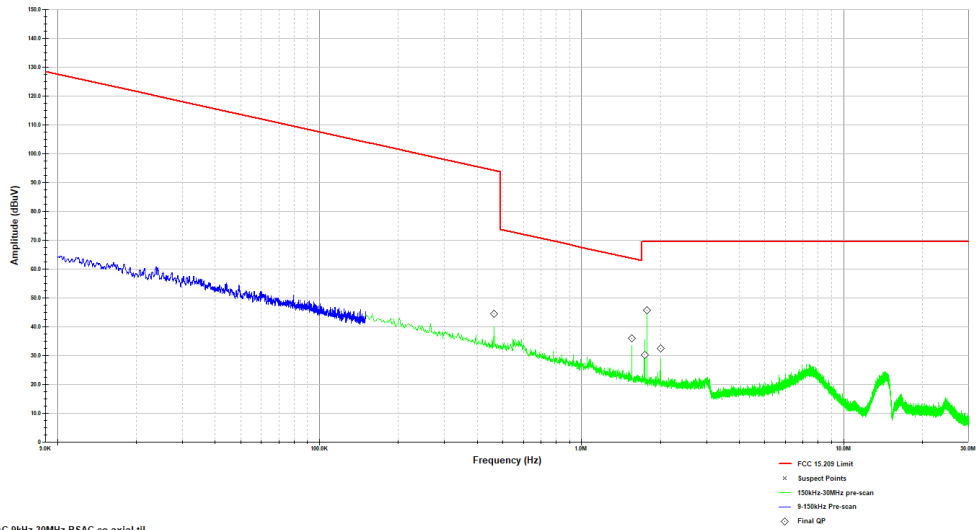
HV Graph

Company - 72193348 Invue

Model - F2300

Config - TX mode 1.778 MHz 45mm watch

Operator - Shree



FCC 15.209 BSAC 9kHz-30MHz BSAC co-axial.ttl

Last Data Update 09:51:13 AM, Monday, January 08, 2024

Figure 2.4.7-3: Radiated Spurious Emissions – 9 kHz – 30 MHz – 1.778 MHz

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Radiated Emissions, Under 1GHz

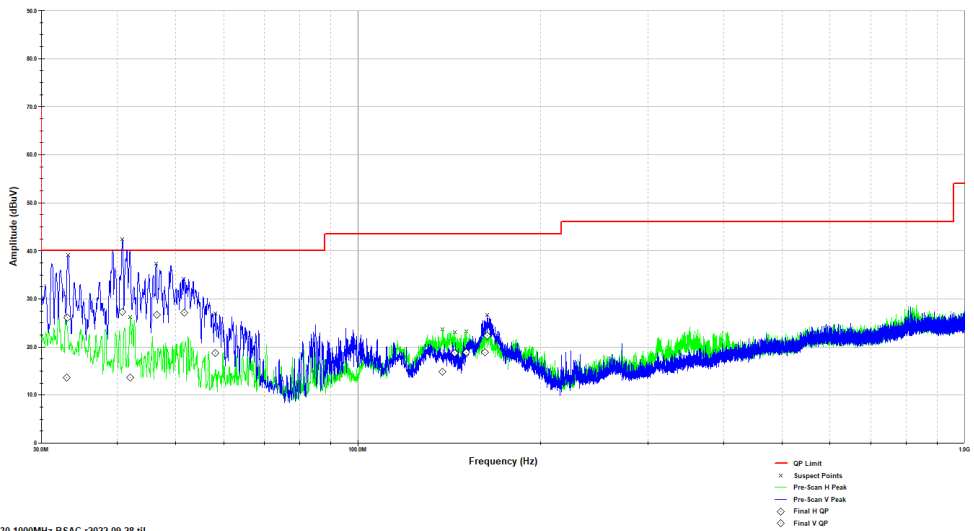
HV Graph

Company - 72193348 Invue

Model - F2300

Config - TX mode 1.778MHz

Operator - Shree



FCC 15.209 RSE 30-1000MHz BSAC (2022-09-28).ttl

Last Data Update 11:04:51 AM, Monday, January 08, 2024

Figure 2.4.7-4: Radiated Spurious Emissions – 30 MHz – 1 GHz – 1.778 MHz

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2.5 Test Equipment Used

Table 2.5-1 –Equipment List

Asset ID	Manufacturer	Model	Software Version	Equipment Type	Serial Number	Last Calibration Date	Calibration Due Date
853	Teseq	CBL6112D	N/A	BiLog Antenna	51616	7/26/2023	7/26/2025
628	EMCO	6502	N/A	Loop antenna	9407-2877	6/20/2023	6/20/2025
889	Com Power	PAM 103	N/A	Pre-amplifier	18020215	10/02/2023	10/02/2024
882	Rohde & Schwarz	ESW44	2.20	ESW44 EMI TEST RECEIVER	101961	06/21/2023	06/21/2024
AEMC22	Teledyne Storm Microwave	90-195-456	N/A	BSAC Cable	N/A	10/02/2023	10/02/2024
AEMC20	Teledyne Storm Microwave	R-90-195-036	N/A	BSAC Cable	N/A	7/13/2023	7/13/2024
AEMC21	Teledyne Storm Microwave	R-90-195-072	N/A	BSAC Cable	N/A	7/13/2023	7/13/2024
827	Rohde & Schwarz	RF Cable set	N/A	TS8997 Rack cable set	N/A	01/02/2024	01/02/2025
622	Rohde & Schwarz	FSV40 (v3.40)	3.70	FSV Signal Analyzer 10Hz to 40GHz	101338	12/06/2023	12/06/2024
872	HP Agilent	E7402A	A.14.06	EMI Receiver	US40240258	6/22/2023	6/22/2024
871	ACS	Belden	N/A	Conducted EMI Cable	871	3/24/2023	3/24/2024
3010	Rohde & Schwarz	ENV216	N/A	Two-Line V-Network	3010	6/21/2023	6/21/2024
3144	ETS Lindgren	USB Key	7.7.2.4	TILE Software	00232063	NCR	NCR

N/A – Not Applicable

NCR – No Calibration required.

3 Diagram of Test Set-ups

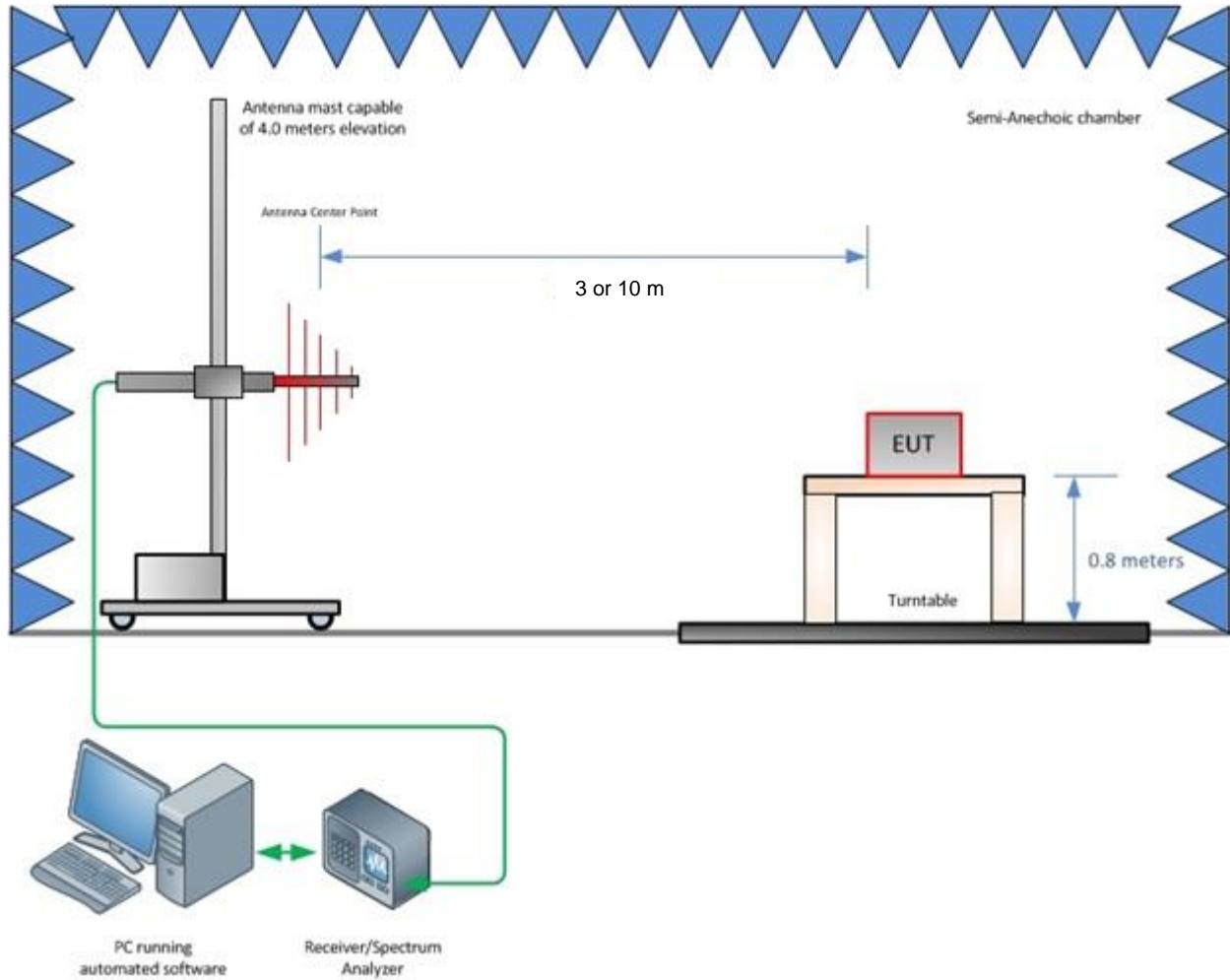


Figure 3-1 – Radiated Emissions Test Setup up to 1 GHz



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STATEMENT OF MEASUREMENT UNCERTAINTY – Emissions

The expanded laboratory measurement uncertainty figures (U_{lab}) provided below correspond to an expansion factor (coverage factor) $k = 1.96$ which provide confidence levels of 95%.

Table 4-1: Estimation of Measurement Uncertainty

Parameter	U_{lab}
Radiated Emissions ≤ 1 GHz	± 5.814 dB
Radiated Emissions > 1 GHz	± 4.318 dB
Temperature	± 0.860 °C
Radio Frequency	$\pm 2.832 \times 10^{-8}$
AC Power Line Conducted Emissions	± 3.360 dB

TEST EQUIPMENT

All measurement instrumentation is traceable to the National Institute of Standards and Technology and is calibrated to meet test method standard requirements and/or manufacturer's specifications