FCC and ISED Canada Testing of the

Current Products Corp.
CP19CTRF-01

In accordance with FCC 47 CFR part 15.231 and ISED Canada's Radio Standards Specifications RSS-210

America

Add value.
Inspire trust.

Prepared for: Current Products Corp.
1995 Hollywood Ave.
Pensacola, FL 32505

FCC ID: 2AJXX100726
IC: 22151-CP19CTRF01

COMMERCIAL-IN-CONFIDENCE

Date: 12. November 2019
Document Number: TP72151586.100 | Version Number: 01

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Authorized Signatory	Peter Walsh	2019 -November-12	
Testing	Thierry Jean-Charles	2019-November-12	

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service document control rules.

FCC Accreditation Designation Number US1063 Tampa, FL Test Laboratory	Innovation, Science, and Economic Development Canada Accreditation Site Number 2087A-2 Tampa, FL Test Laboratory

EXECUTIVE SUMMARY
Samples of this product were tested and found to be in compliance with 15.231 and ISED Canada's RSS-210.

A2LA Cert. No. 2955.15

TÜV SÜD America
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Tampa, FL 33634

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Contents

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.

Issue	Description of Change	Date of Issue
1	First Issue	2019-November-12

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 15.231 and Innovation Science and Economic Development Canada's Radio Standards Specification RSS-210 for the tests documented herein.

Applicant	Current Products Corp.
Manufacturer	Current Products Corp.
Applicant's Email Address	cscott@currentproductscorp.com
Model Number(s)	CP19CTRF-01
Serial Number(s)	N/A
FCC ID	2AJXX100726
ISED Certification Number	22151-CP19CTRF01
Hardware Version(s)	Rev 1
Software Version(s)	1.0.2
Number of Samples Tested	2
Test Specification/Issue/Date	US Code of Federal Regulations (CFR): Title 47, Part 15, Subpart C: Radio Frequency Devices, Intentional Radiators, 2019 Innovation, Science and Economic Development Canada Radio Standards Specification: RSS-210 — Licence-Exempt Radio Apparatus: Category I Equipment, Issue 9, August 2016 (Amendment November 2017)
Test Plan/Issue/Date	2019-July-09
Order Number	72151586
Date	2019-July-19
Date of Receipt of EUT	2019-August-12
Start of Test	2019-August-22
Finish of Test	2019-November-08
Name of Engineer(s)	Thierry Jean-Charles and Jean N. Rene
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, 2019. Innovation, Science and Economic Development Canada Radio Standards Specification: RSS-GEN - General Requirements for Compliance of Radio Apparatus, Issue 5, Amendment 1, March 2019

1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC Part 15.231 and ISED Canada's RSS-210 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	-------	9
Periodic Operation	Yes	Pass	15.231(a)	RSS-210 A.1.1	
Radiated Field Strength of Fundamental and Spurious Emissions	Yes	Pass	15.231(b)	RSS-210 A.1.2	10
20 dB Bandwidth	Yes	Pass	15.231 (c)	-------	10
99% Bandwidth	Yes	Pass	-------	RSS-210 A.1.3	23
Power Line Conducted Emissions	No	Not Tested	15.207	RSS-GEN 8.8	25

1.4 Product Information

1.4.1 Technical Description

The EUT is a stand-alone FM remote to operate FM Drapery.

Technical Details
Mode of Operation: Periodic Operation
Frequency Range: 434.625 MHz
Number of Channels: 1
Channel Separation: N/A
Data Rate: 9.6 kbd
Modulations: 2-FSK
Antenna Type/Gain: Wire Antenna / 5.19 dBi
Input Power: 3 VDC CR2450 Battery

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

Table 1.4.1-1 – Cable Descriptions

Cable/Port	Description
The EUT is a stand-alone equipment without any provision for connection to accessory equipment.	

Table 1.4.1-2 – Support Equipment Descriptions

Make/Model	Description
The EUT is standalone equipment without any provision for connection to accessory equipment.	

Declaration of Build Status

EQUIPMENT DESCRIPTION	
Model Name/Number	Capacitive Touch FM
Part Number	CP19CTRF-01
Hardware Version	Rev 1
Software Version	1.0.2
FCC ID (if applicable)	2AJXX100726
ISED ID (if applicable)	22151-CP19CTRF01
Technical Description (Please provide a brief description of the intended use of the equipment)	An FM remote to operate FM Drapery.

UN-INTENTIONAL RADIATOR	
Highest frequency generated or used in the device or on which the device operates or tunes	38.4 MHz
Lowest frequency generated or used in the device or on which the device operates or tunes	
Class A Digital Device (Use in commercial, industrial or business environment) ☐ Class B Digital Device (Use in residential environment only) ☒	

Power Source			
AC	Single Phase	Three Phase	Nominal Voltage
	☒	☐	
External DC	Nominal Voltage		Maximum Current
Battery	Nominal Voltage		Battery Operating End Point Voltage
	3 V		2 V

EXTREME CONDITIONS					
Maximum temperature	+85	°C	Minimum temperature	-40	°C

Ancillaries
Please list all ancillaries which will be used with the device.
None

I hereby declare that the information supplied is correct and complete.

Name: Curtis Scott

Position held: Electrical Engineer Date: 9/12/2019

1.4.2 Modes of Operation

The EUT was set in the continuous TX mode using a test software power setting equal to 3.

1.4.3 Monitoring of Performance

Preliminary radiaed emissions measurements were performed for the EUT as a hand-held remote (flat back cover) in three orthogonal orientations as well a in the desk remote configuration (alternate back cover). The overall worst-case configuration was used for the final radiated emissions measurements as described below:

The EUT set vertically on the table top was observed to be the worst case for both fundamental and spurious emissions.

The RF conducted measurements were performed on a sample modified with an SMA connector to allow direct coupling to the spectrum analyzer.

1.4.4 Performance Criteria

The test report documents the compliance of the 434.6 MHz radio with the FCC Section 15.247 and ISED Canada RSS-210 Annex A.

The EUT is battery operated only without any provisions for connection to the AC Mains. The EUT is exempted from the power line conducted emissions requirements.

A summary of the parameters evaluated is provided below.

Table 1.4.4 -1: Performance Criteria

Parameter	Requirement
Antenna Requirement	FCC: Section 15.203. 15.204
Periodic Operation	FCC; Section 15.231(a); ISED Canada: RSS-210 A.1.1
Radiated Field Strength of Fundamental and Spurious Emissions	FCC: Section 15.231(b); ISED Canada: RSS-210 A.1.2
20 dB Bandwidth	FCC: Section 15.231(c)
99% Bandwidth	ISED Canada: RSS-210 A.1.3

1.5 Deviations from the Standard

The EUT was assessed to the test requirements without any deviation from the applicable standards.

1.6 EUT Modification Record

The table below details modifications made to the EUT during the test programme. 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

The equipment was tested as provided without any modifications.

1.7 Test Location

TÜV SÜD Product Service conducted the following tests at our Tampa FL Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
3 VDC Battery Powered Operating		
Antenna Requirement	Thierry Jean-Charles	A2LA
Periodic Operation	Thierry Jean-Charles	A2LA
Radiated Field Strength of Fundamental and Spurious Emissions	Thierry Jean-Charles and Jean N. Rene	A2LA
20 dB Bandwidth	Thierry Jean-Charles	A2LA
99% Bandwidth	Thierry Jean-Charles	A2LA
Power Line Conducted Emissions	Not Applicable	A2LA

Office Address:

TÜV SÜD America, Inc.
5610 W. Sligh Ave, Suite 100
Tampa, FL 33634
USA

2 Test Details

2.1 Antenna Requirements

2.1.1 Specification Reference

FCC: Section 15.203, 15.204

2.1.2 Equipment Under Test and Modification State

S/N: N/A

2.1.3 Date of Test

10/22/2019

2.1.4 Test Method

N/A

2.1.5 Environmental Conditions

Ambient Temperature	N/A
Relative Humidity	N/A
Atmospheric Pressure	N/A

2.1.6 Test Results

Limit Clause FCC Sections: 15.203, 15,204

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

The EUT uses a 5.19 dBi whip antenna that is directly soldered to the PCB. The antenna is not removable and therefore meets the requirements of FCC Section 15.203.

2.1.7 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 5610 W. Sligh Ave, Suite 100, Tampa, FL 33634, USA.

As this was a visual inspection, no test equipment was used.

2.2 Periodic Operation

2.2.1 Specification Reference

FCC Sections: 15.231(a);
ISED Canada: RSS-210 A.1.1

2.2.2 Equipment Under Test and Modification State

S/N: N/A

2.2.3 Date of Test

11/8/2019

2.2.4 Test Method

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released. A transmitter activated automatically shall cease transmission within 5 seconds after activation. The transmitter was activated via test software and was evaluated using a spectrum analyzer at zero span.

2.2.5 Environmental Conditions

Ambient Temperature	24.2 °C
Relative Humidity	41 %
Atmospheric Pressure	1013.9 mbar

2.2.6 Test Results

Battery Powered Operating

Limit Clause FCC Sections 15.231(a), ISED Canada: RSS-210 A.1.1

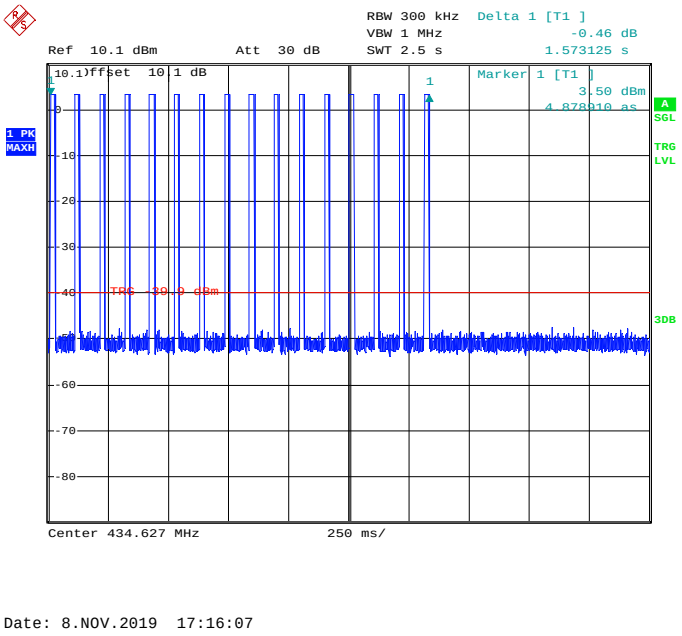

Figure 2.2.6-1: Periodic Operation Test Results – Transmission Duration

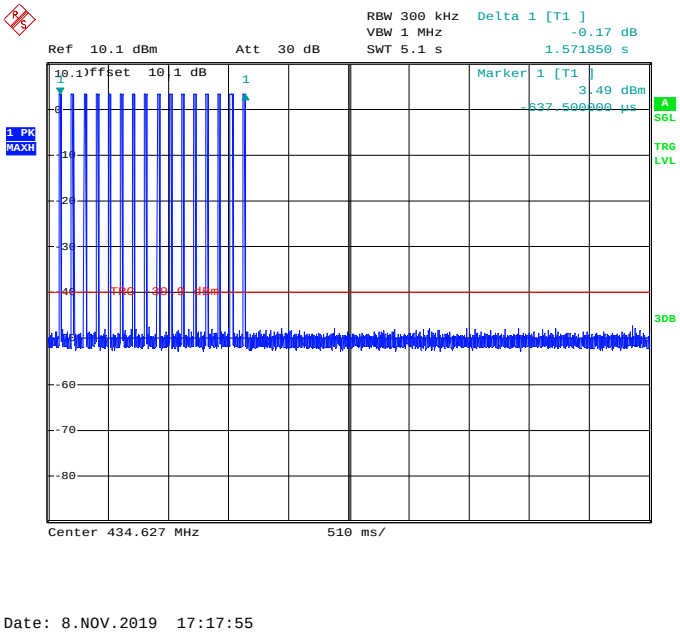

Figure 2.2.6- 2: Periodic Operation Test Results – Transmission over 5 Seconds

2.2.7 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 5610 W. Sligh Ave, Suite 100, Tampa, FL 33634, USA.

Instrument	Manufacturer	Type No	TE No	Software / Firmware Revision	Calibration Period (months)	Calibration Due
Spectrum Analyzer	Rohde & Schwarz	FSP40	BEMC00283	4.50 SP5	24	04-Oct-2021
Attenuator 10dB, 2.9 mm-M/F, DC-40GHz 2 W	Aeroflex Inmet	40AH2W-10	BEMC02110	N/A	12	27-Jul-2020
Duratest High Frequency Cable Max. frequency 26.5GHz	Teledyne Storm Products	921-0101-036	BEMC02112	N/A	12	04-Oct-2020

TU - Traceability Unscheduled
O/P MON - Traceability Unscheduled
N/A - Not Applicable

2.3 Radiated Field Strength and Spurious Emissions

2.3.1 Specification Reference

FCC Sections: 15.231(b);
ISED Canada: RSS-210 A.1.2

2.3.2 Equipment Under Test and Modification State

SN: N/A

2.3.3 Date of Test

8/22/2019 to 10/22/2019

2.3.4 Test Method

Radiated emissions tests were made over the frequency range of 9 kHz to 5 GHz, 10 times the highest fundamental frequency. Each emission found to be in a restricted band as defined by section 15.205, including any emission at the operational band-edge, was compared to the radiated emission limits as defined in Section 15.209.

For measurements below 30 MHz, the receive antenna height was set to 1 m and the EUT was rotated through 360 degrees. The resolution bandwidth was set to 200 Hz below 150 kHz and to 9 kHz above 150 kHz.

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 1000 MHz, quasi-peak measurements were made using a resolution bandwidth RBW of 120 kHz and a video bandwidth VBW of 300 kHz. For frequencies above 1000 MHz, peak measurements are made with RBW of 1 MHz and VBW of 3 MHz.

The peak emissions were also compared to a limit corresponding to 20 dB above the maximum permitted average limit according to Part 15.35. The final measurements were then corrected by antenna correction factors and cable loss for comparison to the limits. Further, compliance with the provisions of 15.205 was demonstrated using the measurement instrumentation specified in that section where applicable.

2.3.5 Duty Cycle Correction

The EUT was configured to transmit at the maximum operating duty cycle during the evaluation. A Duty Cycle Correction of 21.07% corresponding to 20*log(21.07/100) = -13.52 dB was applied to the peak measurements for the corrected average results.

The maximum transmissions duration as was configured the device and defined as the worst case by the manufacturer was measured over 100 ms and used for the correction factor as described below:

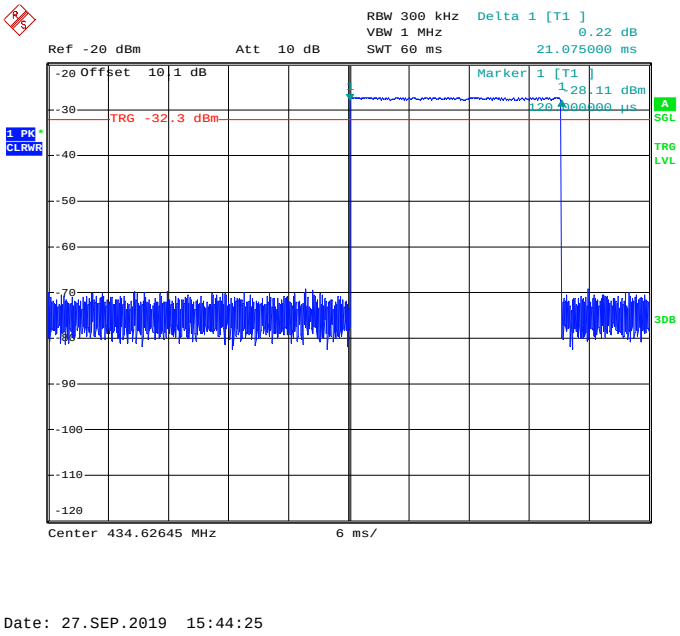

Figure 2.3.5-1: Duty Cycle Correction Factor – Transmission Duration

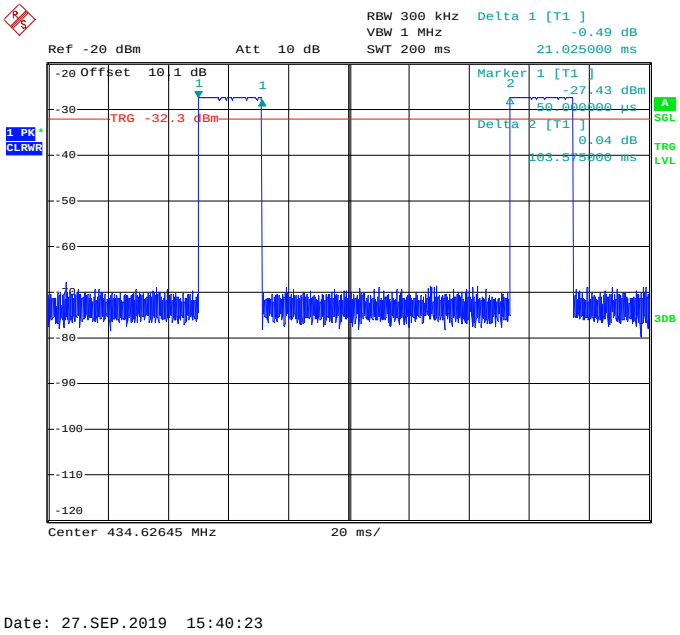

Figure 2.3.5-2: Duty Cycle Correction Factor – Transmission Period

2.3.6 Environmental Conditions

Ambient Temperature	24.2 °C
Relative Humidity	40.6 %
Atmospheric Pressure	1013.7 mbar

2.3.7 Test Results

Battery Powered Operating

Limit Clause FCC Sections 15.231(a), ISED Canada: RSS-210 A.1.2

Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emissions (microvolts/meter)
40.66-40.70	2,250	225
70-130	1,250	125
130-174	[1]1,250 to 3,750	[1]125 to 375
174-260	3,750	375
260-470	[1]3,750 to 12,500	[1]375 to 1250
Above 470	12,500	1250

[1]Linear Interpolations

Table 2.3.7-1: Transmitter Radiated Spurious Emissions Results

Frequency (MHz)	Level (dBuV)		Antenna Polarity (H/V)	Correction Factors (dB)	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	avg			pk	avg	pk	avg	pk	avg
Long Side Vertical										
Fundamental Frequency										
434.627	59.95	59.95	H	25.46	85.41	71.89	100.8	80.8	15.4	8.9
434.627	67.71	67.71	V	25.46	93.17	79.65	100.8	80.8	7.6	1.2
Spurious Emissions										
869.254	7.56	7.56	H	31.18	38.74	25.21	80.8	60.8	42.1	35.6
869.254	11.13	11.13	V	31.18	42.31	28.79	80.8	60.8	38.5	32.0
1303.881	46.97	46.97	H	-6.75	40.22	26.70	74	54	33.8	27.3
1303.881	49.60	49.60	V	-6.75	42.85	29.33	74	54	31.1	24.7
1738.508	48.14	48.14	H	-4.54	43.60	30.08	80.8	60.8	37.2	30.7
1738.508	45.50	45.50	V	-4.54	40.96	27.44	80.8	60.8	39.8	33.4
2173.135	48.19	48.19	H	-1.95	46.24	32.72	80.8	60.8	34.6	28.1
2173.135	48.02	48.02	V	-1.95	46.07	32.55	80.8	60.8	34.7	28.3
2607.762	51.33	51.33	H	-1.06	50.27	36.75	80.8	60.8	30.5	24.1
2607.762	52.57	52.57	V	-1.06	51.51	37.99	80.8	60.8	29.3	22.8
3042.389	51.04	51.04	H	-0.06	50.98	37.46	80.8	60.8	29.8	23.3
3042.389	45.40	45.40	V	-0.06	45.34	31.82	80.8	60.8	35.5	29.0
3477.016	52.72	52.72	H	0.42	53.14	39.61	80.8	60.8	27.7	21.2
3477.016	45.13	45.13	V	0.42	45.55	32.02	80.8	60.8	35.3	28.8
3911.643	58.09	58.09	H	1.70	59.79	46.27	74	54	14.2	7.7
3911.643	53.39	53.39	V	1.70	55.09	41.57	74	54	18.9	12.4
4346.27	48.01	48.01	H	3.42	51.43	37.91	74	54	22.6	16.1
4346.27	45.83	45.83	V	3.42	49.25	35.73	74	54	24.7	18.3

Notes:

- RBW = 1 MHz was used for the fundamental emission measurements.
- A duty cycle correction factor of 20*log(21.705/100) = -13.52 dB was applied to the peak measurements for the average measurement results.

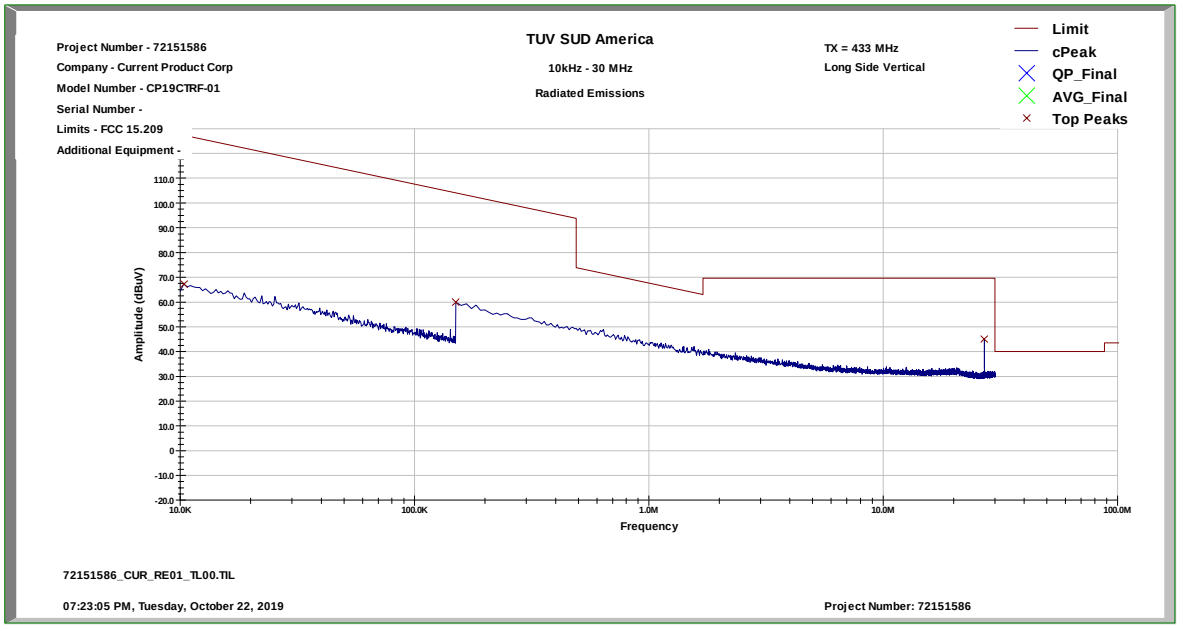

Figure 2.3.7-1: Radiated Emissions Test Results – 9 kHz – 30 MHz

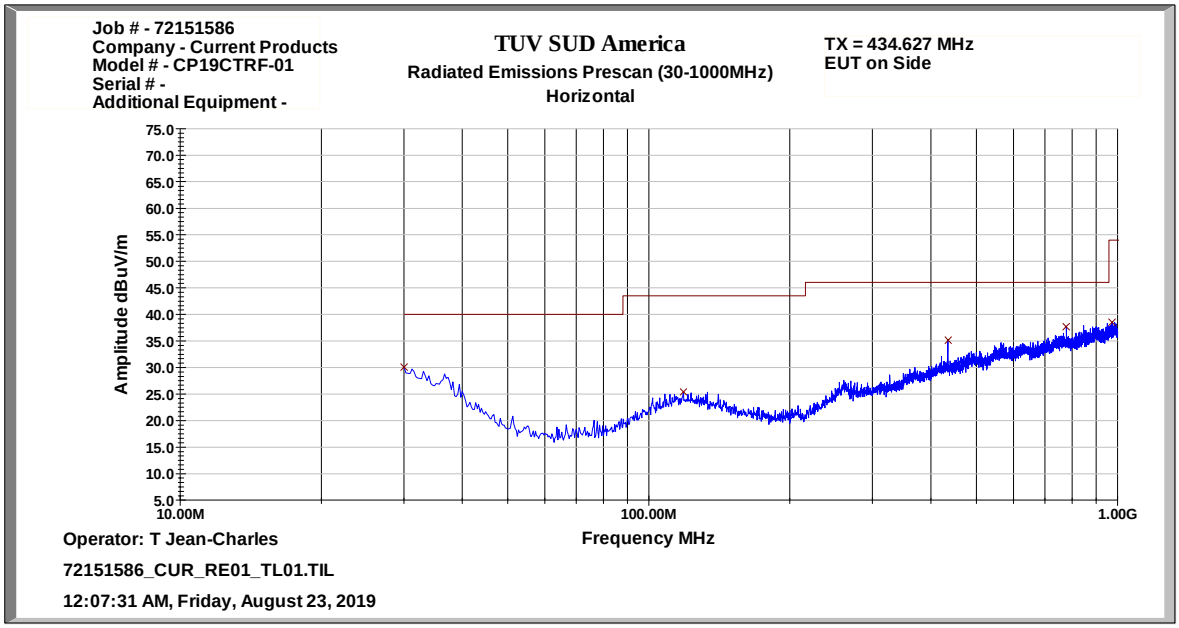

Figure 2.3.7-2: Radiated Emissions Test Results – 30 MHz – 1 GHz – Horizontal Polarization

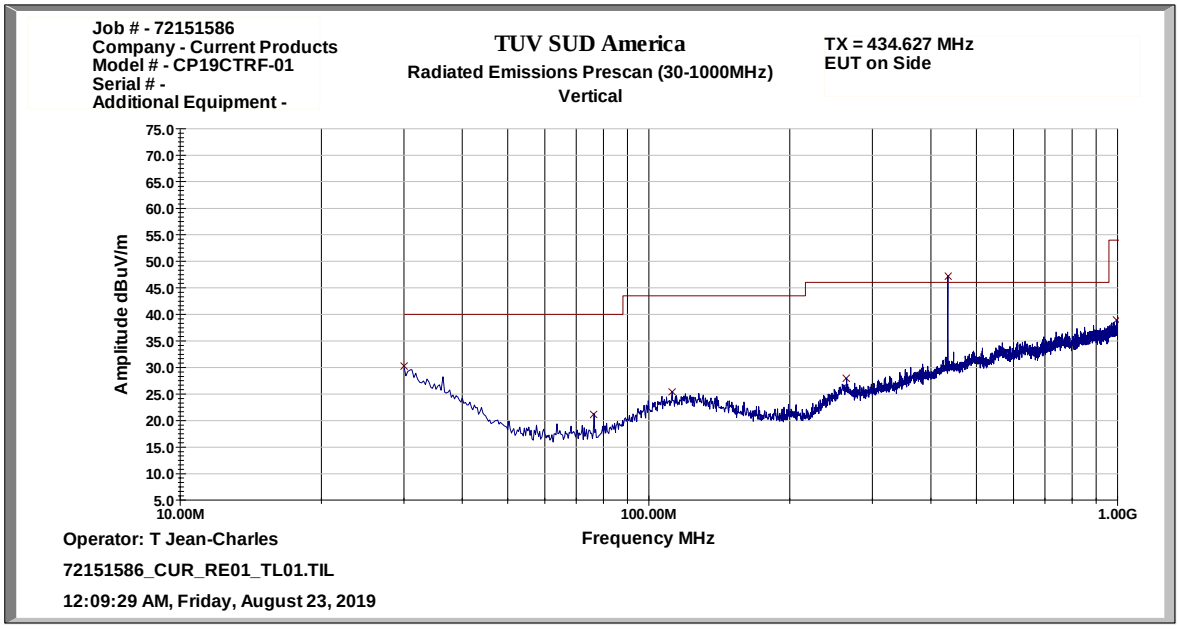

Figure 2.3.7-3: Radiated Emissions Test Results – 30 MHz – 1 GHz – Vertical Polarization

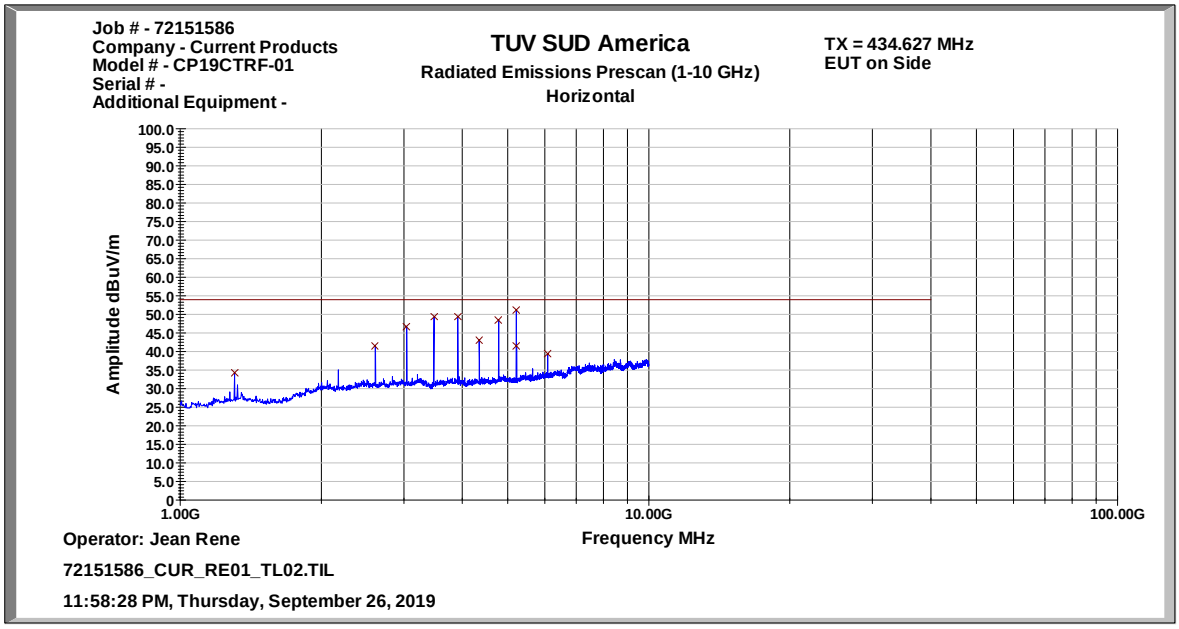

Figure 2.3.7-4: Radiated Emissions Test Results – 1 GHz – 5 GHz – Horizontal Polarization

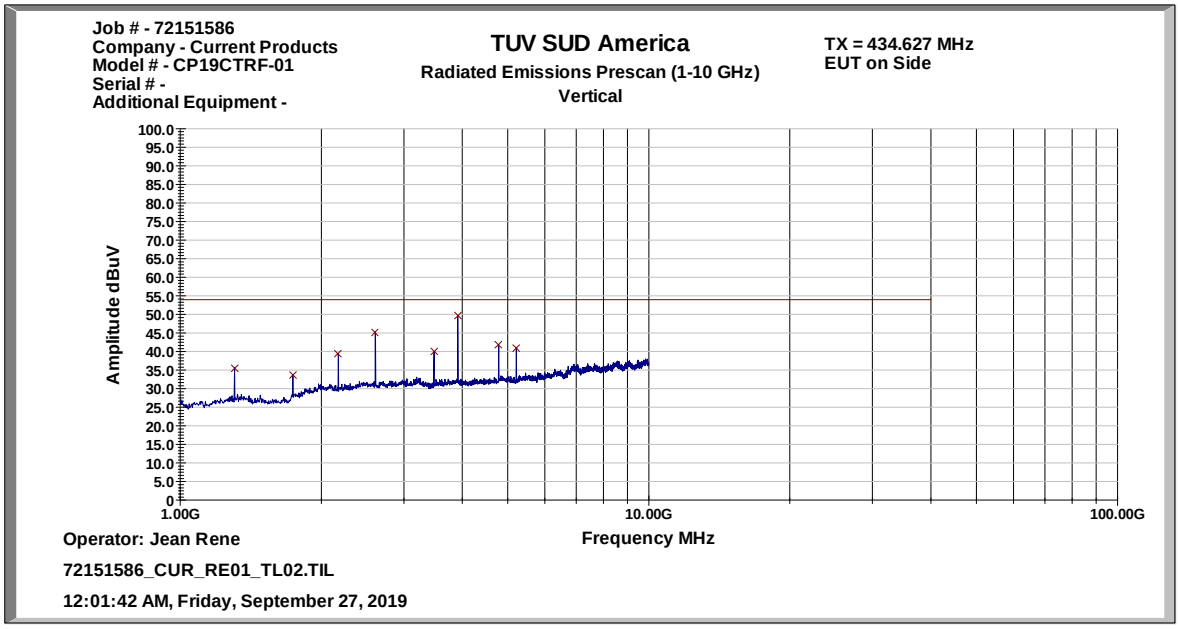

Figure 2.3.7-5: Radiated Emissions Test Results – 1 GHz – 5 GHz – Vertical Polarization

2.3.8 Sample Calculations

$R_C = R_U + CF_T$

Where:

CF_T	=	Total Correction Factor (AF+CA+AG)-DC (Average Measurements Only)
R_U	=	Uncorrected Reading
R_C	=	Corrected Level
AF	=	Antenna Factor
CA	=	Cable Attenuation
AG	=	Amplifier Gain
DC	=	Duty Cycle Correction Factor

Example Calculation: Peak
Corrected Level: 46.97 + (-6.75) = 40.22 dBµV/m
Margin: 74 dBµV/m – 40.22 dBµV/m = 33.78 dB

Example Calculation: Average
Corrected Level: 46.97 + (-6.75) -13.52 = 26.70 dBµV/m
Margin: 54 dBµV/m – 26.70 dBµV/m = 27.30 dB

2.3.9 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 5610 W. Sligh Ave, Suite 100, Tampa, FL 33634, USA.

Instrument	Manufacturer	Type No	TE No	Software / Firmware Revision	Calibration Period (months)	Calibration Due
Active Loop Antenna	EMCO	6502	BEMC00078	N/A	24	09-May-2020
9kHz-26.5GHz EMC analyzer/HYZ	Agilent	E7405A	BEMC00523	A.14.06	24	27-Nov-2020
High Pass Filter	Mini Circuits	NHP-800	BEMC02073	N/A	12	26-Nov-2019
High Pass Filter, 1000-3000 MHz, 50 OHM	Mini Circuits	SHP-1000+	BEMC02094	N/A	12	06-Feb-2020
Tile Automation Software	ETS Lindgren	TILE4! - Version 4.2.A	BEMC02095	4.2A	N/A	NCR
BI LOG PERIODIC, ANTENNA	Schaffner	CBL6112B	TEMC00005	N/A	24	19-Dec-2019
EMC Chamber	Panasheild	N/A	TEMC00031	N/A	24	28-Jan-2020
Double Ridge Guide Horn	ETS Lindgren	3117	TEMC00061	N/A	24	13-Feb-2020
PAM-118A	Com-Power Corporatio	PAM-118A	TEMC00160	N/A	12	27-Apr-2020
4A & 4B Test Cables	MegaPhase, LLC	1GVT4	TEMC00171	N/A	24	30-May-2020
Radiated Cable Set 30 MHz - 1 GHz	TUV SUD Tampa	Cable 2	TEMC00179	N/A	12	07-May-2020
Radiated Cable Set 9 kHz - 30 MHz	TUV SUD Tampa	Cable 2	TEMC00186	N/A	12	08-May-2020

TU - Traceability Unscheduled
O/P MON - Traceability Unscheduled
N/A - Not Applicable

2.4 20 dB Bandwidth

2.4.1 Specification Reference

FCC: Section 15.215

2.4.2 Equipment Under Test and Modification State

SN: N/A

2.4.3 Date of Test

11/8/2019

2.4.4 Test Method

The spectrum analyzer span was set to 2 to 5 times the estimated bandwidth of the emission. The RBW was set from 1% to 5% of the estimated emission bandwidth. The trace was set to max hold with a peak detector active. The 20-dB function of the analyzer was utilized to determine the 20 dB bandwidth of the emission.

2.4.5 Environmental Conditions

Ambient Temperature	24.2°C
Relative Humidity	41 %
Atmospheric Pressure	1013.9 mbar

2.4.6 Test Results

Battery Powered Operating

Limit Clause FCC Part 15.231(c)

The 20 dB Bandwith limit is calculated as 0.25% of the 434.62 MHz center frequency. The limit is equal to 1.09 MHz. Therefore the 20 dB bandwidth of the emission are less than 0.25% of the center frequency.

Table 2.4.6-1: 20 dB Bandwidth Test Results

Frequency (MHz)	20 dB Bandwidth (kHz)
434.625	144.5625

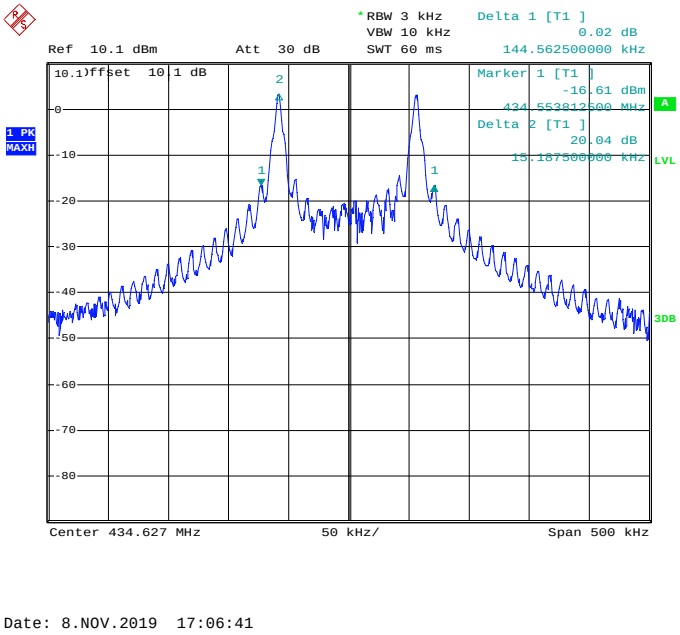

Figure 2.4.6-1: 20 dB Bandwidth Test Result

2.4.7 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 5610 W. Sligh Ave, Suite 100, Tampa, FL 33634, USA.

Instrument	Manufacturer	Type No	TE No	Software / Firmware Revision	Calibration Period (months)	Calibration Due
Spectrum Analyzer	Rohde & Schwarz	FSP40	BEMC00283	4.50 SP5	24	04-Oct-2021
Attenuator 10dB, 2.9 mm-M/F, DC-40GHz 2 W	Aeroflex Inmet	40AH2W-10	BEMC02110	N/A	12	27-Jul-2020
Duratest High Frequency Cable Max. frequency 26.5GHz	Teledyne Storm Products	921-0101-036	BEMC02112	N/A	12	12-Oct-2020

TU - Traceability Unscheduled
O/P MON - Traceability Unscheduled
N/A - Not Applicable

2.5 99% Bandwidth

2.5.1 Specification Reference

ISED Canada: RSS-210 A.1.3

2.5.2 Equipment Under Test and Modification State

SN: N/A

2.5.3 Date of Test

11/8/2019

2.5.4 Test Method

The 99% occupied bandwidth was measured with the spectrum analyzer span set to fully display the emission. The RBW was set to 1% to 5% of the approximated bandwidth. The occupied 99% bandwidth was measured by using 99% bandwidth equipment function of the spectrum analyzer using a peak detector.

2.5.5 Environmental Conditions

Ambient Temperature	24.2°C
Relative Humidity	41 %
Atmospheric Pressure	1013.9 mbar

2.5.6 Test Results

Battery Powered Operating

Limit Clause ISED RSS-210 A.1.3

The 99% Occupied Bandwidth limit is calculated as 0.25% of the 434.62 MHz center frequency. The limit is equal to 1.09 MHz. Therefore the 99% bandwidth of the emission are less than 0.25% of the center frequency.

Table 2.5.6-1: 99% Bandwidth Test Results

Frequency (MHz)	99% Bandwidth (kHz)
434.625	152.75

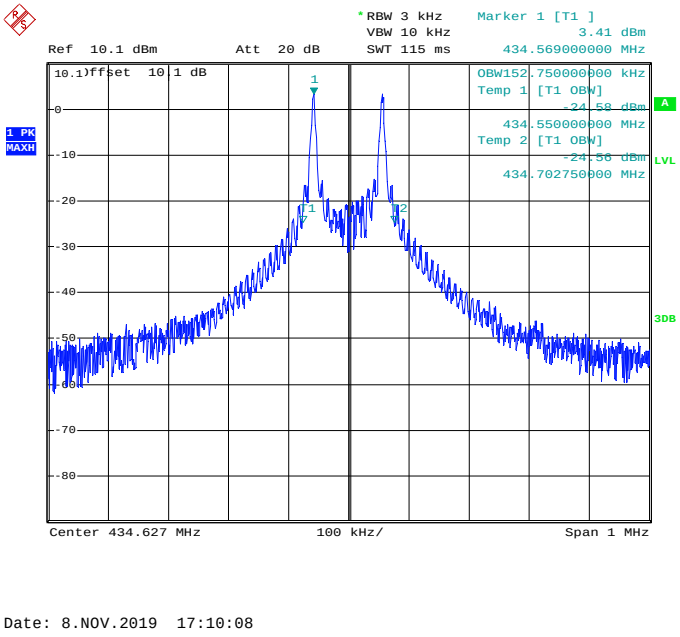

Figure 2.5.6-1: 99% Bandwidth Test Result

2.5.7 Test Location and Test Equipment Used

This test was carried out in TÜV SÜD America, Inc., 5610 W. Sligh Ave, Suite 100, Tampa, FL 33634, USA.

Instrument	Manufacturer	Type No	TE No	Software / Firmware Revision	Calibration Period (months)	Calibration Due
Spectrum Analyzer	Rohde & Schwarz	FSP40	BEMC00283	4.50 SP5	24	04-Oct-2021
Attenuator 10dB, 2.9 mm-M/F, DC-40GHz 2 W	Aeroflex Inmet	40AH2W-10	BEMC02110	N/A	12	27-Jul-2020
Duratest High Frequency Cable Max. frequency 26.5GHz	Teledyne Storm Products	921-0101-036	BEMC02112	N/A	12	12-Oct-2020

TU - Traceability Unscheduled
O/P MON - Traceability Unscheduled
N/A - Not Applicable

2.6 Power Line Conducted Emissions

2.6.1 Specification Reference

FCC: Section 15.207
ISED Canada; RSS-GEN 8.8

2.6.2 Test Results

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

The EUT is a stand-alone battery-powered equipment without any provision for connection to the AC mains. The EUT is exempted from the power line conducted emissions requirements.

3 Test Equipment Information

3.1 General Test Equipment Used

Instrument	Manufacturer	Type No	TE No	Software / Firmware Revision	Calibration Period (months)	Calibration Due
Spectrum Analyzer	Rohde & Schwarz	FSP40	BEMC00283	4.50 SP5	24	04-Oct-2021
Attenuator 10dB, 2.9 mm-M/F, DC-40GHz 2 W	Aeroflex Inmet	40AH2W-10	BEMC02110	N/A	12	27-Jul-2020
Duratest High Frequency Cable Max. frequency 26.5GHz	Teledyne Storm Products	921-0101-036	BEMC02112	N/A	12	12-Oct-2020
Active Loop Antenna	EMCO	6502	BEMC00078	N/A	24	09-May-2020
9kHz-26.5GHz EMC analyzer/HYZ	Agilent	E7405A	BEMC00523	A.14.06	24	27-Nov-2020
High Pass Filter	Mini Circuits	NHP-800	BEMC02073	N/A	12	26-Nov-2019
High Pass Filter, 1000-3000 MHz, 50 OHM	Mini Circuits	SHP-1000+	BEMC02094	N/A	12	06-Feb-2020
Tile Automation Software	ETS Lindgren	TILE4! - Version 4.2.A	BEMC02095	4.2A	N/A	NCR
BI LOG PERIODIC, ANTENNA	Schaffner	CBL6112B	TEMC00005	N/A	24	19-Dec-2019
EMC Chamber	Panasheild	N/A	TEMC00031	N/A	24	28-Jan-2020
Double Ridge Guide Horn	ETS Lindgren	3117	TEMC00061	N/A	24	13-Feb-2020
PAM-118A	Com-Power Corporatio	PAM-118A	TEMC00160	N/A	12	27-Apr-2020
4A & 4B Test Cables	MegaPhase, LLC	1GVT4	TEMC00171	N/A	24	30-May-2020
Radiated Cable Set 30 MHz - 1 GHz	TUV SUD Tampa	Cable 2	TEMC00179	N/A	12	07-May-2020
Radiated Cable Set 9 kHz - 30 MHz	TUV SUD Tampa	Cable 2	TEMC00186	N/A	12	08-May-2020

TU - Traceability Unscheduled
O/P MON - Traceability Unscheduled
N/A - Not Applicable

4 Diagram of Test Set-ups

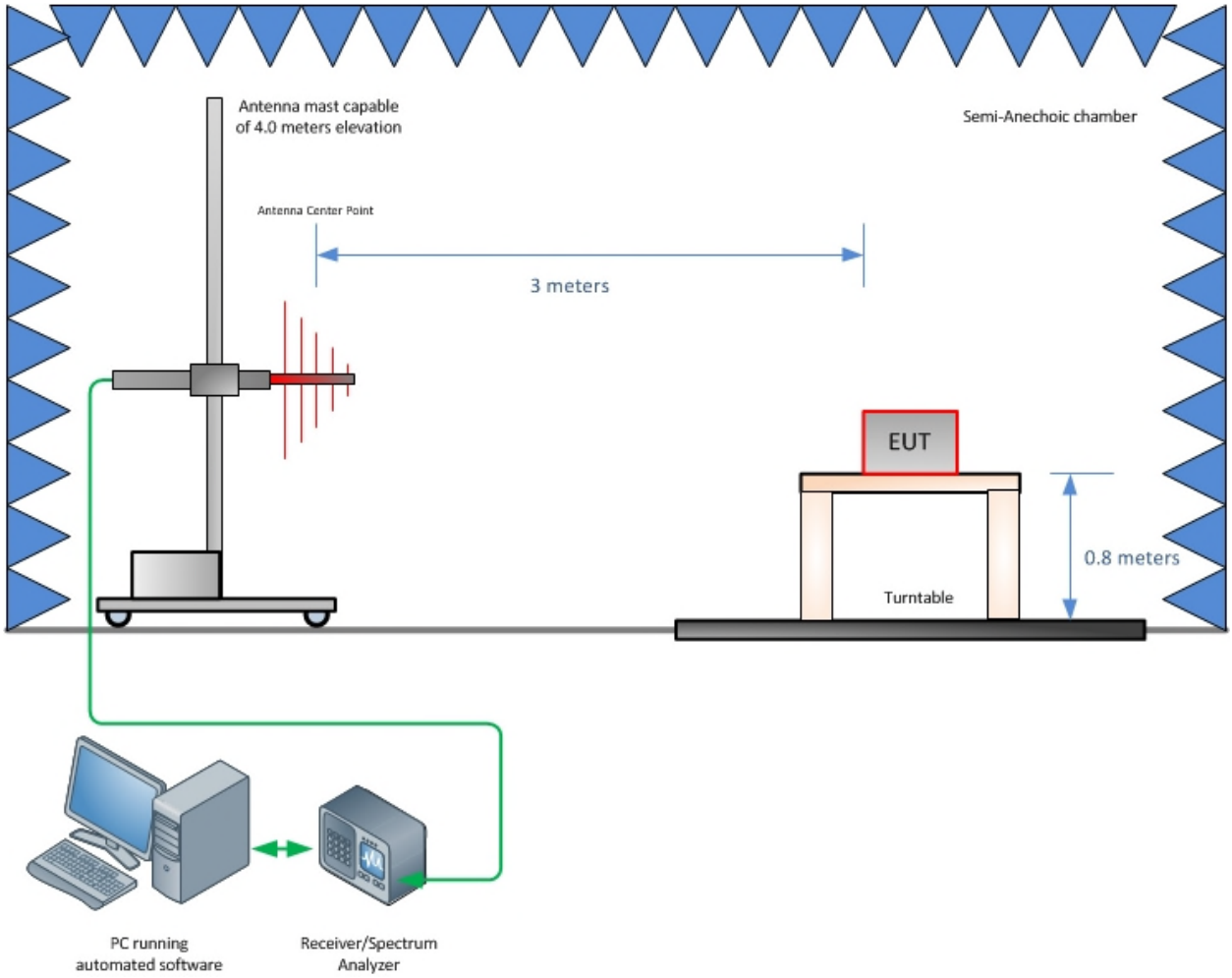

Figure 4-1 - Radiated Emissions Test Setup up to 1 GHz

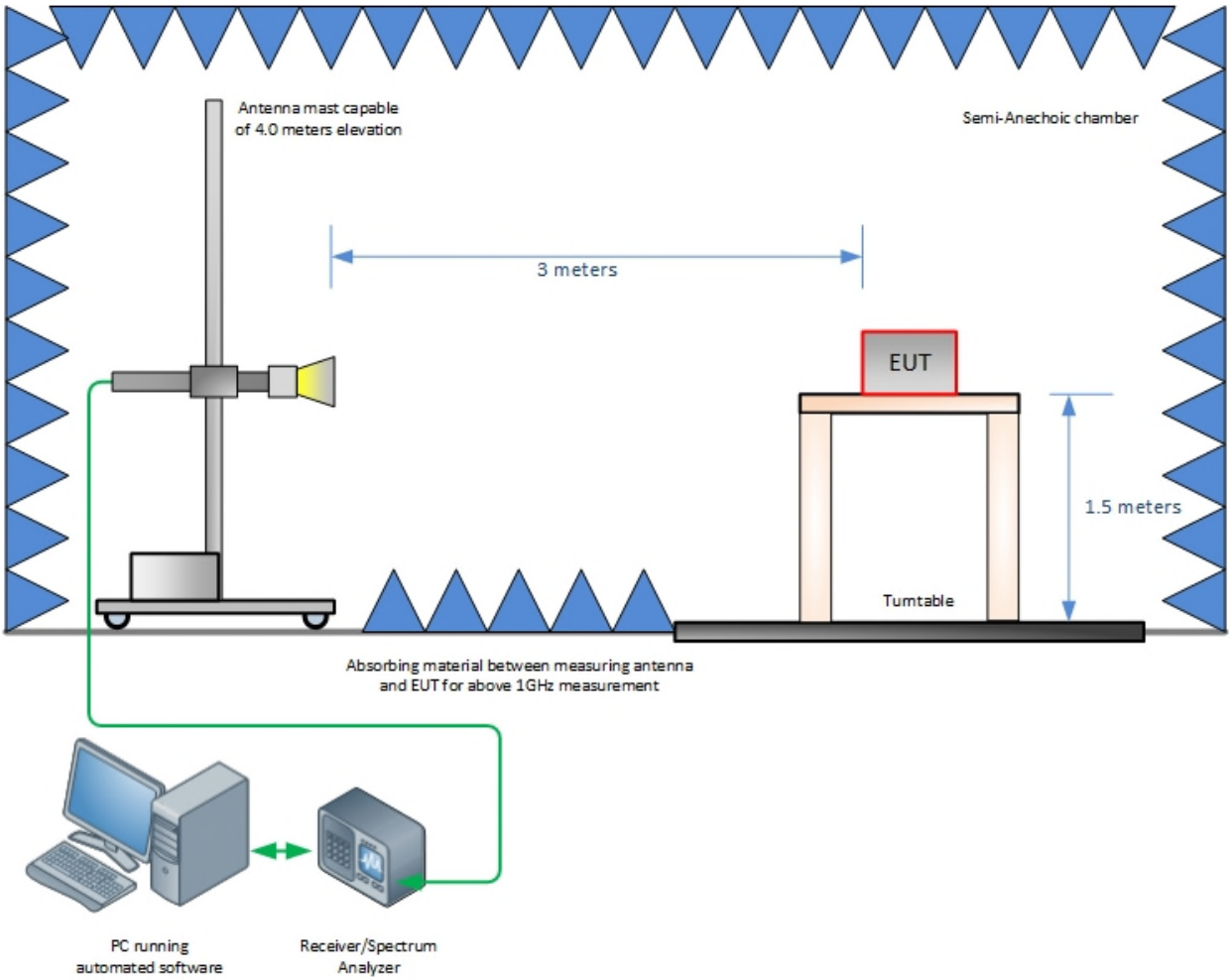

Figure 4-2 - Radiated Emissions Test Setup above 1 GHz

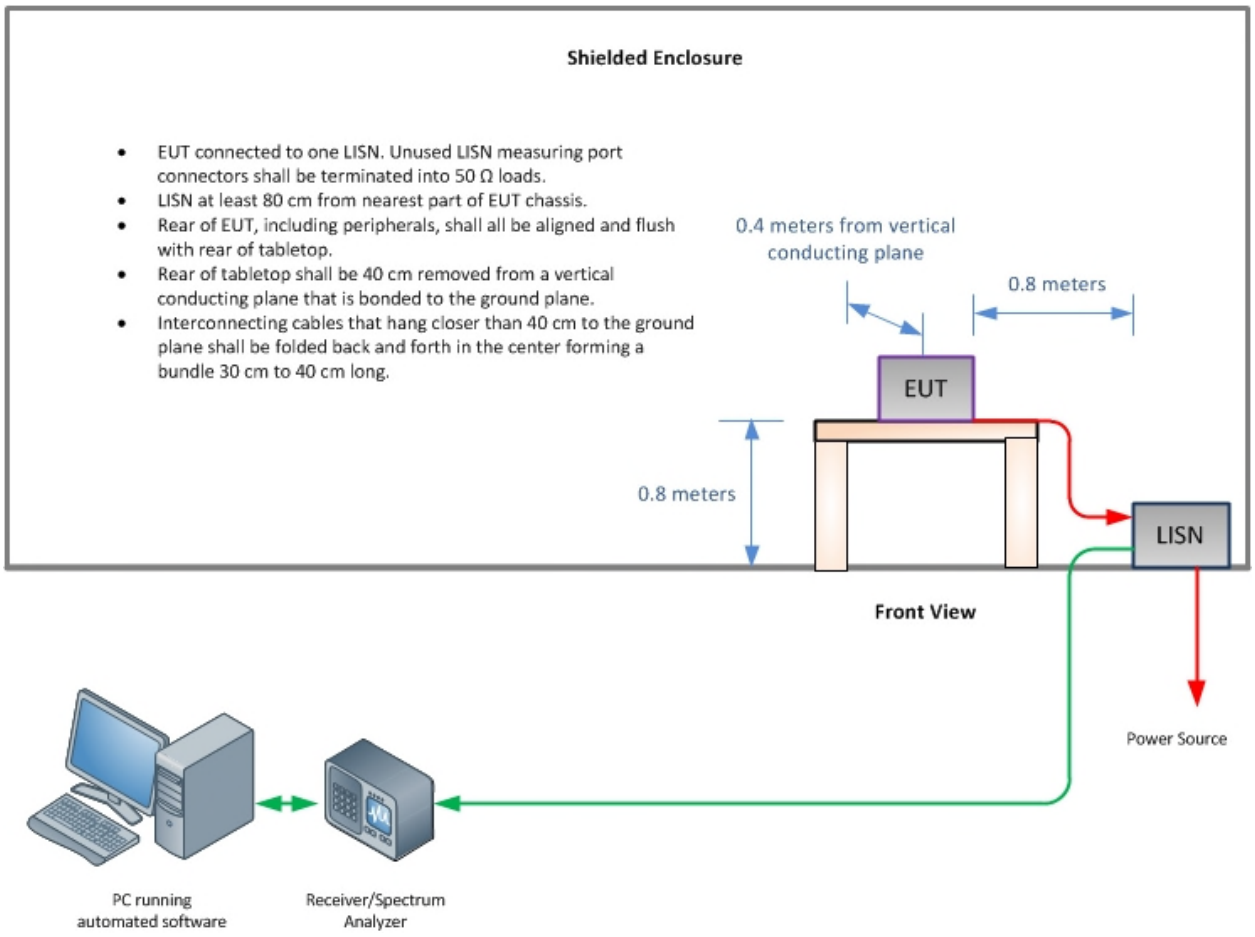

Figure 4-3 – Conducted Emissions Test Setup

5 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

Table 5-1 - Values of U_{cispr} and U_{Lab}

Measurement	U_{cispr}	U_{Lab}
Conducted disturbance (mains port) (9 kHz – 150 kHz) (150 kHz – 30 MHz)	 3.8 dB 3.4 dB	 3.71 dB 3.31 dB
Conducted disturbance (telecom port) (150 kHz – 30 MHz 55 dB LCL) (150 kHz – 30 MHz 65 dB LCL) (150 kHz – 30 MHz 75 dB LCL)	 5.0 dB 5.0 dB 5.0 dB	 4.11 dB 4.50 dB 4.94 dB
Radiated disturbance (electric field strength on an open area test site or alternative test site) (30 MHz – 1 000 MHz) (1 – 6 GHz) (6-18 GHz)	 6.3 dB 5.2 dB 5.5 dB	 5.85 dB 4.48 dB 4.48 dB

Notes:

U_{cispr} resembles a value of measurement uncertainty for a specific test, which was determined by considering uncertainties associated with the quantities listed in CISPR 16-4-2:2011.

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