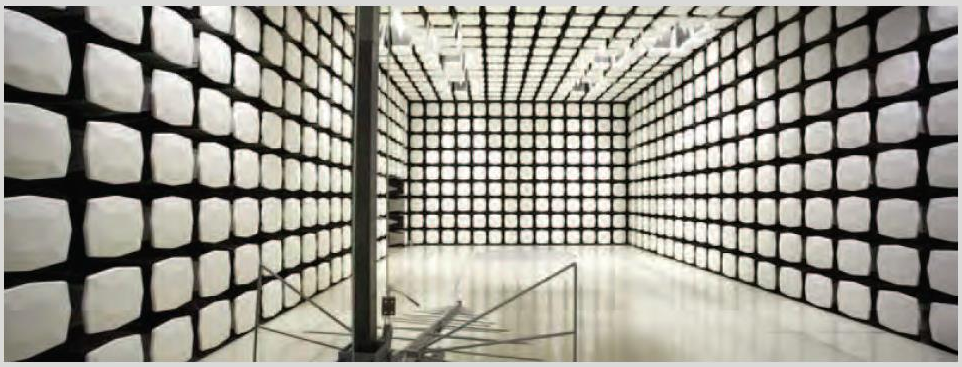
CORE Transport Technologies, LTD
CoreInsight Reader

Report: RCAL0005, Issue Date: November 24, 2020



NVLAP LAB CODE: 200630-0

CERTIFICATE OF TEST

Last Date of Test: November 19, 2020
CORE Transport Technologies, LTD
EUT: CoreInsight Reader

Emissions

Standards

Specification	Method
FCC 15.107:2020 Class A	ANSI C63.4:2014
FCC 15.109:2020 Class A	
FCC 15.109(g):2020 Class A	
ICES-003:2016 updated 2017 and 2019 Class A	

Results

Test Description	Applied	Results	Comments
Radiated Emissions	Yes	Pass	
Radiated Emissions High Frequency	Yes	Pass	
Conducted Emissions	Yes	Pass	

Deviations From Test Standards

None

Approved By:

Kyle Holgate, Operations Manager

Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information. As indicated in the Statement of Work sent with the quotation, Element's standard process is to always use the latest published version of the test methods even when earlier versions are cited in the test specification. Issuance of a purchase order was de facto acceptance of this approach. Otherwise, the client would have advised Element in writing of the specific version of the test methods they wanted applied to the subject testing.

REVISION HISTORY

Revision Number	Description	Date (yyyy-mm-dd)	Page Number
00	None		

ACCREDITATIONS AND AUTHORIZATIONS

United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Accredited by A2LA to ISO / IEC 17065 as a product certifier. This allows Element to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

ISED - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB) and as a CAB for the acceptance of test data.

European Union

European Commission – Within Element, we have a EU Notified Body validated for the EMCD and RED Directives.

Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

Korea

MSIT / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

NCC - Recognized by NCC as a CAB for the acceptance of test data.

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Israel

MOC – Recognized by MOC as a CAB for the acceptance of test data.

Hong Kong

OFCA – Recognized by OFCA as a CAB for the acceptance of test data.

Vietnam

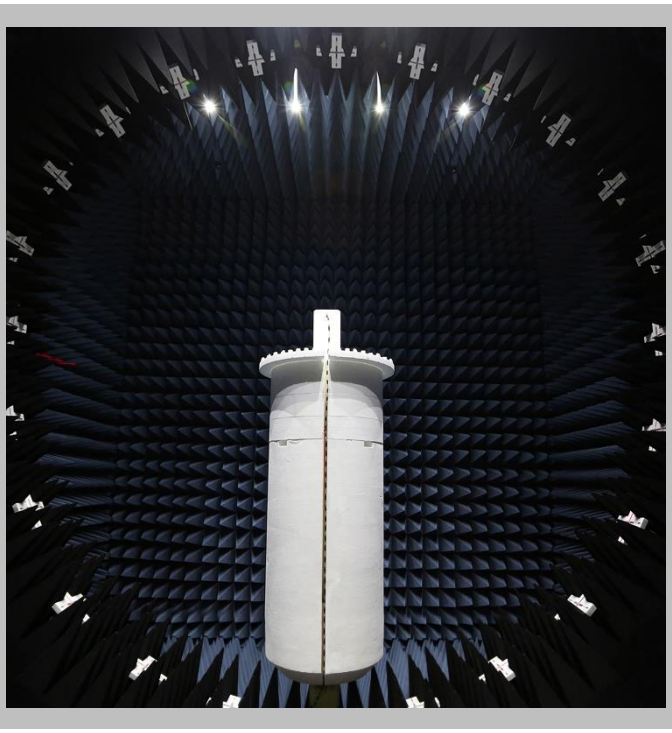
MIC – Recognized by MIC as a CAB for the acceptance of test data.

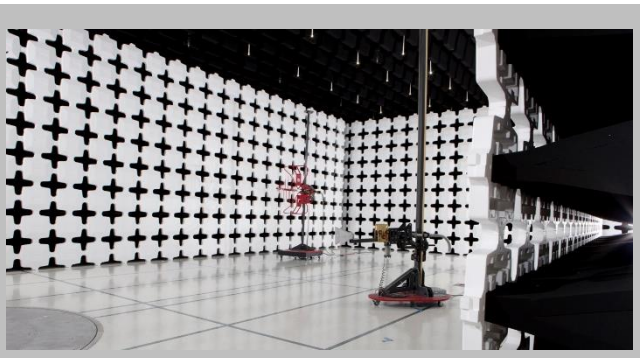
SCOPE

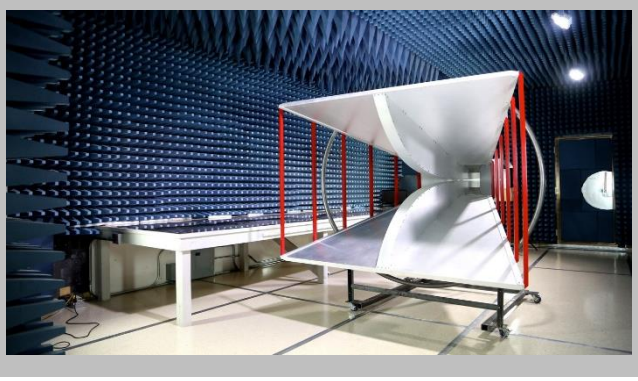
For details on the Scopes of our Accreditations, please visit:
https://www.nwemc.com/emc-testing-accreditations

FACILITIES

California	Minnesota	Oregon	Texas	Washington
Labs OC01-17 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs MN01-10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Labs EV01-12 6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Labs NC01-05 19201 120th Ave NE Bothell, WA 98011 (425)984-6600
NVLAP				
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0
Innovation, Science and Economic Development Canada				
2834B-1, 2834B-3	2834E-1, 2834E-3	2834D-1	2834G-1	2834F-1
BSMI				
SL2-IN-E-1154R	SL2-IN-E-1152R	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI				
A-0029	A-0109	A-0108	A-0201	A-0110
Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA				
US0158	US0175	US0017	US0191	US0157







Measurement Uncertainty

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable test description page. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable), and are available upon request.

Measurement Bandwidths

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

Sample Calculations

Radiated Emissions:

Field Strength		Measured Level		Antenna Factor		Cable Factor		Amplifier Gain		Distance Adjustment Factor		External Attenuation
33.5	=	42.6	+	28.6	+	3.1	-	40.8	+	0.0	+	0.0

Conducted Emissions:

Adjusted Level		Measured Level		Transducer Factor		Cable Factor		External Attenuation
47.1	=	26.7	+	0.3	+	0.1	+	20.0

PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	CORE Transport Technologies, LTD
Address:	105 Trafalgar Street, Level 2
City, State, Zip:	Nelson, New Zealand 7010
Test Requested By:	Casimir Mackenzie
EUT:	CoreInsight Reader
First Date of Test:	November 27, 2019
Last Date of Test:	November 19, 2020
Receipt Date of Samples:	November 27, 2019
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

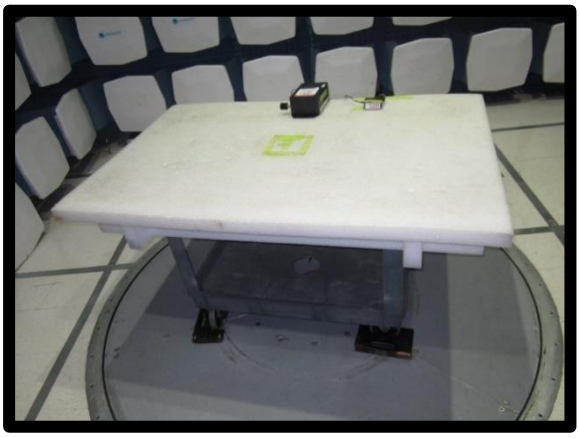
Information Provided by the Party Requesting the Test

Functional Description of the EUT:
Bluetooth Low Energy (BLE) Reader used to monitor movement of goods and equipment with attached Core Tags. (EUT includes pre-approved modules for Bluetooth Low Energy, and Cellular)

Highest frequency generated or used in the device:
Assumes: 5.3 GHz

Testing Objective:
Provide the specific EMC testing requested by the customer.

EUT Photo



CONFIGURATIONS

Configuration RCAL0002- 1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
CoreInsight Reader	CORE Transport Technologies, LTD	RD2	BF072C4F3E26-11E8
Antenna	Embedded Antenna Design (EAD)	WTR7270	None

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
AC/DC Adapter (Reader)	ADAPTER TECH.	ATS036T-W120V	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Power Cable	No	1.7m	No	CoreInsight Reader	AC/DC Adapter

Configuration RCAL0002- 3

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
CoreInsight Reader	CORE Transport Technologies, LTD	RD2	BF072C4F3E26-11E8

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
AC/DC Adapter (Reader)	ADAPTER TECH.	ATS036T-W120V	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Power Cable	No	1.7m	No	CoreInsight Reader	AC/DC Adapter

Configuration RCAL0005- 1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
CoreInsight Reader	CORE Transport Technologies, LTD	RD2	BF072C4F3E26-11E8

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
AC/DC Power Adapter	Adapter Tech	ATS036T-W120V	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Power Cable	No	1.8 m	No	CoreInsight Reader	AC/DC Power Adapter

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2019-11-27	Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
2	2019-11-27	Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT was taken home by the client before the next scheduled test.
3	2020-11-19	Radiated Emissions High Frequency	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

RADIATED EMISSIONS

element
WTD.2019.10.29.0

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, a final radiated emissions test was performed. The frequency range investigated (scanned), is also noted in this report. Radiated emissions measurements were made at the EUT azimuth and antenna height such that the maximum radiated emissions level was detected. This required the use of a turntable and an antenna positioner. The preferred method of a continuous azimuth search was utilized for frequency scans of the EUT field strength with both polarities of the measuring antenna. A calibrated, linearly polarized antenna was positioned at the specified distance from the periphery of the EUT. Tests were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna was varied in height above the conducting ground plane to obtain the maximum signal strength. Though specified in the report, the measurement distance was 3 meters or 10 meters (from antenna to boundary of EUT). At any measurement distance, the antenna height was varied from 1 meter to 4 meters. These height scans apply for both horizontal and vertical polarization, except that for vertical polarization the minimum height of the center of the antenna was increased so that the lowest point of the bottom of the antenna cleared the ground surface by at least 25 cm.

The EUT arrangement is configured as equivalent to that occurring in normal use. Tabletop equipment is placed on a 0.8 meter high non-conductive table & for Floor-standing equipment, it is placed on, but insulated from a ground reference plane by the use of its own rollers or stand-off supports. If measurements above 1 GHz were required, the test setup was modified to meet the regulatory requirements for higher frequency measurements. If required, RF absorber was placed on the floor between the measurement antenna and EUT. If required, per the standard, an insulating material was also added to ground plane between the EUT's power and remote I/O cables.

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. At a 3 meter test distance, the diameter of the illumination area was 3.8 meters at 1 GHz and greater than 2.1 meters up to 6 GHz. Above 1 GHz, when required by the measurement standard, the antenna is pointed for both azimuth and elevation to maintain the receive antenna within the cone of radiation from the EUT. The specified measurement detectors were used for comparison of the emissions to the peak and average specification limits.

The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Antenna - Biconilog	EMCO	3142B	AXJ	2019-02-13	2021-02-13
Cable	None	10m Test Distance Cable	EVL	2019-10-01	2020-10-01
Amplifier - Pre-Amplifier	Miteq	AM-1551	AOY	2019-10-01	2020-10-01
Analyzer - Spectrum Analyzer	Agilent	E4443A	AFB	2019-06-19	2020-06-19
Terminator	Fairview Microwave	STN18N-10	TWM	NCR	NCR

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	3.5 dB	-3.5 dB

FREQUENCY RANGE INVESTIGATED

30 MHz TO 1000 MHz

POWER INVESTIGATED

14 VDC via 110VAC/60Hz

CONFIGURATIONS INVESTIGATED

RCAL0002-3

MODES INVESTIGATED

On, Operating normally

RADIATED EMISSIONS

EUT:	CoreInsight Reader	Work Order:	RCAL0002
Serial Number:	BF072C4F3E26-11E8	Date:	2019-11-27
Customer:	CORE Transport Technologies, LTD	Temperature:	18.3°C
Attendees:	None	Relative Humidity:	34.9%
Customer Project:	None	Bar. Pressure:	997 mb
Tested By:	Brandon Hobbs	Job Site:	EV11
Power:	14 VDC via 110VAC/60Hz	Configuration:	RCAL0002-3

TEST SPECIFICATIONS

Specification: Equipment Class A	Method:
FCC 15.109(g):2019	ANSI C63.4:2014
ICES-003:2016 updated April 2017	ANSI C63.4:2014

TEST PARAMETERS

Run #:	3	Test Distance (m):	10	Ant. Height(s) (m):	1 to 4(m)

COMMENTS

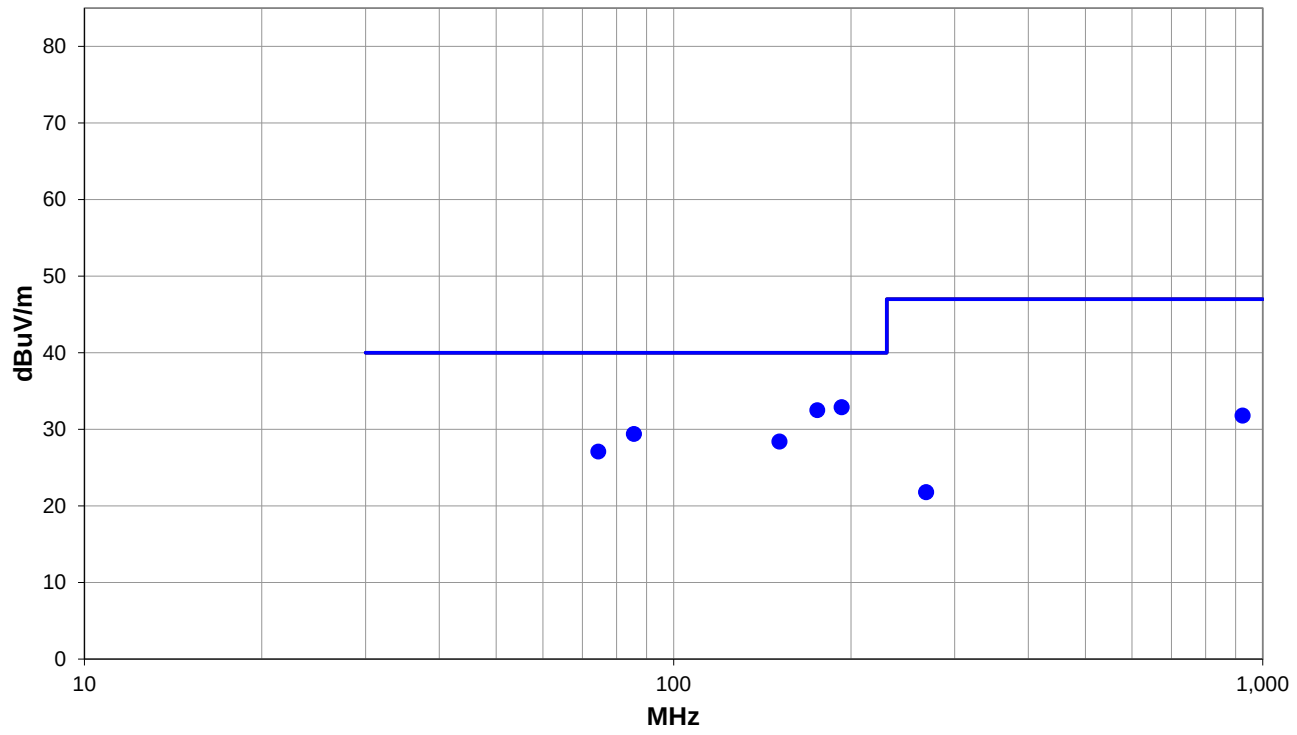
Cellular antenna path 50 ohm terminated

EUT OPERATING MODES

On, Operating normally

DEVIATIONS FROM TEST STANDARD

None



Run #: 3 ■ PK ◆ AV ● QP

RADIATED EMISSIONS

element
WTD.2019.10.29.0

RESULTS - Run #3

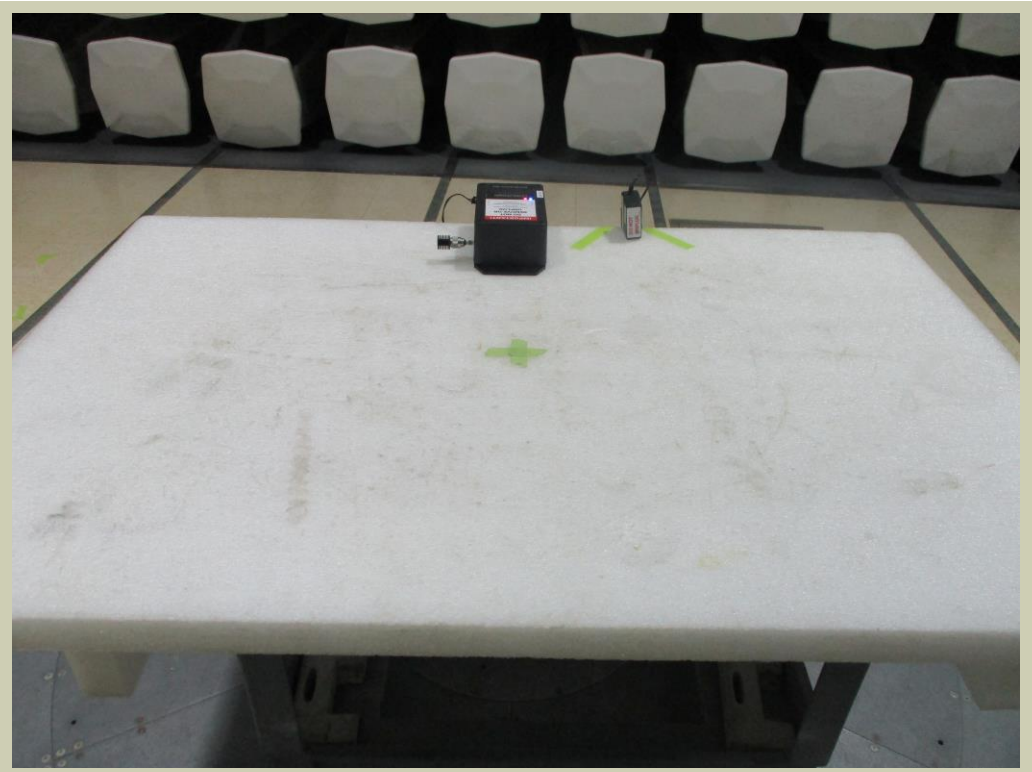
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
192.891	58.6	-25.7	1.0	-5.0	10.0	0.0	Vert	QP	0.0	32.9	40.0	-7.1
175.356	58.3	-25.8	1.5	245.0	10.0	0.0	Vert	QP	0.0	32.5	40.0	-7.5
85.602	59.3	-29.9	1.4	301.0	10.0	0.0	Vert	QP	0.0	29.4	40.0	-10.6
151.257	55.3	-26.9	1.5	295.0	10.0	0.0	Vert	QP	0.0	28.4	40.0	-11.6
74.506	57.4	-30.3	2.2	119.0	10.0	0.0	Vert	QP	0.0	27.1	40.0	-12.9
924.559	41.7	-9.9	1.0	315.0	10.0	0.0	Horz	QP	0.0	31.8	47.0	-15.2
268.238	44.2	-22.4	2.4	53.0	10.0	0.0	Horz	QP	0.0	21.8	47.0	-25.2

CONCLUSION

Pass

Tested By

RADIATED EMISSIONS



RADIATED EMISSIONS HIGH FREQUENCY

element
WTD.2020.03.25.0

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, a final radiated emissions test was performed. The frequency range investigated (scanned), is also noted in this report. Radiated emissions measurements were made at the EUT azimuth and antenna height such that the maximum radiated emissions level was detected. This required the use of a turntable and an antenna positioner. The preferred method of a continuous azimuth search was utilized for frequency scans of the EUT field strength with both polarities of the measuring antenna. A calibrated, linearly polarized antenna was positioned at the specified distance from the periphery of the EUT. Tests were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna was varied in height above the conducting ground plane to obtain the maximum signal strength. Though specified in the report, the measurement distance was 3 meters or 10 meters (from antenna to boundary of EUT). At any measurement distance, the antenna height was varied from 1 meter to 4 meters. These height scans apply for both horizontal and vertical polarization, except that for vertical polarization the minimum height of the center of the antenna was increased so that the lowest point of the bottom of the antenna cleared the ground surface by at least 25 cm.

The EUT arrangement is configured as equivalent to that occurring in normal use. Tabletop equipment is placed on a 0.8 meter high non-conductive table & for Floor-standing equipment, it is placed on, but insulated from a ground reference plane by the use of its own rollers or stand-off supports. If measurements above 1 GHz were required, the test setup was modified to meet the regulatory requirements for higher frequency measurements. If required, RF absorber was placed on the floor between the measurement antenna and EUT. If required, per the standard, an insulating material was also added to ground plane between the EUT's power and remote I/O cables.

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. At a 3 meter test distance, the diameter of the illumination area was 3.8 meters at 1 GHz and greater than 2.1 meters up to 6 GHz. Above 1 GHz, when required by the measurement standard, the antenna is pointed for both azimuth and elevation to maintain the receive antenna within the cone of radiation from the EUT. The specified measurement detectors were used for comparison of the emissions to the peak and average specification limits.

The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Antenna - Double Ridge	EMCO	3115	AHC	2020-07-01	2022-07-01
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAG	2020-11-18	2021-11-17
Cable	N/A	Double Ridge Horn Cables	EVB	2020-11-18	2021-11-17
Attenuator	Coaxicom	3910-20	AXZ	2020-02-15	2021-02-15
Filter - High Pass	Micro-Tronics	HPM50111	HFO	2020-11-17	2021-11-17
Antenna - Standard Gain	ETS Lindgren	3160-07	AHU	NCR	NCR
Amplifier - Pre-Amplifier	L-3 Narda-MITEQ	AMF-6F-08001200-30-10P	PAO	2020-11-18	2021-11-18
Cable	None	Standard Gain Horns Cable	EVF	2020-11-18	2021-11-18
Antenna - Standard Gain	ETS Lindgren	3160-08	AHV	NCR	NCR
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	2020-11-17	2021-11-17
Antenna - Standard Gain	ETS Lindgren	3160-09	AIV	NCR	NCR
Amplifier - Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	2020-07-25	2021-07-25
Cable	ESM Cable Corp.	TTBJ141-KMKM-72	EVY	2020-07-25	2021-07-25
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	2019-12-13	2020-12-13

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	5.2 dB	-5.2 dB

FREQUENCY RANGE INVESTIGATED

1 GHz TO 26.5 GHz

POWER INVESTIGATED

110VAC/60Hz

RADIATED EMISSIONS HIGH FREQUENCY

element
WTD.2020.03.25.0

CONFIGURATIONS INVESTIGATED

RCAL0005- 1

MODES INVESTIGATED

On, operating normally.

RADIATED EMISSIONS HIGH FREQUENCY

element
WTD.2020.03.25.0

EUT:	CoreInsight Reader	Work Order:	RCAL0005
Serial Number:	BF072C4F3E26-11E8	Date:	2020-11-19
Customer:	CORE Transport Technologies, LTD	Temperature:	22.1°C
Attendees:	None	Relative Humidity:	39.1%
Customer Project:	None	Bar. Pressure:	1026 mb
Tested By:	Eric Gioe	Job Site:	EV01
Power:	110VAC/60Hz	Configuration:	RCAL0005- 1

TEST SPECIFICATIONS

Specification: Equipment Class A	Method:
FCC 15.109:2020	ANSI C63.4:2014
ICES-003:2016 updated 2017 and 2019	ANSI C63.4:2014

TEST PARAMETERS

Run #:	1	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)

COMMENTS

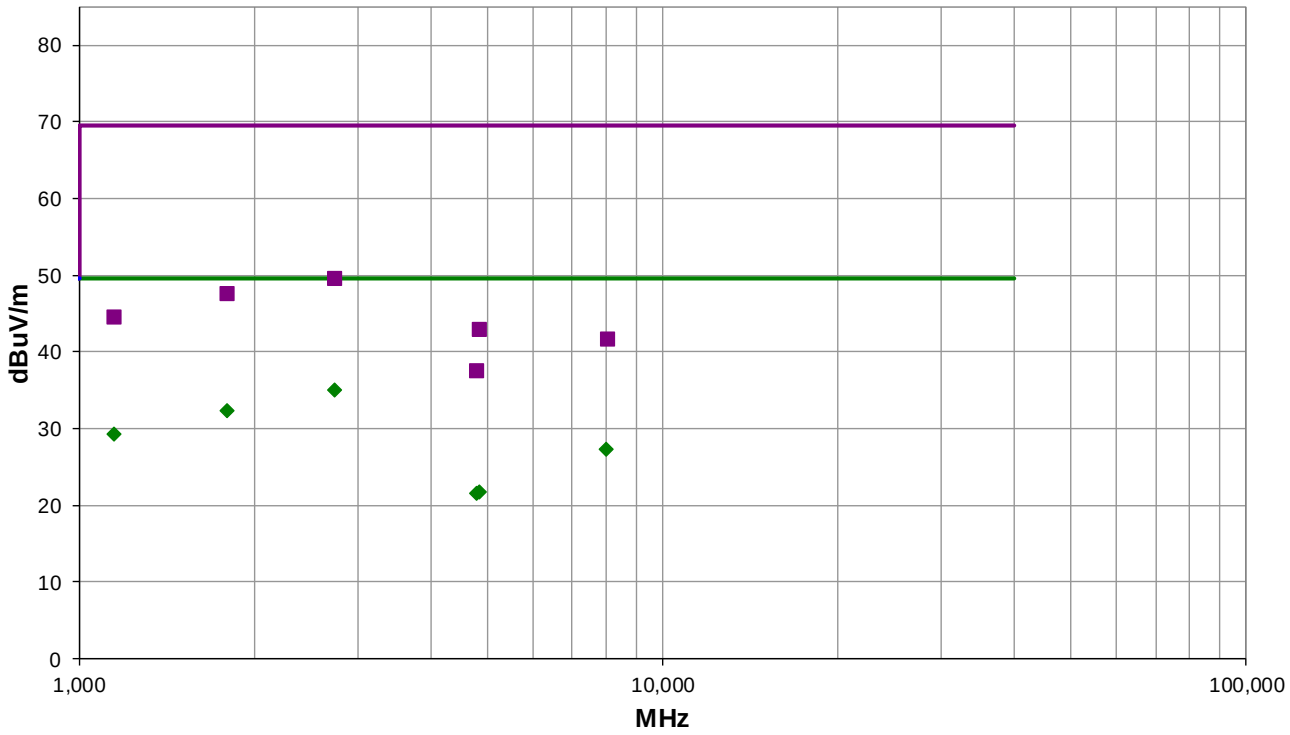
Cellular antenna 50 Ohm terminated.

EUT OPERATING MODES

On, operating normally.

DEVIATIONS FROM TEST STANDARD

None



Run #: 1 ■ PK ◆ AV ● QP

RADIATED EMISSIONS HIGH FREQUENCY

element
WTD.2020.03.25.0

RESULTS - Run #1

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
2742.475	28.3	-2.7	1.5	47.0	3.0	20.0	Horz	AV	-10.5	35.1	49.5	-14.4
1787.725	27.4	-4.5	2.0	141.0	3.0	20.0	Vert	AV	-10.5	32.4	49.5	-17.1
2740.208	42.7	-2.7	1.5	47.0	3.0	20.0	Horz	PK	-10.5	49.5	69.5	-20.0
1147.500	27.8	-8.1	1.5	332.0	3.0	20.0	Horz	AV	-10.5	29.2	49.5	-20.3
1790.125	42.6	-4.5	2.0	141.0	3.0	20.0	Vert	PK	-10.5	47.6	69.5	-21.9
8021.967	25.8	12.0	1.8	57.0	3.0	0.0	Horz	AV	-10.5	27.3	49.5	-22.2
1146.867	43.1	-8.1	1.5	332.0	3.0	20.0	Horz	PK	-10.5	44.5	69.5	-25.0
4851.358	47.6	5.9	1.2	322.0	3.0	0.0	Horz	PK	-10.5	43.0	69.5	-26.5
4851.800	26.3	5.9	1.2	322.0	3.0	0.0	Horz	AV	-10.5	21.7	49.5	-27.8
8026.308	40.1	12.0	1.8	57.0	3.0	0.0	Horz	PK	-10.5	41.6	69.5	-27.9
4803.658	27.0	5.1	1.4	183.0	3.0	0.0	Vert	AV	-10.5	21.6	49.5	-27.9
4803.558	43.0	5.1	1.4	183.0	3.0	0.0	Vert	PK	-10.5	37.6	69.5	-31.9

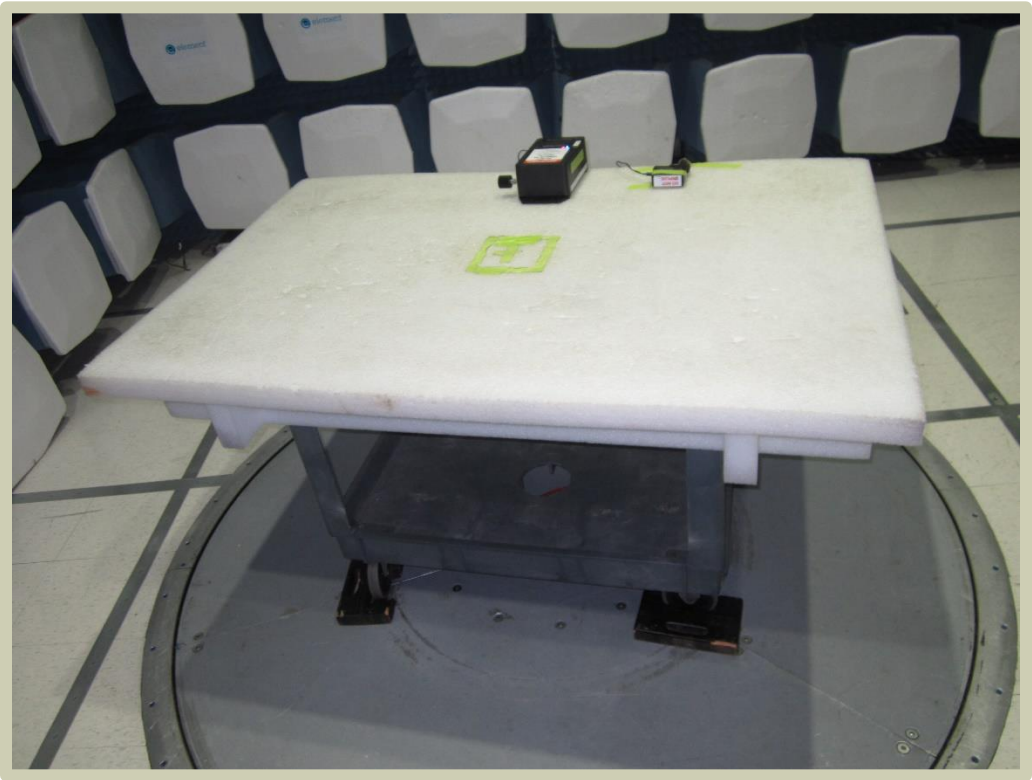
CONCLUSION

Pass

Tested By

RADIATED EMISSIONS HIGH FREQUENCY

element
WTD.2020.03.25.0



CONDUCTED EMISSIONS

element
WTD.2019.10.29.0

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Per the standard, an insulating material was also added to ground plane between the EUT's power and remote I/O cables. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
LISN	Solar Electronics	9252-50-R-24-BNC	LIP	2019-08-28	2020-08-28
Cable - Conducted Cable Assembly	Northwest EMC	EVG, HHD, RKT	EVGA	2019-01-07	2020-01-07
Receiver	Rohde & Schwarz	ESCI	ARH	2019-05-02	2020-05-02

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.4 dB	-2.4 dB

CONFIGURATIONS INVESTIGATED

RCAL0002-1

MODES INVESTIGATED

On, Operating normally with no active links

CONDUCTED EMISSIONS

EUT:	CoreInsight Reader	Work Order:	RCAL0002
Serial Number:	BF072C4F3E26-11E8	Date:	2019-11-27
Customer:	CORE Transport Technologies, LTD	Temperature:	19.6°C
Attendees:	None	Relative Humidity:	33.4%
Customer Project:	None	Bar. Pressure:	999 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	14 VDC via 110VAC/60Hz	Configuration:	RCAL0002-1

TEST SPECIFICATIONS

Specification: Equipment Class A	Method:
FCC 15.107:2019	ANSI C63.4:2014
ICES-003:2016 updated April 2017	ANSI C63.4:2014

TEST PARAMETERS

Run #:	9	Line:	Neutral	Add. Ext. Attenuation (dB):	0

COMMENTS

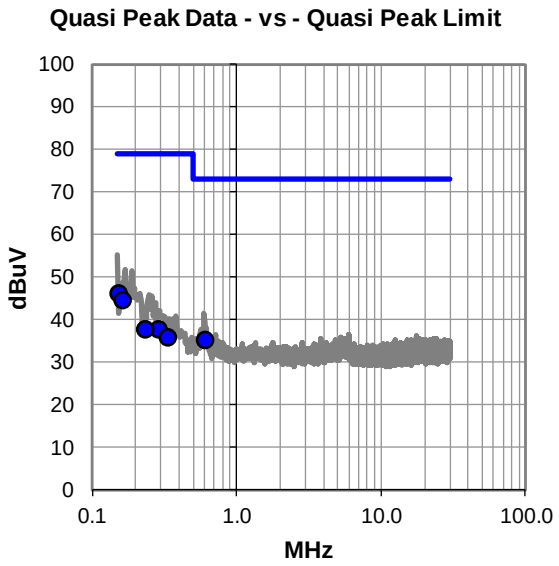
None

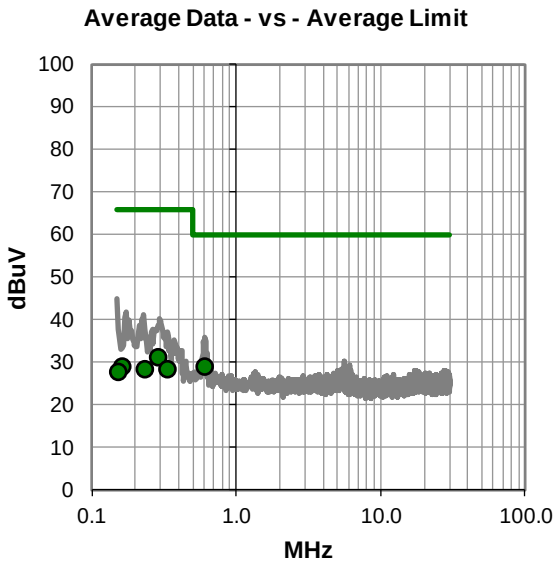
EUT OPERATING MODES

On, Operating normally with no active links

DEVIATIONS FROM TEST STANDARD

None





CONDUCTED EMISSIONS

element
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RESULTS - Run #9

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (()	Spec. Limit (()	Margin (dB)
0.2	26.100	20.1	46.2	79.0	-32.8
0.2	24.700	20.0	44.7	79.0	-34.3
0.6	15.400	19.9	35.3	73.0	-37.7
0.3	17.600	20.0	37.6	79.0	-41.4
0.3	15.900	20.0	35.9	79.0	-43.1
0.2	17.700	20.0	37.7	79.0	-41.3

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (()	Spec. Limit (()	Margin (dB)
0.6	9.100	19.9	29.0	60.0	-31.0
0.3	11.100	20.0	31.1	66.0	-34.9
0.3	8.400	20.0	28.4	66.0	-37.6
0.2	8.300	20.0	28.3	66.0	-37.7
0.2	8.900	20.0	28.9	66.0	-37.1
0.2	7.700	20.1	27.8	66.0	-38.2

CONCLUSION

Pass

Tested By

CONDUCTED EMISSIONS

element
WTD.2019.10.29.0

EUT:	CoreInsight Reader	Work Order:	RCAL0002
Serial Number:	BF072C4F3E26-11E8	Date:	2019-11-27
Customer:	CORE Transport Technologies, LTD	Temperature:	19.6°C
Attendees:	None	Relative Humidity:	33.4%
Customer Project:	None	Bar. Pressure:	999 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	14 VDC via 110VAC/60Hz	Configuration:	RCAL0002-1

TEST SPECIFICATIONS

Specification: Equipment Class A	Method:
FCC 15.107:2019	ANSI C63.4:2014
ICES-003:2016 updated April 2017	ANSI C63.4:2014

TEST PARAMETERS

Run #:	10	Line:	High Line	Add. Ext. Attenuation (dB):	0

COMMENTS

None

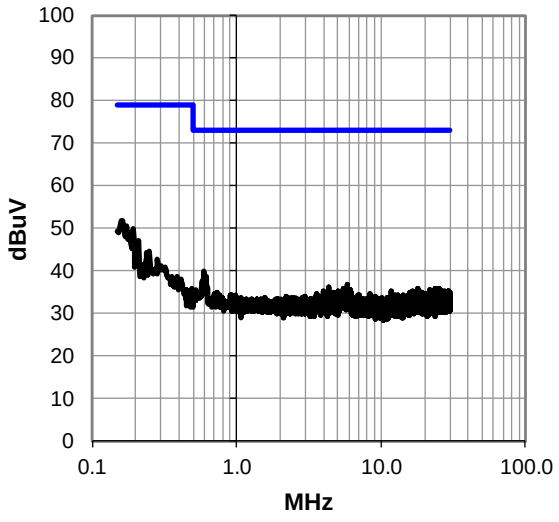
EUT OPERATING MODES

On, Operating normally with no active links

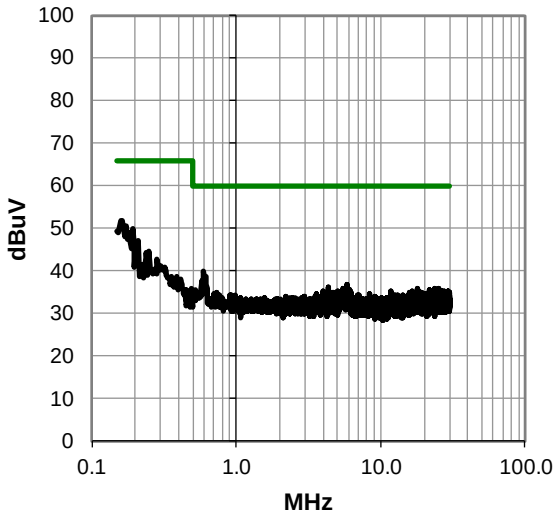
DEVIATIONS FROM TEST STANDARD

None

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



CONDUCTED EMISSIONS

element
WTD.2019.10.29.0

RESULTS - Run #10

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (()	Spec. Limit (()	Margin (dB)
0.2	31.800	20.1	51.9	79.0	-27.1
0.2	29.900	20.0	49.9	79.0	-29.1
0.2	27.100	20.0	47.1	79.0	-31.9
0.6	19.900	19.9	39.8	73.0	-33.2
0.2	24.500	20.0	44.5	79.0	-34.5
0.2	24.400	20.0	44.4	79.0	-34.6
0.6	17.700	19.9	37.6	73.0	-35.4
5.8	16.600	20.2	36.8	73.0	-36.2
0.3	22.700	20.0	42.7	79.0	-36.3
4.3	15.900	20.2	36.1	73.0	-36.9
5.5	15.700	20.2	35.9	73.0	-37.1
25.4	15.000	20.9	35.9	73.0	-37.1
17.9	15.200	20.6	35.8	73.0	-37.2
23.8	14.900	20.9	35.8	73.0	-37.2
6.0	15.500	20.2	35.7	73.0	-37.3
6.1	15.500	20.2	35.7	73.0	-37.3
21.6	14.900	20.8	35.7	73.0	-37.3
5.9	15.300	20.2	35.5	73.0	-37.5
5.7	15.200	20.2	35.4	73.0	-37.6
6.1	15.200	20.2	35.4	73.0	-37.6
11.8	14.900	20.4	35.3	73.0	-37.7
5.0	15.000	20.2	35.2	73.0	-37.8
5.5	15.000	20.2	35.2	73.0	-37.8
5.8	15.000	20.2	35.2	73.0	-37.8
18.5	14.400	20.8	35.2	73.0	-37.8

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (()	Spec. Limit (()	Margin (dB)
0.2	31.800	20.1	51.9	66.0	-14.1
0.2	29.900	20.0	49.9	66.0	-16.1
0.2	27.100	20.0	47.1	66.0	-18.9
0.6	19.900	19.9	39.8	60.0	-20.2
0.2	24.500	20.0	44.5	66.0	-21.5
0.2	24.400	20.0	44.4	66.0	-21.6
0.6	17.700	19.9	37.6	60.0	-22.4
5.8	16.600	20.2	36.8	60.0	-23.2
0.3	22.700	20.0	42.7	66.0	-23.3
4.3	15.900	20.2	36.1	60.0	-23.9
5.5	15.700	20.2	35.9	60.0	-24.1
25.4	15.000	20.9	35.9	60.0	-24.1
17.9	15.200	20.6	35.8	60.0	-24.2
23.8	14.900	20.9	35.8	60.0	-24.2
6.0	15.500	20.2	35.7	60.0	-24.3
6.1	15.500	20.2	35.7	60.0	-24.3
21.6	14.900	20.8	35.7	60.0	-24.3
5.9	15.300	20.2	35.5	60.0	-24.5
5.7	15.200	20.2	35.4	60.0	-24.6
6.1	15.200	20.2	35.4	60.0	-24.6
11.8	14.900	20.4	35.3	60.0	-24.7
5.0	15.000	20.2	35.2	60.0	-24.8
5.5	15.000	20.2	35.2	60.0	-24.8
5.8	15.000	20.2	35.2	60.0	-24.8
18.5	14.400	20.8	35.2	60.0	-24.8

CONCLUSION

Pass

Tested By

CONDUCTED EMISSIONS

CONDUCTED EMISSIONS

element
WTD.2019.10.29.0