ICES Test Report

Equipment	:	**Driveri**
Brand Name	:	**Netradyne**
Model No.	:	**D-210**
Derivative Model No.	:	**D-210A, D-211**
Standard	:	**47 CFR FCC Part 15B** **Canada Standard ICES-003 Issue 7**
Device Class	:	**Class B**
Applicant	:	**Netradyne Inc.**
Manufacturer	:	**Netradyne Inc.**

Date of Receipt: Jun. 23, 2020 Date of Test: Jun. 25, 2020

Date of Issue: Jul. 14, 2020 Test Result: **In Compliance/Pass**

Tested By: Anshul Tyagi

Approved By: Steven Wu

Reviewed by:

Dr R Lenin Raja)
(Authorized Representative) (/ lenin83/)

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Contact:0124-4235350,4145343;e-mail:info@aaemtlabs.com;Website: www.aaemtlabs.com
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1 Summary of Test Result

Test	Test Requirement	Test Method	Criterion	Result
Conducted Emission 150kHz to 30MHz	FCC Part15-B:2014, ANSI C63.4-2014, ICES-003 Issue 7	Clause 7 of CISPR 16-2-1	Limits	**PASS**
Radiated Emissions 30MHz to 1GHz	FCC Part15-B:2014, ANSI C63.4-2014, ICES-003 Issue 7	Clause 7.3 of CISPR 16-2-3	Limits	**PASS**

N/A is an abbreviation for Not Applicable.

Model description: D-210 : Intelligent Driver Monitoring System Smart Dash-cam

D-210A : Intelligent Driver Monitoring System Smart Dash-cam Series 1

D-211 : Intelligent Driver Monitoring System Smart Dash-cam WA

Driveri is an AI powered vision based IoT system, sold as an aftermarket product to fleets. The device is installed in trucks/cars behind the rear-view mirror, and the power is supplied from the car battery through a custom power cable.

When the vehicle is being driven, the road facing camera is enabled by default, records and generates real time safety alerts to assist the driver. The camera facing the driver / passenger's optional due to privacy requirements and enabled at customers' request. The recorded videos are processed (using our patented machine learning algorithms) on the device together with the other sensor data and can detect any events related to driving behavior and driver behavior. The device has 2 buttons on the bottom side of the device, when pressed creates alerts which are user generated. 2 LEDs on driver facing side indicate the current operational state of device & also indicate privacy setting (driver facing camera recording status).

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2 General Description

2.1 General Description of EUT

Manufacturer:	Netradyne Inc.
Manufacturer Address:	9191 Towne Centre Drive, Suite 200, San Diego, CA 92122
EUT Name:	Driveri
Model No:	D-210
Serial Number:	D-210A, D-211
Brand Name:	Netradyne
H/W No.:	501-1-01283_A1, 501-1-01301_A1, 501-1-00908_B1, 501-1-01243_A1
S/W No.:	2.4.9.rc.2
Power Supply Range:	Input : 12VDC, 3A
Battery:	N/A

2.2 EUT Test Mode

Mode 1	The EUT in full transmission mode.

2.3 Description of Test setup

EUT was tested in normal configuration (Please See following Block diagrams)

1. Block diagram of EUT configuration
Config 1: 

2.4 Test Peripheral List

No.	Equipment	Manufacturer	EMC Compliance	Model No.	Serial No.	Power cord	signal cable
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

2.5 EUT Peripheral List

No.	Equipment	Manufacturer	FCC ID	Model No.	Serial No.	Power cord	signal cable
1	Driveri/DCM LTE Module	Netradyne Inc.	2AM8R-DCM-NA1-100	DriverI/DCM	N/A	N/A	N/A
2	CAN Adaptor Board	Netradyne Inc.	N/A	A1 version : D-210-AD1 A2 version : D-210-AD2 A3 Version : D-210-AD3	N/A	N/A	N/A

2.6 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR FCC Part 15B
- Canada Standard ICES-003 Issue 7
- ANSI C63.4-2014

2.7 Testing facility

AA Electro Magnetic Test Laboratory is an ISO 17025:2017 certified lab by NABL, Certification No.TC-8597, CE Marking Certificate from Phoenix Germany #800058_00 and ILAC-MRA #0366.
We are also accredited ISO17025:2017 by A2LA(American association for laboratory accreditation) #5593.0I ,FCC Recognized #0029402088, ISED recognized for wireless product #26046, VCCI(Japan) supporting member #4053.

2.8 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

No.	Item	Frequency Range	U , Value
1	Power Line Conducted Emission	150KHz~30MHz	2.77 dB
2	Radiated Emission Test	30MHz~1GHz	2.81 dB
3	Radiated Emission Test	1GHz~6GHz	2.84 dB

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

3.1.2 Measuring Instruments

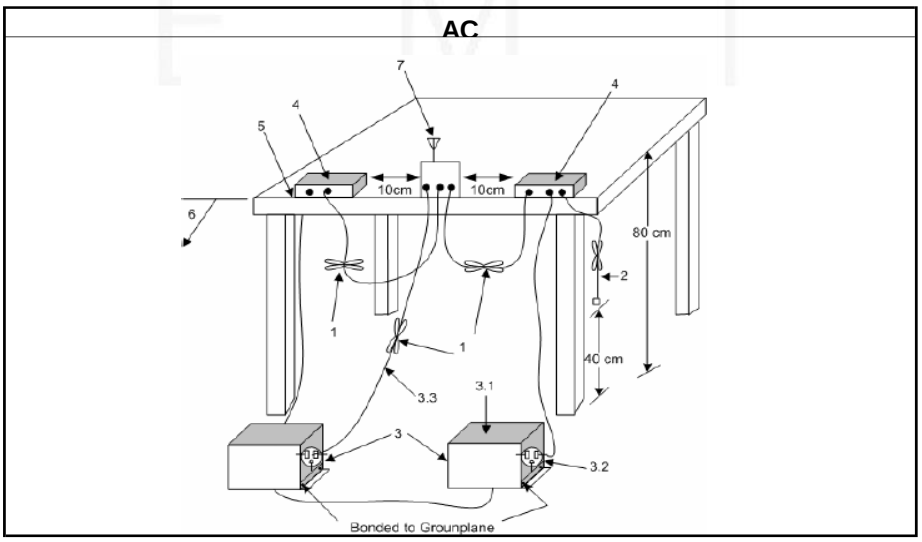
Frequency (MHz)	☐ Class A (dBµV)		☒ Class B (dBµV)	
	Q.P. (Quasi-Peak)	A.V. (Average)	Q.P. (Quasi-Peak)	A.V. (Average)
0.15 ~ 0.50	79	66	66 to 56	56 to 46
0.50 ~ 5.0	73	60	56	46
5.0 ~ 30	73	60	60	50

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

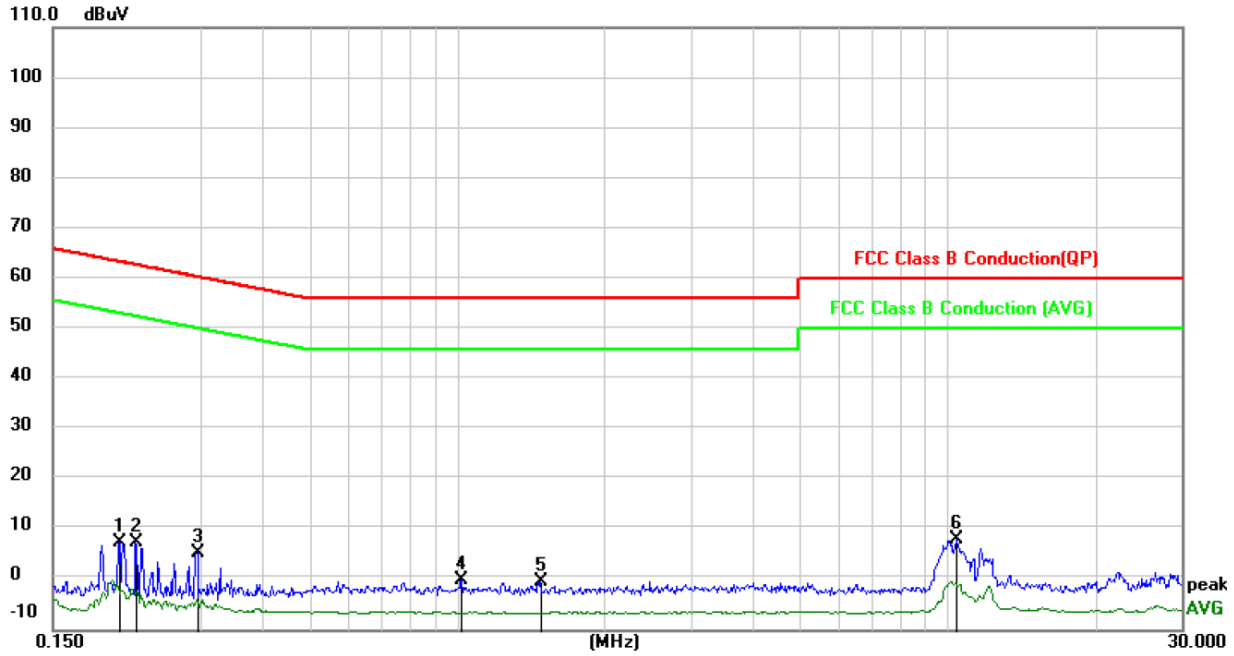
Test Method
☒ Refer as ANSI C63.4, clause 7.3 for AC power-line conducted emissions.

3.1.4 Test Setup



3.1.5 Test Result of AC Power-line Conducted Emissions

Mode:	Mode 1	Test Date :	2020-06-23
Test Voltage:	DC 12V	Phase :	Ambient

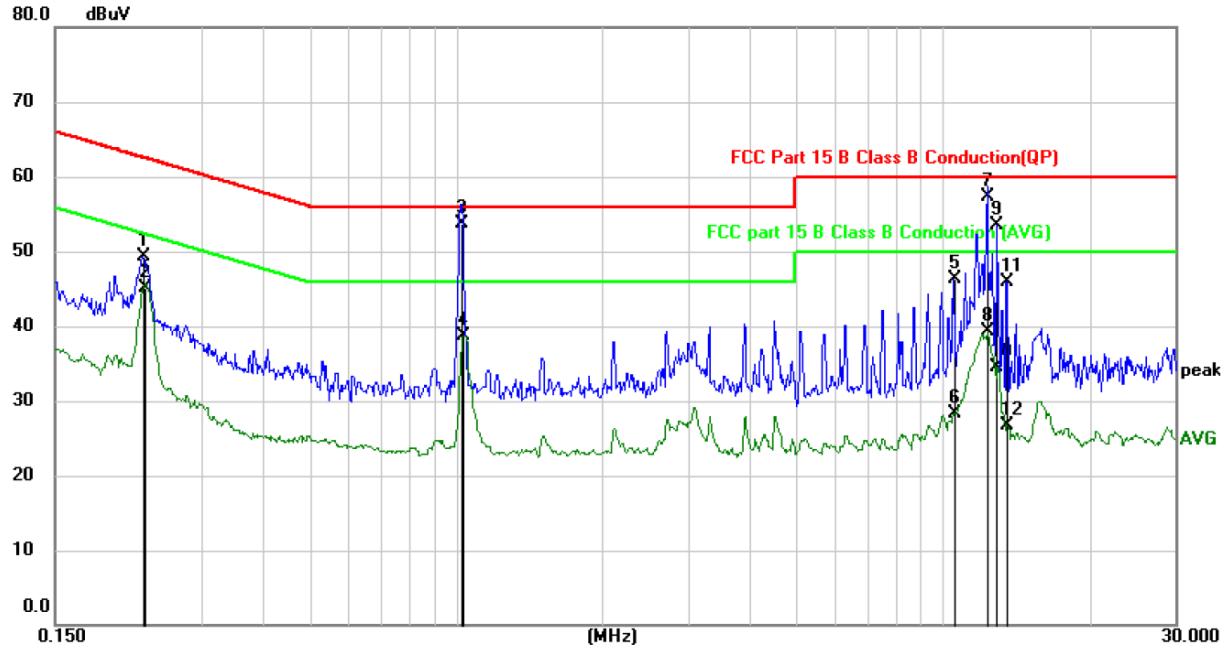


Remark: Factor = LISN factor + Cable Loss + Pulse limiter factor.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2042	6.27	1.27	7.54	63.43	-55.89	peak
2		0.2210	6.34	1.26	7.60	62.78	-55.18	peak
3		0.2942	4.12	1.25	5.37	60.40	-55.03	peak
4		1.0175	-0.73	0.90	0.17	56.00	-55.83	peak
5		1.4720	-1.20	0.85	-0.35	56.00	-56.35	peak
6	*	10.3500	7.36	0.85	8.21	60.00	-51.79	peak

*Maximum Data

Mode:	Mode 1	Test Date :	2020-06-23
Test Voltage:	DC 12V	Phase :	Line

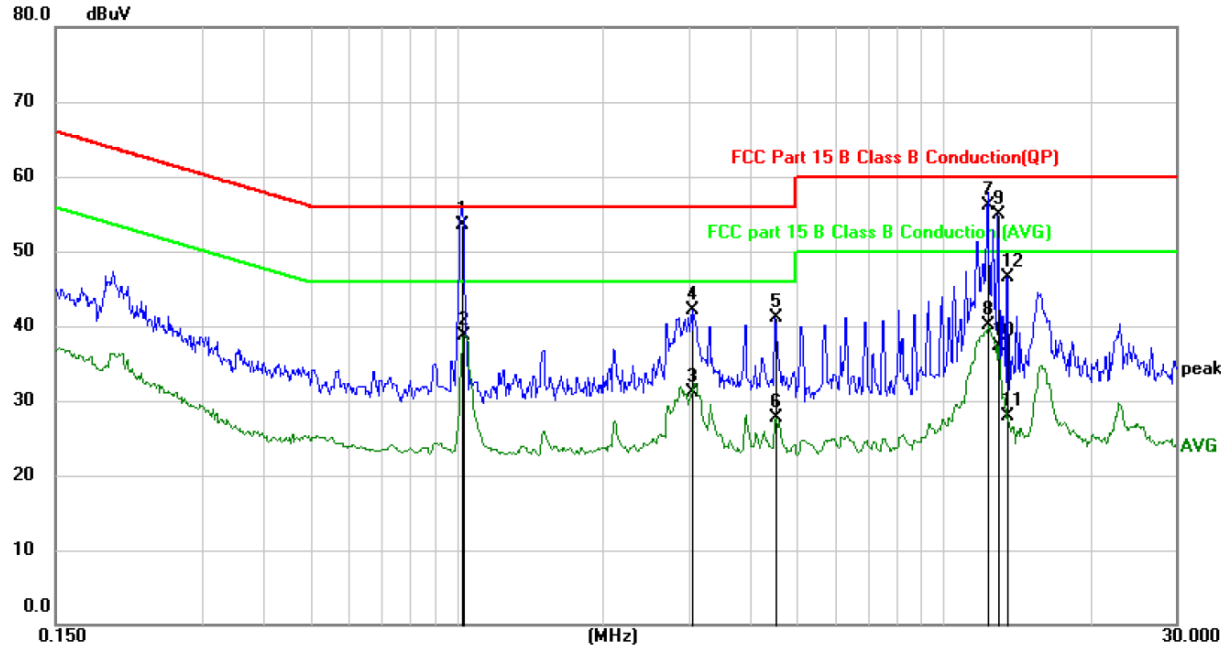


Remark: Factor = LISN factor + Cable Loss + Pulse limiter factor.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2270	33.81	15.46	49.27	62.56	-13.29	QP
2		0.2280	29.72	15.46	45.18	52.52	-7.34	AVG
3	*	1.0258	38.35	15.40	53.75	56.00	-2.25	QP
4		1.0354	23.37	15.40	38.77	46.00	-7.23	AVG
5		10.5250	30.99	15.35	46.34	60.00	-13.66	QP
6		10.5250	13.04	15.35	28.39	50.00	-21.61	AVG
7		12.2987	41.86	15.35	57.21	60.00	-2.79	QP
8		12.3000	23.89	15.35	39.24	50.00	-10.76	AVG
9		12.9000	38.11	15.35	53.46	60.00	-6.54	QP
10		12.9000	19.18	15.35	34.53	50.00	-15.47	AVG
11		13.5000	30.54	15.34	45.88	60.00	-14.12	QP
12		13.5000	11.44	15.34	26.78	50.00	-23.22	AVG

*Maximum Data

Mode:	Mode 1	Test Date :	2020-06-23
Test Voltage:	DC 12V	Phase :	Neutral



Remark: Factor = LISN factor + Cable Loss + Pulse limiter factor.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	1.0234	38.17	15.40	53.57	56.00	-2.43	QP
2		1.0354	23.38	15.40	38.78	46.00	-7.22	AVG
3		3.0424	15.72	15.41	31.13	46.00	-14.87	AVG
4		3.0425	26.63	15.41	42.04	56.00	-13.96	QP
5		4.5050	25.66	15.41	41.07	56.00	-14.93	QP
6		4.5095	12.29	15.41	27.70	46.00	-18.30	AVG
7		12.2990	40.79	15.35	56.14	60.00	-3.86	QP
8		12.3249	24.78	15.35	40.13	50.00	-9.87	AVG
9		12.9250	39.50	15.35	54.85	60.00	-5.15	QP
10		12.9250	21.88	15.35	37.23	50.00	-12.77	AVG
11		13.5000	12.49	15.34	27.83	50.00	-22.17	AVG
12		13.5250	31.20	15.35	46.55	60.00	-13.45	QP

*Maximum Data

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3.2 Radiated Spurious Emissions

3.2.1 Radiated Spurious Emissions Limit

Limits of Radiated Emission Measurement (Below 1GHz)

Frequency (MHz)	☐ Class A (3m)	☒ Class B (3m)
	Quasi-Peak dB(μV/m)	Quasi-Peak dB(μV/m)
30 ~ 88	49.5	40.0
88 ~ 216	54.0	43.5
216 ~ 960	57.0	46.0
Above 960	60.0	54.0

Limits of Radiated Emission Measurement (Above 1GHz)

Frequency (MHz)	☐ Class A (3m)		☒ Class B (3m)	
	Peak dB(μV/m)	Average dB(μV/m)	Peak dB(μV/m)	Average dB(μV/m)
1000~6000	80	60	74	54

3.2.2 Measuring Instruments

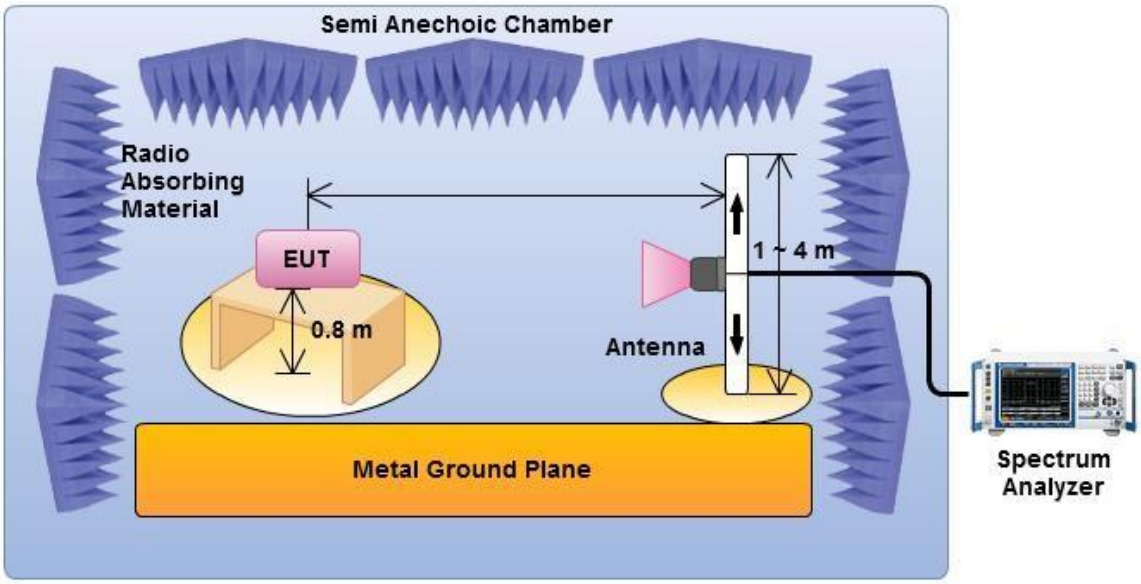
Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

Test Method – General Information
EUT was placed upon a Polyester Fiber top test table which was placed on the turn table 0.8m above the horizontal metal ground plane, and operating in the mode as mentioned above. A receiving antenna was placed 3m away from the EUT. During testing, turn around the turn table and move the antenna from 1m to 4m to find the maximum field-strength reading. All peripherals were placed at a distance of 10cm between each other. Both horizontal and vertical antenna polarities were tested.

3.2.4 Test Setup

Radiated Spurious Emissions



Magnetic field tests shall be performed in the frequency range of 9 kHz to 30 MHz using a calibrated loop antenna. Electric field tests shall be performed in the frequency range of 30 MHz to 1000 MHz using a calibrated bi-log antenna and the frequency range of 1 GHz to 40 GHz using a calibrated horn antenna.

3.2.5 Radiated Emissions (Below 1GHz)

Test Mode:	Mode 1	Test Date :	2020-06-23
Test Voltage :	DC 12V	Polarization :	Ambient

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		33.8878	16.77	-15.52	1.25	40.00	-38.75	peak
2		661.7635	23.16	-6.75	16.41	46.00	-29.59	peak
3		782.2846	22.88	-4.78	18.10	46.00	-27.90	peak
4		877.5351	25.54	-4.61	20.93	46.00	-25.07	peak
5	*	902.8056	36.60	-4.49	32.11	46.00	-13.89	peak
6		941.6834	34.74	-3.31	31.43	46.00	-14.57	peak

*Maximum Data

Test Mode:	Mode 1	Test Date :	2020-06-23
Test Voltage :	DC 12V	Polarization :	Vertical

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		30.0000	57.07	-28.29	28.78	40.00	-11.22	peak
2	*	37.7756	64.88	-31.64	33.24	40.00	-6.76	peak
3		82.4850	62.28	-29.63	32.65	40.00	-7.35	peak
4		115.5311	60.23	-24.50	35.73	43.50	-7.77	peak
5		142.7455	55.95	-22.65	33.30	43.50	-10.20	peak
6		902.8056	41.29	-5.29	36.00	46.00	-10.00	peak

*Maximum Data

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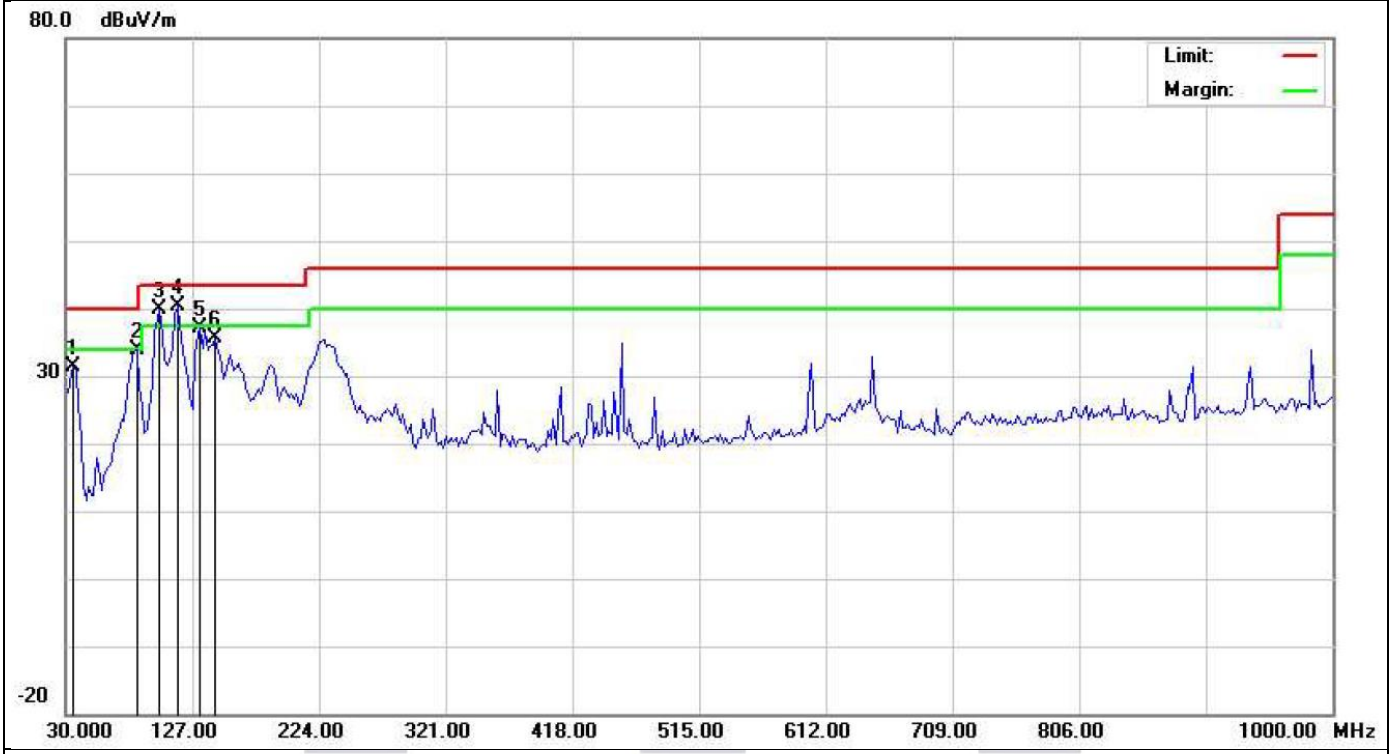
Test Mode:	Mode 1	Test Date :	2020-06-23
Test Voltage :	DC 12V	Polarization :	Horizontal



Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		35.8316	62.25	-30.79	31.46	40.00	-8.54	peak
2		84.4289	63.00	-29.19	33.81	40.00	-6.19	peak
3	!	101.9238	65.44	-25.68	39.76	43.50	-3.74	peak
4	*	115.5311	64.92	-24.50	40.42	43.50	-3.08	peak
5		133.0261	60.27	-23.25	37.02	43.50	-6.48	peak
6		144.6894	58.26	-22.51	35.75	43.50	-7.75	peak

*Maximum Data
!Above Margin

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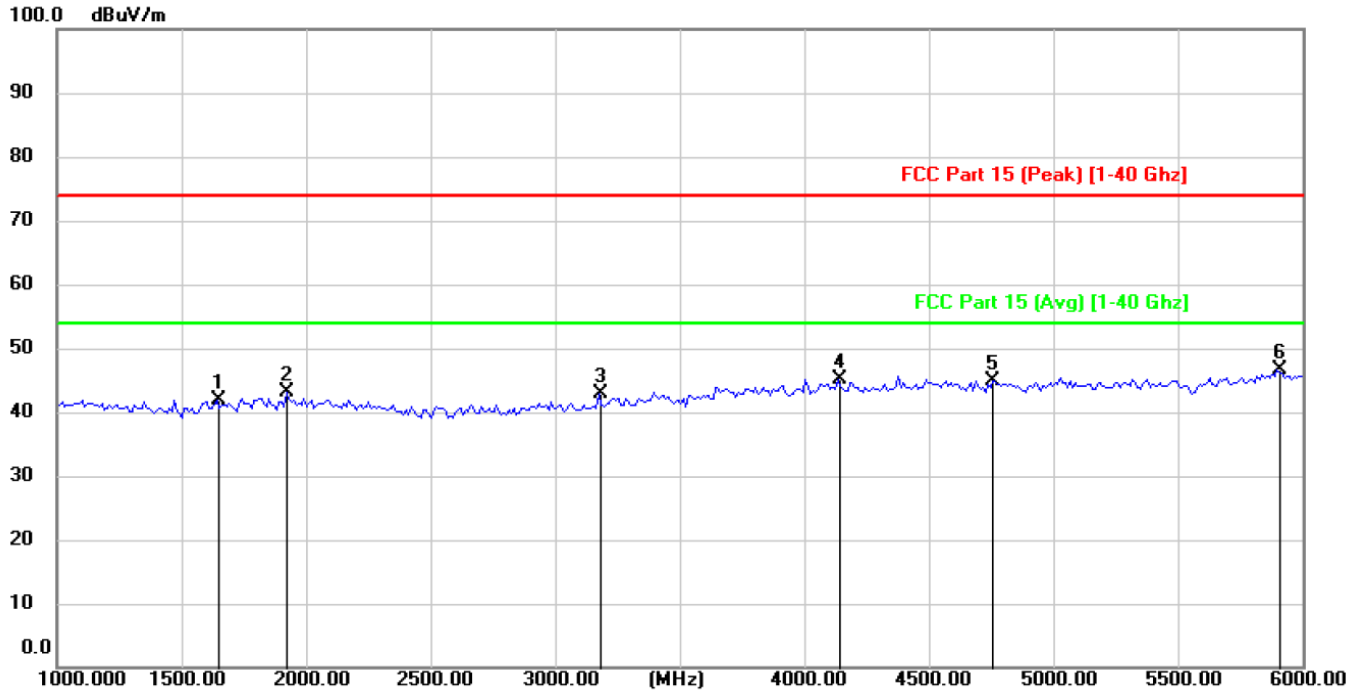
3.2.6 Radiated Emissions (Above 1GHz)

Test Mode:	Mode 1	Test Date :	2020-06-25
Test Voltage :	DC 12V	Polarization :	Vertical

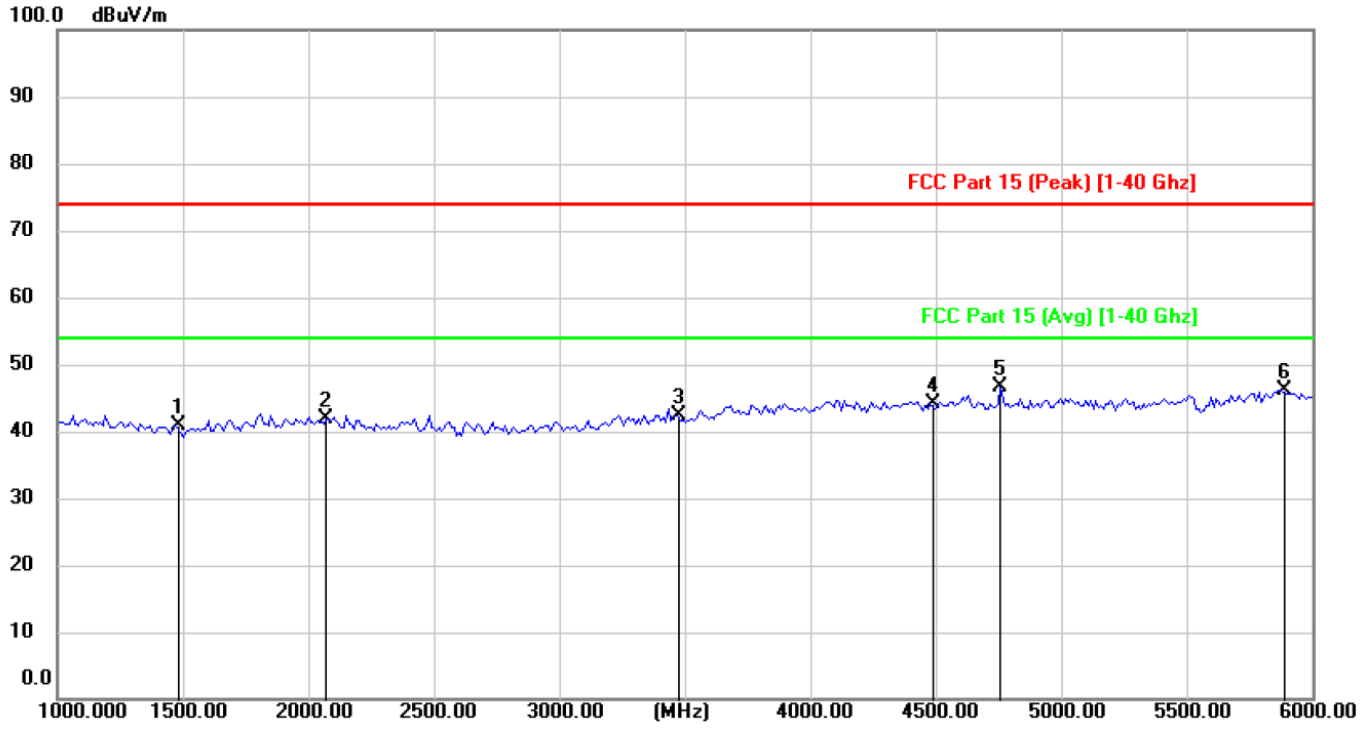


Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		1641.283	35.28	6.57	41.85	74.00	-32.15	peak
2		1921.843	36.55	6.61	43.16	74.00	-30.84	peak
3		3174.349	37.75	5.06	42.81	74.00	-31.19	peak
4		4136.273	37.61	7.49	45.10	74.00	-28.90	peak
5		4757.515	37.17	7.67	44.84	74.00	-29.16	peak
6	*	5899.800	37.28	9.34	46.62	74.00	-27.38	peak

*Maximum Data

Test Mode:	Mode 1	Test Date :	2020-06-25
Test Voltage :	DC 12V	Polarization :	Horizontal



Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		1470.942	34.11	6.73	40.84	74.00	-33.16	peak
2		2072.144	35.58	6.28	41.86	74.00	-32.14	peak
3		3464.930	36.51	5.93	42.44	74.00	-31.56	peak
4		4476.954	36.44	7.59	44.03	74.00	-29.97	peak
5	*	4757.515	38.91	7.67	46.58	74.00	-27.42	peak
6		5879.760	36.79	9.28	46.07	74.00	-27.93	peak

*Maximum Data
!Above Margin

4 Test Equipment and Calibration Data

☒ Radiation Test Equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	EMI TEST Receiver	Rohde and schwarz	ESIB26	838786/010	2020/01/28	2021/01/27
2	Loop antenna	DA ZE Beijing	ZN30900C	18052	2020/01/29	2021/01/28
3	Horn antenna	DA ZE Beijing	ZN30701	18012	2020/01/30	2021/01/29
4	Horn antenna	DA ZE Beijing	ZN30702	18006	2020/01/30	2021/01/29
5	Horn antenna	DA ZE Beijing	ZN30703	18005	2020/01/30	2021/01/29
6	Pre Amplifier	KELIANDA	LNA-0009295	-	2020/01/28	2021/01/27
7	Pre Amplifier	KELIANDA	CF-00218	-	2020/01/28	2021/01/27
8	Bi conical Antenna	DA ZE Beijing	ZN30505C	17038	2020/01/29	2021/01/30

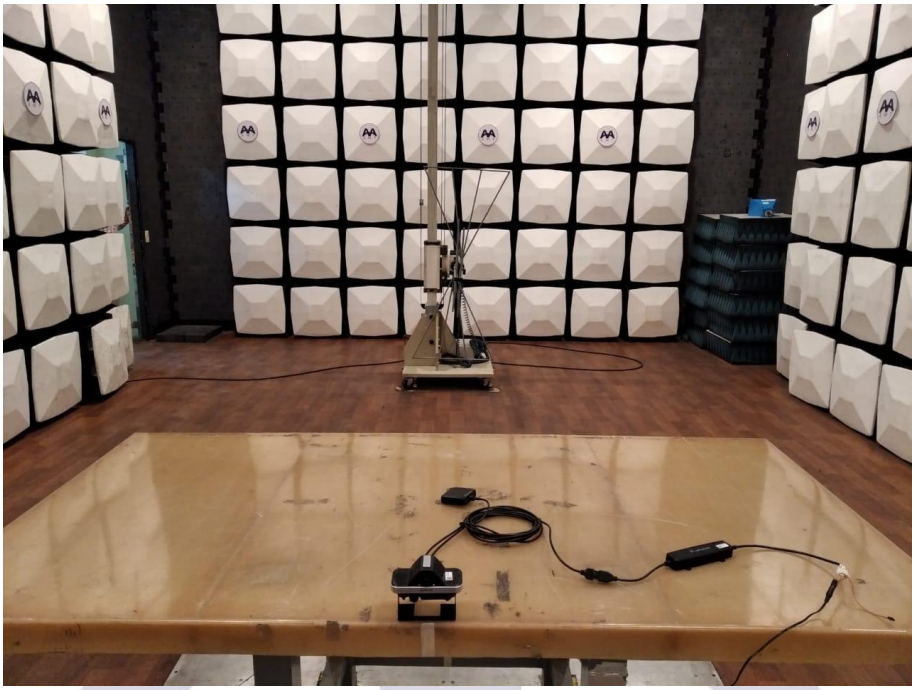
☒ Conduction Test equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	EMI-RECEIVER	Schwarzbeck	FCKL	1528194	2020/01/28	2021/01/27
2	Spectrum Analyzer	ADVANTEST	R3361	-	2019/05/15	2021/05/14
4	LISN	Kyoritsu	KNW-407	8-1789-5	2020/01/28	2021/01/27
5	Network – LISN	Schwarzbeck	NNBM8125	81251314	2020/01/28	2021/01/27
6	Network – LISN	Schwarzbeck	NNBM8125	81251315	2020/01/28	2021/01/27
7	ISN	Schwarzbeck	ISN T8 CAT5	CATS-8158#225	2020/01/28	2021/01/27
8	ISN	Schwarzbeck	ISN T8 CAT6	NTFM8158#184	2020/01/28	2021-01-27
9	ISN	Schwarzbeck	ISN T8 CAT3	CAT3-8158#120	2020/01/28	2021/01/27
10	PULSE LIMITER	Rohde and schwarz	ESH3-Z2	100681	2019/05/13	2021/05/12
11	50Ω Coaxial Switch	DAIWA	1565157	-	2019/05/13	2021/05/12
12	50Ω Coaxial Switch	-	-	-	2019/05/13	2021/05/12

5 Appendix 1

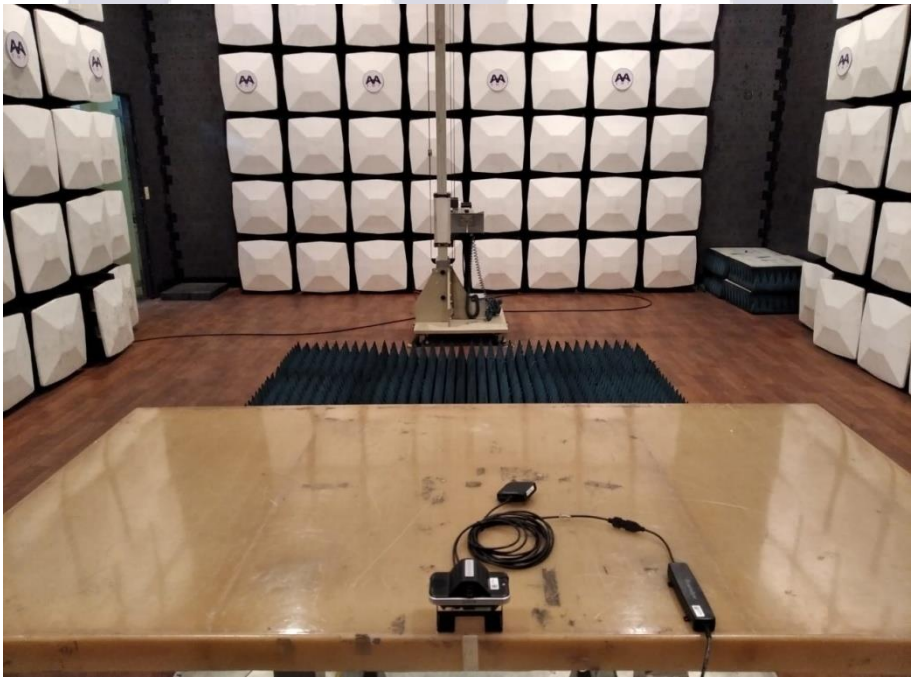
5.1 Photographs of Conducted Emissions Test Configuration

5.2 Photographs of Radiated Emissions Test Configuration

Radiated Emission below 1GHz



For radiated emission above 1GHz

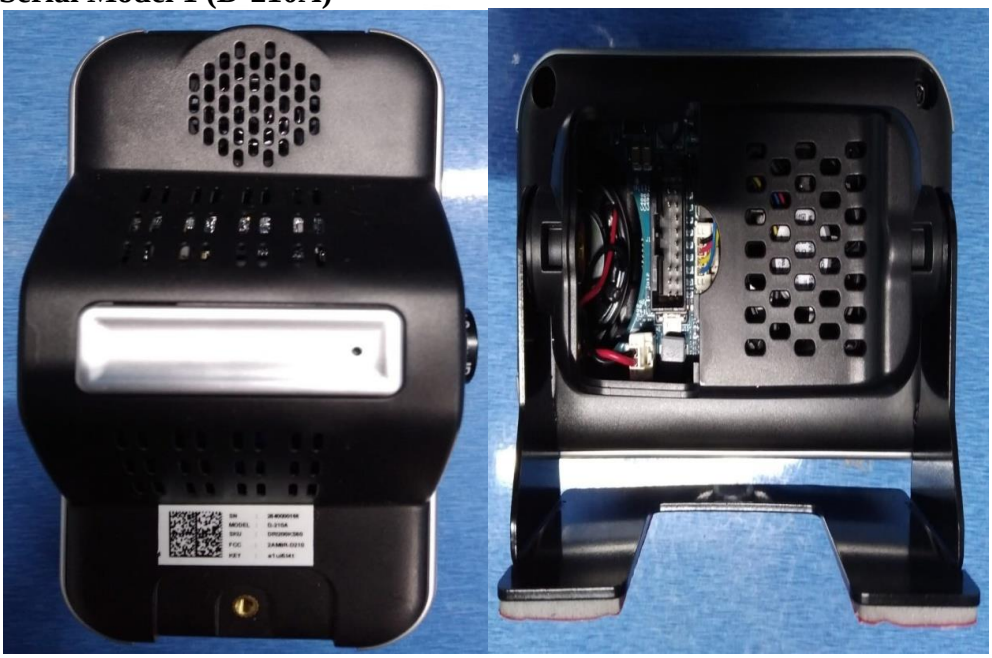


6 Appendix 2

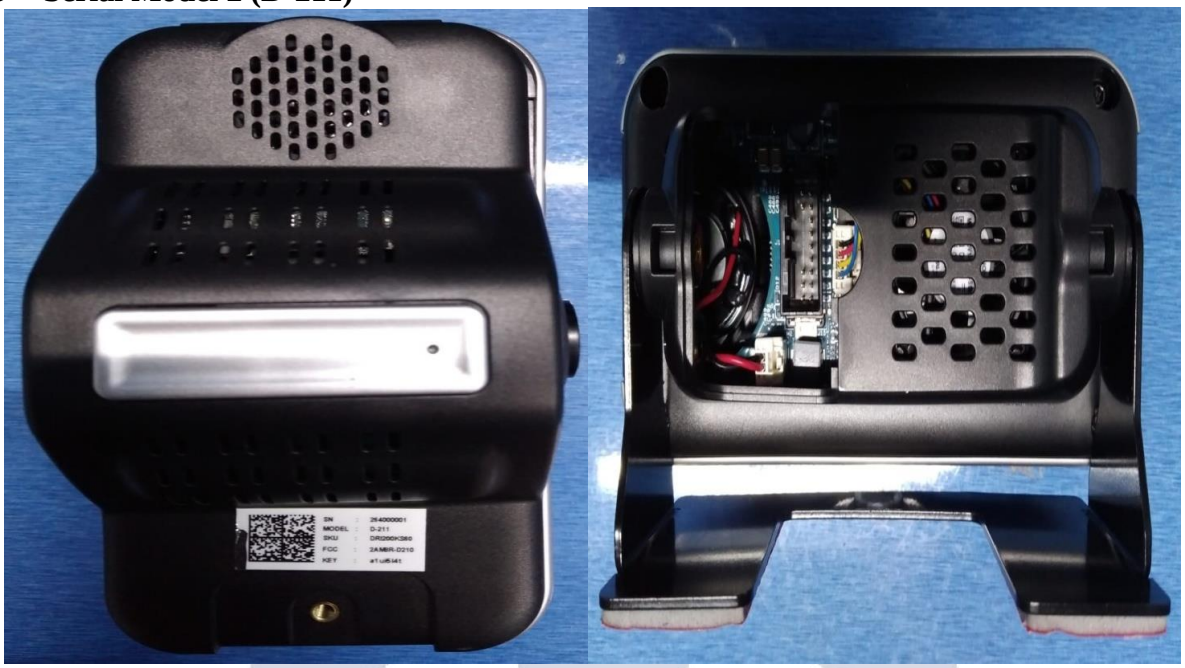
6.1 EUT Photographs

6.1.1 Main Model (D-210)

6.1.2 Serial Model 1 (D-210A)



6.1.3 Serial Model 2 (D-211)



6.2 Accessories Photographs

6.2.1 CAN Adapter AD01

Front

Back

6.2.2 CAN Adapter AD02

Front

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6.2.3 CAN Adapter AD03

Front

Back

6.2.4 LTE Module

Front

LTE Module

****End of Report****