



FCC Test Report

(Part 24)

FCC ID: 2AM8R-D215

Client Information:	
Applicant:	Netradyne Inc
Applicant add.:	9191 Towne Centre Drive Suite 200, San Diego, CA 92122
Product Information:	
EUT Name:	Driveri
Model No.:	D-215
Brand Name:	N netradyne
Standards:	FCC PART 24

AA Electro Magnetic Test Laboratory Private Limited

Add.: Plot No 174, Udyog Vihar - Phase 4, Sector 18, Gurgaon, Haryana, India

Date of Receipt:	Sep. 01, 2021	Date of Test:	Oct. 05~ Oct. 07, 2021
Date of Issue:	Oct. 22, 2021	Test Result:	Pass

Declaration of Conformity: Declaration of conformity of the results is based as per the standard limits

This device described above has been tested by AA Electro Magnetic Test Laboratory Private Limited, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

*This test report must not be used by the client to claim product endorsement by any agency of the U.S. government.

Prepared By: (+ signature) Abhinav Kumar

Aburar Cum

Reviewed & Approved by: (+ signature) Dr. Lenin Raja (Authorized Representative) (/ lenin83/)

1 | P a g e

Plot No.174, Udyog Vihar Phase 4, Sector -18, Gurgaon -122016, Haryana, India Contact:0124-4235350, 4145343; e-mail: info @aaemtlabs.com; Website: www.aaemtlabs.com





1 Contents

~			Page
C	OVER PA	AGE	
1	CO	NTENTS	2
2	TES	ST SUMMARY	3
	2.1	COMPLIANCE WITH FCC PART 24 SUBPART E	3
	2.2	MEASUREMENT UNCERTAINTY	4
	2.3	TEST LOCATION	4
3	TES	ST FACILITY	5
	3.1	DEVIATION FROM STANDARD	5
	3.2	ABNORMALITIES FROM STANDARD CONDITIONS	5
4	GE	NERAL INFORMATION	6
	4.1	GENERAL DESCRIPTION OF EUT	6
	4.2	EUT CHANNELS AND FREQUENCIES LIST:	7
	4.3	EUT PERIPHERAL LIST	8
	4.4	TEST PERIPHERAL LIST	8
5	EQ	UIPMENTS LIST FOR ALL TEST ITEMS	9
	5.1	OUTPUT POWER MEASUREMENT	11
	5.2	FREQUENCY STABILITY MEASUREMENT	14
	5.3	OCCUPIED BANDWIDTH MEASUREMENT	16
	5.4	CONDUCTED SPURIOUS EMISSIONS	24
	5.5	RADIATED EMISSION MEASUREMENT	27





2 Test Summary

2.1 Compliance with FCC Part 24 subpart E

TEST	TEST REQUIREMENT	RESULT	REMARK
Equivalent Isotropic Radiated Power	2.1046 24.232	PASS	Meet the requirement of limit.
Frequency Stability	2.1055 24.235	PASS	Meet the requirement of limit.
Occupied Bandwidth	2.1049 24.238(b)	PASS	Meet the requirement of limit.
Peak to average ratio	24.232(d)	PASS	Meet the requirement of limit.
Band Edge Measurements	24.238(b)	PASS	Meet the requirement of limit.
Conducted Spurious Emissions	2.1051 24.238	PASS	Meet the requirement of limit.
Radiated Spurious Emissions	2.1053 24.238	PASS	Meet the requirement of limit.





2.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, the following measurements uncertainty Levels have estimated based on standards, the maximum value of the uncertainty as below:

No.	Item	Uncertainty
1	Conducted Emission Test	2.82dB
2	Radiated Emission Test	2.79dB

2.3 Test Location

All tests were performed at:

AA Electro Magnetic Test Laboratory Private Limited

Plot No 174, Udyog Vihar - Phase 4, Sector 18, Gurgaon, Haryana, India

Tel.: +91-0124-4235350





3 Test Facility

The test facility is recognized, certified or accredited by the following organizations:

ILAC / NABL Accreditation No.: TC-8597

Three 3m Semi-Anechoic Chamber, 1 full-Anechoic chamber and 2 Shielding Rooms of AA Electro Magnetic Test Laboratory Private Limited have been registered by National Accreditation Board for Testing and Calibration Laboratories (NABL).

ILAC -A2LA Accreditation No.: 5593.01

Three 3m Semi-Anechoic Chamber, 1 full-Anechoic chamber and 2 Shielding Rooms of AA Electro Magnetic Test Laboratory Private Limited have been registered American Association of Laboratory Accreditation (A2LA.)

FCC- Recognition No.: 137777

Three 3m Semi-Anechoic Chamber, 1 full-Anechoic chamber and 2 Shielding Rooms of AA Electro Magnetic Test Laboratory Private Limited have been registered by Federal Communications Commission (FCC).

ISED Recognition No.: 26046

Three 3m Semi-Anechoic Chamber, 1 full-Anechoic chamber and 2 Shielding Rooms of AA Electro Magnetic Test Laboratory Private Limited have been registered by Institute for Social and Economic Development.(ISED)

VCCI- Registration No: 4053

Three 3m Semi-Anechoic Chamber, 1 full-Anechoic chamber and 2 Shielding Rooms of AA Electro Magnetic Test Laboratory Private Limited have been registered by Voluntary Control Council for Interference.(VCCI)

TEC Designation No.: IND063

Three 3m Semi-Anechoic Chamber, 1 full-Anechoic chamber and 2 Shielding Rooms of AA Electro Magnetic Test Laboratory Private Limited have been registered by Telecommunication Engineering (TEC) Center

BIS Recognition No: 816586

BIS recognized as per CRS scheme for IT electronics, LED control gears, Lamp, Inverter / UPS are recognized as per LRS 2020

3.1 Deviation from standard

None

3.2 Abnormalities from standard conditions

None





4 General Information

4.1 General Description of EUT

Manufacturer:	Netradyne Inc			
Manufacturer Address:	9191 Towne Centre Drive Suite 200, San Die	ego, CA 92122		
EUT Name:	Driveri			
Model No:	D-215			
Brand Name:	Retradyne			
Derivative model No.:	N/A			
Frequency Range:	LTE Band 2 Channel Bandwidth: 10MHz	1855 MHz ~ 1905 MHz		
Modulation Technology:	LTE Band 2: QPSK			
Antenna Gain(dBi):	2.5dBi			
H/W No.:	501-1-01549 A2			
S/W No.:	4.5.8.rc.1			
Power Supply Range:	Input: 12VDC 3A			
Condition of Sample on receipt:	Good			
Note:				
1.	For a more detailed features description specifications or the User's Manual.	on, please refer to the manufacturer's		





4.2 EUT channels and frequencies list:

LTE BAND 2

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation
-	EIRP	18650 to 19150	18650, 18900, 19150	10MHz	QPSK
-	Frequency Stability	18650 to 19150	18650, 18900, 19150	10MHz	QPSK
-	- Occupied 186 Bandwidth		18650, 18900, 19150	10MHz	QPSK
	Peak to Average	18650 to 19150	18650, 18900, 19150	10MHz	QPSK
-	Ratio				

EUT Configur	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation
			18650	10MHz	QPSK
-	Band Edge	18650 to 19150	19150	10MHz	QPSK
	Conducted Spurious	18650 to 19150	18650, 18900, 19150	10MHz	QPSK
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK
-	Radiated Spurious				





4.3 EUT Peripheral List

No.	Equipment	Manufacturer	FCC ID	Model No.	Serial No.	Power cord	Remark
1.	Power Adaptor	Netradyne Inc.	N/A	D-210-AD3	N/A	N/A	N/A

4.4 Test Peripheral List

No.	Equipment	Manufacturer	EMC Compliance	Model No.	Serial No.	Power cord	signal cable
1	DC Power Supply	JUNKE	N/A	JK15040K	20181126-43	2m Unshielded Cable	N/A
2.	Laptop	DELL	N/A	Latitude E7240	6SJ2T02	2m unshielded	N/A





5 Equipments List for All Test Items

No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	EMI TEST Receiver	Spectrum Analyzer	FSP40	101163	2020/12/11	2022/12/10
2	Loop antenna	DAZE Beijing	ZN30900C	18052	2020/01/29	2022/01/28
3	Hi power horn antenna	DAZE Beijing	ZN30700	18012	2020/01/30	2022/01/29
4	Horn antenna	DAZE Beijing	ZN30702	18006	2020/01/30	2022/01/29
5	Horn antenna	DAZE Beijing	ZN30703	18005	2020/01/30	2022/01/29
6	Preamplifier	KELIANDA	LNA-0009295	-	2021/01/13	2022/01/13
7	Preamplifier	KELIANDA	CF-00218	-	2021/01/13	2022/01/13
8	Bi conical Antenna	DAZE Beijing	ZN30505C	17038	2020/01/28	2022/01/27
9	EMI-RECEIVER	Schwarzbeck	FCKL	1528194	2021/01/13	2022/01/13
10	Spectrum Analyzer	ADVANTEST	R3361	-	2021/01/13	2022/01/13
11	LISN	Kyoritsu	KNW-407	8-1789-5	2021/01/13	2022/01/13
12	Network-LISN	Schwarzbeck	NNBM8125	81251314	2021/01/13	2022/01/13
13	Network-LISN	Schwarzbeck	NNBM8125	81251315	2021/01/13	2022/01/13
14	PULSELIMITER	Rohde and Schwarz	ESH3-Z2	100681	2021/05/12	2022/05/11
15	$50\Omega Coaxial Switch$	DAIWA	1565157	-	2021/05/12	2022/05/11
16	50ΩCoaxialSwitch	-	-	-	2021/05/12	2022/05/11
17	Wireless signal power meter	DARE!!	RPR3006W	RFSW190220	2021/01/13	2022/01/13
18	Signal Generator	KEYSIGHT	N5181A	512071	2021/01/13	2022/01/13



AA Electro Magnetic Test Laboratory Private Limited



		1				
19	RF Vector Signal Generator	Keysight	N5182B	512094	2021/01/13	2022/01/13
20	Spectrum analyzer	R&S	FSV-40N	101385	2021/01/13	2022/01/13
21	Radio Communication Tester	R&S	CMW 500	124589	2021/05/14	2022/05/13
22	Signal Generator	R&S	SMP02	837017/004 836593/005	2021/05/14	2022/05/13
23	DC Power Supply	Guanker	JK15040K	TNC/ET/C/0 01/15	2020/02/02	2022/02/01
24	Pro. Temp & Humi. chamber	MENTEK	MHP-150-1C	MAA081125 01	2020/02/02	2022/02/01
25	Attenuators	AGILENT	8494B	-	-	-
26	Attenuators	AGILENT	8495B	-	-	-





5.1 Output Power Measurement

5.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Mobile and portable stations are limited to 2 watts EIRP.

5.1.2 TEST PROCEDURES

EIRPMEASUREMENT:

- All measurements were done at low, middle and high operational frequency range.
 RBW and VBW is 10MHz for LTE mode.
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G
- d. EIRP = Output power level of S.G -TX cable loss + Antenna gain

CONDUCTED POWER MEASUREMENT:

The EUT was set up for the maximum power with GSM, GPRS, EDGE & WCDMA link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.





5.1.3 TEST SETUP

EIRP/ERP Measurement:

<Radiated Emission below or equal 1 GHz>









5.1.4 Test results

AVERAGE CONDUCTED OUTPUT POWER (dBm)

LTE Band 2								
Modulation	Bandwidth	Channels	Frequency	Tx Average (dBm)				
		18650	1855	23.33				
QPSK	10MHz	18900	1880	25.42				
		19150	1905	25.01				

LTE BAND 2

CHANNEL BANDWIDTH: 10MHz QPSK

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	EIRP (dBm)	EIRP (mW)	Polarization (H/V)	LIMIT (W)
18650	1855	-19.11	43.83	24.72	296.48	Н	2
18900	1880	-17.37	43.57	26.20	416.87	Н	2
19150	1905	-17.91	44.32	26.41	437.52	Н	2
18650	1850	-21.57	46.41	24.84	304.79	V	2
18900	1880	-21.83	47.07	25.24	334.20	V	2
19150	1905	-21.50	45.88	24.38	274.16	V	2

REMARKS: 1. EIRP Output Power (dBm) = SPALVL(dBm) + Correction Factor (dB).

2. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss







5.2 FREQUENCY STABILITY MEASUREMENT

5.2.1 LIMITS OF FREQUENCY STABILIITY MEASUREMENT

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

5.2.2 TEST PROCEDURE

- a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ± 0.5 °C during the measurement testing. The each temperature

step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

NOTE: The frequency error was recorded frequency error from the communication simulator.

5.2.3 TEST SETUP







5.2.4 TEST RESULTS

Frequency Error vs. Temperature

	LTE Band 2 Channel Bandwidth: 10MHz						
Temp. (°C)	Low C	hannel	High Channel				
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)			
-20	1855.45790	0.002	1905.35590	0.001			
20	1855.45280	-0.002	1905.35890	-0.001			
50	1855.45690	-0.002	1905.35790	-0.001			







5.3 OCCUPIED BANDWIDTH MEASUREMENT

5.3.1 TEST PROCEDURES

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.





AA Electro Magnetic Test Laboratory Private Limited



Report No.: AAEMT/EMC/210901-01-06

5.3.3 TEST RESULTS

LTE Band 2							
Channel Bandwidth: 10 MHz							
	Frequency (MHz)	99 % Occupied Bandwidth (MHz)					
Channel		QPSK					
18650	1855	2.604					
18900	1880	2.547					
19150	1905	2.604					

1855MHz Spectrum RBW 200 kHz SWT 19 µs ● VBW 500 kHz Ref Level 30.00 dBm Att 45 dB Mode Auto FFT ●1Rm Max M1[1] 15.02 dBm 1.8542190 GHz 20 dBr Occ Bw 2.604920405 MH Y 10 dBm T 0 dBr -10 dBm -20 dBm -30 dBm 40 dBm -50 dBm -60 dBm Span 20.0 MHz CF 1.855 GHz 691 pts Marker X-value 1.854219 GHz 1.8536686 GHz 1.8562735 GHz Y-value 15.02 dBm 1.45 dBm 0.50 dBm Type Ref Trc Function Function Result 2.604920405 MHz Occ Bw 05.10.2021 06:38:34 Measuring...

Date: 5.0CT.2021 06:38:34



AA Electro Magnetic Test Laboratory Private Limited



Report No.: AAEMT/EMC/210901-01-06 1880MHz



1905MHz



Date: 5.0CT.2021 06:42:12





5.4 BAND EDGE MEASUREMENT

5.4.1LIMITS OF BAND EDGE MEASUREMENT

Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 +10 log (P) dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

5.4.2TEST SETUP



5.4.3TEST PROCEDURES

- a. All measurements were done at low and high operational frequency range.
- b. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RBW of the spectrum is 20 KHz and VBW of the spectrum is 100 kHz. (LTE bandwidth 1.4MHz)
- C. Record the max trace plot into the test report.





6.5.4. TEST RESULTS

LTE Band 2

Channel Bandwidth: 10 MHz

1855MHz



Date: 5.0CT.2021 08:45:22





Date: 5.0CT.2021 08:47:59





5.5 PEAK TO AVERAGE RATIO

5.3.4 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

5.3.5 Test Setup



5.3.6 Test Procedures

- 1. Set resolution/measurement bandwidth \geq signal's occupied bandwidth;
- 2. Set the number of counts to a value that stabilizes the measured CCDF curve;
- 3. Record the maximum PAPR level associated with a probability of 0.1 %.





5.3.7 Test Result

LTE Band 2							
Channel Bandwidth: 10 MHz							
Channel	Frequency (MHz)	Peak to Average Ratio (dB)					
		QPSK					
18650	1855	6.95					
18900	1880	5.30					
19150	1905	5.52					

1855MHz

1 MS2830A Si	gnal Analyze	er								10/5/2021 21:39:22
CCDF								Data Cour	t 1211089746	📑 Signal Analyzer 🛛 👘
MKR	10.00 dB	Meas.	0.000	0 %	Analysis	s Start Tin	ne		0 s	Frequency
					Analysis	s Time Le	ngth	100	.000 00 ms	Center
					Filter B\	∛ : Not	Filtered M	ethod :	CCDF	1 955 000 0000 H-
100% ALevel	Over					0				1.833 000 000 dHz
10%						Center				Start
10 /8						1	855 000 0	00 Hz		otart
40/										1.823 750 000GHz
178										
0.48										Stop
0.1%										1.886 250 000GHz
0.048										
0.01%										Span
										62.5 MHz
0.001%										
0.0001%										Preselector
0 dB									20 dB	Auto Tuno
Power				Probability			Distributio	n		Auto Tulle
Avg. Power	: -0.78 d	Bm, 47.29	917 %	10 %	: 3.	75 dB 41 dB	40	1B : 8	.5423 %	Switching Speed
Max. Power	: 6.52 d	lBm		0.1 %	6.	95 dB	12 0	IB : 0	.0000 %	our coming opeca
Crest Factor	: 7.30 d	B		0.001 %	7.	23 dB	16 c	IB : 0	.0000 %	Normal
				0.0001 %	: 7.	27 dB	20 c	IB : 0	.0000 %	0. 0
Common										Step Size
⊢ Frequency an	d Time —		Level				Trigger —			1.000GHz
Center Freq.	1.855 000	000 GHz	Ref.	Level	0.00 dBr	n	Trigger		Free Run	
Freq. Span		62.5 MHz								Frequency Band *
Capture Len	gth 100.0	00 00 ms	Atte	nuator	10 dB					Normal
B. Charl						_				
Ref.Int										1 of 2 → C





1880MHz



1905MHz







5.4 Conducted Spurious Emissions

5.4.1 Limits of Conducted Spurious Emissions Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P) dB$. The emission limit equal to -13 dBm.

5.4.2 Test Setup



5.4.3 Test Procedure

- a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9 kHz to 1 GHz. 10 dB attenuation pad is connected with spectrum.
 RBW = 100 kHz and VBW = 300 kHz is used for conducted emission measurement.
- c. Measuring frequency range is from 1 GHz to 27 GHz. 10 dB attenuation pad is connected with spectrum.
 RBW = 1 MHz and VBW = 3 MHz is used for conducted emission measurement.





5.4.4 Test Results

LTE Band

Channel Bandwidth: 10 MHz

1855MHz

Ref Level 20.0	0 dBm	Mode Auto Swe	ер			
●1 Max		12				
TM			M1[:	1]		14.88 dB
10 dBm			1		T T	1.855129000 G
0 dBm						
-10 dBm	13.000 dBm					
-20 dBm						
-30 dBm						
-40 dBm	A diabat in the second second	L	A State of the sta	WHAN N	And the second second	and an and strong
-50 usm						
. u'dBm						
-70 dBm						
Start 9.0 kHz			68704 pts			Stop 27.0 GH
Start 9.0 kHz Spurious Emissi	ons		68704 pts			Stop 27.0 GH
Start 9.0 kHz Spurious Emissi Range Low	ons Range Up	RBW	68704 pts	y I	Power Abs	Stop 27.0 GH
Start 9.0 kHz Spurious Emissi Range Low 9.000 kH:	ons Range Up z 150.000 ki	RBW Hz 1.000 kł	68704 pts Frequenc Hz 9.1005	y	Power Abs -64.45 di	Stop 27.0 GH ΔLimit 3m -200.00 d
Start 9.0 kHz Spurious Emissi Range Low 9.000 kH: 150.000 kH:	ons Range Up z 150.000 ki z 30.000 Mi	RBW Hz 1.000 kł Hz 10.000 kł	68704 pts Frequenc Iz 9.1005 Iz 511.8407	y 7 kHz 9 kHz	Power Abs -64.45 df -60.47 df	ΔLimit 3m -200.00 d 3m -200.00 d
Start 9.0 kHz Spurious Emissi Range Low 9.000 kH: 150.000 kH: 30.000 MH:	ons Range Up z 150.000 ki z 30.000 Mi z 1.000 Gi	RBW Hz 1.000 kł Hz 10.000 kł Hz 100.000 kł	Frequenc 12 9.1005 12 511.8407 12 840.2429	y 57 kHz 19 kHz 15 MHz	Power Abs -64.45 da -60.47 da -48.29 da	Stop 27.0 GH ΔLimit 3m -200.00 d 3m -200.00 d 3m -200.00 d
Start 9.0 kHz Spurious Emissi Range Low 9.000 kH: 150.000 kH: 30.000 MH: 1.000 GH:	ons Range Up z 150.000 ki z 30.000 Mi z 1.000 Gi z 27.000 Gi	RBW Hz 1.000 kł Hz 10.000 kł Hz 100.000 kł Hz 1.000 Mł	Frequenc 4z 9.1005 4z 511.8407 4z 840.2429 4z 1.8551	y 17 kHz 19 kHz 5 MHz 3 GHz	Power Abs -64.45 df -60.47 df -48.29 df 14.88 df	Stop 27.0 GH ΔLimit 3m -200.00 d 3m -200.00 d 3m -200.00 d 3m -200.00 d 3m -200.00 d
Start 9.0 kHz Spurious Emissi 9.000 kH: 150.000 kH: 30.000 MH: 1.000 GH: Marker	ons Range Up z 150.000 ki z 30.000 Mi z 1.000 Gi z 27.000 Gi	RBW Hz 1.000 kł Hz 10.000 kł Hz 100.000 kł Hz 1.000 Mł	Frequenc 4z 9.1005 4z 511.8407 4z 840.2429 4z 1.8551	y 7 kHz 9 kHz 5 MHz 3 GHz	Power Abs -64.45 di -60.47 di -48.29 di 14.88 di	Stop 27.0 GH ALimit 3m -200.00 d 3m -200.00 d 3m -200.00 d 3m -200.00 d

Date: 5.0CT.2021 08:11:50

1880MHz

Deflevel 20.00 d	D ma	ada juta Cuisan			
1 May		Jue Auto Sweep			
V			M1[1]		15.91 dBr
10 dBm				1.8	80319000 GH
				1	
0 dBm					
-10 dBm	200 db				
01 -13.	000 dBm				
-20 dBm					2
-30 dBm					
-40 dBm		(1. 1.) (1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	A A A A A A A A A A A A A A A A A A A	in a break of the second	and the second s
Human and and		and the property of the second s		A statistic states	and a second
50 usm					
dBm-					
-70 dBm					
Start 9.0 kHz		6870	4 pts		Stop 27.0 GHz
Spurious Emission	s				
Range Low	Range Up	RBW	Frequency	Power Abs	∆Limit
9.000 kHz	150.000 kHz	1.000 kHz	9.10057 kHz	-64.82 dBm	-200.00 dB
150.000 kHz	30.000 MHz	10.000 kHz	16.09711 MHz	-59.87 dBm	-200.00 dB
30.000 MHz	1.000 GHz	100.000 kHz	863.34036 MHz	-49.51 dBm	-200.00 dB
1.000 GHz	27.000 GHz	1.000 MHz	1.88032 GHz	15.91 dBm	-200.00 dB
larker	V uslus	1 Yushus	Function	Function Do	cult.
TYPE KEL IFC	v-value	r-value	Function	Function Re	suit

Date: 5.0CT.2021 08:13:17





1905MHz

Spectrum						
Ref Level 20	0.00 dB	im Mi	ode Auto Sweep			
●1 Max		1				
T M1				M1[1]		16.58 dBn
10 dBm					1 1	.905499000 GH
0 dBm						
-10 dBm	1 -13.0	100 dBm				
-20 dBm			0			
-30 dBm						
-40 dBm	101 417	and the life of the second	to a second the state of the state of the state		A CONTRACTOR OF THE OWNER	the state of the second state
-50 Handler	-					Anna a barra Martin a sa dambalin.
dBm						
Antima Cabin						
-70 dBm						
Start 9.0 kH	z		6870	4 pts		Stop 27.0 GHz
Spurious Emi	ssions				1	
Range Lo	W Line	Range Up	RBW 1.000 kup	Frequency	Power Abs	ΔLimit
150.000	kHz	30,000 KH2	10.000 kHz	153,73032 kH:	-64.09 uBm	-200.00 dB
30,000	MHz	1.000 GHz	100.000 kHz	850.82169 MH	-49.79 dBm	-200.00 dB
1.000	GHz	27.000 GHz	1.000 MHz	1.90550 GH	z 16.58 dBm	-200.00 dB
Marker						
Type Ref	Trc	X-value	Y-value	Function	Function F	tesult
M1	1	1.905499 G	Hz 16.58 dE	3m		
	1			Measuring		05.10.2021 08:14:47

Date: 5.0CT.2021 08:14:47







5.5 Radiated Emission Measurement

5.5.1 Limits of Radiated Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P) dB$. The emission limit is equal to -13 dBm.

5.5.2 Test Procedure

1. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the

0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.

2. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G.

3. EIRP = Output power level of S.G – TX cable loss + Antenna gain

4. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15 dB

NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.





5.5.3 Test Setup

<Radiated Emission below or equal 1 GHz>









Certificate#5593.01













AA Electro Magnetic Test Laboratory Private Limited



Report No.: AAEMT/EMC/210901-01-06

LTE Band 2 Channel Bandwidth: 10 MHz/QPSK CH 18650 Vertical



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBm	dB	dBm	dB	dB	Detector
1		1565.000	-55.53	-8.85	-64.38	-13.00	-51.38	peak
2	*	1855.505	-15.68	-8.95	-24.63	-13.00	-11.63	peak
3		2575.000	-50.87	-9.52	-60.39	-13.00	-47.39	peak
4		3700.000	-46.90	-6.07	-52.97	-13.00	-39.97	peak
5		5550.000	-49.45	-3.95	-53.40	-13.00	-40.40	peak
6		5965.000	-67.56	-2.84	-70.40	-13.00	-57.40	peak







No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBm	dB	dBm	dB	dB	Detector
1		1565.000	-56.53	-8.85	-65.38	-13.00	-52.38	peak
2	*	1855.505	-12.68	-8.95	-21.63	-13.00	-8.63	peak
3		2495.000	-55.05	-9.58	-64.63	-13.00	-51.63	peak
4		2575.000	-49.87	-9.52	-59.39	-13.00	-46.39	peak
5		3700.000	-44.40	-6.07	-50.47	-13.00	-37.47	peak
6		5550.000	-48.45	-3.95	-52.40	-13.00	-39.40	peak





LTE Band 2 Channel Bandwidth: 10 MHz/QPSK CH 18650 Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBm	dB	dBm	dB	dB	Detector
1	6	6888.000	-76.25	5.95	-70.30	-13.00	-57.30	peak
2	8	3844.000	-76.00	13.28	-62.72	-13.00	-49.72	peak
3	1	0224.00	-71.64	12.64	-59.00	-13.00	-46.00	peak
4	1	2036.00	-72.04	12.57	-59.47	-13.00	-46.47	peak
5	1	5024.00	-54.28	13.84	-40.44	-13.00	-27.44	peak
6	1	6476.00	-65.13	18.22	-46.91	-13.00	-33.91	peak
7	* 1	7712.00	-57.54	17.56	-39.98	-13.00	-26.98	peak



AA Electro Magnetic Test Laboratory Private Limited





No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBm	dB	dBm	dB	dB	Detector
1		7176.000	-77.11	7.42	-69.69	-13.00	-56.69	peak
2		8544.000	-75.35	10.91	-64.44	-13.00	-51.44	peak
3		10428.00	-72.27	13.25	-59.02	-13.00	-46.02	peak
4		11604.00	-73.86	13.49	-60.37	-13.00	-47.37	peak
5		12984.00	-73.84	13.56	-60.28	-13.00	-47.28	peak
6		15132.00	-54.94	13.56	-41.38	-13.00	-28.38	peak
7	*	17676.00	-58.84	18.04	-40.80	-13.00	-27.80	peak



AA Electro Magnetic Test Laboratory Private Limited





No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBm	dB	dBm	dB	dB	Detector
1		73.6500	-41.81	-17.65	-59.46	-13.00	-46.46	QP
2		124.5690	-42.18	-16.11	-58.29	-13.00	-45.29	QP
3		156.0997	-43.39	-15.77	-59.16	-13.00	-46.16	QP
4		795.3300	-59.19	-1.35	-60.54	-13.00	-47.54	QP
5	*	824.4298	-57.38	-0.36	-57.74	-13.00	-44.74	QP
6		848.6798	-61.97	0.59	-61.38	-13.00	-48.38	QP











LTE Band 2 Channel Bandwidth: 10 MHz/QPSK CH 18900 Vertical

0.0 dBm



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBm	dB	dBm	dB	dB	Detector
1	*	1880.000	-12.70	-8.95	-21.65	-13.00	-8.65	peak
2		3695.000	-51.18	-6.08	-57.26	-13.00	-44.26	peak
3		3760.000	-51.93	-5.91	-57.84	-13.00	-44.84	peak
4		5550.000	-64.91	-3.95	-68.86	-13.00	-55.86	peak
5		5785.000	-66.33	-3.31	-69.64	-13.00	-56.64	peak
6		5955.000	-66.73	-2.86	-69.59	-13.00	-56.59	peak





LTE Band 2 Channel Bandwidth: 10 MHz/QPSK CH 18900 Horizontal

0.0 dBm



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBm	dB	dBm	dB	dB	Detector
1	*	1880.000	-15.70	-8.95	-24.65	-13.00	-11.65	peak
2		2565.000	-59.11	-9.52	-68.63	-13.00	-55.63	peak
3		3695.000	-49.18	-6.08	-55.26	-13.00	-42.26	peak
4		3760.000	-49.93	-5.91	-55.84	-13.00	-42.84	peak
5		5550.000	-62.91	-3.95	-66.86	-13.00	-53.86	peak
6		5785.000	-65.33	-3.31	-68.64	-13.00	-55.64	peak







No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBm	dB	dBm	dB	dB	Detector
1		7476.000	-76.34	8.25	-68.09	-13.00	-55.09	peak
2		9696.000	-72.68	9.28	-63.40	-13.00	-50.40	peak
3		10344.00	-72.81	13.01	-59.80	-13.00	-46.80	peak
4		12036.00	-71.08	12.57	-58.51	-13.00	-45.51	peak
5		13104.00	-71.42	14.35	-57.07	-13.00	-44.07	peak
6	*	14976.00	-55.78	13.94	-41.84	-13.00	-28.84	peak
7		16668.00	-68.59	18.74	-49.85	-13.00	-36.85	peak





LTE Band 2 Channel Bandwidth: 10 MHz/QPSK CH 18900 Horizontal



No.	Mk.	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBm	dB	dBm	dB	dB	Detector
1		8004.000	-75.61	9.34	-66.27	-13.00	-53.27	peak
2		10224.00	-74.05	12.64	-61.41	-13.00	-48.41	peak
3		10536.00	-72.52	13.34	-59.18	-13.00	-46.18	peak
4		11952.00	-71.49	12.70	-58.79	-13.00	-45.79	peak
5		13536.00	-75.09	17.16	-57.93	-13.00	-44.93	peak
6	*	15120.00	-55.38	13.60	-41.78	-13.00	-28.78	peak
7		16908.00	-64.54	19.32	-45.22	-13.00	-32.22	peak







No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBm	dB	dBm	dB	dB	Detector
1		73.1025	-34.66	-17.65	-52.31	-13.00	-39.31	QP
2		124.5690	-34.68	-16.11	-50.79	-13.00	-37.79	QP
3	*	156.0997	-34.89	-15.77	-50.66	-13.00	-37.66	QP
4		171.6200	-39.66	-15.61	-55.27	-13.00	-42.27	QP
5		186.1699	-42.26	-15.10	-57.36	-13.00	-44.36	QP
6		839.9500	-56.20	0.25	-55.95	-13.00	-42.95	QP









No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBm	dB	dBm	dB	dB	Detector
1		73.1025	-36.16	-17.65	-53.81	-13.00	-40.81	QP
2		124.5690	-36.18	-16.11	-52.29	-13.00	-39.29	QP
3	*	156.0997	-35.89	-15.77	-51.66	-13.00	-38.66	QP
4		171.6200	-41.66	-15.61	-57.27	-13.00	-44.27	QP
5		186.1699	-44.26	-15.10	-59.36	-13.00	-46.36	QP
6		839.9500	-56.20	0.25	-55.95	-13.00	-42.95	QP





LTE Band 2 Channel Bandwidth: 10 MHz/QPSK CH 19150 Vertical



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBm	dB	dBm	dB	dB	Detector
1		1685.000	-53.74	-8.89	- <mark>62.6</mark> 3	-13.00	-49.63	peak
2	*	1905.000	-15.91	-8.96	-24.87	-13.00	-11.87	peak
3		2640.000	-45.71	-9.46	-55.17	-13.00	-42.17	peak
4		2935.000	-47.68	-9.20	-56.88	-13.00	-43.88	peak
5		3820.000	-35.60	-5.74	-41.34	-13.00	-28.34	peak
6		5725.000	-40.49	-3.49	-43.98	-13.00	-30.98	peak





LTE Band 2 Channel Bandwidth: 10 MHz/QPSK CH 19150 Horizontal



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBm	dB	dBm	dB	dB	Detector
1		1685.000	-55.74	-8.89	-64.63	-13.00	-51.63	peak
2	*	1905.000	-13.91	-8.96	-22.87	-13.00	-9.87	peak
3		2640.000	-47.71	-9.46	-57.17	-13.00	-44.17	peak
4		2935.000	-49.18	-9.20	-58.38	-13.00	-45.38	peak
5		3820.000	-34.10	-5.74	-39.84	-13.00	-26.84	peak
6		5725.000	-41.49	-3.49	-44.98	-13.00	-31.98	peak







No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBm	dB	dBm	dBm	dB	Detector
1	7	428.000	-76.84	8.11	-68.73	-13.00	-55.73	peak
2	ç	9144.000	-75.86	12.51	-63.35	-13.00	-50.35	peak
3	1	0536.00	-72.02	13.34	-58.68	-13.00	-45.68	peak
4	1	2096.00	-70.26	12.53	-57.73	-13.00	-44.73	peak
5	1	5012.00	-55.77	13.86	-41.91	-13.00	-28.91	peak
6	* 1	7568.00	-59.47	19.48	-39.99	-13.00	-26.99	peak

45 | P a g e





LTE Band 2 Channel Bandwidth: 10 MHz/QPSK CH 19150 Horizontal



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBm	dB	dBm	dBm	dB	Detector
1		7476.000	-75.84	8.25	-67.59	-13.00	-54.59	peak
2		9924.000	-73.87	11.29	-62.58	-13.00	-49.58	peak
3		12036.00	-70.58	12.57	-58.01	-13.00	-45.01	peak
4		14592.00	-70.20	14.80	-55.40	-13.00	-42.40	peak
5		14976.00	-57.78	13.94	-43.84	-13.00	-30.84	peak
6	*	17700.00	-59.20	17.73	-41.47	-13.00	-28.47	peak

End of Report