



TEST REPORT

APPLICANT : Reliance Communications LLC

PRODUCT NAME : Orbic Speed 5G

MODEL NAME : R500L5

BRAND NAME : Orbic

FCC ID : 2ABGH-R500L5

STANDARD(S) : 47 CFR Part 22, Subpart H
47 CFR Part 24, Subpart E
47 CFR Part 27, Subpart F&L&O

RECEIPT DATE : 2021-03-09

TEST DATE : 2021-03-31 to 2021-09-24

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Change History		
Version	Date	Reason for change
1.0	2021-10-18	First edition



1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Reliance Communications LLC
Applicant Address:	91 Colin Drive, Unit 1, HOLBROOK, New York 11741, United States
Manufacturer:	Unimaxcomm
ManufacturerAddress:	Room 602, Floor 6th, Building B, Software Park T3,Hi-Tech Park South, Nanshan District, Shenzhen, P.R. China

1.2. Equipment Under Test (EUT) Description

Product Name:	Orbic Speed 5G	
Hardware Version:	V1.2	
Software Version:	ORB500L5_v1.0.1.3_BVZRT	
IMEI:	35224120	
Modulation Type:	DFT-s-OFDM	PI/2 BPSK, QPSK, 16QAM,64QAM,256QAM
	CP-OFDM	QPSK, 16QAM,64QAM,256QAM
Operation Band:	DC_66A_N2, DC_66A_N5, DC_13A_N66, DC_2A_N77	
Frequency Range:	N2	Tx: 1850MHz-1910MHz
		Rx: 1930MHz-1990MHz
	N5	Tx: 824MHz-849MHz
		Rx: 869MHz-894MHz
	N66	Tx: 1710MHz-1780MHz
		Rx: 2110MHz-2200MHz
	N77	Tx: 3700MHz-3980MHz
		Rx: 3700MHz-3980MHz
Channel Bandwidth	N78	Tx: 3700MHz-3800MHz
	N78	Rx: 3700MHz-3800MHz
	N2	5MHz, 10MHz, 15MHz, 20MHz
	N5	5MHz, 10MHz, 15MHz, 20MHz
	N66	5MHz, 10MHz, 15MHz, 20MHz
	N77	100MHz
	N78	20MHz, 40MHz, 50MHz, 60MHz, 80MHz,



		90MHz, 100MHz,
Antenna Type:	PIFA Antenna	
Antenna Gain:	N2	3.80 dBi
	N5	-0.10 dBi
	N66	3.68 dBi
	N77	3.15 dBi
	N78	3.15 dBi
Accessory Information:	AC Adapter 1	
	Brand Name:	Orbic
	Model No.:	TPA-23A050200UU01
	Serial No.:	(N/A, marked #1 by test site)
	Rated Input:	100-240V~ 50/60HZ,0.3A
	Rated Output:	5V $\pm$ 2A
	Manufacturer:	Dongguan summer electronics Co., LTD
	Battery	
	Brand Name:	Orbic
	Model No.:	BTE-4401
	Serial No.:	(N/A, marked #1 by test site)
	Capacity:	4400mAh
	Rated Voltage:	3.8V
	Charge Limit:	4.35V
	Manufacturer:	HUIZHOU DXDRAGON INC

Note 1: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

Note 2: According to the measured power of all frequency bands, The frequency band with the highest power was selected for the same NR frequency band for testing.

Note 3: Because the Band77 frequency range covers Band78, it is test data used be the band with the highest power in Band77.



1.3. Maximum ERP/EIRP and Emission Designator

DC_13A_N2	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.226	0.229	0.173	0.157	0.097	0.126
15	0.210	/	/	/	/	/
10	0.211	/	/	/	/	/
5	0.213	/	/	/	/	/

DC_48A_N2	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.252	0.253	0.165	0.147	0.118	0.230
15	0.251	/	/	/	/	/
10	0.250	/	/	/	/	/
5	0.248	/	/	/	/	/

DC_66A_N2	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.428	0.452	0.327	0.259	0.160	0.420
15	0.406	/	/	/	/	/
10	0.407	/	/	/	/	/
5	0.279	/	/	/	/	/



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DC_66A_N2	Emission Designator (99%OBW)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	18M0G7D	18M1G7D	18M2W7D	18M1D7W	18M2D7W	19M3G7D
15	13M7G7D	13M6G7D	13M6W7D	13M4D7W	13M7D7W	14M3G7D
10	9M08G7D	9M11G7D	9M10W7D	9M11D7W	9M07D7W	9M27G7D
5	4M52G7D	4M54G7D	4M51W7D	4M51D7W	4M52D7W	4M54G7D

DC_2A_66A_N2	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.426	0.427	0.371	0.255	0.158	0.412
15	0.380	/	/	/	/	/
10	0.418	/	/	/	/	/
5	0.368	/	/	/	/	/

DC_13A_66A_N2	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.431	0.434	0.371	0.253	0.147	0.412
15	0.396	/	/	/	/	/
10	0.385	/	/	/	/	/
5	0.297	/	/	/	/	/



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DC_2A_5B_66A_66 A_N2	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.512	0.528	0.433	0.296	0.180	0.443
15	0.406	/	/	/	/	/
10	0.431	/	/	/	/	/
5	0.256	/	/	/	/	/

DC_48A_N5	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.124	0.125	0.121	0.104	0.066	0.124
15	0.123	/	/	/	/	/
10	0.122	/	/	/	/	/
5	0.121	/	/	/	/	/

DC_2A_N5	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.118	0.118	0.102	0.069	0.042	0.114
15	0.116	/	/	/	/	/
10	0.113	/	/	/	/	/
5	0.087	/	/	/	/	/



DC_66A_N5	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.120	0.124	0.102	0.070	0.042	0.116
15	0.115	/	/	/	/	/
10	0.108	/	/	/	/	/
5	0.088	/	/	/	/	/

DC_66A_N5	Emission Designator (99%OBW)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	18M1G7D	18M1G7D	18M2W7D	18M1D7W	18M2D7W	19M3G7D
15	13M6G7D	13M7G7D	13M6W7D	13M6D7W	13M6D7W	14M3G7D
10	9M05G7D	9M09G7D	9M10W7D	9M09D7W	9M05D7W	9M34G7D
5	4M56G7D	4M53G7D	4M52W7D	4M53D7W	4M52D7W	4M53G7D

DC_2A_5A_N5	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.121	0.122	0.104	0.070	0.042	0.119
15	0.118	/	/	/	/	/
10	0.114	/	/	/	/	/
5	0.088	/	/	/	/	/



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DC_2A_66A_N5	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.113	0.123	0.104	0.070	0.043	0.122
15	0.117	/	/	/	/	/
10	0.118	/	/	/	/	/
5	0.088	/	/	/	/	/

DC_2A_2A_N5	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.121	0.121	0.102	0.071	0.043	0.121
15	0.118	/	/	/	/	/
10	0.115	/	/	/	/	/
5	0.088	/	/	/	/	/

DC_5A_66A_N5	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.121	0.121	0.102	0.070	0.043	0.120
15	0.120	/	/	/	/	/
10	0.116	/	/	/	/	/
5	0.088	/	/	/	/	/



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DC_66A_66A_N5	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.120	0.122	0.104	0.070	0.043	0.121
15	0.117	/	/	/	/	/
10	0.120	/	/	/	/	/
5	0.089	/	/	/	/	/

DC_13A_66A_N5	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.117	0.118	0.102	0.074	0.043	0.117
15	0.116	/	/	/	/	/
10	0.116	/	/	/	/	/
5	0.089	/	/	/	/	/

DC_2A_13A_N5	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.120	0.121	0.105	0.070	0.044	0.121
15	0.119	/	/	/	/	/
10	0.119	/	/	/	/	/
5	0.089	/	/	/	/	/



DC_2A_2A_5A_N5	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.108	0.109	0.102	0.064	0.040	0.109
15	0.104	/	/	/	/	/
10	0.106	/	/	/	/	/
5	0.086	/	/	/	/	/

DC_2A_2A_66A_N5	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.112	0.113	0.104	0.064	0.042	0.110
15	0.112	/	/	/	/	/
10	0.110	/	/	/	/	/
5	0.085	/	/	/	/	/

DC_2A_66A_66A_N5	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.112	0.114	0.102	0.067	0.041	0.109
15	0.108	/	/	/	/	/
10	0.109	/	/	/	/	/
5	0.088	/	/	/	/	/



DC_5A_66A_66A_N5	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.110	0.116	0.104	0.108	0.041	0.109
15	0.102	/	/	/	/	/
10	0.107	/	/	/	/	/
5	0.106	/	/	/	/	/

DC_13A_66A_66A_N5	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.114	0.115	0.098	0.111	0.042	0.106
15	0.108	/	/	/	/	/
10	0.105	/	/	/	/	/
5	0.086	/	/	/	/	/

DC_2A_2A_13A_N5	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.110	0.117	0.099	0.115	0.043	0.104
15	0.106	/	/	/	/	/
10	0.107	/	/	/	/	/
5	0.088	/	/	/	/	/



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DC_2A_2A_66A_66A_N5	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.112	0.112	0.102	0.070	0.041	0.109
15	0.108	/	/	/	/	/
10	0.107	/	/	/	/	/
5	0.087	/	/	/	/	/

DC_2A_2A_5A_66A_66A_N 5	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.535	0.536	0.421	0.286	0.181	0.421
15	0.429	/	/	/	/	/
10	0.438	/	/	/	/	/
5	0.294	/	/	/	/	/

DC_48A_N66	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.277	0.281	0.266	0.226	0.140	0.272
15	0.266	/	/	/	/	/
10	0.274	/	/	/	/	/
5	0.272	/	/	/	/	/



DC_13A_N66	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.535	0.536	0.421	0.286	0.181	0.421
15	0.429	/	/	/	/	/
10	0.438	/	/	/	/	/
5	0.294	/	/	/	/	/

DC_13A_N66	Emission Designator (99%OBW)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	18M0G7D	18M1G7D	18M2W7D	18M1D7W	18M2D7W	19M3G7D
15	13M7G7D	13M6G7D	13M6W7D	13M4D7W	13M7D7W	14M3G7D
10	9M08G7D	9M11G7D	9M10W7D	9M11D7W	9M07D7W	9M27G7D
5	4M52G7D	4M54G7D	4M51W7D	4M51D7W	4M52D7W	4M54G7D

DC_2A_N66	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.497	0.508	0.436	0.282	0.174	0.471
15	0.472	/	/	/	/	/
10	0.473	/	/	/	/	/
5	0.364	/	/	/	/	/



DC_2A_66A_N66	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.507	0.518	0.409	0.275	0.168	0.476
15	0.479	/	/	/	/	/
10	0.476	/	/	/	/	/
5	0.357	/	/	/	/	/

DC_2A_2A_N66	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.494	0.502	0.418	0.281	0.172	0.485
15	0.479	/	/	/	/	/
10	0.468	/	/	/	/	/
5	0.364	/	/	/	/	/

DC_2A_13A_N66	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.489	0.492	0.433	0.279	0.173	0.481
15	0.474	/	/	/	/	/
10	0.470	/	/	/	/	/
5	0.367	/	/	/	/	/



DC_13A_66A_N66	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.445	0.446	0.348	0.231	0.146	0.394
15	0.418	/	/	/	/	/
10	0.423	/	/	/	/	/
5	0.290	/	/	/	/	/

DC_13A_66A_66A_N66	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.440	0.452	0.352	0.235	0.147	0.425
15	0.428	/	/	/	/	/
10	0.433	/	/	/	/	/
5	0.306	/	/	/	/	/

DC_2A_2A_5A_66A_66A_N66	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.532	0.531	0.416	0.362	0.222	0.471
15	0.439	/	/	/	/	/
10	0.501	/	/	/	/	/
5	0.357	/	/	/	/	/



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DC_2A_2A_13A_66A_66A_N66	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.527	0.533	0.373	0.318	0.225	0.507
15	0.514	/	/	/	/	/
10	0.522	/	/	/	/	/
5	0.362	/	/	/	/	/

DC_2A_5B_66A_66A_N66	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
20	0.532	0.531	0.474	0.363	0.214	0.516
15	0.520	/	/	/	/	/
10	0.531	/	/	/	/	/
5	0.380	/	/	/	/	/

DC_2A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.466	0.478	0.408	0.256	0.170	0.354

DC_2A_N77	Emission Designator (99%OBW)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	98M4G7D	97M8G7D	97M8W7D	98M5D7W	97M8D7W	98M9G7D



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DC_5A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.382	0.401	0.321	0.227	0.150	0.304

DC_13A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.394	0.396	0.334	0.222	0.149	0.301

DC_66A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.378	0.408	0.340	0.214	0.146	0.308

DC_2A_5A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.388	0.398	0.351	0.220	0.150	0.308

DC_2A_13A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.390	0.339	0.330	0.219	0.148	0.293



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DC_2A_66A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.398	0.406	0.335	0.217	0.151	0.323

DC_5A_66A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.408	0.409	0.345	0.221	0.151	0.314

DC_13A_66A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.385	0.402	0.352	0.219	0.153	0.306

DC_66A_66A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.420	0.425	0.352	0.240	0.153	0.318

DC_2A_2A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.393	0.413	0.336	0.221	0.152	0.328



DC_2A_5A_66A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.416	0.417	0.352	0.223	0.150	0.296

DC_2A_13A_66A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.414	0.422	0.354	0.223	0.152	0.296

DC_2A_66A_66A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.436	0.437	0.351	0.221	0.161	0.303

DC_5A_66A_66A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.425	0.438	0.360	0.229	0.204	0.310

DC_13A_66A_66A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.387	0.409	0.325	0.220	0.156	0.273



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DC_2A_2A_13A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.398	0.405	0.308	0.207	0.139	0.225

DC_66A_66A_66A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.431	0.441	0.350	0.231	0.164	0.272

DC_2A_2A_5A_N77	Maximum ERP/EIRP (W)					
	DFT-s-OFDM					CP-OFDM
BW(MHz)	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	QPSK
100	0.410	0.444	0.348	0.231	0.164	0.293



1.4. Test Standards and Results

The objective of the report is to perform testing according to Part 2, Part 22, Part 24, Part 27 for the EUT FCC ID Certification:

No	Identity	Document Title
1	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 22	Public Mobile Services
3	47 CFR Part 24	Personal Communications Services
4	47 CFR Part 27	Miscellaneous Wireless Communications Services



Test detailed items/section required by FCC rules and results are as below:

Section	Description	Test Date	Test Engineer	Result	Method Determination /Remark
2.1046,27.50(d)(4) 22.913(a)(2) 24.232(c) 27.50(d)(4) 27.50(j)(3)	Transmitter Conducted Output Power and ERP/EIRP	Mar 31 to Apr 15,2021	Chen Haiju Yang Jie	PASS	No deviation
2.1049	Occupied Bandwidth	May 16 to 26, 2021	Chen Haiju	PASS	No deviation
2.1055 22.355 24.235 27.54	Frequency Stability	May 29 to 31, 2021	Chen Haiju	PASS	No deviation
24.232(d) 27.50(d)(5) 27.50(j)(4)	Peak to Average Radio	Jun 8 to 22, 2021	Chen Haiju	PASS	No deviation
2.1051 22.917(a) 24.238(a) 27.53(h) 27.53(l)	Conducted Spurious Emissions	May 02 to Jun 04, 2021	Chen Haiju	PASS	No deviation
2.1051 22.917(a) 24.238(a) 27.53(h) 27.53(l)	Band Edge	May 02, to Jun 22, 2021	Chen Haiju	PASS	No deviation
2.1051 22.917(a) 24.238(a) 27.53(h) 27.53(l)	Radiated Spurious Emissions	Jun 04 to 07, 2021	Yang Jie	PASS	No deviation

Note 1: The tests were performed according to the method of measurements prescribed in KDB971168 D01 v03 and ANSI/TIA-603-E-2016.

Note 2: The path loss during the RF test is calibrated to correct the results by the offset setting in the test equipments. The ref offset 11 dB and Attenuator 36 dB.

Note 3: When the test result is a critical value, we will use the measurement uncertainty give the



judgment result based on the 95% risk level.

Note 4: These items please refer to the 5G module report SZ21010262W04(NSA) which The FCC ID is 2ABGH-R100ML5 and the 5G module has been certified by Shenzhen Morlab Communications Technology Co., Ltd. on 07/02/2021.

Note 5: There is no more evaluation for host RSE because the hosts are the same between hotspot and module when RSE test. For all test results, please refer to Report No.: SZ21010262W04.

1.5. Environmental Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15 - 35
Relative Humidity (%):	30 -60
Atmospheric Pressure (kPa):	86-106

2.47 CFR Part 2, Part 22H, Part 24E, Part 27L &F&O Requirements

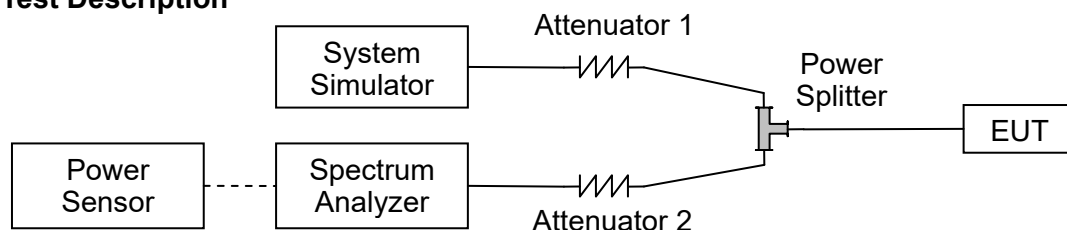
2.1. Transmitter Conducted Output Power And ERP/EIRP

2.1.1. Requirement

According to FCC section 2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in FCC section 2.1033(c)(8).

According to FCC section 27.50 (h)(2) for N41, Mobile and other user stations. Mobile stations are limited to 2 watts E.I.R.P. All user stations are limited to 2 watts transmitter output power. According to FCC section 27.50 (d)(4) for N66, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

2.1.2. Test Description



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50 Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

2.1.3. Test procedure

KDB 971168 D01v03 Section 5.2 and ANSI/TIA-603-E-2016.

$\text{EIRP (dBm)} = \text{Conducted Output Power (dBm)} + \text{Antenna Gain (dBi)}$

$\text{ERP (dBm)} = \text{EIPR (dBm)} - 2.15$

2.1.4. Result

Conducted Output Power:

DC_13A_n2A

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel
Channel				372000	376000	380000
Frequency (MHz)				1860	1880	1900
20	DFT-s-OFDM PI/2 BPSK	1	1	21.92	21.31	20.75
20		1	53	22.24	22.15	21.09
20		1	104	21.27	20.95	20.76
20		50	1	21.92	22.05	21.87
20		50	25	22.08	21.96	21.79
20		50	50	22.15	21.15	21.44
20		100	0	22.03	21.95	21.87
20	DFT-s-OFDM QPSK	1	1	22.02	22.29	21.56
20		1	53	22.14	22.19	22.17
20		1	104	22.26	20.96	21.35
20		50	1	20.83	22.27	21.85
20		50	25	21.82	22.18	21.85
20		50	50	22.02	21.20	21.57
20		100	0	21.76	21.81	21.84
20	DFT-s-OFDM 16QAM	1	1	20.59	21.09	21.07
20	DFT-s-OFDM 64QAM	1	1	20.30	20.60	20.66
20	DFT-s-OFDM 256QAM	1	1	18.58	18.13	17.95
Channel				371500	376000	380500
Frequency (MHz)				1857.5	1880	1902.5
15	DFT-s-OFDM PI/2 BPSK	1	1	21.46	21.92	20.48
Channel				371000	376000	381000
Frequency (MHz)				1855	1880	1905
10	DFT-s-OFDM PI/2 BPSK	1	1	21.27	21.95	20.64
Channel				370500	376000	381500



Frequency (MHz)				1852.5	1880	1907.5
5	DFT-s-OFDM PI/2 BPSK	1	1	21.39	21.98	21.32
Channel				372000	376000	380000
Frequency (MHz)				1860	1880	1900
20	CP-OFDM QPSK	1	1	19.71	19.59	19.20
20	CP-OFDM 16QAM	1	1	19.19	19.14	18.75
20	CP-OFDM 64QAM	1	1	18.29	17.98	17.73
20	CP-OFDM 256QAM	1	1	16.53	15.83	15.78

DC_48A_n2A

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel
Channel				372000	376000	380000
Frequency (MHz)				1860	1880	1900
20	DFT-s-OFDM PI/2 BPSK	1	1	22.72	22.61	22.65
20		1	53	22.72	22.70	22.71
20		1	104	22.66	22.70	22.69
20		50	1	22.12	22.66	22.63
20		50	25	22.40	22.07	22.65
20		50	50	22.12	22.69	22.69
20		100	0	22.41	22.32	22.72
20	DFT-s-OFDM QPSK	1	1	22.46	22.73	22.39
20		1	53	22.65	22.70	22.69
20		1	104	22.54	22.42	22.54
20		50	1	22.67	22.72	22.70
20		50	25	22.64	22.71	22.71
20		50	50	22.72	22.08	22.64
20		100	0	22.42	22.45	22.59
20	DFT-s-OFDM 16QAM	1	1	20.25	20.87	20.29
20	DFT-s-OFDM 64QAM	1	1	20.04	20.37	20.01
20	DFT-s-OFDM 256QAM	1	1	19.42	19.12	19.38
Channel				371500	376000	380500
Frequency (MHz)				1857.5	1880	1902.5
15	DFT-s-OFDM PI/2 BPSK	1	1	22.69	22.63	22.68
Channel				371000	376000	381000
Frequency (MHz)				1855	1880	1905
10	DFT-s-OFDM PI/2 BPSK	1	1	22.68	22.61	22.66
Channel				370500	376000	381500
Frequency (MHz)				1852.5	1880	1907.5
5	DFT-s-OFDM PI/2 BPSK	1	1	22.61	22.49	22.65



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Channel				372000	376000	380000
Frequency (MHz)				1860	1880	1900
20	CP-OFDM QPSK	1	1	22.15	21.97	22.32
20	CP-OFDM 16QAM	1	1	21.82	21.53	21.85
20	CP-OFDM 64QAM	1	1	20.09	20.25	20.32
20	CP-OFDM 256QAM	1	1	17.06	17.13	17.38

DC_48A_n5A

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel
Channel				166800	167300	167800
Frequency (MHz)				834	836.5	839
20	DFT-s-OFDM PI/2 BPSK	1	1	22.54	22.47	22.43
20		1	53	22.46	22.42	22.41
20		1	104	22.30	22.34	22.23
20		50	1	22.60	22.53	22.50
20		50	25	22.56	22.54	22.48
20		50	50	22.43	22.44	22.41
20		100	0	22.50	22.50	22.43
20	DFT-s-OFDM QPSK	1	1	22.49	22.63	22.45
20		1	53	22.25	22.42	22.38
20		1	104	22.16	22.26	22.27
20		50	1	22.44	22.60	22.51
20		50	25	22.51	22.56	22.47
20		50	50	22.10	22.41	22.35
20		100	0	22.16	22.49	22.45
20	DFT-s-OFDM 16QAM	1	1	22.41	22.45	22.46
20	DFT-s-OFDM 64QAM	1	1	21.63	21.82	21.74
20	DFT-s-OFDM 256QAM	1	1	19.73	19.86	19.72
Channel				166300	167300	168300
Frequency (MHz)				831.5	836.5	841.5
15	DFT-s-OFDM PI/2 BPSK	1	1	22.53	22.54	22.55
Channel				165800	167300	168800
Frequency (MHz)				829	836.5	844
10	DFT-s-OFDM PI/2 BPSK	1	1	22.52	22.41	22.29
Channel				165300	167300	169300
Frequency (MHz)				826.5	836.5	846.5
5	DFT-s-OFDM PI/2 BPSK	1	1	22.48	22.45	22.33



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Channel				166800	167300	167800
Frequency (MHz)				824	836.5	849
20	CP-OFDM QPSK	1	1	22.55	22.60	22.46
20	CP-OFDM 16QAM	1	1	22.34	22.33	22.24
20	CP-OFDM 64QAM	1	1	20.92	20.76	20.74
20	CP-OFDM 256QAM	1	1	17.90	17.85	17.71



DC_48A_n66A

BW [MHz]	Modulation	RB Size	RB Offset	Low Channel	Middle Channel	High Channel
Channel				344000	349000	354000
Frequency (MHz)				1720	1745	1770
20	DFT-s-OFDM PI/2 BPSK	1	1	22.75	22.72	22.92
20		1	53	22.64	22.57	22.76
20		1	104	22.66	22.74	22.70
20		50	1	22.39	22.78	22.79
20		50	25	22.31	22.76	22.92
20		50	50	22.16	22.74	22.78
20		100	0	22.22	22.76	22.68
20	DFT-s-OFDM QPSK	1	1	22.70	22.98	22.86
20		1	53	22.45	22.69	22.67
20		1	104	22.82	22.84	22.66
20		50	1	22.32	22.95	22.68
20		50	25	22.33	22.30	22.75
20		50	50	22.17	22.03	22.72
20		100	0	22.66	22.74	22.69
20	DFT-s-OFDM 16QAM	1	1	22.67	22.65	22.75
20	DFT-s-OFDM 64QAM	1	1	21.52	21.91	22.05
20	DFT-s-OFDM 256QAM	1	1	19.97	19.86	19.93
Channel				343500	349000	354500
Frequency (MHz)				1717.5	1745	1772.5
15	DFT-s-OFDM PI/2 BPSK	1	1	22.75	22.65	22.62
Channel				343000	349000	355000
Frequency (MHz)				1715	1745	1775
10	DFT-s-OFDM PI/2 BPSK	1	1	22.74	22.66	22.88
Channel				342500	349000	355500
Frequency (MHz)				1712.5	1745	1777.5
5	DFT-s-OFDM PI/2 BPSK	1	1	22.76	22.77	22.85



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Channel				344000	349000	354000
Frequency (MHz)				1710	1745	1780
20	CP-OFDM QPSK	1	1	22.50	22.85	22.76
20	CP-OFDM 16QAM	1	1	21.88	22.43	22.52
20	CP-OFDM 64QAM	1	1	20.90	20.91	20.86
20	CP-OFDM 256QAM	1	1	18.17	17.98	18.07

Note: The other test results was recorded in Report No.: SZ21010262W04.



Effective Radiated Power and Effective Isotropic Radiated Power:

DC_13A_N2				Measured EIRP					
BW [MHz]	Modulation	RB Size	RB Offset	LowCh. /Freq.	MiddleC h./Freq.	HighCh . / Freq.	LowCh. / EIRP	MiddleC h./EIRP	HighCh . / EIRP
Channel				372000	376000	380000	372000	376000	380000
Frequency (MHz)				1860	1880	1900	1860	1880	1900
unit				dBm			W		
20	DFT-s-OFDM PI/2 BPSK	1	1	23.22	22.61	22.05	0.210	0.182	0.160
20		1	53	23.54	23.45	22.39	0.226	0.221	0.173
20		1	104	22.57	22.25	22.06	0.181	0.168	0.161
20		50	1	23.22	23.35	23.17	0.210	0.216	0.207
20		50	25	23.38	23.26	23.09	0.218	0.212	0.204
20		50	50	23.45	22.45	22.74	0.221	0.176	0.188
20		100	0	23.33	23.25	23.17	0.215	0.211	0.207
20	DFT-s-OFDM QPSK	1	1	23.32	23.59	22.86	0.215	0.229	0.193
20		1	53	23.44	23.49	23.47	0.221	0.223	0.222
20		1	104	23.56	22.26	22.65	0.227	0.168	0.184
20		50	1	22.13	23.57	23.15	0.163	0.228	0.207
20		50	25	23.12	23.48	23.15	0.205	0.223	0.207
20		50	50	23.32	22.50	22.87	0.215	0.178	0.194
20		100	0	23.06	23.11	23.14	0.202	0.205	0.206
20	DFT-s-OFDM 16QAM	1	1	21.89	22.39	22.37	0.155	0.173	0.173
20	DFT-s-OFDM 64QAM	1	1	21.60	21.90	21.96	0.145	0.155	0.157
20	DFT-s-OFDM 256QAM	1	1	19.88	19.43	19.25	0.097	0.088	0.084
Channel				371500	376000	380500	371500	376000	380500
Frequency (MHz)				1857.5	1880	1902.5	1857.5	1880	1902.5
15	DFT-s-OFDM QPSK	1	1	22.76	23.22	21.78	0.189	0.210	0.151
Channel				371000	376000	381000	371000	376000	381000
Frequency (MHz)				1855	1880	1905	1855	1880	1905
10	DFT-s-OFDM QPSK	1	1	22.57	23.25	21.94	0.181	0.211	0.156



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Channel				370500	376000	381500	370500	376000	381500
Frequency (MHz)				185205	1880	1907.5	185205	1880	1907.5
5	DFT-s-OFDM QPSK	1	1	22.69	23.28	22.62	0.186	0.213	0.183
Channel				372000	376000	380000	372000	376000	380000
Frequency (MHz)				1860	1880	1900	1860	1880	1900
20	CP-OFDM QPSK	1	1	21.01	20.89	20.50	0.126	0.123	0.112
20	CP-OFDM 16QAM	1	1	20.49	20.44	20.05	0.112	0.111	0.101
20	CP-OFDM 64QAM	1	1	19.59	19.28	19.03	0.091	0.085	0.080
20	CP-OFDM 256QAM	1	1	13.12	13.4	13.32	0.021	0.022	0.021



DC_48A_N2				Measured EIRP					
BW [MHz]	Modulation	RB Size	RB Offset	LowCh. /Freq.	MiddleC h./Freq.	HighCh . / Freq.	LowCh. / EIRP	MiddleC h./EIRP	HighCh . / EIRP
Channel				372000	376000	380000	372000	376000	380000
Frequency (MHz)				1860	1880	1900	1860	1880	1900
unit				dBm			W		
20	DFT-s-OFDM PI/2 BPSK	1	1	24.02	23.91	23.95	0.252	0.246	0.248
20		1	53	24.02	24.00	24.01	0.252	0.251	0.252
20		1	104	23.96	24.00	23.99	0.249	0.251	0.251
20		50	1	23.42	23.96	23.93	0.220	0.249	0.247
20		50	25	23.70	23.37	23.95	0.234	0.217	0.248
20		50	50	23.42	23.99	23.99	0.220	0.251	0.251
20		100	0	23.71	23.62	24.02	0.235	0.230	0.252
20	DFT-s-OFDM QPSK	1	1	23.76	24.03	23.69	0.238	0.253	0.234
20		1	53	23.95	24.00	23.99	0.248	0.251	0.251
20		1	104	23.84	23.72	23.84	0.242	0.236	0.242
20		50	1	23.97	24.02	24.00	0.249	0.252	0.251
20		50	25	23.94	24.01	24.01	0.248	0.252	0.252
20		50	50	24.02	23.38	23.94	0.252	0.218	0.248
20		100	0	23.72	23.75	23.89	0.236	0.237	0.245
20	DFT-s-OFDM 16QAM	1	1	21.55	22.17	21.59	0.143	0.165	0.144
20	DFT-s-OFDM 64QAM	1	1	21.34	21.67	21.31	0.136	0.147	0.135
20	DFT-s-OFDM 256QAM	1	1	20.72	20.42	20.68	0.118	0.110	0.117
Channel				371500	376000	380500	371500	376000	380500
Frequency (MHz)				1857.5	1880	1902.5	1857.5	1880	1902.5
15	DFT-s-OFDM QPSK	1	1	23.99	23.93	23.98	0.251	0.247	0.250
Channel				371000	376000	381000	371000	376000	381000
Frequency (MHz)				1855	1880	1905	1855	1880	1905
10	DFT-s-OFDM QPSK	1	1	23.98	23.91	23.96	0.250	0.246	0.249
Channel				370500	376000	381500	370500	376000	381500
Frequency (MHz)				185205	1880	1907.5	185205	1880	1907.5
5	DFT-s-OFDM QPSK	1	1	23.91	23.79	23.95	0.246	0.239	0.248



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Channel				372000	376000	380000	372000	376000	380000
Frequency (MHz)				1860	1880	1900	1860	1880	1900
20	CP-OFDM QPSK	1	1	23.45	23.27	23.62	0.221	0.212	0.230
20	CP-OFDM 16QAM	1	1	23.12	22.83	23.15	0.205	0.192	0.207
20	CP-OFDM 64QAM	1	1	21.39	21.55	21.62	0.138	0.143	0.145
20	CP-OFDM 256QAM	1	1	13.12	13.4	13.32	0.021	0.022	0.021



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DC_48A_N5				Measured EIRP					
BW [MHz]	Modulation	RB Size	RB Offset	LowCh. /Freq.	MiddleC h./Freq.	HighCh . / Freq.	LowCh. / EIRP	MiddleC h./EIRP	HighCh . / EIRP
Channel				166800	167300	167800	166800	167300	167800
Frequency (MHz)				834	836.5	839	834	836.5	839
unit				dBm			W		
20	DFT-s-OFDM PI/2 BPSK	1	1	20.89	20.82	20.78	0.123	0.121	0.120
20		1	53	20.81	20.77	20.76	0.121	0.119	0.119
20		1	104	20.65	20.69	20.58	0.116	0.117	0.114
20		50	1	20.95	20.88	20.85	0.124	0.122	0.122
20		50	25	20.91	20.89	20.83	0.123	0.123	0.121
20		50	50	20.78	20.79	20.76	0.120	0.120	0.119
20		100	0	20.85	20.85	20.78	0.122	0.122	0.120
20	DFT-s-OFDM QPSK	1	1	20.84	20.98	20.80	0.121	0.125	0.120
20		1	53	20.60	20.77	20.73	0.115	0.119	0.118
20		1	104	20.51	20.61	20.62	0.112	0.115	0.115
20		50	1	20.79	20.95	20.86	0.120	0.124	0.122
20		50	25	20.86	20.91	20.82	0.122	0.123	0.121
20		50	50	20.45	20.76	20.70	0.111	0.119	0.117
20		100	0	20.51	20.84	20.80	0.112	0.121	0.120
20	DFT-s-OFDM 16QAM	1	1	20.76	20.80	20.81	0.119	0.120	0.121
20	DFT-s-OFDM 64QAM	1	1	19.98	20.17	20.09	0.100	0.104	0.102
20	DFT-s-OFDM 256QAM	1	1	18.08	18.21	18.07	0.064	0.066	0.064
Channel				166300	167300	168300	166300	167300	168300
Frequency (MHz)				831.5	836.5	841.5	831.5	836.5	841.5
15	DFT-s-OFDM QPSK	1	1	20.88	20.89	20.90	0.122	0.123	0.123
Channel				165800	167300	168800	165800	167300	168800
Frequency (MHz)				829	836.5	844	829	836.5	844
10	DFT-s-OFDM QPSK	1	1	20.87	20.76	20.64	0.122	0.119	0.116
Channel				165300	167300	169300	165300	167300	169300
Frequency (MHz)				826.5	836.5	846.5	826.5	836.5	846.5
5	DFT-s-OFDM QPSK	1	1	20.83	20.80	20.68	0.121	0.120	0.117



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Channel				166800	167300	167800	166800	167300	167800
Frequency (MHz)				824	836.5	849	824	836.5	849
20	CP-OFDM QPSK	1	1	20.90	20.95	20.81	0.123	0.124	0.121
20	CP-OFDM 16QAM	1	1	20.69	20.68	20.59	0.117	0.117	0.115
20	CP-OFDM 64QAM	1	1	19.27	19.11	19.09	0.085	0.081	0.081
20	CP-OFDM 256QAM	1	1	13.12	13.4	13.32	0.021	0.022	0.021



DC_48A_N66				Measured EIRP					
BW [MHz]	Modulation	RB Size	RB Offset	LowCh. /Freq.	MiddleC h./Freq.	HighCh . / Freq.	LowCh. / EIRP	MiddleC h./EIRP	HighCh . / EIRP
Channel				344000	349000	354000	344000	349000	354000
Frequency (MHz)				1720	1745	1770	1720	1745	1770
unit				dBm			W		
20	DFT-s-OFDM PI/2 BPSK	1	1	24.25	24.22	24.42	0.266	0.264	0.277
20		1	53	24.14	24.07	24.26	0.259	0.255	0.267
20		1	104	24.16	24.24	24.20	0.261	0.265	0.263
20		50	1	23.89	24.28	24.29	0.245	0.268	0.269
20		50	25	23.81	24.26	24.42	0.240	0.267	0.277
20		50	50	23.66	24.24	24.28	0.232	0.265	0.268
20		100	0	23.72	24.26	24.18	0.236	0.267	0.262
20	DFT-s-OFDM QPSK	1	1	24.20	24.48	24.36	0.263	0.281	0.273
20		1	53	23.95	24.19	24.17	0.248	0.262	0.261
20		1	104	24.32	24.34	24.16	0.270	0.272	0.261
20		50	1	23.82	24.45	24.18	0.241	0.279	0.262
20		50	25	23.83	23.80	24.25	0.242	0.240	0.266
20		50	50	23.67	23.53	24.22	0.233	0.225	0.264
20		100	0	24.16	24.24	24.19	0.261	0.265	0.262
20	DFT-s-OFDM 16QAM	1	1	24.17	24.15	24.25	0.261	0.260	0.266
20	DFT-s-OFDM 64QAM	1	1	23.02	23.41	23.55	0.200	0.219	0.226
20	DFT-s-OFDM 256QAM	1	1	21.47	21.36	21.43	0.140	0.137	0.139
Channel				343500	349000	354500	343500	349000	354500
Frequency (MHz)				1717.5	1745	1772.5	1717.5	1745	1772.5
15	DFT-s-OFDM QPSK	1	1	24.25	24.15	24.12	0.266	0.260	0.258
Channel				343000	349000	355000	343000	349000	355000
Frequency (MHz)				1715	1745	1775	1715	1745	1775
10	DFT-s-OFDM QPSK	1	1	24.24	24.16	24.38	0.265	0.261	0.274
Channel				342500	349000	355500	342500	349000	355500
Frequency (MHz)				1712.5	1745	1777.5	1712.5	1745	1777.5
5	DFT-s-OFDM QPSK	1	1	24.26	24.27	24.35	0.267	0.267	0.272



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Channel				34400	349000	354000	34400	349000	354000
Frequency (MHz)				1710	1745	1780	1710	1745	1780
20	CP-OFDM QPSK	1	1	24.00	24.35	24.26	0.251	0.272	0.267
20	CP-OFDM 16QAM	1	1	23.38	23.93	24.02	0.218	0.247	0.252
20	CP-OFDM 64QAM	1	1	22.40	22.41	22.36	0.174	0.174	0.172
20	CP-OFDM 256QAM	1	1	13.12	13.4	13.32	0.021	0.022	0.021

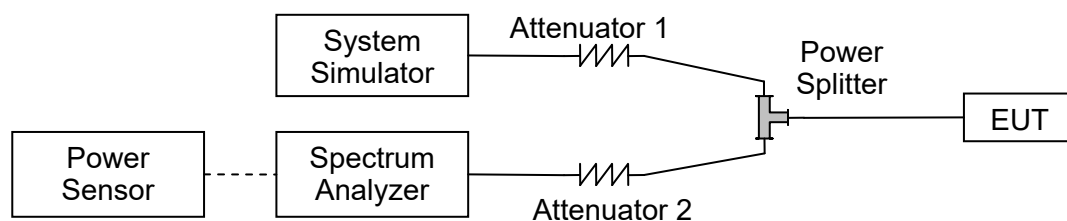
Note: The other test results was recorded in Report No.: SZ21010262W04.

2.2. Occupied Bandwidth

2.2.1. Requirement

According to FCC section 2.1049, the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission. Occupied bandwidth is also known as the 99% emission bandwidth.

2.2.2. Test Description



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50 Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

2.2.3. Test procedure

KDB 971168 D01v03 Section 4.1 and ANSI/TIA-603-E-2016.

2.2.4. Test Result

Note: The test results was recorded in Report No.: SZ21010262W04.

2.3. Frequency Stability

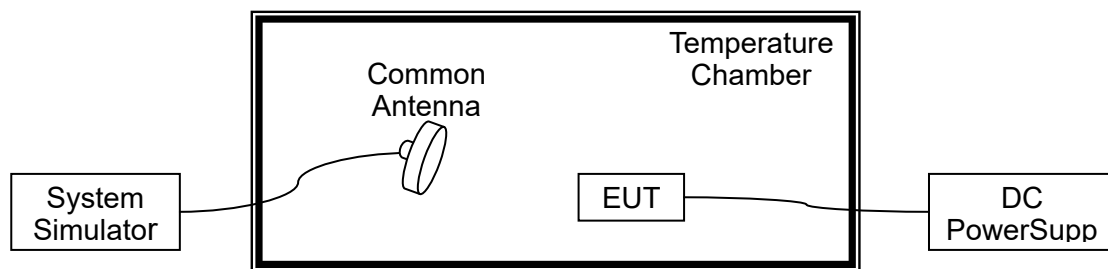
2.3.1. Requirement

According to FCC section 2.1055 & 27.54, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

- (a) The temperature is varied from -30°C to $+50^{\circ}\text{C}$ at intervals of not more than 10°C .
- (b) For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

Note: The operating temperature of EUT is from 0°C to 45°C , which are specified by the applicant.

2.3.2. Test Description



The EUT which is powered by the DC Power Supply directly, is located in the Temperature Chamber. The EUT is commanded by the System Simulator (SS) to operate at the maximum output power. A call is established between the EUT and the SS via a Common Antenna.

2.3.3. Test procedure

KDB 971168 D01v03 Section 9.0 and ANSI/TIA-603-E-2016.

2.3.4. Test Result

The nominal, highest and lowest extreme voltages are separately 3.8VDC, 4.2VDC and 3.6VDC, which are specified by the applicant; the normal temperature here used is 20°C .

Note: The test results was recorded in Report No.: SZ21010262W04.

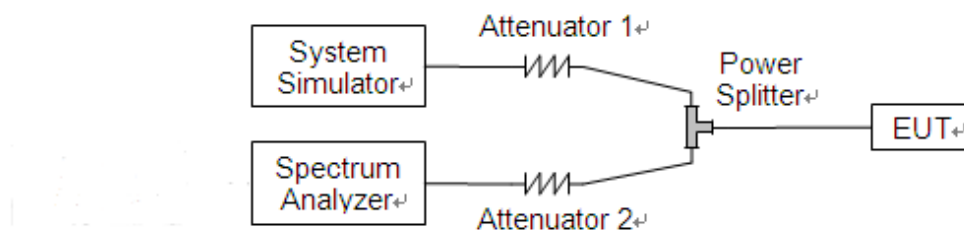
2.4. Peak to Average Radio

2.4.1. Requirement

According to FCC section 24.232(d), the peak to average ratio (PAR) of the transmission may not exceed 13dB.

2.4.2. Test Description

Test Set:



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

2.4.3. Test procedure

KDB 971168 D01v03 Section 5.7 and ANSI/TIA-603-E-2016.

2.4.4. Test Result

Record the maximum PAPR level associated with a probability of 0.1%.

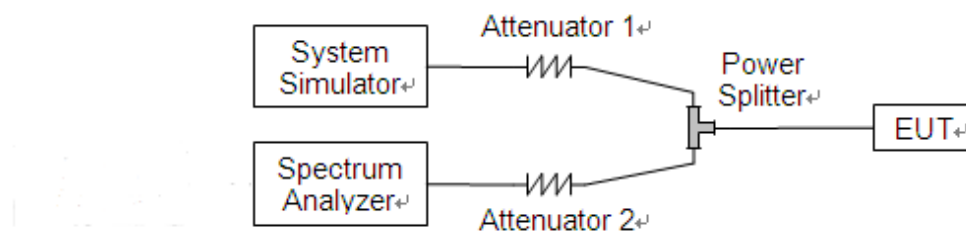
Note: The test results was recorded in Report No.: SZ21010262W04.

2.5. Conducted Spurious Emissions

2.5.1. Requirement

According to FCC section 2.1051, section 27.53(h), section 27.53(g), 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. This calculated to be -13dBm.

2.5.2. Test Description



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.



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2.5.3. Test procedure

KDB 971168 D01v03 Section 6.0 and ANSI/TIA-603-E-2016.

2.5.4. Test Result

Note: The test results was recorded in Report No.: SZ21010262W04.

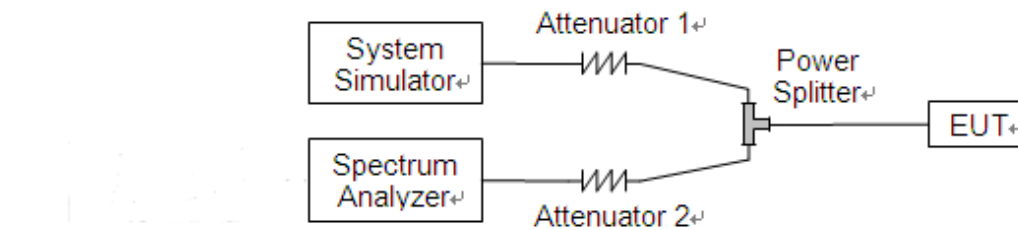


2.6. Band Edge

2.6.1. Requirement

According to FCC section 2.1051, section 27.53(h), section 27.53(g), 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.

2.6.2. Test Description



The EUT is coupled to the Spectrum Analyzer (SA) and the System Simulator (SS) with Attenuators through the Power Splitter; the RF load attached to the EUT antenna terminal is 50 Ohm; the path loss as the factor is calibrated to correct the reading. The EUT is commanded by the SS to operate at the maximum output power. A call is established between the EUT and the SS.

2.6.3. Test procedure

KDB 971168 D01v03 Section 6.0 and ANSI/TIA-603-E-2016.



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2.6.4. Test Result

The center frequency of spectrum is the band edge frequency and span is 2MHz, Record the max trace into the test report.

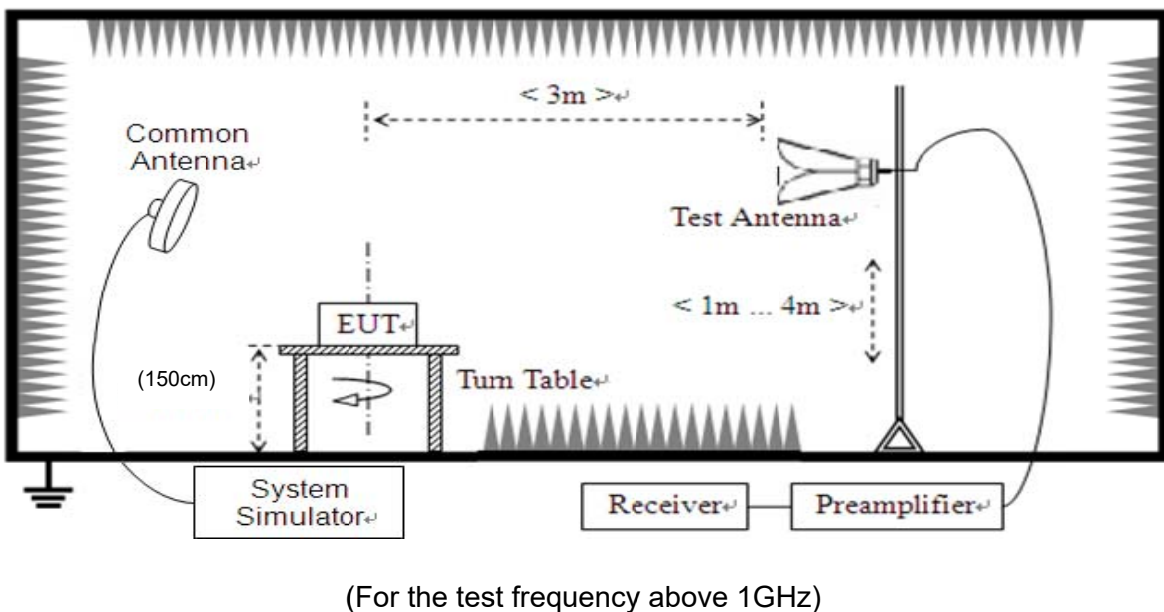
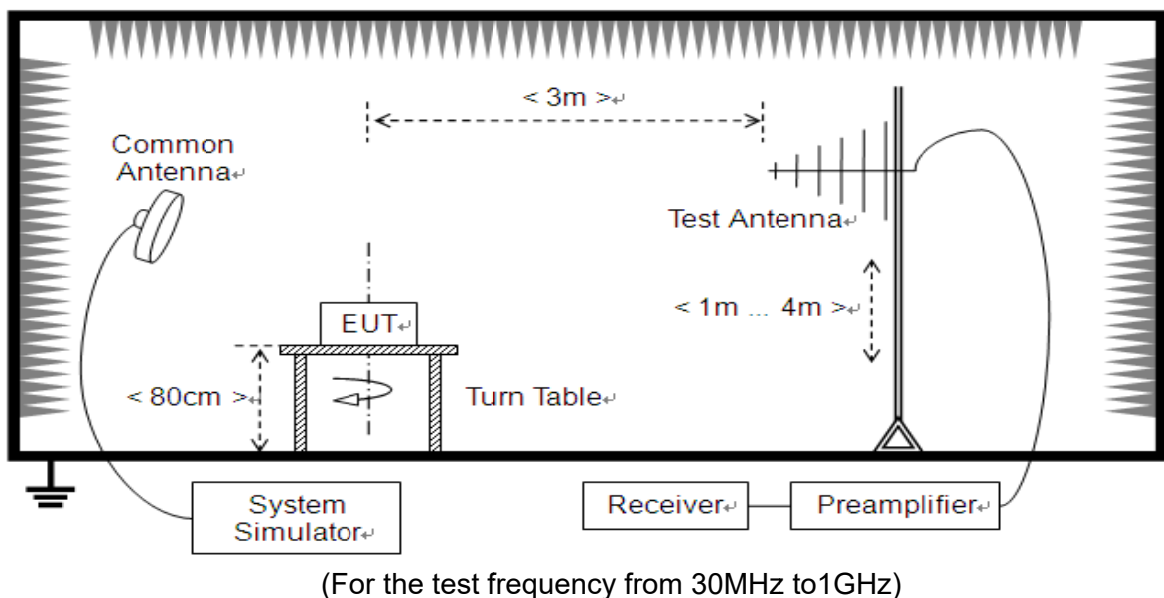
Note: The test results was recorded in Report No.: SZ21010262W04.

2.7. Radiated Spurious Emissions

2.7.1. Requirement

According to FCC section 2.1051, section 27.53(h), section 27.53(g), 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. This calculated to be -13dBm.

2.7.2. Test Description





The EUT is located in a 3m Full-Anechoic Chamber, the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading.

A call is established between the EUT and the SS via a Common Antenna. The EUT is commanded by the SS to operate at the maximum and minimum output power, and only the test result of the maximum output power was recorded.

In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground and the Turn Table is actuated to turn from 0° to 360° to determine the maximum value of the radiated power. The emission levels at both horizontal and vertical polarizations should be tested. The Filters consists of Notch Filters and High Pass Filter.

Note: when doing measurements above 1GHz, the EUT has been within the 3dB cone width of the horn antenna during horizontal antenna.

2.7.3. Test procedure

KDB 971168 D01v03 Section 5.8 and ANSI/TIA-603-E-2016.

2.7.4. Test Result

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. Test Antenna height is varied from 1m to 4m above the ground, and the Turn Table is actuated to turn from 0° to 360°, both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The substitution corrections are obtained as described below:

$$A_{\text{SUBST}} = P_{\text{SUBST_TX}} - P_{\text{SUBST_RX}} - L_{\text{SUBST_CABLES}} + G_{\text{SUBST_TX_ANT}}$$

$$A_{\text{TOT}} = L_{\text{CABLES}} + A_{\text{SUBST}}$$

Where A_{SUBST} is the final substitution correction including receive antenna gain.

$P_{\text{SUBST_TX}}$ is signal generator level,

$P_{\text{SUBST_RX}}$ is receiver level,



$L_{\text{SUBST_CABLES}}$ is cable losses including TX cable,

$G_{\text{SUBST_TX_ANT}}$ is substitution antenna gain.

A_{TOT} is total correction factor including cable loss and substitution correction

During the test, the data of A_{TOT} was added in the Test Spectrum Analyze, so Spectrum Analyze reading is the final values which contain the data of A_{TOT} .

Note1: The power of the EUT transmitting frequency should be ignored.

Note2: All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Note3: All bandwidth and modulation were considered and evaluated respectively by performing full test for each band, only the worst cases (Max Bandwidth and QPSK mode) were recorded in this test report.

Note: The test results was recorded in Report No.: SZ21010262W04.

Annex A Test Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for test performed on the EUT as specified in CISPR 16-1-2:

Test items	Uncertainty
Output Power	± 2.22 dB
Bandwidth	$\pm 5\%$
Conducted Spurious Emission	± 2.77 dB
Band Edge	± 2.77 dB
Equivalent Isotropic Radiated Power	± 2.22 dB
Radiated Spurious Emissions	± 6 dB

This uncertainty represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$



Annex B Testing Laboratory Information

1. Identification of the Responsible Testing Laboratory

Company Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10-2013 and CISPR Publication 22; the FCC designation number is CN1192, the test firm registration number is 226174.



4. Test Equipments Utilized

4.1 Conducted Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
Power Splitter	NW521	1506A	Weinschel	N/A	N/A
Attenuator 1	(N/A.)	10dB	Resnet	N/A	N/A
Attenuator 2	(N/A.)	3dB	Resnet	N/A	N/A
EXA Signal Analyzer	MY54170556	N9030A	Keysight	2021.01.08	2022.01.07
USB Power Sensor	MY54210011	U2021XA	Agilent	2020.10.23	2021.10.22
System Simulator	6261830572	MT8821C	Anritsu	2021.02.25	2022.02.24
System Simulator	6262012906	MT8000A	Anritsu	2020.10.28	2021.10.27
RF cable (30MHz-26GHz)	CB01	RF01	Morlab	N/A	N/A
Coaxial cable	CB02	RF02	Morlab	N/A	N/A
SMA connector	CN01	RF03	HUBER-SUHNER	N/A	N/A
Temperature Chamber	20171112102	HZ-2019	Dongguan Lixian Instrument Technology Co., Ltd	2020.10.26	2021.10.25
Computer	T430i	Think Pad	Lenovo	N/A	N/A
Test system	N/A	WCS FCC V1.0	CeSheng	N/A	N/A

**4.2 Radiated Test Equipments**

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal.Due
System Simulator	6262012906	MT8000A	Anritsu	2019.10.07	2021.10.06
System Simulator	6200995016	MT8820C	Anritsu	2020.10.28	2021.10.27
Receiver	MY54130016	N9038A	Agilent	2020.07.21	2021.07.20
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2019.05.24	2022.05.23
Test Antenna - Horn	9170C-531	BBHA9170	Schwarzbeck	2019.07.26	2022.07.25
Test Antenna - Horn	01774	BBHA 9120D	Schwarzbeck	2019.07.26	2022.07.25
Coaxial cable (N male) (9KHz-30MHz)	CB04	EMC04	Morlab	N/A	N/A
Coaxial cable (N male) (30MHz-26GHz)	CB02	EMC02	Morlab	N/A	N/A
Coaxial cable(N male) (30MHz-26GHz)	CB03	EMC03	Morlab	N/A	N/A
1-18GHz pre-Amplifier	MA02	TS-PR18	Rohde& Schwarz	2020.07.21	2021.07.20
18-26.5GHz pre-Amplifier	MA03	TS-PR18	Rohde& Schwarz	2020.07.21	2021.07.20
Notch Filter	N/A	WRCGV -LTE B2	Wainwright	2020.07.21	2021.07.20
Notch Filter	N/A	WRCGV -LTE B4	Wainwright	2020.07.21	2021.07.20
Notch Filter	N/A	WRCGV -LTE B5	Wainwright	2020.07.21	2021.07.20
Notch Filter	N/A	WRCGV -LTE B7	Wainwright	2020.07.21	2021.07.20
Notch Filter	N/A	WRCGV -LTE B12	Wainwright	2020.07.21	2021.07.20



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Notch Filter	N/A	WRCGV -LTE B17	Wainwright	2020.07.21	2021.07.20
Notch Filter	N/A	WRCGV -LTE B19	Wainwright	2020.07.21	2021.07.20
Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal.Due
Notch Filter	N/A	WRCGV -LTE B25	Wainwright	2020.07.21	2021.07.20
Notch Filter	N/A	WRCGV -LTE B26	Wainwright	2020.07.21	2021.07.20
Notch Filter	N/A	WRCGV -LTE B30	Wainwright	2020.07.21	2021.07.20
Notch Filter	N/A	WRCGV -LTE 38	Wainwright	2020.07.21	2021.07.20
Notch Filter	N/A	WRCGV -LTE B40	Wainwright	2020.07.21	2021.07.20
Notch Filter	N/A	WRCGV -LTE B41	Wainwright	2020.07.21	2021.07.20
Anechoic Chamber	N/A	9m*6m*6m	CRT	2020.07.21	2021.07.20

_____ END OF REPORT _____