ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

FCC Applicant:	Telit Communications S.p.A. Via Stazione di Prosecco 5/b 34010 Sgonico – Trieste, Italy
FCC Manufacturer:	Telit Wireless Solutions. Co. Ltd. 13th Fl.,Shinyoung Securities Bld, 6, Gukjegeumyung-ro 8-gil, Yeongdeungpo-gu, Seoul, 07330, South Korea
Product Name:	5G Radio Module
Brand Name:	Telit Cinterion or
Model No.:	FE912C04-NA
Report Number:	TERF2411003768ER
FCC ID	RI7FE912C04NA
Date of EUT Received:	November 26, 2024
Date of Test:	November 27, 2024 ~ March 27, 2025
Issue Date:	March 27, 2025

Approved By Jazz Huang

Jazz Huang

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI ANSI C63.26-2015 and the energy emitted by the sample EUT comply with FCC rule part 2 , 22H & 24E & 27 C & 90S.

The results of this report relate only to the sample identified in this report.

Revision History

Report Number	Revision	Description	Issue Date	Revised By	Remark
TERF2411003768ER	00	Original	March 11, 2025	Yuri Tsai	
TERF2411003768ER	01	Update test result	March 27, 2025	Yuri Tsai	*

Note:

1、 The remark "*" indicates modification of the report upon requests from certification body.

Contents

1 GENERAL PRODUCT INFORMATION

1.1 Product Description

Product Name:	5G Radio Module
Brand Name:	Telit Cinterion or
Model No.:	FE912C04-NA
Hardware Version:	1.00
Firmware Version:	M0V.010001
EUT Series No.:	357752690013650
Power Supply:	3.8 Vdc
Test Software (Name/Version)	Connect with callbox

1.2 Operation Frequency Range

NR Band 2			
BW (MHz)	Operation Frequency (MHz)		
5	1852.5	-	1907.5
10	1855.0	-	1905.0
15	1857.5	-	1902.5
20	1860.0	-	1900.0

NR Band 5			
BW (MHz)	Operation Frequency (MHz)		
5	826.5	-	846.5
10	829.0	-	844.0
15	831.5	-	841.5
20	834.0	-	839.0

NR Band 7			
BW (MHz)	Operation Frequency (MHz)		
5	2502.5	-	2567.5
10	2505.0	-	2565.0
15	2507.5	-	2562.5
20	2510.0	-	2560.0

NR Band 12			
BW (MHz)	Operation Frequency (MHz)		
5	701.5	-	713.5
10	704.0	-	711.0
15	706.5	-	708.5

NR Band 13			
BW (MHz)	Operation Frequency (MHz)		
5	779.5	-	784.5
10	782	-	782

NR Band 14			
BW (MHz)	Operation Frequency (MHz)		
5	790.5	-	795.5
10	793.0	-	793.0

NR Band 25			
BW (MHz)	Operation Frequency (MHz)		
5	1852.5	-	1912.5
10	1855.0	-	1910.0
15	1857.5	-	1907.5
20	1860.0	-	1905.0

NR Band 26 (Part 90)			
BW (MHz)	Operation Frequency (MHz)		
5	816.5	-	821.5
10	819.0	-	819.0

NR Band 26			
BW (MHz)	Operation Frequency (MHz)		
5	826.5	-	846.5
10	829.0	-	844.0
15	831.5	-	841.5
20	834.0	-	839.0

NR Band 41			
BW (MHz)	Operation Frequency (MHz)		
10	2501.0	-	2685.0
15	2503.5	-	2682.5
20	2506.0	-	2680.0

NR Band 66			
BW (MHz)	Operation Frequency (MHz)		
5	1712.5	-	1777.5
10	1715.0	-	1775.0
15	1717.5	-	1772.5
20	1720.0	-	1770.0

NR Band 71			
BW (MHz)	Operation Frequency (MHz)		
5	665.5	-	695.5
10	668.0	-	693.0
15	670.5	-	690.5
20	673.0	-	688.0

NR Band 77 (lower)			
BW (MHz)	Operation Frequency (MHz)		
10	3455.0	-	3545.0
15	3457.5	-	3542.5
20	3460.0	-	3540.0

NR Band 77 (upper)			
BW (MHz)	Operation Frequency (MHz)		
10	3705.0	-	3975.0
15	3707.5	-	3972.5
20	3710.0	-	3970.0

NR Band 78 (lower)			
BW (MHz)	Operation Frequency (MHz)		
10	3455.0	-	3545.0
15	3457.5	-	3542.5
20	3460.0	-	3540.0

NR Band 78 (upper)			
BW (MHz)	Operation Frequency (MHz)		
10	3705.0	-	3795.0
15	3707.5	-	3792.5
20	3710.0	-	3790.0

1.3 Antenna Designation

Antenna Type	Antenna Model No.
Monopole	TG.55.8113
Note: Transmission frequencies in this test report are only available by the above antenna(s).	

5G NR Band	Freqency (MHz)	Antenna Gain (dBi)	TLB Line Loss (dB)	Final Gain (dBi)
n2	1850 ~ 1910	3.09	0.7	2.39
n5	824 ~ 849	0.58	0.3	0.28
n7	2500 ~ 2570	1.69	0.8	0.89
n12	699 ~ 716	-1.88	0.3	-2.18
n13	777~787	-1.88	0.3	-2.18
n14	788 ~ 798	-1.88	0.3	-2.18
n25	1850 ~ 1915	3.09	0.7	2.39
n26 Part 90s	814 ~ 824	-1.88	0.3	-2.18
n26	824 ~ 849	0.58	0.3	0.28
n41	2496 ~ 2690	1.69	0.8	0.89
n66	1710 ~ 1780	3.09	0.7	2.39
n71	663 ~ 698	0.14	0.3	-0.16
n77(lower)	3450 ~ 3550	1.51	1.1	0.41
n77(upper)	3700 ~ 3980	1.51	1.1	0.41
n78(lower)	3450 ~ 3550	1.51	1.1	0.41
n78(upper)	3700 ~ 3800	1.51	1.1	0.41

Note: Antenna information is provided by the applicant.

1.4 Type of Emission & Max ERP/EIRP Power Measurement Result:

5G NR Band n2_Uplink frequency band : 1850 to 1910 MHz

Bandwidth (MHz)	Low Frequency (MHz)	Upper Frequency (MHz)	Modulation	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (MHz)	99% BW (kHz)	Type of Emission
5	1852.5	1907.5	DFT-s PI/2 BPSK	23.18	25.57	0.361	4.5065	4506.5	4M51G7W
			DFT-s QPSK	23.15	25.54	0.358	4.5212	4521.2	4M52G7W
			DFT-s QAM	22.48	24.87	0.307	4.5069	4506.9	4M51D7W
			CP QPSK	21.68	24.07	0.255	4.5212	4521.2	4M52G7W
			CP QAM	21.44	23.83	0.242	4.5069	4506.9	4M51D7W
10	1855	1905	DFT-s PI/2 BPSK	23.12	25.51	0.356	8.9614	8961.4	8M96G7W
			DFT-s QPSK	23.09	25.48	0.353	8.999	8999.0	9M00G7W
			DFT-s QAM	22.67	25.06	0.321	9.0052	9005.2	9M01D7W
			CP QPSK	22.14	24.53	0.284	8.999	8999.0	9M00G7W
			CP QAM	21.77	24.16	0.261	9.0052	9005.2	9M01D7W
15	1857.5	1902.5	DFT-s PI/2 BPSK	23.24	25.63	0.366	13.444	13444.0	13M4G7W
			DFT-s QPSK	23.23	25.62	0.365	13.446	13446.0	13M4G7W
			DFT-s QAM	22.87	25.26	0.336	13.513	13513.0	13M5D7W
			CP QPSK	22.23	24.62	0.290	13.446	13446.0	13M4G7W
			CP QAM	21.97	24.36	0.273	13.513	13513.0	13M5D7W
20	1860	1900	DFT-s PI/2 BPSK	23.25	25.64	0.366	17.904	17904.0	17M9G7W
			DFT-s QPSK	23.22	25.61	0.364	17.914	17914.0	17M9G7W
			DFT-s QAM	22.99	25.38	0.345	17.94	17940.0	17M9D7W
			CP QPSK	22.39	24.78	0.301	17.914	17914.0	17M9G7W
			CP QAM	22.06	24.45	0.279	17.94	17940.0	17M9D7W

5G NR Band n5_Uplink frequency band : 824 to 849 MHz

Bandwidth (MHz)	Low Frequency (MHz)	Upper Frequency (MHz)	Modulation	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (MHz)	99% BW (kHz)	Type of Emission
5	826.5	846.5	DFT-s PI/2 BPSK	23.12	21.25	0.133	4.5204	4520.4	4M52G7W
			DFT-s QPSK	23.11	21.24	0.133	4.5115	4511.5	4M51G7W
			DFT-s QAM	22.60	20.73	0.118	4.518	4518.0	4M52D7W
			CP QPSK	22.54	20.67	0.117	4.5115	4511.5	4M51G7W
			CP QAM	21.52	19.65	0.092	4.518	4518.0	4M52D7W
10	829	844	DFT-s PI/2 BPSK	23.06	21.19	0.132	8.9694	8969.4	8M97G7W
			DFT-s QPSK	23.03	21.16	0.131	8.9734	8973.4	8M97G7W
			DFT-s QAM	22.60	20.73	0.118	8.9828	8982.8	8M98D7W
			CP QPSK	22.18	20.31	0.107	8.9734	8973.4	8M97G7W
			CP QAM	21.60	19.73	0.094	8.9828	8982.8	8M98D7W
15	831.5	841.5	DFT-s PI/2 BPSK	23.43	21.56	0.143	13.421	13421.0	13M4G7W
			DFT-s QPSK	23.34	21.47	0.140	13.457	13457.0	13M5G7W
			DFT-s QAM	22.94	21.07	0.128	13.509	13509.0	13M5D7W
			CP QPSK	22.68	20.81	0.121	13.457	13457.0	13M5G7W
			CP QAM	22.14	20.27	0.106	13.509	13509.0	13M5D7W
20	834	839	DFT-s PI/2 BPSK	23.14	21.27	0.134	17.891	17891.0	17M9G7W
			DFT-s QPSK	23.09	21.22	0.132	17.923	17923.0	17M9G7W
			DFT-s QAM	22.79	20.92	0.124	17.905	17905.0	17M9D7W
			CP QPSK	22.31	20.44	0.111	17.923	17923.0	17M9G7W
			CP QAM	21.83	19.96	0.099	17.905	17905.0	17M9D7W

5G NR Band n7_Uplink frequency band : 2500 to 2570 MHz

Bandwidth (MHz)	Low Frequency (MHz)	Upper Frequency (MHz)	Modulation	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (MHz)	99% BW (kHz)	Type of Emission
5	2502.5	2567.5	DFT-s PI/2 BPSK	23.04	23.93	0.247	4.504	4504.0	4M50G7W
			DFT-s QPSK	22.93	23.82	0.241	4.4966	4496.6	4M50G7W
			DFT-s QAM	22.76	23.65	0.232	4.5096	4509.6	4M51D7W
			CP QPSK	22.13	23.02	0.200	4.4966	4496.6	4M50G7W
			CP QAM	21.48	22.37	0.173	4.5096	4509.6	4M51D7W
10	2505	2565	DFT-s PI/2 BPSK	23.40	24.29	0.269	8.9564	8956.4	8M96G7W
			DFT-s QPSK	23.06	23.95	0.248	8.9979	8997.9	9M00G7W
			DFT-s QAM	22.55	23.44	0.221	8.9794	8979.4	8M98D7W
			CP QPSK	22.38	23.27	0.212	8.9979	8997.9	9M00G7W
			CP QAM	21.72	22.61	0.182	8.9794	8979.4	8M98D7W
15	2507.5	2562.5	DFT-s PI/2 BPSK	23.13	24.02	0.252	13.455	13455.0	13M5G7W
			DFT-s QPSK	22.94	23.83	0.242	13.442	13442.0	13M4G7W
			DFT-s QAM	22.60	23.49	0.223	13.468	13468.0	13M5D7W
			CP QPSK	22.28	23.17	0.207	13.442	13442.0	13M4G7W
			CP QAM	21.75	22.64	0.184	13.468	13468.0	13M5D7W
20	2510	2560	DFT-s PI/2 BPSK	22.96	23.85	0.243	17.916	17916.0	17M9G7W
			DFT-s QPSK	22.93	23.82	0.241	17.916	17916.0	17M9G7W
			DFT-s QAM	22.66	23.55	0.226	17.944	17944.0	17M9D7W
			CP QPSK	21.82	22.71	0.187	17.916	17916.0	17M9G7W
			CP QAM	21.65	22.54	0.179	17.944	17944.0	17M9D7W

5G NR Band n12_Uplink frequency band : 699 to 716 MHz

Bandwidth (MHz)	Low Frequency (MHz)	Upper Frequency (MHz)	Modulation	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (MHz)	99% BW (kHz)	Type of Emission
5	701.5	713.5	DFT-s PI/2 BPSK	23.08	18.75	0.075	4.4792	4479.2	4M48G7W
			DFT-s QPSK	23.06	18.73	0.075	4.5039	4503.9	4M50G7W
			DFT-s QAM	22.74	18.41	0.069	4.5124	4512.4	4M51D7W
			CP QPSK	22.31	17.98	0.063	4.5039	4503.9	4M50G7W
			CP QAM	21.63	17.30	0.054	4.5124	4512.4	4M51D7W
10	704	711	DFT-s PI/2 BPSK	23.38	19.05	0.080	8.9562	8956.2	8M96G7W
			DFT-s QPSK	23.31	18.98	0.079	8.9638	8963.8	8M96G7W
			DFT-s QAM	22.57	18.24	0.067	8.9859	8985.9	8M99D7W
			CP QPSK	22.46	18.13	0.065	8.9638	8963.8	8M96G7W
			CP QAM	22.01	17.68	0.059	8.9859	8985.9	8M99D7W
15	706.5	708.5	DFT-s PI/2 BPSK	23.29	18.96	0.079	13.401	13401.0	13M4G7W
			DFT-s QPSK	23.23	18.90	0.078	13.451	13451.0	13M5G7W
			DFT-s QAM	22.78	18.45	0.070	13.434	13434.0	13M4D7W
			CP QPSK	22.36	18.03	0.064	13.451	13451.0	13M5G7W
			CP QAM	21.88	17.55	0.057	13.434	13434.0	13M4D7W

5G NR Band n13_Uplink frequency band : 777 to 787 MHz

Bandwidth (MHz)	Low Frequency (MHz)	Upper Frequency (MHz)	Modulation	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (MHz)	99% BW (kHz)	Type of Emission
5	779.5	784.5	DFT-s PI/2 BPSK	23.48	19.15	0.082	4.4812	4481.2	4M48G7W
			DFT-s QPSK	23.39	19.06	0.081	4.4931	4493.1	4M49G7W
			DFT-s QAM	22.73	18.40	0.069	4.5079	4507.9	4M51D7W
			CP QPSK	22.24	17.91	0.062	4.4931	4493.1	4M49G7W
			CP QAM	21.71	17.38	0.055	4.5079	4507.9	4M51D7W
10	782	782	DFT-s PI/2 BPSK	24.03	19.70	0.093	8.9147	8914.7	8M91G7W
			DFT-s QPSK	23.30	18.97	0.079	8.9262	8926.2	8M93G7W
			DFT-s QAM	22.39	18.06	0.064	8.96	8960.0	8M96D7W
			CP QPSK	22.23	17.90	0.062	8.9262	8926.2	8M93G7W
			CP QAM	21.53	17.20	0.052	8.96	8960.0	8M96D7W

5G NR Band n14_Uplink frequency band : 788 to 798 MHz

Bandwidth (MHz)	Low Frequency (MHz)	Upper Frequency (MHz)	Modulation	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (MHz)	99% BW (kHz)	Type of Emission
5	790.5	795.5	DFT-s PI/2 BPSK	23.32	18.99	0.079	4.4812	4481.2	4M48G7W
			DFT-s QPSK	23.20	18.87	0.077	4.4931	4493.1	4M49G7W
			DFT-s QAM	22.43	18.10	0.065	4.5079	4507.9	4M51D7W
			CP QPSK	22.21	17.88	0.061	4.4931	4493.1	4M49G7W
			CP QAM	22.17	17.84	0.061	4.5079	4507.9	4M51D7W
10	793	793	DFT-s PI/2 BPSK	23.00	18.67	0.074	8.9147	8914.7	8M91G7W
			DFT-s QPSK	22.96	18.63	0.073	8.9262	8926.2	8M93G7W
			DFT-s QAM	22.55	18.22	0.066	8.96	8960.0	8M96D7W
			CP QPSK	21.62	17.29	0.054	8.9262	8926.2	8M93G7W
			CP QAM	21.43	17.10	0.051	8.96	8960.0	8M96D7W

5G NR Band n25_Uplink frequency band : 1850 to 1915 MHz

Bandwidth (MHz)	Low Frequency (MHz)	Upper Frequency (MHz)	Modulation	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (MHz)	99% BW (kHz)	Type of Emission
5	1852.5	1912.5	DFT-s PI/2 BPSK	23.30	25.69	0.371	4.5101	4510.1	4M51G7W
			DFT-s QPSK	23.20	25.59	0.362	4.4986	4498.6	4M50G7W
			DFT-s QAM	22.66	25.05	0.320	4.4958	4495.8	4M50D7W
			CP QPSK	22.24	24.63	0.290	4.4986	4498.6	4M50G7W
			CP QAM	21.61	24.00	0.251	4.4958	4495.8	4M50D7W
10	1855	1910	DFT-s PI/2 BPSK	23.37	25.76	0.377	8.9638	8963.8	8M96G7W
			DFT-s QPSK	23.27	25.66	0.368	8.9711	8971.1	8M97G7W
			DFT-s QAM	23.05	25.44	0.350	8.9587	8958.7	8M96D7W
			CP QPSK	22.56	24.95	0.313	8.9711	8971.1	8M97G7W
			CP QAM	21.97	24.36	0.273	8.9587	8958.7	8M96D7W
15	1857.5	1907.5	DFT-s PI/2 BPSK	23.44	25.83	0.383	13.463	13463.0	13M5G7W
			DFT-s QPSK	23.43	25.82	0.382	13.441	13441.0	13M4G7W
			DFT-s QAM	22.97	25.36	0.344	13.479	13479.0	13M5D7W
			CP QPSK	21.94	24.33	0.271	13.441	13441.0	13M4G7W
			CP QAM	21.48	23.87	0.244	13.479	13479.0	13M5D7W
20	1860	1905	DFT-s PI/2 BPSK	23.27	25.66	0.368	17.901	17901.0	17M9G7W
			DFT-s QPSK	23.20	25.59	0.362	17.932	17932.0	17M9G7W
			DFT-s QAM	22.92	25.31	0.340	17.941	17941.0	17M9D7W
			CP QPSK	22.16	24.55	0.285	17.932	17932.0	17M9G7W
			CP QAM	21.90	24.29	0.269	17.941	17941.0	17M9D7W

5G NR Band n26 Part90s_Uplink frequency band : 814 to 824 MHz

Bandwidth (MHz)	Low Frequency (MHz)	Upper Frequency (MHz)	Modulation	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (MHz)	99% BW (kHz)	Type of Emission
5	816.5	821.5	DFT-s PI/2 BPSK	23.36	19.03	0.080	4.4803	4480.3	4M48G7W
			DFT-s QPSK	23.15	18.82	0.076	4.5147	4514.7	4M51G7W
			DFT-s QAM	22.65	18.32	0.068	4.5179	4517.9	4M52D7W
			CP QPSK	22.03	17.70	0.059	4.5147	4514.7	4M51G7W
			CP QAM	21.92	17.59	0.057	4.5179	4517.9	4M52D7W
10	819	819	DFT-s PI/2 BPSK	23.03	18.70	0.074	8.9497	8949.7	8M95G7W
			DFT-s QPSK	22.95	18.62	0.073	8.9511	8951.1	8M95G7W
			DFT-s QAM	22.16	17.83	0.061	8.9626	8962.6	8M96D7W
			CP QPSK	21.32	16.99	0.050	8.9511	8951.1	8M95G7W
			CP QAM	21.31	16.98	0.050	8.9626	8962.6	8M96D7W

5G NR Band n26_Uplink frequency band : 824 to 849 MHz

Bandwidth (MHz)	Low Frequency (MHz)	Upper Frequency (MHz)	Modulation	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (MHz)	99% BW (kHz)	Type of Emission
5	826.5	846.5	DFT-s PI/2 BPSK	23.09	21.22	0.132	4.5091	4509.1	4M51G7W
			DFT-s QPSK	22.98	21.11	0.129	4.4958	4495.8	4M50G7W
			DFT-s QAM	22.34	20.47	0.111	4.5321	4532.1	4M53D7W
			CP QPSK	22.39	20.52	0.113	4.4958	4495.8	4M50G7W
			CP QAM	21.28	19.41	0.087	4.5321	4532.1	4M53D7W
10	829	844	DFT-s PI/2 BPSK	23.50	21.63	0.146	8.974	8974.0	8M97G7W
			DFT-s QPSK	23.46	21.59	0.144	8.9656	8965.6	8M97G7W
			DFT-s QAM	22.65	20.78	0.120	9.0019	9001.9	9M00D7W
			CP QPSK	21.98	20.11	0.103	8.9656	8965.6	8M97G7W
			CP QAM	21.26	19.39	0.087	9.0019	9001.9	9M00D7W
15	831.5	841.5	DFT-s PI/2 BPSK	23.20	21.33	0.136	13.449	13449.0	13M4G7W
			DFT-s QPSK	23.18	21.31	0.135	13.459	13459.0	13M5G7W
			DFT-s QAM	22.65	20.78	0.120	13.441	13441.0	13M4D7W
			CP QPSK	22.31	20.44	0.111	13.459	13459.0	13M5G7W
			CP QAM	21.67	19.80	0.095	13.441	13441.0	13M4D7W
20	834	839	DFT-s PI/2 BPSK	23.06	21.19	0.132	17.893	17893.0	17M9G7W
			DFT-s QPSK	23.04	21.17	0.131	17.896	17896.0	17M9G7W
			DFT-s QAM	22.73	20.86	0.122	17.949	17949.0	17M9D7W
			CP QPSK	21.98	20.11	0.103	17.896	17896.0	17M9G7W
			CP QAM	21.73	19.86	0.097	17.949	17949.0	17M9D7W

FCC 5G NR Band n41_Uplink frequency band : 2496 to 2690 MHz

Bandwidth (MHz)	Low Frequency (MHz)	Upper Frequency (MHz)	Modulation	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (MHz)	99% BW (kHz)	Type of Emission
10	2501.01	2685	DFT-s PI/2 BPSK	22.86	23.75	0.237	8.6361	8636.1	8M64G7W
			DFT-s QPSK	22.80	23.69	0.234	8.6512	8651.2	8M65G7W
			DFT-s QAM	22.40	23.29	0.213	8.6503	8650.3	8M65D7W
			CP QPSK	21.91	22.80	0.191	8.6512	8651.2	8M65G7W
			CP QAM	21.44	22.33	0.171	8.6503	8650.3	8M65D7W
15	2503.5	2682.48	DFT-s PI/2 BPSK	22.94	23.83	0.242	12.973	12973.0	13M0G7W
			DFT-s QPSK	22.92	23.81	0.240	12.945	12945.0	12M9G7W
			DFT-s QAM	22.36	23.25	0.211	12.953	12953.0	13M0D7W
			CP QPSK	22.00	22.89	0.195	12.945	12945.0	12M9G7W
			CP QAM	21.59	22.48	0.177	12.953	12953.0	13M0D7W
20	2506.02	2679.99	DFT-s PI/2 BPSK	22.82	23.71	0.235	17.907	17907.0	17M9G7W
			DFT-s QPSK	22.79	23.68	0.233	17.961	17961.0	18M0G7W
			DFT-s QAM	22.46	23.35	0.216	17.942	17942.0	17M9D7W
			CP QPSK	22.07	22.96	0.198	17.961	17961.0	18M0G7W
			CP QAM	21.37	22.26	0.168	17.942	17942.0	17M9D7W

5G NR Band n66_Uplink frequency band : 1710 to 1780 MHz

Bandwidth (MHz)	Low Frequency (MHz)	Upper Frequency (MHz)	Modulation	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (MHz)	99% BW (kHz)	Type of Emission
5	1712.5	1777.5	DFT-s PI/2 BPSK	23.18	25.57	0.361	4.5115	4511.5	4M51G7W
			DFT-s QPSK	23.14	25.53	0.357	4.5175	4517.5	4M52G7W
			DFT-s QAM	22.64	25.03	0.318	4.5187	4518.7	4M52D7W
			CP QPSK	22.21	24.60	0.288	4.5175	4517.5	4M52G7W
			CP QAM	21.55	23.94	0.248	4.5187	4518.7	4M52D7W
10	1715	1775	DFT-s PI/2 BPSK	23.27	25.66	0.368	8.9524	8952.4	8M95G7W
			DFT-s QPSK	23.23	25.62	0.365	8.983	8983.0	8M98G7W
			DFT-s QAM	22.93	25.32	0.340	8.9886	8988.6	8M99D7W
			CP QPSK	22.50	24.89	0.308	8.983	8983.0	8M98G7W
			CP QAM	21.95	24.34	0.272	8.9886	8988.6	8M99D7W
15	1717.5	1772.5	DFT-s PI/2 BPSK	23.35	25.74	0.375	13.456	13456.0	13M5G7W
			DFT-s QPSK	23.17	25.56	0.360	13.468	13468.0	13M5G7W
			DFT-s QAM	22.74	25.13	0.326	13.444	13444.0	13M4D7W
			CP QPSK	22.40	24.79	0.301	13.468	13468.0	13M5G7W
			CP QAM	21.68	24.07	0.255	13.444	13444.0	13M4D7W
20	1720	1770	DFT-s PI/2 BPSK	23.18	25.57	0.361	17.89	17890.0	17M9G7W
			DFT-s QPSK	23.09	25.48	0.353	17.916	17916.0	17M9G7W
			DFT-s QAM	22.87	25.26	0.336	17.932	17932.0	17M9D7W
			CP QPSK	22.17	24.56	0.286	17.916	17916.0	17M9G7W
			CP QAM	21.86	24.25	0.266	17.932	17932.0	17M9D7W

5G NR Band n71_Uplink frequency band : 663 to 698 MHz

Bandwidth (MHz)	Low Frequency (MHz)	Upper Frequency (MHz)	Modulation	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (MHz)	99% BW (kHz)	Type of Emission
5	665.5	695.5	DFT-s PI/2 BPSK	23.28	20.97	0.125	4.5134	4513.4	4M51G7W
			DFT-s QPSK	23.18	20.87	0.122	4.5051	4505.1	4M51G7W
			DFT-s QAM	23.06	20.75	0.119	4.5085	4508.5	4M51D7W
			CP QPSK	22.33	20.02	0.100	4.5051	4505.1	4M51G7W
			CP QAM	22.00	19.69	0.093	4.5085	4508.5	4M51D7W
10	668	693	DFT-s PI/2 BPSK	23.29	20.98	0.125	8.959	8959.0	8M96G7W
			DFT-s QPSK	23.08	20.77	0.119	8.9793	8979.3	8M98G7W
			DFT-s QAM	22.58	20.27	0.106	8.9899	8989.9	8M99D7W
			CP QPSK	22.24	19.93	0.098	8.9793	8979.3	8M98G7W
			CP QAM	21.76	19.45	0.088	8.9899	8989.9	8M99D7W
15	670.5	690.5	DFT-s PI/2 BPSK	23.40	21.09	0.129	13.444	13444.0	13M4G7W
			DFT-s QPSK	23.33	21.02	0.126	13.432	13432.0	13M4G7W
			DFT-s QAM	22.99	20.68	0.117	13.49	13490.0	13M5D7W
			CP QPSK	22.67	20.36	0.109	13.432	13432.0	13M4G7W
			CP QAM	22.07	19.76	0.095	13.49	13490.0	13M5D7W
20	673	688	DFT-s PI/2 BPSK	23.19	20.88	0.122	17.928	17928.0	17M9G7W
			DFT-s QPSK	23.15	20.84	0.121	17.945	17945.0	17M9G7W
			DFT-s QAM	22.78	20.47	0.111	17.917	17917.0	17M9D7W
			CP QPSK	22.20	19.89	0.097	17.945	17945.0	17M9G7W
			CP QAM	21.95	19.64	0.092	17.917	17917.0	17M9D7W

5G NR Band n77_Part27_Uplink frequency band : 3450 to 3550 MHz

Bandwidth (MHz)	Low Frequency (MHz)	Upper Frequency (MHz)	Modulation	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (MHz)	99% BW (kHz)	Type of Emission
10	3455.01	3544.98	DFT-s PI/2 BPSK	23.21	23.62	0.230	8.666	8666.0	8M67G7W
			DFT-s QPSK	22.95	23.36	0.217	8.6396	8639.6	8M64G7W
			DFT-s QAM	22.40	22.81	0.191	8.6684	8668.4	8M67D7W
			CP QPSK	22.12	22.53	0.179	8.6396	8639.6	8M64G7W
			CP QAM	21.45	21.86	0.153	8.6684	8668.4	8M67D7W
15	3457.5	3542.49	DFT-s PI/2 BPSK	23.25	23.66	0.232	12.957	12957.0	13M0G7W
			DFT-s QPSK	23.05	23.46	0.222	12.94	12940.0	12M9G7W
			DFT-s QAM	22.50	22.91	0.195	13.064	13064.0	13M1D7W
			CP QPSK	22.01	22.42	0.175	12.94	12940.0	12M9G7W
			CP QAM	21.53	21.94	0.156	13.064	13064.0	13M1D7W
20	3460.02	3540	DFT-s PI/2 BPSK	23.06	23.47	0.222	17.934	17934.0	17M9G7W
			DFT-s QPSK	22.99	23.40	0.219	17.966	17966.0	18M0G7W
			DFT-s QAM	22.44	22.85	0.193	17.94	17940.0	17M9D7W
			CP QPSK	22.07	22.48	0.177	17.966	17966.0	18M0G7W
			CP QAM	21.64	22.05	0.160	17.94	17940.0	17M9D7W

5G NR Band n77_Part27_Uplink frequency band : 3700 to 3980 MHz

Bandwidth (MHz)	Low Frequency (MHz)	Upper Frequency (MHz)	Modulation	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (MHz)	99% BW (kHz)	Type of Emission
10	3705	3975	DFT-s PI/2 BPSK	24.00	24.41	0.276	8.5611	8561.1	8M56G7W
			DFT-s QPSK	23.98	24.39	0.275	8.6682	8668.2	8M67G7W
			DFT-s QAM	23.31	23.72	0.236	8.6578	8657.8	8M66D7W
			CP QPSK	22.55	22.96	0.198	8.6682	8668.2	8M67G7W
			CP QAM	22.46	22.87	0.194	8.6578	8657.8	8M66D7W
15	3707.52	3972.48	DFT-s PI/2 BPSK	24.11	24.52	0.283	12.931	12931.0	12M9G7W
			DFT-s QPSK	23.98	24.39	0.275	13	13000.0	13M0G7W
			DFT-s QAM	23.56	23.97	0.249	12.94	12940.0	12M9D7W
			CP QPSK	22.67	23.08	0.203	13	13000.0	13M0G7W
			CP QAM	22.10	22.51	0.178	12.94	12940.0	12M9D7W
20	3710.01	3969.99	DFT-s PI/2 BPSK	24.00	24.41	0.276	17.872	17872.0	17M9G7W
			DFT-s QPSK	23.91	24.32	0.270	17.883	17883.0	17M9G7W
			DFT-s QAM	23.04	23.45	0.221	17.991	17991.0	18M0D7W
			CP QPSK	23.00	23.41	0.219	17.883	17883.0	17M9G7W
			CP QAM	22.19	22.60	0.182	17.991	17991.0	18M0D7W

1.5 Test Methodology of Applied Standards

FCC 47 CFR Part 2, 22H, 24E, 27C, Part 90
ANSI C63.26-2015
KDB971168 D01 Power Meas license Digital System v03r01
KDB412172 D01 Determining ERP and EIRP v01r01

1.6 Test Facility

Laboratory	Test Site Address	Test Site Name	FCC Designation number	IC CAB identifier
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan.	SAC 1	TW0027	TW3702
		SAC 2		
		SAC 3		
		Conduction 1		
		Conducted 1		
		Conducted 2		
		Conducted 3		
		Conducted 4		
		Conducted 5		
		Conducted 6		
	No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333	Conduction C	TW0028	
		SAC C		
		SAC D		
		SAC G		
		Conducted A		
		Conducted B		
		Conducted C		
		Conducted D		
		Conducted E		
		Conducted F		
		Conducted G		

Note: Test site name is remarked on the equipment list in each section of this report as an indication where measurements occurred in specific test site and address.

1.7 Special Accessories

No special accessories were used during testing.

1.8 Equipment Modifications

There was no modifications incorporated into the EUT.

1.9 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

Radiated emission below 30MHz is measured in a 9m*6m*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site.
There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

2 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The EUT (Transmitter) was operated in the continuous transmission mode employed with the simulator of the Base Station that fixates at test default channels to fix the Tx frequency which was for the purpose of the measurements.

2.3 Test Procedure

2.3.1 Conducted Measurement at Antenna Port

The EUT is placed on a table which is 0.8 m above ground plane. A low loss of RF cable was used to connect the antenna port of EUT to measurement equipment.

2.3.2 Radiated Emissions (ERP/EIRP)

The EUT is placed on a turn table, for emission measurements below 1 GHz is 0.8 m above ground plane, for emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both Horizontal and Vertical. In order to find out the max. emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna.

2.4 Measurement Results Explanation Example

For all conducted test items:
The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.
Note:
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

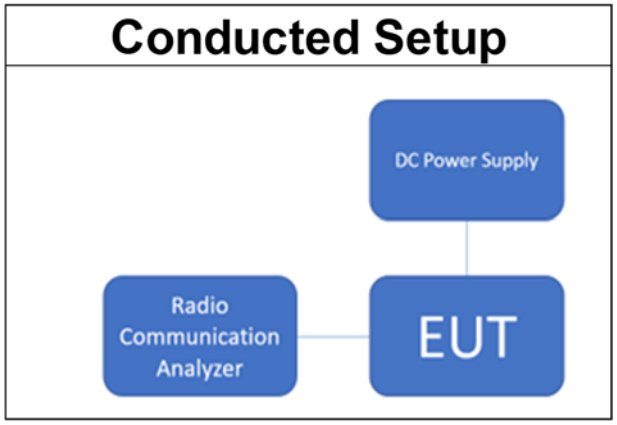
2.5 Final Amplifier Voltage and Current Information:

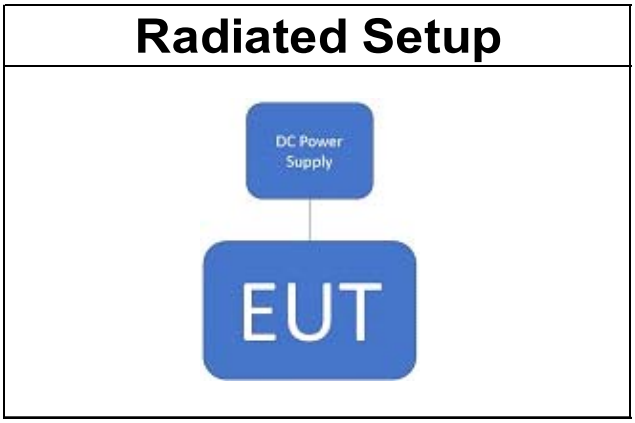
5G NR BAND n2		
CP-OFDM_SCS 15 kHz		
Test mode	DC voltage (V)	DC current (mA)
Bandwidth:5MHz Mod:256QAM	3.8	459
Bandwidth:10MHz Mod:256QAM	3.8	481
Bandwidth:15MHz Mod:256QAM	3.8	476
Bandwidth:20MHz Mod:256QAM	3.8	455
5G NR BAND n5		
CP-OFDM_SCS 15 kHz		
Test mode	DC voltage (V)	DC current (mA)
Bandwidth:5MHz Mod:256QAM	3.8	502
Bandwidth:10MHz Mod:256QAM	3.8	486
Bandwidth:15MHz Mod:256QAM	3.8	463
Bandwidth:20MHz Mod:256QAM	3.8	471
5G NR BAND n7		
CP-OFDM_SCS 15 kHz		
Test mode	DC voltage (V)	DC current (mA)
Bandwidth:5MHz Mod:256QAM	3.8	452
Bandwidth:10MHz Mod:256QAM	3.8	471
Bandwidth:15MHz Mod:256QAM	3.8	469
Bandwidth:20MHz Mod:256QAM	3.8	455
5G NR BAND n12		
CP-OFDM_SCS 15 kHz		
Test mode	DC voltage (V)	DC current (mA)
Bandwidth:5MHz Mod:256QAM	3.8	446
Bandwidth:10MHz Mod:256QAM	3.8	451
Bandwidth:15MHz Mod:256QAM	3.8	473
5G NR BAND n13		
CP-OFDM_SCS 15 kHz		
Test mode	DC voltage (V)	DC current (mA)
Bandwidth:5MHz Mod:256QAM	3.8	455
Bandwidth:10MHz Mod:256QAM	3.8	482
5G NR BAND n14		
CP-OFDM_SCS 15 kHz		
Test mode	DC voltage (V)	DC current (mA)
Bandwidth:5MHz Mod:256QAM	3.8	463
Bandwidth:10MHz Mod:256QAM	3.8	424

5G NR BAND n25		
CP-OFDM_SCS 15 kHz		
Test mode	DC voltage (V)	DC current (mA)
Bandwidth:5MHz Mod:256QAM	3.8	457
Bandwidth:10MHz Mod:256QAM	3.8	462
Bandwidth:15MHz Mod:256QAM	3.8	433
Bandwidth:20MHz Mod:256QAM	3.8	439
5G NR BAND n26 Part90s		
CP-OFDM_SCS 15 kHz		
Test mode	DC voltage (V)	DC current (mA)
Bandwidth:5MHz Mod:256QAM	3.8	456
Bandwidth:10MHz Mod:256QAM	3.8	461
5G NR BAND n26		
CP-OFDM_SCS 15 kHz		
Test mode	DC voltage (V)	DC current (mA)
Bandwidth:5MHz Mod:256QAM	3.8	468
Bandwidth:10MHz Mod:256QAM	3.8	455
Bandwidth:15MHz Mod:256QAM	3.8	482
Bandwidth:20MHz Mod:256QAM	3.8	486
5G NR BAND n41		
CP-OFDM_SCS 30 kHz		
Test mode	DC voltage (V)	DC current (mA)
Bandwidth:10MHz Mod:256QAM	3.8	472
Bandwidth:15MHz Mod:256QAM	3.8	479
Bandwidth:20MHz Mod:256QAM	3.8	461
5G NR BAND n77		
CP-OFDM_SCS 30 kHz		
Test mode	DC voltage (V)	DC current (mA)
Bandwidth:10MHz Mod:256QAM	3.8	428
Bandwidth:15MHz Mod:256QAM	3.8	436
Bandwidth:20MHz Mod:256QAM	3.8	455
5G NR BAND n66		
CP-OFDM_SCS 15 kHz		
Test mode	DC voltage (V)	DC current (mA)
Bandwidth:5MHz Mod:256QAM	3.8	466
Bandwidth:10MHz Mod:256QAM	3.8	452
Bandwidth:15MHz Mod:256QAM	3.8	482
Bandwidth:20MHz Mod:256QAM	3.8	417

5G NR BAND n71		
CP-OFDM_SCS 15 kHz		
Test mode	DC voltage (V)	DC current (mA)
Bandwidth:5MHz Mod:256QAM	3.8	453
Bandwidth:10MHz Mod:256QAM	3.8	452
Bandwidth:15MHz Mod:256QAM	3.8	494
Bandwidth:20MHz Mod:256QAM	3.8	461

2.6 Test Configuration





Note: Radio Communication Analyzer is placed in remote side for radiated test.

3 SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§2.1046(a)	RF Power Output	Compliant
§22.913(a)(5) §24.232(c) §27.50(c)(9) §27.50(d)(4) §27.50(h)(2) §27.50(j)(3) §27.50(k)(3) §90.542(a)(6) §90.635(b)	ERP/ EIRP measurement	Compliant
§2.1049(h)	99% & 26dB Occupied Bandwidth	Compliant
§2.1051 §22.917(a)(b) §24.238(a) §27.53(g) §27.53(h) §27.53(l)(2) §27.53(m)(4)(6) §27.53(n)(2) §90.691(a) §90.210(n) §90.543(e)(2)~(5)	Out of Band Emissions at Antenna Terminals and Band Edge / Emission mask requirements	Compliant
§2.1053 §22.917(a)(b) §24.238(a)(b) §27.53(g) §27.53(h) §27.53(l)(2) §27.53(m)(4) §27.53(n)(2) §90.543 (f) §90.691(a)	Field Strength of Spurious Radiation	Compliant
§22.913(d) §24.232(d) §27.50(d)(5) §27.50(j)(4) §27.50 (k)(4)	Peak to Average Ratio	Compliant
§2.1055(a)(1) §22.355 §24.235 §27.54 §90.539 (e)	Frequency Stability	Compliant

4 DESCRIPTION OF TEST MODES

4.1 The Worst Test Modes and Channel Details

1. The EUT has been tested under operating condition.
2. Pre-Scan has been conducted to determine the worst-case scenario from all possible combinations among available modulations, data rates and antenna ports, the worst case configurations listed below for the final test.
3. The NR power / Bandwidth / Channels of n78 is the same as that of n77, so the test items will be covered by n77.
4. The field strength of radiated emission was measured as the EUT positioned in different orthogonal planes (E1/E2/H) based on actual usage of the EUT to pre-scan the emissions for determining the worst case scenario.

5G NR Band	SCS	Test Channel	Channel Bandwidth (MHz)	Modulation	Resource Block Allocation	
					RBs allocated	RB Offset
n2	15K	372000	20	DFT-s PI/2 BPSK	1	1
n2	15K	376000	20	DFT-s PI/2 BPSK	1	1
n2	15K	380000	20	DFT-s PI/2 BPSK	1	1
n5	15K	166300	15	DFT-s PI/2 BPSK	1	1
n5	15K	167300	15	DFT-s PI/2 BPSK	1	1
n5	15K	168300	15	DFT-s PI/2 BPSK	1	1
n7	15K	501000	10	DFT-s PI/2 BPSK	1	1
n7	15K	507000	10	DFT-s PI/2 BPSK	1	1
n7	15K	513000	10	DFT-s PI/2 BPSK	1	1
n12	15K	140800	10	DFT-s PI/2 BPSK	1	1
n12	15K	141500	10	DFT-s PI/2 BPSK	1	1
n12	15K	142200	10	DFT-s PI/2 BPSK	1	1
n13	15K	158600	10	DFT-s PI/2 BPSK	1	1
n14	15K	158100	5	DFT-s PI/2 BPSK	1	1
n14	15K	158600	5	DFT-s PI/2 BPSK	1	1
n14	15K	189100	5	DFT-s PI/2 BPSK	1	1
n25	15K	371500	15	DFT-s PI/2 BPSK	1	1
n25	15K	376500	15	DFT-s PI/2 BPSK	1	1
n25	15K	381500	15	DFT-s PI/2 BPSK	1	1
n26_Part 90S	15K	163300	5	DFT-s PI/2 BPSK	1	1
n26_Part 90S	15K	163800	5	DFT-s PI/2 BPSK	1	1
n26_Part 90S	15K	164300	5	DFT-s PI/2 BPSK	1	1
n26	15K	165800	10	DFT-s PI/2 BPSK	1	1
n26	15K	167300	10	DFT-s PI/2 BPSK	1	1
n26	15K	168800	10	DFT-s PI/2 BPSK	1	1
n66	15K	343500	15	DFT-s PI/2 BPSK	1	1
n66	15K	349000	15	DFT-s PI/2 BPSK	1	1
n66	15K	354500	15	DFT-s PI/2 BPSK	1	1
n71	15K	134100	15	DFT-s PI/2 BPSK	1	1
n71	15K	136100	15	DFT-s PI/2 BPSK	1	1
n71	15K	138100	15	DFT-s PI/2 BPSK	1	1
n41	30K	500700	15	DFT-s PI/2 BPSK	1	1
n41	30K	501504	15	DFT-s PI/2 BPSK	1	1
n41	30K	518604	15	DFT-s PI/2 BPSK	1	1
n41	30K	536496	15	DFT-s PI/2 BPSK	1	1
n77	30K	630500	15	DFT-s PI/2 BPSK	1	1
n77	30K	633334	15	DFT-s PI/2 BPSK	1	1
n77	30K	636166	15	DFT-s PI/2 BPSK	1	1
n77	30K	647168	15	DFT-s PI/2 BPSK	1	1
n77	30K	656000	15	DFT-s PI/2 BPSK	1	1
n77	30K	664832	15	DFT-s PI/2 BPSK	1	1

4.2 Measurement Configuration

Test Items	Band	Test Channel			Bandwidth (MHz)																Modulation DFT-s-OFDM					Modulation CP-OFDM				RB #					
		L	M	H	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100	BPSK	QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM	Edge 1RB_Left	Edge 1RB_Right	Inner 1RB_Left	Inner 1RB_Right	Inner Full	Outer Full
Conducted Power	2	v	v	v	v	v	v	v												v	v	v	v	v	v	v	v	v			v	v	v	v
Freqency Stability			v					v																	v									v
Occupied Bandwidth		v	v	v	v	v	v	v												v	v	v	v	v										v
Bandedge		v		v	v	v	v	v												v					v				v	v				v
Mask																																		
Conducted Emission		v	v	v	v	v	v	v												v										v				
CCDF		v	v	v	v	v	v	v																v										v
Radiated Emission		v	v	v				v												v											v			

Test Items	Band	Test Channel			Bandwidth (MHz)																Modulation DFT-s-OFDM					Modulation CP-OFDM				RB #					
		L	M	H	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100	BPSK	QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM	Edge 1RB_Left	Edge 1RB_Right	Inner 1RB_Left	Inner 1RB_Right	Inner Full	Outer Full
Conducted Power	5	v	v	v	v	v	v	v												v	v	v	v	v	v	v	v	v			v	v	v	v
Freqency Stability			v					v																	v									v
Occupied Bandwidth		v	v	v	v	v	v	v												v	v	v	v	v										v
Bandedge		v		v	v	v	v	v												v					v				v	v				v
Mask																																		
Conducted Emission		v	v	v	v	v	v	v												v										v				
CCDF		v	v	v	v	v	v	v																v										v
Radiated Emission		v	v	v			v													v											v			

Test Items	Band	Test Channel			Bandwidth (MHz)																Modulation DFT-s-OFDM					Modulation CP-OFDM				RB #					
		L	M	H	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100	BPSK	QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM	Edge 1RB_Left	Edge 1RB_Right	Inner 1RB_Left	Inner 1RB_Right	Inner Full	Outer Full
Conducted Power	7	v	v	v	v	v	v	v												v	v	v	v	v	v	v	v	v			v	v	v	v
Freqency Stability			v																						v									v
Occupied Bandwidth		v	v	v	v	v	v	v												v	v	v	v	v										v
Bandedge		v		v	v	v	v	v																										
Mask																				v					v				v	v				v
Conducted Emission		v	v	v	v	v	v	v												v										v				
CCDF		v	v	v	v	v	v	v																v										v
Radiated Emission		v	v	v		v														v											v			

Test Items	Band	Test Channel			Bandwidth (MHz)																Modulation DFT-s-OFDM					Modulation CP-OFDM				RB #					
		L	M	H	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100	BPSK	QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM	Edge 1RB_Left	Edge 1RB_Right	Inner 1RB_Left	Inner 1RB_Right	Inner Full	Outer Full
Conducted Power	12	v	v	v	v	v	v													v	v	v	v	v	v	v	v	v			v	v	v	v
Freqency Stability			v				v																		v									v
Occupied Bandwidth		v	v	v	v	v	v													v	v	v	v	v										v
Bandedge		v		v	v	v	v													v					v				v	v				v
Mask																																		
Conducted Emission		v	v	v	v	v	v													v										v				
CCDF		v	v	v	v	v	v																	v										v
Radiated Emission		v	v	v		v														v											v			

Test Items	Band	Test Channel			Bandwidth (MHz)																Modulation DFT-s-OFDM					Modulation CP-OFDM				RB #					
		L	M	H	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100	BPSK	QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM	Edge 1RB_Left	Edge 1RB_Righ t	Inner 1RB_Left	Inner 1RB_Righ t	Inner Full	Outer Full
Conducted Power	13	v	v	v	v	v														v	v	v	v	v	v	v	v	v			v	v	v	v
Freqency Stability			v			v																			v									v
Occupied Bandwidth		v	v	v	v	v														v	v	v	v	v										v
Bandedge		v		v	v	v														v					v				v	v				v
Mask																																		
Conducted Emission		v	v	v	v	v														v										v				
CCDF		v	v	v	v	v																		v										v
Radiated Emission		v	v	v		v														v											v			

Test Items	Band	Test Channel			Bandwidth (MHz)																Modulation DFT-s-OFDM					Modulation CP-OFDM				RB #					
		L	M	H	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100	BPSK	QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM	Edge 1RB_Left	Edge 1RB_Righ t	Inner 1RB_Left	Inner 1RB_Righ t	Inner Full	Outer Full
Conducted Power	14	v	v	v	v	v														v	v	v	v	v	v	v	v	v			v	v	v	v
Freqency Stability			v			v																			v									v
Occupied Bandwidth		v	v	v	v	v														v	v	v	v	v										v
Bandedge		v		v	v	v														v					v				v	v				v
Mask																																		
Conducted Emission		v	v	v	v	v														v										v				
CCDF		v	v	v	v	v																		v										v
Radiated Emission		v	v	v	v															v											v			

Test Items	Band	Test Channel			Bandwidth (MHz)																Modulation DFT-s-OFDM					Modulation CP-OFDM				RB #					
		L	M	H	5	10	15	20	25	30		40	45	50	60	70	80	90	100		BPSK	QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM	Edge 1RB_Left	Edge 1RB_Right	Inner 1RB_Left	Inner 1RB_Right	Inner Full	Outer Full
Conducted Power	25	v	v	v	v	v	v	v													v	v	v	v	v	v	v	v	v			v	v	v	v
Freqency Stability			v					v																		v									v
Occupied Bandwidth		v	v	v	v	v	v	v													v	v	v	v	v										v
Bandedge		v		v	v	v	v	v													v					v				v	v				v
Mask																																			
Conducted Emission		v	v	v	v	v	v	v													v											v			
CCDF		v	v	v	v	v	v	v																	v										v
Radiated Emission		v	v	v			v														v											v			

Test Items	Band	Test Channel			Bandwidth (MHz)																Modulation DFT-s-OFDM					Modulation CP-OFDM				RB #					
		L	M	H	5	10	15	20	25	30		40	45	50	60	70	80	90	100		BPSK	QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM	Edge 1RB_Left	Edge 1RB_Right	Inner 1RB_Left	Inner 1RB_Right	Inner Full	Outer Full
Conducted Power	26 Part90s	v	v	v	v	v															v	v	v	v	v	v	v	v	v			v	v	v	v
Freqency Stability			v			v																				v									v
Occupied Bandwidth		v	v	v	v	v															v	v	v	v	v										v
Bandedge		v		v	v	v															v					v				v	v				v
Mask																																			
Conducted Emission		v	v	v	v	v															v											v			
CCDF		v	v	v	v	v																			v										v
Radiated Emission		v	v	v	v																v											v			

Test Items	Band	Test Channel			Bandwidth (MHz)																Modulation DFT-s-OFDM					Modulation CP-OFDM				RB #					
		L	M	H	5	10	15	20	25	30		40	45	50	60	70	80	90	100		BPSK	QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM	Edge 1RB_Left	Edge 1RB_Right	Inner 1RB_Left	Inner 1RB_Right	Inner Full	Outer Full
Conducted Power	26	v	v	v	v	v	v	v													v	v	v	v	v	v	v	v	v			v	v	v	v
Freqency Stability			v					v																		v									v
Occupied Bandwidth		v	v	v	v	v	v	v													v	v	v	v	v										v
Bandedge		v		v	v	v	v	v													v					v				v	v				v
Mask																																			
Conducted Emission		v	v	v	v	v	v	v													v											v			
CCDF		v	v	v	v	v	v	v																	v										v
Radiated Emission		v	v	v		v															v											v			

Test Items	Band	Test Channel			Bandwidth (MHz)																Modulation DFT-s-OFDM					Modulation CP-OFDM				RB #					
		L	M	H	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100		BPSK	QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM	Edge 1RB_Left	Edge 1RB_Right	Inner 1RB_Left	Inner 1RB_Right	Inner Full	Outer Full
Conducted Power	41	v	v	v		v	v	v													v	v	v	v	v	v	v	v	v			v	v	v	v
Freqency Stability			v																							v									v
Occupied Bandwidth		v	v	v		v	v	v													v	v	v	v	v										v
Bandedge		v		v																															
Mask		v		v		v	v	v													v					v				v	v				v
Conducted Emission		v	v	v		v	v	v													v											v			
CCDF		v	v	v		v	v	v																	v										v
Radiated Emission		v	v	v			v														v											v			

Test Items	Band	Test Channel			Bandwidth (MHz)																Modulation DFT-s-OFDM					Modulation CP-OFDM				RB #					
		L	M	H	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100		BPSK	QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM	Edge 1RB_Left	Edge 1RB_Right	Inner 1RB_Left	Inner 1RB_Right	Inner Full	Outer Full
Conducted Power	66	v	v	v	v	v	v	v													v	v	v	v	v	v	v	v	v			v	v	v	v
Freqency Stability			v																							v									v
Occupied Bandwidth		v	v	v	v	v	v	v													v	v	v	v	v										v
Bandedge		v		v	v	v	v	v													v					v				v	v				v
Mask																																			
Conducted Emission		v	v	v	v	v	v	v													v											v			
CCDF		v	v	v	v	v	v	v																	v										v
Radiated Emission		v	v	v			v														v											v			

Test Items	Band	Test Channel			Bandwidth (MHz)																Modulation DFT-s-OFDM					Modulation CP-OFDM				RB #					
		L	M	H	5	10	15	20	25	30		40	45	50	60	70	80	90	100		BPSK	QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM	Edge 1RB_Left	Edge 1RB_Right	Inner 1RB_Left	Inner 1RB_Right	Inner Full	Outer Full
Conducted Power	71	v	v	v	v	v	v	v													v	v	v	v	v	v	v	v	v			v	v	v	v
Freqency Stability			v																							v									v
Occupied Bandwidth		v	v	v	v	v	v	v													v	v	v	v	v										v
Bandedge		v		v	v	v	v	v													v					v				v	v				v
Mask																																			
Conducted Emission		v	v	v	v	v	v	v													v											v			
CCDF		v	v	v	v	v	v	v																	v										v
Radiated Emission		v	v	v			v														v											v			

Test Items	Band	Test Channel			Bandwidth (MHz)																Modulation DFT-s-OFDM					Modulation CP-OFDM				RB #					
		L	M	H	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100		BPSK	QPSK	16 QAM	64 QAM	256 QAM	QPSK	16 QAM	64 QAM	256 QAM	Edge 1RB_Left	Edge 1RB_Right	Inner 1RB_Left	Inner 1RB_Right	Inner Full	Outer Full
Conducted Power	77	v	v	v		v	v	v													v	v	v	v	v	v	v	v	v			v	v	v	v
Freqency Stability			v																							v									v
Occupied Bandwidth		v	v	v		v	v	v													v	v	v	v	v										v
Bandedge		v		v		v	v	v																											
Mask																					v					v				v	v				v
Conducted Emission		v	v	v		v	v	v													v											v			
CCDF		v	v	v		v	v	v																	v										v
Radiated Emission		v	v	v			v														v											v			

5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty		
RF Power Output	+/-	0.97	dB
ERP/ EIRP measurement	+/-	2.15	dB
	+/-	2.15	dB
Emission Bandwidth	+/-	1.38	Hz
Out of Band Emissions at Antenna Terminals and Band Edge	+/-	0.77	dB
Peak to Average Ratio	+/-	0.97	dB
Frequency Stability vs. Temperature	+/-	1.48	Hz
Frequency Stability vs. Voltage	+/-	1.48	Hz
Temperature	+/-	0.6	°C
Humidity	+/-	3	%
DC / AC Power Source	+/-	1	%

Radiated Spurious Emission Measurement Uncertainty				
Polarization: Vertical	**+/-**	**1.89**	**dB**	9kHz~30MHz
	+/-	**4.15**	**dB**	30MHz - 1000MHz
	+/-	**3.43**	**dB**	1GHz - 18GHz
	+/-	**3.86**	**dB**	18GHz - 40GHz
Polarization: Horizontal	**+/-**	**1.89**	**dB**	9kHz~30MHz
	+/-	**4.02**	**dB**	30MHz - 1000MHz
	+/-	**3.43**	**dB**	1GHz - 18GHz
	+/-	**3.86**	**dB**	18GHz - 40GHz
Radiated Spurious Emission	**+/-**	**2**	**dB**	33GHz-50GHz
	+/-	**1.59**	**dB**	50GHz-60GHz
	+/-	**1.7**	**dB**	60GHz-90GHz
	+/-	**1.64**	**dB**	90GHz-140GHz
	+/-	**3.83**	**dB**	140GHz-220GHz

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

6 MEASUREMENT EQUIPMENT USED

6.1 Conducted Measurement

Conducted Emission Test Site: Conducted 3					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
4G High Pass Filter	WI	WHKX4.0	21	12/12/2023	12/11/2024
4G High Pass Filter	WI	WHKX4.0	21	12/11/2024	12/10/2025
Attenuator	Mini-Circuits	BW-S10W2+	8	12/12/2023	12/11/2024
Attenuator	Mini-Circuits	BW-S10W2+	8	12/11/2024	12/10/2025
DC Block	Mini-Circuits	BLK-18-S+	12	12/12/2023	12/11/2024
DC Block	Mini-Circuits	BLK-18-S+	12	12/11/2024	12/10/2025
DC Power Supply	Gwinstek	SPS-3610	GEV856750	08/14/2024	08/13/2025
EXA Spectrum Analyzer	KEYSIGHT	N9010B	MY60240503	12/16/2024	12/15/2025
PXA Spectrum Analyzer	Agilent	N9030A	MY53120760	04/24/2024	04/23/2025
PXA Spectrum Analyzer	Keysight	N9030B	MY61330494	03/22/2024	03/21/2025
PXA Spectrum Analyzer	Keysight	N9010B	MY60242392	12/24/2024	12/23/2025
Radio Communication Analyzer	KEYSIGHT	E7515B	MY59321566	02/15/2024	02/14/2025
Radio Communication Analyzer	KEYSIGHT	E7515B	MY60191250	02/17/2025	02/16/2026
Splitter	RF-LAMBAD	RFLT2W1G18G	11-JSPF412-017	12/11/2024	12/10/2025
Splitter	RF-LAMBAD	RFLT2W1G18G	11-JSPF412-017	12/12/2023	12/11/2024
Temperature Chamber	Giant Force	GTH-150-40-CP-AR	MAA0512-018	06/05/2024	06/04/2025
Test Software	SGS	Radio Test Software	Ver. 21	N.C.R	N.C.R

6.2 Radiated Measurement

Radiated Emission Test Site: SAC 3					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
1G High Pass Filter	Micro-Tronics	HPM50108	32	12/11/2024	12/10/2025
2G High Pass Filter	Micro-Tronics	HPM50110	36	12/11/2024	12/10/2025
4G High Pass Filter	WI	WHKX4.0	22	12/11/2024	12/10/2025
Attenuator	Mini-Circuits	BW-S10W2+	16	12/11/2024	12/10/2025
Band Reject Filter 1700-2000	EWT	EWT-54-0038	M1	12/11/2024	12/10/2025
Band Reject Filter 2240-2700	WI	WRCJV2300/2700-2240/2760-40/12SS	1	12/11/2024	12/10/2025
Band Reject Filter 3300-3900	WI	WRCGV3400/3800-3300/3900-40/12SS	1	12/11/2024	12/10/2025
Band Reject Filter 800-1000	EWT	EWT-54-0037	M3R	12/11/2024	12/10/2025
Bi-log Antenna	SCHWARZBECK	VULB9168	1208	07/17/2024	07/16/2025
Bi-log Antenna	SCHWARZBECK	VULB9168	378	08/09/2024	08/08/2025
Coaxial Cables	EMCI+Huber Suhner	EMC107-SM-SM-1000 +SUCOFLEX 104PEA +EMC107-SM-SM-1500 +SUCOFLEX 106	RX Cable 9K-18G (221110+MY4251/4 PEA+221106+76096 /6)	08/30/2024	08/29/2025
Coaxial Cables	Huber Suhner	SUCOFLEX 102	RX Cable 18G-40G MY2630/2+805062/ 2	08/30/2024	08/29/2025
Coaxial Cables	Huber Suhner	SUCOFLEX 102+SUCOFLEX 106	TX Cable 30M-40G 23051/2+76096/6+2 2962/2	08/30/2024	08/29/2025
DC Power Supply	HILA	DP-3003N	11233K1019035	03/18/2024	03/17/2025
EXA Spectrum Analyzer	KEYSIGHT	N9010B	MY63440386	02/06/2024	02/05/2025
Horn Antenna	RF SPIN	DRH0844	LE2D05A0844	07/10/2024	07/09/2025
Horn Antenna	SCHWARZBECK	BBHA9120D	1441	09/23/2024	09/22/2025
Horn Antenna	SCHWARZBECK	BBHA9120D	603	05/15/2024	05/14/2025
Horn Antenna	SCHWARZBECK	BBHA9170	185	08/15/2024	08/14/2025
Network Analyzer	R&S	ZNB 40	101842	05/16/2024	05/15/2025
Pre-Amplifier	EMCI	EMC118A45SEE	980868	08/30/2024	08/29/2025
Pre-Amplifier	EMCI	EMC184045SEE	9080939	08/30/2024	08/29/2025
Pre-Amplifier	HP	8447D	2944A07676	08/30/2024	08/29/2025
Radio Communication Analyzer	KEYSIGHT	E7515B	MY59321561	07/11/2024	07/10/2025
Site Cal	SGS	SAC 3	N/A	08/30/2024	08/29/2025
Test Software	Audix	e3	Ver. 9.210616	N.C.R	N.C.R

7 STANDARD APPLICABLE

7.1 Maximum Output Power

A base station simulator was used to establish communication with the EUT. Its parameters were set to transmit the maximum power on the EUT. The measured power in the radio frequency on the transmitter output terminals.

7.1.1 ERP/EIRP LIMIT

According to FCC §2.1046

FCC 22.913(a)

(5) mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

FCC 24.232(c)

Mobile and portable stations are limited to 2 W EIRP.

FCC 27.50(c)

(9) Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP.

FCC 27.50(d)

(4) Mobile, and portable (hand-held) stations operating in the 1710-1755 MHz, 1695-1710 MHz and 1755-1780 MHz bands are limited to 1W EIRP.

FCC 27, 50(h)

(2) Mobile and other user stations transmitting in the BRS and EBS bands are limited to 2 W EIRP.

FCC 27, 50(j)

(3) Mobile and portable stations are limited to 1 Watt EIRP. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

FCC 27, 50(k)

(3) Mobile devices are limited to 1Watt (30 dBm) EIRP. Mobile devices operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

FCC 90.542(a)

(6) Control stations and mobile stations transmitting in the 758-768 MHz band and the 788-798 MHz band are limited to 30 watts ERP.

FCC 90.635(b)

Mobile station is limited to 100W ERP

7.2 Occupied Bandwidth Measurement

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.

7.3 Out Of Band Emission At Antenna Terminals

FCC §22.917(a), §24.238(a), §27.53(h), §90.543(e)(3)

Out of band emissions.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.

FCC §27.53(g)

Compliance for operations in the 600 MHz, 698-746 MHz, 746-758 MHz and the 776-788 MHz band with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations;

(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations;

FCC §27.53(h)

(h) *AWS emission limits*—(1) *General protection levels.* Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}$ (P) dB.

FCC §27.53(m) (4) (6)

For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Measurement procedure. Compliance with these rules is based on the use of measurement nstrumentation employing a resolution bandwidth of 1 megahertz or greater. However, 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; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be

made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

FCC §90.543 (e)

For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations.

(2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.

(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB.

FCC §90.691 Emission mask requirements for EA-based systems

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

7.4 Field Strength Of Spurious Radiation Measurement

According to FCC §2.1053,

FCC §22.917(a), §24.238(a), §27.53(h), §90.543(e)(3)

Out of band emissions.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.

FCC §27.53(g)

Compliance for operations in the 600 MHz, 698-746 MHz, 746-758 MHz and the 776-788 MHz band with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee’s frequency block, a resolution bandwidth of at least 30 kHz may be employed.

(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations;

(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations;

FCC §90.543 (f)

For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for

wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

FCC §27.53(h)(1)

(h) *AWS emission limits*—(1) *General protection levels.* Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 $\log_{10}$ (P) dB.

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Measurement procedure. Compliance with these rules is based on the use of measurement nstrumentation employing a resolution bandwidth of 1 megahertz or greater. However, 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; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

§90.691 Emission mask requirements for EA-based systems

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency

removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

7.5 Frequency Stability Measurement

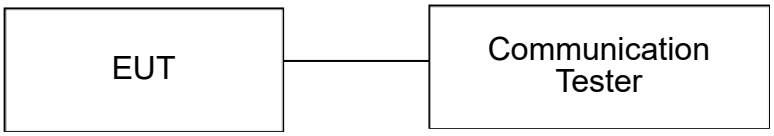
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

7.6 Peak to Average Ratio

The peak-to-average ratio (PAR) of the transmission may not exceed 13dB.

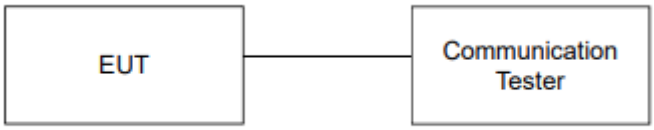
8 TEST SETUP

8.1 Maximum Output Power



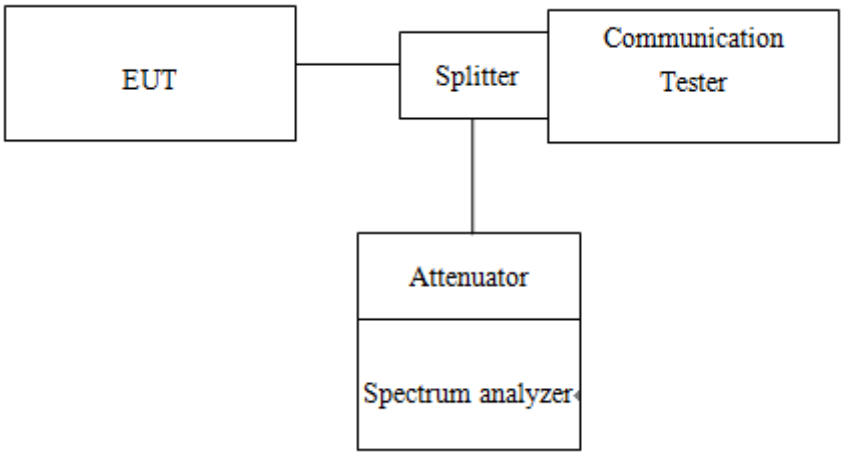
Note: *Measurement setup for testing on Antenna connector*

8.2 Occupied Bandwidth Measurement



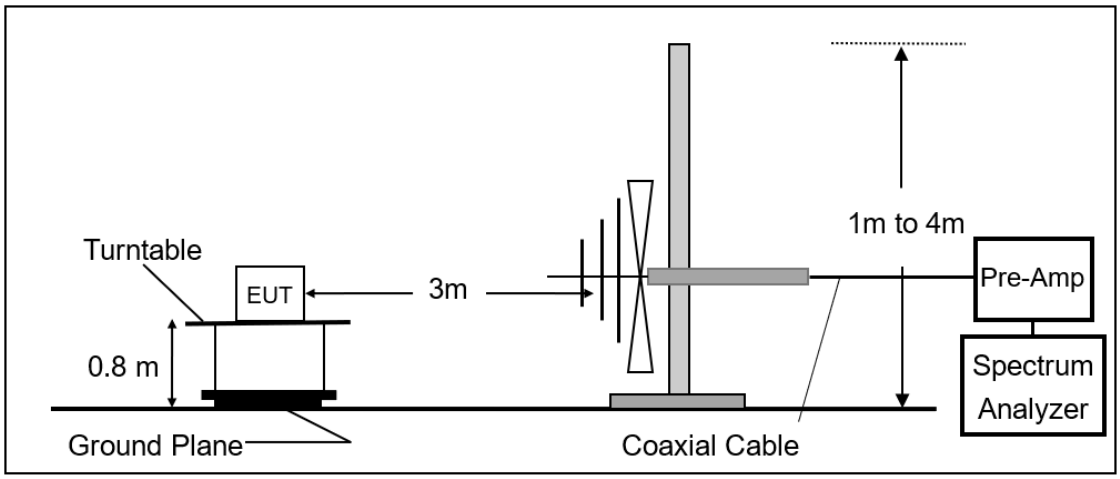
Note: *Measurement setup for testing on Antenna connector*

8.3 Out of Band Emission At Antenna Terminals

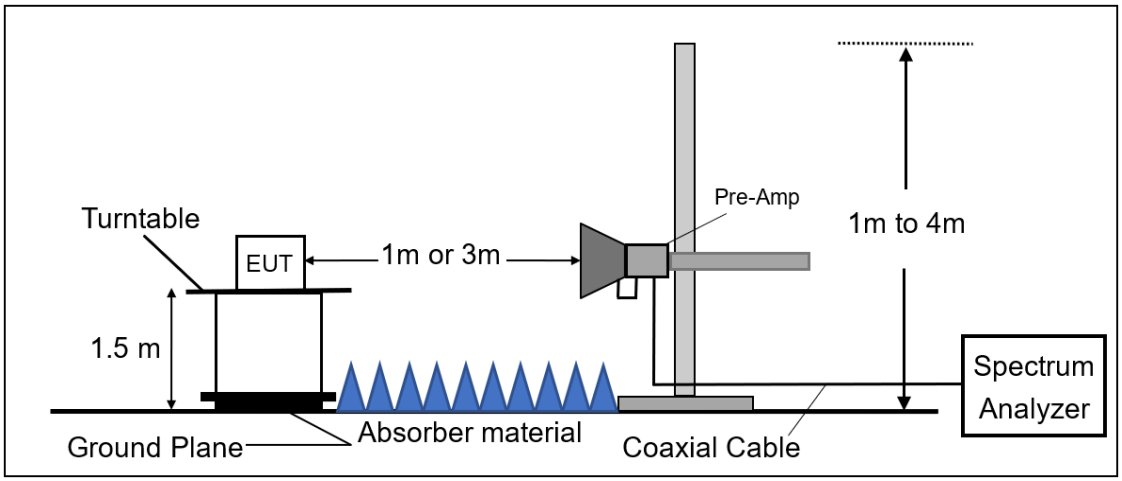


8.4 Field Strength of Spurious Radiation Measurement

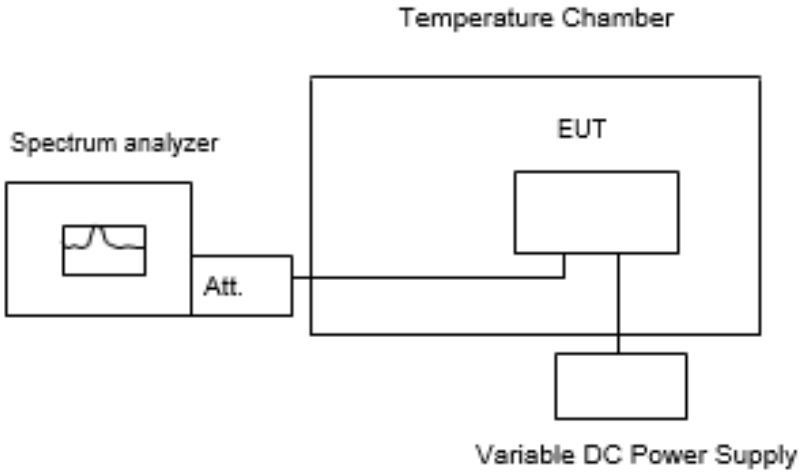
Radiated Emission Test Set-Up, Frequency From 30MHz to 1000MHz.



Radiated Emission Test Set-Up, Frequency Above 1GHz.

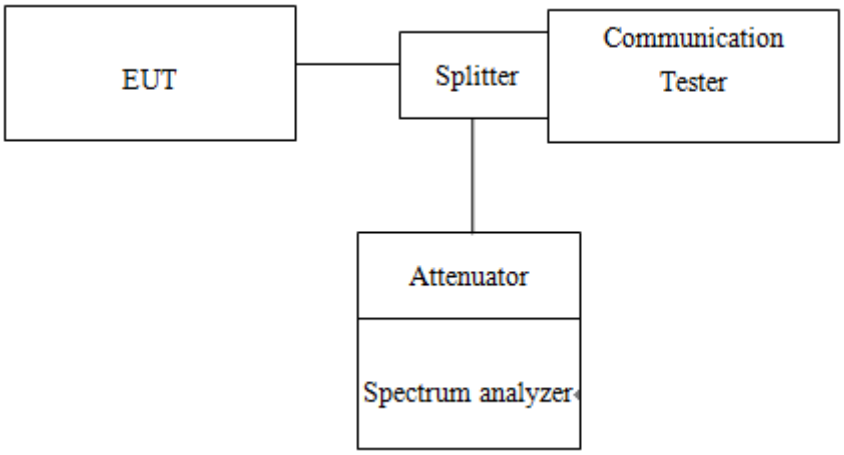


8.5 Frequency Stability Measurement



Note: *Measurement setup for testing on Antenna connector*

8.6 Peak To Average Ratio



9 TEST PROCEDURE

9.1 Maximum Output Power

9.1.1 Output Power Measurement Applicable Guideance

The transmitter output was connected to a communication tester. Transmitter output was read off the communication tester in dBm. The power output at the transmitter antenna port was determined by the communication tester reading.
KDB 971168 D01 Power Meas License Digital System as the supplemental test methodology to adjust the proper setting obtaining the measurement results.
All LTE bands conducted average power is obtained from the simulator telecommunication test set.

9.1.2 Determining ERP and/or EIRP from conducted RF output power measurements

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T - L_C$,

$ERP = EIRP - 2.15$,

Where:

ERP or EIRP	= effective radiated power or equivalent isotropically radiated power (expressed in the same units as PT, typically dBW, dBm, or power spectral density (PSD)2), relative to either a dipole antenna (ERP) or an isotropic antenna (EIRP);
P_T	= transmitter output power, expressed in dBW, dBm, or PSD;
G_T	= gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);
L_C	= signal attenuation in the connecting cable between the transmitter and antenna, in dB.

9.2 Occupied Bandwidth Measurement

99% &26dB Bandwidth with detector peak

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW= 3 times RBW, -26dBc display line was placed on the screen (or 26dB bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace. Then set RBW to 99% bandwidth, RBW= 1% ~ 5%, VBW ≥ 3 * RBW, with span > 2 * Signal BW, set % Power = 99%.

9.3 Out of Band Emission at Antenna Terminals

9.3.1 Conducted Emission

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

1. To connect Antenna Port of EUT to Spectrum.
2. Set RBW = 1MHz & VBW = 1MHz on Spectrum.
3. Allow trace to fully stabilize
4. Repeat above procedures until all default test channel measured were complete.

9.3.2 Band Edge

1. To connect Antenna Port of EUT to Spectrum.
2. The band edge of low and high channels for the highest RF powers was measured. Setting RBW ≥ 1% EBW.
3. Allow trace to fully stabilize
4. Repeat above procedures until all default test channel measured were complete.

9.4 Field Strength of Spurious Radiation Measurement

The EUT was placed on a non-conductive; the measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequencies (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method.

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

ERP (dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

EIRP (dBm) = SG Level(dBm) + Antenna Gain(dBi) + Cable Loss(dB)

9.5 Frequency Stability Measurement

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to –30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

Set chamber temperature to 20℃. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low

enough to obtain the desired frequency resolution and recorded the frequency.
Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint as declared by the manufacturer, record the maximum frequency change.

9.6 Peak to Average Ratio

1. KDB 971168 D01 is employed as the following procedure is proper adjusted accordingly:
2. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth; & internal =1ms
3. Set the number of counts to a value that stabilizes the measured CCDF curve.

10 MEASUREMENT RESULTS

Please refer to the Annex A-Measurement Results.

11 PHOTOGRAPHS OF SET UP

Please refer to the attached file (Setup Photo)

12 PHOTOGRAPHS OF EUT

Please refer to the attached file (EUT Photo)

~ End of Report ~