ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

Testing Laboratory 3702

Applicant:	Telit Communications S.p.A. Via Stazione di Prosecco 5/b 34010 Sgonico - Trieste, Italy
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.:	FN920C04-WW
Report Number:	TERF2410003182ER
FCC ID	RI7FN920C04WW
Date of EUT Received:	October 24, 2024
Date of Test:	October 29, 2024～April 10, 2025
Issue Date:	April 14, 2025

Jazz Huang

Approved By _____
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
TERF2410003182ER	00	Original	March 20, 2025	Karen Huang	
TERF2410003182ER	01	Update test result	April 14, 2025	Karen Huang	*

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.:	FN920C04-WW
Hardware Version:	1.10
Firmware Version:	M0V.060001
EUT Series No.:	355411761007558, 355411761003276, 355411761006303
Power Supply:	3.3Vdc
Test Software (Name/Version)	Connect with call box

1.2 Operation Frequency Range

LTE Band 2			
BW (MHz)	Operation Frequency (MHz)		
1.4	1850.7	-	1909.3
3	1851.5	-	1908.5
5	1852.5	-	1907.5
10	1855.0	-	1905.0
15	1857.5	-	1902.5
20	1860.0	-	1900.0
LTE Band 4			
BW (MHz)	Operation Frequency (MHz)		
1.4	1710.7	-	1754.3
3	1711.5	-	1753.5
5	1712.5	-	1752.5
10	1715.0	-	1750.0
15	1717.5	-	1747.5
20	1720.0	-	1745.0

LTE Band 5			
BW (MHz)	Operation Frequency (MHz)		
1.4	824.7	-	848.3
3	825.5	-	847.5
5	826.5	-	846.5
10	829.0	-	844.0
LTE 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
LTE Band 12			
BW (MHz)	Operation Frequency (MHz)		
1.4	699.7	-	715.3
3	700.5	-	714.5
5	701.5	-	713.5
10	704.0	-	711.0

LTE Band 13			
BW (MHz)	Operation Frequency (MHz)		
5	779.5	-	784.5
10	782.0		

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

LTE Band 17			
BW (MHz)	Operation Frequency (MHz)		
5	706.5	-	713.5
10	709.0	-	711.0

LTE Band 25			
BW (MHz)	Operation Frequency (MHz)		
1.4	1850.7	-	1914.3
3	1851.5	-	1913.5
5	1852.5	-	1912.5
10	1855.0	-	1910.0
15	1857.5	-	1907.5
20	1860.0	-	1905.0

LTE Band 26			
BW (MHz)	Operation Frequency (MHz)		
1.4	824.7	-	848.3
3	825.5	-	847.5
5	826.5	-	846.5
10	829.0	-	844.0
15	831.5	-	841.5

LTE Band 26 Part 90			
BW (MHz)	Operation Frequency (MHz)		
1.4	814.7	-	823.3
3	815.5	-	822.5
5	816.5	-	821.5
10	819.0		

LTE Band 30			
BW (MHz)	Operation Frequency (MHz)		
5	2307.5	-	2312.5
10	2310.0		

LTE Band 38			
BW (MHz)	Operation Frequency (MHz)		
5	2572.5	-	2617.5
10	2575.0	-	2615.0
15	2577.5	-	2612.5
20	2580.0	-	2610.0

LTE Band 41			
BW (MHz)	Operation Frequency (MHz)		
5	2498.5	-	2687.5
10	2501.0	-	2685.0
15	2503.5	-	2682.5
20	2506.0	-	2680.0

LTE Band 42 Part 27			
BW (MHz)	Operation Frequency (MHz)		
5	3452.5	-	3547.5
10	3455.0	-	3545.0
15	3457.5	-	3542.5
20	3460.0	-	3540.0

LTE Band 43 Part 27			
BW (MHz)	Operation Frequency (MHz)		
5	3702.5	-	3797.5
10	3705.0	-	3795.0
15	3707.5	-	3792.5
20	3710.0	-	3790.0

LTE Band 66			
BW (MHz)	Operation Frequency (MHz)		
1.4	1710.7	-	1779.3
3	1711.5	-	1778.5
5	1712.5	-	1777.5
10	1715.0	-	1775.0
15	1717.5	-	1772.5
20	1720.0	-	1770.0

LTE Band 70			
BW (MHz)	Operation Frequency (MHz)		
5	1697.5	-	1707.5
10	1700.0	-	1705.0
15	1702.5		

LTE 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

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).	

LTE Band	Frequency (MHz)	Peak Gain (dBi)	Insertion Loss	Final Gain (dBi)
LTE Band 2	1850~1910	3.09	0.3	2.79
LTE Band 4	1710~1755	3.09	0.3	2.79
LTE Band 5	824~849	0.58	0.2	0.38
LTE Band 7	2500~2570	1.69	0.5	1.19
LTE Band 12	699~716	-1.88	0.2	-2.08
LTE Band 13	777~787	-1.88	0.2	-2.08
LTE Band 14	788~798	-1.88	0.2	-2.08
LTE Band 17	704~716	-1.88	0.2	-2.08
LTE Band 25	1850~1915	3.09	0.3	2.79
LTE Band 26_P90s	814~824	-1.88	0.2	-2.08
LTE Band 26	824~849	0.58	0.2	0.38
LTE Band 30	2305~2315	1.69	0.5	1.19
LTE Band 38	2570~2620	1.69	0.5	1.19
LTE Band 41	2496~2690	1.69	0.5	1.19
LTE Band 42	3400~3600	1.51	0.6	0.91
LTE Band 43	3600~3800	1.51	0.6	0.91
LTE Band 66	1710~1780	3.09	0.3	2.79
LTE Band 70	1695~1710	3.09	0.3	2.79
LTE Band 71	663~698	0.14	0.2	-0.06

Note: Antenna information is provided by the applicant.

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

LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
2	1.4	1850.7	1909.3	QPSK	26.41	EIRP	0.438	1.0890	1M09G7D
				16QAM	25.54	EIRP	0.358	1.0920	1M09D7W
				64QAM	24.55	EIRP	0.285	1.0916	1M09D7W
				256QAM	21.63	EIRP	0.146	1.0899	1M09D7W
2	3	1851.5	1908.5	QPSK	26.37	EIRP	0.434	2.6955	2M70G7D
				16QAM	25.51	EIRP	0.356	2.7015	2M70D7W
				64QAM	24.61	EIRP	0.289	2.6984	2M70D7W
				256QAM	21.71	EIRP	0.148	2.6968	2M70D7W
2	5	1852.5	1907.5	QPSK	26.48	EIRP	0.445	4.5002	4M50G7D
				16QAM	25.54	EIRP	0.358	4.4918	4M49D7W
				64QAM	24.65	EIRP	0.292	4.4890	4M49D7W
				256QAM	21.72	EIRP	0.149	4.4924	4M49D7W
2	10	1855.0	1905.0	QPSK	26.36	EIRP	0.433	8.9912	8M99G7D
				16QAM	25.78	EIRP	**0.378**	9.0157	9M02D7W
				64QAM	24.76	EIRP	0.299	8.9844	8M98D7W
				256QAM	21.84	EIRP	**0.153**	8.9934	8M99D7W
2	15	1857.5	1902.5	QPSK	26.65	EIRP	**0.462**	13.491	13M5G7D
				16QAM	25.75	EIRP	0.376	13.448	13M4D7W
				64QAM	24.68	EIRP	0.294	13.463	13M5D7W
				256QAM	21.84	EIRP	**0.153**	13.487	13M5D7W
2	20	1860.0	1900.0	QPSK	26.61	EIRP	0.458	17.952	18M0G7D
				16QAM	25.77	EIRP	0.378	17.958	18M0D7W
				64QAM	24.83	EIRP	**0.304**	17.955	18M0D7W
				256QAM	21.81	EIRP	0.152	17.963	18M0D7W
LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
4	1.4	1710.7	1754.3	QPSK	26.28	EIRP	0.425	1.0920	1M09G7D
				16QAM	25.52	EIRP	0.356	1.0958	1M10D7W
				64QAM	24.45	EIRP	0.279	1.0920	1M09D7W
				256QAM	21.92	EIRP	**0.156**	1.0945	1M09D7W
4	3	1711.5	1753.5	QPSK	26.40	EIRP	0.437	2.6986	2M70G7D
				16QAM	25.73	EIRP	0.374	2.6984	2M70D7W
				64QAM	24.83	EIRP	0.304	2.6976	2M70D7W
				256QAM	21.81	EIRP	0.152	2.6951	2M70D7W
4	5	1712.5	1752.5	QPSK	26.52	EIRP	0.449	4.4888	4M49G7D
				16QAM	25.82	EIRP	0.382	4.4882	4M49D7W
				64QAM	24.72	EIRP	0.296	4.4940	4M49D7W
				256QAM	21.91	EIRP	0.155	4.4956	4M50D7W
4	10	1715.0	1750.0	QPSK	26.50	EIRP	0.447	9.0098	9M01G7D
				16QAM	25.63	EIRP	0.366	9.0094	9M01D7W
				64QAM	24.70	EIRP	0.295	8.9847	8M98D7W
				256QAM	21.75	EIRP	0.150	8.9814	8M98D7W
4	15	1717.5	1747.5	QPSK	26.72	EIRP	0.470	13.4670	13M5G7D
				16QAM	25.77	EIRP	0.378	13.4540	13M5D7W
				64QAM	24.87	EIRP	0.307	13.4580	13M5D7W
				256QAM	21.78	EIRP	0.151	13.4790	13M5D7W
4	20	1720.0	1745.0	QPSK	26.73	EIRP	**0.471**	17.9310	17M9G7D
				16QAM	25.90	EIRP	**0.389**	17.9320	17M9D7W
				64QAM	24.93	EIRP	**0.311**	17.9620	18M0D7W
				256QAM	21.77	EIRP	0.150	17.9710	18M0D7W

LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
5	1.4	824.7	848.3	QPSK	21.60	ERP	**0.145**	1.0916	1M09G7D
				16QAM	20.90	ERP	0.123	1.0933	1M09D7W
				64QAM	19.76	ERP	0.095	1.0953	1M10D7W
				256QAM	16.78	ERP	0.048	1.0938	1M09D7W
5	3	825.5	847.5	QPSK	21.50	ERP	0.141	2.6940	2M69G7D
				16QAM	20.98	ERP	0.125	2.6991	2M70D7W
				64QAM	19.80	ERP	0.095	2.6982	2M70D7W
				256QAM	16.83	ERP	0.048	2.6968	2M70D7W
5	5	826.5	846.5	QPSK	21.55	ERP	0.143	4.4912	4M49G7D
				16QAM	20.89	ERP	0.123	4.4975	4M50D7W
				64QAM	19.74	ERP	0.094	4.4949	4M49D7W
				256QAM	16.83	ERP	0.048	4.4913	4M49D7W
5	10	829.0	844.0	QPSK	21.57	ERP	0.144	8.9956	9M00G7D
				16QAM	21.19	ERP	**0.132**	9.0144	9M01D7W
				64QAM	19.90	ERP	**0.098**	9.0011	9M00D7W
				256QAM	16.90	ERP	**0.049**	8.9963	9M00D7W

LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
7	5	2502.5	2567.5	QPSK	24.92	EIRP	0.310	4.4978	4M50G7D
				16QAM	24.10	EIRP	0.257	4.4963	4M50D7W
				64QAM	23.15	EIRP	0.207	4.4932	4M49D7W
				256QAM	20.13	EIRP	0.103	4.4912	4M49D7W
7	10	2505.0	2565.0	QPSK	24.83	EIRP	0.304	8.9966	9M00G7D
				16QAM	24.15	EIRP	**0.260**	9.0161	9M02D7W
				64QAM	23.08	EIRP	0.203	8.9892	8M99D7W
				256QAM	20.22	EIRP	0.105	8.9943	8M99D7W
7	15	2507.5	2562.5	QPSK	24.97	EIRP	0.314	13.4670	13M5G7D
				16QAM	23.95	EIRP	0.248	13.4700	13M5D7W
				64QAM	23.28	EIRP	**0.213**	13.4630	13M5D7W
				256QAM	20.28	EIRP	**0.107**	13.4590	13M5D7W
7	20	2510.0	2560.0	QPSK	25.09	EIRP	**0.323**	17.9530	18M0G7D
				16QAM	24.12	EIRP	0.258	17.9740	18M0D7W
				64QAM	23.22	EIRP	0.210	17.9490	17M9D7W
				256QAM	20.16	EIRP	0.104	17.9370	17M9D7W

LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
12	1.4	699.7	715.3	QPSK	18.99	ERP	0.079	1.0928	1M09G7D
				16QAM	18.29	ERP	0.067	1.0982	1M10D7W
				64QAM	17.34	ERP	0.054	1.0918	1M09D7W
				256QAM	14.46	ERP	0.028	1.0944	1M09D7W
12	3	700.5	714.5	QPSK	19.05	ERP	**0.080**	2.6998	2M70G7D
				16QAM	18.54	ERP	**0.071**	2.7011	2M70D7W
				64QAM	17.31	ERP	0.054	2.6992	2M70D7W
				256QAM	14.42	ERP	0.028	2.7007	2M70D7W
12	5	701.5	713.5	QPSK	18.96	ERP	0.079	4.4994	4M50G7D
				16QAM	18.30	ERP	0.068	4.5071	4M51D7W
				64QAM	17.34	ERP	0.054	4.4908	4M49D7W
				256QAM	14.57	ERP	**0.029**	4.4924	4M49D7W
12	10	704.0	711.0	QPSK	18.96	ERP	0.079	9.0101	9M01G7D
				16QAM	18.38	ERP	0.069	9.0302	9M03D7W
				64QAM	17.64	ERP	**0.058**	9.0374	9M04D7W
				256QAM	14.44	ERP	0.028	9.0054	9M01D7W

LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
13	5	779.5	784.5	QPSK	19.19	ERP	**0.083**	4.5083	4M51G7D
				16QAM	18.46	ERP	0.070	4.4942	4M49D7W
				64QAM	17.50	ERP	**0.056**	4.4953	4M50D7W
				256QAM	14.59	ERP	**0.029**	4.5026	4M50D7W
13	10	782.0	782.0	QPSK	18.80	ERP	0.076	8.9608	8M96G7D
				16QAM	18.58	ERP	**0.072**	8.9429	8M94D7W
				64QAM	17.31	ERP	0.054	8.9518	8M95D7W
				256QAM	14.50	ERP	0.028	8.9338	8M93D7W
LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
14	5	790.5	795.5	QPSK	19.15	ERP	**0.082**	4.4986	4M50G7D
				16QAM	18.41	ERP	**0.069**	4.5058	4M51D7W
				64QAM	17.23	ERP	0.053	4.5002	4M50D7W
				256QAM	14.68	ERP	**0.029**	4.4984	4M50D7W
14	10	793.0	793.0	QPSK	18.99	ERP	0.079	8.9565	8M96G7D
				16QAM	18.36	ERP	0.069	8.9896	8M99D7W
				64QAM	17.33	ERP	**0.054**	8.9616	8M96D7W
				256QAM	14.42	ERP	0.028	8.9770	8M98D7W
LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
17	5	706.5	713.5	QPSK	18.99	ERP	0.079	4.5067	4M51G7D
				16QAM	18.31	ERP	0.068	4.5012	4M50D7W
				64QAM	17.50	ERP	**0.056**	4.4939	4M49D7W
				256QAM	14.62	ERP	**0.029**	4.4917	4M49D7W
17	10	709.0	711.0	QPSK	19.11	ERP	**0.081**	8.9197	8M92G7D
				16QAM	18.40	ERP	**0.069**	8.9676	8M97D7W
				64QAM	17.41	ERP	0.055	8.9492	8M95D7W
				256QAM	14.59	ERP	0.029	8.9574	8M96D7W

LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
25	1.4	1850.7	1914.3	QPSK	26.27	EIRP	0.424	1.0903	1M09G7D
				16QAM	25.61	EIRP	0.364	1.0961	1M10D7W
				64QAM	24.57	EIRP	0.286	1.0899	1M09D7W
				256QAM	21.51	EIRP	0.142	1.0934	1M09D7W
25	3	1851.5	1913.5	QPSK	26.19	EIRP	0.416	2.6959	2M70G7D
				16QAM	25.65	EIRP	0.367	2.6990	2M70D7W
				64QAM	24.52	EIRP	0.283	2.7007	2M70D7W
				256QAM	21.66	EIRP	0.147	2.6997	2M70D7W
25	5	1852.5	1912.5	QPSK	26.28	EIRP	0.425	4.4993	4M50G7D
				16QAM	25.76	EIRP	0.377	4.4886	4M49D7W
				64QAM	24.77	EIRP	0.300	4.4995	4M50D7W
				256QAM	21.63	EIRP	0.146	4.4939	4M49D7W
25	10	1855.0	1910.0	QPSK	26.30	EIRP	0.427	8.9948	8M99G7D
				16QAM	25.68	EIRP	0.370	9.0035	9M00D7W
				64QAM	24.49	EIRP	0.281	8.9943	8M99D7W
				256QAM	21.71	EIRP	0.148	8.9800	8M98D7W
25	15	1857.5	1907.5	QPSK	26.42	EIRP	0.439	13.4710	13M5G7D
				16QAM	25.78	EIRP	**0.378**	13.4700	13M5D7W
				64QAM	24.94	EIRP	**0.312**	13.4740	13M5D7W
				256QAM	21.87	EIRP	**0.154**	13.4780	13M5D7W
25	20	1860.0	1905.0	QPSK	26.64	EIRP	**0.461**	17.9800	18M0G7D
				16QAM	25.63	EIRP	0.366	17.9660	18M0D7W
				64QAM	24.91	EIRP	0.310	17.9650	18M0D7W
				256QAM	21.74	EIRP	0.149	17.9590	18M0D7W
LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
26 Part 90	1.4	814.7	823.3	QPSK	19.22	ERP	0.084	1.0890	1M09G7D
				16QAM	18.45	ERP	0.070	1.0934	1M09D7W
				64QAM	17.40	ERP	**0.055**	1.0909	1M09D7W
				256QAM	14.46	ERP	**0.028**	1.0910	1M09D7W
26 Part 90	3	815.5	822.5	QPSK	19.09	ERP	0.081	2.6977	2M70G7D
				16QAM	18.54	ERP	**0.071**	2.6959	2M70D7W
				64QAM	17.36	ERP	0.054	2.6945	2M69D7W
				256QAM	14.32	ERP	0.027	2.6964	2M70D7W
26 Part 90	5	816.5	821.5	QPSK	19.31	ERP	**0.085**	4.4950	4M50G7D
				16QAM	18.49	ERP	0.071	4.4941	4M49D7W
				64QAM	17.25	ERP	0.053	4.4997	4M50D7W
				256QAM	14.39	ERP	0.027	4.4909	4M49D7W
26 Part 90	10	819.0	819.0	QPSK	19.15	ERP	0.082	8.9992	9M00G7D
				16QAM	18.51	ERP	0.071	9.0342	9M03D7W
				64QAM	17.18	ERP	0.052	9.0044	9M00D7W
				256QAM	14.36	ERP	0.027	8.9956	9M00D7W

LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
26	1.4	824.7	848.3	QPSK	21.90	ERP	0.155	1.0909	1M09G7D
				16QAM	21.03	ERP	0.127	1.0934	1M09D7W
				64QAM	20.17	ERP	0.104	1.0929	1M09D7W
				256QAM	17.06	ERP	0.051	1.0905	1M09D7W
26	3	825.5	847.5	QPSK	21.83	ERP	0.152	2.6941	2M69G7D
				16QAM	21.06	ERP	0.128	2.6947	2M69D7W
				64QAM	20.01	ERP	0.100	2.6980	2M70D7W
				256QAM	17.07	ERP	0.051	2.6946	2M69D7W
26	5	826.5	846.5	QPSK	21.98	ERP	0.158	4.4898	4M49G7D
				16QAM	21.18	ERP	**0.131**	4.4937	4M49D7W
				64QAM	20.08	ERP	0.102	4.4919	4M49D7W
				256QAM	17.05	ERP	0.051	4.4879	4M49D7W
26	10	829.0	844.0	QPSK	21.97	ERP	0.157	8.9906	8M99G7D
				16QAM	21.16	ERP	0.131	9.0091	9M01D7W
				64QAM	20.08	ERP	0.102	8.9991	9M00D7W
				256QAM	17.01	ERP	0.050	8.9779	8M98D7W
26	15	831.5	841.5	QPSK	22.18	ERP	**0.165**	13.5150	13M5G7D
				16QAM	20.98	ERP	0.125	13.5160	13M5D7W
				64QAM	20.42	ERP	**0.110**	13.4890	13M5D7W
				256QAM	17.25	ERP	**0.053**	13.4870	13M5D7W

LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm/5MHz)		(W)	99%	Type of Emission
30	5	2307.5	2312.5	QPSK	23.47	EIRP	0.222	4.5145	4M51G7D
				16QAM	22.63	EIRP	0.183	4.5104	4M51D7W
				64QAM	21.98	EIRP	**0.158**	4.5056	4M51D7W
				256QAM	19.02	EIRP	**0.080**	4.5065	4M51D7W
30	10	2310.0	2310.0	QPSK	23.48	EIRP	**0.223**	9.0047	9M00G7D
				16QAM	22.80	EIRP	**0.191**	8.9963	9M00D7W
				64QAM	21.95	EIRP	0.157	9.0004	9M00D7W
				256QAM	18.98	EIRP	0.079	8.9984	9M00D7W

LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
38	5	2572.5	2617.5	QPSK	24.71	EIRP	0.296	4.4966	4M50G7D
				16QAM	24.16	EIRP	0.261	4.4928	4M49D7W
				64QAM	23.23	EIRP	**0.210**	4.4913	4M49D7W
				256QAM	20.30	EIRP	0.107	4.4936	4M49D7W
38	10	2575.0	2615.0	QPSK	24.65	EIRP	0.292	9.0000	9M00G7D
				16QAM	24.22	EIRP	0.264	9.0080	9M01D7W
				64QAM	23.16	EIRP	0.207	8.9872	8M99D7W
				256QAM	20.38	EIRP	**0.109**	8.9938	8M99D7W
38	15	2577.5	2612.5	QPSK	24.83	EIRP	0.304	13.4590	13M5G7D
				16QAM	24.13	EIRP	0.259	13.4530	13M5D7W
				64QAM	23.20	EIRP	0.209	13.4810	13M5D7W
				256QAM	20.34	EIRP	0.108	13.4930	13M5D7W
38	20	2580.0	2610.0	QPSK	25.02	EIRP	**0.318**	17.9330	17M9G7D
				16QAM	24.23	EIRP	**0.265**	17.9330	17M9D7W
				64QAM	23.17	EIRP	0.207	17.9620	18M0D7W
				256QAM	20.36	EIRP	0.109	17.9300	17M9D7W

LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
41	5	2498.5	2687.5	QPSK	27.31	EIRP	0.538	4.5039	4M50G7D
				16QAM	26.80	EIRP	0.479	4.4982	4M50D7W
				64QAM	25.89	EIRP	0.388	4.5019	4M50D7W
				256QAM	22.58	EIRP	0.181	4.5093	4M51D7W
41	10	2501.0	2685.0	QPSK	27.26	EIRP	0.532	9.0033	9M00G7D
				16QAM	26.69	EIRP	0.467	9.0064	9M01D7W
				64QAM	25.78	EIRP	0.378	8.9951	9M00D7W
				256QAM	22.68	EIRP	0.185	9.0052	9M01D7W
41	15	2503.5	2682.5	QPSK	27.56	EIRP	**0.570**	13.4740	13M5G7D
				16QAM	26.88	EIRP	**0.488**	13.4730	13M5D7W
				64QAM	25.92	EIRP	**0.391**	13.4780	13M5D7W
				256QAM	22.70	EIRP	**0.186**	13.4870	13M5D7W
41	20	2506.0	2680.0	QPSK	27.44	EIRP	0.555	17.9440	17M9G7D
				16QAM	26.82	EIRP	0.481	17.9470	17M9D7W
				64QAM	25.90	EIRP	0.389	17.9560	18M0D7W
				256QAM	22.64	EIRP	0.184	17.9460	17M9D7W

LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
42 Part 27	5	3452.5	3547.5	QPSK	21.88	EIRP	0.154	4.5120	4M51G7D
				16QAM	21.29	EIRP	0.135	4.5072	4M51D7W
				64QAM	20.61	EIRP	0.115	4.5061	4M51D7W
				256QAM	17.29	EIRP	0.054	4.5003	4M50D7W
42 Part 27	10	3455.0	3545.0	QPSK	21.98	EIRP	0.158	9.0172	9M02G7D
				16QAM	21.30	EIRP	0.135	8.9992	9M00D7W
				64QAM	20.66	EIRP	0.116	8.9778	8M98D7W
				256QAM	17.28	EIRP	0.053	8.9750	8M98D7W
42 Part 27	15	3457.5	3542.5	QPSK	22.26	EIRP	**0.168**	13.4720	13M5G7D
				16QAM	21.37	EIRP	**0.137**	13.4650	13M5D7W
				64QAM	20.67	EIRP	0.117	13.5010	13M5D7W
				256QAM	17.31	EIRP	**0.054**	13.4930	13M5D7W
42 Part 27	20	3460.0	3540.0	QPSK	22.24	EIRP	0.167	17.9470	17M9G7D
				16QAM	21.25	EIRP	0.133	17.9260	17M9D7W
				64QAM	20.77	EIRP	**0.119**	17.9560	18M0D7W
				256QAM	17.26	EIRP	0.053	17.9300	17M9D7W

LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
43 Part 27	5	3702.5	3797.5	QPSK	22.88	EIRP	0.194	4.5141	4M51G7D
				16QAM	22.07	EIRP	0.161	4.4947	4M49D7W
				64QAM	20.83	EIRP	**0.121**	4.5078	4M51D7W
				256QAM	17.13	EIRP	0.052	4.4806	4M48D7W
43 Part 27	10	3705.0	3795.0	QPSK	22.71	EIRP	0.187	8.9644	8M96G7D
				16QAM	21.98	EIRP	0.158	8.9754	8M98D7W
				64QAM	20.81	EIRP	0.121	8.9405	8M94D7W
				256QAM	17.14	EIRP	0.052	8.9833	8M98D7W
43 Part 27	15	3707.5	3792.5	QPSK	22.87	EIRP	0.194	13.4820	13M5G7D
				16QAM	22.05	EIRP	0.160	13.4330	13M4D7W
				64QAM	20.75	EIRP	0.119	13.4800	13M5D7W
				256QAM	17.16	EIRP	**0.052**	13.4380	13M4D7W
43 Part 27	20	3710.0	3790.0	QPSK	22.90	EIRP	**0.195**	17.8950	17M9G7D
				16QAM	22.17	EIRP	**0.165**	17.9220	17M9D7W
				64QAM	20.80	EIRP	0.120	17.9250	17M9D7W
				256QAM	17.15	EIRP	0.052	17.8870	17M9D7W

LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
66	1.4	1710.7	1779.3	QPSK	26.67	EIRP	0.465	1.0922	1M09G7D
				16QAM	26.01	EIRP	0.399	1.0944	1M09D7W
				64QAM	24.78	EIRP	0.301	1.0917	1M09D7W
				256QAM	21.84	EIRP	0.153	1.0911	1M09D7W
66	3	1711.5	1778.5	QPSK	26.77	EIRP	**0.475**	2.6948	2M69G7D
				16QAM	26.08	EIRP	0.406	2.6989	2M70D7W
				64QAM	24.85	EIRP	0.305	2.6943	2M69D7W
				256QAM	21.86	EIRP	0.153	2.6962	2M70D7W
66	5	1712.5	1777.5	QPSK	26.70	EIRP	0.468	4.4956	4M50G7D
				16QAM	26.04	EIRP	0.402	4.4962	4M50D7W
				64QAM	24.89	EIRP	0.308	4.4931	4M49D7W
				256QAM	21.92	EIRP	0.156	4.4938	4M49D7W
66	10	1715.0	1775.0	QPSK	26.72	EIRP	0.470	8.9885	8M99G7D
				16QAM	25.93	EIRP	0.392	9.0017	9M00D7W
				64QAM	24.80	EIRP	0.302	8.9785	8M98D7W
				256QAM	21.90	EIRP	0.155	8.9907	8M99D7W
66	15	1717.5	1772.5	QPSK	26.75	EIRP	0.473	13.4670	13M5G7D
				16QAM	25.93	EIRP	0.392	13.4660	13M5D7W
				64QAM	24.95	EIRP	**0.313**	13.4500	13M5D7W
				256QAM	21.96	EIRP	**0.157**	13.4670	13M5D7W
66	20	1720.0	1770.0	QPSK	26.70	EIRP	0.468	17.9860	18M0G7D
				16QAM	26.21	EIRP	**0.418**	17.9470	17M9D7W
				64QAM	24.89	EIRP	0.308	17.9590	18M0D7W
				256QAM	21.87	EIRP	0.154	17.9780	18M0D7W
LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
70	5	1697.5	1707.5	QPSK	25.60	ERP	**0.363**	4.4934	4M49G7D
				16QAM	24.98	ERP	**0.315**	4.4961	4M50D7W
				64QAM	23.74	ERP	**0.237**	4.4916	4M49D7W
				256QAM	20.67	ERP	**0.117**	4.4892	4M49D7W
70	10	1700.0	1705.0	QPSK	25.42	ERP	0.348	8.9882	8M99G7D
				16QAM	24.92	ERP	0.310	9.0283	9M03D7W
				64QAM	23.74	ERP	**0.237**	9.0077	9M01D7W
				256QAM	20.61	ERP	0.115	9.0041	9M00D7W
70	15	1702.5	1702.5	QPSK	25.56	ERP	0.360	13.4950	13M5G7D
				16QAM	24.63	ERP	0.290	13.5470	13M5D7W
				64QAM	23.67	ERP	0.233	13.4510	13M5D7W
				256QAM	20.59	ERP	0.115	13.4720	13M5D7W

LTE Band	BW	Frequency		Modulation	ERP / EIRP (dBm)		(W)	99%	Type of Emission
71	5	665.5	695.5	QPSK	21.36	ERP	0.137	4.4900	4M49G7D
				16QAM	20.53	ERP	0.113	4.4902	4M49D7W
				64QAM	19.54	ERP	0.090	4.4865	4M49D7W
				256QAM	16.81	ERP	0.048	4.4917	4M49D7W
71	10	668.0	693.0	QPSK	21.31	ERP	0.135	8.9926	8M99G7D
				16QAM	20.61	ERP	0.115	9.0021	9M00D7W
				64QAM	19.69	ERP	**0.093**	8.9662	8M97D7W
				256QAM	16.85	ERP	0.048	8.9804	8M98D7W
71	15	670.5	690.5	QPSK	21.66	ERP	**0.147**	13.4660	13M5G7D
				16QAM	20.87	ERP	**0.122**	13.4590	13M5D7W
				64QAM	19.49	ERP	0.089	13.4350	13M4D7W
				256QAM	16.93	ERP	**0.049**	13.4450	13M4D7W
71	20	673.0	688.0	QPSK	21.40	ERP	0.138	17.9230	17M9G7D
				16QAM	20.48	ERP	0.112	17.9530	18M0D7W
				64QAM	19.49	ERP	0.089	17.9190	17M9D7W
				256QAM	16.84	ERP	0.048	18.0290	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:

LTE Band 2

Test mode	DC voltage (V)	DC current (mA)
LTE Band 2_20M QPSK	3.3	860

LTE Band 4

Test mode	DC voltage (V)	DC current (mA)
LTE Band 4_20M QPSK	3.3	900

LTE Band 5

Test mode	DC voltage (V)	DC current (mA)
LTE Band 5_10M QPSK	3.3	720

LTE Band 7

Test mode	DC voltage (V)	DC current (mA)
LTE Band 7_20M QPSK	3.3	970

LTE Band 12

Test mode	DC voltage (V)	DC current (mA)
LTE Band 12_10M QPSK	3.3	860

LTE Band 13

Test mode	DC voltage (V)	DC current (mA)
LTE Band 13_10M QPSK	3.3	860

LTE Band 14

Test mode	DC voltage (V)	DC current (mA)
LTE Band 14_10M QPSK	3.3	860

LTE Band 17

Test mode	DC voltage (V)	DC current (mA)
LTE Band 17_10M QPSK	3.3	790

LTE Band 25

Test mode	DC voltage (V)	DC current (mA)
LTE Band 25_20M QPSK	3.3	880

LTE Band 26

Test mode	DC voltage (V)	DC current (mA)
LTE Band 26_15M QPSK	3.3	700

LTE Band 26 for Part 90S

Test Mode	DC voltage (V)	DC current (mA)
LTE Band 26_10M QPSK	3.3	740

LTE Band 30

Test mode	DC voltage (V)	DC current (mA)
LTE Band 30_10M QPSK	3.3	1100

LTE Band 38

Test mode	DC voltage (V)	DC current (mA)
LTE Band 38_20M QPSK	3.3	280

LTE Band 41

Test Mode	DC voltage (V)	DC current (mA)
LTE Band 41_20M QPSK	3.3	280

LTE Band 42 for Part27

Test Mode	DC voltage (V)	DC current (mA)
LTE Band 42_20M QPSK	3.3	220

LTE Band 43 for Part27

Test Mode	DC voltage (V)	DC current (mA)
LTE Band 43_20M QPSK	3.3	240

LTE Band 66

Test mode	DC voltage (V)	DC current (mA)
LTE Band 66_20M QPSK	3.3	820

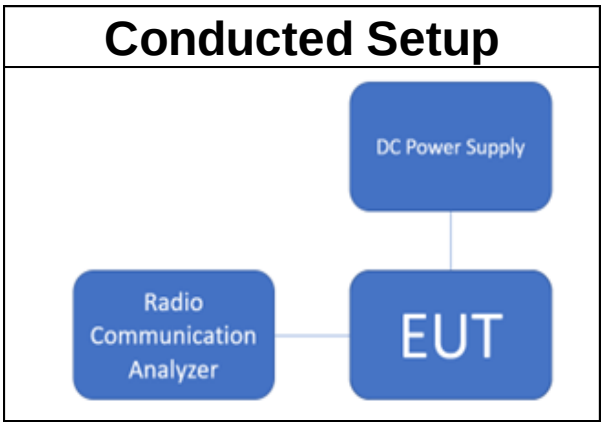
LTE Band 70

Test mode	DC voltage (V)	DC current (mA)
LTE Band 70_15M QPSK	3.3	1100

LTE Band 71

Test mode	DC voltage (V)	DC current (mA)
LTE Band 71_20M QPSK	3.3	750

2.6 Test Configuration



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

2.7 Control Unit(s)

N/A

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(a)(3)(i) §27.50(b)(9) §27.50(c)(9) §27.50(d)(4) §27.50(h)(2) §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)(b) §27.53(a)(4) §27.53(c)(2)&(5) §27.53(g) §27.53(h)(1)&(3) §27.53(m) §27.53(m)(4) §27.53(m)(4)(6) §27.53(n)(2) §90.543 (e)(2)~(5) §90.691(a) §90.210(n)	Out of Band Emissions at Antenna Terminals and Band Edge / Emission mask re-quirements	Compliant

§2.1053 §22.917(a)(b) §24.238(a)(b) §27.53(a)(4) §27.53(c)(2)~(6) §27.53(f) §27.53(g) §27.53(h) §27.53(h)(1)&(3) §27.53(m)(4) §27.53(n)(2) §90.543(e)(2)~(5) §90.543 (f) §90.691(a)	Field Strength of Spurious Radiation	Compliant
§22.913(d) §24.232(d) §27.50(a)(1)(B) §27.50(d)(5) §27.50(a)(B) §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 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.

4.2 Measurement Configuration

Test Items				Max. Output Power												
Band	Test Channel			Bandwidth (MHz)						Modulation				RB #		
	L	M	H	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full
2	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
4	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
5	v	v	v	v	v	v	v	-	-	v	v	v	v	v	v	v
7	v	v	v	-	-	v	v	v	v	v	v	v	v	v	v	v
12	v	v	v	v	v	v	v	-	-	v	v	v	v	v	v	v
13	v	v	v	-	-	v	v	-	-	v	v	v	v	v	v	v
14	v	v	v	-	-	v	v	-	-	v	v	v	v	v	v	v
17	v	v	v	-	-	v	v	-	-	v	v	v	v	v	v	v
25	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
26	v	v	v	v	v	v	v	v	-	v	v	v	v	v	v	v
26 P90	v	v	v	v	v	v	v	-	-	v	v	v	v	v	v	v
30	v	v	v	-	-	v	v	-	-	v	v	v	v	v	v	v
38	v	v	v	-	-	v	v	v	v	v	v	v	v	v	v	v
41	v	v	v	-	-	v	v	v	v	v	v	v	v	v	v	v
42 P27	v	v	v	-	-	v	v	v	v	v	v	v	v	v	v	v
43 P27	v	v	v	-	-	v	v	v	v	v	v	v	v	v	v	v
66	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
70	v	v	v	-	-	v	v	v	-	v	v	v	v	v	v	v
71	v	v	v	-	-	v	v	v	v	v	v	v	v	v	v	v
Test Items				Freqency Stability												
2	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v
4	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v
5	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v
7	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v
12	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v
13	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v
14	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v
17	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v
25	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v
26	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v
26 P90	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v
30	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v
38	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v
41	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v
42 P27	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v
43 P27	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v
66	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v
70	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v
71	-	v	-	-	-	-	v	-	-	v	-	-	-	-	-	v

Test Items				26dB and 99% Bandwidth												
Band	Test Channel			Bandwidth (MHz)						Modulation				RB #		
	L	M	H	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full
2	v	v	v	v	v	v	v	v	v	v	v	v	v	-	-	v
4	v	v	v	v	v	v	v	v	v	v	v	v	v	-	-	v
5	v	v	v	v	v	v	v	-	-	v	v	v	v	-	-	v
7	v	v	v	-	-	v	v	v	v	v	v	v	v	-	-	v
12	v	v	v	v	v	v	v	-	-	v	v	v	v	-	-	v
13	v	v	v	-	-	v	v	-	-	v	v	v	v	-	-	v
14	v	v	v	-	-	v	v	-	-	v	v	v	v	-	-	v
17	v	v	v	-	-	v	v	-	-	v	v	v	v	-	-	v
25	v	v	v	v	v	v	v	v	v	v	v	v	v	-	-	v
26	v	v	v	v	v	v	v	v	-	v	v	v	v	-	-	v
26 P90	v	v	v	v	v	v	v	-	-	v	v	v	v	-	-	v
30	v	v	v	-	-	v	v	-	-	v	v	v	v	-	-	v
38	v	v	v	-	-	v	v	v	v	v	v	v	v	-	-	v
41	v	v	v	-	-	v	v	v	v	v	v	v	v	-	-	v
42 P27	v	v	v	-	-	v	v	v	v	v	v	v	v	-	-	v
43 P27	v	v	v	-	-	v	v	v	v	v	v	v	v	-	-	v
66	v	v	v	v	v	v	v	v	v	v	v	v	v	-	-	v
70	v	v	v	-	-	v	v	v	-	v	v	v	v	-	-	v
71	v	v	v	-	-	v	v	v	v	v	v	v	v	-	-	v
Test Items				Peak-to-Av erage Ratio												
2	v	v	v	v	v	v	v	v	v	-	-	-	v	-	-	v
4	v	v	v	v	v	v	v	v	v	-	-	-	v	-	-	v
5	v	v	v	v	v	v	v	-	-	-	-	-	v	-	-	v
7	v	v	v	-	-	v	v	v	v	-	-	-	v	-	-	v
12	v	v	v	v	v	v	v	-	-	-	-	-	v	-	-	v
13	v	v	v	-	-	v	v	-	-	-	-	-	v	-	-	v
14	v	v	v	-	-	v	v	-	-	-	-	-	v	-	-	v
17	v	v	v	-	-	v	v	-	-	-	-	-	v	-	-	v
25	v	v	v	v	v	v	v	v	v	-	-	-	v	-	-	v
26	v	v	v	v	v	v	v	v	-	-	-	-	v	-	-	v
26 P90	v	v	v	v	v	v	v	-	-	-	-	-	v	-	-	v
30	v	v	v	-	-	v	v	-	-	-	-	-	v	-	-	v
38	v	v	v	-	-	v	v	v	v	-	-	-	v	-	-	v
41	v	v	v	-	-	v	v	v	v	-	-	-	v	-	-	v
42 P27	v	v	v	-	-	v	v	v	v	-	-	-	v	-	-	v
43 P27	v	v	v	-	-	v	v	v	v	-	-	-	v	-	-	v
66	v	v	v	v	v	v	v	v	v	-	-	-	v	-	-	v
70	v	v	v	-	-	v	v	v	-	-	-	-	v	-	-	v
71	v	v	v	-	-	v	v	v	v	-	-	-	v	-	-	v

Test Items	Band Edge															
Band	Test Channel			Bandwidth (MHz)						Modulation				RB #		
	L	M	H	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full
2	v	-	v	v	v	v	v	v	v	v	-	-	-	v	v	v
4	v	-	v	v	v	v	v	v	v	v	-	-	-	v	v	v
5	v	-	v	v	v	v	v	-	-	v	-	-	-	v	v	v
7	v	v	v	-	-	v	v	v	v	v	-	-	-	v	v	v
12	v	-	v	v	v	v	v	-	-	v	-	-	-	v	v	v
13	v	-	v	-	-	v	v	-	-	v	-	-	-	v	v	v
14	v	v	v	-	-	v	v	-	-	v	-	-	-	v	v	v
17	v	-	v	-	-	v	v	-	-	v	-	-	-	v	v	v
25	v	-	v	v	v	v	v	v	v	v	-	-	-	v	v	v
26	v	-	v	v	v	v	v	v	-	v	-	-	-	v	v	v
26 P90	v	v	v	v	v	v	v	-	-	v	-	-	-	v	v	v
30	v	v	v	-	-	v	v	-	-	v	-	-	-	v	v	v
38	v	v	v	-	-	v	v	v	v	v	-	-	-	v	v	v
41	v	v	v	-	-	v	v	v	v	v	-	-	-	v	v	v
42 P27	v	-	v	-	-	v	v	v	v	v	-	-	-	v	v	v
43 P27	v	-	v	-	-	v	v	v	v	v	-	-	-	v	v	v
66	v	-	v	v	v	v	v	v	v	v	-	-	-	v	v	v
70	v	-	v	-	-	v	v	v	-	v	-	-	-	v	v	v
71	v	-	v	-	-	v	v	v	v	v	-	-	-	v	v	v

Test Items	Conducted Emission															
2	v	v	v	-	-	-	-	v	-	v	-	-	-	v	-	-
4	v	v	v	-	-	-	-	-	v	v	-	-	-	v	-	-
5	v	v	v	v	-	-	-	-	-	v	-	-	-	v	-	-
7	v	v	v	-	-	-	-	-	v	v	-	-	-	v	-	-
12	v	v	v	-	v	-	-	-	-	v	-	-	-	v	-	-
13	v	v	v	-	-	v	-	-	-	v	-	-	-	v	-	-
14	v	v	v	-	-	v	-	-	-	v	-	-	-	v	-	-
17	v	v	v	-	-	-	v	-	-	v	-	-	-	v	-	-
25	v	v	v	-	-	-	-	-	v	v	-	-	-	v	-	-
26	v	v	v	-	-	-	-	v	-	v	-	-	-	v	-	-
26 P90	v	v	v	-	-	v	-	-	-	v	-	-	-	v	-	-
30	v	v	v	-	-	-	v	-	-	v	-	-	-	v	-	-
38	v	v	v	-	-	-	-	-	v	v	-	-	-	v	-	-
41	v	v	v	-	-	-	-	v	-	v	-	-	-	v	-	-
42 P27	v	v	v	-	-	-	-	v	-	v	-	-	-	v	-	-
43 P27	v	v	v	-	-	-	-	-	v	v	-	-	-	v	-	-
66	v	v	v	-	v	-	-	-	-	v	-	-	-	v	-	-
70	v	v	v	-	-	v	-	-	-	v	-	-	-	v	-	-
71	v	v	v	-	-	-	-	v	-	v	-	-	-	v	-	-

Test Items				Radiated Emission												
Band	Test Channel			Bandwidth (MHz)						Modulation				RB #		
	L	M	H	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full
2	v	v	v	-	-	-	-	v	-	v	-	-	-	v	-	-
4	v	v	v	-	-	-	-	-	v	v	-	-	-	v	-	-
5	v	v	v	v	-	-	-	-	-	v	-	-	-	v	-	-
7	v	v	v	-	-	-	-	-	v	v	-	-	-	v	-	-
12	v	v	v	-	v	-	-	-	-	v	-	-	-	v	-	-
13	v	v	v	-	-	v	-	-	-	v	-	-	-	v	-	-
14	v	v	v	-	-	v	-	-	-	v	-	-	-	v	-	-
17	v	v	v	-	-	-	v	-	-	v	-	-	-	v	-	-
25	v	v	v	-	-	-	-	-	v	v	-	-	-	v	-	-
26	v	v	v	-	-	-	-	v	-	v	-	-	-	v	-	-
26 P90	v	v	v	-	-	v	-	-	-	v	-	-	-	v	-	-
30	v	v	v	-	-	-	v	-	-	v	-	-	-	v	-	-
38	v	v	v	-	-	-	-	-	v	v	-	-	-	v	-	-
41	v	v	v	-	-	-	-	v	-	v	-	-	-	v	-	-
42 P27	v	v	v	-	-	-	-	v	-	v	-	-	-	v	-	-
43 P27	v	v	v	-	-	-	-	-	v	v	-	-	-	v	-	-
66	v	v	v	-	v	-	-	-	-	v	-	-	-	v	-	-
70	v	v	v	-	-	v	-	-	-	v	-	-	-	v	-	-
71	v	v	v	-	-	-	-	v	-	v	-	-	-	v	-	-

5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty		
Power Density	+/-	0.61	dB
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 4					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
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	Keysight	N9030B	MY61330494	03/22/2024	03/21/2025
Radio Communication Analyzer	Anritsu	MT8821C	6262044670	08/23/2024	08/22/2025
Splitter	RF-LAMBAD	RFLT2W1G18G	11-JSPF412-018	12/12/2023	12/11/2024
Splitter	RF-LAMBDA	RFLT2W1G18G	11-JSPF412-018	12/11/2024	12/10/2025
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	12/12/2023	12/11/2024
2G High Pass Filter	Micro-Tronics	HPM50110	36	12/12/2023	12/11/2024
4G High Pass Filter	WI	WHKX4.0	22	12/12/2023	12/11/2024
Attenuator	Mini-Circuits	BW-S10W2+	16	12/12/2023	12/11/2024
Band Reject Filter 1700-2000	EWT	EWT-54-0038	M1	12/12/2023	12/11/2024
Band Reject Filter 2240-2700	WI	WRCJV2300/2700-2240/2760-40/12SS	1	12/12/2023	12/11/2024
Band Reject Filter 3250-3750	Micro-Tronics	BRM15247	1	12/12/2023	12/11/2024
Band Reject Filter 800-1000	EWT	EWT-54-0037	M3R	12/12/2023	12/11/2024
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 3250-3750	Micro-Tronics	BRM15247	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+MY4251/4PEA+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+22962/2	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
EXA Spectrum Analyzer	KEYSIGHT	N9010B	MY63440386	02/05/2025	02/04/2026
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	184	12/28/2023	12/27/2024
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	Anritsu	MT8821C	6262044670	08/23/2024	08/22/2025
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

NOTE: *N.C.R refers to Not Calibrated Required.*

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 (a)

(3) for mobile and portable stations compliant with 3GPP LTE standards transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band are limited to 250 mW/ 5MHz EIRP but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth.

FCC 27.50 (b)

(9) Control stations and mobile stations transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 30 watts ERP.

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 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(a)

For operations in the 2305-2320 MHz band and the 2345-2360 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power P (with averaging performed only during periods of transmission) within the licensed band(s) of operation, in watts, by the following amounts:

(4) For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

(i) By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz;

(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz;

(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

FCC §27.53(c)

For operations in the 746–758 MHz band and the 776–788 MHz band, 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:

(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 (-13dBm)

(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(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)(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.

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(a)

For operations in the 2305-2320 MHz band and the 2345-2360 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power P (with averaging performed only during periods of transmission) within the licensed band(s) of operation, in watts, by the following amounts:

(4) For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:
(ii) By a factor of not less than 70 + 10 log (P) dB below 2288 MHz;
(iii) By a factor of not less than 70 + 10 log (P) dB above 2365 MHz.

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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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.

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(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

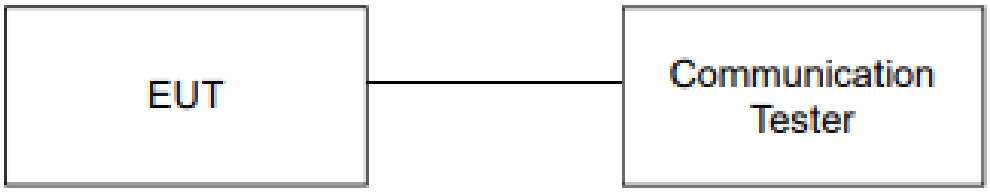
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

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

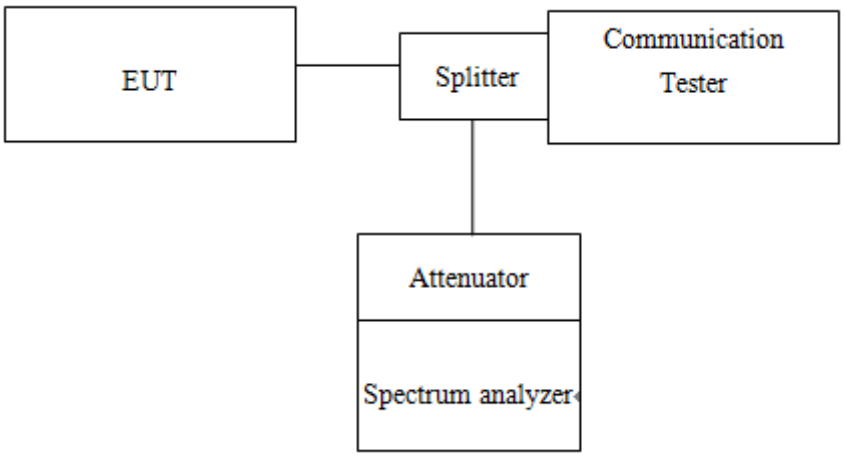


Note: *Measurement setup for testing on Antenna connector*

8.2 Occupied Bandwidth Measurement

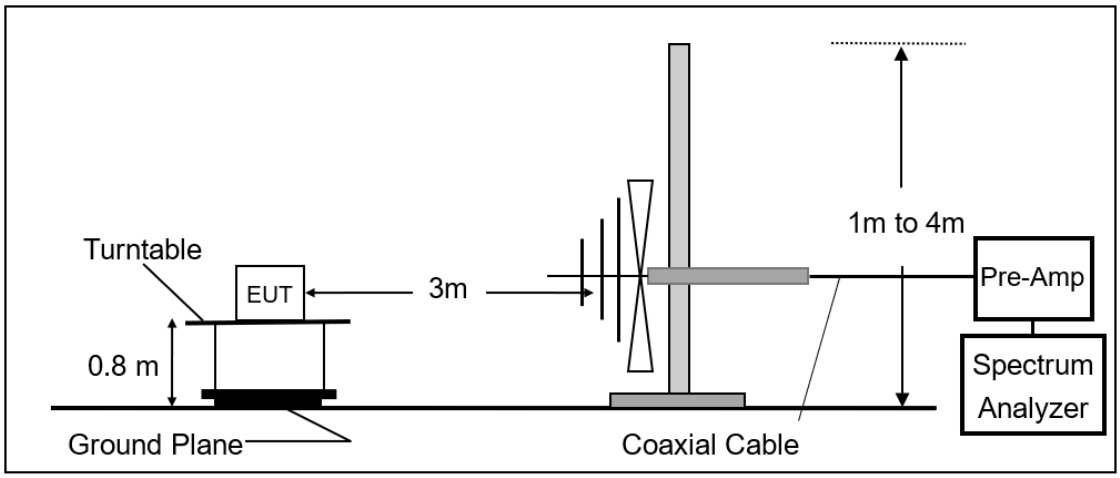
Note: *Measurement setup for testing on Antenna connector*

8.3 Out of Band Emission At Antenna Terminals

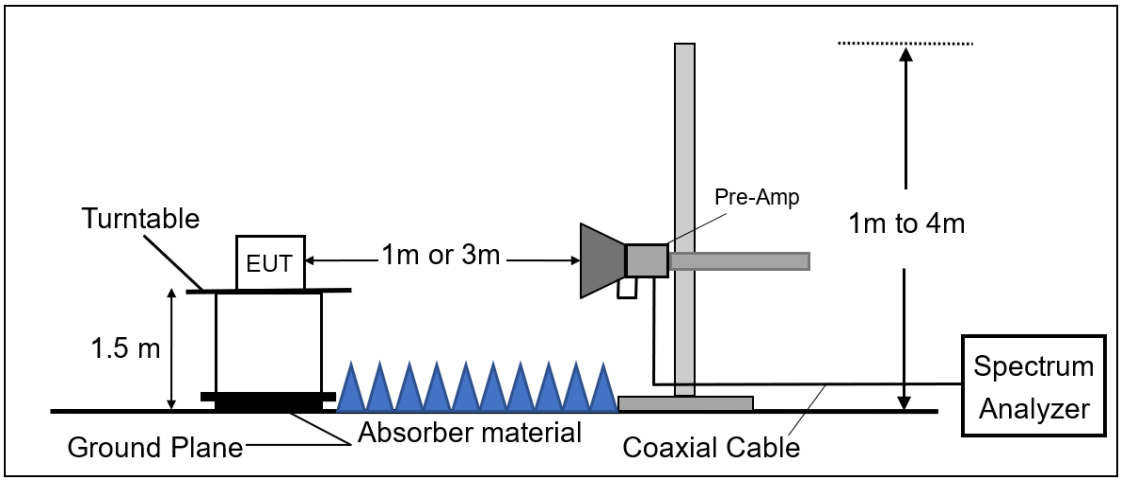


8.4 Field Strength of Spurious Radiation Measurement

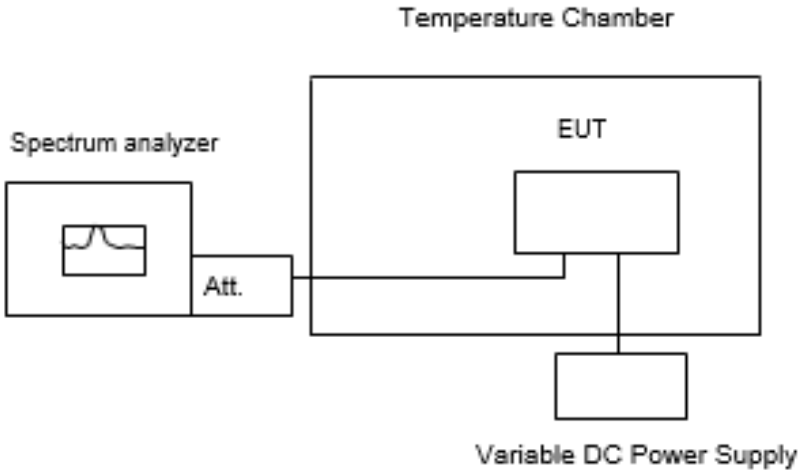
Radiated Emission Test Set-Up, Frequency From 30MHz to 1000MHz.



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

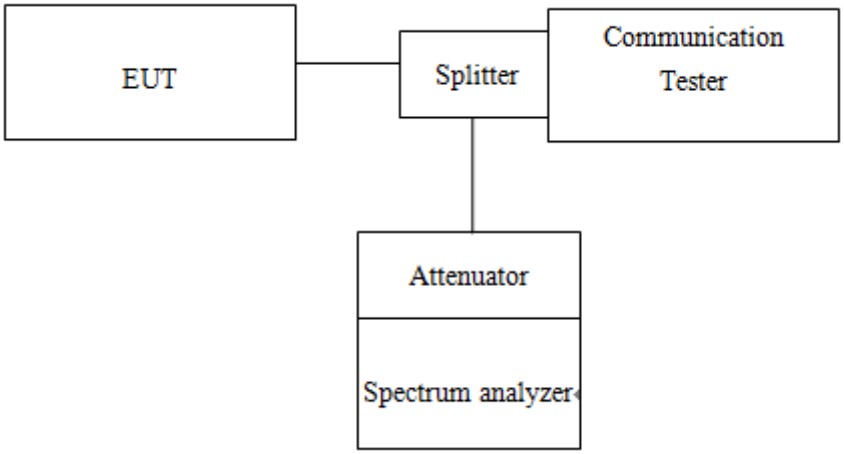


8.5 Frequency Stability Measurement



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 ~