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ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT





FCC Applicant: Telit Communications S.p.A.

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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: TERF2411003767ER

FCC ID RI7FE912C04NA

Date of EUT Received: November 26, 2024

Date of Test: November 27, 2024 ~ April 16, 2025

Issue Date: April 16, 2025

Approved By

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.

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Revision History										
Report Number	Report Number Revision		Issue Date	Revised By	Remark					
TERF2411003767ER	00	Original	March 11, 2025	Yuri Tsai						
TERF2411003767ER	01	Update test result	March 27, 2025	Yuri Tsai	*					
TERF2411003767ER	02	Update section1.4	April 8, 2025	Yuri Tsai	*					
TERF2411003767ER	03	Update test result	April 16, 2025	Yuri Tsai	*					

Note:

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

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GENERAL PRODUCT INFORMATION

1.1 **Product Description**

Product Name:	5G Radio Module
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Brand Name:	Telit Cinterion or
Model No.:	FE912C04-NA
Hardware Version:	1.00
Firmware Version:	M0V.010001
EUT Series No.:	357752690013656
Power Supply:	3.8 Vdc
Test Software (Name/Version)	Connect with Callbox

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Operation Frequency Range

LTE Band 2							
BW (MHz)	Operation	Freque	ency (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 Ban	d 4					
BW (MHz)	Operation	Freque	ency (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 Ban	d 5					
BW (MHz)	Operation	Freque	ency (MHz)				
1.4	824.7	-	848.3				
3	825.5	-	847.5				
5	826.5	-	846.5				
10	829.0	-	844.0				
	LTE Ban	rd 7					
BW (MHz)	Operation	Freque	ency (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 F	reque	ency (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 F	reque	ency (MHz)				
5	790.5	-	795.5				
10	793.0						
	LTE Band	17					
BW (MHz)	Operation F	reque	ency (MHz)				
5	706.5	-	713.5				
10	709.0	-	711.0				
	LTE Band	25					
BW (MHz)	Operation F	reque	ency (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				

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LTE Band 26 Part 90								
	LIE Band 201 art 30							
BW (MHz)	Operation Frequency (MI	Hz)						
1.4	814.7 - 823	.3						
3	815.5 - 822	.5						
5	816.5 - 821.	.5						
10	819.0							
	LTE Band 26							
BW (MHz)	Operation Frequency (MI	Hz)						
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 30							
BW (MHz)	Operation Frequency (MI	Hz)						
5	2307.5 - 2312	2.5						
10	2310.0							
	LTE Band 41							
BW (MHz)	Operation Frequency (MI	Hz)						
5	2498.5 - 2687	.5						
10	2501.0 - 2685	5.0						
15	2503.5 - 2682	.5						
20	2506.0 - 2680	0.0						

LTE Band 66						
BW (MHz)	Operation	Freque	ency (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 Ban	d 71				
BW (MHz)	Operation	Freque	ency (MHz)			
5	665.5	-	695.5			
10	688.0	-	693.0			
15	670.5	-	690.5			
20	673.0	-	688.0			

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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)	Antenna Gain (dBi)	TLB Line Loss (dB)	Final Gain (dBi)
LTE Band 2	1850~1910	3.09	0.7	2.39
LTE Band 4	1710~1755	3.09	0.7	2.39
LTE Band 5	824~849	0.58	0.3	0.28
LTE Band 7	2500~2570	1.69	0.8	0.89
LTE Band 12	699~716	-1.88	0.3	-2.18
LTE Band 13	777~787	-1.88	0.3	-2.18
LTE Band 14	788~798	-1.88	0.3	-2.18
LTE Band 17	704~716	-1.88	0.3	-2.18
LTE Band 25	1850~1915	3.09	0.7	2.39
LTE Band 26_P90s	814~824	-1.88	0.3	-2.18
LTE Band 26	824~849	0.58	0.3	0.28
LTE Band 30	2305~2315	1.69	0.8	0.89
LTE Band 41	2496~2690	1.69	0.8	0.89
LTE Band 66	1710~1780	3.09	0.7	2.39
LTE Band 71	663~698	0.14	0.3	-0.16

Note: Antenna information is provided by the applicant.

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

LTE Band	BY	Frequ	iency	Modulation ERP / EIRP (dBm)		(Y)	99%	Type of Emission											
Danu				QPSK	26.11	EIRP	0.408	1.0951	1M10G7D										
				16QAM	25.57	EIRP	0.361	1.0968	1M10D7W										
2	1.4	1850.7	1909.3	64QAM	24.38	EIRP	0.274	1.0910	1M09D7W										
				256QAM	21.45	EIRP	0.140	1.0910	1M09D7W										
				QPSK	26.02	EIRP	0.400	2.6977	2M70G7D										
	_	4054.5	4000 5	16QAM	25.32	EIRP	0.340	2.6965	2M70D7W										
2	3	1851.5	1908.5	64QAM	24.25	EIRP	0.266	2.6964	2M70D7W										
				256QAM	21.59	EIRP	0.144	2.6984	2M70D7W										
		1852.5		QPSK	26.09	EIRP	0.406	4.4925	4M49G7D										
2	5		1907.5	16QAM	25.23	EIRP	0.333	4.4942	4M49D7W										
2	5			64QAM	23.79	EIRP	0.239	4.4926	4M49D7W										
				256QAM	21.48	EIRP	0.141	4.4900	4M49D7W										
			1055.0											QPSK	26.12	EIRP	0.409	8.9792	8M98G7D
2	10	10		1905.0	16QAM	25.57	EIRP	0.361	8.9997	9M00D7W									
4		1855.0 1905.0 64QAM 24.40 EIRP 0.275	8.9896	8M99D7W															
				256QAM	21.45	EIRP	0.140	8.9818	8M98D7W										
				QPSK	26.32	EIRP	0.429	13.480	13M5G7D										
2	15	1057 5	1902.5	16QAM	25.35	EIRP	0.343	13.469	13M5D7W										
2	15	1857.5	1902.5	64QAM	24.25	EIRP	0.266	13.441	13M4D7W										
			256QAM	21.63	EIRP	0.146	13.474	13M5D7W											
				QPSK	26.45	EIRP	0.442	17.945	17M9G7D										
2	20	1860.0	1900.0	16QAM	25.44	EIRP	0.350	17.966	18M0D7W										
^	20	1000.0	1900.0	64QAM	24.53	EIRP	0.284	17.946	17M9D7W										
					256QAM	21.44	EIRP	0.139	17.984	18M0D7W									

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			_							
LTE Band	BW	Frequ	uency	M odulation	ERP / EIR	P (dBm)	(W)	99%	Type of Emission	
				QPSK	26.14	EIRP	0.411	1.0898	1M09G7D	
١,		47407	_	16QAM	25.60	EIRP	0.363	1.0945	1M09D7W	
4	1.4	1710.7	1754.3	64QAM	24.48	EIRP	0.281	1.0909	1M09D7W	
				256QAM	21.39	EIRP	0.138	1.0889	1M09D7W	
				QPSK	26.06	EIRP	0.404	2.6977	2M70G7D	
١,		4744.5	4750 5	16QAM	25.43	EIRP	0.349	2.6975	2M70D7W	
4	3	1711.5	1753.5	64QAM	24.13	EIRP	0.259	2.6925	2M69D7W	
				256QAM	21.45	EIRP	0.140	2.6961	2M70D7W	
				QPSK	26.08	EIRP	0.406	4.4941	4M49G7D	
	_	4740.5	4750 5	16QAM	25.27	EIRP	0.337	4.4959	4M50D7W	
4	5	1712.5	1752.5	64QAM	24.21	EIRP	0.264	4.4952	4M50D7W	
				256QAM	21.59	EIRP	0.144	4.4915	4M49D7W	
				QPSK	26.02	EIRP	0.400	8.9945	8M99G7D	
				16QAM	25.49	EIRP	0.354	9.0192	9M02D7W	
4	10	1715.0	1750.0	64QAM	24.32	EIRP	0.270	8.9910	8M99D7W	
				256QAM	21.54	EIRP	0.143	8.9879	8M99D7W	
				QPSK	26.33	EIRP	0.430	13.4860	13M5G7D	
		1717.5 174	1717.5	1717.5 1747.5	16QAM	25.59	EIRP	0.362	13.4830	13M5D7W
4	15				64QAM	24.31	EIRP	0.270	13.4660	13M5D7W
				256QAM	21.66	EIRP	0.147	13.4640	13M5D7W	
				QPSK	26.73	EIRP	0.471	17.9730	18M0G7D	
	00	1720.0	47450	16QAM	25.36	EIRP	0.344	17.9750	18M0D7W	
4	20		1745.0	64QAM	24.39	EIRP	0.275	17.9630	18M0D7W	
				256QAM	21.47	EIRP	0.140	17.9780	18M0D7W	
LTE Band	BW	Frequ	lency		ERP / EIR		(W)	99%	Type of Emission	
				QPSK	21.71	ERP	0.148	1.0914	1M09G7D	
_	4.4	004.7	040.0	16QAM	20.90	ERP	0.123	1.0940	1M09D7W	
5	1.4	824.7	848.3	64QAM	20.02	ERP	0.100	1.0894	1M09D7W	
				256QAM	17.14	ERP	0.052	1.0927	1M09D7W	
				QPSK	21.55	ERP	0.143	2.6976	2M70G7D	
_	•	005.5	047.5	16QAM	21.10	ERP	0.129	2.6943	2M69D7W	
5	3	825.5	847.5	64QAM	19.92	ERP	0.098	2.6966	2M70D7W	
				256QAM	17.23	ERP	0.053	2.6983	2M70D7W	
				QPSK	21.60	ERP	0.145	4.4958	4M50G7D	
_	_	000 5	846.5	16QAM	21.13	ERP	0.130	4.4945	4M49D7W	
5	5	826.5		64QAM	20.04	ERP	0.101	4.4971	4M50D7W	
				256QAM	17.13	ERP	0.052	4.4893	4M49D7W	
				QPSK	21.72	ERP	0.149	8.9883	8M99G7D	
_	40	000.0	044.0	16QAM	21.15	ERP	0.130	9.0044	9M00D7W	
5	10	0 829.0	829.0	.0 844.0	64QAM	19.89	ERP	0.097	8.9958	9M00D7W
				256QAM	17.18	ERP	0.052	8.9804	8M98D7W	

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LTE			_						Type of										
Band	BW	Frequ	iency	Modulation	ERP / EIR	P (dBm)	(W)	99%	Emission										
Bana				QPSK	24.45	EIRP	0.279	4.4974	4M50G7D										
_	_			16QAM	23.76	EIRP	0.238	4.4953	4M50D7W										
7	5	2502.5	2567.5	64QAM	22.72	EIRP	0.187	4.4976	4M50D7W										
				256QAM	19.87	EIRP	0.097	4.4943	4M49D7W										
				QPSK	24.48	EIRP	0.281	8.9834	8M98G7D										
_	4.0			16QAM	23.97	EIRP	0.249	9.0251	9M03D7W										
7	10	2505.0	2565.0	64QAM	23.13	EIRP	0.206	8.9949	8M99D7W										
				256QAM	19.92	EIRP	0.098	8.9909	8M99D7W										
				QPSK	24.84	EIRP	0.305	13.4910	13M5G7D										
_	4-	0505.5	0500 5	16QAM	24.05	EIRP	0.254	13.4760	13M5D7W										
7	15	2507.5	2562.5	64QAM	22.76	EIRP	0.189	13.4560	13M5D7W										
				256QAM	19.97	EIRP	0.099	13.4690	13M5D7W										
				QPSK	24.65	EIRP	0.292	17.9560	18M0G7D										
_	00	0540.0	0500.0	16QAM	23.90	EIRP	0.245	17.9450	17M9D7W										
7	20	2510.0	2560.0	64QAM	22.71	EIRP	0.187	17.9510	18M0D7W										
				256QAM	19.98	EIRP	0.100	17.9710	18M0D7W										
LTE	DW	-			EDD / EID	D (I D)	(14.0)	000/	Type of										
Band	BW	Frequency		Modulation	ERP / EIR	P (aBm)	(W)	99%	Emission										
				QPSK	19.33	ERP	0.086	1.0909	1M09G7D										
40	4.4	COO 7	245.0	16QAM	18.64	ERP	0.073	1.0939	1M09D7W										
12	1.4	699.7 715	099.7	099.7	715.3	64QAM	17.38	ERP	0.055	1.0906	1M09D7W								
				256QAM	14.73	ERP	0.030	1.0893	1M09D7W										
				QPSK	19.20	ERP	0.083	2.6938	2M69G7D										
12	3	700.5	714.5	16QAM	18.57	ERP	0.072	2.6987	2M70D7W										
12			7 14.5	64QAM	17.52	ERP	0.056	2.6965	2M70D7W										
				256QAM	14.74	ERP	0.030	2.6968	2M70D7W										
				QPSK	19.16	ERP	0.082	4.5024	4M50G7D										
12	5	701.5	713.5	16QAM	18.67	ERP	0.074	4.4913	4M49D7W										
12)	701.5	713.3	64QAM	17.68	ERP	0.059	4.4943	4M49D7W										
				256QAM	14.74	ERP	0.030	4.4906	4M49D7W										
				QPSK	19.30	ERP	0.085	8.9810	8M98G7D										
12	10	704.0	711.0	16QAM	18.62	ERP	0.073	8.9866	8M99D7W										
12	10	704.0	711.0	64QAM	17.36	ERP	0.054	8.9888	8M99D7W										
				256QAM	14.74	ERP	0.030	8.9817	8M98D7W										
LTE	BW	Frequ	lonev	Modulation	ERP / EIR	D (dDm)	(W)	99%	Type of										
Band	DVV	riequ	иенсу	IVIOdulation	ERF / EIR	r (ubili)	(۷۷)	99 /6	Emission										
				QPSK	19.21	ERP	0.083	4.4937	4M49G7D										
13	5	779.5	9.5 784.5	16QAM	18.61	ERP	0.073	4.4890	4M49D7W										
13		113.3		64QAM	17.47	ERP	0.056	4.4883	4M49D7W										
				256QAM	14.77	ERP	0.030	4.4870	4M49D7W										
				QPSK	19.22	ERP	0.084	8.9652	8M97G7D										
13	10	782.0	782.0	16QAM	18.93	ERP	0.078	8.9592	8M96D7W										
'3	10	102.0	102.0	64QAM	17.35	ERP	0.054	8.9446	8M94D7W										
														256QAM	14.75	ERP	0.030	8.9548	8M95D7W

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LTE	BW	Frequ	uency	M odulation	ERP / EIR	P (dBm)	(W)	99%	Type of								
Band				ODOK	40.00	LEDD	0.004	4.4000	Emission								
				QPSK	19.22	ERP	0.084	4.4922	4M49G7D								
14	5	790.5	795.5	16QAM	18.53	ERP	0.071	4.4938	4M49D7W								
				64QAM	17.64	ERP	0.058	4.4958	4M50D7W								
				256QAM	14.71	ERP	0.030	4.4891	4M49D7W								
				QPSK	19.10	ERP	0.081	8.9542	8M95G7D								
14	10	793.0	793.0	16QAM	18.40	ERP	0.069	8.9675	8M97D7W								
				64QAM	17.39	ERP	0.055	8.9571	8M96D7W								
				256QAM	14.75	ERP	0.030	8.9560	8M96D7W								
LTE	BW	Frequ	uency	M odulation	ERP / EIR	P (dBm)	(W)	99%	Type of								
Band		'	,			`			Emission								
				QPSK	19.21	ERP	0.083	4.4949	4M49G7D								
17	5	706.5	713.5	16QAM	18.58	ERP	0.072	4.4937	4M49D7W								
				64QAM	17.73	ERP	0.059	4.4924	4M49D7W								
				256QAM	14.79	ERP	0.030	4.4928	4M49D7W								
				QPSK	19.23	ERP	0.084	8.9836	8M98G7D								
17	10	709.0	711.0	16QAM	18.78	ERP	0.076	9.0209	9M02D7W								
		700.0	•	64QAM	17.44	ERP	0.055	8.9793	8M98D7W								
				256QAM	14.78	ERP	0.030	8.9766	8M98D7W								
LTE	BW	Frequ	iency	Modulation	ERP / EIR	P (dBm)	(W)	99%	Type of								
Band	D * * *	11090				. ` ′			Emission								
				QPSK	26.13	EIRP	0.410	1.0922	1M09G7D								
25	1.4	1850.7	1914.3	16QAM	25.61	EIRP	0.364	1.0960	1M10D7W								
20	1	1000.7		1000.1	1000.7	1000.7	1000.7	1000.7	1000.7	1000.7	1314.0	64QAM	24.55	EIRP	0.285	1.0896	1M09D7W
				256QAM	21.47	EIRP	0.140	1.0879	1M09D7W								
				QPSK	26.22	EIRP	0.419	2.6938	2M69G7D								
25	3	1851.5	1913.5	16QAM	25.32	EIRP	0.340	2.6961	2M70D7W								
20		1001.0	1310.0	64QAM	24.20	EIRP	0.263	2.6953	2M70D7W								
				256QAM	21.53	EIRP	0.142	2.6988	2M70D7W								
				QPSK	26.04	EIRP	0.402	4.4922	4M49G7D								
25	5	1852.5	1912.5	16QAM	25.27	EIRP	0.337	4.4936	4M49D7W								
20	J	1002.0	1312.3	64QAM	24.47	EIRP	0.280	4.4888	4M49D7W								
				256QAM	21.51	EIRP	0.142	4.4882	4M49D7W								
				QPSK	26.07	EIRP	0.405	8.9862	8M99G7D								
25	10	1855.0	1010.0	16QAM	25.48	EIRP	0.353	9.0196	9M02D7W								
20	10	1000.0	1910.0	64QAM	24.22	EIRP	0.264	9.0105	9M01D7W								
				256QAM	21.58	EIRP	0.144	8.9777	8M98D7W								
	15 1957.5		QPSK	26.33	EIRP	0.430	13.4700	13M5G7D									
25		1007 5	16QAM	25.61	EIRP	0.364	13.4630	13M5D7W									
25	15	1857.5	7.5 1907.5	64QAM	24.58	EIRP	0.287	13.4500	13M5D7W								
				256QAM	21.56	EIRP	0.143	13.4560	13M5D7W								
				QPSK	26.39	EIRP	0.436	17.9360	17M9G7D								
0.5	20	1000.0	1005.0	16QAM	25.44	EIRP	0.350	17.9490	17M9D7W								
25	20	1860.0	1905.0	64QAM	24.60	EIRP	0.288	17.9590	18M0D7W								
				256QAM	21.50	EIRP	0.141	17.9390	17M9D7W								

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	ı		_	1									
LTE	BW	Frequ	iencv	Modulation	ERP / EIR	P (dBm)	(W)	99%	Type of				
Band		1.090				` ′	. ,		Emission				
26				QPSK	19.29	ERP	0.085	1.0910	1M09G7D				
Part	1.4	814.7	823.3	16QAM	18.73	ERP	0.075	1.0966	1M10D7W				
90		011.7	020.0	64QAM	17.48	ERP	0.056	1.0899	1M09D7W				
				256QAM	14.81	ERP	0.030	1.0890	1M09D7W				
26				QPSK	19.19	ERP	0.083	2.6967	2M70G7D				
Part	3	815.5	822.5	16QAM	18.46	ERP	0.070	2.6934	2M69D7W				
90		010.0	022.0	64QAM	17.67	ERP	0.058	2.7001	2M70D7W				
				256QAM	14.78	ERP	0.030	2.6970	2M70D7W				
26				QPSK	19.28	ERP	0.085	4.4977	4M50G7D				
Part	5	816.5	821.5	16QAM	18.62	ERP	0.073	4.4941	4M49D7W				
90	J	010.5	021.5	64QAM	17.70	ERP	0.059	4.4982	4M50D7W				
30				256QAM	14.76	ERP	0.030	4.4898	4M49D7W				
26				QPSK	19.36	ERP	0.086	8.9834	8M98G7D				
Part	10	819.0	819.0	16QAM	18.72	ERP	0.074	9.0228	9M02D7W				
90		019.0	019.0	64QAM	17.36	ERP	0.054	8.9837	8M98D7W				
90				256QAM	14.78	ERP	0.030	8.9721	8M97D7W				
LTE	LTE BW Frequency		Madulation	EDD / EID	D (dDm)	(W) 99%	00%	Type of					
Band	DVV	riequ	lency	Modulation	ERP / EIR	P (UDIII)	(VV)	9970	Emission				
				QPSK	21.98	ERP	0.158	1.0891	1M09G7D				
26	1 1 004 7	824.7 848.3	16QAM	21.09	ERP	0.129	1.0942	1M09D7W					
20	1.4	024.7	040.3	64QAM	19.98	ERP	0.100	1.0925	1M09D7W				
				256QAM	17.23	ERP	0.053	1.0929	1M09D7W				
								QPSK	21.67	ERP	0.147	2.6974	2M70G7D
26	3	825.5	847.5	16QAM	21.04	ERP	0.127	2.6995	2M70D7W				
20	٥	020.0	047.3	64QAM	20.09	ERP	0.102	2.6964	2M70D7W				
				256QAM	17.17	ERP	0.052	2.6954	2M70D7W				
				QPSK	21.65	ERP	0.146	4.4914	4M49G7D				
00	_	000 5	046.5	16QAM	21.14	ERP	0.130	4.4944	4M49D7W				
26	5	826.5	846.5	64QAM	20.09	ERP	0.102	4.4933	4M49D7W				
				256QAM	17.23	ERP	0.053	4.4889	4M49D7W				
				QPSK	21.86	ERP	0.153	8.9752	8M98G7D				
00	10	000.0	044.0	16QAM	21.19	ERP	0.132	8.9901	8M99D7W				
20	26 10	829.0	844.0	64QAM	19.98	ERP	0.100	8.9827	8M98D7W				
				256QAM	17.21	ERP	0.053	8.9858	8M99D7W				
				QPSK	22.02	ERP	0.159	13.4770	13M5G7D				
00	15	024.5	044.5	16QAM	20.92	ERP	0.124	13.4820	13M5D7W				
26	15	831.5	841.5	64QAM	20.12	ERP	0.103	13.4680	13M5D7W				
				256QAM	17.28	ERP	0.053	13.4610	13M5D7W				

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LTE Band	BW	Frequ	iency	M odulation	ERP / I (dBm/5		(W)	99%	Type of Emission								
				QPSK	23.19	EIRP	0.208	4.4942	4M49G7D								
	_	0007.5	0040.5	16QAM	22.40	EIRP	0.174	4.4924	4M49D7W								
30	5	2307.5	2312.5	64QAM	21.55	EIRP	0.143	4.4937	4M49D7W								
				256QAM	18.32	EIRP	0.068	4.4867	4M49D7W								
				QPSK	23.15	EIRP	0.207	8.9986	9M00G7D								
30	10	2310.0	2310.0	16QAM	22.39	EIRP	0.173	9.0171	9M02D7W								
30	10	2310.0	2310.0	64QAM	21.33	EIRP	0.136	8.9903	8M99D7W								
				256QAM	18.28	EIRP	0.067	8.9860	8M99D7W								
LTE	BW	Erogi	ionev/	Madulation	ERP / EIR	D (dBm)	(W)	99%	Type of								
Band	DVV	BW Frequency		IVIOQUIATION	ERF / EIR	r (ubili)	(۷۷)	9976	Emission								
			2498.5 2687.5	QPSK	27.04	EIRP	0.506	4.4962	4M50G7D								
41	41 5	2498.5		16QAM	26.15	EIRP	0.412	4.4917	4M49D7W								
41	J			2007.5	64QAM	25.23	EIRP	0.333	4.4910	4M49D7W							
				256QAM	22.22	EIRP	0.167	4.5000	4M50D7W								
												QPSK	27.07	EIRP	0.509	8.9887	8M99G7D
41	10	2501.0	2685.0	16QAM	26.22	EIRP	0.419	9.0015	9M00D7W								
"'	10	2001.0	2005.0	64QAM	25.30	EIRP	0.339	8.9826	8M98D7W								
				256QAM	22.17	EIRP	0.165	8.9980	9M00D7W								
				QPSK	27.24	EIRP	0.530	13.4440	13M4G7D								
41	15	2503.5	2682.0	16QAM	26.15	EIRP	0.412	13.4700	13M5D7W								
"'	41 13	2503.5	2002.0	64QAM	25.29	EIRP	0.338	13.4860	13M5D7W								
				256QAM	22.35	EIRP	0.172	13.4670	13M5D7W								
				QPSK	26.99	EIRP	0.500	17.9510	18M0G7D								
41	20	2506.0	2680.0	16QAM	26.27	EIRP	0.424	17.9170	17M9D7W								
"'	20	2000.0	2000.0	64QAM	25.20	EIRP	0.331	17.9390	17M9D7W								
				256QAM	22.19	EIRP	0.166	17.9420	17M9D7W								

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			•											
LTE	BW	Frequ	ionov.	Modulation	ERP /	EIRP	(\A/\	99%	Type of					
Band	DVV	i iequ	Епсу	Modulation	(dB	m)	(W)	99 /6	Emission					
				QPSK	26.16	EIRP	0.413	1.0893	1M09G7D					
66	1.4	1710.7	1779.3	16QAM	25.61	EIRP	0.364	1.0932	1M09D7W					
00	1.4	17 10.7	1779.3	64QAM	24.54	EIRP	0.284	1.0910	1M09D7W					
				256QAM	21.66	EIRP	0.147	1.0918	1M09D7W					
				QPSK	26.08	EIRP	0.406	2.6949	2M69G7D					
66	3	1711 5	1778.5	16QAM	25.40	EIRP	0.347	2.6980	2M70D7W					
66	J	1711.5	1//0.5	64QAM	24.40	EIRP	0.275	2.6965	2M70D7W					
				256QAM	21.56	EIRP	0.143	2.6936	2M69D7W					
				QPSK	26.08	EIRP	0.406	4.4954	4M50G7D					
00	_	4740 5	4777 5	16QAM	25.52	EIRP	0.356	4.4913	4M49D7W					
66	5	1712.5	1777.5	64QAM	24.39	EIRP	0.275	4.4982	4M50D7W					
				256QAM	21.52	EIRP	0.142	4.4868	4M49D7W					
				QPSK	26.13	EIRP	0.410	8.9806	8M98G7D					
00	40	4745.0	4775.0	16QAM	25.71	EIRP	0.372	9.0072	9M01D7W					
66	10	1715.0	1775.0	64QAM	24.45	EIRP	0.279	9.0067	9M01D7W					
				256QAM	21.47	EIRP	0.140	8.9861	8M99D7W					
							QPSK	26.32	EIRP	0.429	13.4720	13M5G7D		
00	4.5	4747.5	17.5 1772.5	16QAM	25.56	EIRP	0.360	13.4810	13M5D7W					
66	66 15	1717.5		64QAM	24.79	EIRP	0.301	13.4730	13M5D7W					
				256QAM	21.47	EIRP	0.140	13.4840	13M5D7W					
				QPSK	26.53	EIRP	0.450	17.9660	18M0G7D					
	00	4=00.0		4770.0	16QAM	25.31	EIRP	0.340	17.9370	17M9D7W				
66	20	1720.0	1720.0	1720.0	1720.0	1720.0	1720.0	1770.0	64QAM	24.33	EIRP	0.271	17.9780	18M0D7W
				256QAM	21.46	EIRP	0.140	18.0130	18M0D7W					
LTE	5147	_				1			Type of					
Band	BW	Frequ	iency	Modulation	ERP / EIR	P(dBm)	(W)	99%	Emission					
				QPSK	21.31	ERP	0.135	4.4919	4M49G7D					
71	5	665.5	695.5	16QAM	20.53	ERP	0.113	4.4929	4M49D7W					
' '	J	000.0	090.0	64QAM	19.52	ERP	0.090	4.4974	4M50D7W					
				256QAM	16.64	ERP	0.046	4.4919	4M49D7W					
				QPSK	21.38	ERP	0.137	8.9765	8M98G7D					
71	10	668.0	693.0	16QAM	20.75	ERP	0.119	8.9982	9M00D7W					
				64QAM	19.40	ERP	0.087	8.9879	8M99D7W					
				256QAM	16.52	ERP	0.045	8.9684	8M97D7W					
				QPSK 16QAM	21.48	ERP ERP	0.141 0.119	13.4530 13.4700	13M5G7D 13M5D7W					
71	15	670.5	690.5	64QAM	19.59	ERP	0.119	13.4610	13M5D7W					
					256QAM	16.61	ERP	0.031	13.4390	13M4D7W				
				QPSK	21.65	ERP	0.146	17.9210	17M9G7D					
74	00	070.0	000.0	16QAM	20.58	ERP	0.114	17.9360	17M9D7W					
71	20	673.0	688.0	64QAM	19.83	ERP	0.096	17.9520	18M0D7W					
				256QAM	16.58	ERP	0.045	17.9510	18M0D7W					

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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 Designa- tion number	IC CAB identifier
		SAC 1		
		SAC 2		
		SAC 3		0027 TW3702
	No 124 Wu Kung Bood New Toingi	Conduction 1		
	No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New	Conducted 1	TW0027	
	Taipei City, Taiwan.	Conducted 2	1 440027	
	Taiper City, Taiwan.	Conducted 3		
		Conducted 4		
		Conducted 5		
SGS Taiwan Ltd.		Conducted 6		
Central RF Lab.		Conduction C		
(TAF code 3702)		SAC C		
		SAC D		
		SAC G		r identifier
	No.2, Keji 1st Rd., Guishan District,	Conducted A		
	Taoyuan City, Taiwan 333	Conducted B	TW0028	
	laoyuan City, Taiwan 555	Conducted C		
		Conducted D		TW3702
		Conducted E]	
		Conducted F		ļ
		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.

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No.134,Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan/新北市五股區新北產業園區五工路 134 號

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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.

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2.5 Final Amplifier Voltage and Current Information:

LTE Band 2

Test mode	DC voltage	DC current
165t IIIOGE	(V)	(mA)
LTE Band 2_20M	3.8	370
QPSK	3.0	370

LTE Band 4

Test mode	DC voltage (V)	DC current (mA)
LTE Band 4_20M QPSK	3.8	480

LTE Band 5

Test mode	DC voltage (V)	DC current (mA)
LTE Band 5_10M QPSK	3.8	480

LTE Band 7

Test mode	DC voltage (V)	DC current (mA)
LTE Band 7_20M QPSK	3.8	490

LTE Band 12

Test mode	DC voltage (V)	DC current (mA)
LTE Band 12_10M QPSK	3.8	470

LTE Band 13

Test mode	DC voltage (V)	DC current (mA)
LTE Band 13_10M QPSK	3.8	430

LTE Band 14

Test mode	DC voltage	DC current
TOST THOUG	(V)	(mA)
LTE Band 14_10M	3.8	420
QPSK	0.0	120

LTE Band 17

Test mode	DC voltage (V)	DC current (mA)
LTE Band 17_10M QPSK	3.8	470

LTE Band 25

Test mode	DC voltage (V)	DC current (mA)
LTE Band 25_20M QPSK	3.8	470

LTE Band 26 for Part 90S

Test Mode	DC voltage (V)	DC current (mA)
LTE Band 26_10M QPSK	3.8	490

LTE Band 26

Test mode	DC voltage (V)	DC current (mA)
LTE Band 26_15M QPSK	3.8	490

LTE Band 30

Test mode	DC voltage (V)	DC current (mA)
LTE Band 30_10M QPSK	3.8	530

LTE Band 41

Test Mode	DC voltage (V)	DC current (mA)
LTE Band 41_20M QPSK	3.8	430

LTE Band 66

Test mode	DC voltage	DC current
163t mode	(V)	(mA)
LTE Band 66_20M	3.8	460
QPSK	3.0	400

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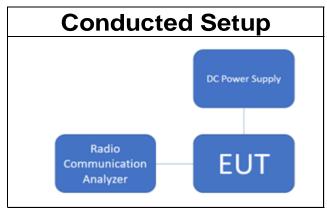


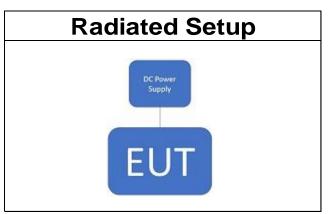
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LTE Band 71

Test mode	DC voltage	DC current
rest mode	(V)	(mA)
LTE Band 71_20M	3.8	470
QPSK	3.0	470

2.6 **Test Configuration**





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

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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) §27.50(b)(9) §27.50(c)(9) §27.50(d)(4) §27.50(h)(2) §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)(4)(6) §90.691(a) §90.691(a)	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(c)(2),(4) §27.53(a)(4) §27.53(g) §27.53(h)(1)&(3) §27.53(m)(4) §90.543 (f) §90.691(a)	Field Strength of Spurious Radiation	Compliant
§22.913(d) §24.232(d) §27.50(a)(1)(B)	Peak to Average Ratio	Compliant
§2.1055(a)(1) §22.355 §24.235 §27.54 §90.539(e)	Frequency Stability	Compliant

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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 Ite	ms							Max.	Output F	Power							
	Tes	st Chani	nel		E	Bandwid	th (MHz	n (MHz)				Modulation				RB#		
Band	L	М	Н	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full		
2	V	٧	٧	٧	٧	٧	٧	٧	٧	٧	٧	٧	٧	٧	٧	٧		
4	V	٧	٧	٧	٧	٧	٧	٧	٧	٧	V	٧	V	٧	٧	٧		
5	V	٧	٧	٧	٧	٧	٧	-		٧	٧	٧	V	٧	٧	٧		
7	V	٧	٧	-	-	٧	٧	٧	٧	٧	٧	٧	V	٧	٧	٧		
12	V	V	V	V	V	V	V	-	-	٧	V	V	V	V	٧	V		
13	V	V	V	-	-	V	V	-	-	V	V	V	V	V	٧	V		
14	V	V	V	-	-	V	V	-	-	V	V	V	V	V	٧	V		
17	V	V	V	-	-	V	V	-	-	V	V	V	V	V	V	V		
25	V	V	V	٧	V	V	V	V	V	V	V	V	V	V	V	V		
26	V	٧	V	٧	V	V	V	V	-	٧	V	V	V	V	٧	V		
26 P90	V	٧	V	٧	V	V	V	-	-	٧	V	V	V	V	٧	V		
30	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		
66	V	V	V	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 Ite	ms							Freq	ency Sta	bility							
2	-	V	-	-	-	-	V	-	-	٧	-	-	-	-	-	V		
4	-	V	-	-	-	-	V	-	-	٧	-	-	-	-	-	٧		
5	-	٧	-	-	-	-	V	-	-	٧	-	-	-	-	-	V		
7	-	٧	-	-	-	-	V	-	-	٧	-	-	-	-	-	V		
12	-	٧	-	-	-	-	V	-	-	V	-	-	-	-	-	V		
13	-	V	-	-	-	-	V	-	-	٧	-	-	-	-	-	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	-	-	-	-	-	٧		
30	-	V	-	-	-	-	V	-	-	V	-	-	-	-	-	V		
41	-	V	-	-	-	-	V	-	-	٧	-	-	-	-	-	٧		
66	-	V	-	-	-	-	V	-	-	٧	-	-	-	-	-	٧		
71	-	٧	-	-	-	-	V	-	-	٧	-	-	-	-	-	٧		

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	Test Ite	me								dB and 9						
	iest ite	1113							В	andwid	th					
Band	Tes	st Chani	nel		E	Bandwid	th (MHz)			Modu	lation		RB#		
Danu	L	М	Н	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full
2	٧	٧	٧	٧	٧	٧	٧	٧	٧	٧	٧	٧	V	-	-	٧
4	٧	٧	٧	٧	٧	٧	٧	٧	٧	٧	٧	٧	٧	-	-	٧
5	V	٧	V	V	V	V	V	-	-	٧	V	V	V	-	-	V
7	V	٧	V	-	-	V	V	V	V	٧	V	V	V	-	-	٧
12	V	V	٧	V	V	V	V	-	-	٧	V	V	V	-	-	V
13	V	V	V	-	-	V	V	-	-	٧	V	V	V	-	-	V
14	V	V	V	-	-	V	V	-	-	٧	V	V	V	-	-	V
17	٧	V	٧	-	-	V	V	-	-	V	V	V	V	-	-	٧
25	V	V	٧	V	V	V	V	V	V	V	V	V	V	-	-	V
26	V	V	V	V	V	V	V	V	-	٧	V	V	V	-	-	V
26 P90	V	٧	V	٧	V	V	٧	-	-	٧	V	V	V	-	-	٧
30	V	٧	V	-	-	V	٧	-	-	٧	V	V	V	-	-	٧
41	V	V	V	-	-	V	V	V	٧	V	V	V	V	-	-	V
66	V	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
	Test Ite	ms							Peak-to	-Av eraç	je Ratio					
2	٧	٧	٧	٧	٧	٧	٧	٧	٧	-	-	-	V	-	-	٧
4	٧	٧	٧	٧	٧	٧	٧	٧	٧	-	-	•	٧	-	-	٧
5	٧	٧	٧	٧	٧	٧	٧	•	-	-	-	ı	٧	-	-	٧
7	٧	٧	٧	-	ı	٧	٧	٧	٧	-	-	ı	٧	-	-	٧
12	٧	٧	٧	٧	V	٧	٧	-	-	-	-	-	٧	-	-	٧
13	V	٧	٧	-	-	V	V	-	-	-	-	-	V	-	-	٧
14	V	V	٧	-	-	V	V	-	-	-	-	-	V	-	-	٧
17	V	V	٧	-	-	V	V	-	-	-	-	-	V	-	-	٧
25	V	٧	٧	٧	V	٧	V	V	V	-	-	-	V	-	-	٧
26	V	V	٧	٧	V	V	V	V	-	-	-	-	V	-	-	٧
26 P90	V	٧	٧	٧	V	V	V	-	-	-	-	-	V	-	-	٧
30	V	٧	٧	-	-	V	V	-	-	-	-	-	V	-	-	V
41	V	V	٧	-	-	V	V	V	V	-	-	-	V	-	-	٧
66	V	٧	٧	٧	V	V	V	V	V	-	-	-	V	-	-	٧
71	٧	٧	٧	-	-	٧	٧	٧	٧	-	-	-	٧	-	-	٧

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	Test Iter	ne							R	and Edg	10					
	iest itei	113							D	and Lug	je					
	Tes	t Chani	nel		E	Bandwid	th (MHz)			Modu	lation		RB#		
Band	L	М	Н	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full
2		-	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	٧	-	٧	-	-	٧	٧	٧	٧	٧	-	-	-	٧	٧	٧
12	٧	-	٧	٧	٧	٧	٧	-	-	٧	-	-	-	٧	٧	٧
13	٧	-	٧	-	-	٧	٧	-	-	٧	-	-	-	٧	V	٧
14	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
30	V	-	V	-	-	V	V	-	-	V	-	-	-	V	V	V
41	V	-	V	-	-	V	V	V	V	V	-	-	-	V	V	V
66 71	V	-	V	V -	V -	V	V	V	V	V	-	-	-	V	V	V
	V	-	V	-	-	V	V	V	V	V	-	-		<u>V</u>	V	V
	Test Iter	ns							Condu	icted En	nission					
2	٧	٧	٧	-	-	-	-	-	٧	٧	-	-	-	٧	-	-
4	٧	٧	٧	-	-	-	-	•	٧	٧	-	-	-	٧	-	-
5	V	V	V	-	-	-	٧	-	-	٧	-	-	-	V	-	-
7	V	V	V	-	-	-	-	V	-	V	-	-	-	V	-	-
12	V	V	V	V	-	-	-	-	-	٧	-	-	-	V	-	-
13	V	V	V	-	-	-	V	-	-	V	-	-	-	V	-	-
14	V	V	V	-	-	V	-	-	-	V	-	-	-	V	-	-
17	V	V	V	-	-	-	V	-	-	V	-	-	-	V	-	-
25 26	V	V	V	-	-	-	-	-	V	V	-	-	-	V	-	-
26 P90	V	V V	V	-	-	-	- V	V -	-	V			-	V	-	-
30	V	V	V	-	-	- V	_ v	-	-	V	-	-	-	V 	-	-
41	V	V	V	-	-	-		V	-	v	-	_	-			
66	V	V	V	-	-	-	-	-	V	V	-	-	-	V	-	-
71	V	V	V	-	-	-	-	-	V	v	-	-	-	V	-	-
	Test Iter	ns							Radia	ted Emi	ssion					
		t Chanı	nel		F	Bandwid	th (MHz	<u> </u>			Modu	lation			RB#	
Band	L	М	Н	1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full
2	V	V	٧	-	-	-	-	-	٧	V	-	-	-	V	-	-
4	V	V	V	-	-	-	-	-	V	V	-	-	-	٧	_	-
5	٧	٧	٧	-	-	-	٧	-	-	٧	-	-	-	٧	-	-
7	٧	V	٧	-	-	-	-	V	-	٧	-	-	-	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 41	V	V	V	-	-	V	-		-	V	-	-	-	V	-	-
66	V	V	V	-	-	-	-	V -	- V	V	-	-	-	V	-	-
71	V	V	V	-	-	-	-	-	V	V	-	-	-		-	-
	, V	V	V	-	_	-	-	-	V	L V	-	-	-	V	-	-

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E-UTRA Band	Test Channel	Channel Bandwidth (MHz)	Modulation	Resource Block Allocation	
		` ′		RBs allocated	RB Offset
2	18700	20	QPSK	1	0
2	18900	20	QPSK	1	0
2	19100	20	QPSK	1	0
4	20050	20	QPSK	1	0
4	20175	20	QPSK	1	0
4	20300	20	QPSK	1	0
5	20450	10	QPSK	1	0
5	20525	10	QPSK	1	0
5	20600	10	QPSK	1	0
7	20825	15	QPSK	1	0
7	21100	15	QPSK	1	0
7	21375	15	QPSK	1	0
12	23017	1.4	QPSK	1	0
12	23095	1.4	QPSK	1	0
12	23173	1.4	QPSK	1	0
13	23230	10	QPSK	1	0
14	23305	5	QPSK	1	0
14	23330	5	QPSK	1	0
14	23355	5	QPSK	1	0
17	23780	10	QPSK	1	0
17	23790	10	QPSK	1	0
17	23800	10	QPSK	1	0
25	26140	20	QPSK	1	0
25	26365	20	QPSK	1	0
25	26590	20	QPSK	1	0
26 Part 90S	26740	10	QPSK	1	0
26	26865	15	QPSK	1	0
26	26915	15	QPSK	1	0
26	26965	15	QPSK	1	0
30	27685	5	QPSK	1	0
30	27710	5	QPSK	1	0
30	27735	5	QPSK	1	0
41	39725	15	QPSK	1	0
41	39765	15	QPSK	1	0
41	40620	15	QPSK	1	0
41	41515	15	QPSK	1	0
66	132072	20	QPSK	1	0
66	132322	20	QPSK	1	0
66	132572	20	QPSK	1	0
71	133222	20	QPSK	1	0
71	133297	20	QPSK	1	0
71	133372	20	QPSK	1	0
			_, _,	-	

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MEASUREMENT UNCERTAINTY

Test Items	Und	certair	nty
Power Density	+/-	0.61	dB
RF Power Output	+/-	0.97	dB
CDD/ CIDD magazirement		2.15	dB
ERP/ EIRP measurement	+/-	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				
	+/-	1.89	dB	9kHz~30MHz
Polarization: Vertical	+/-	4.15	dB	30MHz - 1000MHz
Polarization. Vertical	+/-	3.43	dB	1GHz - 18GHz
	+/-	3.86	dB	18GHz - 40GHz
	+/-	1.89	dB	9kHz~30MHz
Polarization: Horizontal	+/- 4.02 dB 30MH	30MHz - 1000MHz		
Polarization: Horizontal	+/-	3.43	dB	1GHz - 18GHz
	+/-	3.86	dB	18GHz - 40GHz
	+/-	2	dB	33GHz-50GHz
	+/-	1.59	dB	50GHz-60GHz
Radiated Spurious Emission	+/-	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.

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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	SPD-3606	GEW923151	05/16/2024	05/15/2025
DC Power Supply	Gwinstek	SPS-3610	GEV856750	08/14/2024	08/13/2025
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

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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 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	Anritsu	MT8821C	6262044751	11/04/2024	11/03/2025
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.

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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.

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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,

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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.

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(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 log₁₀ (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

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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 §90.691 Emission mask requirements for EA-based systems

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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.

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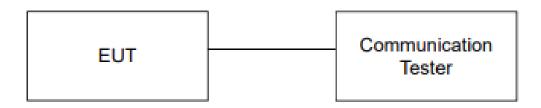
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TEST SETUP

8.1 **Maximum Output Power**



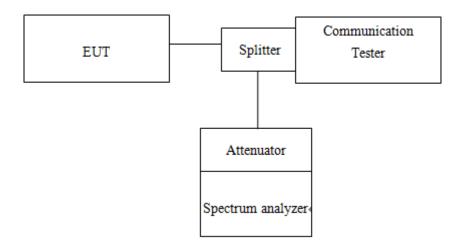
Note: Measurement setup for testing on Antenna connector

Occupied Bandwidth Measurement 8.2



Note: Measurement setup for testing on Antenna connector

Out of Band Emission At Antenna Terminals 8.3



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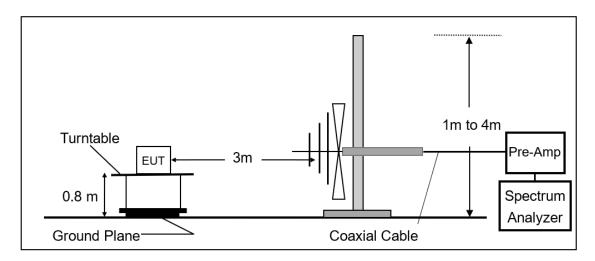
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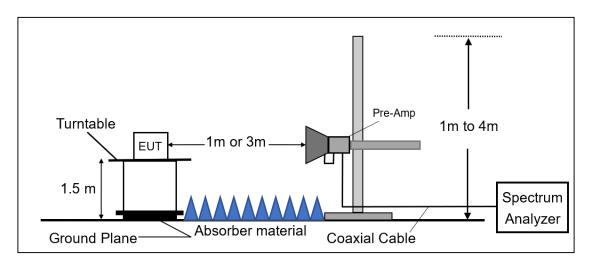
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Field Strength of Spurious Radiation Measurement

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



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



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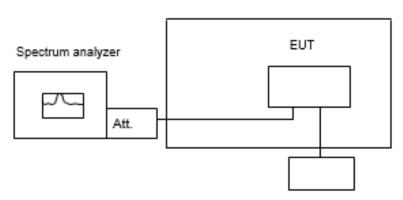
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Frequency Stability Measurement

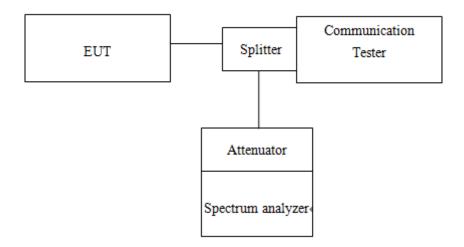
Temperature Chamber



Variable DC Power Supply

Note: Measurement setup for testing on Antenna connector

8.6 **Peak To Average Ratio**



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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.

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

According to KDB 412172 D01 Power Approach,

 $EIRP = P_T + G_T - L_C$

ERP= EIRP-2.15.

Where:

= effective radiated power or equivalent isotropically radiated power ERP or EIRP

> (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_{τ} = transmitter output power, expressed in dBW, dBm, or PSD;

= gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP); Gτ

= signal attenuation in the connecting cable between the transmitter Lc

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%.

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Out of Band Emission at Antenna Terminals 9.3

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.
- 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.

Field Strength of Spurious Radiation Measurement 9.4

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.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Set chamber temperature to 20°C. 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.

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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 ~

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