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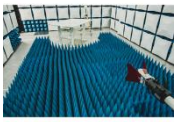

MEASUREMENT REPORT
LTE / Sub 6GHz NR

Applicant Name:
LG Electronics USA, Inc.
1000 Sylvan Avenue
Englewood Cliffs, NJ 07632
United States

Date of Testing:
1/21 - 2/15/2020
Test Site/Location:
PCTEST Lab. Columbia, MD, USA
Test Report Serial No.:
1M1912300226-03.ZNF

FCC ID:	**ZNFV600TM**
APPLICANT:	**LG Electronics USA, Inc.**

Application Type:	Class II Permissive Change
Model:	LM-V600TM
Additional Model(s):	LMV600TM, V600TM
EUT Type:	Portable Handset
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	22, 24, & 27
Test Procedure(s):	ANSI C63.26-2015, ANSI/TIA-603-E-2016, KDB 971168 D01 v03r01, KDB 648474 D03 v01r04
Class II Permissive Change:	Please see FCC change document

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Randy Ortanez
President

ACCREDITED
TESTING CERT#2041.01

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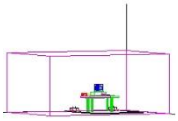
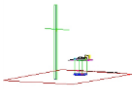


MEASUREMENT REPORT
FCC Part 22, 24, & 27



Mode	FCC Rule Part	Tx Frequency (MHz)	ERP		EIRP		Modulation
			Max. Power (W)	Max. Power (dBm)	Max. Power (W)	Max. Power (dBm)	
LTE Band 71	27	665.5 - 695.5	0.087	19.39			QPSK
LTE Band 71	27	665.5 - 695.5	0.068	18.32			16QAM
LTE Band 71	27	665.5 - 695.5	0.052	17.14			64QAM
LTE Band 71	27	665.5 - 695.5	0.024	13.75			256QAM
LTE Band 71	27	668 - 693	0.087	19.39			QPSK
LTE Band 71	27	668 - 693	0.068	18.32			16QAM
LTE Band 71	27	668 - 693	0.052	17.14			64QAM
LTE Band 71	27	668 - 693	0.024	13.75			256QAM
LTE Band 71	27	670.5 - 690.5	0.089	19.49			QPSK
LTE Band 71	27	670.5 - 690.5	0.065	18.12			16QAM
LTE Band 71	27	670.5 - 690.5	0.053	17.27			64QAM
LTE Band 71	27	670.5 - 690.5	0.025	13.91			256QAM
LTE Band 71	27	673 - 688	0.087	19.39			QPSK
LTE Band 71	27	673 - 688	0.068	18.32			16QAM
LTE Band 71	27	673 - 688	0.052	17.14			64QAM
LTE Band 71	27	673 - 688	0.024	13.75			256QAM
LTE Band 12	27	699.7 - 715.3	0.052	17.15	0.085	19.30	QPSK
LTE Band 12	27	699.7 - 715.3	0.039	15.93	0.064	18.08	16QAM
LTE Band 12	27	699.7 - 715.3	0.031	14.94	0.051	17.09	64QAM
LTE Band 12	27	699.7 - 715.3	0.015	11.87	0.025	14.02	256QAM
LTE Band 12	27	700.5 - 714.5	0.053	17.25	0.087	19.40	QPSK
LTE Band 12	27	700.5 - 714.5	0.036	15.58	0.059	17.73	16QAM
LTE Band 12	27	700.5 - 714.5	0.031	14.91	0.051	17.06	64QAM
LTE Band 12	27	700.5 - 714.5	0.014	11.41	0.023	13.56	256QAM
LTE Band 12/17	27	701.5 - 713.5	0.052	17.18	0.086	19.33	QPSK
LTE Band 12/17	27	701.5 - 713.5	0.039	15.86	0.063	18.01	16QAM
LTE Band 12/17	27	701.5 - 713.5	0.030	14.84	0.050	16.99	64QAM
LTE Band 12/17	27	701.5 - 713.5	0.015	11.66	0.024	13.81	256QAM
LTE Band 12/17	27	704 - 711	0.053	17.22	0.086	19.37	QPSK
LTE Band 12/17	27	704 - 711	0.040	15.98	0.065	18.13	16QAM
LTE Band 12/17	27	704 - 711	0.030	14.78	0.049	16.93	64QAM
LTE Band 12/17	27	704 - 711	0.014	11.34	0.022	13.49	256QAM
LTE Band 13	27	779.5 - 784.5	0.052	17.20	0.086	19.35	QPSK
LTE Band 13	27	779.5 - 784.5	0.040	16.03	0.066	18.18	16QAM
LTE Band 13	27	779.5 - 784.5	0.031	14.98	0.052	17.13	64QAM
LTE Band 13	27	779.5 - 784.5	0.015	11.74	0.024	13.89	256QAM
LTE Band 13	27	782	0.061	17.82	0.099	19.97	QPSK
LTE Band 13	27	782	0.043	16.37	0.071	18.52	16QAM
LTE Band 13	27	782	0.032	15.04	0.052	17.19	64QAM
LTE Band 13	27	782	0.015	11.70	0.024	13.85	256QAM
LTE Band 26/5	22H	824.7 - 848.3	0.065	18.16	0.107	20.31	QPSK
LTE Band 26/5	22H	824.7 - 848.3	0.053	17.22	0.086	19.37	16QAM
LTE Band 26/5	22H	824.7 - 848.3	0.037	15.66	0.060	17.81	64QAM
LTE Band 26/5	22H	824.7 - 848.3	0.017	12.31	0.028	14.46	256QAM
LTE Band 26/5	22H	825.5 - 847.5	0.066	18.22	0.109	20.37	QPSK
LTE Band 26/5	22H	825.5 - 847.5	0.057	17.53	0.093	19.68	16QAM
LTE Band 26/5	22H	825.5 - 847.5	0.038	15.84	0.063	17.99	64QAM
LTE Band 26/5	22H	825.5 - 847.5	0.017	12.29	0.028	14.44	256QAM
LTE Band 26/5	22H	826.5 - 846.5	0.066	18.18	0.108	20.33	QPSK
LTE Band 26/5	22H	826.5 - 846.5	0.053	17.27	0.087	19.42	16QAM
LTE Band 26/5	22H	826.5 - 846.5	0.037	15.64	0.060	17.79	64QAM
LTE Band 26/5	22H	826.5 - 846.5	0.016	12.13	0.027	14.28	256QAM
LTE Band 26/5	22H	829 - 844	0.066	18.19	0.108	20.34	QPSK
LTE Band 26/5	22H	829 - 844	0.050	16.95	0.081	19.10	16QAM
LTE Band 26/5	22H	829 - 844	0.038	15.76	0.062	17.91	64QAM
LTE Band 26/5	22H	829 - 844	0.017	12.36	0.028	14.51	256QAM
LTE Band 26	22H	831.5 - 841.5	0.070	18.48	0.116	20.63	QPSK
LTE Band 26	22H	831.5 - 841.5	0.051	17.04	0.083	19.19	16QAM
LTE Band 26	22H	831.5 - 841.5	0.040	16.00	0.065	18.15	64QAM
LTE Band 26	22H	831.5 - 841.5	0.019	12.69	0.030	14.84	256QAM

EUT Overview (<1 GHz)

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Mode	FCC Rule Part	Tx Frequency (MHz)	EIRP		Modulation
			Max. Power (W)	Max. Power (dBm)	
LTE Band 66/4	27	1710.7 - 1779.3	0.127	21.05	QPSK
LTE Band 66/4	27	1710.7 - 1779.3	0.109	20.36	16QAM
LTE Band 66/4	27	1710.7 - 1779.3	0.083	19.17	64QAM
LTE Band 66/4	27	1710.7 - 1779.3	0.040	16.04	256QAM
LTE Band 66/4	27	1711.5 - 1778.5	0.132	21.21	QPSK
LTE Band 66/4	27	1711.5 - 1778.5	0.107	20.30	16QAM
LTE Band 66/4	27	1711.5 - 1778.5	0.084	19.22	64QAM
LTE Band 66/4	27	1711.5 - 1778.5	0.040	15.97	256QAM
LTE Band 66/4	27	1712.5 - 1777.5	0.129	21.10	QPSK
LTE Band 66/4	27	1712.5 - 1777.5	0.110	20.41	16QAM
LTE Band 66/4	27	1712.5 - 1777.5	0.085	19.31	64QAM
LTE Band 66/4	27	1712.5 - 1777.5	0.039	15.93	256QAM
LTE Band 66/4	27	1715 - 1775	0.131	21.18	QPSK
LTE Band 66/4	27	1715 - 1775	0.108	20.32	16QAM
LTE Band 66/4	27	1715 - 1775	0.084	19.22	64QAM
LTE Band 66/4	27	1715 - 1775	0.041	16.14	256QAM
LTE Band 66/4	27	1717.5 - 1772.5	0.127	21.05	QPSK
LTE Band 66/4	27	1717.5 - 1772.5	0.108	20.33	16QAM
LTE Band 66/4	27	1717.5 - 1772.5	0.089	19.48	64QAM
LTE Band 66/4	27	1717.5 - 1772.5	0.039	15.89	256QAM
LTE Band 66/4	27	1720 - 1770	0.124	20.95	QPSK
LTE Band 66/4	27	1720 - 1770	0.093	19.67	16QAM
LTE Band 66/4	27	1720 - 1770	0.077	18.89	64QAM
LTE Band 66/4	27	1720 - 1770	0.036	15.62	256QAM
LTE Band 25/2	24E	1850.7 - 1914.3	0.207	23.16	QPSK
LTE Band 25/2	24E	1850.7 - 1914.3	0.159	22.03	16QAM
LTE Band 25/2	24E	1850.7 - 1914.3	0.137	21.38	64QAM
LTE Band 25/2	24E	1850.7 - 1914.3	0.069	18.37	256QAM
LTE Band 25/2	24E	1851.5 - 1913.5	0.216	23.35	QPSK
LTE Band 25/2	24E	1851.5 - 1913.5	0.156	21.94	16QAM
LTE Band 25/2	24E	1851.5 - 1913.5	0.136	21.34	64QAM
LTE Band 25/2	24E	1851.5 - 1913.5	0.068	18.30	256QAM
LTE Band 25/2	24E	1852.5 - 1912.5	0.217	23.36	QPSK
LTE Band 25/2	24E	1852.5 - 1912.5	0.165	22.18	16QAM
LTE Band 25/2	24E	1852.5 - 1912.5	0.142	21.53	64QAM
LTE Band 25/2	24E	1852.5 - 1912.5	0.067	18.25	256QAM
LTE Band 25/2	24E	1855 - 1910	0.210	23.22	QPSK
LTE Band 25/2	24E	1855 - 1910	0.153	21.84	16QAM
LTE Band 25/2	24E	1855 - 1910	0.138	21.41	64QAM
LTE Band 25/2	24E	1855 - 1910	0.067	18.24	256QAM
LTE Band 25/2	24E	1857.5 - 1907.5	0.218	23.39	QPSK
LTE Band 25/2	24E	1857.5 - 1907.5	0.150	21.77	16QAM
LTE Band 25/2	24E	1857.5 - 1907.5	0.145	21.61	64QAM
LTE Band 25/2	24E	1857.5 - 1907.5	0.066	18.20	256QAM
LTE Band 25/2	24E	1860 - 1905	0.221	23.44	QPSK
LTE Band 25/2	24E	1860 - 1905	0.168	22.26	16QAM
LTE Band 25/2	24E	1860 - 1905	0.140	21.46	64QAM
LTE Band 25/2	24E	1860 - 1905	0.064	18.05	256QAM

EUT Overview (Mid Bands)

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Mode	FCC Rule Part	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
			Max. Power (W)	Max. Power (dBm)		
LTE Band 30	27	2307.5 - 2312.5	0.093	19.68	4M51G7D	QPSK
LTE Band 30	27	2307.5 - 2312.5	0.073	18.66	4M53W7D	16QAM
LTE Band 30	27	2307.5 - 2312.5	0.057	17.59	4M54W7D	64QAM
LTE Band 30	27	2307.5 - 2312.5	0.028	14.55	4M51W7D	256QAM
LTE Band 30	27	2310	0.107	20.31	8M95G7D	QPSK
LTE Band 30	27	2310	0.087	19.41	8M98W7D	16QAM
LTE Band 30	27	2310	0.067	18.25	8M97W7D	64QAM
LTE Band 30	27	2310	0.031	14.97	9M02W7D	256QAM
LTE Band 7	27	2502.5 - 2567.5	0.149	21.72	4M53G7D	QPSK
LTE Band 7	27	2502.5 - 2567.5	0.122	20.87	4M52W7D	16QAM
LTE Band 7	27	2502.5 - 2567.5	0.091	19.59	4M52W7D	64QAM
LTE Band 7	27	2502.5 - 2567.5	0.046	16.66	4M50W7D	256QAM
LTE Band 7	27	2505 - 2565	0.146	21.63	8M98G7D	QPSK
LTE Band 7	27	2505 - 2565	0.122	20.87	8M97W7D	16QAM
LTE Band 7	27	2505 - 2565	0.072	18.55	8M95W7D	64QAM
LTE Band 7	27	2505 - 2565	0.046	16.64	8M96W7D	256QAM
LTE Band 7	27	2507.5 - 2562.5	0.149	21.72	13M5G7D	QPSK
LTE Band 7	27	2507.5 - 2562.5	0.111	20.47	13M5W7D	16QAM
LTE Band 7	27	2507.5 - 2562.5	0.090	19.53	13M5W7D	64QAM
LTE Band 7	27	2507.5 - 2562.5	0.047	16.75	13M5W7D	256QAM
LTE Band 7	27	2510 - 2560	0.150	21.75	17M9G7D	QPSK
LTE Band 7	27	2510 - 2560	0.115	20.61	17M9W7D	16QAM
LTE Band 7	27	2510 - 2560	0.090	19.53	17M9W7D	64QAM
LTE Band 7	27	2510 - 2560	0.042	16.25	17M9W7D	256QAM
LTE Band 41 (PC2)	27	2498.5 - 2687.5	0.363	25.60	4M48G7D	QPSK
LTE Band 41 (PC2)	27	2498.5 - 2687.5	0.318	25.02	4M53W7D	16QAM
LTE Band 41 (PC2)	27	2498.5 - 2687.5	0.249	23.96	4M48W7D	64QAM
LTE Band 41 (PC2)	27	2498.5 - 2687.5	0.149	21.72	4M48W7D	256QAM
LTE Band 41 (PC2)	27	2501 - 2685	0.373	25.71	9M01G7D	QPSK
LTE Band 41 (PC2)	27	2501 - 2685	0.318	25.02	9M02W7D	16QAM
LTE Band 41 (PC2)	27	2501 - 2685	0.249	23.96	9M03W7D	64QAM
LTE Band 41 (PC2)	27	2501 - 2685	0.143	21.56	8M97W7D	256QAM
LTE Band 41 (PC2)	27	2503.5 - 2682.5	0.364	25.61	13M5G7D	QPSK
LTE Band 41 (PC2)	27	2503.5 - 2682.5	0.351	25.45	13M4W7D	16QAM
LTE Band 41 (PC2)	27	2503.5 - 2682.5	0.223	23.48	13M5W7D	64QAM
LTE Band 41 (PC2)	27	2503.5 - 2682.5	0.135	21.29	13M5W7D	256QAM
LTE Band 41 (PC2)	27	2506 - 2680	0.364	25.61	17M9G7D	QPSK
LTE Band 41 (PC2)	27	2506 - 2680	0.298	24.74	17M9W7D	16QAM
LTE Band 41 (PC2)	27	2506 - 2680	0.209	23.20	17M9W7D	64QAM
LTE Band 41 (PC2)	27	2506 - 2680	0.128	21.07	17M8W7D	256QAM

EUT Overview (High Bands)

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Mode	FCC Rule Part	Tx Frequency (MHz)	ERP		Modulation
			Max. Power (W)	Max. Power (dBm)	
n71	27	665.5 - 695.5	0.069	18.40	QPSK
n71	27	665.5 - 695.5	0.041	16.13	16QAM
n71	27	665.5 - 695.5	0.039	15.89	64QAM
n71	27	665.5 - 695.5	0.025	14.04	256QAM
n71	27	668 - 693	0.067	18.29	QPSK
n71	27	668 - 693	0.043	16.30	16QAM
n71	27	668 - 693	0.040	15.97	64QAM
n71	27	668 - 693	0.025	13.95	256QAM
n71	27	670.5 - 690.5	0.071	18.52	QPSK
n71	27	670.5 - 690.5	0.045	16.55	16QAM
n71	27	670.5 - 690.5	0.041	16.12	64QAM
n71	27	670.5 - 690.5	0.027	14.25	256QAM
n71	27	673 - 688	0.065	18.10	QPSK
n71	27	673 - 688	0.041	16.14	16QAM
n71	27	673 - 688	0.039	15.89	64QAM
n71	27	673 - 688	0.022	13.48	256QAM

EUT Sub 6GHz Overview (<1 GHz)

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Mode	FCC Rule Part	Tx Frequency (MHz)	EIRP		Modulation
			Max. Power (W)	Max. Power (dBm)	
n66	27	1712.5 - 1777.5	0.192	22.84	QPSK
n66	27	1712.5 - 1777.5	0.104	20.17	16QAM
n66	27	1712.5 - 1777.5	0.093	19.68	64QAM
n66	27	1712.5 - 1777.5	0.067	18.24	256QAM
n66	27	1715 - 1775	0.192	22.84	QPSK
n66	27	1715 - 1775	0.106	20.26	16QAM
n66	27	1715 - 1775	0.091	19.61	64QAM
n66	27	1715 - 1775	0.069	18.38	256QAM
n66	27	1717.5 - 1772.5	0.162	22.09	QPSK
n66	27	1717.5 - 1772.5	0.093	19.67	16QAM
n66	27	1717.5 - 1772.5	0.091	19.59	64QAM
n66	27	1717.5 - 1772.5	0.060	17.79	256QAM
n66	27	1720 - 1770	0.175	22.43	QPSK
n66	27	1720 - 1770	0.095	19.80	16QAM
n66	27	1720 - 1770	0.096	19.84	64QAM
n66	27	1720 - 1770	0.065	18.14	256QAM
n25 / n2	24E	1852.5 - 1912.5	0.175	22.44	QPSK
n25 / n2	24E	1852.5 - 1912.5	0.139	21.44	16QAM
n25 / n2	24E	1852.5 - 1912.5	0.114	20.58	64QAM
n25 / n2	24E	1852.5 - 1912.5	0.075	18.73	256QAM
n25 / n2	24E	1855 - 1910	0.189	22.78	QPSK
n25 / n2	24E	1855 - 1910	0.137	21.38	16QAM
n25 / n2	24E	1855 - 1910	0.118	20.71	64QAM
n25 / n2	24E	1855 - 1910	0.074	18.67	256QAM
n25 / n2	24E	1857.5 - 1907.5	0.158	22.00	QPSK
n25 / n2	24E	1857.5 - 1907.5	0.109	20.36	16QAM
n25 / n2	24E	1857.5 - 1907.5	0.093	19.67	64QAM
n25 / n2	24E	1857.5 - 1907.5	0.061	17.83	256QAM
n25 / n2	24E	1860 - 1905	0.194	22.89	QPSK
n25 / n2	24E	1860 - 1905	0.125	20.97	16QAM
n25 / n2	24E	1860 - 1905	0.092	19.64	64QAM
n25 / n2	24E	1860 - 1905	0.060	17.81	256QAM

EUT Sub 6GHz Overview (Mid Bands)

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Mode	FCC Rule Part	Tx Frequency (MHz)	EIRP		Modulation
			Max. Power (W)	Max. Power (dBm)	
n41 (PC2)	27	2506 - 2687.5	0.197	22.95	QPSK
n41 (PC2)	27	2506 - 2687.5	0.154	21.87	16QAM
n41 (PC2)	27	2506 - 2687.5	0.147	21.67	64QAM
n41 (PC2)	27	2506 - 2687.5	0.142	21.51	256QAM
n41 (PC2)	27	2516 - 2685	0.199	22.99	QPSK
n41 (PC2)	27	2516 - 2685	0.163	22.13	16QAM
n41 (PC2)	27	2516 - 2685	0.145	21.61	64QAM
n41 (PC2)	27	2516 - 2685	0.136	21.34	256QAM
n41 (PC2)	27	2521 - 2682.5	0.199	22.99	QPSK
n41 (PC2)	27	2521 - 2682.5	0.163	22.13	16QAM
n41 (PC2)	27	2521 - 2682.5	0.145	21.61	64QAM
n41 (PC2)	27	2521 - 2682.5	0.136	21.34	256QAM
n41 (PC2)	27	2526 - 2680	0.199	22.99	QPSK
n41 (PC2)	27	2526 - 2680	0.163	22.13	16QAM
n41 (PC2)	27	2526 - 2680	0.145	21.61	64QAM
n41 (PC2)	27	2526 - 2680	0.136	21.34	256QAM
n41 (PC2)	27	2536 - 2687.5	0.199	22.99	QPSK
n41 (PC2)	27	2536 - 2687.5	0.163	22.13	16QAM
n41 (PC2)	27	2536 - 2687.5	0.145	21.61	64QAM
n41 (PC2)	27	2536 - 2687.5	0.136	21.34	256QAM
n41 (PC2)	27	2541 - 2685	0.219	23.40	QPSK
n41 (PC2)	27	2541 - 2685	0.170	22.31	16QAM
n41 (PC2)	27	2541 - 2685	0.156	21.94	64QAM
n41 (PC2)	27	2541 - 2685	0.144	21.57	256QAM
n41 (PC2)	27	2546 - 2682.5	0.178	22.50	QPSK
n41 (PC2)	27	2546 - 2682.5	0.171	22.33	16QAM
n41 (PC2)	27	2546 - 2682.5	0.120	20.79	64QAM
n41 (PC2)	27	2546 - 2682.5	0.070	18.48	256QAM

EUT Sub 6GHz Overview (High Bands)

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1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2 PCTEST Test Location

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

1.3 Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab located in Columbia, MD 21046, U.S.A.

- PCTEST is an ISO 17025-2005 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.

- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).

- PCTEST facility is a registered (2451B) test laboratory with the site description on file with ISED.

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Portable Handset FCC ID: ZNFV600TM**. The test data contained in this report pertains only to the emissions due to the EUT's LTE function.

Test Device Serial No.: 04240, 04257, 04265, 04273

2.2 Device Capabilities

This device contains the following capabilities:

800/850/1900 CDMA/EvDO Rev0/A, 1x Advanced (BC0, BC1, BC10), 850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, 5G NR (n71, n66, n25, n2, n41(PC2)), 802.11b/g/n/ac/ax WLAN, 802.11a/n/ac/ax UNII, Bluetooth (1x, EDR, LE), NFC

LTE Band 12 (698 - 716 MHz) overlaps the entire frequency range of LTE Band 17 (704 - 716 MHz). Therefore, test data provided in this report covers Band 17 as well as Band 12.

LTE Band 26 (814.7 – 849 MHz) overlaps the entire frequency range of LTE Band 5 (824 – 849 MHz). Therefore, test data provided in this report covers Band 5 and the portion of Band 26 subject to Part 22.

LTE Band 66 (1710 - 1780 MHz) overlaps the entire frequency range of LTE Band 4 (1710 - 1755 MHz). Therefore, test data provided in this report covers Band 4 as well as Band 66.

LTE Band 25 (1850 - 1915 MHz) overlaps the entire frequency range of LTE Band 2 (1850 - 1910 MHz). Therefore, test data provided in this report covers Band 2 as well as Band 25.

Sub 6GHz NR Band n71 (663 – 698 MHz) operates using 15kHz Subcarrier Spacing with both CP-OFDM and DFT-s OFDM waveforms. The band supports QPSK, 16QAM, 64QAM, and 256QAM modulation. The test data provided in this report represents the worst case configuration.

Sub 6GHz NR Band n66 (1710 – 1780 MHz) operates using 15kHz Subcarrier Spacing with both CP-OFDM and DFT-s OFDM waveforms. The band supports QPSK, 16QAM, 64QAM, and 256QAM modulation. The test data provided in this report represents the worst case configurations.

Sub 6GHz NR Band n25 (1850 – 1915 MHz) operates using 15kHz Subcarrier Spacing with both CP-OFDM and DFT-s OFDM waveforms. The band supports QPSK, 16QAM, 64QAM, and 256QAM modulation. The test data provided in this report represents the worst case configurations.

Sub 6GHz NR Band n2 (1850 – 1910 MHz) operates using 15kHz Subcarrier Spacing with both CP-OFDM and DFT-s OFDM waveforms. The band supports QPSK, 16QAM, 64QAM, and 256QAM modulation. The test data provided in this report represents the worst case configurations.

Sub 6GHz NR Band n41 (2496 – 2690 MHz) operates using 30kHz Subcarrier Spacing with both CP-OFDM and DFT-s OFDM waveforms. The band supports QPSK, 16QAM, 64QAM, and 256QAM modulation. The test data provided in this report represents the worst case configurations.

Sub 6GHz NR Band n25 (1850 - 1915 MHz) overlaps the entire frequency range of Sub 6GHz NR Band n2 (1850 - 1910 MHz). Therefore, test data provided in this report covers n2 as well as n25.

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2.3 Test Configuration

The EUT was tested per the guidance of ANSI/TIA-603-E-2016 and KDB 971168 D01 v03r01. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

This device supports wireless charging capability and, thus, is subject to the test requirements of KDB 648474 D03 v01r04. Additional radiated spurious emission measurements were performed with the EUT lying flat on an authorized wireless charging pad (WCP) YZP-PWMAW815A while operating under normal conditions in a simulated call or data transmission configuration. The worst case radiated emissions data is shown in this report.

The device was operated using FTM test software to broadcast Sub 6GHz functions as well as LTE during EN-DC operations.

This device supports Dual Display (DD) Cover, which attaches to the device to provide a secondary display on the inside of the cover. The display was rotated through all possible orientations to determine worst case angle. The worst case radiated emission data with the Dual Display Cover is included in this report.

2.4 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

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3.0 DESCRIPTION OF TESTS

3.1 Measurement Procedure

The measurement procedures described in the document titled "Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards" (ANSI/TIA-603-E-2016) and "Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems" (KDB 971168 D01 v03r01) were used in the measurement of the EUT.

3.2 Radiated Power and Radiated Spurious Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. For measurements below 1GHz, the absorbers are removed. A raised turntable is used for radiated measurement. The turn table is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm tall test table made of Styrodur is placed on top of the turn table. A Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer. Radiated power levels are also investigated with the receive antenna horizontally and vertically polarized. The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration band set to the emissions' occupied bandwidth, a RMS detector, RBW = 100kHz, VBW = 300kHz, and a 1 second sweep time over a minimum of 10 sweeps, per the guidelines of KDB 971168 D01 v03r01.

Per the guidance of ANSI/TIA-603-E-2016, a half-wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

$$P_{d\ [dBm]} = P_{g\ [dBm]} - \text{cable loss}_{\ [dB]} + \text{antenna gain}_{\ [dBd/dBi]}$$

Where, P_d is the dipole equivalent power, P_g is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to $P_{g\ [dBm]}$ – cable loss $_{[dB]}$.

The calculated P_d levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of 43 + 10 $\log_{10}$(Power $_{[Watts]}$). For Band 7 and 41, the calculated P_d levels are compared to the absolute spurious emission limit of -25dBm which is equivalent to the required minimum attenuation of 55 + 10 $\log_{10}$(Power $_{[Watts]}$). For Band 30, the calculated P_d levels are compared to the absolute spurious emission limit of -40dBm which is equivalent to the required minimum attenuation of 70 + 10 $\log_{10}$(Power $_{[Watts]}$).

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4-2014. Additionally, radiated emissions below 30MHz are also validated on an Open Area Test Site to assert correlation with the chamber measurements per the requirements of KDB 474788 D01.

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4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (±dB)
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

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5.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	E5515C	Wireless Communications Test Set	N/A			GB43193563
Agilent	N9038A	MXE EMI Receiver	7/17/2019	Annual	7/17/2020	MY51210133
Emco	3115	Horn Antenna (1-18GHz)	3/28/2018	Biennial	3/28/2020	9704-5182
EMCO	3116	Horn Antenna (18-40GHz)	6/7/2018	Biennial	6/7/2020	9203-2178
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	6/5/2019	Annual	6/5/2020	100342
Rohde & Schwarz	FSV40-N	Spectrum Analyzer (9K - 40GHz)	12/6/2019	Annual	12/6/2020	101814
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	9/23/2019	Annual	9/23/2020	100348
Rohde & Schwarz	TS-PR18	18-26.5 GHz Pre-Amplifier	1/31/2020	Annual	1/31/2021	100040
Rohde & Schwarz	TS-PR40	26.5-40 GHz Pre-Amplifier	10/8/2019	Annual	10/8/2020	100037
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/11/2019	Annual	7/11/2020	102134
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/8/2019	Annual	7/8/2020	102133
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			165450
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	4/19/2018	Biennial	4/19/2020	A051107

Table 5-1. Test Equipment

Notes:

Equipment with a calibration date of "N/A" shown in this list was not used to make direct calibrated measurements.

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6.0 SAMPLE CALCULATIONS

Spurious Radiated Emission – LTE Band

Example: Middle Channel LTE Mode 2nd Harmonic (1564 MHz)

The average spectrum analyzer reading at 3 meters with the EUT on the turntable was –81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of –81.0 dBm on the spectrum analzyer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 1564 MHz. So 6.1 dB is added to the signal generator reading of –30.9 dBm yielding –24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm – (-24.80).

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7.0 TEST RESULTS

7.1 Summary

Company Name: LG Electronics USA, Inc.

FCC ID: ZNFV600TM

FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)

Mode(s): LTE

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1046	Power Output	N/A	CONDUCTED	PASS	Section 7.2
22.913(a)(5)	Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 5/26)	< 7 Watts max. ERP	RADIATED	PASS	Section 7.3
27.50(b)(10) 27.50(c)(10)	Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 71, 12, 13)	< 3 Watts max. ERP			Section 7.3
24.232(c) 27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 2/25, 7, 41)	< 2 Watts max. EIRP			Section 7.3
27.50(d)(4)	Equivalent Isotropic Radiated Power (Band 4/66)	< 1 Watts max. EIRP			Section 7.3
27.50(a)(3)	Equivalent Isotropic Radiated Power (Band 30)	< 0.25 Watts max. EIRP			Section 7.3
2.1053 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	Undesirable Emissions (Band 12, 13, 26/5, 66/4, 25/2)	> 43 + 10 $\log_{10}$ (P[Watts]) for all out-of-band emissions			Section 7.4
27.53(f)	Undesirable Emissions (Band 13)	< -70 dBW/MHz (for wideband signals) < -80 dBW (for discrete emissions less than 700Hz BW) For all emissions in the band 1559 – 1610 MHz			Section 7.4
27.53(a)	Undesirable Emissions (Band 30)	> 70 + 10 $\log_{10}$ (P[Watts])			Section 7.4
27.53(m)	Undesirable Emissions (Band 7, 41)	Undesirable emissions must meet the limits detailed in 27.53(m)			Section 7.4
27.53(m)	Uplink Carrier Aggregation	Undesirable emissions must meet the limits detailed in 27.53(m)			Section 7.4

Table 7-1. Summary of Radiated Test Results

Notes:

All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.

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7.2 Conducted Power Output Data

§2.1046

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Conducted Power [Watts]
20 MHz	DFT-s-OFDM π/2 BPSK	372000	1860.0	1 / 0	23.04	0.201
		376500	1882.5	1 / 0	23.22	0.210
		381000	1905.0	50 / 28	23.14	0.206
	DFT-s-OFDM QPSK	372000	1860.0	100 / 0	23.02	0.200
		376500	1882.5	100 / 0	23.09	0.204
		381000	1905.0	50 / 0	23.13	0.206
	DFT-s-OFDM 16QAM	372000	1860.0	1 / 1	22.94	0.197
		376500	1882.5	1 / 1	23.31	0.214
		381000	1905.0	1 / 1	23.26	0.212
	CP-OFDM QPSK	372000	1860.0	1 / 1	22.52	0.179
		376500	1882.5	1 / 1	22.49	0.177
		381000	1905.0	1 / 1	22.75	0.188

Table 7-2. Sub 6GHz NR n25 Conducted Power Output Data

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Conducted Power [Watts]
20 MHz	DFT-s-OFDM π/2 BPSK	344000	1720.0	50 / 0	25.14	0.327
		349000	1745.0	50 / 0	25.3	0.339
		354000	1770.0	1 / 104	25.41	0.348
	DFT-s-OFDM QPSK	344000	1720.0	50 / 0	25.24	0.334
		349000	1745.0	50 / 56	25.46	0.352
		354000	1770.0	50 / 0	25.35	0.343
	DFT-s-OFDM 16QAM	344000	1720.0	1 / 1	24.49	0.281
		349000	1745.0	1 / 1	24.71	0.296
		354000	1770.0	1 / 1	24.58	0.287
	CP-OFDM QPSK	344000	1720.0	1 / 1	24.45	0.279
		349000	1745.0	1 / 1	24.95	0.313
		354000	1770.0	1 / 1	24.69	0.294

Table 7-3. Sub 6GHz NR n66 Conducted Power Output Data

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7.3 Radiated Power (ERP/EIRP)

Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation. For signals with burst transmission, the signal analyzer's "time domain power" measurement capability is used
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW ≥ 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points ≥ 2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto". Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the "gating" function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

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Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

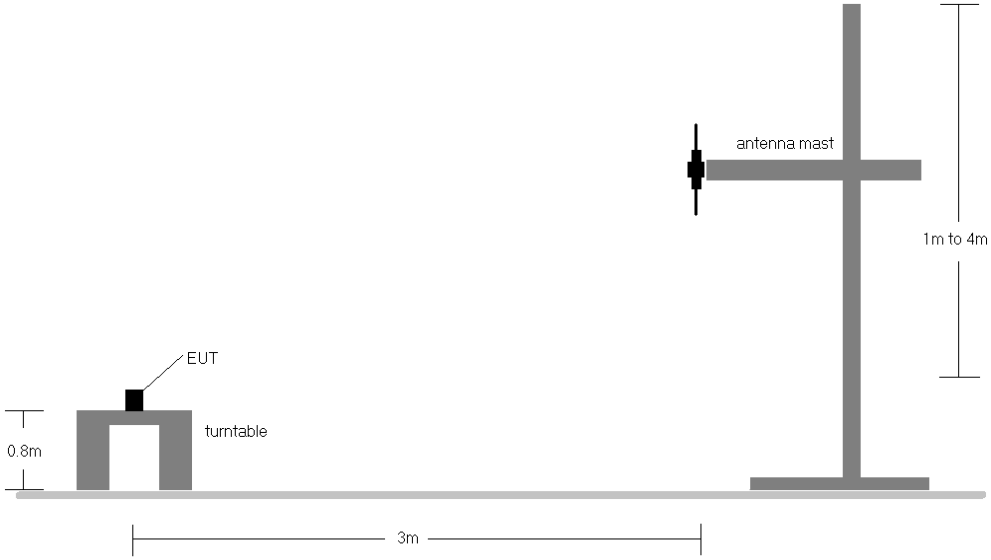

Figure 7-1. Radiated Test Setup <1GHz

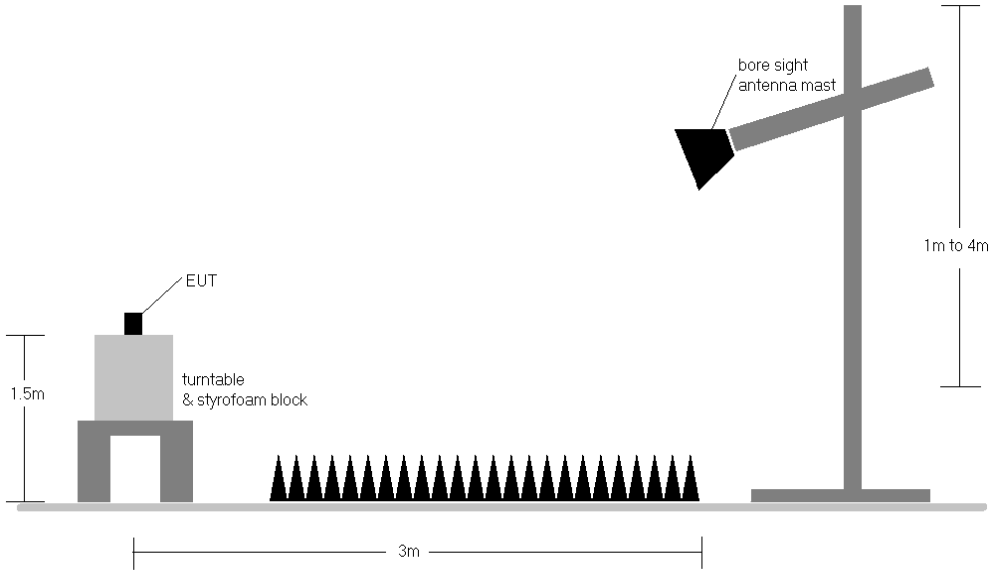

Figure 7-2. Radiated Test Setup >1GHz

Test Notes

1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.

2) This unit was tested with its standard battery.

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
665.50	5	QPSK	V	187	330	1 / 24	16.71	3.75	18.31	0.068	34.77	-16.46
680.50	5	QPSK	V	182	341	1 / 0	17.34	4.20	**19.39**	0.087	34.77	-15.38
695.50	5	QPSK	V	179	344	1 / 0	16.85	4.50	19.20	0.083	34.77	-15.57
680.50	5	16-QAM	V	182	341	1 / 0	16.27	4.20	**18.32**	0.068	34.77	-16.45
680.50	5	64-QAM	V	182	341	1 / 0	15.09	4.20	**17.14**	0.052	34.77	-17.63
680.50	5	256-QAM	V	182	341	1 / 0	11.70	4.20	13.75	0.024	34.77	-21.02
668.00	10	QPSK	V	191	334	1 / 49	16.71	3.80	18.36	0.069	34.77	-16.41
680.50	10	QPSK	V	180	345	1 / 0	17.34	4.20	**19.39**	0.087	34.77	-15.38
693.00	10	QPSK	V	181	346	1 / 0	16.85	4.40	19.10	0.081	34.77	-15.67
680.50	10	16-QAM	V	180	345	1 / 0	16.27	4.20	**18.32**	0.068	34.77	-16.45
680.50	10	64-QAM	V	180	345	1 / 0	15.09	4.20	**17.14**	0.052	34.77	-17.63
680.50	10	256-QAM	V	180	345	1 / 0	11.70	4.20	**13.75**	**0.024**	34.77	-21.02
670.50	15	QPSK	V	186	331	1 / 74	16.81	3.90	18.56	0.072	34.77	-16.21
680.50	15	QPSK	V	182	342	1 / 0	17.44	4.20	**19.49**	**0.089**	34.77	-15.28
690.50	15	QPSK	V	184	341	1 / 0	16.85	4.40	19.10	0.081	34.77	-15.67
680.50	15	16-QAM	V	182	342	1 / 0	16.07	4.20	**18.12**	0.065	34.77	-16.65
680.50	15	64-QAM	V	182	342	1 / 0	15.22	4.20	**17.27**	0.053	34.77	-17.50
680.50	15	256-QAM	V	182	342	1 / 0	11.86	4.20	**13.91**	**0.025**	34.77	-20.86
673.00	20	QPSK	V	184	336	1 / 99	16.71	4.00	18.56	0.072	34.77	-16.21
680.50	20	QPSK	V	179	347	1 / 0	17.34	4.20	**19.39**	0.087	34.77	-15.38
688.00	20	QPSK	V	187	338	1 / 0	16.85	4.40	19.10	0.081	34.77	-15.67
680.50	20	16-QAM	V	179	347	1 / 0	16.27	4.20	**18.32**	0.068	34.77	-16.45
680.50	20	64-QAM	V	179	347	1 / 0	15.09	4.20	**17.14**	0.052	34.77	-17.63
680.50	20	256-QAM	V	179	347	1 / 0	11.70	4.20	**13.75**	**0.024**	34.77	-21.02
680.50	15	QPSK	H	144	304	1 / 0	16.26	3.20	17.31	0.054	34.77	-17.46
680.50	15 (WCP+DD)	QPSK	H	174	20	1 / 0	16.15	3.20	17.20	0.052	34.77	-17.57

Table 7-4. ERP Data (Band 71)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	V	100	41	1 / 0	14.75	4.50	17.10	0.051	34.77	-17.67	19.25	0.084	36.99	-17.74
707.50	1.4	QPSK	V	103	36	1 / 0	14.68	4.60	17.13	0.052	34.77	-17.64	19.28	0.085	36.99	-17.71
715.30	1.4	QPSK	V	101	32	1 / 0	14.67	4.63	**17.15**	0.052	34.77	-17.62	**19.30**	0.085	36.99	-17.69
715.30	1.4	16-QAM	V	101	32	1 / 0	13.45	4.63	15.93	0.039	34.77	-18.84	18.08	0.064	36.99	-18.91
715.30	1.4	64-QAM	V	101	32	1 / 0	12.46	4.63	14.94	0.031	34.77	-19.83	17.09	0.051	36.99	-19.90
715.30	1.4	256-QAM	V	101	32	1 / 0	9.39	4.63	11.87	0.015	34.77	-22.90	14.02	0.025	36.99	-22.97
700.50	3	QPSK	V	103	44	1 / 0	14.85	4.55	**17.25**	**0.053**	34.77	-17.52	**19.40**	**0.087**	36.99	-17.59
707.50	3	QPSK	V	102	34	1 / 0	14.57	4.60	17.02	0.050	34.77	-17.75	19.17	0.083	36.99	-17.82
714.50	3	QPSK	V	100	37	1 / 0	14.62	4.60	17.07	0.051	34.77	-17.70	19.22	0.084	36.99	-17.77
700.50	3	16-QAM	V	103	44	1 / 0	13.18	4.55	15.58	0.036	34.77	-19.19	17.73	0.059	36.99	-19.26
700.50	3	64-QAM	V	103	44	1 / 0	12.51	4.55	14.91	0.031	34.77	-19.86	17.06	0.051	36.99	-19.93
700.50	3	256-QAM	V	103	44	1 / 0	9.01	4.55	11.41	0.014	34.77	-23.36	13.56	0.023	36.99	-23.43

Table 7-5. ERP Data (Band 12)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
701.50	5	QPSK	V	104	42	1 / 0	14.73	4.60	**17.18**	0.052	34.77	-17.59	**19.33**	0.086	36.99	-17.66
707.50	5	QPSK	V	101	37	1 / 0	14.67	4.60	17.12	0.052	34.77	-17.65	19.27	0.085	36.99	-17.72
713.50	5	QPSK	V	100	32	1 / 0	14.70	4.60	17.15	0.052	34.77	-17.62	19.30	0.085	36.99	-17.69
701.50	5	16-QAM	V	104	42	1 / 0	13.41	4.60	**15.86**	0.039	34.77	-18.91	**18.01**	0.063	36.99	-18.98
701.50	5	64-QAM	V	104	42	1 / 0	12.39	4.60	**14.84**	0.030	34.77	-19.93	**16.99**	0.050	36.99	-20.00
701.50	5	256-QAM	V	104	42	1 / 0	9.21	4.60	11.66	0.015	34.77	-23.11	13.81	0.024	36.99	-23.18
704.00	10	QPSK	V	102	40	1 / 0	14.52	4.50	16.87	0.049	34.77	-17.90	19.02	0.080	36.99	-17.97
707.50	10	QPSK	V	100	36	1 / 0	14.77	4.60	**17.22**	0.053	34.77	-17.55	**19.37**	0.086	36.99	-17.62
711.00	10	QPSK	V	101	34	1 / 0	14.44	4.60	16.89	0.049	34.77	-17.88	19.04	0.080	36.99	-17.95
707.50	10	16-QAM	V	100	36	1 / 0	13.53	4.60	**15.98**	0.040	34.77	-18.79	**18.13**	0.065	36.99	-18.86
707.50	10	64-QAM	V	100	36	1 / 0	12.33	4.60	**14.78**	0.030	34.77	-19.99	**16.93**	0.049	36.99	-20.06
707.50	10	256-QAM	V	100	36	1 / 0	8.89	4.60	**11.34**	**0.014**	34.77	-23.43	**13.49**	**0.022**	36.99	-23.50
700.50	10	QPSK	H	269	362	1 / 0	15.54	3.65	17.04	0.051	34.77	-17.73	19.19	0.083	36.99	-17.80
700.50	10 (WCP+DD)	QPSK	H	308	10	1 / 0	14.30	3.65	15.80	0.038	34.77	-18.97	17.95	0.062	36.99	-19.04

Table 7-6. ERP Data (Band 12/17)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
779.50	5	QPSK	V	158	134	1 / 0	13.56	5.70	17.11	0.051	34.77	-17.66	19.26	0.084	36.99	-17.73
782.00	5	QPSK	V	161	138	1 / 0	13.55	5.80	**17.20**	0.052	34.77	-17.57	**19.35**	0.086	36.99	-17.64
784.50	5	QPSK	V	157	141	1 / 0	13.52	5.80	17.17	0.052	34.77	-17.60	19.32	0.086	36.99	-17.67
782.00	5	16-QAM	V	161	138	1 / 0	12.38	5.80	16.03	0.040	34.77	-18.74	18.18	0.066	36.99	-18.81
782.00	5	64-QAM	V	161	138	1 / 0	11.33	5.80	14.98	0.031	34.77	-19.79	17.13	0.052	36.99	-19.86
782.00	5	256-QAM	V	161	138	1 / 0	8.09	5.80	11.74	0.015	34.77	-23.03	13.89	0.024	36.99	-23.10
782.00	10	QPSK	V	160	137	1 / 0	14.17	5.80	**17.82**	**0.061**	34.77	-16.95	**19.97**	**0.099**	36.99	-17.02
782.00	10	16-QAM	V	160	137	1 / 49	12.72	5.80	**16.37**	0.043	34.77	-18.40	**18.52**	0.071	36.99	-18.47
782.00	10	64-QAM	V	160	137	1 / 49	11.39	5.80	**15.04**	0.032	34.77	-19.73	**17.19**	0.052	36.99	-19.80
782.00	10	256-QAM	V	160	137	1 / 49	8.05	5.80	**11.70**	**0.015**	34.77	-23.07	**13.85**	**0.024**	36.99	-23.14
782.00	10	QPSK	H	232	86	1 / 0	13.12	5.80	16.77	0.048	34.77	-18.00	18.92	0.078	36.99	-18.07
782.00	10 (WCP+DD)	QPSK	H	155	236	1 / 0	8.70	5.80	12.35	0.017	34.77	-22.42	14.50	0.028	36.99	-22.49

Table 7-7. ERP Data (Band 13)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	V	151	64	1 / 5	13.55	6.30	17.70	0.059	38.45	-20.75	19.85	0.097	40.61	-20.76
836.50	1.4	QPSK	V	149	68	1 / 5	13.71	6.40	17.96	0.063	38.45	-20.49	20.11	0.103	40.61	-20.50
848.30	1.4	QPSK	V	153	71	1 / 0	13.81	6.50	**18.16**	0.065	38.45	-20.29	**20.31**	0.107	40.61	-20.30
848.30	1.4	16-QAM	V	153	71	1 / 0	12.87	6.50	**17.22**	0.053	38.45	-21.23	**19.37**	0.086	40.61	-21.24
848.30	1.4	64-QAM	V	153	71	1 / 0	11.31	6.50	**15.66**	0.037	38.45	-22.79	**17.81**	0.060	40.61	-22.80
848.30	1.4	256-QAM	V	153	71	1 / 0	7.96	6.50	**12.31**	**0.017**	38.45	-26.14	**14.46**	**0.028**	40.61	-26.15
825.50	3	QPSK	V	154	69	1 / 14	13.45	6.30	17.60	0.058	38.45	-20.85	19.75	0.094	40.61	-20.86
836.50	3	QPSK	V	148	70	1 / 14	13.61	6.40	17.86	0.061	38.45	-20.59	20.01	0.100	40.61	-20.60
847.50	3	QPSK	V	153	77	1 / 0	13.87	6.50	**18.22**	0.066	38.45	-20.23	**20.37**	0.109	40.61	-20.24
847.50	3	16-QAM	V	153	77	1 / 0	13.18	6.50	**17.53**	0.057	38.45	-20.92	**19.68**	0.093	40.61	-20.93
847.50	3	64-QAM	V	153	77	1 / 0	11.49	6.50	**15.84**	0.038	38.45	-22.61	**17.99**	0.063	40.61	-22.62
847.50	3	256-QAM	V	153	77	1 / 0	7.94	6.50	**12.29**	**0.017**	38.45	-26.16	**14.44**	**0.028**	40.61	-26.17
826.50	5	QPSK	V	155	65	1 / 24	13.40	6.30	17.55	0.057	38.45	-20.90	19.70	0.093	40.61	-20.91
836.50	5	QPSK	V	151	72	1 / 24	13.82	6.40	18.07	0.064	38.45	-20.38	20.22	0.105	40.61	-20.39
846.50	5	QPSK	V	150	74	1 / 0	13.83	6.50	**18.18**	0.066	38.45	-20.27	**20.33**	0.108	40.61	-20.28
846.50	5	16-QAM	V	150	74	1 / 0	12.92	6.50	17.27	0.053	38.45	-21.18	19.42	0.087	40.61	-21.19
846.50	5	64-QAM	V	150	74	1 / 0	11.29	6.50	**15.64**	0.037	38.45	-22.81	**17.79**	0.060	40.61	-22.82
846.50	5	256-QAM	V	150	74	1 / 0	7.78	6.50	**12.13**	**0.016**	38.45	-26.32	**14.28**	**0.027**	40.61	-26.33
829.00	10	QPSK	V	153	68	1 / 49	13.51	6.30	17.66	0.058	38.45	-20.79	19.81	0.096	40.61	-20.80
836.50	10	QPSK	V	150	69	1 / 49	13.73	6.40	17.98	0.063	38.45	-20.47	20.13	0.103	40.61	-20.48
844.00	10	QPSK	V	153	75	1 / 0	13.94	6.40	**18.19**	0.066	38.45	-20.26	**20.34**	0.108	40.61	-20.27
844.00	10	16-QAM	V	153	75	1 / 0	12.70	6.40	**16.95**	0.050	38.45	-21.50	**19.10**	0.081	40.61	-21.51
844.00	10	64-QAM	V	153	75	1 / 0	11.51	6.40	**15.76**	0.038	38.45	-22.69	**17.91**	0.062	40.61	-22.70
844.00	10	256-QAM	V	153	75	1 / 0	8.11	6.40	**12.36**	**0.017**	38.45	-26.09	**14.51**	**0.028**	40.61	-26.10
844.00	10	QPSK	H	208	84	1 / 0	12.50	6.60	16.95	**0.050**	38.45	-21.50	19.10	**0.081**	40.61	-21.51
844.00	10 (WCP+DD)	QPSK	H	125	2	1 / 0	10.03	6.60	14.48	0.028	38.45	-23.97	16.63	0.046	40.61	-23.98

Table 7-8. ERP Data (Band 26/5)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
831.50	15	QPSK	V	135	66	1 / 74	14.17	6.35	18.37	0.069	38.45	-20.08	20.52	0.113	40.61	-20.09
836.50	15	QPSK	V	120	61	1 / 0	13.03	6.40	17.28	0.053	38.45	-21.17	19.43	0.088	40.61	-21.18
841.50	15	QPSK	V	150	70	1 / 0	14.23	6.40	**18.48**	**0.070**	38.45	-19.97	**20.63**	**0.116**	40.61	-19.98
841.50	15	16-QAM	V	150	70	1 / 0	12.79	6.40	17.04	0.051	38.45	-21.41	19.19	0.083	40.61	-21.42
841.50	15	64-QAM	V	150	70	1 / 0	11.75	6.40	16.00	0.040	38.45	-22.45	18.15	0.065	40.61	-22.46
841.50	15	256-QAM	V	150	70	1 / 0	8.44	6.40	12.69	0.019	38.45	-25.76	14.84	0.030	40.61	-25.77
841.50	15	QPSK	H	208	81	1 / 0	12.97	6.70	17.52	0.056	38.45	-20.93	19.67	0.093	40.61	-20.94
841.50	15 (WCP+DD)	QPSK	H	388	110	1 / 0	11.11	6.70	15.66	0.037	38.45	-22.79	17.81	0.060	40.61	-22.80

Table 7-9. ERP Data (Band 26)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	V	153	22	1 / 5	10.87	9.35	20.22	0.105	30.00	-9.78
1745.00	1.4	QPSK	V	146	21	1 / 5	11.94	9.11	**21.05**	0.127	30.00	-8.95
1779.30	1.4	QPSK	V	117	56	1 / 0	11.44	9.17	20.61	0.115	30.00	-9.39
1745.00	1.4	16-QAM	V	146	21	1 / 5	11.25	9.11	**20.36**	0.109	30.00	-9.64
1745.00	1.4	64-QAM	V	146	21	1 / 5	10.06	9.11	**19.17**	0.083	30.00	-10.83
1745.00	1.4	256-QAM	V	146	21	1 / 5	6.93	9.11	**16.04**	**0.040**	30.00	-13.96
1711.50	3	QPSK	V	151	20	1 / 14	10.89	9.34	20.23	0.106	30.00	-9.77
1745.00	3	QPSK	V	142	24	1 / 14	12.10	9.11	**21.21**	**0.132**	30.00	-8.79
1778.50	3	QPSK	V	114	52	1 / 0	11.44	9.17	20.61	0.115	30.00	-9.39
1745.00	3	16-QAM	V	142	24	1 / 14	11.19	9.11	**20.30**	0.107	30.00	-9.70
1745.00	3	64-QAM	V	142	24	1 / 14	10.11	9.11	**19.22**	0.084	30.00	-10.78
1745.00	3	256-QAM	V	142	24	1 / 14	6.86	9.11	**15.97**	**0.040**	30.00	-14.03
1712.50	5	QPSK	V	155	22	1 / 24	10.91	9.34	20.25	0.106	30.00	-9.75
1745.00	5	QPSK	V	147	21	1 / 24	11.99	9.11	**21.10**	0.129	30.00	-8.90
1777.50	5	QPSK	V	116	48	1 / 0	11.22	9.16	20.38	0.109	30.00	-9.62
1745.00	5	16-QAM	V	147	21	1 / 24	11.30	9.11	**20.41**	0.110	30.00	-9.59
1745.00	5	64-QAM	V	147	21	1 / 24	10.20	9.11	**19.31**	0.085	30.00	-10.69
1745.00	5	256-QAM	V	147	21	1 / 24	6.82	9.11	**15.93**	**0.039**	30.00	-14.07
1715.00	10	QPSK	V	152	24	1 / 49	11.04	9.32	20.36	0.109	30.00	-9.64
1745.00	10	QPSK	V	143	25	1 / 49	12.07	9.11	**21.18**	0.131	30.00	-8.82
1775.00	10	QPSK	V	111	51	1 / 0	11.36	9.16	20.52	0.113	30.00	-9.48
1745.00	10	16-QAM	V	143	25	1 / 49	11.21	9.11	**20.32**	0.108	30.00	-9.68
1745.00	10	64-QAM	V	143	25	1 / 49	10.11	9.11	**19.22**	0.084	30.00	-10.78
1745.00	10	256-QAM	V	143	25	1 / 49	7.03	9.11	**16.14**	**0.041**	30.00	-13.86
1717.50	15	QPSK	V	151	22	1 / 74	10.97	9.30	20.27	0.106	30.00	-9.73
1745.00	15	QPSK	V	141	27	1 / 74	11.94	9.11	**21.05**	0.127	30.00	-8.95
1772.50	15	QPSK	V	114	54	1 / 0	11.40	9.15	20.55	0.113	30.00	-9.45
1745.00	15	16-QAM	V	141	27	1 / 74	11.22	9.11	**20.33**	0.108	30.00	-9.67
1745.00	15	64-QAM	V	141	27	1 / 74	10.37	9.11	**19.48**	0.089	30.00	-10.52
1745.00	15	256-QAM	V	141	27	1 / 74	6.78	9.11	**15.89**	**0.039**	30.00	-14.11
1720.00	20	QPSK	V	154	21	1 / 99	10.67	9.28	19.95	0.099	30.00	-10.05
1745.00	20	QPSK	V	139	29	1 / 99	11.84	9.11	**20.95**	0.124	30.00	-9.05
1770.00	20	QPSK	V	117	50	1 / 0	11.49	9.14	20.63	0.116	30.00	-9.37
1745.00	20	16-QAM	V	139	29	1 / 99	10.56	9.11	**19.67**	0.093	30.00	-10.33
1745.00	20	64-QAM	V	139	29	1 / 99	9.78	9.11	**18.89**	0.077	30.00	-11.11
1745.00	20	256-QAM	V	139	29	1 / 99	6.51	9.11	**15.62**	**0.036**	30.00	-14.38
1745.00	3	QPSK	H	101	351	1 / 14	9.82	9.23	19.05	0.080	30.00	-10.95
1745.00	3 (WCP+DD)	QPSK	H	126	70	1 / 14	10.36	9.23	19.59	0.091	30.00	-10.41

Table 7-10. EIRP Data (Band 66/4)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	H	113	240	1 / 0	13.29	9.48	22.77	0.189	33.01	-10.24
1882.50	1.4	QPSK	H	104	238	1 / 0	13.22	9.94	**23.16**	0.207	33.01	-9.86
1914.30	1.4	QPSK	H	102	243	1 / 5	12.12	10.29	22.41	0.174	33.01	-10.60
1882.50	1.4	16-QAM	H	104	238	1 / 0	12.09	9.94	**22.03**	0.159	33.01	-10.99
1882.50	1.4	64-QAM	H	104	238	1 / 0	11.44	9.94	**21.38**	0.137	33.01	-11.64
1882.50	1.4	256-QAM	H	104	238	1 / 0	8.43	9.94	**18.37**	**0.069**	33.01	-14.65
1851.50	3	QPSK	H	110	237	1 / 0	13.36	9.50	22.86	0.193	33.01	-10.15
1882.50	3	QPSK	H	101	240	1 / 0	13.41	9.94	**23.35**	0.216	33.01	-9.67
1913.50	3	QPSK	H	106	241	1 / 14	12.22	10.29	22.51	0.178	33.01	-10.51
1882.50	3	16-QAM	H	101	240	1 / 0	12.00	9.94	**21.94**	0.156	33.01	-11.08
1882.50	3	64-QAM	H	101	240	1 / 0	11.40	9.94	**21.34**	0.136	33.01	-11.68
1882.50	3	256-QAM	H	101	240	1 / 0	8.36	9.94	**18.30**	**0.068**	33.01	-14.72
1852.50	5	QPSK	H	107	234	1 / 0	13.27	9.51	22.78	0.190	33.01	-10.23
1882.50	5	QPSK	H	103	241	1 / 0	13.42	9.94	**23.36**	0.217	33.01	-9.66
1912.50	5	QPSK	H	100	238	1 / 24	12.22	10.28	22.50	0.178	33.01	-10.51
1882.50	5	16-QAM	H	103	241	1 / 0	12.24	9.94	**22.18**	0.165	33.01	-10.84
1882.50	5	64-QAM	H	103	241	1 / 0	11.59	9.94	**21.53**	0.142	33.01	-11.49
1882.50	5	256-QAM	H	103	241	1 / 0	8.31	9.94	**18.25**	**0.067**	33.01	-14.77
1855.00	10	QPSK	H	110	238	1 / 0	13.26	9.55	22.81	0.191	33.01	-10.20
1882.50	10	QPSK	H	106	242	1 / 0	13.28	9.94	**23.22**	0.210	33.01	-9.80
1910.00	10	QPSK	H	104	240	1 / 49	12.22	10.26	22.48	0.177	33.01	-10.53
1882.50	10	16-QAM	H	106	242	1 / 0	11.90	9.94	21.84	0.153	33.01	-11.18
1882.50	10	64-QAM	H	106	242	1 / 0	11.47	9.94	**21.41**	0.138	33.01	-11.61
1882.50	10	256-QAM	H	106	242	1 / 0	8.30	9.94	**18.24**	**0.067**	33.01	-14.78
1857.50	15	QPSK	H	114	242	1 / 0	13.23	9.58	22.81	0.191	33.01	-10.20
1882.50	15	QPSK	H	104	245	1 / 0	13.45	9.94	**23.39**	0.218	33.01	-9.63
1907.50	15	QPSK	H	109	241	1 / 74	12.42	10.24	22.66	0.184	33.01	-10.35
1882.50	15	16-QAM	H	104	245	1 / 0	11.83	9.94	21.77	0.150	33.01	-11.25
1882.50	15	64-QAM	H	104	245	1 / 0	11.67	9.94	**21.61**	0.145	33.01	-11.41
1882.50	15	256-QAM	H	104	245	1 / 0	8.26	9.94	**18.20**	**0.066**	33.01	-14.82
1860.00	20	QPSK	H	116	240	1 / 0	13.29	9.62	22.91	0.195	33.01	-10.10
1882.50	20	QPSK	H	106	243	1 / 0	13.50	9.94	**23.44**	**0.221**	33.01	-9.58
1905.00	20	QPSK	H	107	242	1 / 99	12.29	10.22	22.51	0.178	33.01	-10.50
1882.50	20	16-QAM	H	106	243	1 / 0	12.32	9.94	**22.26**	0.168	33.01	-10.76
1882.50	20	64-QAM	H	106	243	1 / 0	11.52	9.94	**21.46**	0.140	33.01	-11.56
1882.50	20	256-QAM	H	106	243	1 / 0	8.11	9.94	**18.05**	**0.064**	33.01	-14.97
1882.50	20	QPSK	V	145	319	1 / 0	12.51	10.12	22.63	0.183	33.01	-10.38
1882.50	20 (WCP+DD)	QPSK	H	153	42	1 / 0	10.55	9.94	20.49	0.112	33.01	-12.53

Table 7-11. EIRP Data (Band 25/2)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2307.50	5	QPSK	H	194	201	1 / 0	9.37	10.31	**19.68**	0.093	23.98	-4.30
2312.50	5	QPSK	H	186	201	1 / 0	8.45	10.31	18.76	0.075	23.98	-5.22
2307.50	5	16-QAM	H	194	201	1 / 0	8.35	10.31	18.66	0.073	23.98	-5.32
2307.50	5	64-QAM	H	194	201	1 / 0	7.28	10.31	17.59	0.057	23.98	-6.39
2307.50	5	256-QAM	H	194	201	1 / 0	4.24	10.31	**14.55**	**0.028**	23.98	-9.43
2310.00	10	QPSK	H	191	202	1 / 0	10.00	10.31	**20.31**	**0.107**	23.98	-3.67
2310.00	10	16-QAM	H	191	202	1 / 0	9.10	10.31	19.41	0.087	23.98	-4.57
2310.00	10	64-QAM	H	191	202	1 / 0	7.94	10.31	18.25	0.067	23.98	-5.73
2310.00	10	256-QAM	H	191	202	1 / 0	4.66	10.31	**14.97**	**0.031**	23.98	-9.01
2310.00	10	QPSK	V	120	318	1 / 0	8.83	10.22	19.05	0.080	23.98	-4.93
2310.00	10 (WCP+DD)	QPSK	H	112	212	1 / 0	8.57	10.31	18.88	0.077	23.98	-5.10

Table 7-12. EIRP Data (Band 30)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2502.50	5	QPSK	V	132	322	1 / 0	12.08	9.40	21.48	0.140	33.01	-11.54
2535.00	5	QPSK	V	117	318	1 / 0	11.97	9.38	21.35	0.137	33.01	-11.66
2567.50	5	QPSK	V	130	324	1 / 24	12.27	9.45	**21.72**	0.149	33.01	-11.29
2567.50	5	16-QAM	V	130	324	1 / 24	11.42	9.45	**20.87**	0.122	33.01	-12.14
2567.50	5	64-QAM	V	130	324	1 / 24	10.14	9.45	**19.59**	0.091	33.01	-13.42
2567.50	5	256-QAM	V	130	324	1 / 24	7.21	9.45	**16.66**	**0.046**	33.01	-16.35
2505.00	10	QPSK	V	128	327	1 / 0	11.91	9.39	21.30	0.135	33.01	-11.71
2535.00	10	QPSK	V	114	324	1 / 0	11.84	9.38	21.22	0.133	33.01	-11.79
2565.00	10	QPSK	V	134	320	1 / 49	12.19	9.44	**21.63**	0.146	33.01	-11.38
2565.00	10	16-QAM	V	134	320	1 / 49	11.43	9.44	**20.87**	0.122	33.01	-12.14
2565.00	10	64-QAM	V	134	320	1 / 49	9.11	9.44	18.55	0.072	33.01	-14.46
2565.00	10	256-QAM	V	134	320	1 / 49	7.20	9.44	**16.64**	**0.046**	33.01	-16.37
2507.50	15	QPSK	V	125	320	1 / 0	12.27	9.39	21.66	0.147	33.01	-11.35
2535.00	15	QPSK	V	110	319	1 / 0	12.00	9.38	21.38	0.138	33.01	-11.63
2562.50	15	QPSK	V	132	324	1 / 74	12.29	9.43	**21.72**	0.149	33.01	-11.29
2562.50	15	16-QAM	V	132	324	1 / 74	11.04	9.43	20.47	0.111	33.01	-12.54
2562.50	15	64-QAM	V	132	324	1 / 74	10.10	9.43	**19.53**	0.090	33.01	-13.48
2562.50	15	256-QAM	V	132	324	1 / 74	7.32	9.43	**16.75**	**0.047**	33.01	-16.26
2510.00	20	QPSK	V	128	321	1 / 0	12.11	9.39	21.50	0.141	33.01	-11.51
2535.00	20	QPSK	V	113	327	1 / 0	12.04	9.38	21.42	0.139	33.01	-11.59
2560.00	20	QPSK	V	130	321	1 / 99	12.33	9.42	**21.75**	**0.150**	33.01	-11.26
2560.00	20	16-QAM	V	130	321	1 / 99	11.19	9.42	**20.61**	0.115	33.01	-12.40
2560.00	20	64-QAM	V	130	321	1 / 99	10.11	9.42	**19.53**	0.090	33.01	-13.48
2560.00	20	256-QAM	V	130	321	1 / 99	6.83	9.42	**16.25**	**0.042**	33.01	-16.76
2560.00	20	QPSK	H	151	217	1 / 99	10.51	9.42	19.93	0.098	33.01	-13.08
2560.00	20 (WCP+DD)	QPSK	H	138	105	1 / 99	10.13	9.42	19.55	0.090	33.01	-13.46

Table 7-13. EIRP Data (Band 7)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	H	220	191	1 / 24	15.27	9.43	24.70	0.295	33.01	-8.31
2593.00	5	QPSK	H	112	220	1 / 0	15.86	9.55	25.41	0.348	33.01	-7.60
2687.50	5	QPSK	H	197	194	1 / 0	15.78	9.82	**25.60**	0.363	33.01	-7.41
2687.50	5	16-QAM	H	197	194	1 / 0	15.20	9.82	**25.02**	0.318	33.01	-7.99
2687.50	5	64-QAM	H	197	194	1 / 0	14.14	9.82	**23.96**	0.249	33.01	-9.05
2687.50	5	256-QAM	H	197	194	1 / 0	11.90	9.82	**21.72**	**0.149**	33.01	-11.29
2501.00	10	QPSK	H	223	195	1 / 49	15.27	9.43	24.70	0.295	33.01	-8.31
2593.00	10	QPSK	H	109	224	1 / 0	15.86	9.55	25.41	0.348	33.01	-7.60
2685.00	10	QPSK	H	192	197	1 / 0	15.89	9.82	**25.71**	0.373	33.01	-7.30
2685.00	10	16-QAM	H	192	197	1 / 0	15.20	9.82	**25.02**	0.318	33.01	-7.99
2685.00	10	64-QAM	H	192	197	1 / 0	14.14	9.82	**23.96**	0.249	33.01	-9.05
2685.00	10	256-QAM	H	192	197	1 / 0	11.74	9.82	**21.56**	**0.143**	33.01	-11.45
2503.50	15	QPSK	H	221	192	1 / 74	15.05	9.43	24.48	0.280	33.01	-8.53
2593.00	15	QPSK	H	107	220	1 / 0	15.75	9.55	25.30	0.339	33.01	-7.71
2682.50	15	QPSK	H	196	194	1 / 0	15.78	9.83	**25.61**	0.364	33.01	-7.40
2682.50	15	16-QAM	H	196	194	1 / 0	15.62	9.83	**25.45**	0.351	33.01	-7.56
2682.50	15	64-QAM	H	196	194	1 / 0	13.65	9.83	**23.48**	0.223	33.01	-9.53
2682.50	15	256-QAM	H	196	194	1 / 0	11.46	9.83	**21.29**	**0.135**	33.01	-11.72
2506.00	20	QPSK	H	226	190	1 / 99	15.39	9.42	24.81	0.303	33.01	-8.20
2593.00	20	QPSK	H	104	222	1 / 0	15.90	9.55	25.45	0.351	33.01	-7.56
2680.00	20	QPSK	H	191	190	1 / 0	15.78	9.83	**25.61**	0.364	33.01	-7.40
2680.00	20	16-QAM	H	191	190	1 / 0	14.91	9.83	**24.74**	0.298	33.01	-8.27
2680.00	20	64-QAM	H	191	190	1 / 0	13.37	9.83	**23.20**	0.209	33.01	-9.81
2680.00	20	256-QAM	H	191	190	1 / 0	11.24	9.83	**21.07**	**0.128**	33.01	-11.94
2502.50	5	QPSK	V	163	339	12 / 6	14.38	9.83	24.21	0.264	33.01	-8.80
2502.50	5 (WCP+DD)	QPSK	H	158	191	12 / 6	14.96	9.83	24.79	0.302	33.01	-8.22
2680.00	20 (PC3)	QPSK	H	188	197	1 / 0	13.14	9.83	**22.97**	**0.198**	33.01	-10.04

Table 7-14. EIRP Data (Band 41 – PC2)

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7.4 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW ≥ 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points ≥ 2 x span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

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Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

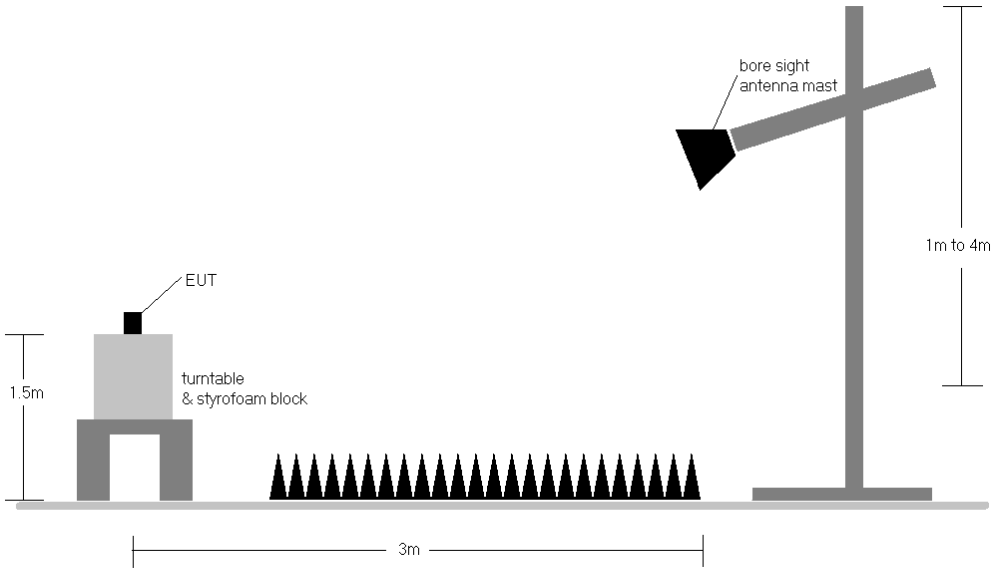

Figure 7-3. Test Instrument & Measurement Setup

Test Notes

1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.

2) This unit was tested with its standard battery.

3) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.

4) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

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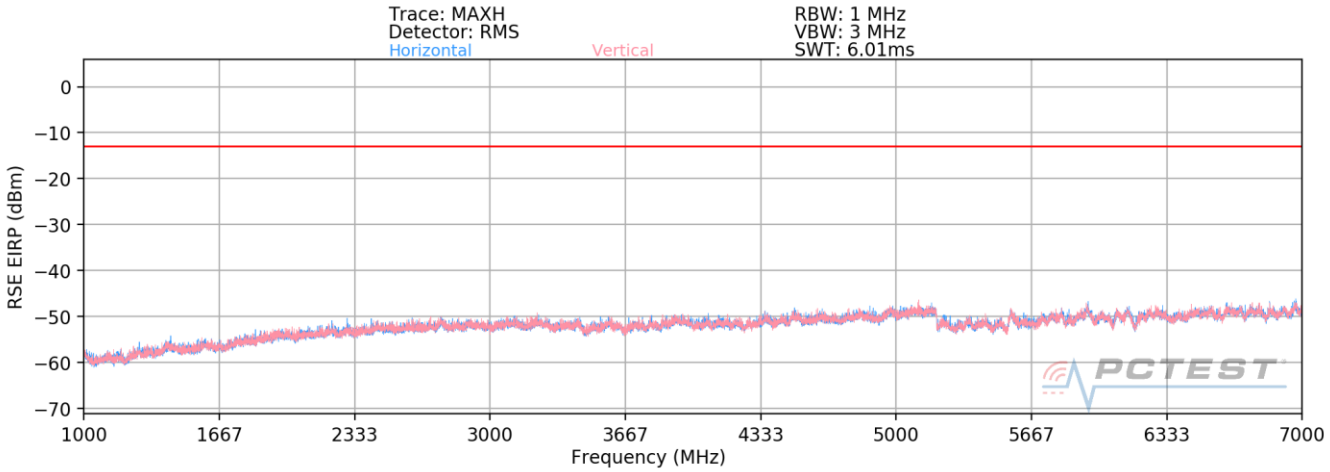
Band 71



Plot 7-1. Radiated Spurious Plot above 1GHz (Band 71)

OPERATING FREQUENCY:	673.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1346.00	V	-	-	-70.13	2.91	-67.22	-54.2
2019.00	V	-	-	-65.71	2.82	-62.89	-49.9

Table 7-15. Radiated Spurious Data (Band 71 – Low Channel)

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OPERATING FREQUENCY:	680.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1361.00	V	-	-	-70.27	2.88	-67.40	-54.4
2041.50	V	-	-	-65.14	2.73	-62.42	-49.4

Table 7-16. Radiated Spurious Data (Band 71 – Mid Channel)

OPERATING FREQUENCY:	688.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1376.00	V	-	-	-68.77	2.64	-66.13	-53.1
2064.00	V	-	-	-65.73	2.82	-62.91	-49.9

Table 7-17. Radiated Spurious Data (Band 71 – High Channel)

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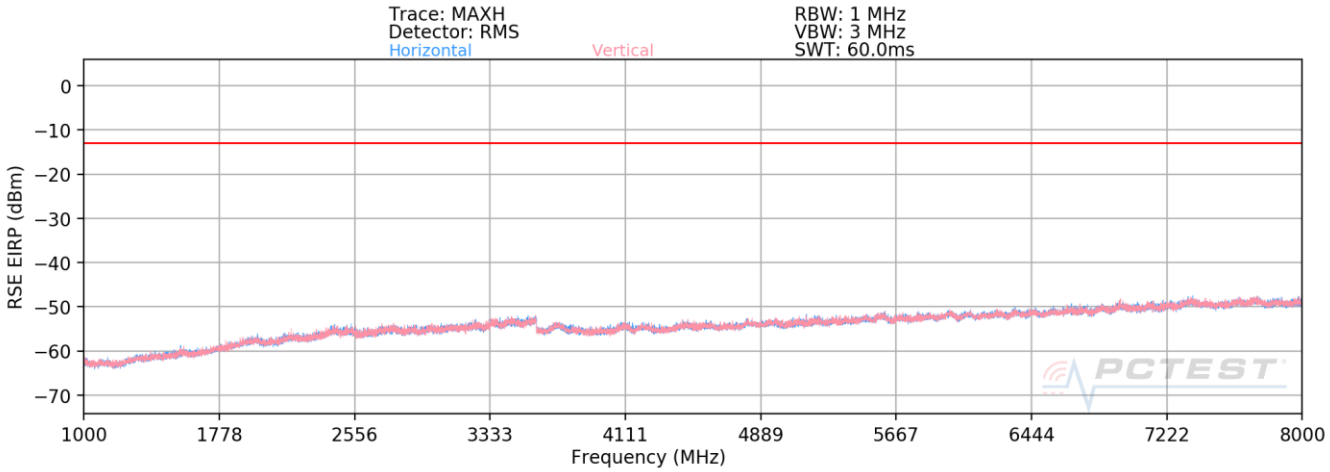
Band 12/17



Plot 7-2. Radiated Spurious Plot above 1GHz (Band 12/17)

OPERATING FREQUENCY:	700.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1401.00	H	-	-	-68.57	2.30	-66.26	-53.3
2101.50	H	106	351	-66.43	3.12	-63.30	-50.3
2802.00	H	-	-	-67.33	4.82	-62.51	-49.5
3502.50	H	-	-	-68.92	6.48	-62.44	-49.4

Table 7-18. Radiated Spurious Data (Band 12/17 – Low Channel)

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OPERATING FREQUENCY:	707.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1415.00	H	-	-	-68.60	2.39	-66.21	-53.2
2122.50	H	400	177	-66.90	3.14	-63.76	-50.8
2830.00	H	-	-	-67.44	4.87	-62.57	-49.6
3537.50	H	-	-	-68.23	6.45	-61.78	-48.8

Table 7-19. Radiated Spurious Data (Band 12/17 – Mid Channel)

OPERATING FREQUENCY:	714.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1429.00	H	-	-	-68.37	2.53	-65.85	-52.8
2143.50	H	232	28	-66.27	3.11	-63.16	-50.2
2858.00	H	-	-	-67.39	4.91	-62.48	-49.5
3572.50	H	-	-	-66.94	6.46	-60.49	-47.5

Table 7-20. Radiated Spurious Data (Band 12/17 – High Channel)

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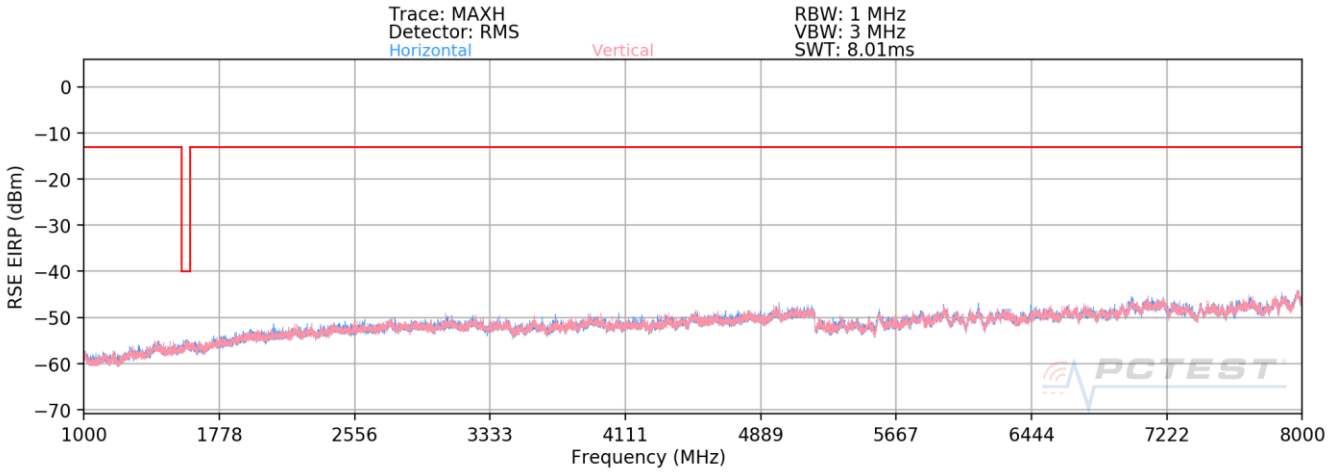
Band 13



Plot 7-3. Radiated Spurious Plot above 1GHz (Band 13)

OPERATING FREQUENCY:	782.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2346.00	V	101	314	-64.72	3.64	-61.09	-48.1
3128.00	V	-	-	-67.14	5.73	-61.40	-48.4
3910.00	V	-	-	-68.50	7.25	-61.25	-48.2

Table 7-21. Radiated Spurious Data (Band 13 – Mid Channel)

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MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.00	MHz
DISTANCE:	3	meters
NARROWBAND EMISSION LIMIT:	-50	dBm
WIDEBAND EMISSION LIMIT:	-40	dBm/MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	V	-	-	-68.37	2.93	-65.44	-25.4

Table 7-22. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

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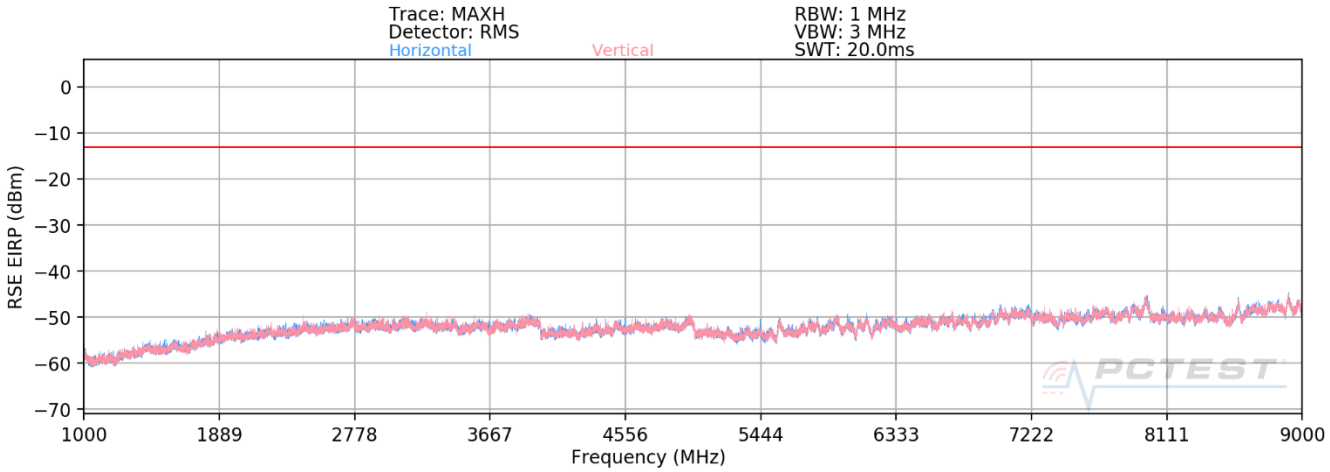
Band 26/5



Plot 7-4. Radiated Spurious Plot above 1GHz (Band 26/5)

OPERATING FREQUENCY:	829.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1658.00	V	-	-	-68.64	3.12	-65.52	-52.5
2487.00	V	104	304	-61.70	3.87	-57.83	-44.8
3316.00	V	-	-	-67.77	6.01	-61.76	-48.8
4145.00	V	-	-	-66.73	7.77	-58.96	-46.0

Table 7-23. Radiated Spurious Data (Band 26/5 – Low Channel)

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OPERATING FREQUENCY:	836.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.00	V	-	-	-68.53	3.10	-65.43	-52.4
2509.50	V	107	330	-57.89	4.02	-53.87	-40.9
3346.00	V	-	-	-67.64	6.03	-61.62	-48.6
4182.50	V	-	-	-69.35	7.79	-61.56	-48.6

Table 7-24. Radiated Spurious Data (Band 26/5 – Mid Channel)

OPERATING FREQUENCY:	844.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1688.00	V	-	-	-68.78	3.18	-65.60	-52.6
2532.00	V	107	331	-58.02	4.10	-53.92	-40.9
3376.00	V	-	-	-67.40	6.15	-61.25	-48.3
4220.00	V	-	-	-69.34	7.88	-61.46	-48.5

Table 7-25. Radiated Spurious Data (Band 26/5 – High Channel)

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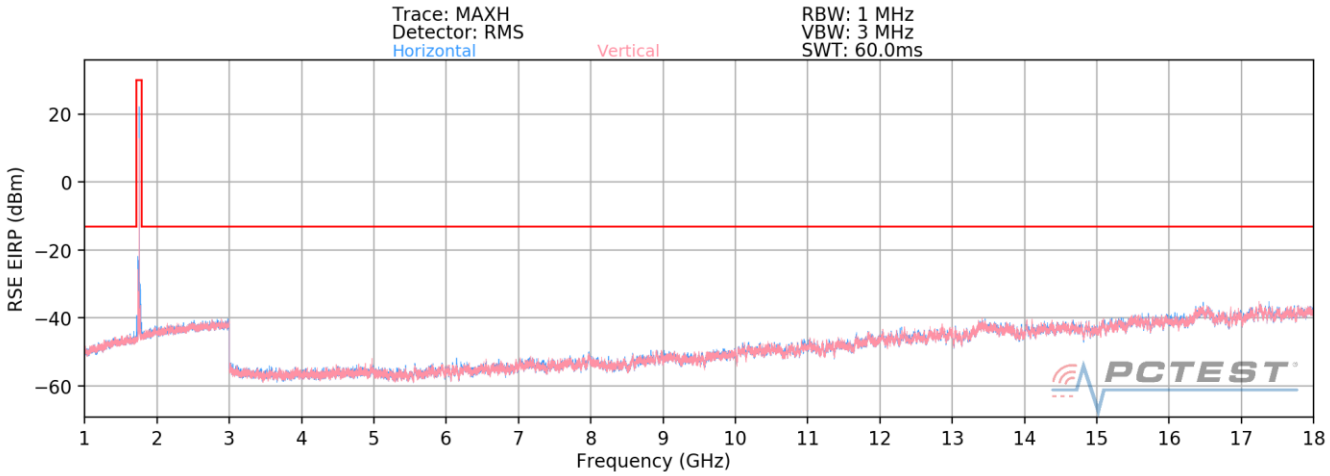
Band 66/4



Plot 7-5. Radiated Spurious Plot above 1GHz (Band 66/4)

OPERATING FREQUENCY:	1711.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3423.00	H	-	-	-75.48	9.84	-65.63	-52.6
5134.50	H	177	309	-69.18	10.71	-58.47	-45.5
6846.00	H	179	300	-73.87	11.68	-62.19	-49.2
8557.50	H	-	-	-71.08	11.08	-60.00	-47.0
10269.00	H	247	62	-68.36	12.38	-55.98	-43.0
11980.50	H	251	47	-57.32	12.71	-44.61	-31.6
13692.00	H	-	-	-66.81	11.99	-54.82	-41.8
15403.50	H	-	-	-74.46	15.88	-58.58	-45.6

Table 7-26. Radiated Spurious Data (Band 66/4 – Low Channel)

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OPERATING FREQUENCY:	1745.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3490.00	H	-	-	-76.17	9.91	-66.25	-53.3
5235.00	H	149	304	-68.64	10.73	-57.91	-44.9
6980.00	H	193	21	-73.42	11.82	-61.60	-48.6
8725.00	H	188	1	-70.87	11.00	-59.87	-46.9
10470.00	H	154	71	-66.17	12.58	-53.59	-40.6
12215.00	H	142	38	-57.57	13.11	-44.45	-31.5
13960.00	H	-	-	-67.38	11.85	-55.53	-42.5
15705.00	H	-	-	-74.35	16.63	-57.72	-44.7

Table 7-27. Radiated Spurious Data (Band 66/4 – Mid Channel)

OPERATING FREQUENCY:	1778.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	3.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3557.00	H	-	-	-76.24	9.89	-66.35	-53.3
5335.50	H	164	250	-67.88	10.69	-57.20	-44.2
7114.00	H	190	77	-74.09	11.79	-62.31	-49.3
8892.50	H	149	315	-70.80	11.00	-59.80	-46.8
10671.00	H	157	78	-65.51	12.58	-52.94	-39.9
12449.50	H	142	64	-59.64	13.33	-46.31	-33.3
14228.00	H	-	-	-66.52	11.53	-54.98	-42.0
16006.50	H	-	-	-75.39	16.76	-58.62	-45.6

Table 7-28. Radiated Spurious Data (Band 66/4 – High Channel)

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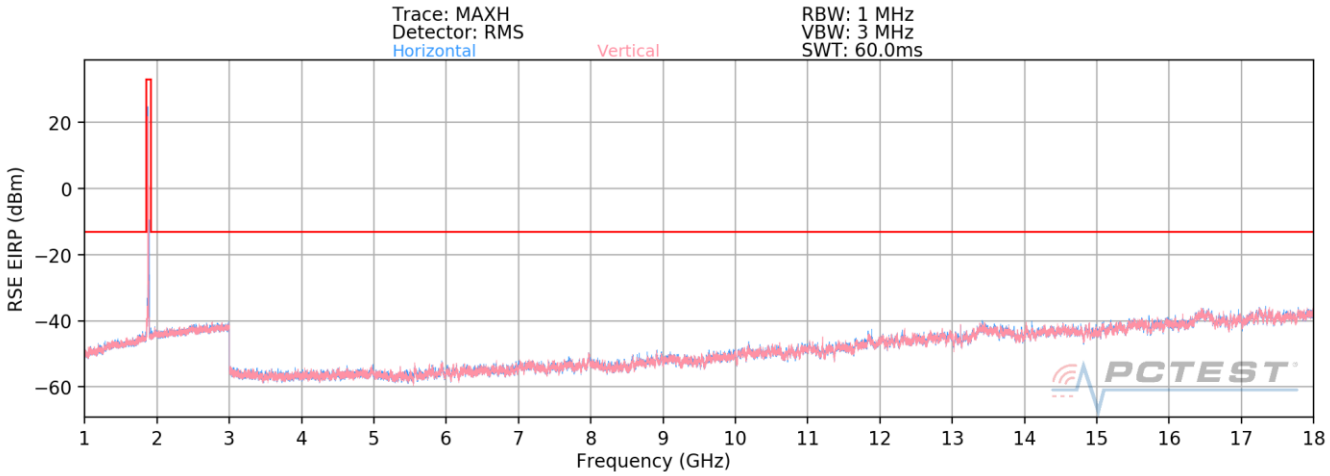
Band 25/2



Plot 7-6. Radiated Spurious Plot above 1GHz (Band 25/2)

OPERATING FREQUENCY:	1860.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3720.00	H	-	-	-68.47	6.90	-61.57	-48.6
5580.00	H	281	312	-57.25	9.06	-48.19	-35.2
7440.00	H	-	-	-66.64	9.26	-57.38	-44.4
9300.00	H	-	-	-65.08	9.40	-55.69	-42.7

Table 7-29. Radiated Spurious Data (Band 25/2 – Low Channel)

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OPERATING FREQUENCY:	1882.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3765.00	H	-	-	-68.60	6.94	-61.65	-48.7
5647.50	H	293	315	-58.59	9.17	-49.43	-36.4
7530.00	H	-	-	-66.09	9.31	-56.78	-43.8
9412.50	H	-	-	-63.30	9.50	-53.79	-40.8

Table 7-30. Radiated Spurious Data (Band 25/2 – Mid Channel)

OPERATING FREQUENCY:	1905.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3810.00	H	-	-	-68.17	7.07	-61.10	-48.1
5715.00	H	294	306	-58.77	9.04	-49.73	-36.7
7620.00	H	-	-	-65.38	9.27	-56.11	-43.1
9525.00	H	-	-	-64.44	9.46	-54.99	-42.0

Table 7-31. Radiated Spurious Data (Band 25/2 – High Channel)

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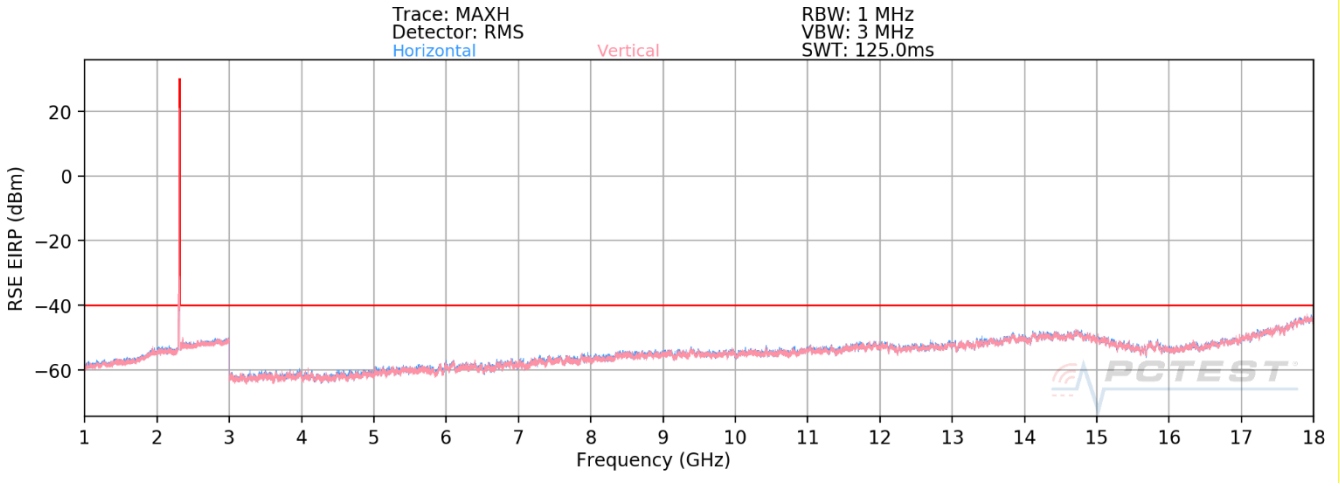
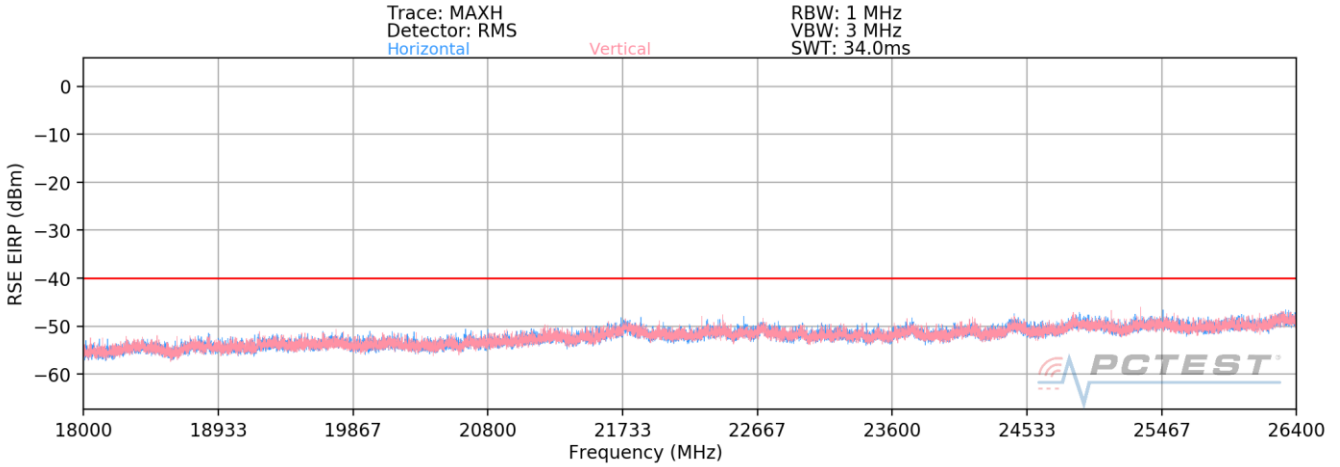
Band 30



Plot 7-7. Radiated Spurious Plot 1GHz - 18GHz (Band 30)



Plot 7-8. Radiated Spurious Plot 18GHz – 26.5GHz (Band 30)

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OPERATING FREQUENCY:	2310.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-40	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
4620.00	V	-	-	-77.71	10.92	-66.79	-26.8
6930.00	V	265	363	-71.00	11.74	-59.26	-19.3
9240.00	V	-	-	-71.25	11.62	-59.63	-19.6
11550.00	V	156	336	-69.91	12.72	-57.19	-17.2
13860.00	V	394	15	-59.14	11.99	-47.14	-7.1
16170.00	V	-	-	-74.57	16.59	-57.97	-18.0

Table 7-32. Radiated Spurious Data (Band 30 – Mid Channel)

OPERATING FREQUENCY:	2310.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-40	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
4620.00	H	-	-	-77.51	10.92	-66.59	-26.6
6930.00	H	-	-	-74.78	11.74	-63.04	-23.0

Table 7-33. Radiated Spurious Data with WCP + DD (Band 30 – Mid Channel)

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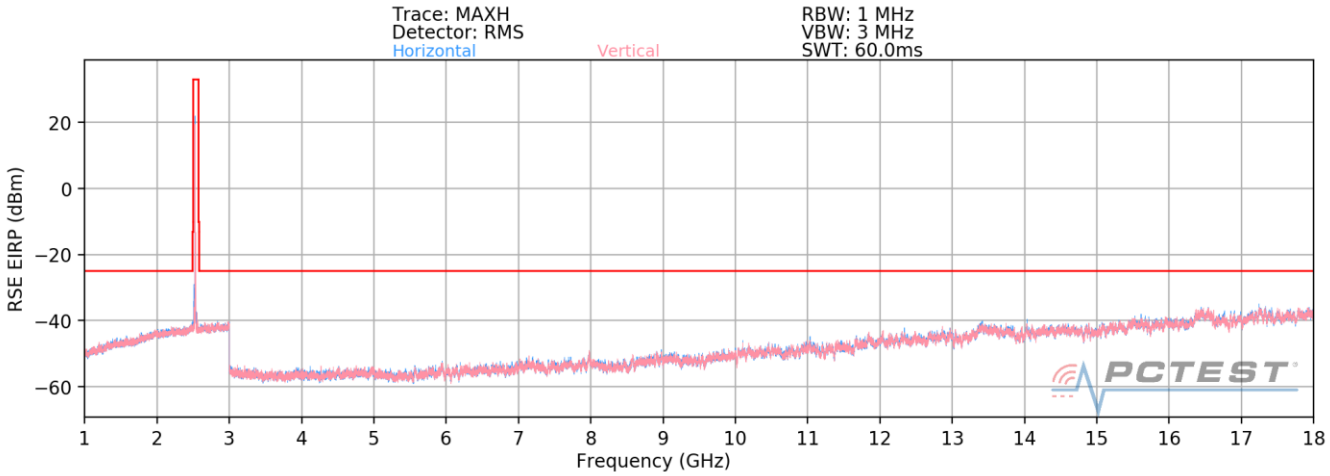
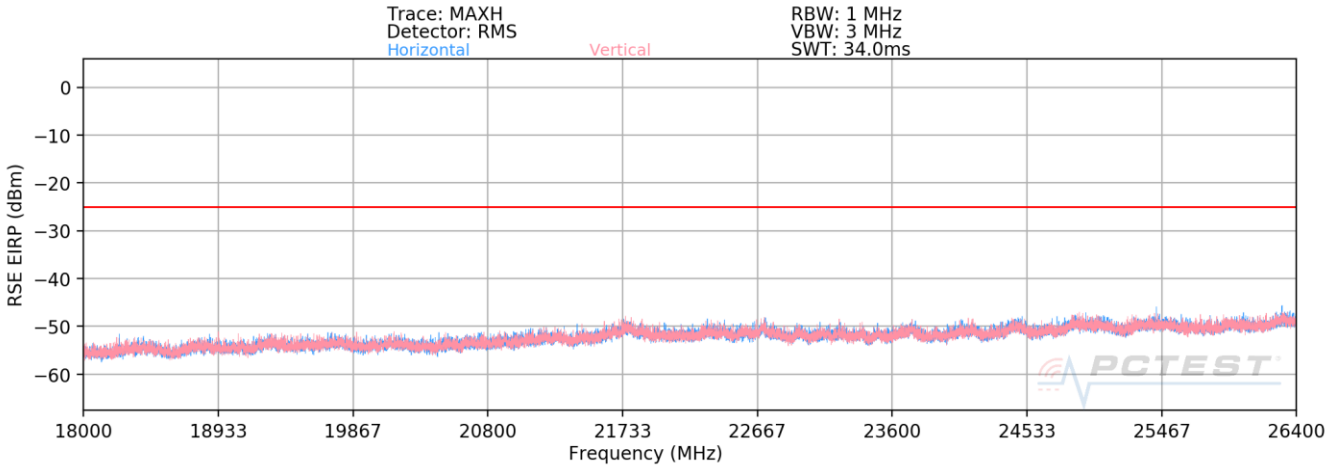
Band 7



Plot 7-9. Radiated Spurious Plot 1GHz - 18GHz (Band 7)



Plot 7-10. Radiated Spurious Plot 18GHz – 26.5GHz (Band 7)

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OPERATING FREQUENCY:	2507.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5015.00	H	169	298	-74.43	10.88	-63.54	-38.5
7522.50	H	164	361	-70.31	11.13	-59.18	-34.2
10030.00	H	151	363	-62.32	11.99	-50.34	-25.3
12537.50	H	123	60	-68.79	13.56	-55.23	-30.2
15045.00	H	133	65	-65.27	13.58	-51.69	-26.7
17552.50	H	-	-	-64.21	11.59	-52.62	-27.6

Table 7-34. Radiated Spurious Data (Band 7 – Low Channel)

OPERATING FREQUENCY:	2535.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5070.00	H	175	67	-74.61	10.75	-63.86	-38.9
7605.00	H	146	323	-70.02	11.25	-58.77	-33.8
10140.00	H	129	64	-61.33	12.07	-49.26	-24.3
12675.00	H	137	65	-70.85	13.66	-57.19	-32.2
15210.00	H	151	319	-66.71	14.71	-52.00	-27.0
17745.00	H	-	-	-59.98	10.38	-49.59	-24.6

Table 7-35. Radiated Spurious Data (Band 7 – Mid Channel)

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OPERATING FREQUENCY:	2562.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5125.00	H	146	48	-74.67	10.68	-63.99	-39.0
7687.50	H	143	33	-68.22	11.39	-56.83	-31.8
10250.00	H	146	66	-60.71	12.18	-48.53	-23.5
12812.50	H	156	61	-68.40	13.50	-54.89	-29.9
15375.00	H	154	321	-70.17	15.29	-54.88	-29.9
17937.50	H	-	-	-58.52	9.40	-49.12	-24.1

Table 7-36. Radiated Spurious Data (Band 7 – High Channel)

OPERATING FREQUENCY:	2507.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	15.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5015.00	H	209	92	-75.51	10.88	-64.62	-39.6
7522.50	H	157	253	-67.18	11.13	-56.05	-31.0
10030.00	H	112	173	-68.66	11.99	-56.68	-31.7
12537.50	H	119	176	-71.06	13.56	-57.50	-32.5
15045.00	H	121	186	-68.54	13.58	-54.96	-30.0
17552.50	H	-	-	-63.42	11.59	-51.83	-26.8

Table 7-37. Radiated Spurious Data with WCP + DD (Band 7 – Low Channel)

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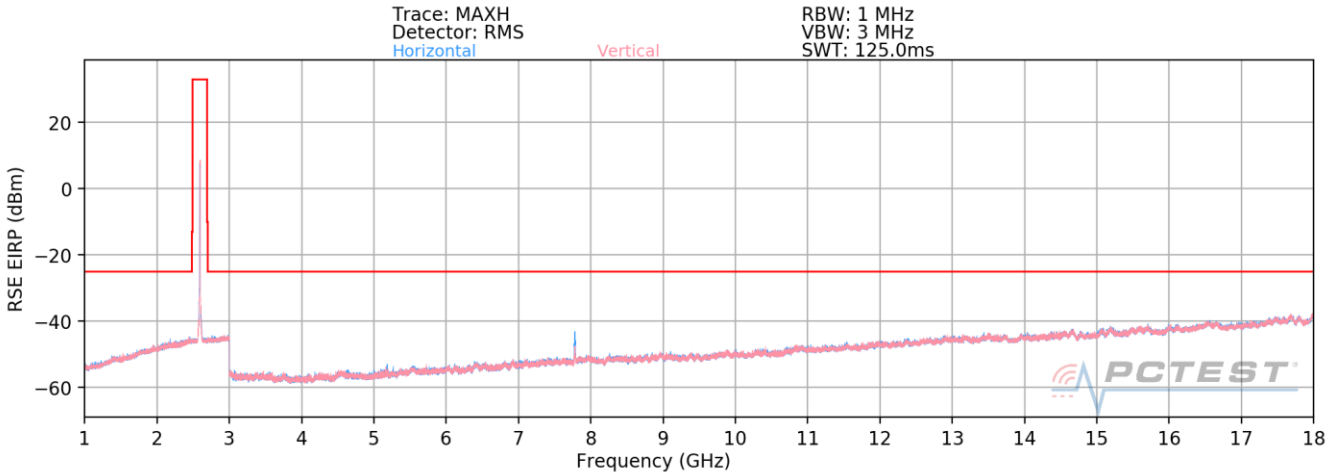
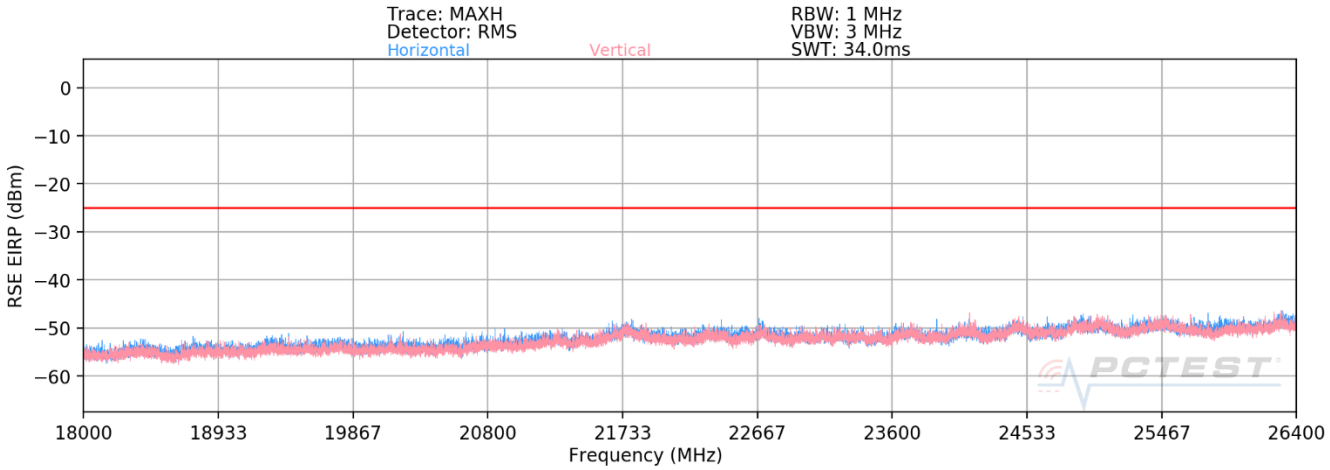
Band 41 (PC2)



Plot 7-11. Radiated Spurious Plot 1GHz - 18GHz (Band 41)



Plot 7-12. Radiated Spurious Plot 18GHz – 26.5GHz (Band 41)

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OPERATING FREQUENCY:	2506.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5012.00	H	165	359	-72.08	10.90	-61.18	-36.2
7518.00	H	349	137	-56.55	11.11	-45.44	-20.4
10024.00	H	254	287	-63.22	11.99	-51.22	-26.2
12530.00	H	258	39	-58.93	13.56	-45.37	-20.4
15036.00	H	132	359	-65.17	13.51	-51.67	-26.7
17542.00	H	-	-	-62.16	11.69	-50.47	-25.5
20048.00	H	-	-	-62.56	11.95	-50.61	-25.6

Table 7-38. Radiated Spurious Data (Band 41 – Low Channel)

OPERATING FREQUENCY:	2593.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	H	164	355	-70.33	10.74	-59.59	-34.6
7779.00	H	320	2	-53.17	11.44	-41.73	-16.7
10372.00	H	291	36	-59.90	12.42	-47.48	-22.5
12965.00	H	257	347	-62.46	13.29	-49.16	-24.2
15558.00	H	173	12	-68.60	16.33	-52.27	-27.3
18151.00	H	150	340	-62.90	11.46	-51.44	-26.4
20744.00	H	-	-	-62.01	11.94	-50.07	-25.1
23337.00	H	-	-	-60.13	11.99	-48.14	-23.1

Table 7-39. Radiated Spurious Data (Band 41 – Mid Channel)

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OPERATING FREQUENCY:	2687.50	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5375.00	H	195	346	-72.04	10.70	-61.34	-36.3
8062.50	H	250	358	-67.06	11.16	-55.90	-30.9
10750.00	H	244	11	-57.81	12.59	-45.22	-20.2
13437.50	H	255	356	-58.93	12.59	-46.33	-21.3
16125.00	H	201	280	-72.33	16.68	-55.65	-30.7
18812.50	H	150	5	-61.47	11.76	-49.71	-24.7
21500.00	H	-	-	-59.67	11.81	-47.85	-22.9
24187.50	H	-	-	-59.59	12.27	-47.32	-22.3

Table 7-40. Radiated Spurious Data (Band 41 – High Channel)

OPERATING FREQUENCY:	2593.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	H	155	14	-70.38	10.74	-59.64	-34.6
7779.00	H	137	242	-60.59	11.44	-49.15	-24.1
10372.00	H	280	30	-59.21	12.42	-46.79	-21.8
12965.00	H	249	341	-65.39	13.29	-52.09	-27.1
15558.00	H	168	12	-69.29	16.33	-52.96	-28.0
18151.00	H	150	4	-61.22	11.46	-49.76	-24.8
20744.00	H	-	-	-61.18	11.94	-49.24	-24.2
23337.00	H	-	-	-60.14	11.99	-48.15	-23.2

Table 7-41. Radiated Spurious Data (Band 41 (PC3) – Mid Channel)

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OPERATING FREQUENCY:	2593.00	MHz
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	5.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	H	166	317	-71.95	10.70	-61.25	-36.3
7779.00	H	333	232	-63.91	11.16	-52.75	-27.7
10372.00	H	113	121	-67.66	12.59	-55.07	-30.1
12965.00	H	138	172	-66.62	12.59	-54.02	-29.0
15558.00	H	-	-	-72.86	16.68	-56.18	-31.2
18151.00	H	-	-	-62.88	11.46	-51.42	-26.4

Table 7-42. Radiated Spurious Data with WCP + DD (Band 41 – Mid Channel)

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7.5 Uplink Carrier Aggregation Radiated Measurements

§2.1053, §27.53(m)

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as peak measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v02r02 – Section 5.8

ANSI/TIA-603-D-2010 – Section 2.2.12

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW ≥ 3 x RBW
3. No. of sweep points ≥ 2 x span / RBW
4. Detector = RMS
5. Trace mode = trace average for continuous emissions, max hold for pulse emissions
6. The trace was allowed to stabilize

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Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

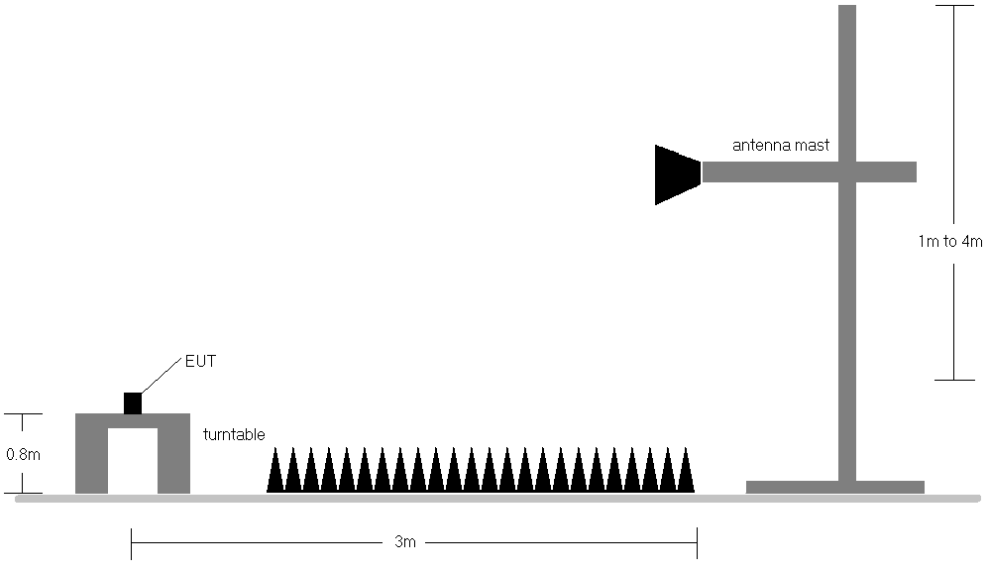

Figure 7-4. Test Instrument & Measurement Setup

Test Notes

1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.

2) This unit was tested with its standard battery.

3) Radiated spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. The worst case (highest) emissions were found while operating with QPSK modulation with both carriers set to transmit using 1RB.

4) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.

5) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

6) No significant emissions were found as a result of two uplink carriers operating contiguously.

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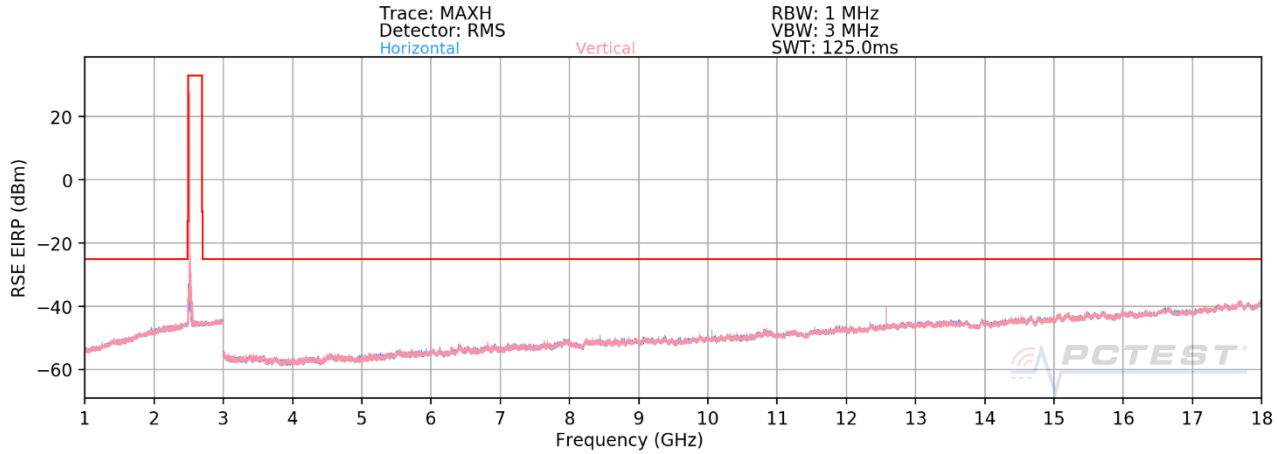
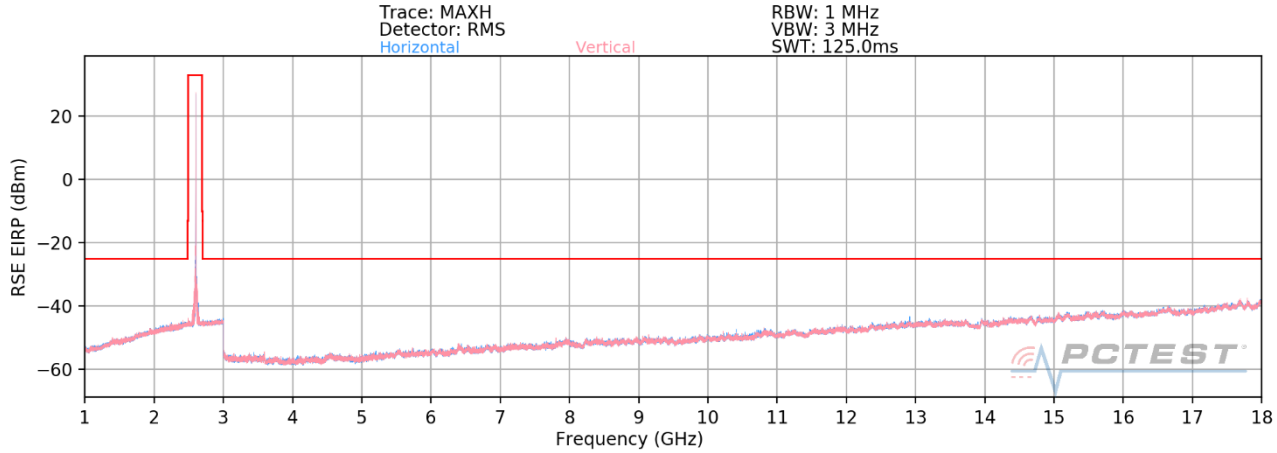
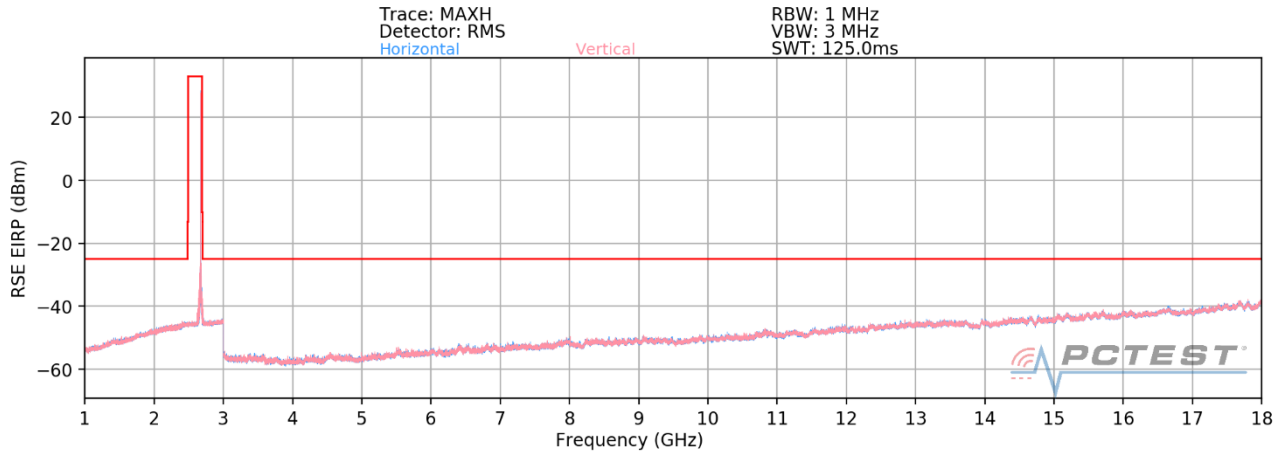
ULCA Band 41 (PC2)



Plot 7-13. Radiated Spurious Plot 1GHz - 18GHz (ULCA Band 41 (PC2) Low Channel – PCC/SCC: 1RB)



Plot 7-14. Radiated Spurious Plot 1GHz - 18GHz (ULCA Band 41 (PC2) Mid Channel – PCC/SCC: 1RB)



Plot 7-15. Radiated Spurious Plot 1GHz - 18GHz (ULCA Band 41 (PC2) High Channel – PCC/SCC: 1RB)

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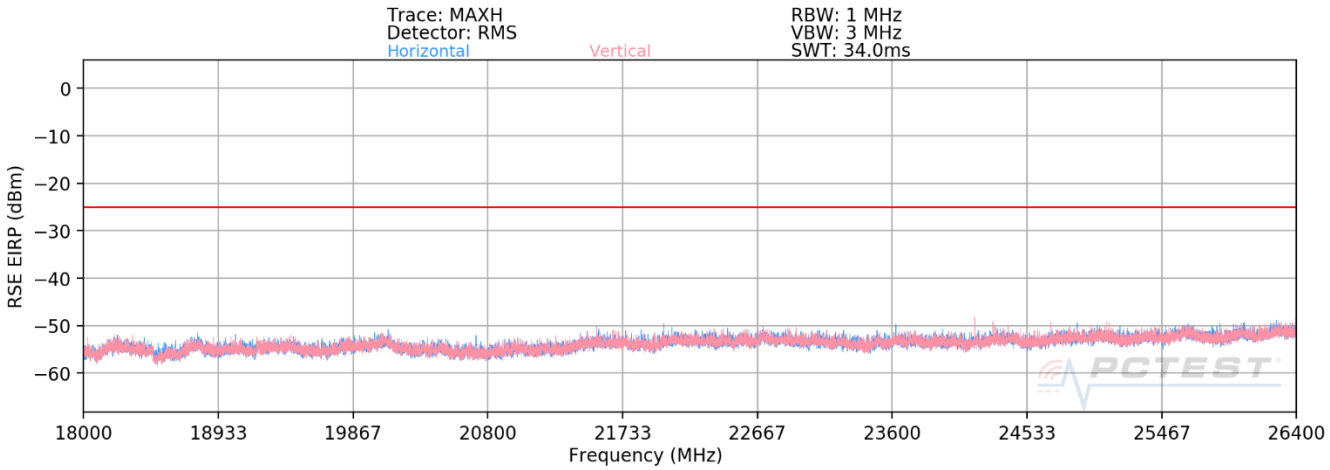

Plot 7-16. Radiated Spurious Plot 18GHz – 26.5GHz (ULCA Band 41 (PC2))

OPERATING FREQUENCY (PCC):	2506.00	MHz
OPERATING FREQUENCY (SCC):	2525.80	MHz
CHANNEL (PCC):	39750	
CHANNEL (SCC):	39948	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5012.00	V	267	270	-63.74	8.56	-55.18	-30.2
7518.00	V	207	340	-60.13	8.49	-51.64	-26.6
10024.00	V	102	352	-56.46	9.85	-46.61	-21.6
12530.00	V	171	10	-49.55	9.07	-40.48	-15.5
15036.00	V	-	-	-56.31	8.77	-47.54	-22.5
17542.00	V	-	-	-51.86	7.64	-44.22	-19.2

Table 7-43. Radiated Spurious Data (ULCA B41 (PC2) PCC: RB 1 Offset 99, SCC: RB 1 Offset 0 – Low Channel)

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OPERATING FREQUENCY (PCC):	2593.00	MHz
OPERATING FREQUENCY (SCC):	2612.80	MHz
CHANNEL (PCC):	40620	
CHANNEL (SCC):	40818	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	V	104	13	-62.11	8.70	-53.41	-28.4
7779.00	V	101	358	-58.71	8.69	-50.02	-25.0
10372.00	V	102	7	-57.38	9.62	-47.75	-22.8
12965.00	V	148	351	-55.56	8.99	-46.57	-21.6
15558.00	V	-	-	-53.34	8.32	-45.02	-20.0

Table 7-44. Radiated Spurious Data (ULCA B41 (PC2) PCC: RB 1 Offset 99, SCC: RB 1 Offset 0 – Mid Channel)

OPERATING FREQUENCY (PCC):	2680.00	MHz
OPERATING FREQUENCY (SCC):	2660.20	MHz
CHANNEL (PCC):	41490	
CHANNEL (SCC):	41292	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5360.00	V	107	27	-62.55	8.70	-53.85	-28.9
8040.00	V	229	346	-58.07	8.95	-49.11	-24.1
10720.00	V	112	4	-57.42	9.32	-48.10	-23.1
13400.00	V	142	352	-55.16	8.77	-46.38	-21.4
16080.00	V	-	-	-52.69	8.01	-44.68	-19.7

Table 7-45. Radiated Spurious Data (ULCA B41 (PC2) PCC: RB 1 Offset 0, SCC: RB 1 Offset 99 – High Channel)

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7.6 Sub 6GHz NR / EN-DC Test Results

Radiated Powers (ERP/EIRP)

All SCS's and Waveforms (CP-OFDM vs DFT-s OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section. Additional Data added representing other configurations (eg. CP-OFDM).

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
665.50	5	QPSK	V	180	178	1 / 23	15.41	3.75	17.01	0.050	34.77	-17.76
680.50	5	QPSK	V	180	176	1 / 23	16.18	4.20	18.23	0.067	34.77	-16.54
695.50	5	QPSK	V	182	167	1 / 23	16.05	4.50	**18.40**	0.069	34.77	-16.37
695.50	5	16-QAM	V	182	167	1 / 23	13.78	4.50	**16.13**	0.041	34.77	-18.64
695.50	5	64-QAM	V	182	167	1 / 23	13.54	4.50	**15.89**	0.039	34.77	-18.88
695.50	5	256-QAM	V	182	167	1 / 23	11.69	4.50	14.04	0.025	34.77	-20.73
668.00	10	QPSK	V	179	184	1 / 49	13.94	3.80	15.59	0.036	34.77	-19.18
680.50	10	QPSK	V	190	169	1 / 49	16.09	4.20	18.14	0.065	34.77	-16.63
693.00	10	QPSK	V	182	174	1 / 49	16.04	4.40	**18.29**	0.067	34.77	-16.48
693.00	10	16-QAM	V	182	174	1 / 49	14.05	4.40	**16.30**	0.043	34.77	-18.47
693.00	10	64-QAM	V	182	174	1 / 49	13.72	4.40	**15.97**	0.040	34.77	-18.80
693.00	10	256-QAM	V	182	174	1 / 49	11.70	4.40	**13.95**	**0.025**	34.77	-20.82
670.50	15	QPSK	V	178	160	1 / 74	14.94	3.90	16.69	0.047	34.77	-18.08
680.50	15	QPSK	V	174	146	1 / 74	15.17	4.20	17.22	0.053	34.77	-17.55
690.50	15	QPSK	V	176	154	1 / 74	16.27	4.40	**18.52**	**0.071**	34.77	-16.25
690.50	15	16-QAM	V	176	154	1 / 74	14.30	4.40	**16.55**	0.045	34.77	-18.22
690.50	15	64-QAM	V	176	154	1 / 74	13.87	4.40	**16.12**	0.041	34.77	-18.65
690.50	15	256-QAM	V	176	154	1 / 74	12.00	4.40	**14.25**	**0.027**	34.77	-20.52
673.00	20	QPSK	V	182	172	1 / 104	15.28	4.00	17.13	0.052	34.77	-17.64
680.50	20	QPSK	V	177	205	1 / 104	15.09	4.20	17.14	0.052	34.77	-17.63
688.00	20	QPSK	V	176	181	1 / 104	15.85	4.40	**18.10**	0.065	34.77	-16.67
688.00	20	16-QAM	V	176	181	1 / 104	13.89	4.40	**16.14**	0.041	34.77	-18.63
688.00	20	64-QAM	V	176	181	1 / 104	13.64	4.40	**15.89**	0.039	34.77	-18.88
688.00	20	256-QAM	V	176	181	1 / 104	11.23	4.40	**13.48**	**0.022**	34.77	-21.29
690.50	15	QPSK	H	146	66	1 / 1	17.31	3.30	18.46	0.070	34.77	-16.31
690.50	15 (CP-OFDM)	QPSK	V	166	164	1 / 40	15.24	4.00	17.09	0.051	33.01	-15.92
690.50	15 (WCP+DD)	QPSK	H	152	47	1 / 1	16.97	3.30	18.12	0.065	34.77	-16.65

Table 7-46. ERP Data (n71)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1712.50	5	QPSK	H	101	324	1 / 13	13.41	9.43	**22.84**	**0.192**	30.00	-7.16
1745.00	5	QPSK	H	100	331	1 / 1	13.30	9.23	22.53	0.179	30.00	-7.47
1777.50	5	QPSK	H	104	321	1 / 1	13.36	9.26	22.62	0.183	30.00	-7.38
1712.50	5	16-QAM	H	101	324	1 / 13	10.74	9.43	**20.17**	0.104	30.00	-9.83
1712.50	5	64-QAM	H	101	324	1 / 13	10.25	9.43	**19.68**	0.093	30.00	-10.32
1712.50	5	256-QAM	H	101	324	1 / 13	8.81	9.43	**18.24**	**0.067**	30.00	-11.76
1715.00	10	QPSK	H	104	329	1 / 26	13.42	9.42	**22.84**	0.192	30.00	-7.16
1745.00	10	QPSK	H	100	322	1 / 1	12.98	9.23	22.21	0.166	30.00	-7.79
1775.00	10	QPSK	H	101	324	1 / 1	13.02	9.25	22.27	0.169	30.00	-7.73
1715.00	10	16-QAM	H	104	329	1 / 26	10.84	9.42	20.26	0.106	30.00	-9.74
1715.00	10	64-QAM	H	104	329	1 / 26	10.19	9.42	19.61	0.091	30.00	-10.39
1715.00	10	256-QAM	H	104	329	1 / 26	8.96	9.42	**18.38**	**0.069**	30.00	-11.62
1717.50	15	QPSK	H	100	331	1 / 40	11.91	9.40	21.31	0.135	30.00	-8.69
1745.00	15	QPSK	H	103	330	1 / 1	12.73	9.23	21.96	0.157	30.00	-8.04
1772.50	15	QPSK	H	101	324	1 / 1	12.84	9.25	**22.09**	0.162	30.00	-7.91
1772.50	15	16-QAM	H	101	324	1 / 1	10.42	9.25	19.67	0.093	30.00	-10.33
1772.50	15	64-QAM	H	101	324	1 / 1	10.34	9.25	**19.59**	0.091	30.00	-10.41
1772.50	15	256-QAM	H	101	324	1 / 1	8.54	9.25	**17.79**	**0.060**	30.00	-12.21
1720.00	20	QPSK	H	101	337	1 / 53	12.10	9.38	21.48	0.141	30.00	-8.52
1745.00	20	QPSK	H	104	325	1 / 1	13.04	9.23	22.27	0.169	30.00	-7.73
1770.00	20	QPSK	H	100	335	1 / 1	13.19	9.24	**22.43**	0.175	30.00	-7.57
1770.00	20	16-QAM	H	100	335	1 / 1	10.56	9.24	19.80	0.096	30.00	-10.20
1770.00	20	64-QAM	H	100	335	1 / 1	10.60	9.24	**19.84**	0.096	30.00	-10.16
1770.00	20	256-QAM	H	100	335	1 / 1	8.90	9.24	**18.14**	**0.065**	30.00	-11.86
1712.50	5	QPSK	V	124	35	1 / 13	13.04	9.43	22.47	0.177	30.00	-7.53
1712.50	5 (CP-OFDM)	QPSK	H	100	325	1 / 13	10.65	9.25	19.90	0.098	30.00	-10.10
1712.50	5 (WCP+DD)	QPSK	H	107	317	1 / 13	12.29	9.43	21.72	0.149	30.00	-8.28

Table 7-47. EIRP Data (n66)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1852.50	5	QPSK	H	155	343	1 / 13	11.53	9.51	21.04	0.127	33.01	-11.97
1882.50	5	QPSK	H	152	341	1 / 1	12.50	9.94	**22.44**	0.175	33.01	-10.58
1912.50	5	QPSK	H	150	338	1 / 1	9.78	10.28	20.06	0.101	33.01	-12.95
1882.50	5	16-QAM	H	152	341	1 / 1	11.50	9.94	**21.44**	0.139	33.01	-11.58
1882.50	5	64-QAM	H	152	341	1 / 1	10.64	9.94	**20.58**	0.114	33.01	-12.44
1882.50	5	256-QAM	H	152	341	1 / 1	8.79	9.94	**18.73**	**0.075**	33.01	-14.29
1855.00	10	QPSK	H	152	340	1 / 50	11.85	9.55	21.40	0.138	33.01	-11.61
1882.50	10	QPSK	H	150	338	1 / 1	12.84	9.94	**22.78**	0.189	33.01	-10.24
1910.00	10	QPSK	H	148	342	1 / 1	10.45	10.26	20.71	0.118	33.01	-12.30
1882.50	10	16-QAM	H	150	338	1 / 0	11.44	9.94	**21.38**	0.137	33.01	-11.64
1882.50	10	64-QAM	H	150	338	1 / 0	10.77	9.94	**20.71**	0.118	33.01	-12.31
1882.50	10	256-QAM	H	150	338	1 / 0	8.73	9.94	**18.67**	**0.074**	33.01	-14.35
1857.50	15	QPSK	H	150	337	1 / 77	12.35	9.58	21.93	0.156	33.01	-11.08
1882.50	15	QPSK	H	153	340	1 / 1	12.06	9.94	**22.00**	0.158	33.01	-11.02
1907.50	15	QPSK	H	158	339	1 / 1	11.63	10.24	21.87	0.154	33.01	-11.14
1882.50	15	16-QAM	H	153	340	1 / 0	10.42	9.94	20.36	0.109	33.01	-12.66
1882.50	15	64-QAM	H	153	340	1 / 0	9.73	9.94	**19.67**	0.093	33.01	-13.35
1882.50	15	256-QAM	H	153	340	1 / 0	7.89	9.94	**17.83**	**0.061**	33.01	-15.19
1860.00	20	QPSK	H	152	336	1 / 104	13.27	9.62	**22.89**	**0.194**	33.01	-10.12
1882.50	20	QPSK	H	151	337	1 / 1	12.69	9.94	22.63	0.183	33.01	-10.39
1905.00	20	QPSK	H	164	331	1 / 1	11.15	10.22	21.37	0.137	33.01	-11.64
1860.00	20	16-QAM	H	152	336	1 / 104	11.35	9.62	**20.97**	0.125	33.01	-12.04
1860.00	20	64-QAM	H	152	336	1 / 104	10.02	9.62	19.64	0.092	33.01	-13.37
1860.00	20	256-QAM	H	152	336	1 / 104	8.19	9.62	17.81	0.060	33.01	-15.20
1860.00	20	QPSK	V	325	81	1 / 104	10.42	9.95	20.37	0.109	33.01	-12.64
1860.00	20 (CP-OFDM)	QPSK	H	121	342	1 / 104	11.75	9.62	21.37	**0.137**	33.01	-11.64
1860.00	20 (WCP+DD)	QPSK	H	129	346	1 / 104	11.52	9.62	21.14	0.130	33.01	-11.87

Table 7-48. EIRP Data (n25/2)

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2506.02	20	QPSK	H	122	325	1 / 26	12.28	9.42	21.70	0.148	33.01	-11.31
2592.99	20	QPSK	H	150	322	1 / 26	13.40	9.55	**22.95**	0.197	33.01	-10.06
2679.99	20	QPSK	H	137	314	1 / 26	12.04	9.83	21.87	0.154	33.01	-11.14
2592.99	20	16-QAM	H	150	322	1 / 26	12.32	9.55	21.87	0.154	33.01	-11.14
2592.99	20	64-QAM	H	150	322	1 / 26	12.12	9.55	**21.67**	0.147	33.01	-11.34
2592.99	20	256-QAM	H	150	322	1 / 26	11.96	9.55	**21.51**	**0.142**	33.01	-11.50
2516.02	40	QPSK	H	128	316	1 / 53	12.14	9.41	21.55	0.143	33.01	-11.46
2592.99	40	QPSK	H	153	319	1 / 53	13.44	9.55	**22.99**	**0.199**	33.01	-10.02
2670.00	40	QPSK	H	141	310	1 / 53	12.06	9.86	21.92	0.155	33.01	-11.09
2592.99	40	16-QAM	H	153	319	1 / 53	12.58	9.55	**22.13**	0.163	33.01	-10.88
2592.99	40	64-QAM	H	153	319	1 / 53	12.06	9.55	**21.61**	0.145	33.01	-11.40
2592.99	40	256-QAM	H	153	319	1 / 53	11.79	9.55	**21.34**	**0.136**	33.01	-11.67
2521.02	50	QPSK	H	133	311	1 / 67	12.14	9.41	21.55	0.143	33.01	-11.46
2592.99	50	QPSK	H	151	314	1 / 67	13.44	9.55	**22.99**	**0.199**	33.01	-10.02
2664.99	50	QPSK	H	144	313	1 / 67	12.06	9.87	21.93	0.156	33.01	-11.08
2592.99	50	16-QAM	H	151	314	1 / 67	12.58	9.55	**22.13**	0.163	33.01	-10.88
2592.99	50	64-QAM	H	151	314	1 / 67	12.06	9.55	**21.61**	0.145	33.01	-11.40
2592.99	50	256-QAM	H	151	314	1 / 67	11.79	9.55	**21.34**	**0.136**	33.01	-11.67

Table 7-49. EIRP (n41 (PC2))

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2526.00	60	QPSK	H	127	326	1 / 81	12.14	9.40	21.54	0.143	33.01	-11.47
2592.99	60	QPSK	H	154	318	1 / 81	13.44	9.55	**22.99**	0.199	33.01	-10.02
2659.98	60	QPSK	H	132	311	1 / 81	12.06	9.88	21.94	0.156	33.01	-11.07
2592.99	60	16-QAM	H	154	318	1 / 81	12.58	9.55	**22.13**	0.163	33.01	-10.88
2592.99	60	64-QAM	H	154	318	1 / 81	12.06	9.55	**21.61**	0.145	33.01	-11.40
2592.99	60	256-QAM	H	154	318	1 / 81	11.79	9.55	**21.34**	**0.136**	33.01	-11.67
2536.02	80	QPSK	H	125	320	1 / 109	12.14	9.43	21.57	0.144	33.01	-11.44
2592.99	80	QPSK	H	157	312	1 / 109	13.44	9.55	**22.99**	0.199	33.01	-10.02
2649.99	80	QPSK	H	130	317	1 / 109	12.06	9.82	21.88	0.154	33.01	-11.13
2592.99	80	16-QAM	H	157	312	1 / 109	12.58	9.55	**22.13**	0.163	33.01	-10.88
2592.99	80	64-QAM	H	157	312	1 / 109	12.06	9.55	**21.61**	0.145	33.01	-11.40
2592.99	80	256-QAM	H	157	312	1 / 109	11.79	9.55	**21.34**	**0.136**	33.01	-11.67
2541.00	90	QPSK	H	121	323	1 / 123	12.18	9.39	21.57	0.143	33.01	-11.44
2592.99	90	QPSK	H	153	305	1 / 123	13.85	9.55	**23.40**	**0.219**	33.01	-9.61
2644.98	90	QPSK	H	136	319	1 / 123	12.16	9.87	22.03	0.160	33.01	-10.98
2592.99	90	16-QAM	H	153	305	1 / 123	12.76	9.55	**22.31**	0.170	33.01	-10.70
2592.99	90	64-QAM	H	153	305	1 / 123	12.39	9.55	**21.94**	0.156	33.01	-11.07
2592.99	90	256-QAM	H	153	305	1 / 123	12.02	9.55	**21.57**	**0.144**	33.01	-11.44
2546.01	100	QPSK	H	120	313	1 / 137	13.12	9.38	**22.50**	0.178	33.01	-10.51
2592.99	100	QPSK	H	149	311	1 / 137	10.34	9.55	19.89	0.098	33.01	-13.12
2640.00	100	QPSK	H	112	310	1 / 1	10.19	9.84	20.03	0.101	33.01	-12.98
2546.01	100	16-QAM	H	120	313	1 / 137	12.95	9.38	**22.33**	0.171	33.01	-10.68
2546.00	100	64-QAM	H	120	313	1 / 137	11.41	9.38	**20.79**	0.120	33.01	-12.22
2546.00	100	256-QAM	H	120	313	1 / 137	9.10	9.38	**18.48**	**0.071**	33.01	-14.53
2592.99	90	QPSK	V	128	287	1 / 123	11.28	9.38	20.66	0.116	33.01	-12.35
2592.99	90 (WCP+DD)	QPSK	H	147	313	1 / 123	11.83	9.38	21.21	**0.132**	33.01	-11.80
2592.99	90 (CP-OFDM)	QPSK	H	121	323	1 / 123	12.47	9.38	21.85	0.153	33.01	-11.16
2592.99	90 (PC3)	QPSK	H	121	323	1 / 123	9.39	9.38	18.77	**0.075**	33.01	-14.24

Table 7-50. EIRP (n41 (PC2) – Continued)

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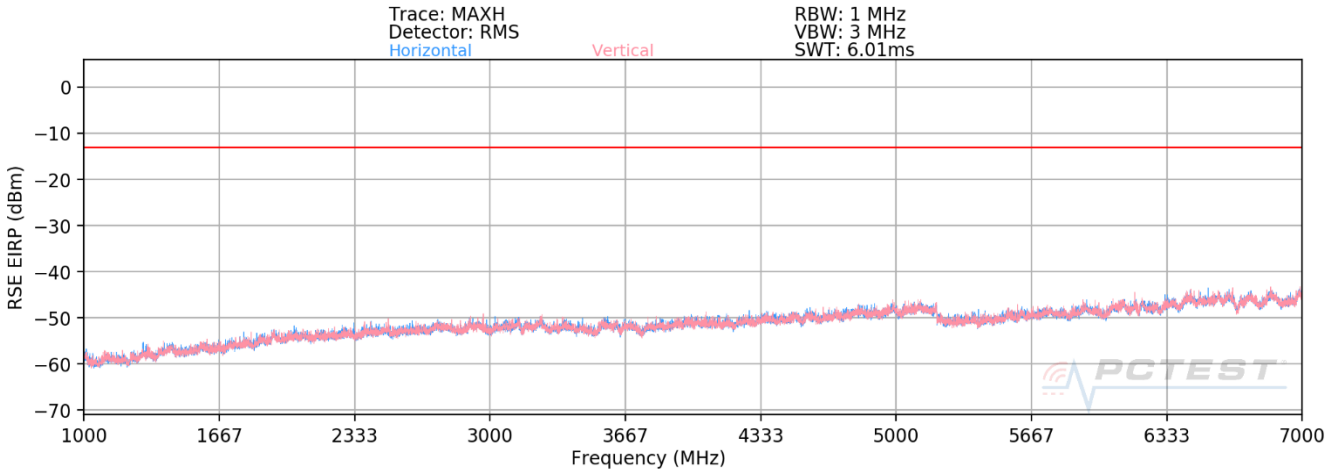
Radiated Spurious Emissions Measurements

All SCS's and Waveforms (CP-OFDM vs DFT-s OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

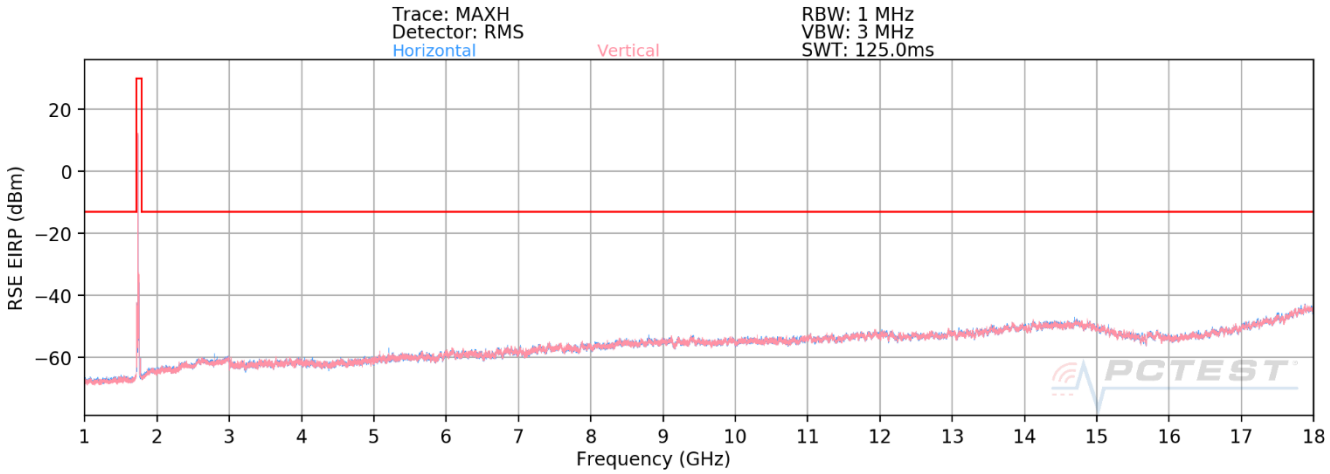
Per FCC Guidance, KDB 328880, Radiated Spurious Measurements were made based of the worst case modulation and RB\ configuraton as determined by EIRP measurement, and grouping the available combinations by Low Band, Mid Band, and High Band.

Spurious emissions shown in this section are measured while operating in EN-DC mode with Sub 6GHz NR carrier as well as an LTE carrier (anchor). Per KDB 968740, spurious emissions from the NR carrier device, is subject to the rules under which the NR carrier operates. Spurious emission caused by the LTE carrier must meet the requirements of the rules under which the LTE carrier operates. If the spurious emission is caused by the simultaneous operation of both devices, the limit is the highest level allowed by either rule part.

NR Band n71



Plot 7-17. Radiated Spurious Plot above 1GHz (n71 Standalone)



Plot 7-18. Radiated Spurious Plot above 1GHz (n71 ENDC – ANCHOR B66)

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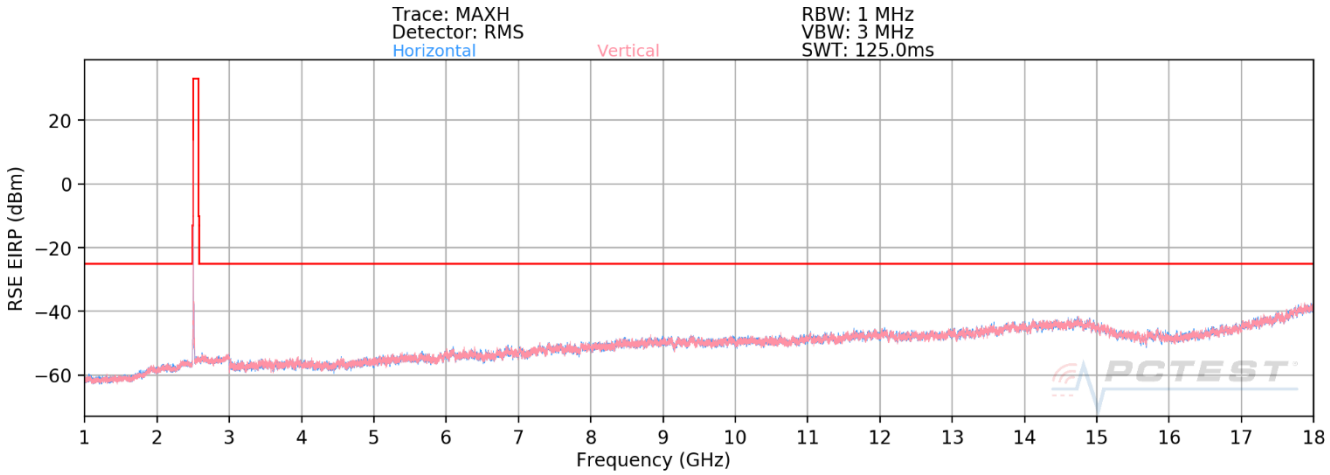

Plot 7-19. Radiated Spurious Plot above 1GHz (n71 ENDC – ANCHOR B7)

OPERATING FREQUENCY:	670.50	MHz
MODULATION SIGNAL:	QPSK (DFT-s-OFDM)	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1341.00	H	170	330	-79.10	7.44	-71.66	-58.7
2011.50	H	176	331	-77.26	8.66	-68.60	-55.6
2682.00	H	170	321	-78.79	9.96	-68.83	-55.8
3352.50	H	-	-	-77.38	9.62	-67.77	-54.8
4023.00	H	-	-	-75.72	9.76	-65.96	-53.0

Table 7-51. Radiated Spurious Data (n71 ENDC – ANCHOR B66 – Low Channel)

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OPERATING FREQUENCY:	680.50	MHz
MODULATION SIGNAL:	QPSK (DFT-s-OFDM)	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1361.00	H	169	328	-73.35	7.48	-65.86	-52.9
2041.50	H	182	331	-75.47	8.76	-66.70	-53.7
2722.00	H	208	324	-79.46	10.08	-69.38	-56.4
3402.50	H	-	-	-77.38	9.80	-67.58	-54.6
4083.00	H	-	-	-76.98	10.05	-66.93	-53.9

Table 7-52. Radiated Spurious Data (n71 – ANCHOR B66 – Mid Channel)

OPERATING FREQUENCY:	690.50	MHz
MODULATION SIGNAL:	QPSK (DFT-s-OFDM)	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1381.00	H	117	331	-74.53	7.46	-67.08	-54.1
2071.50	H	288	334	-74.73	8.81	-65.92	-52.9
2762.00	H	-	-	-79.11	10.16	-68.94	-55.9
3452.50	H	-	-	-76.47	9.86	-66.61	-53.6

Table 7-53. Radiated Spurious Data (n71 – ANCHOR B66 – High Channel)

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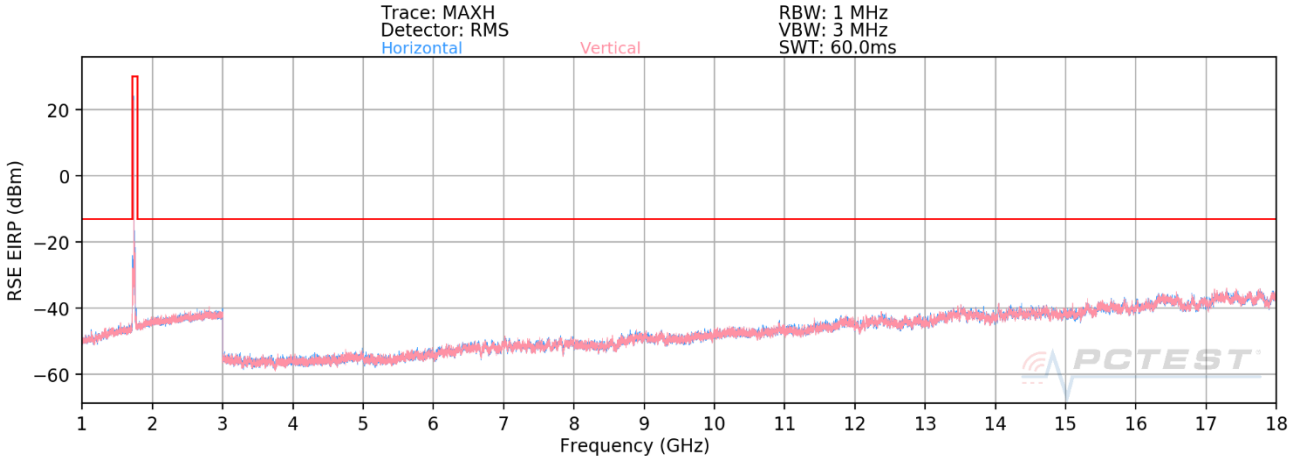
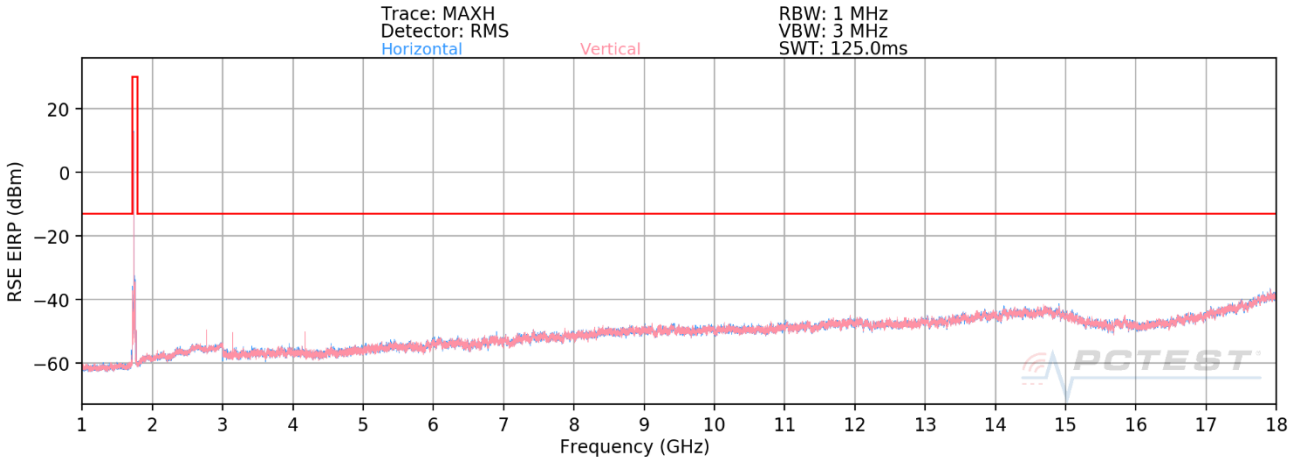
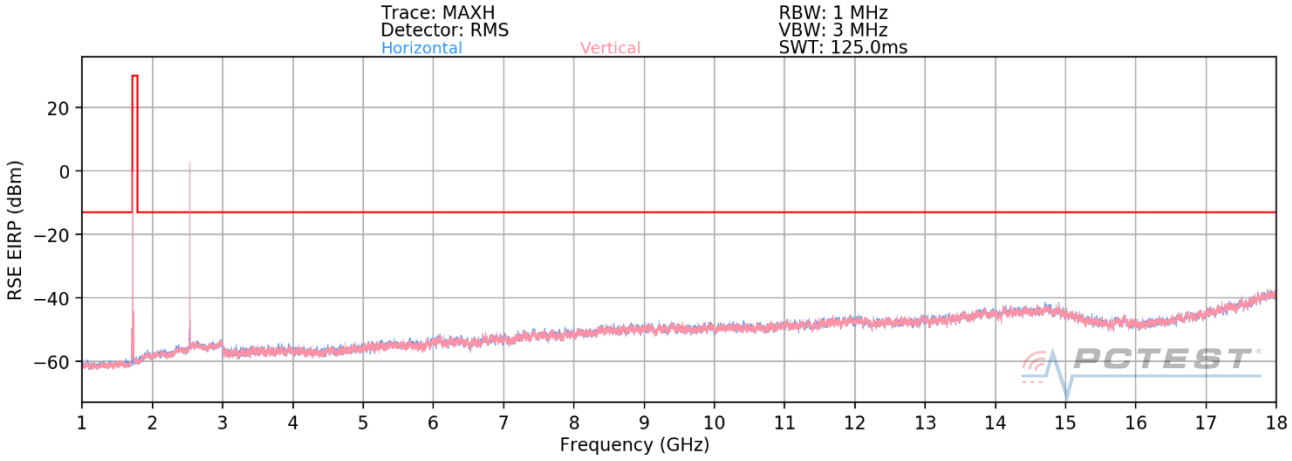


Plot 7-20. Radiated Spurious Plot above 1GHz (n66 Standalone)



Plot 7-21. Radiated Spurious Plot above 1GHz (n66 ENDC – ANCHOR B12)



Plot 7-22. Radiated Spurious Plot above 1GHz (n66 ENDC – ANCHOR B7)

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OPERATING FREQUENCY	1720.00	MHz
MODULATION SIGNAL	QPSK (DFT-s-OFDM)	
BANDWIDTH	20.0	MHz
DISTANCE	3	meters
LIMIT	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3440.00	H	194	51	-74.97	9.84	-65.12	-52.1
5160.00	H	182	275	-76.05	10.71	-65.34	-52.3
6880.00	H	-	-	-74.97	11.68	-63.29	-50.3
8600.00	H	-	-	-71.05	11.08	-59.97	-47.0

Table 7-54. Radiated Spurious Data (n66 – ENDC – ANCHOR B7– Low Channel)

OPERATING FREQUENCY	1745.00	MHz
MODULATION SIGNAL	QPSK (DFT-s-OFDM)	
BANDWIDTH	20.0	MHz
DISTANCE	3	meters
LIMIT	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3490.00	H	175	298	-74.37	9.91	-64.45	-51.5
5235.00	H	326	146	-75.27	10.73	-64.54	-51.5
6980.00	H	-	-	-75.04	11.82	-63.22	-50.2
8725.00	H	-	-	-71.01	11.00	-60.01	-47.0

Table 7-55. Radiated Spurious Data (n66 – ENDC – ANCHOR B7 – Mid Channel)

OPERATING FREQUENCY	1770.00	MHz
MODULATION SIGNAL	QPSK (DFT-s-OFDM)	
BANDWIDTH	20.0	MHz
DISTANCE	3	meters
LIMIT	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3540.00	H	168	298	-72.86	9.89	-62.97	-50.0
5310.00	H	164	155	-76.03	10.69	-65.35	-52.3
7080.00	H	-	-	-75.27	11.79	-63.49	-50.5
8850.00	H	-	-	-70.67	11.00	-59.67	-46.7

Table 7-56. Radiated Spurious Data (n66 – ENDC – ANCHOR B7 – High Channel)

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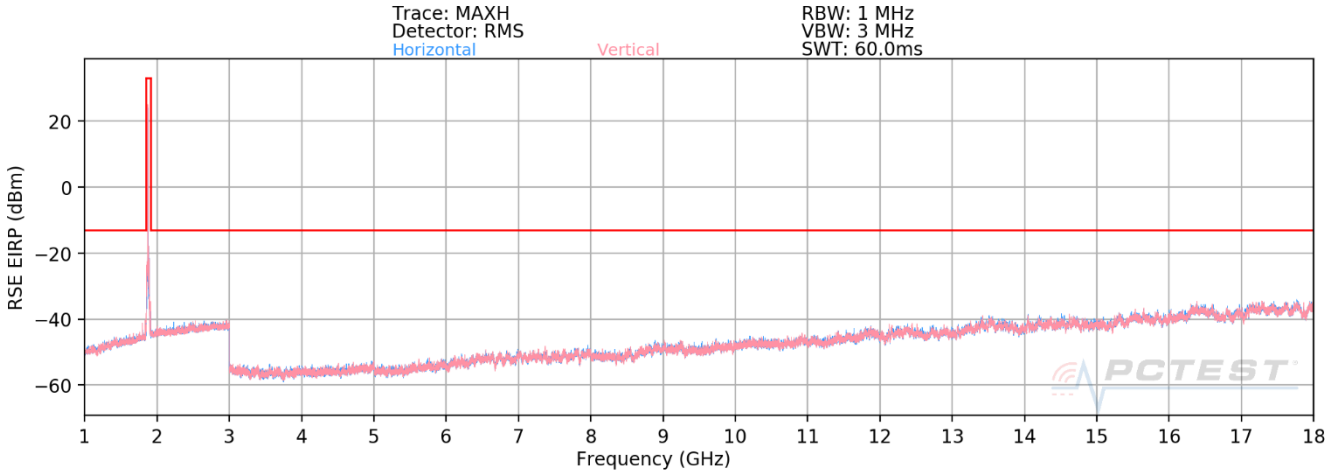
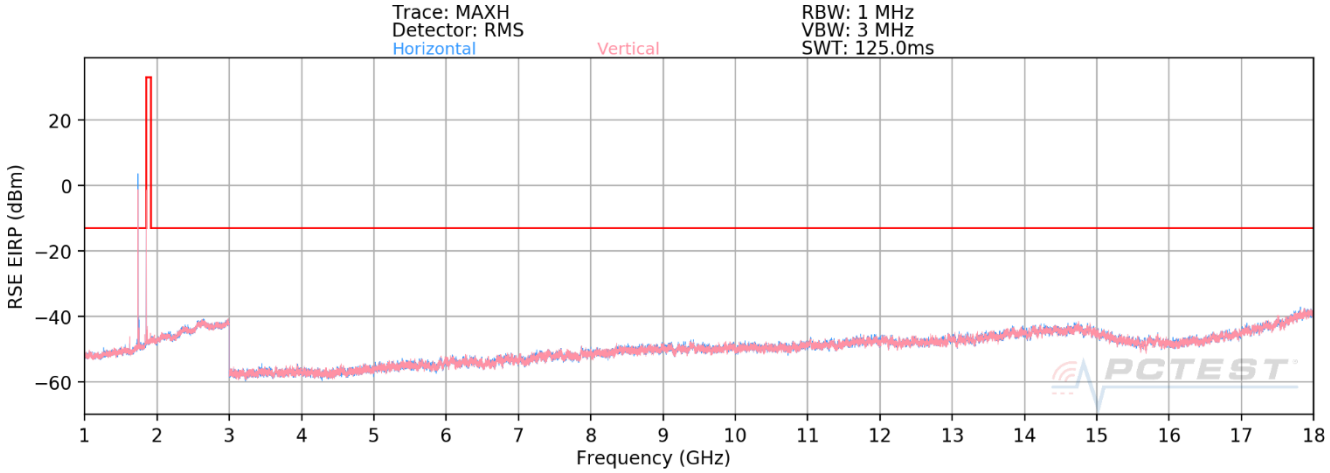
NR Band n25/n2



Plot 7-23. Radiated Spurious Plot above 1GHz (n25 Standalone)



Plot 7-24. Radiated Spurious Plot above 1GHz (n25 ENDC – ANCHOR B66)

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OPERATING FREQUENCY:	1860.00	MHz
MODULATION SIGNAL:	QPSK (DFT-s-OFDM)	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3720.00	H	330	294	-72.64	9.51	-63.14	-50.1
5580.00	H	225	216	-64.55	10.99	-53.57	-40.6
7440.00	H	-	-	-72.46	10.99	-61.47	-48.5
9300.00	H	-	-	-71.51	11.61	-59.90	-46.9

Table 7-57. Radiated Spurious Data (n25/n2 – ANCHOR B66 – Low Channel)

OPERATING FREQUENCY:	1882.50	MHz
MODULATION SIGNAL:	QPSK (DFT-s-OFDM)	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3765.00	H	328	20	-74.90	9.36	-65.54	-52.5
5647.50	H	-	-	-74.75	11.19	-63.55	-50.6
7530.00	H	-	-	-72.14	11.13	-61.01	-48.0

Table 7-58. Radiated Spurious Data (n25/n2 – ANCHOR B66 – Mid Channel)

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OPERATING FREQUENCY:	1905.00	MHz
MODULATION SIGNAL:	QPSK (DFT-s-OFDM)	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3810.00	H	-	-	-75.24	9.29	-65.94	-52.9
5715.00	H	157	79	-75.86	11.35	-64.51	-51.5
7620.00	H	-	-	-73.34	11.29	-62.05	-49.1
9525.00	H	-	-	-71.54	11.73	-59.81	-46.8

Table 7-59. Radiated Spurious Data (n25/n2 – ANCHOR B66 – High Channel)

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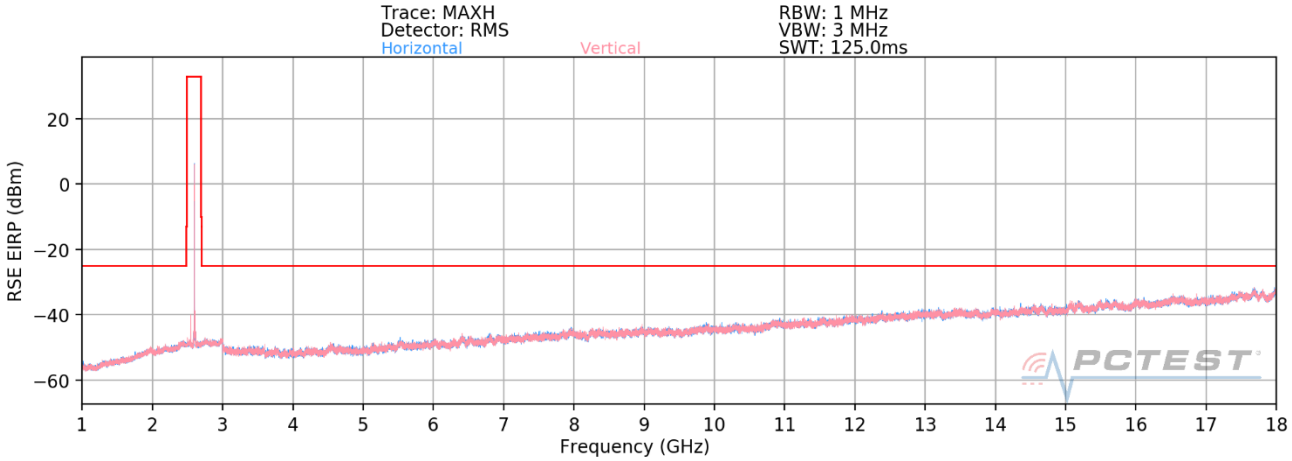
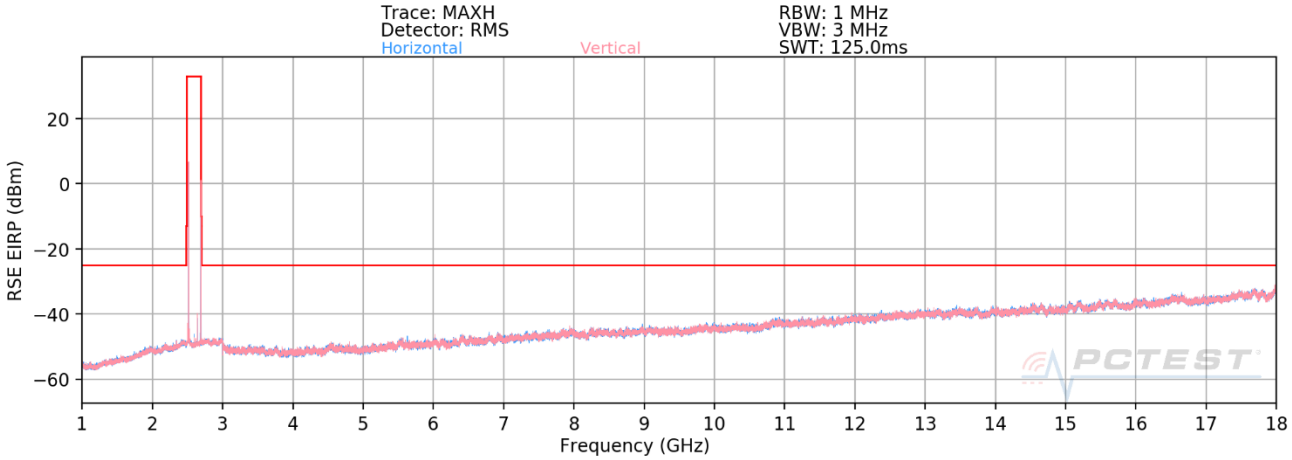
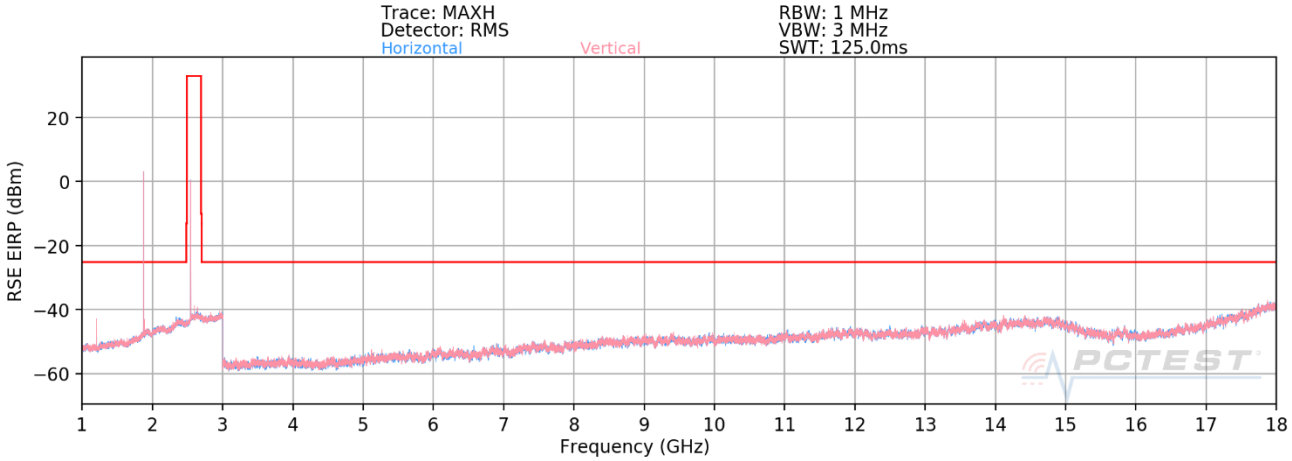


Plot 7-25. Radiated Spurious Plot above 1GHz (Intra-Band Contiguous (B41+n41))



Plot 7-26. Radiated Spurious Plot above 1GHz (Intra-Band Non-Contiguous (B41+n41))



Plot 7-27. Radiated Spurious Plot above 1GHz (n41 ENDC – ANCHOR B25)

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OPERATING FREQUENCY	2546.01	MHz
MODULATION SIGNAL	QPSK (DFT-s-OFDM)	
BANDWIDTH	100.0	MHz
DISTANCE	3	meters
LIMIT	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5092.02	H	207	222	-59.25	8.64	-50.61	-25.6
7638.03	H	100	222	-54.15	8.54	-45.61	-20.6
10184.04	H	-	-	-61.93	9.75	-52.18	-27.2
12730.05	H	-	-	-56.81	9.12	-47.69	-22.7

Table 7-60. Radiated Spurious Data (Intra-Band Contiguous (B41+n41) – Low Channel)

OPERATING FREQUENCY	2592.99	MHz
MODULATION SIGNAL	QPSK (DFT-s-OFDM)	
BANDWIDTH	100.0	MHz
DISTANCE	3	meters
LIMIT	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5185.98	H	168	298	-63.14	8.70	-54.44	-29.4
7778.97	H	237	359	-42.15	8.69	-33.46	-8.5
10371.96	H	270	356	-54.96	9.62	-45.33	-20.3
12964.95	H	-	-	-57.19	8.99	-48.20	-23.2
15557.94	H	-	-	-53.41	8.32	-45.09	-20.1

Table 7-61. Radiated Spurious Data (Intra-Band Contiguous (B41+n41) – Mid Channel)

OPERATING FREQUENCY	2640.00	MHz
MODULATION SIGNAL	QPSK (DFT-s-OFDM)	
BANDWIDTH	100.0	MHz
DISTANCE	3	meters
LIMIT	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5280.00	H	114	40	-47.18	8.73	-38.45	-13.4
7920.00	H	392	348	-43.45	8.77	-34.68	-9.7
10560.00	H	-	-	-62.17	9.50	-52.67	-27.7
13200.00	H	-	-	-56.39	9.10	-47.29	-22.3

Table 7-62. Radiated Spurious Data (Intra-Band Contiguous (B41+n41) – High Channel)

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OPERATING FREQUENCY	2546.01	MHz
MODULATION SIGNAL	QPSK (DFT-s-OFDM)	
BANDWIDTH	100.0	MHz
DISTANCE	3	meters
LIMIT	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5092.02	V	122	303	-52.20	8.64	-43.56	-18.6
7638.03	V	100	324	-53.55	8.54	-45.01	-20.0
10184.04	V	104	320	-61.09	9.75	-51.34	-26.3
12730.05	V	-	-	-58.46	9.12	-49.34	-24.3
15276.06	V	-	-	-56.41	8.38	-48.02	-23.0

Table 7-63. Radiated Spurious Data (Intra-Band Non-Contiguous (B41+n41) – Low Channel)

OPERATING FREQUENCY	2592.99	MHz
MODULATION SIGNAL	QPSK (DFT-s-OFDM)	
BANDWIDTH	100.0	MHz
DISTANCE	3	meters
LIMIT	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5185.98	V	107	49	-61.98	8.70	-53.28	-28.3
7778.97	V	-	-	-64.15	8.69	-55.46	-30.5
10371.96	V	-	-	-63.07	9.62	-53.44	-28.4

Table 7-64. Radiated Spurious Data (Intra-Band Non-Contiguous (B41+n41) – Mid Channel)

OPERATING FREQUENCY	2640.00	MHz
MODULATION SIGNAL	QPSK (DFT-s-OFDM)	
BANDWIDTH	100.0	MHz
DISTANCE	3	meters
LIMIT	-25	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5280.00	V	101	23	-59.26	8.73	-50.53	-25.5
7920.00	V	-	-	-62.22	8.77	-53.45	-28.4
10560.00	V	-	-	-62.48	9.50	-52.98	-28.0

Table 7-65. Radiated Spurious Data (Intra-Band Non-Contiguous (B41+n41) – High Channel)

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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFV600TM** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation and Sub 6GHz NR operation only.

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