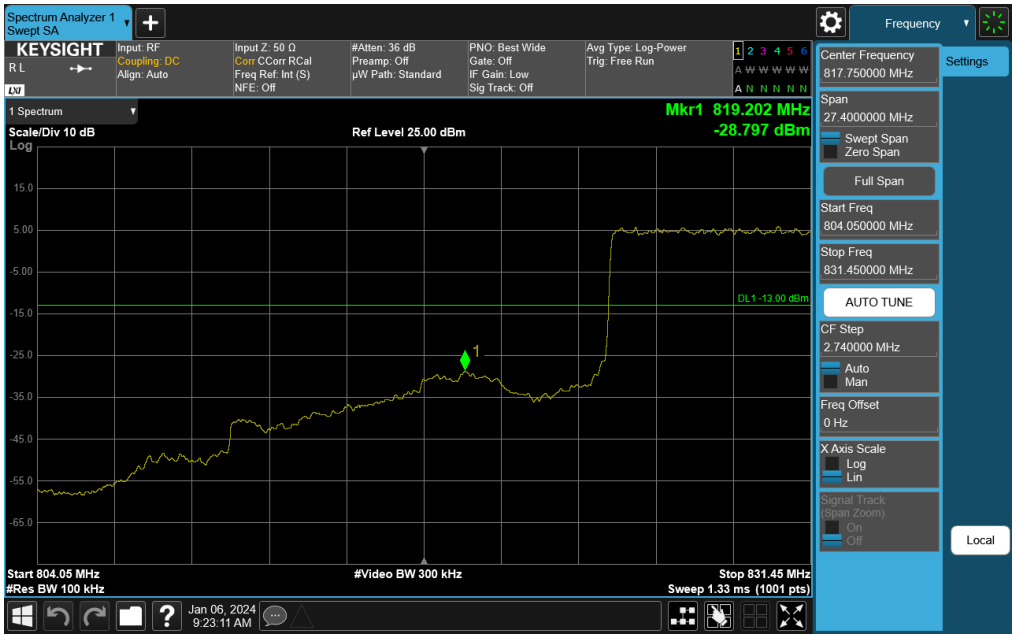
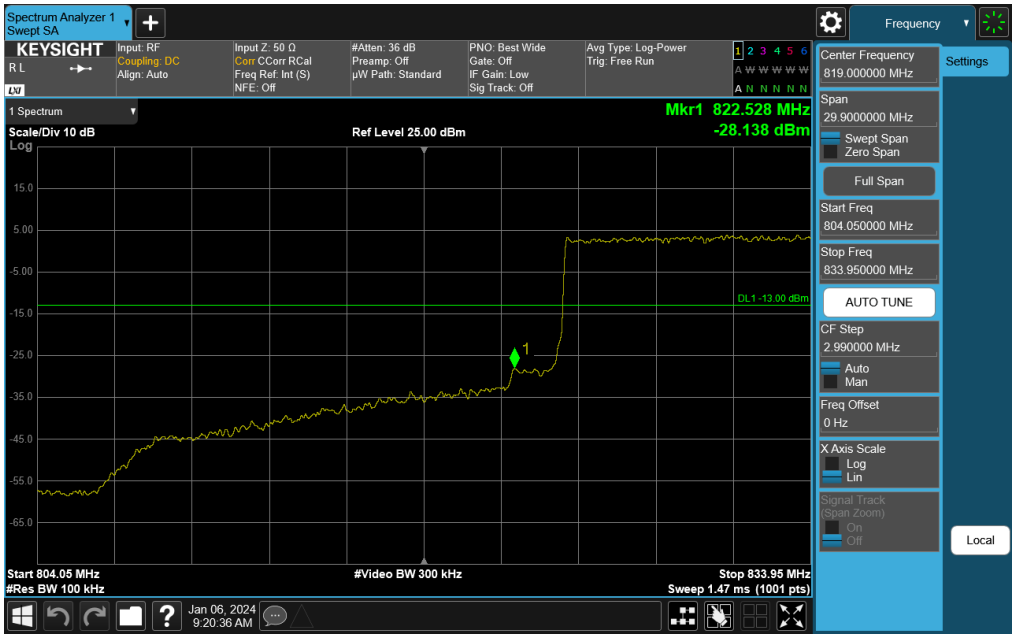


Plot 7-108. Lower BE Plot (NR Band n5 DFT-s-OFDM π/2 BPSK – 15.0MHz - Full RB)

Plot 7-109. Upper BE Plot (NR Band n5 DFT-s-OFDM π/2 BPSK – 15.0MHz - Full RB)



Plot 7-110. Lower BE Plot (NR Band n5 DFT-s-OFDM QPSK – 20.0MHz - Full RB)

Plot 7-111. Upper BE Plot (NR Band n5 DFT-s-OFDM QPSK –20.0MHz - Full RB)

WCDMA Cell

Plot 7-112. Lower BE Plot (WCDMA Cell – Ch. 4132)

Plot 7-113. Upper BE Plot (WCDMA Cell – Ch. 4233)

7.5 Radiated Power (ERP)

§22.913(a)(5)

Test Overview

Effective Radiated Power (ERP) measurements are calculated by adding highest antenna gain to maximum measured conducted output power. 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 C63.26-2015 – Section 5.2.5.5

Test Settings

The relevant equation for determining the ERP from the conducted RF output power measured is:

ERP = PMeas – LC + GT

Where:

ERP = Effective Radiated Power, respectively (expressed in the same units as PMeas, typically dBW or dBm)

PMeas = measured transmitter output power or PSD, in dBW or dBm

LC = signal attenuation in the connecting cable between the transmitter and antenna in dB

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

Test Setup

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

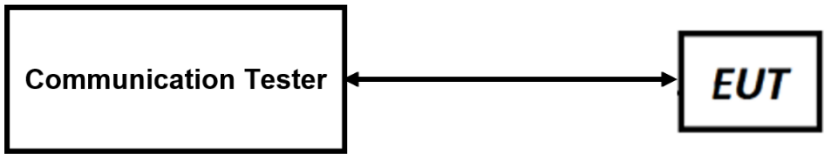


Figure 7-4. ERP/EIRP Measurement Setup

Test Notes:

1. The EUT was tested in all possible test configurations. The worst case emissions are reported with the EUT 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 Level (dBm) readings in the table were taken with a correction table loaded into the base station simulator. The correction table was used to account for the signal attenuation in the connecting cable between the transmitter and antenna.

4. Uplink carrier aggregation for LTE B5 is only supported in this EUT while operating in Power Class 3.

5. Conducted power measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device.

6. The Ant. Gains (GT) are listed in dBi.

7.5.1 Antenna 3 – ERP

LTE Band 26

Bandwidth	Mod.	Frequency [MHz]	Ant. Gain [dBi]	RB Size/Offset	Conducted Power [dBm]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
1.4 MHz	QPSK	824.7	-2.70	1 / 0	25.70	**20.85**	0.122	38.45	-17.60
		836.5	-2.70	1 / 5	25.66	20.81	0.121	38.45	-17.64
		848.3	-2.70	1 / 3	25.70	**20.85**	0.122	38.45	-17.60
	16-QAM	824.7	-2.70	1 / 0	24.98	**20.13**	0.103	38.45	-18.32
	64-QAM	848.3	-2.70	1 / 0	23.88	**19.03**	0.080	38.45	-19.42
	256-QAM	848.3	-2.70	1 / 5	20.92	**16.07**	0.040	38.45	-22.38
3 MHz	QPSK	825.5	-2.70	1 / 0	25.70	**20.85**	0.122	38.45	-17.60
		836.5	-2.70	1 / 7	25.59	20.74	0.119	38.45	-17.71
		847.5	-2.70	1 / 0	25.62	20.77	0.119	38.45	-17.68
	16-QAM	825.5	-2.70	1 / 0	25.03	**20.18**	0.104	38.45	-18.27
	64-QAM	825.5	-2.70	1 / 0	24.02	**19.17**	0.083	38.45	-19.28
	256-QAM	825.5	-2.70	1 / 0	21.05	**16.20**	0.042	38.45	-22.25
5 MHz	QPSK	826.5	-2.70	1 / 0	25.70	**20.85**	0.122	38.45	-17.60
		836.5	-2.70	1 / 0	25.64	20.79	0.120	38.45	-17.66
		846.5	-2.70	1 / 0	25.69	20.84	0.121	38.45	-17.61
	16-QAM	836.5	-2.70	1 / 0	25.13	**20.28**	0.107	38.45	-18.17
	64-QAM	846.5	-2.70	1 / 0	24.04	**19.19**	0.083	38.45	-19.26
	256-QAM	846.5	-2.70	1 / 0	21.02	**16.17**	0.041	38.45	-22.28
10 MHz	QPSK	829.0	-2.70	1 / 0	25.70	**20.85**	0.122	38.45	-17.60
		836.5	-2.70	1 / 25	25.65	20.80	0.120	38.45	-17.65
		844.0	-2.70	1 / 25	25.66	20.81	0.121	38.45	-17.64
	16-QAM	829.0	-2.70	1 / 25	25.10	**20.25**	0.106	38.45	-18.20
	64-QAM	836.5	-2.70	1 / 0	23.89	**19.04**	0.080	38.45	-19.41
	256-QAM	829.0	-2.70	1 / 0	20.90	**16.05**	0.040	38.45	-22.40

Table 7-2. Antenna 3 ERP Data (LTE Band 26)

LTE Band 5

Bandwidth	Mod.	Frequency [MHz]	Ant. Gain [dBi]	RB Size/Offset	Conducted Power [dBm]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
1.4 MHz	QPSK	829.0	-2.70	1 / 0	25.37	20.52	0.113	38.45	-17.93
		836.5	-2.70	1 / 0	25.65	**20.80**	0.120	38.45	-17.65
		844.0	-2.70	1 / 0	25.60	20.75	0.119	38.45	-17.70
	16-QAM	836.5	-2.70	1 / 0	24.95	**20.10**	0.102	38.45	-18.35
	64-QAM	829.0	-2.70	1 / 0	23.80	**18.95**	0.079	38.45	-19.50
	256-QAM	836.5	-2.70	1 / 0	20.75	**15.90**	0.039	38.45	-22.55
3 MHz	QPSK	829.0	-2.70	1 / 0	25.51	20.66	0.116	38.45	-17.79
		836.5	-2.70	1 / 0	25.62	**20.77**	0.119	38.45	-17.68
		844.0	-2.70	1 / 0	25.56	20.71	0.118	38.45	-17.74
	16-QAM	836.5	-2.70	1 / 0	24.90	**20.05**	0.101	38.45	-18.40
	64-QAM	829.0	-2.70	1 / 0	23.84	**18.99**	0.079	38.45	-19.46
	256-QAM	829.0	-2.70	1 / 0	20.80	**15.95**	0.039	38.45	-22.50
5 MHz	QPSK	829.0	-2.70	1 / 0	25.70	**20.85**	0.122	38.45	-17.60
		836.5	-2.70	1 / 0	25.70	**20.85**	0.122	38.45	-17.60
		844.0	-2.70	1 / 0	25.62	20.77	0.119	38.45	-17.68
	16-QAM	836.5	-2.70	1 / 0	25.14	**20.29**	0.107	38.45	-18.16
	64-QAM	844.0	-2.70	1 / 0	23.84	**18.99**	0.079	38.45	-19.46
	256-QAM	844.0	-2.70	1 / 0	20.80	**15.95**	0.039	38.45	-22.50
10 MHz	QPSK	829.0	-2.70	1 / 49	25.46	20.61	0.115	38.45	-17.84
		836.5	-2.70	1 / 25	25.69	**20.84**	0.121	38.45	-17.61
		844.0	-2.70	1 / 25	25.50	20.65	0.116	38.45	-17.80
	16-QAM	836.5	-2.70	1 / 25	25.09	**20.24**	0.106	38.45	-18.21
	64-QAM	829.0	-2.70	1 / 0	23.94	**19.09**	0.081	38.45	-19.36
	256-QAM	836.5	-2.70	1 / 0	20.92	**16.07**	0.040	38.45	-22.38

Table 7-3. Antenna 3 ERP Data (LTE Band 5)

ULCA - LTE Band 5

Power State	Band	Bandwidth (PCC + SCC)	PCC					SCC					ULCA Tx. Power [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
			Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset						
Max	LTE B5	10MHz + 10MHz	QPSK	20450	829.0	1	49	QPSK	20549	838.9	1	0	25.62	-2.70	20.77	0.119	38.45	-17.68
				20475	831.5	1	49		20574	841.4	1	0	25.56	-2.70	20.71	0.118	38.45	-17.74
				20600	844.0	1	0		20501	834.1	1	49	25.67	-2.70	**20.82**	**0.121**	38.45	-17.63
			QPSK	20600	844	50	0	QPSK	20501	834.1	50	0	25.15	-2.70	20.30	0.107	38.45	-18.15
			16-QAM	20600	844	50	0	16-QAM	20501	834.1	50	0	23.32	-2.70	18.47	0.070	38.45	-19.98
			64-QAM	20600	844	50	0	64-QAM	20501	834.1	50	0	22.78	-2.70	17.93	0.062	38.45	-20.52
			256-QAM	20600	844	50	0	256-QAM	20501	834.1	50	0	20.42	-2.70	15.57	0.036	38.45	-22.88

Table 7-4. Antenna 3 ERP Data (ULCA LTE Band 5)

NR Band n26

Bandwidth	Mod.	Frequency [MHz]	Ant. Gain [dBi]	RB Size/Offset	Conducted Power [dBm]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
5 MHz	π/2 BPSK	829.0	-2.70	1 / 1	25.70	**20.85**	0.122	38.45	-17.60
		836.5	-2.70	1 / 12	25.63	20.78	0.120	38.45	-17.67
		844.0	-2.70	1 / 1	25.64	20.79	0.120	38.45	-17.66
	QPSK	829.0	-2.70	1 / 1	25.69	20.84	0.121	38.45	-17.61
		836.5	-2.70	1 / 1	25.67	20.82	0.121	38.45	-17.63
		844.0	-2.70	1 / 1	25.70	**20.85**	0.122	38.45	-17.60
	16-QAM	836.5	-2.70	1 / 1	24.67	**19.82**	0.096	38.45	-18.63
	64-QAM	829.0	-2.70	1 / 23	23.67	**18.82**	0.076	38.45	-19.63
	256-QAM	836.5	-2.70	1 / 23	20.77	**15.92**	0.039	38.45	-22.53
10 MHz	π/2 BPSK	829.0	-2.70	1 / 25	25.56	**20.71**	0.118	38.45	-17.74
		836.5	-2.70	1 / 1	25.51	20.66	0.116	38.45	-17.79
		844.0	-2.70	1 / 1	25.41	20.56	0.114	38.45	-17.89
	QPSK	829.0	-2.70	1 / 25	25.67	**20.82**	0.121	38.45	-17.63
		836.5	-2.70	1 / 1	25.54	20.69	0.117	38.45	-17.76
		844.0	-2.70	1 / 25	25.67	**20.82**	0.121	38.45	-17.63
	16-QAM	829.0	-2.70	1 / 50	24.63	**19.78**	0.095	38.45	-18.67
	64-QAM	829.0	-2.70	1 / 1	23.58	**18.73**	0.075	38.45	-19.72
	256-QAM	844.0	-2.70	1 / 50	20.77	**15.92**	0.039	38.45	-22.53
15 MHz	π/2 BPSK	831.5	-2.70	1 / 1	25.58	**20.73**	0.118	38.45	-17.72
		836.5	-2.70	1 / 36	25.55	20.70	0.117	38.45	-17.75
		841.5	-2.70	1 / 36	25.57	20.72	0.118	38.45	-17.73
	QPSK	831.5	-2.70	1 / 1	25.41	20.56	0.114	38.45	-17.89
		836.5	-2.70	1 / 36	25.62	**20.77**	0.119	38.45	-17.68
		841.5	-2.70	1 / 36	25.37	20.52	0.113	38.45	-17.93
	16-QAM	831.5	-2.70	1 / 77	24.67	**19.82**	0.096	38.45	-18.63
	64-QAM	831.5	-2.70	1 / 1	23.65	**18.80**	0.076	38.45	-19.65
	256-QAM	836.5	-2.70	1 / 36	20.80	**15.95**	0.039	38.45	-22.50
20 MHz	π/2 BPSK	834.0	-2.70	1 / 104	25.67	**20.82**	0.121	38.45	-17.63
		836.5	-2.70	1 / 50	25.49	20.64	0.116	38.45	-17.81
		839.0	-2.70	1 / 104	25.53	20.68	0.117	38.45	-17.77
	QPSK	834.0	-2.70	1 / 1	25.64	20.79	0.120	38.45	-17.66
		836.5	-2.70	1 / 50	25.67	**20.82**	0.121	38.45	-17.63
		839.0	-2.70	1 / 50	25.61	20.76	0.119	38.45	-17.69
	16-QAM	834.0	-2.70	1 / 1	24.48	**19.63**	0.092	38.45	-18.82
	64-QAM	834.0	-2.70	1 / 1	23.67	**18.82**	0.076	38.45	-19.63
	256-QAM	836.5	-2.70	1 / 1	20.80	**15.95**	0.039	38.45	-22.50

Table 7-5. Antenna 3 ERP Data (NR Band n26)

NR Band n5

Bandwidth	Mod.	Frequency [MHz]	Ant. Gain [dBi]	RB Size/Offset	Conducted Power [dBm]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
5 MHz	π/2 BPSK	829.0	-2.70	1 / 23	25.69	**20.84**	0.121	38.45	-17.61
		836.5	-2.70	1 / 12	25.56	20.71	0.118	38.45	-17.74
		844.0	-2.70	1 / 12	25.54	20.69	0.117	38.45	-17.76
	QPSK	829.0	-2.70	1 / 1	25.65	**20.80**	0.120	38.45	-17.65
		836.5	-2.70	1 / 12	25.48	20.63	0.116	38.45	-17.82
		844.0	-2.70	1 / 23	25.57	20.72	0.118	38.45	-17.73
	16-QAM	829.0	-2.70	1 / 12	24.64	**19.79**	0.095	38.45	-18.66
	64-QAM	844.0	-2.70	1 / 1	23.66	**18.81**	0.076	38.45	-19.64
	256-QAM	829.0	-2.70	1 / 23	20.80	**15.95**	0.039	38.45	-22.50
10 MHz	π/2 BPSK	829.0	-2.70	1 / 25	25.68	**20.83**	0.121	38.45	-17.62
		836.5	-2.70	1 / 25	25.54	20.69	0.117	38.45	-17.76
		844.0	-2.70	1 / 50	25.61	20.76	0.119	38.45	-17.69
	QPSK	829.0	-2.70	1 / 1	25.68	**20.83**	0.121	38.45	-17.62
		836.5	-2.70	1 / 25	25.52	20.67	0.117	38.45	-17.78
		844.0	-2.70	1 / 25	25.68	**20.83**	0.121	38.45	-17.62
	16-QAM	844.0	-2.70	1 / 25	24.68	**19.83**	0.096	38.45	-18.62
	64-QAM	836.5	-2.70	1 / 25	23.66	**18.81**	0.076	38.45	-19.64
	256-QAM	844.0	-2.70	1 / 1	20.73	**15.88**	0.039	38.45	-22.57
15 MHz	π/2 BPSK	831.5	-2.70	1 / 1	25.47	20.62	0.115	38.45	-17.83
		836.5	-2.70	1 / 77	25.66	**20.81**	0.121	38.45	-17.64
		841.5	-2.70	1 / 36	25.60	20.75	0.119	38.45	-17.70
	QPSK	831.5	-2.70	1 / 36	25.62	**20.77**	0.119	38.45	-17.68
		836.5	-2.70	1 / 36	25.48	20.63	0.116	38.45	-17.82
		841.5	-2.70	1 / 1	25.58	20.73	0.118	38.45	-17.72
	16-QAM	831.5	-2.70	1 / 77	24.69	**19.84**	0.096	38.45	-18.61
	64-QAM	831.5	-2.70	1 / 36	23.68	**18.83**	0.076	38.45	-19.62
	256-QAM	841.5	-2.70	1 / 1	20.80	**15.95**	0.039	38.45	-22.50
20 MHz	π/2 BPSK	834.0	-2.70	1 / 50	25.55	20.70	0.117	38.45	-17.75
		836.5	-2.70	1 / 104	25.62	**20.77**	0.119	38.45	-17.68
		839.0	-2.70	1 / 1	25.45	20.60	0.115	38.45	-17.85
	QPSK	834.0	-2.70	1 / 104	25.52	20.67	0.117	38.45	-17.78
		836.5	-2.70	1 / 50	25.58	**20.73**	0.118	38.45	-17.72
		839.0	-2.70	1 / 50	25.52	20.67	0.117	38.45	-17.78
	16-QAM	834.0	-2.70	1 / 1	24.70	**19.85**	0.097	38.45	-18.60
	64-QAM	839.0	-2.70	1 / 50	23.69	**18.84**	0.077	38.45	-19.61
	256-QAM	834.0	-2.70	1 / 104	20.77	**15.92**	0.039	38.45	-22.53

Table 7-6. Antenna 3 ERP Data (NR Band n5)

WCDMA Cell

Frequency [MHz]	Mode	Conducted Power [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
826.40	WCDMA850	25.63	-2.70	20.78	0.120	38.45	-17.67
836.60	WCDMA850	25.62	-2.70	20.77	0.119	38.45	-17.68
846.60	WCDMA850	25.70	-2.70	**20.85**	**0.122**	38.45	-17.60

Table 7-7. Antenna 3 ERP Data (WCDMA Cell)

7.5.2 Antenna 1 – ERP

LTE Band 26

Bandwidth	Mod.	Frequency [MHz]	Ant. Gain [dBi]	RB Size/Offset	Conducted Power [dBm]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
1.4 MHz	QPSK	824.7	-3.00	1 / 0	23.82	18.67	0.074	38.45	-19.78
		836.5	-3.00	1 / 0	23.77	18.62	0.073	38.45	-19.83
		848.3	-3.00	1 / 0	23.83	**18.68**	0.074	38.45	-19.77
	16-QAM	836.5	-3.00	1 / 0	23.30	**18.15**	0.065	38.45	-20.30
	64-QAM	848.3	-3.00	1 / 0	22.19	**17.04**	0.051	38.45	-21.41
	256-QAM	848.3	-3.00	1 / 3	19.23	**14.08**	0.026	38.45	-24.37
3 MHz	QPSK	825.5	-3.00	1 / 0	23.80	**18.65**	0.073	38.45	-19.80
		836.5	-3.00	1 / 0	23.70	18.55	0.072	38.45	-19.90
		847.5	-3.00	1 / 0	23.72	18.57	0.072	38.45	-19.88
	16-QAM	825.5	-3.00	1 / 0	23.26	**18.11**	0.065	38.45	-20.34
	64-QAM	847.5	-3.00	1 / 0	22.20	**17.05**	0.051	38.45	-21.40
	256-QAM	825.5	-3.00	1 / 0	19.22	**14.07**	0.026	38.45	-24.38
5 MHz	QPSK	826.5	-3.00	1 / 0	23.86	18.71	0.074	38.45	-19.74
		836.5	-3.00	1 / 0	23.81	18.66	0.073	38.45	-19.79
		846.5	-3.00	1 / 0	23.90	**18.75**	0.075	38.45	-19.70
	16-QAM	836.5	-3.00	1 / 0	23.44	**18.29**	0.067	38.45	-20.16
	64-QAM	846.5	-3.00	1 / 0	22.28	**17.13**	0.052	38.45	-21.32
	256-QAM	836.5	-3.00	1 / 24	19.21	**14.06**	0.025	38.45	-24.39
10 MHz	QPSK	829.0	-3.00	1 / 0	23.80	**18.65**	0.073	38.45	-19.80
		836.5	-3.00	1 / 0	23.68	18.53	0.071	38.45	-19.92
		844.0	-3.00	1 / 25	23.74	18.59	0.072	38.45	-19.86
	16-QAM	829.0	-3.00	1 / 25	23.33	**18.18**	0.066	38.45	-20.27
	64-QAM	829.0	-3.00	1 / 0	22.23	**17.08**	0.051	38.45	-21.37
	256-QAM	836.5	-3.00	1 / 0	19.21	**14.06**	0.025	38.45	-24.39

Table 7-8. Antenna 1 ERP Data (LTE Band 26)

LTE Band 5

Bandwidth	Mod.	Frequency [MHz]	Ant. Gain [dBi]	RB Size/Offset	Conducted Power [dBm]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
1.4 MHz	QPSK	829.0	-3.00	1 / 5	23.57	18.42	0.070	38.45	-20.03
		836.5	-3.00	1 / 0	23.77	18.62	0.073	38.45	-19.83
		844.0	-3.00	1 / 0	23.82	**18.67**	0.074	38.45	-19.78
	16-QAM	836.5	-3.00	1 / 5	22.93	**17.78**	0.060	38.45	-20.67
	64-QAM	829.0	-3.00	1 / 0	21.99	**16.84**	0.048	38.45	-21.61
	256-QAM	844.0	-3.00	1 / 0	19.00	**13.85**	0.024	38.45	-24.60
3 MHz	QPSK	829.0	-3.00	1 / 0	23.57	18.42	0.070	38.45	-20.03
		836.5	-3.00	1 / 0	23.70	18.55	0.072	38.45	-19.90
		844.0	-3.00	1 / 0	23.72	**18.57**	0.072	38.45	-19.88
	16-QAM	844.0	-3.00	1 / 0	23.08	**17.93**	0.062	38.45	-20.52
	64-QAM	829.0	-3.00	1 / 0	21.93	**16.78**	0.048	38.45	-21.67
	256-QAM	844.0	-3.00	1 / 0	18.87	**13.72**	0.024	38.45	-24.73
5 MHz	QPSK	829.0	-3.00	1 / 0	23.80	**18.65**	0.073	38.45	-19.80
		836.5	-3.00	1 / 0	23.72	18.57	0.072	38.45	-19.88
		844.0	-3.00	1 / 0	23.65	18.50	0.071	38.45	-19.95
	16-QAM	836.5	-3.00	1 / 0	23.11	**17.96**	0.063	38.45	-20.49
	64-QAM	836.5	-3.00	1 / 0	21.97	**16.82**	0.048	38.45	-21.63
	256-QAM	844.0	-3.00	1 / 0	18.74	**13.59**	0.023	38.45	-24.86
10 MHz	QPSK	829.0	-3.00	1 / 0	23.68	18.53	0.071	38.45	-19.92
		836.5	-3.00	1 / 49	23.80	**18.65**	0.073	38.45	-19.80
		844.0	-3.00	1 / 25	23.71	18.56	0.072	38.45	-19.89
	16-QAM	844.0	-3.00	1 / 25	23.10	**17.95**	0.062	38.45	-20.50
	64-QAM	829.0	-3.00	1 / 25	21.87	**16.72**	0.047	38.45	-21.73
	256-QAM	836.5	-3.00	1 / 0	18.96	**13.81**	0.024	38.45	-24.64

Table 7-9. Antenna 1 ERP Data (LTE Band 5)

ULCA - LTE Band 5

Power State	Band	Bandwidth (PCC + SCC)	PCC					SCC					ULCA Tx. Power [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
			Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset						
Max	LTE B5	10MHz + 10MHz	QPSK	20450	829.0	1	49	QPSK	20549	838.9	1	0	23.78	-3.00	**18.63**	**0.073**	38.45	-19.82
				20475	831.5	1	49		20574	841.4	1	0	23.62	-3.00	18.47	0.070	38.45	-19.98
				20600	844.0	1	0		20501	834.1	1	49	23.70	-3.00	18.55	0.072	38.45	-19.90
			QPSK	20450	829	50	0	QPSK	20549	838.9	50	0	23.09	-3.00	17.94	0.062	38.45	-20.51
			16-QAM	20450	829	50	0	16-QAM	20549	838.9	50	0	21.20	-3.00	16.05	0.040	38.45	-22.40
			64-QAM	20450	829	50	0	64-QAM	20549	838.9	50	0	20.38	-3.00	15.23	0.033	38.45	-23.22
			256-QAM	20450	829	50	0	256-QAM	20549	838.9	50	0	18.59	-3.00	13.44	0.022	38.45	-25.01

Table 7-10. Antenna 1 ERP Data (ULCA LTE Band 5)

NR Band n26

Bandwidth	Mod.	Frequency [MHz]	Ant. Gain [dBi]	RB Size/Offset	Conducted Power [dBm]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
5 MHz	π/2 BPSK	829.0	-3.00	1 / 1	23.71	18.56	0.072	38.45	-19.89
		836.5	-3.00	1 / 1	23.83	**18.68**	0.074	38.45	-19.77
		844.0	-3.00	1 / 12	23.68	18.53	0.071	38.45	-19.92
	QPSK	829.0	-3.00	1 / 12	23.83	**18.68**	0.074	38.45	-19.77
		836.5	-3.00	1 / 1	23.78	18.63	0.073	38.45	-19.82
		844.0	-3.00	1 / 23	23.72	18.57	0.072	38.45	-19.88
	16-QAM	829.0	-3.00	1 / 12	22.86	**17.71**	0.059	38.45	-20.74
	64-QAM	844.0	-3.00	1 / 23	21.71	**16.56**	0.045	38.45	-21.89
	256-QAM	836.5	-3.00	1 / 12	18.91	**13.76**	0.024	38.45	-24.69
10 MHz	π/2 BPSK	829.0	-3.00	1 / 1	23.71	18.56	0.072	38.45	-19.89
		836.5	-3.00	1 / 50	23.88	**18.73**	0.075	38.45	-19.72
		844.0	-3.00	1 / 1	23.52	18.37	0.069	38.45	-20.08
	QPSK	829.0	-3.00	1 / 1	23.78	18.63	0.073	38.45	-19.82
		836.5	-3.00	1 / 1	23.90	**18.75**	0.075	38.45	-19.70
		844.0	-3.00	1 / 50	23.79	18.64	0.073	38.45	-19.81
	16-QAM	829.0	-3.00	1 / 50	22.88	**17.73**	0.059	38.45	-20.72
	64-QAM	836.5	-3.00	1 / 25	21.87	**16.72**	0.047	38.45	-21.73
	256-QAM	836.5	-3.00	1 / 25	18.97	**13.82**	0.024	38.45	-24.63
15 MHz	π/2 BPSK	831.5	-3.00	1 / 1	23.77	18.62	0.073	38.45	-19.83
		836.5	-3.00	1 / 77	23.82	18.67	0.074	38.45	-19.78
		841.5	-3.00	1 / 1	23.83	**18.68**	0.074	38.45	-19.77
	QPSK	831.5	-3.00	1 / 36	23.82	18.67	0.074	38.45	-19.78
		836.5	-3.00	1 / 77	23.69	18.54	0.071	38.45	-19.91
		841.5	-3.00	1 / 36	23.86	**18.71**	0.074	38.45	-19.74
	16-QAM	831.5	-3.00	1 / 1	22.83	**17.68**	0.059	38.45	-20.77
	64-QAM	841.5	-3.00	1 / 1	21.86	**16.71**	0.047	38.45	-21.74
	256-QAM	841.5	-3.00	1 / 77	18.98	**13.83**	0.024	38.45	-24.62
20 MHz	π/2 BPSK	834.0	-3.00	1 / 104	23.82	18.67	0.074	38.45	-19.78
		836.5	-3.00	1 / 50	23.78	18.63	0.073	38.45	-19.82
		839.0	-3.00	1 / 1	23.84	**18.69**	0.074	38.45	-19.76
	QPSK	834.0	-3.00	1 / 1	23.87	**18.72**	0.074	38.45	-19.73
		836.5	-3.00	1 / 104	23.84	18.69	0.074	38.45	-19.76
		839.0	-3.00	1 / 1	23.71	18.56	0.072	38.45	-19.89
	16-QAM	836.5	-3.00	1 / 104	22.89	**17.74**	0.059	38.45	-20.71
	64-QAM	834.0	-3.00	1 / 50	21.90	**16.75**	0.047	38.45	-21.70
	256-QAM	836.5	-3.00	1 / 50	18.91	**13.76**	0.024	38.45	-24.69

Table 7-11. Antenna 1 ERP Data (NR Band n26)

NR Band n5

Bandwidth	Mod.	Frequency [MHz]	Ant. Gain [dBi]	RB Size/Offset	Conducted Power [dBm]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
5 MHz	π/2 BPSK	829.0	-3.00	1 / 12	23.81	18.66	0.073	38.45	-19.79
		836.5	-3.00	1 / 12	23.86	**18.71**	0.074	38.45	-19.74
		844.0	-3.00	1 / 23	23.62	18.47	0.070	38.45	-19.98
	QPSK	829.0	-3.00	1 / 23	23.61	18.46	0.070	38.45	-19.99
		836.5	-3.00	1 / 1	23.79	**18.64**	0.073	38.45	-19.81
		844.0	-3.00	1 / 12	23.74	18.59	0.072	38.45	-19.86
	16-QAM	836.5	-3.00	1 / 12	22.85	**17.70**	0.059	38.45	-20.75
	64-QAM	844.0	-3.00	1 / 23	21.85	**16.70**	0.047	38.45	-21.75
	256-QAM	844.0	-3.00	1 / 12	18.96	**13.81**	0.024	38.45	-24.64
10 MHz	π/2 BPSK	829.0	-3.00	1 / 1	23.88	**18.73**	0.075	38.45	-19.72
		836.5	-3.00	1 / 50	23.74	18.59	0.072	38.45	-19.86
		844.0	-3.00	1 / 50	23.70	18.55	0.072	38.45	-19.90
	QPSK	829.0	-3.00	1 / 1	23.79	18.64	0.073	38.45	-19.81
		836.5	-3.00	1 / 25	23.73	18.58	0.072	38.45	-19.87
		844.0	-3.00	1 / 25	23.88	**18.73**	0.075	38.45	-19.72
	16-QAM	829.0	-3.00	1 / 50	22.86	**17.71**	0.059	38.45	-20.74
	64-QAM	836.5	-3.00	1 / 1	21.70	**16.55**	0.045	38.45	-21.90
	256-QAM	836.5	-3.00	1 / 50	18.93	**13.78**	0.024	38.45	-24.67
15 MHz	π/2 BPSK	831.5	-3.00	1 / 36	23.78	**18.63**	0.073	38.45	-19.82
		836.5	-3.00	1 / 36	23.76	18.61	0.073	38.45	-19.84
		841.5	-3.00	1 / 1	23.76	18.61	0.073	38.45	-19.84
	QPSK	831.5	-3.00	1 / 1	23.71	18.56	0.072	38.45	-19.89
		836.5	-3.00	1 / 77	23.90	**18.75**	0.075	38.45	-19.70
		841.5	-3.00	1 / 36	23.72	18.57	0.072	38.45	-19.88
	16-QAM	841.5	-3.00	1 / 77	22.90	**17.75**	0.060	38.45	-20.70
	64-QAM	831.5	-3.00	1 / 1	21.88	**16.73**	0.047	38.45	-21.72
	256-QAM	831.5	-3.00	1 / 1	19.00	**13.85**	0.024	38.45	-24.60
20 MHz	π/2 BPSK	834.0	-3.00	1 / 50	23.68	18.53	0.071	38.45	-19.92
		836.5	-3.00	1 / 50	23.73	18.58	0.072	38.45	-19.87
		839.0	-3.00	1 / 104	23.79	**18.64**	0.073	38.45	-19.81
	QPSK	834.0	-3.00	1 / 1	23.84	18.69	0.074	38.45	-19.76
		836.5	-3.00	1 / 1	23.89	**18.74**	0.075	38.45	-19.71
		839.0	-3.00	1 / 104	23.80	18.65	0.073	38.45	-19.80
	16-QAM	836.5	-3.00	1 / 50	22.90	**17.75**	0.060	38.45	-20.70
	64-QAM	836.5	-3.00	1 / 1	21.87	**16.72**	0.047	38.45	-21.73
	256-QAM	834.0	-3.00	1 / 50	18.87	**13.72**	0.024	38.45	-24.73

Table 7-12. Antenna 1 ERP Data (NR Band n5)

WCDMA Cell

Frequency [MHz]	Mode	Conducted Power [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
826.40	WCDMA850	23.82	-3.00	18.67	0.074	38.45	-19.78
836.60	WCDMA850	23.88	-3.00	**18.73**	**0.075**	38.45	-19.72
846.60	WCDMA850	23.76	-3.00	18.61	0.073	38.45	-19.84

Table 7-13. Antenna 1 ERP Data (WCDMA Cell)

7.6 Radiated Spurious Emissions

§2.1053, 22.917(a)

Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in KDB 971168 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using horizontally and vertically 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 maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

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

Test Setup

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

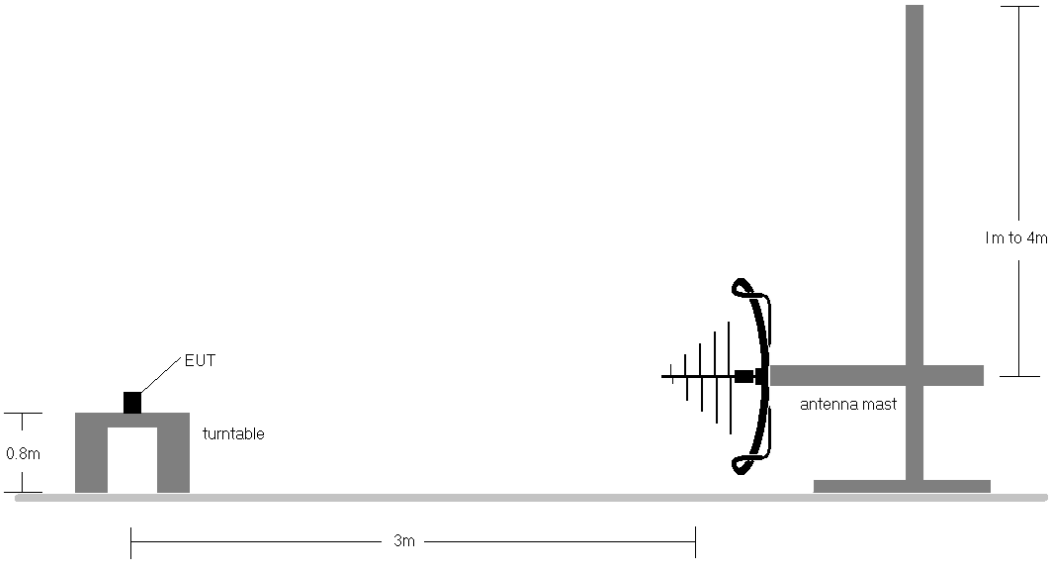


Figure 7-5. Test Instrument & Measurement Setup < 1GHz

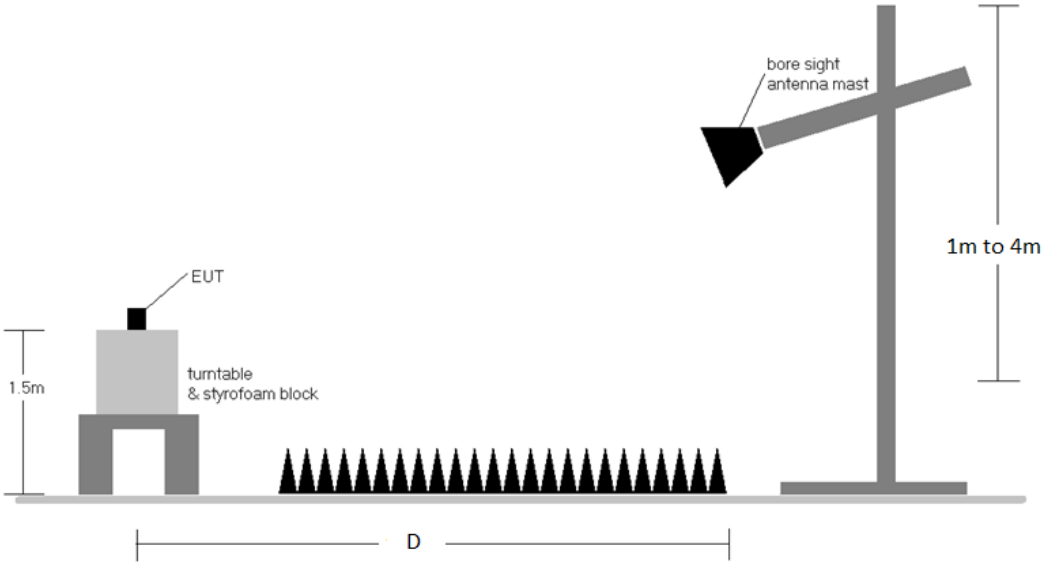


Figure 7-6. Test Instrument & Measurement Setup >1 GHz

Test Notes

1. Field strengths are calculated using the Measurement quantity conversions in KDB 971168 Section 5.8.4.
    a. E(dBµV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m)
    b. EIRP (dBm) = E(dBµV/m) + 20logD – 104.8; where D is the measurement distance in meters.

2. This device employs UMTS technology with WCDMA (AMR/RMC) and HSDPA capabilities. The EUT was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to “1”.

3. 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.

4. This unit was tested with its standard battery.

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

6. D is the measurement test distance and emissions 1-18GHz were measured at a 3 meters test distance.

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

8. ULCA spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device.

9. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and 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.

10. Spurious emission in EN-DC Operating mode with Sub 6GHz NR carrier as well as an LTE carrier (anchor) has been checked and was found to not to be the worst case.

11. Uplink carrier aggregation inter-band emission was investigated and found to not be the worst case.

7.6.1 Antenna 3 – Radiated Spurious Emission Measurements

LTE Band 26/5

Bandwidth (MHz):	10
Frequency (MHz):	829.0
RB / Offset:	1 / 24

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1658.0	H	-	-	-72.69	-5.07	29.24	-66.02	-13.00	-53.02
2487.0	H	-	-	-74.62	-0.72	31.66	-63.60	-13.00	-50.60
3316.0	H	-	-	-75.73	1.66	32.93	-62.33	-13.00	-49.33

Table 7-14. Antenna 3 Radiated Spurious Data (LTE Band 26/5 – Low Channel)

Bandwidth (MHz):	10
Frequency (MHz):	836.5
RB / Offset:	1 / 24

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1673.0	H	257	29	-70.79	-5.03	31.18	-64.08	-13.00	-51.08
2509.5	H	-	-	-74.53	-0.76	31.71	-63.55	-13.00	-50.55
3346.0	H	-	-	-75.63	1.96	33.34	-61.92	-13.00	-48.92
4182.5	H	-	-	-76.99	2.93	32.94	-62.32	-13.00	-49.32

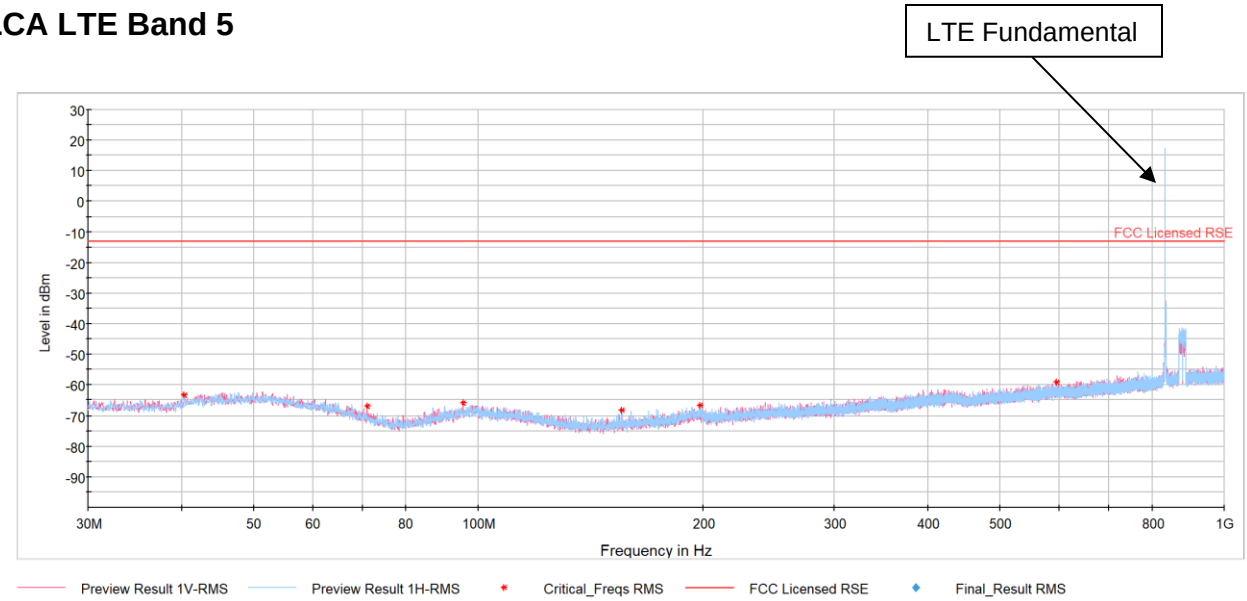
Table 7-15. Antenna 3 Radiated Spurious Data (LTE Band 26/5 – Mid Channel)

Bandwidth (MHz):	10
Frequency (MHz):	844.0
RB / Offset:	1 / 24

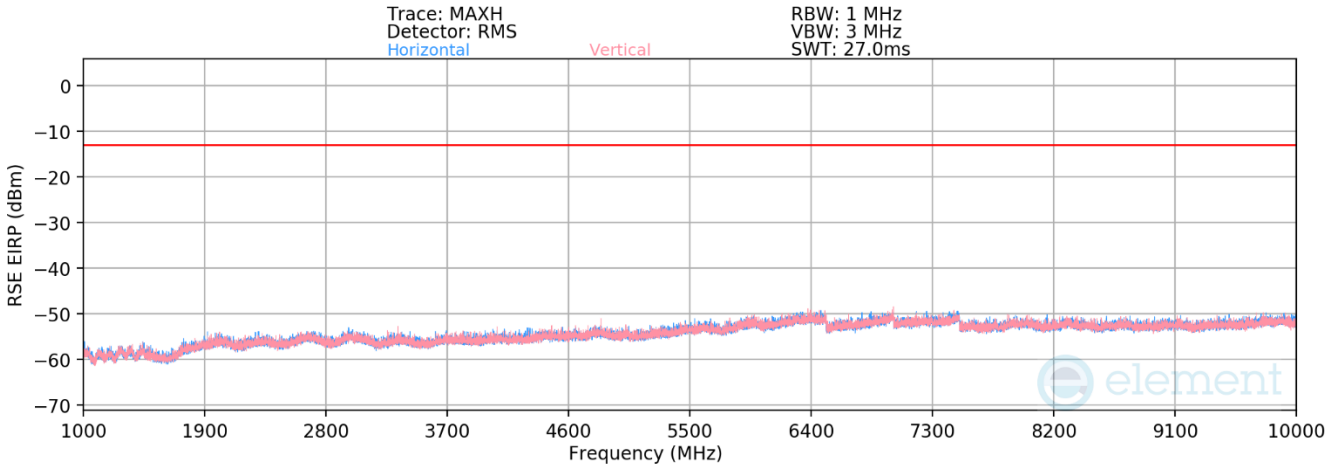
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1688.0	H	109	219	-67.33	-4.95	34.71	-60.54	-13.00	-47.54
2532.0	H	-	-	-74.59	-0.55	31.86	-63.40	-13.00	-50.40
3376.0	H	-	-	-75.76	1.96	33.21	-62.05	-13.00	-49.05
4220.0	H	-	-	-77.14	2.96	32.83	-62.43	-13.00	-49.43

Table 7-16. Antenna 3 Radiated Spurious Data (LTE Band 26/5 – High Channel)

ULCA LTE Band 5



Plot 7-114. Antenna 3 Radiated Spurious Plot below 1GHz (ULCA LTE Band 5)



Plot 7-115. Antenna 3 Radiated Spurious Plot above 1GHz (ULCA LTE Band 5)

PCC Bandwidth (MHz):	10
PCC Frequency (MHz):	829.0
PCC RB / Offset:	1 / 49
SCC Bandwidth (MHz):	10
SCC Frequency (MHz):	838.9
SCC RB / Offset:	1 / 0

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1658.0	H	-	-	-72.28	-4.82	29.90	-65.36	-13.00	-52.36
2487.0	H	-	-	-74.26	-0.83	31.91	-63.35	-13.00	-50.35
3316.0	H	-	-	-75.82	1.69	32.87	-62.39	-13.00	-49.39
4145.0	H	-	-	-76.94	2.96	33.02	-62.24	-13.00	-49.24

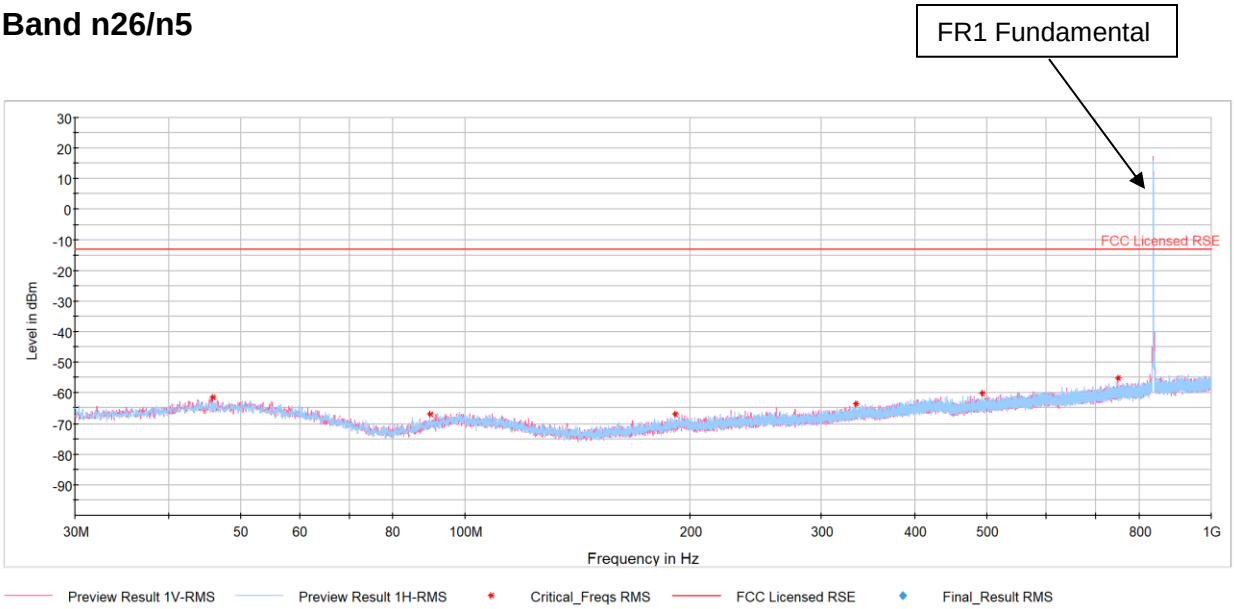
Table 7-17. Antenna 3 Radiated Spurious Data (ULCA LTE Band 5 – Low Channel)

PCC Bandwidth (MHz):	10
PCC Frequency (MHz):	844.0
PCC RB / Offset:	1 / 0
SCC Bandwidth (MHz):	10
SCC Frequency (MHz):	834.1
SCC RB / Offset:	1 / 49

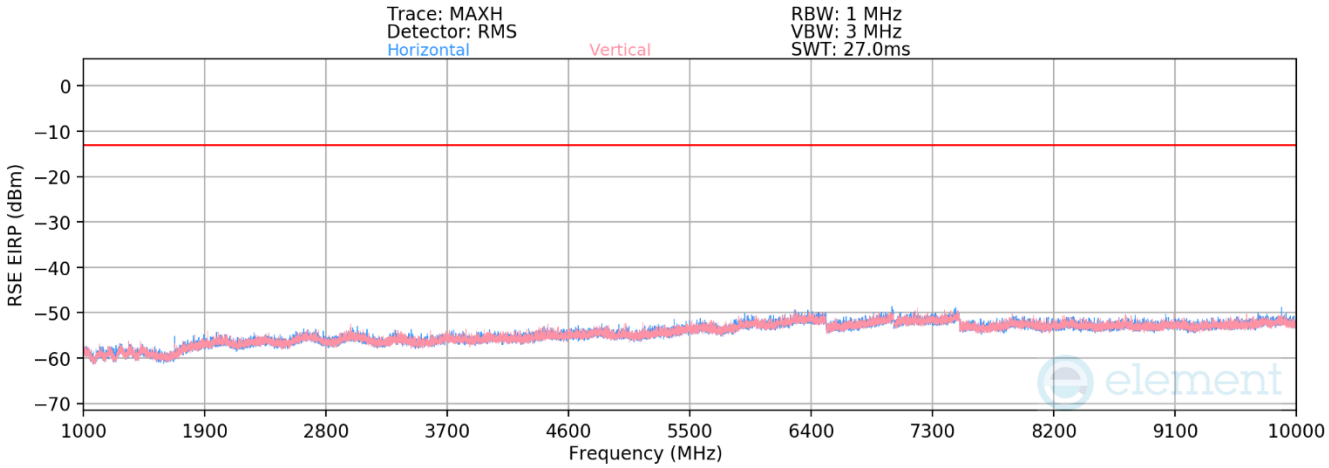
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1688.0	H	-	-	-72.58	-4.24	30.18	-65.08	-13.00	-52.08
2532.0	H	-	-	-74.34	-0.40	32.26	-63.00	-13.00	-50.00
3376.0	H	-	-	-75.99	2.06	33.07	-62.19	-13.00	-49.19
4220.0	H	-	-	-76.76	2.89	33.13	-62.13	-13.00	-49.13

Table 7-18. Antenna 3 Radiated Spurious Data (ULCA LTE Band 5 – High Channel)

NR Band n26/n5



Plot 7-116. Antenna 3 Radiated Spurious Plot below 1GHz (NR Band n26/n5)



Plot 7-117. Antenna 3 Radiated Spurious Plot above 1GHz (NR Band n26/n5)

Bandwidth (MHz):	20
Frequency (MHz):	834.0
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1668.0	H	252	25	-69.84	-5.03	32.13	-63.13	-13.00	-50.13
2502.0	H	-	-	-74.08	-0.76	32.16	-63.10	-13.00	-50.10
3336.0	H	-	-	-75.53	1.80	33.27	-61.99	-13.00	-48.99
4170.0	H	-	-	-77.04	3.00	32.97	-62.29	-13.00	-49.29

Table 7-19. Antenna 3 Radiated Spurious Data (NR Band n26/n5 – Low Channel)

Bandwidth (MHz):	20
Frequency (MHz):	836.5
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1673.0	H	250	31	-69.25	-5.03	32.72	-62.54	-13.00	-49.54
2509.5	H	-	-	-73.83	-0.76	32.41	-62.85	-13.00	-49.85
3346.0	H	-	-	-75.62	1.96	33.35	-61.91	-13.00	-48.91
4182.5	H	-	-	-76.78	2.93	33.15	-62.11	-13.00	-49.11

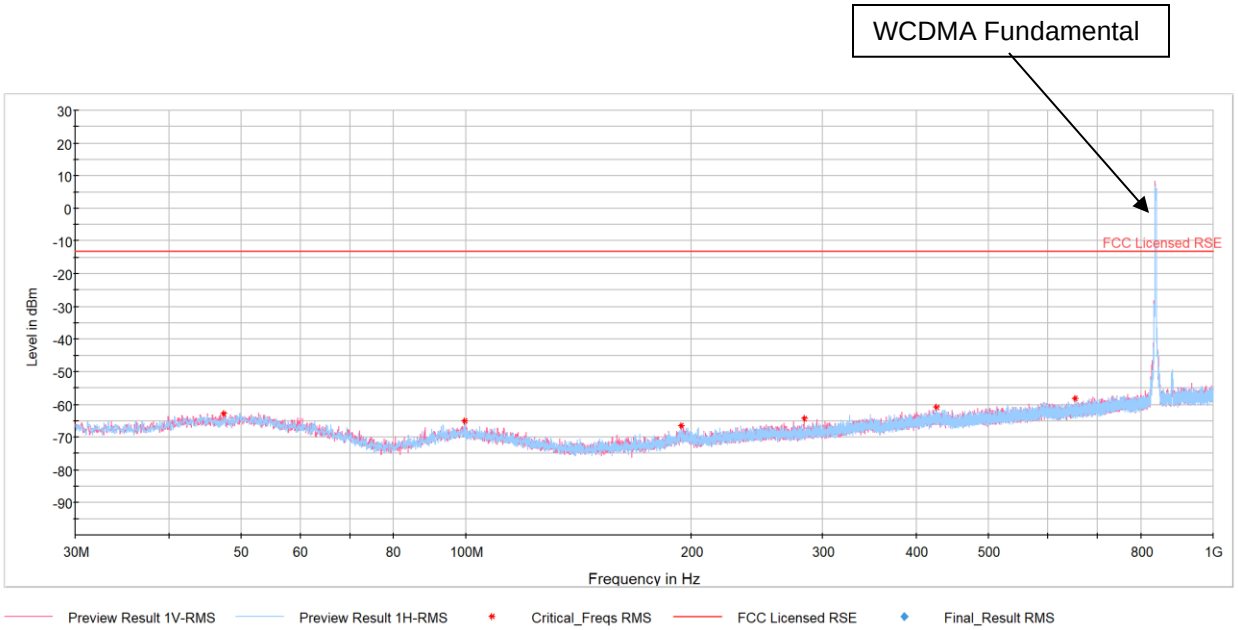
Table 7-20. Antenna 3 Radiated Spurious Data (NR Band n26/n5 – Mid Channel)

Bandwidth (MHz):	20
Frequency (MHz):	839.0
RB / Offset:	1 / 50

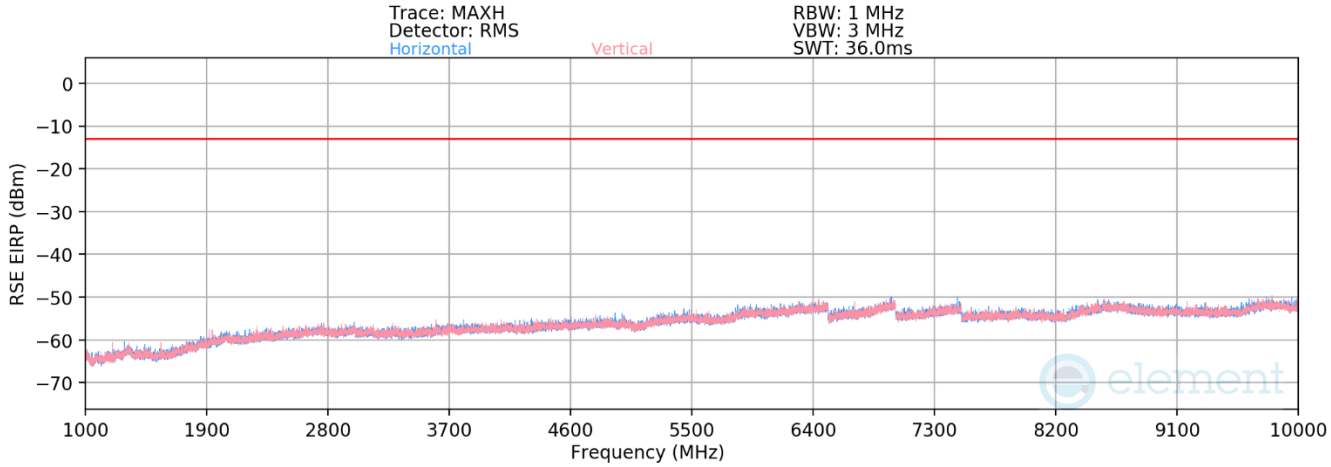
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1678.0	H	305	39	-68.44	-5.03	33.53	-61.73	-13.00	-48.73
2517.0	H	-	-	-74.34	-0.55	32.10	-63.15	-13.00	-50.15
3356.0	H	-	-	-75.68	1.96	33.28	-61.98	-13.00	-48.98
4195.0	H	-	-	-76.73	2.89	33.17	-62.09	-13.00	-49.09

Table 7-21. Antenna 3 Radiated Spurious Data (NR Band n26/n5 – High Channel)

WCDMA Cell



Plot 7-118. Antenna 3 Radiated Spurious Plot below 1GHz (WCDMA Cell)



Plot 7-119. Antenna 3 Radiated Spurious Plot above 1GHz (WCDMA Cell)

Mode:	WCDMA RMC
Channel:	4132
Frequency (MHz):	826.4

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1652.8	H	-	-	-78.05	-4.11	24.84	-70.41	-13.00	-57.41
2479.2	H	-	-	-78.32	0.92	29.60	-65.66	-13.00	-52.66
3305.6	H	-	-	-79.14	2.25	30.11	-65.14	-13.00	-52.14

Table 7-22. Antenna 3 Radiated Spurious Data (WCDMA Cell – Low Channel)

Mode:	WCDMA RMC
Channel:	4183
Frequency (MHz):	836.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1673.2	H	-	-	-77.48	-5.30	24.22	-71.04	-13.00	-58.04
2509.8	H	-	-	-78.55	-0.19	28.26	-66.99	-13.00	-53.99
3346.4	H	-	-	-79.52	1.87	29.35	-65.91	-13.00	-52.91

Table 7-23. Antenna 3 Radiated Spurious Data (WCDMA Cell – Mid Channel)

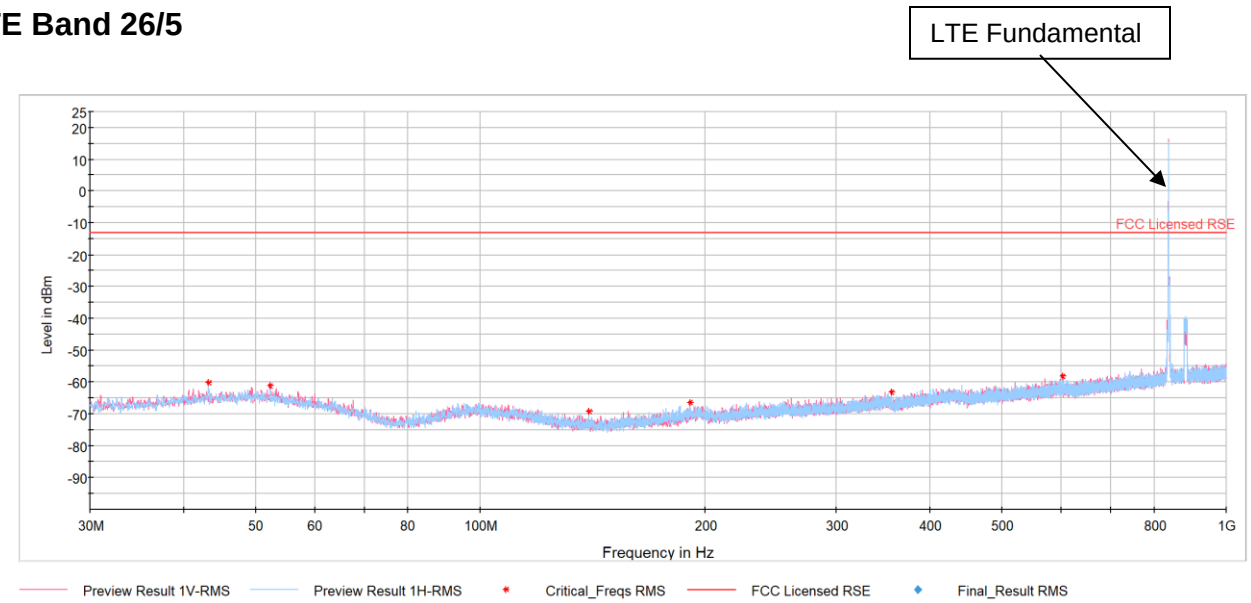
Mode:	WCDMA RMC
Channel:	4233
Frequency (MHz):	846.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1693.2	H	-	-	-77.13	-3.54	26.33	-68.92	-13.00	-55.92
2539.8	H	-	-	-78.94	1.30	29.36	-65.90	-13.00	-52.90
3386.4	H	-	-	-79.55	2.50	29.95	-65.31	-13.00	-52.31

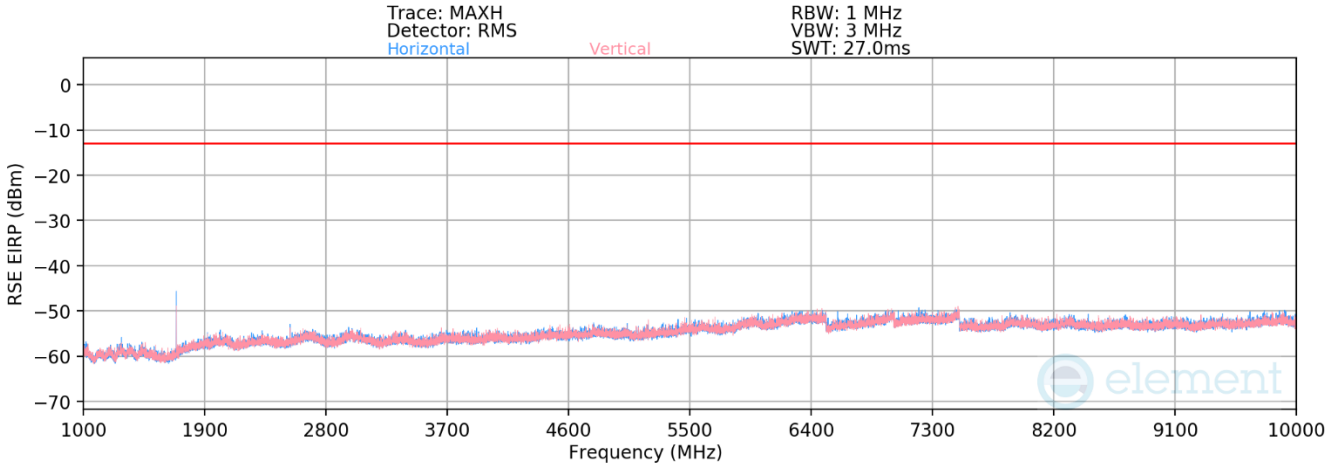
Table 7-24. Antenna 3 Radiated Spurious Data (WCDMA Cell – High Channel)

7.6.2 Antenna 1 – Radiated Spurious Emission Measurements

LTE Band 26/5



Plot 7-120. Antenna 1 Radiated Spurious Plot below 1GHz (LTE Band 26/5)



Plot 7-121. Antenna 1 Radiated Spurious Plot above 1GHz (LTE Band 26/5)

Bandwidth (MHz):	10
Frequency (MHz):	829.0
RB / Offset:	1 / 24

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1658.0	H	208	161	-67.98	-5.07	33.95	-61.31	-13.00	-48.31
2487.0	H	-	-	-74.71	-0.72	31.57	-63.69	-13.00	-50.69
3316.0	H	-	-	-75.85	1.66	32.81	-62.45	-13.00	-49.45
4145.0	H	-	-	-77.34	3.12	32.78	-62.47	-13.00	-49.47

Table 7-25. Antenna 1 Radiated Spurious Data (LTE Band 26/5 – Low Channel)

Bandwidth (MHz):	10
Frequency (MHz):	836.5
RB / Offset:	1 / 24

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1673.0	H	236	167	-67.84	-5.03	34.13	-61.13	-13.00	-48.13
2509.5	H	-	-	-74.52	-0.67	31.81	-63.45	-13.00	-50.45
3346.0	H	-	-	-76.02	1.96	32.95	-62.31	-13.00	-49.31
4182.5	H	-	-	-76.94	2.93	32.99	-62.27	-13.00	-49.27

Table 7-26. Antenna 1 Radiated Spurious Data (LTE Band 26/5 – Mid Channel)

Bandwidth (MHz):	10
Frequency (MHz):	844.0
RB / Offset:	1 / 24

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1688.0	H	249	295	-63.32	-4.95	38.73	-53.19	-13.00	-40.19
2532.0	H	-	-	-74.50	-0.41	32.09	-63.42	-13.00	-50.42
3376.0	H	-	-	-76.08	1.96	32.88	-62.54	-13.00	-49.54
4220.0	H	-	-	-77.09	2.96	32.87	-62.36	-13.00	-49.36

Table 7-27. Antenna 1 Radiated Spurious Data (LTE Band 26/5 – High Channel)

ULCA LTE Band 5

PCC Bandwidth (MHz):	10
PCC Frequency (MHz):	829.0
PCC RB / Offset:	1 / 49
SCC Bandwidth (MHz):	10
SCC Frequency (MHz):	838.9
SCC RB / Offset:	1 / 0

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1658.0	H	-	-	-78.04	-4.09	24.87	-70.39	-13.00	-57.39
2487.0	H	-	-	-78.61	0.98	29.37	-65.89	-13.00	-52.89
3316.0	H	-	-	-79.48	2.27	29.79	-65.46	-13.00	-52.46
4145.0	H	-	-	-79.69	3.50	30.81	-64.45	-13.00	-51.45

Table 7-28. Antenna 1 Radiated Spurious Data (ULCA LTE Band 5 – Low Channel)

Sample #:	EVT REG ENDC V10
PCC Bandwidth (MHz):	10
PCC Frequency (MHz):	844.0
PCC RB / Offset:	1 / 0
SCC Bandwidth (MHz):	10
SCC Frequency (MHz):	834.1
SCC RB / Offset:	1 / 49

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1688.0	H	-	-	-77.85	-3.64	25.51	-69.75	-13.00	-56.75
2532.0	H	-	-	-78.63	1.23	29.60	-65.66	-13.00	-52.66
3376.0	H	-	-	-79.68	2.47	29.79	-65.47	-13.00	-52.47
4220.0	H	-	-	-79.78	3.51	30.73	-64.53	-13.00	-51.53

Table 7-29. Antenna 1 Radiated Spurious Data (ULCA LTE Band 5 – High Channel)

NR Band n26/n5

Bandwidth (MHz):	20
Frequency (MHz):	834.0
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1668.0	H	-	-	-72.36	-5.07	29.57	-65.69	-13.00	-52.69
2502.0	H	-	-	-74.07	-0.76	32.17	-63.09	-13.00	-50.09
3336.0	H	-	-	-75.50	1.80	33.31	-61.95	-13.00	-48.95

Table 7-30. Antenna 1 Radiated Spurious Data (NR Band n26/n5 – Low Channel)

Bandwidth (MHz):	20
Frequency (MHz):	836.5
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1673.0	H	215	161	-68.44	-5.03	33.53	-61.73	-13.00	-48.73
2509.5	H	-	-	-74.16	-0.67	32.16	-63.09	-13.00	-50.09
3346.0	H	-	-	-75.62	1.96	33.34	-61.92	-13.00	-48.92
4182.5	H	-	-	-76.82	2.93	33.12	-62.14	-13.00	-49.14

Table 7-31. Antenna 1 Radiated Spurious Data (NR Band n26/n5 – Mid Channel)

Bandwidth (MHz):	20
Frequency (MHz):	839.0
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1678.0	H	298	63	-69.35	-5.03	32.62	-62.64	-13.00	-49.64
2517.0	H	-	-	-73.92	-0.55	32.53	-62.73	-13.00	-49.73
3356.0	H	-	-	-75.53	1.96	33.44	-61.82	-13.00	-48.82
4195.0	H	-	-	-76.76	2.93	33.17	-62.08	-13.00	-49.08

Table 7-32. Antenna 1 Radiated Spurious Data (NR Band n26/n5 – High Channel)

WCDMA Cell

Mode:	WCDMA RMC
Channel:	4132
Frequency (MHz):	826.4

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1652.8	H	-	-	-74.76	-6.17	26.07	-69.19	-13.00	-56.19
2479.2	H	-	-	-75.58	-1.94	29.48	-65.78	-13.00	-52.78
3305.6	H	-	-	-76.09	-0.70	30.21	-65.05	-13.00	-52.05

Table 7-33. Antenna 1 Radiated Spurious Data (WCDMA Cell – Low Channel)

Mode:	WCDMA RMC
Channel:	4183
Frequency (MHz):	836.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1673.2	H	-	-	-74.84	-6.13	26.04	-69.22	-13.00	-56.22
2509.8	H	-	-	-75.50	-1.94	29.57	-65.69	-13.00	-52.69
3346.4	H	-	-	-76.02	-0.70	30.28	-64.98	-13.00	-51.98

Table 7-34. Antenna 1 Radiated Spurious Data (WCDMA Cell – Mid Channel)

Mode:	WCDMA RMC
Channel:	4233
Frequency (MHz):	846.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1693.2	H	-	-	-75.08	-5.58	26.35	-68.91	-13.00	-55.91
2539.8	H	-	-	-75.73	-1.83	29.43	-65.83	-13.00	-52.83
3386.4	H	-	-	-76.13	-0.80	30.06	-65.19	-13.00	-52.19

Table 7-35. Antenna 1 Radiated Spurious Data (WCDMA Cell – High Channel)

7.7 Frequency Stability / Temperature Variation

§2.1055, 22.355

Test Overview and Limit

Frequency Tolerance testing is performed in accordance with the guidelines of ANSI C63.26-2015 and TIA-603-E-2016. All port were tested and only the worst case data were reported. The Frequency Tolerance of the transmitter is measured by:

a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

For Part 22, the Frequency Tolerance of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency.

Test Procedure Used

ANSI C63.26-2015

TIA-603-E-2016

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Test Setup

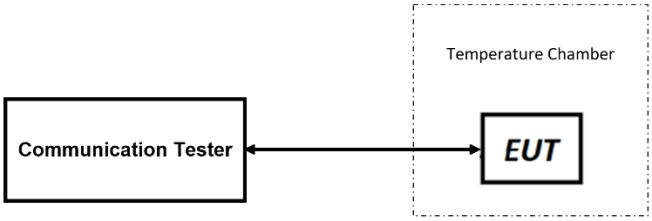


Figure 7-7. Test Instrument & Measurement Setup

Test Notes

1. All port were tested and only the worst case data were reported.

Frequency Tolerance / Temperature Variation

LTE Band 26/5

Operating Frequency (Hz):	836,500,000
Ref. Voltage (VDC):	3.80
Deviation Limit:	± 0.00025% or 2.5 ppm

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	- 30	836,500,018	18.00	0.0000022
		- 20	836,500,040	40.00	0.0000048
		- 10	836,499,991	-9.00	-0.0000011
		0	836,500,043	43.00	0.0000051
		+ 10	836,499,990	-10.00	-0.0000012
		+ 20 (Ref)	836,500,000	0.00	0.0000000
		+ 30	836,500,079	79.00	0.0000094
		+ 40	836,500,009	9.00	0.0000011
		+ 50	836,499,982	-18.00	-0.0000022
Battery Endpoint	3.40	+ 20	836,500,034	34.00	0.0000041

Table 7-36. LTE Band 26/5 Frequency Tolerance Data

Frequency Tolerance / Temperature Variation

NR Band n26/5

Operating Frequency (Hz):	836,500,000
Ref. Voltage (VDC):	3.80
Deviation Limit:	± 0.00025% or 2.5 ppm

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	- 30	836,499,908	-92.00	-0.0000110
		- 20	836,499,965	-35.00	-0.0000042
		- 10	836,499,912	-88.00	-0.0000105
		0	836,500,067	67.00	0.0000080
		+ 10	836,500,014	14.00	0.0000017
		+ 20 (Ref)	836,500,000	0.00	0.0000000
		+ 30	836,500,034	34.00	0.0000041
		+ 40	836,500,088	88.00	0.0000105
		+ 50	836,500,080	80.00	0.0000096
Battery Endpoint	3.40	+ 20	836,500,082	82.00	0.0000098

Table 7-37. NR Band n26/n5 Frequency Tolerance Data

Frequency Tolerance / Temperature Variation

WCDMA Cellular

Operating Frequency (Hz):	836,600,000
Ref. Voltage (VDC):	3.80
Deviation Limit:	± 0.00025% or 2.5 ppm

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	- 30	836,600,032	32.00	0.0000038
		- 20	836,600,022	22.00	0.0000026
		- 10	836,599,982	-18.00	-0.0000022
		0	836,599,990	-10.00	-0.0000012
		+ 10	836,600,025	25.00	0.0000030
		+ 20 (Ref)	836,600,000	0.00	0.0000000
		+ 30	836,600,028	28.00	0.0000033
		+ 40	836,600,031	31.00	0.0000037
		+ 50	836,600,041	41.00	0.0000049
Battery Endpoint	3.40	+ 20	836,599,981	-19.00	-0.0000023

Table 7-38. WCDMA Cell Frequency Tolerance Data

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the Apple **Tablet Device FCC ID: BCGA2926** complies with all the requirements of Part 22 of the FCC rules.