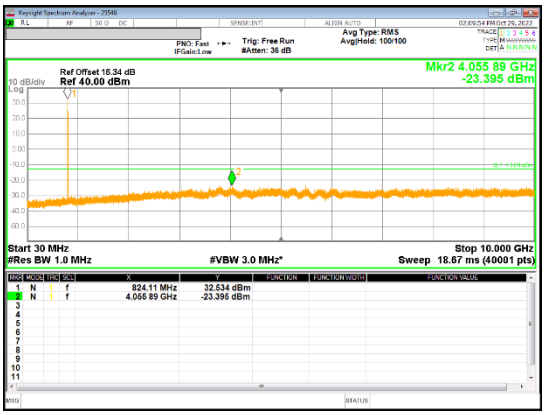
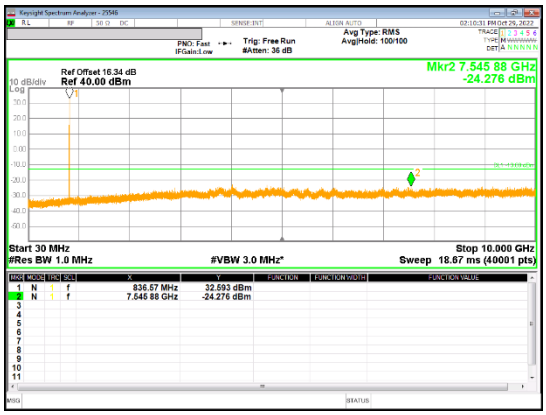
9.3.1. OUT OF BAND EMISSIONS RESULT

GSM 850

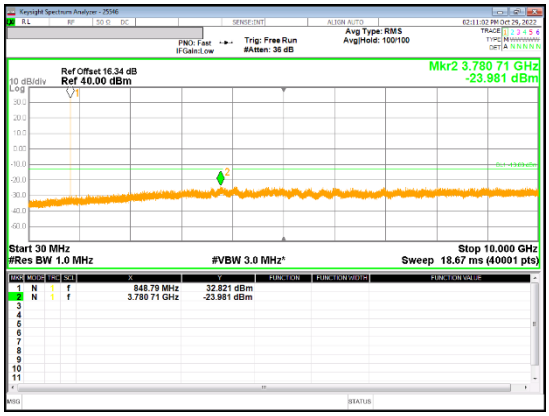
GSM 850



GPRS Low channel

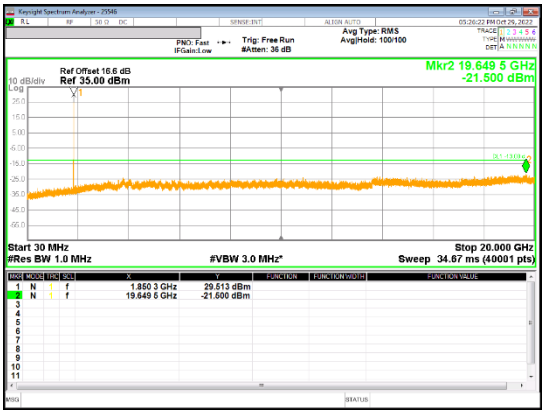
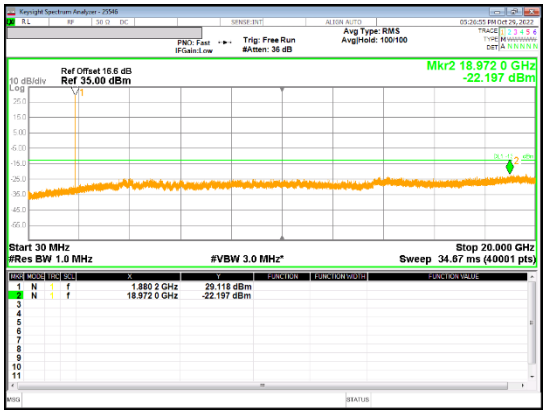
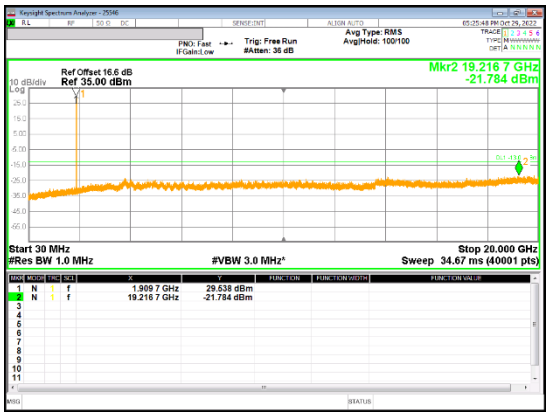


GPRS Mid channel



GPRS High channel

GSM 1900

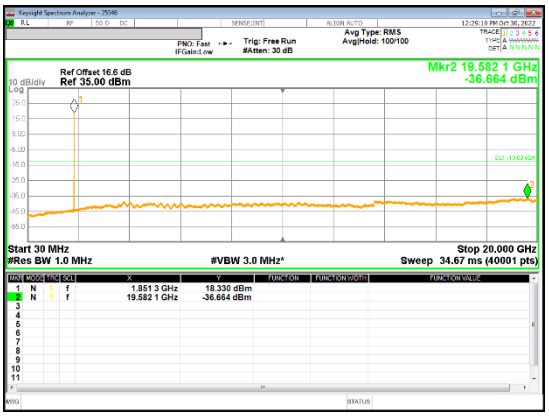
GSM 1900	 GPRS Low channel	 GPRS Mid channel
	 GPRS High channel	

WCDMA Band 5

Band 5	 REL99 Low channel	 REL99 Mid channel
	 REL99 High channel	

WCDMA Band 2

Band 2

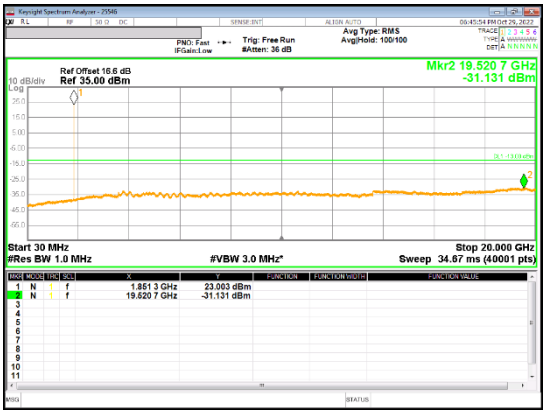
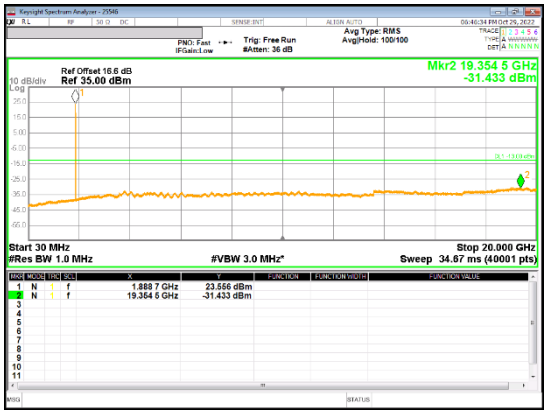


REL99 Low channel

REL99 Mid channel

REL99 High channel

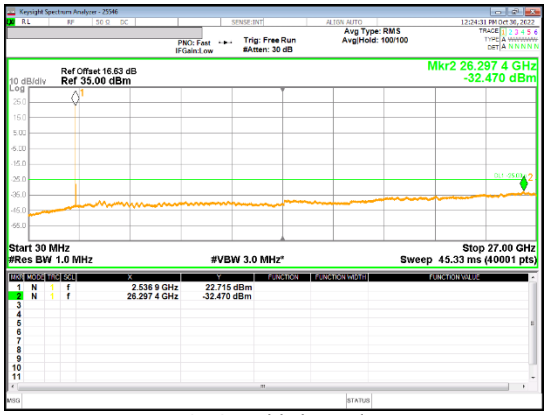
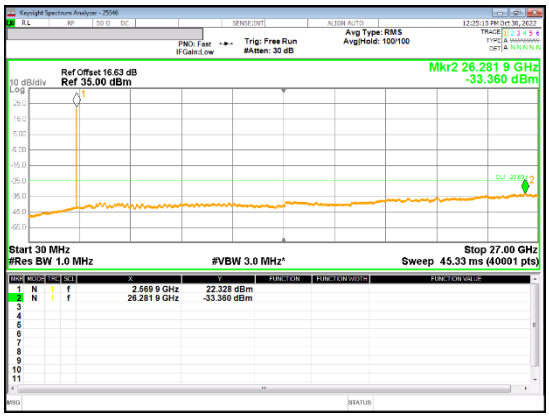
LTE Band 2

20 MHz	 QPSK Low channel	 QPSK Mid channel
	 QPSK High channel	

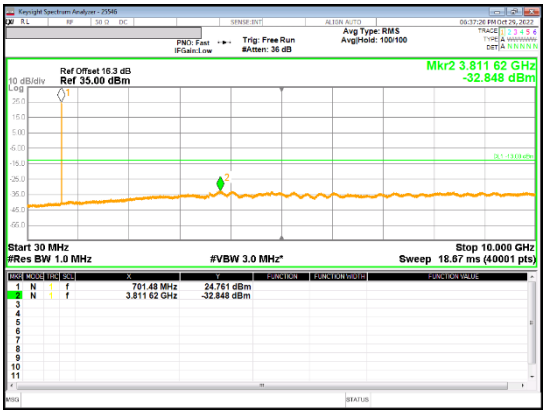
LTE Band 5

3 MHz	 QPSK Low channel	 QPSK Mid channel
	 QPSK High channel	

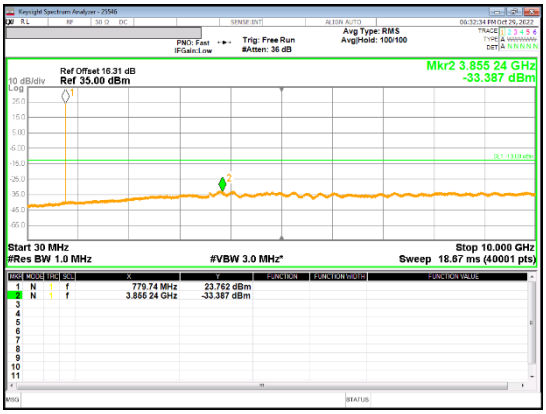
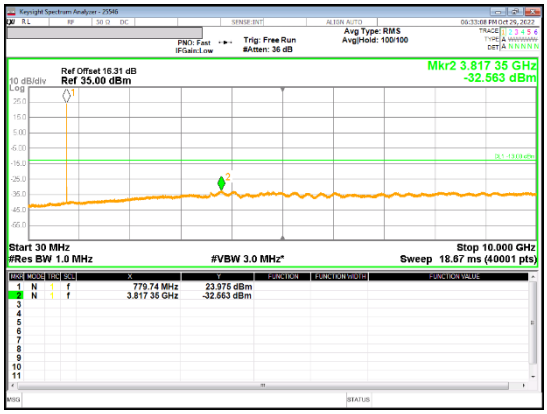
LTE Band 7

5 MHz	 QPSK Low channel	 QPSK Mid channel
	 QPSK High channel	

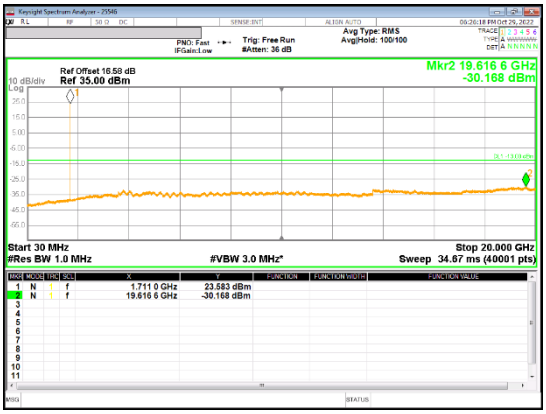
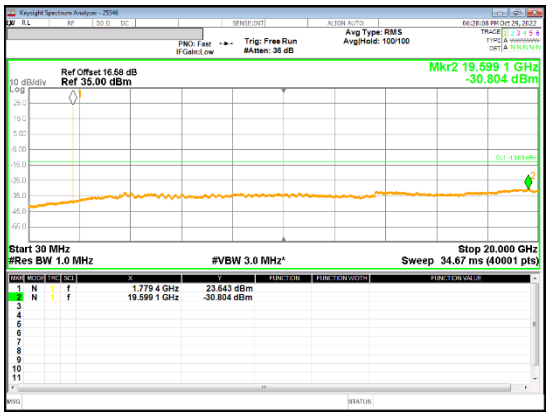
LTE Band 12

5 MHz	 QPSK Low channel	 QPSK Mid channel
	 QPSK High channel	

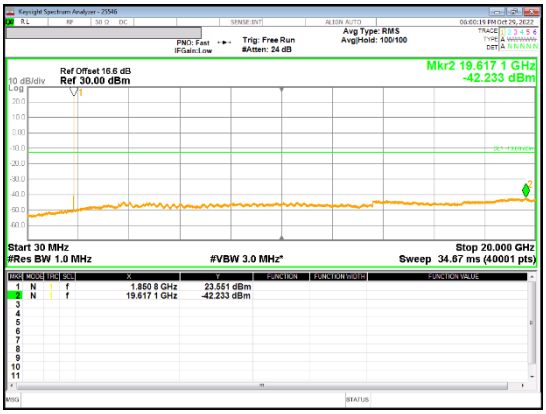
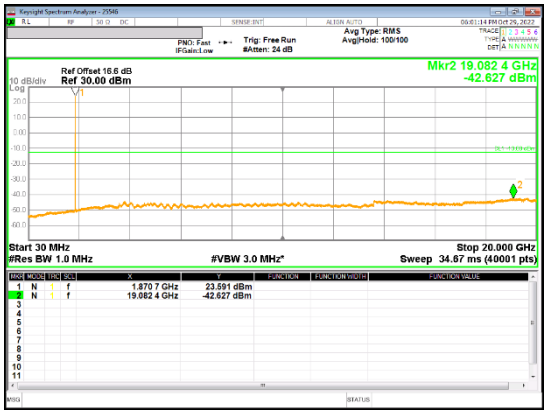
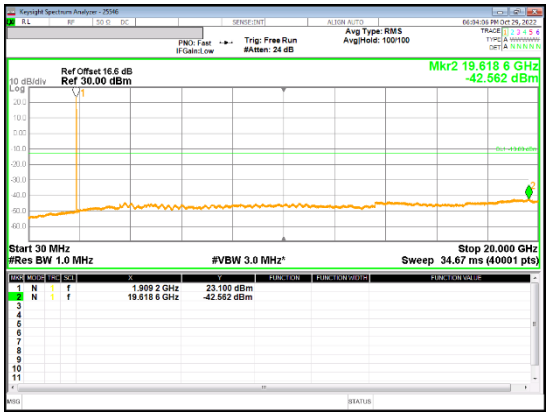
LTE Band 13

5 MHz	 QPSK Low channel	 QPSK Mid channel
	 QPSK High channel	

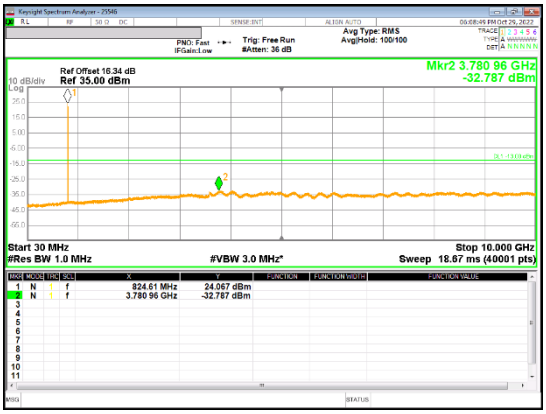
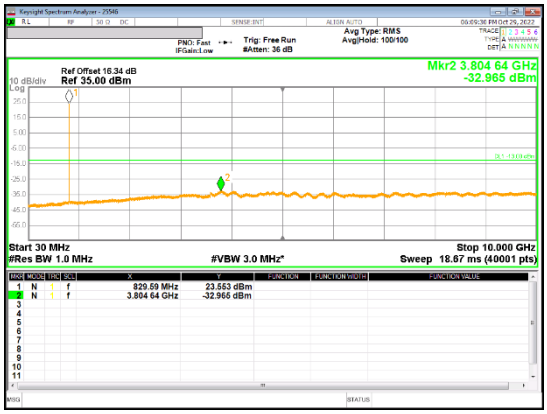
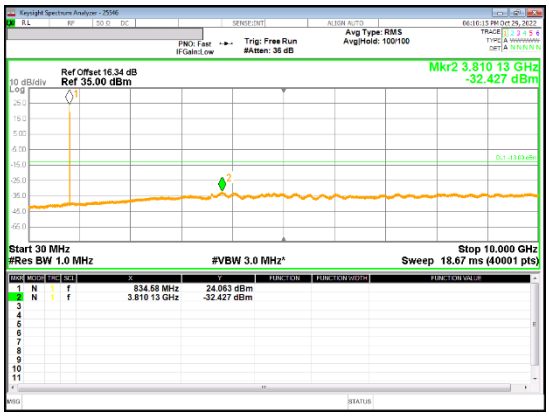
LTE Band 66

1.4 MHz	 QPSK Low channel	 QPSK Mid channel
	 QPSK High channel	

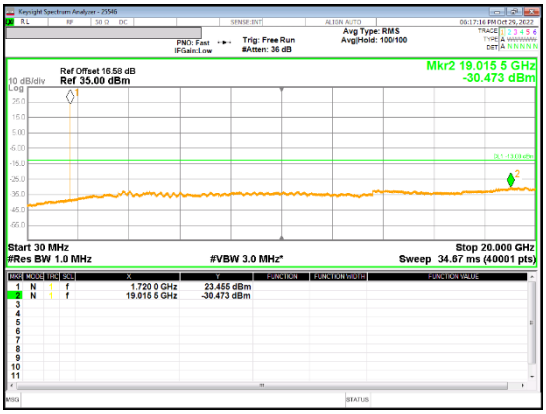
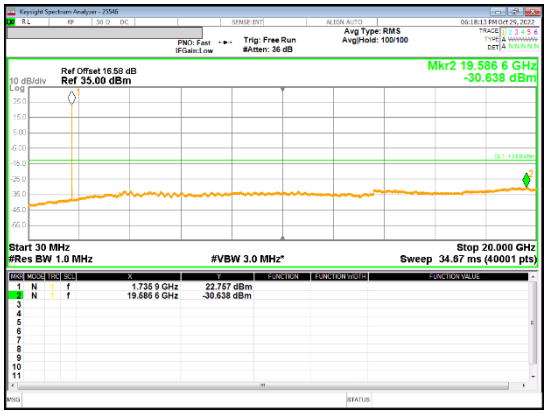
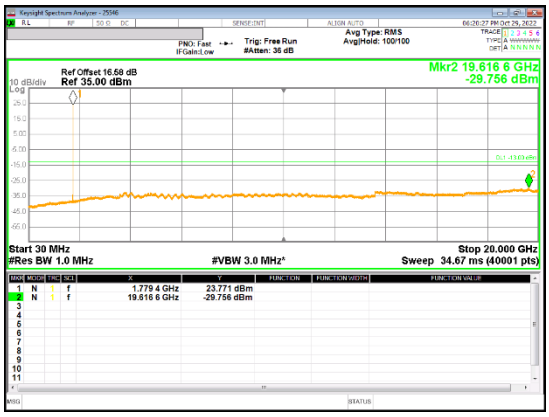
NR Band n2

20 MHz	 QPSK Low channel	 QPSK Mid channel
	 QPSK High channel	

NR Band n5

15MHz	 QPSK Low channel	 QPSK Mid channel
	 QPSK High channel	

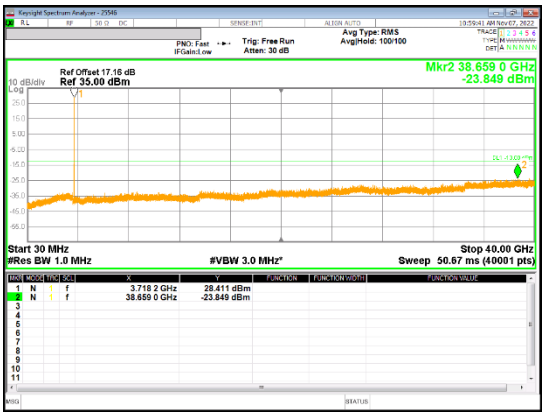
NR Band n66

20MHz	 QPSK Low channel	 QPSK Mid channel
	 QPSK High channel	

NR Band n77(PC2,3450-3550 MHz)

30MHz	 QPSK Low channel	 QPSK Mid channel
	 QPSK High channel	

NR Band n77(PC2,3700-3980 MHz)

20MHz	 QPSK Low channel	 QPSK Mid channel
	 QPSK High channel	

9.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, and §27.54

LIMITS

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations.

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

§27.54 - The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v03r01

RESULTS

See the following pages.

NOTE

Test were performed each lowest or highest frequency on the modulation condition of more wide bandwidth.(Please refer to section 9.1.1 OBW results)

9.4.1. FREQUENCY STABILITY RESULTS

GSM 850, Channel 128/251, Frequency 824.2/848.8 MHz

Test Date	2022-10-04
Test Engineer	25546

Reference Frequency : GSM850 Low Channel 824.2 MHz / High Channel 848.8 MHz @ 20ºC						
Limit: +- 2.5 ppm =	Low Channel	2060.500 Hz		High Channel	2122.000 Hz	
Power Supply [Vdc]	Environment Temperature [ºC]	Frequency Deviation Measureed with Time Elapse				
		Low Channel		High Channel		Limit [ppm]
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.88	50	824.20002935	-0.007	848.80002751	-0.006	2.5
3.88	40	824.20002548	-0.002	848.80003736	-0.018	2.5
3.88	30	824.20004265	-0.023	848.80004538	-0.027	2.5
3.88	***20***	***824.20002343***	***0.000***	***848.80002242***	***0.000***	***2.5***
3.88	10	824.20001923	0.005	848.80001594	0.008	2.5
3.88	0	824.20002275	0.001	848.80001743	0.006	2.5
3.88	-10	824.20002509	-0.002	848.80002647	-0.005	2.5
3.88	-20	824.20001539	0.010	848.80001765	0.006	2.5
3.88	-30	824.20001332	0.012	848.80001574	0.008	2.5

Reference Frequency : GSM850 Low Channel 824.2 MHz / High Channel 848.8 MHz @ 20ºC						
Limit: +- 2.5 ppm =	Low Channel	2060.500 Hz		High Channel	2122.000 Hz	
Power Supply [Vdc]	Environment Temperature [ºC]	Frequency Deviation Measureed with Time Elapse				
		Low Channel		High Channel		Limit [ppm]
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.88	***20***	**824.20002343**	***0***	**848.80002242**	***0***	***2.5***
4.47	20	824.20004376	-0.025	848.80005440	-0.038	2.5
3.65	20	824.20004053	-0.021	848.80003798	-0.018	2.5

GSM 1900, Channel 512/810, Frequency 1850.0/1910.0 MHz (Lowest Frequency:EGPRS / Highest Frequency: GPRS)

Test Date	2022-10-04
Test Engineer	25546

Limit		1850	1910	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1850.0778	1909.9228		
Extreme (50C)		1850.0778	1909.9229	25.1	0.013
Extreme (40C)		1850.0778	1909.9229	27.3	0.015
Extreme (30C)		1850.0778	1909.9229	28.1	0.015
Extreme (10C)		1850.0778	1909.9229	35.5	0.019
Extreme (0C)		1850.0778	1909.9229	43.0	0.023
Extreme (-10C)		1850.0778	1909.9229	37.4	0.020
Extreme (-20C)		1850.0778	1909.9229	27.8	0.015
Extreme (-30C)		1850.0778	1909.9228	22.5	0.012
20C	15%	1850.0778	1909.9229	49.6	0.026
	-15%	1850.0778	1909.9229	31.5	0.017
	End Point	1850.0778	1909.9229	55.3	0.029

WCDMA Band 5

Test Date	2022-10-05
Test Engineer	25546

Limit: +- 2.5 ppm =	Reference Frequency : WCDMA Band 5 Low Channel 826.4 MHz / High Channel 846.6 MHz @ 20ºC Low Channel 2066.000 Hz			High Channel 2116.500 Hz		
Power Supply [Vdc]	Environment Temperature [ºC]	Frequency Deviation Measureed with Time Elapse				Limit [ppm]
		Low Channel		High Channel		
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.88	50	826.40002026	-0.010	846.60001947	-0.003	2.5
3.88	40	826.40001035	0.002	846.60000970	0.008	2.5
3.88	30	826.40002116	-0.011	846.60002347	-0.008	2.5
3.88	***20***	***826.40001232***	***0.000***	***846.60001657***	***0.000***	***2.5***
3.88	10	826.40001633	-0.005	846.60001854	-0.002	2.5
3.88	0	826.40002316	-0.013	846.60002065	-0.005	2.5
3.88	-10	826.40002799	-0.019	846.60002409	-0.009	2.5
3.88	-20	826.40002142	-0.011	846.60001846	-0.002	2.5
3.88	-30	826.40001748	-0.006	846.60001559	0.001	2.5

Limit: +- 2.5 ppm =	Reference Frequency : WCDMA Band 5 Low Channel 826.4 MHz / High Channel 846.6 MHz @ 20ºC Low Channel 2066.000 Hz			High Channel 2116.500 Hz		
Power Supply [Vdc]	Environment Temperature [ºC]	Frequency Deviation Measureed with Time Elapse				Limit [ppm]
		Low Channel		High Channel		
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.88	***20***	**826.40001232**	***0***	**846.60001657**	***0***	***2.5***
4.47	20	826.40000370	0.010	846.60000435	0.014	2.5
3.65	20	826.40000414	0.010	846.60000453	0.014	2.5

WCDMA Band 2 (Lowest Frequency: HSDPA/ Highest Frequency: Rel99)

Test Date	2022-10-05
Test Engineer	25546

Limit		1850	1910	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1850.3164	1909.6784		
Extreme (50C)		1850.3164	1909.6784	35.4	0.019
Extreme (40C)		1850.3164	1909.6784	27.5	0.015
Extreme (30C)		1850.3164	1909.6784	22.5	0.012
Extreme (10C)		1850.3164	1909.6784	33.3	0.018
Extreme (0C)		1850.3164	1909.6784	27.5	0.015
Extreme (-10C)		1850.3164	1909.6784	25.1	0.013
Extreme (-20C)		1850.3164	1909.6784	19.4	0.010
Extreme (-30C)		1850.3164	1909.6784	18.7	0.010
20C	15%	1850.3164	1909.6784	10.2	0.005
	-15%	1850.3164	1909.6784	9.3	0.005
	End Point	1850.3164	1909.6784	9.4	0.005

LTE Band 2 (Lowest Frequency: QPSK / Highest Frequency: 16QAM)

Test Date	2022-10-06
Test Engineer	25546

Limit		1850	1910	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1850.1536	1909.8447		
Extreme (50C)		1850.1536	1909.8447	24.2	0.013
Extreme (40C)		1850.1536	1909.8447	25.3	0.013
Extreme (30C)		1850.1536	1909.8447	37.7	0.020
Extreme (10C)		1850.1536	1909.8447	34.0	0.018
Extreme (0C)		1850.1536	1909.8447	36.7	0.020
Extreme (-10C)		1850.1536	1909.8447	31.2	0.017
Extreme (-20C)		1850.1536	1909.8447	20.6	0.011
Extreme (-30C)		1850.1536	1909.8447	18.5	0.010
20C	15%	1850.1536	1909.8447	16.1	0.009
	-15%	1850.1536	1909.8447	9.8	0.005
	End Point	1850.1536	1909.8447	8.0	0.004

LTE Band 5

Test Date	2022-10-06
Test Engineer	25546

Limit: +- 2.5 ppm =	Reference Frequency : LTE Band 5 Low Channel 824.7 MHz / High Channel 848.3 MHz @ 20ºC					
	Low Channel 2061.750 Hz			High Channel 2120.750 Hz		
Power Supply [Vdc]	Environment Temperature [ºC]	Frequency Deviation Measureed with Time Elapse				Limit [ppm]
		Low Channel		High Channel		
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.88	50	824.70002893	-0.027	848.30002680	-0.024	2.5
3.88	40	824.70003685	-0.037	848.30002646	-0.023	2.5
3.88	30	824.70001444	-0.010	848.30001226	-0.006	2.5
3.88	***20***	***824.70000640***	***0.000***	***848.30000685***	***0.000***	***2.5***
3.88	10	824.70002148	-0.018	848.30001607	-0.011	2.5
3.88	0	824.70002637	-0.024	848.30001525	-0.010	2.5
3.88	-10	824.70003039	-0.029	848.30002604	-0.023	2.5
3.88	-20	824.70002135	-0.018	848.30002287	-0.019	2.5
3.88	-30	824.70001769	-0.014	848.30001720	-0.012	2.5

Limit: +- 2.5 ppm =	Reference Frequency : LTE Band 5 Low Channel 824.7 MHz / High Channel 848.3 MHz @ 20ºC					
	Low Channel 2061.750 Hz			High Channel 2120.750 Hz		
Power Supply [Vdc]	Environment Temperature [ºC]	Frequency Deviation Measureed with Time Elapse				Limit [ppm]
		Low Channel		High Channel		
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.88	***20***	**824.70001680**	***0***	**848.30000845**	***0***	***2.5***
4.47	20	824.70000872	0.010	848.30000538	0.004	2.5
3.65	20	824.70001524	0.002	848.30002184	-0.016	2.5

LTE Band 7 (Lowest Frequency: QPSK / Highest Frequency: QPSK)

Test Date	2022-10-07
Test Engineer	25546

Limit		2500	2570	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	2500.2515	2569.7426		
Extreme (50C)		2500.2515	2569.7426	10.1	0.004
Extreme (40C)		2500.2515	2569.7426	11.3	0.004
Extreme (30C)		2500.2515	2569.7426	10.5	0.004
Extreme (10C)		2500.2515	2569.7426	14.2	0.006
Extreme (0C)		2500.2515	2569.7426	13.0	0.005
Extreme (-10C)		2500.2515	2569.7426	14.2	0.006
Extreme (-20C)		2500.2515	2569.7426	13.9	0.005
Extreme (-30C)		2500.2515	2569.7426	13.4	0.005
20C	15%	2500.2515	2569.7426	10.8	0.004
	-15%	2500.2515	2569.7426	9.5	0.004
	End Point	2500.2515	2569.7426	8.4	0.003

LTE Band 12 (Lowest Frequency: 16QAM / Highest Frequency: 16QAM)

Test Date	2022-10-07
Test Engineer	25546

Limit		699	716	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	699.1537	715.8414		
Extreme (50C)		699.1537	715.8414	5.1	0.007
Extreme (40C)		699.1537	715.8414	24.9	0.035
Extreme (30C)		699.1537	715.8414	29.9	0.042
Extreme (10C)		699.1537	715.8414	6.3	0.009
Extreme (0C)		699.1537	715.8414	13.4	0.019
Extreme (-10C)		699.1537	715.8414	13.4	0.019
Extreme (-20C)		699.1537	715.8414	13.5	0.019
Extreme (-30C)		699.1537	715.8414	13.3	0.019
20C	15%	699.1537	715.8414	14.5	0.021
	-15%	699.1537	715.8414	22.3	0.031
	End Point	699.1537	715.8414	14.7	0.021

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LTE Band 13 (Lowest Frequency: QPSK / Highest Frequency: QPSK)

Test Date	2022-10-11
Test Engineer	25546

Limit		777	787	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	777.2601	786.7429		
Extreme (50C)		777.2601	786.7429	7.8	0.010
Extreme (40C)		777.2601	786.7429	7.4	0.010
Extreme (30C)		777.2601	786.7429	8.1	0.010
Extreme (10C)		777.2601	786.7429	8.5	0.011
Extreme (0C)		777.2601	786.7429	8.6	0.011
Extreme (-10C)		777.2601	786.7429	8.6	0.011
Extreme (-20C)		777.2601	786.7429	8.0	0.010
Extreme (-30C)		777.2601	786.7429	9.7	0.012
20C	15%	777.2601	786.7429	6.4	0.008
	-15%	777.2601	786.7429	4.8	0.006
	End Point	777.2601	786.7429	6.2	0.008

LTE Band 66 (Lowest Frequency: 16QAM / Highest Frequency: 16QAM)

Test Date	2022-10-12
Test Engineer	25546

Limit		1710	1780	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1710.1579	1779.8412		
Extreme (50C)		1710.1579	1779.8412	13.6	0.008
Extreme (40C)		1710.1579	1779.8412	9.5	0.005
Extreme (30C)		1710.1579	1779.8412	16.0	0.009
Extreme (10C)		1710.1579	1779.8412	7.4	0.004
Extreme (0C)		1710.1579	1779.8412	27.8	0.016
Extreme (-10C)		1710.1579	1779.8412	20.2	0.012
Extreme (-20C)		1710.1579	1779.8412	17.7	0.010
Extreme (-30C)		1710.1579	1779.8412	19.1	0.011
20C	15%	1710.1579	1779.8412	42.8	0.025
	-15%	1710.1579	1779.8412	32.6	0.019
	End Point	1710.1579	1779.8412	49.7	0.028

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5G NR Band n2 (Lowest Frequency:16QAM / Highest Frequency: 16QAM)

Test Date	2022-10-12
Test Engineer	25546

Limit		1850	1915	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1850.2536	1914.7401		
Extreme (50C)		1850.2536	1914.7401	29.6	0.016
Extreme (40C)		1850.2536	1914.7401	35.4	0.019
Extreme (30C)		1850.2536	1914.7401	37.2	0.020
Extreme (10C)		1850.2536	1914.7401	42.4	0.023
Extreme (0C)		1850.2536	1914.7401	39.4	0.021
Extreme (-10C)		1850.2536	1914.7401	36.2	0.019
Extreme (-20C)		1850.2536	1914.7401	24.6	0.013
Extreme (-30C)		1850.2536	1914.7401	21.7	0.012
20C	15%	1850.2536	1914.7401	20.7	0.011
	-15%	1850.2536	1914.7401	14.7	0.008
	End Point	1850.2536	1914.7401	12.4	0.007

5G NR Band n5

Test Date	2022-10-13
Test Engineer	25546

Limit: +- 2.5 ppm =	Reference Frequency : n5 Low Channel 826.5 MHz / High Channel 846.5 MHz @ 20°C Low Channel 2066.250 Hz			High Channel 2116.250 Hz		
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measureed with Time Elapse				Limit [ppm]
		Low Channel		High Channel		
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.88	50	826.50002415	-0.015	846.50002036	-0.008	2.5
3.88	40	826.50002751	-0.019	846.50002568	-0.015	2.5
3.88	30	826.50002342	-0.014	846.50002039	-0.008	2.5
3.88	***20***	***826.50001145***	***0.000***	***846.50001325***	***0.000***	***2.5***
3.88	10	826.50001367	-0.003	846.50001539	-0.003	2.5
3.88	0	826.50001965	-0.010	846.50001743	-0.005	2.5
3.88	-10	826.50002647	-0.018	846.50002312	-0.012	2.5
3.88	-20	826.50002313	-0.014	846.50002106	-0.009	2.5
3.88	-30	826.50001649	-0.006	846.50001779	-0.005	2.5

Limit: +- 2.5 ppm =	Reference Frequency : n5 Low Channel 826.5 MHz / High Channel 846.5 MHz @ 20°C Low Channel 2066.250 Hz			High Channel 2116.250 Hz		
Power Supply [Vdc]	Environment Temperature [°C]	Frequency Deviation Measureed with Time Elapse				Limit [ppm]
		Low Channel		High Channel		
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.88	***20***	**826.50001145**	***0***	**846.50001325**	***0***	***2.5***
4.47	20	826.50001011	0.002	846.50000745	0.007	2.5
3.65	20	826.50001665	-0.006	846.50001924	-0.007	2.5

5G NR Band n66 (Lowest Frequency: QPSK / Highest Frequency: QPSK)

Test Date	2022-10-13
Test Engineer	25546

Limit		1710	1780	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1710.2601	1779.7403		
Extreme (50C)		1710.2601	1779.7403	24.5	0.014
Extreme (40C)		1710.2601	1779.7403	25.8	0.015
Extreme (30C)		1710.2601	1779.7403	23.2	0.013
Extreme (10C)		1710.2601	1779.7403	17.9	0.010
Extreme (0C)		1710.2601	1779.7403	20.1	0.011
Extreme (-10C)		1710.2601	1779.7403	29.3	0.017
Extreme (-20C)		1710.2601	1779.7403	32.1	0.018
Extreme (-30C)		1710.2601	1779.7403	35.8	0.021
20C	15%	1710.2601	1779.7403	26.5	0.015
	-15%	1710.2601	1779.7403	23.4	0.013
	End Point	1710.2601	1779.7403	30.5	0.017

NR Band n77(PC2) (Lowest Frequency: QPSK / Highest Frequency: QPSK)

Test Date	2022-10-14
Test Engineer	25546

Limit		3450	3550	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	3450.8810	3549.1225		
Extreme (50C)		3450.8810	3549.1225	20.8	0.006
Extreme (40C)		3450.8810	3549.1225	25.4	0.007
Extreme (30C)		3450.8810	3549.1225	23.2	0.007
Extreme (10C)		3450.8810	3549.1225	17.5	0.005
Extreme (0C)		3450.8810	3549.1225	18.4	0.005
Extreme (-10C)		3450.8810	3549.1225	19.2	0.005
Extreme (-20C)		3450.8810	3549.1225	23.5	0.007
Extreme (-30C)		3450.8810	3549.1225	26.8	0.008
20C	15%	3450.8810	3549.1225	20.2	0.006
	-15%	3450.8810	3549.1225	17.5	0.005
	End Point	3450.8810	3549.1225	15.4	0.004

Test Date	2022-10-14
Test Engineer	25546

Limit		3700	3980	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	3700.8725	3979.1140		
Extreme (50C)		3700.8725	3979.1140	20.8	0.005
Extreme (40C)		3700.8725	3979.1140	25.4	0.007
Extreme (30C)		3700.8725	3979.1140	23.2	0.006
Extreme (10C)		3700.8725	3979.1140	17.5	0.005
Extreme (0C)		3700.8725	3979.1140	18.4	0.005
Extreme (-10C)		3700.8725	3979.1140	19.2	0.005
Extreme (-20C)		3700.8725	3979.1140	23.5	0.006
Extreme (-30C)		3700.8725	3979.1140	26.8	0.007
20C	15%	3700.8725	3979.1140	17.5	0.005
	-15%	3700.8725	3979.1140	16.8	0.004
	End Point	3700.8725	3979.1140	14.7	0.004

9.5. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, and §27.50

LIMITS

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

24.232(c) - Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

27.50:

(b)(10) Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

(c) (10) - Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

(d)(4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

(h) The following power limits shall apply in the BRS and EBS:

(2) Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

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

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

In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13dB.

TEST PROCEDURE

ANSI / TIA / EIA 603 E Clause 2.2.17; ESU40 setting reference to 971168 D01 v03r01

For radiated output power measurement with a ESU40:

a) Set the RBW ≥ OBW;

b) Set VBW ≥ 3 × RBW;

c) Set span ≥ 2 x RBW;

d) Sweep time = auto couple or 1 second;

e) Detector = rms;

f) Ensure that the number of measurement points ≥ span/RBW;

g) Trace mode = max hold(GSM, WCDMA), average(LTE, 5G NR);

TEST RESULTS

See the following pages.

9.5.1. ERP/EIRP Results

GSM

Band	Mode	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)
GSM 850	GPRS	824.20	26.38	V	3.11	-0.82	22.45	175.79	38.50	-16.05
		824.20	31.18	H	3.11	-0.82	27.26	532.11	38.50	-11.24
		836.60	26.59	V	3.13	-0.93	22.53	179.06	38.50	-15.97
		836.60	30.95	H	3.13	-0.93	26.89	488.65	38.50	-11.61
		848.80	26.84	V	3.15	-1.04	22.65	184.08	38.50	-15.85
		848.80	31.50	H	3.15	-1.04	27.31	538.27	38.50	-11.19
	EGPRS	824.20	21.42	V	3.11	-0.82	17.49	56.10	38.50	-21.01
		824.20	26.11	H	3.11	-0.82	22.19	165.58	38.50	-16.31
		836.60	21.85	V	3.13	-0.93	17.79	60.12	38.50	-20.71
		836.60	26.27	H	3.13	-0.93	22.21	166.34	38.50	-16.29
		848.80	22.47	V	3.15	-1.04	18.28	67.30	38.50	-20.22
		848.80	26.67	H	3.15	-1.04	22.48	177.01	38.50	-16.02

Band	Mode	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)
GSM 1900	GPRS	1850.20	17.27	V	4.62	9.52	22.17	164.82	33.00	-10.83
		1850.20	24.11	H	4.62	9.52	29.01	796.16	33.00	-3.99
		1880.00	18.74	V	4.65	9.29	23.37	217.27	33.00	-9.63
		1880.00	25.67	H	4.65	9.29	30.31	1073.99	33.00	-2.69
		1909.80	20.28	V	4.68	9.00	24.60	288.40	33.00	-8.40
		1909.80	25.46	H	4.68	9.00	29.78	950.60	33.00	-3.22
	EGPRS	1850.20	13.63	V	4.62	9.52	18.53	71.29	33.00	-14.47
		1850.20	20.10	H	4.62	9.52	25.00	316.23	33.00	-8.00
		1880.00	15.54	V	4.65	9.29	20.17	103.99	33.00	-12.83
		1880.00	21.45	H	4.65	9.29	26.09	406.44	33.00	-6.91
		1909.80	16.93	V	4.68	9.00	21.25	133.35	33.00	-11.75
		1909.80	21.47	H	4.68	9.00	25.79	379.31	33.00	-7.21

WCDMA

Band	Mode	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)
Band 5	REL99	826.40	22.95	V	3.11	-0.84	19.01	79.62	38.50	-19.49
		826.40	10.48	H	3.11	-0.84	6.54	4.51	38.50	-31.96
		836.60	24.11	V	3.13	-0.93	20.05	101.16	38.50	-18.45
		836.60	10.88	H	3.13	-0.93	6.82	4.81	38.50	-31.68
		846.60	24.45	V	3.14	-1.02	20.28	106.66	38.50	-18.22
		846.60	10.88	H	3.14	-1.02	6.72	4.70	38.50	-31.78
	HSDPA	826.40	21.77	V	3.11	-0.84	17.83	60.67	38.50	-20.67
		826.40	9.31	H	3.11	-0.84	5.37	3.44	38.50	-33.13
		836.60	22.67	V	3.13	-0.93	18.61	72.61	38.50	-19.89
		836.60	9.75	H	3.13	-0.93	5.69	3.71	38.50	-32.81
		846.60	23.00	V	3.14	-1.02	18.83	76.38	38.50	-19.67
		846.60	9.88	H	3.14	-1.02	5.72	3.73	38.50	-32.78

Band	Mode	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)
Band 2	REL99	1852.40	11.31	V	4.62	9.51	16.19	41.59	33.00	-16.81
		1852.40	18.37	H	4.62	9.51	23.26	211.84	33.00	-9.74
		1880.00	13.42	V	4.65	9.29	18.05	63.83	33.00	-14.95
		1880.00	19.86	H	4.65	9.29	24.50	281.84	33.00	-8.50
		1907.60	14.39	V	4.68	9.03	18.73	74.64	33.00	-14.27
		1907.60	19.77	H	4.68	9.03	24.11	257.63	33.00	-8.89
	HSDPA	1852.40	10.33	V	4.62	9.51	15.21	33.19	33.00	-17.79
		1852.40	17.09	H	4.62	9.51	21.98	157.76	33.00	-11.02
		1880.00	12.12	V	4.65	9.29	16.75	47.32	33.00	-16.25
		1880.00	18.48	H	4.65	9.29	23.12	205.12	33.00	-9.88
		1907.60	13.28	V	4.68	9.03	17.62	57.81	33.00	-15.38
		1907.60	18.57	H	4.68	9.03	22.91	195.43	33.00	-10.09

LTE Band 2

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)	RB
1.4	QPSK	1850.70	18.66	H	4.62	9.52	23.56	226.99	33.00	-9.44	1/3
		1880.00	19.80	H	4.65	9.29	24.43	277.33	33.00	-8.57	1/3
		1909.30	19.87	H	4.68	9.00	24.19	262.42	33.00	-8.81	1/0
	16-QAM	1850.70	17.76	H	4.62	9.52	22.66	184.50	33.00	-10.34	1/3
		1880.00	18.94	H	4.65	9.29	23.57	227.51	33.00	-9.43	1/3
		1909.30	18.89	H	4.68	9.00	23.21	209.41	33.00	-9.79	1/0
3	QPSK	1851.50	18.86	H	4.62	9.51	23.75	237.14	33.00	-9.25	1/0
		1880.00	19.89	H	4.65	9.29	24.53	283.79	33.00	-8.47	1/0
		1908.50	19.98	H	4.68	9.02	24.31	269.77	33.00	-8.69	1/0
	16-QAM	1851.50	18.08	H	4.62	9.51	22.97	198.15	33.00	-10.03	1/0
		1880.00	19.07	H	4.65	9.29	23.71	234.96	33.00	-9.29	1/0
		1908.50	19.02	H	4.68	9.02	23.35	216.27	33.00	-9.65	1/0
5	QPSK	1852.50	18.65	H	4.62	9.50	23.53	225.42	33.00	-9.47	1/0
		1880.00	20.01	H	4.65	9.29	24.65	291.74	33.00	-8.35	1/0
		1907.50	19.88	H	4.69	9.03	24.23	264.85	33.00	-8.77	1/0
	16-QAM	1852.50	17.84	H	4.62	9.50	22.72	187.07	33.00	-10.28	1/0
		1880.00	19.08	H	4.65	9.29	23.72	235.50	33.00	-9.28	1/0
		1907.50	18.93	H	4.69	9.03	23.27	212.32	33.00	-9.73	1/0
10	QPSK	1855.00	18.81	H	4.62	9.48	23.67	232.81	33.00	-9.33	1/0
		1880.00	20.08	H	4.65	9.29	24.72	296.48	33.00	-8.28	1/0
		1905.00	19.96	H	4.68	9.06	24.35	272.27	33.00	-8.65	1/0
	16-QAM	1855.00	17.89	H	4.62	9.48	22.75	188.36	33.00	-10.25	1/0
		1880.00	19.20	H	4.65	9.29	23.83	241.55	33.00	-9.17	1/0
		1905.00	19.05	H	4.68	9.06	23.44	220.80	33.00	-9.56	1/0
15	QPSK	1857.50	18.70	H	4.63	9.47	23.54	225.94	33.00	-9.46	1/0
		1880.00	19.74	H	4.65	9.29	24.38	274.16	33.00	-8.62	1/0
		1902.50	20.30	H	4.68	9.10	24.73	297.17	33.00	-8.27	1/0
	16-QAM	1857.50	17.94	H	4.63	9.47	22.78	189.67	33.00	-10.22	1/0
		1880.00	18.86	H	4.65	9.29	23.50	223.87	33.00	-9.50	1/0
		1902.50	19.41	H	4.68	9.10	23.83	241.55	33.00	-9.17	1/0
20	QPSK	1860.00	18.71	H	4.63	9.45	23.53	225.42	33.00	-9.47	1/0
		1880.00	20.15	H	4.65	9.29	24.79	301.30	33.00	-8.21	1/99
		1900.00	20.02	H	4.67	9.13	24.48	280.54	33.00	-8.52	1/99
	16-QAM	1860.00	18.25	H	4.63	9.45	23.07	202.77	33.00	-9.93	1/99
		1880.00	19.27	H	4.65	9.29	23.91	246.04	33.00	-9.09	1/99
		1900.00	18.93	H	4.67	9.13	23.39	218.27	33.00	-9.61	1/99

LTE Band 5

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)	RB
1.4	QPSK	824.70	22.51	V	3.11	-0.82	18.58	72.11	38.50	-19.92	1/3
		836.50	23.68	V	3.13	-0.93	19.63	91.83	38.50	-18.87	1/3
		848.30	24.17	V	3.15	-1.03	19.99	99.77	38.50	-18.51	1/3
	16-QAM	824.70	21.43	V	3.11	-0.82	17.50	56.23	38.50	-21.00	1/3
		836.50	22.89	V	3.13	-0.93	18.84	76.56	38.50	-19.66	1/3
		848.30	23.07	V	3.15	-1.03	18.89	77.45	38.50	-19.61	1/3
3	QPSK	825.50	22.76	V	3.10	-0.83	18.83	76.38	38.50	-19.67	1/0
		836.50	23.62	V	3.13	-0.93	19.57	90.57	38.50	-18.93	1/0
		847.50	24.48	V	3.15	-1.03	20.31	107.40	38.50	-18.19	1/14
	16-QAM	825.50	21.70	V	3.10	-0.83	17.77	59.84	38.50	-20.73	1/0
		836.50	22.43	V	3.13	-0.93	18.38	68.87	38.50	-20.12	1/0
		847.50	23.23	V	3.15	-1.03	19.06	80.54	38.50	-19.44	1/0
5	QPSK	826.50	22.99	V	3.11	-0.84	19.04	80.17	38.50	-19.46	1/24
		836.50	23.91	V	3.13	-0.93	19.86	96.83	38.50	-18.64	1/24
		846.50	24.04	V	3.14	-1.02	19.88	97.27	38.50	-18.62	1/24
	16-QAM	826.50	22.27	V	3.11	-0.84	18.32	67.92	38.50	-20.18	1/0
		836.50	22.78	V	3.13	-0.93	18.73	74.64	38.50	-19.77	1/0
		846.50	23.17	V	3.14	-1.02	19.01	79.62	38.50	-19.49	1/0
10	QPSK	829.00	22.78	V	3.11	-0.86	18.81	76.03	38.50	-19.69	1/0
		836.50	23.38	V	3.13	-0.93	19.33	85.70	38.50	-19.17	1/0
		844.00	24.20	V	3.14	-1.00	20.07	101.62	38.50	-18.43	1/0
	16-QAM	829.00	21.99	V	3.11	-0.86	18.02	63.39	38.50	-20.48	1/0
		836.50	22.11	V	3.13	-0.93	18.06	63.97	38.50	-20.44	1/0
		844.00	23.16	V	3.14	-1.00	19.03	79.98	38.50	-19.47	1/0

LTE Band 7

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)	RB
5	QPSK	2502.50	18.70	H	5.37	10.00	23.32	214.78	33.00	-9.68	1/0
		2535.00	19.74	H	5.41	9.93	24.26	266.69	33.00	-8.74	1/24
		2567.50	19.83	H	5.45	9.91	24.29	268.53	33.00	-8.71	1/24
	16-QAM	2502.50	17.77	H	5.37	10.00	22.39	173.38	33.00	-10.61	1/12
		2535.00	19.25	H	5.41	9.93	23.77	238.23	33.00	-9.23	1/12
		2567.50	18.85	H	5.45	9.91	23.31	214.29	33.00	-9.69	1/24
10	QPSK	2505.00	18.67	H	5.38	9.99	23.29	213.30	33.00	-9.71	1/49
		2535.00	19.62	H	5.41	9.93	24.14	259.42	33.00	-8.86	1/0
		2565.00	19.11	H	5.43	9.91	23.59	228.56	33.00	-9.41	1/49
	16-QAM	2505.00	17.67	H	5.38	9.99	22.29	169.43	33.00	-10.71	1/0
		2535.00	18.56	H	5.41	9.93	23.08	203.24	33.00	-9.92	1/49
		2565.00	18.36	H	5.43	9.91	22.84	192.31	33.00	-10.16	1/49
15	QPSK	2507.50	19.02	H	5.39	9.99	23.62	230.14	33.00	-9.38	1/74
		2535.00	19.63	H	5.41	9.93	24.15	260.02	33.00	-8.85	1/74
		2562.50	19.49	H	5.44	9.91	23.96	248.89	33.00	-9.04	1/74
	16-QAM	2507.50	18.08	H	5.39	9.99	22.68	185.35	33.00	-10.32	1/74
		2535.00	18.56	H	5.41	9.93	23.08	203.24	33.00	-9.92	1/74
		2562.50	18.68	H	5.44	9.91	23.15	206.54	33.00	-9.85	1/37
20	QPSK	2510.00	18.53	H	5.38	9.98	23.13	205.59	33.00	-9.87	1/99
		2535.00	19.37	H	5.41	9.93	23.89	244.91	33.00	-9.11	1/99
		2560.00	19.63	H	5.44	9.91	24.09	256.45	33.00	-8.91	1/99
	16-QAM	2510.00	17.46	H	5.38	9.98	22.06	160.69	33.00	-10.94	1/49
		2535.00	18.39	H	5.41	9.93	22.91	195.43	33.00	-10.09	1/99
		2560.00	18.74	H	5.44	9.91	23.20	208.93	33.00	-9.80	1/49

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LTE Band 12

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)	RB
1.4	QPSK	699.70	21.29	H	2.87	-0.80	17.62	57.81	34.77	-17.15	1/3
		707.50	22.61	H	2.89	-0.79	18.94	78.34	34.77	-15.83	1/0
		715.30	22.54	H	2.90	-0.77	18.87	77.09	34.77	-15.90	1/3
	16-QAM	699.70	20.21	H	2.87	-0.80	16.54	45.08	34.77	-18.23	1/3
		707.50	21.59	H	2.89	-0.79	17.92	61.94	34.77	-16.85	1/3
		715.30	21.51	H	2.90	-0.77	17.84	60.81	34.77	-16.93	1/3
3	QPSK	700.50	21.83	H	2.88	-0.80	18.15	65.31	34.77	-16.62	1/0
		707.50	22.57	H	2.89	-0.79	18.90	77.62	34.77	-15.87	1/0
		714.50	21.95	H	2.90	-0.77	18.28	67.30	34.77	-16.49	1/0
	16-QAM	700.50	20.77	H	2.88	-0.80	17.09	51.17	34.77	-17.68	1/0
		707.50	21.38	H	2.89	-0.79	17.71	59.02	34.77	-17.06	1/0
		714.50	21.56	H	2.90	-0.77	17.89	61.52	34.77	-16.88	1/14
5	QPSK	701.50	21.46	H	2.88	-0.80	17.79	60.12	34.77	-16.98	1/12
		707.50	22.91	H	2.89	-0.79	19.24	83.95	34.77	-15.53	1/12
		713.50	22.31	H	2.90	-0.77	18.63	72.95	34.77	-16.14	1/0
	16-QAM	701.50	20.55	H	2.88	-0.80	16.88	48.75	34.77	-17.89	1/24
		707.50	21.81	H	2.89	-0.79	18.14	65.16	34.77	-16.63	1/0
		713.50	21.72	H	2.90	-0.77	18.04	63.68	34.77	-16.73	1/24
10	QPSK	704.00	21.84	H	2.88	-0.79	18.17	65.61	34.77	-16.60	1/0
		707.50	21.41	H	2.89	-0.79	17.74	59.43	34.77	-17.03	1/0
		711.00	22.70	H	2.89	-0.78	19.03	79.98	34.77	-15.74	1/0
	16-QAM	704.00	20.76	H	2.88	-0.79	17.09	51.17	34.77	-17.68	1/0
		707.50	20.31	H	2.89	-0.79	16.64	46.13	34.77	-18.13	1/0
		711.00	21.61	H	2.89	-0.78	17.94	62.23	34.77	-16.83	1/0

LTE Band 13

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)	RB
5	QPSK	779.50	24.38	V	3.02	-0.64	20.72	118.03	34.77	-14.05	1/12
		782.00	24.03	V	3.02	-0.64	20.37	108.89	34.77	-14.40	1/0
		784.50	24.18	V	3.04	-0.63	20.51	112.46	34.77	-14.26	1/0
	16-QAM	779.50	23.48	V	3.02	-0.64	19.82	95.94	34.77	-14.95	1/24
		782.00	23.11	V	3.02	-0.64	19.45	88.10	34.77	-15.32	1/0
		784.50	23.13	V	3.04	-0.63	19.46	88.31	34.77	-15.31	1/0
10	QPSK	782.00	24.25	V	3.02	-0.64	20.59	114.55	34.77	-14.18	1/25
	16-QAM	782.00	23.28	V	3.02	-0.64	19.62	91.62	34.77	-15.15	1/25

LTE Band 66

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)	RB
1.4	QPSK	1710.70	18.37	H	4.43	9.50	23.45	221.15	30.00	-6.55	1/3
		1745.00	17.66	H	4.47	9.66	22.84	192.47	30.00	-7.16	1/3
		1779.30	16.44	H	4.52	9.68	21.60	144.63	30.00	-8.40	1/3
	16-QAM	1710.70	17.46	H	4.43	9.50	22.53	179.22	30.00	-7.47	1/3
		1745.00	16.72	H	4.47	9.66	21.91	155.26	30.00	-8.09	1/3
		1779.30	15.48	H	4.52	9.68	20.64	115.89	30.00	-9.36	1/3
3	QPSK	1711.50	18.00	H	4.44	9.51	23.07	202.80	30.00	-6.93	1/0
		1745.00	17.25	H	4.47	9.66	22.43	175.09	30.00	-7.57	1/0
		1778.50	15.87	H	4.52	9.68	21.03	126.80	30.00	-8.97	1/14
	16-QAM	1711.50	17.43	H	4.44	9.51	22.50	177.86	30.00	-7.50	1/0
		1745.00	16.63	H	4.47	9.66	21.81	151.79	30.00	-8.19	1/0
		1778.50	14.95	H	4.52	9.68	20.11	102.59	30.00	-9.89	1/0
5	QPSK	1712.50	18.02	H	4.44	9.51	23.10	204.03	30.00	-6.90	1/0
		1745.00	17.24	H	4.47	9.66	22.42	174.68	30.00	-7.58	1/0
		1777.50	16.13	H	4.52	9.68	21.29	134.53	30.00	-8.71	1/0
	16-QAM	1712.50	17.35	H	4.44	9.51	22.43	174.86	30.00	-7.57	1/0
		1745.00	16.50	H	4.47	9.66	21.68	147.32	30.00	-8.32	1/0
		1777.50	15.13	H	4.52	9.68	20.29	106.86	30.00	-9.71	1/12
10	QPSK	1715.00	18.12	H	4.44	9.52	23.21	209.24	30.00	-6.79	1/0
		1745.00	17.21	H	4.47	9.66	22.39	173.48	30.00	-7.61	1/25
		1775.00	16.04	H	4.51	9.68	21.21	132.01	30.00	-8.79	1/0
	16-QAM	1715.00	17.53	H	4.44	9.52	22.62	182.66	30.00	-7.38	1/0
		1745.00	16.56	H	4.47	9.66	21.74	149.37	30.00	-8.26	1/25
		1775.00	15.70	H	4.51	9.68	20.87	122.07	30.00	-9.13	1/0
15	QPSK	1717.50	18.08	H	4.44	9.53	23.17	207.47	30.00	-6.83	1/0
		1745.00	17.54	H	4.47	9.66	22.72	187.18	30.00	-7.28	1/0
		1772.50	16.31	H	4.51	9.68	21.48	140.60	30.00	-8.52	1/0
	16-QAM	1717.50	17.49	H	4.44	9.53	22.58	181.12	30.00	-7.42	1/37
		1745.00	16.79	H	4.47	9.66	21.97	157.49	30.00	-8.03	1/0
		1772.50	15.76	H	4.51	9.68	20.93	123.88	30.00	-9.07	1/0
20	QPSK	1720.00	18.04	H	4.44	9.55	23.15	206.39	30.00	-6.85	1/0
		1745.00	17.60	H	4.47	9.66	22.78	189.78	30.00	-7.22	1/0
		1770.00	16.28	H	4.51	9.68	21.45	139.79	30.00	-8.55	1/0
	16-QAM	1720.00	17.26	H	4.44	9.55	22.37	172.46	30.00	-7.63	1/0
		1745.00	16.97	H	4.47	9.66	22.15	164.16	30.00	-7.85	1/0
		1770.00	15.54	H	4.51	9.68	20.71	117.89	30.00	-9.29	1/0

5G NR n2

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)	RB
5	QPSK	1852.50	18.45	H	4.62	9.50	23.33	215.28	33.00	-9.67	1/1
		1880.00	19.64	H	4.65	9.29	24.28	267.92	33.00	-8.72	1/1
		1907.50	20.19	H	4.69	9.03	24.53	283.79	33.00	-8.47	1/1
	16-QAM	1852.50	17.79	H	4.62	9.50	22.68	185.35	33.00	-10.32	1/1
		1880.00	18.83	H	4.65	9.29	23.47	222.33	33.00	-9.53	1/1
		1907.50	19.31	H	4.69	9.03	23.66	232.27	33.00	-9.34	1/13
10	QPSK	1855.00	18.70	H	4.62	9.48	23.57	227.51	33.00	-9.43	1/1
		1880.00	19.72	H	4.65	9.29	24.36	272.90	33.00	-8.64	1/1
		1905.00	20.07	H	4.68	9.06	24.46	279.25	33.00	-8.54	1/1
	16-QAM	1855.00	17.70	H	4.62	9.48	22.56	180.30	33.00	-10.44	1/1
		1880.00	18.65	H	4.65	9.29	23.29	213.30	33.00	-9.71	1/1
		1905.00	19.05	H	4.68	9.06	23.43	220.29	33.00	-9.57	1/1
15	QPSK	1857.50	18.88	H	4.63	9.47	23.72	235.50	33.00	-9.28	1/1
		1880.00	19.23	H	4.65	9.29	23.87	243.78	33.00	-9.13	1/1
		1902.50	20.21	H	4.68	9.10	24.64	291.07	33.00	-8.36	1/77
	16-QAM	1857.50	18.01	H	4.63	9.47	22.85	192.75	33.00	-10.15	1/1
		1880.00	18.51	H	4.65	9.29	23.15	206.54	33.00	-9.85	1/1
		1902.50	19.34	H	4.68	9.10	23.77	238.23	33.00	-9.23	1/77
20	QPSK	1860.00	19.14	H	4.63	9.45	23.96	248.89	33.00	-9.04	1/1
		1880.00	20.18	H	4.65	9.29	24.82	303.39	33.00	-8.18	1/1
		1900.00	19.87	H	4.67	9.13	24.33	271.02	33.00	-8.67	1/104
	16-QAM	1860.00	18.27	H	4.63	9.45	23.09	203.70	33.00	-9.91	1/53
		1882.50	19.22	H	4.65	9.29	23.86	243.22	33.00	-9.14	1/53
		1905.00	18.93	H	4.67	9.13	23.39	218.27	33.00	-9.61	1/1

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5G NR n5

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)	RB
5	QPSK	826.50	24.89	V	3.11	-0.84	20.94	124.17	38.50	-17.56	1/1
		836.50	24.62	V	3.13	-0.93	20.56	113.76	38.50	-17.94	1/1
		846.50	24.45	V	3.14	-1.02	20.28	106.66	38.50	-18.22	1/1
	16-QAM	826.50	23.53	V	3.11	-0.84	19.58	90.78	38.50	-18.92	1/1
		836.50	23.08	V	3.13	-0.93	19.02	79.80	38.50	-19.48	1/1
		846.50	23.18	V	3.14	-1.02	19.01	79.62	38.50	-19.49	1/1
10	QPSK	829.00	25.32	V	3.11	-0.86	21.35	136.46	38.50	-17.15	1/50
		836.50	25.04	V	3.13	-0.93	20.98	125.31	38.50	-17.52	1/50
		844.00	24.45	V	3.14	-1.00	20.31	107.40	38.50	-18.19	1/1
	16-QAM	829.00	23.88	V	3.11	-0.86	19.91	97.95	38.50	-18.59	1/50
		836.50	23.63	V	3.13	-0.93	19.57	90.57	38.50	-18.93	1/50
		844.00	23.16	V	3.14	-1.00	19.02	79.80	38.50	-19.48	1/1
15	QPSK	831.50	24.56	V	3.11	-0.88	20.56	113.76	38.50	-17.94	1/1
		836.50	25.47	V	3.13	-0.93	21.41	138.36	38.50	-17.09	1/77
		841.50	24.39	V	3.13	-0.97	20.28	106.66	38.50	-18.22	1/77
	16-QAM	831.50	23.26	V	3.11	-0.88	19.26	84.33	38.50	-19.24	1/1
		836.50	24.03	V	3.13	-0.93	19.97	99.31	38.50	-18.53	1/77
		841.50	23.19	V	3.13	-0.97	19.08	80.91	38.50	-19.42	1/77
20	QPSK	834.00	25.23	V	3.12	-0.91	21.20	131.83	38.50	-17.30	1/104
		836.50	24.70	V	3.13	-0.93	20.64	115.88	38.50	-17.86	1/104
		839.00	24.35	V	3.13	-0.95	20.26	106.17	38.50	-18.24	1/104
	16-QAM	834.00	23.88	V	3.12	-0.91	19.85	96.61	38.50	-18.65	1/104
		836.50	23.67	V	3.13	-0.93	19.61	91.41	38.50	-18.89	1/104
		839.00	23.08	V	3.13	-0.95	18.99	79.25	38.50	-19.51	1/104

5G NR n66

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)	RB
5	QPSK	1712.50	17.93	H	4.44	9.51	23.01	199.99	30.00	-6.99	1/13
		1745.00	17.56	H	4.47	9.66	22.74	187.93	30.00	-7.26	1/13
		1777.50	16.89	H	4.52	9.68	22.05	160.32	30.00	-7.95	1/13
	16-QAM	1712.50	16.97	H	4.44	9.51	22.05	160.32	30.00	-7.95	1/13
		1745.00	16.65	H	4.47	9.66	21.83	152.41	30.00	-8.17	1/13
		1777.50	16.03	H	4.52	9.68	21.19	131.52	30.00	-8.81	1/13
10	QPSK	1715.00	17.98	H	4.44	9.52	23.07	202.77	30.00	-6.93	1/26
		1745.00	17.31	H	4.47	9.66	22.49	177.42	30.00	-7.51	1/26
		1775.00	16.66	H	4.51	9.68	21.83	152.41	30.00	-8.17	1/26
	16-QAM	1715.00	17.01	H	4.44	9.52	22.10	162.18	30.00	-7.90	1/26
		1745.00	16.30	H	4.47	9.66	21.48	140.60	30.00	-8.52	1/26
		1775.00	15.80	H	4.51	9.68	20.97	125.03	30.00	-9.03	1/26
15	QPSK	1717.50	17.94	H	4.44	9.53	23.03	200.91	30.00	-6.97	1/40
		1745.00	16.83	H	4.47	9.66	22.01	158.85	30.00	-7.99	1/77
		1772.50	16.68	H	4.51	9.68	21.85	153.11	30.00	-8.15	1/77
	16-QAM	1717.50	16.98	H	4.44	9.53	22.07	161.06	30.00	-7.93	1/40
		1745.00	15.99	H	4.47	9.66	21.17	130.92	30.00	-8.83	1/77
		1772.50	15.75	H	4.51	9.68	20.92	123.59	30.00	-9.08	1/77
20	QPSK	1720.00	18.04	H	4.44	9.55	23.15	206.54	30.00	-6.85	1/53
		1745.00	17.95	H	4.47	9.66	23.13	205.59	30.00	-6.87	1/1
		1770.00	16.37	H	4.51	9.68	21.54	142.56	30.00	-8.46	1/104
	16-QAM	1720.00	17.27	H	4.44	9.55	22.38	172.98	30.00	-7.62	1/53
		1745.00	17.14	H	4.47	9.66	22.32	170.61	30.00	-7.68	1/1
		1770.00	15.45	H	4.51	9.68	20.62	115.35	30.00	-9.38	1/104
30	QPSK	1725.00	17.90	H	4.45	9.57	23.02	200.45	30.00	-6.98	1/80
		1745.00	17.55	H	4.47	9.66	22.73	187.50	30.00	-7.27	1/1
		1765.00	16.84	H	4.50	9.68	22.02	159.22	30.00	-7.98	1/1
	16-QAM	1725.00	16.94	H	4.45	9.57	22.06	160.69	30.00	-7.94	1/80
		1745.00	16.51	H	4.47	9.66	21.69	147.57	30.00	-8.31	1/1
		1765.00	15.94	H	4.50	9.68	21.12	129.42	30.00	-8.88	1/1
40	QPSK	1730.00	17.77	H	4.46	9.59	22.91	195.43	30.00	-7.09	1/108
		1745.00	17.07	H	4.47	9.66	22.25	167.88	30.00	-7.75	1/1
		1760.00	16.53	H	4.49	9.68	21.72	148.59	30.00	-8.28	1/108
	16-QAM	1730.00	16.67	H	4.46	9.59	21.81	151.71	30.00	-8.19	1/108
		1745.00	16.05	H	4.47	9.66	21.23	132.74	30.00	-8.77	1/1
		1760.00	15.73	H	4.49	9.68	20.92	123.59	30.00	-9.08	1/108

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5G NR n77(PC2,3450-3550 MHz)

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)	RB
20	QPSK	3460.01	20.06	V	6.32	10.62	24.36	272.90	30.00	-5.64	1/49
		3499.98	20.45	V	6.36	10.67	24.76	299.23	30.00	-5.24	1/1
		3540.00	19.32	V	6.38	10.74	23.68	233.35	30.00	-6.32	1/1
	16-QAM	3460.01	19.69	V	6.32	10.62	23.99	250.61	30.00	-6.01	1/49
		3499.98	20.06	V	6.36	10.67	24.37	273.53	30.00	-5.63	1/1
		3540.00	18.87	V	6.38	10.73	23.22	209.89	30.00	-6.78	1/1
30	QPSK	3465.00	20.50	V	6.32	10.63	24.80	302.00	30.00	-5.20	1/76
		3499.98	19.35	V	6.36	10.67	23.66	232.27	30.00	-6.34	1/1
		3535.02	19.50	V	6.38	10.73	23.85	242.66	30.00	-6.15	1/1
	16-QAM	3465.00	20.13	V	6.32	10.63	24.43	277.33	30.00	-5.57	1/76
		3499.98	19.00	V	6.36	10.67	23.31	214.29	30.00	-6.69	1/1
		3535.02	19.13	V	6.38	10.73	23.48	222.84	30.00	-6.52	1/1
40	QPSK	3470.01	20.34	V	6.33	10.63	24.65	291.74	30.00	-5.35	1/104
		3499.98	20.33	V	6.36	10.67	24.64	291.07	30.00	-5.36	1/1
		3529.98	19.58	V	6.38	10.72	23.93	247.17	30.00	-6.07	1/53
	16-QAM	3470.01	19.82	V	6.33	10.63	24.13	258.82	30.00	-5.87	1/104
		3499.98	20.06	V	6.36	10.67	24.37	273.53	30.00	-5.63	1/1
		3529.98	18.73	V	6.38	10.72	23.08	203.24	30.00	-6.92	1/53
50	QPSK	3480.00	18.17	V	6.34	10.64	22.47	176.60	30.00	-7.53	1/131
		3499.98	18.65	V	6.36	10.67	22.96	197.70	30.00	-7.04	1/1
		3519.99	18.75	V	6.38	10.71	23.08	203.24	30.00	-6.92	1/1
	16-QAM	3480.00	17.88	V	6.34	10.64	22.18	165.20	30.00	-7.82	1/131
		3499.98	18.20	V	6.36	10.67	22.51	178.24	30.00	-7.49	1/1
		3519.99	18.35	V	6.38	10.71	22.68	185.35	30.00	-7.32	1/1
60	QPSK	3480.00	18.44	V	6.34	10.65	22.75	188.36	30.00	-7.25	1/81
		3499.98	18.78	V	6.36	10.67	23.09	203.70	30.00	-6.91	1/81
		3519.99	18.71	V	6.38	10.71	23.03	200.91	30.00	-6.97	1/1
	16-QAM	3480.00	18.13	V	6.34	10.65	22.44	175.39	30.00	-7.56	1/81
		3499.98	18.43	V	6.36	10.67	22.74	187.93	30.00	-7.26	1/81
		3514.98	18.31	V	6.37	10.70	22.63	183.23	30.00	-7.37	1/1
70	QPSK	3485.01	18.09	V	6.35	10.65	22.39	173.38	30.00	-7.61	1/95
		3499.98	18.62	V	6.36	10.67	22.93	196.34	30.00	-7.07	1/95
		3514.98	18.50	V	6.37	10.70	22.82	191.43	30.00	-7.18	1/1
	16-QAM	3485.01	17.75	V	6.35	10.65	22.05	160.32	30.00	-7.95	1/95
		3499.98	18.32	V	6.36	10.67	22.63	183.23	30.00	-7.37	1/95
		3514.98	17.98	V	6.27	10.60	22.31	170.22	30.00	-7.69	1/1
80	QPSK	3490.02	18.51	V	6.35	10.66	22.82	191.43	30.00	-7.18	1/109
		3499.98	18.63	V	6.36	10.67	22.94	196.79	30.00	-7.06	1/109
		3510.00	18.30	V	6.37	10.69	22.61	182.39	30.00	-7.39	1/1
	16-QAM	3490.02	18.09	V	6.35	10.66	22.40	173.78	30.00	-7.60	1/109
		3499.98	18.22	V	6.36	10.67	22.53	179.06	30.00	-7.47	1/109
		3510.00	18.05	V	6.37	10.69	22.36	172.19	30.00	-7.64	1/1
90	QPSK	3495.00	18.42	V	6.35	10.66	22.73	187.50	30.00	-7.27	1/123
		3499.98	18.73	V	6.36	10.67	23.04	201.37	30.00	-6.96	1/123
		3504.99	18.57	V	6.37	10.68	22.89	194.54	30.00	-7.11	1/123
	16-QAM	3495.00	18.07	V	6.35	10.66	22.38	172.98	30.00	-7.62	1/123
		3499.98	18.28	V	6.36	10.67	22.59	181.55	30.00	-7.41	1/123
		3504.99	18.34	V	6.37	10.68	22.66	184.50	30.00	-7.34	1/123
100	QPSK	3499.98	18.50	V	6.36	10.67	22.81	190.99	30.00	-7.19	1/137
	16-QAM	3499.98	18.13	V	6.36	10.67	22.44	175.39	30.00	-7.56	1/1

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5G NR n77(PC2,3450-3550 MHz, SRS1)

BW (MHz)	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)
20	3460.02								
	3499.98								
	3540.00								
30	3465.00								
	3499.98								
	3535.02								
40	3470.01								
	3499.98								
	3529.98								
50	3475.02								
	3499.98								
	3525.00								
60	3480.00	6.87	H	6.34	10.65	11.17	13.09	30.00	-18.83
	3499.98	6.46	H	6.36	10.67	10.77	11.94	30.00	-19.23
	3519.99	6.11	H	6.38	10.71	10.44	11.07	30.00	-19.56
70	3485.01								
	3499.98								
	3514.98								
80	3490.02								
	3499.98								
	3510.00								
90	3495.00								
	3499.98								
	3504.99								
100	3499.98								

5G NR n77(PC2,3450-3550 MHz, SRS2)

BW (MHz)	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)
20	3460.02								
	3499.98								
	3540.00								
30	3465.00								
	3499.98								
	3535.02								
40	3470.01	11.82	H	6.33	10.63	16.12	40.93	30.00	-13.88
	3499.98	12.00	H	6.36	10.67	16.31	42.76	30.00	-13.69
	3529.98	12.02	H	6.38	10.72	16.37	43.35	30.00	-13.63
50	3475.02								
	3499.98								
	3525.00								
60	3480.00								
	3499.98								
	3519.99								
70	3485.01								
	3499.98								
	3514.98								
80	3490.02								
	3499.98								
	3510.00								
90	3495.00								
	3499.98								
	3504.99								
100	3499.98								

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5G NR n77(PC2,3450-3550 MHz, SRS3)

BW (MHz)	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)
20	3460.02								
	3499.98								
	3540.00								
30	3465.00	12.06	H	6.32	10.63	16.36	43.25	30.00	-13.64
	3499.98	12.14	H	6.36	10.67	16.45	44.16	30.00	-13.55
	3535.02	11.74	H	6.38	10.73	16.09	40.64	30.00	-13.91
40	3470.01								
	3499.98								
	3529.98								
50	3475.02								
	3499.98								
	3525.00								
60	3480.00								
	3499.98								
	3519.99								
70	3485.01								
	3499.98								
	3514.98								
80	3490.02								
	3499.98								
	3510.00								
90	3495.00								
	3499.98								
	3504.99								
100	3499.98								

5G NR n77(PC2,3700-3980 MHz)

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)	RB
20	QPSK	3710.01	21.49	H	6.55	10.74	25.68	369.83	30.00	-4.32	1/49
		3840.00	19.98	H	6.65	10.58	23.90	245.47	30.00	-6.10	1/1
		3969.99	20.76	H	6.74	10.47	24.49	281.19	30.00	-5.51	1/49
	16-QAM	3710.01	21.23	H	6.55	10.74	25.42	348.34	30.00	-4.58	1//49
		3840.00	18.83	H	6.65	10.58	22.75	188.36	30.00	-7.25	1/1
		3969.99	20.28	H	6.74	10.47	24.01	251.77	30.00	-5.99	1/49
30	QPSK	3715.02	20.94	H	6.55	10.73	25.12	325.09	30.00	-4.88	1/76
		3840.00	18.94	H	6.65	10.58	22.86	193.20	30.00	-7.14	1/1
		3964.98	20.62	H	6.74	10.47	24.35	272.27	30.00	-5.65	1/76
	16-QAM	3715.02	20.77	H	6.55	10.73	24.95	312.61	30.00	-5.05	1/76
		3840.00	18.53	H	6.65	10.58	22.45	175.79	30.00	-7.55	1/1
		3964.98	20.12	H	6.74	10.47	23.85	242.66	30.00	-6.15	1/76
40	QPSK	3720.02	20.72	H	6.55	10.73	24.89	308.32	30.00	-5.11	1/104
		3840.00	19.01	H	6.65	10.58	22.93	196.34	30.00	-7.07	1/1
		3960.00	21.29	H	6.77	10.47	24.99	315.50	30.00	-5.01	1/104
	16-QAM	3720.02	20.42	H	6.55	10.73	24.59	287.74	30.00	-5.41	1/104
		3840.00	18.74	H	6.65	10.58	22.66	184.50	30.00	-7.34	1/1
		3960.00	20.54	H	6.77	10.47	24.24	265.46	30.00	-5.76	1/104
50	QPSK	3725.01	20.46	H	6.56	10.72	24.62	289.73	30.00	-5.38	1/131
		3840.00	19.32	H	6.65	10.58	23.24	210.86	30.00	-6.76	1/1
		3954.99	20.61	H	6.75	10.47	24.33	271.02	30.00	-5.67	1/1
	16-QAM	3725.01	19.93	H	6.56	10.72	24.09	256.45	30.00	-5.91	1/131
		3840.00	18.99	H	6.65	10.58	22.91	195.43	30.00	-7.09	1/1
		3954.99	19.89	H	6.75	10.47	23.61	229.61	30.00	-6.39	1/1
60	QPSK	3730.02	19.76	H	6.56	10.72	23.91	246.04	30.00	-6.09	1/160
		3840.00	20.06	H	6.65	10.58	23.98	250.03	30.00	-6.02	1/81
		3949.98	20.88	H	6.75	10.47	24.60	288.40	30.00	-5.40	1/81
	16-QAM	3730.02	19.47	H	6.56	10.72	23.62	230.14	30.00	-6.38	1/160
		3840.00	19.71	H	6.65	10.58	23.63	230.67	30.00	-6.37	1/81
		3949.98	20.43	H	6.75	10.47	24.15	260.02	30.00	-5.85	1/81
70	QPSK	3735.00	19.03	H	6.57	10.71	23.17	207.49	30.00	-6.83	1/188
		3840.00	20.18	H	6.65	10.58	24.10	257.04	30.00	-5.90	1/1
		3945.00	21.02	H	6.75	10.47	24.75	298.54	30.00	-5.25	1/109
	16-QAM	3735.00	18.45	H	6.57	10.71	22.59	181.55	30.00	-7.41	1/188
		3840.00	19.69	H	6.65	10.58	23.61	229.61	30.00	-6.39	1/1
		3945.00	20.90	H	6.75	10.47	24.63	290.40	30.00	-5.37	1/109
80	QPSK	3740.01	20.59	H	6.58	10.70	24.72	296.48	30.00	-5.28	1/215
		3840.00	19.69	H	6.65	10.58	23.61	229.61	30.00	-6.39	1/1
		3939.99	20.57	H	6.74	10.47	24.30	269.15	30.00	-5.70	1/215
	16-QAM	3740.01	20.46	H	6.58	10.70	24.59	287.74	30.00	-5.41	1/215
		3840.00	19.45	H	6.65	10.58	23.37	217.27	30.00	-6.63	1/1
		3939.99	20.20	H	6.74	10.47	23.93	247.17	30.00	-6.07	1/215
90	QPSK	3745.02	19.66	H	6.57	10.70	23.80	239.88	30.00	-6.20	1/123
		3840.00	20.20	H	6.65	10.58	24.12	258.23	30.00	-5.88	1/1
		3934.98	21.15	H	6.75	10.48	24.88	307.61	30.00	-5.12	1/243
	16-QAM	3745.02	19.31	H	6.57	10.70	23.45	221.31	30.00	-6.55	1/123
		3840.00	20.07	H	6.65	10.58	23.99	250.61	30.00	-6.01	1/1
		3934.98	20.86	H	6.75	10.48	24.59	287.74	30.00	-5.41	1/243
100	QPSK	3750.00	19.62	H	6.58	10.69	23.73	236.05	30.00	-6.27	1/137
		3840.00	20.56	H	6.65	10.58	24.48	280.54	30.00	-5.52	1/1
		3930.00	21.18	H	6.75	10.48	24.91	309.74	30.00	-5.09	1/271
	16-QAM	3750.00	19.33	H	6.58	10.69	23.44	220.80	30.00	-6.56	1/137
		3840.00	20.43	H	6.65	10.58	24.35	272.27	30.00	-5.65	1/1
		3930.00	20.94	H	6.75	10.48	24.67	293.09	30.00	-5.33	1/271

5G NR n77(PC2,3700-3980 MHz, SRS1)

BW (MHz)	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)
20	3710.01								
	3840.00								
	3969.99								
30	3715.02								
	3840.00								
	3964.98								
40	3720.00	0.39	H	6.55	10.73	4.56	2.86	30.00	-25.44
	3840.00	-0.79	H	6.65	10.58	3.13	2.06	30.00	-26.87
	3960.00	-2.59	H	6.77	10.47	1.11	1.29	30.00	-28.89
50	3725.01								
	3840.00								
	3954.99								
60	3730.02								
	3840.00								
	3949.98								
70	3735.02								
	3840.00								
	3944.98								
80	3740.01								
	3840.00								
	3939.99								
90	3745.02								
	3840.00								
	3934.98								
100	3750.00								
	3840.00								
	3930.00								

5G NR n77(PC2,3700-3980 MHz, SRS2)

BW (MHz)	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)
20	3710.01	13.22	H	6.55	10.74	17.42	55.21	30.00	-12.58
	3840.00	12.74	H	6.65	10.58	16.66	46.34	30.00	-13.34
	3969.99	10.85	H	6.77	10.46	14.55	28.51	30.00	-15.45
30	3715.02								
	3840.00								
	3964.98								
40	3720.00								
	3840.00								
	3960.00								
50	3725.01								
	3840.00								
	3954.99								
60	3730.02								
	3840.00								
	3949.98								
70	3735.02								
	3840.00								
	3944.98								
80	3740.01								
	3840.00								
	3939.99								
90	3745.02								
	3840.00								
	3934.98								
100	3750.00								
	3840.00								
	3930.00								

5G NR n77(PC2,3700-3980 MHz, SRS3)

BW (MHz)	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limit (dBm)	Delta (dB)
20	3710.01								
	3840.00								
	3969.99								
30	3715.02								
	3840.00								
	3964.98								
40	3720.00	10.44	H	6.55	10.73	14.61	28.91	30.00	-15.39
	3840.00	9.42	H	6.65	10.58	13.34	21.58	30.00	-16.66
	3960.00	12.02	H	6.77	10.47	15.72	37.33	30.00	-14.28
50	3725.01								
	3840.00								
	3954.99								
60	3730.02								
	3840.00								
	3949.98								
70	3735.02								
	3840.00								
	3944.98								
80	3740.01								
	3840.00								
	3939.99								
90	3745.02								
	3840.00								
	3934.98								
100	3750.00								
	3840.00								
	3930.00								

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_22/24/27(04)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

9.6. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, and §27.53

LIMIT

Part 22.917(a) & Part 24.238(a) & Part 27.53(h) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

Part 27.53:
(c)(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB.

(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB.

(h) The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}$ (P) dB.

(m) (4) For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

(l)(2) For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz. Compliance with this paragraph (l)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

(n)(2) For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz. Compliance with this paragraph (n)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed, but limited to a maximum of 200 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

TEST PROCEDURE

ANSI / TIA / EIA 603 E Clause 2.2.12; ESU40 setting reference to 971168 D01 v03r01

For peak power measurement with a ESU40:

a) Set the RBW = 100 KHz for emission below 1GHz and 1MHz for emissions above 1GHz
b) Set VBW ≥ 3 × RBW;
c) Set span ≥ 1.5 times the OBW;
d) Sweep time = auto couple;
e) Detector = rms;
f) Ensure that the number of measurement points ≥ span/RBW;
g) Trace mode = average(WCDMA, LTE FDD, 5G NR FDD), Maxhold(GSM, LTE TDD, 5G NR TDD);

RESULTS

See the following pages.

NOTE1

5G NR: All Waveforms (CP-OFDM vs DFT-s_OFDM) and modulations (π/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM) 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.

NOTE2

Please refer to section 5.4 for bandwidth and RB setting about LTE, 5G NR bands.

9.6.1. SPURIOUS RADIATION PLOTS

GSM850

GSM850 GPRS

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-10-18
Test Engineer: 25770
Configuration: EUT / AC Adapter / Earphone, X-Position
Location: Chamber 1
Mode: GPRS 850 MHz Harmonics
Test Votage: AC 120 V, 60 Hz

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2MHz									
1648.40	-9.6	V	3.0	46.4	1.0	-55.0	-13.0	-42.0	
2472.60	-5.9	V	3.0	46.9	1.0	-51.8	-13.0	-38.8	
3296.80	-4.0	V	3.0	46.6	1.0	-49.6	-13.0	-36.6	
1648.40	-10.6	H	3.0	46.4	1.0	-56.0	-13.0	-43.0	
2472.60	-6.0	H	3.0	46.9	1.0	-51.9	-13.0	-38.9	
3296.80	-3.4	H	3.0	46.6	1.0	-49.0	-13.0	-36.0	
Mid Ch, 836.6MHz									
1673.20	-8.7	V	3.0	46.4	1.0	-54.1	-13.0	-41.1	
2509.80	-5.5	V	3.0	46.9	1.0	-51.4	-13.0	-38.4	
3346.40	-4.1	V	3.0	46.6	1.0	-49.6	-13.0	-36.6	
1673.20	-10.0	H	3.0	46.4	1.0	-55.4	-13.0	-42.4	
2509.80	-5.7	H	3.0	46.9	1.0	-51.6	-13.0	-38.6	
3346.40	-3.8	H	3.0	46.6	1.0	-49.3	-13.0	-36.3	
High Ch, 848.8MHz									
1697.60	-8.3	V	3.0	46.5	1.0	-53.7	-13.0	-40.7	
2546.40	-5.7	V	3.0	46.9	1.0	-51.6	-13.0	-38.6	
3395.20	-3.5	V	3.0	46.5	1.0	-49.0	-13.0	-36.0	
1697.60	-10.1	H	3.0	46.5	1.0	-55.6	-13.0	-42.6	
2546.40	-5.5	H	3.0	46.9	1.0	-51.4	-13.0	-38.4	
3395.20	-3.0	H	3.0	46.5	1.0	-48.5	-13.0	-35.5	

GSM850 EGPRS

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-10-18
Test Engineer: 25770
Configuration: EUT / AC Adapter / Earphone, X-Position
Location: Chamber 1
Mode: EGPRS 850 MHz Harmonics
Test Votage: AC 120 V, 60 Hz

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2MHz									
1648.40	-9.4	V	3.0	46.4	1.0	-54.9	-13.0	-41.9	
2472.60	-6.1	V	3.0	46.9	1.0	-52.0	-13.0	-39.0	
3296.80	-3.7	V	3.0	46.6	1.0	-49.4	-13.0	-36.4	
1648.40	-10.5	H	3.0	46.4	1.0	-55.9	-13.0	-42.9	
2472.60	-6.5	H	3.0	46.9	1.0	-52.4	-13.0	-39.4	
3296.80	-3.9	H	3.0	46.6	1.0	-49.5	-13.0	-36.5	
Mid Ch, 836.6MHz									
1673.20	-9.5	V	3.0	46.4	1.0	-55.0	-13.0	-42.0	
2509.80	-5.5	V	3.0	46.9	1.0	-51.4	-13.0	-38.4	
3346.40	-4.1	V	3.0	46.6	1.0	-49.6	-13.0	-36.6	
1673.20	-10.3	H	3.0	46.4	1.0	-55.8	-13.0	-42.8	
2509.80	-5.8	H	3.0	46.9	1.0	-51.6	-13.0	-38.6	
3346.40	-4.1	H	3.0	46.6	1.0	-49.7	-13.0	-36.7	
High Ch, 848.8MHz									
1697.60	-9.5	V	3.0	46.5	1.0	-54.9	-13.0	-41.9	
2546.40	-5.9	V	3.0	46.9	1.0	-51.8	-13.0	-38.8	
3395.20	-3.8	V	3.0	46.5	1.0	-49.3	-13.0	-36.3	
1697.60	-10.1	H	3.0	46.5	1.0	-55.6	-13.0	-42.6	
2546.40	-6.5	H	3.0	46.9	1.0	-52.4	-13.0	-39.4	
3395.20	-3.5	H	3.0	46.5	1.0	-49.0	-13.0	-36.0	

GSM1900

GSM1900
GPRS

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-10-19
Test Engineer: 25770
Configuration: EUT / AC Adapter / Earphone, Z-Position
Location: Chamber 1
Mode: GPRS 1900 MHz Harmonics
Test Votage: AC 120 V, 60 Hz

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2MHz									
3700.40	-8.2	V	3.0	46.0	1.0	-53.3	-13.0	-40.3	
5550.60	-4.3	V	3.0	45.8	1.0	-49.1	-13.0	-36.1	
7400.80	-2.2	V	3.0	45.5	1.0	-46.7	-13.0	-33.7	
3700.40	-8.3	H	3.0	46.0	1.0	-53.4	-13.0	-40.4	
5550.60	-4.8	H	3.0	45.8	1.0	-49.5	-13.0	-36.5	
7400.80	-2.2	H	3.0	45.5	1.0	-46.7	-13.0	-33.7	
Mid Ch, 1880MHz									
3760.00	-7.7	V	3.0	46.0	1.0	-52.7	-13.0	-39.7	
5640.00	-4.6	V	3.0	45.7	1.0	-49.3	-13.0	-36.3	
7520.00	-2.6	V	3.0	45.5	1.0	-47.2	-13.0	-34.2	
3760.00	-7.7	H	3.0	46.0	1.0	-52.7	-13.0	-39.7	
5640.00	-7.5	H	3.0	45.7	1.0	-52.2	-13.0	-39.2	
7520.00	-2.2	H	3.0	45.5	1.0	-46.8	-13.0	-33.8	
High Ch, 1909.8MHz									
3819.60	-7.6	V	3.0	45.9	1.0	-52.5	-13.0	-39.5	
5729.40	-4.0	V	3.0	45.6	1.0	-48.6	-13.0	-35.6	
7639.20	-2.5	V	3.0	45.6	1.0	-47.1	-13.0	-34.1	
3819.60	-7.9	H	3.0	45.9	1.0	-52.8	-13.0	-39.8	
5729.40	-4.3	H	3.0	45.6	1.0	-48.9	-13.0	-35.9	
7639.20	-2.4	H	3.0	45.6	1.0	-46.9	-13.0	-33.9	

GSM1900
EGPRS

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-10-19
Test Engineer: 25770
Configuration: EUT / AC Adapter / Earphone, Z-Position
Location: Chamber 1
Mode: EGPRS 1900 MHz Harmonics
Test Votage: AC 120 V, 60 Hz

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2MHz									
3700.40	-8.1	V	3.0	46.0	1.0	-53.1	-13.0	-40.1	
5550.60	-4.8	V	3.0	45.8	1.0	-49.6	-13.0	-36.6	
7400.80	-2.3	V	3.0	45.5	1.0	-46.8	-13.0	-33.8	
3700.40	-8.1	H	3.0	46.0	1.0	-53.2	-13.0	-40.2	
5550.60	-4.7	H	3.0	45.8	1.0	-49.5	-13.0	-36.5	
7400.80	-2.3	H	3.0	45.5	1.0	-46.8	-13.0	-33.8	
Mid Ch, 1880MHz									
3760.00	-7.6	V	3.0	46.0	1.0	-52.6	-13.0	-39.6	
5640.00	-4.6	V	3.0	45.7	1.0	-49.3	-13.0	-36.3	
7520.00	-2.5	V	3.0	45.5	1.0	-47.1	-13.0	-34.1	
3760.00	-7.7	H	3.0	46.0	1.0	-52.7	-13.0	-39.7	
5640.00	-4.6	H	3.0	45.7	1.0	-49.3	-13.0	-36.3	
7520.00	-2.7	H	3.0	45.5	1.0	-47.2	-13.0	-34.2	
High Ch, 1909.8MHz									
3819.60	-7.9	V	3.0	45.9	1.0	-52.8	-13.0	-39.8	
5729.40	-4.7	V	3.0	45.6	1.0	-49.3	-13.0	-36.3	
7639.20	-2.3	V	3.0	45.6	1.0	-46.8	-13.0	-33.8	
3819.60	-8.0	H	3.0	45.9	1.0	-52.9	-13.0	-39.9	
5729.40	-4.7	H	3.0	45.6	1.0	-49.3	-13.0	-36.3	
7639.20	-2.4	H	3.0	45.6	1.0	-47.0	-13.0	-34.0	

WCDMA Band 5

Band 5 REL99

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-10-18
Test Engineer: 25770
Configuration: EUT / AC Adapter / Earphone, Z-Position
Location: Chamber 1
Mode: Rel99 Band 5 Harmonics
Test Votage: AC 120 V, 60 Hz

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.4MHz									
1652.80	-14.6	V	3.0	46.4	1.0	-60.1	-13.0	-47.1	
2479.20	-11.3	V	3.0	46.9	1.0	-57.2	-13.0	-44.2	
3305.60	-9.4	V	3.0	46.6	1.0	-55.0	-13.0	-42.0	
1652.80	-15.5	H	3.0	46.4	1.0	-61.0	-13.0	-48.0	
2479.20	-12.0	H	3.0	46.9	1.0	-57.9	-13.0	-44.9	
3305.60	-9.3	H	3.0	46.6	1.0	-54.9	-13.0	-41.9	
Mid Ch, 836.6MHz									
1673.20	-14.6	V	3.0	46.4	1.0	-60.0	-13.0	-47.0	
2509.80	-11.4	V	3.0	46.9	1.0	-57.3	-13.0	-44.3	
3346.40	-9.2	V	3.0	46.6	1.0	-54.8	-13.0	-41.8	
1673.20	-15.6	H	3.0	46.4	1.0	-61.0	-13.0	-48.0	
2509.80	-11.9	H	3.0	46.9	1.0	-57.8	-13.0	-44.8	
3346.40	-9.2	H	3.0	46.6	1.0	-54.7	-13.0	-41.7	
High Ch, 846.6MHz									
1693.20	-14.5	V	3.0	46.5	1.0	-60.0	-13.0	-47.0	
2539.80	-11.4	V	3.0	46.9	1.0	-57.3	-13.0	-44.3	
3386.40	-8.9	V	3.0	46.5	1.0	-54.3	-13.0	-41.3	
1693.20	-15.3	H	3.0	46.5	1.0	-60.8	-13.0	-47.8	
2539.80	-11.9	H	3.0	46.9	1.0	-57.8	-13.0	-44.8	
3386.40	-8.9	H	3.0	46.5	1.0	-54.4	-13.0	-41.4	

Band 5 HSDPA

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-10-18
Test Engineer: 22770
Configuration: EUT / AC Adapter / Earphone, Z-Position
Location: Chamber 1
Mode: HSDPA Band 5 Harmonics
Test Votage: AC 120 V, 60 Hz

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.4MHz									
1652.80	-14.6	V	3.0	46.4	1.0	-60.0	-13.0	-47.0	
2479.20	-11.4	V	3.0	46.9	1.0	-57.3	-13.0	-44.3	
3305.60	-9.4	V	3.0	46.6	1.0	-55.0	-13.0	-42.0	
1652.80	-15.7	H	3.0	46.4	1.0	-61.1	-13.0	-48.1	
2479.20	-12.0	H	3.0	46.9	1.0	-57.9	-13.0	-44.9	
3305.60	-9.3	H	3.0	46.6	1.0	-54.9	-13.0	-41.9	
Mid Ch, 836.6MHz									
1673.20	-14.5	V	3.0	46.4	1.0	-60.0	-13.0	-47.0	
2509.80	-11.5	V	3.0	46.9	1.0	-57.4	-13.0	-44.4	
3346.40	-9.2	V	3.0	46.6	1.0	-54.8	-13.0	-41.8	
1673.20	-15.5	H	3.0	46.4	1.0	-60.9	-13.0	-47.9	
2509.80	-11.9	H	3.0	46.9	1.0	-57.8	-13.0	-44.8	
3346.40	-9.2	H	3.0	46.6	1.0	-54.8	-13.0	-41.8	
High Ch, 846.6MHz									
1693.20	-14.4	V	3.0	46.5	1.0	-59.9	-13.0	-46.9	
2539.80	-11.4	V	3.0	46.9	1.0	-57.3	-13.0	-44.3	
3386.40	-8.8	V	3.0	46.5	1.0	-54.3	-13.0	-41.3	
1693.20	-15.4	H	3.0	46.5	1.0	-60.9	-13.0	-47.9	
2539.80	-11.9	H	3.0	46.9	1.0	-57.8	-13.0	-44.8	
3386.40	-8.9	H	3.0	46.5	1.0	-54.4	-13.0	-41.4	

WCDMA Band 2

Band 2 REL99

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-11-10
Test Engineer: 26087
Configuration: EUT / AC Adapter / Earphone, Y-Position
Location: Chamber 1
Mode: Rel99 Band 2 Harmonics
Test Votage: AC 120 V, 60 Hz

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4MHz									
3704.80	-9.9	V	3.0	46.0	1.0	-55.0	-13.0	-42.0	
5557.20	-7.5	V	3.0	45.8	1.0	-52.3	-13.0	-39.3	
7409.60	-5.2	V	3.0	45.5	1.0	-49.7	-13.0	-36.7	
3704.80	-9.6	H	3.0	46.0	1.0	-54.7	-13.0	-41.7	
5557.20	-7.7	H	3.0	45.8	1.0	-52.4	-13.0	-39.4	
7409.60	-5.1	H	3.0	45.5	1.0	-49.7	-13.0	-36.7	
Mid Ch, 1880MHz									
3760.00	-9.1	V	3.0	46.0	1.0	-54.1	-13.0	-41.1	
5640.00	-7.2	V	3.0	45.7	1.0	-51.9	-13.0	-38.9	
7520.00	-5.1	V	3.0	45.5	1.0	-49.7	-13.0	-36.7	
3760.00	-9.1	H	3.0	46.0	1.0	-54.0	-13.0	-41.0	
5640.00	-7.3	H	3.0	45.7	1.0	-52.0	-13.0	-39.0	
7520.00	-5.2	H	3.0	45.5	1.0	-49.8	-13.0	-36.8	
High Ch, 1907.6MHz									
3815.20	-9.6	V	3.0	45.9	1.0	-54.5	-13.0	-41.5	
5722.80	-7.2	V	3.0	45.6	1.0	-51.8	-13.0	-38.8	
7630.40	-5.1	V	3.0	45.6	1.0	-49.6	-13.0	-36.6	
3815.20	-9.6	H	3.0	45.9	1.0	-54.5	-13.0	-41.5	
5722.80	-7.3	H	3.0	45.6	1.0	-52.0	-13.0	-39.0	
7630.40	-5.0	H	3.0	45.6	1.0	-49.6	-13.0	-36.6	

Band 2 HSDPA

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-11-11
Test Engineer: 26087
Configuration: EUT / AC Adapter / Earphone, Y-Position
Location: Chamber 1
Mode: HSDPA Band 2 Harmonics
Test Votage: AC 120 V, 60 Hz

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4MHz									
3704.80	-10.4	V	3.0	46.0	1.0	-55.5	-13.0	-42.5	
5557.20	-7.4	V	3.0	45.8	1.0	-52.2	-13.0	-39.2	
7409.60	-5.1	V	3.0	45.5	1.0	-49.7	-13.0	-36.7	
3704.80	-10.2	H	3.0	46.0	1.0	-55.3	-13.0	-42.3	
5557.20	-7.7	H	3.0	45.8	1.0	-52.5	-13.0	-39.5	
7409.60	-5.2	H	3.0	45.5	1.0	-49.7	-13.0	-36.7	
Mid Ch, 1880MHz									
3760.00	-9.9	V	3.0	46.0	1.0	-54.9	-13.0	-41.9	
5640.00	-7.4	V	3.0	45.7	1.0	-52.1	-13.0	-39.1	
7520.00	-5.3	V	3.0	45.5	1.0	-49.8	-13.0	-36.8	
3760.00	-9.5	H	3.0	46.0	1.0	-54.4	-13.0	-41.4	
5640.00	-7.3	H	3.0	45.7	1.0	-52.0	-13.0	-39.0	
7520.00	-5.3	H	3.0	45.5	1.0	-49.8	-13.0	-36.8	
High Ch, 1907.6MHz									
3815.20	-10.0	V	3.0	45.9	1.0	-54.9	-13.0	-41.9	
5722.80	-7.2	V	3.0	45.6	1.0	-51.9	-13.0	-38.9	
7630.40	-5.0	V	3.0	45.6	1.0	-49.6	-13.0	-36.6	
3815.20	-10.1	H	3.0	45.9	1.0	-55.0	-13.0	-42.0	
5722.80	-7.4	H	3.0	45.6	1.0	-52.0	-13.0	-39.0	
7630.40	-5.0	H	3.0	45.6	1.0	-49.5	-13.0	-36.5	

LTE Band 2

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-10-16
Test Engineer: 25770
Configuration: EUT / AC Adapter / Earphone, Z-Position
Location: Chamber 1
Mode: LTE_QPSK Band 2 Harmonics, 20MHz Bandwidth
Test Votage: AC 120 V, 60 Hz

LTE Band 2

20MHz

QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1860MHz									
3720.00	-10.9	V	3.0	46.0	1.0	-55.9	-13.0	-42.9	
5580.00	-7.9	V	3.0	45.7	1.0	-52.6	-13.0	-39.6	
7440.00	-5.3	V	3.0	45.5	1.0	-49.8	-13.0	-36.8	
3720.00	-10.8	H	3.0	46.0	1.0	-55.8	-13.0	-42.8	
5580.00	-7.9	H	3.0	45.7	1.0	-52.6	-13.0	-39.6	
7440.00	-5.4	H	3.0	45.5	1.0	-49.9	-13.0	-36.9	
Mid Ch, 1880MHz									
3760.00	-10.5	V	3.0	46.0	1.0	-55.5	-13.0	-42.5	
5640.00	-7.6	V	3.0	45.7	1.0	-52.3	-13.0	-39.3	
7520.00	-5.3	V	3.0	45.5	1.0	-49.9	-13.0	-36.9	
3760.00	-10.5	H	3.0	46.0	1.0	-55.5	-13.0	-42.5	
5640.00	-7.7	H	3.0	45.7	1.0	-52.4	-13.0	-39.4	
7520.00	-5.3	H	3.0	45.5	1.0	-49.9	-13.0	-36.9	
High Ch, 1900MHz									
3800.00	-10.4	V	3.0	45.9	1.0	-55.3	-13.0	-42.3	
5700.00	-7.4	V	3.0	45.6	1.0	-52.0	-13.0	-39.0	
7600.00	-5.4	V	3.0	45.6	1.0	-49.9	-13.0	-36.9	
3800.00	-10.4	H	3.0	45.9	1.0	-55.3	-13.0	-42.3	
5700.00	-7.5	H	3.0	45.6	1.0	-52.1	-13.0	-39.1	
7600.00	-5.4	H	3.0	45.6	1.0	-50.0	-13.0	-37.0	

LTE Band 5

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-10-18
Test Engineer: 25770
Configuration: EUT / AC Adapter / Earphone, Z-Position
Location: Chamber 1
Mode: LTE_QPSK Band 5 Harmonics, 3MHz Bandwidth
Test Votage: AC 120 V, 60 Hz

LTE Band 5

3MHz

QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 825.5MHz									
1651.00	-14.5	V	3.0	46.4	1.0	-59.9	-13.0	-46.9	
2476.50	-11.4	V	3.0	46.9	1.0	-57.3	-13.0	-44.3	
3302.00	-9.3	V	3.0	46.6	1.0	-55.0	-13.0	-42.0	
1651.00	-15.6	H	3.0	46.4	1.0	-61.0	-13.0	-48.0	
2476.50	-12.0	H	3.0	46.9	1.0	-57.8	-13.0	-44.8	
3302.00	-9.4	H	3.0	46.6	1.0	-55.0	-13.0	-42.0	
Mid Ch, 836.5MHz									
1673.00	-14.6	V	3.0	46.4	1.0	-60.0	-13.0	-47.0	
2509.50	-11.3	V	3.0	46.9	1.0	-57.2	-13.0	-44.2	
3346.00	-9.2	V	3.0	46.6	1.0	-54.8	-13.0	-41.8	
1673.00	-15.6	H	3.0	46.4	1.0	-61.0	-13.0	-48.0	
2509.50	-11.8	H	3.0	46.9	1.0	-57.7	-13.0	-44.7	
3346.00	-9.2	H	3.0	46.6	1.0	-54.7	-13.0	-41.7	
High Ch, 847.5MHz									
1695.00	-14.5	V	3.0	46.5	1.0	-60.0	-13.0	-47.0	
2542.50	-11.3	V	3.0	46.9	1.0	-57.2	-13.0	-44.2	
3390.00	-8.8	V	3.0	46.5	1.0	-54.3	-13.0	-41.3	
1695.00	-15.4	H	3.0	46.5	1.0	-60.8	-13.0	-47.8	
2542.50	-11.8	H	3.0	46.9	1.0	-57.7	-13.0	-44.7	
3390.00	-8.9	H	3.0	46.5	1.0	-54.4	-13.0	-41.4	

LTE Band 7

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4790558569
Date:	2022-10-20
Test Engineer:	25770
Configuration:	EUT / AC Adapter / Earphone, X-Position
Location:	Chamber 1
Mode:	LTE_QPSK Band 7 Harmonics, 5MHz Bandwidth
Test Votage:	AC 120 V, 60 Hz

LTE Band 7

5MHz

QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2502.5MHz									
5005.00	-16.8	V	3.0	46.2	1.0	-62.0	-25.0	-37.0	
7507.50	-15.2	V	3.0	45.5	1.0	-59.7	-25.0	-34.7	
10010.00	-11.1	V	3.0	45.6	1.0	-55.6	-25.0	-30.6	
5005.00	-16.8	H	3.0	46.2	1.0	-62.0	-25.0	-37.0	
7507.50	-15.1	H	3.0	45.5	1.0	-59.7	-25.0	-34.7	
10010.00	-11.3	H	3.0	45.6	1.0	-55.9	-25.0	-30.9	
Mid Ch, 2535MHz									
5070.00	-16.4	V	3.0	46.2	1.0	-61.6	-25.0	-36.6	
7605.00	-15.0	V	3.0	45.6	1.0	-59.6	-25.0	-34.6	
10140.00	-10.9	V	3.0	45.7	1.0	-55.6	-25.0	-30.6	
5070.00	-16.4	H	3.0	46.2	1.0	-61.6	-25.0	-36.6	
7605.00	-14.9	H	3.0	45.6	1.0	-59.4	-25.0	-34.4	
10140.00	-11.1	H	3.0	45.7	1.0	-55.8	-25.0	-30.8	
High Ch, 2567.5MHz									
5135.00	-16.8	V	3.0	46.1	1.0	-61.9	-25.0	-36.9	
7702.50	-14.8	V	3.0	45.6	1.0	-59.3	-25.0	-34.3	
10270.00	-10.9	V	3.0	45.8	1.0	-55.7	-25.0	-30.7	
5135.00	-16.6	H	3.0	46.1	1.0	-61.8	-25.0	-36.8	
7702.50	-14.8	H	3.0	45.6	1.0	-59.3	-25.0	-34.3	
10270.00	-11.1	H	3.0	45.8	1.0	-55.8	-25.0	-30.8	

LTE Band 12

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4790558569
Date:	2022-10-20
Test Engineer:	19568
Configuration:	EUT / AC Adapter / Earphone, X-Position
Location:	Chamber 1
Mode:	LTE_QPSK Band 12 Harmonics, 5MHz Bandwidth
Test Votage:	AC 120 V, 60 Hz

LTE Band 12

5MHz

QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 701.5MHz									
1403.00	-14.8	V	3.0	45.8	1.0	-59.7	-13.0	-46.7	
2104.50	-9.8	V	3.0	45.4	1.0	-54.1	-13.0	-41.1	
2806.00	-10.5	V	3.0	45.5	1.0	-55.0	-13.0	-42.0	
1403.00	-12.0	H	3.0	45.8	1.0	-56.8	-13.0	-43.8	
2104.50	-7.6	H	3.0	45.4	1.0	-52.0	-13.0	-39.0	
2806.00	-10.6	H	3.0	45.5	1.0	-55.1	-13.0	-42.1	
Mid Ch, 707.5MHz									
1415.00	-15.0	V	3.0	45.8	1.0	-59.8	-13.0	-46.8	
2122.50	-11.5	V	3.0	45.4	1.0	-55.9	-13.0	-42.9	
2830.00	-10.3	V	3.0	45.5	1.0	-54.8	-13.0	-41.8	
1415.00	-14.0	H	3.0	45.8	1.0	-58.8	-13.0	-45.8	
2122.50	-10.3	H	3.0	45.4	1.0	-54.7	-13.0	-41.7	
2830.00	-10.4	H	3.0	45.5	1.0	-55.0	-13.0	-42.0	
High Ch, 713.5MHz									
1427.00	-14.6	V	3.0	45.8	1.0	-59.4	-13.0	-46.4	
2140.50	-8.9	V	3.0	45.4	1.0	-53.3	-13.0	-40.3	
2854.00	-10.3	V	3.0	45.5	1.0	-54.9	-13.0	-41.9	
1427.00	-12.9	H	3.0	45.8	1.0	-57.7	-13.0	-44.7	
2140.50	-4.4	H	3.0	45.4	1.0	-48.8	-13.0	-35.8	
2854.00	-10.4	H	3.0	45.5	1.0	-54.9	-13.0	-41.9	

LTE Band 13

LTE Band 13

5 MHz

QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-10-20
Test Engineer: 19568
Configuration: EUT / AC Adapter / Earphone, Z-Position
Location: Chamber 1
Mode: LTE_QPSK Band 13 Harmonics, 5MHz Bandwidth
Test Votage: AC 120 V, 60 Hz

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 779.5MHz									
1559.00	-14.9	V	3.0	46.3	1.0	-60.3	-40.0	-20.3	
2338.50	-11.7	V	3.0	46.8	1.0	-57.6	-13.0	-44.6	
3118.00	-9.9	V	3.0	46.9	1.0	-55.7	-13.0	-42.7	
1559.00	-16.0	H	3.0	46.3	1.0	-61.4	-40.0	-21.4	
2338.50	-12.4	H	3.0	46.8	1.0	-58.3	-13.0	-45.3	
3118.00	-9.8	H	3.0	46.9	1.0	-55.6	-13.0	-42.6	
Mid Ch, 782MHz									
1564.00	-14.8	V	3.0	46.4	1.0	-60.2	-40.0	-20.2	
2346.00	-11.7	V	3.0	46.8	1.0	-57.5	-13.0	-44.5	
3128.00	-9.9	V	3.0	46.9	1.0	-55.7	-13.0	-42.7	
1564.00	-16.0	H	3.0	46.4	1.0	-61.3	-40.0	-21.3	
2346.00	-12.4	H	3.0	46.8	1.0	-58.2	-13.0	-45.2	
3128.00	-9.8	H	3.0	46.9	1.0	-55.7	-13.0	-42.7	
High Ch, 784.5MHz									
1569.00	-15.0	V	3.0	46.4	1.0	-60.4	-40.0	-20.4	
2353.50	-11.6	V	3.0	46.8	1.0	-57.5	-13.0	-44.5	
3138.00	-9.7	V	3.0	46.9	1.0	-55.5	-13.0	-42.5	
1569.00	-15.9	H	3.0	46.4	1.0	-61.2	-40.0	-21.2	
2353.50	-12.3	H	3.0	46.8	1.0	-58.2	-13.0	-45.2	
3138.00	-9.5	H	3.0	46.9	1.0	-55.3	-13.0	-42.3	

LTE Band 66

LTE Band 66

1.4MHz

QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-10-21
Test Engineer: 26087
Configuration: EUT, Z-Position
Location: Chamber 1
Mode: LTE_QPSK Band 66 Harmonics, 1.4MHz Bandwidth
Test Votage: AC 120 V, 60 Hz

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1710.7MHz									
3421.40	-1.1	V	3.0	46.4	1.0	-46.5	-13.0	-33.5	
5132.10	-8.6	V	3.0	46.1	1.0	-53.7	-13.0	-40.7	
6842.80	-5.6	V	3.0	45.5	1.0	-50.1	-13.0	-37.1	
3421.40	3.0	H	3.0	46.4	1.0	-42.4	-13.0	-29.4	
5132.10	-8.2	H	3.0	46.1	1.0	-53.3	-13.0	-40.3	
6842.80	-5.7	H	3.0	45.5	1.0	-50.2	-13.0	-37.2	
Mid Ch, 1745MHz									
3490.00	-1.7	V	3.0	46.3	1.0	-47.0	-13.0	-34.0	
5235.00	-8.4	V	3.0	46.0	1.0	-53.4	-13.0	-40.4	
6980.00	-5.5	V	3.0	45.5	1.0	-50.0	-13.0	-37.0	
3490.00	2.1	H	3.0	46.3	1.0	-43.3	-13.0	-30.3	
5235.00	-8.3	H	3.0	46.0	1.0	-53.4	-13.0	-40.4	
6980.00	-5.7	H	3.0	45.5	1.0	-50.2	-13.0	-37.2	
High Ch, 1779.3MHz									
3558.60	-7.9	V	3.0	46.3	1.0	-53.1	-13.0	-40.1	
5337.90	-8.0	V	3.0	45.9	1.0	-53.0	-13.0	-40.0	
7117.20	-5.3	V	3.0	45.5	1.0	-49.8	-13.0	-36.8	
3558.60	-8.0	H	3.0	46.3	1.0	-53.2	-13.0	-40.2	
5337.90	-8.0	H	3.0	45.9	1.0	-52.9	-13.0	-39.9	
7117.20	-5.4	H	3.0	45.5	1.0	-49.9	-13.0	-36.9	

NR Band n2

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4790558569
Date:	2022-10-28
Test Engineer:	51078
Configuration:	EUT / AC Adapter / Earphone, X-Position
Location:	Chamber 1
Mode:	5G NR_QPSK NR n2 Harmonics, 20MHz Bandwidth
Test Votage:	AC 120 V, 60 Hz

20MHz

QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1860MHz									
3720.00	-10.1	V	3.0	46.0	1.0	-55.1	-13.0	-42.1	
5580.00	-7.6	V	3.0	45.7	1.0	-52.4	-13.0	-39.4	
7440.00	-5.1	V	3.0	45.5	1.0	-49.6	-13.0	-36.6	
3720.00	-8.9	H	3.0	46.0	1.0	-53.9	-13.0	-40.9	
5580.00	-7.6	H	3.0	45.7	1.0	-52.4	-13.0	-39.4	
7440.00	-5.2	H	3.0	45.5	1.0	-49.8	-13.0	-36.8	
Mid Ch, 1880MHz									
3760.00	-8.0	V	3.0	46.0	1.0	-53.0	-13.0	-40.0	
5640.00	-7.4	V	3.0	45.7	1.0	-52.1	-13.0	-39.1	
7520.00	-5.1	V	3.0	45.5	1.0	-49.7	-13.0	-36.7	
3760.00	-9.5	H	3.0	46.0	1.0	-54.5	-13.0	-41.5	
5640.00	-7.5	H	3.0	45.7	1.0	-52.2	-13.0	-39.2	
7520.00	-5.3	H	3.0	45.5	1.0	-49.9	-13.0	-36.9	
High Ch, 1900MHz									
3800.00	-9.2	V	3.0	45.9	1.0	-54.1	-13.0	-41.1	
5700.00	-7.2	V	3.0	45.6	1.0	-51.8	-13.0	-38.8	
7600.00	-4.9	V	3.0	45.6	1.0	-49.4	-13.0	-36.4	
3800.00	-8.6	H	3.0	45.9	1.0	-53.5	-13.0	-40.5	
5700.00	-7.3	H	3.0	45.6	1.0	-52.0	-13.0	-39.0	
7600.00	-4.9	H	3.0	45.6	1.0	-49.5	-13.0	-36.5	

NR Band n5

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4790558569
Date:	2022-11-11
Test Engineer:	25770
Configuration:	EUT / AC Adapter / Earphone, Z-Position
Location:	Chamber 2
Mode:	5G NR_QPSK NR n5 Harmonics, 15MHz Bandwidth
Test Votage:	AC 120 V, 60 Hz

15MHz

QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 831.5MHz									
1663.00	-16.0	V	3.0	40.9	1.0	-55.9	-13.0	-42.9	
2494.50	-13.1	V	3.0	41.6	1.0	-53.6	-13.0	-40.6	
3326.00	-10.1	V	3.0	42.3	1.0	-51.4	-13.0	-38.4	
1663.00	-16.6	H	3.0	40.9	1.0	-56.5	-13.0	-43.5	
2494.50	-13.4	H	3.0	41.6	1.0	-54.0	-13.0	-41.0	
3326.00	-10.1	H	3.0	42.3	1.0	-51.4	-13.0	-38.4	
Mid Ch, 836.5MHz									
1673.00	-15.9	V	3.0	40.9	1.0	-55.8	-13.0	-42.8	
2509.50	-13.0	V	3.0	41.6	1.0	-53.6	-13.0	-40.6	
3346.00	-10.0	V	3.0	42.3	1.0	-51.3	-13.0	-38.3	
1673.00	-16.6	H	3.0	40.9	1.0	-56.5	-13.0	-43.5	
2509.50	-13.4	H	3.0	41.6	1.0	-54.0	-13.0	-41.0	
3346.00	-10.0	H	3.0	42.3	1.0	-51.3	-13.0	-38.3	
High Ch, 841.5MHz									
1683.00	-15.8	V	3.0	40.9	1.0	-55.7	-13.0	-42.7	
2524.50	-13.0	V	3.0	41.6	1.0	-53.6	-13.0	-40.6	
3366.00	-9.9	V	3.0	42.3	1.0	-51.2	-13.0	-38.2	
1683.00	-16.5	H	3.0	40.9	1.0	-56.4	-13.0	-43.4	
2524.50	-13.2	H	3.0	41.6	1.0	-53.8	-13.0	-40.8	
3366.00	-9.8	H	3.0	42.3	1.0	-51.1	-13.0	-38.1	

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_22/24/27(04)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

NR Band n66

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-10-28
Test Engineer: 26087
Configuration: EUT / AC Adapter / Earphone, Y-Position
Location: Chamber 1
Mode: 5G NR_QPSK NR n66 Harmonics, 20MHz Bandwidth
Test Votage: AC 120 V, 60 Hz

20 MHz

QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1720MHz									
3440.00	-0.9	V	3.0	46.4	1.0	-46.4	-13.0	-33.4	
5160.00	-8.6	V	3.0	46.1	1.0	-53.7	-13.0	-40.7	
6880.00	-5.4	V	3.0	45.5	1.0	-49.9	-13.0	-36.9	
3440.00	-0.6	H	3.0	46.4	1.0	-46.0	-13.0	-33.0	
5160.00	-8.6	H	3.0	46.1	1.0	-53.7	-13.0	-40.7	
6880.00	-5.5	H	3.0	45.5	1.0	-49.9	-13.0	-36.9	
Mid Ch, 1745MHz									
3490.00	1.2	V	3.0	46.3	1.0	-44.2	-13.0	-31.2	
5235.00	-8.2	V	3.0	46.0	1.0	-53.3	-13.0	-40.3	
6980.00	-5.4	V	3.0	45.5	1.0	-49.9	-13.0	-36.9	
3490.00	2.0	H	3.0	46.3	1.0	-43.4	-13.0	-30.4	
5235.00	-8.2	H	3.0	46.0	1.0	-53.3	-13.0	-40.3	
6980.00	-5.4	H	3.0	45.5	1.0	-49.9	-13.0	-36.9	
High Ch, 1770MHz									
3540.00	-7.4	V	3.0	46.3	1.0	-52.7	-13.0	-39.7	
5310.00	-8.1	V	3.0	46.0	1.0	-53.0	-13.0	-40.0	
7080.00	-5.2	V	3.0	45.5	1.0	-49.7	-13.0	-36.7	
3540.00	-6.4	H	3.0	46.3	1.0	-51.7	-13.0	-38.7	
5310.00	-8.0	H	3.0	46.0	1.0	-53.0	-13.0	-40.0	
7080.00	-5.3	H	3.0	45.5	1.0	-49.8	-13.0	-36.8	

NR Band n77(PC2,3450-3550 MHz)

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-11-08
Test Engineer: 26087
Configuration: EUT / AC Adapter / Earphone, Z-Position
Location: Chamber 1
Mode: 5G NR_QPSK NR n77 LO Harmonics, 30MHz Bandwidth
Test Votage: AC 120 V, 60 Hz

30MHz

QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 3465MHz									
6930.00	-4.0	V	3.0	45.5	1.0	-48.5	-13.0	-35.5	
10395.00	1.8	V	3.0	45.9	1.0	-43.1	-13.0	-30.1	
13860.00	3.9	V	3.0	46.6	1.0	-41.6	-13.0	-28.6	
6930.00	-2.8	H	3.0	45.5	1.0	-47.3	-13.0	-34.3	
10395.00	1.6	H	3.0	45.9	1.0	-43.3	-13.0	-30.3	
13860.00	4.3	H	3.0	46.6	1.0	-41.2	-13.0	-28.2	
Mid Ch, 3499.98MHz									
6999.96	-2.4	V	3.0	45.5	1.0	-46.8	-13.0	-33.8	
10499.94	3.2	V	3.0	46.0	1.0	-41.8	-13.0	-28.8	
13999.92	5.5	V	3.0	46.5	1.0	-40.1	-13.0	-27.1	
6999.96	-2.7	H	3.0	45.5	1.0	-47.2	-13.0	-34.2	
10499.94	3.1	H	3.0	46.0	1.0	-41.9	-13.0	-28.9	
13999.92	5.8	H	3.0	46.5	1.0	-39.7	-13.0	-26.7	
High Ch, 3534MHz									
7068.00	-2.2	V	3.0	45.5	1.0	-46.7	-13.0	-33.7	
10602.00	3.5	V	3.0	46.1	1.0	-41.6	-13.0	-28.6	
14136.00	6.2	V	3.0	46.5	1.0	-39.3	-13.0	-26.3	
7068.00	-2.8	H	3.0	45.5	1.0	-47.3	-13.0	-34.3	
10602.00	3.4	H	3.0	46.1	1.0	-41.6	-13.0	-28.6	
14136.00	6.6	H	3.0	46.5	1.0	-38.9	-13.0	-25.9	

NR Band n77(PC2,3450-3550 MHz, SRS1)

60MHz

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-11-11
Test Engineer: 25546
Configuration: EUT / AC Adapter / Earphone, Z-Position
Location: Chamber 1
Mode: 5G NR_NR n77 LO Harmonics, 60MHz Bandwidth
Test Votage: AC 120 V, 60 Hz

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 3480MHz									
6960.00	-5.4	V	3.0	45.5	1.0	-49.8	-13.0	-36.8	
10440.00	0.3	V	3.0	45.9	1.0	-44.6	-13.0	-31.6	
13920.00	2.7	V	3.0	46.6	1.0	-42.9	-13.0	-29.9	
6960.00	-5.5	H	3.0	45.5	1.0	-50.0	-13.0	-37.0	
10440.00	0.3	H	3.0	45.9	1.0	-44.7	-13.0	-31.7	
13920.00	2.8	H	3.0	46.6	1.0	-42.8	-13.0	-29.8	
Mid Ch, 3499.98MHz									
6999.96	-5.5	V	3.0	45.5	1.0	-50.0	-13.0	-37.0	
10499.94	0.5	V	3.0	46.0	1.0	-44.5	-13.0	-31.5	
13999.92	2.7	V	3.0	46.5	1.0	-42.9	-13.0	-29.9	
6999.96	-5.5	H	3.0	45.5	1.0	-50.0	-13.0	-37.0	
10499.94	0.3	H	3.0	46.0	1.0	-44.6	-13.0	-31.6	
13999.92	2.9	H	3.0	46.5	1.0	-42.7	-13.0	-29.7	
High Ch, 3519.99MHz									
7039.98	-5.4	V	3.0	45.5	1.0	-49.8	-13.0	-36.8	
10559.97	0.6	V	3.0	46.0	1.0	-44.4	-13.0	-31.4	
14079.96	2.6	V	3.0	46.5	1.0	-42.9	-13.0	-29.9	
7039.98	-5.4	H	3.0	45.5	1.0	-49.9	-13.0	-36.9	
10559.97	0.6	H	3.0	46.0	1.0	-44.4	-13.0	-31.4	
14079.96	2.7	H	3.0	46.5	1.0	-42.8	-13.0	-29.8	

NR Band n77(PC2,3450-3550 MHz, SRS2)

40MHz

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-11-11
Test Engineer: 26087
Configuration: EUT / AC Adapter / Earphone, Y-Position
Location: Chamber 1
Mode: 5G NR_n77 LO Harmonics, 40MHz Bandwidth
Test Votage: AC 120 V, 60 Hz

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 3470.01MHz									
6940.02	-5.2	V	3.0	45.5	1.0	-49.6	-13.0	-36.6	
10410.03	0.6	V	3.0	45.9	1.0	-44.3	-13.0	-31.3	
13880.04	3.0	V	3.0	46.6	1.0	-42.6	-13.0	-29.6	
6940.02	-5.3	H	3.0	45.5	1.0	-49.8	-13.0	-36.8	
10410.03	0.4	H	3.0	45.9	1.0	-44.5	-13.0	-31.5	
13880.04	2.9	H	3.0	46.6	1.0	-42.7	-13.0	-29.7	
Mid Ch, 3499.98MHz									
6999.96	-5.3	V	3.0	45.5	1.0	-49.8	-13.0	-36.8	
10499.94	0.7	V	3.0	46.0	1.0	-44.3	-13.0	-31.3	
13999.92	2.7	V	3.0	46.5	1.0	-42.8	-13.0	-29.8	
6999.96	-5.4	H	3.0	45.5	1.0	-49.9	-13.0	-36.9	
10499.94	0.6	H	3.0	46.0	1.0	-44.4	-13.0	-31.4	
13999.92	2.9	H	3.0	46.5	1.0	-42.6	-13.0	-29.6	
High Ch, 3529MHz									
7059.96	-5.2	V	3.0	45.5	1.0	-49.7	-13.0	-36.7	
10589.94	0.8	V	3.0	46.1	1.0	-44.2	-13.0	-31.2	
14119.92	3.1	V	3.0	46.5	1.0	-42.4	-13.0	-29.4	
7059.96	-5.3	H	3.0	45.5	1.0	-49.8	-13.0	-36.8	
10589.94	1.0	H	3.0	46.1	1.0	-44.0	-13.0	-31.0	
14119.92	3.1	H	3.0	46.5	1.0	-42.4	-13.0	-29.4	

NR Band n77(PC2,3450-3550 MHz, SRS3)

30MHz

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-11-11
Test Engineer: 26087
Configuration: EUT / AC Adapter / Earphone, X-Position
Location: Chamber 1
Mode: 5G NR_n77 LO Harmonics, 30MHz Bandwidth
Test Votage: AC 120 V, 60 Hz

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 3465 MHz									
6930.00	-5.1	V	3.0	45.5	1.0	-49.5	-13.0	-36.5	
10395.00	0.5	V	3.0	45.9	1.0	-44.3	-13.0	-31.3	
13860.00	2.8	V	3.0	46.6	1.0	-42.8	-13.0	-29.8	
6930.00	-5.3	H	3.0	45.5	1.0	-49.8	-13.0	-36.8	
10395.00	0.5	H	3.0	45.9	1.0	-44.4	-13.0	-31.4	
13860.00	2.9	H	3.0	46.6	1.0	-42.7	-13.0	-29.7	
Mid Ch, 3499.98MHz									
6999.96	-5.1	V	3.0	45.5	1.0	-49.6	-13.0	-36.6	
10499.94	0.6	V	3.0	46.0	1.0	-44.4	-13.0	-31.4	
13999.92	2.7	V	3.0	46.5	1.0	-42.8	-13.0	-29.8	
6999.96	-5.3	H	3.0	45.5	1.0	-49.8	-13.0	-36.8	
10499.94	0.7	H	3.0	46.0	1.0	-44.2	-13.0	-31.2	
13999.92	3.0	H	3.0	46.5	1.0	-42.6	-13.0	-29.6	
High Ch, 3535.02 MHz									
7070.04	-5.2	V	3.0	45.5	1.0	-49.7	-13.0	-36.7	
10605.06	0.9	V	3.0	46.1	1.0	-44.2	-13.0	-31.2	
14140.08	3.0	V	3.0	46.5	1.0	-42.5	-13.0	-29.5	
7070.04	-5.2	H	3.0	45.5	1.0	-49.7	-13.0	-36.7	
10605.06	0.8	H	3.0	46.1	1.0	-44.3	-13.0	-31.3	
14140.08	3.1	H	3.0	46.5	1.0	-42.3	-13.0	-29.3	

NR Band n77(PC2,3700-3980 MHz)

20MHz
QPSK

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-11-08
Test Engineer: 26087
Configuration: EUT / AC Adapter / Earphone, Y-Position
Location: Chamber 1
Mode: 5G NR_QPSK NR n77 UP Harmonics, 20MHz Bandwidth
Test Votage: AC 120 V, 60 Hz

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 3710MHz									
7420.00	-5.2	V	3.0	45.5	1.0	-49.7	-13.0	-36.7	
11130.00	1.6	V	3.0	46.5	1.0	-44.0	-13.0	-31.0	
14840.00	3.4	V	3.0	46.2	1.0	-41.8	-13.0	-28.8	
7420.00	-5.1	H	3.0	45.5	1.0	-49.7	-13.0	-36.7	
11130.00	1.6	H	3.0	46.5	1.0	-44.0	-13.0	-31.0	
14840.00	3.4	H	3.0	46.2	1.0	-41.8	-13.0	-28.8	
Mid Ch, 3840MHz									
7680.00	-5.2	V	3.0	45.6	1.0	-49.7	-13.0	-36.7	
11520.00	1.6	V	3.0	46.9	1.0	-44.3	-13.0	-31.3	
15360.00	3.8	V	3.0	46.0	1.0	-41.1	-13.0	-28.1	
7680.00	-5.1	H	3.0	45.6	1.0	-49.7	-13.0	-36.7	
11520.00	1.7	H	3.0	46.9	1.0	-44.2	-13.0	-31.2	
15360.00	4.0	H	3.0	46.0	1.0	-41.0	-13.0	-28.0	
High Ch, 3970MHz									
7940.00	-5.0	V	3.0	45.6	1.0	-49.6	-13.0	-36.6	
11910.00	2.2	V	3.0	47.2	1.0	-44.0	-13.0	-31.0	
15880.00	4.5	V	3.0	45.7	1.0	-40.2	-13.0	-27.2	
7940.00	-5.0	H	3.0	45.6	1.0	-49.6	-13.0	-36.6	
11910.00	2.4	H	3.0	47.2	1.0	-43.8	-13.0	-30.8	
15880.00	4.5	H	3.0	45.7	1.0	-40.2	-13.0	-27.2	

NR Band n77(PC2,3700-3980 MHz, SRS1)

40MHz

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-11-11
Test Engineer: 25770
Configuration: EUT / AC Adapter / Earphone, X-Position
Location: Chamber 2
Mode: 5G NR_n77 UP Harmonics, 40MHz Bandwidth
Test Votage: AC 120 V, 60 Hz

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 3720.02MHz									
7440.04	-6.5	V	3.0	42.7	1.0	-48.2	-13.0	-35.2	
11160.06	0.7	V	3.0	41.6	1.0	-39.9	-13.0	-26.9	
14880.08	4.1	V	3.0	43.8	1.0	-38.7	-13.0	-25.7	
7440.04	-6.4	H	3.0	42.7	1.0	-48.2	-13.0	-35.2	
11160.06	0.8	H	3.0	41.6	1.0	-39.8	-13.0	-26.8	
14880.08	4.4	H	3.0	43.8	1.0	-38.5	-13.0	-25.5	
Mid Ch, 3840MHz									
7680.00	-6.6	V	3.0	42.6	1.0	-48.2	-13.0	-35.2	
11520.00	1.0	V	3.0	41.8	1.0	-39.8	-13.0	-26.8	
15360.00	4.2	V	3.0	43.8	1.0	-38.6	-13.0	-25.6	
7680.00	-6.6	H	3.0	42.6	1.0	-48.2	-13.0	-35.2	
11520.00	1.2	H	3.0	41.8	1.0	-39.6	-13.0	-26.6	
15360.00	4.5	H	3.0	43.8	1.0	-38.3	-13.0	-25.3	
High Ch, 3960MHz									
7920.00	-6.3	V	3.0	42.5	1.0	-47.8	-13.0	-34.8	
11880.00	1.9	V	3.0	41.9	1.0	-39.0	-13.0	-26.0	
15840.00	4.4	V	3.0	43.7	1.0	-38.3	-13.0	-25.3	
7920.00	-6.4	H	3.0	42.5	1.0	-47.9	-13.0	-34.9	
11880.00	1.8	H	3.0	41.9	1.0	-39.1	-13.0	-26.1	
15840.00	4.6	H	3.0	43.7	1.0	-38.1	-13.0	-25.1	

NR Band n77(PC2,3700-3980 MHz, SRS2)

20MHz

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4790558569
Date: 2022-11-11
Test Engineer: 25770
Configuration: EUT / AC Adapter / Earphone, X-Position
Location: Chamber 2
Mode: 5G NR_n77 UP Harmonics, 20MHz Bandwidth
Test Votage: AC 120 V, 60 Hz

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 3710.01MHz									
7420.02	-6.5	V	3.0	42.7	1.0	-48.3	-13.0	-35.3	
11130.03	0.6	V	3.0	41.6	1.0	-40.0	-13.0	-27.0	
14840.04	4.3	V	3.0	43.8	1.0	-38.5	-13.0	-25.5	
7420.02	-6.5	H	3.0	42.7	1.0	-48.2	-13.0	-35.2	
11130.03	0.6	H	3.0	41.6	1.0	-40.0	-13.0	-27.0	
14840.04	4.5	H	3.0	43.8	1.0	-38.3	-13.0	-25.3	
Mid Ch, 3840MHz									
7680.00	-6.6	V	3.0	42.6	1.0	-48.2	-13.0	-35.2	
11520.00	1.1	V	3.0	41.8	1.0	-39.7	-13.0	-26.7	
15360.00	4.2	V	3.0	43.8	1.0	-38.6	-13.0	-25.6	
7680.00	-6.7	H	3.0	42.6	1.0	-48.3	-13.0	-35.3	
11520.00	1.1	H	3.0	41.8	1.0	-39.7	-13.0	-26.7	
15360.00	4.5	H	3.0	43.8	1.0	-38.3	-13.0	-25.3	
High Ch, 3969.99MHz									
7939.98	-6.3	V	3.0	42.5	1.0	-47.8	-13.0	-34.8	
11909.97	1.8	V	3.0	41.9	1.0	-39.1	-13.0	-26.1	
15879.96	4.4	V	3.0	43.7	1.0	-38.2	-13.0	-25.2	
7939.98	-6.4	H	3.0	42.5	1.0	-47.8	-13.0	-34.8	
11909.97	1.8	H	3.0	41.9	1.0	-39.1	-13.0	-26.1	
15879.96	4.7	H	3.0	43.7	1.0	-38.0	-13.0	-25.0	

NR Band n77(PC2,3700-3980 MHz, SRS3)

40MHz

UL Verification Services, Inc.
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4790558569
Date:	2022-11-11
Test Engineer:	25546
Configuration:	EUT / AC Adapter / Earphone, X-Position
Location:	Chamber 1
Mode:	5G NR_n77 UP Harmonics, 40MHz Bandwidth
Test Votage:	AC 120 V, 60 Hz

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 3720.02MHz									
7440.04	-5.1	V	3.0	45.5	1.0	-49.7	-13.0	-36.7	
11160.06	1.5	V	3.0	46.6	1.0	-44.1	-13.0	-31.1	
14880.08	3.4	V	3.0	46.2	1.0	-41.8	-13.0	-28.8	
7440.04	-5.1	H	3.0	45.5	1.0	-49.7	-13.0	-36.7	
11160.06	1.5	H	3.0	46.6	1.0	-44.1	-13.0	-31.1	
14880.08	3.5	H	3.0	46.2	1.0	-41.7	-13.0	-28.7	
Mid Ch, 3840MHz									
7680.00	-5.0	V	3.0	45.6	1.0	-49.6	-13.0	-36.6	
11520.00	1.7	V	3.0	46.9	1.0	-44.2	-13.0	-31.2	
15360.00	3.9	V	3.0	46.0	1.0	-41.0	-13.0	-28.0	
7680.00	-5.1	H	3.0	45.6	1.0	-49.7	-13.0	-36.7	
11520.00	1.8	H	3.0	46.9	1.0	-44.0	-13.0	-31.0	
15360.00	3.9	H	3.0	46.0	1.0	-41.0	-13.0	-28.0	
High Ch, 3960MHz									
7920.00	-5.0	V	3.0	45.6	1.0	-49.6	-13.0	-36.6	
11880.00	2.2	V	3.0	47.2	1.0	-44.0	-13.0	-31.0	
15840.00	4.4	V	3.0	45.7	1.0	-40.3	-13.0	-27.3	
7920.00	-5.0	H	3.0	45.6	1.0	-49.6	-13.0	-36.6	
11880.00	2.4	H	3.0	47.2	1.0	-43.8	-13.0	-30.8	
15840.00	4.4	H	3.0	45.7	1.0	-40.3	-13.0	-27.3	

END OF REPORT

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