













8.5. CONDUCTED SPURIOUS EMISSIONS

RULE PART(S)

FCC: §2.1051, and §96.41(e)

LIMITS

The conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40 dBm/MHz.

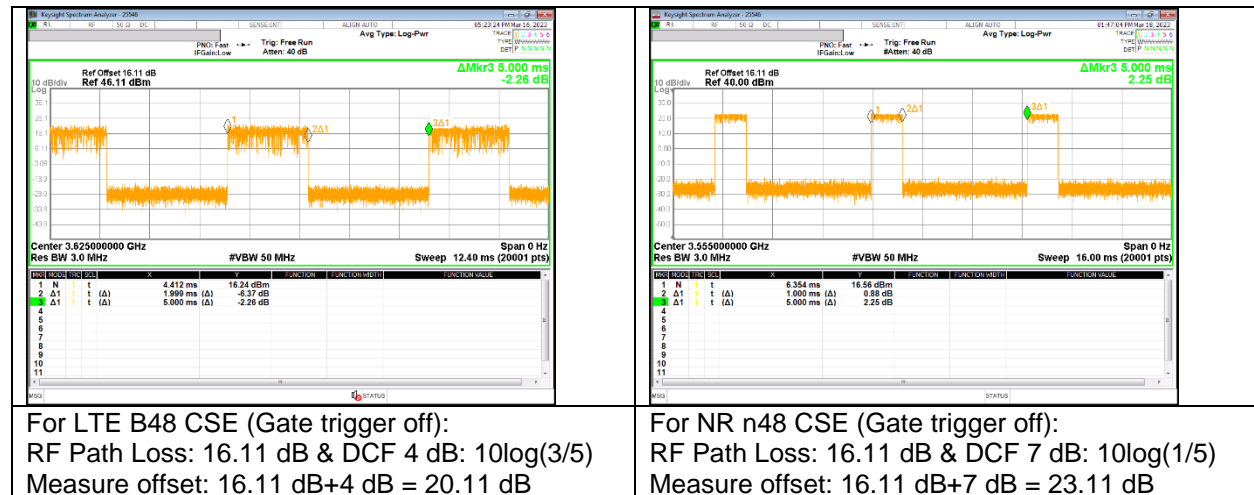
TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v03r01

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

- a) Set the RBW = 100kHz for emission below 1GHz and 1MHz for emissions above 1GHz
 A. (Tests were performed 1MHz [Worst case], to sweep 1 time for all frequency range)
- b) Set VBW ≥ 3 × RBW
- c) Sweep time = auto couple;
- d) Detector = RMS;
- e) Ensure that the number of measurement points = Max (40001);
- f) Trace mode = Average(TDD);

NOTE1



For LTE B48 CSE (Gate trigger off):
 RF Path Loss: 16.11 dB & DCF 4 dB: $10\log(3/5)$
 Measure offset: 16.11 dB+4 dB = 20.11 dB

For NR n48 CSE (Gate trigger off):
 RF Path Loss: 16.11 dB & DCF 7 dB: $10\log(1/5)$
 Measure offset: 16.11 dB+7 dB = 23.11 dB

NOTE2

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

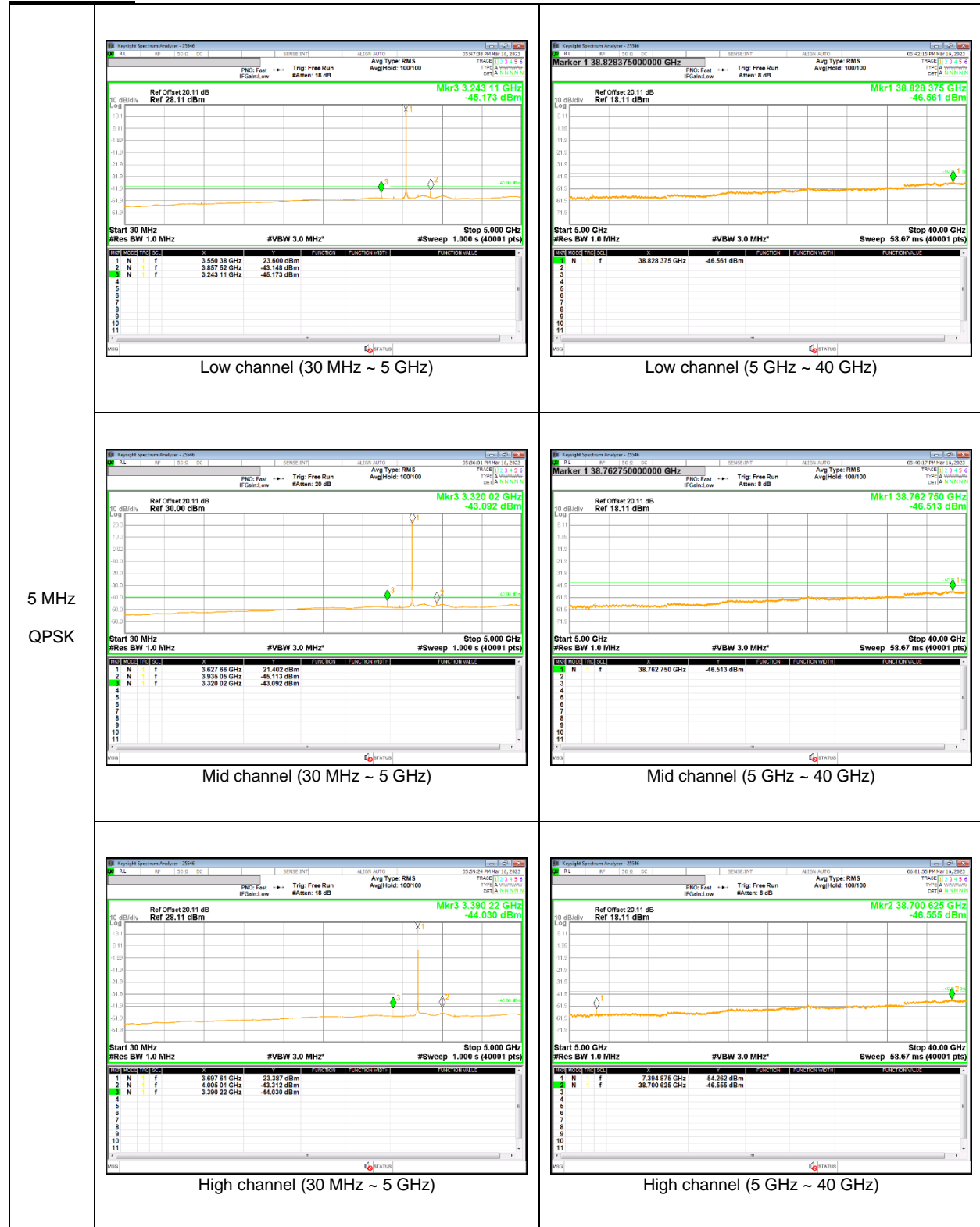
NOTE3

5G NR: All Waveforms (CP-OFDM vs DFT-s_OFDM) and modulations ($\pi/2$ 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.

RESULTS

See the following pages.

LTE Band 48

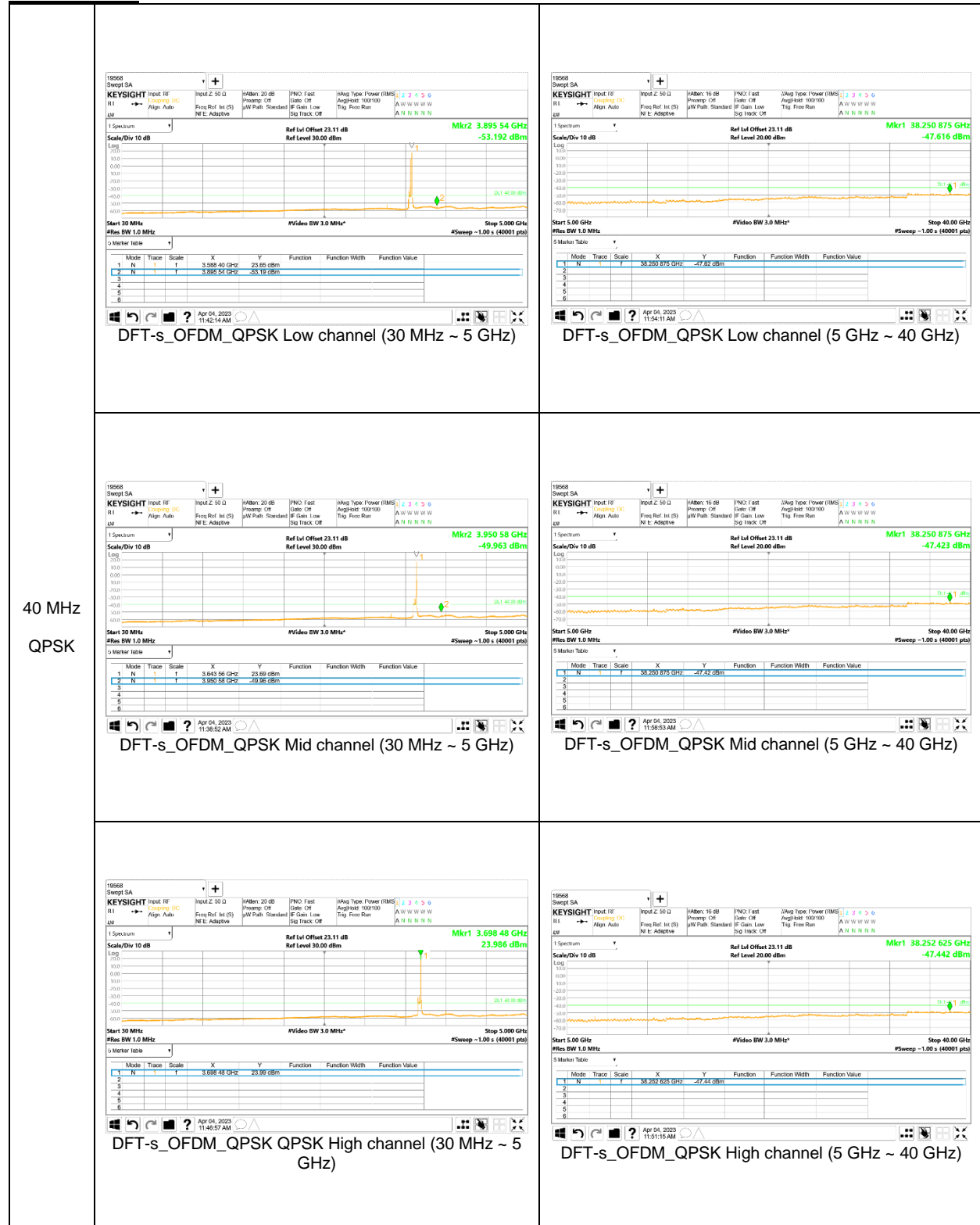


LTE Band 48C(UL CA)





NR Band n48



8.6. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055

LIMITS

For Part 96, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v03r01

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)

RESULTS

See the following pages.

LTE Band 48(Lowest Frequency: 16QAM / Highest Frequency: 16QAM)

Test Date	2023-03-30
Test Engineer	19568

Limit		3550	3700	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	3550.2551	3699.7359	10.0	0.003
Extreme (50C)		3550.2551	3699.7359		
Extreme (40C)		3550.2551	3699.7359		
Extreme (30C)		3550.2551	3699.7359		
Extreme (10C)		3550.2551	3699.7359		
Extreme (0C)		3550.2551	3699.7359		
Extreme (-10C)		3550.2551	3699.7359		
Extreme (-20C)		3550.2551	3699.7359		
Extreme (-30C)		3550.2551	3699.7359		
20C		15%	3550.2551		
	-15%	3550.2551	3699.7359	14.7	0.004
	End Point	3550.2551	3699.7359	15.5	0.004

NR Band n48(Lowest Frequency: 16QAM / Highest Frequency: QPSK)

Test Date	2023-04-20
Test Engineer	19568

Limit		3550	3700	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ End of OBW	F high @ End of OBW		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	3550.7075	3699.2978	7.7	0.002
Extreme (50C)		3550.7075	3699.2978		
Extreme (40C)		3550.7075	3699.2978		
Extreme (30C)		3550.7075	3699.2978		
Extreme (10C)		3550.7075	3699.2978		
Extreme (0C)		3550.7075	3699.2978		
Extreme (-10C)		3550.7075	3699.2978		
Extreme (-20C)		3550.7075	3699.2978		
Extreme (-30C)		3550.7075	3699.2978		
20C		15%	3550.7075		
	-15%	3550.7075	3699.2984	610.5	0.168
	End Point	3550.7075	3699.2981	303.6	0.084

8.7. END USER DEVICE(CBSD PROTOCOL)

RULE PART(S)

FCC: §96.47

LIMITS

End user devices may operate only if they can positively receive and decode an authorization signal transmitted by a CBSD, including the frequencies and power limits for their operation.

An end user device must discontinue operations, change frequencies, or change its operational power level within 10 seconds of receiving instructions from its associated CBSD.

TEST PROCEDURE

Per KDB 940660 D01 Part 96 CBRS Eqpt v03

RESULTS

Not performed.

Please refer to LTE B48 test report.(4790748041-E6V2)

Please refer to n48 CBSD test report.(HCT-RF-2305-FC005-R1)

9. RADIATED RESULTS

9.1. RADIATED POWER (EIRP)

RULE PART(S)

FCC: §96.41(b)

LIMITS

§96.41(b) Unless otherwise specified in this section, the maximum effective isotropic radiated power (EIRP) and maximum Power Spectral Density (PSD) of any CBSD and End User Device must comply with the limits shown in the table.

Device	Maximum EIRP (dBm/10 megahertz)	Maximum PSD (dBm/MHz)
End User Device	23	n/a

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 \geq OBW;
- b) Set VBW $\geq 3 \times$ RBW;
- c) Set span $\geq 2 \times$ RBW;
- d) Sweep time = auto couple;
- e) Detector = rms;
- f) Ensure that the number of measurement points $\geq 2 \times$ span/RBW;
- g) Trace mode = Average;

NOTE1

LTE Band 48C A-MPR is implemented in this EUT per the A-MPR specification in 3GPP TS 36.101 (Table 6.2.4A,10-1, Table 6.2.4A,10-2). Conducted output power verification data are shown Appendix A. Also only Emission mask test item were performed A-MPR condition. Also only Emission mask test item were performed A-MPR condition

NOTE2

5G NR: All Waveforms (CP-OFDM vs DFT-s_OFDM) and modulations ($\pi/2$ 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.

TEST RESULTS

RF Output Power(total power) EIRP results meets Maximum EIRP limit (23 dBm/10MHz) of End User Device.

9.1.1. EIRP Results

LTE Band 48

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	3552.50	16.61	H	6.25	10.80	21.16	130.62	23.00	-1.84	1/0
		3625.00	17.02	H	6.32	10.73	21.44	139.32	23.00	-1.56	1/24
		3697.50	16.68	H	6.38	10.57	20.87	122.18	23.00	-2.13	1/12
	16-QAM	3552.50	15.43	H	6.25	10.80	19.98	99.54	23.00	-3.02	1/0
		3625.00	15.82	H	6.32	10.73	20.24	105.68	23.00	-2.76	1/12
		3697.50	15.83	H	6.38	10.57	20.02	100.46	23.00	-2.98	1/12
10	QPSK	3555.00	16.59	H	6.25	10.80	21.14	130.02	23.00	-1.86	1/0
		3625.00	17.17	H	6.32	10.73	21.59	144.21	23.00	-1.41	1/25
		3695.00	16.43	H	6.38	10.58	20.63	115.61	23.00	-2.37	1/25
	16-QAM	3555.00	15.76	H	6.25	10.80	20.31	107.40	23.00	-2.69	1/25
		3625.00	16.20	H	6.32	10.73	20.62	115.35	23.00	-2.38	1/0
		3695.00	15.81	H	6.38	10.58	20.01	100.23	23.00	-2.99	1/0
15	QPSK	3557.50	16.35	H	6.26	10.80	20.89	122.74	23.00	-2.11	1/37
		3625.00	17.08	H	6.32	10.73	20.50	112.20	23.00	-1.50	1/37
		3692.50	16.37	H	6.38	10.59	20.58	114.29	23.00	-2.42	1/0
	16-QAM	3557.50	15.71	H	6.26	10.80	20.25	105.93	23.00	-2.75	1/37
		3625.00	16.41	H	6.32	10.73	20.83	121.06	23.00	-2.17	1/37
		3692.50	15.25	H	6.38	10.59	19.46	88.31	23.00	-3.54	1/37
20	QPSK	3560.00	16.43	H	6.26	10.80	20.97	125.03	23.00	-2.03	1/49
		3625.00	16.83	H	6.32	10.73	21.25	133.35	23.00	-1.75	1/49
		3690.00	16.51	H	6.38	10.59	20.72	118.03	23.00	-2.28	1/49
	16-QAM	3560.00	15.91	H	6.26	10.80	20.45	110.92	23.00	-2.55	1/49
		3625.00	16.29	H	6.32	10.73	20.71	117.76	23.00	-2.29	1/49
		3690.00	15.23	H	6.38	10.59	19.44	87.90	23.00	-3.56	1/0

NR Band n48

DFT-s_OFDM

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
10	QPSK	3555.00	14.59	H	6.25	10.80	19.14	82.04	23.00	-3.86	1/22
		3624.99	15.85	H	6.32	10.73	20.27	106.41	23.00	-2.73	1/22
		3694.98	15.24	H	6.38	10.58	19.44	87.90	23.00	-3.56	1/22
	16-QAM	3555.00	13.96	H	6.25	10.80	18.51	70.96	23.00	-4.49	1/22
		3624.99	15.19	H	6.32	10.73	19.61	91.41	23.00	-3.39	1/22
		3694.98	14.75	H	6.38	10.58	18.95	78.52	23.00	-4.05	1/22
15	QPSK	3575.52	15.42	H	6.26	10.80	19.96	99.08	23.00	-3.04	1/36
		3624.99	15.60	H	6.32	10.73	20.02	100.46	23.00	-2.98	1/1
		3692.49	15.43	H	6.38	10.59	19.64	92.04	23.00	-3.36	1/36
	16-QAM	3575.52	14.79	H	6.26	10.80	19.33	85.70	23.00	-3.67	1/36
		3624.99	15.05	H	6.32	10.73	19.47	88.51	23.00	-3.53	1/1
		3692.49	14.90	H	6.38	10.59	19.11	81.47	23.00	-3.89	1/36
20	QPSK	3560.00	14.96	H	6.26	10.80	19.50	89.13	23.00	-3.50	1/1
		3624.99	15.76	H	6.32	10.73	20.18	104.23	23.00	-2.82	1/1
		3690.00	15.64	H	6.38	10.59	19.85	96.61	23.00	-3.15	1/1
	16-QAM	3560.00	14.50	H	6.26	10.80	19.04	80.17	23.00	-3.96	1/1
		3624.99	15.23	H	6.32	10.73	19.65	92.26	23.00	-3.35	1/1
		3690.00	14.90	H	6.38	10.59	19.11	81.47	23.00	-3.89	1/1
30	QPSK	3565.02	15.58	H	6.27	10.80	20.11	102.57	23.00	-2.89	1/76
		3624.00	16.02	H	6.32	10.73	20.44	110.66	23.00	-2.56	1/76
		3684.99	15.86	H	6.38	10.60	20.09	102.09	23.00	-2.91	1/76
	16-QAM	3565.02	14.76	H	6.27	10.80	19.29	84.92	23.00	-3.71	1/76
		3624.00	15.37	H	6.32	10.73	19.79	95.28	23.00	-3.21	1/76
		3684.99	15.10	H	6.38	10.60	19.33	85.70	23.00	-3.67	1/76
40	QPSK	3570.00	15.41	H	6.27	10.80	19.94	98.63	23.00	-3.06	1/104
		3624.99	15.72	H	6.32	10.73	20.14	103.28	23.00	-2.86	1/104
		3679.98	15.81	H	6.37	10.61	20.06	101.39	23.00	-2.94	1/104
	16-QAM	3570.00	14.76	H	6.27	10.80	19.29	84.92	23.00	-3.71	1/104
		3624.99	15.19	H	6.32	10.73	19.61	91.41	23.00	-3.39	1/104
		3679.98	15.21	H	6.37	10.61	19.46	88.31	23.00	-3.54	1/53

NR Band n48(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)
10	3555.00								
	3624.99								
	3694.98								
15	3575.52								
	3624.99								
	3692.49								
20	3560.00								
	3624.99								
	3690.00								
30	3565.02	10.83	H	6.27	10.77	15.33	34.12	23.00	-7.67
	3624.99	9.04	H	6.32	10.80	13.52	22.49	23.00	-9.48
	3684.99	9.18	H	6.38	10.77	13.57	22.75	23.00	-9.43
40	3570.00								
	3624.99								
	3679.98								

NR Band n48(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)
10	3555.00								
	3624.99								
	3694.98								
15	3575.52								
	3624.99								
	3692.49								
20	3560.00								
	3624.99								
	3690.00								
30	3565.02								
	3624.99								
	3684.99								
40	3570.00	14.07	H	6.27	10.78	18.58	72.11	23.00	-4.42
	3624.99	12.36	H	6.32	10.80	16.84	48.31	23.00	-6.16
	3679.98	13.98	H	6.37	10.77	18.38	68.87	23.00	-4.62

NR Band n48(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)
10	3555.00								
	3624.99								
	3694.98								
15	3575.52								
	3624.99								
	3692.49								
20	3560.00	12.51	H	6.26	10.77	17.02	50.35	23.00	-5.98
	3624.99	11.01	H	6.32	10.80	15.49	35.40	23.00	-7.51
	3690.00	10.43	H	6.38	10.76	14.82	30.34	23.00	-8.18
30	3565.02								
	3624.99								
	3684.99								
40	3570.00								
	3624.99								
	3679.98								

9.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053 and §96.41(e)

LIMIT

The conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40 dBm/MHz.

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 $\geq 3 \times$ RBW;
- c) Sweep time = auto couple;
- d) Detector = rms;
- e) Ensure that the number of measurement points \geq span/RBW;
- f) Trace mode = Average;

NOTE1

5G NR: All Waveforms (CP-OFDM vs DFT-s_OFDM) and modulations ($\pi/2$ 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 band.

RESULTS

See the following pages.

9.2.1. SPURIOUS RADIATION PLOTS

LTE Band 48

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement							
		Company:	Samsung						
		Project #:	4790748041						
		Date:	2023-05-09						
		Test Engineer:	26087						
		Configuration:	EUT / AC Adapter, Z-Position, Open						
		Location:	Chamber 2						
		Mode:	LTE_QPSK Band 48 Harmonics, 10MHz Bandwidth						
		Test Voltage:	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
10MHz QPSK									
Low Ch, 3555MHz									
7110.00	-19.2	V	3.0	42.6	1.0	-60.8	-40.0	-20.8	
10665.00	-19.7	V	3.0	41.1	1.0	-59.9	-40.0	-19.9	
14220.00	-14.7	V	3.0	43.2	1.0	-56.8	-40.0	-16.8	
7110.00	-19.5	H	3.0	42.6	1.0	-61.1	-40.0	-21.1	
10665.00	-19.8	H	3.0	41.1	1.0	-59.9	-40.0	-19.9	
14220.00	-14.6	H	3.0	43.2	1.0	-56.8	-40.0	-16.8	
Mid Ch, 3625MHz									
7250.00	-19.9	V	3.0	42.6	1.0	-61.5	-40.0	-21.5	
10875.00	-19.1	V	3.0	41.2	1.0	-59.4	-40.0	-19.4	
14500.00	-14.2	V	3.0	43.3	1.0	-56.6	-40.0	-16.6	
7250.00	-16.3	H	3.0	42.6	1.0	-57.8	-40.0	-17.8	
10875.00	-22.2	H	3.0	41.2	1.0	-62.4	-40.0	-22.4	
14500.00	-14.1	H	3.0	43.3	1.0	-56.4	-40.0	-16.4	
High Ch, 3695MHz									
7390.00	-19.7	V	3.0	42.5	1.0	-61.2	-40.0	-21.2	
11085.00	-18.1	V	3.0	41.3	1.0	-58.4	-40.0	-18.4	
14780.00	-13.5	V	3.0	43.5	1.0	-56.0	-40.0	-16.0	
7390.00	-17.6	H	3.0	42.5	1.0	-59.1	-40.0	-19.1	
11085.00	-18.0	H	3.0	41.3	1.0	-58.3	-40.0	-18.3	
14780.00	-13.6	H	3.0	43.5	1.0	-56.1	-40.0	-16.1	

LTE Band 48C(UL CA)

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement							
		Company:	Samsung						
		Project #:	4790748041						
		Date:	2023-05-10						
		Test Engineer:	25770						
		Configuration:	EUT / AC Adapter, Z-Position, Open						
		Location:	Chamber 2						
		Mode:	LTE_QPSK Band 48 Harmonics, 20+20MHz Bandwidth						
		Test Voltage:	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
20+20 MHz									
QPSK									
Low Ch, PCC : 3560MHz SCC : 3579.8MHz									
7139.80	-21.5	V	3.0	42.6	1.0	-63.1	-40.0	-23.1	
10709.70	-19.2	V	3.0	41.2	1.0	-59.4	-40.0	-19.4	
14279.60	-14.6	V	3.0	43.2	1.0	-56.8	-40.0	-16.8	
7139.80	-22.1	H	3.0	42.6	1.0	-63.7	-40.0	-23.7	
10709.70	-19.2	H	3.0	41.2	1.0	-59.4	-40.0	-19.4	
14279.60	-14.5	H	3.0	43.2	1.0	-56.7	-40.0	-16.7	
Mid Ch, PCC : 3615.1MHz SCC : 3634.9MHz									
7250.00	-20.0	V	3.0	42.6	1.0	-61.6	-40.0	-21.6	
10875.00	-18.3	V	3.0	41.2	1.0	-58.5	-40.0	-18.5	
14500.00	-14.4	V	3.0	43.3	1.0	-56.7	-40.0	-16.7	
7250.00	-17.2	H	3.0	42.6	1.0	-58.8	-40.0	-18.8	
10875.00	-15.7	H	3.0	41.2	1.0	-56.0	-40.0	-16.0	
14500.00	-14.3	H	3.0	43.3	1.0	-56.6	-40.0	-16.6	
High Ch, PCC : 3670.2MHz SCC : 3690MHz									
7360.20	-21.3	V	3.0	42.5	1.0	-62.8	-40.0	-22.8	
11040.30	-17.4	V	3.0	41.3	1.0	-57.7	-40.0	-17.7	
14720.40	-12.8	V	3.0	43.5	1.0	-55.3	-40.0	-15.3	
7360.20	-20.0	H	3.0	42.5	1.0	-61.5	-40.0	-21.5	
11040.30	-16.5	H	3.0	41.3	1.0	-56.8	-40.0	-16.8	
14720.40	-13.0	H	3.0	43.5	1.0	-55.5	-40.0	-15.5	

NR Band n48

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
		Company: Samsung Project #: 4790748041 Date: 2023-05-08 Test Engineer: 26087 Configuration: EUT / AC Adapter, Z-Position, Open Location: Chamber 2 Mode: 5G NR_QPSK NR n48 Harmonics, 30MHz Bandwidth Test Voltage: AC 120 V, 60 Hz										
30 MHz DFT-s OFDM QPSK ANT F		f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
	Low Ch, 3565MHz											
		7130.00	-19.3	V	3.0	42.6	1.0	-60.9	-40.0	-20.9		
		10695.00	-19.3	V	3.0	41.2	1.0	-59.5	-40.0	-19.5		
		14260.00	-14.0	V	3.0	43.2	1.0	-56.2	-40.0	-16.2		
		7130.00	-19.9	H	3.0	42.6	1.0	-61.5	-40.0	-21.5		
		10695.00	-19.0	H	3.0	41.2	1.0	-59.1	-40.0	-19.1		
		14260.00	-14.0	H	3.0	43.2	1.0	-56.2	-40.0	-16.2		
	Mid Ch, 3625MHz											
		7250.00	-20.1	V	3.0	42.6	1.0	-61.7	-40.0	-21.7		
		10875.00	-19.5	V	3.0	41.2	1.0	-59.8	-40.0	-19.8		
		14500.00	-14.2	V	3.0	43.3	1.0	-56.5	-40.0	-16.5		
		7250.00	-17.9	H	3.0	42.6	1.0	-59.4	-40.0	-19.4		
		10875.00	-18.9	H	3.0	41.2	1.0	-59.2	-40.0	-19.2		
		14500.00	-13.8	H	3.0	43.3	1.0	-56.1	-40.0	-16.1		
	High Ch, 3685MHz											
		7370.00	-20.8	V	3.0	42.5	1.0	-62.3	-40.0	-22.3		
		11055.00	-18.2	V	3.0	41.3	1.0	-58.5	-40.0	-18.5		
		14740.00	-13.0	V	3.0	43.5	1.0	-55.5	-40.0	-15.5		
		7370.00	-19.9	H	3.0	42.5	1.0	-61.4	-40.0	-21.4		
		11055.00	-18.2	H	3.0	41.3	1.0	-58.5	-40.0	-18.5		
		14740.00	-13.0	H	3.0	43.5	1.0	-55.5	-40.0	-15.5		
			UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
			Company: Samsung Project #: 4790748041 Date: 2023-04-17 Test Engineer: 24542 Configuration: EUT / AC Adapter, X-Position, Open Location: Chamber 1 Mode: 5G NR n48(SRS) Harmonics, 30MHz Bandwidth Test Voltage: AC 120 V, 60 Hz									
	30 MHz ANT D SRS1		f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 3565MHz												
		7130.00	-12.9	V	3.0	45.5	1.0	-57.4	-40.0	-17.4		
		10695.00	-11.1	V	3.0	46.2	1.0	-56.3	-40.0	-16.3		
		14260.00	-11.3	V	3.0	46.4	1.0	-56.7	-40.0	-16.7		
		7130.00	-13.7	H	3.0	45.5	1.0	-58.2	-40.0	-18.2		
		10695.00	-11.9	H	3.0	46.2	1.0	-57.0	-40.0	-17.0		
		14260.00	-11.3	H	3.0	46.4	1.0	-56.7	-40.0	-16.7		
Mid Ch, 3625MHz												
		7250.00	-12.0	V	3.0	45.5	1.0	-56.5	-40.0	-16.5		
		10875.00	-11.4	V	3.0	46.3	1.0	-56.7	-40.0	-16.7		
		14500.00	-12.6	V	3.0	46.3	1.0	-57.9	-40.0	-17.9		
		7250.00	-13.1	H	3.0	45.5	1.0	-57.6	-40.0	-17.6		
		10875.00	-15.4	H	3.0	46.3	1.0	-60.7	-40.0	-20.7		
		14500.00	-12.6	H	3.0	46.3	1.0	-57.9	-40.0	-17.9		
High Ch, 3685MHz												
		7370.00	-11.4	V	3.0	45.5	1.0	-55.9	-40.0	-15.9		
		11055.00	-11.5	V	3.0	46.5	1.0	-57.0	-40.0	-17.0		
		14740.00	-10.6	V	3.0	46.2	1.0	-55.8	-40.0	-15.8		
		7370.00	-12.0	H	3.0	45.5	1.0	-56.5	-40.0	-16.5		
		11055.00	-11.4	H	3.0	46.5	1.0	-56.8	-40.0	-16.8		
		14740.00	-10.5	H	3.0	46.2	1.0	-55.8	-40.0	-15.8		

		UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement									
		Company: Samsung									
		Project #: 4790748041									
		Date: 2023-04-17									
		Test Engineer: 24542									
		Configuration: EUT / AC Adapter, X-Position, Open									
		Location: Chamber 1									
		Mode: 5G NR n48(SRS) Harmonics, 40MHz Bandwidth									
		Test Voltage: 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		
40 MHz											
ANT G											
SRS2											
Low Ch, 3570MHz											
7140.00	-15.8	V	3.0	45.5	1.0	-60.3	-40.0	-20.3			
10710.00	-14.6	V	3.0	46.2	1.0	-59.7	-40.0	-19.7			
14280.00	-14.7	V	3.0	46.4	1.0	-60.1	-40.0	-20.1			
7140.00	-16.1	H	3.0	45.5	1.0	-60.6	-40.0	-20.6			
10710.00	-14.5	H	3.0	46.2	1.0	-59.6	-40.0	-19.6			
14280.00	-14.6	H	3.0	46.4	1.0	-60.0	-40.0	-20.0			
Mid Ch, 3625MHz											
7250.00	-15.2	V	3.0	45.5	1.0	-59.8	-40.0	-19.8			
10875.00	-14.2	V	3.0	46.3	1.0	-59.5	-40.0	-19.5			
14500.00	-15.1	V	3.0	46.3	1.0	-60.4	-40.0	-20.4			
7250.00	-15.5	H	3.0	45.5	1.0	-60.0	-40.0	-20.0			
10875.00	-14.1	H	3.0	46.3	1.0	-59.4	-40.0	-19.4			
14500.00	-15.0	H	3.0	46.3	1.0	-60.3	-40.0	-20.3			
High Ch, 3680MHz											
7360.00	-14.3	V	3.0	45.5	1.0	-58.9	-40.0	-18.9			
11040.00	-14.3	V	3.0	46.4	1.0	-59.8	-40.0	-19.8			
14720.00	-13.5	V	3.0	46.2	1.0	-58.8	-40.0	-18.8			
7360.00	-15.1	H	3.0	45.5	1.0	-59.6	-40.0	-19.6			
11040.00	-14.2	H	3.0	46.4	1.0	-59.7	-40.0	-19.7			
14720.00	-13.5	H	3.0	46.2	1.0	-58.7	-40.0	-18.7			
20 MHz											
ANT A											
SRS3											
Low Ch, 3560MHz											
7120.00	-15.9	V	3.0	45.5	1.0	-60.4	-40.0	-20.4			
10680.00	-14.2	V	3.0	46.1	1.0	-59.3	-40.0	-19.3			
14240.00	-14.4	V	3.0	46.4	1.0	-59.8	-40.0	-19.8			
7120.00	-16.2	H	3.0	45.5	1.0	-60.7	-40.0	-20.7			
10680.00	-14.1	H	3.0	46.1	1.0	-59.2	-40.0	-19.2			
14240.00	-14.3	H	3.0	46.4	1.0	-59.8	-40.0	-19.8			
Mid Ch, 3624.99MHz											
7249.98	-15.2	V	3.0	45.5	1.0	-59.8	-40.0	-19.8			
10874.97	-14.2	V	3.0	46.3	1.0	-59.5	-40.0	-19.5			
14499.96	-15.1	V	3.0	46.3	1.0	-60.5	-40.0	-20.5			
7249.98	-15.5	H	3.0	45.5	1.0	-60.0	-40.0	-20.0			
10874.97	-14.1	H	3.0	46.3	1.0	-59.4	-40.0	-19.4			
14499.96	-15.0	H	3.0	46.3	1.0	-60.4	-40.0	-20.4			
High Ch, 3690MHz											
7380.00	-12.9	V	3.0	45.5	1.0	-57.4	-40.0	-17.4			
11070.00	-14.1	V	3.0	46.5	1.0	-59.6	-40.0	-19.6			
14760.00	-13.8	V	3.0	46.2	1.0	-59.1	-40.0	-19.1			
7380.00	-13.5	H	3.0	45.5	1.0	-58.0	-40.0	-18.0			
11070.00	-13.9	H	3.0	46.5	1.0	-59.4	-40.0	-19.4			
14760.00	-13.7	H	3.0	46.2	1.0	-58.9	-40.0	-18.9			

END OF TEST REPORT