3MHz

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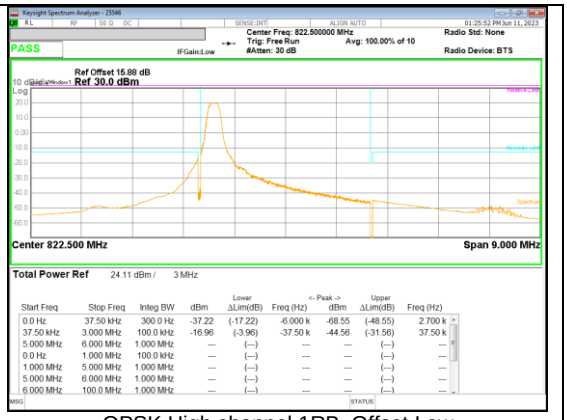
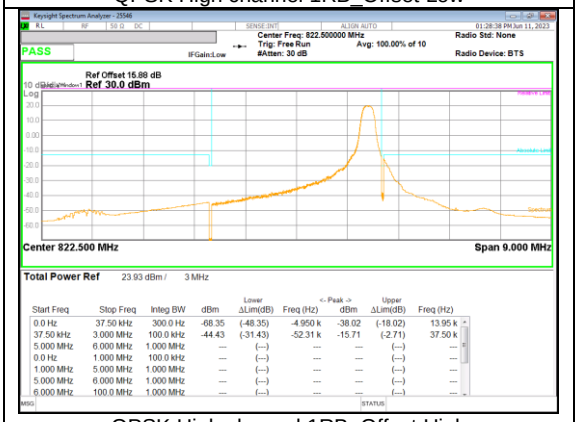
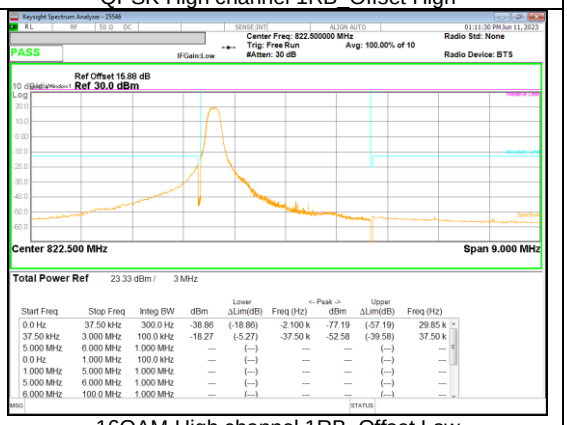


QPSK High channel 1RB_Offset Low

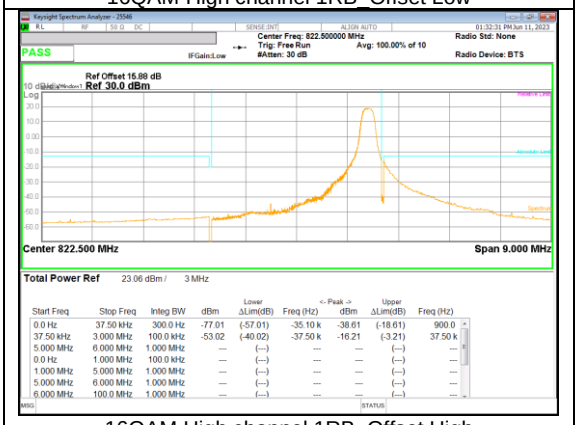


QPSK High channel 1RB_Offset High

16QAM High channel FRB



16QAM High channel 1RB_Offset Low



16QAM High channel 1RB_Offset High

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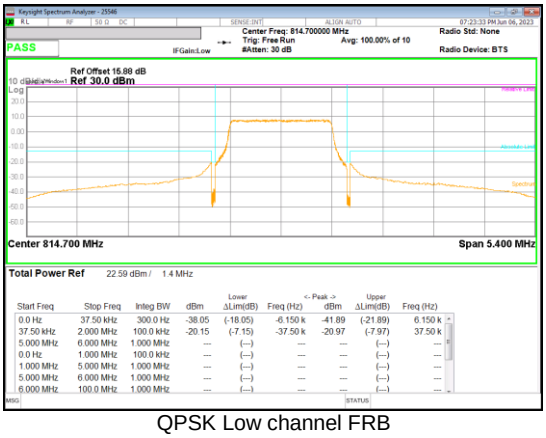
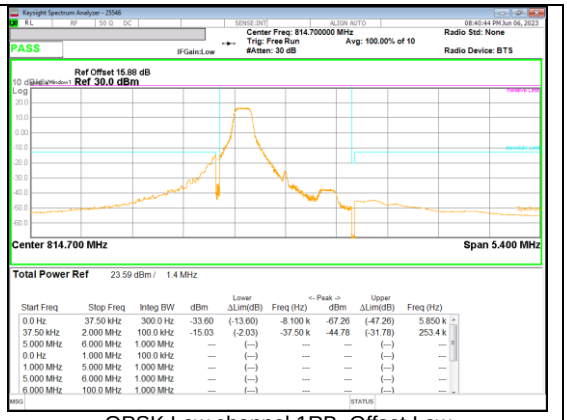
1.4MHz



QPSK Low channel FRB



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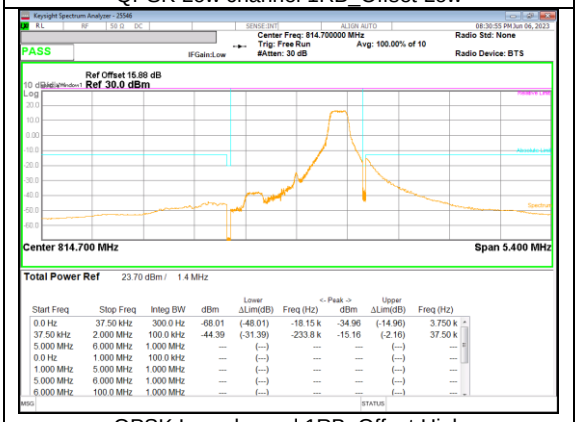

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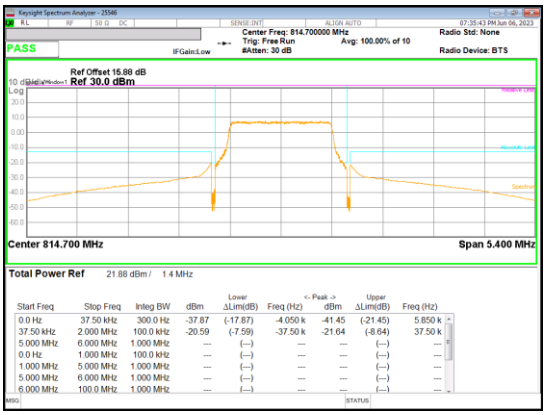

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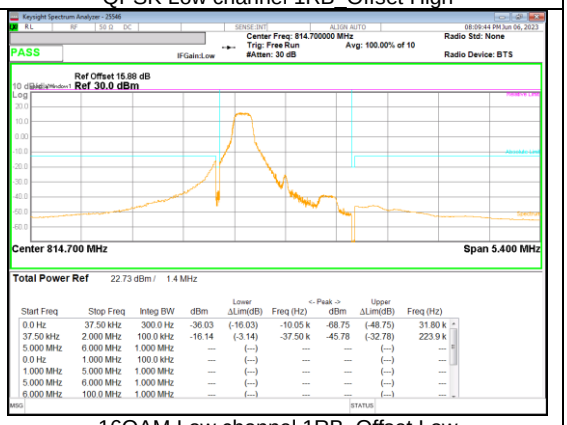

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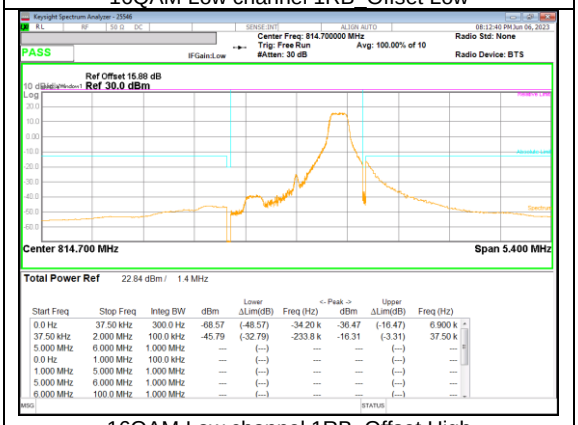

16QAM Low channel 1RB_Offset High

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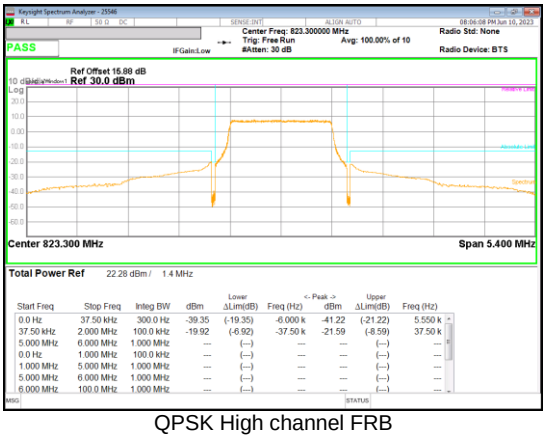
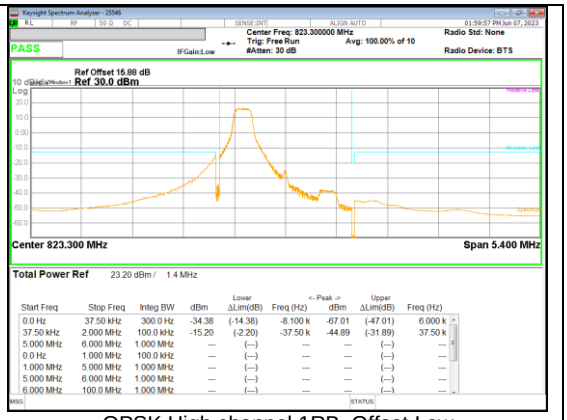


QPSK High channel FRB



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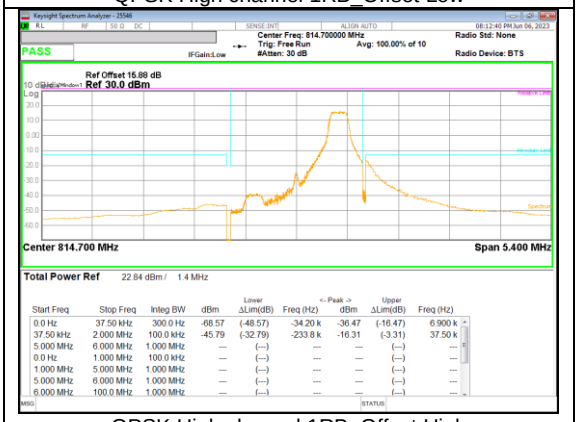

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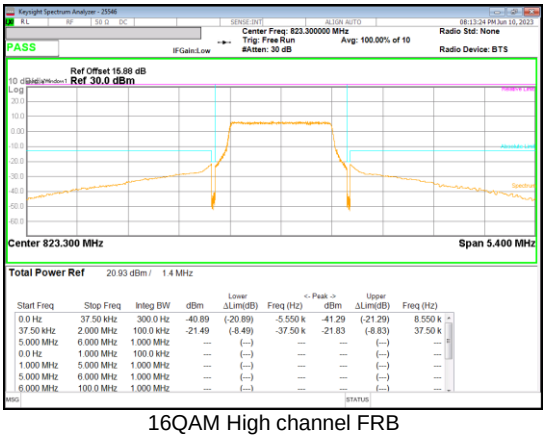

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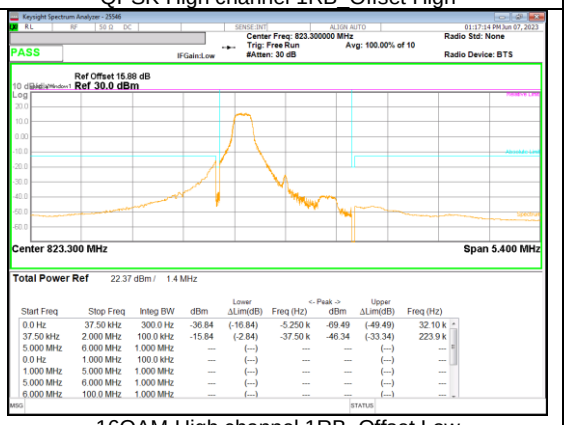

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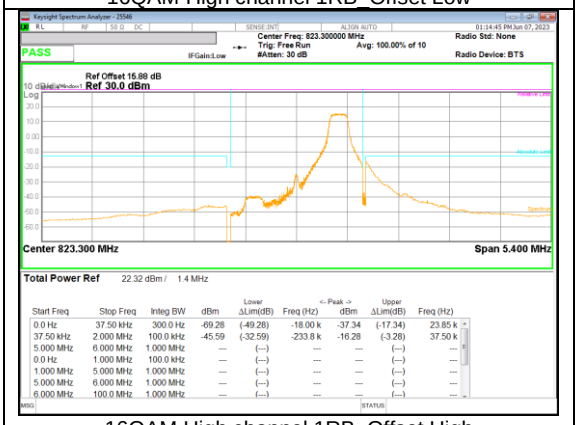

16QAM High channel 1RB_Offset High

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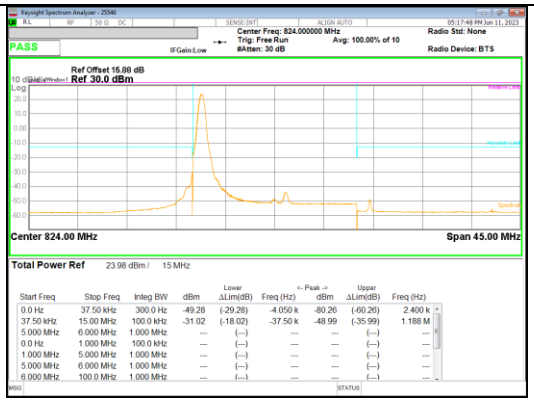
LTE Band 26 (Straddle)

15MHz

QPSK FRB



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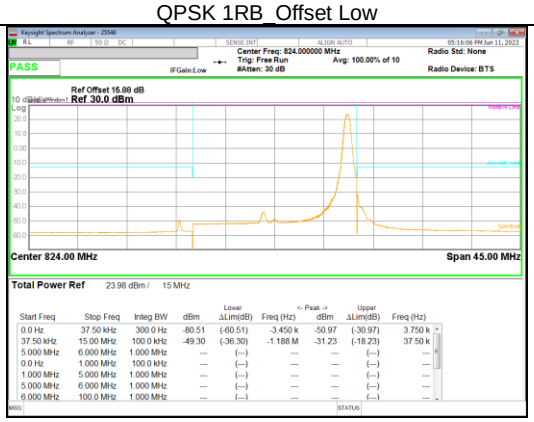
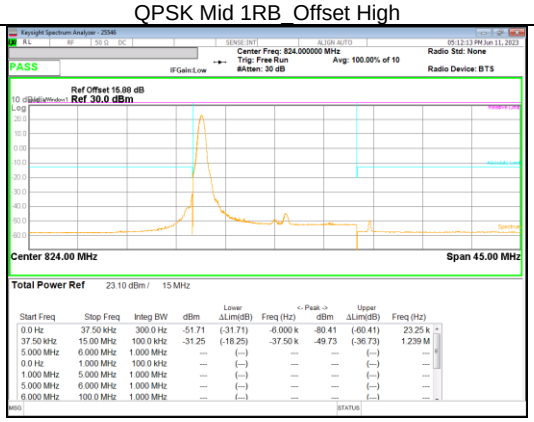


QPSK Mid 1RB_Offset High

16QAM FRB



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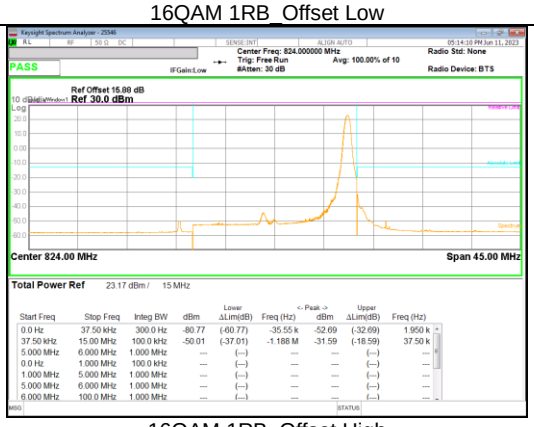

16QAM 1RB_Offset High

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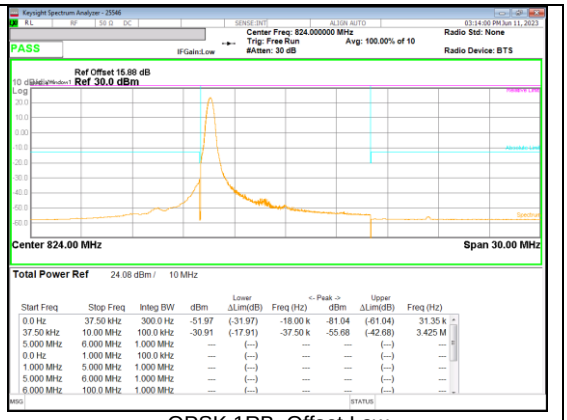
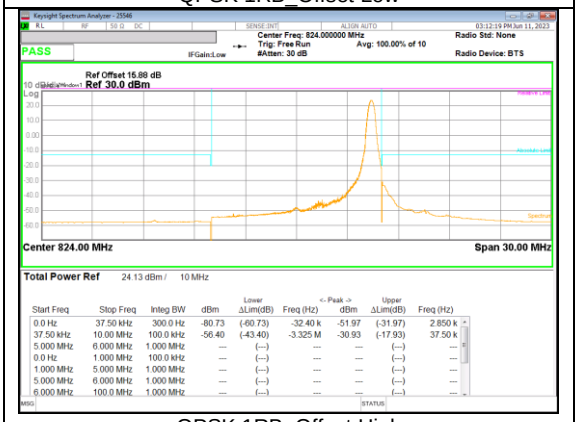
10MHz

QPSK FRB



QPSK 1RB_Offset Low



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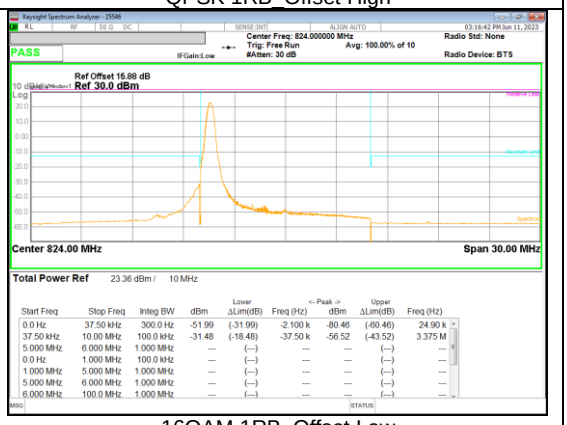
16QAM FRB



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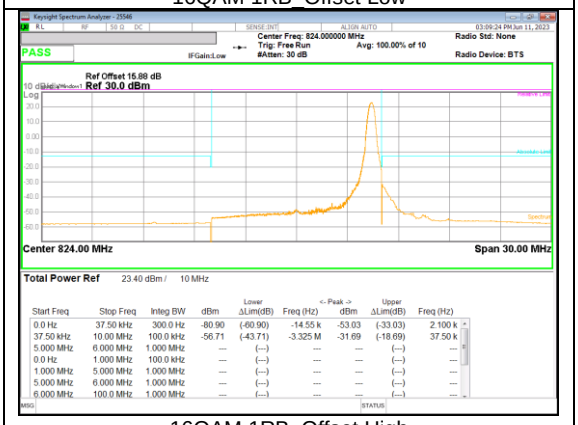

16QAM 1RB_Offset High

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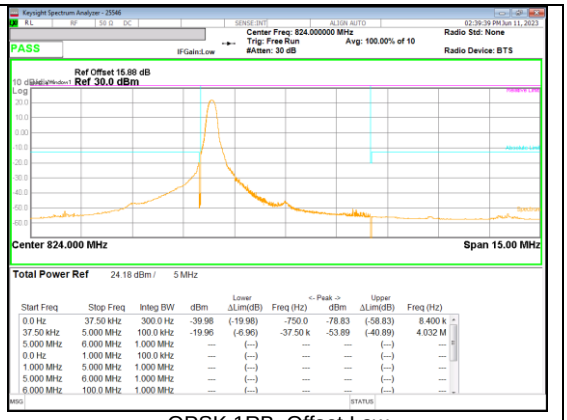
5MHz

QPSK FRB



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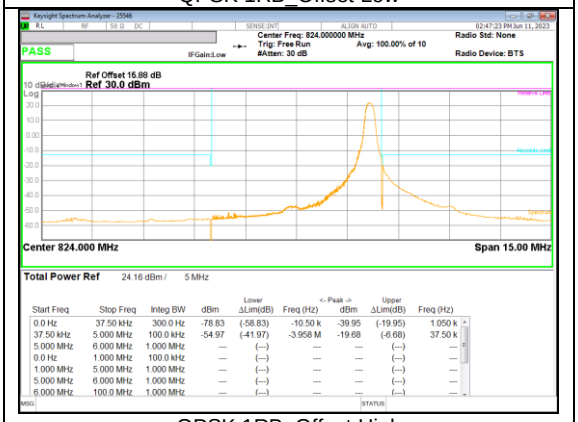

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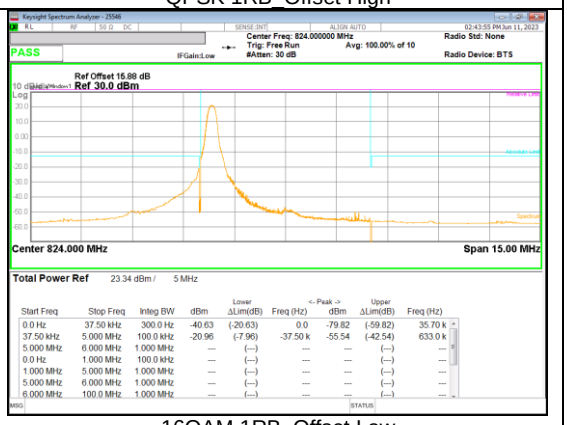
16QAM FRB



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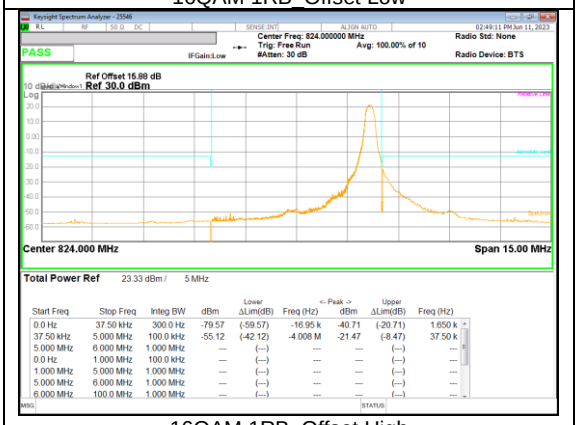

16QAM 1RB_Offset High

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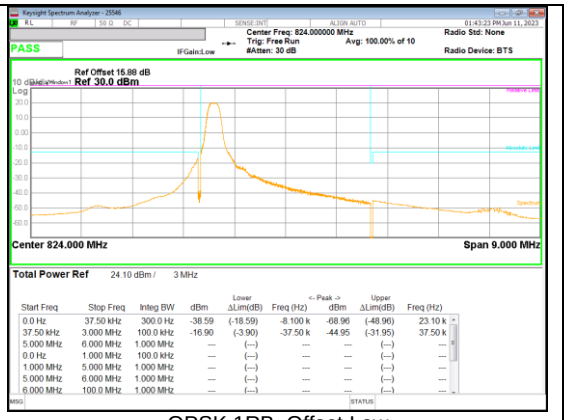
3MHz

QPSK FRB



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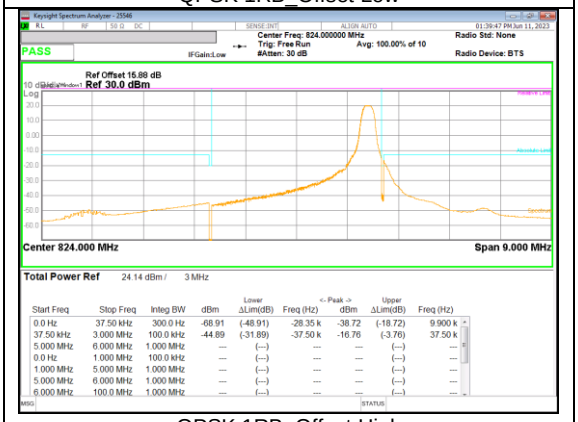

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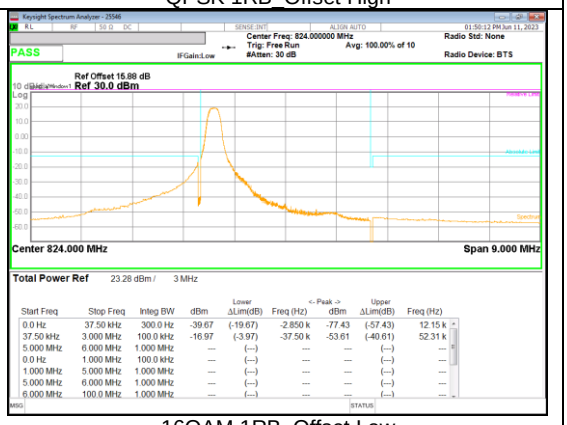

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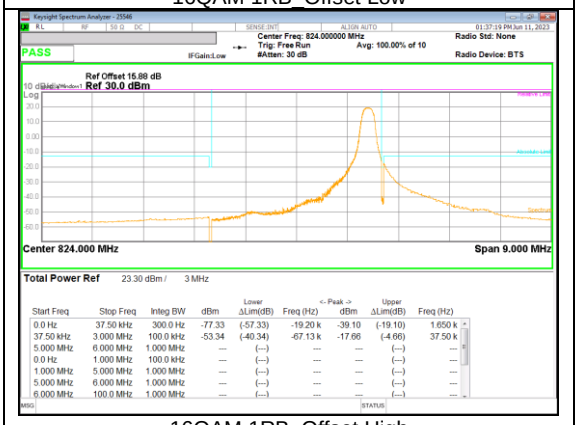

16QAM 1RB_Offset High

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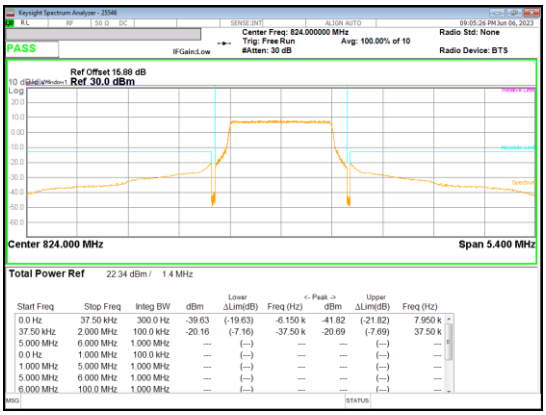
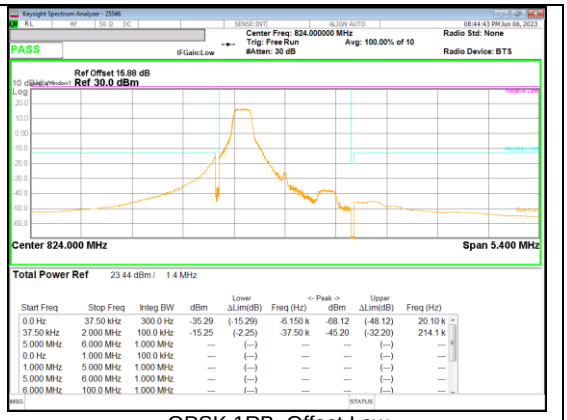


QPSK FRB



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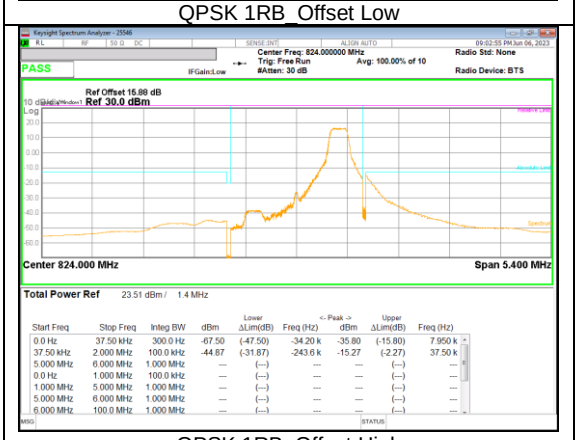

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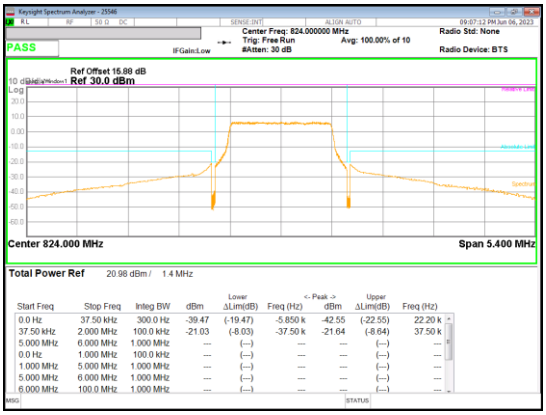

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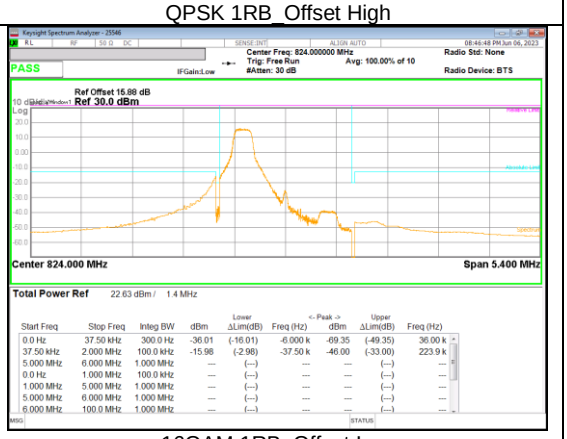

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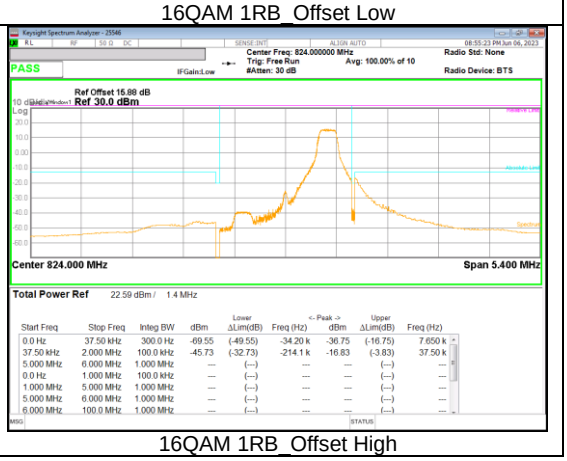

16QAM 1RB_Offset High

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8.5. CONDUCTED SPURIOUS EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917 and 90.691

LIMITS

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 90.691(a):

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + $10Log_{10}$(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.(NOTE : Use 100kHz reference bandwidth)

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

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 = 100 kHz for emission below 1 GHz and 1 MHz for emissions above 1 GHz
   (Tests were performed 1MHz [Worst case], to sweep 1 time for all frequency range)
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 = Max (40001);
g) Trace mode = average(WCDMA, LTE, 5G NR), Max hold(GSM);

NOTE1

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

RESULTS

See the following pages.

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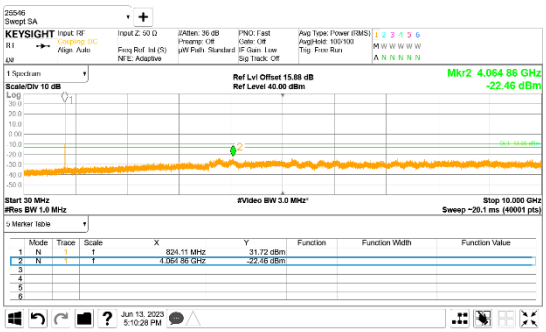
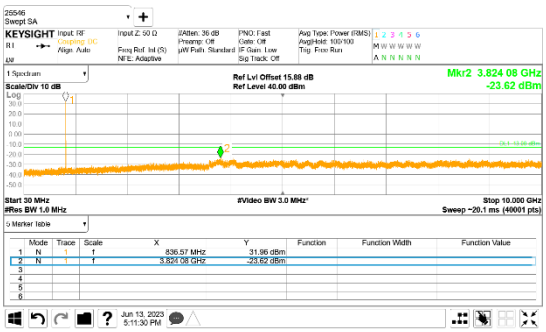
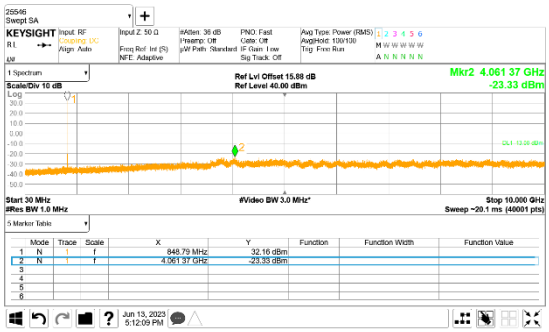
8.5.1. OUT OF BAND EMISSIONS RESULT

GSM 850

GPRS	 Low channel	 Mid channel
	 High channel	

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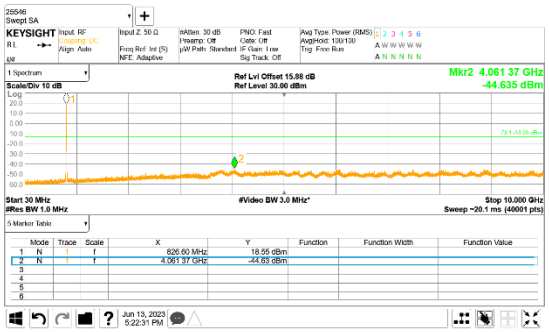
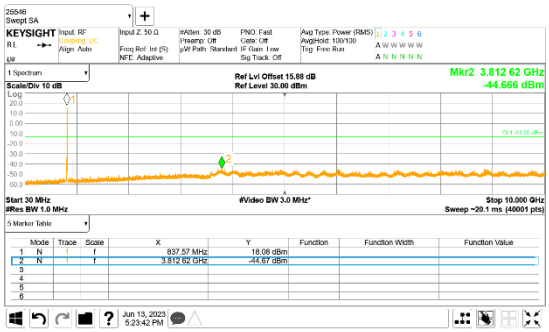
WCDMA Band 5

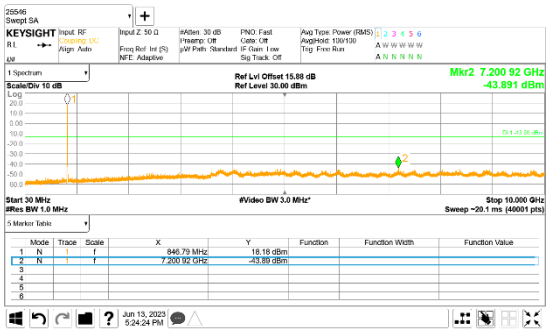
REL99



Low channel



Mid channel



High channel

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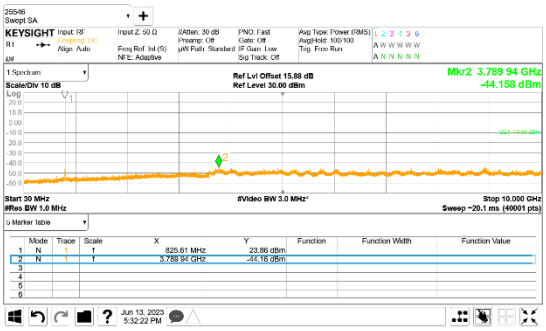
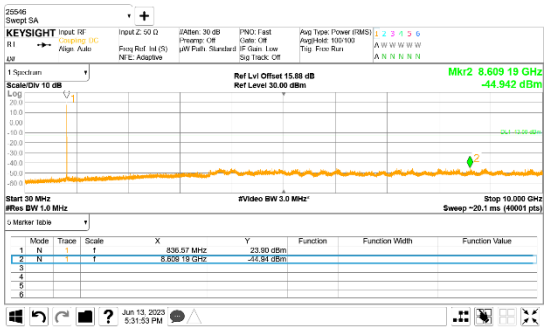
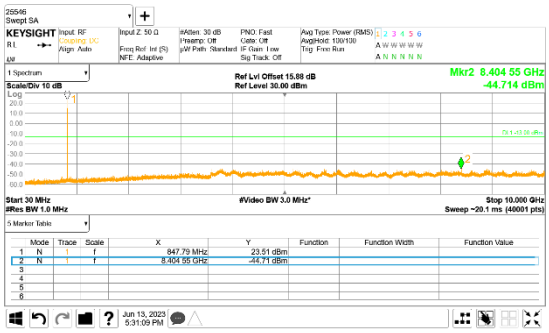
LTE Band 5

3 MHz QPSK	 Low channel	 Mid channel
	 High channel	

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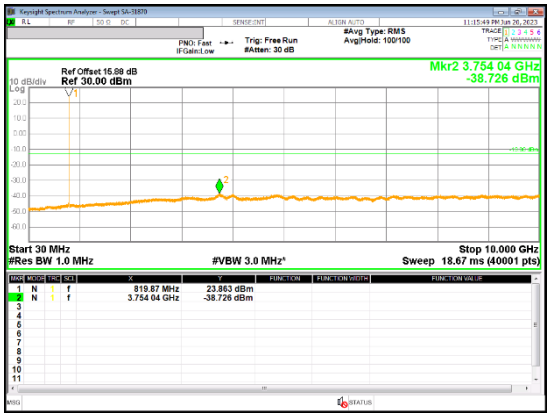
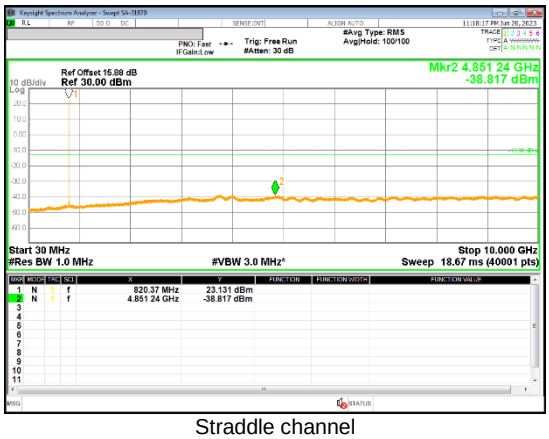
LTE Band 26(Part 90)

10 MHz QPSK	 Low channel

LTE Band 26 (Straddle)

10 MHz QPSK	 Straddle channel

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LTE Band 26 (Part 22)

1.4 MHz QPSK	 Low channel	 Mid channel
	  High channel	

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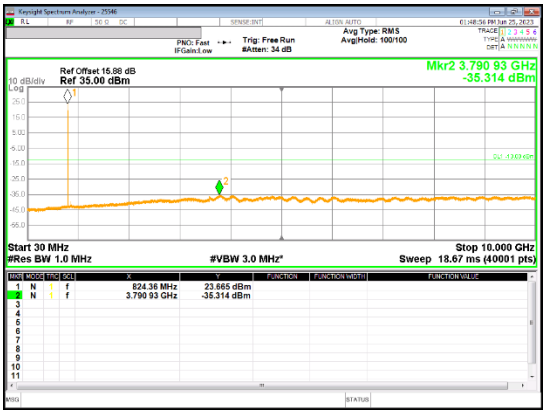
NR Band n5

5 MHz QPSK	 Low channel	 Mid channel
	  High channel	

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8.6. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355 and §90.213

LIMITS

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

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

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.

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8.6.1. FREQUENCY STABILITY RESULTS

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

Test Date	2023-06-07
Test Engineer	47989

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 [*C]	Frequency Deviation Measureed with Time Elapse				
		Low Channel		High Channel		Limit [ppm]
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.88	50	824.20003265	0.005	848.80003060	0.007	2.5
3.88	40	824.20003547	0.002	848.80003470	0.003	2.5
3.88	30	824.20003748	-0.001	848.80003394	0.003	2.5
3.88	***20***	***824.20003704***	***0.000***	***848.80003691***	***0.000***	***2.5***
3.88	10	824.20003764	-0.001	848.80003635	0.001	2.5
3.88	0	824.20003676	0.000	848.80003629	0.001	2.5
3.88	-10	824.20003642	0.001	848.80003680	0.000	2.5
3.88	-20	824.20003795	-0.001	848.80003728	0.000	2.5
3.88	-30	824.20003801	-0.001	848.80003833	-0.002	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 [*C]	Frequency Deviation Measureed with Time Elapse				
		Low Channel		High Channel		Limit [ppm]
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.88	***20***	**824.20003704**	***0***	**848.80003691**	***0***	***2.5***
4.45	20	824.20003065	0.008	848.80003241	0.005	2.5
3.70	20	824.20003348	0.004	848.80003578	0.001	2.5

WCDMA Band 5

Test Date	2023-06-09
Test Engineer	47989

Reference Frequency : WCDMA Band 5 Low Channel 826.4 MHz / High Channel 846.6 MHz @ 20ºC						
Limit: +- 2.5 ppm =	Low Channel	2066.000	Hz	High Channel	2116.500	Hz
Power Supply [Vdc]	Environment Temperature [*C]	Frequency Deviation Measureed with Time Elapse				
		Low Channel		High Channel		Limit [ppm]
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.88	50	826.40000266	0.000	846.60000336	-0.001	2.5
3.88	40	826.40000237	0.000	846.60000296	-0.001	2.5
3.88	30	826.40000323	-0.001	846.60000279	0.000	2.5
3.88	***20***	***826.40000243***	***0.000***	***846.60000251***	***0.000***	***2.5***
3.88	10	826.40000284	0.000	846.60000277	0.000	2.5
3.88	0	826.40000308	-0.001	846.60000267	0.000	2.5
3.88	-10	826.40000398	-0.002	846.60000436	-0.002	2.5
3.88	-20	826.40000426	-0.002	846.60000545	-0.003	2.5
	-30	826.40000467	-0.003	846.60000568	-0.004	2.5

Reference Frequency : WCDMA Band 5 Low Channel 826.4 MHz / High Channel 846.6 MHz @ 20ºC						
Limit: +- 2.5 ppm =	Low Channel	2066.000	Hz	High Channel	2116.500	Hz
Power Supply [Vdc]	Environment Temperature [*C]	Frequency Deviation Measureed with Time Elapse				
		Low Channel		High Channel		Limit [ppm]
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.88	***20***	**826.40000243**	***0***	**846.60000251**	***0***	***2.5***
4.45	20	826.40000211	0.000	846.60000232	0.000	2.5
3.70	20	826.40000341	-0.001	846.60000369	-0.001	2.5

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LTE Band 5

Test Date	2023-06-12
Test Engineer	47989

Reference Frequency : Low Channel 824.7 MHz / High Channel 848.3 MHz @ 20ºC						
Limit: +- 2.5 ppm =	Low Channel	2061.750	Hz	High Channel	2120.750	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	824.70002047	0.006	848.30001389	0.005	2.5
3.88	40	824.70001957	0.007	848.30002027	-0.002	2.5
3.88	30	824.70001883	0.008	848.30002011	-0.002	2.5
3.88	***20***	***824.70002556***	***0.000***	***848.30001825***	***0.000***	***2.5***
3.88	10	824.70000624	0.023	848.30004795	-0.035	2.5
3.88	0	824.70002588	0.000	848.30003067	-0.015	2.5
3.88	-10	824.70001712	0.010	848.30002105	-0.003	2.5
3.88	-20	824.70002087	0.006	848.30002781	-0.011	2.5
3.88	-30	824.70000917	0.020	848.30003131	-0.015	2.5

Reference Frequency : Low Channel 824.7 MHz / High Channel 848.3 MHz @ 20ºC						
Limit: +- 2.5 ppm =	Low Channel	2061.750	Hz	High Channel	2120.750	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***	***824.70002556***	***0***	***848.30001825***	***0***	***2.5***
4.45	20	824.70002033	0.006	848.30002340	-0.006	2.5
3.70	20	824.70001534	0.012	848.30001847	0.000	2.5

LTE Band 26

Test Date	2023-06-12
Test Engineer	47989

Reference Frequency : Low Channel 814.7 MHz / High Channel 848.3 MHz @ 20ºC						
Limit: +- 2.5 ppm =	Low Channel	2036.750	Hz	High Channel	2120.750	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	814.70000532	0.006	848.30002061	0.012	2.5
3.88	40	814.70001604	-0.007	848.30001137	0.023	2.5
3.88	30	814.70001936	-0.011	848.30001676	0.016	2.5
3.88	***20***	***814.70001000***	***0.000***	***848.30003052***	***0.000***	***2.5***
3.88	10	814.70002629	-0.020	848.30003470	-0.005	2.5
3.88	0	814.70001581	-0.007	848.30003605	-0.007	2.5
3.88	-10	814.70002005	-0.012	848.30003250	-0.002	2.5
3.88	-20	814.70002034	-0.013	848.30003400	-0.004	2.5
3.88	-30	814.70000986	0.000	848.30002802	0.003	2.5

Reference Frequency : Low Channel 814.7 MHz / High Channel 848.3 MHz @ 20ºC						
Limit: +- 2.5 ppm =	Low Channel	2036.750	Hz	High Channel	2120.750	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***	***814.70001000***	***0***	***848.30003052***	***0***	***2.5***
4.45	20	814.70001136	-0.002	848.30001623	0.017	2.5
3.70	20	814.70001548	-0.007	848.30001348	0.020	2.5

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NR Band n5

Test Date	2023-06-19
Test Engineer	47989

Reference Frequency : Low Channel 826.5 MHz / High Channel 846.5 MHz @ 20ºC						
Limit: +- 2.5 ppm =	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	826.50002155	0.002	846.50001254	0.007	2.5
3.88	40	826.50001584	0.009	846.50002189	-0.004	2.5
3.88	30	826.50002822	-0.006	846.50001999	-0.002	2.5
3.88	***20***	***826.50002356***	***0.000***	***846.50001814***	***0.000***	***2.5***
3.88	10	826.50000888	0.018	846.50005021	-0.038	2.5
3.88	0	826.50002156	0.002	846.50004123	-0.027	2.5
3.88	-10	826.50001356	0.012	846.50003105	-0.015	2.5
3.88	-20	826.50002155	0.002	846.50002547	-0.009	2.5
3.88	-30	826.50001023	0.016	846.50004023	-0.026	2.5

Reference Frequency : Low Channel 826.5 MHz / High Channel 846.5 MHz @ 20ºC						
Limit: +- 2.5 ppm =	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***	**826.50002356**	***0***	**846.50001814**	***0***	***2.5***
4.45	20	826.50002155	0.002	846.50003123	-0.015	2.5
3.70	20	826.50001684	0.008	846.50002122	-0.004	2.5

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9. RADIATED RESULTS

9.1. RADIATED POWER (ERP)

RULE PART(S)

FCC: §2.1046, §22.913 and §90.635

LIMITS

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

90.635(b) The maximum output power of the transmitter for mobile stations is 100 watts (20dBw).

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.

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9.1.1. ERP Results

GSM (ANT A+B)

Band	Mode	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)
GSM 850	GPRS	824.20	31.71	V	3.01	-1.03	27.68	586.14	38.50	-10.82
		836.60	32.91	V	3.03	-0.97	28.91	778.04	38.50	-9.59
		848.80	32.76	V	3.05	-0.91	28.80	758.58	38.50	-9.70
	EGPRS	824.20	27.14	V	3.01	-1.03	23.11	204.64	38.50	-15.39
		836.60	27.96	V	3.03	-0.97	23.96	248.89	38.50	-14.54
		848.80	27.55	V	3.05	-0.91	23.59	228.56	38.50	-14.91

GSM (ANT A)

Band	Mode	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)
GSM 850	GPRS	824.20	25.27	V	3.01	-1.03	21.24	133.05	38.50	-17.26
		836.60	25.37	V	3.03	-0.97	21.37	137.09	38.50	-17.13
		848.80	25.45	V	3.05	-0.91	21.49	140.93	38.50	-17.01
	EGPRS	824.20	20.80	V	3.01	-1.03	16.77	47.53	38.50	-21.73
		836.60	21.26	V	3.03	-0.97	17.26	53.21	38.50	-21.24
		848.80	21.52	V	3.05	-0.91	17.56	57.02	38.50	-20.94

WCDMA (ANT A+B)

Band	Mode	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)
Band 5	REL99	826.40	24.85	V	3.01	-1.02	20.82	120.78	38.50	-17.68
		836.60	25.69	V	3.03	-0.97	21.69	147.57	38.50	-16.81
		846.60	25.75	V	3.05	-0.92	21.78	150.66	38.50	-16.72
	HSDPA	826.40	23.88	V	3.01	-1.02	19.85	96.61	38.50	-18.65
		836.60	24.72	V	3.03	-0.97	20.72	118.03	38.50	-17.78
		846.60	24.77	V	3.05	-0.92	20.80	120.23	38.50	-17.70

WCDMA (ANT A)

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	23.52	V	3.01	-1.02	19.49	88.92	38.50	-19.01
		836.60	23.38	V	3.03	-0.97	19.38	86.70	38.50	-19.12
		846.60	23.55	V	3.05	-0.92	19.58	90.78	38.50	-18.92
	HSDPA	826.40	22.28	V	3.01	-1.02	18.25	66.83	38.50	-20.25
		836.60	22.40	V	3.03	-0.97	18.40	69.18	38.50	-20.10
		846.60	22.43	V	3.05	-0.92	18.46	70.15	38.50	-20.04

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LTE Band 5 (ANT A+B)

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)	RB
10	QPSK	829.00	24.95	V	3.02	-1.01	20.92	123.59	38.50	-17.58	1/0
		836.50	25.03	V	3.03	-0.97	21.04	127.06	38.50	-17.46	1/0
		844.00	24.68	V	3.04	-0.93	20.70	117.49	38.50	-17.80	1/49
	16-QAM	829.00	23.69	V	3.02	-1.01	19.66	92.47	38.50	-18.84	1/0
		836.50	24.04	V	3.03	-0.97	20.05	101.16	38.50	-18.45	1/0
		844.00	23.60	V	3.04	-0.93	19.62	91.62	38.50	-18.88	1/49
5	QPSK	826.50	24.30	V	3.01	-1.02	20.27	106.41	38.50	-18.23	1/12
		836.50	24.90	V	3.03	-0.97	20.91	123.31	38.50	-17.59	1/12
		846.50	24.81	V	3.05	-0.92	20.84	121.34	38.50	-17.66	1/12
	16-QAM	826.50	23.21	V	3.01	-1.02	19.18	82.79	38.50	-19.32	1/0
		836.50	23.88	V	3.03	-0.97	19.89	97.50	38.50	-18.61	1/12
		846.50	23.68	V	3.05	-0.92	19.71	93.54	38.50	-18.79	1/12
3	QPSK	825.50	24.65	V	3.01	-1.02	20.62	115.35	38.50	-17.88	1/8
		836.50	24.24	V	3.03	-0.97	20.25	105.93	38.50	-18.25	1/8
		847.50	24.85	V	3.05	-0.91	20.89	122.74	38.50	-17.61	1/8
	16-QAM	825.50	22.92	V	3.01	-1.02	18.89	77.45	38.50	-19.61	1/8
		836.50	23.19	V	3.03	-0.97	19.20	83.18	38.50	-19.30	1/8
		847.50	23.78	V	3.05	-0.91	19.82	95.94	38.50	-18.68	1/8
1.4	QPSK	824.70	23.82	V	3.01	-1.03	19.78	95.06	38.50	-18.72	1/3
		836.50	24.71	V	3.03	-0.97	20.72	118.03	38.50	-17.78	1/3
		848.30	24.84	V	3.05	-0.91	20.88	122.46	38.50	-17.62	1/3
	16-QAM	824.70	22.75	V	3.01	-1.03	18.71	74.30	38.50	-19.79	1/5
		836.50	23.57	V	3.03	-0.97	19.58	90.78	38.50	-18.92	1/3
		848.30	23.82	V	3.05	-0.91	19.86	96.83	38.50	-18.64	1/3

LTE Band 5 (ANT A)

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)	RB
10	QPSK	829.00	22.09	V	3.02	-1.01	18.06	63.97	38.50	-20.44	1/0
		836.50	22.62	V	3.03	-0.97	18.63	72.95	38.50	-19.87	1/0
		844.00	22.66	V	3.04	-0.93	18.68	73.79	38.50	-19.82	1/49
	16-QAM	829.00	21.24	V	3.02	-1.01	17.21	52.60	38.50	-21.29	1/0
		836.50	21.58	V	3.03	-0.97	17.59	57.41	38.50	-20.91	1/0
		844.00	21.71	V	3.04	-0.93	17.73	59.29	38.50	-20.77	1/49
5	QPSK	826.50	21.98	V	3.01	-1.02	17.95	62.37	38.50	-20.55	1/12
		836.50	23.08	V	3.03	-0.97	19.09	81.10	38.50	-19.41	1/12
		846.50	22.87	V	3.05	-0.92	18.90	77.62	38.50	-19.60	1/12
	16-QAM	826.50	20.96	V	3.01	-1.02	16.93	49.32	38.50	-21.57	1/0
		836.50	22.22	V	3.03	-0.97	18.23	66.53	38.50	-20.27	1/12
		846.50	21.99	V	3.05	-0.92	18.02	63.39	38.50	-20.48	1/12
3	QPSK	825.50	21.91	V	3.01	-1.02	17.88	61.38	38.50	-20.62	1/8
		836.50	23.00	V	3.03	-0.97	19.01	79.62	38.50	-19.49	1/8
		847.50	22.66	V	3.05	-0.91	18.70	74.13	38.50	-19.80	1/8
	16-QAM	825.50	20.93	V	3.01	-1.02	16.90	48.98	38.50	-21.60	1/8
		836.50	22.13	V	3.03	-0.97	18.14	65.16	38.50	-20.36	1/8
		847.50	21.68	V	3.05	-0.91	17.72	59.16	38.50	-20.78	1/8
1.4	QPSK	824.70	22.43	V	3.01	-1.03	18.39	69.02	38.50	-20.11	1/3
		836.50	22.73	V	3.03	-0.97	18.74	74.82	38.50	-19.76	1/3
		848.30	22.82	V	3.05	-0.91	18.86	76.91	38.50	-19.64	1/3
	16-QAM	824.70	21.37	V	3.01	-1.03	17.33	54.08	38.50	-21.17	1/5
		836.50	21.77	V	3.03	-0.97	17.78	59.98	38.50	-20.72	1/3
		848.30	21.78	V	3.05	-0.91	17.82	60.53	38.50	-20.68	1/3

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LTE Band 26 (ANT A+B)

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)	RB
15	QPSK	821.50	22.87	V	3.01	-1.04	18.82	76.21	50.00	-31.18	1/38
		831.50	24.20	V	3.02	-0.99	20.18	104.23	38.50	-18.32	1/37
		841.50	24.20	V	3.04	-0.94	20.22	105.20	38.50	-18.28	1/0
	16-QAM	821.50	21.77	V	3.01	-1.04	17.72	59.16	50.00	-32.28	1/38
		831.50	23.23	V	3.02	-0.99	19.21	83.37	38.50	-19.29	1/37
		841.50	23.63	V	3.04	-0.94	19.65	92.26	38.50	-18.85	1/37
10	QPSK	819.00	22.74	V	3.00	-1.06	18.69	73.96	50.00	-31.31	1/25
		829.00	24.41	V	3.02	-1.01	20.38	109.14	38.50	-18.12	1/25
		831.50	24.56	V	3.02	-0.99	20.54	113.24	38.50	-17.96	1/25
		844.00	25.18	V	3.04	-0.93	21.20	131.83	38.50	-17.30	1/25
	16-QAM	819.00	21.68	V	3.00	-1.06	17.63	57.94	50.00	-32.37	1/25
		829.00	23.41	V	3.02	-1.01	19.38	86.70	38.50	-19.12	1/25
		831.50	23.23	V	3.02	-0.99	19.21	83.37	38.50	-19.29	1/0
		844.00	23.93	V	3.04	-0.93	19.95	98.86	38.50	-18.55	1/0
5	QPSK	816.50	22.58	V	3.00	-1.07	18.51	70.96	50.00	-31.49	1/12
		821.50	22.98	V	3.01	-1.04	18.93	78.16	50.00	-31.07	1/12
		826.50	24.51	V	3.01	-1.02	20.48	111.69	38.50	-18.02	1/12
		831.50	25.57	V	3.02	-0.99	21.55	142.89	38.50	-16.95	1/12
		846.50	25.28	V	3.05	-0.92	21.31	135.21	38.50	-17.19	1/12
	16-QAM	816.50	21.61	V	3.00	-1.07	17.54	56.75	50.00	-32.46	1/12
		821.50	21.76	V	3.01	-1.04	17.71	59.02	50.00	-32.29	1/12
		826.50	23.57	V	3.01	-1.02	19.54	89.95	38.50	-18.96	1/12
		831.50	24.48	V	3.02	-0.99	20.46	111.17	38.50	-18.04	1/12
		846.50	24.21	V	3.05	-0.92	20.24	105.68	38.50	-18.26	1/12
3	QPSK	815.50	22.41	V	2.99	-1.07	18.34	68.23	50.00	-31.66	1/14
		822.50	23.06	V	3.01	-1.04	19.01	79.62	50.00	-30.99	1/8
		825.50	24.25	V	3.01	-1.02	20.22	105.20	38.50	-18.28	1/8
		831.50	25.36	V	3.02	-0.99	21.34	136.14	38.50	-17.16	1/14
		847.50	25.19	V	3.05	-0.91	21.23	132.74	38.50	-17.27	1/14
	16-QAM	815.50	21.36	V	2.99	-1.07	17.29	53.58	50.00	-32.71	1/14
		822.50	22.14	V	3.01	-1.04	18.09	64.42	50.00	-31.91	1/8
		825.50	23.38	V	3.01	-1.02	19.35	86.10	38.50	-19.15	1/8
		831.50	24.39	V	3.02	-0.99	20.37	108.89	38.50	-18.13	1/14
		847.50	24.28	V	3.05	-0.91	20.32	107.65	38.50	-18.18	1/8
1.4	QPSK	814.70	22.38	V	2.99	-1.08	18.31	67.76	50.00	-31.69	1/3
		823.30	23.40	V	3.01	-1.03	19.36	86.30	50.00	-30.64	1/3
		824.70	23.74	V	3.01	-1.03	17.70	58.88	38.50	-18.80	1/3
		831.50	24.24	V	3.02	-0.99	20.22	105.20	38.50	-18.28	1/3
		848.30	24.76	V	3.05	-0.91	20.80	120.23	38.50	-17.70	1/0
	16-QAM	814.70	21.31	V	2.99	-1.08	17.24	52.97	50.00	-32.76	1/3
		823.30	22.48	V	3.01	-1.03	18.44	69.82	50.00	-31.56	1/3
		824.70	22.69	V	3.01	-1.03	18.65	73.28	38.50	-19.85	1/3
		831.50	23.27	V	3.02	-0.99	19.25	84.14	38.50	-19.25	1/3
		848.30	23.54	V	3.05	-0.91	19.58	90.78	38.50	-18.92	1/3

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)	RB
15	QPSK	824.00	22.87	V	3.01	-1.03	18.83	76.38	38.50	-19.67	1/37
	16-QAM		21.76	V	3.01	-1.03	17.72	59.16	38.50	-20.78	1/37
10	QPSK		23.34	V	3.01	-1.03	19.30	85.11	38.50	-19.20	1/25
	16-QAM		22.28	V	3.01	-1.03	18.24	66.68	38.50	-20.26	1/25
5	QPSK		23.84	V	3.01	-1.03	19.80	95.50	38.50	-18.70	1/12
	16-QAM		22.86	V	3.01	-1.03	18.82	76.21	38.50	-19.68	1/12
3	QPSK		24.16	V	3.01	-1.03	20.12	102.80	38.50	-18.38	1/8
	16-QAM		23.26	V	3.01	-1.03	19.22	83.56	38.50	-19.28	1/8
1.4	QPSK		23.64	V	3.01	-1.03	19.60	91.20	38.50	-18.90	1/3
	16-QAM		22.77	V	3.01	-1.03	18.73	74.64	38.50	-19.77	1/3

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LTE Band 26 (ANT A)

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)	RB
15	QPSK	821.50	23.64	V	3.01	-1.04	19.59	90.99	50.00	-30.41	1/37
		831.50	22.30	V	3.02	-0.99	18.28	67.30	38.50	-20.22	1/37
		841.50	22.28	V	3.04	-0.94	18.30	67.61	38.50	-20.20	1/0
	16-QAM	821.50	22.66	V	3.01	-1.04	18.61	72.61	50.00	-31.39	1/37
		831.50	21.36	V	3.02	-0.99	17.34	54.20	38.50	-21.16	1/37
		841.50	21.83	V	3.04	-0.94	17.85	60.95	38.50	-20.65	1/37
10	QPSK	819.00	23.90	V	3.00	-1.06	19.85	96.61	50.00	-30.15	1/25
		829.00	22.45	V	3.02	-1.01	18.42	69.50	38.50	-20.08	1/25
		831.50	22.58	V	3.02	-0.99	18.56	71.78	38.50	-19.94	1/25
		844.00	23.07	V	3.04	-0.93	19.09	81.10	38.50	-19.41	1/25
	16-QAM	819.00	22.87	V	3.00	-1.06	18.82	76.21	50.00	-31.18	1/25
		829.00	21.55	V	3.02	-1.01	17.52	56.49	38.50	-20.98	1/25
		831.50	21.32	V	3.02	-0.99	17.30	53.70	38.50	-21.20	1/0
		844.00	21.95	V	3.04	-0.93	17.97	62.66	38.50	-20.53	1/0
5	QPSK	816.50	23.86	V	3.00	-1.07	19.79	95.28	50.00	-30.21	1/12
		821.50	23.98	V	3.01	-1.04	19.93	98.40	50.00	-30.07	1/12
		826.50	22.70	V	3.01	-1.02	18.67	73.62	38.50	-24.48	1/12
		831.50	22.75	V	3.02	-0.99	18.73	74.64	38.50	-24.87	1/12
		846.50	22.50	V	3.05	-0.92	18.53	71.29	38.50	-24.73	1/12
	16-QAM	816.50	22.84	V	3.00	-1.07	18.77	75.34	50.00	-31.23	1/12
		821.50	22.92	V	3.01	-1.04	18.87	77.09	50.00	-31.13	1/12
		826.50	21.65	V	3.01	-1.02	17.62	57.81	38.50	-20.88	1/12
		831.50	21.90	V	3.02	-0.99	17.88	61.38	38.50	-20.62	1/12
		846.50	21.49	V	3.05	-0.92	17.52	56.49	38.50	-20.98	1/12
3	QPSK	815.50	23.60	V	2.99	-1.07	19.53	89.74	50.00	-30.47	1/14
		822.50	23.94	V	3.01	-1.04	19.89	97.50	50.00	-30.11	1/8
		825.50	23.09	V	3.01	-1.02	19.06	80.54	38.50	-19.44	1/8
		831.50	22.96	V	3.02	-0.99	18.94	78.34	38.50	-19.56	1/14
		847.50	22.26	V	3.05	-0.91	18.30	67.61	38.50	-20.20	1/14
	16-QAM	815.50	22.56	V	2.99	-1.07	18.49	70.63	50.00	-31.51	1/14
		822.50	22.96	V	3.01	-1.04	18.91	77.80	50.00	-31.09	1/8
		825.50	22.05	V	3.01	-1.02	18.02	63.39	38.50	-20.48	1/8
		831.50	21.94	V	3.02	-0.99	17.92	61.94	38.50	-20.58	1/14
		847.50	21.38	V	3.05	-0.91	17.42	55.21	38.50	-21.08	1/8
1.4	QPSK	814.70	23.90	V	2.99	-1.08	19.83	96.16	50.00	-30.17	1/3
		823.30	23.68	V	3.01	-1.03	19.64	92.04	50.00	-30.36	1/3
		824.70	21.76	V	3.01	-1.03	17.72	59.16	38.50	-20.78	1/3
		831.50	22.46	V	3.02	-0.99	18.44	69.82	38.50	-20.06	1/3
		848.30	22.02	V	3.05	-0.91	18.06	63.97	38.50	-20.44	1/0
	16-QAM	814.70	22.81	V	2.99	-1.08	18.74	74.82	50.00	-31.26	1/3
		823.30	22.63	V	3.01	-1.03	18.59	72.28	50.00	-31.41	1/3
		824.70	20.77	V	3.01	-1.03	16.73	47.10	38.50	-21.77	1/3
		831.50	21.66	V	3.02	-0.99	17.64	58.08	38.50	-20.86	1/3
		848.30	20.97	V	3.05	-0.91	17.01	50.23	38.50	-21.49	1/3

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)	RB
15	QPSK	824.00	22.12	V	3.01	-1.03	18.08	64.27	38.50	-20.42	1/37
	16-QAM		21.21	V	3.01	-1.03	17.17	52.12	38.50	-21.33	1/37
10	QPSK		22.27	V	3.01	-1.03	18.23	66.53	38.50	-20.27	1/25
	16-QAM		21.25	V	3.01	-1.03	17.21	52.60	38.50	-21.29	1/25
5	QPSK		22.68	V	3.01	-1.03	18.64	73.11	38.50	-19.86	1/12
	16-QAM		21.68	V	3.01	-1.03	17.64	58.08	38.50	-20.86	1/12
3	QPSK		23.02	V	3.01	-1.03	18.98	79.07	38.50	-19.52	1/8
	16-QAM		22.07	V	3.01	-1.03	18.03	63.53	38.50	-20.47	1/8
1.4	QPSK		21.91	V	3.01	-1.03	17.87	61.24	38.50	-20.63	1/3
	16-QAM		20.93	V	3.01	-1.03	16.89	48.87	38.50	-21.61	1/3

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NR Band n5 (ANT A+B)

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)	RB
20	QPSK	834.00	23.68	V	3.03	-0.98	19.67	92.68	38.50	-18.83	1/104
		836.50	23.94	V	3.03	-0.97	19.95	98.86	38.50	-18.55	1/53
		839.00	24.33	V	3.03	-0.96	20.34	108.14	38.50	-18.16	1/53
	16-QAM	834.00	21.95	V	3.03	-0.98	17.94	62.23	38.50	-20.56	1/104
		836.50	22.64	V	3.03	-0.97	18.65	73.28	38.50	-19.85	1/53
		839.00	22.84	V	3.03	-0.96	18.85	76.74	38.50	-19.65	1/53
15	QPSK	831.50	23.51	V	3.02	-0.99	19.49	88.92	38.50	-19.01	1/40
		836.50	24.40	V	3.03	-0.97	20.41	109.90	38.50	-18.09	1/77
		841.50	24.50	V	3.04	-0.94	20.52	112.72	38.50	-17.98	1/40
	16-QAM	831.50	21.92	V	3.02	-0.99	17.90	61.66	38.50	-20.60	1/40
		836.50	22.63	V	3.03	-0.97	18.64	73.11	38.50	-19.86	1/77
		841.50	22.96	V	3.04	-0.94	18.98	79.07	38.50	-19.52	1/40
10	QPSK	829.00	23.13	V	3.02	-1.01	17.10	51.29	38.50	-19.40	1/26
		836.50	23.99	V	3.03	-0.97	20.00	100.00	38.50	-18.50	1/1
		844.00	23.86	V	3.04	-0.93	19.88	97.27	38.50	-18.62	1/26
	16-QAM	829.00	21.90	V	3.02	-1.01	17.87	61.24	38.50	-20.63	1/26
		836.50	22.73	V	3.03	-0.97	18.74	74.82	38.50	-19.76	1/1
		844.00	22.68	V	3.04	-0.93	18.70	74.13	38.50	-19.80	1/26
5	QPSK	826.50	22.87	V	3.01	-1.02	18.84	76.56	38.50	-19.66	1/1
		836.50	23.78	V	3.03	-0.97	19.79	95.28	38.50	-18.71	1/1
		846.50	24.15	V	3.05	-0.92	20.18	104.23	38.50	-18.32	1/1
	16-QAM	826.50	21.40	V	3.01	-1.02	17.37	54.58	38.50	-21.13	1/1
		836.50	22.60	V	3.03	-0.97	18.61	72.61	38.50	-19.89	1/1
		846.50	22.65	V	3.05	-0.92	18.68	73.79	38.50	-19.82	1/1

NR Band n5 (ANT A)

BW (MHz)	Modulation	f (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	ERP (mW)	Limit (dBm)	Delta (dB)	RB
20	QPSK	834.00	22.47	V	3.03	-0.98	18.46	70.15	38.50	-20.04	1/53
		836.50	23.16	V	3.03	-0.97	19.17	82.60	38.50	-19.33	1/53
		839.00	23.12	V	3.03	-0.96	19.13	81.85	38.50	-19.37	1/53
	16-QAM	834.00	21.49	V	3.03	-0.98	17.48	55.98	38.50	-21.02	1/53
		836.50	21.92	V	3.03	-0.97	17.93	62.09	38.50	-20.57	1/53
		839.00	21.88	V	3.03	-0.96	17.89	61.52	38.50	-20.61	1/53
15	QPSK	831.50	22.88	V	3.02	-0.99	18.86	76.91	38.50	-19.64	1/40
		836.50	23.12	V	3.03	-0.97	19.13	81.85	38.50	-19.37	1/40
		841.50	23.36	V	3.04	-0.94	19.38	86.70	38.50	-19.12	1/40
	16-QAM	831.50	21.76	V	3.02	-0.99	17.74	59.43	38.50	-20.76	1/40
		836.50	21.81	V	3.03	-0.97	17.82	60.53	38.50	-20.68	1/40
		841.50	22.04	V	3.04	-0.94	18.06	63.97	38.50	-20.44	1/40
10	QPSK	829.00	22.92	V	3.02	-1.01	18.89	77.45	38.50	-19.61	1/26
		836.50	22.91	V	3.03	-0.97	18.92	77.98	38.50	-19.58	1/26
		844.00	22.70	V	3.04	-0.93	18.72	74.47	38.50	-19.78	1/26
	16-QAM	829.00	21.78	V	3.02	-1.01	17.75	59.57	38.50	-20.75	1/26
		836.50	21.88	V	3.03	-0.97	17.89	61.52	38.50	-20.61	1/26
		844.00	21.59	V	3.04	-0.93	17.61	57.68	38.50	-20.89	1/26
5	QPSK	826.50	23.13	V	3.01	-1.02	19.10	81.28	38.50	-19.40	1/13
		836.50	22.95	V	3.03	-0.97	18.96	78.70	38.50	-19.54	1/13
		846.50	23.11	V	3.05	-0.92	19.14	82.04	38.50	-19.36	1/13
	16-QAM	826.50	22.04	V	3.01	-1.02	18.01	63.24	38.50	-20.49	1/13
		836.50	21.83	V	3.03	-0.97	17.84	60.81	38.50	-20.66	1/13
		846.50	22.08	V	3.05	-0.92	18.11	64.71	38.50	-20.39	1/13

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9.2. RADIATIED SPURIOUS EMISSION

RULE PART(S)

FCC: §2.1053, §22.917 and §90.691

LIMIT

Part 22.917(a)
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 90.543(c)
On any frequency outside of the frequency ranges covered by the ACP tables in this section, the power of any emission must be reduced below the mean output power (P) by at least 43 + 10log (P) dB measured in a 100 kHz bandwidth for frequencies less than 1 GHz, and in a 1 MHz bandwidth for frequencies greater than 1 GHz

Part 90.691(a):
(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.
(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log_{10}(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.(NOTE : Use 100kHz reference bandwidth)

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

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 1 GHz and 1 MHz for emissions above 1 GHz
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, 5G NR), Maxhold(GSM);

NOTE1

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

RESULTS

See the following pages.

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9.2.1. SPURIOUS RADIATION PLOTS

GSM850 (ANT A+B)

GPRS

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

Company: Samsung
Project #: 4790841160
Date: 2023-06-16
Test Engineer: 24542
Configuration: EUT / AC Adapter, Z-Position, HF
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	-12.3	V	3.0	46.4	1.0	-57.7	-13.0	-44.7	
2472.60	0.9	V	3.0	46.9	1.0	-45.0	-13.0	-32.0	
3296.80	-8.4	V	3.0	46.6	1.0	-54.1	-13.0	-41.1	
4121.00	-7.7	V	3.0	45.7	1.0	-52.4	-13.0	-39.4	
4945.20	-6.4	V	3.0	46.2	1.0	-51.6	-13.0	-38.6	
1648.40	-13.9	H	3.0	46.4	1.0	-59.3	-13.0	-46.3	
2472.60	-0.7	H	3.0	46.9	1.0	-46.6	-13.0	-33.6	
3296.80	-8.2	H	3.0	46.6	1.0	-53.8	-13.0	-40.8	
4121.00	-6.5	H	3.0	45.7	1.0	-51.2	-13.0	-38.2	
4945.20	-6.3	H	3.0	46.2	1.0	-51.5	-13.0	-38.5	
Mid Ch, 836.6MHz									
1673.20	-12.1	V	3.0	46.4	1.0	-57.5	-13.0	-44.5	
2509.80	-3.2	V	3.0	46.9	1.0	-49.1	-13.0	-36.1	
3346.40	-8.2	V	3.0	46.6	1.0	-53.8	-13.0	-40.8	
4183.00	-7.5	V	3.0	45.7	1.0	-52.3	-13.0	-39.3	
5019.60	-6.4	V	3.0	46.2	1.0	-51.6	-13.0	-38.6	
1673.20	-13.2	H	3.0	46.4	1.0	-58.7	-13.0	-45.7	
2509.80	-0.1	H	3.0	46.9	1.0	-46.0	-13.0	-33.0	
3346.40	-8.0	H	3.0	46.6	1.0	-53.5	-13.0	-40.5	
4183.00	-6.9	H	3.0	45.7	1.0	-51.6	-13.0	-38.6	
5019.60	-6.2	H	3.0	46.2	1.0	-51.5	-13.0	-38.5	
High Ch, 848.8MHz									
1697.60	-12.8	V	3.0	46.5	1.0	-58.3	-13.0	-45.3	
2546.40	-5.2	V	3.0	46.9	1.0	-51.1	-13.0	-38.1	
3395.20	-9.2	V	3.0	46.5	1.0	-54.7	-13.0	-41.7	
4244.00	-7.1	V	3.0	45.8	1.0	-51.9	-13.0	-38.9	
5092.80	-6.2	V	3.0	46.2	1.0	-51.4	-13.0	-38.4	
1697.60	-13.2	H	3.0	46.5	1.0	-58.7	-13.0	-45.7	
2546.40	-0.6	H	3.0	46.9	1.0	-46.5	-13.0	-33.5	
3395.20	-7.8	H	3.0	46.5	1.0	-53.3	-13.0	-40.3	
4244.00	-6.5	H	3.0	45.8	1.0	-51.3	-13.0	-38.3	
5092.80	-6.0	H	3.0	46.2	1.0	-51.2	-13.0	-38.2	

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GSM850 (ANT A)

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

Company: Samsung
Project #: 4790841160
Date: 2023-06-15
Test Engineer: 51078
Configuration: EUT / AC Adapter, Z-Position, FF
Location: Chamber 2
Mode: GPRS 850 MHz Harmonics
Test Votage: AC 120 V, 60 Hz

GPRS

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	-14.0	V	3.0	40.7	1.0	-53.7	-13.0	-40.7	
2472.60	-10.5	V	3.0	41.3	1.0	-50.7	-13.0	-37.7	
3296.80	-8.7	V	3.0	42.1	1.0	-49.7	-13.0	-36.7	
1648.40	-14.7	H	3.0	40.7	1.0	-54.4	-13.0	-41.4	
2472.60	-10.3	H	3.0	41.3	1.0	-50.6	-13.0	-37.6	
3296.80	-9.0	H	3.0	42.1	1.0	-50.0	-13.0	-37.0	
Mid Ch, 836.6MHz									
1673.20	-13.9	V	3.0	40.7	1.0	-53.5	-13.0	-40.5	
2509.80	-9.5	V	3.0	41.3	1.0	-49.8	-13.0	-36.8	
3346.40	-8.2	V	3.0	42.1	1.0	-49.2	-13.0	-36.2	
1673.20	-14.4	H	3.0	40.7	1.0	-54.1	-13.0	-41.1	
2509.80	-9.7	H	3.0	41.3	1.0	-50.0	-13.0	-37.0	
3346.40	-8.6	H	3.0	42.1	1.0	-49.7	-13.0	-36.7	
High Ch, 848.8MHz									
1697.60	-14.0	V	3.0	40.7	1.0	-53.7	-13.0	-40.7	
2546.40	-8.9	V	3.0	41.4	1.0	-49.3	-13.0	-36.3	
3395.20	-8.1	V	3.0	42.1	1.0	-49.2	-13.0	-36.2	
1697.60	-14.6	H	3.0	40.7	1.0	-54.3	-13.0	-41.3	
2546.40	-10.1	H	3.0	41.4	1.0	-50.5	-13.0	-37.5	
3395.20	-8.2	H	3.0	42.1	1.0	-49.3	-13.0	-36.3	

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WCDMA Band 5 (ANT A+B)

REL99

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

Company: Samsung
Project #: 4790841160
Date: 2023-06-16
Test Engineer: 19568
Configuration: EUT / AC Adapter, Z-Position, HF
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, 826.5MHz									
1652.80	-14.5	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	-9.6	V	3.0	46.6	1.0	-55.2	-13.0	-42.2	
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	-57.8	-13.0	-44.8	
3305.60	-9.5	H	3.0	46.6	1.0	-55.1	-13.0	-42.1	
Mid Ch, 836.6MHz									
1673.20	-14.4	V	3.0	46.4	1.0	-59.9	-13.0	-46.9	
2509.80	-11.5	V	3.0	46.9	1.0	-57.4	-13.0	-44.4	
3346.40	-9.4	V	3.0	46.6	1.0	-54.9	-13.0	-41.9	
1673.20	-15.4	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	-14.5	V	3.0	46.5	1.0	-59.9	-13.0	-46.9	
2539.80	-11.5	V	3.0	46.9	1.0	-57.4	-13.0	-44.4	
3386.40	-9.2	V	3.0	46.5	1.0	-54.7	-13.0	-41.7	
1693.20	-15.4	H	3.0	46.5	1.0	-60.8	-13.0	-47.8	
2539.80	-11.8	H	3.0	46.9	1.0	-57.7	-13.0	-44.7	
3386.40	-9.1	H	3.0	46.5	1.0	-54.6	-13.0	-41.6	

WCDMA Band 5 (ANT A)

REL99

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

Company: Samsung
Project #: 4790841160
Date: 2023-06-15
Test Engineer: 51078
Configuration: EUT / AC Adapter, Z-Position, FF
Location: Chamber 2
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	-15.2	V	3.0	40.7	1.0	-54.9	-13.0	-41.9	
2479.20	-12.4	V	3.0	41.3	1.0	-52.7	-13.0	-39.7	
3305.60	-9.9	V	3.0	42.1	1.0	-51.0	-13.0	-38.0	
1652.80	-15.8	H	3.0	40.7	1.0	-55.5	-13.0	-42.5	
2479.20	-12.6	H	3.0	41.3	1.0	-52.9	-13.0	-39.9	
3305.60	-10.1	H	3.0	42.1	1.0	-51.2	-13.0	-38.2	
Mid Ch, 836.6MHz									
1673.20	-15.1	V	3.0	40.7	1.0	-54.8	-13.0	-41.8	
2509.80	-12.4	V	3.0	41.3	1.0	-52.7	-13.0	-39.7	
3346.40	-9.7	V	3.0	42.1	1.0	-50.7	-13.0	-37.7	
1673.20	-15.7	H	3.0	40.7	1.0	-55.4	-13.0	-42.4	
2509.80	-12.6	H	3.0	41.3	1.0	-52.9	-13.0	-39.9	
3346.40	-9.9	H	3.0	42.1	1.0	-50.9	-13.0	-37.9	
High Ch, 846.6MHz									
1693.20	-15.1	V	3.0	40.7	1.0	-54.8	-13.0	-41.8	
2539.80	-12.2	V	3.0	41.4	1.0	-52.6	-13.0	-39.6	
3386.40	-9.4	V	3.0	42.1	1.0	-50.5	-13.0	-37.5	
1693.20	-15.8	H	3.0	40.7	1.0	-55.4	-13.0	-42.4	
2539.80	-12.4	H	3.0	41.4	1.0	-52.8	-13.0	-39.8	
3386.40	-9.6	H	3.0	42.1	1.0	-50.7	-13.0	-37.7	

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LTE Band 5 (ANT A+B)

10 MHz

QPSK

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

Company: Saamsung
Project #: 4790841160
Date: 2023-06-16
Test Engineer: 19568
Configuration: EUT / AC Adapter, Z-Position, HF
Location: Chamber 1
Mode: LTE_QPSK Band 5 Harmonics, 10MHz 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, 829MHz									
1658.00	-14.3	V	3.0	46.4	1.0	-59.8	-13.0	-46.8	
2487.00	-10.9	V	3.0	46.9	1.0	-56.7	-13.0	-43.7	
3316.00	-9.5	V	3.0	46.6	1.0	-55.1	-13.0	-42.1	
1658.00	-15.5	H	3.0	46.4	1.0	-60.9	-13.0	-47.9	
2487.00	-11.7	H	3.0	46.9	1.0	-57.6	-13.0	-44.6	
3316.00	-9.3	H	3.0	46.6	1.0	-54.9	-13.0	-41.9	
Mid Ch, 836.5MHz									
1673.00	-14.3	V	3.0	46.4	1.0	-59.8	-13.0	-46.8	
2509.50	-10.3	V	3.0	46.9	1.0	-56.2	-13.0	-43.2	
3346.00	-9.3	V	3.0	46.6	1.0	-54.9	-13.0	-41.9	
1673.00	-15.4	H	3.0	46.4	1.0	-60.8	-13.0	-47.8	
2509.50	-10.5	H	3.0	46.9	1.0	-56.4	-13.0	-43.4	
3346.00	-9.1	H	3.0	46.6	1.0	-54.7	-13.0	-41.7	
High Ch, 844MHz									
1688.00	-14.4	V	3.0	46.5	1.0	-59.8	-13.0	-46.8	
2532.00	-11.3	V	3.0	46.9	1.0	-57.2	-13.0	-44.2	
3376.00	-9.1	V	3.0	46.5	1.0	-54.7	-13.0	-41.7	
1688.00	-15.3	H	3.0	46.5	1.0	-60.7	-13.0	-47.7	
2532.00	-11.1	H	3.0	46.9	1.0	-57.0	-13.0	-44.0	
3376.00	-8.9	H	3.0	46.5	1.0	-54.4	-13.0	-41.4	

LTE Band 5 (ANT A)

5 MHz

QPSK

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

Company: Samsung
Project #: 4790841160
Date: 2023-06-16
Test Engineer: 26087
Configuration: EUT / AC Adapter, Z-Position, FF
Location: Chamber 2
Mode: LTE_QPSK Band 5 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, 826.5MHz									
1653.00	-15.1	V	3.0	40.7	1.0	-54.8	-13.0	-41.8	
2479.50	-12.3	V	3.0	41.3	1.0	-52.6	-13.0	-39.6	
3306.00	-9.9	V	3.0	42.1	1.0	-51.0	-13.0	-38.0	
1653.00	-15.9	H	3.0	40.7	1.0	-55.6	-13.0	-42.6	
2479.50	-12.4	H	3.0	41.3	1.0	-52.7	-13.0	-39.7	
3306.00	-10.2	H	3.0	42.1	1.0	-51.2	-13.0	-38.2	
Mid Ch, 836.5MHz									
1673.00	-15.0	V	3.0	40.7	1.0	-54.7	-13.0	-41.7	
2509.50	-11.6	V	3.0	41.3	1.0	-52.0	-13.0	-39.0	
3346.00	-9.6	V	3.0	42.1	1.0	-50.7	-13.0	-37.7	
1673.00	-15.7	H	3.0	40.7	1.0	-55.4	-13.0	-42.4	
2509.50	-12.1	H	3.0	41.3	1.0	-52.4	-13.0	-39.4	
3346.00	-9.8	H	3.0	42.1	1.0	-50.9	-13.0	-37.9	
High Ch, 846.5MHz									
1693.00	-15.2	V	3.0	40.7	1.0	-54.9	-13.0	-41.9	
2539.50	-11.6	V	3.0	41.4	1.0	-52.0	-13.0	-39.0	
3386.00	-9.4	V	3.0	42.1	1.0	-50.4	-13.0	-37.4	
1693.00	-15.8	H	3.0	40.7	1.0	-55.4	-13.0	-42.4	
2539.50	-12.1	H	3.0	41.4	1.0	-52.4	-13.0	-39.4	
3386.00	-9.6	H	3.0	42.1	1.0	-50.6	-13.0	-37.6	

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LTE Band 26 (Part 90) (ANT A+B)

1.4 MHz

QPSK

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

Company: Samsung
Project #: 4790841160
Date: 2023-06-15
Test Engineer: 51078
Configuration: EUT / AC Adapter, Z-Position, Open
Location: Chamber 1
Mode: LTE_QPSK Band 26 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, 814.7MHz									
1629.40	-14.4	V	3.0	46.4	1.0	-59.8	-13.0	-46.8	
2444.10	-5.2	V	3.0	46.9	1.0	-51.0	-13.0	-38.0	
3258.80	-9.6	V	3.0	46.7	1.0	-55.2	-13.0	-42.2	
1629.40	-15.2	H	3.0	46.4	1.0	-60.6	-13.0	-47.6	
2444.10	-6.9	H	3.0	46.9	1.0	-52.7	-13.0	-39.7	
3258.80	-9.4	H	3.0	46.7	1.0	-55.1	-13.0	-42.1	
Mid Ch, 823.3MHz									
1646.60	-13.6	V	3.0	46.4	1.0	-59.0	-13.0	-46.0	
2469.90	-2.9	V	3.0	46.9	1.0	-48.8	-13.0	-35.8	
3293.20	-9.6	V	3.0	46.6	1.0	-55.2	-13.0	-42.2	
1646.60	-14.2	H	3.0	46.4	1.0	-59.6	-13.0	-46.6	
2469.90	-3.6	H	3.0	46.9	1.0	-49.5	-13.0	-36.5	
3293.20	-9.4	H	3.0	46.6	1.0	-55.1	-13.0	-42.1	

LTE Band 26 (Part 90) (ANT A)

5 MHz

QPSK

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

Company: Samsung
Project #: 4790841160
Date: 2023-06-16
Test Engineer: 19568
Configuration: EUT / AC Adapter, Z-Position, FF
Location: Chamber 2
Mode: LTE_QPSK Band 26 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, 816.5MHz									
1633.00	-15.4	V	3.0	40.7	1.0	-55.0	-13.0	-42.0	
2449.50	-12.4	V	3.0	41.3	1.0	-52.6	-13.0	-39.6	
3266.00	-10.0	V	3.0	42.1	1.0	-51.1	-13.0	-38.1	
1633.00	-15.9	H	3.0	40.7	1.0	-55.6	-13.0	-42.6	
2449.50	-12.5	H	3.0	41.3	1.0	-52.8	-13.0	-39.8	
3266.00	-10.4	H	3.0	42.1	1.0	-51.4	-13.0	-38.4	
Mid Ch, 821.5MHz									
1643.00	-15.3	V	3.0	40.7	1.0	-55.0	-13.0	-42.0	
2464.50	-12.3	V	3.0	41.3	1.0	-52.6	-13.0	-39.6	
3286.00	-10.0	V	3.0	42.1	1.0	-51.1	-13.0	-38.1	
1643.00	-16.0	H	3.0	40.7	1.0	-55.7	-13.0	-42.7	
2464.50	-12.5	H	3.0	41.3	1.0	-52.7	-13.0	-39.7	
3286.00	-10.2	H	3.0	42.1	1.0	-51.3	-13.0	-38.3	

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LTE Band 26 (Straddle) (ANT A+B)

3 MHz

QPSK

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

Company: Samsung
Project #: 4790841160
Date: 2023-06-15
Test Engineer: 51078
Configuration: EUT / AC Adapter, Z-Position, Open
Location: Chamber 1
Mode: LTE_QPSK Band 26 Harmonics, 3MHz 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
Straddle Ch, 824MHz									
1648.00	-13.3	V	3.0	46.4	1.0	-58.7	-13.0	-45.7	
2472.00	-4.3	V	3.0	46.9	1.0	-50.2	-13.0	-37.2	
3296.00	-9.5	V	3.0	46.6	1.0	-55.1	-13.0	-42.1	
1648.00	-13.5	H	3.0	46.4	1.0	-58.9	-13.0	-45.9	
2472.00	-6.1	H	3.0	46.9	1.0	-52.0	-13.0	-39.0	
3296.00	-9.5	H	3.0	46.6	1.0	-55.1	-13.0	-42.1	

LTE Band 26 (Straddle) (ANT A)

3 MHz

QPSK

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

Company: Samsung
Project #: 4790841160
Date: 2023-06-16
Test Engineer: 51078
Configuration: EUT / AC Adapter, Z-Position, FF
Location: Chamber 2
Mode: LTE_QPSK Band 26 Harmonics, 3MHz 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
Straddle Ch, 824MHz									
1648.00	-15.2	V	3.0	40.7	1.0	-54.9	-13.0	-41.9	
2472.00	-12.2	V	3.0	41.3	1.0	-52.5	-13.0	-39.5	
3296.00	-10.0	V	3.0	42.1	1.0	-51.1	-13.0	-38.1	
1648.00	-15.9	H	3.0	40.7	1.0	-55.6	-13.0	-42.6	
2472.00	-12.4	H	3.0	41.3	1.0	-52.7	-13.0	-39.7	
3296.00	-10.2	H	3.0	42.1	1.0	-51.2	-13.0	-38.2	

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LTE Band 26 (Part 22) (ANT A+B)

5 MHz

QPSK

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

Company: Samsung
Project #: 4790841160
Date: 2023-06-14
Test Engineer: 24542
Configuration: EUT / AC Adapter, Z-Position, Open
Location: Chamber 1
Mode: LTE_QPSK Band 26 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, 826.5MHz									
1653.00	-11.1	V	3.0	46.4	1.0	-56.5	-13.0	-43.5	
2479.50	-3.0	V	3.0	46.9	1.0	-48.9	-13.0	-35.9	
3306.00	-9.5	V	3.0	46.6	1.0	-55.2	-13.0	-42.2	
1653.00	-10.6	H	3.0	46.4	1.0	-56.1	-13.0	-43.1	
2479.50	-4.5	H	3.0	46.9	1.0	-50.4	-13.0	-37.4	
3306.00	-9.3	H	3.0	46.6	1.0	-55.0	-13.0	-42.0	
Mid Ch, 831.5MHz									
1663.00	-14.4	V	3.0	46.4	1.0	-59.8	-13.0	-46.8	
2494.50	-3.6	V	3.0	46.9	1.0	-49.5	-13.0	-36.5	
3326.00	-9.5	V	3.0	46.6	1.0	-55.1	-13.0	-42.1	
1663.00	-15.1	H	3.0	46.4	1.0	-60.5	-13.0	-47.5	
2494.50	-4.2	H	3.0	46.9	1.0	-50.0	-13.0	-37.0	
3326.00	-9.4	H	3.0	46.6	1.0	-55.0	-13.0	-42.0	
High Ch, 846.5MHz									
1693.00	-13.1	V	3.0	46.5	1.0	-58.6	-13.0	-45.6	
2539.50	-2.3	V	3.0	46.9	1.0	-48.2	-13.0	-35.2	
3386.00	-9.2	V	3.0	46.5	1.0	-54.7	-13.0	-41.7	
1693.00	-13.8	H	3.0	46.5	1.0	-59.3	-13.0	-46.3	
2539.50	-4.8	H	3.0	46.9	1.0	-50.7	-13.0	-37.7	
3386.00	-9.0	H	3.0	46.5	1.0	-54.5	-13.0	-41.5	

LTE Band 26 (Part 22) (ANT A)

10 MHz

QPSK

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

Company: Samsung
Project #: 4790841160
Date: 2023-06-16
Test Engineer: 19568
Configuration: EUT / AC Adapter, Z-Position, FF
Location: Chamber 2
Mode: LTE_QPSK Band 26 Harmonics, 10MHz 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, 829MHz									
1658.00	-15.1	V	3.0	40.7	1.0	-54.7	-13.0	-41.7	
2487.00	-12.1	V	3.0	41.3	1.0	-52.4	-13.0	-39.4	
3316.00	-9.8	V	3.0	42.1	1.0	-50.9	-13.0	-37.9	
1658.00	-15.6	H	3.0	40.7	1.0	-55.3	-13.0	-42.3	
2487.00	-12.4	H	3.0	41.3	1.0	-52.7	-13.0	-39.7	
3316.00	-10.2	H	3.0	42.1	1.0	-51.2	-13.0	-38.2	
Mid Ch, 831.5MHz									
1663.00	-14.9	V	3.0	40.7	1.0	-54.6	-13.0	-41.6	
2494.50	-12.2	V	3.0	41.3	1.0	-52.5	-13.0	-39.5	
3326.00	-9.7	V	3.0	42.1	1.0	-50.8	-13.0	-37.8	
1663.00	-15.6	H	3.0	40.7	1.0	-55.3	-13.0	-42.3	
2494.50	-12.4	H	3.0	41.3	1.0	-52.7	-13.0	-39.7	
3326.00	-10.1	H	3.0	42.1	1.0	-51.1	-13.0	-38.1	
High Ch, 844MHz									
1688.00	-15.0	V	3.0	40.7	1.0	-54.7	-13.0	-41.7	
2532.00	-11.6	V	3.0	41.4	1.0	-52.0	-13.0	-39.0	
3376.00	-9.5	V	3.0	42.1	1.0	-50.5	-13.0	-37.5	
1688.00	-15.5	H	3.0	40.7	1.0	-55.2	-13.0	-42.2	
2532.00	-12.2	H	3.0	41.4	1.0	-52.6	-13.0	-39.6	
3376.00	-9.6	H	3.0	42.1	1.0	-50.7	-13.0	-37.7	

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NR Band 5 (ANT A+B)

15 MHz

QPSK

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

Company: Samsung
Project #: 4790841160
Date: 2023-06-21
Test Engineer: 25546
Configuration: EUT / AC Adapter, Z-Position, HF
Location: Chamber 2
Mode: 5G NR_QPSK NR n5 Harmonics, 15MHz 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, 831.5MHz									
1663.00	-15.1	V	3.0	40.7	1.0	-54.8	-13.0	-41.8	
2494.50	-12.1	V	3.0	41.3	1.0	-52.4	-13.0	-39.4	
3326.00	-9.8	V	3.0	42.1	1.0	-50.8	-13.0	-37.8	
1663.00	-15.7	H	3.0	40.7	1.0	-55.4	-13.0	-42.4	
2494.50	-12.2	H	3.0	41.3	1.0	-52.5	-13.0	-39.5	
3326.00	-10.0	H	3.0	42.1	1.0	-51.0	-13.0	-38.0	
Mid Ch, 836.5MHz									
1673.00	-15.1	V	3.0	40.7	1.0	-54.7	-13.0	-41.7	
2509.50	-12.0	V	3.0	41.3	1.0	-52.4	-13.0	-39.4	
3346.00	-9.4	V	3.0	42.1	1.0	-50.5	-13.0	-37.5	
1673.00	-15.7	H	3.0	40.7	1.0	-55.4	-13.0	-42.4	
2509.50	-12.2	H	3.0	41.3	1.0	-52.5	-13.0	-39.5	
3346.00	-9.7	H	3.0	42.1	1.0	-50.8	-13.0	-37.8	
High Ch, 841.5MHz									
1683.00	-14.9	V	3.0	40.7	1.0	-54.6	-13.0	-41.6	
2524.50	-11.8	V	3.0	41.4	1.0	-52.2	-13.0	-39.2	
3366.00	-9.4	V	3.0	42.1	1.0	-50.5	-13.0	-37.5	
1683.00	-15.6	H	3.0	40.7	1.0	-55.3	-13.0	-42.3	
2524.50	-12.2	H	3.0	41.4	1.0	-52.6	-13.0	-39.6	
3366.00	-9.7	H	3.0	42.1	1.0	-50.7	-13.0	-37.7	

NR Band 5 (ANT A)

15 MHz

QPSK

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

Company: Samsung
Project #: 4790841160
Date: 2023-06-19
Test Engineer: 19568
Configuration: EUT / AC Adapter, Z-Position, FF
Location: Chamber 2
Mode: 5G NR_QPSK NR n5 Harmonics, 15MHz 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, 831.5MHz									
1663.00	-15.2	V	3.0	40.7	1.0	-54.8	-13.0	-41.8	
2494.50	-12.3	V	3.0	41.3	1.0	-52.6	-13.0	-39.6	
3326.00	-10.0	V	3.0	42.1	1.0	-51.0	-13.0	-38.0	
1663.00	-15.9	H	3.0	40.7	1.0	-55.5	-13.0	-42.5	
2494.50	-11.7	H	3.0	41.3	1.0	-52.0	-13.0	-39.0	
3326.00	-10.1	H	3.0	42.1	1.0	-51.2	-13.0	-38.2	
Mid Ch, 836.5MHz									
1673.00	-15.2	V	3.0	40.7	1.0	-54.9	-13.0	-41.9	
2509.50	-11.9	V	3.0	41.3	1.0	-52.3	-13.0	-39.3	
3346.00	-9.6	V	3.0	42.1	1.0	-50.7	-13.0	-37.7	
1673.00	-15.7	H	3.0	40.7	1.0	-55.4	-13.0	-42.4	
2509.50	-11.7	H	3.0	41.3	1.0	-52.0	-13.0	-39.0	
3346.00	-9.8	H	3.0	42.1	1.0	-50.9	-13.0	-37.9	
High Ch, 841.5MHz									
1683.00	-15.1	V	3.0	40.7	1.0	-54.8	-13.0	-41.8	
2524.50	-9.8	V	3.0	41.4	1.0	-50.1	-13.0	-37.1	
3366.00	-9.7	V	3.0	42.1	1.0	-50.7	-13.0	-37.7	
1683.00	-15.7	H	3.0	40.7	1.0	-55.4	-13.0	-42.4	
2524.50	-8.8	H	3.0	41.4	1.0	-49.2	-13.0	-36.2	
3366.00	-9.7	H	3.0	42.1	1.0	-50.8	-13.0	-37.8	

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