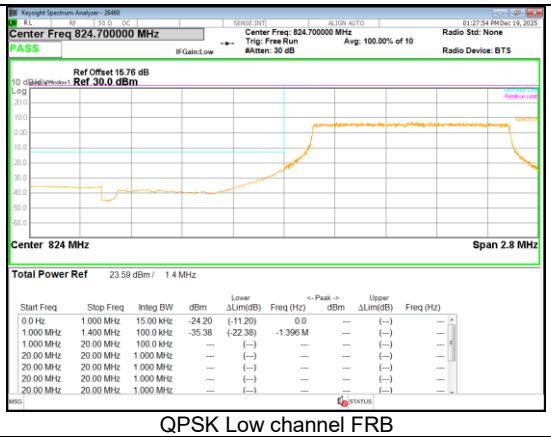
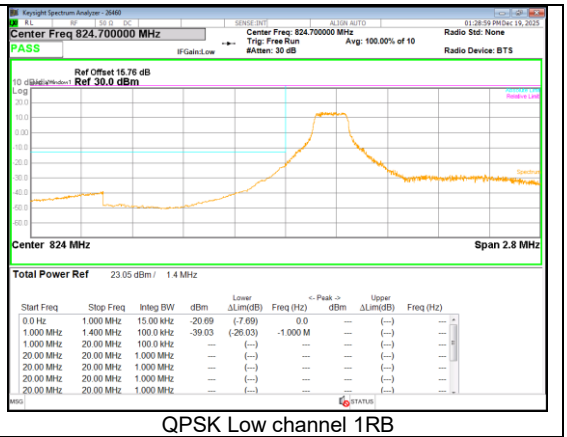
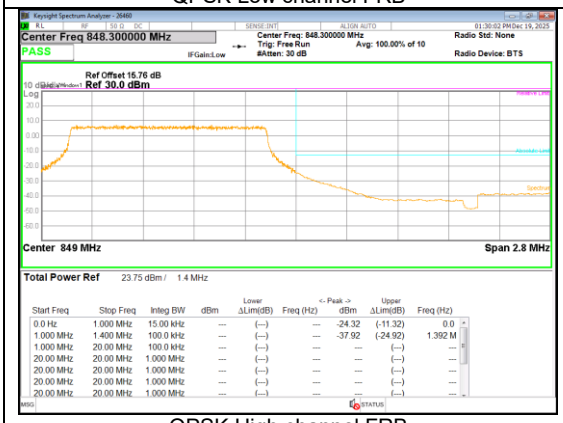
1.4 MHz



QPSK Low channel FRB



QPSK Low channel 1RB



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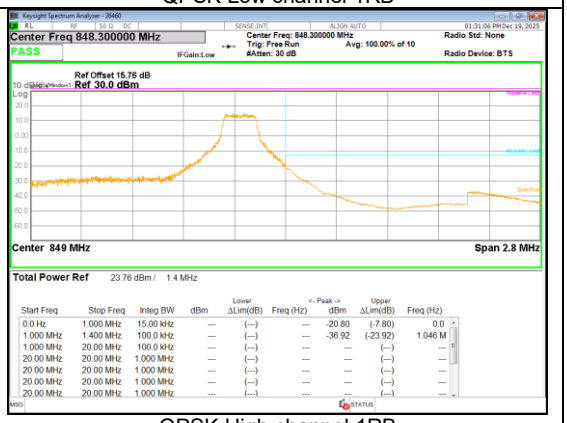
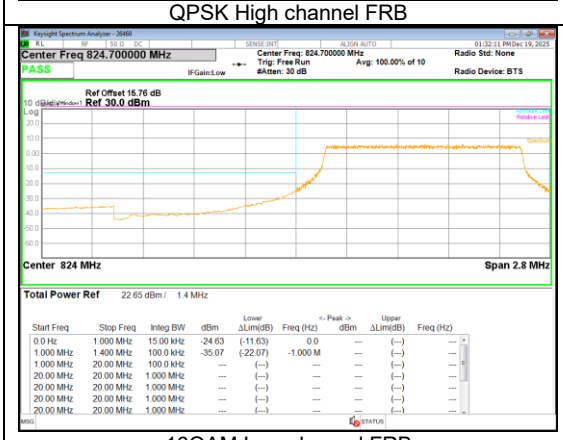
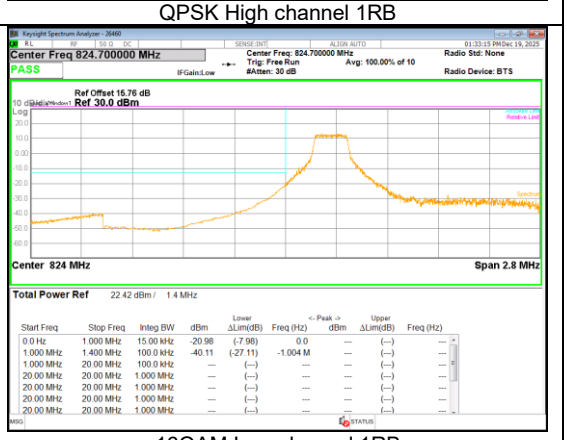


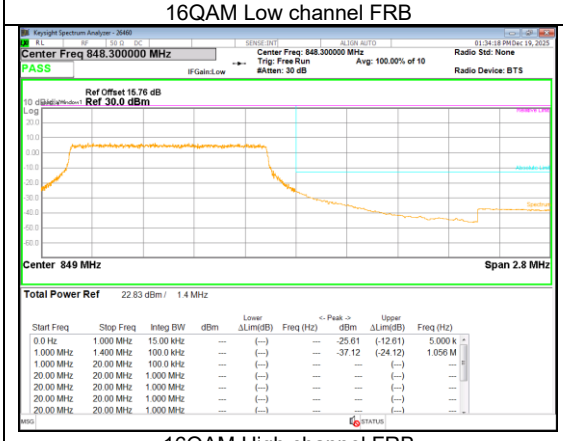
QPSK High channel 1RB



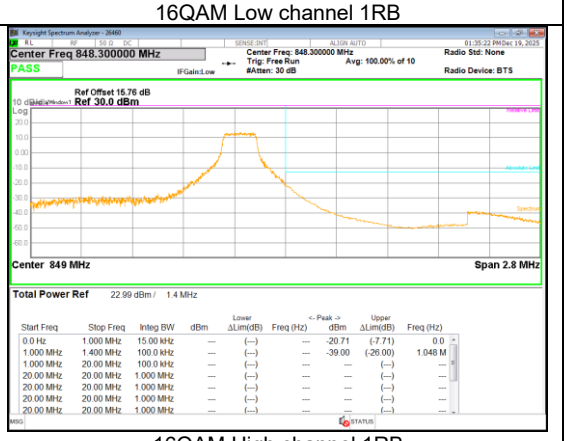
16QAM Low channel FRB



16QAM Low channel 1RB



16QAM High channel FRB



16QAM High channel 1RB

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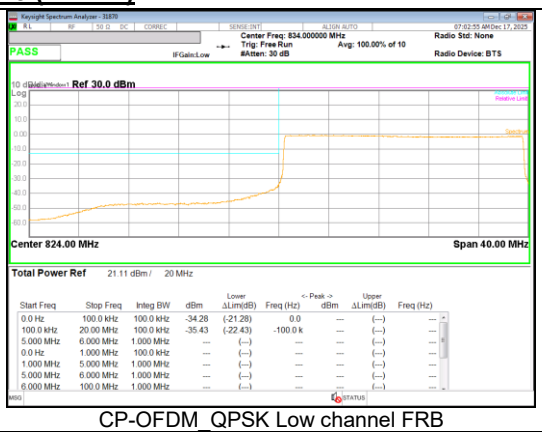
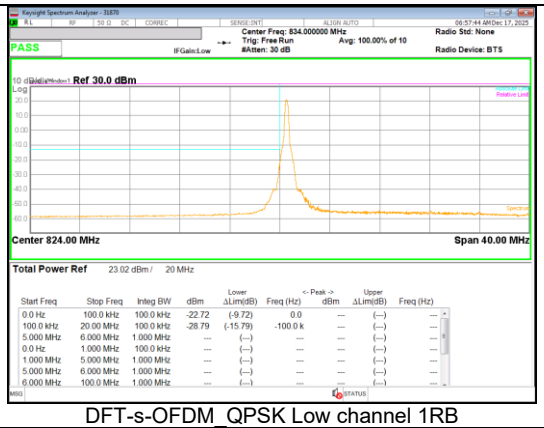
NR Band n5 (ANT A)

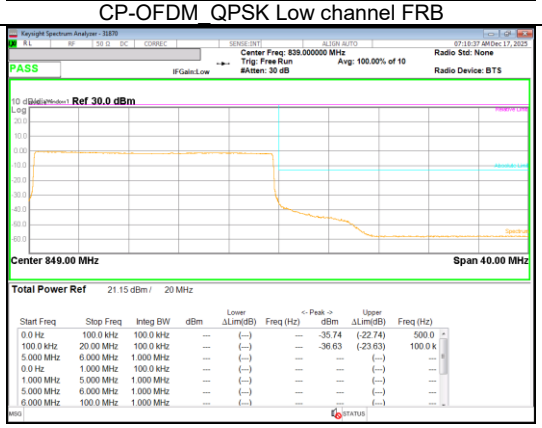
20MHz



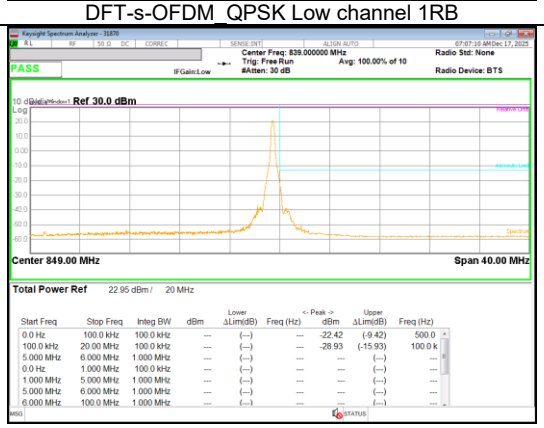
CP-OFDM_QPSK Low channel FRB



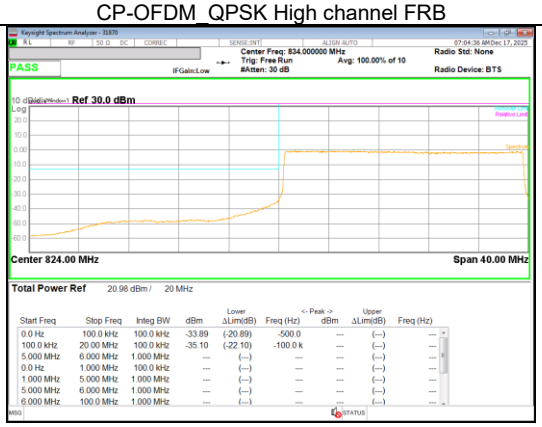
DFT-s-OFDM_QPSK Low channel 1RB



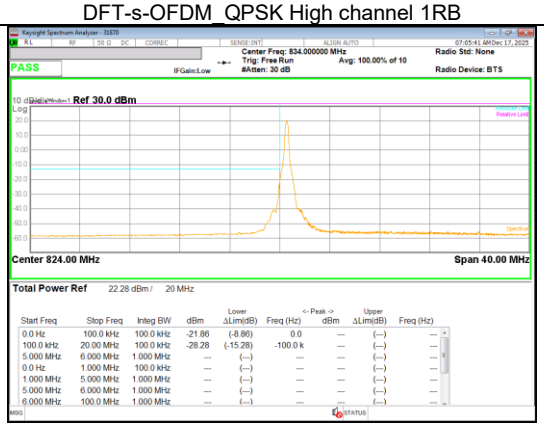
CP-OFDM_QPSK High channel FRB



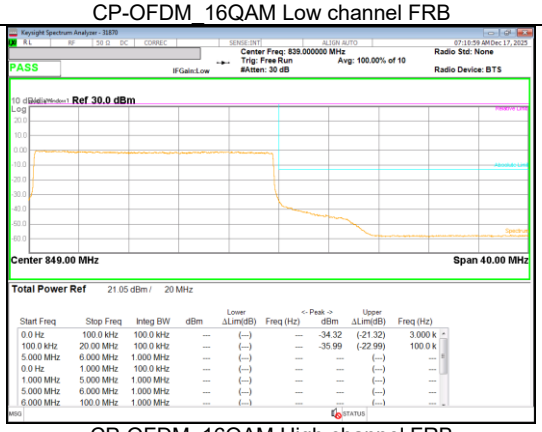
DFT-s-OFDM_QPSK High channel 1RB



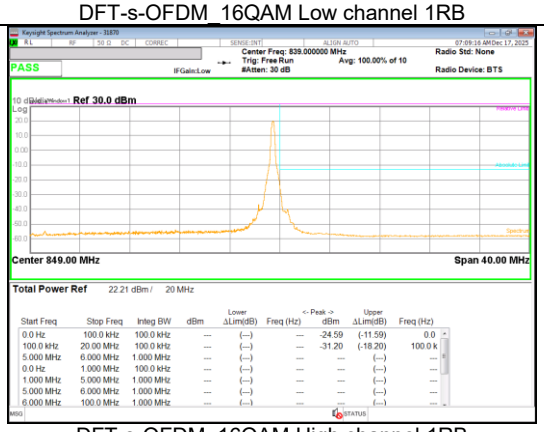
CP-OFDM_16QAM Low channel FRB



DFT-s-OFDM_16QAM Low channel 1RB



CP-OFDM_16QAM High channel FRB



DFT-s-OFDM_16QAM High channel 1RB

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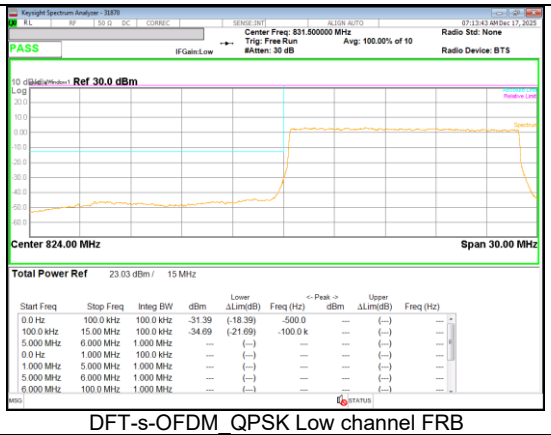
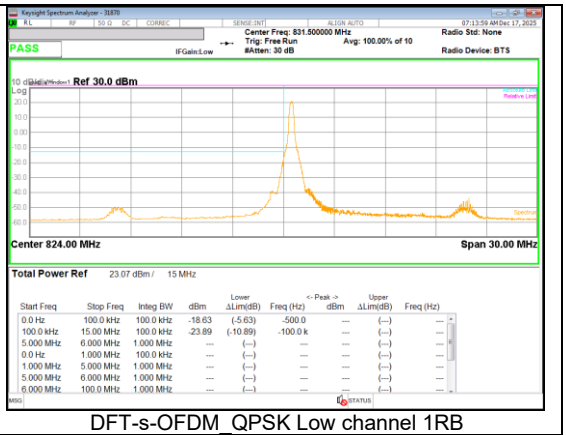
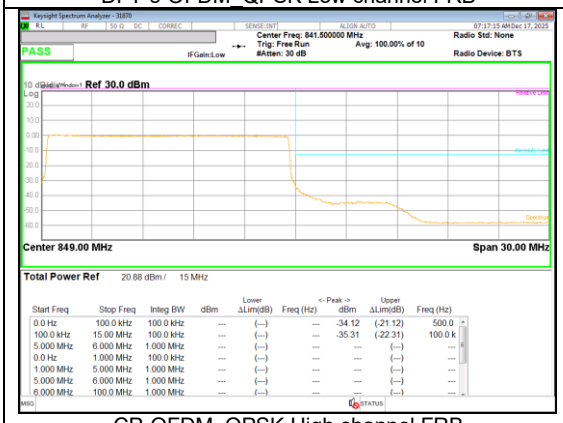
15MHz



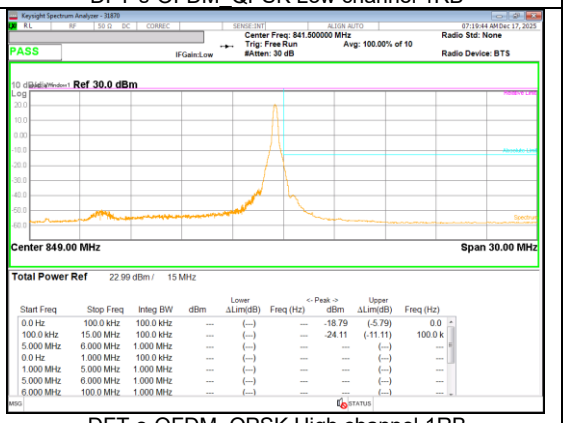
DFT-s-OFDM_QPSK Low channel FRB



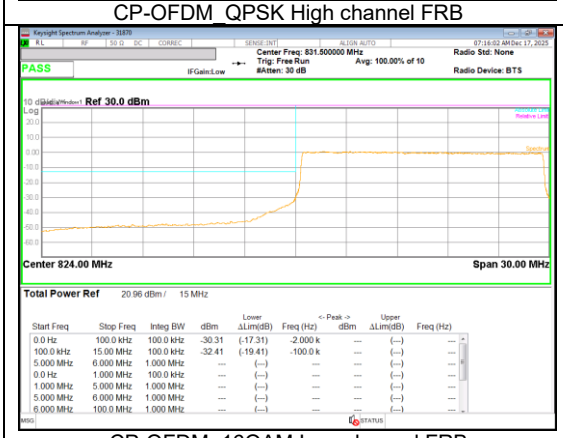
DFT-s-OFDM_QPSK Low channel 1RB



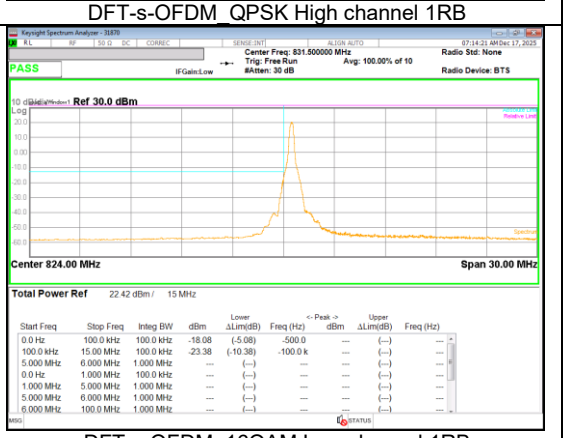
CP-OFDM_QPSK High channel FRB



DFT-s-OFDM_QPSK High channel 1RB

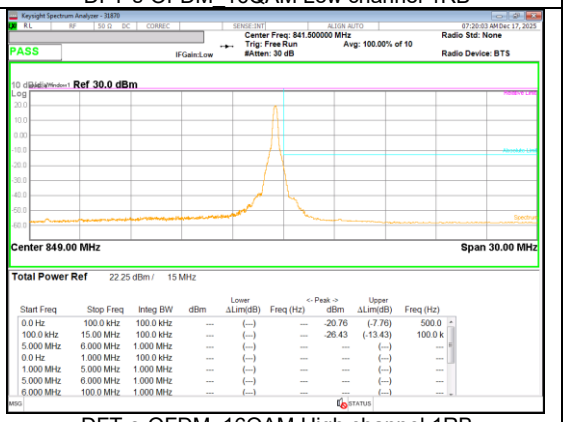


CP-OFDM_16QAM Low channel FRB



DFT-s-OFDM_16QAM Low channel 1RB

CP-OFDM_16QAM High channel FRB



DFT-s-OFDM_16QAM High channel 1RB

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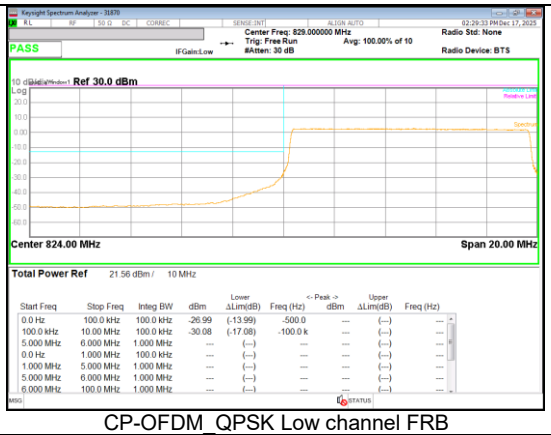
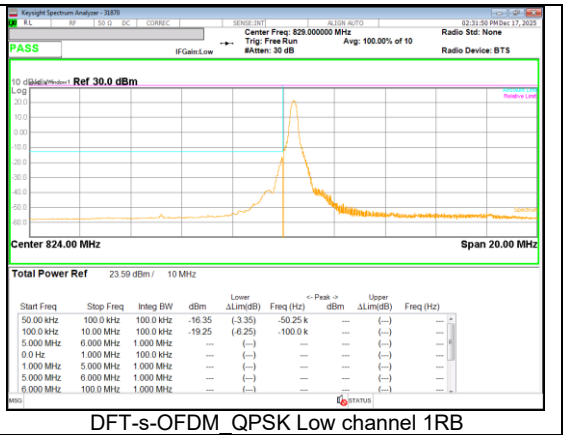
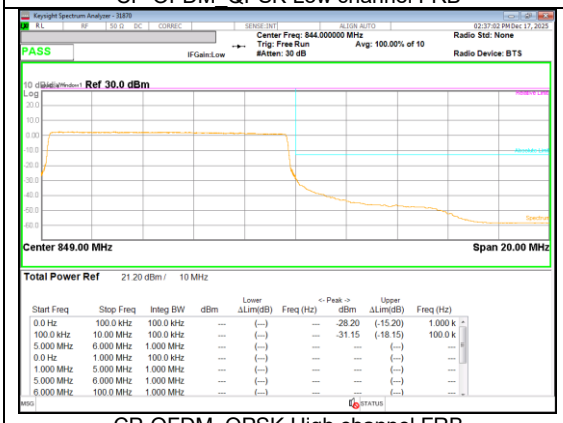
10MHz



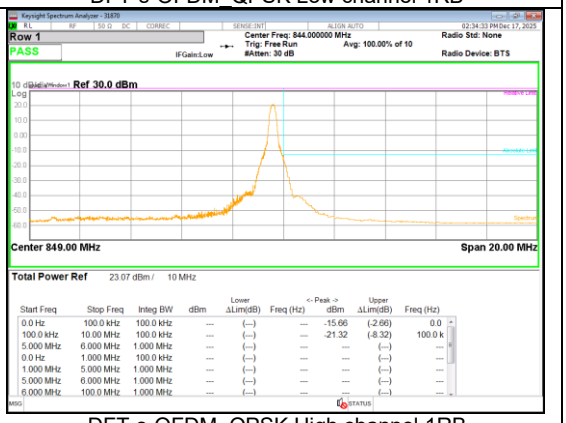
CP-OFDM_QPSK Low channel FRB



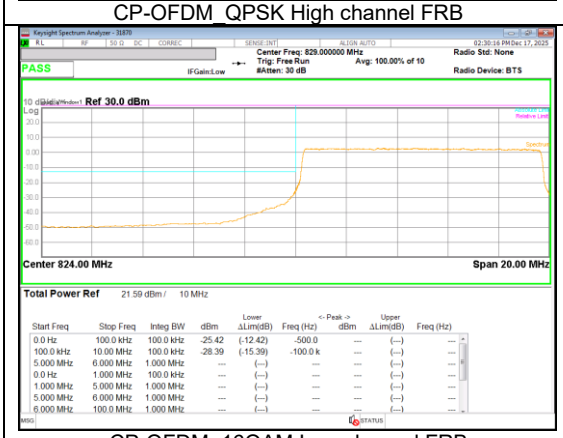
DFT-s-OFDM_QPSK Low channel 1RB



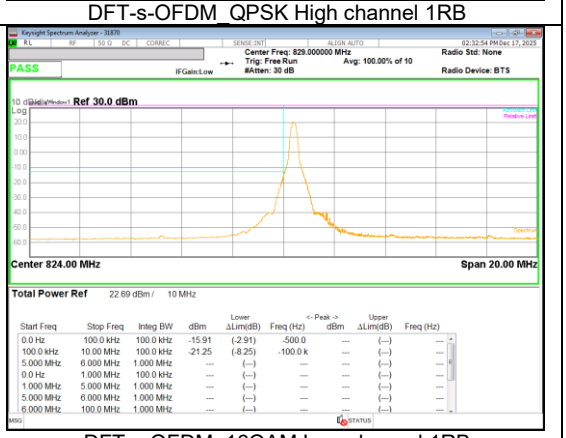
CP-OFDM_QPSK High channel FRB



DFT-s-OFDM_QPSK High channel 1RB

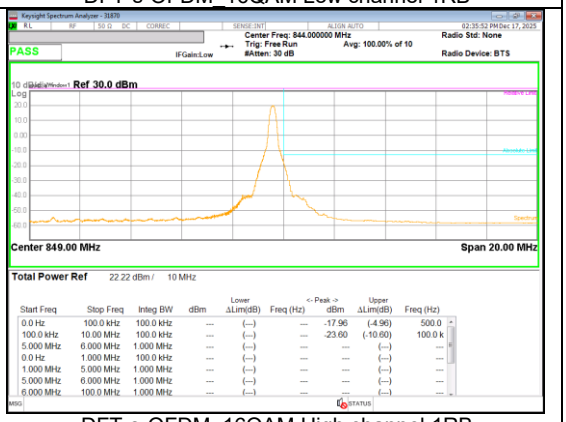


CP-OFDM_16QAM Low channel FRB



DFT-s-OFDM_16QAM Low channel 1RB

CP-OFDM_16QAM High channel FRB



DFT-s-OFDM_16QAM High channel 1RB

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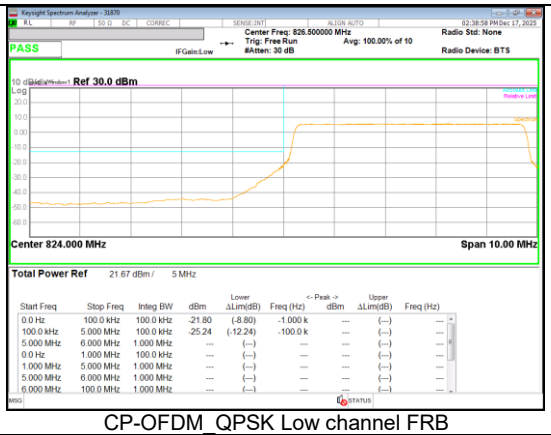
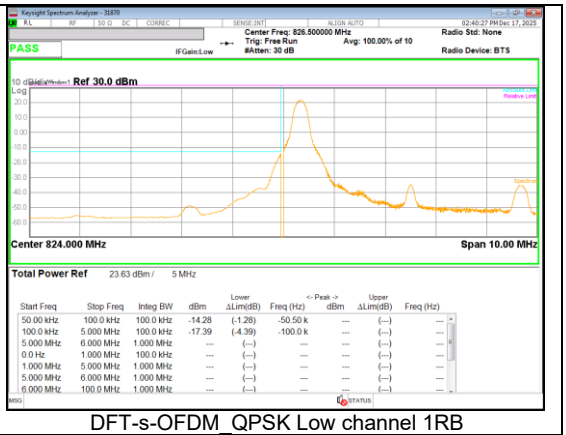
5MHz

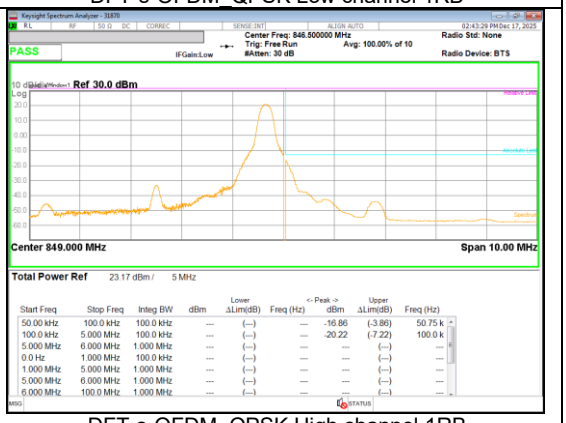


CP-OFDM_QPSK Low channel FRB

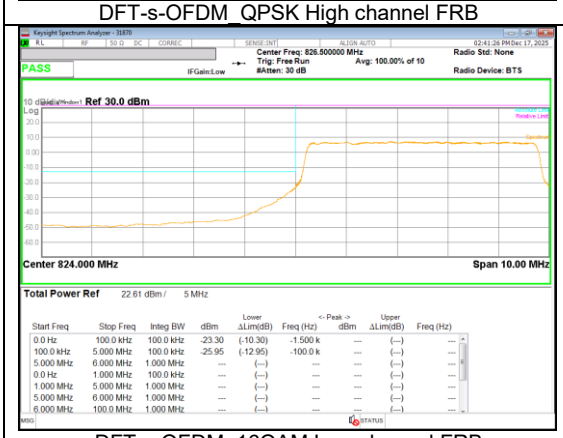


DFT-s-OFDM_QPSK Low channel 1RB

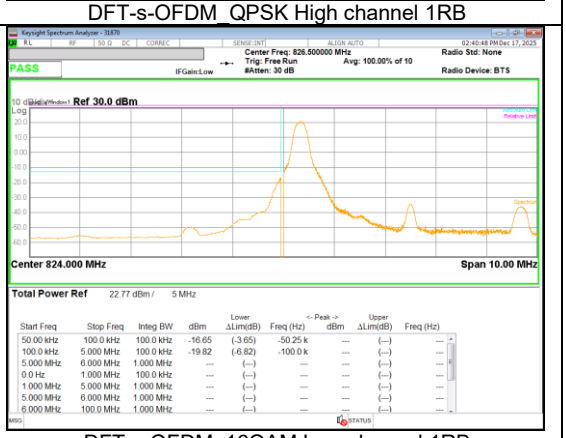
DFT-s-OFDM_QPSK High channel FRB



DFT-s-OFDM_QPSK High channel 1RB

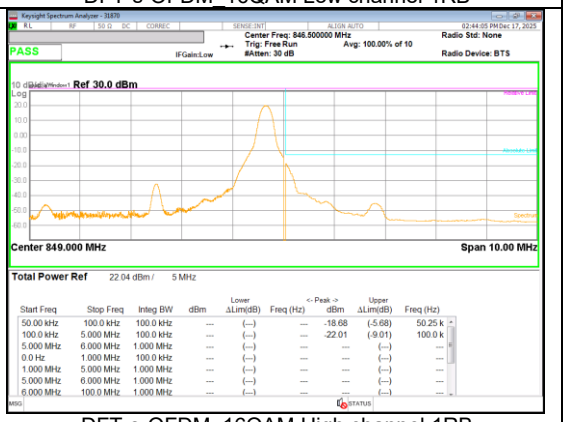


DFT-s-OFDM_16QAM Low channel FRB



DFT-s-OFDM_16QAM Low channel 1RB

DFT-s-OFDM_16QAM High channel FRB



DFT-s-OFDM_16QAM High channel 1RB

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8.5. CONDUCTED SPURIOUS EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917

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.

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

   (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;

NOTE1

LTE: It was tested at 1RB QPSK as worst case (the highst output power and density).
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.

RESULTS

See the following pages.

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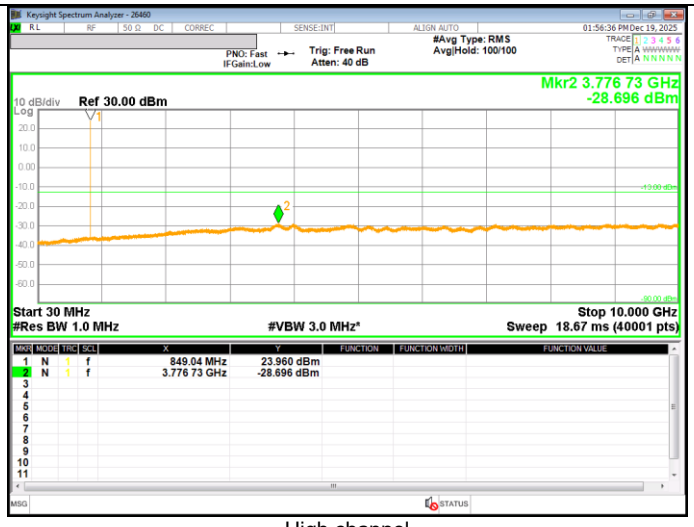
8.5.1. OUT OF BAND EMISSIONS RESULT

LTE Band 5 (ANT A)

10 MHz QPSK

Low channel

Mid channel



High channel

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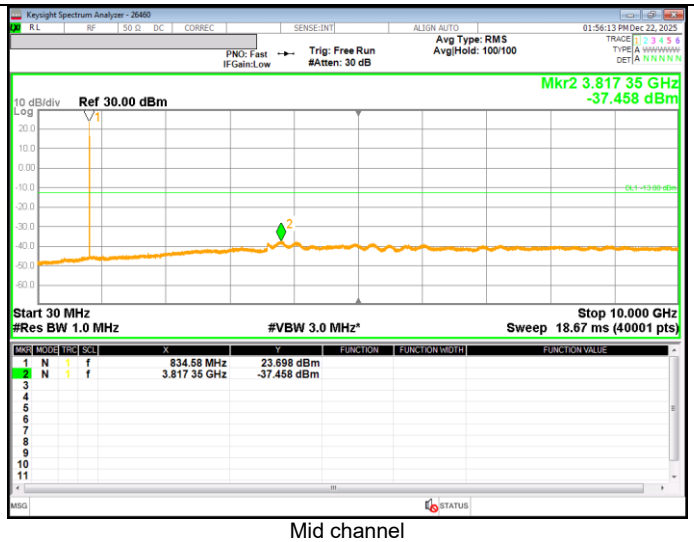
NR Band n5 DFT-s OFDM (ANT A)

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

LIMITS

§22.355 - 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 OBW results)

RESULTS

See the following pages.

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8.6.1. FREQUENCY STABILITY RESULT

LTE Band 5 (Lowest Frequency: 16QAM / Highest Frequency: 16QAM)

Test Date	2025-12-19
Test Engineer	22933

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				
		Low Channel		High Channel		Limit [ppm]
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.88	50	824.70000582	0.000	848.30000569	0.002	2.5
3.88	40	824.70000608	0.000	848.30000628	0.001	2.5
3.88	30	824.70000704	-0.001	848.30000813	-0.001	2.5
3.88	***20***	***824.70000609***	***0.000***	***848.30000704***	***0.000***	***2.5***
3.88	10	824.70000813	-0.002	848.30000709	0.000	2.5
3.88	0	824.70000491	0.001	848.30000419	0.003	2.5
3.88	-10	824.70000516	0.001	848.30000555	0.002	2.5
3.88	-20	824.70000637	0.000	848.30000616	0.001	2.5
3.88	-30	824.70000809	-0.002	848.30000772	-0.001	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				
		Low Channel		High Channel		Limit [ppm]
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.88	***20***	**824.70000609**	***0***	**848.30000704**	***0***	***2.5***
4.45	20	824.70000619	0.000	848.30000755	-0.001	2.5
3.70	20	824.70000814	-0.002	848.30000809	-0.001	2.5

NR Band n5 (Lowest Frequency: 16QAM / Highest Frequency: QPSK)

Test Date	2025-12-15
Test Engineer	22933

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				
		Low Channel		High Channel		Limit [ppm]
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.88	50	826.50000151	0.000	846.50000306	-0.002	2.5
3.88	40	826.50000162	0.000	846.50000228	-0.001	2.5
3.88	30	826.50000209	-0.001	846.50000174	-0.001	2.5
3.88	***20***	***826.50000158***	***0.000***	***846.50000131***	***0.000***	***2.5***
3.88	10	826.50000188	0.000	846.50000268	-0.002	2.5
3.88	0	826.50000171	0.000	846.50000204	-0.001	2.5
3.88	-10	826.50000193	0.000	846.50000198	-0.001	2.5
3.88	-20	826.50000188	0.000	846.50000159	0.000	2.5
3.88	-30	826.50000164	0.000	846.50000158	0.000	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				
		Low Channel		High Channel		Limit [ppm]
		[MHz]	Delta [ppm]	[MHz]	Delta [ppm]	
3.88	***20***	**826.50000158**	***0***	**846.50000131**	***0***	***2.5***
4.45	20	826.50000209	-0.001	846.50000308	-0.002	2.5
3.70	20	826.50000255	-0.001	846.50000294	-0.002	2.5

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9. RADIATED RESULTS

9.1. RADIATED POWER (ERP)

RULE PART(S)

FCC: §2.1046, §22.913

LIMITS

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

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 ≥ 1% to 5% of the OBW;
b) Set VBW ≥ 3 × RBW;
c) Set span ≥ 2 × to 3 × the OBW.;
d) Sweep time = auto couple or Set ≥ [10 × (number of points in sweep) × (transmission period)] for single sweep (automation-compatible) measurement. Transmission period is the on and off time of the transmitter.;
e) Detector = rms;
f) Ensure that the number of measurement points ≥ 2 x span/RBW;
g) Trace mode = average;
h) If the EUT can be configured to transmit continuously, then set the trigger to free run.
i) If the EUT cannot be configured to transmit continuously, then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep. Verify that the sweep time is less than or equal to the transmission burst duration. Time gating can also be used under similar constraints (i.e., configured such that measurement data is collected only during active full-power transmissions).
j) Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over multiple symbols, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.
k) Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band or channel power measurement function, with the band/channel limits set equal to the OBW band edges. If the instrument does not have a band or channel power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

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NOTE

LTE, 5G NR : The OBW value corresponding to the total channel bandwidth is the OBW of FullRB. Measurements were made with a 1RB configuration (Worst case) over the entire channel bandwidth, and FRB configurations were also reported for the worst BW.

TEST RESULTS

See the following pages.

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9.1.1. ERP RESULT

LTE Band 5 (ANT A)

BW (MHz)	Modulation	Frequency (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	ERP (W)	Limit (dBm)	Delta (dB)	RB
10	QPSK	829.00	21.95	V	3.01	-1.01	17.94	0.062	38.50	-20.56	1 / 25
		836.50	22.12	V	3.02	-0.97	18.13	0.065	38.50	-20.37	1 / 25
		844.00	22.89	V	3.03	-0.93	18.93	0.078	38.50	-19.57	1 / 49
	16-QAM	829.00	20.96	V	3.01	-1.01	16.95	0.050	38.50	-21.55	1 / 25
		836.50	21.14	V	3.02	-0.97	17.15	0.052	38.50	-21.35	1 / 25
		844.00	21.96	V	3.03	-0.93	18.00	0.063	38.50	-20.50	1 / 0
5	QPSK	826.50	20.80	V	3.00	-1.02	16.78	0.048	38.50	-21.72	1 / 24
		836.50	21.77	V	3.02	-0.97	17.78	0.060	38.50	-20.72	1 / 24
		846.50	22.52	V	3.04	-0.92	18.56	0.072	38.50	-19.94	1 / 0
	16-QAM	826.50	20.39	V	3.00	-1.02	16.37	0.043	38.50	-22.13	1 / 0
		836.50	21.34	V	3.02	-0.97	17.35	0.054	38.50	-21.15	1 / 0
		846.50	21.41	V	3.04	-0.92	17.45	0.056	38.50	-21.05	1 / 0
3	QPSK	825.50	20.67	V	3.00	-1.02	16.65	0.046	38.50	-21.85	1 / 8
		836.50	21.76	V	3.02	-0.97	17.77	0.060	38.50	-20.73	1 / 8
		847.50	1.00	V	3.04	-0.91	-2.95	0.001	38.50	-41.45	1 / 14
	16-QAM	825.50	19.88	V	3.00	-1.02	15.86	0.039	38.50	-22.64	1 / 8
		836.50	21.17	V	3.02	-0.97	17.18	0.052	38.50	-21.32	1 / 8
		847.50	21.76	V	3.04	-0.91	17.81	0.060	38.50	-20.69	1 / 14
1.4	QPSK	824.70	20.46	V	3.00	-1.03	16.44	0.044	38.50	-22.06	1 / 0
		836.50	21.73	V	3.02	-0.97	17.74	0.059	38.50	-20.76	1 / 3
		848.30	22.21	V	3.04	-0.91	18.26	0.067	38.50	-20.24	1 / 5
	16-QAM	824.70	19.76	V	3.00	-1.03	15.74	0.037	38.50	-22.76	1 / 0
		836.50	21.35	V	3.02	-0.97	17.36	0.054	38.50	-21.14	1 / 3
		848.30	21.17	V	3.04	-0.91	17.22	0.053	38.50	-21.28	1 / 0
10	QPSK	829.00	21.27	V	3.01	-1.01	17.26	0.053	38.50	-21.24	50/0
		836.50	21.47	V	3.02	-0.97	17.48	0.056	38.50	-21.02	50/0
		844.00	22.01	V	3.03	-0.93	18.05	0.064	38.50	-20.45	50/0
	16-QAM	829.00	20.06	V	3.01	-1.01	16.05	0.040	38.50	-22.45	50/0
		836.50	20.26	V	3.02	-0.97	16.27	0.042	38.50	-22.23	50/0
		844.00	20.88	V	3.03	-0.93	16.92	0.049	38.50	-21.58	50/0

LTE Band 5 (ANT E)

BW (MHz)	Modulation	Frequency (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	ERP (W)	Limit (dBm)	Delta (dB)	RB
10	QPSK	829.00	24.89	V	3.01	-1.01	20.88	0.122	38.50	-17.62	1 / 25
		836.50	25.31	V	3.02	-0.97	21.32	0.136	38.50	-17.18	1 / 0
		844.00	25.89	V	3.03	-0.93	21.93	0.156	38.50	-16.57	1 / 49
	16-QAM	829.00	23.84	V	3.01	-1.01	19.83	0.096	38.50	-18.67	1 / 49
		836.50	24.25	V	3.02	-0.97	20.26	0.106	38.50	-18.24	1 / 0
		844.00	24.73	V	3.03	-0.93	20.77	0.119	38.50	-17.73	1 / 25
5	QPSK	826.50	24.64	V	3.00	-1.02	20.62	0.115	38.50	-17.88	1 / 12
		836.50	25.87	V	3.02	-0.97	21.88	0.154	38.50	-16.62	1 / 12
		846.50	25.73	V	3.04	-0.92	21.77	0.150	38.50	-16.73	1 / 0
	16-QAM	826.50	23.58	V	3.00	-1.02	19.56	0.090	38.50	-18.94	1 / 12
		836.50	24.91	V	3.02	-0.97	20.92	0.124	38.50	-17.58	1 / 24
		846.50	24.10	V	3.04	-0.92	20.14	0.103	38.50	-18.36	1 / 24
3	QPSK	825.50	24.41	V	3.00	-1.02	20.39	0.109	38.50	-18.11	1 / 14
		836.50	25.35	V	3.02	-0.97	21.36	0.137	38.50	-17.14	1 / 8
		847.50	1.00	V	3.04	-0.91	-2.95	0.001	38.50	-41.45	1 / 14
	16-QAM	825.50	23.15	V	3.00	-1.02	19.13	0.082	38.50	-19.37	1 / 8
		836.50	24.50	V	3.02	-0.97	20.51	0.112	38.50	-17.99	1 / 0
		847.50	24.45	V	3.04	-0.91	20.50	0.112	38.50	-18.00	1 / 14
1.4	QPSK	824.70	24.12	V	3.00	-1.03	20.10	0.102	38.50	-18.40	1 / 5
		836.50	25.41	V	3.02	-0.97	21.42	0.139	38.50	-17.08	1 / 3
		848.30	25.58	V	3.04	-0.91	21.63	0.146	38.50	-16.87	1 / 0
	16-QAM	824.70	22.77	V	3.00	-1.03	18.75	0.075	38.50	-19.75	1 / 5
		836.50	24.35	V	3.02	-0.97	20.36	0.109	38.50	-18.14	1 / 0
		848.30	24.17	V	3.04	-0.91	20.22	0.105	38.50	-18.28	1 / 3
10	QPSK	829.00	24.65	V	3.01	-1.01	20.64	0.116	38.50	-17.86	50/0
		836.50	24.75	V	3.02	-0.97	20.76	0.119	38.50	-17.74	50/0
		844.00	24.78	V	3.03	-0.93	20.82	0.121	38.50	-17.68	50/0
5	16-QAM	826.50	22.49	V	3.00	-1.02	18.47	0.070	38.50	-20.03	25/0
		836.50	23.82	V	3.02	-0.97	19.83	0.096	38.50	-18.67	25/0
		846.50	23.24	V	3.04	-0.92	19.28	0.085	38.50	-19.22	25/0

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NR Band n5 DFT-s OFDM (ANT A)

BW (MHz)	Modulation	Frequency (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	ERP (W)	Limit (dBm)	Delta (dB)	RB
20	QPSK	834.00	22.05	V	3.02	-0.98	18.05	0.064	38.50	-20.45	1 / 1
		836.50	21.84	V	3.02	-0.97	17.85	0.061	38.50	-20.65	1 / 1
		839.00	22.52	V	3.03	-0.96	18.54	0.071	38.50	-19.96	1 / 1
	16-QAM	834.00	21.02	V	3.02	-0.98	17.02	0.050	38.50	-21.48	1 / 1
		836.50	20.94	V	3.02	-0.97	16.95	0.050	38.50	-21.55	1 / 1
		839.00	21.57	V	3.03	-0.96	17.59	0.057	38.50	-20.91	1 / 1
15	QPSK	831.50	21.77	V	3.01	-0.99	17.77	0.060	38.50	-20.73	1 / 1
		836.50	21.85	V	3.02	-0.97	17.86	0.061	38.50	-20.64	1 / 1
		841.50	22.65	V	3.03	-0.94	18.68	0.074	38.50	-19.82	1 / 1
	16-QAM	831.50	20.68	V	3.01	-0.99	16.68	0.047	38.50	-21.82	1 / 1
		836.50	20.96	V	3.02	-0.97	16.97	0.050	38.50	-21.53	1 / 1
		841.50	21.60	V	3.03	-0.94	17.63	0.058	38.50	-20.87	1 / 1
10	QPSK	829.00	21.43	V	3.01	-1.01	17.42	0.055	38.50	-21.08	1 / 25
		836.50	21.79	V	3.02	-0.97	17.80	0.060	38.50	-20.70	1 / 1
		844.00	22.33	V	3.03	-0.93	18.37	0.069	38.50	-20.13	1 / 49
	16-QAM	829.00	20.33	V	3.01	-1.01	16.32	0.043	38.50	-22.18	1 / 25
		836.50	20.87	V	3.02	-0.97	16.88	0.049	38.50	-21.62	1 / 1
		844.00	21.45	V	3.03	-0.93	17.49	0.056	38.50	-21.01	1 / 1
5	QPSK	826.50	21.08	V	3.00	-1.02	17.06	0.051	38.50	-21.44	1 / 1
		836.50	21.60	V	3.02	-0.97	17.61	0.058	38.50	-20.89	1 / 1
		846.50	22.23	V	3.04	-0.92	18.27	0.067	38.50	-20.23	1 / 1
	16-QAM	826.50	19.95	V	3.00	-1.02	15.93	0.039	38.50	-22.57	1 / 1
		836.50	20.70	V	3.02	-0.97	16.71	0.047	38.50	-21.79	1 / 1
		846.50	21.31	V	3.04	-0.92	17.35	0.054	38.50	-21.15	1 / 1

15	QPSK	831.50	20.90	V	3.01	-0.99	16.90	0.049	38.50	-21.60	75/0
		836.50	20.87	V	3.02	-0.97	16.88	0.049	38.50	-21.62	75/0
		841.50	21.73	V	3.03	-0.94	17.76	0.060	38.50	-20.74	75/0
	16-QAM	831.50	19.82	V	3.01	-0.99	15.82	0.038	38.50	-22.68	75/0
		836.50	20.03	V	3.02	-0.97	16.04	0.040	38.50	-22.46	75/0
		841.50	20.73	V	3.03	-0.94	16.76	0.047	38.50	-21.74	75/0

NR Band n5 DFT-s OFDM (ANT E)

BW (MHz)	Modulation	Frequency (MHz)	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	ERP (W)	Limit (dBm)	Delta (dB)	RB
20	QPSK	834.00	25.40	V	3.02	-0.98	21.40	0.138	38.50	-17.10	1 / 1
		836.50	25.77	V	3.02	-0.97	21.78	0.151	38.50	-16.72	1 / 1
		839.00	26.12	V	3.03	-0.96	22.14	0.164	38.50	-16.36	1 / 1
	16-QAM	834.00	24.47	V	3.02	-0.98	20.47	0.111	38.50	-18.03	1 / 1
		836.50	24.71	V	3.02	-0.97	20.72	0.118	38.50	-17.78	1 / 1
		839.00	25.17	V	3.03	-0.96	21.19	0.132	38.50	-17.31	1 / 1
15	QPSK	831.50	25.06	V	3.01	-0.99	21.06	0.128	38.50	-17.44	1 / 1
		836.50	25.74	V	3.02	-0.97	21.75	0.150	38.50	-16.75	1 / 1
		841.50	26.19	V	3.03	-0.94	22.22	0.167	38.50	-16.28	1 / 1
	16-QAM	831.50	24.15	V	3.01	-0.99	20.15	0.104	38.50	-18.35	1 / 1
		836.50	24.69	V	3.02	-0.97	20.70	0.117	38.50	-17.80	1 / 1
		841.50	25.19	V	3.03	-0.94	21.22	0.132	38.50	-17.28	1 / 1
10	QPSK	829.00	24.67	V	3.01	-1.01	20.66	0.116	38.50	-17.84	1 / 1
		836.50	25.68	V	3.02	-0.97	21.69	0.148	38.50	-16.81	1 / 1
		844.00	25.95	V	3.03	-0.93	21.99	0.158	38.50	-16.51	1 / 25
	16-QAM	829.00	23.82	V	3.01	-1.01	19.81	0.096	38.50	-18.69	1 / 1
		836.50	24.60	V	3.02	-0.97	20.61	0.115	38.50	-17.89	1 / 1
		844.00	25.04	V	3.03	-0.93	21.08	0.128	38.50	-17.42	1 / 25
5	QPSK	826.50	24.43	V	3.00	-1.02	20.41	0.110	38.50	-18.09	1 / 1
		836.50	25.68	V	3.02	-0.97	21.69	0.148	38.50	-16.81	1 / 1
		846.50	25.79	V	3.04	-0.92	21.83	0.152	38.50	-16.67	1 / 1
	16-QAM	826.50	23.46	V	3.00	-1.02	19.44	0.088	38.50	-19.06	1 / 1
		836.50	24.67	V	3.02	-0.97	20.68	0.117	38.50	-17.82	1 / 1
		846.50	24.89	V	3.04	-0.92	20.93	0.124	38.50	-17.57	1 / 1

15	QPSK	831.50	24.08	V	3.01	-0.99	20.08	0.102	38.50	-18.42	75/0
		836.50	24.82	V	3.02	-0.97	20.83	0.121	38.50	-17.67	75/0
		841.50	25.24	V	3.03	-0.94	21.27	0.134	38.50	-17.23	75/0
	16-QAM	831.50	23.11	V	3.01	-0.99	19.11	0.081	38.50	-19.39	75/0
		836.50	23.82	V	3.02	-0.97	19.83	0.096	38.50	-18.67	75/0
		841.50	24.16	V	3.03	-0.94	20.19	0.104	38.50	-18.31	75/0

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9.2. RADIATIED SPURIOUS EMISSION

RULE PART(S)

FCC: §2.1053, §22.917

LIMIT

§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.

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.
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 ≥ 2 x span/RBW;
g) Trace mode = average(LTE, 5G NR);

NOTE1

LTE: It was tested at 1RB QPSK as worst case (the highst output power and density).
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.

RESULTS

See the following pages.

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9.2.1. SPURIOUS RADIATION RESULT

LTE Band 5

10 MHz

QPSK

ANT A

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

Company: Samsung
Project #: 4791953314
Date: 2025-12-19
Test Engineer: 27089
Configuration: EUT / AC Adapter, Z-Position
Location: Chamber 2
Mode: LTE_QPSK Band 5 Harmonics, 10MHz Bandwidth
Test Votage: AC 120 V, 60 Hz

f MHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	AFCL (dB/m)	Conversion Factor(dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 829MHz									
1658.00	-73.2	H	3.0	-6.4	11.74	-67.8	-13.0	-54.8	
2487.00	-50.9	H	3.0	-1.7	11.74	-40.8	-13.0	-27.8	
3316.00	-76.0	H	3.0	-0.1	11.74	-64.4	-13.0	-51.4	
4145.00	-73.4	H	3.0	1.7	11.74	-59.9	-13.0	-46.9	
4974.00	-77.7	H	3.0	3.1	11.74	-62.8	-13.0	-49.8	NF
Mid Ch, 836.5MHz									
1673.00	-58.5	V	3.0	-6.3	11.74	-53.1	-13.0	-40.1	
2509.50	-74.3	V	3.0	-1.6	11.74	-64.2	-13.0	-51.2	
3346.0	-75.3	V	3.0	0.1	11.74	-63.5	-13.0	-50.5	
4182.50	-76.8	V	3.0	1.7	11.74	-63.4	-13.0	-50.4	
5019.00	-77.8	V	3.0	3.2	11.74	-62.8	-13.0	-49.8	
1673.00	-73.9	H	3.0	-6.3	11.74	-68.5	-13.0	-55.5	
2509.50	-45.4	H	3.0	-1.6	11.74	-35.3	-13.0	-22.3	
3346.00	-75.3	H	3.0	0.1	11.74	-63.4	-13.0	-50.4	
4182.50	-72.6	H	3.0	1.7	11.74	-59.2	-13.0	-46.2	
5019.00	-77.8	H	3.0	3.2	11.74	-62.8	-13.0	-49.8	NF
High Ch, 844MHz									
1688.00	-70.7	H	3.0	-6.2	11.74	-65.2	-13.0	-52.2	
2532.00	-48.2	H	3.0	-1.6	11.74	-38.1	-13.0	-25.1	
3376.00	-76.1	H	3.0	0.2	11.74	-64.1	-13.0	-51.1	
4220.00	-73.8	H	3.0	1.7	11.74	-60.3	-13.0	-47.3	
5064.00	-77.5	H	3.0	3.3	11.74	-62.5	-13.0	-49.5	NF

NF : Noise Floor

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10 MHz

QPSK

ANT E

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

Company: Samsung
Project #: 4791953314
Date: 2025-12-22
Test Engineer: 27089
Configuration: EUT / AC Adapter, Z-Position
Location: Chamber 2
Mode: LTE_QPSK Band 5 Harmonics, 10MHz Bandwidth
Test Votage: AC 120 V, 60 Hz

f MHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	AFCL (dB/m)	Conversion Factor(dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 829MHz									
1658.00	-74.9	H	3.0	-6.4	11.74	-69.5	-13.0	-56.5	
2487.00	-76.2	H	3.0	-1.7	11.74	-66.2	-13.0	-53.2	
3316.00	-76.7	H	3.0	-0.1	11.74	-65.0	-13.0	-52.0	
4145.00	-76.9	H	3.0	1.7	11.74	-63.4	-13.0	-50.4	NF
4974.00	-77.8	H	3.0	3.1	11.74	-62.9	-13.0	-49.9	NF
Mid Ch, 836.5MHz									
1673.00	-75.0	V	3.0	-6.3	11.74	-69.5	-13.0	-56.5	
2509.50	-75.6	V	3.0	-1.6	11.74	-65.5	-13.0	-52.5	
3346.00	-75.6	V	3.0	0.1	11.74	-63.7	-13.0	-50.7	
4182.50	-76.7	V	3.0	1.7	11.74	-63.2	-13.0	-50.2	NF
5019.00	-77.8	V	3.0	3.2	11.74	-62.9	-13.0	-49.9	NF
1673.00	-74.8	H	3.0	-6.3	11.74	-69.4	-13.0	-56.4	
2509.50	-75.3	H	3.0	-1.6	11.74	-65.2	-13.0	-52.2	
3346.00	-75.3	H	3.0	0.1	11.74	-63.5	-13.0	-50.5	
4182.50	-76.8	H	3.0	1.7	11.74	-63.3	-13.0	-50.3	NF
5019.00	-77.7	H	3.0	3.2	11.74	-62.8	-13.0	-49.8	NF
High Ch, 844MHz									
1688.00	-74.9	H	3.0	-6.2	11.74	-69.4	-13.0	-56.4	
2532.00	-74.3	H	3.0	-1.6	11.74	-64.1	-13.0	-51.1	
3376.00	-75.6	H	3.0	0.2	11.74	-63.7	-13.0	-50.7	
4220.00	-76.9	H	3.0	1.7	11.74	-63.5	-13.0	-50.5	NF
5064.00	-77.9	H	3.0	3.3	11.74	-62.9	-13.0	-49.9	NF

NF : Noise Floor

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NR Band n5 DFT-s OFDM

15 MHz

DFT-s-OFDM

QPSK

ANT A

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

Company: Samsung
Project #: 4791953314
Date: 2025-12-17
Test Engineer: 27089
Configuration: EUT / AC Adapter, Y-Position
Location: Chamber 2
Mode: 5G NR_QPSK NR n5 Harmonics, 15MHz Bandwidth
Test Votage: AC 120 V, 60 Hz

f MHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	AFCL (dB/m)	Conversion Factor(dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 831.5MHz									
1663.00	-57.9	H	3.0	-6.4	11.74	-52.5	-13.0	-39.5	
2494.50	-74.4	H	3.0	-1.7	11.74	-64.3	-13.0	-51.3	
3326.00	-77.1	H	3.0	0.0	11.74	-65.4	-13.0	-52.4	
4157.50	-77.2	H	3.0	1.7	11.74	-63.7	-13.0	-50.7	
Mid Ch, 836.5MHz									
1673.00	-58.4	V	3.0	-6.3	11.74	-52.9	-13.0	-39.9	
2509.50	-74.8	V	3.0	-1.6	11.74	-64.7	-13.0	-51.7	
3346.00	-76.8	V	3.0	0.1	11.74	-65.0	-13.0	-52.0	
4182.50	-77.3	V	3.0	1.7	11.74	-63.8	-13.0	-50.8	
1673.00	-57.6	H	3.0	-6.3	11.74	-52.2	-13.0	-39.2	
2509.50	-75.9	H	3.0	-1.6	11.74	-65.8	-13.0	-52.8	
3346.00	-76.9	H	3.0	0.1	11.74	-65.0	-13.0	-52.0	
4182.50	-77.2	H	3.0	1.7	11.74	-63.7	-13.0	-50.7	
High Ch, 841.5MHz									
1683.00	-60.3	H	3.0	-6.3	11.74	-54.8	-13.0	-41.8	
2524.50	-75.8	H	3.0	-1.6	11.74	-65.7	-13.0	-52.7	
3366.00	-77.3	H	3.0	0.2	11.74	-65.4	-13.0	-52.4	
4207.50	-77.5	H	3.0	1.7	11.74	-64.0	-13.0	-51.0	

NF : Noise Floor

15 MHz

DFT-s-OFDM

QPSK

ANT E

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

Company: Samsung
Project #: 4791953314
Date: 2025-12-18
Test Engineer: 27089
Configuration: EUT / AC Adapter, Z-Position
Location: Chamber 2
Mode: 5G NR_QPSK NR n5 Harmonics, 15MHz Bandwidth
Test Votage: AC 120 V, 60 Hz

f MHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	AFCL (dB/m)	Conversion Factor(dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 831.5MHz									
1663.00	-71.3	V	3.0	-6.4	11.74	-66.0	-13.0	-53.0	
2494.50	-65.5	V	3.0	-1.7	11.74	-55.4	-13.0	-42.4	
3326.00	-76.9	V	3.0	0.0	11.74	-65.2	-13.0	-52.2	
4157.50	-76.9	V	3.0	1.7	11.74	-63.4	-13.0	-50.4	
4989.00	-78.2	V	3.0	3.2	11.74	-63.3	-13.0	-50.3	
Mid Ch, 836.5MHz									
1673.00	-69.7	V	3.0	-6.3	11.74	-64.3	-13.0	-51.3	
2509.50	-62.9	V	3.0	-1.6	11.74	-52.8	-13.0	-39.8	
3346.00	-77.0	V	3.0	0.1	11.74	-65.2	-13.0	-52.2	
4182.50	-77.0	V	3.0	1.7	11.74	-63.6	-13.0	-50.6	
5019.00	-78.3	V	3.0	3.2	11.74	-63.4	-13.0	-50.4	
High Ch, 841.5MHz									
1683.00	-73.9	V	3.0	-6.3	11.74	-68.4	-13.0	-55.4	
2524.50	-62.8	V	3.0	-1.6	11.74	-52.7	-13.0	-39.7	
3366.00	-76.5	V	3.0	0.2	11.74	-64.6	-13.0	-51.6	
4207.50	-77.0	V	3.0	1.7	11.74	-63.6	-13.0	-50.6	
5049.00	-78.2	V	3.0	3.3	11.74	-63.2	-13.0	-50.2	
1683.00	-72.7	H	3.0	-6.3	11.74	-67.2	-13.0	-54.2	
2524.50	-64.6	H	3.0	-1.6	11.74	-54.5	-13.0	-41.5	
3366.00	-76.5	H	3.0	0.2	11.74	-64.6	-13.0	-51.6	
4207.50	-76.6	H	3.0	1.7	11.74	-63.1	-13.0	-50.1	
5049.00	-78.2	H	3.0	3.3	11.74	-63.2	-13.0	-50.2	

NF : Noise Floor

END OF REPORT

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218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

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