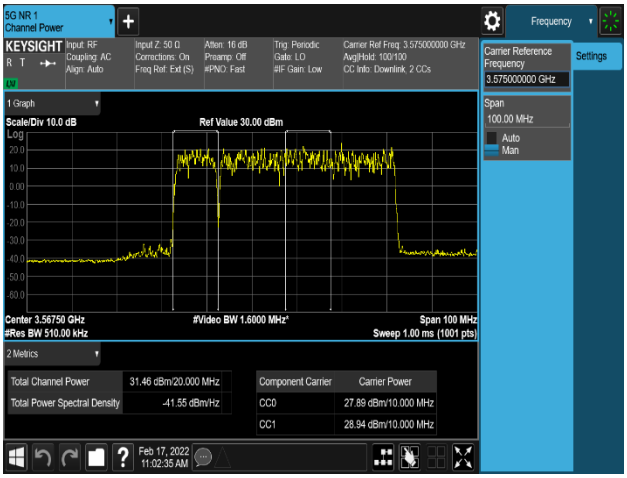
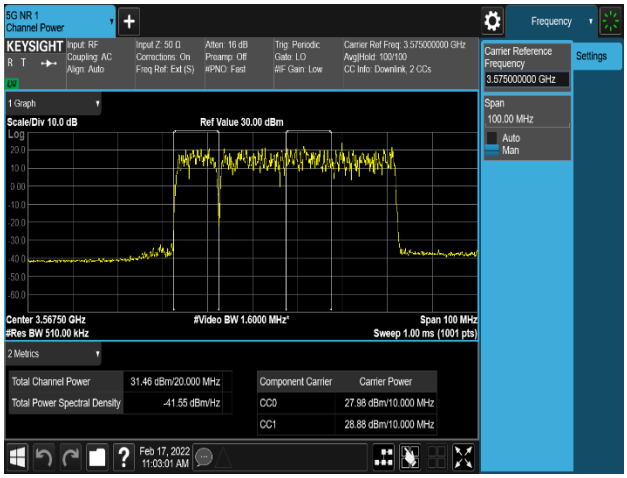
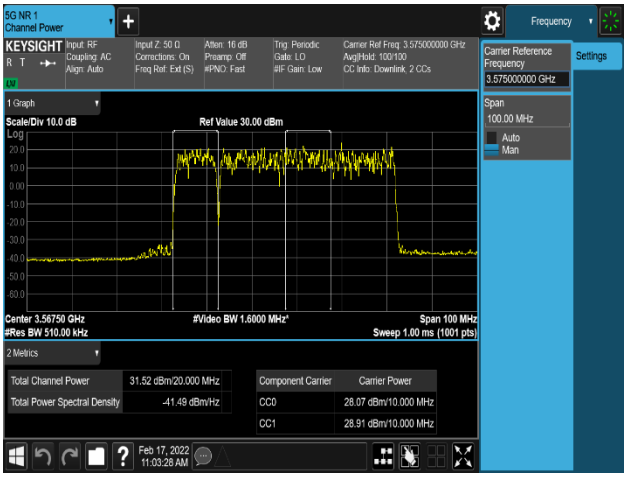


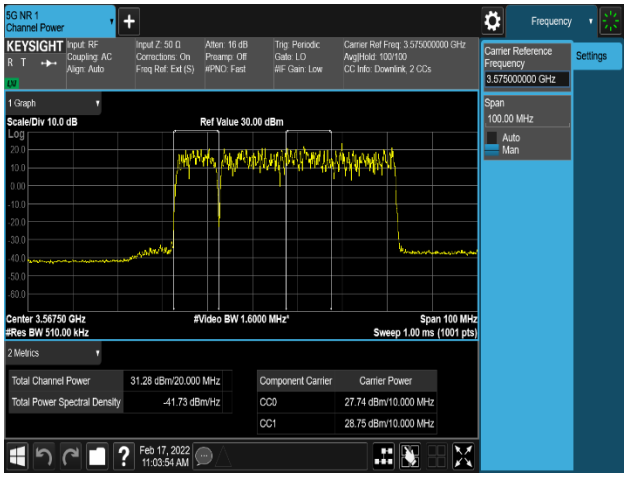
Plot 8-307. Equivalent Isotropic Radiated Power Plot
(NR_n48_2C_10M+40M_256QAM - Low Channel, Port 0)



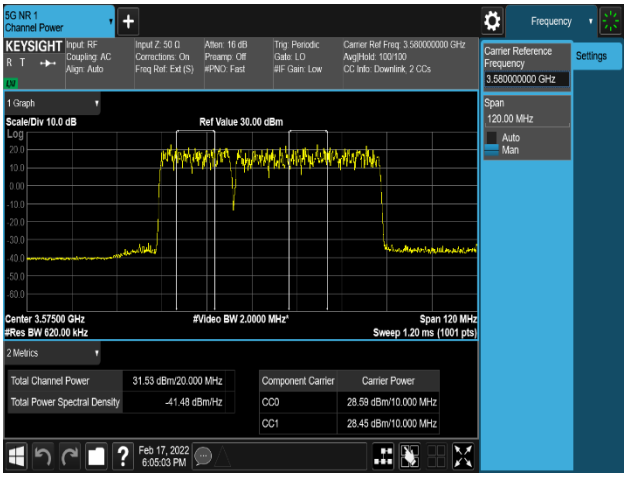
Plot 8-308. Equivalent Isotropic Radiated Power Plot
(NR_n48_2C_10M+40M_256QAM - Low Channel, Port 1)



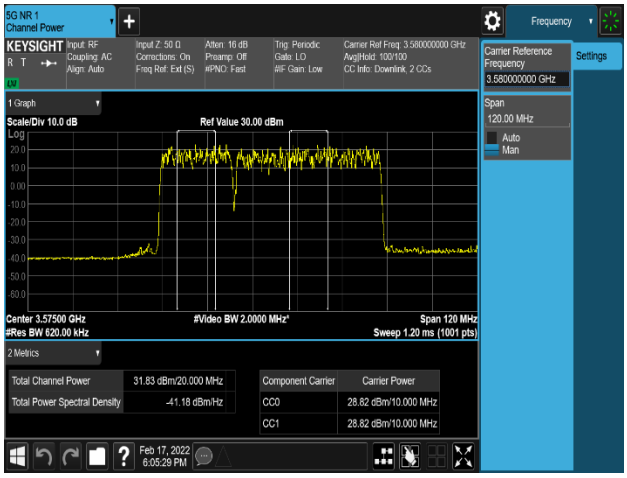
Plot 8-309. Equivalent Isotropic Radiated Power Plot
(NR_n48_2C_10M+40M_256QAM - Low Channel, Port 2)



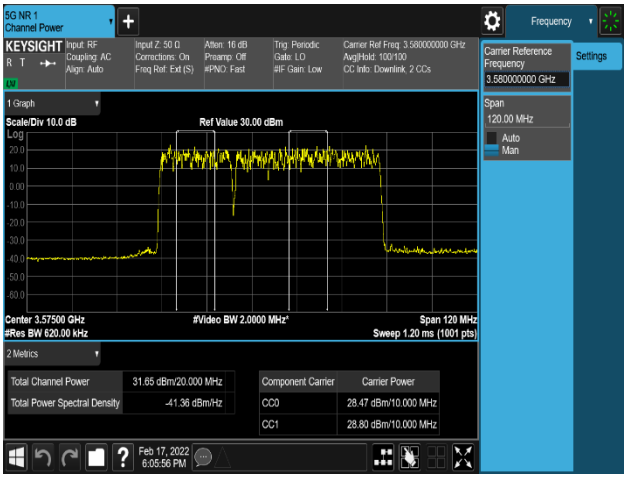
Plot 8-310. Equivalent Isotropic Radiated Power Plot
(NR_n48_2C_10M+40M_256QAM - Low Channel, Port 3)



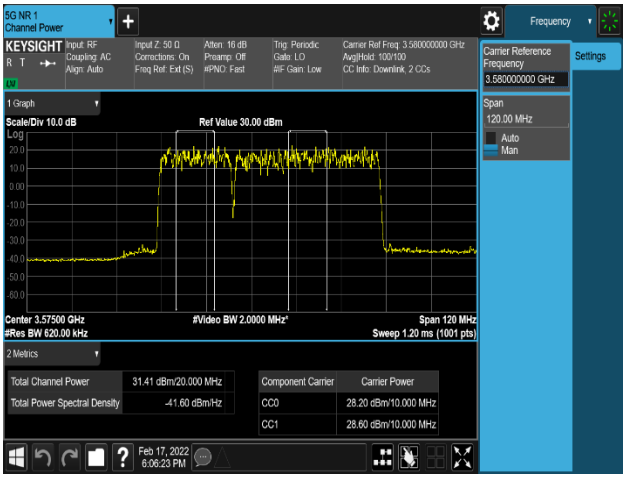
Plot 8-311. Equivalent Isotropic Radiated Power Plot
(NR_n48_2C_20M+40M_64QAM - Low Channel, Port 0)



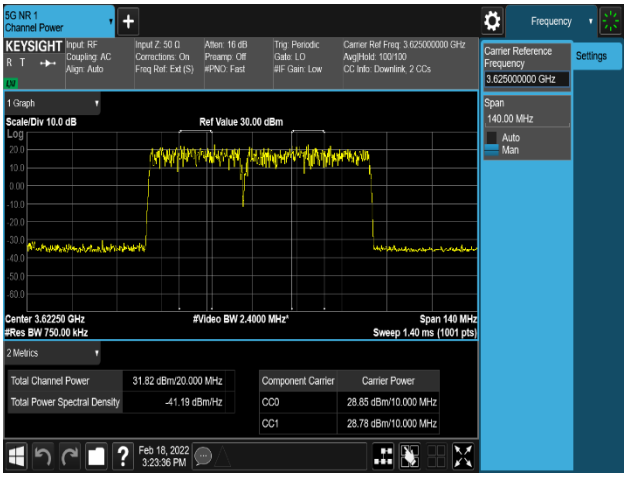
Plot 8-312. Equivalent Isotropic Radiated Power Plot
(NR_n48_2C_20M+40M_64QAM - Low Channel, Port 1)



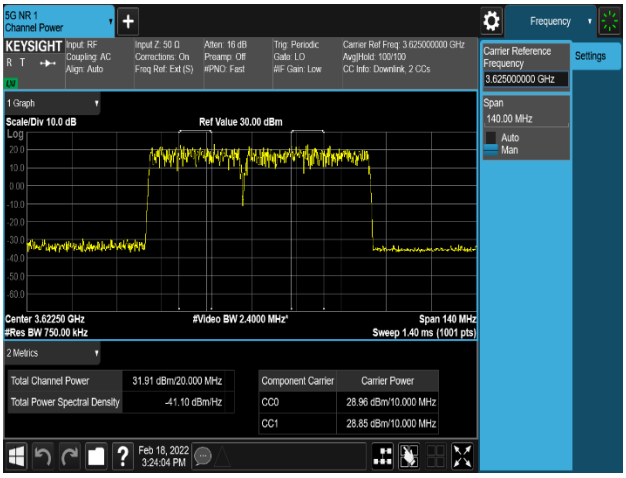
Plot 8-313. Equivalent Isotropic Radiated Power Plot
(NR_n48_2C_20M+40M_64QAM - Low Channel, Port 2)



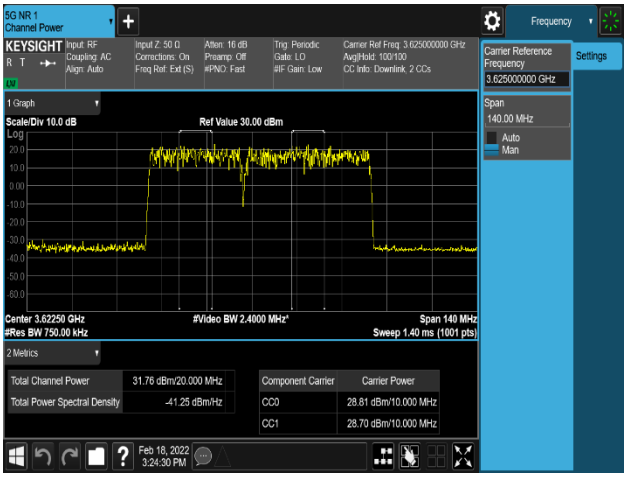
Plot 8-314. Equivalent Isotropic Radiated Power Plot
(NR_n48_2C_20M+40M_64QAM - Low Channel, Port 3)



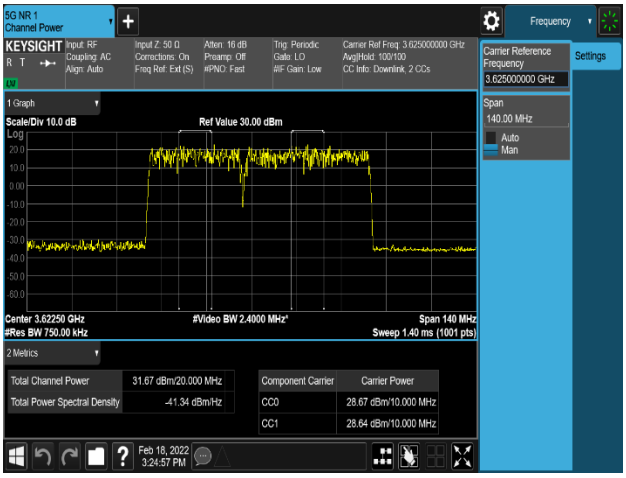
Plot 8-315. Equivalent Isotropic Radiated Power Plot
(NR_n48_2C_30M+40M_QPSK - Mid Channel, Port 0)



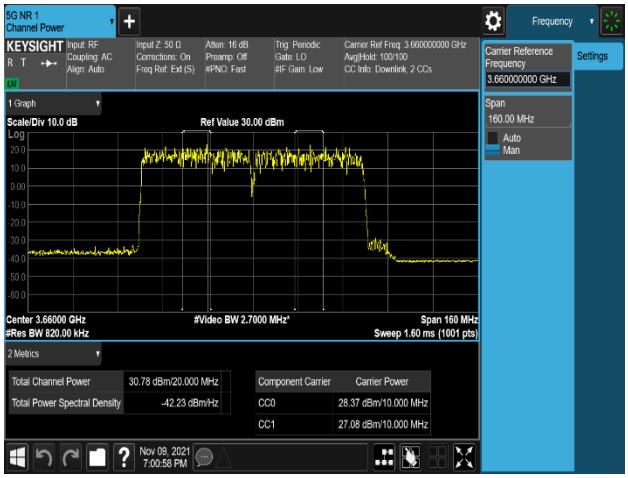
Plot 8-316. Equivalent Isotropic Radiated Power Plot
(NR_n48_2C_30M+40M_QPSK - Mid Channel, Port 1)



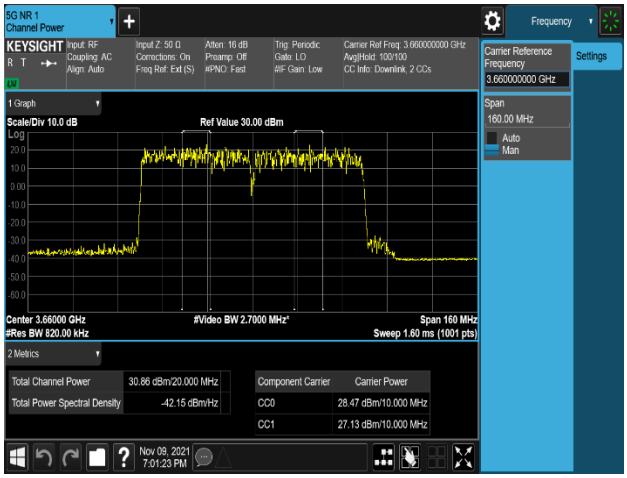
Plot 8-317. Equivalent Isotropic Radiated Power Plot
(NR_n48_2C_30M+40M_QPSK - Mid Channel, Port 2)



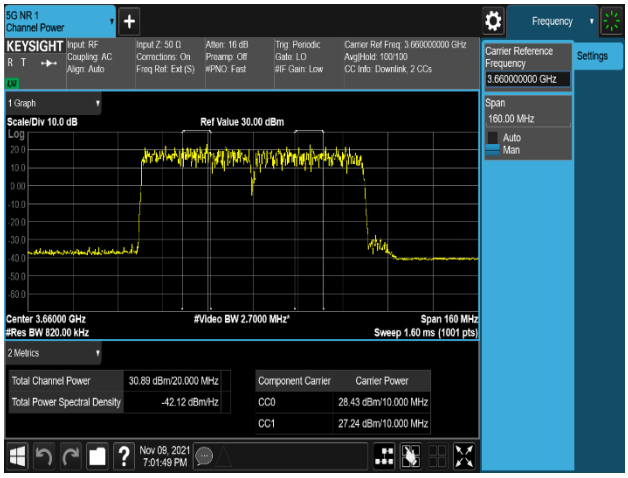
Plot 8-318. Equivalent Isotropic Radiated Power Plot
(NR_n48_2C_30M+40M_QPSK - Mid Channel, Port 3)



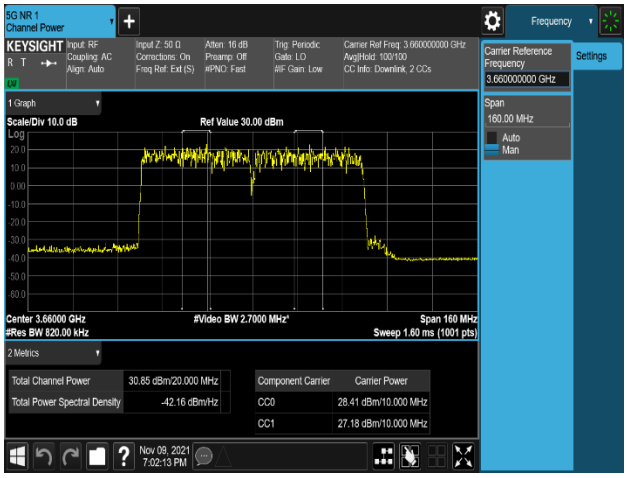
Plot 8-319. Equivalent Isotropic Radiated Power Plot
(NR_n48_2C_40M+40M_64QAM - High Channel, Port 0)



Plot 8-320. Equivalent Isotropic Radiated Power Plot
(NR_n48_2C_40M+40M_64QAM - High Channel, Port 1)

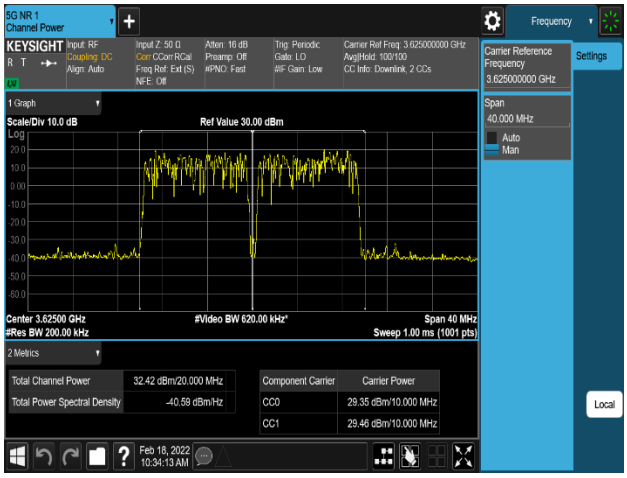


Plot 8-321. Equivalent Isotropic Radiated Power Plot
(NR_n48_2C_40M+40M_64QAM - High Channel, Port 2)



Plot 8-322. Equivalent Isotropic Radiated Power Plot
(NR_n48_2C_40M+40M_64QAM - High Channel, Port 3)

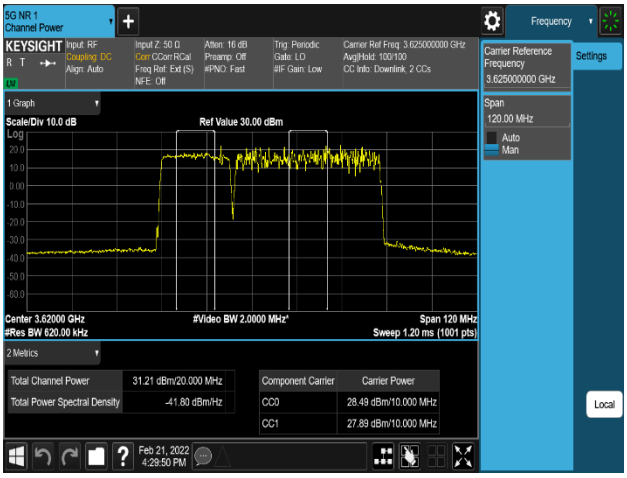
Plot 8-323. Equivalent Isotropic Radiated Power Plot
(LTE_1C+NR_1C_10M+10M_QPSK–Mid Channel, Port 0)



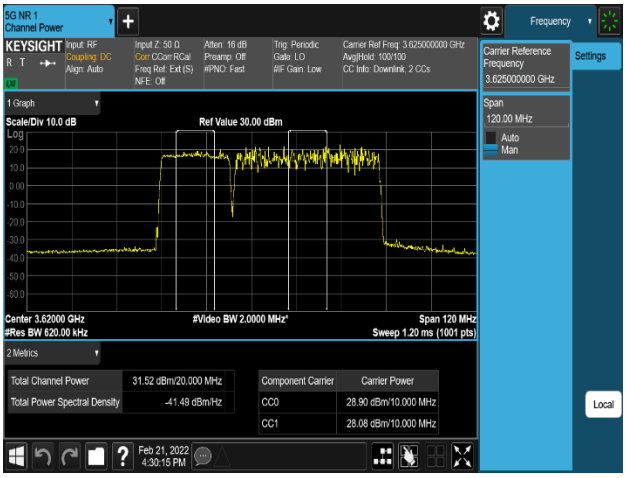
Plot 8-324. Equivalent Isotropic Radiated Power Plot
(LTE_1C+NR_1C_10M+10M_QPSK–Mid Channel, Port 1)

Plot 8-325. Equivalent Isotropic Radiated Power Plot
(LTE_1C+NR_1C_10M+10M_QPSK–Mid Channel, Port 2)

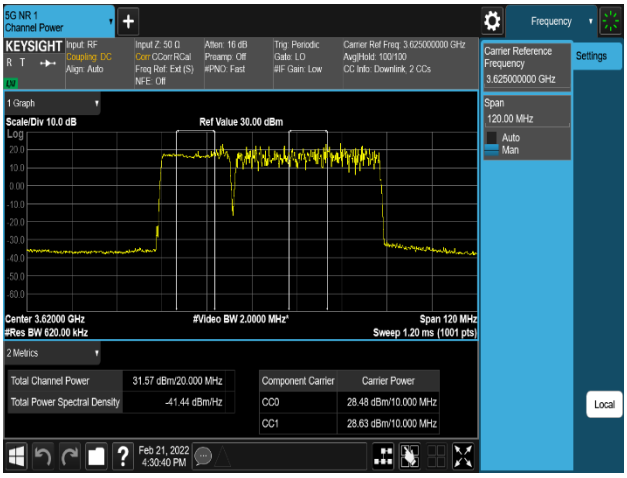
Plot 8-326. Equivalent Isotropic Radiated Power Plot
(LTE_1C+NR_1C_10M+10M_QPSK–Mid Channel, Port 3)



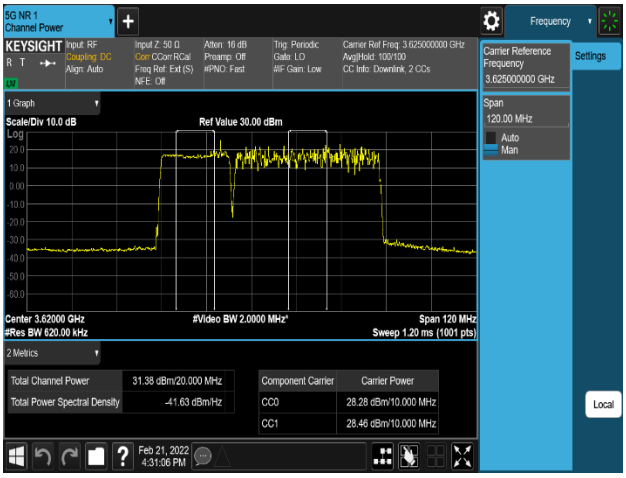
Plot 8-327. Equivalent Isotropic Radiated Power Plot
(LTE_1C+NR_1C_20M+40M_16QAM–Mid Channel, Port 0)



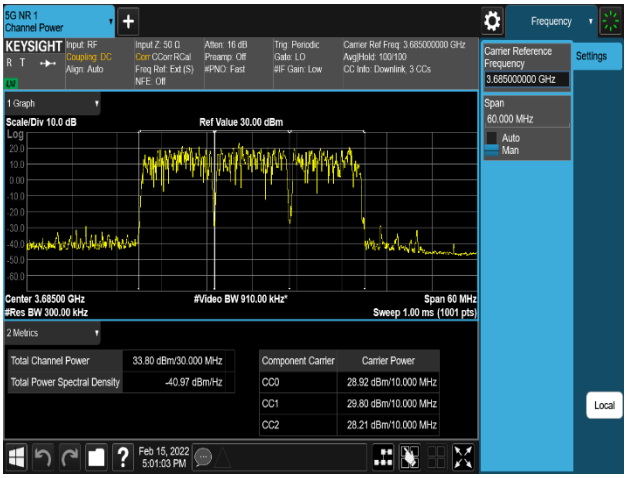
Plot 8-328. Equivalent Isotropic Radiated Power Plot
(LTE_1C+NR_1C_20M+40M_16QAM–Mid Channel, Port 1)



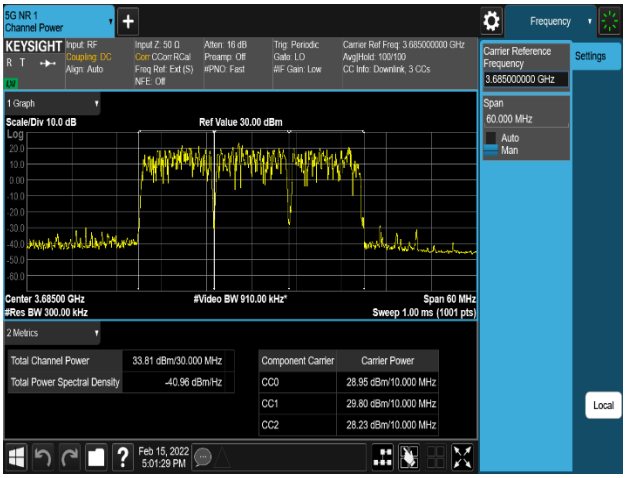
Plot 8-329. Equivalent Isotropic Radiated Power Plot
(LTE_1C+NR_1C_20M+40M_16QAM–Mid Channel, Port 2)



Plot 8-330. Equivalent Isotropic Radiated Power Plot
(LTE_1C+NR_1C_20M+40M_16QAM–Mid Channel, Port 3)

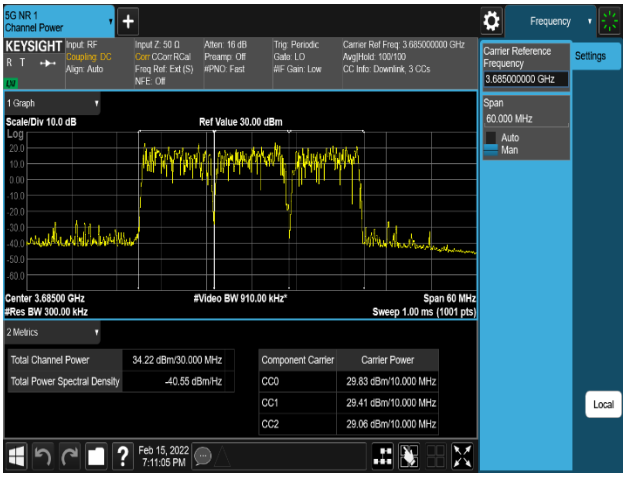


Plot 8-331. Equivalent Isotropic Radiated Power Plot
(LTE_2C+NR_1C_10M+10M+10M_256QAM–High Channel, Port0)

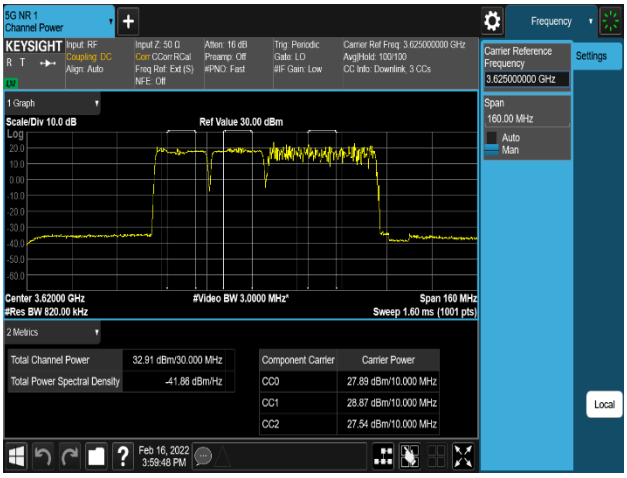


Plot 8-332. Equivalent Isotropic Radiated Power Plot
(LTE_2C+NR_1C_10M+10M+10M_256QAM–High Channel, Port1)

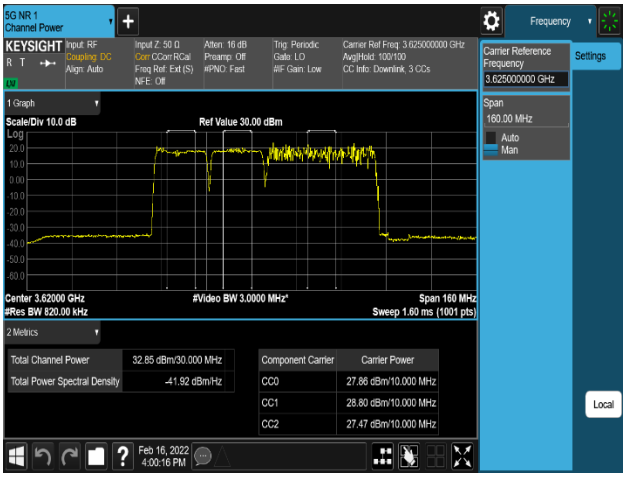
Plot 8-333. Equivalent Isotropic Radiated Power Plot
(LTE_2C+NR_1C_10M+10M+10M_256QAM–High Channel, Port2)



Plot 8-334. Equivalent Isotropic Radiated Power Plot
(LTE_2C+NR_1C_10M+10M+10M_256QAM–High Channel, Port3)

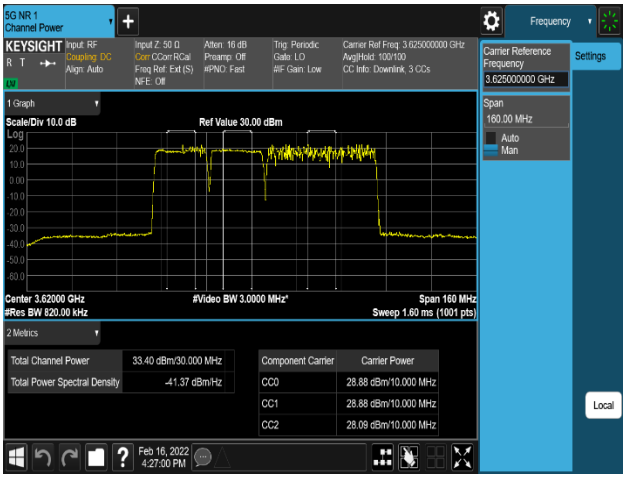


Plot 8-335. Equivalent Isotropic Radiated Power Plot
(LTE_2C+NR_1C_20M+20M+40M_16QAM–Mid Channel, Port0)



Plot 8-336. Equivalent Isotropic Radiated Power Plot
(LTE_2C+NR_1C_20M+20M+40M_16QAM–Mid Channel, Port1)

Plot 8-337. Equivalent Isotropic Radiated Power Plot
(LTE_2C+NR_1C_20M+20M+40M_16QAM–Mid Channel, Port2)



Plot 8-338. Equivalent Isotropic Radiated Power Plot
(LTE_2C+NR_1C_20M+20M+40M_16QAM–Mid Channel, Port3)

8.6 Peak To Average Power Ratio (PAPR)

Test Overview

A peak to average ratio measurement is performed at the conducted port of the EUT. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how
much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

Test Procedure Used

ANSI C63.26 - Section 5.2.3.4.
KDB 971168 D01 v03r01 - Section 5.7

Test Setting

The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The spectrum analyzer settings were as follows:

1. The signal analyzer's CCDF function is enabled.
2. Frequency = carrier center frequency
3. Measurement BW ≥ OBW or specified reference bandwidth
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed.
   For continuous signals (>98% duty cycle), the measurement interval was set to 1ms.

Test Setup

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

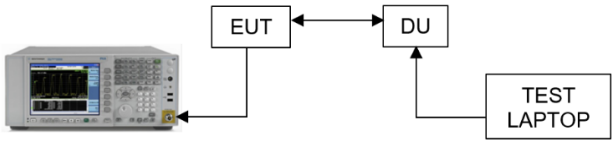


Figure 8-5. Test Instrument & Measurement Setup

Limit

Peak-to-average power ratio (PAPR) limit shall not exceed 13 dB for more than 0.1% of the time.

Test Notes

For multi carriers configuration, the QAM modulation worst case was found while operating with 256QAM mode and only the worst-case data were reported.

Channel	Port	PAPR (dB)				Limit (dB)
		QPSK	16QAM	64QAM	256QAM	
Low	0	7.80	7.79	7.69	7.90	≤ 13
	1	7.83	7.78	7.70	7.89	≤ 13
	2	7.81	7.78	7.70	7.88	≤ 13
	3	7.84	7.81	7.74	7.88	≤ 13
Middle	0	7.82	7.86	7.83	7.86	≤ 13
	1	7.82	7.87	7.82	7.82	≤ 13
	2	7.82	7.89	7.80	7.80	≤ 13
	3	7.84	7.92	7.77	7.83	≤ 13
High	0	7.85	7.94	7.84	7.73	≤ 13
	1	7.85	7.91	7.85	7.73	≤ 13
	2	7.84	7.93	7.82	7.73	≤ 13
	3	7.83	**7.95**	7.78	7.80	≤ 13

Table 8-76. Peak To Average Power Ratio Summary Data (LTE_B48_1C_10M)

Channel	Port	PAPR (dB)				Limit (dB)
		QPSK	16QAM	64QAM	256QAM	
Low	0	7.89	7.83	7.89	7.77	≤ 13
	1	7.90	7.77	7.88	7.76	≤ 13
	2	7.90	7.77	7.87	7.77	≤ 13
	3	7.92	7.81	7.90	7.79	≤ 13
Middle	0	**7.93**	7.81	7.83	7.72	≤ 13
	1	7.92	7.81	7.84	7.72	≤ 13
	2	7.93	7.79	7.82	7.70	≤ 13
	3	7.93	7.82	7.84	7.72	≤ 13
High	0	7.92	7.83	7.87	7.75	≤ 13
	1	7.90	7.83	7.88	7.76	≤ 13
	2	7.91	7.79	7.87	7.75	≤ 13
	3	7.92	7.79	7.89	7.77	≤ 13

Table 8-77. Peak To Average Power Ratio Summary Data (LTE_B48_1C_15M)

Channel	Port	PAPR (dB)				Limit (dB)
		QPSK	16QAM	64QAM	256QAM	
Low	0	7.83	7.83	7.85	7.91	≤ 13
	1	7.82	7.83	7.85	7.91	≤ 13
	2	7.83	7.81	7.84	7.90	≤ 13
	3	7.84	7.82	7.84	7.91	≤ 13
Middle	0	7.79	7.82	7.84	7.88	≤ 13
	1	7.81	7.82	7.84	7.93	≤ 13
	2	7.81	7.83	7.83	7.92	≤ 13
	3	7.83	7.83	7.85	**7.94**	≤ 13
High	0	7.77	7.81	7.85	7.87	≤ 13
	1	7.77	7.78	7.84	7.86	≤ 13
	2	7.76	7.76	7.82	7.86	≤ 13
	3	7.76	7.82	7.86	7.86	≤ 13

Table 8-78. Peak To Average Power Ratio Summary Data (LTE_B48_1C_20M)

Channel	Configuration	PAPR (dB)		Limit (dB)
		QPSK	256QAM	
Middle	LTE_2C_10M+10M	8.08	8.03	≤ 13
	LTE_2C_10M+15M	7.98	7.78	≤ 13
	LTE_2C_15M+15M	7.78	8.17	≤ 13
	LTE_2C_20M+20M	7.84	7.86	≤ 13
	LTE_3C_10M+10M+15M	8.32	8.52	≤ 13
	LTE_3C_10M+15M+20M	7.83	7.82	≤ 13
	LTE_3C_10M+20M+20M	7.84	7.82	≤ 13
	LTE_3C_15M+20M+20M	7.86	8.01	≤ 13
	LTE_3C_20M+20M+20M	7.86	7.87	≤ 13
	LTE_4C_10M+10M+10M+10M	8.15	8.01	≤ 13
	LTE_4C_10M+15M+20M+20M	7.83	7.88	≤ 13
	LTE_4C_10M+20M+20M+20M	7.87	7.87	≤ 13
	LTE_4C_15M+20M+20M+20M	7.87	7.87	≤ 13
	LTE_4C_20M+20M+20M+20M	7.89	7.90	≤ 13

Table 8-79. Peak To Average Power Ratio Summary Data (LTE_B48_Multi Carrier)

Channel	Port	PAPR (dB)				Limit (dB)
		QPSK	16QAM	64QAM	256QAM	
Low	0	8.37	8.42	8.20	8.15	≤ 13
	1	8.44	8.18	8.34	8.14	≤ 13
	2	8.36	8.19	8.19	8.11	≤ 13
	3	8.41	8.26	8.22	8.13	≤ 13
Middle	0	8.39	8.24	8.23	8.25	≤ 13
	1	8.43	8.21	8.06	8.22	≤ 13
	2	8.45	8.21	8.15	8.26	≤ 13
	3	8.41	8.23	8.19	8.24	≤ 13
High	0	**8.46**	8.25	8.25	8.11	≤ 13
	1	8.33	8.22	8.33	8.12	≤ 13
	2	8.40	8.22	8.39	8.21	≤ 13
	3	8.43	8.26	8.32	8.19	≤ 13

Table 8-80. Peak To Average Power Ratio Summary Data (NR_n48_1C_10M)

Channel	Port	PAPR (dB)				Limit (dB)
		QPSK	16QAM	64QAM	256QAM	
Low	0	7.72	8.46	7.72	7.79	≤ 13
	1	7.76	8.43	7.78	7.75	≤ 13
	2	7.67	8.44	7.72	7.76	≤ 13
	3	7.69	8.43	7.71	7.72	≤ 13
Middle	0	7.72	8.44	7.78	7.76	≤ 13
	1	7.75	**8.47**	7.81	7.77	≤ 13
	2	7.72	8.46	7.80	7.78	≤ 13
	3	7.71	8.41	7.78	7.76	≤ 13
High	0	7.77	8.37	7.68	7.73	≤ 13
	1	7.72	8.42	7.80	7.74	≤ 13
	2	7.74	8.42	7.67	7.77	≤ 13
	3	7.70	8.44	7.79	7.72	≤ 13

Table 8-81. Peak To Average Power Ratio Summary Data (NR_n48_1C_20M)

Channel	Port	PAPR (dB)				Limit (dB)
		QPSK	16QAM	64QAM	256QAM	
Low	0	7.92	**7.99**	7.74	7.94	≤ 13
	1	7.82	7.73	7.95	7.73	≤ 13
	2	7.92	7.98	7.72	7.94	≤ 13
	3	7.69	7.72	7.96	7.94	≤ 13
Middle	0	7.70	7.72	7.73	7.73	≤ 13
	1	7.69	7.69	7.70	7.72	≤ 13
	2	7.71	7.70	7.71	7.74	≤ 13
	3	7.69	7.71	7.73	7.72	≤ 13
High	0	7.70	7.70	7.71	7.73	≤ 13
	1	7.69	7.65	7.70	7.93	≤ 13
	2	7.72	7.72	7.70	7.76	≤ 13
	3	7.72	7.73	7.70	7.94	≤ 13

Table 8-82. Peak To Average Power Ratio Summary Data (NR_n48_1C_30M)

Channel	Port	PAPR (dB)				Limit (dB)
		QPSK	16QAM	64QAM	256QAM	
Low	0	7.85	**8.40**	7.83	7.82	≤ 13
	1	7.83	8.24	7.89	7.92	≤ 13
	2	7.82	8.18	7.88	7.94	≤ 13
	3	7.75	8.23	7.83	7.81	≤ 13
Middle	0	7.87	8.17	7.88	7.84	≤ 13
	1	7.82	8.16	7.83	7.83	≤ 13
	2	7.83	8.12	7.88	7.82	≤ 13
	3	7.83	8.16	7.88	7.80	≤ 13
High	0	7.85	8.11	7.88	7.86	≤ 13
	1	7.84	8.07	7.91	7.81	≤ 13
	2	7.76	8.11	7.81	7.74	≤ 13
	3	7.86	8.07	7.89	7.72	≤ 13

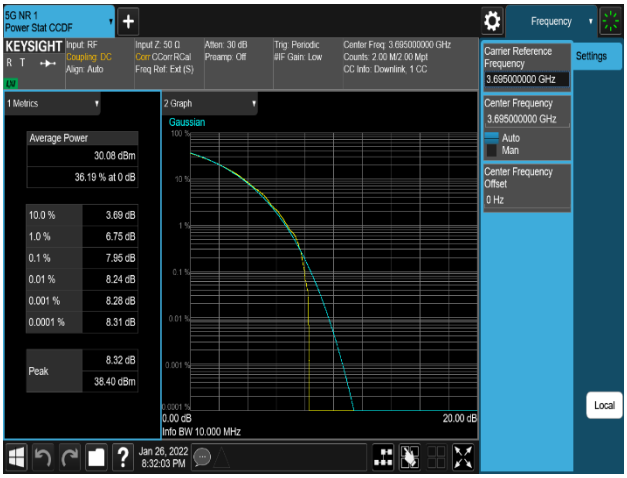
Table 8-83. Peak To Average Power Ratio Summary Data (NR_n48_1C_40M)

Channel	Configuration	PAPR (dB)		Limit (dB)
		QPSK	256QAM	
Middle	NR_2C_10M+10M	7.76	7.68	≤ 13
	NR_2C_10M+20M	7.75	7.74	≤ 13
	NR_2C_10M+30M	7.78	7.78	≤ 13
	NR_2C_10M+40M	7.81	7.79	≤ 13
	NR_2C_20M+40M	7.80	7.81	≤ 13
	NR_2C_30M+40M	7.80	7.81	≤ 13
	NR_2C_40M+40M	8.21	8.24	≤ 13

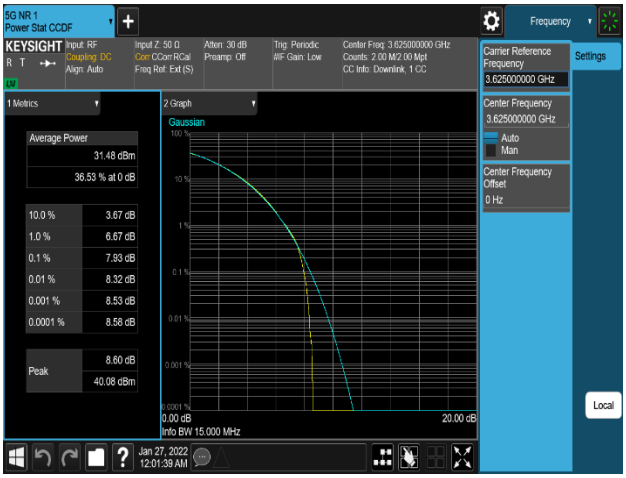
Table 8-84. Peak To Average Power Ratio Summary Data (NR_n48_Multi Carrier)

Channel	Configuration	PAPR (dB)		Limit (dB)
		QPSK	256QAM	
Middle	LTE_1C_10M + NR_1C_10M	**7.78**	7.78	≤ 13
	LTE_1C_20M + NR_1C_40M	**7.82**	7.82	≤ 13
	LTE_2C_10M+10M + NR_1C_10M	**7.81**	7.75	≤ 13
	LTE_2C_20M+20M + NR_1C_40M	**7.83**	7.86	≤ 13

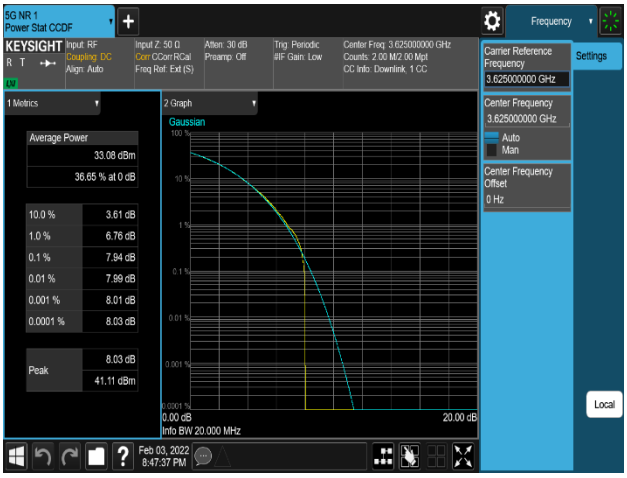
Table 8-85. Peak To Average Power Ratio Summary Data (LTE_B48 + NR_n48_Multi RAT)



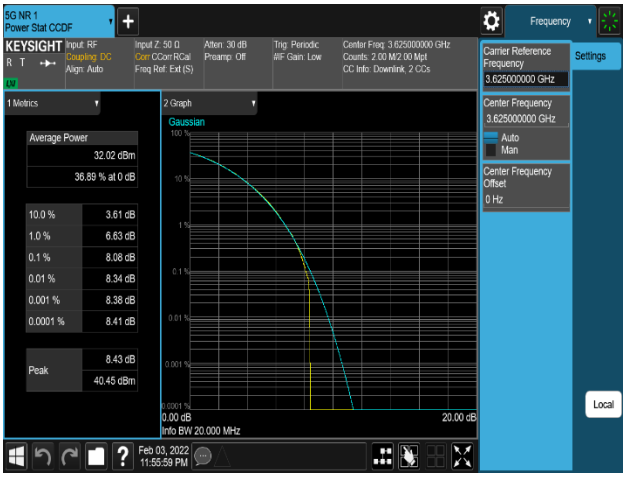
Plot 8-339. Peak To Average Power Ratio Plot
(LTE_B48_1C_10M_16QAM - High Channel, Port 3)



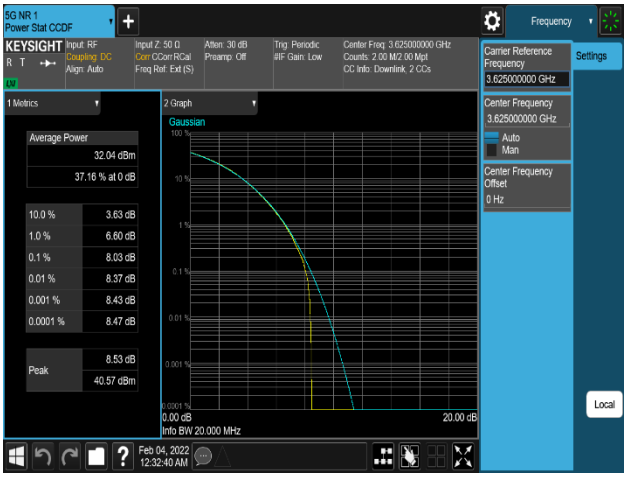
Plot 8-340. Peak To Average Power Ratio Plot
(LTE_B48_1C_15M_QPSK - Mid Channel, Port 0)



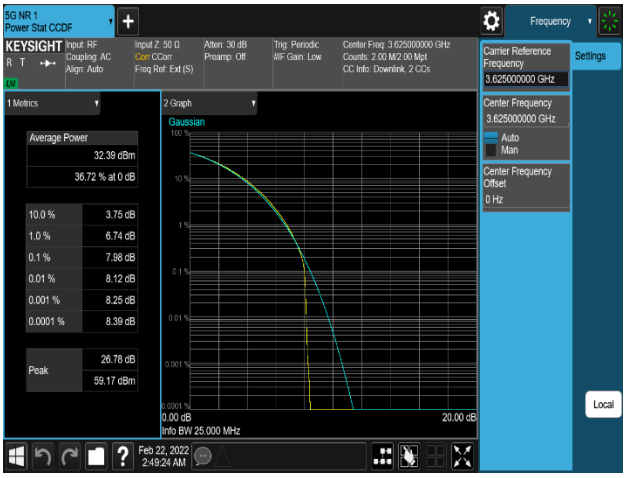
Plot 8-341. Peak To Average Power Ratio Plot
(LTE_B48_1C_20M_256QAM - Mid Channel, Port 3)



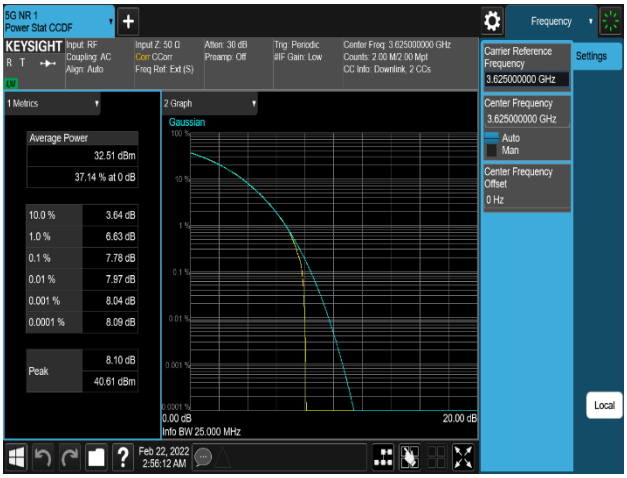
Plot 8-342. Peak To Average Power Ratio Plot
(LTE_B48_2C_10M+10M_QPSK - Mid Channel, Port 0)



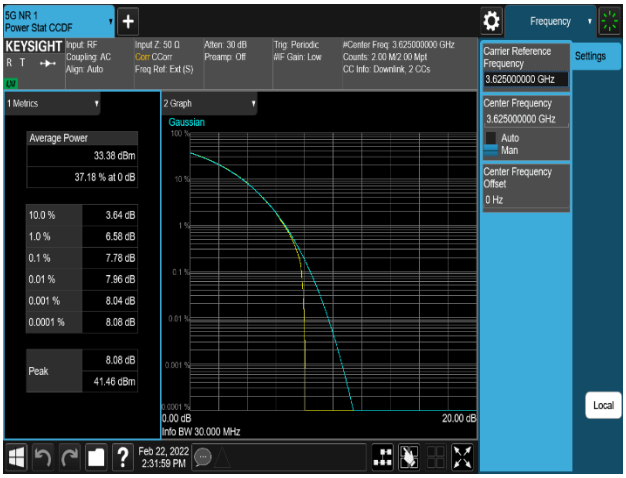
Plot 8-343. Peak To Average Power Ratio Plot
(LTE_B48_2C_10M+10M_256QAM - Mid Channel, Port 0)



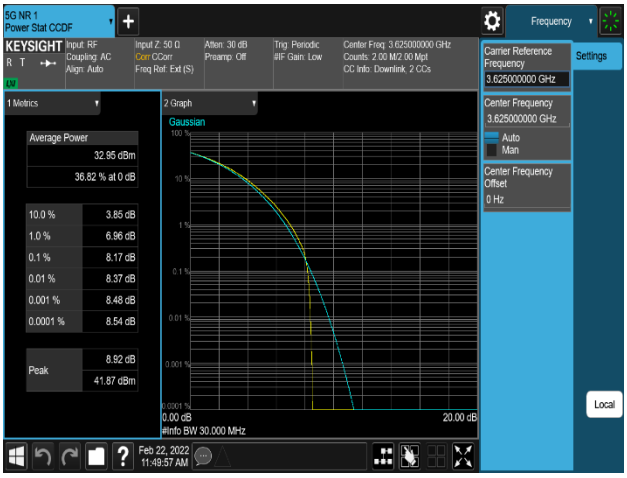
Plot 8-344. Peak To Average Power Ratio Plot
(LTE_B48_2C_10M+15M_QPSK - Mid Channel, Port 0)



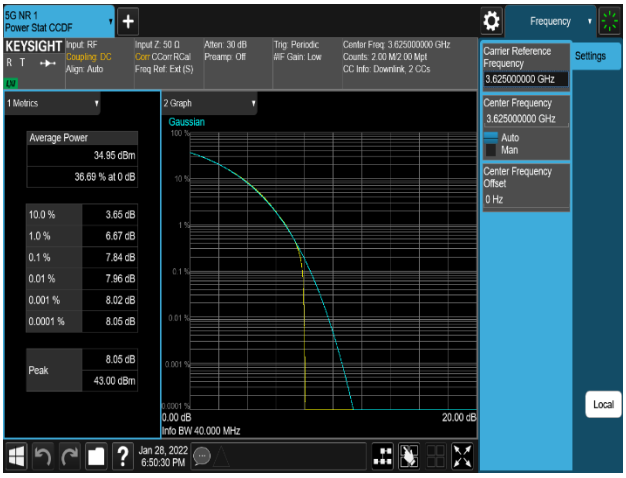
Plot 8-345. Peak To Average Power Ratio Plot
(LTE_B48_2C_10M+15M_256QAM - Mid Channel, Port 0)



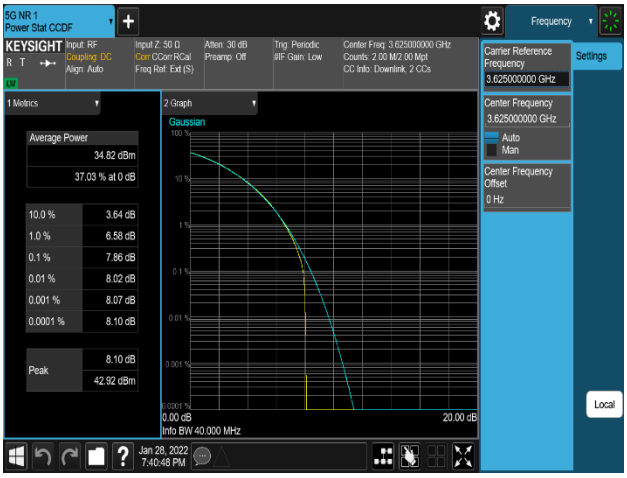
Plot 8-346. Peak To Average Power Ratio Plot
(LTE_B48_2C_15M+15M_QPSK - Mid Channel, Port 0)



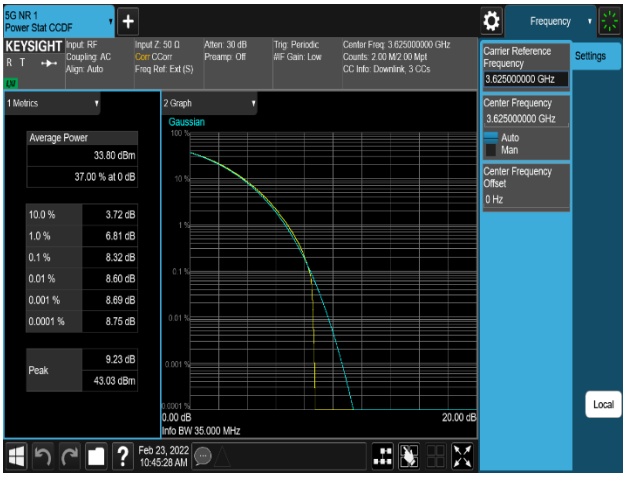
Plot 8-347. Peak To Average Power Ratio Plot
(LTE_B48_2C_15M+15M_256QAM - Mid Channel, Port 0)



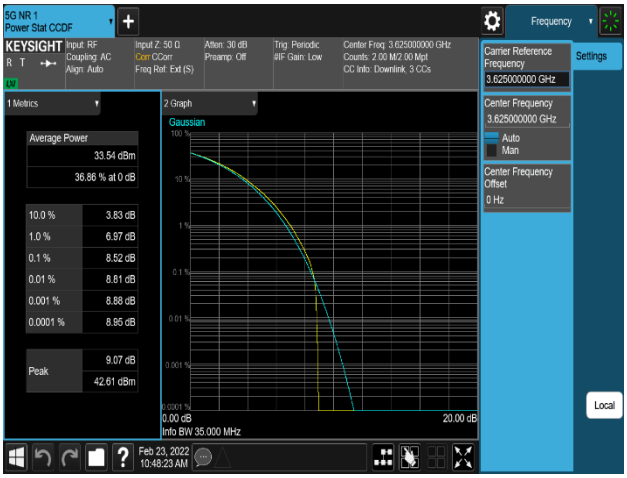
Plot 8-348. Peak To Average Power Ratio Plot
(LTE_B48_2C_20M+20M_QPSK - Mid Channel, Port 0)



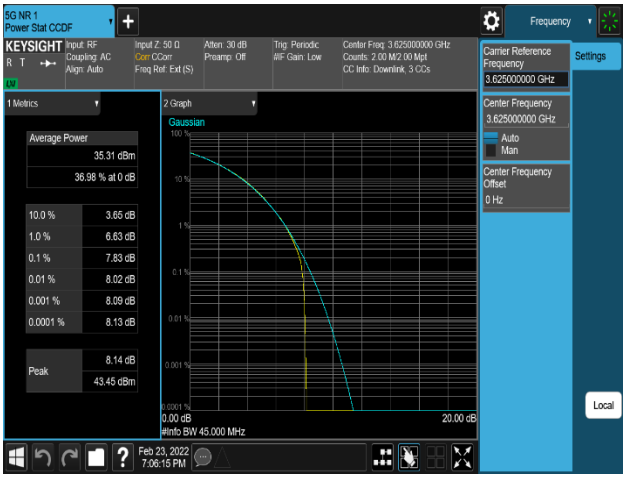
Plot 8-349. Peak To Average Power Ratio Plot
(LTE_B48_2C_20M+20M_256QAM - Mid Channel, Port 0)



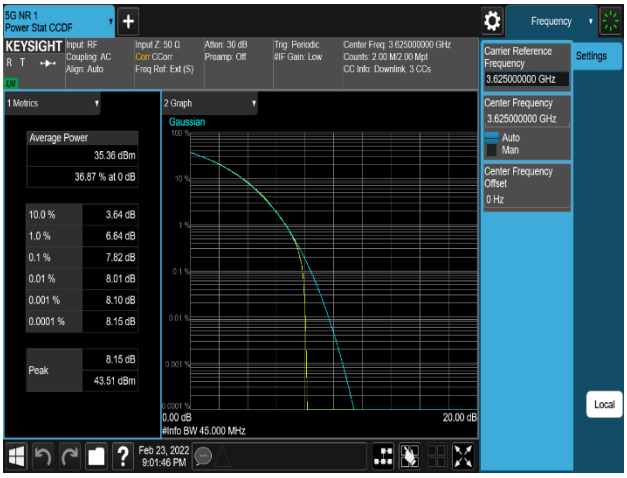
Plot 8-350. Peak To Average Power Ratio Plot
(LTE_B48_3C_10M+10M+15M_QPSK - Mid Channel, Port 0)



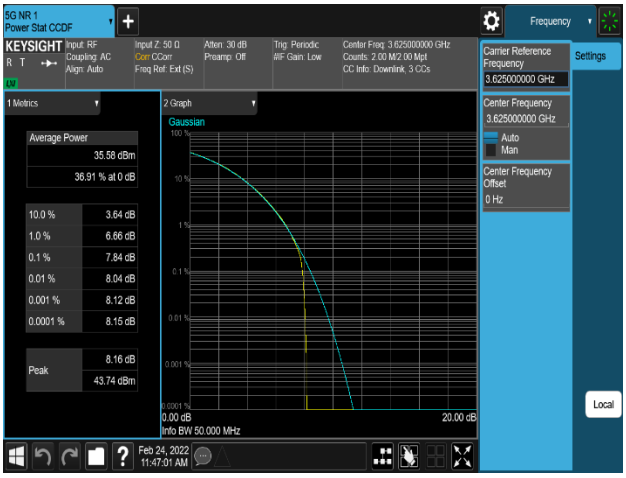
Plot 8-351. Peak To Average Power Ratio Plot
(LTE_B48_3C_10M+10M+15M_256QAM - Mid Channel, Port 0)



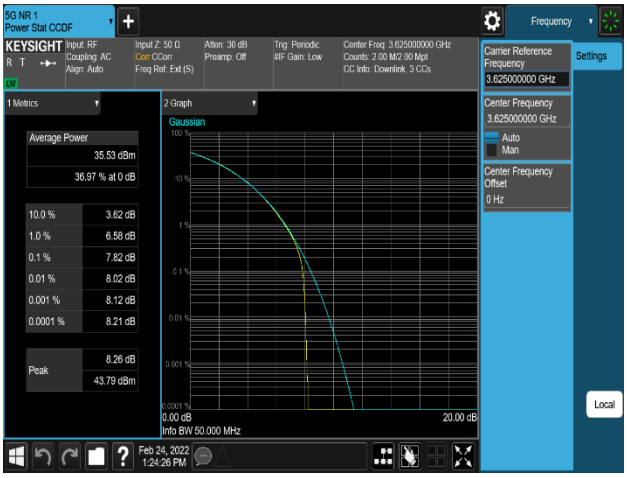
Plot 8-352. Peak To Average Power Ratio Plot
(LTE_B48_3C_10M+15M+20M_QPSK - Mid Channel, Port 0)



Plot 8-353. Peak To Average Power Ratio Plot
(LTE_B48_3C_10M+15M+20M_256QAM - Mid Channel, Port 0)



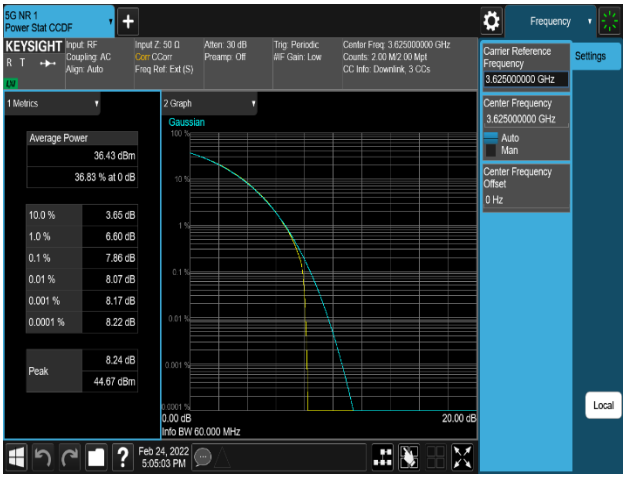
Plot 8-354. Peak To Average Power Ratio Plot
(LTE_B48_3C_10M+20M+20M_QPSK - Mid Channel, Port 0)



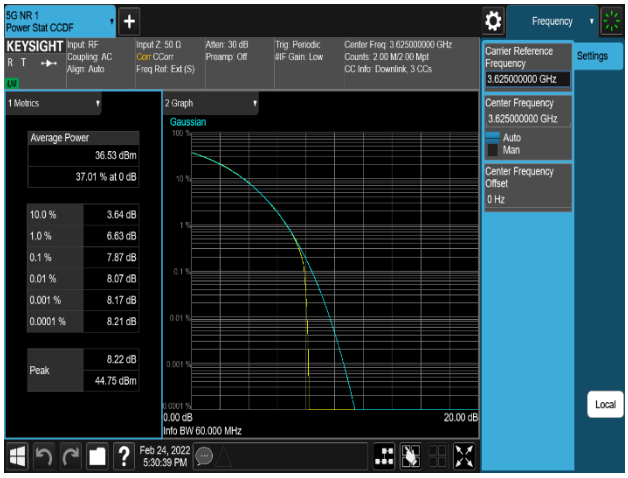
Plot 8-355. Peak To Average Power Ratio Plot
(LTE_B48_3C_10M+20M+20M_256QAM - Mid Channel, Port 0)

Plot 8-356. Peak To Average Power Ratio Plot
(LTE_B48_3C_15M+20M+20M_QPSK - Mid Channel, Port 0)

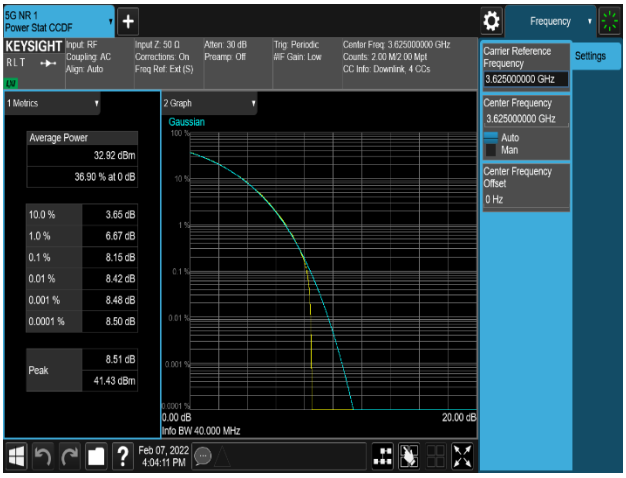
Plot 8-357. Peak To Average Power Ratio Plot
(LTE_B48_3C_15M+20M+20M_256QAM - Mid Channel, Port 0)



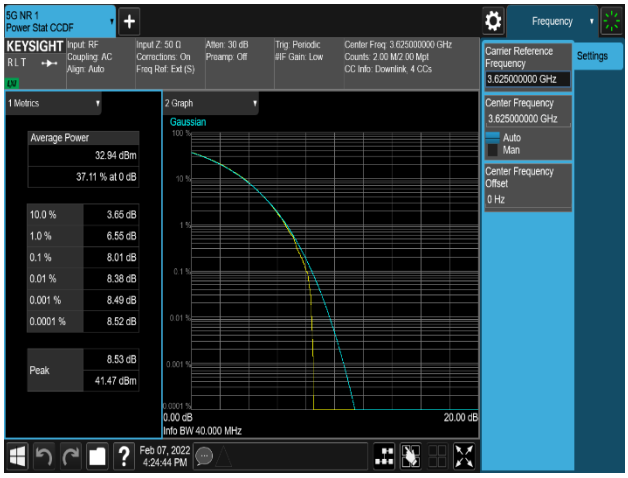
Plot 8-358. Peak To Average Power Ratio Plot
(LTE_B48_3C_20M+20M+20M_QPSK - Mid Channel, Port 0)



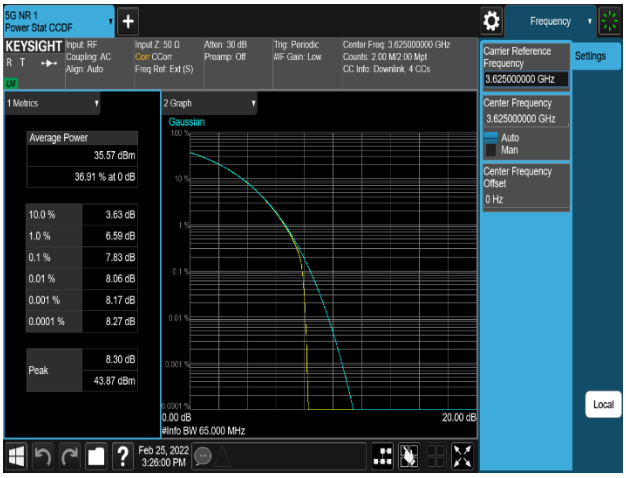
Plot 8-359. Peak To Average Power Ratio Plot
(LTE_B48_3C_20M+20M+20M_256QAM - Mid Channel, Port 0)



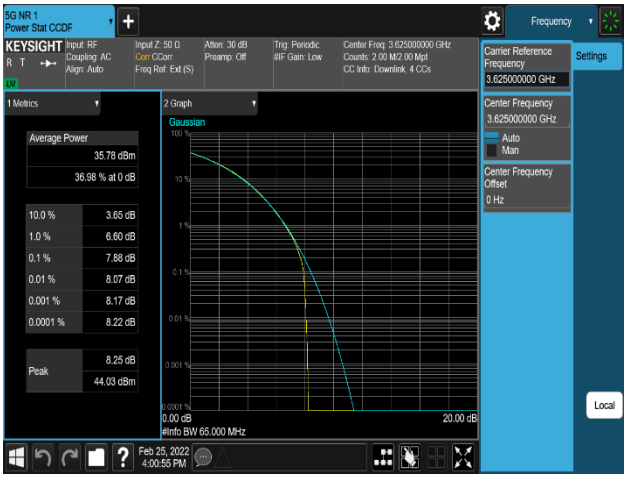
Plot 8-360. Peak To Average Power Ratio Plot
(LTE_B48_4C_10M+10M+10M+10M_QPSK - Mid Channel, Port 0)



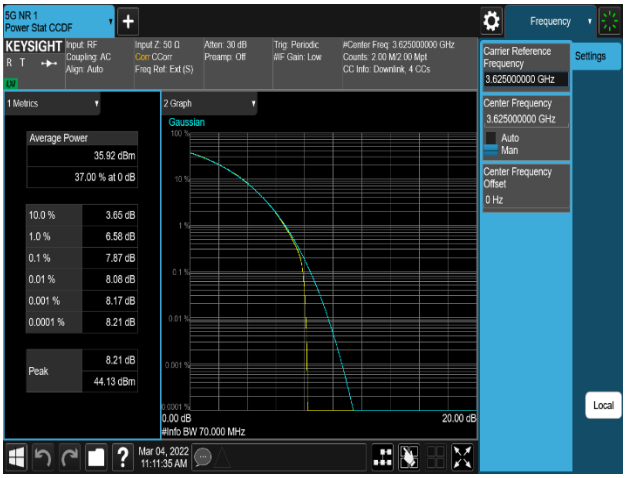
Plot 8-361. Peak To Average Power Ratio Plot
(LTE_B48_4C_10M+10M+10M+10M_256QAM-Mid Channel, Port 0)



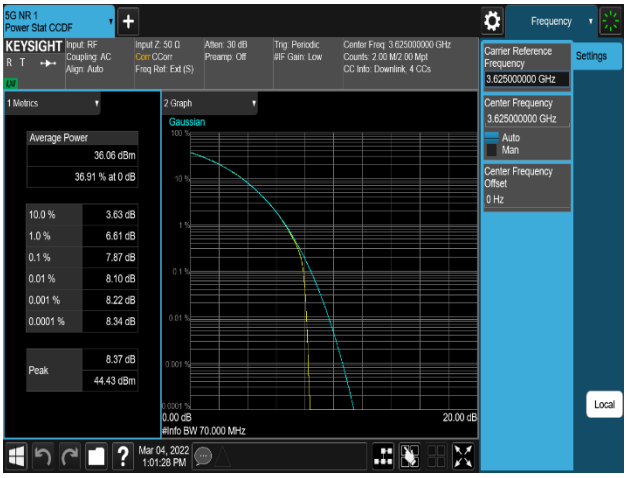
Plot 8-362. Peak To Average Power Ratio Plot
(LTE_B48_4C_10M+15M+20M+20M_QPSK - Mid Channel, Port 0)



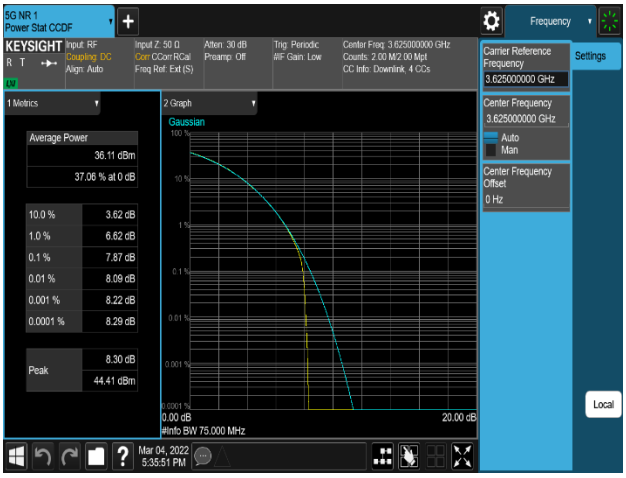
Plot 8-363. Peak To Average Power Ratio Plot
(LTE_B48_4C_10M+15M+20M+20M_256QAM-Mid Channel, Port 0)



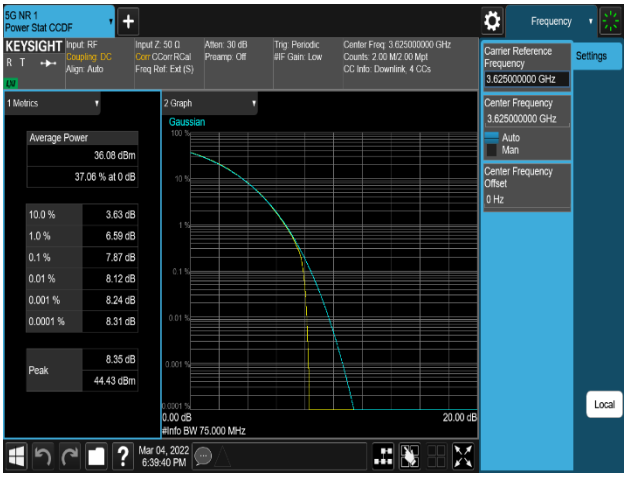
Plot 8-364. Peak To Average Power Ratio Plot
(LTE_B48_4C_10M+20M+20M+20M_QPSK - Mid Channel, Port 0)



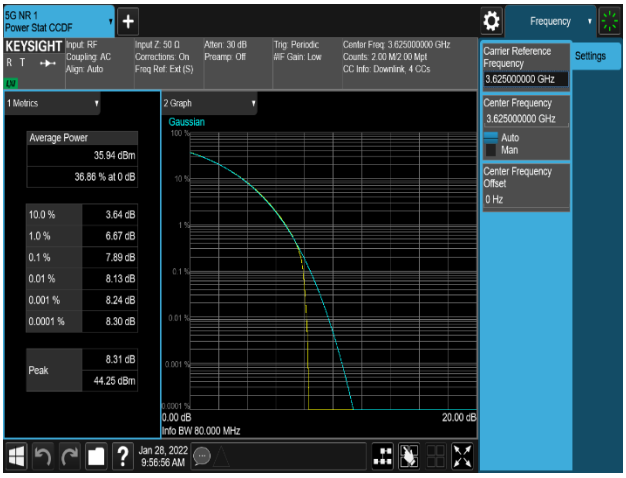
Plot 8-365. Peak To Average Power Ratio Plot
(LTE_B48_4C_10M+20M+20M+20M_256QAM-Mid Channel, Port 0)



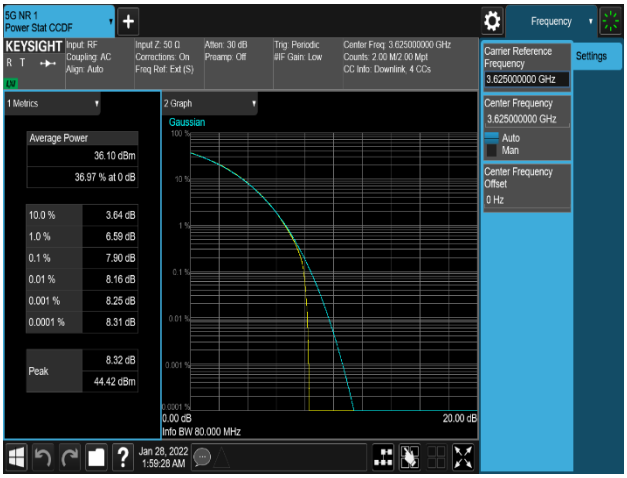
Plot 8-366. Peak To Average Power Ratio Plot
(LTE_B48_4C_15M+20M+20M+20M_QPSK - Mid Channel, Port 0)



Plot 8-367. Peak To Average Power Ratio Plot
(LTE_B48_4C_15M+20M+20M+20M_256QAM-Mid Channel, Port 0)

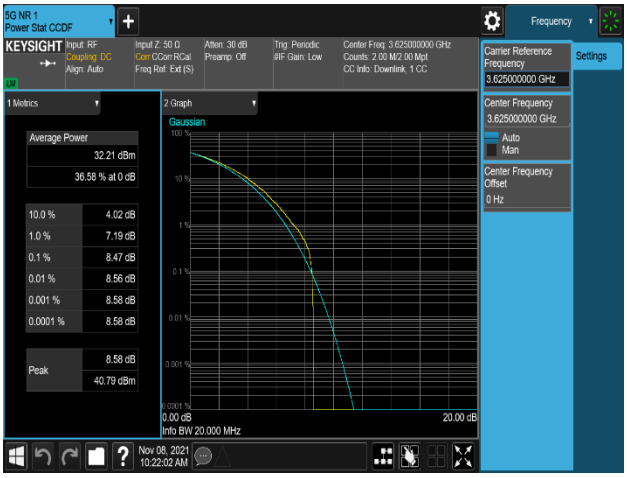


Plot 8-368. Peak To Average Power Ratio Plot
(LTE_B48_4C_20M+20M+20M+20M_QPSK - Mid Channel, Port 0)

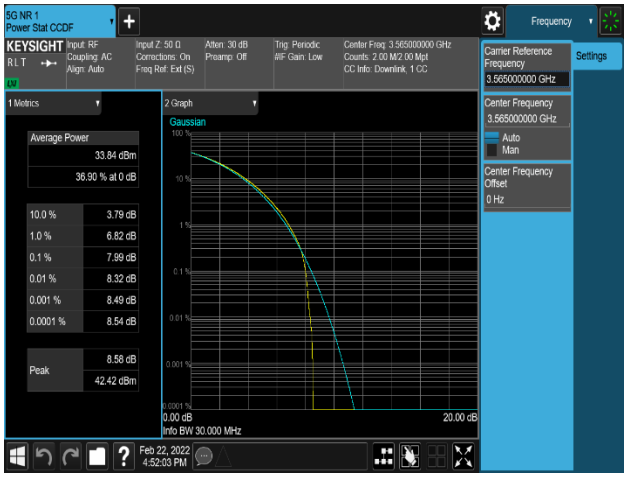


Plot 8-369. Peak To Average Power Ratio Plot
(LTE_B48_4C_20M+20M+20M+20M_256QAM-Mid Channel, Port 0)

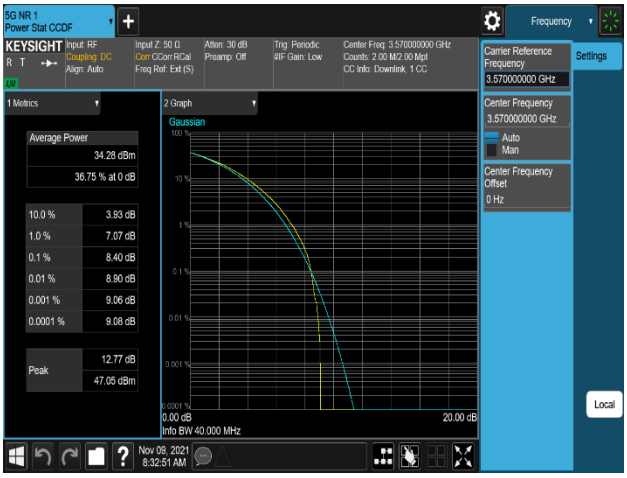
Plot 8-370. Peak To Average Power Ratio Plot
(NR_n48_1C_10M_QPSK - High Channel, Port 0)



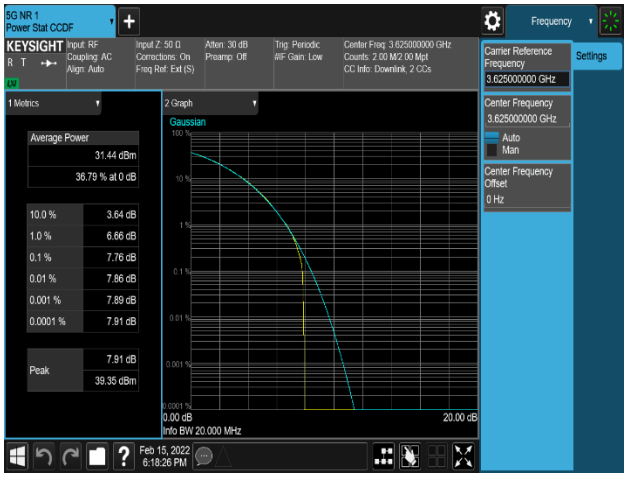
Plot 8-371. Peak To Average Power Ratio Plot
(NR_n48_1C_20M_16QAM - Mid Channel, Port 1)



Plot 8-372. Peak To Average Power Ratio Plot
(NR_n48_1C_30M_16QAM - Low Channel, Port 0)



Plot 8-373. Peak To Average Power Ratio Plot
(NR_n48_1C_40M_16QAM - Low Channel, Port 0)



Plot 8-374. Peak To Average Power Ratio Plot
(NR_n48_2C_10M+10M_QPSK - Mid Channel, Port 0)