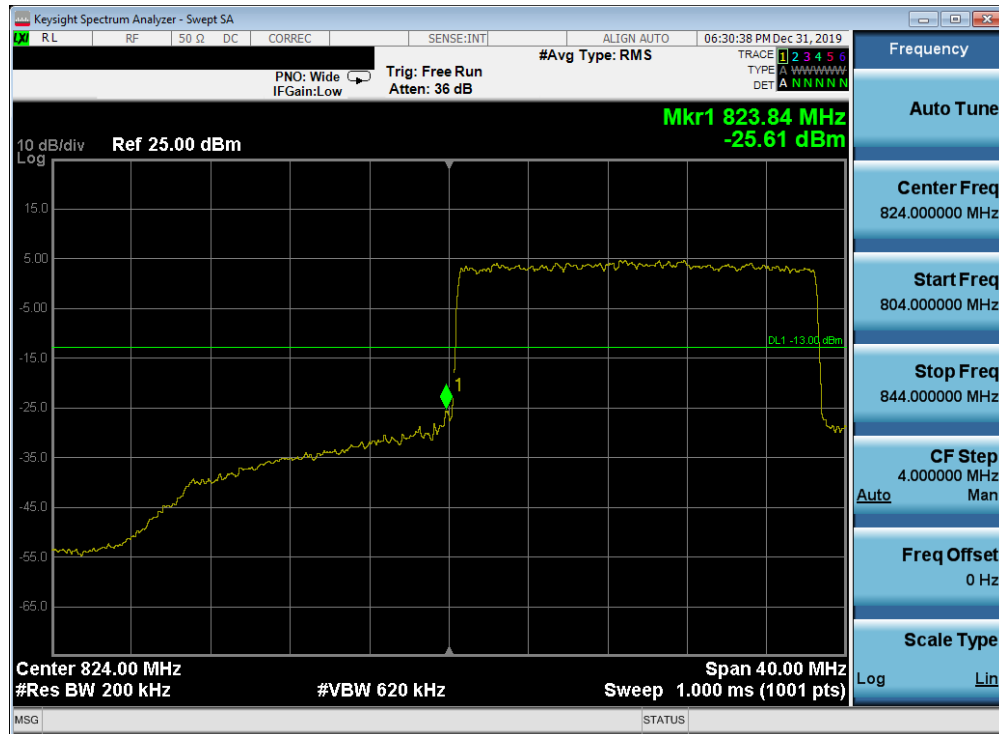




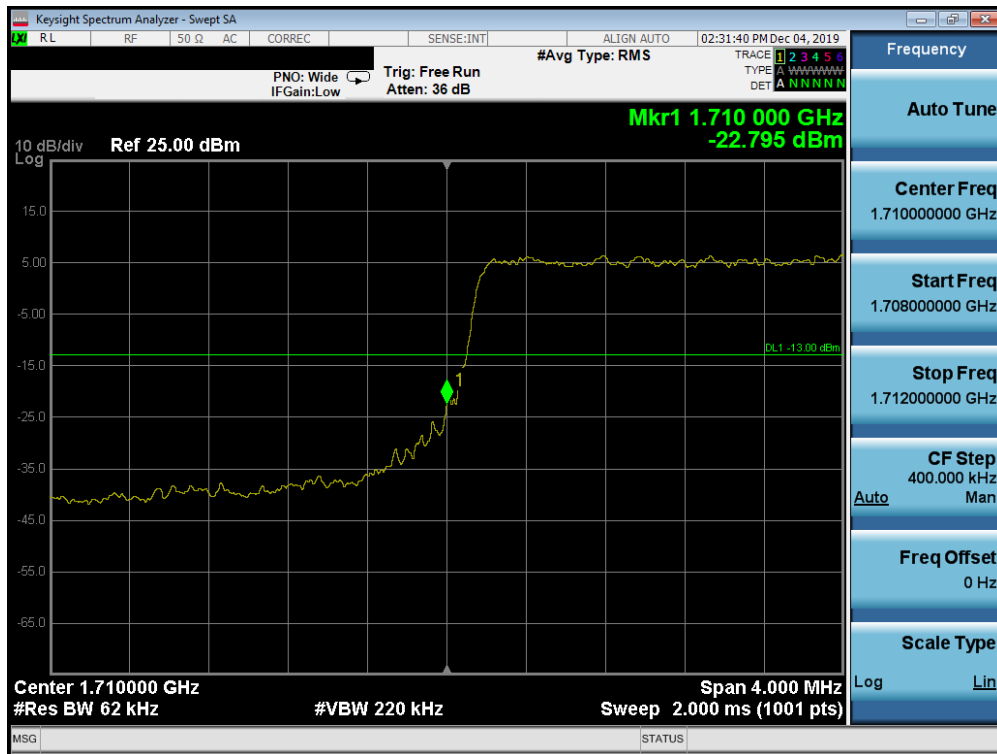
Plot 7-666. Lower Band Edge Plot (n5 - 20MHz DFT-s-OFDM-QPSK - Full RB Configuration)



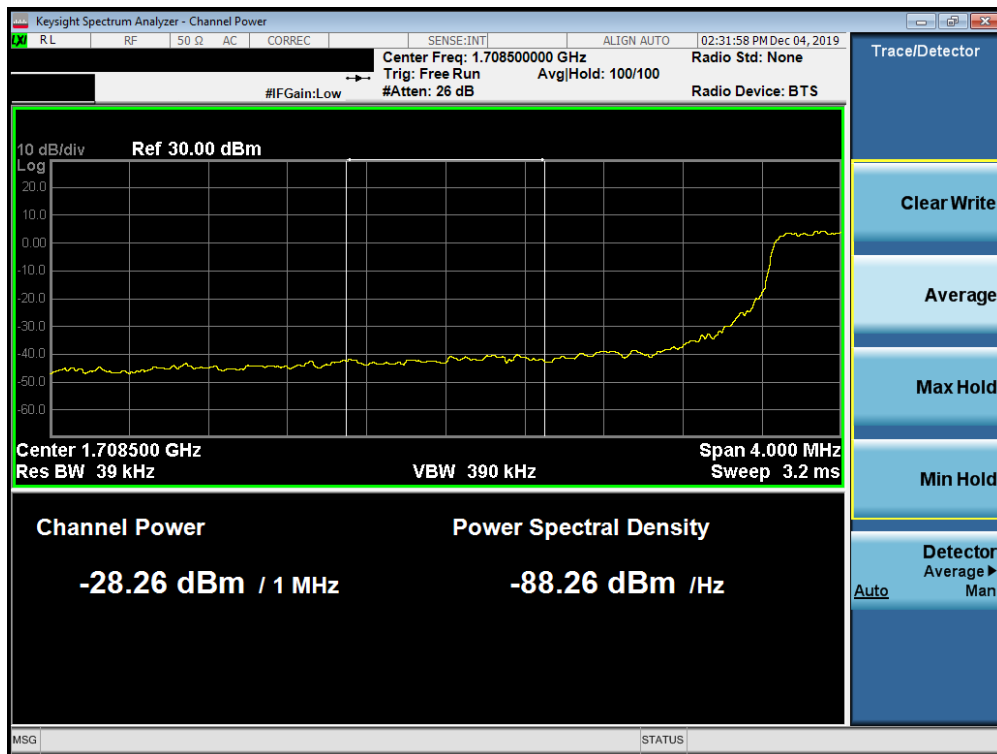
Plot 7-667. Upper Band Edge Plot (n5 - 20MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 429 of 486

NR Band n66



Plot 7-668. Lower Band Edge Plot (Band n66 - 5.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

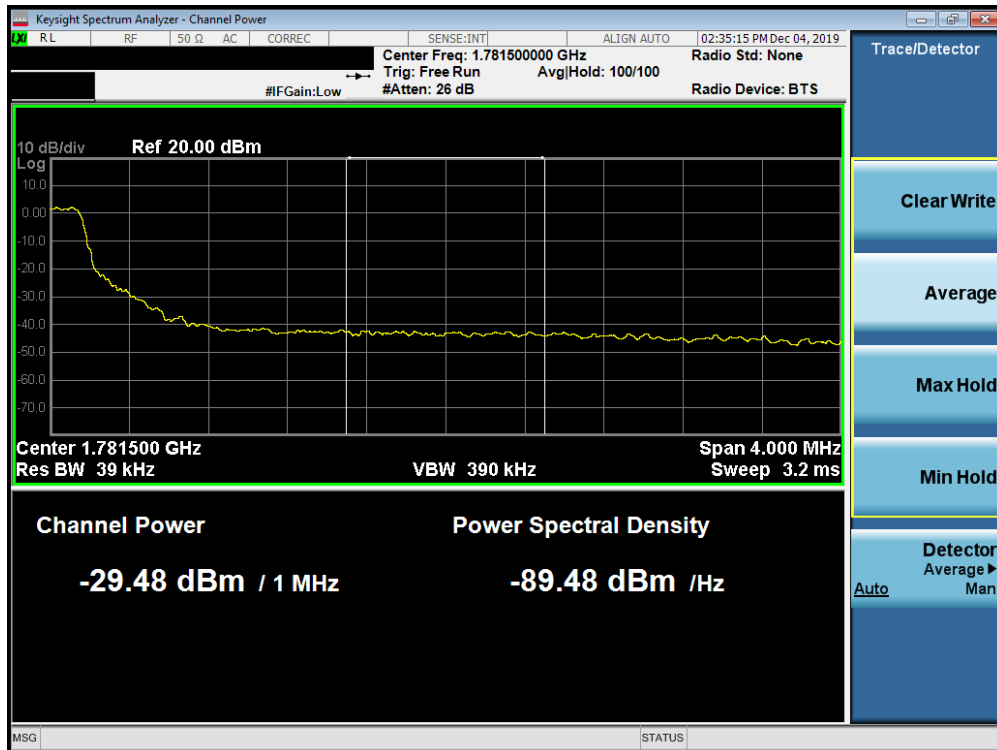


Plot 7-669. Lower Extended Band Edge Plot (Band n66 - 5.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 430 of 486

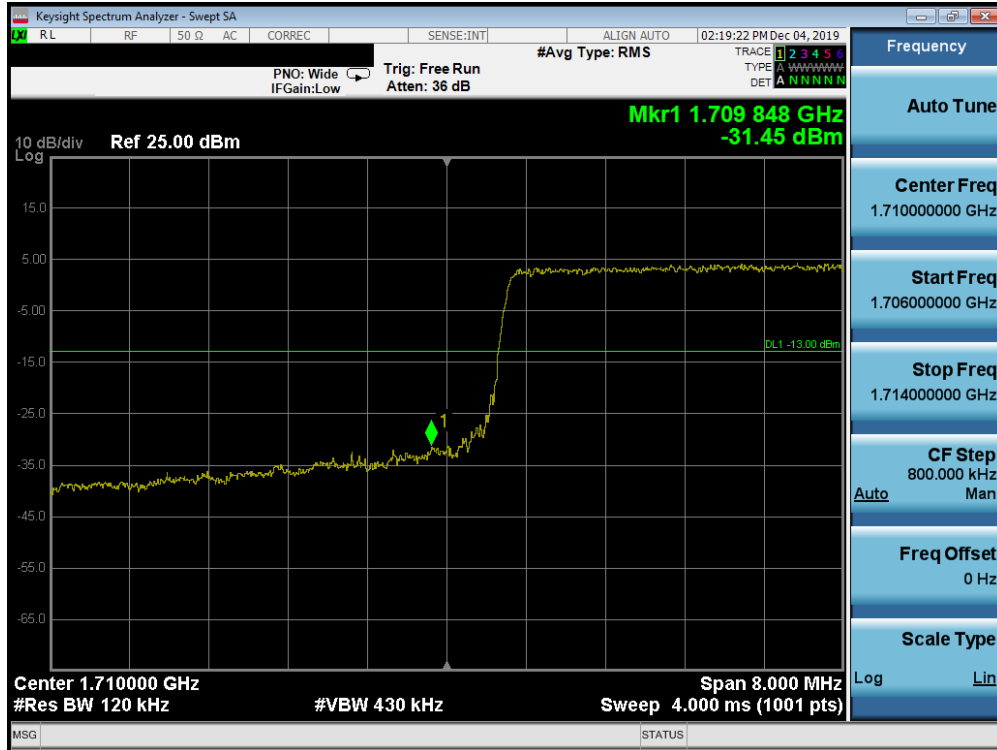


Plot 7-670. Upper Band Edge Plot (Band n66 - 5.0MHz CP-OFDM-QPSK - Full RB Configuration)

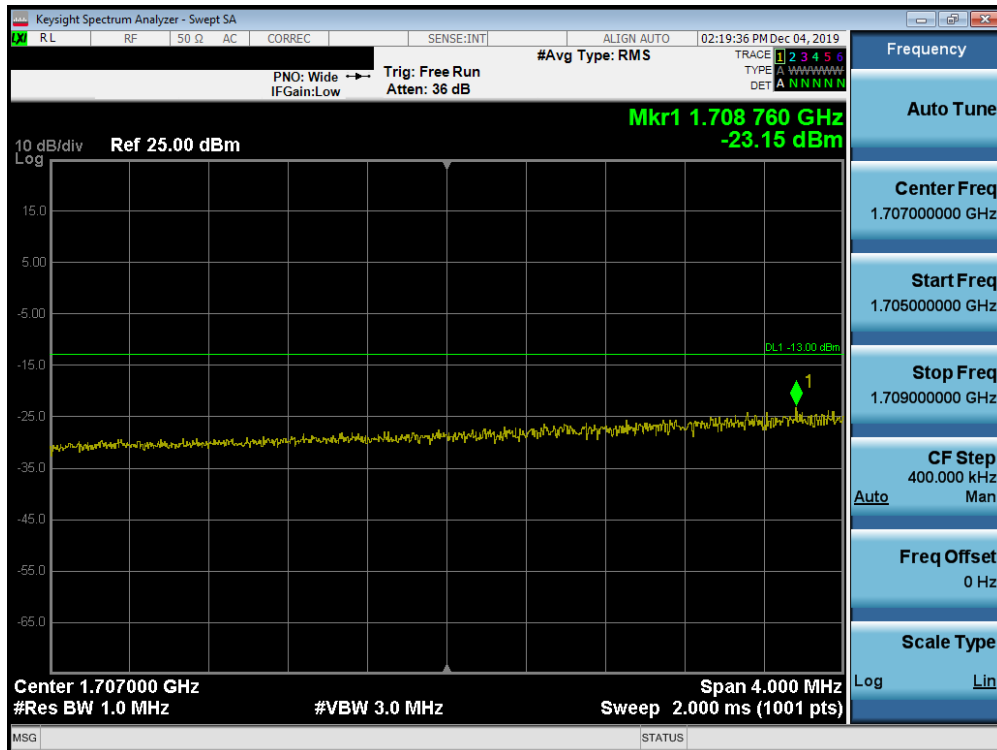


Plot 7-671. Upper Extended Band Edge Plot (Band n66 - 5.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 431 of 486

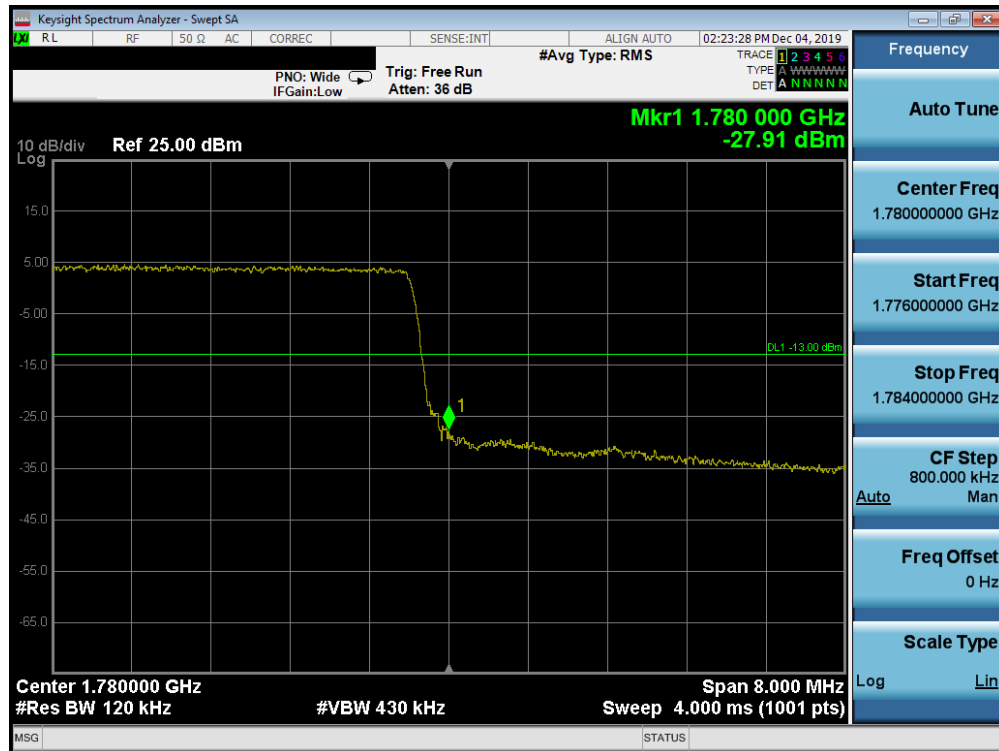


Plot 7-672. Lower Band Edge Plot (Band n66 - 10.0MHz CP-OFDM-QPSK - Full RB Configuration)

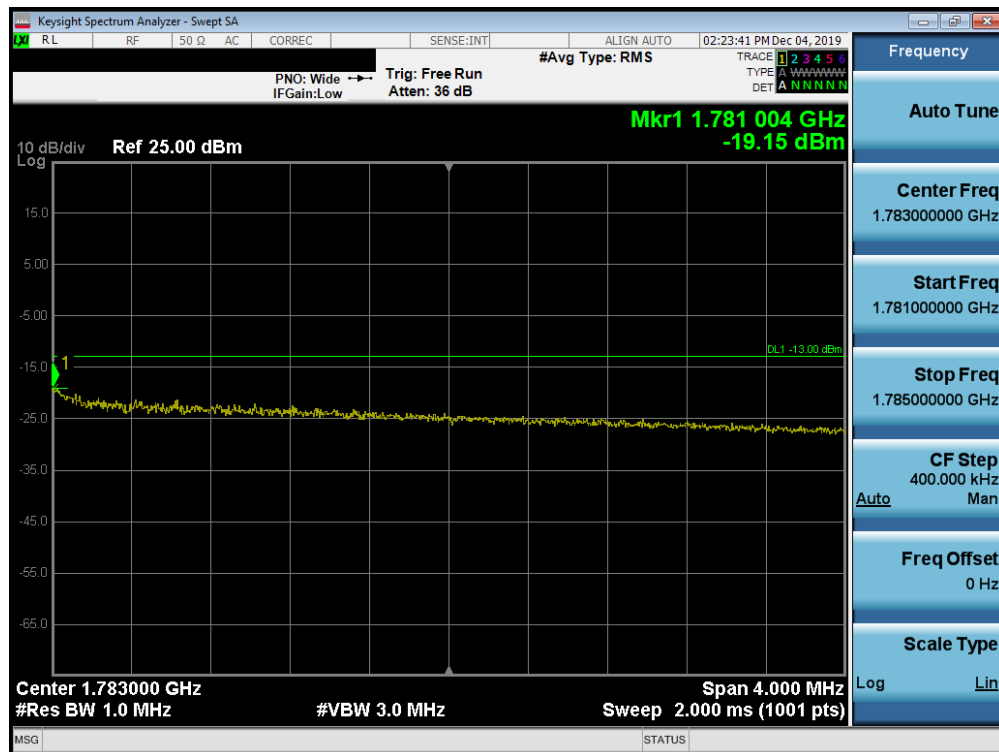


Plot 7-673. Lower Extended Band Edge Plot (Band n66 - 10.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 432 of 486

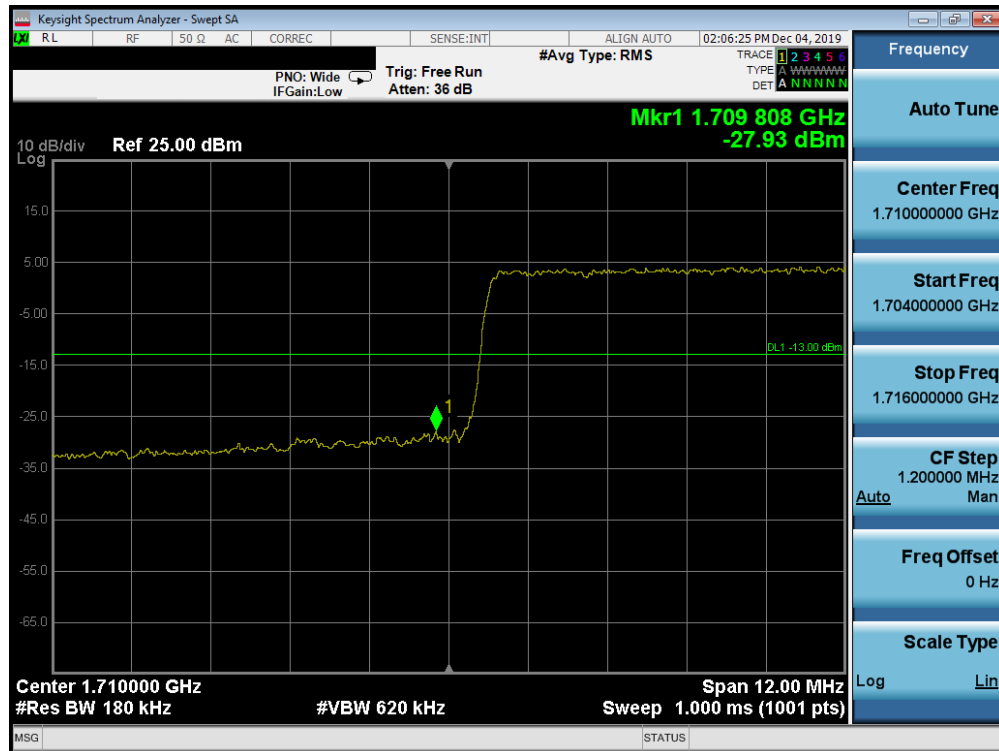


Plot 7-674. Upper Band Edge Plot (Band n66 - 10.0MHz CP-OFDM-QPSK - Full RB Configuration)

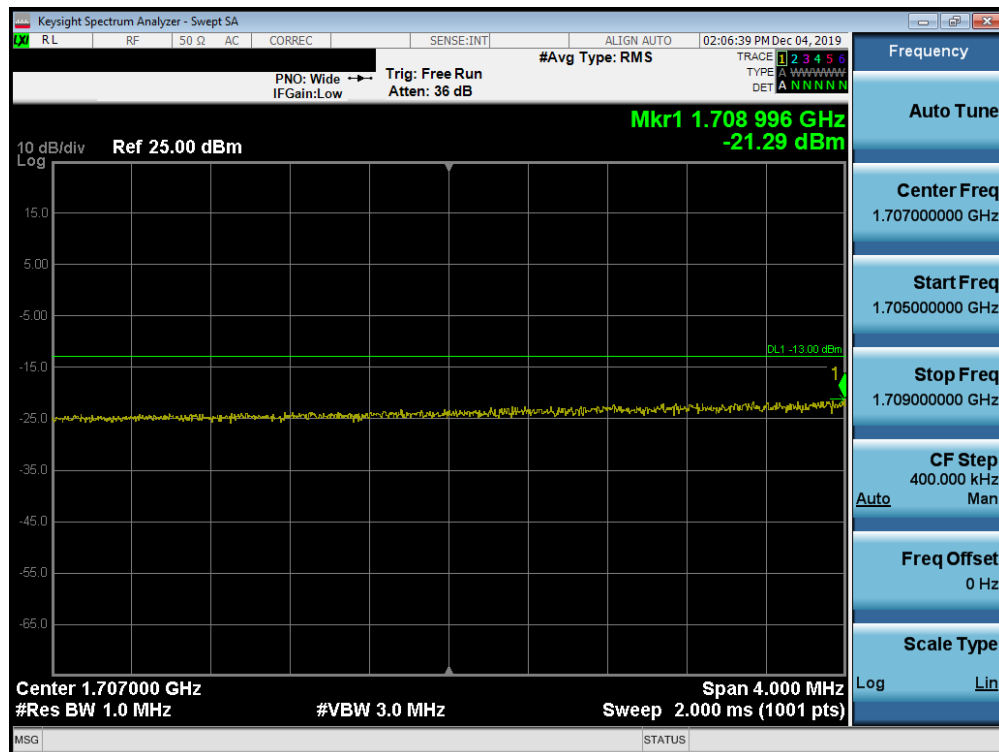


Plot 7-675. Upper Extended Band Edge Plot (Band n66 - 10.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 433 of 486

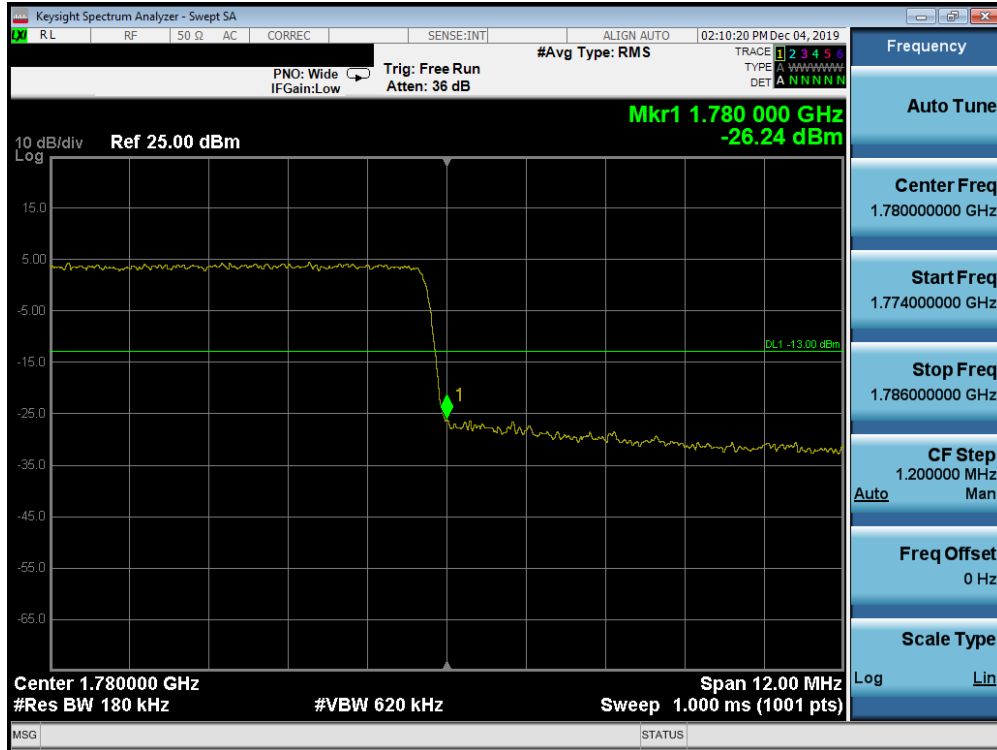


Plot 7-676. Lower Band Edge Plot (Band n66 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)

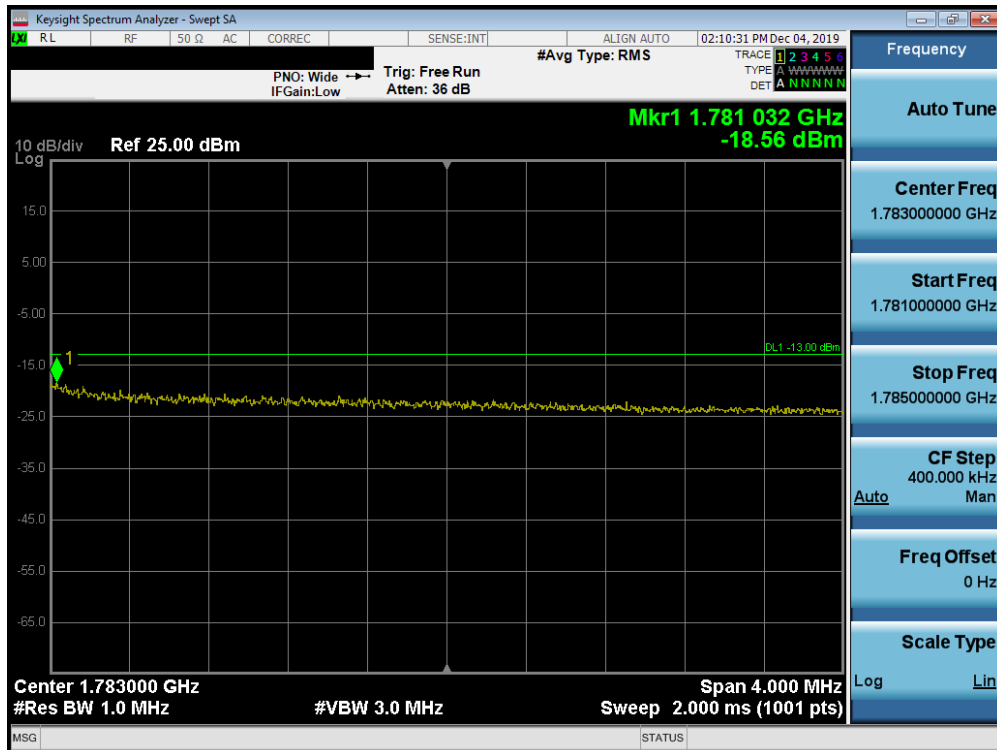


Plot 7-677. Lower Extended Band Edge Plot (Band n66 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 434 of 486

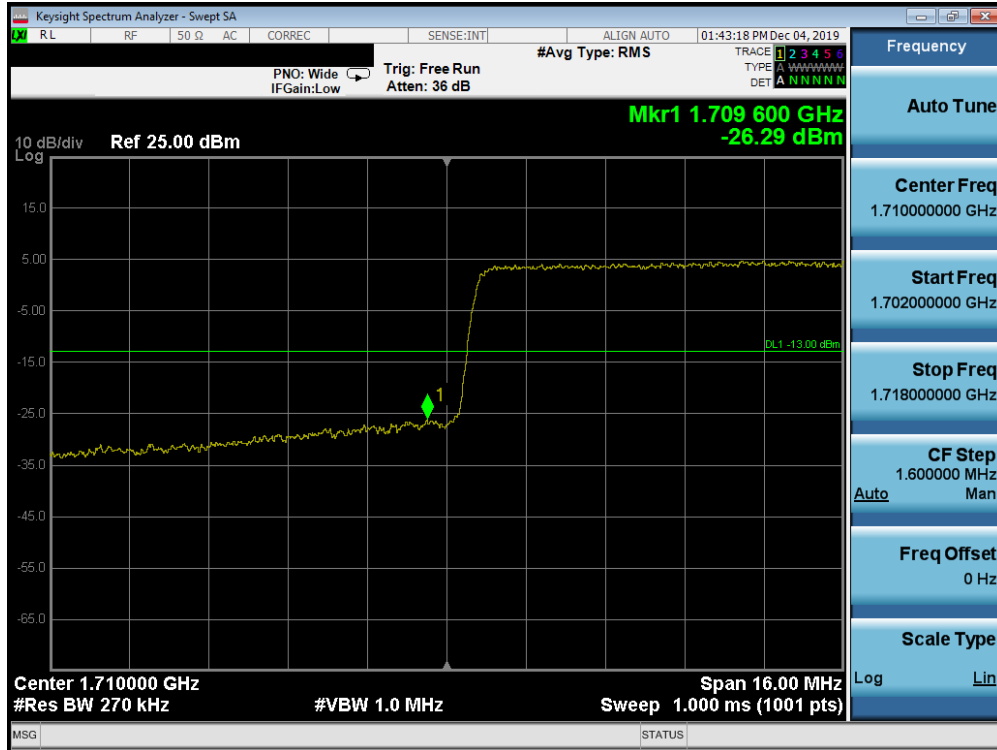


Plot 7-678. Upper Band Edge Plot (Band n66 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)

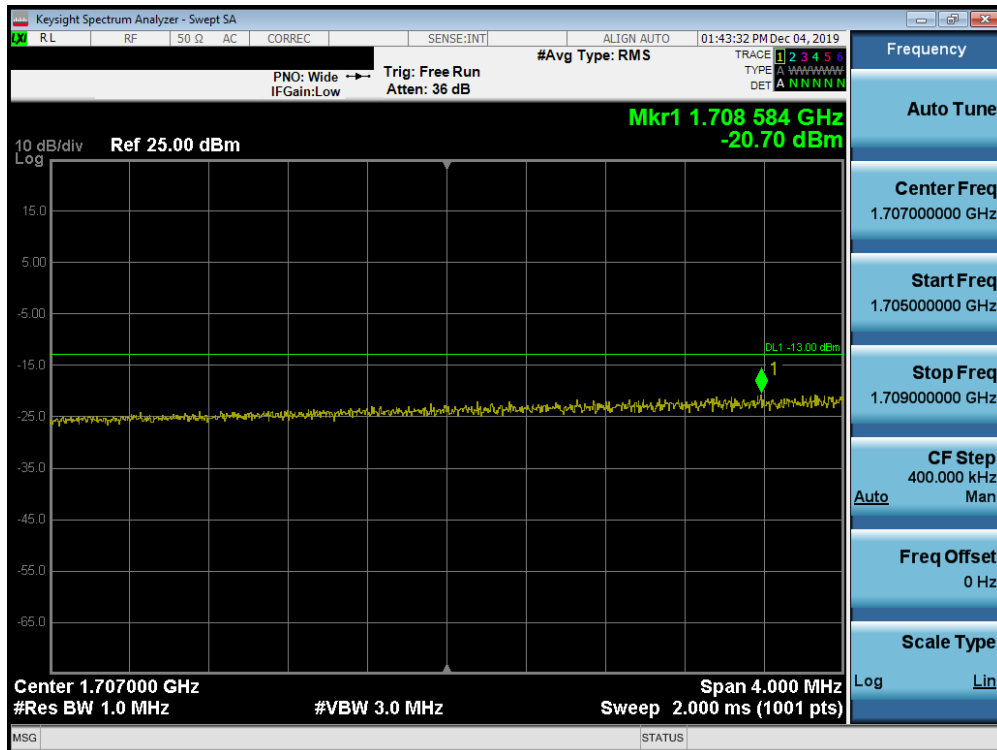


Plot 7-679. Upper Extended Band Edge Plot (Band n66 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 435 of 486

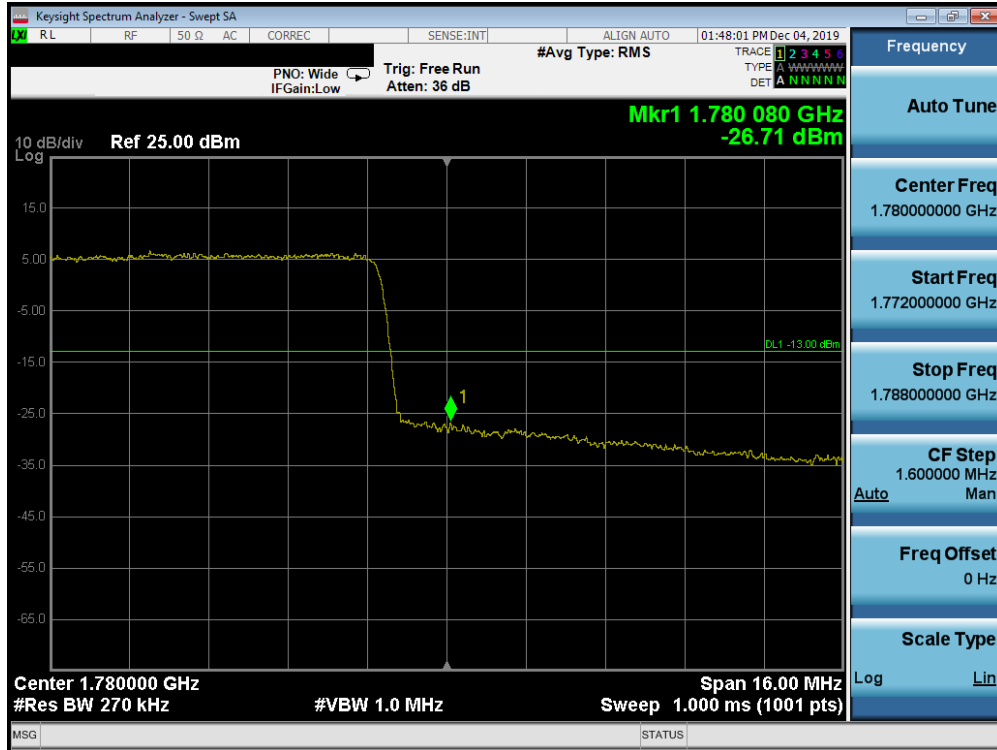


Plot 7-680. Lower Band Edge Plot (Band n66 - 20.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

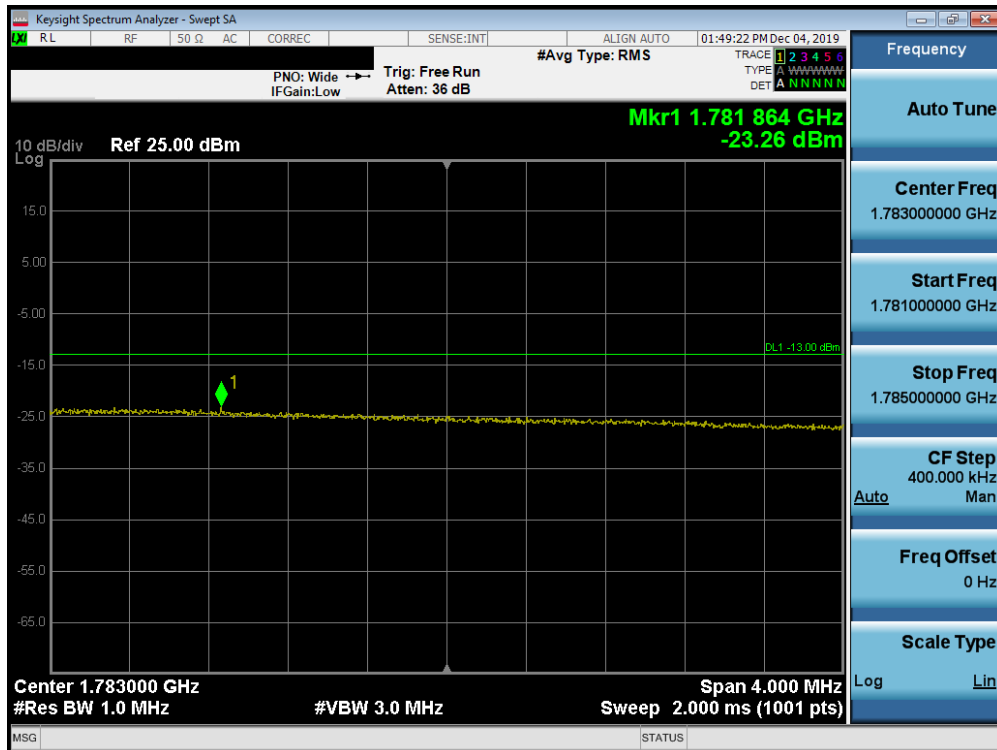


Plot 7-681. Lower Extended Band Edge Plot (Band n66 - 20.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 436 of 486



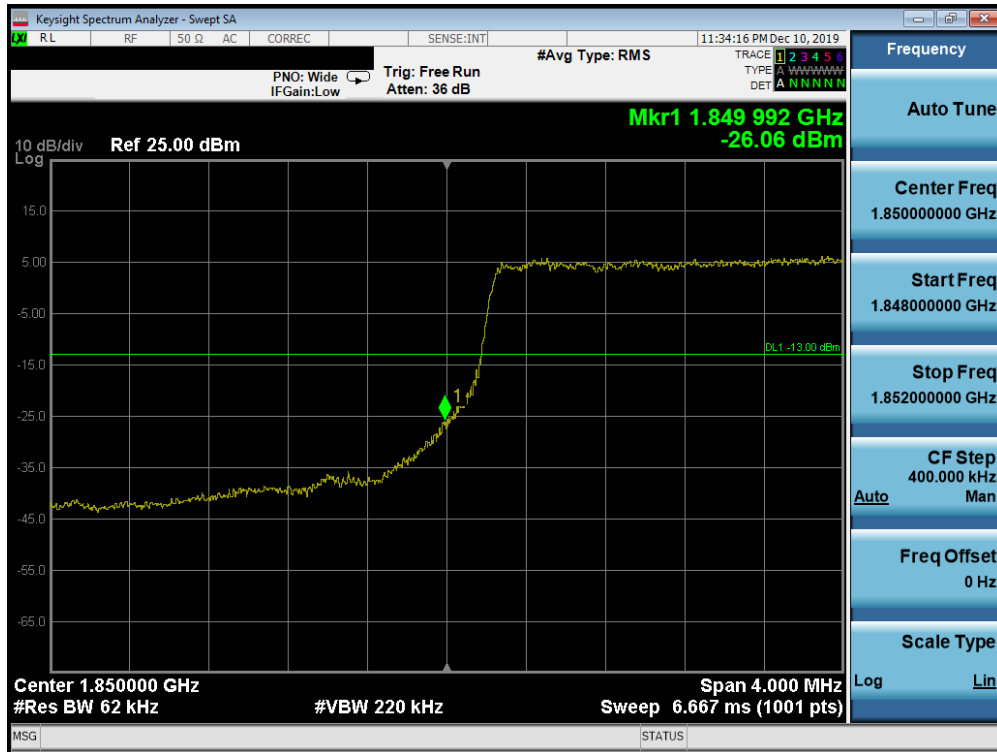
Plot 7-682. Upper Band Edge Plot (Band n66 - 20.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)



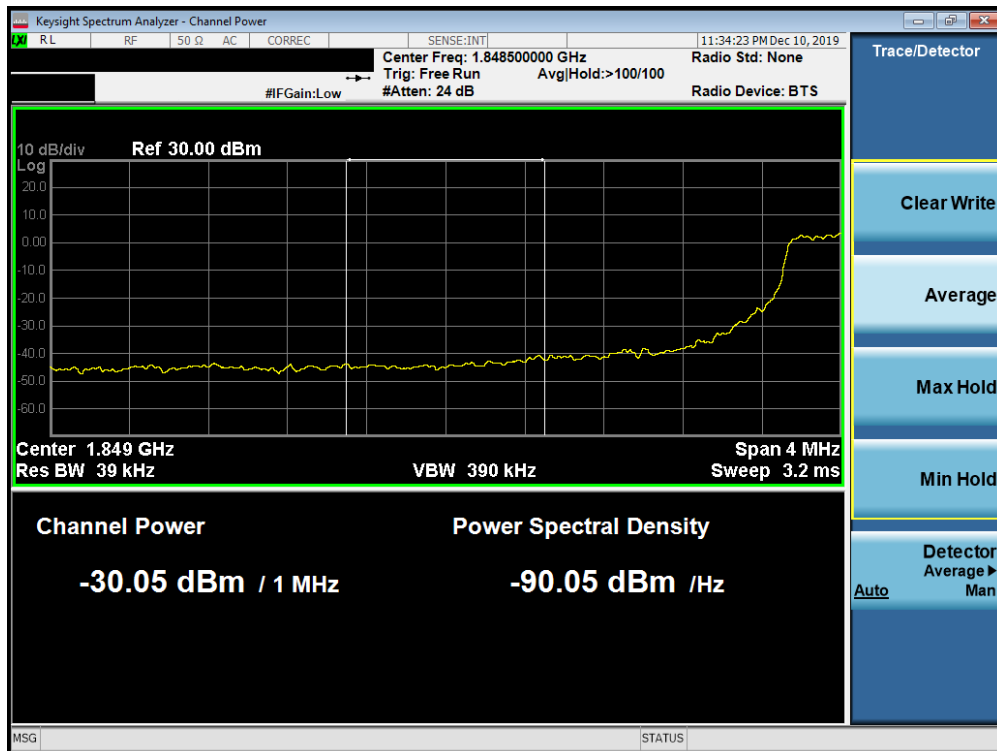
Plot 7-683. Upper Extended Band Edge Plot (Band n66 - 20.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 437 of 486

NR Band n2

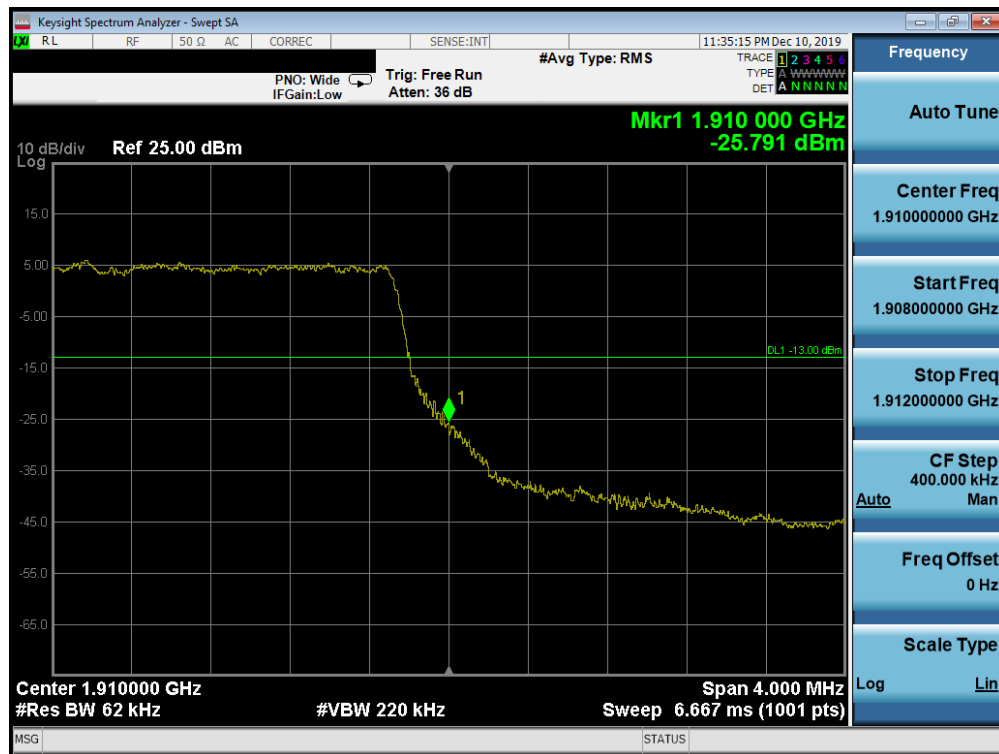


Plot 7-684. Lower Band Edge Plot (Band n2 - 5.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

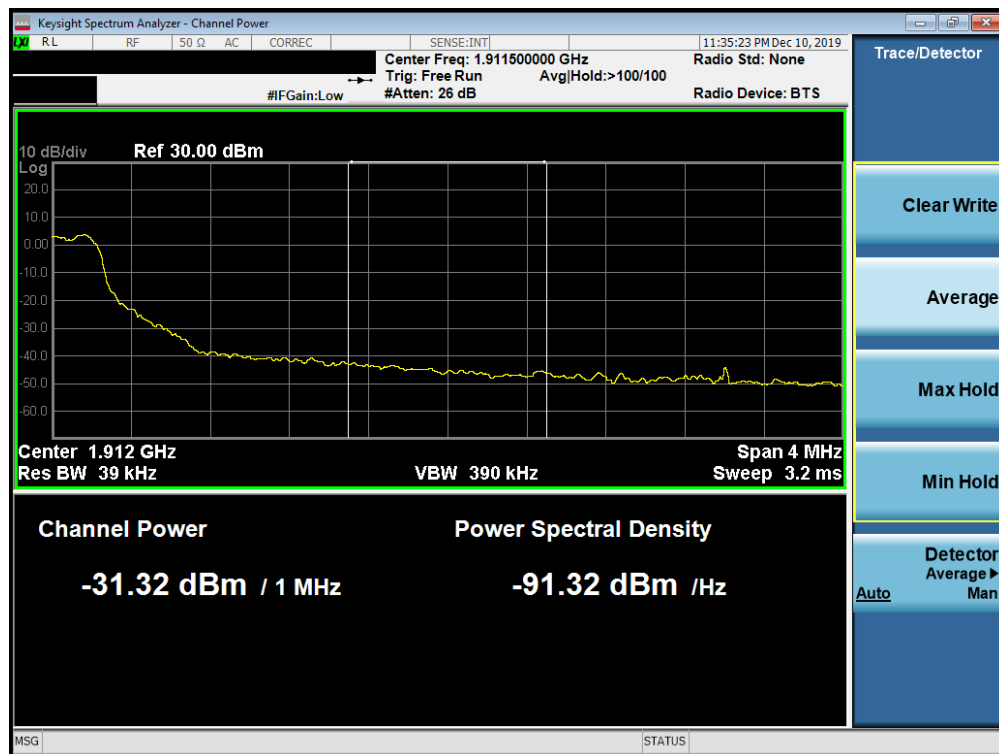


Plot 7-685. Lower Extended Band Edge Plot (Band n2 - 5.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 438 of 486

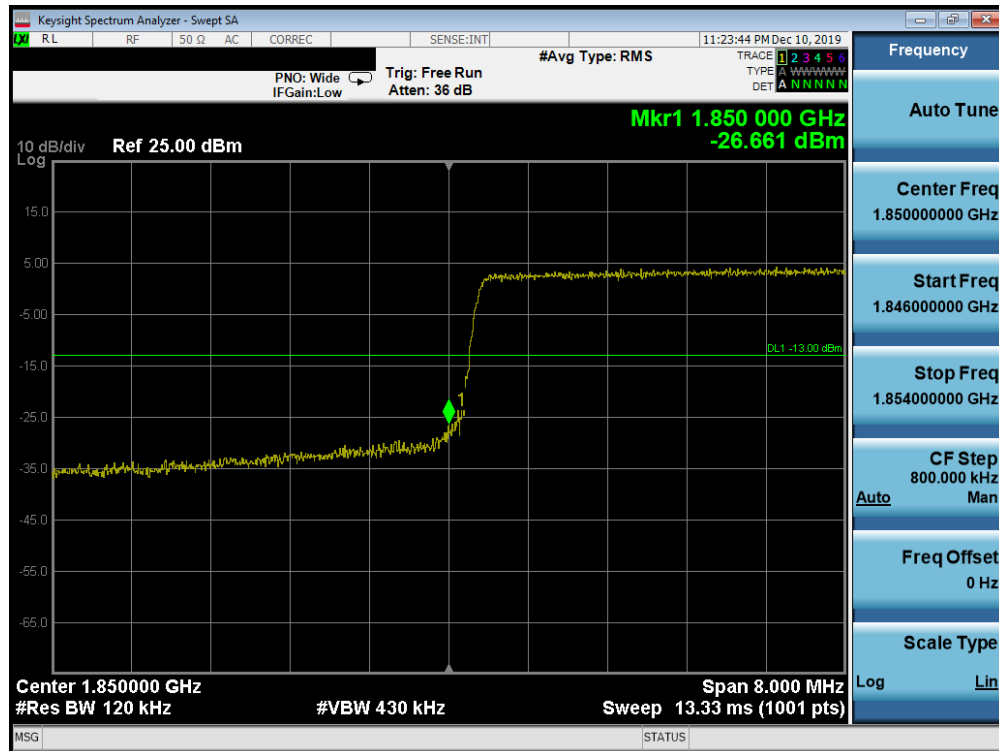


Plot 7-686. Upper Band Edge Plot (Band n2 - 5.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

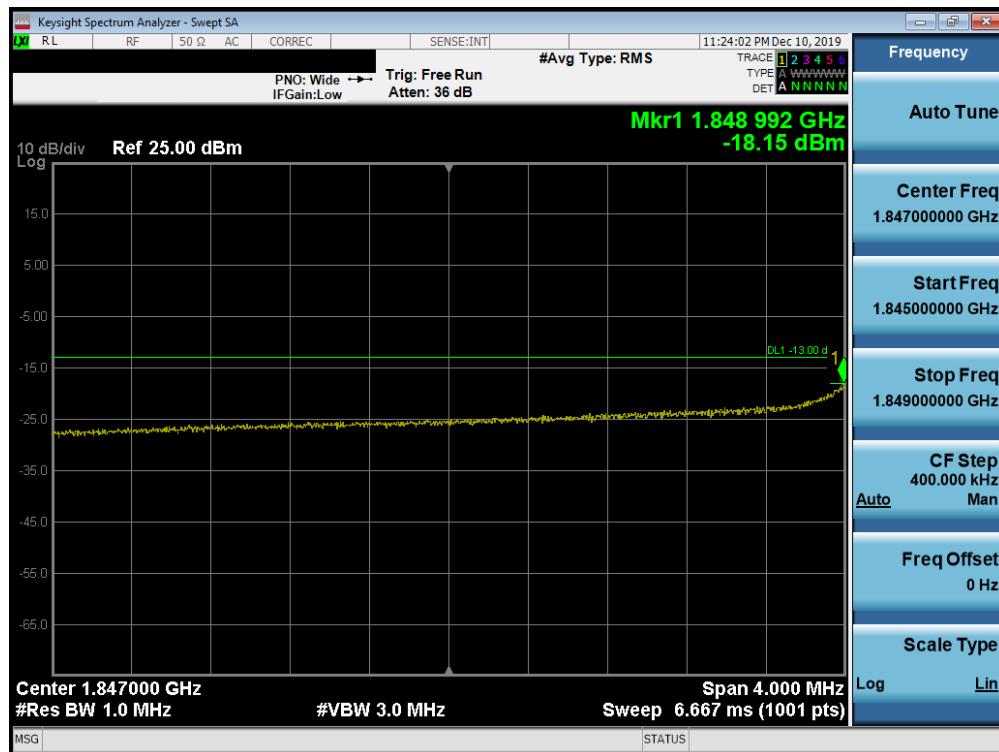


Plot 7-687. Upper Extended Band Edge Plot (Band n2 - 5.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 439 of 486

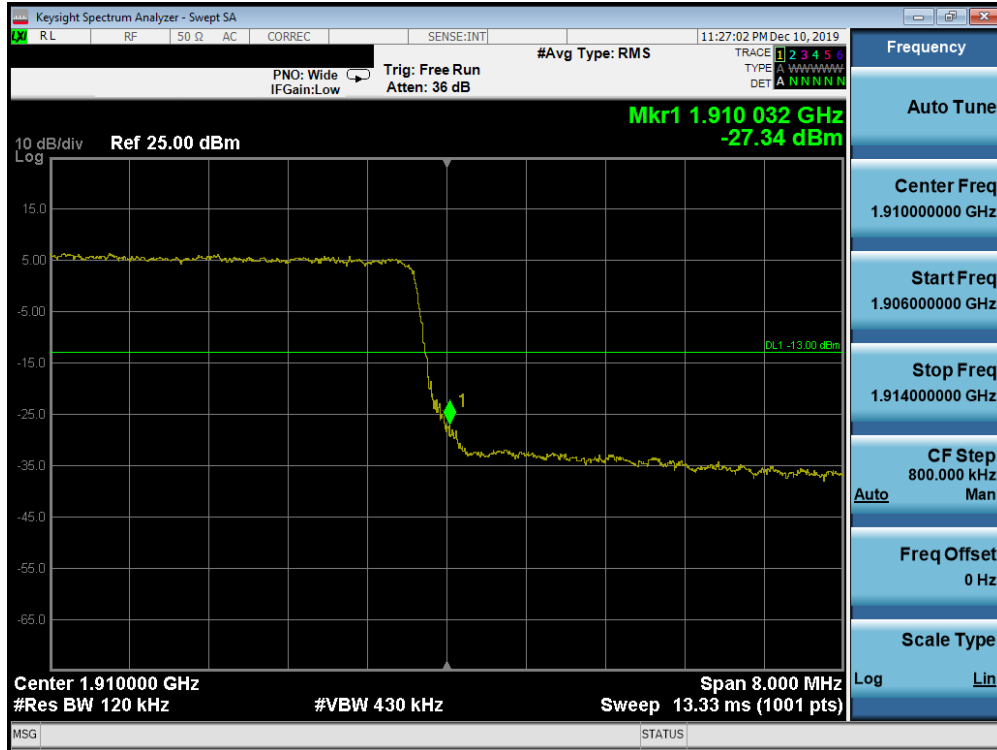


Plot 7-688. Lower Band Edge Plot (Band n2 - 10.0MHz CP-OFDM-QPSK - Full RB Configuration)

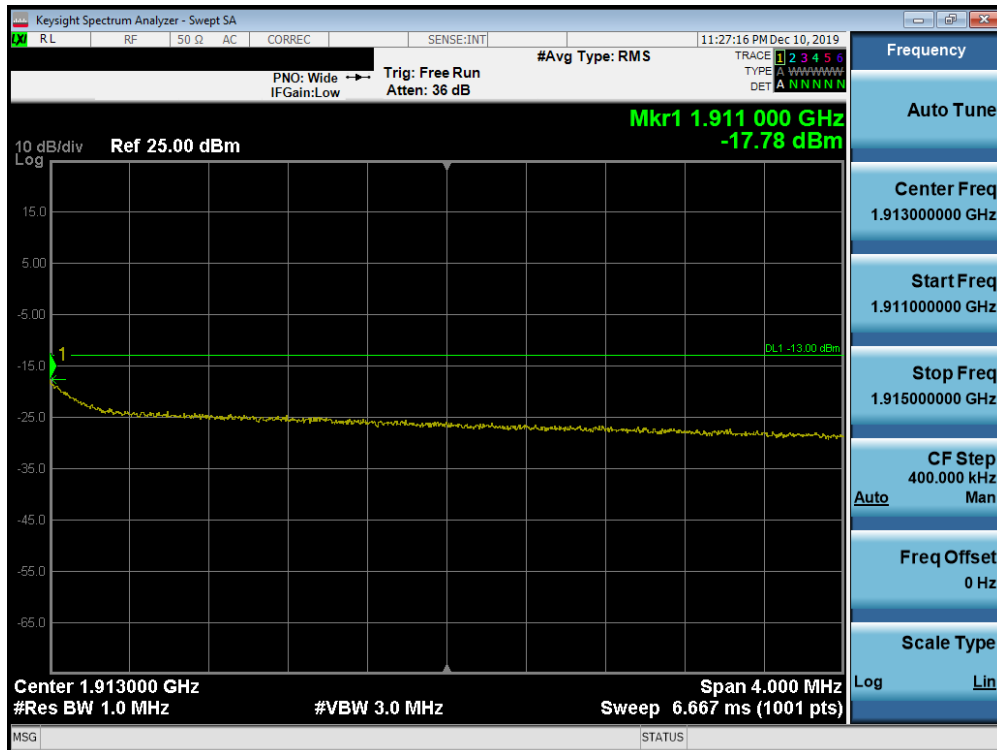


Plot 7-689. Lower Extended Band Edge Plot (Band n2 - 10.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 440 of 486

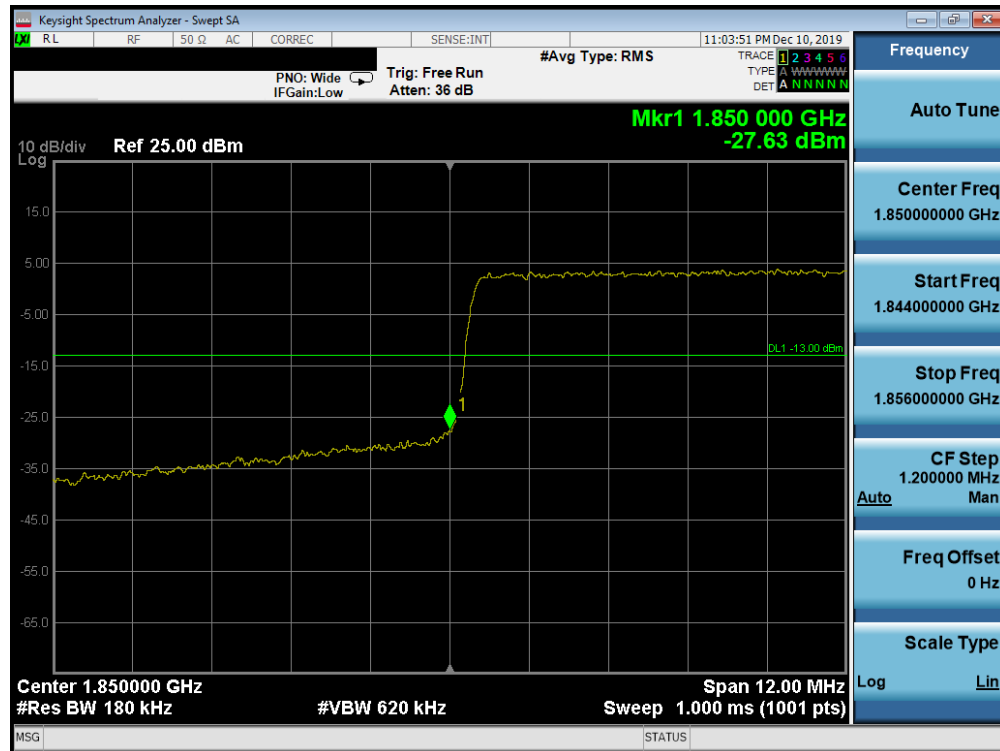


Plot 7-690. Upper Band Edge Plot (Band n2 - 10.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

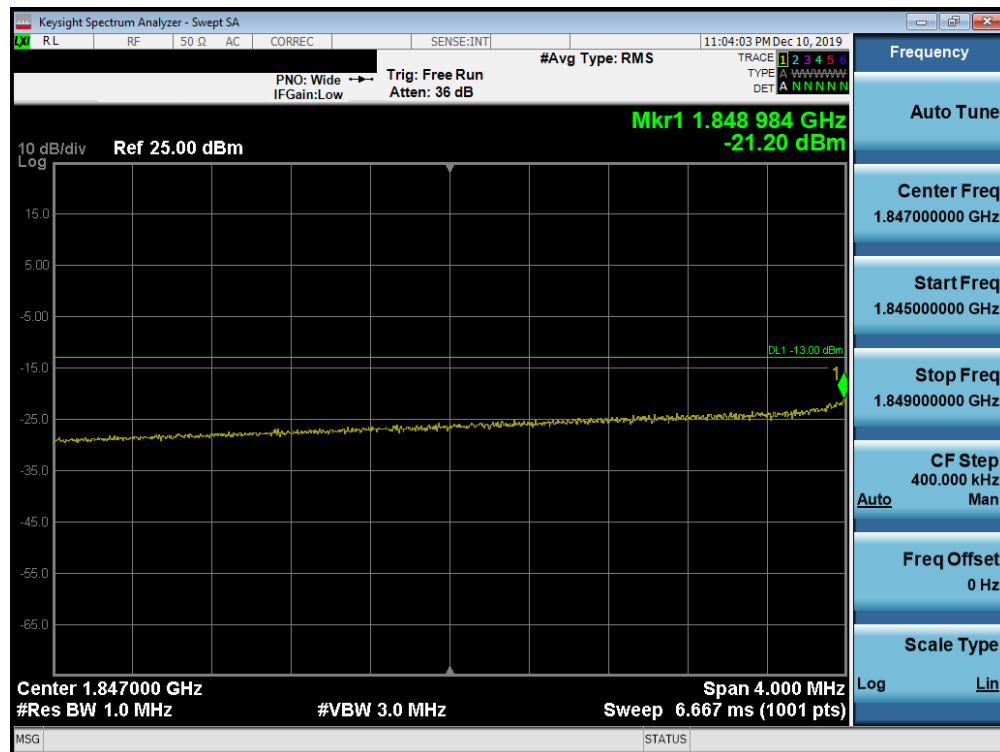


Plot 7-691. Upper Extended Band Edge Plot (Band n2 - 10.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 441 of 486



Plot 7-692. Lower Band Edge Plot (Band n2 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)

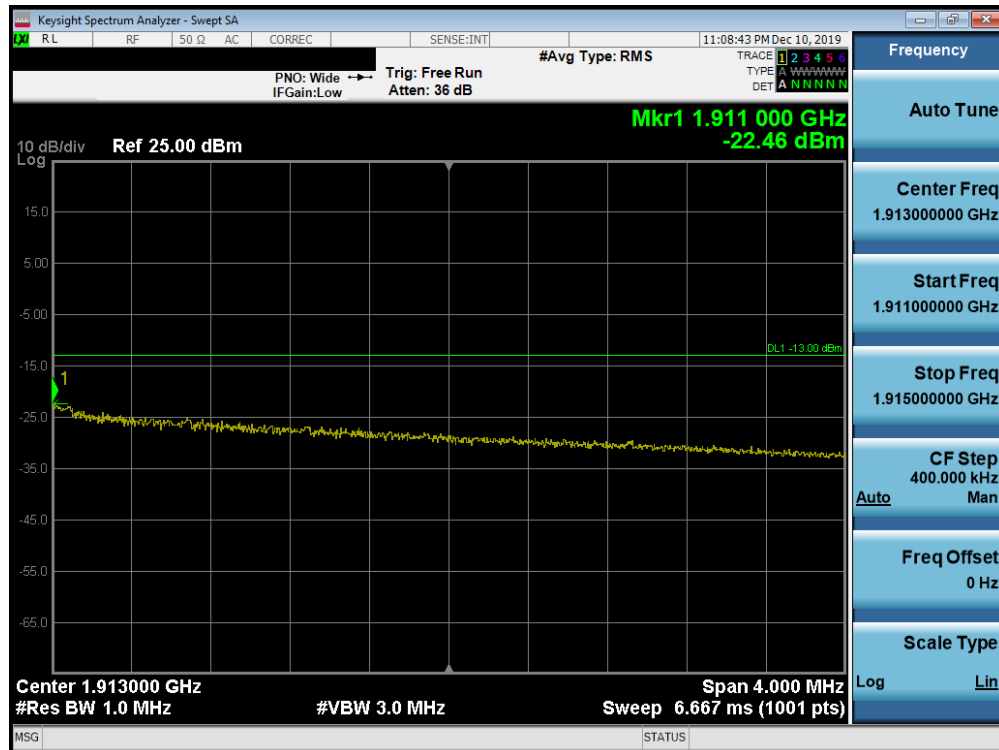


Plot 7-693. Lower Extended Band Edge Plot (Band n2 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 442 of 486

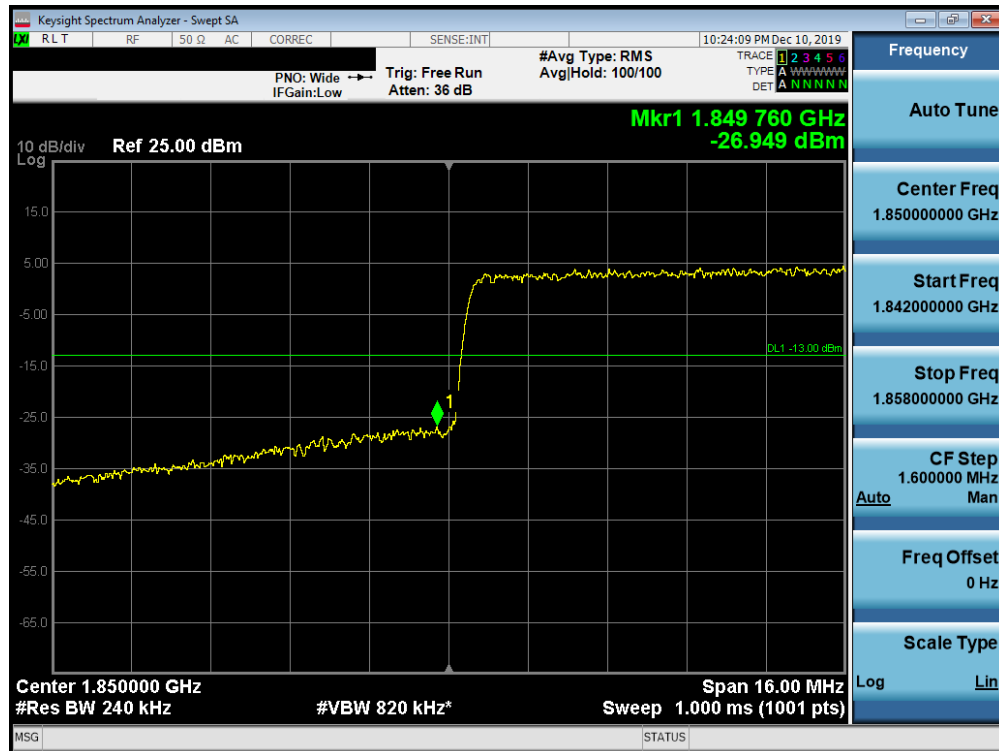


Plot 7-694. Upper Band Edge Plot (Band n2 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)

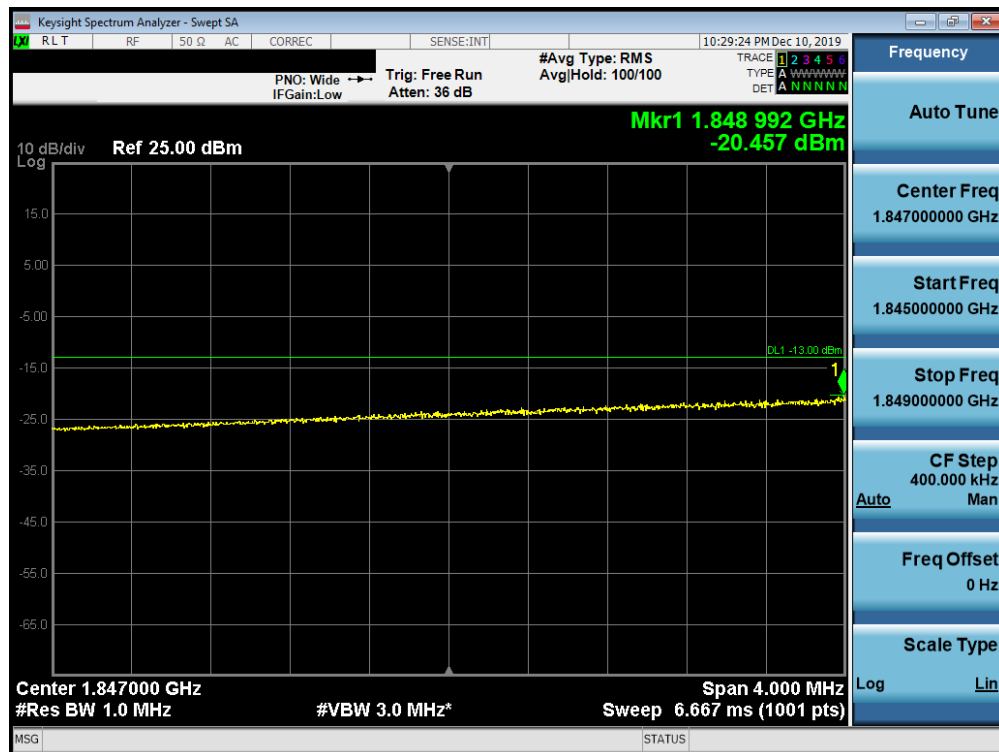


Plot 7-695. Upper Extended Band Edge Plot (Band n2 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 443 of 486

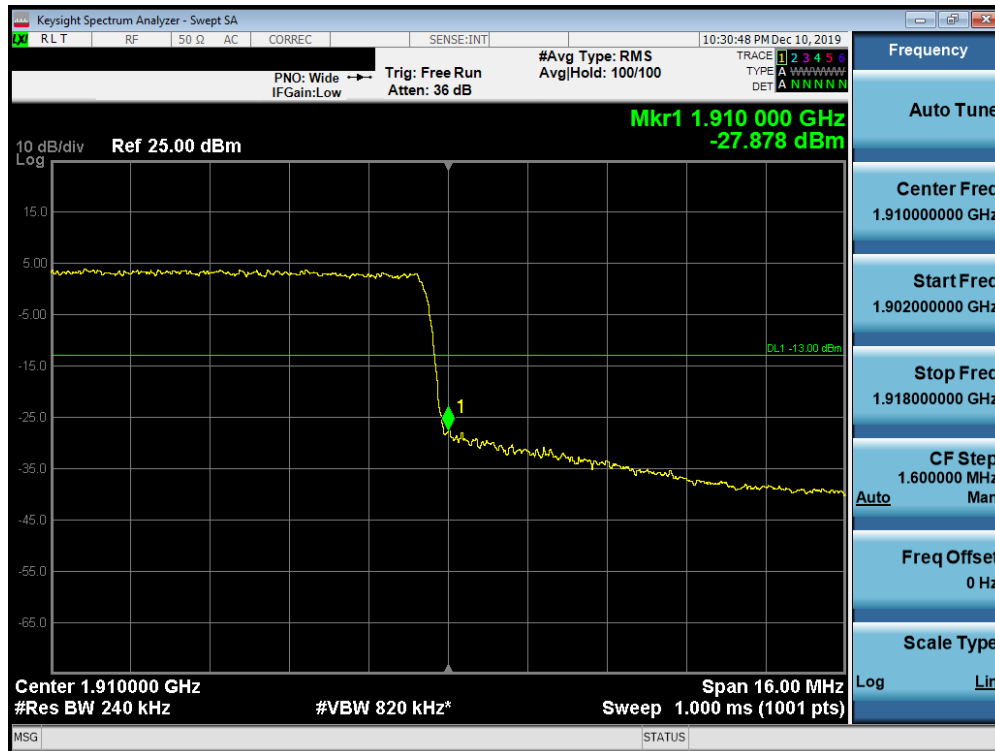


Plot 7-696. Lower Band Edge Plot (Band n2 - 20.0MHz CP-OFDM-QPSK - Full RB Configuration)

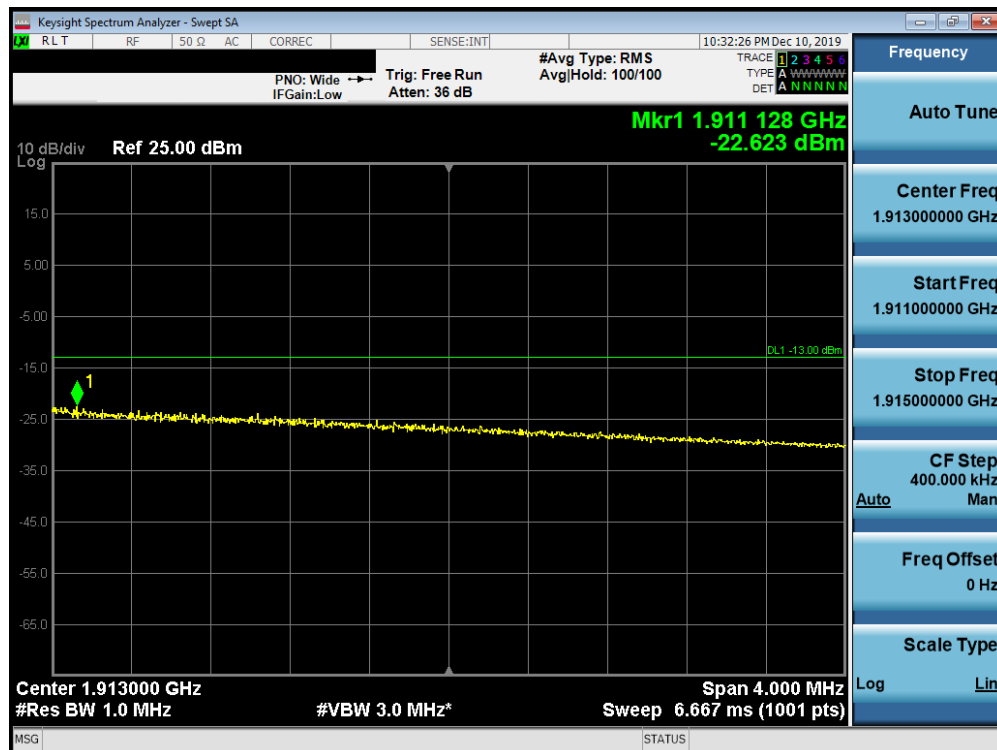


Plot 7-697. Lower Extended Band Edge Plot (Band n2 - 20.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 444 of 486



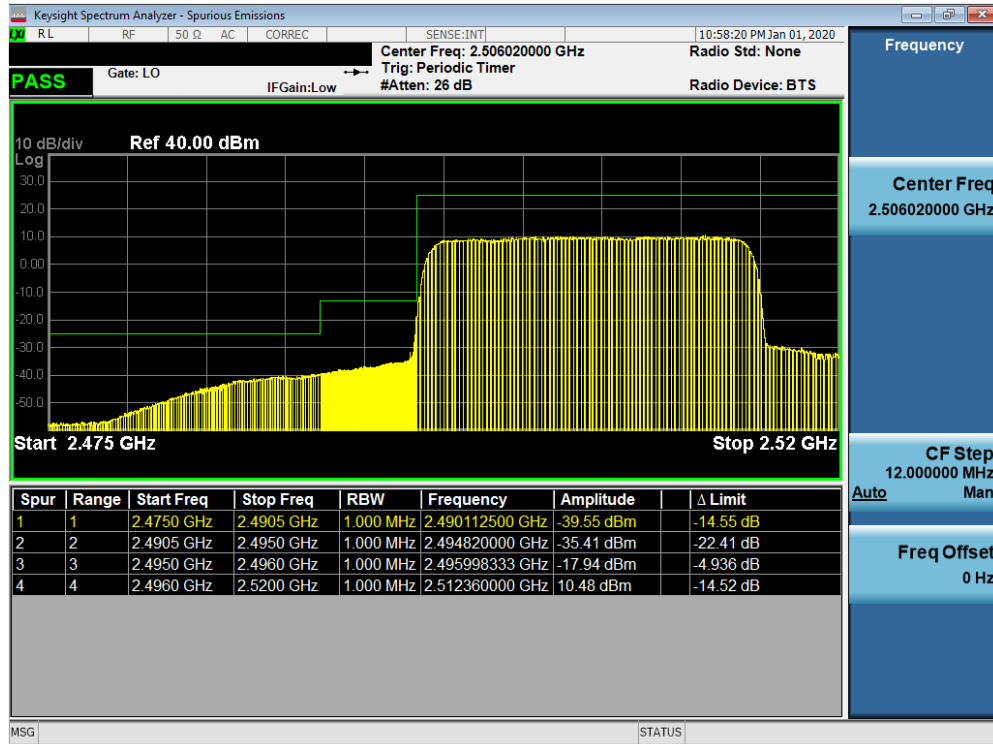
Plot 7-698. Upper Band Edge Plot (Band n2 - 20.0MHz CP-OFDM-QPSK - Full RB Configuration)



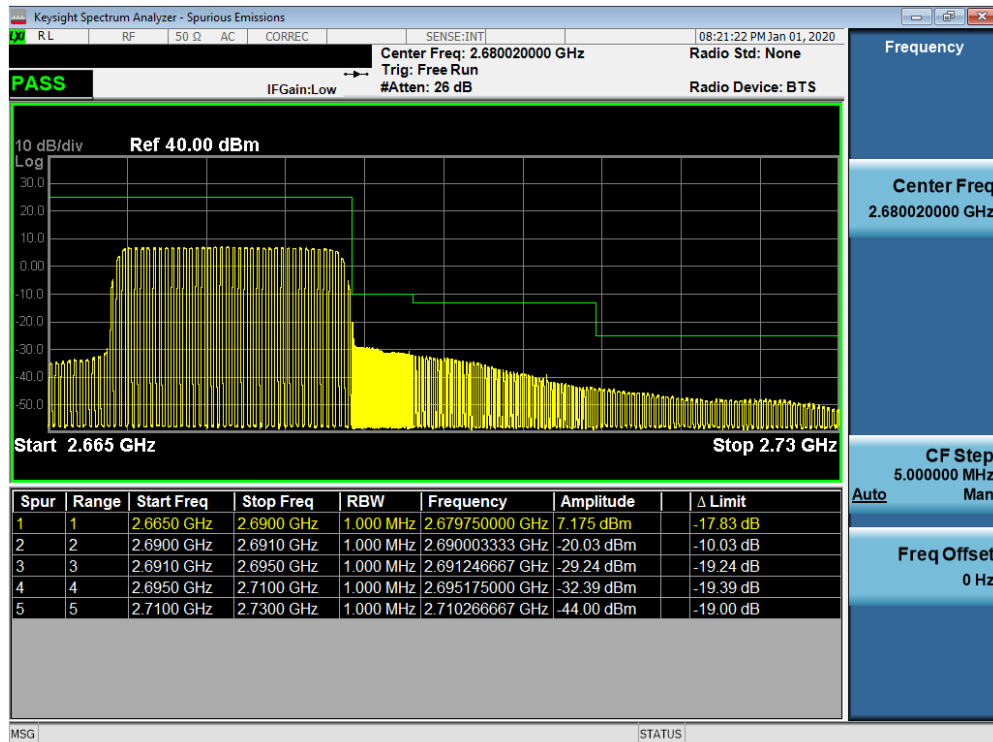
Plot 7-699. Upper Extended Band Edge Plot (Band n2 - 20.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 445 of 486

Band n41

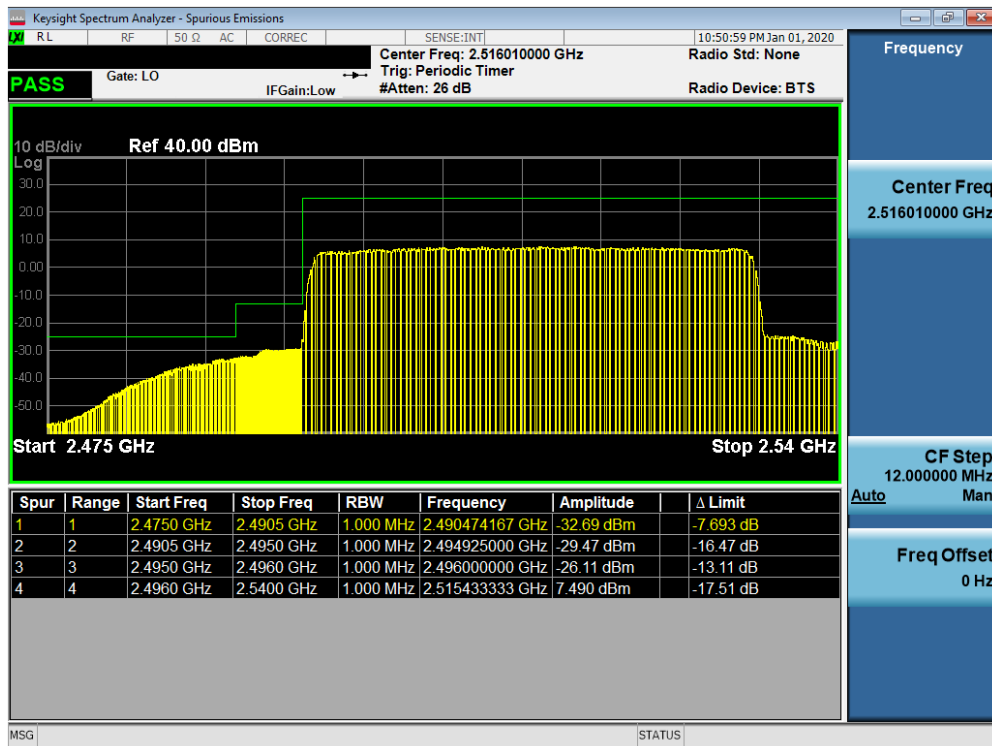


Plot 7-700. Lower ACP Plot at 2496 MHz (n41 - 20MHz DFT-s-OFDM-QPSK - Full RB Configuration)

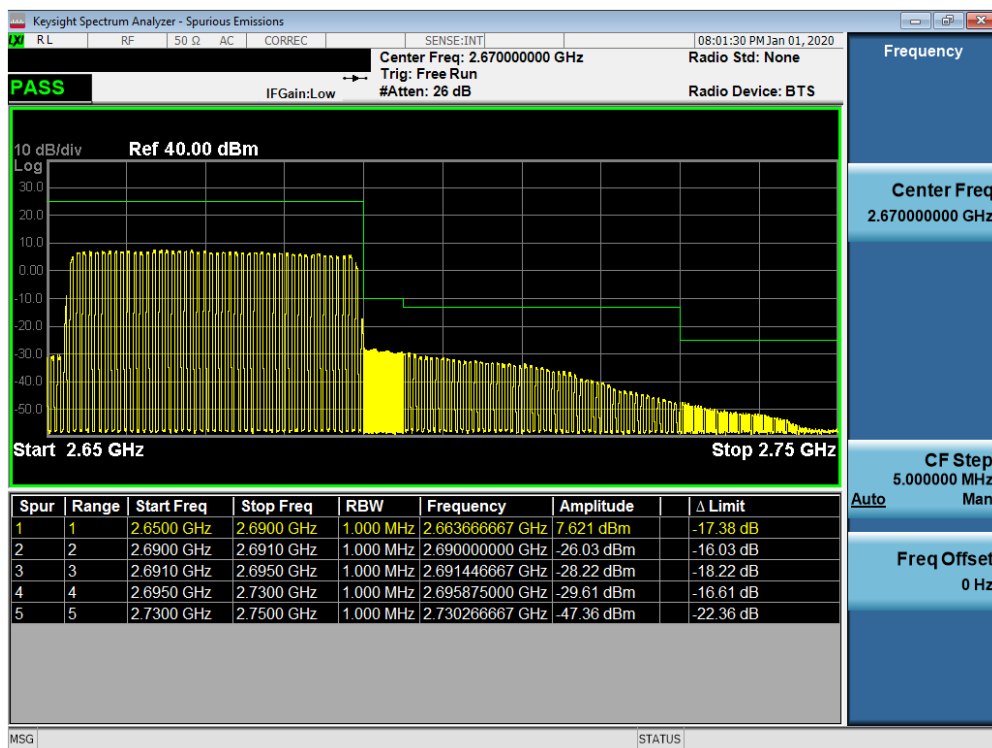


Plot 7-701. Upper ACP Plot (n41 - 20MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 446 of 486

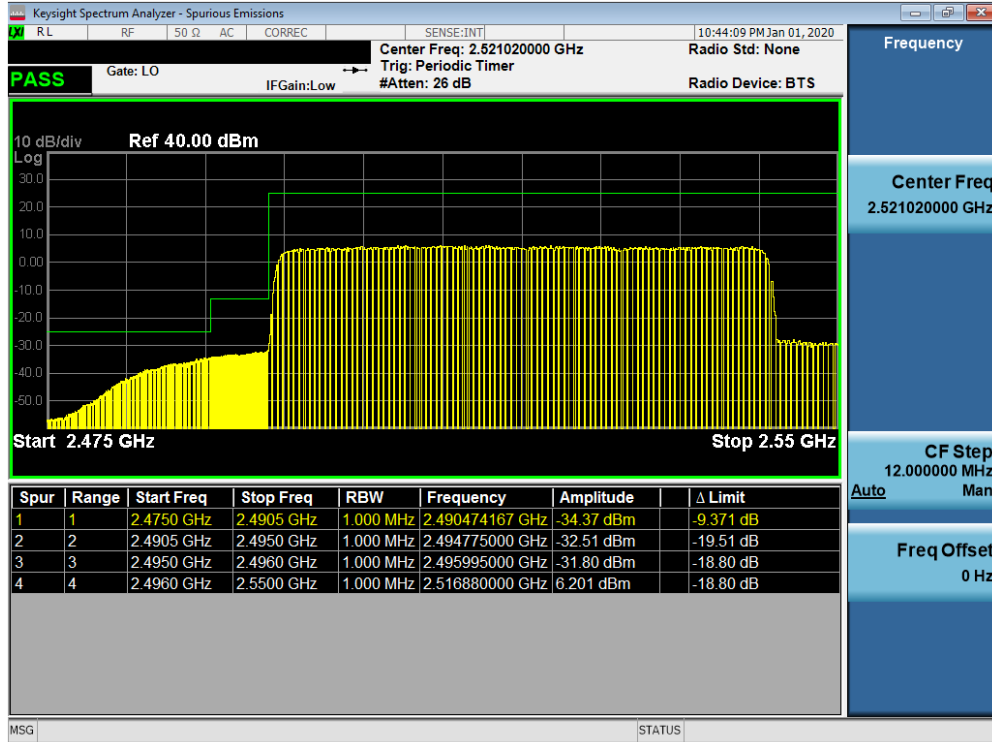


Plot 7-702. Lower ACP Plot at 2496 MHz (n41 - 40MHz DFT-s-OFDM-QPSK - Full RB Configuration)

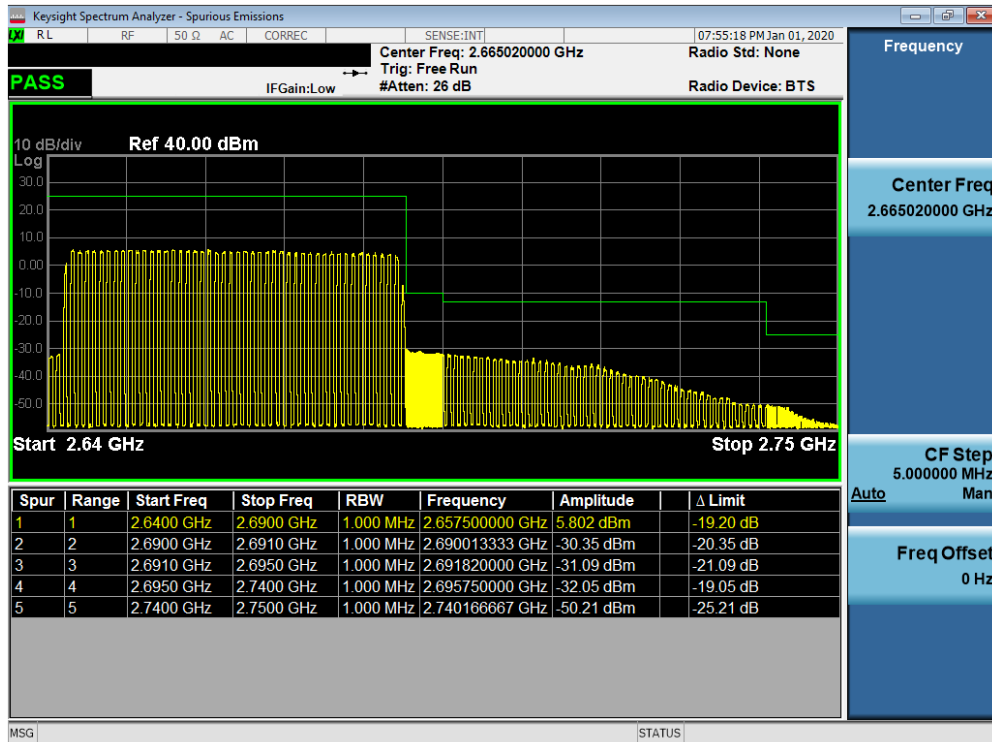


Plot 7-703. Upper ACP Plot (n41 - 40MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 447 of 486

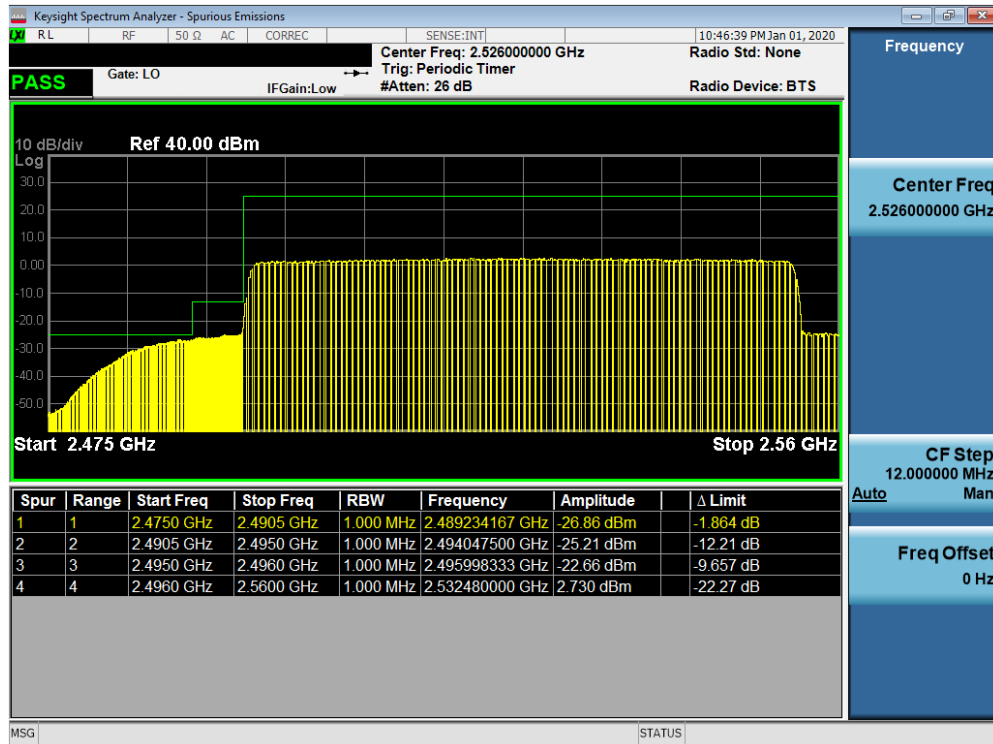


Plot 7-704. Lower ACP Plot at 2496 MHz (n41 - 50MHz DFT-s-OFDM-QPSK - Full RB Configuration)

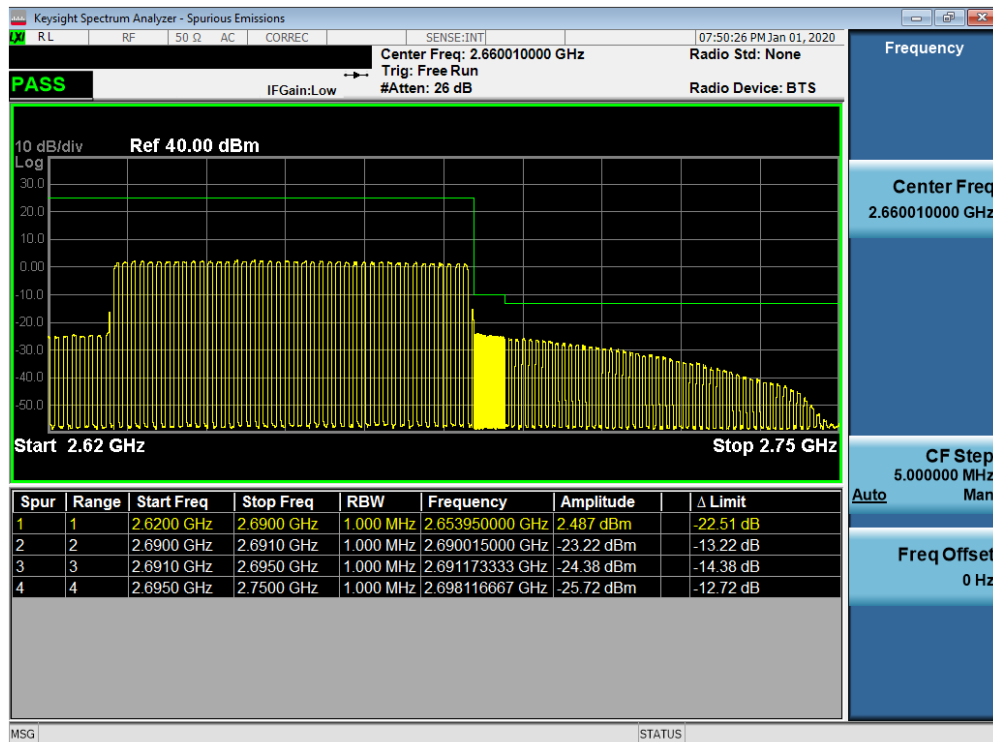


Plot 7-705. Upper ACP Plot (n41 - 50MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 448 of 486

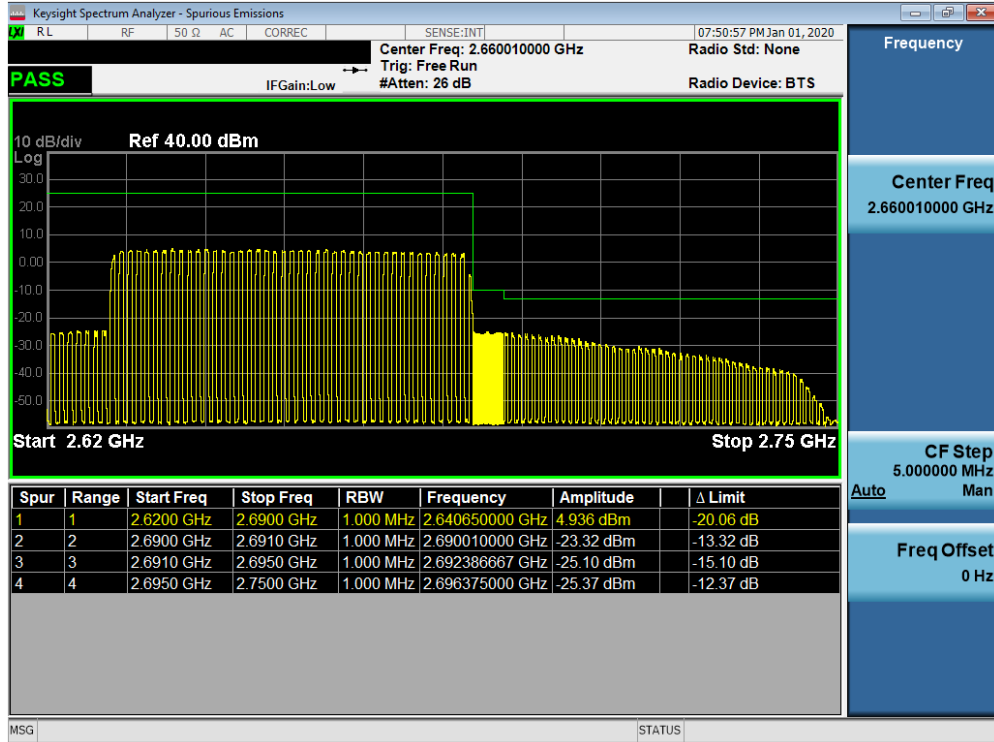


Plot 7-706. Lower ACP Plot at 2496 MHz (n41 - 60MHz CP-OFDM-QPSK - Full RB Configuration)

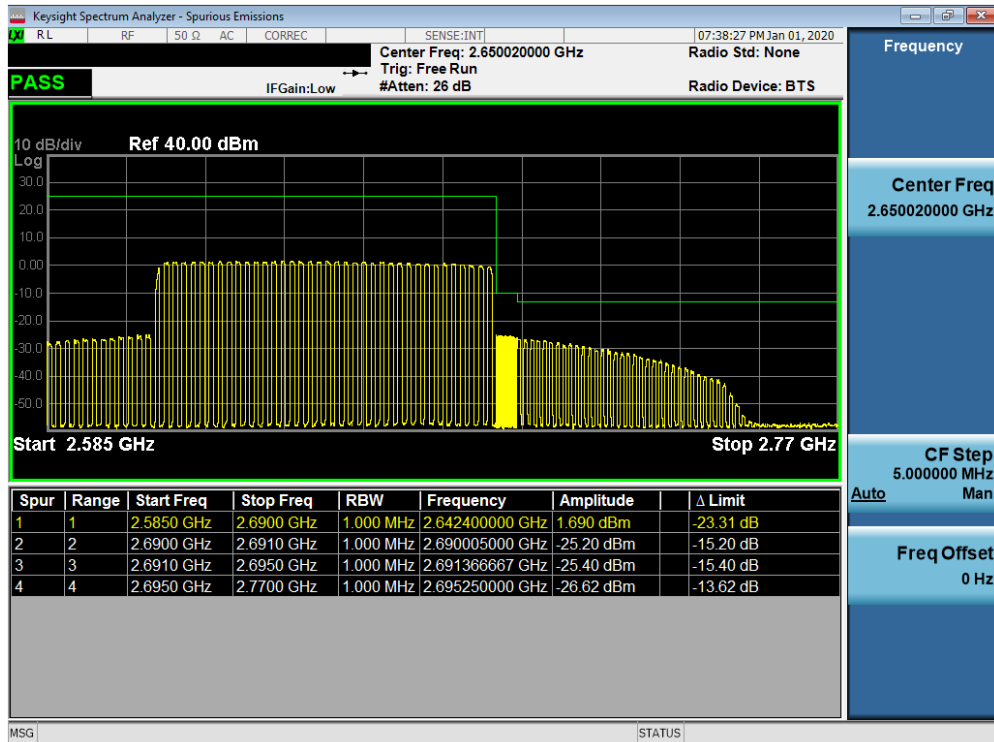


Plot 7-707. Upper ACP Plot (n41 - 60MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 449 of 486

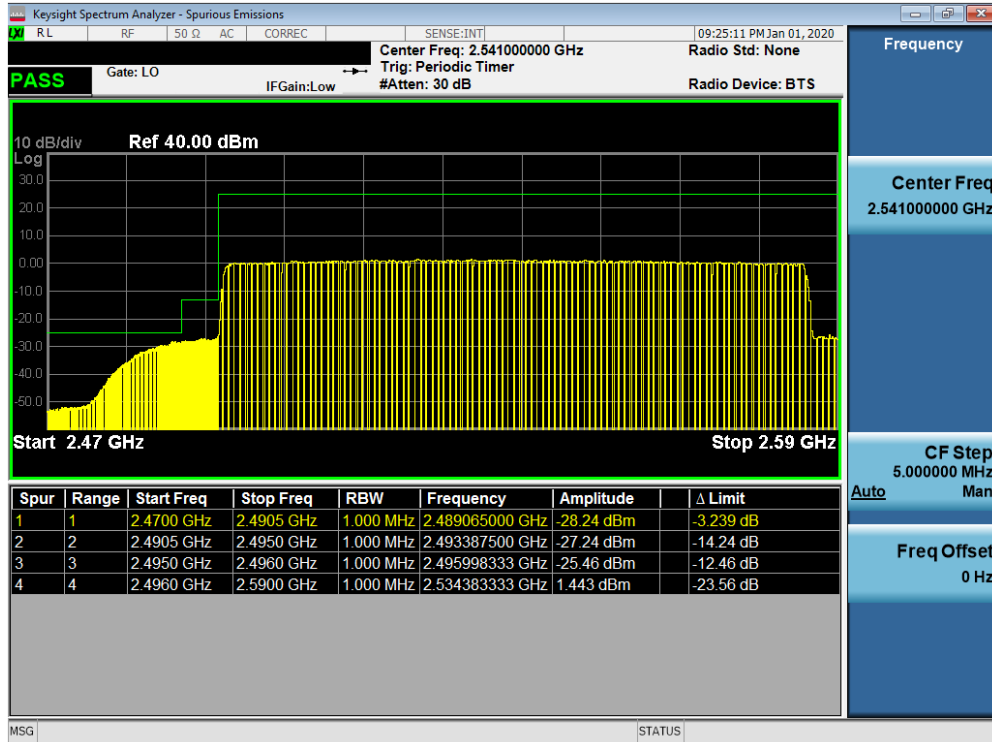


Plot 7-708. Lower ACP Plot at 2496 MHz (n41 - 80MHz CP-OFDM-QPSK - Full RB Configuration)

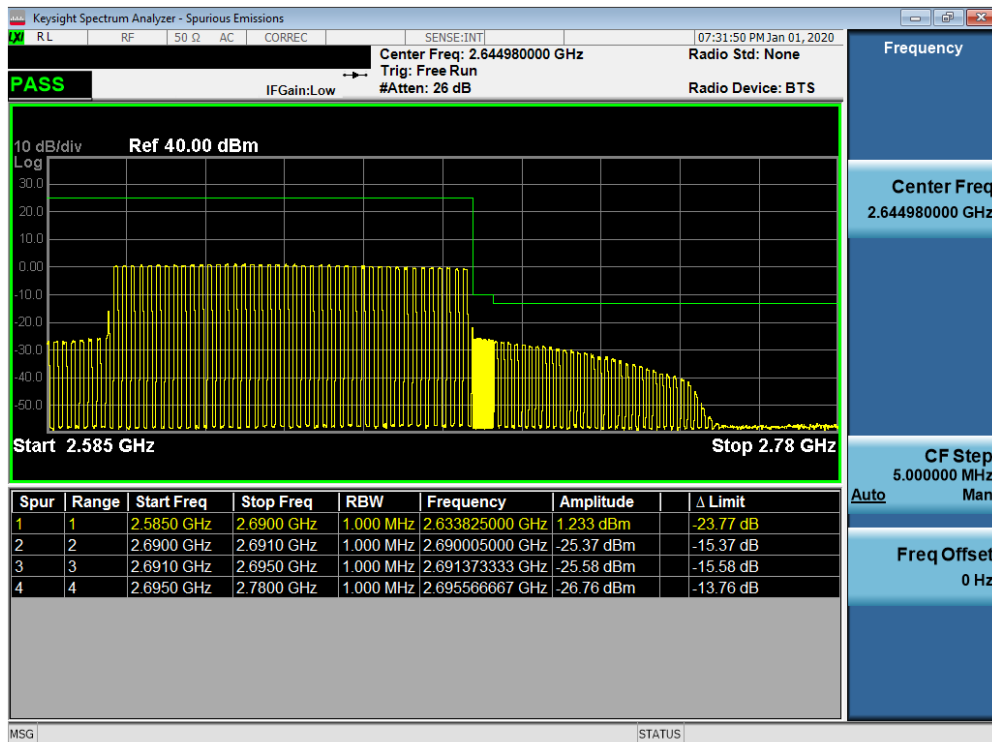


Plot 7-709. Upper ACP Plot (n41 - 80MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U	PCTEST	MEASUREMENT REPORT (CERTIFICATION)		SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset			Page 450 of 486

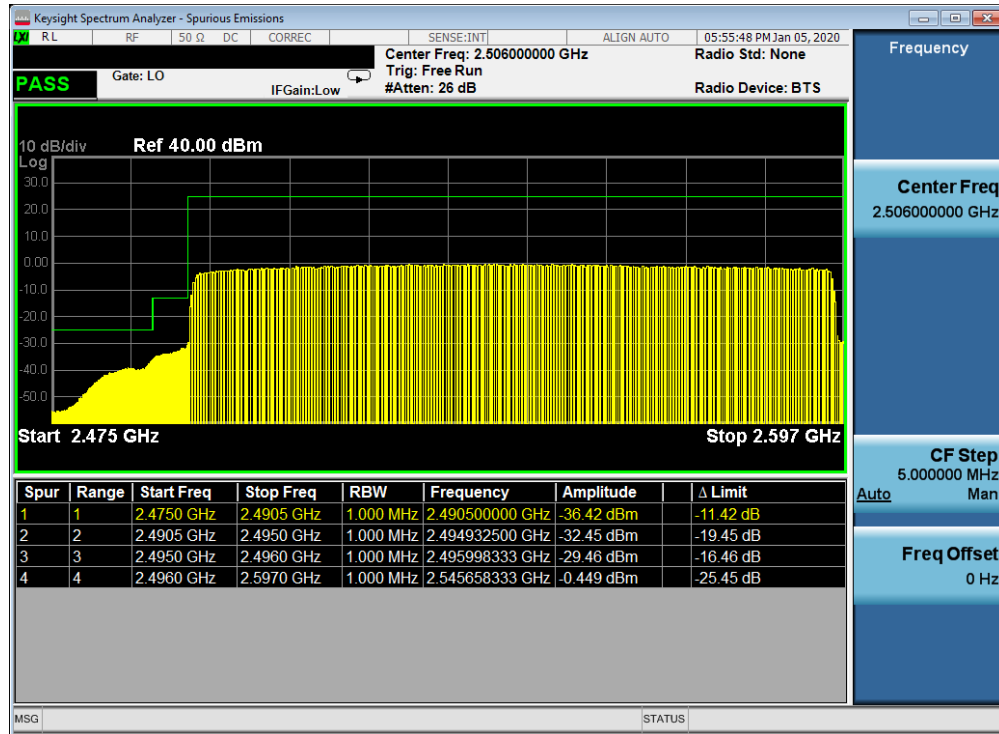


Plot 7-710. Lower ACP Plot at 2496 MHz (n41 - 90MHz CP-OFDM-QPSK - Full RB Configuration)

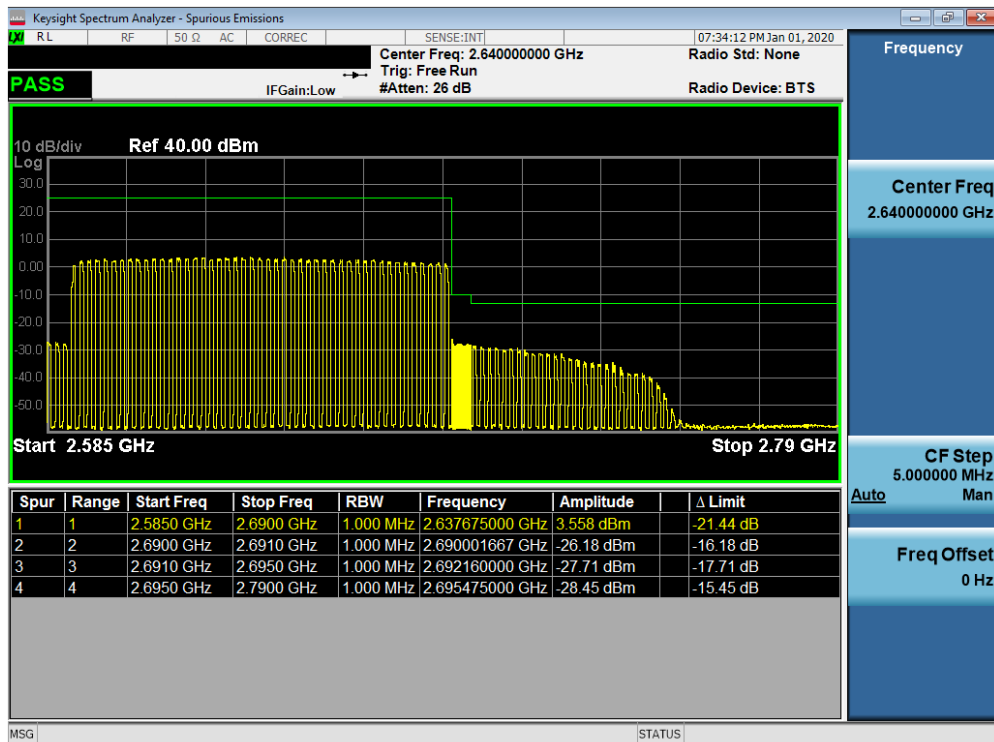


Plot 7-711. Upper ACP Plot (n41 - 90MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 451 of 486	



Plot 7-712. Lower ACP Plot at 2496 MHz (n41 - 100MHz CP-OFDM-QPSK - Full RB Configuration)



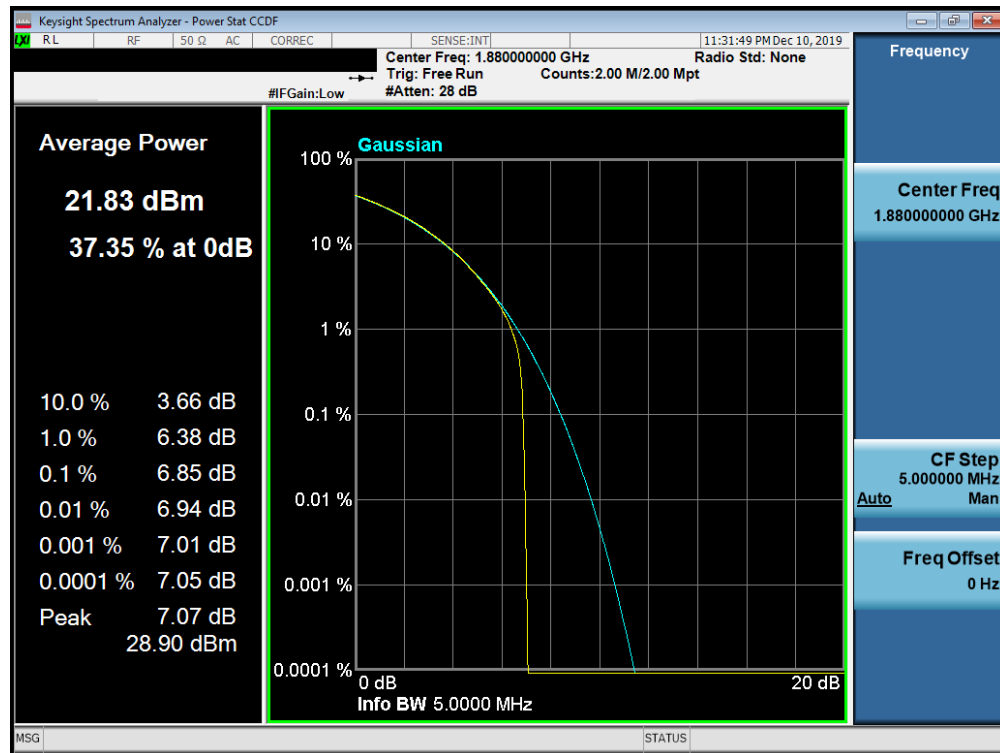
Plot 7-713. Upper ACP Plot (n41 - 100MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 452 of 486

Peak-to-Average Ratio

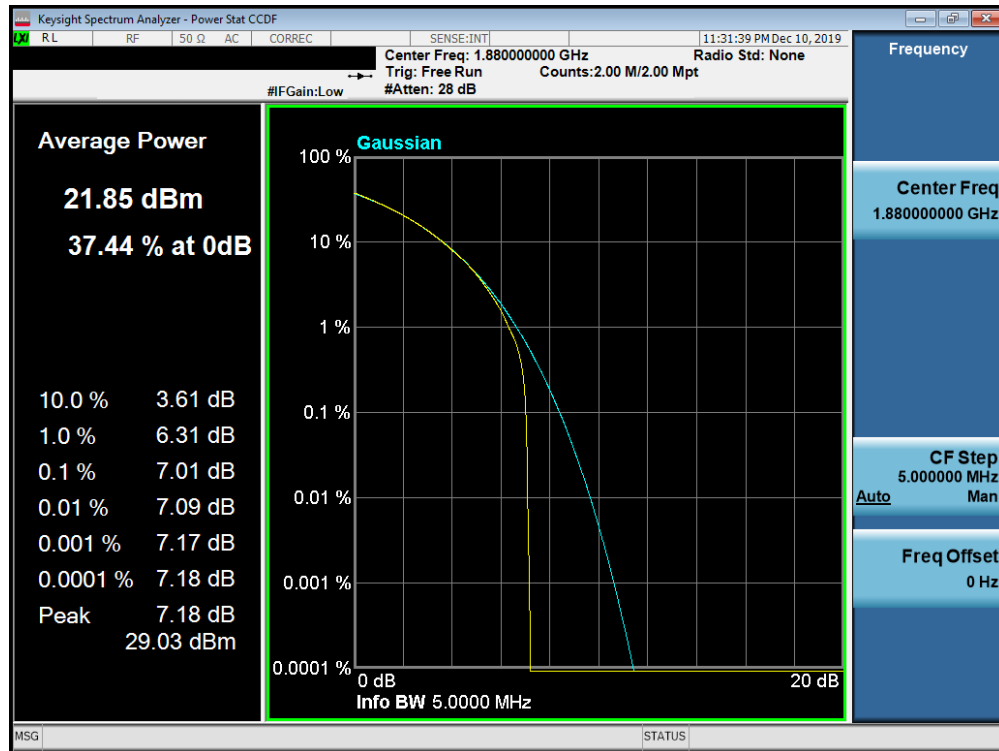
All SCS's and Waveforms (CP-OFDM vs DFT-s OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

NR Band n2

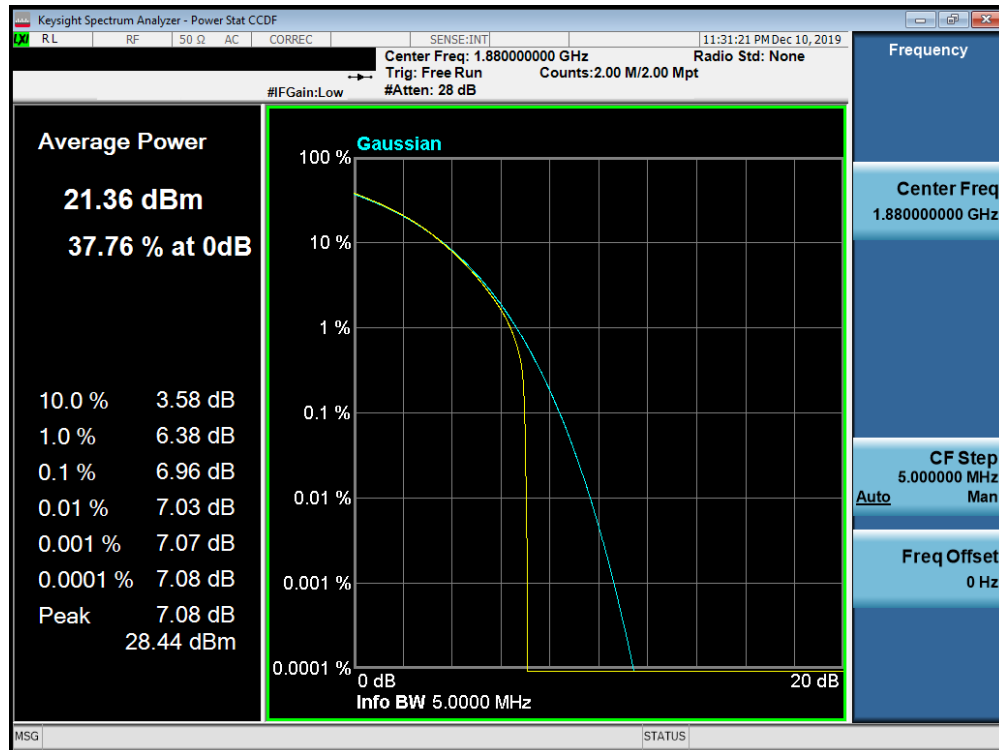


Plot 7-714. PAR Plot (Band n2 - 5.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 453 of 486

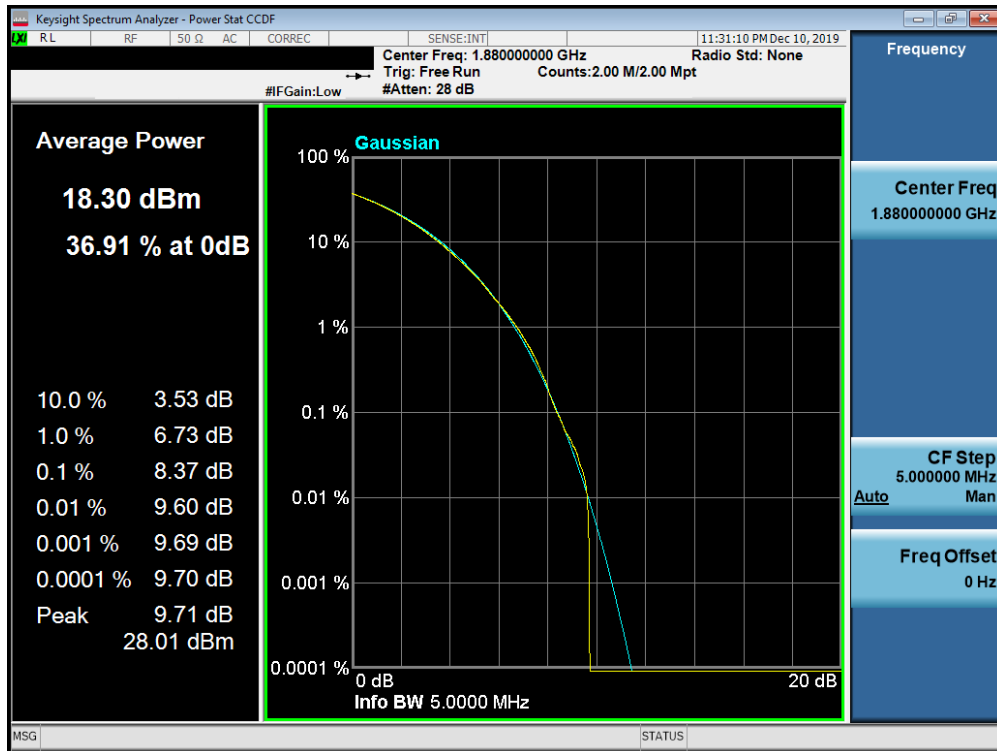


Plot 7-715. PAR Plot (Band n2 - 5.0MHz CP-OFDM-16-QAM - Full RB Configuration)

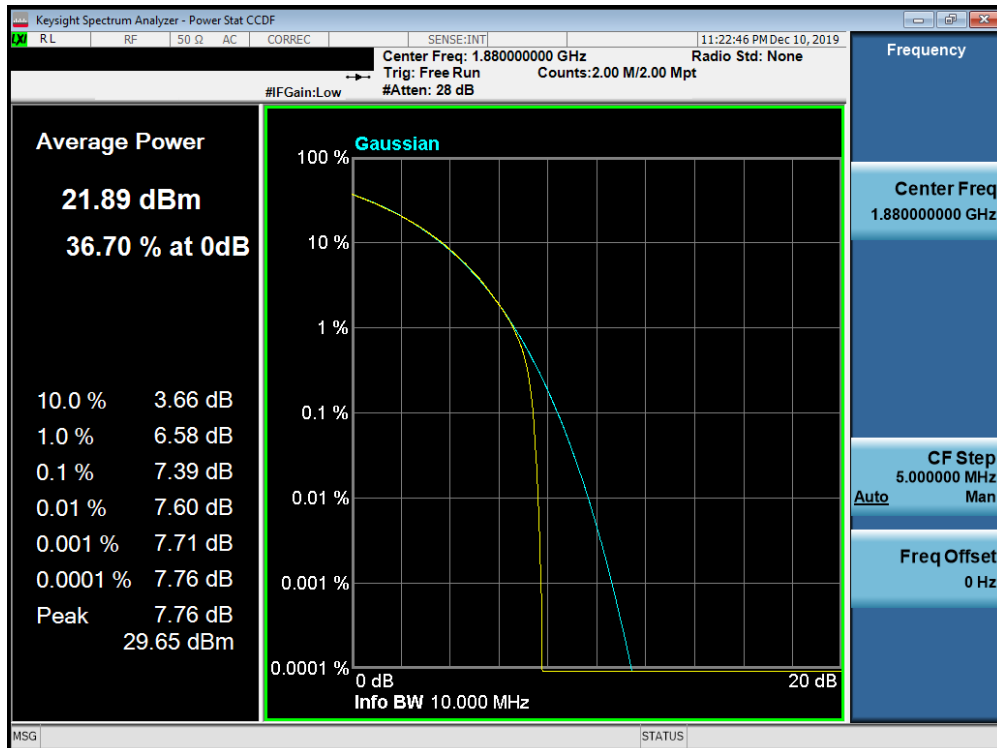


Plot 7-716. PAR Plot (Band n2 - 5.0MHz CP-OFDM-64-QAM - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 454 of 486

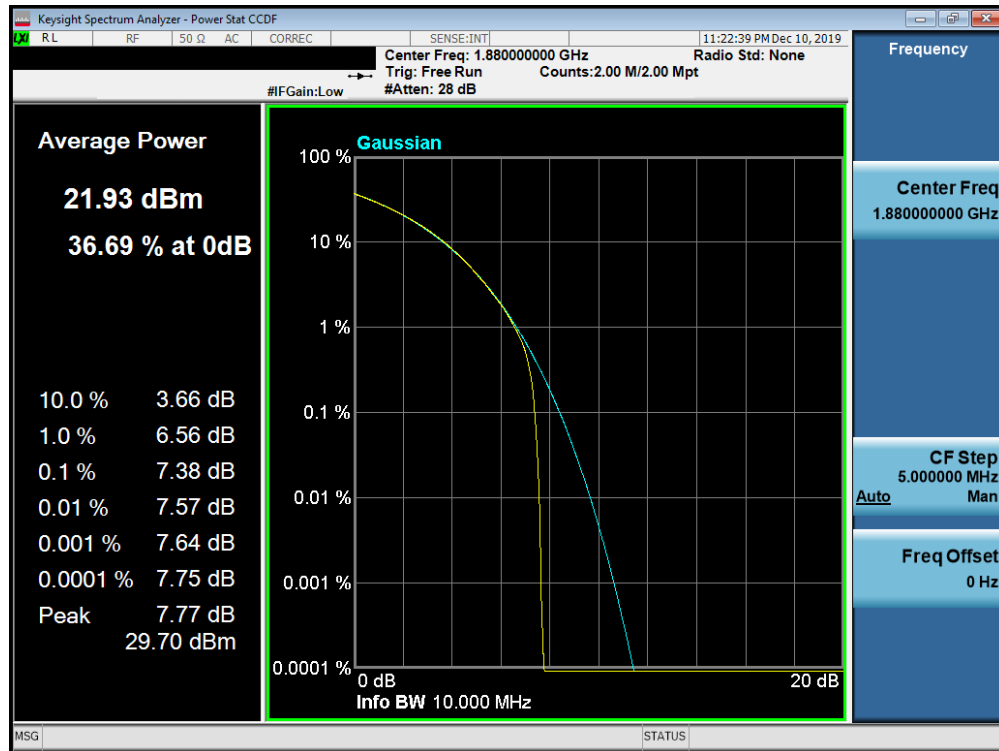


Plot 7-717. PAR Plot (Band n2 - 5.0MHz CP-OFDM- 256-QAM - Full RB Configuration)

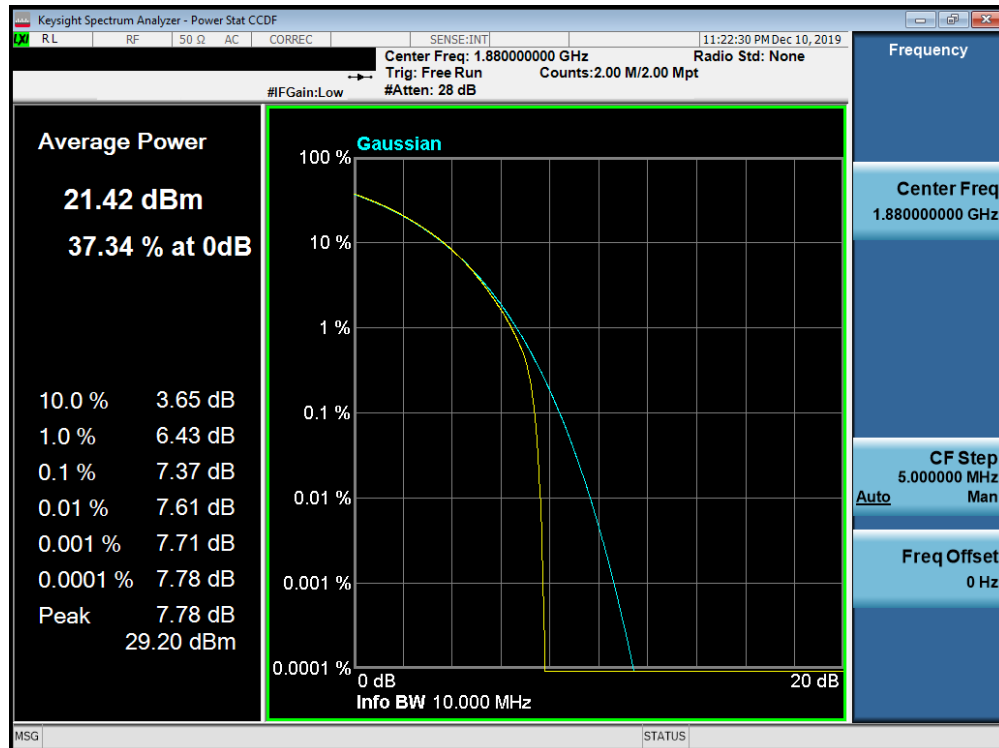


Plot 7-718. PAR Plot (Band n2 - 10.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 455 of 486

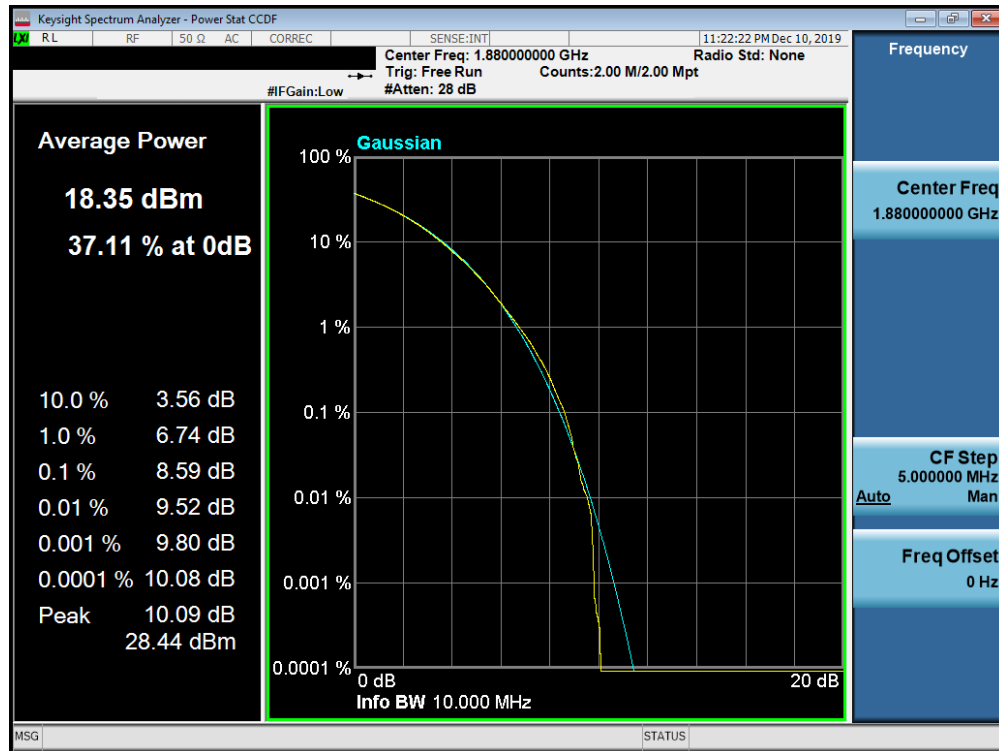


Plot 7-719. PAR Plot (Band n2 - 10.0MHz CP-OFDM-16-QAM - Full RB Configuration)

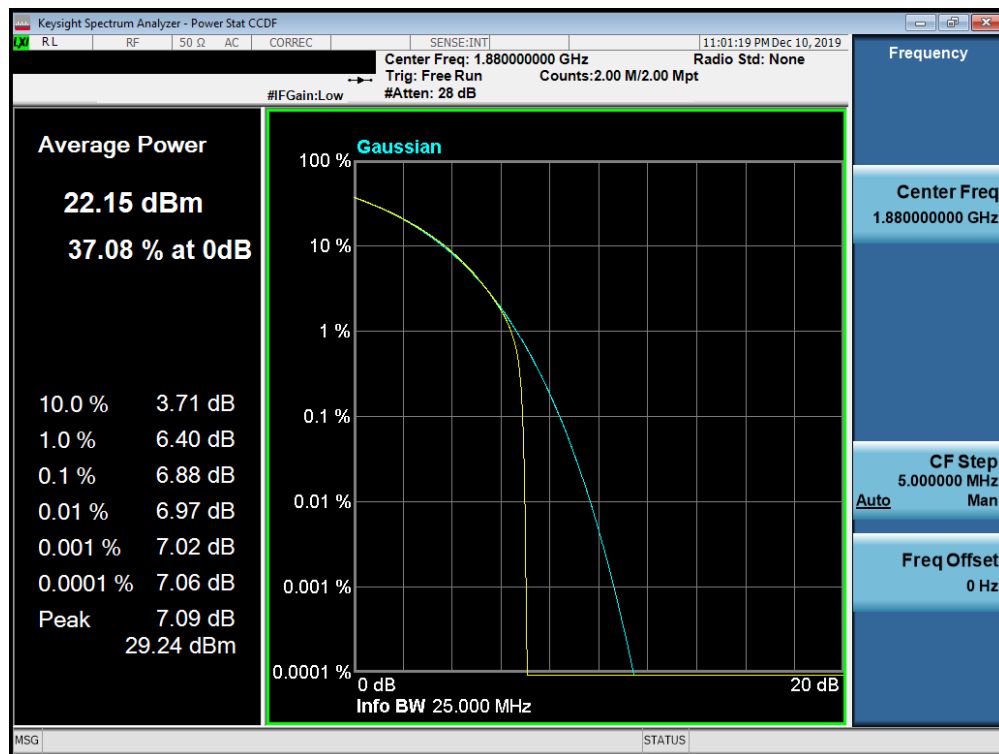


Plot 7-720. PAR Plot (Band n2 - 10.0MHz CP-OFDM- 64-QAM - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 456 of 486

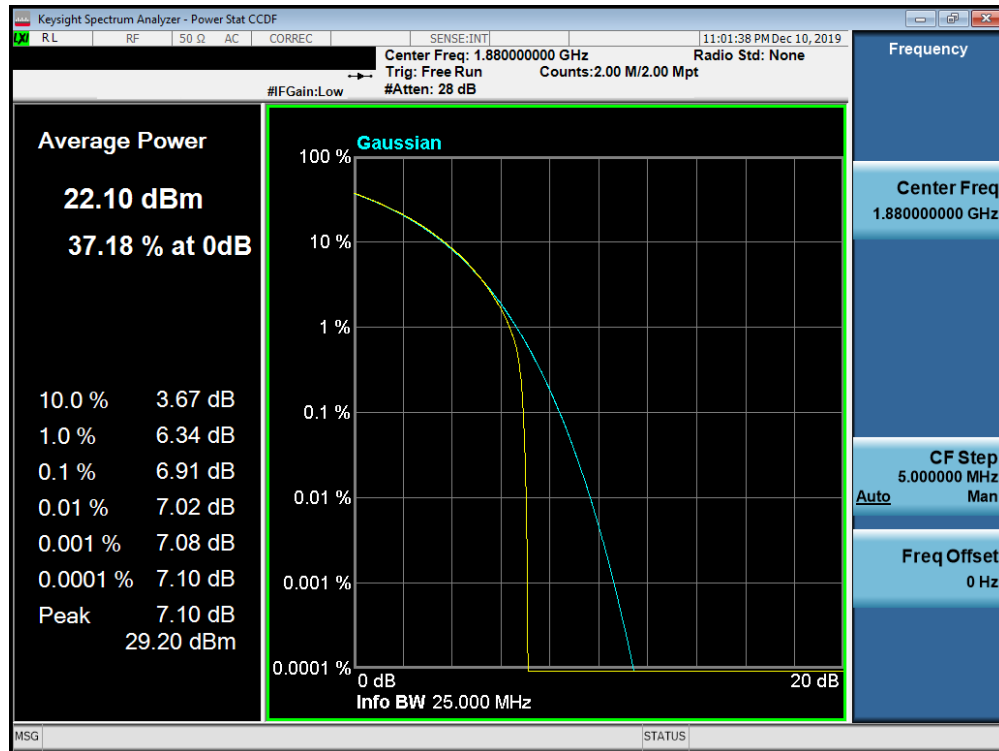


Plot 7-721. PAR Plot (Band n2 - 10.0MHz CP-OFDM - 256-QAM - Full RB Configuration)

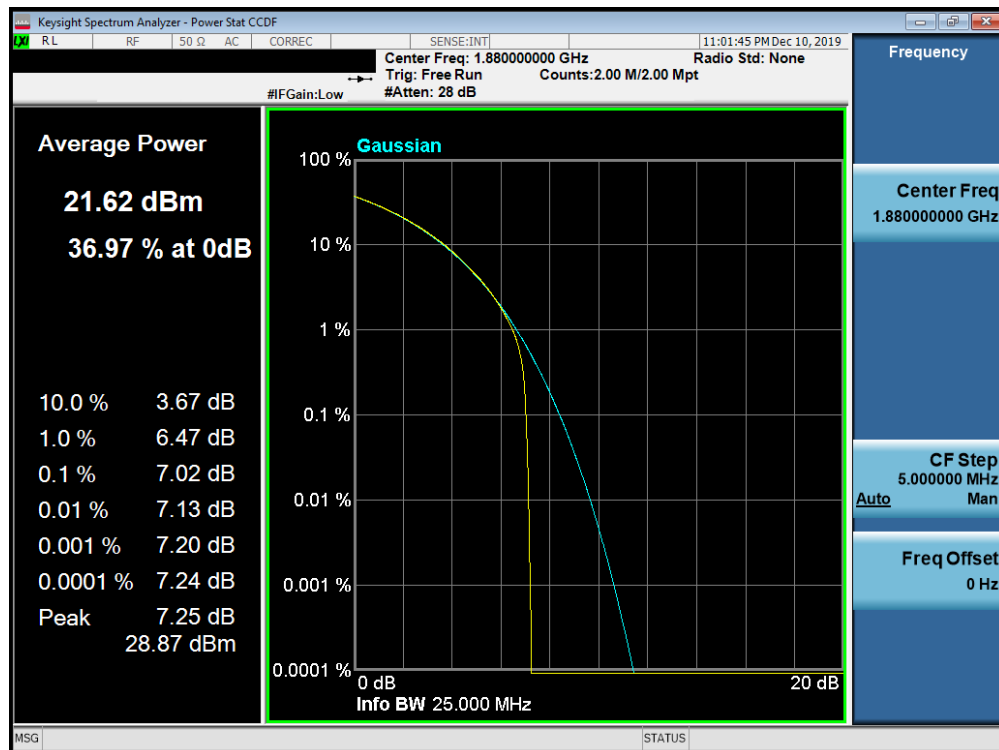


Plot 7-722. PAR Plot (Band n2 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 457 of 486

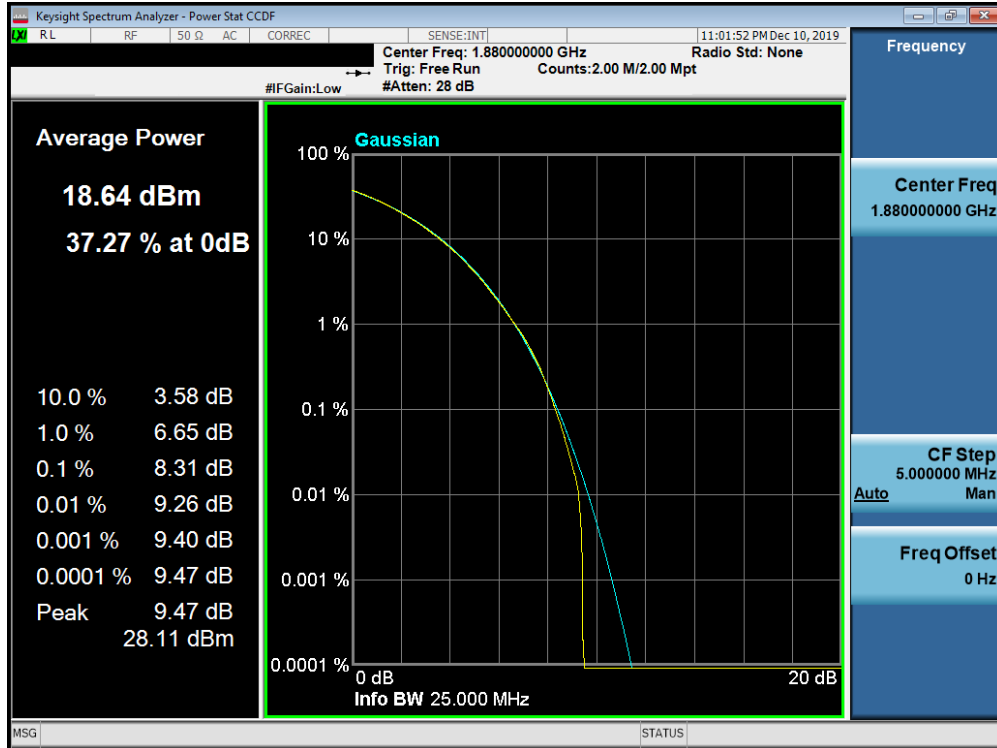


Plot 7-723. PAR Plot (Band n2 - 15.0MHz CP-OFDM -16-QAM - Full RB Configuration)

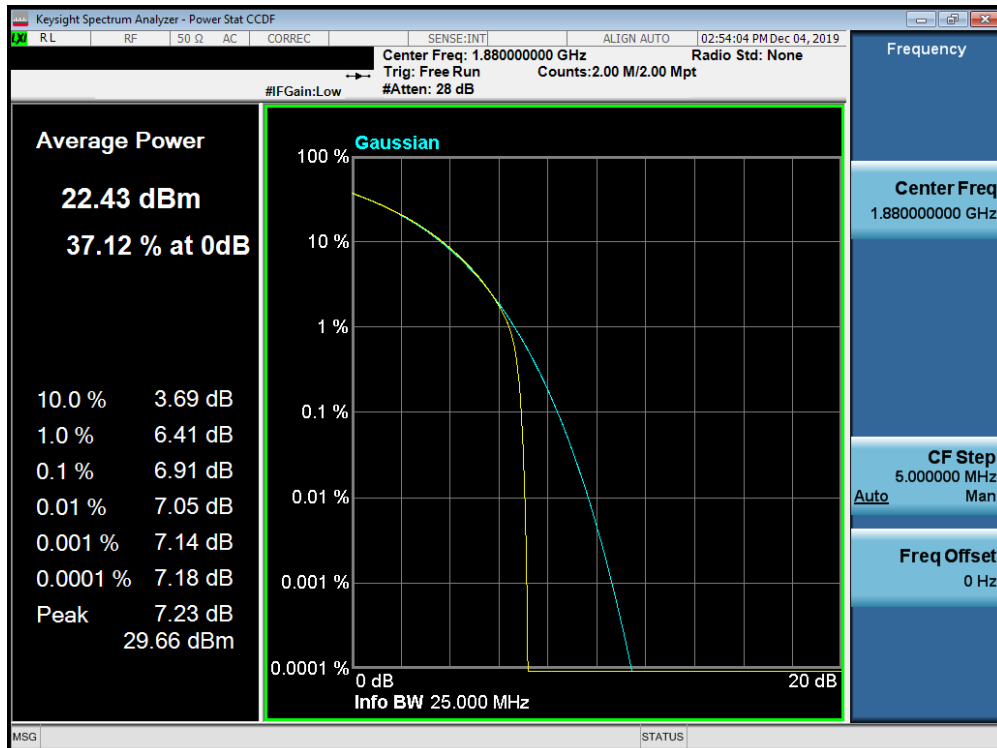


Plot 7-724. PAR Plot (Band n2 - 15.0MHz CP-OFDM-64-QAM - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 458 of 486

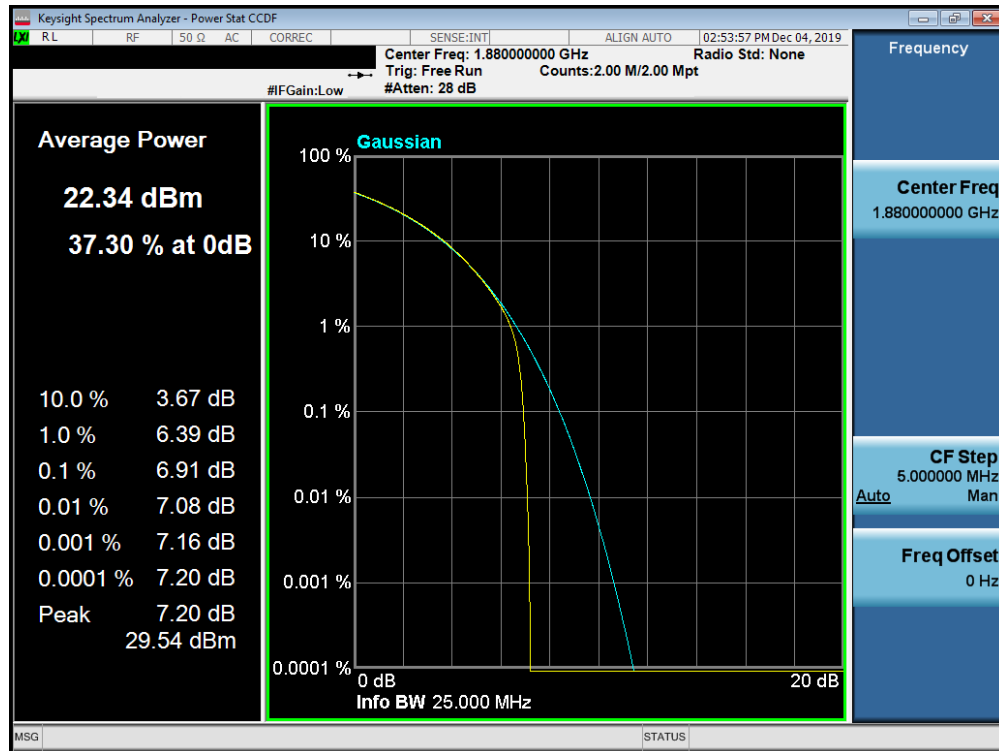


Plot 7-725. PAR Plot (Band n2 - 15.0MHz CP-OFDM 256-QAM - Full RB Configuration)

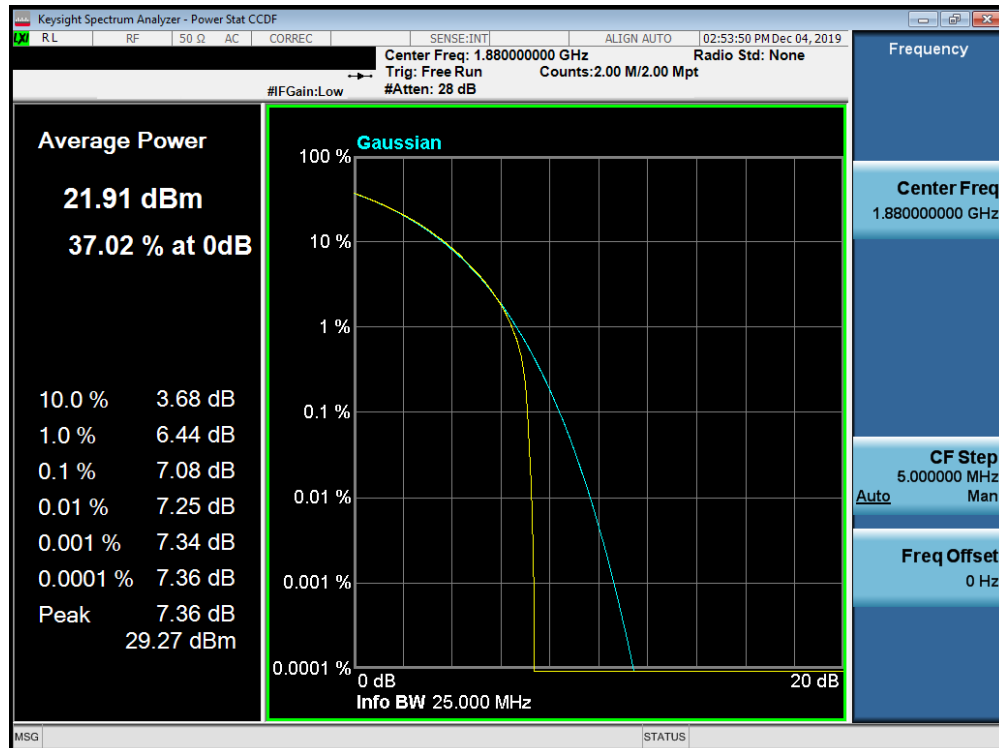


Plot 7-726. PAR Plot (Band n2 - 20.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG988U	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 459 of 486

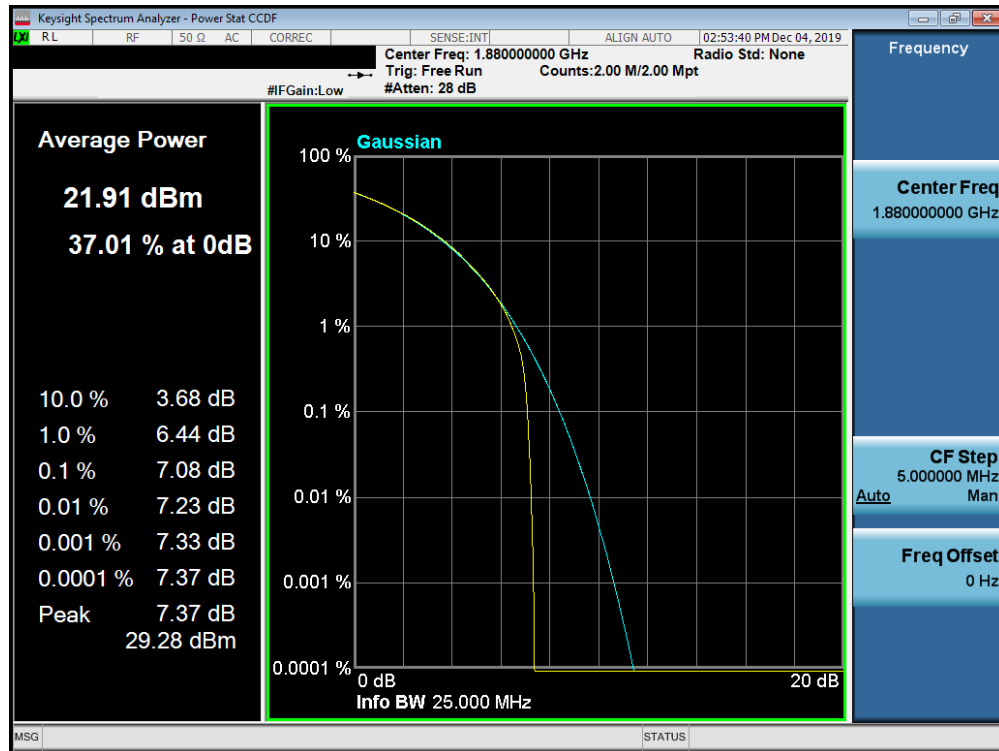


Plot 7-727. PAR Plot (Band n2 - 20.0MHz CP-OFDM-16-QAM - Full RB Configuration)



Plot 7-728. PAR Plot (Band n2 - 20.0MHz CP-OFDM-64-QAM - Full RB Configuration)

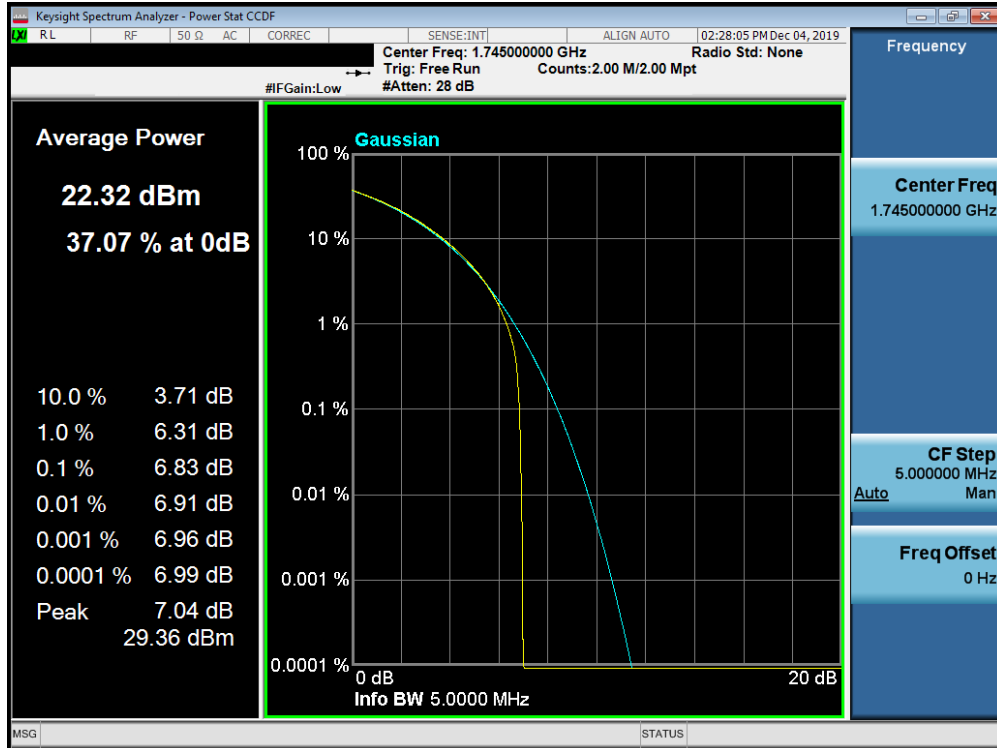
FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 460 of 486



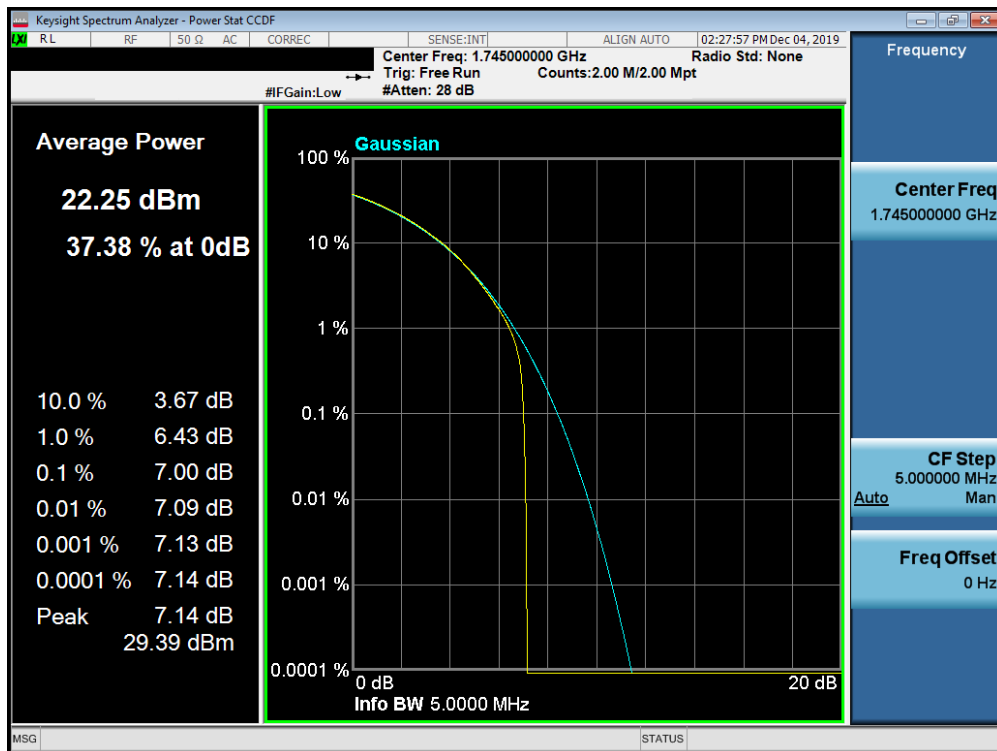
Plot 7-729. PAR Plot (Band n2 - 20.0MHz CP-OFDM- 256-QAM - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 461 of 486

NR Band n66

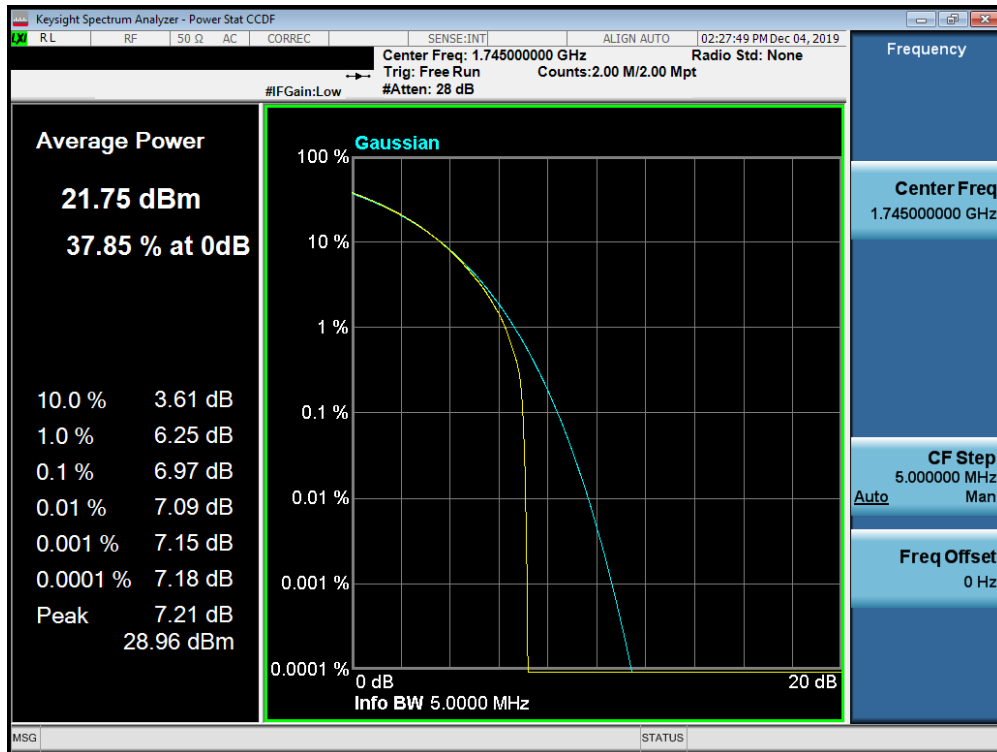


Plot 7-730. PAR Plot (Band n66 - 5.0MHz CP-OFDM-QPSK - Full RB Configuration)

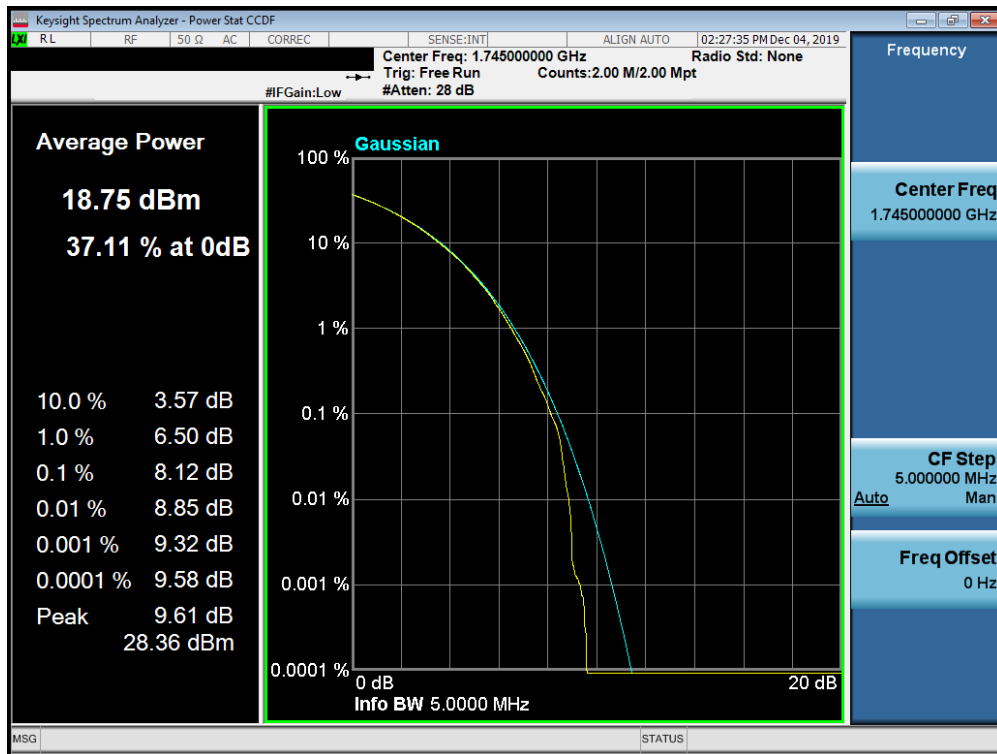


Plot 7-731. PAR Plot (Band n66 - 5.0MHz CP-OFDM- 16-QAM - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 462 of 486

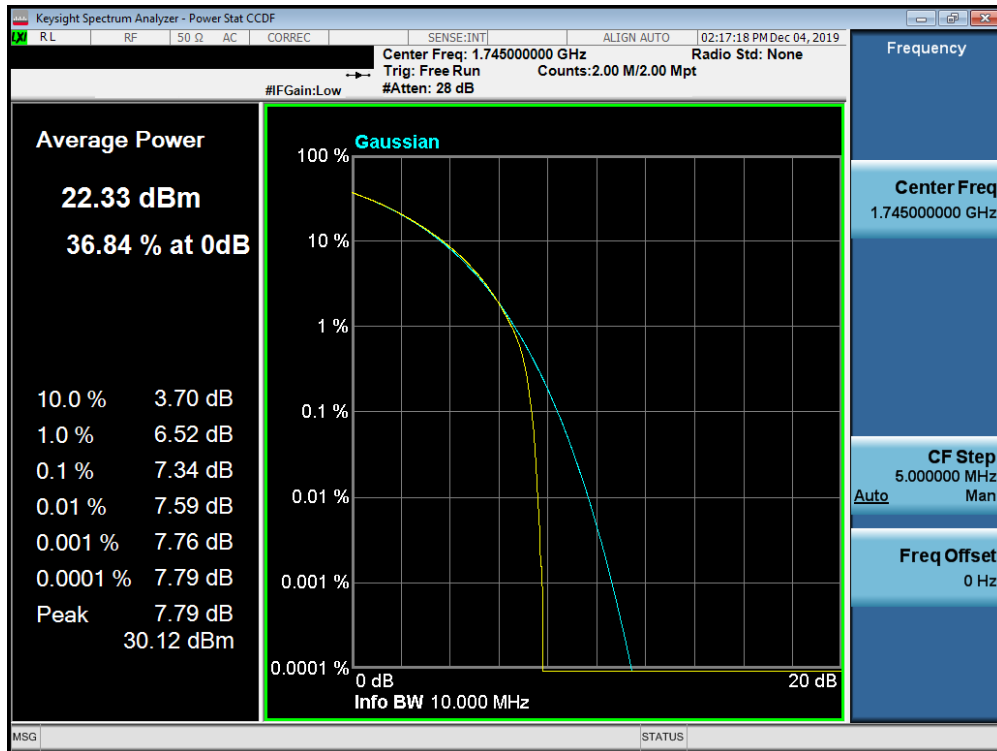


Plot 7-732. PAR Plot (Band n66 - 5.0MHz CP-OFDM- 64-QAM - Full RB Configuration)

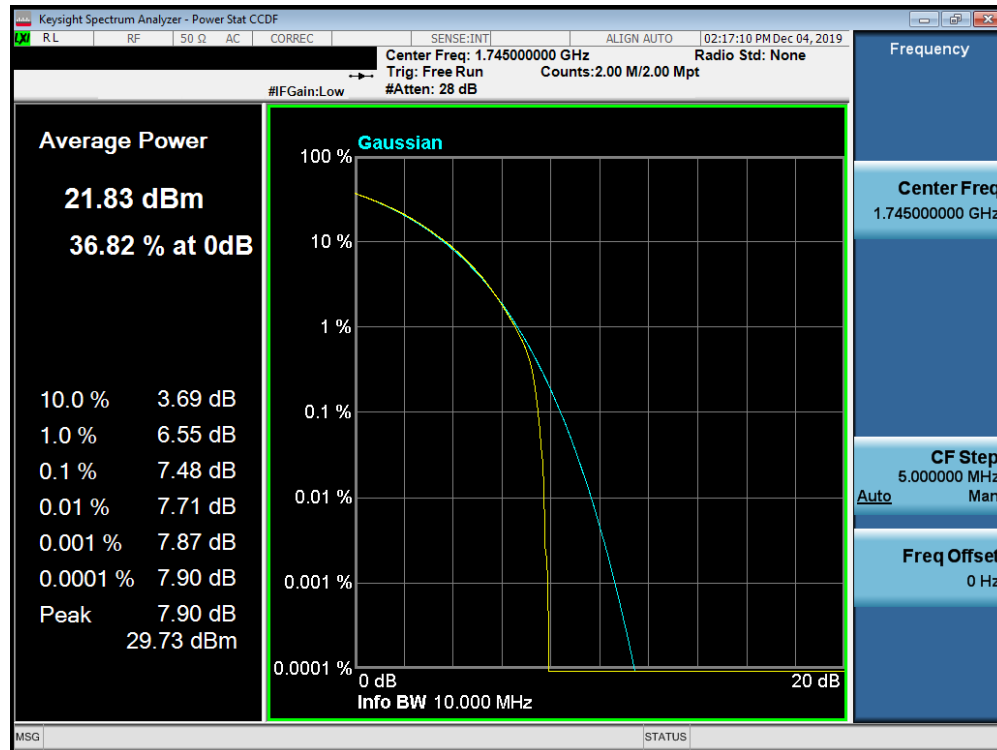


Plot 7-733. PAR Plot (Band n66 - 5.0MHz CP-OFDM- 256-QAM - Full RB Configuration)

FCC ID: A3LSMG988U	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 463 of 486

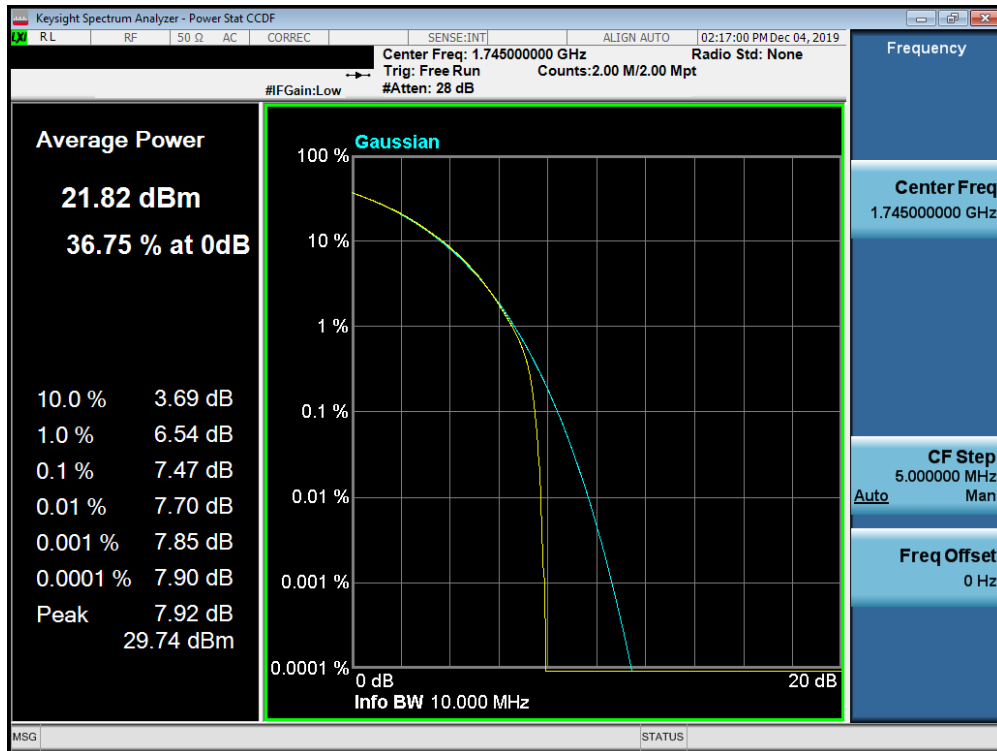


Plot 7-734. PAR Plot (Band n66 - 10.0MHz CP-OFDM-QPSK - Full RB Configuration)

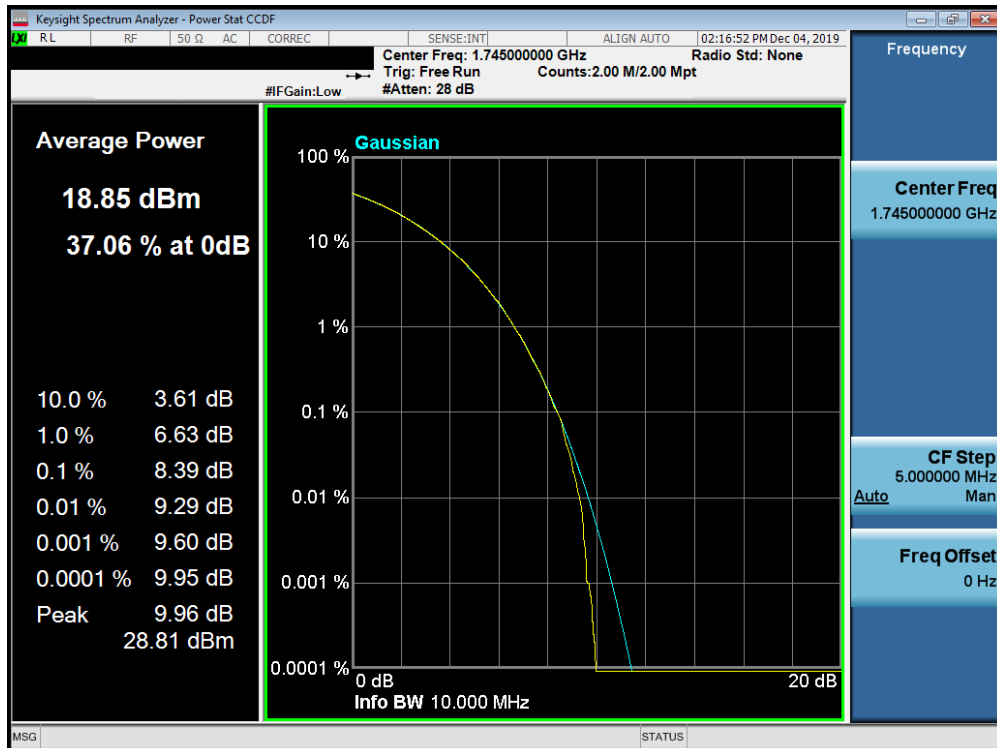


Plot 7-735. PAR Plot (Band n66 - 10.0MHz CP-OFDM- 16-QAM - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 464 of 486

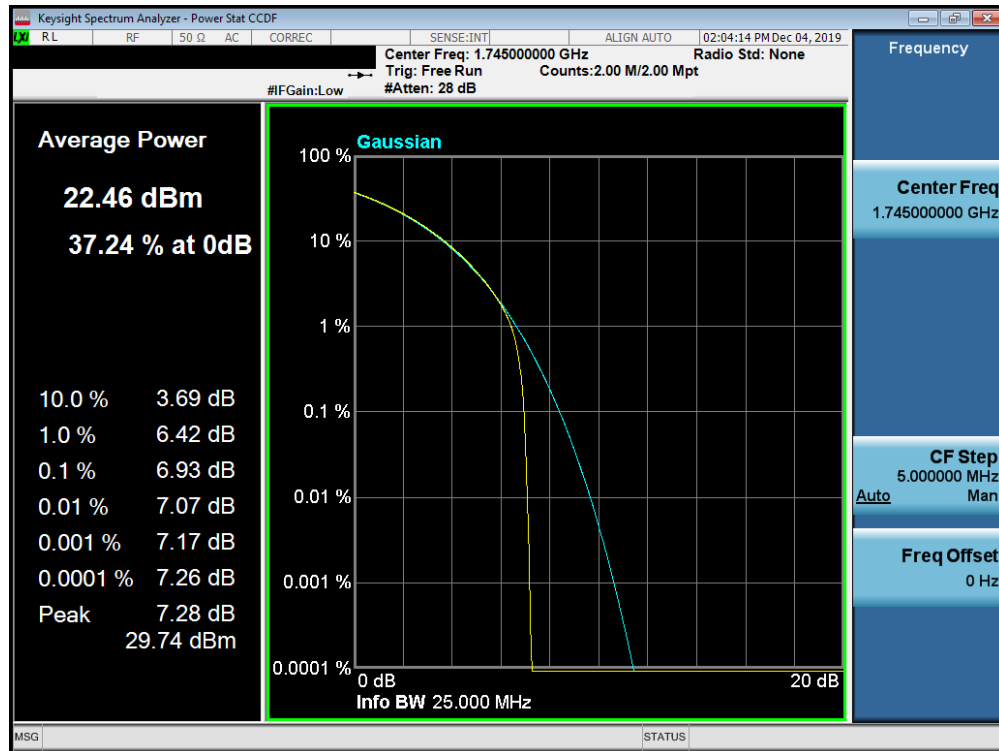


Plot 7-736. PAR Plot (Band n66 - 10.0MHz CP-OFDM- 64-QAM - Full RB Configuration)

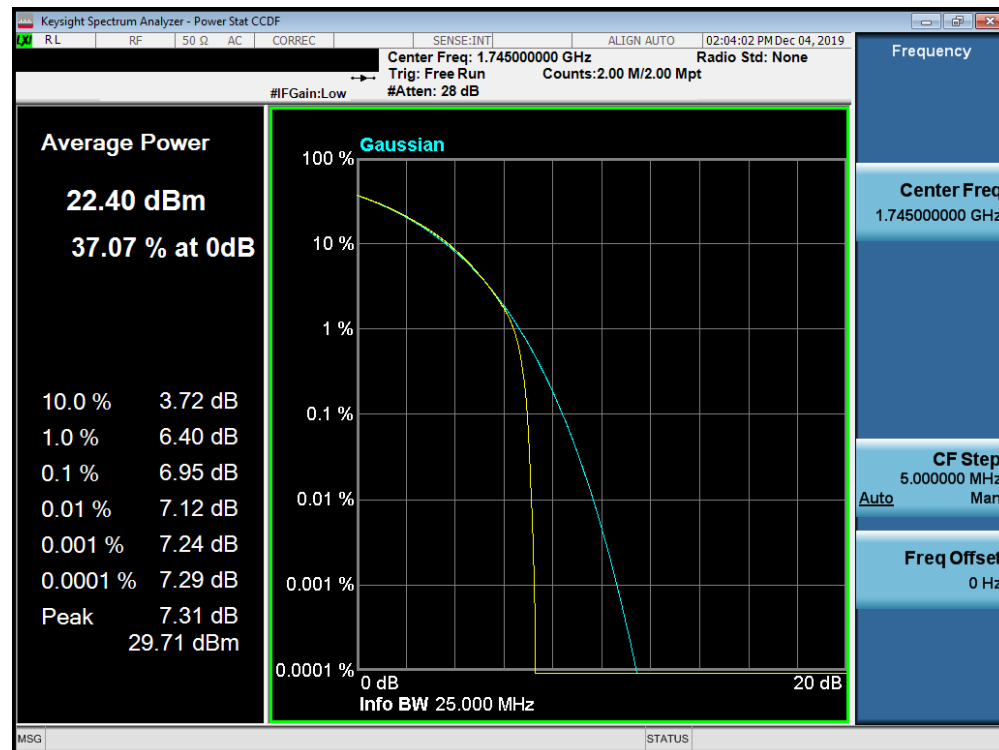


Plot 7-737. PAR Plot (Band n66 - 10.0MHz CP-OFDM- 256-QAM - Full RB Configuration)

FCC ID: A3LSMG988U	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 465 of 486

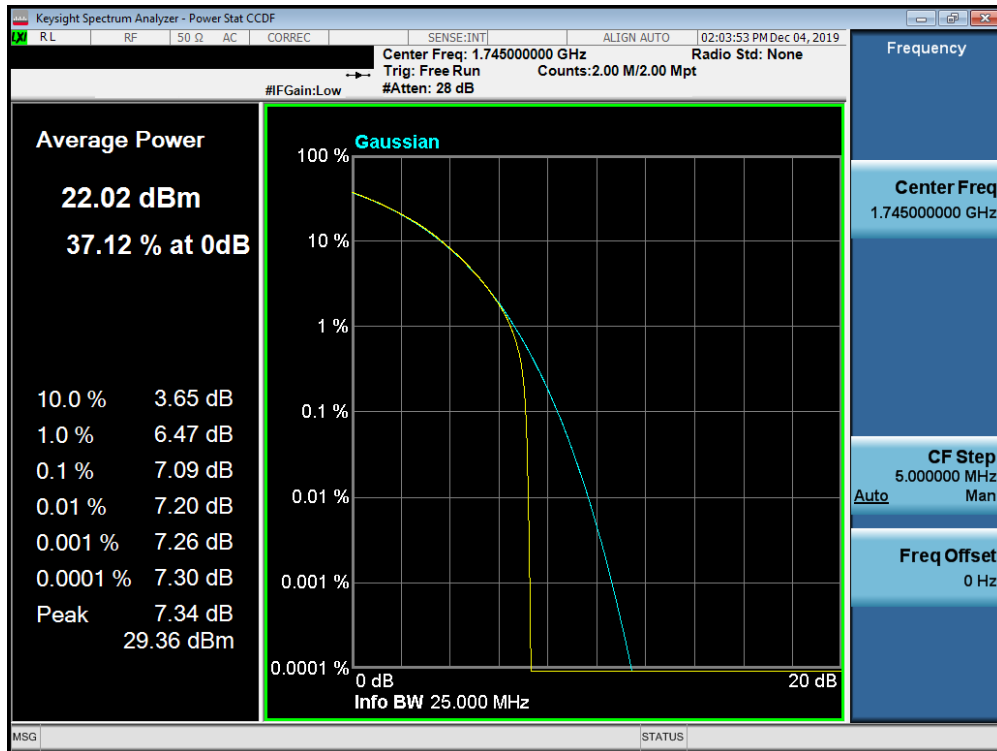


Plot 7-738. PAR Plot (Band n66 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)

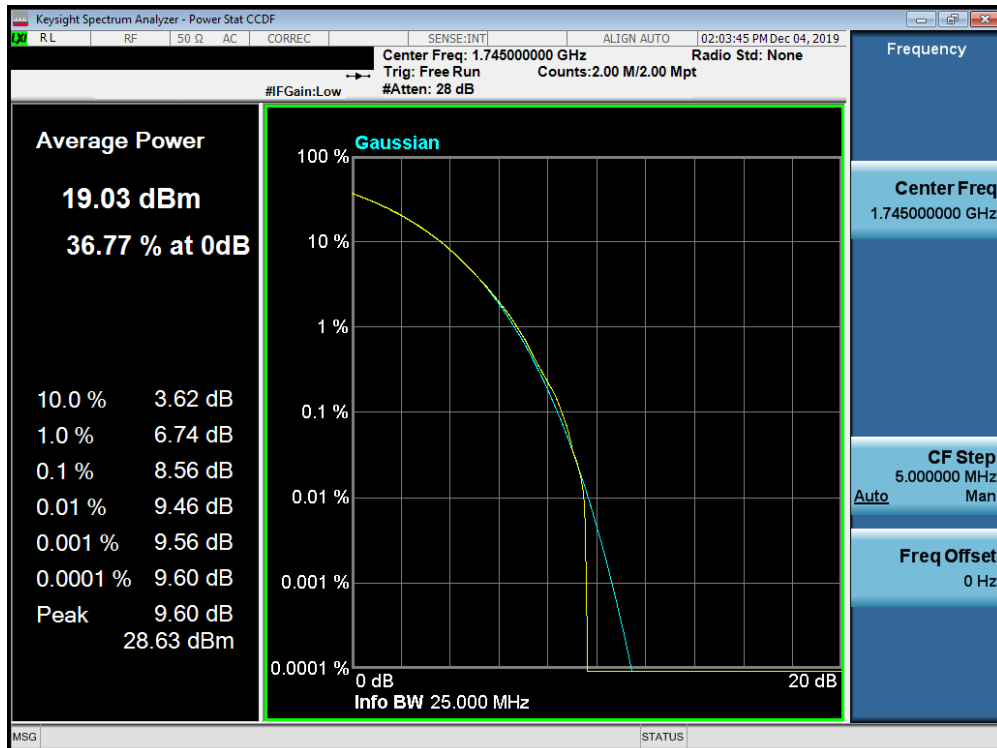


Plot 7-739. PAR Plot (Band n66 - 15.0MHz CP-OFDM- 16-QAM - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 466 of 486

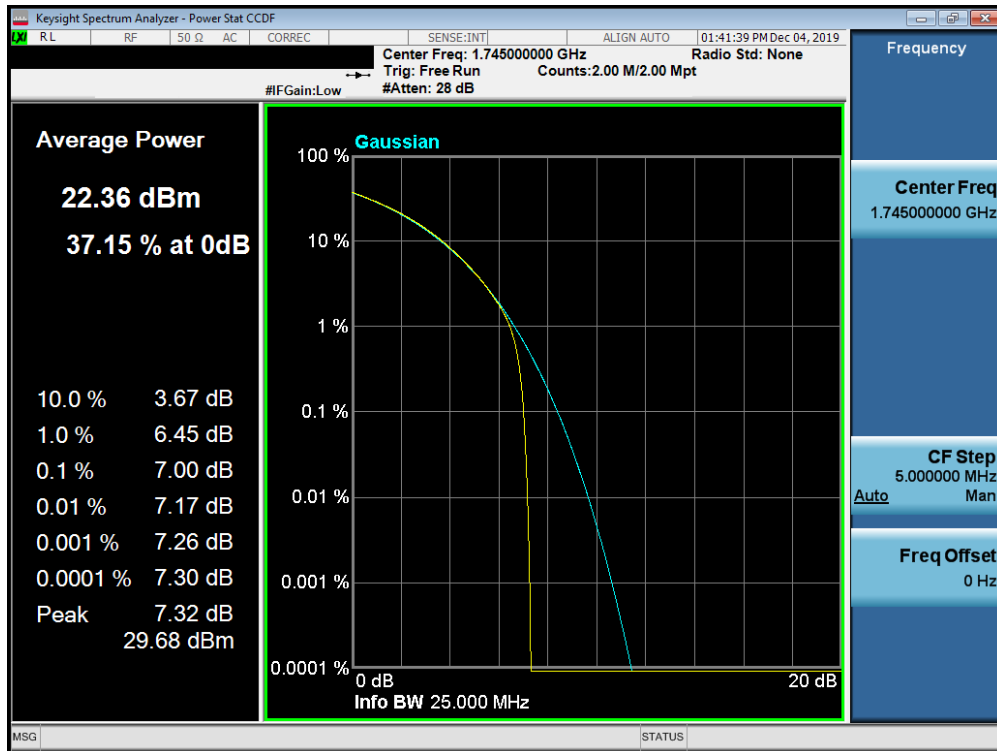


Plot 7-740. PAR Plot (Band n66 - 15.0MHz CP-OFDM- 64-QAM - Full RB Configuration)

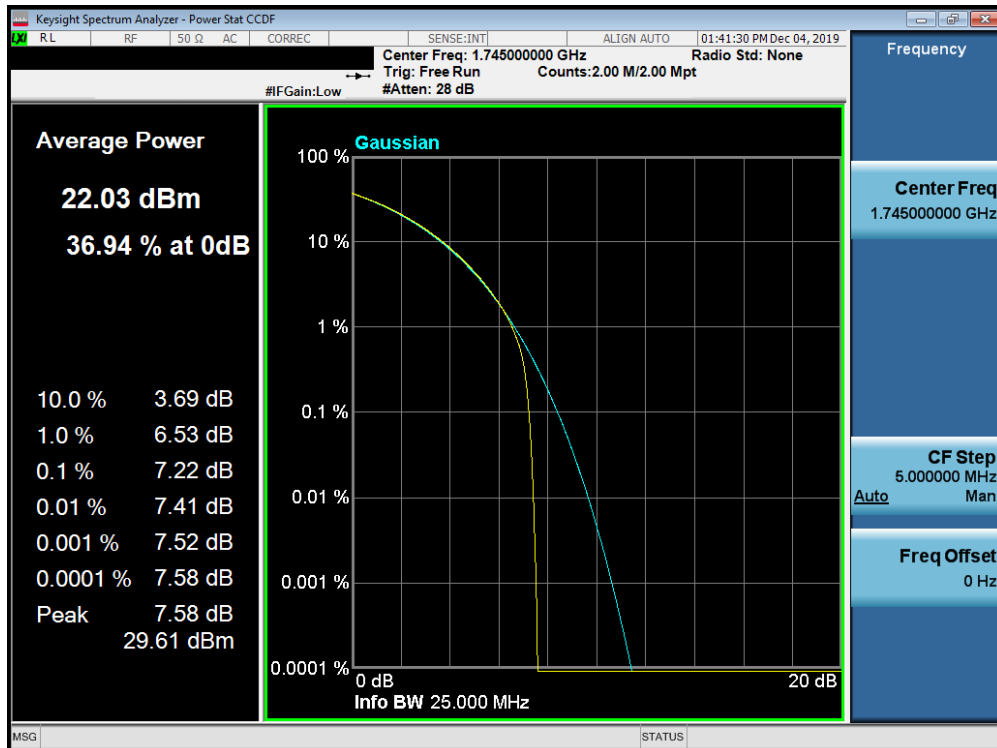


Plot 7-741. PAR Plot (Band n66 - 15.0MHz CP-OFDM- 256-QAM - Full RB Configuration)

FCC ID: A3LSMG988U	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 467 of 486

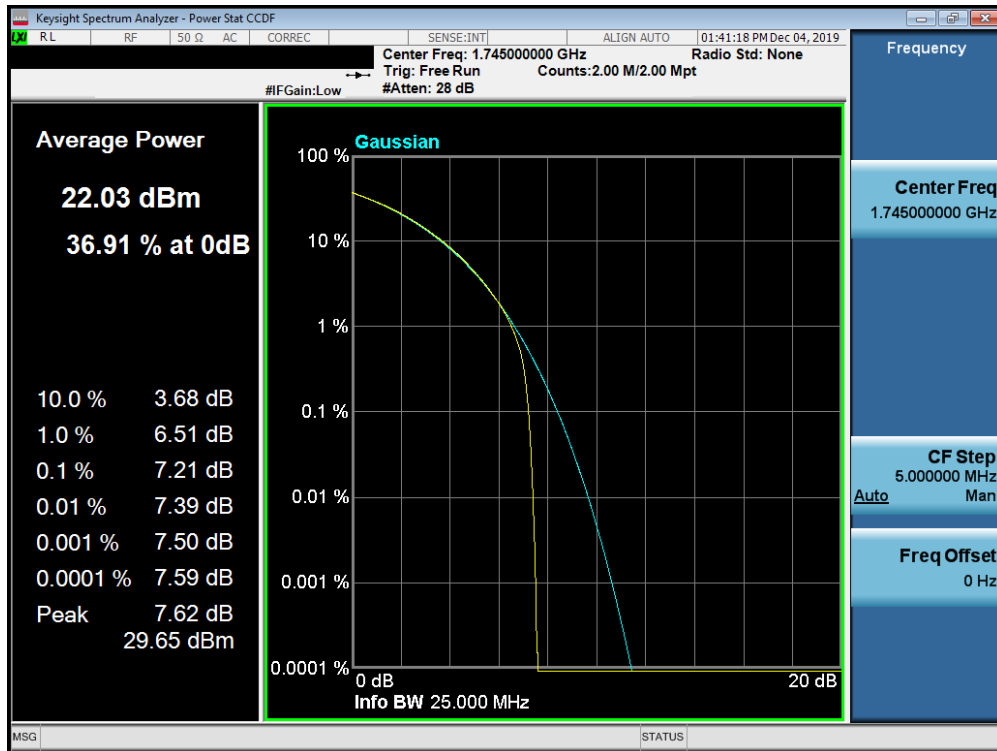


Plot 7-742. PAR Plot (Band n66 - 20.0MHz CP-OFDM-QPSK - Full RB Configuration)

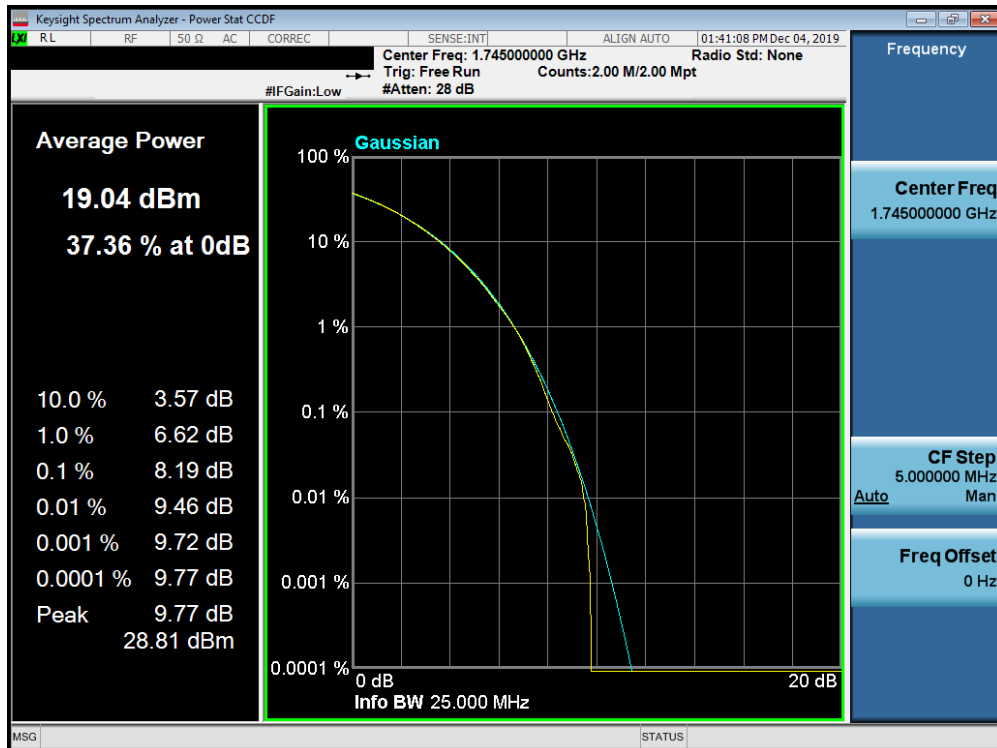


Plot 7-743. PAR Plot (Band n66 - 20.0MHz CP-OFDM- 16-QAM - Full RB Configuration)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 468 of 486



Plot 7-744. PAR Plot (Band n66 - 20.0MHz CP-OFDM- 64-QAM - Full RB Configuration)



Plot 7-745. PAR Plot (Band n66 - 20.0MHz CP-OFDM- 256-QAM - Full RB Configuration)

FCC ID: A3LSMG988U	PCTEST	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 469 of 486



Radiated Power (EIRP)

All SCS's and Waveforms (CP-OFDM vs DFT-s OFDM) 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. Additional Data added representing other configurations (eg. CP-OFDM).

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 470 of 486

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
665.50	5	QPSK	H	144	289	1 / 13	16.79	2.90	17.54	0.057	34.77	-17.23
680.50	5	QPSK	H	133	287	1 / 13	16.28	3.20	17.33	0.054	34.77	-17.44
695.50	5	QPSK	H	133	281	1 / 23	15.69	3.30	16.84	0.048	34.77	-17.93
665.50	5	16-QAM	H	144	289	1 / 13	16.21	2.90	16.96	0.050	34.77	-17.81
665.50	5	64-QAM	H	144	289	25 / 0	15.22	2.90	15.97	0.040	34.77	-18.80
665.50	5	256-QAM	H	144	289	25 / 0	12.46	2.90	13.21	0.021	34.77	-21.56
668.00	10	QPSK	H	138	285	1 / 0	16.25	2.90	17.00	0.050	34.77	-17.77
680.50	10	QPSK	H	127	289	1 / 0	16.34	3.20	17.39	0.055	34.77	-17.38
693.00	10	QPSK	H	128	282	1 / 50	15.97	3.30	17.12	0.052	34.77	-17.65
668.00	10	16-QAM	H	138	285	1 / 0	16.54	2.90	17.29	0.054	34.77	-17.48
680.50	10	64-QAM	H	127	289	1 / 0	15.10	3.20	16.15	0.041	34.77	-18.62
668.00	10	256-QAM	H	138	285	50 / 0	12.55	2.90	13.30	0.021	34.77	-21.47
670.50	15	QPSK	H	145	293	1 / 40	16.26	3.00	17.11	0.051	34.77	-17.66
680.50	15	QPSK	H	132	297	1 / 40	16.03	3.20	17.08	0.051	34.77	-17.69
690.50	15	QPSK	H	128	281	1 / 77	15.88	3.30	17.03	0.050	34.77	-17.74
670.50	15	16-QAM	H	145	293	1 / 40	15.48	3.00	16.33	0.043	34.77	-18.44
690.50	15	64-QAM	H	128	281	75 / 0	14.82	3.30	15.97	0.040	34.77	-18.80
670.50	15	256-QAM	H	145	293	75 / 0	12.50	3.00	13.35	0.022	34.77	-21.42
673.00	20	QPSK	H	138	291	1 / 53	15.57	3.10	16.52	0.045	34.77	-18.25
680.50	20	QPSK	H	133	290	1 / 53	16.14	3.20	17.19	0.052	34.77	-17.58
688.00	20	QPSK	H	133	280	1 / 104	15.08	3.30	16.23	0.042	34.77	-18.54
680.50	20	16-QAM	H	133	290	1 / 53	15.50	3.20	16.55	0.045	34.77	-18.22
680.50	20	64-QAM	H	133	290	1 / 53	13.94	3.20	14.99	0.032	34.77	-19.78
680.50	20	256-QAM	H	133	290	100 / 0	10.90	3.20	11.95	0.016	34.77	-22.82
665.50	5	QPSK	V	178	246	1 / 13	15.94	3.20	16.99	0.050	34.77	-17.78
665.50	5 (WCP)	QPSK	H	100	283	1 / 13	13.10	2.90	13.85	0.024	34.77	-20.92

Table 7-67. ERP Data (n71)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 471 of 486

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
826.50	5	QPSK	H	207	294	1 / 23	14.60	6.70	19.15	0.082	38.45	-19.30
836.50	5	QPSK	H	202	298	1 / 23	14.73	6.70	19.28	0.085	38.45	-19.17
846.50	5	QPSK	H	197	286	1 / 13	14.73	6.60	19.18	0.083	38.45	-19.27
836.50	5	16-QAM	H	202	298	1 / 23	14.14	6.70	18.69	0.074	38.45	-19.76
836.50	5	64-QAM	H	202	298	1 / 23	12.39	6.70	16.94	0.049	38.45	-21.51
836.50	5	256-QAM	H	202	298	1 / 23	9.55	6.70	14.10	0.026	38.45	-24.35
829.00	10	QPSK	H	198	294	1 / 50	12.63	6.70	17.18	0.052	38.45	-21.27
836.50	10	QPSK	H	212	296	1 / 50	13.85	6.70	18.40	0.069	38.45	-20.05
844.00	10	QPSK	H	201	287	1 / 0	12.75	6.60	17.20	0.052	38.45	-21.25
825.50	10	16-QAM	H	198	294	1 / 0	12.57	6.70	17.12	0.052	38.45	-21.33
847.50	10	64-QAM	H	201	287	50 / 0	10.52	6.65	15.02	0.032	38.45	-23.43
847.50	10	256-QAM	H	201	287	1 / 50	8.68	6.65	13.18	0.021	38.45	-25.27
831.50	15	QPSK	H	207	287	1 / 77	14.86	6.70	19.41	0.087	38.45	-19.04
836.50	15	QPSK	H	202	296	1 / 77	14.78	6.70	19.33	0.086	38.45	-19.12
841.50	15	QPSK	H	191	285	1 / 40	14.88	6.60	19.33	0.086	38.45	-19.12
831.50	15	16-QAM	H	207	287	1 / 40	14.05	6.70	18.60	0.073	38.45	-19.85
841.50	15	64-QAM	H	191	285	75 / 0	12.55	6.60	17.00	0.050	38.45	-21.45
831.50	15	256-QAM	H	207	287	1 / 40	9.68	6.70	14.23	0.026	38.45	-24.22
834.00	20	QPSK	H	203	294	1 / 104	14.48	6.70	19.03	0.080	38.45	-19.42
836.50	20	QPSK	H	205	295	1 / 104	15.01	6.70	19.56	0.090	38.45	-18.89
839.00	20	QPSK	H	198	288	1 / 53	14.77	6.70	19.32	0.086	38.45	-19.13
836.50	20	16-QAM	H	205	295	1 / 104	14.84	6.70	19.39	0.087	38.45	-19.06
839.00	20	64-QAM	H	198	288	100 / 0	13.20	6.70	17.75	0.060	38.45	-20.70
836.50	20	256-QAM	H	205	295	1 / 104	10.08	6.70	14.63	0.029	38.45	-23.82
836.50	20	QPSK	V	147	285	1 / 104	13.61	6.40	17.86	0.061	38.45	-20.59
836.50	20 (WCP)	QPSK	H	180	298	1 / 104	11.91	6.70	16.46	0.044	38.45	-21.99

Table 7-68. ERP Data (n5)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 472 of 486

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1712.50	5	QPSK	V	111	340	1 / 13	10.28	9.34	19.62	0.092	30.00	-10.38
1745.00	5	QPSK	V	107	337	1 / 13	13.43	9.11	22.54	0.179	30.00	-7.46
1777.50	5	QPSK	V	124	341	1 / 13	12.45	9.16	21.62	0.145	30.00	-8.38
1745.00	5	16-QAM	V	107	337	1 / 23	13.14	9.11	22.25	0.168	30.00	-7.75
1745.00	5	64-QAM	V	107	337	25 / 0	11.23	9.11	20.34	0.108	30.00	-9.66
1745.00	5	256-QAM	V	107	337	25 / 0	9.91	9.11	19.02	0.080	30.00	-10.98
1715.00	10	QPSK	V	100	333	1 / 0	10.94	9.32	20.26	0.106	30.00	-9.74
1745.00	10	QPSK	V	100	347	1 / 0	13.09	9.11	22.20	0.166	30.00	-7.80
1775.00	10	QPSK	V	126	343	1 / 0	12.77	9.16	21.93	0.156	30.00	-8.07
1775.00	10	16-QAM	V	126	343	50 / 0	12.87	9.16	22.03	0.159	30.00	-7.97
1775.00	10	64-QAM	V	126	343	50 / 0	12.20	9.16	21.36	0.137	30.00	-8.64
1745.00	10	256-QAM	V	100	347	50 / 0	10.58	9.11	19.69	0.093	30.00	-10.31
1717.50	15	QPSK	V	100	337	1 / 40	11.18	9.30	20.48	0.112	30.00	-9.52
1745.00	15	QPSK	V	108	344	1 / 40	13.24	9.11	22.35	0.172	30.00	-7.65
1772.50	15	QPSK	V	124	350	1 / 40	13.27	9.15	22.42	0.174	30.00	-7.58
1745.00	15	16-QAM	V	108	344	1 / 77	13.09	9.11	22.20	0.166	30.00	-7.80
1772.50	15	64-QAM	V	124	350	75 / 0	12.08	9.15	21.23	0.133	30.00	-8.77
1745.00	15	256-QAM	V	108	344	75 / 0	10.72	9.11	19.83	0.096	30.00	-10.17
1720.00	20	QPSK	V	106	338	1 / 53	10.62	9.28	19.90	0.098	30.00	-10.10
1745.00	20	QPSK	V	100	340	1 / 53	13.52	9.11	22.63	0.183	30.00	-7.37
1770.00	20	QPSK	V	122	342	1 / 53	12.74	9.14	21.88	0.154	30.00	-8.12
1745.00	20	16-QAM	V	100	340	1 / 53	13.07	9.11	22.18	0.165	30.00	-7.82
1745.00	20	64-QAM	V	100	340	100 / 0	11.92	9.11	21.03	0.127	30.00	-8.97
1745.00	20	256-QAM	V	100	340	100 / 0	8.81	9.11	17.92	0.062	30.00	-12.08
1745.00	20	QPSK	H	158	353	1 / 53	10.97	9.23	20.20	0.105	30.00	-9.80
1745.00	20 (WCP)	QPSK	V	153	54	1 / 53	8.88	9.11	17.99	0.063	30.00	-12.01

Table 7-69. EIRP Data (n66)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 473 of 486

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1852.50	5	QPSK	H	116	348	1 / 23	11.89	9.51	21.40	0.138	33.01	-11.61
1880.00	5	QPSK	H	117	357	1 / 13	11.53	9.90	21.43	0.139	33.01	-11.58
1907.50	5	QPSK	H	123	7	1 / 23	10.54	10.24	20.78	0.120	33.01	-12.23
1907.50	5	16-QAM	H	123	7	1 / 23	10.40	10.24	20.64	0.116	33.01	-12.37
1880.00	5	64-QAM	H	117	357	1 / 13	9.45	9.90	19.35	0.086	33.01	-13.66
1880.00	5	256-QAM	H	117	357	1 / 1	8.26	9.90	18.16	0.065	33.01	-14.85
1855.00	10	QPSK	H	110	357	1 / 50	12.46	9.55	22.01	0.159	33.01	-11.00
1880.00	10	QPSK	H	111	352	1 / 0	11.86	9.90	21.76	0.150	33.01	-11.25
1905.00	10	QPSK	H	115	5	1 / 50	11.40	10.22	21.62	0.145	33.01	-11.39
1905.00	10	16-QAM	H	115	5	1 / 50	10.78	10.22	21.00	0.126	33.01	-12.01
1905.00	10	64-QAM	H	115	5	1 / 50	9.88	10.22	20.10	0.102	33.01	-12.91
1855.00	10	256-QAM	H	110	357	1 / 50	9.22	9.55	18.76	0.075	33.01	-14.25
1857.50	15	QPSK	H	116	355	1 / 77	13.33	9.58	22.91	0.195	33.01	-10.10
1880.00	15	QPSK	H	116	356	1 / 40	12.60	9.90	22.50	0.178	33.01	-10.51
1902.50	15	QPSK	H	119	12	1 / 77	12.45	10.20	22.65	0.184	33.01	-10.36
1902.50	15	16-QAM	H	119	12	1 / 77	11.37	10.20	21.57	0.144	33.01	-11.44
1902.50	15	64-QAM	H	119	12	1 / 77	10.69	10.20	20.89	0.123	33.01	-12.12
1857.50	15	256-QAM	H	116	355	1 / 77	9.36	9.58	18.94	0.078	33.01	-14.07
1860.00	20	QPSK	H	117	351	1 / 104	13.51	9.62	23.13	0.205	33.01	-9.88
1880.00	20	QPSK	H	113	357	1 / 53	13.13	9.90	23.03	0.201	33.01	-9.98
1900.00	20	QPSK	H	121	6	1 / 104	13.07	10.18	23.25	0.211	33.01	-9.76
1860.00	20	16-QAM	H	117	351	1 / 53	12.80	9.62	22.42	0.174	33.01	-10.59
1900.00	20	64-QAM	H	121	6	1 / 104	11.47	10.18	21.65	0.146	33.01	-11.36
1860.00	20	256-QAM	H	117	351	1 / 104	8.61	9.62	18.23	0.066	33.01	-14.78
1900.00	20	QPSK	V	149	315	1 / 104	12.87	10.10	22.97	0.198	33.01	-10.04

Table 7-70. EIRP Data (n2)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 474 of 486

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2506.02	20	QPSK	H	112	330	1 / 49	11.72	9.43	21.16	0.130	33.01	-11.86
2593.02	20	QPSK	H	104	306	1 / 26	8.31	9.55	17.87	0.061	33.01	-15.14
2679.99	20	QPSK	H	119	329	1 / 49	7.05	9.82	16.87	0.049	33.01	-16.14
2506.02	20	16-QAM	H	112	330	1 / 49	11.59	9.43	21.02	0.127	33.01	-11.99
2593.02	20	64-QAM	H	104	306	1 / 49	10.68	9.55	20.23	0.105	33.01	-12.78
2593.02	20	256-QAM	H	104	306	50 / 0	10.39	9.55	19.94	0.099	33.01	-13.07
2516.01	40	QPSK	H	124	318	1 / 53	11.95	9.43	21.38	0.137	33.01	-11.63
2593.02	40	QPSK	H	105	306	1 / 53	9.15	9.55	18.70	0.074	33.01	-14.31
2670.00	40	QPSK	H	101	309	1 / 53	7.88	9.82	17.70	0.059	33.01	-15.31
2516.01	40	16-QAM	H	124	318	1 / 53	11.82	9.43	21.25	0.133	33.01	-11.76
2593.02	40	64-QAM	H	105	306	1 / 104	10.71	9.55	20.27	0.106	33.01	-12.74
2593.02	40	256-QAM	H	105	306	100 / 0	9.70	9.55	19.25	0.084	33.01	-13.76
2521.02	50	QPSK	H	113	327	1 / 67	11.99	9.43	21.42	0.139	33.01	-11.59
2593.02	50	QPSK	H	104	309	1 / 1	9.05	9.55	18.61	0.073	33.01	-14.40
2664.99	50	QPSK	H	108	304	1 / 131	7.51	9.82	17.32	0.054	33.01	-15.69
2521.02	50	16-QAM	H	113	327	1 / 67	11.94	9.43	21.37	0.137	33.01	-11.64
2593.02	50	64-QAM	H	104	309	1 / 1	10.66	9.55	20.21	0.105	33.01	-12.80
2593.02	50	256-QAM	H	104	309	128 / 0	9.56	9.55	19.11	0.082	33.01	-13.90
2526.00	60	QPSK	H	120	318	162 / 0	13.20	9.43	22.64	0.184	33.01	-10.37
2593.02	60	QPSK	H	102	314	1 / 81	8.59	9.55	18.14	0.065	33.01	-14.87
2659.98	60	QPSK	H	101	316	162 / 0	9.03	9.82	18.85	0.077	33.01	-14.16
2526.00	60	16-QAM	H	120	318	162 / 0	12.43	9.43	21.86	0.154	33.01	-11.15
2526.00	60	64-QAM	H	120	318	162 / 0	11.37	9.43	20.80	0.120	33.01	-12.21
2526.00	60	256-QAM	H	120	318	1 / 81	10.63	9.43	20.06	0.101	33.01	-12.95
2536.02	80	QPSK	H	119	324	216 / 0	12.42	9.43	21.85	0.153	33.01	-11.16
2593.02	80	QPSK	H	100	311	216 / 0	8.98	9.55	18.53	0.071	33.01	-14.48
2649.99	80	QPSK	H	122	319	1 / 108	8.15	9.82	17.97	0.063	33.01	-15.04
2536.02	80	16-QAM	H	119	324	1 / 108	12.37	9.43	21.80	0.151	33.01	-11.21
2536.02	80	64-QAM	H	119	324	216 / 0	12.45	9.43	21.88	0.154	33.01	-11.13
2536.02	80	256-QAM	H	119	324	216 / 0	10.20	9.43	19.63	0.092	33.01	-13.38
2541.00	90	QPSK	H	121	325	1 / 123	12.12	9.43	21.55	0.143	33.01	-11.46
2593.02	90	QPSK	H	100	304	1 / 243	9.07	9.55	18.62	0.073	33.01	-14.39
2644.98	90	QPSK	H	100	316	1 / 123	5.68	9.83	15.51	0.036	33.01	-17.50
2541.00	90	16-QAM	H	121	325	245 / 0	12.05	9.43	21.48	0.141	33.01	-11.53
2541.00	90	64-QAM	H	121	325	1 / 1	12.03	9.43	21.46	0.140	33.01	-11.55
2541.00	90	256-QAM	H	121	325	245 / 0	11.49	9.43	20.92	0.124	33.01	-12.09
2546.01	100	QPSK	H	117	324	1 / 137	12.12	9.38	21.50	0.141	33.01	-11.51
2593.02	100	QPSK	H	130	325	1 / 137	9.07	9.55	18.62	0.073	33.01	-14.39
2640.00	100	QPSK	H	101	311	1 / 137	5.68	9.84	15.52	0.036	33.01	-17.49
2546.01	100	16-QAM	H	117	324	1 / 137	12.07	9.38	21.45	0.140	33.01	-11.56
2546.01	100	64-QAM	H	117	324	270 / 0	12.03	9.38	21.41	0.138	33.01	-11.60
2546.01	100	256-QAM	H	117	324	1 / 137	11.49	9.38	20.87	0.122	33.01	-12.14
2526.00	60	QPSK	V	126	37	162 / 0	10.49	9.38	19.87	0.097	33.01	-13.14
2526.00	60 (WCP)	QPSK	H	105	216	162 / 0	9.23	9.43	18.66	0.074	33.01	-14.35

Table 7-71. EIRP (n41)

FCC ID: A3LSMG988U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset	Page 475 of 486

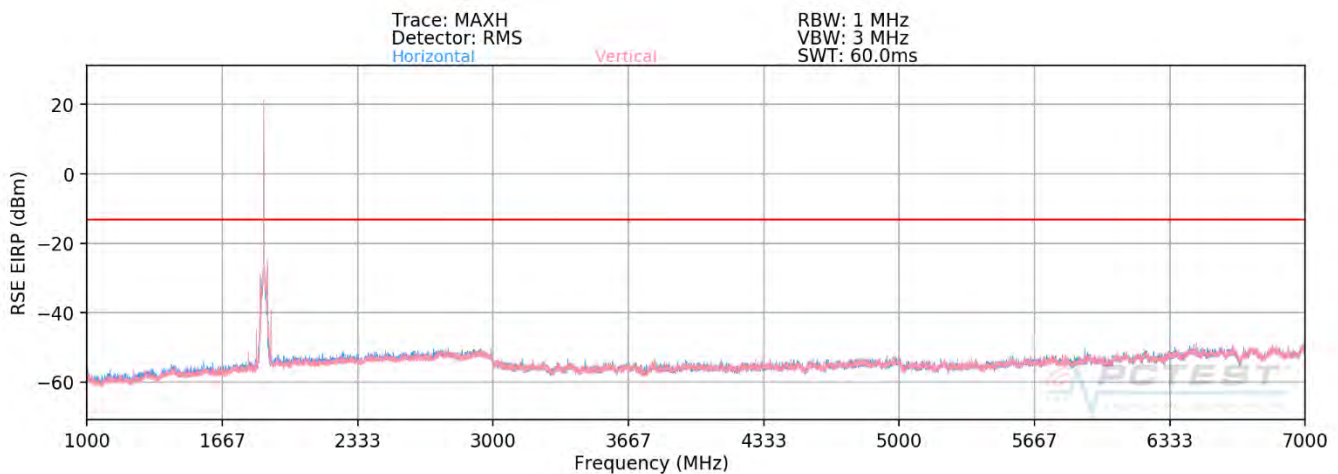
Radiated Spurious Emissions Measurements

All SCS's and Waveforms (CP-OFDM vs DFT-s OFDM) 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.

Per FCC Guidance, KDB 328880, Radiated Spurious Measurements were made based of the worst case modulation and RBW configuraton as determined by EIRP measurement, and grouping the available combinations by Low Band, Mid Band, and High Band.

Spurious emissions shown in this section are measured while operating in EN-DC mode with Sub 6GHz NR carrier as well as an LTE carrier (anchor). Per KDB 968740, spurious emissions from the NR carrier device, is subject to the rules under which the NR carrier operates. Spurious emission caused by the LTE carrier must meet the requirements of the rules under which the LTE carrier operates. If the spurious emission is caused by the simultaneous operation of both devices, the limit is the highest level allowed by either rule part.

NR Band n71



Plot 7-746. Radiated Spurious Plot above 1GHz (n71 ENDC - ANCHOR B2)

OPERATING FREQUENCY: 673.00 MHz
MODULATION SIGNAL: QPSK
BANDWIDTH: 20.0 MHz
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1346.00	H	-	-	-70.49	2.91	-67.58	-54.6
2019.00	H	-	-	-65.80	2.82	-62.98	-50.0
2692.00	H	-	-	-67.09	4.53	-62.56	-49.6

Table 7-72. Radiated Spurious Data (n71 ENDC - ANCHOR B2 - Low Channel)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 476 of 486

OPERATING FREQUENCY: 680.50 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1361.00	H	-	-	-70.38	2.88	-67.51	-54.5
2041.50	H	-	-	-65.45	2.73	-62.73	-49.7
2722.00	H	-	-	-66.43	4.63	-61.80	-48.8

Table 7-73. Radiated Spurious Data (n71 ENDC – ANCHOR B2 – Mid Channel)

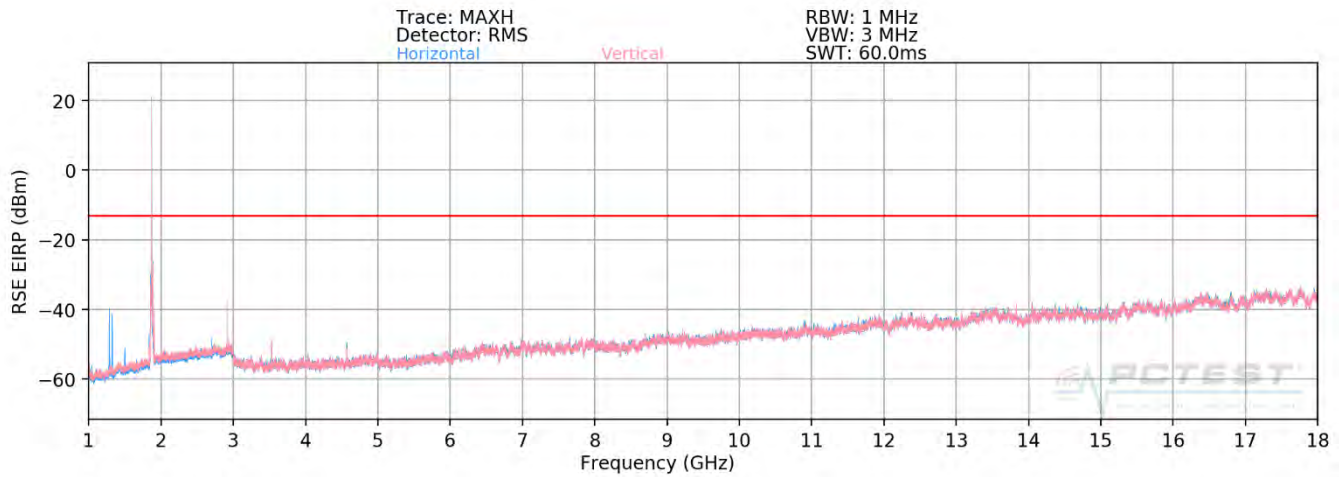
OPERATING FREQUENCY: 688.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1376.00	H	-	-	-68.90	2.64	-66.26	-53.3
2064.00	H	-	-	-65.42	2.82	-62.60	-49.6
2752.00	H	-	-	-66.45	4.60	-61.85	-48.8

Table 7-74. Radiated Spurious Data (n71 ENDC – ANCHOR B2 – High Channel)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 477 of 486

NR Band n5



Plot 7-747. Radiated Spurious Plot above 1GHz (n5 EN-DC – ANCHOR B2)

OPERATING FREQUENCY: 834.00 MHz

MODULATION SIGNAL: QPSK

BANDWIDTH: 20.0 MHz

DISTANCE: 3 meters

LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1234.00	H	254	78	-70.46	2.72	-67.74	-54.7
1668.00	V	131	178	-66.93	3.09	-63.84	-50.8
2502.00	V	113	111	-57.47	3.92	-53.55	-40.6
2905.62	H	231	261	-39.55	5.25	-34.29	-21.3
3336.00	V	-	-	-68.44	6.02	-62.42	-49.4
4170.00	V	-	-	-68.99	7.79	-61.20	-48.2

Table 7-75. Radiated Spurious Data (n5 EN-DC – ANCHOR B2 – Low Channel)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset			Page 478 of 486

OPERATING FREQUENCY: 836.50 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1228.00	H	191	110	-70.64	2.80	-67.84	-54.8
1673.00	V	100	214	-64.78	3.10	-61.68	-48.7
2509.50	V	128	174	-54.70	4.02	-50.68	-37.7
2905.80	H	216	241	-40.39	5.09	-35.30	-22.3
3346.00	V	-	-	-67.87	6.03	-61.85	-48.8
4182.50	V	-	-	-68.99	7.79	-61.20	-48.2

Table 7-76. Radiated Spurious Data (n5 EN-DC – ANCHOR B2 – Mid Channel)

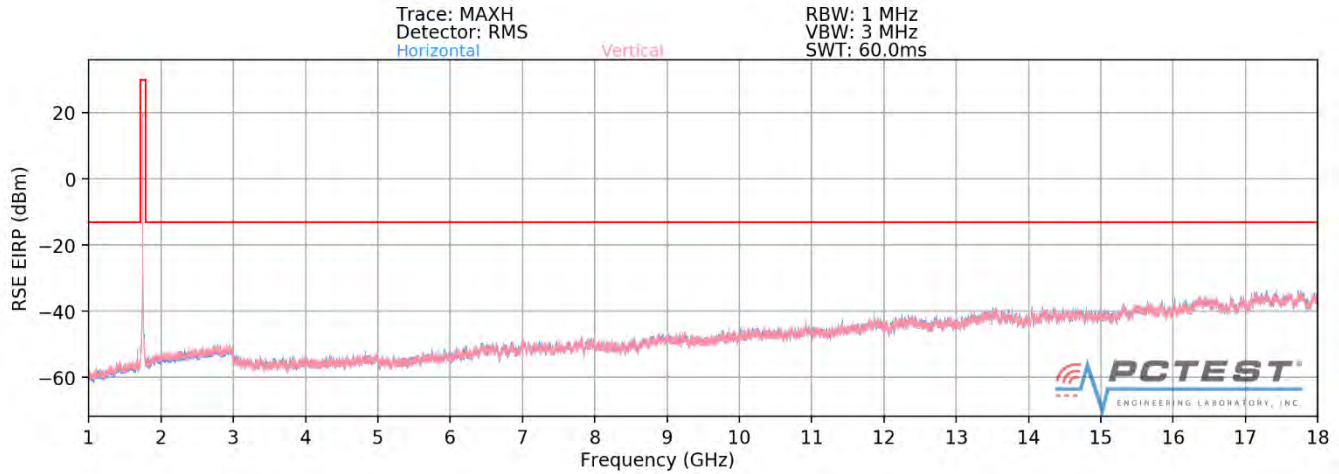
OPERATING FREQUENCY: 839.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1219.00	H	-	-	-69.73	2.69	-67.05	-54.0
1678.00	V	-	-	-66.95	3.13	-63.82	-50.8
2517.00	V	111	124	-58.39	4.05	-54.34	-41.3
2900.67	H	233	256	-39.42	5.24	-34.18	-21.2
3356.00	V	-	-	-67.35	6.06	-61.29	-48.3
4195.00	V	-	-	-69.51	7.79	-61.71	-48.7

Table 7-77. Radiated Spurious Data (n5 EN-DC – ANCHOR B2– High Channel)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 479 of 486

NR Band n66



Plot 7-748. Radiated Spurious Plot above 1GHz (n66 ENDC – ANCHOR B13)

OPERATING FREQUENCY: 1720.00 MHz

MODULATION SIGNAL: QPSK

BANDWIDTH: 20.0 MHz

DISTANCE: 3 meters

LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3440.00	H	-	-	-67.95	6.28	-61.67	-48.7
5160.00	H	-	-	-69.41	8.98	-60.43	-47.4
6880.00	H	-	-	-65.92	9.42	-56.50	-43.5

Table 7-78. Radiated Spurious Data (n66 ENDC – ANCHOR B13 – Low Channel)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 480 of 486

OPERATING FREQUENCY: 1745.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3490.00	H	-	-	-68.02	6.47	-61.55	-48.6
5235.00	H	-	-	-69.17	8.97	-60.20	-47.2
6980.00	H	-	-	-64.60	9.23	-55.38	-42.4

Table 7-79. Radiated Spurious Data (n66 ENDC – ANCHOR B13 – Mid Channel)

OPERATING FREQUENCY: 1770.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

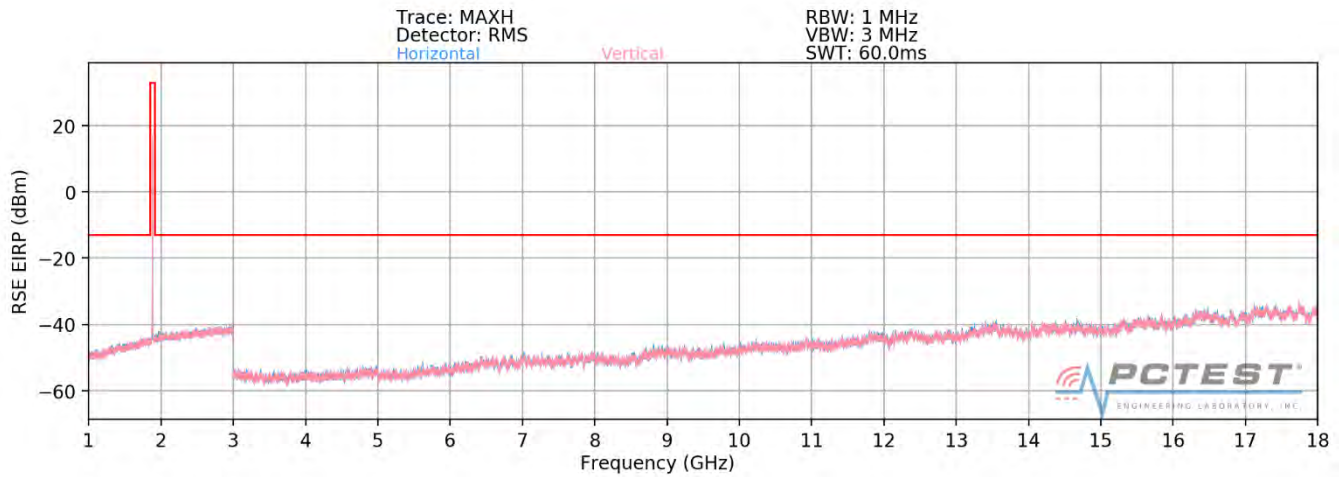
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3540.00	H	-	-	-67.82	6.45	-61.37	-48.4
5310.00	H	-	-	-68.98	9.09	-59.89	-46.9
7080.00	H	-	-	-64.86	9.17	-55.69	-42.7

Table 7-80. Radiated Spurious Data (n66 ENDC – ANCHOR B13 – High Channel)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 481 of 486



NR Band n2



Plot 7-749. Radiated Spurious Plot above 1GHz (n2 ENDC - ANCHOR B13)

OPERATING FREQUENCY: 1860.00 MHz

MODULATION SIGNAL: QPSK

BANDWIDTH: 20.0 MHz

DISTANCE: 3 meters

LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3720.00	H	-	-	-68.23	6.90	-61.33	-48.3
5580.00	H	-	-	-68.77	9.06	-59.71	-46.7
7440.00	H	-	-	-65.47	9.26	-56.21	-43.2

Table 7-81. Radiated Spurious Data (n2 ENDC - ANCHOR B13 – Low Channel)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 482 of 486

OPERATING FREQUENCY: 1880.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3760.00	H	-	-	-68.83	6.93	-61.90	-48.9
5640.00	H	-	-	-68.45	9.15	-59.30	-46.3
7520.00	H	-	-	-64.97	9.31	-55.66	-42.7

Table 7-82. Radiated Spurious Data (n2 ENDC - ANCHOR B13 – Mid Channel)

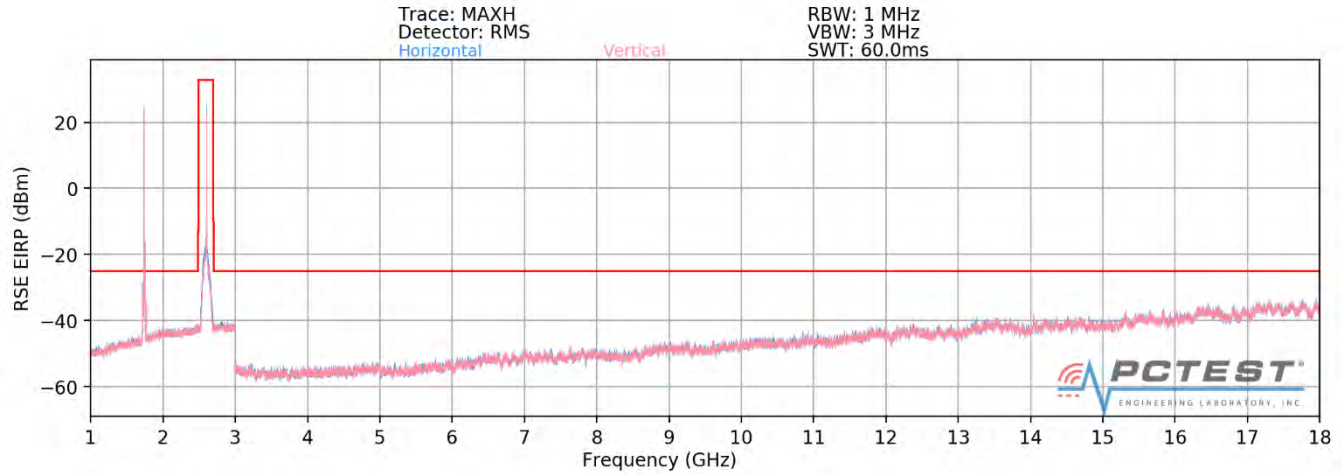
OPERATING FREQUENCY: 1900.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3800.00	H	-	-	-68.11	7.02	-61.09	-48.1
5700.00	H	-	-	-68.30	9.05	-59.25	-46.3
7600.00	H	-	-	-64.97	9.25	-55.73	-42.7

Table 7-83. Radiated Spurious Data (n2 ENDC - ANCHOR B13 - High Channel)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 483 of 486

NR Band n41



Plot 7-750. Radiated Spurious Plot above 1GHz (n41 - ANCHOR B66)

OPERATING FREQUENCY: 2546.00 MHz

MODULATION SIGNAL: QPSK

BANDWIDTH: 100.0 MHz

DISTANCE: 3 meters

LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5092.00	V	317	13	-69.94	8.88	-61.06	-36.1
7638.00	V	335	14	-66.39	9.29	-57.10	-32.1
10184.00	V	-	-	-65.94	9.72	-56.22	-31.2
12730.00	V	-	-	-62.85	8.93	-53.92	-28.9
15276.00	V	-	-	-63.31	8.56	-54.75	-29.7
17822.00	V	-	-	-54.14	7.70	-46.43	-21.4

Table 7-84. Radiated Spurious Data (n41 Standalone – Low Channel)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 484 of 486

OPERATING FREQUENCY: 2593.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 100.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	V	-	-	-74.64	9.03	-65.62	-40.6
7779.00	V	-	-	-67.70	9.29	-58.41	-33.4
10372.00	V	-	-	-68.68	9.50	-59.18	-34.2
12965.00	V	-	-	-61.71	8.75	-52.95	-28.0
15558.00	V	-	-	-65.10	8.47	-56.63	-31.6

Table 7-85. Radiated Spurious Data (n41 Standalone – Mid Channel)

OPERATING FREQUENCY: 2640.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 100.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5280.00	V	-	-	-71.04	9.04	-61.99	-37.0
7920.00	V	-	-	-67.02	9.30	-57.72	-32.7
10560.00	V	-	-	-65.91	9.50	-56.41	-31.4
13200.00	V	-	-	-61.84	8.74	-53.10	-28.1
15840.00	V	-	-	-61.79	8.72	-53.07	-28.1

Table 7-86. Radiated Spurious Data (n41 Standalone - High Channel)

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 485 of 486

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMG988U** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE and Sub 6GHz NR operation.

FCC ID: A3LSMG988U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1911140187-03-R1.A3L	Test Dates: 11/14/2019 - 1/31/2020	EUT Type: Portable Handset		Page 486 of 486