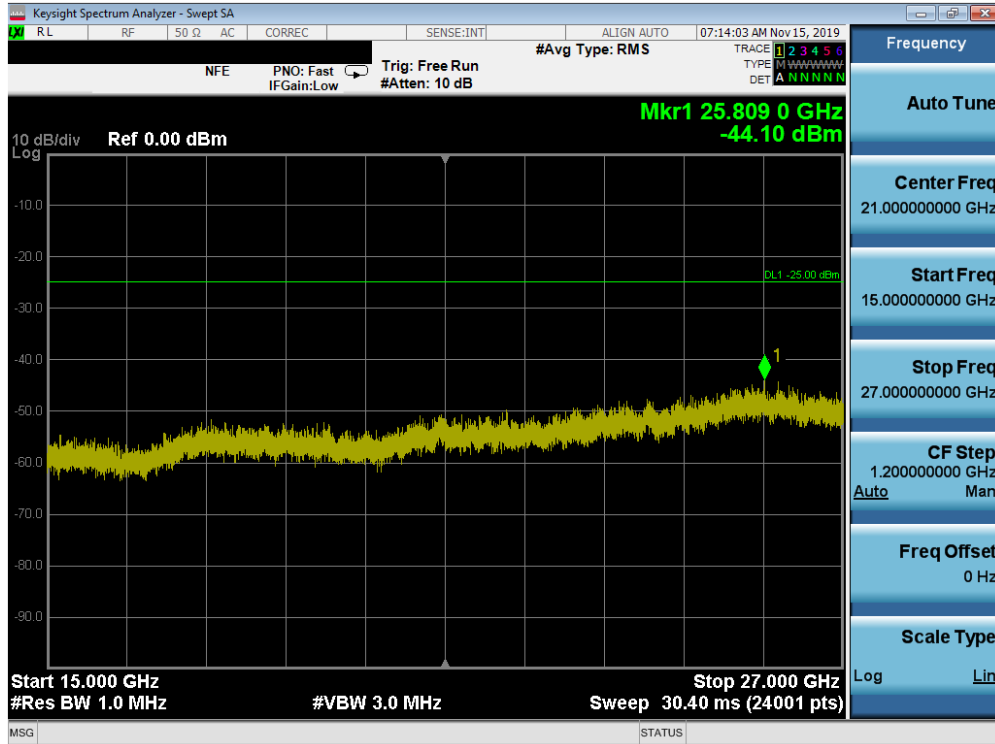




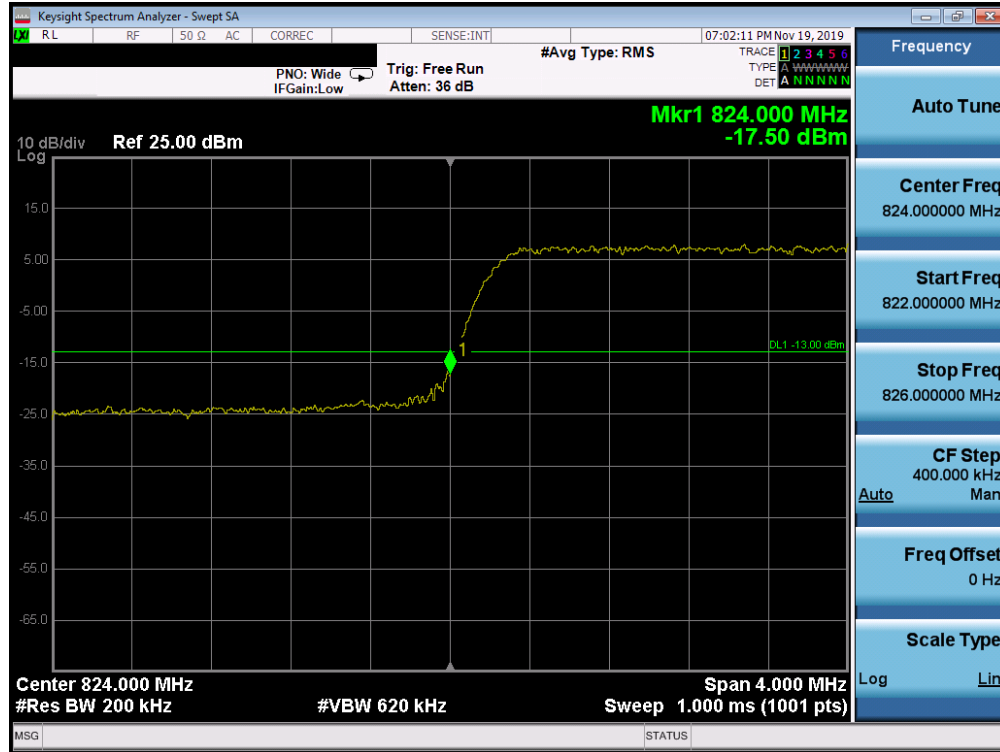
Plot 7-650. Conducted Spurious Plot (n41 - 100MHz DFT-s-OFDM-QPSK - RB Size 1, RB Offset 1 - High Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band Edge Emissions at the Antenna Terminal

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 n5

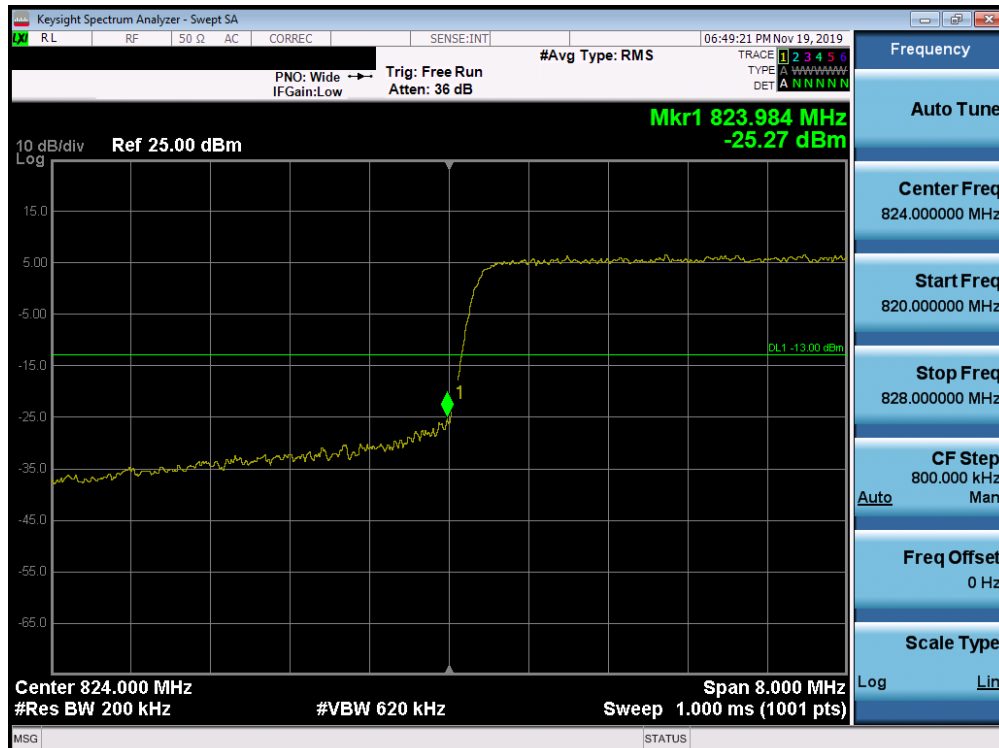


Plot 7-651. Lower Band Edge Plot (n5 - 5MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 418 of 487



Plot 7-652. Upper Band Edge Plot (n5 - 5MHz CP-OFDM-QPSK - Full RB Configuration)

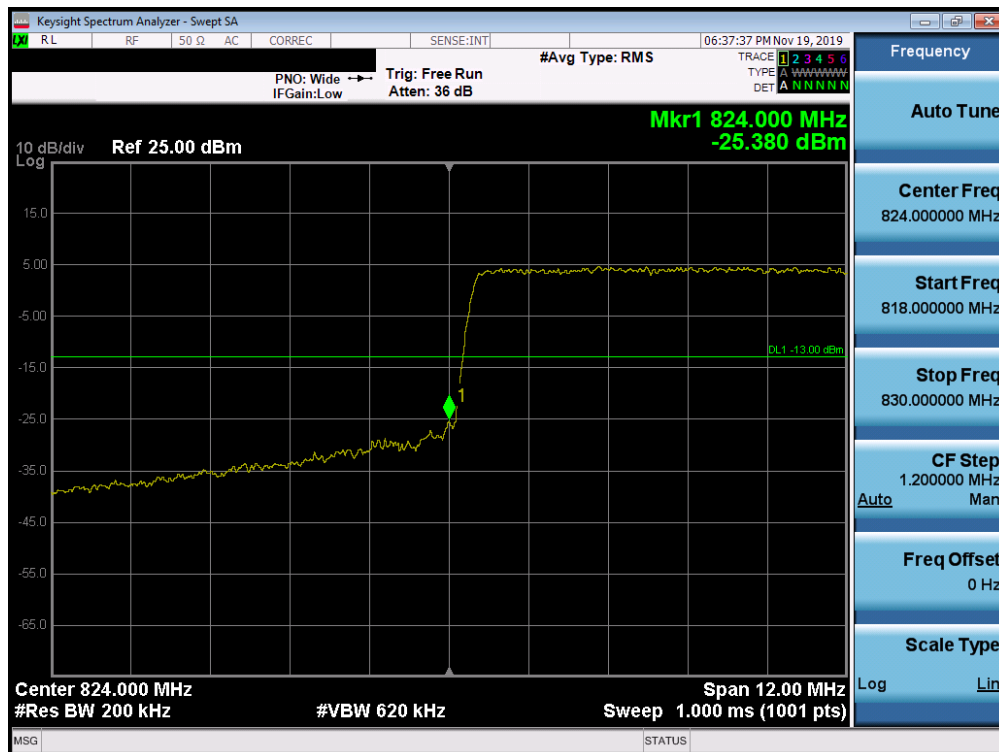


Plot 7-653. Lower Band Edge Plot (n5 - 10MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-654. Upper Band Edge Plot (n5 - 10MHz CP-OFDM-QPSK - Full RB Configuration)

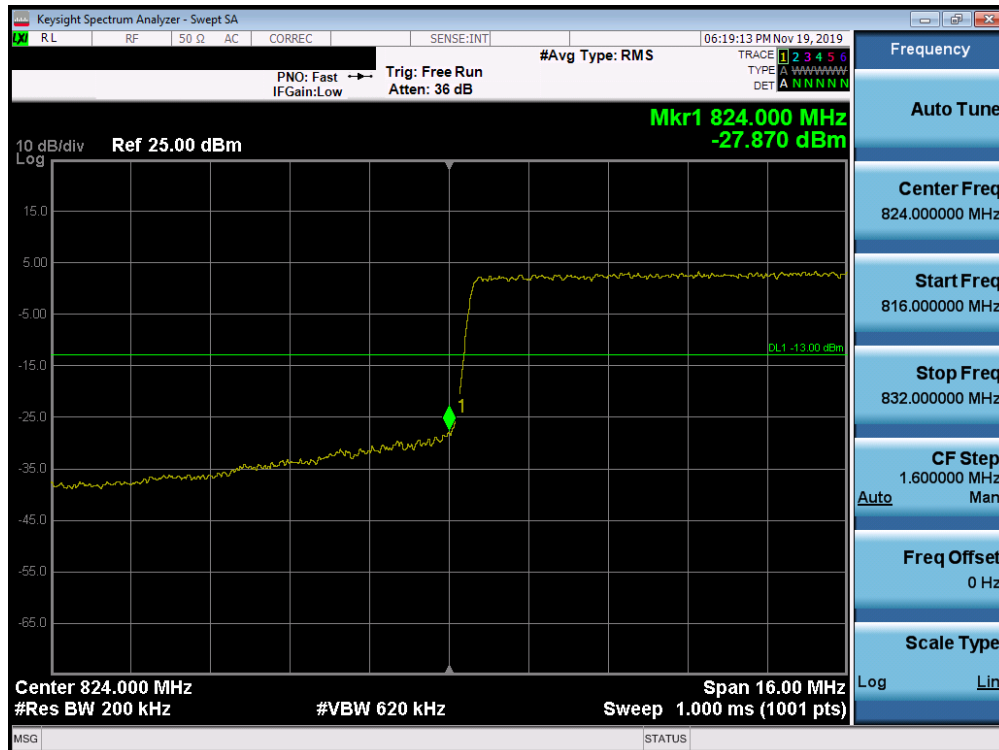


Plot 7-655. Lower Band Edge Plot (n5 - 15MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 420 of 487



Plot 7-656. Upper Band Edge Plot (n5 - 15MHz CP-OFDM-QPSK - Full RB Configuration)



Plot 7-657. Lower Band Edge Plot (n5 - 20MHz CP-OFDM-QPSK - Full RB Configuration)

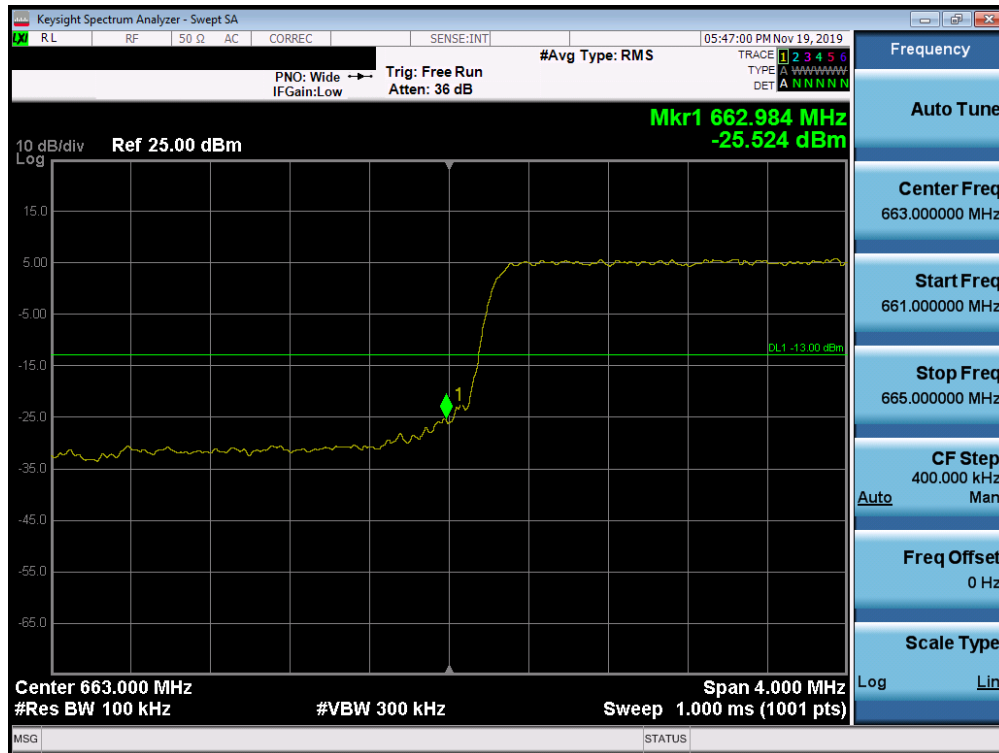
FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 421 of 487



Plot 7-658. Upper Band Edge Plot (n5 - 20MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 422 of 487

NR Band n71

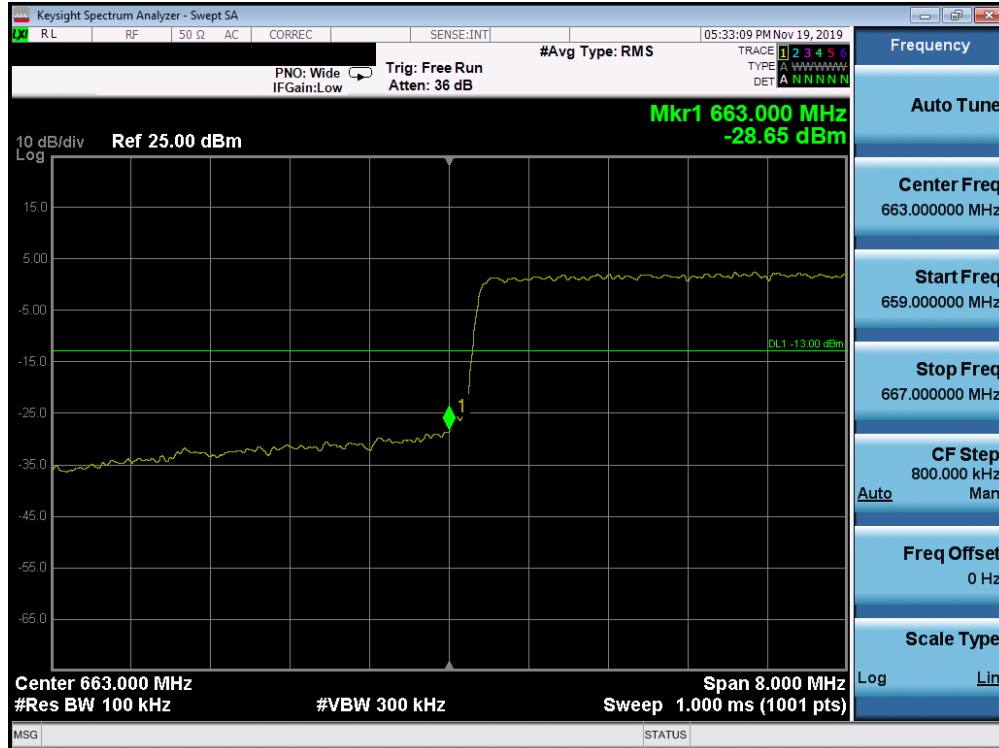


Plot 7-659. Lower Band Edge Plot (n71 - 5MHz CP-OFDM-QPSK - Full RB Configuration)

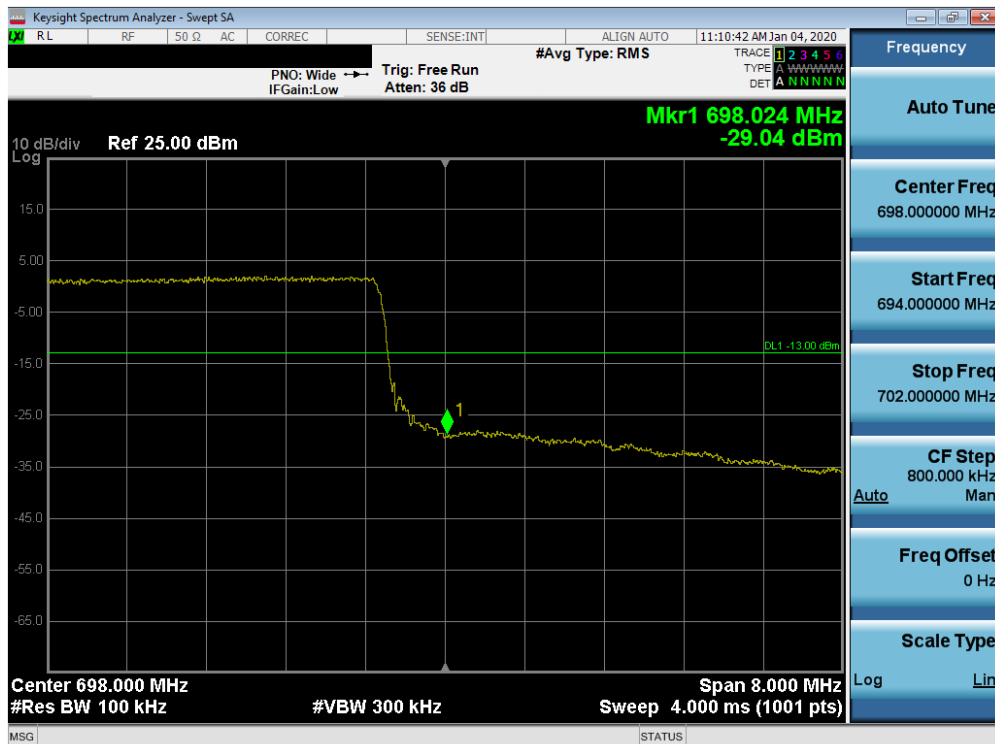


Plot 7-660. Upper Band Edge Plot (n71 - 5MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 423 of 487

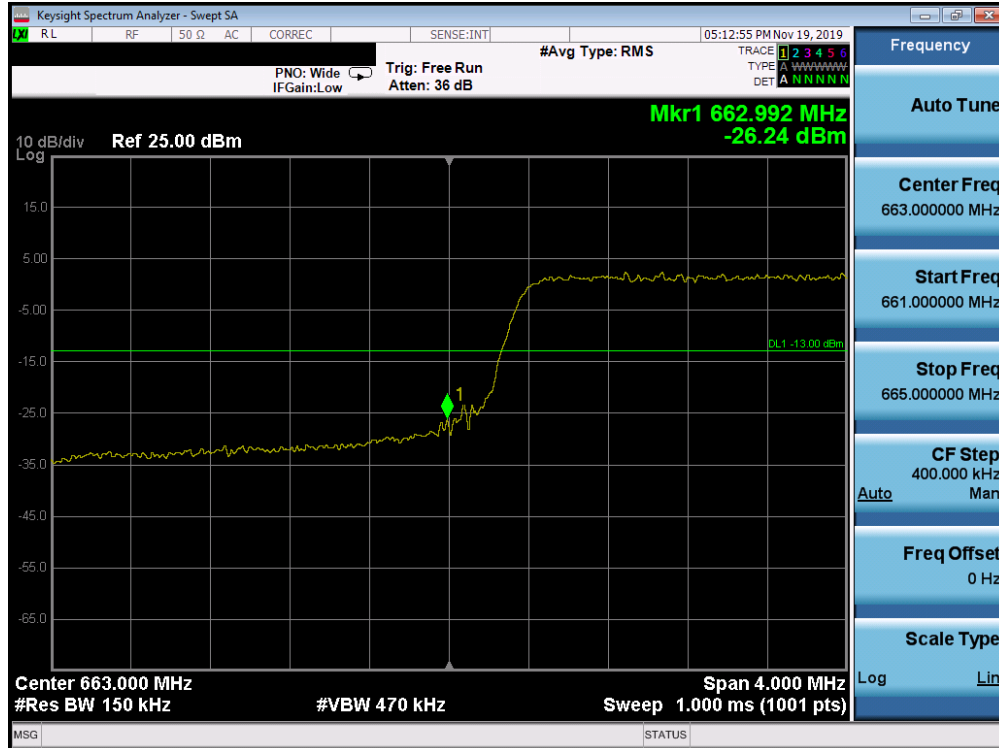


Plot 7-661. Lower Band Edge Plot (n71 - 10MHz CP-OFDM-QPSK - Full RB Configuration)

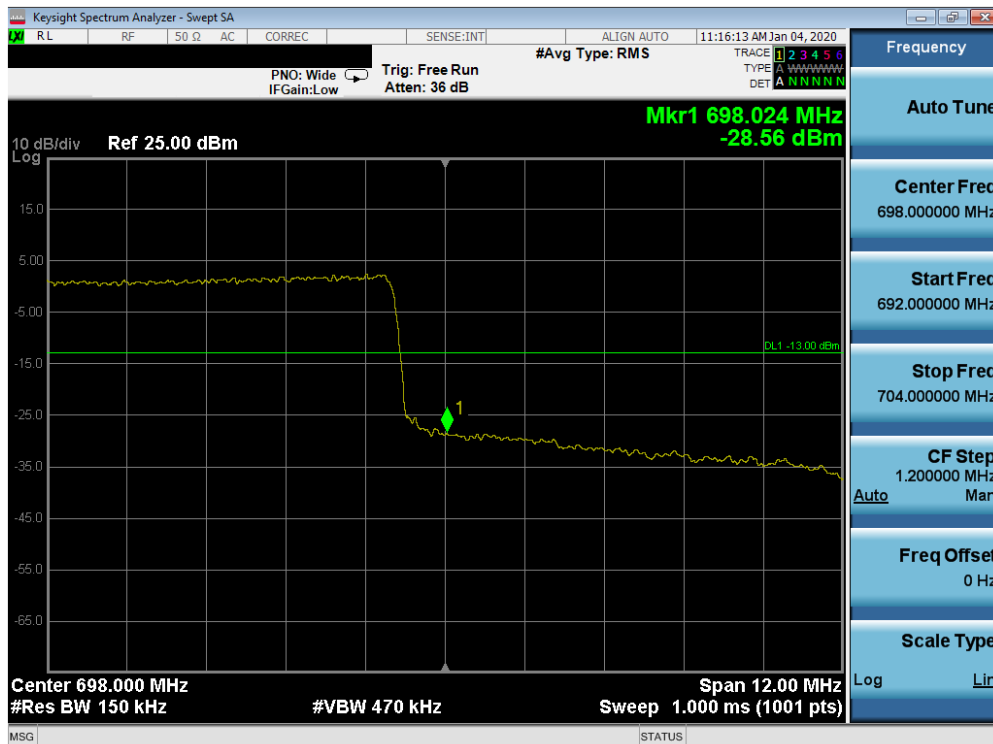


Plot 7-662. Upper Band Edge Plot (n71 - 10MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 424 of 487

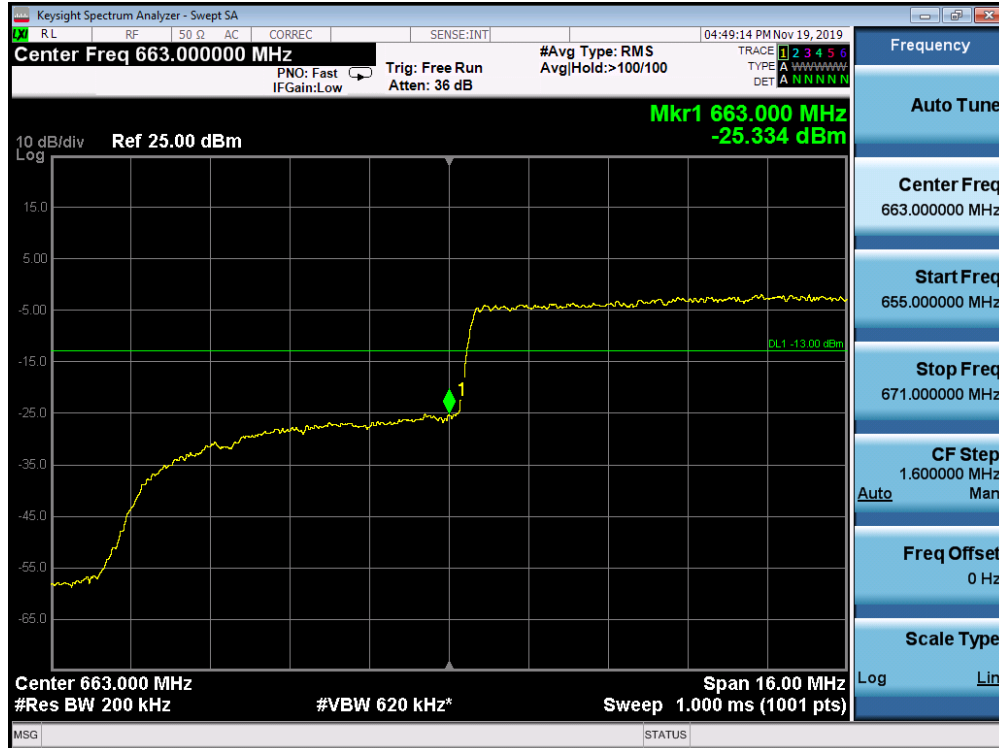


Plot 7-663. Lower Band Edge Plot (n71 - 15MHz CP-OFDM-QPSK - Full RB Configuration)



Plot 7-664. Upper Band Edge Plot (n71 - 15MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 425 of 487



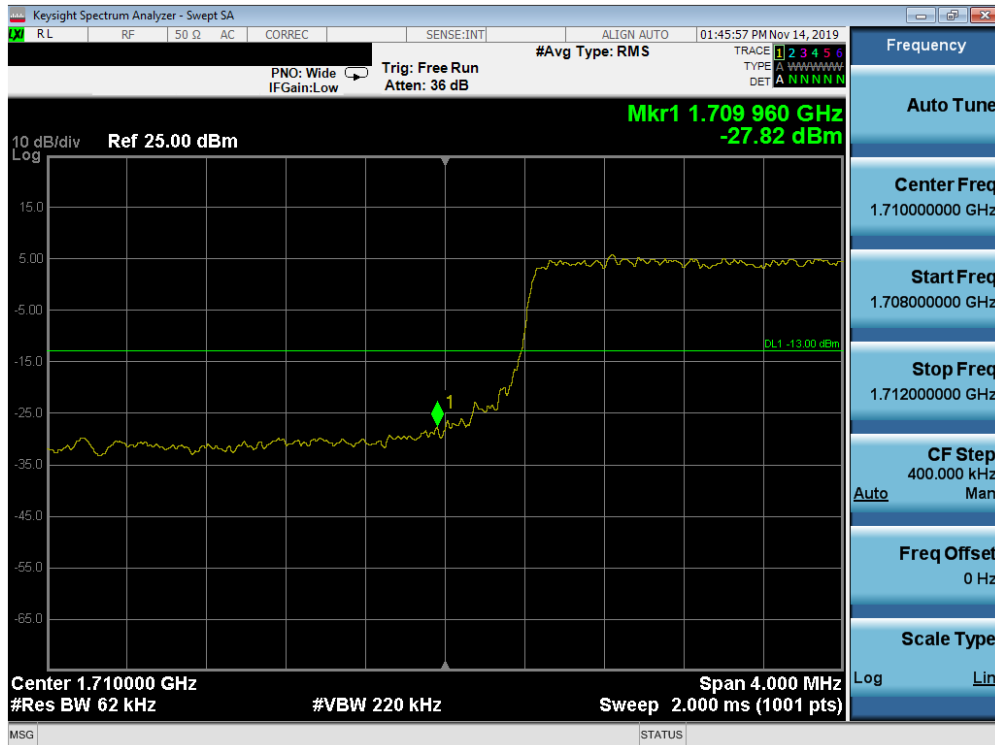
Plot 7-665. Lower Band Edge Plot (n71 - 20MHz CP-OFDM-QPSK - Full RB Configuration)



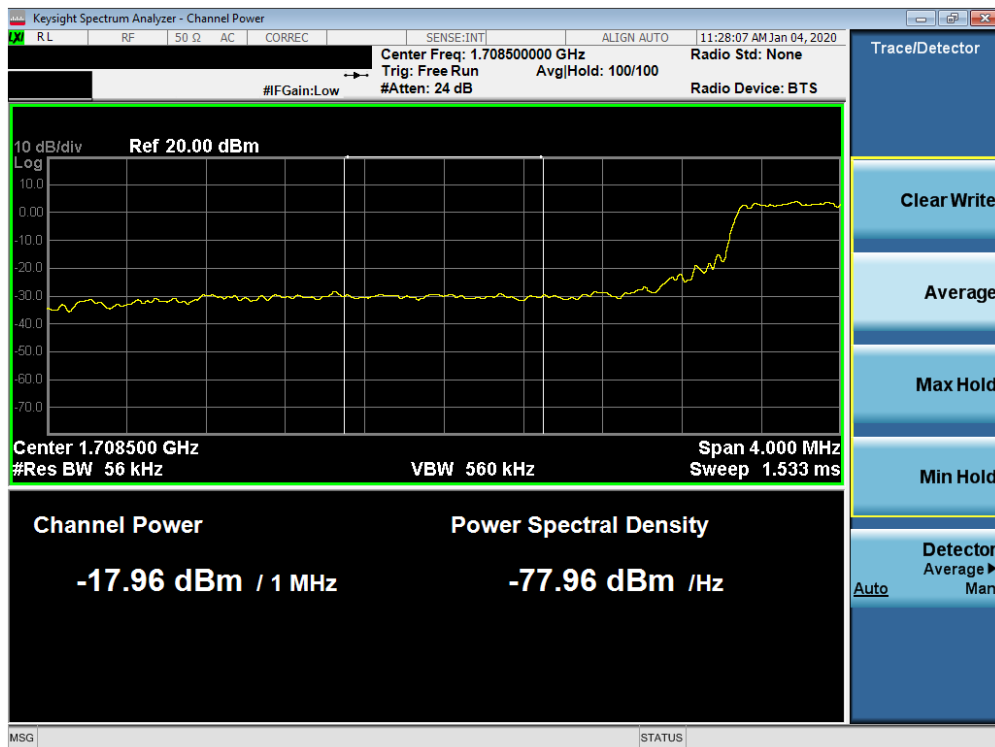
Plot 7-666. Upper Band Edge Plot (n71- 20MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 426 of 487

NR Band n66

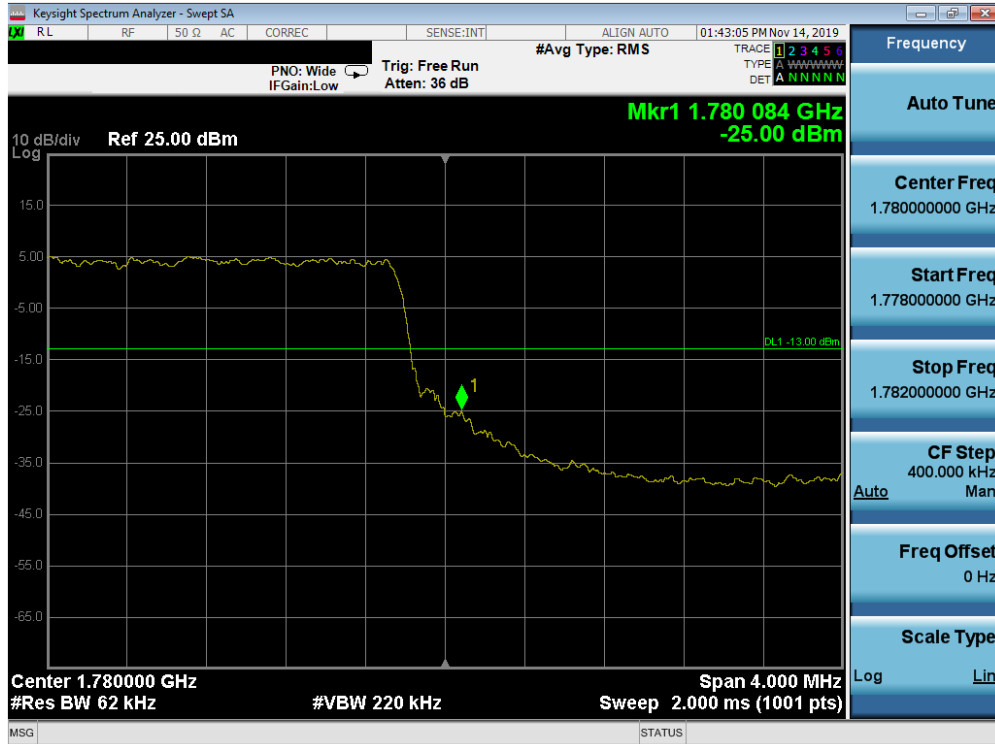


Plot 7-667. Lower Band Edge Plot (Band n66 - 5.0MHz CP-OFDM-QPSK - Full RB Configuration)

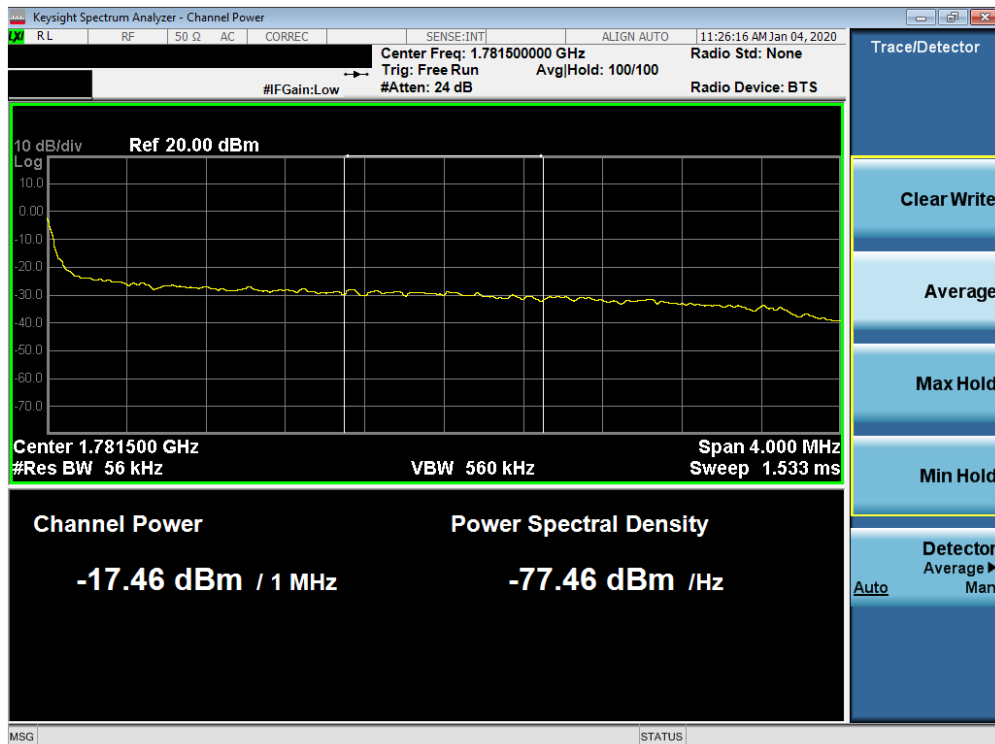


Plot 7-668. Lower Extended Band Edge Plot (Band n66 - 5.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 427 of 487

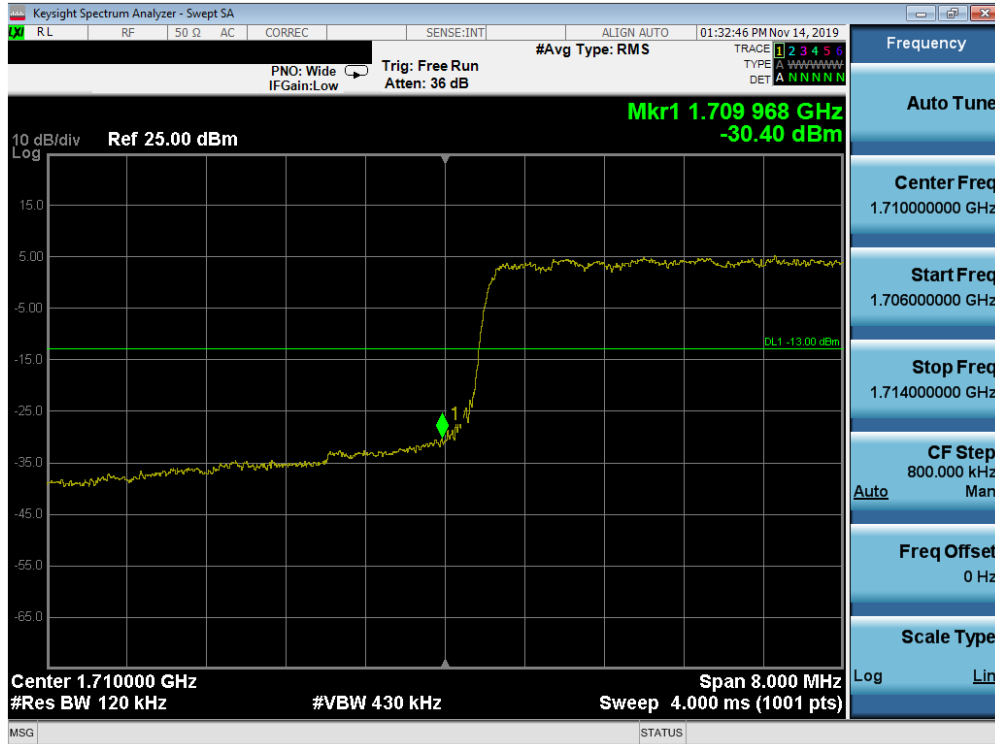


Plot 7-669. Upper Band Edge Plot (Band n66 - 5.0MHz CP-OFDM-QPSK - Full RB Configuration)

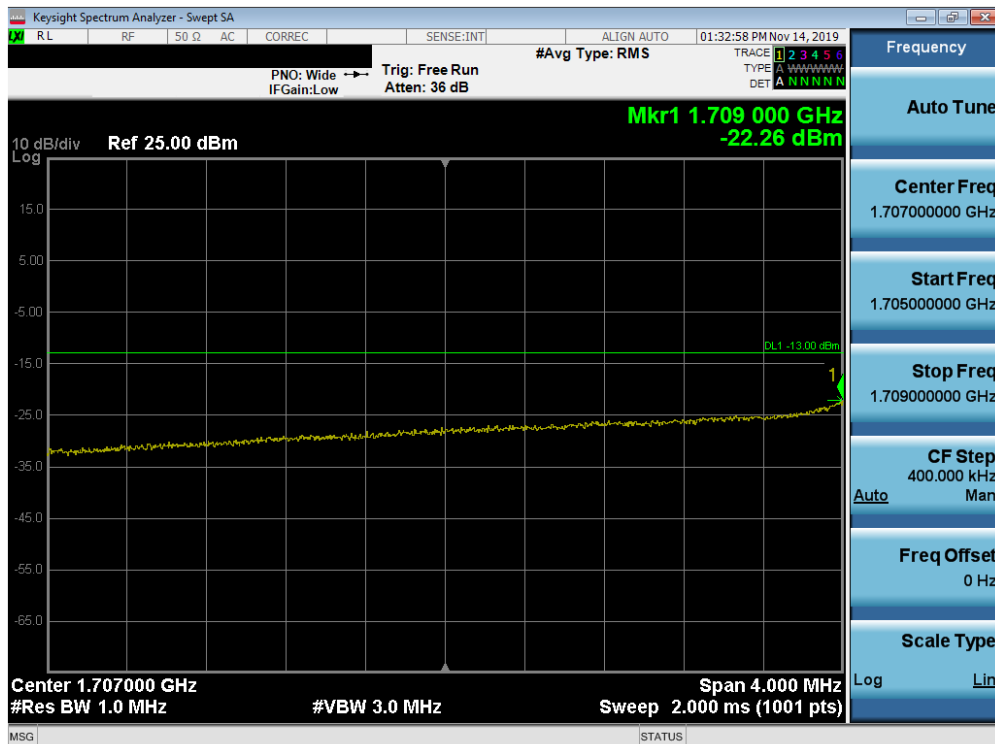


Plot 7-670. Upper Extended Band Edge Plot (Band n66 - 5.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 428 of 487



Plot 7-671. Lower Band Edge Plot (Band n66 - 10.0MHz CP-OFDM-QPSK - Full RB Configuration)

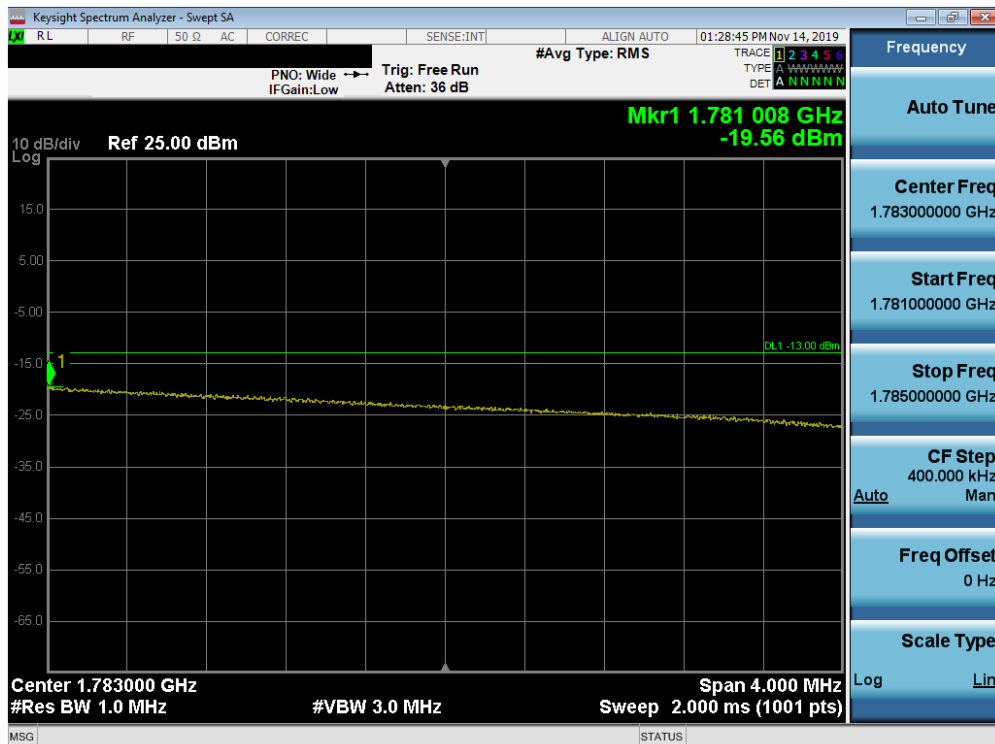


Plot 7-672. Lower Extended Band Edge Plot (Band n66 - 10.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 429 of 487

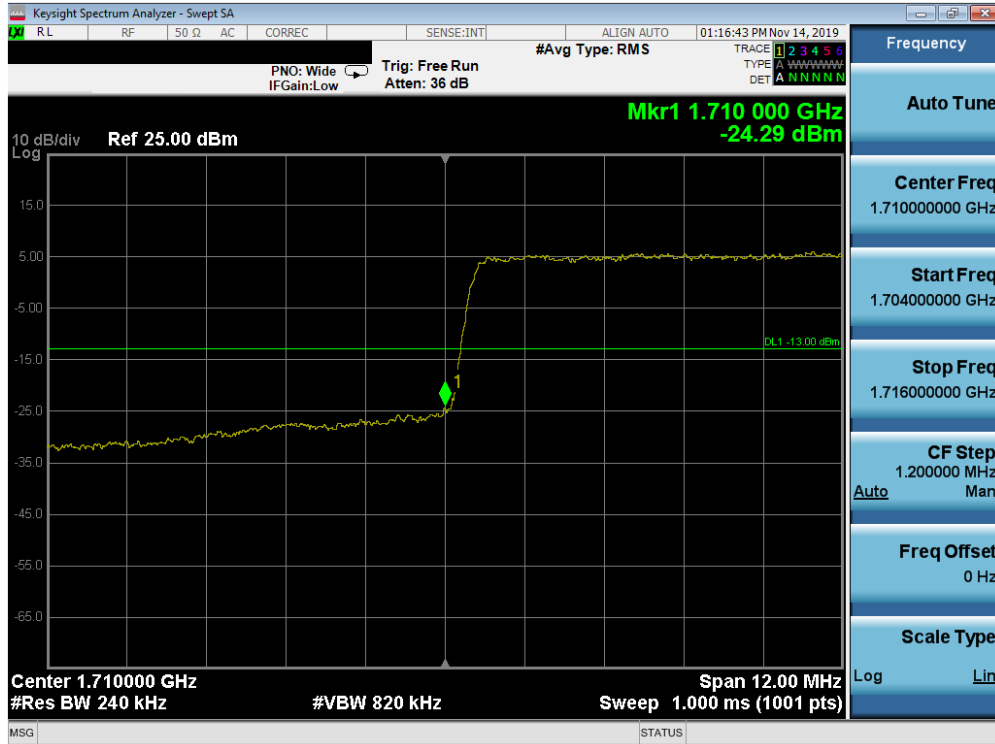


Plot 7-673. Upper Band Edge Plot (Band n66 - 10.0MHz CP-OFDM-QPSK - Full RB Configuration)

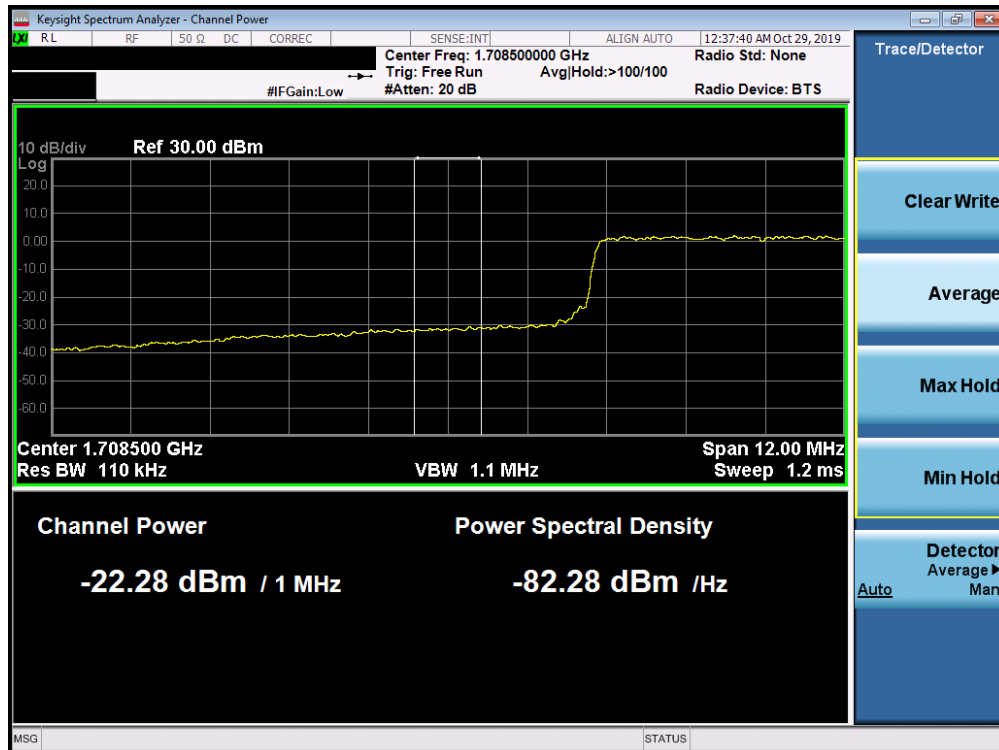


Plot 7-674. Upper Extended Band Edge Plot (Band n66 - 10.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 430 of 487

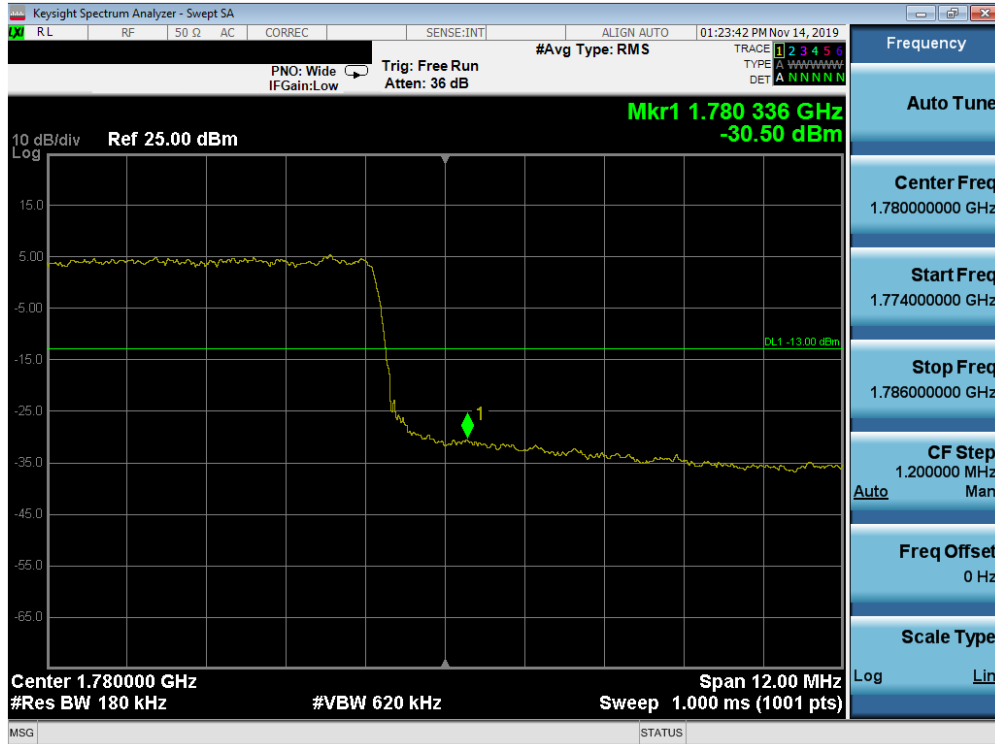


Plot 7-675. Lower Band Edge Plot (Band n66 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)



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

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 431 of 487

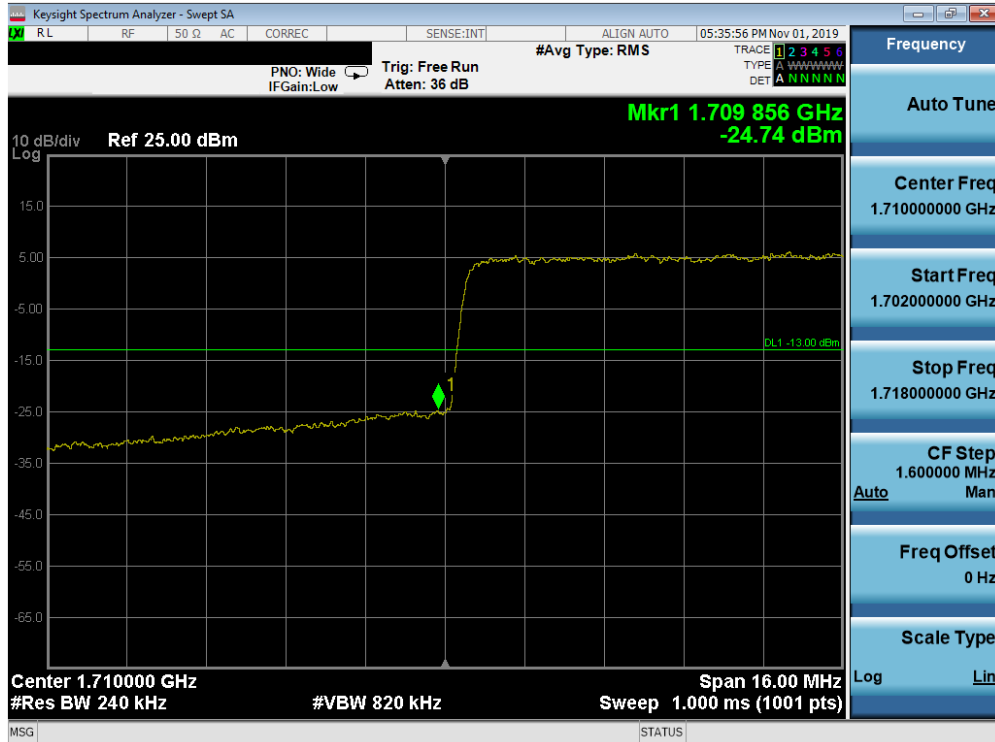


Plot 7-677. Upper Band Edge Plot (Band n66 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)

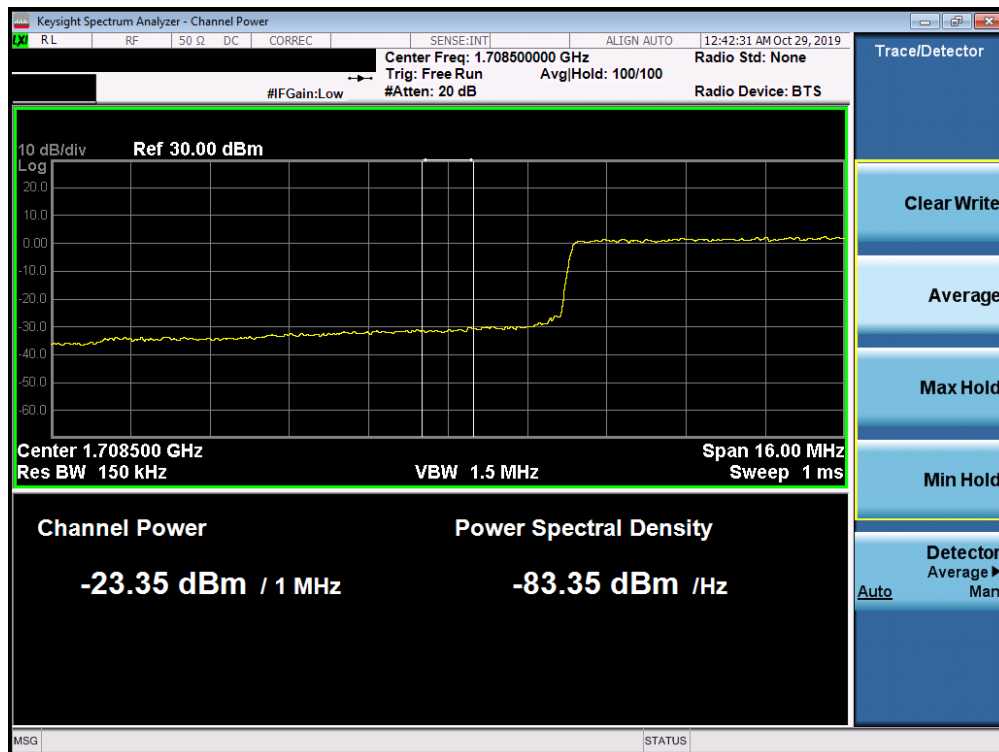


Plot 7-678. Upper Extended Band Edge Plot (Band n66 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 432 of 487



Plot 7-679. Lower Band Edge Plot (Band n66 - 20.0MHz CP-OFDM-QPSK - Full RB Configuration)

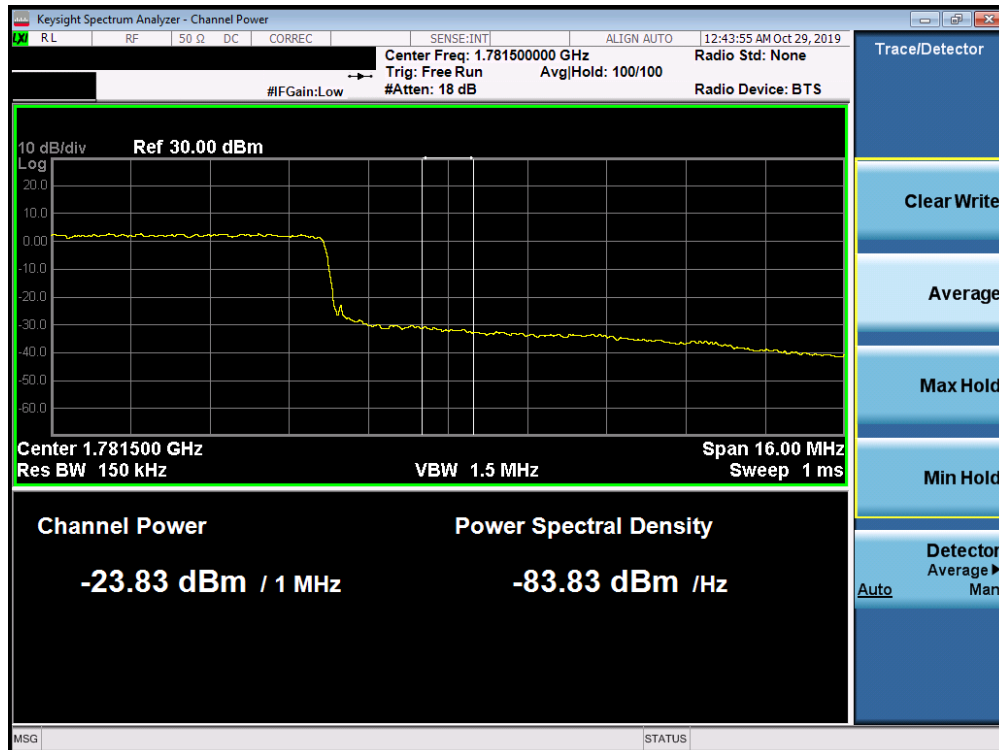


Plot 7-680. Lower Extended Band Edge Plot (Band n66 - 20.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 433 of 487



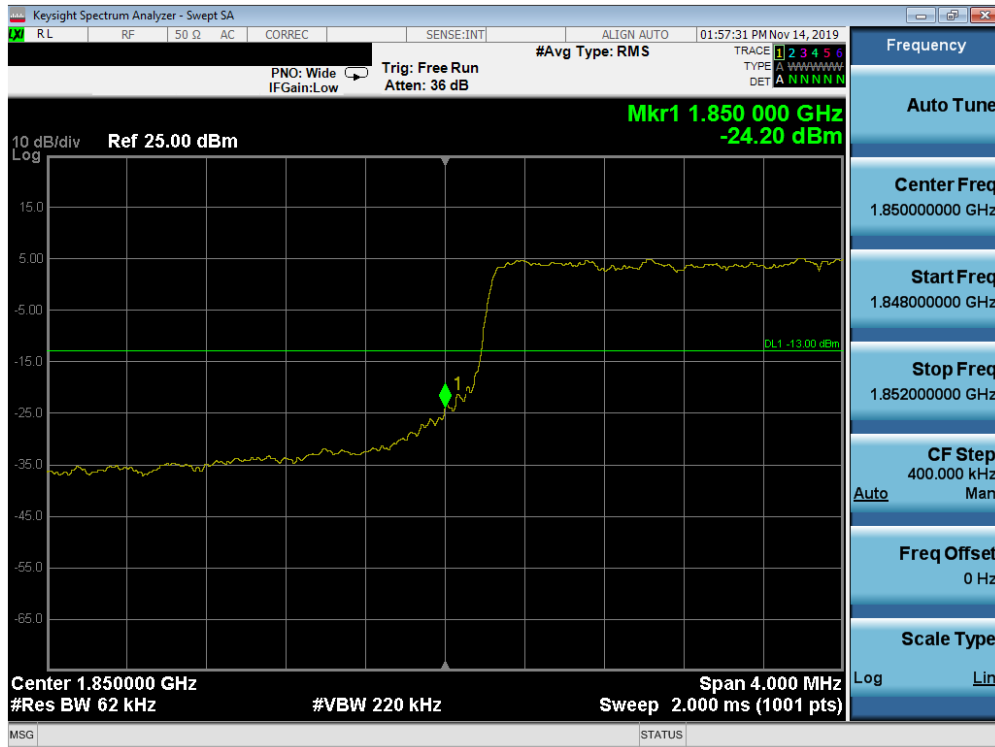
Plot 7-681. Upper Band Edge Plot (Band n66 - 20.0MHz CP-OFDM-QPSK - Full RB Configuration)



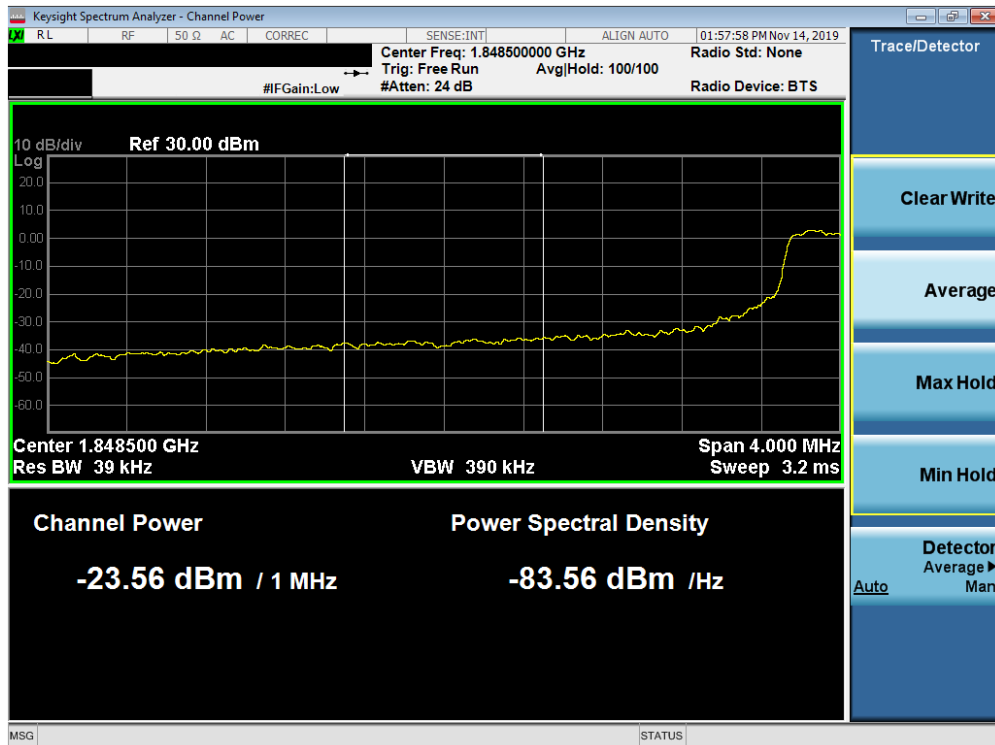
Plot 7-682. Upper Extended Band Edge Plot (Band n66 - 20.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 434 of 487

NR Band n2

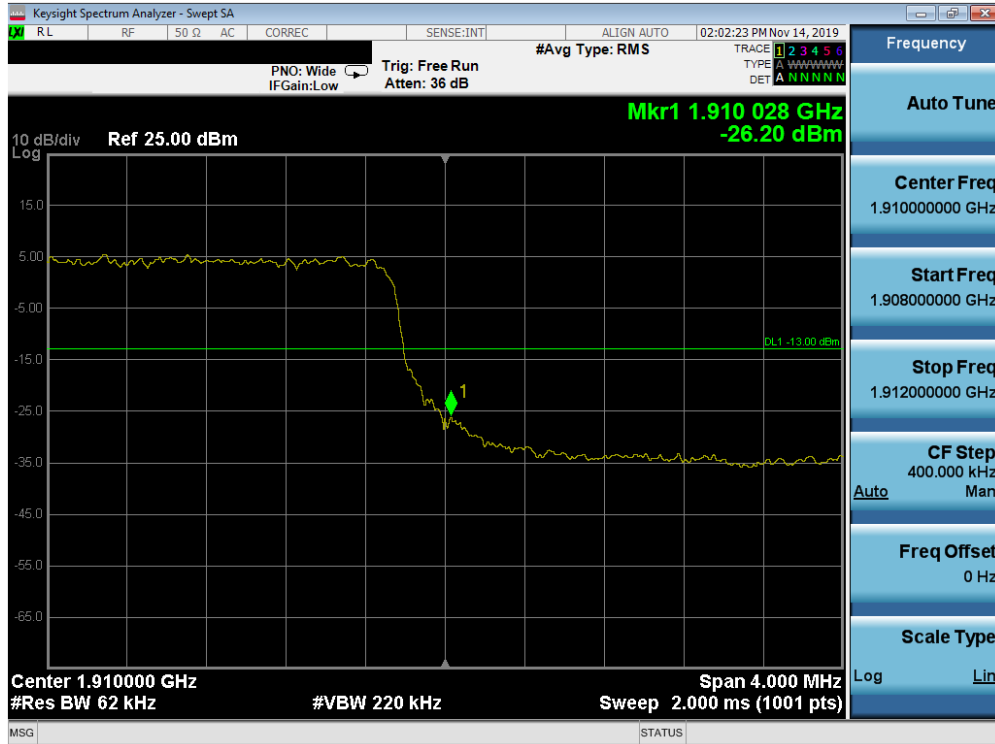


Plot 7-683. Lower Band Edge Plot (Band n2 - 5.0MHz CP-OFDM-QPSK - Full RB Configuration)

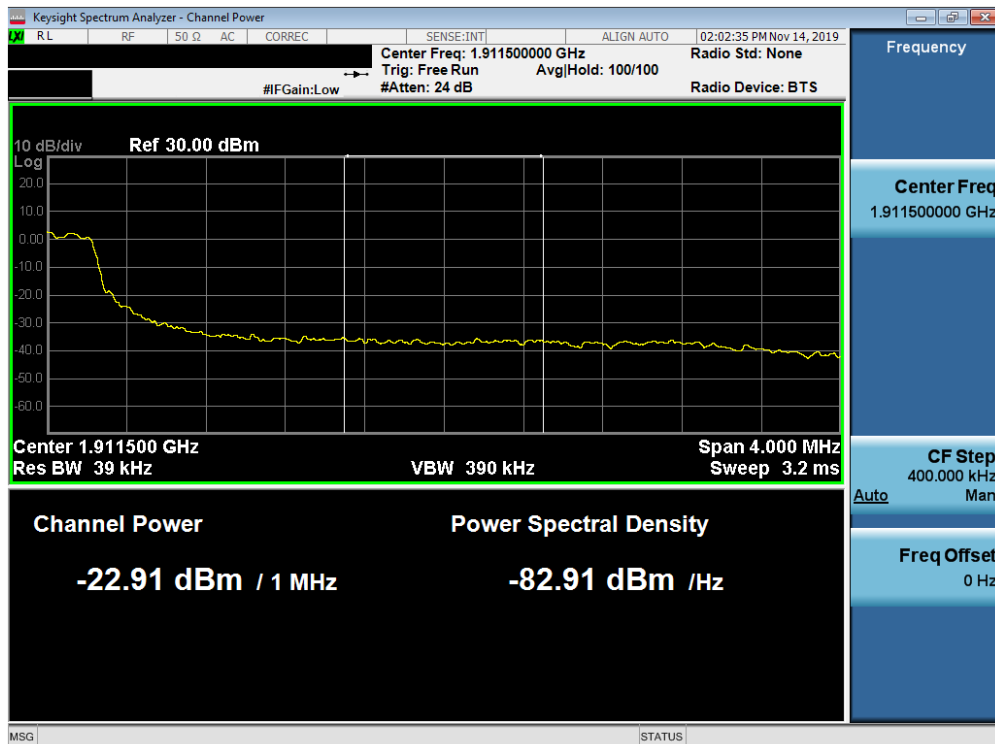


Plot 7-684. Lower Extended Band Edge Plot (Band n2 - 5.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 435 of 487

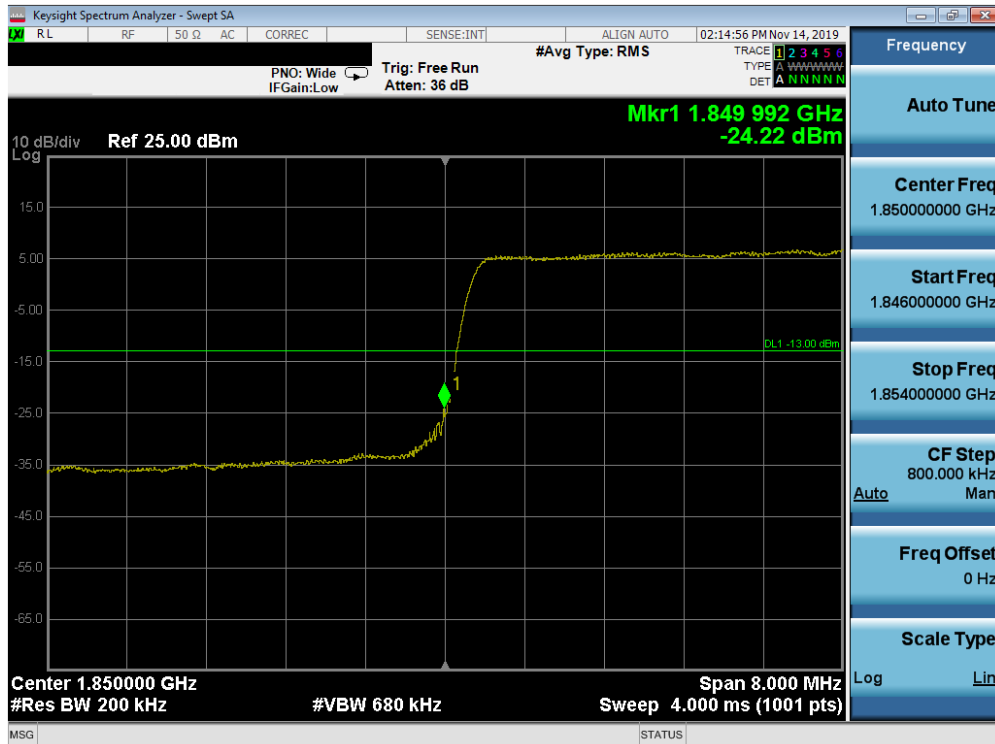


Plot 7-685. Upper Band Edge Plot (Band n2 - 5.0MHz CP-OFDM-QPSK - Full RB Configuration)

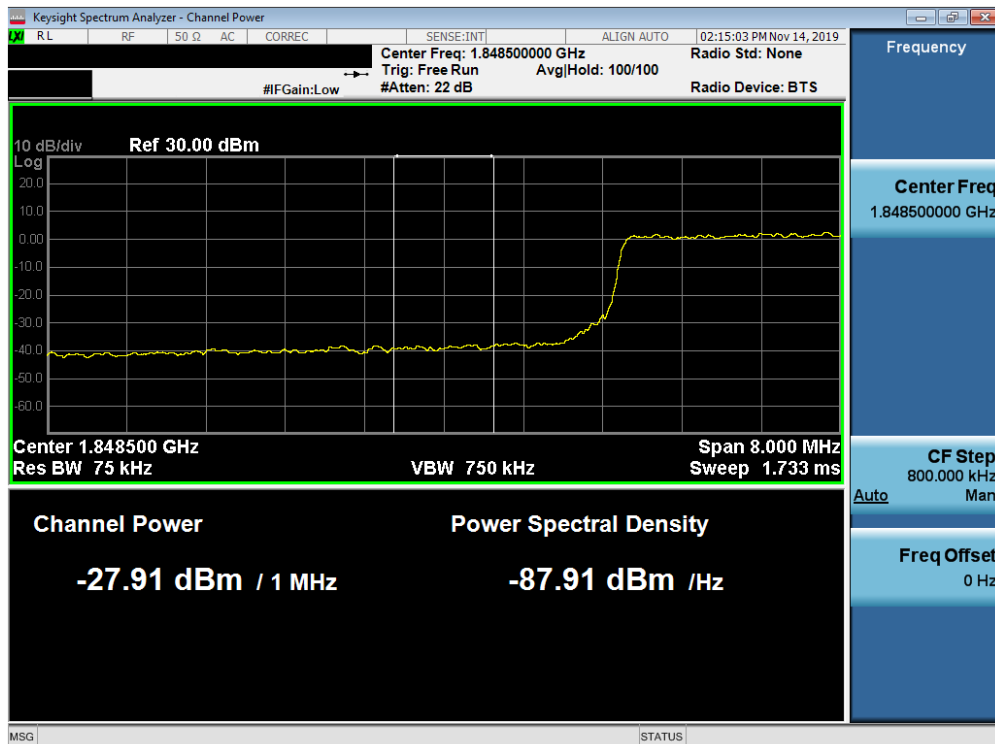


Plot 7-686. Upper Extended Band Edge Plot (Band n2 - 5.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 436 of 487

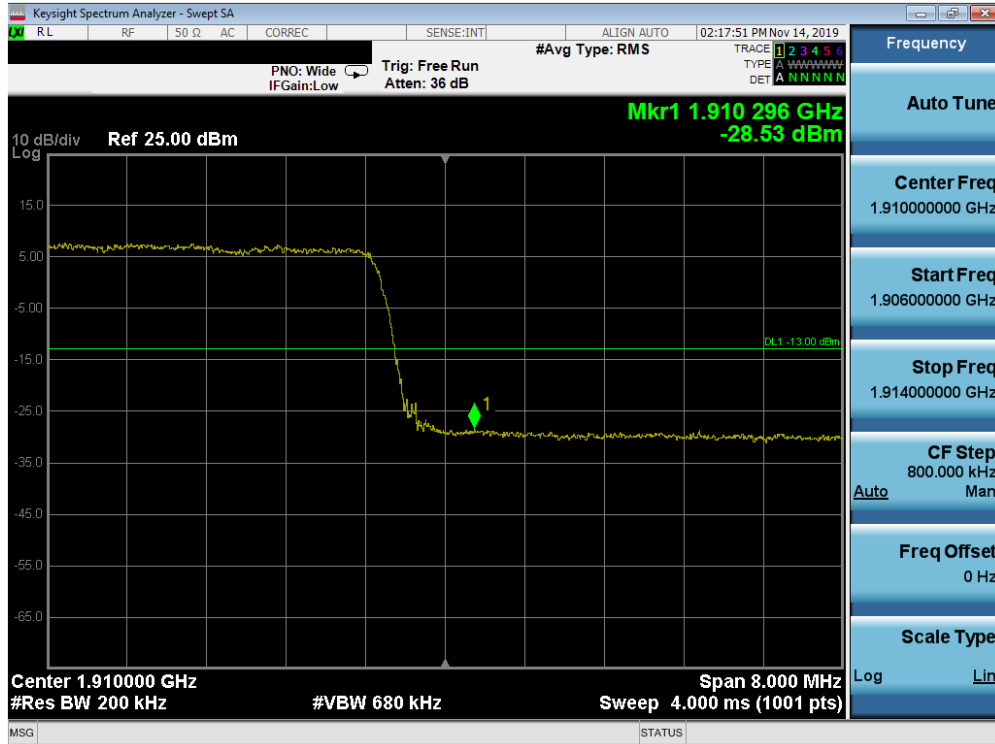


Plot 7-687. Lower Band Edge Plot (Band n2 - 10.0MHz CP-OFDM-QPSK - Full RB Configuration)

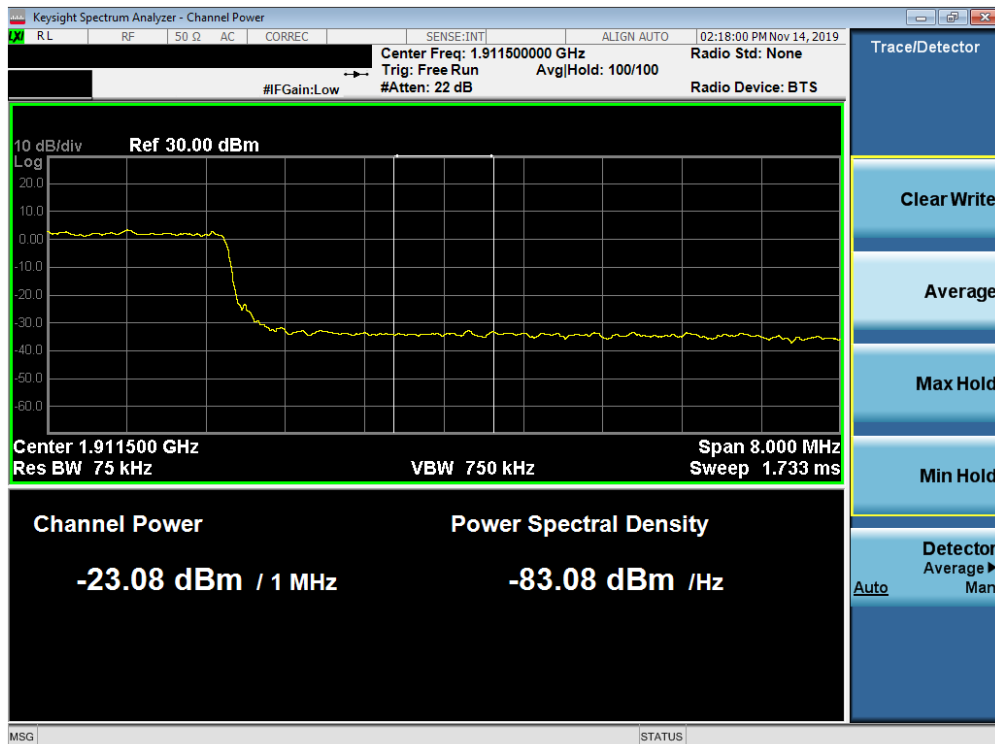


Plot 7-688. Lower Extended Band Edge Plot (Band n2 - 10.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 437 of 487

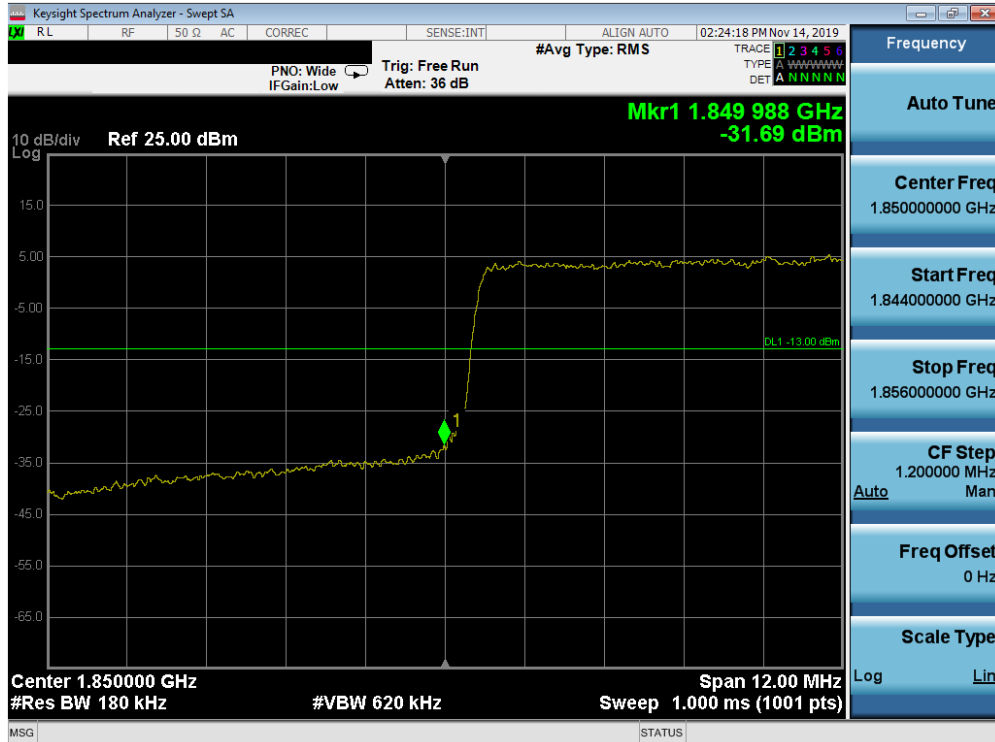


Plot 7-689. Upper Band Edge Plot (Band n2 - 10.0MHz CP-OFDM-QPSK - Full RB Configuration)

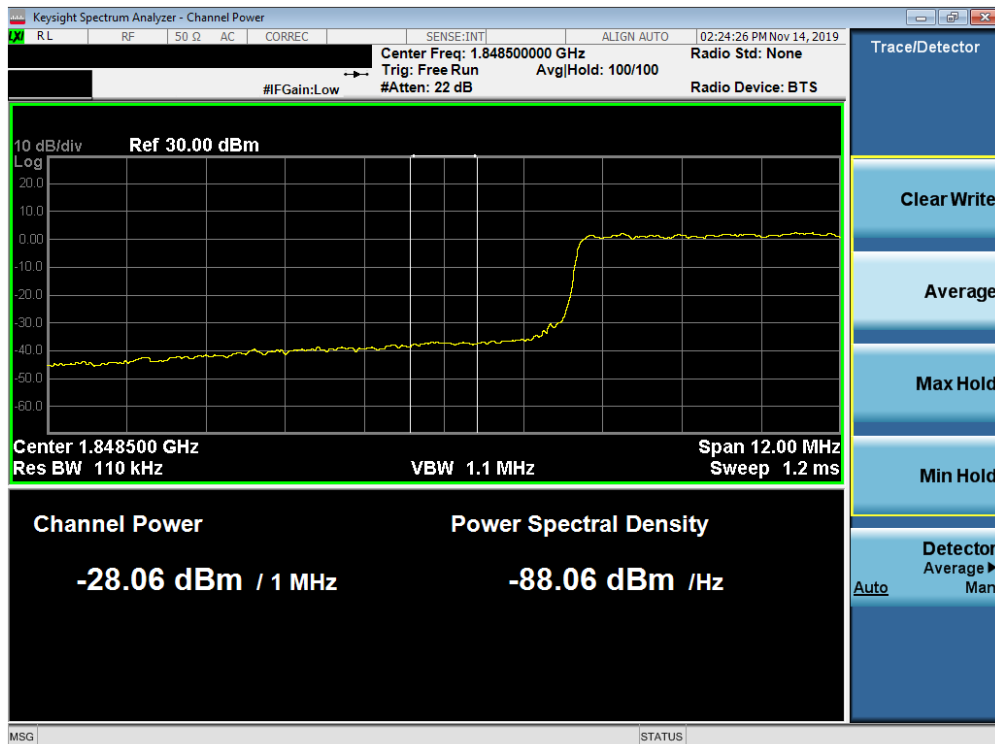


Plot 7-690. Upper Extended Band Edge Plot (Band n2 - 10.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 438 of 487

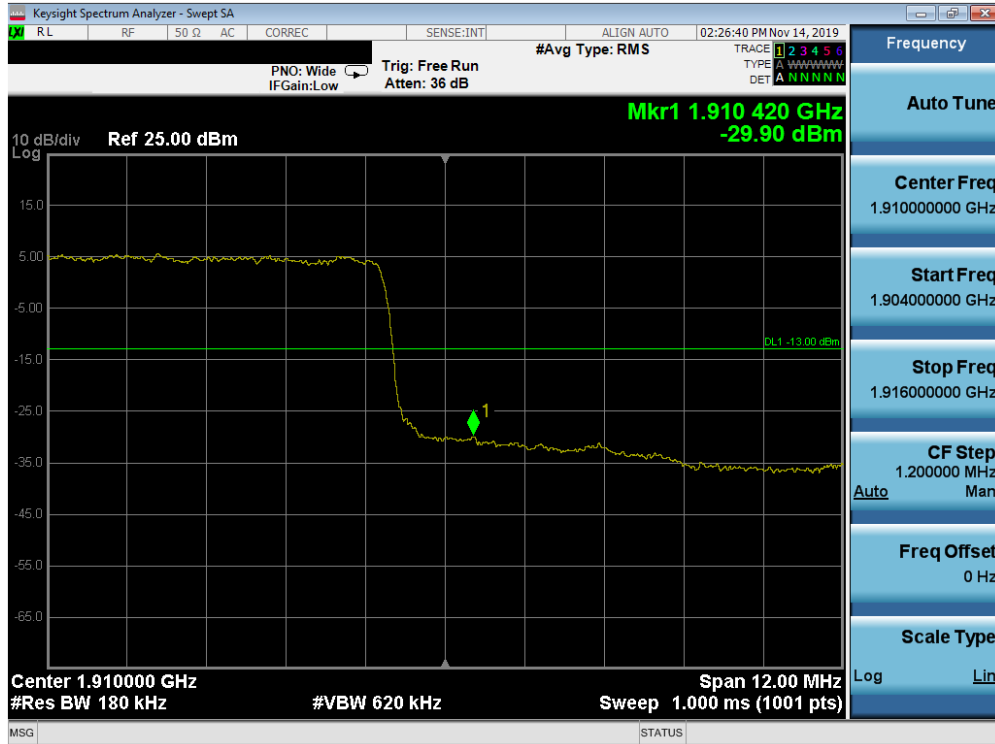


Plot 7-691. Lower Band Edge Plot (Band n2 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)

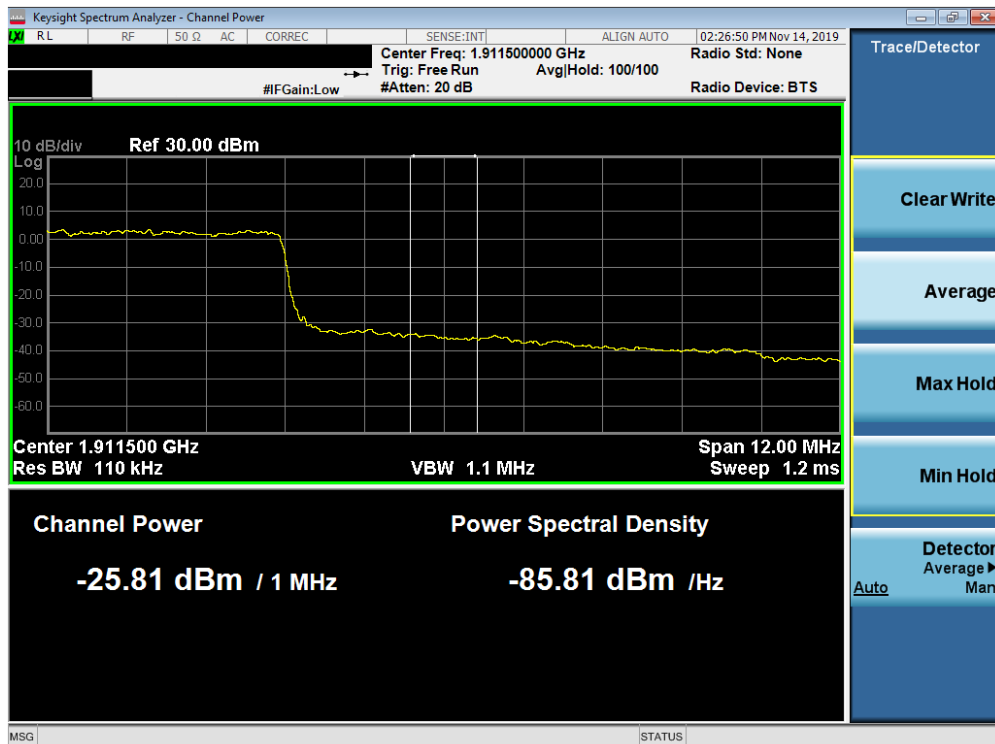


Plot 7-692. Lower Extended Band Edge Plot (Band n2 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 439 of 487

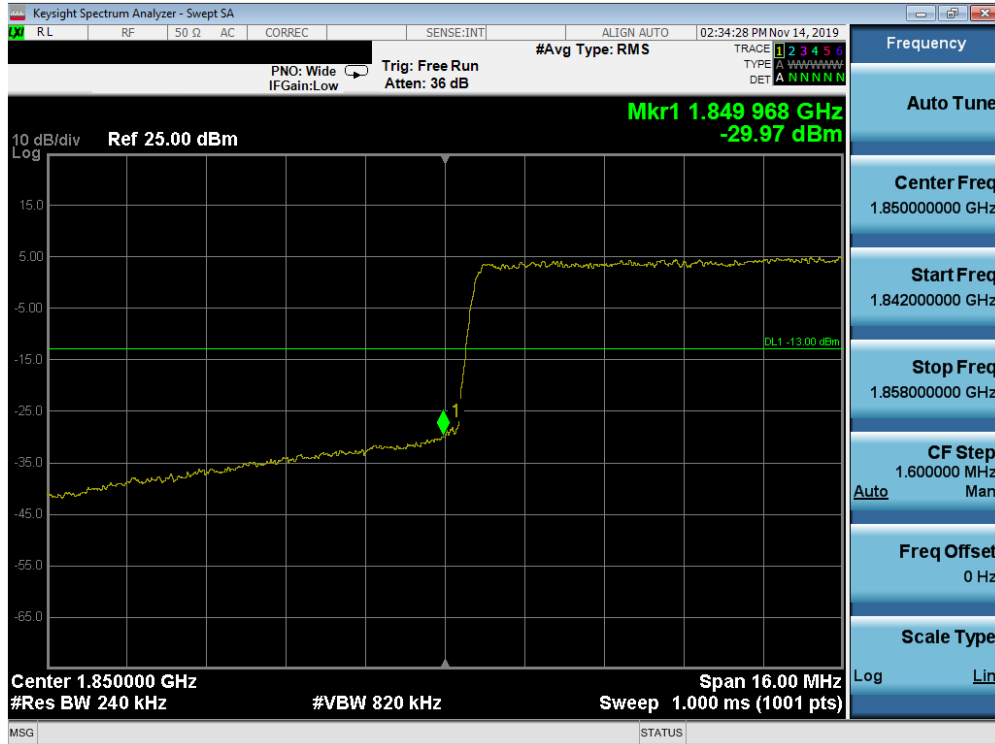


Plot 7-693. Upper Band Edge Plot (Band n2 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)

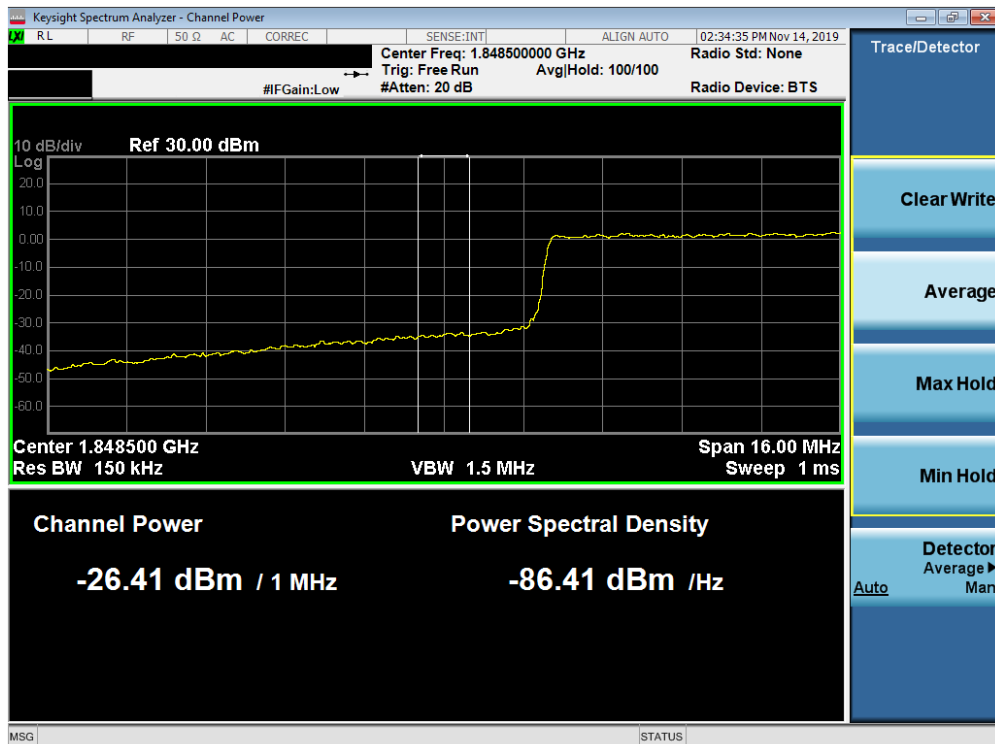


Plot 7-694. Upper Extended Band Edge Plot (Band n2 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 440 of 487

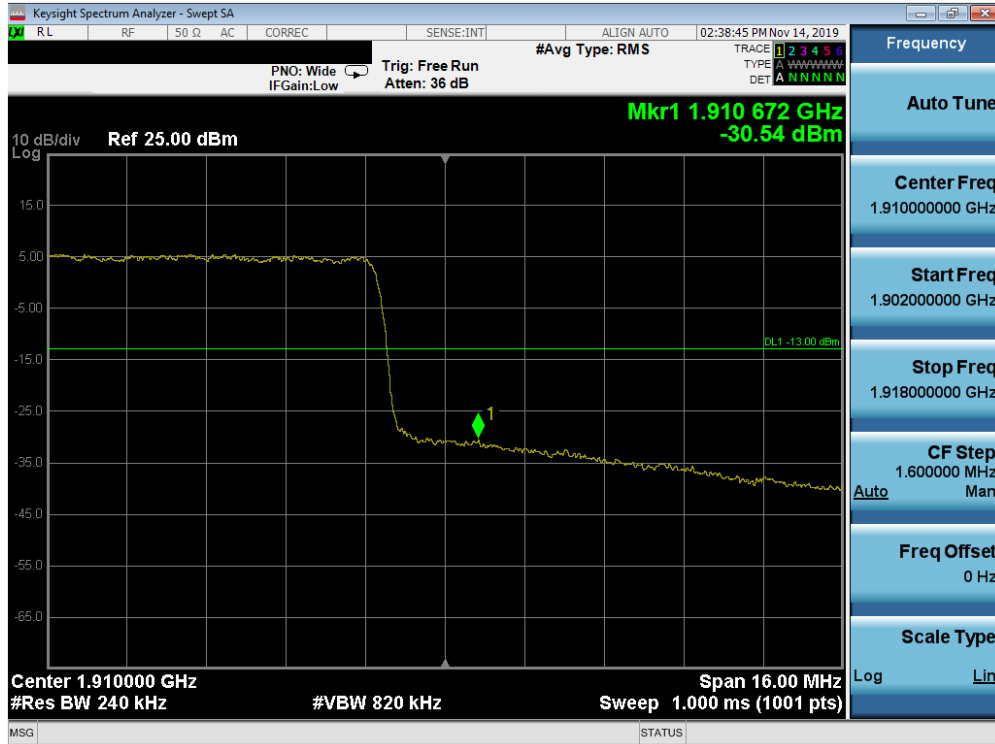


Plot 7-695. Lower Band Edge Plot (Band n2 - 20.0MHz CP-OFDM-QPSK - Full RB Configuration)

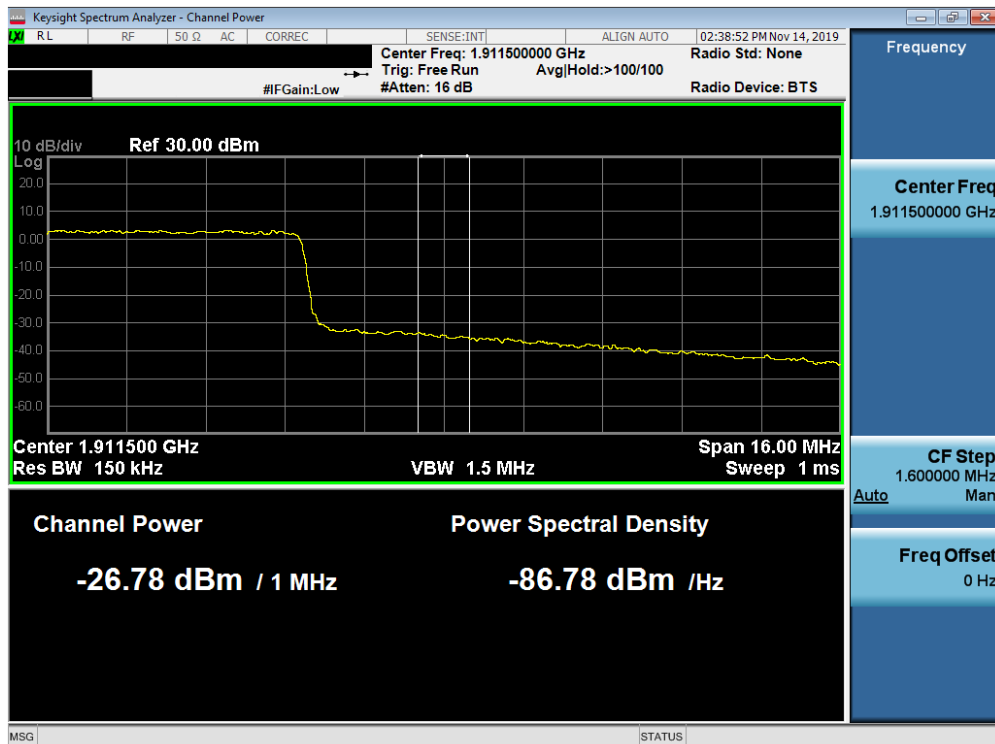


Plot 7-696. Lower Extended Band Edge Plot (Band n2 - 20.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 441 of 487



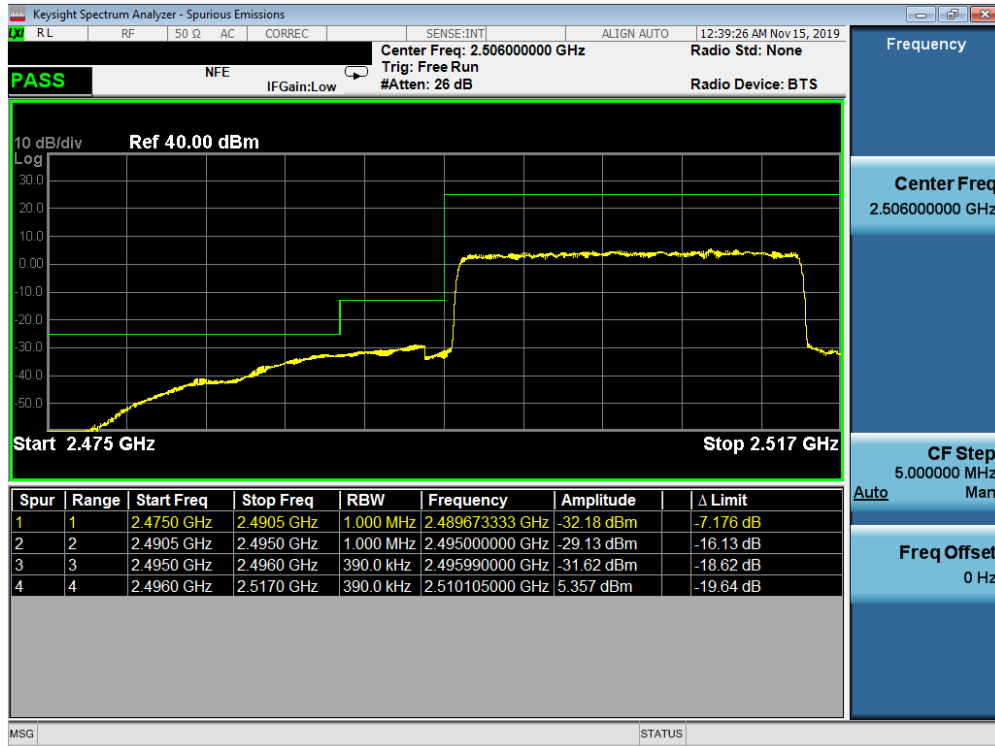
Plot 7-697. Upper Band Edge Plot (Band n2 - 20.0MHz CP-OFDM-QPSK - Full RB Configuration)



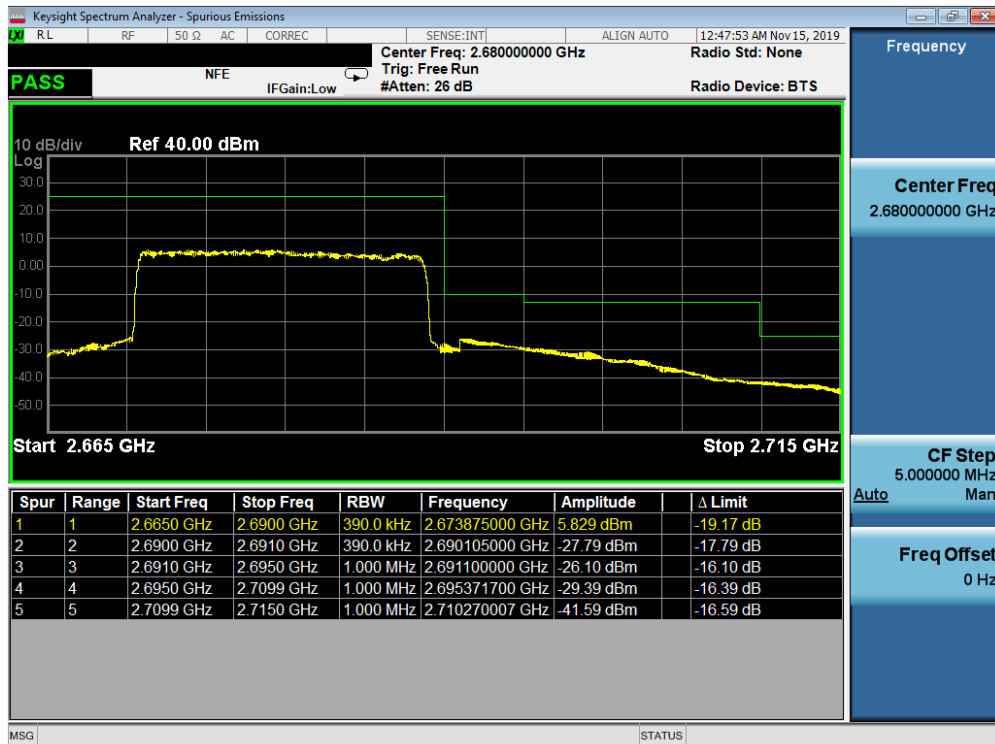
Plot 7-698. Upper Extended Band Edge Plot (Band n2 - 20.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Band n41

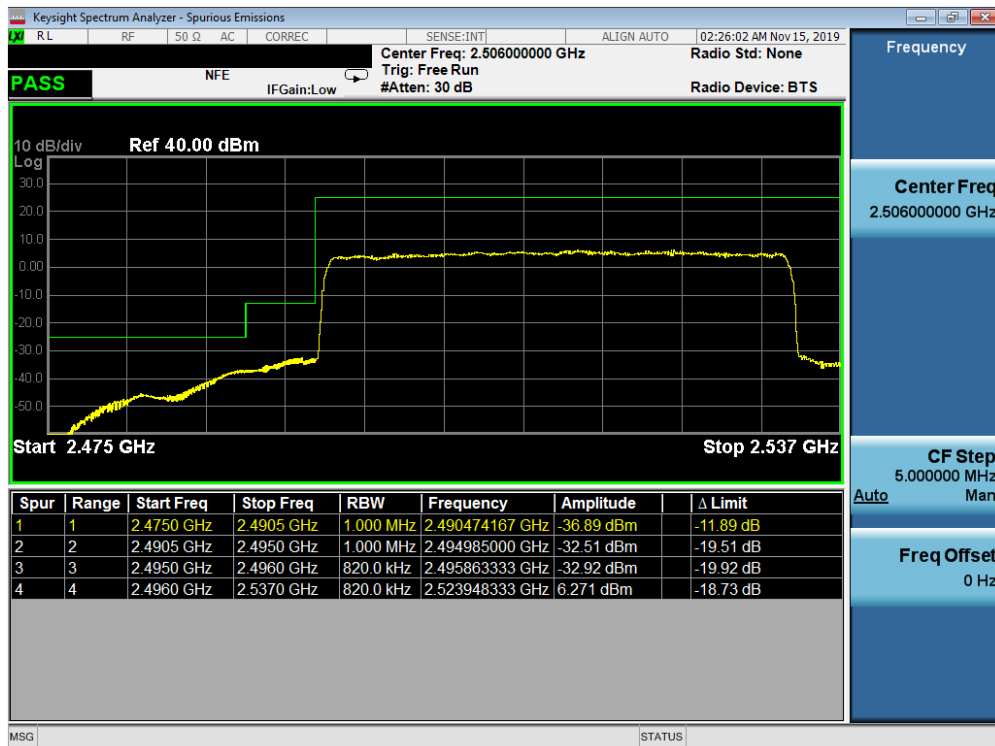


Plot 7-699. Lower ACP Plot at 2496 MHz (n41 - 20MHz CP-OFDM-QPSK - Full RB Configuration)



Plot 7-700. Upper ACP Plot (n41 - 20MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 443 of 487

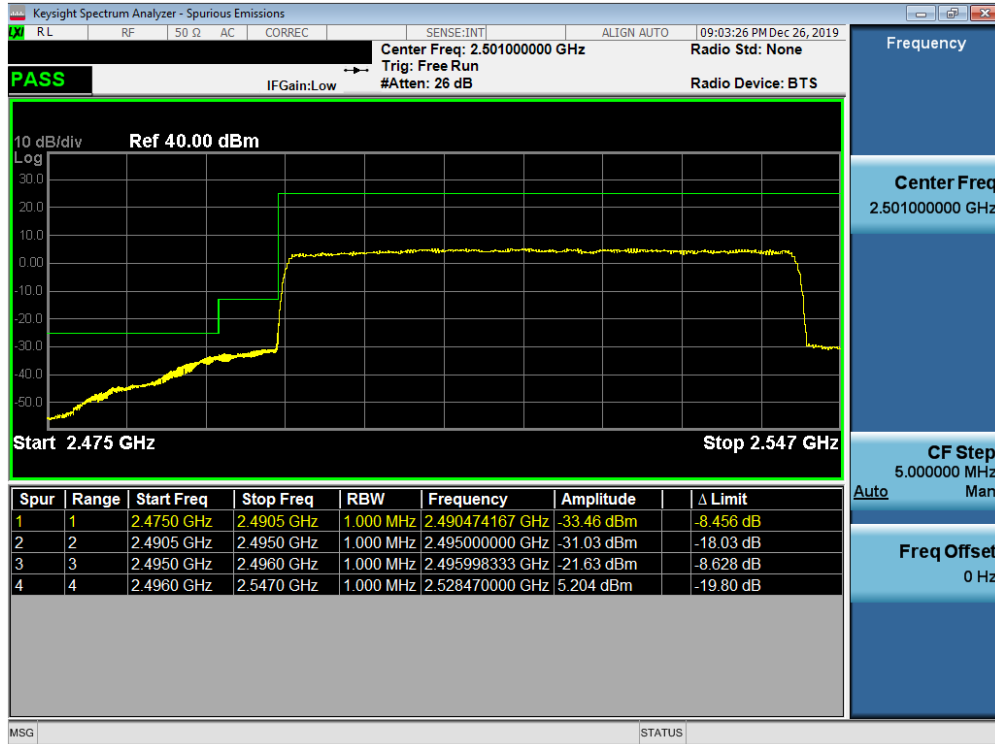


Plot 7-701. Lower ACP Plot at 2496 MHz (n41 - 40MHz CP-OFDM-QPSK - Full RB Configuration)



Plot 7-702. Upper ACP Plot (n41 - 40MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 444 of 487

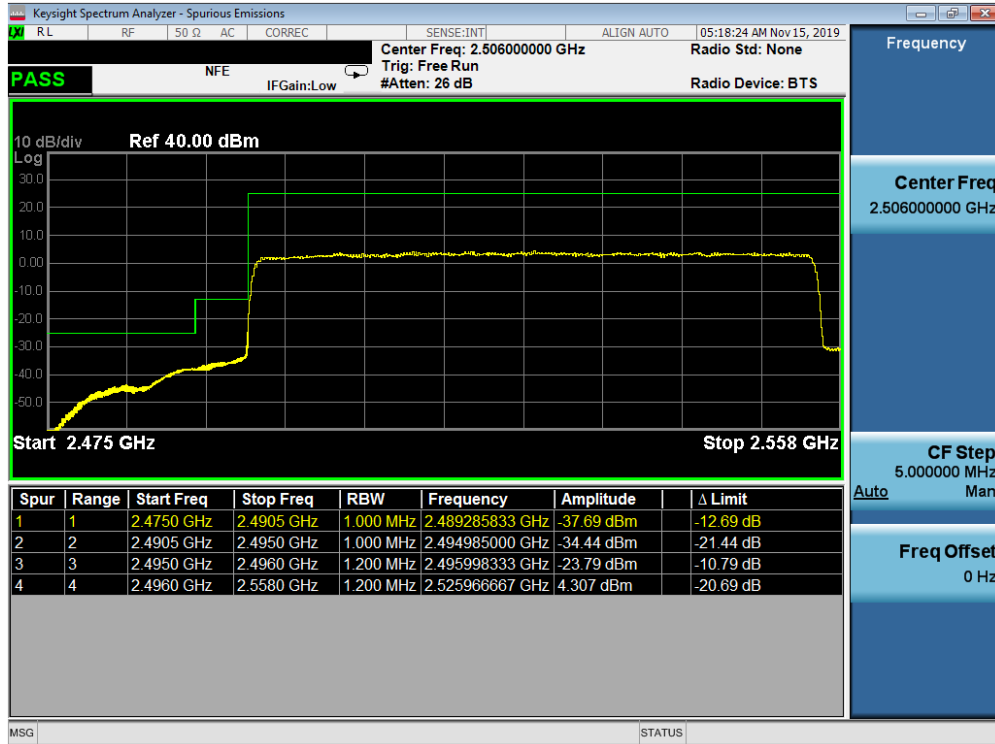


Plot 7-703. Lower ACP Plot at 2496 MHz (n41 - 50MHz CP-OFDM-QPSK - Full RB Configuration)



Plot 7-704. Upper ACP Plot (n41 - 50MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 445 of 487

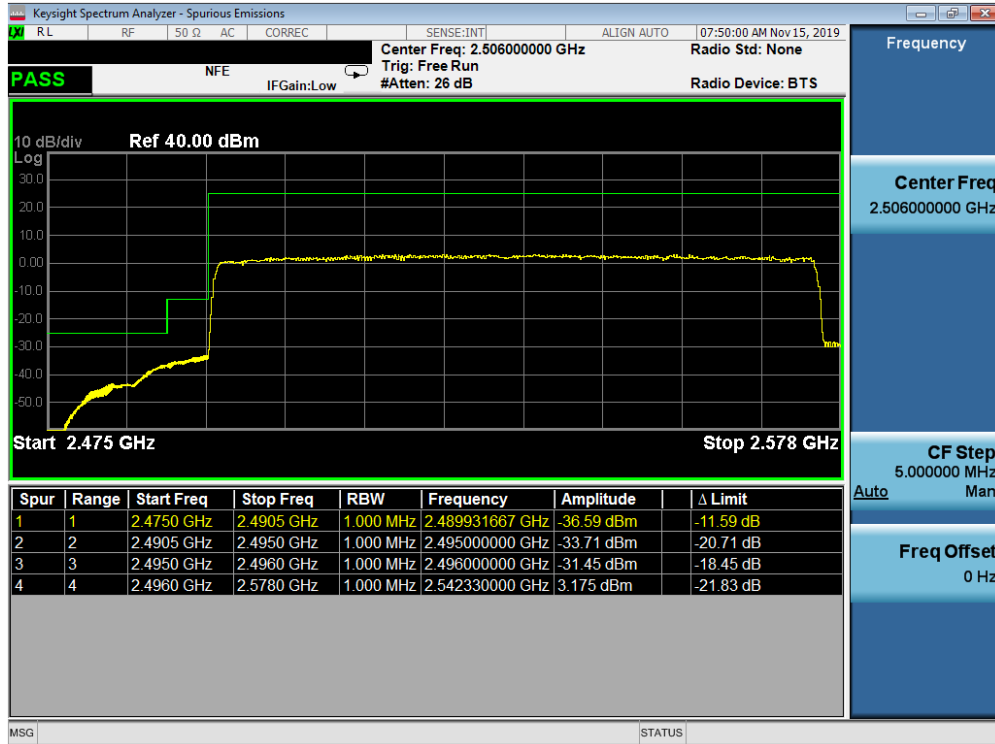


Plot 7-705. Lower ACP Plot at 2496 MHz (n41 - 60MHz CP-OFDM-QPSK - Full RB Configuration)



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

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset			Page 446 of 487

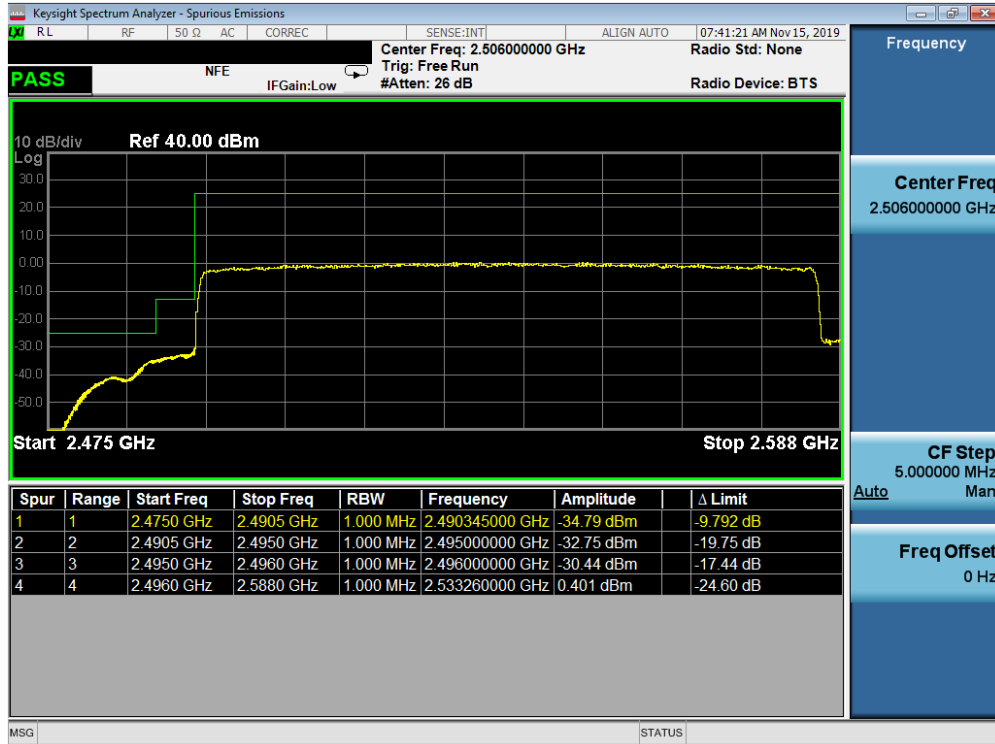


Plot 7-707. Lower ACP Plot at 2496 MHz (n41 - 80MHz CP-OFDM-QPSK - Full RB Configuration)

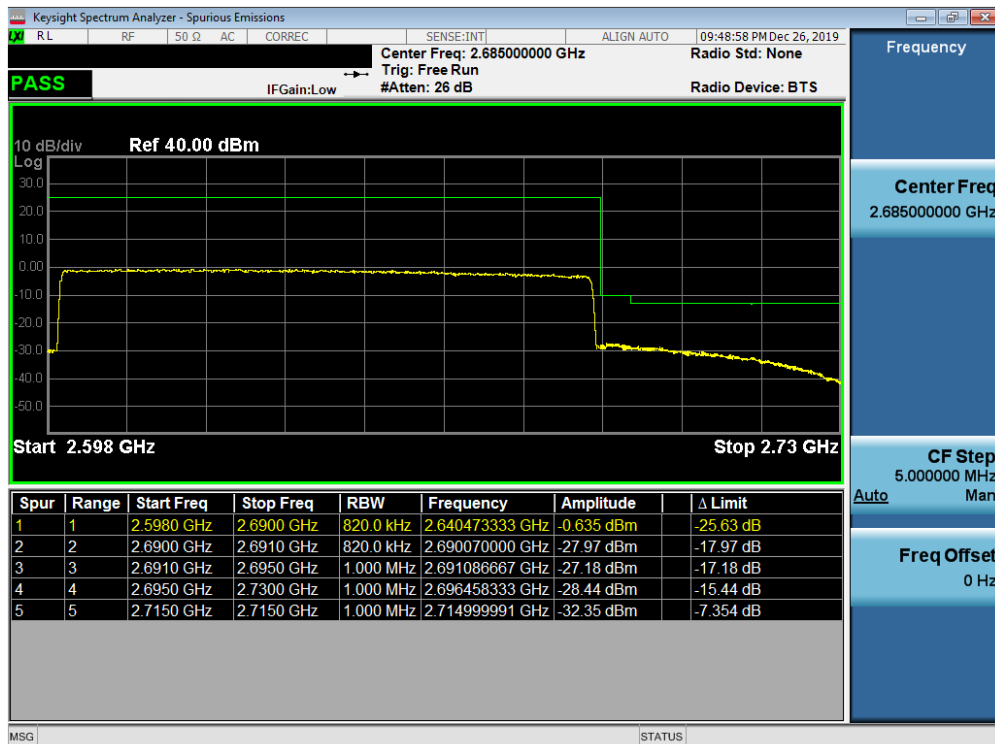


Plot 7-708. Upper ACP Plot (n41 - 80MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 447 of 487

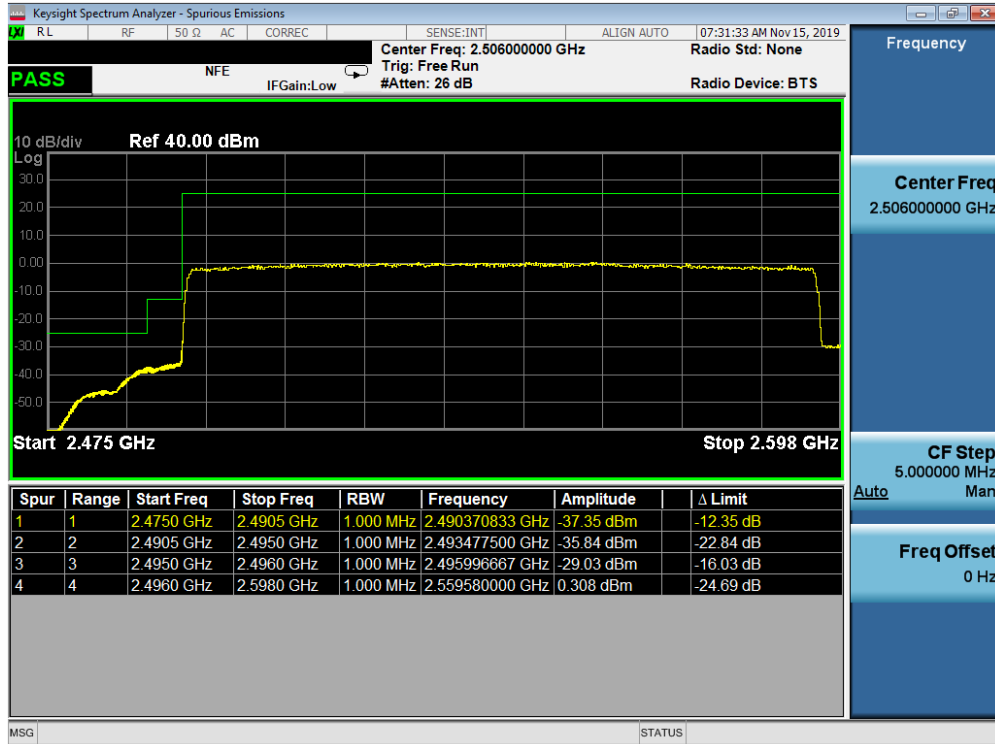


Plot 7-709. Lower ACP Plot at 2496 MHz (n41 - 90MHz CP-OFDM-QPSK - Full RB Configuration)



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

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 448 of 487	



Plot 7-711. Lower ACP Plot at 2496 MHz (n41 - 100MHz CP-OFDM-QPSK - Full RB Configuration)



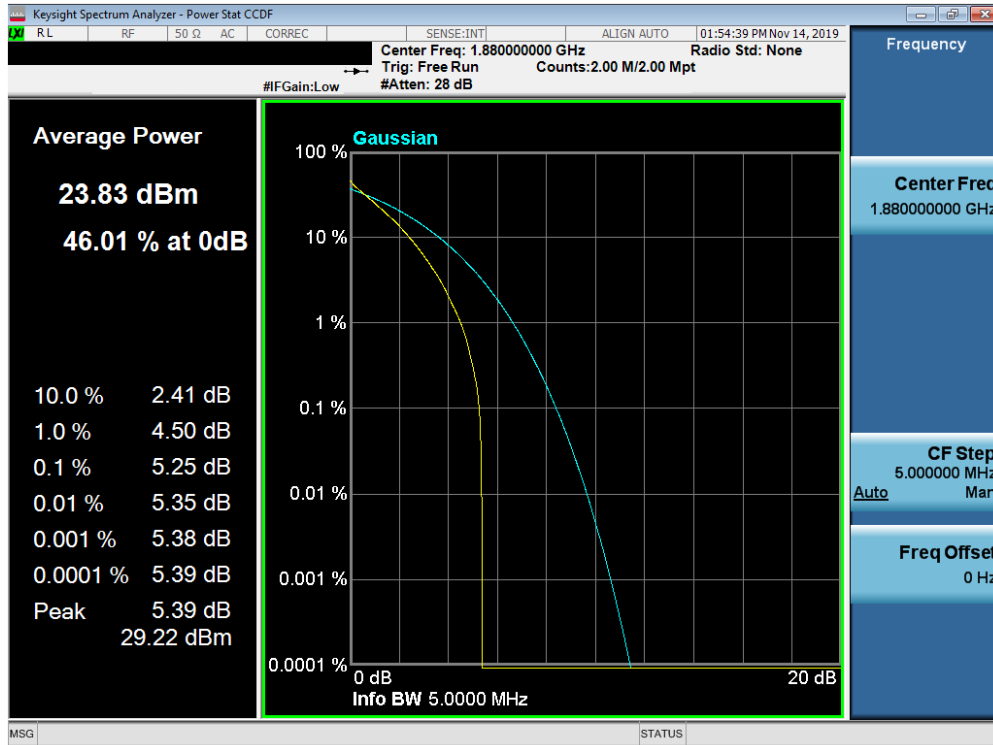
Plot 7-712. Upper ACP Plot (n41 - 100MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 449 of 487

Peak-to-Average Ratio

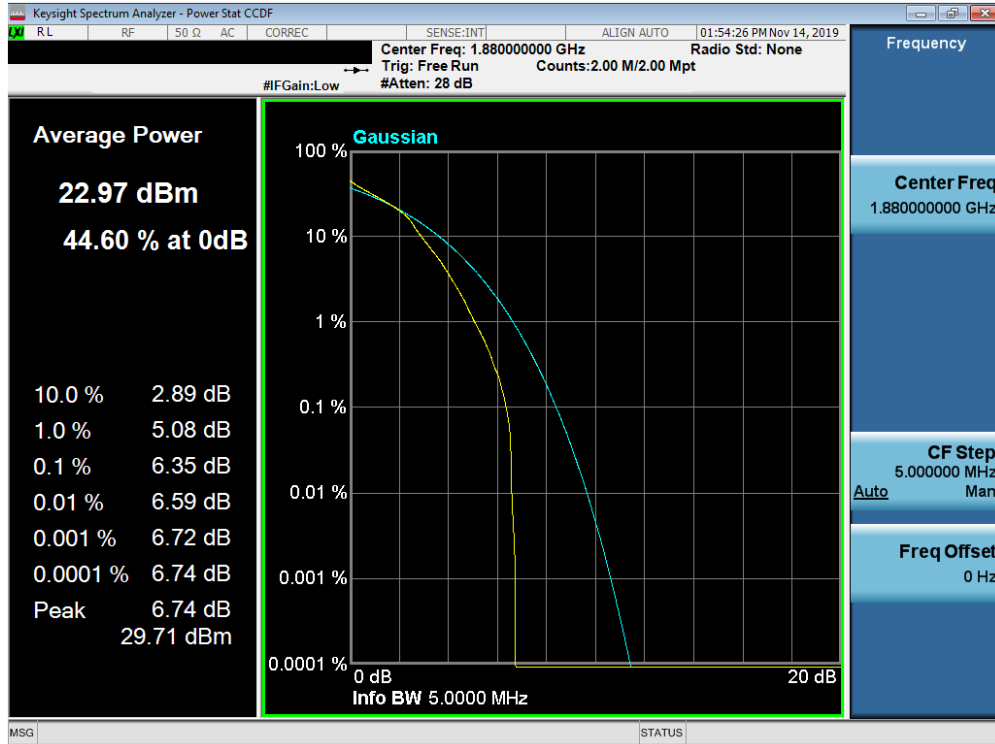
All SCS's and Waveforms (CP-OFDM vs DFT-s OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

NR Band n2

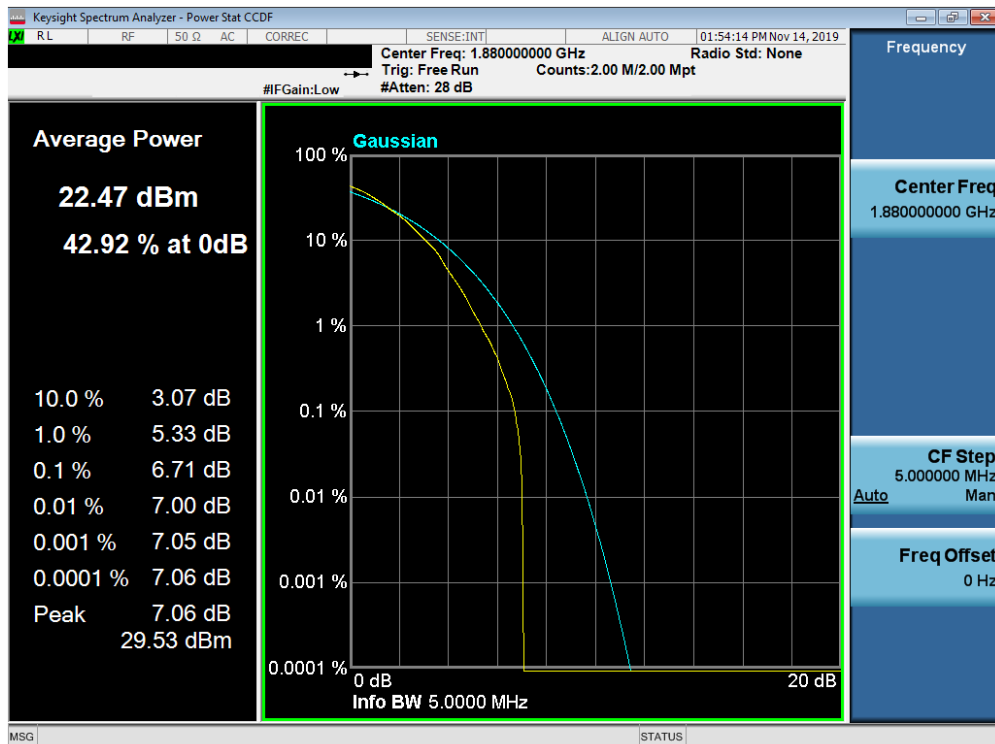


Plot 7-713. PAR Plot (Band n2 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 450 of 487

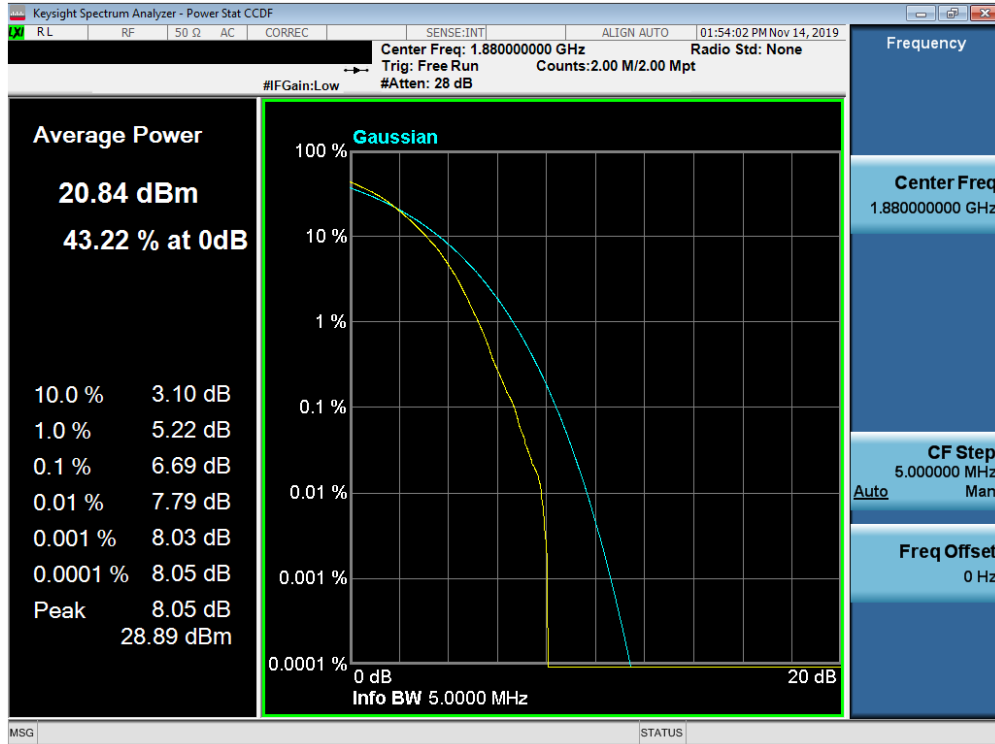


Plot 7-714. PAR Plot (Band n2 - 5.0MHz 16-QAM - Full RB Configuration)

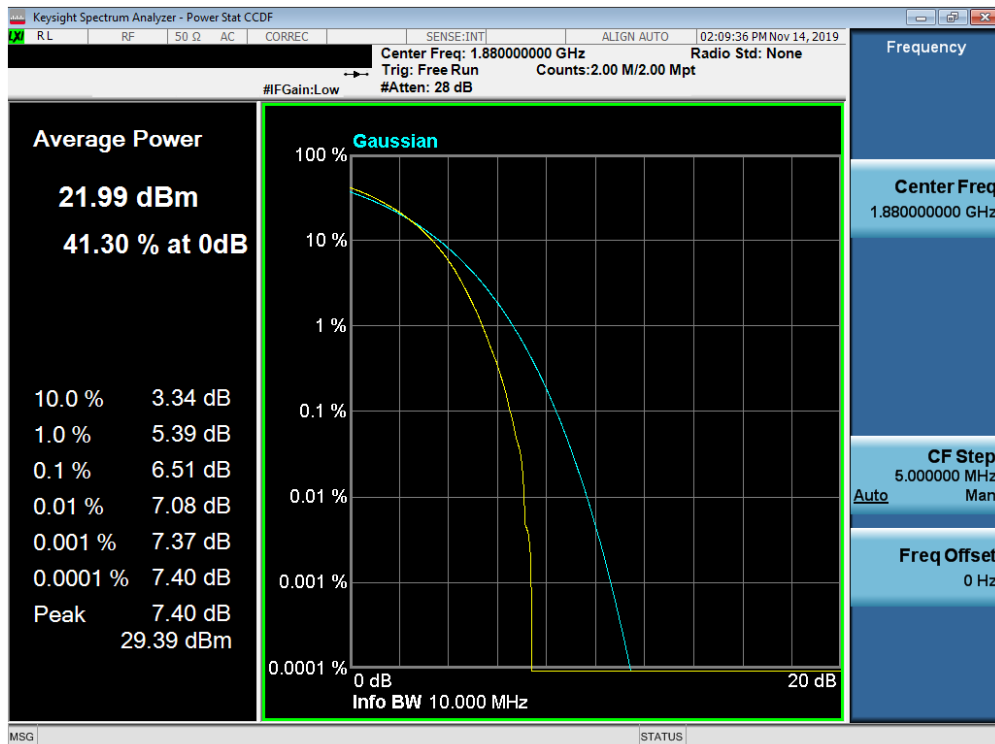


Plot 7-715. PAR Plot (Band n2 - 5.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 451 of 487

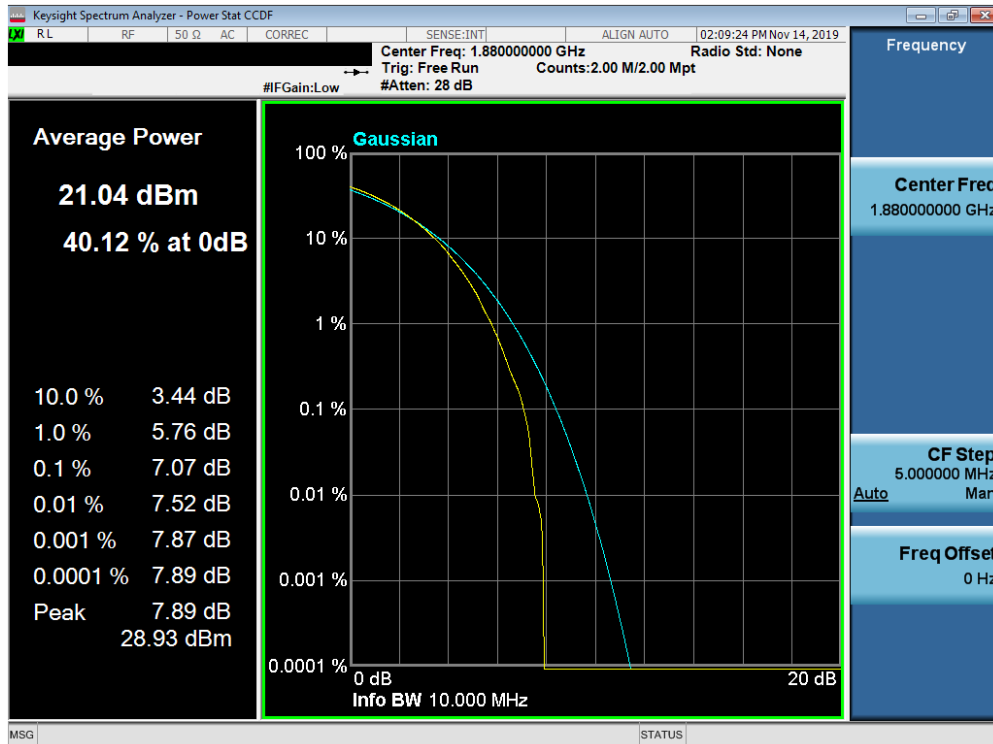


Plot 7-716. PAR Plot (Band n2 - 5.0MHz 256-QAM - Full RB Configuration)

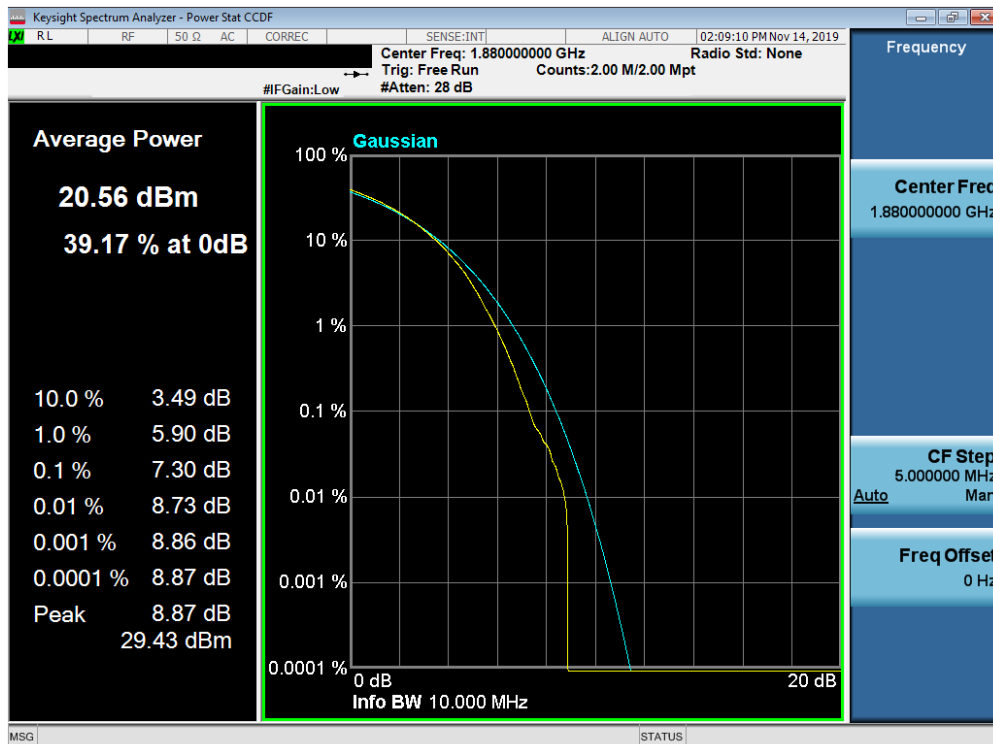


Plot 7-717. PAR Plot (Band n2 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 452 of 487

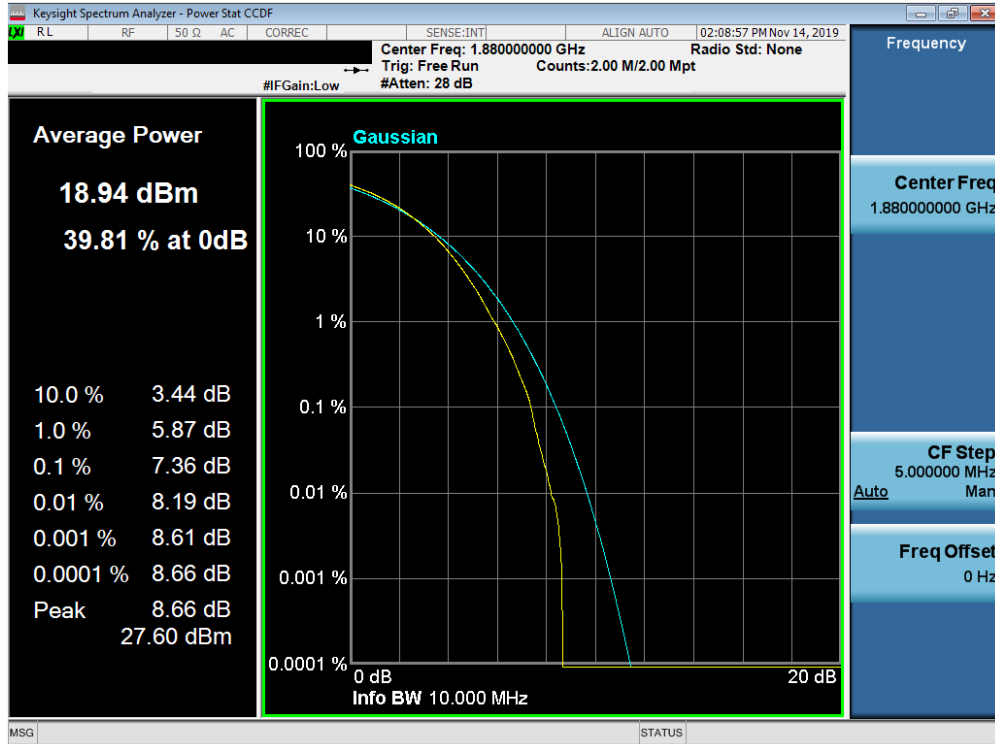


Plot 7-718. PAR Plot (Band n2 - 10.0MHz 16-QAM - Full RB Configuration)

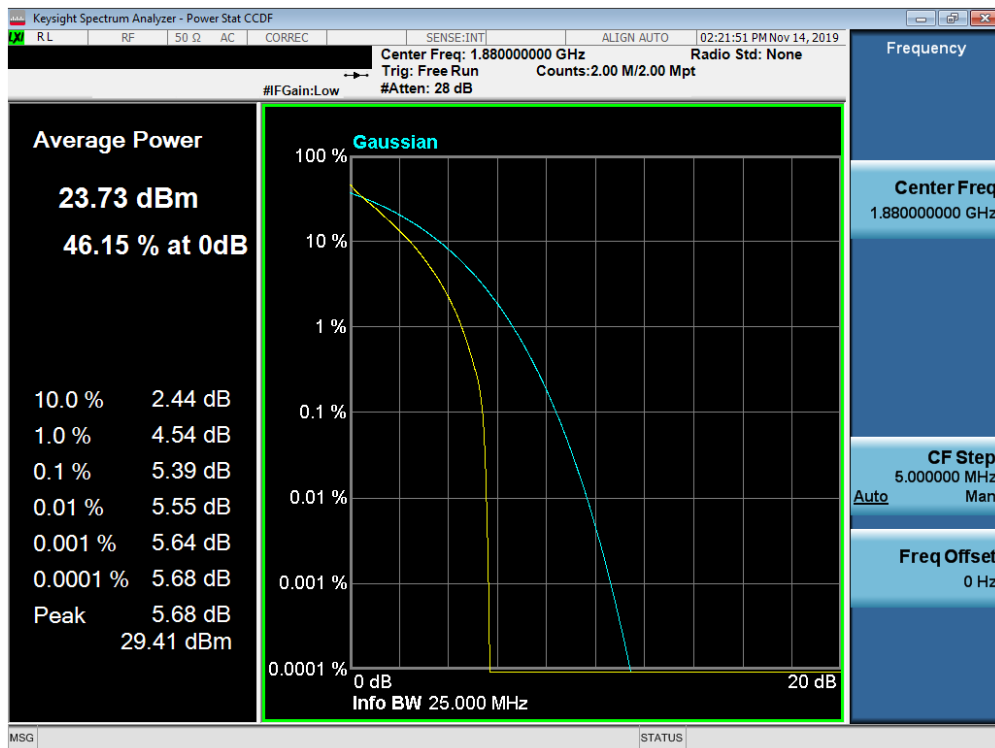


Plot 7-719. PAR Plot (Band n2 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 453 of 487

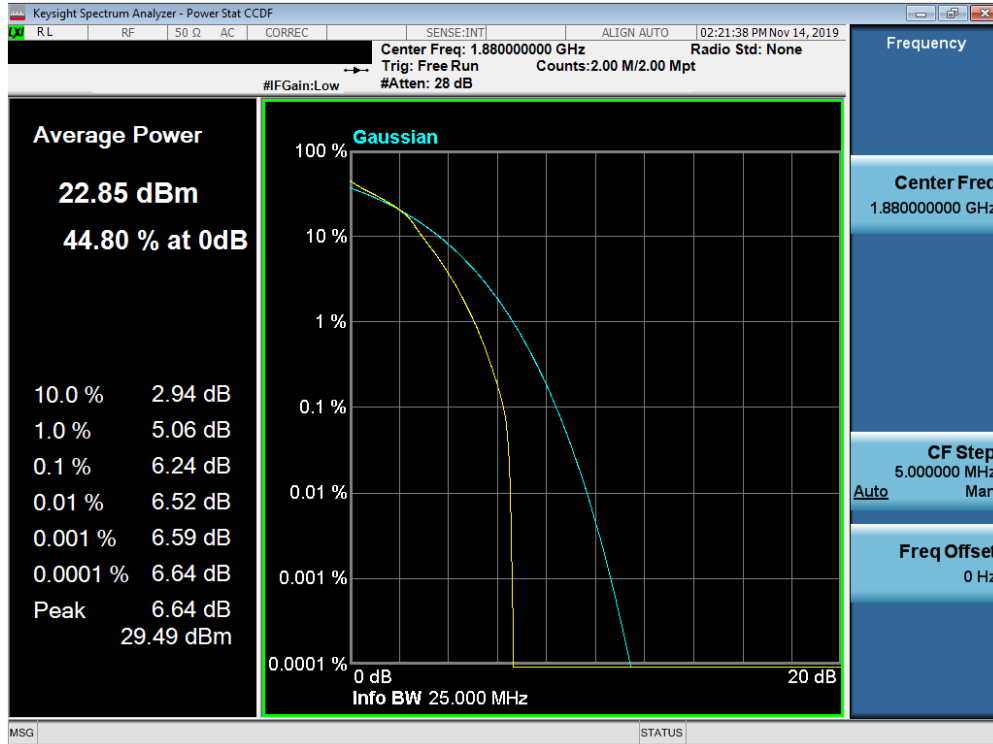


Plot 7-720. PAR Plot (Band n2 - 10.0MHz 256-QAM - Full RB Configuration)

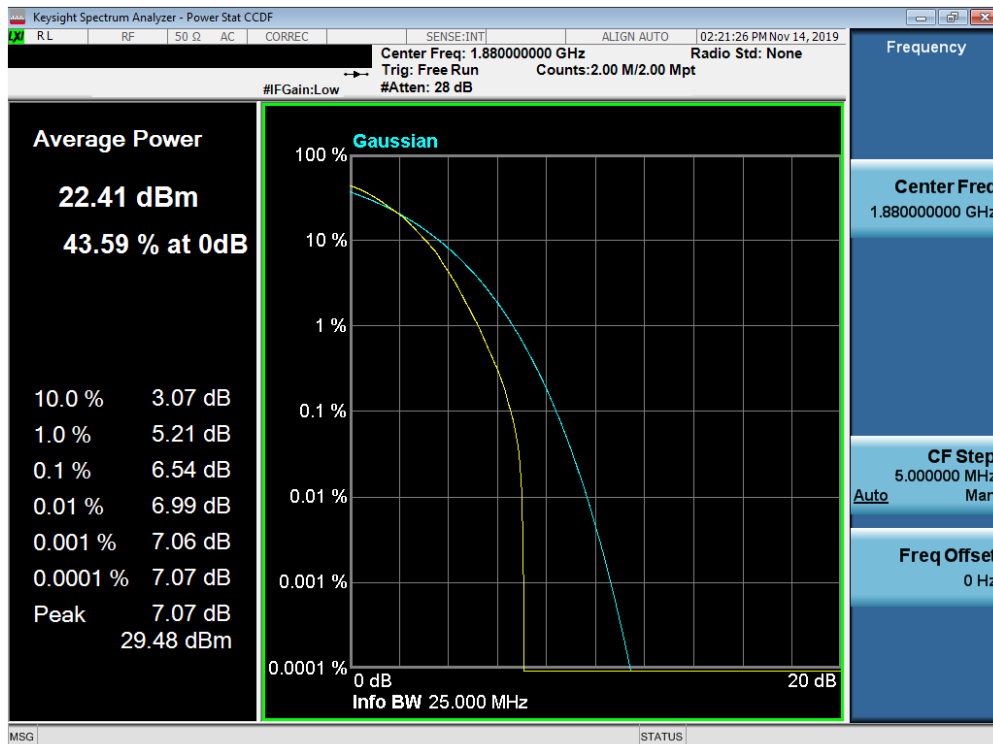


Plot 7-721. PAR Plot (Band n2 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 454 of 487

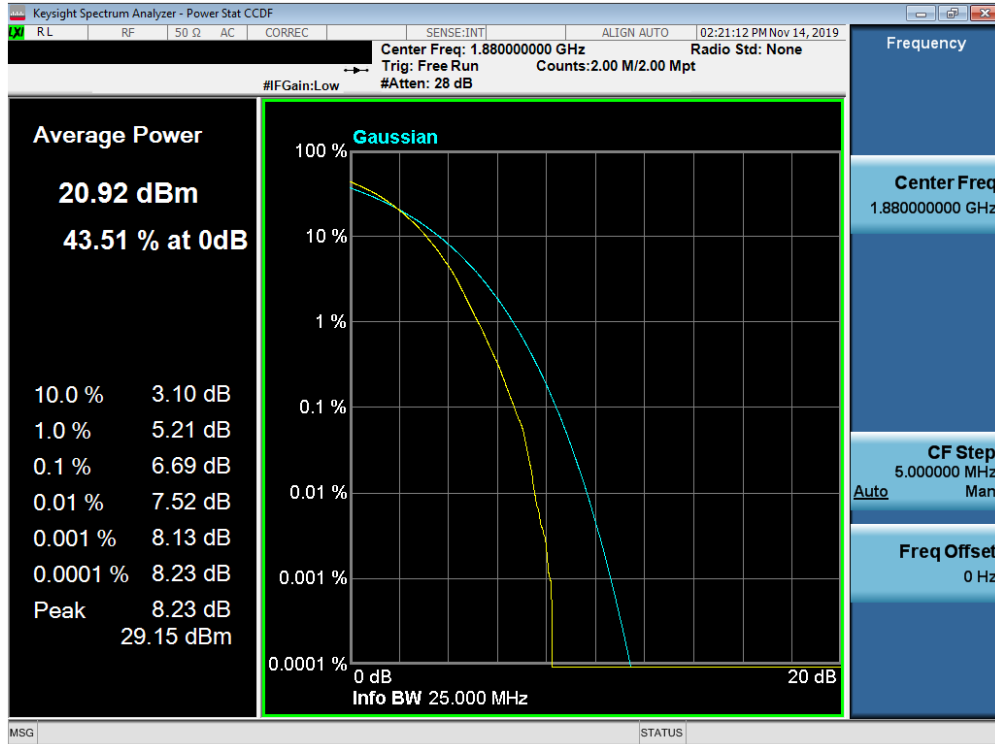


Plot 7-722. PAR Plot (Band n2 - 15.0MHz 16-QAM - Full RB Configuration)

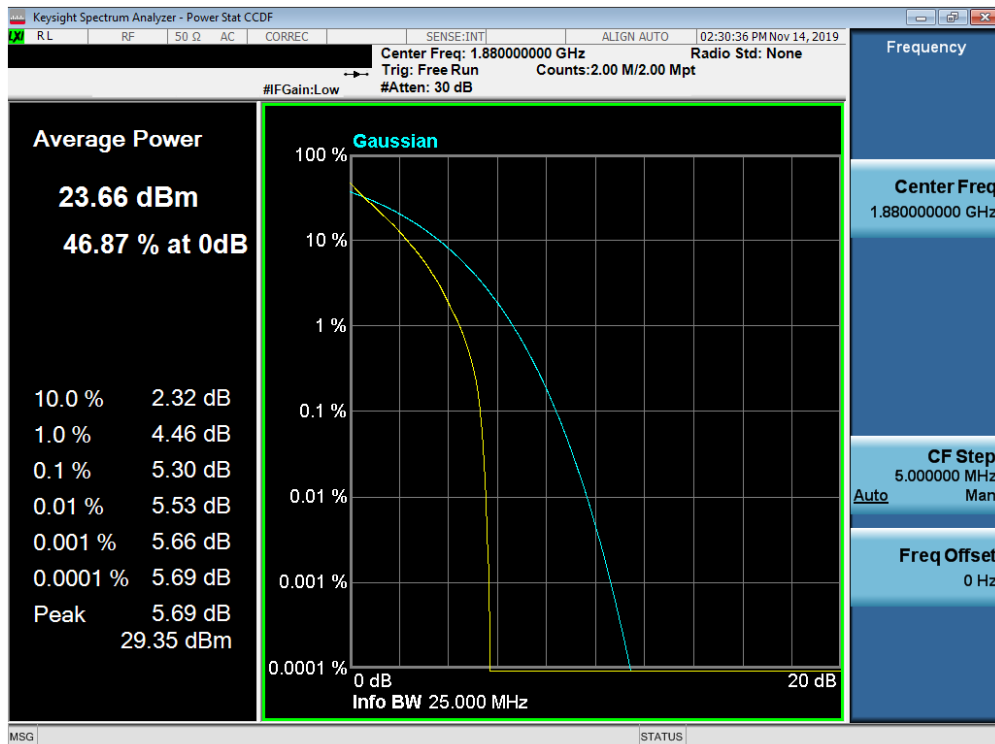


Plot 7-723. PAR Plot (Band n2 - 15.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 455 of 487

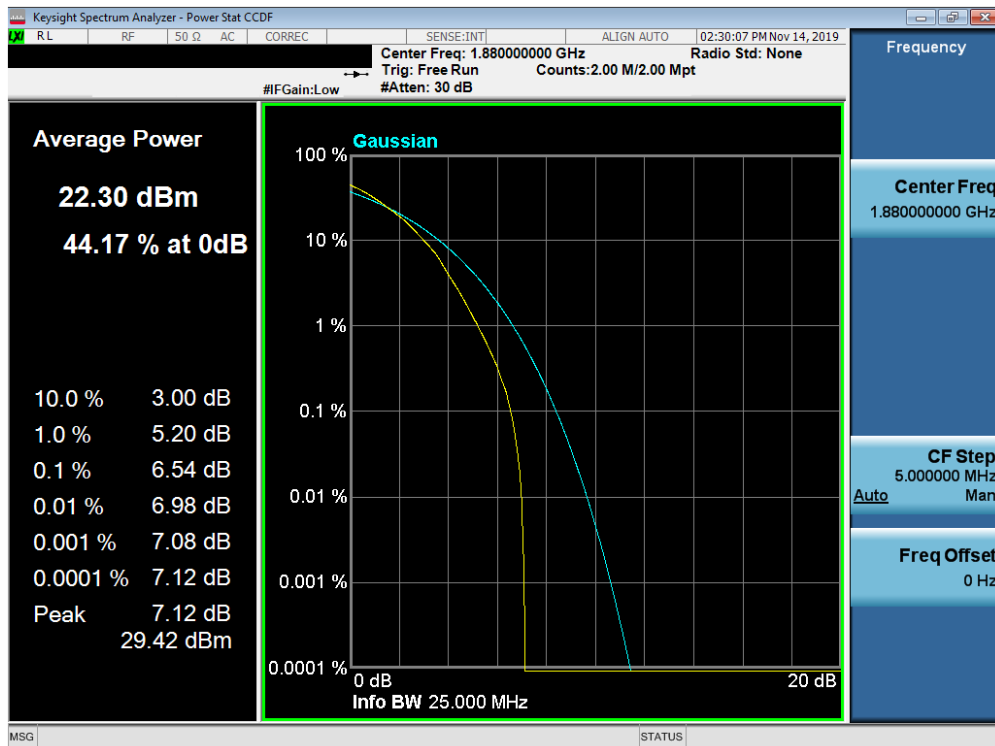
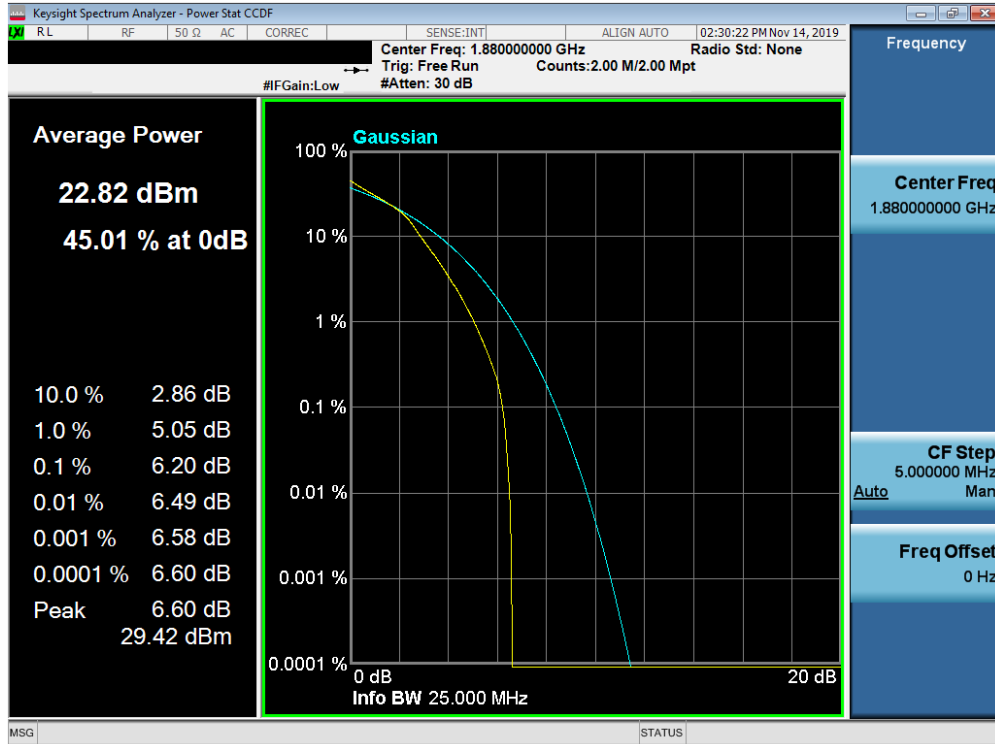


Plot 7-724. PAR Plot (Band n2 - 15.0MHz 256-QAM - Full RB Configuration)

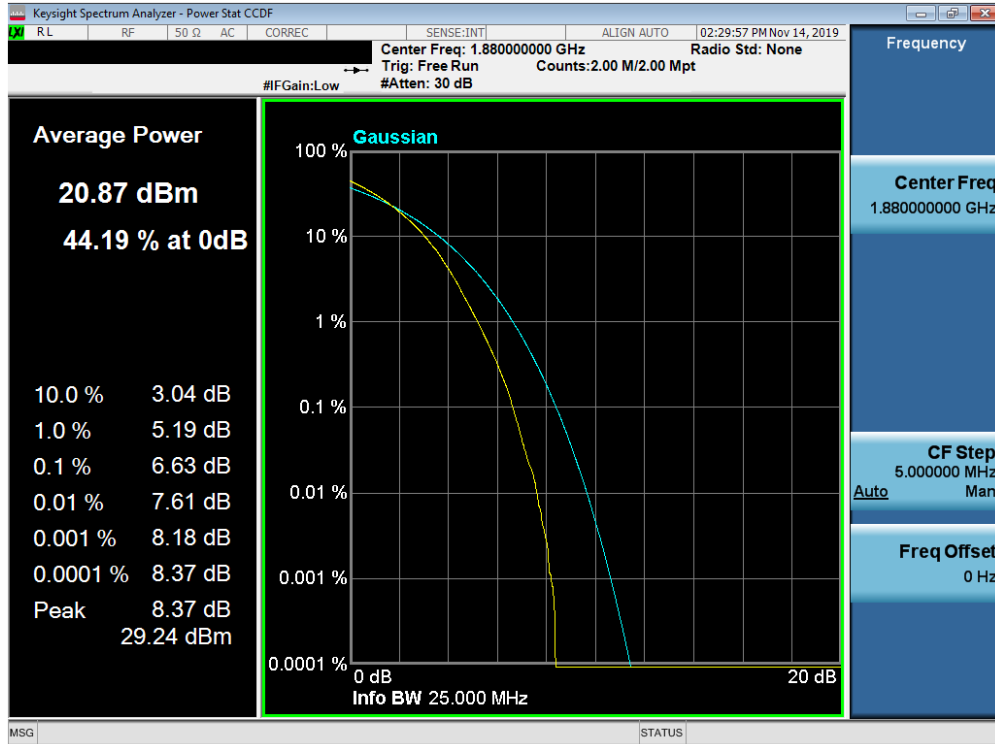


Plot 7-725. PAR Plot (Band n2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 456 of 487



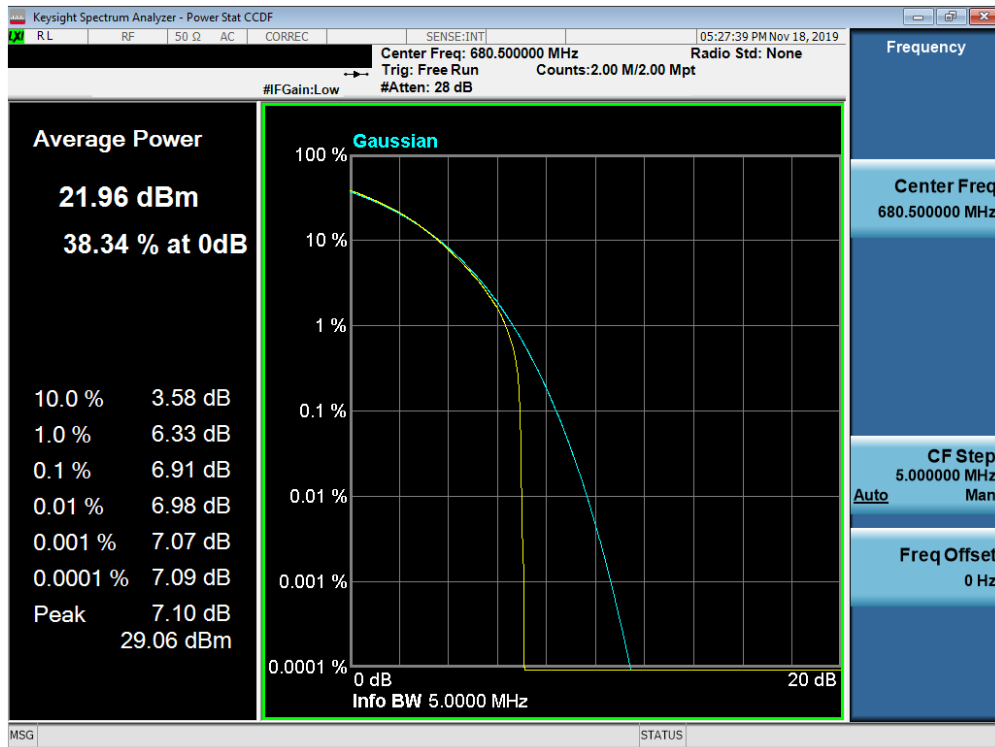
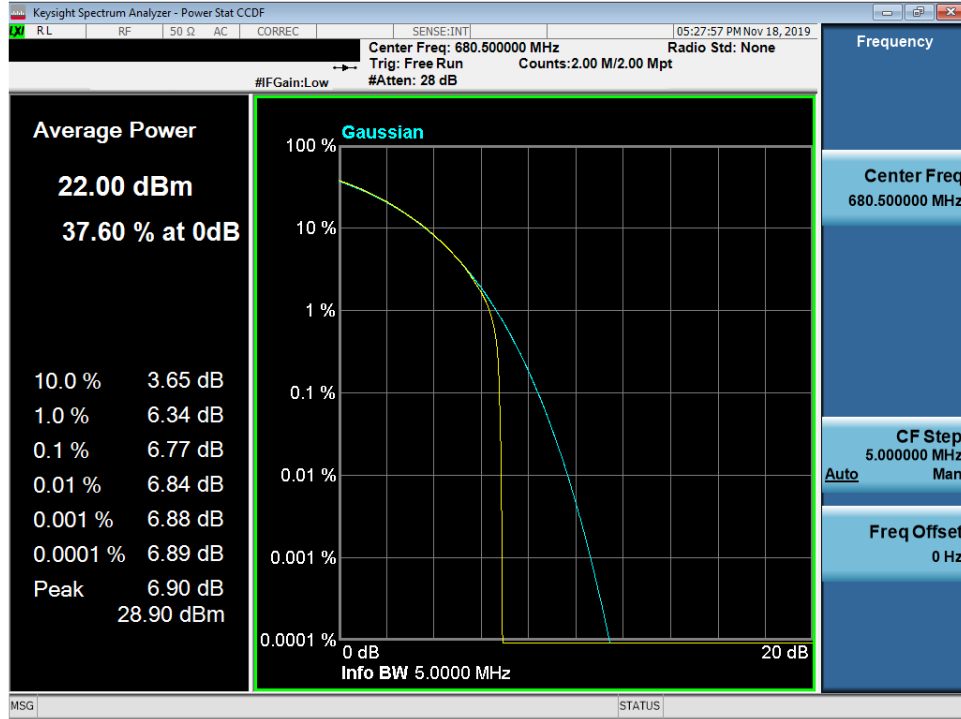
FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 457 of 487



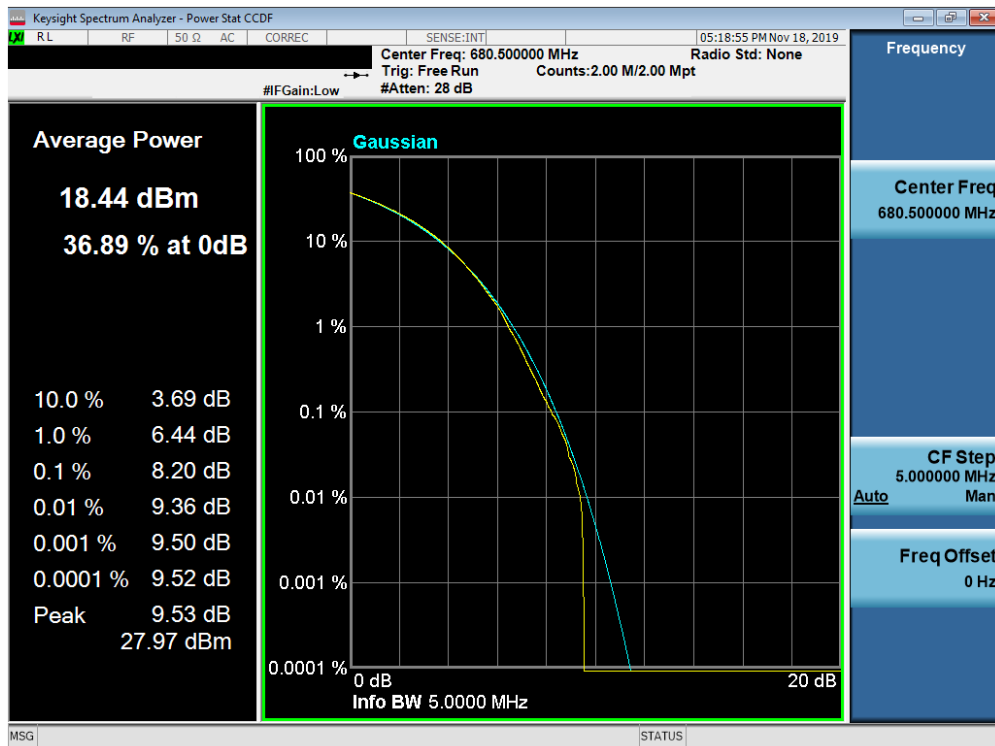
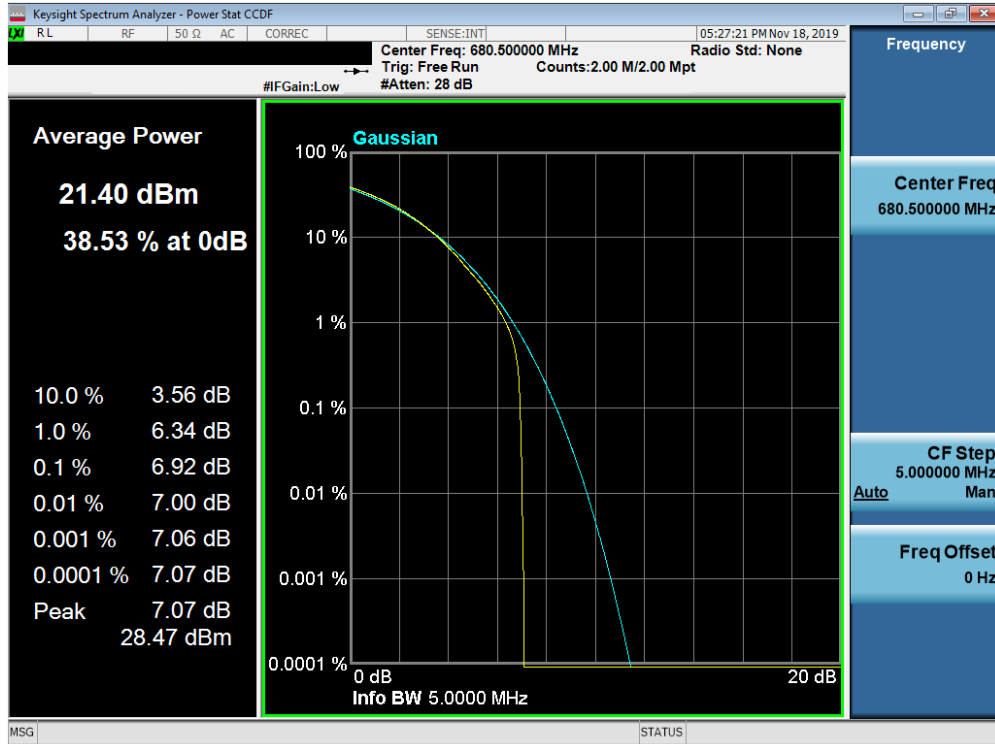
Plot 7-728. PAR Plot (Band n2 - 20.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 458 of 487

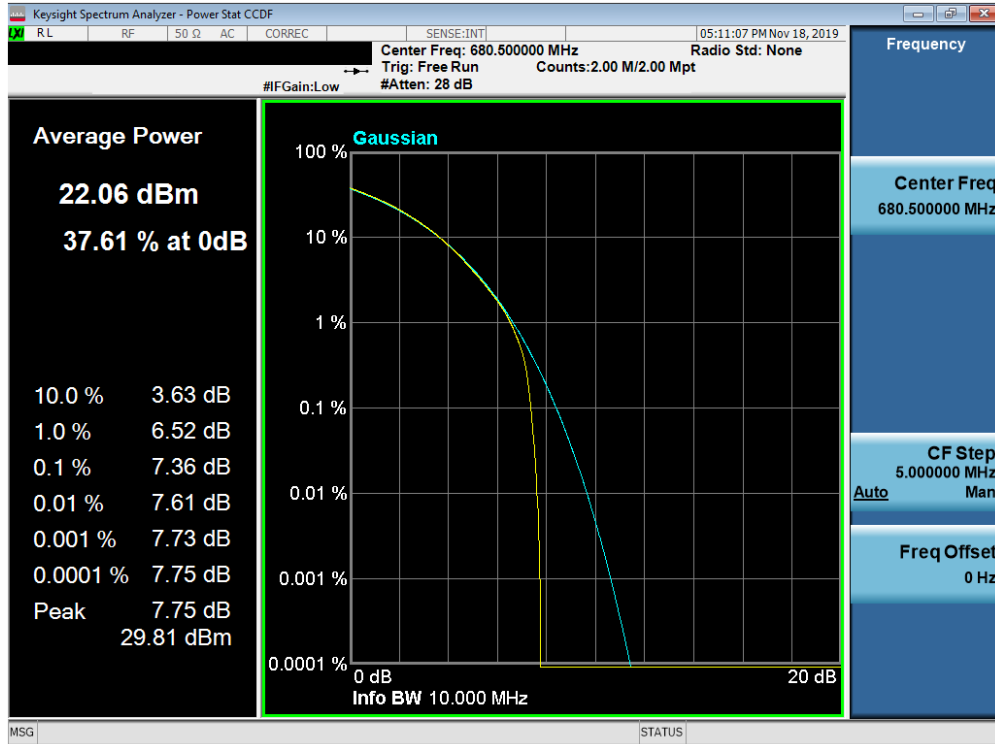
NR Band n66



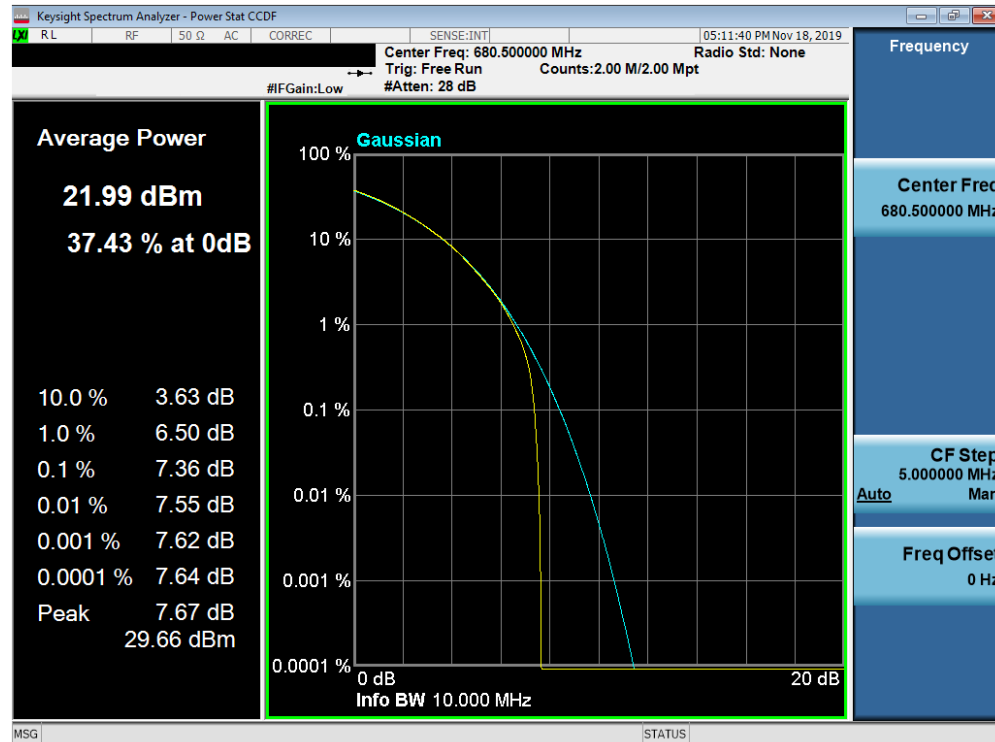
FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 459 of 487



FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 460 of 487

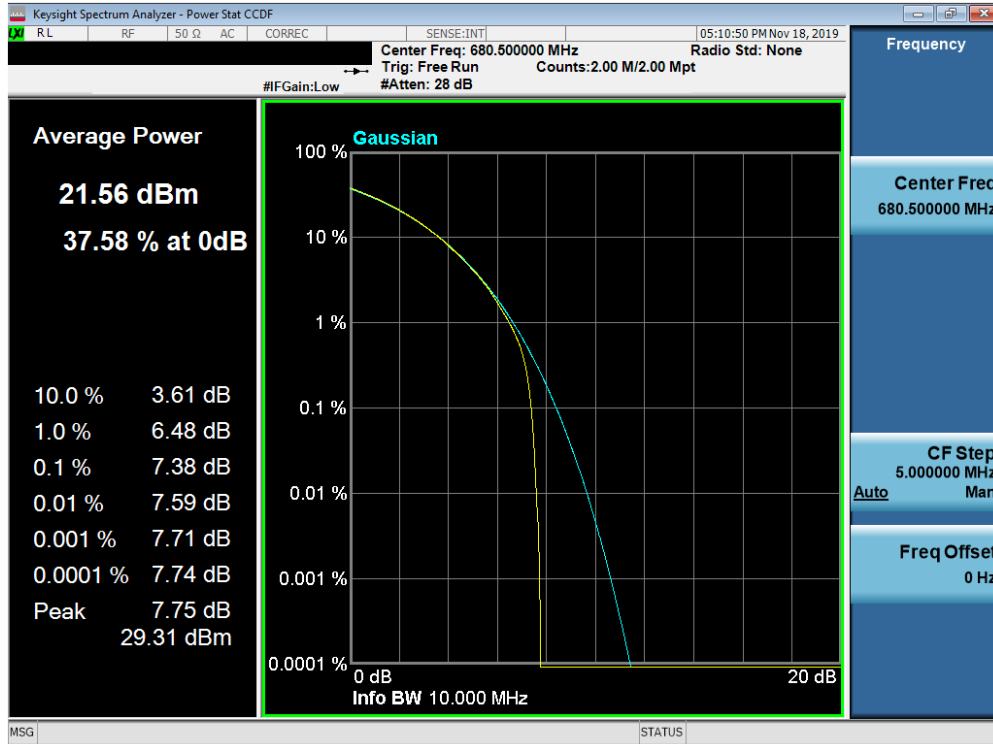


Plot 7-733. PAR Plot (Band n66 - 10.0MHz QPSK - Full RB Configuration)

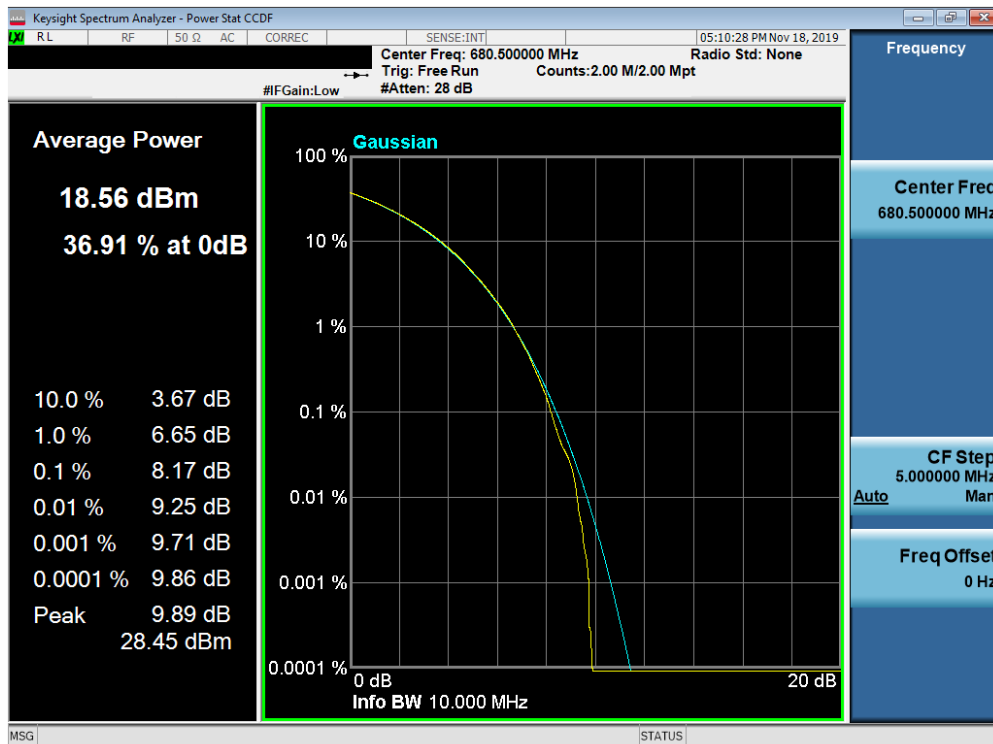


Plot 7-734. PAR Plot (Band n66 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 461 of 487

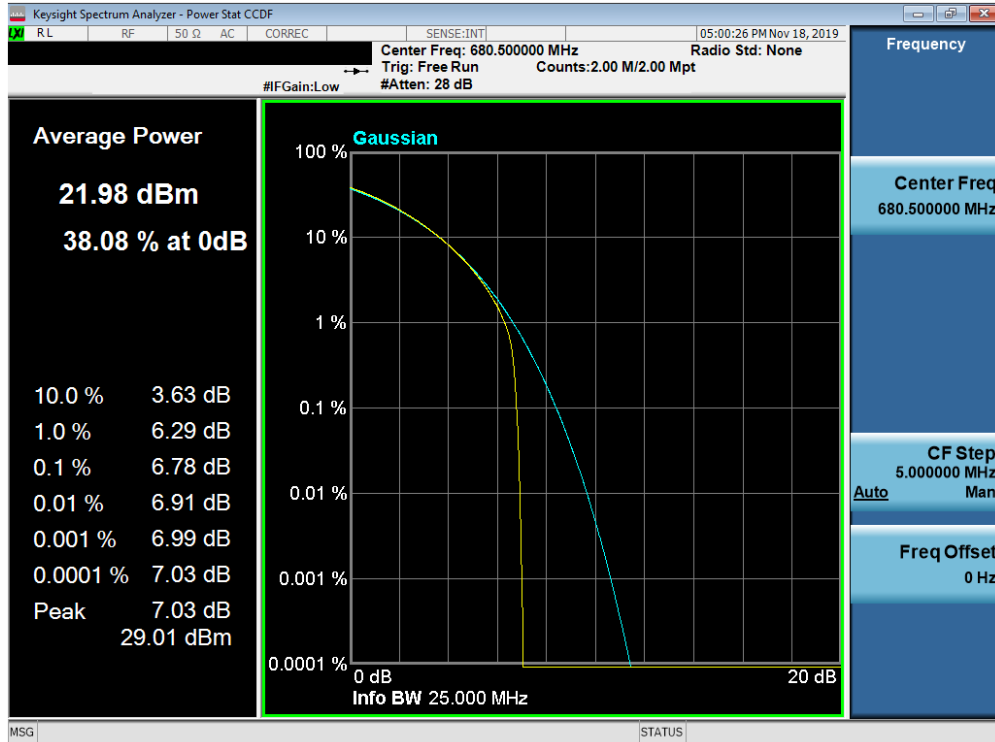


Plot 7-735. PAR Plot (Band n66 - 10.0MHz 64-QAM - Full RB Configuration)

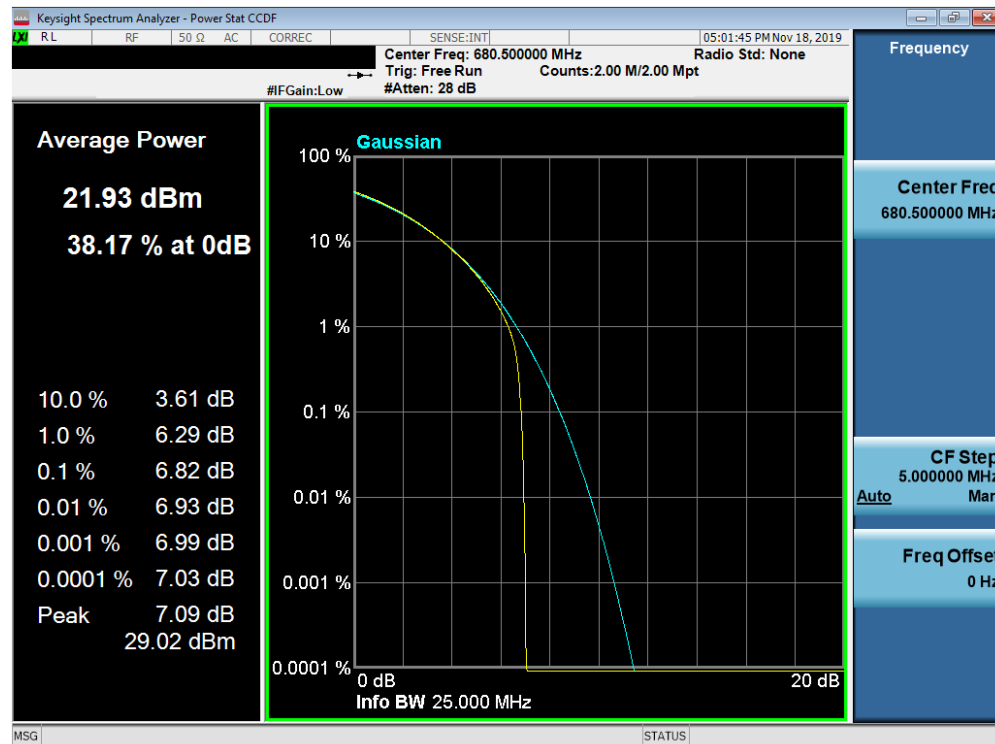


Plot 7-736. PAR Plot (Band n66 - 10.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 462 of 487

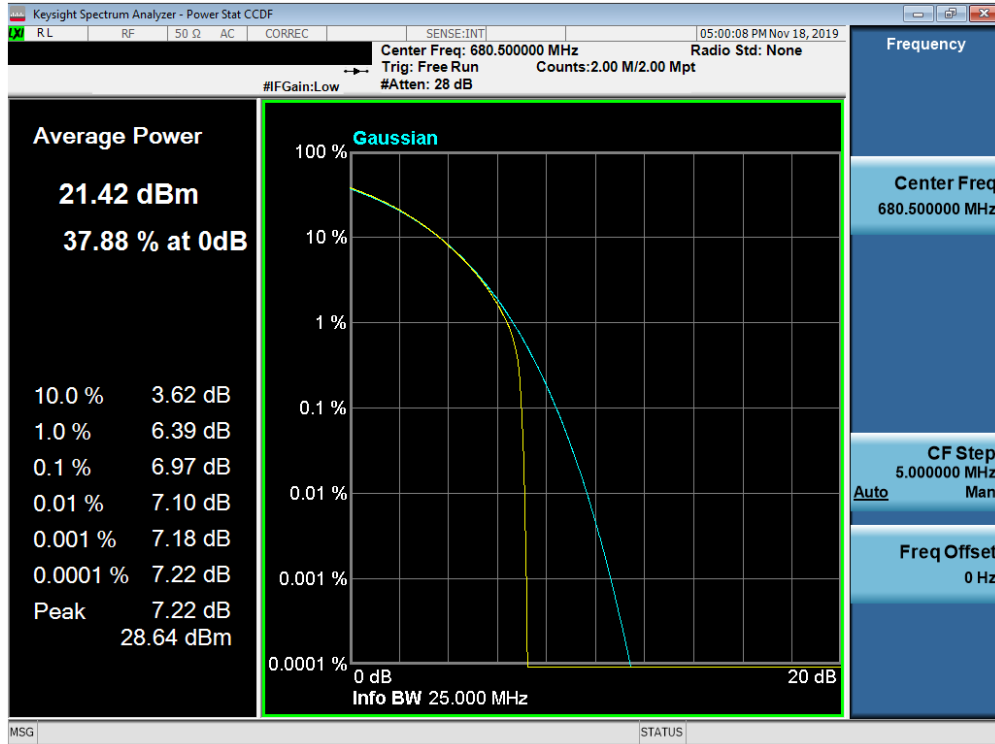


Plot 7-737. PAR Plot (Band n66 - 15.0MHz QPSK - Full RB Configuration)

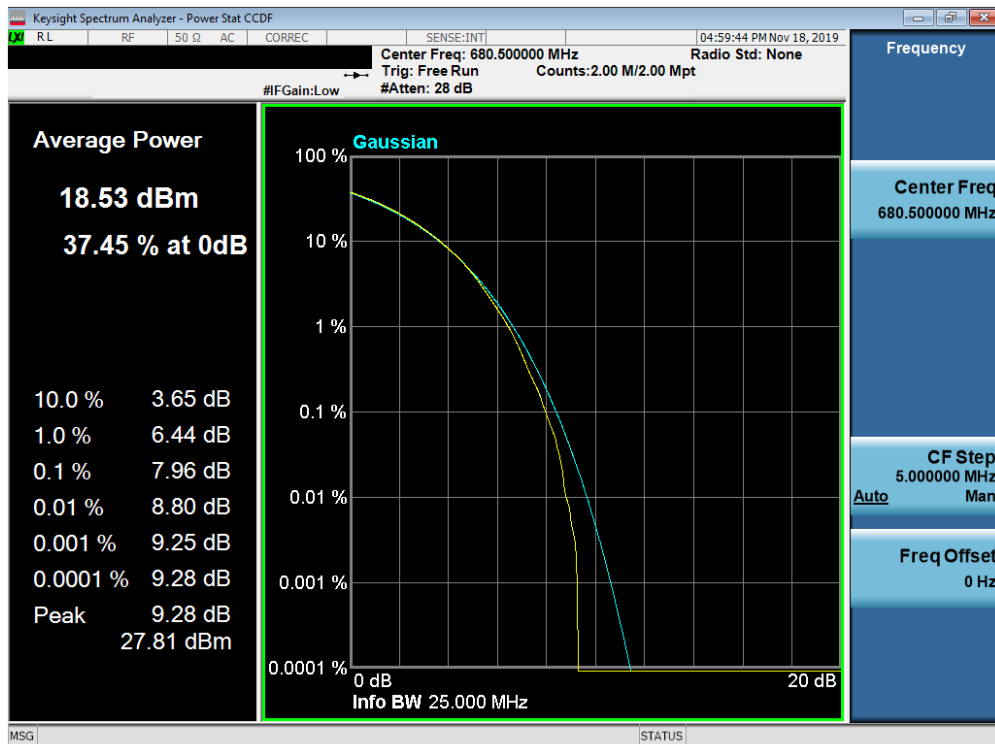


Plot 7-738. PAR Plot (Band n66 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 463 of 487

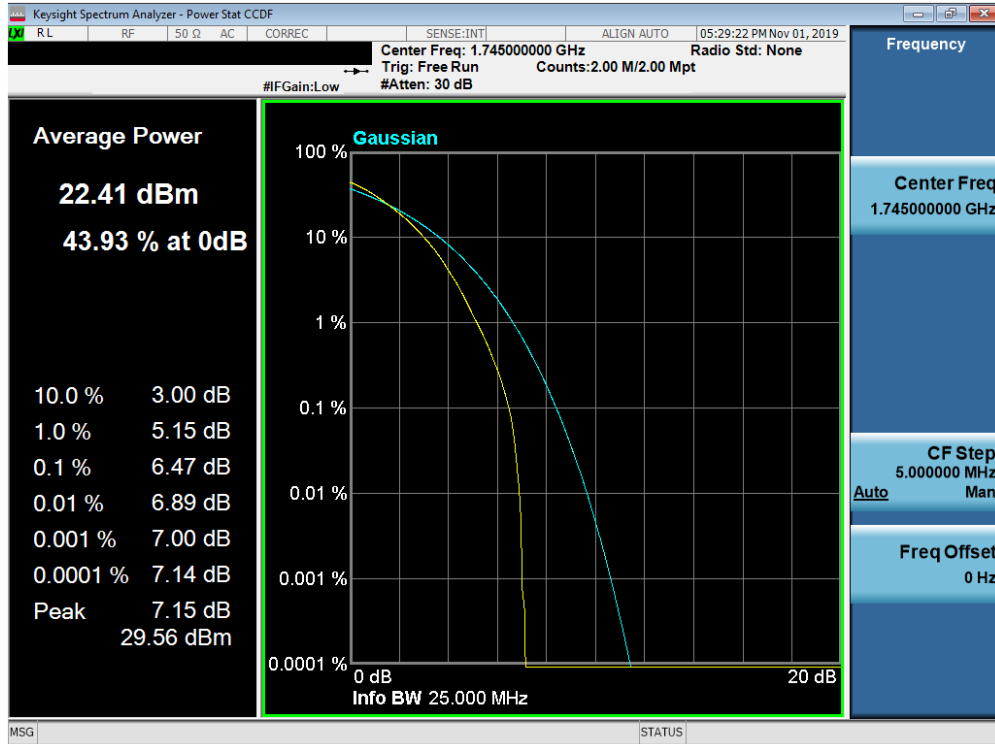


Plot 7-739. PAR Plot (Band n66 - 15.0MHz 64-QAM - Full RB Configuration)

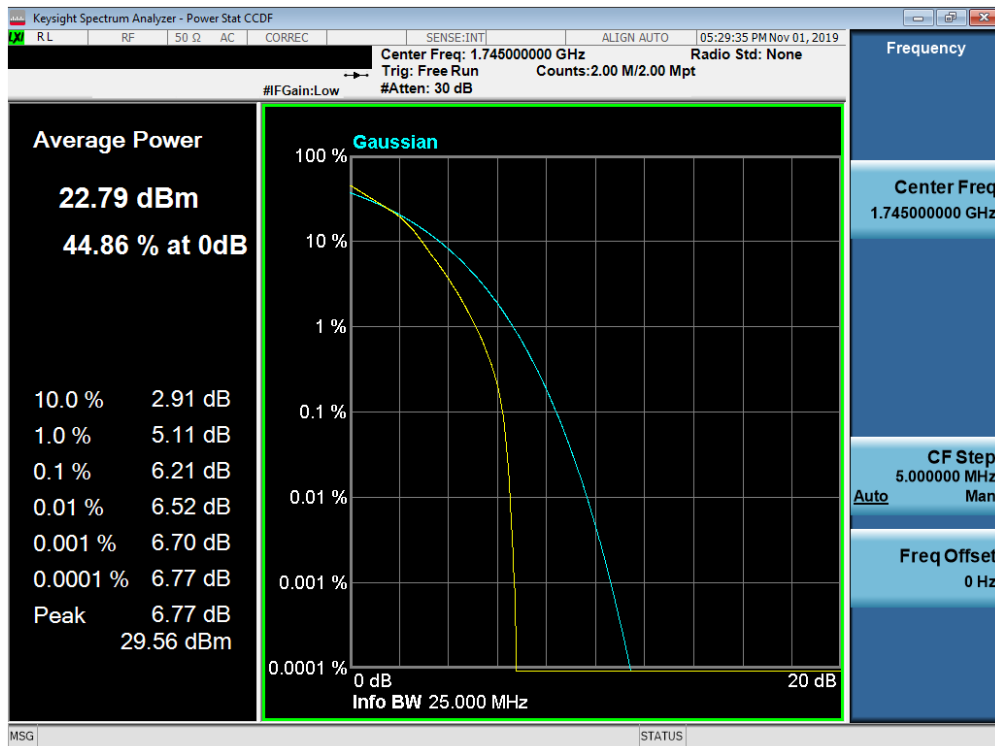


Plot 7-740. PAR Plot (Band n66 - 15.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 464 of 487

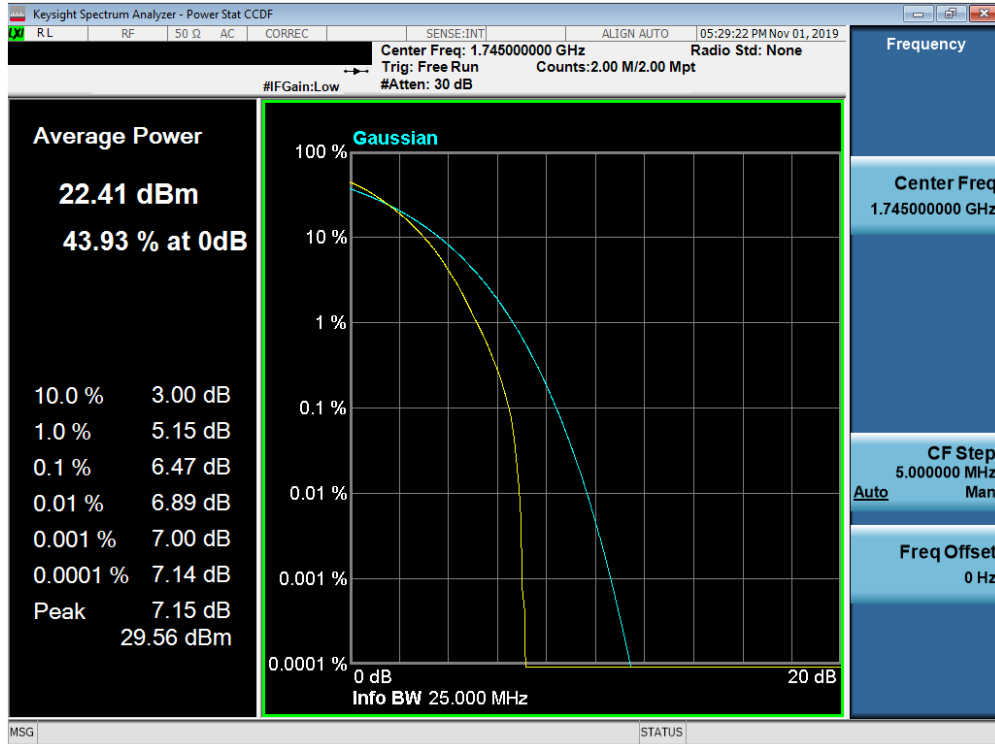


Plot 7-741. PAR Plot (Band n66 - 20.0MHz QPSK - Full RB Configuration)

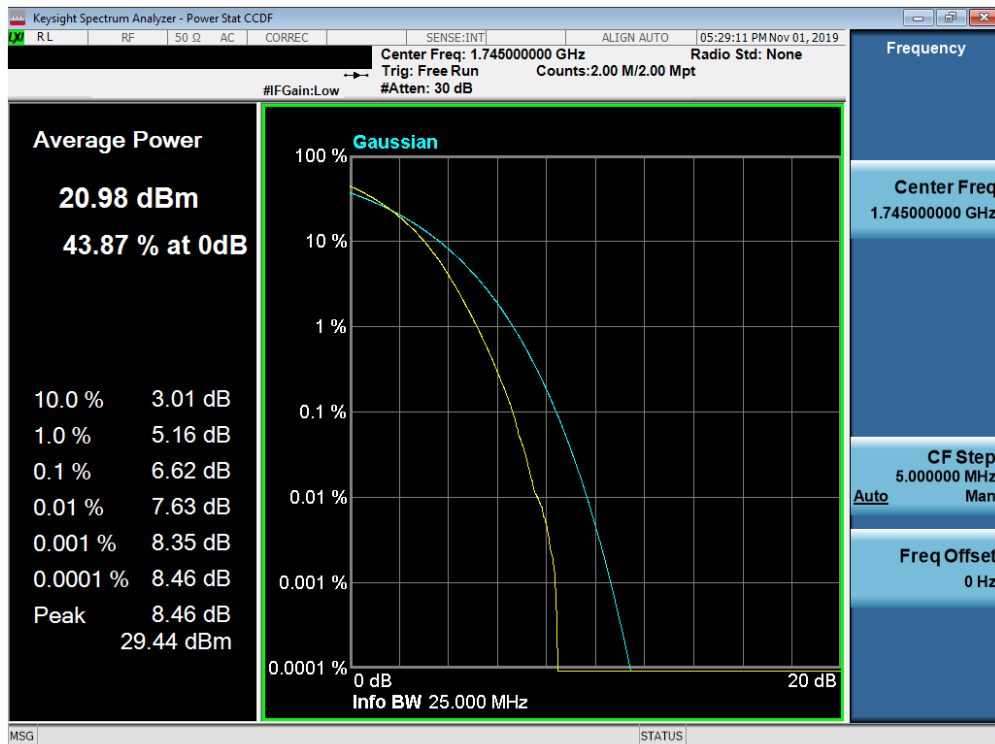


Plot 7-742. PAR Plot (Band n66 - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 465 of 487



Plot 7-743. PAR Plot (Band n66 - 20.0MHz 64-QAM - Full RB Configuration)



Plot 7-744. PAR Plot (Band n66 - 20.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 466 of 487

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).

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]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
826.50	5	QPSK	V	137	235	1 / 13	13.78	6.30	17.93	0.062	38.45	-20.52	20.08	0.102	40.61	-20.53
836.50	5	QPSK	V	137	280	1 / 13	13.67	6.40	17.92	0.062	38.45	-20.53	20.07	0.102	40.61	-20.54
846.50	5	QPSK	V	100	240	1 / 13	13.44	6.50	17.79	0.060	38.45	-20.66	19.94	0.099	40.61	-20.67
826.50	5	16-QAM	V	137	235	1 / 13	12.75	6.30	16.90	0.049	38.45	-21.55	19.05	0.080	40.61	-21.56
826.50	5	64-QAM	V	137	235	1 / 13	11.34	6.30	15.49	0.035	38.45	-22.96	17.64	0.058	40.61	-22.97
826.50	5	256-QAM	V	137	235	1 / 13	9.85	6.30	14.00	0.025	38.45	-24.45	16.15	0.041	40.61	-24.46
829.00	10	QPSK	V	137	235	1 / 26	13.72	6.30	17.87	0.061	38.45	-20.58	20.02	0.100	40.61	-20.59
836.50	10	QPSK	V	137	280	1 / 26	13.37	6.40	17.62	0.058	38.45	-20.83	19.77	0.095	40.61	-20.84
844.00	10	QPSK	V	100	240	1 / 26	13.58	6.40	17.83	0.061	38.45	-20.62	19.98	0.100	40.61	-20.63
829.00	10	16-QAM	V	137	235	1 / 26	12.69	6.30	16.84	0.048	38.45	-21.61	18.99	0.079	40.61	-21.62
829.00	10	64-QAM	V	137	235	1 / 26	11.28	6.30	15.43	0.035	38.45	-23.02	17.58	0.057	40.61	-23.03
829.00	10	256-QAM	V	137	235	1 / 26	9.79	6.30	13.94	0.025	38.45	-24.51	16.09	0.041	40.61	-24.52
831.50	15	QPSK	V	137	235	1 / 1	11.51	6.35	17.86	0.061	38.45	-20.59	20.01	0.100	40.61	-20.60
836.50	15	QPSK	V	137	280	1 / 1	11.49	6.40	17.89	0.062	38.45	-20.56	20.04	0.101	40.61	-20.57
841.50	15	QPSK	V	100	240	1 / 40	9.38	6.40	15.78	0.038	38.45	-22.67	17.93	0.062	40.61	-22.68
836.50	15	16-QAM	V	137	280	1 / 1	10.51	6.40	16.91	0.049	38.45	-21.54	19.06	0.081	40.61	-21.55
836.50	15	64-QAM	V	137	280	1 / 1	9.08	6.40	15.48	0.035	38.45	-22.97	17.63	0.058	40.61	-22.98
836.50	15	256-QAM	V	137	280	1 / 1	7.44	6.40	13.84	0.024	38.45	-24.61	15.99	0.040	40.61	-24.62
834.00	20	QPSK	V	137	235	1 / 1	13.49	6.40	17.74	0.059	38.45	-20.71	19.89	0.097	40.61	-20.72
836.50	20	QPSK	V	137	280	1 / 1	13.77	6.40	18.02	0.063	38.45	-20.43	20.17	0.104	40.61	-20.44
839.00	20	QPSK	V	100	240	1 / 53	12.53	6.40	16.78	0.048	38.45	-21.67	18.93	0.078	40.61	-21.68
836.50	20	16-QAM	V	137	280	1 / 1	12.74	6.40	16.99	0.050	38.45	-21.46	19.14	0.082	40.61	-21.47
836.50	20	64-QAM	V	137	280	1 / 1	11.33	6.40	15.58	0.036	38.45	-22.87	17.73	0.059	40.61	-22.88
836.50	20	256-QAM	V	137	280	1 / 1	9.84	6.40	14.09	0.026	38.45	-24.36	16.24	0.042	40.61	-24.37
836.50	20	QPSK	H	100	285	1 / 1	12.97	6.40	17.22	0.053	38.45	-21.23	19.37	0.086	40.61	-21.24
836.50	20 (WCP)	QPSK	V	148	296	1 / 1	9.13	6.40	13.38	0.022	38.45	-25.07	15.53	0.036	40.61	-25.08
836.50	20 (CP-OFDM)	QPSK	V	135	260	1 / 1	12.07	6.40	16.32	0.043	38.45	-22.13	18.47	0.070	40.61	-22.14

Table 7-66. EIRP Data (n5)

FCC ID: A3LSMG981U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 467 of 487

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
665.50	5	QPSK	V	104	261	1 / 13	14.80	1.60	16.40	0.044	34.77	-18.37
680.50	5	QPSK	V	112	219	1 / 13	14.50	2.05	16.55	0.045	34.77	-18.22
695.50	5	QPSK	V	101	234	1 / 13	13.92	2.35	16.27	0.042	34.77	-18.50
680.50	5	16-QAM	V	112	219	1 / 13	13.27	2.05	15.32	0.034	34.77	-19.45
680.50	5	64-QAM	V	112	219	1 / 13	11.37	2.05	13.42	0.022	34.77	-21.35
680.50	5	256-QAM	V	112	219	1 / 13	10.00	2.05	12.05	0.016	34.77	-22.72
668.00	10	QPSK	V	104	261	1 / 26	14.36	1.65	16.01	0.040	34.77	-18.76
680.50	10	QPSK	V	112	219	1 / 26	14.26	2.05	16.31	0.043	34.77	-18.46
693.00	10	QPSK	V	101	234	1 / 26	13.95	2.25	16.20	0.042	34.77	-18.57
680.50	10	16-QAM	V	112	219	1 / 26	13.03	2.05	15.08	0.032	34.77	-19.69
680.50	10	64-QAM	V	112	219	1 / 26	11.13	2.05	13.18	0.021	34.77	-21.59
680.50	10	256-QAM	V	112	219	1 / 26	9.76	2.05	11.81	0.015	34.77	-22.96
670.50	15	QPSK	V	104	261	1 / 40	14.09	1.75	15.84	0.038	34.77	-18.93
680.50	15	QPSK	V	112	219	1 / 1	12.56	2.05	14.61	0.029	34.77	-20.16
690.50	15	QPSK	V	101	234	1 / 1	14.13	2.25	16.38	0.043	34.77	-18.39
690.50	15	16-QAM	V	101	234	1 / 1	12.90	2.25	15.15	0.033	34.77	-19.62
690.50	15	64-QAM	V	101	234	1 / 1	11.00	2.25	13.25	0.021	34.77	-21.52
690.50	15	256-QAM	V	101	234	1 / 1	9.63	2.25	11.88	0.015	34.77	-22.89
673.00	20	QPSK	V	100	251	1 / 53	14.70	1.85	16.55	0.045	34.77	-18.22
680.50	20	QPSK	V	104	231	1 / 104	13.61	2.05	15.66	0.037	34.77	-19.11
688.00	20	QPSK	V	108	241	1 / 53	14.19	2.25	16.44	0.044	34.77	-18.33
673.00	20	16-QAM	V	100	251	1 / 53	13.47	1.85	15.32	0.034	34.77	-19.45
673.00	20	64-QAM	V	100	251	1 / 53	11.57	1.85	13.42	0.022	34.77	-21.35
673.00	20	256-QAM	V	100	251	1 / 53	10.20	1.85	12.05	0.016	34.77	-22.72
680.50	5	QPSK	H	234	56	1 / 13	11.49	2.05	15.69	0.037	34.77	-19.08
680.50	5 (WCP)	QPSK	H	222	38	1 / 13	14.21	2.05	16.26	0.042	34.77	-18.51
673.00	5 (CP-OFDM)	QPSK	H	234	56	1 / 53	10.48	2.05	14.68	0.029	34.77	-20.09

Table 7-67. EIRP Data (n71)

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 468 of 487

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	102	331	12 / 6	13.79	9.32	23.11	0.205	30.00	-6.89
1745.00	5	QPSK	V	101	320	12 / 6	14.81	9.11	23.92	0.247	30.00	-6.08
1777.50	5	QPSK	V	123	318	12 / 6	13.36	9.16	22.52	0.178	30.00	-7.48
1745.00	5	16-QAM	V	101	320	12 / 6	13.73	9.11	22.84	0.192	30.00	-7.16
1712.50	5	64-QAM	V	102	331	12 / 6	11.66	9.32	20.98	0.125	30.00	-9.02
1745.00	5	256-QAM	V	101	320	12 / 6	10.66	9.11	19.77	0.095	30.00	-10.23
1715.00	10	QPSK	V	102	331	25 / 12	13.79	9.32	23.11	0.205	30.00	-6.89
1745.00	10	QPSK	V	101	320	25 / 12	14.81	9.11	23.92	0.247	30.00	-6.08
1775.00	10	QPSK	V	123	318	25 / 12	13.36	9.16	22.52	0.178	30.00	-7.48
1745.00	10	16-QAM	V	101	320	25 / 12	13.73	9.11	22.84	0.192	30.00	-7.16
1715.00	10	64-QAM	V	102	331	25 / 12	11.66	9.32	20.98	0.125	30.00	-9.02
1745.00	10	256-QAM	V	101	320	25 / 12	10.66	9.11	19.77	0.095	30.00	-10.23
1717.50	15	QPSK	V	145	267	1 / 74	13.77	9.30	23.07	0.203	30.00	-6.93
1745.00	15	QPSK	V	101	314	1 / 74	14.12	9.11	23.23	0.210	30.00	-6.77
1772.50	15	QPSK	V	135	329	36 / 18	12.55	9.15	21.70	0.148	30.00	-8.30
1745.00	15	16-QAM	V	101	314	1 / 74	13.25	9.11	22.36	0.172	30.00	-7.64
1745.00	15	64-QAM	V	101	314	1 / 74	11.59	9.11	20.70	0.117	30.00	-9.30
1745.00	15	256-QAM	V	101	314	1 / 74	10.12	9.11	19.23	0.084	30.00	-10.77
1720.00	20	QPSK	V	104	317	1 / 53	14.57	9.28	23.85	0.243	30.00	-6.15
1745.00	20	QPSK	V	102	331	1 / 53	15.55	9.11	24.66	0.292	30.00	-5.34
1770.00	20	QPSK	V	101	230	1 / 53	14.50	9.14	23.64	0.231	30.00	-6.36
1745.00	20	16-QAM	V	102	331	1 / 53	14.38	9.11	23.49	0.223	30.00	-6.51
1745.00	20	64-QAM	V	102	331	1 / 53	12.28	9.11	21.39	0.138	30.00	-8.61
1745.00	20	256-QAM	V	102	331	1 / 53	11.29	9.11	20.40	0.110	30.00	-9.60
1745.00	20	QPSK	H	127	326	1 / 53	14.76	9.11	23.87	0.244	30.00	-6.13
1745.00	20 (WCP)	QPSK	V	100	321	1 / 53	14.30	9.11	23.41	0.219	30.00	-6.59
1745.00	20 (CP-OFDM)	QPSK	V	100	336	1 / 53	14.35	9.11	23.46	0.222	30.00	-6.54

Table 7-68. EIRP Data (n66)

FCC ID: A3LSMG981U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 469 of 487

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	169	9	1 / 23	12.42	9.51	21.93	0.156	33.01	-11.08
1880.00	5	QPSK	H	158	360	1 / 23	11.34	9.90	21.24	0.133	33.01	-11.77
1907.50	5	QPSK	H	100	2	1 / 23	11.18	10.24	21.42	0.139	33.01	-11.59
1852.50	5	16-QAM	H	169	9	1 / 23	11.35	9.51	20.86	0.122	33.01	-12.15
1852.50	5	64-QAM	H	169	9	1 / 23	9.37	9.51	18.88	0.077	33.01	-14.13
1852.50	5	256-QAM	H	169	9	1 / 23	8.69	9.51	18.20	0.066	33.01	-14.81
1855.00	10	QPSK	H	172	20	1 / 26	11.99	9.55	21.54	0.143	33.01	-11.47
1880.00	10	QPSK	H	148	11	1 / 50	11.94	9.90	21.84	0.153	33.01	-11.17
1905.00	10	QPSK	H	111	3	1 / 1	11.44	10.22	21.66	0.147	33.01	-11.35
1880.00	10	16-QAM	H	148	11	1 / 50	10.87	9.90	20.77	0.119	33.01	-12.24
1880.00	10	64-QAM	H	148	11	1 / 50	8.89	9.90	18.79	0.076	33.01	-14.22
1880.00	10	256-QAM	H	148	11	1 / 50	8.21	9.90	18.11	0.065	33.01	-14.90
1857.50	15	QPSK	H	171	11	1 / 77	12.29	9.58	21.87	0.154	33.01	-11.14
1880.00	15	QPSK	H	162	4	1 / 1	12.13	9.90	22.03	0.160	33.01	-10.98
1902.50	15	QPSK	H	111	6	1 / 1	11.48	10.20	21.68	0.147	33.01	-11.33
1880.00	15	16-QAM	H	162	4	1 / 1	11.06	9.90	20.96	0.125	33.01	-12.05
1880.00	15	64-QAM	H	162	4	1 / 1	9.08	9.90	18.98	0.079	33.01	-14.03
1880.00	15	256-QAM	H	162	4	1 / 1	8.40	9.90	18.30	0.068	33.01	-14.71
1860.00	20	QPSK	H	169	9	1 / 1	11.73	9.62	21.35	0.136	33.01	-11.66
1880.00	20	QPSK	H	158	360	1 / 1	10.68	9.90	20.58	0.114	33.01	-12.43
1900.00	20	QPSK	H	100	2	1 / 53	11.84	10.18	22.02	0.159	33.01	-10.99
1900.00	20	16-QAM	H	100	2	1 / 53	10.77	10.18	20.95	0.124	33.01	-12.06
1900.00	20	64-QAM	H	100	2	1 / 53	8.79	10.18	18.97	0.079	33.01	-14.04
1900.00	20	256-QAM	H	100	2	1 / 53	8.11	10.18	18.29	0.067	33.01	-14.72
1880.00	15	QPSK	V	251	6	1 / 1	11.18	9.90	21.08	0.128	33.01	-11.93
1880.00	15 (WCP)	QPSK	H	115	7	1 / 1	11.05	9.90	20.95	0.124	33.01	-12.06
1880.00	15 (CP-OFDM)	QPSK	H	115	7	1 / 1	10.58	9.90	20.48	0.112	33.01	-12.53

Table 7-69. EIRP Data (n2)

FCC ID: A3LSMG981U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 470 of 487

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	V	115	307	1 / 26	13.62	9.40	23.02	0.200	33.01	-9.99
2592.99	20	QPSK	V	126	309	1 / 1	13.29	9.56	22.85	0.193	33.01	-10.16
2679.99	20	QPSK	V	101	247	1 / 1	12.85	9.69	22.54	0.179	33.01	-10.47
2506.02	20	16-QAM	V	115	307	1 / 26	13.12	9.40	22.52	0.179	33.01	-10.49
2506.02	20	64-QAM	V	115	307	1 / 26	10.48	9.40	19.88	0.097	33.01	-13.13
2506.02	20	256-QAM	V	115	307	1 / 26	7.68	9.40	17.08	0.051	33.01	-15.93
2516.01	40	QPSK	V	115	307	1 / 104	14.35	9.40	23.75	0.237	33.01	-9.26
2592.99	40	QPSK	V	126	309	1 / 1	12.99	9.56	22.55	0.180	33.01	-10.46
2670.00	40	QPSK	V	101	247	1 / 53	13.15	9.69	22.84	0.192	33.01	-10.17
2516.01	40	16-QAM	V	115	307	1 / 104	13.85	9.40	23.25	0.211	33.01	-9.76
2516.01	40	64-QAM	V	115	307	1 / 104	11.21	9.40	20.61	0.115	33.01	-12.40
2516.01	40	256-QAM	V	115	307	1 / 104	8.41	9.40	17.81	0.060	33.01	-15.20
2521.02	50	QPSK	V	115	307	1 / 131	13.62	9.40	23.02	0.200	33.01	-9.99
2592.99	50	QPSK	V	126	309	1 / 1	13.15	9.56	22.71	0.187	33.01	-10.30
2664.99	50	QPSK	V	101	247	1 / 1	12.69	9.69	22.38	0.173	33.01	-10.63
2521.02	50	16-QAM	V	115	307	1 / 131	13.12	9.40	22.52	0.179	33.01	-10.49
2521.02	50	64-QAM	V	115	307	1 / 131	10.48	9.40	19.88	0.097	33.01	-13.13
2521.02	50	256-QAM	V	115	307	1 / 131	7.68	9.40	17.08	0.051	33.01	-15.93
2526.00	60	QPSK	V	115	307	1 / 160	13.60	9.40	23.00	0.200	33.01	-10.01
2592.99	60	QPSK	V	126	309	1 / 1	13.07	9.56	22.63	0.183	33.01	-10.38
2659.98	60	QPSK	V	101	247	1 / 81	12.61	9.69	22.30	0.170	33.01	-10.71
2526.00	60	16-QAM	V	115	307	1 / 160	13.10	9.40	22.50	0.178	33.01	-10.51
2526.00	60	64-QAM	V	115	307	1 / 160	10.46	9.40	19.86	0.097	33.01	-13.15
2526.00	60	256-QAM	V	115	307	1 / 160	7.66	9.40	17.06	0.051	33.01	-15.95
2536.00	80	QPSK	V	115	307	1 / 215	9.50	9.40	18.90	0.078	33.01	-14.11
2593.00	80	QPSK	V	126	309	1 / 215	11.93	9.56	21.49	0.141	33.01	-11.52
2650.00	80	QPSK	V	101	247	1 / 215	10.53	9.68	20.21	0.105	33.01	-12.80
2593.00	80	16-QAM	V	126	309	1 / 215	10.94	9.56	20.50	0.112	33.01	-12.51
2593.00	80	64-QAM	V	126	309	1 / 215	9.95	9.56	19.51	0.089	33.01	-13.50
2593.00	80	256-QAM	V	126	309	1 / 215	8.59	9.56	18.15	0.065	33.01	-14.86
2503.50	90	QPSK	V	102	263	1 / 123	13.63	9.39	23.02	0.200	33.01	-9.99
2593.00	90	QPSK	V	115	309	1 / 243	13.06	9.56	22.62	0.183	33.01	-10.39
2682.50	90	QPSK	V	116	309	1 / 243	12.66	9.68	22.34	0.171	33.01	-10.67
2503.50	90	16-QAM	V	102	263	1 / 123	13.13	9.39	22.52	0.179	33.01	-10.49
2503.50	90	64-QAM	V	102	263	1 / 123	10.49	9.39	19.88	0.097	33.01	-13.13
2503.50	90	256-QAM	V	102	263	1 / 123	7.69	9.39	17.08	0.051	33.01	-15.93
2546.01	100	QPSK	V	104	263	1 / 137	9.04	9.39	18.43	0.070	33.01	-14.58
2593.02	100	QPSK	V	109	233	1 / 137	13.19	9.56	22.75	0.188	33.01	-10.26
2640.00	100	QPSK	V	109	313	1 / 137	9.68	9.68	19.36	0.086	33.01	-13.65
2593.02	100	16-QAM	V	109	233	1 / 137	12.69	9.56	22.25	0.168	33.01	-10.76
2593.02	100	64-QAM	V	109	233	1 / 137	10.05	9.56	19.61	0.091	33.01	-13.40
2593.02	100	256-QAM	V	109	233	1 / 137	7.25	9.56	16.81	0.048	33.01	-16.20
2516.01	40	QPSK	H	121	215	1 / 104	8.68	9.56	18.24	0.067	33.01	-14.77
2516.01	40 (WCP)	QPSK	V	112	204	1 / 104	12.69	9.40	22.09	0.162	33.01	-10.92
2516.01	40 (CP-QFDM)	QPSK	V	116	316	1 / 104	11.68	9.40	21.08	0.128	33.01	-11.93

Table 7-70. EIRP (n41)

FCC ID: A3LSMG981U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 471 of 487

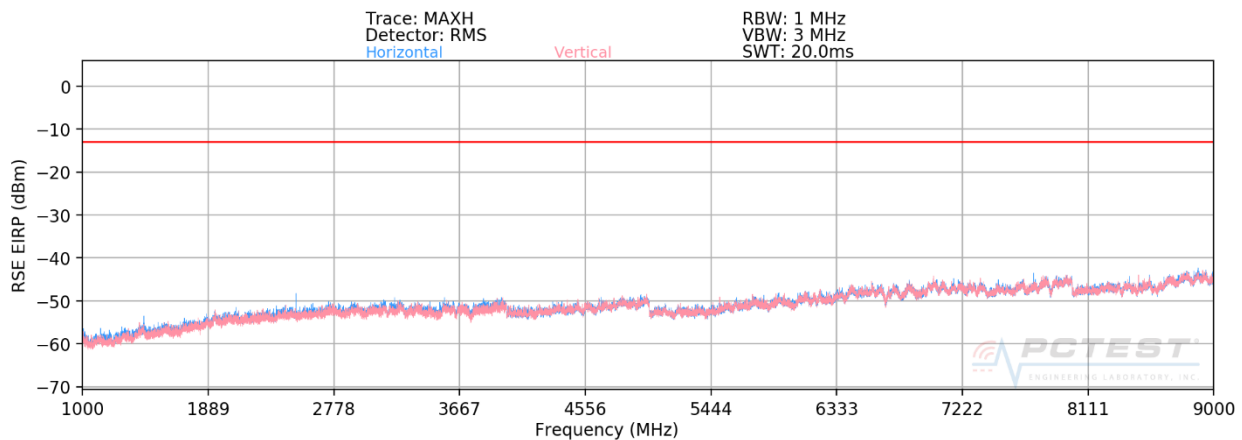
Radiated Spurious Emissions Measurements

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.

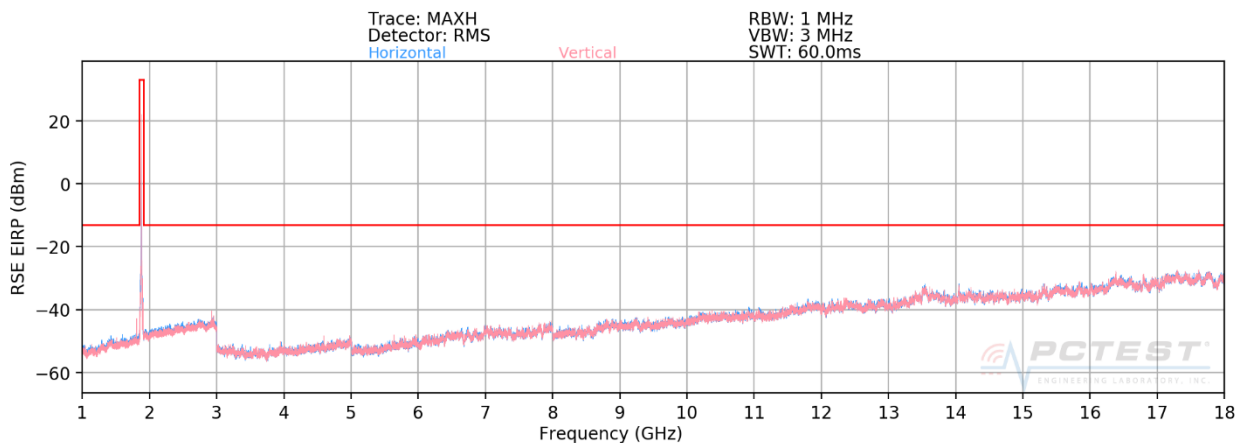
Per FCC Guidance, KDB 328880, Radiated Spurious Measurements were made based of the worst case modulation and RB\ configuraton as determined by EIRP measurement, and grouping the available combinations by Low Band, Mid Band, and High Band.

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 n5

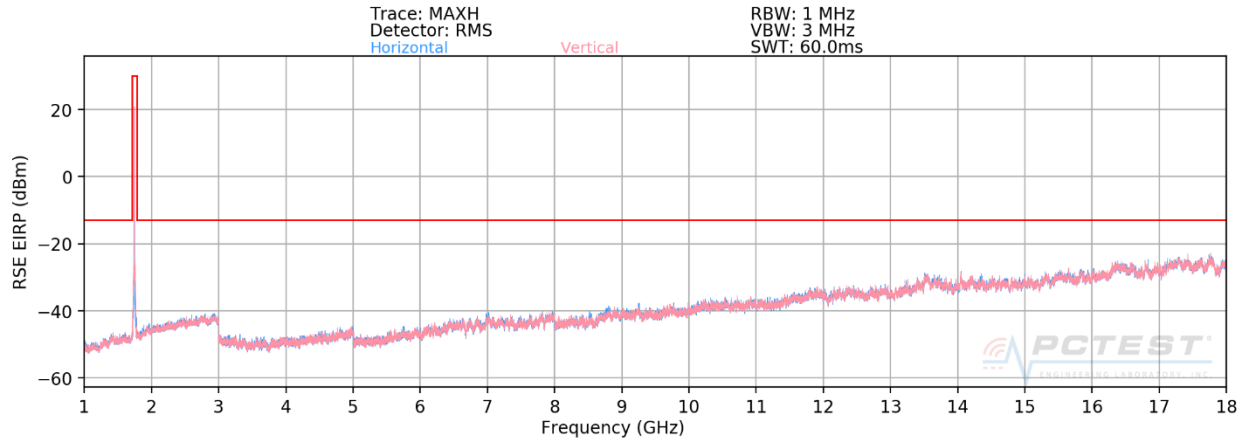


Plot 7-745. Radiated Spurious Plot above 1GHz (n5)

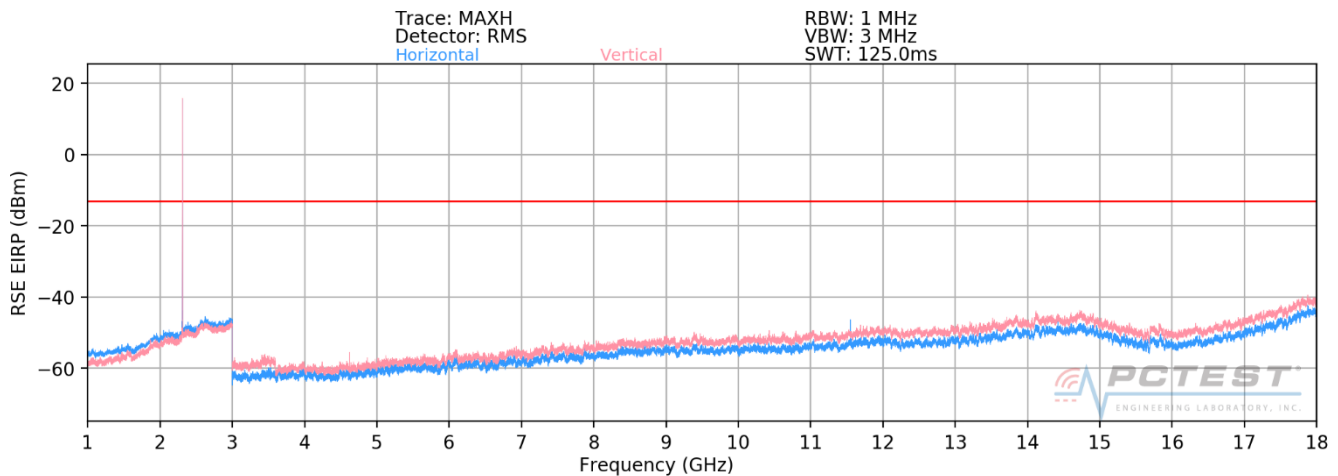


Plot 7-746. Radiated Spurious Plot above 1GHz (n5 EN-DC - ANCHOR B2)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 472 of 487



Plot 7-747. Radiated Spurious Plot above 1GHz (n5 EN-DC – ANCHOR B66)



Plot 7-748. Radiated Spurious Plot above 1GHz (n5 – ANCHOR B30)

OPERATING FREQUENCY: 834.00 MHz
MODULATION SIGNAL: QPSK (DFT-s-OFDM)
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]
1668.00	H	-	-	-60.91	3.09	-57.82	-44.8
2502.00	H	-	-	-58.85	3.92	-54.93	-41.9

Table 7-71. Radiated Spurious Data (n5 Standalone – Low Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset			Page 473 of 487

OPERATING FREQUENCY: 836.50 MHz
 MODULATION SIGNAL: QPSK (DFT-s-OFDM)
 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]
1673.00	H	-	-	-59.49	3.10	-56.39	-43.4
2509.50	H	-	-	-58.05	4.02	-54.03	-41.0

Table 7-72. Radiated Spurious Data (n5 Standalone – Mid Channel)

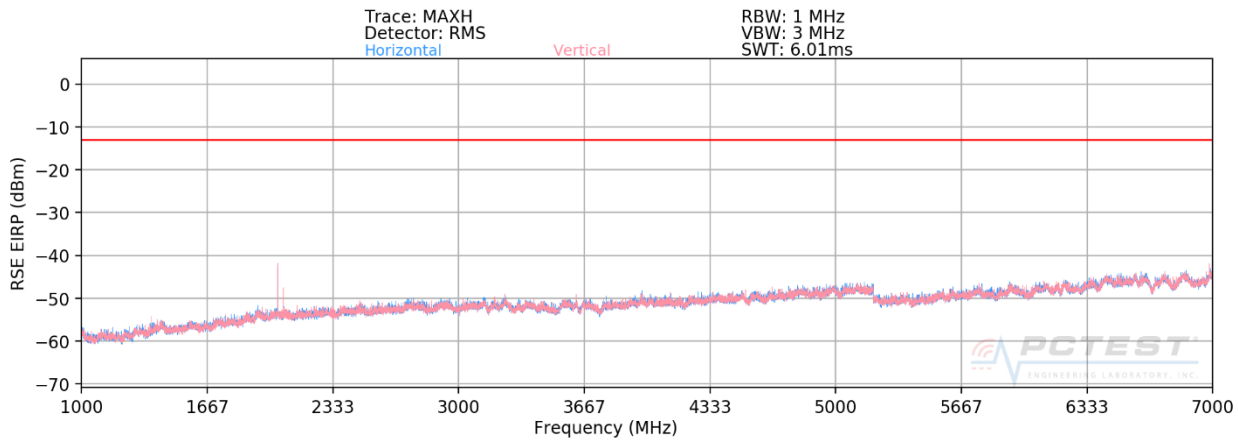
OPERATING FREQUENCY: 839.00 MHz
 MODULATION SIGNAL: QPSK (DFT-s-OFDM)
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
1678.00	H	-	-	-60.88	3.13	-57.75	-44.7
2517.00	H	-	-	-59.19	4.05	-55.14	-42.1

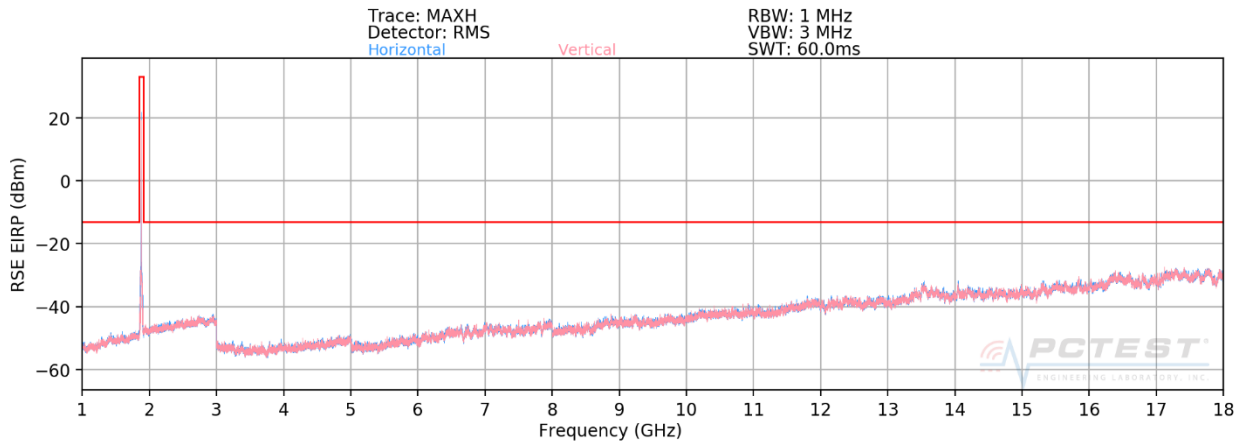
Table 7-73. Radiated Spurious Data (n5 Standalone – High Channel)

FCC ID: A3LSMG981U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 474 of 487

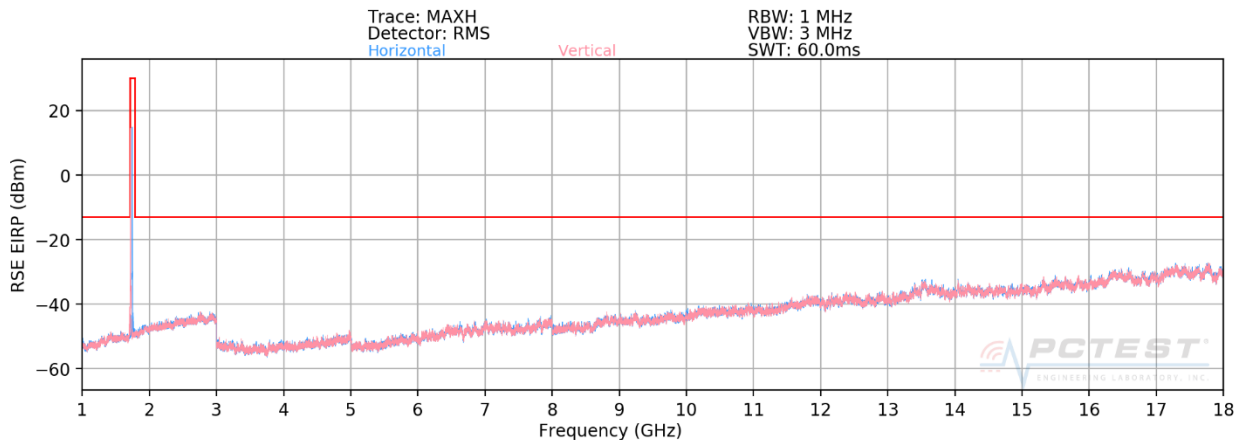
NR Band n71



Plot 7-749. Radiated Spurious Plot above 1GHz (n71)

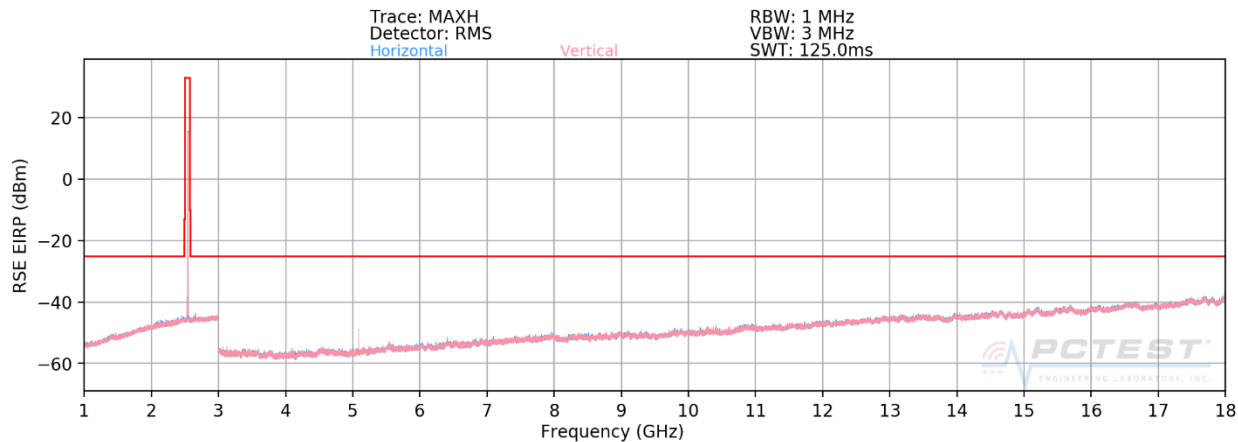


Plot 7-750. Radiated Spurious Plot above 1GHz (n71 ENDC – ANCHOR B2)



Plot 7-751. Radiated Spurious Plot above 1GHz (n71 ENDC – ANCHOR B66)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 475 of 487



Plot 7-752. Radiated Spurious Plot above 1GHz (n71 ENDC – ANCHOR B7)

OPERATING FREQUENCY: 673.00 MHz
 MODULATION SIGNAL: QPSK (DFT-s-OFDM)
 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	V	112	40	-60.78	2.91	-57.87	-44.9
2019.00	V	290	93	-44.43	2.82	-41.61	-28.6
2692.00	V	-	-	-57.73	4.53	-53.20	-40.2
3365.00	V	-	-	-58.90	6.10	-52.80	-39.8

Table 7-74. Radiated Spurious Data (n71 Standalone – Low Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset			Page 476 of 487

OPERATING FREQUENCY: 680.50 MHz
 MODULATION SIGNAL: QPSK (DFT-s-OFDM)
 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	V	166	345	-58.81	2.88	-55.94	-42.9
2041.50	V	139	222	-45.91	2.73	-43.19	-30.2
2722.00	V	-	-	-57.94	4.63	-53.31	-40.3
3402.50	V	-	-	-57.92	6.26	-51.66	-38.7

Table 7-75. Radiated Spurious Data (n71 Standalone – Mid Channel)

OPERATING FREQUENCY: 688.00 MHz
 MODULATION SIGNAL: QPSK (DFT-s-OFDM)
 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	V	159	355	-55.72	2.64	-53.08	-40.1
2064.00	V	146	231	-45.08	2.82	-42.26	-29.3
2752.00	V	-	-	-58.11	4.60	-53.51	-40.5

Table 7-76. Radiated Spurious Data (n71 Standalone – High Channel)

FCC ID: A3LSMG981U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 477 of 487