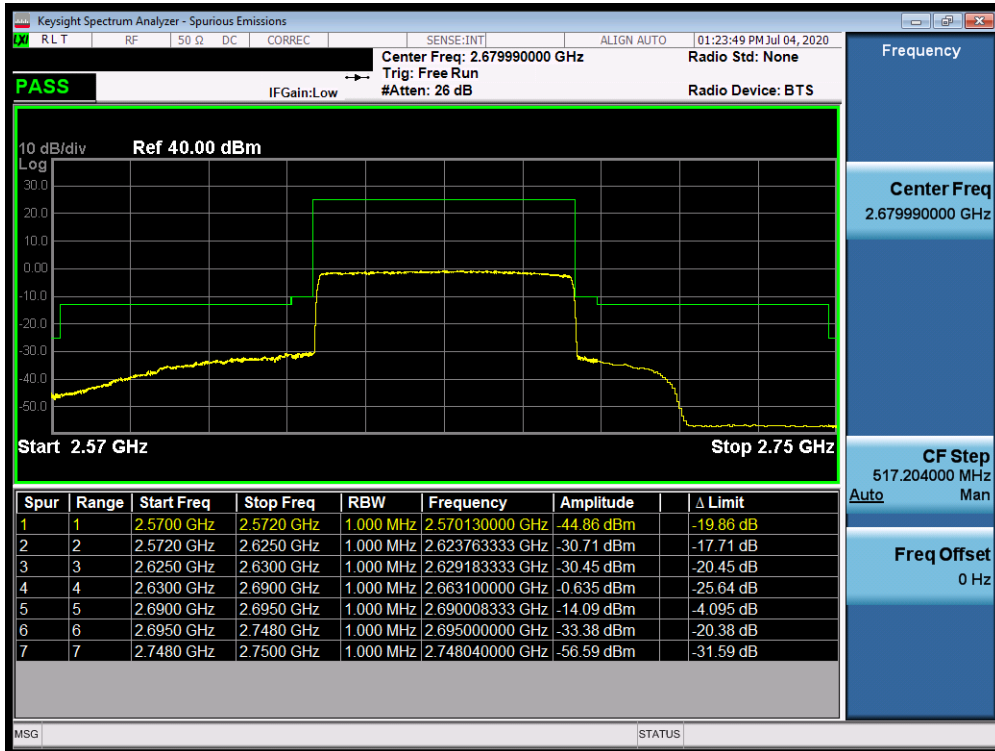
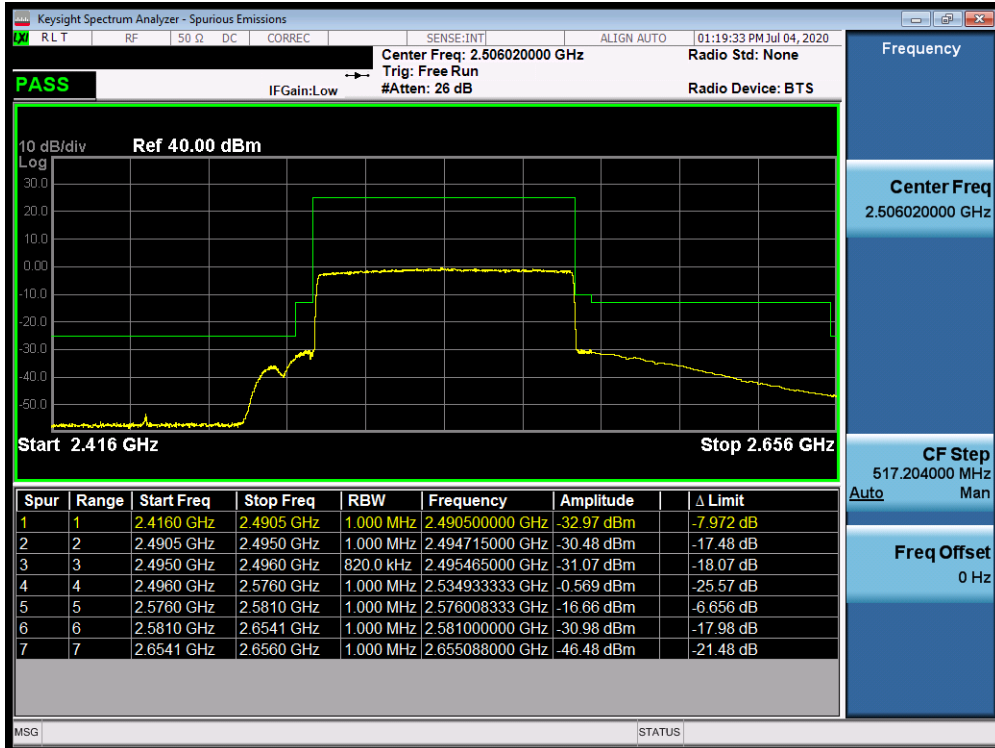


Plot 7-614. Lower ACP Plot at 2496 MHz (n41 - 60.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)



Plot 7-615. Upper ACP Plot (Band 41 - 60.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 337 of 485

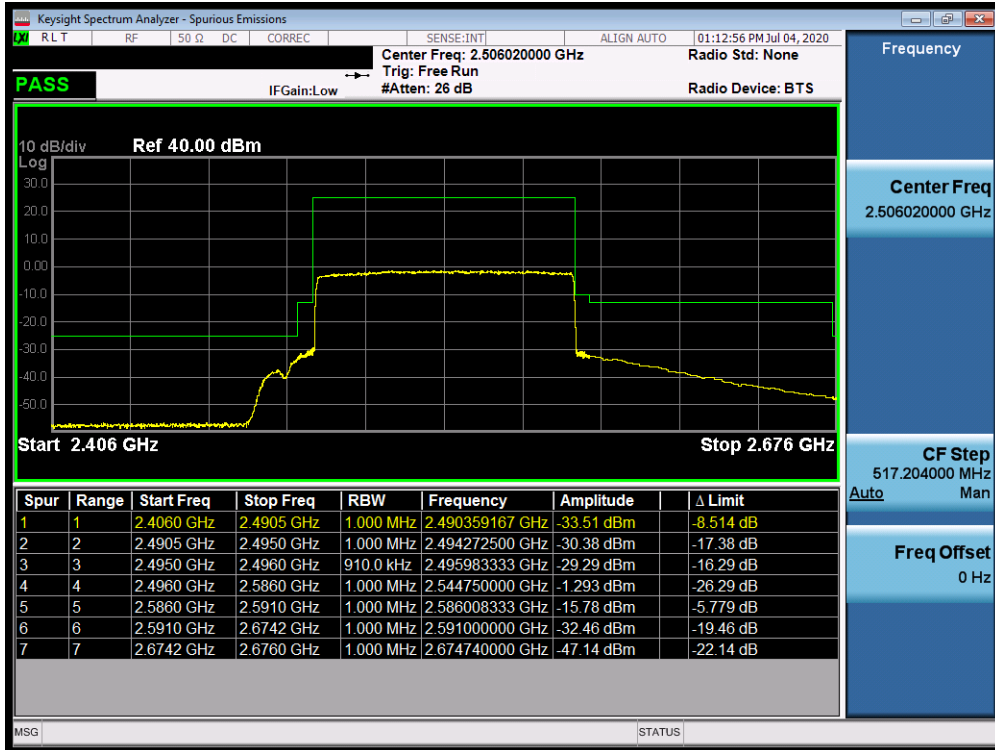


Plot 7-616. Lower ACP Plot at 2496 MHz (n41 - 80.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)



Plot 7-617. Upper ACP Plot (Band 41 - 80.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 338 of 485

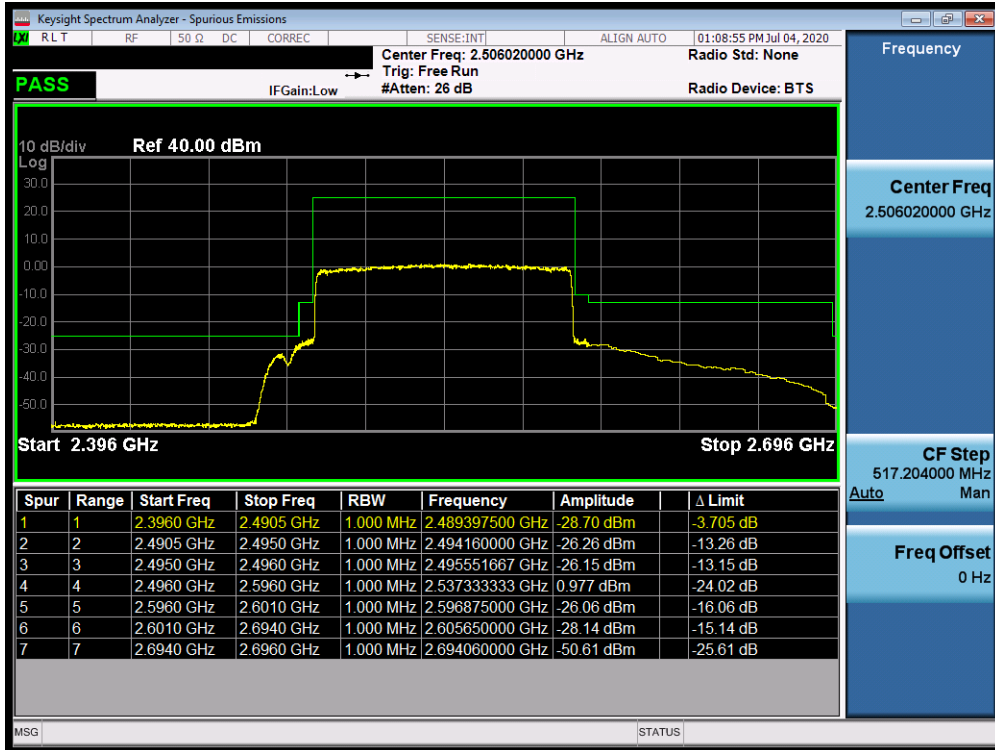


Plot 7-618. Lower ACP Plot at 2496 MHz (n41 - 90.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

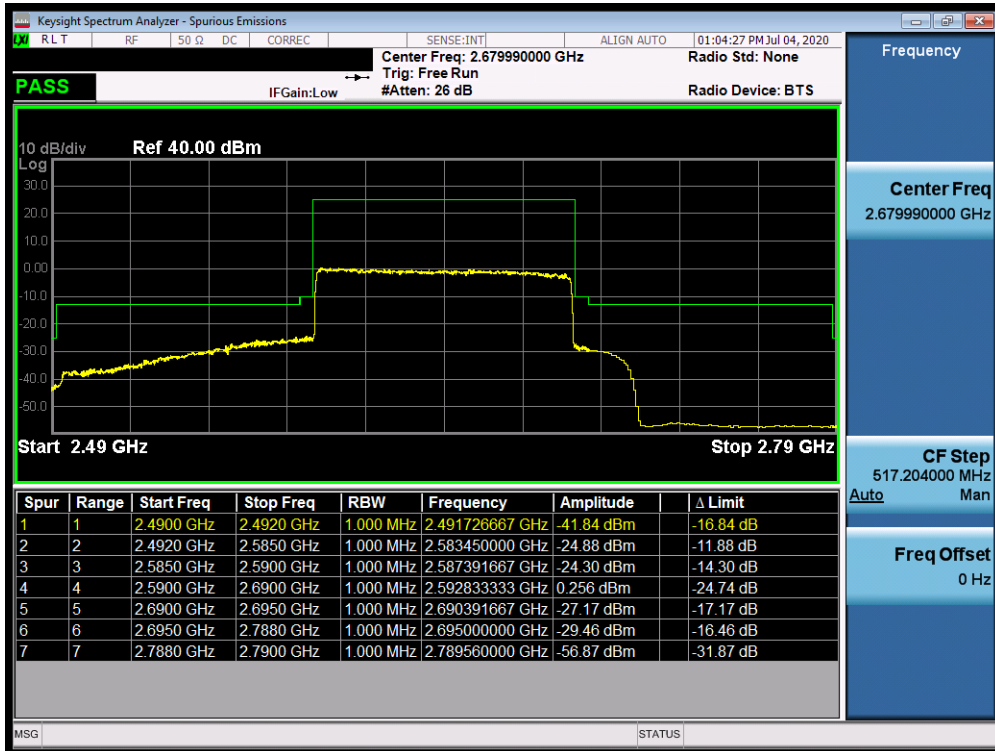


Plot 7-619. Upper ACP Plot (Band 41 - 90.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 339 of 485



Plot 7-620. Lower ACP Plot at 2496 MHz (n41 - 100.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)



Plot 7-621. Upper ACP Plot (Band n41 - 100.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 340 of 485

7.5 Peak-Average Ratio

Test Overview

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

Test Procedure Used

KDB 971168 D01 v03r01 – Section 5.7.1

Test Settings

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

Test Setup

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

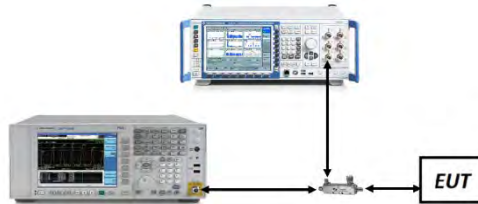


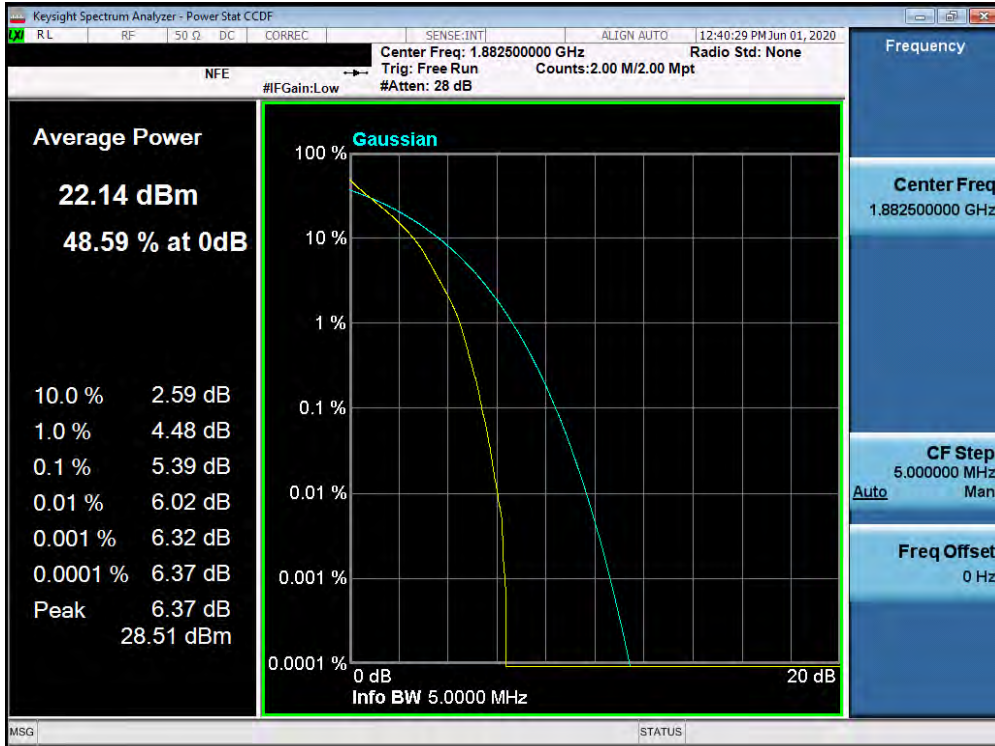
Figure 7-4. Test Instrument & Measurement Setup

Test Notes

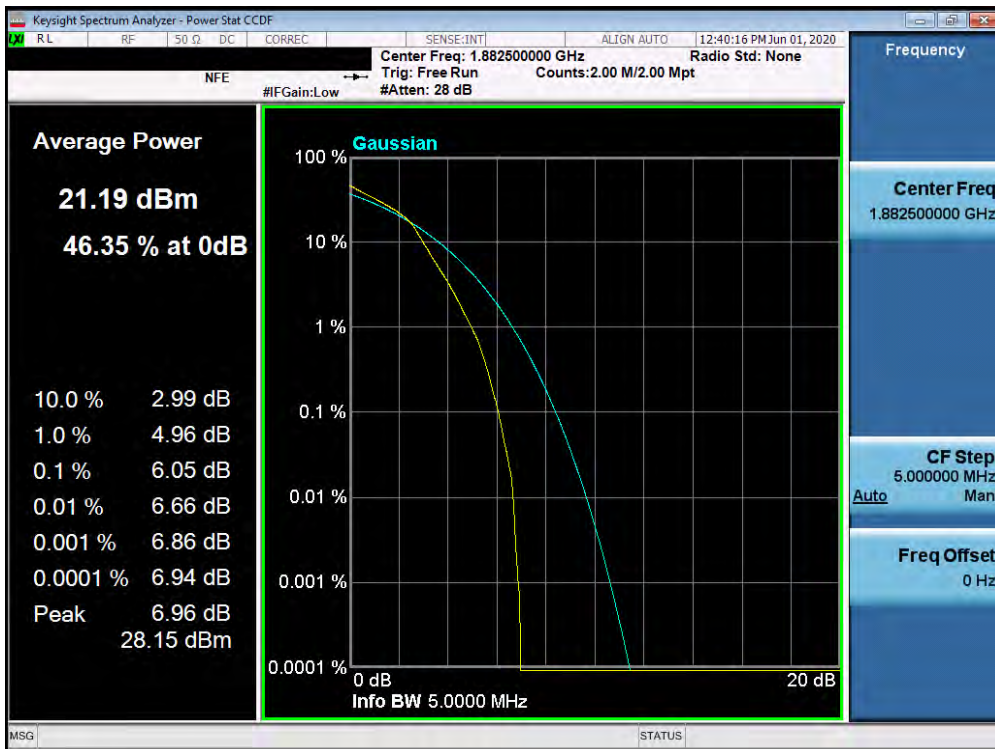
None.

FCC ID: A3LSMN981U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 341 of 485

Band 25/2

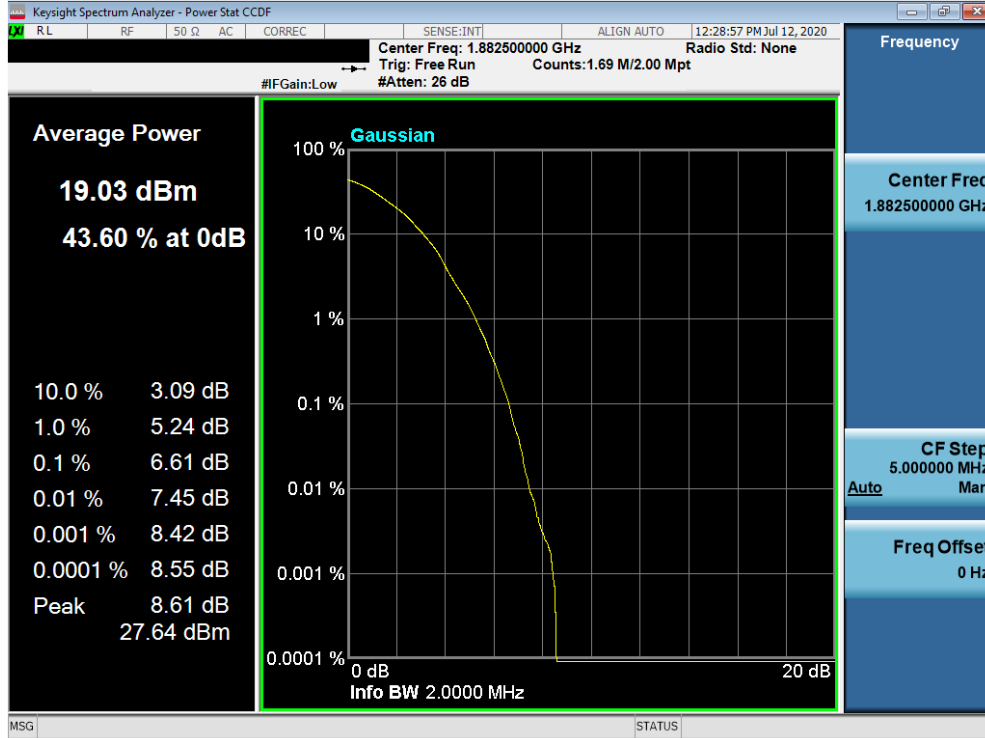


Plot 7-622. PAR Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)

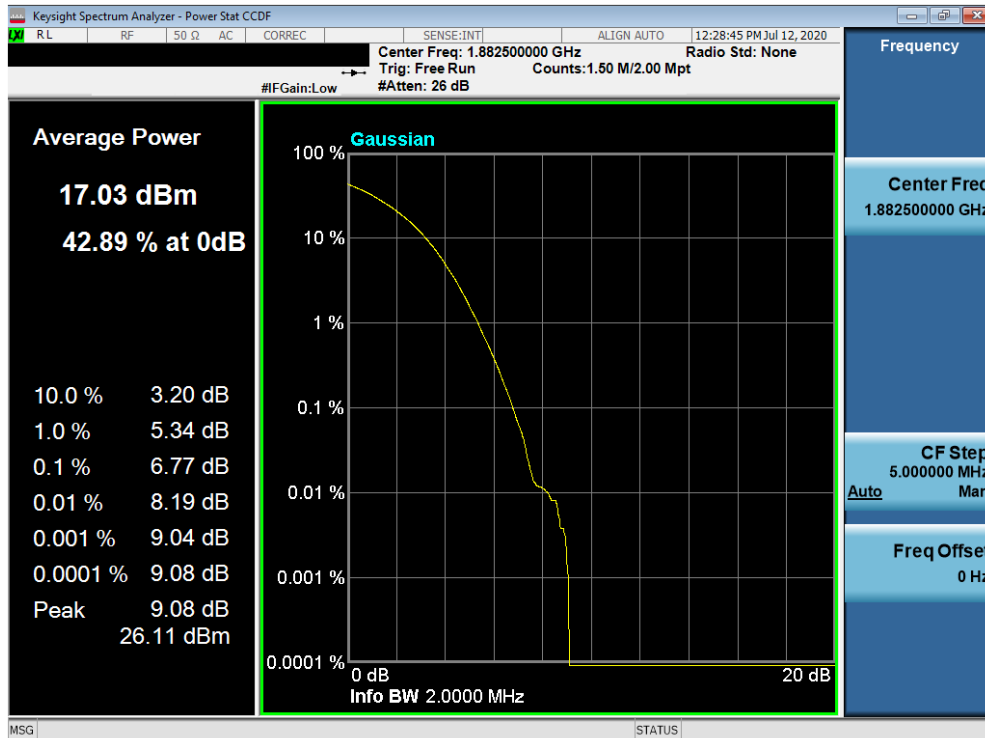


Plot 7-623. PAR Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 342 of 485

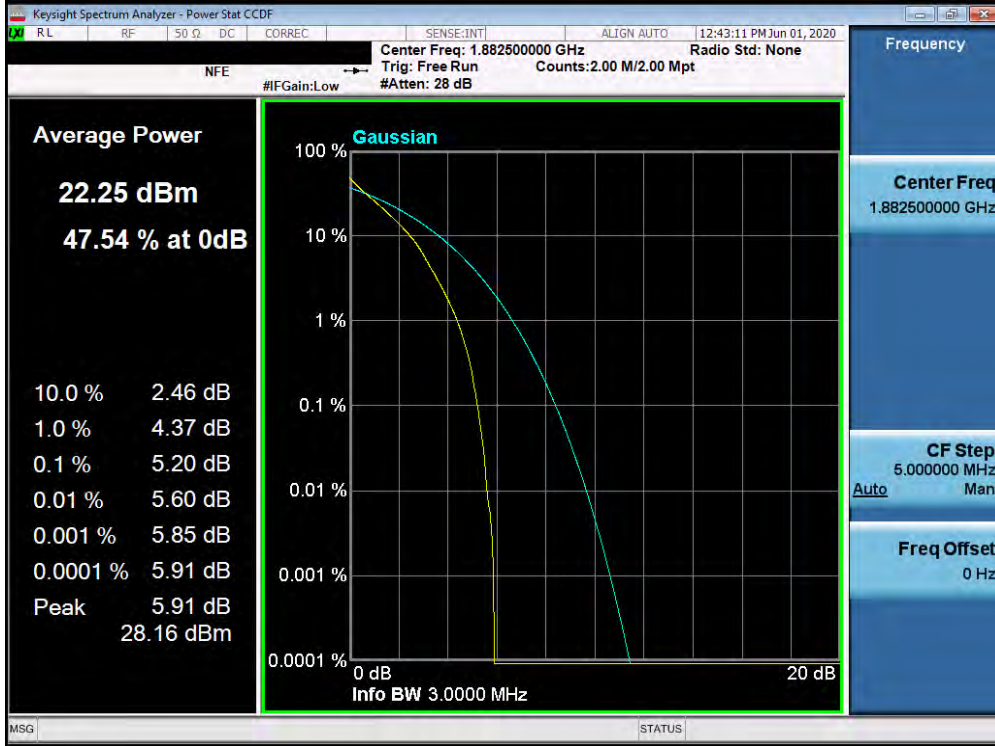


Plot 7-624. PAR Plot (Band 25/2 - 1.4MHz 64-QAM - Full RB Configuration)

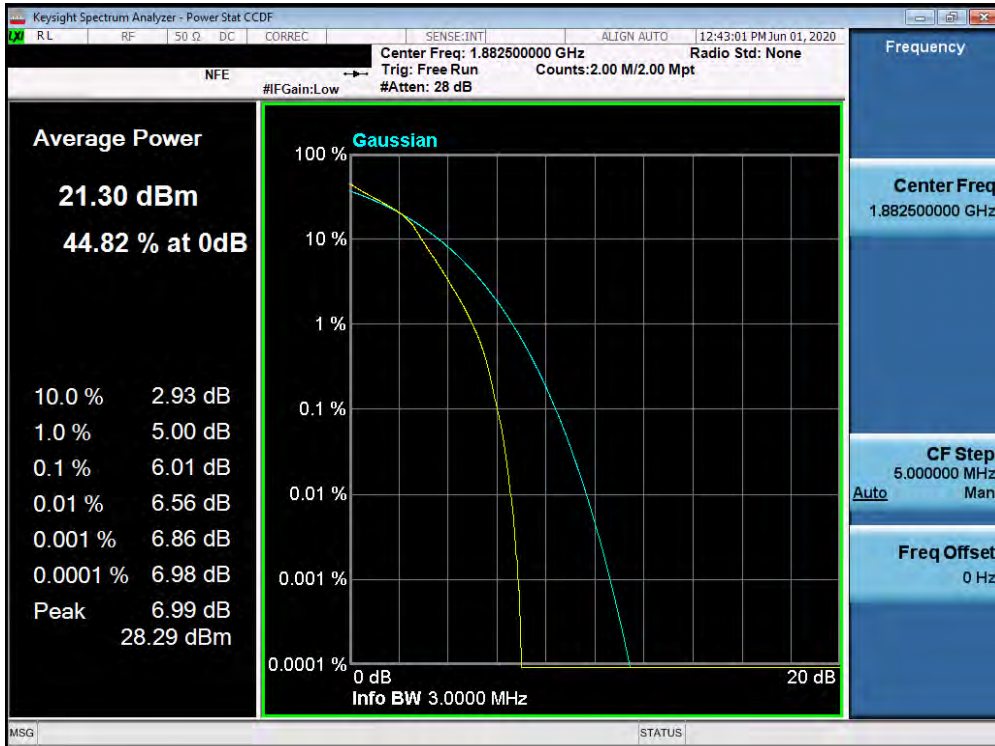


Plot 7-625. PAR Plot (Band 25/2 - 1.4MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 343 of 485

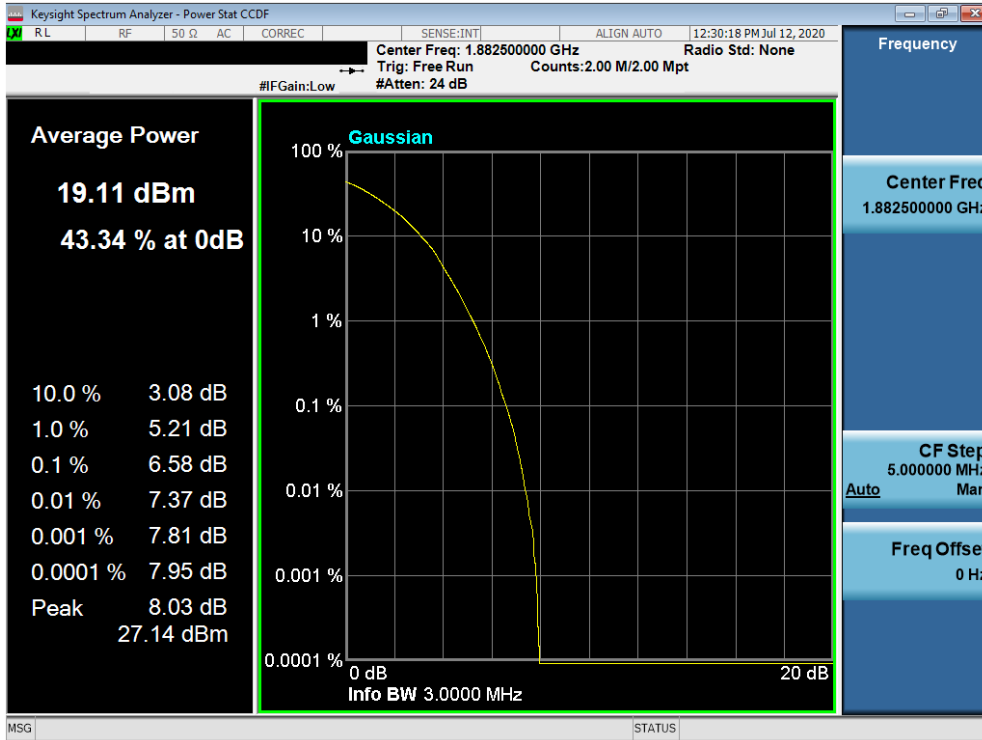


Plot 7-626. PAR Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)

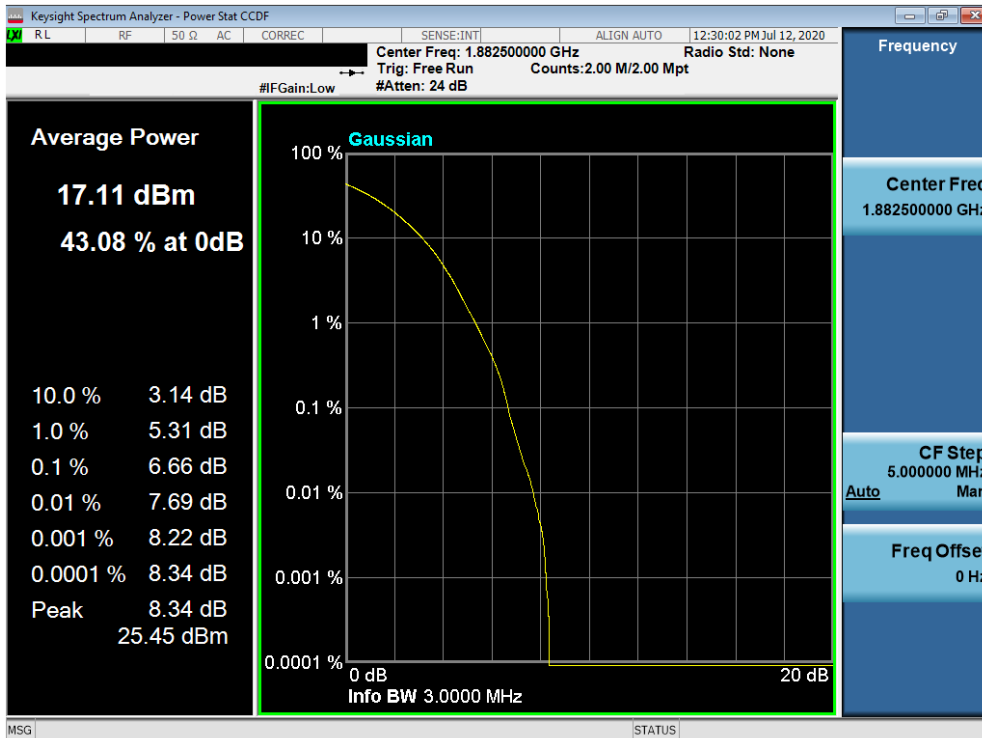


Plot 7-627. PAR Plot (Band 25/2 - 3.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 344 of 485

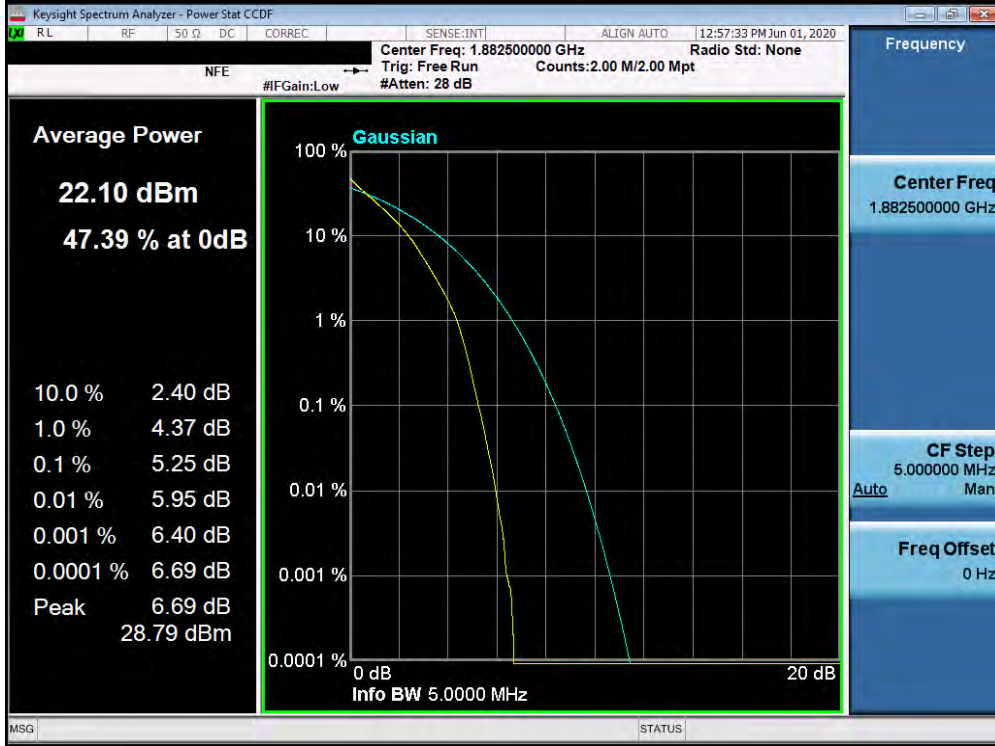


Plot 7-628. PAR Plot (Band 25/2 – 3.0MHz 64-QAM - Full RB Configuration)

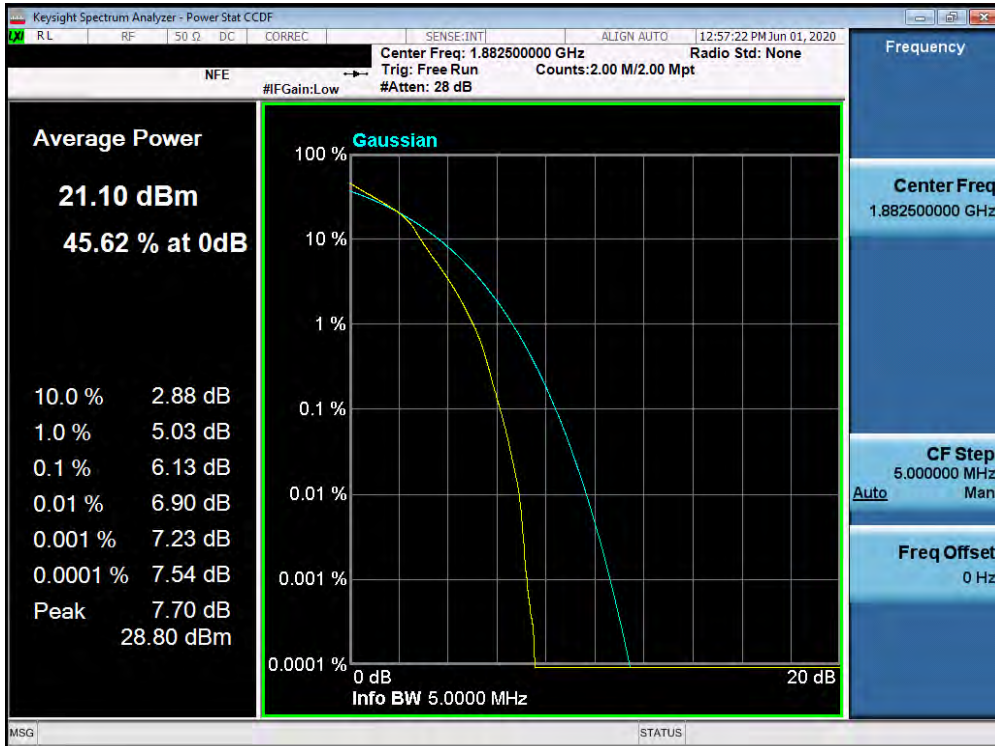


Plot 7-629. PAR Plot (Band 25/2 – 3.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 345 of 485

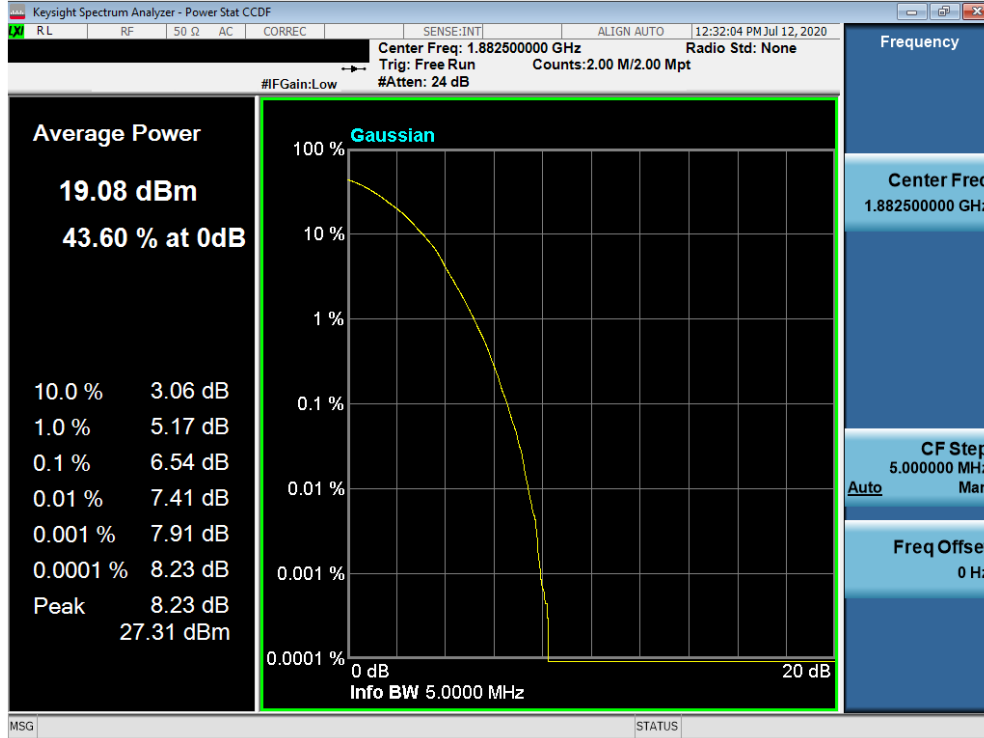


Plot 7-630. PAR Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)

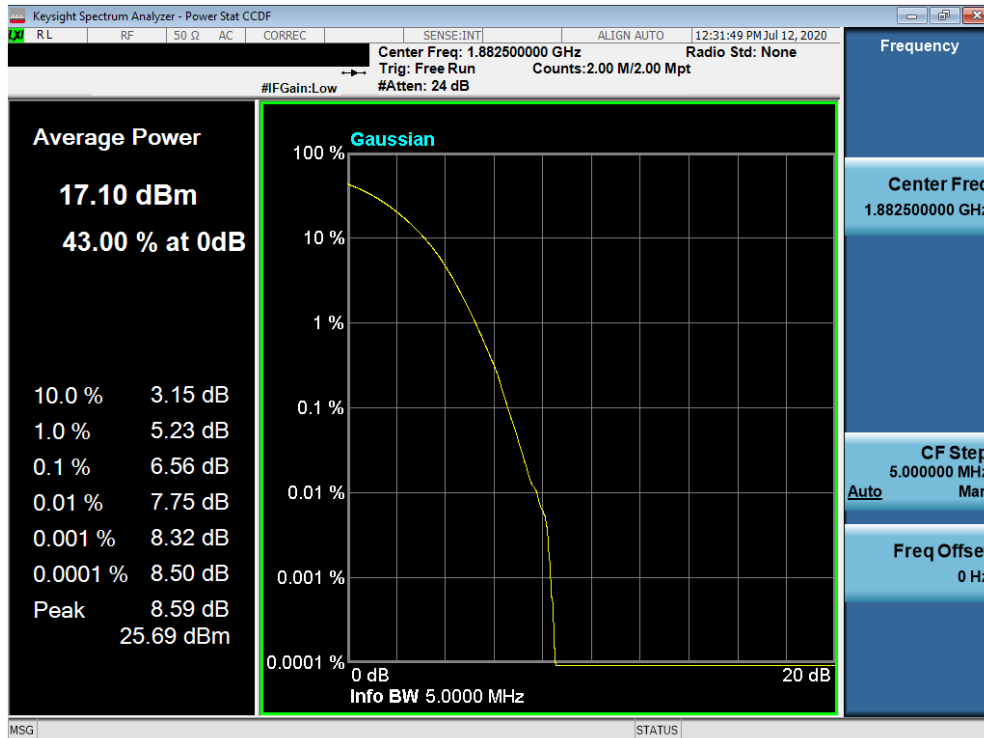


Plot 7-631. PAR Plot (Band 25/2 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 346 of 485

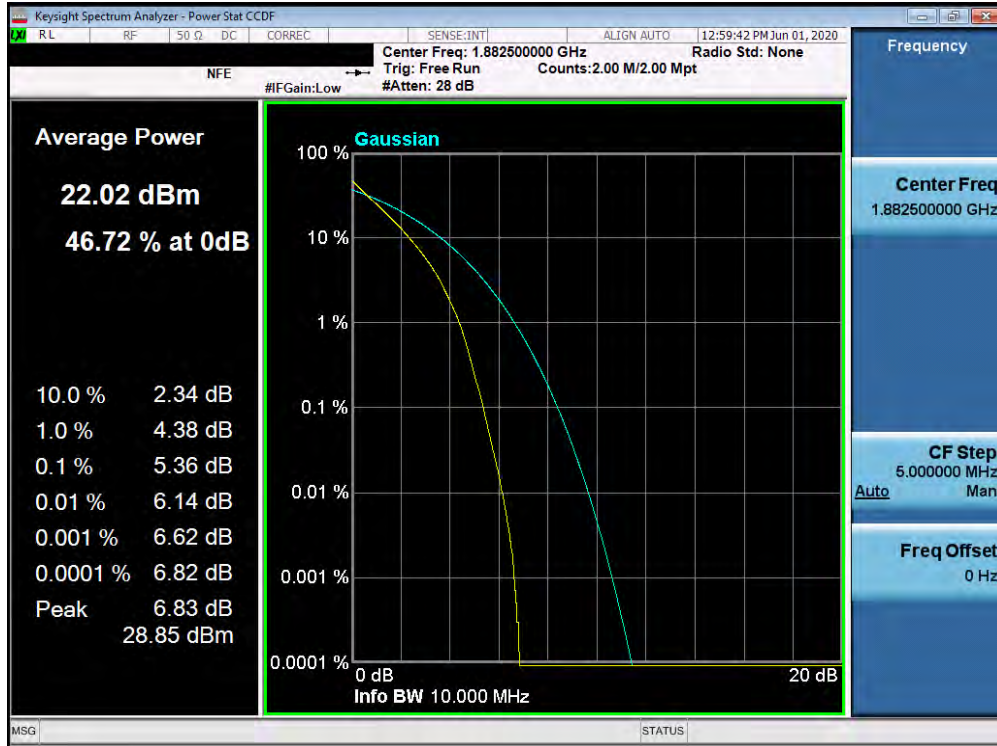


Plot 7-632. PAR Plot (Band 25/2 – 5.0MHz 64-QAM - Full RB Configuration)

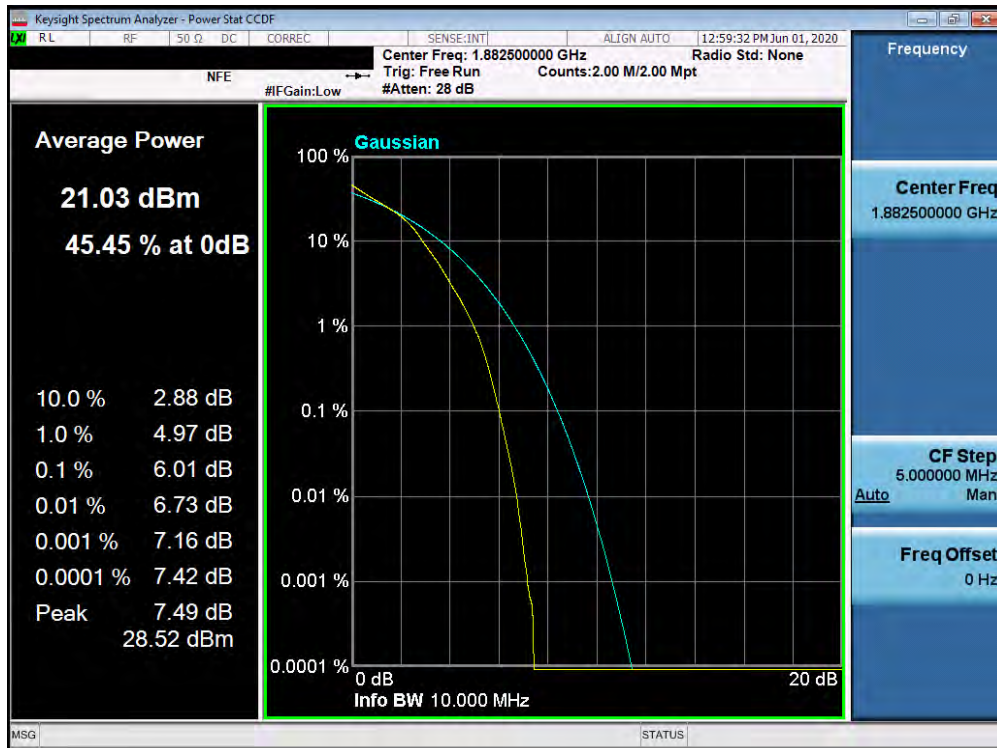


Plot 7-633. PAR Plot (Band 25/2 – 5.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 347 of 485

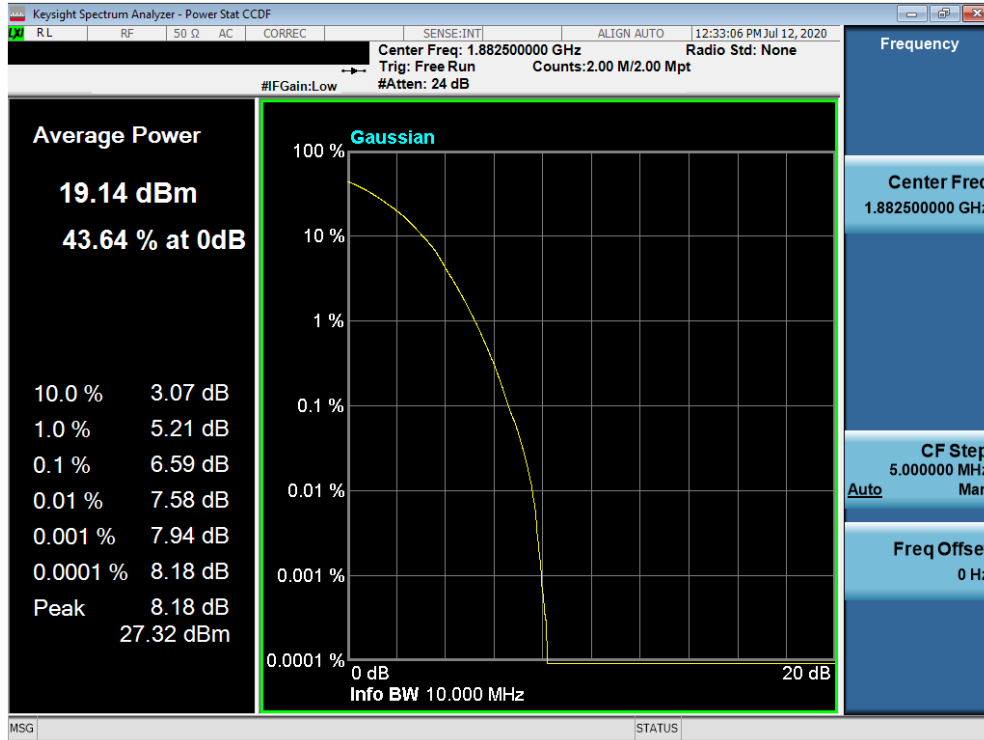


Plot 7-634. PAR Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

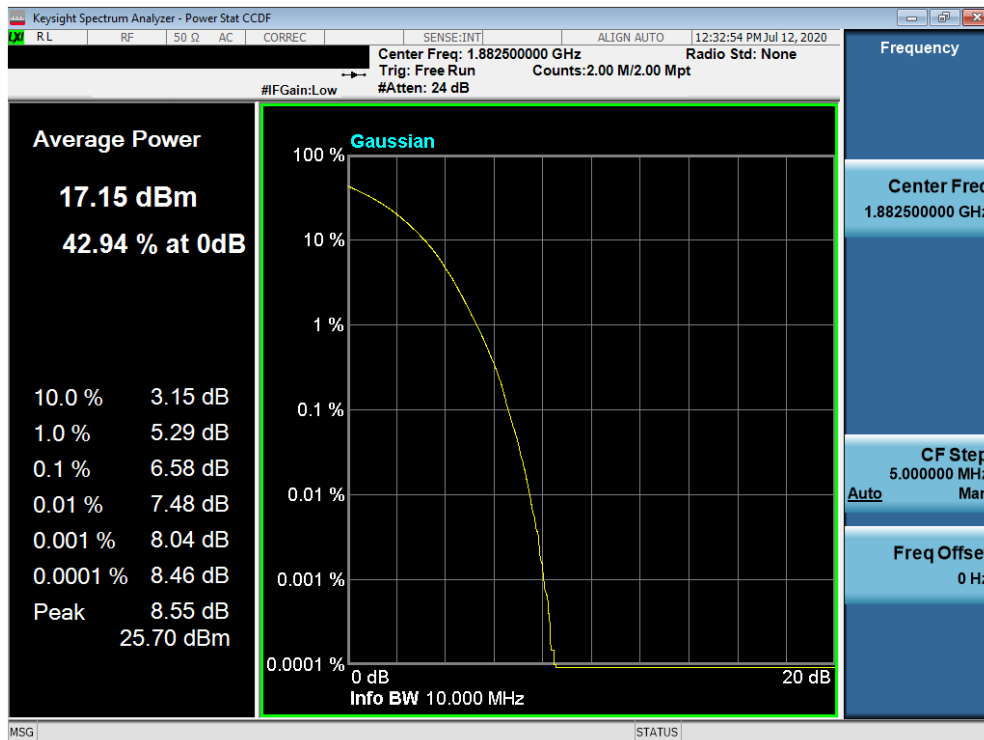


Plot 7-635. PAR Plot (Band 25/2 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 348 of 485

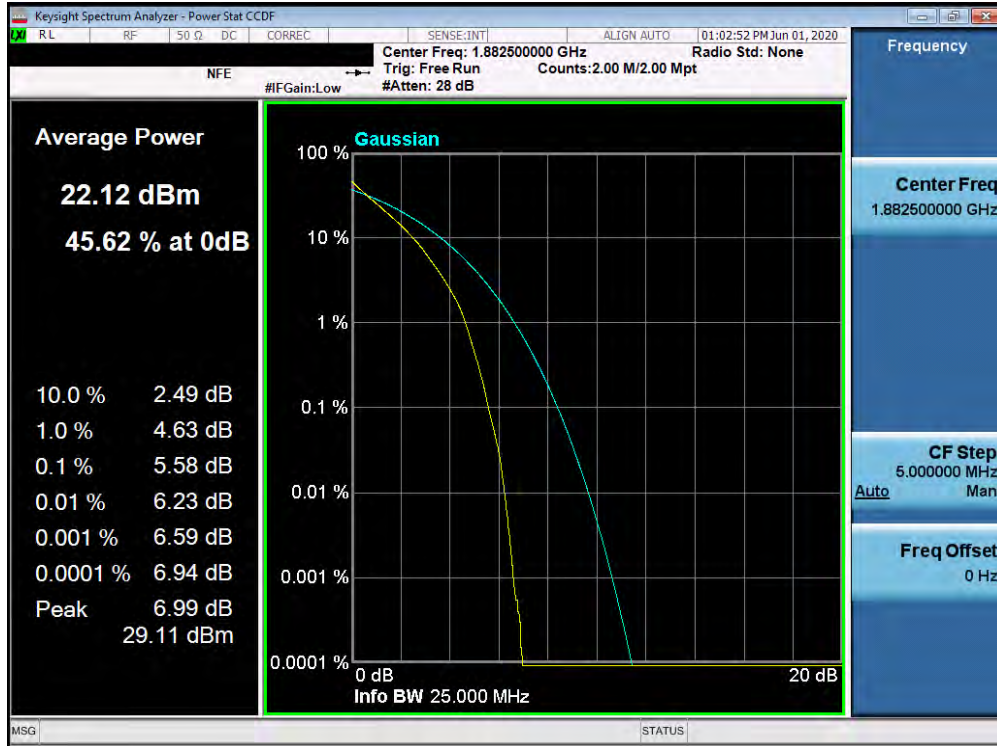


Plot 7-636. PAR Plot (Band 25/2 – 10.0MHz 64-QAM - Full RB Configuration)

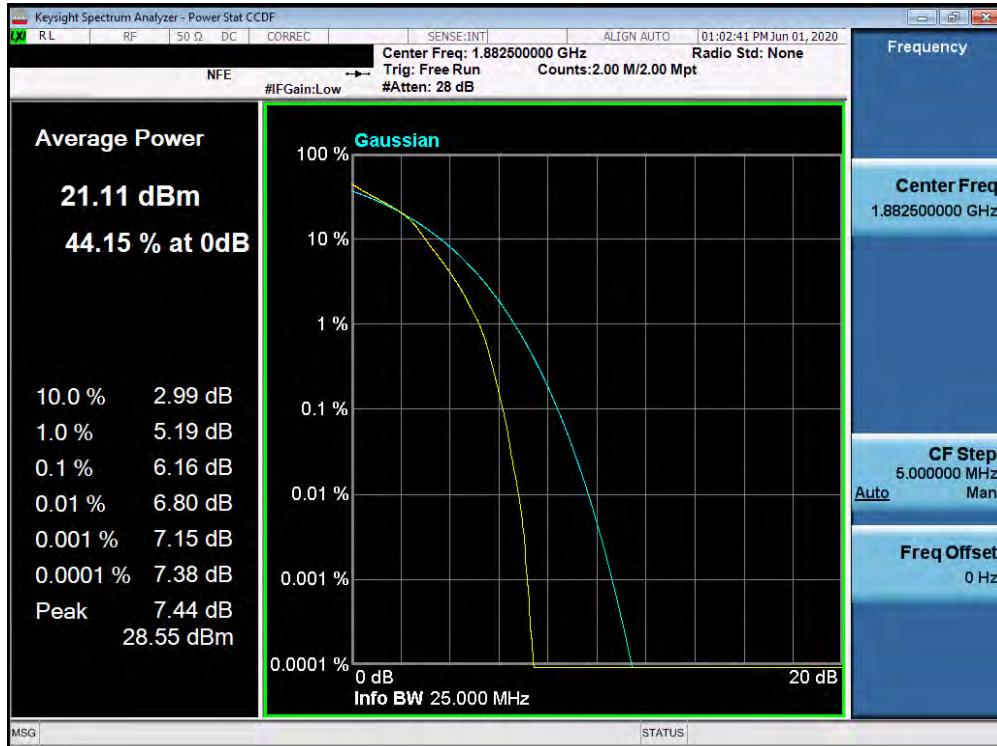


Plot 7-637. PAR Plot (Band 25/2 – 10.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 349 of 485

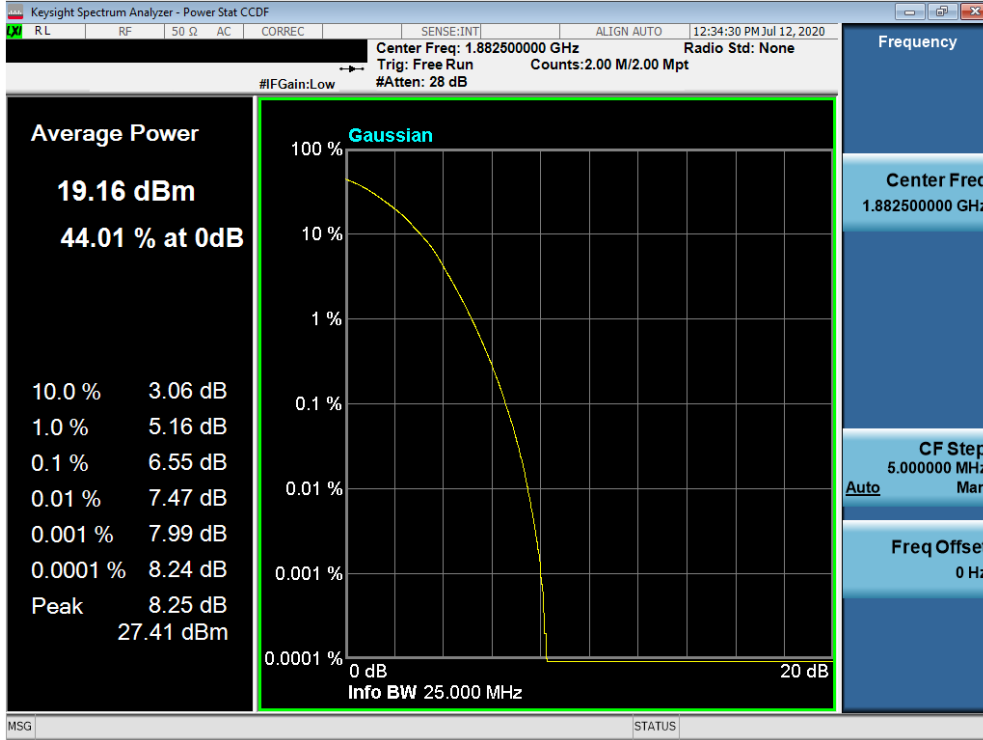


Plot 7-638. PAR Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)

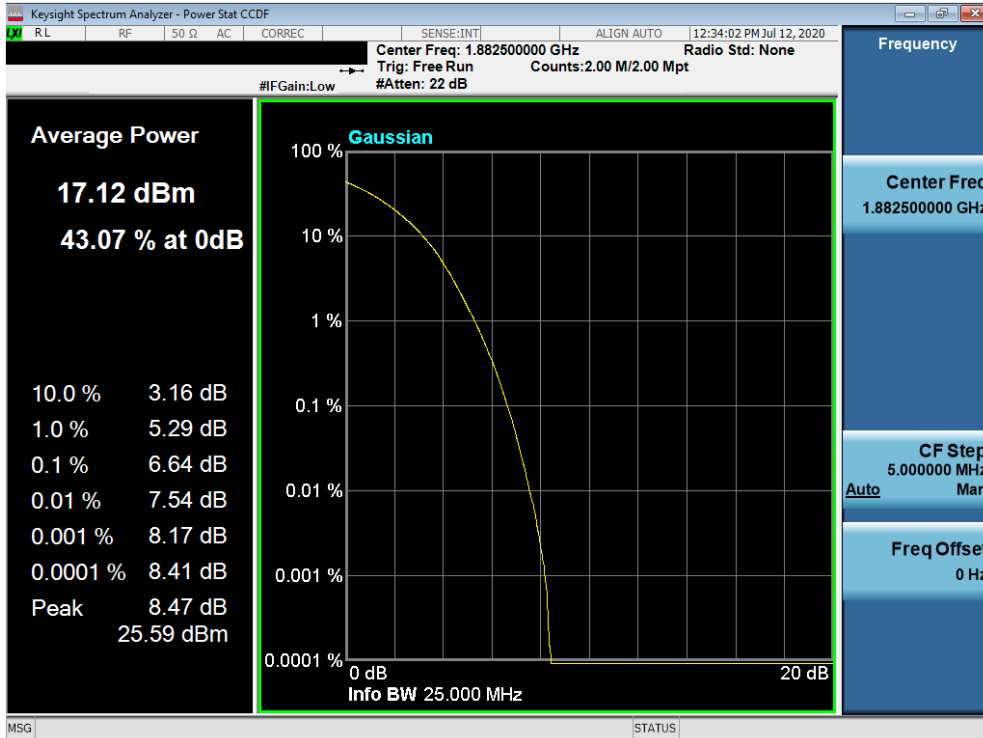


Plot 7-639. PAR Plot (Band 25/2 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 350 of 485

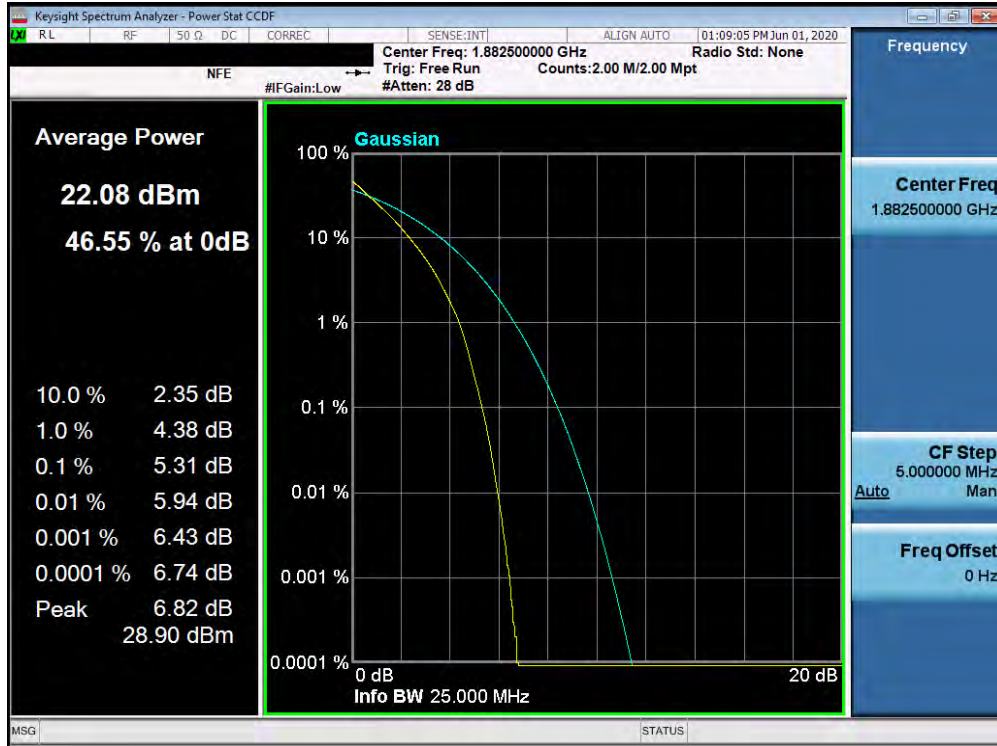


Plot 7-640. PAR Plot (Band 25/2 – 15.0MHz 64-QAM - Full RB Configuration)

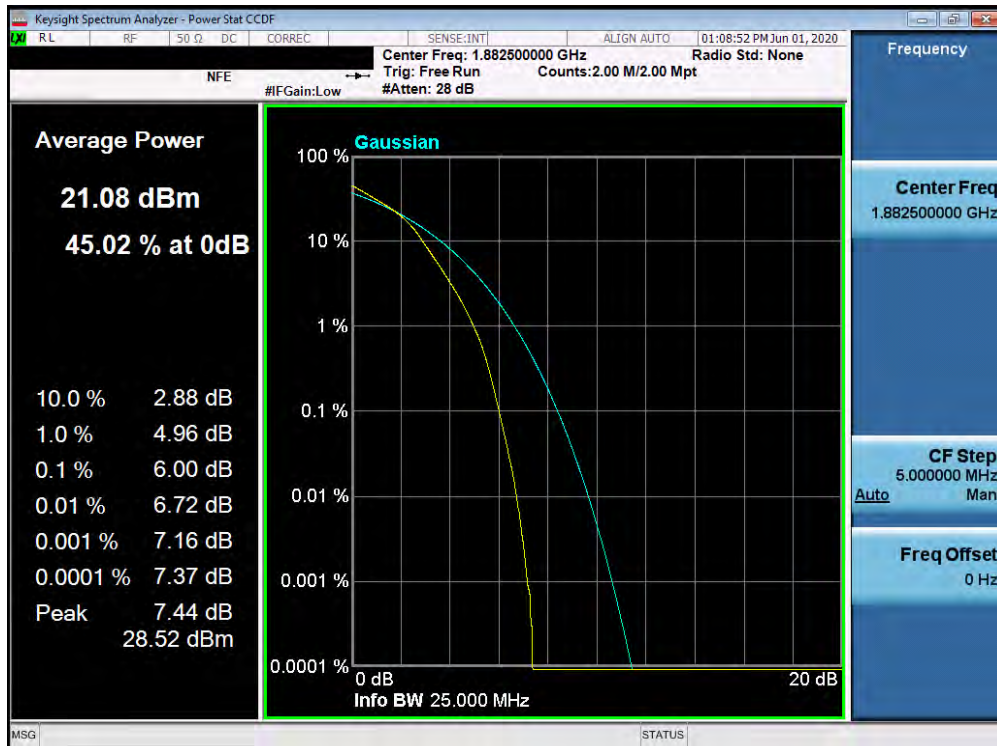


Plot 7-641. PAR Plot (Band 25/2 – 15.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 351 of 485

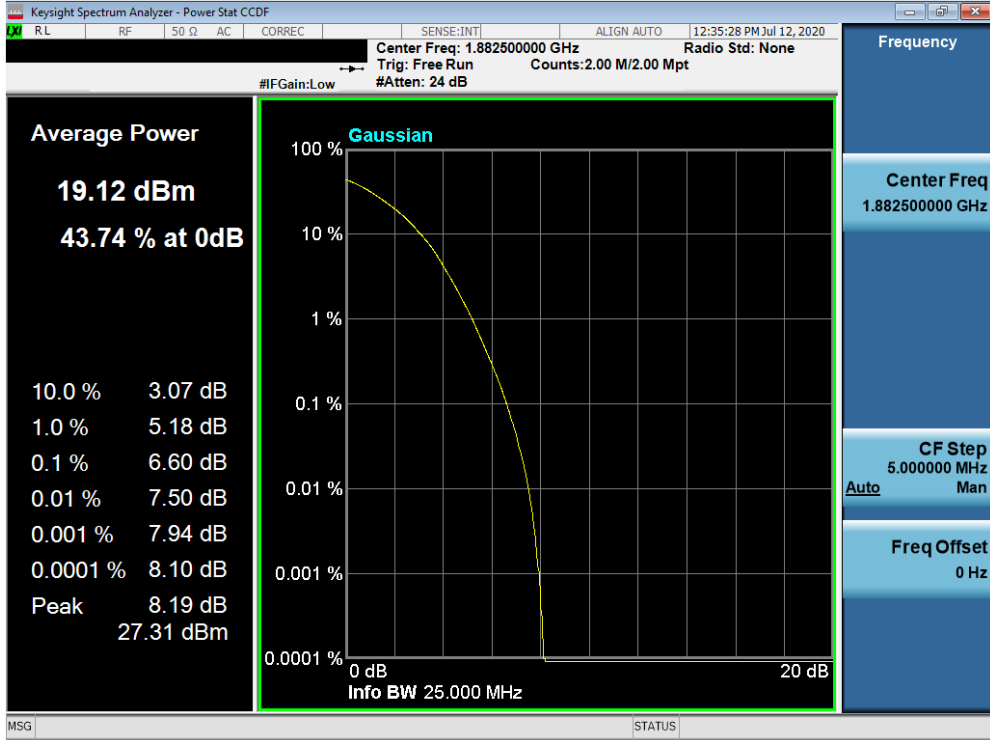


Plot 7-642. PAR Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

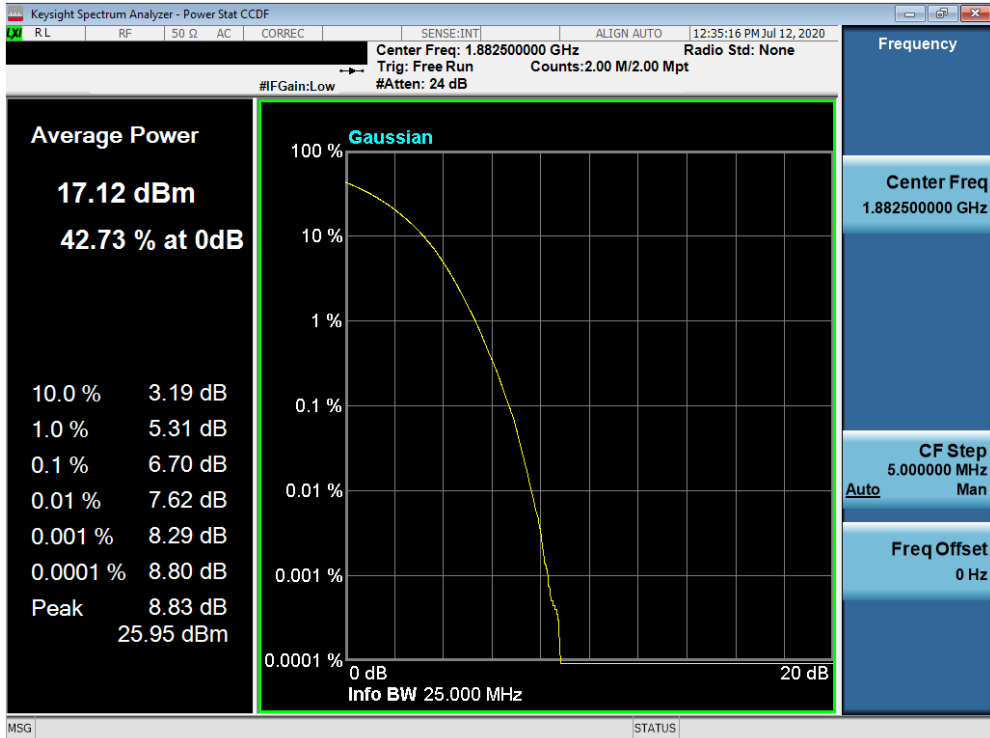


Plot 7-643. PAR Plot (Band 25/2 - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 352 of 485



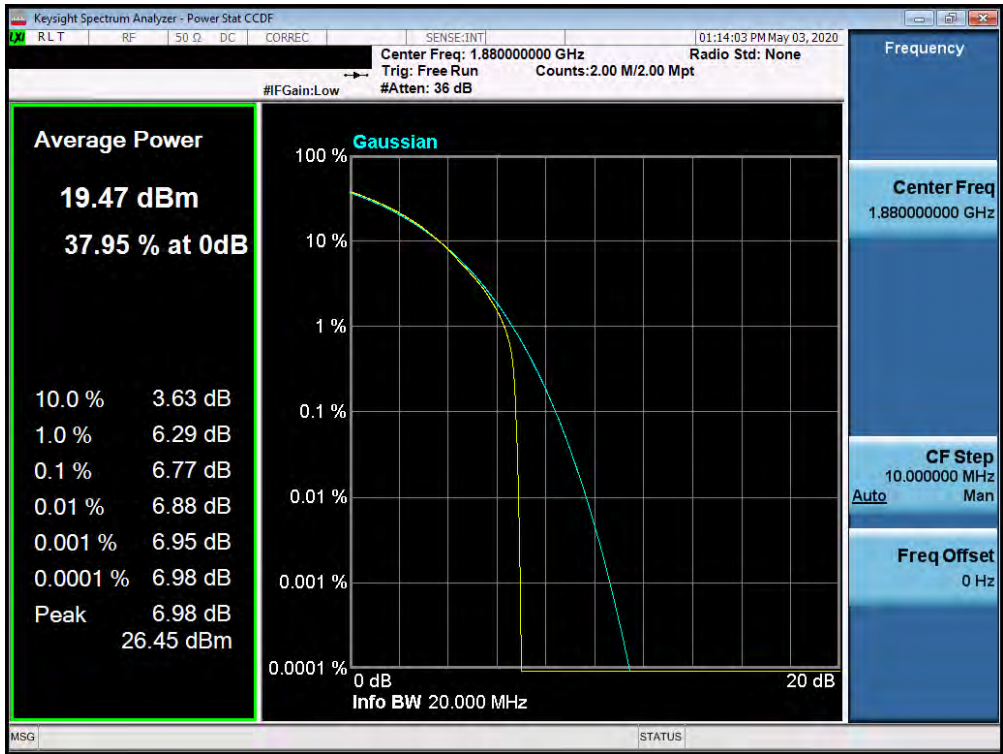
Plot 7-644. PAR Plot (Band 25/2 – 20.0MHz 64-QAM - Full RB Configuration)



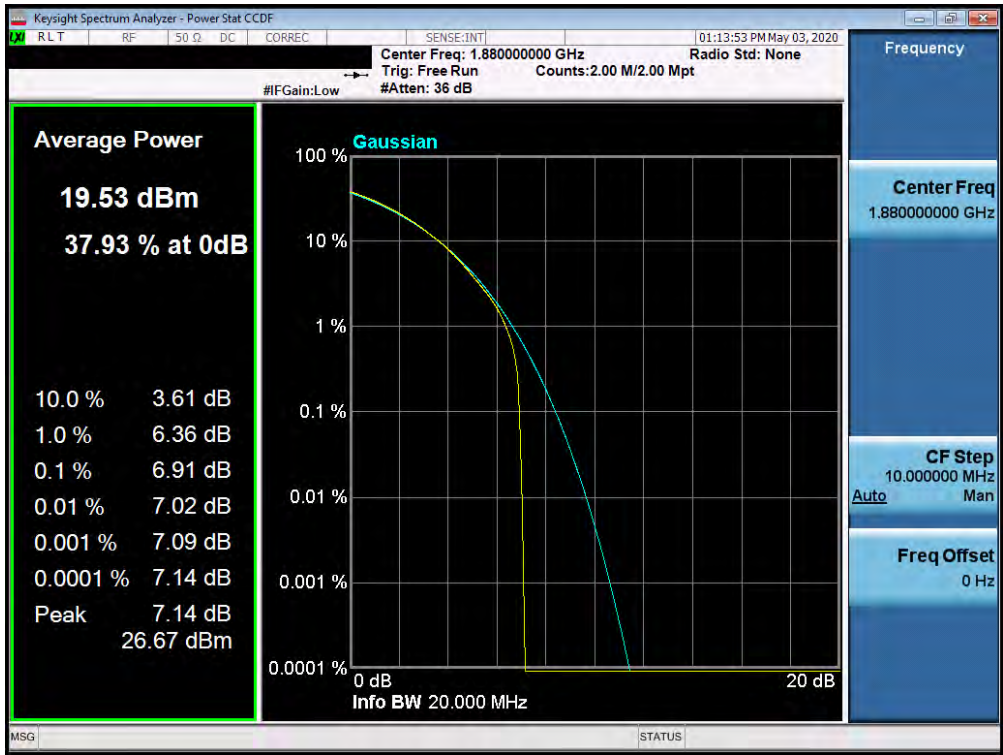
Plot 7-645. PAR Plot (Band 25/2 – 20.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 353 of 485

NR Band n25/2

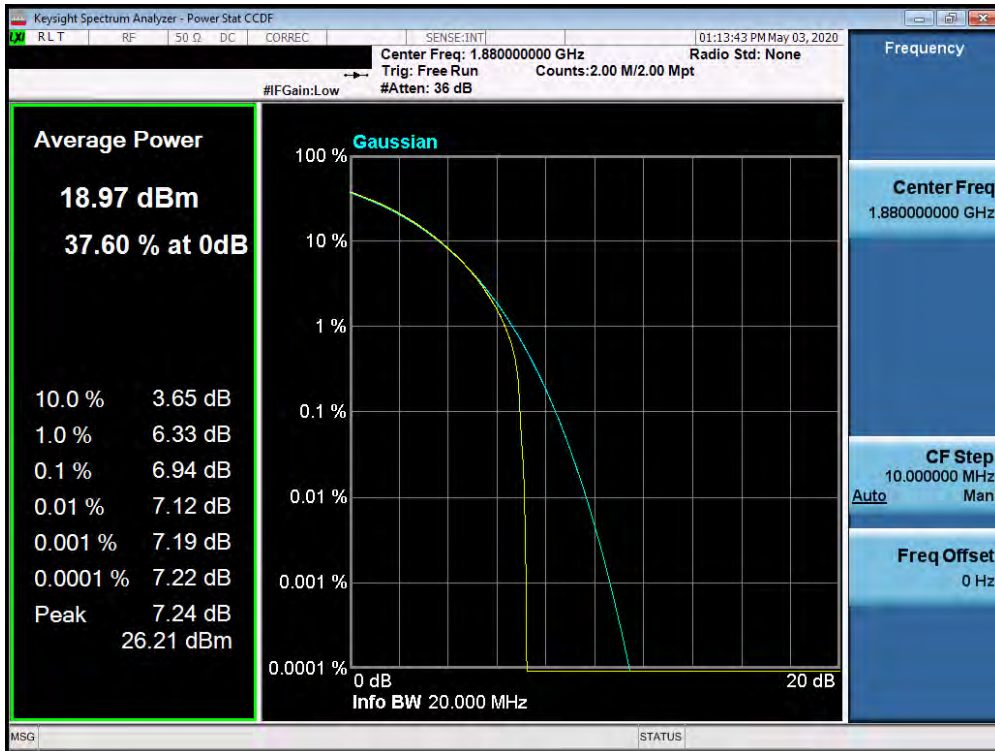


Plot 7-646. PAR Plot (Band n25/2 - 5.0MHz QPSK - Full RB Configuration)

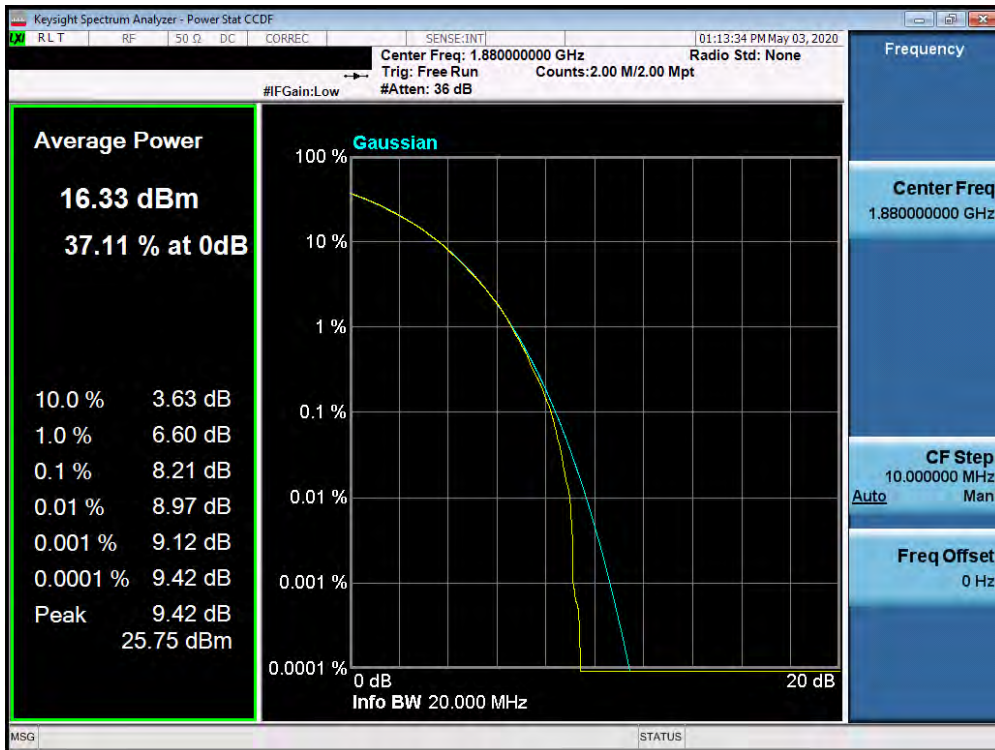


Plot 7-647. PAR Plot (Band n25/2 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 354 of 485

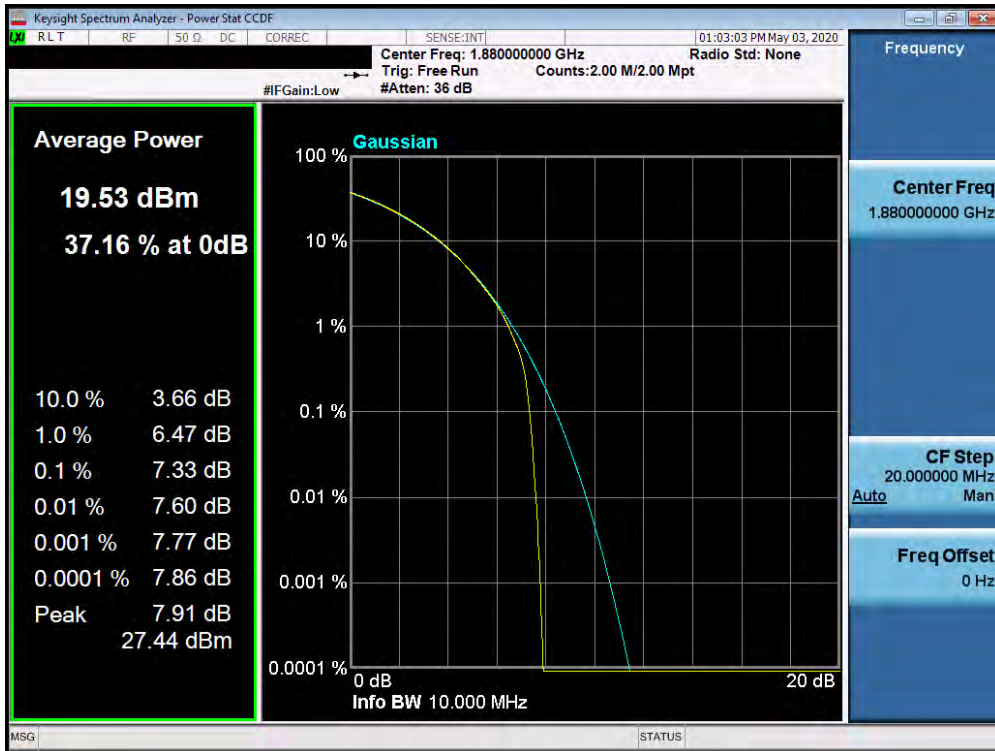


Plot 7-648. PAR Plot (Band n25/2 - 5.0MHz 64-QAM - Full RB Configuration)

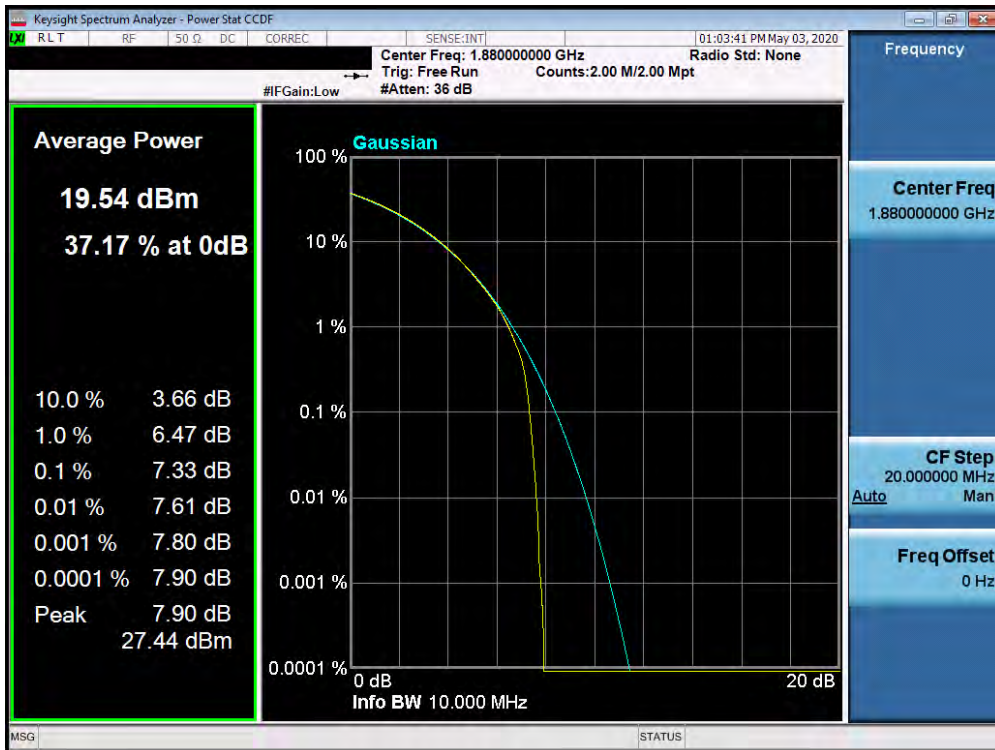


Plot 7-649. PAR Plot (Band n25/2 - 5.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 355 of 485

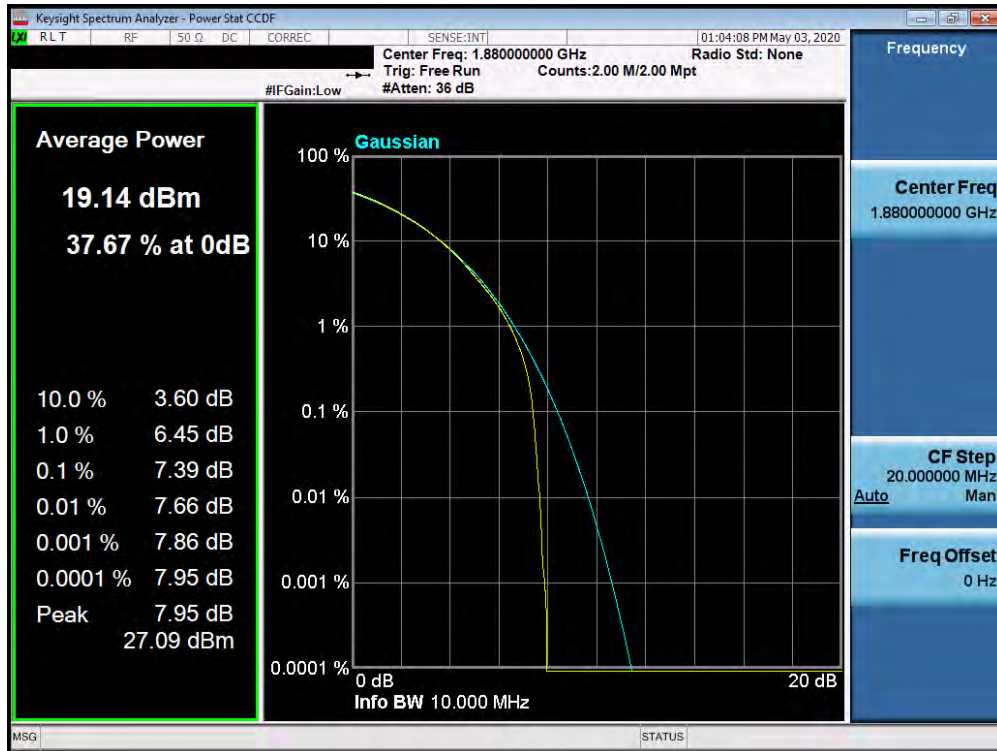


Plot 7-650. PAR Plot (Band n25/2 - 10.0MHz QPSK - Full RB Configuration)

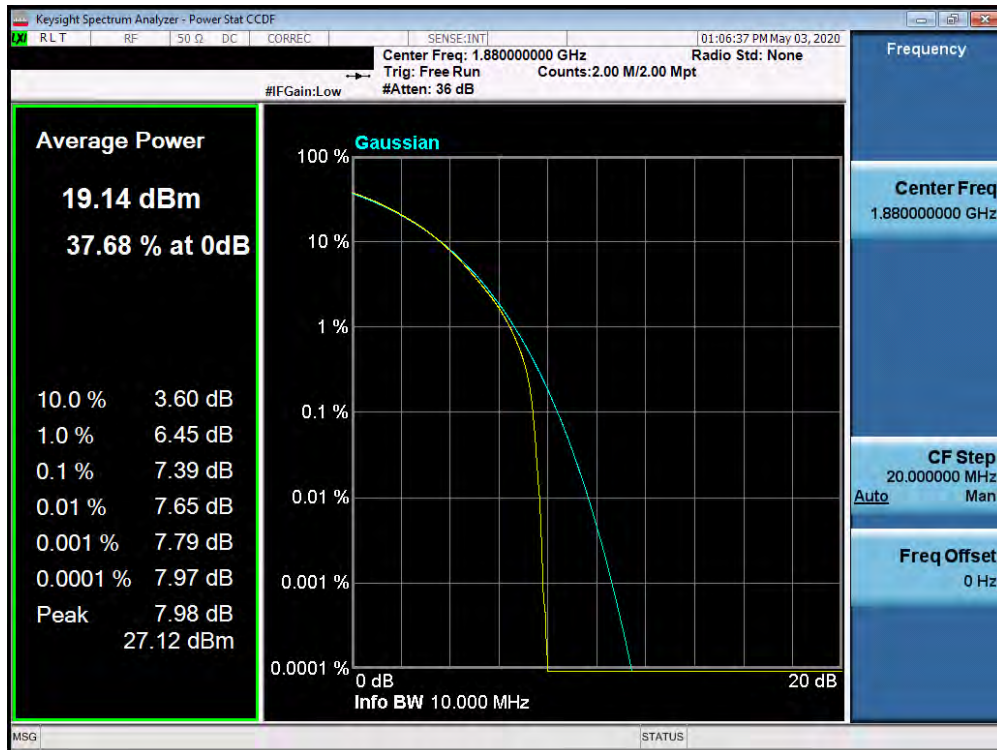


Plot 7-651. PAR Plot (Band n25/2 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 356 of 485

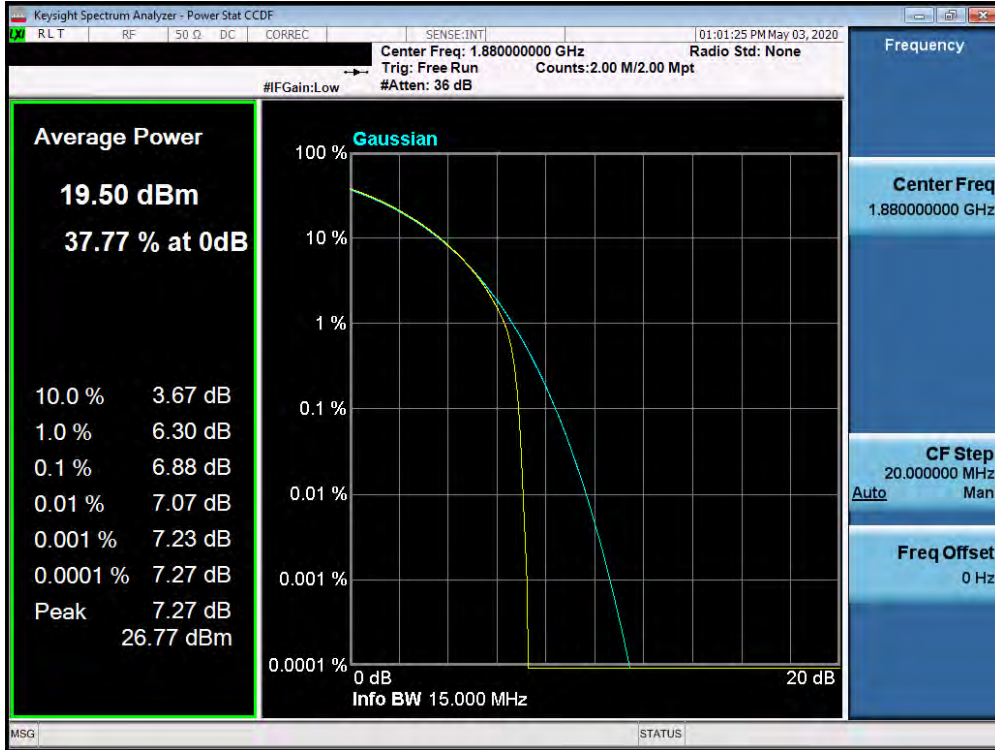


Plot 7-652. PAR Plot (Band n25/2 - 10.0MHz 64-QAM - Full RB Configuration)

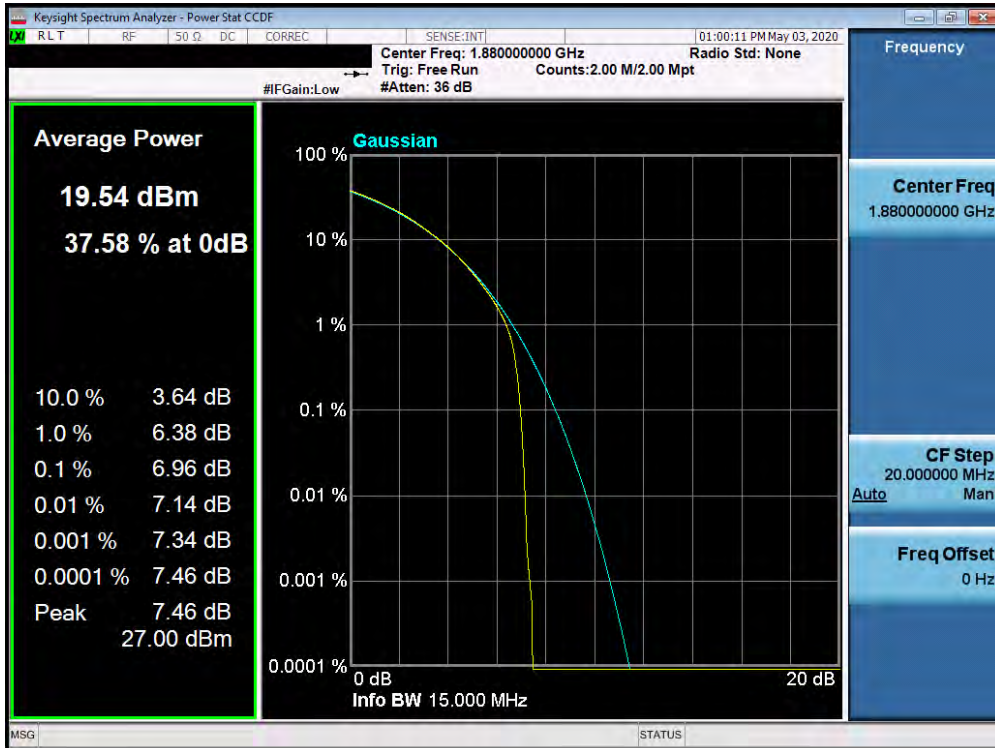


Plot 7-653. PAR Plot (Band n25/2 - 10.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 357 of 485

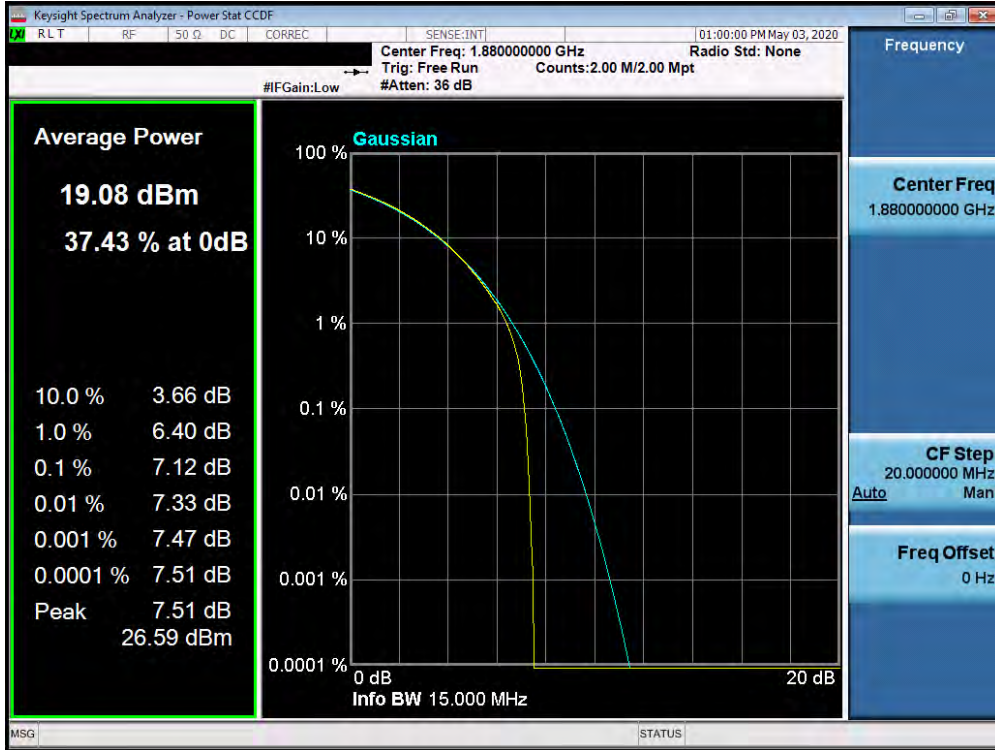


Plot 7-654. PAR Plot (Band n25/2 - 15.0MHz QPSK - Full RB Configuration)

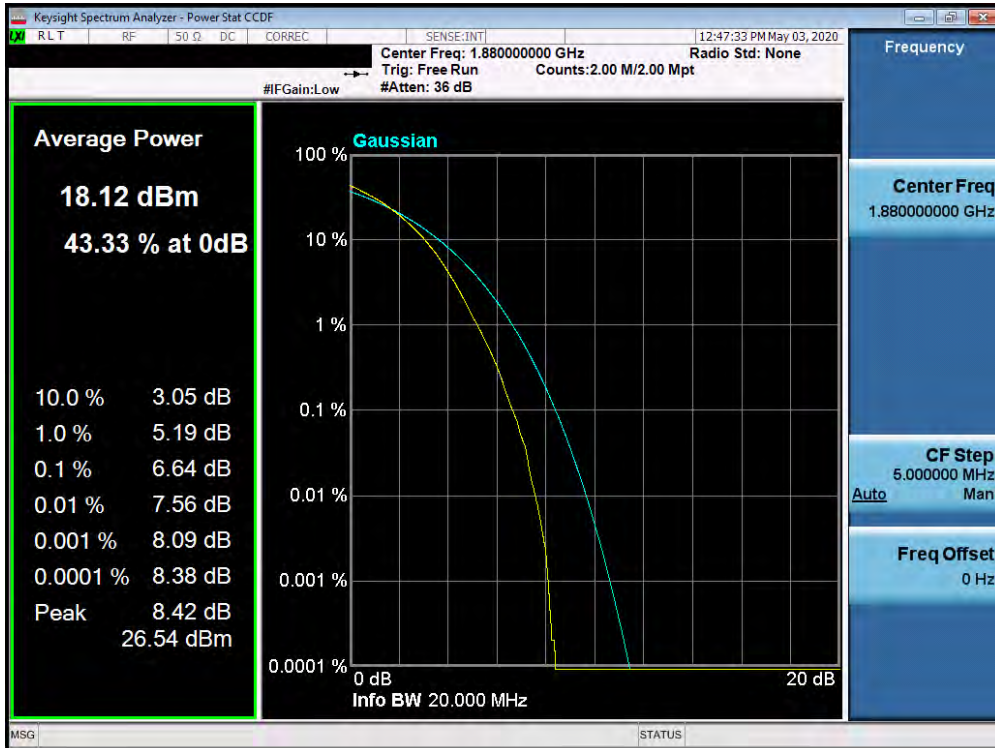


Plot 7-655. PAR Plot (Band n25/2 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 358 of 485

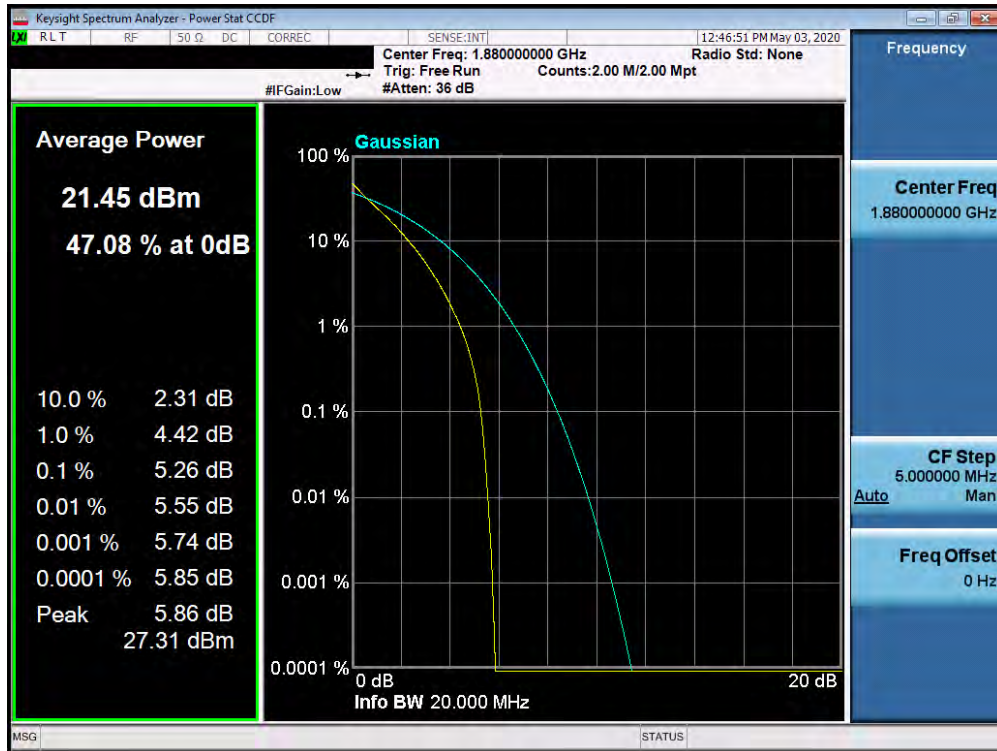


Plot 7-656. PAR Plot (Band n25/2 - 15.0MHz 64-QAM - Full RB Configuration)

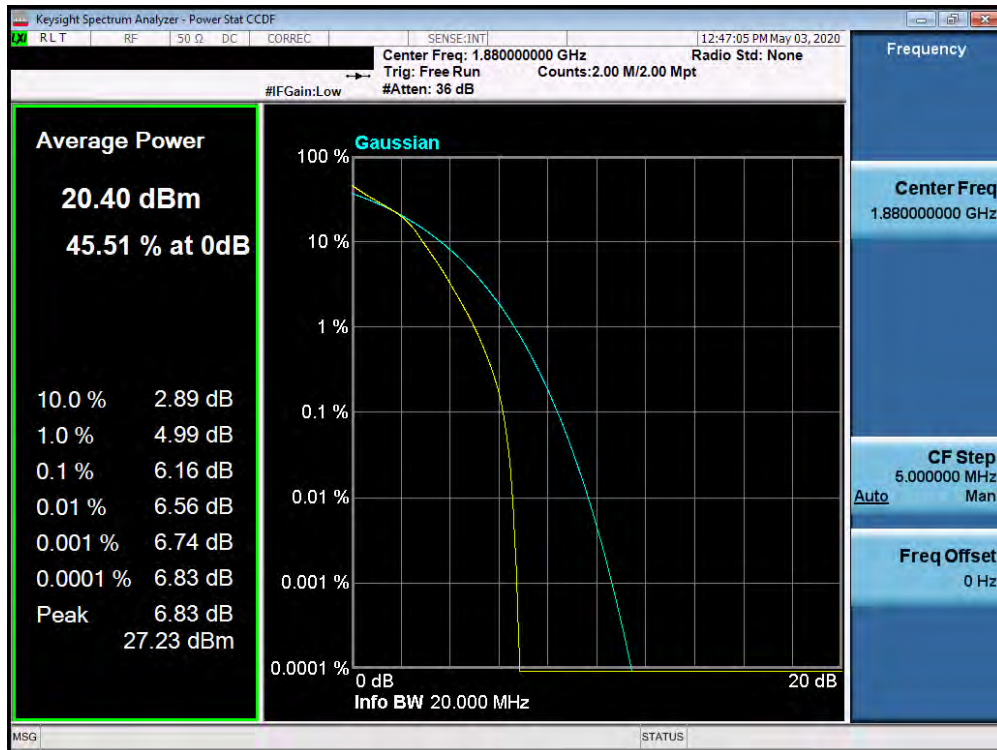


Plot 7-657. PAR Plot (Band n25/2 - 15.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 359 of 485

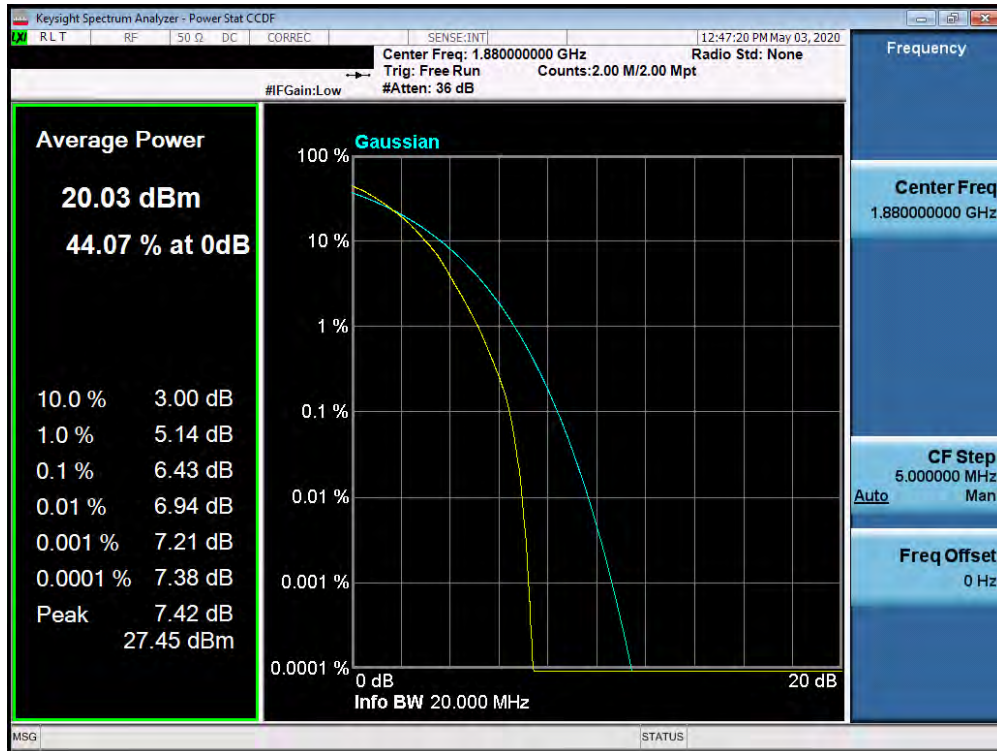


Plot 7-658. PAR Plot (Band n25/2 - 20.0MHz QPSK - Full RB Configuration)

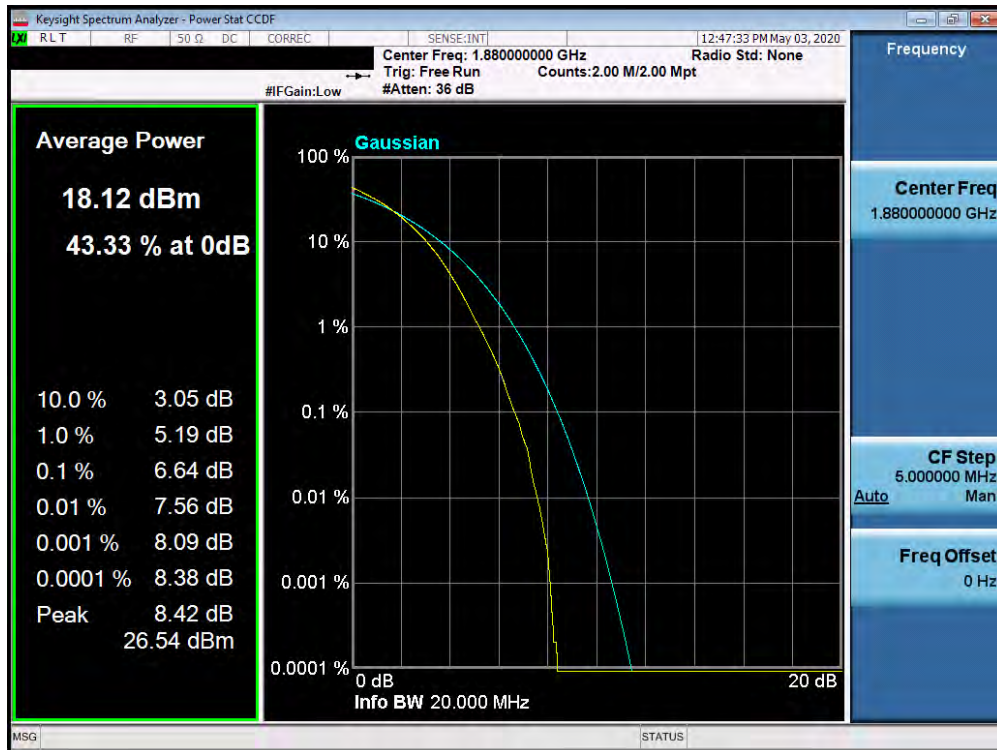


Plot 7-659. PAR Plot (Band n25/2 - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 360 of 485



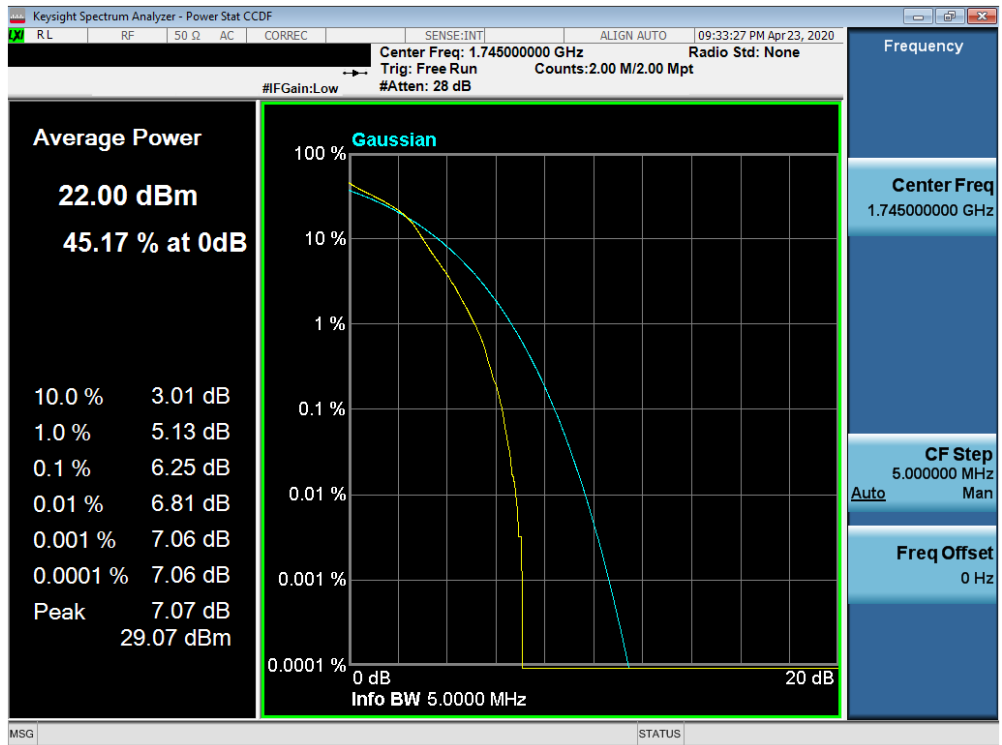
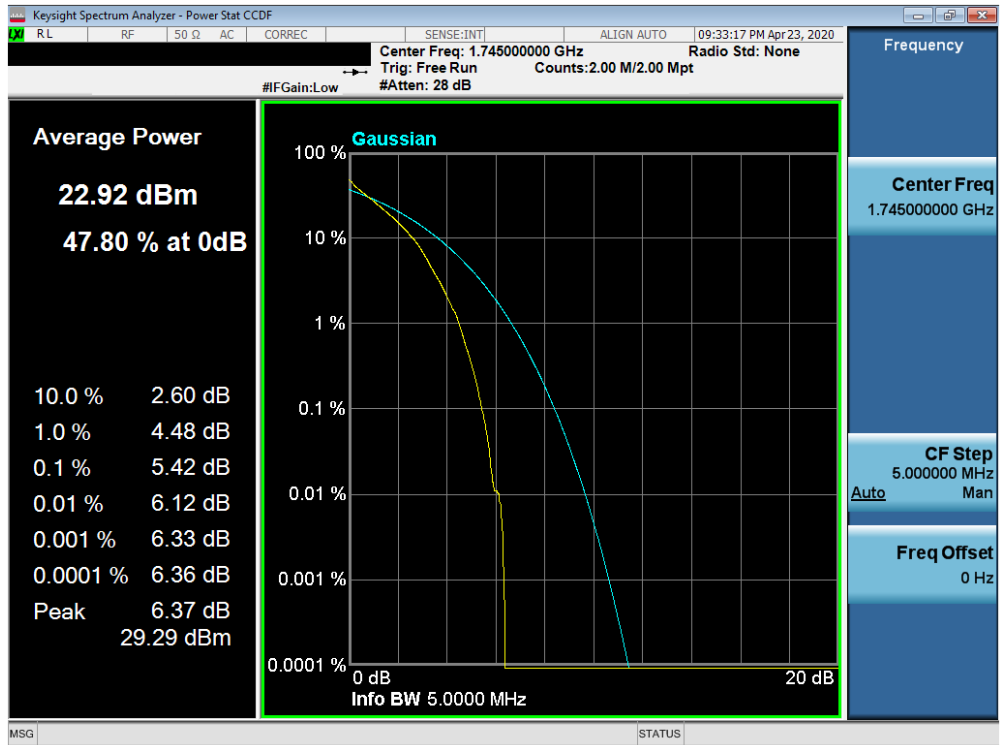
Plot 7-660. PAR Plot (Band n25/2 - 20.0MHz 64-QAM - Full RB Configuration)



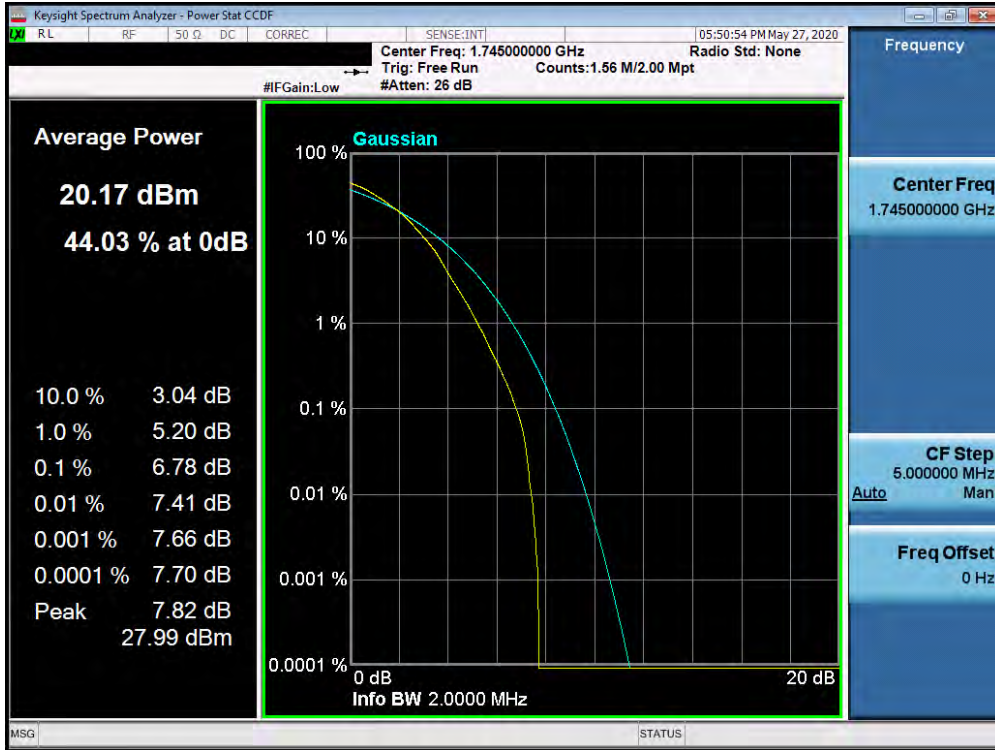
Plot 7-661. PAR Plot (Band n25/2 - 20.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 361 of 485

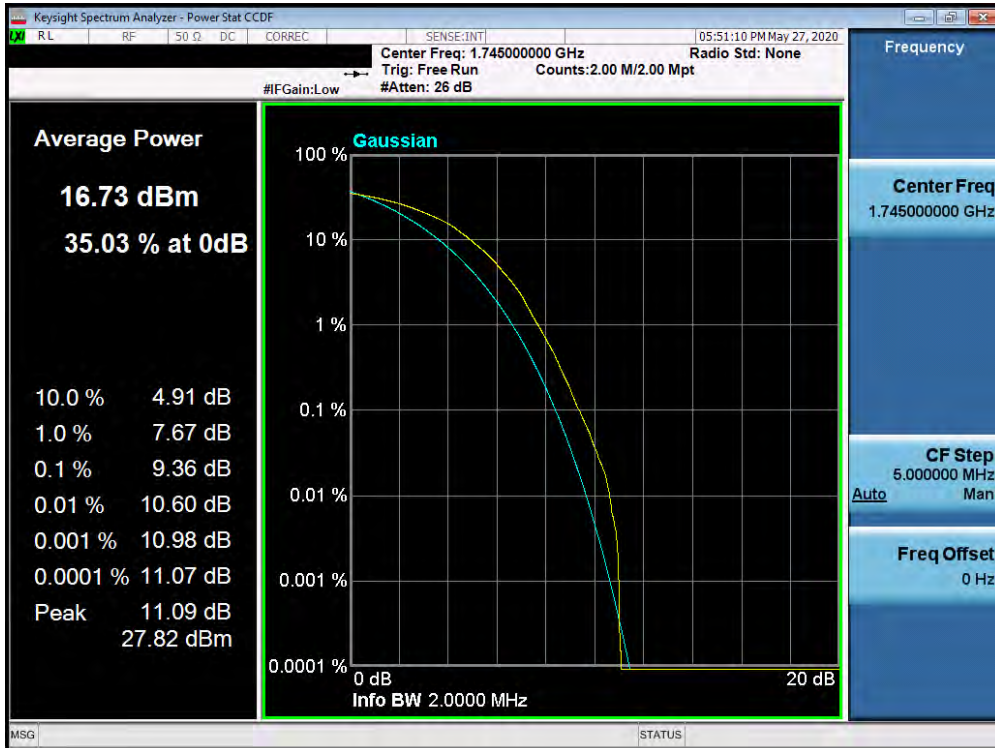
Band 66/4



FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 362 of 485

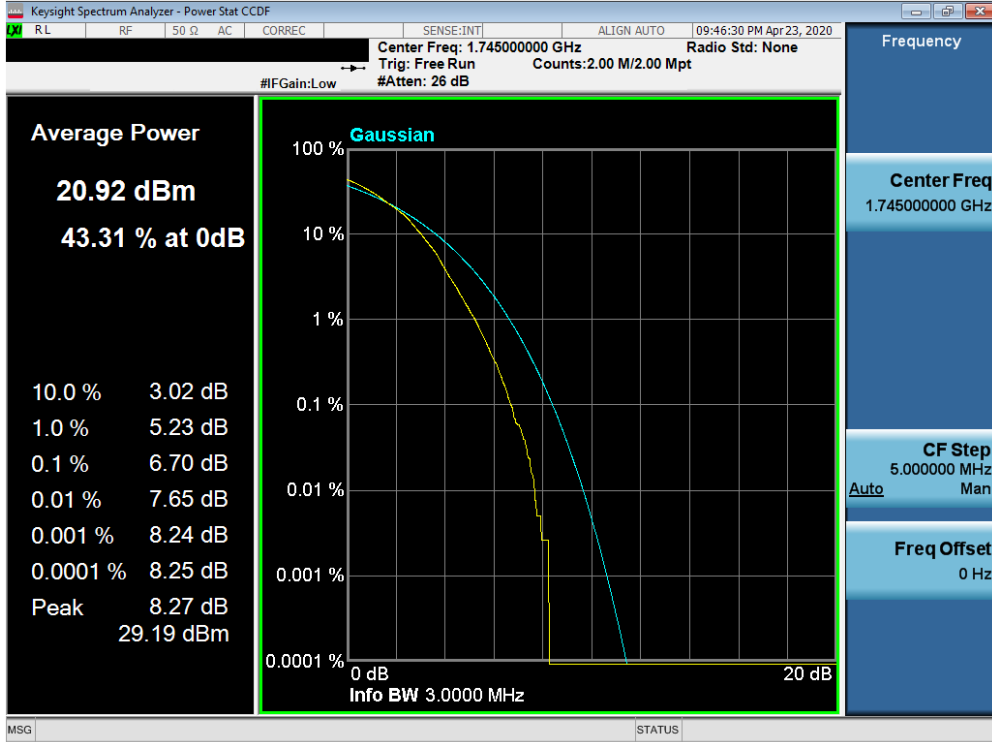


Plot 7-664. PAR Plot (Band 66/4 - 1.4MHz 64-QAM - Full RB Configuration)

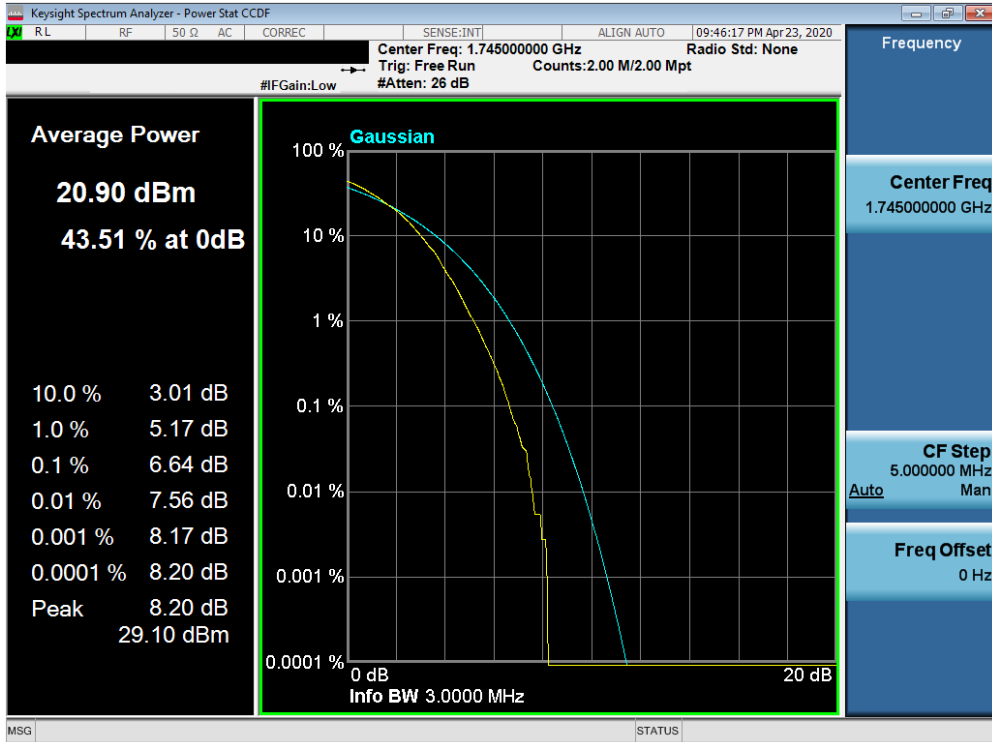


Plot 7-665. PAR Plot (Band 66/4 - 1.4MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 363 of 485

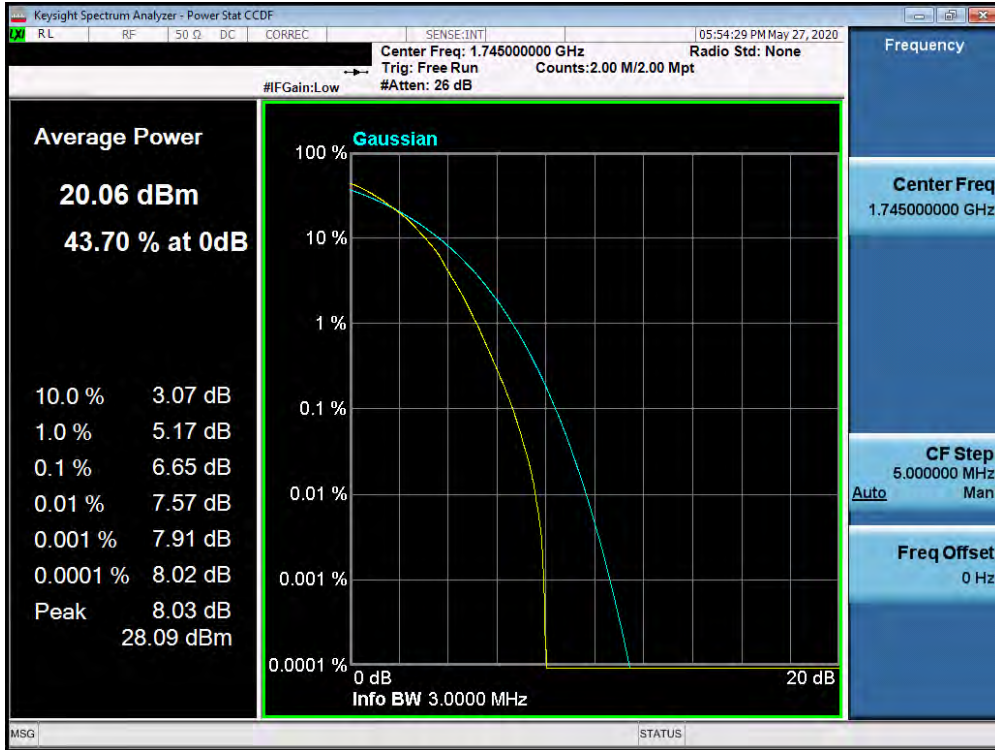


Plot 7-666. PAR Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

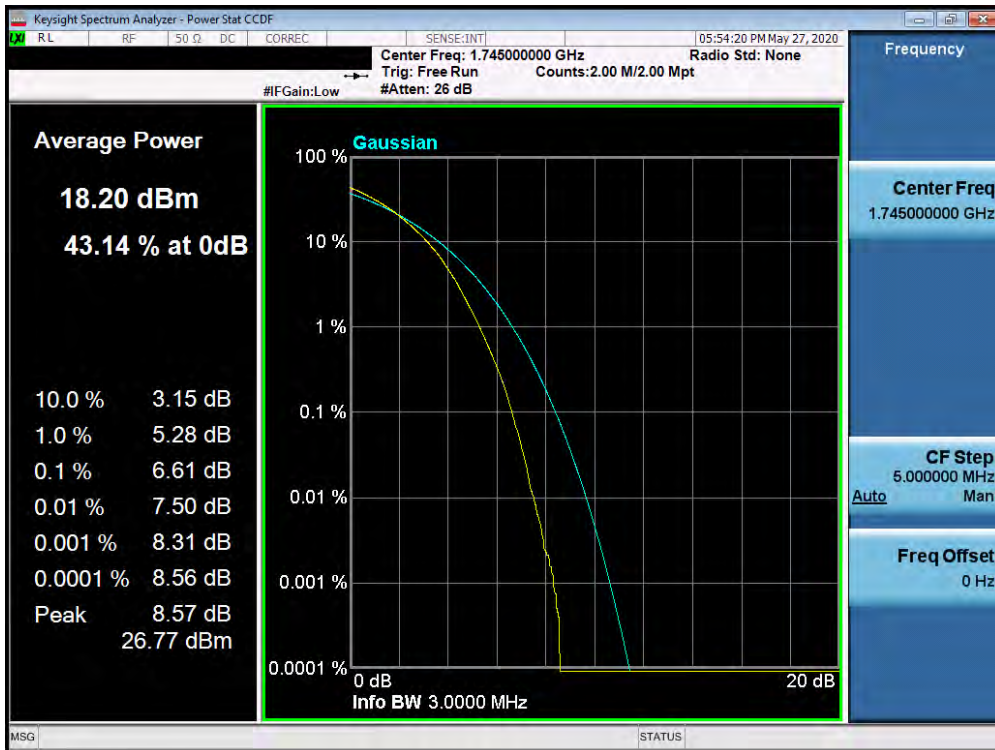


Plot 7-667. PAR Plot (Band 66/4 - 3.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 364 of 485

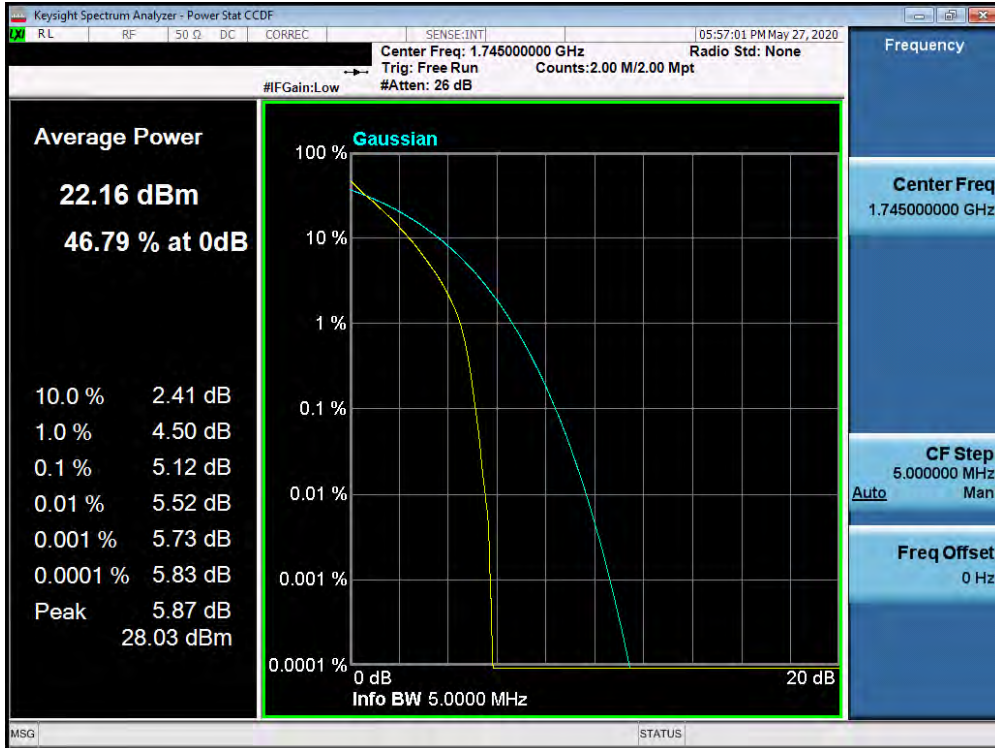


Plot 7-668. PAR Plot (Band 66/4 - 3.0MHz 64-QAM - Full RB Configuration)

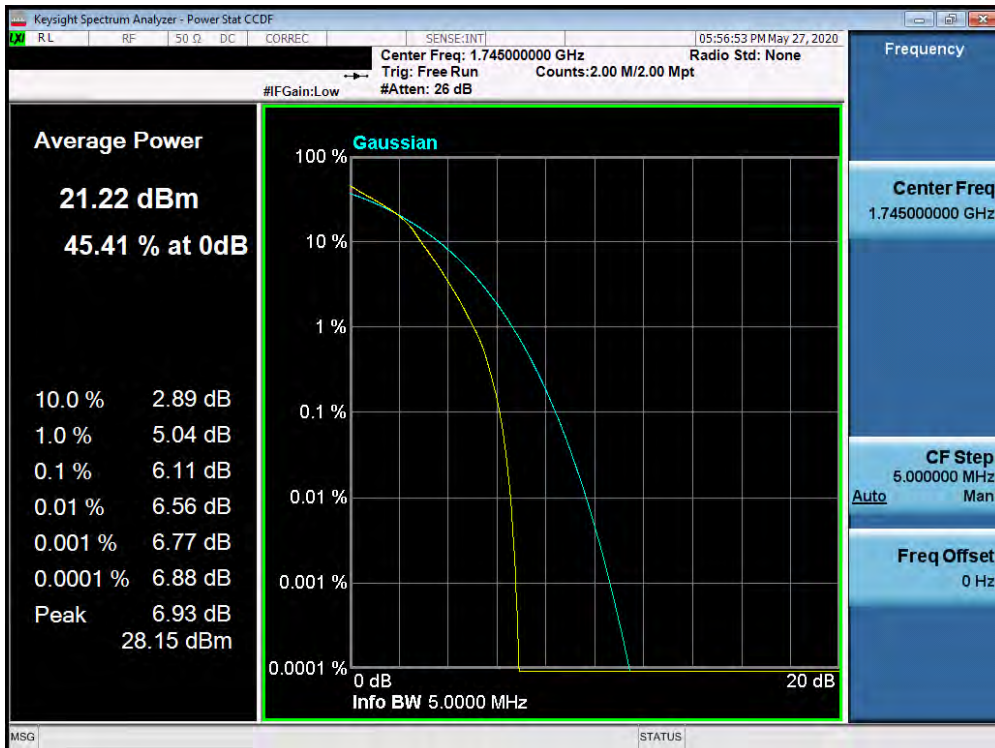


Plot 7-669. PAR Plot (Band 66/4 - 3.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 365 of 485

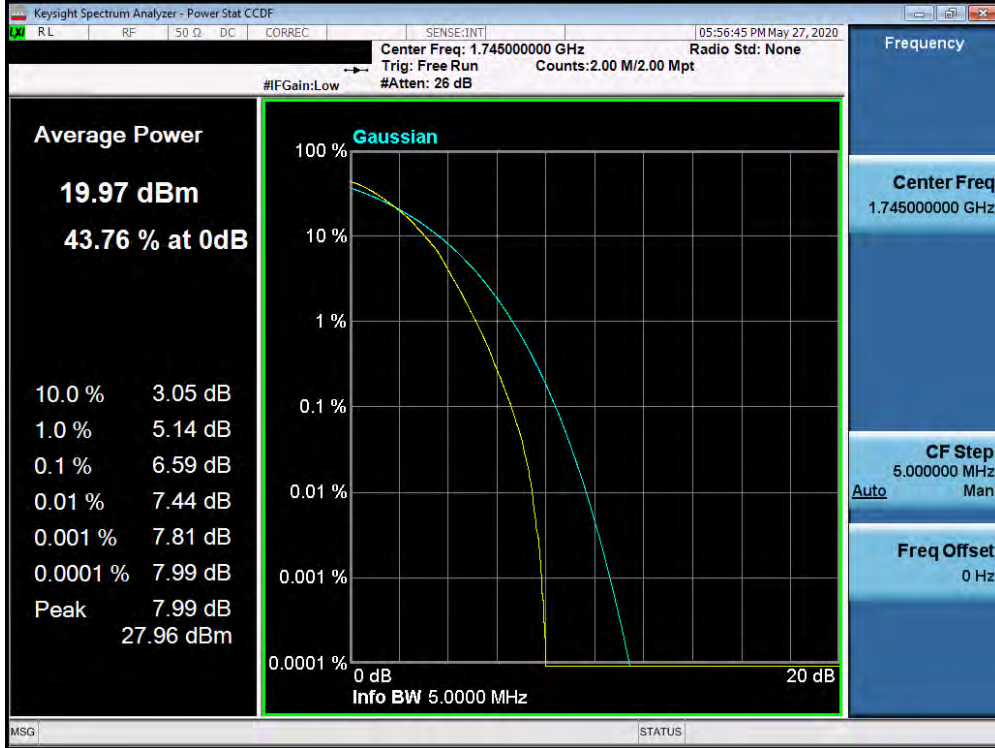


Plot 7-670. PAR Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)

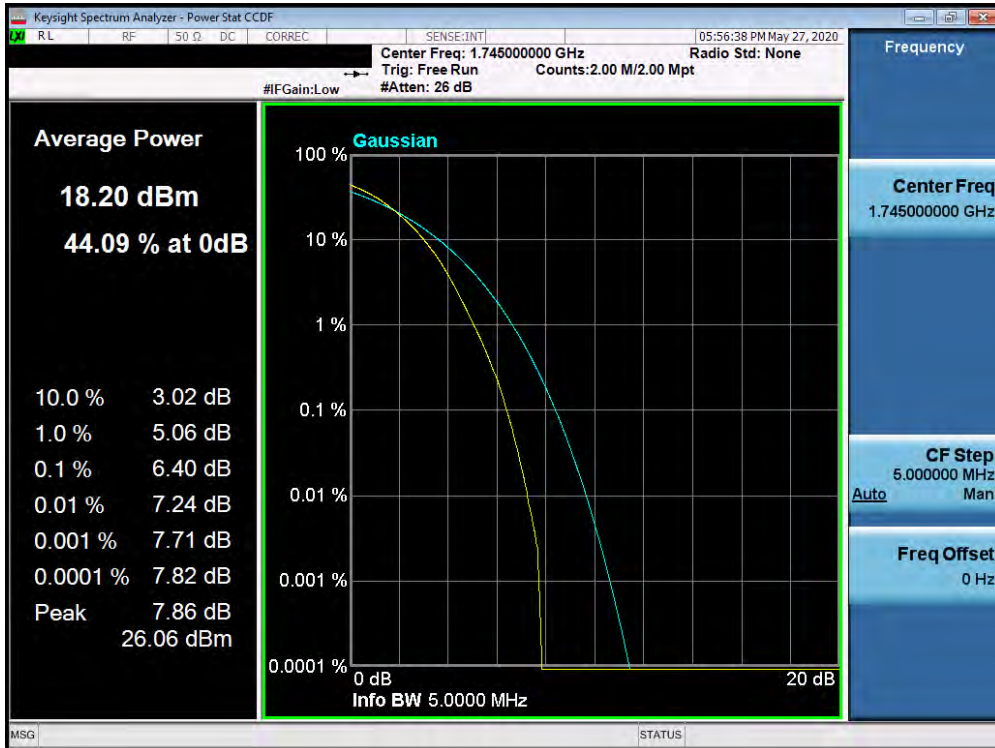


Plot 7-671. PAR Plot (Band 66/4 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 366 of 485

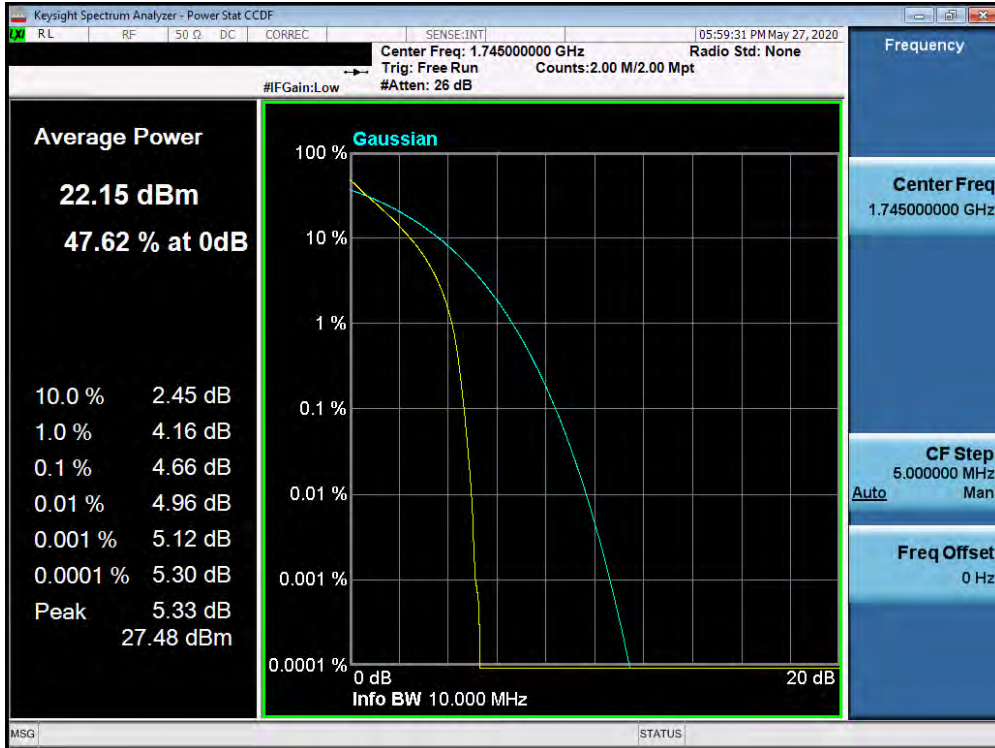


Plot 7-672. PAR Plot (Band 66/4 - 5.0MHz 64-QAM - Full RB Configuration)

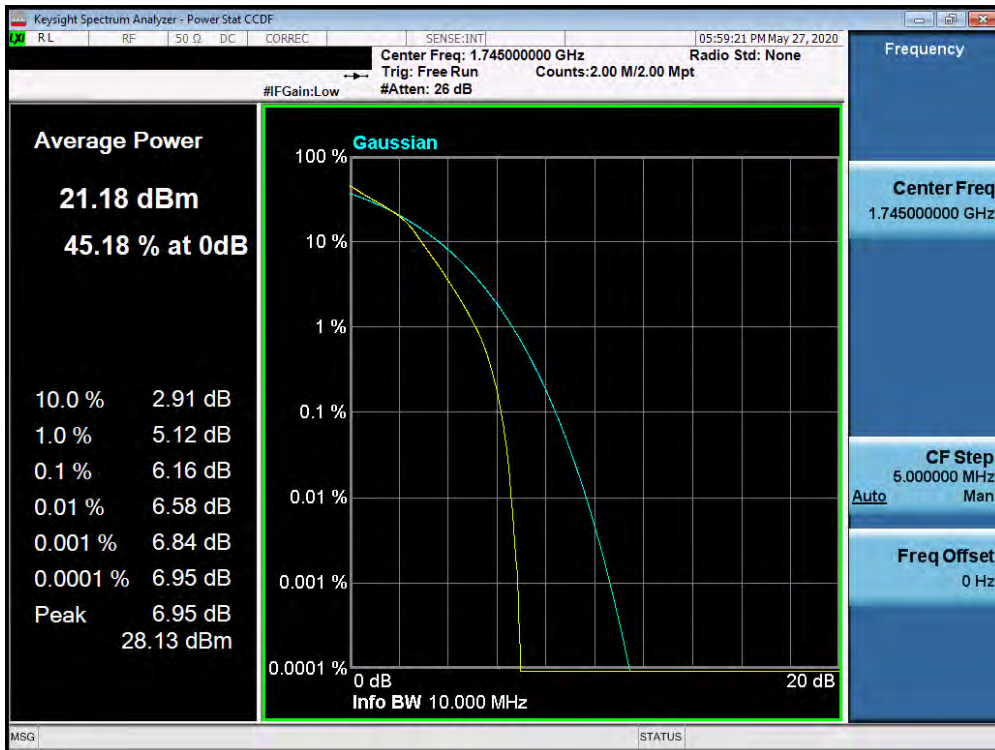


Plot 7-673. PAR Plot (Band 66/4 - 5.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 367 of 485

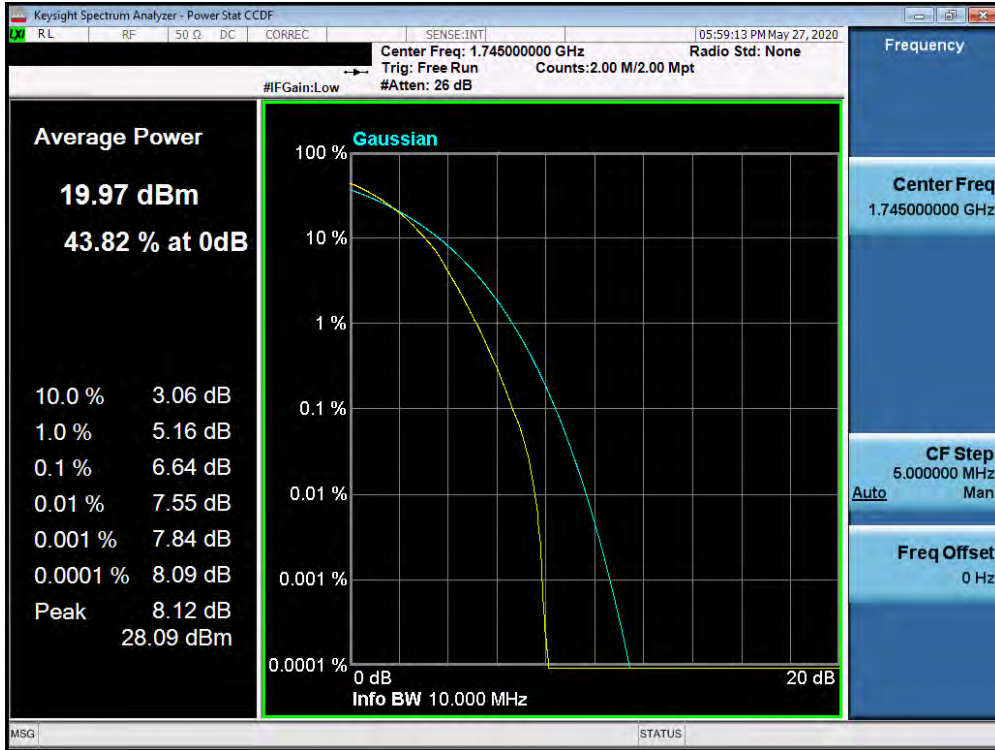


Plot 7-674. PAR Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)

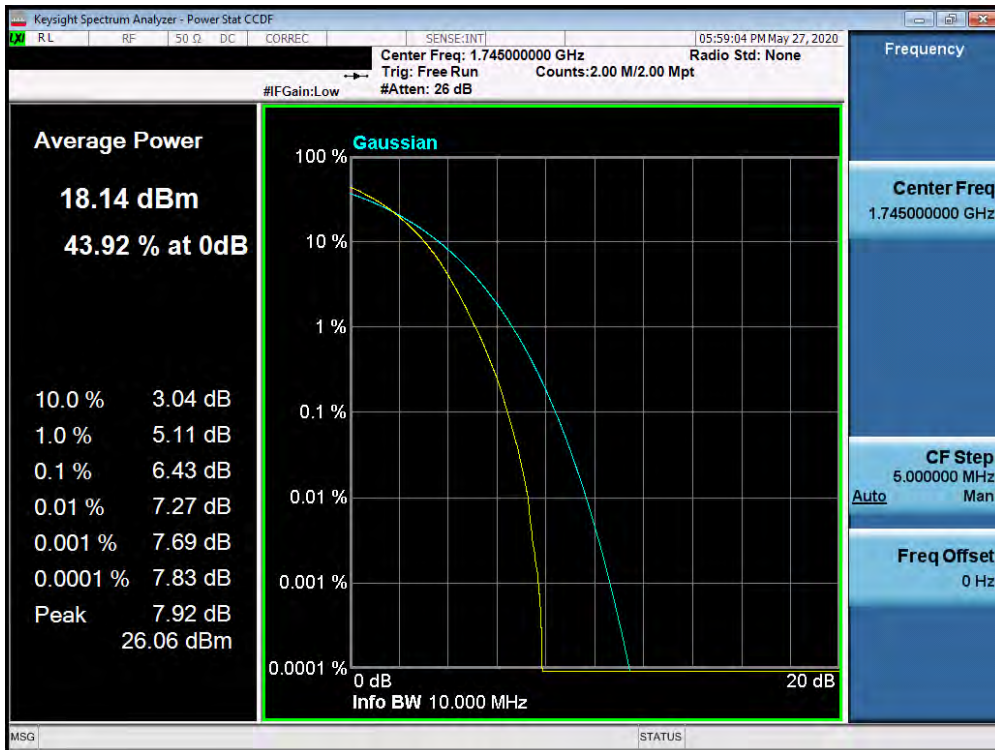


Plot 7-675. PAR Plot (Band 66/4 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 368 of 485

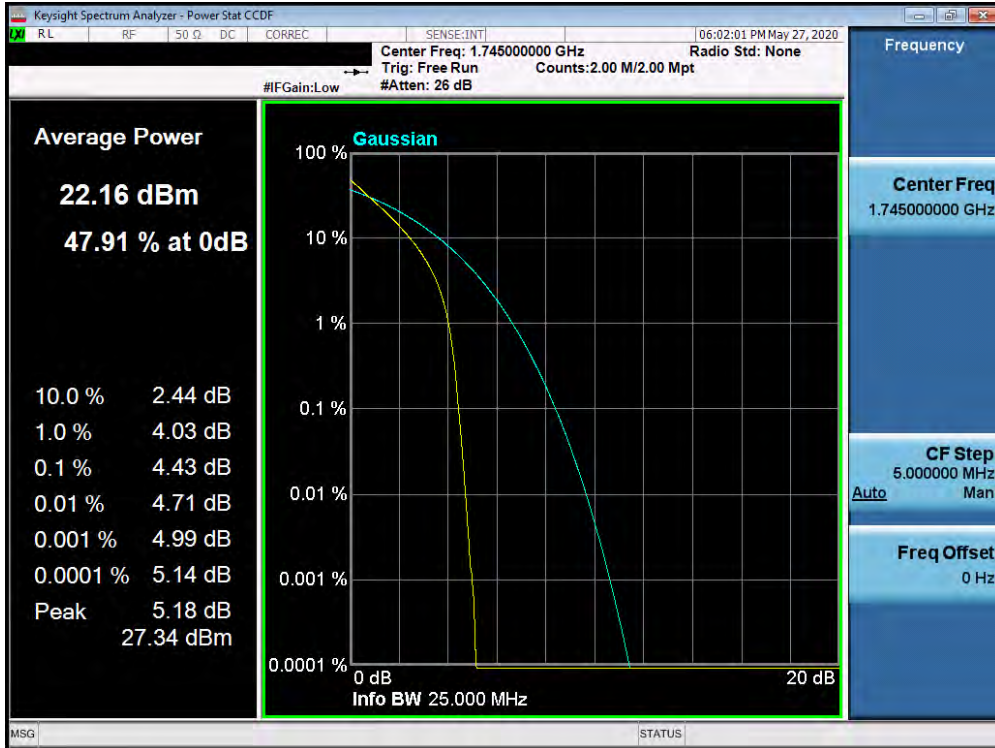


Plot 7-676. PAR Plot (Band 66/4 - 10.0MHz 64-QAM - Full RB Configuration)

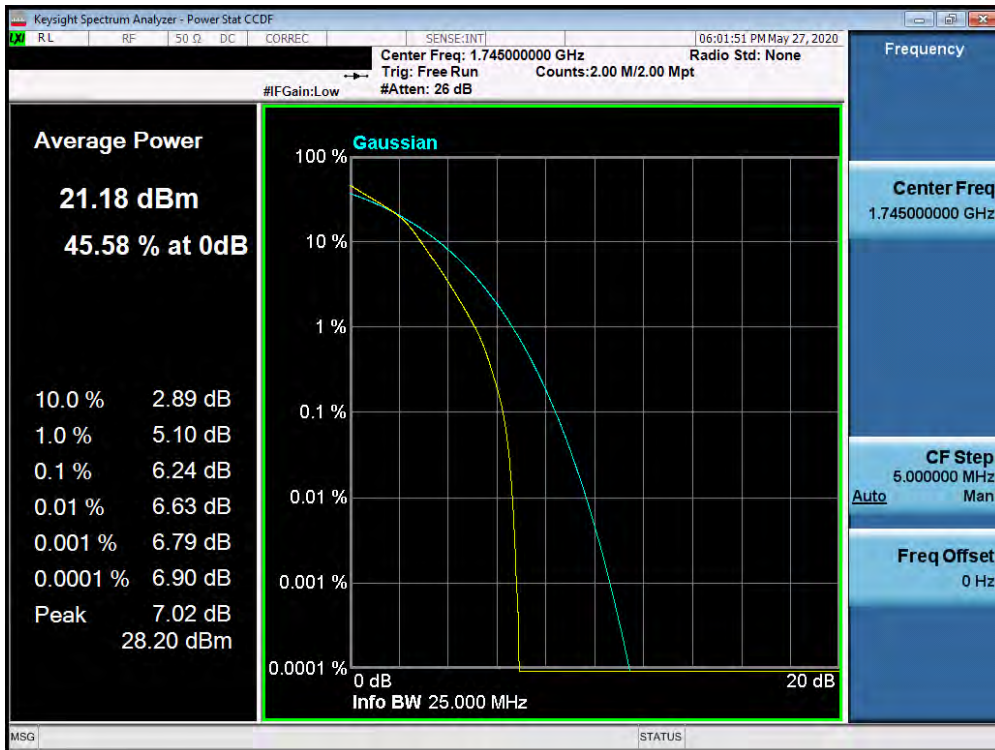


Plot 7-677. PAR Plot (Band 66/4 - 10.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 369 of 485

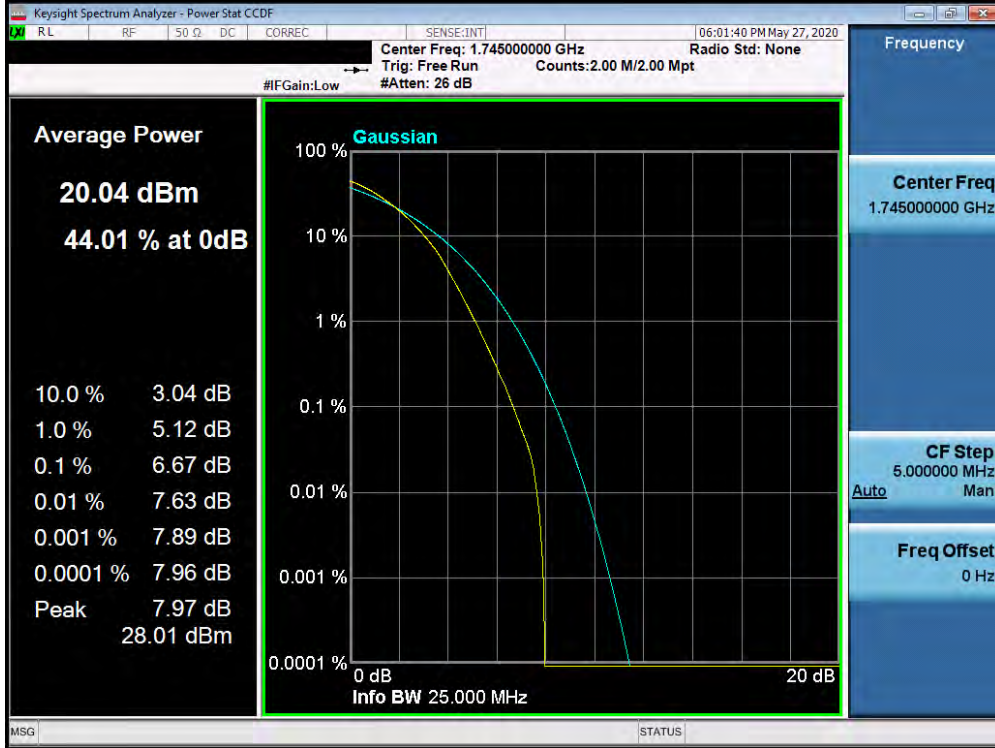


Plot 7-678. PAR Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)

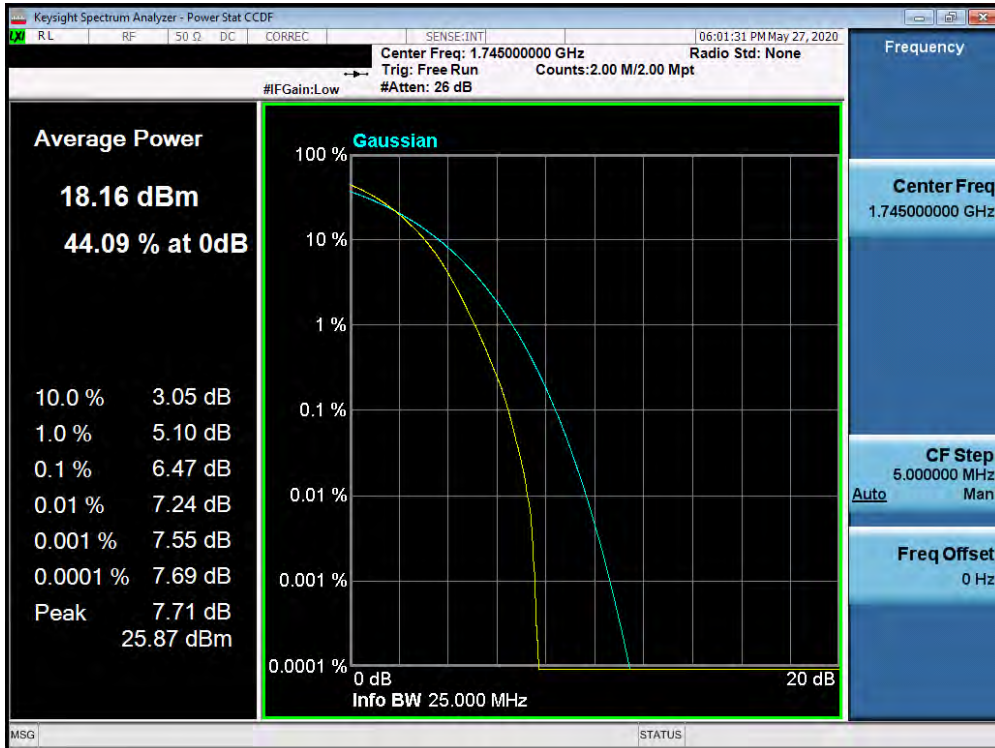


Plot 7-679. PAR Plot (Band 66/4 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 370 of 485

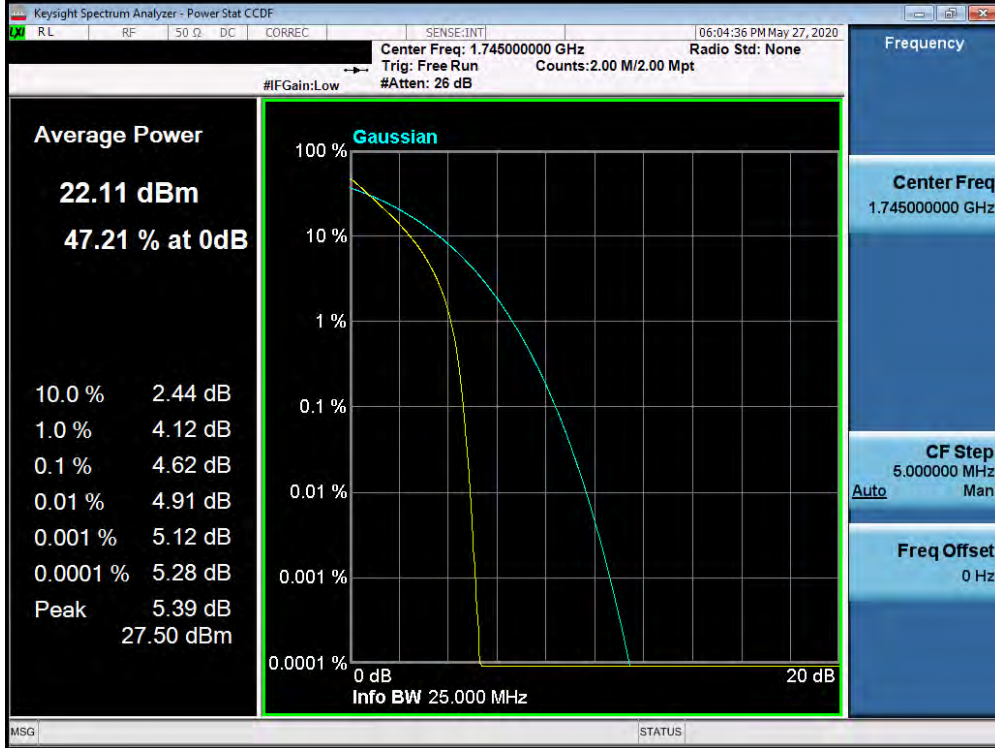


Plot 7-680. PAR Plot (Band 66/4 - 15.0MHz 64-QAM - Full RB Configuration)

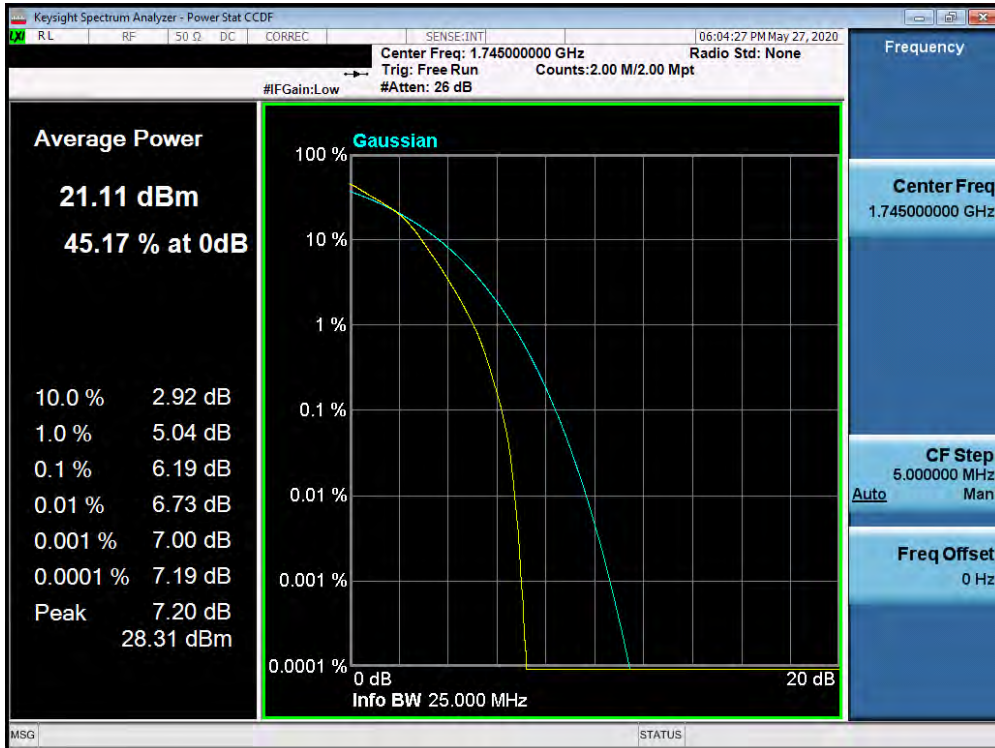


Plot 7-681. PAR Plot (Band 66/4 - 15.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 371 of 485

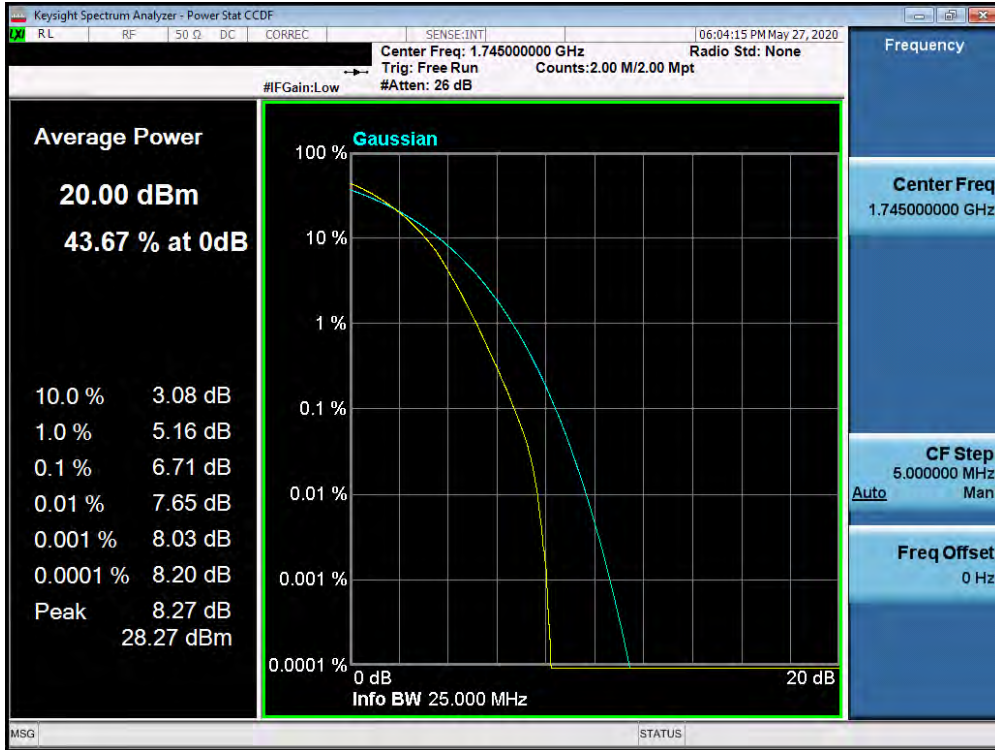


Plot 7-682. PAR Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

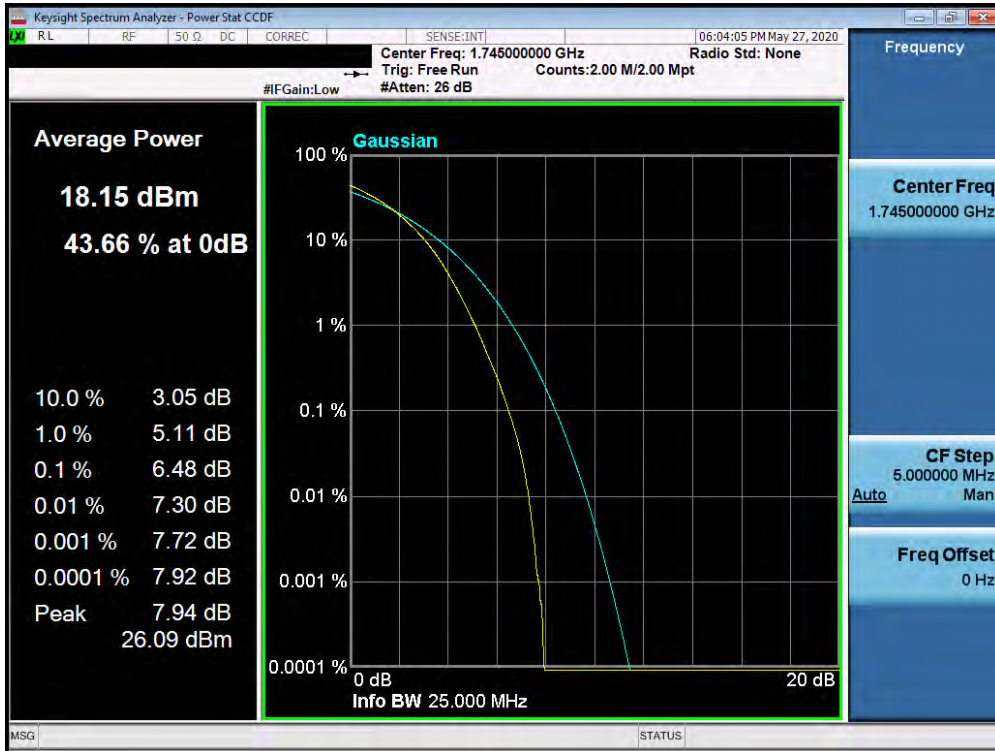


Plot 7-683. PAR Plot (Band 66/4 - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 372 of 485



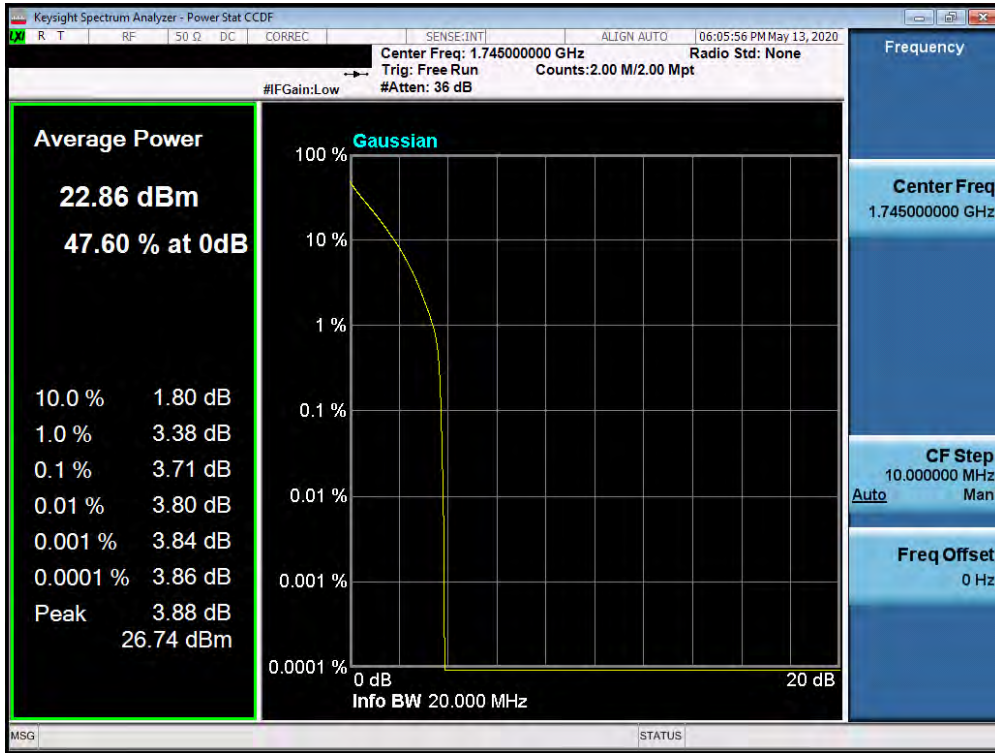
Plot 7-684. PAR Plot (Band 66/4 - 20.0MHz 64-QAM - Full RB Configuration)



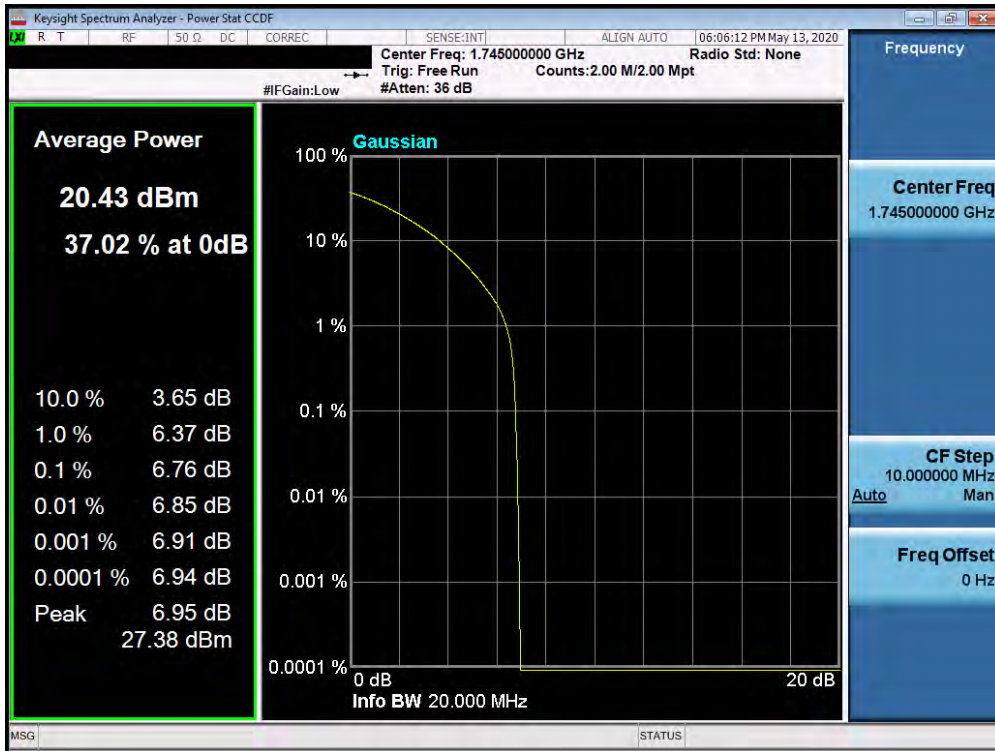
Plot 7-685. PAR Plot (Band 66/4 - 20.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 373 of 485

NR Band n66

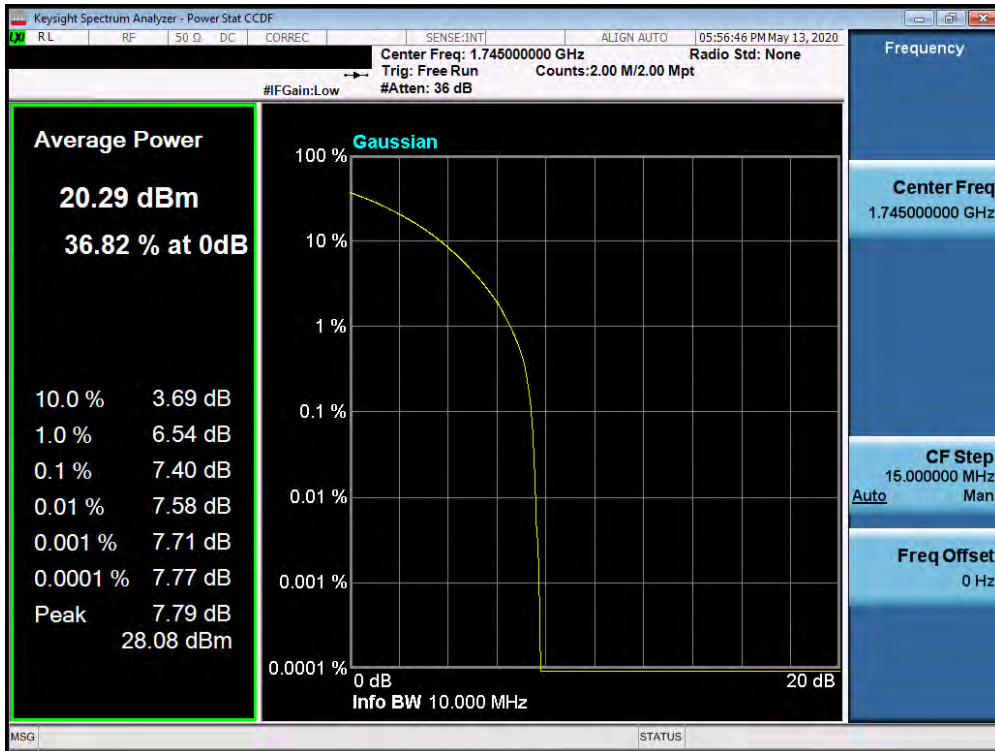


Plot 7-686. PAR Plot (n66 - 5.0MHz DFT-s-OFDM BPSK - Full RB Configuration)

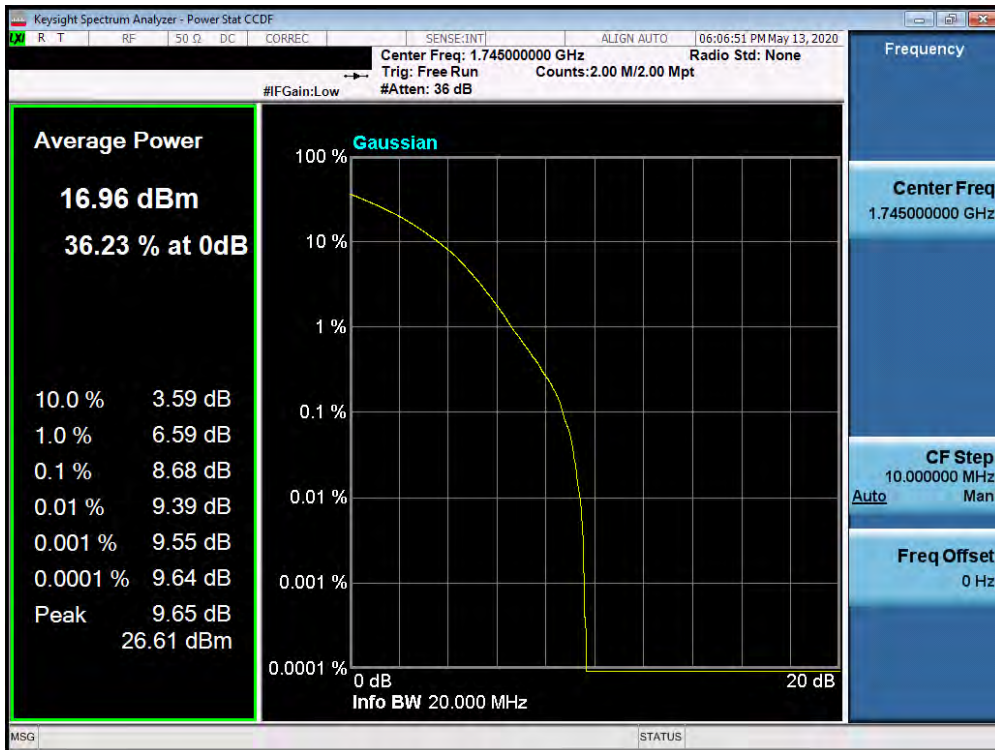


Plot 7-687. PAR Plot (n66 - 5.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 374 of 485

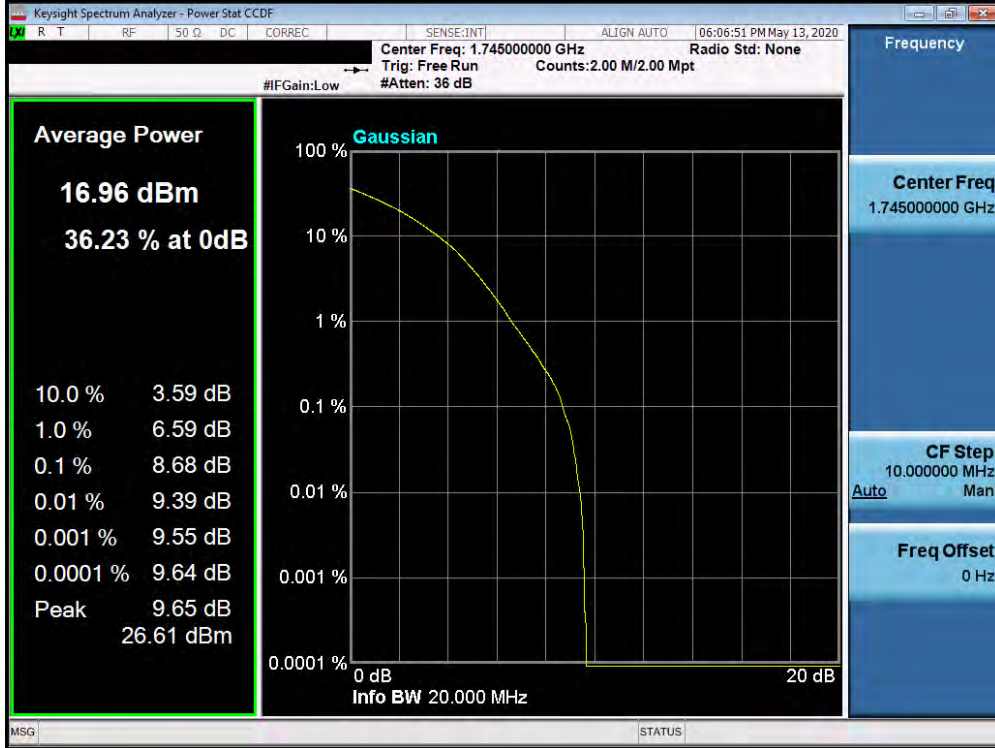


Plot 7-688. PAR Plot (n66 - 5.0MHz CP-OFDM-16-QAM - Full RB Configuration)

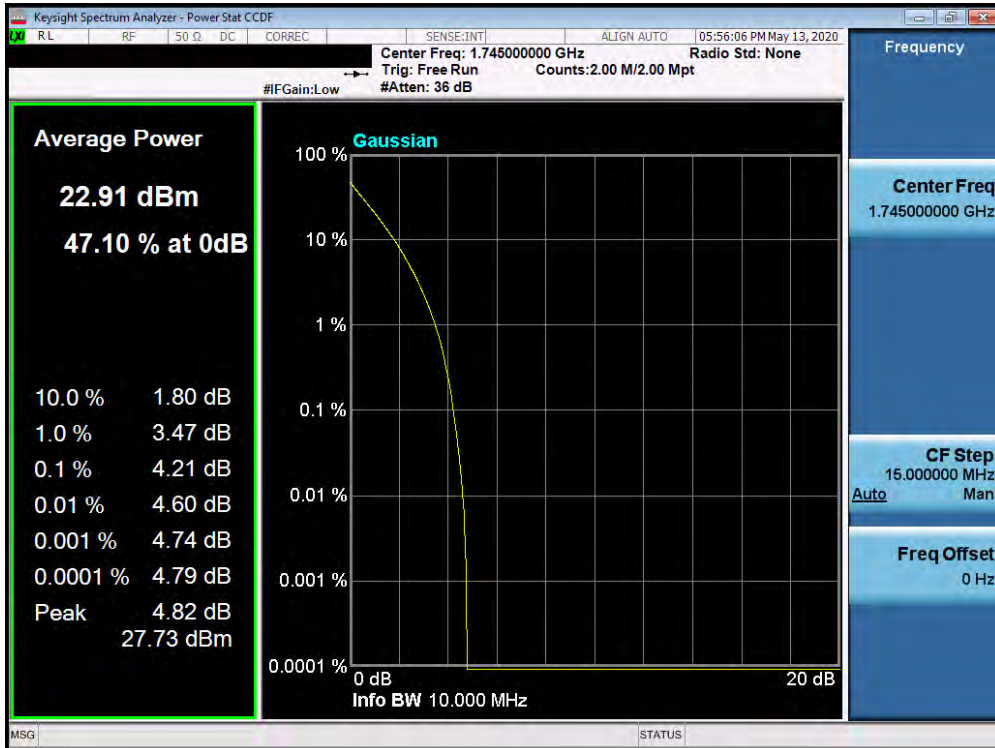


Plot 7-689. PAR Plot (n66 - 5.0MHz CP-OFDM-64-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 375 of 485

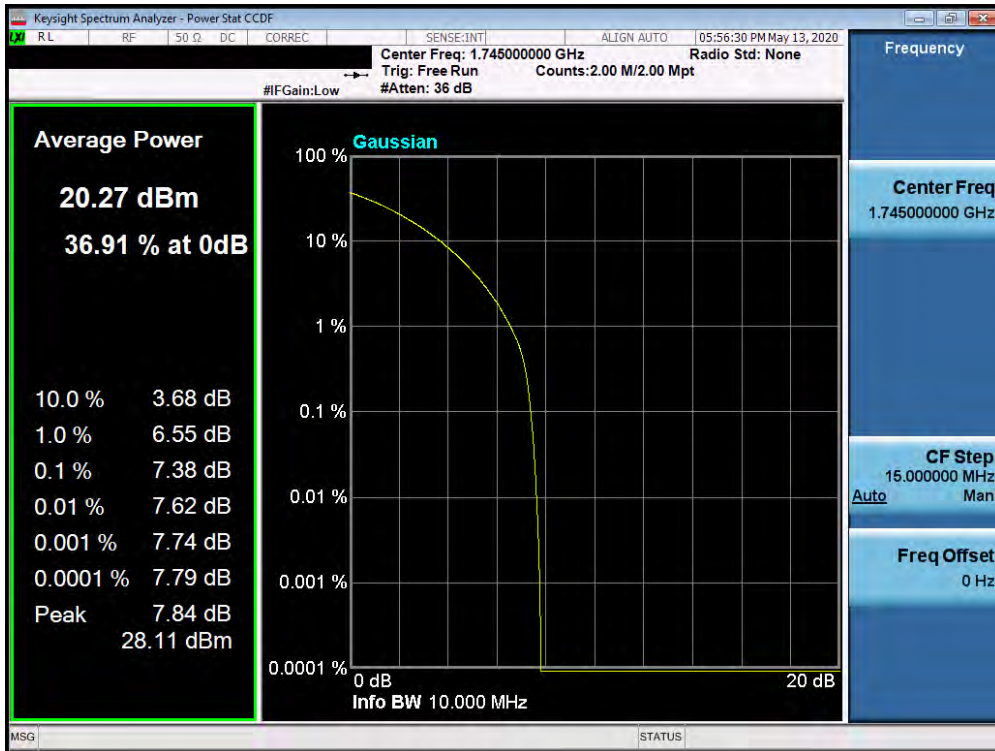


Plot 7-690. PAR Plot (n66 - 5.0MHz CP-OFDM-256-QAM - Full RB Configuration)

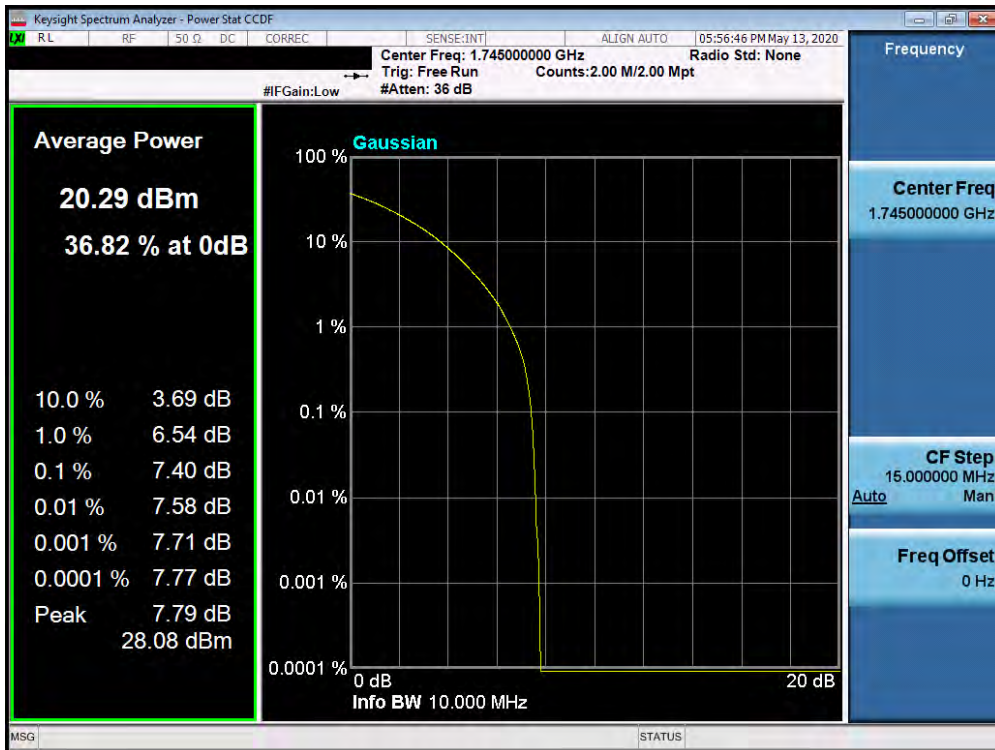


Plot 7-691. PAR Plot (n66 - 10.0MHz DFT-s-OFDM BPSK - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 376 of 485

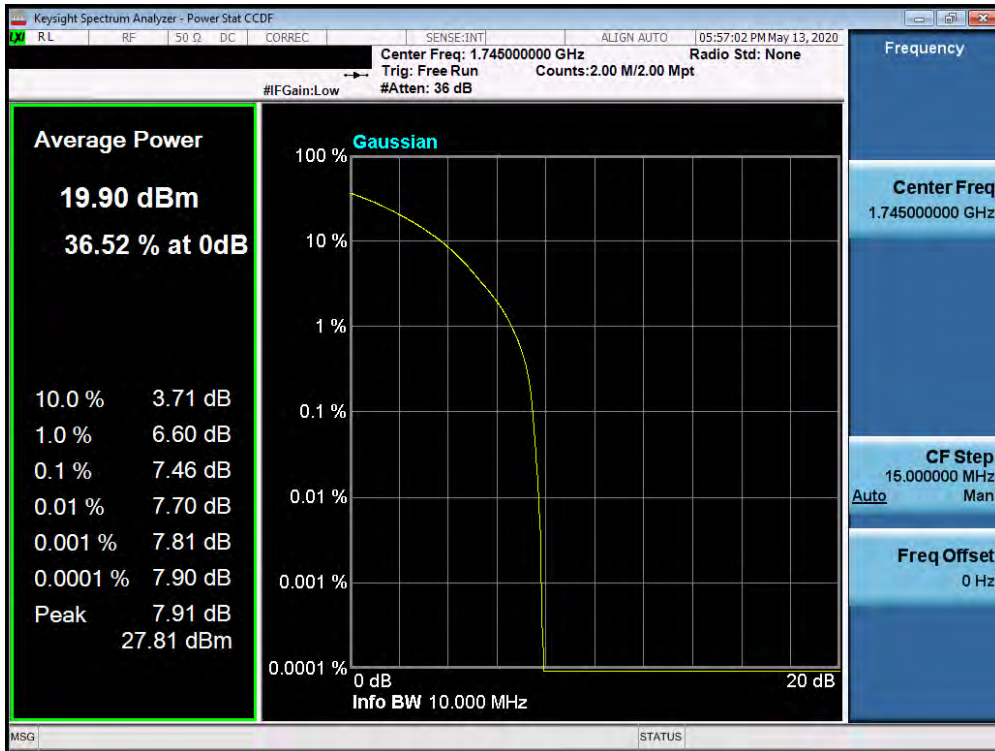


Plot 7-692. PAR Plot (n66 - 10.0MHz CP-OFDM-QPSK - Full RB Configuration)

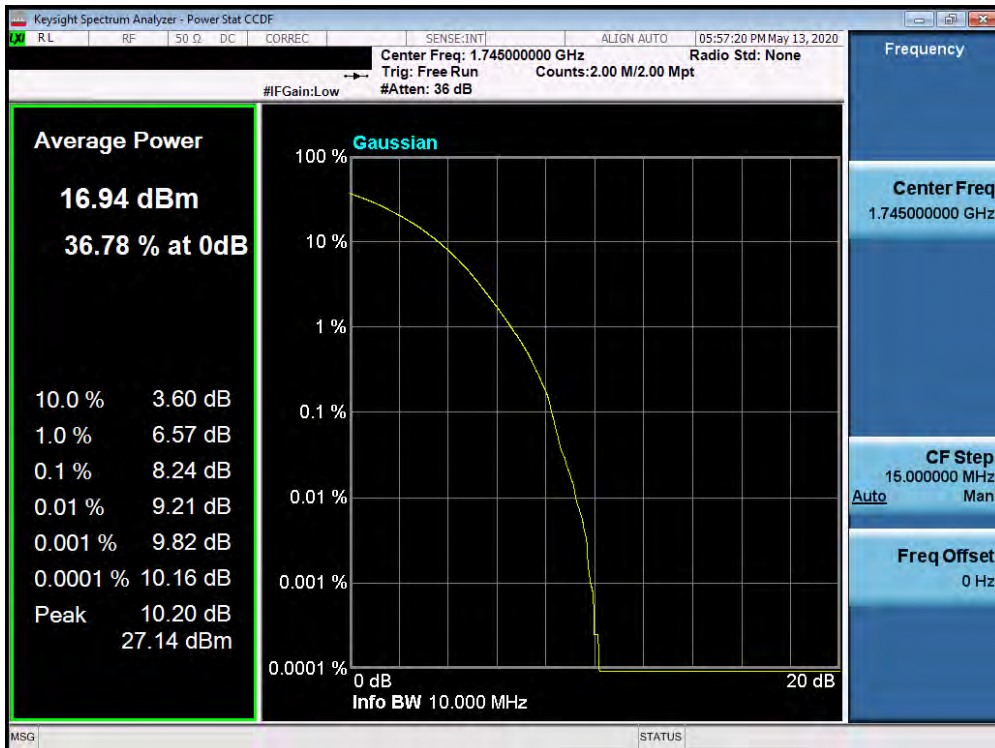


Plot 7-693. PAR Plot (n66 - 10.0MHz CP-OFDM-16-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 377 of 485

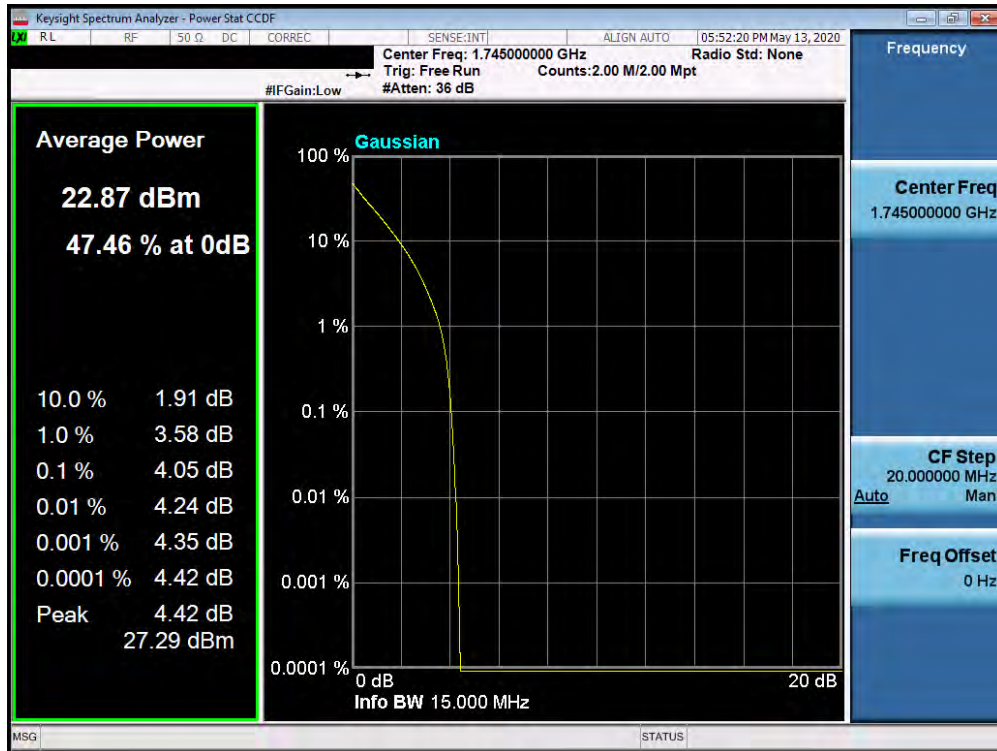


Plot 7-694. PAR Plot (n66 - 10.0MHz CP-OFDM-64-QAM - Full RB Configuration)

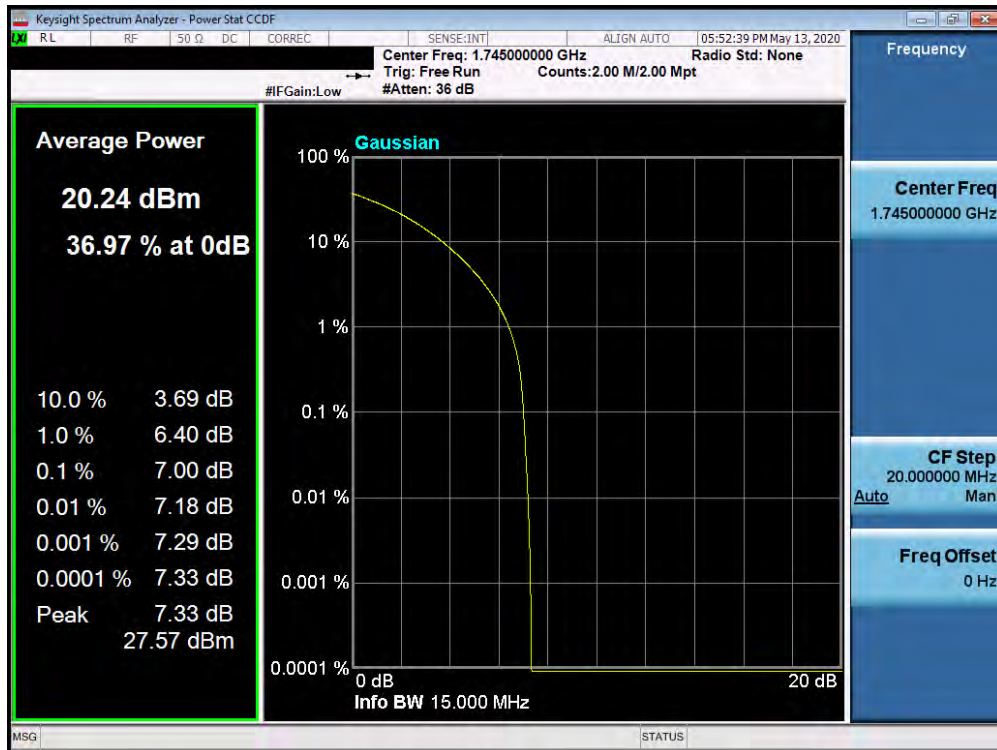


Plot 7-695. PAR Plot (n66 - 10.0MHz CP-OFDM-256-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 378 of 485

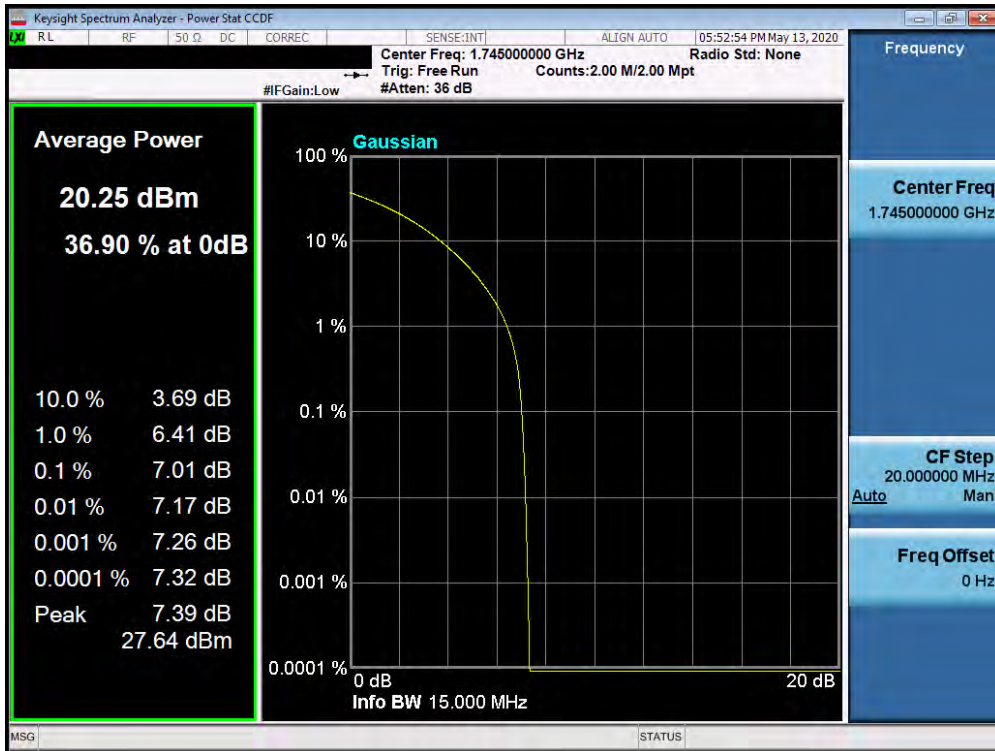


Plot 7-696. PAR Plot (n66 - 15.0MHz DFT-s-OFDM BPSK - Full RB Configuration)

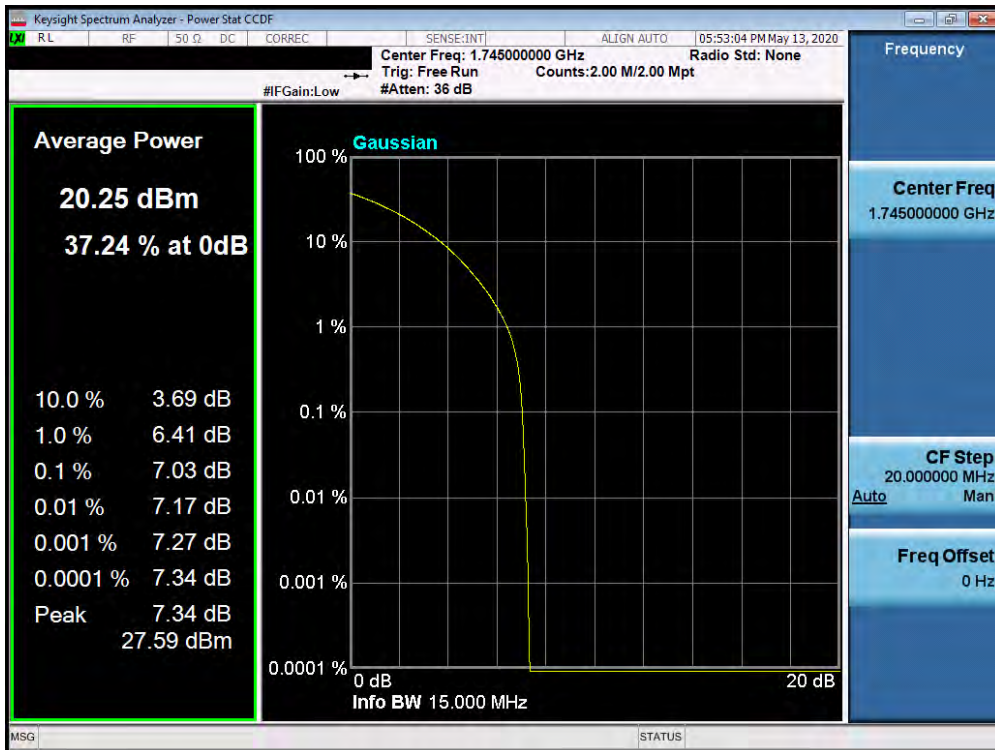


Plot 7-697. PAR Plot (n66 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 379 of 485

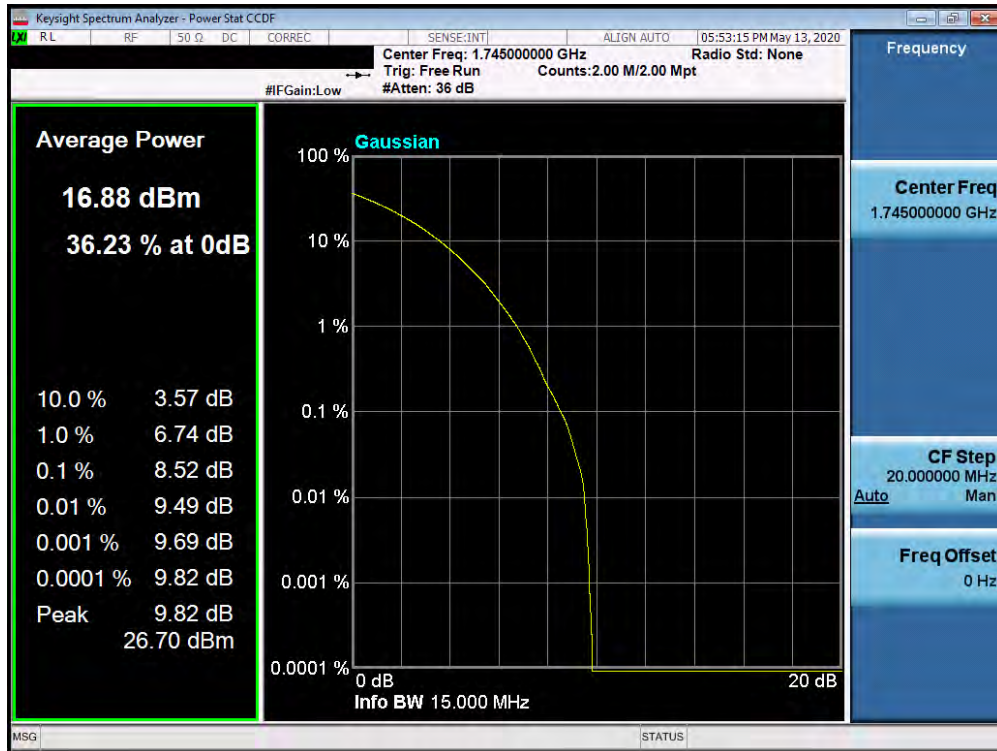


Plot 7-698. PAR Plot (n66 - 15.0MHz CP-OFDM-16-QAM - Full RB Configuration)

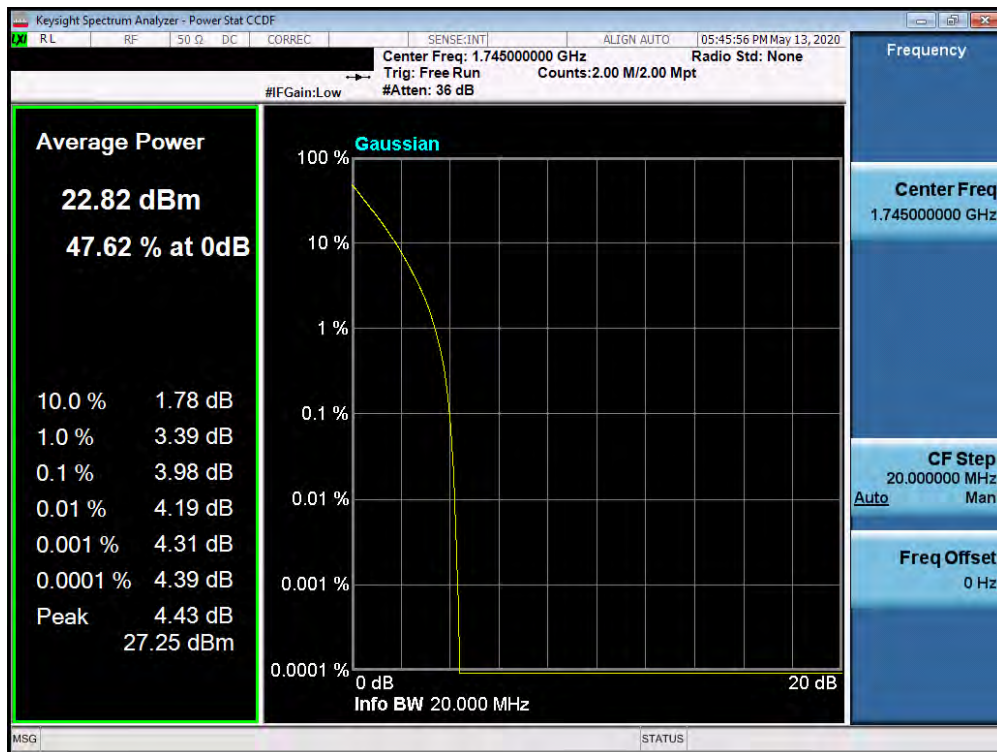


Plot 7-699. PAR Plot (n66 - 15.0MHz CP-OFDM-64-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 380 of 485

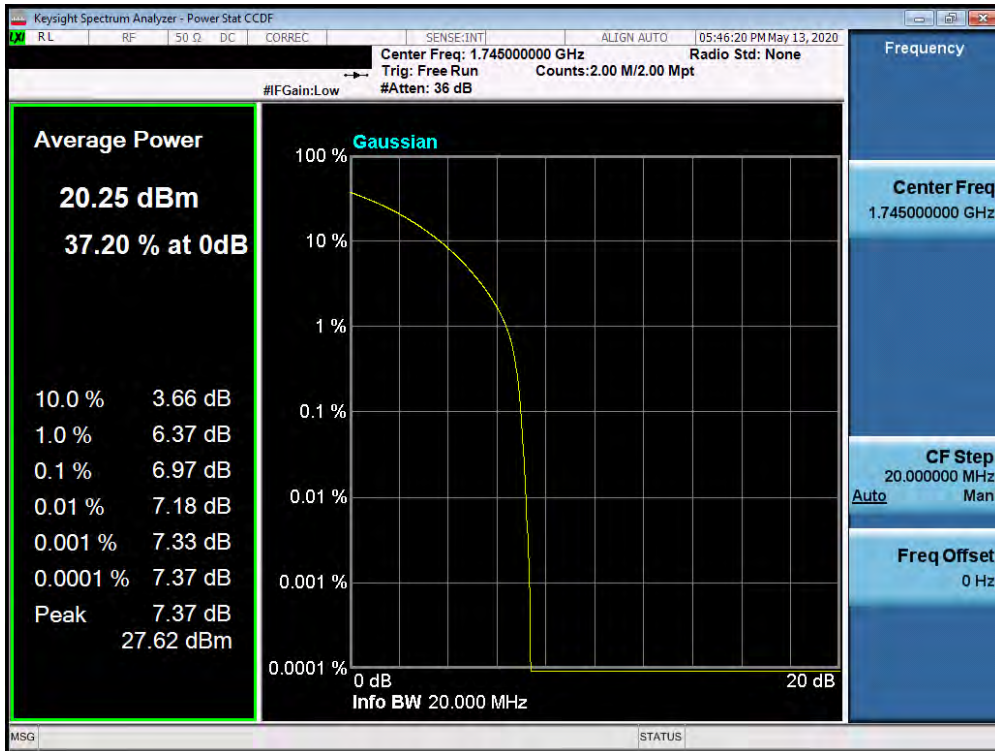


Plot 7-700. PAR Plot (n66 - 15.0MHz CP-OFDM-256-QAM - Full RB Configuration)

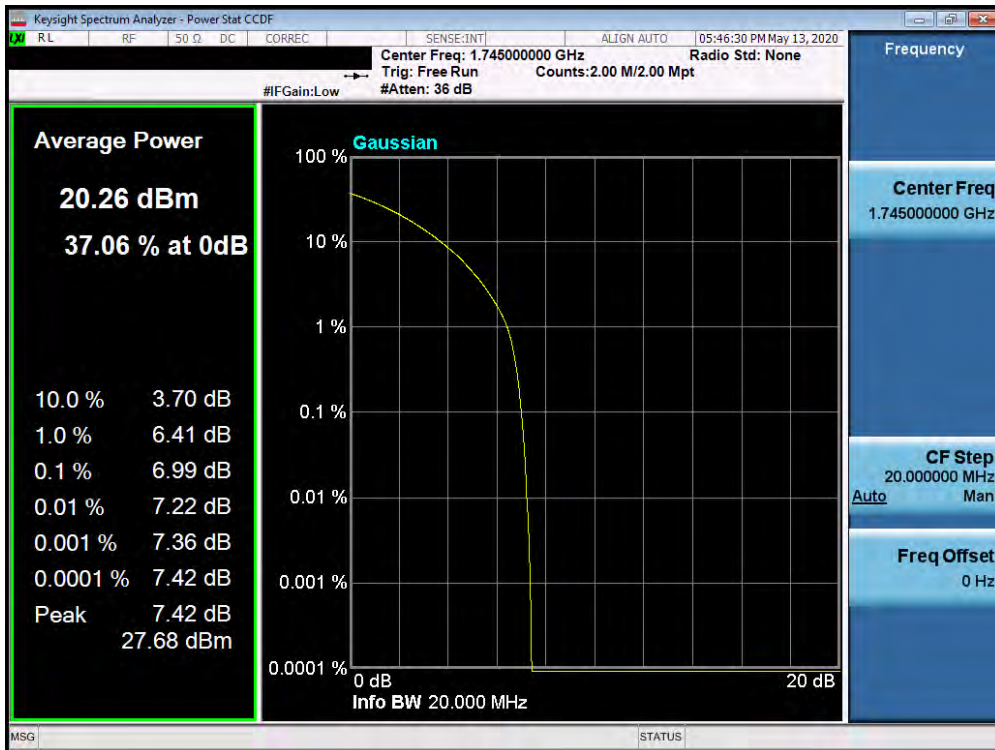


Plot 7-701. PAR Plot (n66 - 20.0MHz DFT-s-OFDM BPSK - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 381 of 485

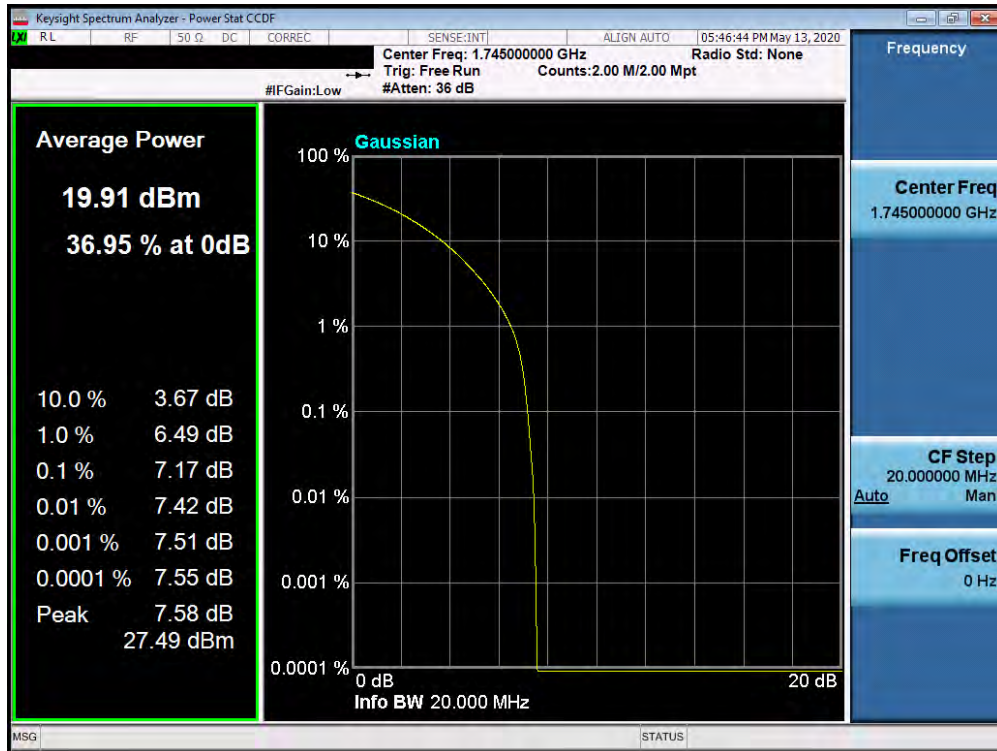


Plot 7-702. PAR Plot (n66 - 20.0MHz CP-OFDM-QPSK - Full RB Configuration)

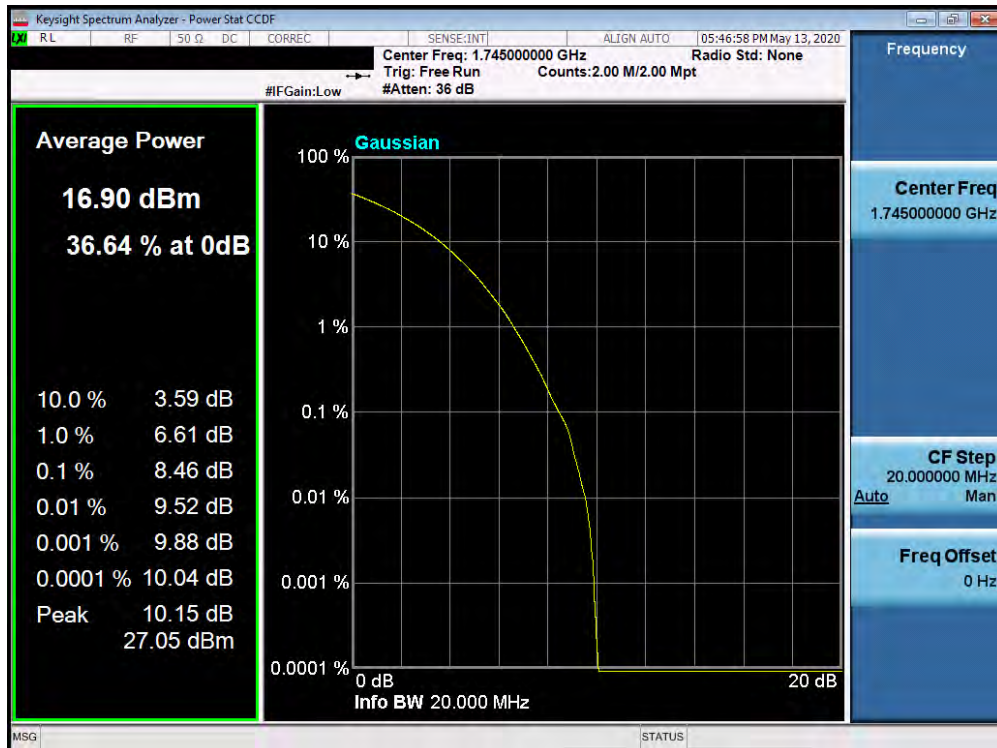


Plot 7-703. PAR Plot (n66 - 20.0MHz CP-OFDM-16-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 382 of 485



Plot 7-704. PAR Plot (n66 - 20.0MHz CP-OFDM-64-QAM - Full RB Configuration)



Plot 7-705. PAR Plot (n66 - 20.0MHz CP-OFDM-256-QAM - Full RB Configuration)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 383 of 485

7.6 Uplink Carrier Aggregation

§27.53(m)

Test Overview

The EUT is set up to transmit two contiguous LTE channels. The power level of both carriers and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates 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.

For Band 38/the minimum permissible attenuation level of any spurious emission is $55 + 10 \log_{10}(P_{[Watts]})$.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to at least 10 * the fundamental frequency (separated into at least two plots per channel)
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

Test Setup

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

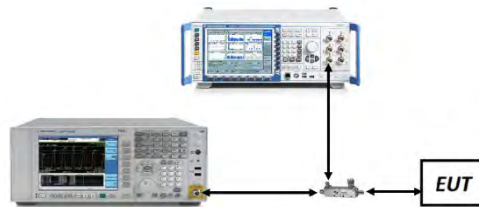


Figure 7-5. Test Instrument & Measurement Setup

FCC ID: A3LSMN981U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Test Notes

1. Conducted power and spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device. The worst case (highest) powers were found while operating with QPSK modulation, as shown in Table 7-503 and 7-504 below, with both carriers set to transmit using 1RB.

2. Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

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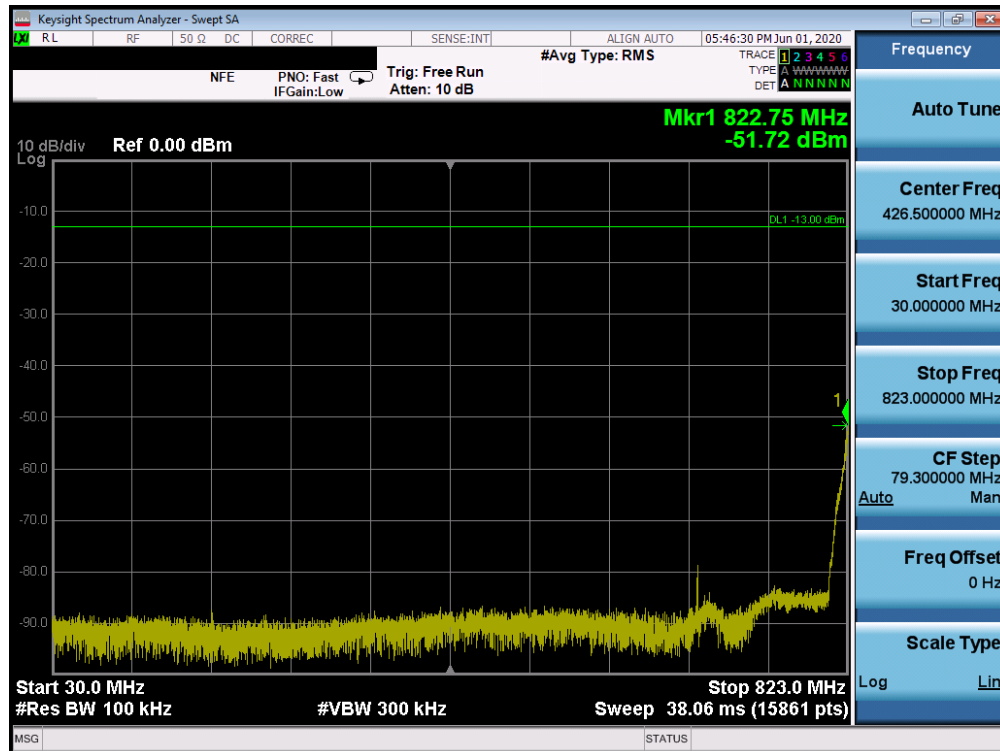
Uplink CA Configuration 5B

PCC						SCC						ULCA Tx.Power (dBm)
Channel I	Frequency [MHz]	BW [MHz]	Mod.	RB Size	RB Offset	Channel I	Frequency [MHz]	BW [MHz]	Mod.	RB Size	RB Offset	
20450	829.0	10	QPSK	1	49	20549	838.9	10	QPSK	1	0	24.56
20525	836.5	5	QPSK	1	24	20597	843.7	10	QPSK	1	0	24.74
20600	844.0	10	QPSK	1	0	20501	834.1	10	QPSK	1	49	24.62

Table 7-3. Conducted Powers (B5 – PCC/SCC: RB Size 1)

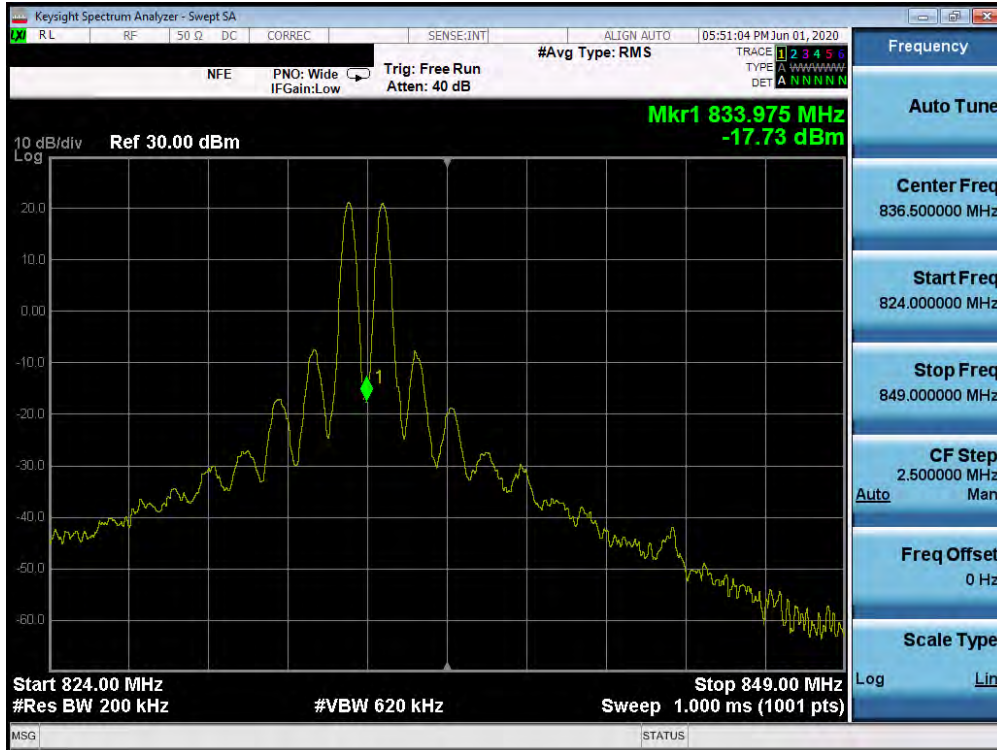
PCC						SCC						ULCA Tx.Power (dBm)
Channel I	Frequency [MHz]	BW [MHz]	Mod.	RB Size	RB Offset	Channel I	Frequency [MHz]	BW [MHz]	Mod.	RB Size	RB Offset	
20450	829.0	10	QPSK	50	0	20549	838.9	10	QPSK	50	0	22.82
20450	829.0	10	16-QAM	50	0	20549	838.9	10	16-QAM	50	0	21.98
20450	829.0	10	64-QAM	50	0	20549	838.9	10	64-QAM	50	0	20.91
20450	829.0	10	256-QAM	50	0	20549	838.9	10	256-QAM	50	0	19.44

Table 7-4. Conducted Powers (B5 with Various Combinations for 10MHz Channel Bandwidth)

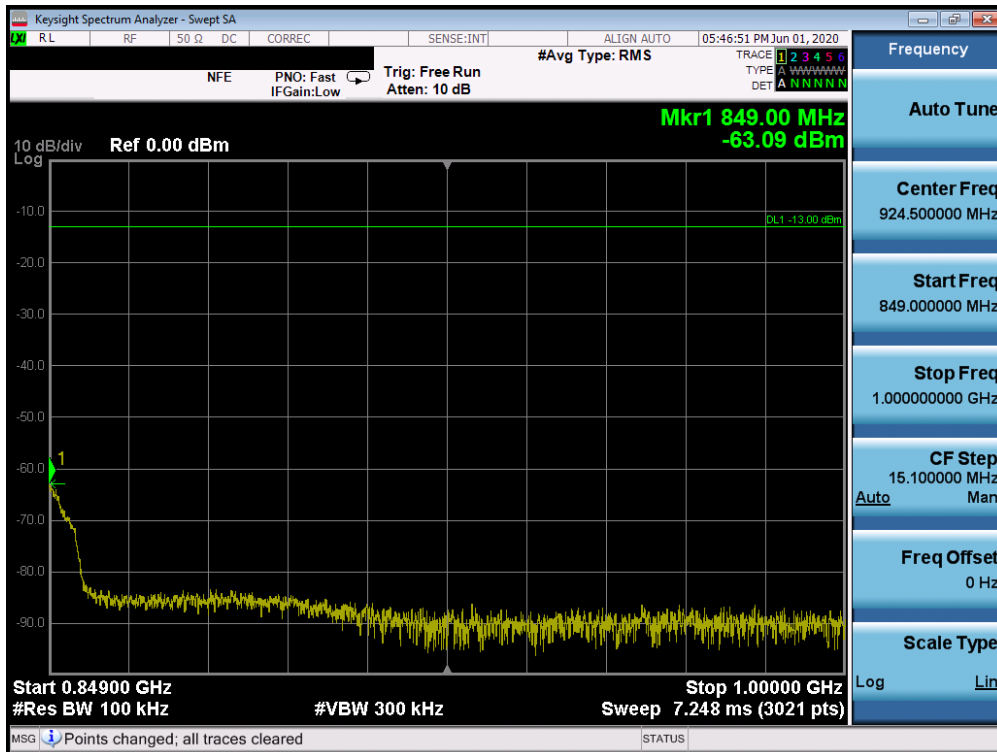


Plot 7-706. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)

FCC ID: A3LSMN981U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 386 of 485

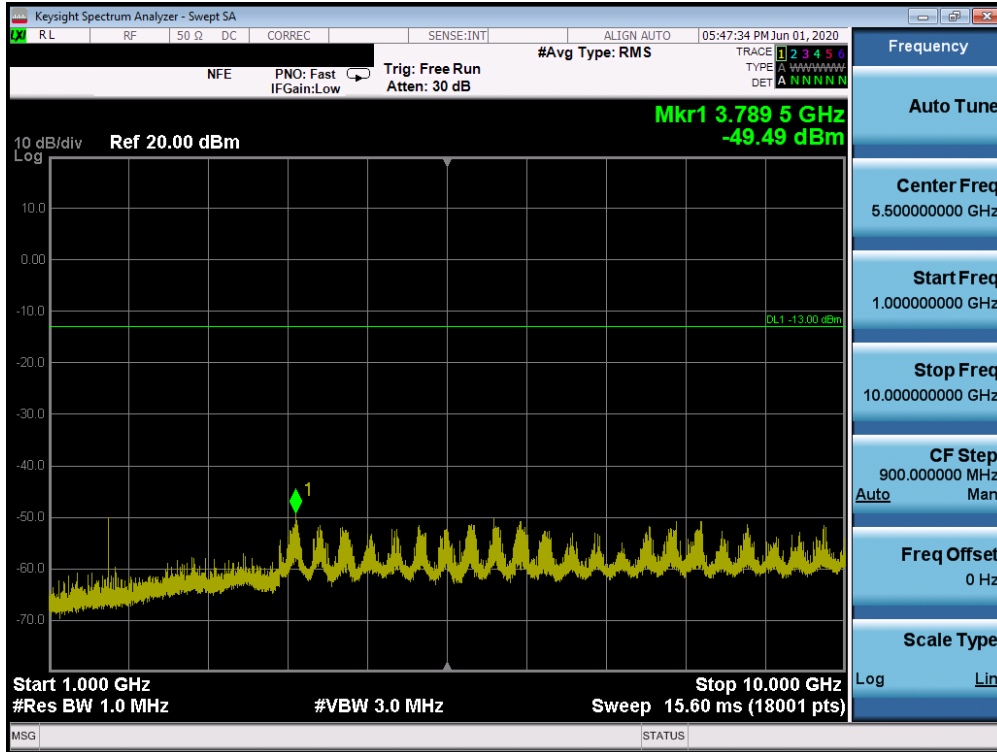


Plot 7-707. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)

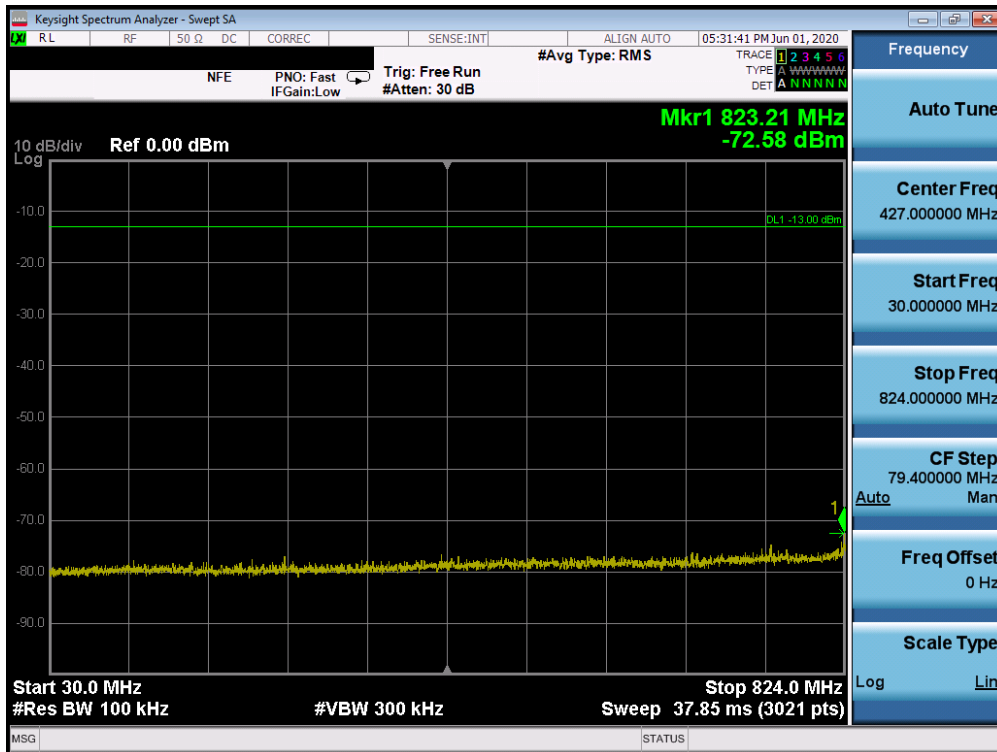


Plot 7-708. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 387 of 485



Plot 7-709. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)



Plot 7-710. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/0 SCC 1/49 – High Channel)

FCC ID: A3LSMN981U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050081-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 388 of 485