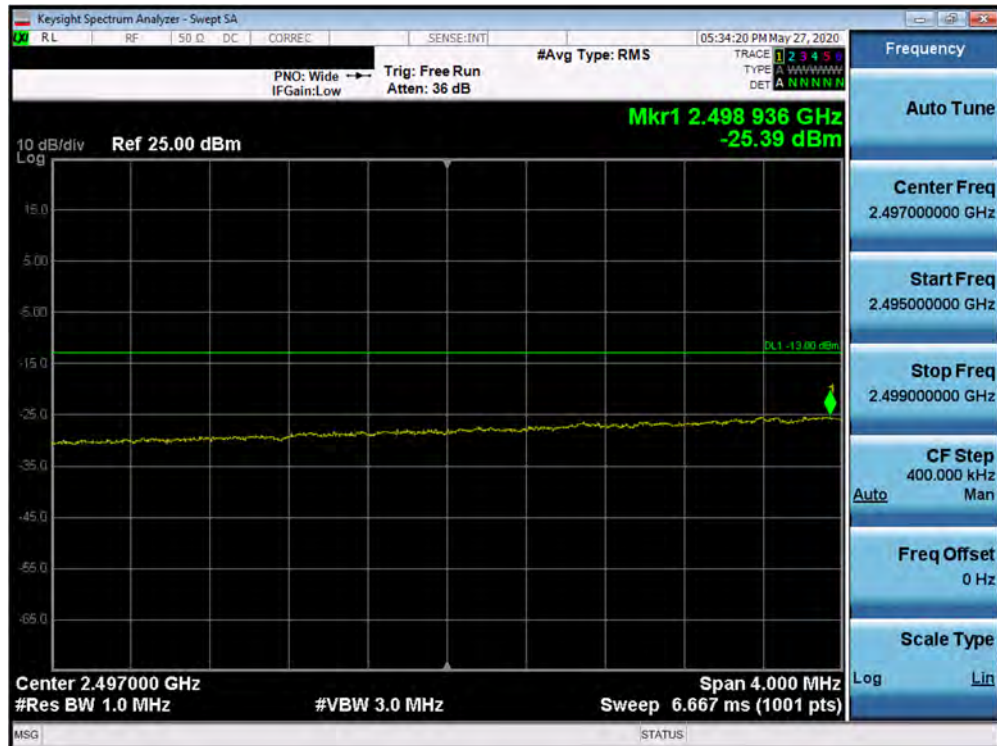




Plot 7-440. Lower Band Edge Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-441. Lower Extended Band Edge Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 247 of 357

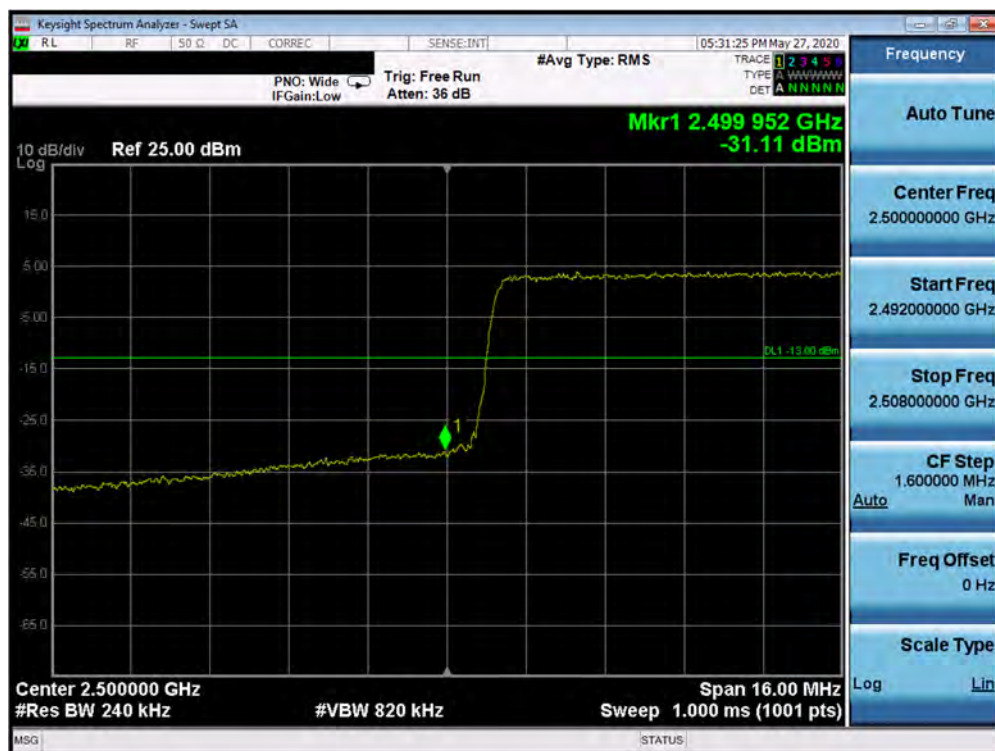


Plot 7-442. Upper Band Edge Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)



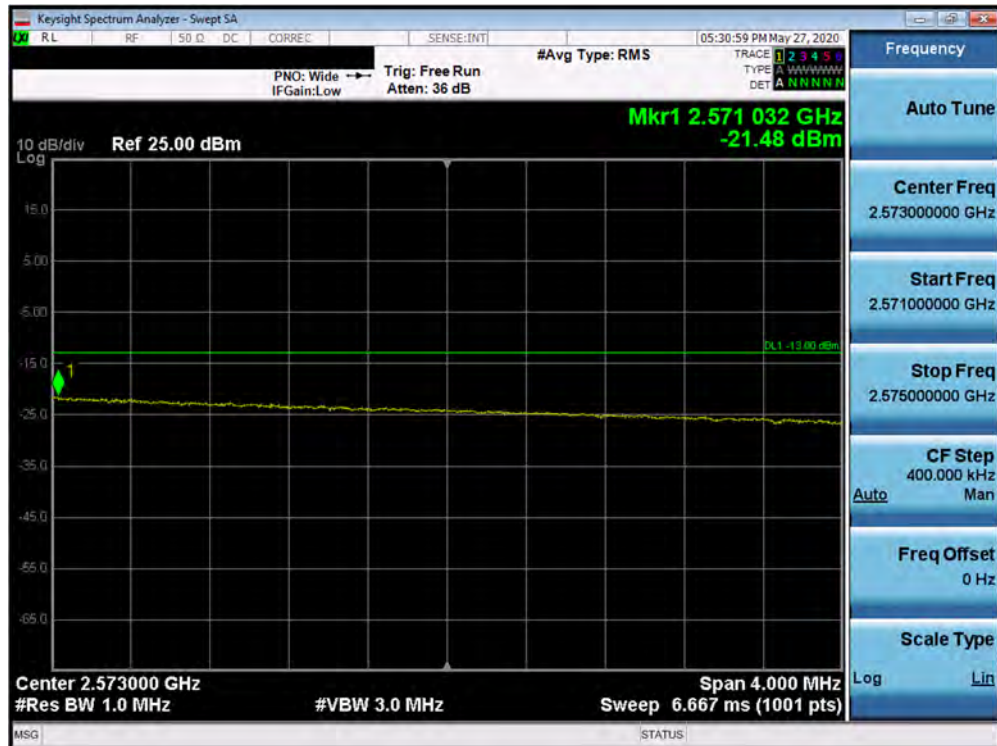
Plot 7-443. Upper Extended Band Edge Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 248 of 357





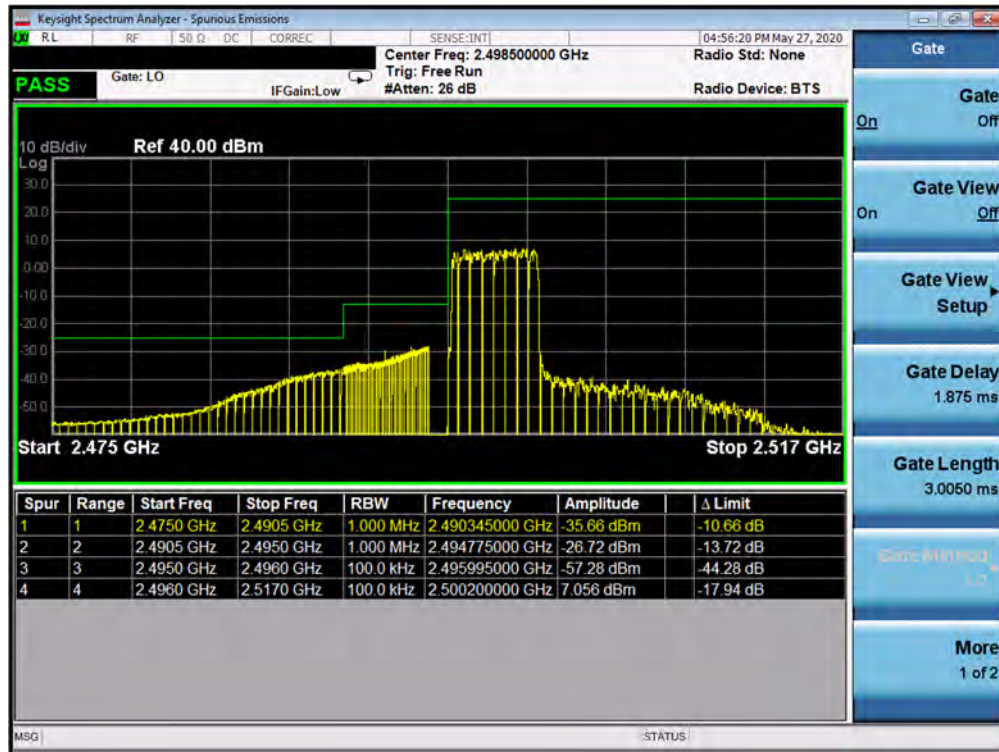
Plot 7-446. Upper Band Edge Plot (Band 7 - 20.0MHz QPSK - Full RB Configuration)



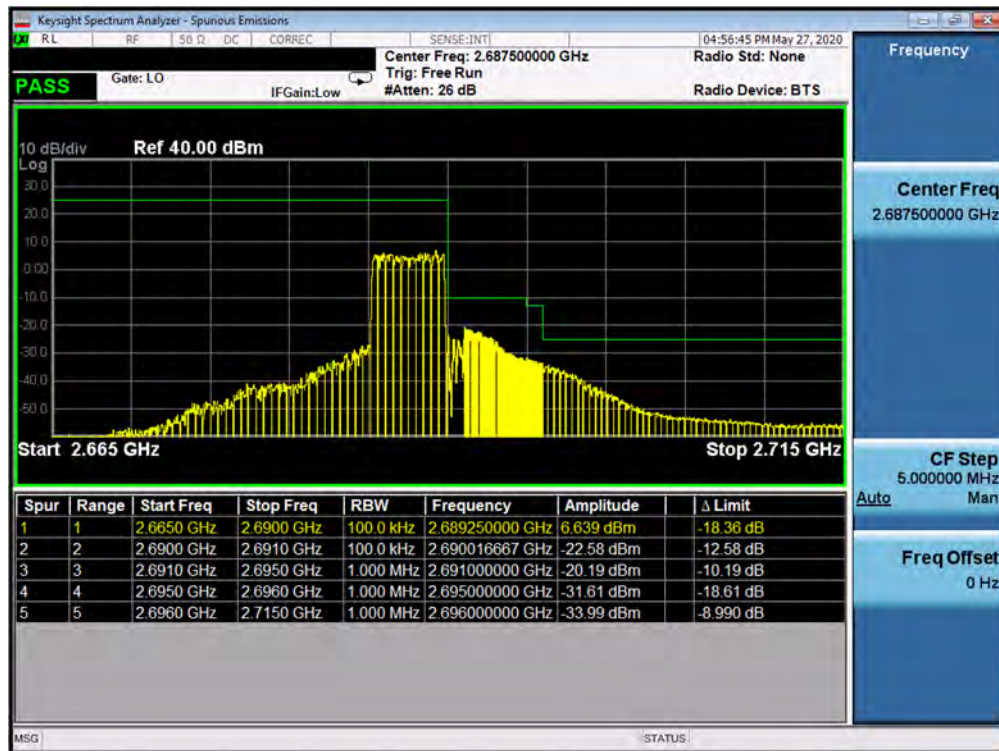
Plot 7-447. Upper Extended Band Edge Plot (Band 7 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 250 of 357

Band 41

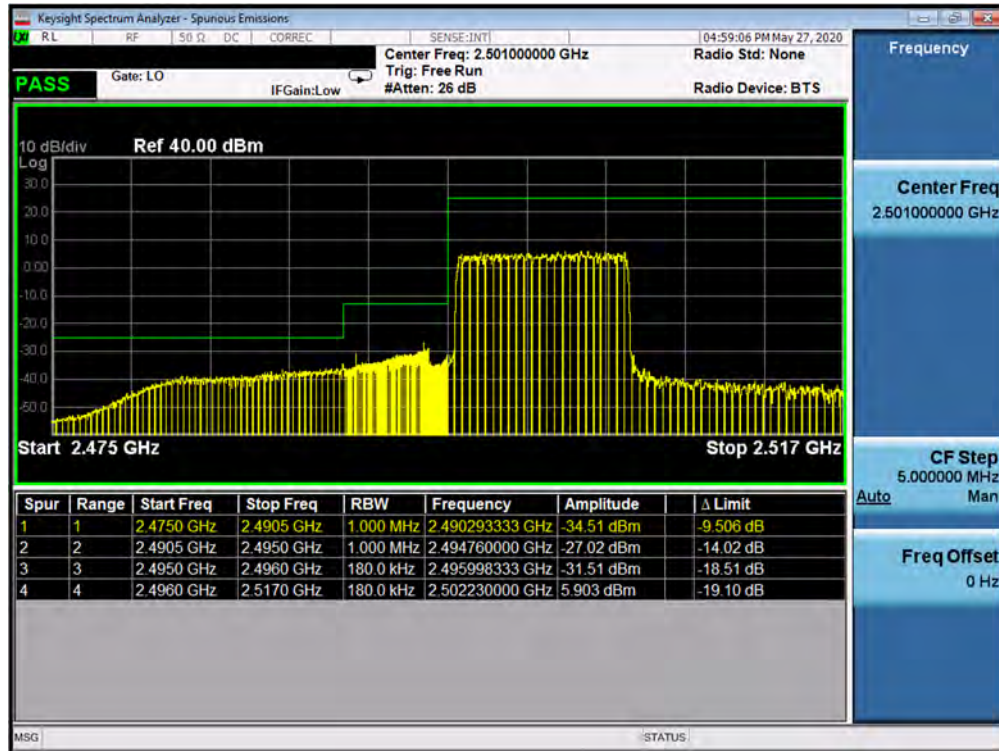


Plot 7-448. Lower ACP Plot at 2496 MHz (Band 41 - 5.0MHz QPSK - Full RB Configuration)

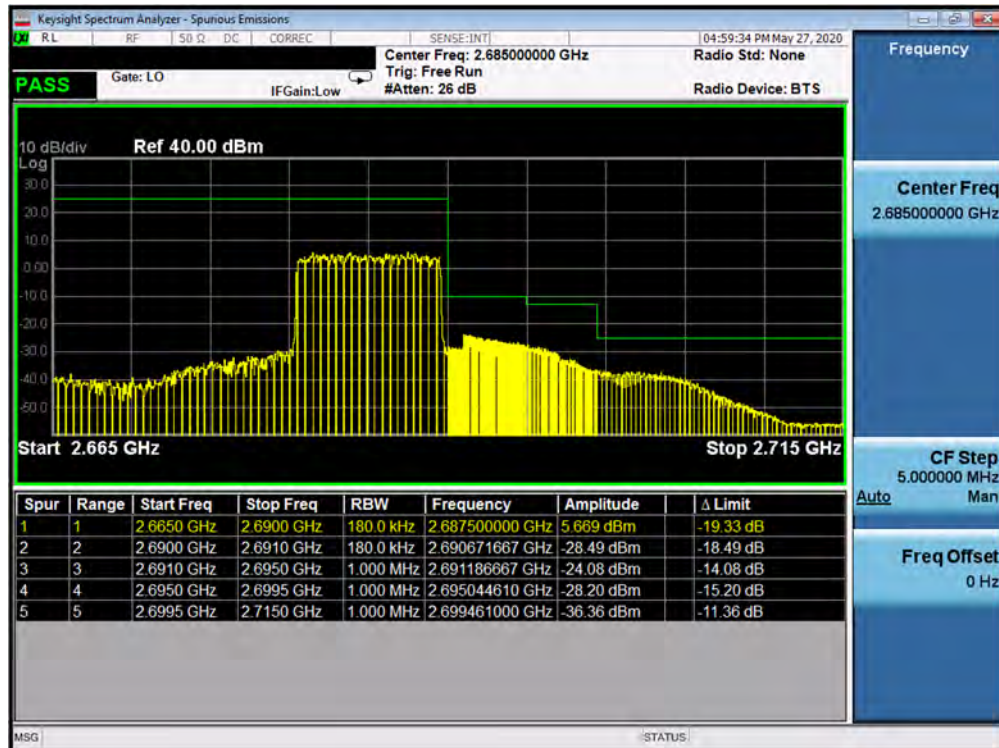


Plot 7-449. Upper ACP Plot (Band 41 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 251 of 357

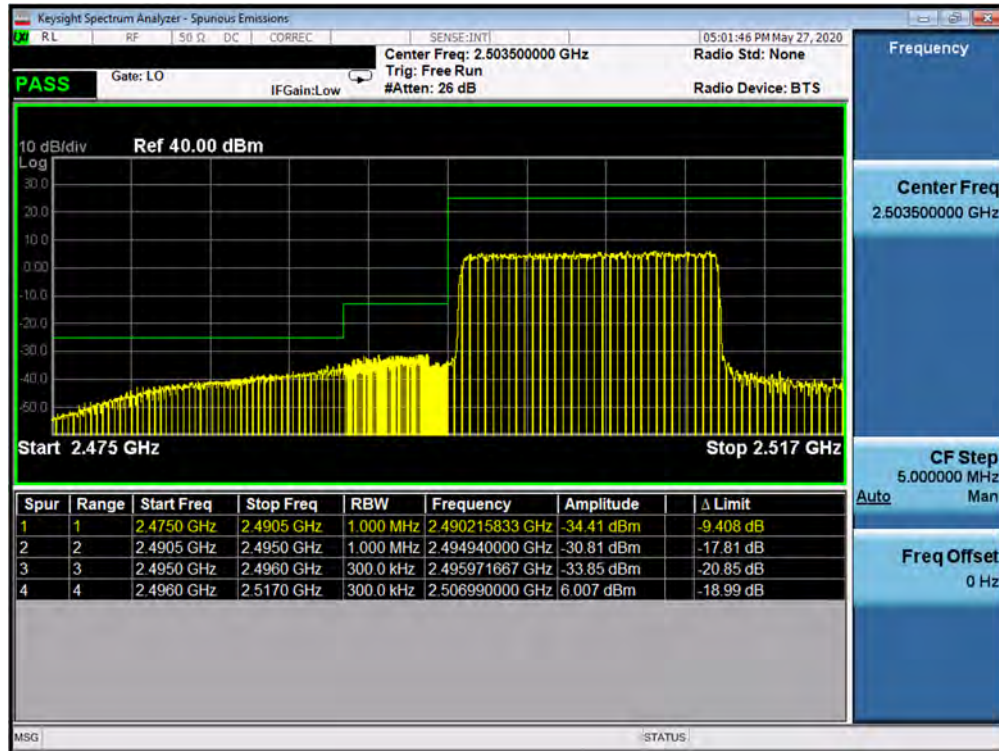


Plot 7-450. Lower ACP Plot at 2496 MHz (Band 41 - 10.0MHz QPSK - Full RB Configuration)

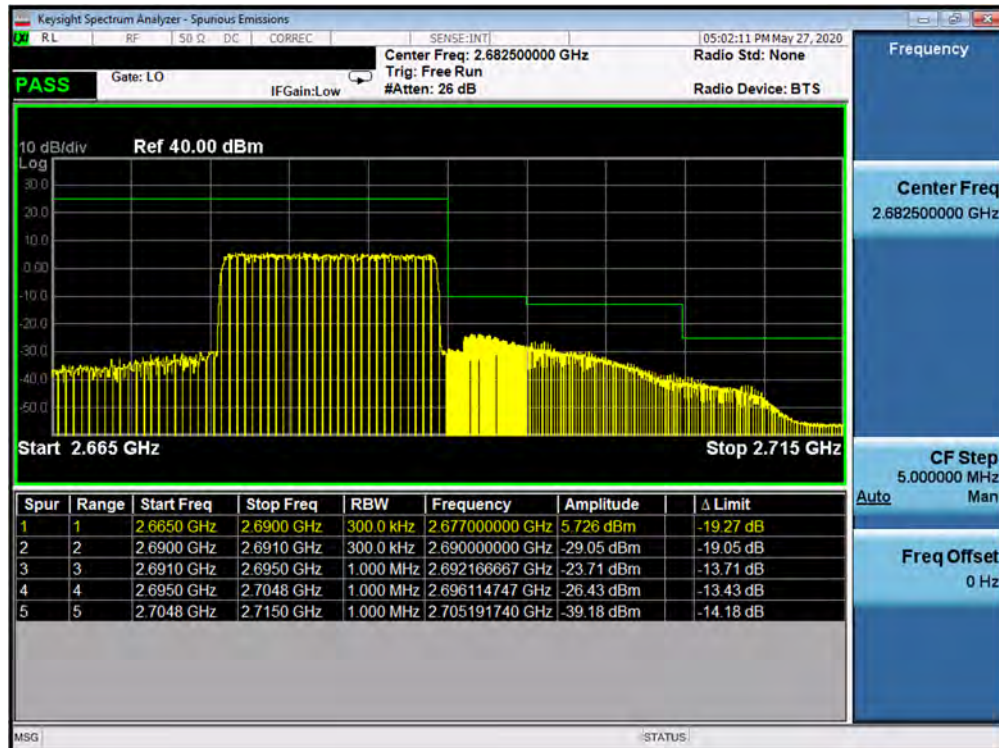


Plot 7-451. Upper ACP Plot (Band 41 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 252 of 357

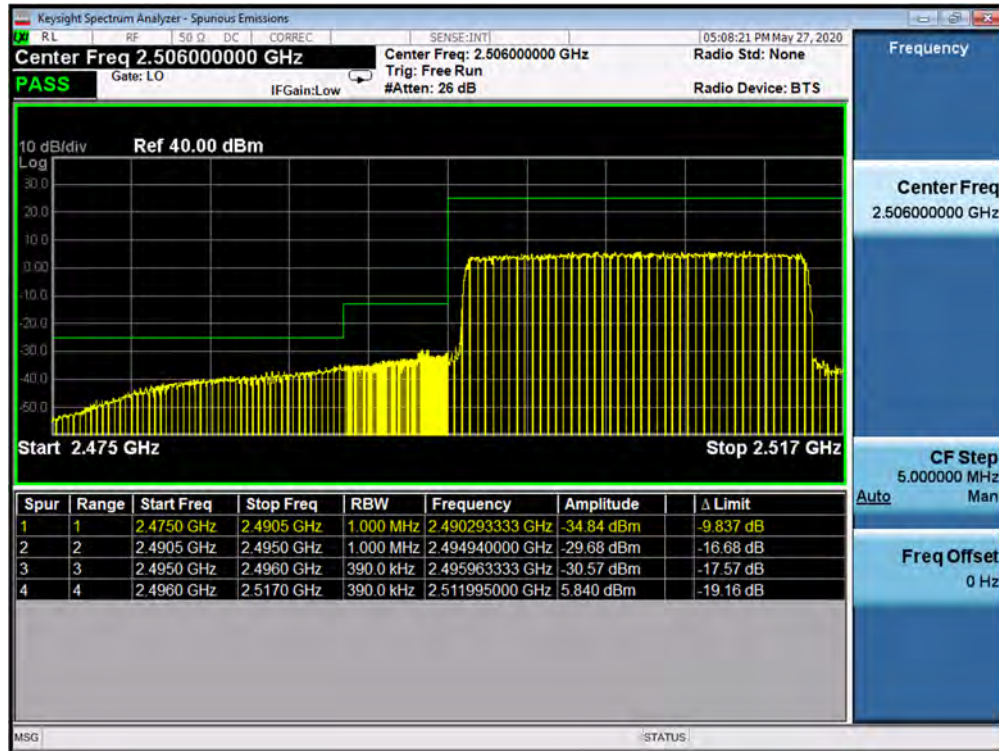


Plot 7-452. Lower ACP Plot at 2496 MHz (Band 41 - 15.0MHz QPSK - Full RB Configuration)

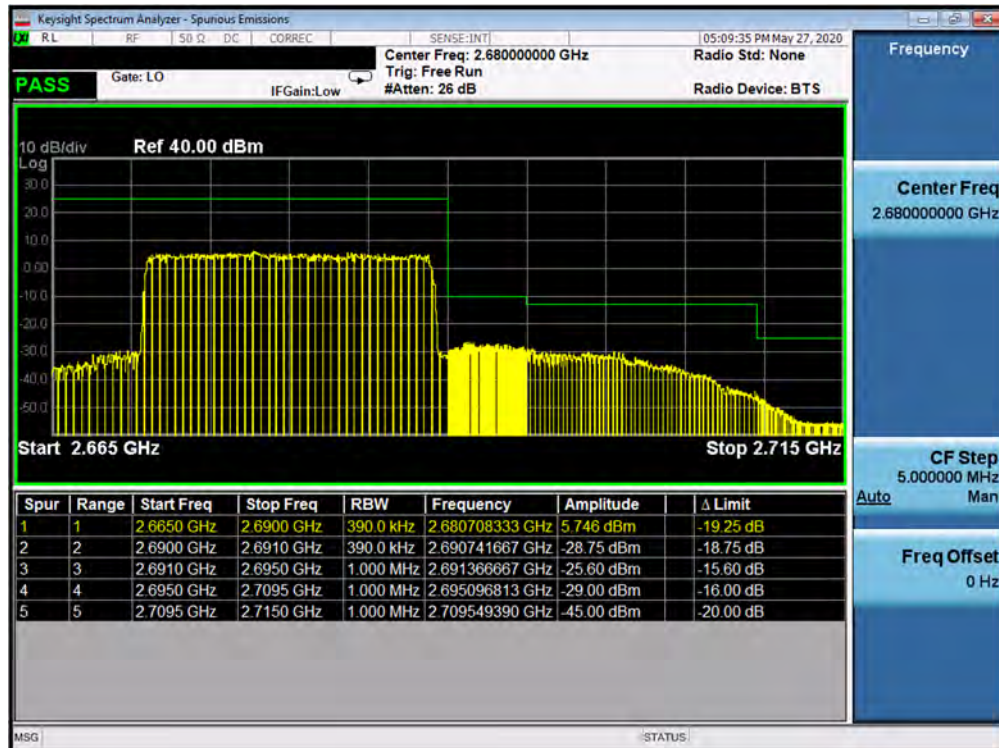


Plot 7-453. Upper ACP Plot (Band 41 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 253 of 357



Plot 7-454. Lower ACP Plot at 2496 MHz (Band 41 - 20.0MHz QPSK - Full RB Configuration)



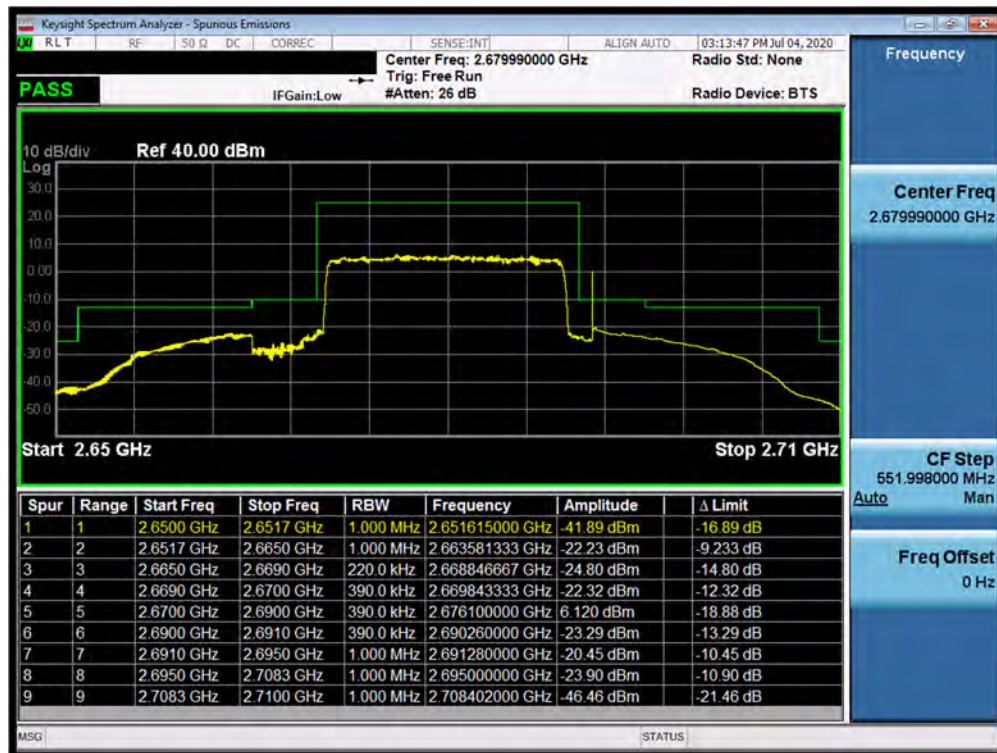
Plot 7-455. Upper ACP Plot (Band 41 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 254 of 357

NR Band n41

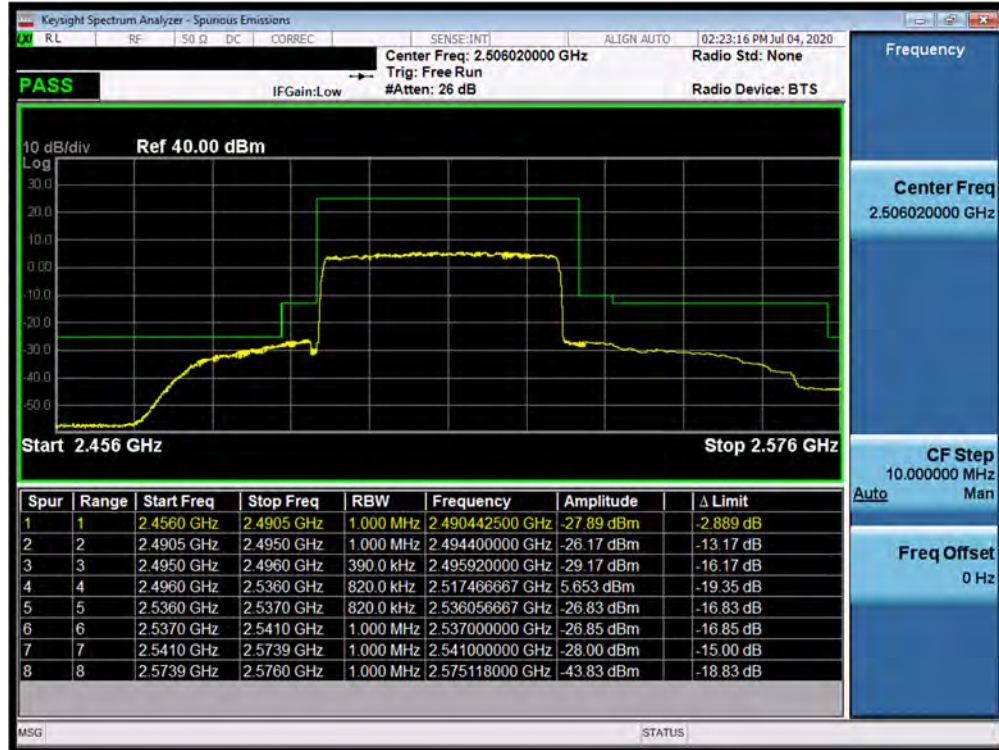


Plot 7-456. Lower ACP Plot at 2496 MHz (n41 - 20.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)



Plot 7-457. Upper ACP Plot (Band 41 - 20.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 255 of 357

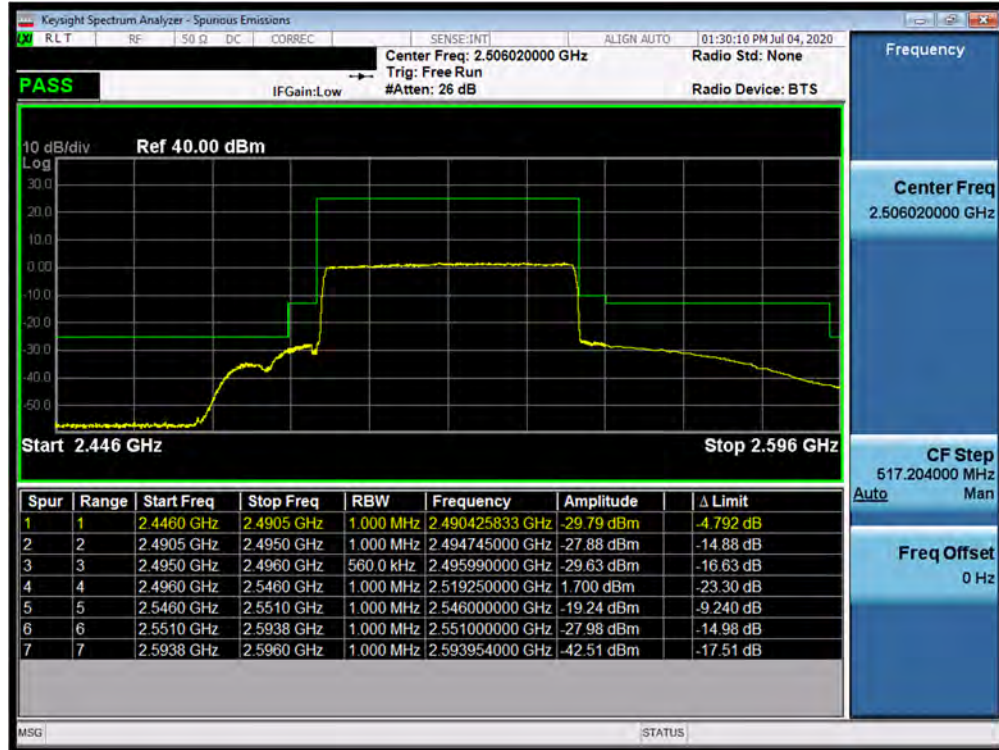


Plot 7-458. Lower ACP Plot at 2496 MHz (n41 - 40.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)



Plot 7-459. Upper ACP Plot (Band 41 - 40.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 256 of 357

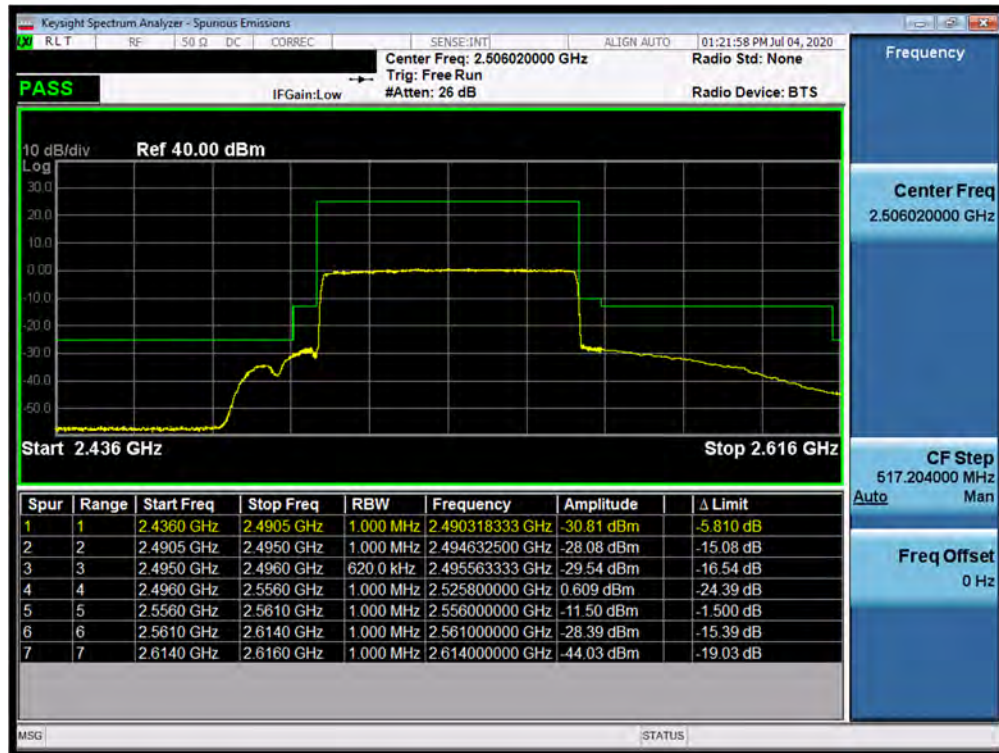


Plot 7-460. Lower ACP Plot at 2496 MHz (n41 - 50.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)



Plot 7-461. Upper ACP Plot (Band 41 - 50.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 257 of 357

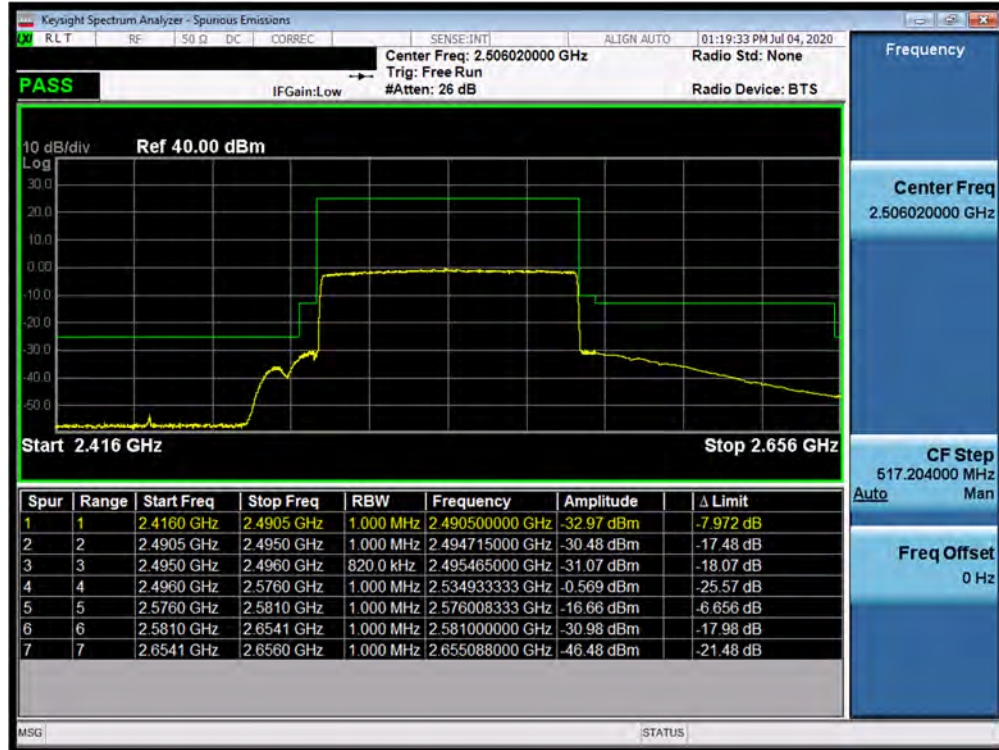


Plot 7-462. Lower ACP Plot at 2496 MHz (n41 - 60.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)



Plot 7-463. Upper ACP Plot (Band 41 - 60.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 258 of 357

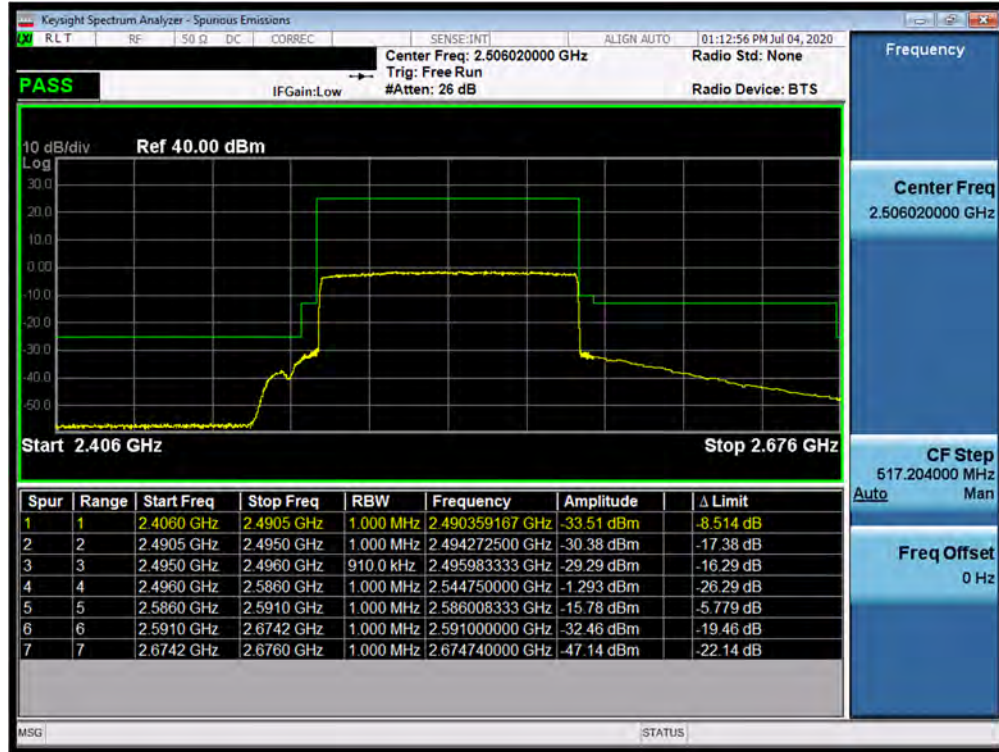


Plot 7-464. Lower ACP Plot at 2496 MHz (n41 - 80.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

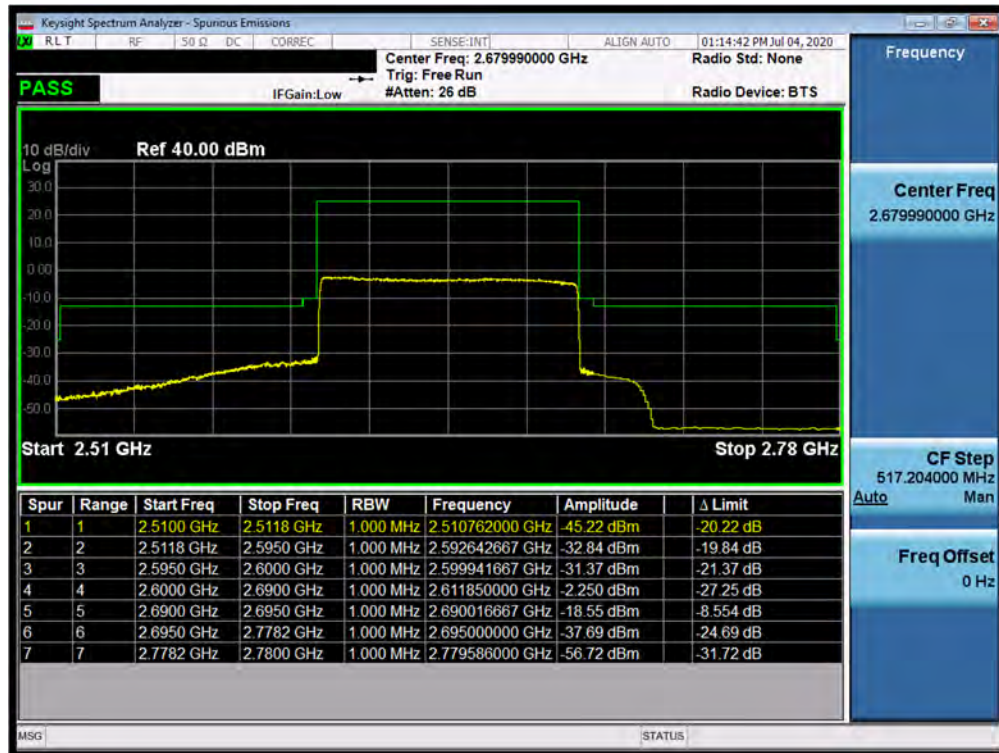


Plot 7-465. Upper ACP Plot (Band 41 - 80.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 259 of 357

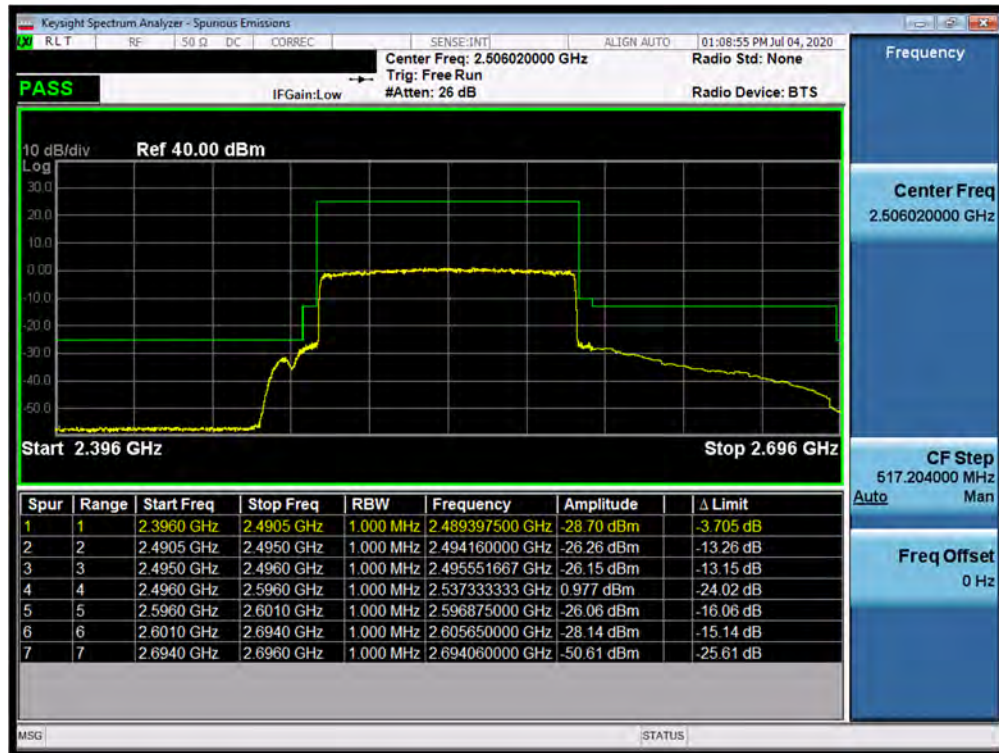


Plot 7-466. Lower ACP Plot at 2496 MHz (n41 - 90.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)



Plot 7-467. Upper ACP Plot (Band 41 - 90.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 260 of 357



Plot 7-468. Lower ACP Plot at 2496 MHz (n41 - 100.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)



Plot 7-469. Upper ACP Plot (Band n41 - 100.0MHz DFT-s-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 261 of 357

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.



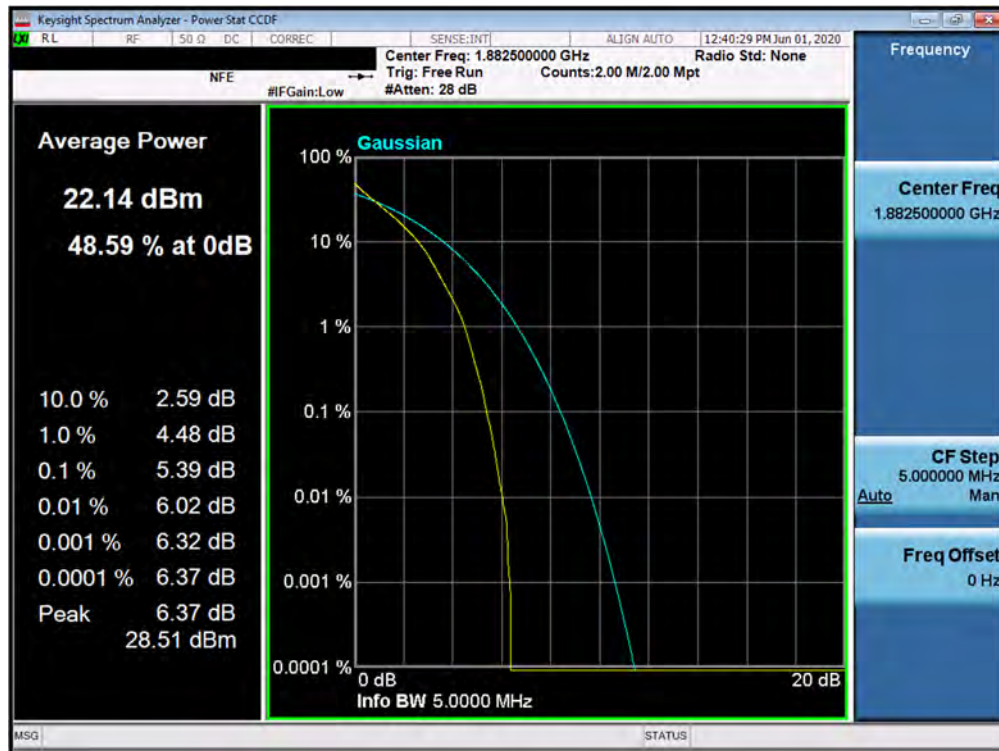
Figure 7-4. Test Instrument & Measurement Setup

Test Notes

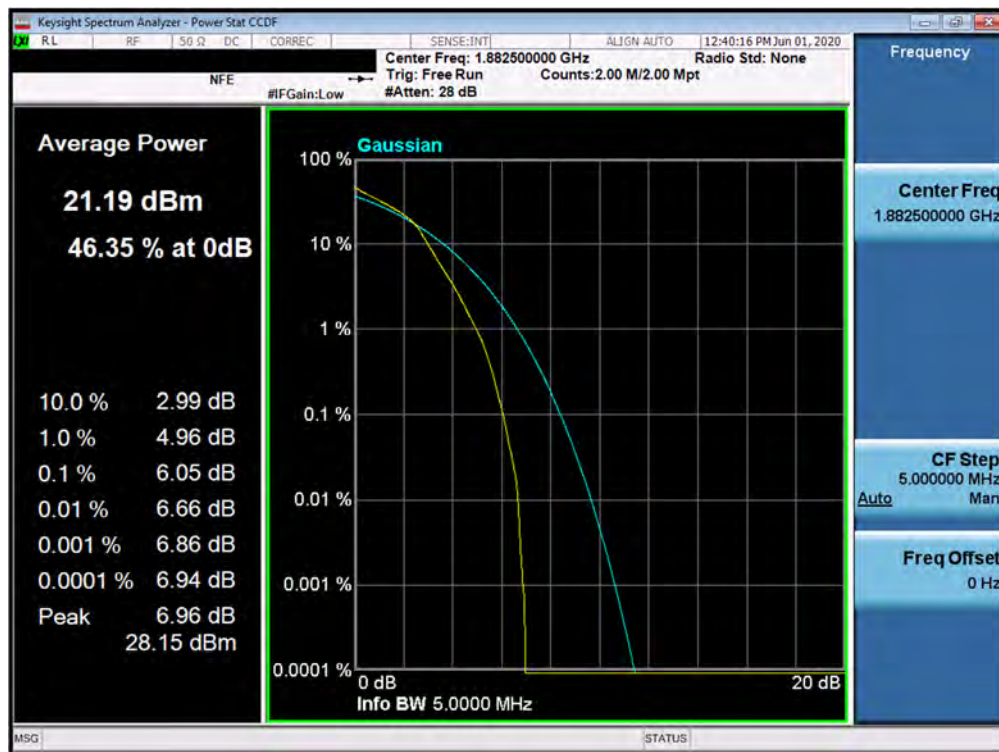
None.

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset	Page 262 of 357

Band 25/2

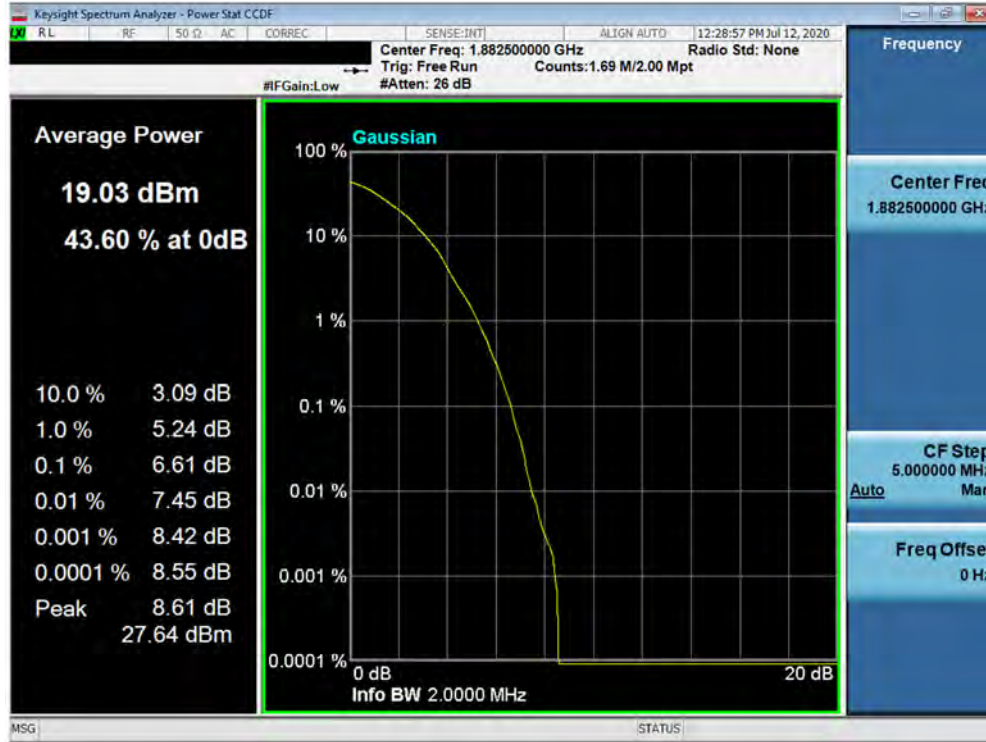


Plot 7-470. PAR Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)

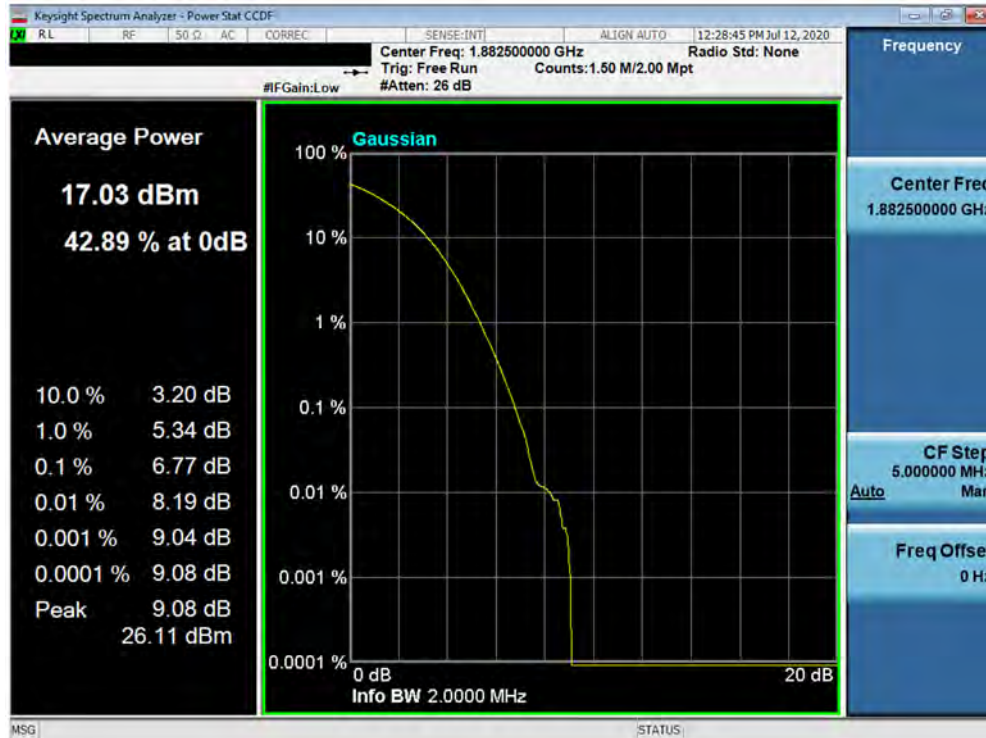


Plot 7-471. PAR Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 263 of 357

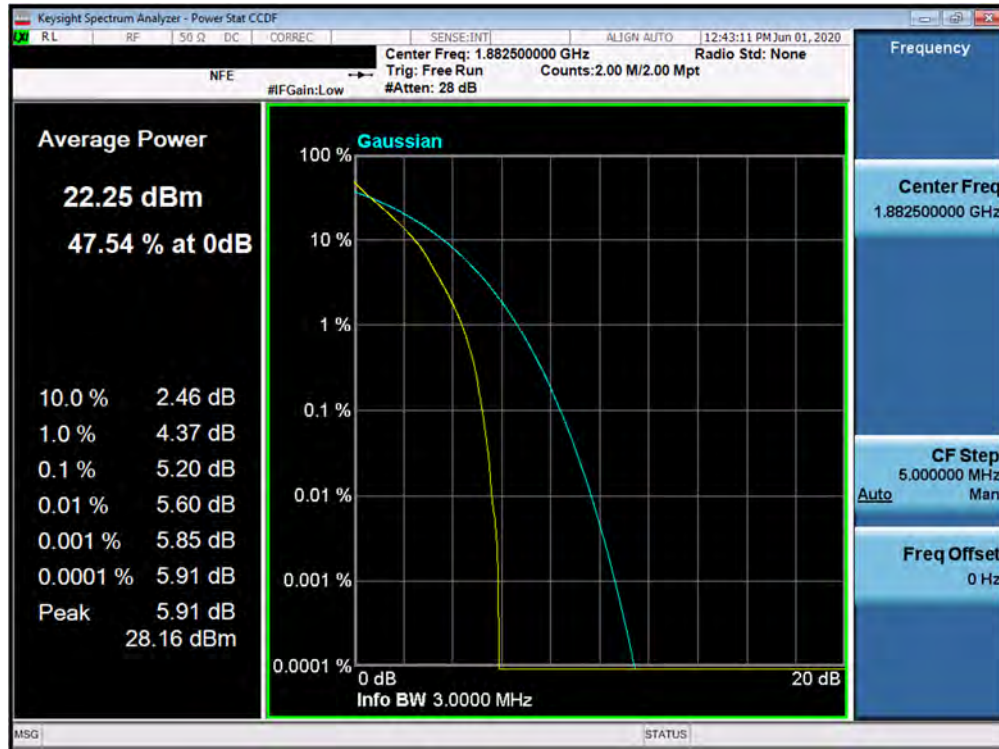


Plot 7-472. PAR Plot (Band 25/2 - 1.4MHz 64-QAM - Full RB Configuration)

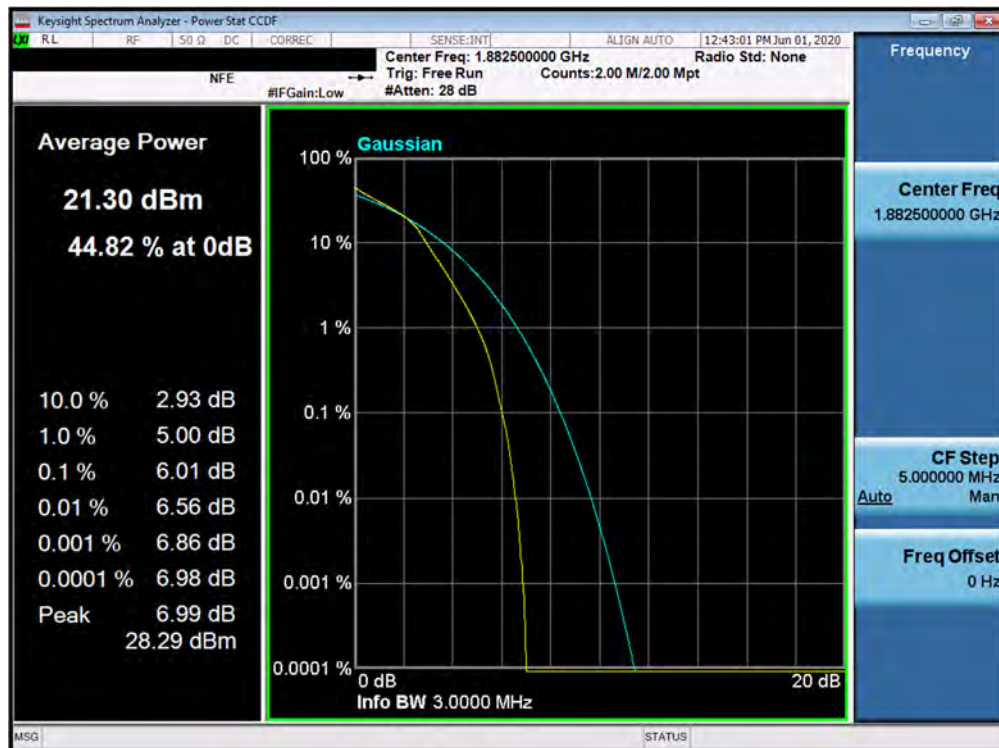


Plot 7-473. PAR Plot (Band 25/2 - 1.4MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 264 of 357

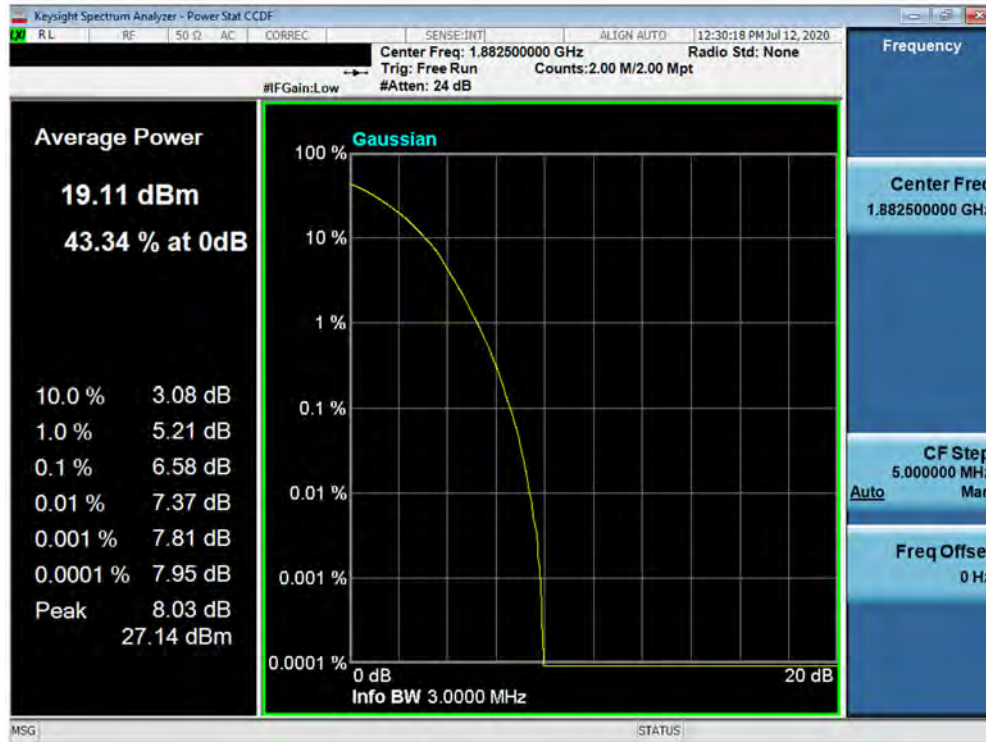


Plot 7-474. PAR Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)

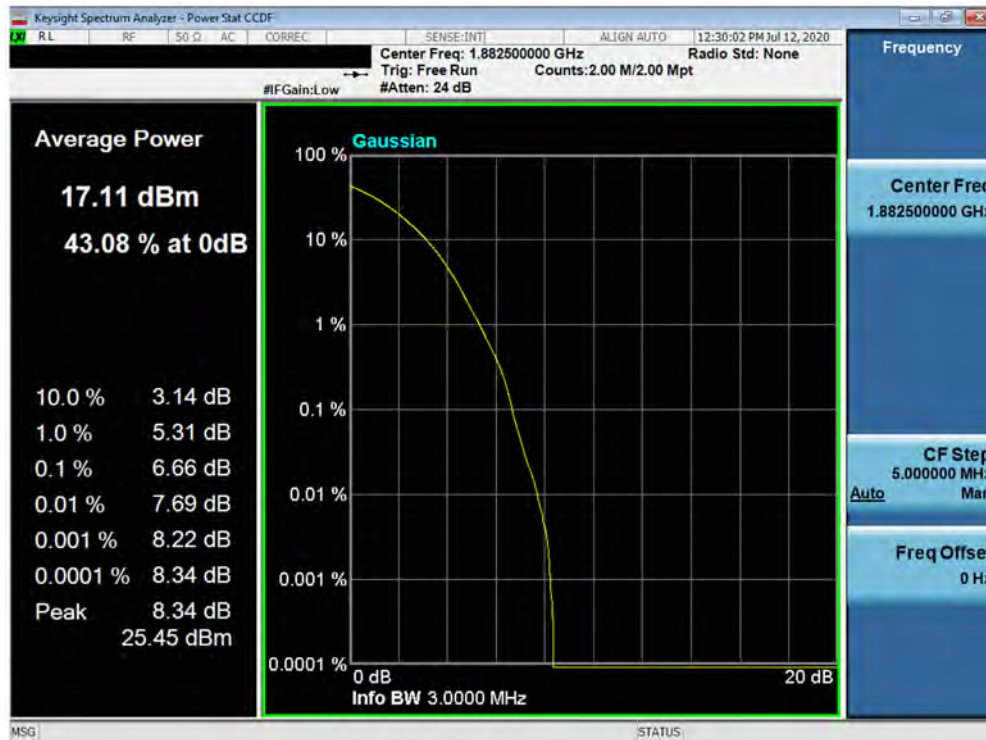


Plot 7-475. PAR Plot (Band 25/2 - 3.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset	Page 265 of 357

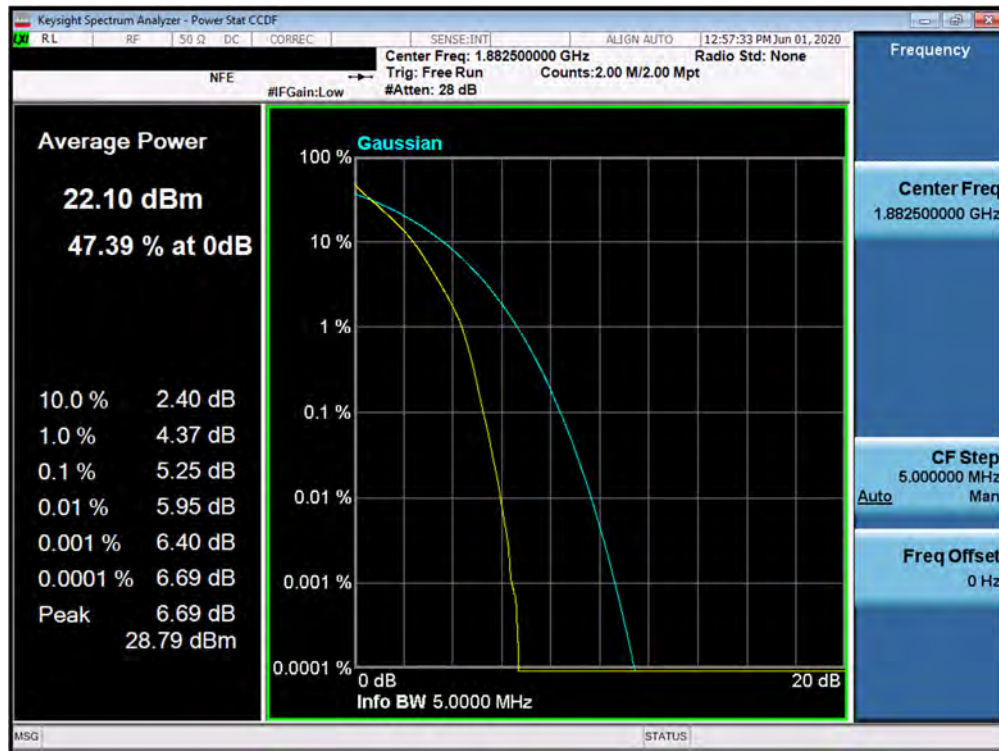


Plot 7-476. PAR Plot (Band 25/2 – 3.0MHz 64-QAM - Full RB Configuration)

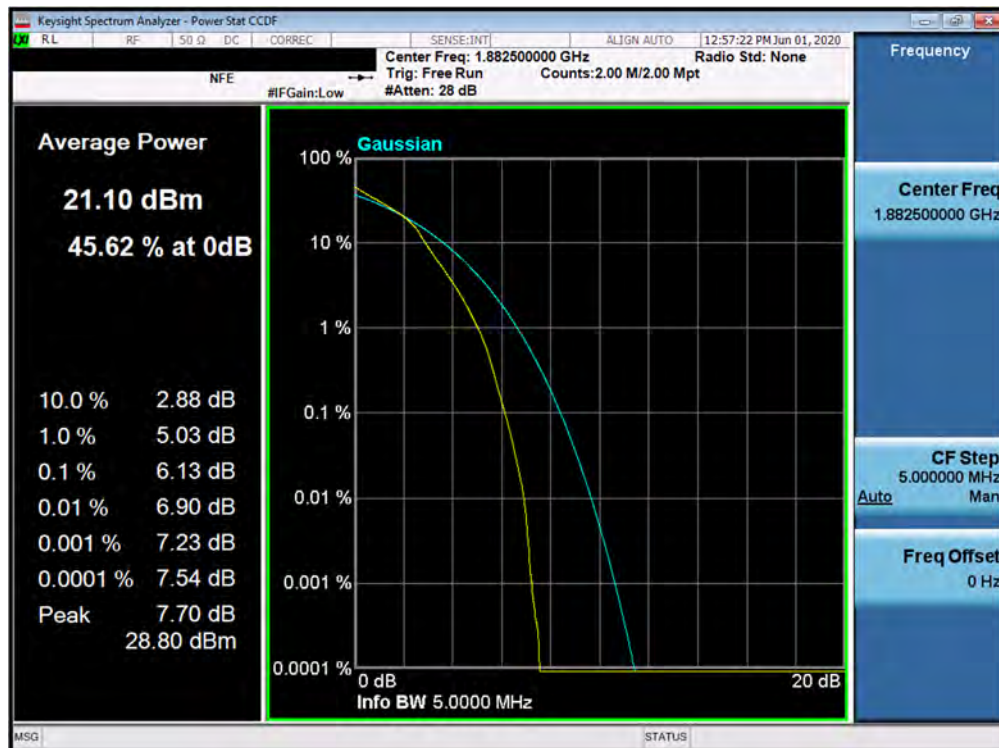


Plot 7-477. PAR Plot (Band 25/2 – 3.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 266 of 357

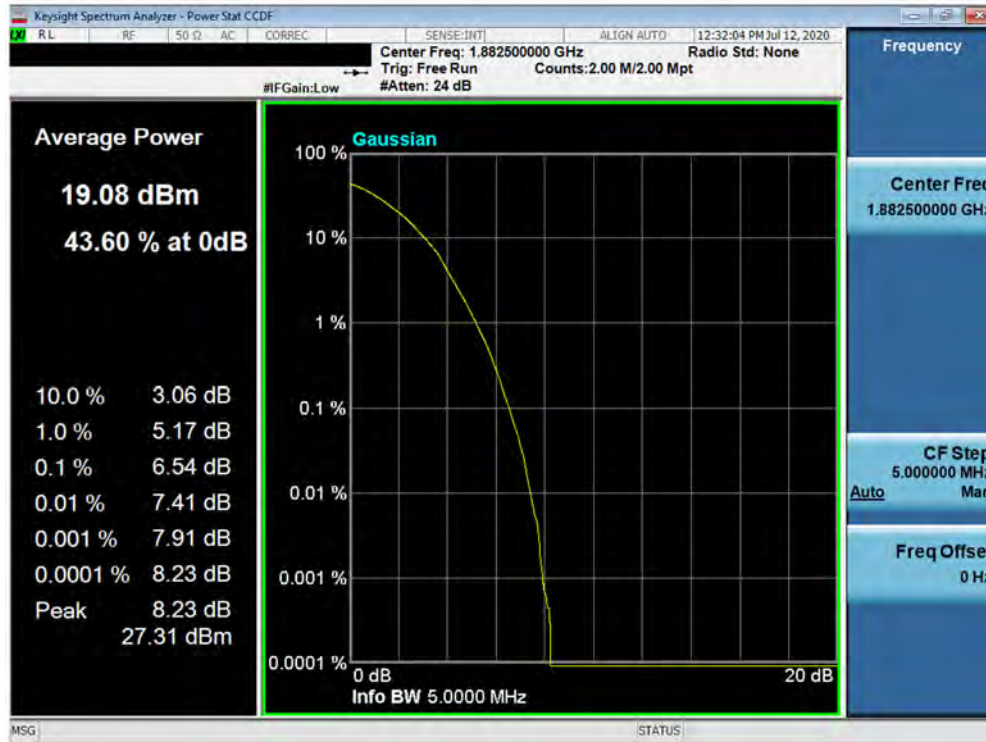


Plot 7-478. PAR Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)

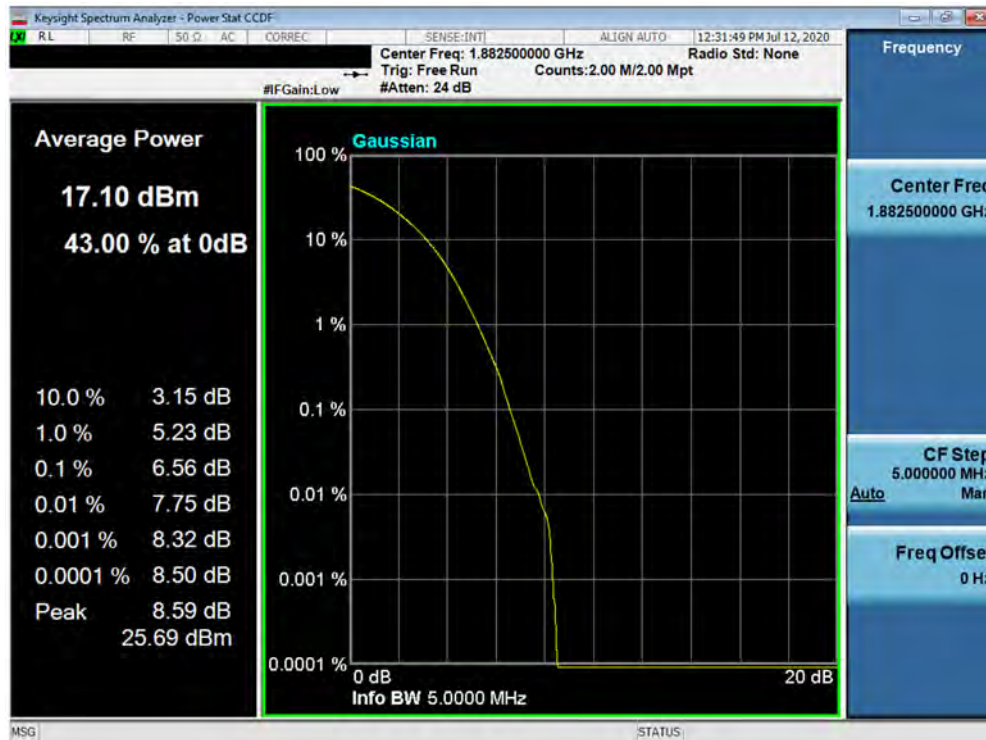


Plot 7-479. PAR Plot (Band 25/2 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 267 of 357

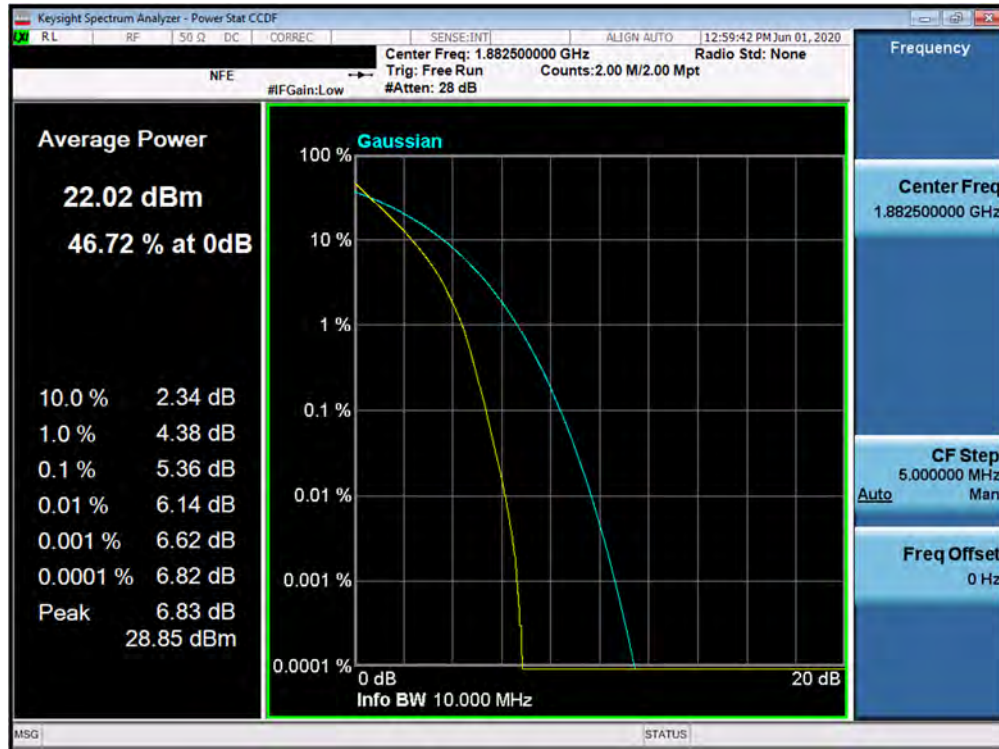


Plot 7-480. PAR Plot (Band 25/2 – 5.0MHz 64-QAM - Full RB Configuration)

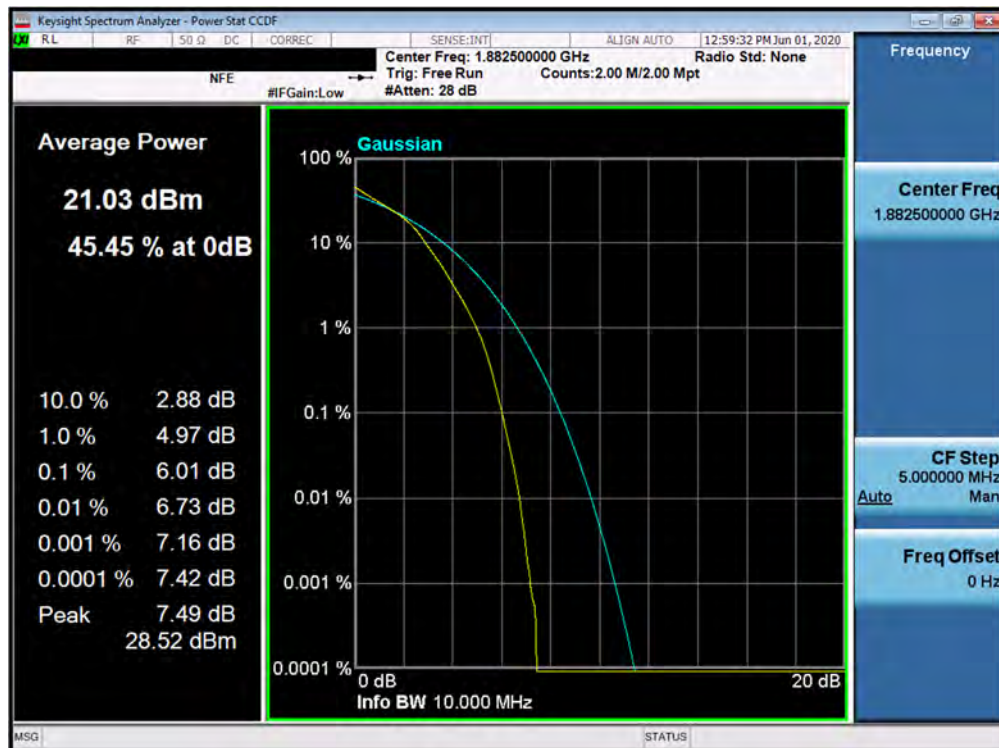


Plot 7-481. PAR Plot (Band 25/2 – 5.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 268 of 357

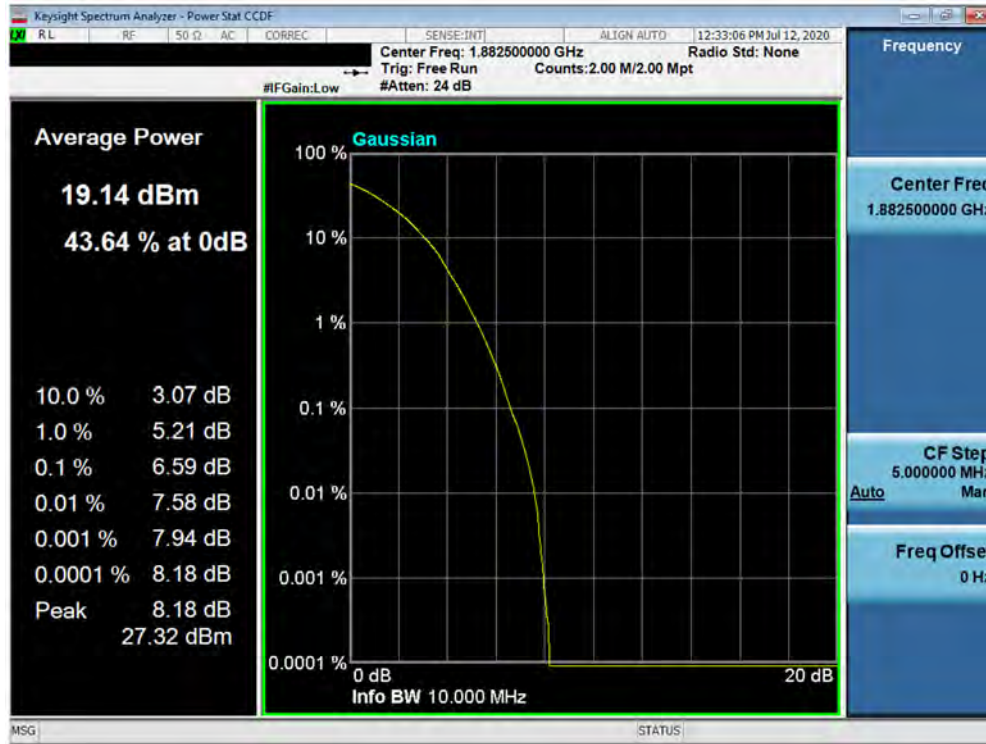


Plot 7-482. PAR Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

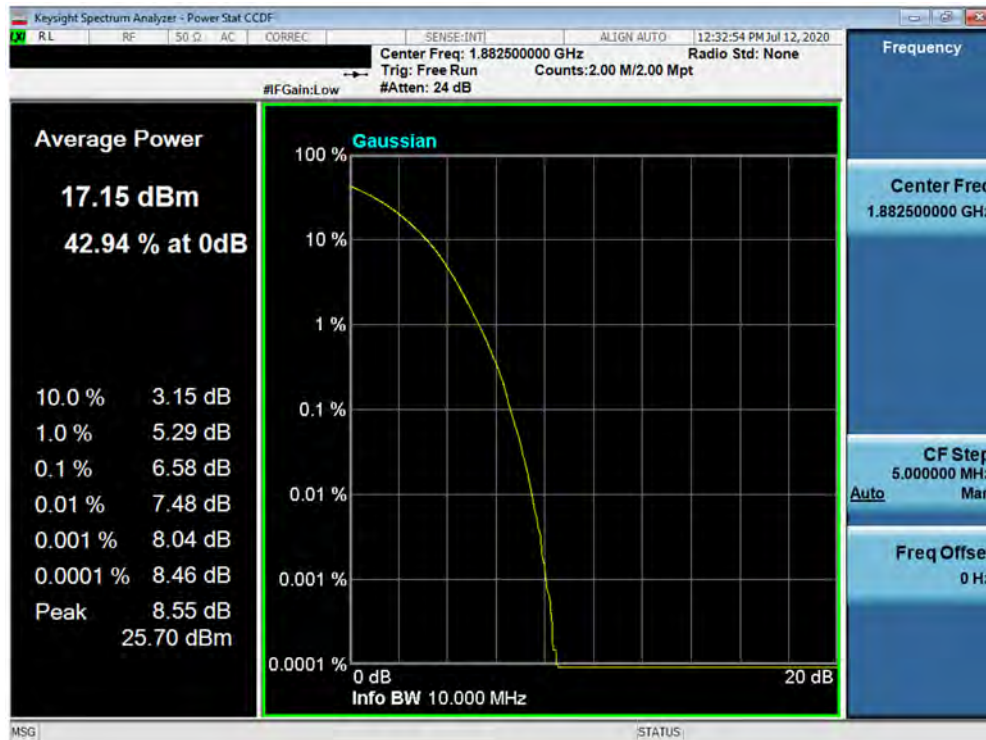


Plot 7-483. PAR Plot (Band 25/2 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset	Page 269 of 357

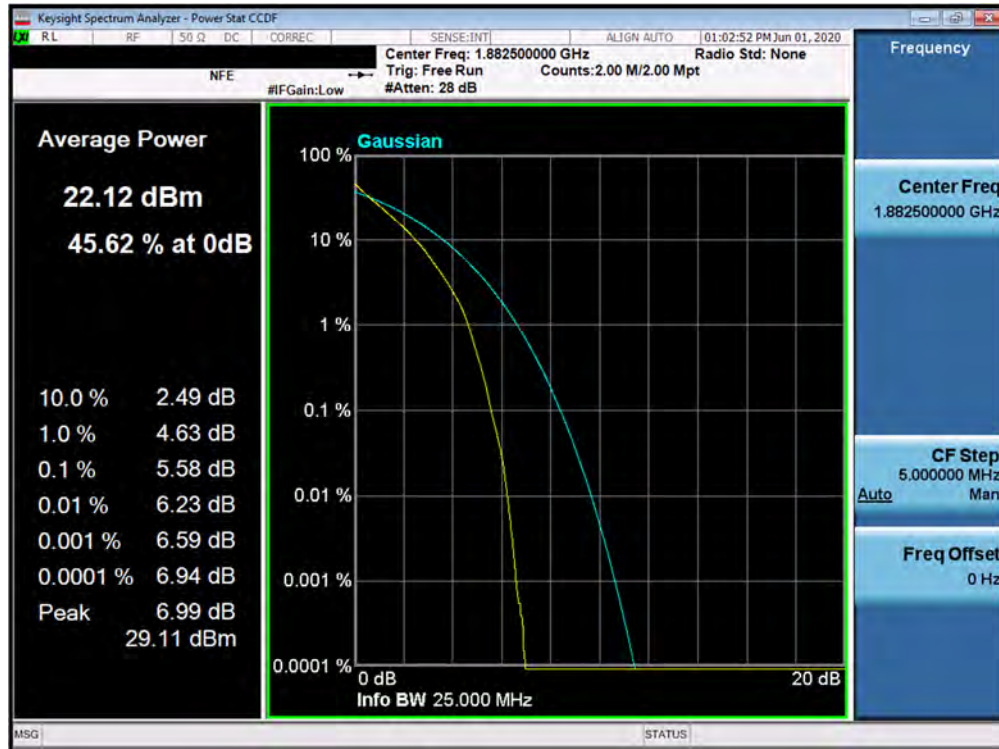


Plot 7-484. PAR Plot (Band 25/2 – 10.0MHz 64-QAM - Full RB Configuration)

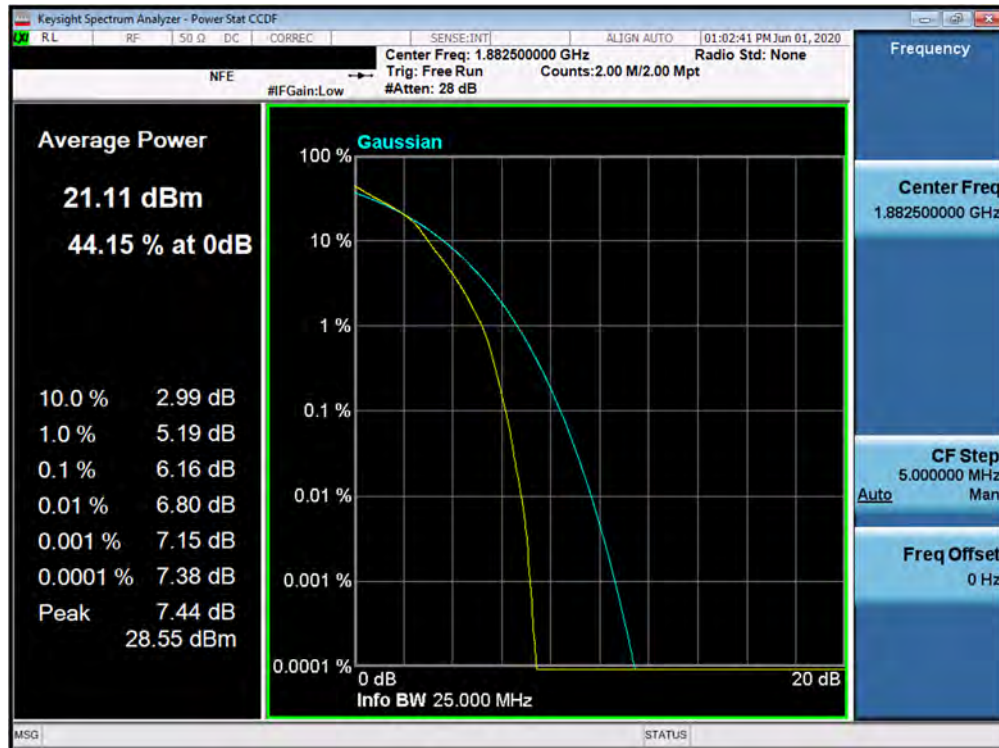


Plot 7-485. PAR Plot (Band 25/2 – 10.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 270 of 357

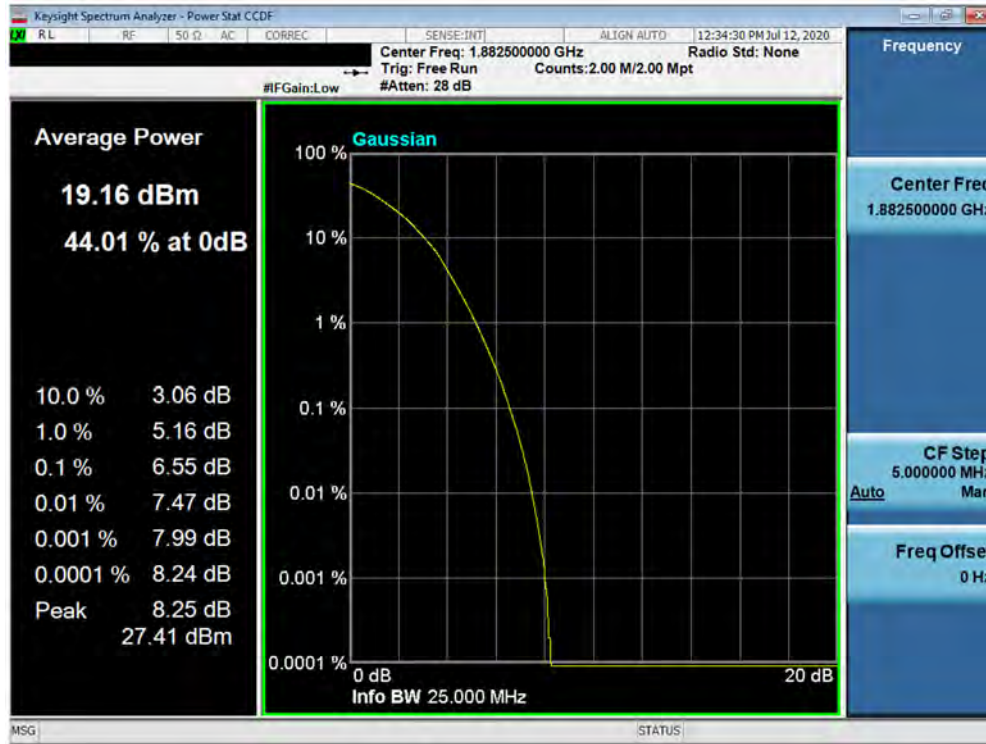


Plot 7-486. PAR Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)

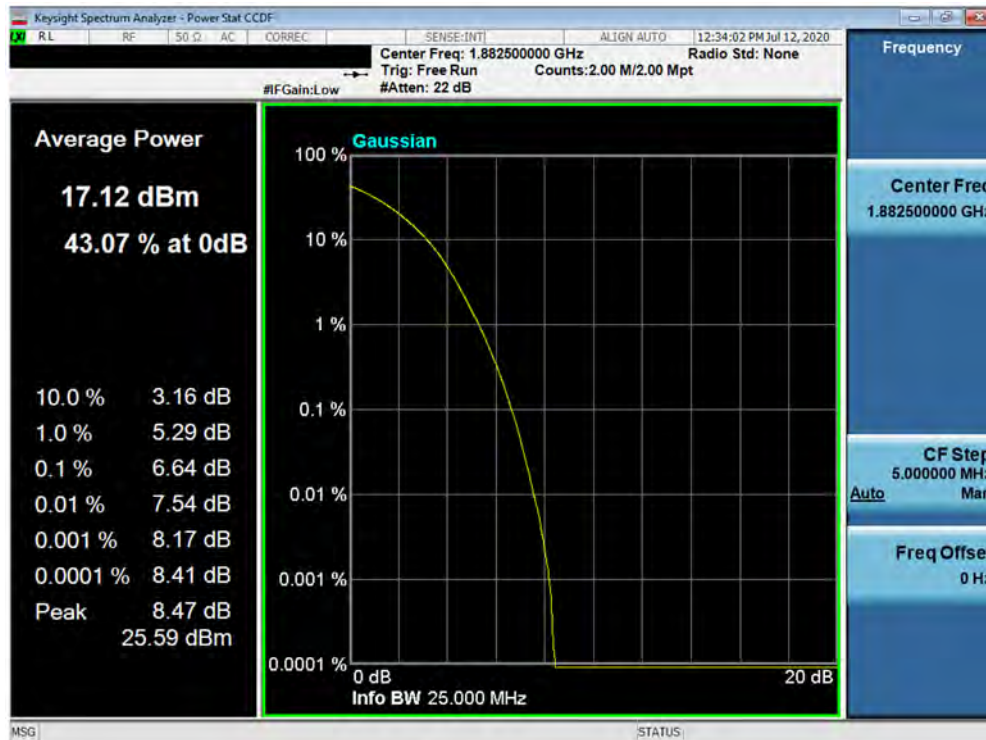


Plot 7-487. PAR Plot (Band 25/2 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset	Page 271 of 357

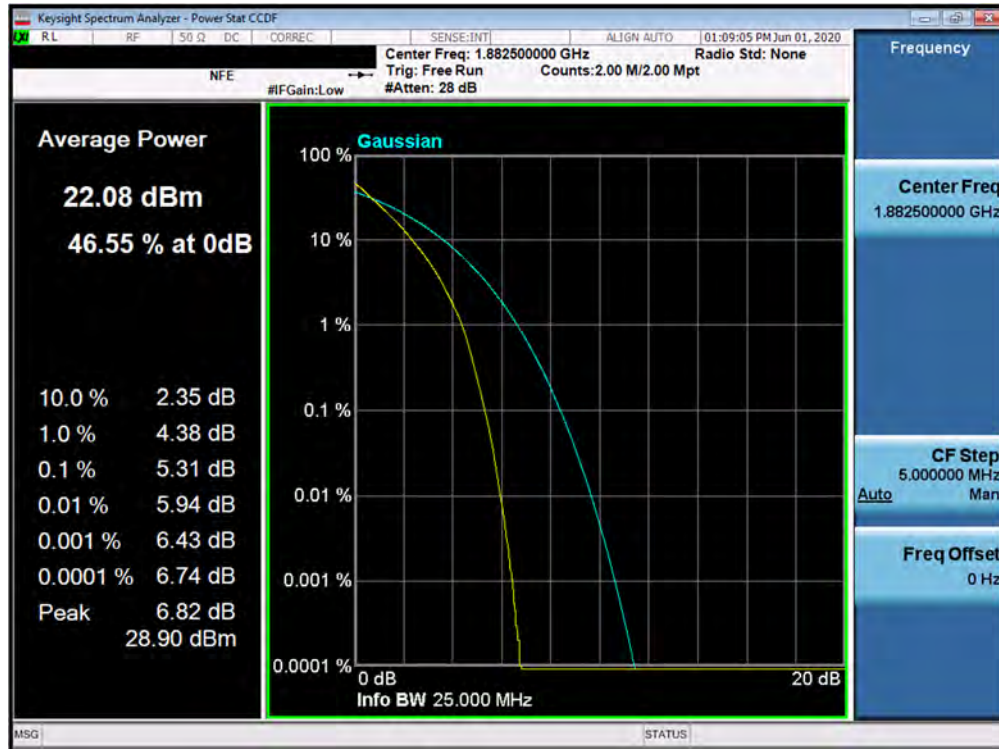


Plot 7-488. PAR Plot (Band 25/2 – 15.0MHz 64-QAM - Full RB Configuration)

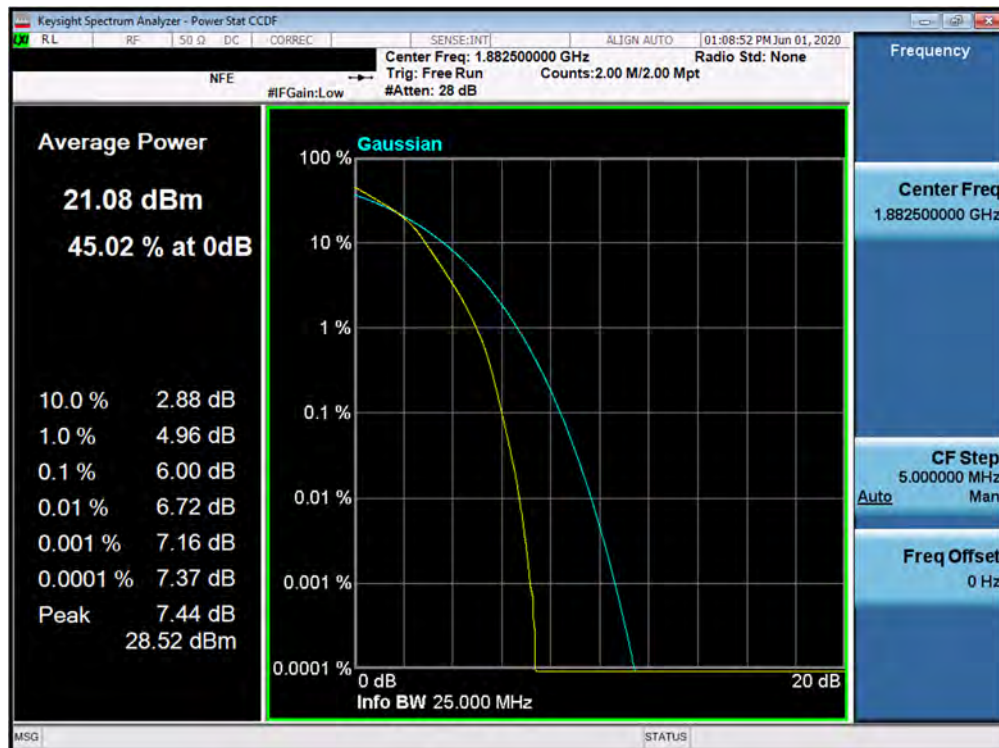


Plot 7-489. PAR Plot (Band 25/2 – 15.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 272 of 357

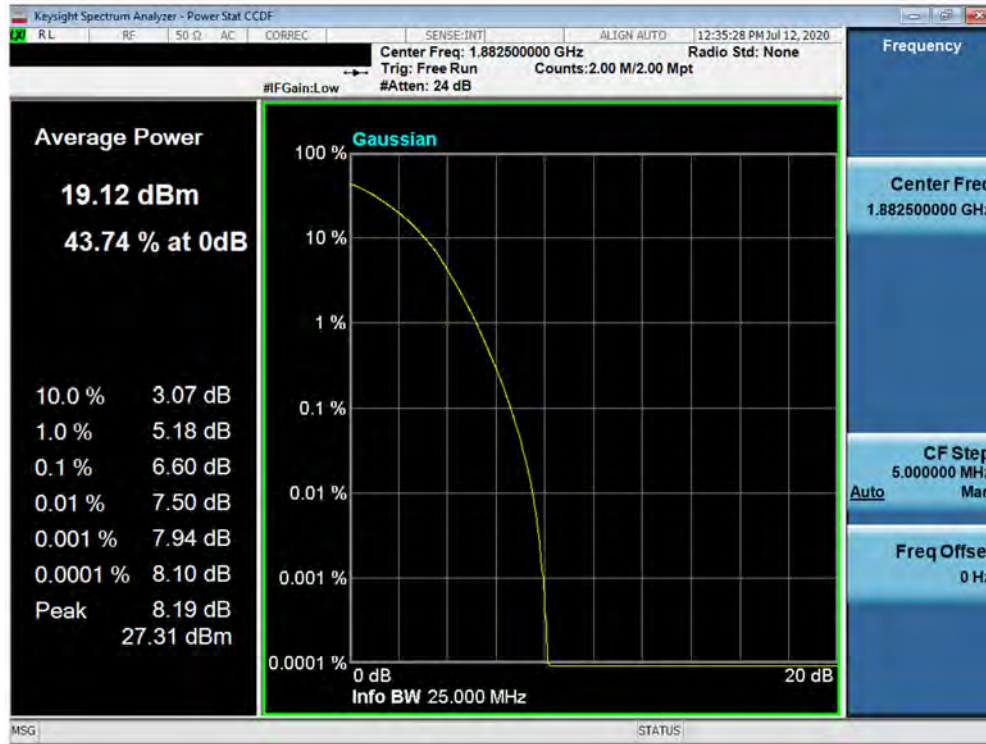


Plot 7-490. PAR Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

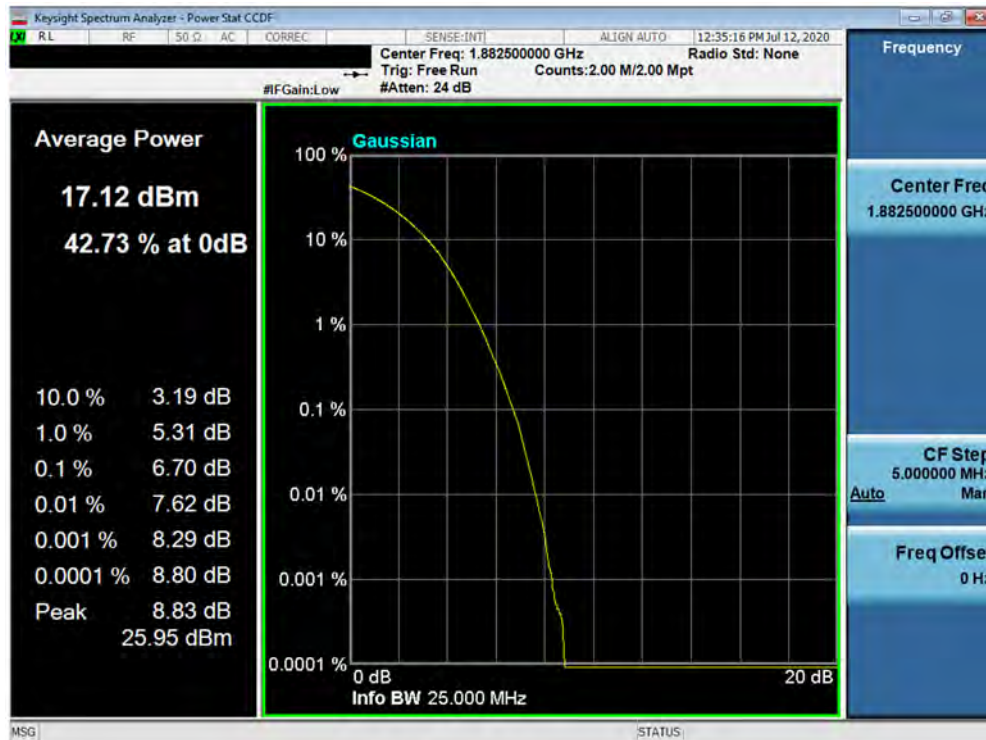


Plot 7-491. PAR Plot (Band 25/2 - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset	Page 273 of 357



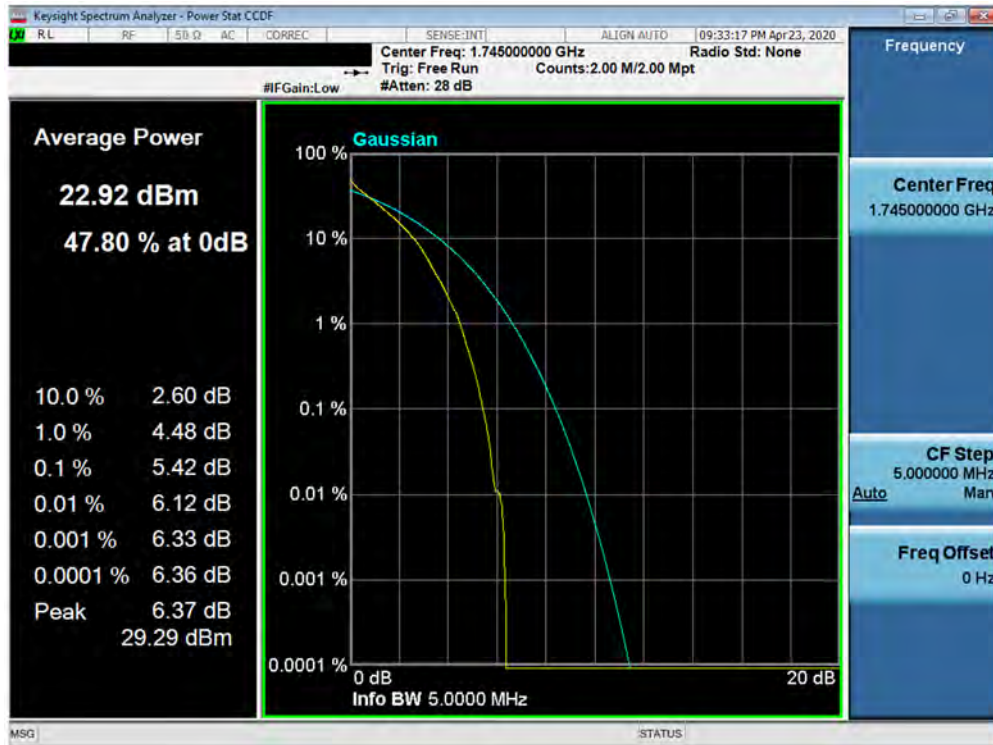
Plot 7-492. PAR Plot (Band 25/2 – 20.0MHz 64-QAM - Full RB Configuration)



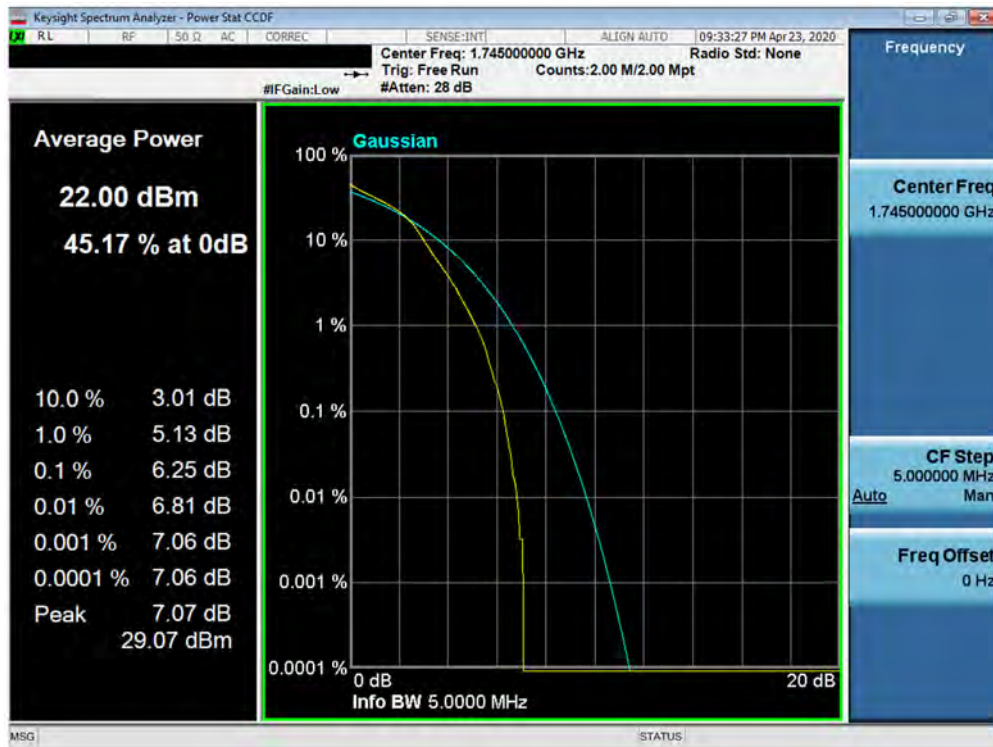
Plot 7-493. PAR Plot (Band 25/2 – 20.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 274 of 357

Band 66/4

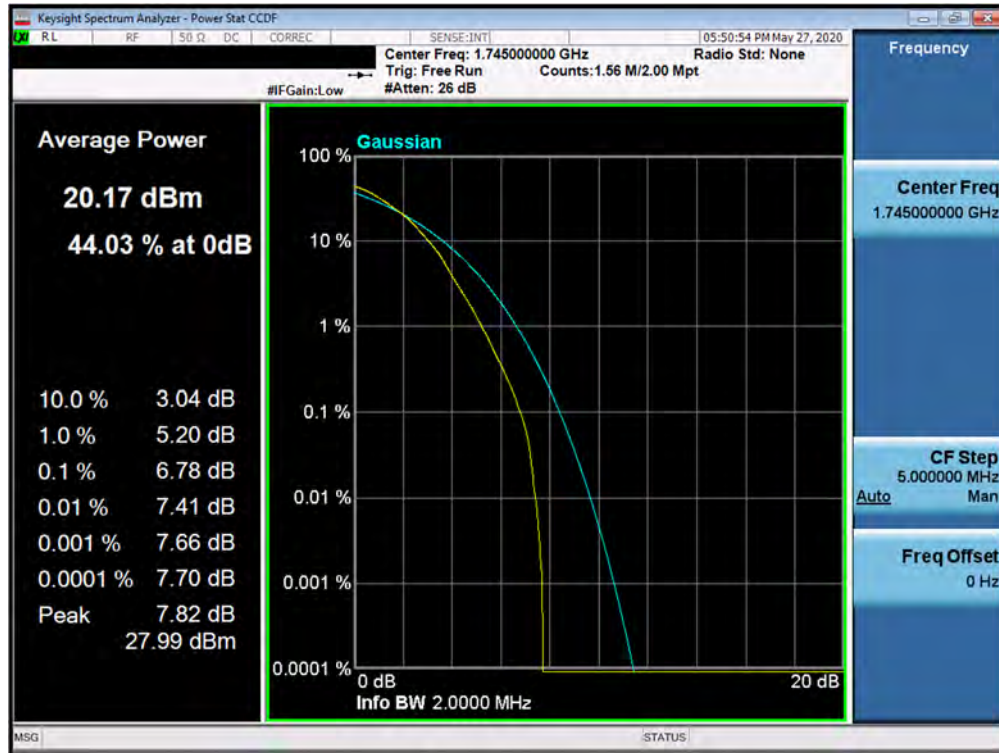


Plot 7-494. PAR Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)

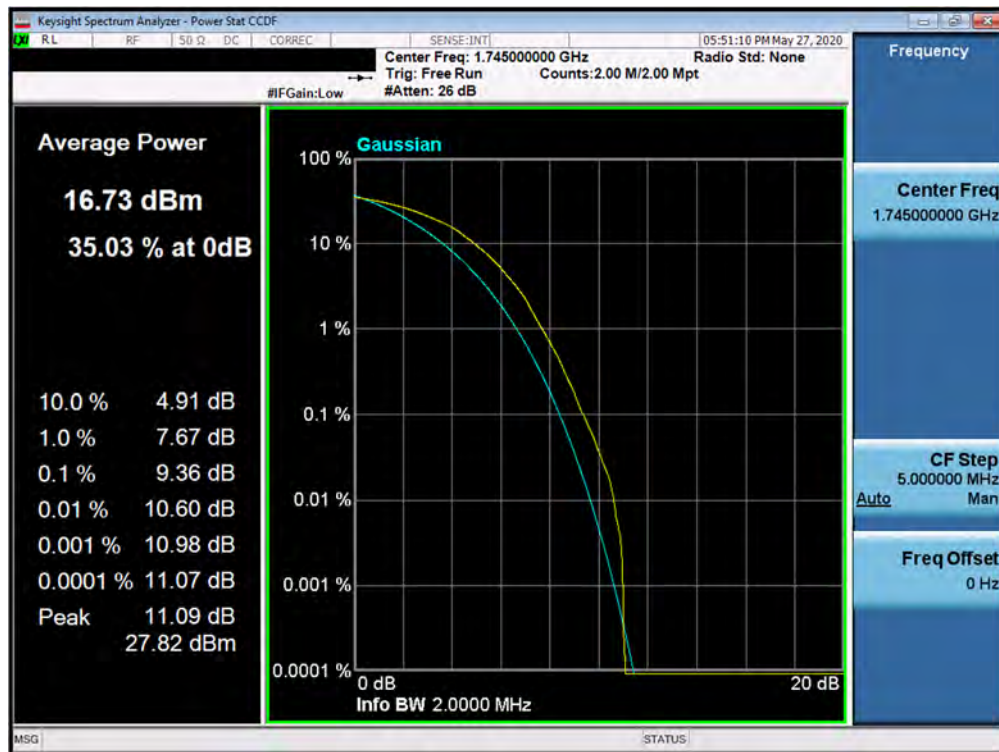


Plot 7-495. PAR Plot (Band 66/4 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 275 of 357

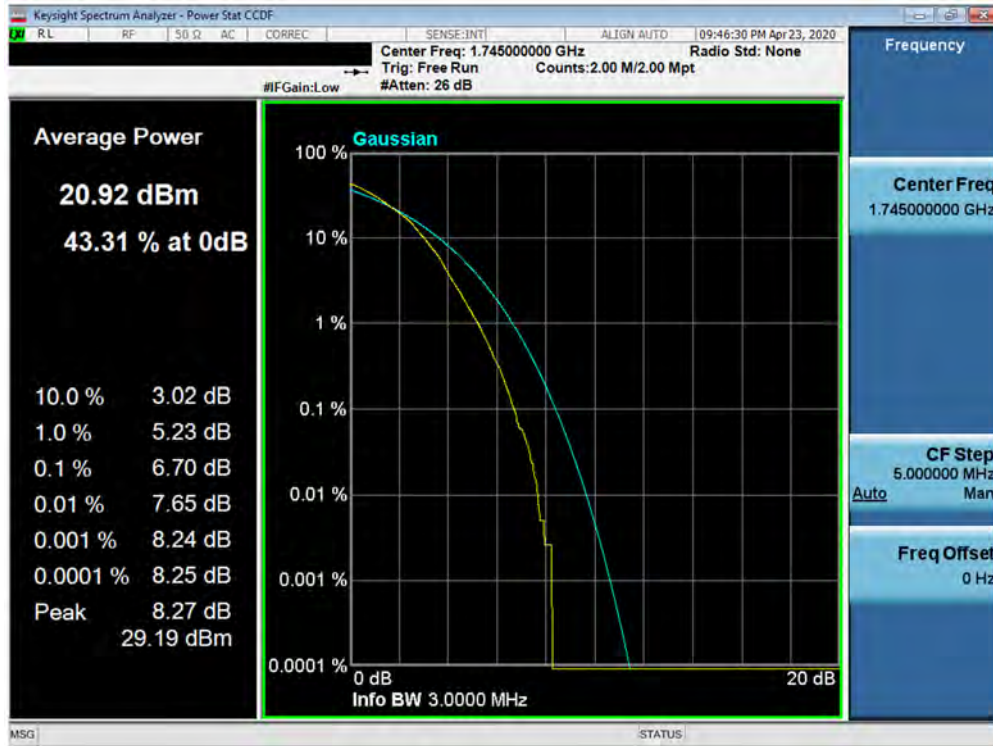


Plot 7-496. PAR Plot (Band 66/4 - 1.4MHz 64-QAM - Full RB Configuration)

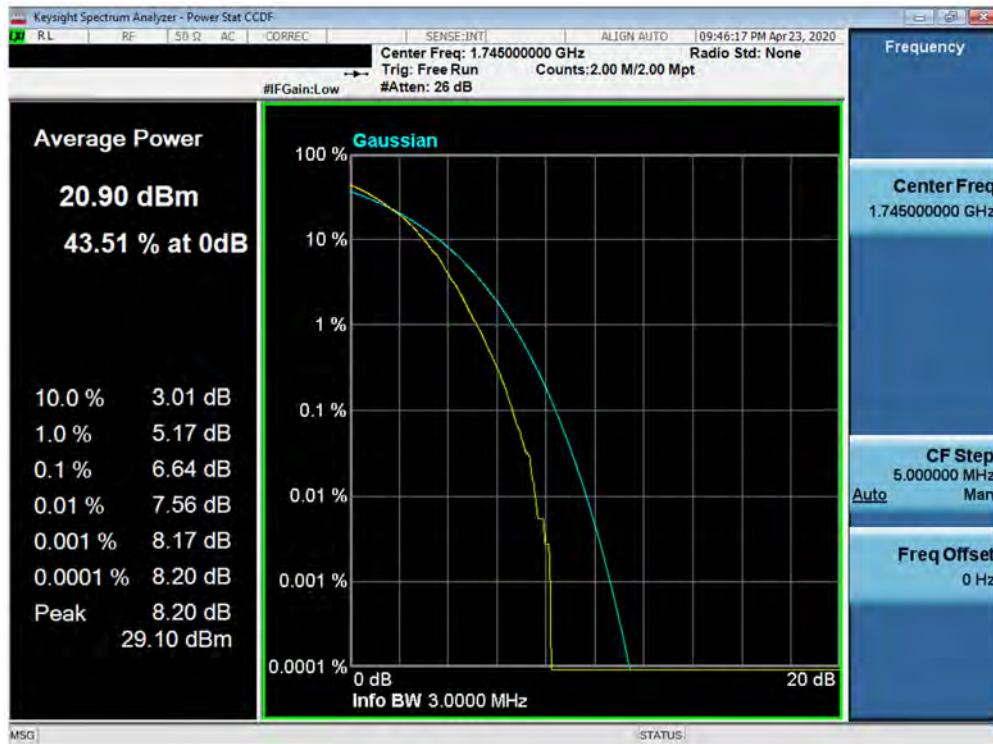


Plot 7-497. PAR Plot (Band 66/4 - 1.4MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 276 of 357

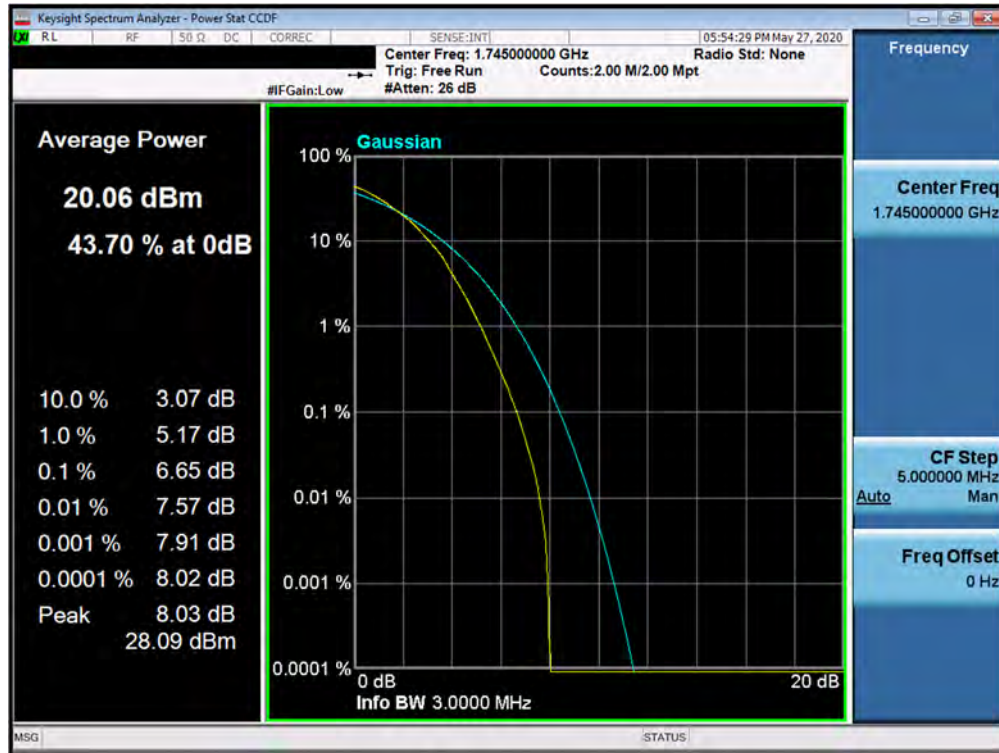


Plot 7-498. PAR Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

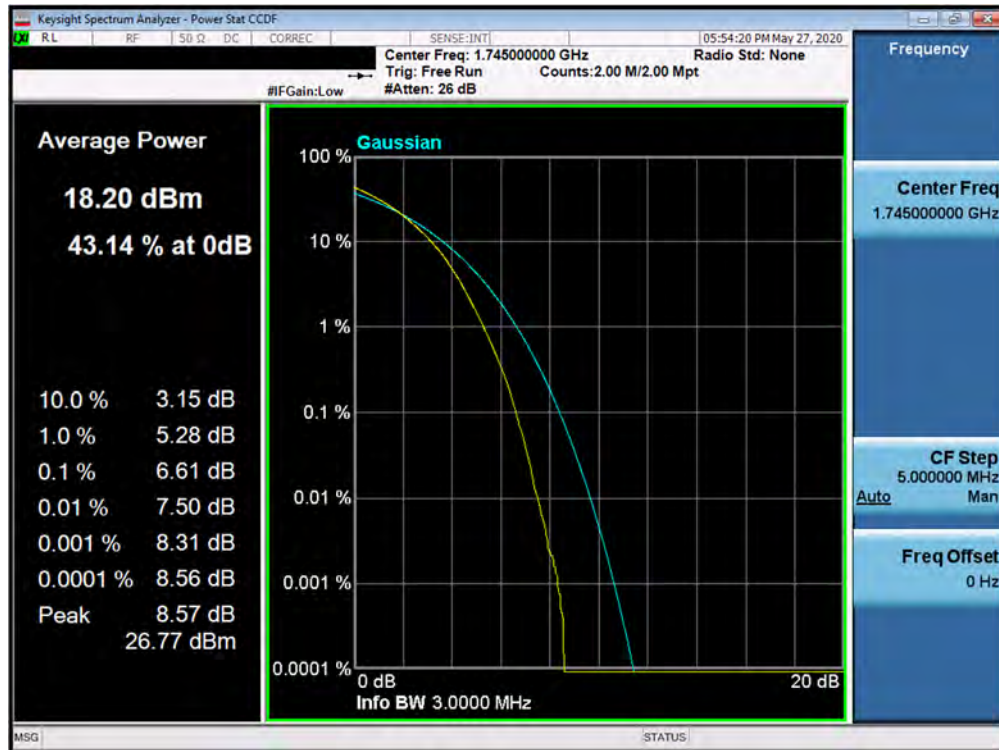


Plot 7-499. PAR Plot (Band 66/4 - 3.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 277 of 357

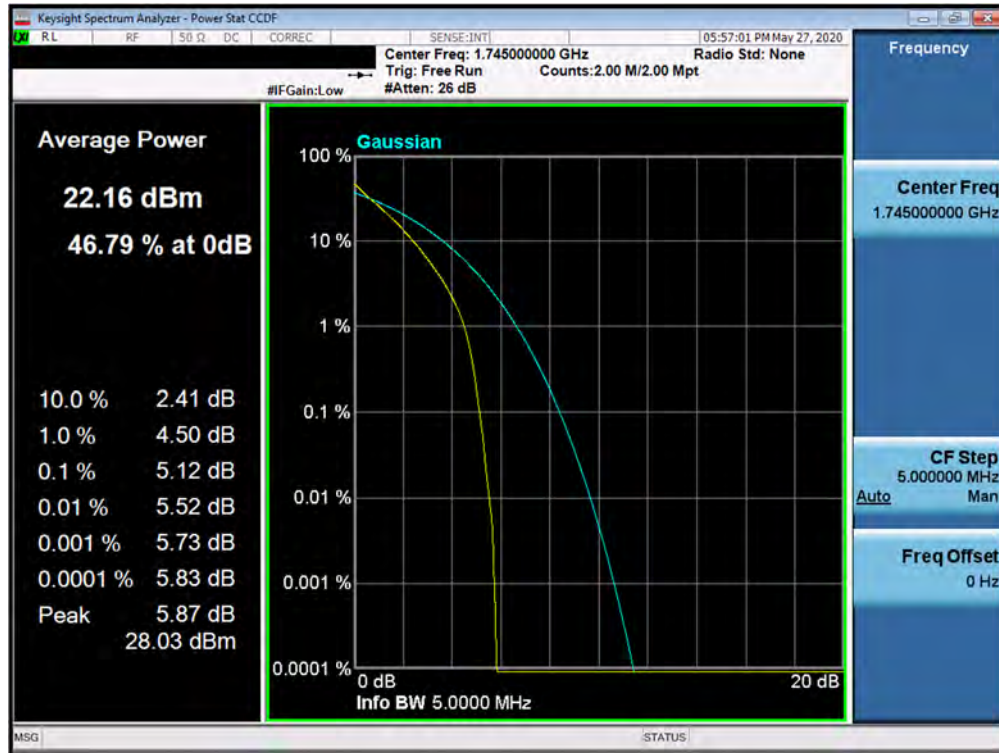


Plot 7-500. PAR Plot (Band 66/4 - 3.0MHz 64-QAM - Full RB Configuration)

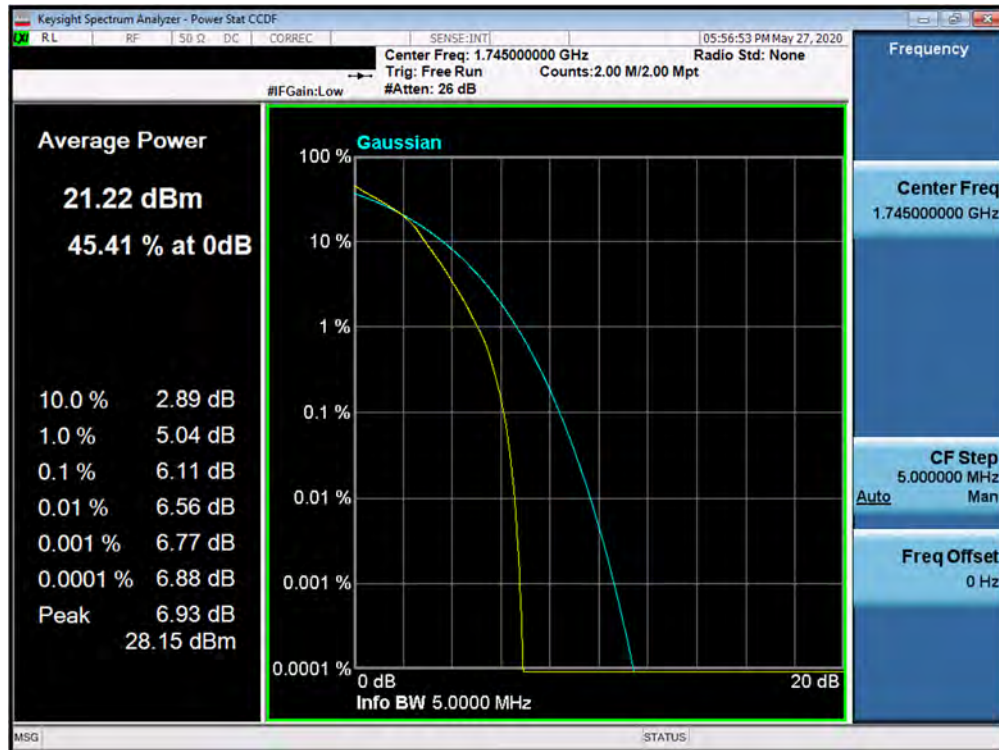


Plot 7-501. PAR Plot (Band 66/4 - 3.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 278 of 357

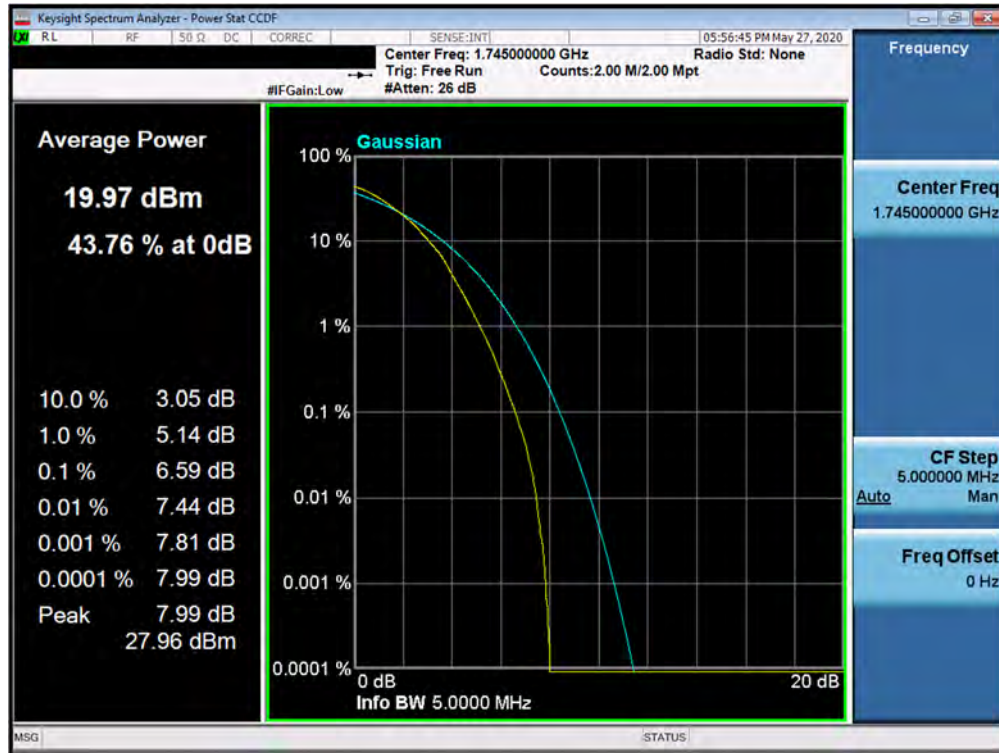


Plot 7-502. PAR Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)

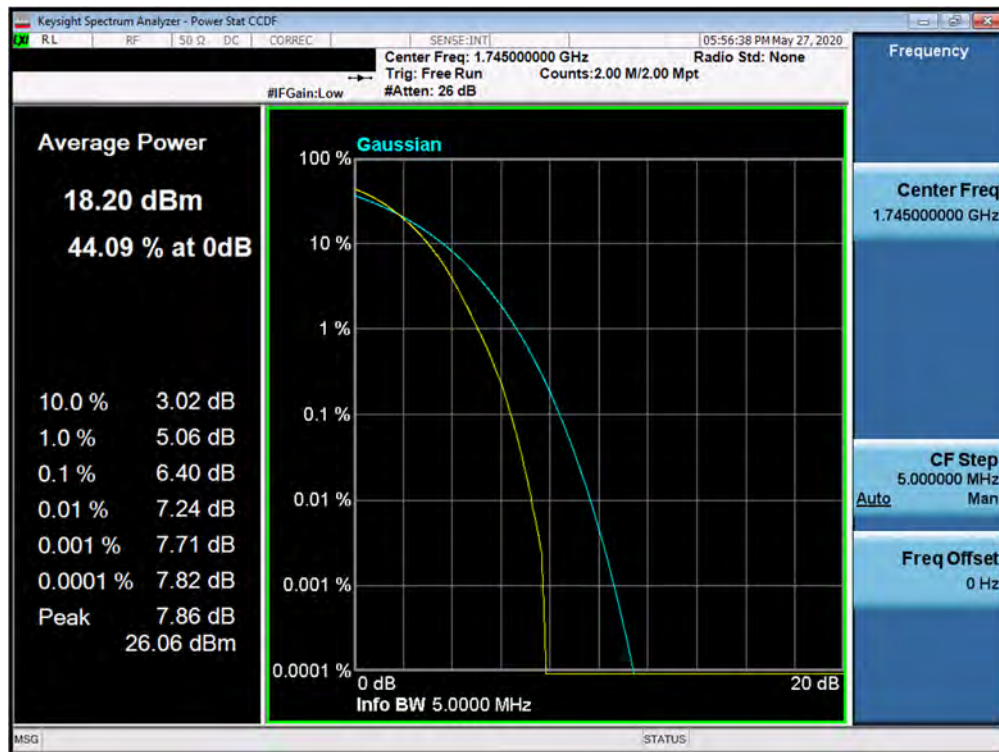


Plot 7-503. PAR Plot (Band 66/4 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 279 of 357

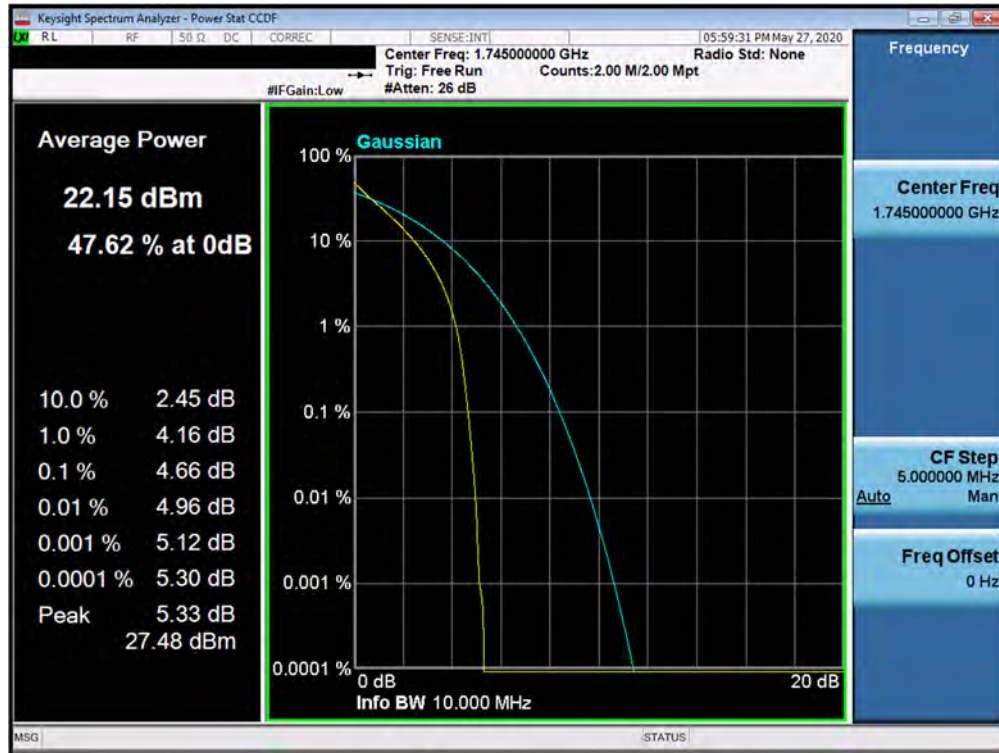


Plot 7-504. PAR Plot (Band 66/4 - 5.0MHz 64-QAM - Full RB Configuration)

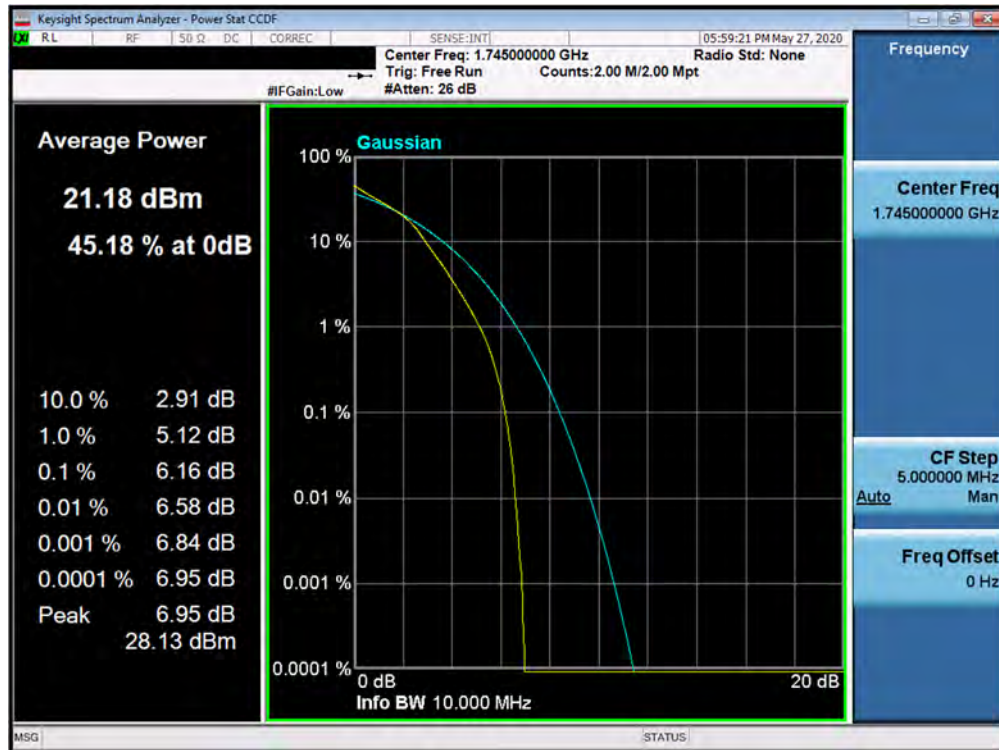


Plot 7-505. PAR Plot (Band 66/4 - 5.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 280 of 357

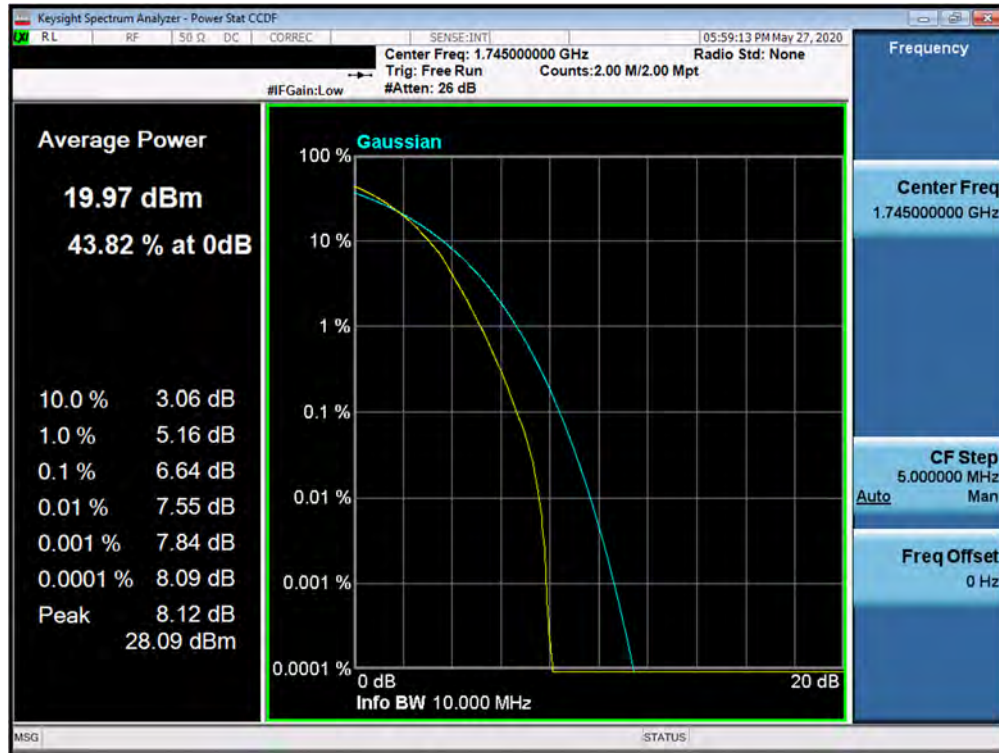


Plot 7-506. PAR Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)

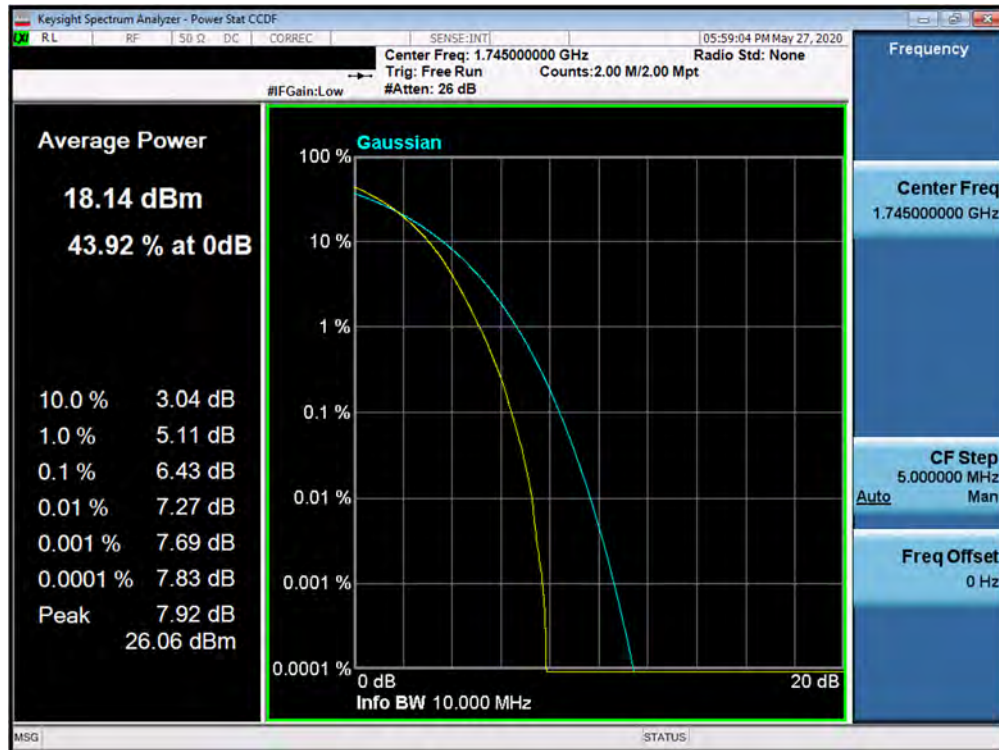


Plot 7-507. PAR Plot (Band 66/4 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 281 of 357

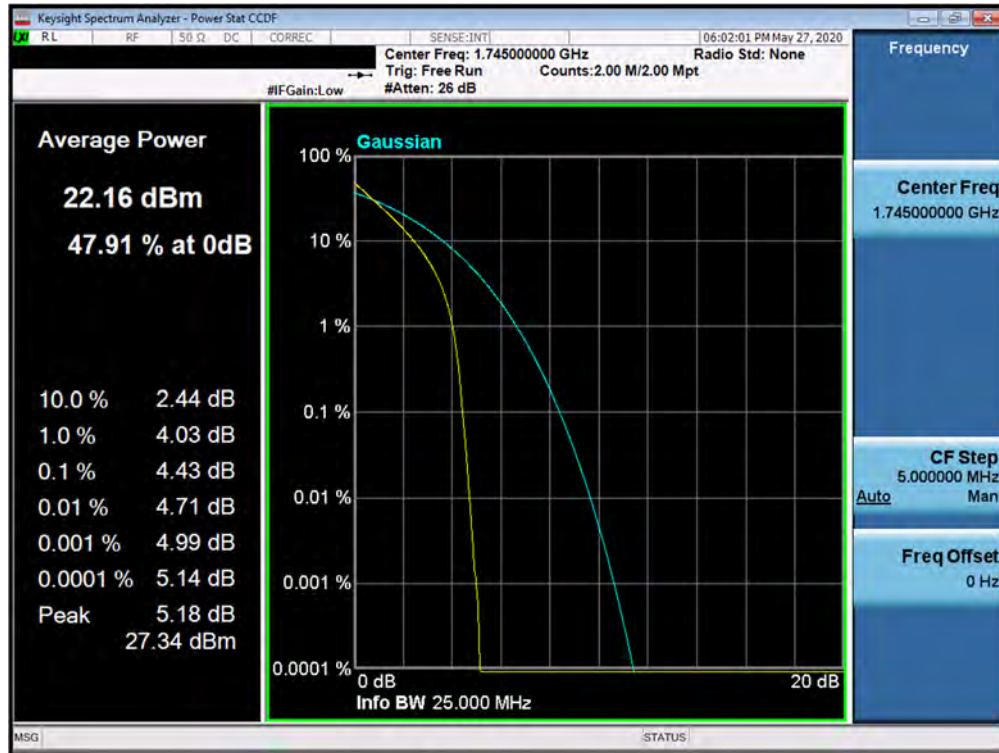


Plot 7-508. PAR Plot (Band 66/4 - 10.0MHz 64-QAM - Full RB Configuration)

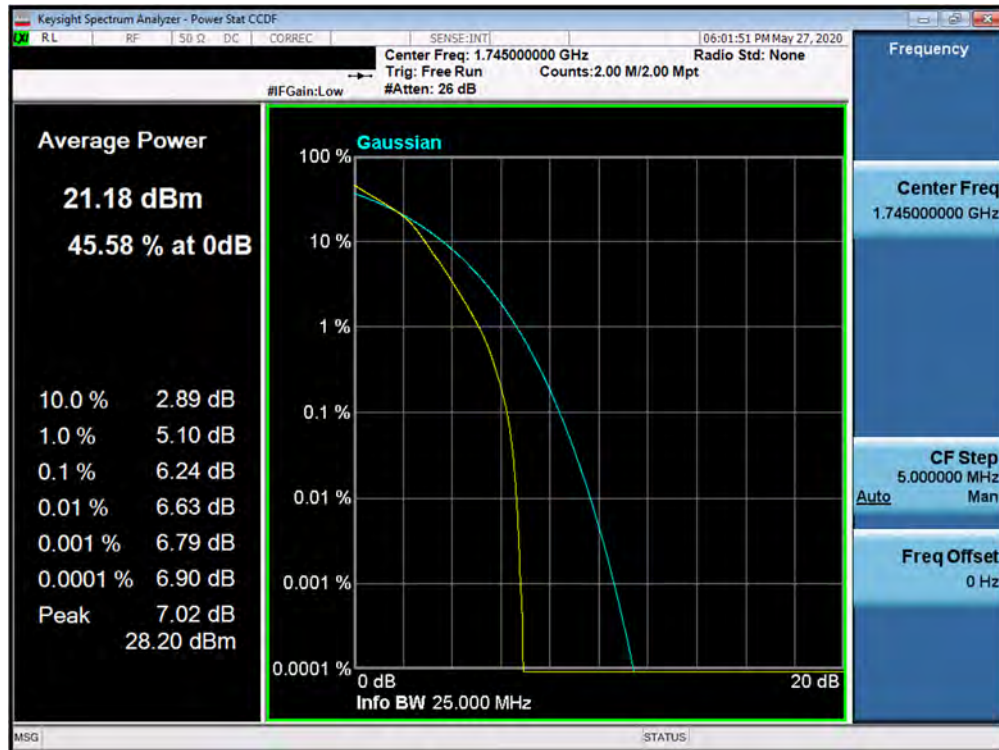


Plot 7-509. PAR Plot (Band 66/4 - 10.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 282 of 357

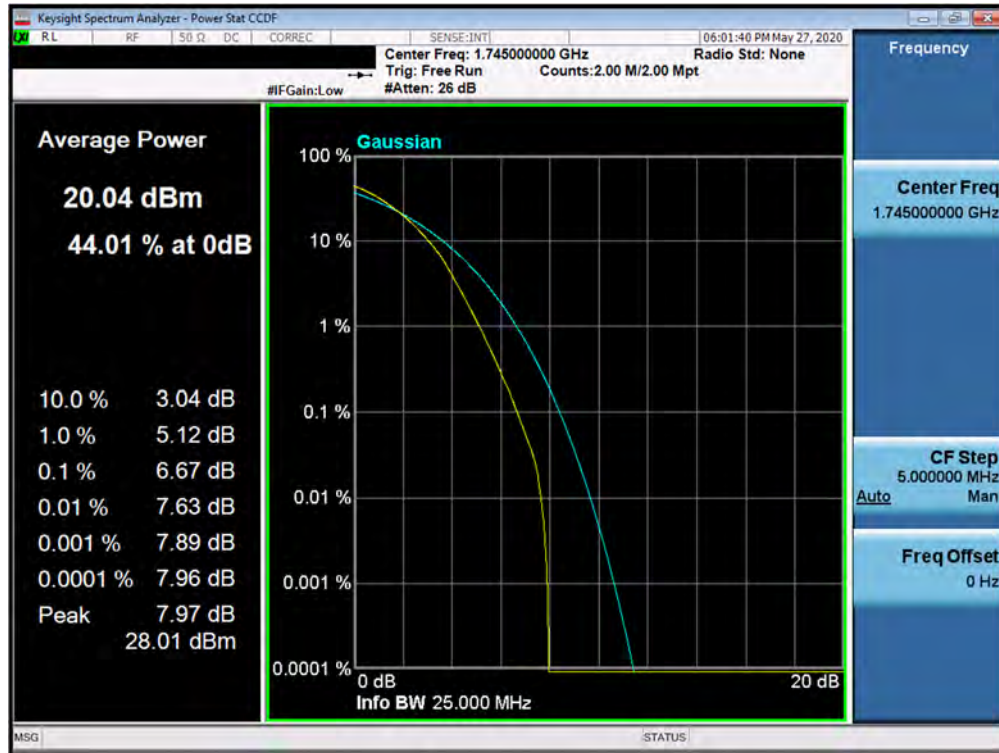


Plot 7-510. PAR Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)

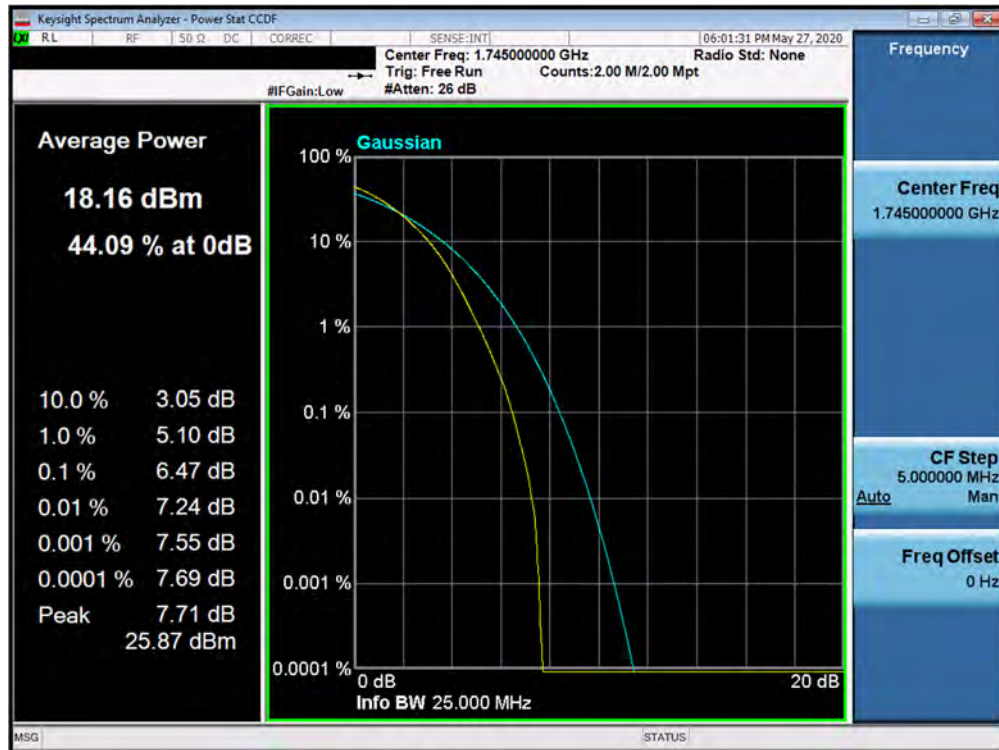


Plot 7-511. PAR Plot (Band 66/4 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 283 of 357

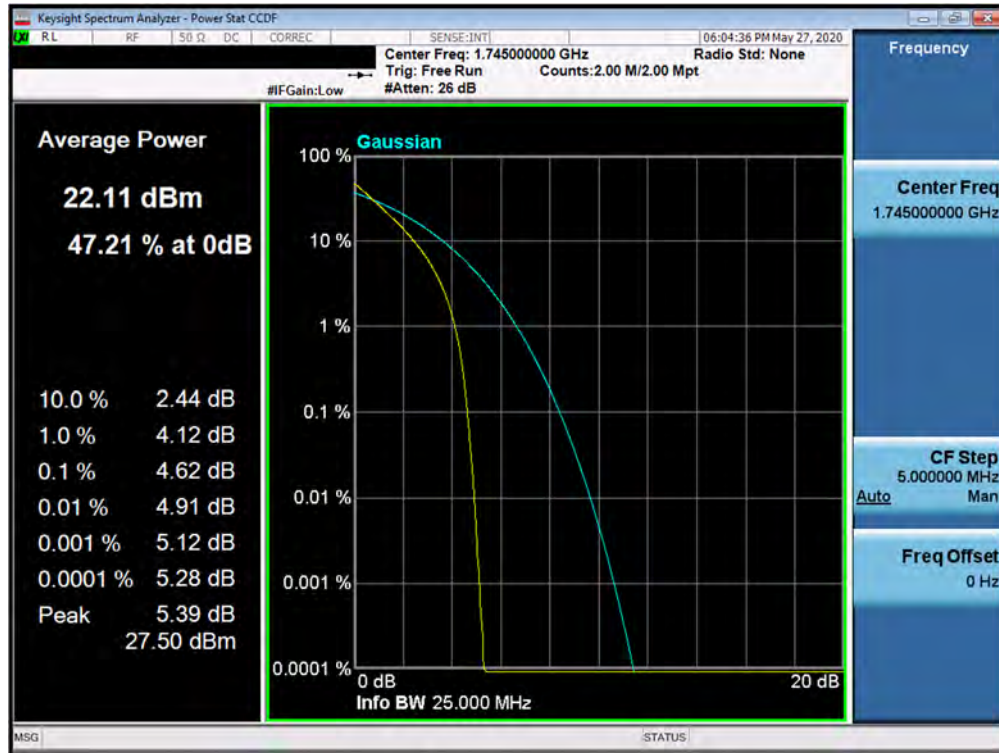


Plot 7-512. PAR Plot (Band 66/4 - 15.0MHz 64-QAM - Full RB Configuration)

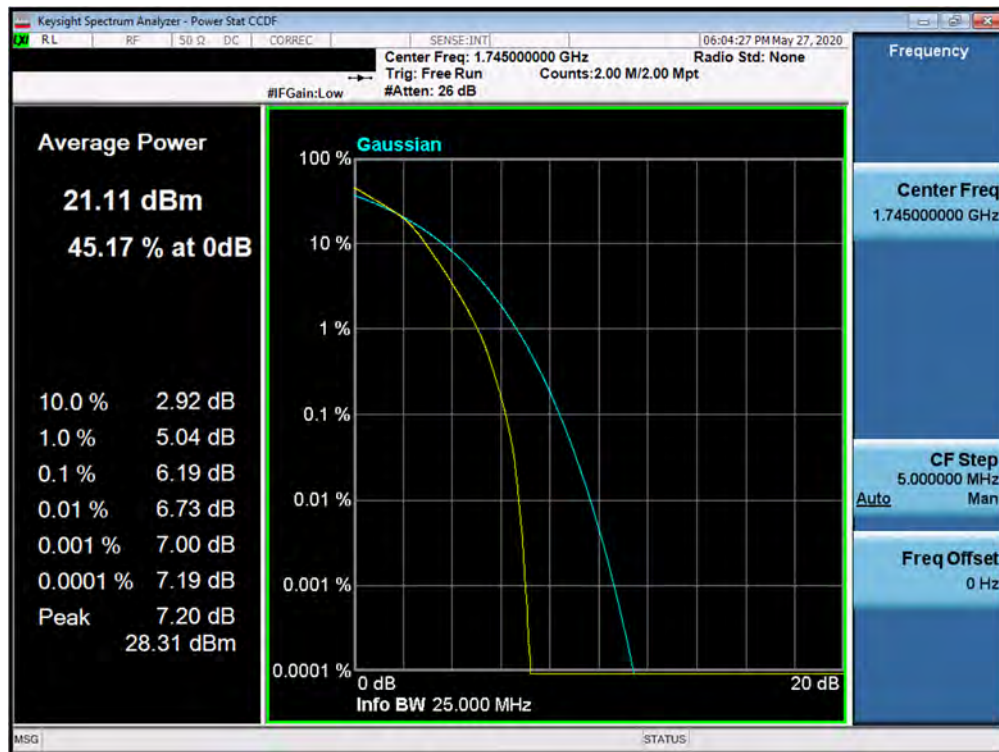


Plot 7-513. PAR Plot (Band 66/4 - 15.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 284 of 357

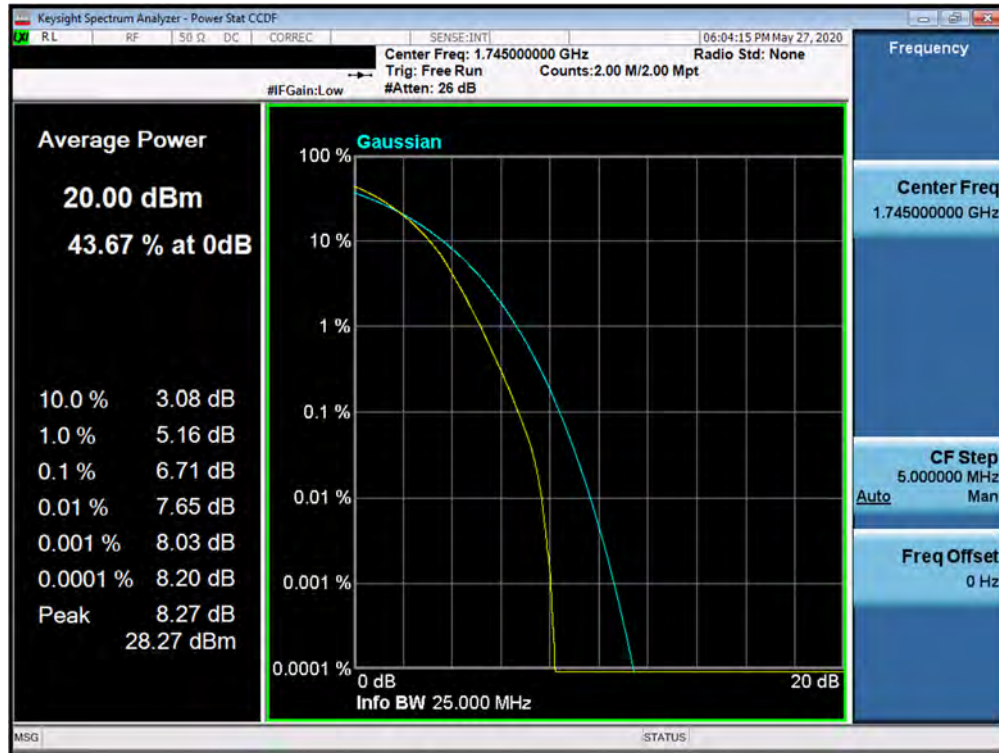


Plot 7-514. PAR Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

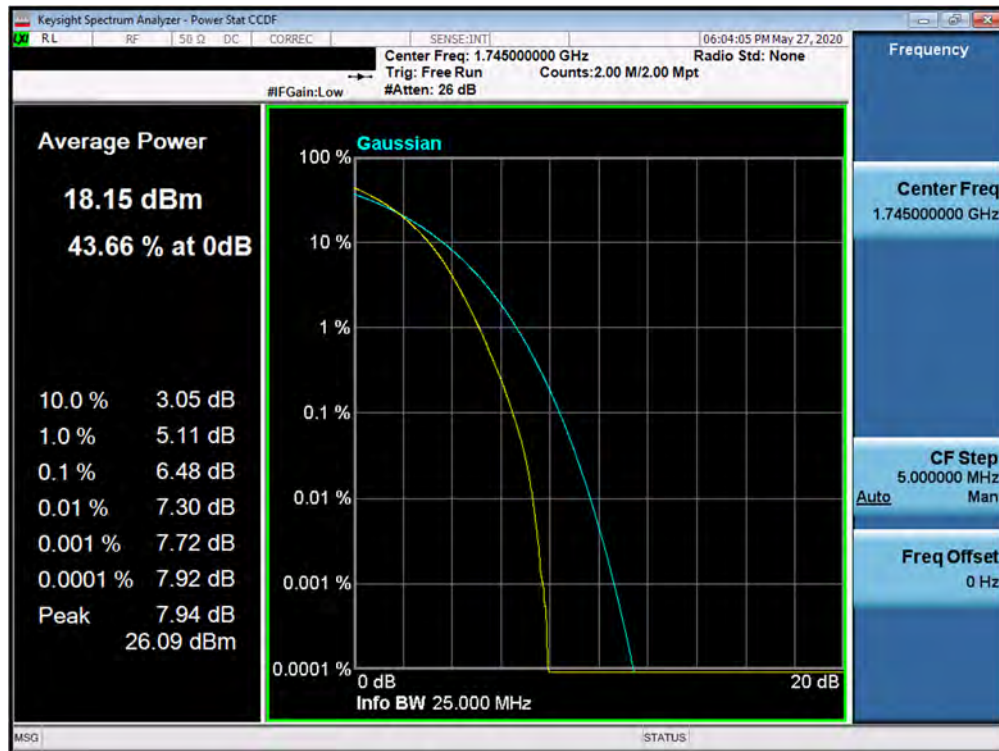


Plot 7-515. PAR Plot (Band 66/4 - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 285 of 357



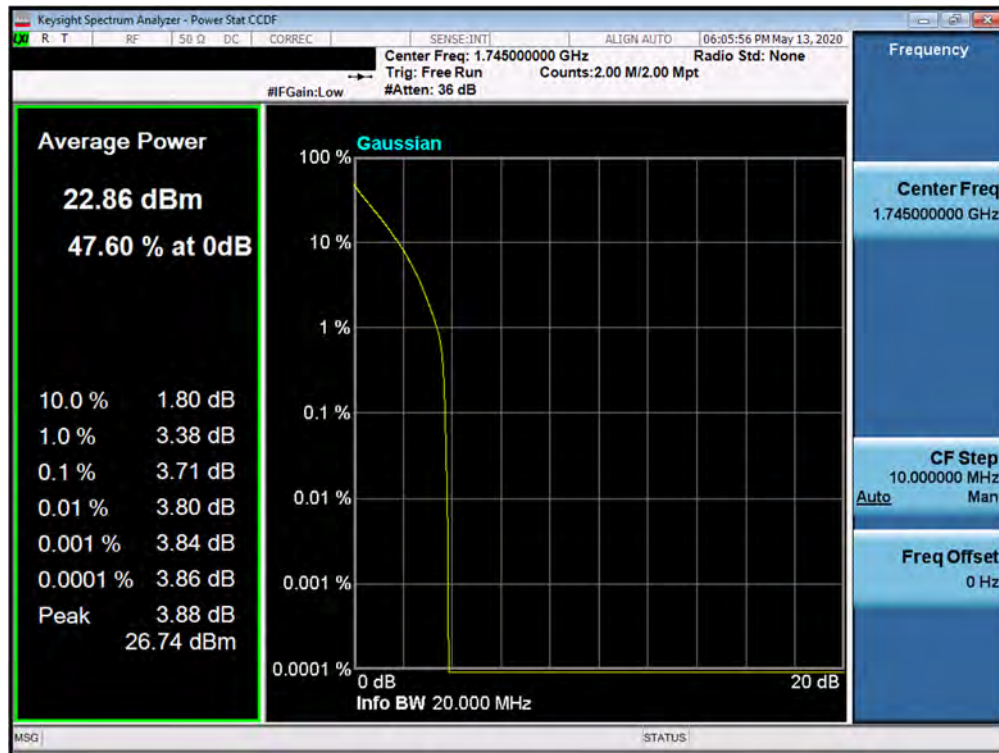
Plot 7-516. PAR Plot (Band 66/4 - 20.0MHz 64-QAM - Full RB Configuration)



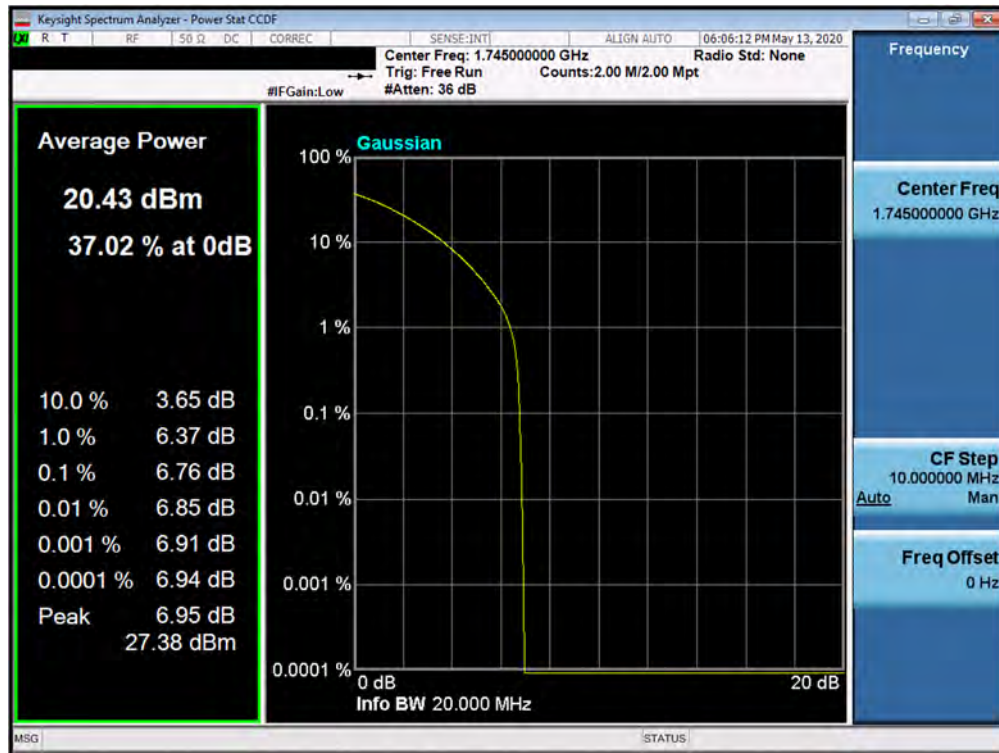
Plot 7-517. PAR Plot (Band 66/4 - 20.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset	Page 286 of 357

NR Band n66

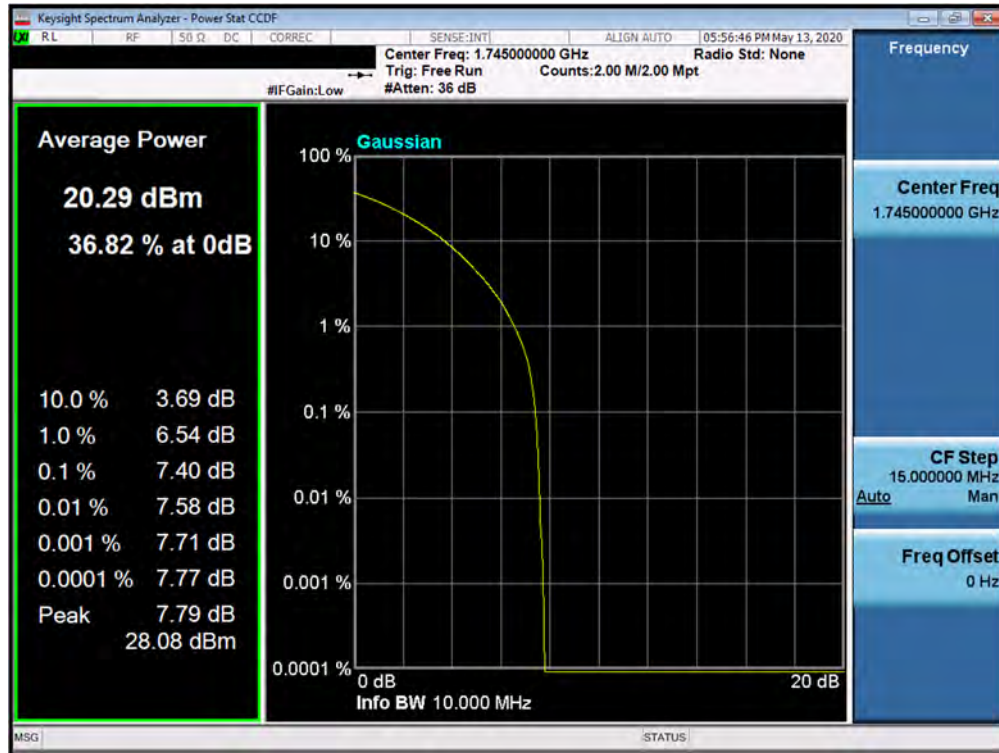


Plot 7-518. PAR Plot (n66 - 5.0MHz DFT-s-OFDM BPSK - Full RB Configuration)

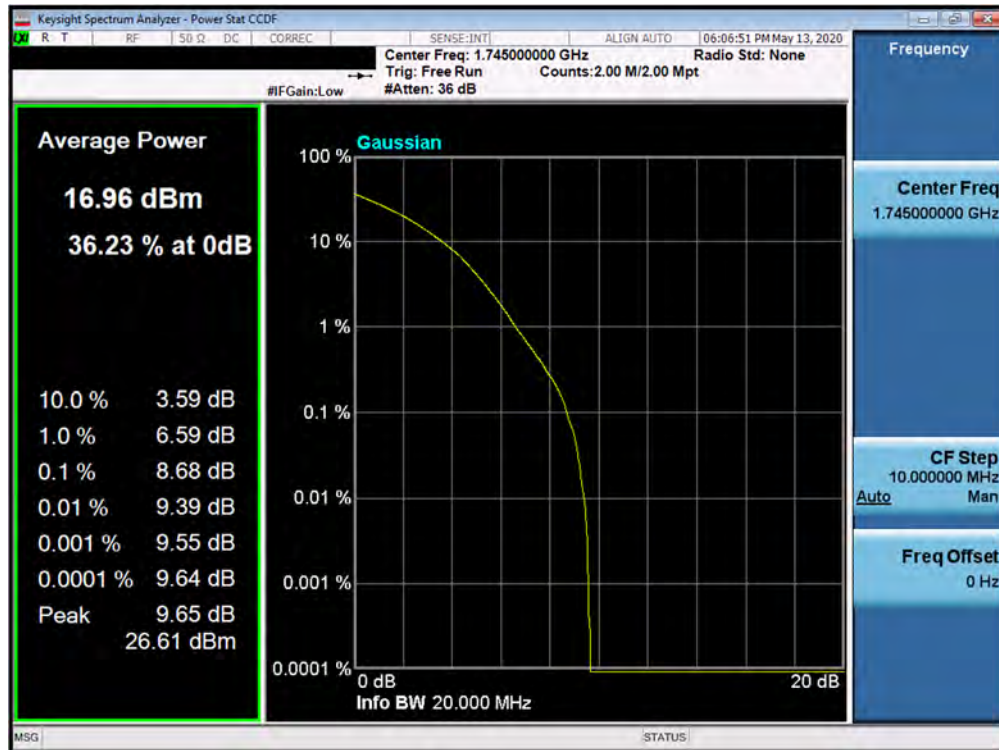


Plot 7-519. PAR Plot (n66 - 5.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 287 of 357

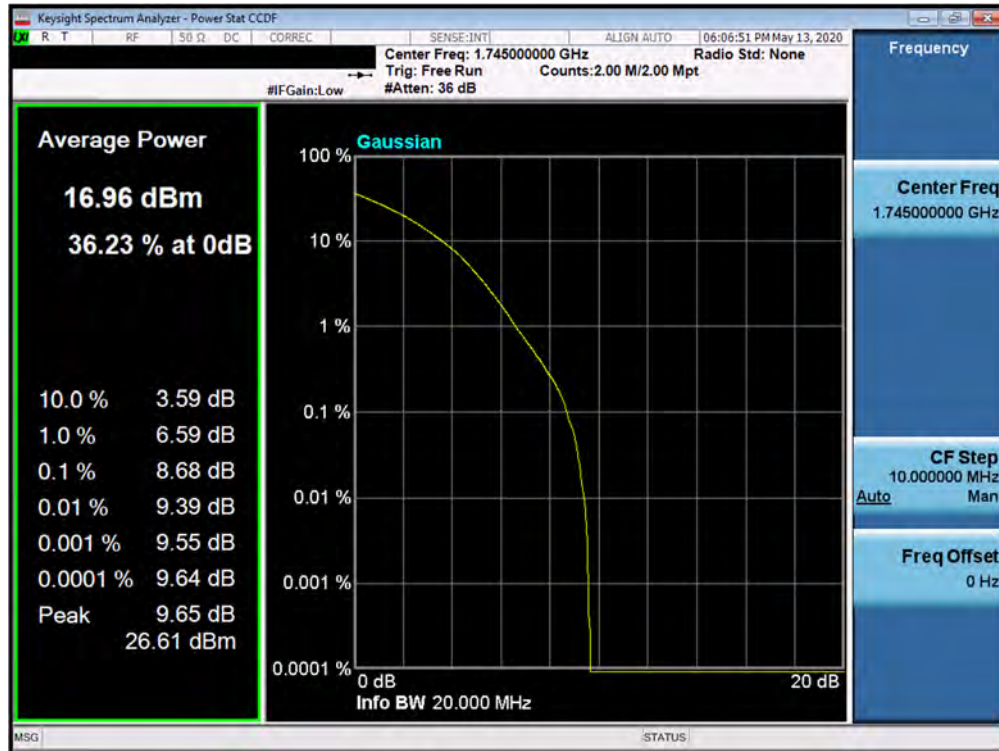


Plot 7-520. PAR Plot (n66 - 5.0MHz CP-OFDM-16-QAM - Full RB Configuration)

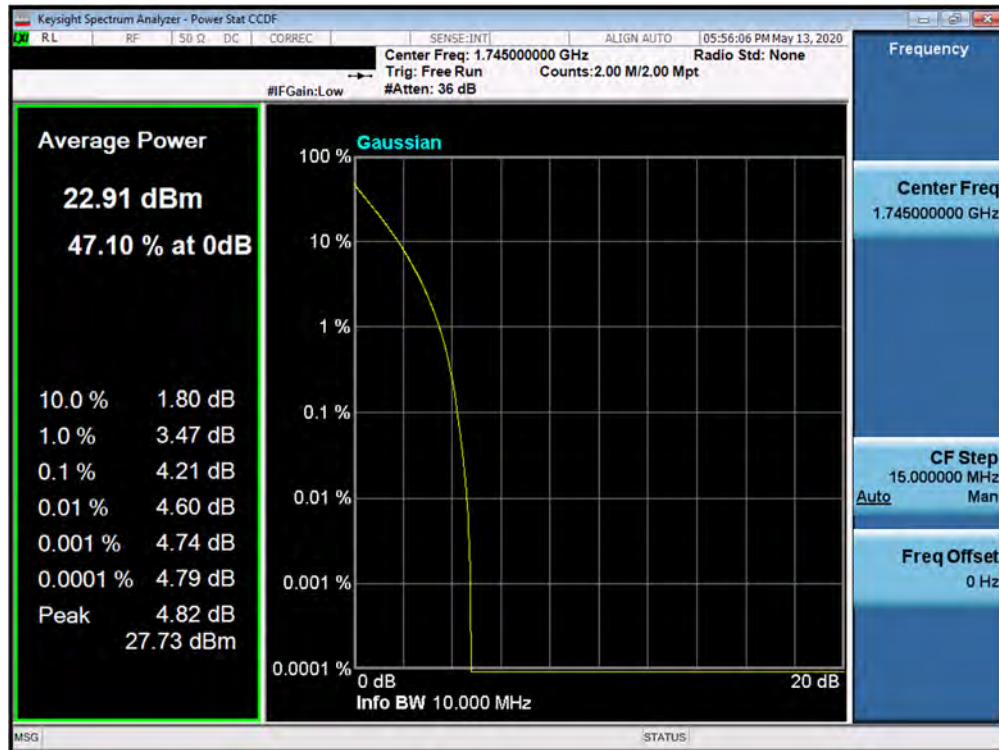


Plot 7-521. PAR Plot (n66 - 5.0MHz CP-OFDM-64-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 288 of 357

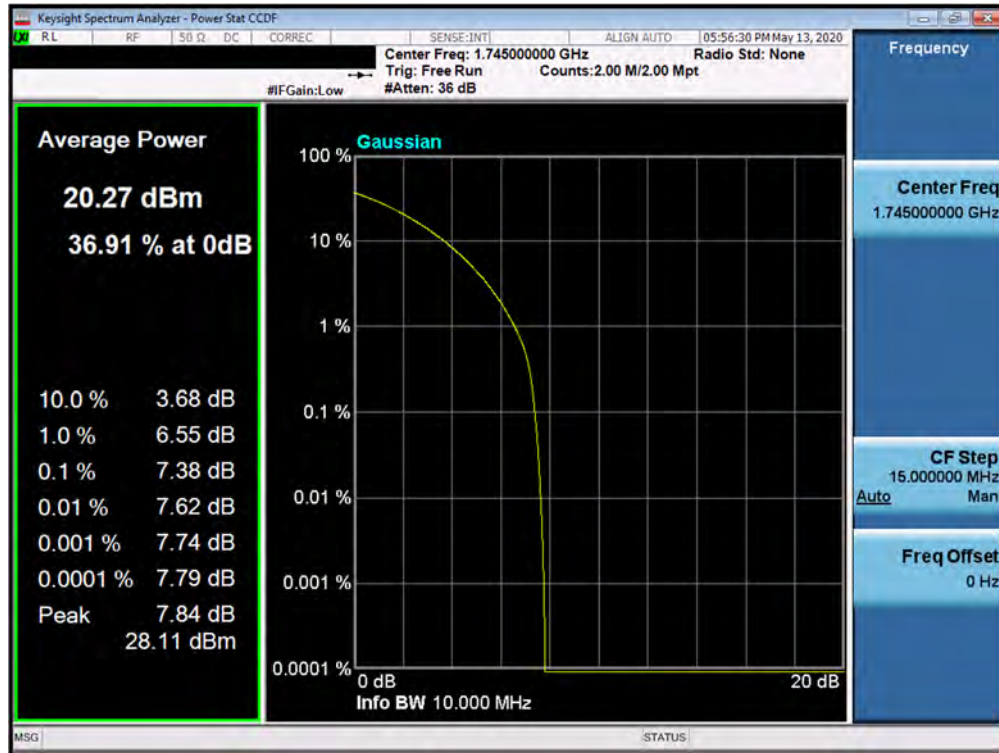


Plot 7-522. PAR Plot (n66 - 5.0MHz CP-OFDM-256-QAM - Full RB Configuration)

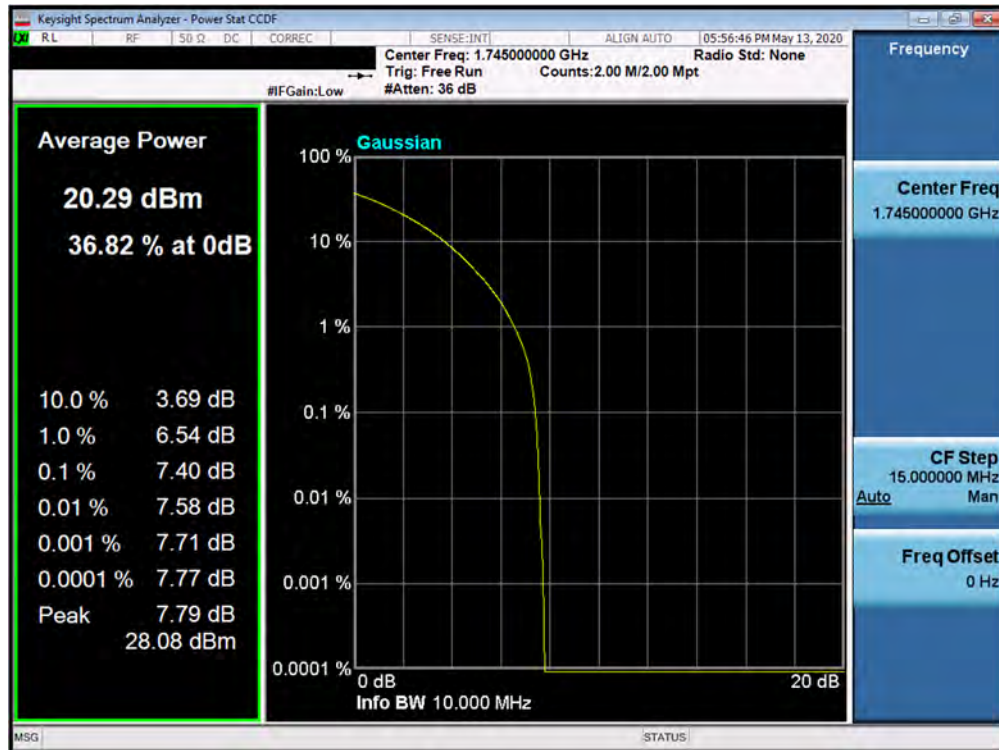


Plot 7-523. PAR Plot (n66 - 10.0MHz DFT-s-OFDM BPSK - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 289 of 357

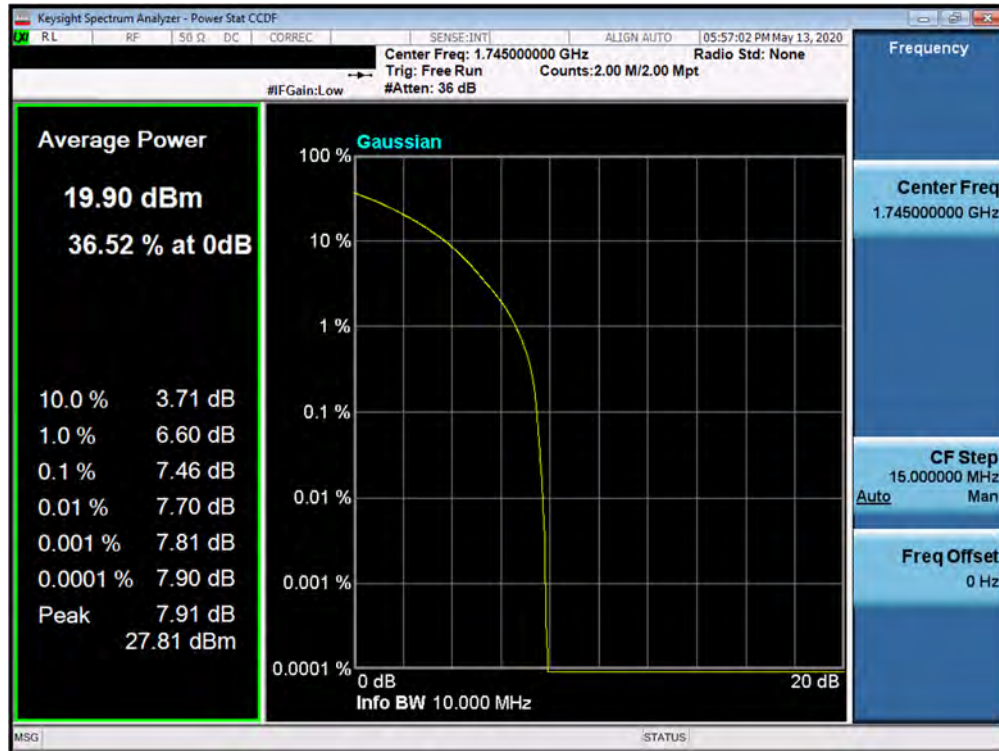


Plot 7-524. PAR Plot (n66 - 10.0MHz CP-OFDM-QPSK - Full RB Configuration)

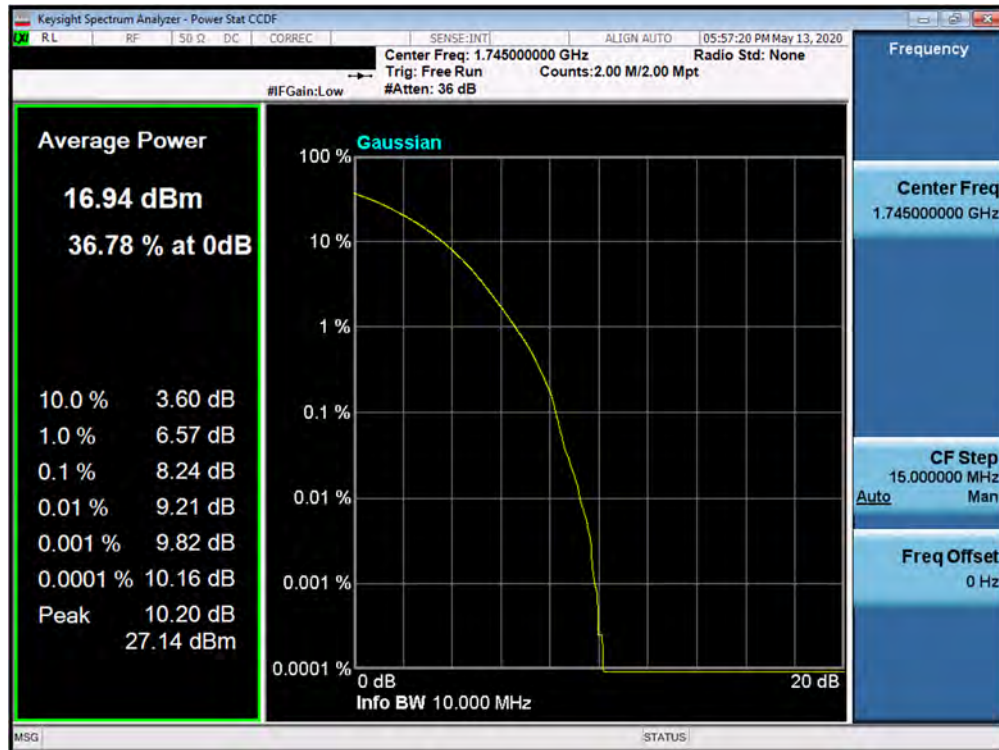


Plot 7-525. PAR Plot (n66 - 10.0MHz CP-OFDM-16-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 290 of 357

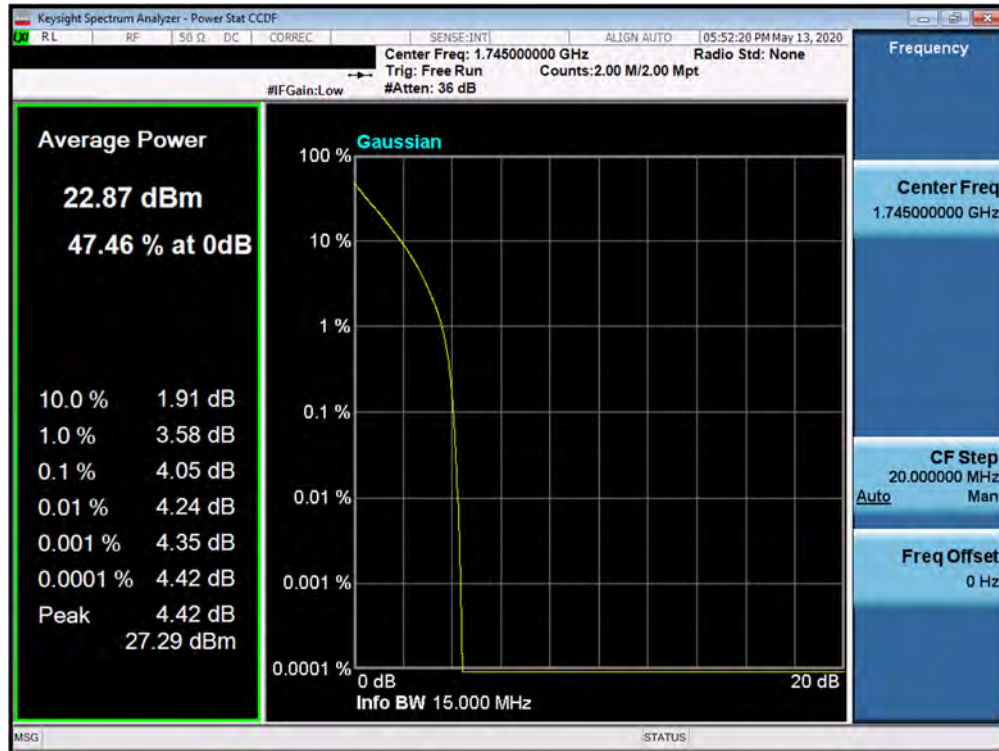


Plot 7-526. PAR Plot (n66 - 10.0MHz CP-OFDM-64-QAM - Full RB Configuration)

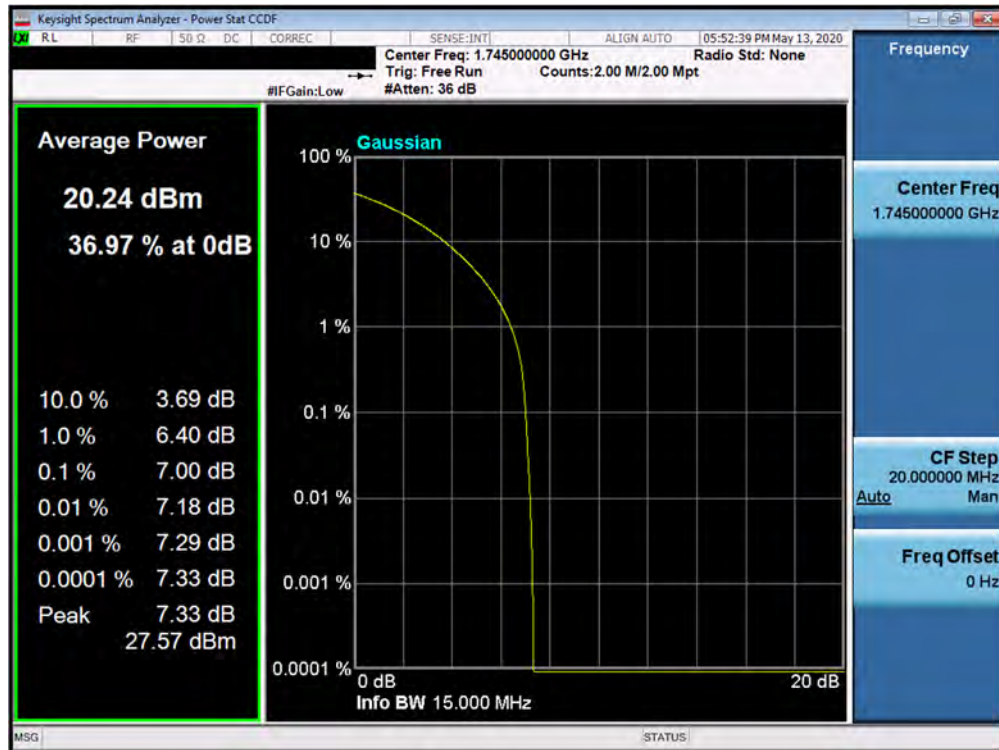


Plot 7-527. PAR Plot (n66 - 10.0MHz CP-OFDM-256-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 291 of 357

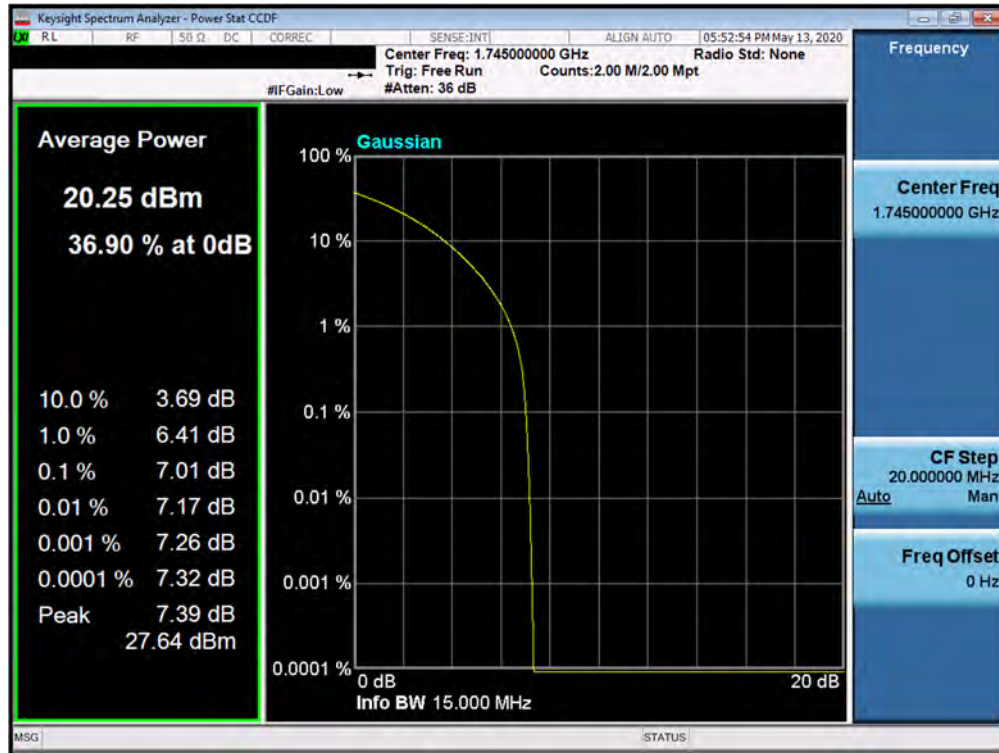


Plot 7-528. PAR Plot (n66 - 15.0MHz DFT-s-OFDM BPSK - Full RB Configuration)

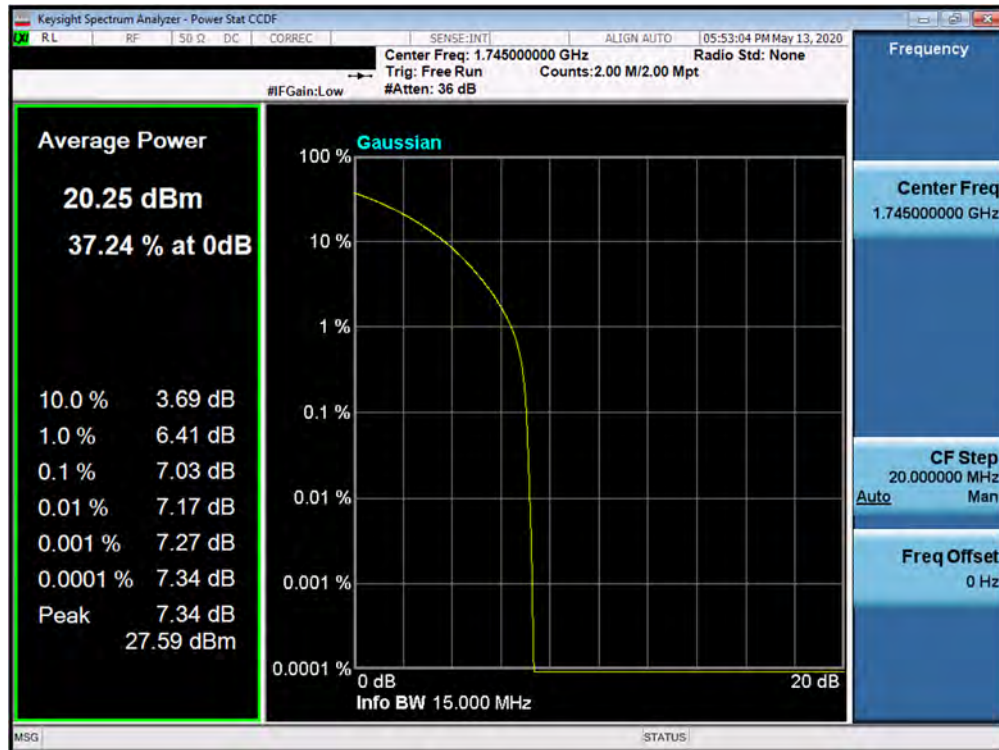


Plot 7-529. PAR Plot (n66 - 15.0MHz CP-OFDM-QPSK - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 292 of 357

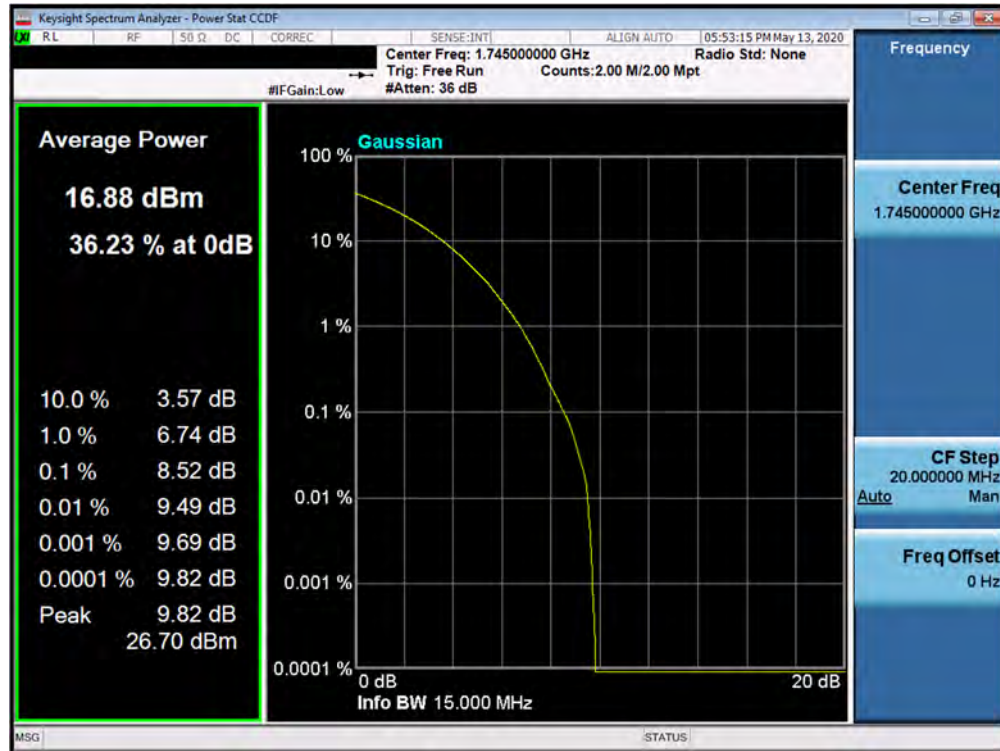


Plot 7-530. PAR Plot (n66 - 15.0MHz CP-OFDM-16-QAM - Full RB Configuration)

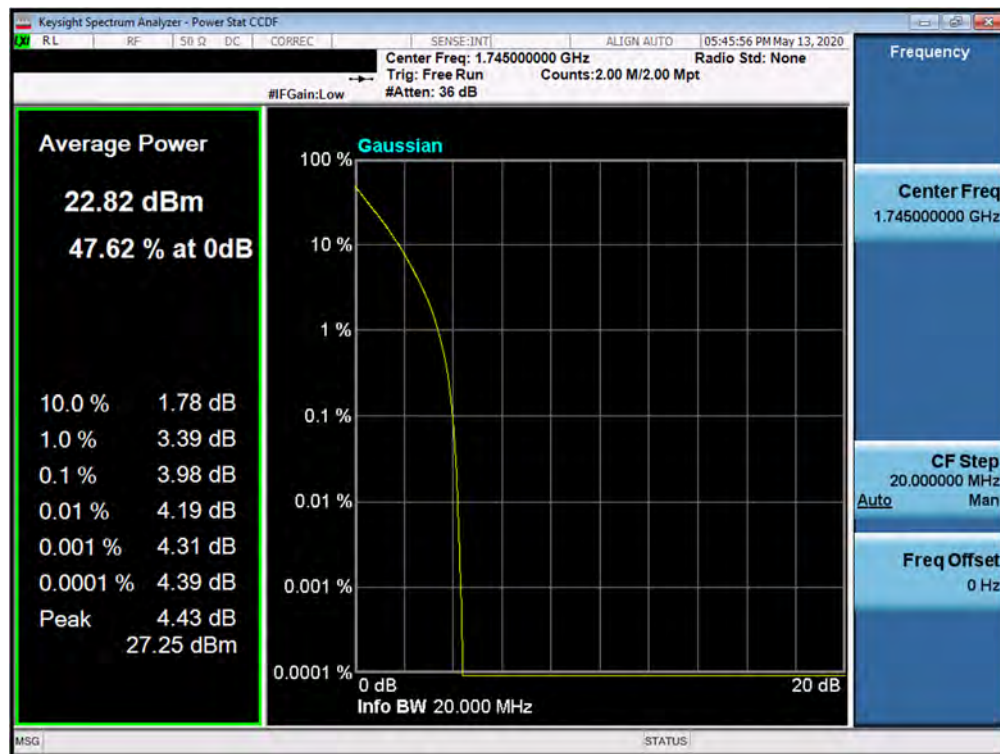


Plot 7-531. PAR Plot (n66 - 15.0MHz CP-OFDM-64-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset	Page 293 of 357

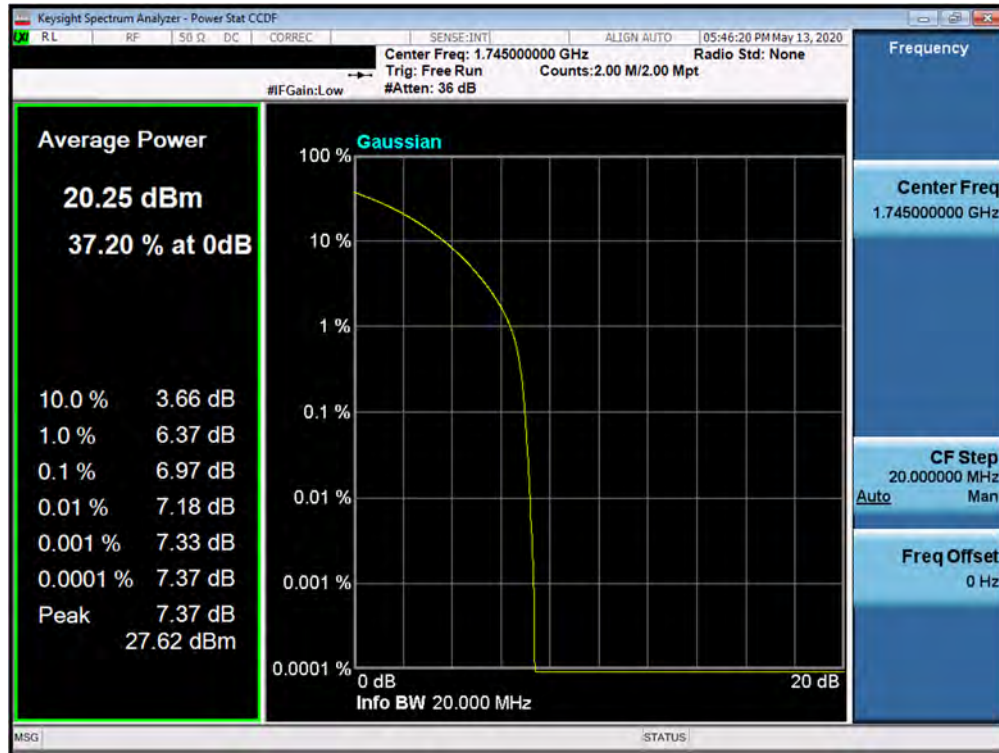


Plot 7-532. PAR Plot (n66 - 15.0MHz CP-OFDM-256-QAM - Full RB Configuration)

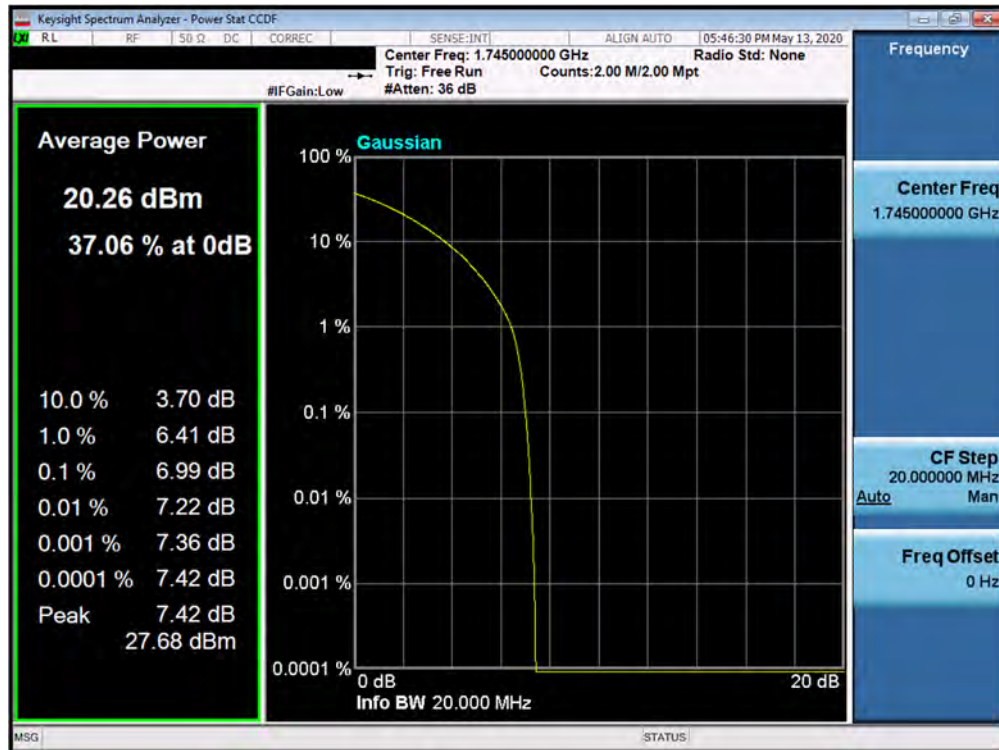


Plot 7-533. PAR Plot (n66 - 20.0MHz DFT-s-OFDM BPSK - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 294 of 357

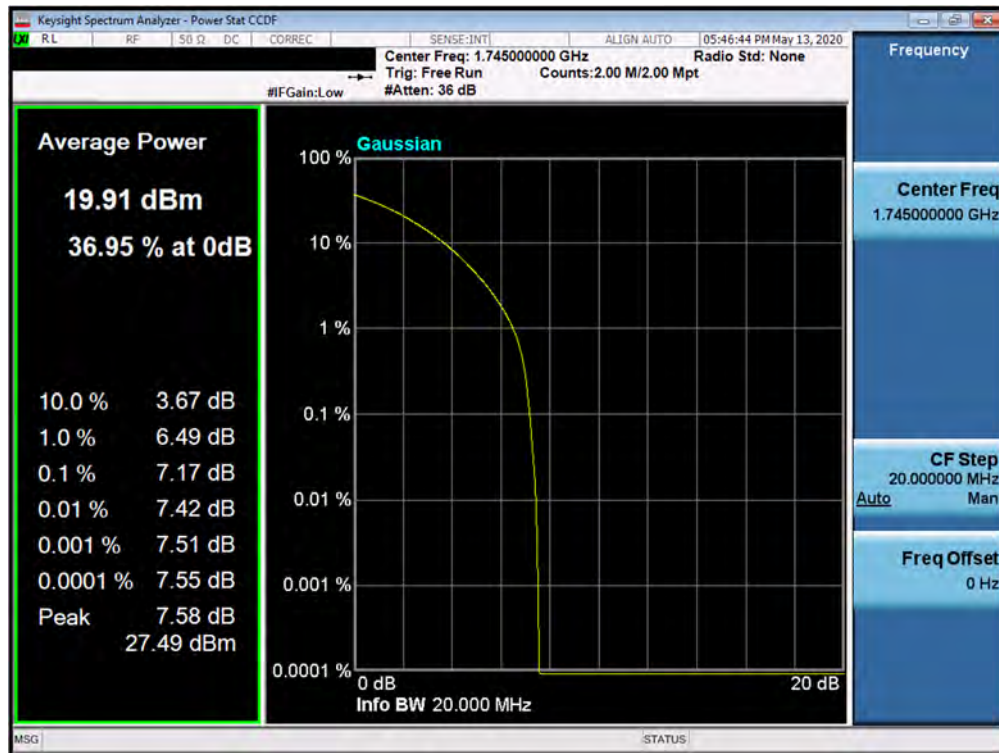


Plot 7-534. PAR Plot (n66 - 20.0MHz CP-OFDM-QPSK - Full RB Configuration)

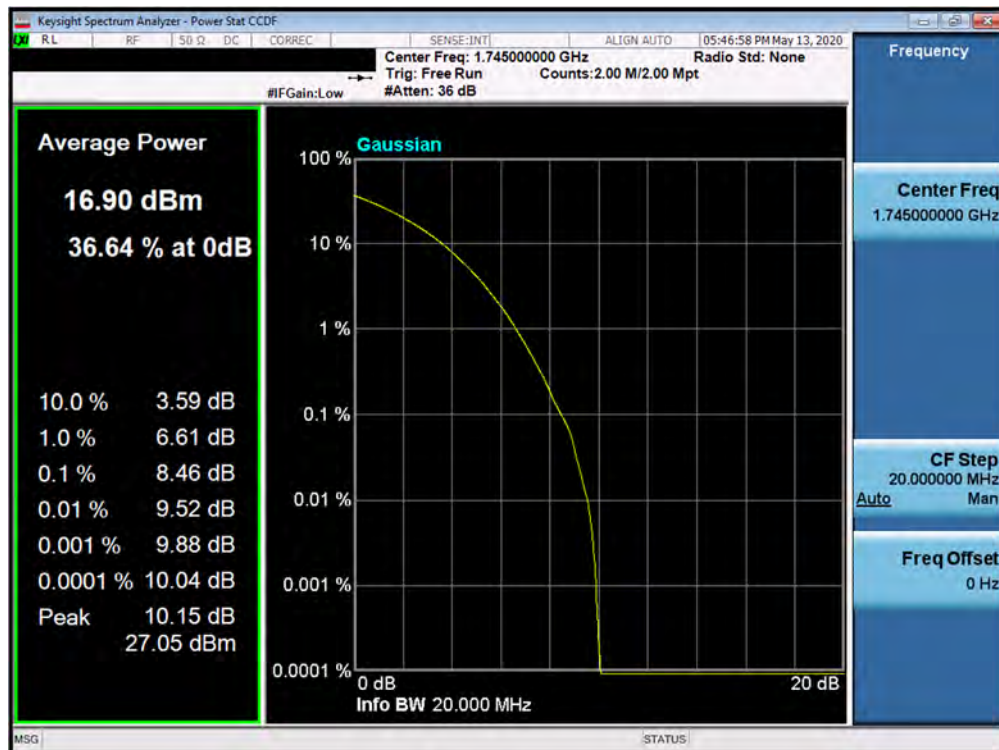


Plot 7-535. PAR Plot (n66 - 20.0MHz CP-OFDM-16-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 295 of 357



Plot 7-536. PAR Plot (n66 - 20.0MHz CP-OFDM-64-QAM - Full RB Configuration)



Plot 7-537. PAR Plot (n66 - 20.0MHz CP-OFDM-256-QAM - Full RB Configuration)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 296 of 357

7.6 Radiated Power (ERP/EIRP)

Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW $\geq 3 \times$ RBW
4. Span = 1.5 times the OBW
5. No. of sweep points $\geq 2 \times$ span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 297 of 357

Test Setup

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

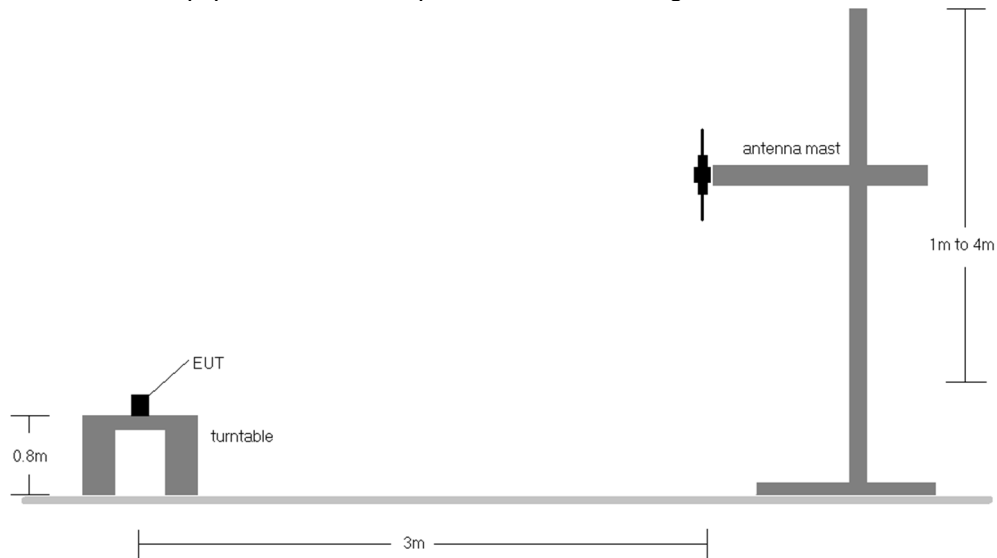


Figure 7-5. Radiated Test Setup <1GHz

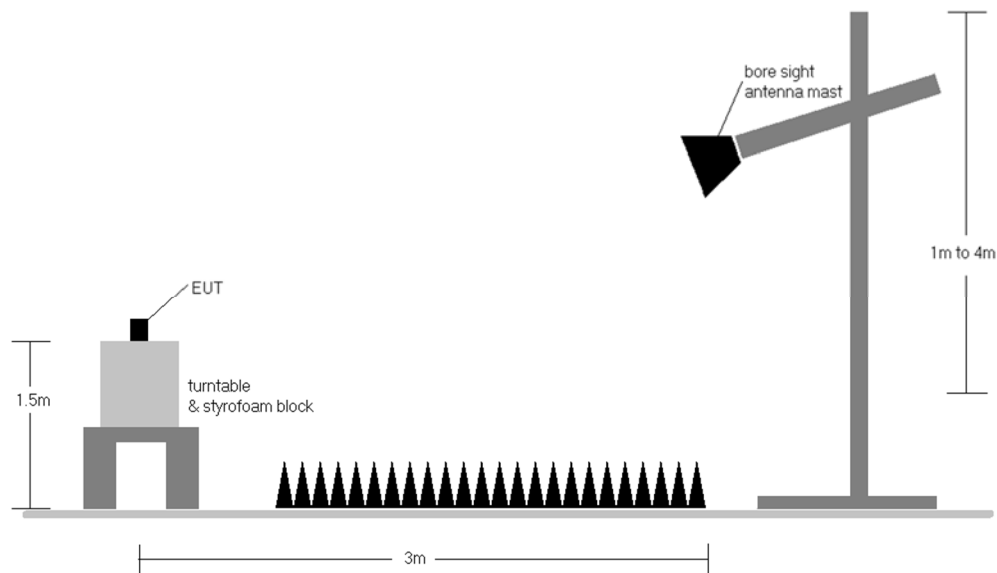


Figure 7-6. Radiated Test Setup >1GHz

Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset	Page 298 of 357

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
665.50	5	QPSK	V	184	127	12 / 6	16.62	3.79	18.26	0.067	34.77	-16.51
680.50	5	QPSK	V	188	127	1 / 0	15.89	4.24	17.98	0.063	34.77	-16.80
695.50	5	QPSK	V	191	133	1 / 0	15.37	4.58	17.80	0.060	34.77	-16.98
680.50	5	16-QAM	V	188	127	1 / 0	14.94	4.24	17.03	0.050	34.77	-17.75
680.50	5	64-QAM	V	188	127	1 / 0	13.90	4.24	15.99	0.040	34.77	-18.79
680.50	5	256-QAM	V	188	127	1 / 0	10.22	4.24	12.31	0.017	34.77	-22.47
668.00	10	QPSK	V	177	122	25 / 12	15.89	3.82	17.56	0.057	34.77	-17.21
680.50	10	QPSK	V	174	117	1 / 0	15.87	4.24	17.96	0.062	34.77	-16.82
693.00	10	QPSK	V	133	127	1 / 0	15.36	4.44	17.65	0.058	34.77	-17.12
680.50	10	16-QAM	V	174	117	1 / 0	14.92	4.24	17.01	0.050	34.77	-17.77
680.50	10	64-QAM	V	174	117	1 / 0	13.93	4.24	16.02	0.040	34.77	-18.76
680.50	10	256-QAM	V	174	117	1 / 0	10.62	4.24	12.71	0.019	34.77	-22.07
670.50	15	QPSK	V	124	125	36 / 18	15.89	3.96	17.70	0.059	34.77	-17.07
680.50	15	QPSK	V	137	120	1 / 0	15.87	4.24	17.96	0.062	34.77	-16.82
690.50	15	QPSK	V	144	145	1 / 0	15.36	4.41	17.62	0.058	34.77	-17.15
680.50	15	16-QAM	V	137	120	1 / 0	14.92	4.24	17.01	0.050	34.77	-17.77
680.50	15	64-QAM	V	137	120	1 / 0	13.93	4.24	16.02	0.040	34.77	-18.76
680.50	15	256-QAM	V	137	120	1 / 0	10.62	4.24	12.71	0.019	34.77	-22.07
673.00	20	QPSK	V	188	124	50 / 25	15.89	4.09	17.83	0.061	34.77	-16.94
680.50	20	QPSK	V	183	110	1 / 0	15.87	4.24	17.96	0.062	34.77	-16.82
688.00	20	QPSK	V	193	121	1 / 0	15.36	4.48	17.69	0.059	34.77	-17.08
680.50	20	16-QAM	V	183	110	1 / 0	14.92	4.24	17.01	0.050	34.77	-17.77
680.50	20	64-QAM	V	183	110	1 / 0	13.93	4.24	16.02	0.040	34.77	-18.76
680.50	20	256-QAM	V	183	110	1 / 0	10.62	4.24	12.71	0.019	34.77	-22.07
665.50	5	QPSK	H	254	119	12 / 6	14.71	4.24	16.80	0.048	34.77	-17.98
665.50	5 (WCP)	QPSK	V	189	201	12 / 6	15.06	4.24	17.15	0.052	34.77	-17.63

Table 7-3. ERP Data (Band 71)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 299 of 357

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	EUT Pol.	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
20 MHz	π/2 BPSK	673.0	H	X	175.0	149.0	3.70	1 / 50	15.45	19.15	0.082	36.99	-17.84	17.00	0.050	34.77	-17.77
		680.5	H	X	175.0	149.0	3.70	1 / 50	15.78	19.48	0.089	36.99	-17.51	17.33	0.054	34.77	-17.44
		688.0	H	X	175.0	149.0	3.70	1 / 50	15.60	19.30	0.085	36.99	-17.69	17.15	0.052	34.77	-17.62
	QPSK	673.0	H	X	175.0	149.0	3.70	1 / 50	14.13	17.83	0.061	36.99	-19.16	15.68	0.037	34.77	-19.09
		680.5	H	X	175.0	149.0	3.70	1 / 50	14.19	17.89	0.062	36.99	-19.10	15.74	0.037	34.77	-19.03
		688.0	H	X	175.0	149.0	3.70	1 / 50	14.18	17.88	0.061	36.99	-19.11	15.73	0.037	34.77	-19.04
	16-QAM	680.5	H	X	175.0	149.0	3.70	1 / 50	13.16	16.86	0.049	36.99	-20.13	14.71	0.030	34.77	-20.06
		680.5	H	X	175.0	149.0	3.70	1 / 50	12.24	15.94	0.039	36.99	-21.05	13.79	0.024	34.77	-20.98
		680.5	H	X	175.0	149.0	3.70	1 / 50	11.30	15.00	0.032	36.99	-21.99	12.85	0.019	34.77	-21.92
	256-QAM	670.5	H	X	175.0	149.0	3.70	0.02	15.41	19.11	0.081	36.99	-17.88	16.96	0.050	34.77	-17.81
		680.5	H	X	175.0	149.0	3.70	1/50	15.73	19.43	0.088	36.99	-17.56	17.28	0.053	34.77	-17.49
		690.5	H	X	175.0	149.0	3.70	1/50	15.57	19.27	0.085	36.99	-17.72	17.12	0.052	34.77	-17.65
15 MHz	π/2 BPSK	670.5	H	X	175.0	149.0	0.00	1/68	17.93	17.93	0.062	36.99	-19.06	15.78	0.038	34.77	-18.99
		680.5	H	X	175.0	149.0	3.70	1/50	14.17	17.87	0.061	36.99	-19.12	15.72	0.037	34.77	-19.05
		690.5	H	X	175.0	149.0	0.00	1/70	17.88	17.88	0.061	36.99	-19.11	15.73	0.037	34.77	-19.04
	QPSK	680.5	H	X	175.0	149.0	3.70	1/50	13.05	16.75	0.047	36.99	-20.24	14.60	0.029	34.77	-20.17
		680.5	H	X	175.0	149.0	3.70	1/50	12.24	15.94	0.039	36.99	-21.05	13.79	0.024	34.77	-20.98
		680.5	H	X	175.0	149.0	3.70	1/50	11.32	15.02	0.032	36.99	-21.97	12.87	0.019	34.77	-21.90
	16-QAM	668.0	H	X	175.0	149.0	3.70	1/50	15.29	18.99	0.079	36.99	-18.00	16.84	0.048	34.77	-17.93
		680.5	H	X	175.0	149.0	3.70	1/50	15.77	19.47	0.089	36.99	-17.52	17.32	0.054	34.77	-17.45
		693.0	H	X	175.0	149.0	3.70	1/50	15.67	19.37	0.086	36.99	-17.62	17.22	0.053	34.77	-17.55
	256-QAM	668.0	H	X	175.0	149.0	0.00	1/50	17.80	17.80	0.060	36.99	-19.19	15.65	0.037	34.77	-19.12
		680.5	H	X	175.0	149.0	3.70	1/50	14.18	17.88	0.061	36.99	-19.11	15.73	0.037	34.77	-19.04
		693.0	H	X	175.0	149.0	0.00	1/50	17.84	17.84	0.061	36.99	-19.15	15.69	0.037	34.77	-19.08
10 MHz	π/2 BPSK	680.5	H	X	175.0	149.0	3.70	1/50	11.74	15.44	0.035	36.99	-21.55	13.29	0.021	34.77	-21.48
		680.5	H	X	175.0	149.0	3.70	1/50	12.03	15.73	0.037	36.99	-21.26	13.58	0.023	34.77	-21.19
		680.5	H	X	175.0	149.0	3.70	1/50	12.82	16.52	0.045	36.99	-20.47	14.37	0.027	34.77	-20.40
	QPSK	665.5	H	X	175.0	149.0	3.70	1/50	15.41	19.11	0.081	36.99	-17.88	16.96	0.050	34.77	-17.81
		680.5	H	X	175.0	149.0	3.70	1/50	15.78	19.48	0.089	36.99	-17.51	17.33	0.054	34.77	-17.44
		695.5	H	X	175.0	149.0	3.70	1/50	15.68	19.38	0.087	36.99	-17.61	17.23	0.053	34.77	-17.54
	16-QAM	665.5	H	X	175.0	149.0	0.00	1/50	17.94	17.94	0.062	36.99	-19.05	15.79	0.038	34.77	-18.98
		680.5	H	X	175.0	149.0	3.70	1/50	14.20	17.90	0.062	36.99	-19.09	15.75	0.038	34.77	-19.02
		695.5	H	X	175.0	149.0	0.00	1/50	18.04	18.04	0.064	36.99	-18.95	15.89	0.039	34.77	-18.88
	256-QAM	680.5	H	X	175.0	149.0	3.70	1/50	13.18	16.88	0.049	36.99	-20.11	14.73	0.030	34.77	-20.04
		680.5	H	X	175.0	149.0	3.70	1/50	12.37	16.07	0.040	36.99	-20.92	13.92	0.025	34.77	-20.85
		680.5	H	X	175.0	149.0	3.70	1/50	12.82	16.52	0.045	36.99	-20.47	14.37	0.027	34.77	-20.40
5 MHz	QPSK (CP-OFDM)	680.5	H	X	124.0	31.0	3.70	1 / 37	14.10	17.80	0.060	36.99	-19.19	15.65	0.037	34.77	-19.12
	QPSK (Opposite Pol.)	680.5	V	Z	101.0	75.0	3.70	1 / 37	14.42	18.12	0.065	36.99	-18.87	15.97	0.040	34.77	-18.80

Table 7-4. ERP Data (Band n71)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 300 of 357

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]
699.70	1.4	QPSK	V	167	132	1 / 5	14.72	4.56	17.13	0.052	34.77	-17.64	19.28	0.085	36.99	-17.71
707.50	1.4	QPSK	V	177	124	1 / 5	14.70	4.62	17.17	0.052	34.77	-17.60	19.32	0.086	36.99	-17.67
715.30	1.4	QPSK	V	166	120	1 / 5	14.47	4.72	17.04	0.051	34.77	-17.73	19.19	0.083	36.99	-17.80
707.50	1.4	16-QAM	V	177	124	1 / 5	13.66	4.62	16.13	0.041	34.77	-18.64	18.28	0.067	36.99	-18.71
707.50	1.4	64-QAM	V	177	124	1 / 5	12.99	4.62	15.46	0.035	34.77	-19.31	17.61	0.058	36.99	-19.38
707.50	1.4	256-QAM	V	177	124	1 / 5	9.78	4.62	12.25	0.017	34.77	-22.52	14.40	0.028	36.99	-22.59
700.50	3	QPSK	V	170	122	1 / 14	14.85	4.59	17.29	0.054	34.77	-17.48	19.44	0.088	36.99	-17.55
707.50	3	QPSK	V	177	144	1 / 14	14.72	4.62	17.19	0.052	34.77	-17.58	19.34	0.086	36.99	-17.65
714.50	3	QPSK	V	165	131	1 / 14	14.61	4.71	17.17	0.052	34.77	-17.60	19.32	0.086	36.99	-17.67
707.50	3	16-QAM	V	177	144	1 / 14	14.31	4.62	16.78	0.048	34.77	-17.99	18.93	0.078	36.99	-18.06
707.50	3	64-QAM	V	177	144	1 / 14	12.65	4.62	15.12	0.033	34.77	-19.65	17.27	0.053	36.99	-19.72
707.50	3	256-QAM	V	177	144	1 / 14	9.81	4.62	12.28	0.017	34.77	-22.49	14.43	0.028	36.99	-22.56
701.50	5	QPSK	V	157	137	1 / 24	14.88	4.60	17.33	0.054	34.77	-17.44	19.48	0.089	36.99	-17.51
707.50	5	QPSK	V	158	120	1 / 24	14.78	4.62	17.25	0.053	34.77	-17.52	19.40	0.087	36.99	-17.59
713.50	5	QPSK	V	164	121	1 / 24	14.54	4.70	17.09	0.051	34.77	-17.68	19.24	0.084	36.99	-17.75
707.50	5	16-QAM	V	158	120	1 / 24	14.21	4.62	16.68	0.047	34.77	-18.09	18.83	0.076	36.99	-18.16
707.50	5	64-QAM	V	158	120	1 / 24	12.90	4.62	15.37	0.034	34.77	-19.40	17.52	0.056	36.99	-19.47
707.50	5	256-QAM	V	158	120	1 / 24	9.83	4.62	12.30	0.017	34.77	-22.47	14.45	0.028	36.99	-22.54
704.00	10	QPSK	V	169	126	1 / 49	14.63	4.58	17.06	0.051	34.77	-17.71	19.21	0.083	36.99	-17.78
707.50	10	QPSK	V	172	112	1 / 49	14.69	4.62	17.16	0.052	34.77	-17.61	19.31	0.085	36.99	-17.68
711.00	10	QPSK	V	161	117	1 / 49	14.55	4.67	17.07	0.051	34.77	-17.70	19.22	0.083	36.99	-17.77
707.50	10	16-QAM	V	172	112	1 / 49	13.57	4.62	16.04	0.040	34.77	-18.73	18.19	0.066	36.99	-18.80
707.50	10	64-QAM	V	172	112	1 / 49	12.46	4.62	14.93	0.031	34.77	-19.84	17.08	0.051	36.99	-19.91
707.50	10	256-QAM	V	172	112	1 / 49	10.80	4.62	13.27	0.021	34.77	-21.50	15.42	0.035	36.99	-21.57
701.50	5	QPSK	H	249	118	1 / 24	13.22	4.62	15.69	0.037	34.77	-19.08	17.84	0.061	36.99	-19.15
701.50	5 (WCP)	QPSK	V	147	159	1 / 24	13.56	4.62	16.03	0.040	34.77	-18.74	18.18	0.066	36.99	-18.81

Table 7-5. ERP Data (Band 12)

FCC ID: A3LSMN981W	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset	Page 301 of 357

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]
779.50	5	QPSK	V	166	92	1 / 24	15.27	5.77	18.89	0.077	34.77	-15.89	21.04	0.127	36.99	-15.95
782.00	5	QPSK	V	161	98	1 / 24	15.31	5.79	18.95	0.079	34.77	-15.82	21.10	0.129	36.99	-15.89
784.50	5	QPSK	V	159	92	1 / 24	15.09	5.82	18.76	0.075	34.77	-16.01	20.91	0.123	36.99	-16.08
782.00	5	16-QAM	V	161	98	1 / 24	14.37	5.79	18.01	0.063	34.77	-16.76	20.16	0.104	36.99	-16.83
782.00	5	64-QAM	V	161	98	1 / 24	13.36	5.79	17.00	0.050	34.77	-17.77	19.15	0.082	36.99	-17.84
782.00	5	256-QAM	V	161	98	1 / 24	11.77	5.79	15.41	0.035	34.77	-19.36	17.56	0.057	36.99	-19.43
782.00	10	QPSK	V	158	86	1 / 0	15.71	5.79	19.35	0.086	34.77	-15.42	21.50	0.141	36.99	-15.49
782.00	10	16-QAM	V	158	86	1 / 0	14.81	5.79	18.45	0.070	34.77	-16.32	20.60	0.115	36.99	-16.39
782.00	10	64-QAM	V	158	86	1 / 0	13.62	5.79	17.26	0.053	34.77	-17.51	19.41	0.087	36.99	-17.58
782.00	10	256-QAM	V	158	86	1 / 0	12.67	5.79	16.31	0.043	34.77	-18.46	18.46	0.070	36.99	-18.53
782.00	10	QPSK	H	249	111	1 / 0	13.25	5.79	16.89	0.049	34.77	-17.88	19.04	0.080	36.99	-17.95
782.00	10 (WCP)	QPSK	V	162	78	1 / 0	14.53	5.79	18.17	0.066	34.77	-16.60	20.32	0.108	36.99	-16.67

Table 7-6. ERP Data (Band 13)

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]
824.70	1.4	QPSK	V	144	41	3 / 2	15.04	6.36	19.24	0.084	38.45	-19.21	21.39	0.138	40.61	-19.22
836.50	1.4	QPSK	V	133	80	3 / 2	15.79	6.38	20.02	0.100	38.45	-18.43	22.17	0.165	40.61	-18.44
848.30	1.4	QPSK	V	151	75	3 / 2	14.85	6.50	19.20	0.083	38.45	-19.25	21.35	0.136	40.61	-19.26
836.50	1.4	16-QAM	V	133	80	3 / 2	14.22	6.38	18.45	0.070	38.45	-20.00	20.60	0.115	40.61	-20.01
836.50	1.4	64-QAM	V	133	80	3 / 2	13.18	6.38	17.41	0.055	38.45	-21.04	19.56	0.090	40.61	-21.05
836.50	1.4	256-QAM	V	133	80	3 / 2	12.37	6.38	16.60	0.046	38.45	-21.85	18.75	0.075	40.61	-21.86
825.50	3	QPSK	V	133	80	8 / 4	15.53	6.36	19.75	0.094	38.45	-18.70	21.90	0.155	40.61	-18.71
836.50	3	QPSK	V	135	65	8 / 4	15.75	6.38	19.98	0.099	38.45	-18.47	22.13	0.163	40.61	-18.48
847.50	3	QPSK	V	133	66	8 / 4	14.83	6.49	19.17	0.083	38.45	-19.28	21.32	0.136	40.61	-19.28
836.50	3	16-QAM	V	135	65	8 / 4	14.18	6.38	18.41	0.069	38.45	-20.04	20.56	0.114	40.61	-20.05
836.50	3	64-QAM	V	135	65	8 / 4	13.21	6.38	17.44	0.055	38.45	-21.01	19.59	0.091	40.61	-21.02
836.50	3	256-QAM	V	133	66	8 / 4	12.31	6.38	16.54	0.045	38.45	-21.91	18.69	0.074	40.61	-21.92
826.50	5	QPSK	V	142	90	12 / 6	15.32	6.37	19.55	0.090	38.45	-18.90	21.70	0.148	40.61	-18.91
836.50	5	QPSK	V	134	71	12 / 6	15.81	6.38	20.04	0.101	38.45	-18.41	22.19	0.165	40.61	-18.42
846.50	5	QPSK	V	144	81	12 / 6	14.66	6.48	18.99	0.079	38.45	-19.46	21.14	0.130	40.61	-19.46
836.50	5	16-QAM	V	134	71	12 / 6	14.48	6.38	18.71	0.074	38.45	-19.74	20.86	0.122	40.61	-19.75
836.50	5	64-QAM	V	134	71	12 / 6	12.86	6.38	17.09	0.051	38.45	-21.36	19.24	0.084	40.61	-21.37
836.50	5	256-QAM	V	144	81	12 / 6	12.16	6.38	16.39	0.044	38.45	-22.06	18.54	0.071	40.61	-22.07
829.00	10	QPSK	V	115	80	25 / 12	15.46	6.40	19.71	0.094	38.45	-18.74	21.86	0.153	40.61	-18.75
836.50	10	QPSK	V	142	77	25 / 12	15.79	6.38	20.02	0.100	38.45	-18.43	22.17	0.165	40.61	-18.44
844.00	10	QPSK	V	135	75	25 / 12	14.68	6.46	18.98	0.079	38.45	-19.47	21.13	0.130	40.61	-19.47
836.50	10	16-QAM	V	142	77	25 / 12	14.59	6.38	18.82	0.076	38.45	-19.63	20.97	0.125	40.61	-19.64
836.50	10	64-QAM	V	142	77	25 / 12	12.76	6.38	16.99	0.050	38.45	-21.46	19.14	0.082	40.61	-21.47
836.50	10	256-QAM	V	142	77	25 / 12	12.33	6.38	16.56	0.045	38.45	-21.89	18.71	0.074	40.61	-21.90

Table 7-7. ERP Data (Band 5)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 302 of 357

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]
1710.70	1.4	QPSK	V	144	328	3 / 2	13.73	9.38	23.11	0.205	30.00	-6.89
1745.00	1.4	QPSK	V	165	344	3 / 2	13.87	9.14	23.01	0.200	30.00	-6.99
1779.30	1.4	QPSK	V	144	210	3 / 2	13.76	9.20	22.96	0.198	30.00	-7.04
1710.70	1.4	16-QAM	V	144	328	3 / 2	12.93	9.38	22.31	0.170	30.00	-7.69
1710.70	1.4	64-QAM	V	144	328	3 / 2	11.44	9.38	20.82	0.121	30.00	-9.18
1710.70	1.4	256-QAM	V	144	328	3 / 2	8.83	9.38	18.21	0.066	30.00	-11.79
1711.50	3	QPSK	V	164	330	8 / 4	13.72	9.37	23.09	0.204	30.00	-6.91
1745.00	3	QPSK	V	147	63	8 / 4	13.97	9.14	23.11	0.205	30.00	-6.89
1778.50	3	QPSK	V	154	35	8 / 4	13.81	9.20	23.01	0.200	30.00	-6.99
1711.50	3	16-QAM	V	164	330	8 / 4	12.90	9.37	22.27	0.169	30.00	-7.73
1711.50	3	64-QAM	V	164	330	8 / 4	11.59	9.37	20.96	0.125	30.00	-9.04
1711.50	3	256-QAM	V	164	330	8 / 4	8.84	9.37	18.21	0.066	30.00	-11.79
1712.50	5	QPSK	V	155	32	12 / 6	13.43	9.37	22.80	0.191	30.00	-7.20
1745.00	5	QPSK	V	151	323	12 / 6	13.95	9.14	23.09	0.204	30.00	-6.91
1777.50	5	QPSK	V	135	324	12 / 6	13.83	9.19	23.02	0.200	30.00	-6.98
1712.50	5	16-QAM	V	155	32	12 / 6	12.86	9.37	22.23	0.167	30.00	-7.77
1712.50	5	64-QAM	V	155	32	12 / 6	11.65	9.37	21.02	0.126	30.00	-8.98
1712.50	5	256-QAM	V	155	32	12 / 6	8.65	9.37	18.02	0.063	30.00	-11.98
1715.00	10	QPSK	V	164	330	25 / 12	13.61	9.35	22.96	0.198	30.00	-7.04
1745.00	10	QPSK	V	147	327	25 / 12	13.80	9.14	22.94	0.197	30.00	-7.06
1775.00	10	QPSK	V	165	322	25 / 12	13.71	9.18	22.89	0.195	30.00	-7.11
1715.00	10	16-QAM	V	164	330	25 / 12	12.78	9.35	22.13	0.163	30.00	-7.87
1715.00	10	64-QAM	V	164	330	25 / 12	11.63	9.35	20.98	0.125	30.00	-9.02
1715.00	10	256-QAM	V	164	330	25 / 12	8.68	9.35	18.03	0.064	30.00	-11.97
1717.50	15	QPSK	V	164	334	36 / 18	13.73	9.33	23.06	0.202	30.00	-6.94
1745.00	15	QPSK	V	147	327	36 / 18	13.96	9.14	23.10	0.204	30.00	-6.90
1772.50	15	QPSK	V	148	241	36 / 18	13.87	9.18	23.05	0.202	30.00	-6.95
1717.50	15	16-QAM	V	164	334	36 / 18	12.94	9.33	22.27	0.169	30.00	-7.73
1717.50	15	64-QAM	V	164	334	36 / 18	11.61	9.33	20.94	0.124	30.00	-9.06
1717.50	15	256-QAM	V	164	334	36 / 18	8.97	9.33	18.30	0.068	30.00	-11.70
1720.00	20	QPSK	V	159	328	50 / 25	13.97	9.31	23.28	0.213	30.00	-6.72
1745.00	20	QPSK	V	144	341	1 / 99	13.37	9.14	22.51	0.178	30.00	-7.49
1770.00	20	QPSK	V	144	342	1 / 0	14.03	9.17	23.20	0.209	30.00	-6.80
1720.00	20	16-QAM	V	159	328	50 / 25	12.93	9.31	22.24	0.168	30.00	-7.76
1720.00	20	64-QAM	V	159	328	50 / 25	11.87	9.31	21.18	0.131	30.00	-8.82
1720.00	20	256-QAM	V	159	328	50 / 25	10.21	9.31	19.52	0.090	30.00	-10.48
1720.00	20	QPSK	H	104	37	50 / 25	10.82	9.14	19.96	0.099	30.00	-10.04
1720.00	20 (WCP)	QPSK	H	114	24	50 / 25	10.50	9.14	19.64	0.092	30.00	-10.36

Table 7-8. EIRP Data (Band 66/4)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 303 of 357

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	EUT Pol.	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	π/2 BPSK	1720.0	H	X	171	211	9.31	1 / 50	12.78	22.09	0.162	30.00	-7.91
		1745.0	H	X	177	219	9.31	1 / 50	12.85	22.16	0.164	30.00	-7.84
		1770.0	H	X	162	227	9.31	1 / 50	12.69	22.00	0.158	30.00	-8.00
	QPSK	1720.0	H	X	171	211	9.31	1 / 50	12.23	21.54	0.143	30.00	-8.46
		1745.0	H	X	177	219	9.31	1 / 50	12.33	21.64	0.146	30.00	-8.36
		1770.0	H	X	162	227	9.31	1 / 50	12.16	21.47	0.140	30.00	-8.53
	16-QAM	1745.0	H	X	177	219	9.31	1 / 50	11.13	20.44	0.111	30.00	-9.56
	64-QAM	1745.0	H	X	177	219	9.31	1 / 50	9.98	19.29	0.085	30.00	-10.71
	256-QAM	1745.0	H	X	177	219	9.31	1 / 50	7.97	17.28	0.053	30.00	-12.72
15 MHz	π/2 BPSK	1717.5	H	X	165	22	9.31	1/49	12.93	22.24	0.167	30.00	-7.76
		1745.0	H	X	164	34	9.31	1/49	12.88	22.19	0.166	30.00	-7.81
		1772.5	H	X	152	254	9.31	1/49	12.94	22.25	0.168	30.00	-7.75
	QPSK	1717.5	H	X	165	22	9.31	1/49	12.48	21.79	0.151	30.00	-8.21
		1745.0	H	X	164	34	9.31	1/49	12.40	21.71	0.148	30.00	-8.29
		1772.5	H	X	152	254	9.31	1/49	12.41	21.72	0.149	30.00	-8.28
	16-QAM	1745.0	H	X	164	34	9.31	1/49	11.26	20.57	0.114	30.00	-9.43
	64-QAM	1745.0	H	X	164	34	9.31	1/49	11.40	20.71	0.118	30.00	-9.29
	256-QAM	1745.0	H	X	164	34	9.31	1/49	10.03	19.34	0.086	30.00	-10.66
10 MHz	π/2 BPSK	1715.0	H	X	145	124	9.31	1/0	12.91	22.22	0.167	30.00	-7.78
		1745.0	H	X	148	134	9.31	1/0	13.02	22.33	0.171	30.00	-7.67
		1775.0	H	X	135	137	9.31	1/0	13.05	22.36	0.172	30.00	-7.64
	QPSK	1715.0	H	X	145	124	9.31	1/0	12.41	21.72	0.149	30.00	-8.28
		1745.0	H	X	148	134	9.31	1/0	12.46	21.77	0.150	30.00	-8.23
		1775.0	H	X	135	137	9.31	1/0	12.37	21.68	0.147	30.00	-8.32
	16-QAM	1745.0	H	X	148	134	9.31	1/0	11.15	20.46	0.111	30.00	-9.54
	64-QAM	1745.0	H	X	148	134	9.31	1/0	11.27	20.58	0.114	30.00	-9.42
	256-QAM	1745.0	H	X	148	134	9.31	1/0	10.23	19.54	0.090	30.00	-10.46
5 MHz	π/2 BPSK	1712.5	H	X	156	20	9.31	1/0	12.82	22.13	0.163	30.00	-7.87
		1745.0	H	X	157	34	9.31	1/0	12.91	22.22	0.167	30.00	-7.78
		1777.5	H	X	124	25	9.31	1/0	12.89	22.20	0.166	30.00	-7.80
	QPSK	1712.5	H	X	156	20	9.31	1/0	12.29	21.60	0.145	30.00	-8.40
		1745.0	H	X	157	34	9.31	1/0	12.36	21.67	0.147	30.00	-8.33
		1777.5	H	X	124	25	9.31	1/0	12.31	21.62	0.145	30.00	-8.38
	16-QAM	1745.0	H	X	157	34	9.31	1/0	11.08	20.39	0.109	30.00	-9.61
	64-QAM	1745.0	H	X	157	34	9.31	1/0	11.05	20.36	0.109	30.00	-9.64
	256-QAM	1745.0	H	X	157	34	9.31	1/0	10.18	19.49	0.089	30.00	-10.51
	QPSK (CP-OFDM)	1745.0	H	X	165	28	9.31	1 / 50	11.78	21.09	0.129	30.00	-8.91
	QPSK (Opposite Pol.)	1745.0	V	Y	124	34	9.31	1 / 50	10.53	19.84	0.096	30.00	-10.16

Table 7-9. EIRP Data (Band n66)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 304 of 357

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]
1850.70	1.4	QPSK	V	111	247	3 / 2	12.94	9.91	22.85	0.193	33.01	-10.16
1882.50	1.4	QPSK	V	150	340	1 / 5	13.13	10.15	23.28	0.213	33.01	-9.73
1914.30	1.4	QPSK	V	135	355	1 / 0	12.47	10.37	22.84	0.192	33.01	-10.18
1882.50	1.4	16-QAM	V	150	340	1 / 5	12.13	10.15	22.28	0.169	33.01	-10.73
1882.50	1.4	64-QAM	V	150	340	1 / 5	11.23	10.15	21.38	0.137	33.01	-11.63
1882.50	1.4	256-QAM	V	150	340	1 / 5	10.13	10.15	20.28	0.107	33.01	-12.73
1851.50	3	QPSK	V	134	351	8 / 4	12.94	9.91	22.85	0.193	33.01	-10.16
1882.50	3	QPSK	V	135	340	1 / 14	13.01	10.15	23.16	0.207	33.01	-9.85
1913.50	3	QPSK	V	147	323	1 / 0	12.58	10.36	22.94	0.197	33.01	-10.07
1882.50	3	16-QAM	V	135	340	1 / 14	12.13	10.15	22.28	0.169	33.01	-10.73
1882.50	3	64-QAM	V	135	340	1 / 14	11.24	10.15	21.39	0.138	33.01	-11.62
1882.50	3	256-QAM	V	135	340	1 / 14	10.03	10.15	20.18	0.104	33.01	-12.83
1852.50	5	QPSK	V	123	225	12 / 6	12.91	9.92	22.83	0.192	33.01	-10.18
1882.50	5	QPSK	V	144	257	1 / 24	13.09	10.15	23.24	0.211	33.01	-9.77
1912.50	5	QPSK	V	135	351	1 / 0	12.48	10.36	22.84	0.192	33.01	-10.18
1882.50	5	16-QAM	V	144	257	1 / 24	12.13	10.15	22.28	0.169	33.01	-10.73
1882.50	5	64-QAM	V	144	257	1 / 24	10.33	10.15	20.48	0.112	33.01	-12.53
1882.50	5	256-QAM	V	144	257	1 / 24	9.13	10.15	19.28	0.085	33.01	-13.73
1855.00	10	QPSK	V	114	241	25 / 12	12.97	9.94	22.91	0.195	33.01	-10.10
1882.50	10	QPSK	V	132	340	1 / 49	13.03	10.15	23.18	0.208	33.01	-9.83
1910.00	10	QPSK	V	123	323	1 / 0	12.48	10.34	22.82	0.191	33.01	-10.19
1882.50	10	16-QAM	V	132	340	1 / 49	12.00	10.15	22.15	0.164	33.01	-10.86
1882.50	10	64-QAM	V	132	340	1 / 49	10.91	10.15	21.06	0.128	33.01	-11.95
1882.50	10	256-QAM	V	132	340	1 / 49	10.00	10.15	20.15	0.104	33.01	-12.86
1857.50	15	QPSK	V	124	247	36 / 18	13.02	9.96	22.98	0.199	33.01	-10.03
1882.50	15	QPSK	V	135	355	1 / 74	13.01	10.15	23.16	0.207	33.01	-9.85
1907.50	15	QPSK	V	122	350	1 / 0	12.51	10.33	22.84	0.192	33.01	-10.17
1882.50	15	16-QAM	V	135	355	1 / 74	12.00	10.15	22.15	0.164	33.01	-10.86
1882.50	15	64-QAM	V	135	355	1 / 74	11.24	10.15	21.39	0.138	33.01	-11.62
1882.50	15	256-QAM	V	135	355	1 / 74	9.84	10.15	19.99	0.100	33.01	-13.02
1860.00	20	QPSK	V	109	346	50 / 25	12.97	9.98	22.95	0.197	33.01	-10.06
1882.50	20	QPSK	V	115	344	1 / 99	13.18	10.15	23.33	0.215	33.01	-9.68
1905.00	20	QPSK	V	109	350	1 / 0	12.54	10.31	22.85	0.193	33.01	-10.16
1882.50	20	16-QAM	V	115	344	1 / 99	12.21	10.15	22.36	0.172	33.01	-10.65
1882.50	20	64-QAM	V	115	344	1 / 99	11.30	10.15	21.45	0.140	33.01	-11.56
1882.50	20	256-QAM	V	115	344	1 / 99	10.11	10.15	20.26	0.106	33.01	-12.75
1882.50	20	QPSK	H	123	360	1 / 99	11.88	10.15	22.03	0.160	33.01	-10.98
1882.50	20 (WCP)	QPSK	H	108	346	1 / 99	10.15	10.15	20.30	0.107	33.01	-12.71

Table 7-10. EIRP Data (Band 25/2)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 305 of 357

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]
2307.50	5	QPSK	H	126	158	1/12	12.90	10.33	23.23	0.211	23.98	-0.74
2312.50	5	QPSK	H	112	165	1/12	12.73	10.34	23.07	0.203	23.98	-0.91
2307.50	5	16-QAM	H	126	158	1/12	11.92	10.33	22.25	0.168	23.98	-1.72
2307.50	5	64-QAM	H	126	158	1/12	10.82	10.33	21.15	0.130	23.98	-2.82
2307.50	5	256-QAM	H	126	158	1/12	7.75	10.33	18.08	0.064	23.98	-5.89
2310.00	10	QPSK	H	111	157	1 / 49	12.97	10.34	23.31	0.214	23.98	-0.67
2310.00	10	16-QAM	H	111	157	1 / 49	11.96	10.34	22.30	0.170	23.98	-1.68
2310.00	10	64-QAM	H	111	157	1 / 49	10.65	10.34	20.99	0.125	23.98	-2.99
2310.00	10	256-QAM	H	111	157	1 / 49	8.04	10.34	18.38	0.069	23.98	-5.60
2310.00	10	QPSK	V	118	241	1 / 49	12.28	10.34	22.62	0.183	23.98	-1.36
2310.00	10 (WCP)	QPSK	V	247	119	1 / 49	12.05	10.34	22.39	0.173	23.98	-1.59

Table 7-11. EIRP Data (Band 30)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 306 of 357

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]
2502.50	5	QPSK	H	110	55	12 / 6	11.82	9.46	21.28	0.134	33.01	-11.73
2535.00	5	QPSK	H	132	52	1 / 0	11.66	9.42	21.08	0.128	33.01	-11.93
2567.50	5	QPSK	H	124	57	12 / 6	10.64	9.48	20.12	0.103	33.01	-12.89
2502.50	5	16-QAM	H	110	55	12 / 6	10.85	9.46	20.31	0.107	33.01	-12.70
2502.50	5	64-QAM	H	110	55	12 / 6	9.83	9.46	19.29	0.085	33.01	-13.72
2502.50	5	256-QAM	H	110	55	12 / 6	7.72	9.46	17.18	0.052	33.01	-15.83
2505.00	10	QPSK	H	135	66	25 / 12	11.62	9.45	21.07	0.128	33.01	-11.94
2535.00	10	QPSK	H	136	52	1 / 0	11.63	9.42	21.05	0.127	33.01	-11.96
2565.00	10	QPSK	H	157	52	25 / 12	10.62	9.47	20.09	0.102	33.01	-12.92
2505.00	10	16-QAM	H	135	66	25 / 12	10.83	9.45	20.28	0.107	33.01	-12.73
2505.00	10	64-QAM	H	135	66	25 / 12	9.84	9.45	19.29	0.085	33.01	-13.72
2505.00	10	256-QAM	H	135	66	25 / 12	7.84	9.45	17.29	0.054	33.01	-15.72
2507.50	15	QPSK	H	132	57	36 / 18	11.82	9.45	21.27	0.134	33.01	-11.74
2535.00	15	QPSK	H	122	68	1 / 0	11.46	9.42	20.88	0.123	33.01	-12.13
2562.50	15	QPSK	H	135	70	36 / 18	10.63	9.46	20.09	0.102	33.01	-12.92
2507.50	15	16-QAM	H	132	57	36 / 18	10.86	9.45	20.31	0.107	33.01	-12.70
2507.50	15	64-QAM	H	132	57	36 / 18	9.84	9.45	19.29	0.085	33.01	-13.72
2535.00	15	256-QAM	H	122	68	36 / 18	7.73	9.42	17.15	0.052	33.01	-15.86
2510.00	20	QPSK	H	114	31	50 / 25	11.88	9.45	21.33	0.136	33.01	-11.68
2535.00	20	QPSK	H	101	35	1 / 0	11.56	9.42	20.98	0.125	33.01	-12.03
2560.00	20	QPSK	H	125	33	50 / 25	10.63	9.45	20.08	0.102	33.01	-12.93
2510.00	20	16-QAM	H	114	31	50 / 25	10.87	9.45	20.32	0.108	33.01	-12.69
2510.00	20	64-QAM	H	114	31	50 / 25	9.89	9.45	19.34	0.086	33.01	-13.67
2510.00	20	256-QAM	H	114	31	50 / 25	8.72	9.45	18.17	0.066	33.01	-14.84
2510.00	20	QPSK	V	142	82	50 / 25	11.33	9.42	20.75	0.119	33.01	-12.26
2510.00	20 (WCP)	QPSK	H	201	89	50 / 25	10.62	9.42	20.04	0.101	33.01	-12.97

Table 7-12. EIRP Data (Band 7)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 307 of 357

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]
2498.50	5	QPSK	H	157	36	1 / 0	13.61	9.46	23.07	0.203	33.01	-9.94
2593.00	5	QPSK	H	144	41	1 / 24	11.17	9.58	20.75	0.119	33.01	-12.26
2687.50	5	QPSK	H	157	45	1 / 0	10.13	9.85	19.98	0.099	33.01	-13.03
2593.00	5	16-QAM	H	144	41	1 / 0	12.57	9.58	22.15	0.164	33.01	-10.86
2593.00	5	64-QAM	H	144	41	1 / 0	11.47	9.58	21.05	0.127	33.01	-11.96
2593.00	5	256-QAM	H	144	41	1 / 0	9.46	9.58	19.04	0.080	33.01	-13.97
2501.00	10	QPSK	H	157	36	1 / 0	13.59	9.46	23.05	0.202	33.01	-9.96
2593.00	10	QPSK	H	144	41	25 / 12	11.36	9.58	20.94	0.124	33.01	-12.07
2685.00	10	QPSK	H	157	45	1 / 0	10.13	9.85	19.98	0.100	33.01	-13.03
2593.00	10	16-QAM	H	144	41	1 / 0	12.61	9.58	22.19	0.166	33.01	-10.82
2593.00	10	64-QAM	H	144	41	1 / 0	11.26	9.58	20.84	0.121	33.01	-12.17
2593.00	10	256-QAM	H	144	41	1 / 0	9.58	9.58	19.16	0.082	33.01	-13.85
2503.50	15	QPSK	H	157	36	1 / 0	12.70	9.45	22.15	0.164	33.01	-10.86
2593.00	15	QPSK	H	144	41	36 / 18	11.35	9.58	20.93	0.124	33.01	-12.08
2682.50	15	QPSK	H	157	45	1 / 0	10.14	9.86	20.00	0.100	33.01	-13.01
2593.00	15	16-QAM	H	144	41	1 / 0	11.87	9.58	21.45	0.140	33.01	-11.56
2593.00	15	64-QAM	H	144	41	1 / 0	10.70	9.58	20.28	0.107	33.01	-12.73
2593.00	15	256-QAM	H	144	41	1 / 0	9.25	9.58	18.83	0.076	33.01	-14.18
2506.00	20	QPSK	H	157	36	1 / 0	13.71	9.45	23.16	0.207	33.01	-9.85
2593.00	20	QPSK	H	144	41	50 / 25	11.43	9.58	21.01	0.126	33.01	-12.00
2680.00	20	QPSK	H	157	45	1 / 0	10.17	9.86	20.03	0.101	33.01	-12.98
2593.00	20	16-QAM	H	144	41	50 / 25	10.56	9.58	20.14	0.103	33.01	-12.87
2593.00	20	64-QAM	H	144	41	50 / 25	9.93	9.58	19.51	0.089	33.01	-13.50
2593.00	20	256-QAM	H	144	41	50 / 25	9.37	9.58	18.95	0.079	33.01	-14.06
20.00	QPSK	H	V	169	55	1 / 0	13.17	9.45	22.62	0.183	33.01	-10.39
20.00	QPSK (WCP)	H	H	201	14	1 / 0	12.58	9.45	22.03	0.160	33.01	-10.98

Table 7-13. EIRP Data (Band 41)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 308 of 357

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
100 MHz	π/2 BPSK	2546.0	H	134	20	9.43	1 / 0	12.64	22.07	0.161	33.01	-10.94
		2593.0	H	134	20	9.43	1 / 0	12.78	22.21	0.166	33.01	-10.80
		2640.0	H	134	20	9.43	1 / 0	11.76	21.19	0.132	33.01	-11.82
	QPSK	2546.0	H	134	20	9.43	1 / 0	11.86	21.29	0.135	33.01	-11.72
		2593.0	H	134	20	9.43	1 / 0	10.67	20.10	0.102	33.01	-12.91
		2640.0	H	134	20	9.43	1 / 0	10.53	19.96	0.099	33.01	-13.05
	16-QAM	2593.0	H	134	20	9.43	1 / 0	10.96	20.39	0.109	33.01	-12.62
	64-QAM	2593.0	H	134	20	9.43	1 / 0	10.14	19.57	0.091	33.01	-13.44
	256-QAM	2593.0	H	134	20	9.43	1 / 0	8.34	17.77	0.060	33.01	-15.24
90 MHz	π/2 BPSK	2541.0	H	127	10	9.43	1 / 0	12.38	21.81	0.152	33.01	-11.20
		2593.0	H	127	10	9.43	1 / 0	12.76	22.19	0.166	33.01	-10.82
		2645.0	H	127	10	9.43	1 / 0	11.98	21.41	0.138	33.01	-11.60
	QPSK	2541.0	H	127	10	9.43	1 / 0	11.81	21.24	0.133	33.01	-11.77
		2593.0	H	127	10	9.43	1 / 0	10.66	20.09	0.102	33.01	-12.92
		2645.0	H	127	10	9.43	1 / 0	10.35	19.78	0.095	33.01	-13.23
	16-QAM	2593.0	H	127	10	9.43	1 / 0	10.63	20.06	0.101	33.01	-12.95
	64-QAM	2593.0	H	127	10	9.43	1 / 0	9.75	19.18	0.083	33.01	-13.83
	256-QAM	2593.0	H	127	10	9.43	1 / 0	7.97	17.40	0.055	33.01	-15.61
80 MHz	π/2 BPSK	2536.0	H	127	20	9.43	1 / 0	12.67	22.10	0.162	33.01	-10.91
		2593.0	H	134	157	9.43	1 / 0	13.06	22.49	0.177	33.01	-10.52
		2650.0	H	134	157	9.43	1 / 0	11.98	21.41	0.138	33.01	-11.60
	QPSK	2536.0	H	127	20	9.43	1 / 0	11.81	21.24	0.133	33.01	-11.77
		2593.0	H	134	157	9.43	1 / 0	10.61	20.04	0.101	33.01	-12.97
		2650.0	H	134	157	9.43	1 / 0	10.28	19.71	0.094	33.01	-13.30
	16-QAM	2593.0	H	134	157	9.43	1 / 0	10.96	20.39	0.109	33.01	-12.62
	64-QAM	2593.0	H	134	157	9.43	1 / 0	10.15	19.58	0.091	33.01	-13.43
	256-QAM	2593.0	H	134	157	9.43	1 / 0	8.23	17.66	0.058	33.01	-15.35
60 MHz	π/2 BPSK	2526.0	H	127	155	9.43	1 / 0	12.63	22.06	0.161	33.01	-10.95
		2593.0	H	127	155	9.43	1 / 0	12.62	22.05	0.160	33.01	-10.96
		2660.0	H	134	155	9.43	1 / 0	11.75	21.18	0.131	33.01	-11.83
	QPSK	2526.0	H	127	155	9.43	1 / 0	11.79	21.22	0.132	33.01	-11.79
		2593.0	H	127	155	9.43	1 / 0	10.24	19.67	0.093	33.01	-13.34
		2660.0	H	134	155	9.43	1 / 0	10.34	19.77	0.095	33.01	-13.24
	16-QAM	2593.0	H	127	155	9.43	1 / 0	10.84	20.27	0.106	33.01	-12.74
	64-QAM	2593.0	H	127	155	9.43	1 / 0	10.04	19.47	0.089	33.01	-13.54
	256-QAM	2593.0	H	127	155	9.43	1 / 0	8.22	17.65	0.058	33.01	-15.36
50 MHz	π/2 BPSK	2521.0	H	147	257	9.43	1 / 0	12.51	21.94	0.156	33.01	-11.07
		2593.0	H	147	257	9.43	1 / 0	12.62	22.05	0.160	33.01	-10.96
		2665.0	H	147	257	9.43	1 / 0	11.74	21.17	0.131	33.01	-11.84
	QPSK	2521.0	H	147	257	9.43	1 / 0	11.64	21.07	0.128	33.01	-11.94
		2593.0	H	147	257	9.43	1 / 0	10.26	19.69	0.093	33.01	-13.32
		2665.0	H	147	257	9.43	1 / 0	10.29	19.72	0.094	33.01	-13.29
	16-QAM	2593.0	H	147	257	9.43	1 / 0	10.94	20.37	0.109	33.01	-12.64
	64-QAM	2593.0	H	147	257	9.43	1 / 0	10.04	19.47	0.089	33.01	-13.54
	256-QAM	2593.0	H	147	257	9.43	1 / 0	8.29	17.72	0.059	33.01	-15.29
40 MHz	π/2 BPSK	2516.0	H	134	244	9.43	1 / 0	12.68	22.11	0.163	33.01	-10.90
		2593.0	H	134	244	9.43	1 / 0	12.99	22.42	0.175	33.01	-10.59
		2670.0	H	134	244	9.43	1 / 0	11.77	21.20	0.132	33.01	-11.81
	QPSK	2516.0	H	134	244	9.43	1 / 0	12.03	21.46	0.140	33.01	-11.55
		2593.0	H	134	244	9.43	1 / 0	10.53	19.96	0.099	33.01	-13.05
		2670.0	H	134	244	9.43	1 / 0	10.34	19.77	0.095	33.01	-13.24
	16-QAM	2593.0	H	134	244	9.43	1 / 0	11.33	20.76	0.119	33.01	-12.25
	64-QAM	2593.0	H	134	244	9.43	1 / 0	10.54	19.97	0.099	33.01	-13.04
	256-QAM	2593.0	H	134	244	9.43	1 / 0	8.54	17.97	0.063	33.01	-15.04
20 MHz	π/2 BPSK	2506.0	H	142	162	9.43	1 / 0	12.45	21.88	0.154	33.01	-11.13
		2593.0	H	142	162	9.43	1 / 0	12.54	21.97	0.157	33.01	-11.04
		2680.0	H	142	162	9.43	1 / 0	11.75	21.18	0.131	33.01	-11.83
	QPSK	2506.0	H	142	162	9.43	1 / 0	11.80	21.23	0.133	33.01	-11.78
		2593.0	H	142	162	9.43	1 / 0	10.28	19.71	0.094	33.01	-13.30
		2680.0	H	142	162	9.43	1 / 0	10.40	19.83	0.096	33.01	-13.18
	16-QAM	2593.0	H	142	162	9.43	1 / 0	10.41	19.84	0.096	33.01	-13.17
	64-QAM	2593.0	H	142	162	9.43	1 / 0	9.28	18.71	0.074	33.01	-14.30
	256-QAM	2593.0	H	142	162	9.43	1 / 0	7.28	16.71	0.047	33.01	-16.30
	QPSK (CP-OFDM)	2593.0	H	134	241	9.43	1 / 0	10.75	20.18	0.104	33.01	-12.83
	QPSK (Opposite Pol.)	2593.0	V	149	284	9.43	1 / 0	11.87	21.30	0.135	33.01	-11.71

Table 7-14. EIRP Data (Band n41)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 309 of 357

7.7 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW $\geq 3 \times$ RBW
3. Span = 1.5 times the OBW
4. No. of sweep points $\geq 2 \times$ span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 310 of 357

Test Setup

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

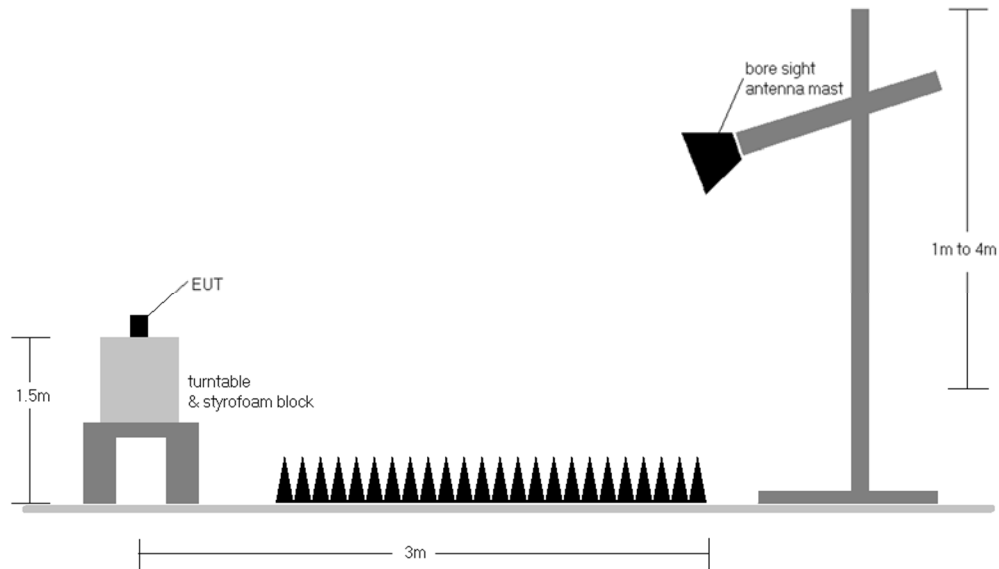


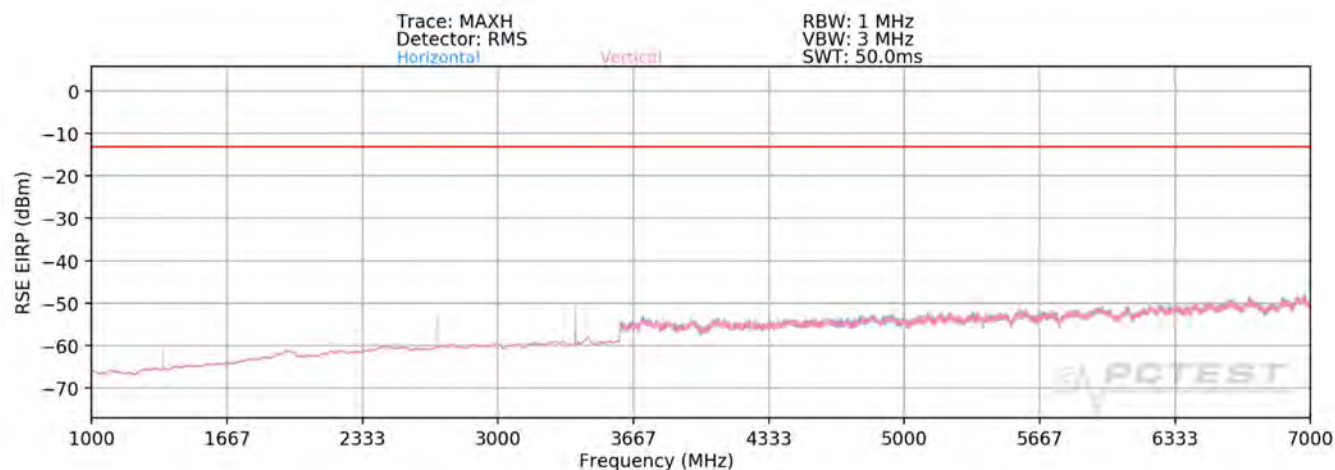
Figure 7-7. Test Instrument & Measurement Setup

Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 4) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 311 of 357

Band 71



Plot 7-538. Radiated Spurious Plot above 1GHz (Band 71)

OPERATING FREQUENCY: 673.00 MHz
CHANNEL: 133222
MODULATION SIGNAL: QPSK
BANDWIDTH: 20.0 MHz
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1346.00	V	211	183	-68.86	7.92	-60.94	-47.9
2019.00	V	-	-	-76.39	8.86	-67.52	-54.5
2692.00	V	400	175	-59.13	9.63	-49.50	-36.5
3365.00	V	397	141	-57.60	9.48	-48.13	-35.1
4038.00	V	400	225	-64.74	9.62	-55.12	-42.1
4711.00	V	-	-	-74.10	11.46	-62.65	-49.6
5384.00	V	-	-	-72.58	11.18	-61.40	-48.4

Table 7-15. Radiated Spurious Data (Band 71 – Low Channel)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 312 of 357

OPERATING FREQUENCY: 680.50 MHz
 CHANNEL: 133297
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1361.00	V	121	193	-68.38	7.93	-60.45	-47.5
2041.50	V	-	-	-76.45	8.98	-67.47	-54.5
2722.00	V	400	183	-58.65	9.77	-48.88	-35.9
3402.50	V	400	181	-54.66	9.57	-45.09	-32.1
4083.00	V	383	203	-68.94	9.85	-59.08	-46.1
4763.50	V	-	-	-73.92	11.47	-62.44	-49.4
5444.00	V	-	-	-71.51	11.16	-60.35	-47.4

Table 7-16. Radiated Spurious Data (Band 71 – Mid Channel)

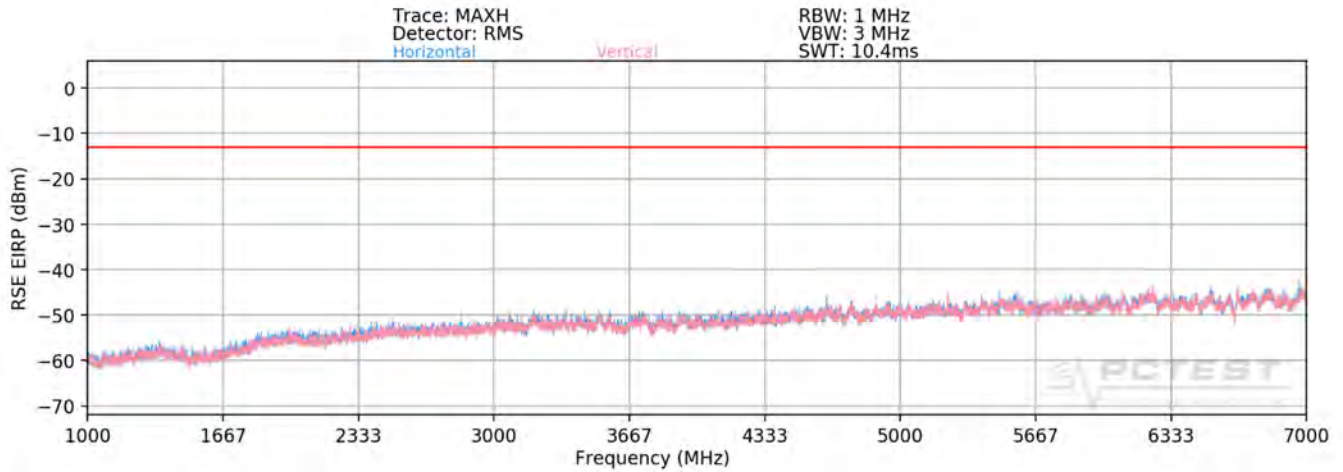
OPERATING FREQUENCY: 688.00 MHz
 CHANNEL: 133372
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1376.00	V	111	188	-64.19	7.91	-56.27	-43.3
2064.00	V	156	54	-76.56	9.05	-67.52	-54.5
2752.00	V	400	180	-56.34	9.92	-46.42	-33.4
3440.00	V	400	178	-50.13	9.65	-40.48	-27.5
4128.00	V	400	200	-65.74	10.05	-55.68	-42.7
4816.00	V	299	212	-73.53	11.42	-62.11	-49.1
5504.00	V	-	-	-71.00	11.13	-59.87	-46.9

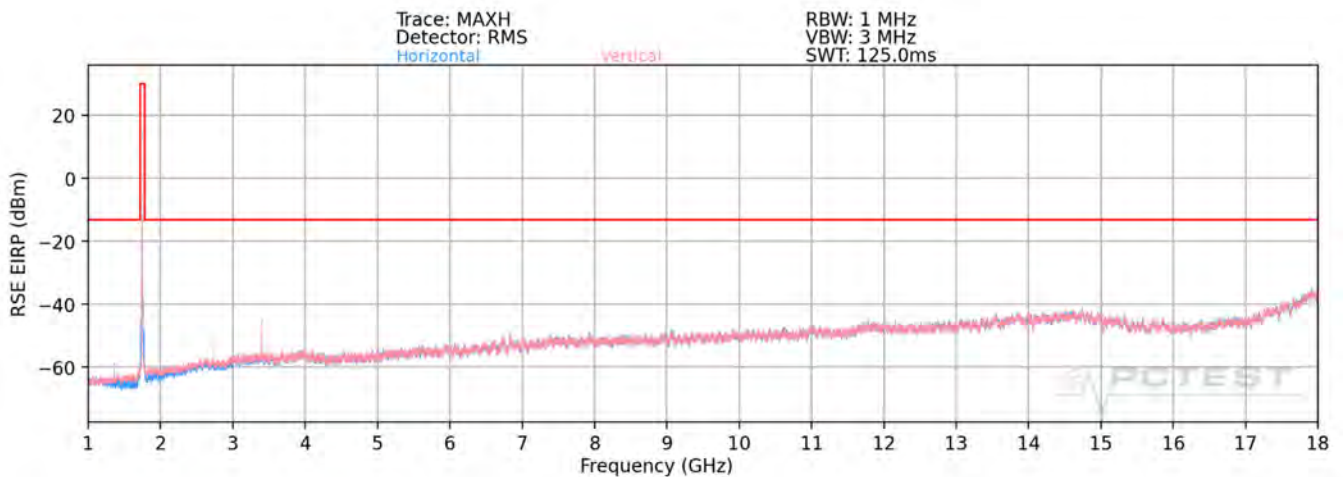
Table 7-17. Radiated Spurious Data (Band 71 – High Channel)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 313 of 357

Band n71



Plot 7-539. Radiated Spurious Plot above 1GHz (n71)



Plot 7-540. Radiated Spurious Plot above 1GHz (n71 + B66)

Bandwidth (MHz):	20
Frequency (MHz):	673.0
RB / Offset:	1 / 50
Mode:	Standalone
Modulation Signal:	QPSK (DFT-s-OFDM)

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1346.0	H	-	-	-72.51	-4.02	30.47	-64.79	-13.00	-51.79
2019.0	H	-	-	-72.42	-2.14	32.44	-62.82	-13.00	-49.82
2692.0	H	-	-	-72.42	-0.19	34.39	-60.87	-13.00	-47.87

Table 7-18. Radiated Spurious Data (n71 – Low Channel)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 314 of 357

Bandwidth (MHz):	20
Frequency (MHz):	680.5
RB / Offset:	1 / 50
Mode:	Standalone
Modulation Signal:	QPSK (DFT-s-OFDM)

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1361.0	H	-	-	-72.36	-5.02	29.62	-65.64	-13.00	-52.64
2041.5	H	-	-	-72.37	-1.59	33.04	-62.22	-13.00	-49.22
2722.0	H	-	-	-72.51	-0.31	34.18	-61.07	-13.00	-48.07

Table 7-19. Radiated Spurious Data (n71 – Mid Channel)

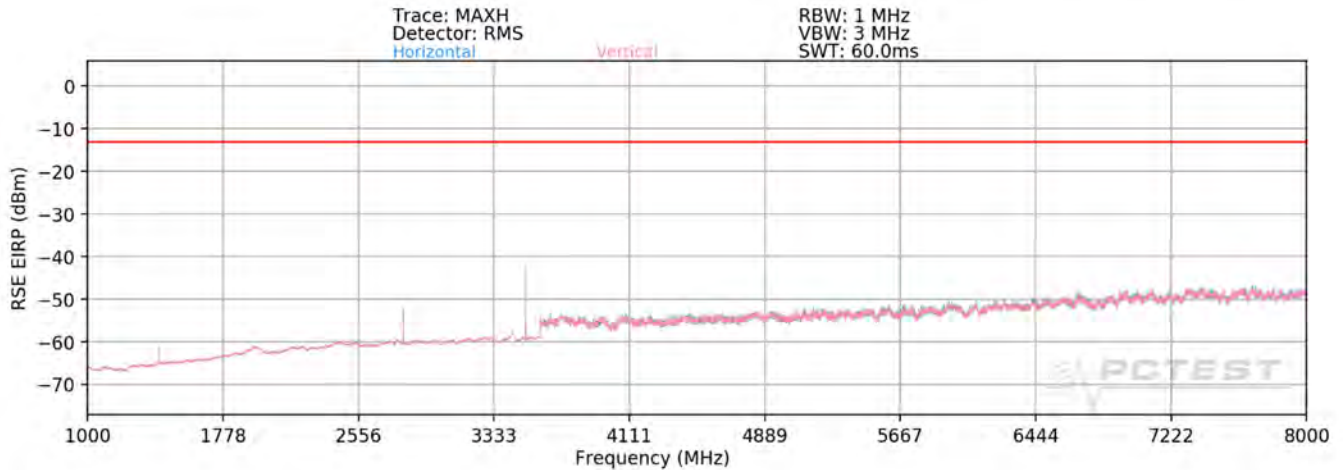
Bandwidth (MHz):	20
Frequency (MHz):	688.0
RB / Offset:	1 / 50
Mode:	Standalone
Modulation Signal:	QPSK (DFT-s-OFDM)

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1376.0	H	-	-	-72.41	-3.95	30.64	-64.62	-13.00	-51.62
2064.0	H	-	-	-72.55	-2.30	32.15	-63.11	-13.00	-50.11
2752.0	H	-	-	-73.32	-0.67	33.01	-62.25	-13.00	-49.25

Table 7-20. Radiated Spurious Data (n71 – High Channel)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 315 of 357

Band 12



Plot 7-541. Radiated Spurious Plot above 1GHz (Band 12)

OPERATING FREQUENCY: 701.50 MHz
CHANNEL: 23035
MODULATION SIGNAL: QPSK
BANDWIDTH: 5.0 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]
1403.00	V	116	162	-66.95	7.93	-59.03	-46.0
2104.50	V	119	249	-67.62	9.11	-58.51	-45.5
2806.00	V	376	170	-64.55	10.09	-54.46	-41.5
3507.50	V	392	169	-50.69	9.71	-40.97	-28.0
4209.00	V	396	192	-68.19	10.48	-57.71	-44.7
4910.50	V	-	-	-73.72	11.32	-62.40	-49.4

Table 7-21. Radiated Spurious Data (Band 12 – Low Channel)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 316 of 357

OPERATING FREQUENCY: 707.50 MHz
 CHANNEL: 23095
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 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]
1415.00	V	112	161	-69.52	8.09	-61.43	-48.4
2122.50	V	374	256	-72.22	9.11	-63.11	-50.1
2830.00	V	386	176	-61.71	10.14	-51.57	-38.6
3537.50	V	400	170	-49.61	9.76	-39.85	-26.9
4245.00	V	400	1194	-67.96	10.63	-57.34	-44.3

Table 7-22. Radiated Spurious Data (Band 12 – Mid Channel)

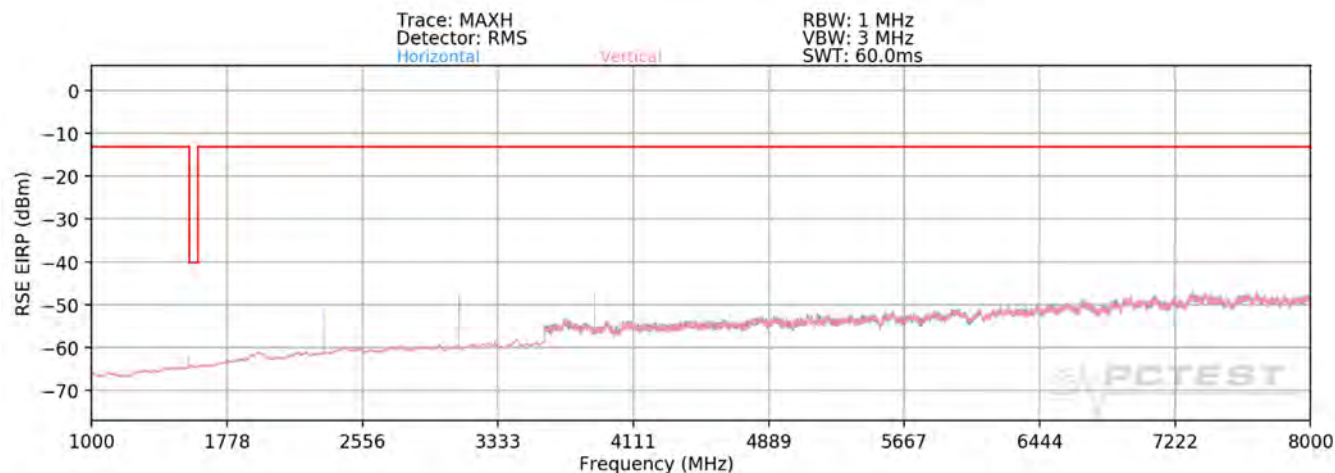
OPERATING FREQUENCY: 713.50 MHz
 CHANNEL: 23155
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
1427.00	V	113	232	-64.01	8.25	-55.76	-42.8
2140.50	V	111	265	-71.68	9.11	-62.57	-49.6
2854.00	V	400	167	-63.08	10.18	-52.89	-39.9
3567.50	V	380	178	-50.20	9.85	-40.35	-27.4
4281.00	V	392	188	-68.55	10.72	-57.82	-44.8

Table 7-23. Radiated Spurious Data (Band 12 – High Channel)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 317 of 357

Band 13



Plot 7-542. Radiated Spurious Plot above 1GHz (Band 13)

OPERATING FREQUENCY: 782.00 MHz
CHANNEL: 23230
MODULATION SIGNAL: QPSK
BANDWIDTH: 10.0 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]
2346.00	V	111	175	-60.27	9.44	-50.83	-37.8
3128.00	V	400	146	-60.30	9.48	-50.82	-37.8
3910.00	V	400	144	-57.08	9.26	-47.82	-34.8
4692.00	V	400	191	-70.77	11.43	-59.34	-46.3
5474.00	V	-	-	-72.68	11.14	-61.54	-48.5
6256.00	V	-	-	-72.07	11.25	-60.82	-47.8

Table 7-24. Radiated Spurious Data (Band 13 – Mid Channel)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 318 of 357

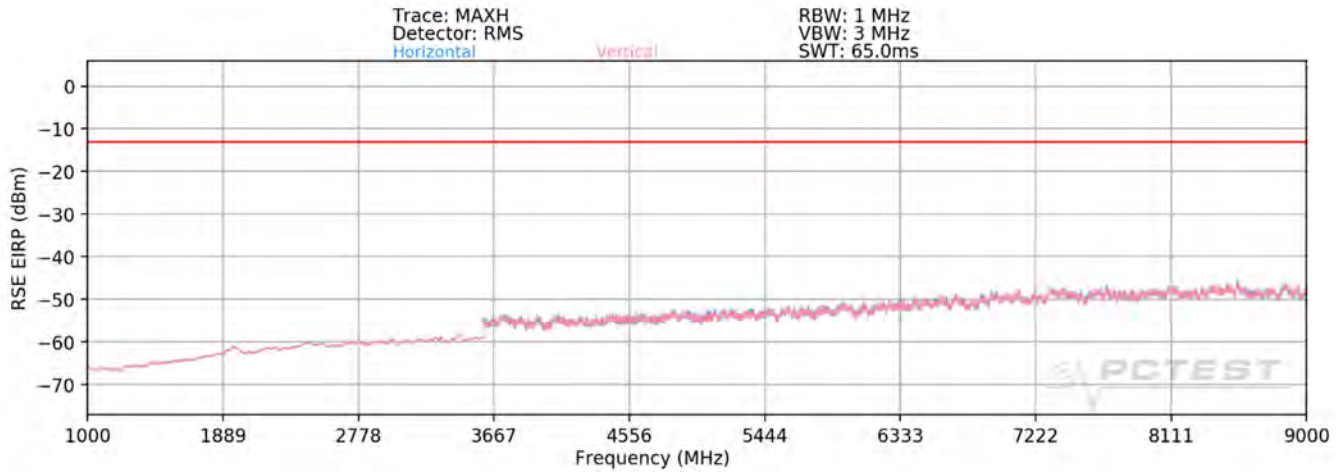
MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.00 MHz
 DISTANCE: 3 meters
 NARROWBAND EMISSION LIMIT: -50 dBm
 WIDEBAND EMISSION LIMIT: -40 dBm/MHz

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]
1564.00	V	115	349	-74.46	8.74	-65.72	-25.7

Table 7-25. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 319 of 357

Band 5



Plot 7-543. Radiated Spurious Plot above 1GHz (Band 5)

OPERATING FREQUENCY: 829.00 MHz
CHANNEL: 26840
MODULATION SIGNAL: QPSK
BANDWIDTH: 10.0 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]
1658.00	V	400	180	-76.97	8.88	-68.09	-55.1
2487.00	V	-	-	-73.88	9.23	-64.66	-51.7

Table 7-26. Radiated Spurious Data (Band 5 – Low Channel)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 320 of 357

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 26915
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 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	V	400	79	-76.17	8.78	-67.40	-54.4
2509.50	V	-	-	-72.01	9.27	-62.73	-49.7
3346.00	V	-	-	-60.74	0.00	-60.74	-47.7

Table 7-27. Radiated Spurious Data (Band 5 – Mid Channel)

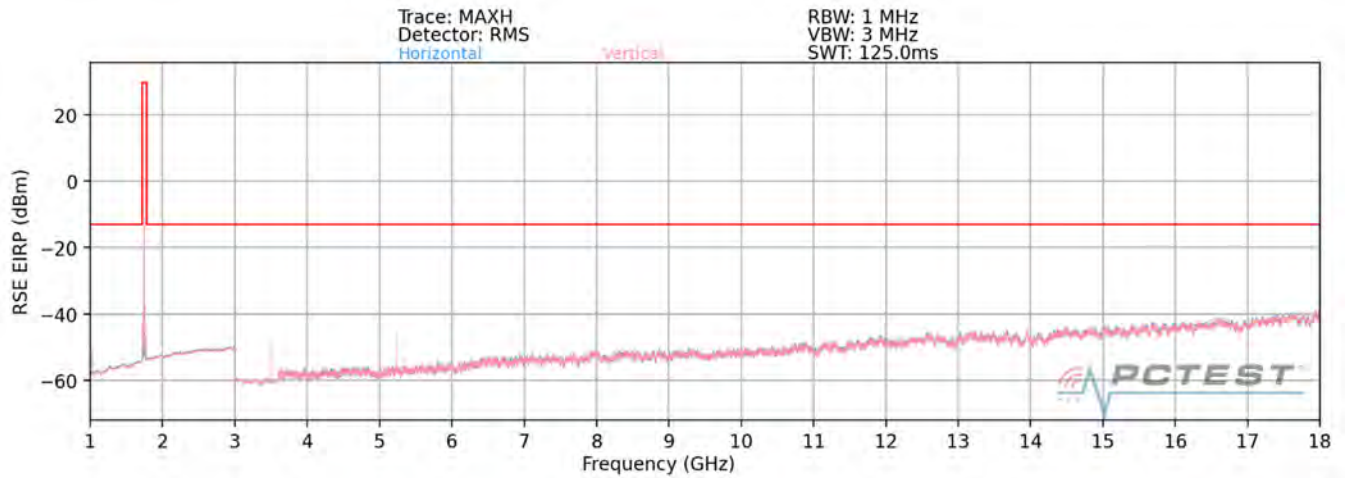
OPERATING FREQUENCY: 844.00 MHz
 CHANNEL: 26990
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
1688.00	V	365	183	-72.58	8.68	-63.90	-50.9
2532.00	V	-	-	-72.58	9.28	-63.30	-50.3
3376.00	V	-	-	-60.96	0.00	-60.96	-48.0

Table 7-28. Radiated Spurious Data (Band 5 – High Channel)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 321 of 357

Band 66/4



Plot 7-544. Radiated Spurious Plot above 1GHz (Band 66/4)

OPERATING FREQUENCY: 1720.00 MHz
CHANNEL: 132072
MODULATION SIGNAL: QPSK
BANDWIDTH: 20.0 MHz
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3440.00	V	112	152	-62.49	9.65	-52.84	-39.8
5160.00	V	250	184	-56.71	11.03	-45.67	-32.7
6880.00	V	-	-	-66.33	10.99	-55.34	-42.3
8600.00	V	-	-	-64.52	11.77	-52.75	-39.7

Table 7-29. Radiated Spurious Data (Band 66/4 – Low Channel)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 322 of 357

OPERATING FREQUENCY: 1745.00 MHz
 CHANNEL: 132322
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3490.00	V	111	162	-60.87	9.70	-51.17	-38.2
5235.00	V	400	190	-65.20	11.08	-54.11	-41.1
6980.00	V	-	-	-61.42	11.04	-50.37	-37.4
8725.00	V	-	-	-64.18	11.88	-52.29	-39.3

Table 7-30. Radiated Spurious Data (Band 66/4 – Mid Channel)

OPERATING FREQUENCY: 1770.00 MHz
 CHANNEL: 132572
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3540.00	V	400	164	-63.95	9.76	-54.18	-41.2
5310.00	V	111	192	-65.95	11.12	-54.83	-41.8

Table 7-31. Radiated Spurious Data (Band 66/4 – High Channel)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 323 of 357

NR Band n66

OPERATING FREQUENCY: 1720.00 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]
3440.00	H	127	149	-66.45	6.28	-60.17	-47.2
5160.00	H	-	-	-70.31	8.98	-61.33	-48.3
6880.00	H	-	-	-69.32	9.42	-59.90	-46.9
8600.00	H	-	-	-69.24	9.62	-59.62	-46.6

Table 7-32. Radiated Spurious Data (n66 – Low Channel)

OPERATING FREQUENCY: 1745.00 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]
3490.00	H	133	141	-68.23	6.47	-61.76	-48.8
5235.00	H	-	-	-70.08	8.97	-61.11	-48.1
6980.00	H	111	162	-67.63	9.23	-58.41	-45.4
8725.00	H	-	-	-67.67	9.59	-58.08	-45.1
10470.00	H	-	-	-64.44	9.43	-55.01	-42.0

Table 7-33. Radiated Spurious Data (n66 – Mid Channel)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 324 of 357

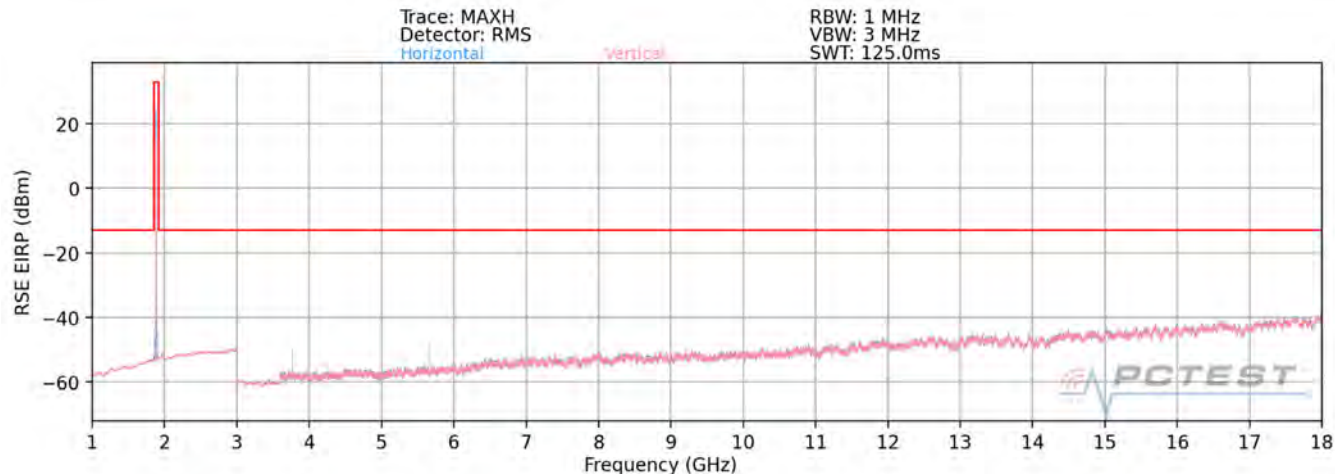
OPERATING FREQUENCY: 1770.00 MHz
 MODULATION SIGNAL: QPSK (DFT-s-OFDM)
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
3540.00	H	147	127	-68.23	6.45	-61.78	-48.8
5310.00	H	-	-	-70.33	9.09	-61.24	-48.2
7080.00	H	-	-	-67.71	9.17	-58.54	-45.5
8850.00	H	-	-	-67.71	9.57	-58.14	-45.1

Table 7-34. Radiated Spurious Data (n66 – High Channel)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 325 of 357

Band 25/2



Plot 7-545. Radiated Spurious Plot above 1GHz (Band 25/2)

OPERATING FREQUENCY: 1860.00 MHz
CHANNEL: 26140
MODULATION SIGNAL: QPSK
BANDWIDTH: 20.0 MHz
DISTANCE: 3 meters
LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3720.00	H	400	212	-54.08	9.77	-44.30	-31.3
5580.00	H	400	196	-58.39	11.21	-47.18	-34.2
7440.00	H	-	-	-65.21	10.94	-54.27	-41.3
9300.00	H	-	-	-64.84	12.37	-52.47	-39.5

Table 7-35. Radiated Spurious Data (Band 25/2 – Low Channel)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 326 of 357

OPERATING FREQUENCY: 1882.50 MHz
 CHANNEL: 26365
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3765.00	H	400	214	-52.86	9.55	-43.31	-30.3
5647.50	H	398	199	-60.06	11.32	-48.74	-35.7
7530.00	H	-	-	-65.22	11.09	-54.12	-41.1
9412.50	H	-	-	-63.51	12.31	-51.20	-38.2

Table 7-36. Radiated Spurious Data (Band 25/2 – Mid Channel)

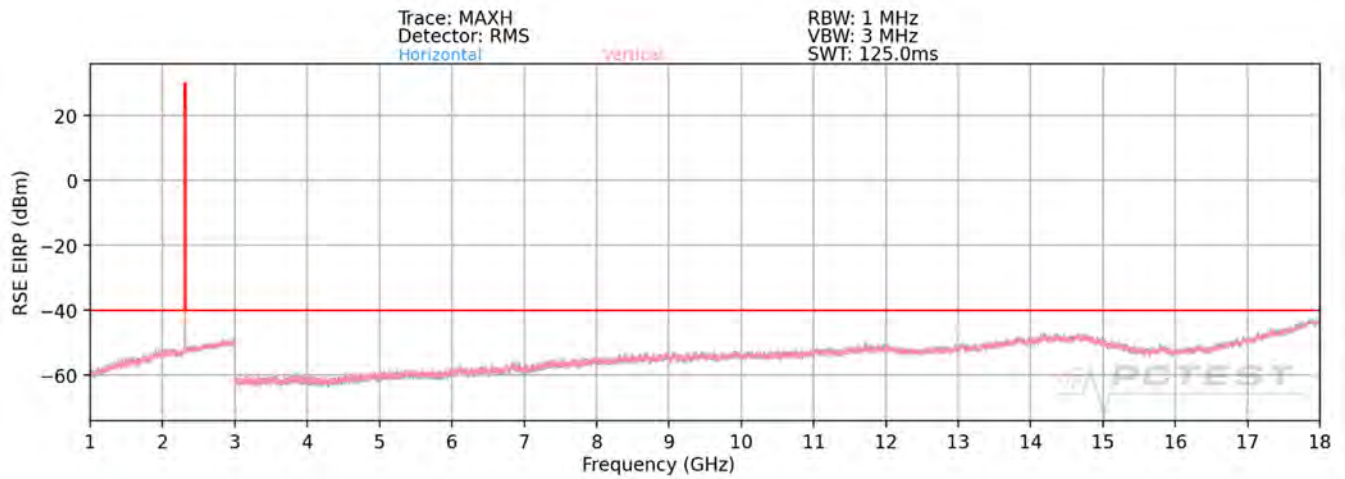
OPERATING FREQUENCY: 1905.00 MHz
 CHANNEL: 26590
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3810.00	H	400	224	-52.69	9.29	-43.40	-30.4
5715.00	H	400	191	-59.06	11.39	-47.67	-34.7
7620.00	H	-	-	-66.11	11.31	-54.80	-41.8
9525.00	H	-	-	-64.23	12.38	-51.84	-38.8

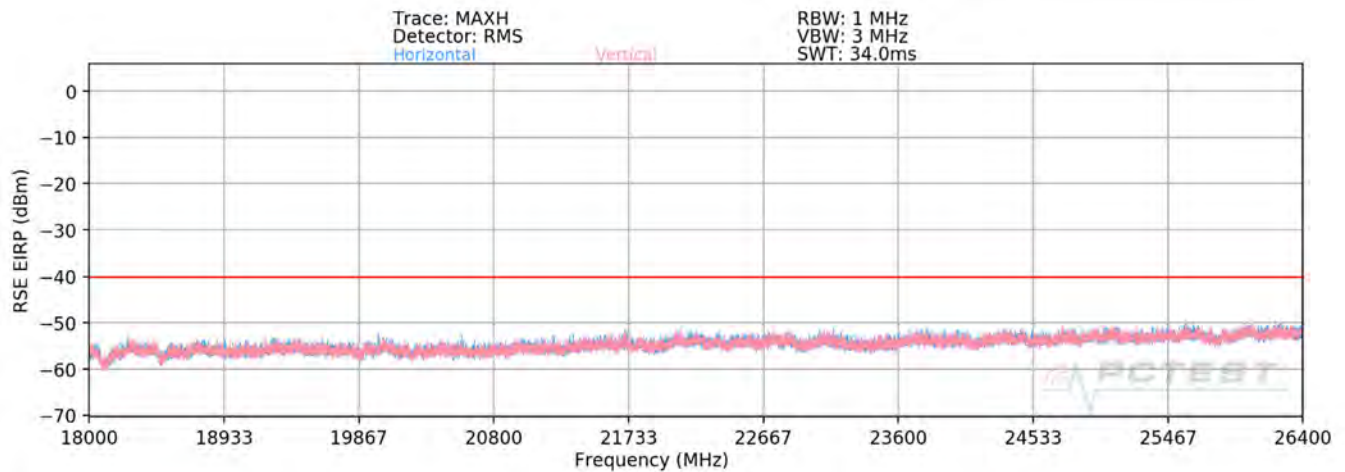
Table 7-37. Radiated Spurious Data (Band 25/2 – High Channel)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 327 of 357

Band 30



Plot 7-546. Radiated Spurious Plot 1GHz - 18GHz (Band 30)



Plot 7-547. Radiated Spurious Plot 18GHz - 26.5GHz (Band 30)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 - 7/15/2020	EUT Type: Portable Handset		Page 328 of 357

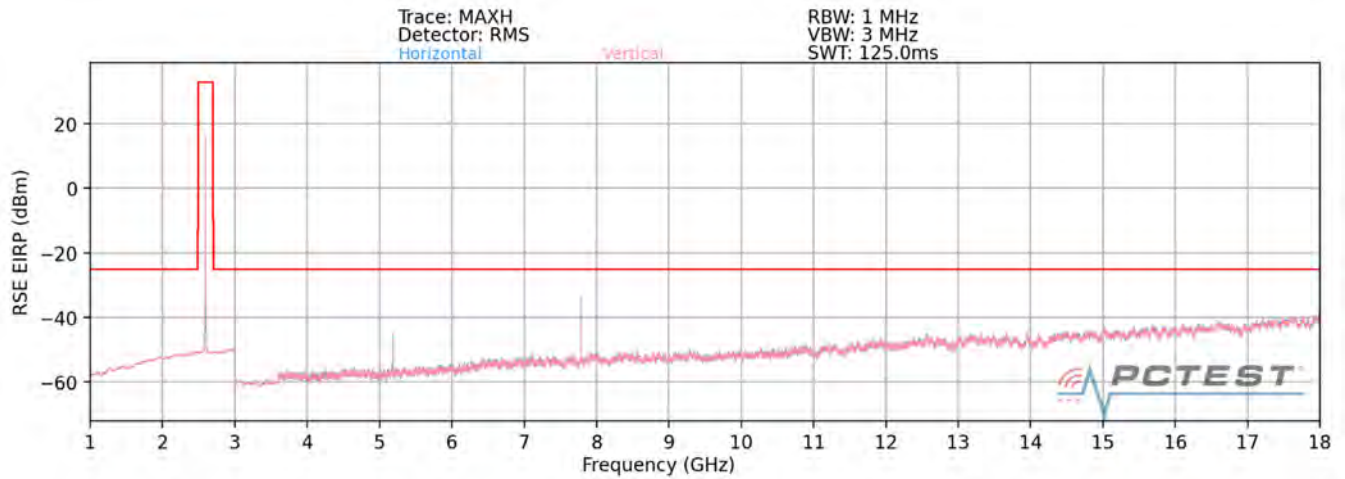
OPERATING FREQUENCY: 2310.00 MHz
 CHANNEL: 27710
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10.0 MHz
 DISTANCE: 3 meters
 LIMIT: -40 dBm

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]
4620.00	H	398	263	-69.76	10.95	-58.81	-18.8
6930.00	H	114	48	-66.68	11.77	-54.91	-14.9
9240.00	H	-	-	-63.98	11.65	-52.33	-12.3
11550.00	H	-	-	-62.58	12.76	-49.81	-9.8

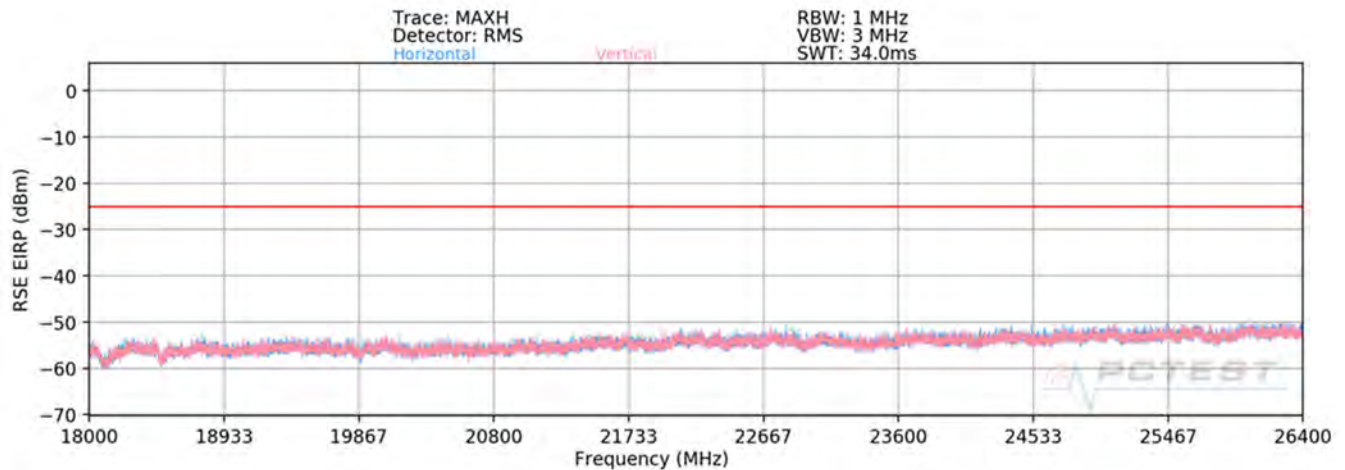
Table 7-38. Radiated Spurious Data (Band 30 – Mid Channel)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 329 of 357

Band 41



Plot 7-548. Radiated Spurious Plot above 1GHz (Band 41)



Plot 7-549. Radiated Spurious Plot 18GHz – 26.5GHz (Band 41)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 330 of 357

OPERATING FREQUENCY: 2506.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5012.00	H	112	251	-62.72	10.94	-51.78	-26.8
7518.00	H	238	178	-56.03	11.13	-44.90	-19.9
10024.00	H	265	119	-67.76	12.03	-55.73	-30.7
12530.00	H	340	188	-73.30	13.60	-59.70	-34.7
15036.00	H	167	197	-73.21	13.53	-59.68	-34.7
17542.00	H	-	-	-53.04	11.75	-41.29	-16.3

Table 7-39. Radiated Spurious Data (Band 41 – Low Channel)

OPERATING FREQUENCY: 2593.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	H	397	227	-55.72	10.77	-44.94	-19.9
7779.00	H	398	173	-43.49	11.47	-32.02	-7.0
10372.00	H	256	232	-55.19	12.48	-42.71	-17.7
12965.00	H	240	205	-56.56	13.34	-43.21	-18.2
15558.00	H	207	262	-61.96	16.37	-45.59	-20.6

Table 7-40. Radiated Spurious Data (Band 41 – Mid Channel)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 331 of 357

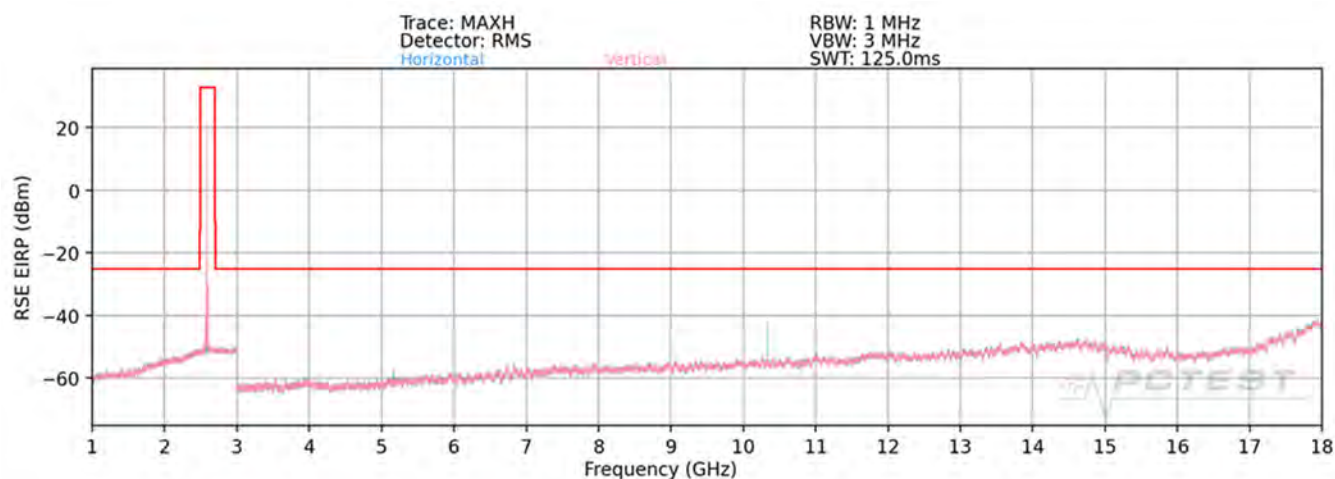
OPERATING FREQUENCY: 2680.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5360.00	H	400	129	-58.47	10.72	-47.75	-22.8
8040.00	H	243	189	-57.85	11.20	-46.65	-21.7
10720.00	H	255	233	-60.16	12.65	-47.51	-22.5
13400.00	H	190	133	-57.71	12.62	-45.08	-20.1
16080.00	H	-	-	-64.59	16.62	-47.97	-23.0

Table 7-41. Radiated Spurious Data (Band 41 – High Channel)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 332 of 357

NR Band n41



Plot 7-550. Radiated Spurious Plot above 1GHz (n41 Standalone)

OPERATING FREQUENCY: 2506.00 MHz

MODULATION SIGNAL: QPSK (DFT-s-OFDM)

BANDWIDTH: 20.0 MHz

DISTANCE: 3 meters

LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5012.00	V	395	326	-52.77	11.39	-41.39	-16.4
7517.00	V	-	-	-63.10	11.08	-52.03	-27.0
10022.00	V	308	358	-53.56	12.31	-41.25	-16.3
12527.00	V	-	-	-58.15	12.85	-45.30	-20.3
15032.00	V	-	-	-57.28	12.65	-44.63	-19.6

Table 7-42. Radiated Spurious Data (Band n41 – Low Channel)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 333 of 357

OPERATING FREQUENCY: 2593.00 MHz
 MODULATION SIGNAL: QPSK (DFT-s-OFDM)
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	V	114	321	-56.39	11.02	-45.37	-20.4
7779.00	V	398	279	-63.15	11.49	-51.66	-26.7
10372.00	V	297	15	-57.91	12.66	-45.25	-20.2
12965.00	V	-	-	-59.78	12.44	-47.34	-22.3
15558.00	V	-	-	-61.15	15.04	-46.11	-21.1

Table 7-43. Radiated Spurious Data (Band n41 – Mid Channel)

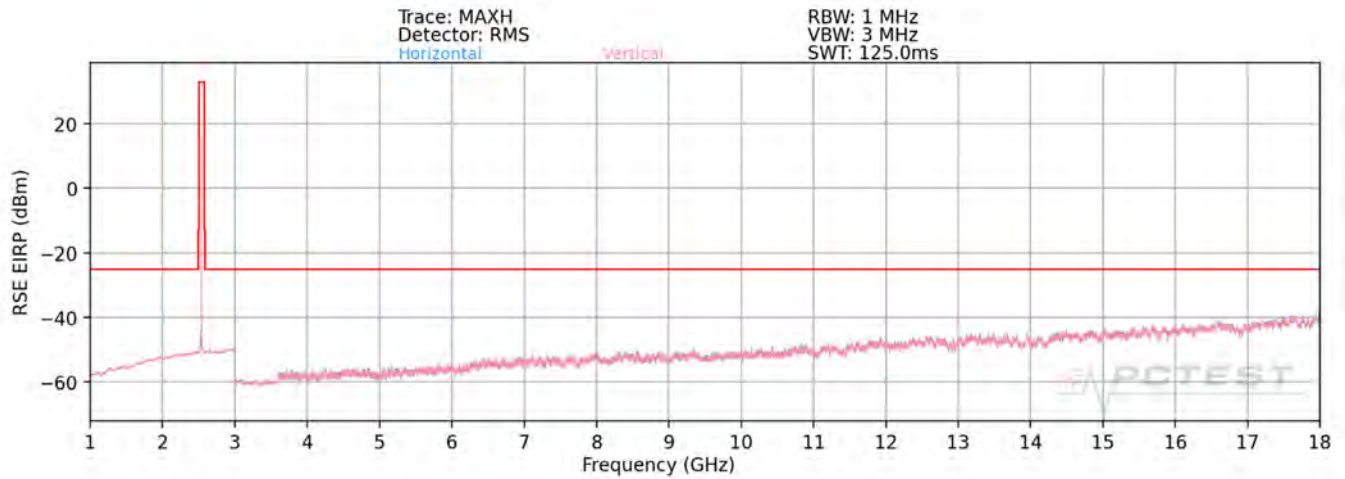
OPERATING FREQUENCY: 2680.00 MHz
 MODULATION SIGNAL: QPSK (DFT-s-OFDM)
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5360.00	V	375	350	-66.47	11.15	-55.32	-30.3
8045.00	V	400	8	-57.91	11.41	-46.50	-21.5
10730.00	V	-	-	-63.31	12.92	-50.39	-25.4
13415.00	V	-	-	-58.46	12.13	-46.33	-21.3
16100.00	V	-	-	-61.24	16.15	-45.09	-20.1

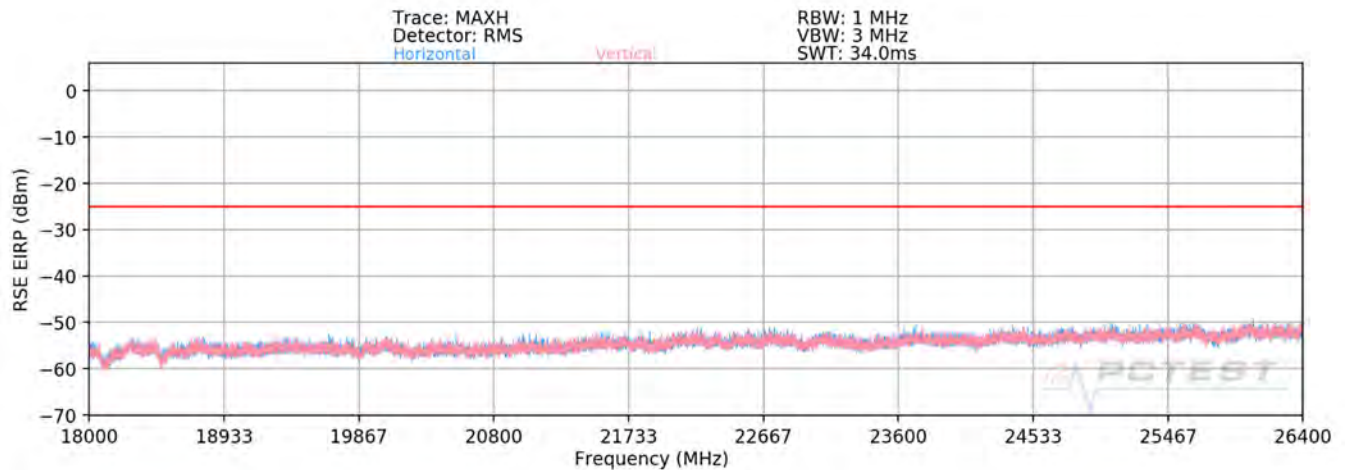
Table 7-44. Radiated Spurious Data (Band n41 – High Channel)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 334 of 357

Band 7



Plot 7-551. Radiated Spurious Plot above 1GHz (Band 7)



Plot 7-552. Radiated Spurious Plot 18GHz – 26.5GHz (Band 7)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 335 of 357

OPERATING FREQUENCY: 2510.00 MHz
 CHANNEL: 20850
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5020.00	H	400	322	-69.37	10.91	-58.46	-33.5
7530.00	H	253	111	-63.86	11.16	-52.69	-27.7
10040.00	H	290	201	-62.72	12.03	-50.69	-25.7
12550.00	H	-	-	-62.39	13.61	-48.78	-23.8

Table 7-45. Radiated Spurious Data (Band 7 – Low Channel)

OPERATING FREQUENCY: 2535.00 MHz
 CHANNEL: 21100
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5070.00	H	400	156	-67.81	10.78	-57.04	-32.0
7605.00	H	-	-	-64.46	11.28	-53.18	-28.2
10140.00	H	160	260	-61.02	12.12	-48.90	-23.9
12675.00	H	-	-	-62.30	13.72	-48.58	-23.6

Table 7-46. Radiated Spurious Data (Band 7 – Mid Channel)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 336 of 357

OPERATING FREQUENCY: 2560.00 MHz
 CHANNEL: 21350
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5120.00	H	395	127	-66.93	10.71	-56.22	-31.2
7680.00	H	-	-	-65.47	11.42	-54.05	-29.1
10240.00	H	-	-	-63.98	12.23	-51.76	-26.8

Table 7-47. Radiated Spurious Data (Band 7 – High Channel)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 337 of 357

7.8 Frequency Stability / Temperature Variation

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

For Part 22, the frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency. For Part 24, Part 27, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Procedure Used

ANSI/TIA-603-E-2016

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

Test Notes

None

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 338 of 357

Band 71 Frequency Stability Measurements

OPERATING FREQUENCY: 680,500,000 Hz
 CHANNEL: 133297
 REFERENCE VOLTAGE: 4.21 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	680,500,048	48	0.0000071
100 %		- 20	680,500,052	52	0.0000076
100 %		- 10	680,500,089	89	0.0000131
100 %		0	680,500,013	13	0.0000019
100 %		+ 10	680,499,854	-146	-0.0000215
100 %		+ 20	680,500,125	125	0.0000184
100 %		+ 30	680,499,926	-74	-0.0000109
100 %		+ 40	680,500,071	71	0.0000104
100 %		+ 50	680,499,966	-34	-0.0000050
BATT. ENDPOINT	2.84	+ 20	680,499,901	-99	-0.0000145

Table 7-48. Frequency Stability Data (Band 71)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 339 of 357

Band 71 Frequency Stability Measurements

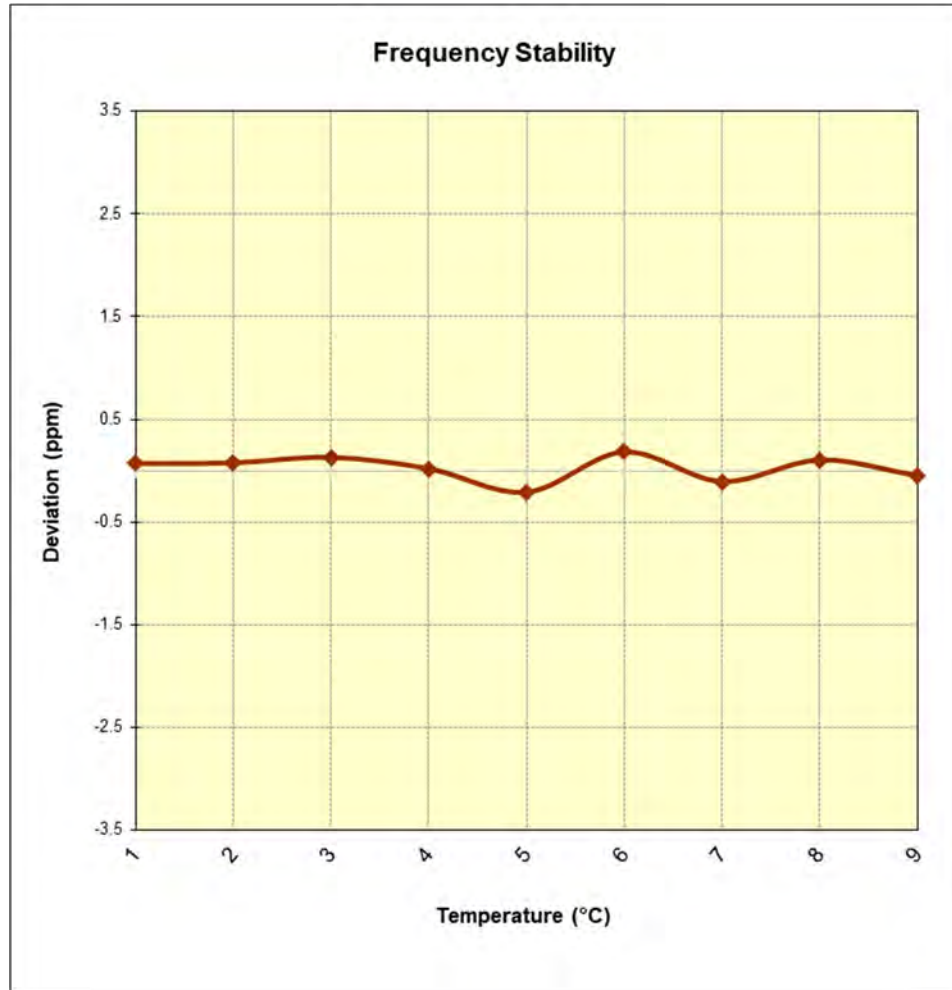


Figure 7-8. Frequency Stability Graph (Band 71)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 340 of 357

Band 12 Frequency Stability Measurements

OPERATING FREQUENCY: 707,500,000 Hz
 CHANNEL: 23790
 REFERENCE VOLTAGE: 4.21 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	707,499,888	-112	-0.0000158
100 %		- 20	707,500,090	90	0.0000127
100 %		- 10	707,499,885	-115	-0.0000163
100 %		0	707,499,962	-38	-0.0000054
100 %		+ 10	707,500,039	39	0.0000055
100 %		+ 20	707,499,941	-59	-0.0000083
100 %		+ 30	707,500,081	81	0.0000114
100 %		+ 40	707,500,019	19	0.0000027
100 %		+ 50	707,500,041	41	0.0000058
BATT. ENDPOINT	2.84	+ 20	707,499,913	-87	-0.0000123

Table 7-49. Frequency Stability Data (Band 12)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 341 of 357

Band 12 Frequency Stability Measurements

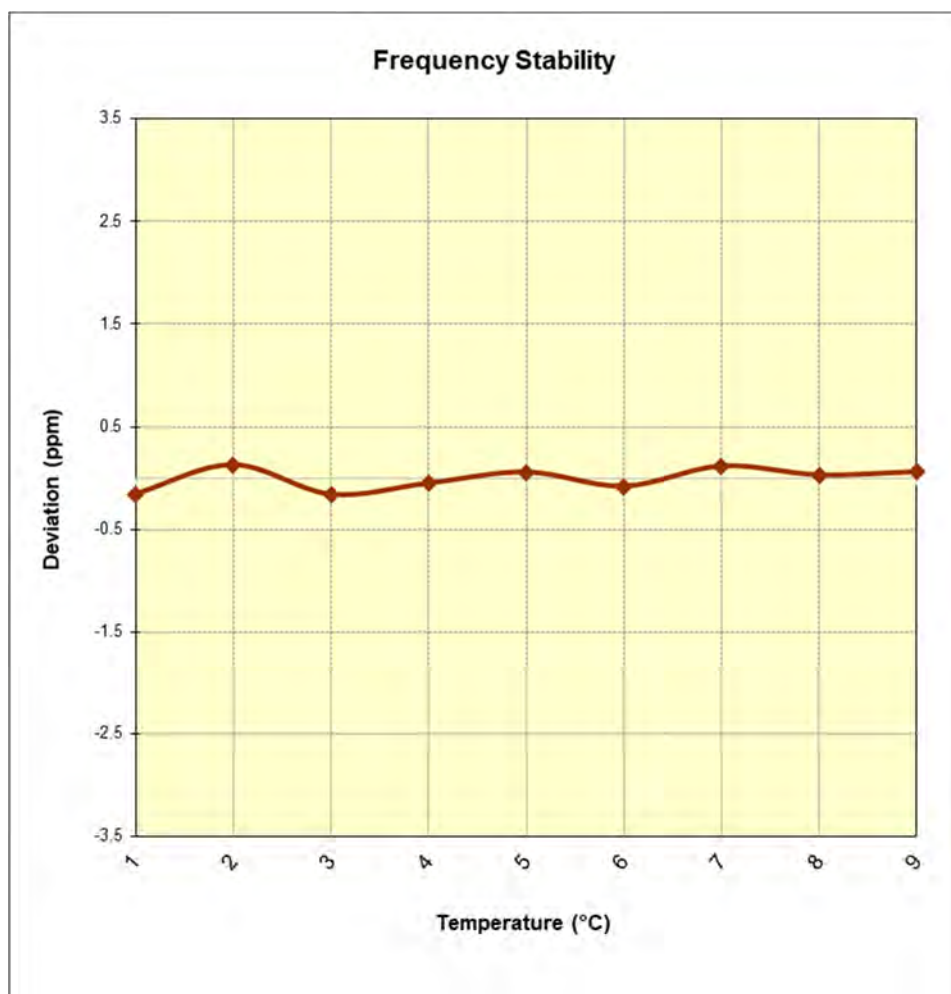


Figure 7-9. Frequency Stability Graph (Band 12)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset	Page 342 of 357

Band 13 Frequency Stability Measurements

OPERATING FREQUENCY: 782,000,000 Hz
 CHANNEL: 23230
 REFERENCE VOLTAGE: 4.21 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	782,000,145	145	0.0000185
100 %		- 20	782,000,057	57	0.0000073
100 %		- 10	781,999,976	-24	-0.0000031
100 %		0	782,000,137	137	0.0000175
100 %		+ 10	782,000,039	39	0.0000050
100 %		+ 20	781,999,956	-44	-0.0000056
100 %		+ 30	782,000,042	42	0.0000054
100 %		+ 40	781,999,887	-113	-0.0000145
100 %		+ 50	782,000,127	127	0.0000162
BATT. ENDPOINT	2.84	+ 20	781,999,961	-39	-0.0000050

Table 7-50. Frequency Stability Data (Band 13)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 343 of 357

Band 13 Frequency Stability Measurements

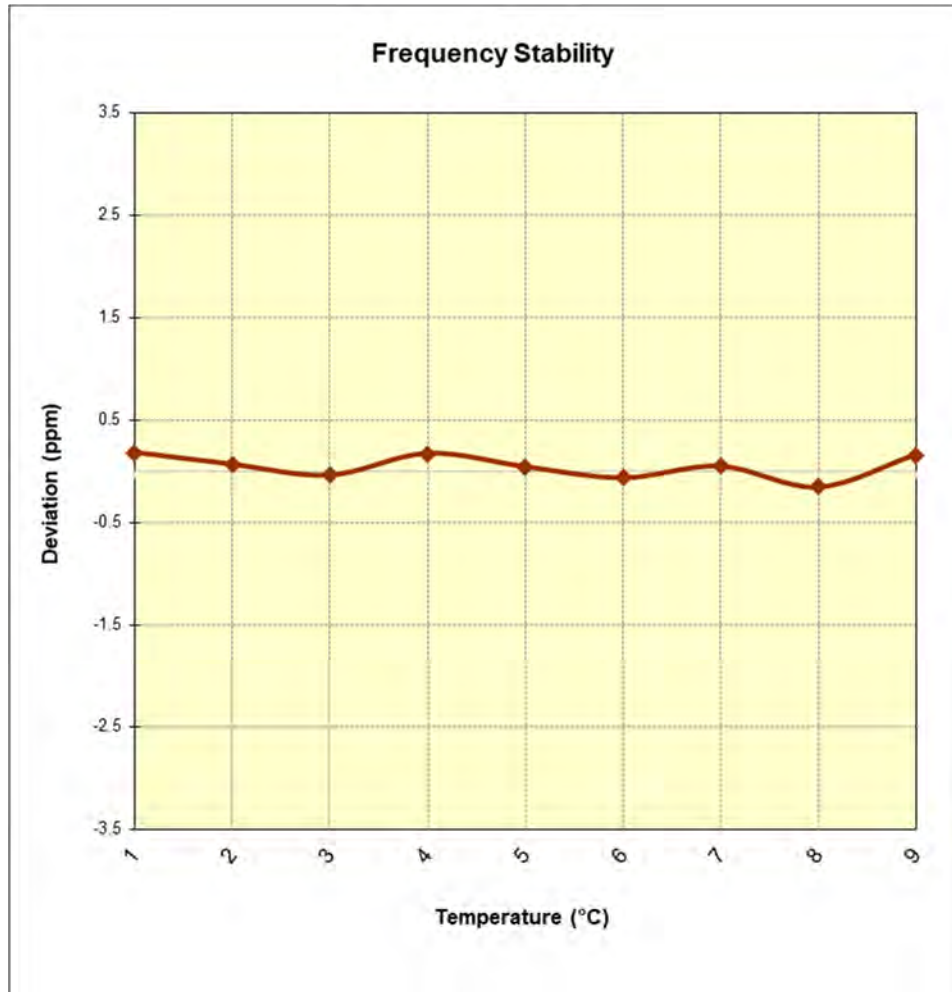


Figure 7-10. Frequency Stability Graph (Band 13)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset	Page 344 of 357

Band 5 Frequency Stability Measurements

OPERATING FREQUENCY: 831,500,000 Hz
 CHANNEL: 26865
 REFERENCE VOLTAGE: 4.21 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	831,499,856	-144	-0.0000173
100 %		- 20	831,499,888	-112	-0.0000135
100 %		- 10	831,499,927	-73	-0.0000088
100 %		0	831,499,972	-28	-0.0000034
100 %		+ 10	831,499,974	-26	-0.0000031
100 %		+ 20	831,500,098	98	0.0000118
100 %		+ 30	831,499,976	-24	-0.0000029
100 %		+ 40	831,500,131	131	0.0000158
100 %		+ 50	831,499,892	-108	-0.0000130
BATT. ENDPOINT	2.84	+ 20	831,500,017	17	0.0000020

Table 7-51. Frequency Stability Data (Band 5)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 345 of 357

Band 5 Frequency Stability Measurements

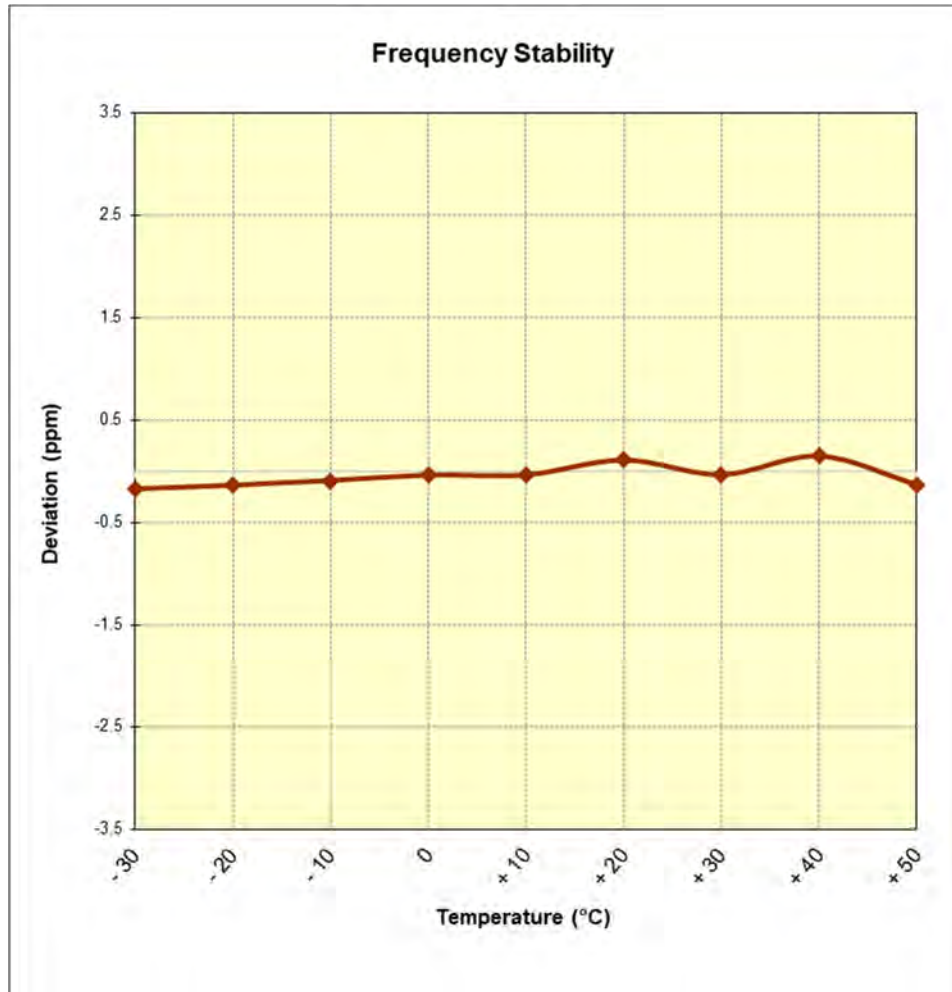


Figure 7-11. Frequency Stability Graph (Band 5)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset	Page 346 of 357

Band 66/4 Frequency Stability Measurements

OPERATING FREQUENCY: 1,745,000,000 Hz
 CHANNEL: 132322
 REFERENCE VOLTAGE: 4.21 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	1,745,000,115	115	0.0000066
100 %		- 20	1,745,000,064	64	0.0000037
100 %		- 10	1,744,999,910	-90	-0.0000052
100 %		0	1,744,999,954	-46	-0.0000026
100 %		+ 10	1,744,999,931	-69	-0.0000040
100 %		+ 20	1,744,999,970	-30	-0.0000017
100 %		+ 30	1,745,000,086	86	0.0000049
100 %		+ 40	1,744,999,866	-134	-0.0000077
100 %		+ 50	1,744,999,937	-63	-0.0000036
BATT. ENDPOINT	2.84	+ 20	1,745,000,052	52	0.0000030

Table 7-52. Frequency Stability Data (Band 66/4)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 347 of 357

Band 66/4 Frequency Stability Measurements

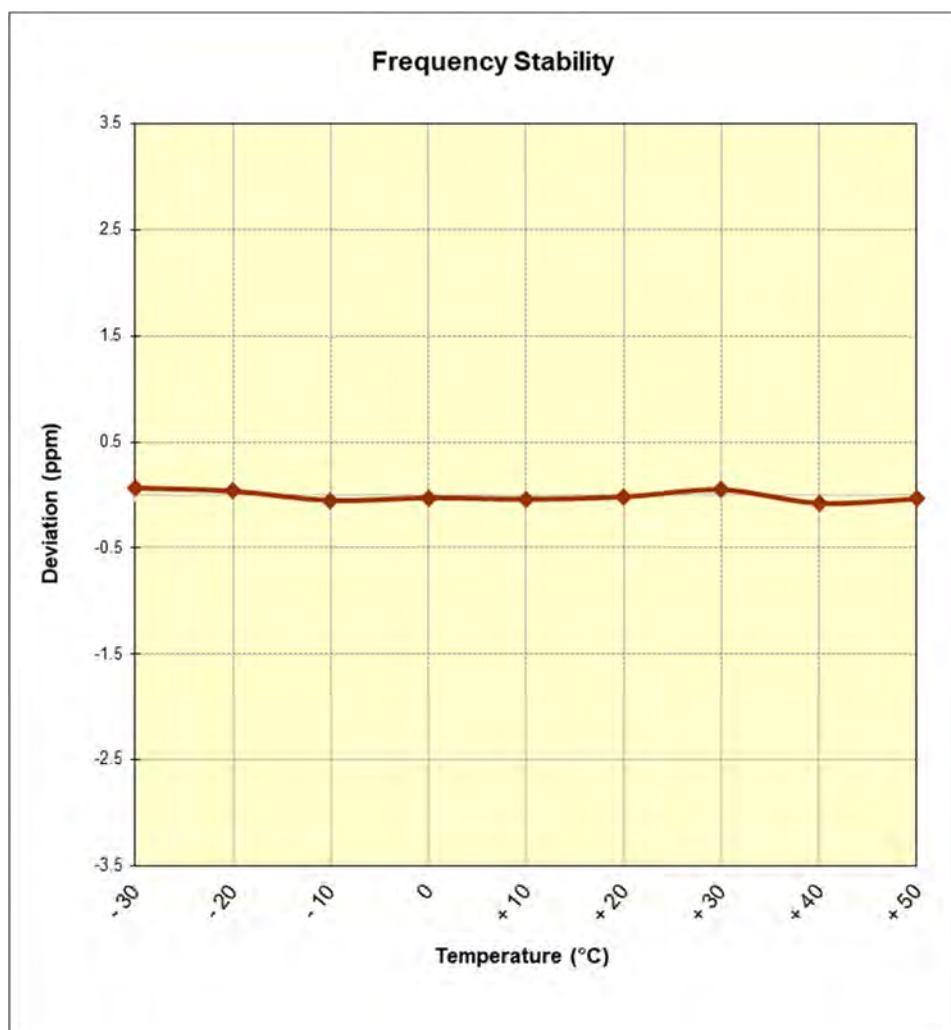


Figure 7-12. Frequency Stability Graph (Band 66/4)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 348 of 357

Band 25/2 Frequency Stability Measurements

OPERATING FREQUENCY: 1,882,500,000 Hz
 CHANNEL: 26365
 REFERENCE VOLTAGE: 4.21 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	1,882,499,938	-62	-0.0000033
100 %		- 20	1,882,500,084	84	0.0000045
100 %		- 10	1,882,499,903	-97	-0.0000052
100 %		0	1,882,499,952	-48	-0.0000025
100 %		+ 10	1,882,499,924	-76	-0.0000040
100 %		+ 20	1,882,500,143	143	0.0000076
100 %		+ 30	1,882,499,861	-139	-0.0000074
100 %		+ 40	1,882,499,885	-115	-0.0000061
100 %		+ 50	1,882,499,959	-41	-0.0000022
BATT. ENDPOINT	2.84	+ 20	1,882,500,045	45	0.0000024

Table 7-53. Frequency Stability Data (Band 25/2)

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 349 of 357

Band 25/2 Frequency Stability Measurements

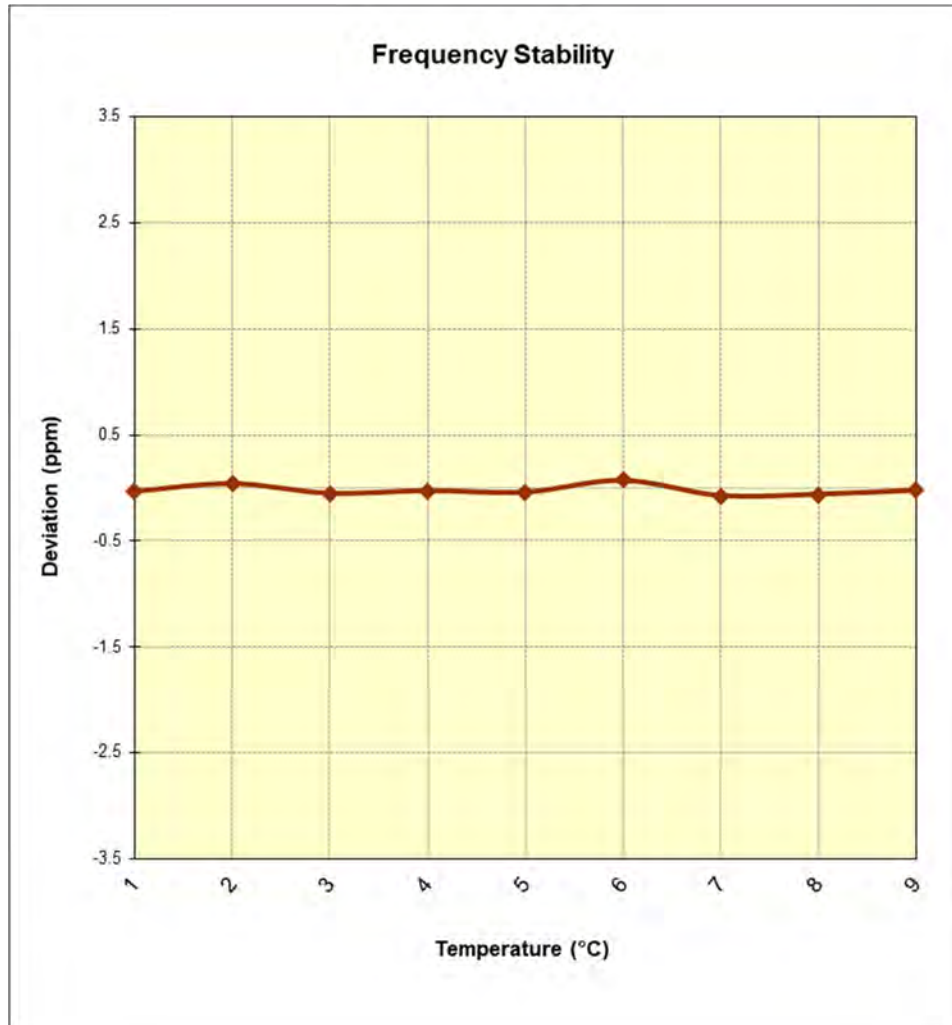


Figure 7-13. Frequency Stability Graph (Band 25/2)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 350 of 357

Band 41 Frequency Stability Measurements

OPERATING FREQUENCY: 2,593,000,000 Hz
 CHANNEL: 40620
 REFERENCE VOLTAGE: 4.21 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	2,592,999,972	-28	-0.0000011
100 %		- 20	2,593,000,139	139	0.0000054
100 %		- 10	2,592,999,820	-180	-0.0000069
100 %		0	2,593,000,221	221	0.0000085
100 %		+ 10	2,592,999,713	-287	-0.0000111
100 %		+ 20	2,593,000,144	144	0.0000056
100 %		+ 30	2,592,999,898	-102	-0.0000039
100 %		+ 40	2,593,000,143	143	0.0000055
100 %		+ 50	2,593,000,187	187	0.0000072
BATT. ENDPOINT	2.84	+ 20	2,592,999,850	-150	-0.0000058

Table 7-54. Frequency Stability Data (Band 41)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 351 of 357

Band 41 Frequency Stability Measurements

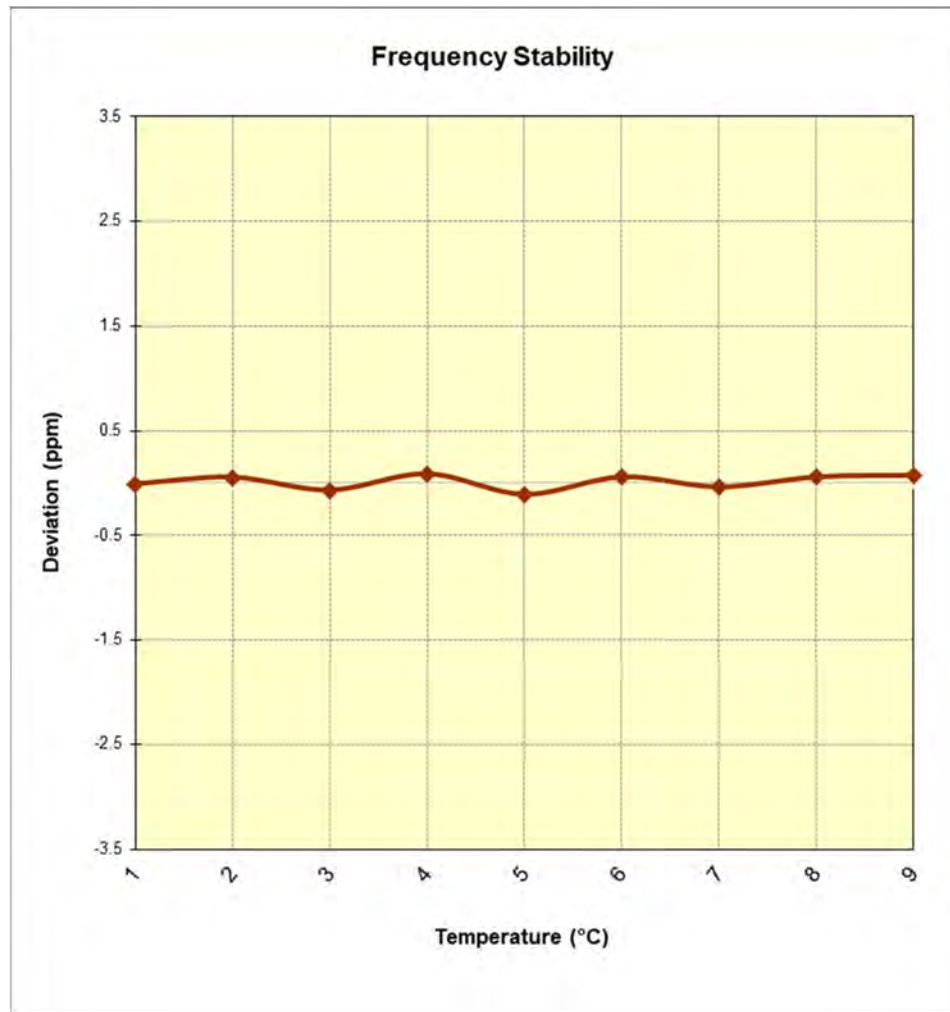


Figure 7-14. Frequency Stability Graph (Band 41)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 352 of 357

Band 30 Frequency Stability Measurements

OPERATING FREQUENCY: 2,310,000,000 Hz
 CHANNEL: 27710
 REFERENCE VOLTAGE: 4.21 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	2,310,000,134	134	0.0000058
100 %		- 20	2,309,999,967	-33	-0.0000014
100 %		- 10	2,310,000,058	58	0.0000025
100 %		0	2,309,999,958	-42	-0.0000018
100 %		+ 10	2,310,000,146	146	0.0000063
100 %		+ 20	2,310,000,005	5	0.0000002
100 %		+ 30	2,309,999,959	-41	-0.0000018
100 %		+ 40	2,309,999,916	-84	-0.0000036
100 %		+ 50	2,310,000,075	75	0.0000032
BATT. ENDPOINT	2.84	+ 20	2,310,000,136	136	0.0000059

Table 7-55. Frequency Stability Data (Band 30)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 353 of 357

Band 30 Frequency Stability Measurements

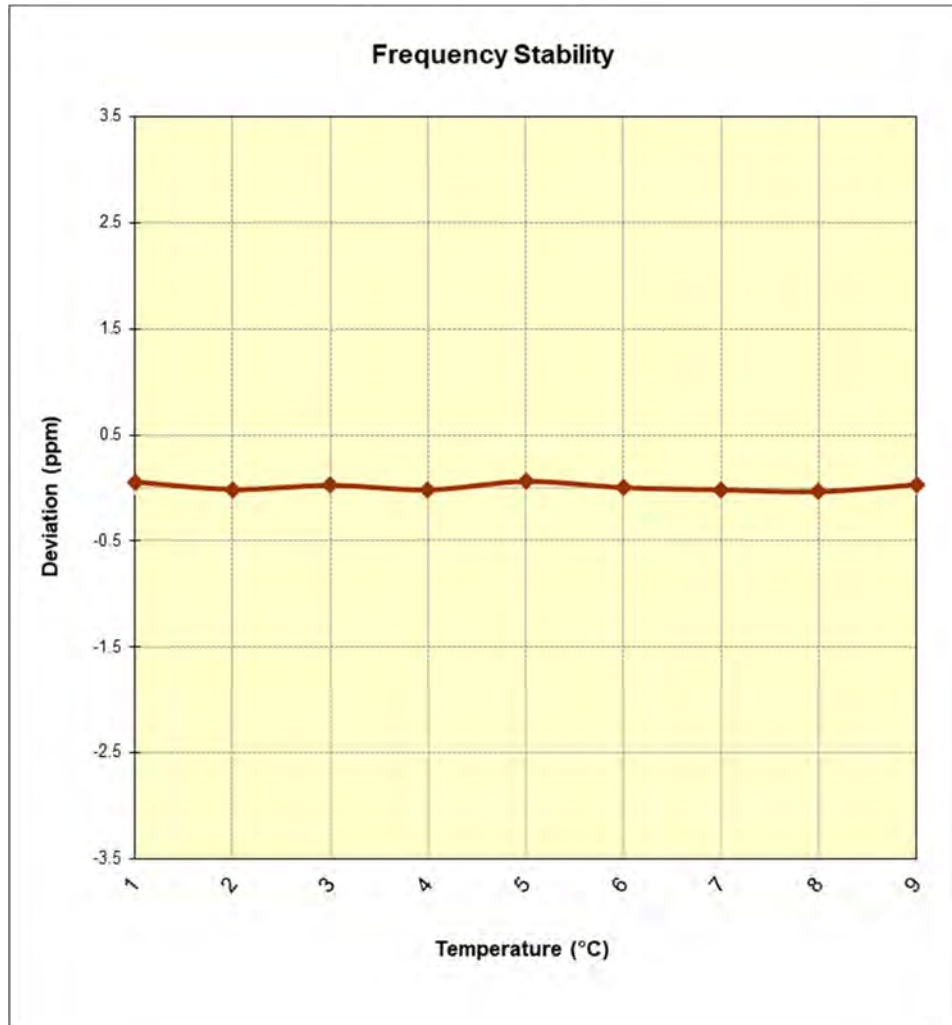


Figure 7-15. Frequency Stability Graph (Band 30)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 354 of 357

Band 7 Frequency Stability Measurements

OPERATING FREQUENCY: 2,535,000,000 Hz
 CHANNEL: 21100
 REFERENCE VOLTAGE: 4.21 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.21	- 30	2,534,999,939	-61	-0.0000024
100 %		- 20	2,534,999,961	-39	-0.0000015
100 %		- 10	2,534,999,854	-146	-0.0000058
100 %		0	2,534,999,875	-125	-0.0000049
100 %		+ 10	2,535,000,127	127	0.0000050
100 %		+ 20	2,535,000,005	5	0.0000002
100 %		+ 30	2,534,999,869	-131	-0.0000052
100 %		+ 40	2,534,999,857	-143	-0.0000056
100 %		+ 50	2,535,000,053	53	0.0000021
BATT. ENDPOINT	2.84	+ 20	2,535,000,053	53	0.0000021

Table 7-56. Frequency Stability Data (Band 7)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 355 of 357

Band 7 Frequency Stability Measurements

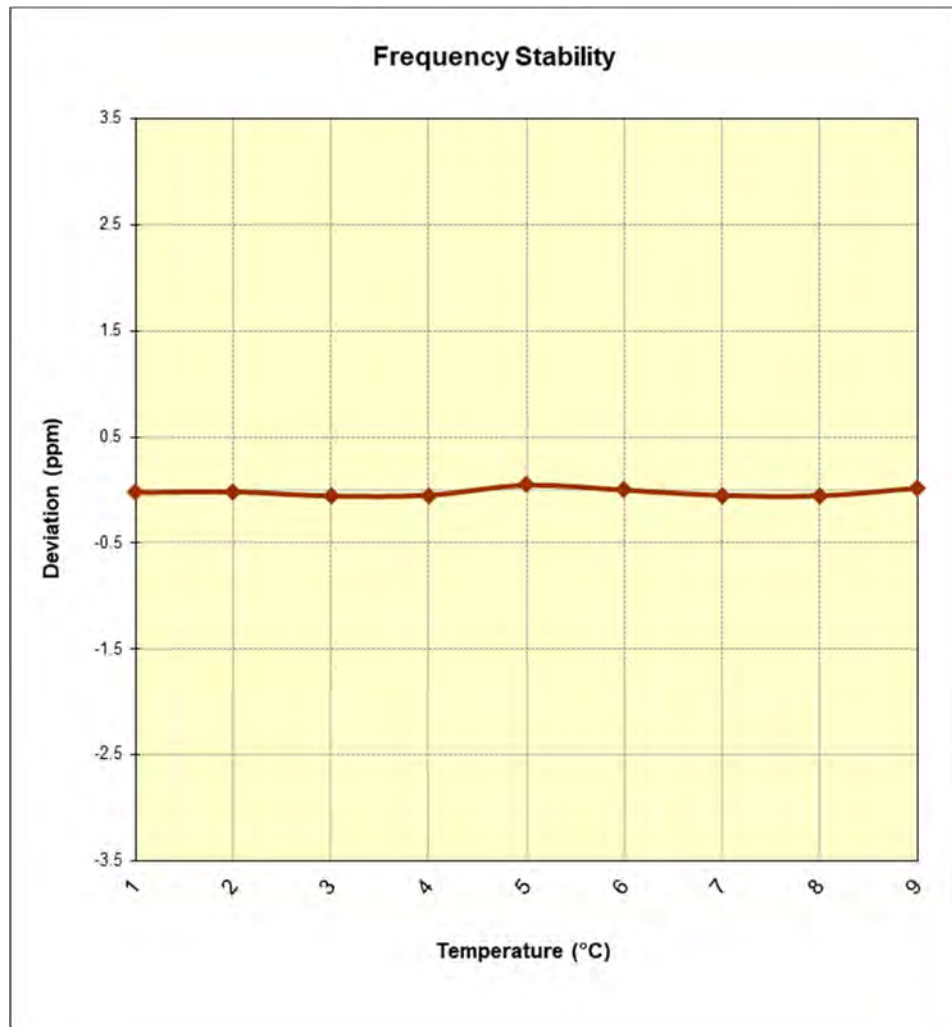


Figure 7-16. Frequency Stability Graph (Band 7)

FCC ID: A3LSMN981W	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 356 of 357

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMN981W** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.

FCC ID: A3LSMN981W		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005050082-03.A3L	Test Dates: 5/5 – 7/15/2020	EUT Type: Portable Handset		Page 357 of 357