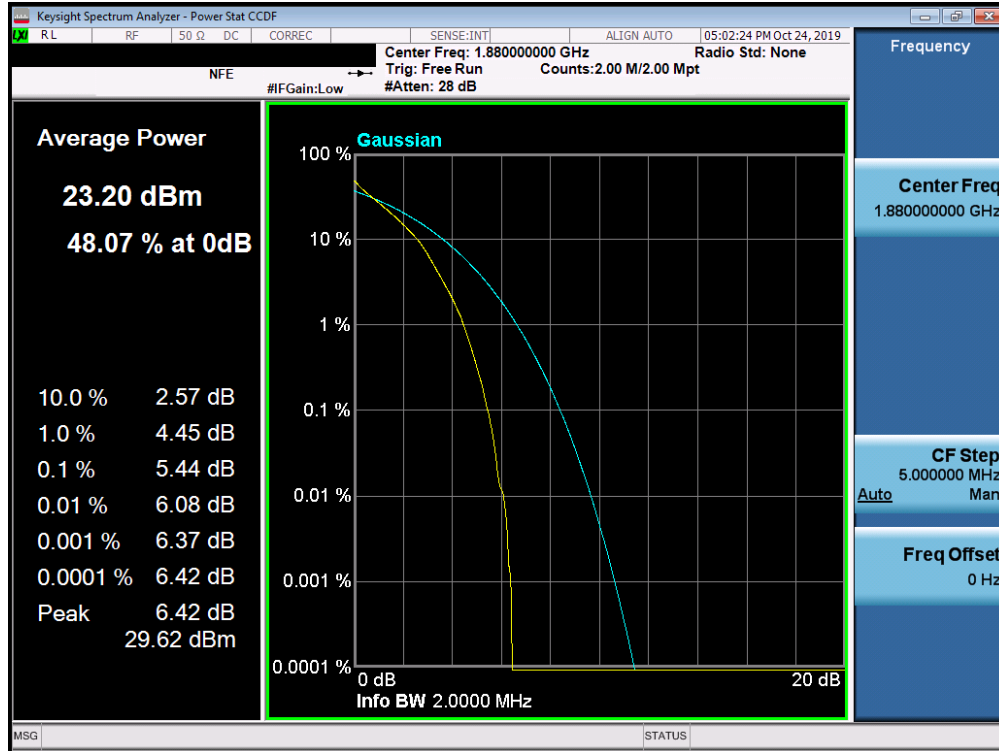
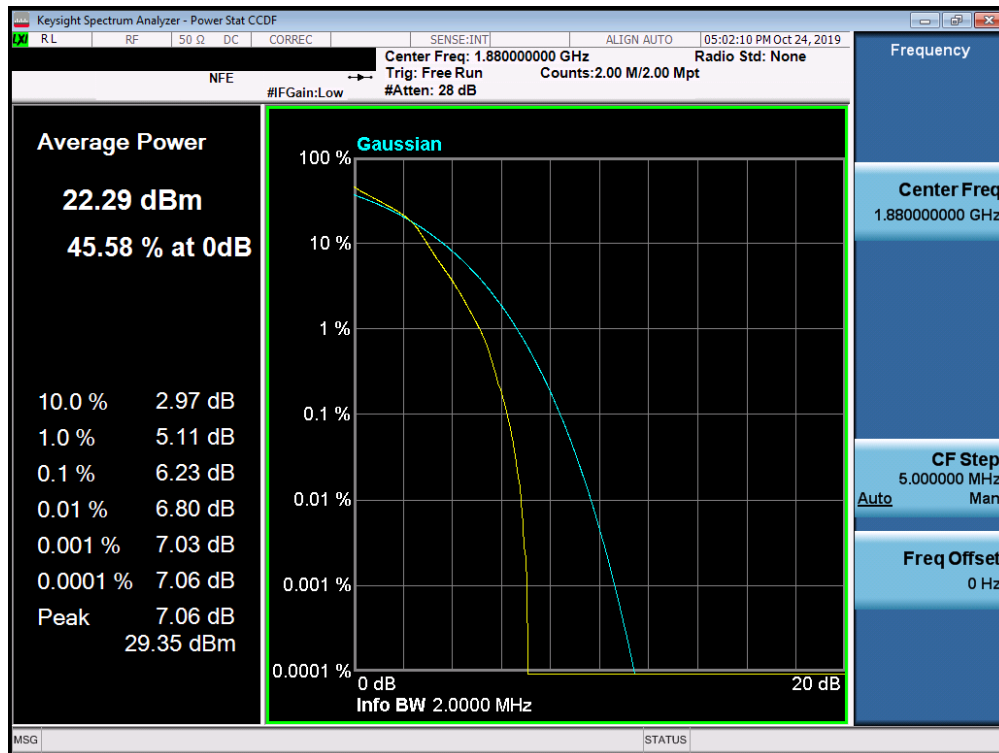


Band 25/2

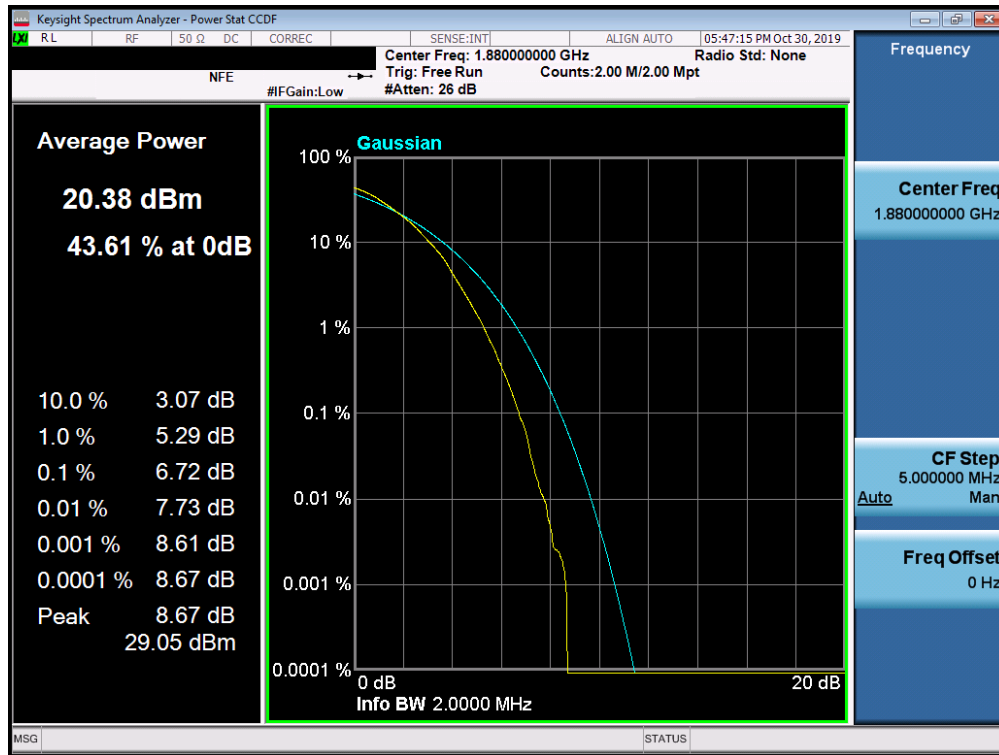


Plot 7-389. PAR Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)

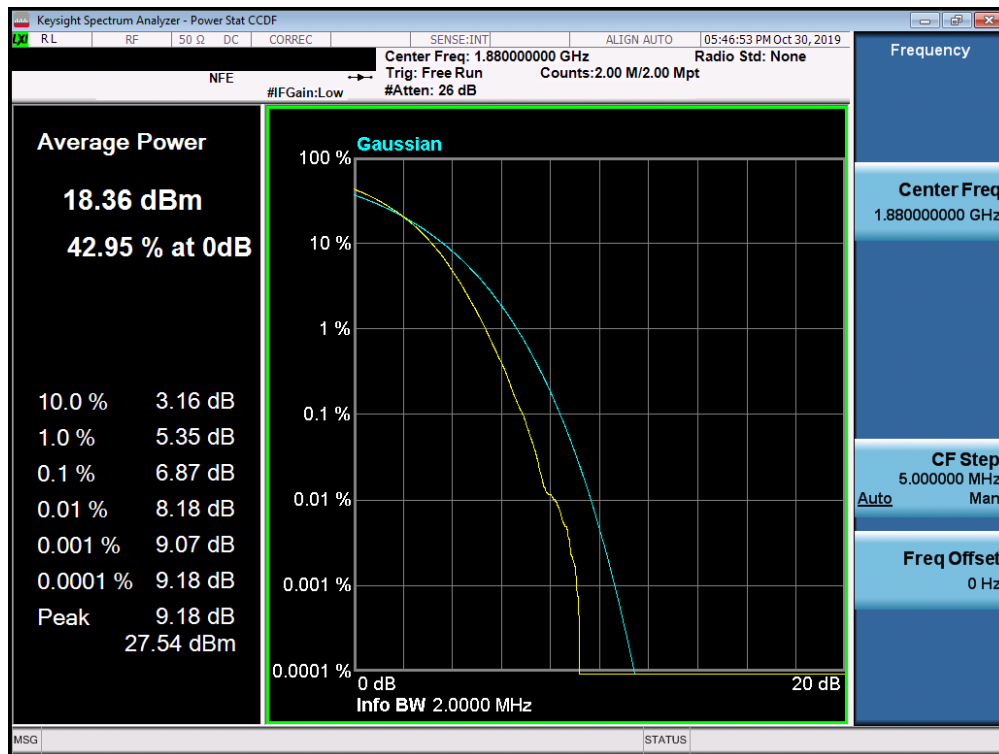


Plot 7-390. PAR Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 224 of 487

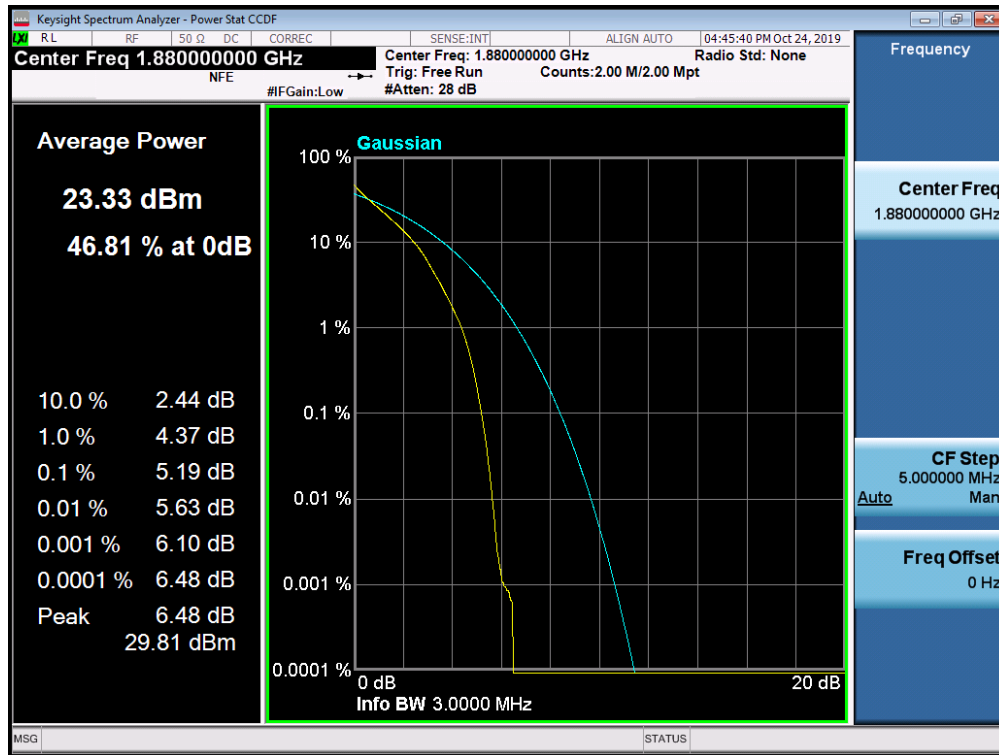


Plot 7-391. PAR Plot (Band 25/2 - 1.4MHz 64-QAM - Full RB Configuration)

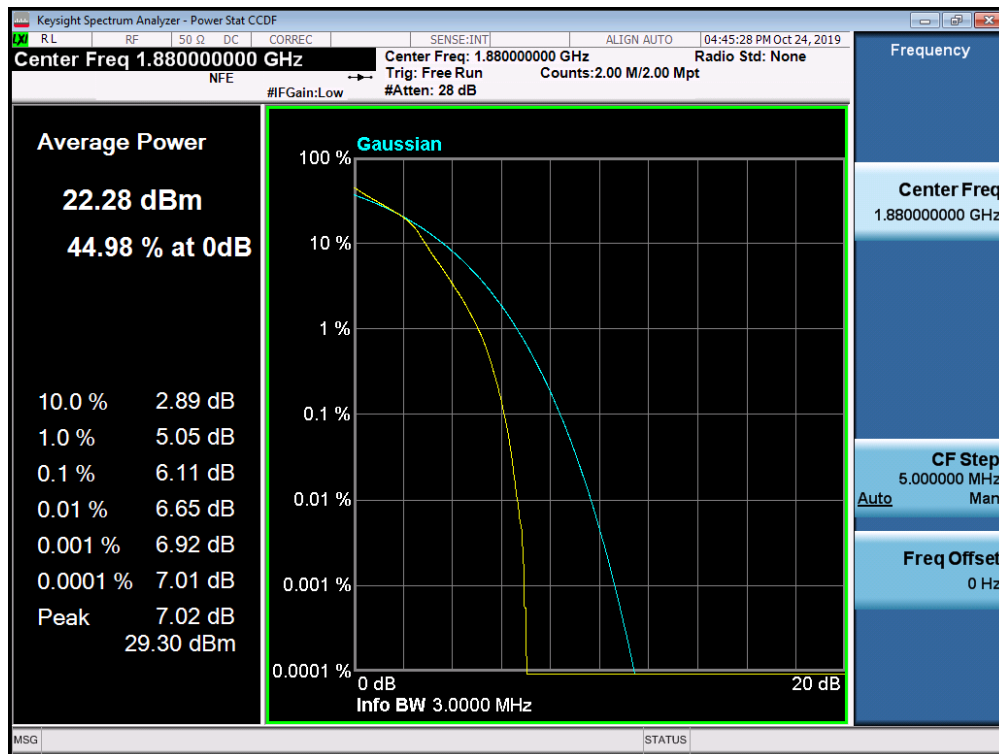


Plot 7-392. PAR Plot (Band 25/2 - 1.4MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 225 of 487

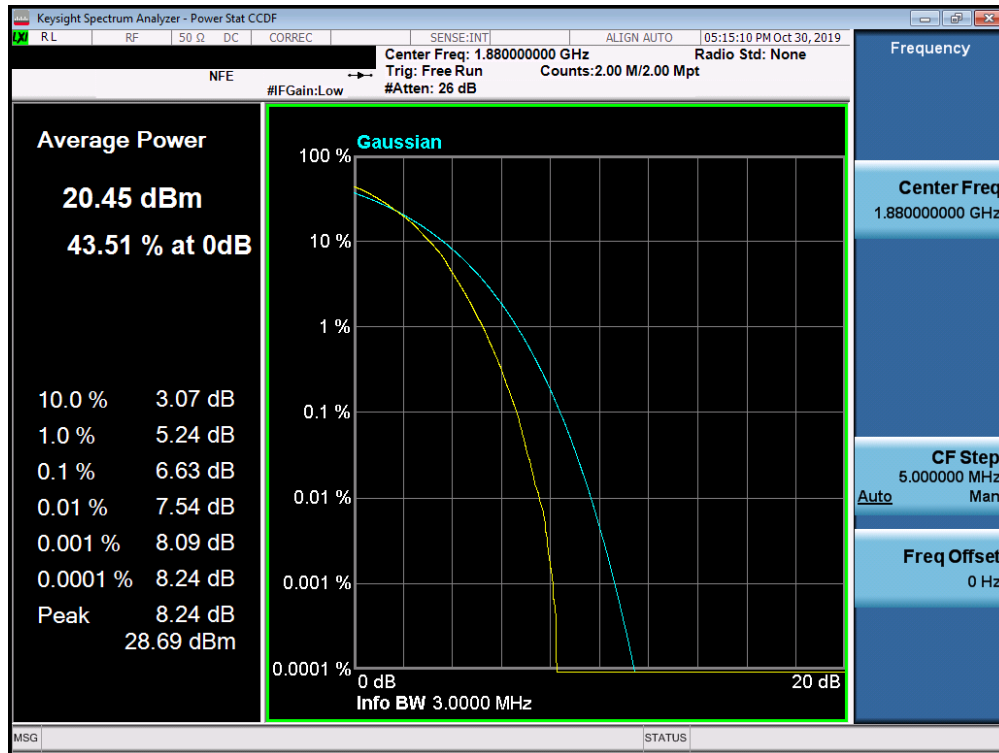


Plot 7-393. PAR Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)

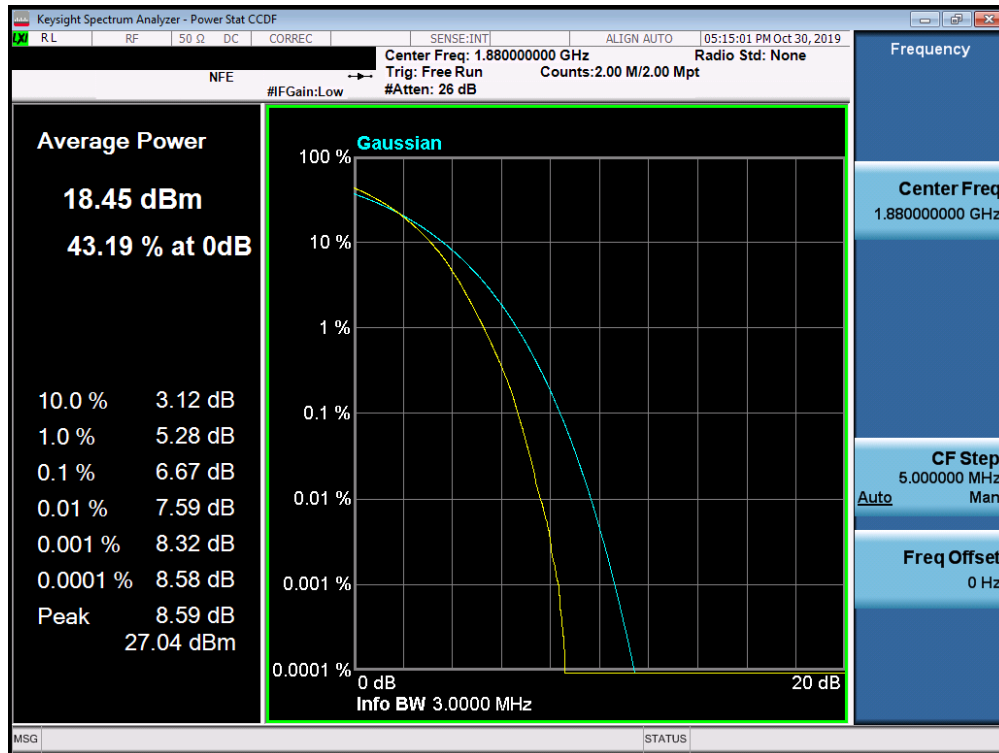


Plot 7-394. PAR Plot (Band 25/2 - 3.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 226 of 487

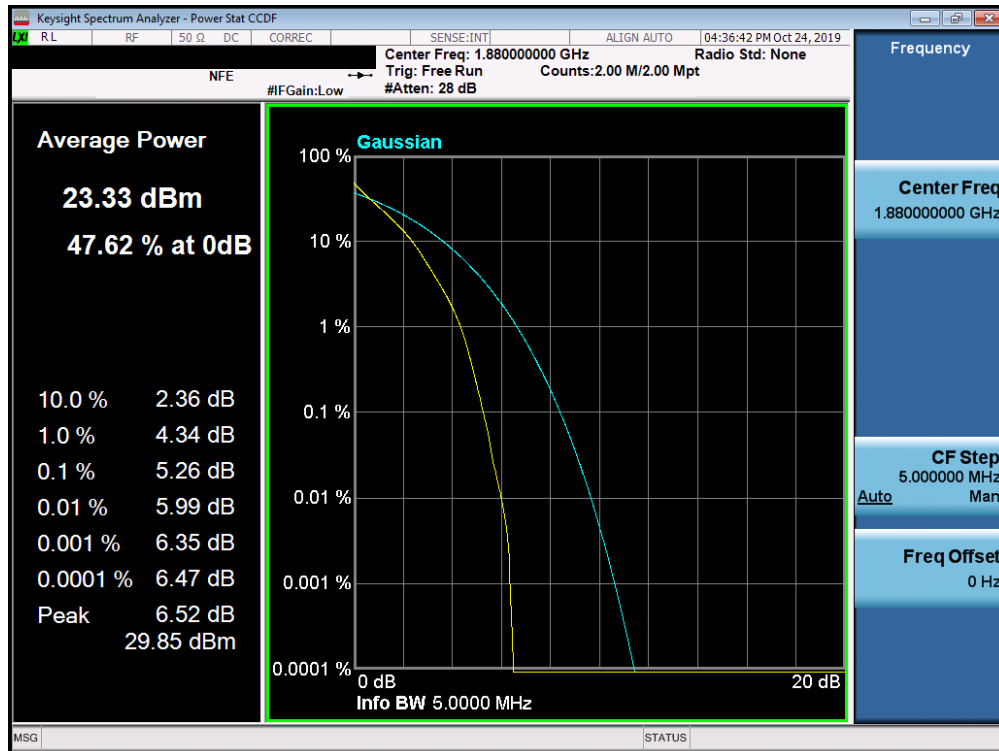


Plot 7-395. PAR Plot (Band 25/2 - 3.0MHz 64-QAM - Full RB Configuration)

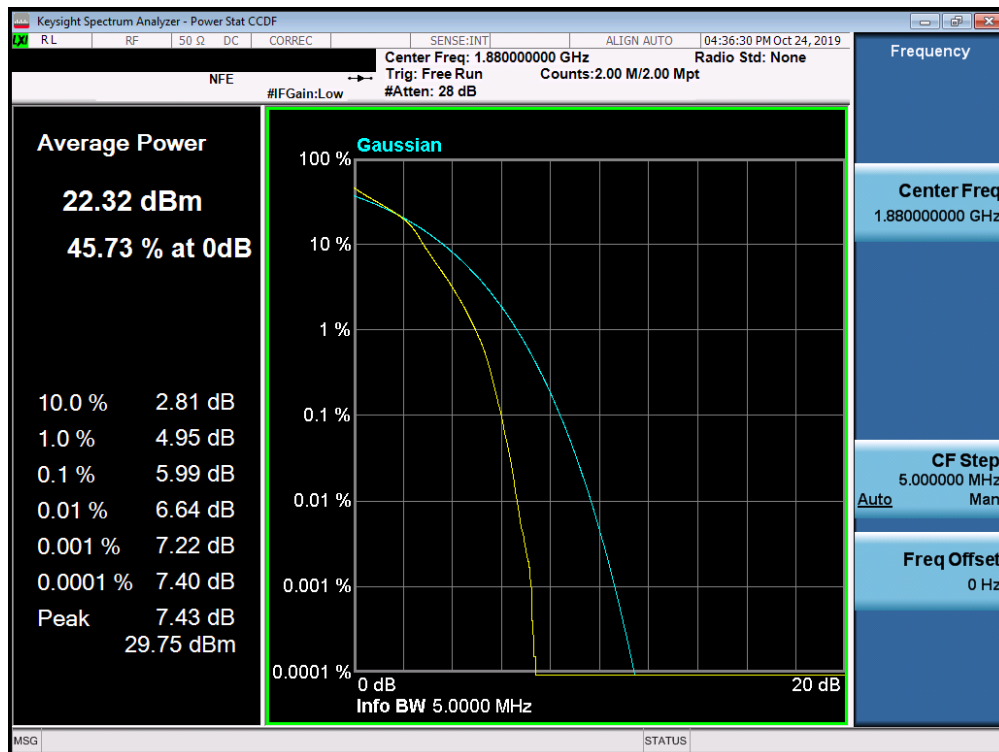


Plot 7-396. PAR Plot (Band 25/2 - 3.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 227 of 487

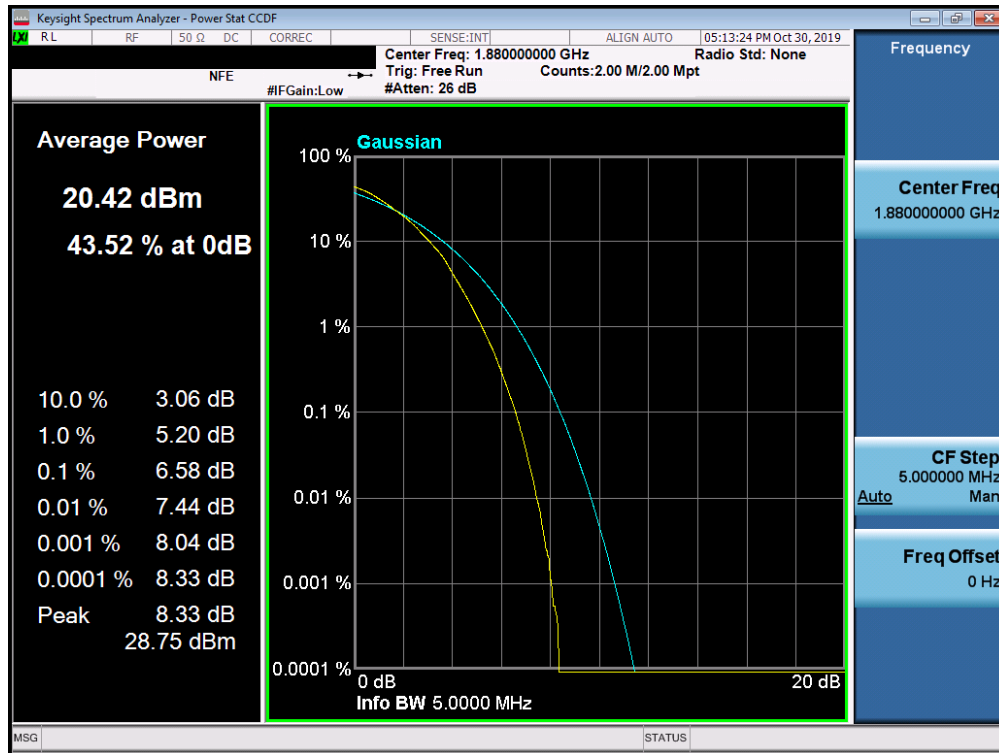


Plot 7-397. PAR Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)

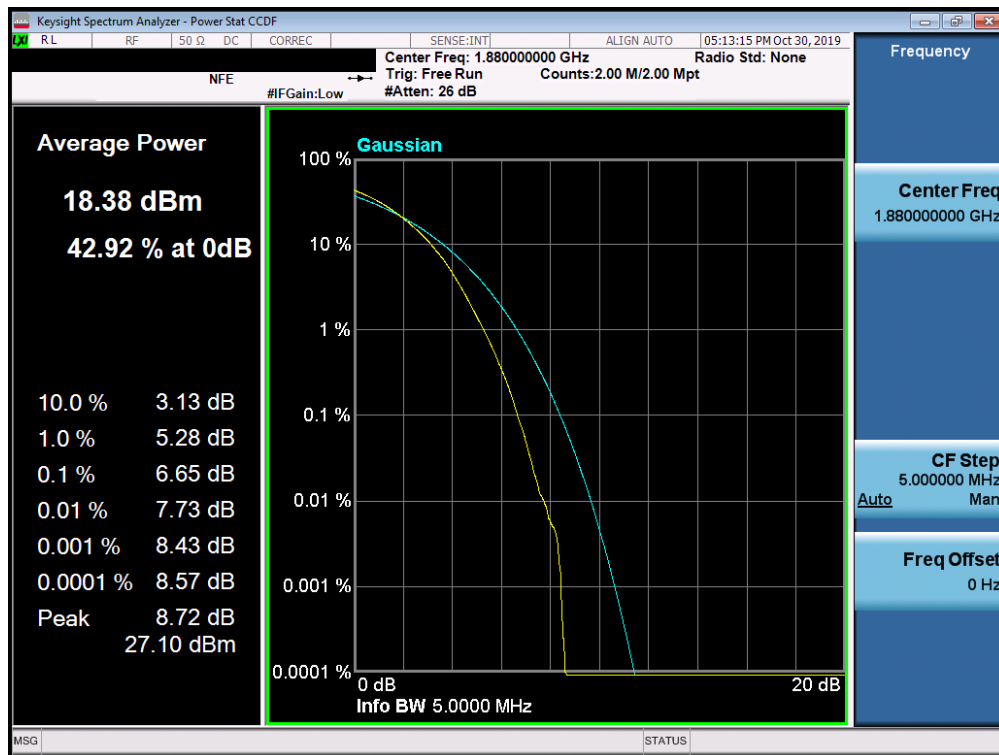


Plot 7-398. PAR Plot (Band 25/2 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 228 of 487

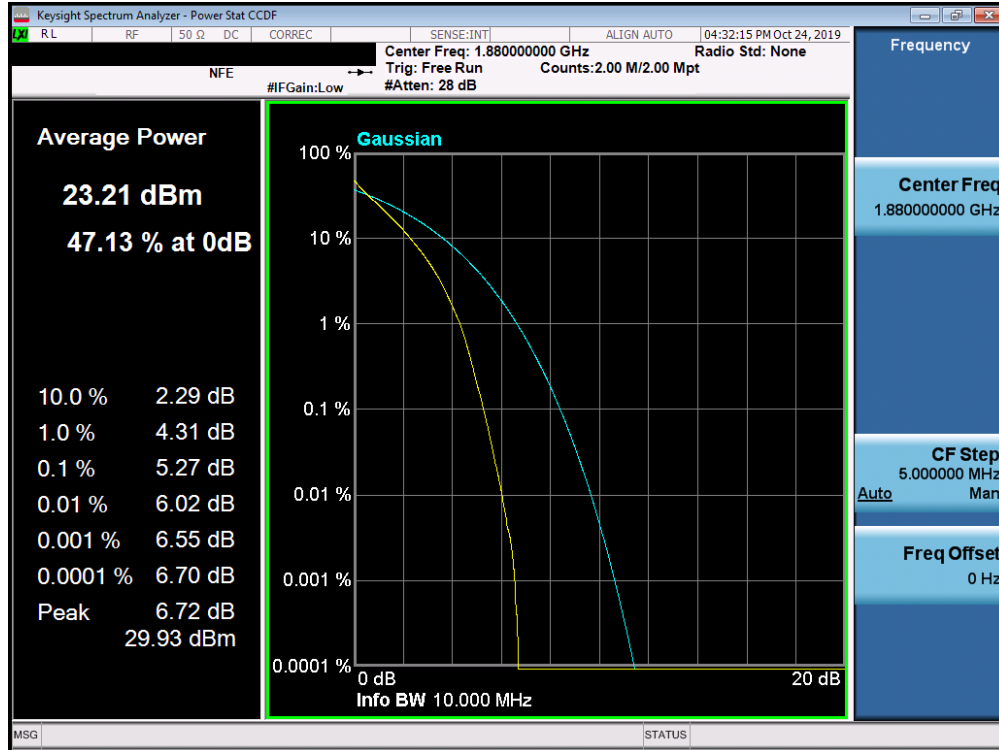


Plot 7-399. PAR Plot (Band 25/2 - 5.0MHz 64-QAM - Full RB Configuration)

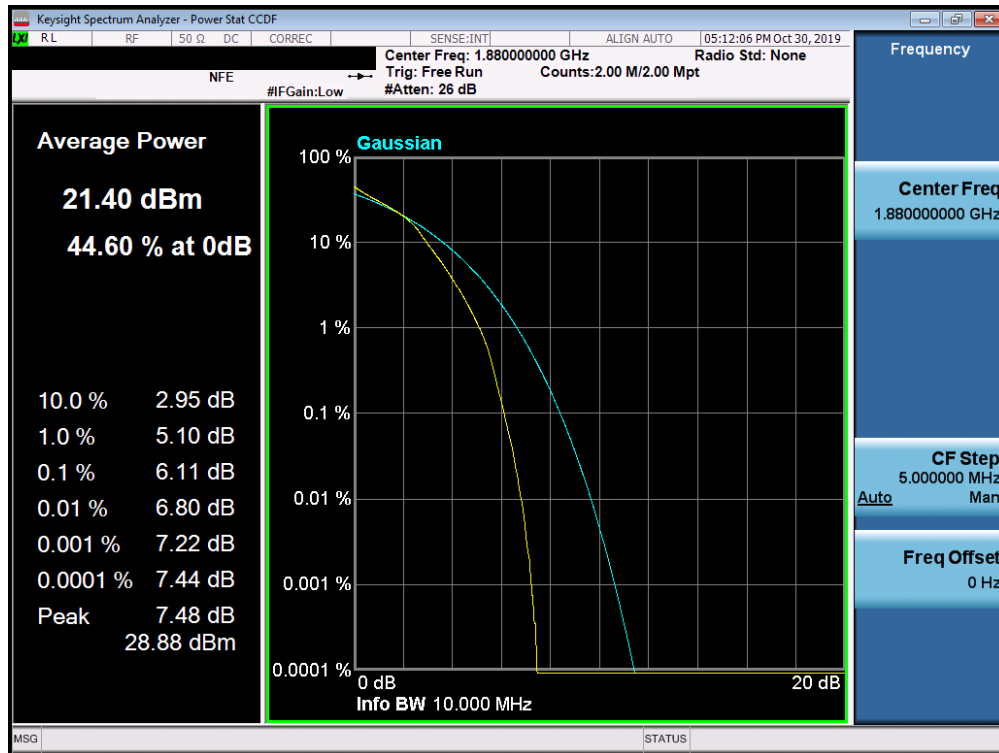


Plot 7-400. PAR Plot (Band 25/2 - 5.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 229 of 487

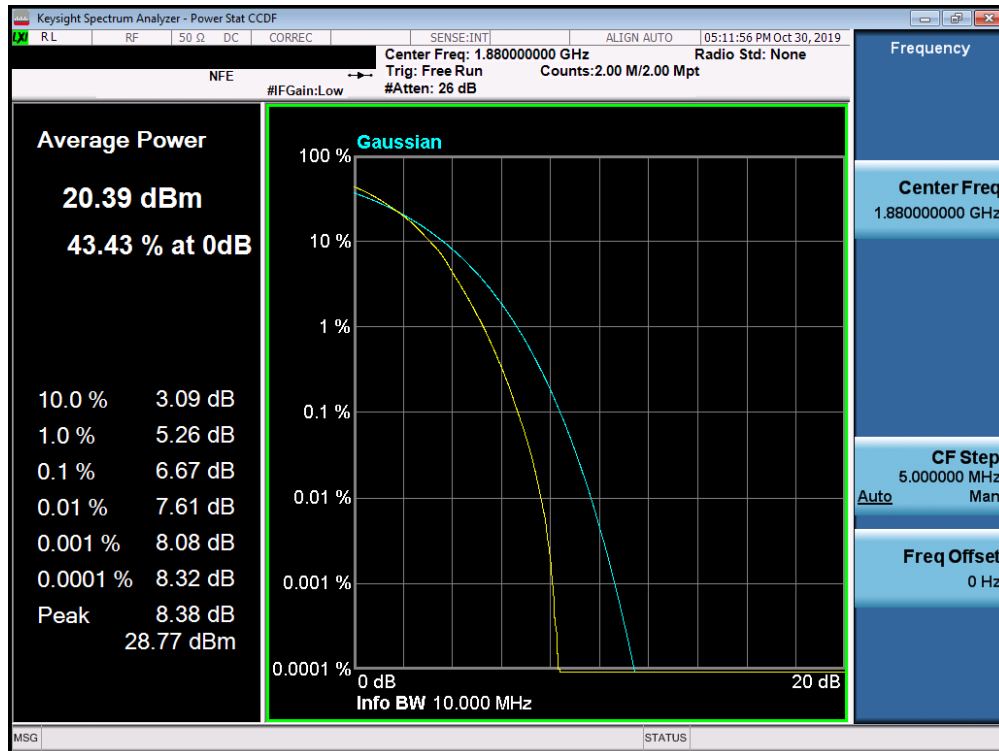


Plot 7-401. PAR Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

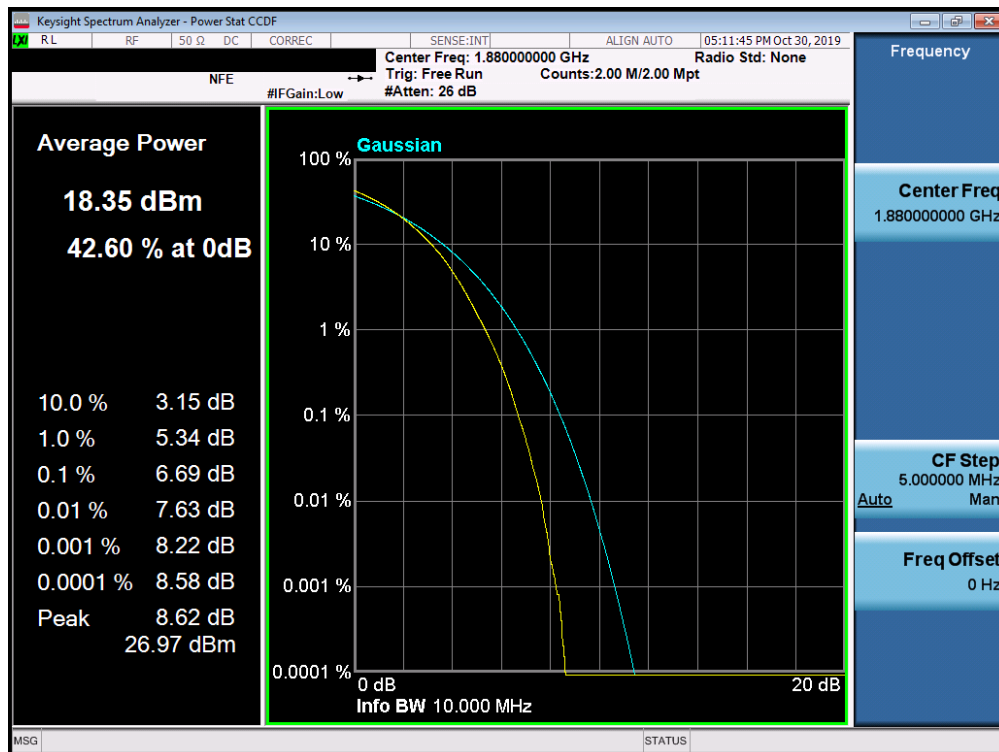


Plot 7-402. PAR Plot (Band 25/2 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 230 of 487

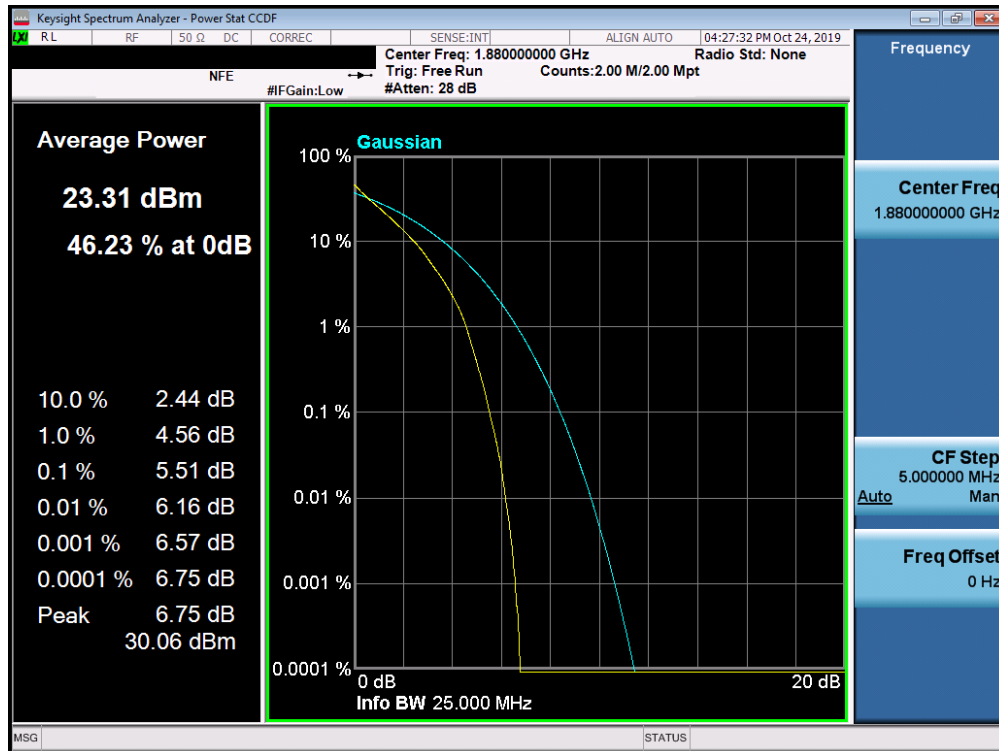


Plot 7-403. PAR Plot (Band 25/2 - 10.0MHz 64-QAM - Full RB Configuration)

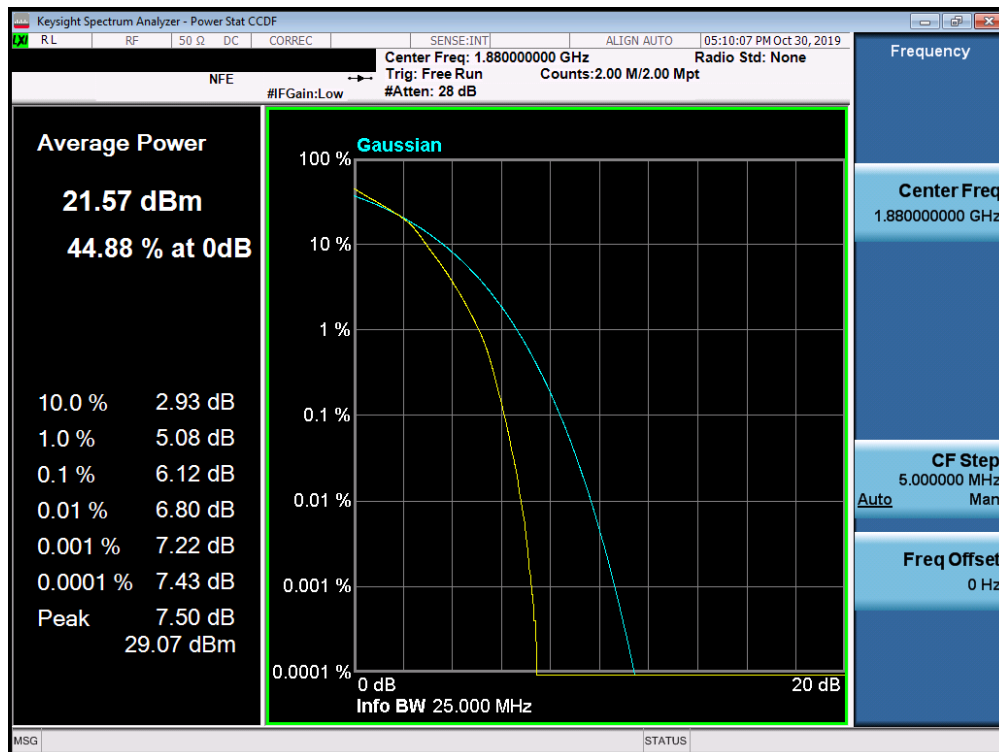


Plot 7-404. PAR Plot (Band 25/2 - 10.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 231 of 487

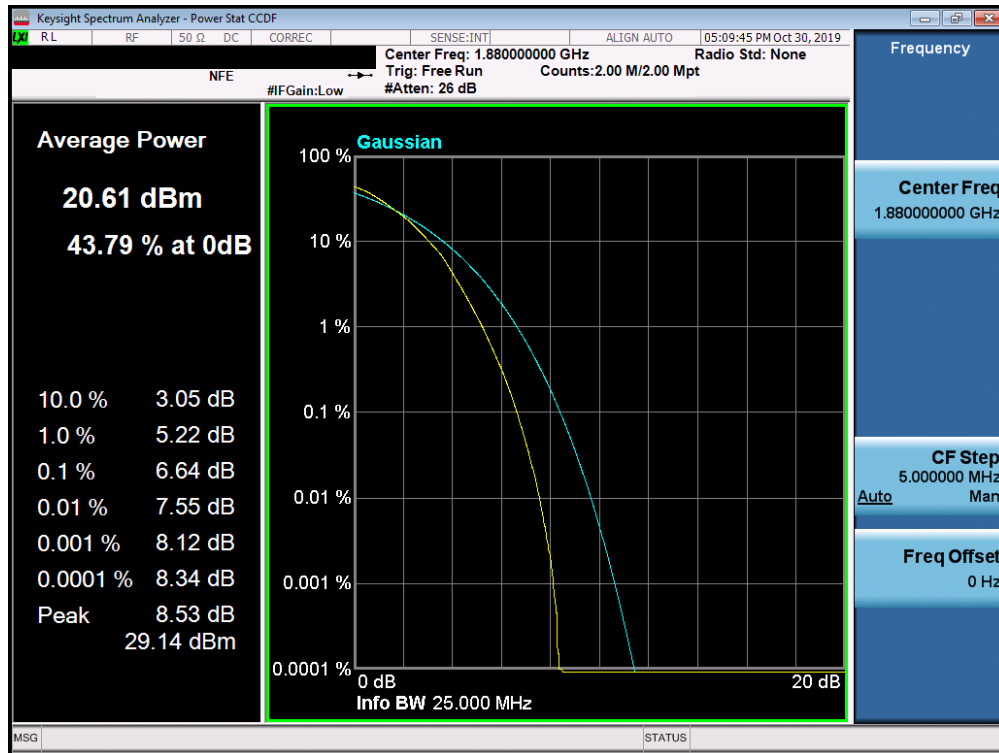


Plot 7-405. PAR Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)

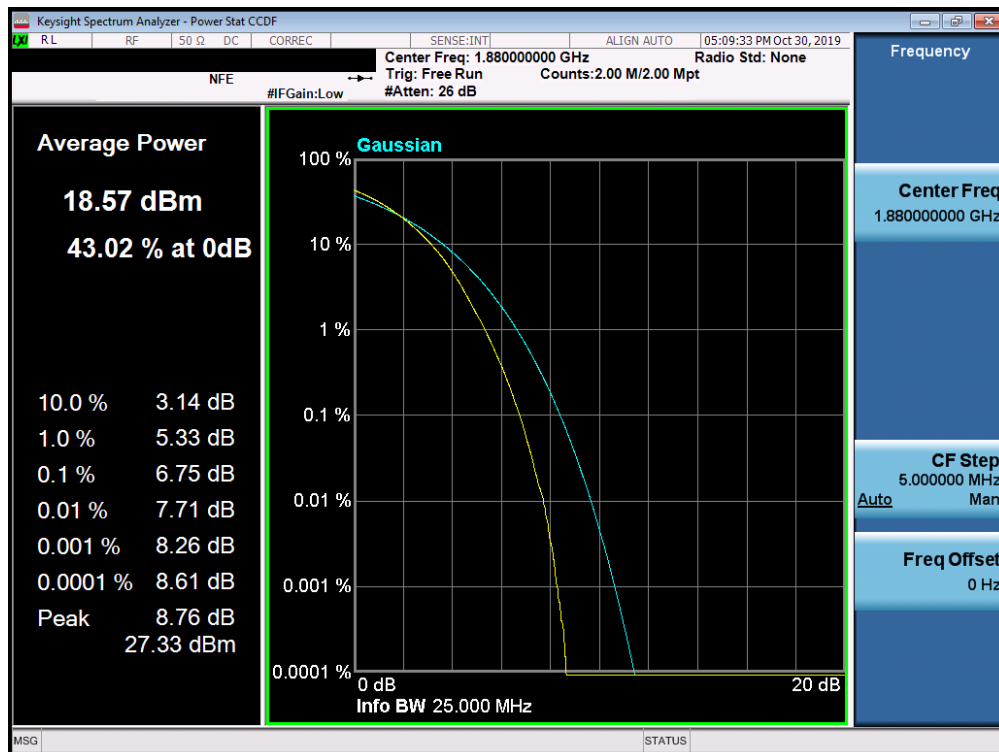


Plot 7-406. PAR Plot (Band 25/2 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 232 of 487

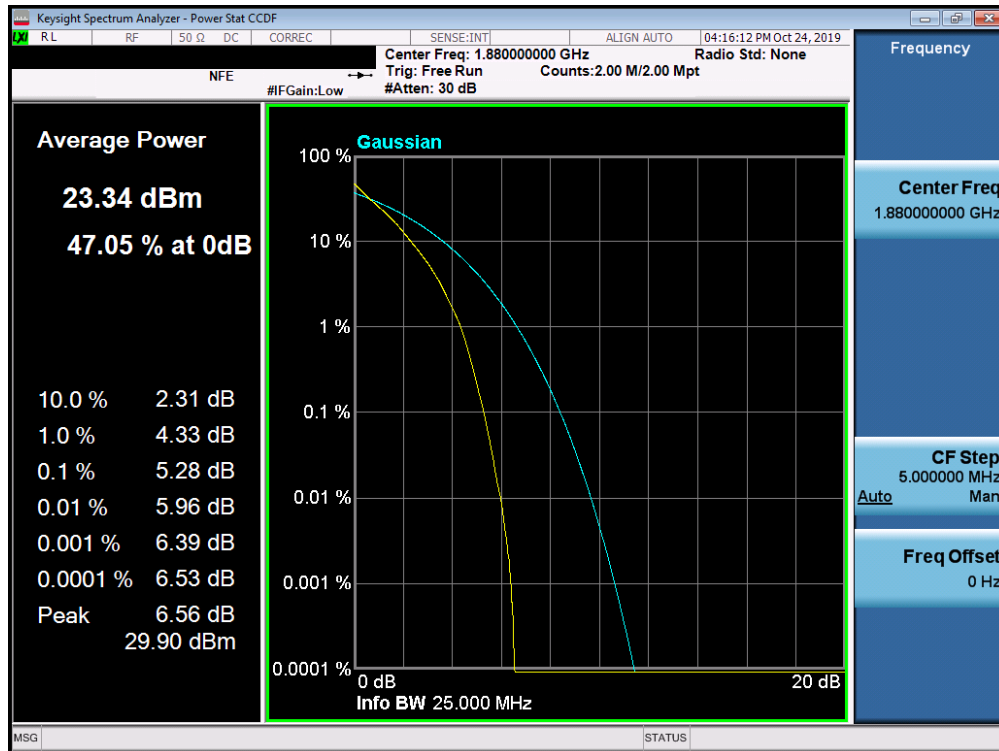


Plot 7-407. PAR Plot (Band 25/2 - 15.0MHz 64-QAM - Full RB Configuration)

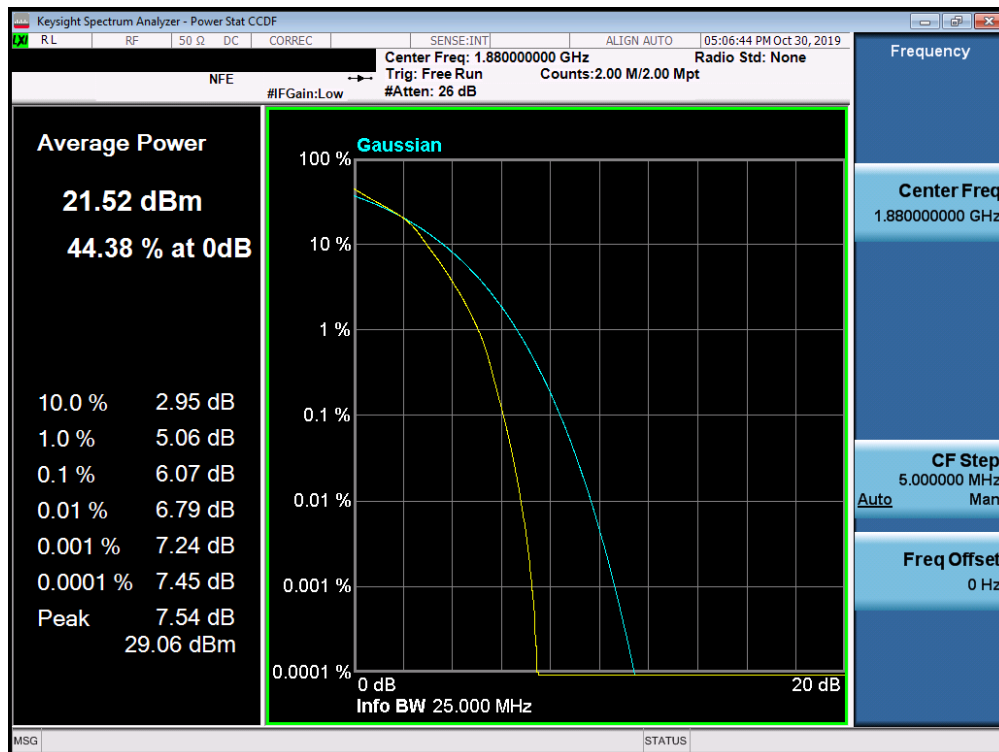


Plot 7-408. PAR Plot (Band 25/2 - 15.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 233 of 487

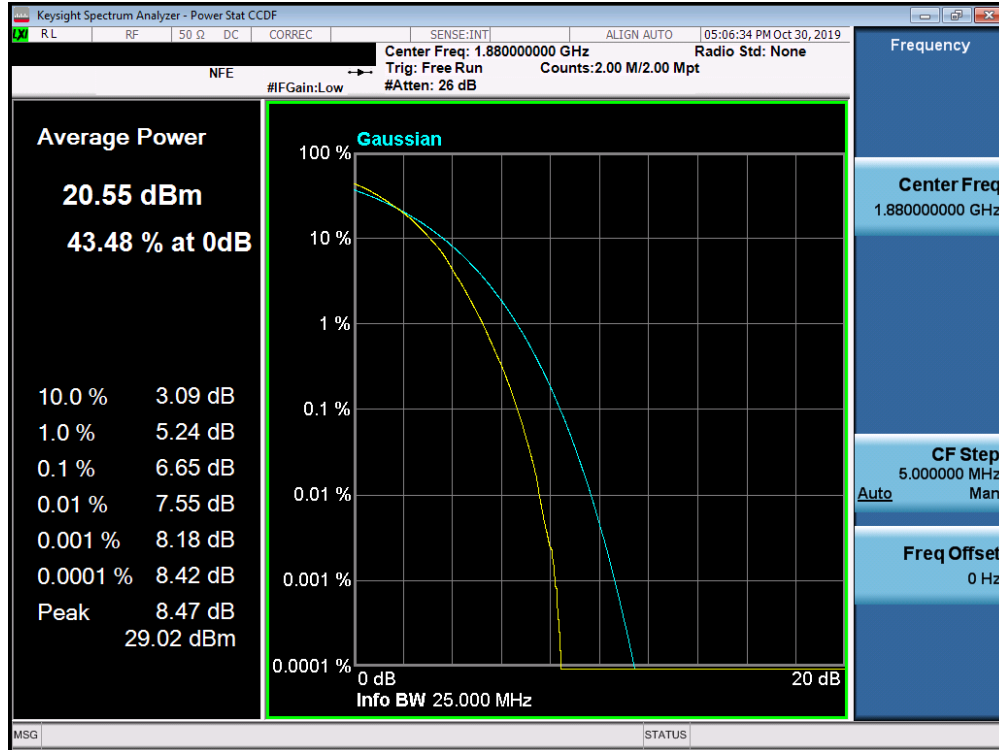


Plot 7-409. PAR Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

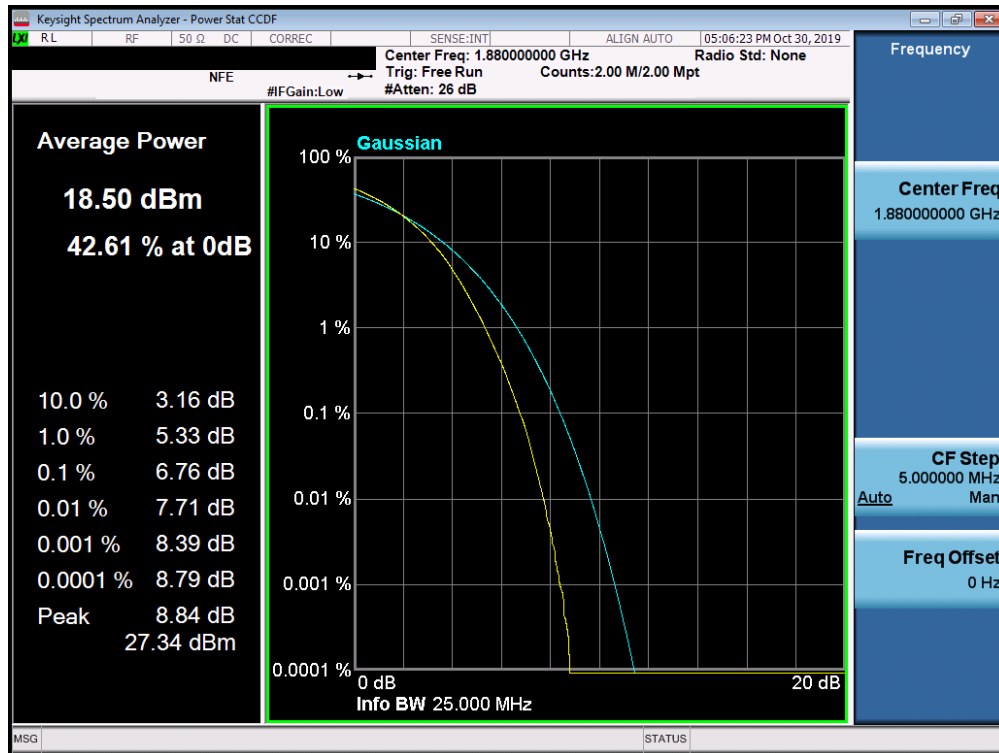


Plot 7-410. PAR Plot (Band 25/2 - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 234 of 487



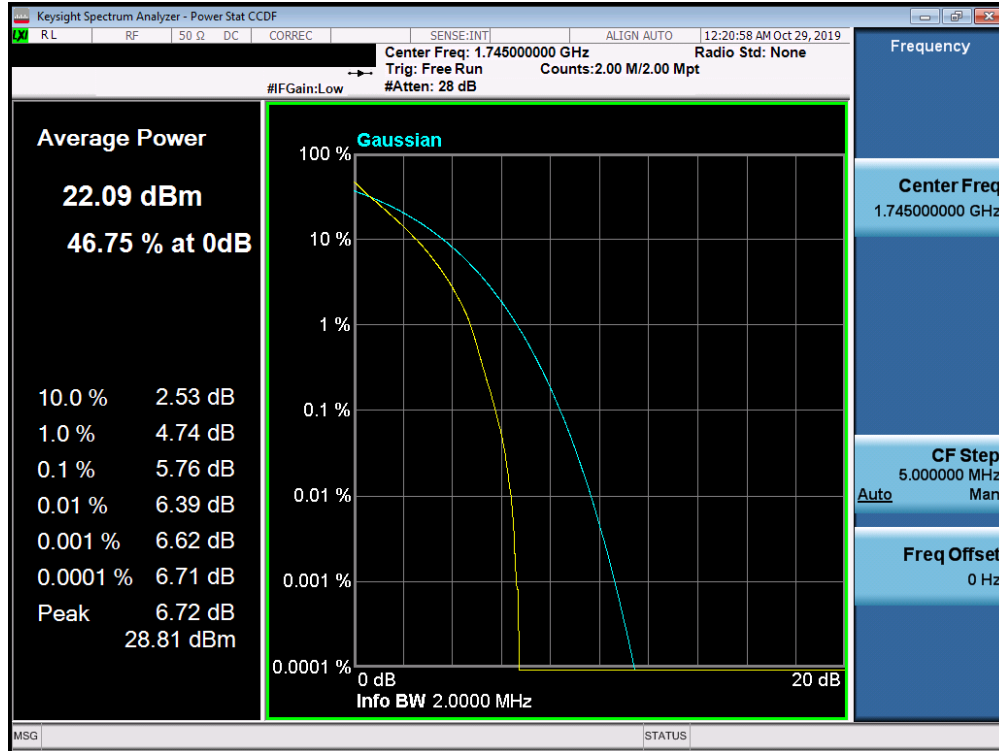
Plot 7-411. PAR Plot (Band 25/2 - 20.0MHz 64-QAM - Full RB Configuration)



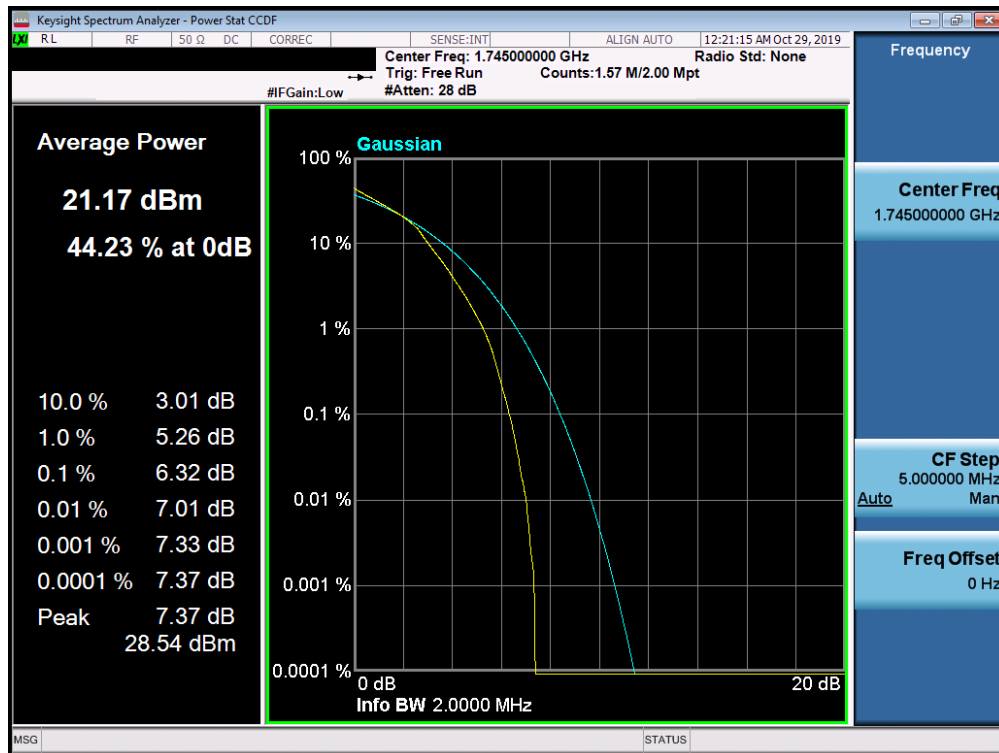
Plot 7-412. PAR Plot (Band 25/2 - 20.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 235 of 487

Band 66/4

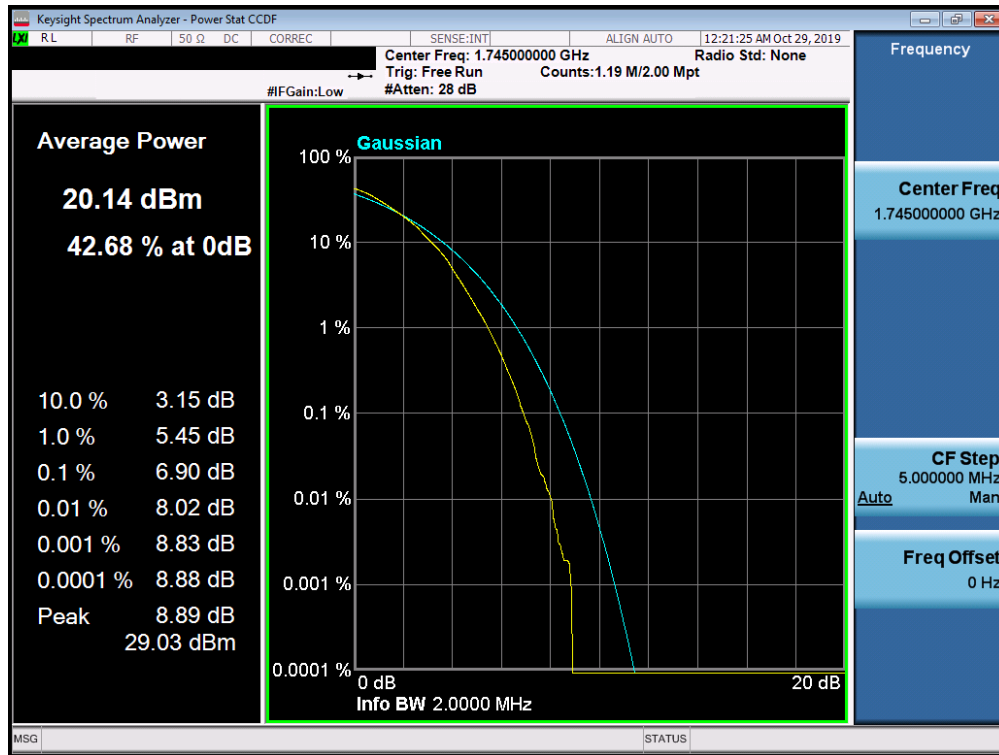


Plot 7-413. PAR Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)

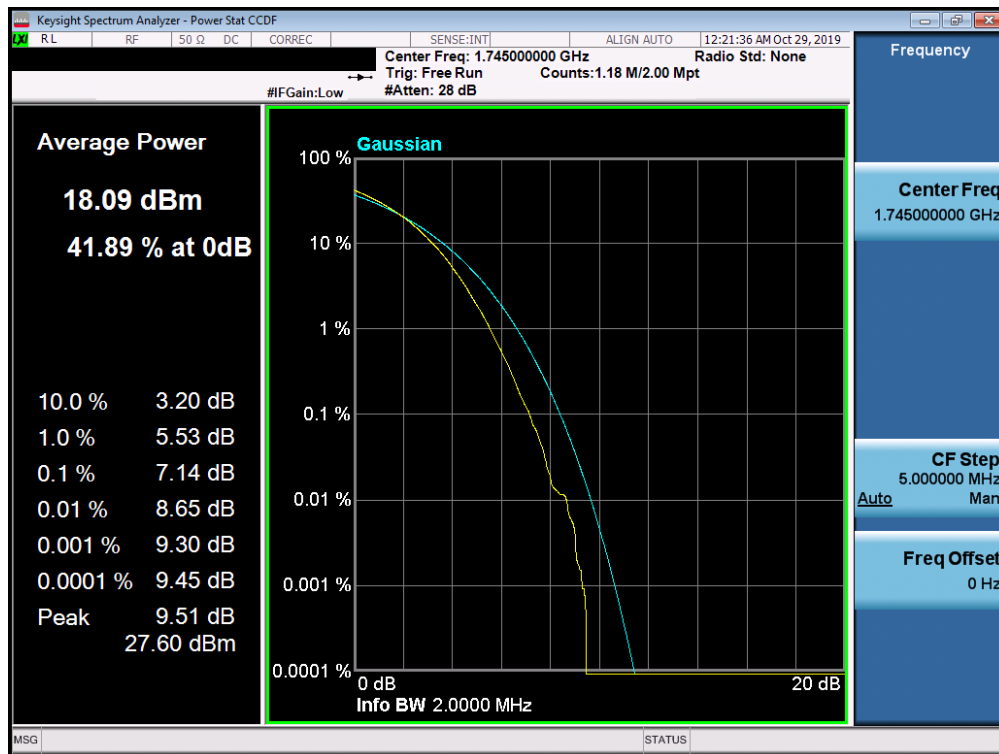


Plot 7-414. PAR Plot (Band 66/4 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 236 of 487

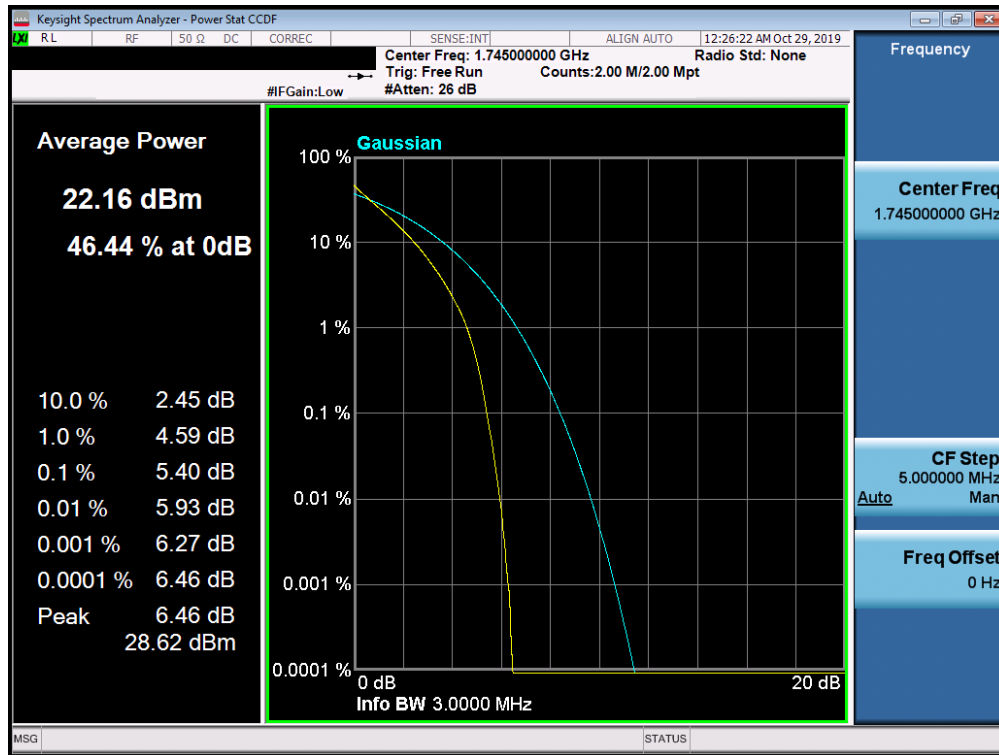


Plot 7-415. PAR Plot (Band 66/4 - 1.4MHz 64-QAM - Full RB Configuration)

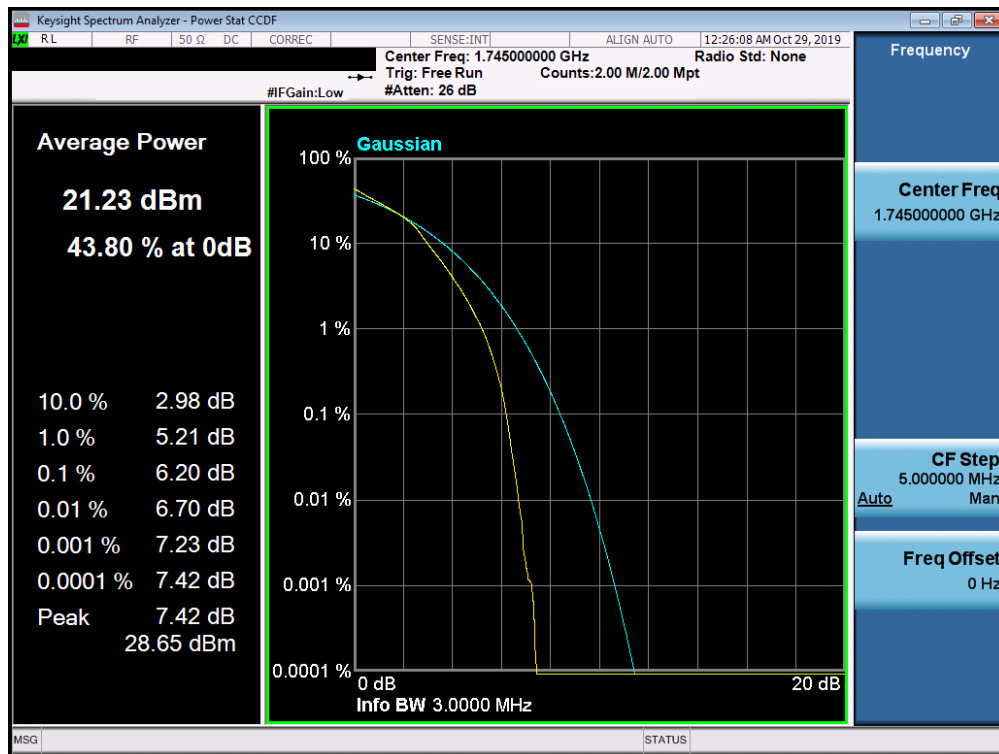


Plot 7-416. PAR Plot (Band 66/4 - 1.4MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 237 of 487

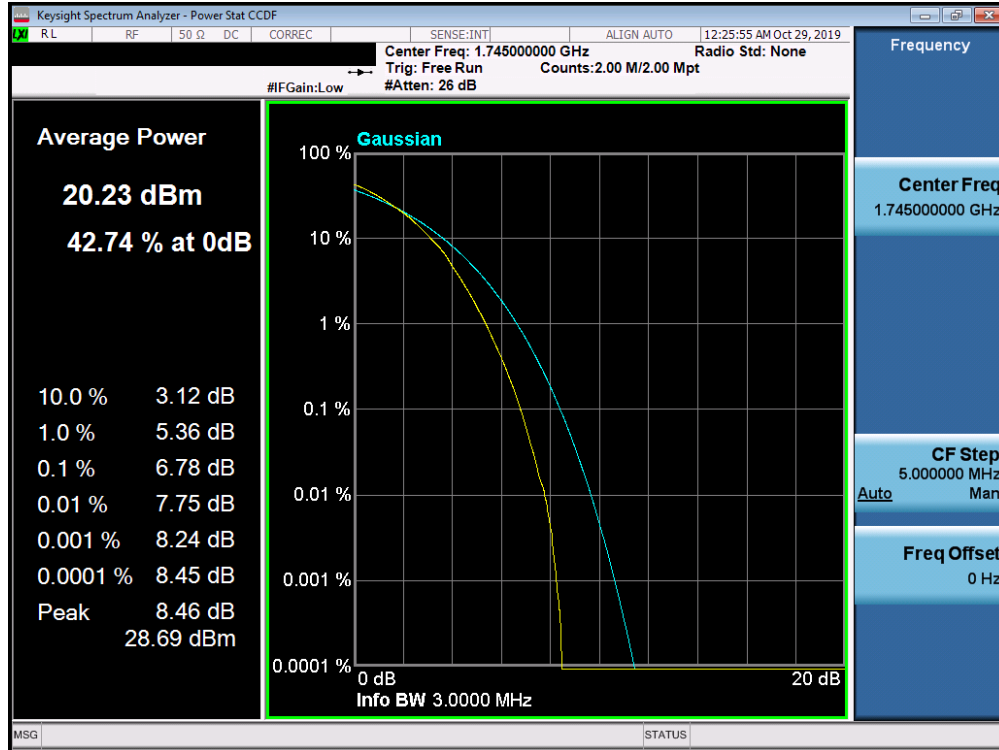


Plot 7-417. PAR Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

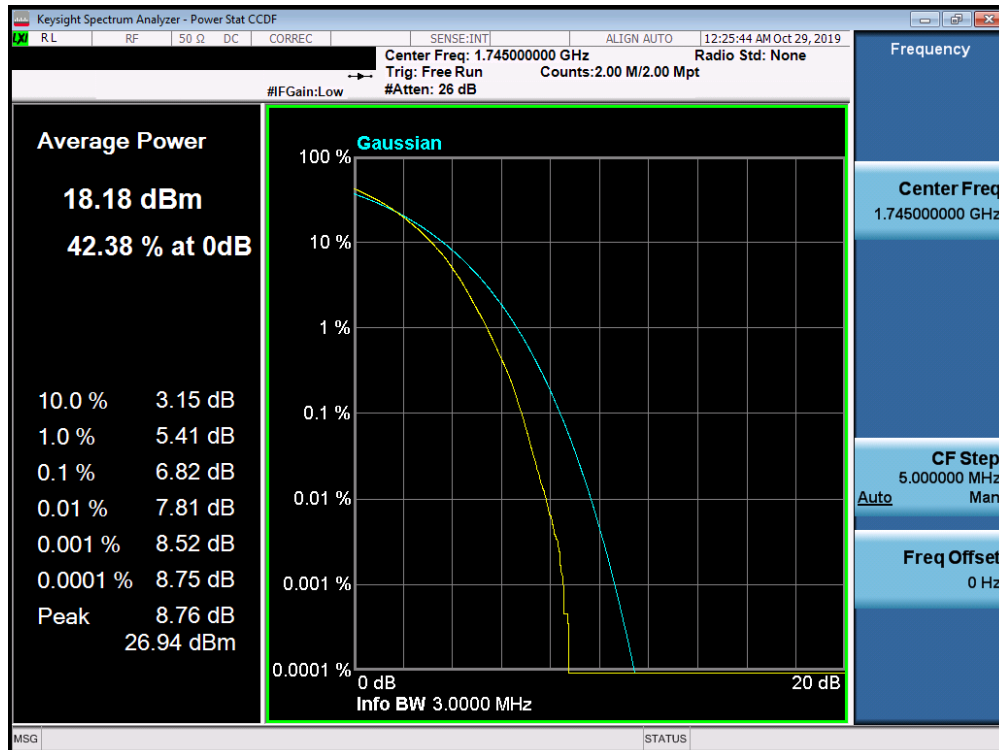


Plot 7-418. PAR Plot (Band 66/4 - 3.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 238 of 487

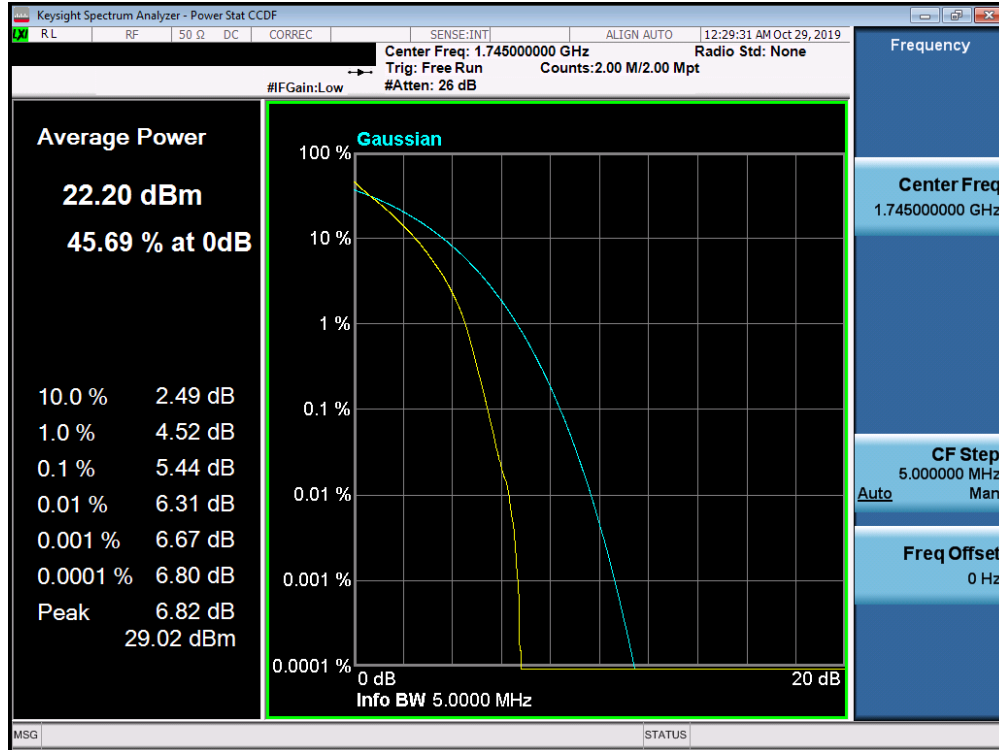


Plot 7-419. PAR Plot (Band 66/4 - 3.0MHz 64-QAM - Full RB Configuration)

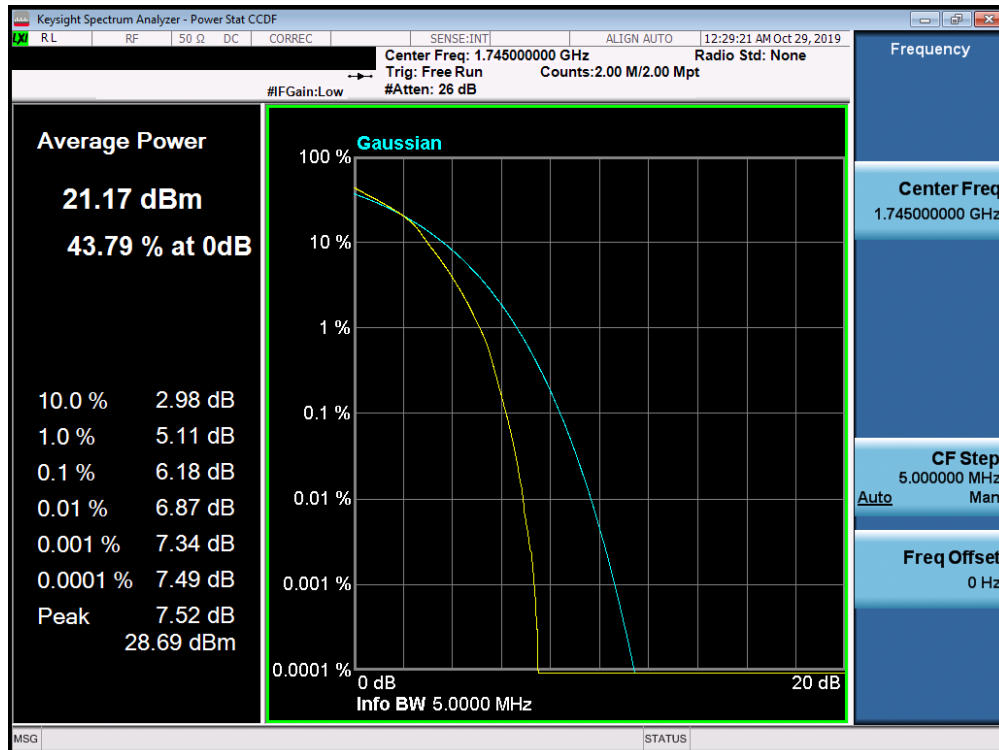


Plot 7-420. PAR Plot (Band 66/4 - 3.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 239 of 487

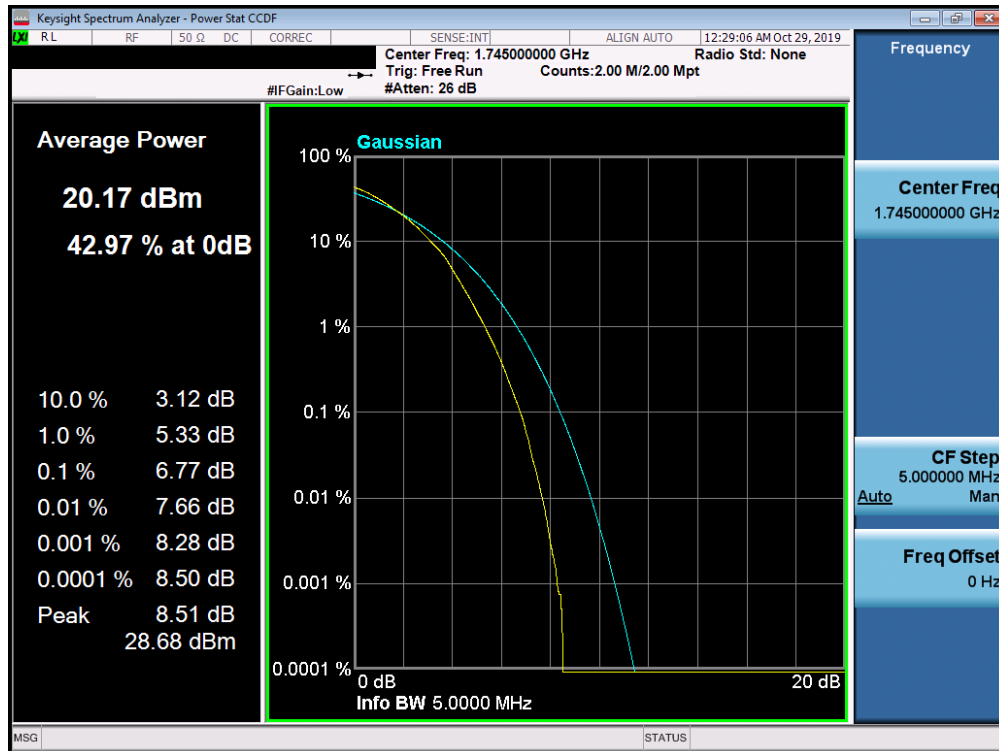


Plot 7-421. PAR Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)

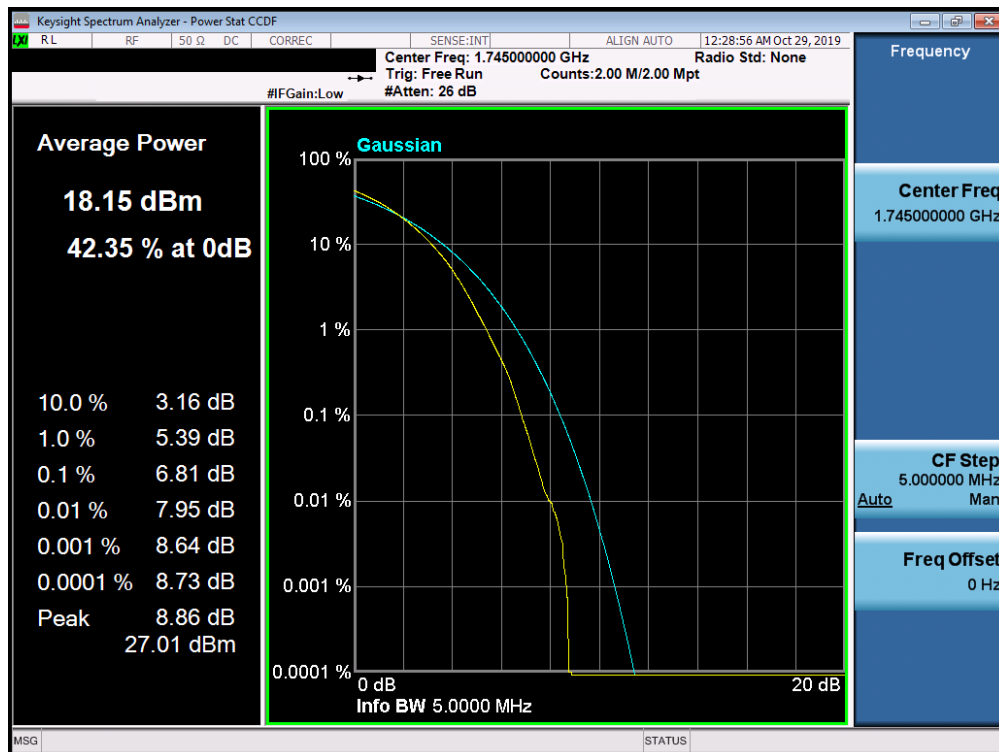


Plot 7-422. PAR Plot (Band 66/4 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 240 of 487

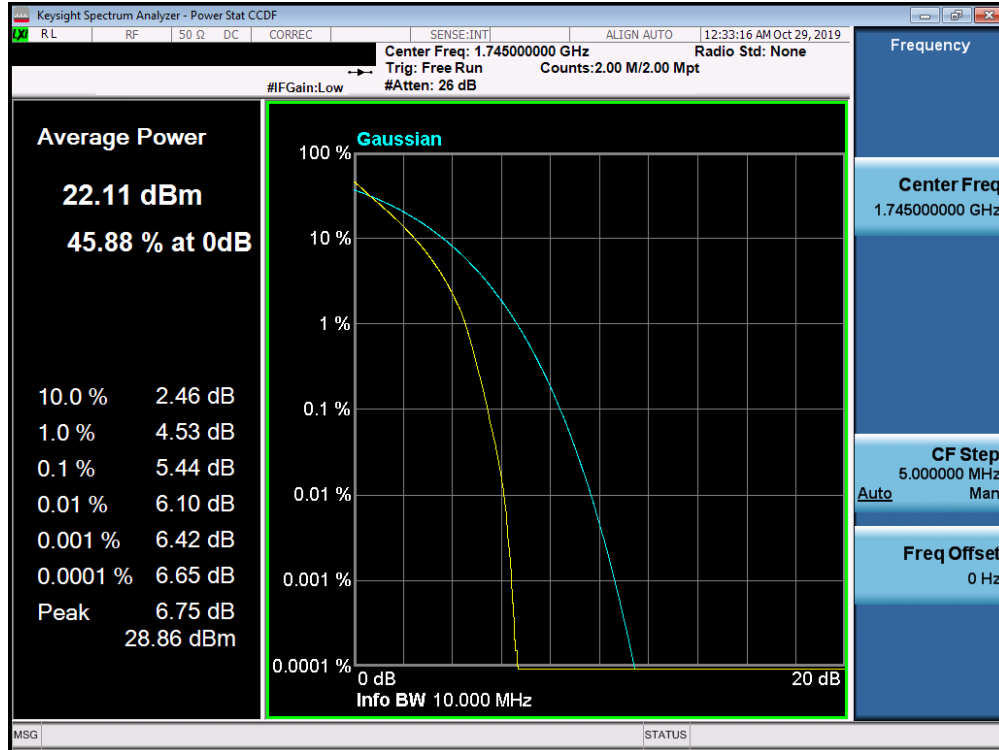


Plot 7-423. PAR Plot (Band 66/4 - 5.0MHz 64-QAM - Full RB Configuration)

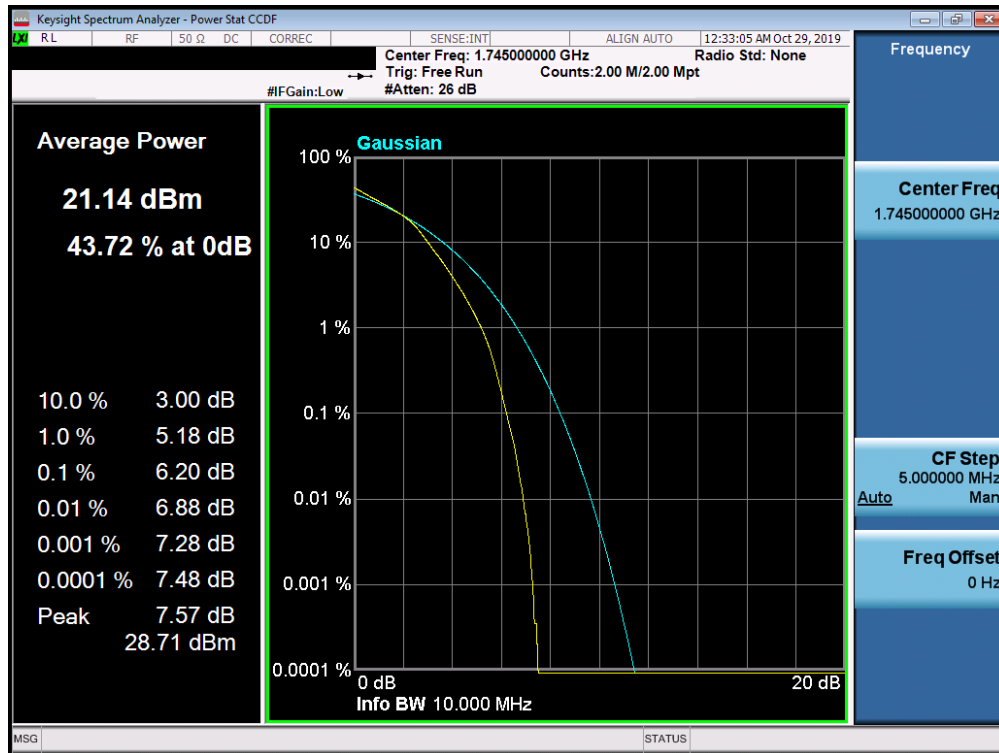


Plot 7-424. PAR Plot (Band 66/4 - 5.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 241 of 487

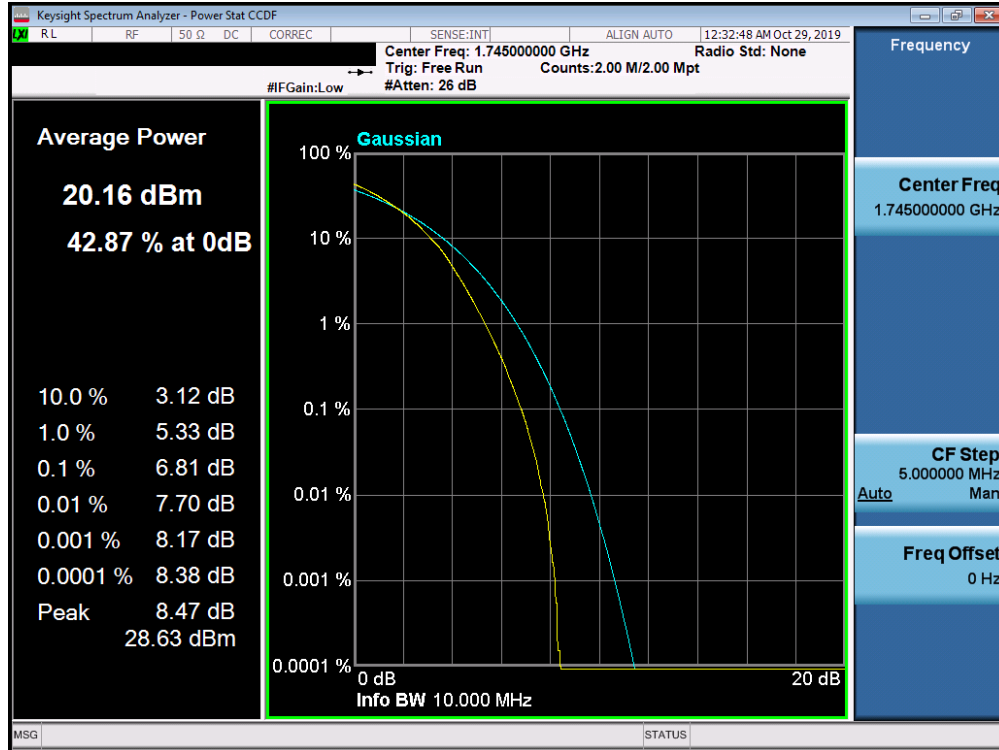


Plot 7-425. PAR Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)

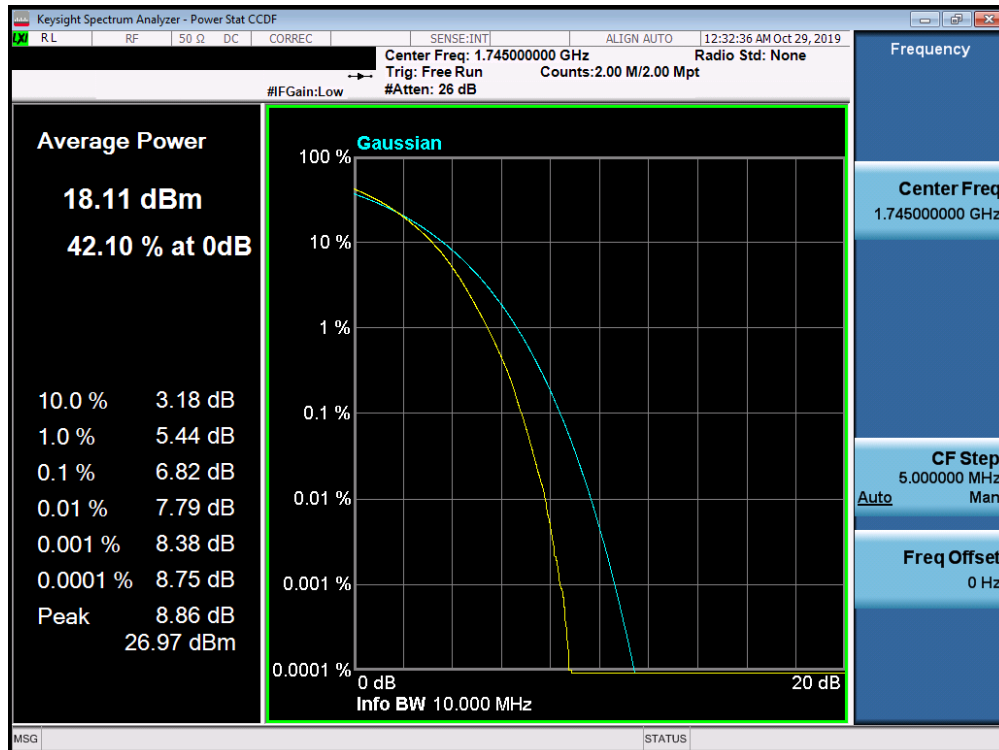


Plot 7-426. PAR Plot (Band 66/4 - 10.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 242 of 487

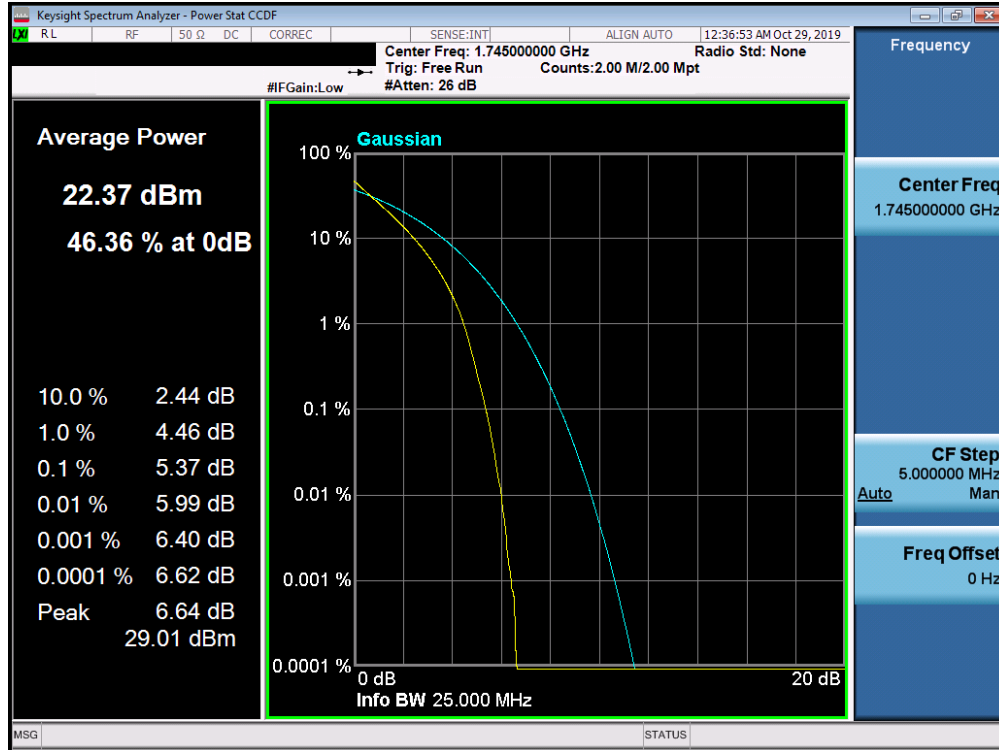


Plot 7-427. PAR Plot (Band 66/4 - 10.0MHz 64-QAM - Full RB Configuration)

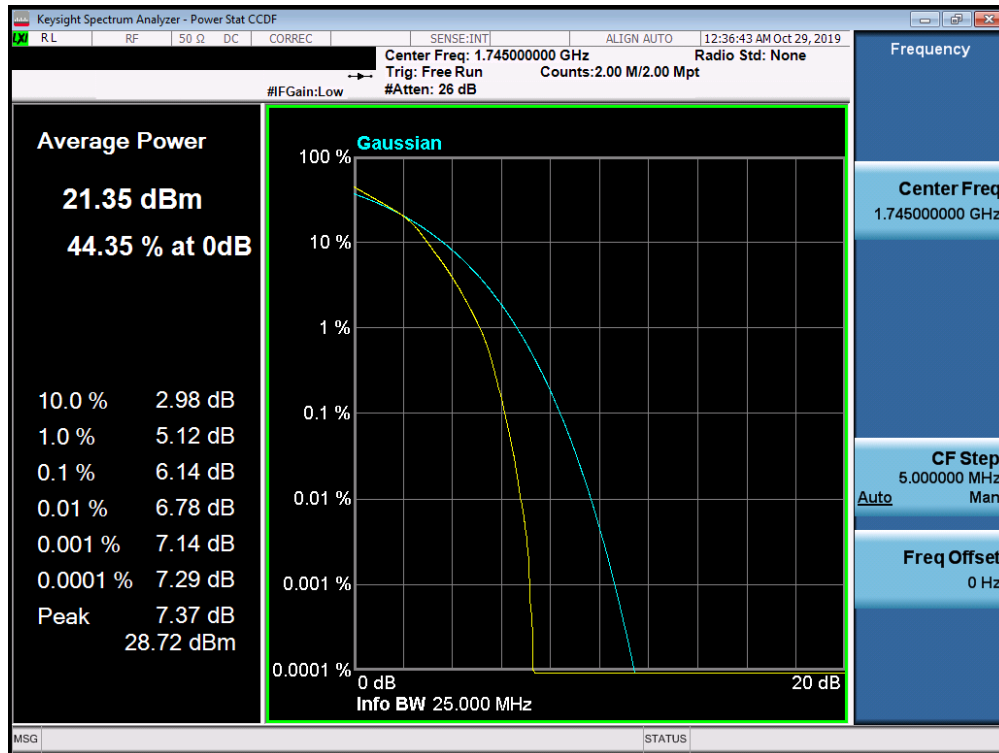


Plot 7-428. PAR Plot (Band 66/4 - 10.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 243 of 487

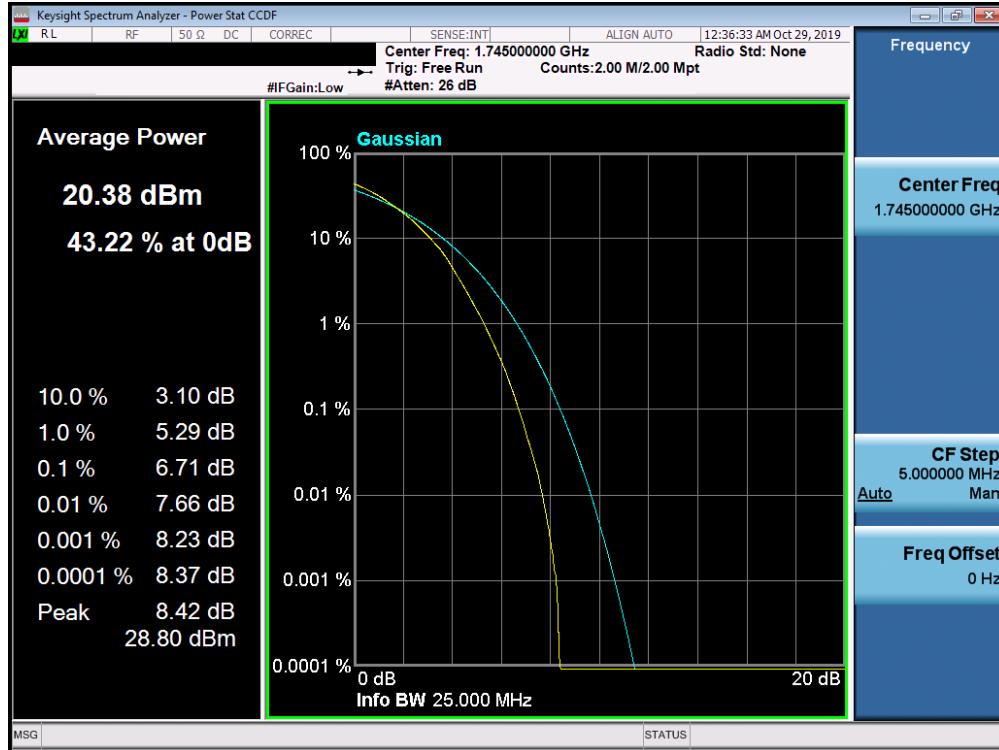


Plot 7-429. PAR Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)

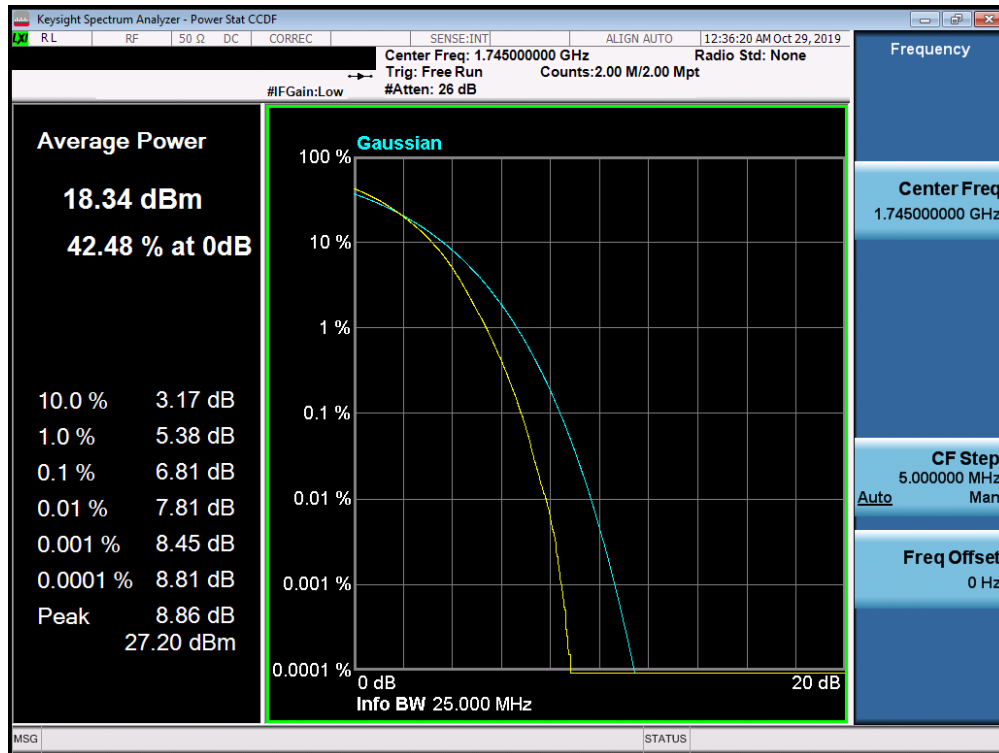


Plot 7-430. PAR Plot (Band 66/4 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 244 of 487

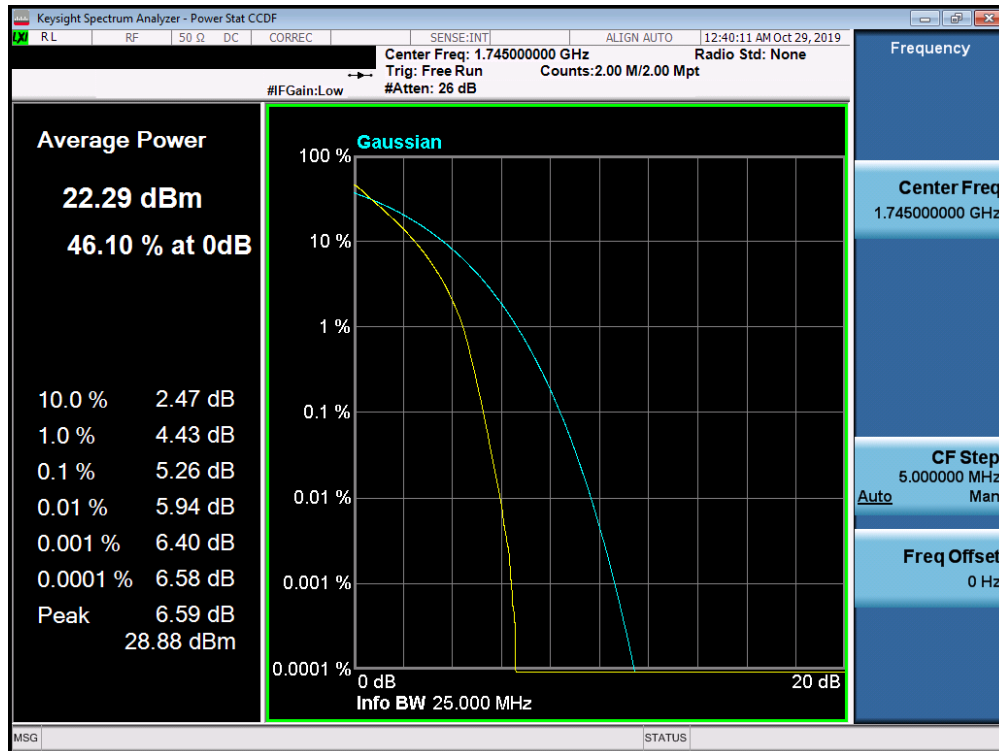


Plot 7-431. PAR Plot (Band 66/4 - 15.0MHz 64-QAM - Full RB Configuration)

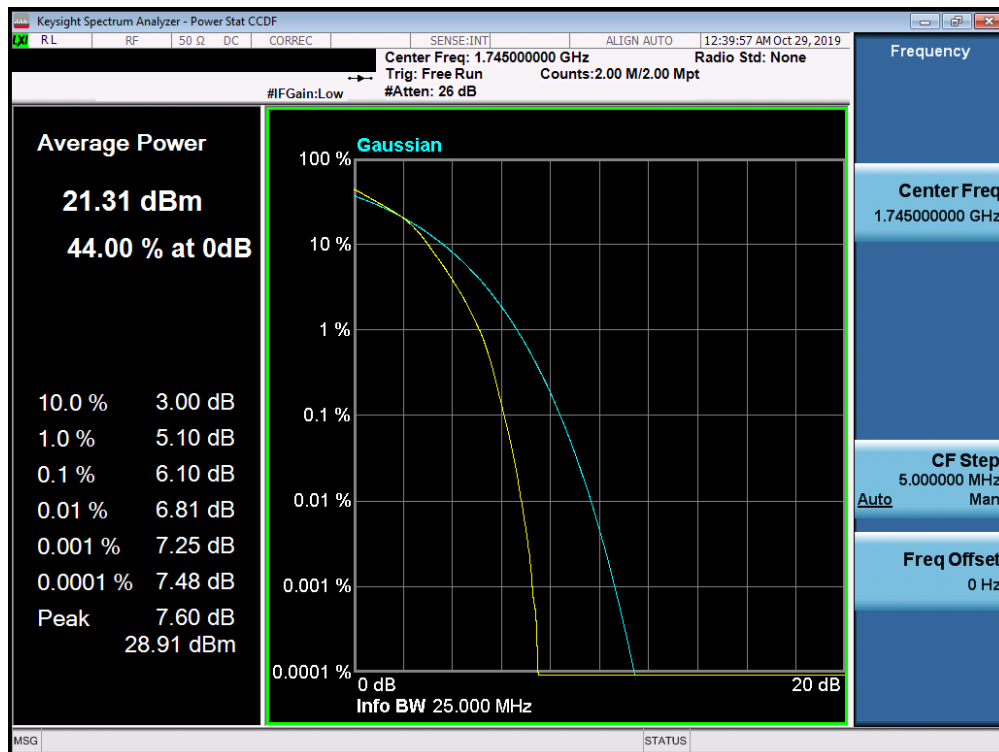


Plot 7-432. PAR Plot (Band 66/4 - 15.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 245 of 487

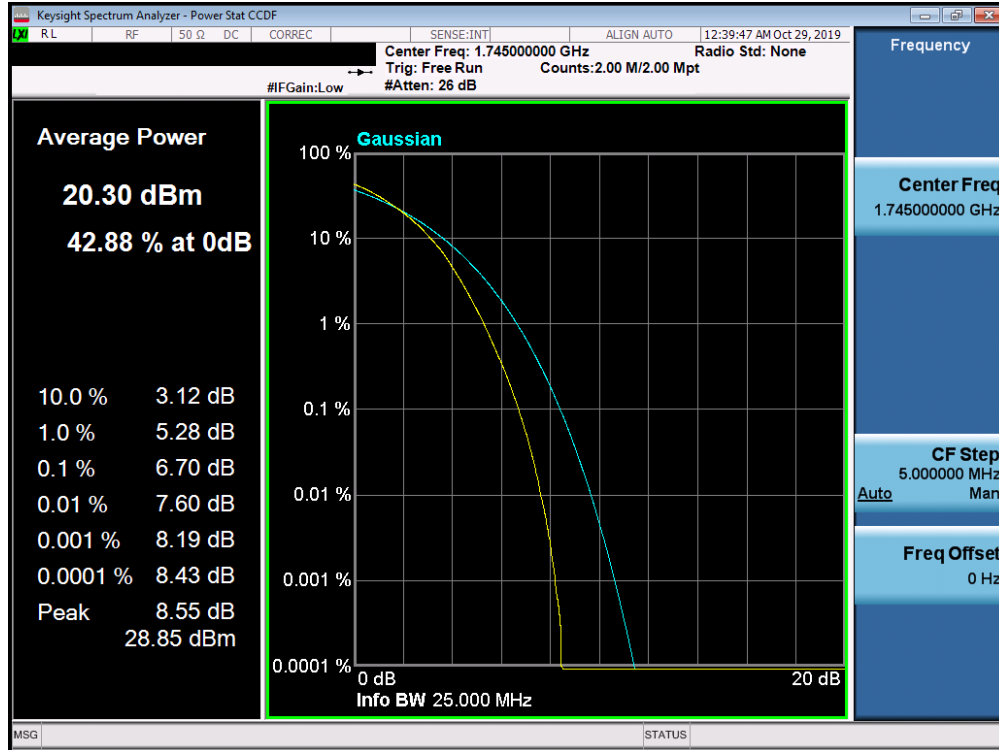


Plot 7-433. PAR Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

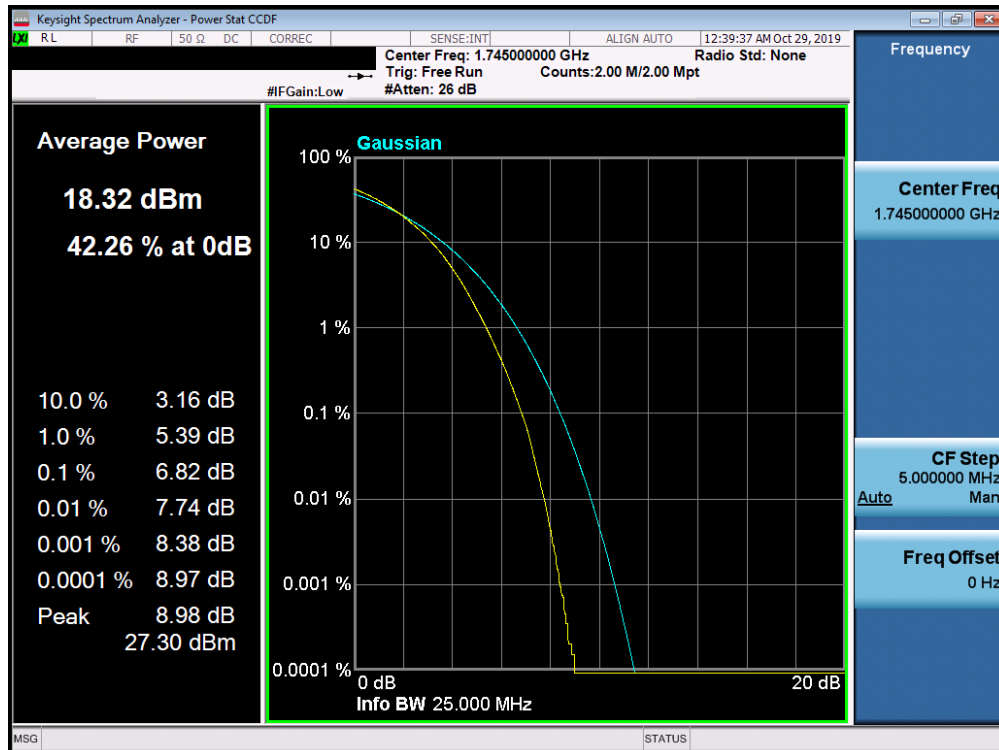


Plot 7-434. PAR Plot (Band 66/4 - 20.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
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Plot 7-435. PAR Plot (Band 66/4 - 20.0MHz 64-QAM - Full RB Configuration)



Plot 7-436. PAR Plot (Band 66/4 - 20.0MHz 256-QAM - Full RB Configuration)

FCC ID: A3LSMG981U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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7.6 Additional Maximum Power Reduction (A-MPR) §2.1046

Test Overview

A-MPR is implemented in this device when operating at Power Class 2 in LTE Band 41 per the A-MPR specification in 3GPP TS 36.101. The conducted powers are shown herein to cover the different A-MPR levels specified in the standard. Measurement equipment was set up with triggering/gating on the spectrum analyzer such that powers were measured only during the on-time of the signal.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 5.2.2

Test Settings

1. Span = 2 x OBW to 3 x OBW
2. RBW = 1% to 5% of the OBW
3. Number of measurement points in sweep $\geq 2 \times \text{span} / \text{RBW}$
4. Sweep = auto-couple (less than transmission burst duration)
5. Detector = RMS (power)
6. Trigger was set to enable power measurements only on full power bursts
7. Trace was allowed to stabilize
8. Spectrum analyzer's "Channel Power" function was used to compute the power by integrating the spectrum across the OBW of the signal

Test Setup

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

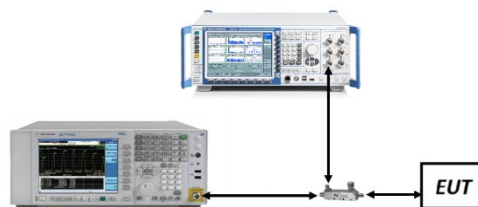


Figure 7-5. Test Instrument & Measurement Setup

Test Notes

None.

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Test Case	NS	MCC	MNC	Channel BW [MHz]	Channel Number	Channel Frequency [MHz]	Modulation	RB Size	RB Offset	MPR [dB]	MPR [dB]	A-MPR [dB]	A-MPR [dB]	Measured Power [dBm]
1	01	311	490	5	39675	2498.5	QPSK	1	0	0	0	≤ 3	3	23.28
							16-QAM			≤ 1	1		3	22.58
							64-QAM			≤ 2	2		3	22.17
							256-QAM			≤ 5	5		3	19.20
2				5	39675	2498.5	QPSK	1	9	0	0	0	0	26.21
							16-QAM			≤ 1	1		0	25.48
							64-QAM			≤ 2	2		0	24.61
							256-QAM			≤ 5	5		0	22.53
3				10	39700	2501	QPSK	1	0	0	0	≤ 5	5	21.37
							16-QAM			≤ 1	1		5	20.93
							64-QAM			≤ 2	2		5	19.44
							256-QAM			≤ 5	5		5	18.56
4				10	39700	2501	QPSK	20	0	≤ 1	1	≤ 2	2	23.37
							16-QAM			≤ 2	2		2	22.56
							64-QAM			≤ 3	3		2	21.54
							256-QAM			≤ 5	5		2	19.48
5				10	39700	2501	QPSK	50	0	≤ 1	1	≤ 3	3	22.38
							16-QAM			≤ 2	2		3	21.46
							64-QAM			≤ 3	3		3	20.52
							256-QAM			≤ 5	5		3	18.53
6				10	39700	2501	QPSK	25	20	≤ 1	1	≤ 1	1	25.74
							16-QAM			≤ 2	2		1	24.36
							64-QAM			≤ 3	3		1	22.66
							256-QAM			≤ 5	5		1	21.43
7				10	39700	2501	QPSK	1	36	0	0	0	0	26.31
							16-QAM			≤ 1	1		0	25.62
							64-QAM			≤ 2	2		0	24.73
							256-QAM			≤ 5	5		0	21.33
8				15	39725	2503.5	QPSK	1	0	0	0	≤ 5	5	21.49
							16-QAM			≤ 1	1		5	20.94
							64-QAM			≤ 2	2		5	19.56
							256-QAM			≤ 5	5		5	16.41
9				15	39725	2503.5	QPSK	20	0	≤ 1	1	≤ 2	2	23.58
							16-QAM			≤ 2	2		2	22.65
							64-QAM			≤ 3	3		2	21.72
							256-QAM			≤ 5	5		2	19.52
10				15	39725	2503.5	QPSK	75	0	≤ 1	1	≤ 4	4	21.59
							16-QAM			≤ 2	2		4	20.61
							64-QAM			≤ 3	3		4	19.63
							256-QAM			≤ 5	5		4	17.59
11				15	39725	2503.5	QPSK	50	15	≤ 1	1	≤ 3	3	22.56
							16-QAM			≤ 2	2		3	21.65
							64-QAM			≤ 3	3		3	20.65
							256-QAM			≤ 5	5		3	18.67
12				15	39725	2503.5	QPSK	1	60	0	0	0	0	26.38
							16-QAM			≤ 1	1		0	25.65
							64-QAM			≤ 2	2		0	25.30
							256-QAM			≤ 5	5		0	21.69
13				20	39750	2506	QPSK	1	0	0	0	≤ 5	5	21.39
							16-QAM			≤ 1	1		5	20.84
							64-QAM			≤ 2	2		5	19.57
							256-QAM			≤ 5	5		5	16.22
14				20	39750	2506	QPSK	20	0	≤ 1	1	≤ 2	2	23.56
							16-QAM			≤ 2	2		2	22.53
							64-QAM			≤ 3	3		2	21.62
							256-QAM			≤ 5	5		2	19.38
15				20	39750	2506	QPSK	100	0	≤ 1	1	≤ 4	4	21.48
							16-QAM			≤ 2	2		4	20.55
							64-QAM			≤ 3	3		4	19.52
							256-QAM			≤ 5	5		4	17.62
16				20	39750	2506	QPSK	75	24	≤ 1	1	≤ 3	3	22.57
							16-QAM			≤ 2	2		3	21.55
							64-QAM			≤ 3	3		3	20.62
							256-QAM			≤ 5	5		3	18.56
17				20	39750	2506	QPSK	1	77	0	0	0	0	26.39
							16-QAM			≤ 1	1		0	25.67
							64-QAM			≤ 2	2		0	25.44
							256-QAM			≤ 5	5		0	21.69
18	01	312	530	5	39675	2498.5	QPSK	1	0	0	0	≤ 3	3	23.23
	01	001	01				16-QAM			≤ 1	1		3	22.55
							64-QAM			≤ 2	2		3	21.34
							256-QAM			≤ 5	5		3	18.34
19	01	001	01	5	39675	2498.5	QPSK	1	0	0	0	0	0	26.60
							16-QAM			≤ 1	1		0	25.35
							64-QAM			≤ 2	2		0	24.53
							256-QAM			≤ 5	5		0	22.31

Table 7-3. A-MPR Conducted Power Measurements

FCC ID: A3LSMG981U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset	Page 249 of 487	

7.7 Uplink Carrier Aggregation

§27.53(m)

Test Overview

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

For Band 38/41, the minimum permissible attenuation level of any spurious emission is $55 + 10 \log_{10}(P_{\text{Watts}})$.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

Test Settings

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

Test Setup

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

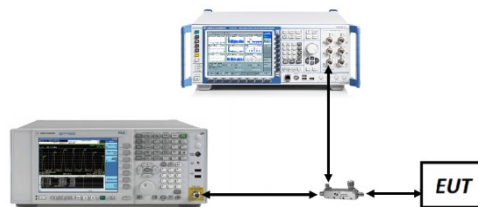


Figure 7-6. Test Instrument & Measurement Setup

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 250 of 487

Test Notes

1. Uplink carrier aggregation is supported in this EUT while operating in Power Class 2 and 3.
2. Conducted power and spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device. The worst case (highest) powers were found while operating with QPSK modulation, as shown in Table 7-503 and 7-504 below, with both carriers set to transmit using 1RB.
3. Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

FCC ID: A3LSMG981U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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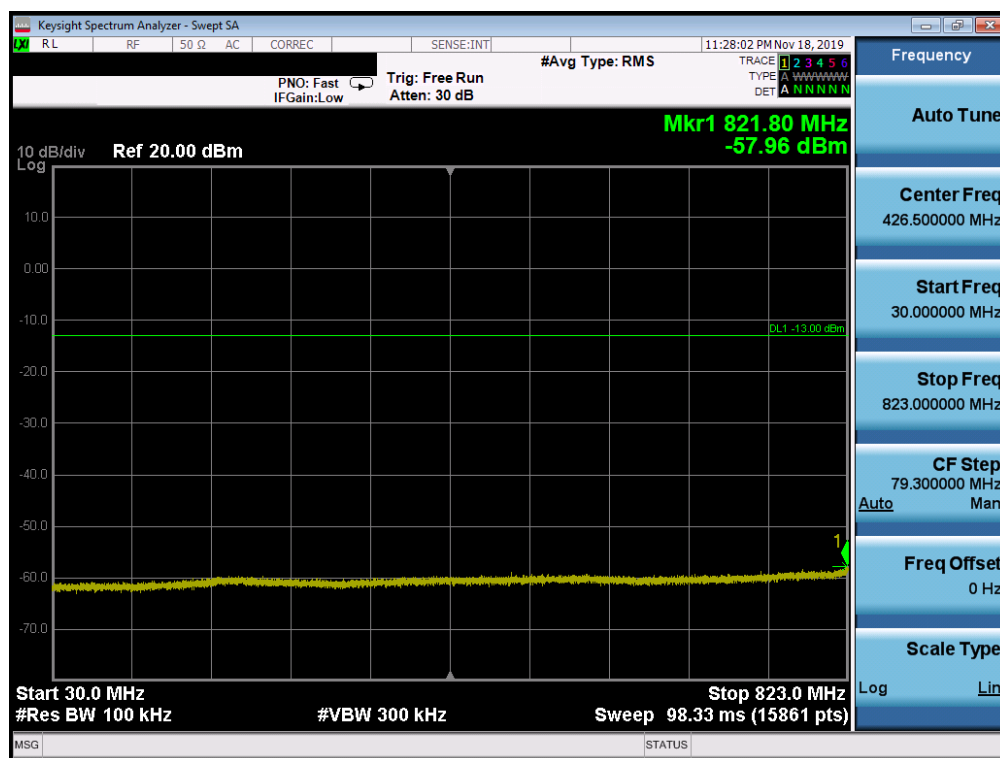
Uplink CA Configuration 5B

Power State	PCC							SCC							Power ULCA Tx.Power (dBm)
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	
Max	LTE B5	10	20450	829	QPSK	1	49	LTE B5	10	20549	838.9	QPSK	1	0	24.27
Max	LTE B5	10	20525	836.5	QPSK	1	49	LTE B5	5	20597	843.7	QPSK	1	0	24.32
Max	LTE B5	10	20600	844	QPSK	1	0	LTE B5	10	20501	834.1	QPSK	1	49	24.56

Table 7-4. Conducted Powers (B5 – PCC/SCC: RB Size 1)

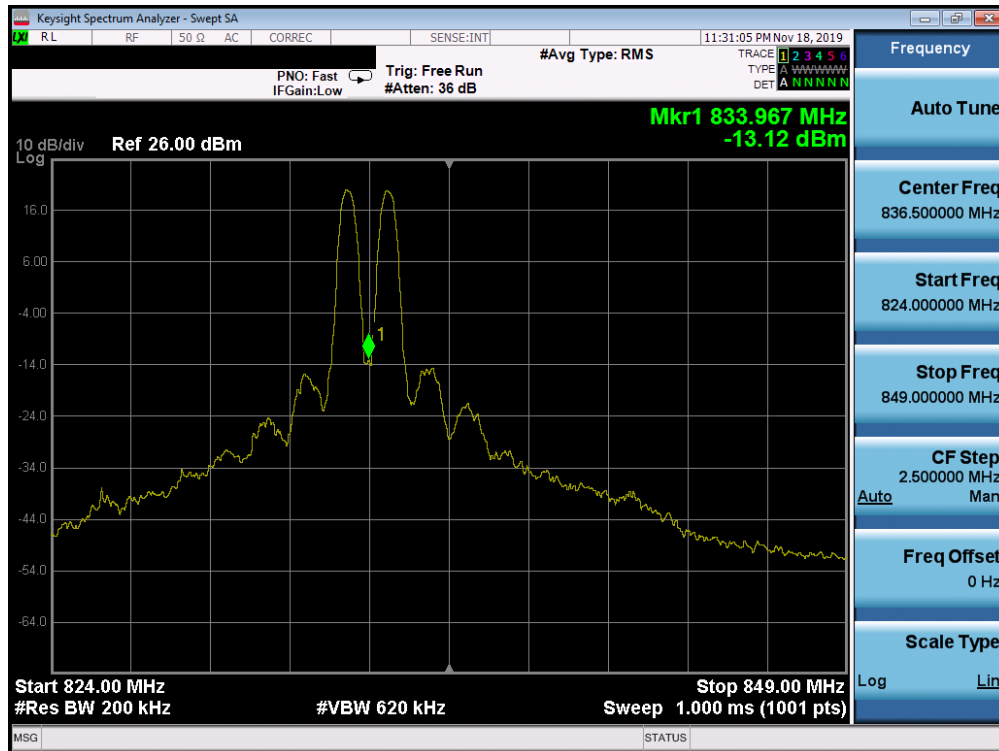
Power State	PCC							SCC							Power ULCA Tx.Power (dBm)
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	
Max	LTE B5	10	20600	844	QPSK	50	0	LTE B5	10	20699	853.9	QPSK	50	0	22.69
Max	LTE B5	10	20600	844	16-QAM	50	0	LTE B5	10	20699	853.9	16-QAM	50	0	21.56
Max	LTE B5	10	20600	844	64-QAM	50	0	LTE B5	10	20699	853.9	64-QAM	50	0	20.49
Max	LTE B5	10	20600	844	256-QAM	50	0	LTE B5	10	20699	853.9	256-QAM	50	0	18.25

Table 7-5. Conducted Powers (B5 with Various Combinations for 10MHz Channel Bandwidth)

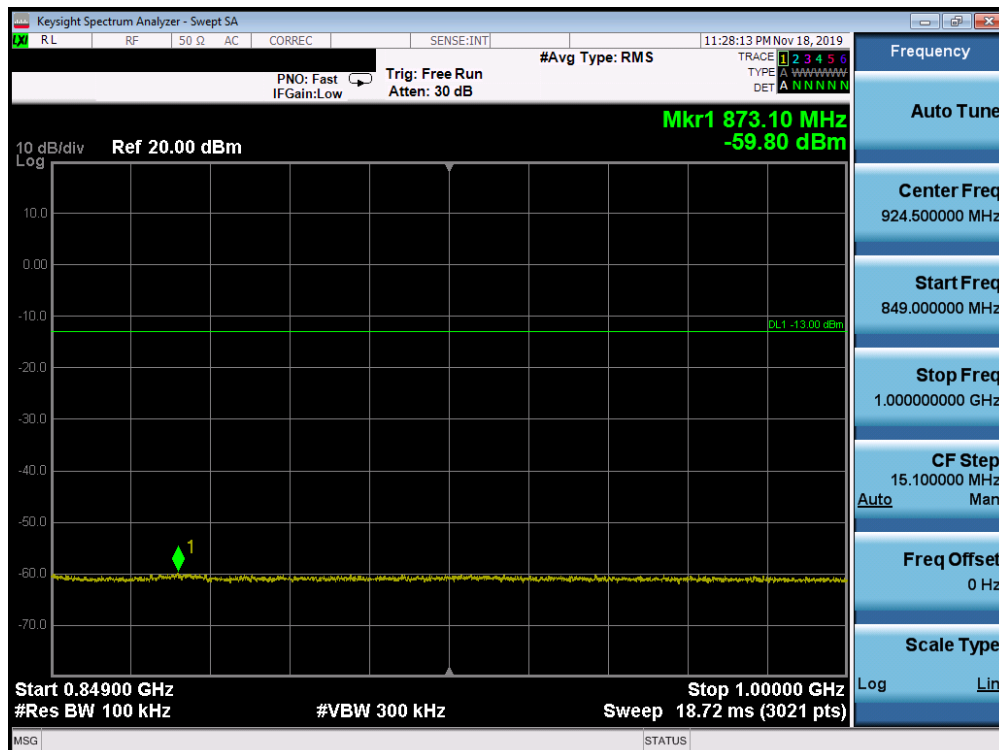


Plot 7-437. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 252 of 487

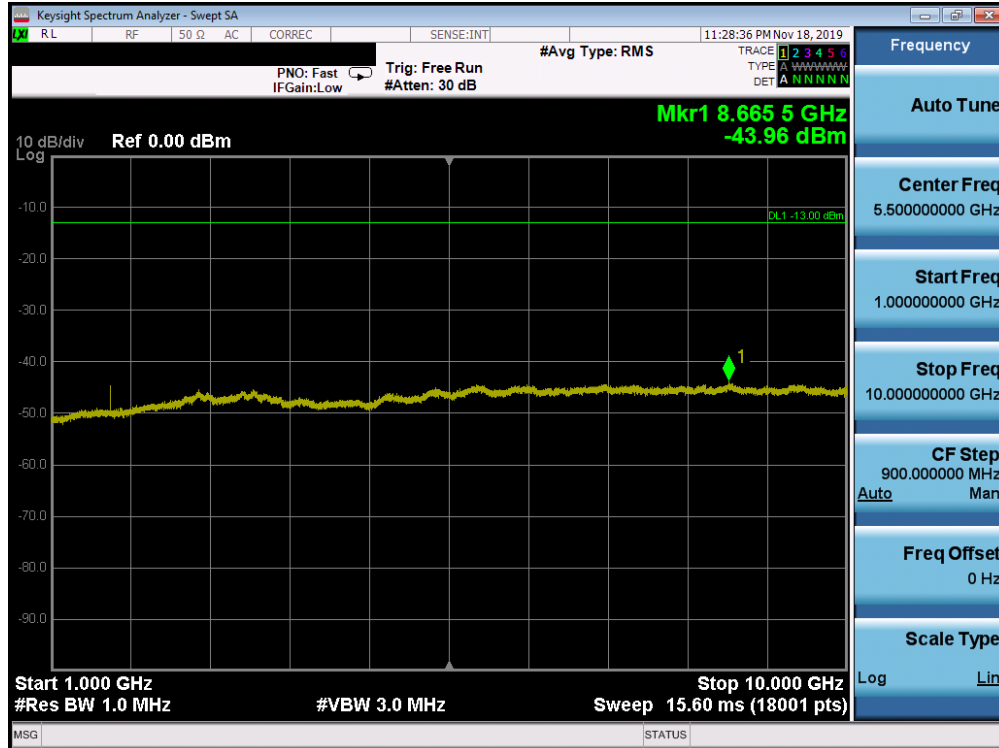


Plot 7-438. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)

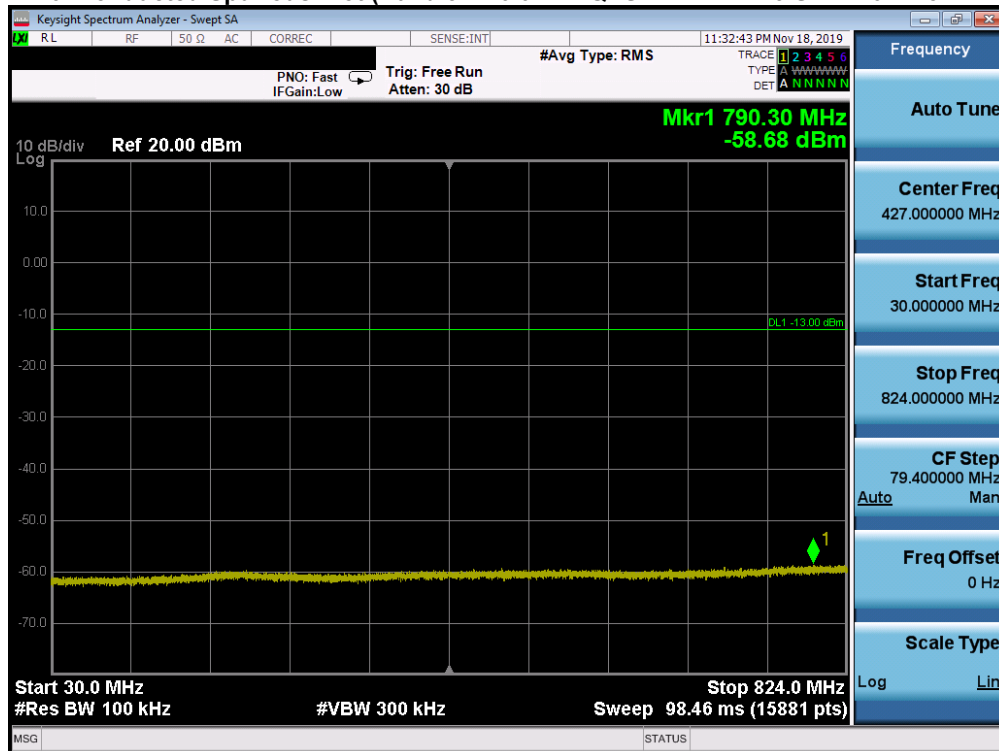


Plot 7-439. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 253 of 487



Plot 7-440. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/49 SCC 1/0 – Low Channel)

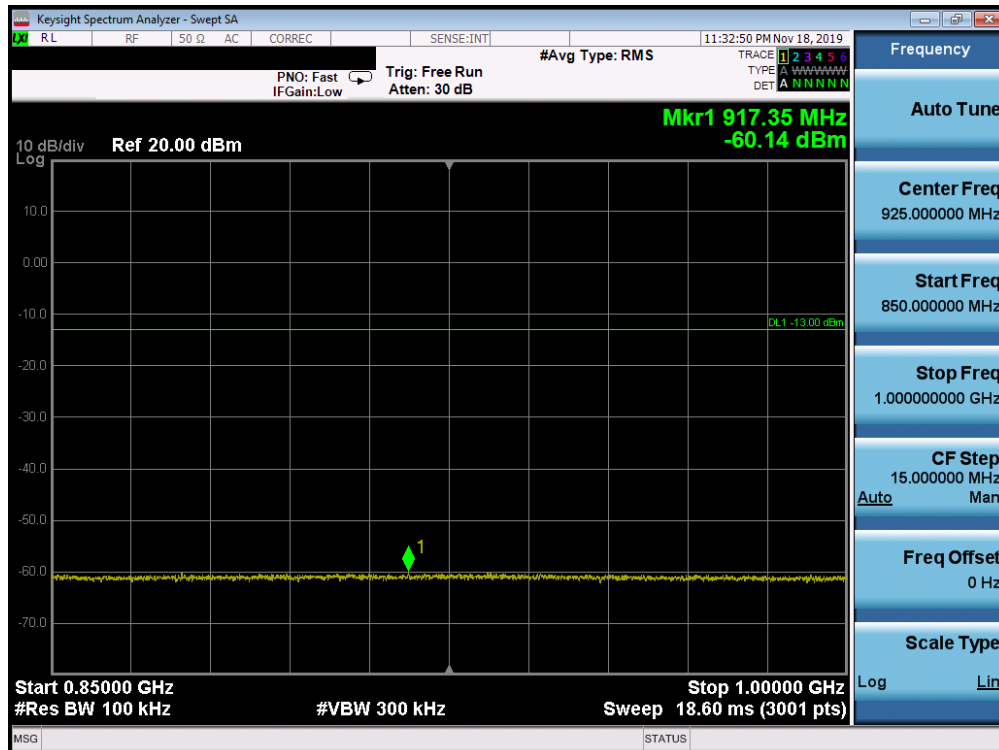


Plot 7-441. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/0 SCC 1/49 – High Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 254 of 487

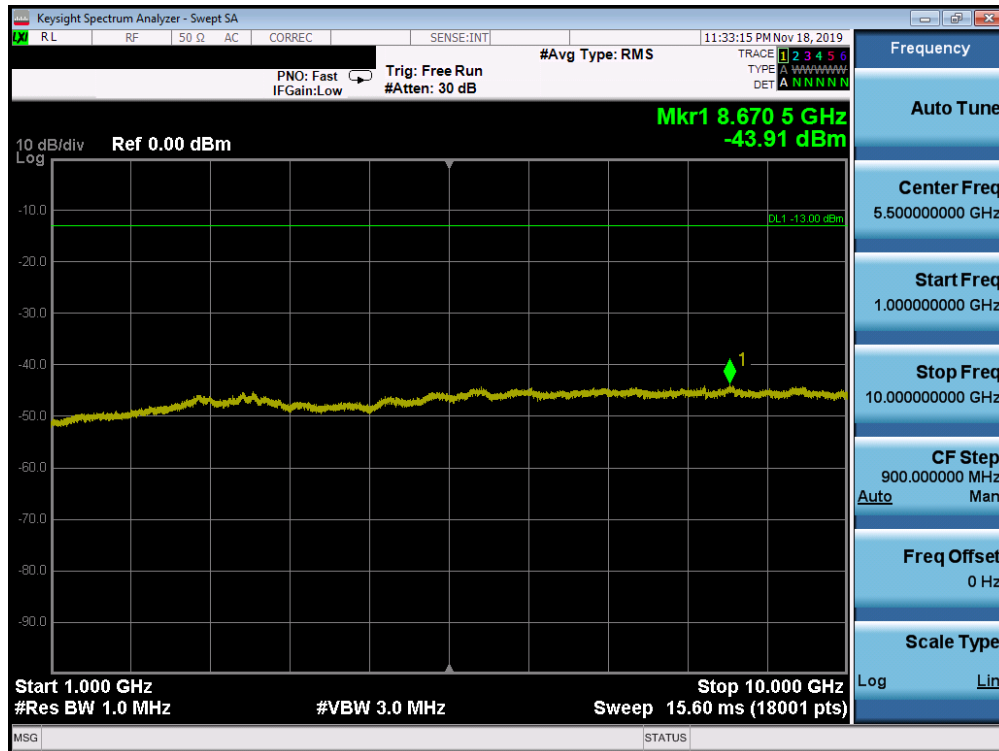


Plot 7-442. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/0 SCC 1/49 – High Channel)



Plot 7-443. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/0 SCC 1/49 – High Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 255 of 487

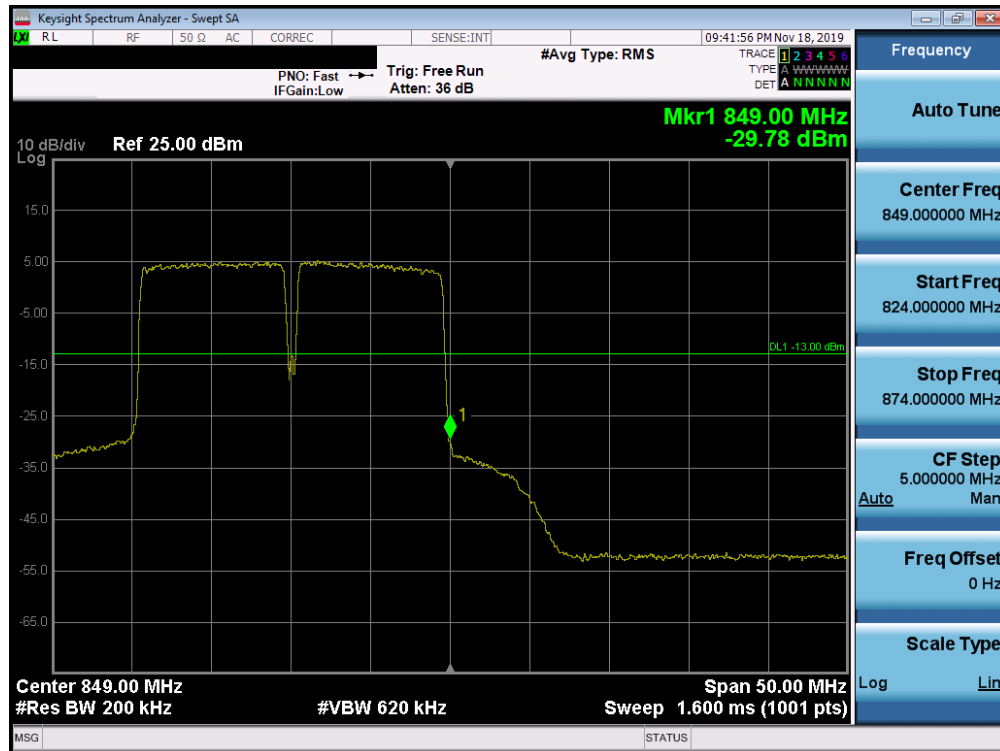


Plot 7-444. Conducted Spurious Plot (Band 5 – 10.0MHz QPSK – PCC 1/0 SCC 1/49 – High Channel)



Plot 7-445. Lower Band Edge Plot (Band 5 QPSK – PCC:10 MHz SCC:10 MHz – Full RB)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 256 of 487



Plot 7-446. Upper Band Edge Plot (Band 5 QPSK – PCC:10 MHz SCC:10 MHz – Full RB)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 257 of 487

Uplink CA Configuration 66B/C

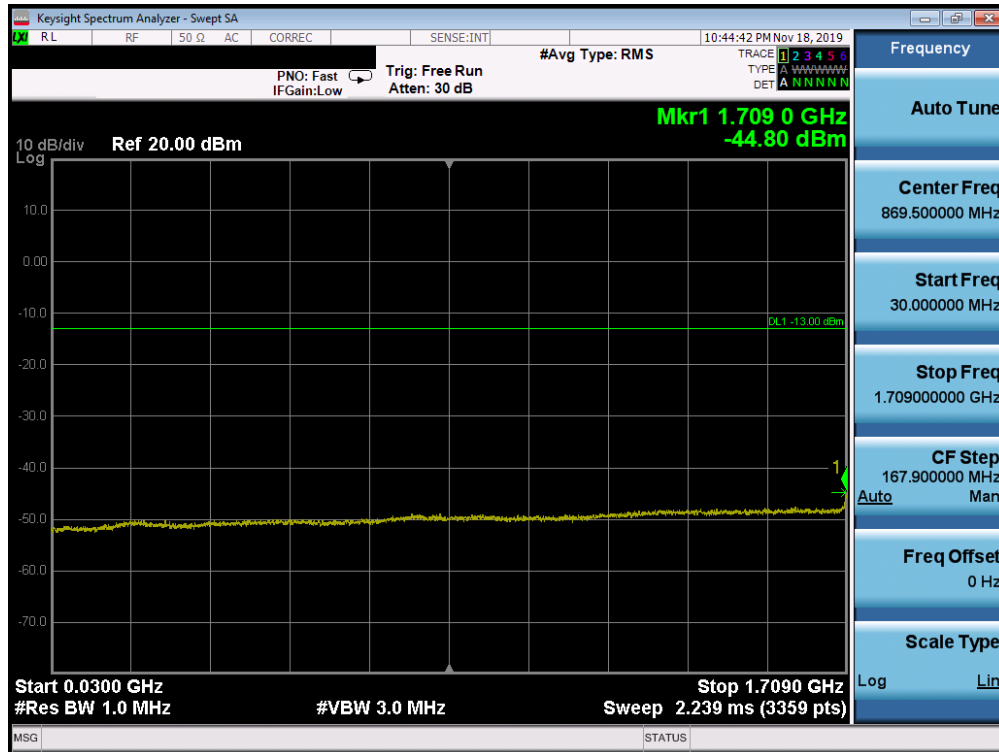
Power State	PCC							SCC							Power ULCA Tx.Power (dBm)
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	
Max	LTE B66	20	132072	1720	QPSK	1	99	LTE B66	20	132270	1739.8	QPSK	1	0	23.96
Max	LTE B66	20	132322	1745	QPSK	1	99	LTE B66	20	132520	1764.8	QPSK	1	0	24.06
Max	LTE B66	20	132572	1770	QPSK	1	0	LTE B66	20	132374	1750.2	QPSK	1	99	24.11

Table 7-6. Conducted Powers (B66 – 20MHz + 20MHz Channel Bandwidth – PCC/SCC: RB Size 1)

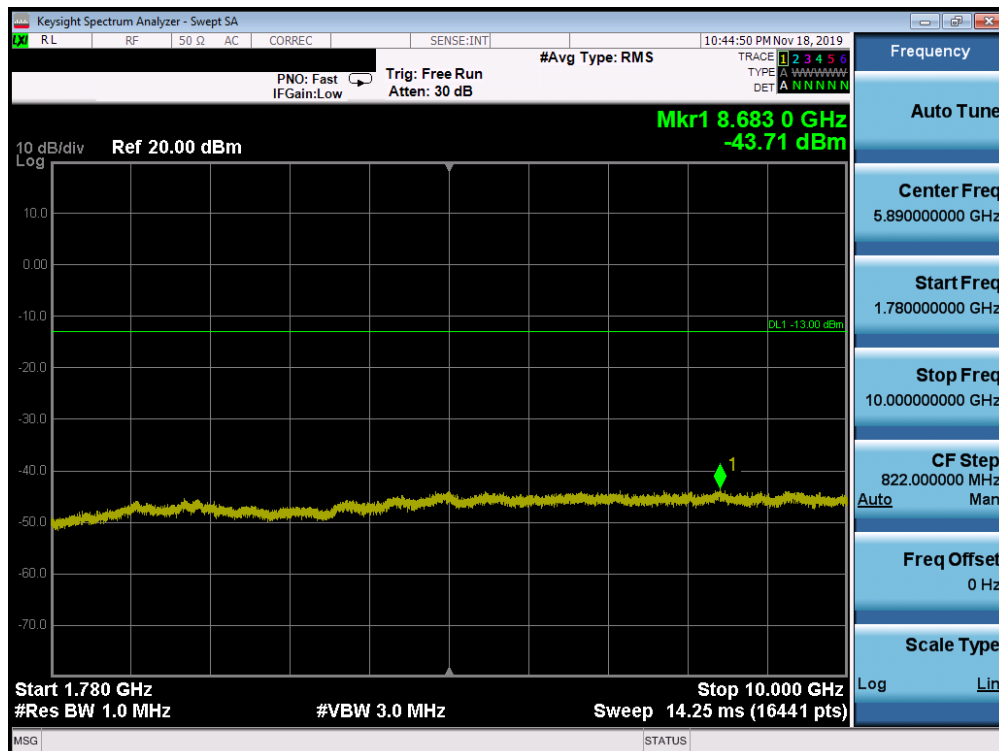
Power State	PCC							SCC							Power ULCA Tx.Power (dBm)
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	
Max	LTE B66	20	132572	1770	QPSK	100	0	LTE B66	20	132770	1789.8	QPSK	100	0	22.14
Max	LTE B66	20	132572	1770	16-QAM	100	0	LTE B66	20	132770	1789.8	16-QAM	100	0	21.15
Max	LTE B66	20	132572	1770	64-QAM	100	0	LTE B66	20	132770	1789.8	64-QAM	100	0	20.86
Max	LTE B66	20	132572	1770	256-QAM	100	0	LTE B66	20	132770	1789.8	256-QAM	100	0	18.42

Table 7-7. Conducted Powers (B66 with Various Combinations for 20MHz + 20MHz Channel Bandwidth)

FCC ID: A3LSMG981U			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset			Page 258 of 487

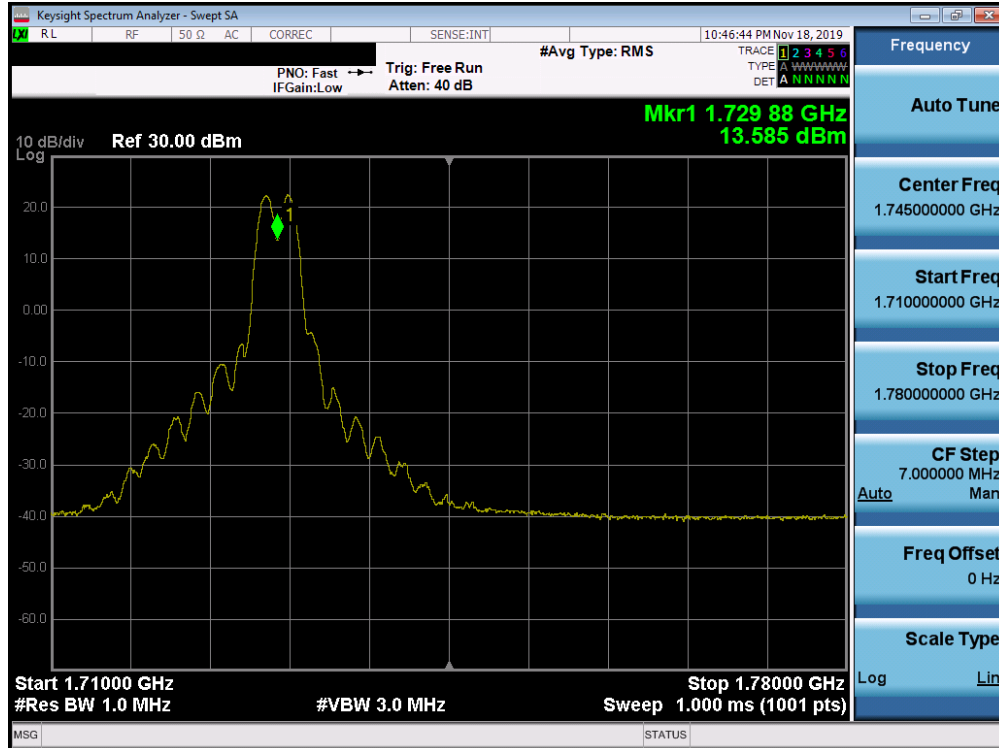


Plot 7-447. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

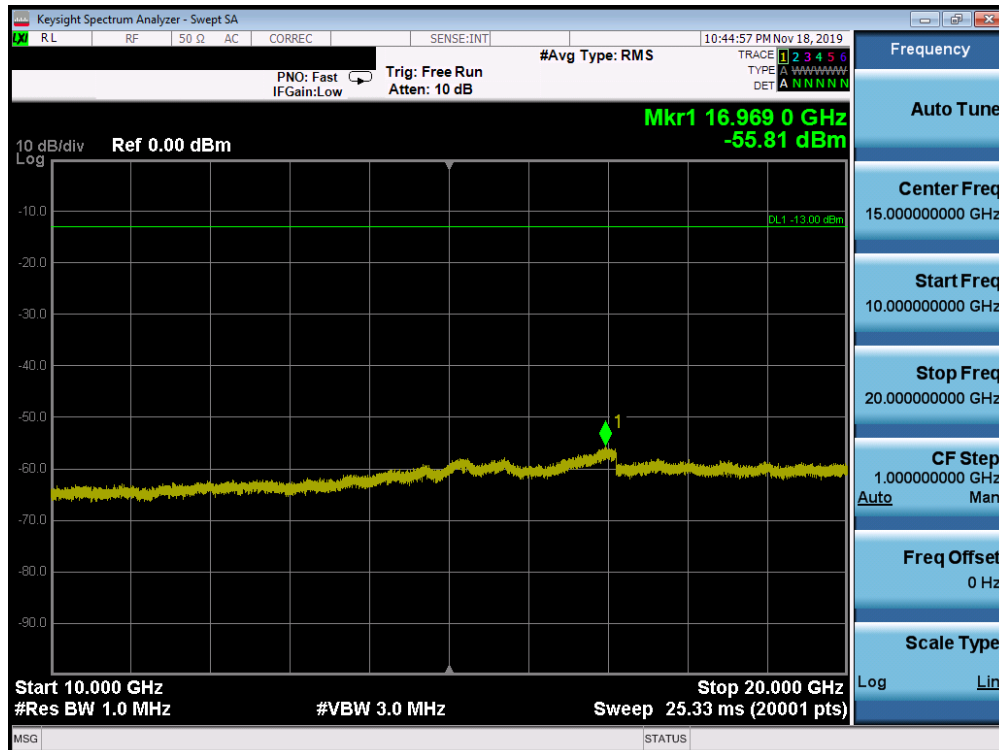


Plot 7-448. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 259 of 487

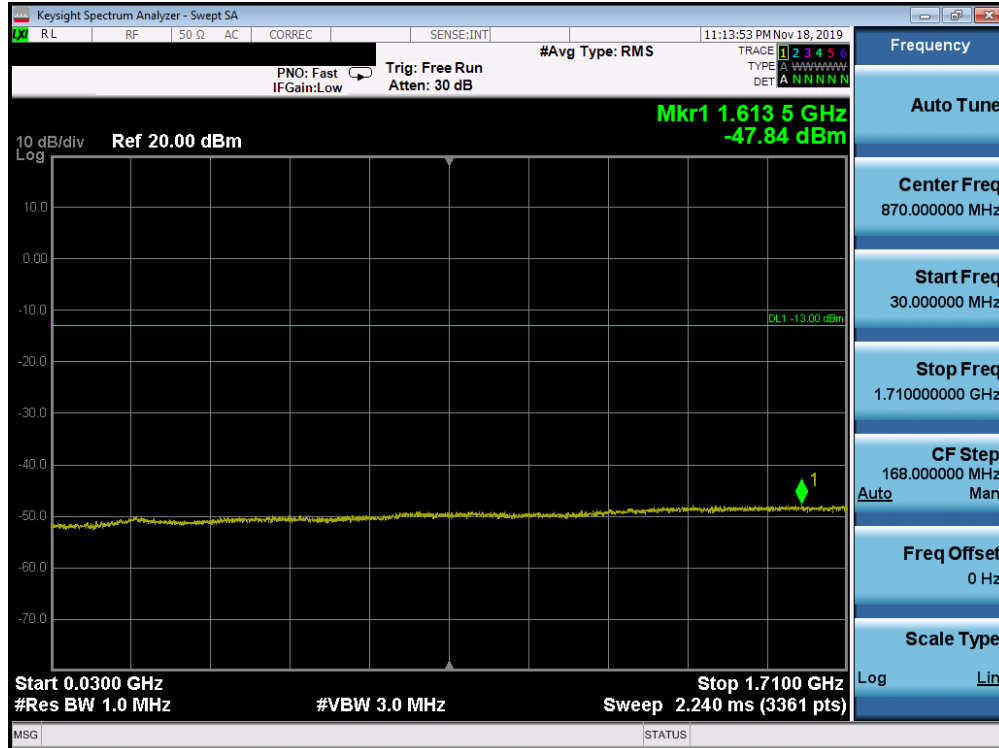


Plot 7-449. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

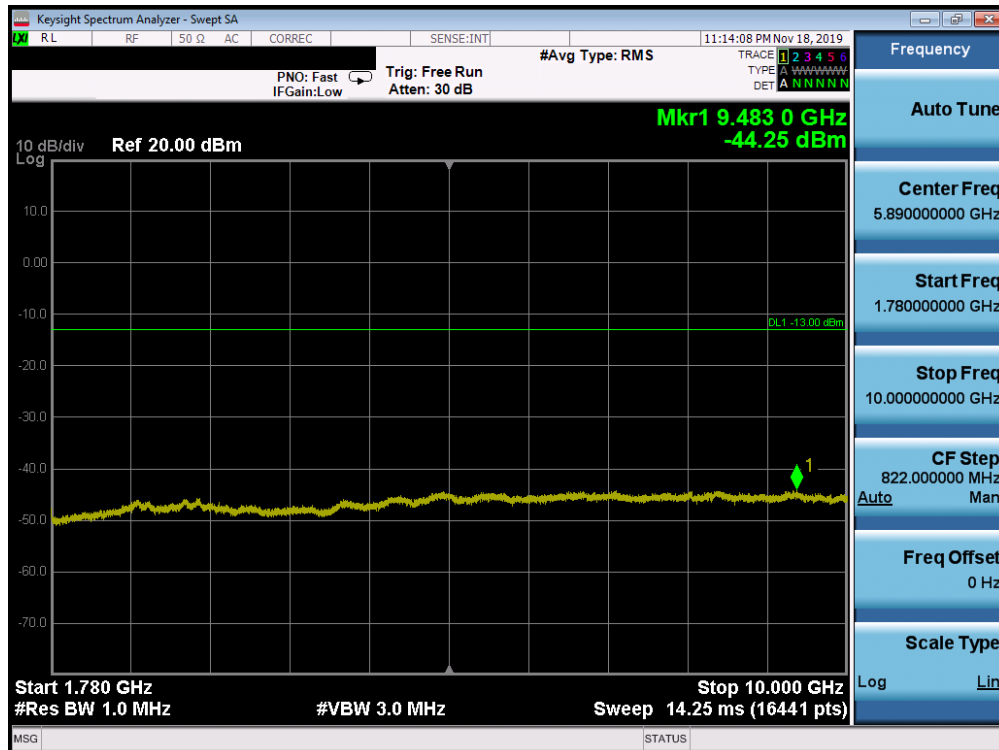


Plot 7-450. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 260 of 487

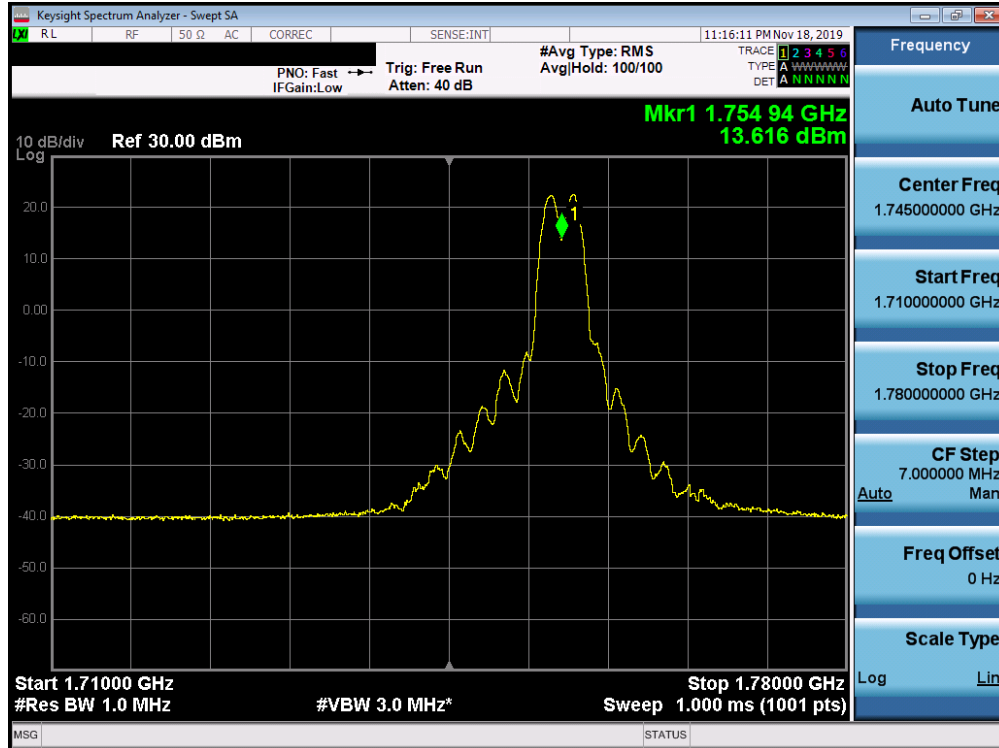


Plot 7-451. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

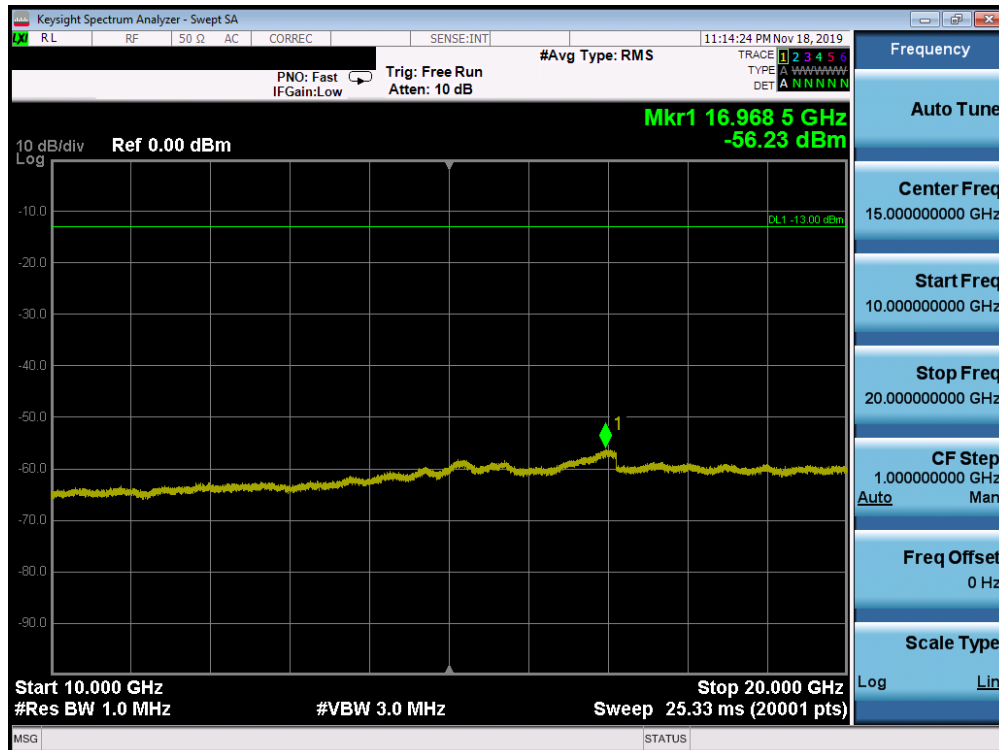


Plot 7-452. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 261 of 487



Plot 7-453. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

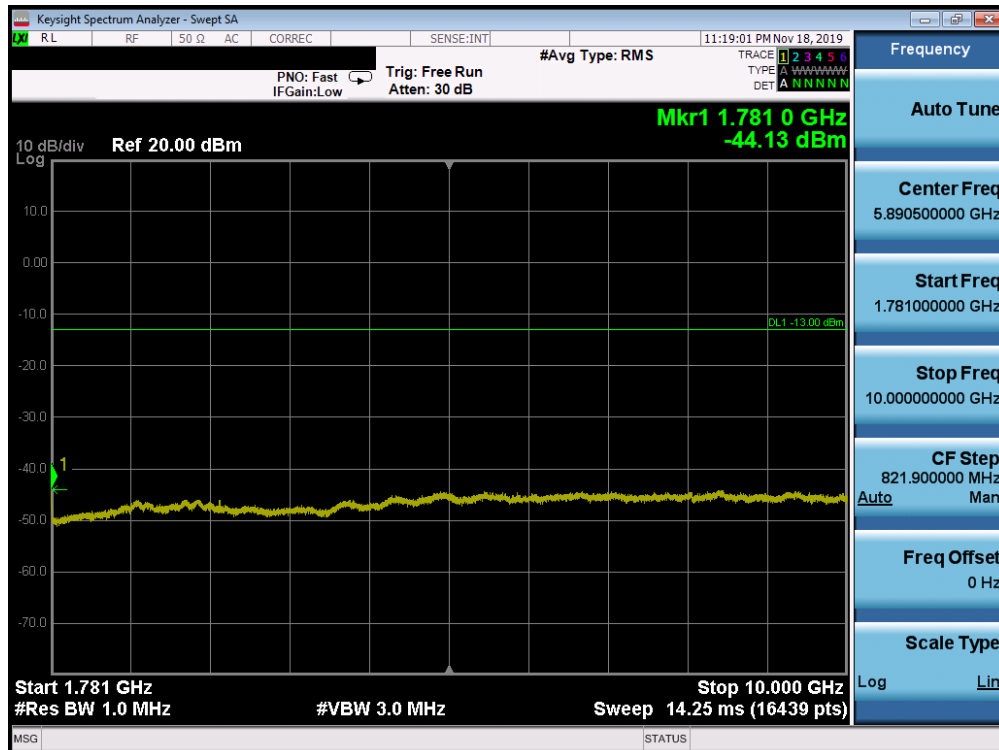


Plot 7-454. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 262 of 487

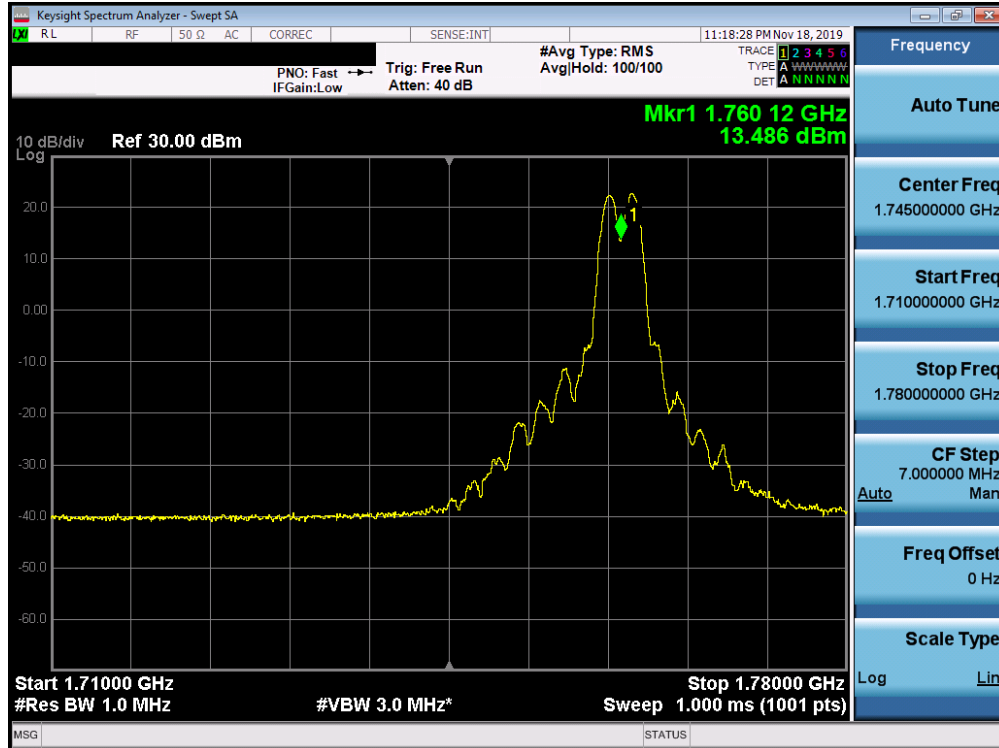


Plot 7-455. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)

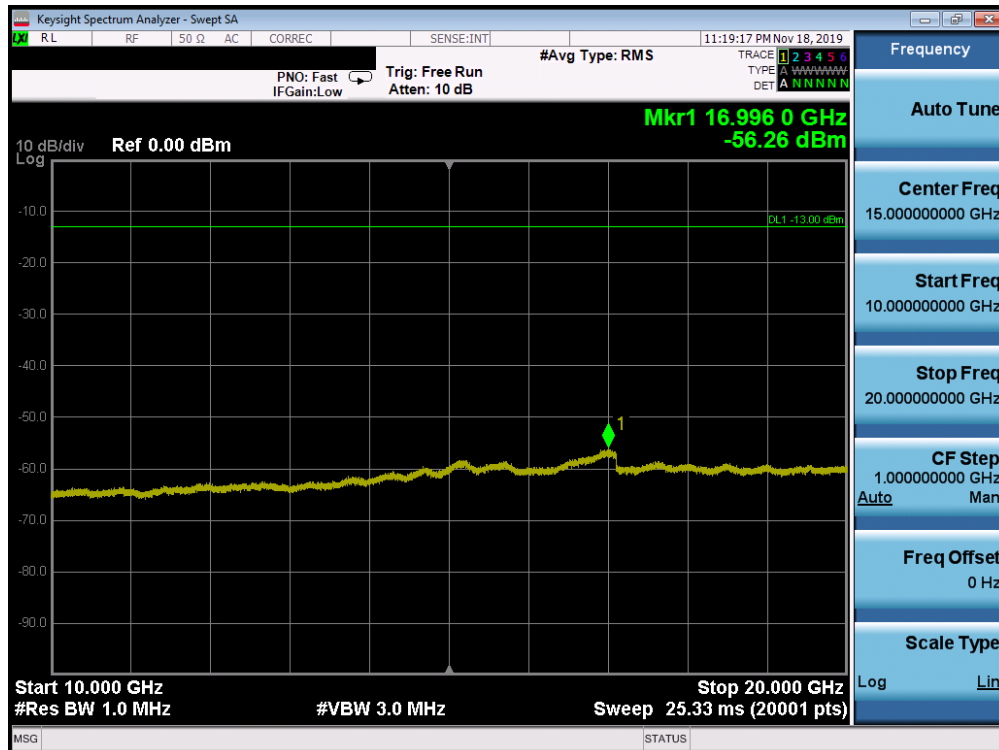


Plot 7-456. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 263 of 487

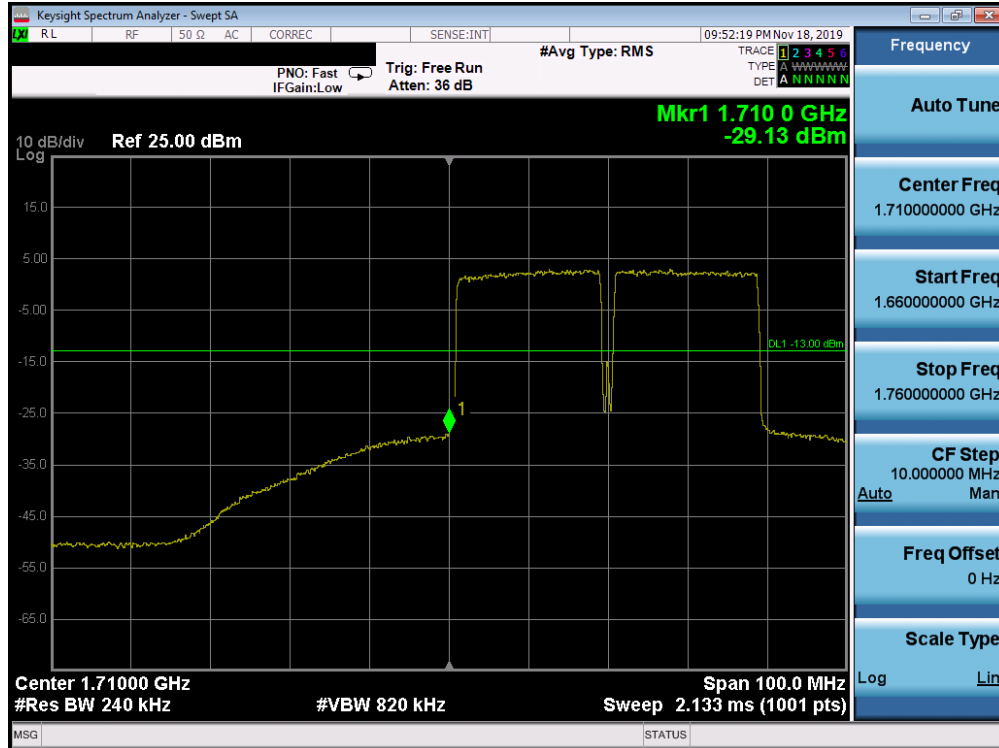


Plot 7-457. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)

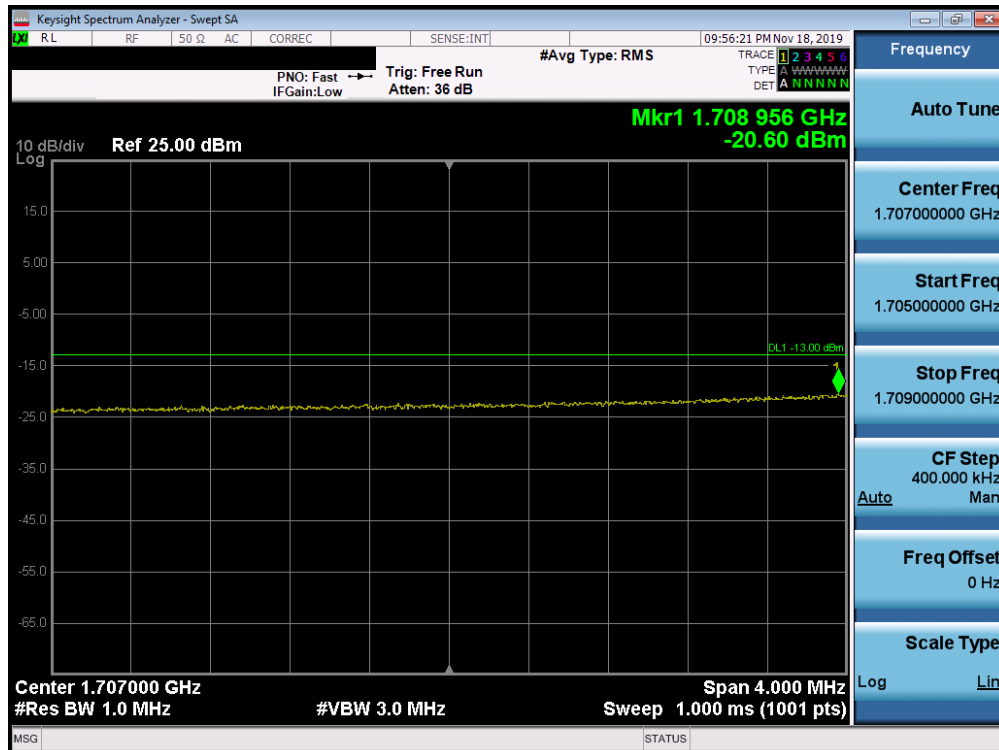


Plot 7-458. Conducted Spurious Plot (Band 66 – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 264 of 487

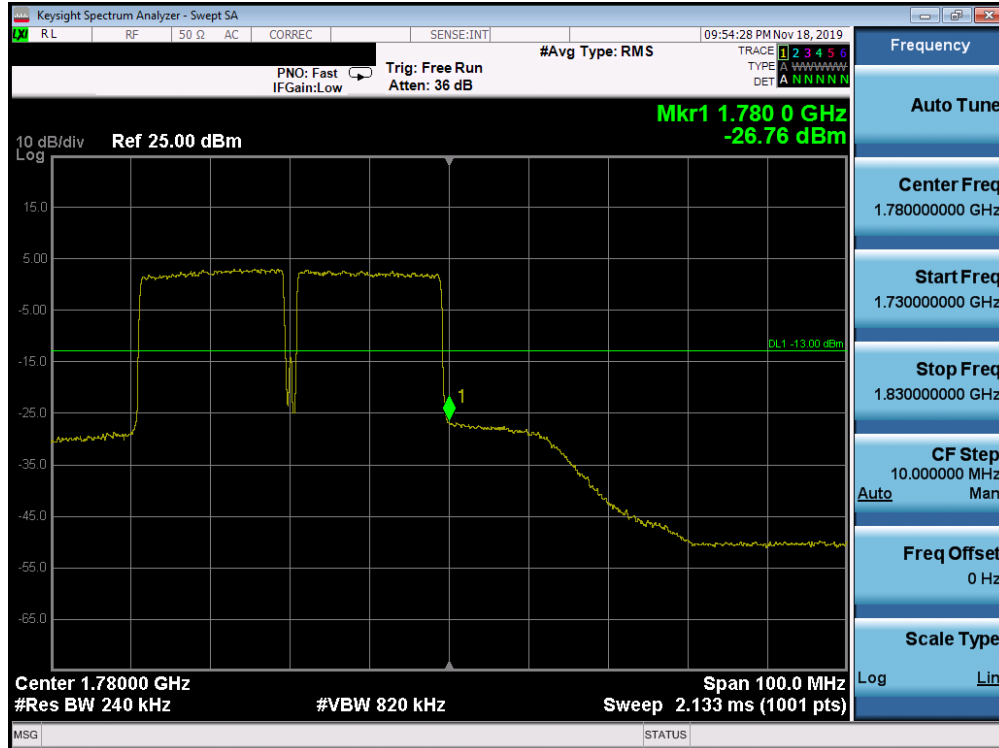


Plot 7-459. Lower Band Edge Plot (Band 66 QPSK – PCC:20 MHz SCC:20 MHz – Full RB)

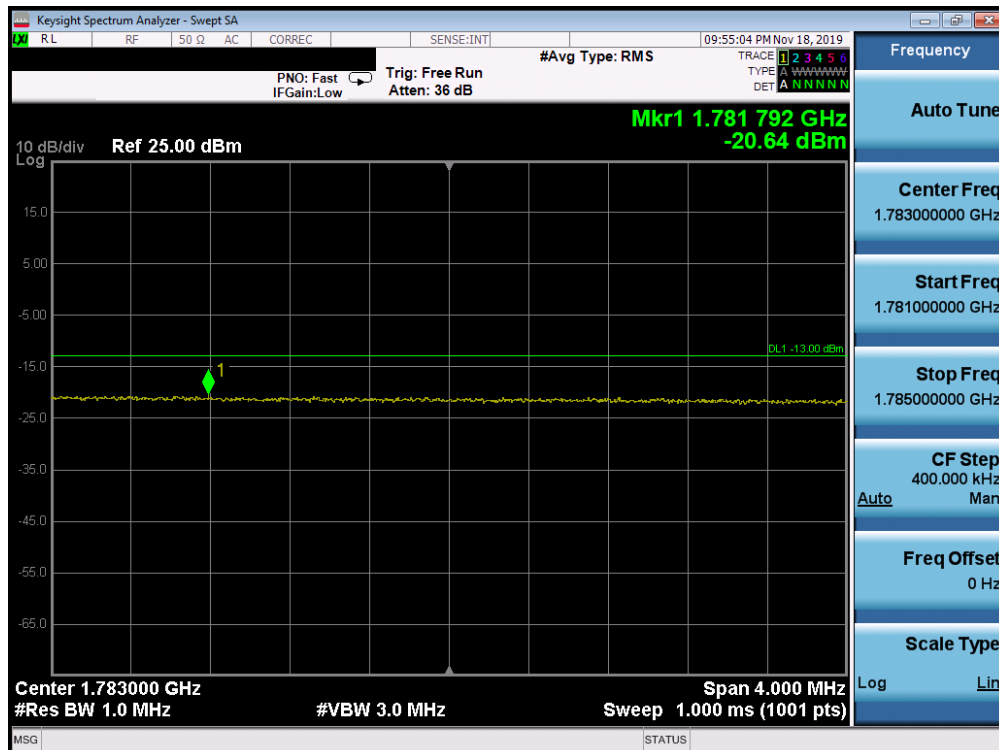


Plot 7-460. Extended Lower Band Edge Plot (Band 66 QPSK – PCC:20 MHz SCC:20 MHz – Full RB)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 265 of 487



Plot 7-461. Upper Band Edge Plot (Band 66 QPSK – PCC:20 MHz SCC:20 MHz – Full RB)



Plot 7-462. Extended Upper Band Edge Plot (Band 66 QPSK – PCC:20 MHz SCC:20 MHz – Full RB)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 266 of 487

Uplink CA Configuration B41 (PC3)

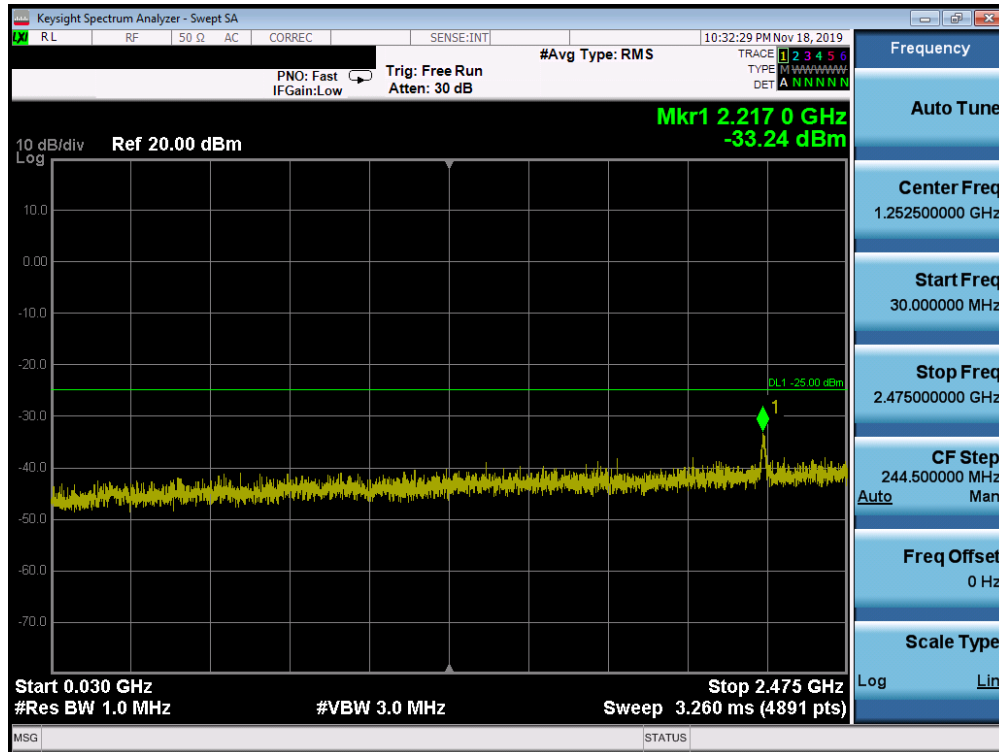
Power State	PCC							SCC							Power ULCA Tx.Power (dBm)
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	
Max	LTE B41	20	39750	2506	QPSK	1	99	LTE B41	20	39948	2525.8	QPSK	1	0	23.44
Max	LTE B41	20	40620	2593	QPSK	1	99	LTE B41	20	40818	2612.8	QPSK	1	0	23.23
Max	LTE B41	20	41490	2680	QPSK	1	0	LTE B41	20	41292	2660.2	QPSK	1	99	23.04

Table 7-8. Conducted Powers (B41 (PC3) – 20MHz + 20MHz Channel Bandwidth - PCC/SCC: 1RB)

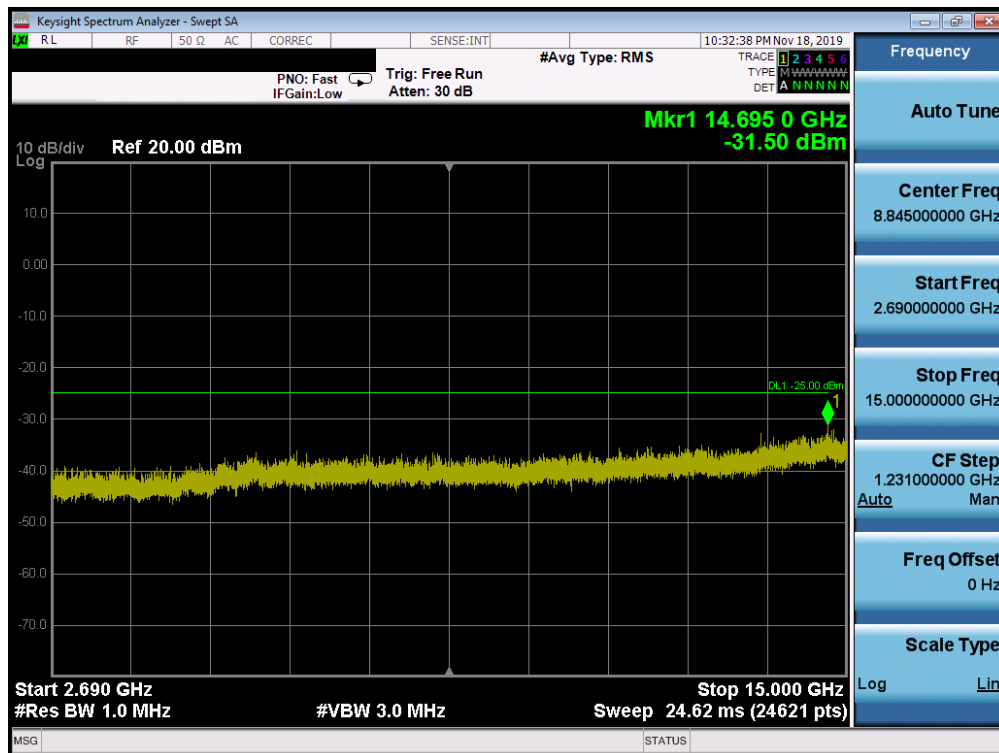
Power State	PCC							SCC							Power ULCA Tx.Power (dBm)
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	
Max	LTE B41	20	39750	2506	QPSK	100	0	LTE B41	20	39948	2525.8	QPSK	100	0	21.29
Max	LTE B41	20	39750	2506	16-QAM	100	0	LTE B41	20	39948	2525.8	16-QAM	100	0	20.28
Max	LTE B41	20	39750	2506	64-QAM	100	0	LTE B41	20	39948	2525.8	64-QAM	100	0	20.07
Max	LTE B41	20	39750	2506	256-QAM	100	0	LTE B41	20	39948	2525.8	256-QAM	100	0	17.68

Table 7-9. Conducted Powers (B41 (PC3) with Various Combinations for 20MHz + 20MHz Channel Bandwidth)

FCC ID: A3LSMG981U		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset			Page 267 of 487

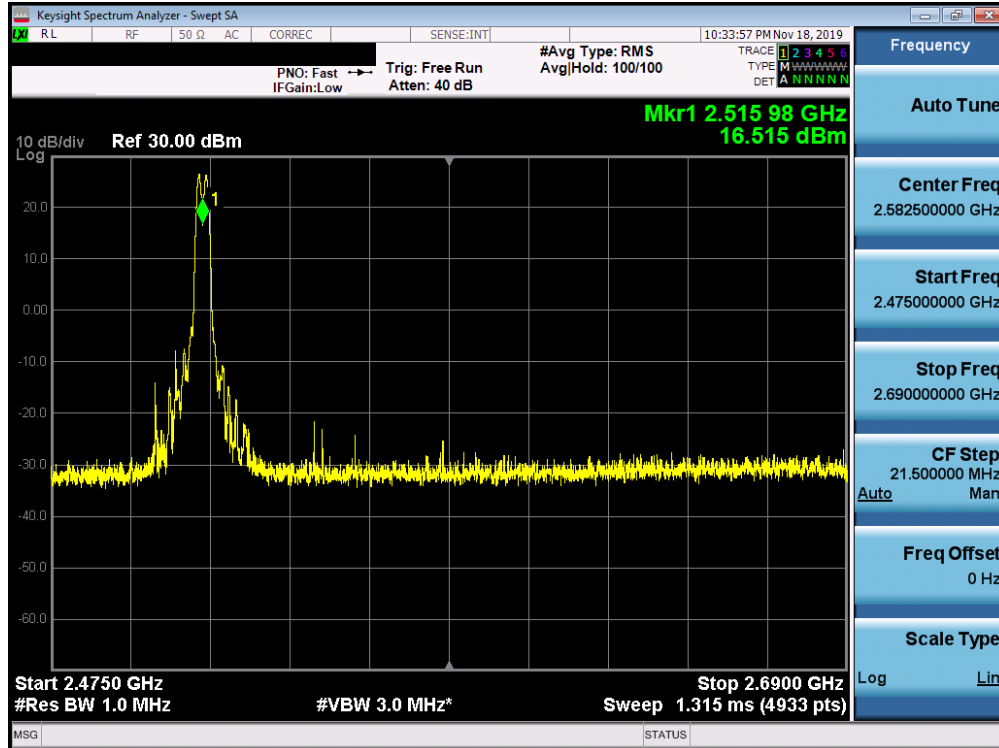


Plot 7-463. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

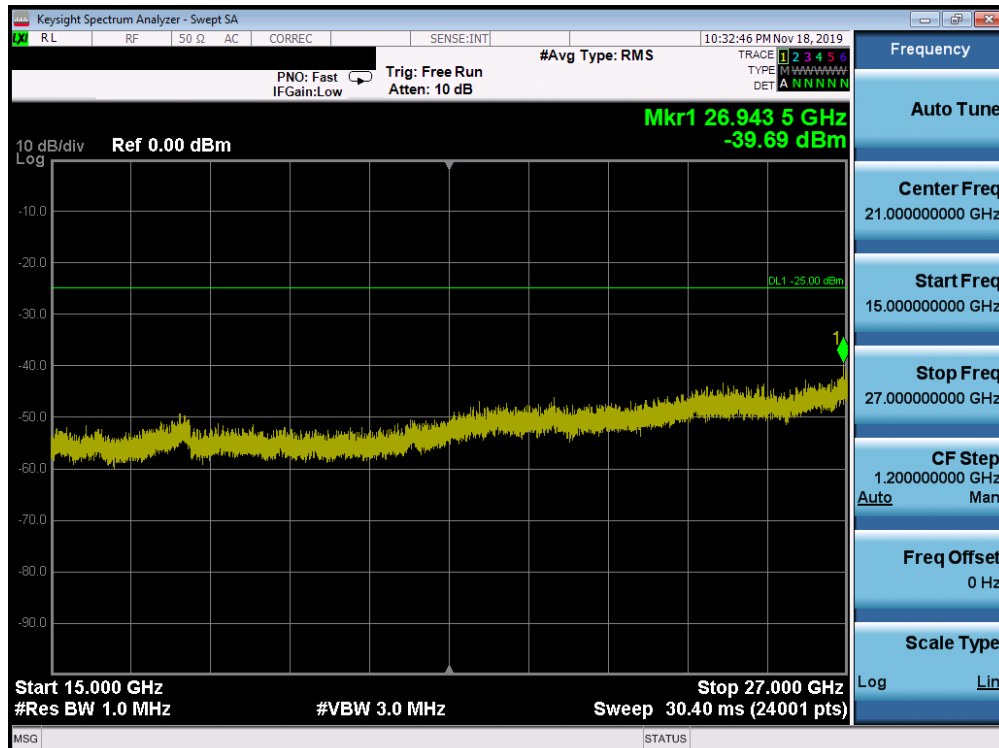


Plot 7-464. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 268 of 487

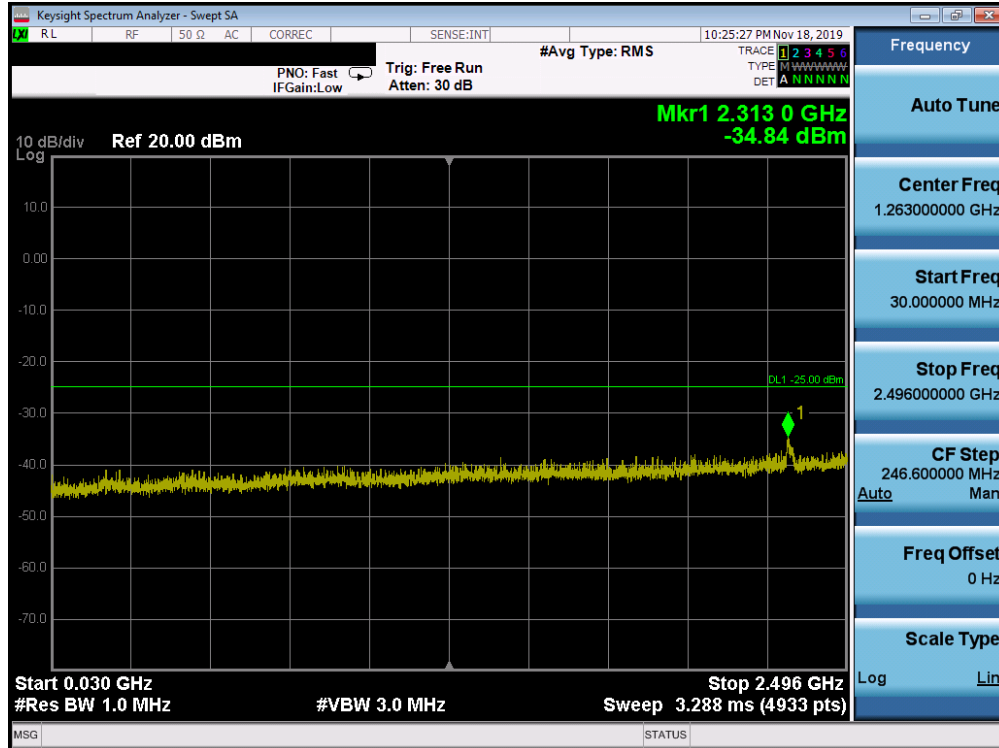


Plot 7-465. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

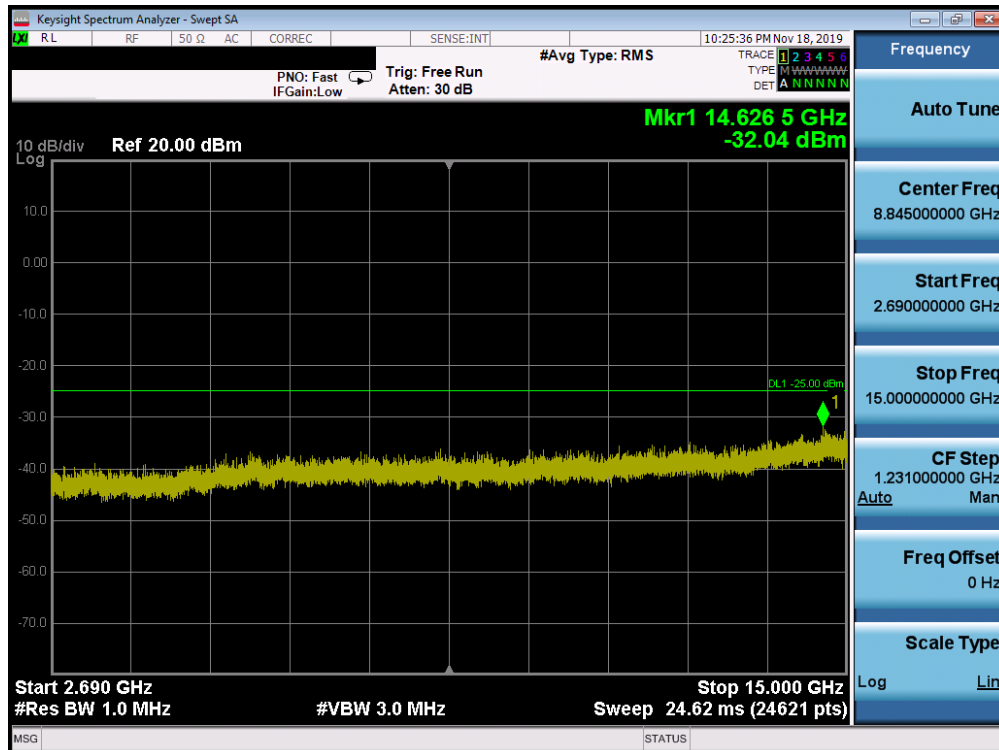


Plot 7-466. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 269 of 487

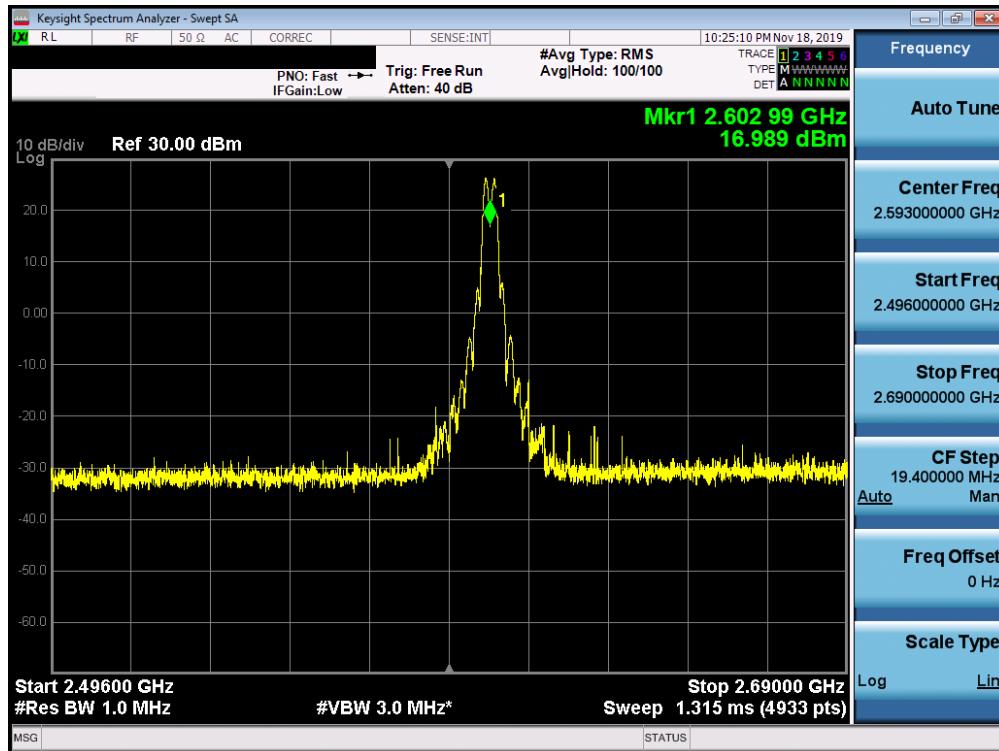


Plot 7-467. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

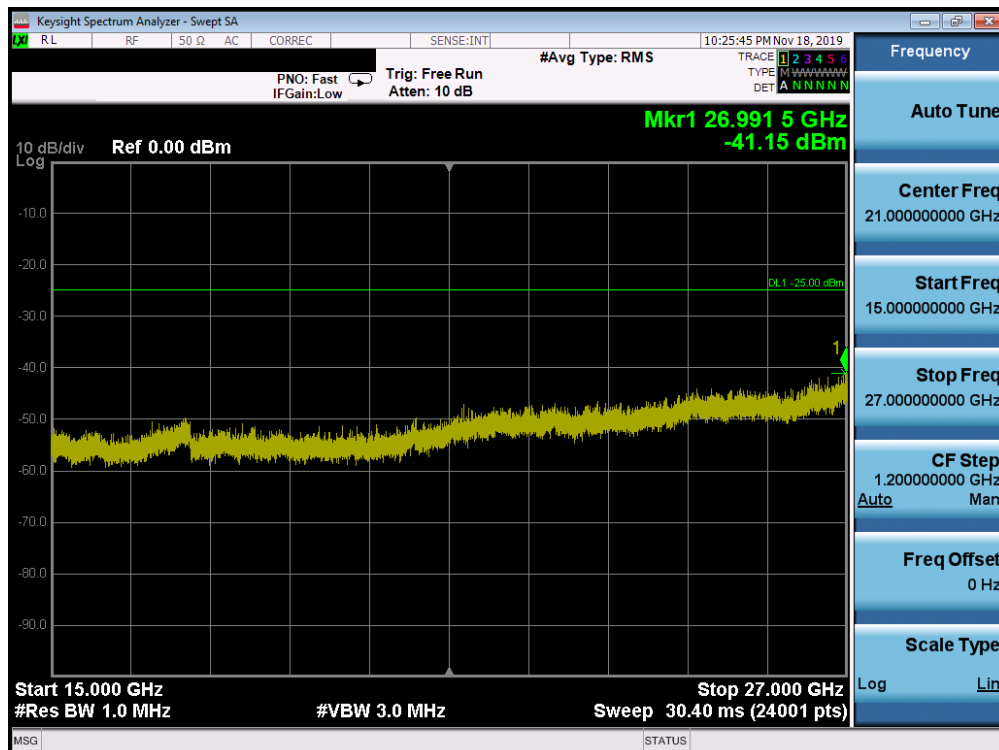


Plot 7-468. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 270 of 487

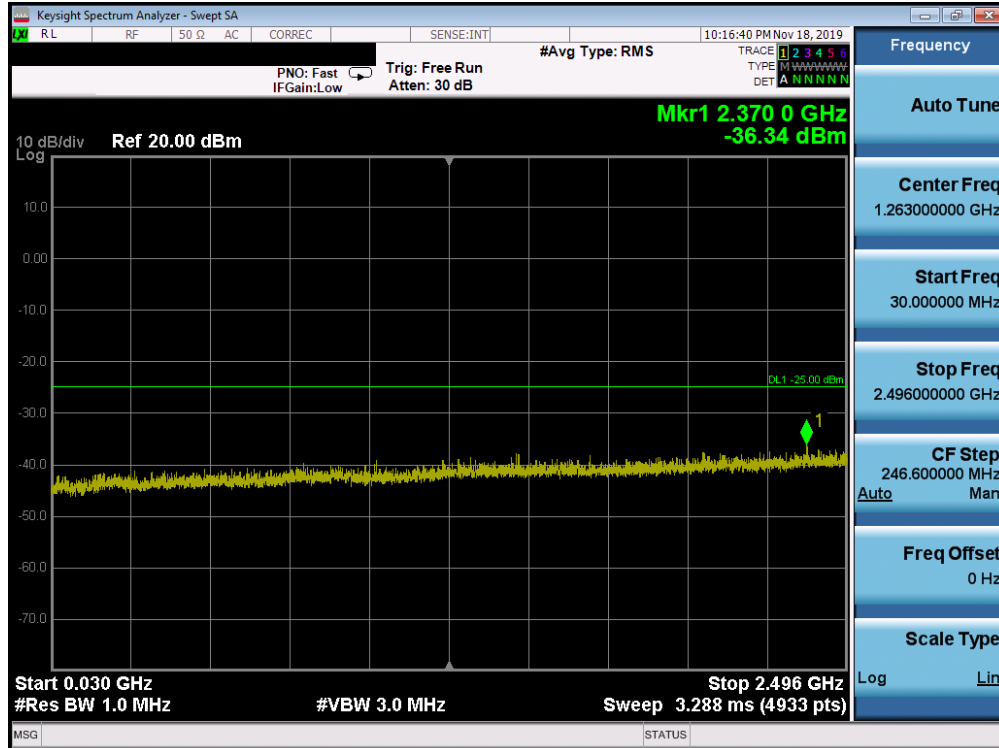


Plot 7-469. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

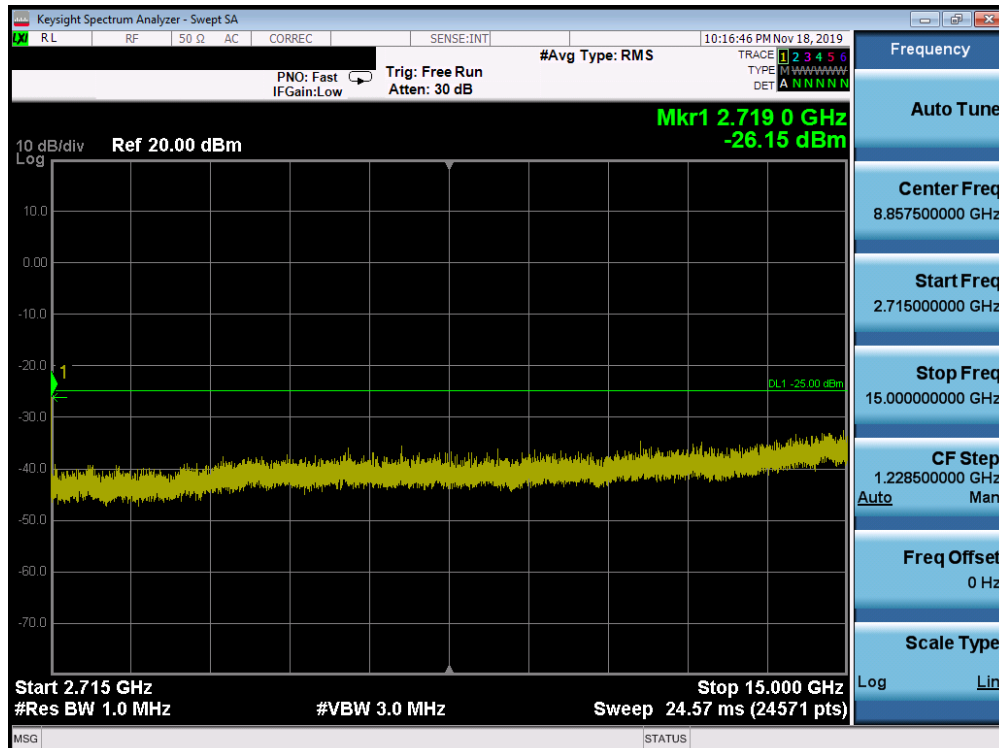


Plot 7-470. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 271 of 487



Plot 7-471. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)



Plot 7-472. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/0 SCC 1/99 – High Channel)

FCC ID: A3LSMG981U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220165-03.A3L	Test Dates: 10/22 - 1/04/2020	EUT Type: Portable Handset		Page 272 of 487