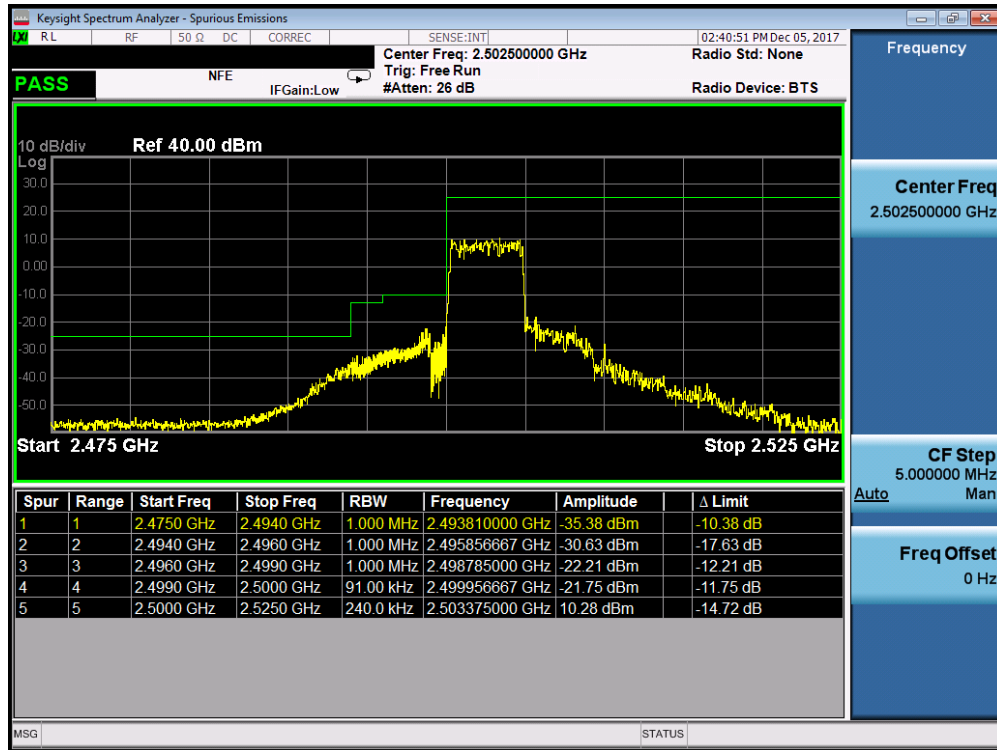
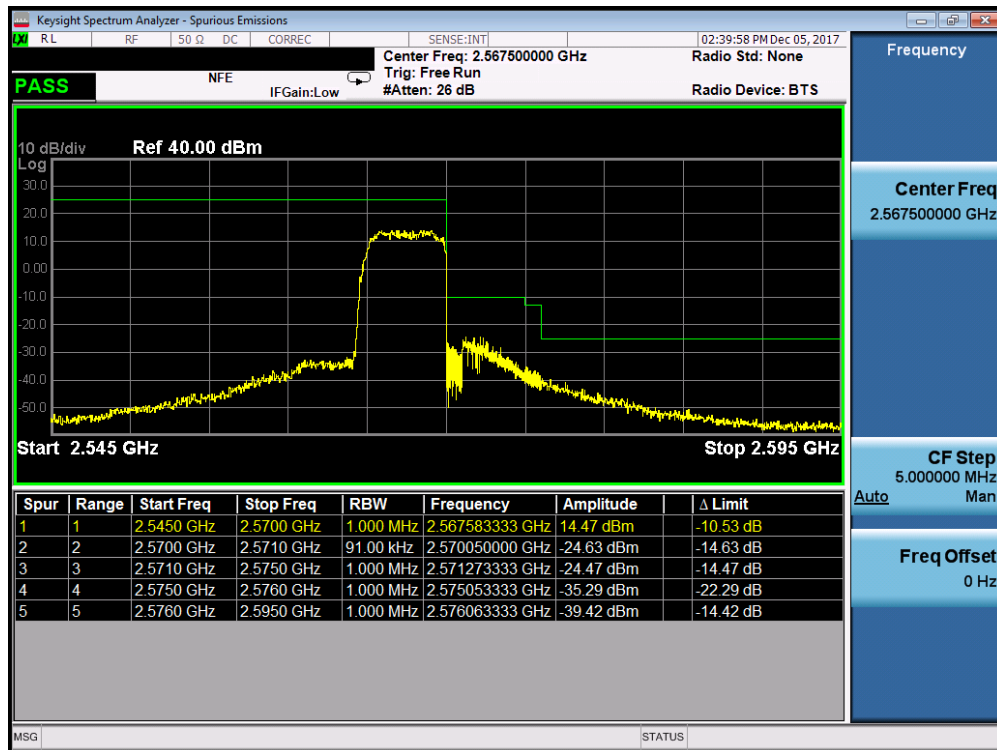


Band 7



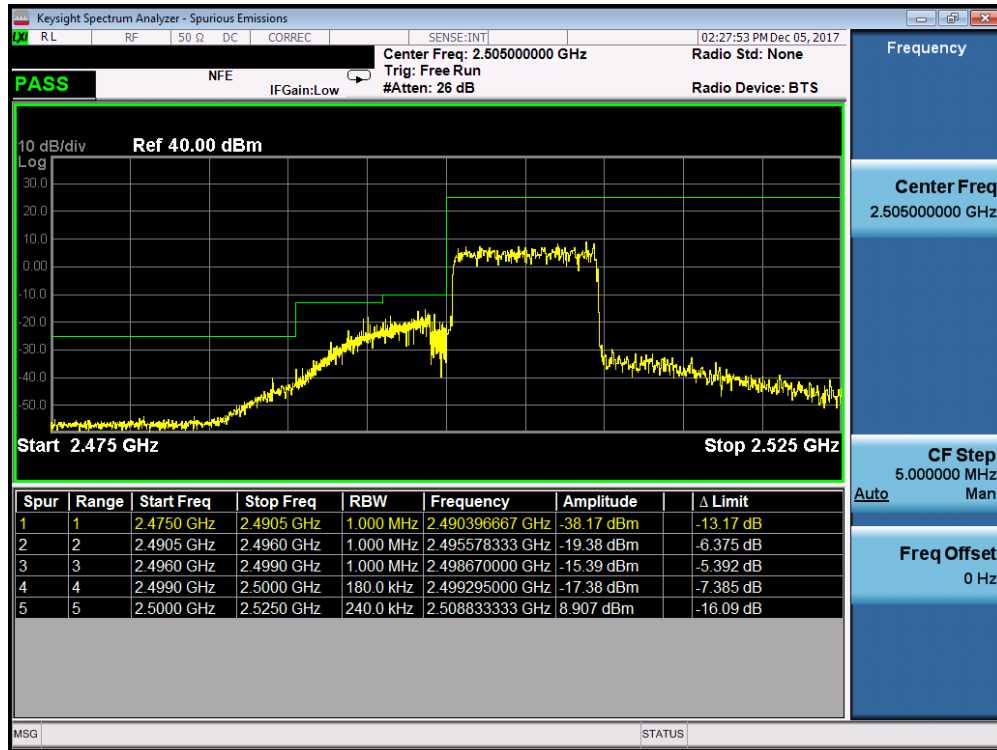
Plot 7-257. Lower ACP Plot (Band 7 - 5.0MHz QPSK - Full RB Configuration)



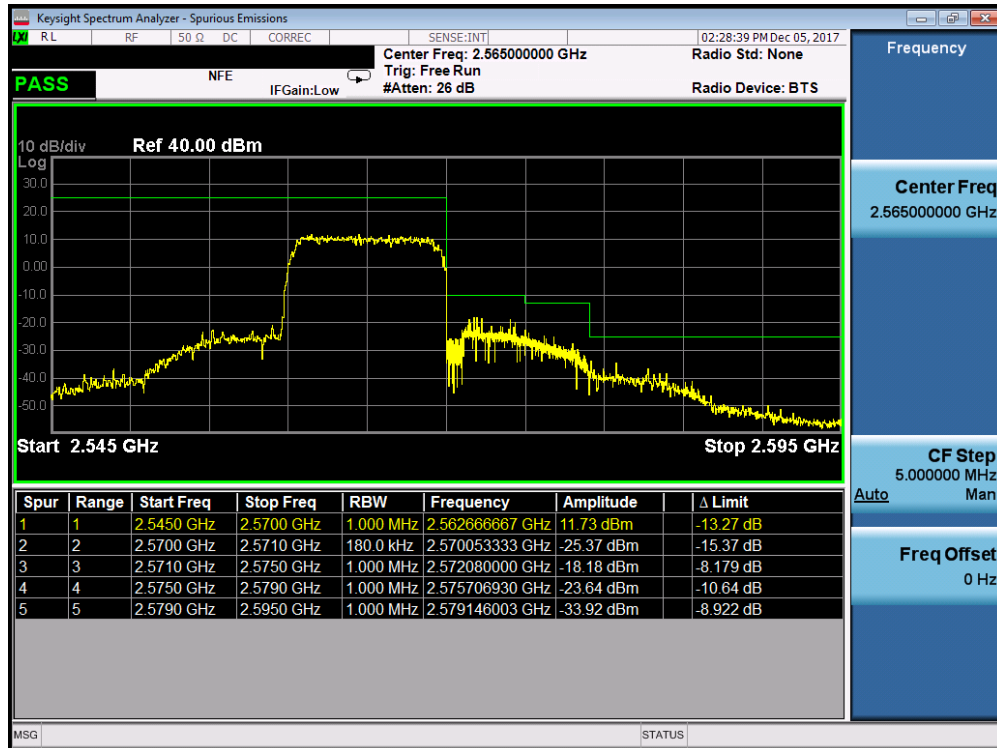
Plot 7-258. Upper ACP Plot (Band 7 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 152 of 250	

Band 7



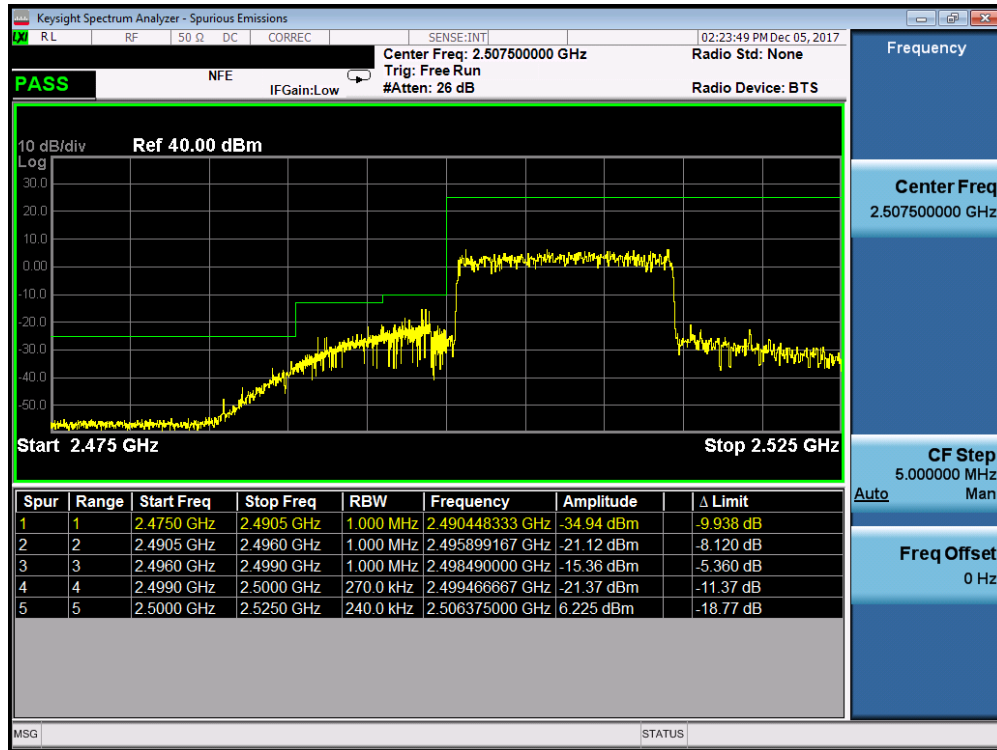
Plot 7-259. Lower ACP Plot (Band 7 - 10.0MHz QPSK - Full RB Configuration)



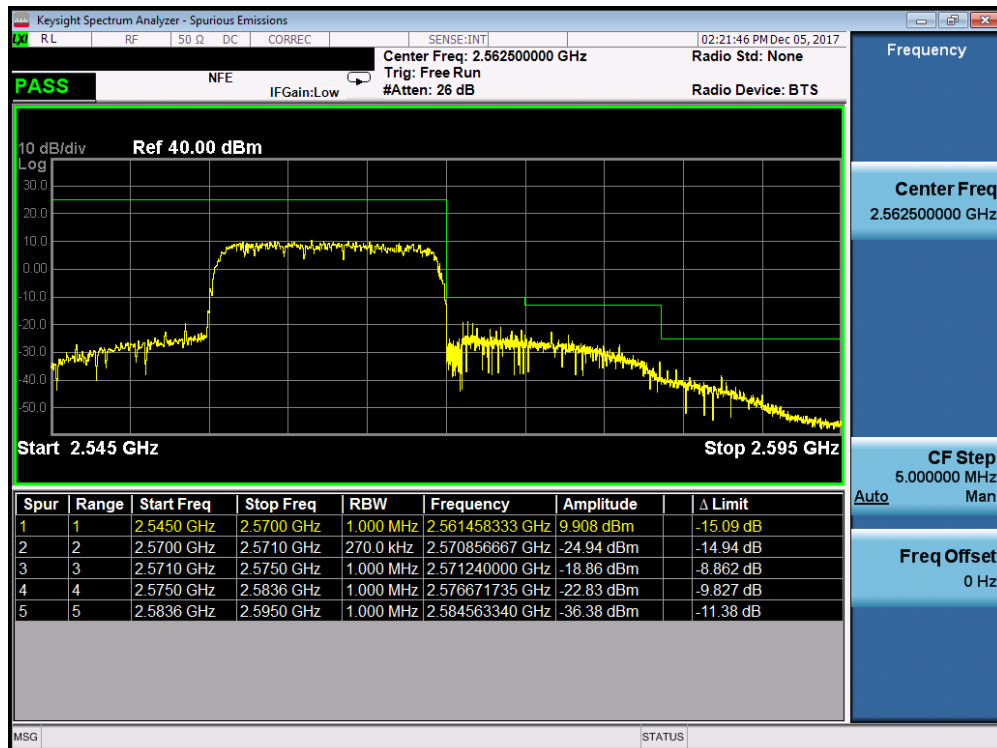
Plot 7-260. Upper ACP Plot (Band 7 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 153 of 250	

Band 7



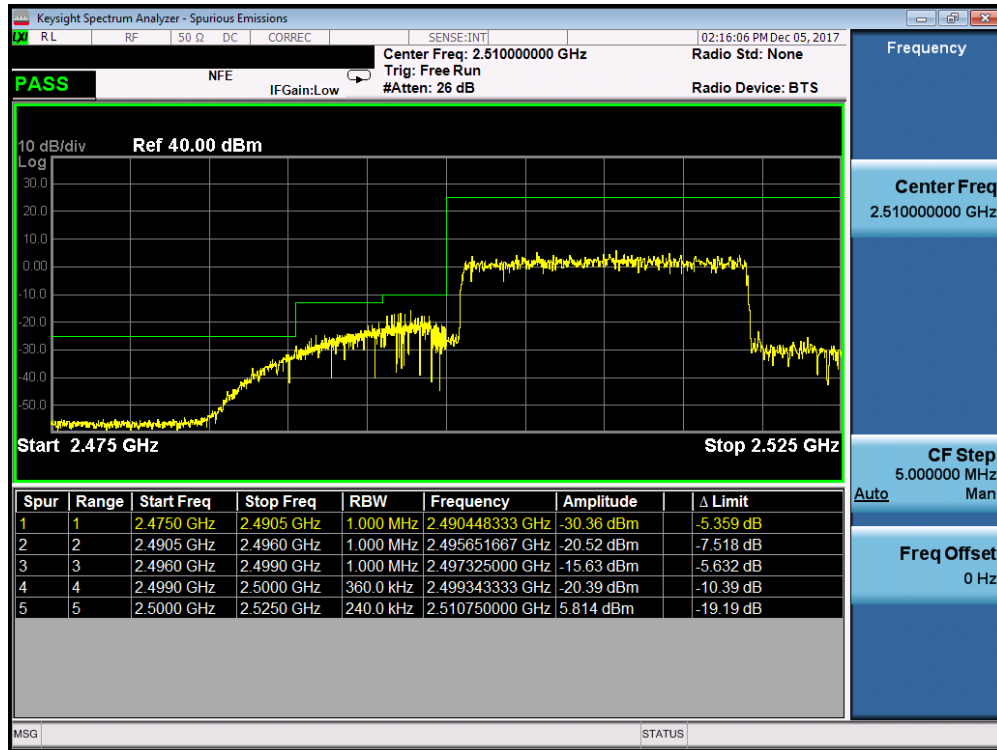
Plot 7-261. Lower ACP Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)



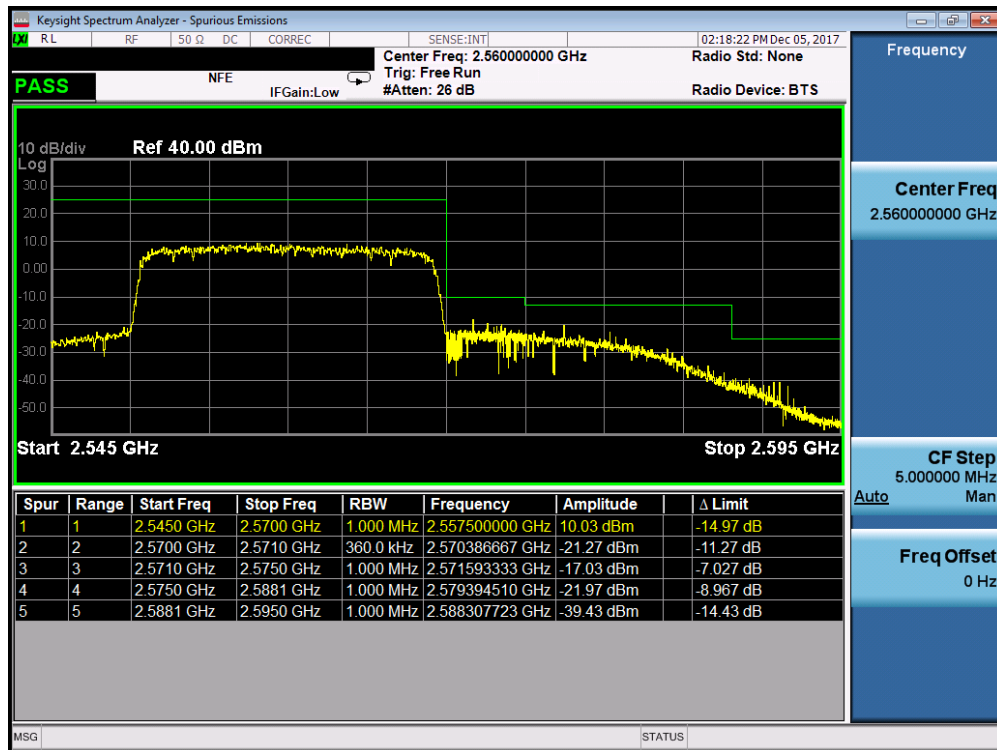
Plot 7-262. Upper ACP Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 154 of 250	

Band 7



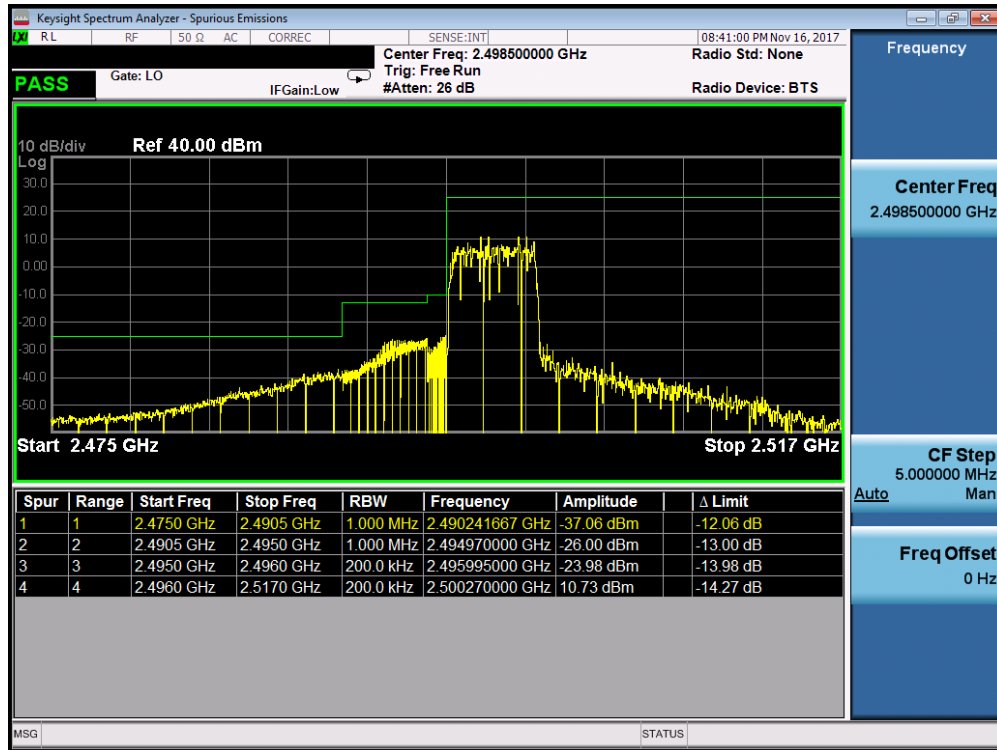
Plot 7-263. Lower ACP Plot (Band 7 - 20.0MHz QPSK - Full RB Configuration)



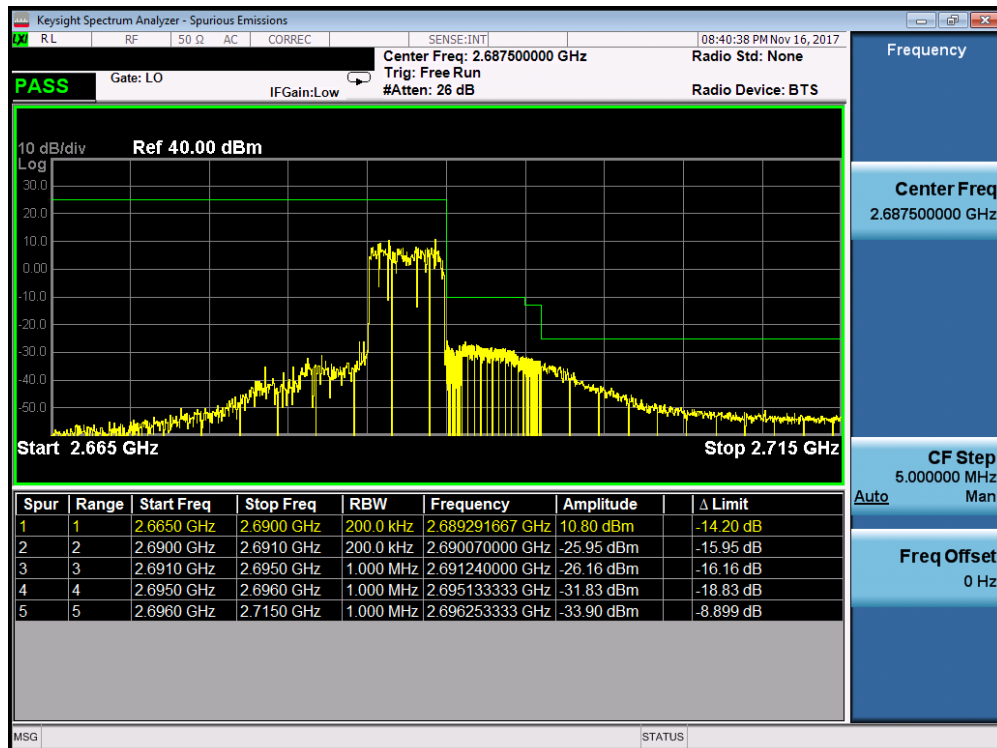
Plot 7-264. Upper ACP Plot (Band 7 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 155 of 250

Band 41



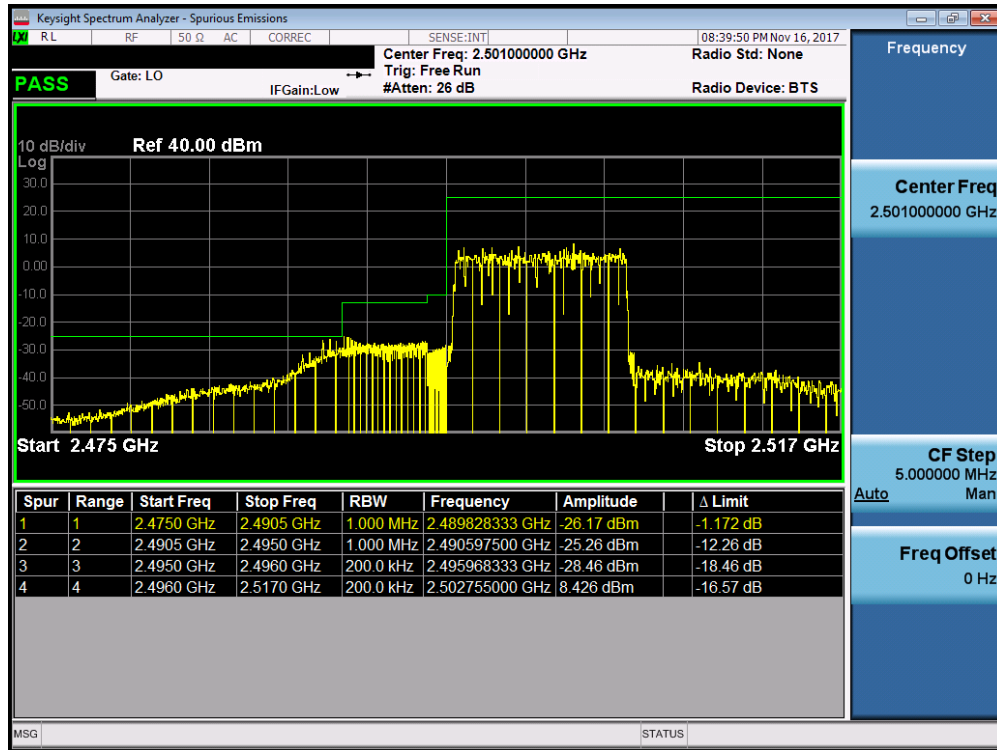
Plot 7-265. Lower ACP Plot (Band 41 - 5.0MHz QPSK - Full RB Configuration)



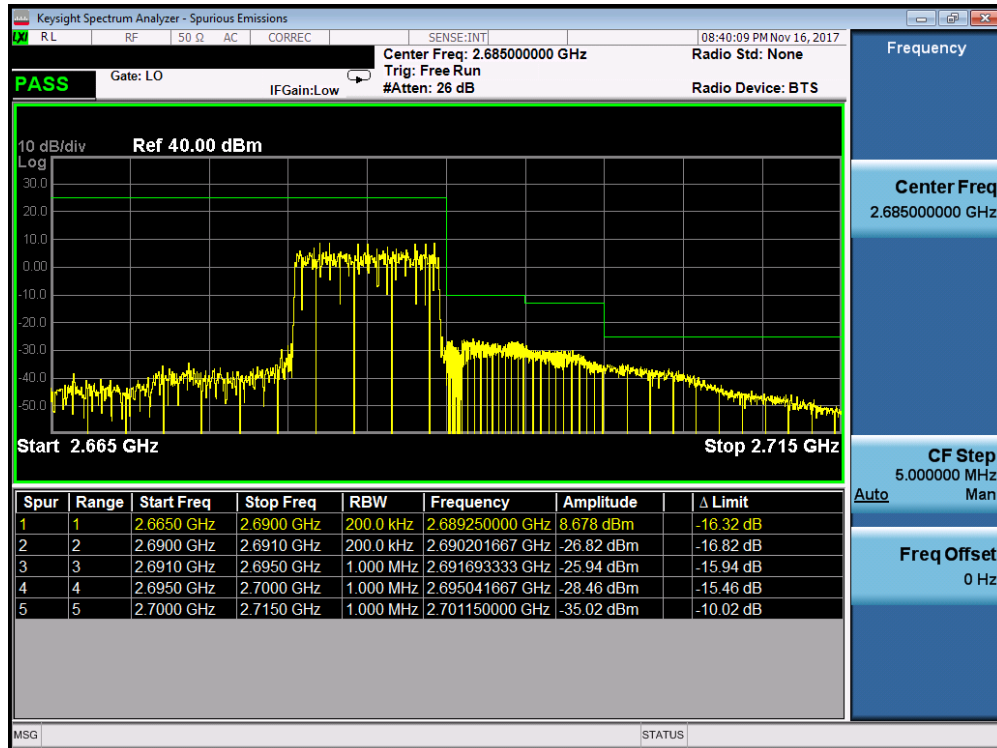
Plot 7-266. Upper ACP Plot (Band 41 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 156 of 250

Band 41



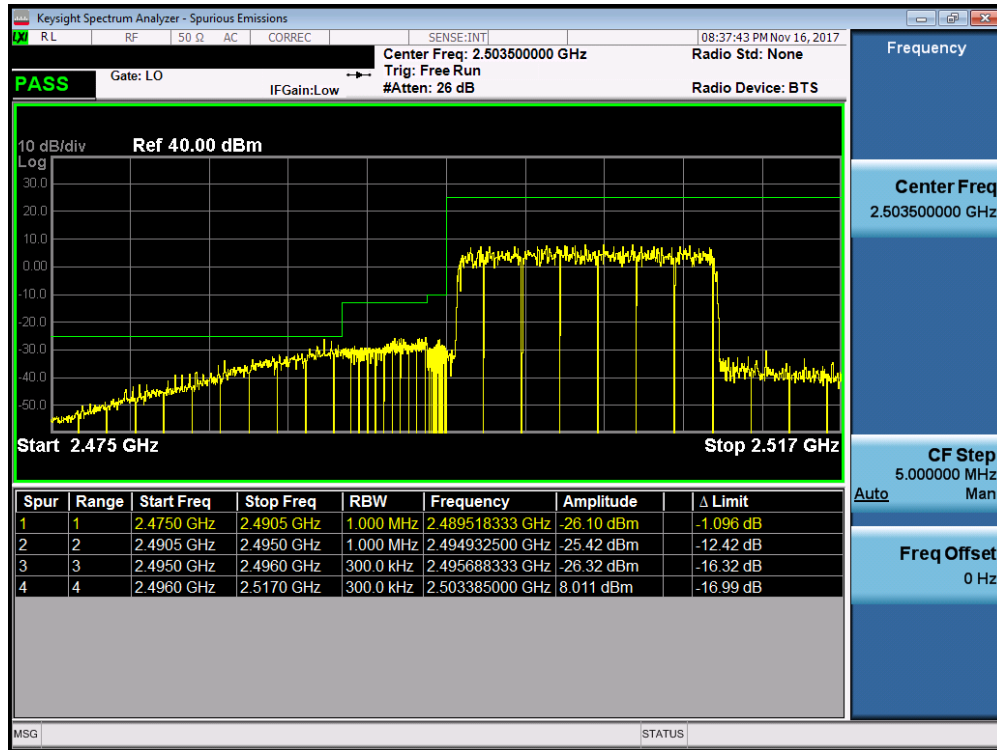
Plot 7-267. Lower ACP Plot (Band 41 - 10.0MHz QPSK - Full RB Configuration)



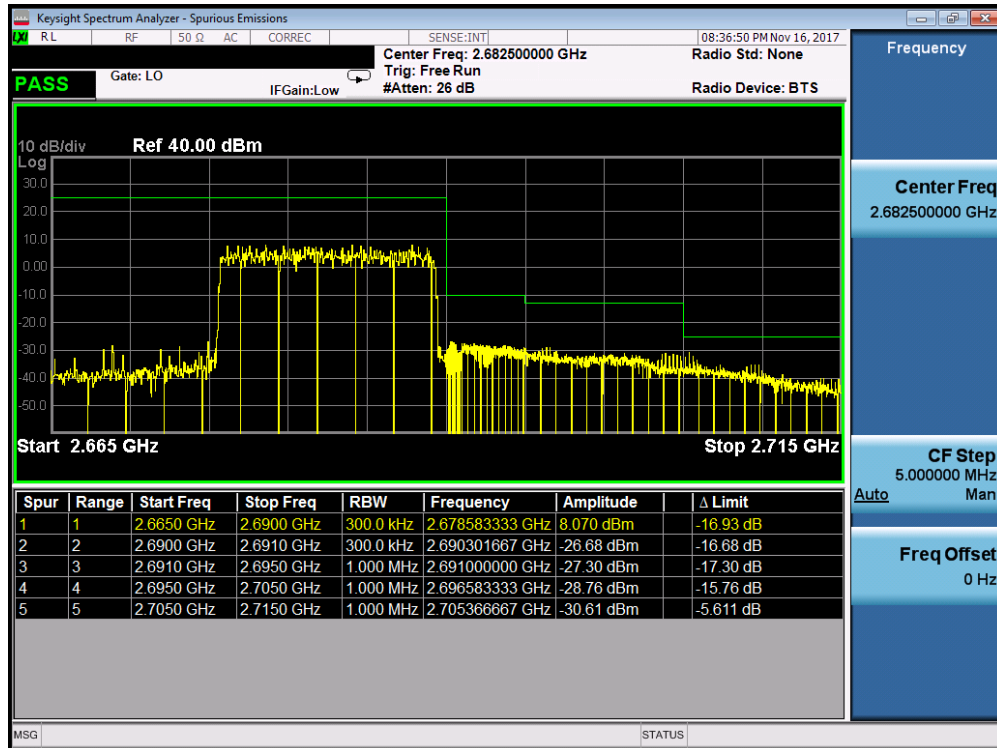
Plot 7-268. Upper ACP Plot (Band 41 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 157 of 250

Band 41



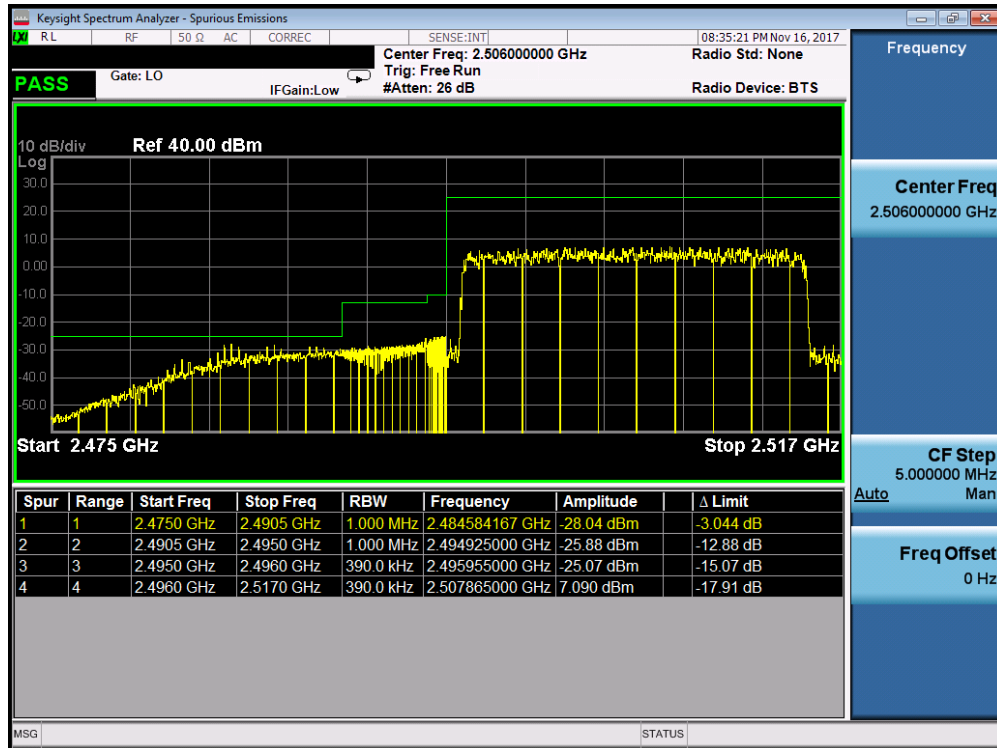
Plot 7-269. Lower ACP Plot (Band 41 - 15.0MHz QPSK - Full RB Configuration)



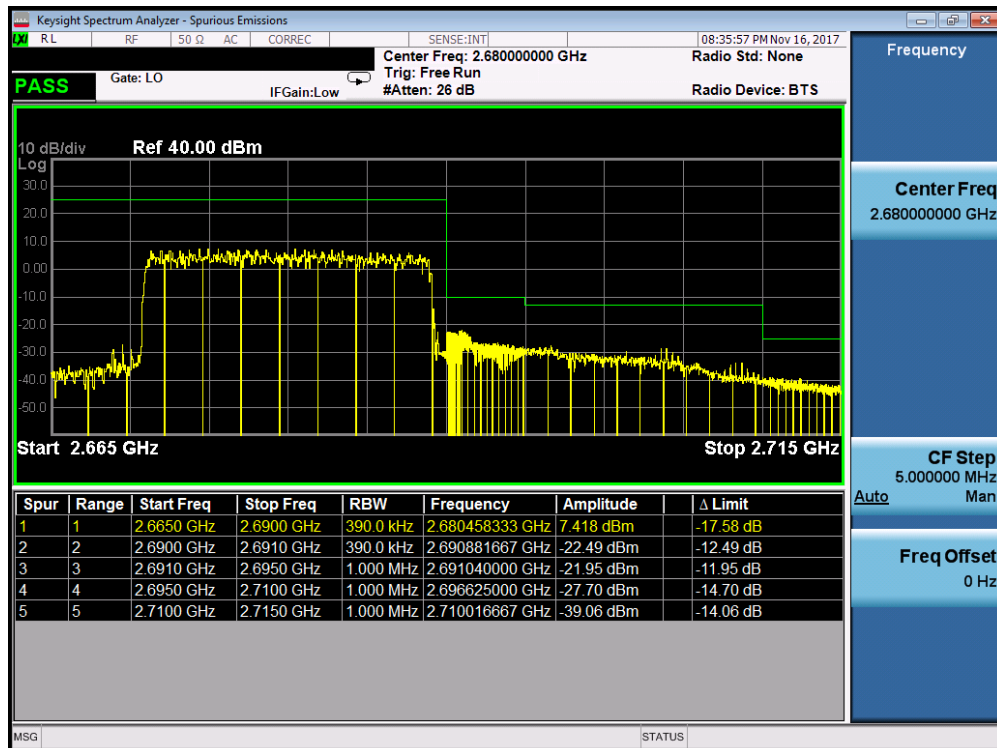
Plot 7-270. Upper ACP Plot (Band 41 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 158 of 250	

Band 41



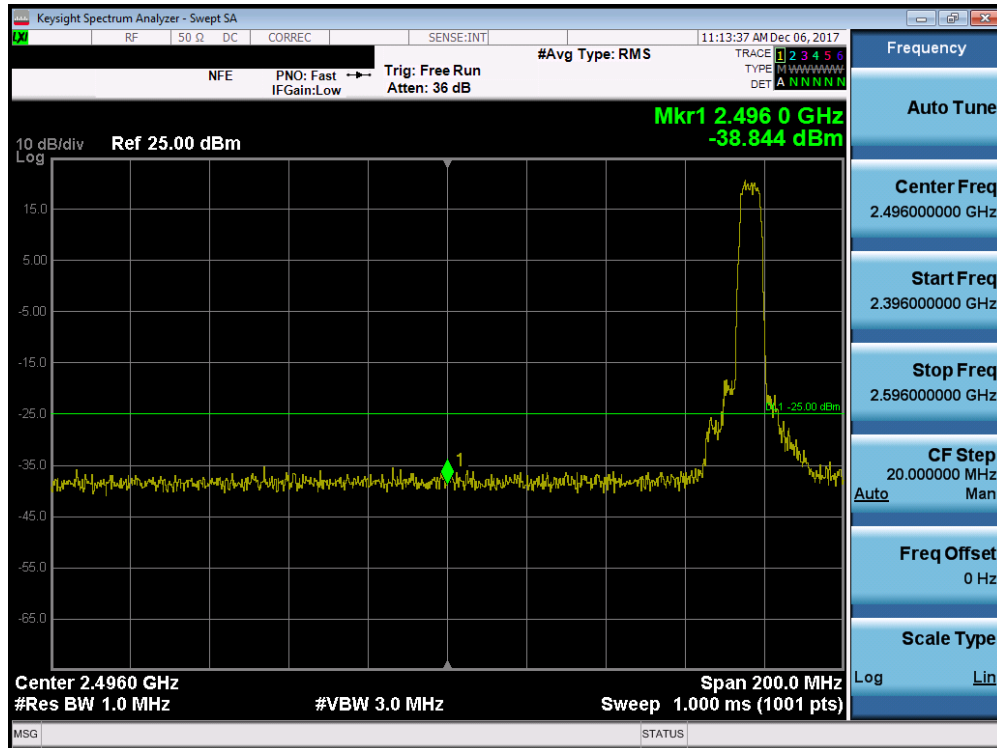
Plot 7-271. Lower ACP Plot (Band 41 - 20.0MHz QPSK - Full RB Configuration)



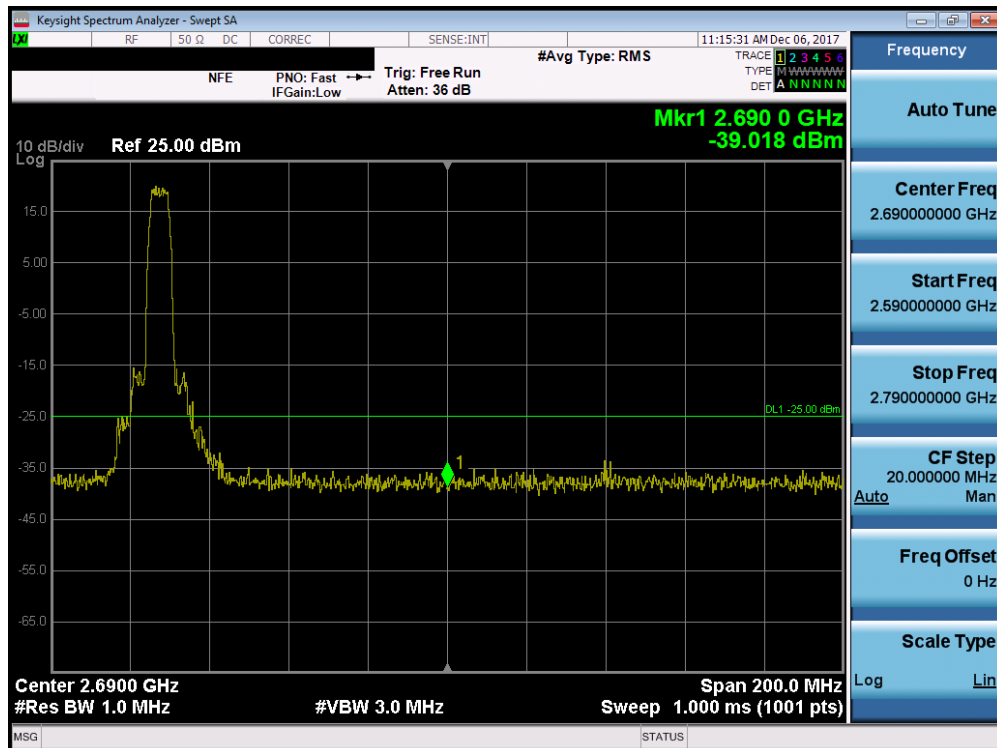
Plot 7-272. Upper ACP Plot (Band 41 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 159 of 250

Band 38

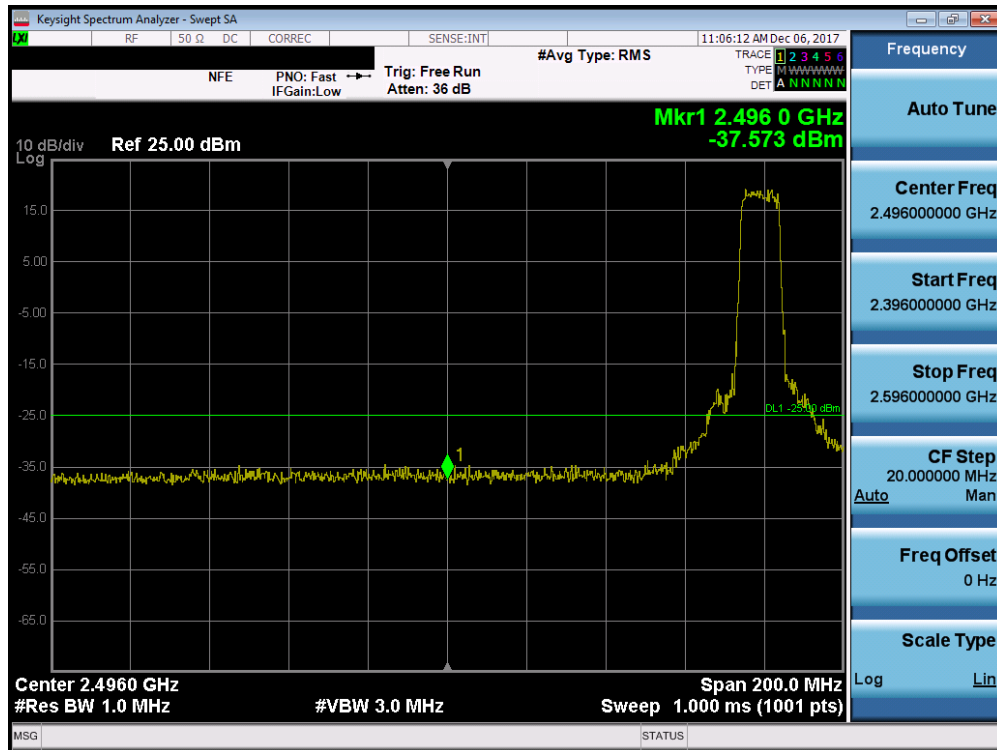


Plot 7-273. Lower Band Edge Plot (Band 38 – 5.0MHz QPSK - Full RB Configuration)

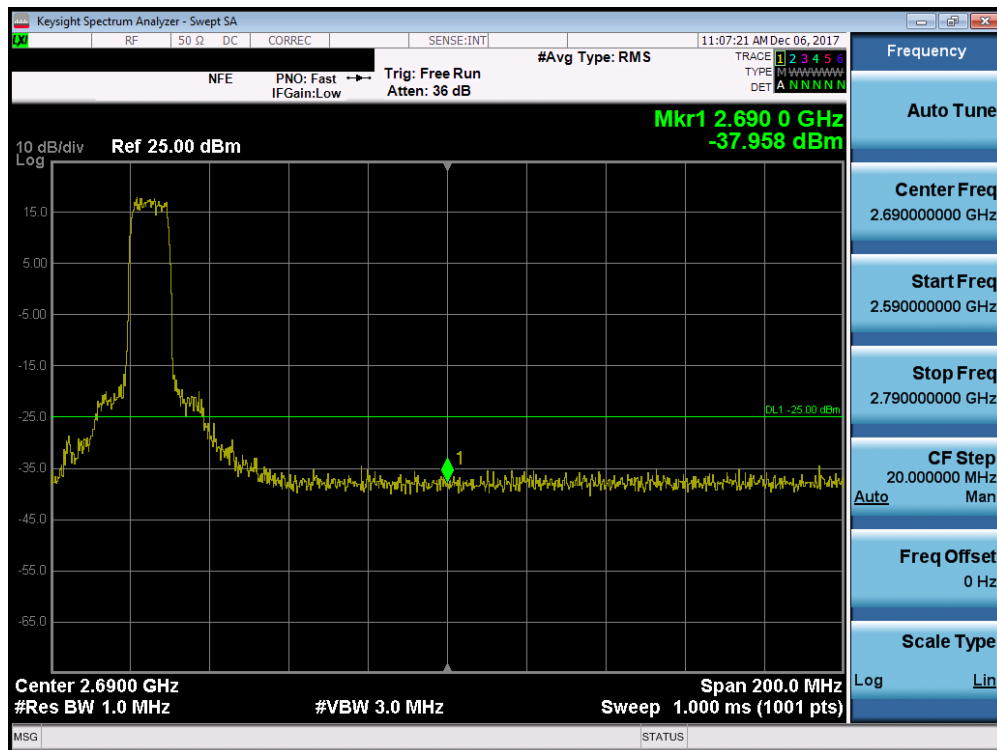


Plot 7-274. Lower Band Edge Plot (Band 38 - 5.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 160 of 250

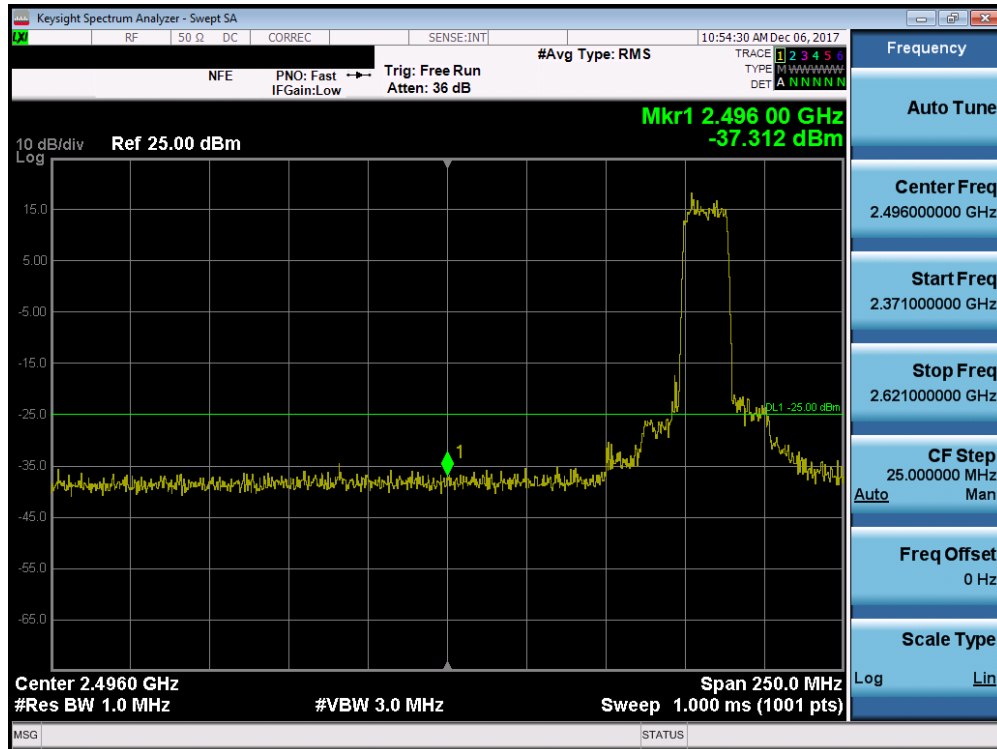


Plot 7-275. Lower Band Edge Plot (Band 38 – 10.0MHz QPSK - Full RB Configuration)

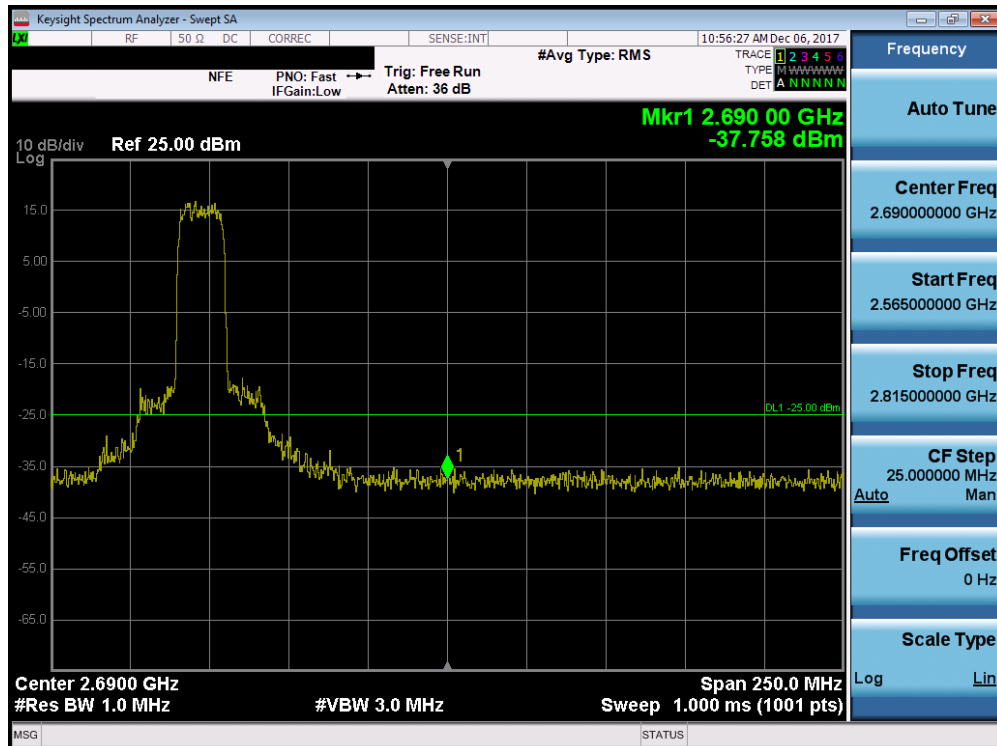


Plot 7-276. Lower Band Edge Plot (Band 38 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 161 of 250

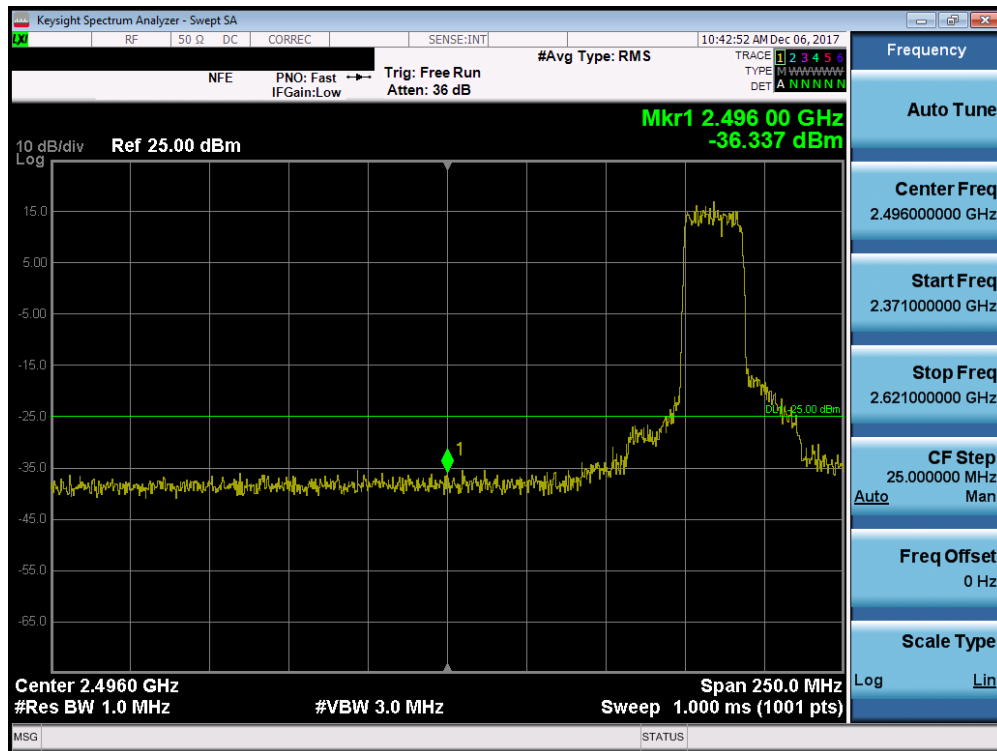


Plot 7-277. Lower Band Edge Plot (Band 38 – 15.0MHz QPSK - Full RB Configuration)



Plot 7-278. Lower Band Edge Plot (Band 38 - 15.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 162 of 250



Plot 7-279. Lower Band Edge Plot (Band 38 – 20.0MHz QPSK - Full RB Configuration)



Plot 7-280. Lower Band Edge Plot (Band 38 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 163 of 250

7.5 Peak-Average Ratio

§24.232(d) RSS-130(4.4) RSS-132(5.4) RSS-133(6.4) RSS-139(6.5)

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 v03 – Section 5.7.1

Test Settings

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW > Emission bandwidth of signal
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. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

Test Setup

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

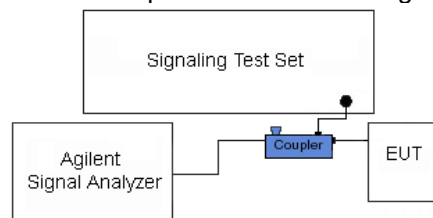


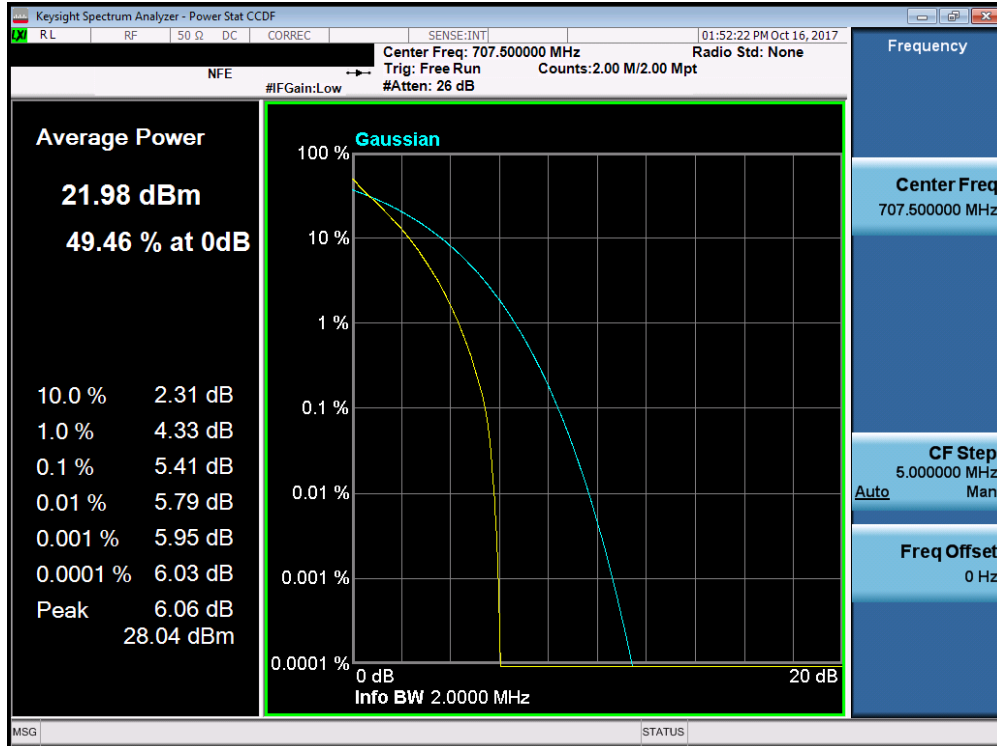
Figure 7-4. Test Instrument & Measurement Setup

Test Notes

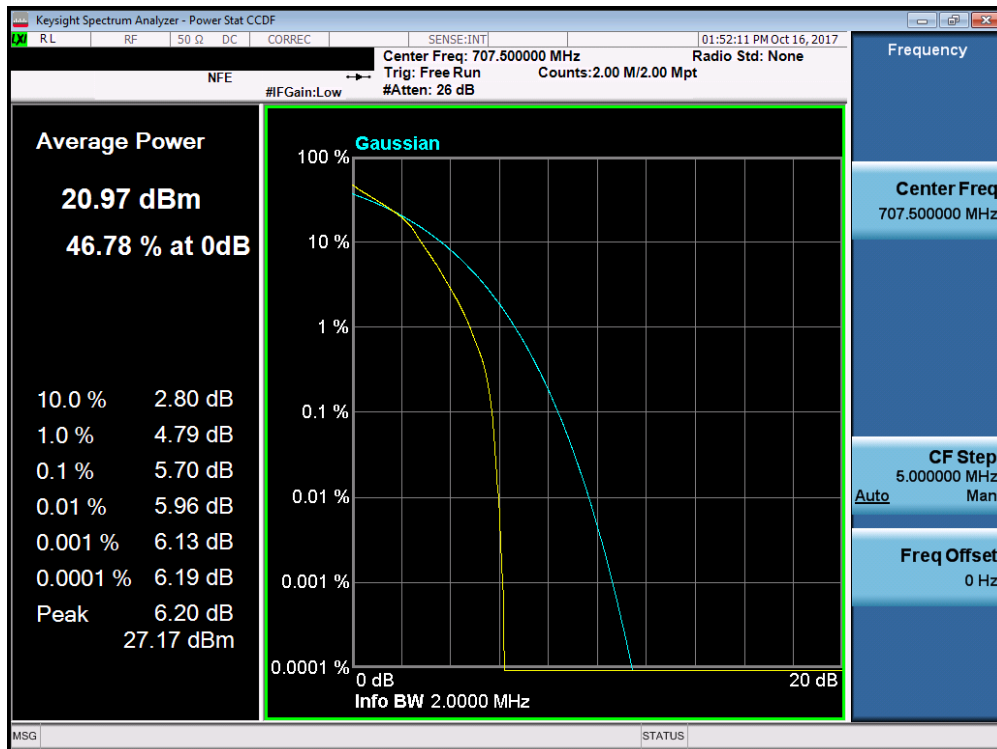
None.

FCC ID: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 164 of 250

Band 12

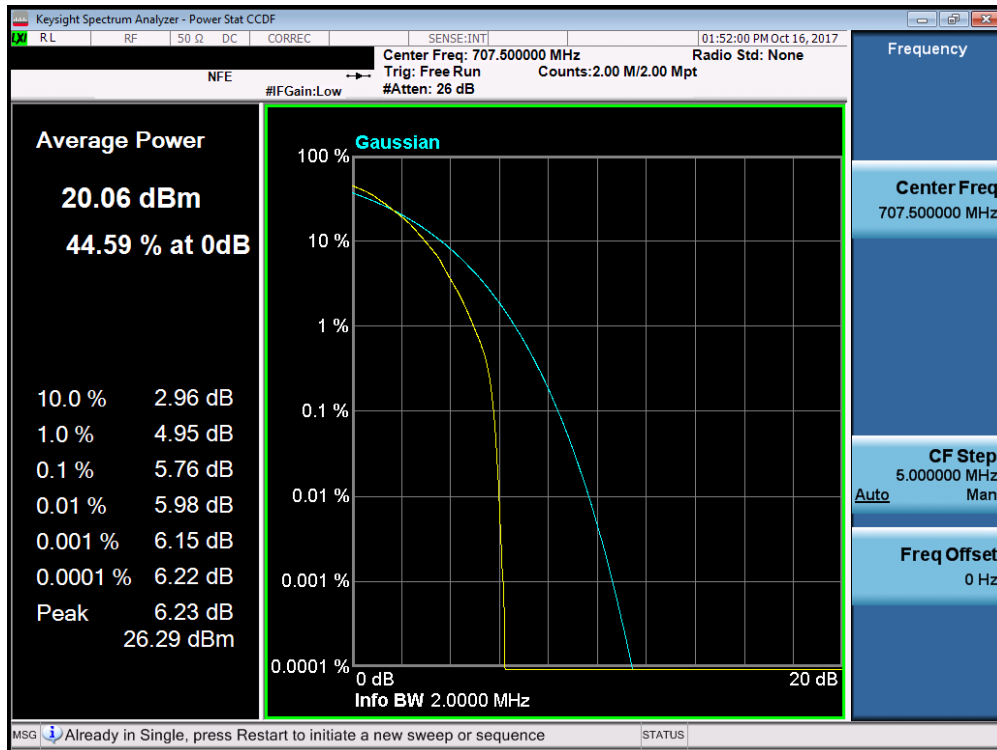


Plot 7-281. PAR Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)

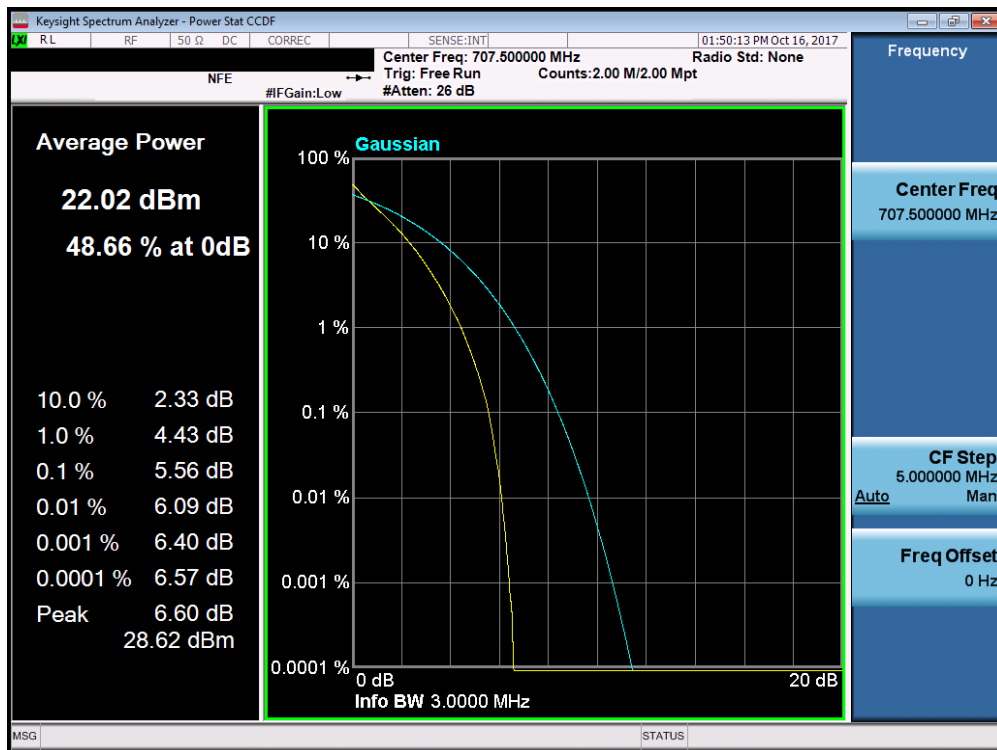


Plot 7-282. PAR Plot (Band 12 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 165 of 250

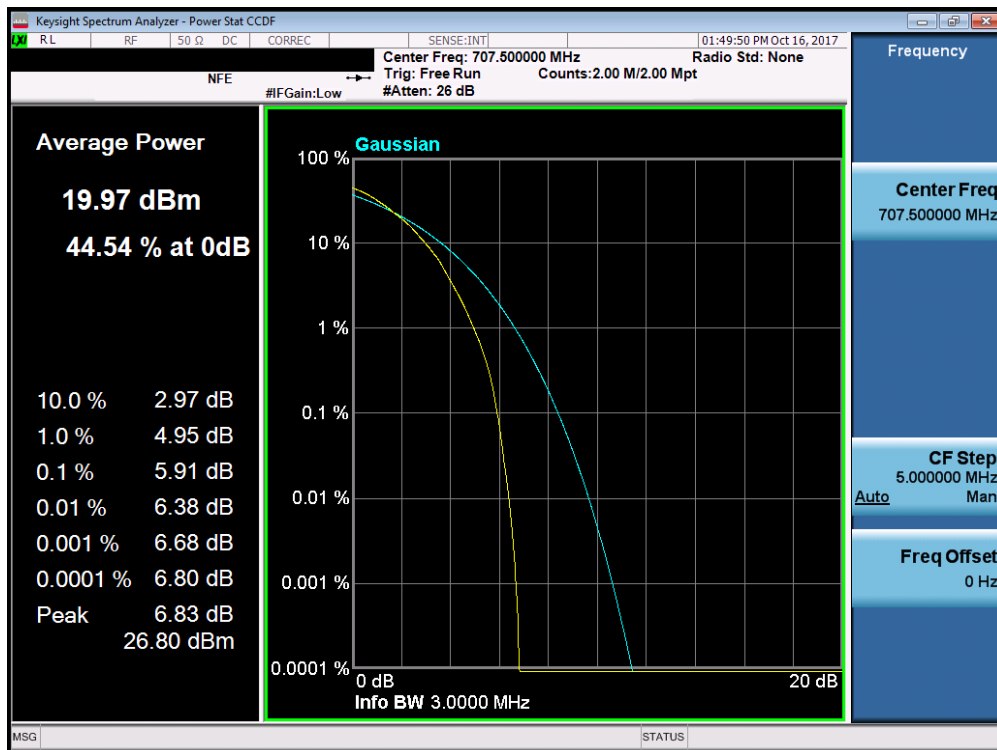
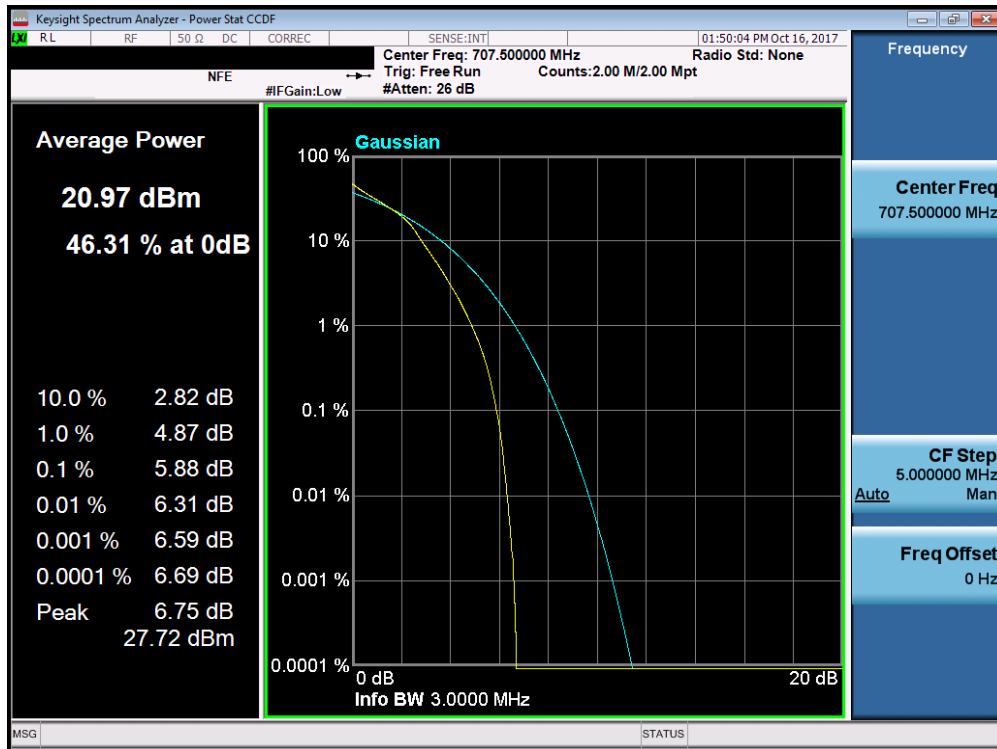


Plot 7-283. PAR Plot (Band 12 - 1.4MHz 64-QAM - Full RB Configuration)



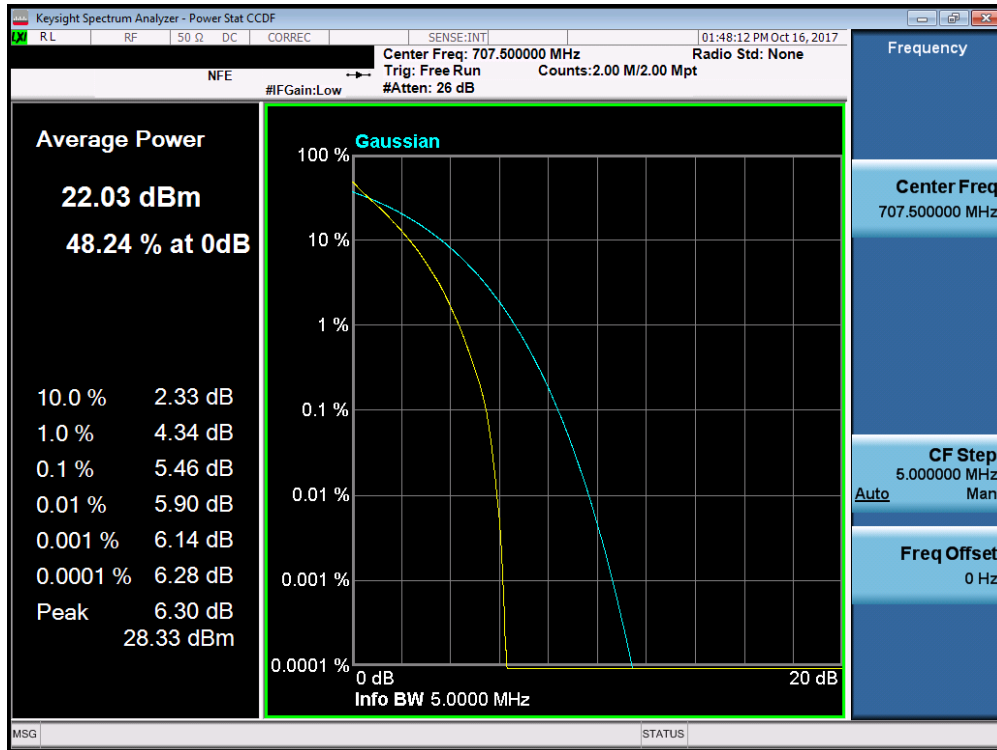
Plot 7-284. PAR Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 166 of 250

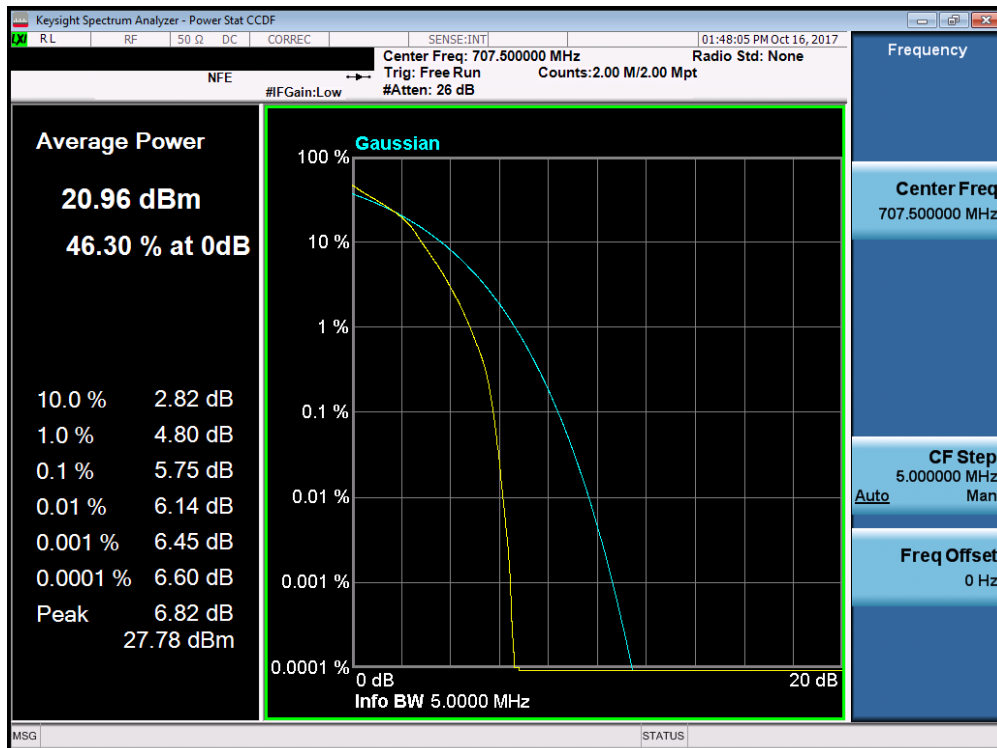


FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 167 of 250

Band 12/17

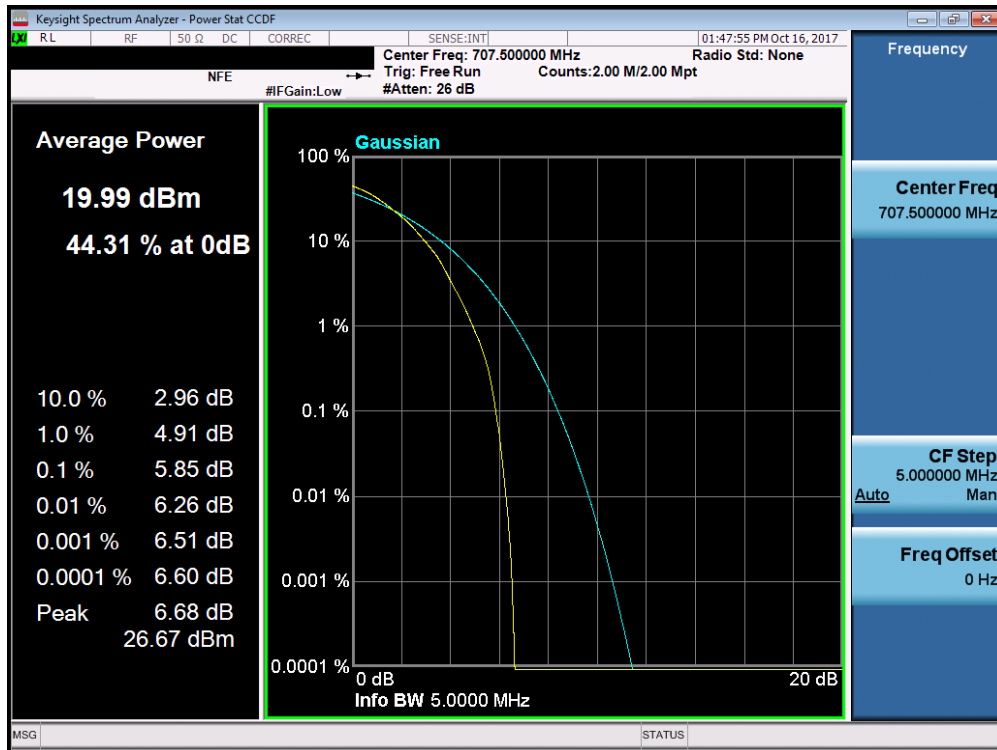


Plot 7-287. PAR Plot (Band 12/17 - 5.0MHz QPSK - Full RB Configuration)

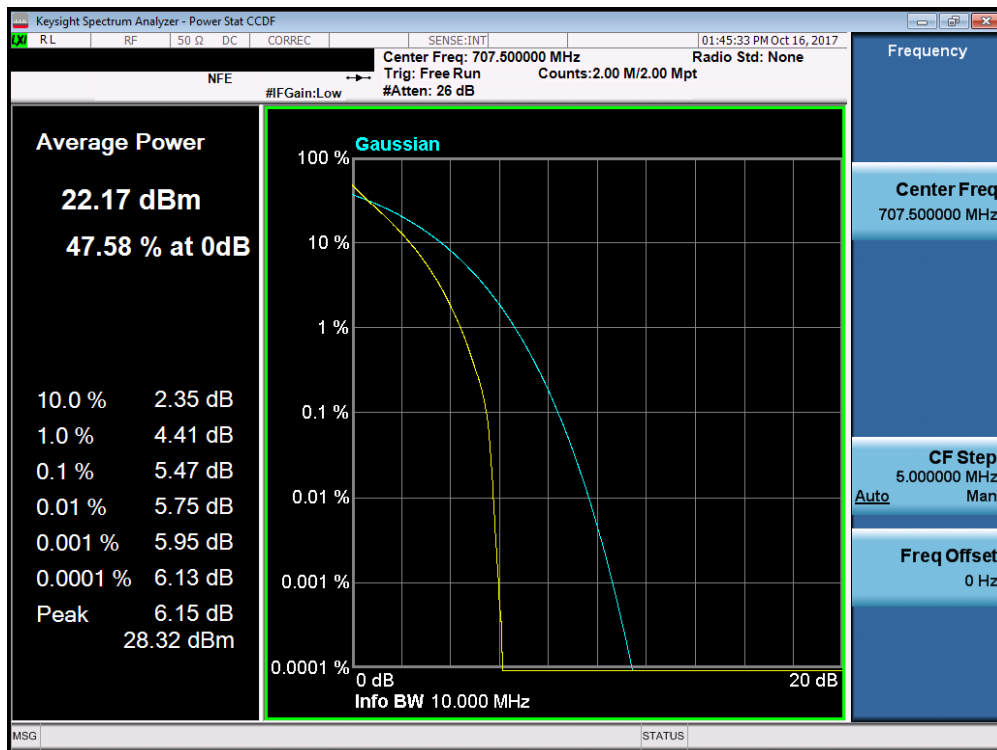


Plot 7-288. PAR Plot (Band 12/17 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 168 of 250

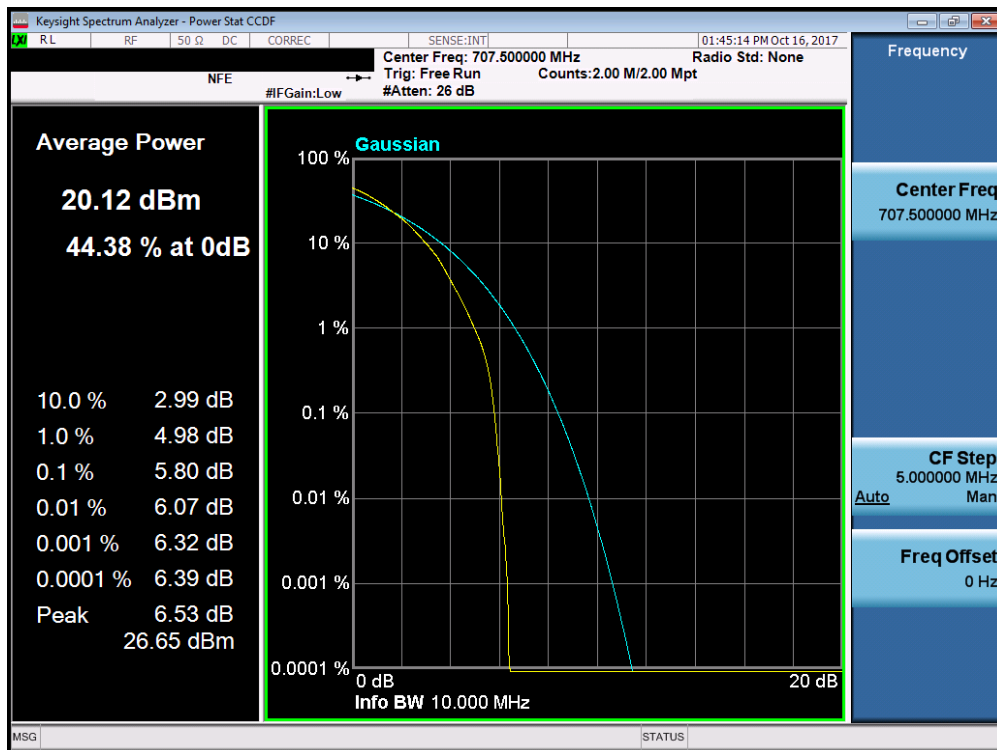
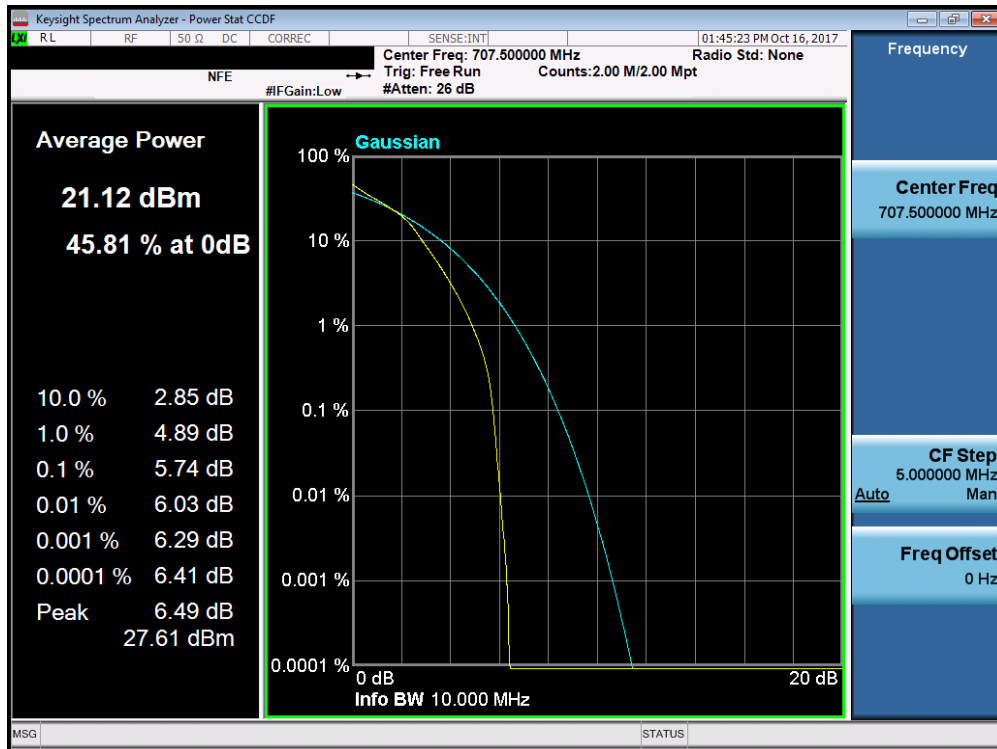


Plot 7-289. PAR Plot (Band 12/17 - 5.0MHz 64-QAM - Full RB Configuration)



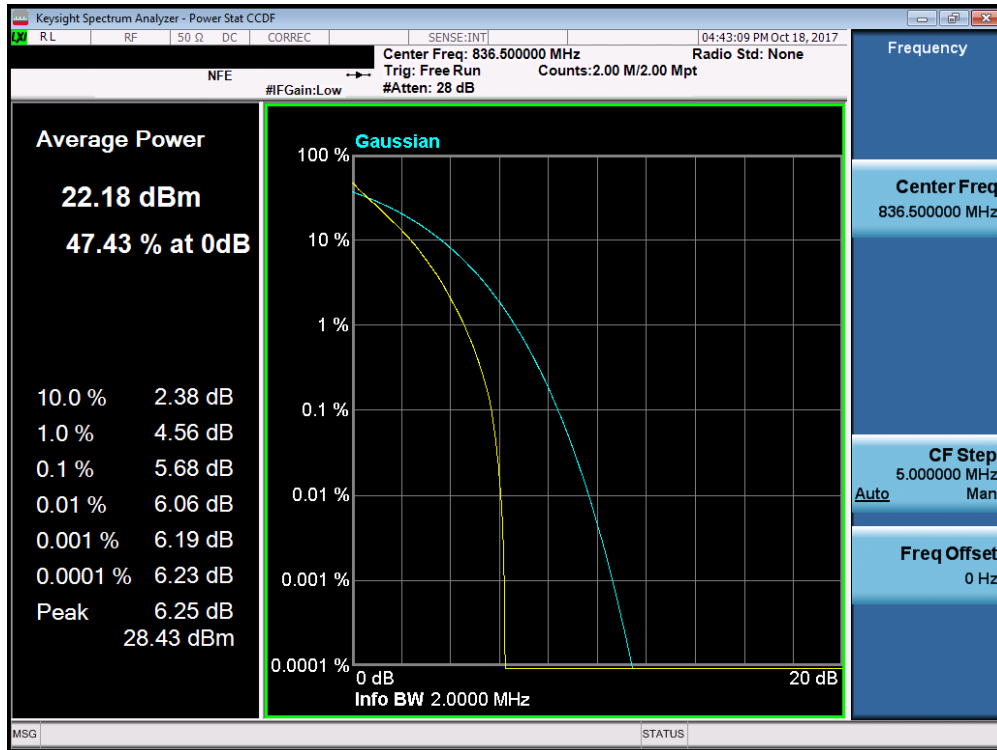
Plot 7-290. PAR Plot (Band 12/17 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 169 of 250

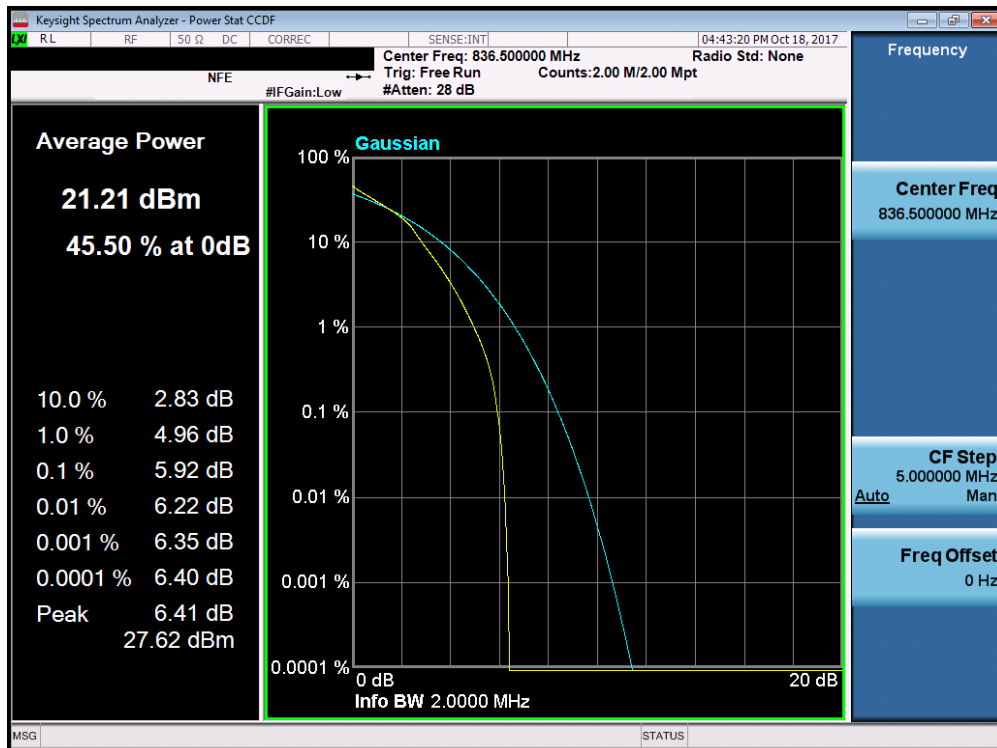


FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 170 of 250	

Band 5/26

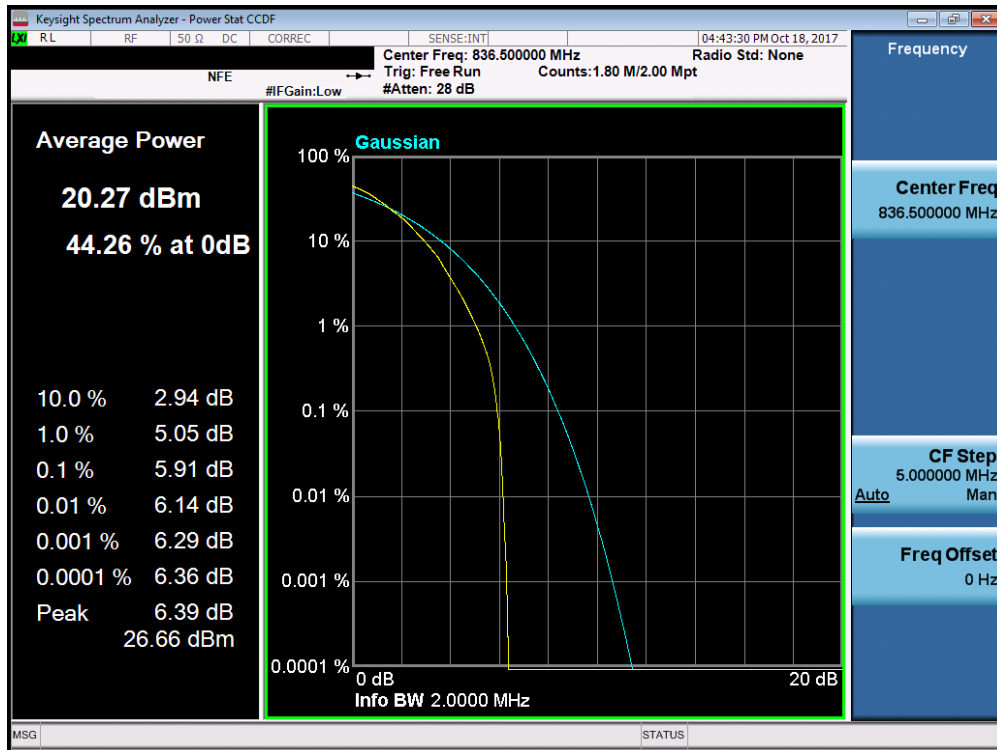


Plot 7-293. PAR Plot (Band 5/26 - 1.4MHz QPSK - Full RB Configuration)

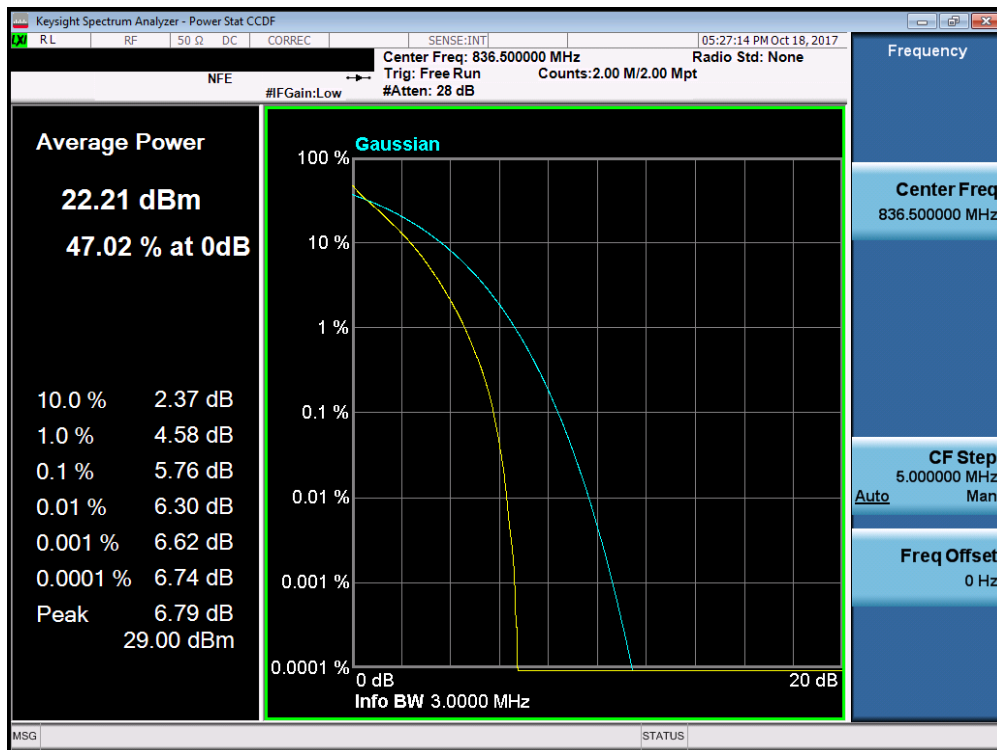


Plot 7-294. PAR Plot (Band 5/26 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 171 of 250	

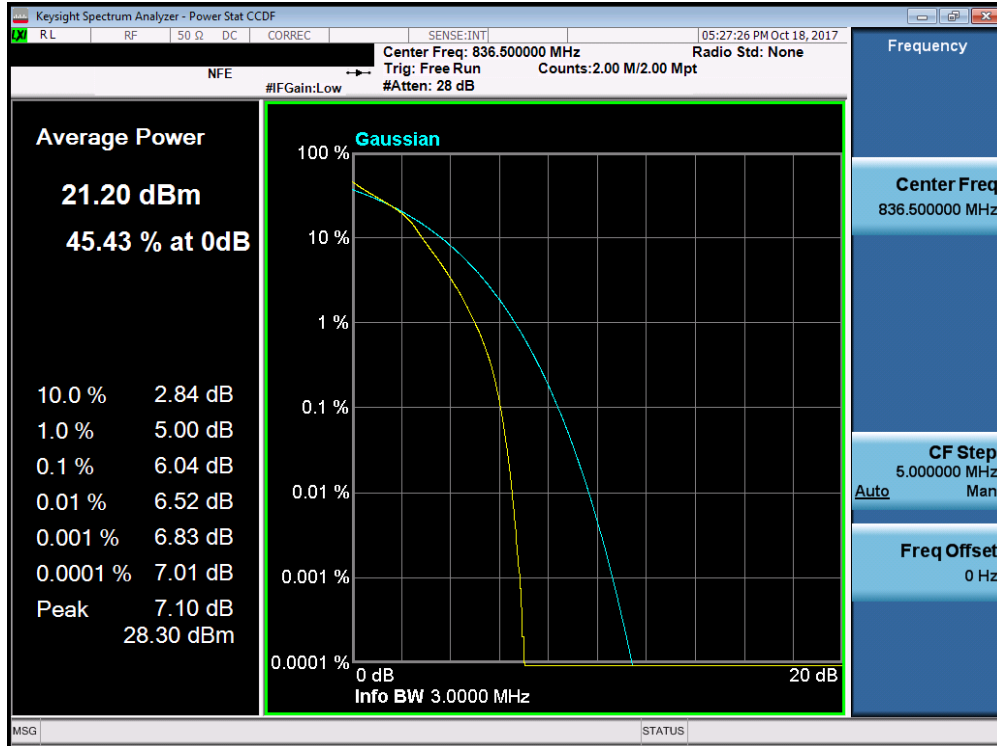


Plot 7-295. PAR Plot (Band 5/26 - 1.4MHz 64-QAM - Full RB Configuration)

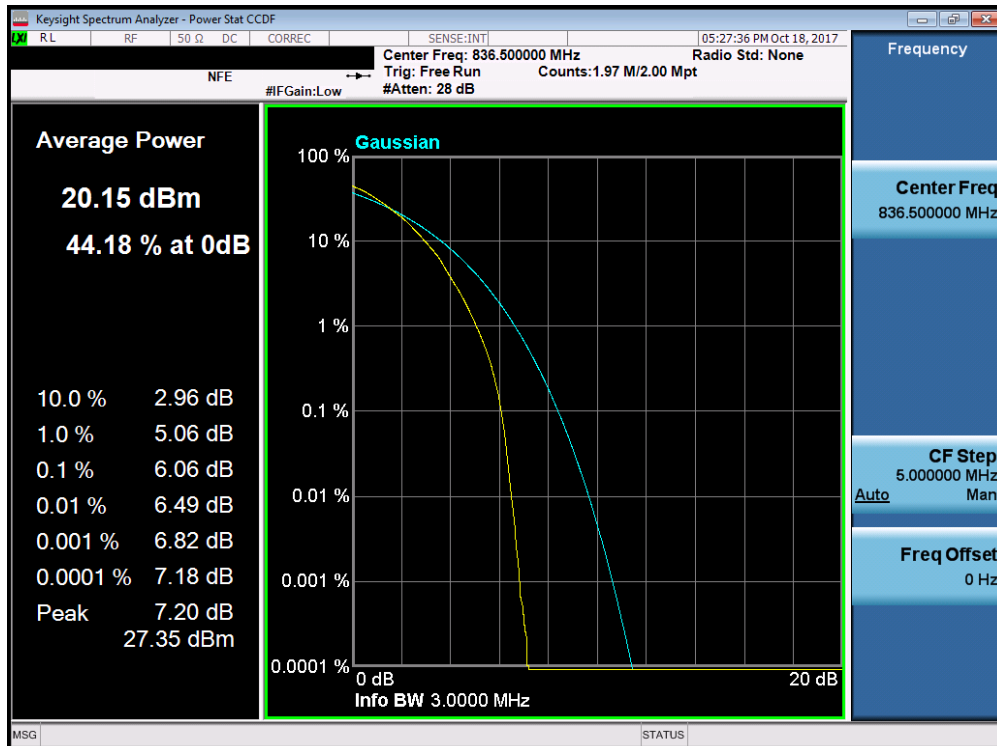


Plot 7-296. PAR Plot (Band 5/26 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 172 of 250	

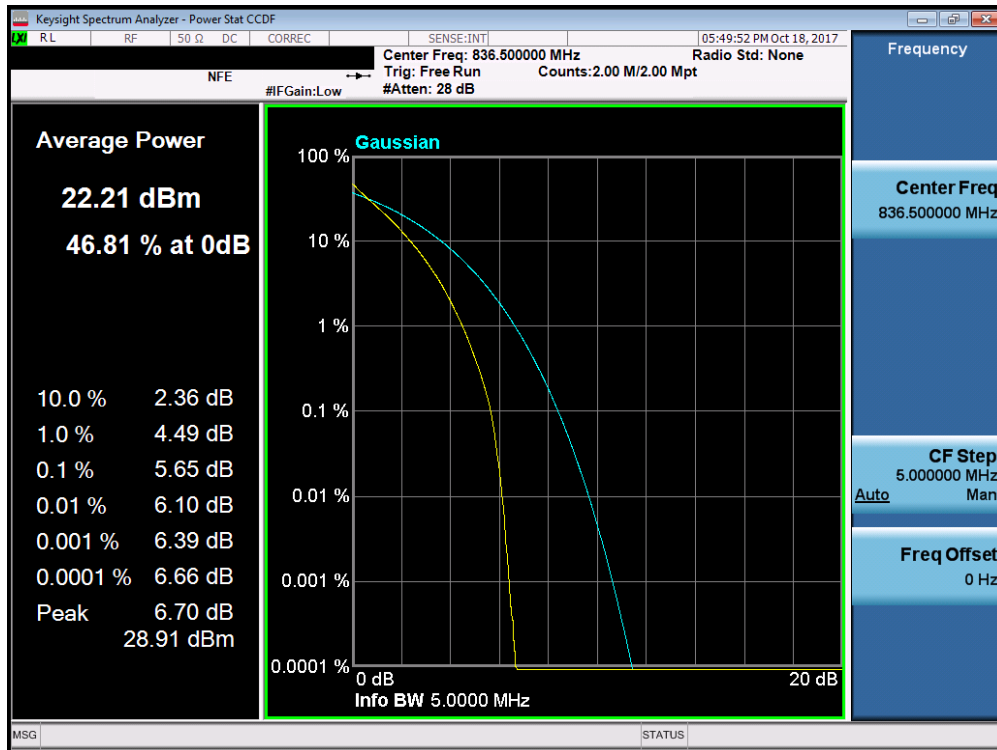


Plot 7-297. PAR Plot (Band 5/26 - 3.0MHz 16-QAM - Full RB Configuration)

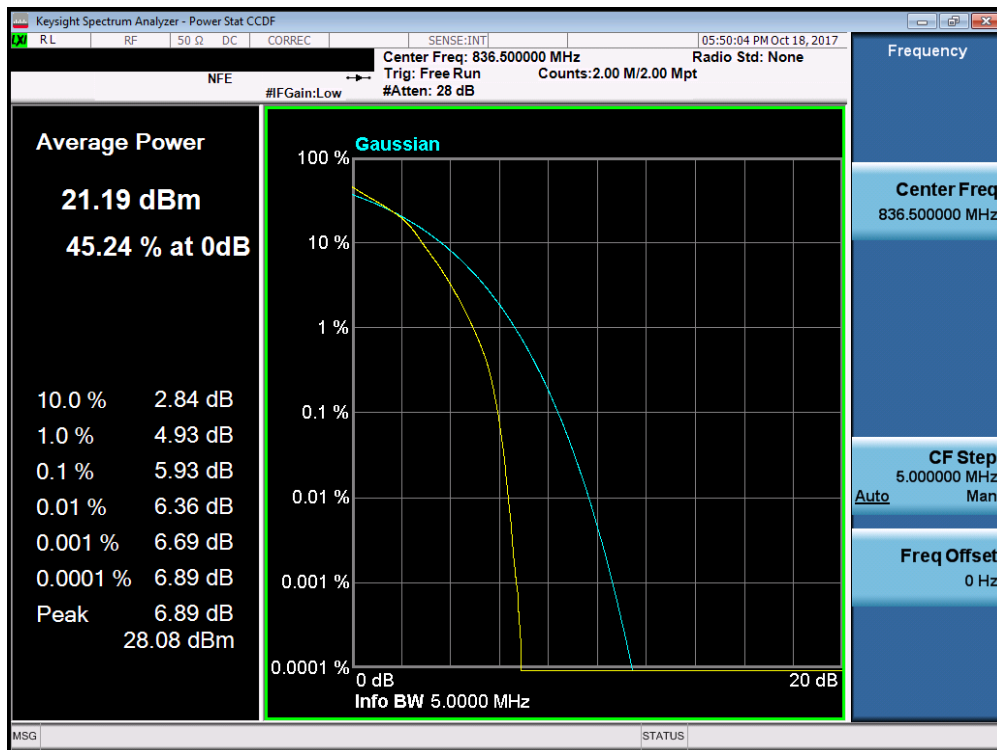


Plot 7-298. PAR Plot (Band 5/26 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 173 of 250

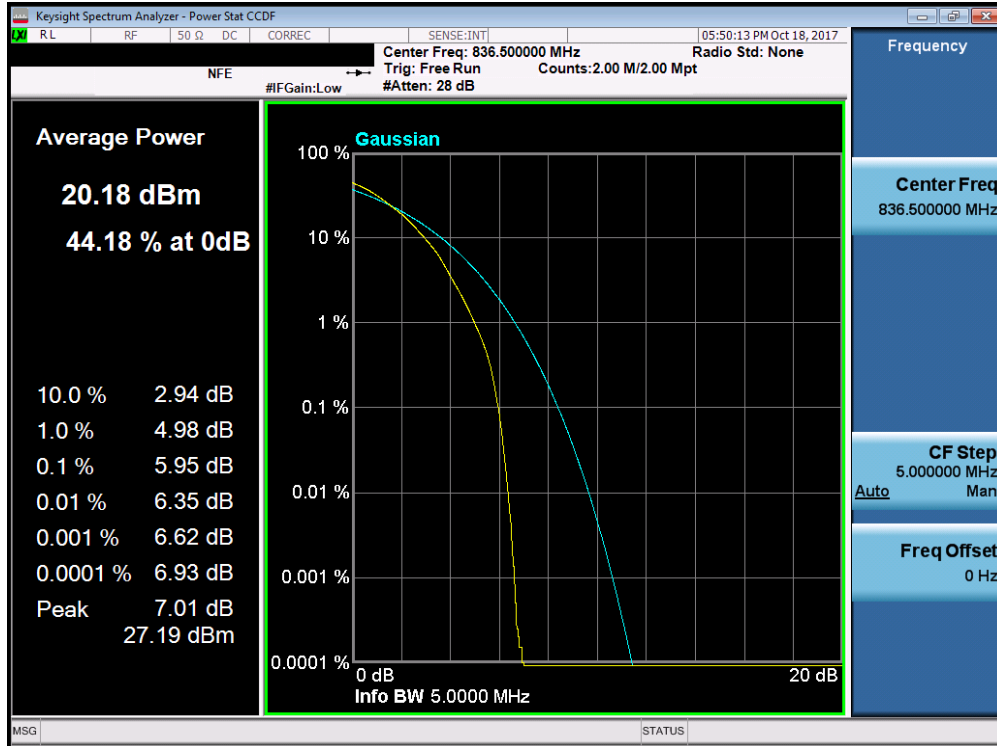


Plot 7-299. PAR Plot (Band 5/26 - 5.0MHz QPSK - Full RB Configuration)

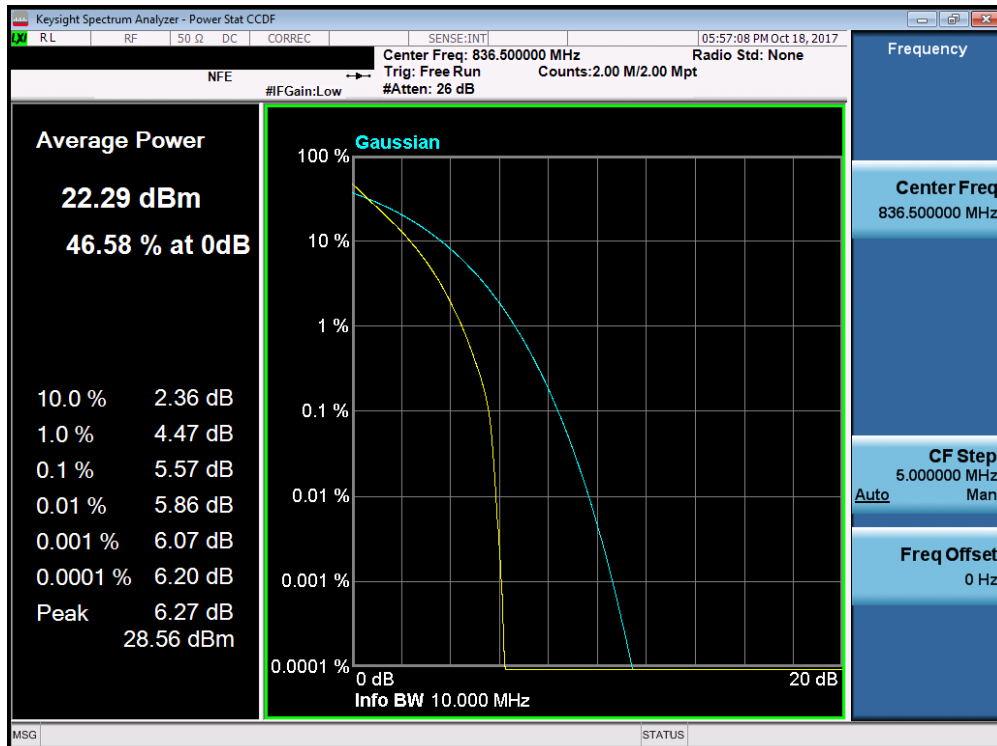


Plot 7-300. PAR Plot (Band 5/26 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 174 of 250	

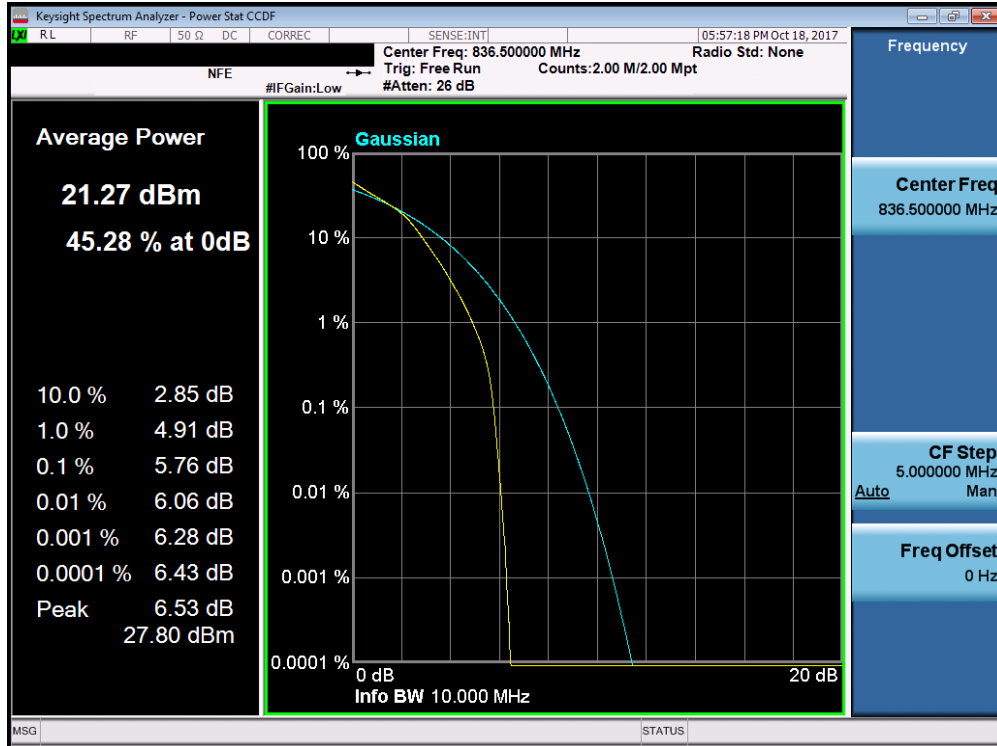


Plot 7-301. PAR Plot (Band 5/26 - 5.0MHz 64-QAM - Full RB Configuration)

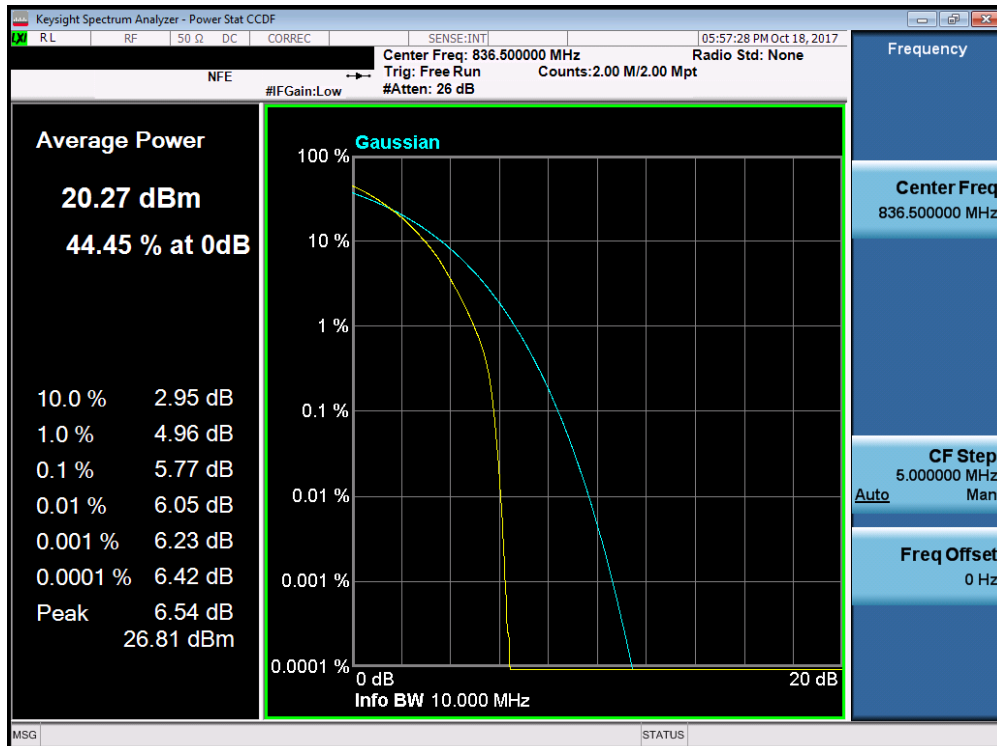


Plot 7-302. PAR Plot (Band 5/26 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 175 of 250



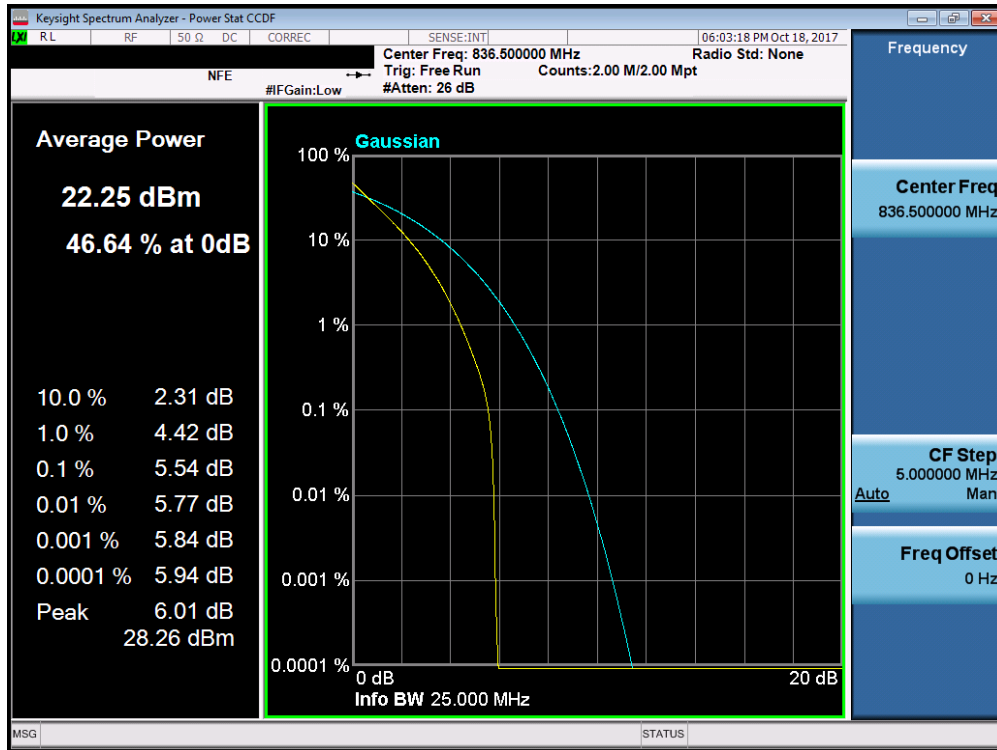
Plot 7-303. PAR Plot (Band 5/26 - 10.0MHz 16-QAM - Full RB Configuration)



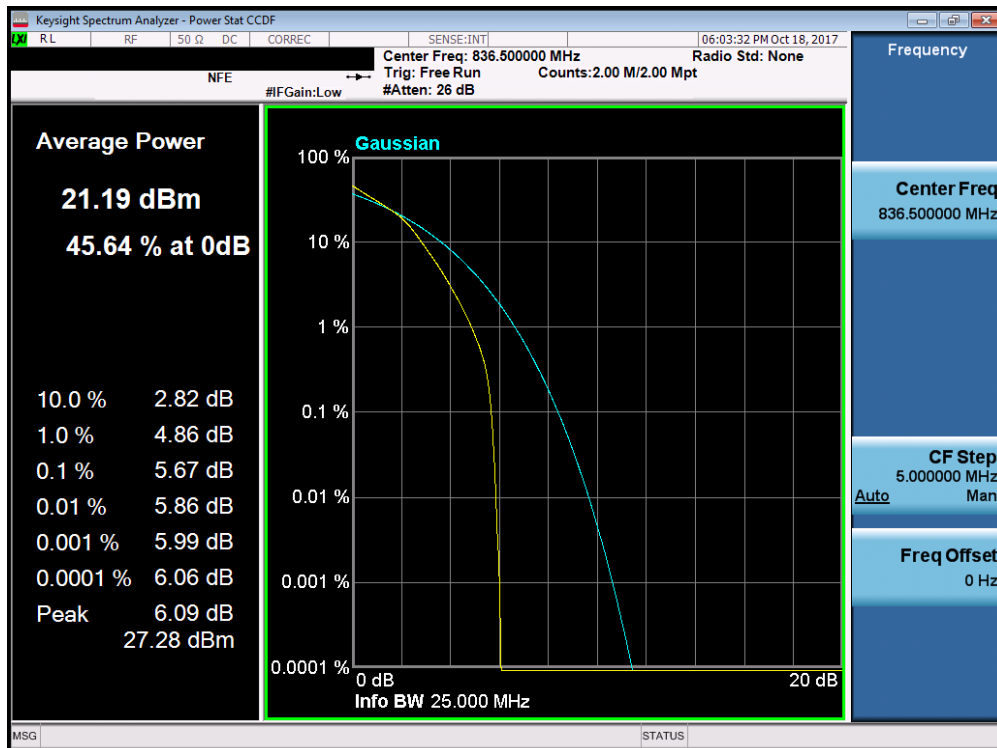
Plot 7-304. PAR Plot (Band 5/26 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 176 of 250

Band 26

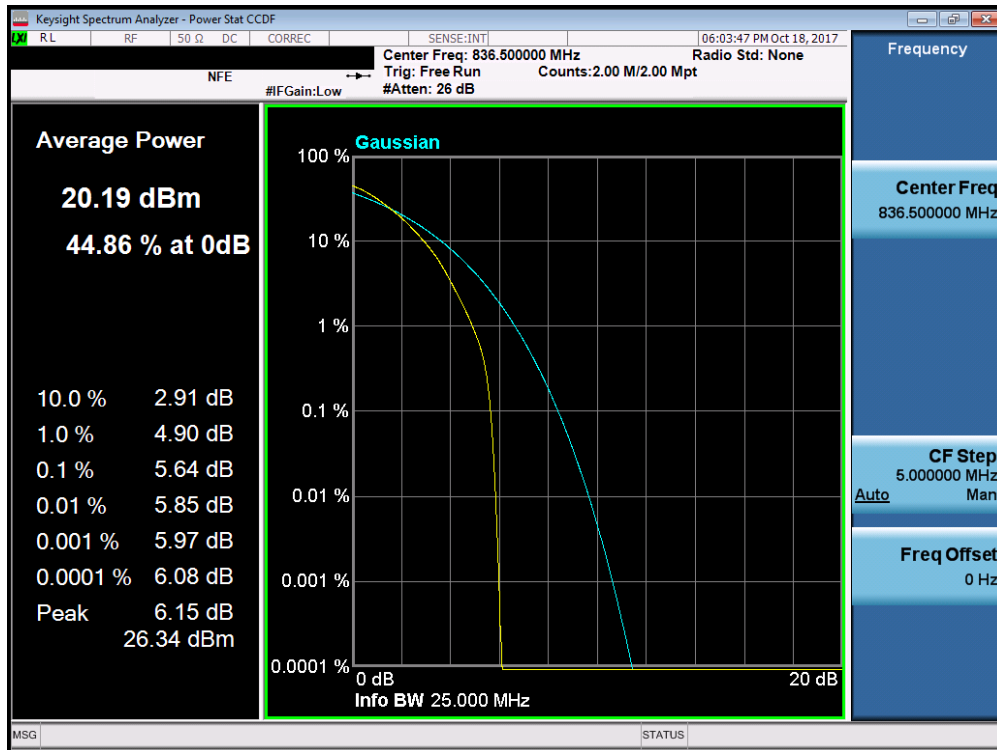


Plot 7-305. PAR Plot (Band 26 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-306. PAR Plot (Band 26 - 15.0MHz 16-QAM - Full RB Configuration)

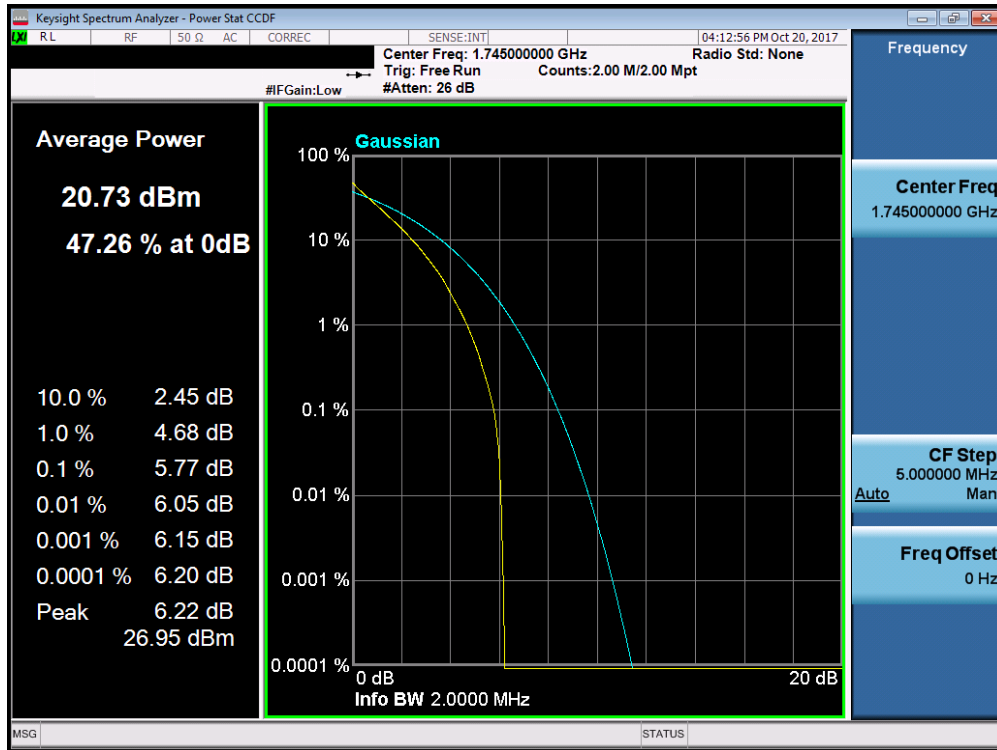
FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 177 of 250



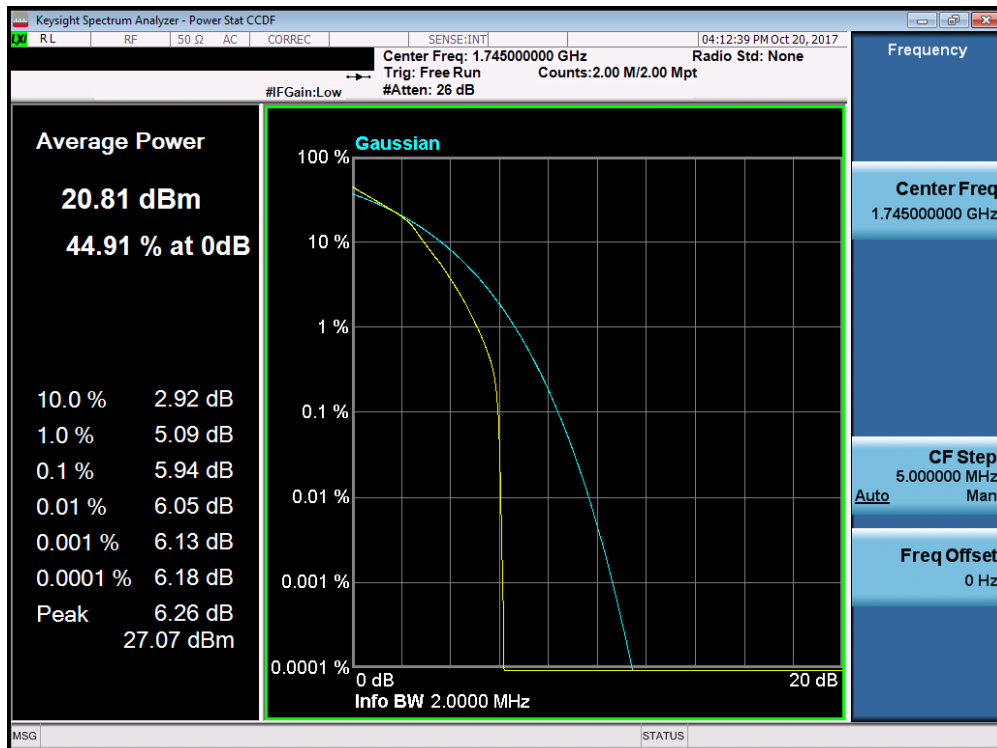
Plot 7-307. PAR Plot (Band 26 - 15.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 178 of 250

Band 4/66

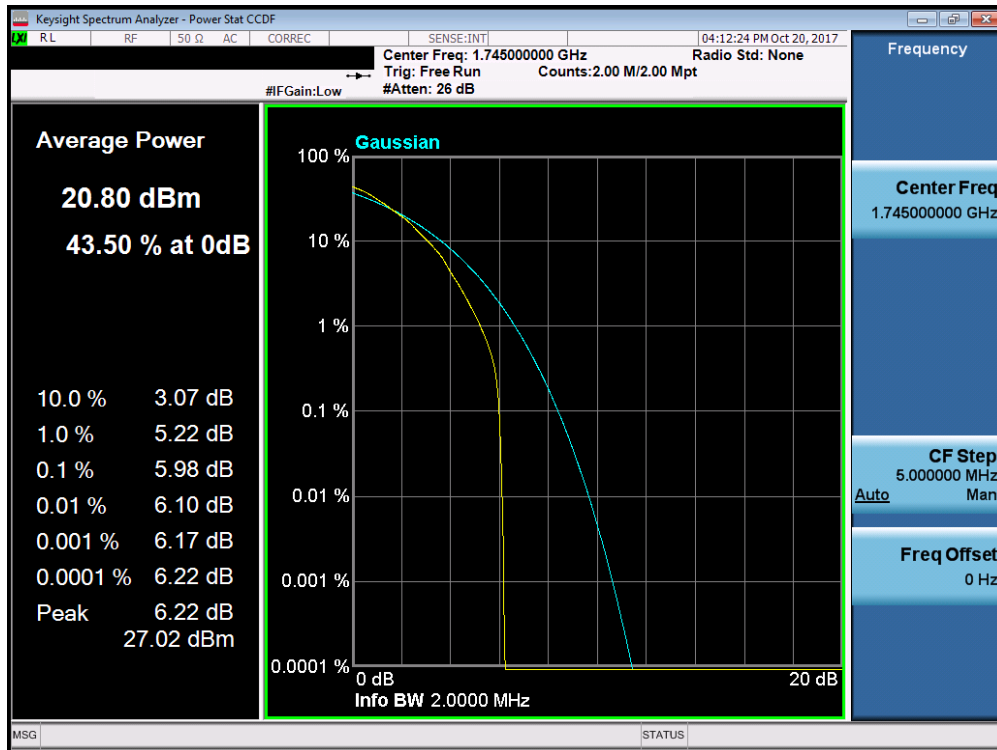


Plot 7-308. PAR Plot (Band 4/66 - 1.4MHz QPSK - Full RB Configuration)

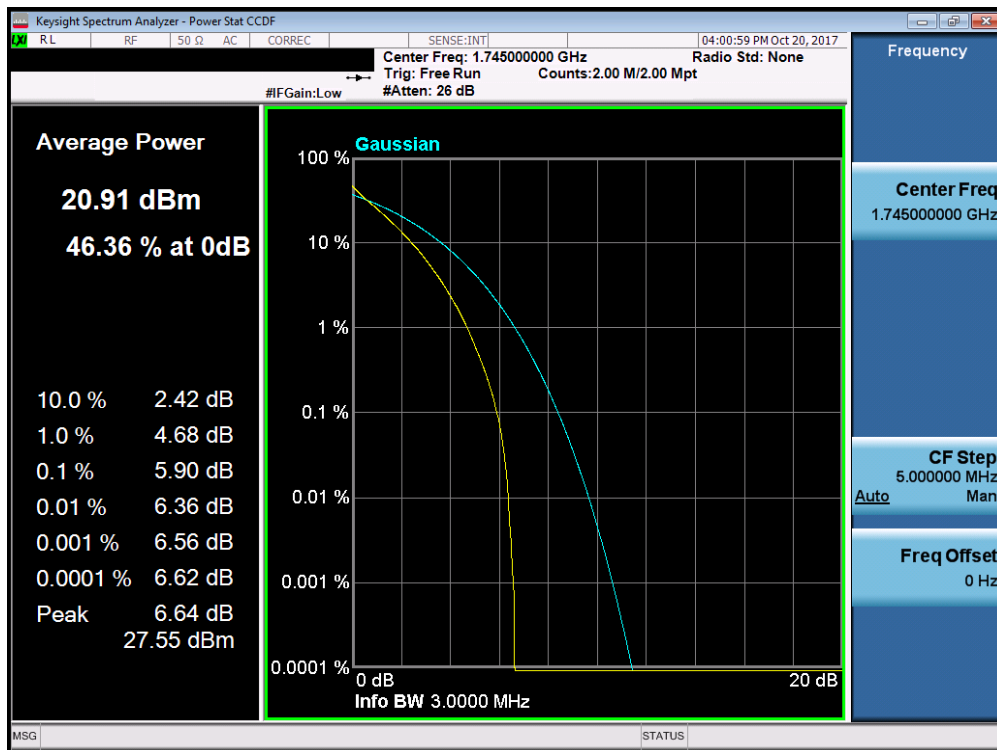


Plot 7-309. PAR Plot (Band 4/66 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 179 of 250

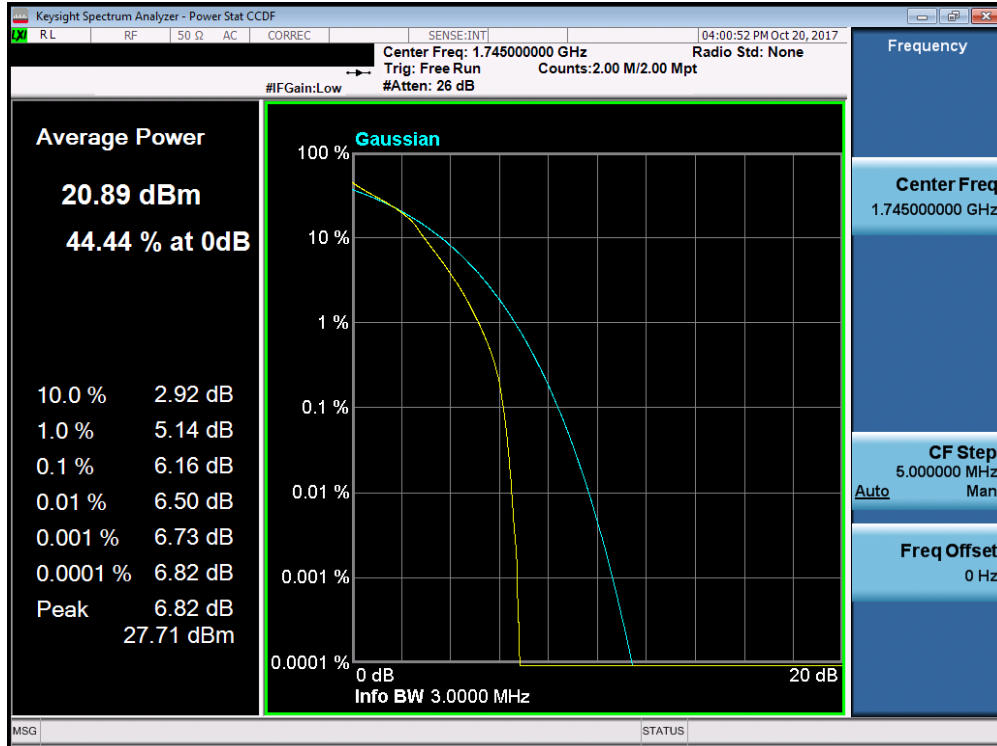


Plot 7-310. PAR Plot (Band 4/66 - 1.4MHz 64-QAM - Full RB Configuration)

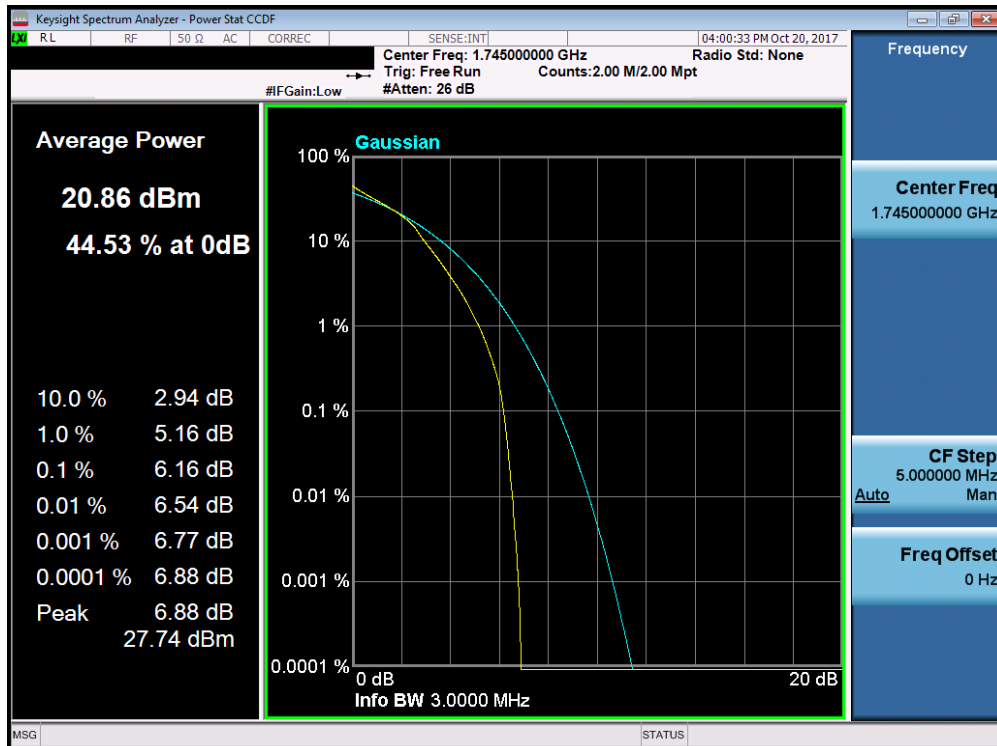


Plot 7-311. PAR Plot (Band 4/66 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 180 of 250

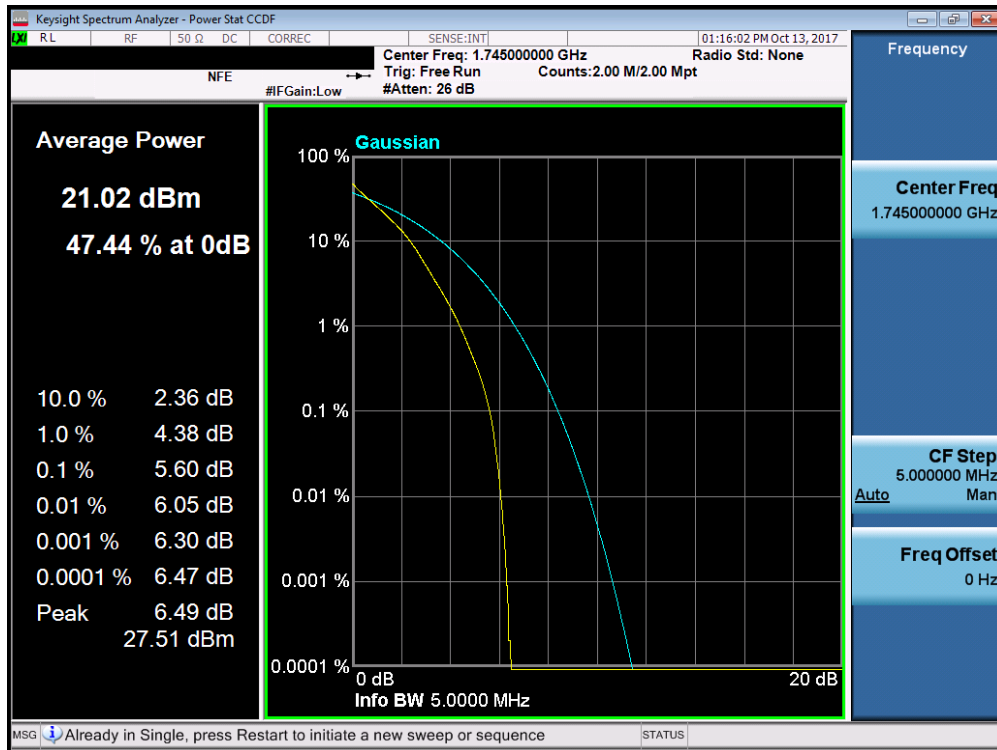


Plot 7-312. PAR Plot (Band 4/66 - 3.0MHz 16-QAM - Full RB Configuration)

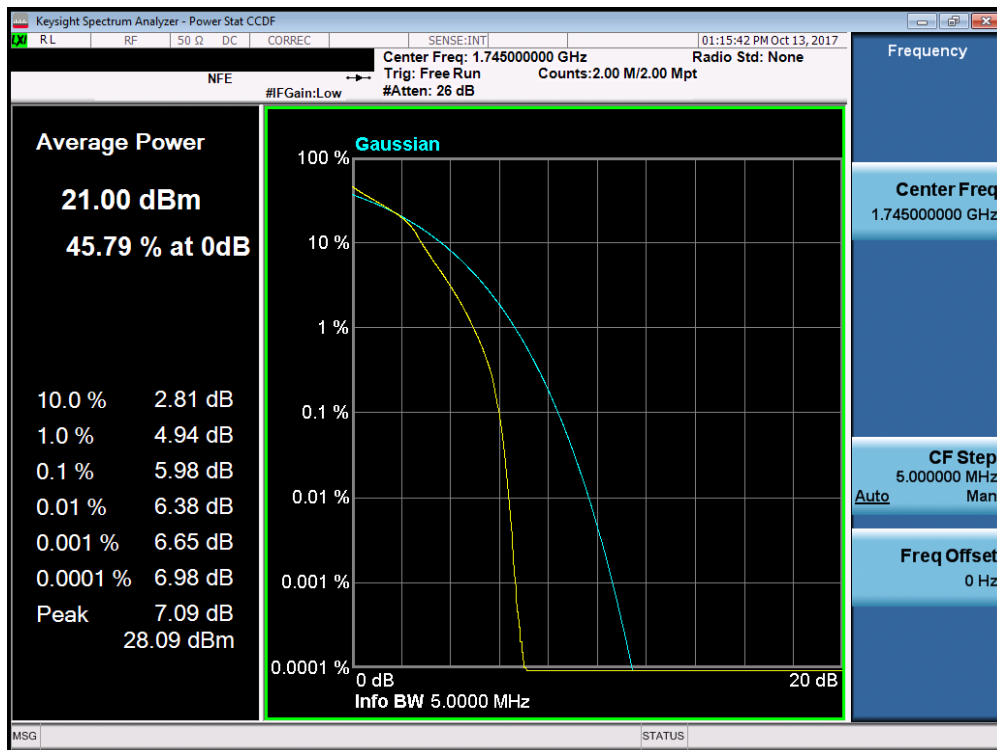


Plot 7-313. PAR Plot (Band 4/66 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 181 of 250

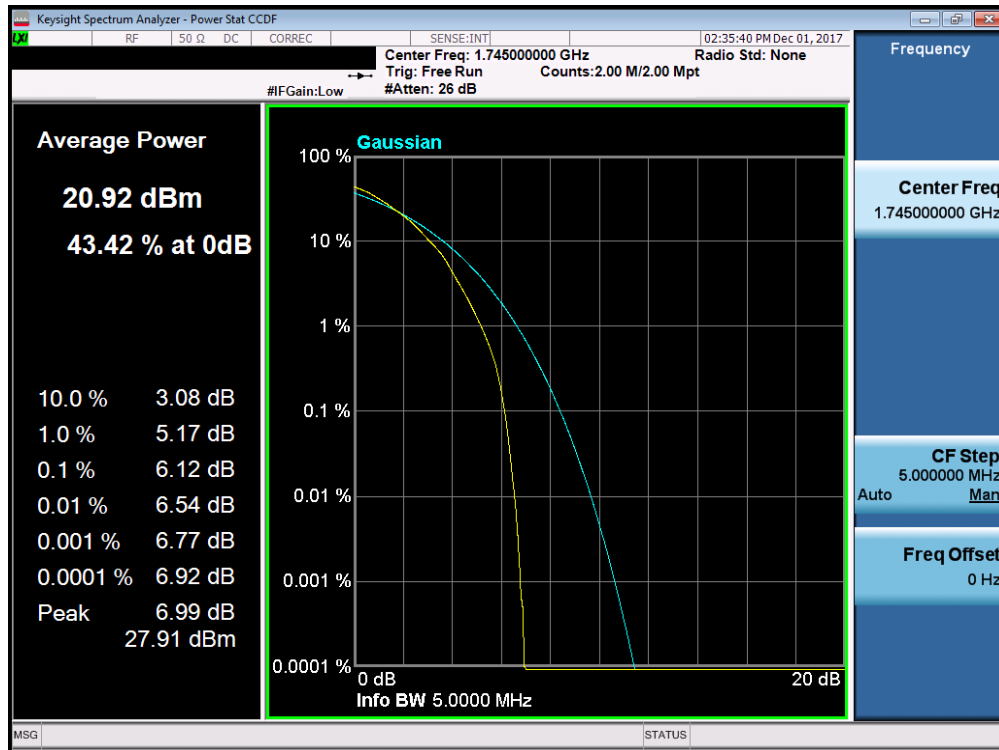


Plot 7-314. PAR Plot (Band 4/66 - 5.0MHz QPSK - Full RB Configuration)

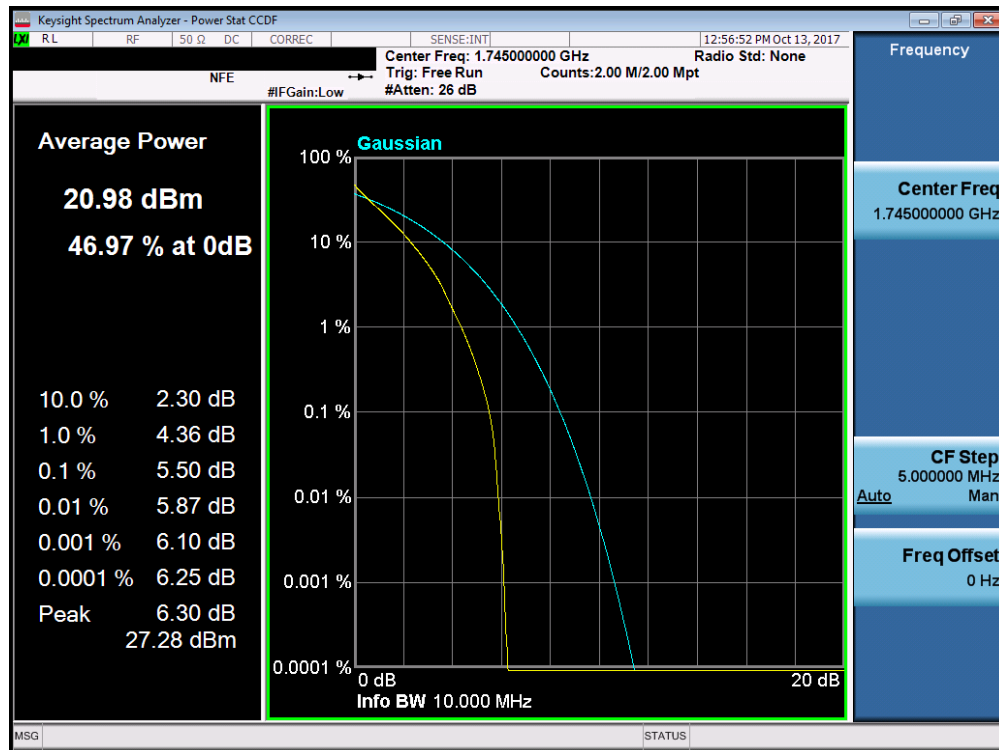


Plot 7-315. PAR Plot (Band 4/66 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 182 of 250	

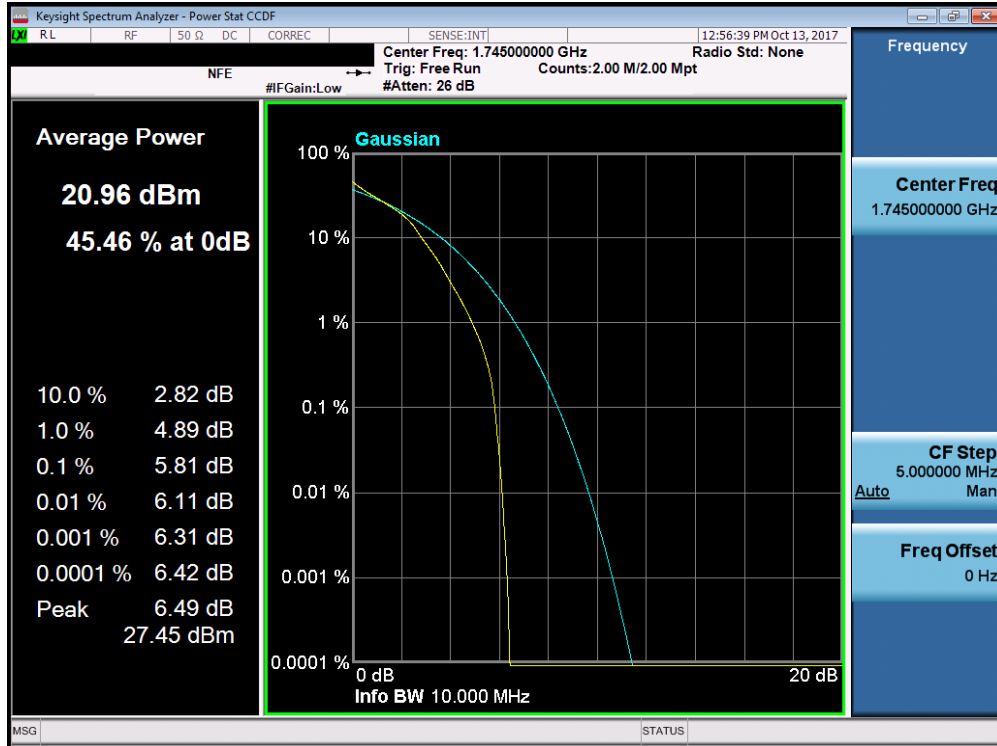


Plot 7-316. PAR Plot (Band 4/66 – 5.0MHz 64-QAM - Full RB Configuration)

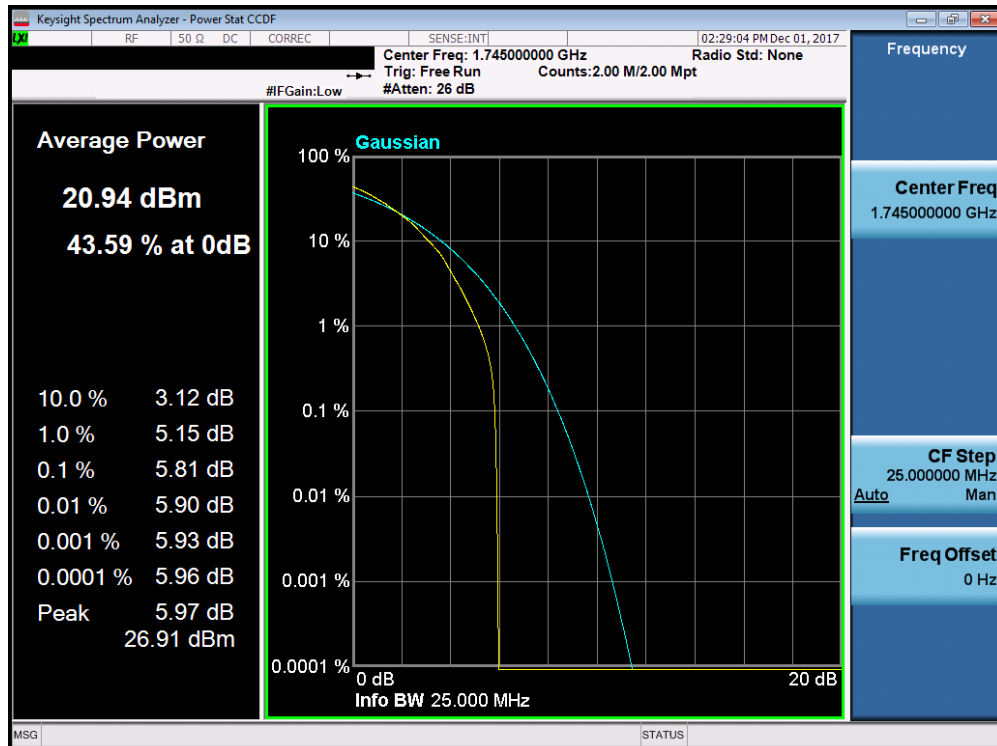


Plot 7-317. PAR Plot (Band 4/66 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 183 of 250

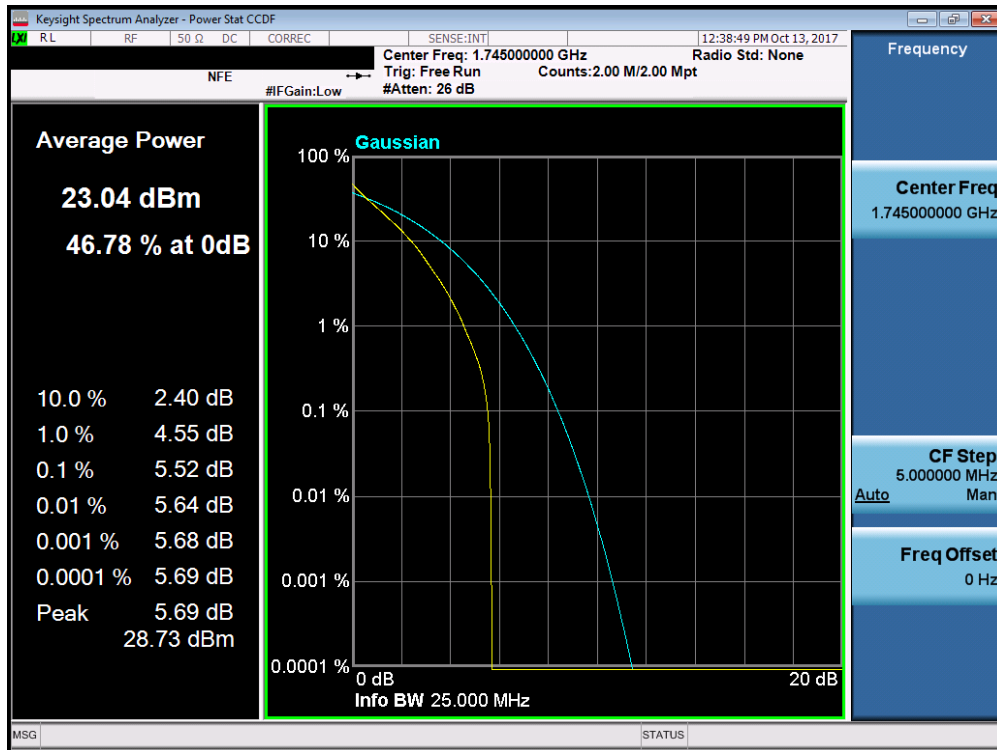


Plot 7-318. PAR Plot (Band 4/66 - 10.0MHz 16-QAM - Full RB Configuration)

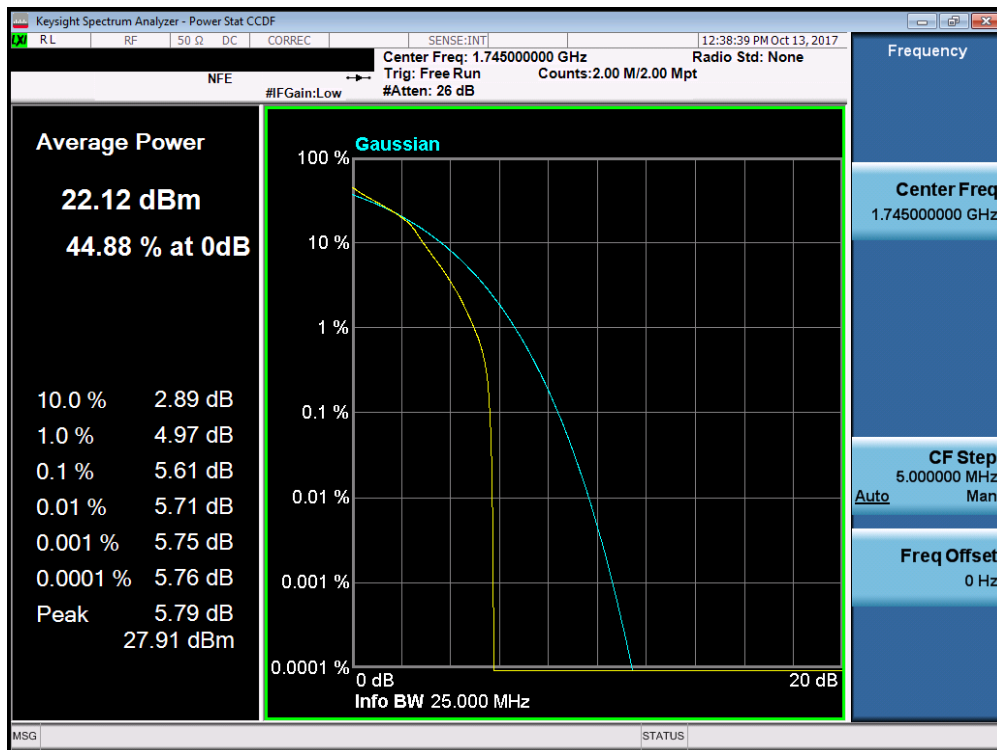


Plot 7-319. PAR Plot (Band 4/66 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 184 of 250

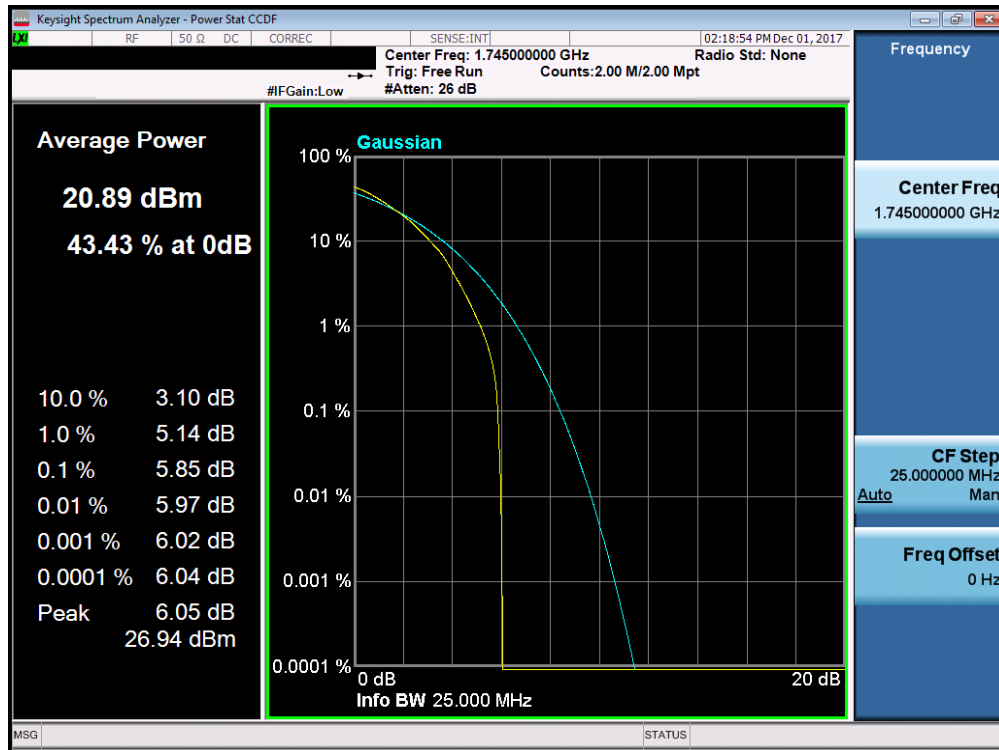


Plot 7-320. PAR Plot (Band 4/66 - 15.0MHz QPSK - Full RB Configuration)

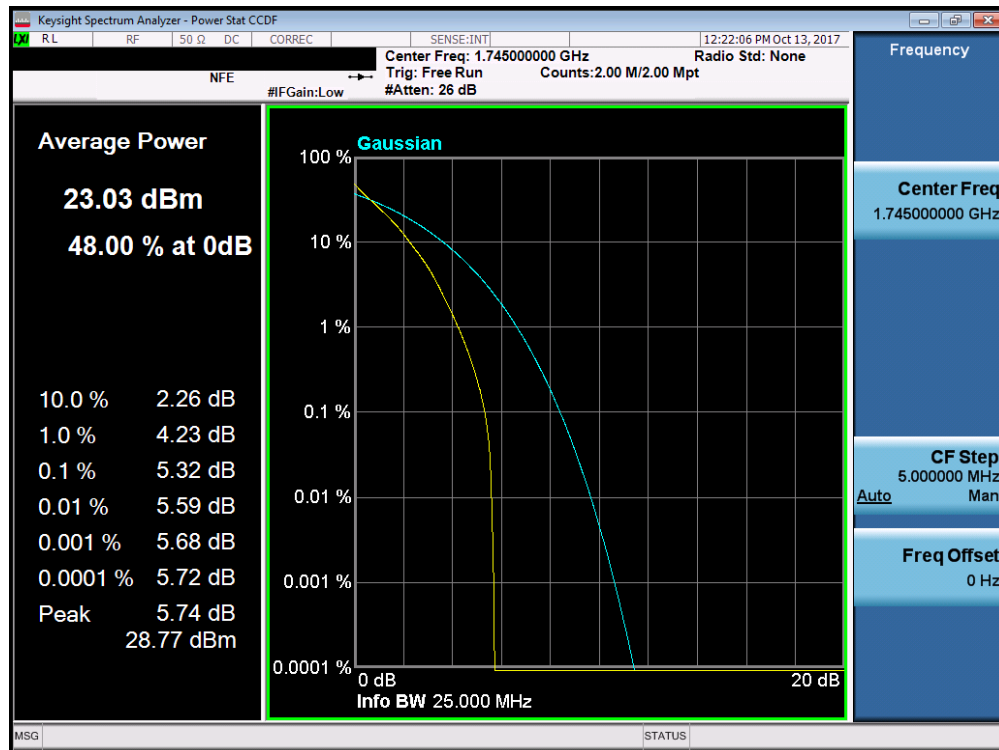


Plot 7-321. PAR Plot (Band 4/66 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 185 of 250

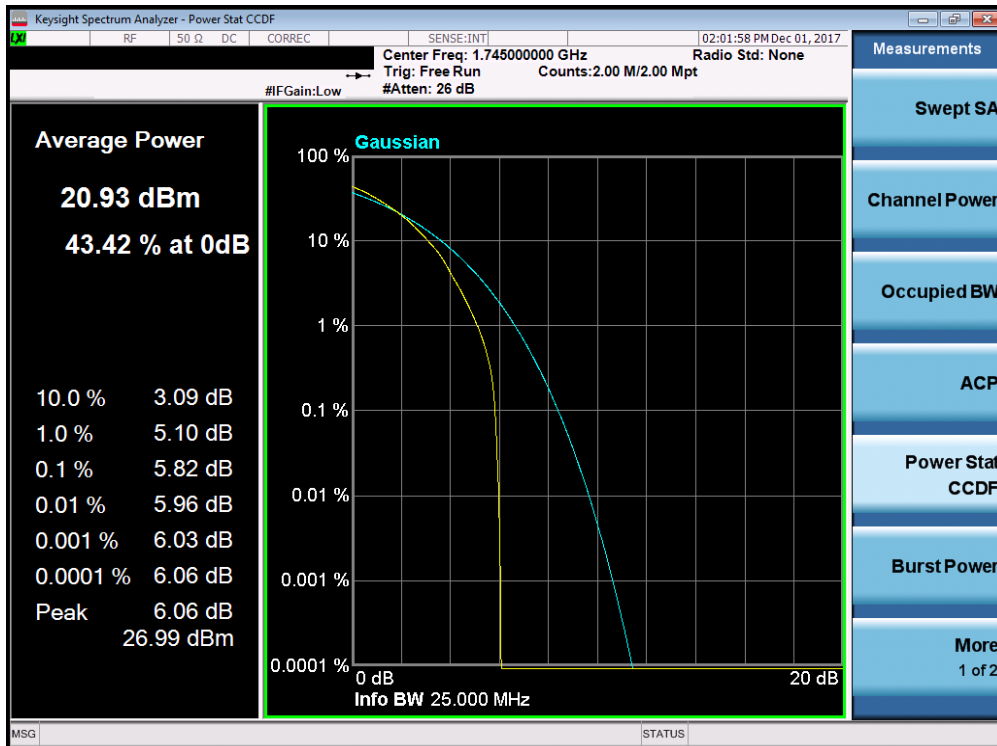
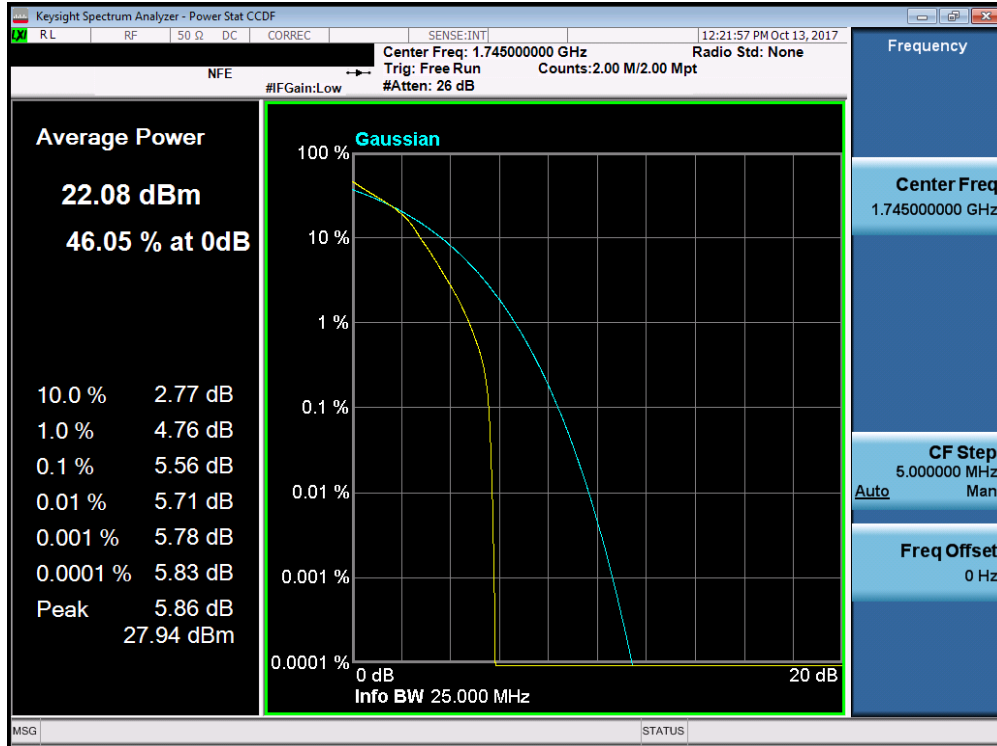


Plot 7-322. PAR Plot (Band 4/66 - 15MHz 64-QAM - Full RB Configuration)



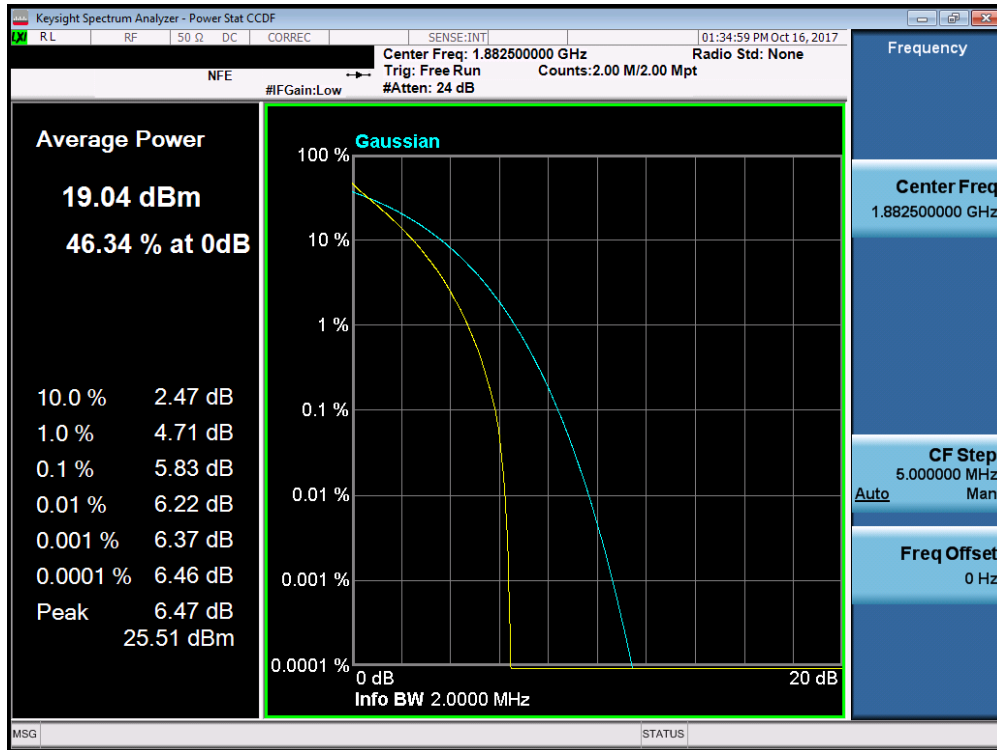
Plot 7-323. PAR Plot (Band 4/66 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 186 of 250

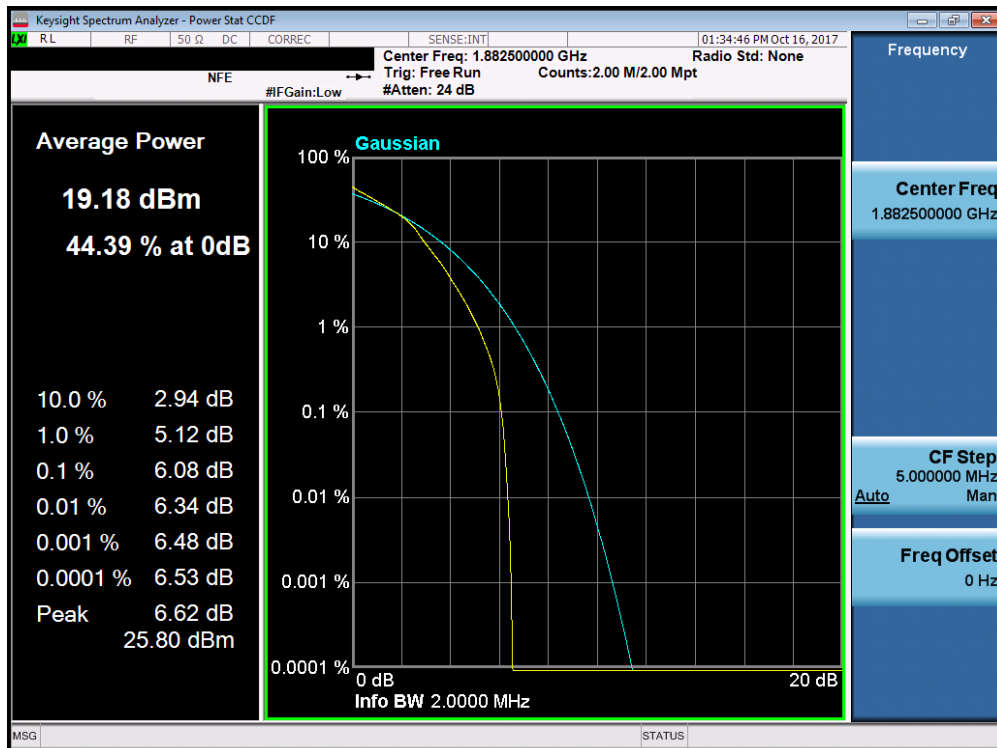


FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 187 of 250

Band 2/25

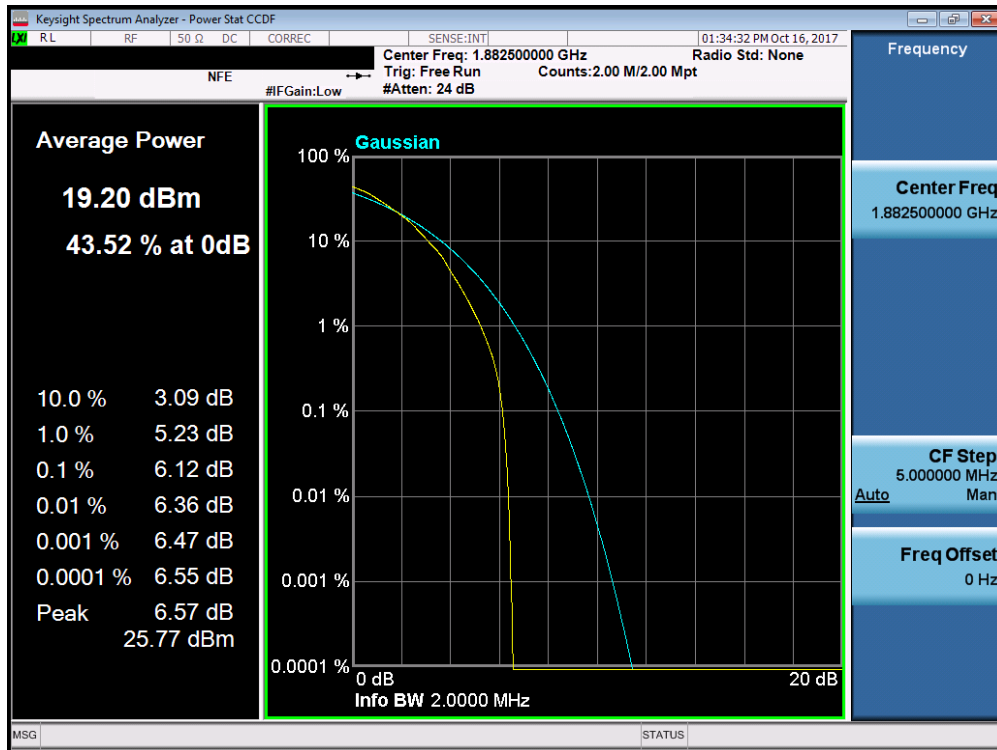


Plot 7-326. PAR Plot (Band 2/25 - 1.4MHz QPSK - Full RB Configuration)

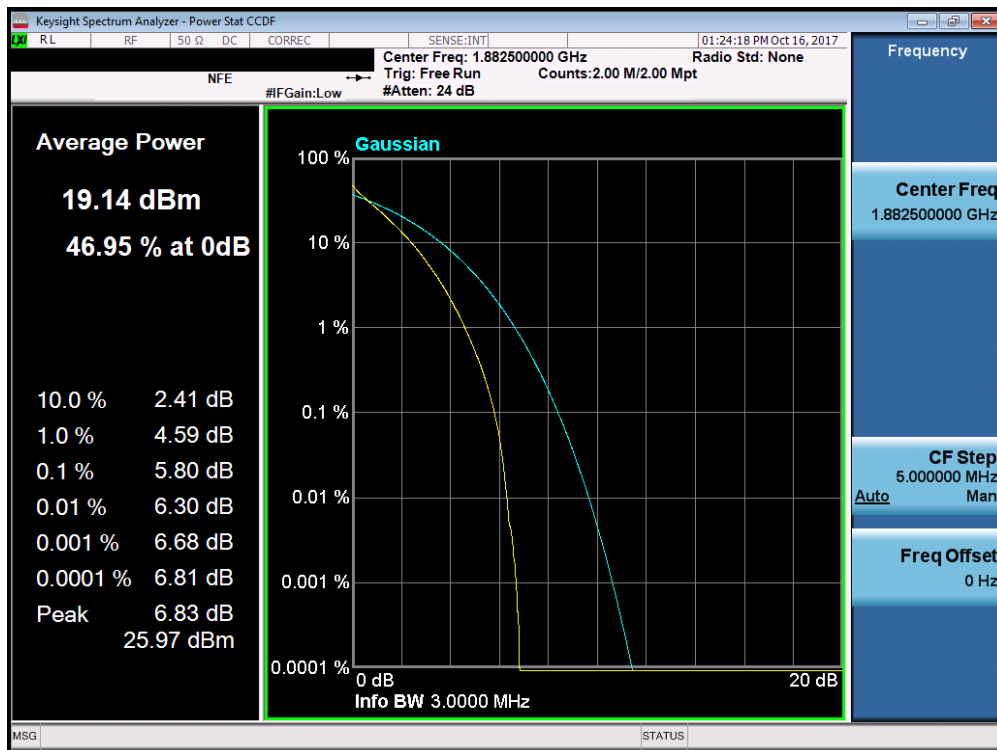


Plot 7-327. PAR Plot (Band 2/25 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 188 of 250

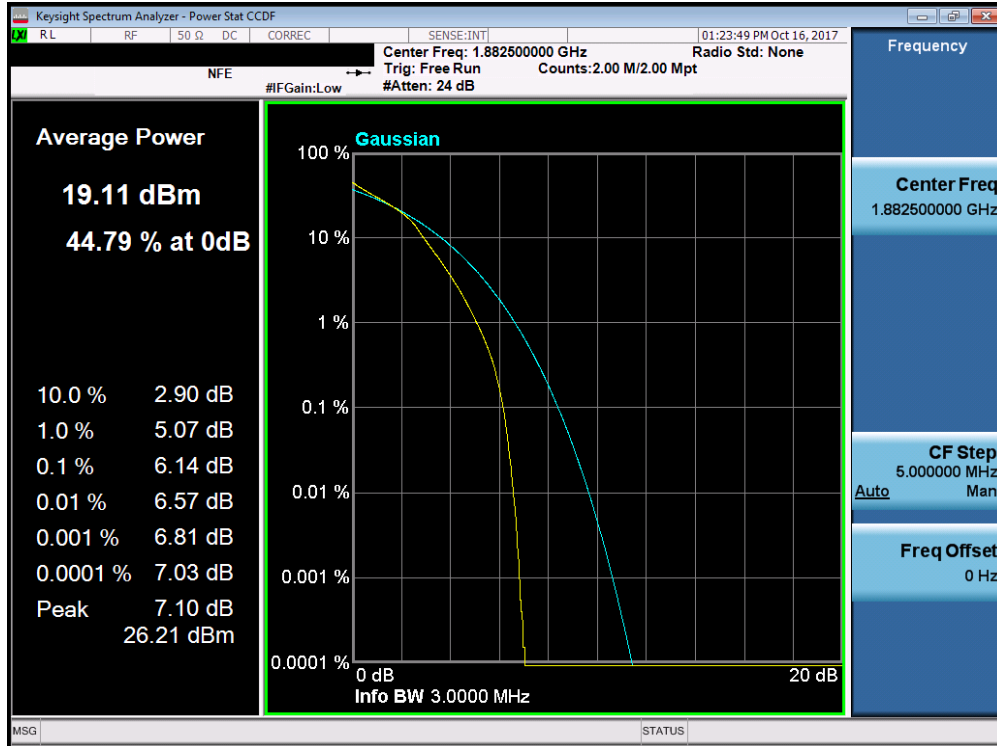


Plot 7-328. PAR Plot (Band 2/25 - 1.4MHz 64-QAM - Full RB Configuration)

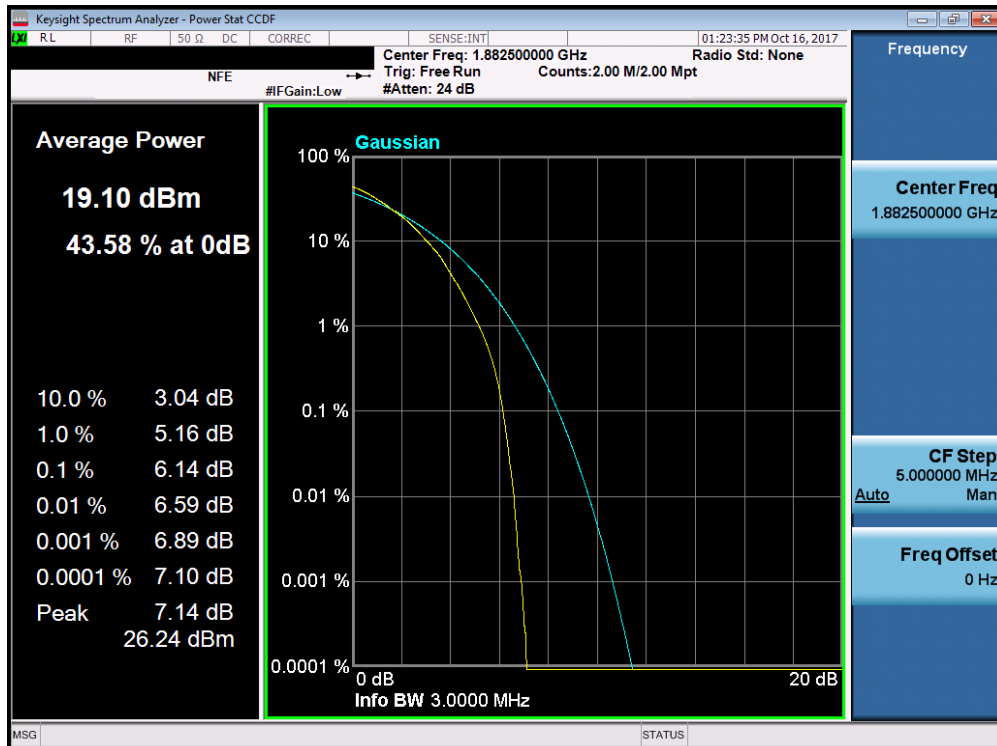


Plot 7-329. PAR Plot (Band 2/25 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 189 of 250

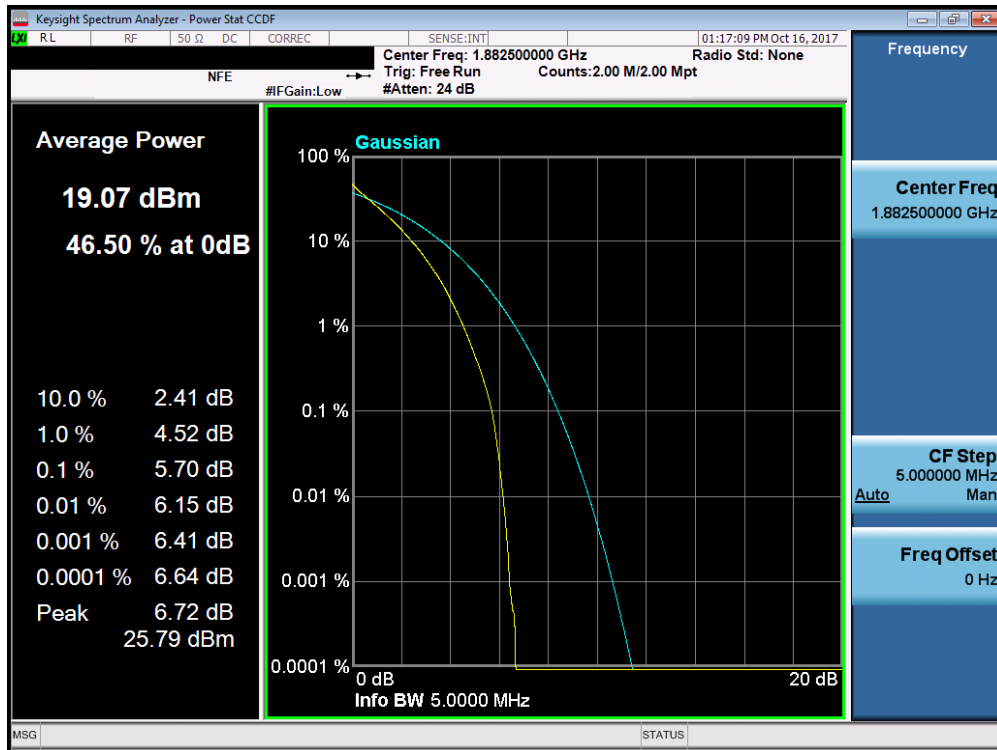


Plot 7-330. PAR Plot (Band 2/25 - 3.0MHz 16-QAM - Full RB Configuration)

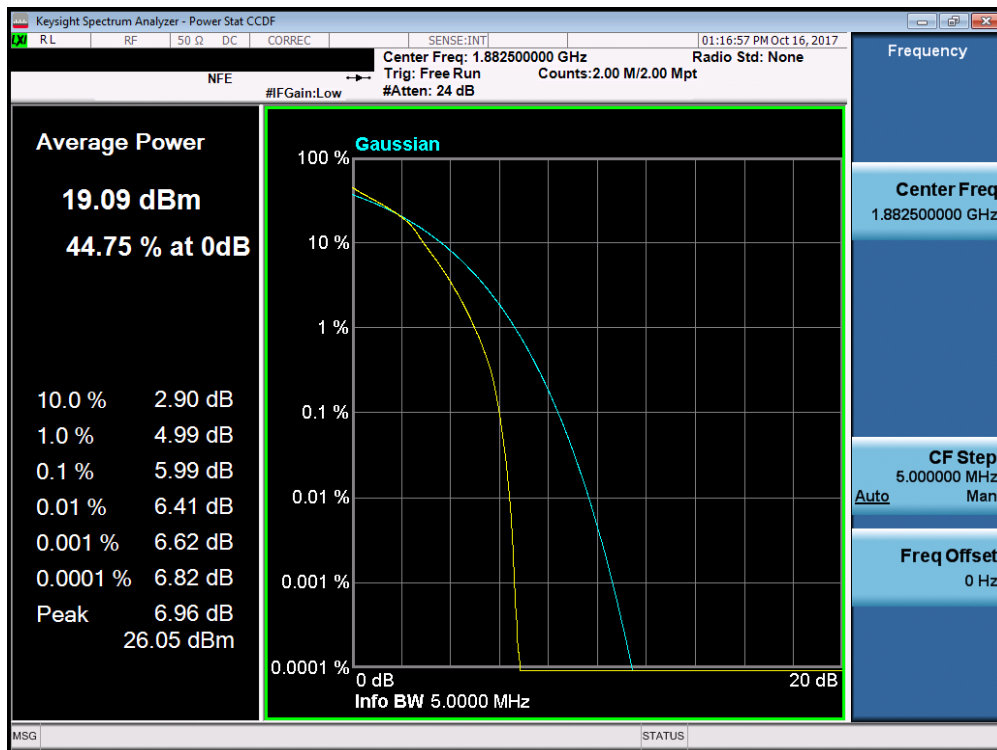


Plot 7-331. PAR Plot (Band 2/25 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 190 of 250

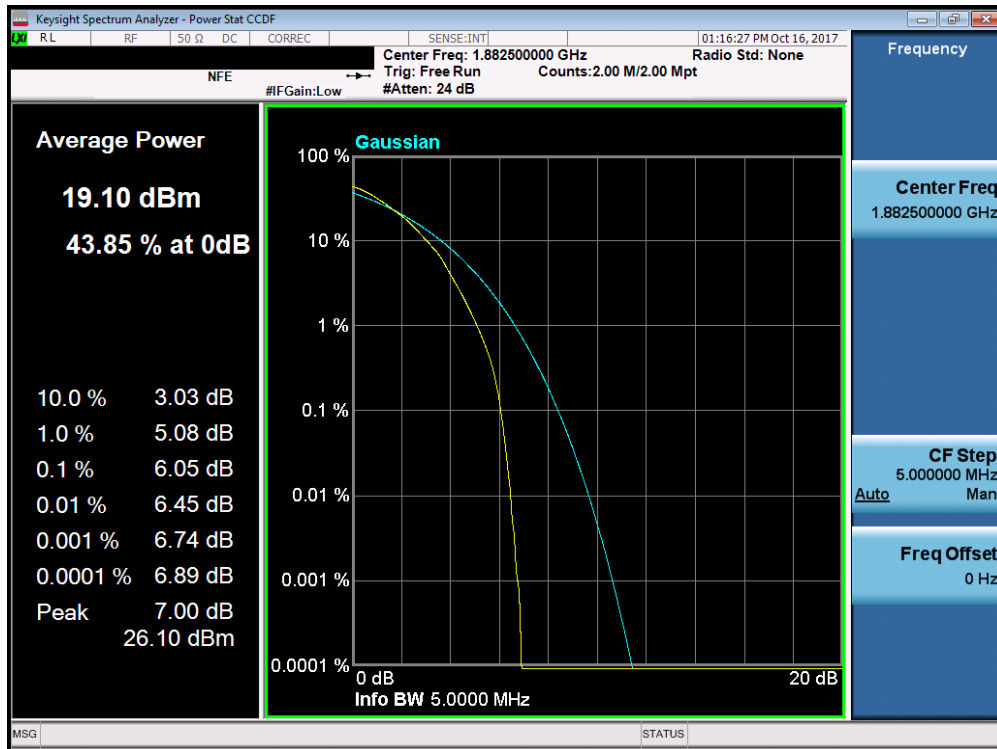


Plot 7-332. PAR Plot (Band 2/25 - 5.0MHz QPSK - Full RB Configuration)

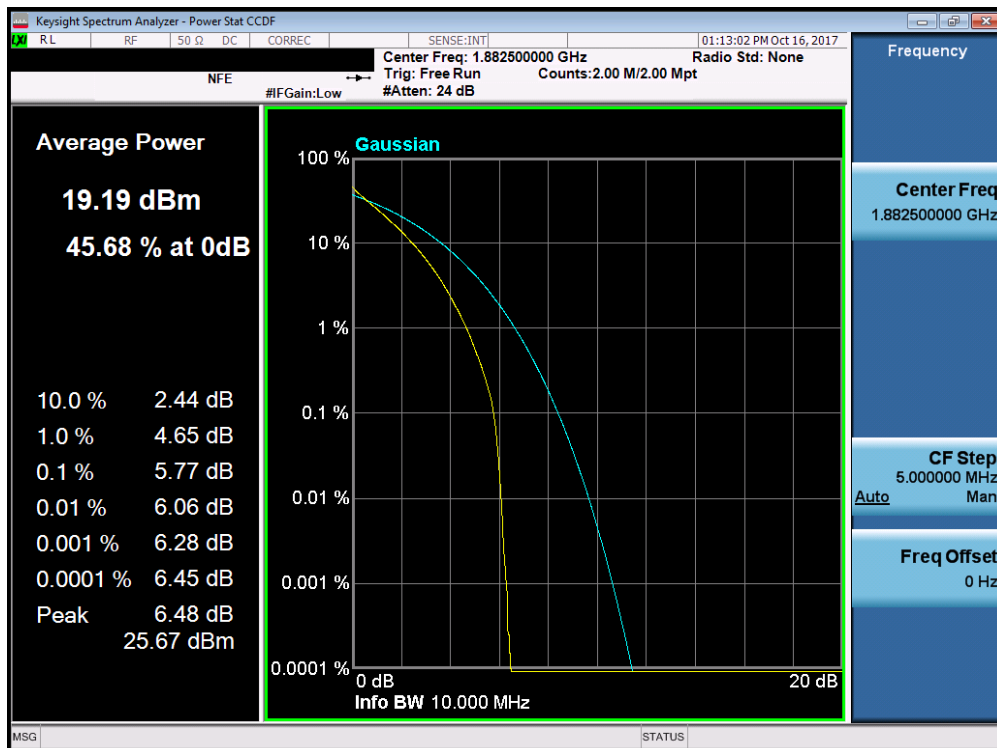


Plot 7-333. PAR Plot (Band 2/25 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 191 of 250

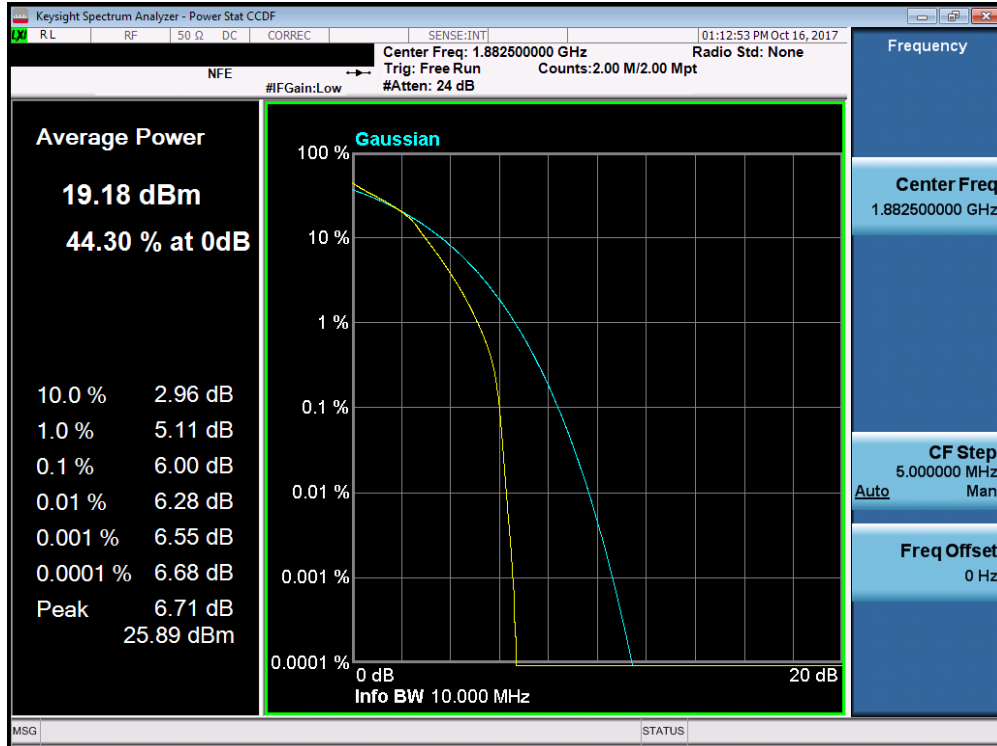


Plot 7-334. PAR Plot (Band 2/25 - 5.0MHz 64-QAM - Full RB Configuration)

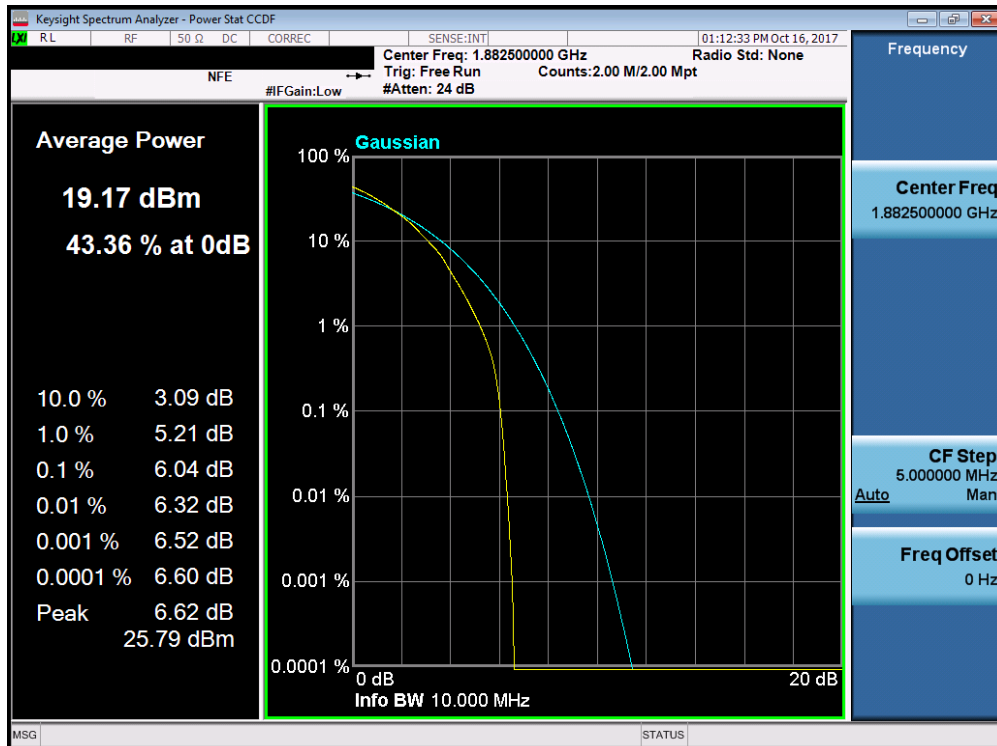


Plot 7-335. PAR Plot (Band 2/25 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 192 of 250

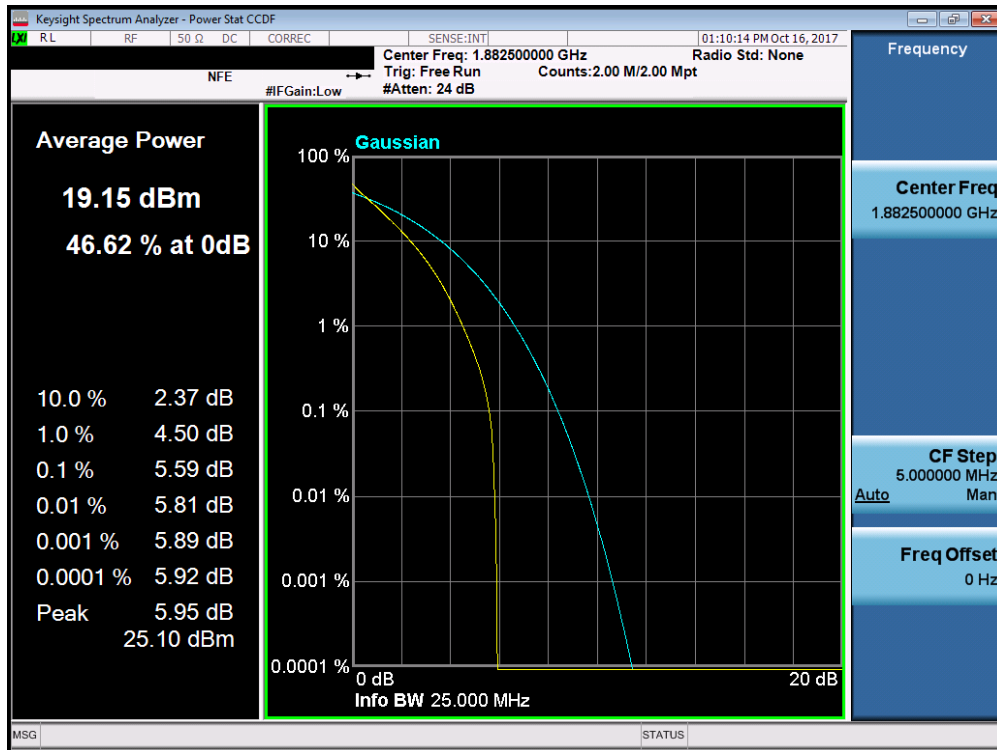


Plot 7-336. PAR Plot (Band 2/25 - 10.0MHz 16-QAM - Full RB Configuration)

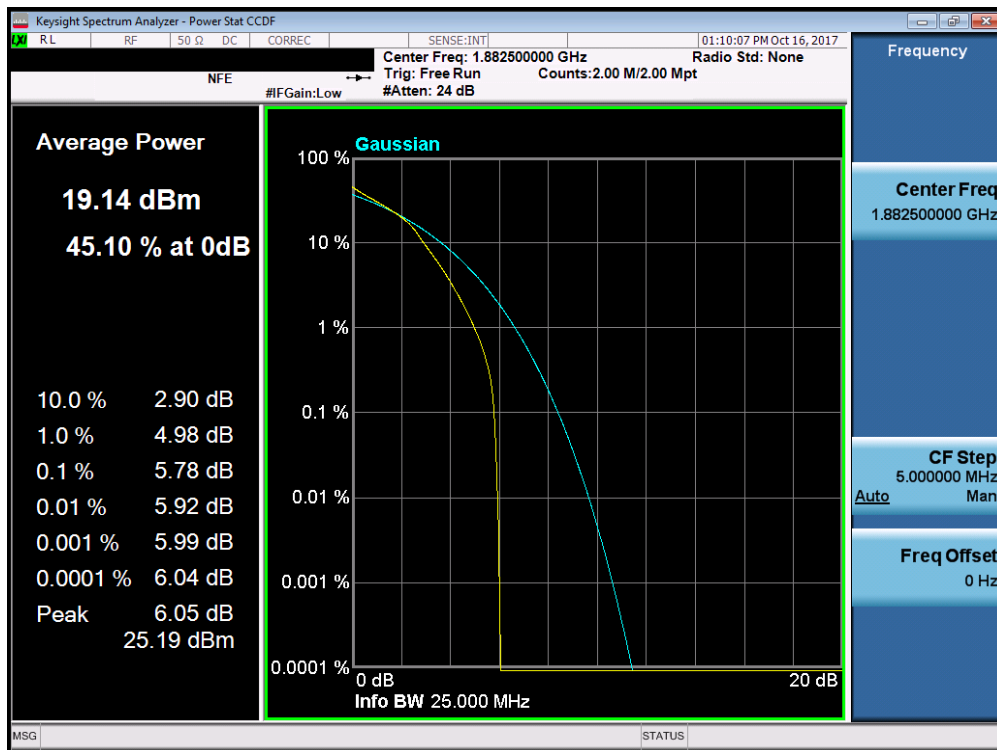


Plot 7-337. PAR Plot (Band 2/25 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 193 of 250

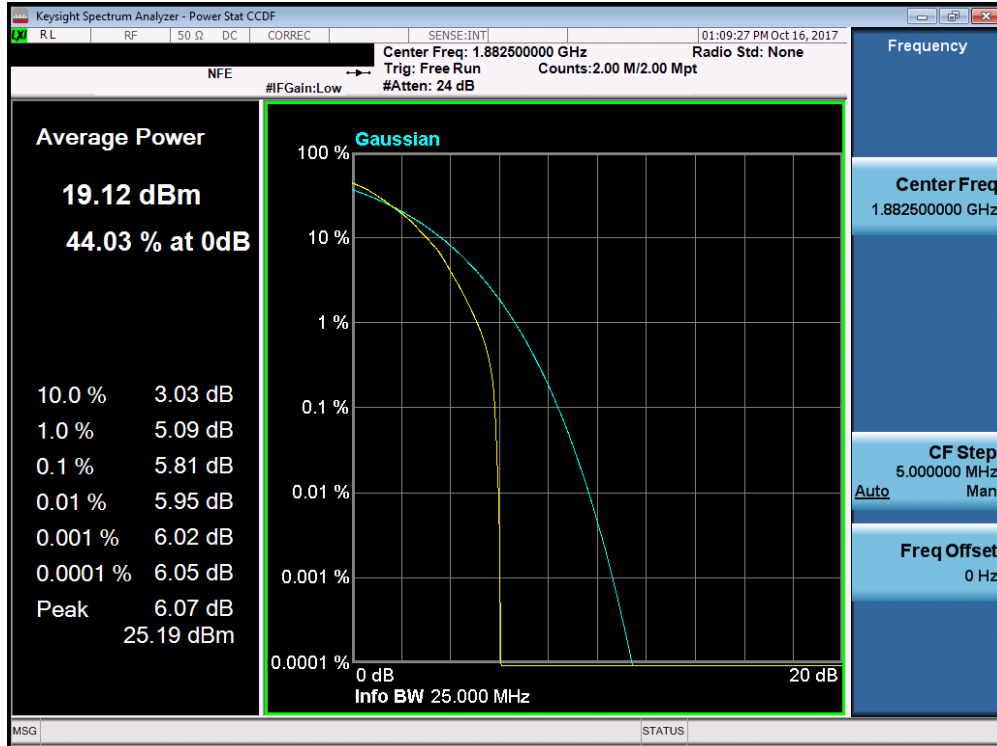


Plot 7-338. PAR Plot (Band 2/25 - 15.0MHz QPSK - Full RB Configuration)

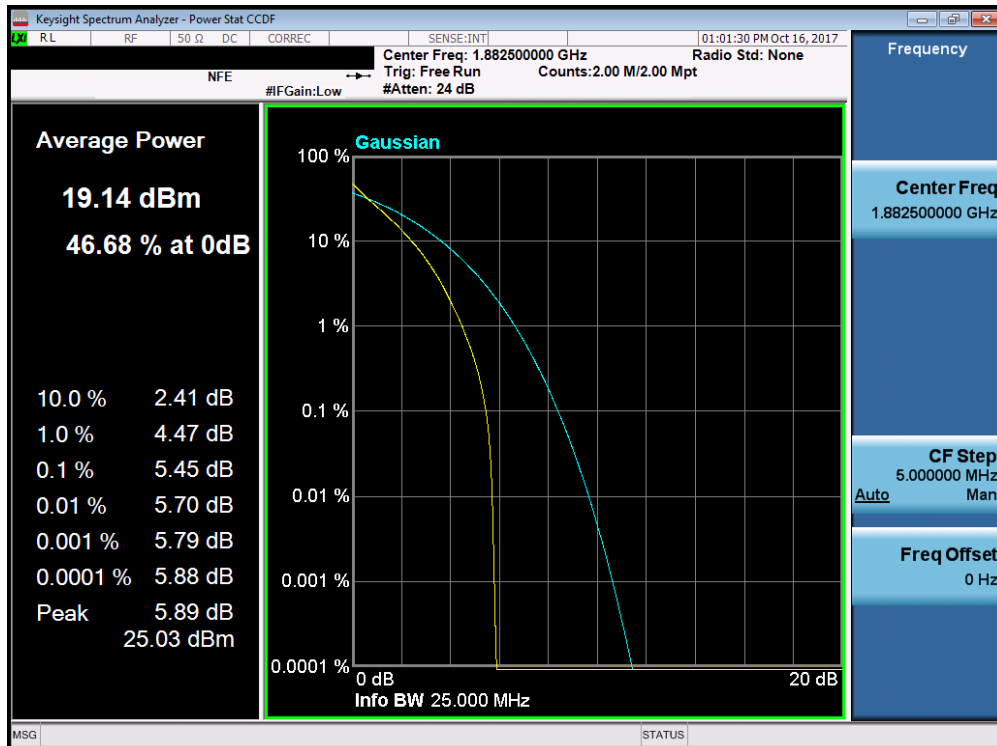


Plot 7-339. PAR Plot (Band 2/25 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 194 of 250

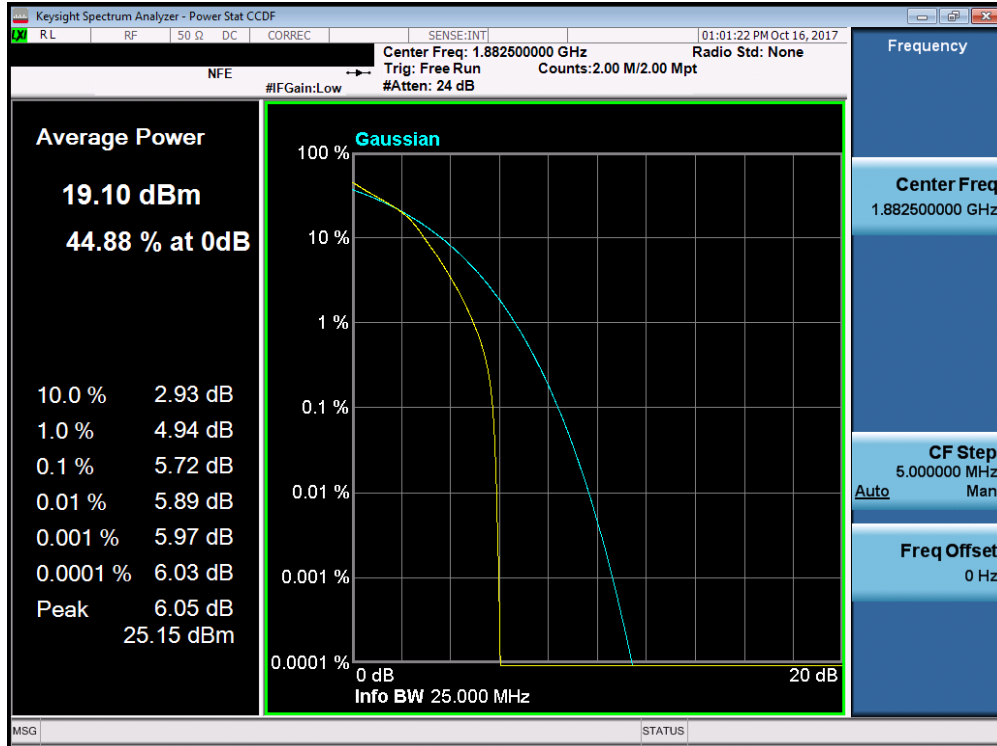


Plot 7-340. PAR Plot (Band 2/25 - 15.0MHz 64-QAM - Full RB Configuration)

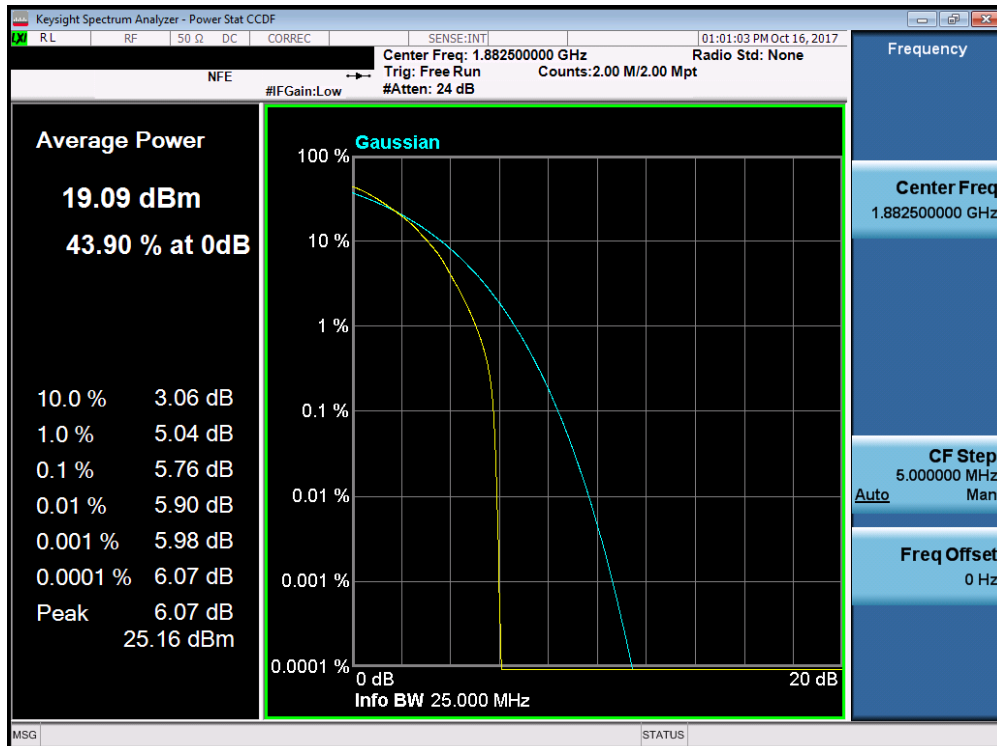


Plot 7-341. PAR Plot (Band 2/25 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 195 of 250



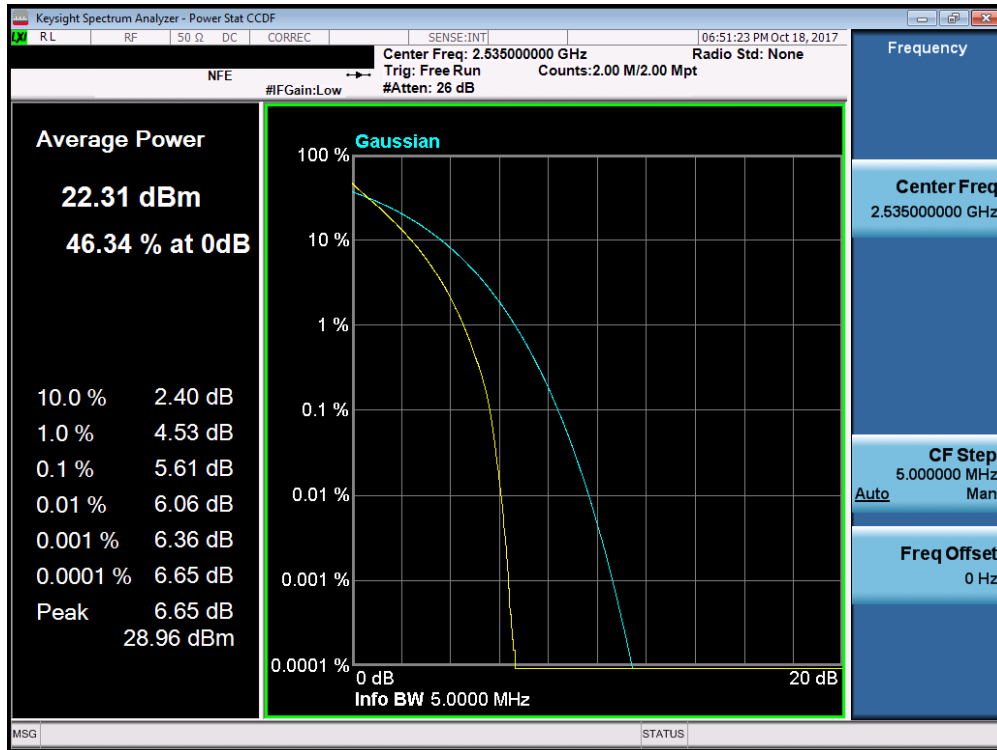
Plot 7-342. PAR Plot (Band 2/25 - 20.0MHz 16-QAM - Full RB Configuration)



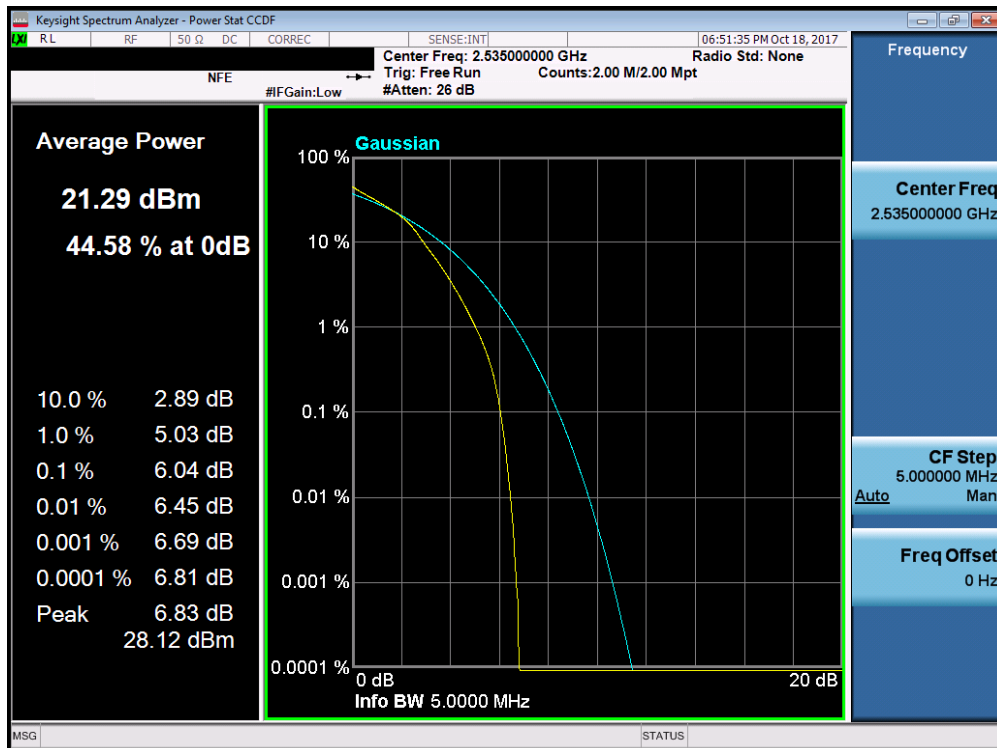
Plot 7-343. PAR Plot (Band 2/25 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 196 of 250

Band 7

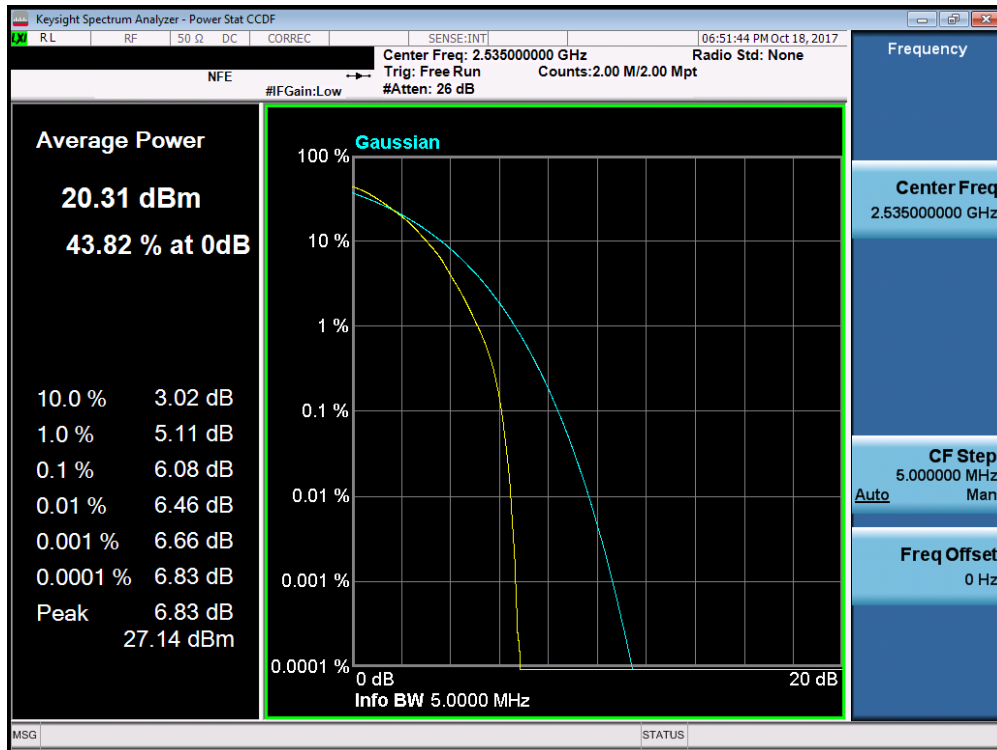


Plot 7-344. PAR Plot (Band 7 - 5.0MHz QPSK - Full RB Configuration)

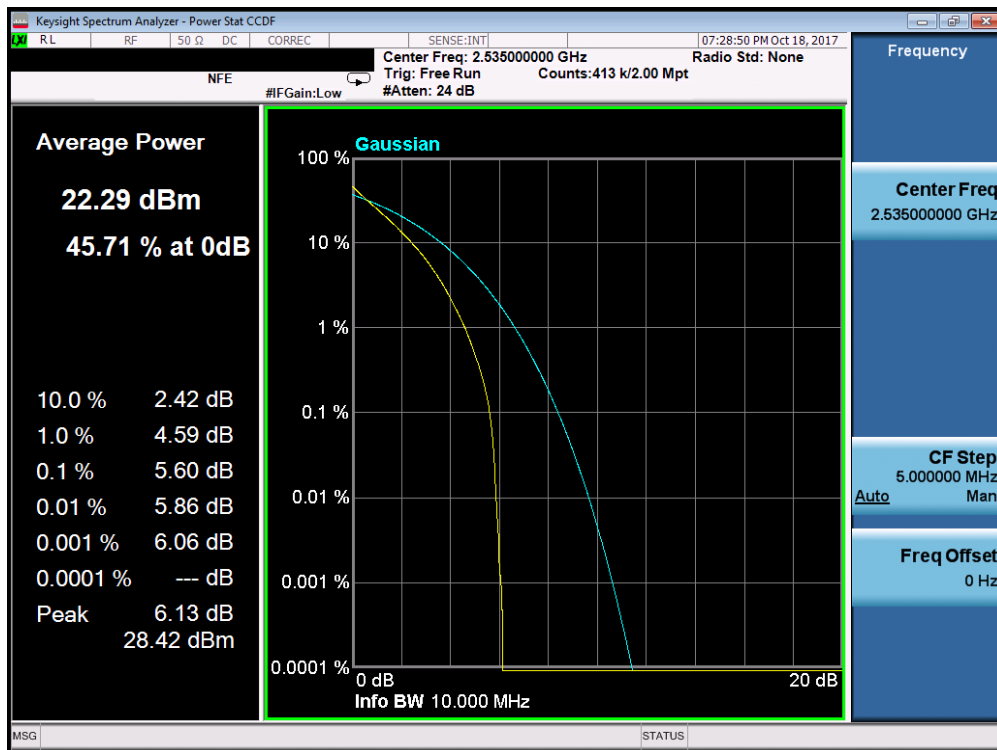


Plot 7-345. PAR Plot (Band 7 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 197 of 250

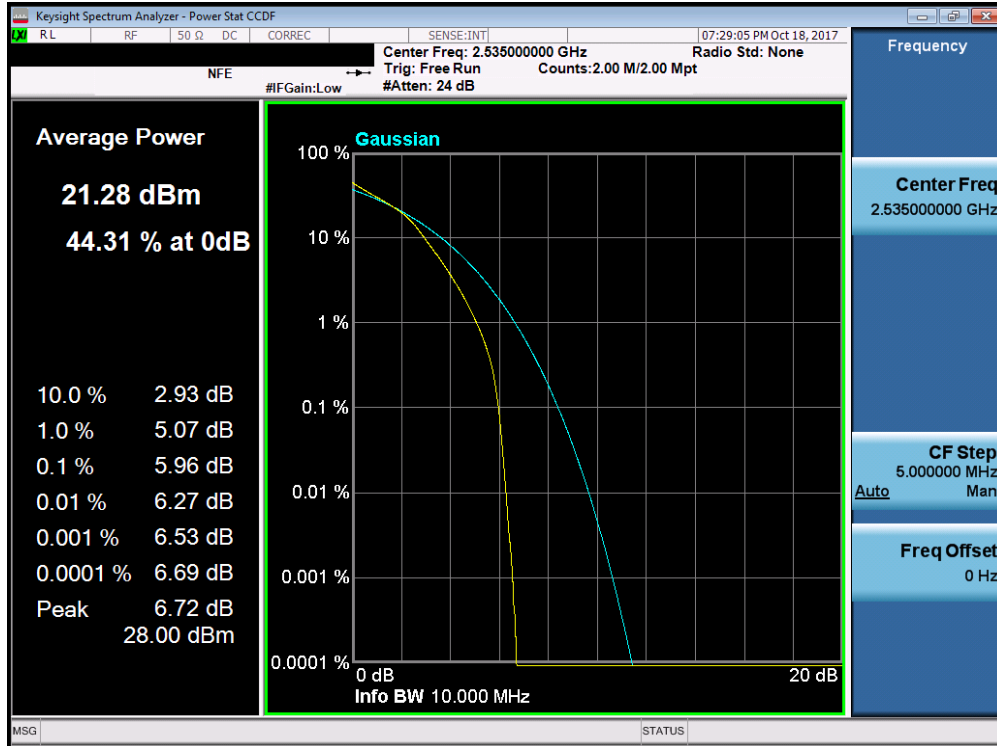


Plot 7-346. PAR Plot (Band 7 - 5.0MHz 64-QAM - Full RB Configuration)

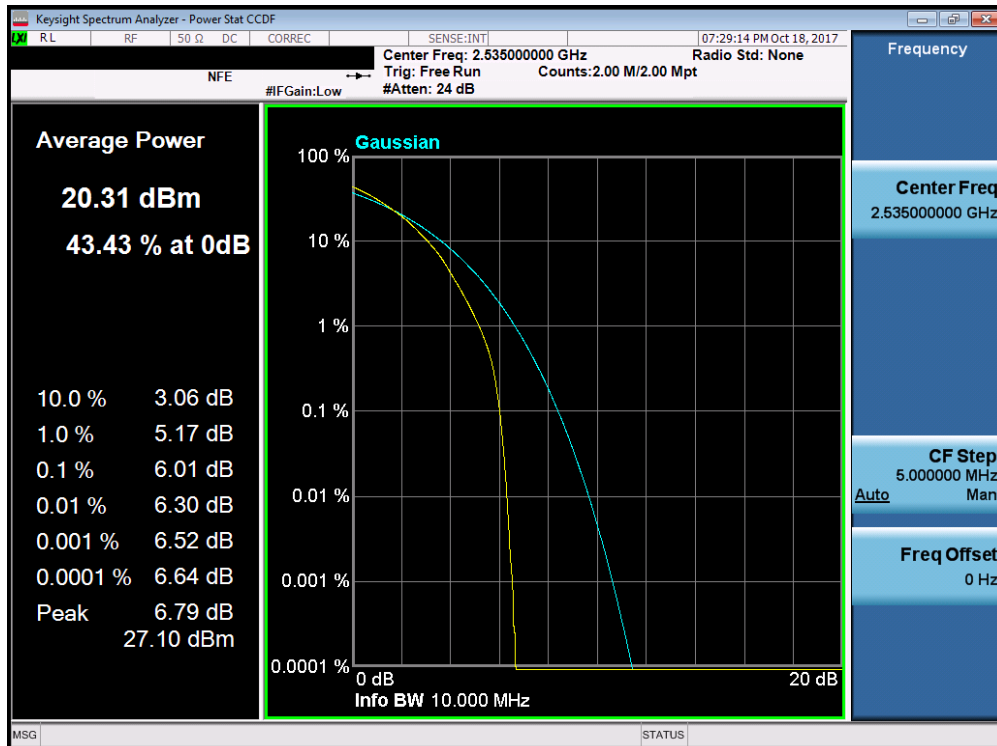


Plot 7-347. PAR Plot (Band 7 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 198 of 250

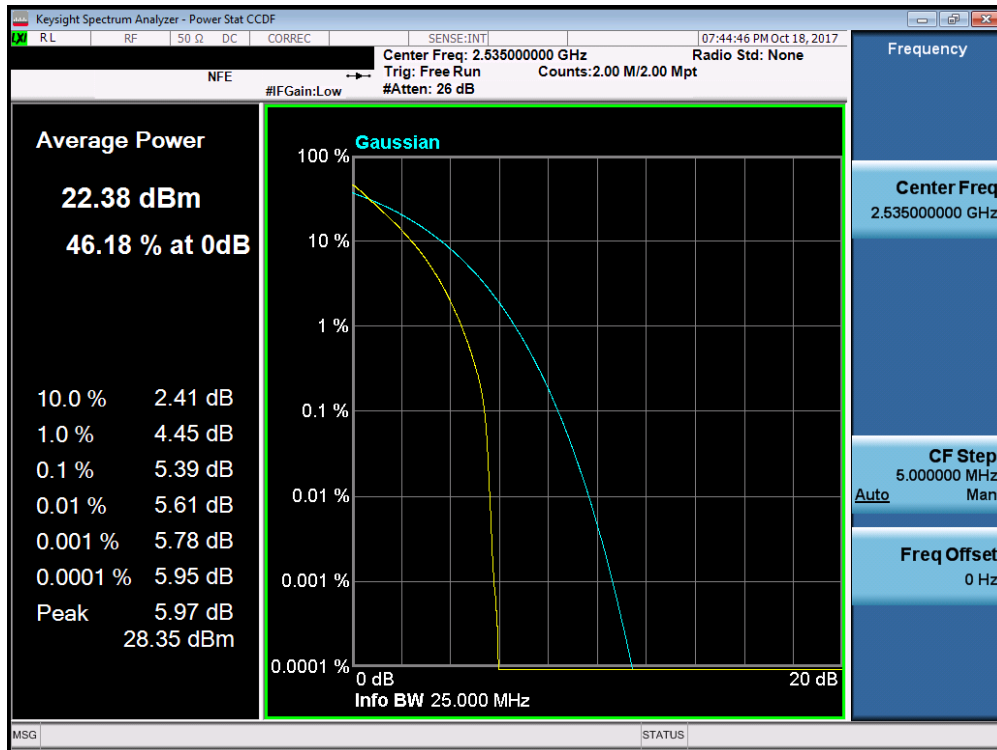


Plot 7-348. PAR Plot (Band 7 - 10.0MHz 16-QAM - Full RB Configuration)

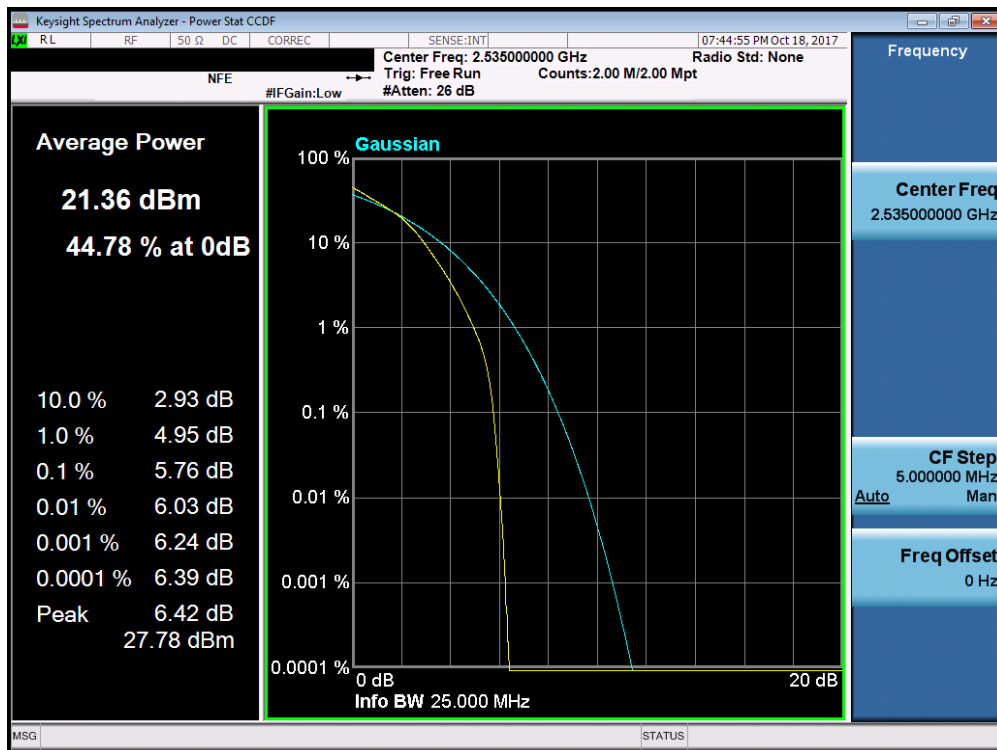


Plot 7-349. PAR Plot (Band 7 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 199 of 250

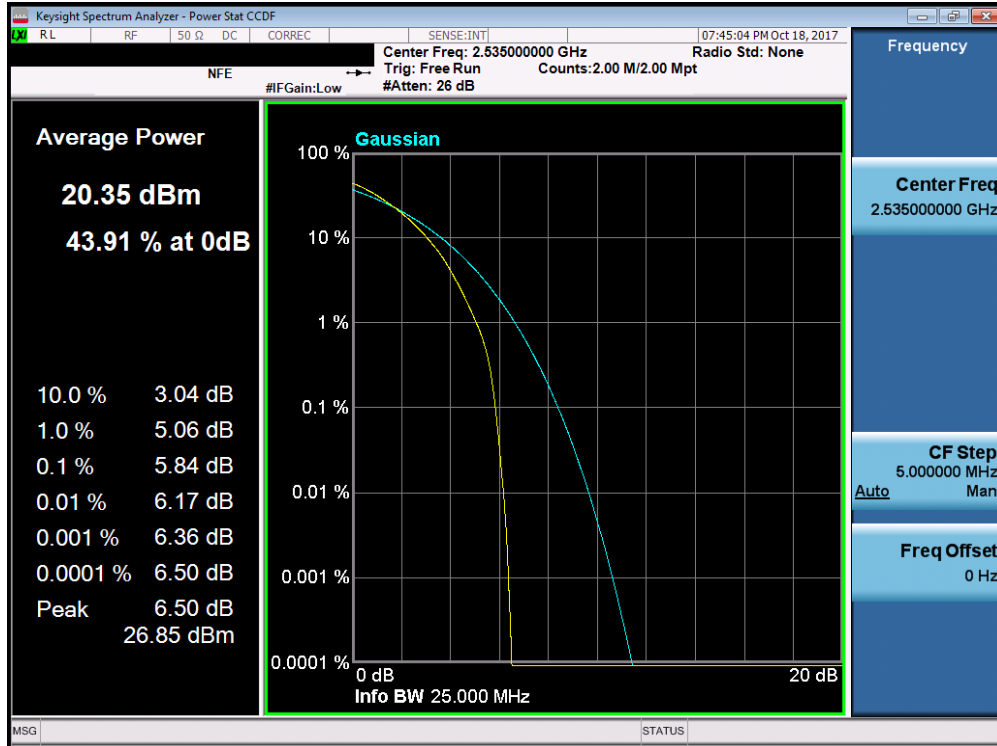


Plot 7-350. PAR Plot (Band 7 - 15.0MHz QPSK - Full RB Configuration)

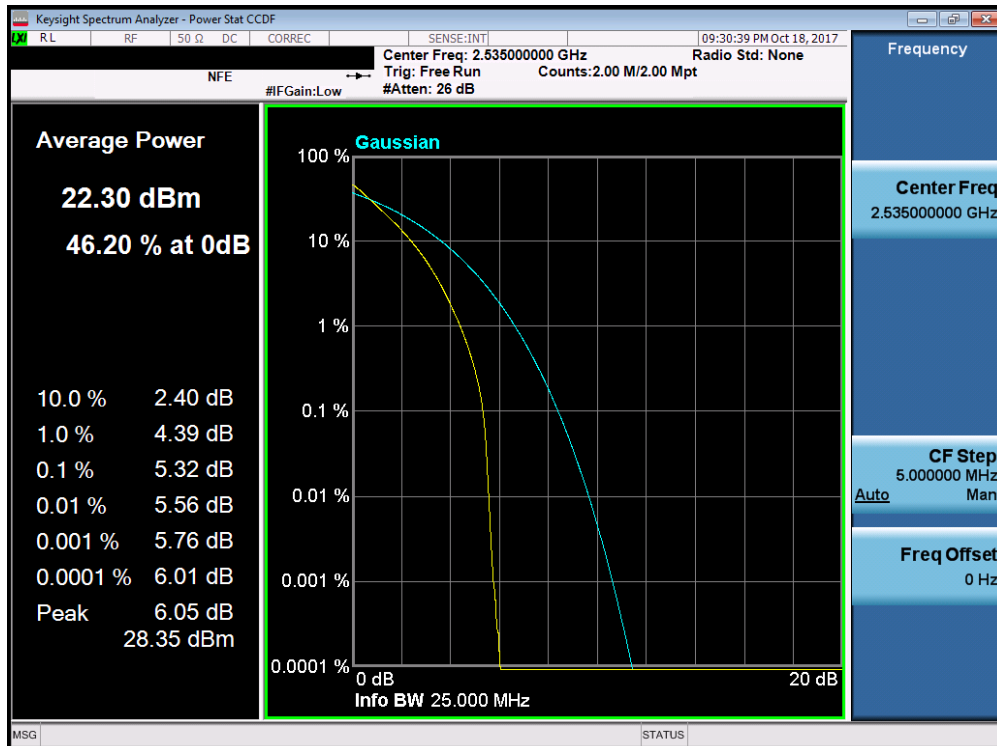


Plot 7-351. PAR Plot (Band 7 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 200 of 250

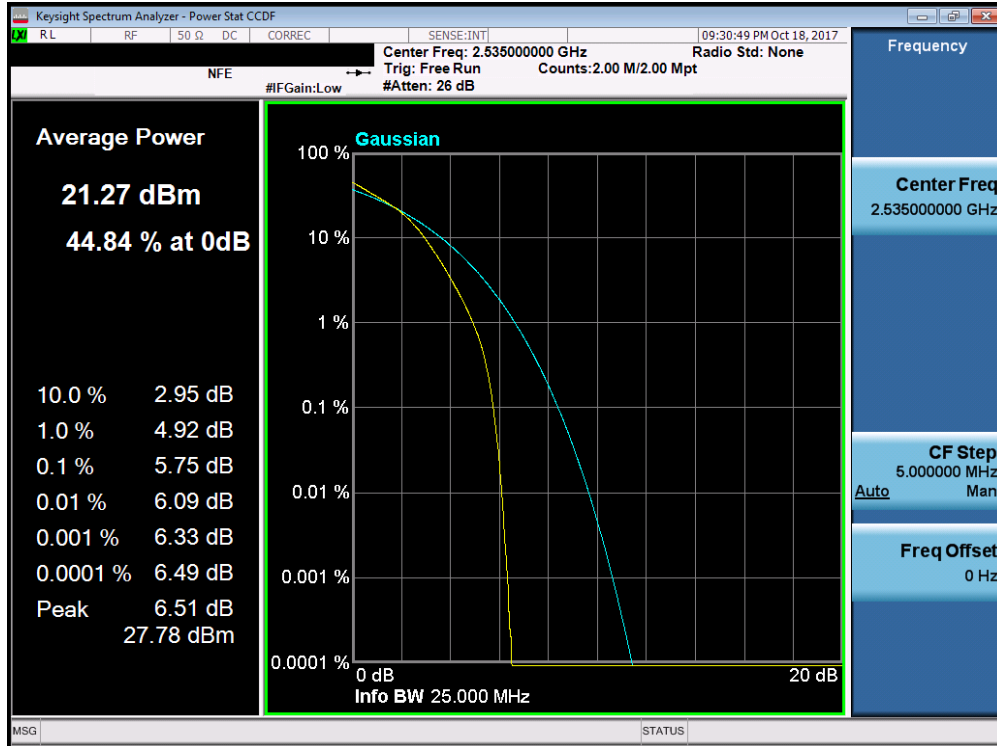


Plot 7-352. PAR Plot (Band 7 - 15.0MHz 64-QAM - Full RB Configuration)

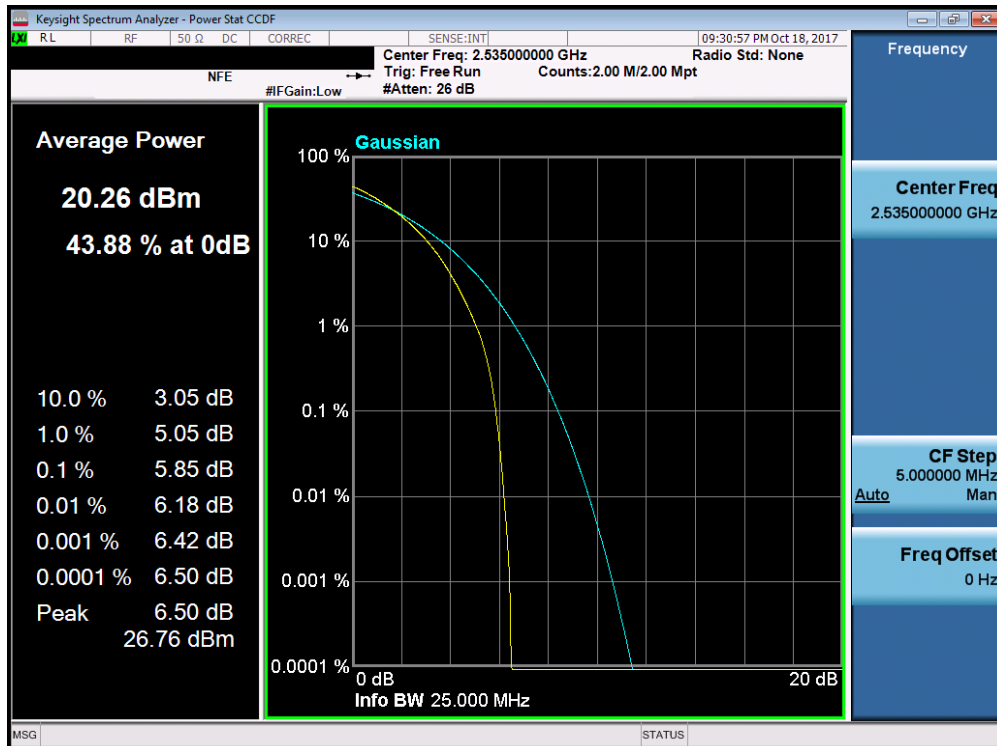


Plot 7-353. PAR Plot (Band 7 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 201 of 250



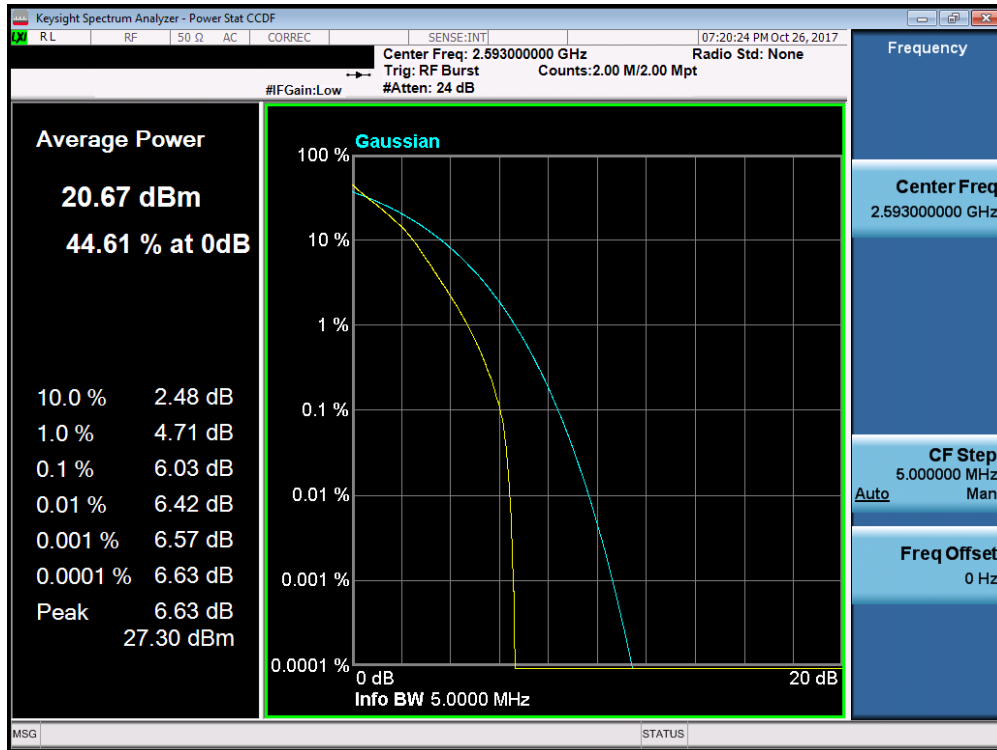
Plot 7-354. PAR Plot (Band 7 - 20.0MHz 16-QAM - Full RB Configuration)



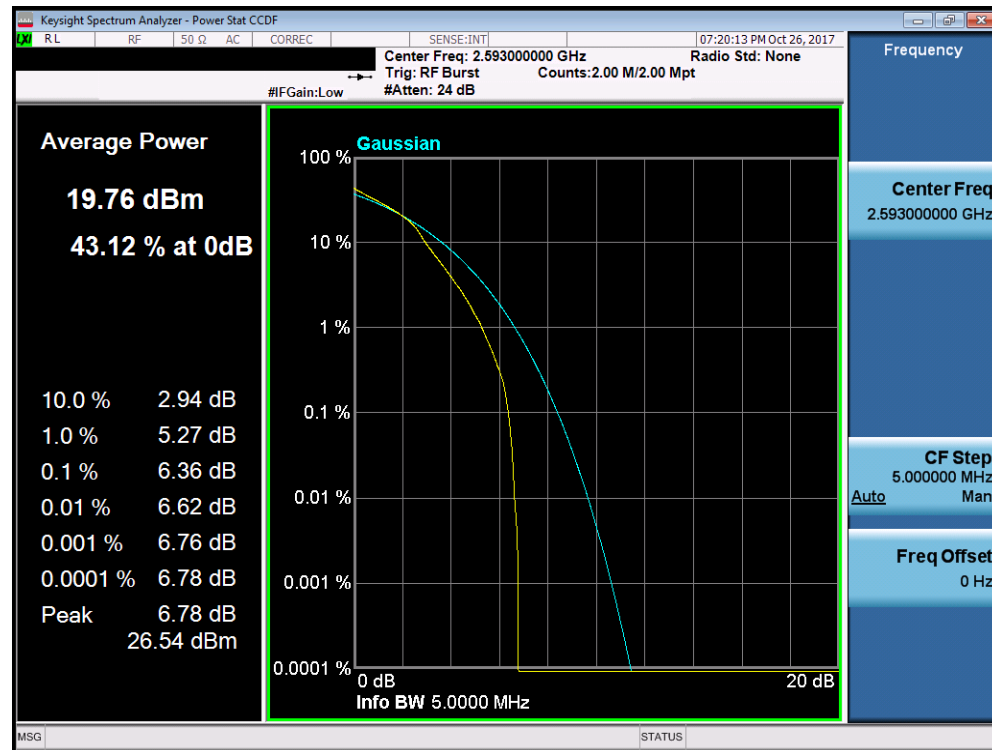
Plot 7-355. PAR Plot (Band 7 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 202 of 250

Band 38/41

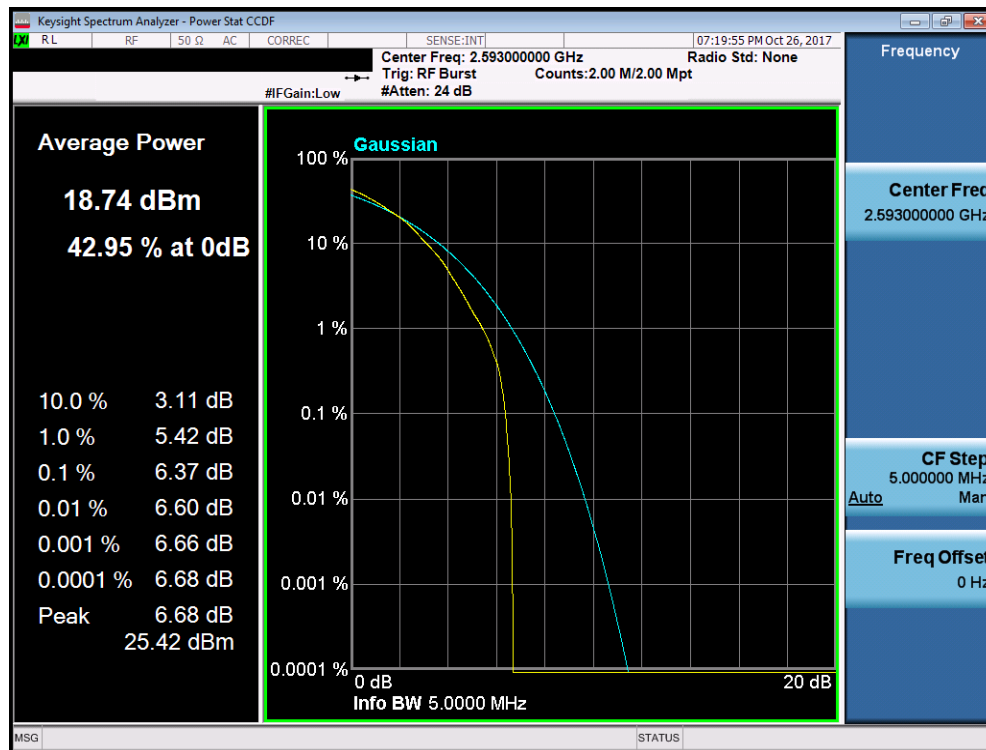


Plot 7-356. PAR Plot (Band 38/41 - 5.0MHz QPSK - Full RB Configuration)

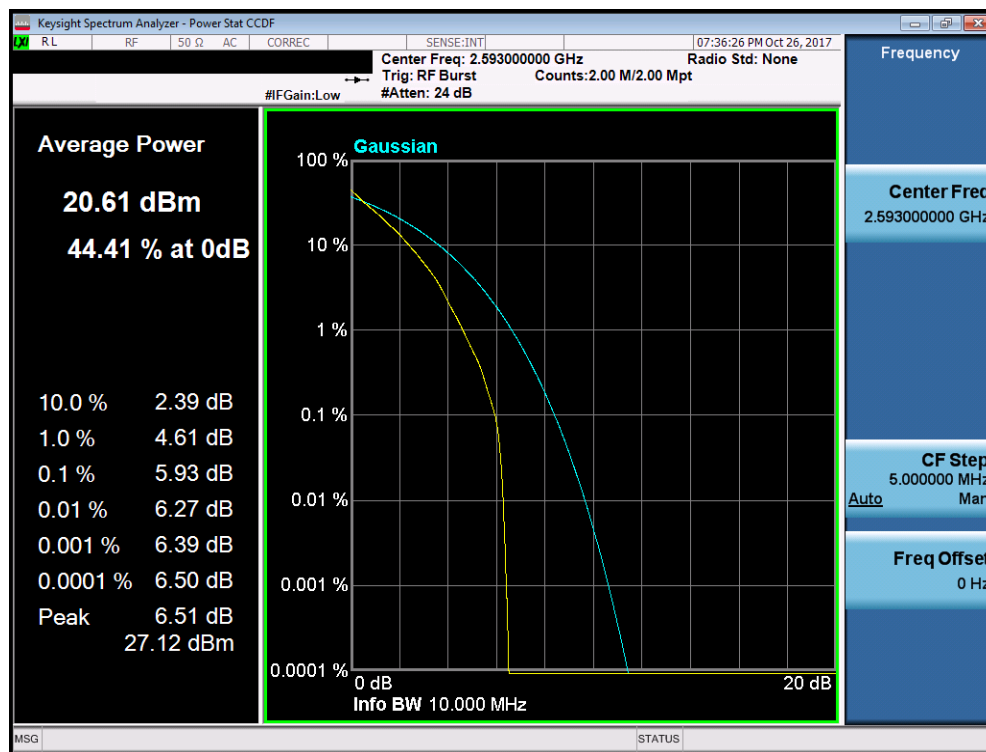


Plot 7-357. PAR Plot (Band 38/4 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 203 of 250

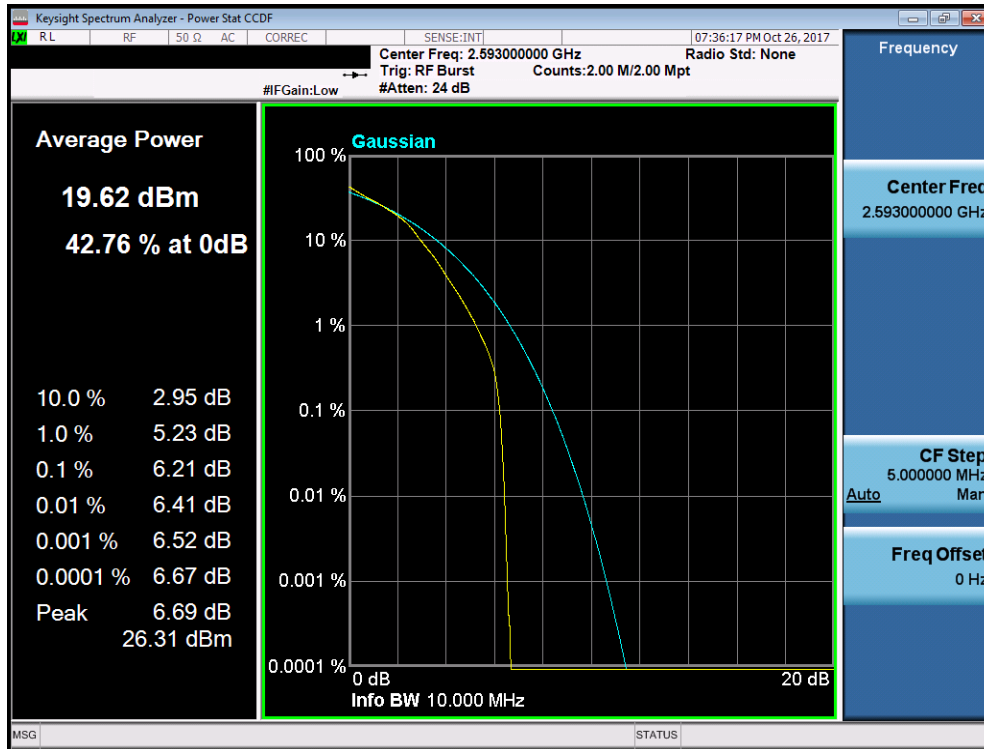


Plot 7-358. PAR Plot (Band 38/41 - 5.0MHz 64-QAM - Full RB Configuration)

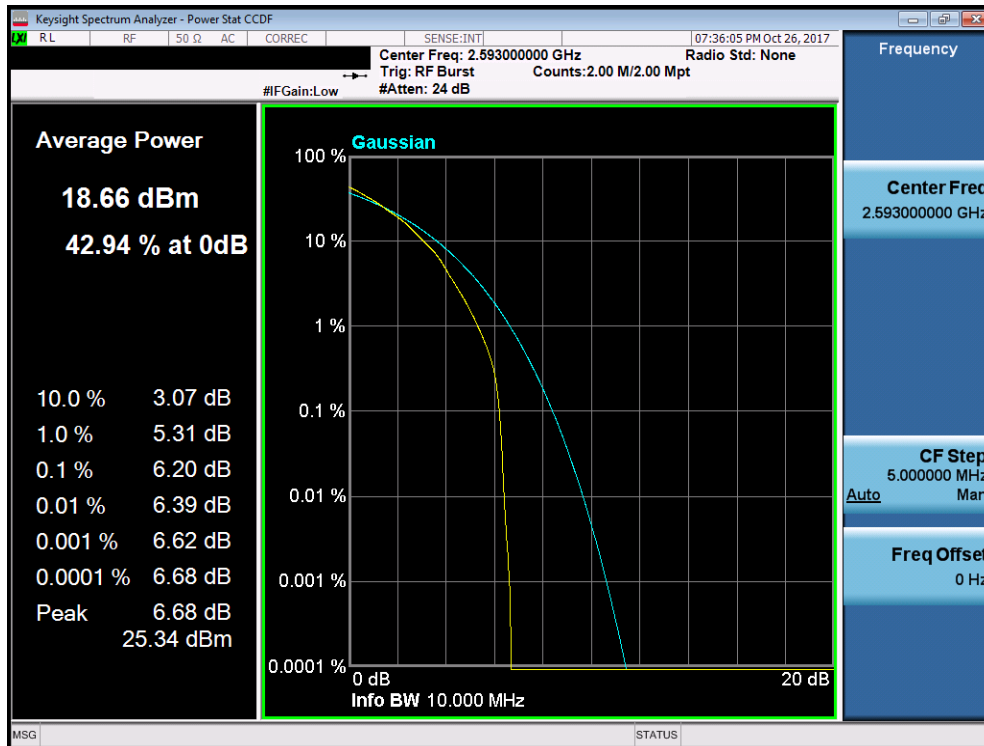


Plot 7-359. PAR Plot (Band 38/41 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 204 of 250

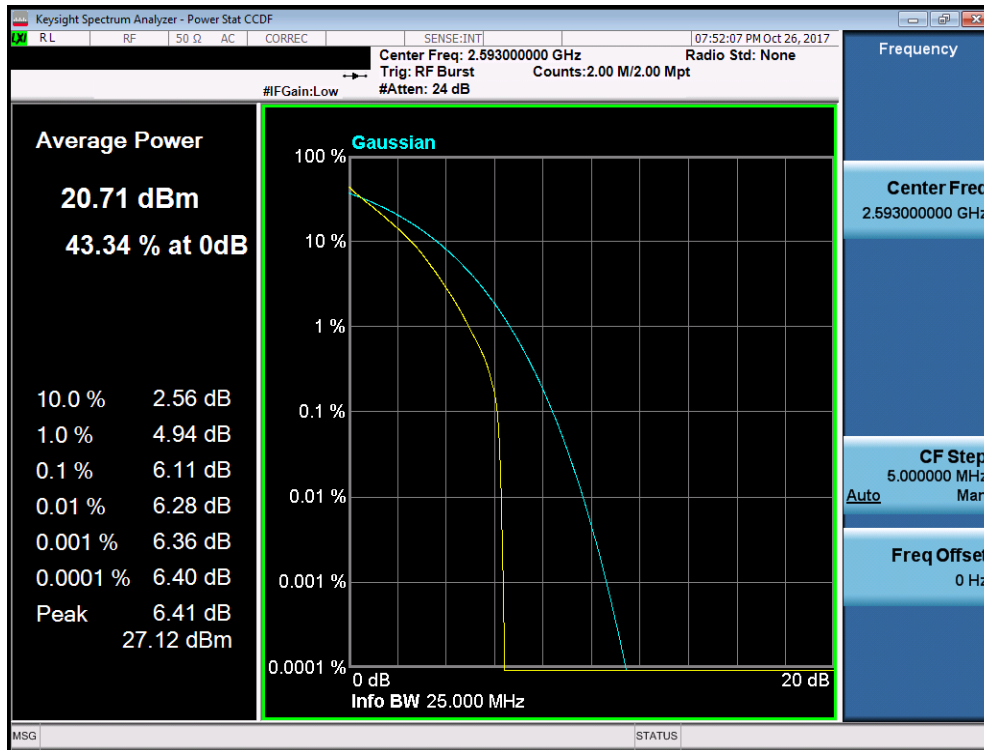


Plot 7-360. PAR Plot (Band 38/41 - 10.0MHz 16-QAM - Full RB Configuration)

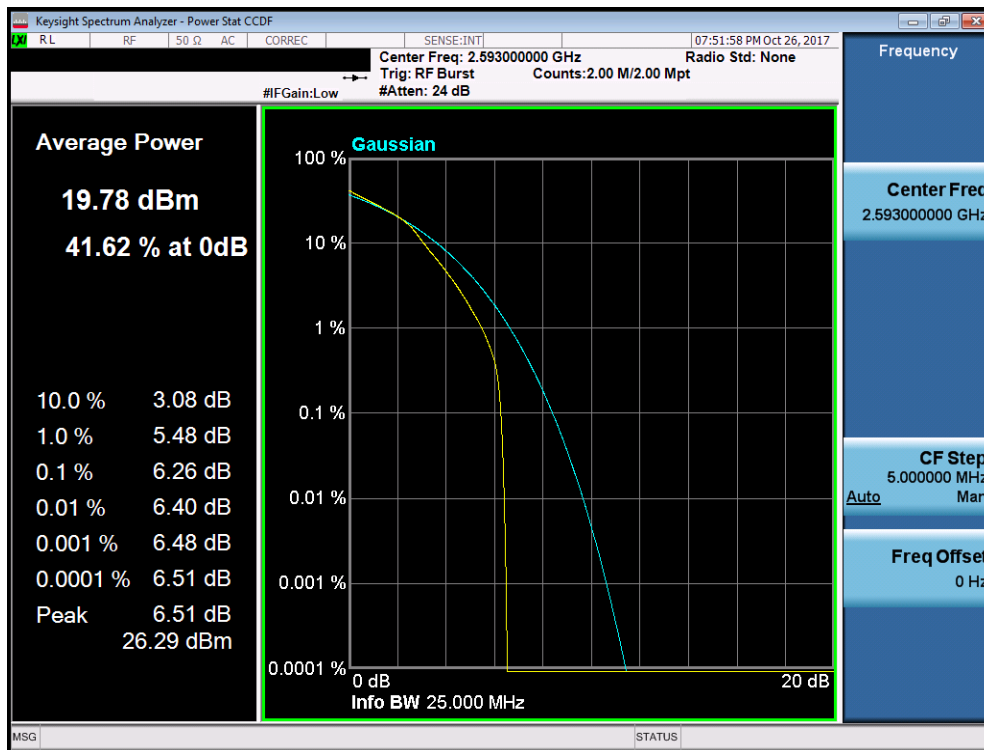


Plot 7-361. PAR Plot (Band 38/41 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 205 of 250

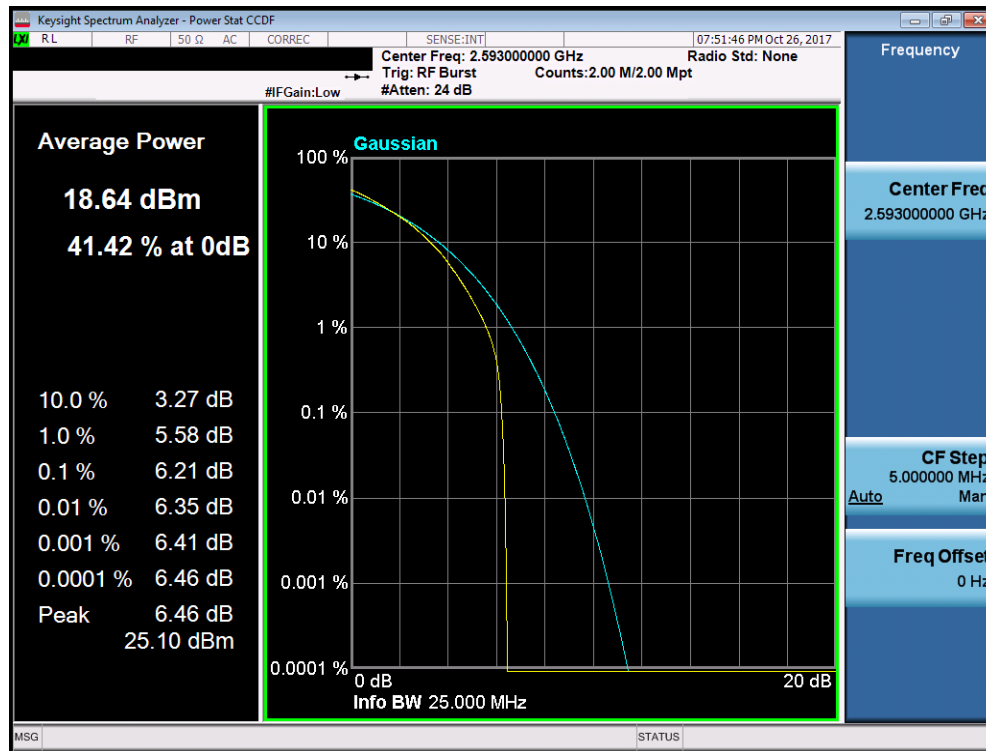


Plot 7-362. PAR Plot (Band 38/41 - 15.0MHz QPSK - Full RB Configuration)

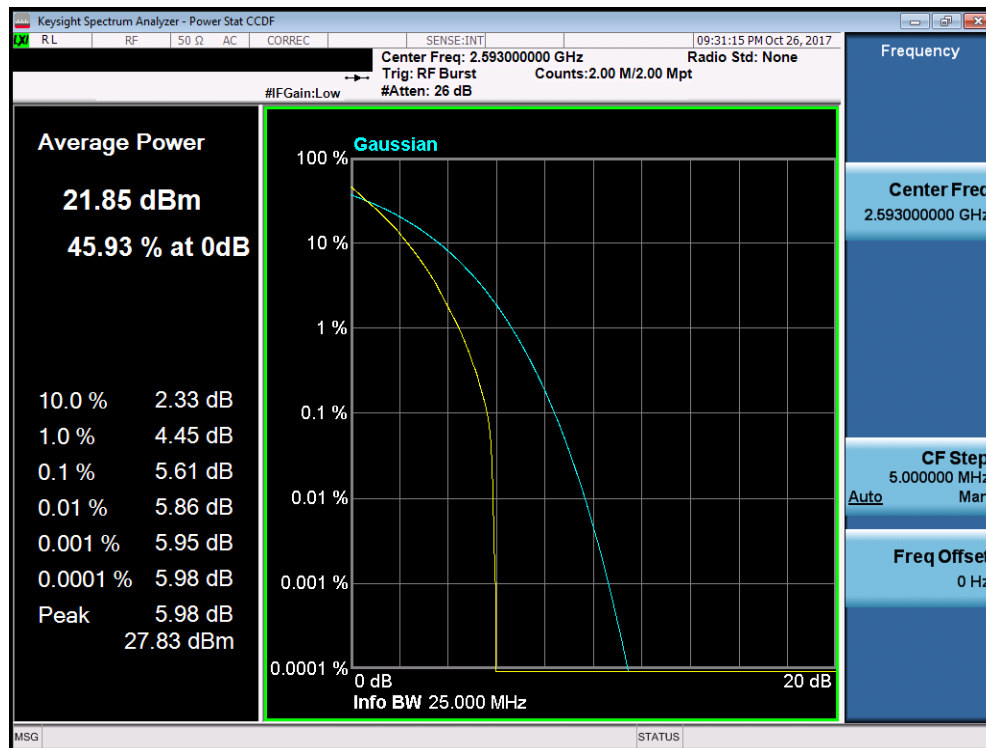


Plot 7-363. PAR Plot (Band 38/41 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 206 of 250

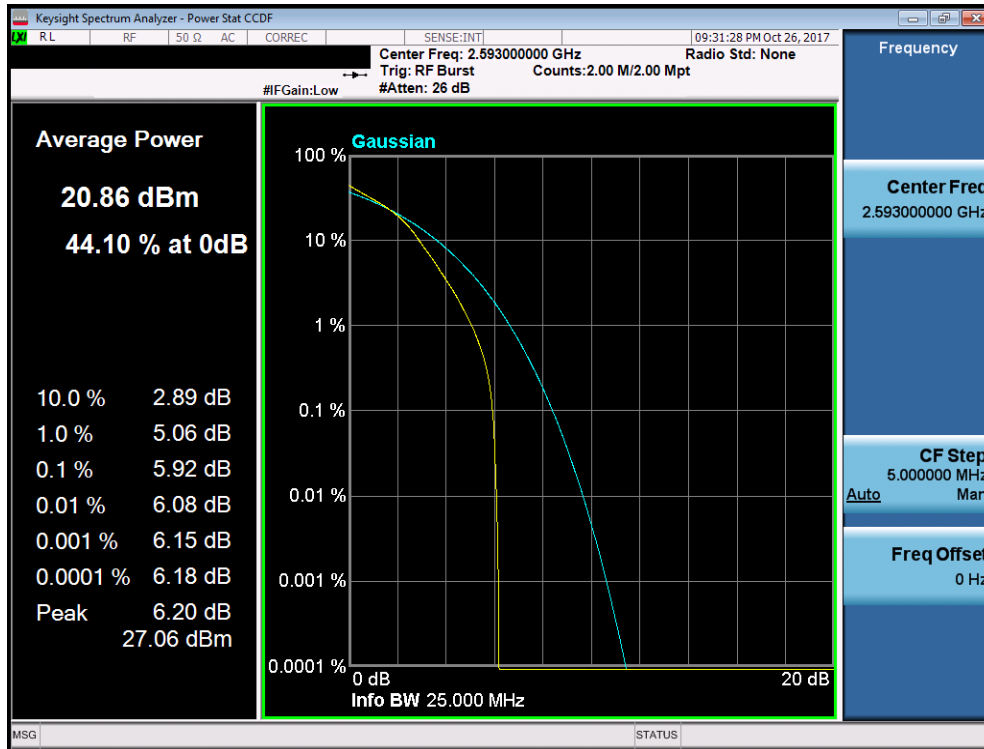


Plot 7-364. PAR Plot (Band 38/41 - 15.0MHz 64-QAM - Full RB Configuration)

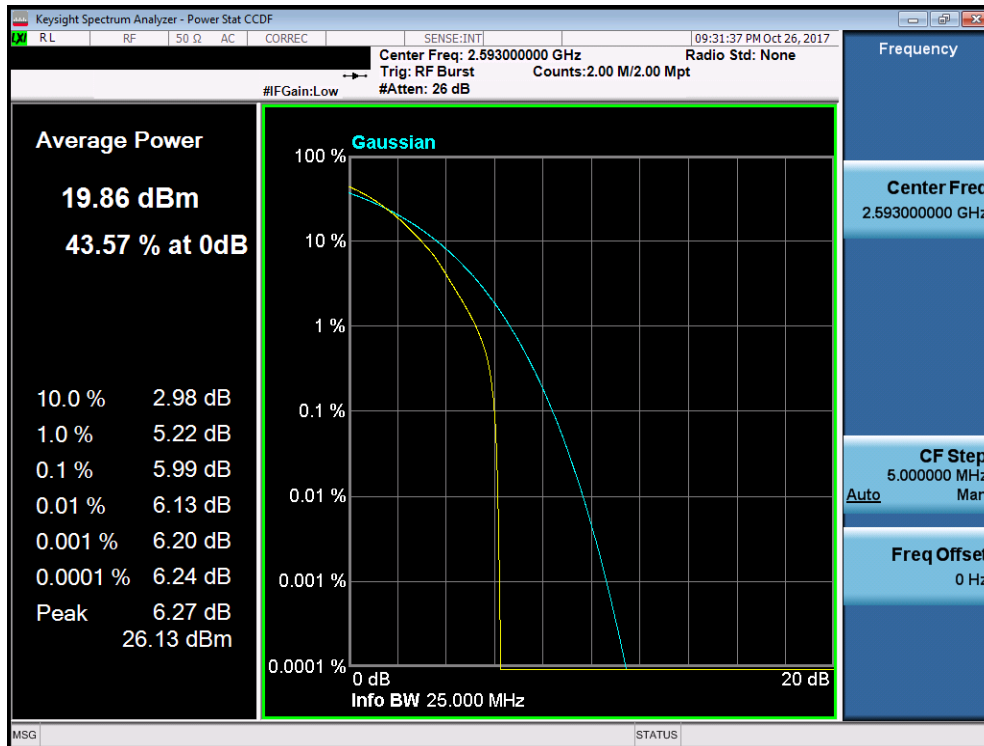


Plot 7-365. PAR Plot (Band 38/41 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 207 of 250



Plot 7-366. PAR Plot (Band 38/41 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-367. PAR Plot (Band 38/41 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 208 of 250

7.6 Radiated Power (ERP/EIRP)

§22.913(a)(2) §24.232(c.2) §27.50(h)(2) §27.50(b)(10) §27.50(c)(10) §27.50(d)(4) RSS-130(4.4) RSS-132(5.4) RSS-133(6.4) RSS-139(6.5) RSS-199(4.4)

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 v03 – 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. For signals with burst transmission, the signal analyzer's "time domain power" measurement capability is used
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". Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the "gating" function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

FCC ID: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 209 of 250

Test Setup

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

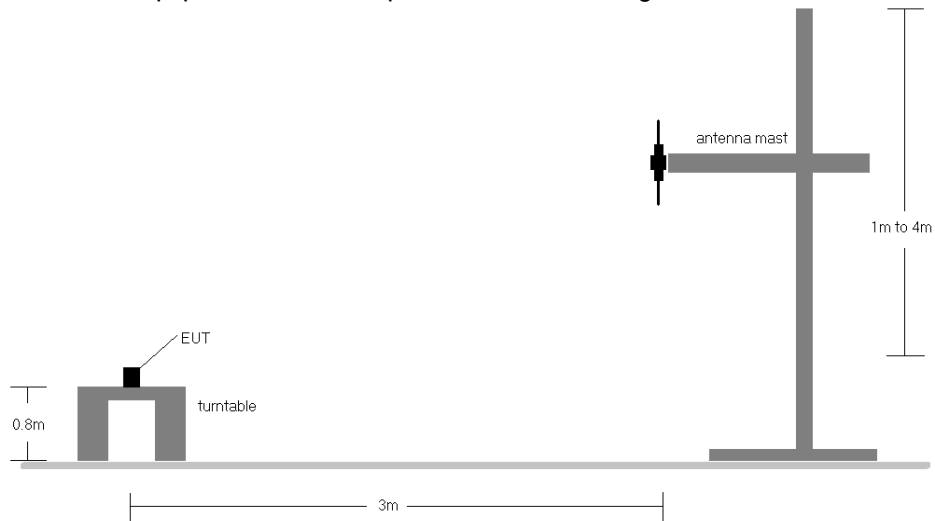


Figure 7-5. Radiated Test Setup <1GHz

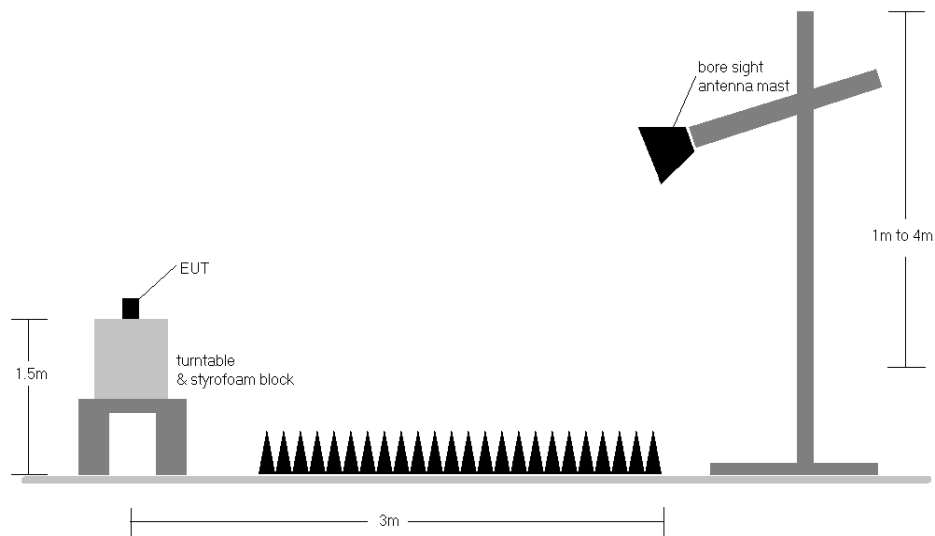


Figure 7-6. Radiated Test Setup >1GHz

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.
- 3) For operations <1GHz, the EIRP limits and measurements in the following tables are only for ISSED requirements

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 210 of 250

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]	Margin [dB]
699.70	1.4	QPSK	H	297	175	1 / 0	12.39	4.63	14.87	0.031	34.77	-19.90	17.02	0.050	-23.59
707.50	1.4	QPSK	H	297	175	3 / 2	13.57	4.71	16.13	0.041	34.77	-18.64	18.28	0.067	-22.33
715.30	1.4	QPSK	H	297	175	1 / 0	13.68	4.75	16.28	0.042	34.77	-18.50	18.43	0.070	-22.18
715.30	1.4	16-QAM	H	297	175	1 / 0	12.91	4.75	15.51	0.036	34.77	-19.27	17.66	0.058	-22.95
715.30	1.4	64-QAM	H	297	175	1 / 0	11.88	4.75	14.48	0.028	34.77	-20.30	16.63	0.046	-23.98
700.50	3	QPSK	H	297	177	1 / 14	12.92	4.63	15.40	0.035	34.77	-19.37	17.55	0.057	-23.05
707.50	3	QPSK	H	297	177	1 / 14	14.01	4.71	16.57	0.045	34.77	-18.20	18.72	0.074	-21.89
714.50	3	QPSK	H	297	177	1 / 0	14.09	4.75	16.69	0.047	34.77	-18.08	18.84	0.077	-21.77
714.50	3	16-QAM	H	297	177	1 / 0	13.32	4.75	15.92	0.039	34.77	-18.85	18.07	0.064	-22.54
714.50	3	64-QAM	H	297	177	1 / 0	12.36	4.75	14.96	0.031	34.77	-19.81	17.11	0.051	-23.50

Table 7-3. ERP/EIRP Data (Band 12)

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]	Margin [dB]
701.50	5	QPSK	H	300	179	1 / 24	12.96	4.64	15.45	0.035	34.77	-19.32	17.60	0.058	-23.00
707.50	5	QPSK	H	300	178	1 / 24	14.21	4.71	16.77	0.048	34.77	-18.00	18.92	0.078	-21.69
713.50	5	QPSK	H	300	178	1 / 0	14.19	4.75	16.79	0.048	34.77	-17.98	18.94	0.078	-21.67
713.50	5	16-QAM	H	300	178	1 / 0	13.29	4.75	15.89	0.039	34.77	-18.88	18.04	0.064	-22.57
713.50	5	64-QAM	H	300	178	1 / 0	12.27	4.75	14.87	0.031	34.77	-19.90	17.02	0.050	-23.59
704.00	10	QPSK	H	299	174	1 / 49	13.31	4.66	15.82	0.038	34.77	-18.95	17.97	0.063	-22.63
707.50	10	QPSK	H	299	174	1 / 49	14.21	4.71	16.77	0.048	34.77	-18.00	18.92	0.078	-21.69
711.00	10	QPSK	H	299	174	1 / 0	13.66	4.75	16.26	0.042	34.77	-18.52	18.41	0.069	-22.20
707.50	10	16-QAM	H	299	174	1 / 49	13.33	4.71	15.89	0.039	34.77	-18.88	18.04	0.064	-22.57
707.50	10	64-QAM	H	299	174	1 / 49	12.29	4.71	14.85	0.031	34.77	-19.92	17.00	0.050	-23.61
713.50	5	QPSK	V	299	174	1 / 0	11.04	4.71	13.60	0.023	34.77	-21.17	15.75	0.038	-24.86
713.50	5 (WCP)	QPSK	H	299	174	1 / 0	13.82	4.71	16.38	0.043	34.77	-18.39	18.53	0.071	-22.08

Table 7-4. ERP/EIRP Data (Band 12/17)

FCC ID: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 211 of 250	

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]	Margin [dB]
779.50	5	QPSK	V	168	276	1 / 0	13.97	6.00	17.82	0.061	34.77	-16.95	19.97	0.099	-20.64
782.00	5	QPSK	V	168	276	1 / 0	13.93	6.07	17.85	0.061	34.77	-16.92	20.00	0.100	-20.60
784.50	5	QPSK	V	168	276	1 / 0	13.71	6.17	17.73	0.059	34.77	-17.04	19.88	0.097	-20.73
782.00	5	16-QAM	V	168	276	1 / 0	13.02	6.07	16.94	0.049	34.77	-17.83	19.09	0.081	-21.51
779.50	5	64-QAM	V	168	276	1 / 0	12.13	6.00	15.98	0.040	34.77	-18.79	18.13	0.065	-22.48
782.00	10	QPSK	V	170	282	1 / 0	13.93	6.07	17.85	0.061	34.77	-16.92	20.00	0.100	-20.60
782.00	10	16-QAM	V	170	282	1 / 0	12.58	6.07	16.50	0.045	34.77	-18.27	18.65	0.073	-21.95
782.00	10	64-QAM	V	170	282	1 / 0	11.61	6.07	15.53	0.036	34.77	-19.24	17.68	0.059	-22.92
782.00	5	QPSK	H	217	190	1 / 74	13.74	4.69	16.28	0.042	34.77	-18.49	18.43	0.070	-22.18
782.00	5 (WCP)	QPSK	H	217	190	1 / 49	13.97	4.69	16.51	0.045	34.77	-18.26	18.66	0.073	-21.95

Table 7-5. ERP/EIRP 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]	Margin [dB]
824.70	1.4	QPSK	V	138	270	1 / 0	14.43	7.66	19.94	0.099	38.45	-18.51	22.09	0.162	-14.90
836.50	1.4	QPSK	V	129	283	1 / 0	13.41	7.29	18.55	0.072	38.45	-19.90	20.70	0.118	-16.29
848.30	1.4	QPSK	V	138	270	1 / 0	13.90	6.83	18.58	0.072	38.45	-19.87	20.73	0.118	-16.26
824.70	1.4	16-QAM	V	138	270	1 / 0	13.69	7.66	19.20	0.083	38.45	-19.25	21.35	0.136	-15.64
824.70	1.4	64-QAM	V	138	270	1 / 0	12.60	7.66	18.11	0.065	38.45	-20.34	20.26	0.106	-16.73
825.50	3	QPSK	V	141	287	1 / 0	14.54	7.67	20.06	0.101	38.45	-18.39	22.21	0.166	-14.78
836.50	3	QPSK	V	133	303	1 / 14	13.72	7.29	18.86	0.077	38.45	-19.59	21.01	0.126	-15.98
847.50	3	QPSK	V	127	300	1 / 14	14.45	6.82	19.12	0.082	38.45	-19.33	21.27	0.134	-15.72
825.50	3	16-QAM	V	141	287	1 / 0	13.73	7.67	19.25	0.084	38.45	-19.20	21.40	0.138	-15.59
825.50	3	64-QAM	V	141	287	1 / 0	12.78	7.67	18.30	0.068	38.45	-20.15	20.45	0.111	-16.54
826.50	5	QPSK	V	132	275	1 / 0	14.36	7.66	19.87	0.097	38.45	-18.58	22.02	0.159	-14.97
836.50	5	QPSK	V	132	275	1 / 24	13.94	7.29	19.08	0.081	38.45	-19.37	21.23	0.133	-15.76
846.50	5	QPSK	V	132	275	1 / 0	14.39	6.81	19.05	0.080	38.45	-19.40	21.20	0.132	-15.78
826.50	5	16-QAM	V	132	275	1 / 0	13.60	7.66	19.11	0.082	38.45	-19.34	21.26	0.134	-15.73
826.50	5	64-QAM	V	132	275	1 / 0	12.62	7.66	18.13	0.065	38.45	-20.32	20.28	0.107	-16.71
829.00	10	QPSK	V	143	273	1 / 0	14.39	7.64	19.88	0.097	38.45	-18.57	22.03	0.160	-14.96
836.50	10	QPSK	V	143	273	1 / 0	13.51	7.29	18.65	0.073	38.45	-19.80	20.80	0.120	-16.19
844.00	10	QPSK	V	143	273	1 / 0	13.67	6.85	18.37	0.069	38.45	-20.08	20.52	0.113	-16.47
829.00	10	16-QAM	V	143	273	1 / 0	13.65	7.64	19.14	0.082	38.45	-19.31	21.29	0.135	-15.70
829.00	10	64-QAM	V	143	273	1 / 0	12.75	7.64	18.24	0.067	38.45	-20.21	20.39	0.109	-16.60

Table 7-6. ERP/EIRP Data (Band 5/26)

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 212 of 250

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]	Margin [dB]
831.50	15	QPSK	V	142	272	1 / 0	14.31	7.56	19.72	0.094	38.45	-18.73	21.87	0.154	-15.12
836.50	15	QPSK	V	143	278	1 / 0	13.54	7.29	18.68	0.074	38.45	-19.77	20.83	0.121	-16.16
841.50	15	QPSK	V	133	276	1 / 74	14.26	6.98	19.09	0.081	38.45	-19.36	21.24	0.133	-15.75
831.50	15	16-QAM	V	142	272	1 / 0	12.96	7.56	18.37	0.069	38.45	-20.08	20.52	0.113	-16.47
831.50	15	64-QAM	V	142	272	1 / 0	12.07	7.56	17.48	0.056	38.45	-20.97	19.63	0.092	-17.36

Table 7-7. ERP/EIRP Data (Band 26)

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 213 of 250

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	H	150	5	1 / 5	18.90	5.56	24.46	0.279	30.00	-5.54
1745.00	1.4	QPSK	H	150	7	1 / 5	20.34	5.32	25.66	0.368	30.00	-4.34
1779.30	1.4	QPSK	H	150	6	1 / 0	20.76	5.09	25.85	0.385	30.00	-4.15
1779.30	1.4	16-QAM	H	150	6	1 / 0	20.10	5.09	25.19	0.331	30.00	-4.81
1745.00	1.4	64-QAM	H	150	7	1 / 5	18.83	5.32	24.15	0.260	30.00	-5.85
1711.50	3	QPSK	H	150	11	1 / 14	19.11	5.55	24.66	0.293	30.00	-5.34
1745.00	3	QPSK	H	150	9	1 / 14	20.66	5.32	25.98	0.397	30.00	-4.02
1778.50	3	QPSK	H	150	15	1 / 0	20.85	5.10	25.95	0.393	30.00	-4.05
1778.50	3	16-QAM	H	150	15	1 / 0	20.24	5.10	25.34	0.342	30.00	-4.66
1745.00	3	64-QAM	H	150	9	1 / 14	18.97	5.32	24.29	0.269	30.00	-5.71
1712.50	5	QPSK	H	150	21	1 / 24	19.38	5.55	24.93	0.311	30.00	-5.07
1745.00	5	QPSK	H	150	12	1 / 24	21.10	5.32	26.42	0.439	30.00	-3.58
1777.50	5	QPSK	H	150	15	1 / 24	20.81	5.10	25.91	0.390	30.00	-4.09
1777.50	5	16-QAM	H	150	15	1 / 24	20.22	5.10	25.32	0.341	30.00	-4.68
1745.00	5	64-QAM	H	150	12	1 / 24	19.16	5.32	24.48	0.281	30.00	-5.52
1715.00	10	QPSK	H	150	13	1 / 49	19.44	5.53	24.97	0.314	30.00	-5.03
1745.00	10	QPSK	H	150	14	1 / 49	21.12	5.32	26.44	0.441	30.00	-3.56
1775.00	10	QPSK	H	150	12	1 / 49	21.06	5.12	26.18	0.415	30.00	-3.82
1745.00	10	16-QAM	H	150	14	1 / 49	20.07	5.32	25.39	0.346	30.00	-4.61
1775.00	10	64-QAM	H	150	12	1 / 49	19.36	5.12	24.48	0.281	30.00	-5.52
1717.50	15	QPSK	H	150	17	1 / 74	19.59	5.51	25.10	0.324	30.00	-4.90
1745.00	15	QPSK	H	150	12	1 / 74	20.95	5.32	26.27	0.424	30.00	-3.73
1772.50	15	QPSK	H	150	11	1 / 0	21.11	5.14	26.25	0.421	30.00	-3.75
1772.50	15	16-QAM	H	150	11	1 / 0	20.48	5.14	25.62	0.365	30.00	-4.38
1772.50	15	64-QAM	H	150	11	1 / 0	19.39	5.14	24.53	0.284	30.00	-5.47
1720.00	20	QPSK	H	150	5	1 / 99	19.76	5.49	25.25	0.335	30.00	-4.75
1745.00	20	QPSK	H	150	7	1 / 99	20.56	5.32	25.88	0.387	30.00	-4.12
1770.00	20	QPSK	H	150	10	1 / 0	20.81	5.15	25.96	0.395	30.00	-4.04
1770.00	20	16-QAM	H	150	10	1 / 0	20.09	5.15	25.24	0.335	30.00	-4.76
1770.00	20	64-QAM	H	150	10	1 / 0	18.85	5.15	24.00	0.251	30.00	-6.00
1745.00	10	QPSK	V	150	268	1 / 99	18.63	5.27	23.90	0.245	30.00	-6.10
1745.00	10 (WCP)	QPSK	H	150	272	1 / 99	18.46	5.32	23.78	0.239	30.00	-6.22

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

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 214 of 250

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	H	150	302	1 / 0	17.29	4.82	22.11	0.162	33.01	-10.90
1882.50	1.4	QPSK	H	150	293	1 / 0	16.11	4.73	20.84	0.121	33.01	-12.17
1914.30	1.4	QPSK	H	150	301	1 / 0	15.68	4.68	20.36	0.109	33.01	-12.65
1850.70	1.4	16-QAM	H	150	302	1 / 0	16.56	4.82	21.38	0.137	33.01	-11.63
1850.70	1.4	64-QAM	H	150	302	1 / 0	15.38	4.82	20.20	0.105	33.01	-12.81
1851.50	3	QPSK	H	150	299	1 / 0	17.23	4.82	22.05	0.160	33.01	-10.96
1882.50	3	QPSK	H	150	290	1 / 14	16.09	4.73	20.82	0.121	33.01	-12.19
1913.50	3	QPSK	H	150	284	1 / 0	15.71	4.68	20.39	0.109	33.01	-12.62
1851.50	3	16-QAM	H	150	299	1 / 0	16.45	4.82	21.27	0.134	33.01	-11.74
1851.50	3	64-QAM	H	150	299	1 / 0	15.58	4.82	20.40	0.110	33.01	-12.61
1852.50	5	QPSK	H	150	290	1 / 0	17.02	4.81	21.83	0.153	33.01	-11.18
1882.50	5	QPSK	H	150	285	1 / 24	16.41	4.73	21.14	0.130	33.01	-11.87
1912.50	5	QPSK	H	150	284	1 / 0	16.88	4.68	21.56	0.143	33.01	-11.45
1912.50	5	16-QAM	H	150	284	1 / 24	16.29	4.68	20.97	0.125	33.01	-12.04
1912.50	5	64-QAM	H	150	284	1 / 24	15.13	4.68	19.81	0.096	33.01	-13.20
1855.00	10	QPSK	H	150	290	1 / 0	16.58	4.81	21.39	0.138	33.01	-11.62
1882.50	10	QPSK	H	150	291	1 / 49	16.28	4.73	21.01	0.126	33.01	-12.00
1910.00	10	QPSK	H	150	282	1 / 0	16.78	4.68	21.46	0.140	33.01	-11.55
1910.00	10	16-QAM	H	150	282	1 / 0	16.08	4.68	20.76	0.119	33.01	-12.25
1855.00	10	64-QAM	H	150	290	1 / 0	15.04	4.81	19.85	0.097	33.01	-13.16
1857.50	15	QPSK	H	150	298	1 / 0	16.70	4.80	21.50	0.141	33.01	-11.51
1882.50	15	QPSK	H	150	299	1 / 74	15.88	4.73	20.61	0.115	33.01	-12.40
1907.50	15	QPSK	H	150	300	1 / 74	16.40	4.68	21.08	0.128	33.01	-11.93
1857.50	15	16-QAM	H	150	298	1 / 0	15.74	4.80	20.54	0.113	33.01	-12.47
1857.50	15	64-QAM	H	150	298	1 / 0	14.92	4.80	19.72	0.094	33.01	-13.29
1860.00	20	QPSK	H	150	298	1 / 0	16.50	4.79	21.29	0.135	33.01	-11.72
1882.50	20	QPSK	H	150	286	1 / 0	15.91	4.73	20.64	0.116	33.01	-12.37
1905.00	20	QPSK	H	150	287	1 / 0	16.43	4.68	21.11	0.129	33.01	-11.90
1860.00	20	16-QAM	H	150	298	1 / 0	15.67	4.79	20.46	0.111	33.01	-12.55
1860.00	20	64-QAM	H	150	298	1 / 0	14.83	4.79	19.62	0.092	33.01	-13.39
1850.70	1.4	QPSK	V	150	112	1 / 0	16.24	4.79	21.03	0.127	33.01	-11.98
1850.70	1.4 (WCP)	QPSK	H	150	289	1 / 0	16.18	4.82	21.00	0.126	33.01	-12.01

Table 7-9. EIRP Data (Band 2/25)

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 215 of 250

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	150	39	1 / 0	17.76	5.74	23.50	0.224	33.01	-9.51
2535.00	5	QPSK	H	150	33	1 / 24	18.48	5.86	24.34	0.272	33.01	-8.67
2567.50	5	QPSK	H	150	32	1 / 24	18.39	5.98	24.37	0.274	33.01	-8.64
2535.00	5	16-QAM	H	150	33	1 / 24	17.24	5.86	23.10	0.204	33.01	-9.91
2535.00	5	64-QAM	H	150	33	1 / 24	16.06	5.86	21.92	0.156	33.01	-11.09
2505.00	10	QPSK	H	150	38	1 / 49	18.04	5.75	23.79	0.239	33.01	-9.22
2535.00	10	QPSK	H	150	37	1 / 49	18.54	5.86	24.40	0.275	33.01	-8.61
2565.00	10	QPSK	H	150	36	1 / 49	18.63	5.97	24.60	0.288	33.01	-8.41
2565.00	10	16-QAM	H	150	36	1 / 49	17.42	5.97	23.39	0.218	33.01	-9.62
2565.00	10	64-QAM	H	150	36	1 / 49	16.35	5.97	22.32	0.171	33.01	-10.69
2507.50	15	QPSK	H	150	37	1 / 74	18.05	5.76	23.81	0.240	33.01	-9.20
2535.00	15	QPSK	H	150	31	1 / 74	18.45	5.86	24.31	0.270	33.01	-8.70
2562.50	15	QPSK	H	150	36	1 / 74	18.64	5.96	24.60	0.289	33.01	-8.41
2562.50	15	16-QAM	H	150	36	1 / 74	17.21	5.96	23.17	0.208	33.01	-9.84
2562.50	15	64-QAM	H	150	36	1 / 74	16.27	5.96	22.23	0.167	33.01	-10.78
2510.00	20	QPSK	H	150	34	1 / 99	18.20	5.77	23.97	0.249	33.01	-9.04
2535.00	20	QPSK	H	150	32	1 / 99	18.49	5.86	24.35	0.272	33.01	-8.66
2560.00	20	QPSK	H	150	37	1 / 99	18.30	5.95	24.25	0.266	33.01	-8.76
2535.00	20	16-QAM	H	150	32	1 / 99	17.33	5.86	23.19	0.208	33.01	-9.82
2535.00	20	64-QAM	H	150	32	1 / 99	16.34	5.86	22.20	0.166	33.01	-10.81
2562.50	15	QPSK	V	150	292	1 / 99	16.31	6.07	22.38	0.173	33.01	-10.63
2562.50	15 (WCP)	QPSK	H	150	330	1 / 99	18.28	5.96	24.24	0.266	33.01	-8.77

Table 7-10. EIRP Data (Band 7)

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 216 of 250

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	322	355	1 / 0	15.77	5.73	21.50	0.141	33.01	-11.51
2593.00	5	QPSK	H	322	355	1 / 0	15.76	6.07	21.83	0.153	33.01	-11.18
2687.50	5	QPSK	H	322	355	1 / 0	14.92	6.48	21.40	0.138	33.01	-11.61
2593.00	5	16-QAM	H	322	355	1 / 0	15.90	6.07	21.97	0.157	33.01	-11.04
2593.00	5	64-QAM	H	322	355	1 / 0	14.94	6.07	21.01	0.126	33.01	-12.00
2501.00	10	QPSK	H	325	344	1 / 49	15.69	5.73	21.42	0.139	33.01	-11.59
2593.00	10	QPSK	H	330	316	1 / 49	15.78	6.07	21.85	0.153	33.01	-11.16
2685.00	10	QPSK	H	330	316	1 / 49	13.73	6.47	20.20	0.105	33.01	-12.81
2593.00	10	16-QAM	H	330	316	1 / 49	13.90	6.07	19.97	0.099	33.01	-13.04
2593.00	10	64-QAM	H	330	316	1 / 49	12.88	6.07	18.95	0.079	33.01	-14.06
2503.50	15	QPSK	H	325	322	1 / 0	14.79	5.74	20.53	0.113	33.01	-12.48
2593.00	15	QPSK	H	325	322	1 / 0	15.73	6.07	21.80	0.151	33.01	-11.21
2682.50	15	QPSK	H	325	322	1 / 0	13.79	6.46	20.25	0.106	33.01	-12.76
2593.00	15	16-QAM	H	325	322	1 / 0	14.58	6.07	20.65	0.116	33.01	-12.36
2593.00	15	64-QAM	H	325	322	1 / 0	13.74	6.07	19.81	0.096	33.01	-13.20
2506.00	20	QPSK	H	325	329	1 / 0	15.27	5.75	21.02	0.127	33.01	-11.99
2593.00	20	QPSK	H	325	329	1 / 0	16.14	6.07	22.21	0.166	33.01	-10.80
2680.00	20	QPSK	H	325	329	1 / 0	14.57	6.45	21.02	0.127	33.01	-11.99
2593.00	20	16-QAM	H	325	329	1 / 0	15.08	6.07	21.15	0.130	33.01	-11.86
2593.00	20	64-QAM	H	325	329	1 / 0	14.42	6.07	20.49	0.112	33.01	-12.52
2593.00	20	QPSK	V	310	330	1 / 0	13.49	5.63	19.12	0.082	33.01	-13.89
2593.00	20 (WCP)	QPSK	X	325	329	1 / 0	15.32	6.07	21.39	0.138	33.01	-11.62

Table 7-11. EIRP Data (Band 38/41)

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 217 of 250

7.7 Radiated Spurious Emissions Measurements

§2.1053 §22.917(a) §24.238(a) §27.53(c) §27.53(f) §27.53(g) §27.53(h) §27.53(m) RSS-130(4.6) RSS-132(5.5) RSS-133(6.5) RSS-139(6.6) RSS-199(4.5)

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 v03 – 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: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 218 of 250	

Test Setup

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

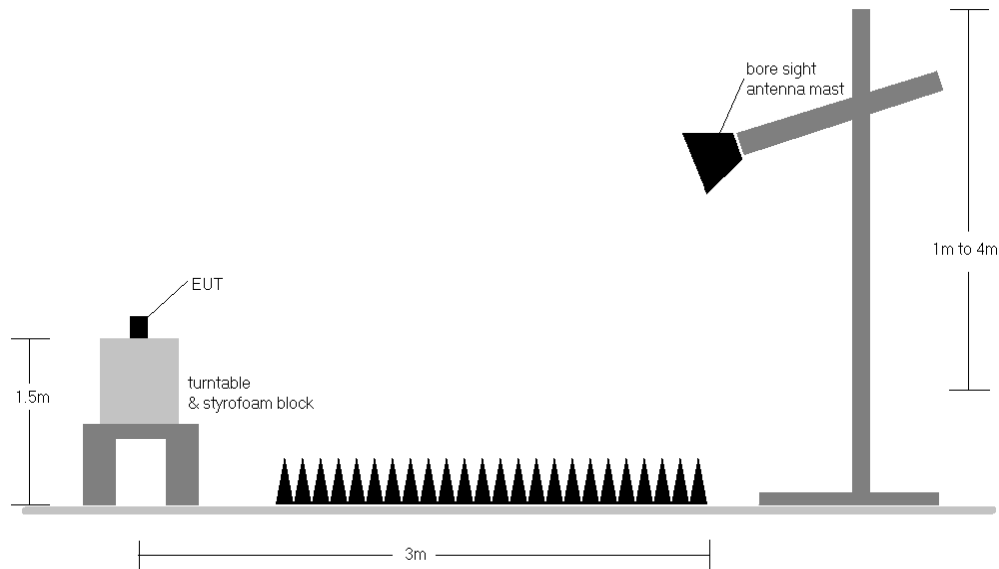


Figure 7-7. Test Instrument & Measurement Setup

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: A3LSMG960F	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 219 of 250

Band 12/17

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	115	249	-71.86	7.90	-63.96	-51.0
2104.50	V	-	-	-74.30	8.76	-65.54	-52.5
2806.00	V	-	-	-73.99	10.05	-63.94	-50.9
3507.50	V	-	-	-70.10	9.92	-60.19	-47.2

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

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	110	268	-71.69	7.95	-63.74	-50.7
2122.50	V	-	-	-74.10	8.86	-65.24	-52.2
2830.00	V	-	-	-73.22	10.03	-63.19	-50.2
3537.50	V	-	-	-70.53	9.90	-60.63	-47.6

Table 7-13. Radiated Spurious Data (Band 12 – Mid Channel)

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 220 of 250

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	111	263	-74.86	8.01	-66.85	-53.8
2140.50	V	-	-	-74.21	8.96	-65.26	-52.3
2854.00	V	-	-	-73.15	10.01	-63.14	-50.1
3567.50	V	-	-	-70.58	9.89	-60.69	-47.7

Table 7-14. Radiated Spurious Data (Band 12 – High 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	-	-	-76.18	8.01	-68.17	-55.2
2140.50	V	-	-	-74.26	8.96	-65.31	-52.3
2854.00	V	-	-	-73.11	10.01	-63.10	-50.1

Table 7-15. Radiated Spurious Data with WCP (Band 12 – High Channel)

FCC ID: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 221 of 250

Band 13

OPERATING FREQUENCY: 779.50 MHz
 CHANNEL: 23205
 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]
2338.50	H	-	-	-72.84	9.50	-63.34	-50.3
3118.00	H	-	-	-69.82	9.34	-60.48	-47.5
3897.50	H	-	-	-66.19	9.46	-56.73	-43.7

Table 7-16. Radiated Spurious Data (Band 13 – Low Channel)

OPERATING FREQUENCY: 782.00 MHz
 CHANNEL: 23230
 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]
2346.00	H	-	-	-72.52	9.48	-63.04	-50.0
3128.00	H	-	-	-70.46	9.35	-61.11	-48.1
3910.00	H	-	-	-67.26	9.49	-57.77	-44.8

Table 7-17. Radiated Spurious Data (Band 13 – Mid Channel)

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 222 of 250

OPERATING FREQUENCY: 784.50 MHz
 CHANNEL: 23255
 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]
2353.50	H	-	-	-73.17	9.45	-63.71	-50.7
3138.00	H	-	-	-70.20	9.36	-60.83	-47.8
3922.50	H	-	-	-67.72	9.52	-58.20	-45.2

Table 7-18. Radiated Spurious Data (Band 13 – High Channel)

MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.00 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]
1559.00	H	143	143	-75.95	8.70	-67.25	-27.3
1564.00	H	215	197	-75.14	8.72	-66.42	-26.4
1569.00	H	138	204	-75.41	8.74	-66.68	-26.7

Table 7-19. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 223 of 250

OPERATING FREQUENCY: 782.00 MHz
CHANNEL: 23230
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]
2346.00	H	-	-	-73.15	9.48	-63.67	-50.7
3128.00	H	-	-	-70.48	9.35	-61.13	-48.1
3910.00	H	-	-	-67.84	9.49	-58.35	-45.4

Table 7-20. Radiated Spurious Data with WCP (Band 13 – Mid Channel)

MODULATION SIGNAL: QPSK
BANDWIDTH: 5.00 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	H	117	186	-74.96	8.72	-66.24	-26.2

Table 7-21. Radiated Spurious Data with WCP (Band 13 – 1559-1610MHz Band)

FCC ID: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 224 of 250

Band 5/26

OPERATING FREQUENCY: 825.50 MHz
 CHANNEL: 26805
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 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]
1651.00	H	165	182	-75.77	8.85	-66.92	-53.9
2476.50	H	-	-	-75.04	9.68	-65.36	-52.4

Table 7-22. Radiated Spurious Data (Band 5/26 – Low Channel)

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 26915
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.00	H	160	180	-74.71	8.85	-65.86	-52.9
2509.50	H	-	-	-74.68	9.78	-64.91	-51.9

Table 7-23. Radiated Spurious Data (Band 5/26 – Mid Channel)

FCC ID: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 225 of 250

OPERATING FREQUENCY: 847.50 MHz
 CHANNEL: 27025
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 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]
1695.00	H	128	152	-75.20	8.85	-66.35	-53.4
2542.50	H	-	-	-74.11	9.75	-64.36	-51.4

Table 7-24. Radiated Spurious Data (Band 5/26 – High Channel)

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 26915
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.00	H	157	172	-74.87	8.85	-66.02	-53.0
2509.50	H	-	-	-74.75	9.78	-64.98	-52.0

Table 7-25. Radiated Spurious Data with WCP (Band 5/26 – Mid Channel)

FCC ID: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 226 of 250

Band 4/66

OPERATING FREQUENCY: 1715.00 MHz
 CHANNEL: 132022
 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]
3430.00	H	136	211	-55.28	9.87	-45.41	-32.4
5145.00	H	-	-	-67.46	10.75	-56.71	-43.7

Table 7-26. Radiated Spurious Data (Band 4/66 – Low Channel)

OPERATING FREQUENCY: 1745.00 MHz
 CHANNEL: 132322
 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]
3490.00	H	115	106	-56.51	9.94	-46.57	-33.6
5235.00	H	-	-	-66.70	10.72	-55.98	-43.0

Table 7-27. Radiated Spurious Data (Band 4/66 – Mid Channel)

FCC ID: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 227 of 250

OPERATING FREQUENCY: 1775.00 MHz
 CHANNEL: 132622
 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]
3550.00	H	104	216	-61.34	9.96	-51.38	-38.4
5325.00	H	-	-	-67.05	10.71	-56.34	-43.3

Table 7-28. Radiated Spurious Data (Band 4/66 – High Channel)

OPERATING FREQUENCY: 1715.00 MHz
 CHANNEL: 132022
 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]
3430.00	H	130	201	-55.61	9.94	-45.68	-32.7

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

FCC ID: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 228 of 250

Band 2/25

OPERATING FREQUENCY: 1850.70 MHz
 CHANNEL: 26047
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 1.4 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]
3701.40	H	-	-	-69.27	9.53	-59.74	-46.7

Table 7-30. Radiated Spurious Data (Band 2/25 – Low Channel)

OPERATING FREQUENCY: 1882.50 MHz
 CHANNEL: 26365
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 1.4 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	-	-	-68.54	9.37	-59.16	-46.2

Table 7-31. Radiated Spurious Data (Band 2/25 – Mid Channel)

FCC ID: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 229 of 250

OPERATING FREQUENCY: 1914.30 MHz
 CHANNEL: 26683
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 1.4 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]
3828.60	H	-	-	-67.87	9.34	-58.53	-45.5

Table 7-32. Radiated Spurious Data (Band 2/25 – High Channel)

OPERATING FREQUENCY: 1914.30 MHz
 CHANNEL: 26683
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 1.4 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]
3828.60	V	-	-	-67.39	9.30	-58.09	-45.1

Table 7-33. Radiated Spurious Data with WCP (Band 2/25 – High Channel)

FCC ID: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 230 of 250

Band 7

OPERATING FREQUENCY: 2507.50 MHz
CHANNEL: 20825
MODULATION SIGNAL: QPSK
BANDWIDTH: 15.0 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]
5015.00	H	121	224	-69.84	10.91	-58.93	-33.9
7522.50	H	117	309	-61.45	11.11	-50.34	-25.3
10030.00	H	-	-	-65.31	12.08	-53.24	-28.2

Table 7-34. Radiated Spurious Data (Band 7 – Low Channel)

OPERATING FREQUENCY: 2535.00 MHz
CHANNEL: 21100
MODULATION SIGNAL: QPSK
BANDWIDTH: 15.0 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	110	310	-68.21	10.81	-57.40	-32.4
7605.00	H	112	316	-65.38	11.30	-54.08	-29.1
10140.00	H	-	-	-63.84	12.17	-51.67	-26.7

Table 7-35. Radiated Spurious Data (Band 7 – Mid Channel)

FCC ID: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 231 of 250

OPERATING FREQUENCY: 2562.50 MHz
CHANNEL: 21375
MODULATION SIGNAL: QPSK
BANDWIDTH: 15.0 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]
5125.00	H	137	221	-68.12	10.76	-57.37	-32.4
7687.50	H	116	324	-62.96	11.38	-51.58	-26.6
10250.00	H	-	-	-61.40	12.32	-49.08	-24.1

Table 7-36. Radiated Spurious Data (Band 7 – High Channel)

OPERATING FREQUENCY: 2507.50 MHz
CHANNEL: 20825
MODULATION SIGNAL: QPSK
BANDWIDTH: 15.0 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]
5015.00	H	119	220	-68.15	10.91	-57.24	-32.2
7522.50	H	156	157	-62.97	11.11	-51.86	-26.9
10030.00	H	-	-	-62.67	12.08	-50.60	-25.6

Table 7-37. Radiated Spurious Data with WCP (Band 7 – Low Channel)

FCC ID: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 232 of 250

Band 38/41

OPERATING FREQUENCY: 2506.00 MHz
CHANNEL: 39750
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	V	360	22	-69.99	10.91	-59.08	-34.1
7518.00	V	274	342	-49.39	11.10	-38.29	-13.3
10024.00	V	-	-	-64.28	12.07	-52.21	-27.2

Table 7-38. Radiated Spurious Data (Band 38/41 – Low Channel)

OPERATING FREQUENCY: 2593.00 MHz
CHANNEL: 40620
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	V	112	106	-65.01	10.75	-54.26	-29.3
7779.00	V	277	42	-47.62	11.40	-36.22	-11.2
10372.00	V	-	-	-64.83	12.59	-52.24	-27.2

Table 7-39. Radiated Spurious Data (Band 38/41 – Mid Channel)

FCC ID: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 233 of 250

OPERATING FREQUENCY: 2680.00 MHz
CHANNEL: 41490
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	V	119	9	-65.11	10.74	-54.36	-29.4
8040.00	V	338	16	-49.68	11.14	-38.54	-13.5
10720.00	V	-	-	-66.67	12.77	-53.90	-28.9

Table 7-40. Radiated Spurious Data (Band 38/41 – High Channel)

OPERATING FREQUENCY: 2593.00 MHz
CHANNEL: 40620
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	V	-	-	-69.18	10.75	-58.43	-33.4
7779.00	V	120	77	-48.88	11.40	-37.48	-12.5
10372.00	V	-	-	-64.12	12.59	-51.53	-26.5

Table 7-41. Radiated Spurious Data with WCP (Band 38/41 – Mid Channel)

FCC ID: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 234 of 250

7.8 Frequency Stability / Temperature Variation

\$2.1055 \$22.355 \$24.235 \$27.54 RSS-130(4.3) RSS-132(5.3) RSS-133(6.3) RSS-139(6.3) RSS-195(5.4) RSS-199(4.3)

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, RSS-132 and RSS-133, 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, RSS-130, RSS-139 and RSS-199, 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: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 235 of 250

Band 12/17 Frequency Stability Measurements

§2.1055 §27.54 RSS-130(4.3)

OPERATING FREQUENCY: 707,500,000 Hz

CHANNEL: 23790

REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	707,499,872	-128	-0.0000181
100 %		- 30	707,500,020	20	0.0000028
100 %		- 20	707,499,874	-126	-0.0000178
100 %		- 10	707,499,978	-22	-0.0000031
100 %		0	707,499,956	-44	-0.0000062
100 %		+ 10	707,500,168	168	0.0000237
100 %		+ 20	707,500,017	17	0.0000024
100 %		+ 30	707,499,887	-113	-0.0000160
100 %		+ 40	707,499,893	-107	-0.0000151
100 %		+ 50	707,500,026	26	0.0000037
BATT. ENDPOINT	3.40	+ 20	707,500,002	2	0.0000003

Table 7-42. 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: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 236 of 250

Band 12/17 Frequency Stability Measurements
§2.1055 §27.54 RSS-130(4.3)

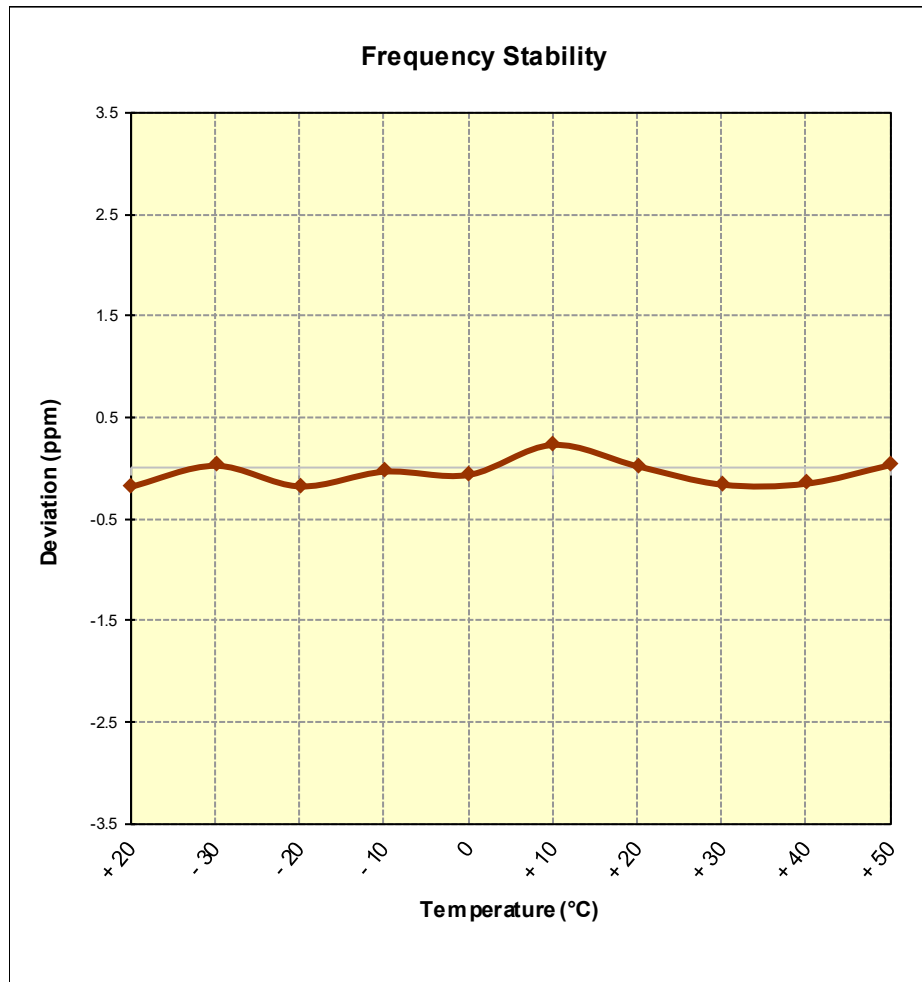


Figure 7-8. Frequency Stability Graph (Band 12)

FCC ID: A3LSMG960F	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset		Page 237 of 250

© 2017 PCTEST Engineering Laboratory, Inc.

V 7.0 9/25/2017

All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Band 13 Frequency Stability Measurements

§2.1055 §27.54 RSS-130(4.3)

OPERATING FREQUENCY: 782,000,000 Hz

CHANNEL: 23230

REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	781,999,968	-32	-0.0000041
100 %		- 30	781,999,916	-84	-0.0000107
100 %		- 20	781,999,913	-87	-0.0000111
100 %		- 10	782,000,243	243	0.0000311
100 %		0	781,999,779	-221	-0.0000283
100 %		+ 10	782,000,100	100	0.0000128
100 %		+ 20	782,000,142	142	0.0000182
100 %		+ 30	781,999,876	-124	-0.0000159
100 %		+ 40	782,000,146	146	0.0000187
100 %		+ 50	782,000,114	114	0.0000146
BATT. ENDPOINT	3.40	+ 20	782,000,192	192	0.0000246

Table 7-43. 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: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 238 of 250

Band 13 Frequency Stability Measurements

§2.1055 §27.54 RSS-130(4.3)

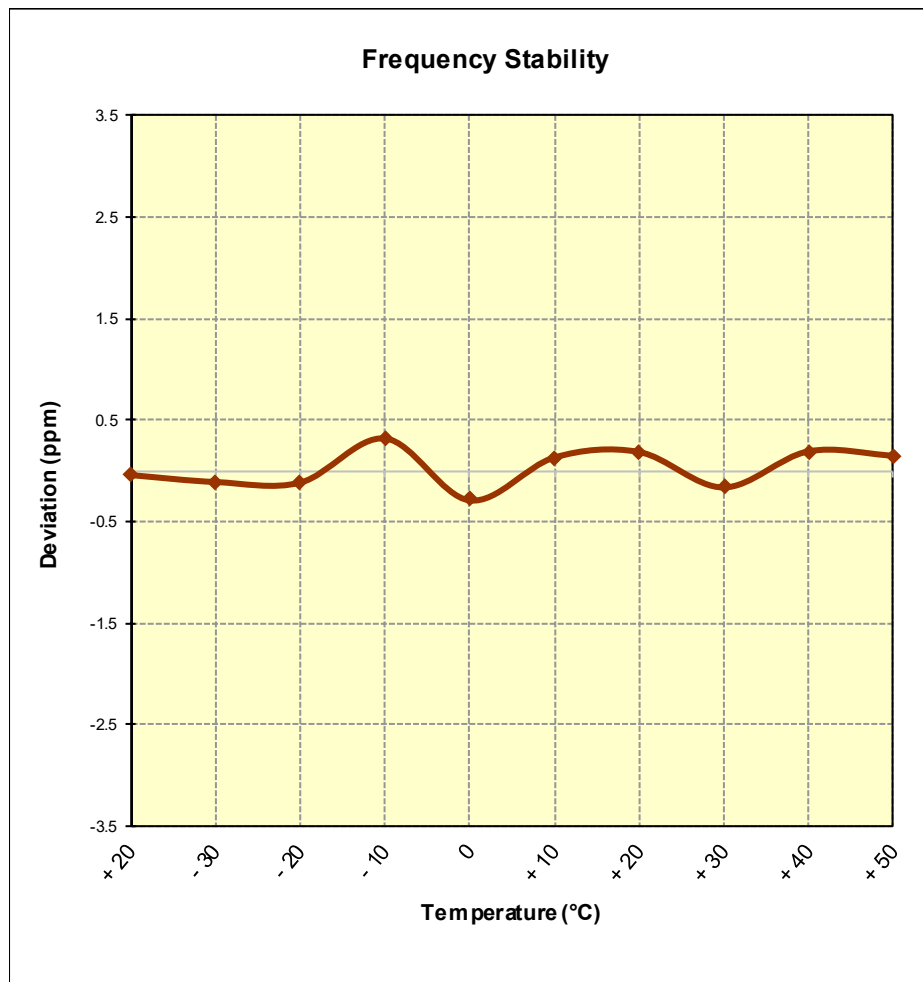


Figure 7-9. Frequency Stability Graph (Band 13)

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 239 of 250

© 2017 PCTEST Engineering Laboratory, Inc.

V 7.0 9/25/2017

All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Band 5/26 Frequency Stability Measurements

§2.1055 §22.355 RSS-132(5.3)

OPERATING FREQUENCY: 831,500,000 Hz

CHANNEL: 26865

REFERENCE VOLTAGE: 3.80 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	831,499,956	-44	-0.0000053
100 %		- 30	831,499,910	-90	-0.0000108
100 %		- 20	831,500,085	85	0.0000102
100 %		- 10	831,500,171	171	0.0000206
100 %		0	831,500,181	181	0.0000218
100 %		+ 10	831,499,963	-37	-0.0000044
100 %		+ 20	831,500,296	296	0.0000356
100 %		+ 30	831,500,001	1	0.0000001
100 %		+ 40	831,500,110	110	0.0000132
100 %		+ 50	831,500,298	298	0.0000358
BATT. ENDPOINT	3.40	+ 20	831,500,001	1	0.0000001

Table 7-44. Frequency Stability Data (Band 26)

FCC ID: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 240 of 250	

Band 5/26 Frequency Stability Measurements
§2.1055 §22.355 RSS-132(5.3)

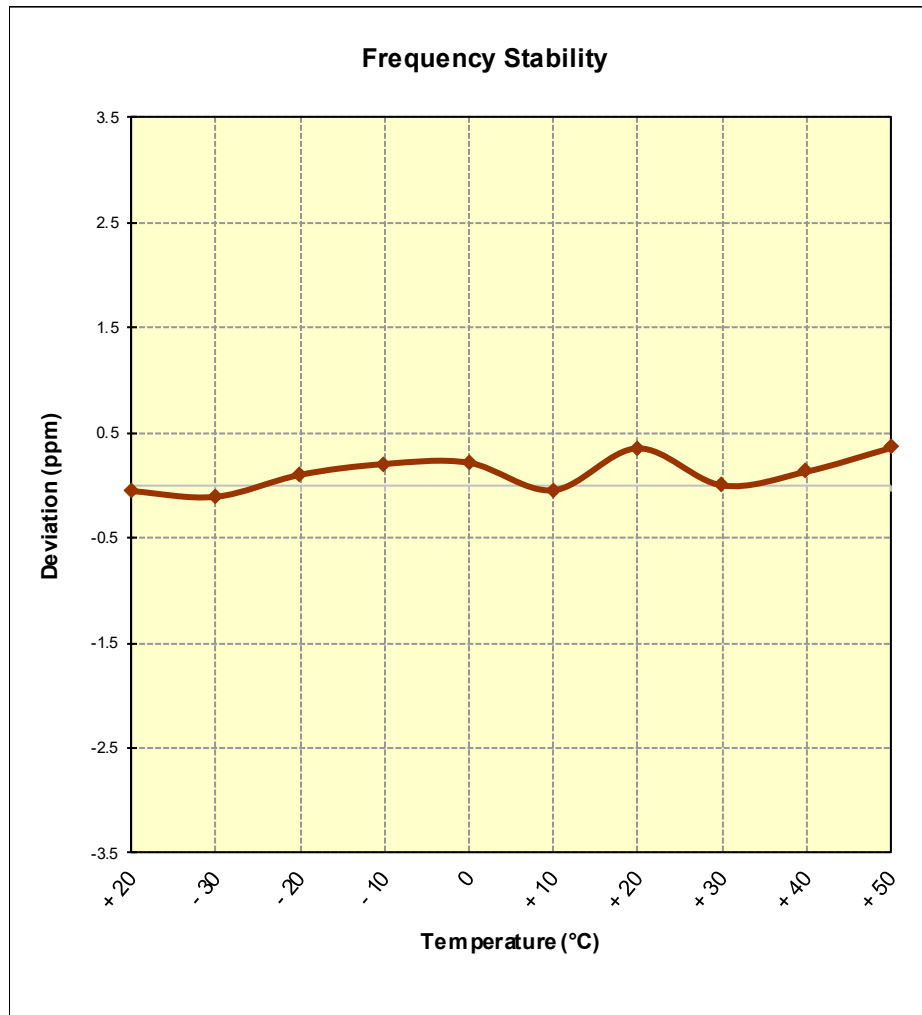


Figure 7-10. Frequency Stability Graph (Band 26)

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 241 of 250

Band 4/66 Frequency Stability Measurements

§2.1055 §§27.54 RSS-139(6.4)

OPERATING FREQUENCY: 1,745,000,000 Hz
 CHANNEL: 132322
 REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,745,000,101	101	0.0000058
100 %		- 30	1,745,000,035	35	0.0000020
100 %		- 20	1,745,000,158	158	0.0000091
100 %		- 10	1,744,999,997	-3	-0.0000002
100 %		0	1,745,000,193	193	0.0000111
100 %		+ 10	1,744,999,864	-136	-0.0000078
100 %		+ 20	1,744,999,961	-39	-0.0000022
100 %		+ 30	1,744,999,713	-287	-0.0000164
100 %		+ 40	1,744,999,958	-42	-0.0000024
100 %		+ 50	1,744,999,913	-87	-0.0000050
BATT. ENDPOINT	3.40	+ 20	1,745,000,223	223	0.0000128

Table 7-45. Frequency Stability Data (Band 66)

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: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 242 of 250

Band 4/66 Frequency Stability Measurements
§2.1055 §§27.54 RSS-139(6.4)

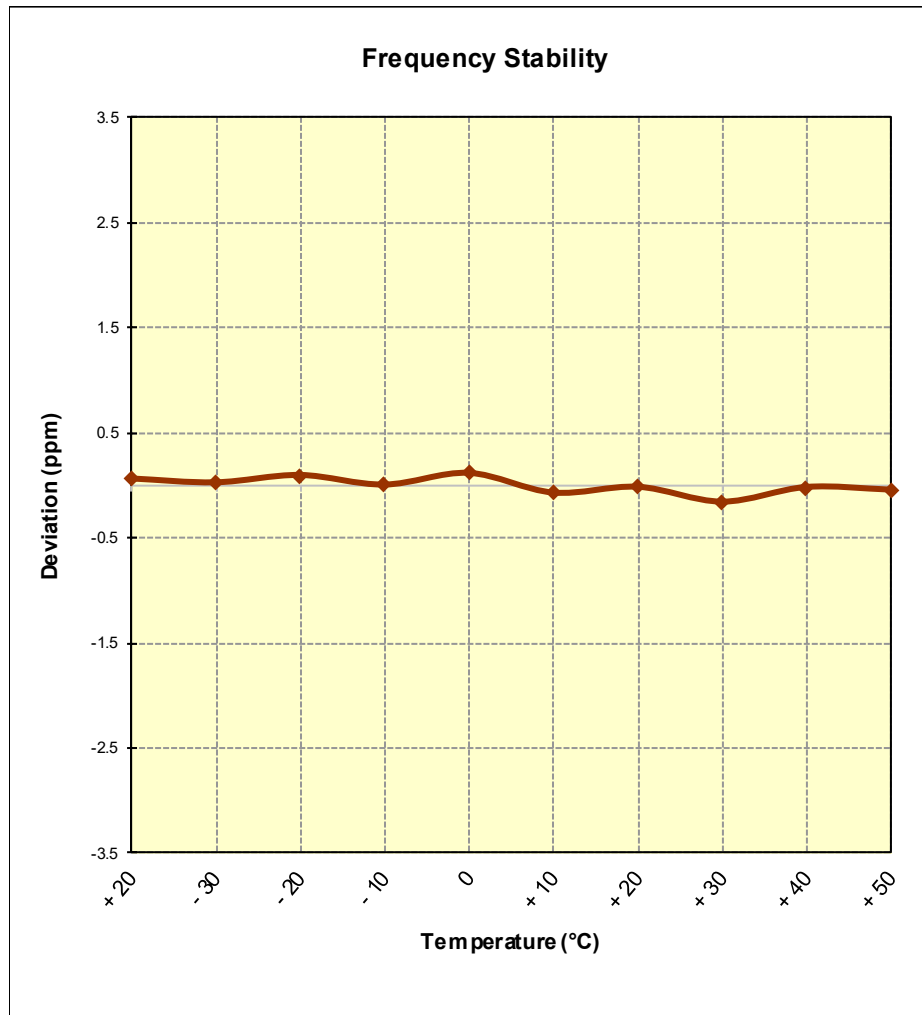


Figure 7-11. Frequency Stability Graph (Band 66)

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 243 of 250

Band 2/25 Frequency Stability Measurements

§2.1055 §24.235 RSS-133(6.3)

OPERATING FREQUENCY: 1,882,500,000 Hz

CHANNEL: 26365

REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	1,882,500,012	12	0.0000006
100 %		- 30	1,882,499,916	-84	-0.0000045
100 %		- 20	1,882,500,051	51	0.0000027
100 %		- 10	1,882,500,368	368	0.0000195
100 %		0	1,882,499,564	-436	-0.0000232
100 %		+ 10	1,882,500,127	127	0.0000067
100 %		+ 20	1,882,499,724	-276	-0.0000147
100 %		+ 30	1,882,500,127	127	0.0000067
100 %		+ 40	1,882,500,289	289	0.0000154
100 %		+ 50	1,882,499,862	-138	-0.0000073
BATT. ENDPOINT	3.40	+ 20	1,882,500,000	0	0.0000000

Table 7-46. Frequency Stability Data (Band 25)

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: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 244 of 250	

Band 2/25 Frequency Stability Measurements
§2.1055 §24.235 RSS-133(6.3)

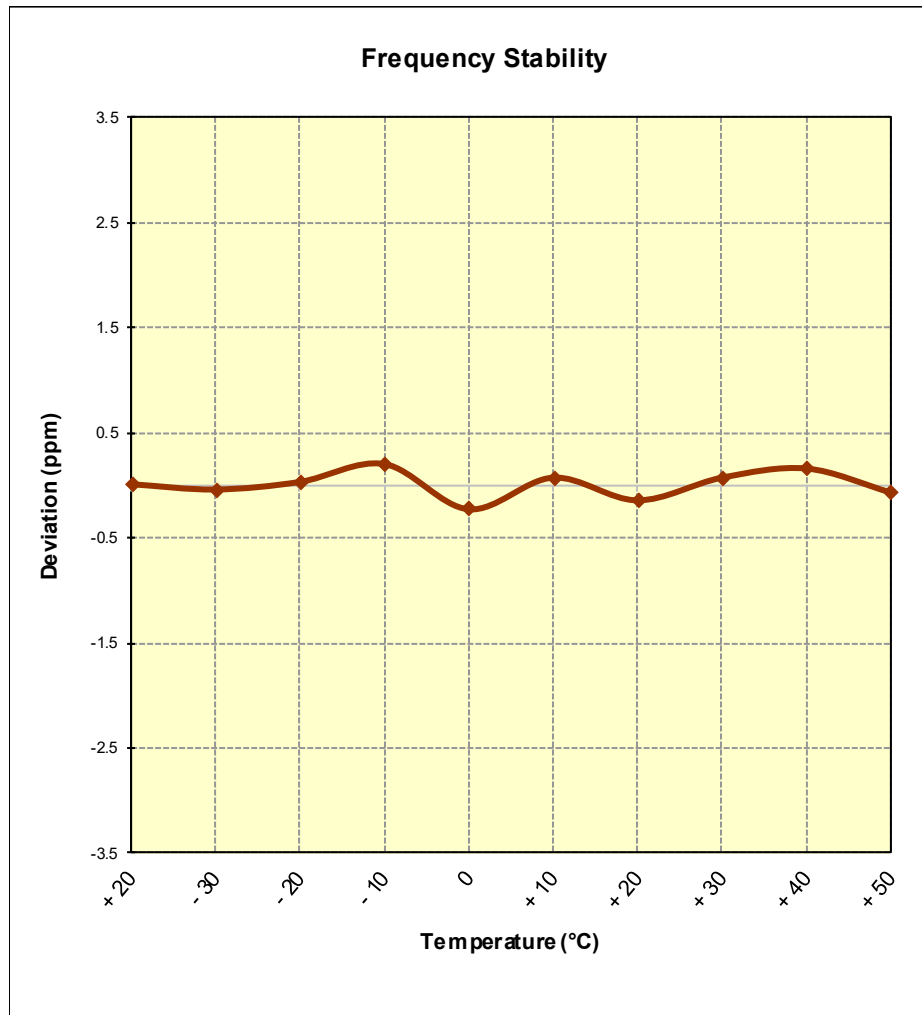


Figure 7-12. Frequency Stability Graph (Band 25)

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 245 of 250

© 2017 PCTEST Engineering Laboratory, Inc.

V 7.0 9/25/2017

All rights reserved. Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from PCTEST Engineering Laboratory, Inc. If you have any questions about this international copyright or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact INFO@PCTEST.COM.

Band 7 Frequency Stability Measurements

§2.1055 §27.54 RSS-199(4.3)

OPERATING FREQUENCY: 2,535,000,000 Hz
 CHANNEL: 21100
 REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	2,535,000,086	86	0.0000034
100 %		- 30	2,534,999,814	-186	-0.0000073
100 %		- 20	2,535,000,052	52	0.0000021
100 %		- 10	2,534,999,997	-3	-0.0000001
100 %		0	2,535,000,151	151	0.0000060
100 %		+ 10	2,534,999,838	-162	-0.0000064
100 %		+ 20	2,534,999,633	-367	-0.0000145
100 %		+ 30	2,535,000,209	209	0.0000082
100 %		+ 40	2,534,999,827	-173	-0.0000068
100 %		+ 50	2,535,000,305	305	0.0000120
BATT. ENDPOINT	3.40	+ 20	2,534,999,943	-57	-0.0000022

Table 7-47. 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: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 246 of 250

Band 7 Frequency Stability Measurements

§2.1055 §27.54 RSS-199(4.3)

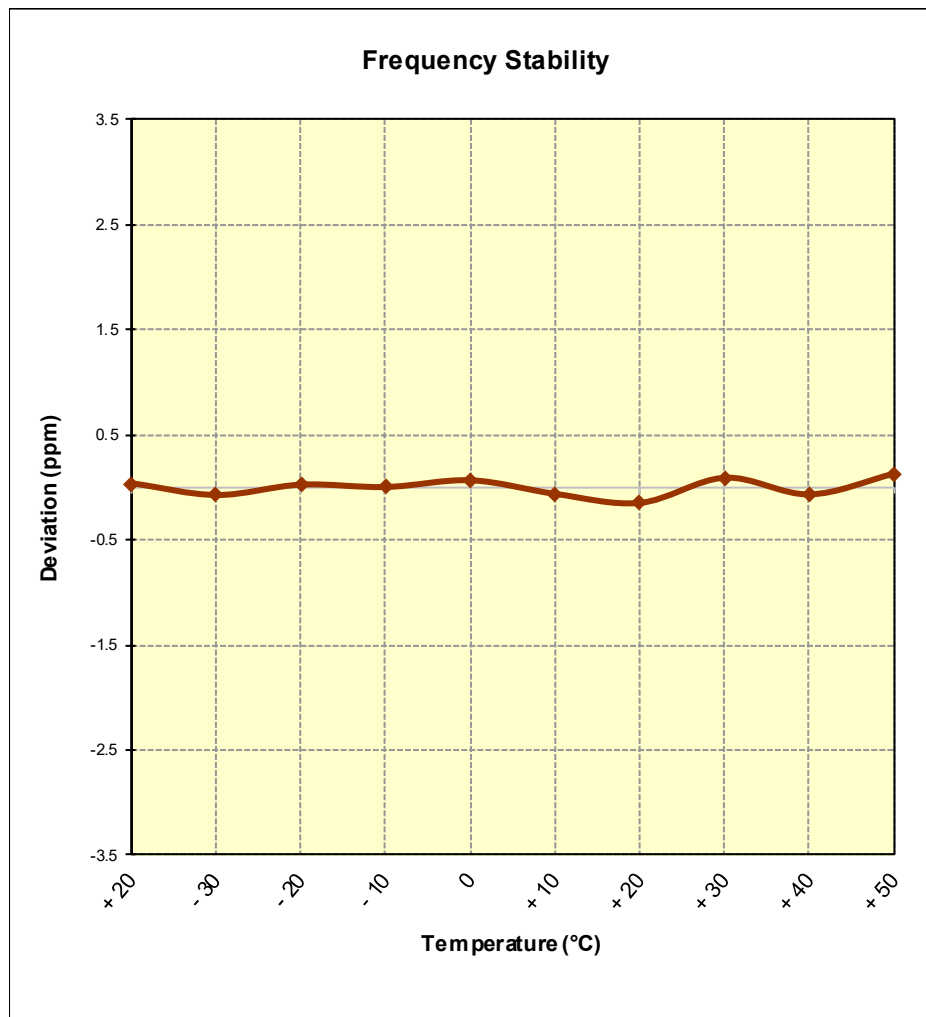


Figure 7-13. Frequency Stability Graph (Band 7)

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 247 of 250

Band 38/41 Frequency Stability Measurements

§2.1055 §27.54 RSS-199(4.3)

OPERATING FREQUENCY: 2,593,000,000 Hz

CHANNEL: 40620

REFERENCE VOLTAGE: 3.80 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.80	+ 20 (Ref)	2,593,000,041	41	0.0000016
100 %		- 30	2,592,999,995	-5	-0.0000002
100 %		- 20	2,592,999,599	-401	-0.0000155
100 %		- 10	2,592,999,684	-316	-0.0000122
100 %		0	2,593,000,410	410	0.0000158
100 %		+ 10	2,593,000,184	184	0.0000071
100 %		+ 20	2,592,999,657	-343	-0.0000132
100 %		+ 30	2,592,999,941	-59	-0.0000023
100 %		+ 40	2,592,999,836	-164	-0.0000063
100 %		+ 50	2,592,999,777	-223	-0.0000086
BATT. ENDPOINT	3.40	+ 20	2,592,999,999	-1	0.0000000

Table 7-48. 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: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 248 of 250

Band 38/41 Frequency Stability Measurements

§2.1055 §27.54 RSS-199(4.3)

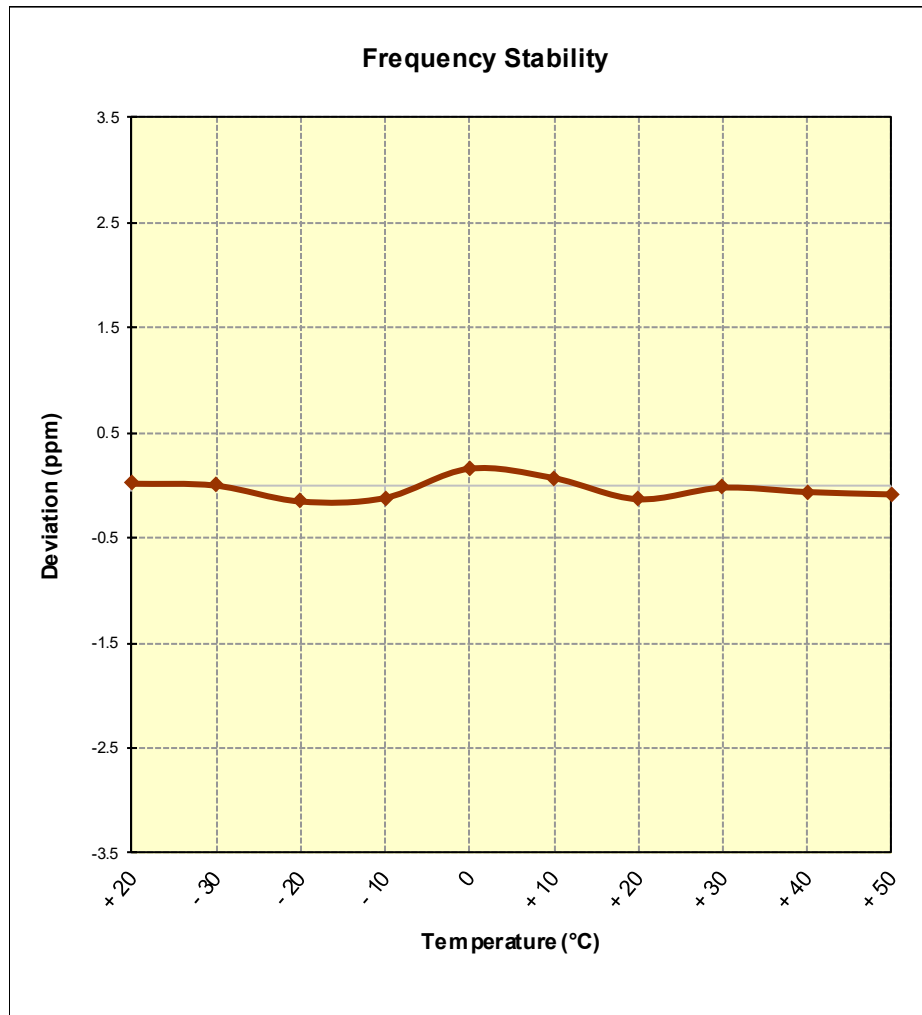


Figure 7-14. Frequency Stability Graph (Band 38/41)

FCC ID: A3LSMG960F	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 249 of 250

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMG960F** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.

FCC ID: A3LSMG960F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1710020264-03.A3L	Test Dates: 10/03 - 12/06/2017	EUT Type: Portable Handset	Page 250 of 250	