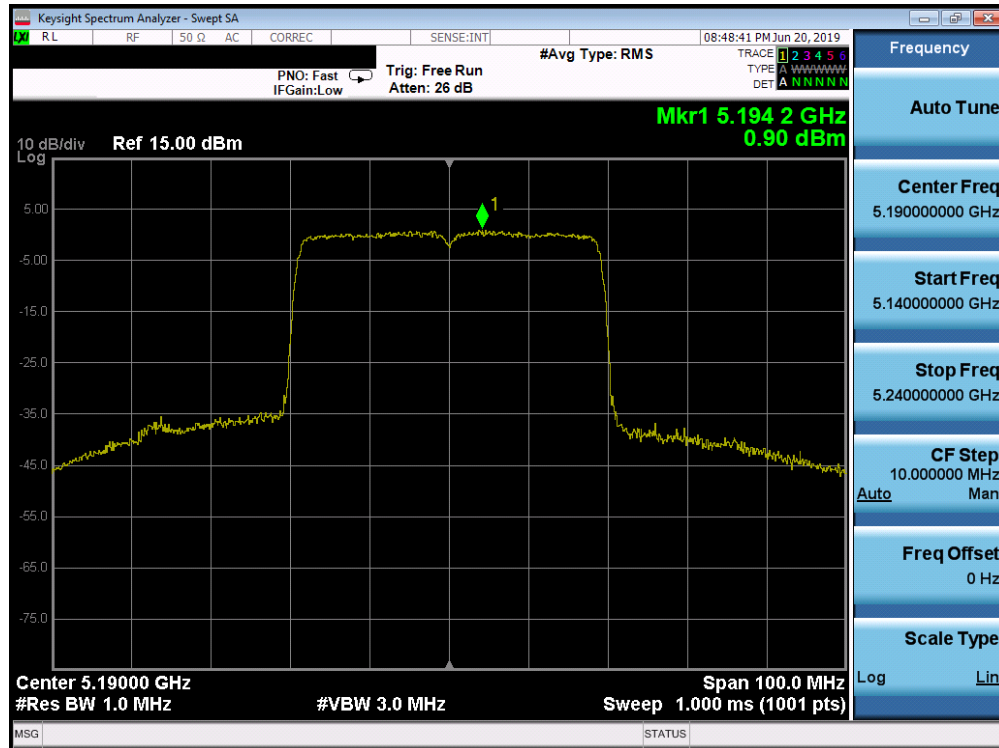
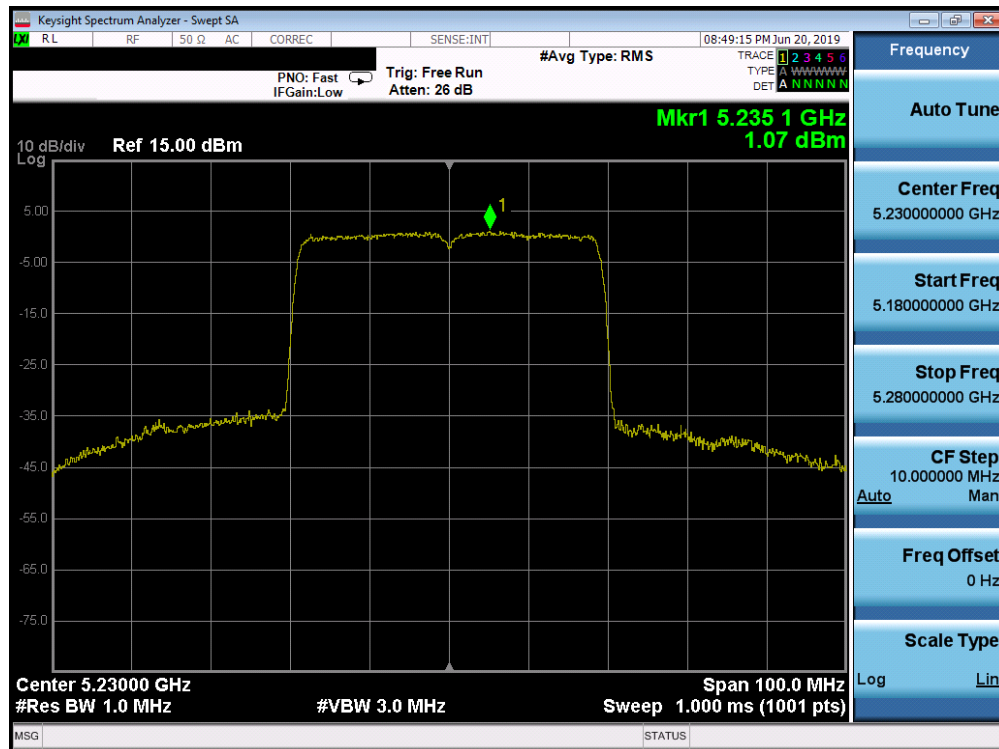


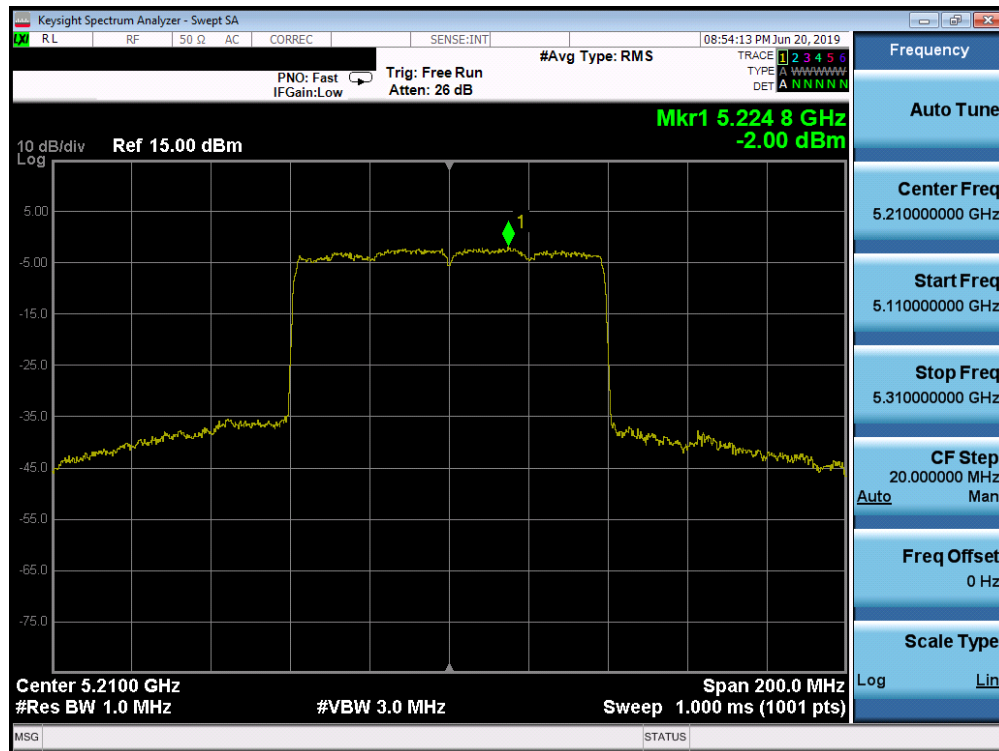


Plot 7-247. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 38)

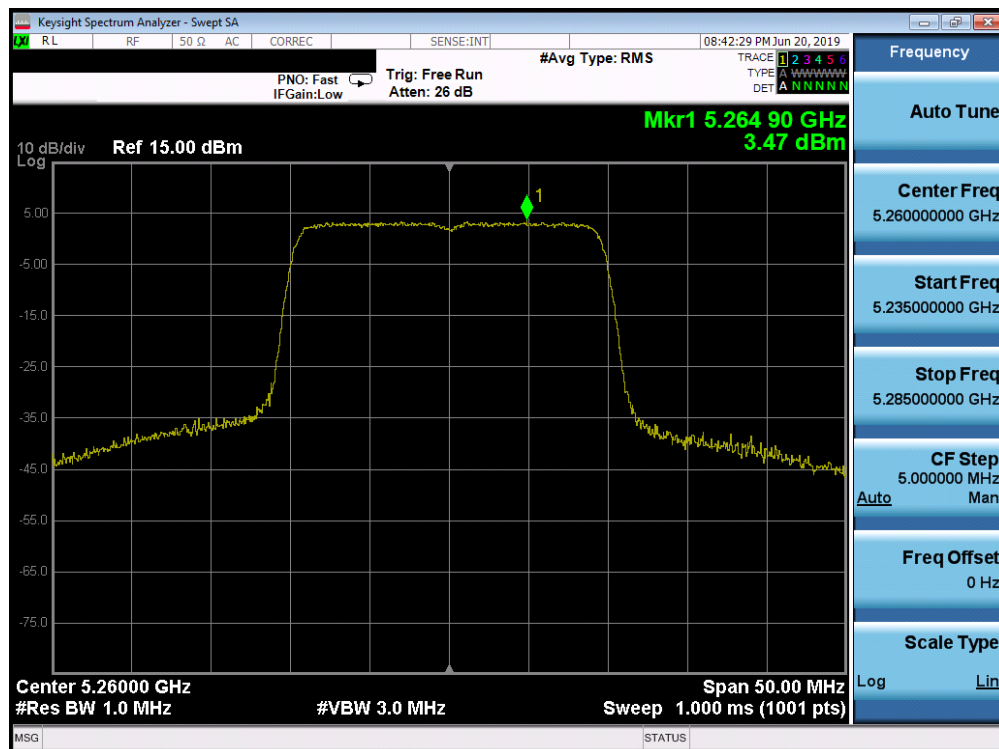


Plot 7-248. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 46)

FCC ID: A3LSMN976V	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 184 of 302

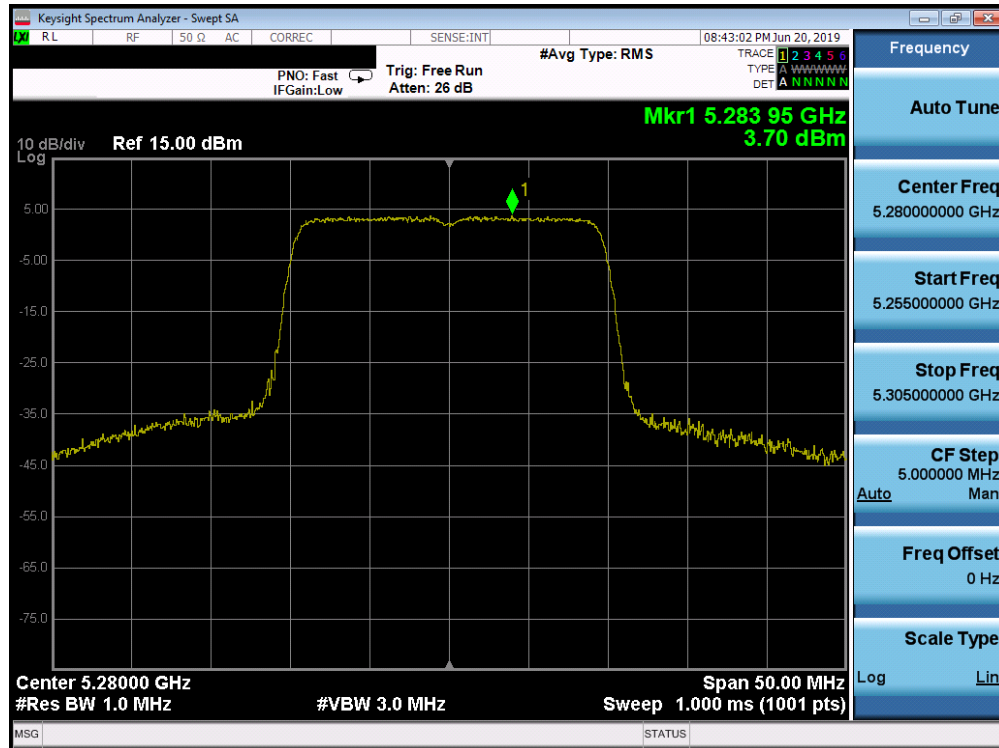


Plot 7-249. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 42)

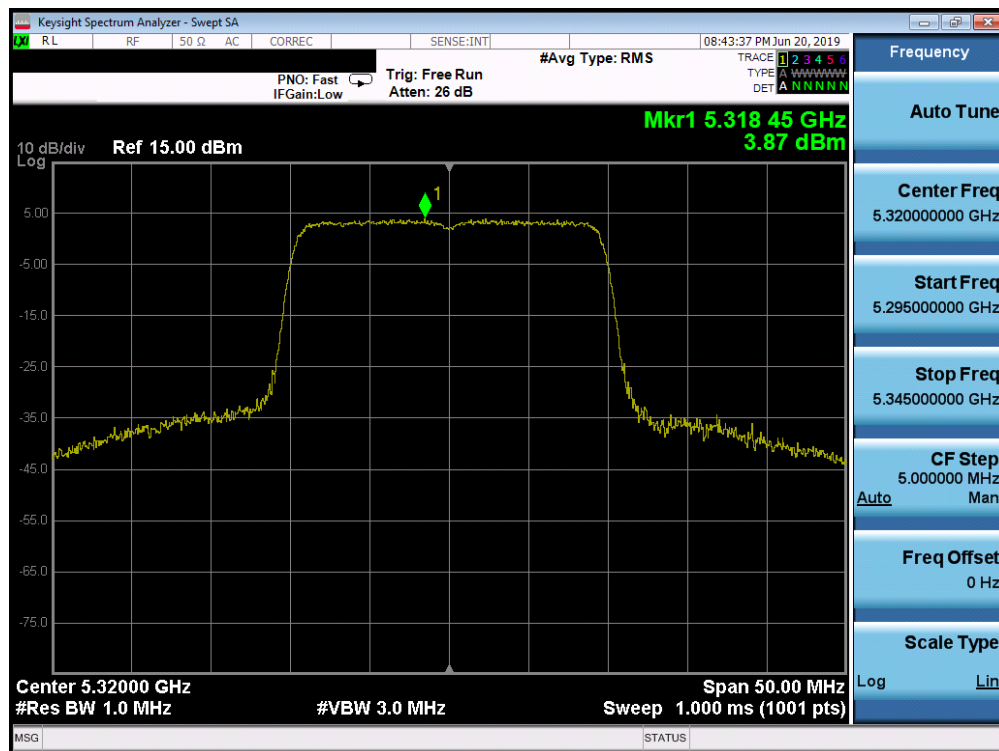


Plot 7-250. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 52)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 185 of 302

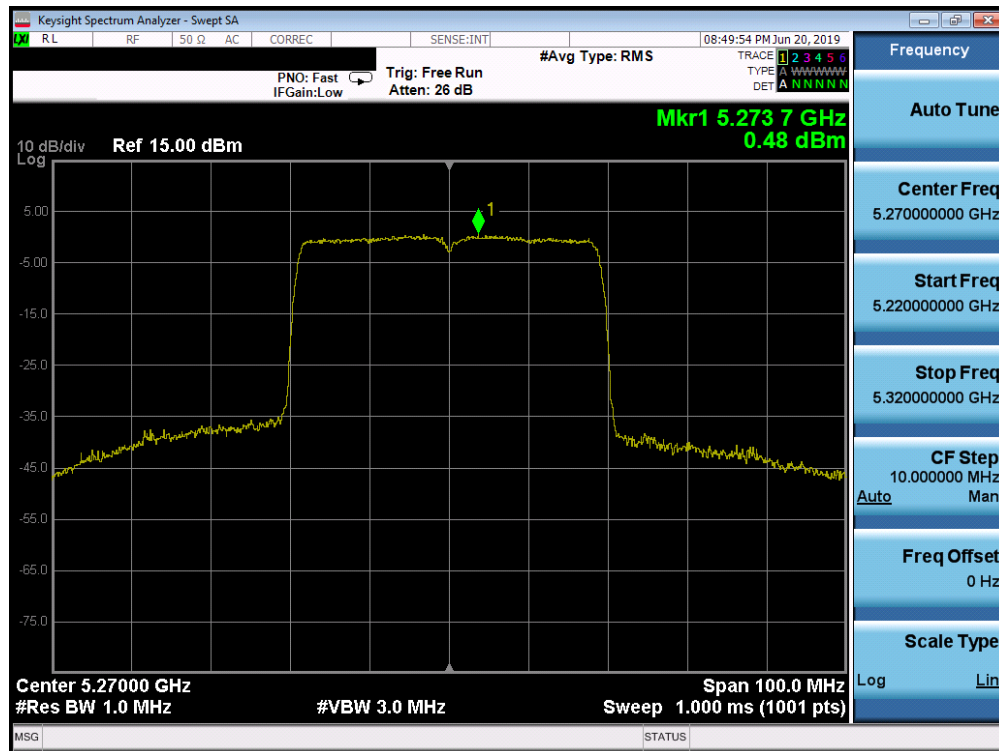


Plot 7-251. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 56)

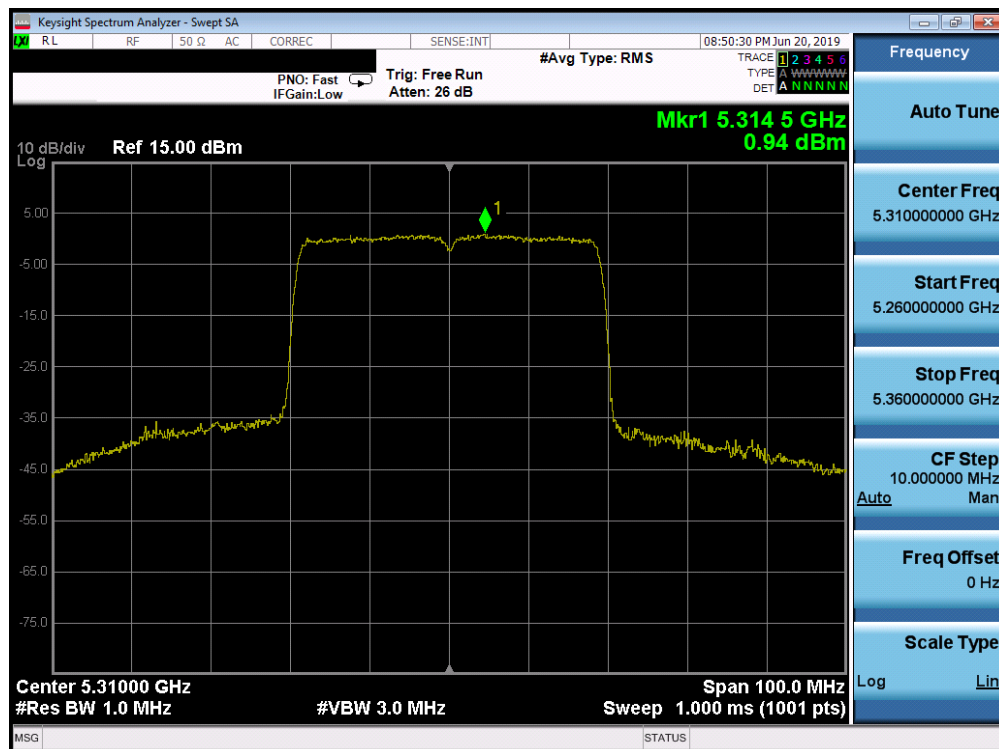


Plot 7-252. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 64)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 186 of 302

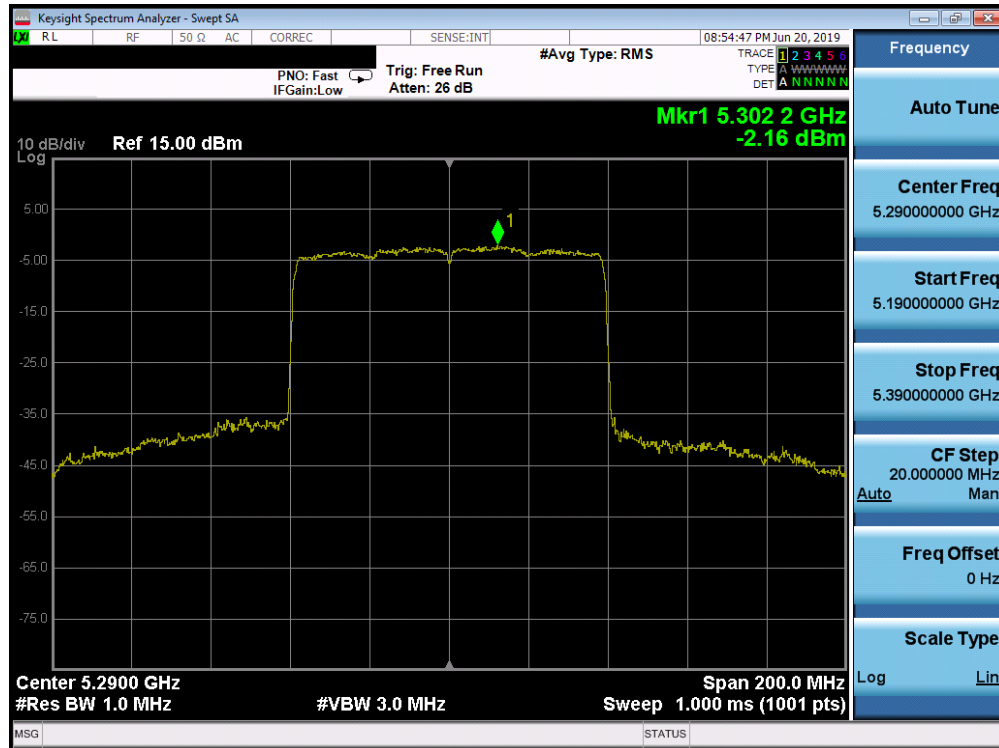


Plot 7-253. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 54)

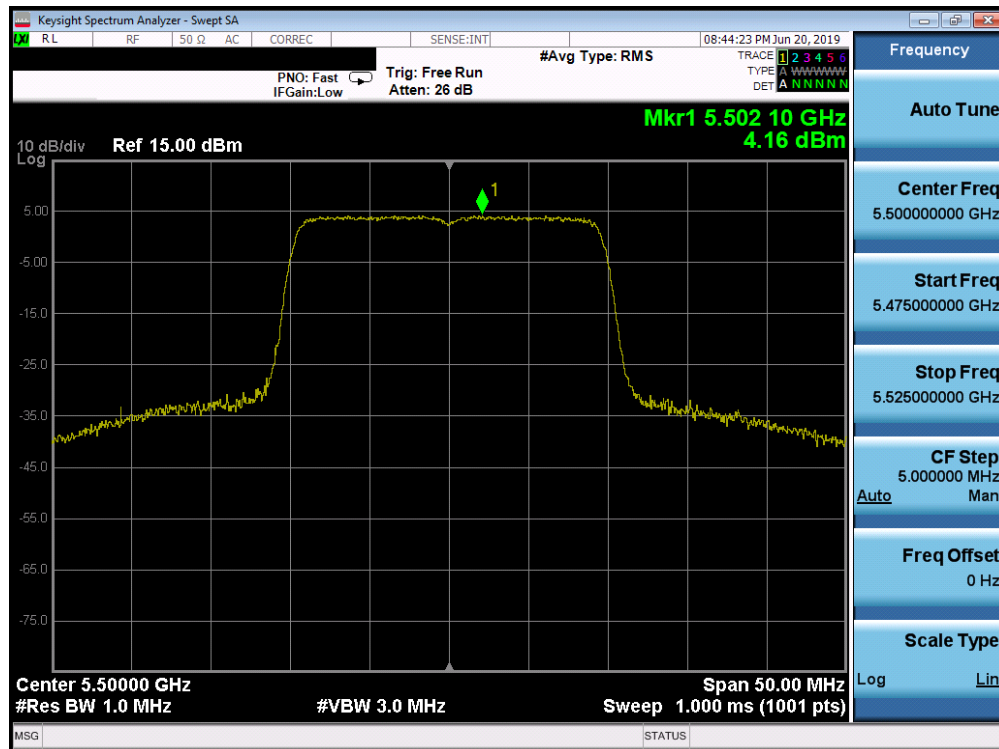


Plot 7-254. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 62)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 187 of 302

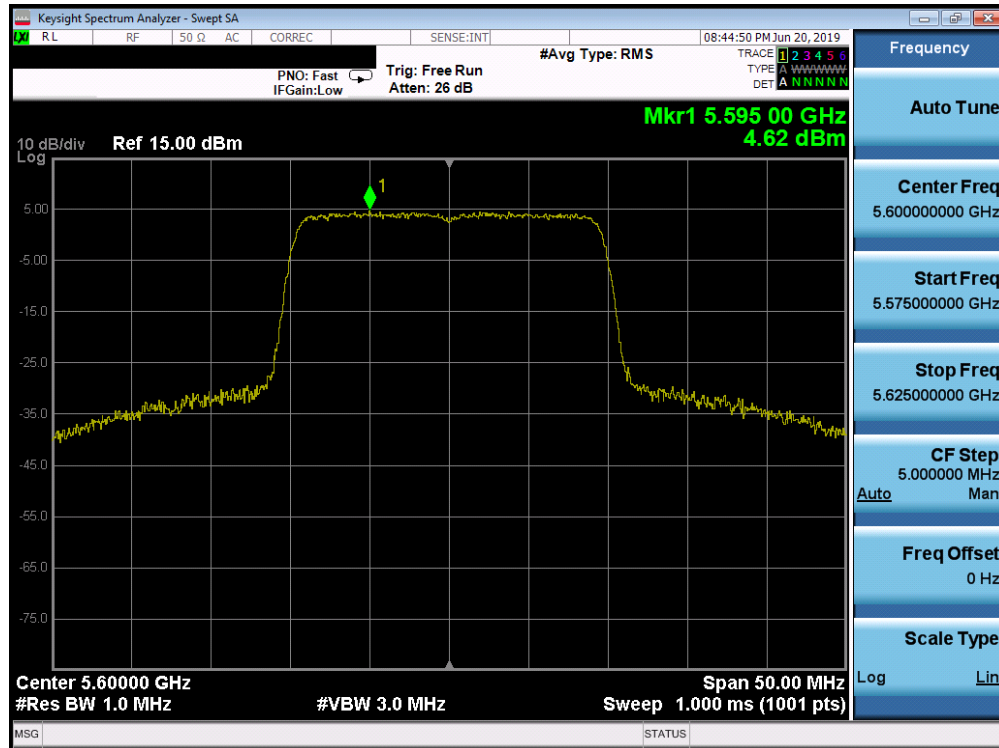


Plot 7-255. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 58)

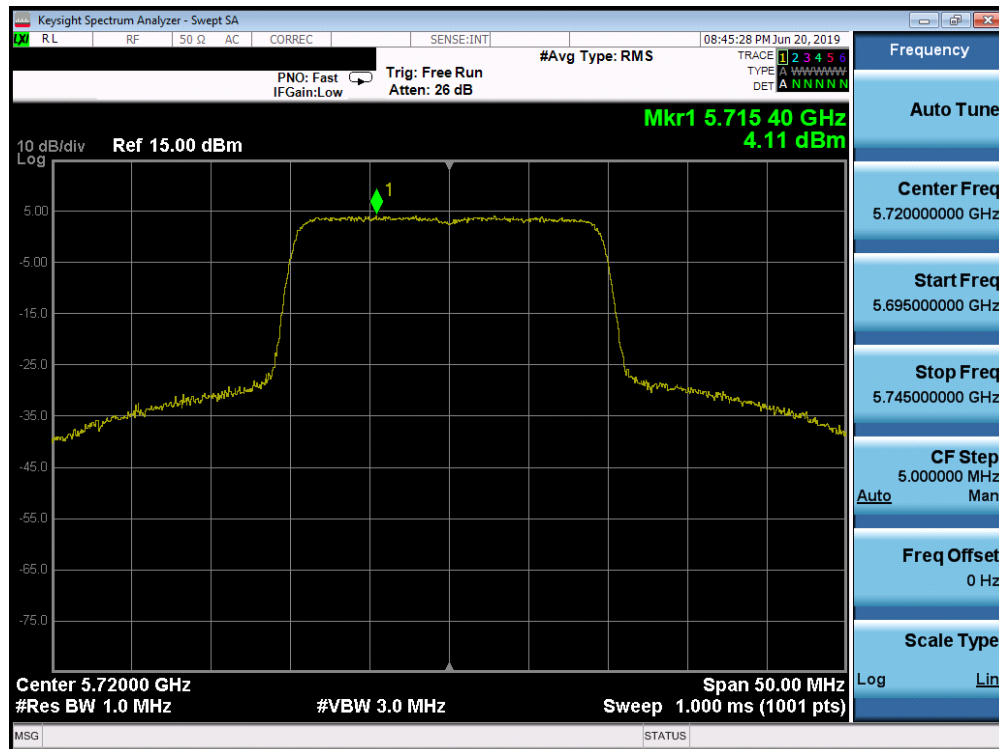


Plot 7-256. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 100)

FCC ID: A3LSMN976V	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 188 of 302

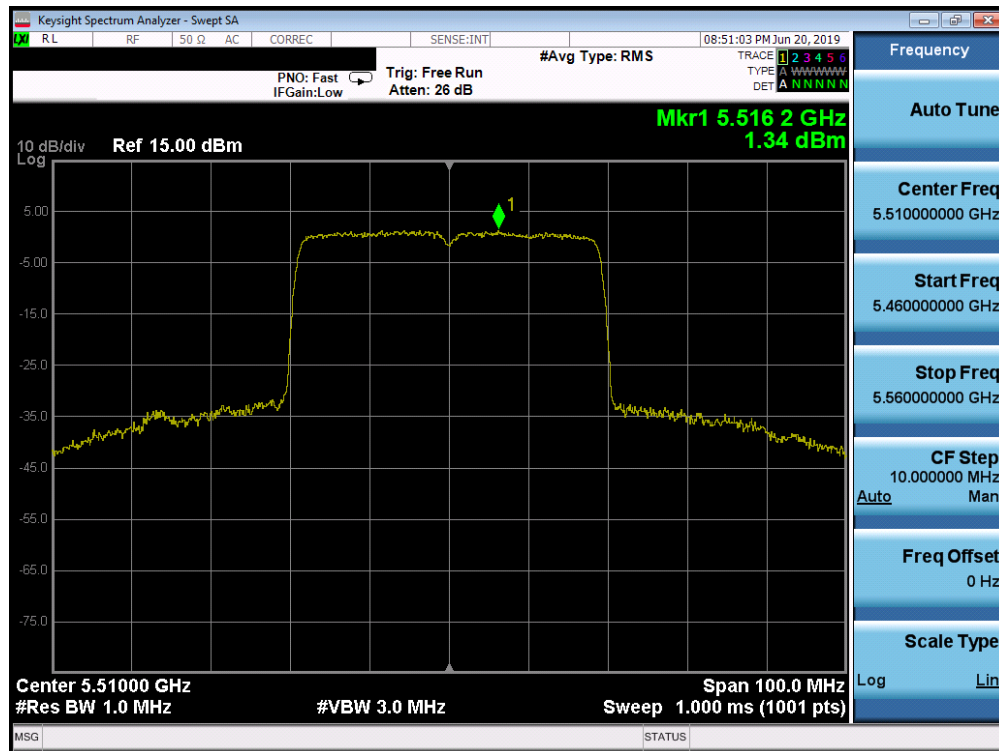


Plot 7-257. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 120)

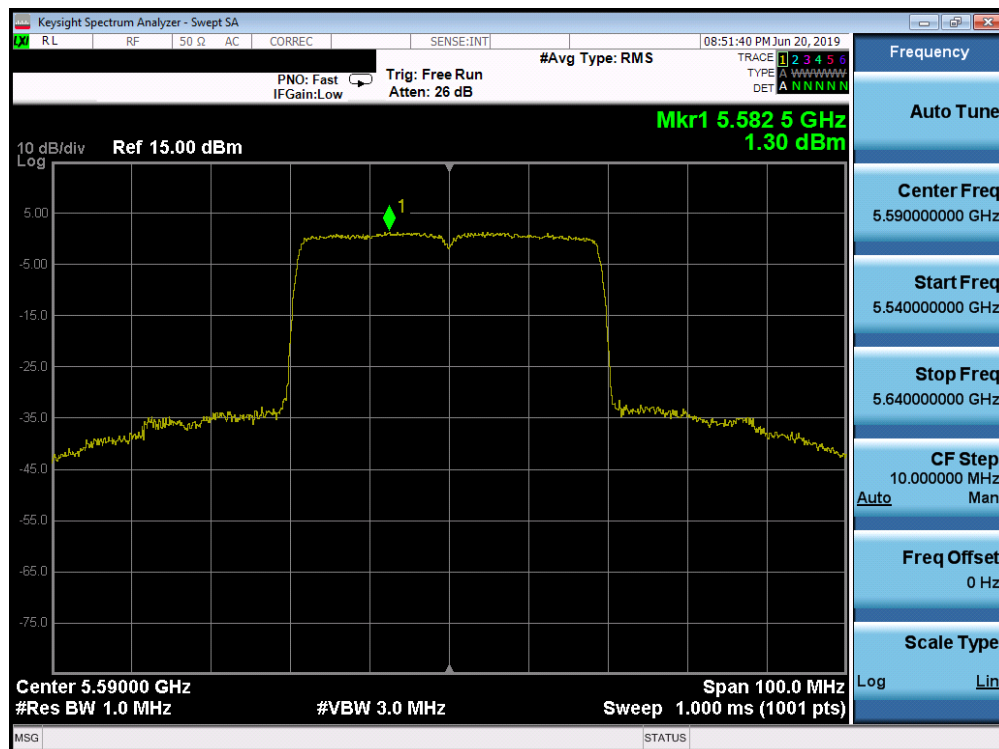


Plot 7-258. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 144)

FCC ID: A3LSMN976V	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 189 of 302

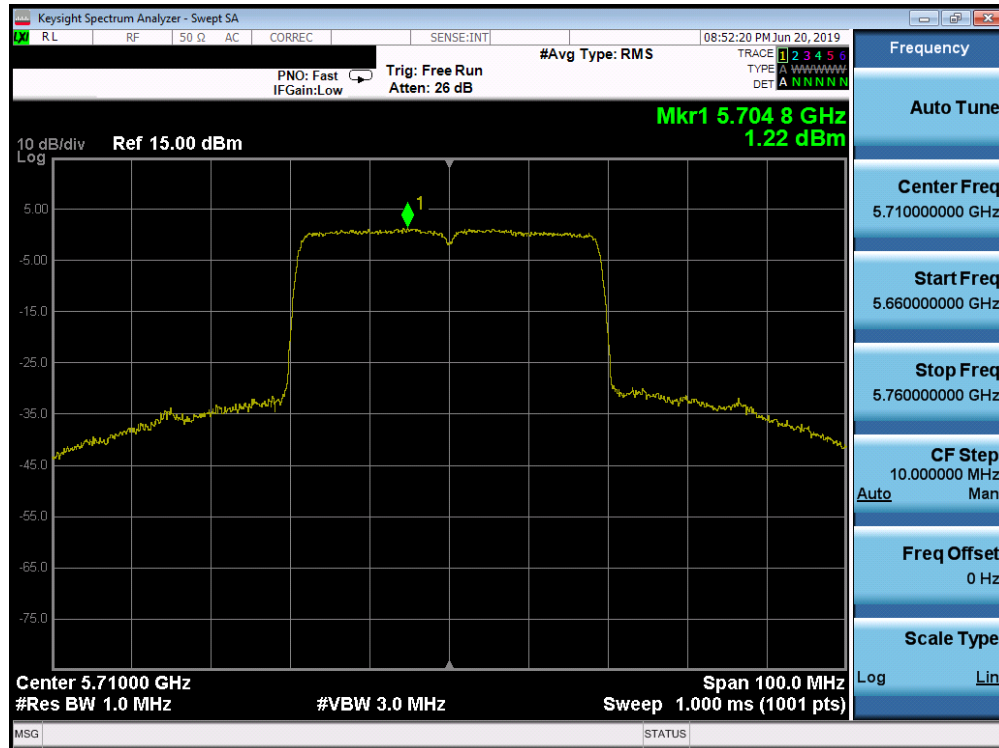


Plot 7-259. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 102)

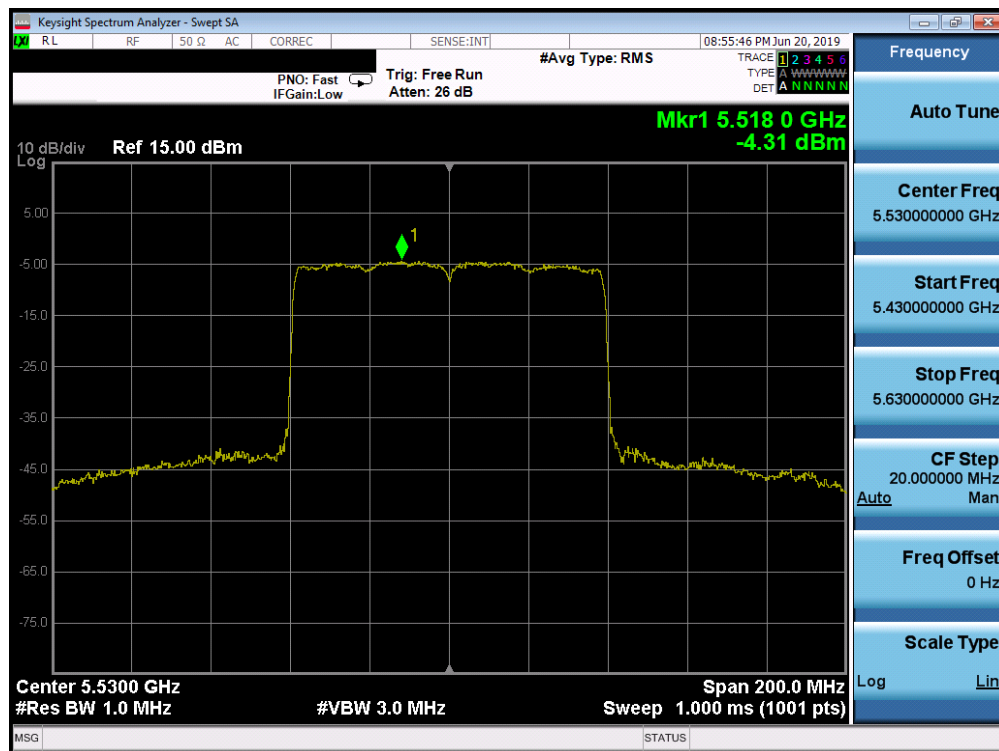


Plot 7-260. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 118)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 190 of 302

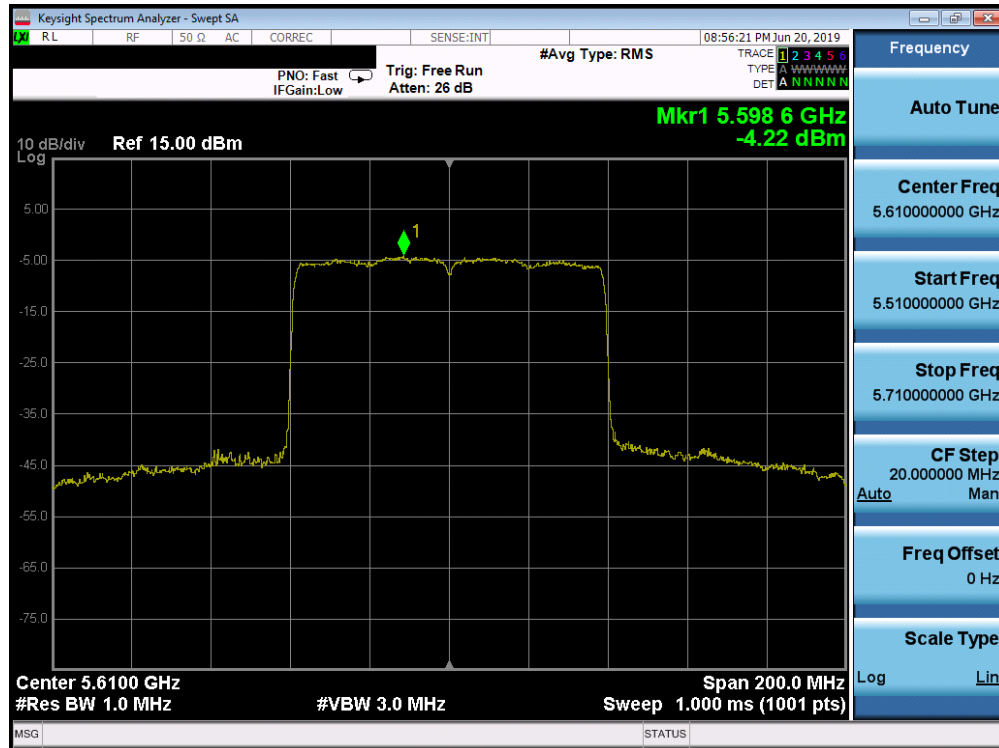


Plot 7-261. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 142)



Plot 7-262. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 106)

FCC ID: A3LSMN976V	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 191 of 302

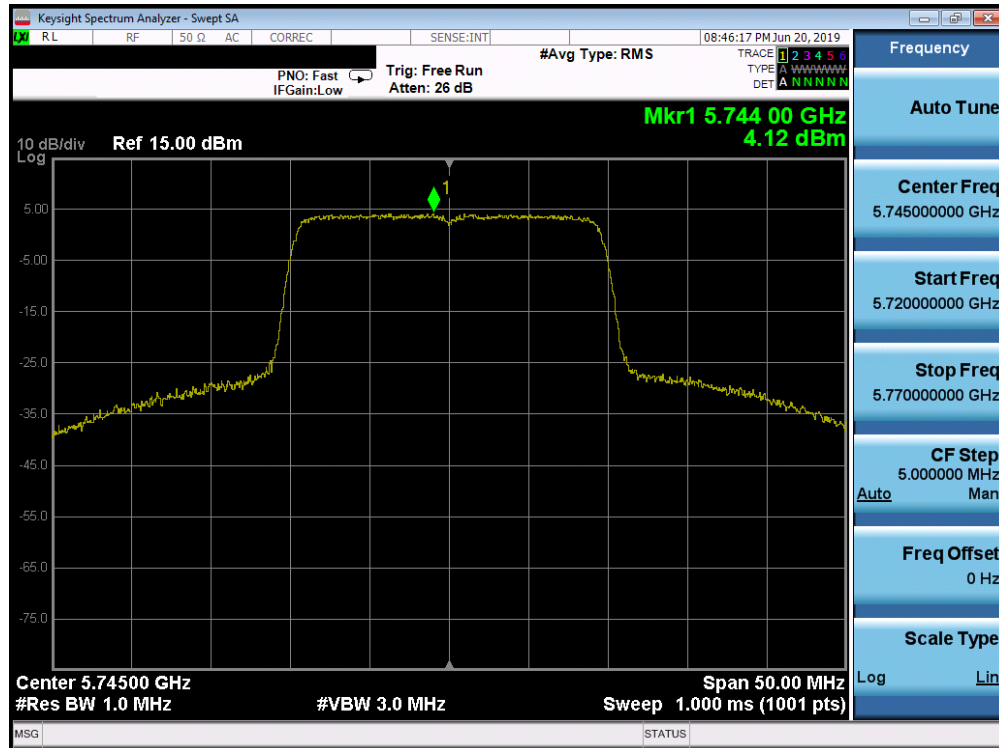


Plot 7-263. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 122)

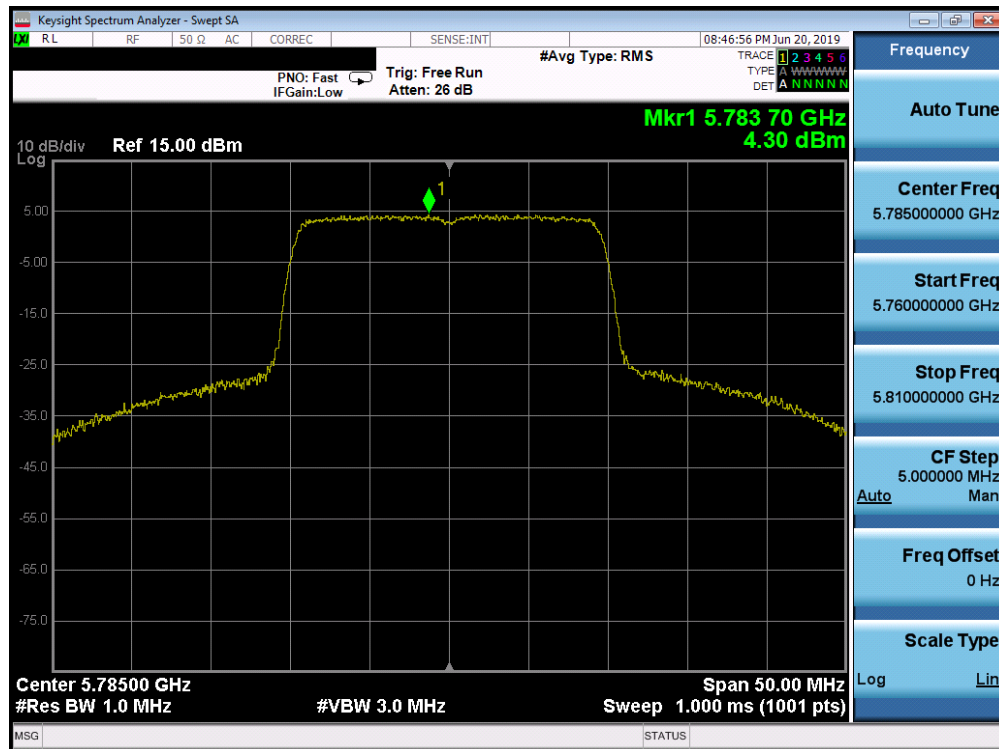


Plot 7-264. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMN976V	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 192 of 302

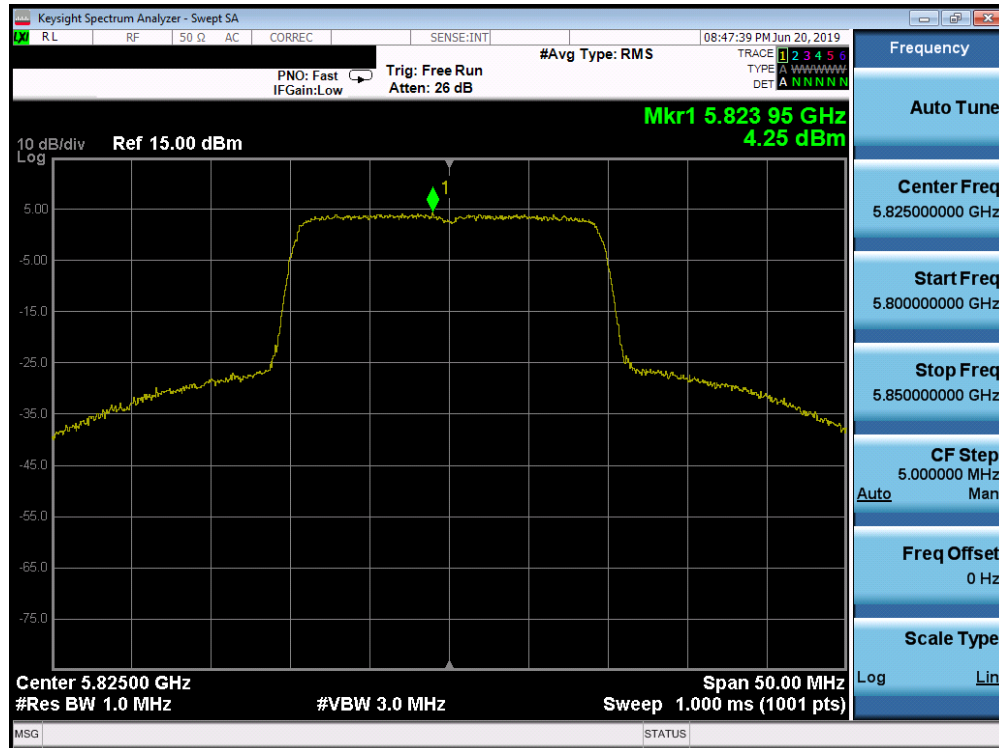


Plot 7-265. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 149)

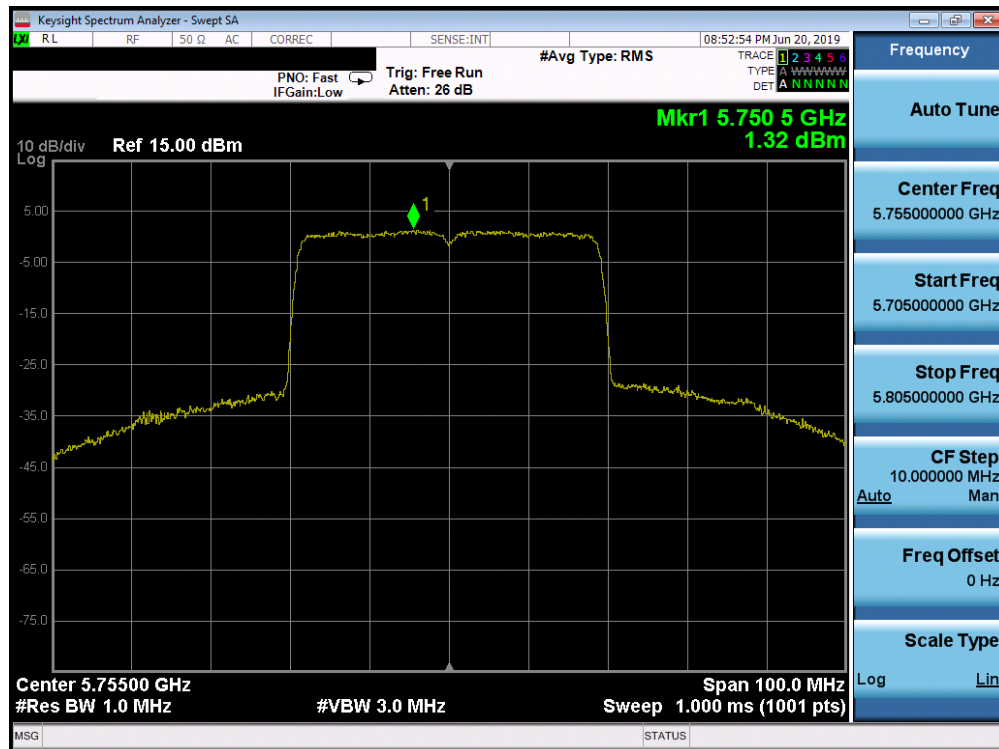


Plot 7-266. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 157)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 193 of 302

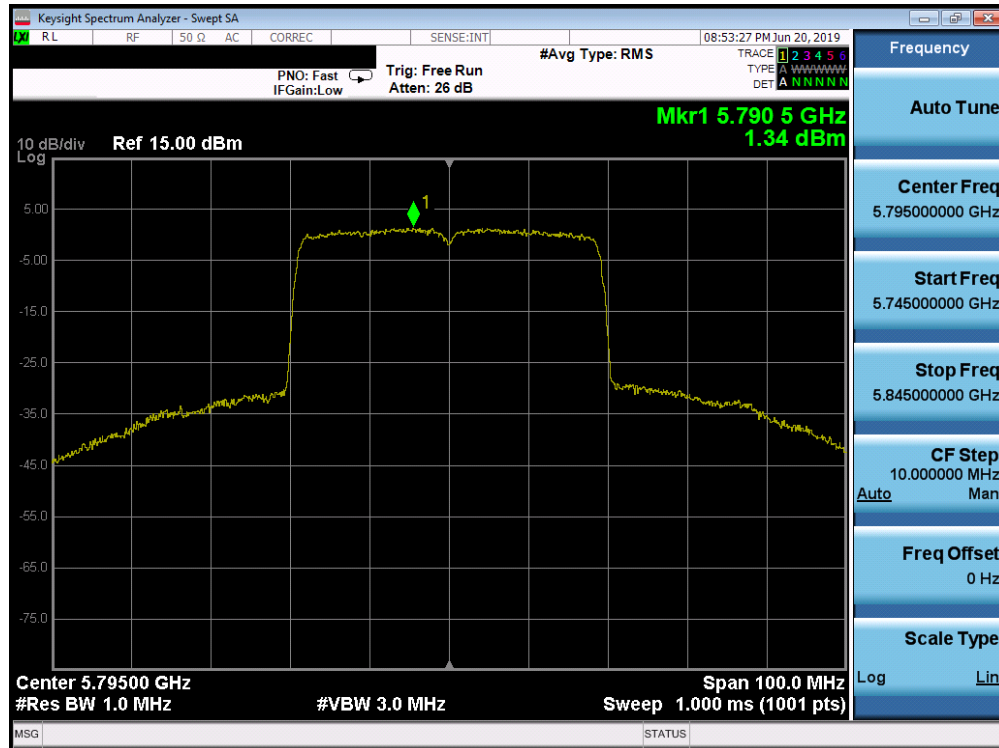


Plot 7-267. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 165)

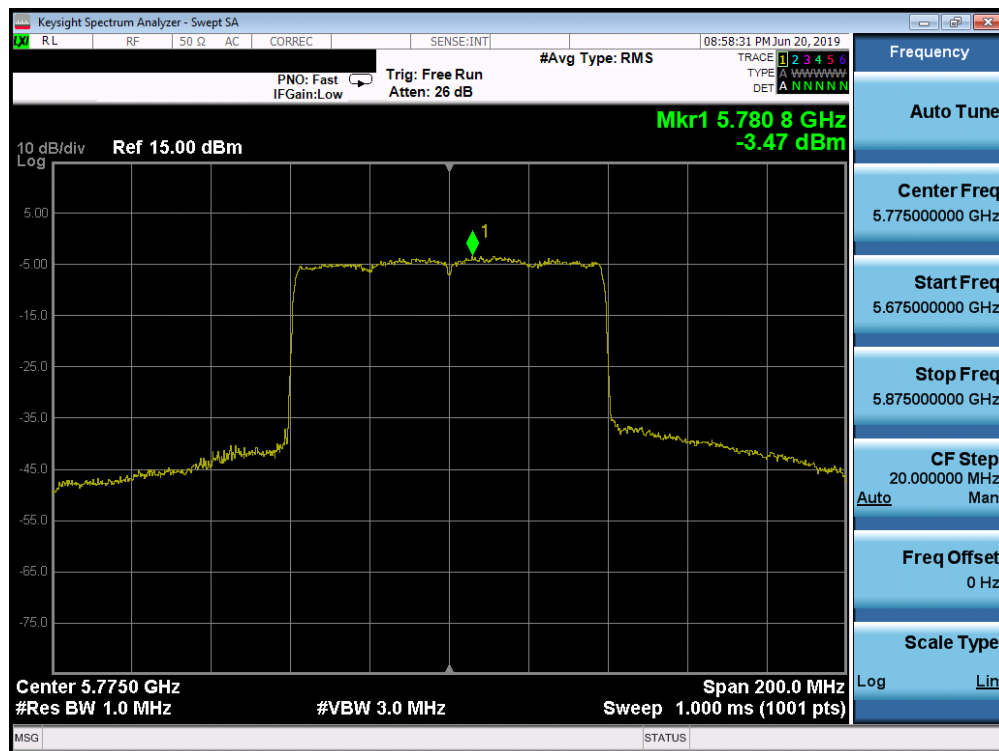


Plot 7-268. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 151)

FCC ID: A3LSMN976V	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 194 of 302



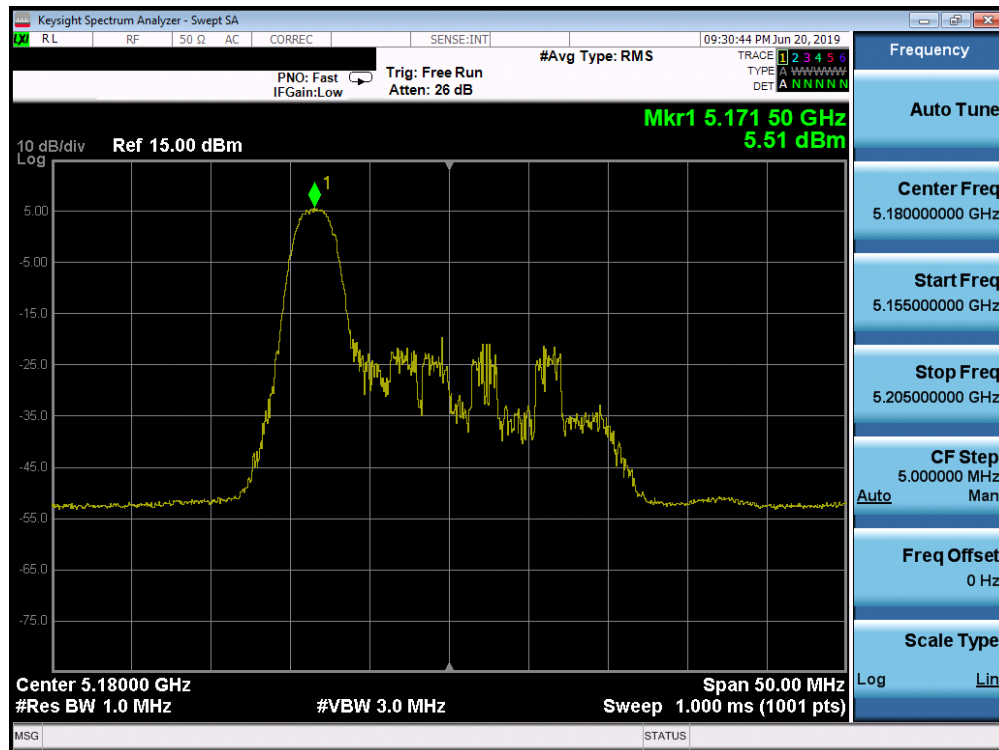
Plot 7-269. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 159)



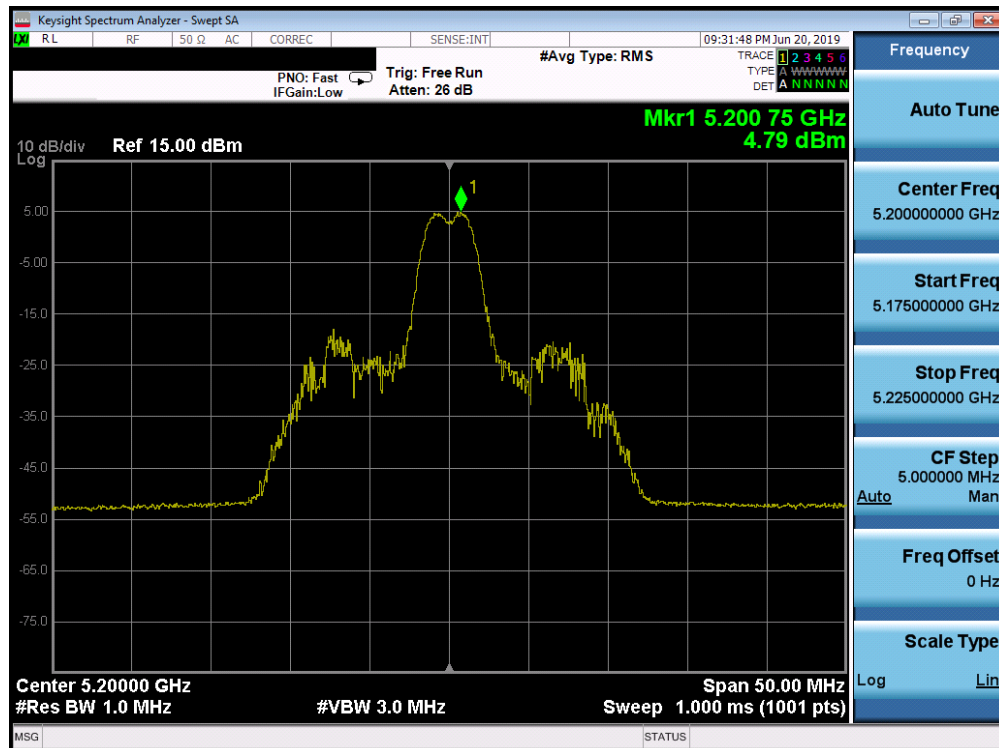
Plot 7-270. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 195 of 302

MIMO Antenna-2 Power Spectral Density Measurements (26 Tones)

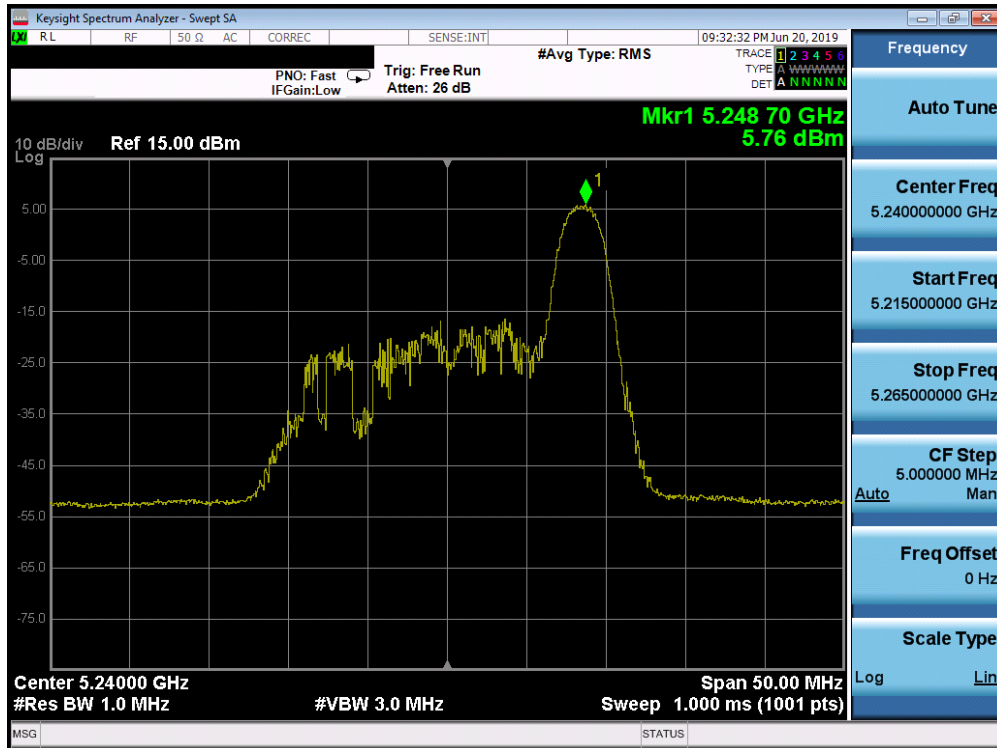


Plot 7-271. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)

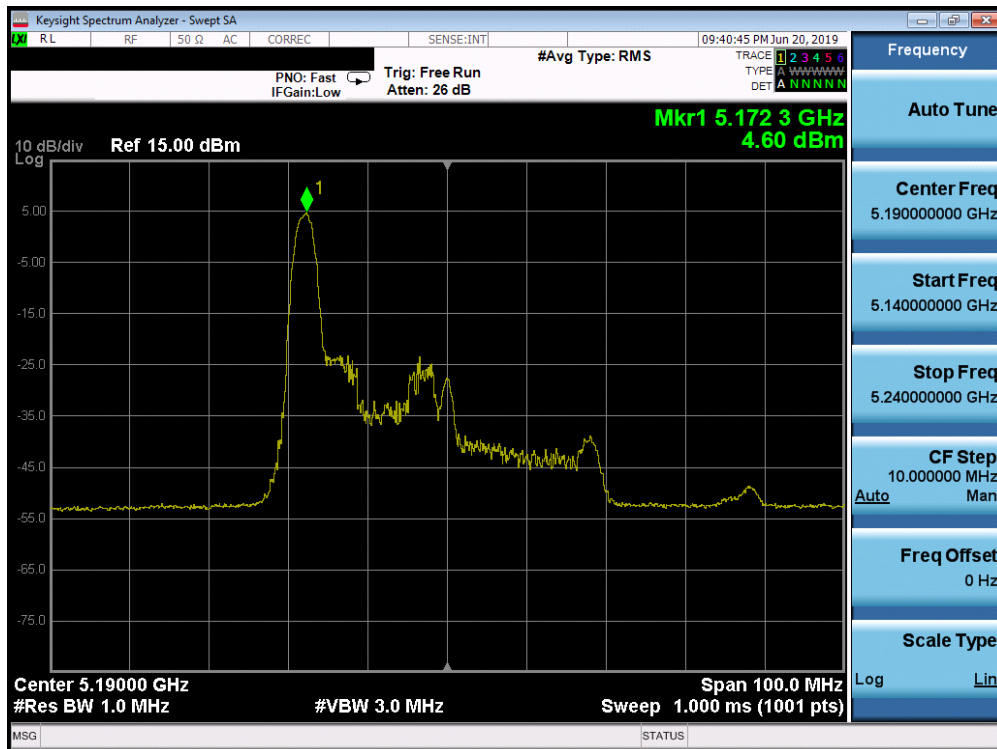


Plot 7-272. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 196 of 302

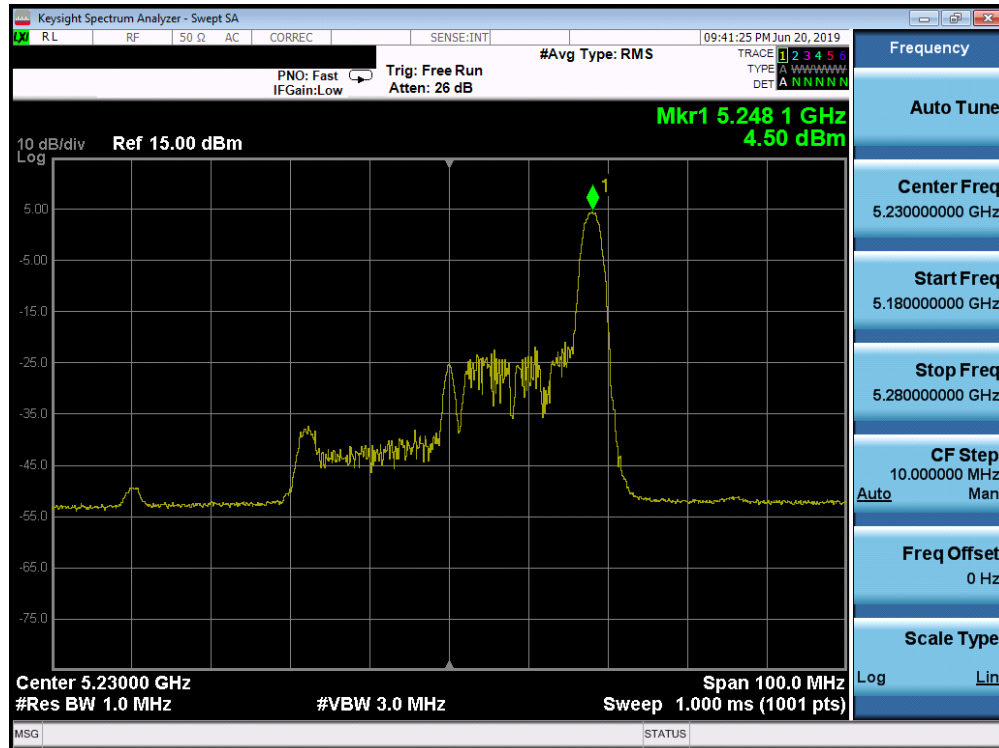


Plot 7-273. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)

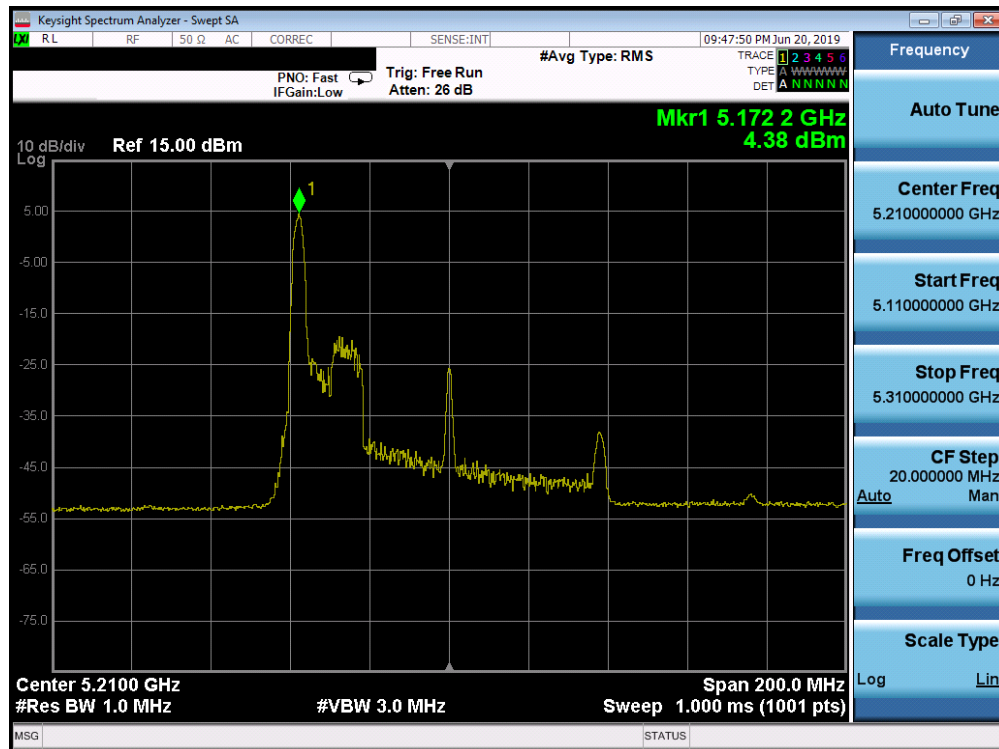


Plot 7-274. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSMN976V	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 197 of 302

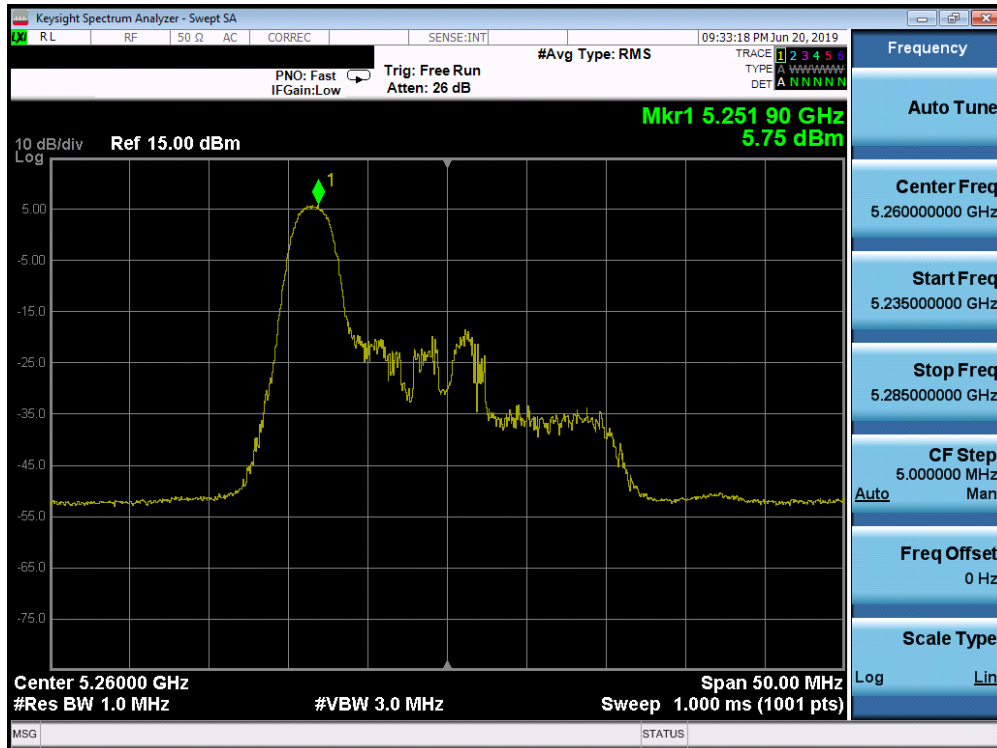


Plot 7-275. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)

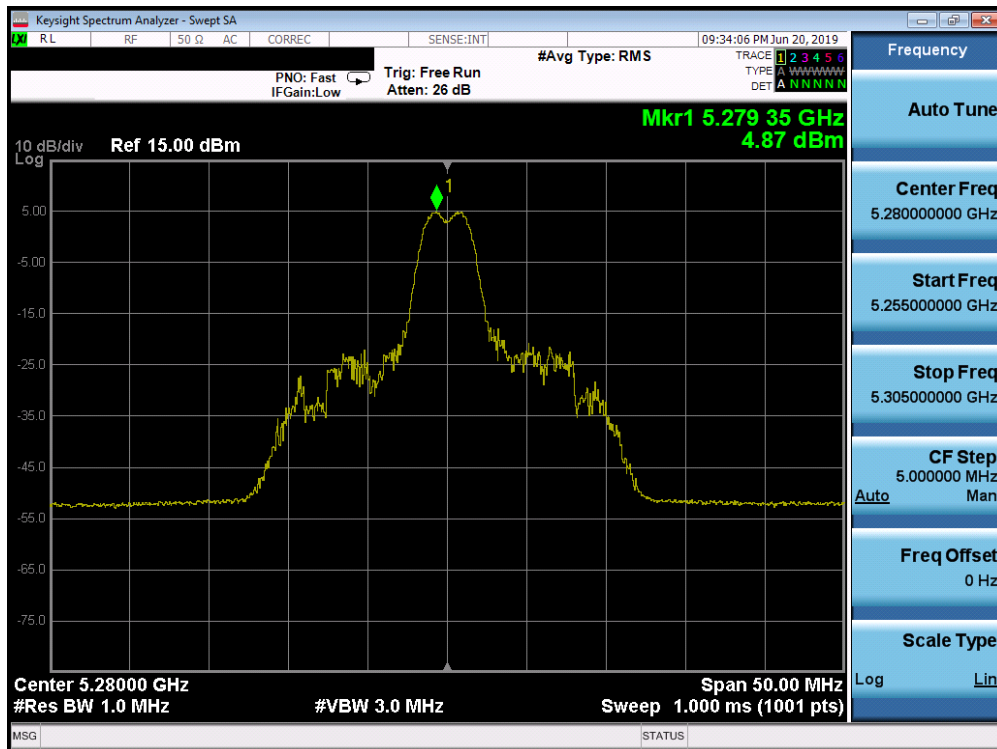


Plot 7-276. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSMN976V	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 198 of 302

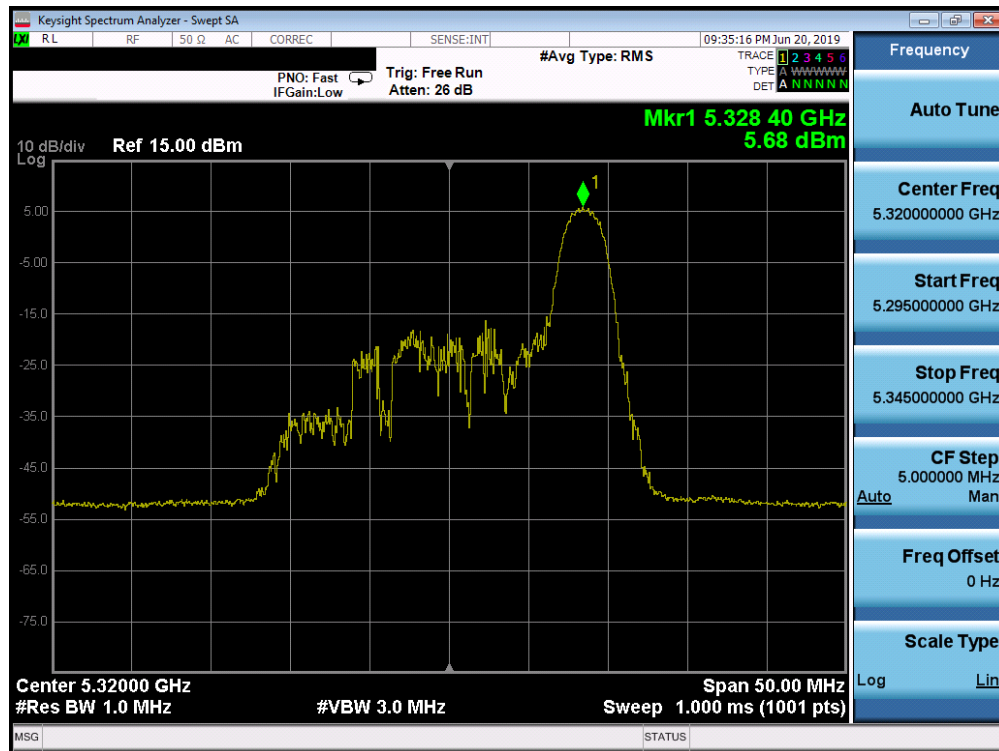


Plot 7-277. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 52)

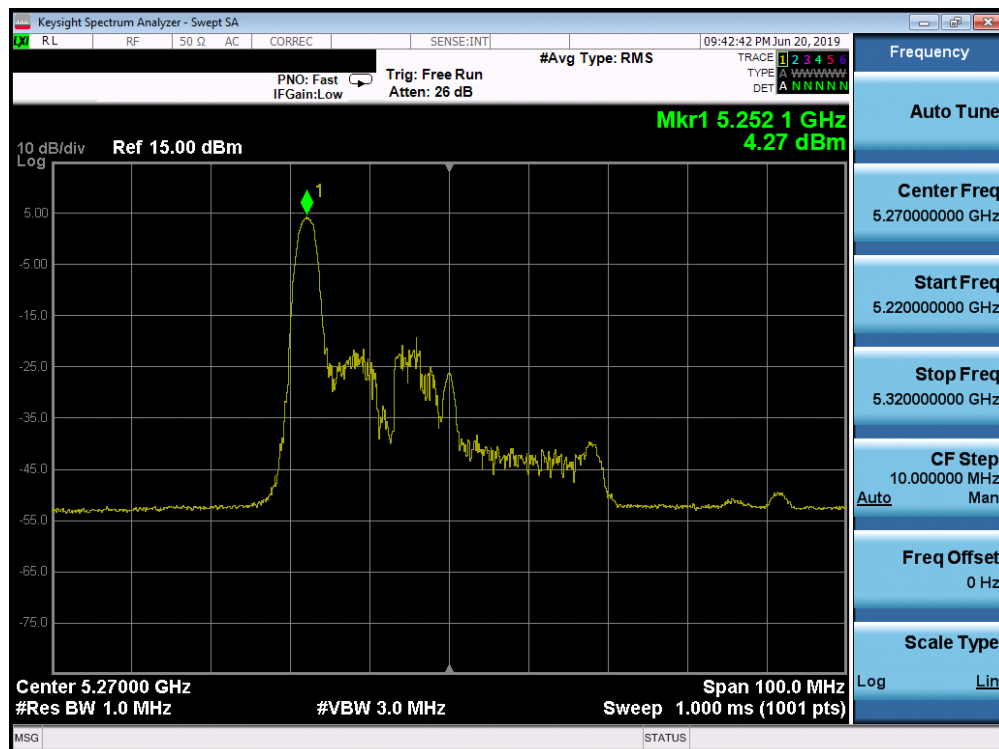


Plot 7-278. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMN976V	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 199 of 302

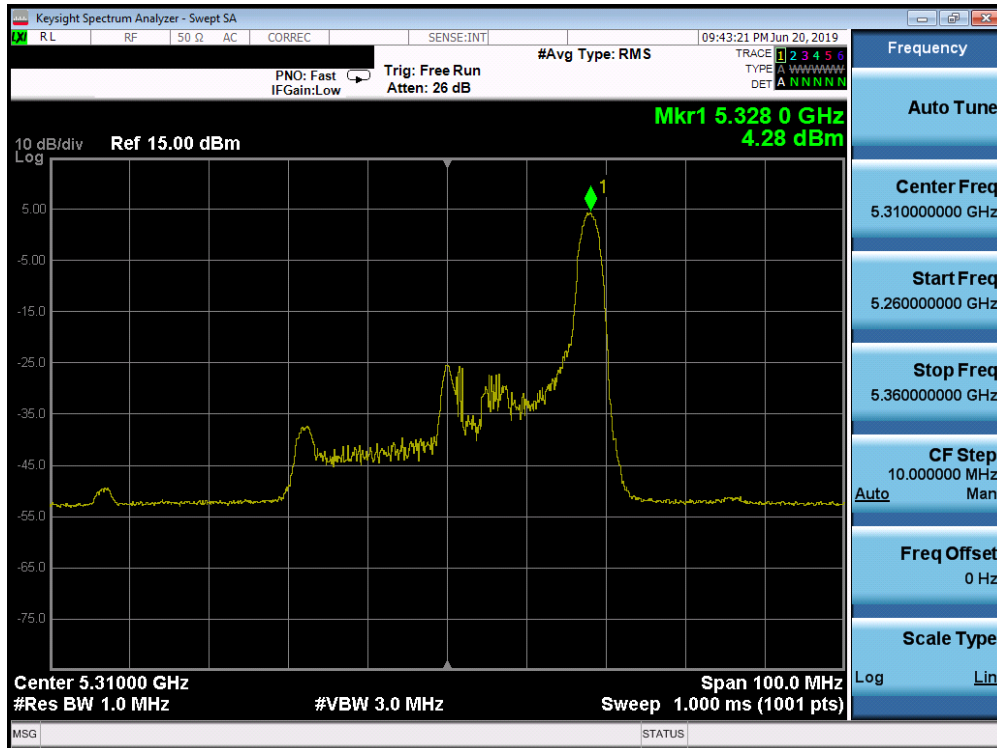


Plot 7-279. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)

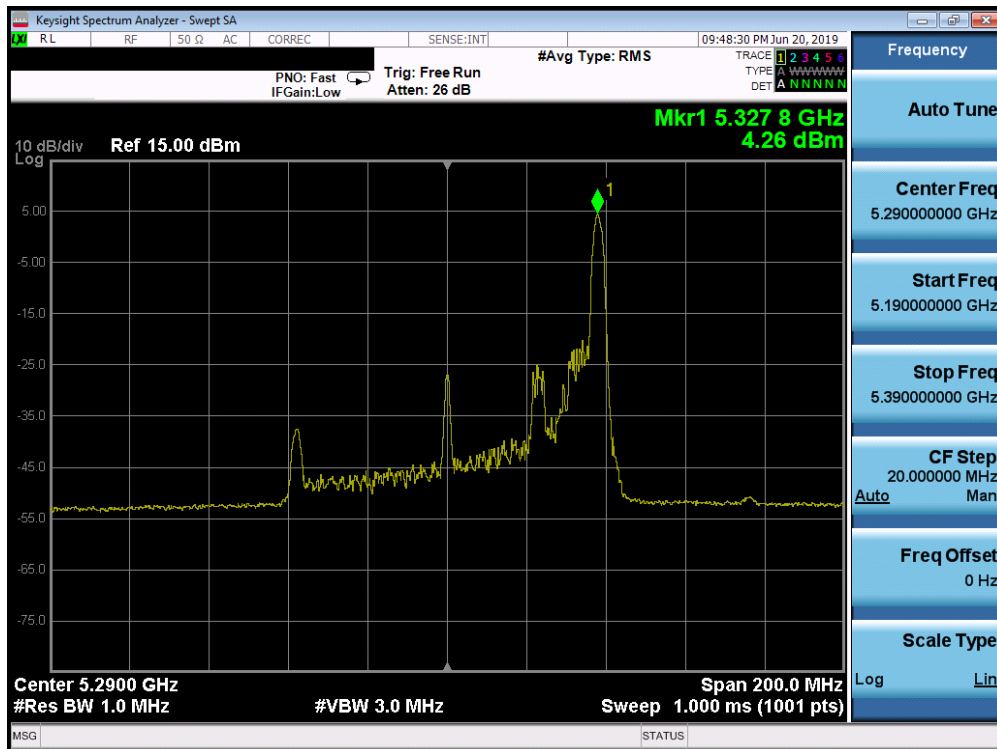


Plot 7-280. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 200 of 302

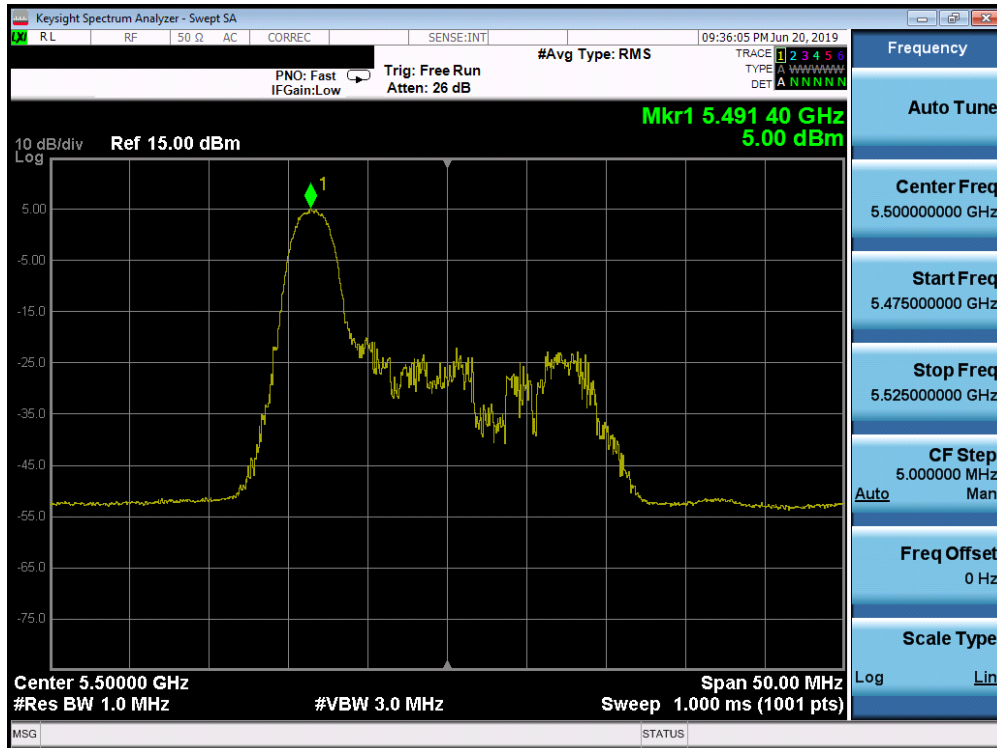


Plot 7-281. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 62)

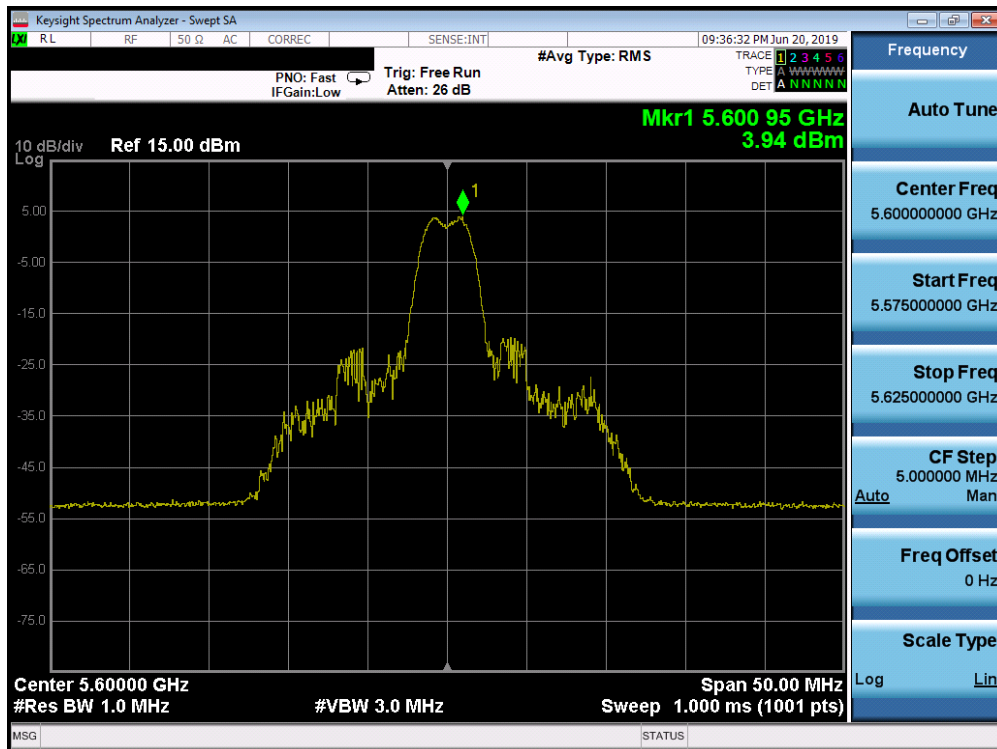


Plot 7-282. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMN976V	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 201 of 302

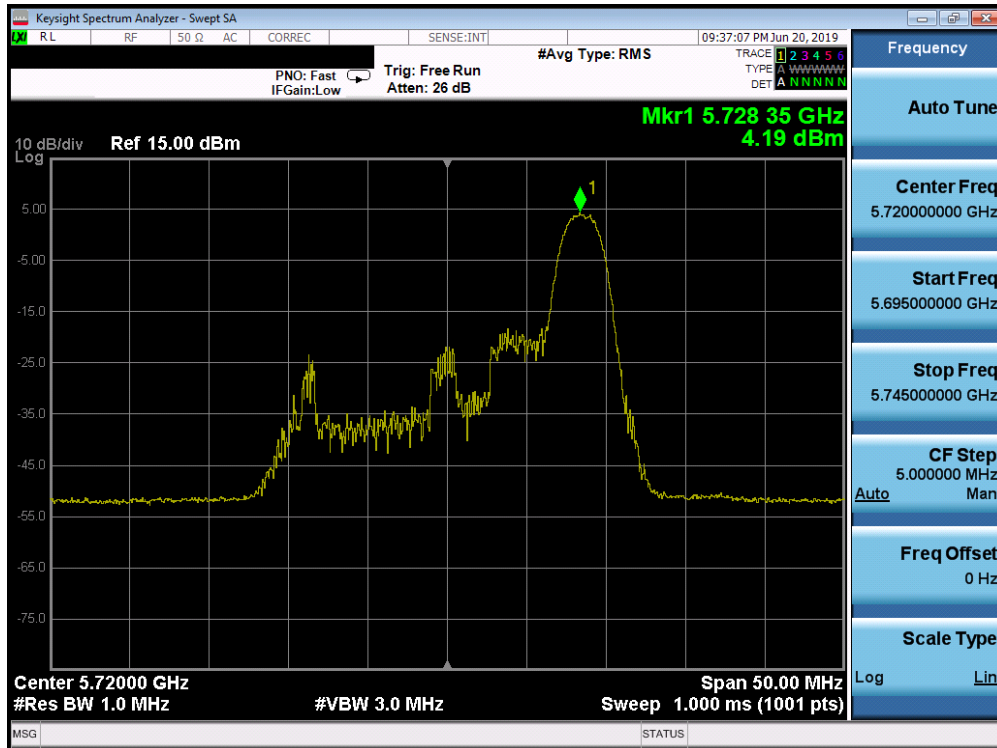


Plot 7-283. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 100)

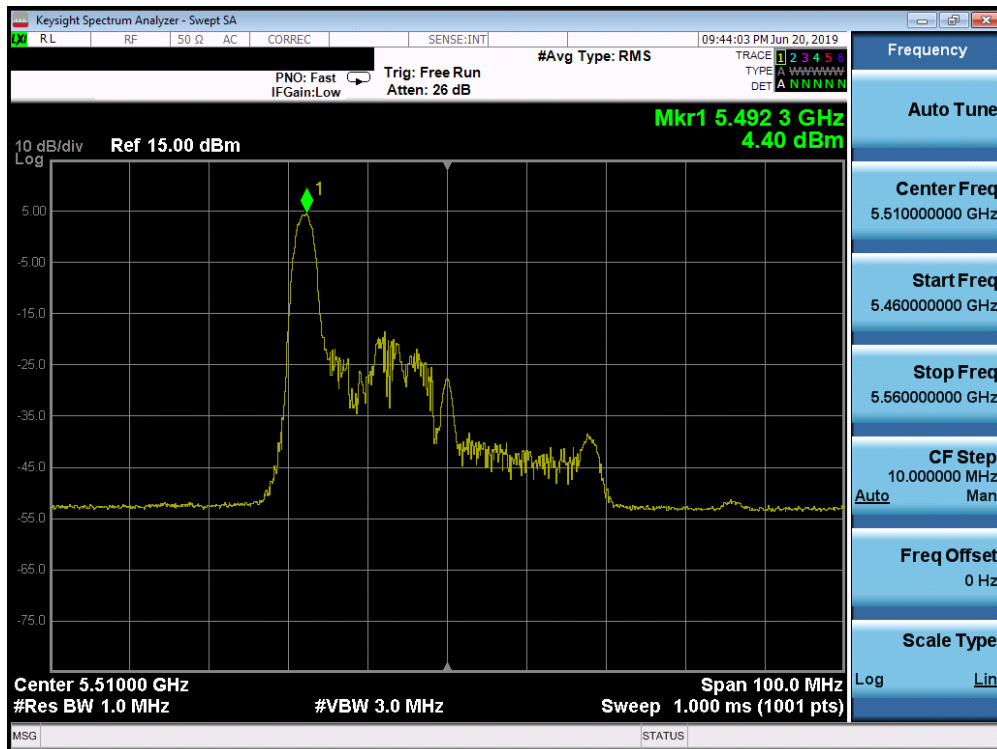


Plot 7-284. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 202 of 302

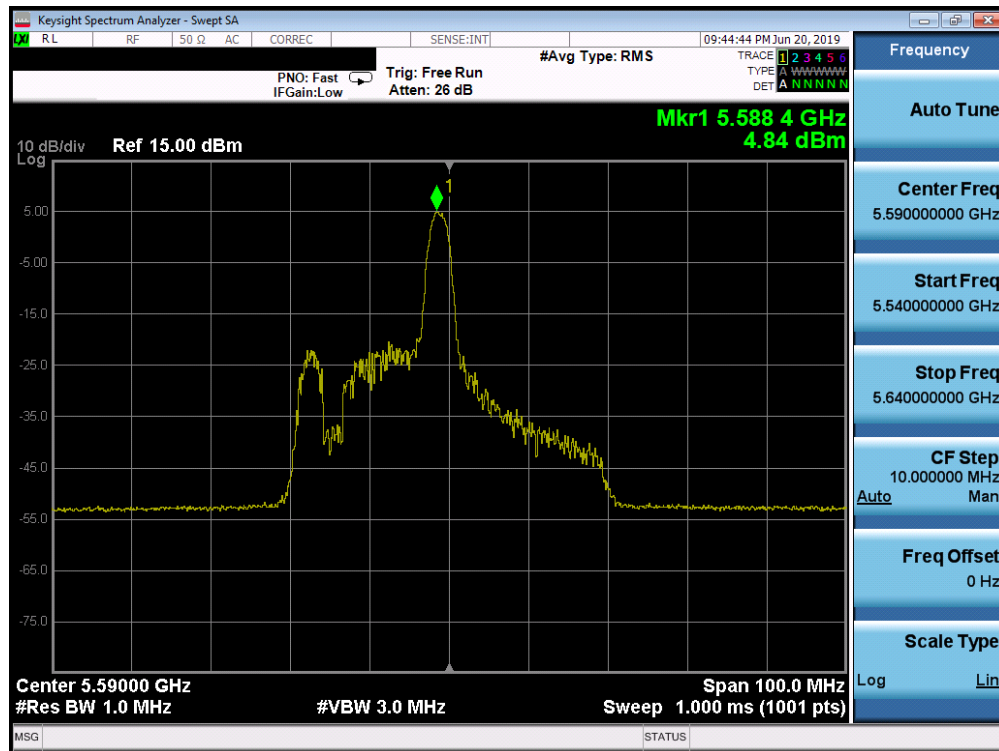


Plot 7-285. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 144)

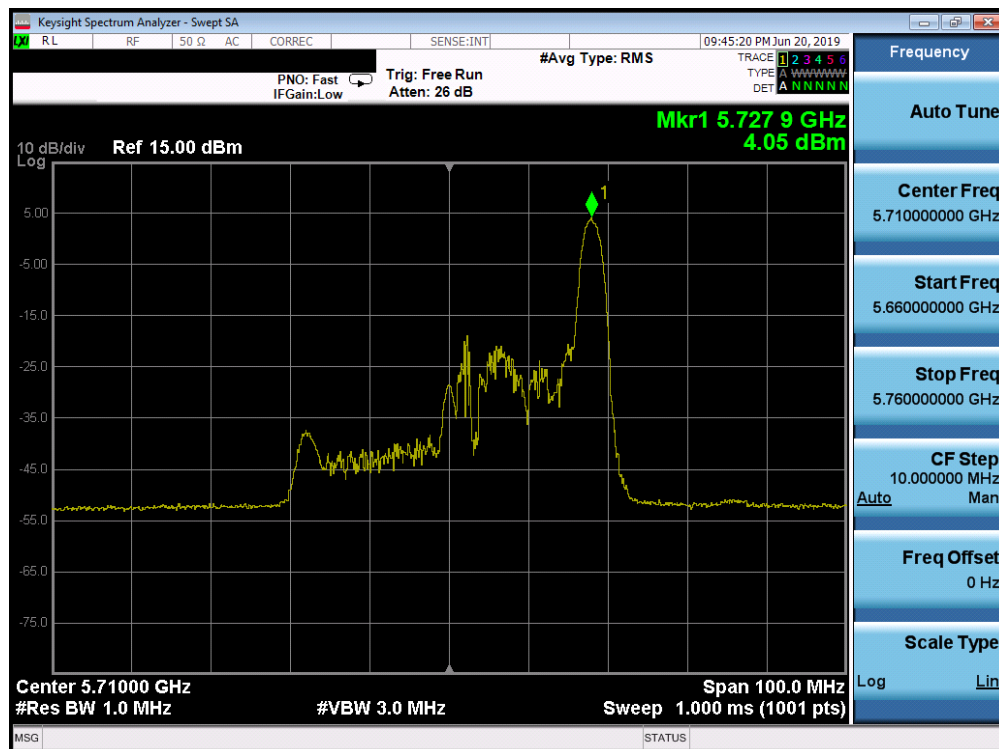


Plot 7-286. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMN976V	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 203 of 302

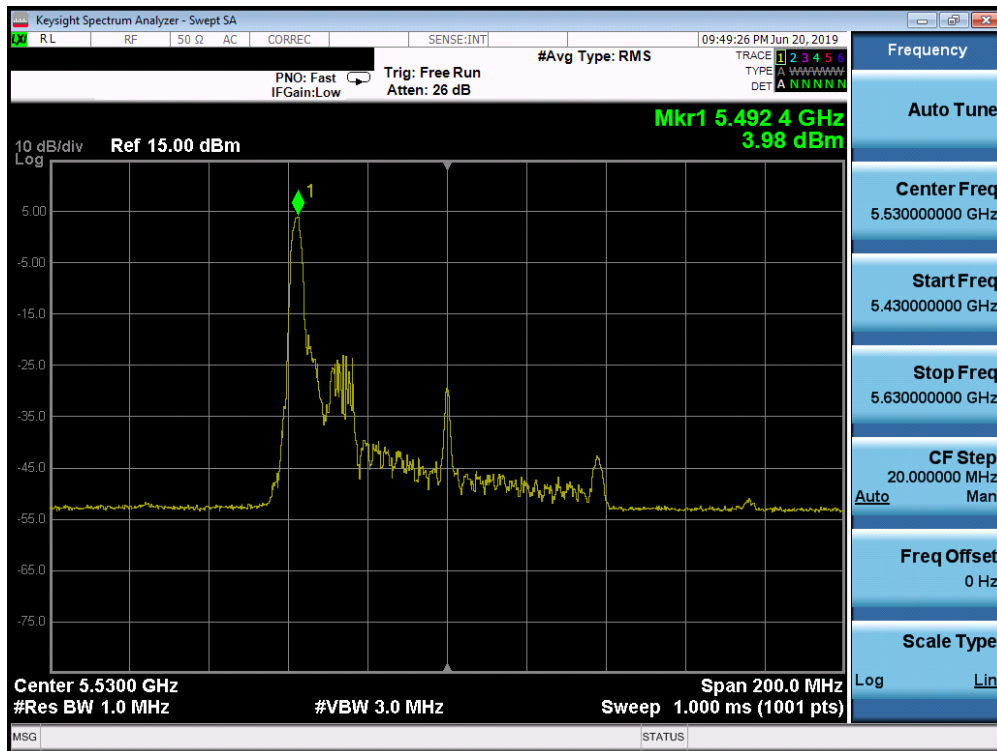


Plot 7-287. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 118)

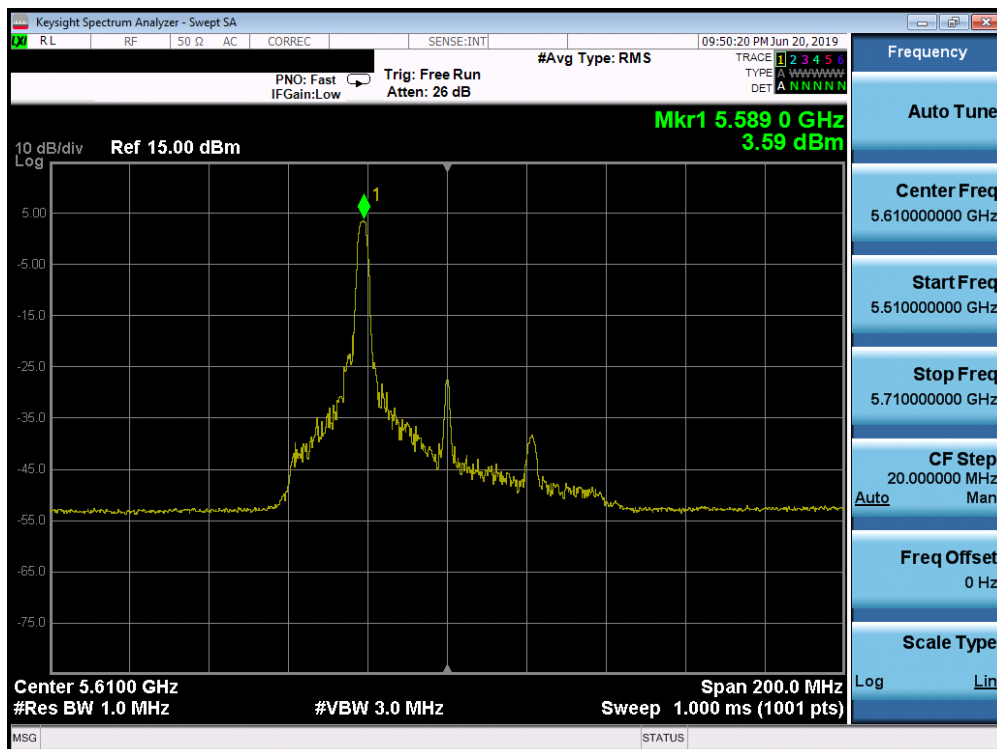


Plot 7-288. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 204 of 302

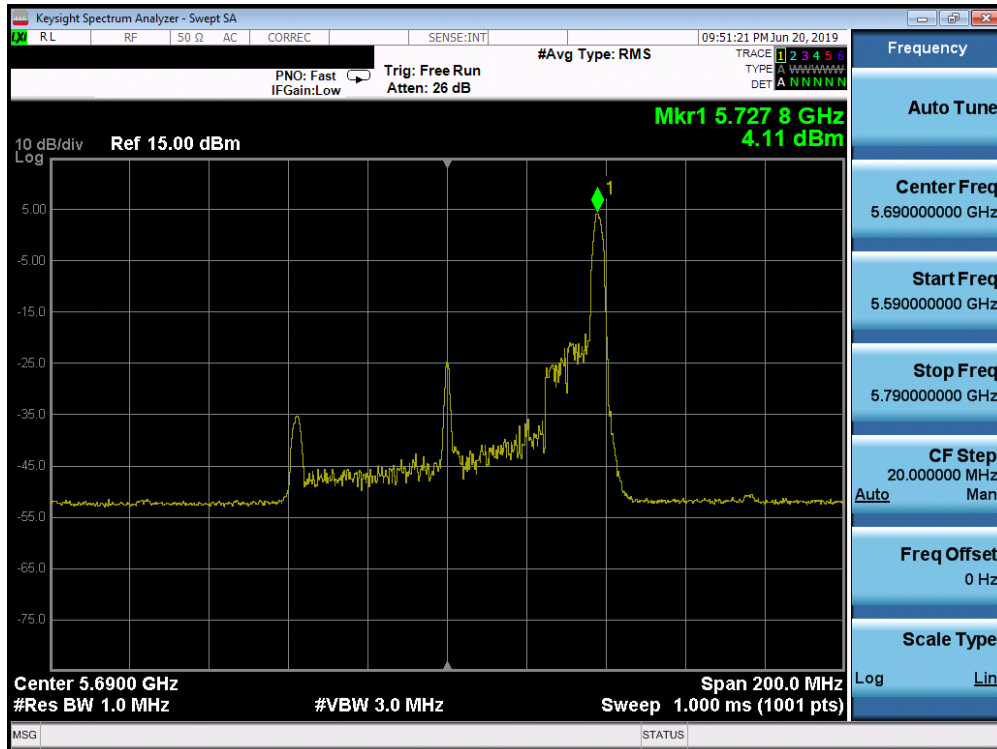


Plot 7-289. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 106)

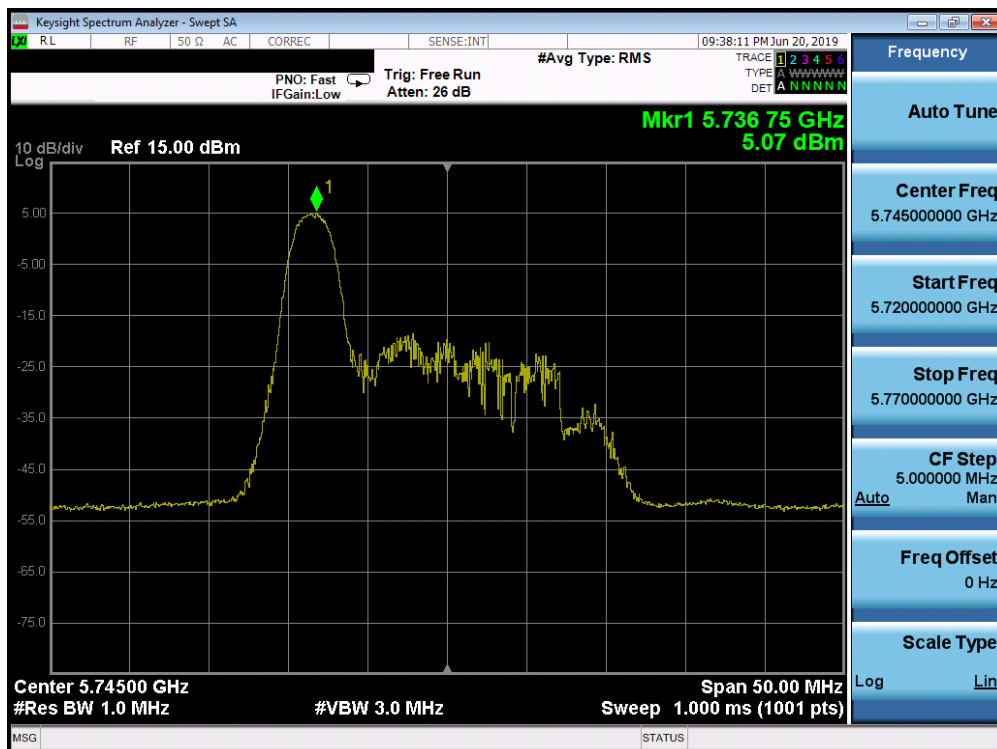


Plot 7-290. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 122)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 205 of 302

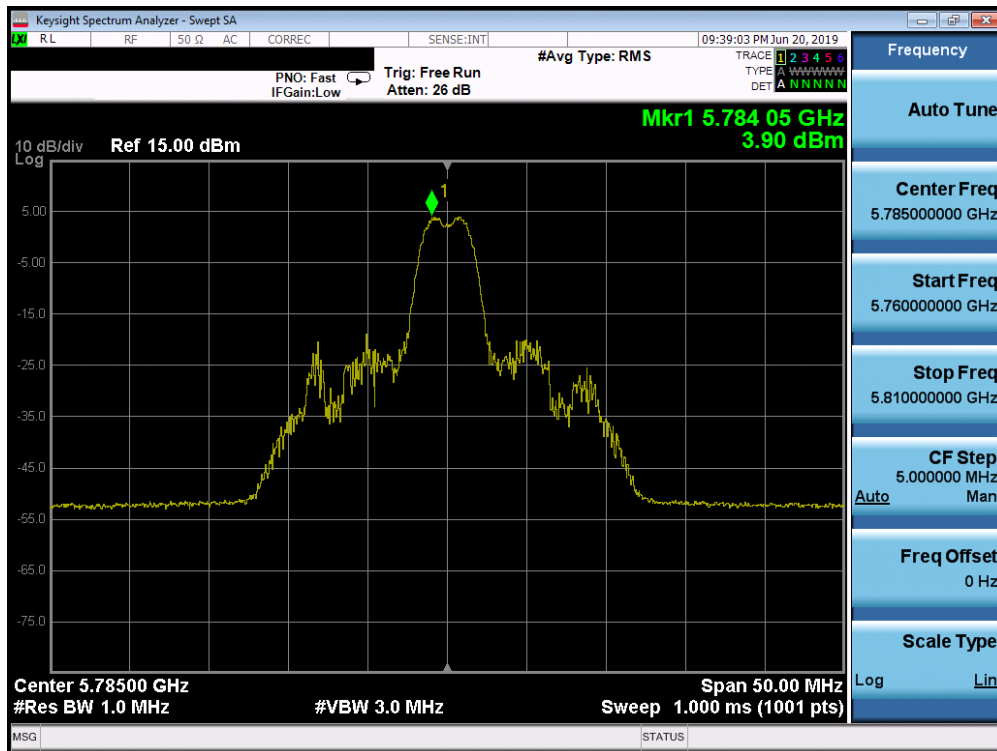


Plot 7-291. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 138)

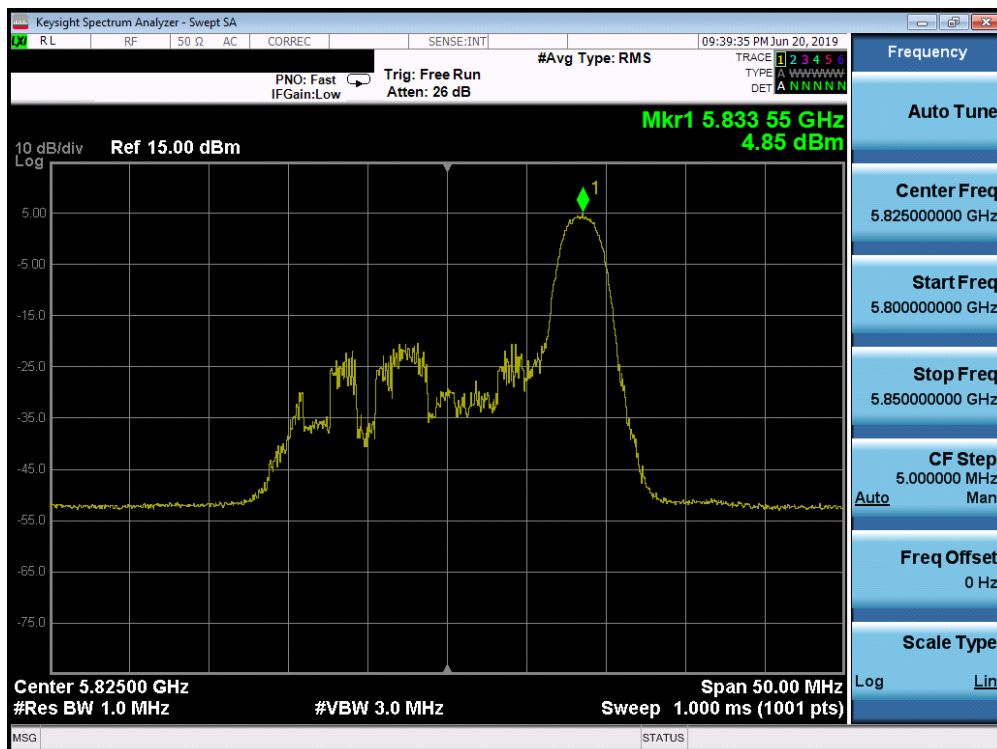


Plot 7-292. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 206 of 302

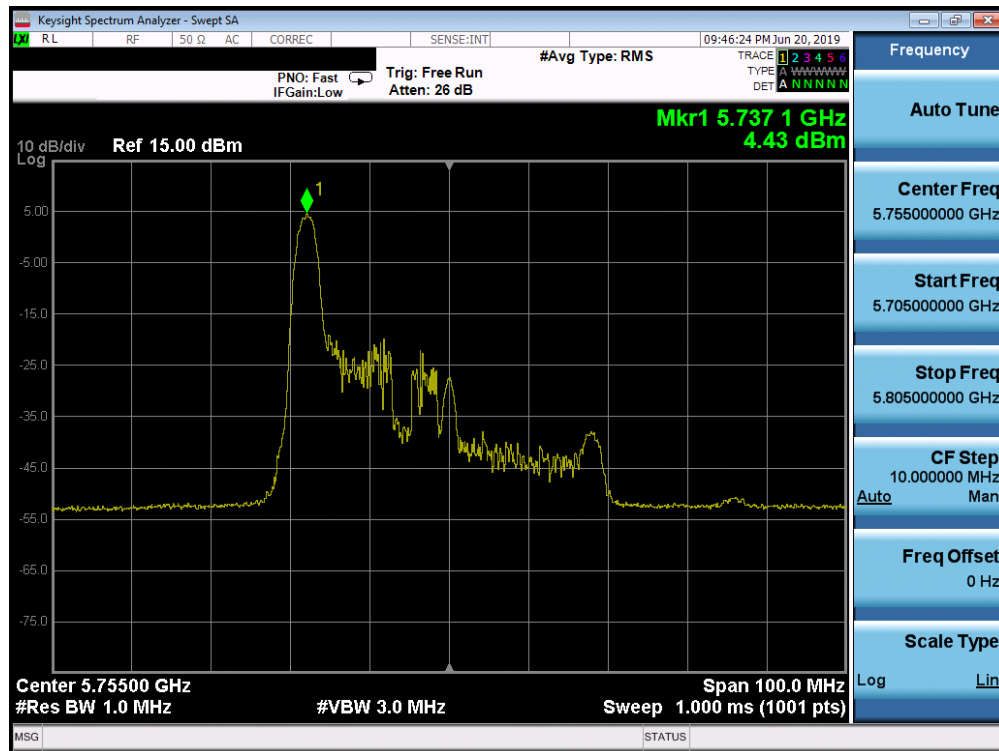


Plot 7-293. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 157)

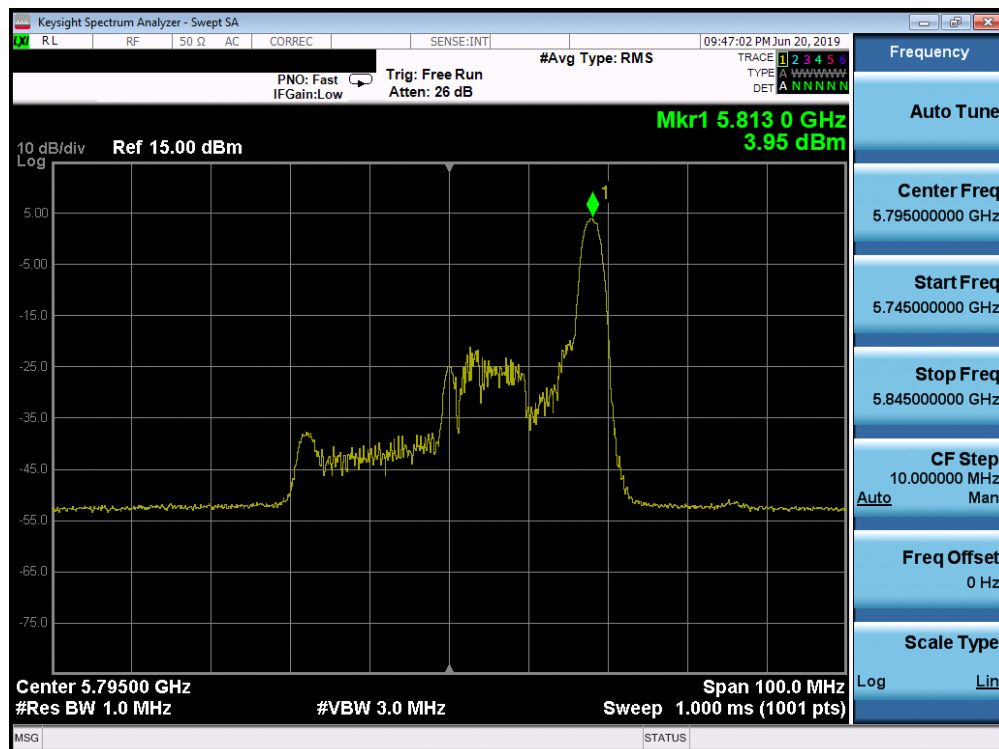


Plot 7-294. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 165)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 207 of 302

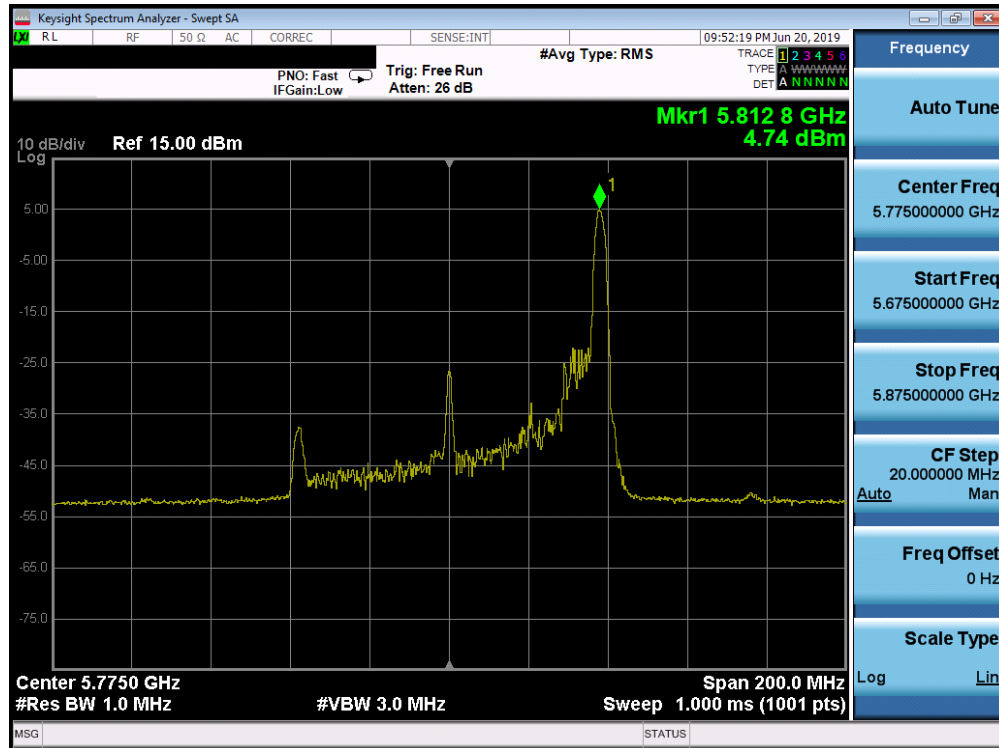


Plot 7-295. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)

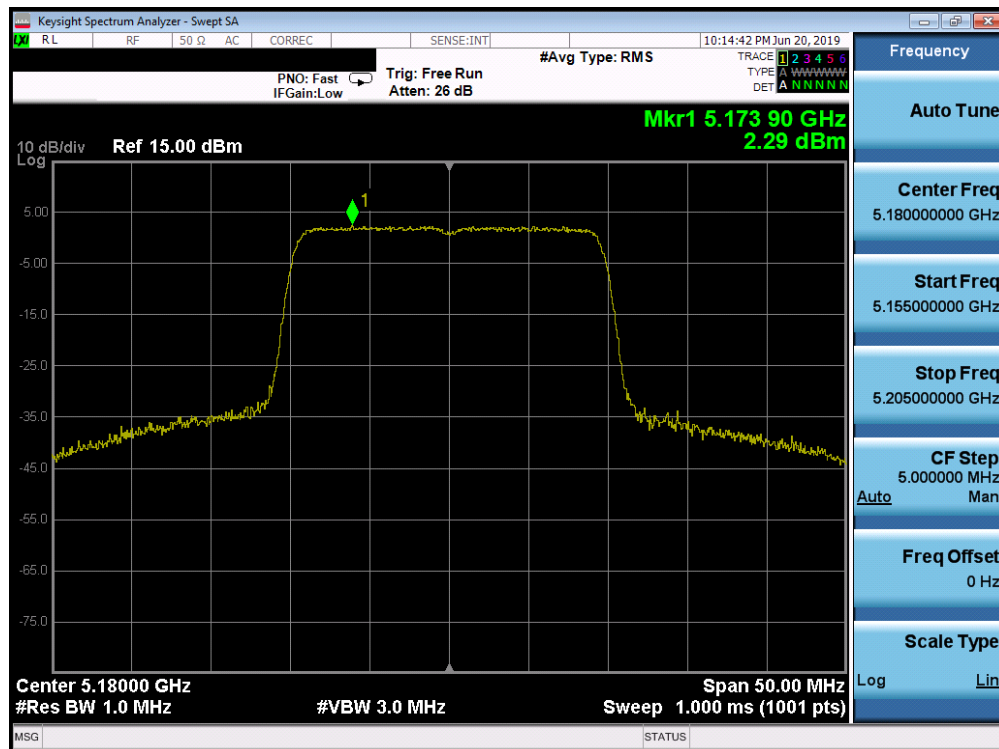


Plot 7-296. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 159)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 208 of 302

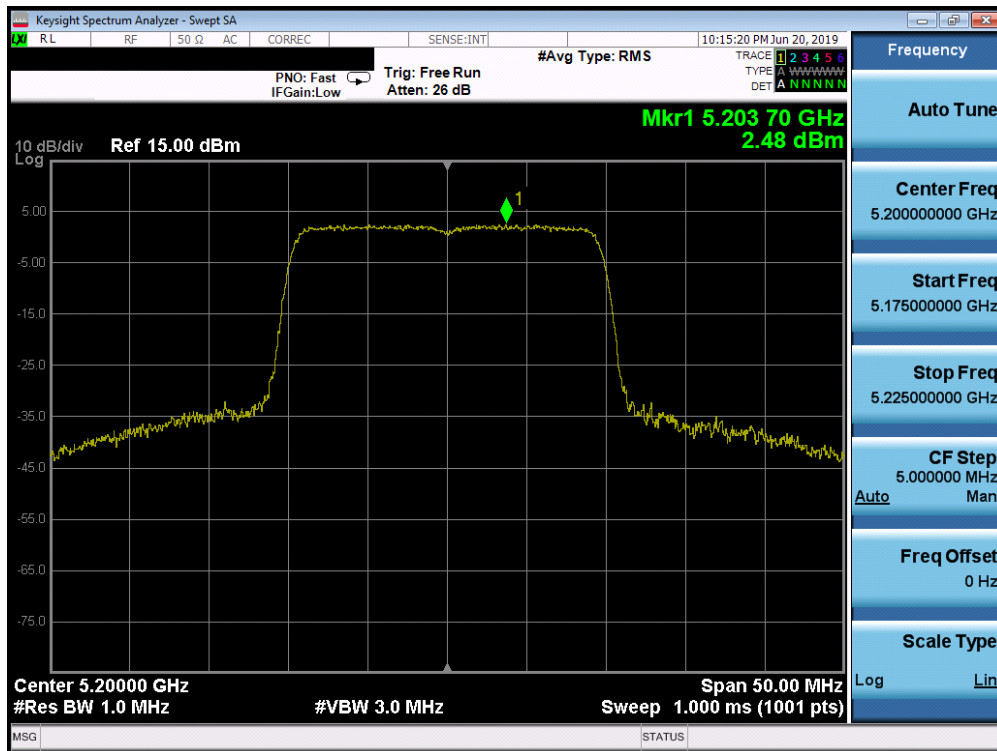


Plot 7-297. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 155)

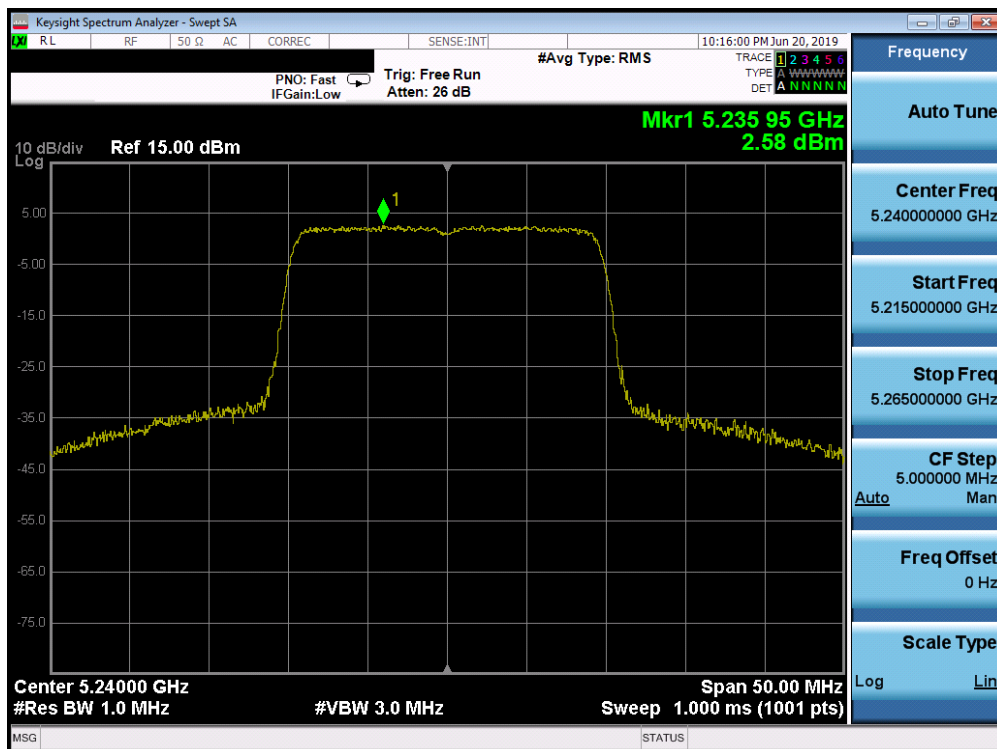


Plot 7-298. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 36)

FCC ID: A3LSMN976V	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 209 of 302

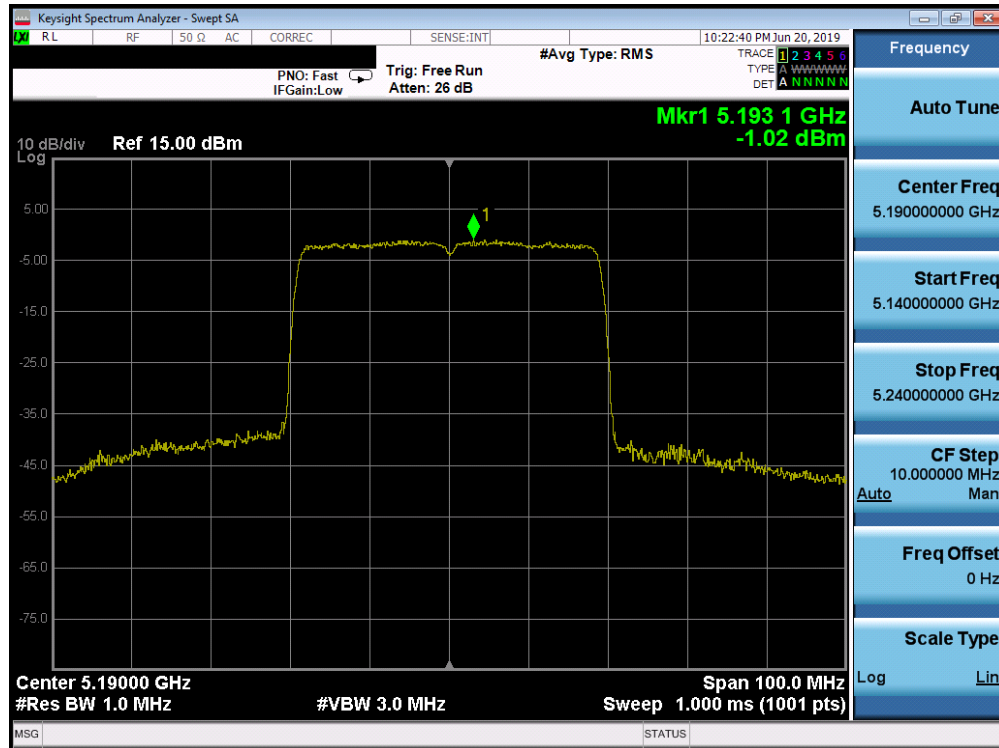


Plot 7-299. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 40)

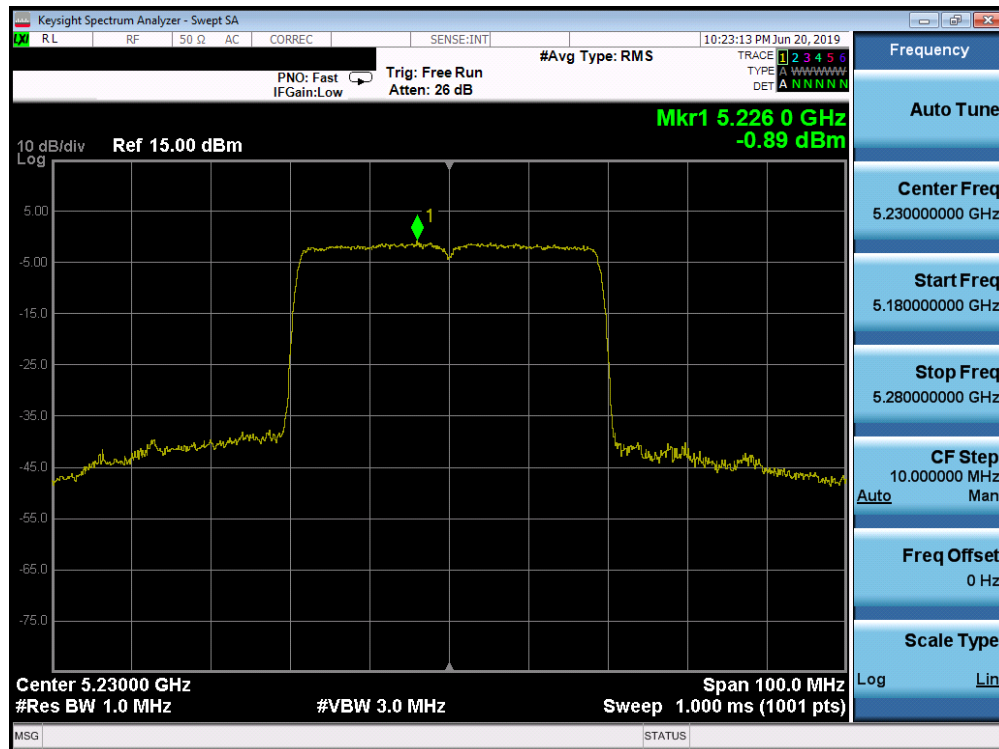


Plot 7-300. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 48)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 210 of 302

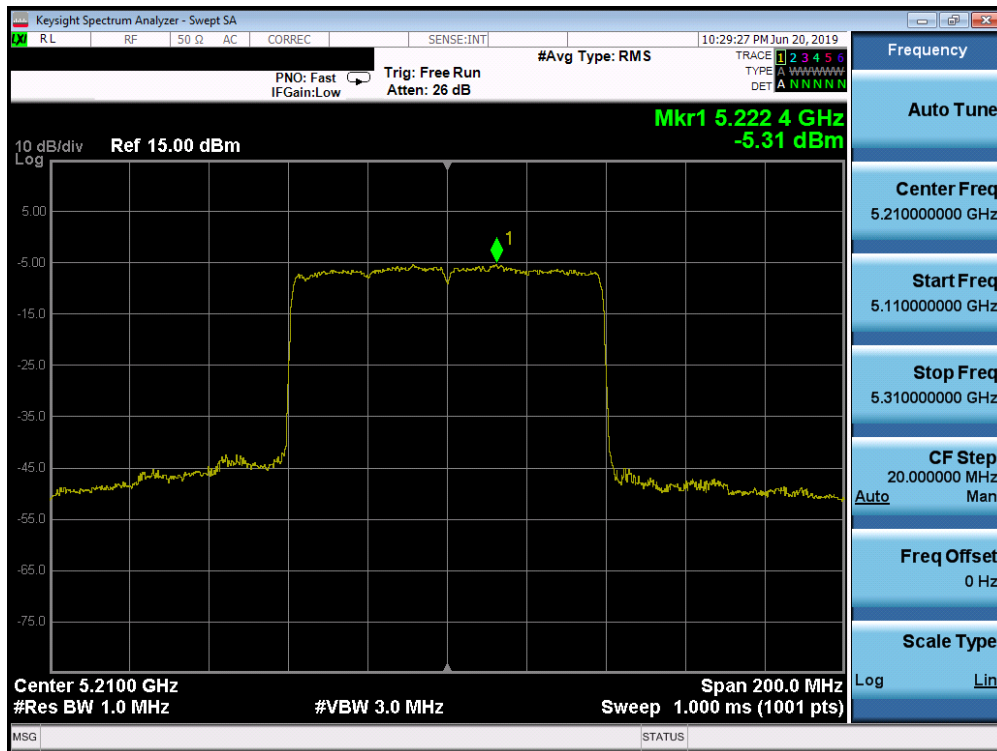


Plot 7-301. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 38)

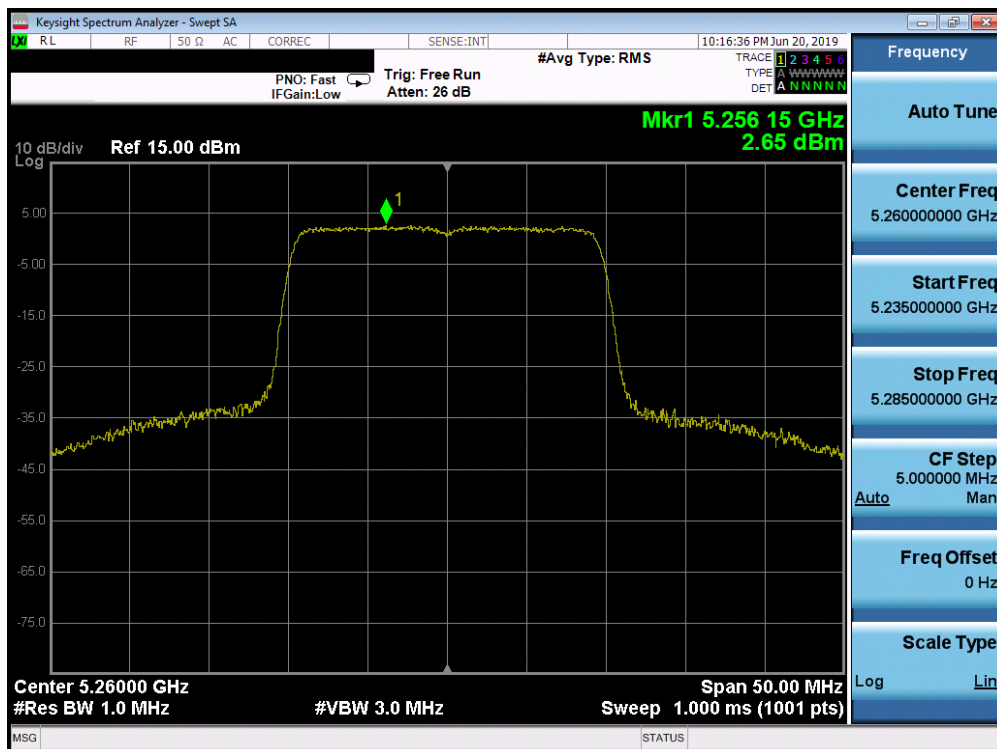


Plot 7-302. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 46)

FCC ID: A3LSMN976V	 MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 211 of 302

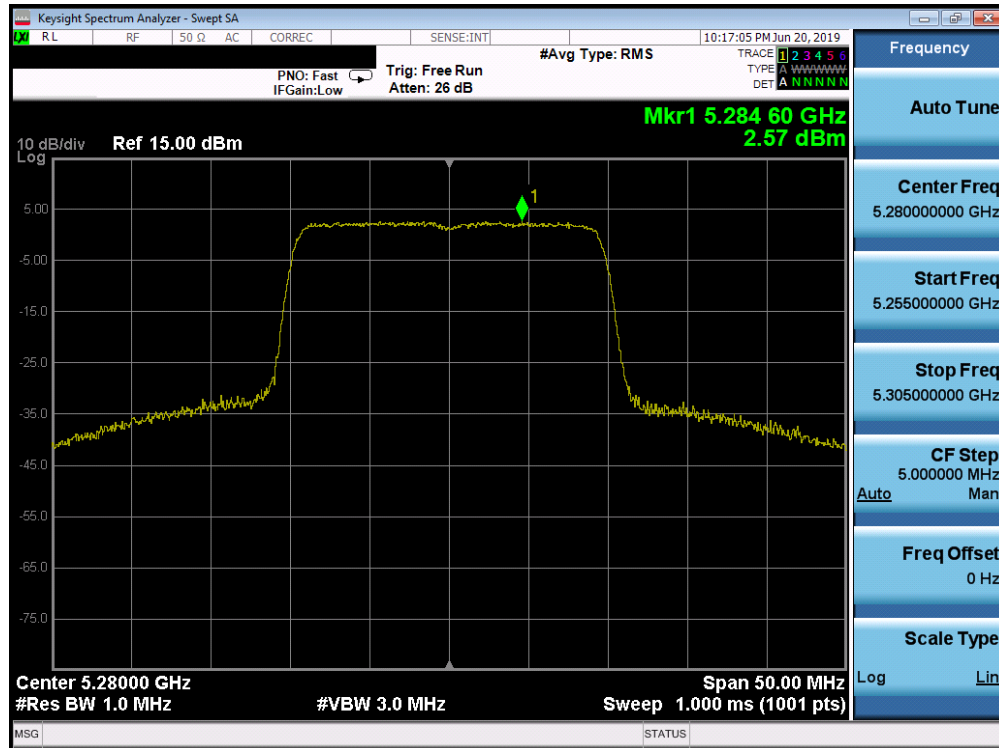


Plot 7-303. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 42)

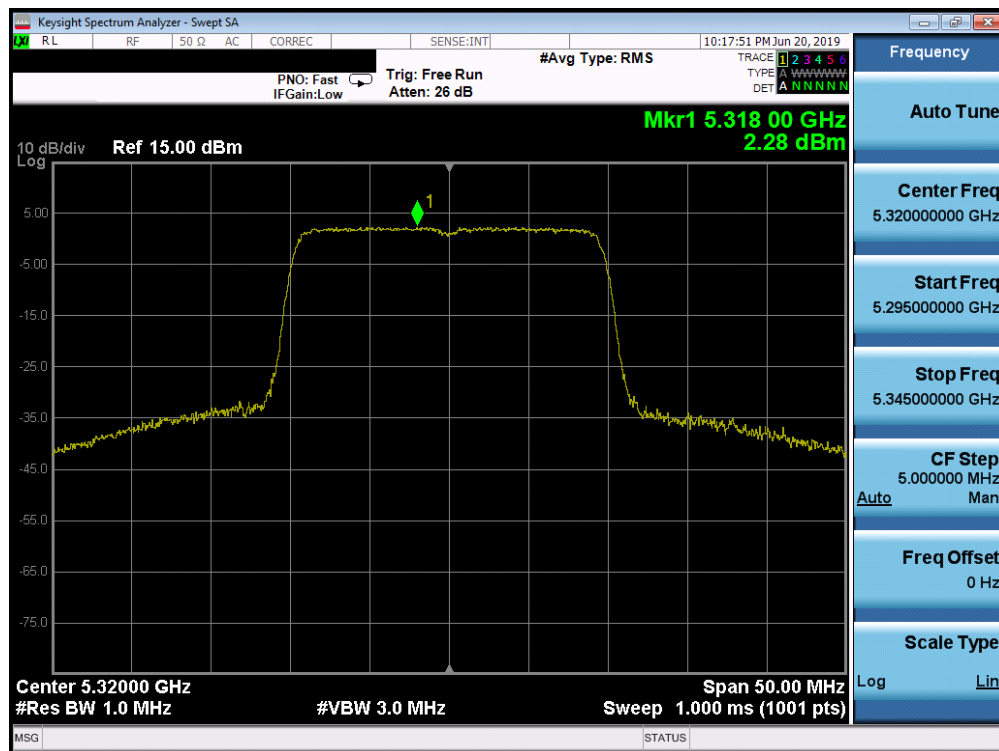


Plot 7-304. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 52)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 212 of 302

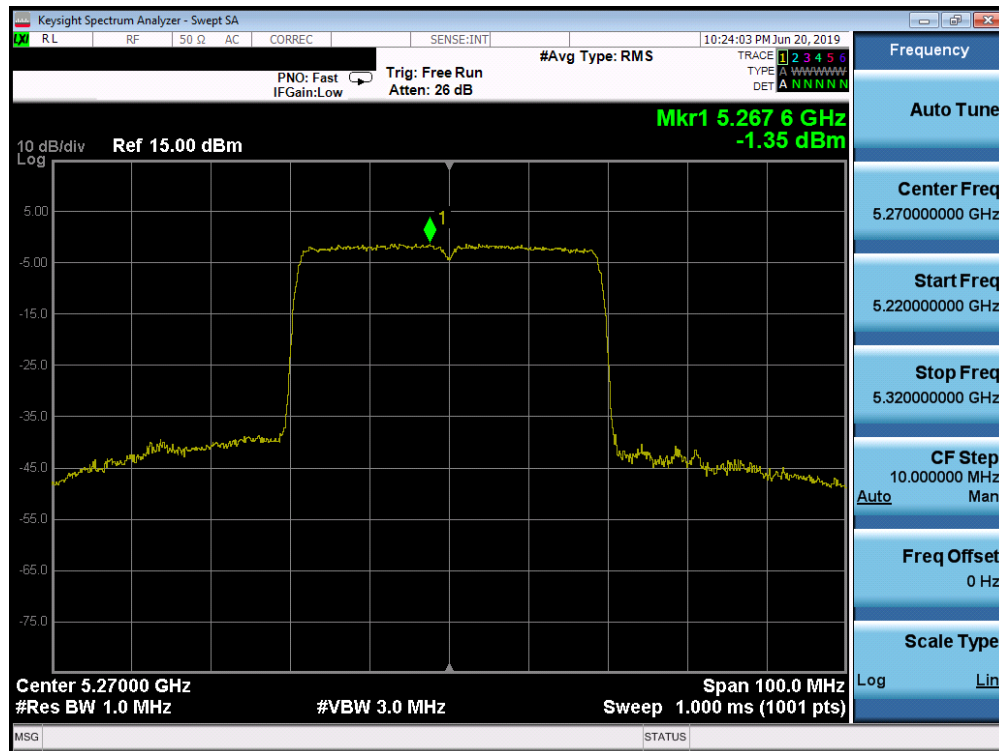


Plot 7-305. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 56)

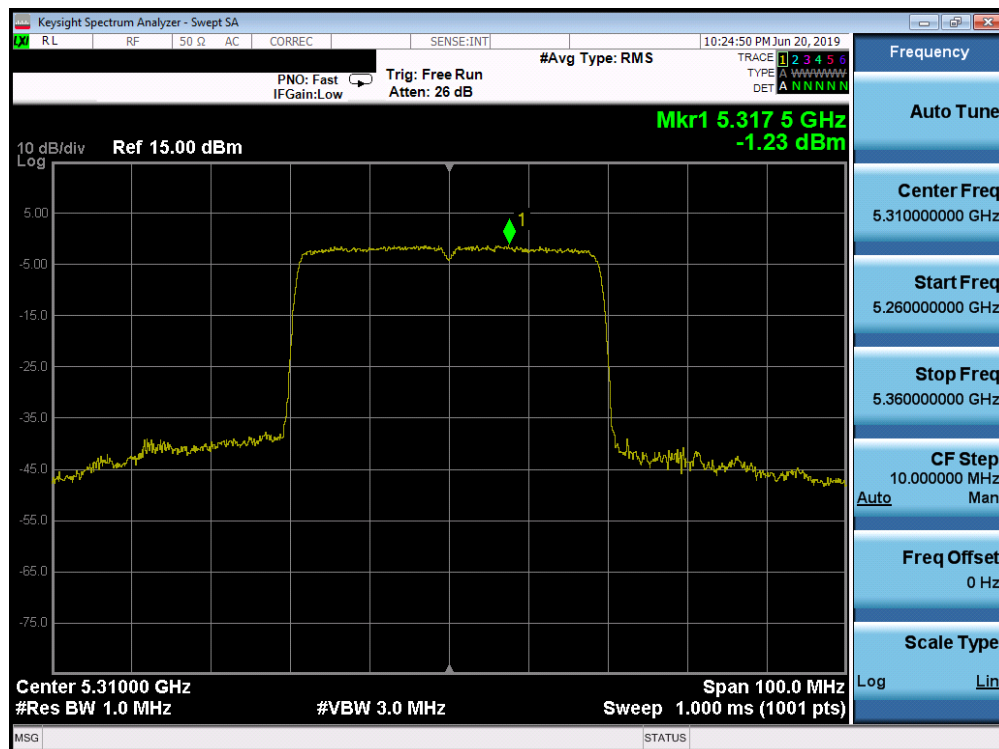


Plot 7-306. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 64)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 213 of 302

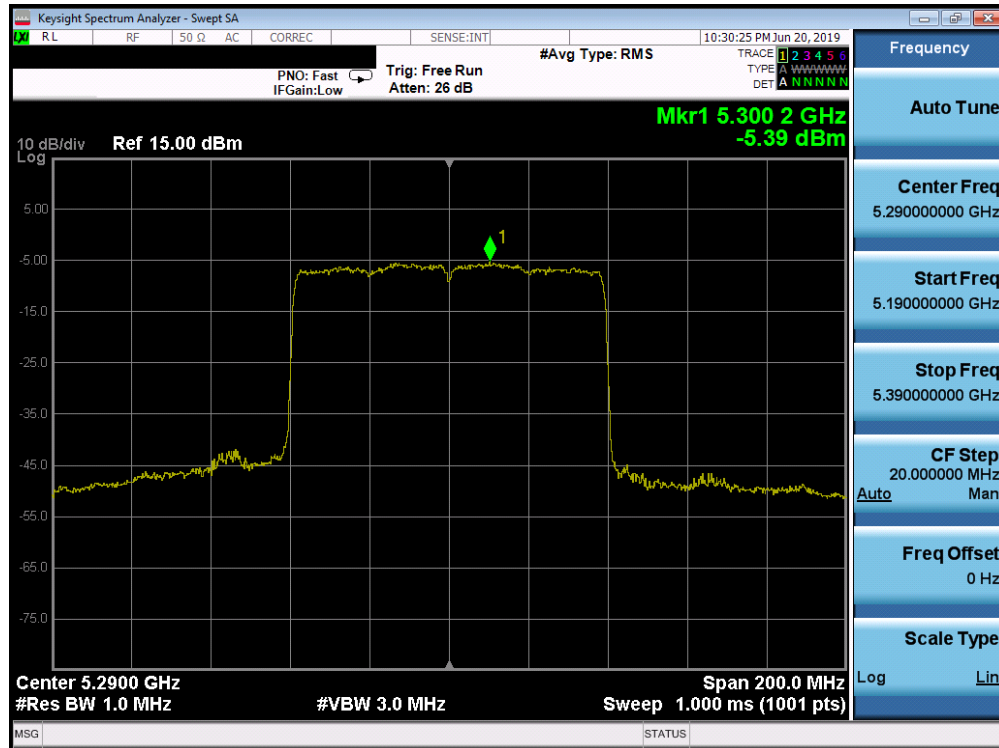


Plot 7-307. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 54)

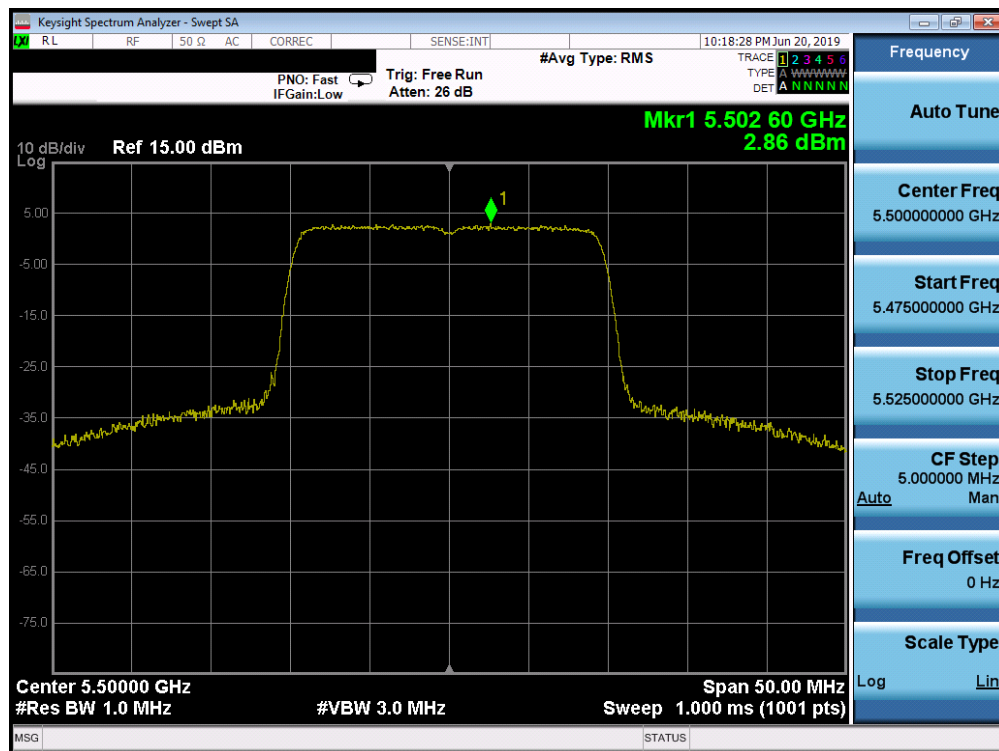


Plot 7-308. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 62)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 214 of 302

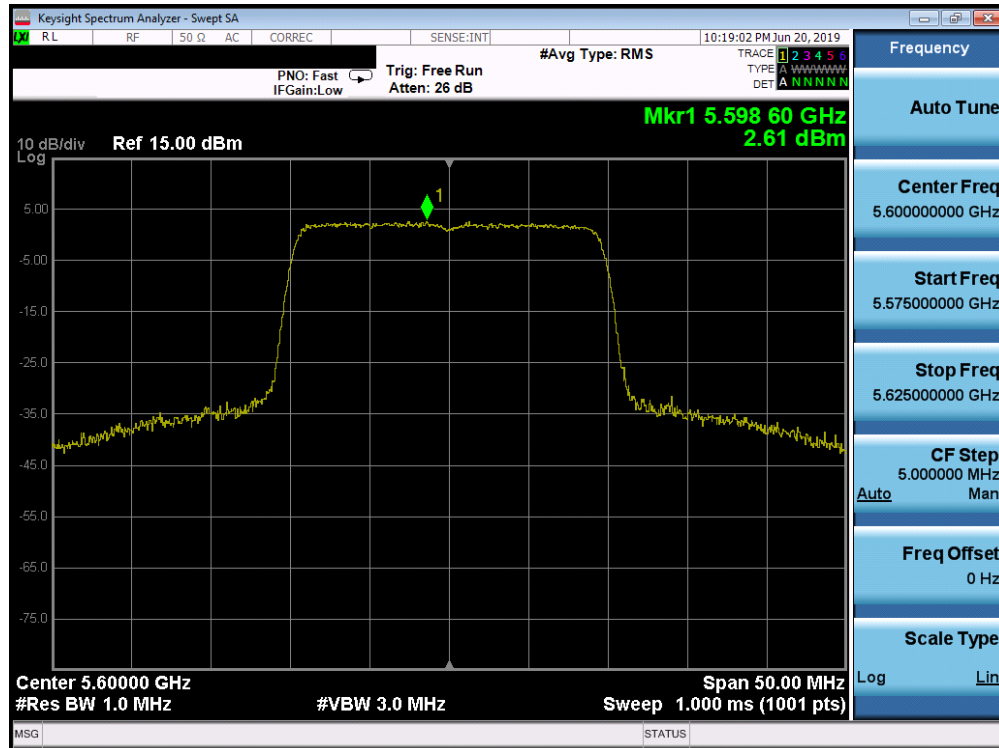


Plot 7-309. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 58)

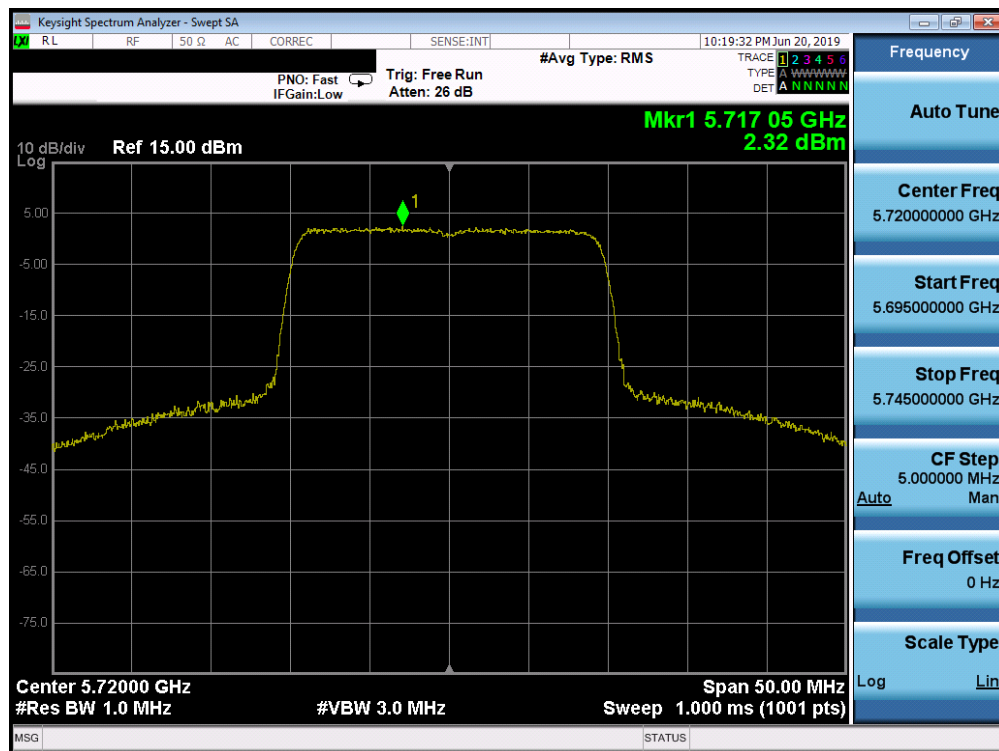


Plot 7-310. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 100)

FCC ID: A3LSMN976V	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 215 of 302

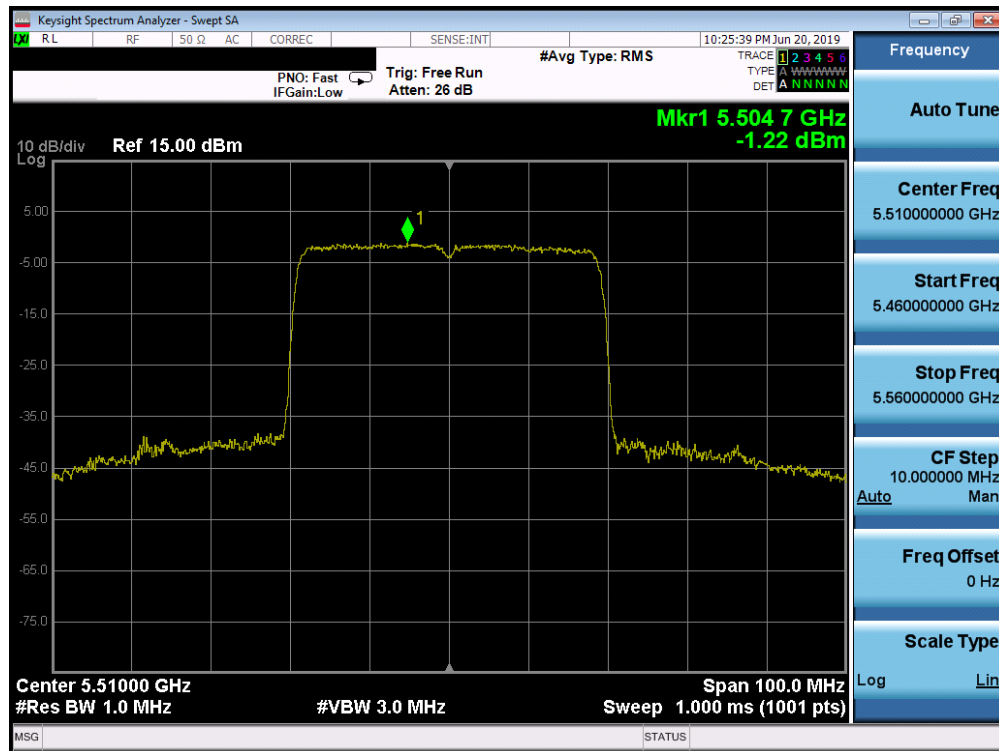


Plot 7-311. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 120)

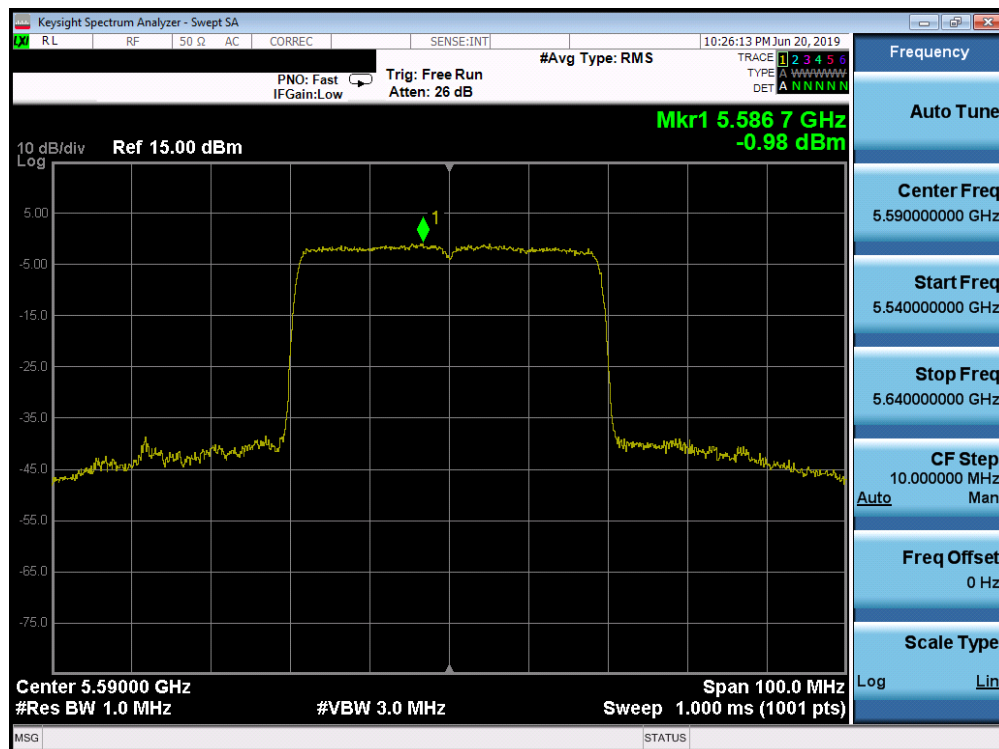


Plot 7-312. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 144)

FCC ID: A3LSMN976V	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 216 of 302

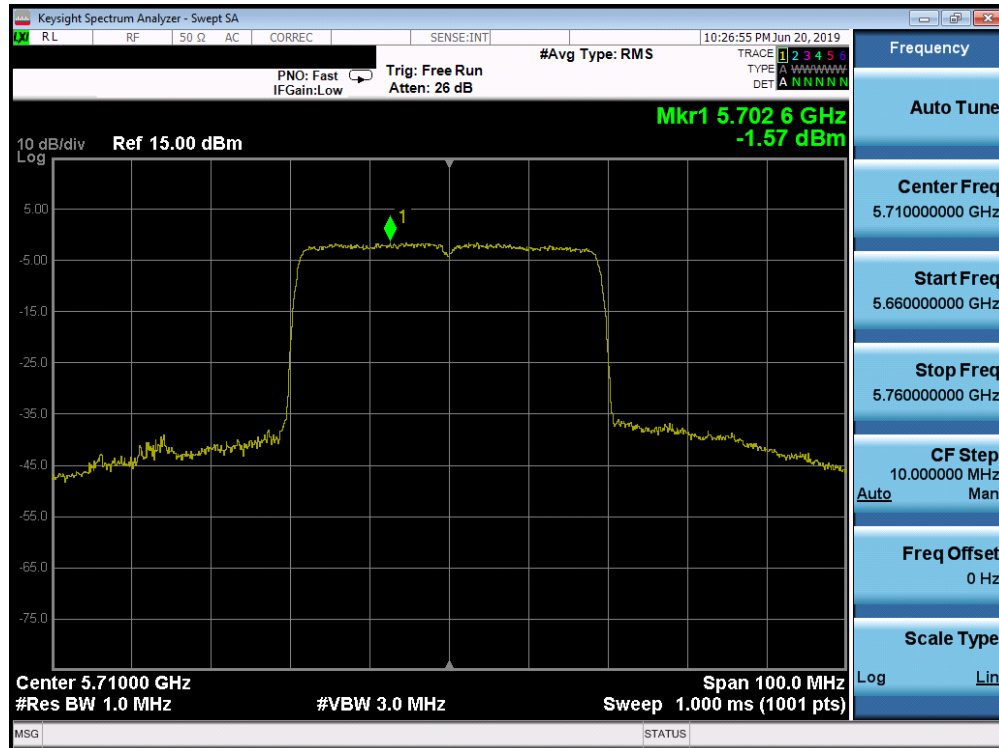


Plot 7-313. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 102)

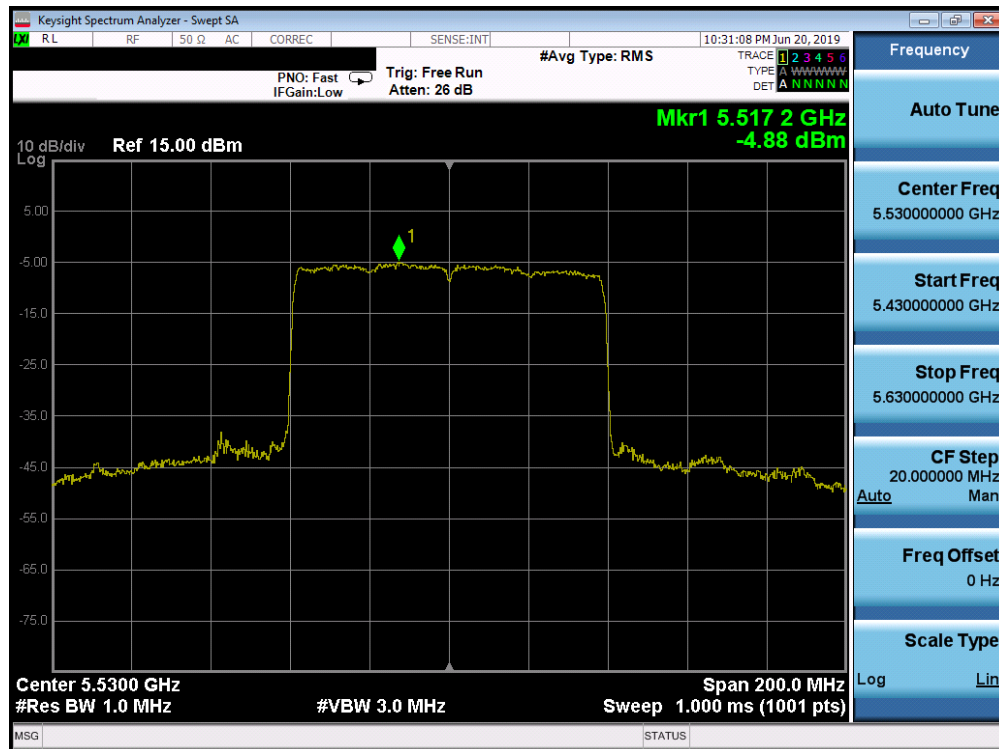


Plot 7-314. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 118)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 217 of 302

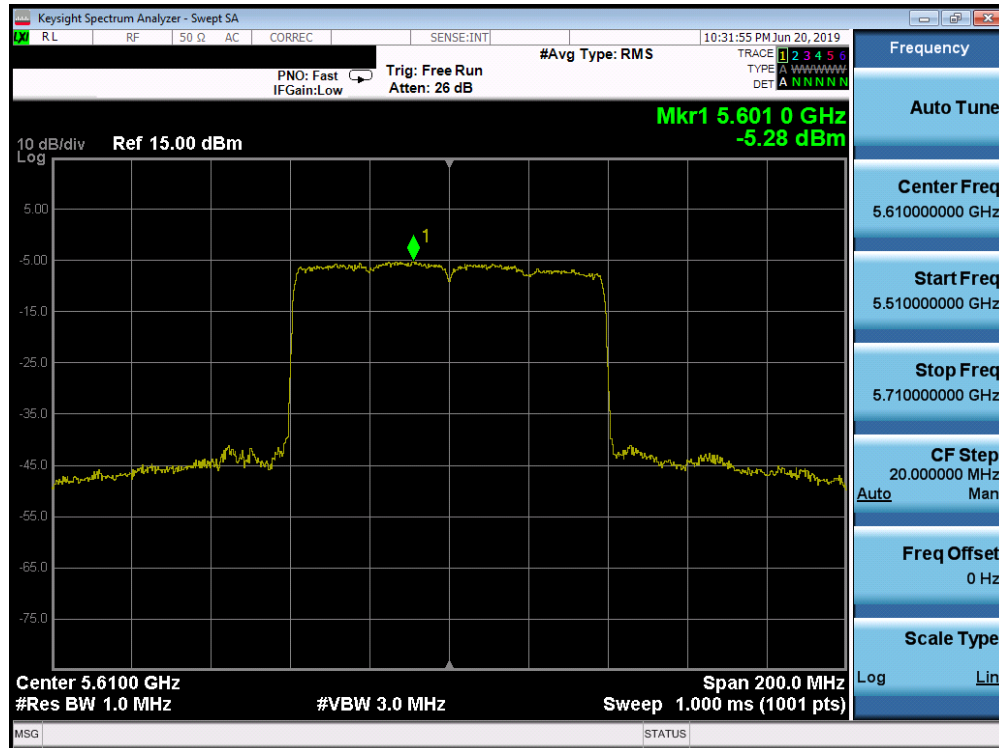


Plot 7-315. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 142)

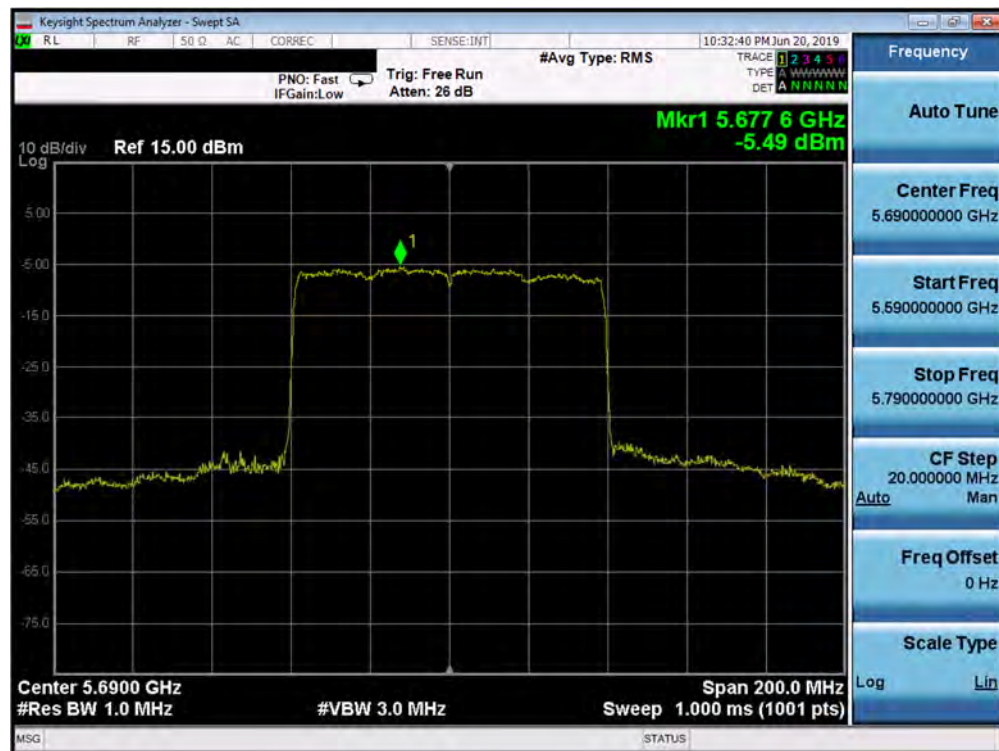


Plot 7-316. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 106)

FCC ID: A3LSMN976V	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 218 of 302

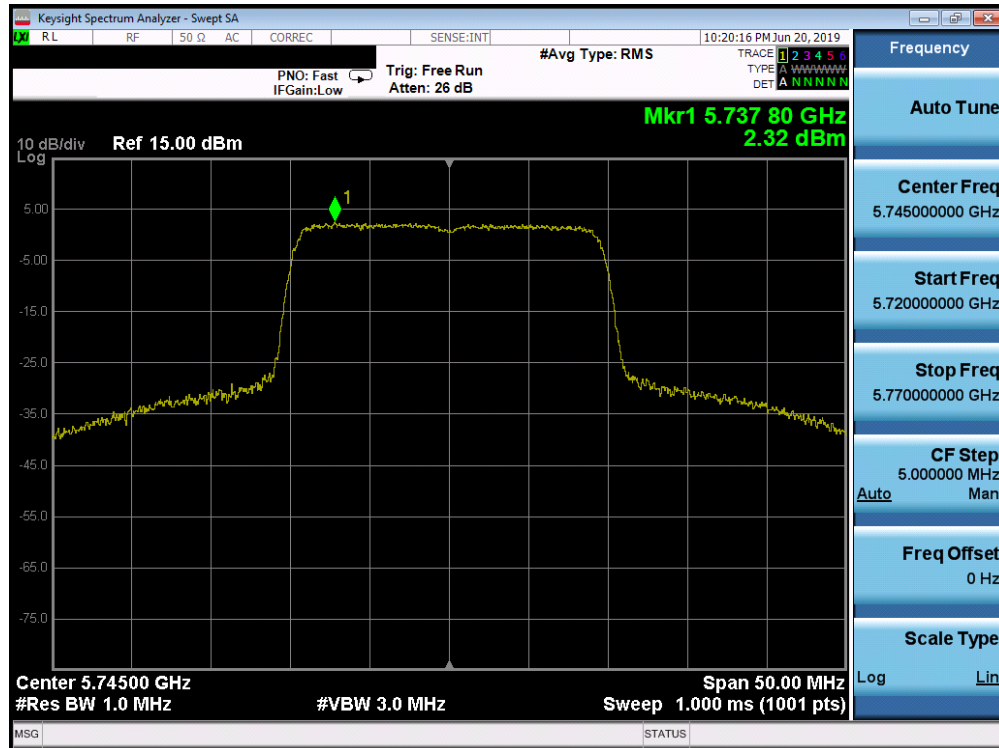


Plot 7-317. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 122)

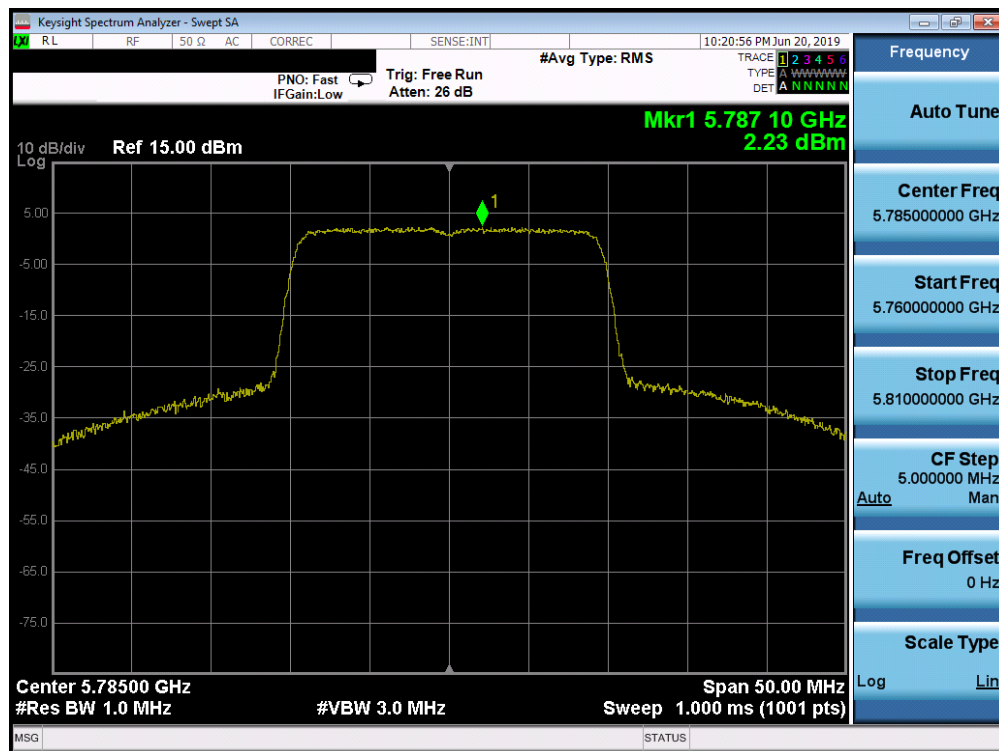


Plot 7-318. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMN976V	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 219 of 302

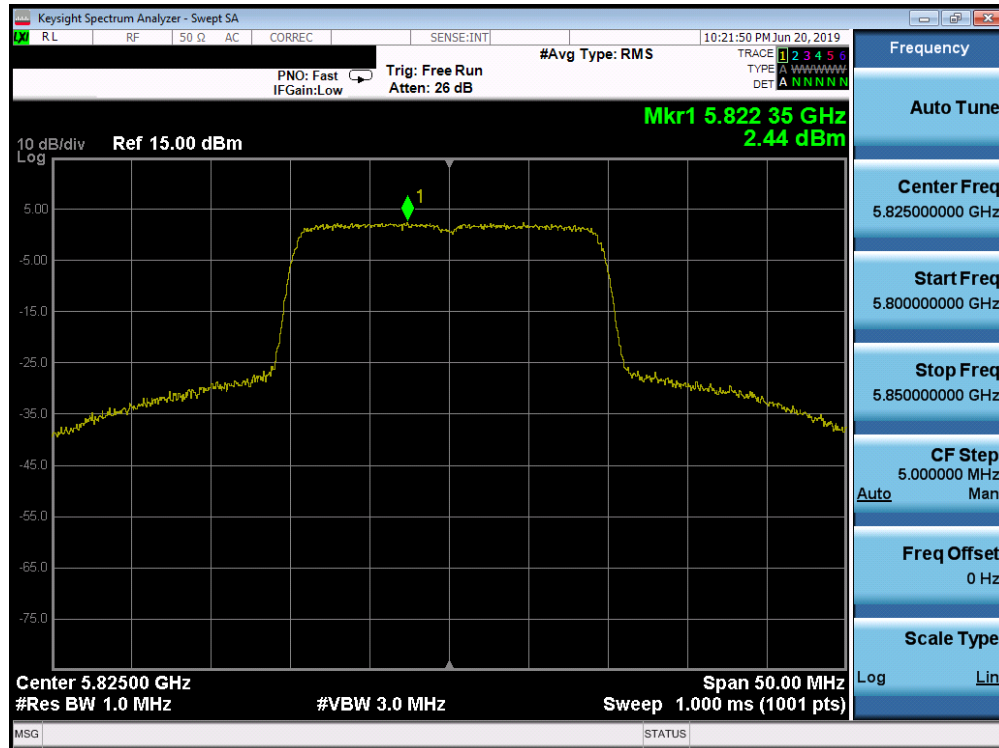


Plot 7-319. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 149)

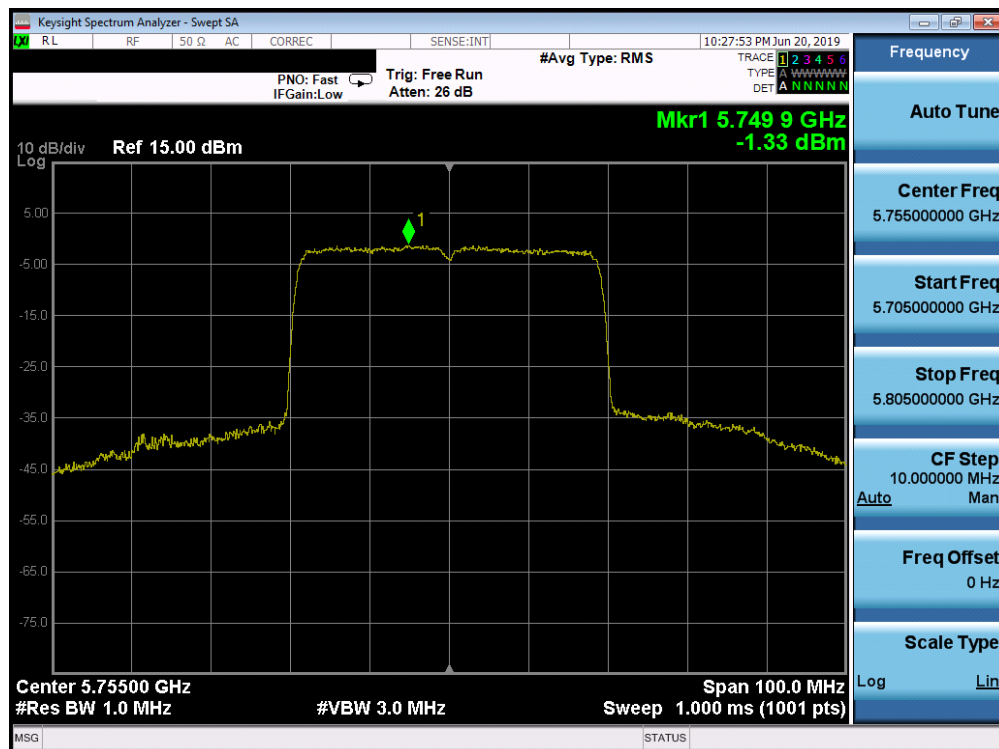


Plot 7-320. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 157)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 220 of 302

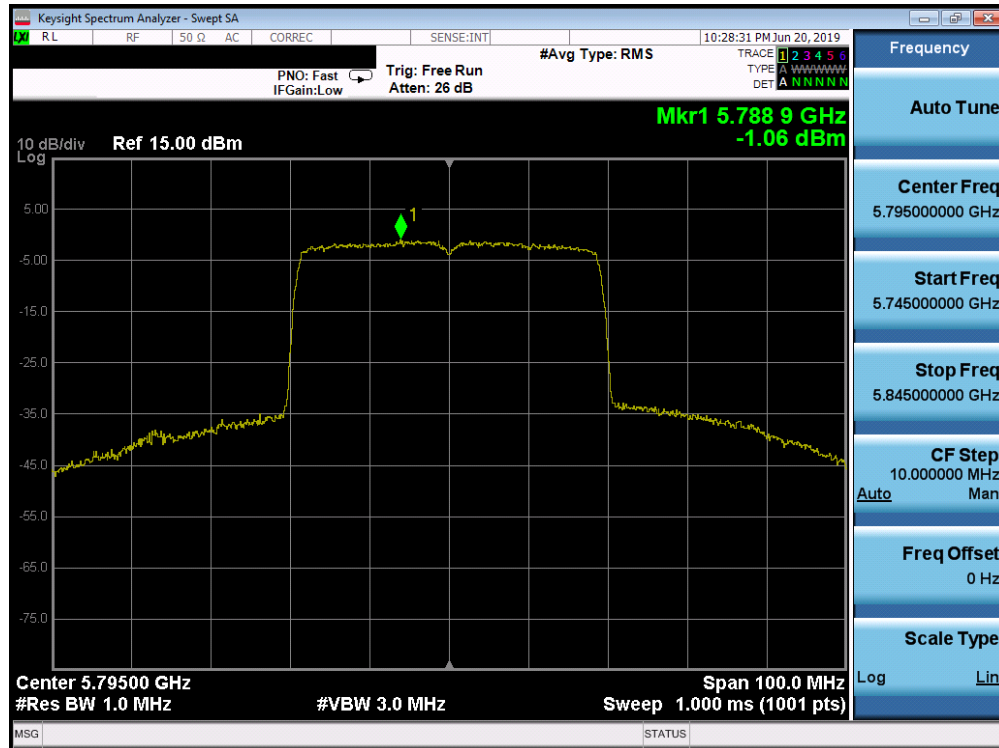


Plot 7-321. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 165)

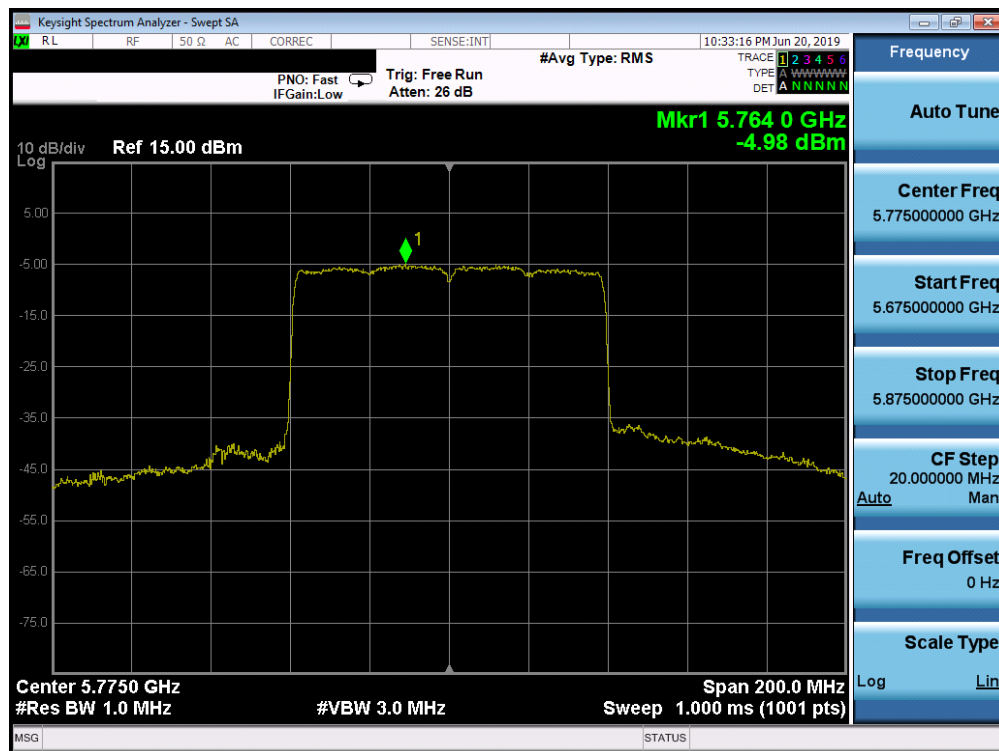


Plot 7-322. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 151)

FCC ID: A3LSMN976V	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 221 of 302



Plot 7-323. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 159)



Plot 7-324. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSMN976V	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 222 of 302

7.6 Radiated Spurious Emission Measurements – Above 1GHz

§15.407(b) §15.205 §15.209; RSS-Gen [8.9]

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. All channels, modes (e.g. 26 Tones, 52 Tones, 106 Tones, 242 Tones, 484 Tones and 996 Tones), and modulations/data rates were investigated among all UNII bands. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

For transmitters operating in the 5.15-5.25 GHz and 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.

For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR and Table 6 of RSS-Gen (8.10) must not exceed the limits shown in Table 7-30 per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [$\mu\text{V/m}$]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 7-67. Radiated Limits

Test Procedures Used

ANSI C63.10-2013 – Sections 12.7.7.2, 12.7.6, 12.7.5
KDB 789033 D02 v02r01 – Section G

Test Settings

Average Measurements above 1GHz (Method AD)

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = power average (RMS)
5. Number of measurement points = 1001 (Number of points must be $\geq 2 \times \text{span/RBW}$)
6. Averaging type = power (RMS)
7. Sweep time = auto couple
8. Trace was averaged over 100 sweeps

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 223 of 302

Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = 120kHz
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Test Setup

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

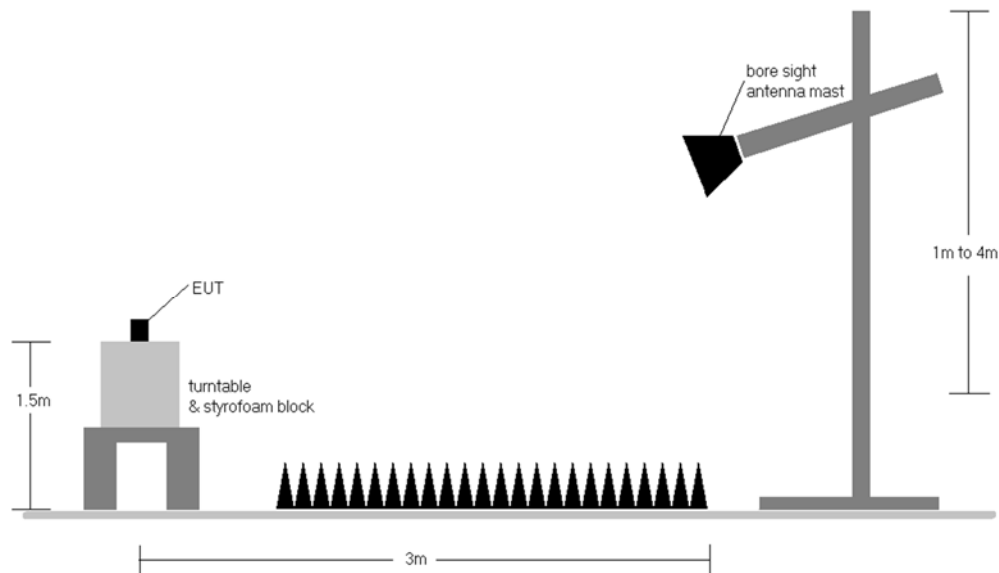


Figure 7-5. Test Instrument & Measurement Setup

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 224 of 302

Test Notes

1. All emissions that lie in the restricted bands (denoted by a * next to the frequency) specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-30.
2. All spurious emissions lying in restricted bands specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-30. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dBμV/m.
3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
4. This unit was tested with its standard battery.
5. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
6. 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.
7. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section.
8. The “-” shown in the following RSE tables are used to denote a noise floor measurement.
9. For radiated measurements, emissions were investigated for the fully-loaded RU configuration and for all of the partially-loaded RU configurations. Among all of the available partially-loaded RU configurations, only the configuration with the worst case emissions is reported.

Sample Calculations

Determining Spurious Emissions Levels

- o Field Strength Level [dBμV/m] = Analyzer Level [dBm] + 107 + AFCL [dB/m]
- o AFCL [dB/m] = Antenna Factor [dB/m] + Cable Loss [dB]
- o Margin [dB] = Field Strength Level [dBμV/m] – Limit [dBμV/m]

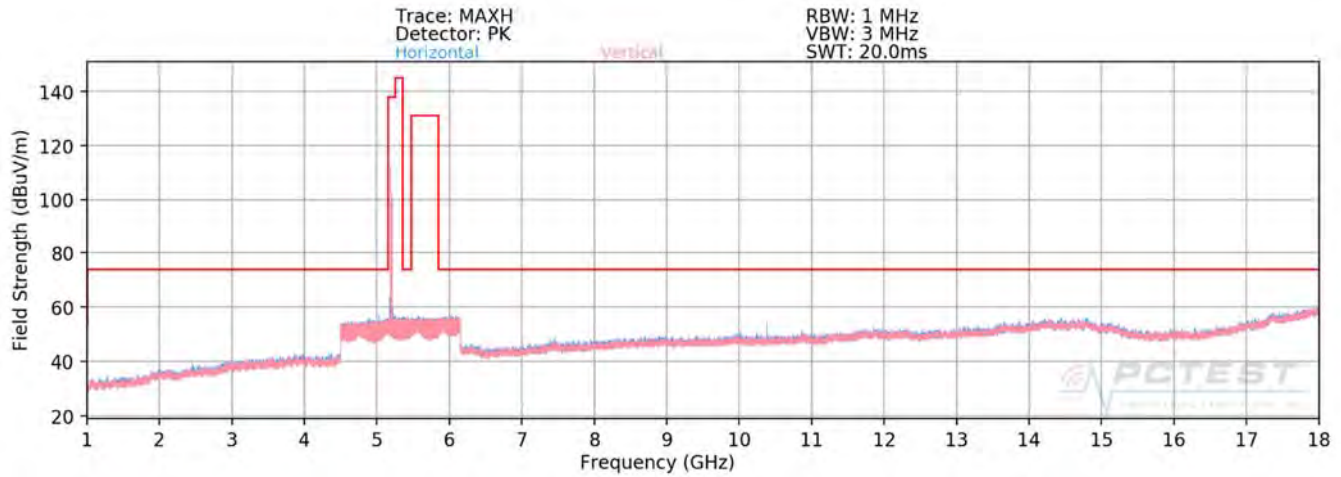
Radiated Band Edge Measurement Offset

- o The amplitude offset shown in the radiated restricted band edge plots in Section Radiated Spurious Emission Measurements – Above 1GHz was calculated using the formula:
Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

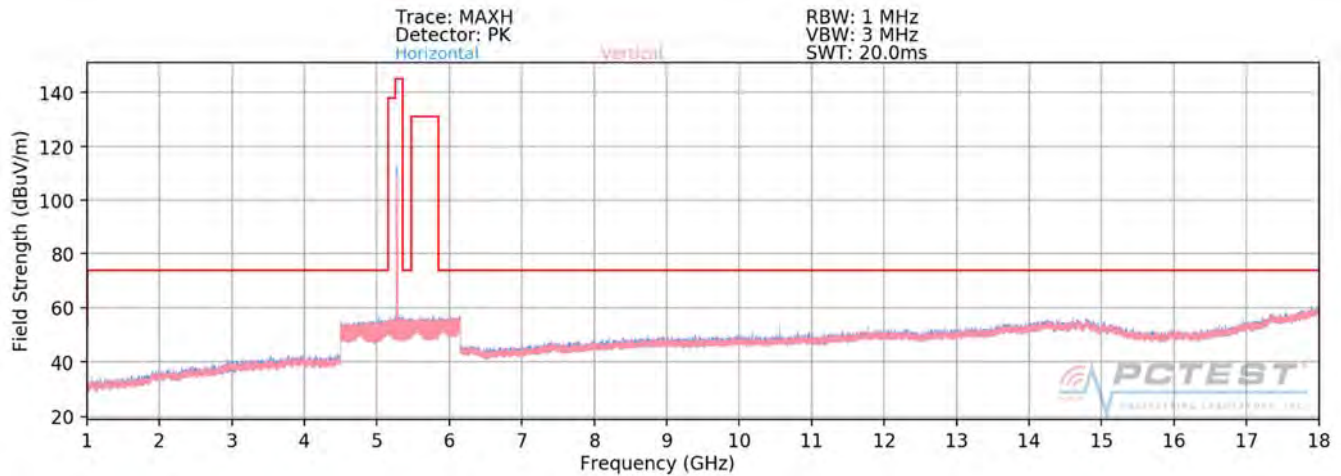
FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 225 of 302

7.6.1 SISO Antenna-1 Radiated Spurious Emission Measurements

26 Tones

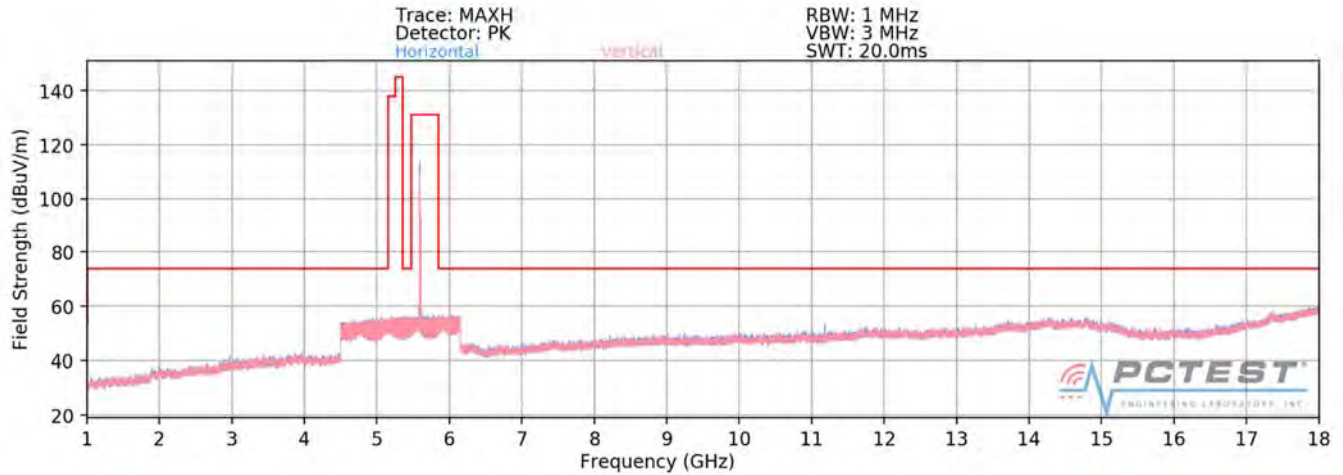


Plot 7-325. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11ax – U1 Ch. 40 – 26 Tones)

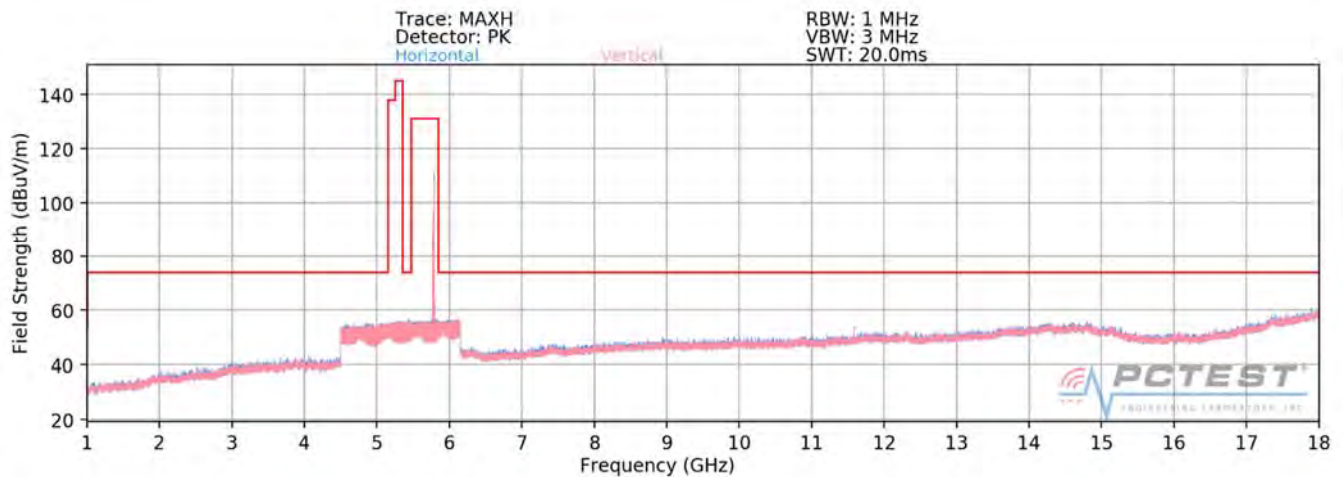


Plot 7-326. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11ax – U2A Ch. 56 – 26 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 226 of 302



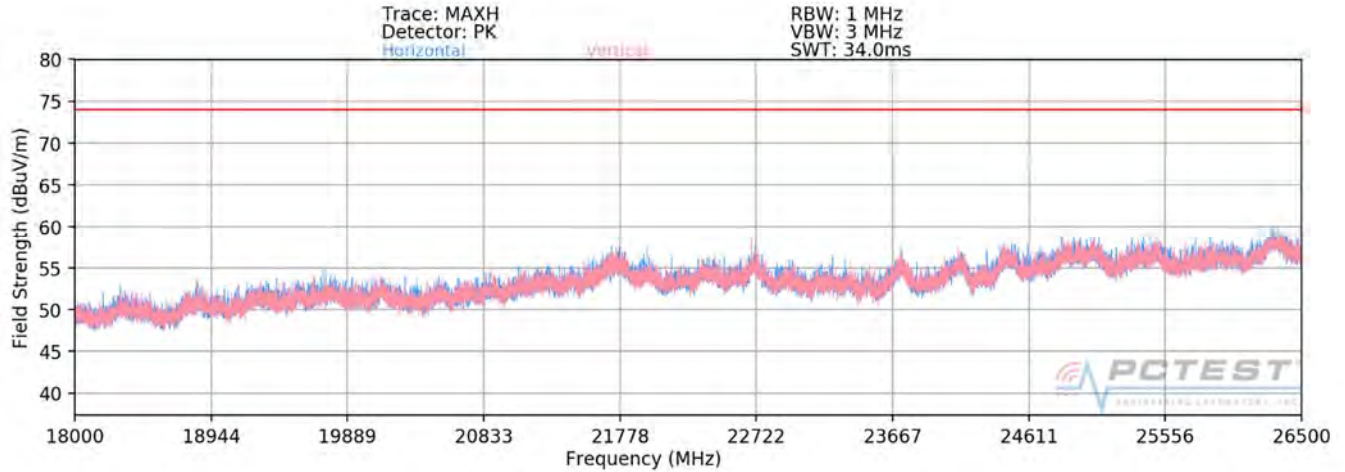
Plot 7-327. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11ax – U2C Ch. 120 – 26 Tones)



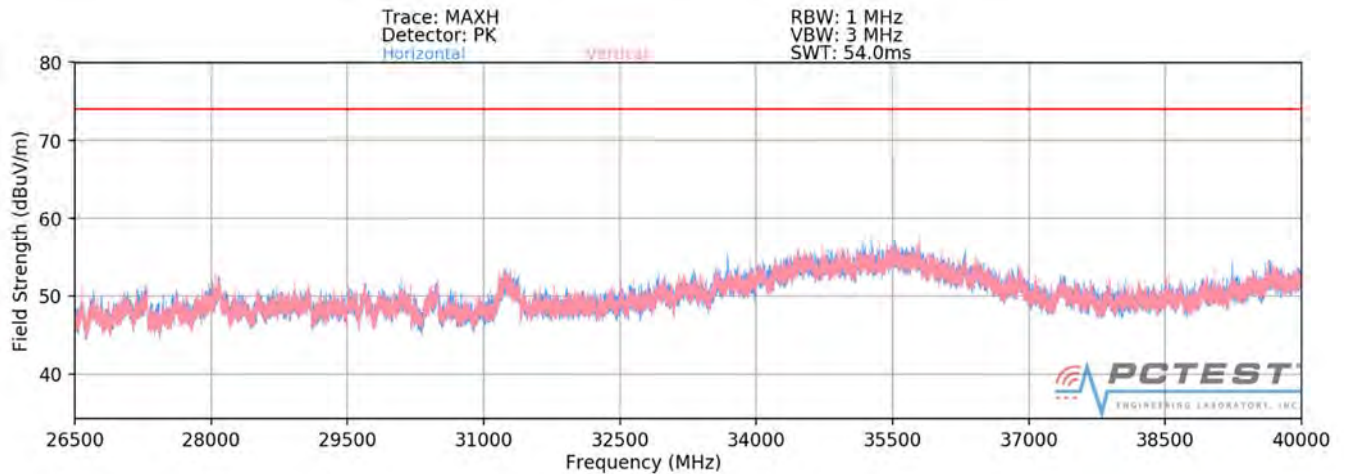
Plot 7-328. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11ax – U3 Ch. 157 – 26 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 227 of 302

SISO Antenna-1 Radiated Spurious Emissions Measurements (Above 18GHz)



Plot 7-329. Radiated Spurious Plot 18GHz - 26.5GHz SISO ANT1 (802.11ax – 26 Tones)



Plot 7-330. Radiated Spurious Plot 26.5GHz - 40GHz SISO ANT1 (802.11ax – 26 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 228 of 302

SISO Antenna-1 Radiated Spurious Emission Measurements (26 Tones)

§15.407(b) §15.205 & §15.209; RSS-Gen [8.9]

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5180MHz
Channel:	36

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	V	-	-	-69.42	12.53	0.00	50.11	68.20	-18.09
* 15540.00	Average	V	-	-	-83.44	15.14	0.00	38.70	53.98	-15.28
* 15540.00	Peak	V	-	-	-71.67	15.14	0.00	50.47	73.98	-23.51
* 20720.00	Average	V	-	-	-79.61	17.17	-9.54	35.02	53.98	-18.96
* 20720.00	Peak	V	-	-	-69.64	17.17	-9.54	44.99	73.98	-28.99
25900.00	Peak	V	-	-	-68.37	19.34	-9.54	48.43	68.20	-19.77

Table 7-68. Radiated Measurements SISO ANT1 (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5200MHz
Channel:	40

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	V	-	-	-68.56	12.41	0.00	50.85	68.20	-17.35
* 15600.00	Average	V	-	-	-83.76	15.35	0.00	38.59	53.98	-15.39
* 15600.00	Peak	V	-	-	-72.03	15.35	0.00	50.32	73.98	-23.66
* 20800.00	Average	V	-	-	-79.57	17.31	-9.54	35.19	53.98	-18.79
* 20800.00	Peak	V	-	-	-68.83	17.31	-9.54	45.94	73.98	-28.04
26000.00	Peak	V	-	-	-68.18	19.60	-9.54	48.88	68.20	-19.32

Table 7-69. Radiated Measurements SISO ANT1 (26 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 229 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5240MHz
 Channel: 48

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	V	-	-	-68.47	12.50	0.00	51.03	68.20	-17.17
* 15720.00	Average	V	-	-	-84.14	16.80	0.00	39.66	53.98	-14.32
* 15720.00	Peak	V	-	-	-71.96	16.80	0.00	51.84	73.98	-22.14
* 20960.00	Average	V	-	-	-80.13	17.60	-9.54	34.93	53.98	-19.05
* 20960.00	Peak	V	-	-	-69.38	17.60	-9.54	45.68	73.98	-28.30
26200.00	Peak	V	-	-	-67.45	19.73	-9.54	49.73	68.20	-18.47

Table 7-70. Radiated Measurements SISO ANT1 (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5260MHz
 Channel: 52

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	V	-	-	-70.70	13.15	0.00	49.45	68.20	-18.75
* 15780.00	Average	V	-	-	-82.60	16.11	0.00	40.51	53.98	-13.47
* 15780.00	Peak	V	-	-	-72.51	16.11	0.00	50.60	73.98	-23.38
* 21040.00	Average	V	-	-	-79.78	17.67	-9.54	35.35	53.98	-18.63
* 21040.00	Peak	V	-	-	-69.83	17.67	-9.54	45.30	73.98	-28.68
26300.00	Peak	V	-	-	-67.64	20.29	-9.54	50.10	68.20	-18.10

Table 7-71. Radiated Measurements SISO ANT1 (26 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 230 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5280MHz
 Channel: 56

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	V	-	-	-70.26	13.67	0.00	50.41	68.20	-17.79
* 15840.00	Average	V	-	-	-82.76	15.45	0.00	39.69	53.98	-14.29
* 15840.00	Peak	V	-	-	-71.78	15.45	0.00	50.67	73.98	-23.31
* 21120.00	Average	V	-	-	-79.76	17.83	-9.54	35.53	53.98	-18.45
* 21120.00	Peak	V	-	-	-68.85	17.83	-9.54	46.44	73.98	-27.54
26400.00	Peak	V	-	-	-67.88	20.07	-9.54	49.66	68.20	-18.54

Table 7-72. Radiated Measurements SISO ANT1 (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5320MHz
 Channel: 64

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	V	-	-	-82.75	14.01	0.00	38.26	53.98	-15.72
* 10640.00	Peak	V	-	-	-70.73	14.01	0.00	50.28	73.98	-23.70
* 15960.00	Average	V	-	-	-83.21	15.52	0.00	39.31	53.98	-14.67
* 15960.00	Peak	V	-	-	-71.92	15.52	0.00	50.60	73.98	-23.38
* 21280.00	Average	V	-	-	-80.03	17.98	-9.54	35.41	53.98	-18.57
* 21280.00	Peak	V	-	-	-68.82	17.98	-9.54	46.62	73.98	-27.36
26600.00	Peak	V	-	-	-52.10	4.42	-9.54	49.77	68.20	-18.43

Table 7-73. Radiated Measurements SISO ANT1 (26 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 231 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5500MHz
 Channel: 100

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	V	-	-	-82.65	13.97	0.00	38.32	53.98	-15.66
* 11000.00	Peak	V	-	-	-69.61	13.97	0.00	51.36	73.98	-22.62
16500.00	Peak	V	-	-	-71.62	16.35	0.00	51.73	68.20	-16.47
22000.00	Peak	V	-	-	-68.80	18.43	-9.54	47.09	68.20	-21.11
27500.00	Peak	V	-	-	-51.47	3.16	-9.54	49.15	68.20	-19.05

Table 7-74. Radiated Measurements SISO ANT1 (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5600MHz
 Channel: 120

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.00	Average	V	-	-	-82.76	14.01	0.00	38.25	53.98	-15.73
* 11200.00	Peak	V	-	-	-70.07	14.01	0.00	50.94	73.98	-23.04
16800.00	Peak	V	-	-	-71.32	17.24	0.00	52.92	68.20	-15.28
* 22400.00	Average	V	-	-	-80.11	19.18	-9.54	36.53	53.98	-17.45
* 22400.00	Peak	V	-	-	-69.22	19.18	-9.54	47.42	73.98	-26.56
28000.00	Peak	V	-	-	-52.16	4.80	-9.54	50.10	68.20	-18.10

Table 7-75. Radiated Measurements SISO ANT1 (26 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 232 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5720MHz
 Channel: 144

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	V	-	-	-83.27	14.87	0.00	38.60	53.98	-15.38
* 11440.00	Peak	V	-	-	-70.98	14.87	0.00	50.89	73.98	-23.09
17160.00	Peak	V	-	-	-71.52	19.17	0.00	54.65	68.20	-13.55
* 22880.00	Average	V	-	-	-80.23	18.88	-9.54	36.11	53.98	-17.87
* 22880.00	Peak	V	-	-	-70.05	18.88	-9.54	46.29	73.98	-27.69
28600.00	Peak	V	-	-	-53.71	3.32	-9.54	47.07	68.20	-21.13

Table 7-76. Radiated Measurements SISO ANT1 (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5745MHz
 Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	V	-	-	-83.06	14.52	0.00	38.46	53.98	-15.52
* 11490.00	Peak	V	-	-	-70.17	14.52	0.00	51.35	73.98	-22.63
17235.00	Peak	V	-	-	-71.20	19.51	0.00	55.31	68.20	-12.89
* 22980.00	Average	V	-	-	-80.65	19.03	-9.54	35.84	53.98	-18.14
* 22980.00	Peak	V	-	-	-68.04	19.03	-9.54	48.45	73.98	-25.53
28725.00	Peak	V	-	-	-52.03	3.65	-9.54	49.08	68.20	-19.12

Table 7-77. Radiated Measurements SISO ANT1 (26 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 233 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5785MHz
 Channel: 157

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	V	-	-	-82.74	14.79	0.00	39.05	53.98	-14.92
* 11570.00	Peak	V	-	-	-70.05	14.79	0.00	51.74	73.98	-22.23
17355.00	Peak	V	-	-	-73.94	23.18	0.00	56.24	68.20	-11.96
23140.00	Peak	V	-	-	-69.08	18.82	-9.54	47.20	68.20	-21.00
28925.00	Peak	V	-	-	-52.32	4.50	-9.54	49.64	68.20	-18.56

Table 7-78. Radiated Measurements SISO ANT1 (26 Tones)

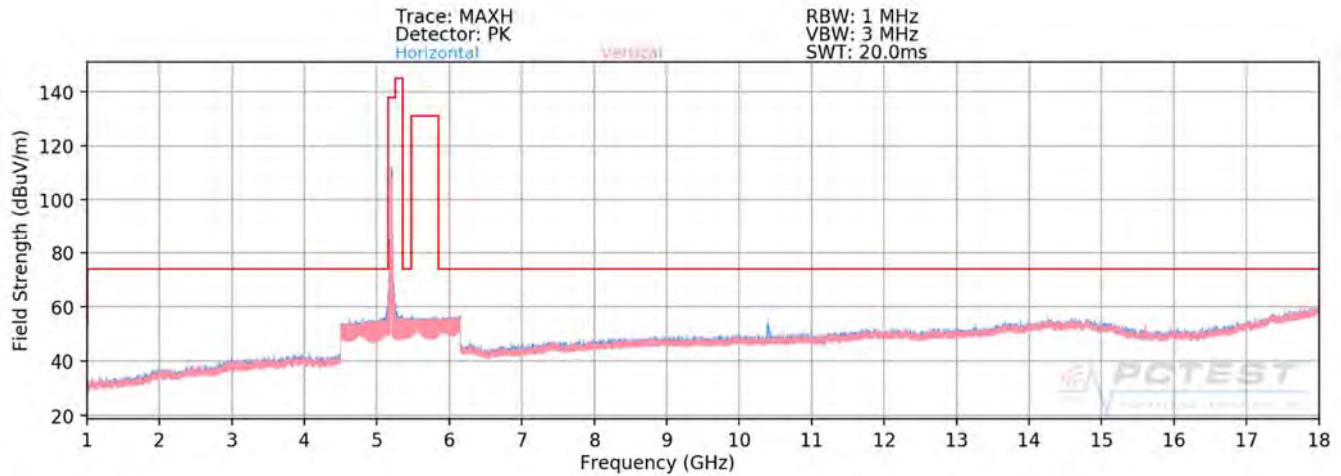
Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5825MHz
 Channel: 165

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	V	-	-	-83.30	15.05	0.00	38.75	53.98	-15.23
* 11650.00	Peak	V	-	-	-70.94	15.05	0.00	51.11	73.98	-22.87
17475.00	Peak	V	-	-	-72.21	22.03	0.00	56.82	68.20	-11.38
23300.00	Peak	V	-	-	-69.10	18.40	-9.54	46.76	68.20	-21.44
29125.00	Peak	V	-	-	-51.49	2.23	-9.54	48.21	68.20	-19.99

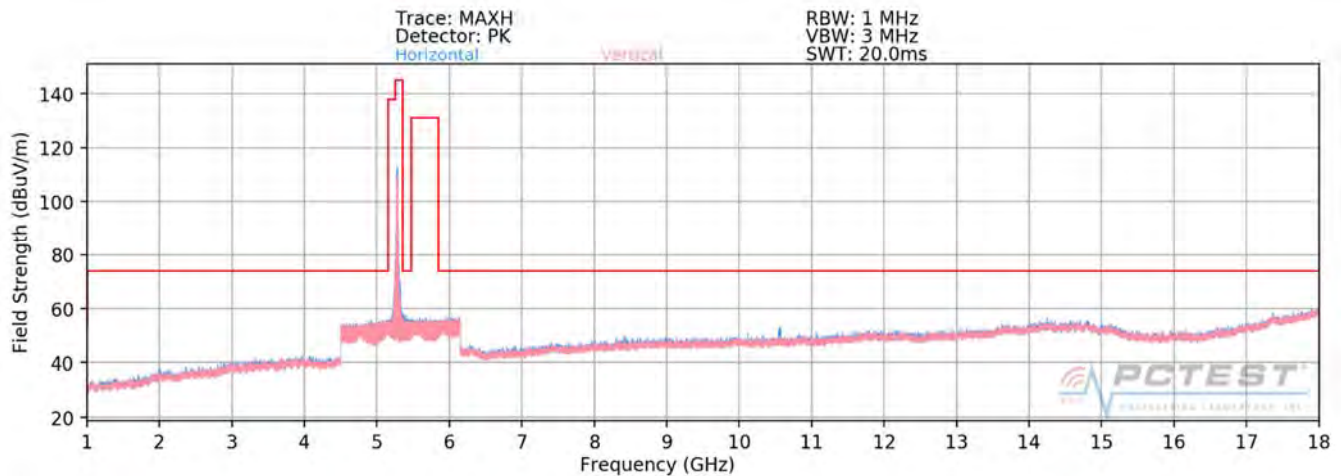
Table 7-79. Radiated Measurements SISO ANT1 (26 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 234 of 302

242 Tones

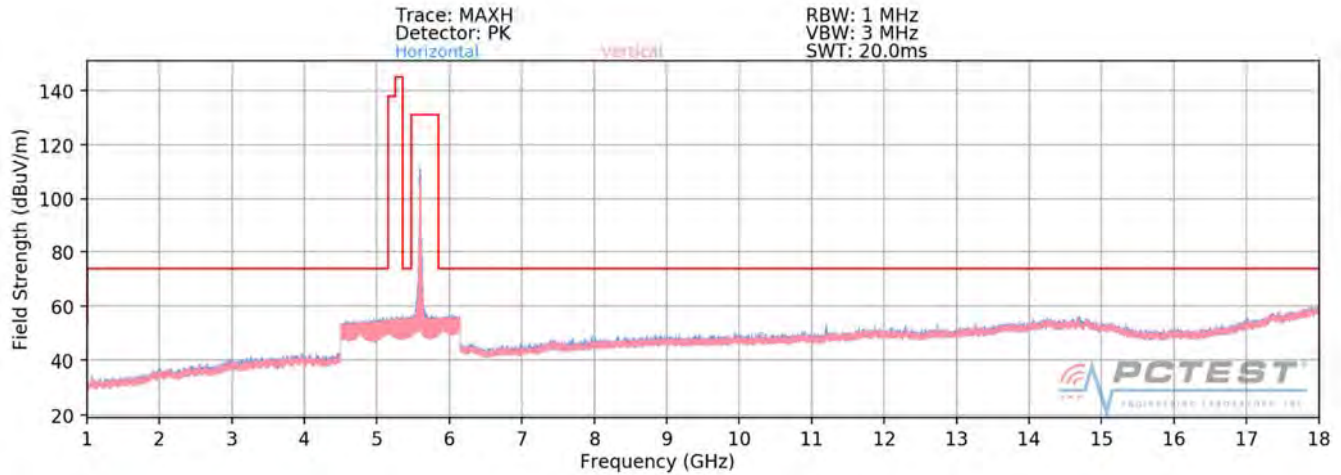


Plot 7-331. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11ax – U1 Ch. 40 – 242 Tones)

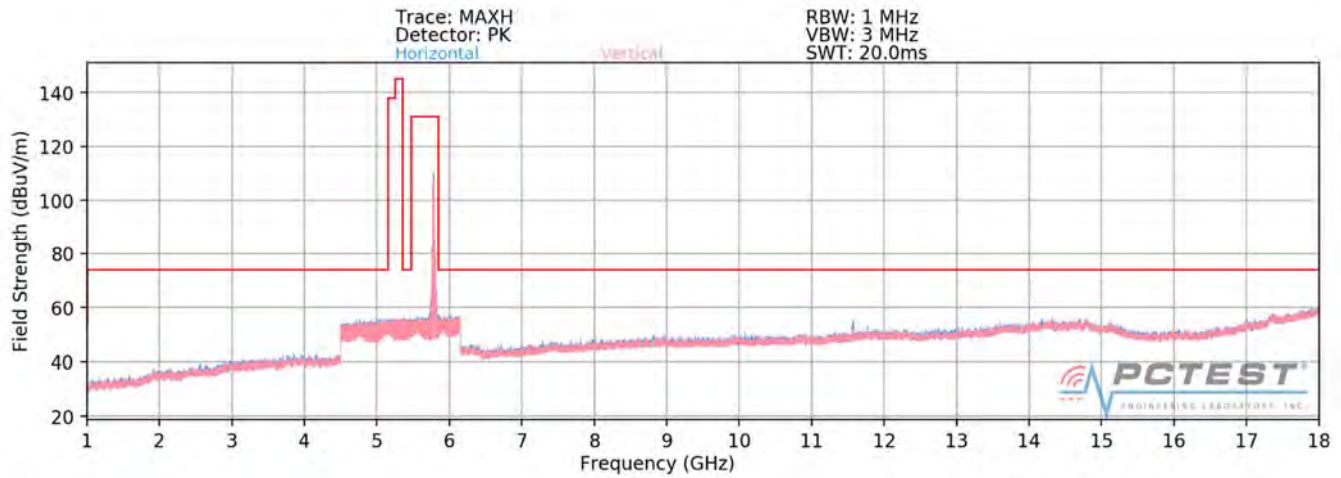


Plot 7-332. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11ax – U2A Ch. 56 – 242 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 235 of 302



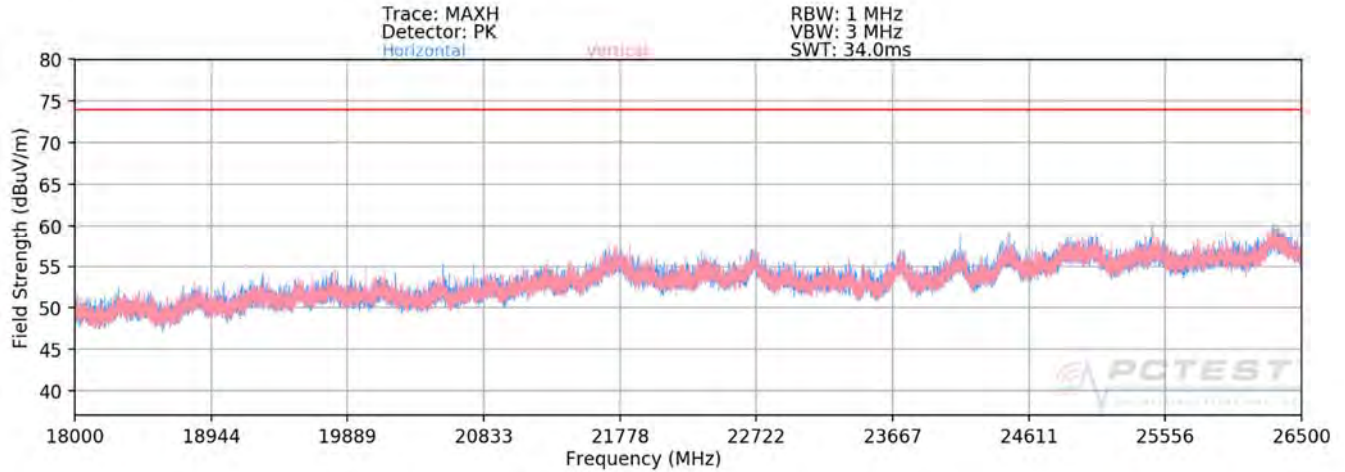
Plot 7-333. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11ax – U2C Ch. 120 – 242 Tones)



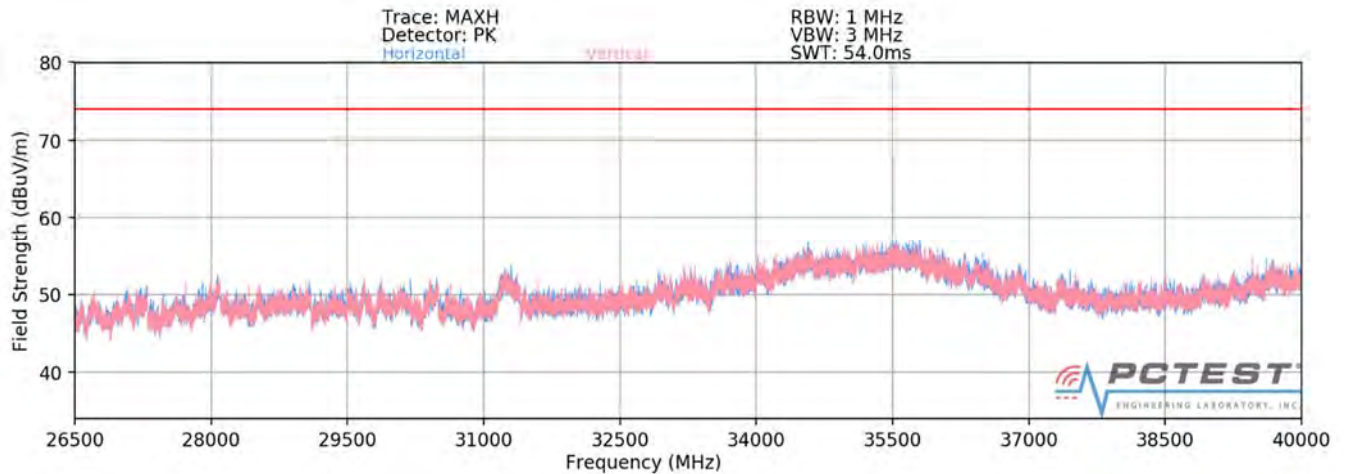
Plot 7-334. Radiated Spurious Plot above 1GHz SISO ANT1 (802.11ax – U3 Ch. 157 – 242 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 236 of 302

SISO Antenna-1 Radiated Spurious Emissions Measurements (Above 18GHz)



Plot 7-335. Radiated Spurious Plot 18GHz - 26.5GHz SISO ANT1 (802.11ax – 242 Tones)



Plot 7-336. Radiated Spurious Plot 26.5GHz - 40GHz SISO ANT1 (802.11ax – 242 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 237 of 302

SISO Antenna-1 Radiated Spurious Emission Measurements (242 Tones)

§15.407(b) §15.205 & §15.209; RSS-Gen [8.9]

Worst Case Mode: 802.11ax (20MHz BW)
Worst Case Transfer Rate: MCS0
RU Index: 61
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5180MHz
Channel: 36

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	V	372	19	-61.17	12.53	0.00	58.36	68.20	-9.84
* 15540.00	Average	V	159	41	-79.06	15.14	0.00	43.08	53.98	-10.90
* 15540.00	Peak	V	159	41	-63.58	15.14	0.00	58.56	73.98	-15.42
* 20720.00	Average	V	-	-	-79.93	17.17	-9.54	34.70	53.98	-19.28
* 20720.00	Peak	V	-	-	-69.75	17.17	-9.54	44.88	73.98	-29.10
25900.00	Peak	V	-	-	-68.34	19.34	-9.54	48.46	68.20	-19.74

Table 7-80. Radiated Measurements SISO ANT1 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
Worst Case Transfer Rate: MCS0
RU Index: 61
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5200MHz
Channel: 40

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	V	291	360	-61.41	12.41	0.00	58.00	68.20	-10.20
* 15600.00	Average	V	190	37	-78.90	15.35	0.00	43.45	53.98	-10.53
* 15600.00	Peak	V	190	37	-64.28	15.35	0.00	58.07	73.98	-15.91
* 20800.00	Average	V	-	-	-79.73	17.31	-9.54	35.04	53.98	-18.94
* 20800.00	Peak	V	-	-	-69.32	17.31	-9.54	45.45	73.98	-28.53
26000.00	Peak	V	-	-	-68.14	19.60	-9.54	48.92	68.20	-19.28

Table 7-81. Radiated Measurements SISO ANT1 (242 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 238 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5240MHz
 Channel: 48

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	V	342	25	-60.43	12.50	0.00	59.07	68.20	-9.13
* 15720.00	Average	V	128	41	-79.40	16.80	0.00	44.40	53.98	-9.58
* 15720.00	Peak	V	128	41	-65.47	16.80	0.00	58.33	73.98	-15.65
* 20960.00	Average	V	-	-	-79.83	17.60	-9.54	35.22	53.98	-18.76
* 20960.00	Peak	V	-	-	-69.45	17.60	-9.54	45.60	73.98	-28.38
26200.00	Peak	V	-	-	-67.85	19.73	-9.54	49.34	68.20	-18.86

Table 7-82. Radiated Measurements SISO ANT1 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5260MHz
 Channel: 52

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	V	366	18	-61.39	13.15	0.00	58.76	68.20	-9.44
* 15780.00	Average	V	112	44	-80.99	16.11	0.00	42.12	53.98	-11.86
* 15780.00	Peak	V	112	44	-65.12	16.11	0.00	57.99	73.98	-15.99
* 21040.00	Average	V	-	-	-79.97	17.67	-9.54	35.16	53.98	-18.82
* 21040.00	Peak	V	-	-	-68.83	17.67	-9.54	46.30	73.98	-27.68
26300.00	Peak	V	-	-	-67.84	20.29	-9.54	49.91	68.20	-18.29

Table 7-83. Radiated Measurements SISO ANT1 (242 Tones)

FCC ID: A3LSMN976V	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset	Page 239 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5280MHz
 Channel: 56

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	V	363	28	-61.61	13.67	0.00	59.06	68.20	-9.14
* 15840.00	Average	V	120	47	-80.03	15.45	0.00	42.42	53.98	-11.56
* 15840.00	Peak	V	120	47	-65.55	15.45	0.00	56.90	73.98	-17.08
* 21120.00	Average	V	-	-	-80.07	17.83	-9.54	35.22	53.98	-18.76
* 21120.00	Peak	V	-	-	-69.42	17.83	-9.54	45.87	73.98	-28.11
26400.00	Peak	V	-	-	-68.06	20.07	-9.54	49.47	68.20	-18.73

Table 7-84. Radiated Measurements SISO ANT1 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5320MHz
 Channel: 64

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	V	354	28	-73.78	14.01	0.00	47.23	53.98	-6.75
* 10640.00	Peak	V	354	28	-60.54	14.01	0.00	60.47	73.98	-13.51
* 15960.00	Average	V	119	45	-80.12	15.52	-9.54	32.86	53.98	-21.12
* 15960.00	Peak	V	119	45	-64.48	15.52	-9.54	48.50	73.98	-25.48
* 21280.00	Average	V	-	-	-80.18	17.98	-9.54	35.26	53.98	-18.72
* 21280.00	Peak	V	-	-	-68.93	17.98	-9.54	46.51	73.98	-27.47
26600.00	Peak	V	-	-	-51.67	4.42	-9.54	50.21	68.20	-17.99

Table 7-85. Radiated Measurements SISO ANT1 (242 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 240 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5500MHz
 Channel: 100

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	V	347	22	-71.93	13.97	0.00	49.04	53.98	-4.94
* 11000.00	Peak	V	347	22	-60.34	13.97	0.00	60.63	73.98	-13.35
16500.00	Peak	V	161	28	-69.86	16.35	0.00	53.49	68.20	-14.71
22000.00	Peak	V	-	-	-68.94	18.43	-9.54	46.96	68.20	-21.24
27500.00	Peak	V	-	-	-51.18	3.16	-9.54	49.43	68.20	-18.77

Table 7-86. Radiated Measurements SISO ANT1 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5600MHz
 Channel: 120

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.00	Average	V	292	20	-72.77	14.01	0.00	48.24	53.98	-5.74
* 11200.00	Peak	V	292	20	-60.81	14.01	0.00	60.20	73.98	-13.78
16800.00	Peak	V	122	31	-70.36	17.24	0.00	53.88	68.20	-14.32
* 22400.00	Average	V	-	-	-80.22	19.18	-9.54	36.43	53.98	-17.55
* 22400.00	Peak	V	-	-	-69.70	19.18	-9.54	46.94	73.98	-27.04
28000.00	Peak	V	-	-	-51.64	4.80	-9.54	50.62	68.20	-17.58

Table 7-87. Radiated Measurements SISO ANT1 (242 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 241 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5720MHz
 Channel: 144

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	V	136	16	-76.06	14.87	0.00	45.81	53.98	-8.17
* 11440.00	Peak	V	136	16	-63.57	14.87	0.00	58.30	73.98	-15.68
17160.00	Peak	V	131	44	-71.22	19.17	0.00	54.95	68.20	-13.25
* 22880.00	Average	V	-	-	-80.14	18.88	-9.54	36.20	53.98	-17.78
* 22880.00	Peak	V	-	-	-69.41	18.88	-9.54	46.93	73.98	-27.05
28600.00	Peak	V	-	-	-52.85	3.32	-9.54	47.93	68.20	-20.27

Table 7-88. Radiated Measurements SISO ANT1 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5745MHz
 Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	V	132	15	-74.72	14.52	0.00	46.80	53.98	-7.18
* 11490.00	Peak	V	132	15	-60.31	14.52	0.00	61.21	73.98	-12.77
17235.00	Peak	V	130	42	-71.27	19.51	0.00	55.24	68.20	-12.96
* 22980.00	Average	V	-	-	-79.93	19.03	-9.54	36.56	53.98	-17.42
* 22980.00	Peak	V	-	-	-68.45	19.03	-9.54	48.04	73.98	-25.94
28725.00	Peak	V	-	-	-52.29	3.65	-9.54	48.82	68.20	-19.38

Table 7-89. Radiated Measurements SISO ANT1 (242 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 242 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5785MHz
 Channel: 157

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	V	203	11	-74.25	14.79	0.00	47.54	53.98	-6.43
* 11570.00	Peak	V	203	11	-60.84	14.79	0.00	60.95	73.98	-13.02
17355.00	Peak	V	181	15	-71.54	23.18	0.00	58.64	68.20	-9.56
23140.00	Peak	V	-	-	-70.00	18.82	-9.54	46.28	68.20	-21.92
28925.00	Peak	V	-	-	-52.76	4.50	-9.54	49.20	68.20	-19.00

Table 7-90. Radiated Measurements SISO ANT1 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5825MHz
 Channel: 165

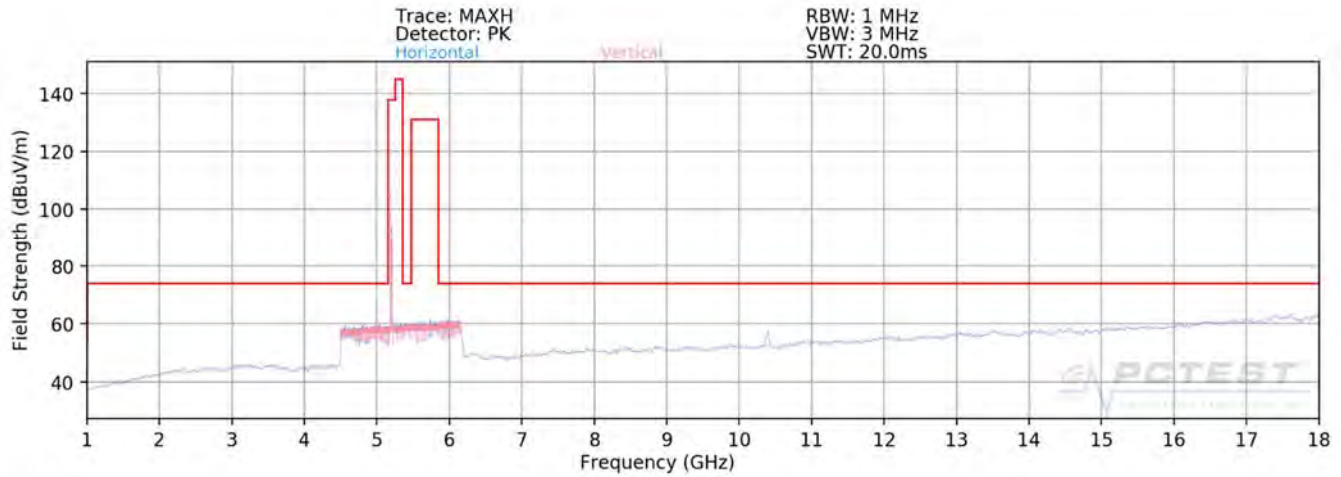
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	V	203	11	-74.25	15.05	0.00	47.80	53.98	-6.18
* 11650.00	Peak	V	203	11	-60.84	15.05	0.00	61.21	73.98	-12.77
17475.00	Peak	V	181	15	-71.54	22.03	0.00	57.49	68.20	-10.71
23300.00	Peak	V	-	-	-69.24	18.40	-9.54	46.63	68.20	-21.57
29125.00	Peak	V	-	-	-51.27	2.23	-9.54	48.43	68.20	-19.77

Table 7-91. Radiated Measurements SISO ANT1 (242 Tones)

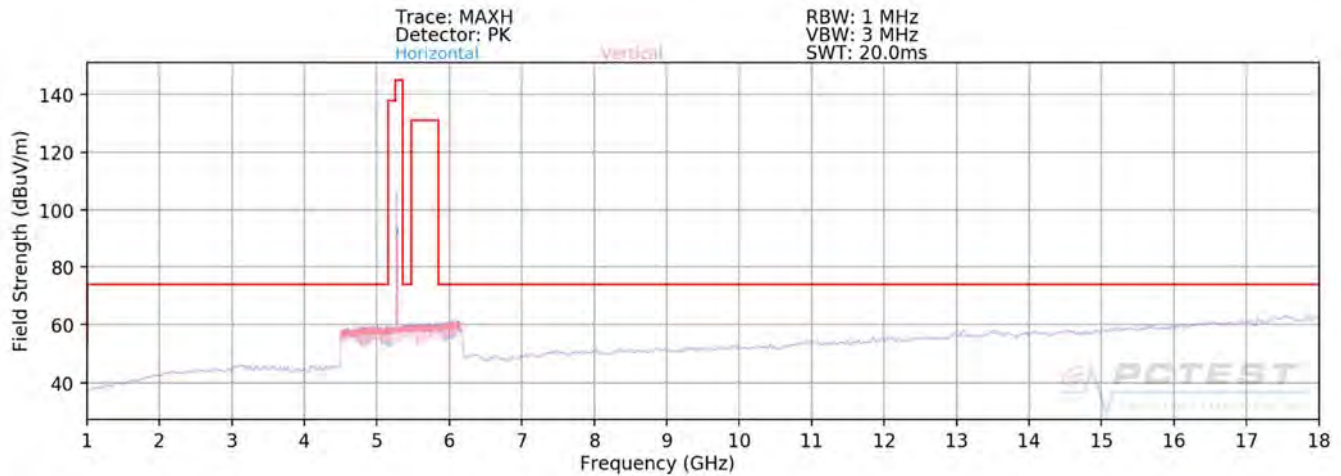
FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 243 of 302

7.6.2 SISO Antenna-2 Radiated Spurious Emission Measurements

26 Tones

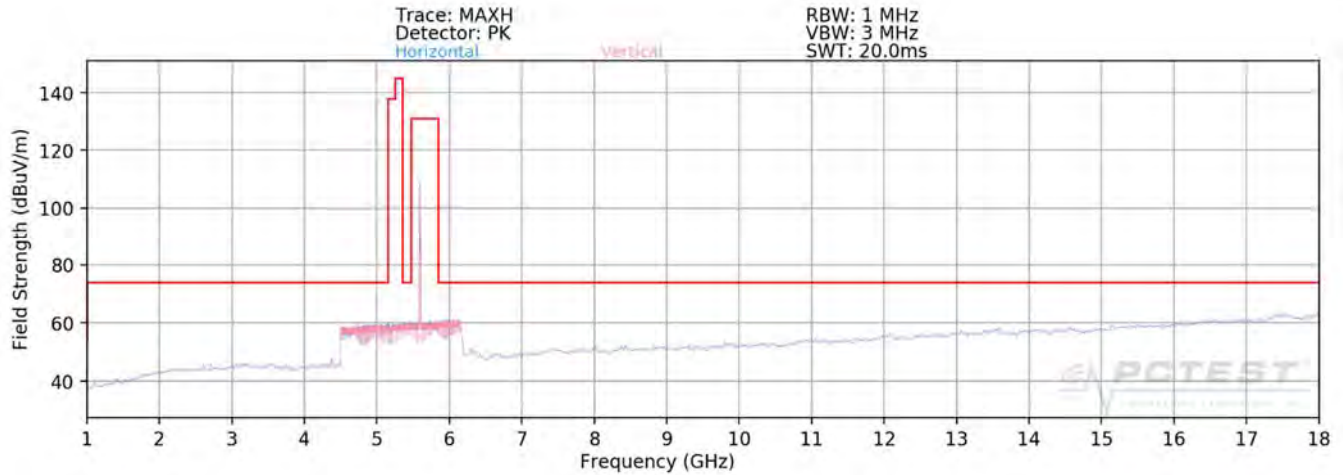


Plot 7-337. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11ax – U1 Ch. 40 – 26 Tones)

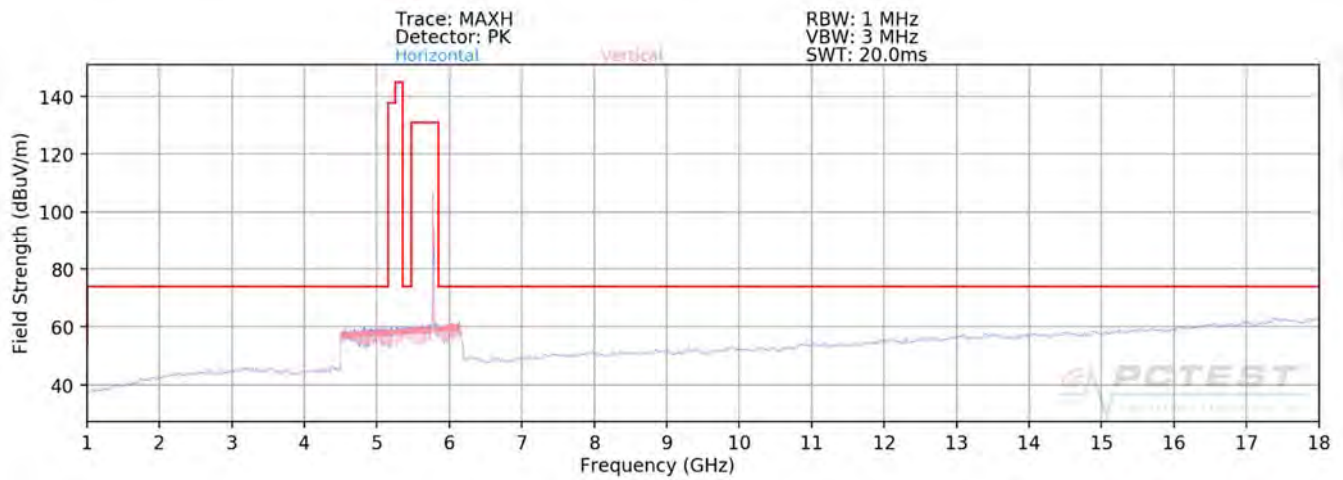


Plot 7-338. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11ax – U2A Ch. 56 – 26 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 244 of 302



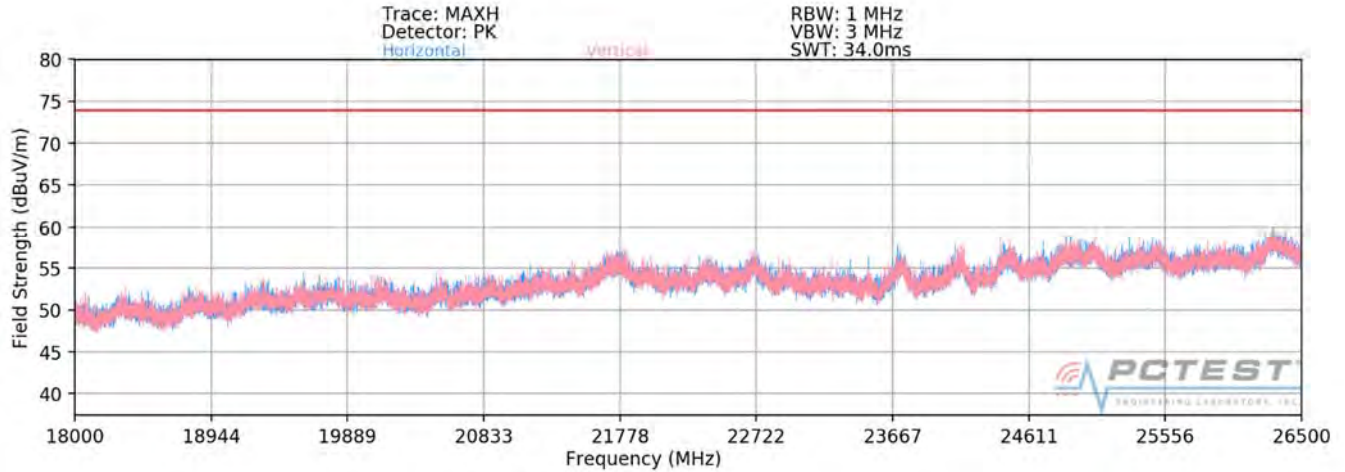
Plot 7-339. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11ax – U2C Ch. 120 – 26 Tones)



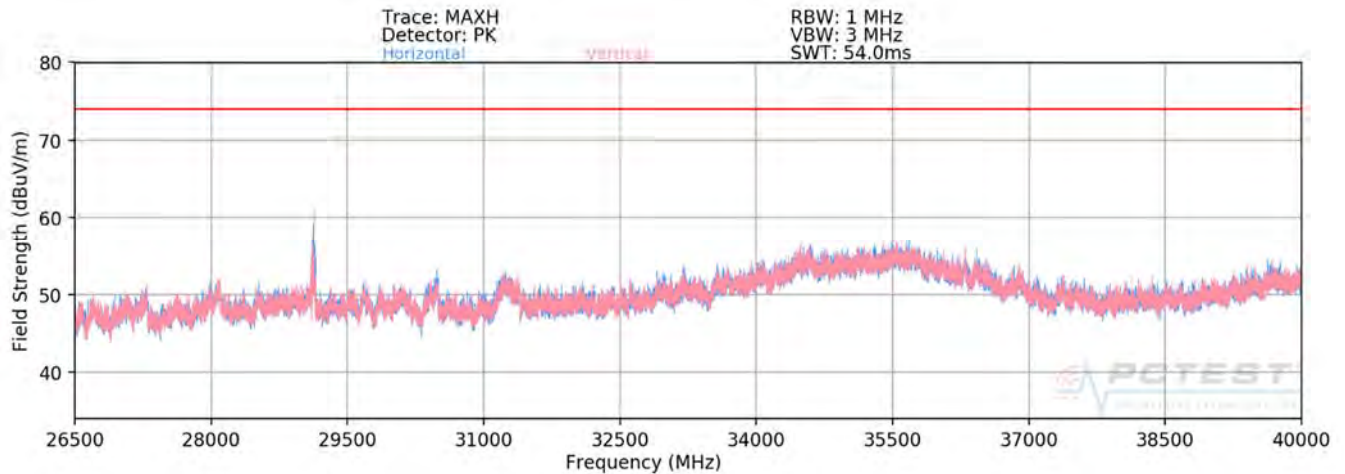
Plot 7-340. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11ax – U3 Ch. 157 – 26 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 245 of 302

SISO Antenna-2 Radiated Spurious Emissions Measurements (Above 18GHz)



Plot 7-341. Radiated Spurious Plot 18GHz - 26.5GHz SISO ANT2 (802.11ax – 26 Tones)



Plot 7-342. Radiated Spurious Plot 26.5GHz - 40GHz SISO ANT2 (802.11ax – 26 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 246 of 302

SISO Antenna-2 Radiated Spurious Emission Measurements

§15.407(b) §15.205 & §15.209; RSS-Gen [8.9]

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5180MHz
Channel:	36

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	V	-	-	-66.96	12.53	0.00	52.57	68.20	-15.63
* 15540.00	Average	V	-	-	-83.53	15.14	0.00	38.61	53.98	-15.37
* 15540.00	Peak	V	-	-	-71.89	15.14	0.00	50.25	73.98	-23.73
* 20720.00	Average	V	-	-	-79.51	17.17	-9.54	35.12	53.98	-18.86
* 20720.00	Peak	V	-	-	-69.64	17.17	-9.54	44.99	73.98	-28.99
25900.00	Peak	V	-	-	-67.34	19.34	-9.54	49.46	68.20	-18.74

Table 7-92. Radiated Measurements SISO ANT2 (26 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	4
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5200MHz
Channel:	40

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	V	368	15	-59.11	12.41	0.00	60.30	68.20	-7.90
* 15600.00	Average	V	-	-	-84.25	15.35	0.00	38.10	53.98	-15.88
* 15600.00	Peak	V	-	-	-71.75	15.35	0.00	50.60	73.98	-23.38
* 20800.00	Average	V	-	-	-79.88	17.31	-9.54	34.89	53.98	-19.09
* 20800.00	Peak	V	-	-	-69.46	17.31	-9.54	45.31	73.98	-28.67
26000.00	Peak	V	-	-	-68.65	19.60	-9.54	48.41	68.20	-19.79

Table 7-93. Radiated Measurements SISO ANT2 (26 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 247 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5240MHz
 Channel: 48

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	V	400	32	-62.28	12.50	0.00	57.22	68.20	-10.98
* 15720.00	Average	V	-	-	-83.86	16.80	0.00	39.94	53.98	-14.04
* 15720.00	Peak	V	-	-	-73.81	16.80	0.00	49.99	73.98	-23.99
* 20960.00	Average	V	-	-	-80.12	17.60	-9.54	34.94	53.98	-19.04
* 20960.00	Peak	V	-	-	-68.90	17.60	-9.54	46.15	73.98	-27.83
26200.00	Peak	V	-	-	-68.14	19.73	-9.54	49.05	68.20	-19.15

Table 7-94. Radiated Measurements SISO ANT2 (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5260MHz
 Channel: 52

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	V	-	-	-70.52	13.15	0.00	49.63	68.20	-18.57
* 15780.00	Average	V	-	-	-84.62	16.11	0.00	38.49	53.98	-15.49
* 15780.00	Peak	V	-	-	-72.69	16.11	0.00	50.42	73.98	-23.56
* 21040.00	Average	V	-	-	-79.84	17.67	-9.54	35.29	53.98	-18.69
* 21040.00	Peak	V	-	-	-67.60	17.67	-9.54	47.53	73.98	-26.45
26300.00	Peak	V	-	-	-67.84	20.29	-9.54	49.91	68.20	-18.29

Table 7-95. Radiated Measurements SISO ANT2 (26 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 248 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5280MHz
 Channel: 56

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	V	-	-	-70.04	13.67	0.00	50.63	68.20	-17.57
* 15840.00	Average	V	-	-	-83.82	15.45	0.00	38.63	53.98	-15.35
* 15840.00	Peak	V	-	-	-71.56	15.45	0.00	50.89	73.98	-23.09
* 21120.00	Average	V	-	-	-80.07	17.83	-9.54	35.23	53.98	-18.75
* 21120.00	Peak	V	-	-	-69.26	17.83	-9.54	46.04	73.98	-27.94
26400.00	Peak	V	-	-	-68.75	20.07	-9.54	48.79	68.20	-19.41

Table 7-96. Radiated Measurements SISO ANT2 (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5320MHz
 Channel: 64

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	V	-	-	-82.72	14.01	0.00	38.29	53.98	-15.69
* 10640.00	Peak	V	-	-	-70.66	14.01	0.00	50.35	73.98	-23.63
* 15960.00	Average	V	-	-	-83.68	15.52	0.00	38.84	53.98	-15.14
* 15960.00	Peak	V	-	-	-70.65	15.52	0.00	51.87	73.98	-22.11
* 21280.00	Average	V	-	-	-80.03	17.98	-9.54	35.41	53.98	-18.57
* 21280.00	Peak	V	-	-	-68.30	17.98	-9.54	47.14	73.98	-26.84
26600.00	Peak	V	-	-	-52.01	4.42	-9.54	49.86	68.20	-18.34

Table 7-97. Radiated Measurements SISO ANT2 (26 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 249 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5500MHz
 Channel: 100

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	V	-	-	-82.71	13.97	0.00	38.26	53.98	-15.72
* 11000.00	Peak	V	-	-	-70.52	13.97	0.00	50.45	73.98	-23.53
16500.00	Peak	V	-	-	-71.78	16.35	0.00	51.57	68.20	-16.63
22000.00	Peak	V	-	-	-69.89	18.43	-9.54	46.00	68.20	-22.20
27500.00	Peak	V	-	-	-52.43	3.16	-9.54	48.18	68.20	-20.02

Table 7-98. Radiated Measurements SISO ANT2 (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5600MHz
 Channel: 120

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.00	Average	V	400	45	-82.05	14.01	0.00	38.96	53.98	-15.02
* 11200.00	Peak	V	400	45	-70.45	14.01	0.00	50.56	73.98	-23.42
16800.00	Peak	V	-	-	-71.52	17.24	0.00	52.72	68.20	-15.48
* 22400.00	Average	V	-	-	-80.04	19.18	-9.54	36.60	53.98	-17.38
* 22400.00	Peak	V	-	-	-68.44	19.18	-9.54	48.20	73.98	-25.78
28000.00	Peak	V	-	-	-51.85	4.80	-9.54	50.41	68.20	-17.79

Table 7-99. Radiated Measurements SISO ANT2 (26 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 250 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5720MHz
 Channel: 144

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	V	400	326	-83.25	14.87	0.00	38.62	53.98	-15.36
* 11440.00	Peak	V	400	326	-71.35	14.87	0.00	50.52	73.98	-23.46
17160.00	Peak	V	-	-	-71.36	19.17	0.00	54.81	68.20	-13.39
* 22880.00	Average	V	-	-	-80.18	18.88	-9.54	36.16	53.98	-17.82
* 22880.00	Peak	V	-	-	-69.49	18.88	-9.54	46.85	73.98	-27.12
28600.00	Peak	V	-	-	-53.26	3.32	-9.54	47.52	68.20	-20.68

Table 7-100. Radiated Measurements SISO ANT2 (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5745MHz
 Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	V	-	-	-83.10	14.52	0.00	38.42	53.98	-15.56
* 11490.00	Peak	V	-	-	-70.75	14.52	0.00	50.77	73.98	-23.21
17235.00	Peak	V	-	-	-71.53	19.51	0.00	54.98	68.20	-13.22
* 22980.00	Average	V	-	-	-80.52	19.03	-9.54	35.97	53.98	-18.01
* 22980.00	Peak	V	-	-	-69.00	19.03	-9.54	47.50	73.98	-26.48
28725.00	Peak	V	-	-	-51.71	3.65	-9.54	49.40	68.20	-18.80

Table 7-101. Radiated Measurements SISO ANT2 (26 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 251 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5785MHz
 Channel: 157

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	V	-	-	-82.66	14.79	0.00	39.13	53.98	-14.84
* 11570.00	Peak	V	-	-	-70.55	14.79	0.00	51.24	73.98	-22.73
17355.00	Peak	V	-	-	-73.75	23.18	0.00	56.43	68.20	-11.77
23140.00	Peak	V	-	-	-70.00	18.82	-9.54	46.28	68.20	-21.92
28925.00	Peak	V	-	-	-52.58	4.50	-9.54	49.38	68.20	-18.82

Table 7-102. Radiated Measurements SISO ANT2 (26 Tones)

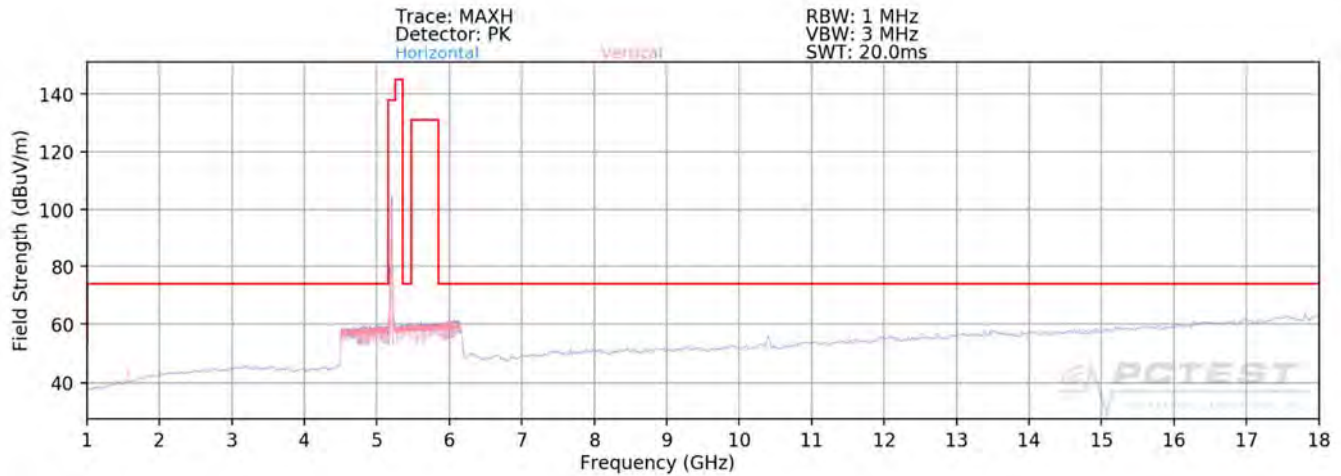
Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5825MHz
 Channel: 165

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	V	400	16	-81.73	15.05	0.00	40.32	53.98	-13.66
* 11650.00	Peak	V	400	16	-67.50	15.05	0.00	54.55	73.98	-19.43
17475.00	Peak	V	-	-	-74.58	22.03	0.00	54.45	68.20	-13.75
23300.00	Peak	V	-	-	-68.96	18.40	-9.54	46.90	68.20	-21.30
29125.00	Peak	V	-	-	-50.44	2.23	-9.54	49.26	68.20	-18.94

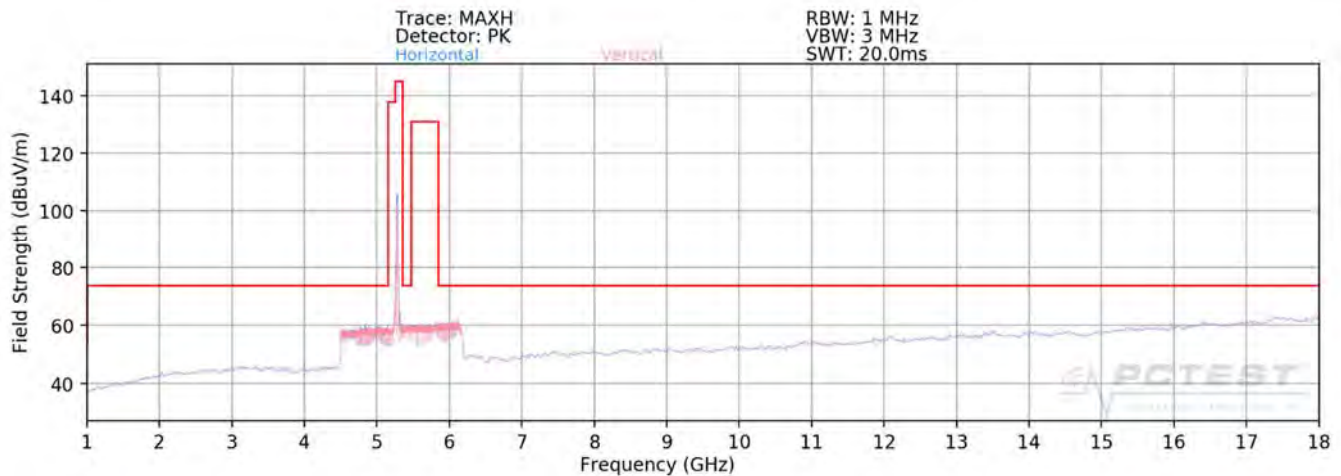
Table 7-103. Radiated Measurements SISO ANT2 (26 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 252 of 302

242 Tones

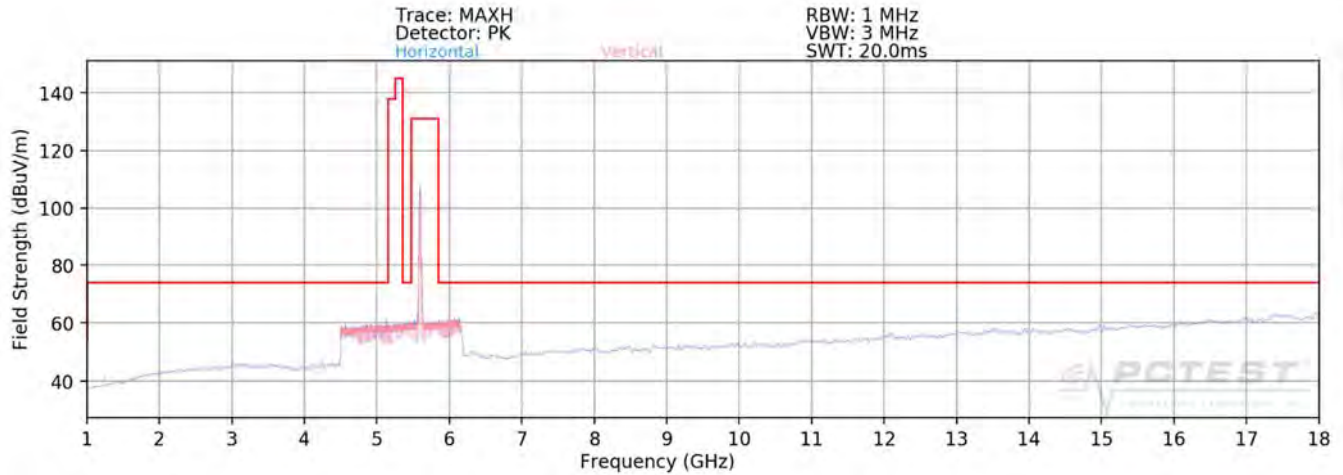


Plot 7-343. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11ax – U1 Ch. 40 – 242 Tones)

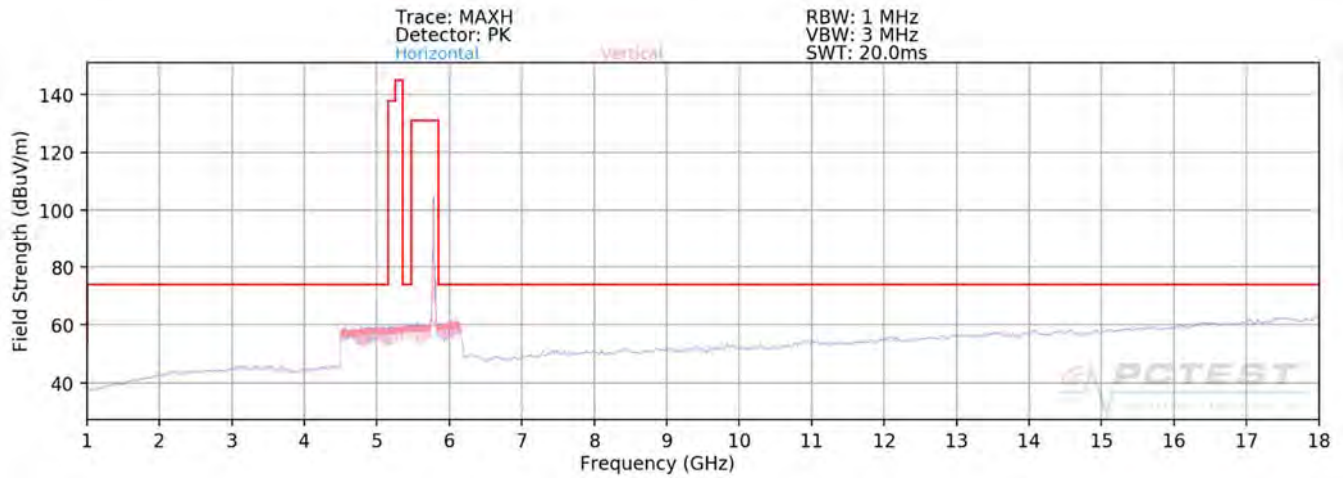


Plot 7-344. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11ax – U2A Ch. 56 – 242 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 253 of 302



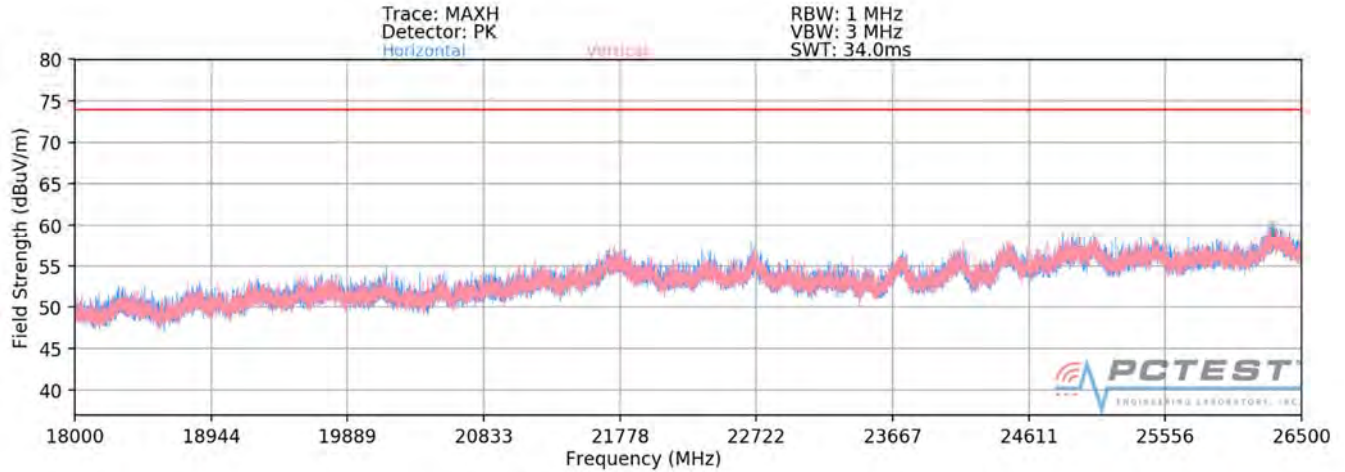
Plot 7-345. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11ax – U2C Ch. 120 – 242 Tones)



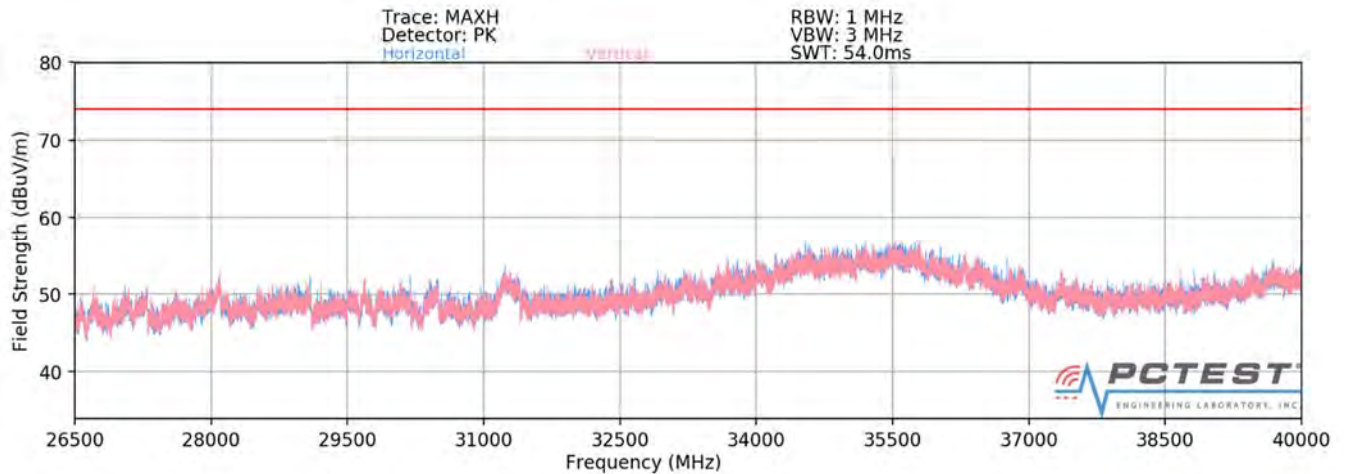
Plot 7-346. Radiated Spurious Plot above 1GHz SISO ANT2 (802.11ax – U3 Ch. 157 – 242 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 254 of 302

SISO Antenna-2 Radiated Spurious Emissions Measurements (Above 18GHz)



Plot 7-347. Radiated Spurious Plot 18GHz - 26.5GHz SISO ANT2 (802.11ax – 242 Tones)



Plot 7-348. Radiated Spurious Plot 26.5GHz - 40GHz SISO ANT2 (802.11ax – 242 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 255 of 302

SISO Antenna-2 Radiated Spurious Emission Measurements

§15.407(b) §15.205 & §15.209; RSS-Gen [8.9]

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5180MHz
Channel:	36

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	V	400	17	-58.37	12.53	0.00	61.16	68.20	-7.04
* 15540.00	Average	V	-	-	-83.61	15.14	0.00	38.53	53.98	-15.45
* 15540.00	Peak	V	-	-	-71.05	15.14	0.00	51.09	73.98	-22.89
* 20720.00	Average	V	-	-	-78.23	17.17	-9.54	36.40	53.98	-17.58
* 20720.00	Peak	V	-	-	-68.40	17.17	-9.54	46.23	73.98	-27.75
25900.00	Peak	V	-	-	-67.84	19.34	-9.54	48.96	68.20	-19.24

Table 7-104. Radiated Measurements SISO ANT2 (242 Tones)

Worst Case Mode:	802.11ax (20MHz BW)
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	1 & 3 Meters
Operating Frequency:	5200MHz
Channel:	40

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	V	367	5	-60.29	12.41	0.00	59.12	68.20	-9.08
* 15600.00	Average	V	-	-	-83.88	15.35	0.00	38.47	53.98	-15.51
* 15600.00	Peak	V	-	-	-71.34	15.35	0.00	51.01	73.98	-22.97
* 20800.00	Average	V	-	-	-79.62	17.31	-9.54	35.15	53.98	-18.83
* 20800.00	Peak	V	-	-	-67.95	17.31	-9.54	46.82	73.98	-27.16
26000.00	Peak	V	-	-	-68.47	19.60	-9.54	48.59	68.20	-19.61

Table 7-105. Radiated Measurements SISO ANT2 (242 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 256 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5240MHz
 Channel: 48

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	V	371	5	-61.94	12.50	0.00	57.56	68.20	-10.64
* 15720.00	Average	V	-	-	-84.03	16.80	0.00	39.77	53.98	-14.21
* 15720.00	Peak	V	-	-	-72.16	16.80	0.00	51.64	73.98	-22.34
* 20960.00	Average	V	-	-	-79.42	17.60	-9.54	35.64	53.98	-18.34
* 20960.00	Peak	V	-	-	-69.05	17.60	-9.54	46.01	73.98	-27.97
26200.00	Peak	V	-	-	-68.33	19.73	-9.54	48.86	68.20	-19.34

Table 7-106. Radiated Measurements SISO ANT2 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5260MHz
 Channel: 52

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	V	358	30	-64.52	13.15	0.00	55.63	68.20	-12.57
* 15780.00	Average	V	-	-	-84.88	16.11	0.00	38.23	53.98	-15.75
* 15780.00	Peak	V	-	-	-72.92	16.11	0.00	50.19	73.98	-23.79
* 21040.00	Average	V	-	-	-79.67	17.67	-9.54	35.46	53.98	-18.52
* 21040.00	Peak	V	-	-	-68.73	17.67	-9.54	46.40	73.98	-27.58
26300.00	Peak	V	-	-	-67.28	20.29	-9.54	50.46	68.20	-17.74

Table 7-107. Radiated Measurements SISO ANT2 (242 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 257 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5280MHz
 Channel: 56

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	V	369	29	-63.88	13.67	0.00	56.79	68.20	-11.41
* 15840.00	Average	V	-	-	-84.07	15.45	0.00	38.38	53.98	-15.60
* 15840.00	Peak	V	-	-	-71.64	15.45	0.00	50.81	73.98	-23.17
* 21120.00	Average	V	-	-	-80.26	17.83	-9.54	35.04	53.98	-18.94
* 21120.00	Peak	V	-	-	-69.05	17.83	-9.54	46.25	73.98	-27.73
26400.00	Peak	V	-	-	-67.71	20.07	-9.54	49.83	68.20	-18.37

Table 7-108. Radiated Measurements SISO ANT2 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5320MHz
 Channel: 64

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	V	372	2	-81.27	14.01	0.00	39.74	53.98	-14.24
* 10640.00	Peak	V	372	2	-66.23	14.01	0.00	54.78	73.98	-19.20
* 15960.00	Average	V	-	-	-83.88	15.52	0.00	38.64	53.98	-15.34
* 15960.00	Peak	V	-	-	-71.93	15.52	0.00	50.59	73.98	-23.39
* 21280.00	Average	V	-	-	-79.50	17.98	-9.54	35.94	53.98	-18.04
* 21280.00	Peak	V	-	-	-69.89	17.98	-9.54	45.55	73.98	-28.43
26600.00	Peak	V	-	-	-50.10	4.42	-9.54	51.77	68.20	-16.43

Table 7-109. Radiated Measurements SISO ANT2 (242 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 258 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5500MHz
 Channel: 100

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	V	354	34	-79.36	13.97	0.00	41.61	53.98	-12.37
* 11000.00	Peak	V	354	34	-67.55	13.97	0.00	53.42	73.98	-20.56
16500.00	Peak	V	-	-	-71.85	16.35	0.00	51.50	68.20	-16.70
22000.00	Peak	V	-	-	-69.69	18.43	-9.54	46.20	68.20	-22.00
27500.00	Peak	V	-	-	-51.20	3.16	-9.54	49.42	68.20	-18.78

Table 7-110. Radiated Measurements SISO ANT2 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5600MHz
 Channel: 120

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.00	Average	V	367	23	-82.60	14.01	0.00	38.41	53.98	-15.57
* 11200.00	Peak	V	367	23	-70.47	14.01	0.00	50.54	73.98	-23.44
16800.00	Peak	V	-	-	-72.34	17.24	0.00	51.90	68.20	-16.30
* 22400.00	Average	V	-	-	-80.34	19.18	-9.54	36.30	53.98	-17.68
* 22400.00	Peak	V	-	-	-68.70	19.18	-9.54	47.94	73.98	-26.04
28000.00	Peak	V	-	-	-50.03	4.80	-9.54	52.23	68.20	-15.97

Table 7-111. Radiated Measurements SISO ANT2 (242 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 259 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5720MHz
 Channel: 144

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	V	112	352	-83.57	14.87	0.00	38.30	53.98	-15.68
* 11440.00	Peak	V	112	352	-70.98	14.87	0.00	50.89	73.98	-23.09
17160.00	Peak	V	-	-	-71.87	19.17	0.00	54.30	68.20	-13.90
* 22880.00	Average	V	-	-	-80.37	18.88	-9.54	35.97	53.98	-18.01
* 22880.00	Peak	V	-	-	-68.30	18.88	-9.54	48.04	73.98	-25.94
28600.00	Peak	V	-	-	-52.42	3.32	-9.54	48.35	68.20	-19.85

Table 7-112. Radiated Measurements SISO ANT2 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5745MHz
 Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	V	400	16	-83.16	14.52	0.00	38.36	53.98	-15.62
* 11490.00	Peak	V	400	16	-71.07	14.52	0.00	50.45	73.98	-23.53
17235.00	Peak	V	-	-	-71.83	19.51	0.00	54.68	68.20	-13.52
* 22980.00	Average	V	-	-	-79.75	19.03	-9.54	36.74	53.98	-17.24
* 22980.00	Peak	V	-	-	-69.09	19.03	-9.54	47.41	73.98	-26.57
28725.00	Peak	V	-	-	-51.15	3.65	-9.54	49.96	68.20	-18.24

Table 7-113. Radiated Measurements SISO ANT2 (242 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 260 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5785MHz
 Channel: 157

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	V	400	6	-80.51	14.79	0.00	41.28	53.98	-12.69
* 11570.00	Peak	V	400	6	-67.54	14.79	0.00	54.25	73.98	-19.72
17355.00	Peak	V	-	-	-73.89	23.18	0.00	56.29	68.20	-11.91
23140.00	Peak	V	-	-	-69.65	18.82	-9.54	46.63	68.20	-21.57
28925.00	Peak	V	-	-	-52.57	4.50	-9.54	49.39	68.20	-18.81

Table 7-114. Radiated Measurements SISO ANT2 (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5825MHz
 Channel: 165

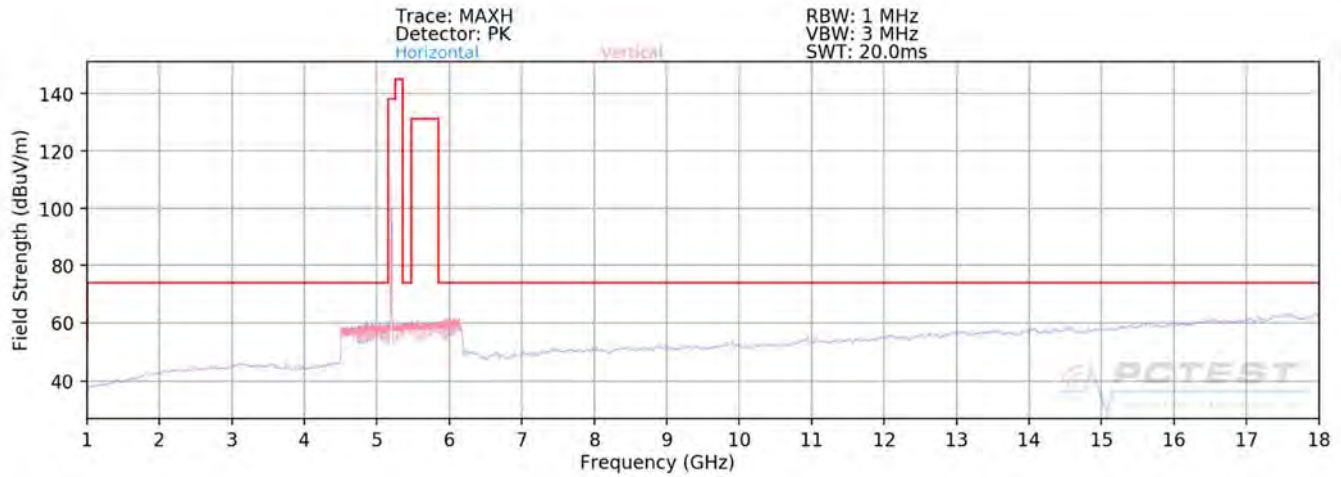
Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	V	400	5	-79.36	15.05	0.00	42.69	53.98	-11.29
* 11650.00	Peak	V	400	5	-65.69	15.05	0.00	56.36	73.98	-17.62
17475.00	Peak	V	-	-	-72.54	22.03	0.00	56.49	68.20	-11.71
23300.00	Peak	V	-	-	-68.38	18.40	-9.54	47.48	68.20	-20.72
29125.00	Peak	V	-	-	-50.52	2.23	-9.54	49.17	68.20	-19.03

Table 7-115. Radiated Measurements SISO ANT2 (242 Tones)

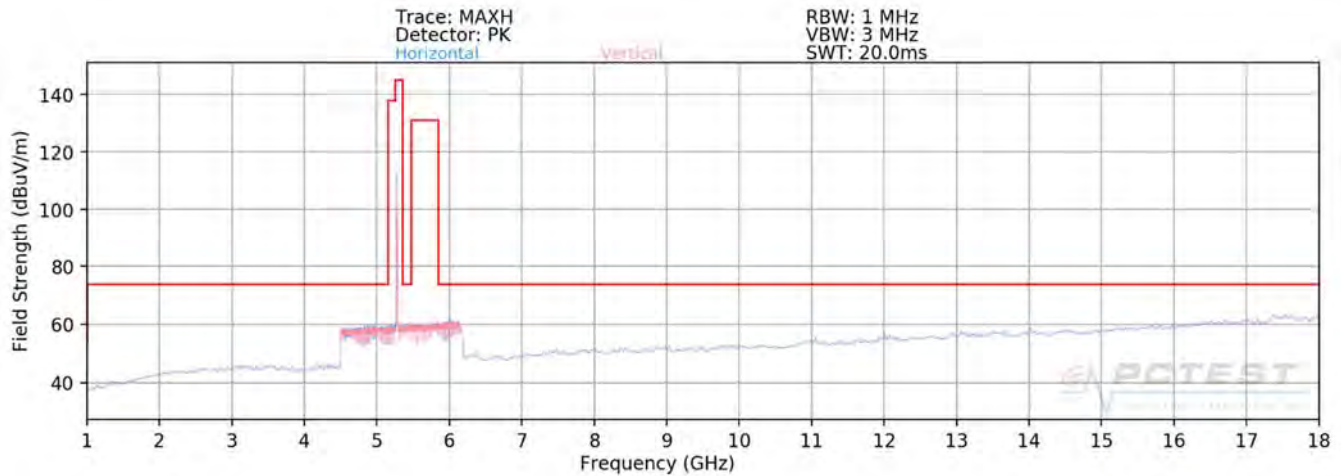
FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 261 of 302

7.6.3 MIMO Radiated Spurious Emission Measurements

26 Tones

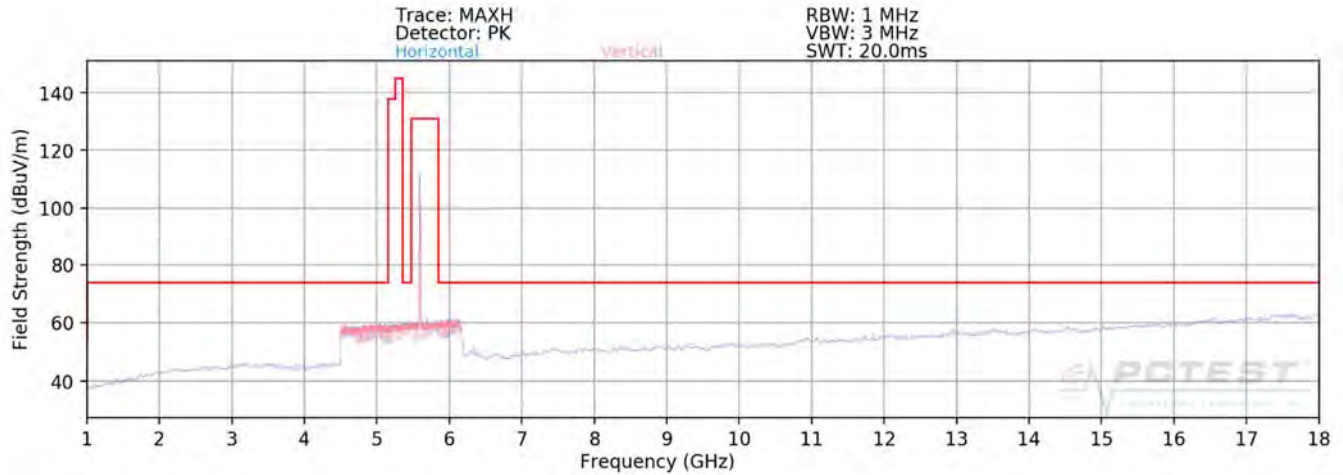


Plot 7-349. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U1 Ch. 40 – 26 Tones)

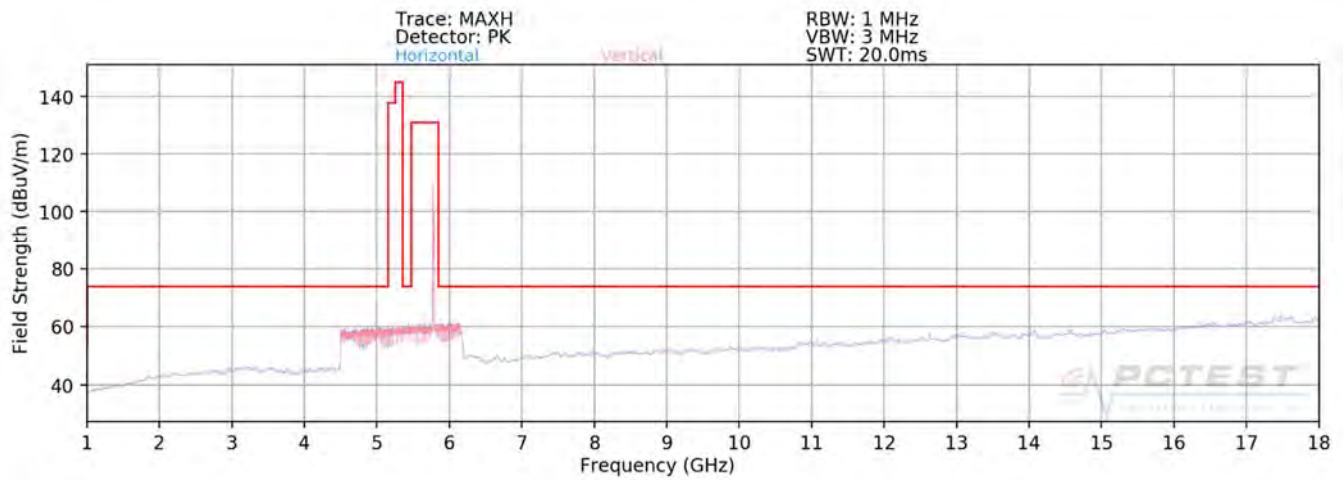


Plot 7-350. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U2A Ch. 56 – 26 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 262 of 302



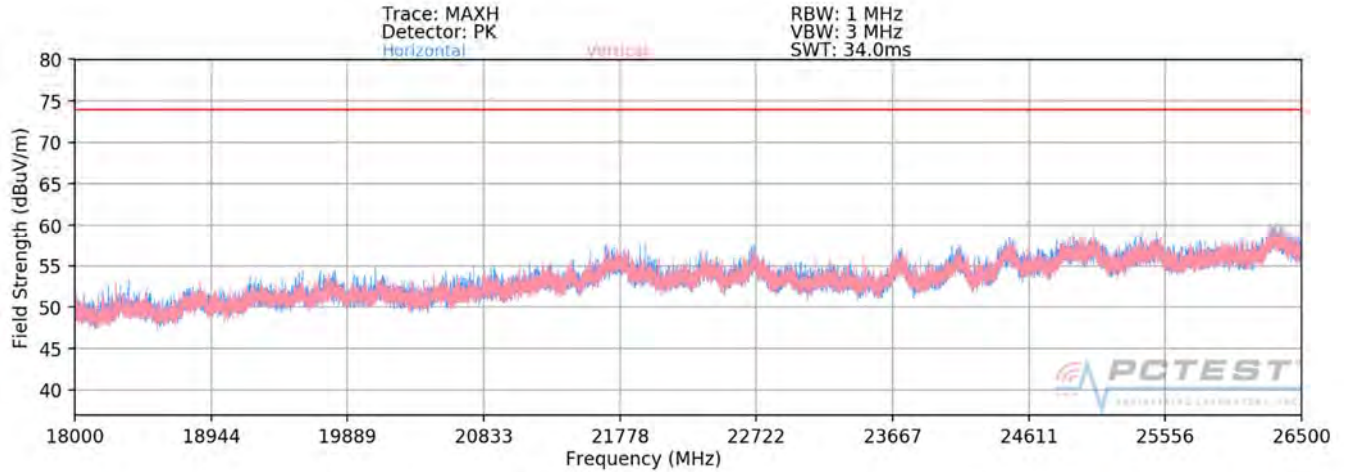
Plot 7-351. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U2C Ch. 120 – 26 Tones)



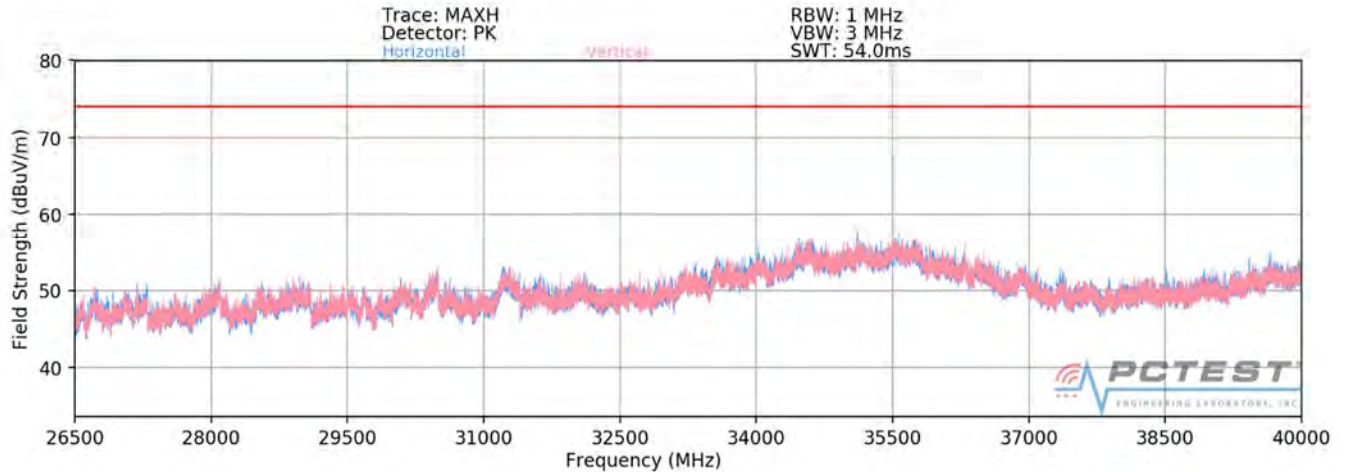
Plot 7-352. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U3 Ch. 157 – 26 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 263 of 302

MIMO Radiated Spurious Emissions Measurements (Above 18GHz)



Plot 7-353. Radiated Spurious Plot 18GHz - 26.5GHz MIMO (802.11ax – 26 Tones)



Plot 7-354. Radiated Spurious Plot 26.5GHz - 40GHz MIMO (802.11ax – 26 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 264 of 302

MIMO Radiated Spurious Emission Measurements (26 Tones)

§15.407(b) §15.205 & §15.209; RSS-Gen [8.9]

Worst Case Mode: 802.11ax (20MHz BW)
Worst Case Transfer Rate: MCS0
RU Index: 4
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5180MHz
Channel: 36

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	V	-	-	-70.31	15.41	0.00	52.10	68.20	-16.10
* 15540.00	Average	V	-	-	-83.17	22.36	0.00	46.19	53.98	-7.79
* 15540.00	Peak	V	-	-	-71.16	22.36	0.00	58.20	73.98	-15.78
* 20720.00	Average	V	-	-	-79.93	17.17	-9.54	34.70	53.98	-19.28
* 20720.00	Peak	V	-	-	-69.75	17.17	-9.54	44.88	73.98	-29.10
25900.00	Peak	V	-	-	-68.34	19.34	-9.54	48.46	68.20	-19.74

Table 7-116. Radiated Measurements MIMO (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
Worst Case Transfer Rate: MCS0
RU Index: 4
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5200MHz
Channel: 40

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	V	118	3	-65.94	15.50	0.00	56.56	68.20	-11.64
* 15600.00	Average	V	-	-	-82.91	22.52	0.00	46.61	53.98	-7.37
* 15600.00	Peak	V	-	-	-71.34	22.52	0.00	58.18	73.98	-15.80
* 20800.00	Average	V	-	-	-79.73	17.31	-9.54	35.04	53.98	-18.94
* 20800.00	Peak	V	-	-	-69.32	17.31	-9.54	45.45	73.98	-28.53
26000.00	Peak	V	-	-	-68.14	19.60	-9.54	48.92	68.20	-19.28

Table 7-117. Radiated Measurements MIMO (26 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 265 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5240MHz
 Channel: 48

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	V	121	14	-66.82	15.49	0.00	55.67	68.20	-12.53
* 15720.00	Average	V	-	-	-83.13	22.76	0.00	46.63	53.98	-7.35
* 15720.00	Peak	V	-	-	-71.21	22.76	0.00	58.55	73.98	-15.43
* 20960.00	Average	V	-	-	-79.83	17.60	-9.54	35.22	53.98	-18.76
* 20960.00	Peak	V	-	-	-69.45	17.60	-9.54	45.60	73.98	-28.38
* 26200.00	Peak	V	-	-	-67.85	19.73	-9.54	49.34	68.20	-18.86

Table 7-118. Radiated Measurements MIMO (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5260MHz
 Channel: 52

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	V	-	-	-70.65	15.68	0.00	52.03	68.20	-16.17
* 15780.00	Average	V	-	-	-83.00	22.73	0.00	46.73	53.98	-7.25
* 15780.00	Peak	V	-	-	-70.62	22.73	0.00	59.11	73.98	-14.87
* 21040.00	Average	V	-	-	-79.97	17.67	-9.54	35.16	53.98	-18.82
* 21040.00	Peak	V	-	-	-68.83	17.67	-9.54	46.30	73.98	-27.68
* 26300.00	Peak	V	-	-	-67.84	20.29	-9.54	49.91	68.20	-18.29

Table 7-119. Radiated Measurements MIMO (26 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 266 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5280MHz
 Channel: 56

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	V	-	-	-70.61	15.95	0.00	52.34	68.20	-15.86
* 15840.00	Average	V	-	-	-83.41	23.15	0.00	46.74	53.98	-7.24
* 15840.00	Peak	V	-	-	-70.89	23.15	0.00	59.26	73.98	-14.72
* 21120.00	Average	V	-	-	-80.07	17.83	-9.54	35.22	53.98	-18.76
* 21120.00	Peak	V	-	-	-69.42	17.83	-9.54	45.87	73.98	-28.11
* 26400.00	Peak	V	-	-	-68.06	20.07	-9.54	49.47	68.20	-18.73

Table 7-120. Radiated Measurements MIMO (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5320MHz
 Channel: 64

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	V	-	-	-82.40	16.08	0.00	40.68	53.98	-13.30
* 10640.00	Peak	V	-	-	-69.97	16.08	0.00	53.11	73.98	-20.87
* 15960.00	Average	V	-	-	-83.41	23.20	0.00	46.79	53.98	-7.19
* 15960.00	Peak	V	-	-	-71.93	23.20	0.00	58.27	73.98	-15.71
* 21280.00	Average	V	-	-	-80.18	17.98	-9.54	35.26	53.98	-18.72
* 21280.00	Peak	V	-	-	-68.93	17.98	-9.54	46.51	73.98	-27.47
* 26600.00	Peak	V	-	-	-51.67	4.42	-9.54	50.21	68.20	-17.99

Table 7-121. Radiated Measurements MIMO (26 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 267 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5500MHz
 Channel: 100

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	V	-	-	-82.06	17.05	0.00	41.99	53.98	-11.99
* 11000.00	Peak	V	-	-	-70.11	17.05	0.00	53.94	73.98	-20.04
16500.00	Peak	V	-	-	-71.07	24.58	0.00	60.51	68.20	-7.69
22000.00	Peak	V	-	-	-68.94	18.43	-9.54	46.96	68.20	-21.24
27500.00	Peak	V	-	-	-51.18	3.16	-9.54	49.43	68.20	-18.77

Table 7-122. Radiated Measurements MIMO (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5600MHz
 Channel: 120

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.00	Average	V	-	-	-81.86	16.62	0.00	41.76	53.98	-12.22
* 11200.00	Peak	V	-	-	-69.24	16.62	0.00	54.38	73.98	-19.60
16800.00	Peak	V	-	-	-70.16	24.32	0.00	61.16	68.20	-7.04
* 22400.00	Average	V	-	-	-80.22	19.18	-9.54	36.43	53.98	-17.55
* 22400.00	Peak	V	-	-	-69.70	19.18	-9.54	46.94	73.98	-27.04
28000.00	Peak	V	-	-	-51.64	4.80	-9.54	50.62	68.20	-17.58

Table 7-123. Radiated Measurements MIMO (26 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 268 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5720MHz
 Channel: 144

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	V	-	-	-83.14	17.60	0.00	41.46	53.98	-12.52
* 11440.00	Peak	V	-	-	-70.99	17.60	0.00	53.61	73.98	-20.37
17160.00	Peak	V	-	-	-71.58	24.61	0.00	60.03	68.20	-8.17
* 22880.00	Average	V	-	-	-80.14	18.88	-9.54	36.20	53.98	-17.78
* 22880.00	Peak	V	-	-	-69.41	18.88	-9.54	46.93	73.98	-27.05
28600.00	Peak	V	-	-	-52.85	3.32	-9.54	47.93	68.20	-20.27

Table 7-124. Radiated Measurements MIMO (26 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5745MHz
 Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	V	117	27	-81.22	17.49	0.00	43.27	53.98	-10.71
* 11490.00	Peak	V	117	27	-68.01	17.49	0.00	56.48	73.98	-17.50
17235.00	Peak	V	-	-	-68.15	25.28	0.00	64.13	68.20	-4.07
* 22980.00	Average	V	-	-	-79.93	19.03	-9.54	36.56	53.98	-17.42
* 22980.00	Peak	V	-	-	-68.45	19.03	-9.54	48.04	73.98	-25.94
28725.00	Peak	V	-	-	-52.29	3.65	-9.54	48.82	68.20	-19.38

Table 7-125. Radiated Measurements MIMO (26 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 269 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5785MHz
 Channel: 157

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	V	-	-	-82.78	17.65	0.00	41.87	53.98	-12.11
* 11570.00	Peak	V	-	-	-71.14	17.65	0.00	53.51	73.98	-20.47
17355.00	Peak	V	-	-	-71.65	26.38	0.00	61.73	68.20	-6.47
23140.00	Peak	V	-	-	-70.00	18.82	-9.54	46.28	68.20	-21.92
28925.00	Peak	V	-	-	-52.76	4.50	-9.54	49.20	68.20	-19.00

Table 7-126. Radiated Measurements MIMO (26 Tones)

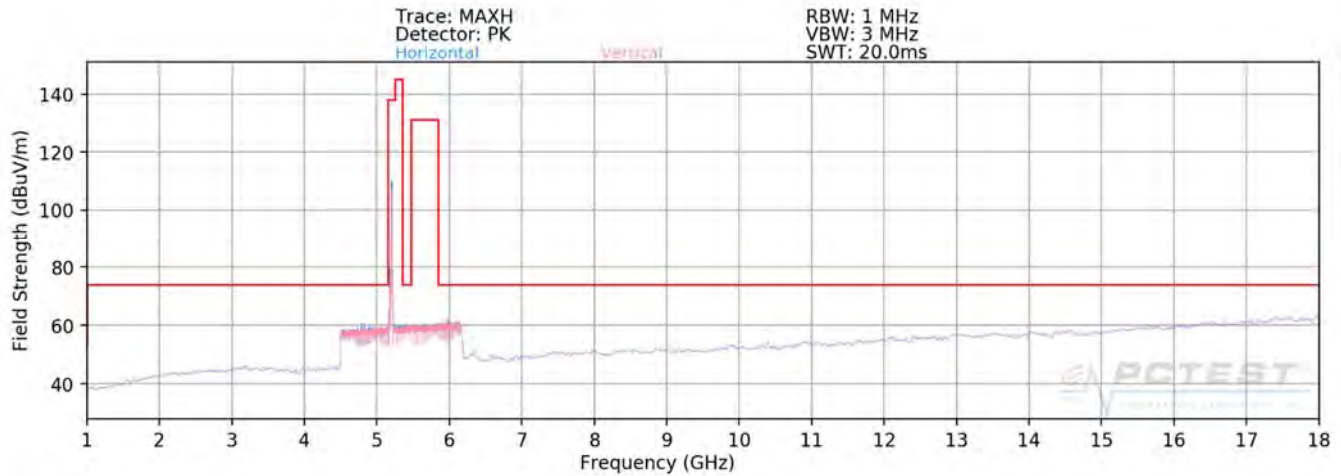
Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 4
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5825MHz
 Channel: 165

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	V	-	-	-82.60	17.61	0.00	42.01	53.98	-11.97
* 11650.00	Peak	V	-	-	-70.83	17.61	0.00	53.78	73.98	-20.20
17475.00	Peak	V	-	-	-71.17	26.04	0.00	61.87	68.20	-6.33
23300.00	Peak	V	-	-	-69.24	18.40	-9.54	46.63	68.20	-21.57
29125.00	Peak	V	-	-	-51.27	2.23	-9.54	48.43	68.20	-19.77

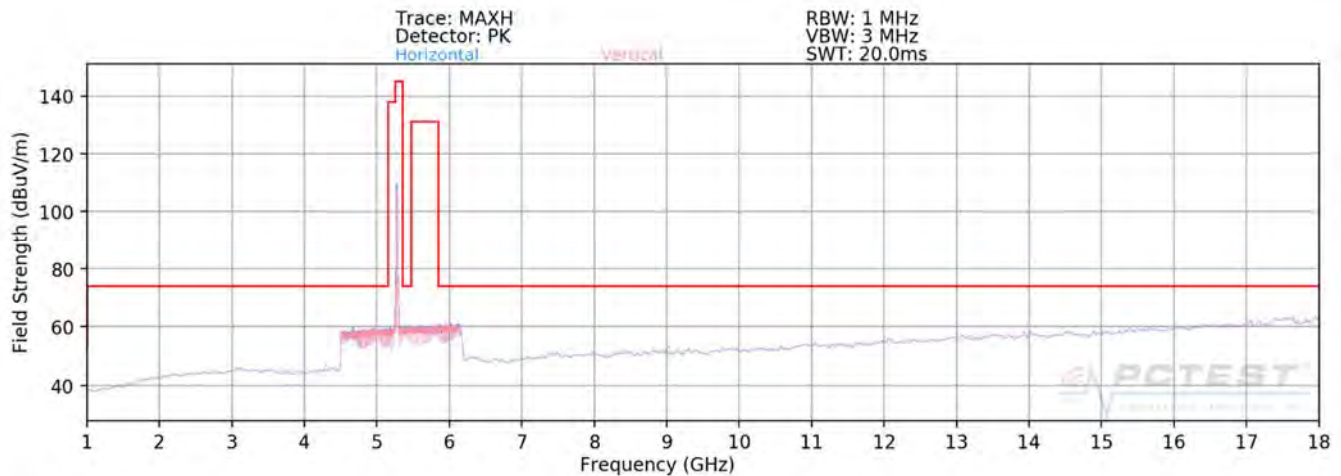
Table 7-127. Radiated Measurements MIMO (26 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 270 of 302

242 Tones

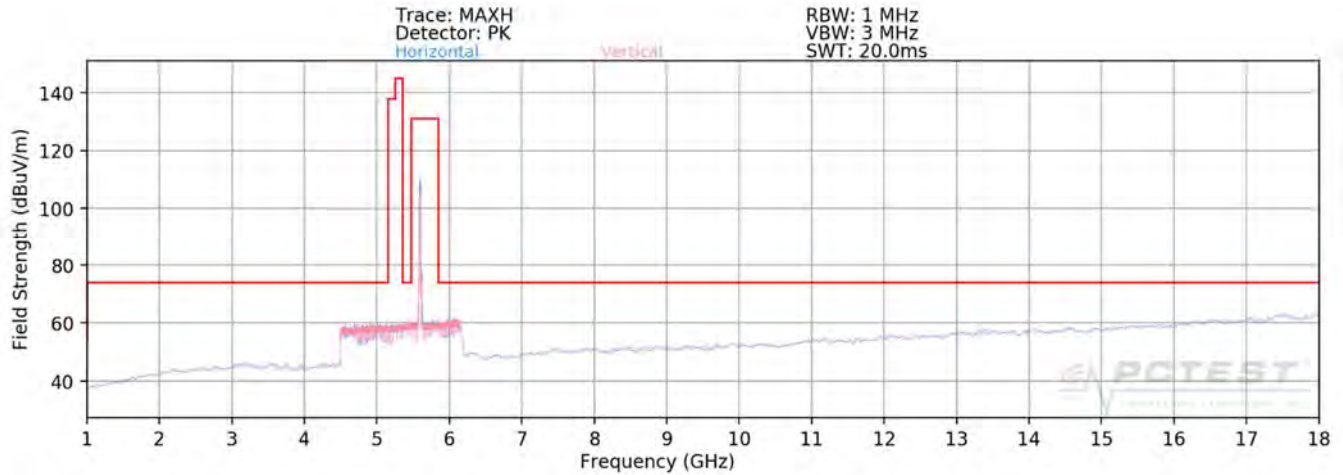


Plot 7-355. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U1 Ch. 40 – 242 Tones)

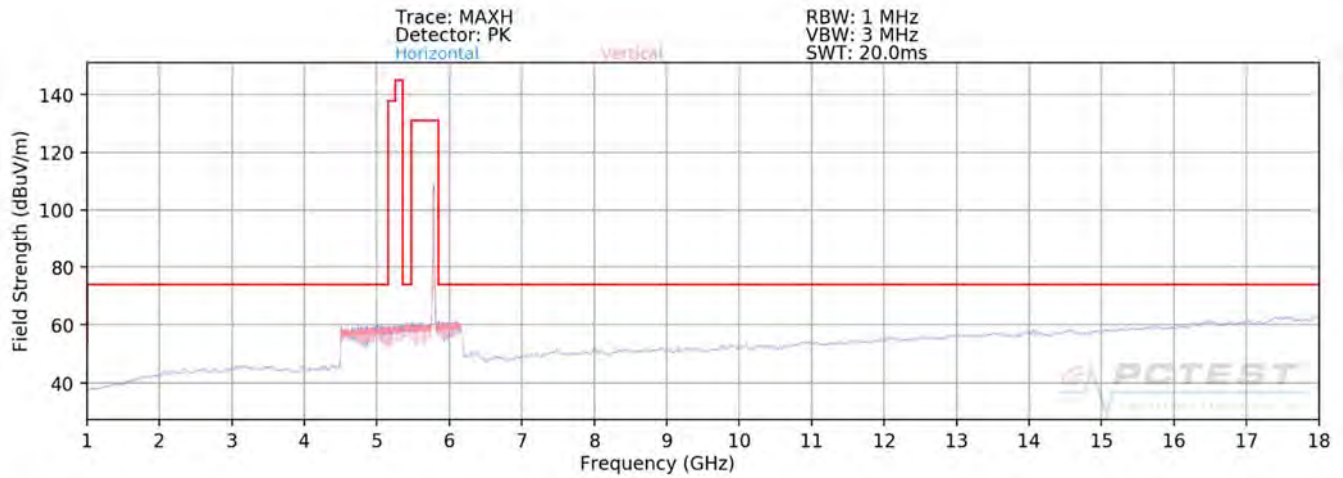


Plot 7-356. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U2A Ch. 56 – 242 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 271 of 302



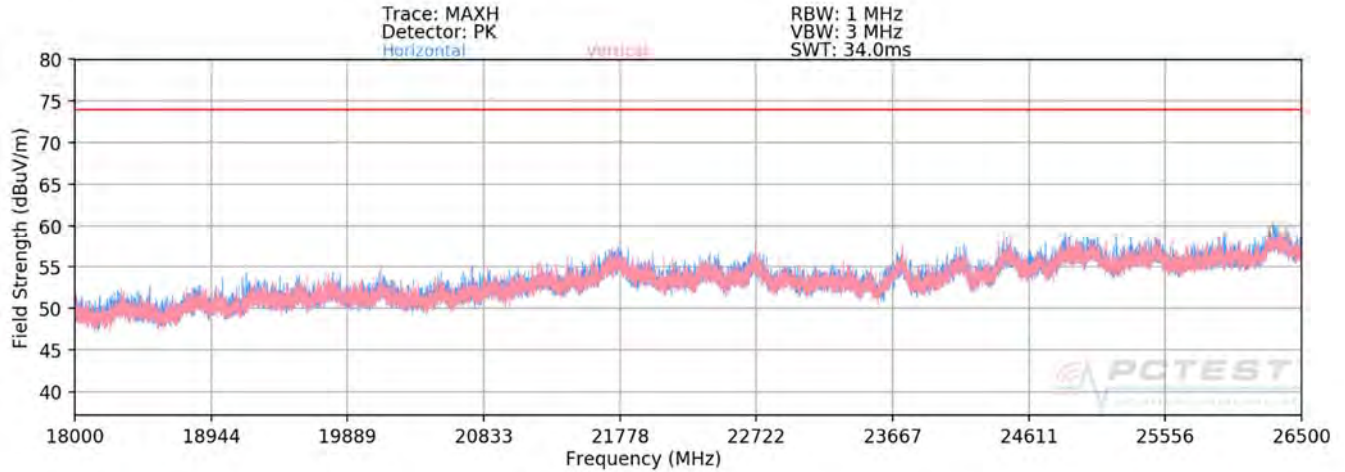
Plot 7-357. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U2C Ch. 120 – 242 Tones)



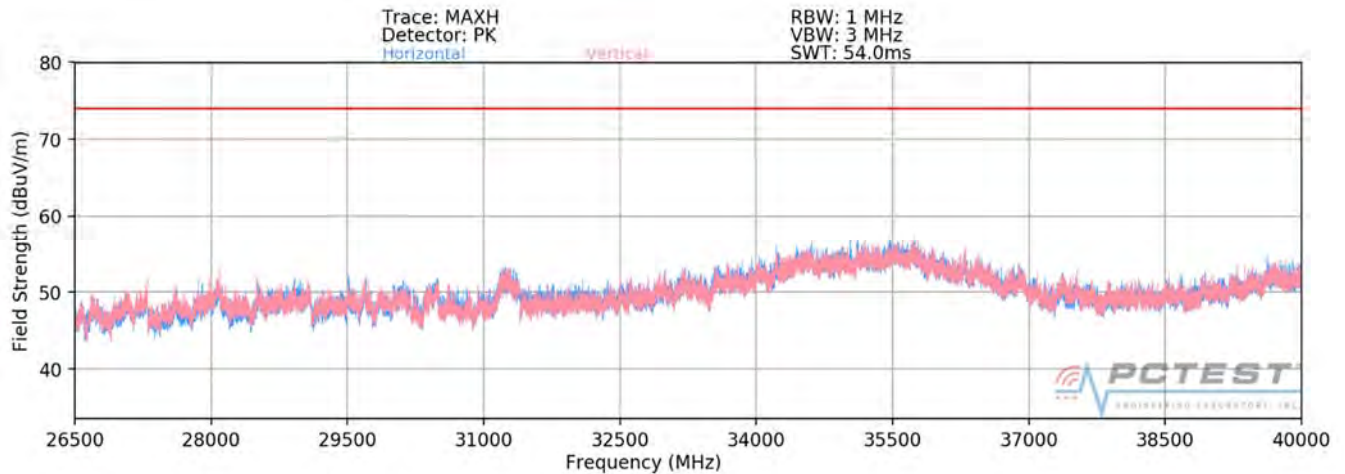
Plot 7-358. Radiated Spurious Plot above 1GHz MIMO (802.11ax – U3 Ch. 157 – 242 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 272 of 302

MIMO Radiated Spurious Emissions Measurements (Above 18GHz)



Plot 7-359. Radiated Spurious Plot 18GHz - 26.5GHz MIMO (802.11ax – 242 Tones)



Plot 7-360. Radiated Spurious Plot 26.5GHz - 40GHz MIMO (802.11ax – 242 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 273 of 302

MIMO Radiated Spurious Emission Measurements (242 Tones)

§15.407(b) §15.205 & §15.209; RSS-Gen [8.9]

Worst Case Mode: 802.11ax (20MHz BW)
Worst Case Transfer Rate: MCS0
RU Index: 61
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5180MHz
Channel: 36

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10360.00	Peak	V	113	342	-65.41	15.41	0.00	57.00	68.20	-11.20
* 15540.00	Average	V	-	-	-83.43	22.36	0.00	45.93	53.98	-8.05
* 15540.00	Peak	V	-	-	-70.69	22.36	0.00	58.67	73.98	-15.31
* 20720.00	Average	V	-	-	-80.18	17.17	-9.54	34.46	53.98	-19.52
* 20720.00	Peak	V	-	-	-69.46	17.17	-9.54	45.17	73.98	-28.81
25900.00	Peak	V	-	-	-66.66	19.34	-9.54	50.14	68.20	-18.06

Table 7-128. Radiated Measurements MIMO (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
Worst Case Transfer Rate: MCS0
RU Index: 61
Distance of Measurements: 1 & 3 Meters
Operating Frequency: 5200MHz
Channel: 40

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10400.00	Peak	V	113	361	-65.48	15.50	0.00	57.02	68.20	-11.18
* 15600.00	Average	V	-	-	-82.87	22.52	0.00	46.65	53.98	-7.33
* 15600.00	Peak	V	-	-	-70.98	22.52	0.00	58.54	73.98	-15.44
* 20800.00	Average	V	-	-	-80.50	17.31	-9.54	34.26	53.98	-19.72
* 20800.00	Peak	V	-	-	-69.66	17.31	-9.54	45.11	73.98	-28.87
26000.00	Peak	V	-	-	-67.78	19.60	-9.54	49.28	68.20	-18.92

Table 7-129. Radiated Measurements MIMO (242 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 274 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5240MHz
 Channel: 48

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10480.00	Peak	V	130	18	-65.44	15.49	0.00	57.05	68.20	-11.15
* 15720.00	Average	V	-	-	-83.18	22.76	0.00	46.58	53.98	-7.40
* 15720.00	Peak	V	-	-	-71.19	22.76	0.00	58.57	73.98	-15.41
* 20960.00	Average	V	-	-	-80.42	17.60	-9.54	34.64	53.98	-19.34
* 20960.00	Peak	V	-	-	-69.25	17.60	-9.54	45.81	73.98	-28.17
26200.00	Peak	V	-	-	-67.54	19.73	-9.54	49.64	68.20	-18.56

Table 7-130. Radiated Measurements MIMO (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5260MHz
 Channel: 52

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10520.00	Peak	V	220	20	-67.19	15.68	0.00	55.49	68.20	-12.71
* 15780.00	Average	V	-	-	-83.08	22.73	0.00	46.65	53.98	-7.33
* 15780.00	Peak	V	-	-	-70.93	22.73	0.00	58.80	73.98	-15.18
* 21040.00	Average	V	-	-	-79.77	17.67	-9.54	35.36	53.98	-18.62
* 21040.00	Peak	V	-	-	-68.81	17.67	-9.54	46.32	73.98	-27.66
26300.00	Peak	V	-	-	-67.71	20.29	-9.54	50.03	68.20	-18.17

Table 7-131. Radiated Measurements MIMO (242 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 275 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5280MHz
 Channel: 56

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
10560.00	Peak	V	119	364	-66.95	15.95	0.00	56.00	68.20	-12.20
* 15840.00	Average	V	-	-	-83.58	23.15	0.00	46.57	53.98	-7.41
* 15840.00	Peak	V	-	-	-71.31	23.15	0.00	58.84	73.98	-15.14
* 21120.00	Average	V	-	-	-80.48	17.83	-9.54	34.81	53.98	-19.17
* 21120.00	Peak	V	-	-	-68.12	17.83	-9.54	47.17	73.98	-26.81
* 26400.00	Peak	V	-	-	-67.70	20.07	-9.54	49.83	68.20	-18.37

Table 7-132. Radiated Measurements MIMO (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5320MHz
 Channel: 64

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 10640.00	Average	V	105	22	-80.43	16.08	0.00	42.65	53.98	-11.33
* 10640.00	Peak	V	105	22	-66.85	16.08	0.00	56.23	73.98	-17.75
* 15960.00	Average	V	-	-	-83.30	23.20	0.00	46.90	53.98	-7.08
* 15960.00	Peak	V	-	-	-71.68	23.20	0.00	58.52	73.98	-15.46
* 21280.00	Average	V	-	-	-80.43	17.98	-9.54	35.01	53.98	-18.97
* 21280.00	Peak	V	-	-	-68.58	17.98	-9.54	46.86	73.98	-27.12
* 26600.00	Peak	V	-	-	-52.84	4.42	-9.54	49.04	68.20	-19.16

Table 7-133. Radiated Measurements MIMO (242 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 276 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5500MHz
 Channel: 100

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11000.00	Average	V	119	38	-77.10	17.05	0.00	46.95	53.98	-7.03
* 11000.00	Peak	V	-	-	-64.81	17.05	0.00	59.24	73.98	-14.74
16500.00	Peak	V	-	-	-71.11	24.58	0.00	60.47	68.20	-7.73
22000.00	Peak	V	-	-	-69.51	18.43	-9.54	46.39	68.20	-21.81
27500.00	Peak	V	-	-	-50.24	3.16	-9.54	50.37	68.20	-17.83

Table 7-134. Radiated Measurements MIMO (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5600MHz
 Channel: 120

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11200.00	Average	V	113	35	-77.51	16.62	0.00	46.11	53.98	-7.87
* 11200.00	Peak	V	113	35	-64.75	16.62	0.00	58.87	73.98	-15.11
16800.00	Peak	V	-	-	-71.59	24.32	0.00	59.73	68.20	-8.47
* 22400.00	Average	V	-	-	-80.04	19.18	-9.54	36.60	53.98	-17.38
* 22400.00	Peak	V	-	-	-69.34	19.18	-9.54	47.30	73.98	-26.68
28000.00	Peak	V	-	-	-49.39	4.80	-9.54	52.87	68.20	-15.33

Table 7-135. Radiated Measurements MIMO (242 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 277 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5720MHz
 Channel: 144

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11440.00	Average	V	100	28	-80.05	17.60	0.00	44.55	53.98	-9.43
* 11440.00	Peak	V	100	28	-68.57	17.60	0.00	56.03	73.98	-17.95
17160.00	Peak	V	-	-	-70.87	24.61	0.00	60.74	68.20	-7.46
* 22880.00	Average	V	-	-	-80.42	18.88	-9.54	35.92	53.98	-18.06
* 22880.00	Peak	V	-	-	-69.22	18.88	-9.54	47.12	73.98	-26.86
28600.00	Peak	V	-	-	-48.07	3.32	-9.54	52.70	68.20	-15.50

Table 7-136. Radiated Measurements MIMO (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5745MHz
 Channel: 149

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11490.00	Average	V	130	27	-79.91	17.49	0.00	44.58	53.98	-9.40
* 11490.00	Peak	V	130	27	-67.05	17.49	0.00	57.44	73.98	-16.54
17235.00	Peak	V	-	-	-71.38	25.28	0.00	60.90	68.20	-7.30
* 22980.00	Average	V	-	-	-80.64	19.03	-9.54	35.85	53.98	-18.13
* 22980.00	Peak	V	-	-	-80.79	19.03	-9.54	35.70	73.98	-38.28
28725.00	Peak	V	-	-	-52.30	3.65	-9.54	48.82	68.20	-19.38

Table 7-137. Radiated Measurements MIMO (242 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 278 of 302

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5785MHz
 Channel: 157

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11570.00	Average	V	100	10	-79.24	17.65	0.00	45.41	53.98	-8.57
* 11570.00	Peak	V	100	10	-67.36	17.65	0.00	57.29	73.98	-16.69
17355.00	Peak	V	-	-	-70.71	26.38	0.00	62.67	68.20	-5.53
23140.00	Peak	V	-	-	-69.75	18.82	-9.54	46.53	68.20	-21.67
28925.00	Peak	V	-	-	-52.10	4.50	-9.54	49.86	68.20	-18.34

Table 7-138. Radiated Measurements MIMO (242 Tones)

Worst Case Mode: 802.11ax (20MHz BW)
 Worst Case Transfer Rate: MCS0
 RU Index: 61
 Distance of Measurements: 1 & 3 Meters
 Operating Frequency: 5825MHz
 Channel: 165

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11650.00	Average	V	125	18	-78.66	17.61	0.00	45.95	53.98	-8.03
* 11650.00	Peak	V	125	18	-65.97	17.61	0.00	58.64	73.98	-15.34
17475.00	Peak	V	-	-	-71.28	26.04	0.00	61.76	68.20	-6.44
23300.00	Peak	V	-	-	-68.17	18.40	-9.54	47.69	68.20	-20.51
29125.00	Peak	V	-	-	-46.27	2.23	-9.54	53.43	68.20	-14.77

Table 7-139. Radiated Measurements MIMO (242 Tones)

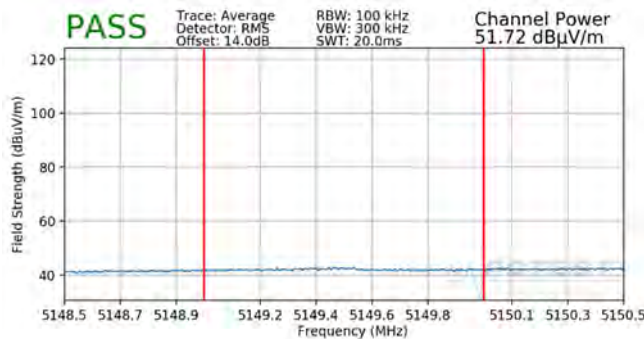
FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 279 of 302

7.6.4 SISO Antenna-1 Radiated Band Edge Measurements (20MHz BW)

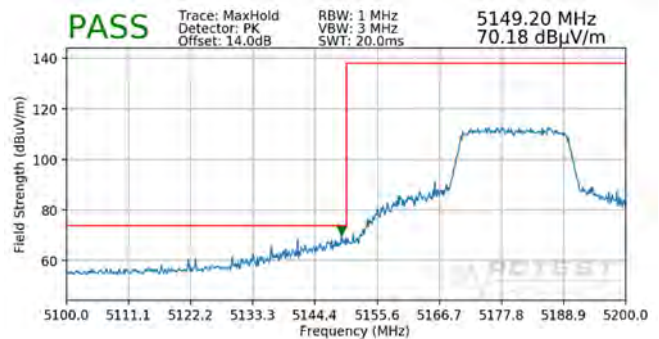
\$15.407(b.1)(b.2) \$15.205 \$15.209; RSS-Gen [8.9]; RSS-Gen [8.9]

242 Tones

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	3 Meters
Operating Frequency:	5180MHz
Channel:	36

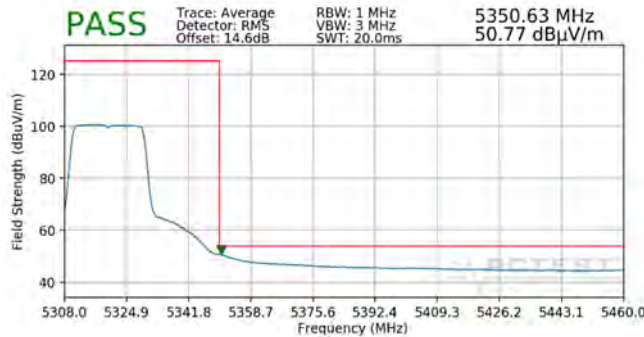


Plot 7-361. Radiated Lower Band Edge Plot SISO ANT1 (Average - UNII Band 1 - 242 Tones)



Plot 7-362. Radiated Lower Band Edge Plot SISO ANT1 (Peak - UNII Band 1 - 242 Tones)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	3 Meters
Operating Frequency:	5320MHz
Channel:	64



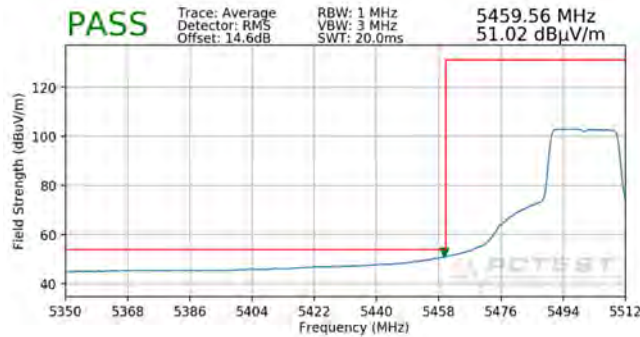
Plot 7-363. Radiated Upper Band Edge Plot SISO ANT1 (Average - UNII Band 2A - 242 Tones)



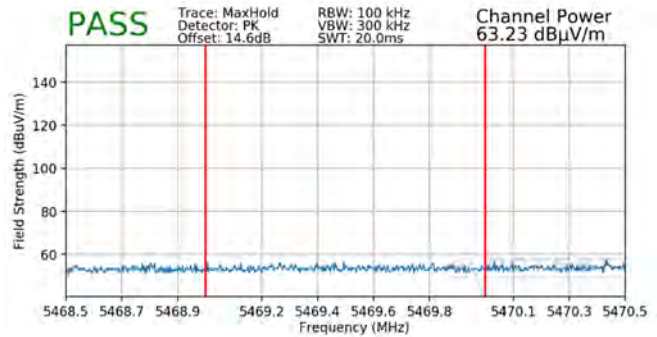
Plot 7-364. Radiated Upper Band Edge Plot SISO ANT1 (Peak - UNII Band 2A - 242 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 280 of 302

Worst Case Mode: 802.11ax
Worst Case Transfer Rate: MCS0
RU Index: 61
Distance of Measurements: 3 Meters
Operating Frequency: 5500MHz
Channel: 100

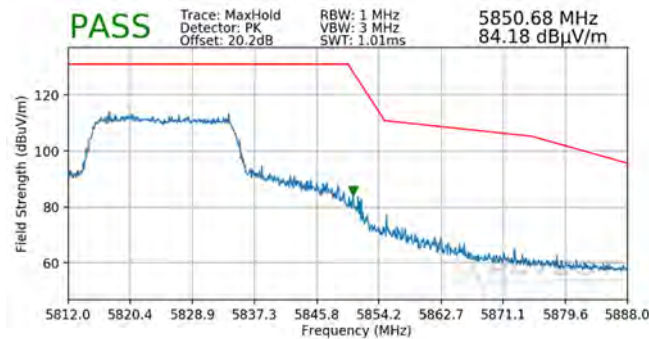


Plot 7-365. Radiated Lower Band Edge Plot SISO ANT1 (Average – UNII Band 2C – 242 Tones)



Plot 7-366. Radiated Lower Band Edge Plot SISO ANT1 (Peak – UNII Band 2C – 242 Tones)

Worst Case Mode: 802.11ax
Worst Case Transfer Rate: MCS0
RU Index: 61
Distance of Measurements: 3 Meters
Operating Frequency: 5825MHz
Channel: 165



Plot 7-367. Radiated Upper Band Edge Plot SISO ANT1 (Peak – UNII Band 3 – 242 Tones)

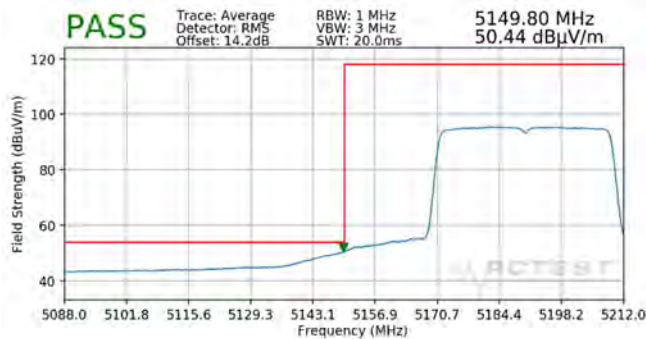
FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 281 of 302

7.6.5 SISO Antenna-1 Radiated Band Edge Measurements (40MHz BW)

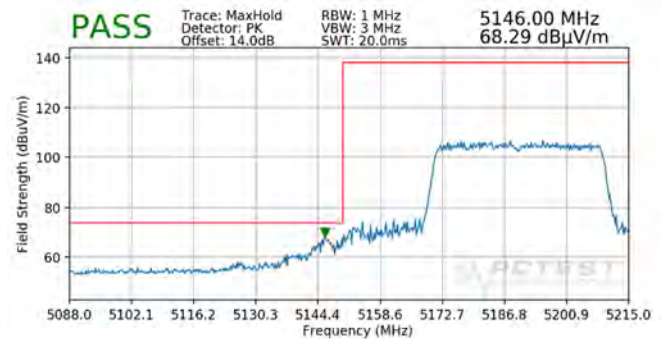
\$15.407(b.1)(b.2) \$15.205 \$15.209; RSS-Gen [8.9]

484 Tones

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	65
Distance of Measurements:	3 Meters
Operating Frequency:	5190MHz
Channel:	38

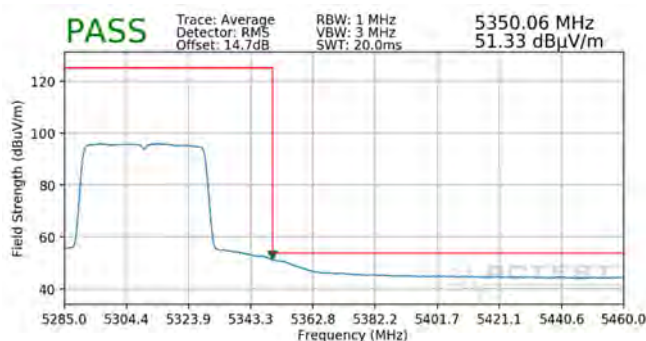


Plot 7-368. Radiated Lower Band Edge Plot SISO ANT1 (Average - UNII Band 1 - 484 Tones)

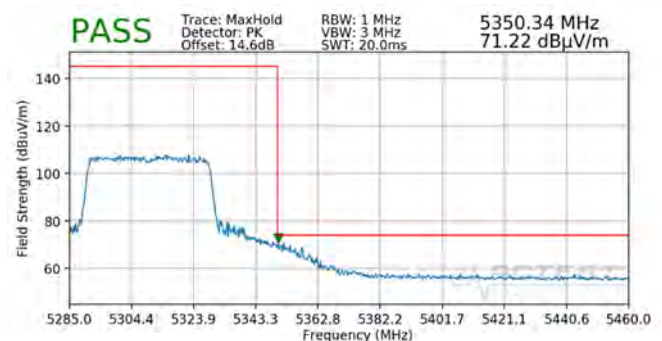


Plot 7-369. Radiated Lower Band Edge Plot SISO ANT1 (Peak - UNII Band 1 - 484 Tones)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	65
Distance of Measurements:	3 Meters
Operating Frequency:	5310MHz
Channel:	62



Plot 7-370. Radiated Upper Band Edge Plot SISO ANT1 (Average - UNII Band 2A - 484 Tones)



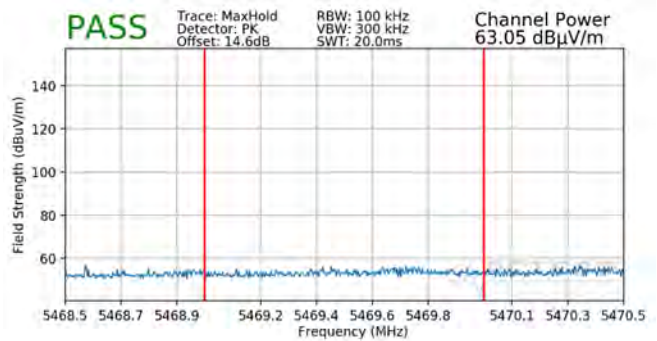
Plot 7-371. Radiated Upper Band Edge Plot SISO ANT1 (Peak - UNII Band 2A - 484 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 282 of 302

Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 RU Index: 65
 Distance of Measurements: 3 Meters
 Operating Frequency: 5510MHz
 Channel: 102

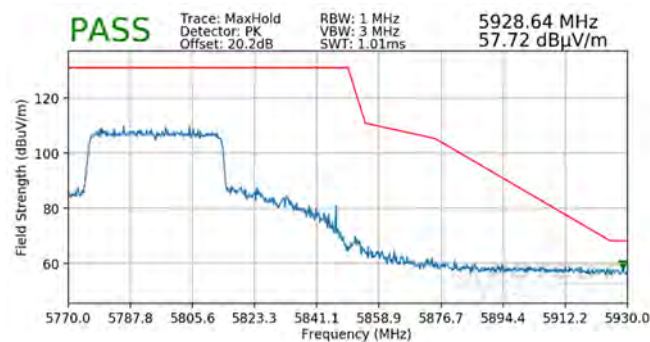


Plot 7-372. Radiated Lower Band Edge Plot SISO ANT1 (Average – UNII Band 2C – 484 Tones)



Plot 7-373. Radiated Lower Band Edge Plot SISO ANT1 (Peak – UNII Band 2C – 484 Tones)

Worst Case Mode: 802.11ax
 Worst Case Transfer Rate: MCS0
 RU Index: 65
 Distance of Measurements: 3 Meters
 Operating Frequency: 5795MHz
 Channel: 159



Plot 7-374. Radiated Upper Band Edge Plot SISO ANT1 (Peak – UNII Band 3 – 484 Tones)

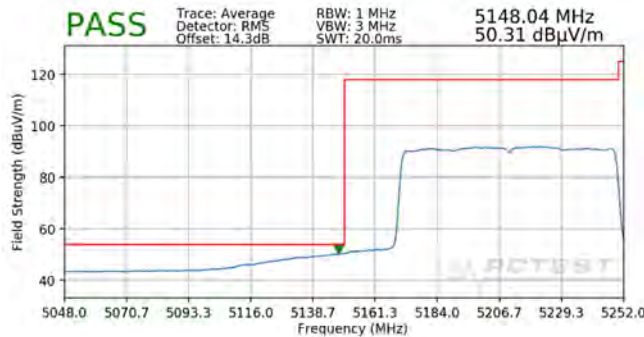
FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 283 of 302

7.6.6 SISO Antenna-1 Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

996 Tones

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	67
Distance of Measurements:	3 Meters
Operating Frequency:	5210MHz
Channel:	42

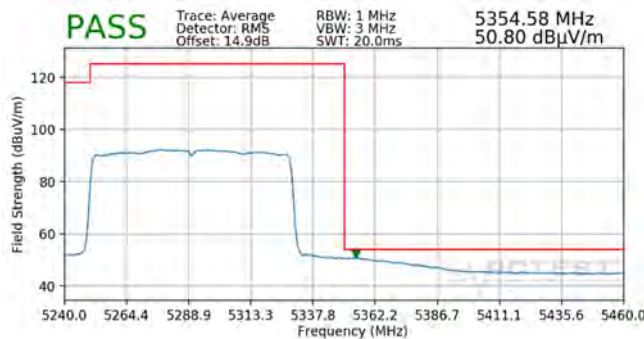


Plot 7-375. Radiated Lower Band Edge Plot SISO ANT1 (Average – UNII Band 1 – 996 Tones)

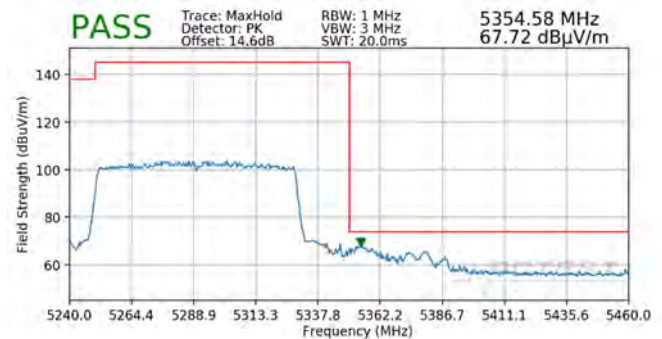


Plot 7-376. Radiated Lower Band Edge Plot SISO ANT1 (Peak – UNII Band 1 – 996 Tones)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	67
Distance of Measurements:	3 Meters
Operating Frequency:	5290MHz
Channel:	58



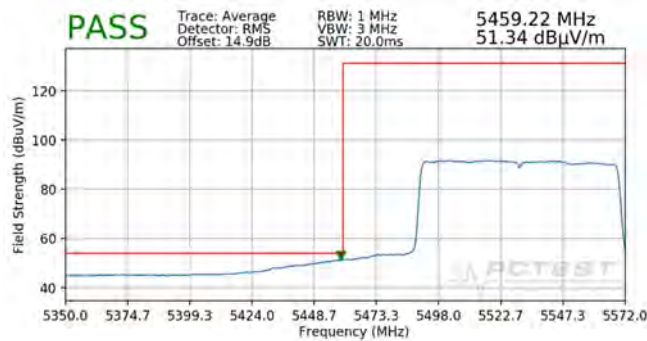
Plot 7-377. Radiated Upper Band Edge Plot SISO ANT1 (Average – UNII Band 2A – 996 Tones)



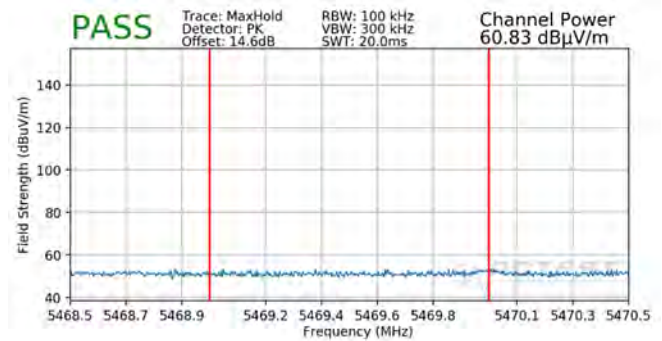
Plot 7-378. Radiated Upper Band Edge Plot SISO ANT1 (Peak – UNII Band 2A – 996 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 284 of 302

Worst Case Mode: 802.11ax
Worst Case Transfer Rate: MCS0
RU Index: 67
Distance of Measurements: 3 Meters
Operating Frequency: 5530MHz
Channel: 106

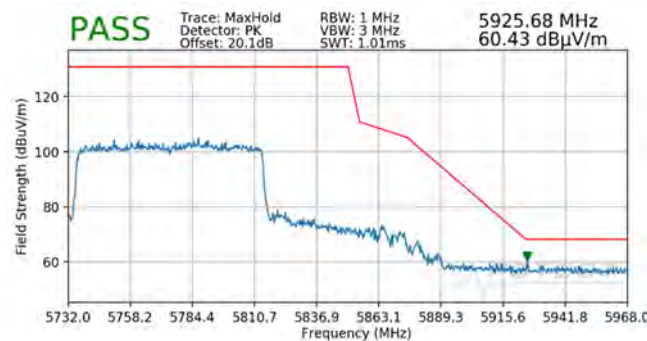


Plot 7-379. Radiated Lower Band Edge Plot SISO ANT1 (Average – UNII Band 2C – 996 Tones)



Plot 7-380. Radiated Lower Band Edge Plot SISO ANT1 (Peak – UNII Band 2C – 996 Tones)

Worst Case Mode: 802.11ax
Worst Case Transfer Rate: MCS0
RU Index: 67
Distance of Measurements: 3 Meters
Operating Frequency: 5775MHz
Channel: 155



Plot 7-381. Radiated Upper Band Edge Plot SISO ANT1 (Peak – UNII Band 3 – 996 Tones)

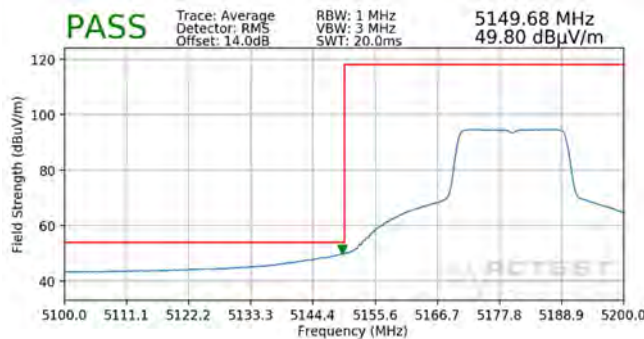
FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 285 of 302

7.6.7 SISO Antenna-2 Radiated Band Edge Measurements (20MHz BW)

\$15.407(b.1)(b.2) \$15.205 \$15.209; RSS-Gen [8.9]

242 Tones

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	3 Meters
Operating Frequency:	5180MHz
Channel:	36



Plot 7-382. Radiated Lower Band Edge Plot SISO ANT2 (Average - UNII Band 1 - 242 Tones)

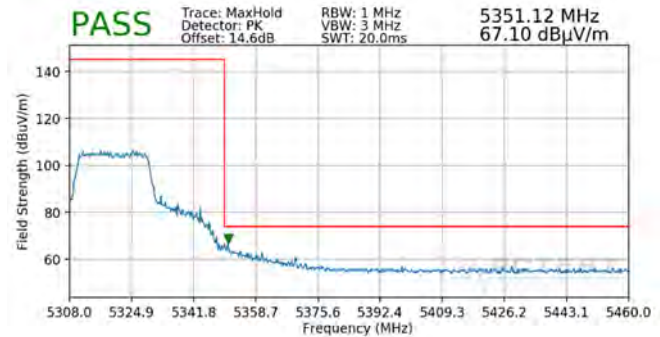


Plot 7-383. Radiated Lower Band Edge Plot SISO ANT2 (Peak - UNII Band 1 - 242 Tones)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	3 Meters
Operating Frequency:	5320MHz
Channel:	64



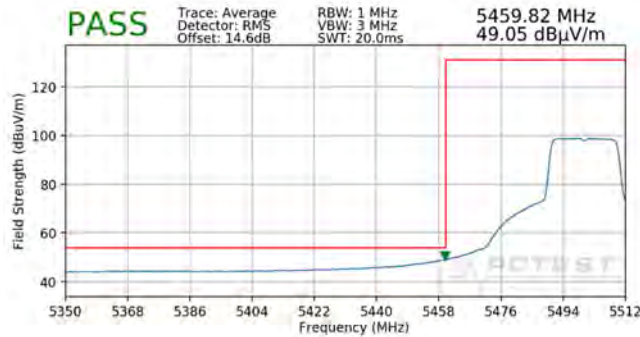
Plot 7-384. Radiated Upper Band Edge Plot SISO ANT2 (Average - UNII Band 2A - 242 Tones)



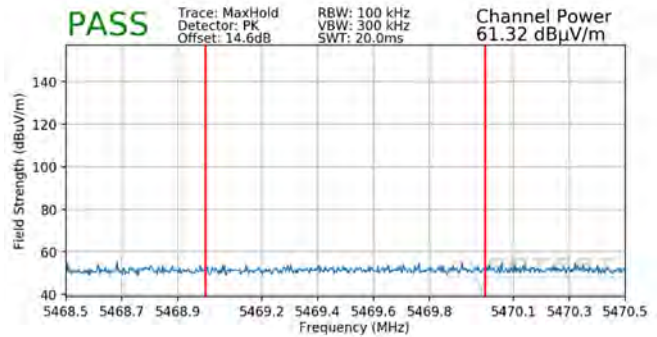
Plot 7-385. Radiated Upper Band Edge Plot SISO ANT2 (Peak - UNII Band 2A - 242 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 286 of 302

Worst Case Mode: 802.11ax
Worst Case Transfer Rate: MCS0
RU Index: 61
Distance of Measurements: 3 Meters
Operating Frequency: 5500MHz
Channel: 100

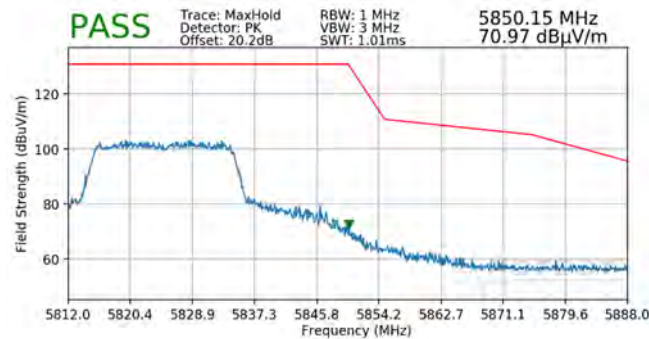


Plot 7-386. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 2C – 242 Tones)



Plot 7-387. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 2C – 242 Tones)

Worst Case Mode: 802.11ax
Worst Case Transfer Rate: MCS0
RU Index: 61
Distance of Measurements: 3 Meters
Operating Frequency: 5825MHz
Channel: 165



Plot 7-388. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 3 – 242 Tones)

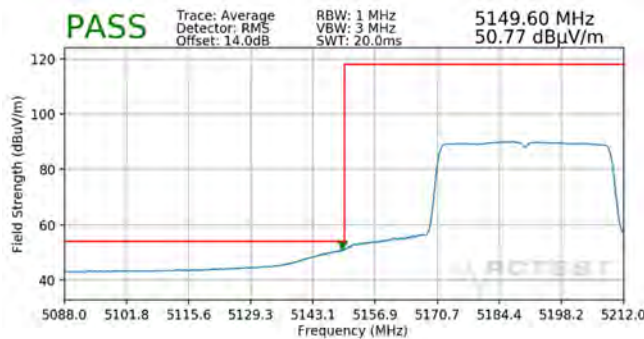
FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 287 of 302

7.6.8 SISO Antenna-2 Radiated Band Edge Measurements (40MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

484 Tones

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	65
Distance of Measurements:	3 Meters
Operating Frequency:	5190MHz
Channel:	38

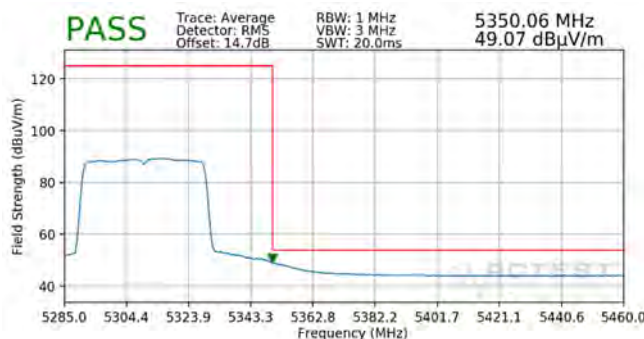


Plot 7-389. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 1 – 484 Tones)

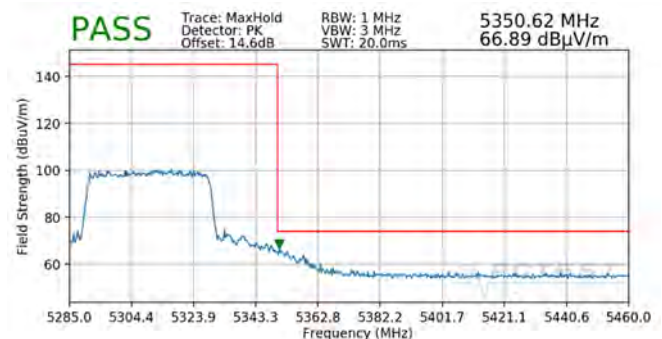


Plot 7-390. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 1 – 484 Tones)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	65
Distance of Measurements:	3 Meters
Operating Frequency:	5310MHz
Channel:	62



Plot 7-391. Radiated Upper Band Edge Plot SISO ANT2 (Average – UNII Band 2A – 484 Tones)



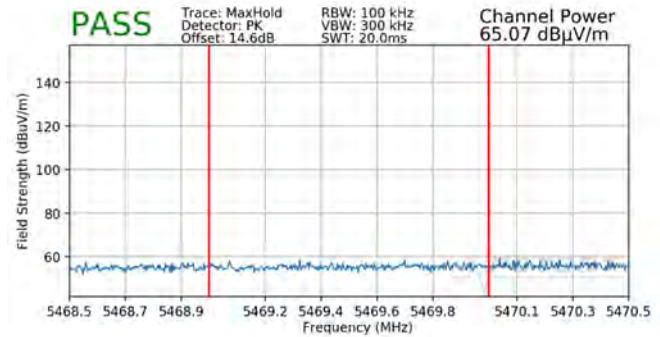
Plot 7-392. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 2A – 484 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 288 of 302

Worst Case Mode: 802.11ax
Worst Case Transfer Rate: MCS0
RU Index: 65
Distance of Measurements: 3 Meters
Operating Frequency: 5510MHz
Channel: 102

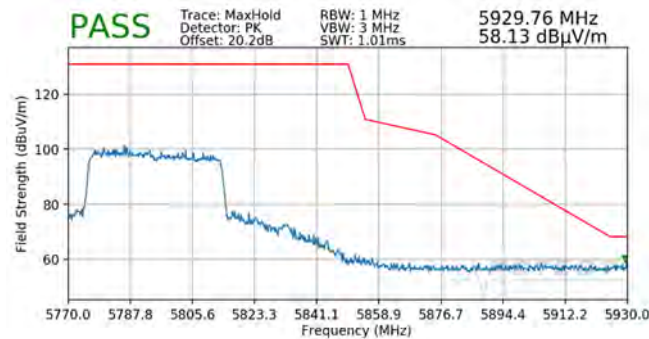


Plot 7-393. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 2C – 484 Tones)



Plot 7-394. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 2C – 484 Tones)

Worst Case Mode: 802.11ax
Worst Case Transfer Rate: MCS0
RU Index: 65
Distance of Measurements: 3 Meters
Operating Frequency: 5795MHz
Channel: 159



Plot 7-395. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 3 – 484 Tones)

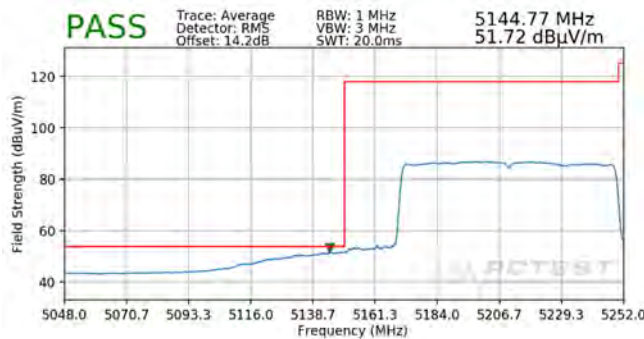
FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 289 of 302

7.6.9 SISO Antenna-2 Radiated Band Edge Measurements (80MHz BW)

§15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

996 Tones

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	67
Distance of Measurements:	3 Meters
Operating Frequency:	5210MHz
Channel:	42

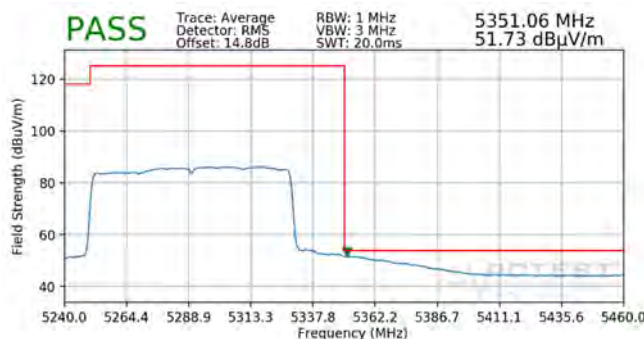


Plot 7-396. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 1 – 996 Tones)

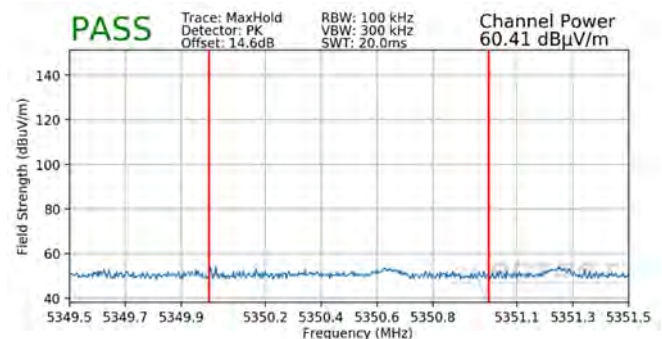


Plot 7-397. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 1 – 996 Tones)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	67
Distance of Measurements:	3 Meters
Operating Frequency:	5290MHz
Channel:	58



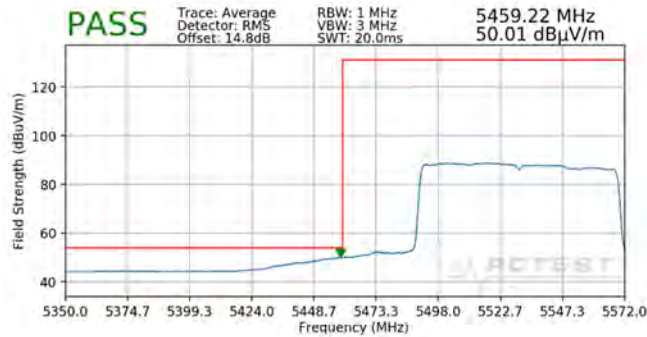
Plot 7-398. Radiated Upper Band Edge Plot SISO ANT2 (Average – UNII Band 2A – 996 Tones)



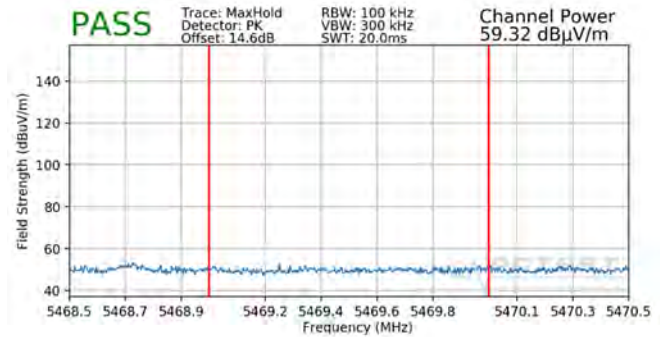
Plot 7-399. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 2A – 996 Tones)

FCC ID: A3LSMN976V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 290 of 302

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	67
Distance of Measurements:	3 Meters
Operating Frequency:	5530MHz
Channel:	106

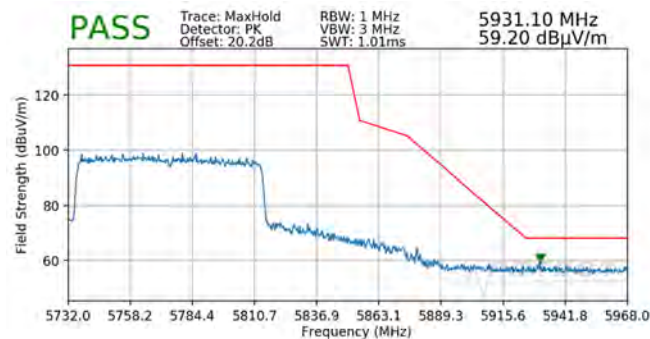


Plot 7-400. Radiated Lower Band Edge Plot SISO ANT2 (Average – UNII Band 2C – 996 Tones)



Plot 7-401. Radiated Lower Band Edge Plot SISO ANT2 (Peak – UNII Band 2C – 996 Tones)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	67
Distance of Measurements:	3 Meters
Operating Frequency:	5775MHz
Channel:	155



Plot 7-402. Radiated Upper Band Edge Plot SISO ANT2 (Peak – UNII Band 3 – 996 Tones)

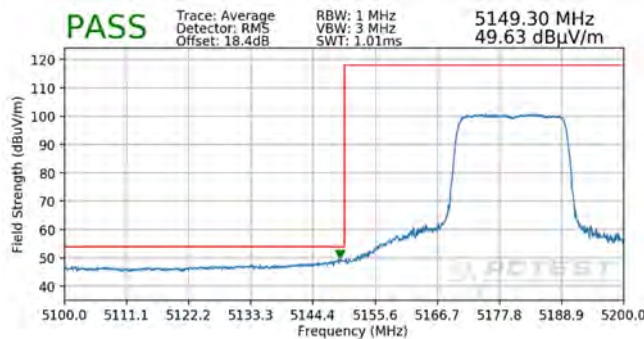
FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 291 of 302

7.6.10 MIMO Radiated Band Edge Measurements (20MHz BW)

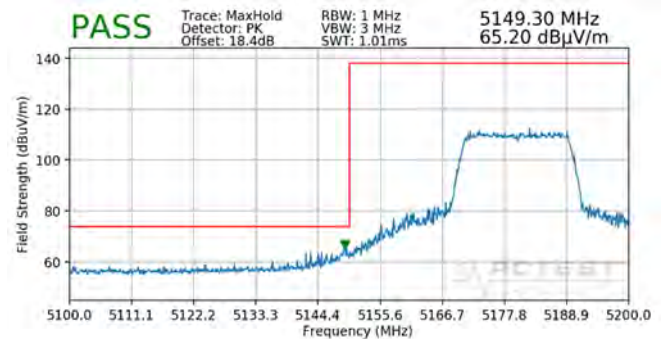
\$15.407(b.1)(b.2) \$15.205 \$15.209; RSS-Gen [8.9]

242 Tones

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	3 Meters
Operating Frequency:	5180MHz
Channel:	36



Plot 7-403. Radiated Lower Band Edge Plot MIMO (Average - UNII Band 1 - 242 Tones)

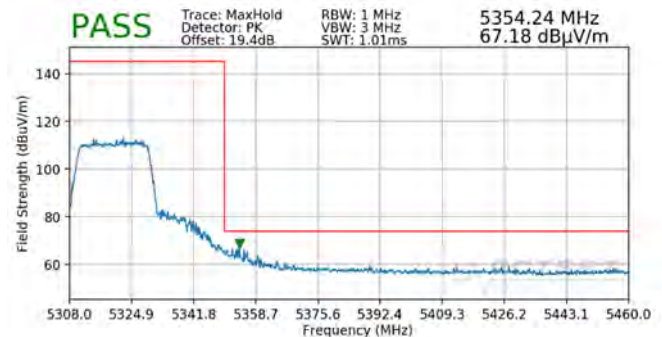


Plot 7-404. Radiated Lower Band Edge Plot MIMO (Peak - UNII Band 1 - 242 Tones)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	3 Meters
Operating Frequency:	5320MHz
Channel:	64



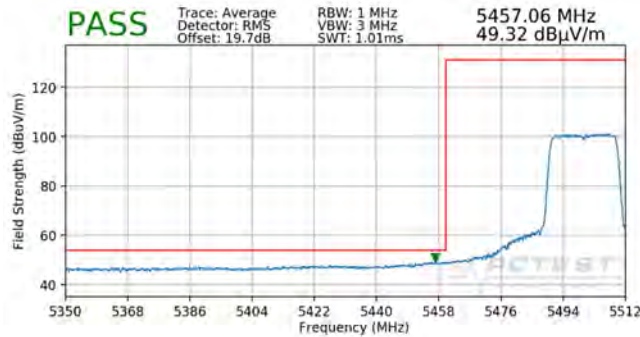
Plot 7-405. Radiated Upper Band Edge Plot MIMO (Average - UNII Band 2A - 242 Tones)



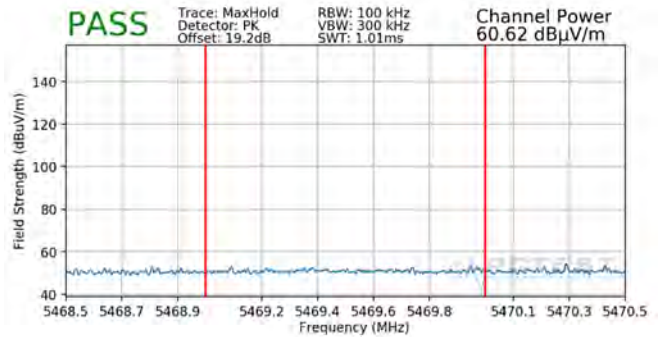
Plot 7-406. Radiated Upper Band Edge Plot MIMO (Peak - UNII Band 2A - 242 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 292 of 302

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	3 Meters
Operating Frequency:	5500MHz
Channel:	100

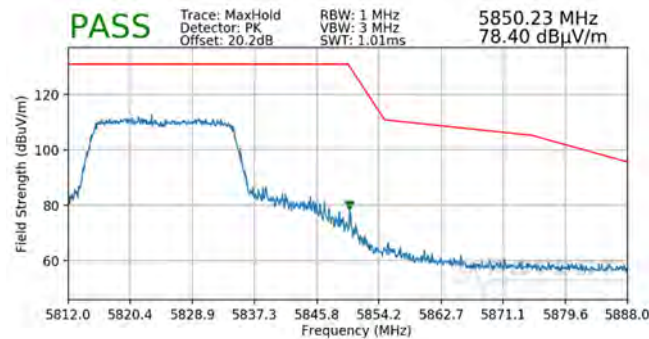


Plot 7-407. Radiated Lower Band Edge Plot MIMO (Average - UNII Band 2C - 242 Tones)



Plot 7-408. Radiated Lower Band Edge Plot MIMO (Peak - UNII Band 2C - 242 Tones)

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	61
Distance of Measurements:	3 Meters
Operating Frequency:	5825MHz
Channel:	165



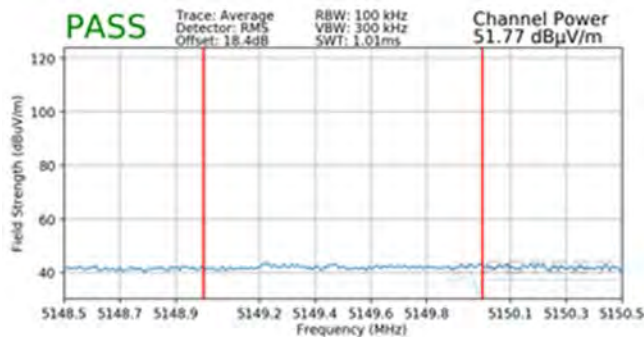
Plot 7-409. Radiated Upper Band Edge Plot MIMO (Peak - UNII Band 3 - 242 Tones)

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 293 of 302

7.6.11 MIMO Radiated Band Edge Measurements (40MHz BW) §15.407(b.1)(b.2) §15.205 §15.209; RSS-Gen [8.9]

484 Tones

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	65
Distance of Measurements:	3 Meters
Operating Frequency:	5190MHz
Channel:	38

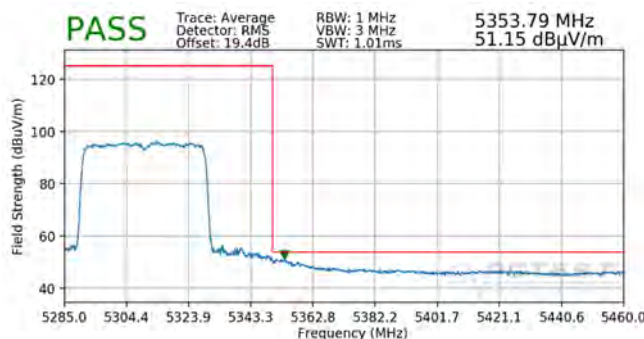


**Plot 7-410. Radiated Lower Band Edge Plot MIMO
(Average – UNII Band 1 – 484 Tones)**

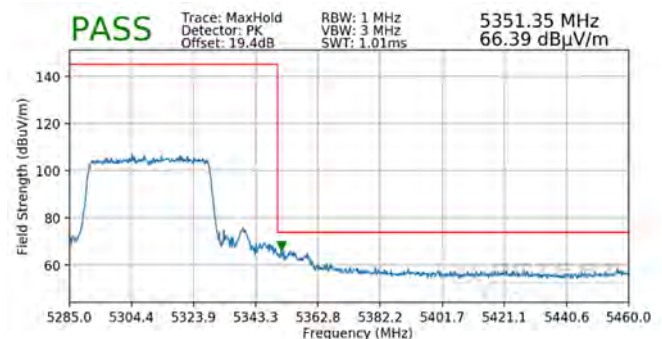


**Plot 7-411. Radiated Lower Band Edge Plot MIMO
(Peak – UNII Band 1 – 484 Tones)**

Worst Case Mode:	802.11ax
Worst Case Transfer Rate:	MCS0
RU Index:	65
Distance of Measurements:	3 Meters
Operating Frequency:	5310MHz
Channel:	62



**Plot 7-412. Radiated Upper Band Edge Plot MIMO
(Average – UNII Band 2A – 484 Tones)**



**Plot 7-413. Radiated Upper Band Edge Plot MIMO
(Peak – UNII Band 2A – 484 Tones)**

FCC ID: A3LSMN976V	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1905130071-09.A3L	Test Dates: 05/14 - 07/02/2019	EUT Type: Portable Handset		Page 294 of 302