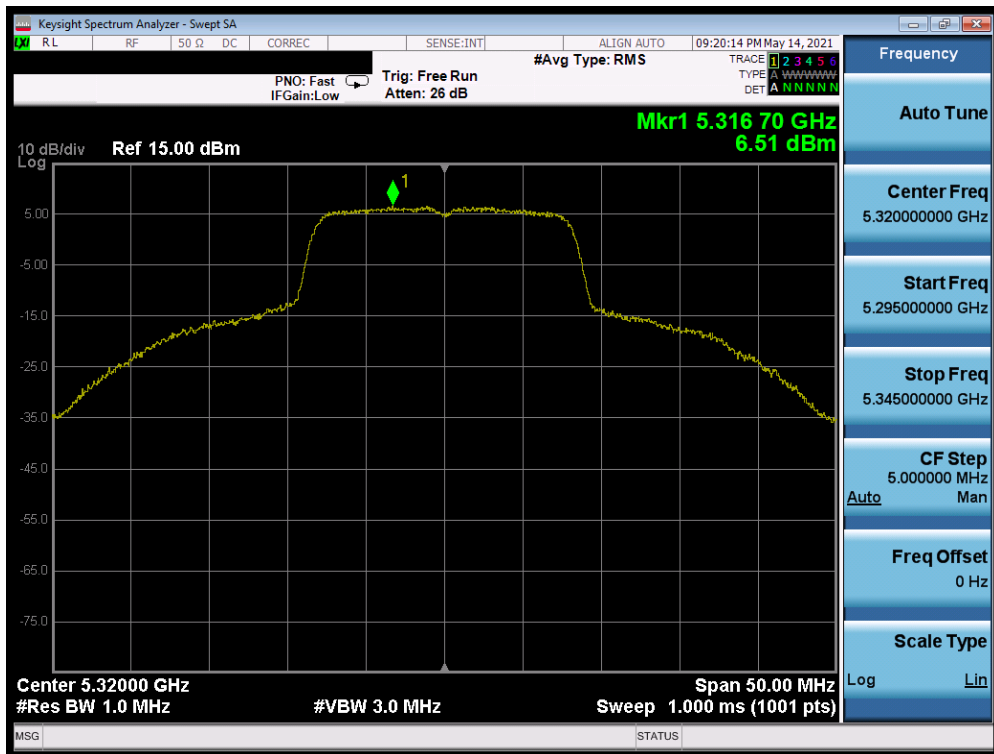
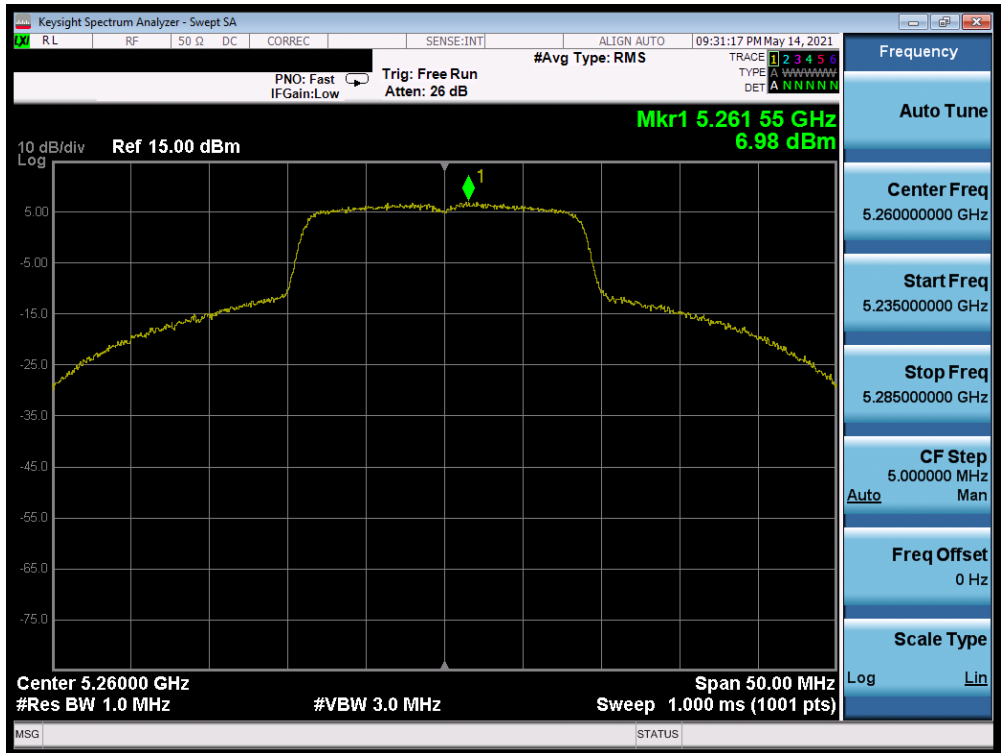


Plot 7-215. Power Spectral Density Plot MIMO ANT1 (802.11a (UNII Band 2A) – Ch. 56)

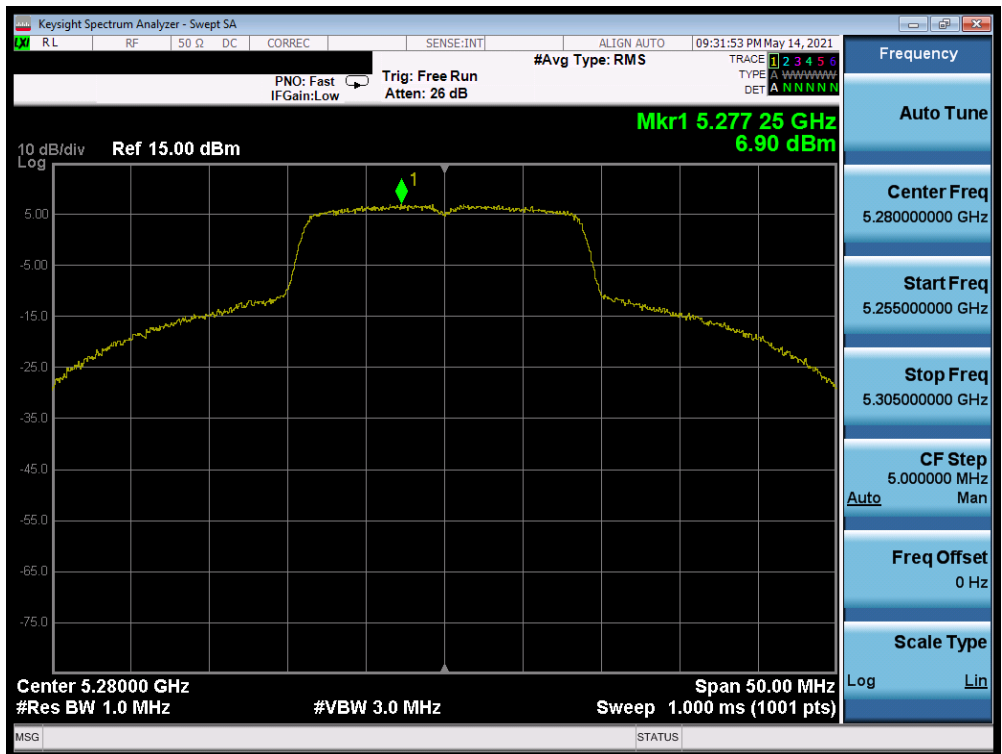


Plot 7-216. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11a (UNII Band 2A) – Ch. 64)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 141 of 269

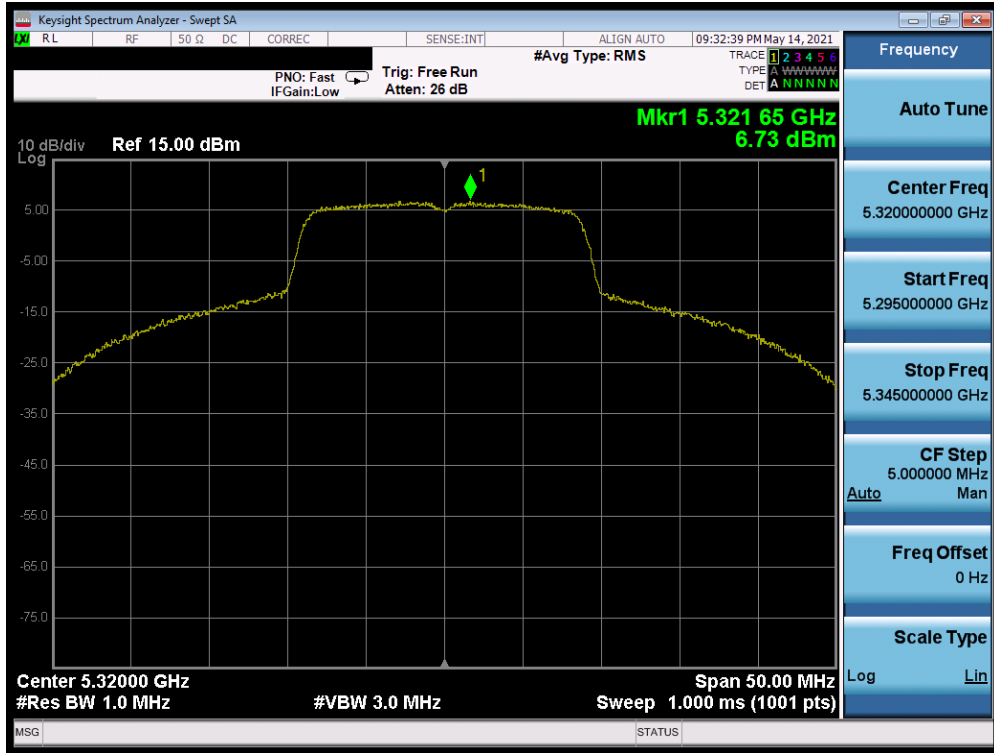


Plot 7-217. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

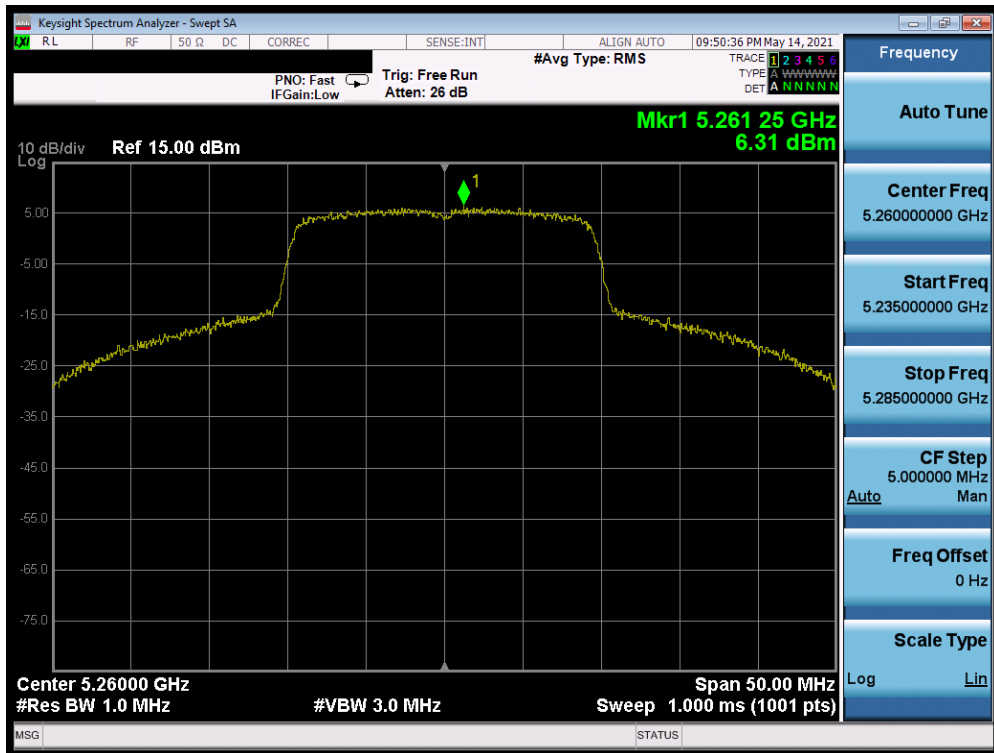


Plot 7-218. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 142 of 269

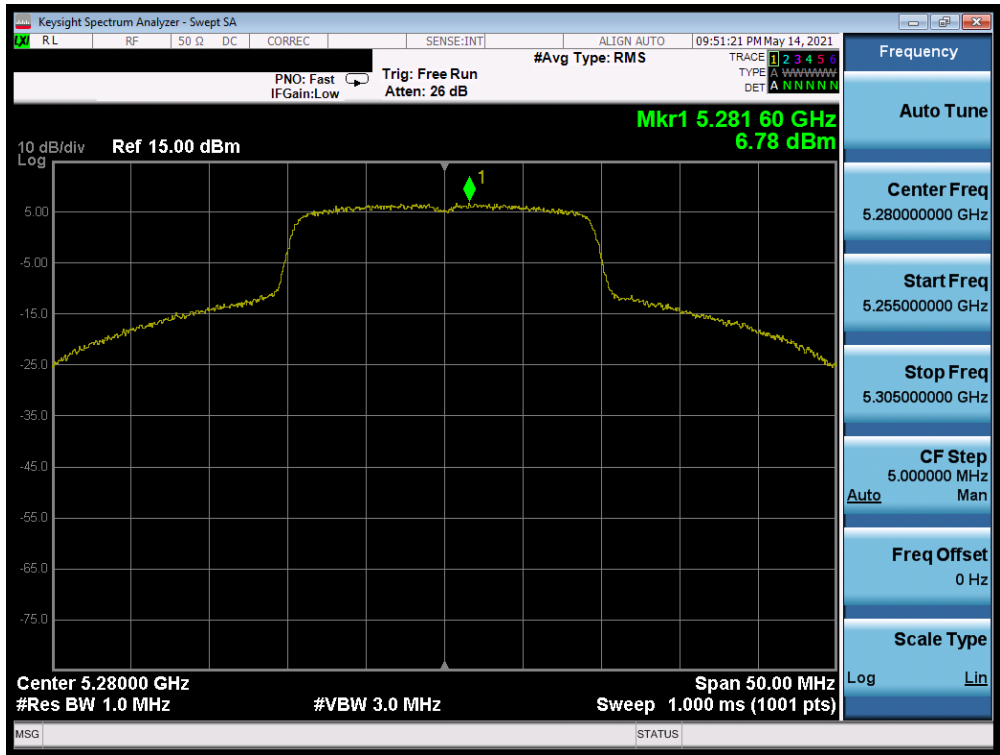


Plot 7-219. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

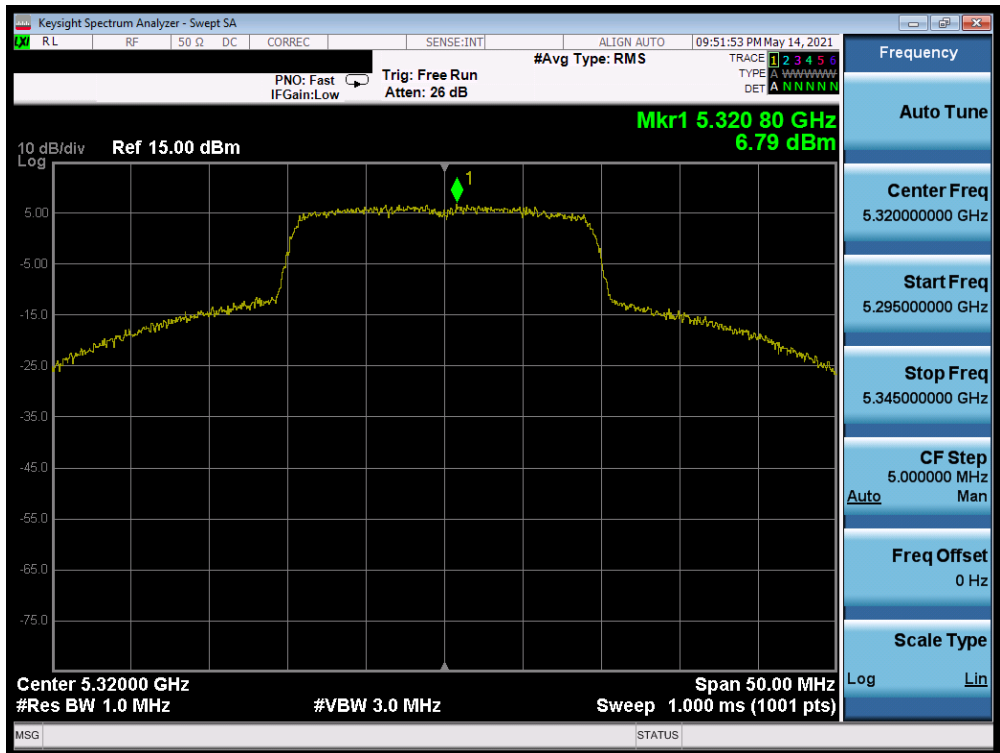


Plot 7-220. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 2A) – Ch. 52)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 143 of 269

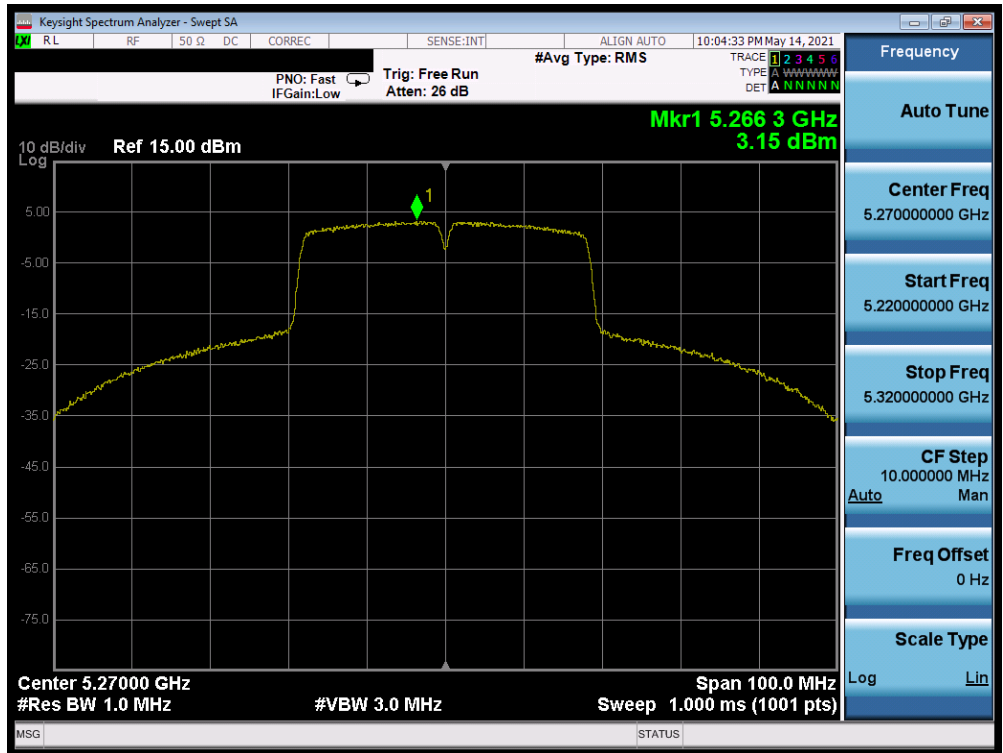


Plot 7-221. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 2A) – Ch. 56)

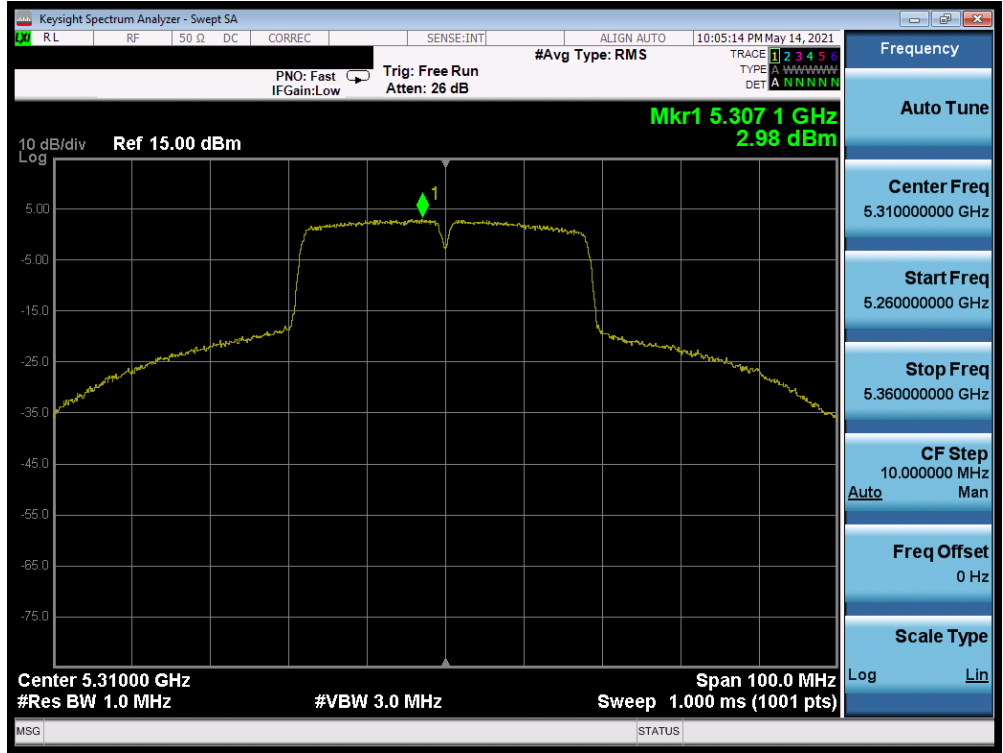


Plot 7-222. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 2A) – Ch. 64)

FCC ID: A3LSMF711JPN	 Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 144 of 269

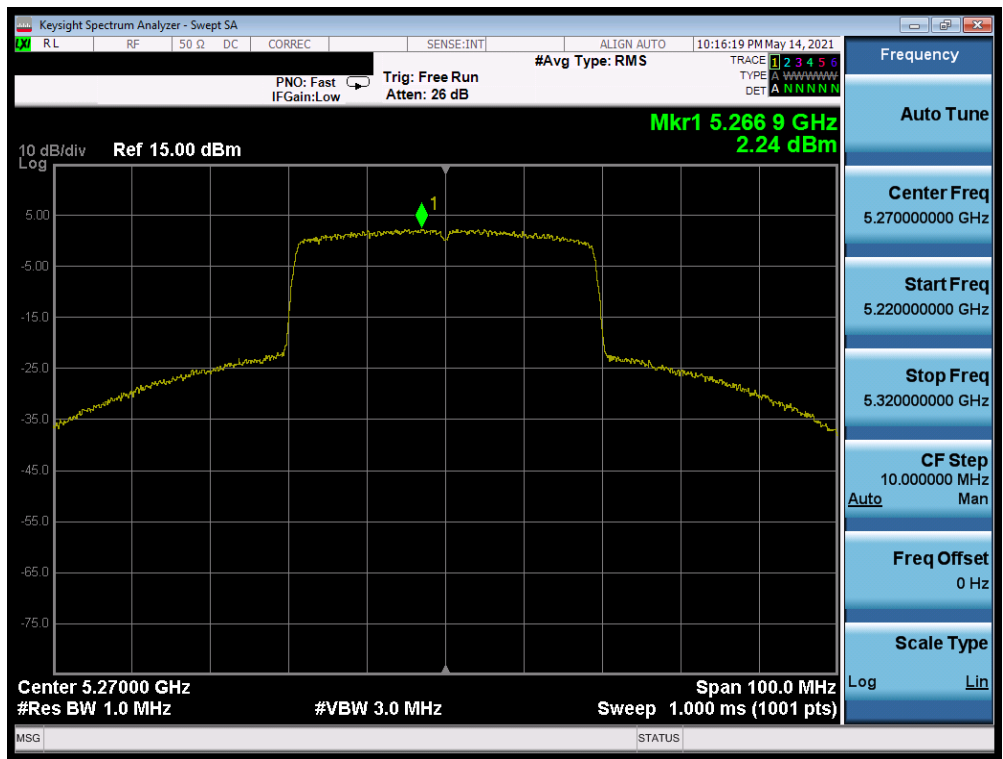


Plot 7-223. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

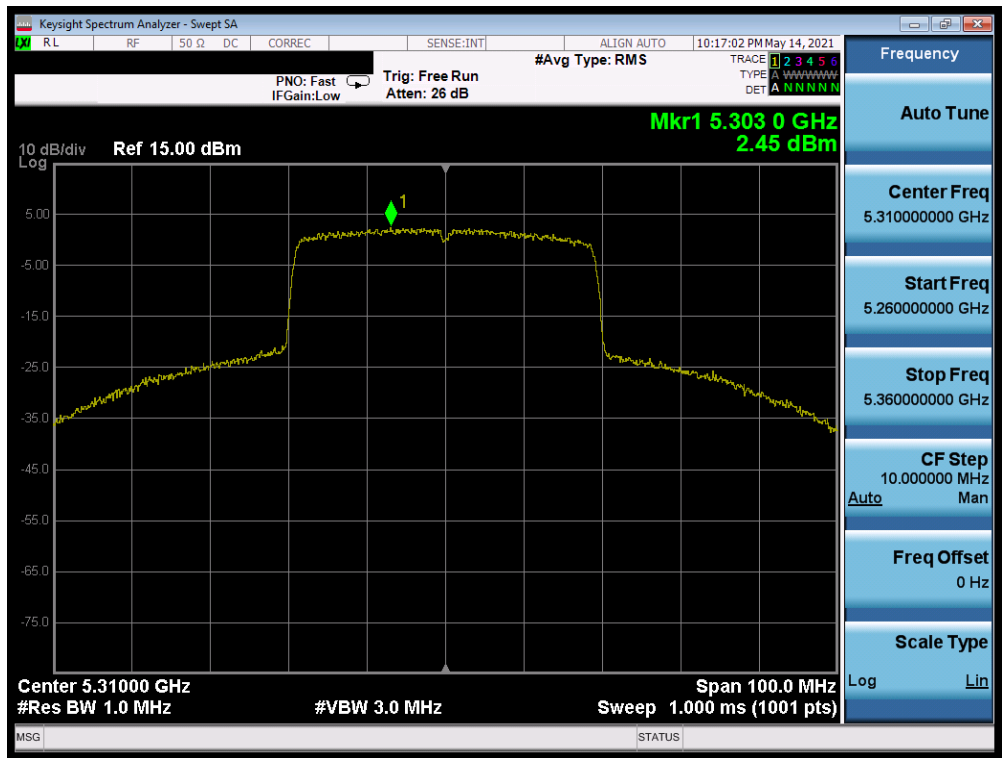


Plot 7-224. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 145 of 269

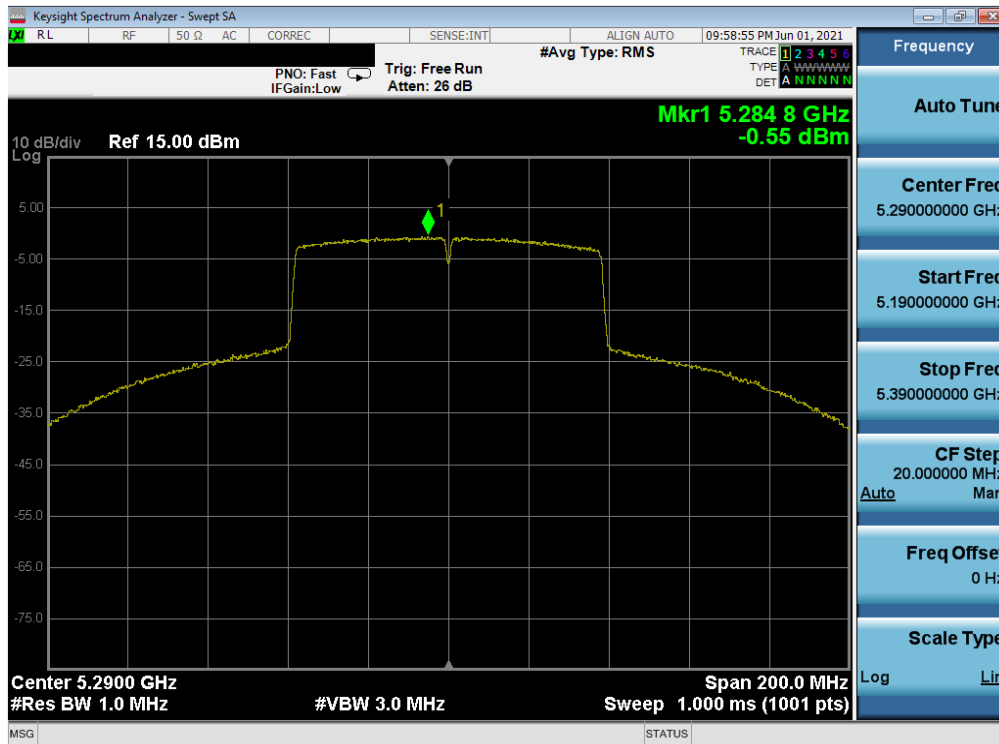


Plot 7-225. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 2A) – Ch. 54)

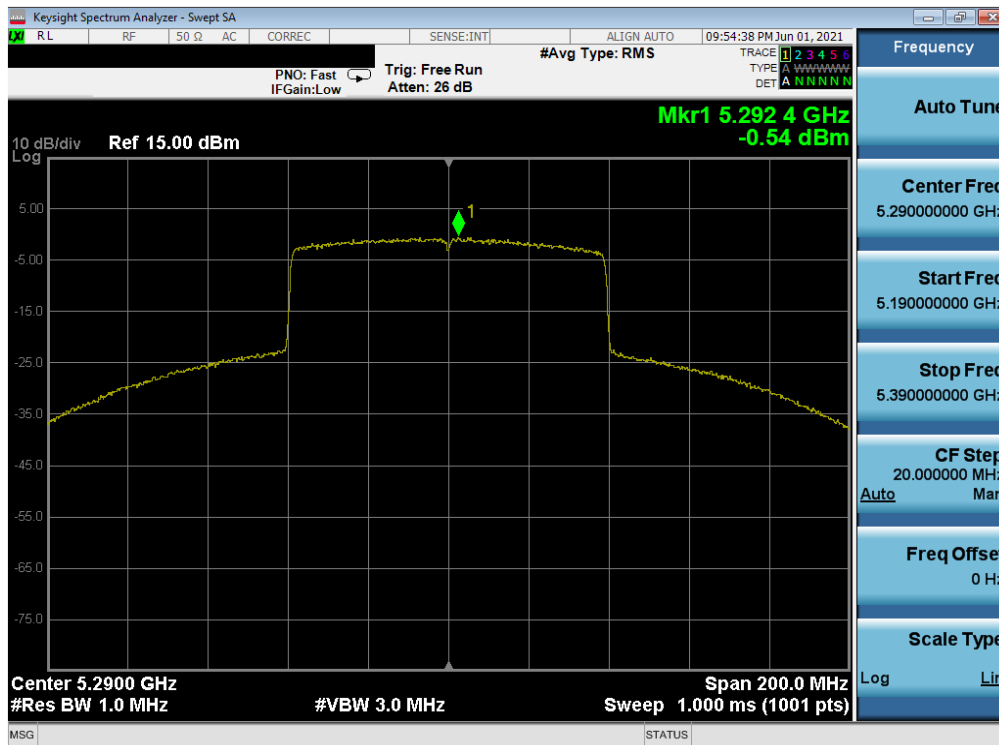


Plot 7-226. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 2A) – Ch. 62)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 146 of 269

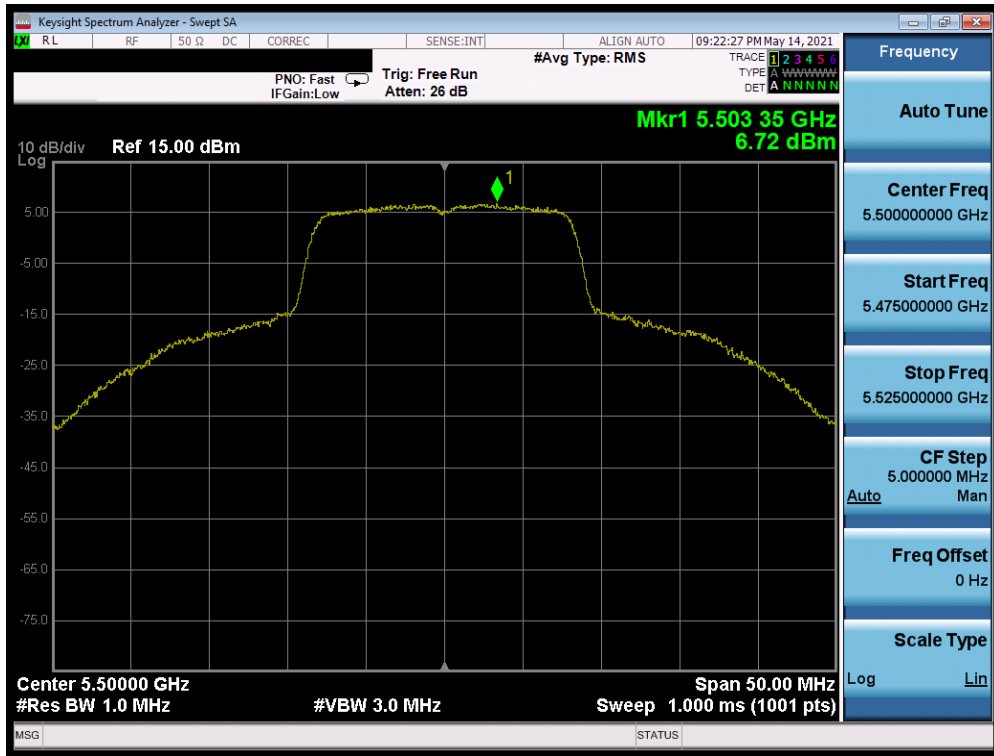


Plot 7-227. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

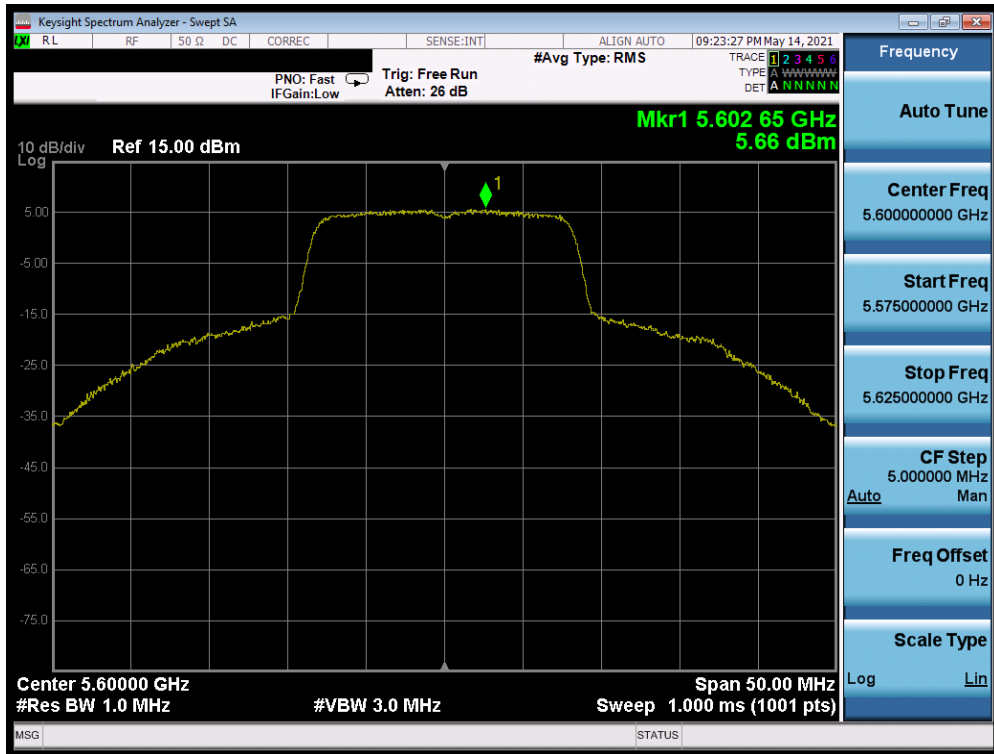


Plot 7-228. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 147 of 269

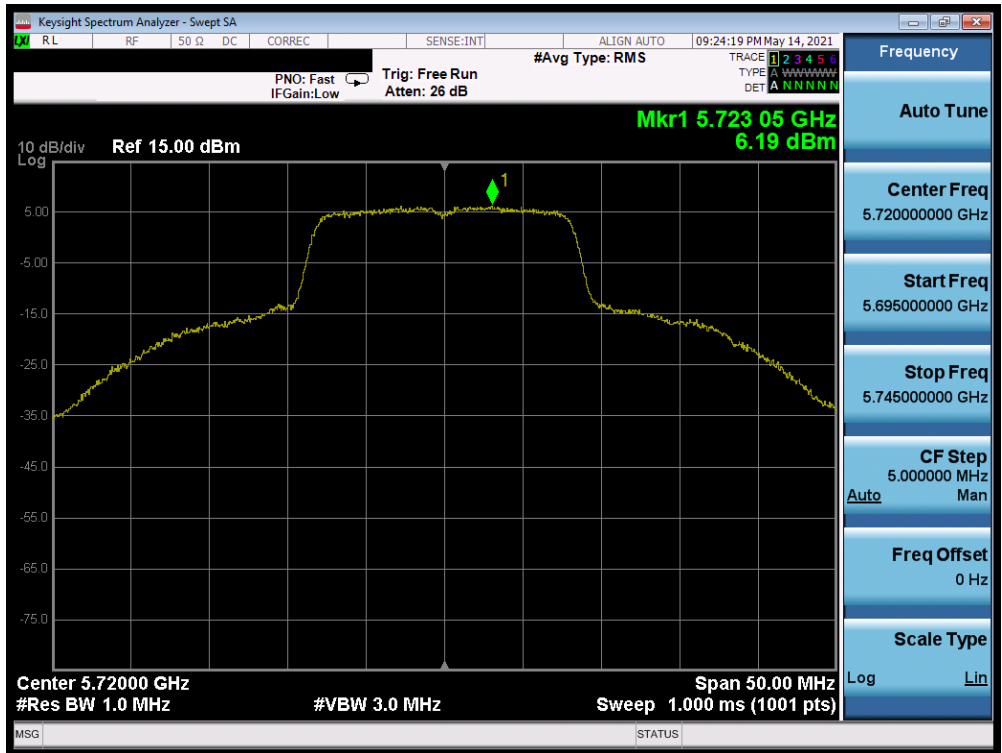


Plot 7-229. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11a (UNII Band 2C) – Ch. 100)

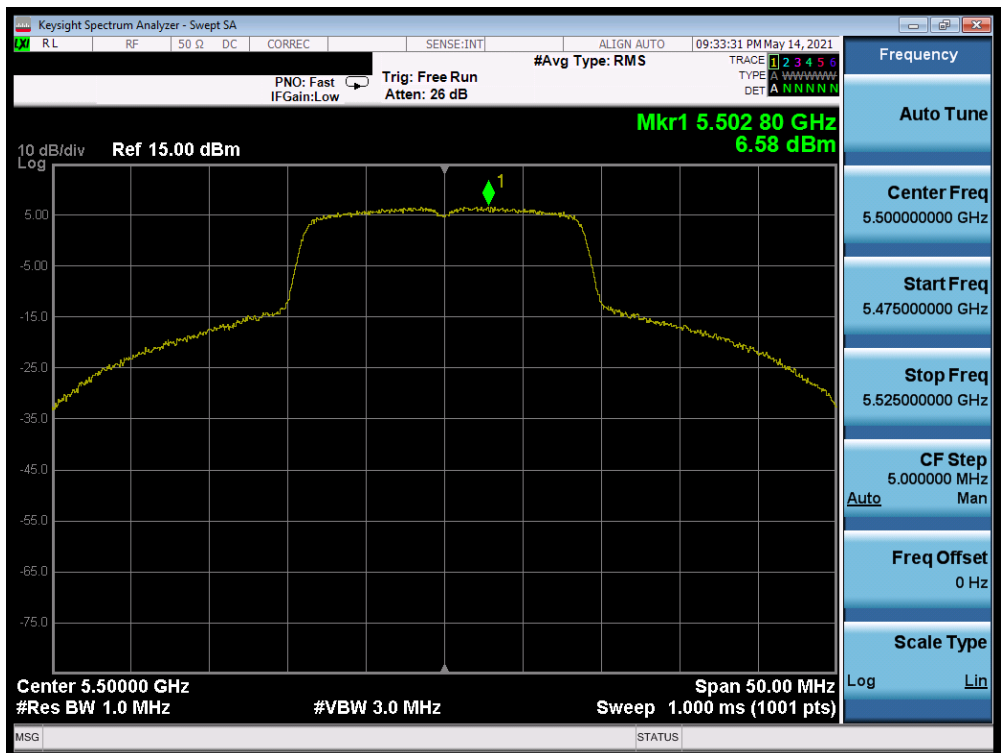


Plot 7-230. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11a (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 148 of 269

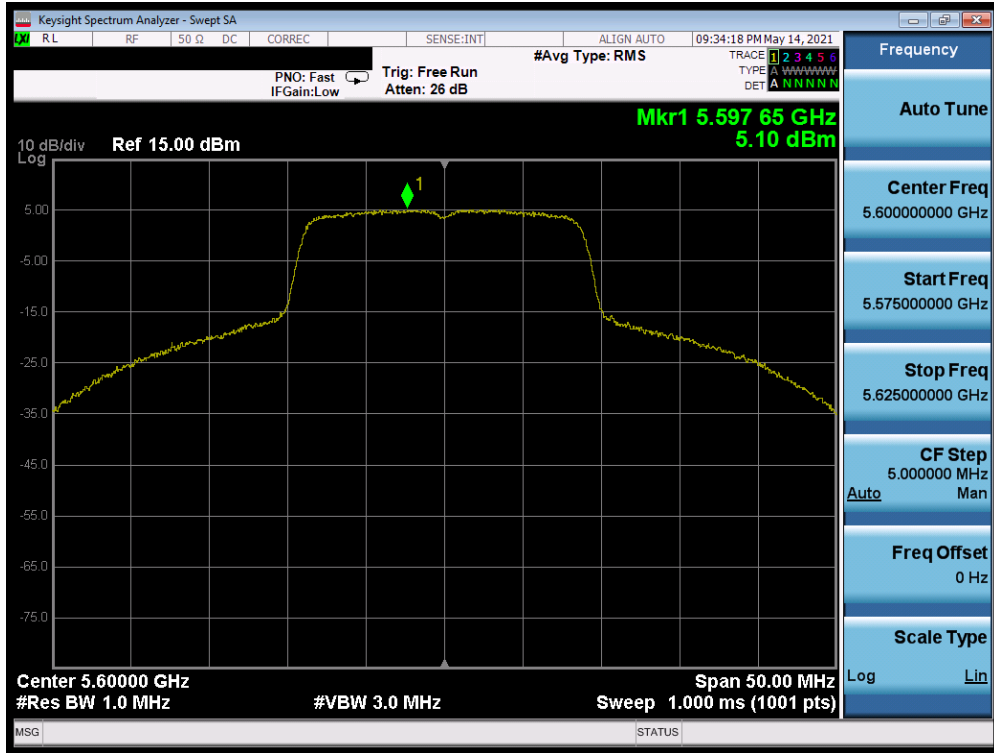


Plot 7-231. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11a (UNII Band 2C) – Ch. 144)

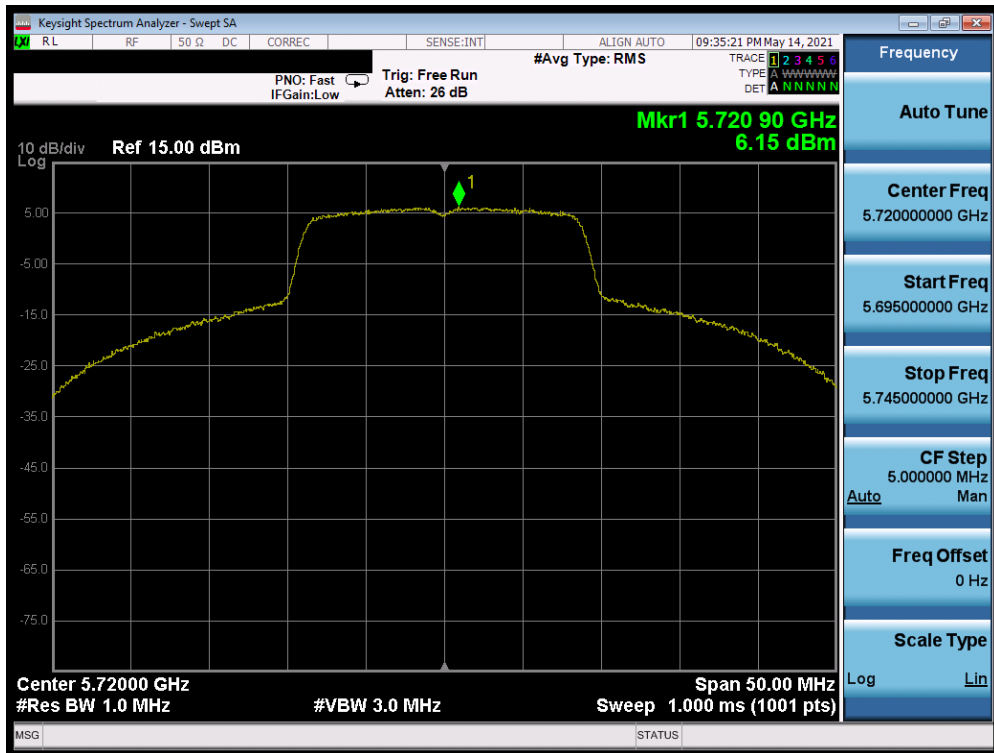


Plot 7-232. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 149 of 269

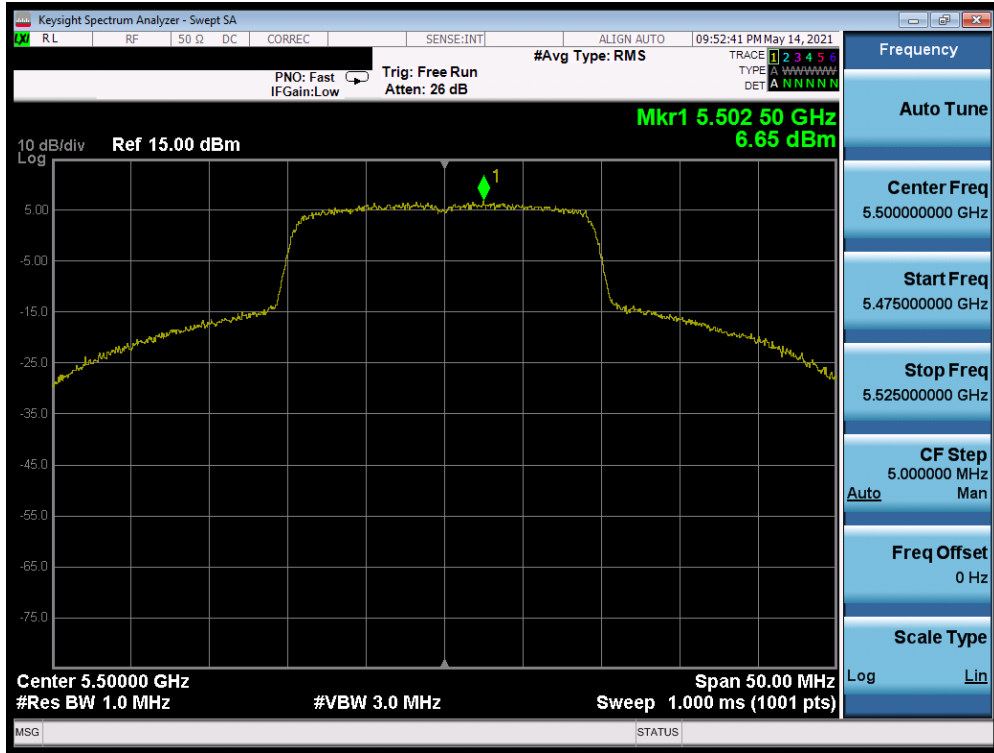


Plot 7-233. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 120)

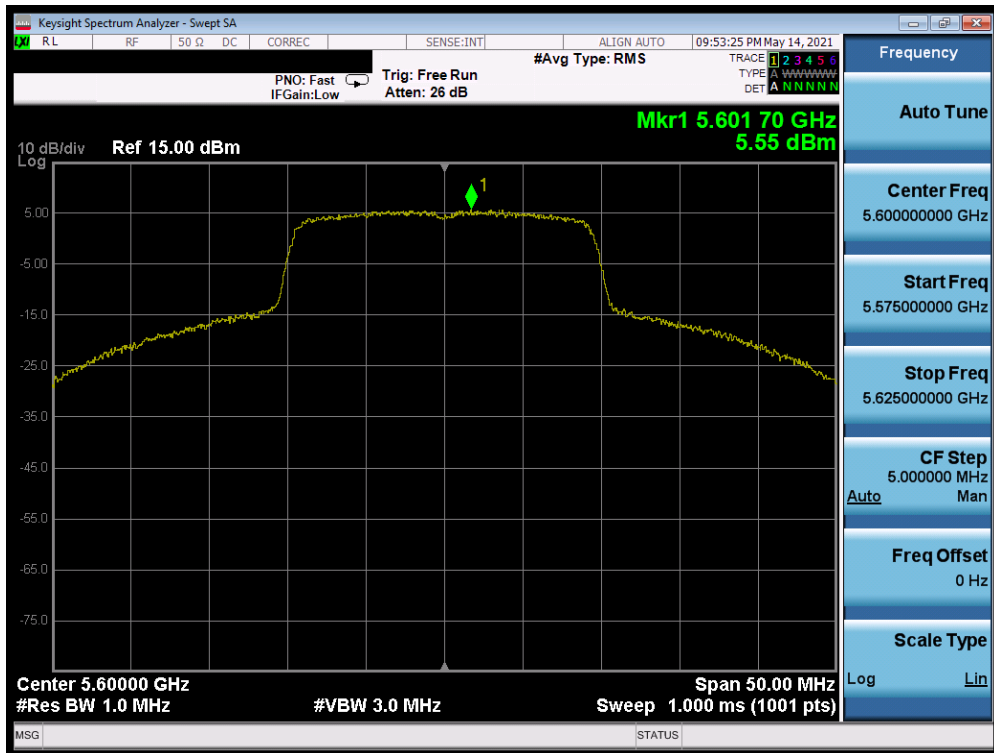


Plot 7-234. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 150 of 269

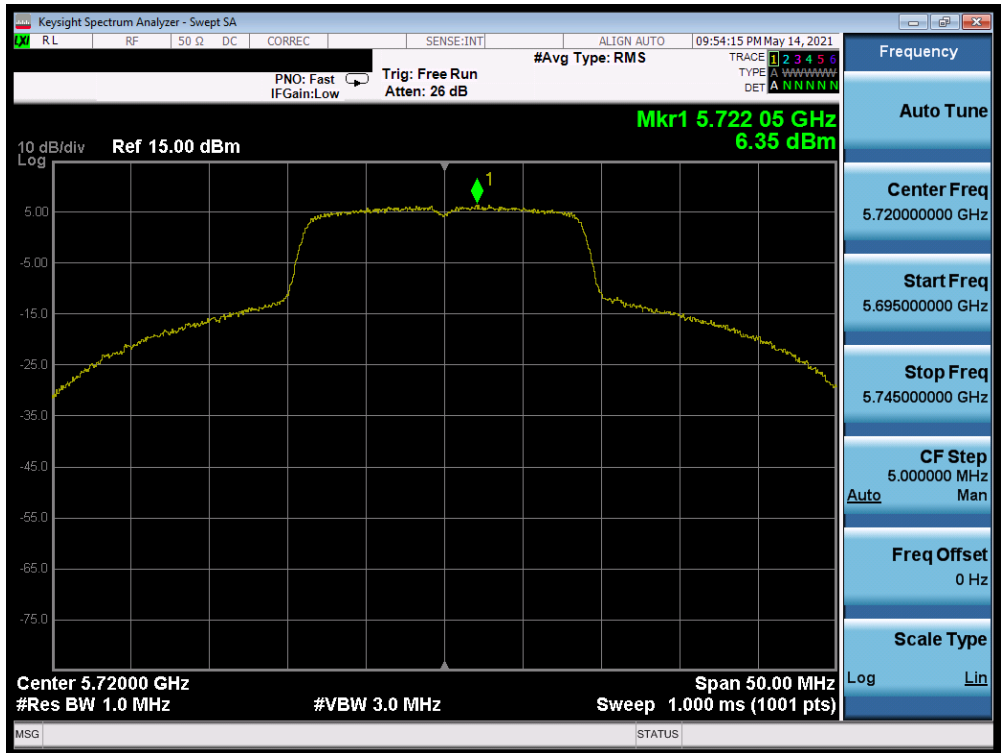


Plot 7-235. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 100)

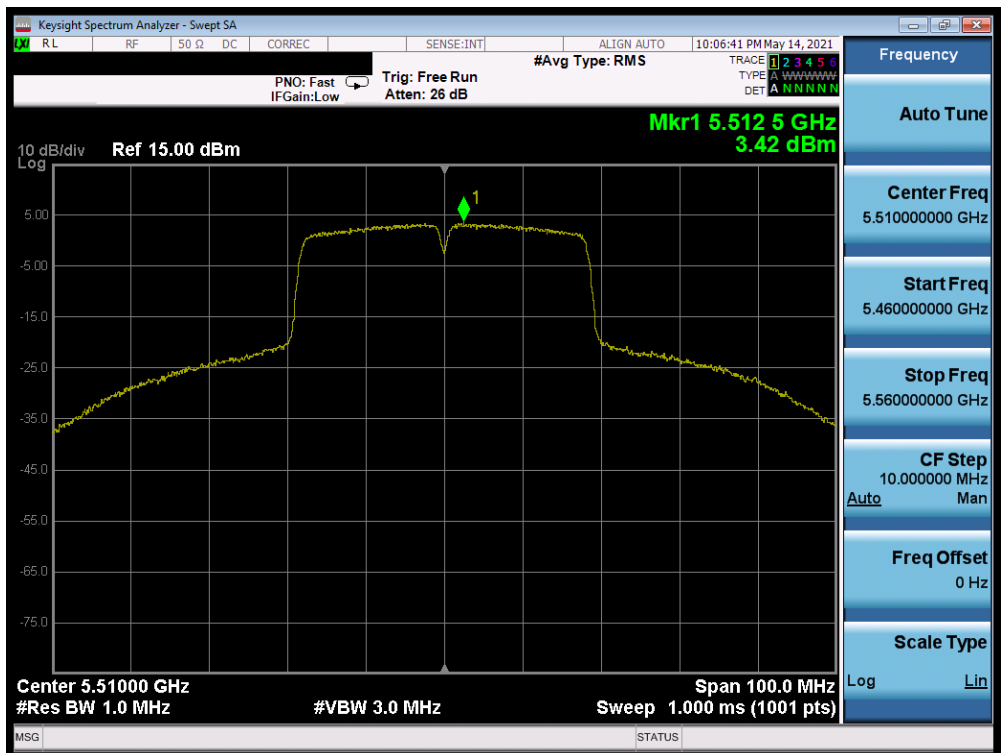


Plot 7-236. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 151 of 269

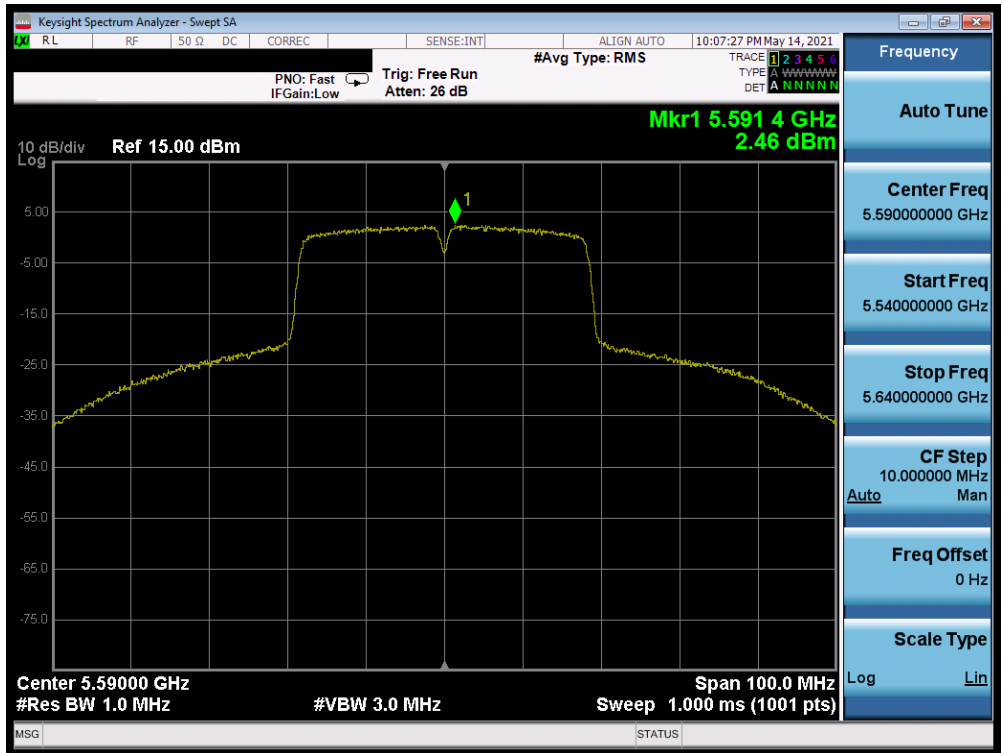


Plot 7-237. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 144)

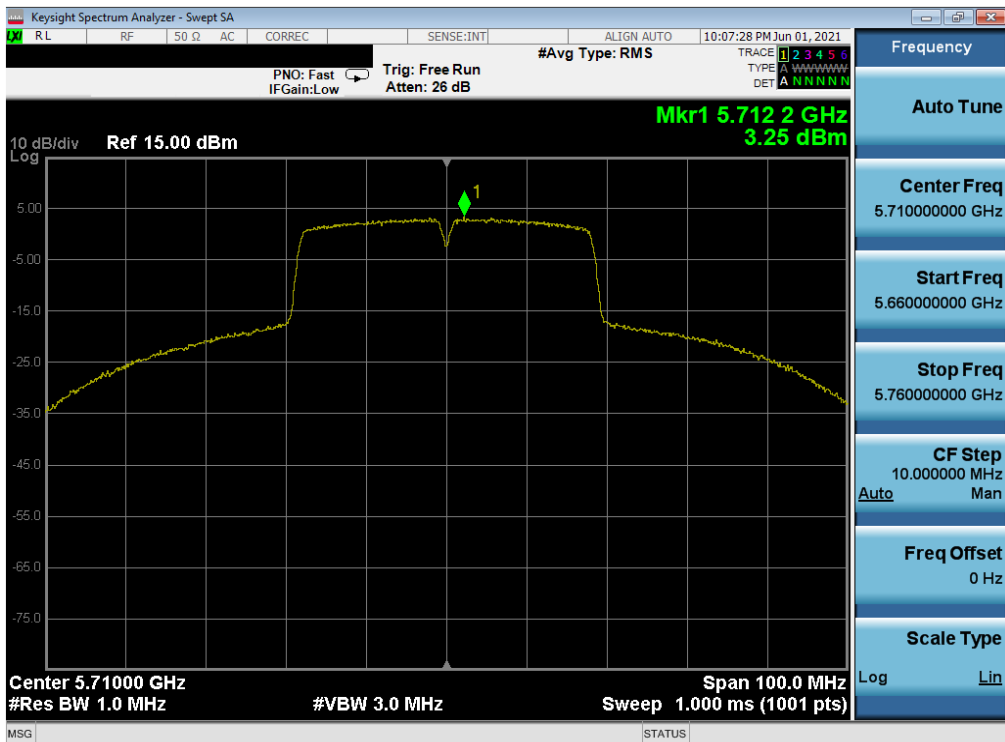


Plot 7-238. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 152 of 269

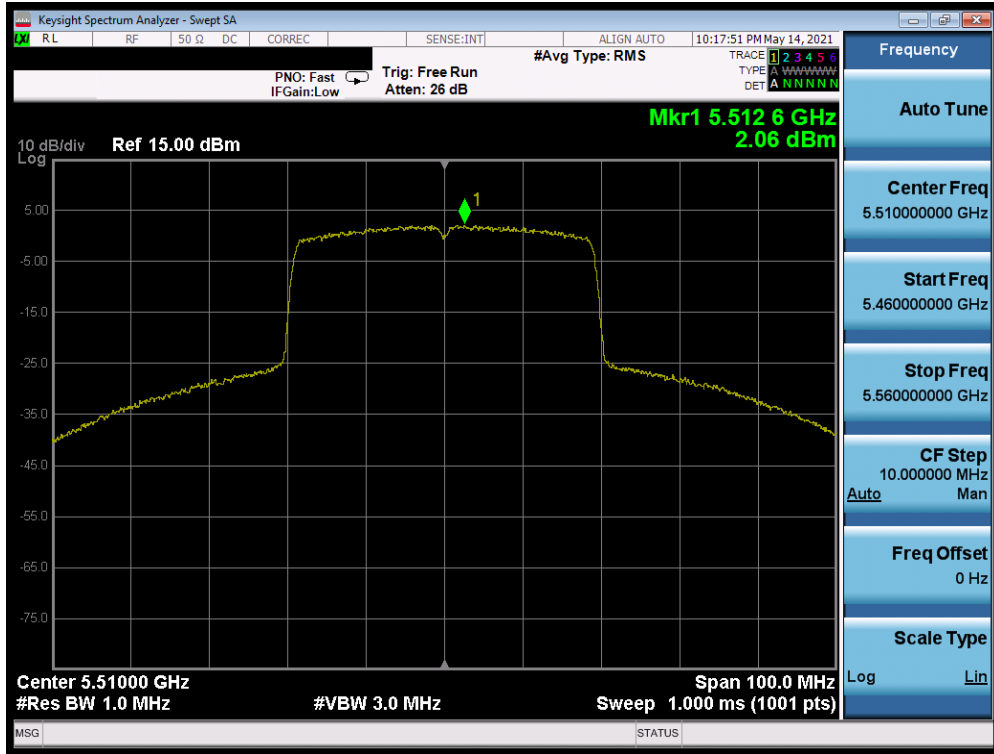


Plot 7-239. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 2C) – Ch. 118)

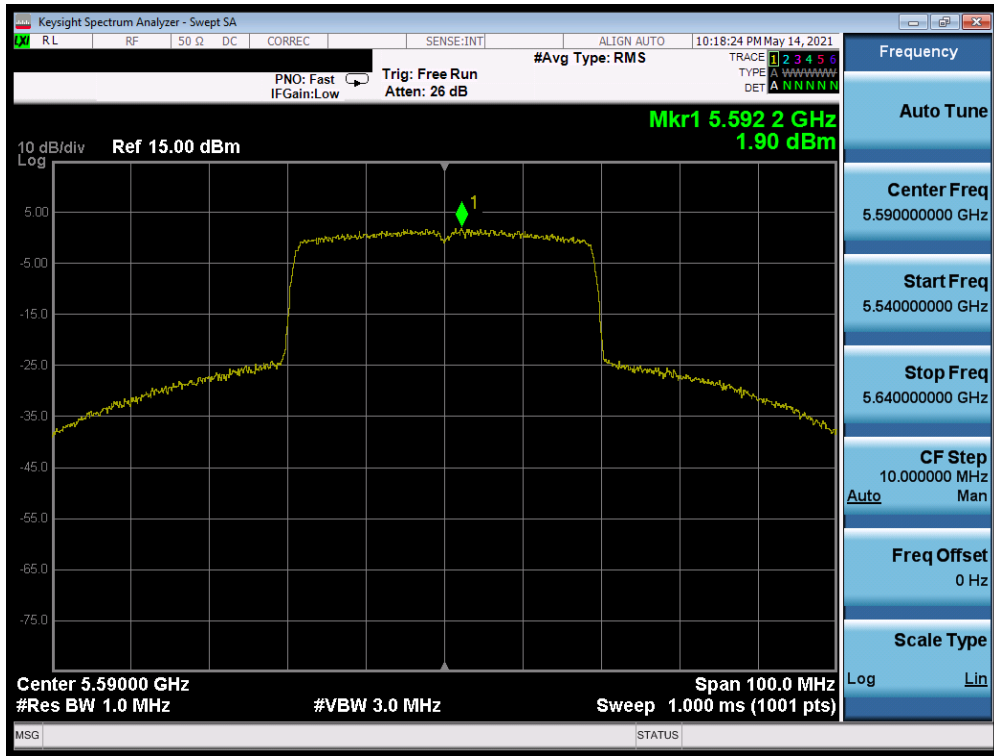


Plot 7-240. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 153 of 269

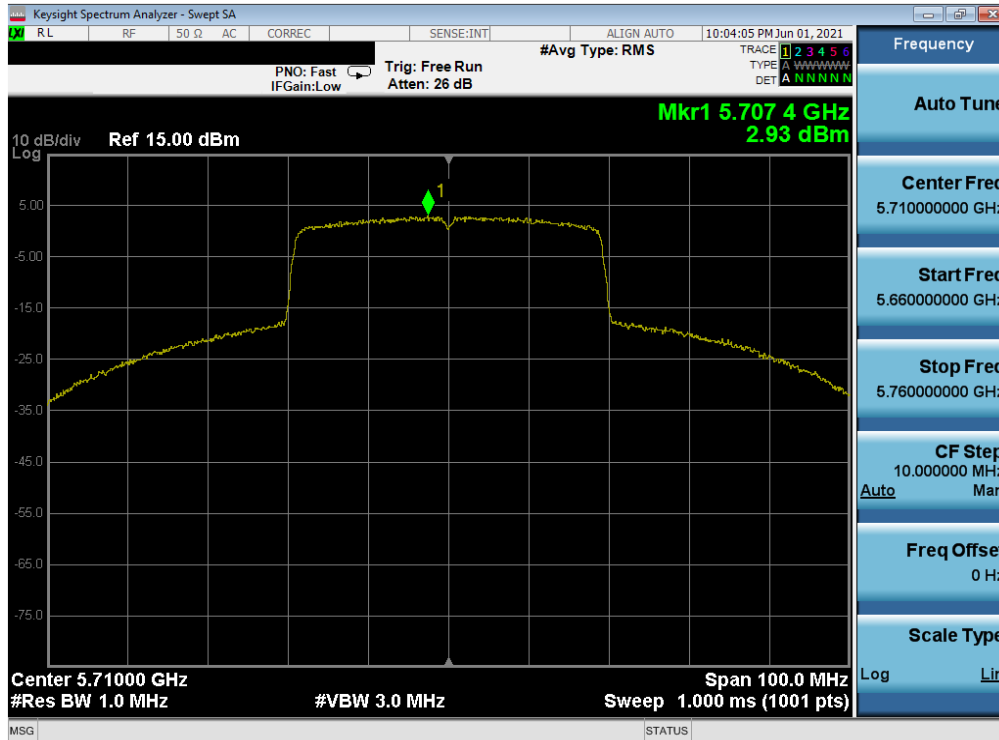


Plot 7-241. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 102)

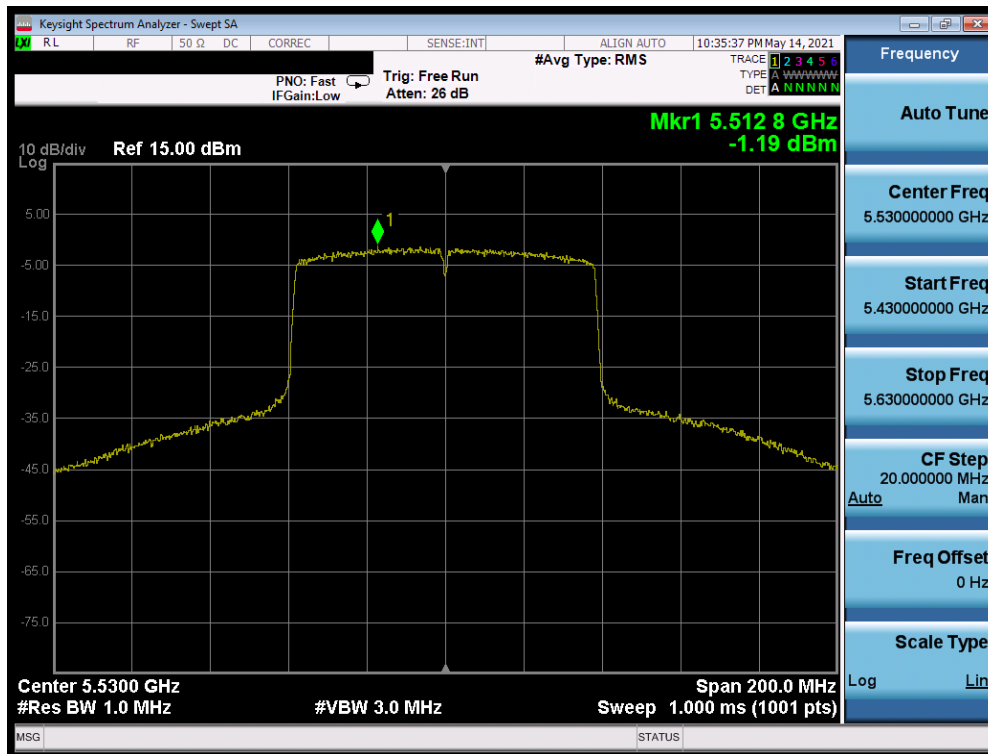


Plot 7-242. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 118)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 154 of 269

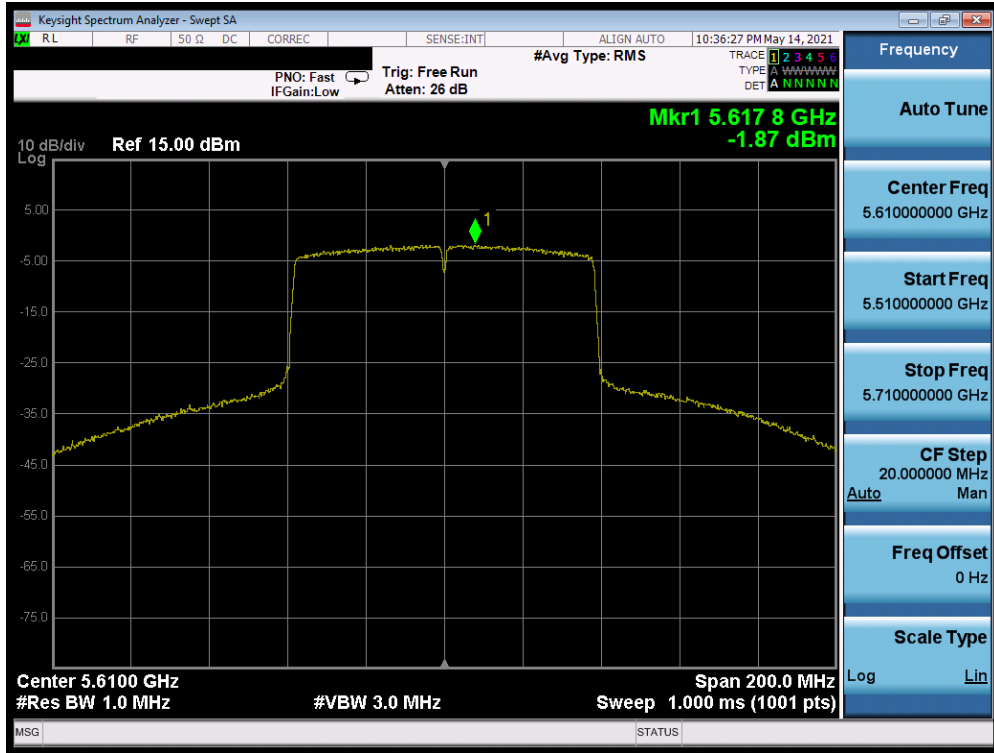


Plot 7-243. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 142)

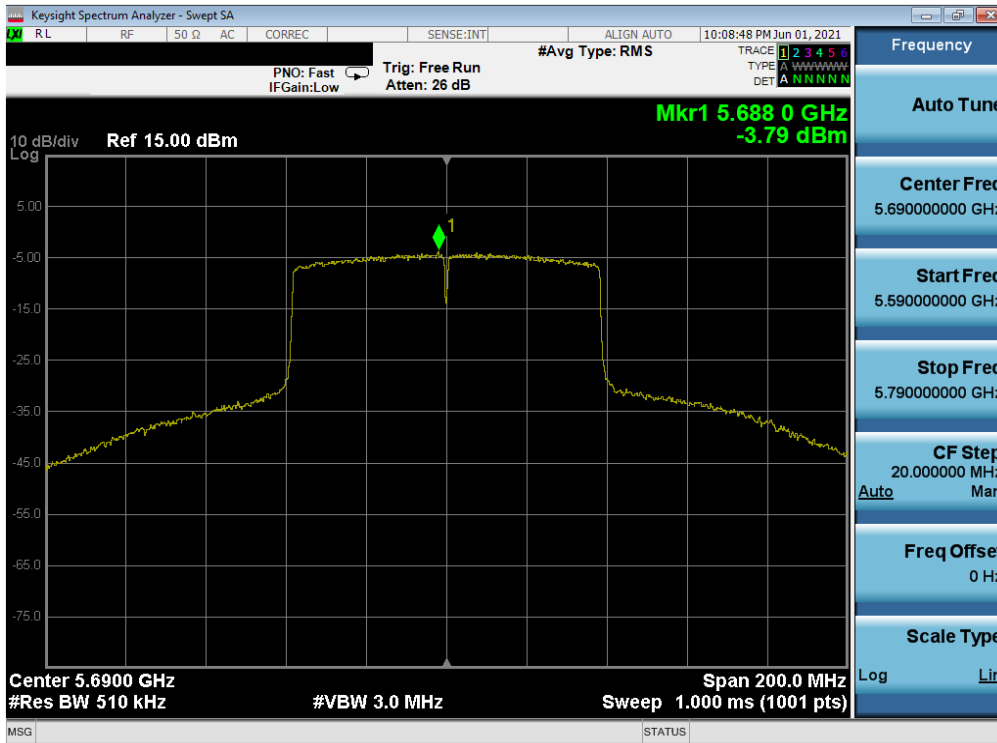


Plot 7-244. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 155 of 269

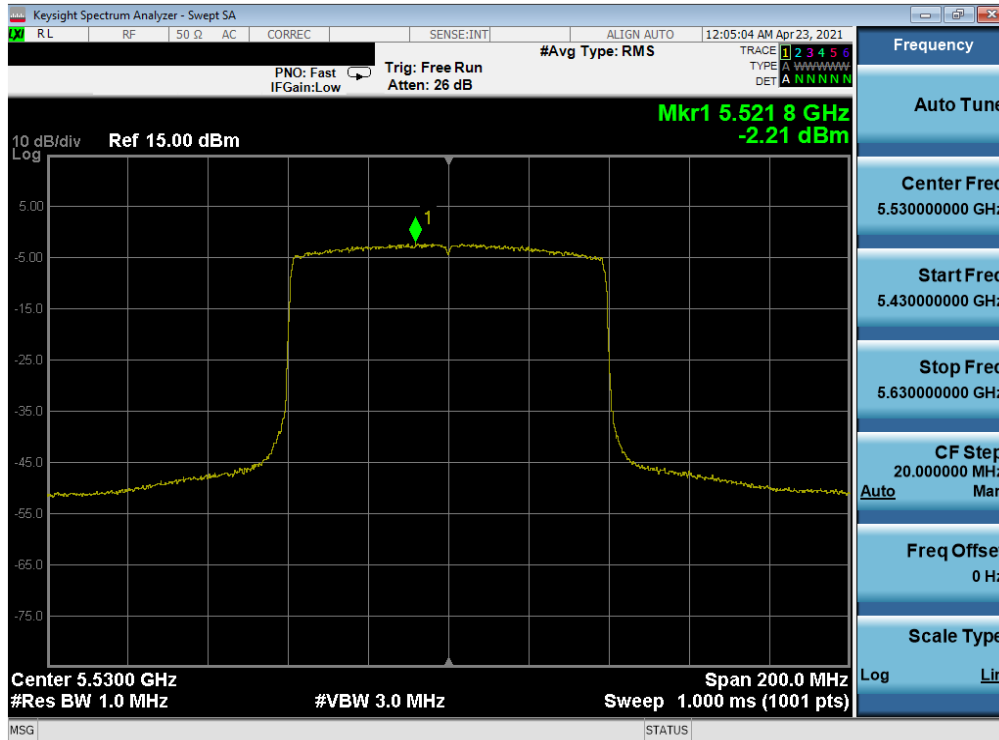


Plot 7-245. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)

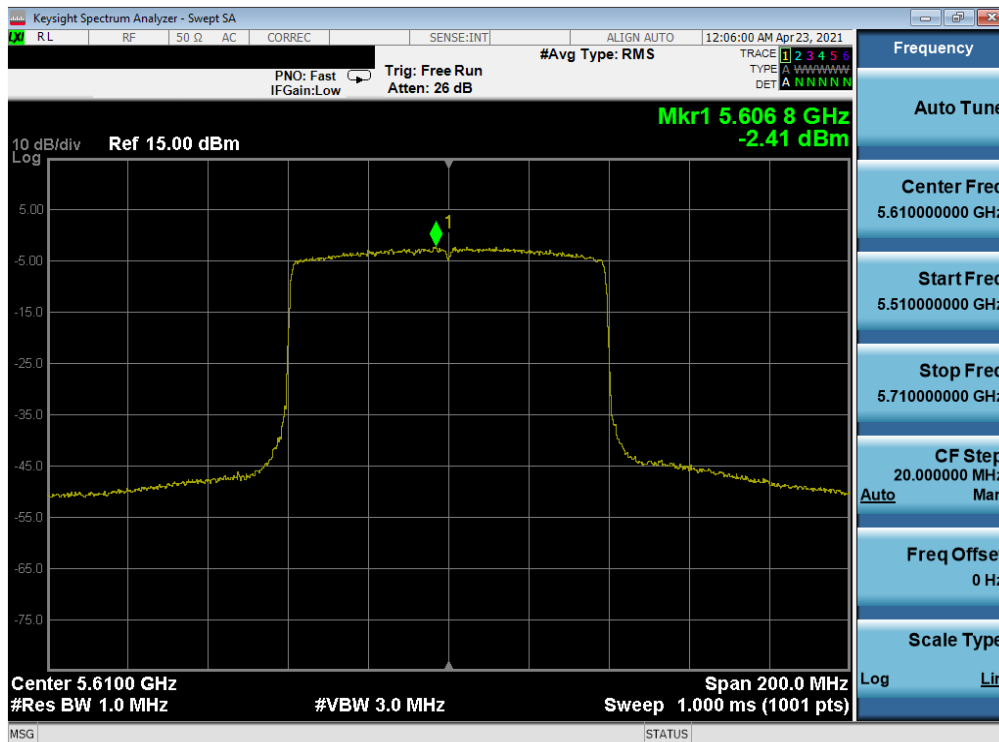


Plot 7-246. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 156 of 269

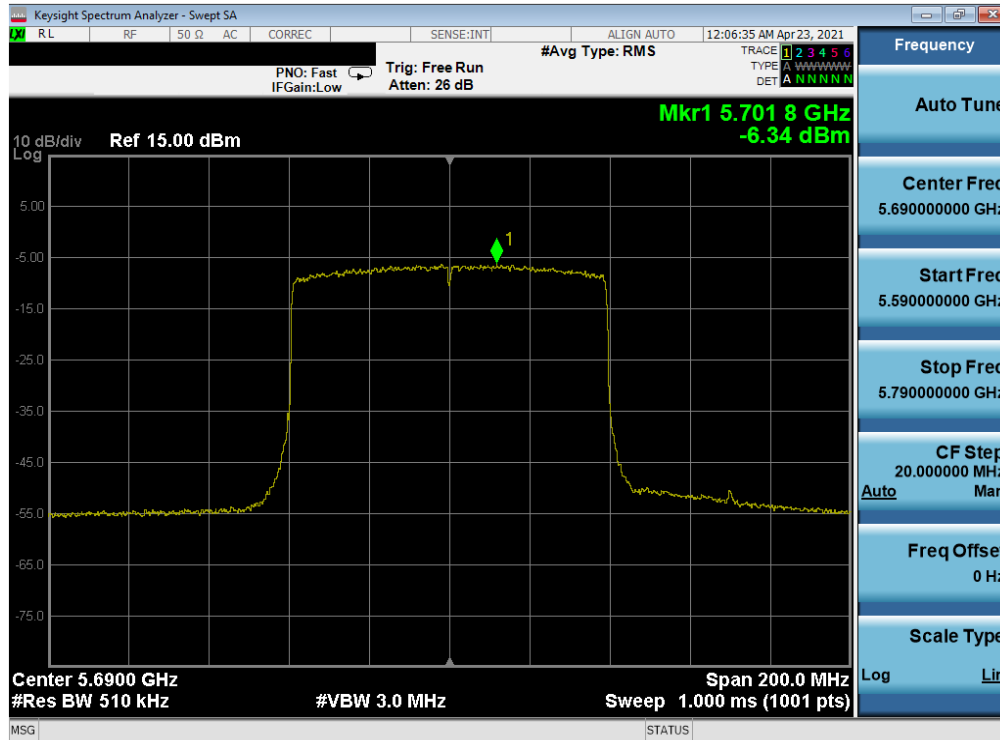


Plot 7-247. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)



Plot 7-248. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)

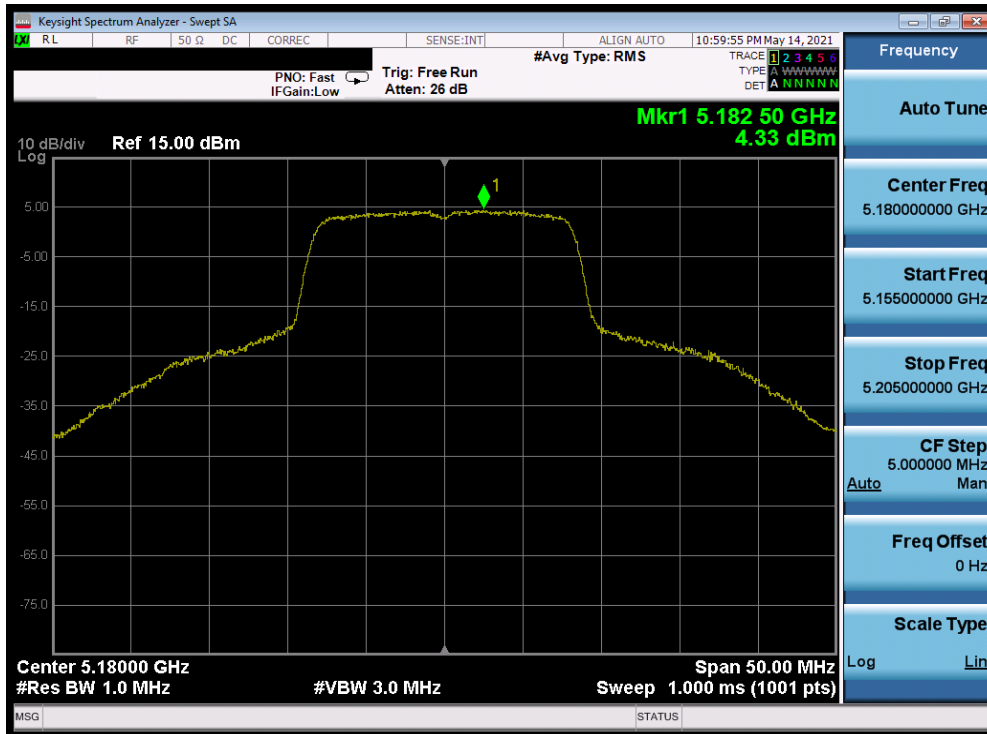
FCC ID: A3LSMF711JPN	 Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 157 of 269



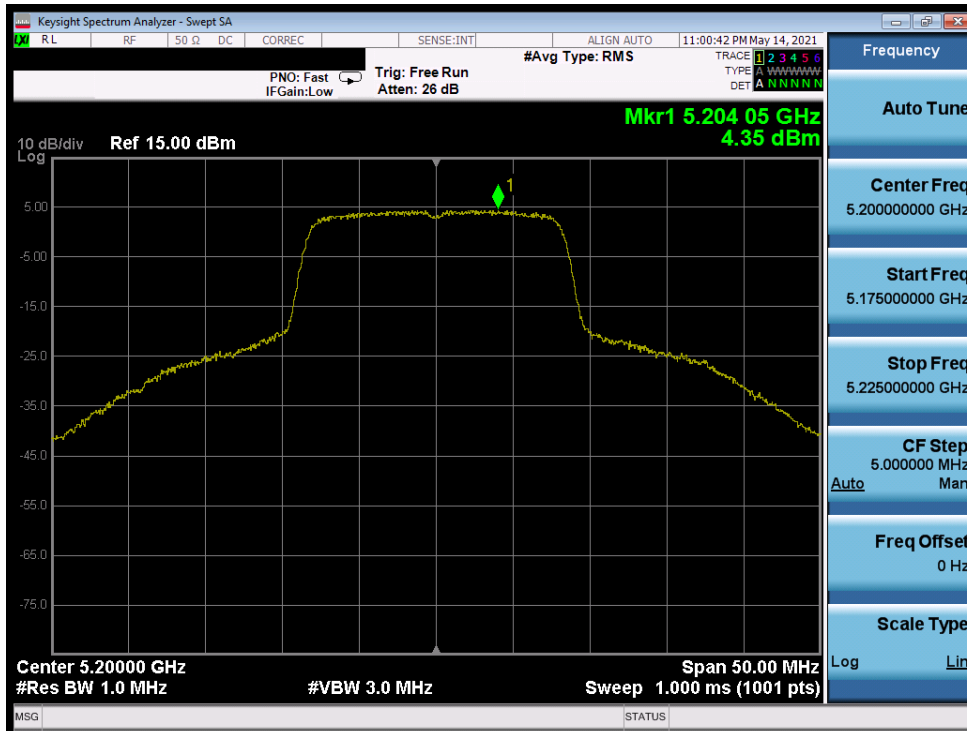
Plot 7-249. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 158 of 269

MIMO Antenna-2 Band 1, 2A, 2C Power Spectral Density Measurements

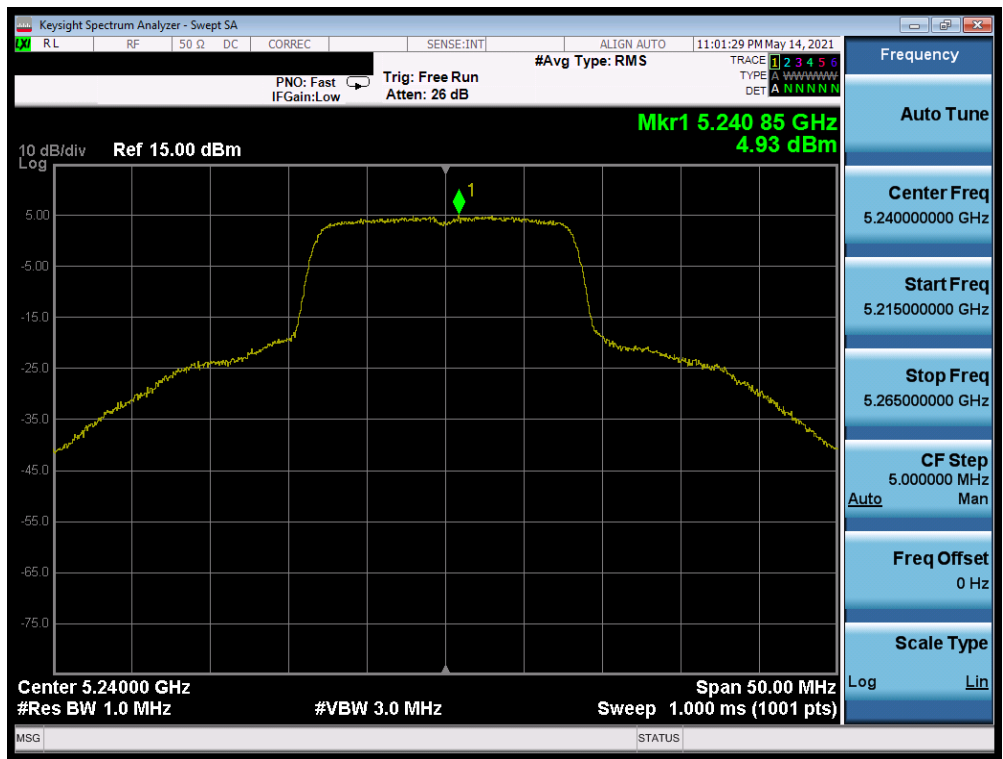


Plot 7-250. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11a (UNII Band 1) – Ch. 36)

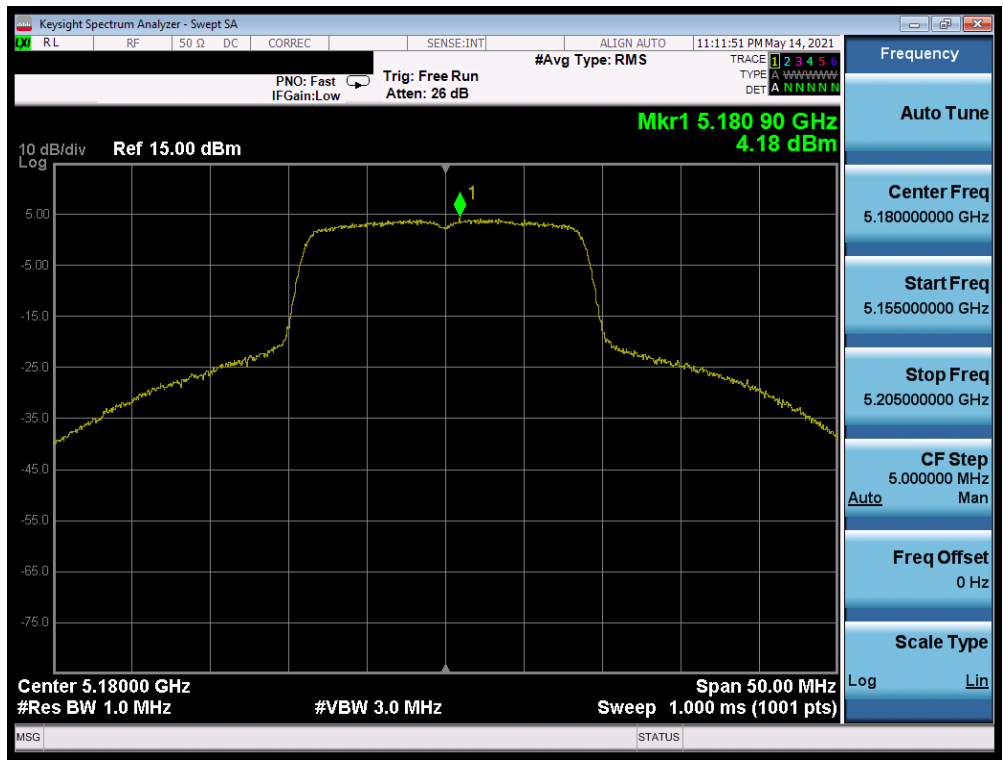


Plot 7-251. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11a (UNII Band 1) – Ch. 40)

FCC ID: A3LSMF711JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 159 of 269

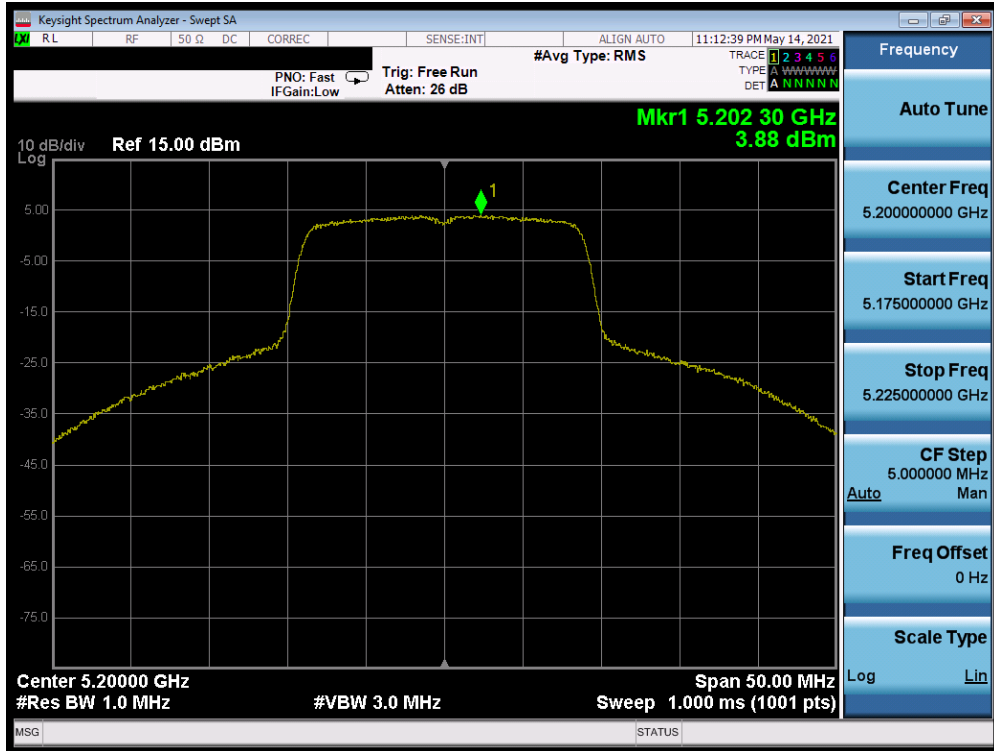


Plot 7-252. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11a (UNII Band 1) – Ch. 48)

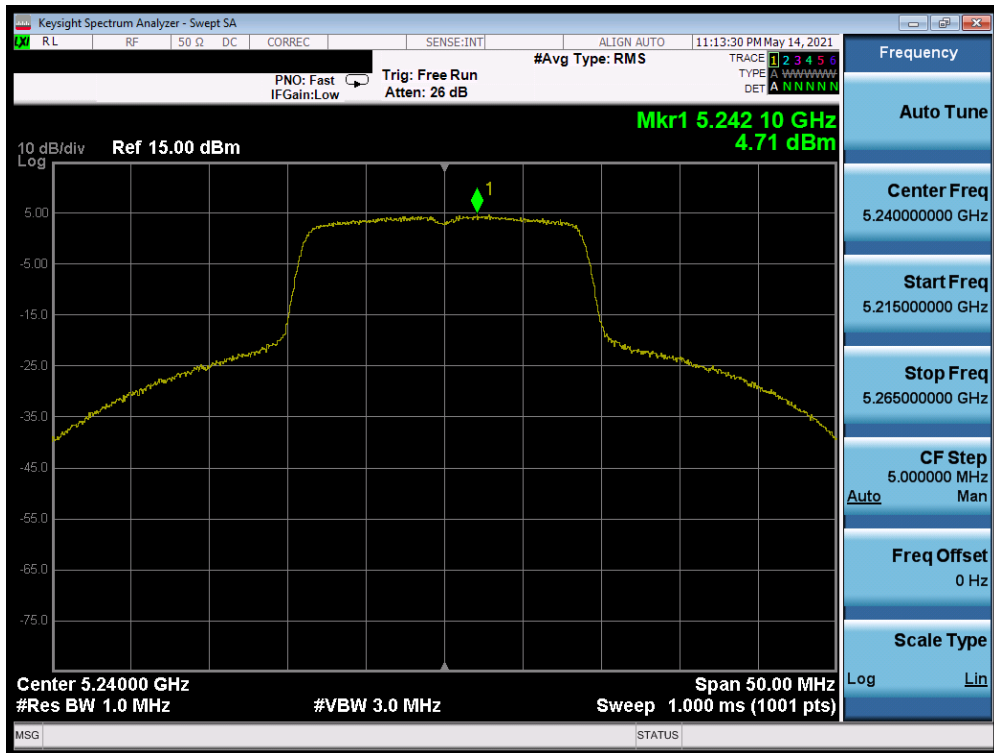


Plot 7-253. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 160 of 269

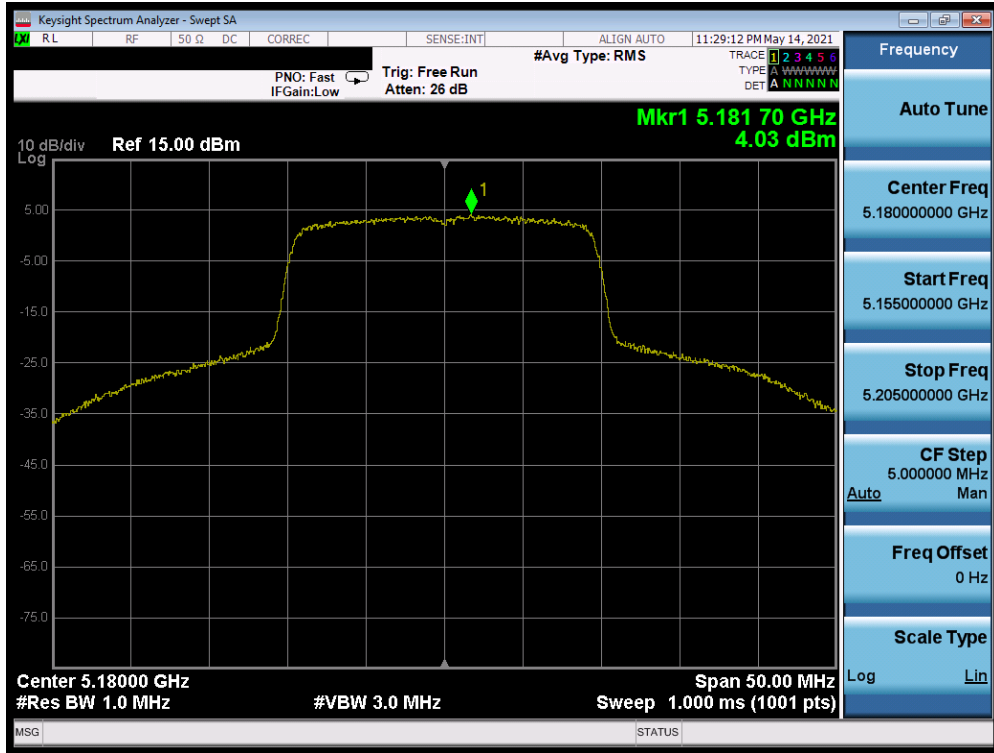


Plot 7-254. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

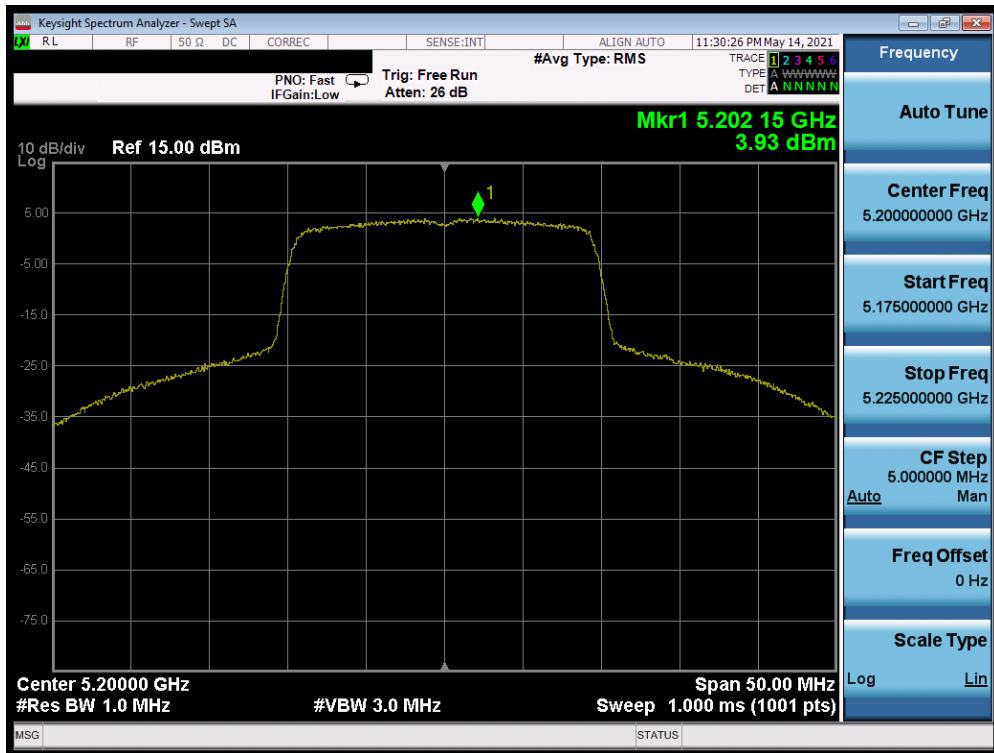


Plot 7-255. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 161 of 269

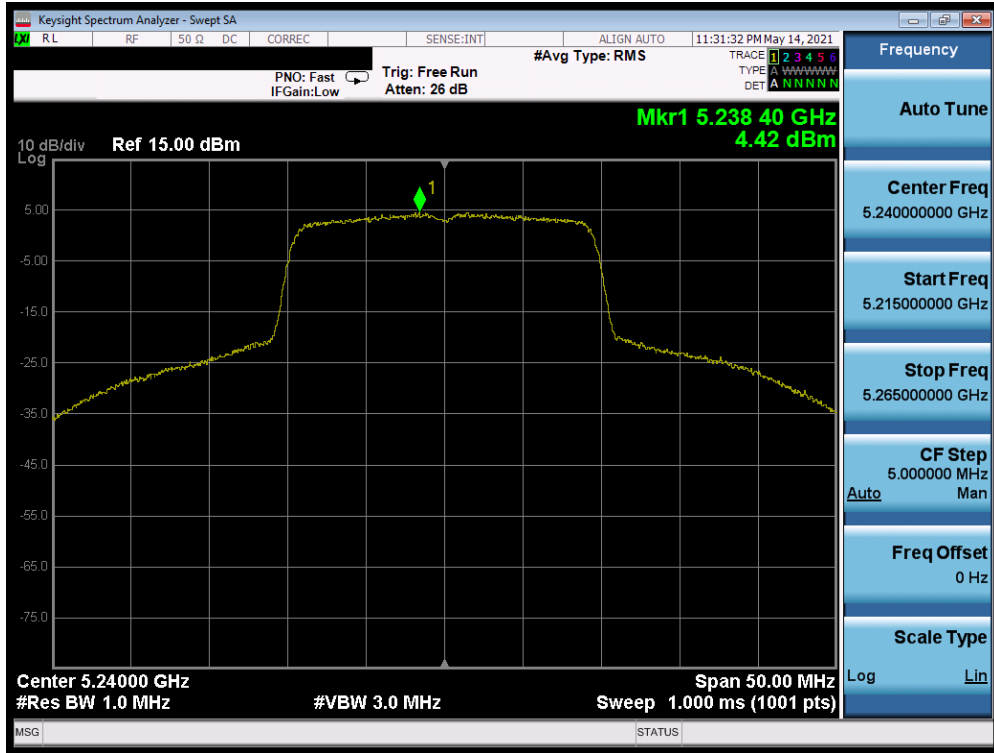


Plot 7-256. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 1) – Ch. 36)

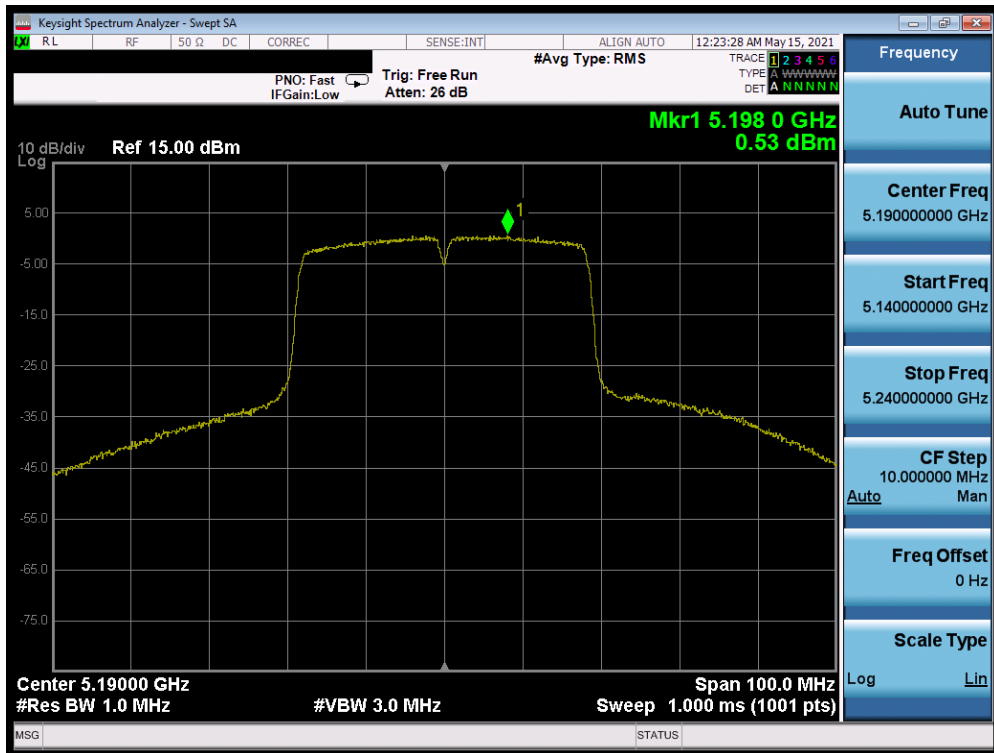


Plot 7-257. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 1) – Ch. 40)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 162 of 269

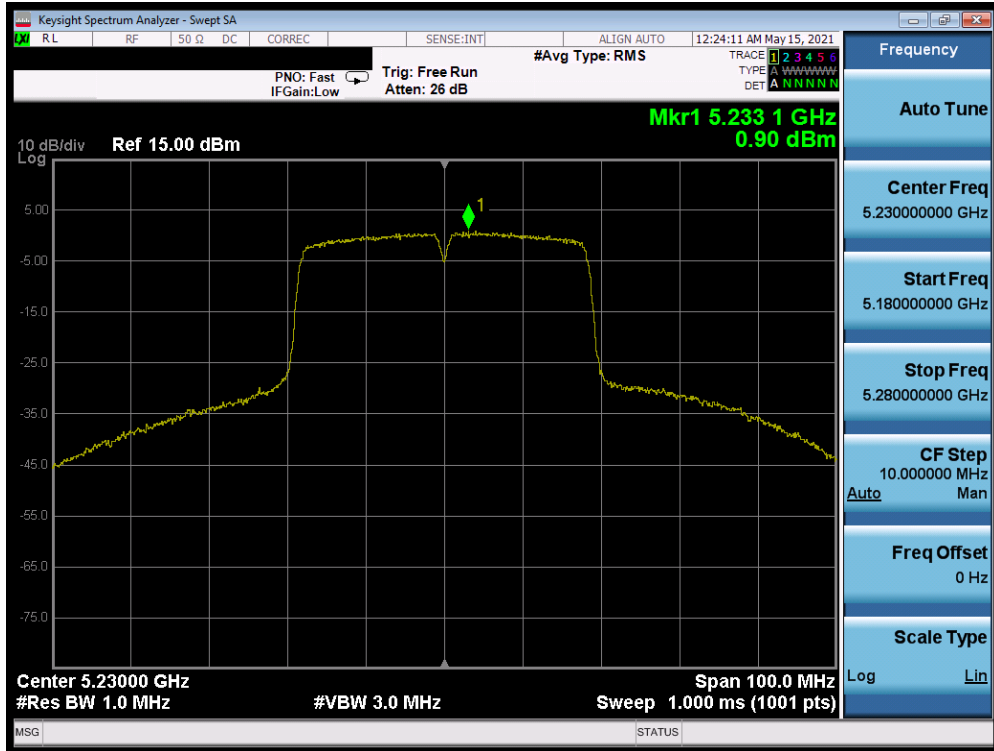


Plot 7-258. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 1) – Ch. 48)

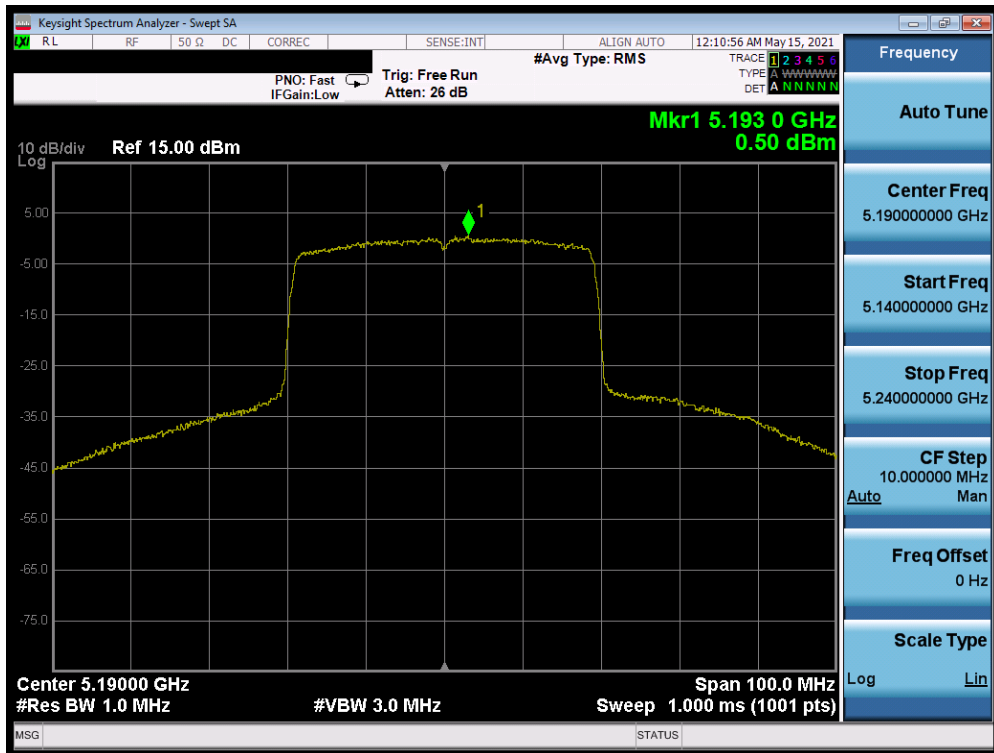


Plot 7-259. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 163 of 269

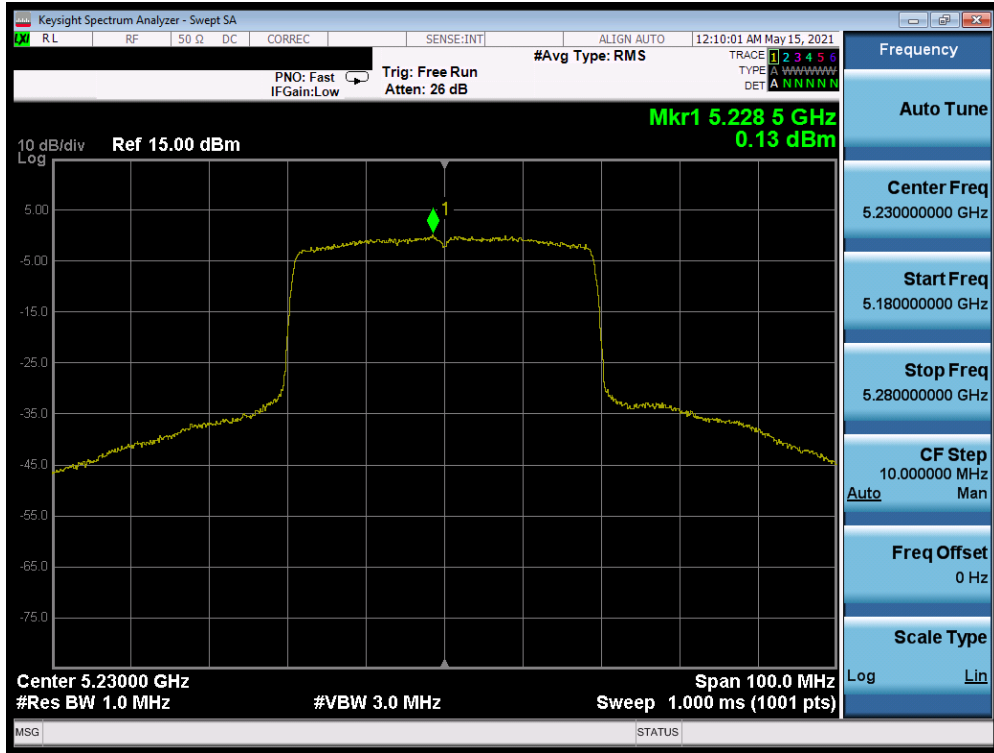


Plot 7-260. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

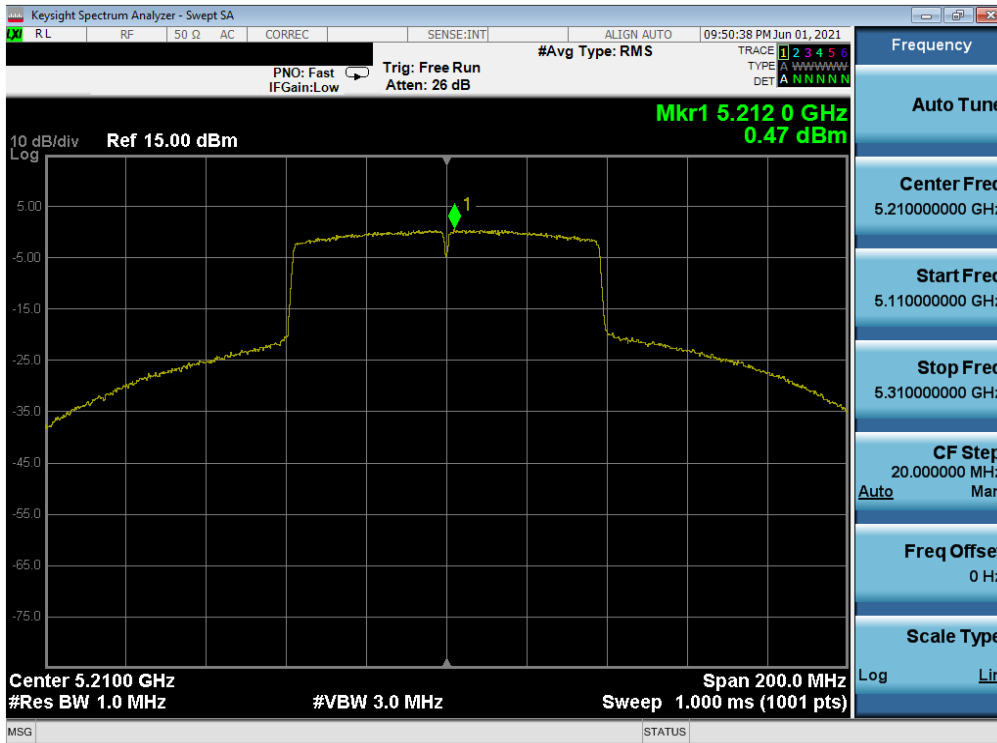


Plot 7-261. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax (UNII Band 1) – Ch. 38)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 164 of 269

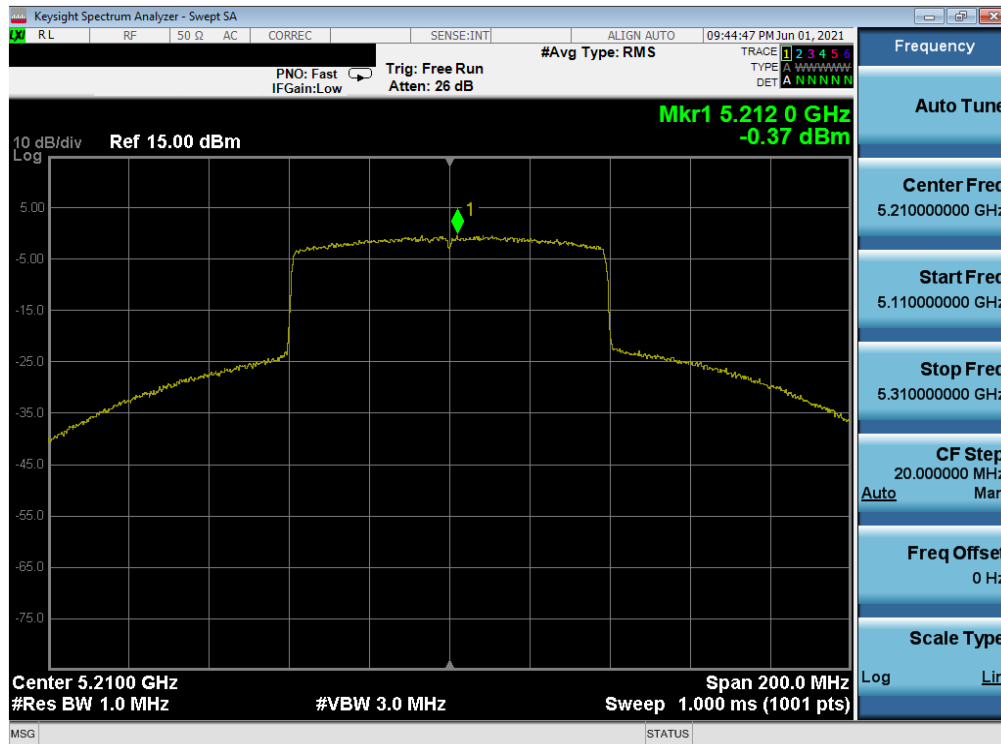


Plot 7-262. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax (UNII Band 1) – Ch. 46)

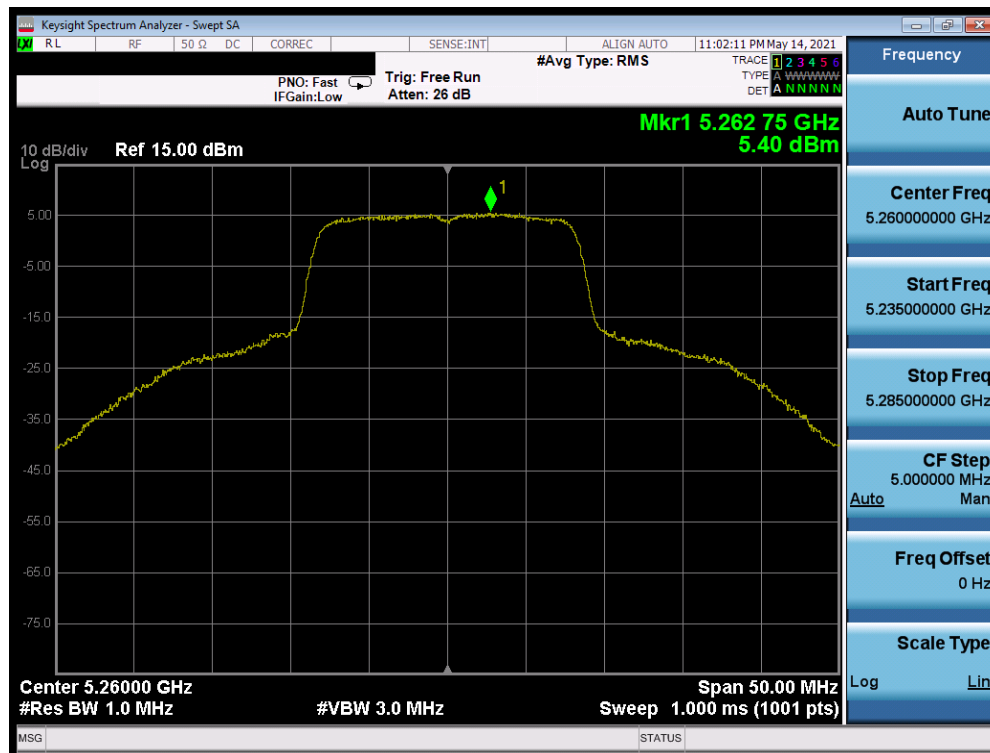


Plot 7-263. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 1) – Ch. 42)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 165 of 269

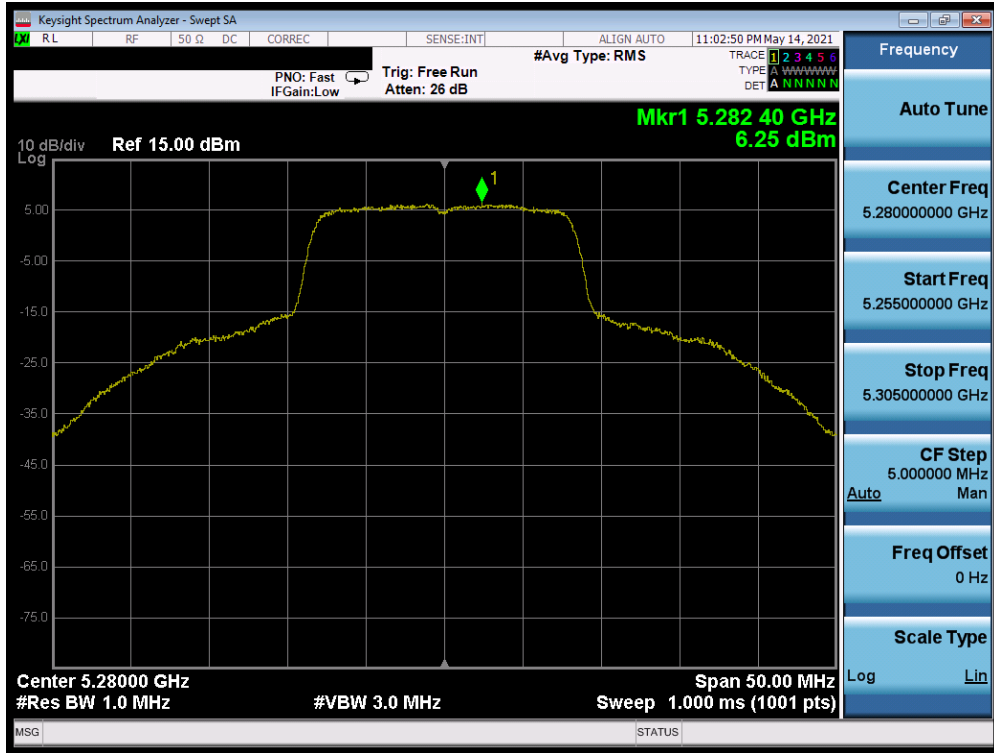


Plot 7-264. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax (UNII Band 1) – Ch. 42)

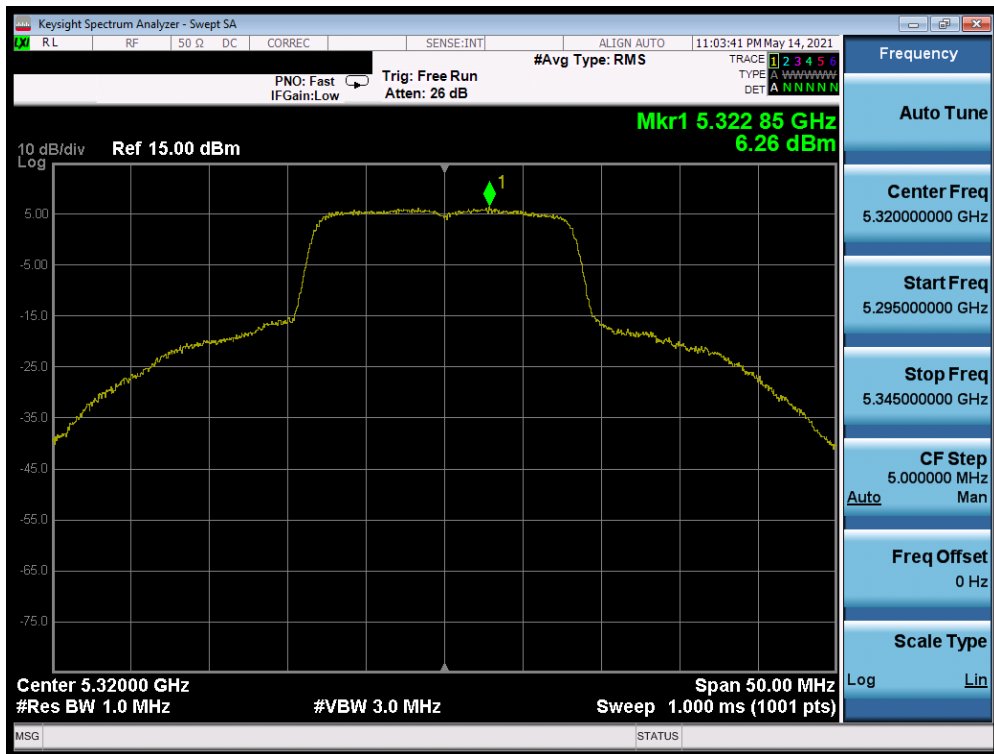


Plot 7-265. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11a (UNII Band 2A) – Ch. 52)

FCC ID: A3LSMF711JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 166 of 269

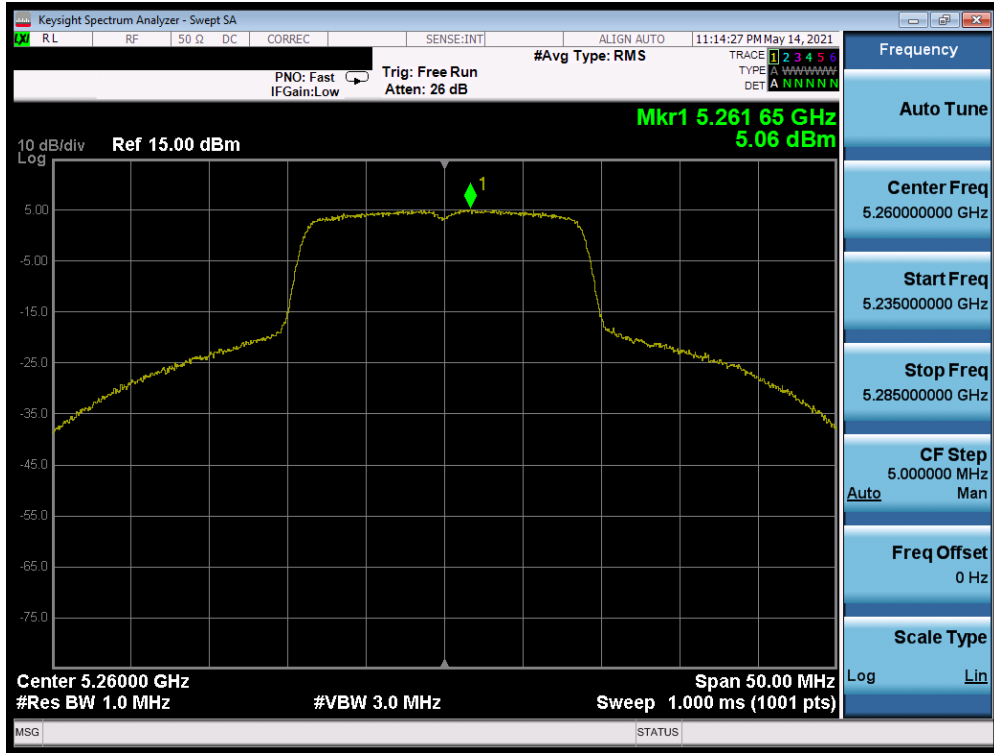


Plot 7-266. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11a (UNII Band 2A) – Ch. 56)

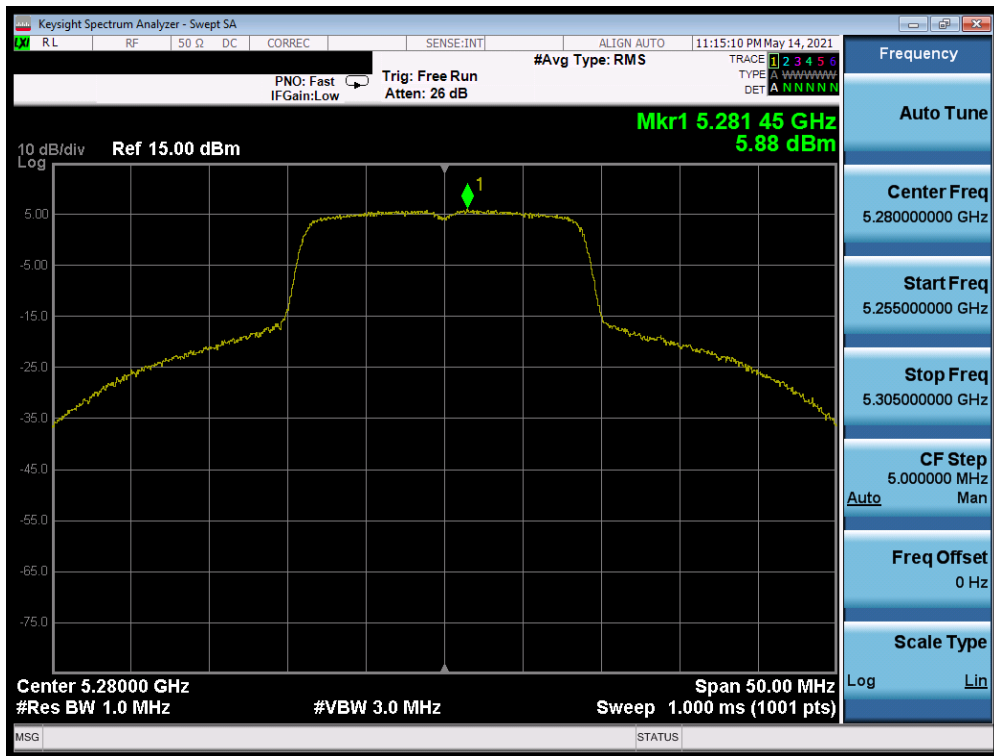


Plot 7-267. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11a (UNII Band 2A) – Ch. 64)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 167 of 269

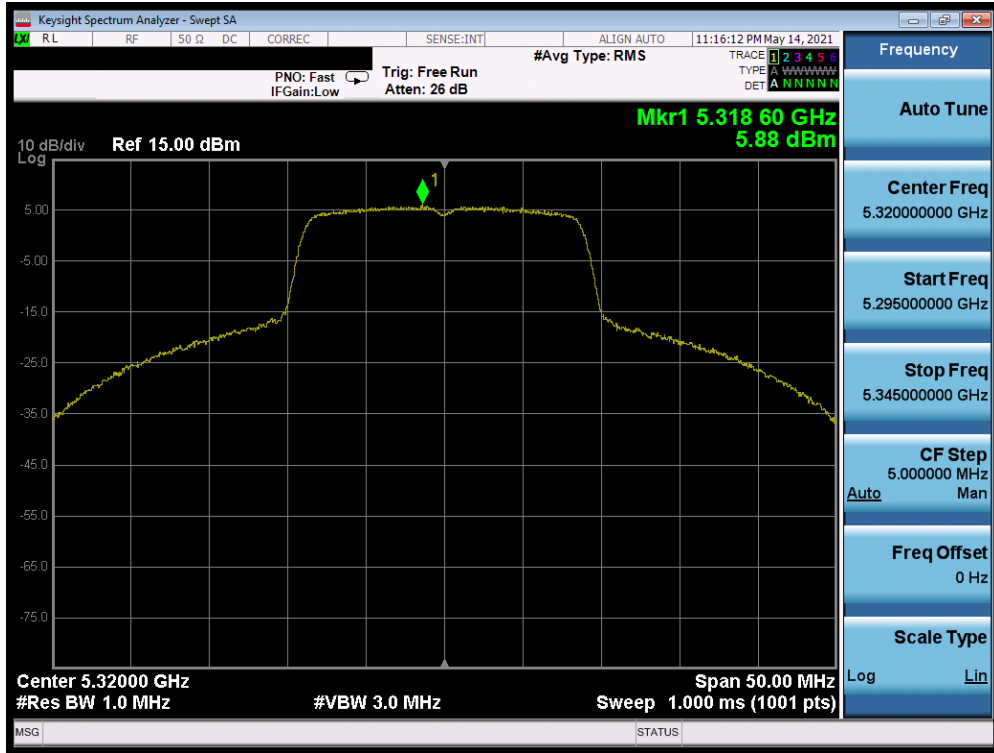


Plot 7-268. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

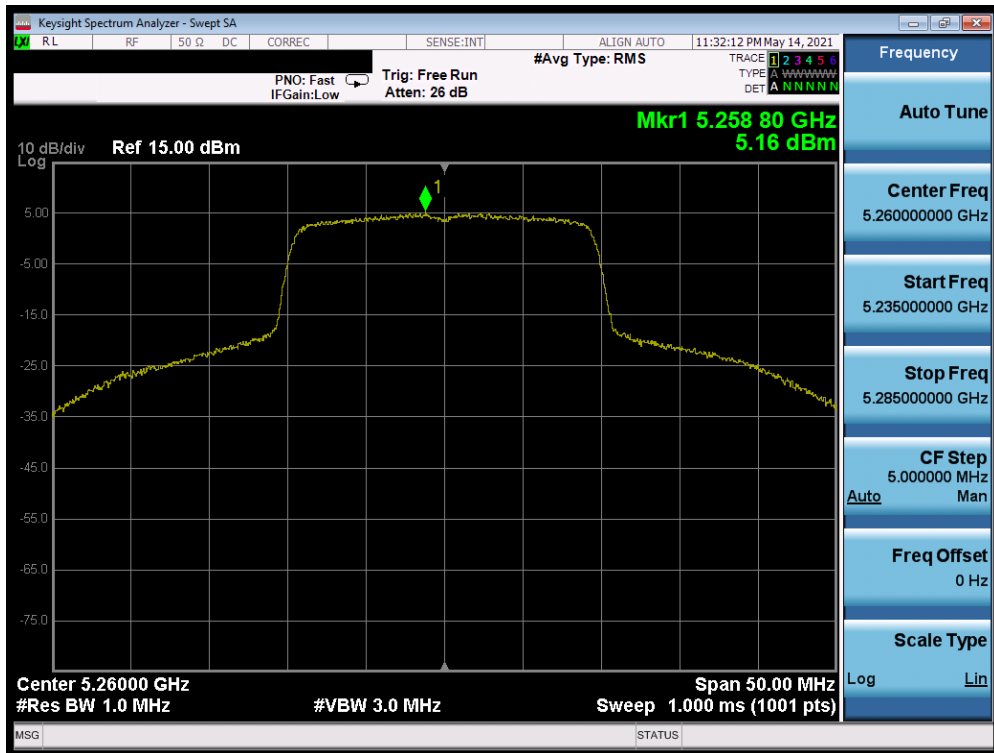


Plot 7-269. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 168 of 269

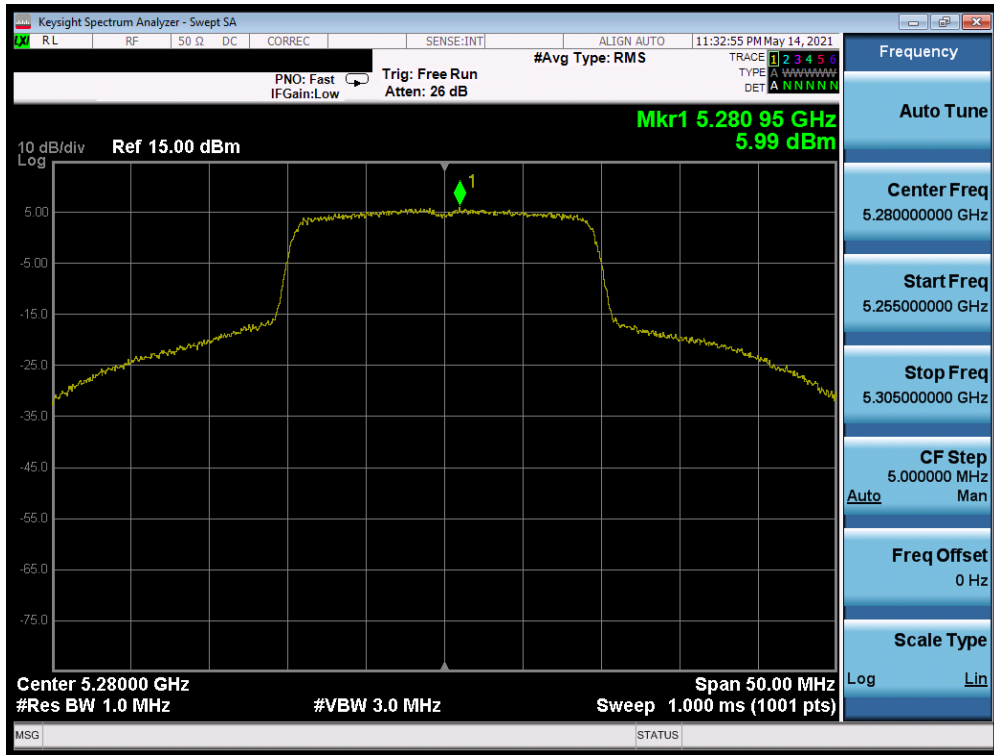


Plot 7-270. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

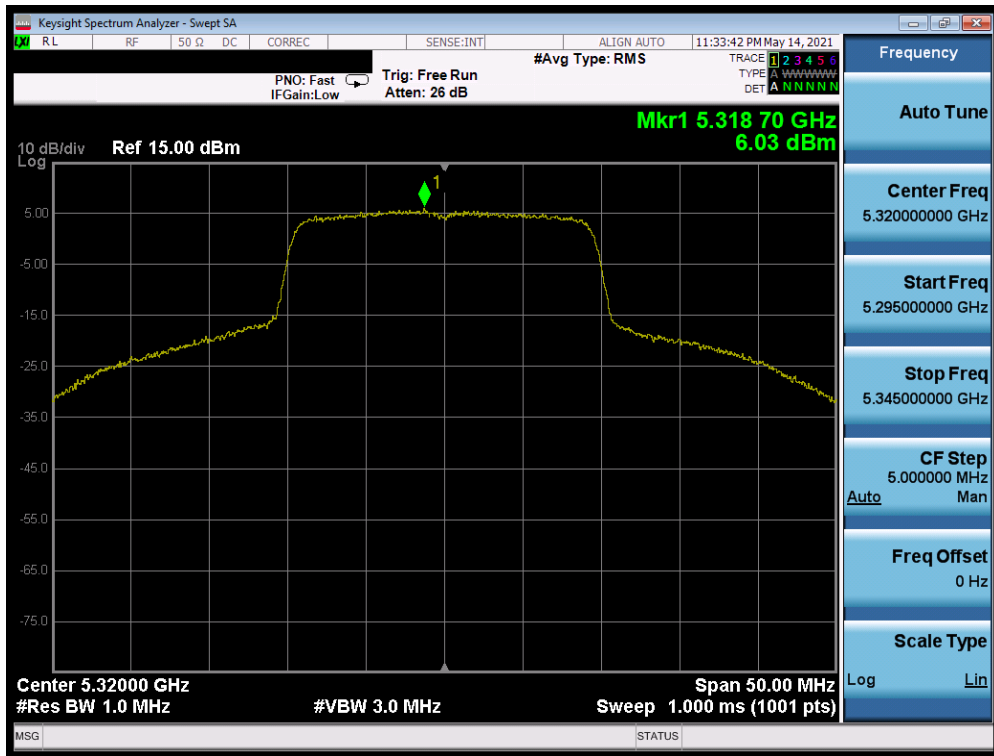


Plot 7-271. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 2A) – Ch. 52)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 169 of 269

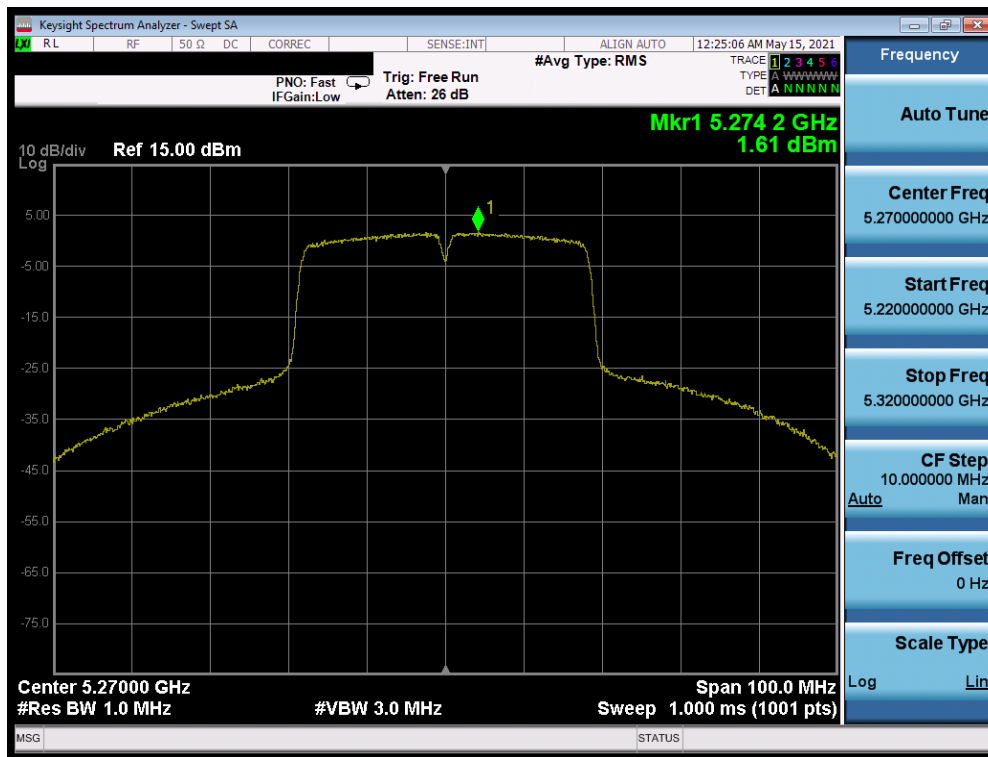


Plot 7-272. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 2A) – Ch. 56)

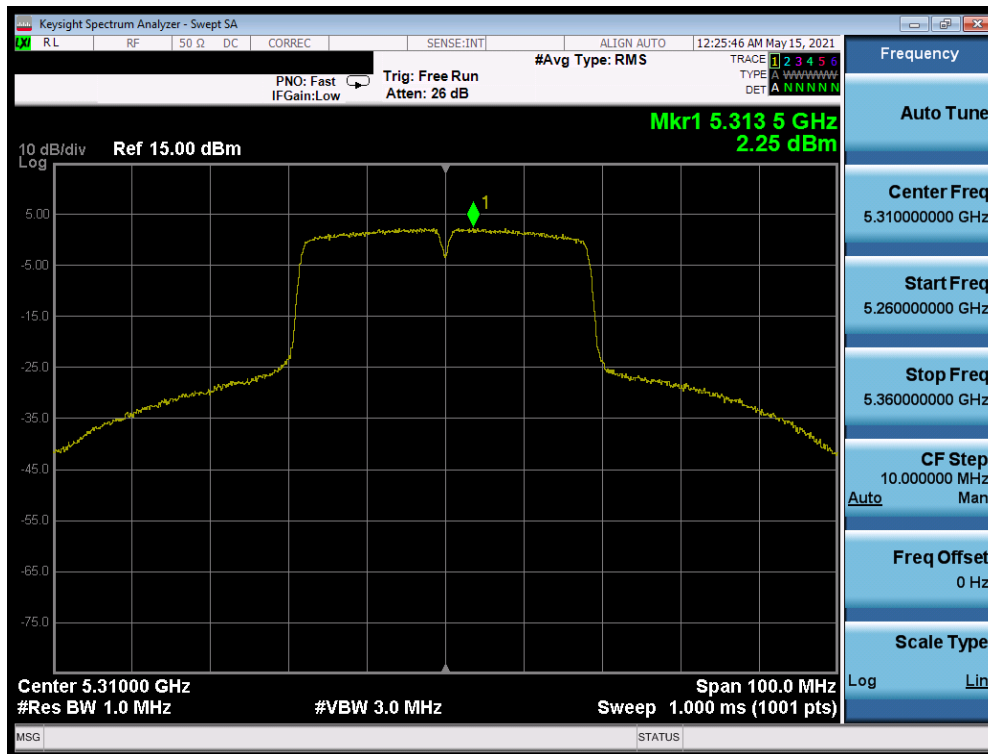


Plot 7-273. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 2A) – Ch. 64)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 170 of 269

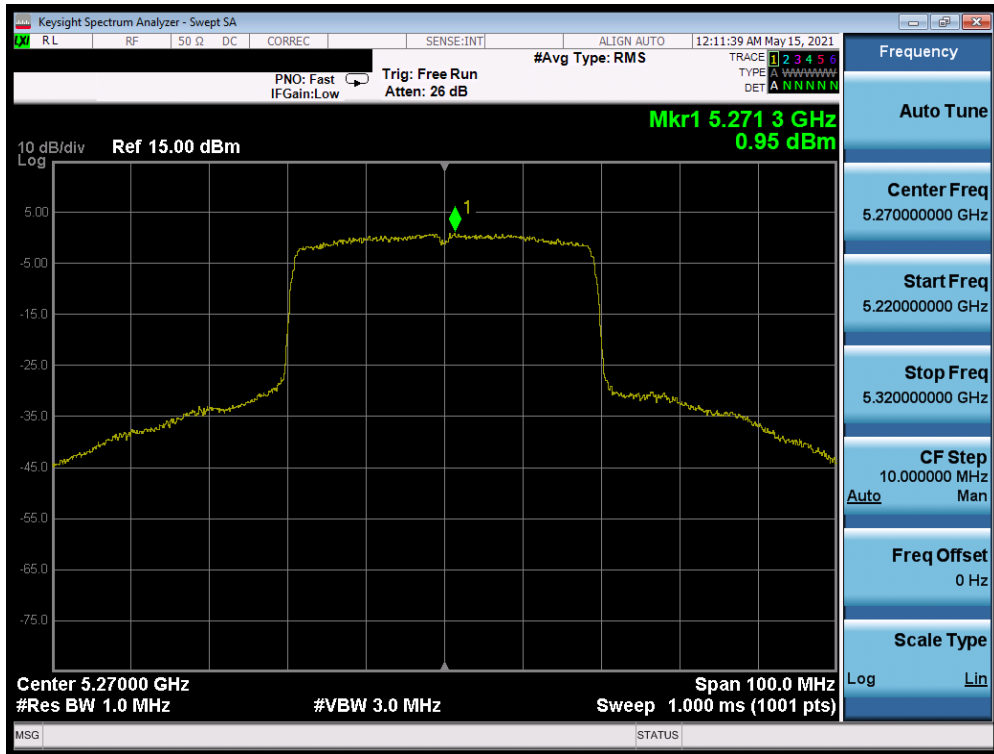


Plot 7-274. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

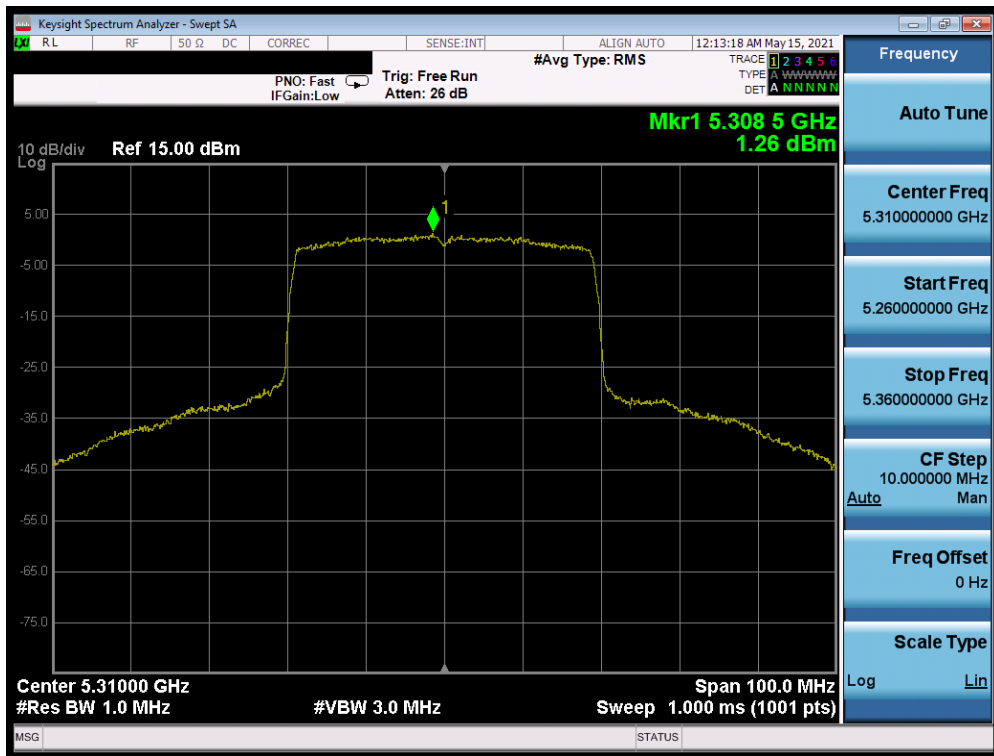


Plot 7-275. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 171 of 269

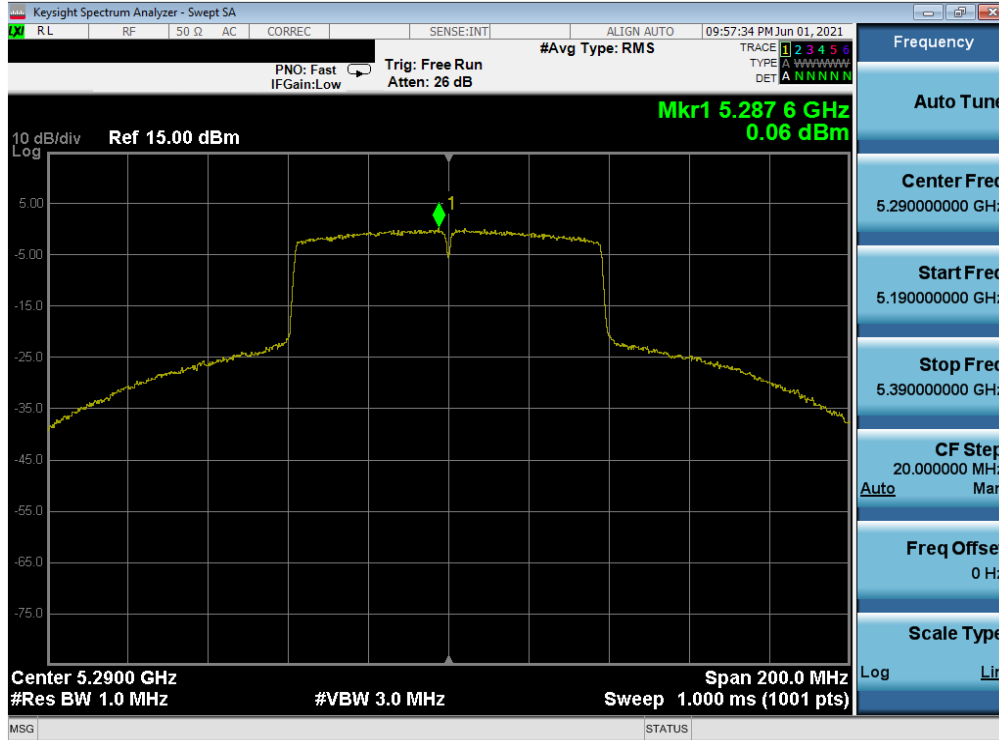


Plot 7-276. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax (UNII Band 2A) – Ch. 54)

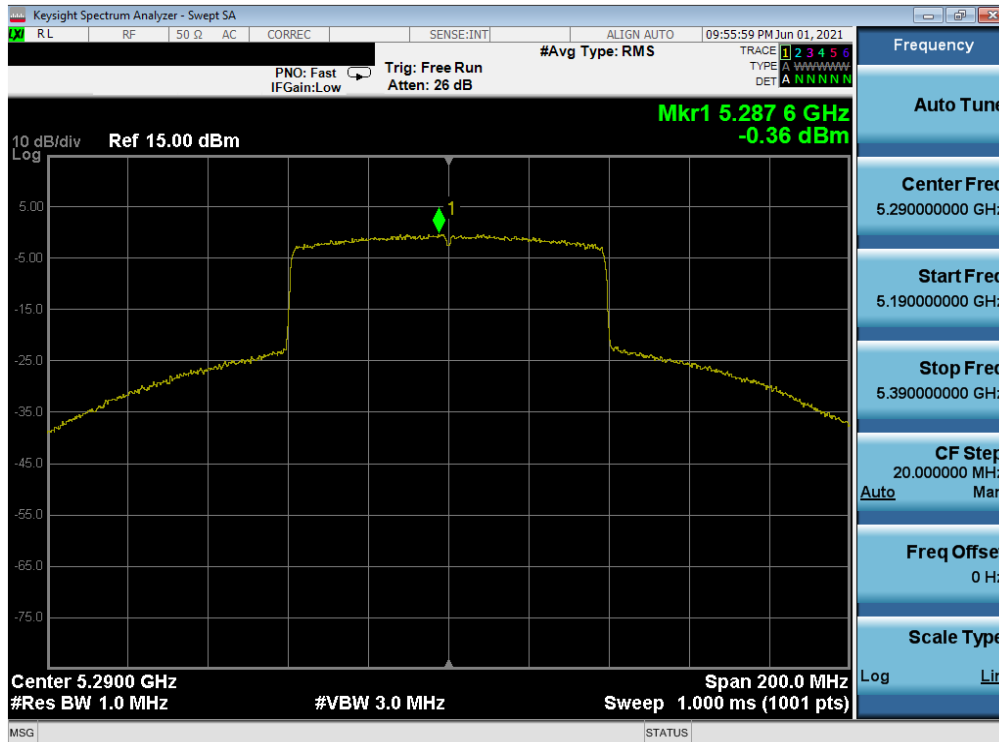


Plot 7-277. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax (UNII Band 2A) – Ch. 62)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 172 of 269

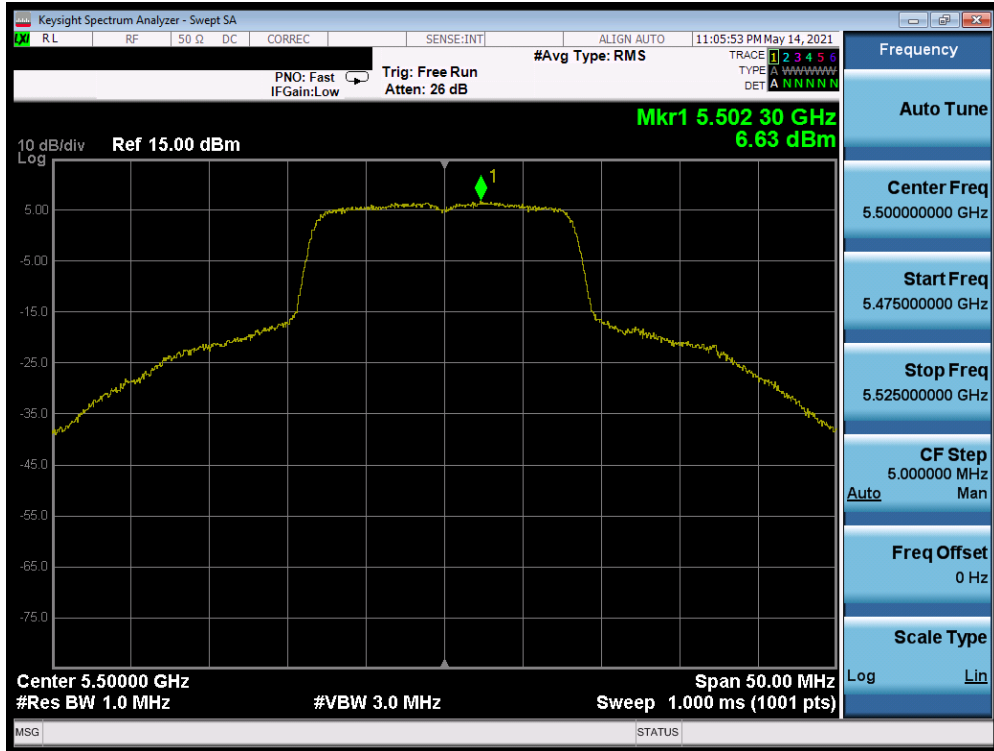


Plot 7-278. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

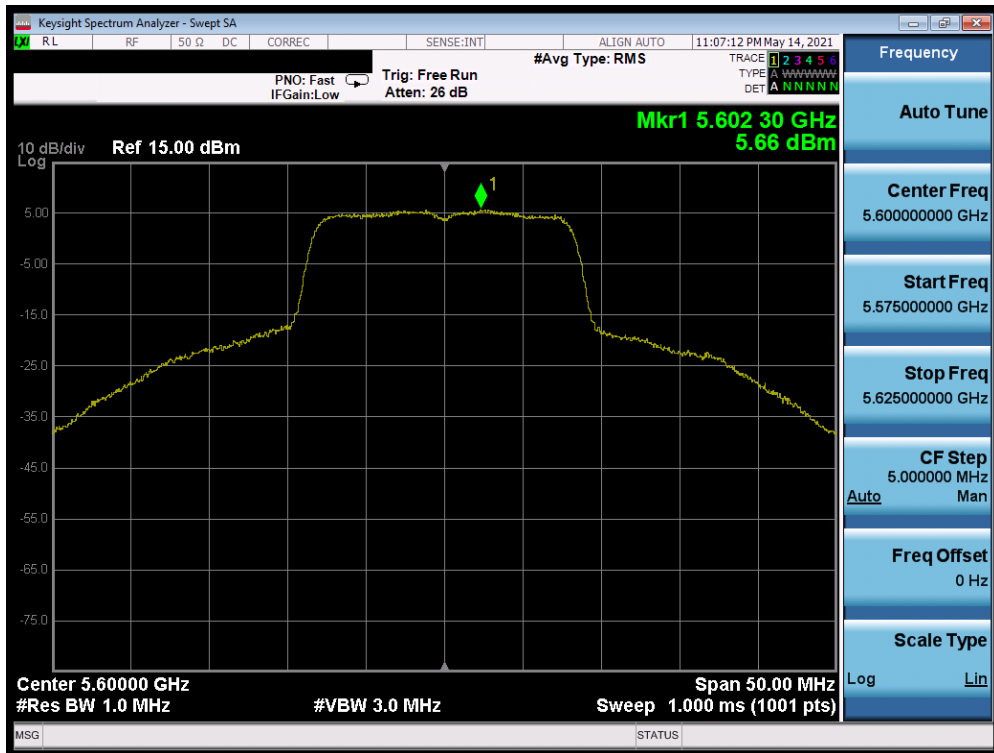


Plot 7-279. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 173 of 269

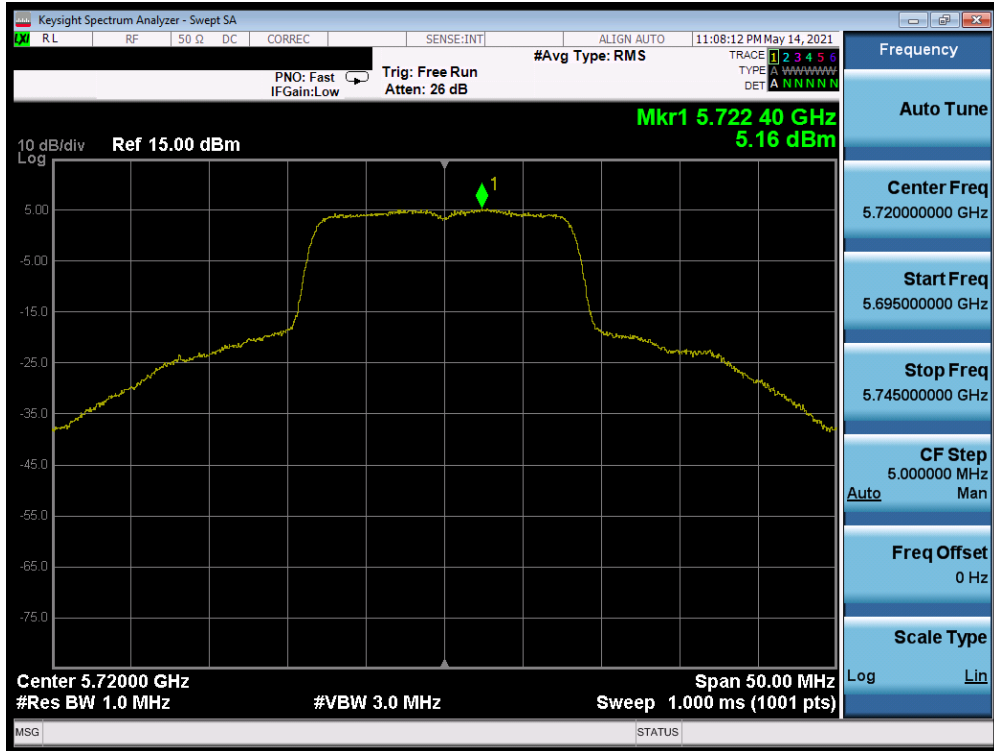


Plot 7-280. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11a (UNII Band 2C) – Ch. 100)

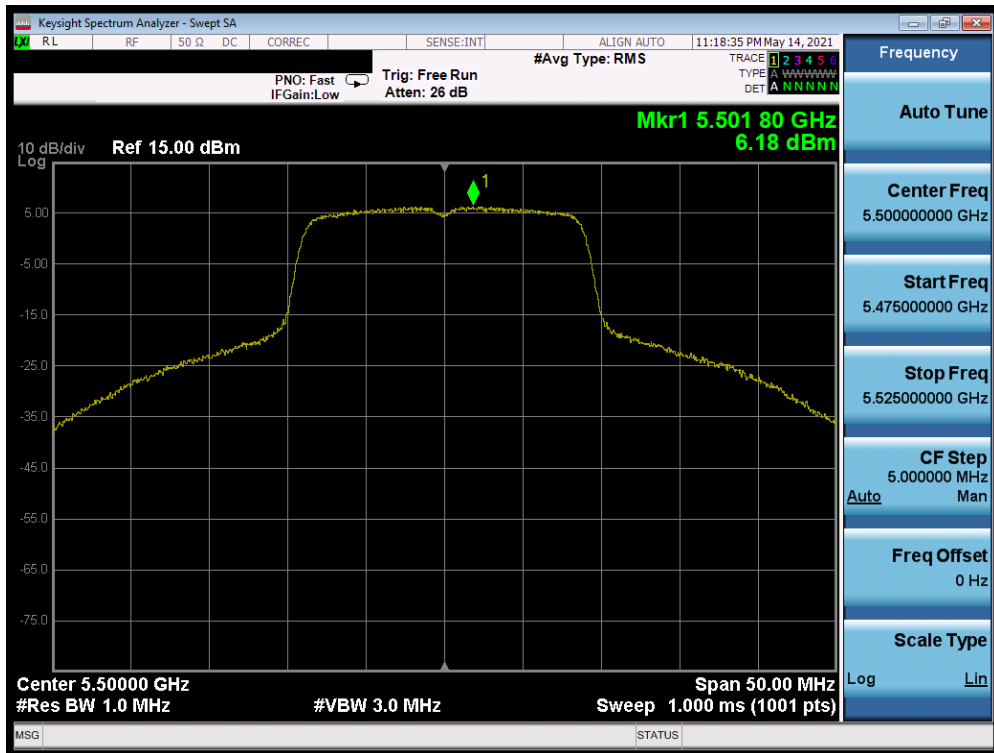


Plot 7-281. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11a (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 174 of 269

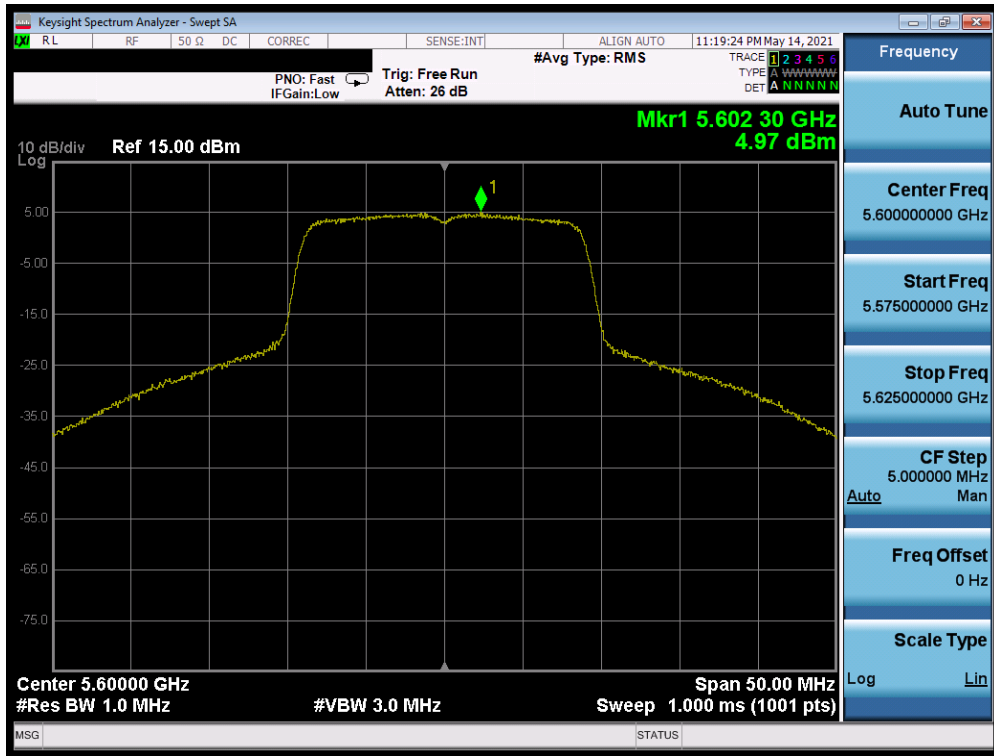


Plot 7-282. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11a (UNII Band 2C) – Ch. 144)

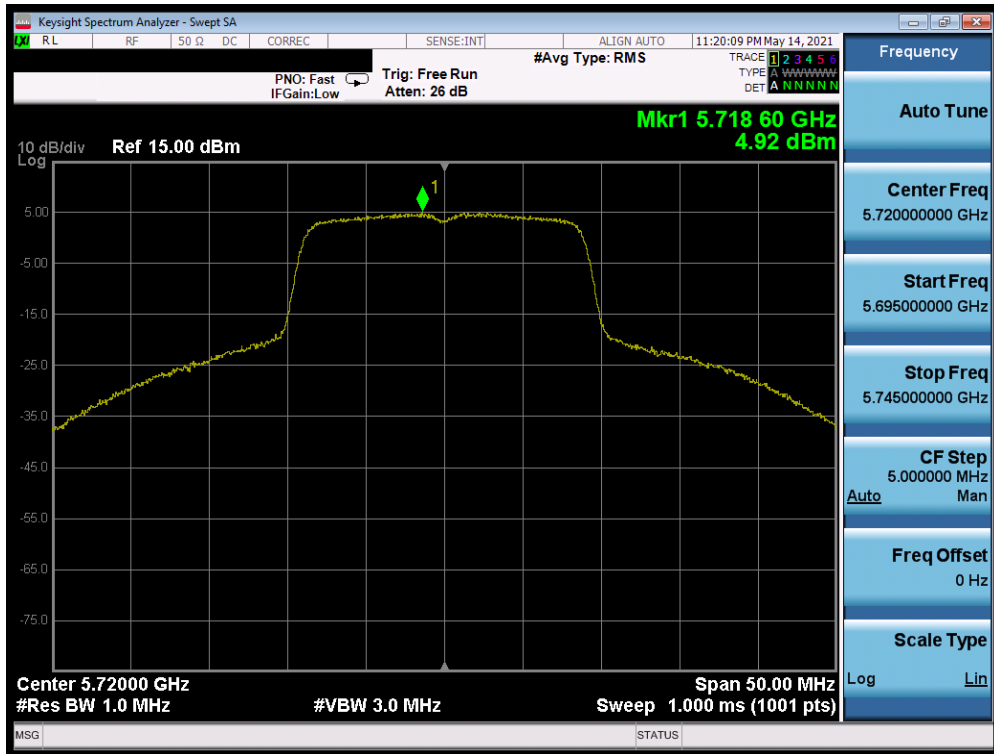


Plot 7-283. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 175 of 269

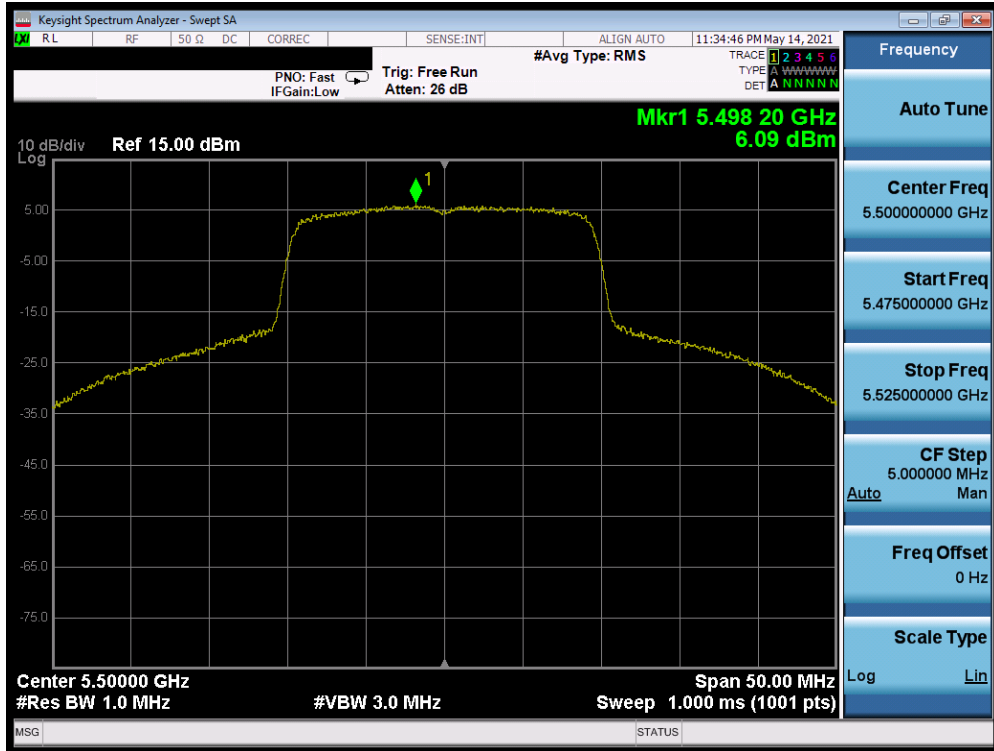


Plot 7-284. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 120)

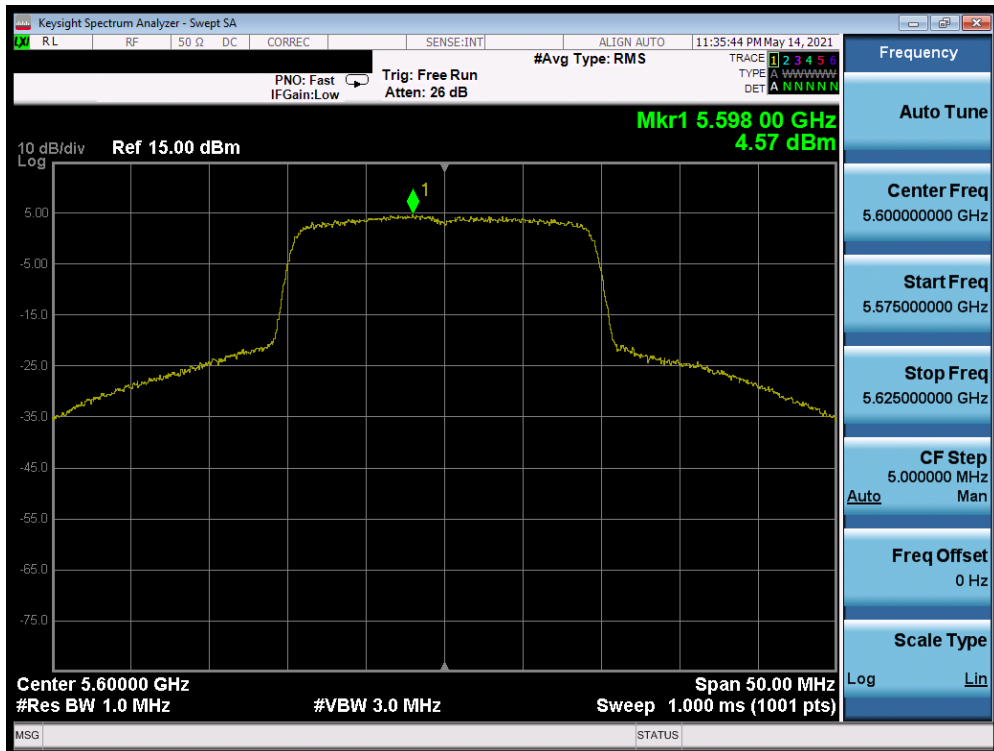


Plot 7-285. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 176 of 269

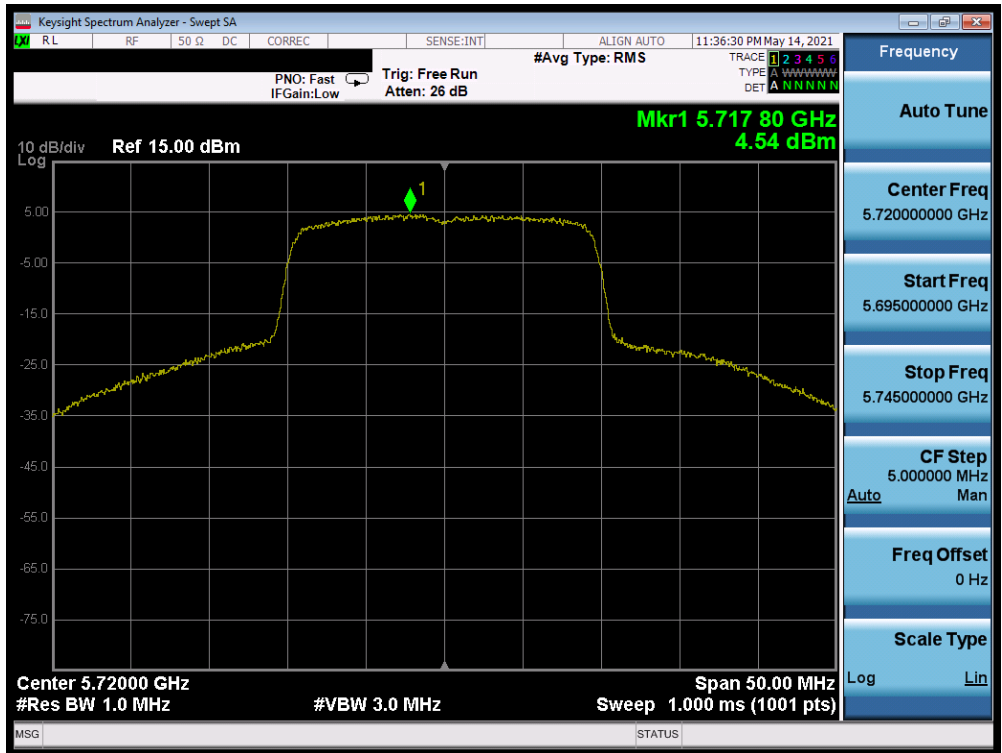


Plot 7-286. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 100)

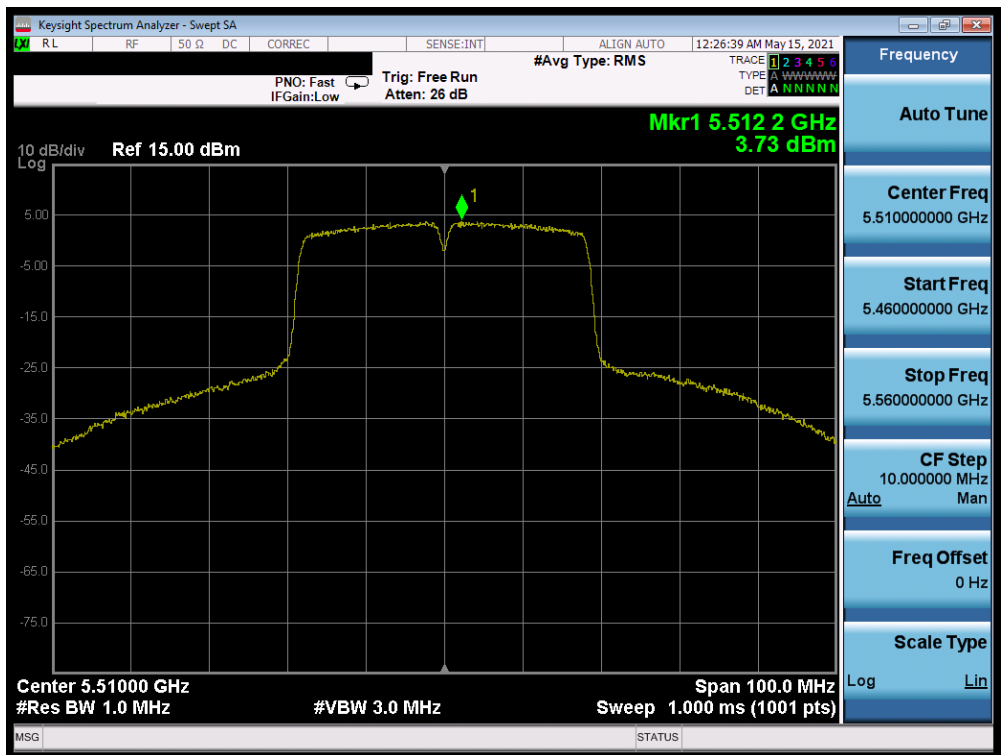


Plot 7-287. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 177 of 269

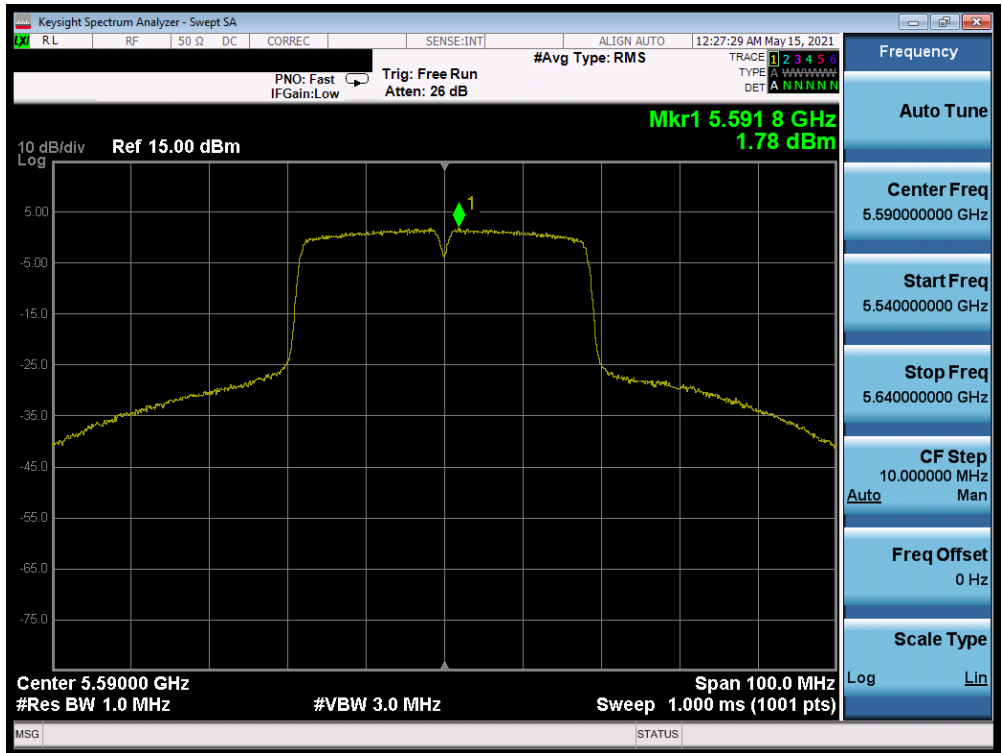


Plot 7-288. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 2C) – Ch. 144)

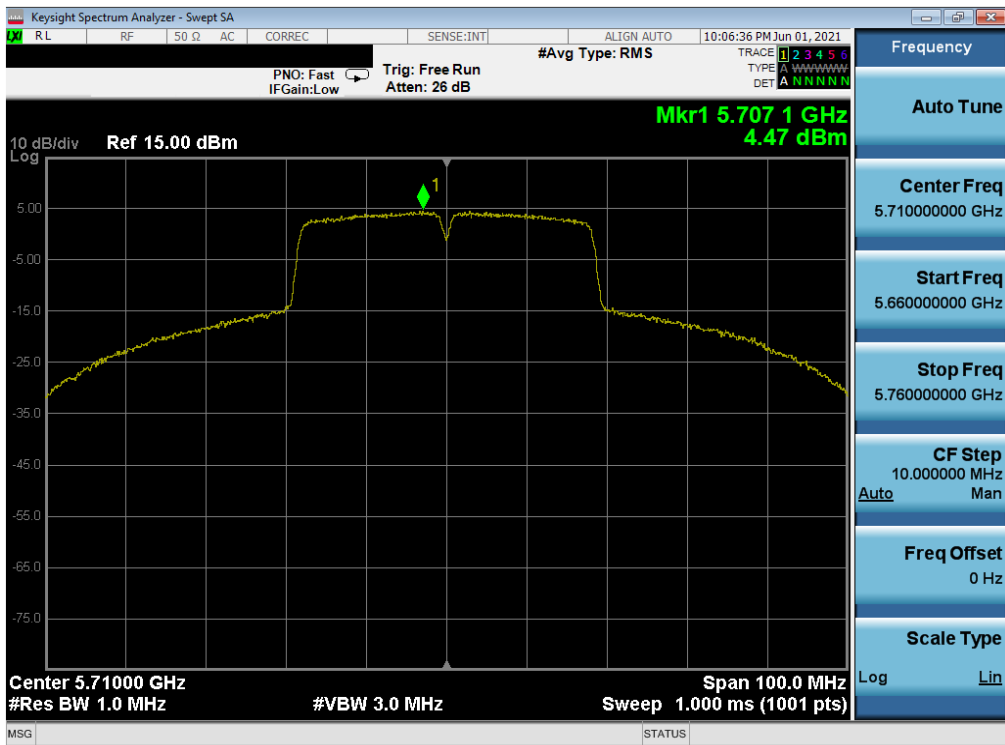


Plot 7-289. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 178 of 269

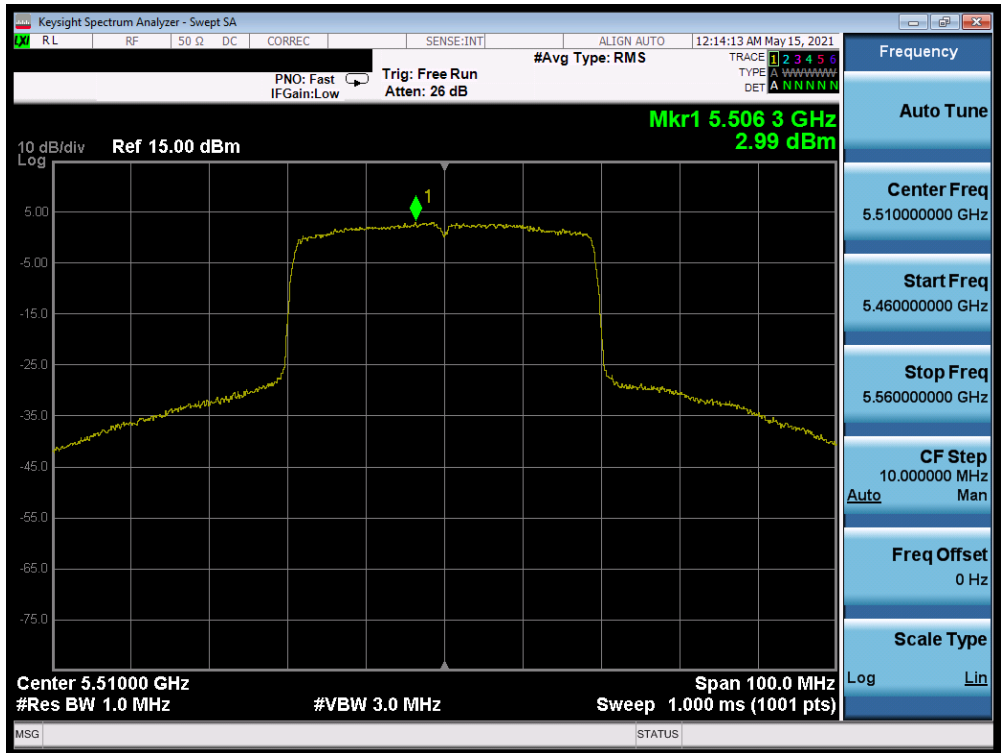


Plot 7-290. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 2C) – Ch. 118)

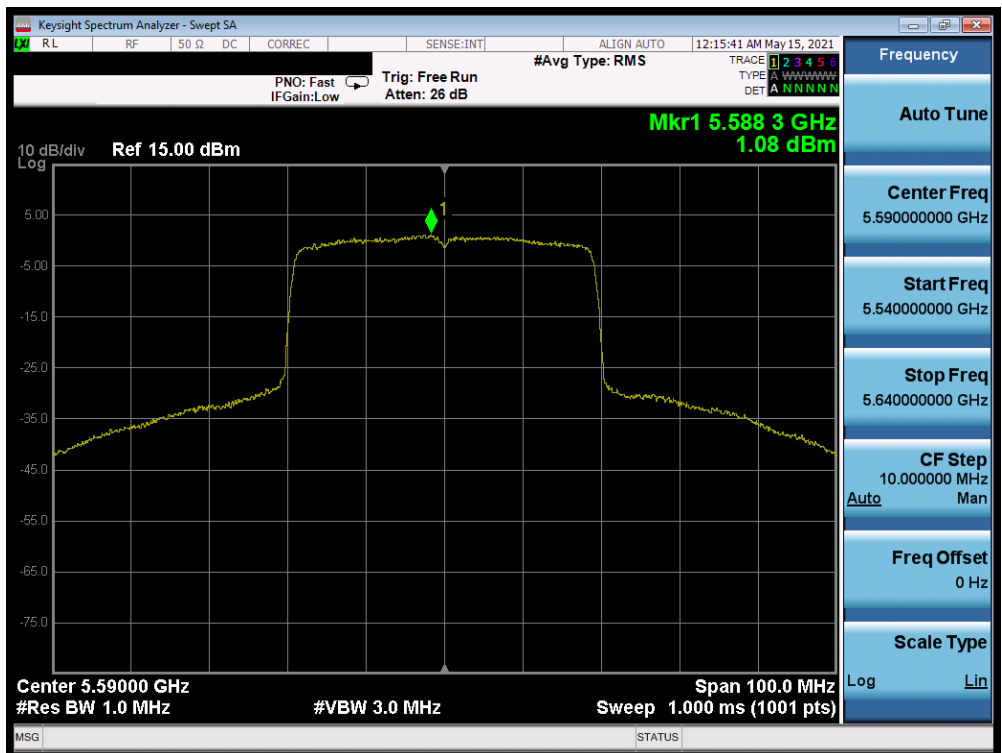


Plot 7-291. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 179 of 269

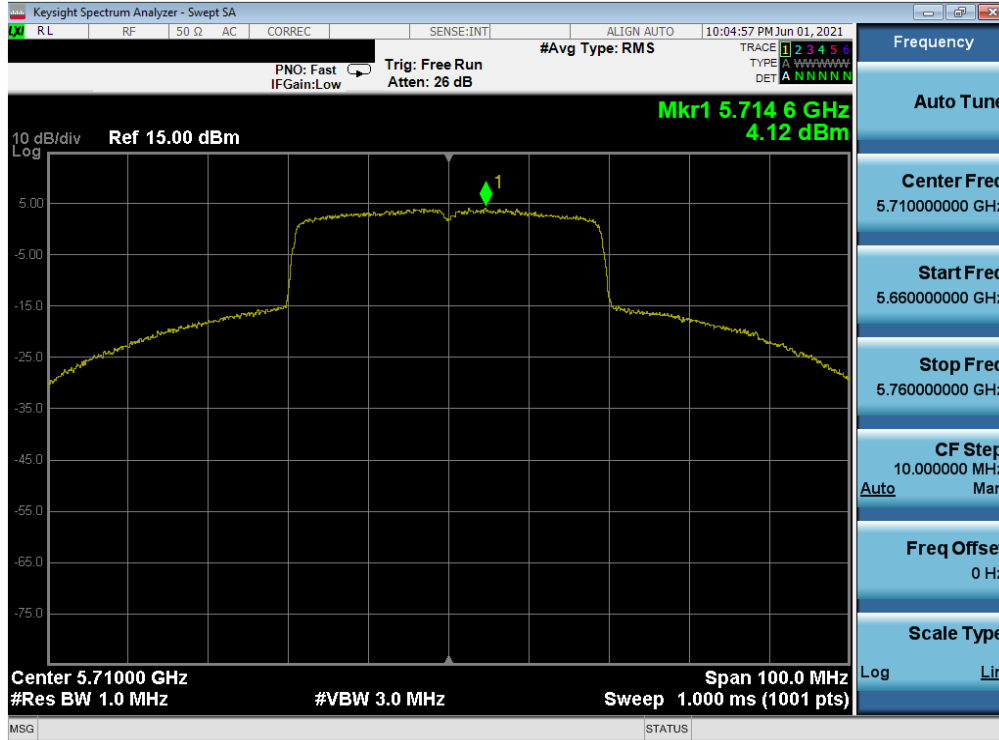


Plot 7-292. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 102)

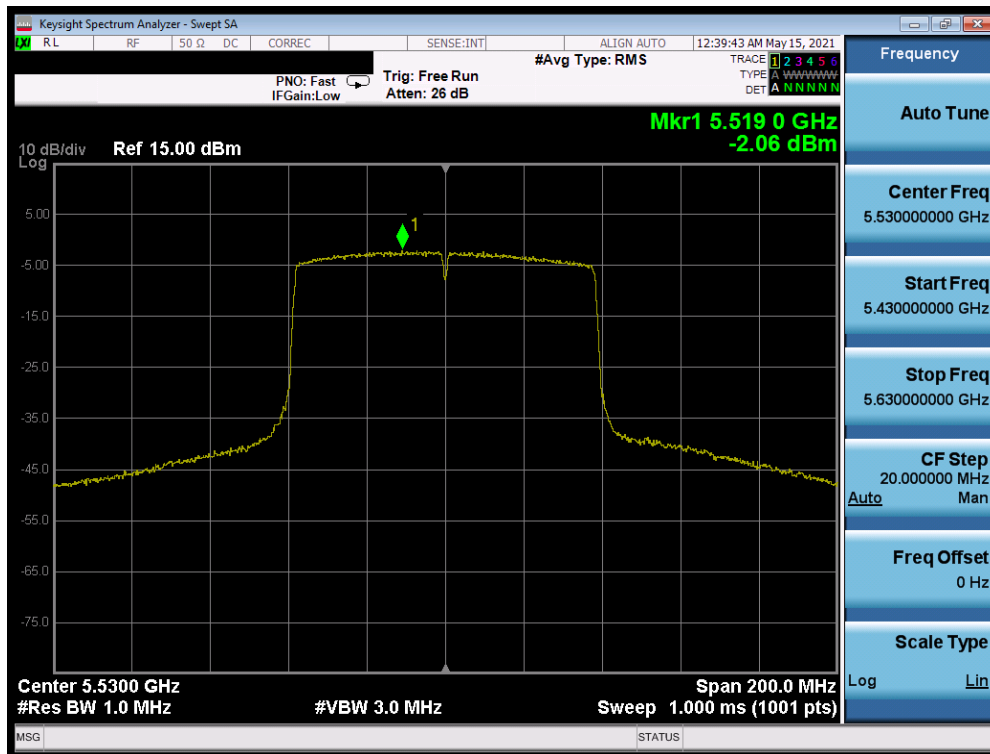


Plot 7-293. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 118)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 180 of 269

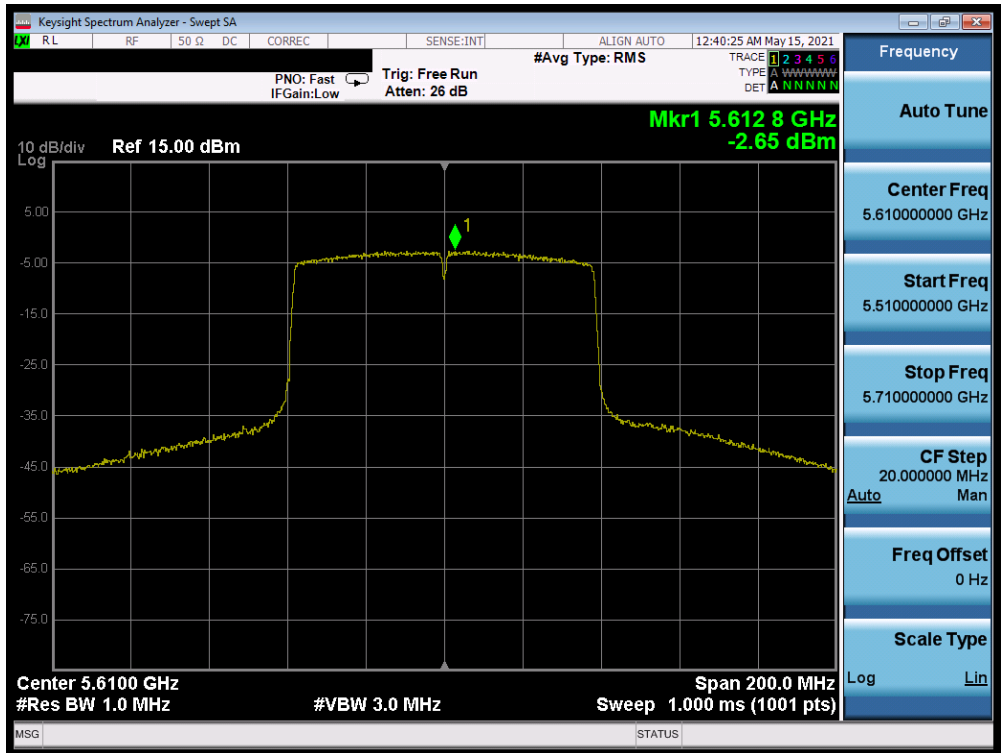


Plot 7-294. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax (UNII Band 2C) – Ch. 142)

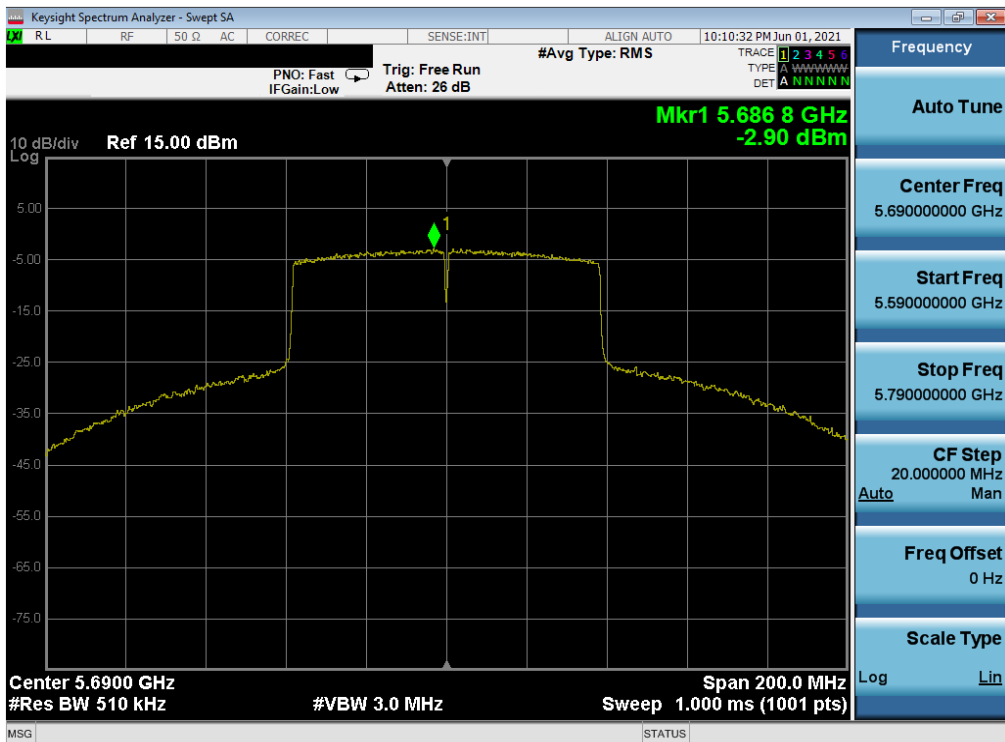


Plot 7-295. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 181 of 269

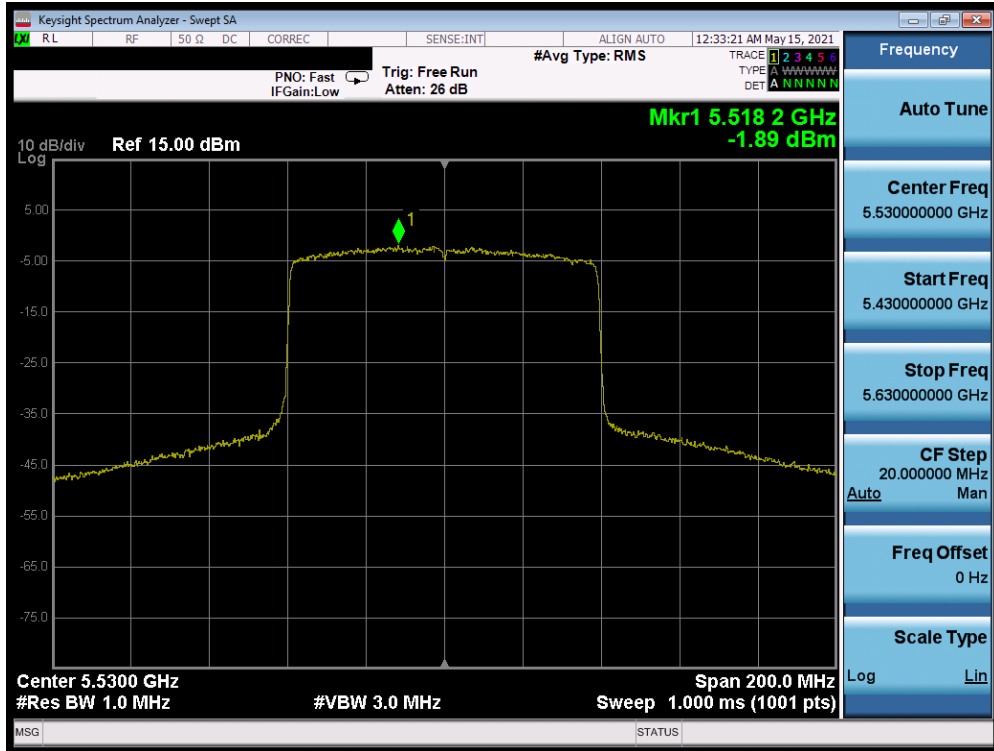


Plot 7-296. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)

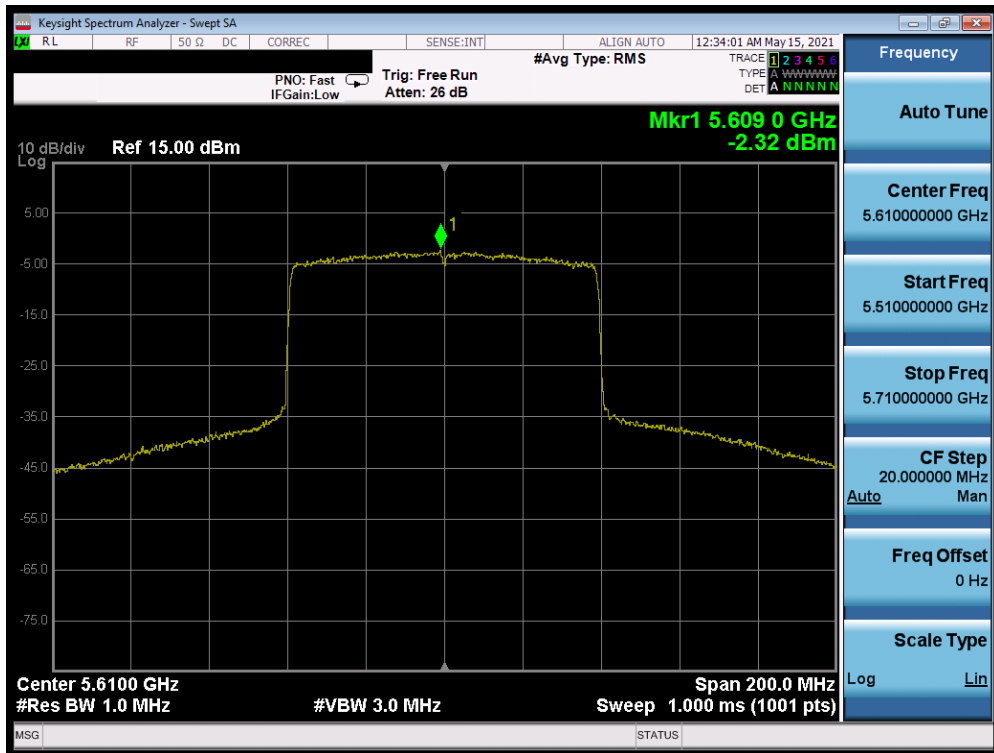


Plot 7-297. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 182 of 269

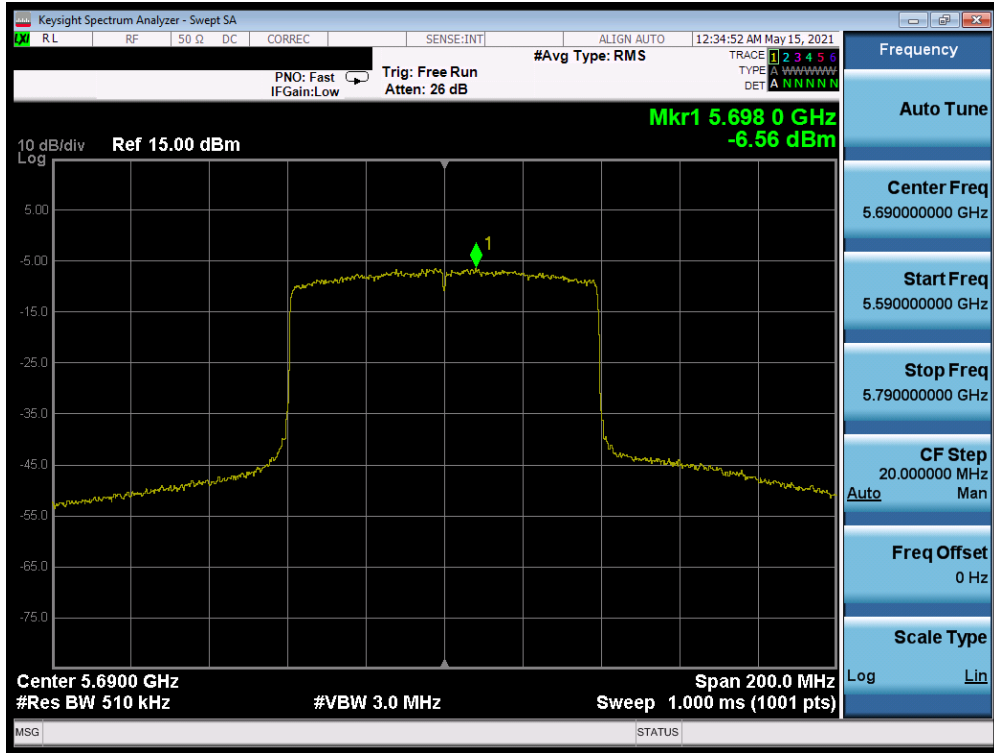


Plot 7-298. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)



Plot 7-299. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)

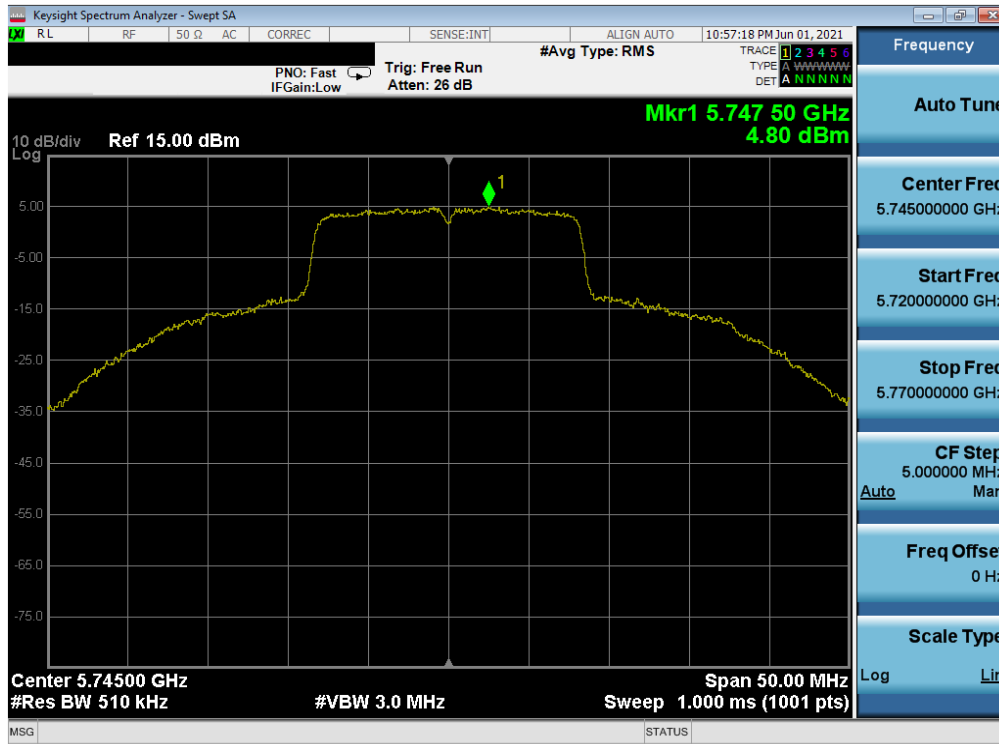
FCC ID: A3LSMF711JPN		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 183 of 269



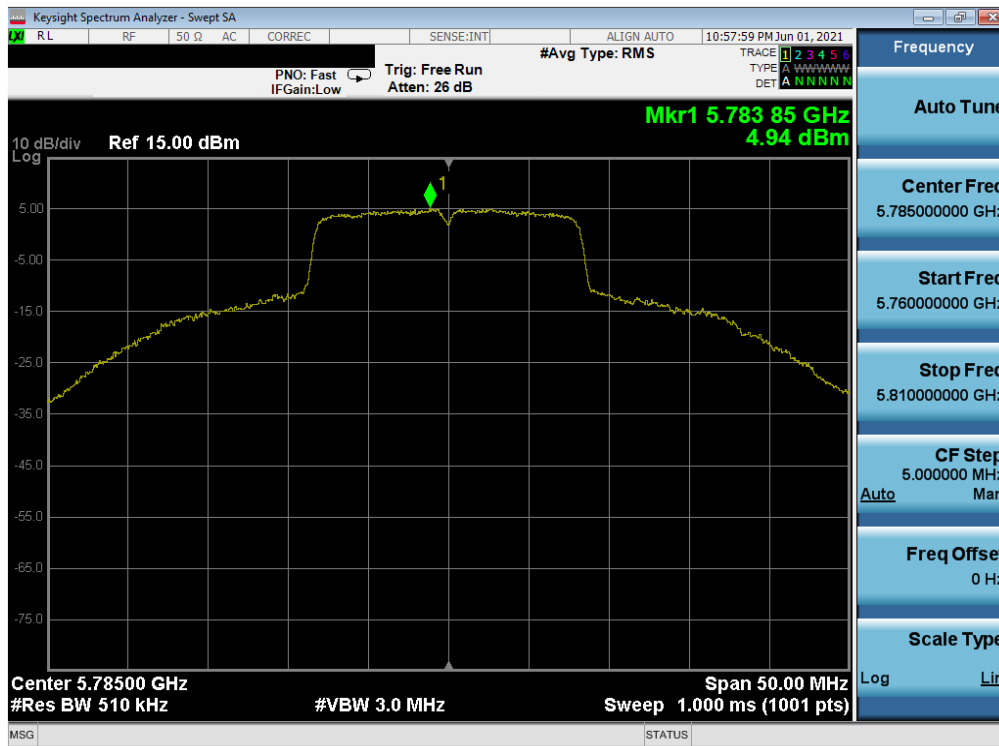
Plot 7-300. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 184 of 269

MIMO Antenna-1 Band 3 Power Spectral Density Measurements

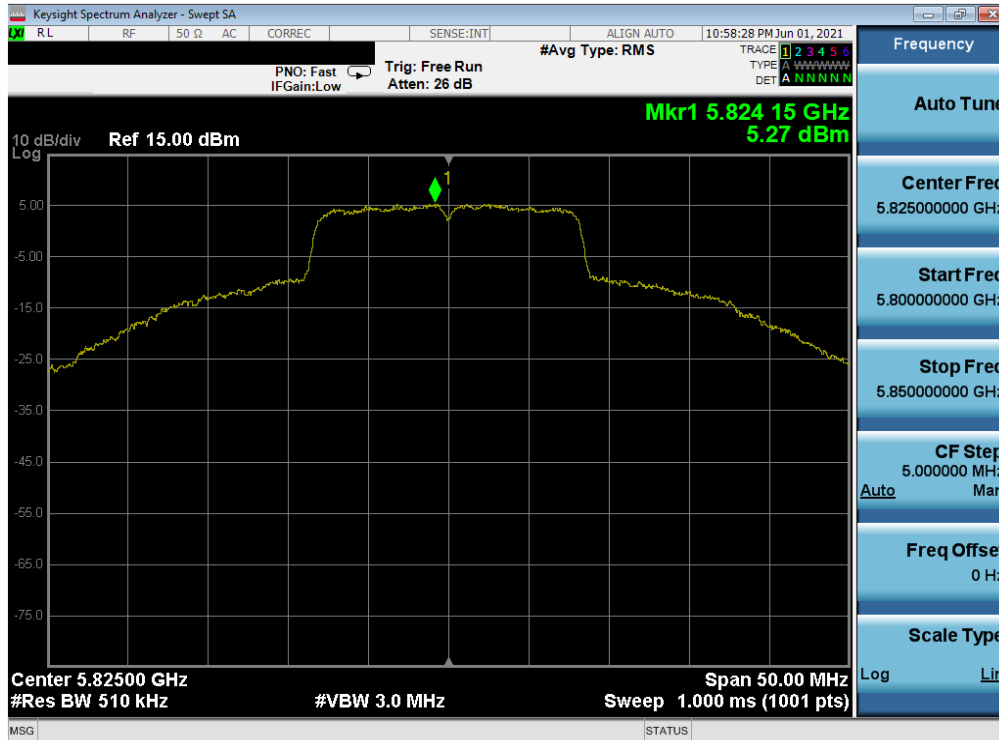


Plot 7-301. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11a (UNII Band 3) – Ch. 149)

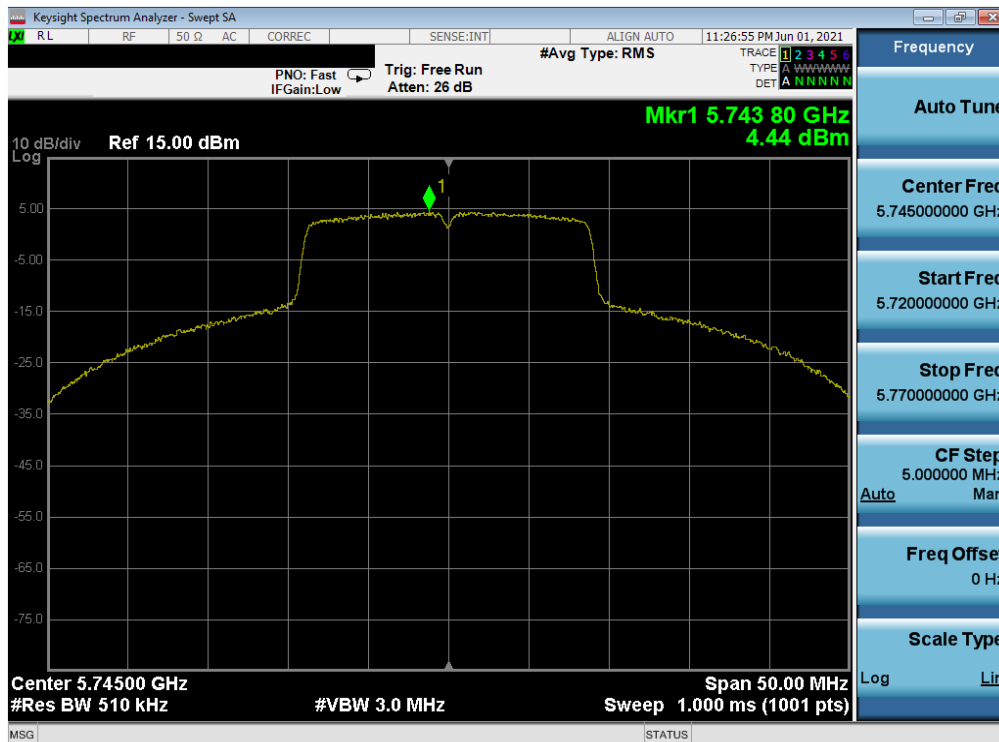


Plot 7-302. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11a (UNII Band 3) – Ch. 157)

FCC ID: A3LSMF711JPN	 Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 185 of 269

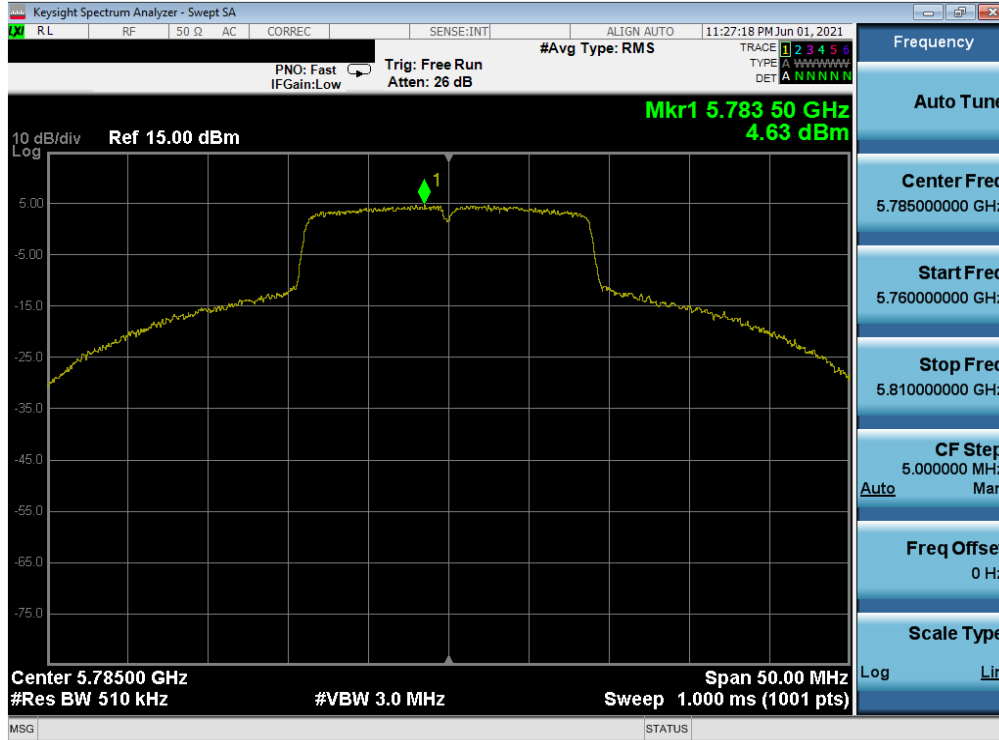


Plot 7-303. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11a (UNII Band 3) – Ch. 165)

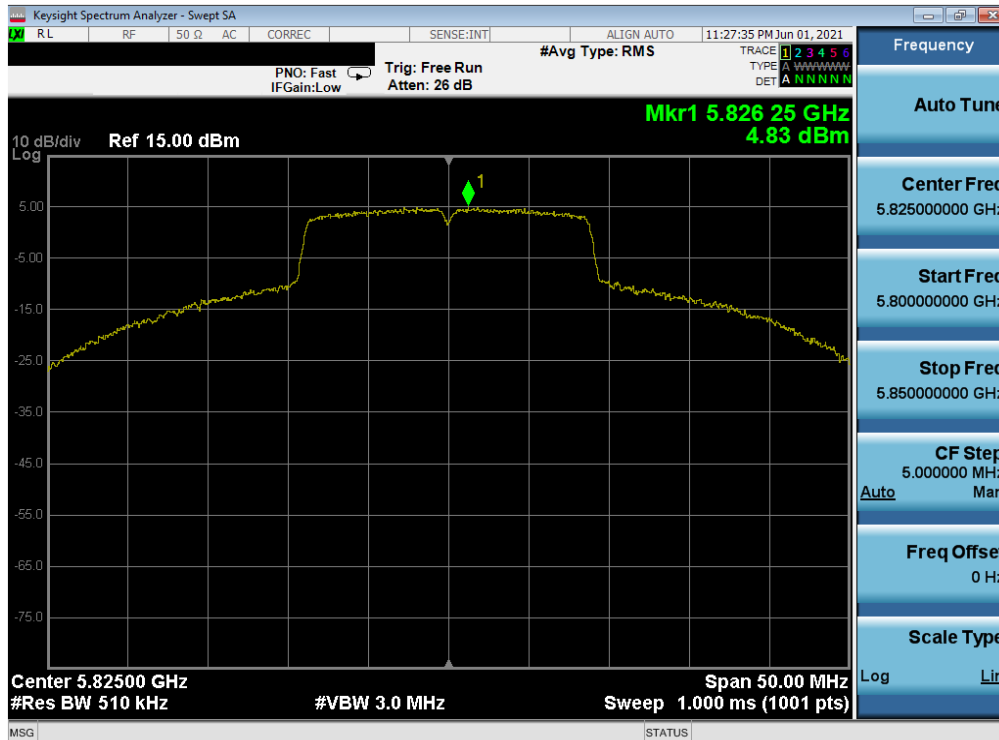


Plot 7-304. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 149)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 186 of 269

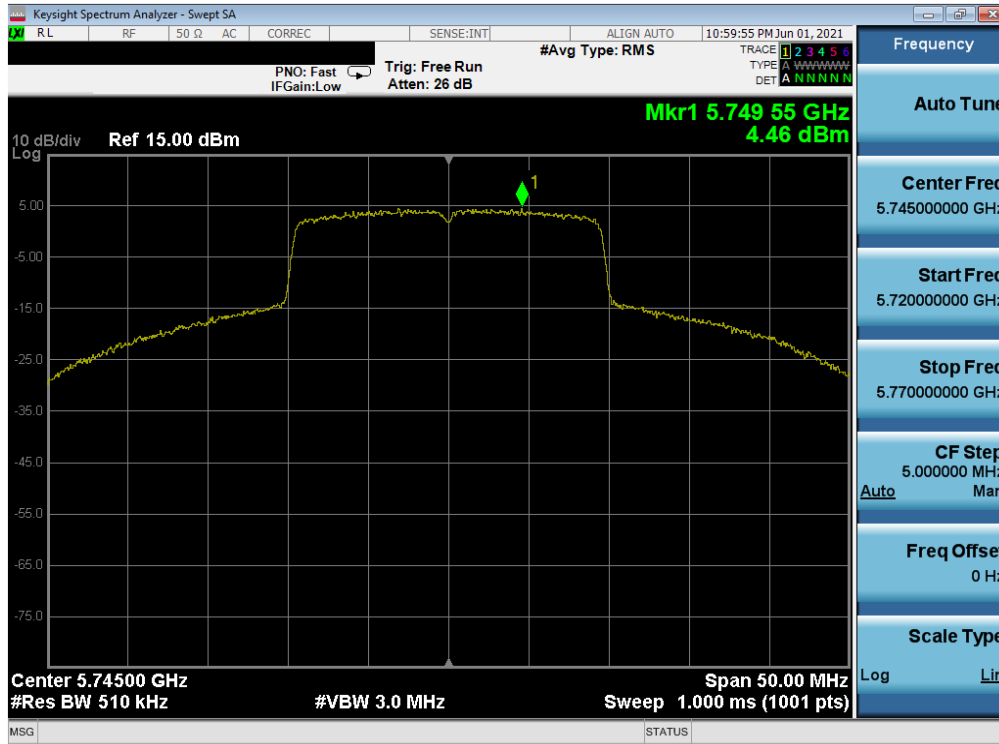


Plot 7-305. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

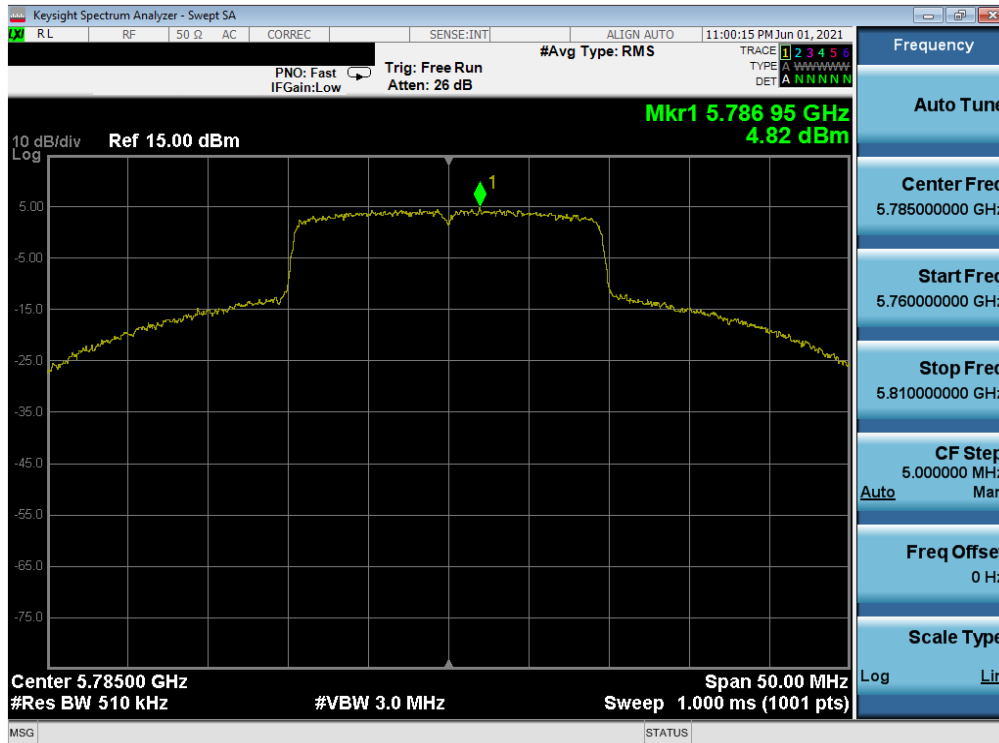


Plot 7-306. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 187 of 269

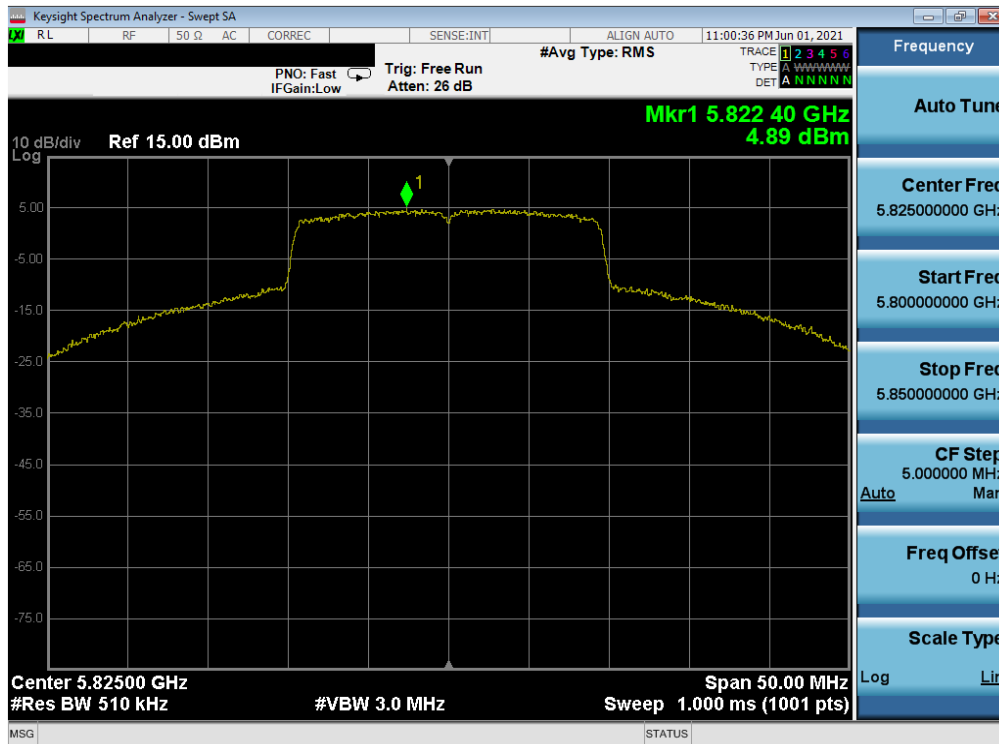


Plot 7-307. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 3) – Ch. 149)

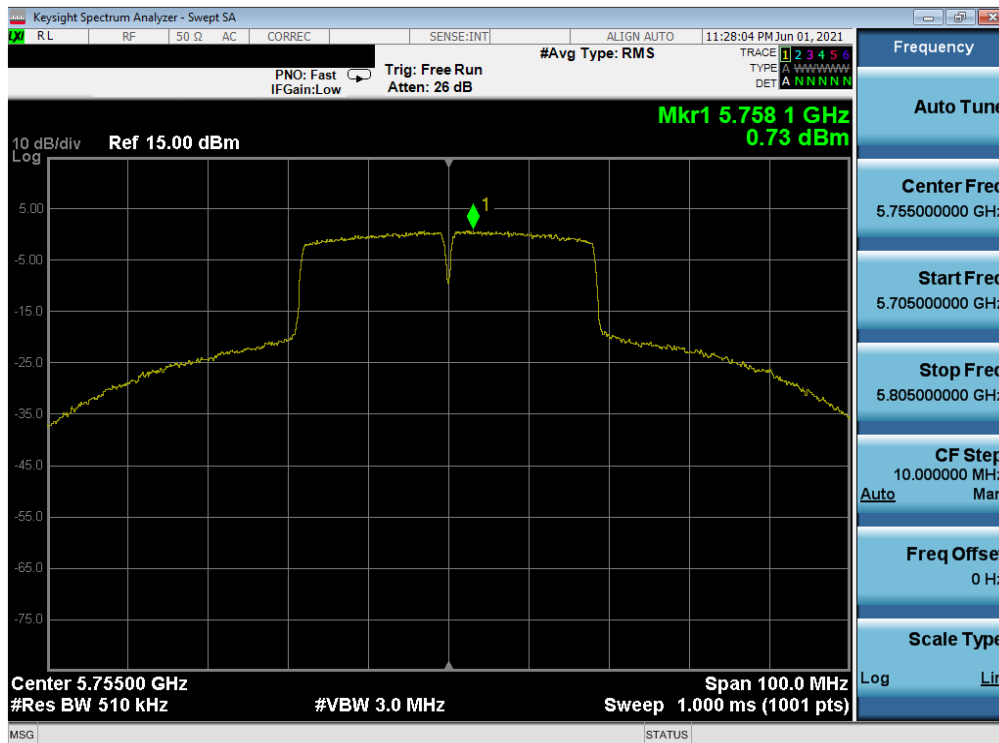


Plot 7-308. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 3) – Ch. 157)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 188 of 269

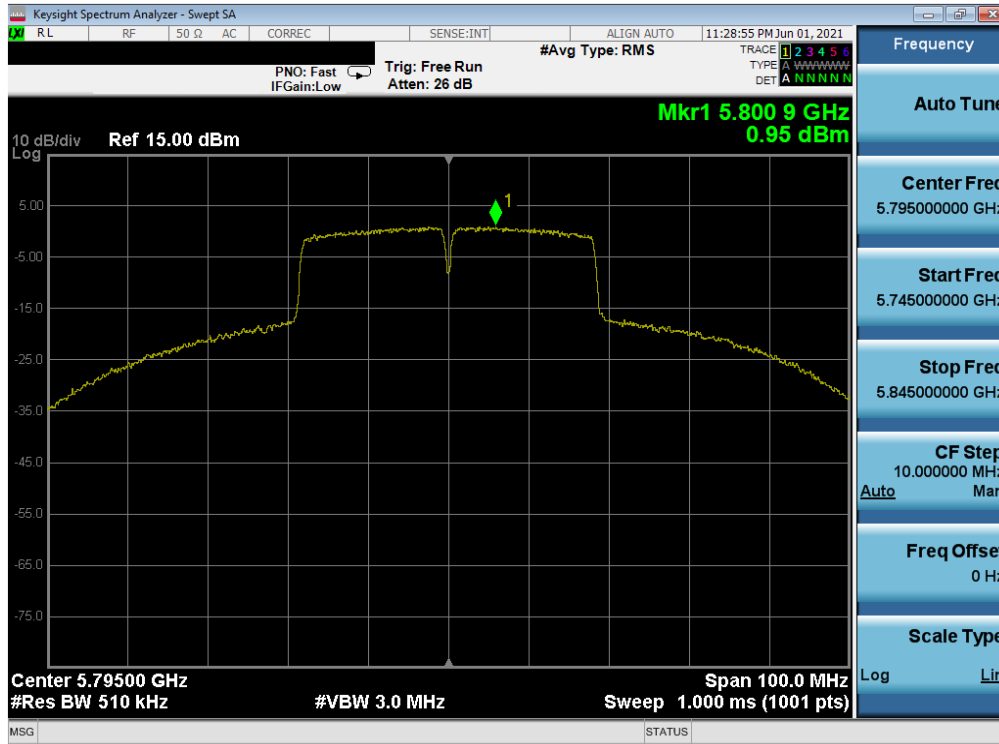


Plot 7-309. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax (UNII Band 3) – Ch. 165)

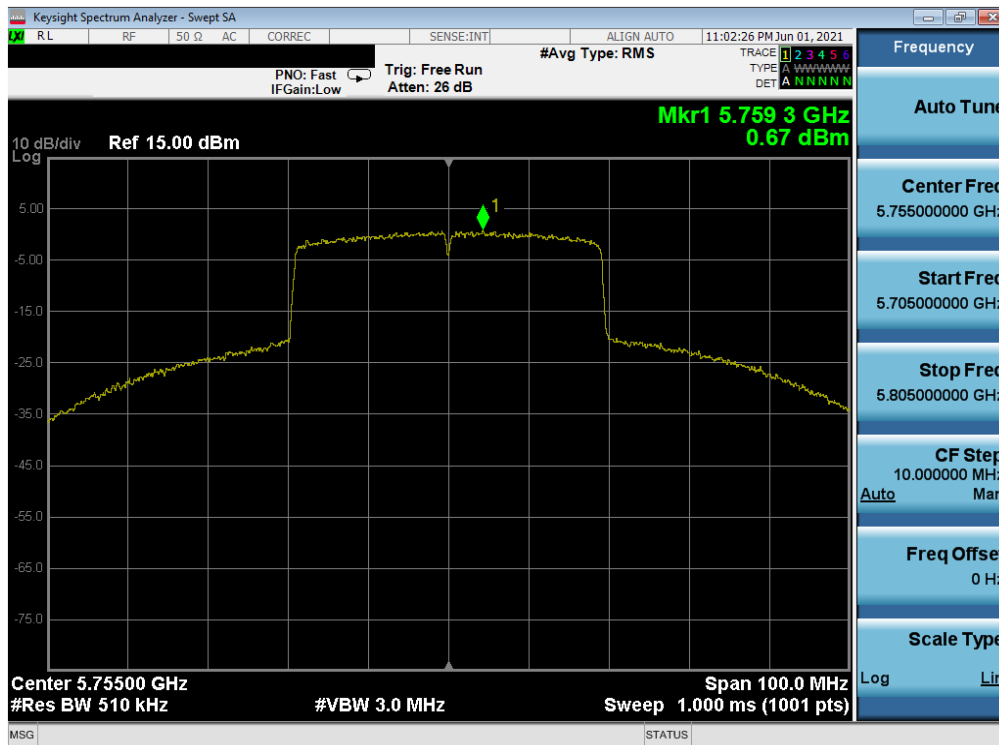


Plot 7-310. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 3) – Ch. 151)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 189 of 269

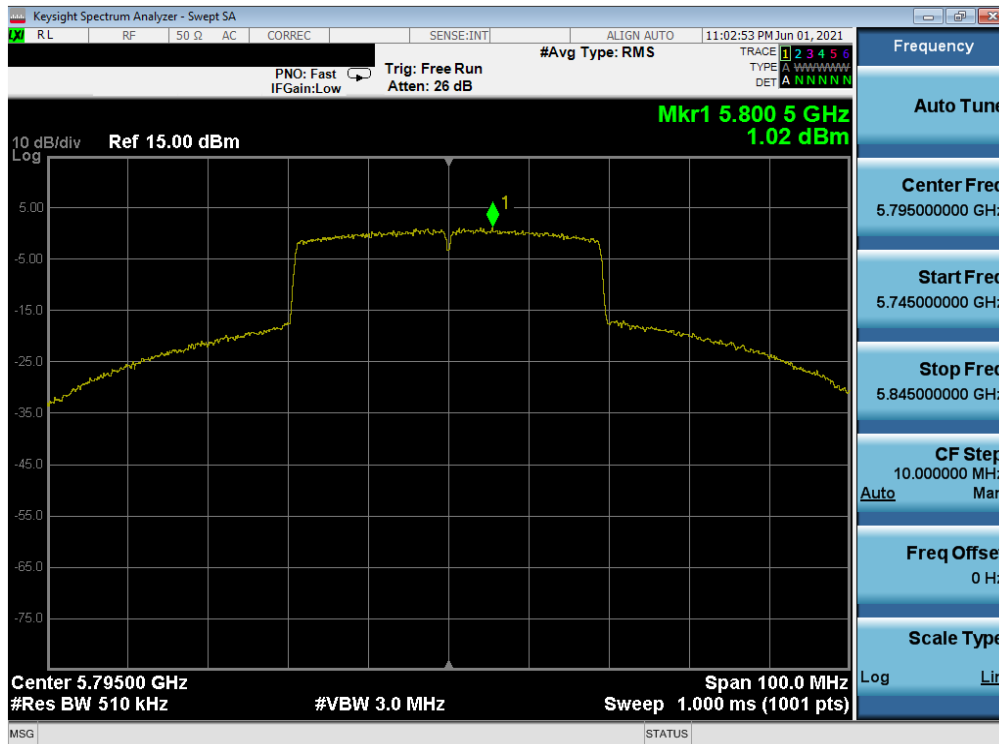


Plot 7-311. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11n (UNII Band 3) – Ch. 159)

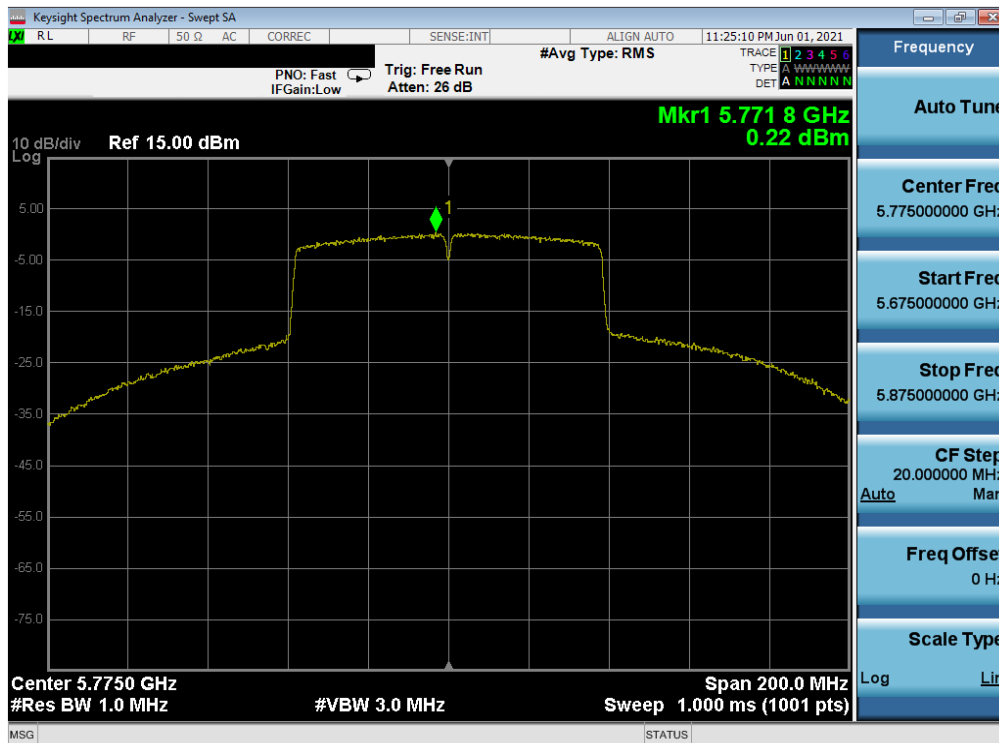


Plot 7-312. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 3) – Ch. 151)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 190 of 269

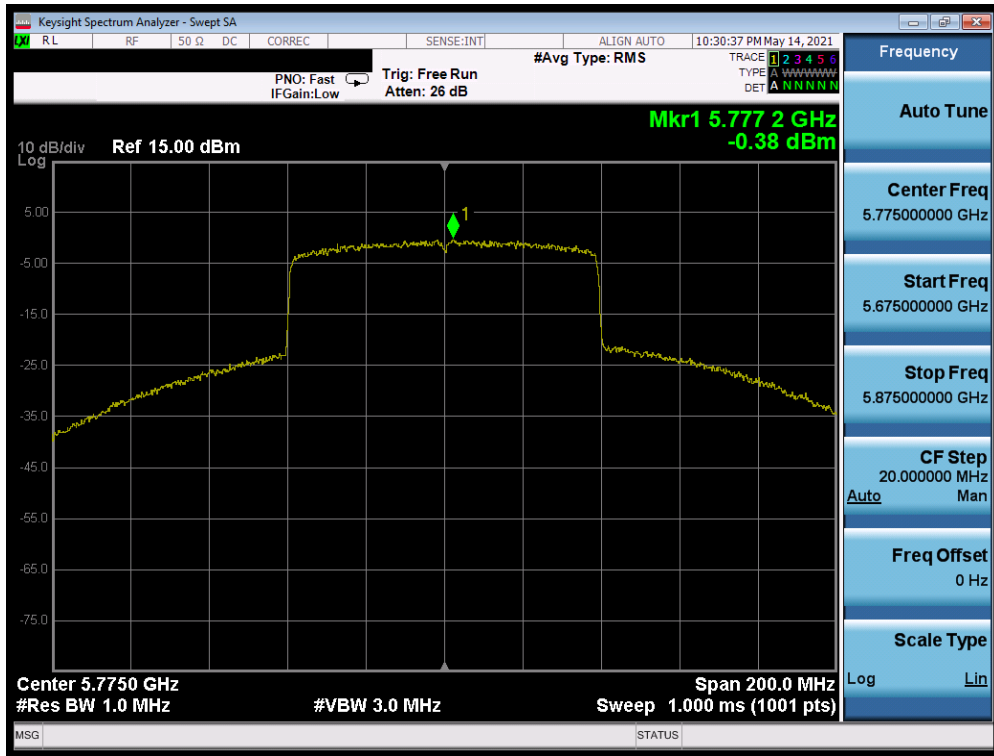


Plot 7-313. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax (UNII Band 3) – Ch. 159)



Plot 7-314. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)

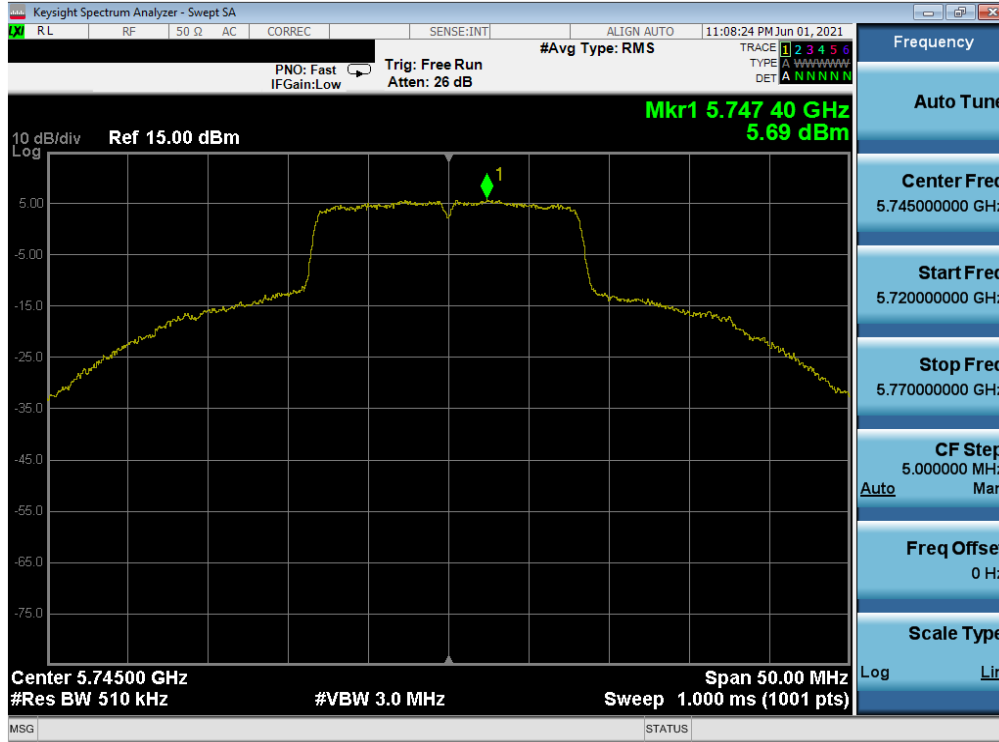
FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 191 of 269



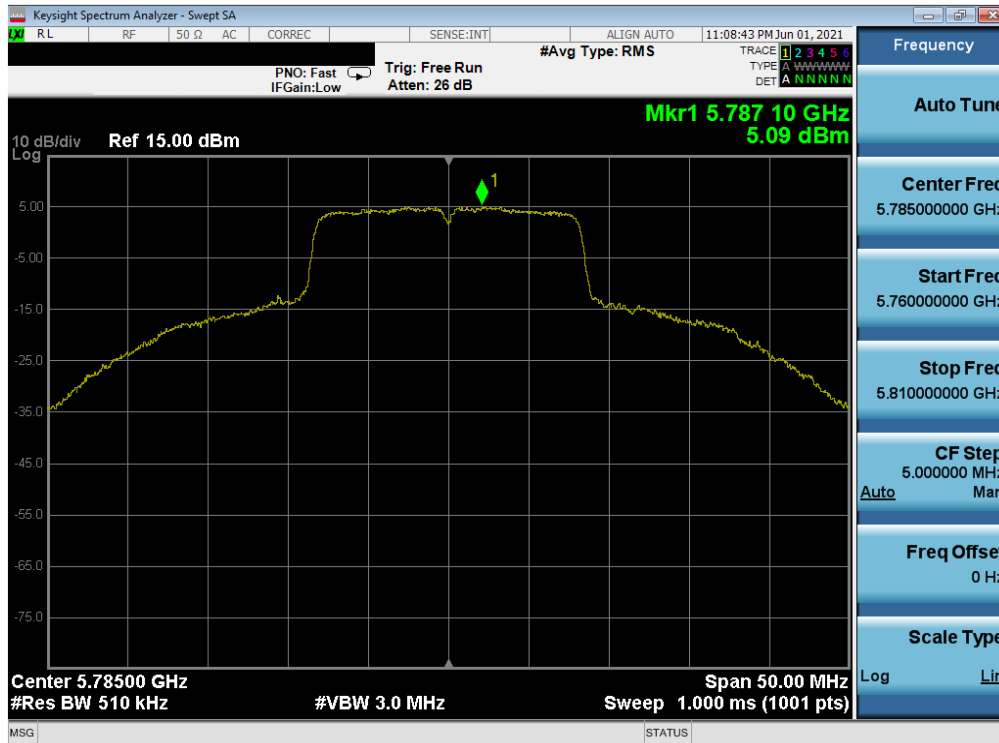
Plot 7-315. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax (UNII Band 3) – Ch. 155)

FCC ID: A3LSMF711JPN	 PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 192 of 269

MIMO Antenna-2 Band 3 Power Spectral Density Measurements

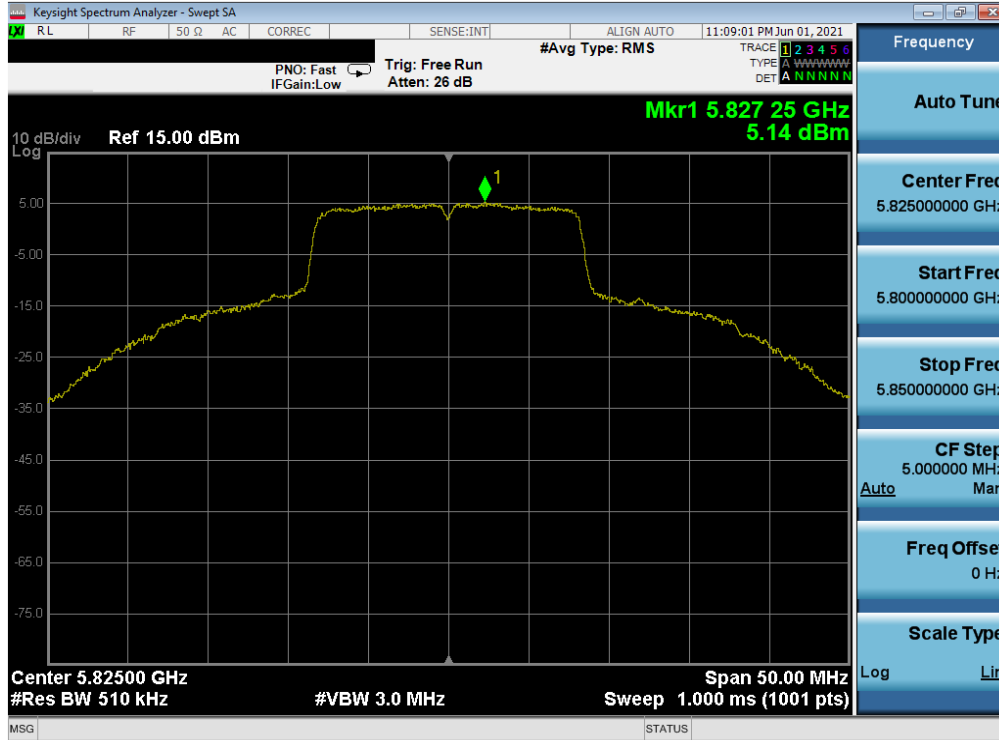


Plot 7-316. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11a (UNII Band 3) – Ch. 149)

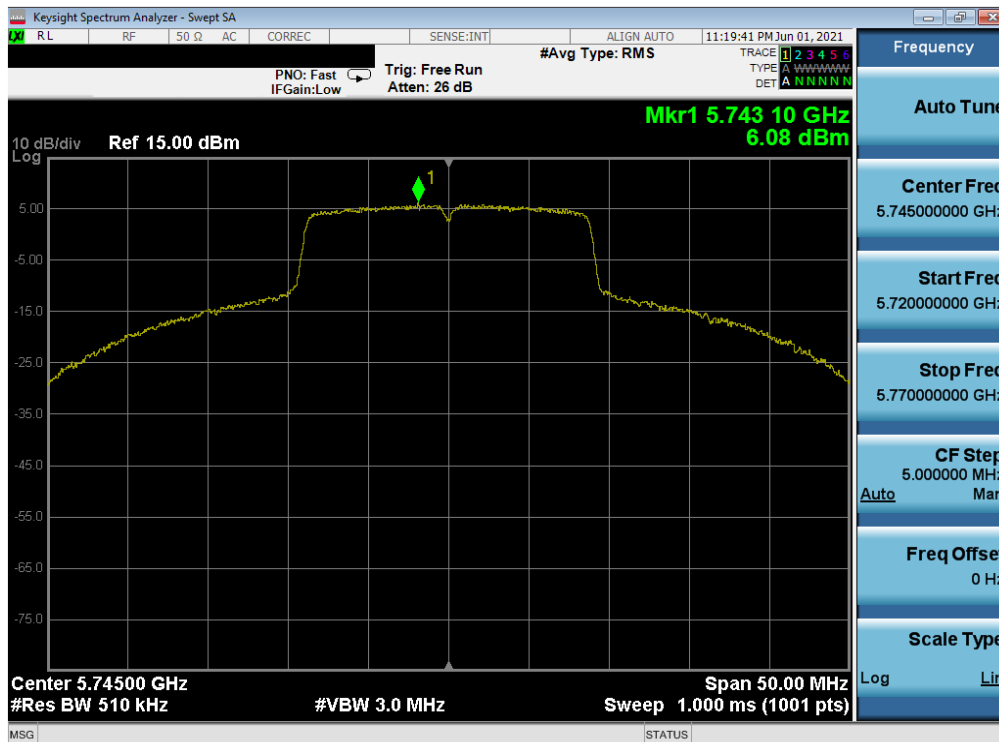


Plot 7-317. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11a (UNII Band 3) – Ch. 157)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 193 of 269

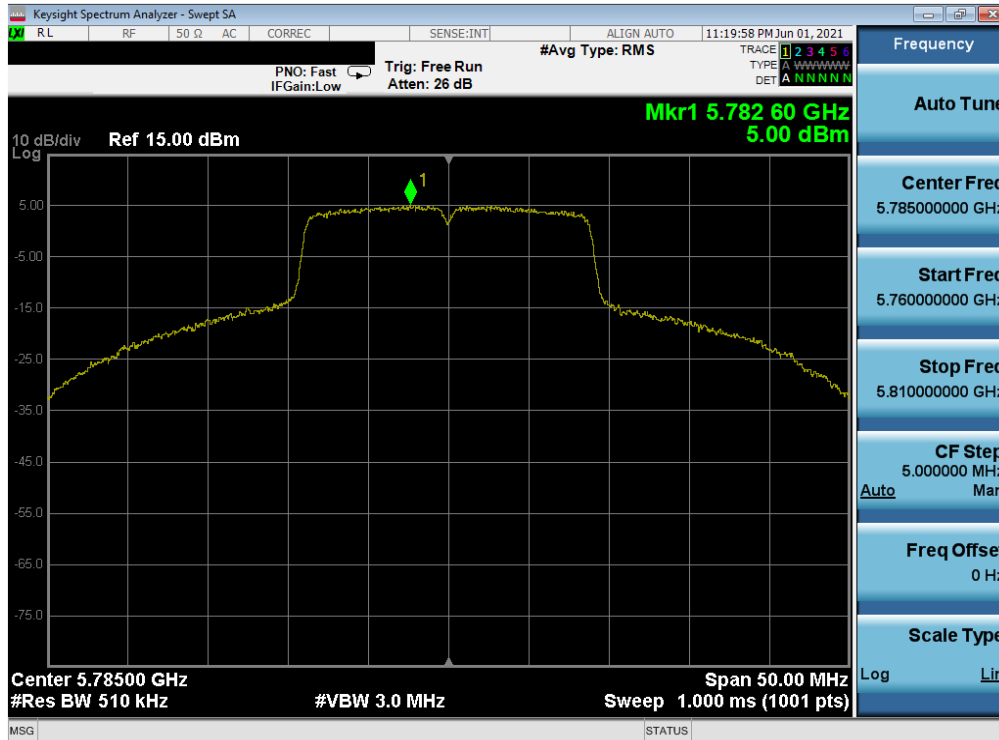


Plot 7-318. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11a (UNII Band 3) – Ch. 165)

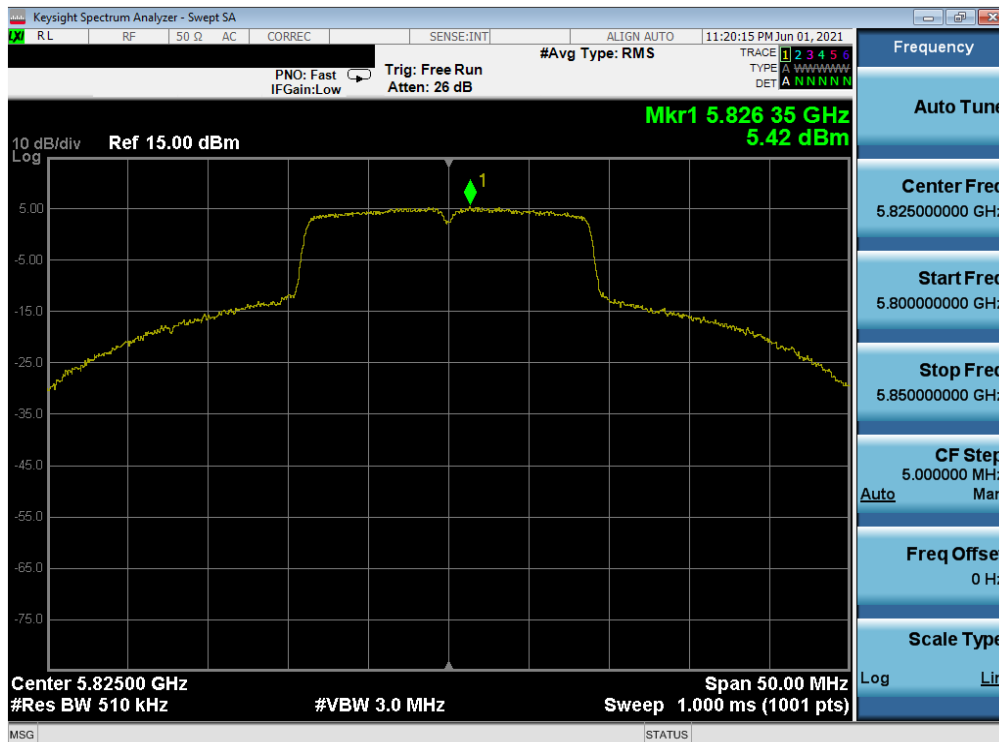


Plot 7-319. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 149)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 194 of 269

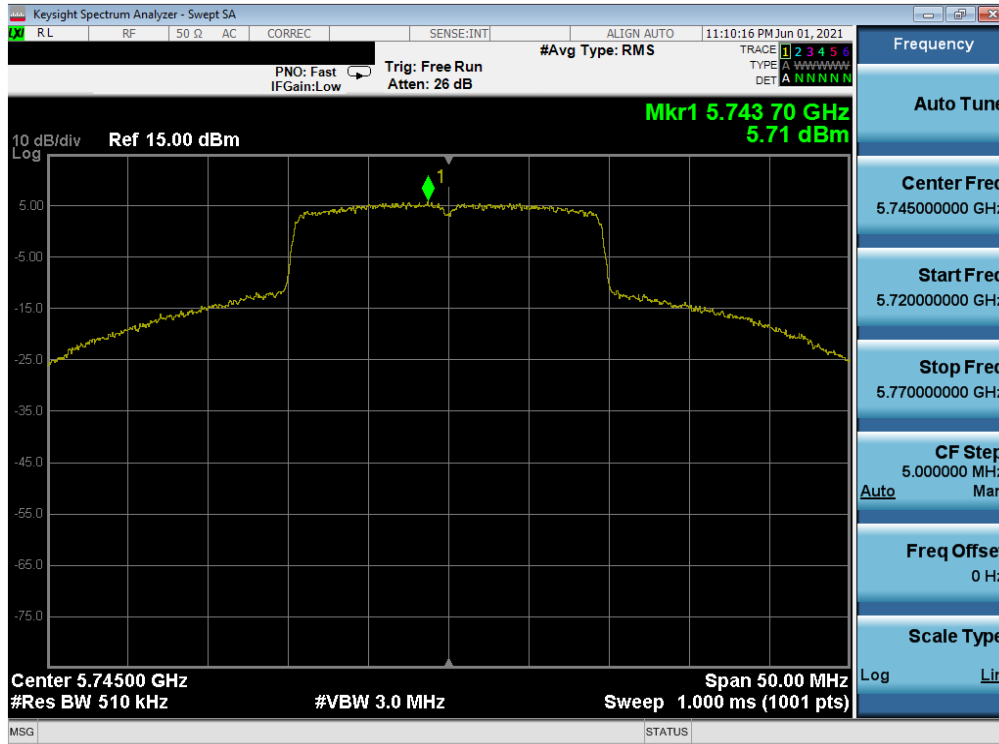


Plot 7-320. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

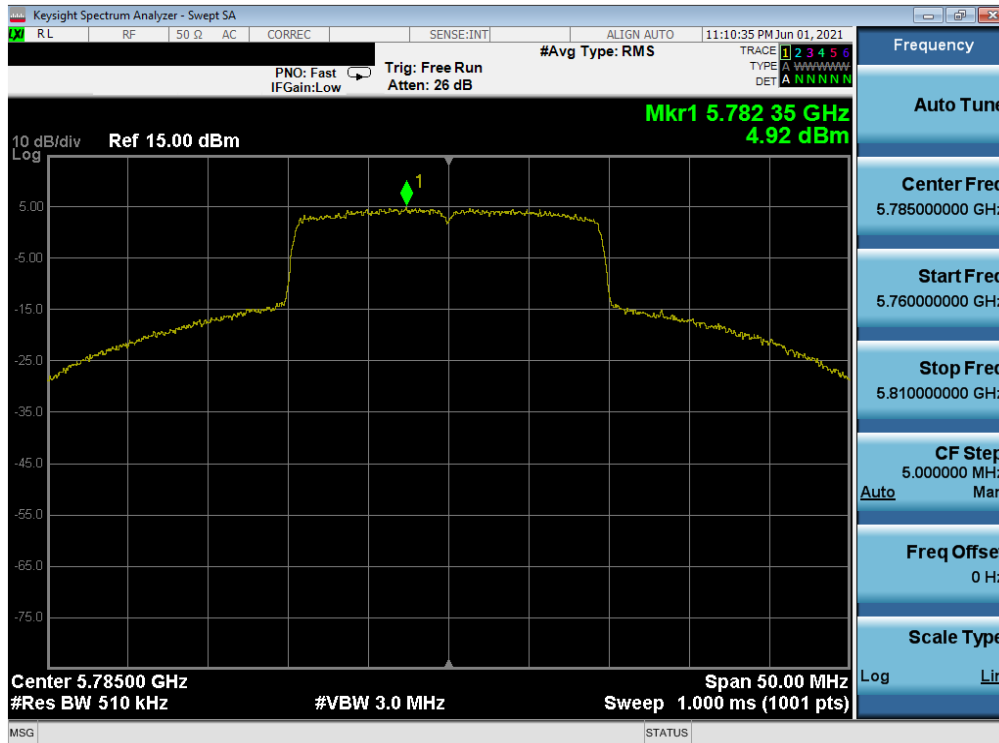


Plot 7-321. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 195 of 269

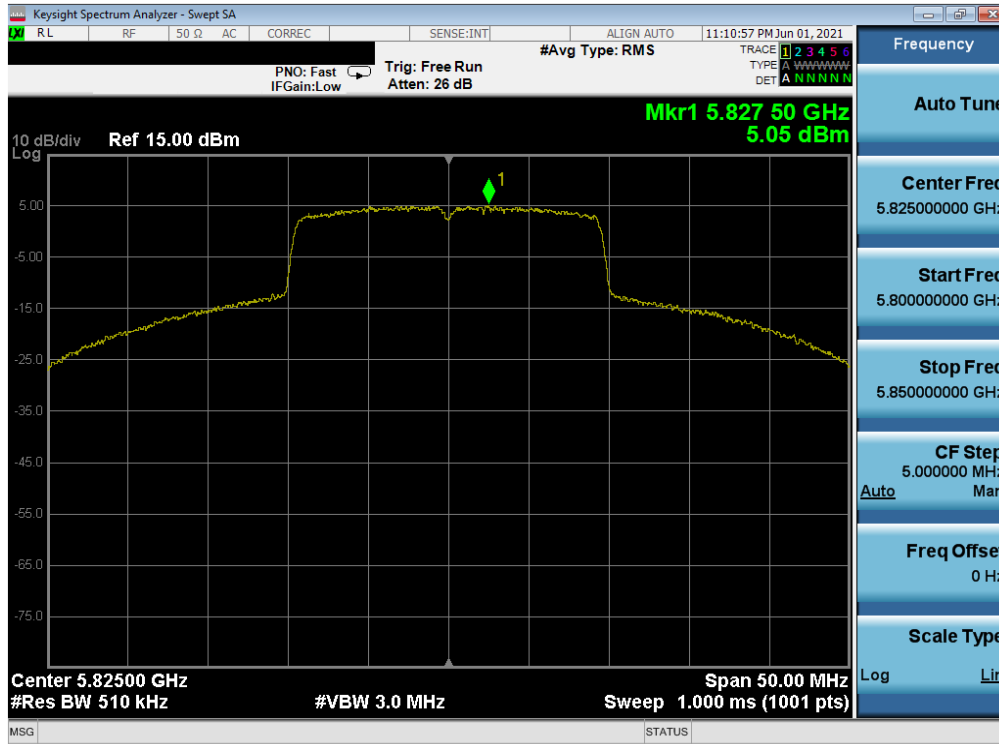


Plot 7-322. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 3) – Ch. 149)

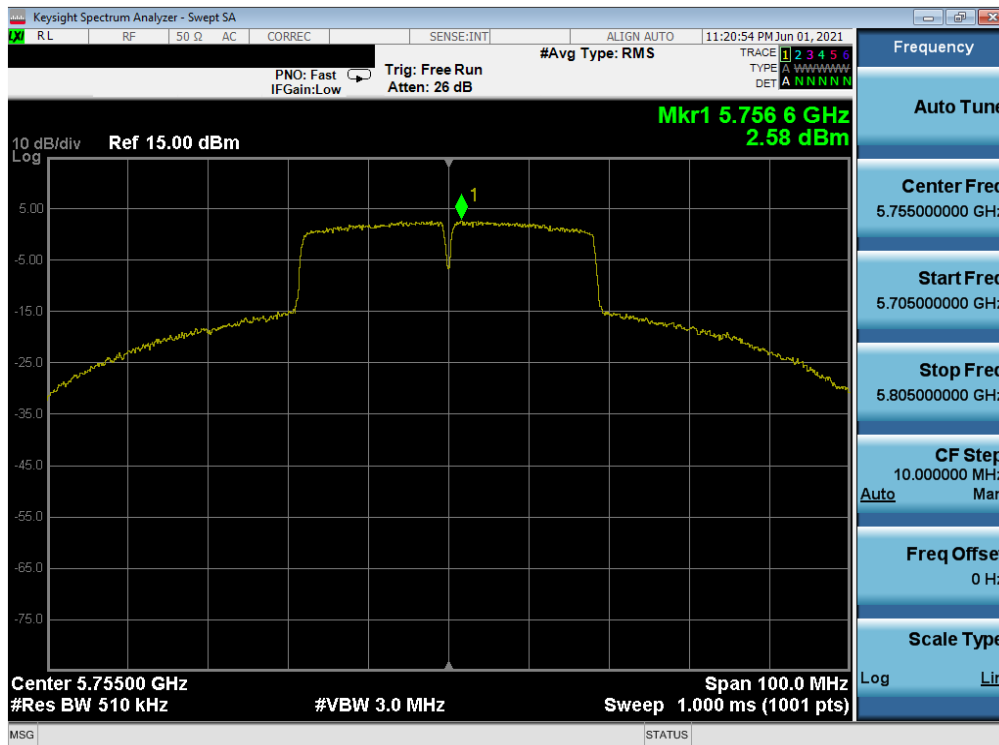


Plot 7-323. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 3) – Ch. 157)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 196 of 269

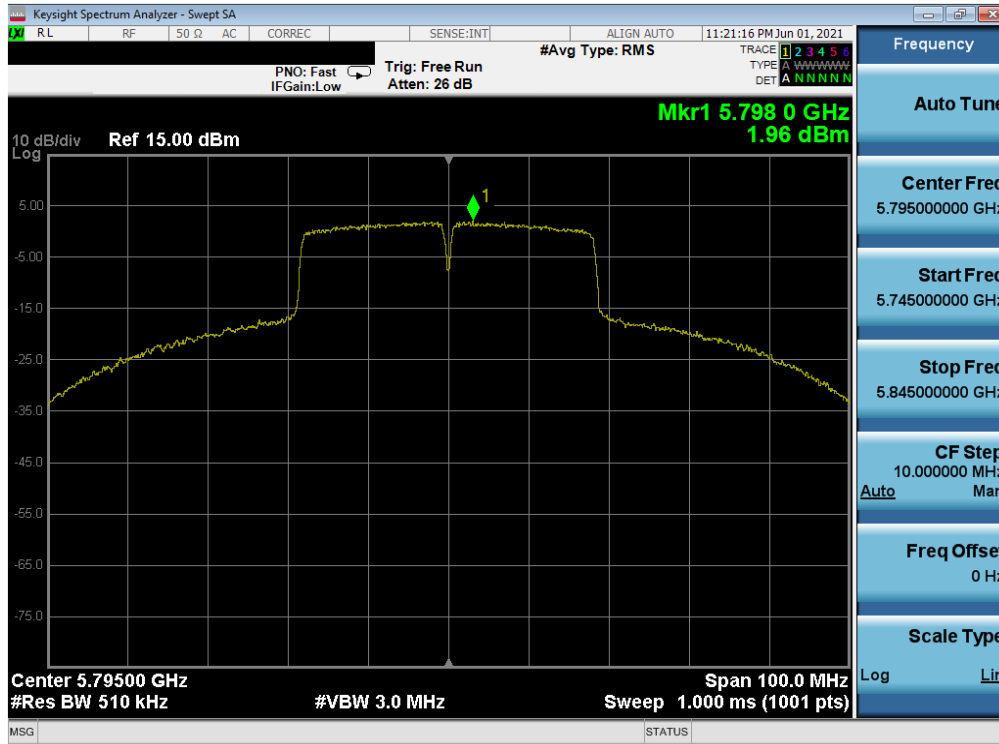


Plot 7-324. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax (UNII Band 3) – Ch. 165)

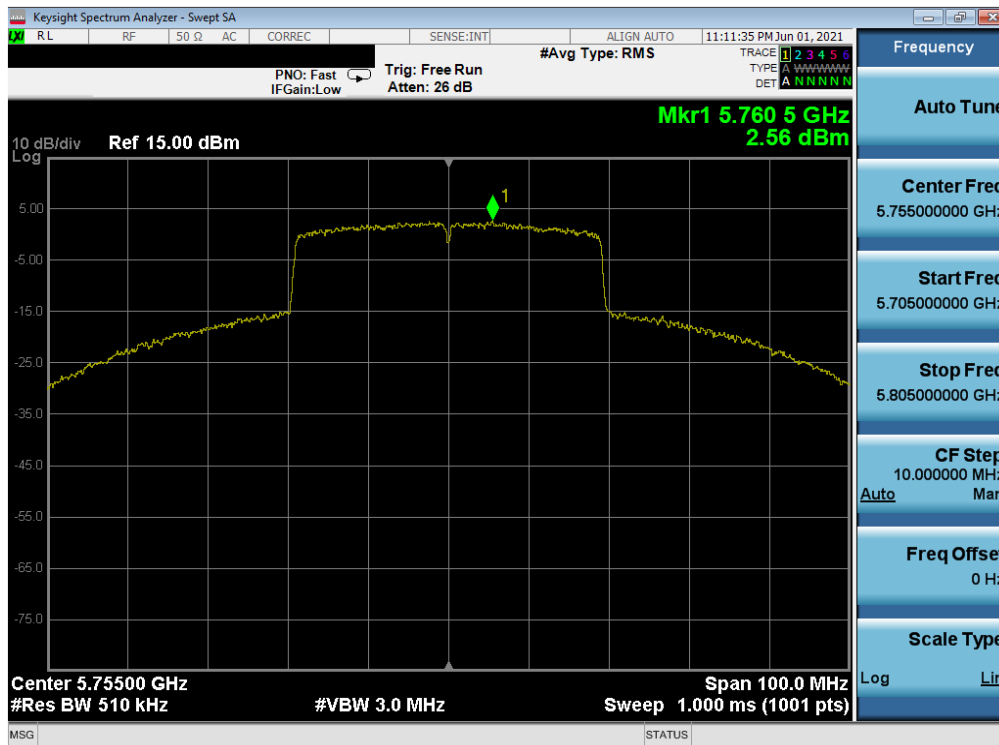


Plot 7-325. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 151)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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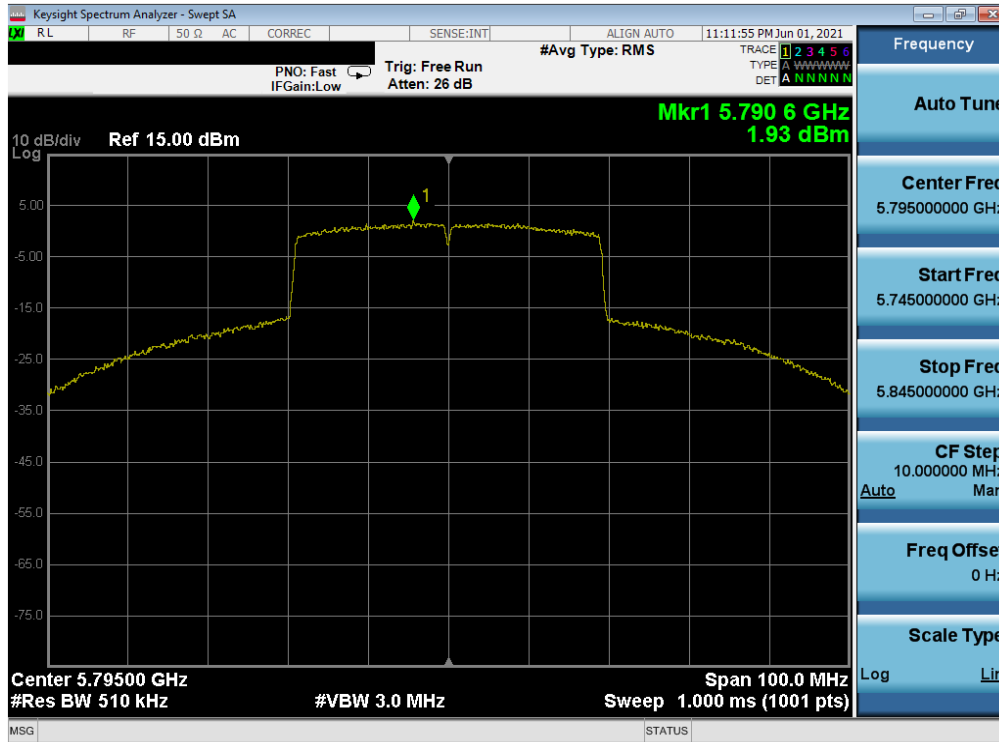


Plot 7-326. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 159)

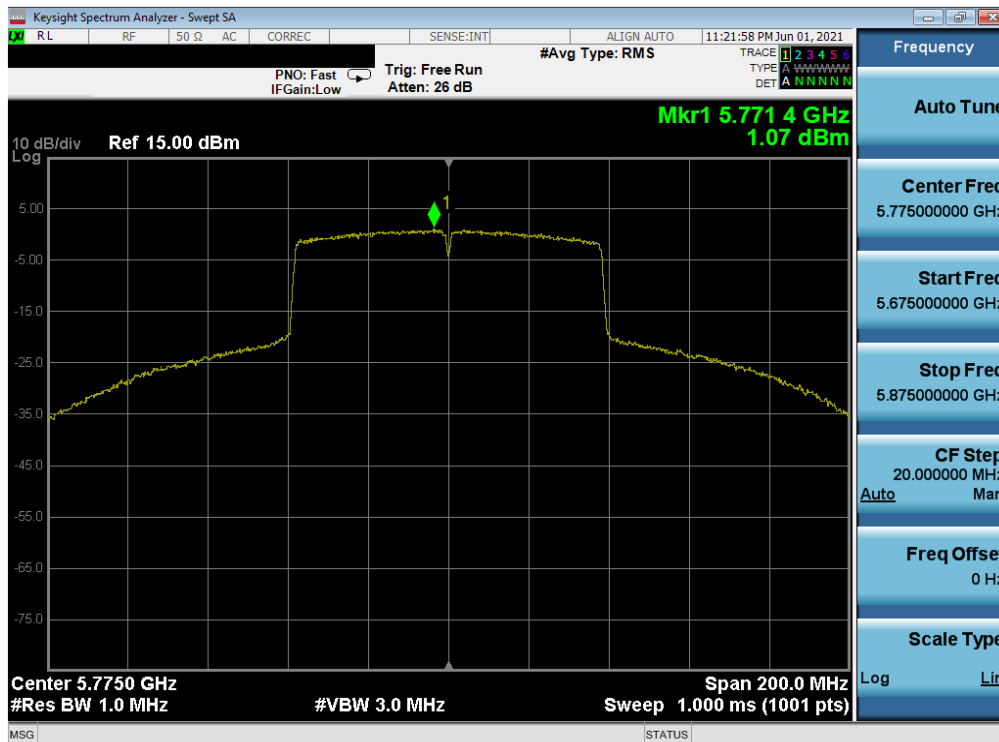


Plot 7-327. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax (UNII Band 3) – Ch. 151)

FCC ID: A3LSMF711JPN	Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2106100066-11.A3L	Test Dates: 04/12/2021-07/16/2021	EUT Type: Portable Handset		Page 198 of 269

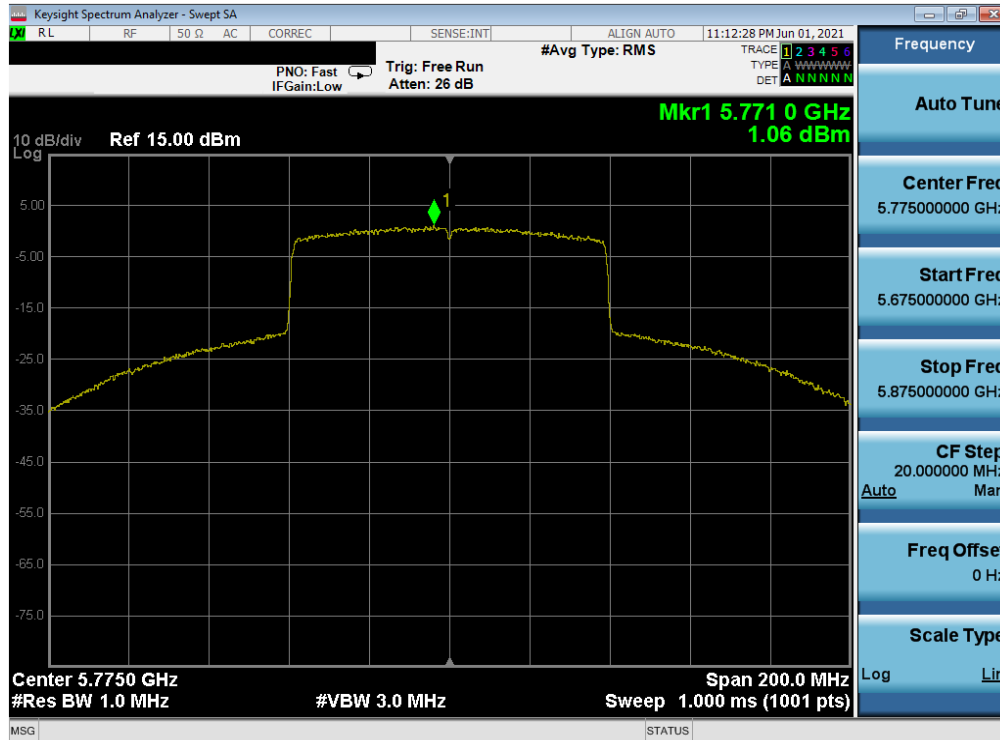


Plot 7-328. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax (UNII Band 3) – Ch. 159)



Plot 7-329. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)

FCC ID: A3LSMF711JPN	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
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Plot 7-330. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax (UNII Band 3) – Ch. 155)

Note:

Sample MIMO Calculation:

At 5180MHz in 802.11n (20MHz BW) mode, the average conducted power spectral density was measured to be 6.61 dBm for Antenna-1 and 6.77 dBm for Antenna-2.

$$\text{Antenna 1} + \text{Antenna 2} = \text{MIMO}$$

$$(6.61 \text{ dBm} + 6.77 \text{ dBm}) = (4.58 \text{ mW} + 4.75 \text{ mW}) = 9.33 \text{ mW} = 9.70 \text{ dBm}$$

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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. 802.11a, 802.11n (20MHz BW), 802.11ax (40MHz BW), and 802.11ac (80MHz)), 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 7-22 per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [μ V/m]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 7-22. 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

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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.

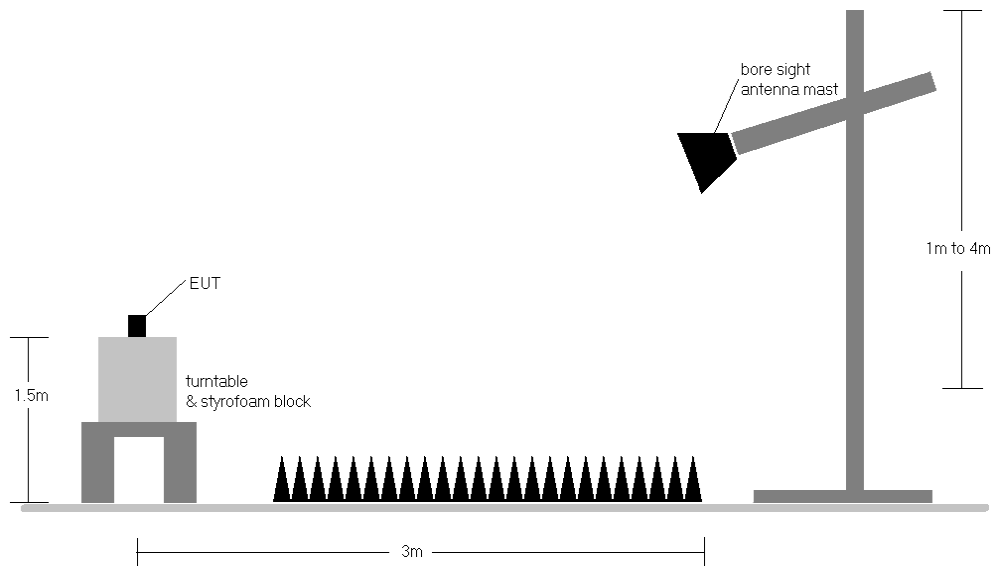


Figure 7-5. Test Instrument & Measurement Setup

FCC ID: A3LSMF711JPN	 PCTEST® Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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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 7-22.
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 7-22. 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 dB μ V/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 68.2dB μ V/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. Radiated spurious emissions were investigated while operating in MIMO mode, however, it was determined that single antenna operation produced the worst case emissions. Since the emissions produced from MIMO operation were found to be more than 20dB below the limit, the MIMO emissions are not reported.
8. 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.
9. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

Sample Calculations

Determining Spurious Emissions Levels

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

Radiated Band Edge Measurement Offset

- The amplitude offset shown in the radiated restricted band edge plots was calculated using the formula:

$$\text{Offset (dB)} = (\text{Antenna Factor} + \text{Cable Loss} + \text{Attenuator}) - \text{Pre-amplifier Gain}$$

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