



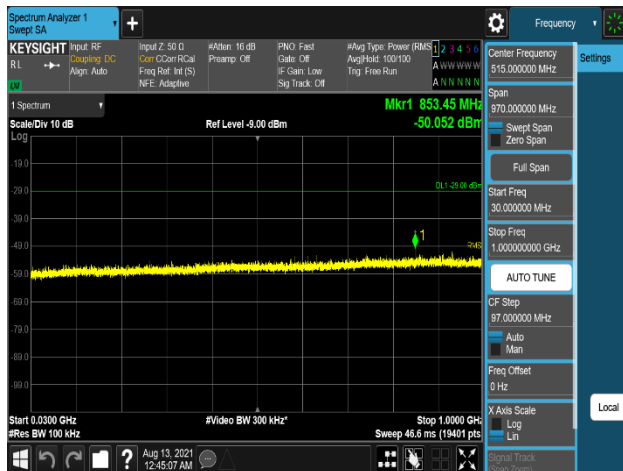
Plot 7-1233. Conducted Spurious Emission Plot
9 kHz to 150 kHz

(Multi Band_B2_5M+5M+5M_3C_Low + B66_5M+5M+5M_3C_High_QPSK - Port 0)



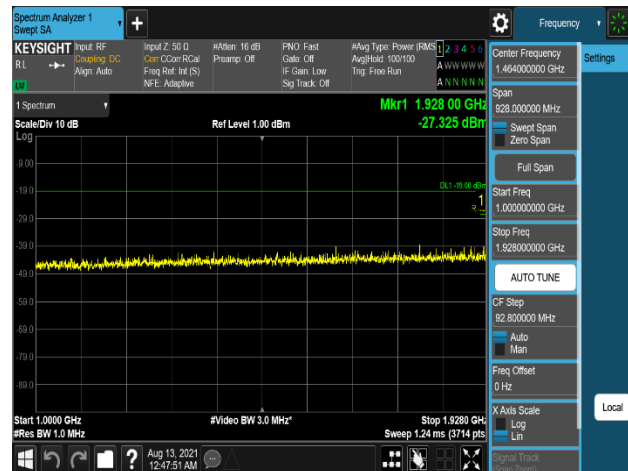
Plot 7-1234. Conducted Spurious Emission Plot
150 kHz to 30 MHz

(Multi Band_B2_5M+5M+5M_3C_Low + B66_5M+5M+5M_3C_High_QPSK - Port 0)



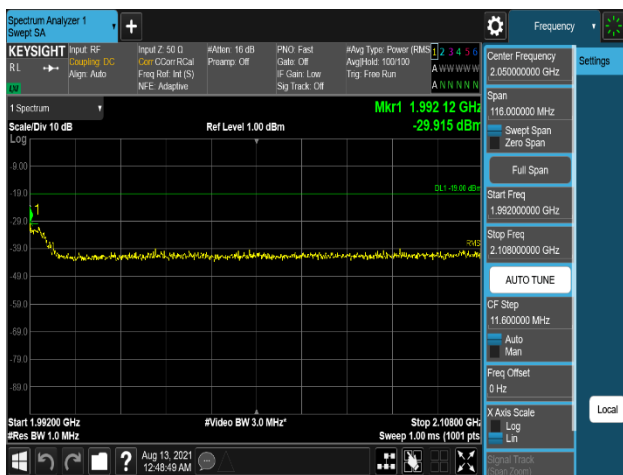
Plot 7-1235. Conducted Spurious Emission Plot
30 MHz to 1 GHz

(Multi Band_B2_5M+5M+5M_3C_Low + B66_5M+5M+5M_3C_High_QPSK - Port 1)



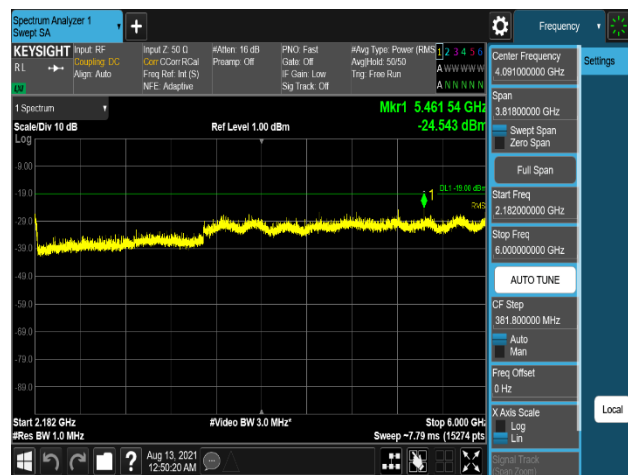
Plot 7-1236. Conducted Spurious Emission Plot
1 GHz to 1.928 GHz

(Multi Band_B2_5M+5M+5M_3C_Low + B66_5M+5M+5M_3C_High_QPSK - Port 3)



Plot 7-1237. Conducted Spurious Emission Plot
1.992 GHz to 2.108 GHz

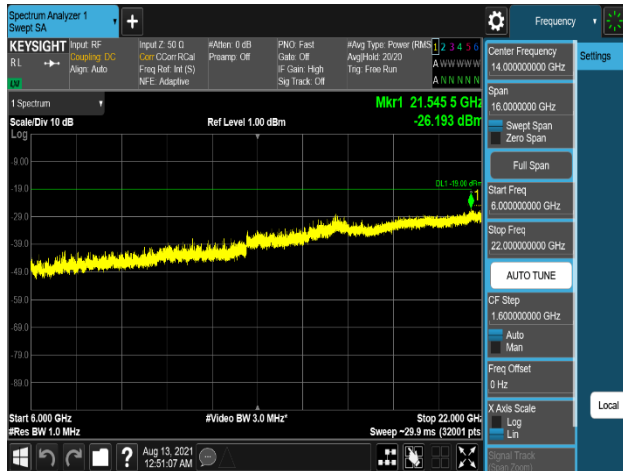
(Multi Band_B2_5M+5M+5M_3C_Low + B66_5M+5M+5M_3C_High_QPSK - Port 2)



Plot 7-1238. Conducted Spurious Emission Plot
2.182 GHz to 6 GHz

(Multi Band_B2_5M+5M+5M_3C_Low + B66_5M+5M+5M_3C_High_QPSK - Port 2)

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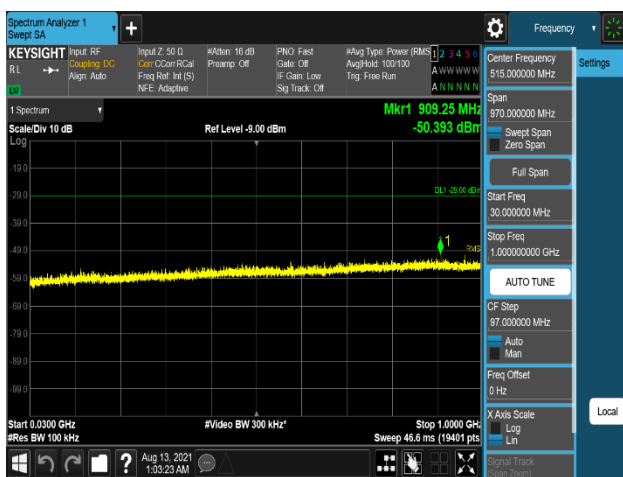
Plot 7-1239. Conducted Spurious Emission Plot
6 GHz to 22 GHz
(Multi Band_B2_5M+5M+5M_3C_Low + B66_5M+5M+5M_3C_High_QPSK - Port 0)



Plot 7-1240. Conducted Spurious Emission Plot
9 kHz to 150 kHz
(Multi Band_B2_5M+5M+5M_3C_High + B66_5M+5M+5M_3C_Low_QPSK - Port 1)



Plot 7-1241. Conducted Spurious Emission Plot
150 kHz to 30 MHz
(Multi Band_B2_5M+5M+5M_3C_High + B66_5M+5M+5M_3C_Low_QPSK - Port 3)

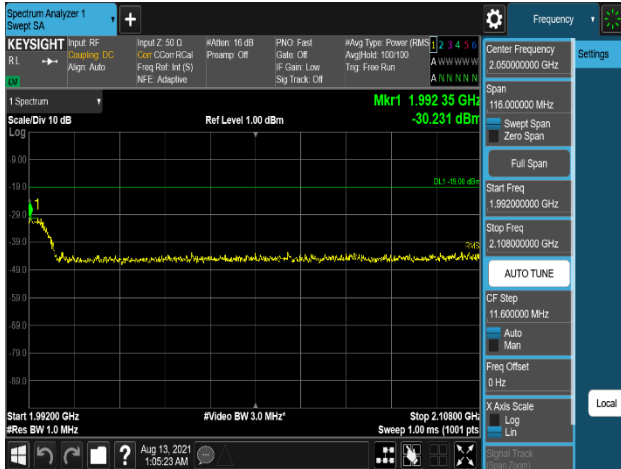


Plot 7-1242. Conducted Spurious Emission Plot
30 MHz to 1 GHz
(Multi Band_B2_5M+5M+5M_3C_High + B66_5M+5M+5M_3C_Low_QPSK - Port 2)



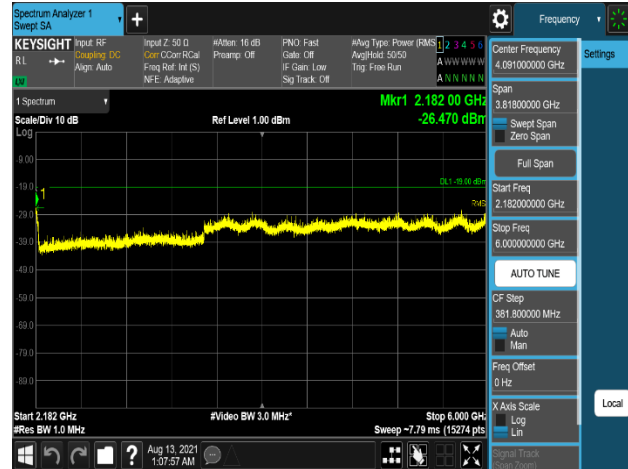
Plot 7-1243. Conducted Spurious Emission Plot
1 GHz to 1.928 GHz
(Multi Band_B2_5M+5M+5M_3C_High + B66_5M+5M+5M_3C_Low_QPSK - Port 3)

FCC ID: A3LRF4437D-25C		MEASUREMENT REPORT		Approved by: Technical Manager
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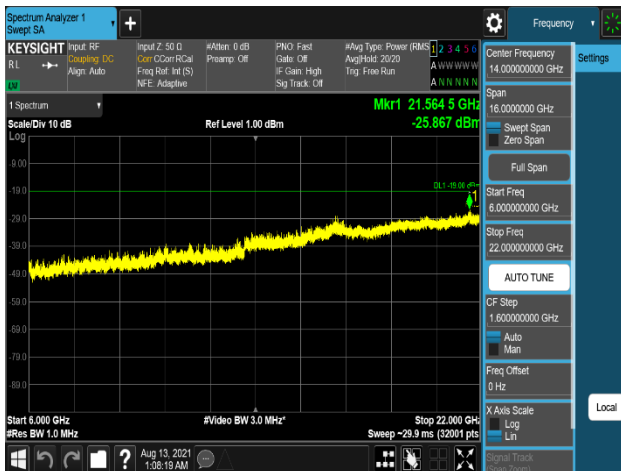
Plot 7-1244. Conducted Spurious Emission Plot
1.992 GHz to 2.108 GHz

(Multi Band_B2_5M+5M+5M_3C_High + B66_5M+5M+5M_3C_Low_QPSK - Port 0)





Plot 7-1245. Conducted Spurious Emission Plot
2.182 GHz to 6 GHz

(Multi Band_B2_5M+5M+5M_3C_High + B66_5M+5M+5M_3C_Low_QPSK - Port 3)





Plot 7-1246. Conducted Spurious Emission Plot
6 GHz to 22 GHz

(Multi Band_B2_5M+5M+5M_3C_High + B66_5M+5M+5M_3C_Low_QPSK - Port 0)

FCC ID: A3LRF4437D-25C		MEASUREMENT REPORT		Approved by: Technical Manager
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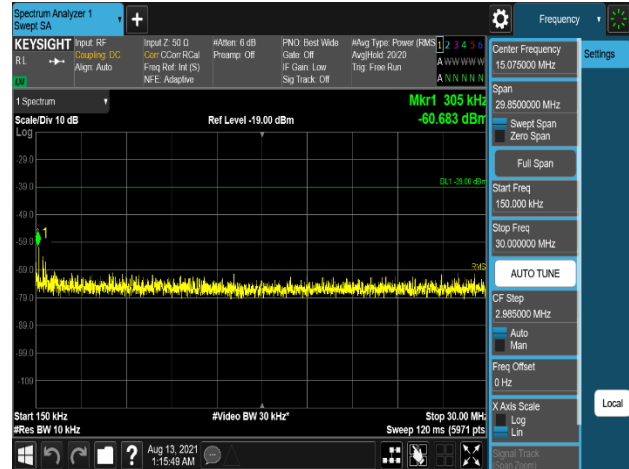
Configuration	Port	Measurement Range	Level (dBm)	Limit (dBm)	Worst Margin (dB)
Multi Band_ B2_5M+5M+5M_3C - Non-contiguous+ B66_5M+5M+5M_3C -Non-contiguous	0	9 kHz to 150 kHz	-59.63	-49.02	-10.61
		150 kHz to 30 MHz	-61.35	-39.02	-22.33
		30 MHz to 1 GHz	-54.19	-29.02	-25.17
		1 GHz to 1.928 GHz	-28.61	-19.02	-9.59
		1.992 GHz to 2.108 GHz	-30.77	-19.02	-11.75
		2.182 GHz to 6 GHz	-26.58	-19.02	-7.56
		6 GHz to 22 GHz	-26.16	-19.02	-7.14
	1	9 kHz to 150 kHz	-59.58	-49.02	-10.56
		150 kHz to 30 MHz	-60.68	-39.02	-21.66
		30 MHz to 1 GHz	-51.29	-29.02	-22.27
		1 GHz to 1.928 GHz	-29.12	-19.02	-10.10
		1.992 GHz to 2.108 GHz	-30.12	-19.02	-11.10
		2.182 GHz to 6 GHz	-26.43	-19.02	-7.41
		6 GHz to 22 GHz	-26.25	-19.02	-7.23
	2	9 kHz to 150 kHz	-59.50	-49.02	-10.48
		150 kHz to 30 MHz	-61.12	-39.02	-22.10
		30 MHz to 1 GHz	-51.23	-29.02	-22.21
		1 GHz to 1.928 GHz	-27.92	-19.02	-8.90
		1.992 GHz to 2.108 GHz	-31.21	-19.02	-12.19
		2.182 GHz to 6 GHz	-24.45	-19.02	-5.43
		6 GHz to 22 GHz	-26.34	-19.02	-7.32
	3	9 kHz to 150 kHz	-60.24	-49.02	-11.22
		150 kHz to 30 MHz	-61.91	-39.02	-22.89
		30 MHz to 1 GHz	-52.19	-29.02	-23.17
1 GHz to 1.928 GHz		-28.25	-19.02	-9.23	
1.992 GHz to 2.108 GHz		-31.30	-19.02	-12.28	
2.182 GHz to 6 GHz		-27.01	-19.02	-7.99	
6 GHz to 22 GHz		-26.27	-19.02	-7.25	

**Table 7-254. Conducted Spurious Emission Summary Data
(Multi Band_B2_5M+5M+5M_3C - Non-contiguous + B66_5M+5M+5M_3C - Non-contiguous)**

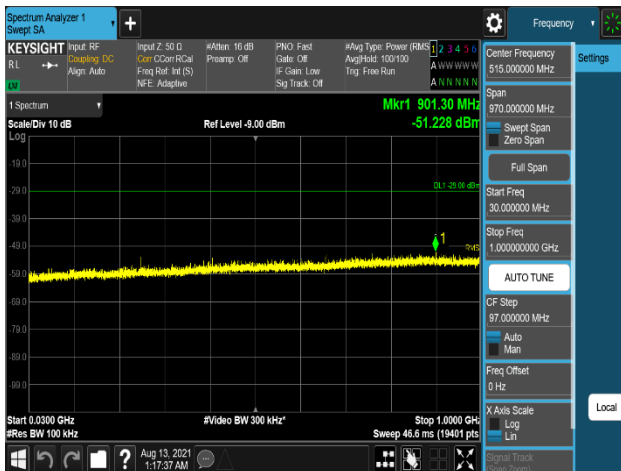
FCC ID: A3LRF4437D-25C		MEASUREMENT REPORT		Approved by: Technical Manager
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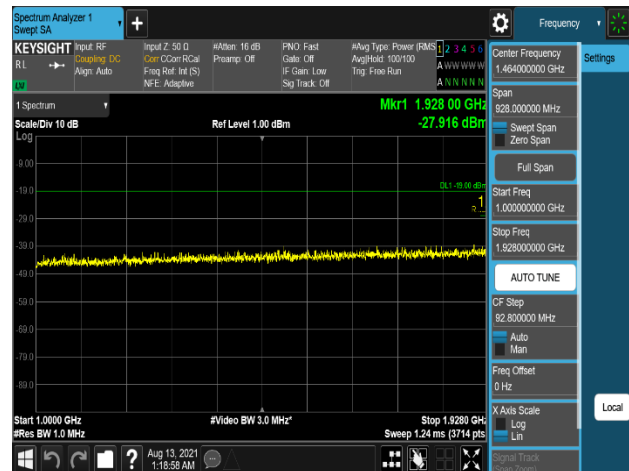
Plot 7-1247. Conducted Spurious Emission Plot
9 kHz to 150 kHz
Multi Band_B2_5M+5M+5M_3C - Non-contiguous +
B66_5M+5M+5M_3C - Non-contiguous_QPSK - Port 2



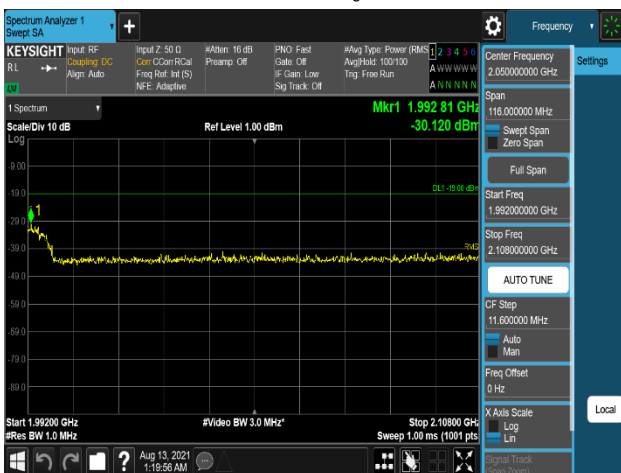
Plot 7-1248. Conducted Spurious Emission Plot
150 kHz to 30 MHz
Multi Band_B2_5M+5M+5M_3C - Non-contiguous +
B66_5M+5M+5M_3C - Non-contiguous_QPSK - Port 1



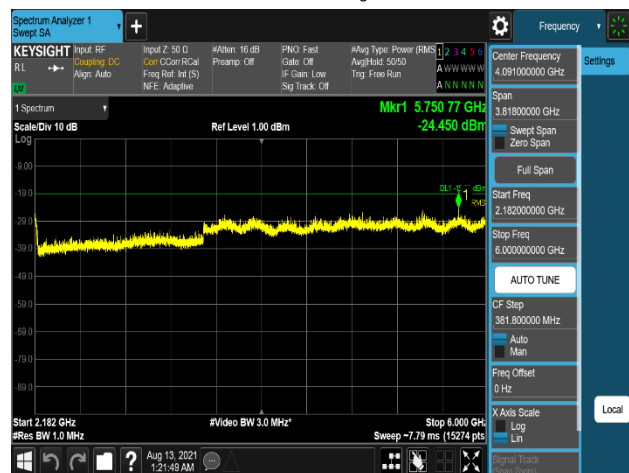
Plot 7-1249. Conducted Spurious Emission Plot
30 MHz to 1 GHz
Multi Band_B2_5M+5M+5M_3C - Non-contiguous +
B66_5M+5M+5M_3C - Non-contiguous_QPSK - Port 2



Plot 7-1250. Conducted Spurious Emission Plot
1 GHz to 1.928 GHz
Multi Band_B2_5M+5M+5M_3C - Non-contiguous +
B66_5M+5M+5M_3C - Non-contiguous_QPSK - Port 2

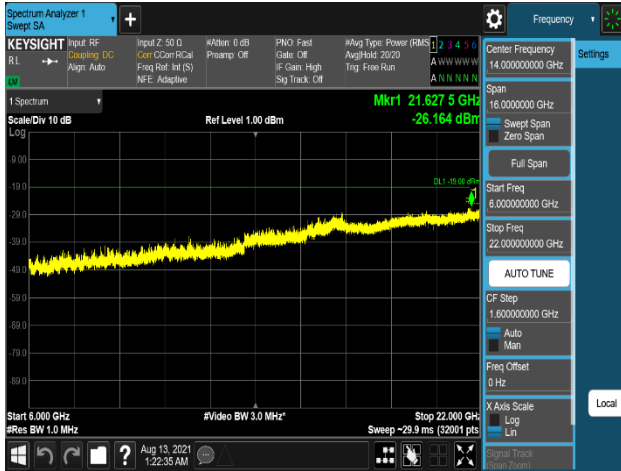


Plot 7-1251. Conducted Spurious Emission Plot
1.992 GHz to 2.108 GHz
Multi Band_B2_5M+5M+5M_3C - Non-contiguous +
B66_5M+5M+5M_3C - Non-contiguous_QPSK - Port 1



Plot 7-1252. Conducted Spurious Emission Plot
2.182 GHz to 6 GHz
Multi Band_B2_5M+5M+5M_3C - Non-contiguous +
B66_5M+5M+5M_3C - Non-contiguous_QPSK - Port 2

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Plot 7-1253. Conducted Spurious Emission Plot
6 GHz to 22 GHz
Multi Band_B2_5M+5M+5M_3C - Non-contiguous +
B66_5M+5M+5M_3C - Non-contiguous_QPSK - Port 0

FCC ID: A3LRF4437D-25C	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT		Approved by: Technical Manager
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7.8 Radiated spurious emission

Test Overview

Radiated spurious emissions measurements are performed using the field strength method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna or attached antenna directly to the transmitter. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized broadband tri-log antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas.

Test Procedure Used

ANSI C63.26 - Section 5.5.3.2



Test Setting

1. Start frequency was set to 30 MHz and stop frequency was set to at least 10 * the fundamental frequency
2. RBW = 100 kHz for emissions below 1 GHz and 1 MHz for emissions above 1GHz
3. VBW \geq 3 x RBW
4. No. of sweep points \geq 2 x span / RBW
5. Detector = Peak for the pre-scan, (In cases where the level is within 2 dB of the limit, the final
6. measurement is taken using RMS detector.)
7. Trace mode = Max Hold (In cases where the level is within 2 dB of the limit, the final measurement is
8. taken using triggering/gating and trace averaging.)
9. The trace was allowed to stabilize.

Limit

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P_{\text{Watts}})$, where P is the transmitter power in Watts.

The power of any emission outside of the authorized operating frequency range cannot exceed -13 dBm.

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Test Setup

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

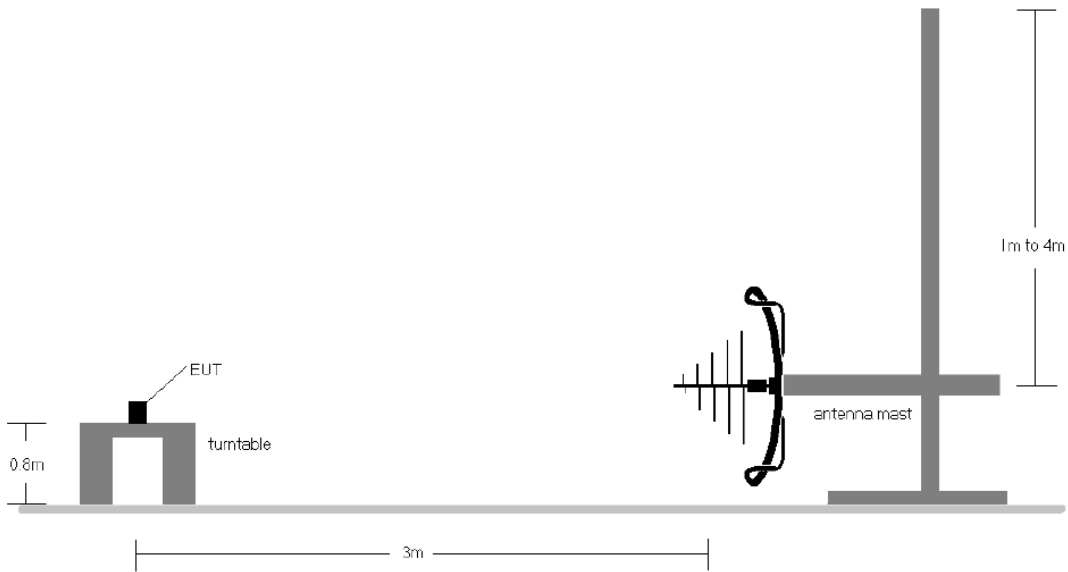


Figure 7-7. Test Instrument & Measurement Setup < 1 GHz

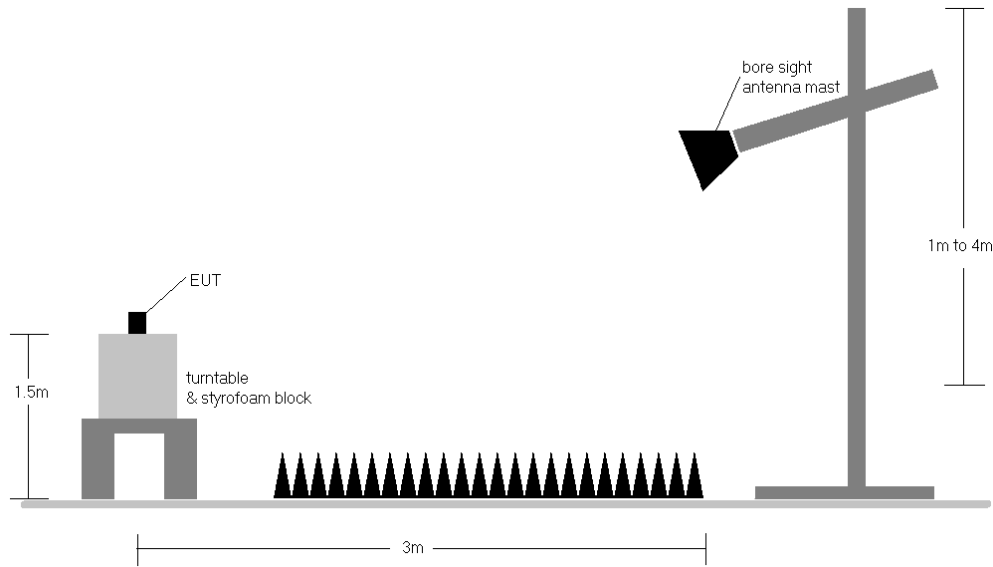




Figure 7-8. Test Instrument & Measurement Setup > 1 GHz

FCC ID: A3LRF4437D-25C	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT		Approved by: Technical Manager
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Test Notes

- The average EIRP reported below is calculated per 5.2.7 of ANSI C63.26-2015 which states:
The measured e.i.r.p is converted to E-field in V/m. Then the distance correction is applied before converted back to calculated e.i.r.p.as explained in KDB 971168 D01 D01 v03r01.

Effective Isotropic Radiated Power Sample Calculation



$$\begin{aligned} \text{Field Strength [dB}\mu\text{V/m]} &= \text{Measured Value [dBm]} + \text{AFCL [dB/m]} + 107 \\ &= -81.64 \text{ dBm} + (23.41 \text{ dBm} + 2.69 \text{ dBm}) + 107 = 51.50 \text{ dB}\mu\text{V/m} \\ &= 10^{(51.50/20)}/1000000 = 0.000374 \text{ V/m} \\ \\ \text{e.i.r.p. [dBm]} &= E[\text{dB } \mu\text{V/m}] + 20 \log_{10}(d[\text{m}]) - 104.8 \\ &= 51.5 + (20 * \log(3)) - 104.8 \\ &= -43.77 \text{ dBm e.i.r.p.} \end{aligned}$$

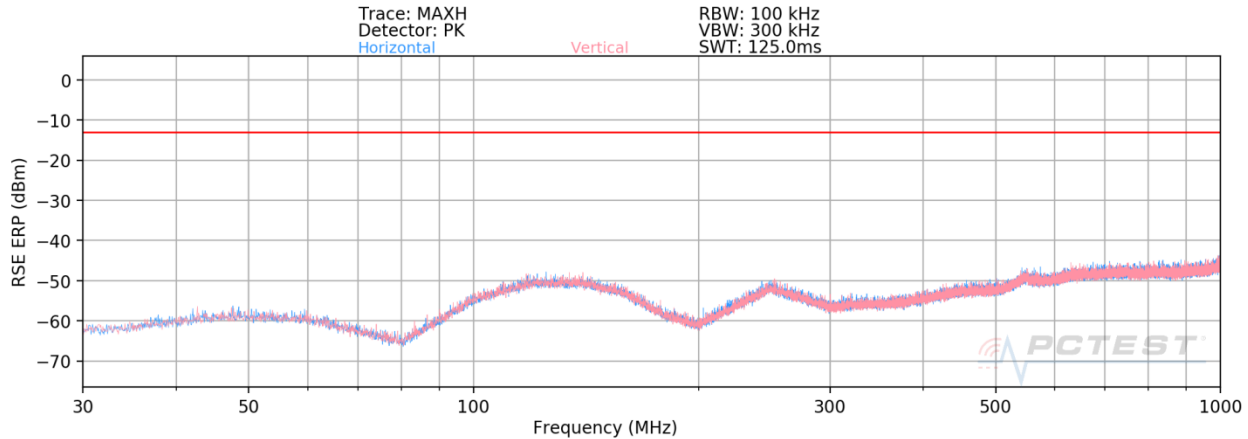
*AFCL (dB/m) contains measurement antenna factor(dB/m) and cable loss(dB) as below:

Frequency [MHz]	Antenna Factor (dB/m)	Cable loss [dB]	AFCL (dB/m)
127.82	21.78	0.92	22.70
911.68	22.62	2.57	25.19
12165.06	39.42	-23.85	15.58
17980.75	47.73	-21.84	25.89

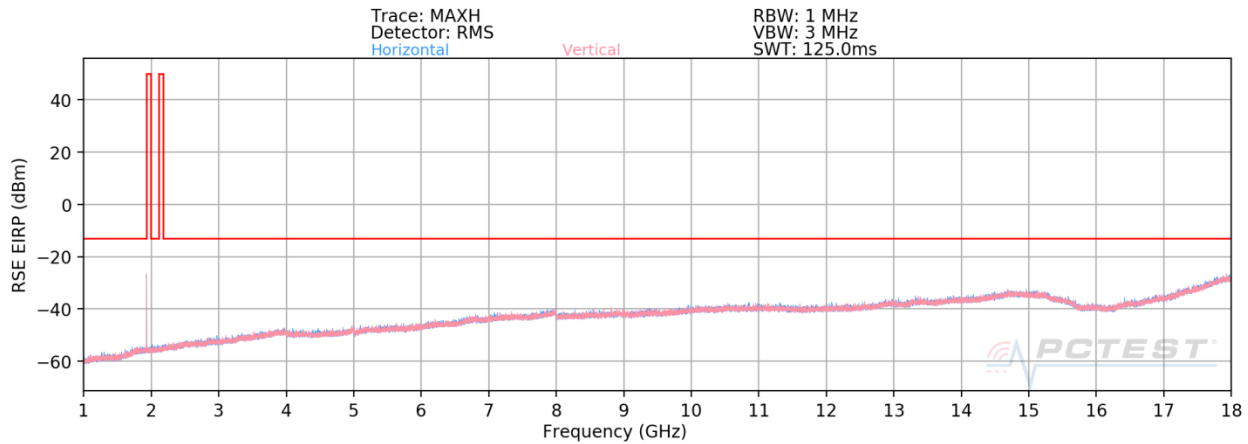
Table 7-255. Adopted AFCL value in the calculation

- The EUT was tested in both horizontal and vertical antenna polarizations and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, channel bandwidth configurations shown in the tables below.
- The spectrum is measured from 30 MHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- Emissions below 18 GHz were measured at a 3 meter test distance while emissions above 18 GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- Spurious emissions were measured with all EUT antennas transmitting simultaneously.
- The "-" shown in the following RSE tables are used to denote a noise floor measurement.

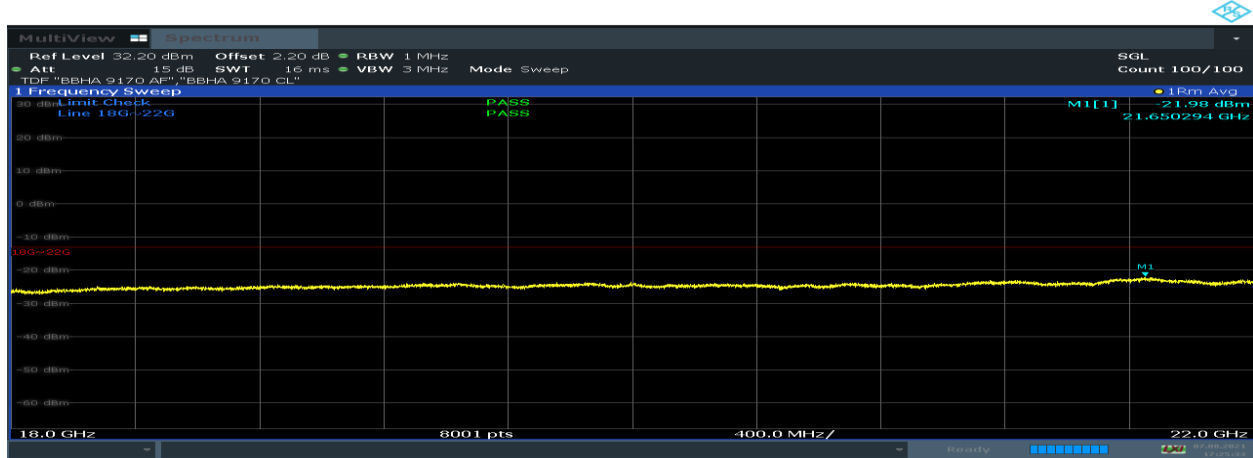
FCC ID: A3LRF4437D-25C		MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-1254. Radiated spurious emission_30 MHz to 1000 MHz (B2_5M_1C_Low Channel)

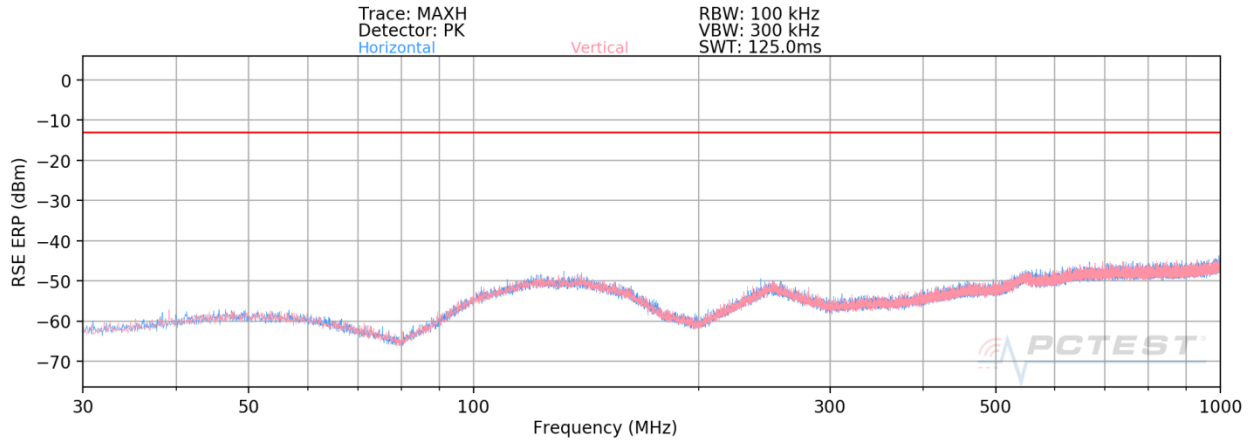


Plot 7-1255. Radiated spurious emission_1 GHz to 18 GHz (B2_5M_1C_Low Channel)

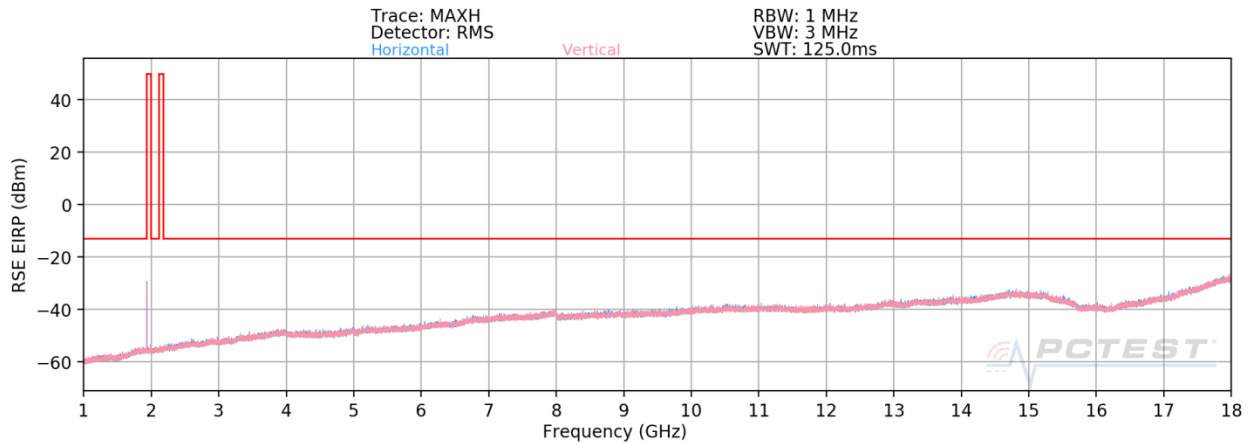


Plot 7-1256. Radiated spurious emission_18 GHz to 22 GHz (B2_5M_1C_Low Channel)

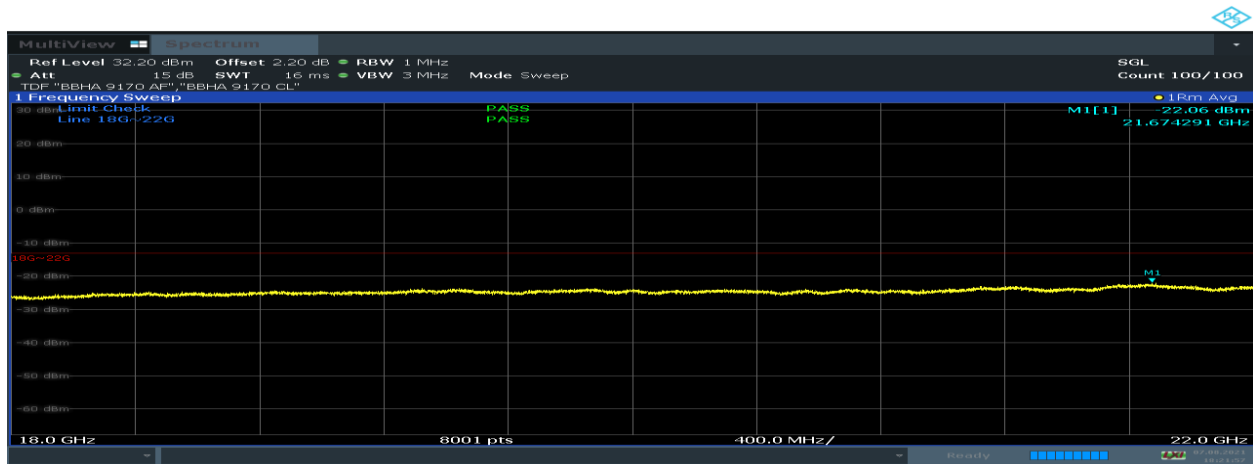
FCC ID: A3LRF4437D-25C	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT		Approved by: Technical Manager
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**Plot 7-1257. Radiated spurious emission_30 MHz to 1000 MHz
 (B2_5M+5M_2C_Low Channel)**

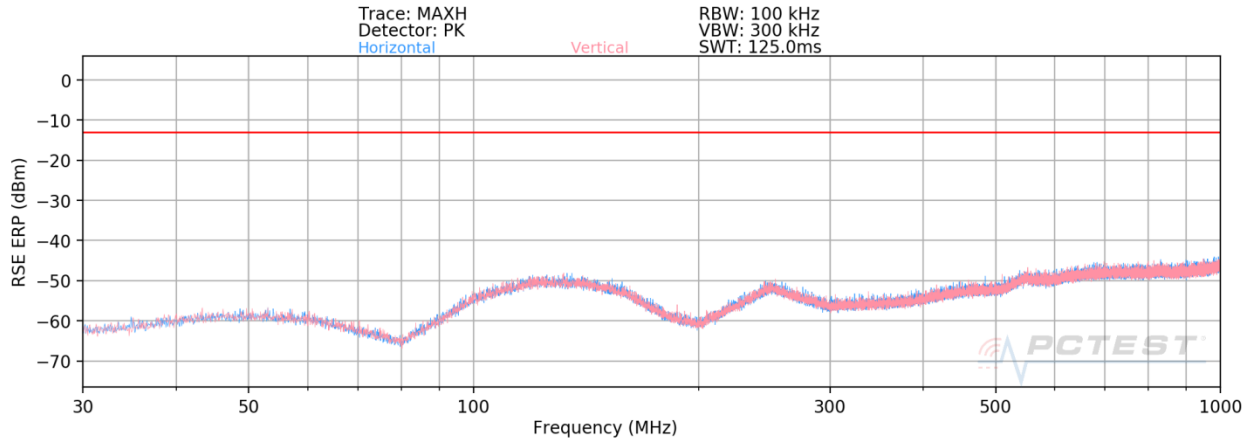


**Plot 7-1258. Radiated spurious emission_1 GHz to 18 GHz
 (B2_5M+5M_2C_Low Channel)**

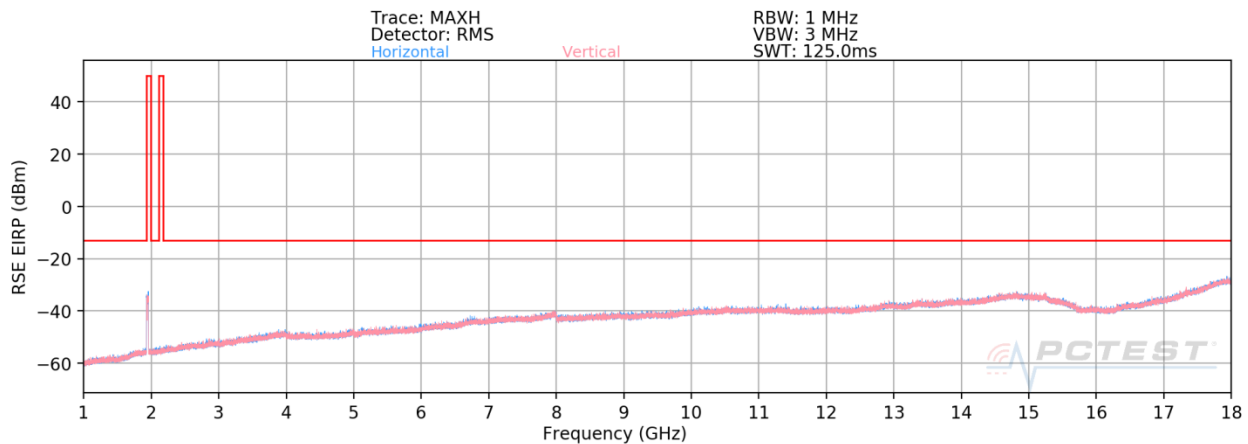


**Plot 7-1259. Radiated spurious emission_18 GHz to 22 GHz
 (B2_5M+5M_2C_Low Channel)**

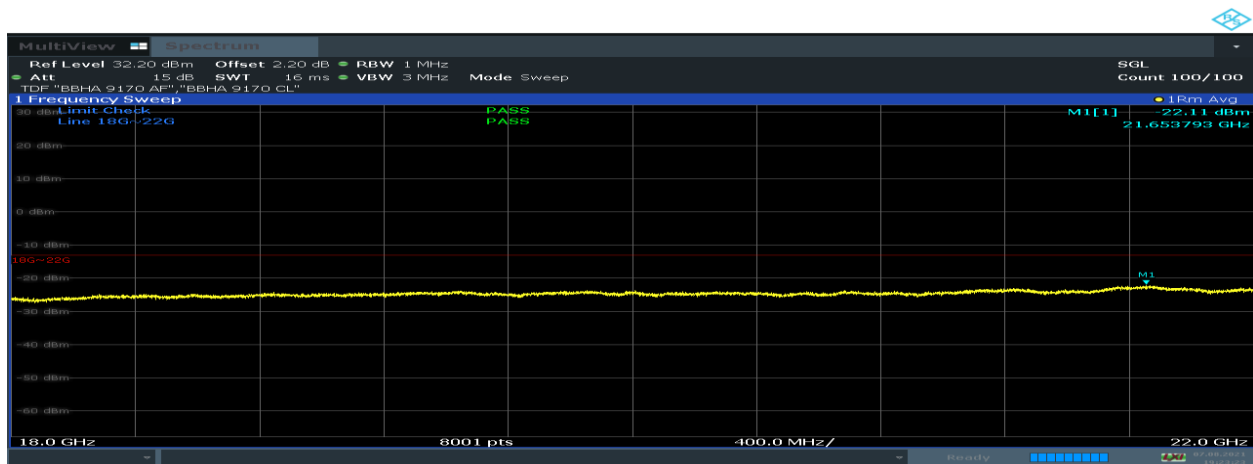
FCC ID: A3LRF4437D-25C	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)		Page 400 of 420





**Plot 7-1260. Radiated spurious emission_30 MHz to 1000 MHz
(B2_5M+5M+20M_3C_Low Channel)**

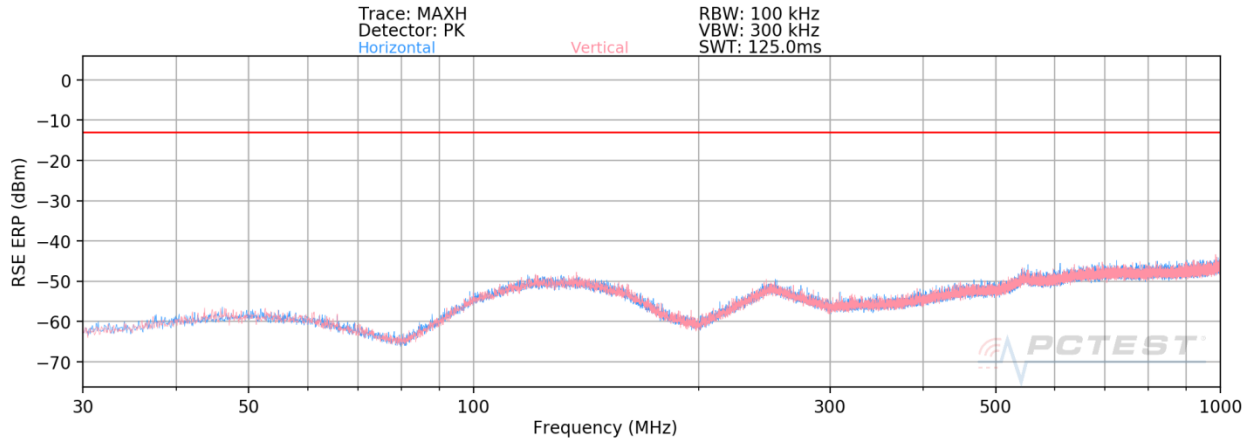


**Plot 7-1261. Radiated spurious emission_1 GHz to 18 GHz
(B2_5M+5M+20M_3C - Contiguous_Low Channel)**

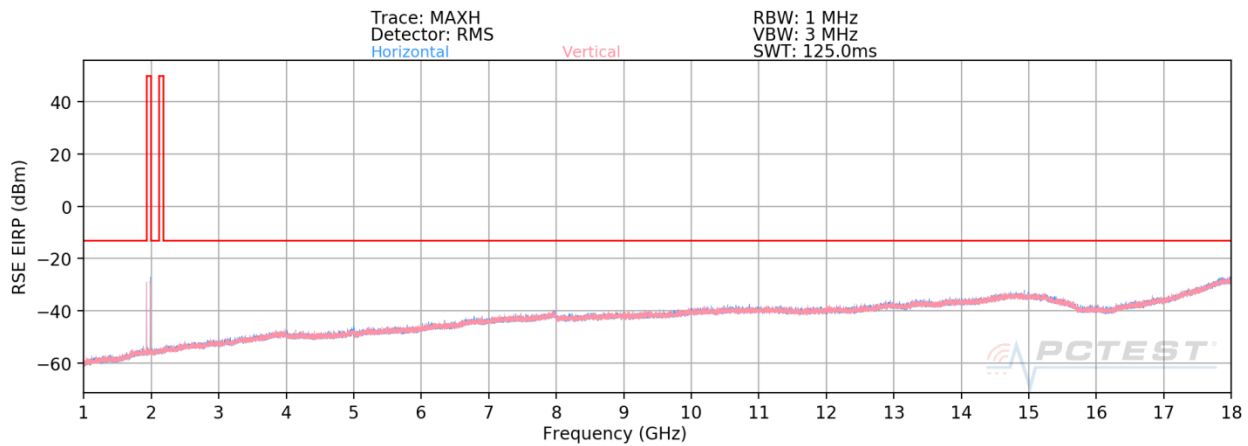


**Plot 7-1262. Radiated spurious emission_18 GHz to 22 GHz
(B2_5M+5M+20M_3C - Contiguous_Low Channel)**

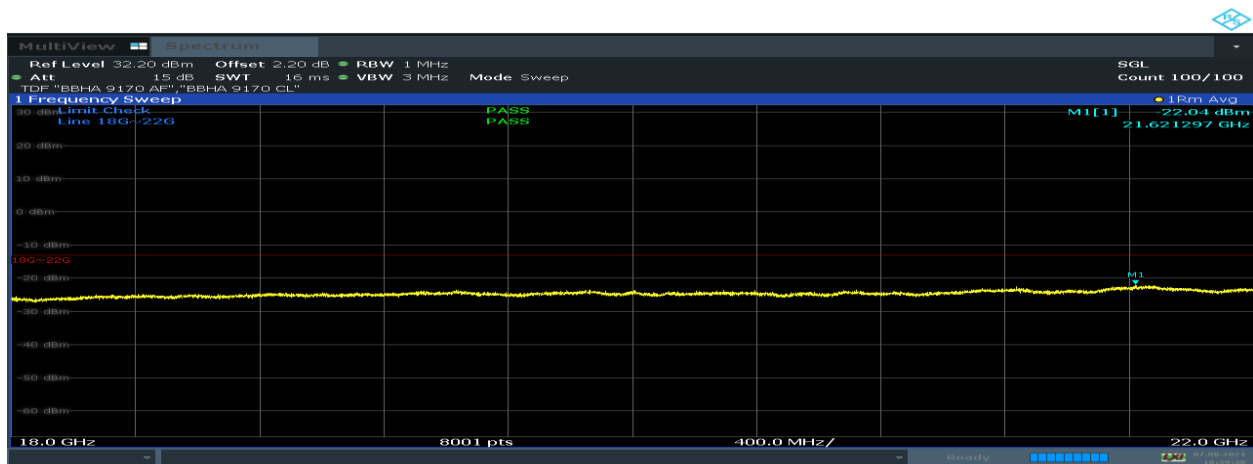
FCC ID: A3LRF4437D-25C	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT		Approved by: Technical Manager
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**Plot 7-1263. Radiated spurious emission_30 MHz to 1000 MHz
(B2_5M+5M_2C - Non-contiguous)**

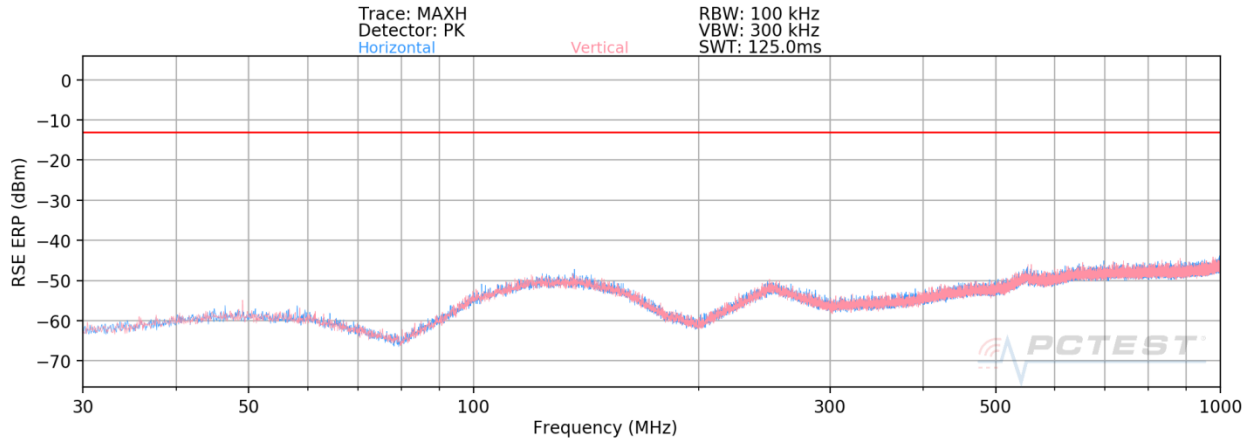


**Plot 7-1264. Radiated spurious emission_1 GHz to 18 GHz
(B2_5M+5M_2C - Non-contiguous)**

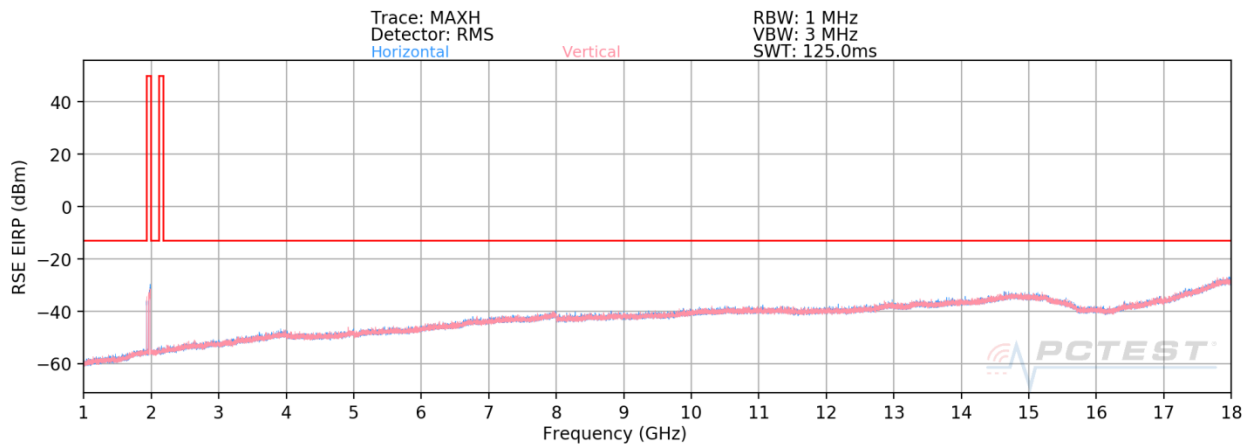


**Plot 7-1265. Radiated spurious emission_18 GHz to 22 GHz
(B2_5M+5M_2C - Non-contiguous)**

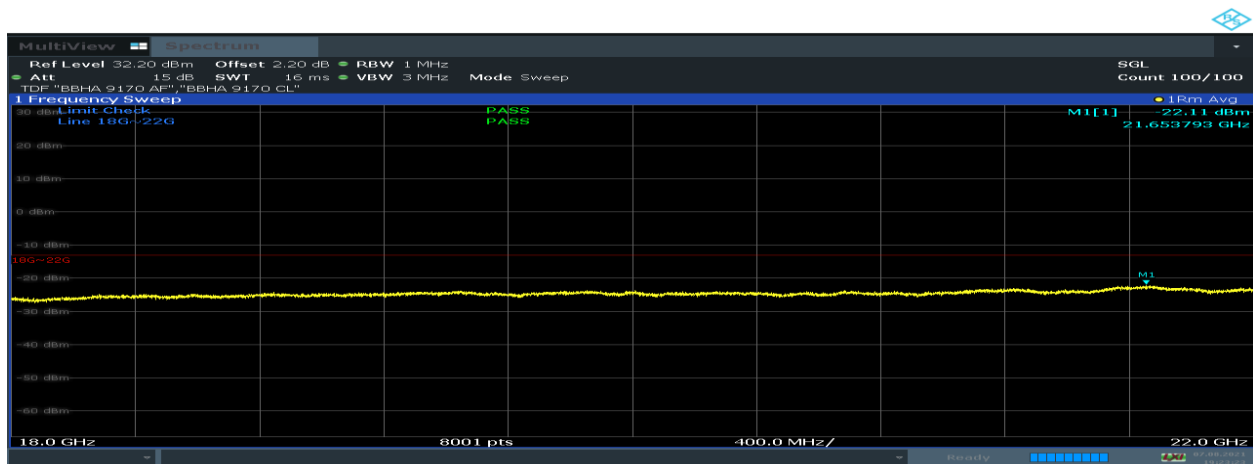
FCC ID: A3LRF4437D-25C	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)		Page 402 of 420





**Plot 7-1266. Radiated spurious emission_30 MHz to 1000 MHz
(B2_5M+5M+20M_3C - Non-contiguous)**

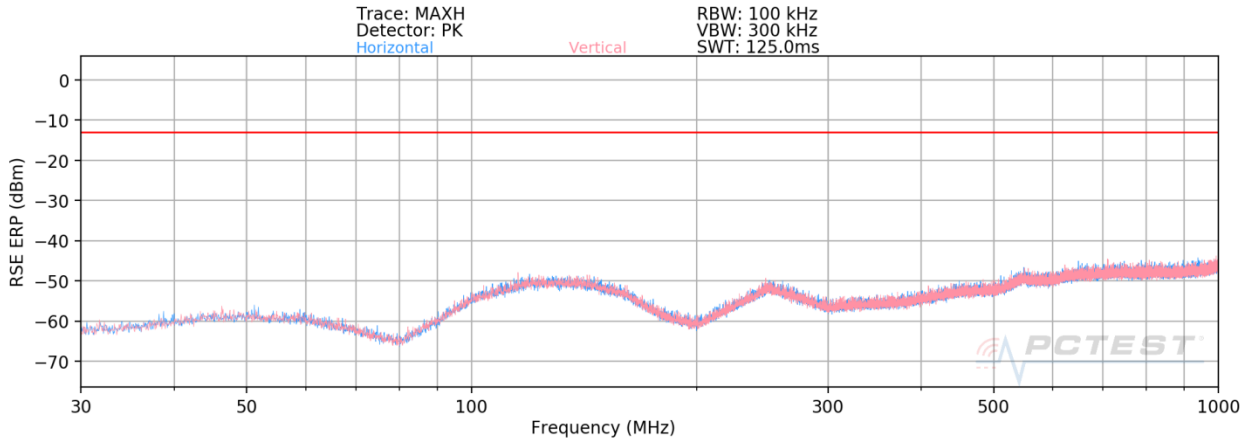


**Plot 7-1267. Radiated spurious emission_1 GHz to 18 GHz
(B2_5M+5M+20M_3C - Non-contiguous)**

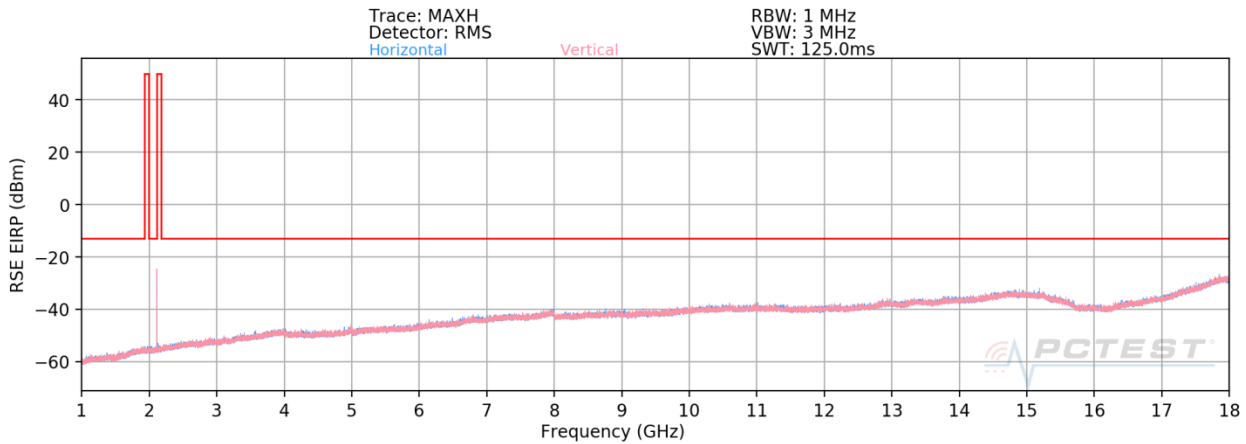


**Plot 7-1268. Radiated spurious emission_18 GHz to 22 GHz
(B2_5M+5M+20M_3C - Non-contiguous)**

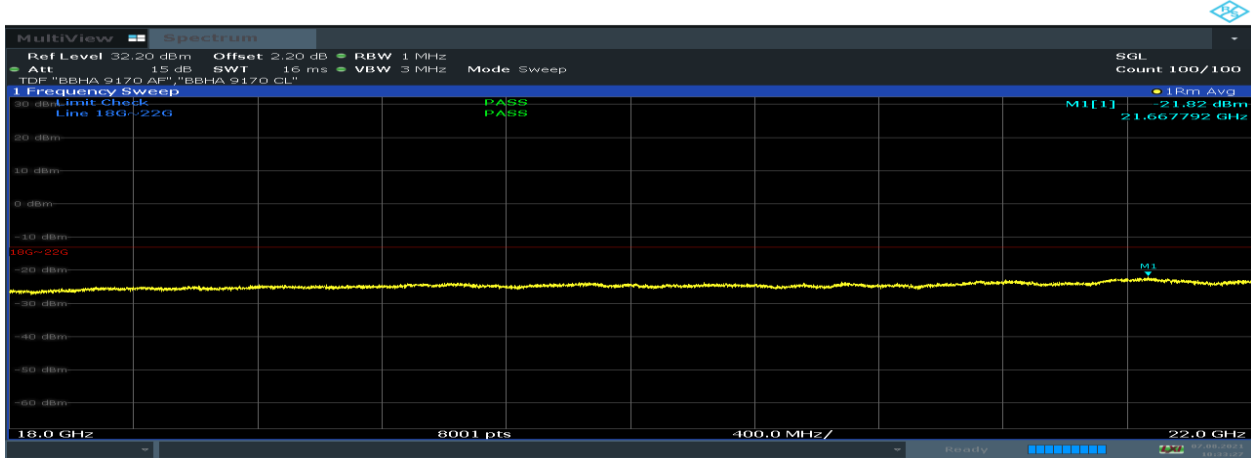
FCC ID: A3LRF4437D-25C		MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)		Page 403 of 420





Plot 7-1269. Radiated spurious emission_30 MHz to 1000 MHz (B66_5M_1C_Low Channel)

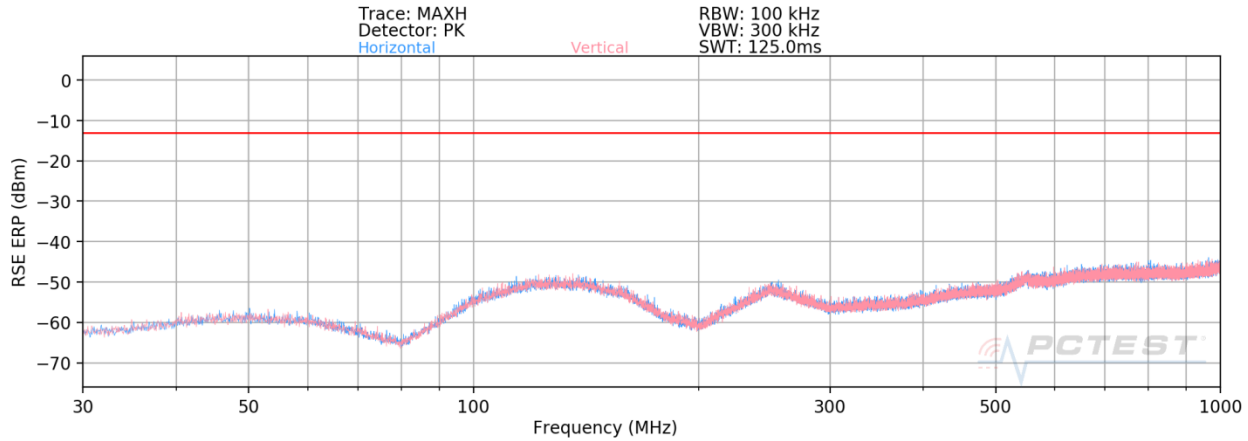


Plot 7-1270. Radiated spurious emission_1 GHz to 18 GHz (B66_5M_1C_Low Channel)

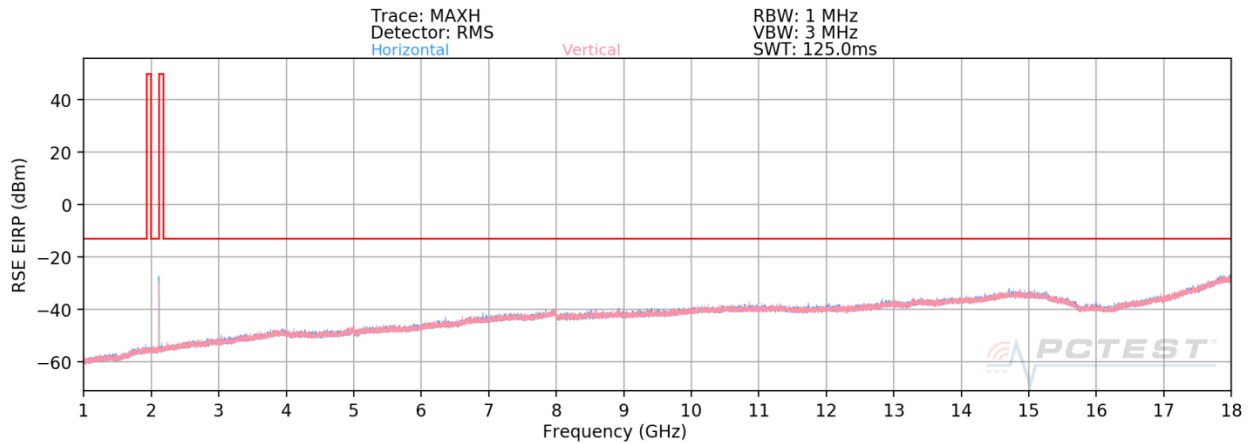


Plot 7-1271. Radiated spurious emission_18 GHz to 22 GHz (B66_5M_1C_Low Channel)

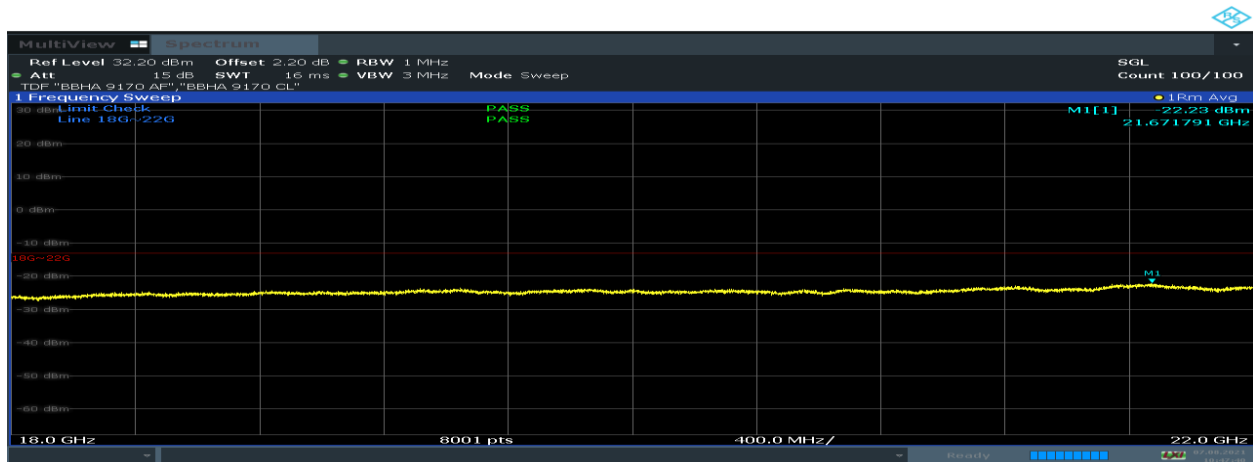
FCC ID: A3LRF4437D-25C	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)		Page 404 of 420





Plot 7-1272. Radiated spurious emission_30 MHz to 1000 MHz (B66_5M+5M_2C_Low Channel)

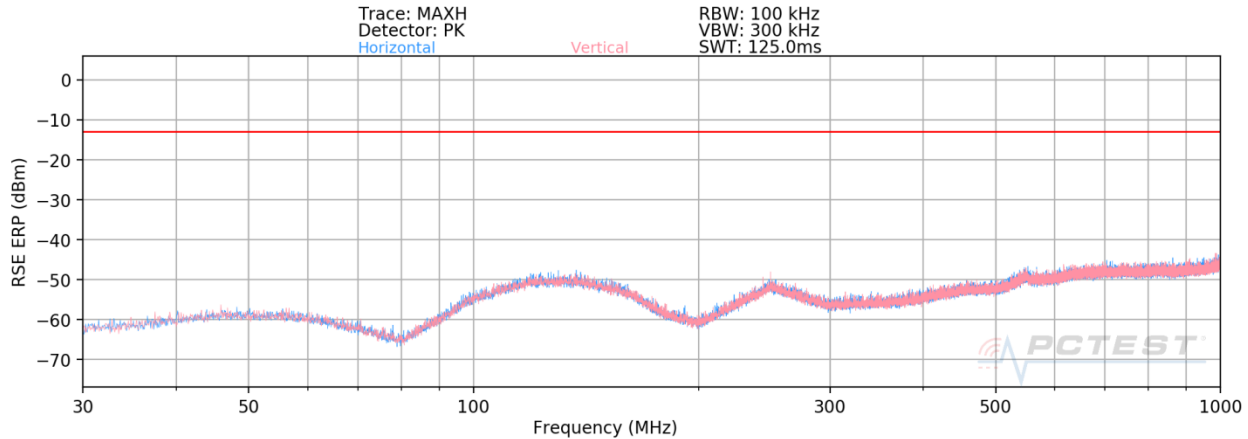


Plot 7-1273. Radiated spurious emission_1 GHz to 18 GHz (B66_5M+5M_2C_Low Channel)

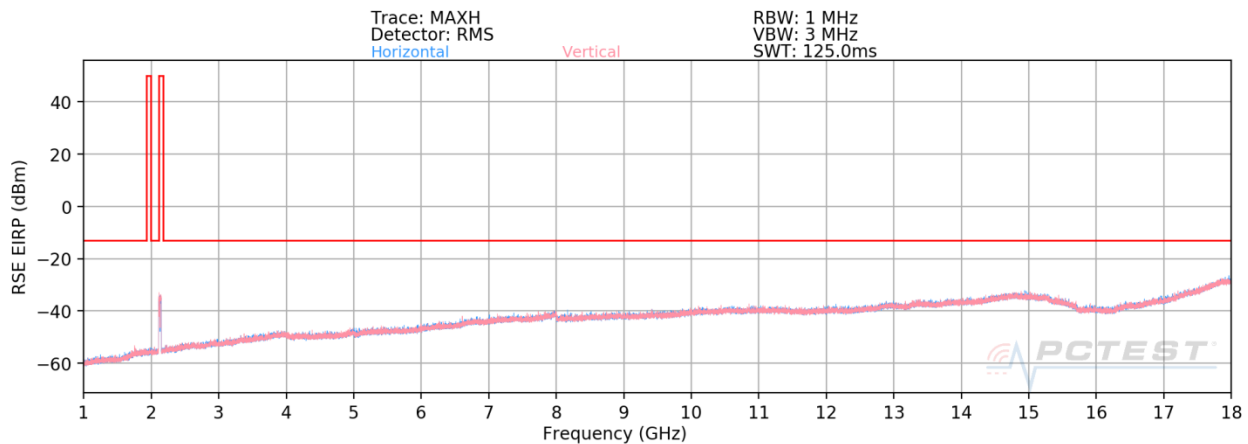


Plot 7-1274. Radiated spurious emission_18 GHz to 22 GHz (B66_5M+5M_2C_Low Channel)

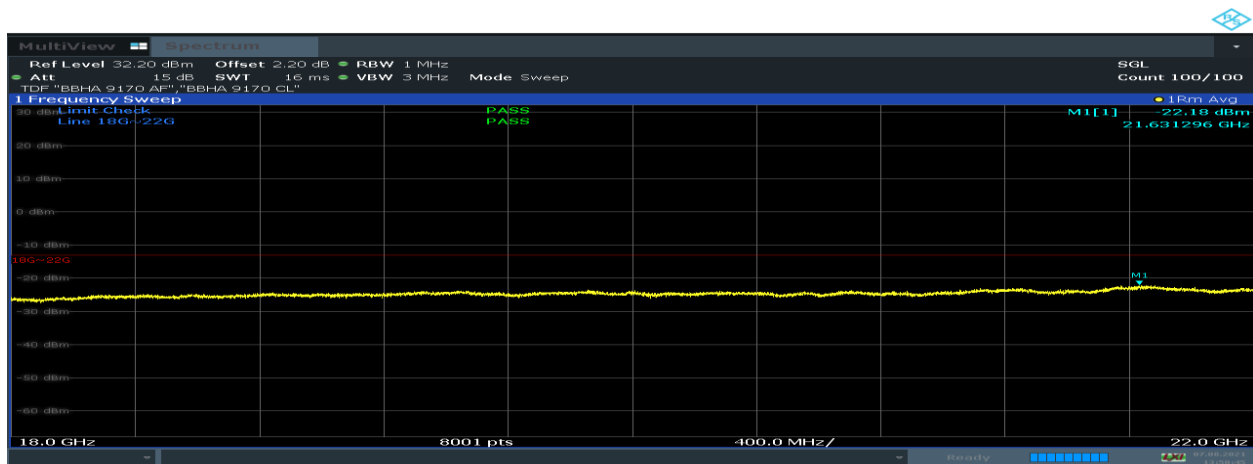
FCC ID: A3LRF4437D-25C	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)		Page 405 of 420





**Plot 7-1275. Radiated spurious emission_30 MHz to 1000 MHz
(B66_5M+15M+20M_3C_Low Channel)**

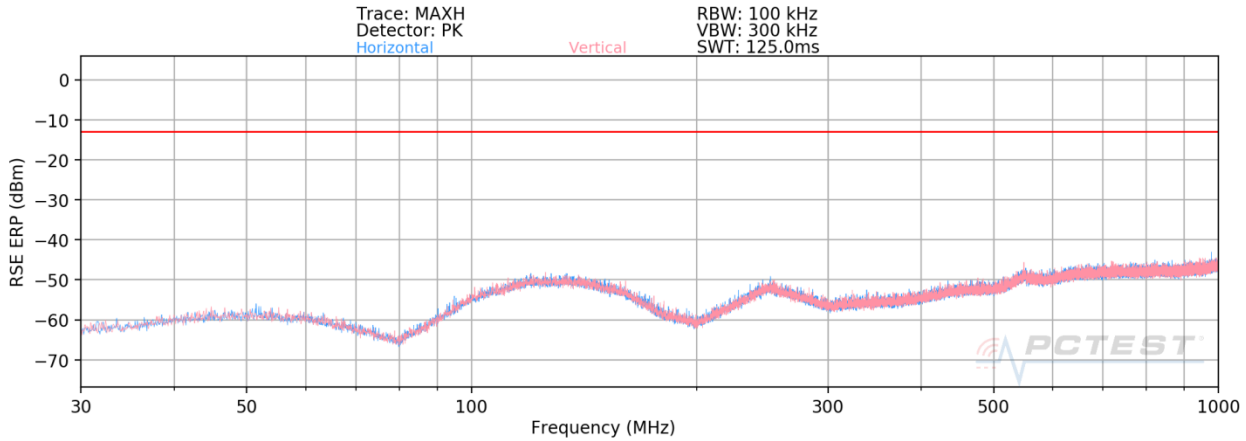


**Plot 7-1276. Radiated spurious emission_1 GHz to 18 GHz
(B66_5M+15M+20M_3C_Low Channel)**

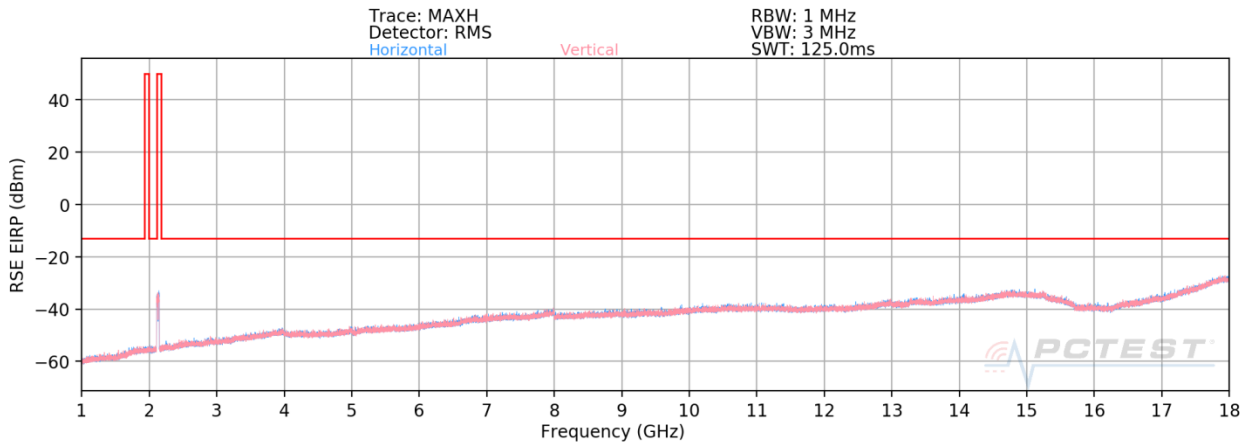


**Plot 7-1277. Radiated spurious emission_18 GHz to 22 GHz
(B66_5M+15M+20M_3C_Low Channel)**

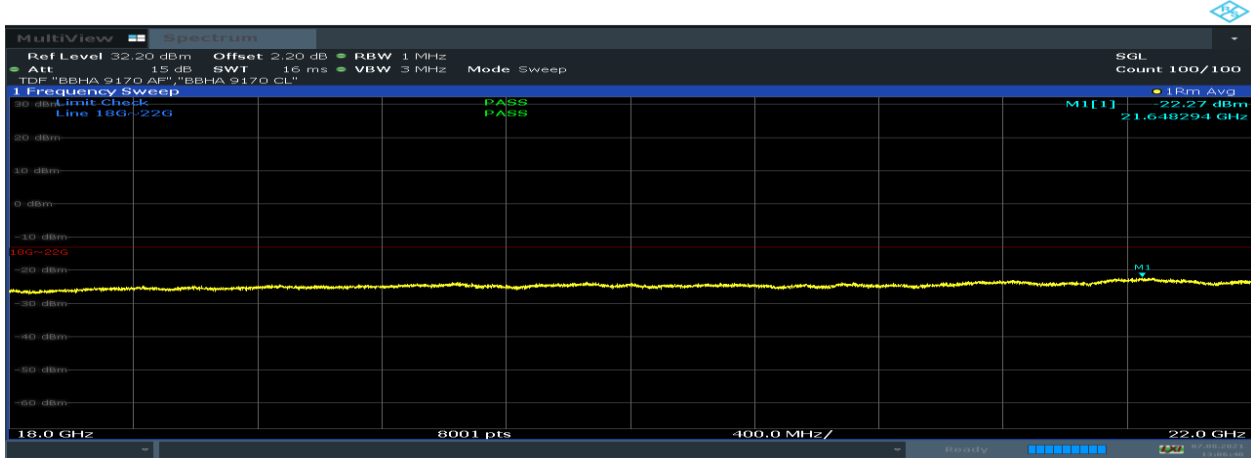
FCC ID: A3LRF4437D-25C	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)		Page 406 of 420





**Plot 7-1278. Radiated spurious emission_30 MHz to 1000 MHz
 (B66_5M+5M+10M+20M_4C_Low Channel)**

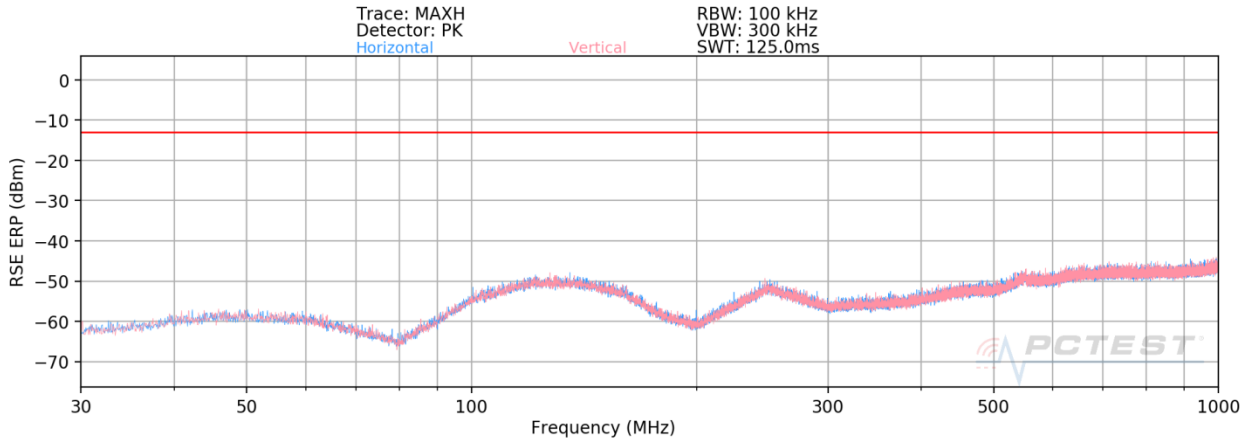


**Plot 7-1279. Radiated spurious emission_1 GHz to 18 GHz
 (B66_5M+5M+10M+20M_4C_Low Channel)**

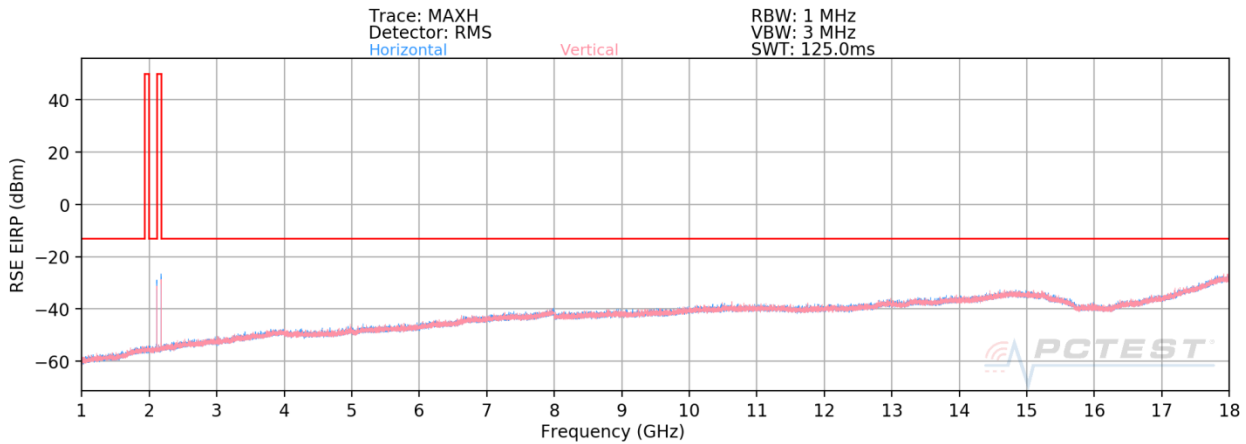


**Plot 7-1280. Radiated spurious emission_18 GHz to 22 GHz
 (B66_5M+5M+10M+20M_4C_Low Channel)**

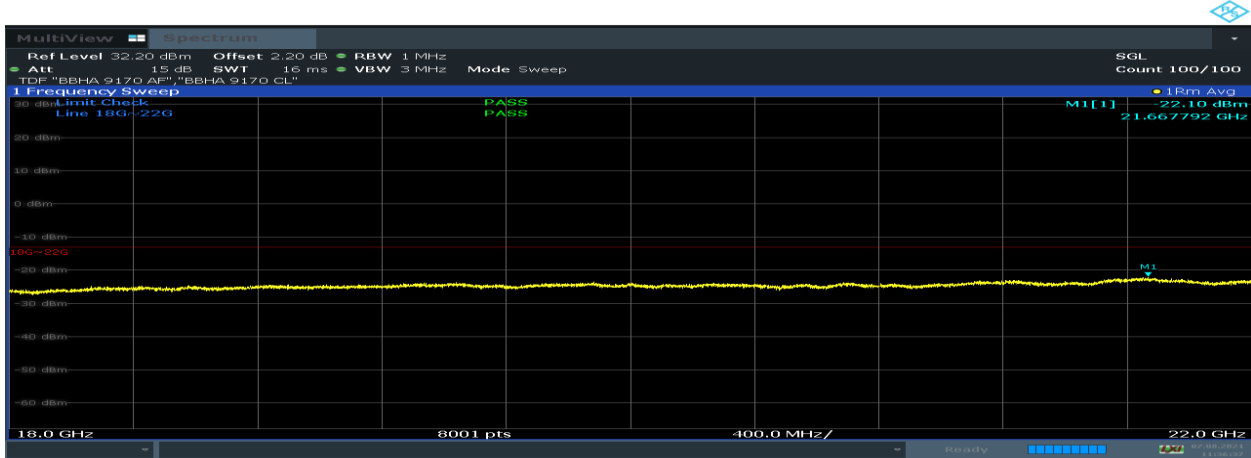
FCC ID: A3LRF4437D-25C	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)		Page 407 of 420





Plot 7-1281. Radiated spurious emission_30 MHz to 1000 MHz (B66_5M+5M_2C - Non-contiguous)

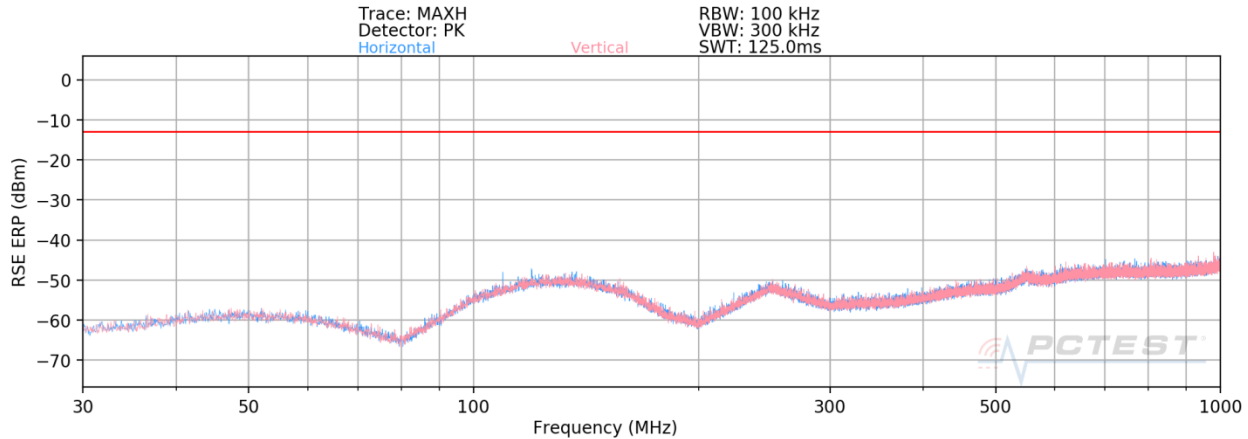


Plot 7-1282. Radiated spurious emission_1 GHz to 18 GHz (B66_5M+5M_2C - Non-contiguous)

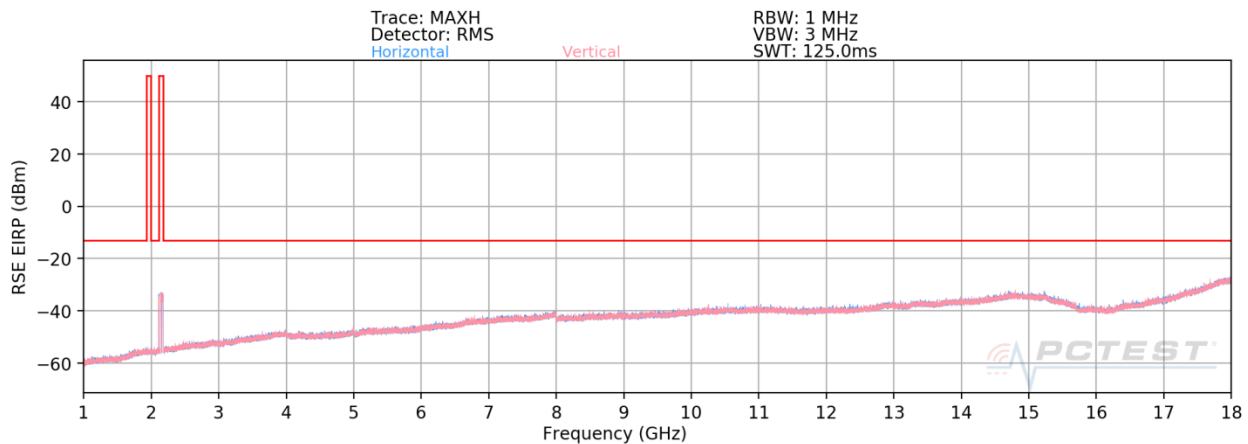


Plot 7-1283. Radiated spurious emission_18 GHz to 22 GHz (B66_5M+5M_2C - Non-contiguous)

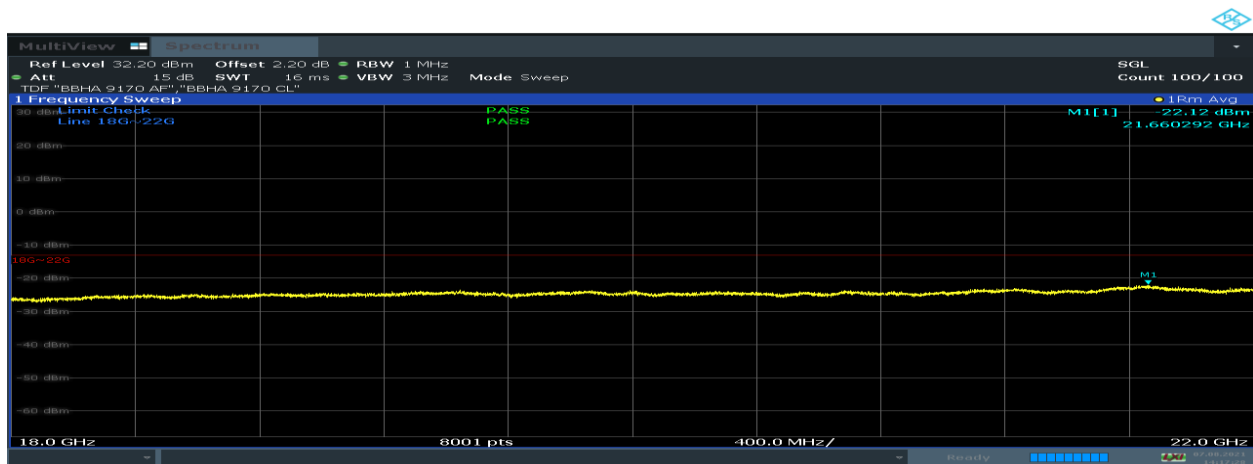
FCC ID: A3LRF4437D-25C	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)		Page 408 of 420





**Plot 7-1284. Radiated spurious emission_30 MHz to 1000 MHz
 (B66_5M+15M+20M_3C - Non-contiguous)**

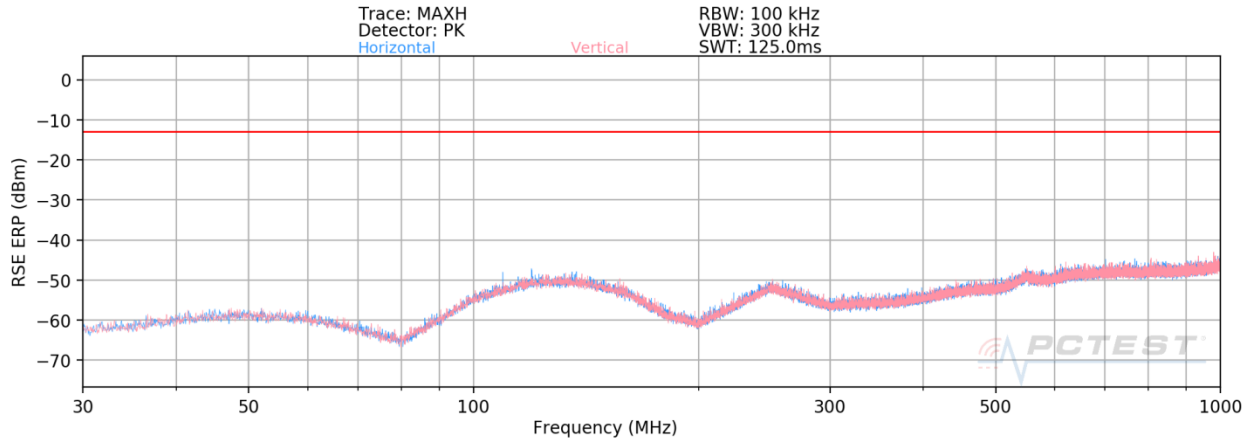


**Plot 7-1285. Radiated spurious emission_1 GHz to 18 GHz
 (B66_5M+15M+20M_3C - Non-contiguous)**

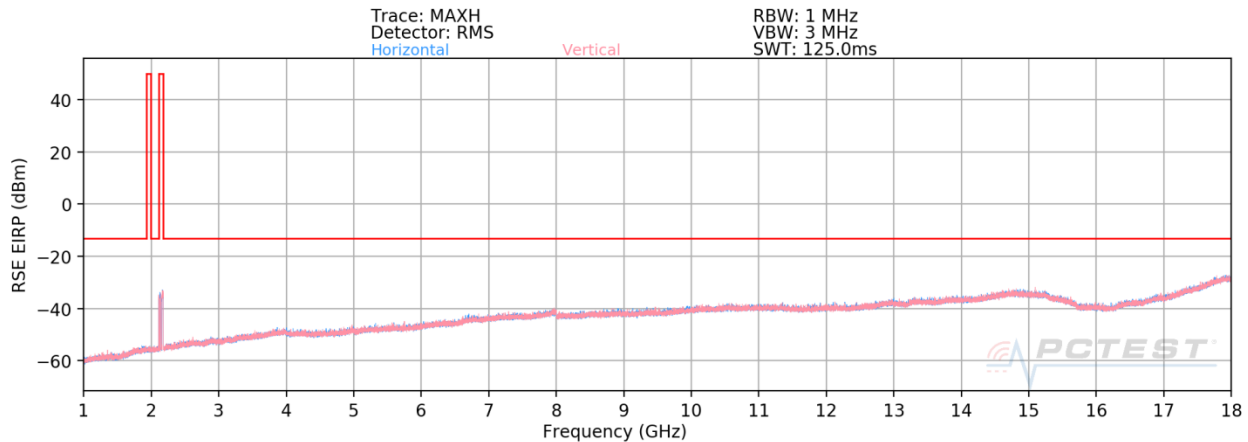


**Plot 7-1286. Radiated spurious emission_18 GHz to 22 GHz
 (B66_5M+15M+20M_3C - Non-contiguous)**

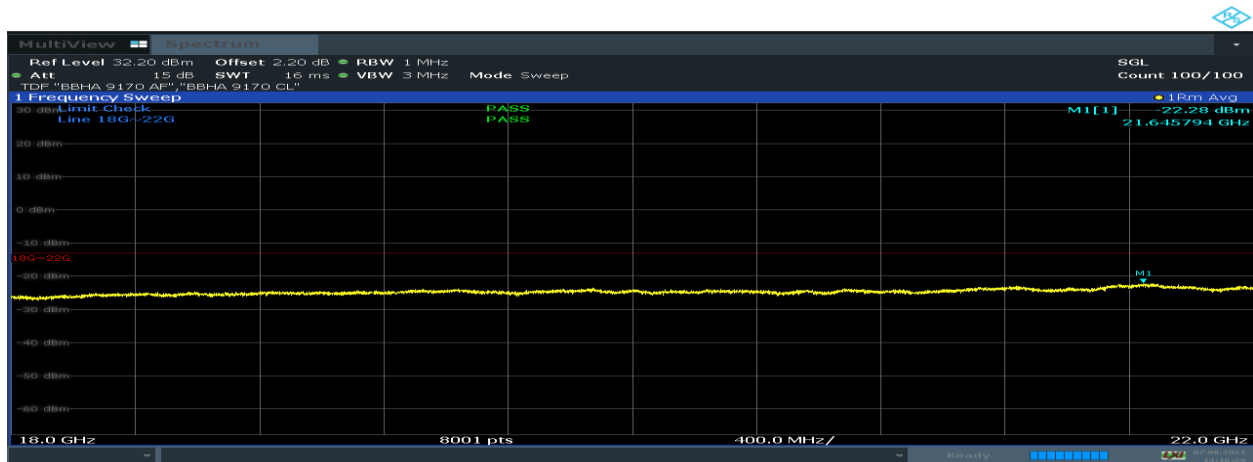
FCC ID: A3LRF4437D-25C	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)		Page 409 of 420





**Plot 7-1287. Radiated spurious emission_30 MHz to 1000 MHz
 (B66_5M+5M+10M+20M_4C - Non-contiguous)**

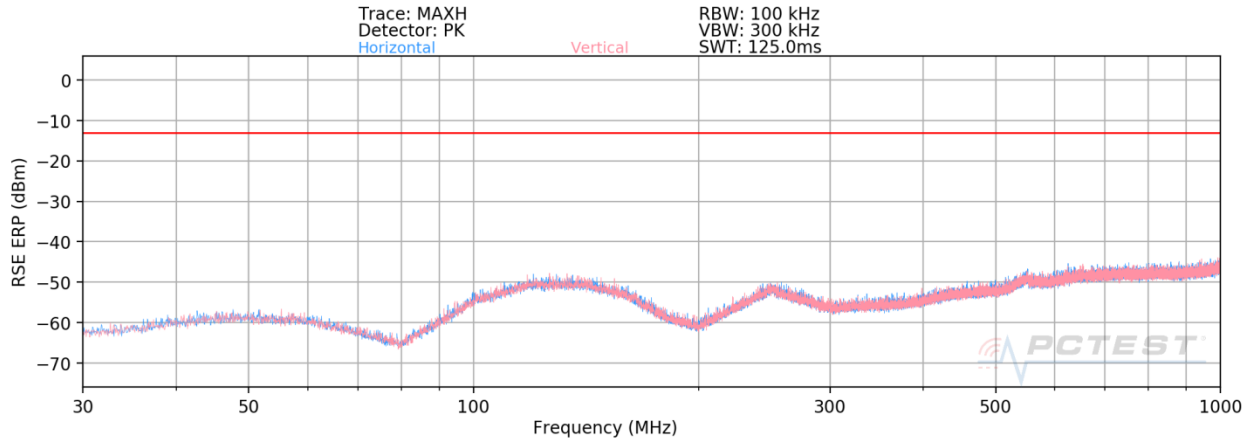


**Plot 7-1288. Radiated spurious emission_1 GHz to 18 GHz
 (B66_5M+5M+10M+20M_4C - Non-contiguous)**

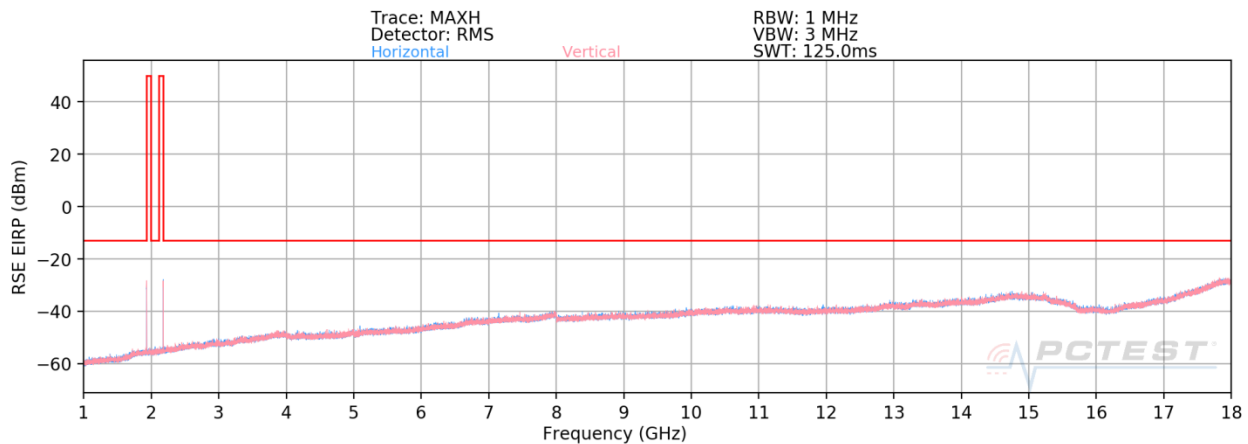


**Plot 7-1289. Radiated spurious emission_18 GHz to 22 GHz
 (B66_5M+5M+10M+20M_4C - Non-contiguous)**

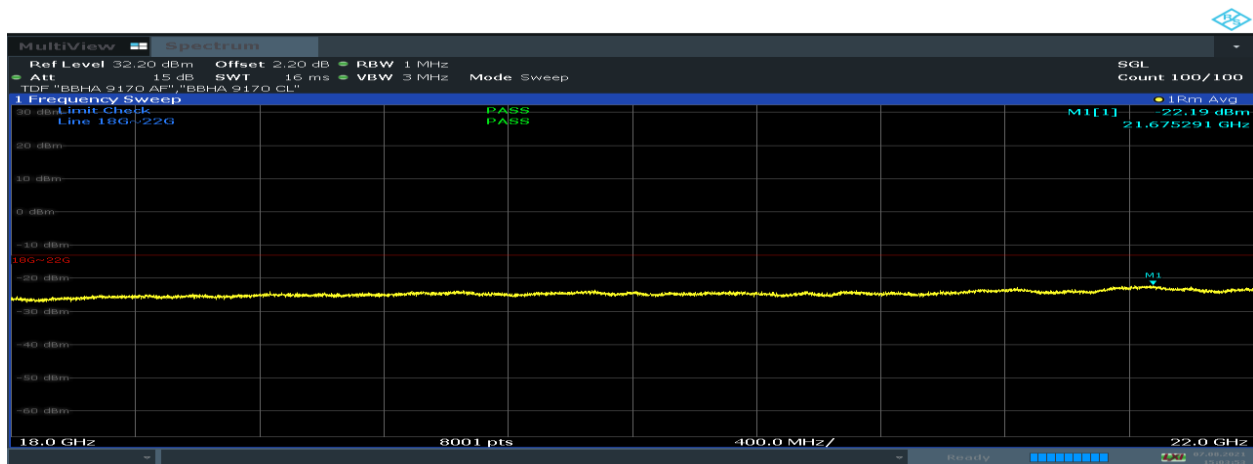
FCC ID: A3LRF4437D-25C	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)		Page 410 of 420





**Plot 7-1290. Radiated spurious emission_30 MHz to 1000 MHz
(Multi Band_B2_5M_1C_Low + B66_5M_1C_High)**

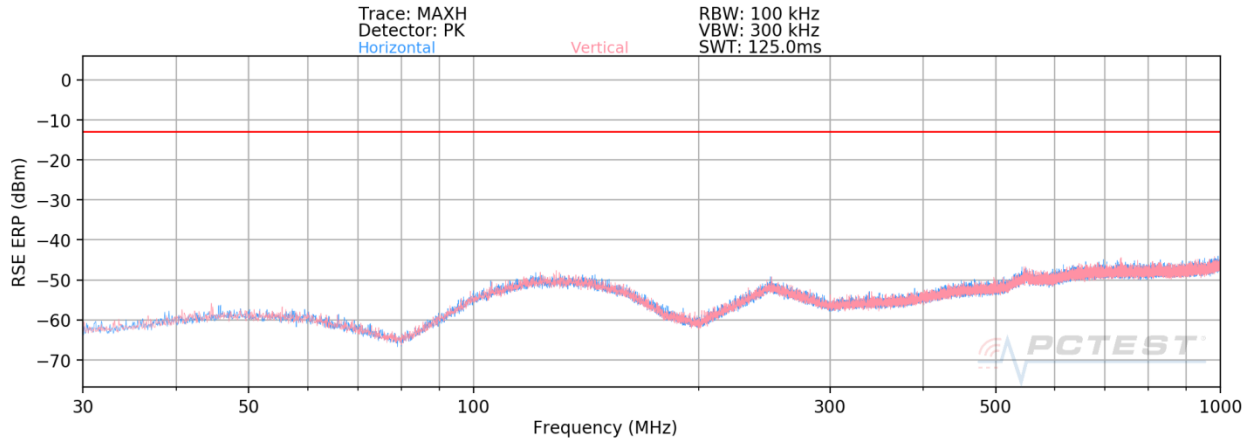


**Plot 7-1291. Radiated spurious emission_1 GHz to 18 GHz
(Multi Band_B2_5M_1C_Low + B66_5M_1C_High)**

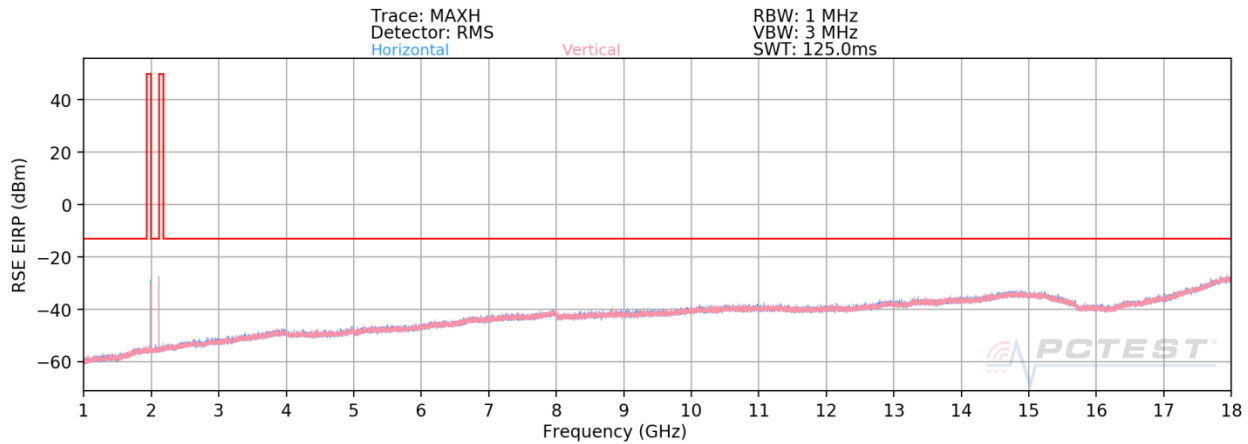


**Plot 7-1292. Radiated spurious emission_18 GHz to 22 GHz
(Multi Band_B2_5M_1C_Low + B66_5M_1C_High)**

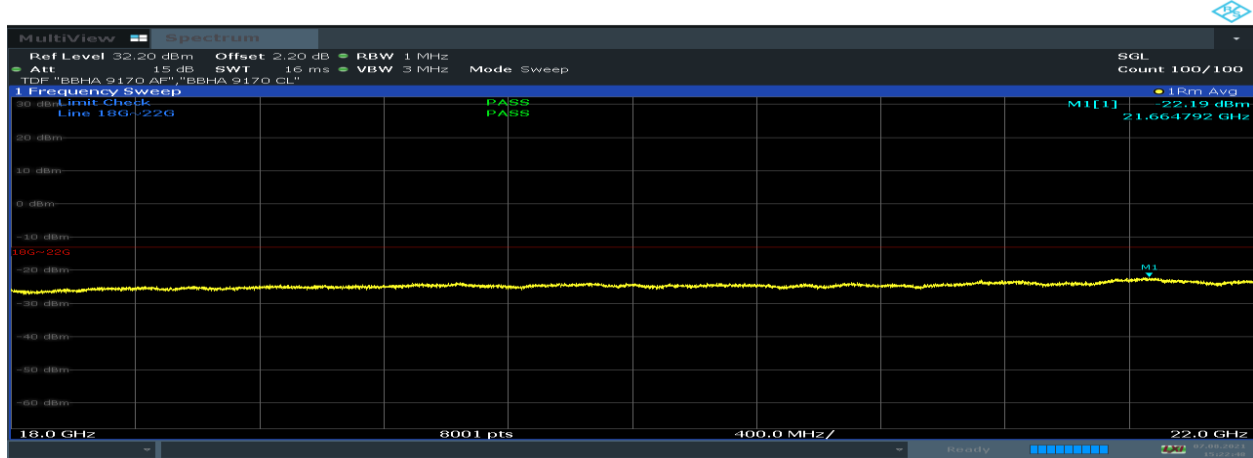
FCC ID: A3LRF4437D-25C	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)		Page 411 of 420





**Plot 7-1293. Radiated spurious emission_30 MHz to 1000 MHz
 (Multi Band_B2_5M_1C_High + B66_5M_1C_Low)**

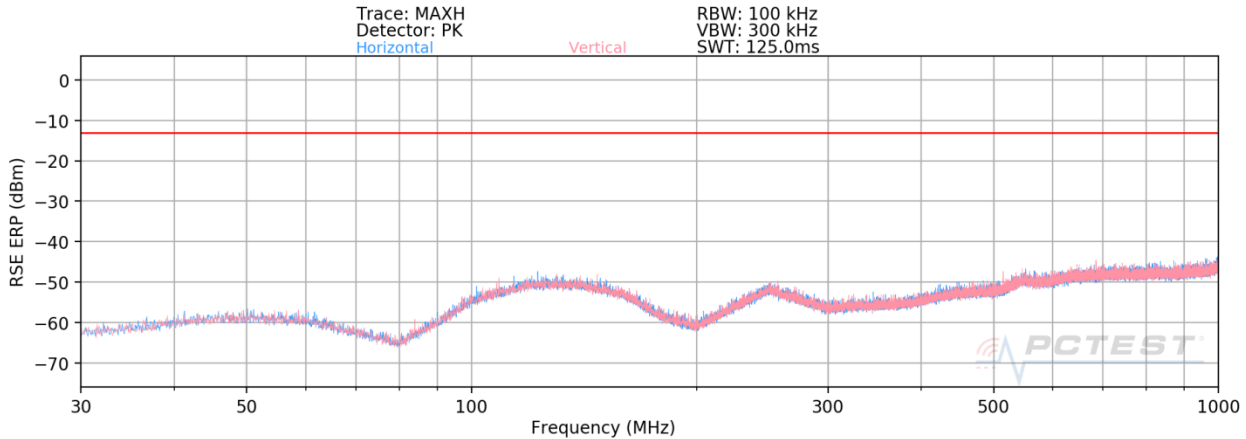


**Plot 7-1294. Radiated spurious emission_1 GHz to 18 GHz
 (Multi Band_B2_5M_1C_High + B66_5M_1C_Low)**

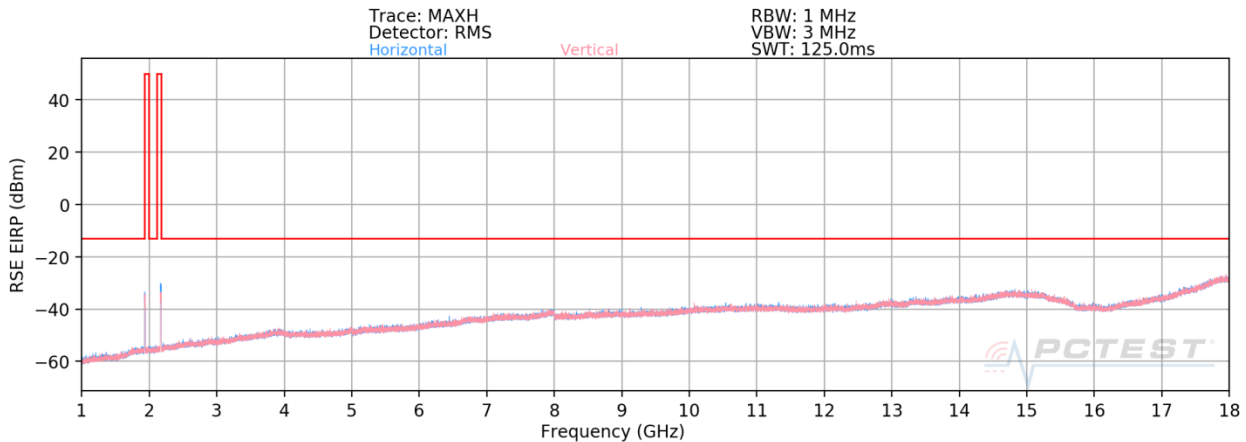


**Plot 7-1295. Radiated spurious emission_18 GHz to 22 GHz
 (Multi Band_B2_5M_1C_High + B66_5M_1C_Low)**

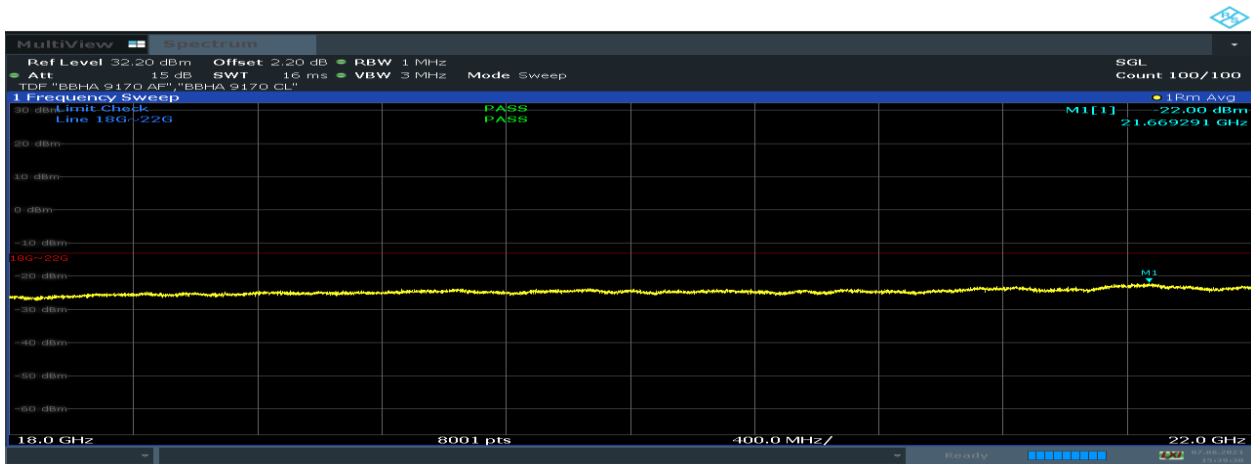
FCC ID: A3LRF4437D-25C	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)		Page 412 of 420





**Plot 7-1296. Radiated spurious emission_30 MHz to 1000 MHz
(Multi Band_B2_5M+5M+5M_3C_Low + B66_5M+5M+5M_3C_High)**

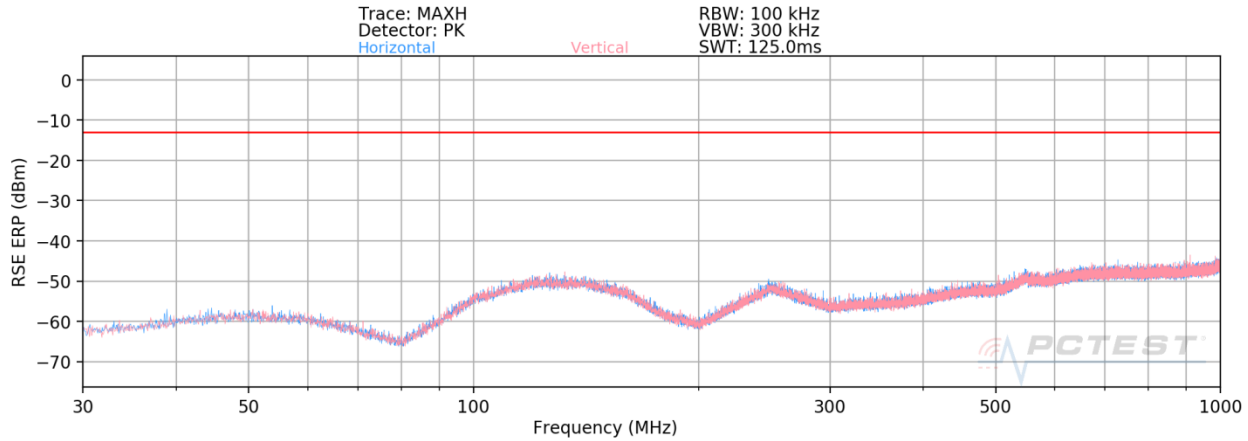


**Plot 7-1297. Radiated spurious emission_1 GHz to 18 GHz
(Multi Band_B2_5M+5M+5M_3C_Low + B66_5M+5M+5M_3C_High)**

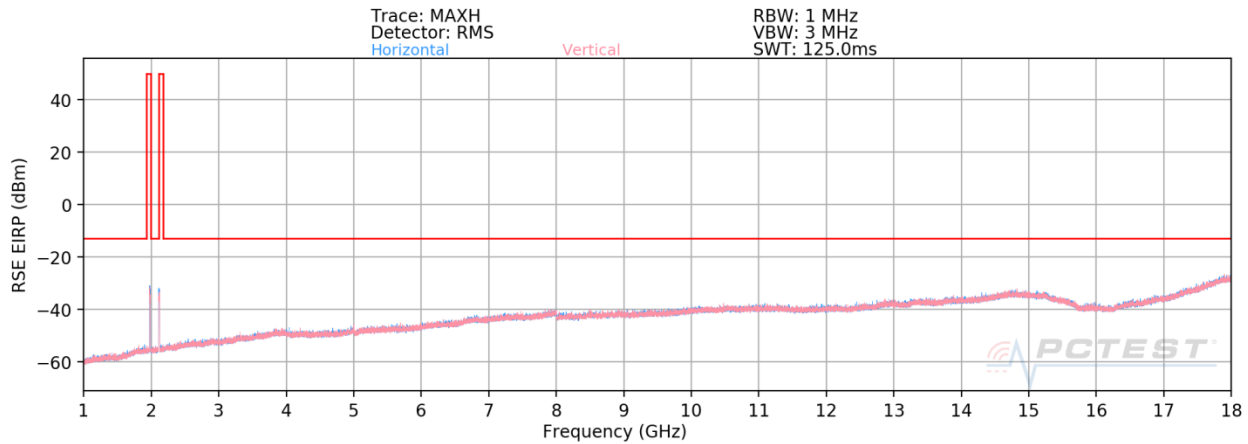


**Plot 7-1298. Radiated spurious emission_18 GHz to 22 GHz
(Multi Band_B2_5M+5M+5M_3C_Low + B66_5M+5M+5M_3C_High)**

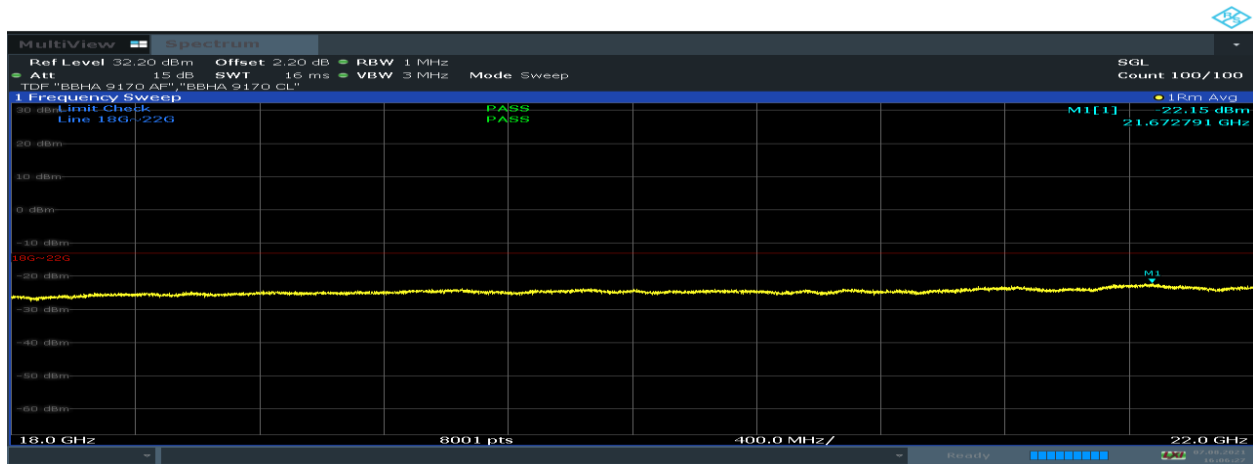
FCC ID: A3LRF4437D-25C	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)		Page 413 of 420





**Plot 7-1299. Radiated spurious emission_30 MHz to 1000 MHz
 (Multi Band_B2_5M+5M+5M_3C_High + B66_5M+5M+5M_3C_Low)**

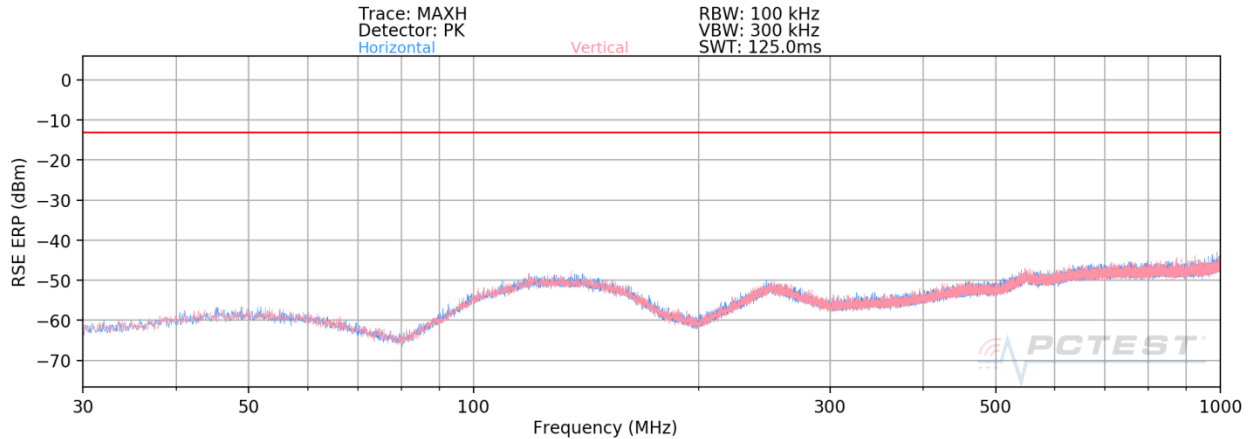


**Plot 7-1300. Radiated spurious emission_1 GHz to 18 GHz
 (Multi Band_B2_5M+5M+5M_3C_High + B66_5M+5M+5M_3C_Low)**

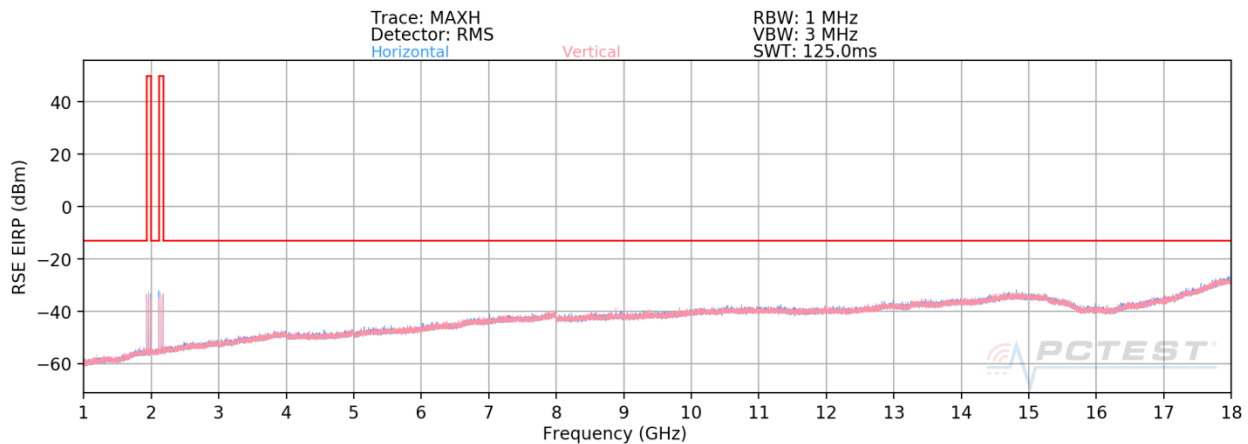


**Plot 7-1301. Radiated spurious emission_18 GHz to 22 GHz
 (Multi Band_B2_5M+5M+5M_3C_High + B66_5M+5M+5M_3C_Low)**

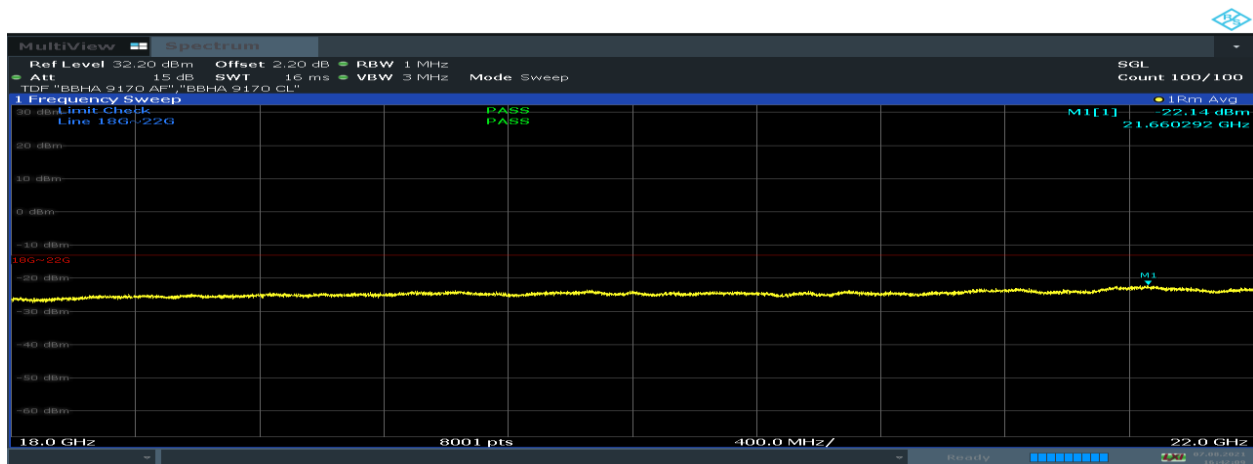
FCC ID: A3LRF4437D-25C	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)		Page 414 of 420





Plot 7-1302. Radiated spurious emission_30 MHz to 1000 MHz
 (Multi Band_B2_5M+5M+5M_3C - Non-contiguous + B66_5M+5M+5M_3C - Non-contiguous)



Plot 7-1303. Radiated spurious emission_1 GHz to 18 GHz
 (Multi Band_B2_5M+5M+5M_3C - Non-contiguous + B66_5M+5M+5M_3C - Non-contiguous)





Plot 7-1304. Radiated spurious emission_18 GHz to 22 GHz
 (Multi Band_B2_5M+5M+5M_3C - Non-contiguous + B66_5M+5M+5M_3C - Non-contiguous)

FCC ID: A3LRF4437D-25C	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)		Page 415 of 420

Bandwidth (MHz):	B2_5MHz + B66_5MHz
Frequency (MHz):	1 st Carrier : B2_1932.5 2 st Carrier : B66_2177.5
Modulation Signal:	QPSK

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Heigh [cm]	Turntable azimuth [degree]	Analyzer Level [dBm]	AFCL [dBm]	Field Stength [dB μ V/m]	RSE EIRP [dBm]	Limit [dBm]	Margin [dB]
988.12	H	140	120	-81.64	26.10	51.50	-43.77	-13.00	-30.77
989.47	V	180	150	-81.25	26.11	51.90	-43.37	-13.00	-30.37
17982.45	H	180	50	-79.82	34.65	61.80	-33.40	-13.00	-20.40
17991.28	V	210	180	-80.03	34.65	61.60	-33.61	-13.00	-20.61

Table 7-256. Radiated transmitter Emission Table (Multi Band_B2_5M_1C_Low + B66_5M_1C_High)

FCC ID: A3LRF4437D-25C		MEASUREMENT REPORT		Approved by: Technical Manager
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7.9 Frequency Stability

§ 2.1055

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of KDB 971168 D01 v03r01. The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C, +20°C and +50°C using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for DC powered equipment.

Test Description

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

Limit

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Setup

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

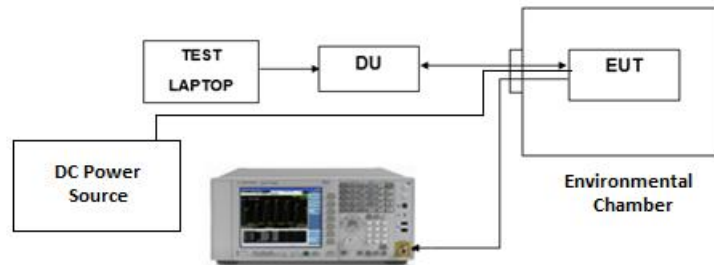




Figure 7-9. Test Instrument & Measurement Setup

Test Notes

None.

FCC ID: A3LRF4437D-25C		MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)		Page 417 of 420

OPERATING FREQUENCY: 1,960,000,000 Hz
 REFERENCE VOLTAGE: 48.00 VDC

VOLTAGE (%)	POWER (VAC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	48.00	+ 20 (Ref)	1,960,029,983	0	0.0000000
100 %		- 30	1,960,029,957	-26	-0.0000013
100 %		- 20	1,960,029,961	-22	-0.0000011
100 %		- 10	1,960,029,964	-19	-0.0000010
100 %		0	1,960,029,970	-13	-0.0000007
100 %		+ 10	1,960,029,979	-4	-0.0000002
100 %		+ 20	1,960,029,983	0	0.0000000
100 %		+ 30	1,960,029,987	4	0.0000002
100 %		+ 40	1,960,029,991	8	0.0000004
100 %		+ 50	1,960,029,998	15	0.0000008
85 %	40.80	+ 20	1,960,029,983	0	0.0000000
115 %	55.20	+ 20	1,960,029,983	0	0.0000000

Table 7-257. Frequency Stability Data – Band 2_5 MHz 1C Mid Channel

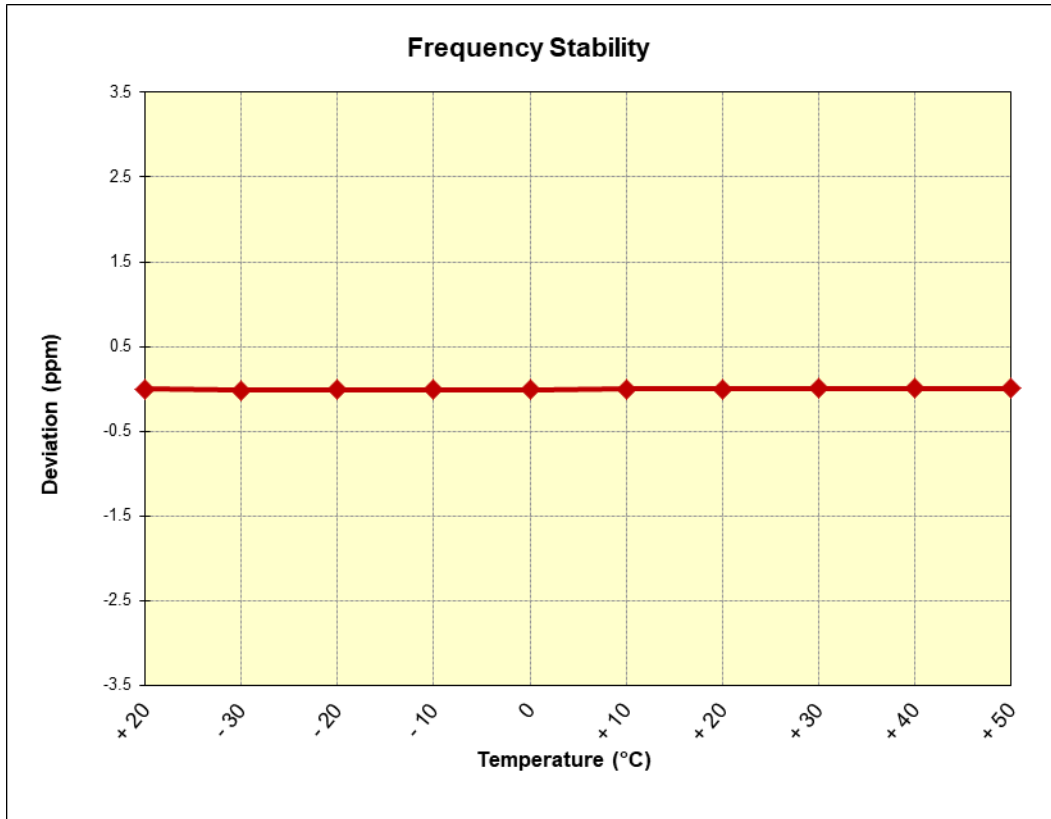




Figure 7-10. Frequency Stability Graph – Band 2_5 MHz 1C Mid Channel

FCC ID: A3LRF4437D-25C		MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)		Page 418 of 420

OPERATING FREQUENCY: 2,145,000,000 Hz
 REFERENCE VOLTAGE: 48.00 VDC

VOLTAGE (%)	POWER (VAC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	48.00	+ 20 (Ref)	2,145,029,979	0	0.0000000
100 %		- 30	2,145,029,953	-26	-0.0000012
100 %		- 20	2,145,029,956	-23	-0.0000011
100 %		- 10	2,145,029,966	-13	-0.0000006
100 %		0	2,145,029,970	-9	-0.0000004
100 %		+ 10	2,145,029,976	-3	-0.0000001
100 %		+ 20	2,145,029,979	0	0.0000000
100 %		+ 30	2,145,029,985	6	0.0000003
100 %		+ 40	2,145,029,989	10	0.0000005
100 %		+ 50	2,145,029,994	15	0.0000007
85 %	40.80	+ 20	2,145,029,978	-1	0.0000000
115 %	55.20	+ 20	2,145,029,981	2	0.0000001

Table 7-258. Frequency Stability Data – Band 66_5 MHz 1C Mid Channel

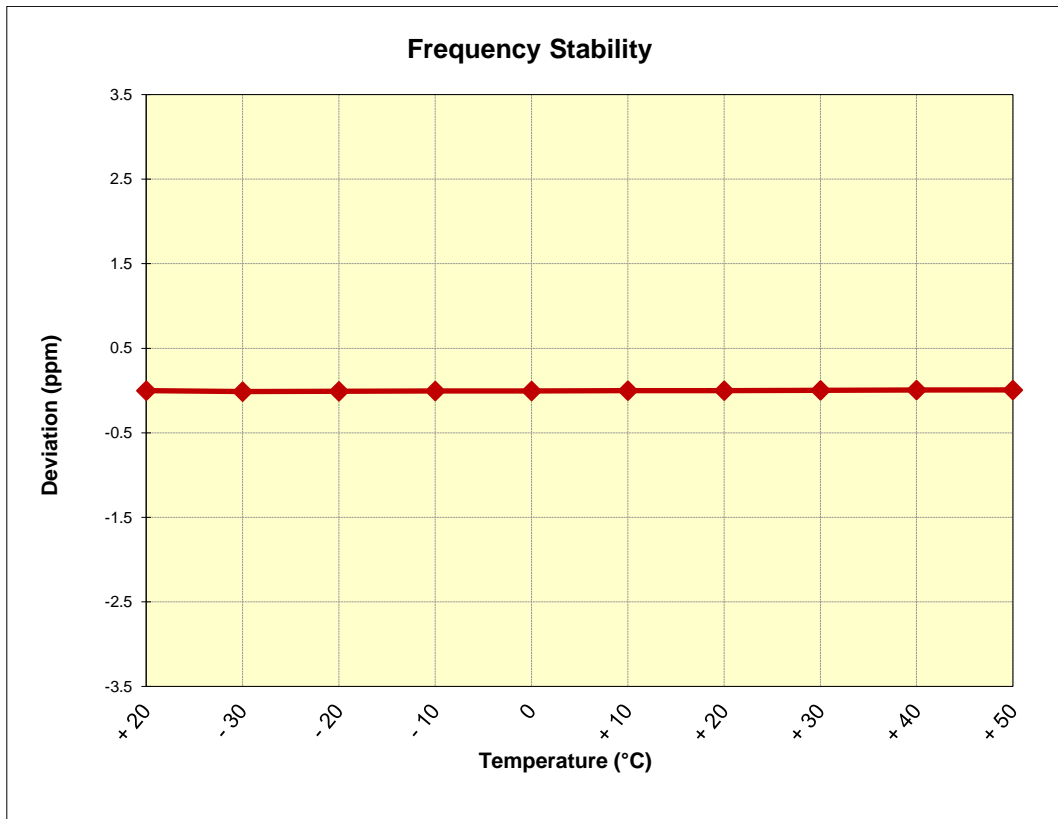






Figure 7-11. Frequency Stability Graph – Band 66_5 MHz 1C Mid Channel

FCC ID: A3LRF4437D-25C		MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)		Page 419 of 420

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung RRU(RF4437d)** **FCC ID: A3LRF4437D-25C** complies with all of the requirements of Part 24, and 27 FCC Rules.

FCC ID: A3LRF4437D-25C		MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 8K21071202-R2.A3L	Test Dates: 07/19/2021-08/13/2021	EUT Type: RRU(RF4437d)	Page 420 of 420	