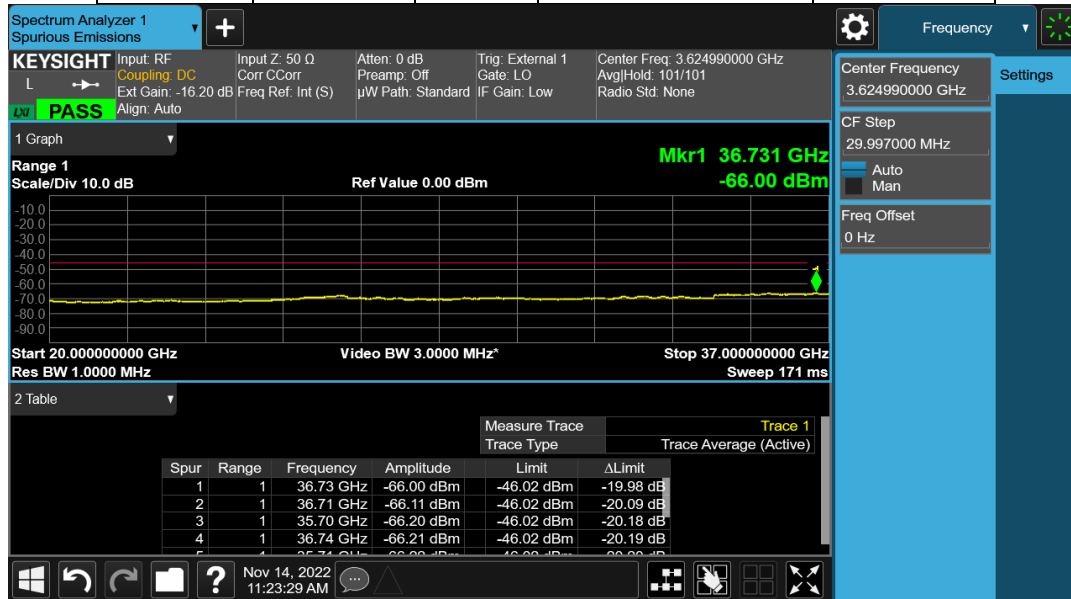


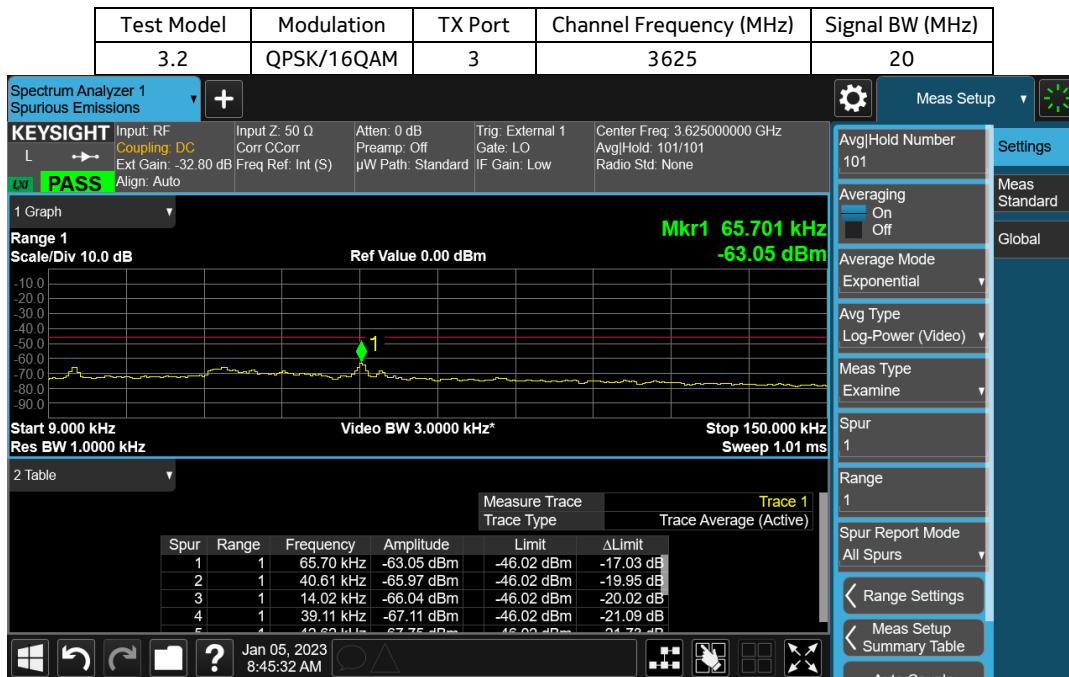
20GHz – 37GHz

Test Model	Modulation	TX Port	Channel Frequency (MHz)	Signal BW (MHz)
3.2	QPSK/16QAM	1	3625	100

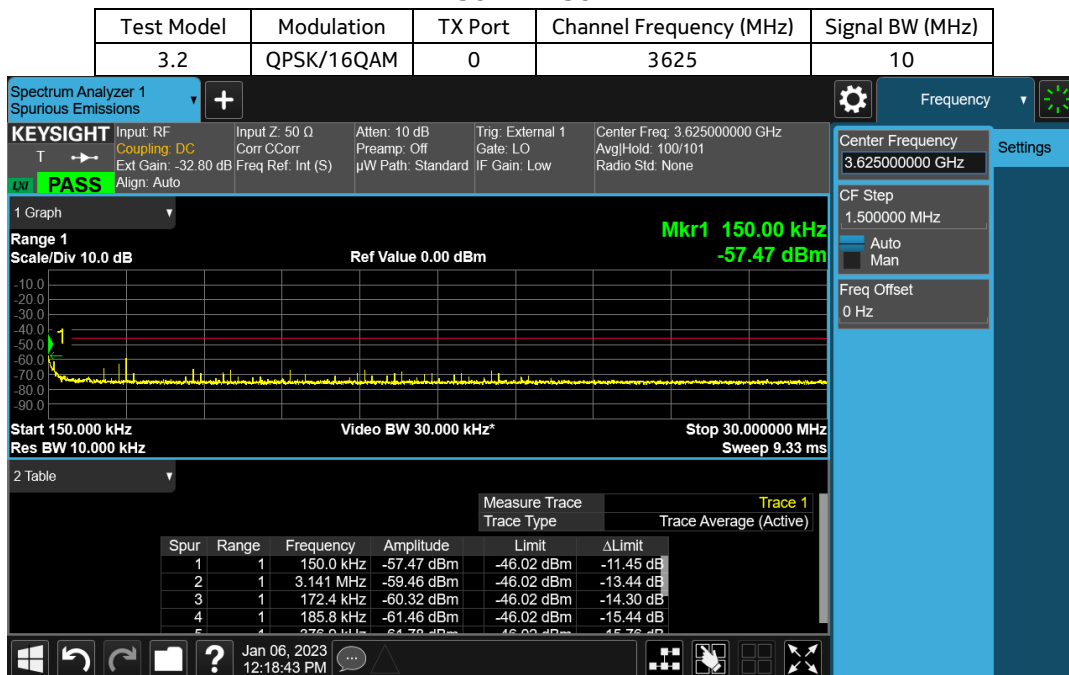


5.3.2 LTE Plots

9KHz – 150kHz

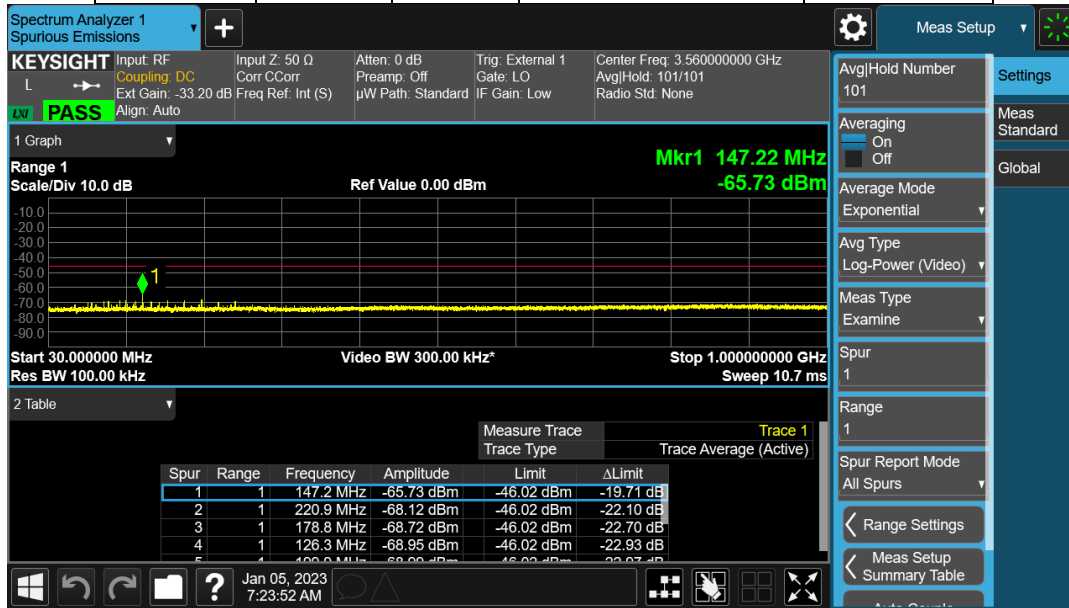


150kHz – 30MHz



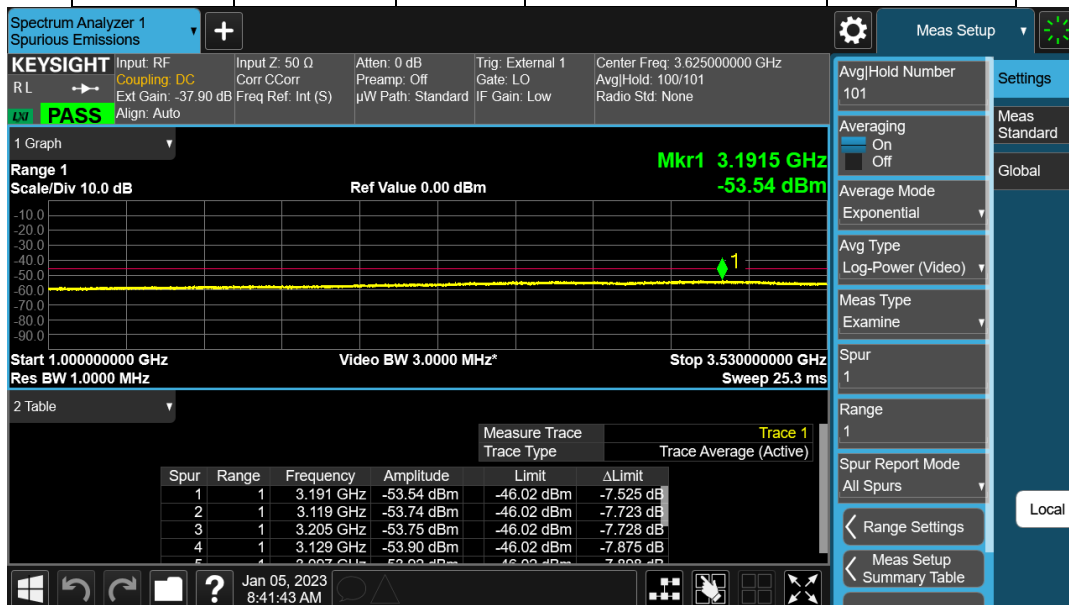
30MHz – 1GHz

Test Model	Modulation	TX Port	Channel Frequency (MHz)	Signal BW (MHz)
3.1	64QAM	3	3560	20



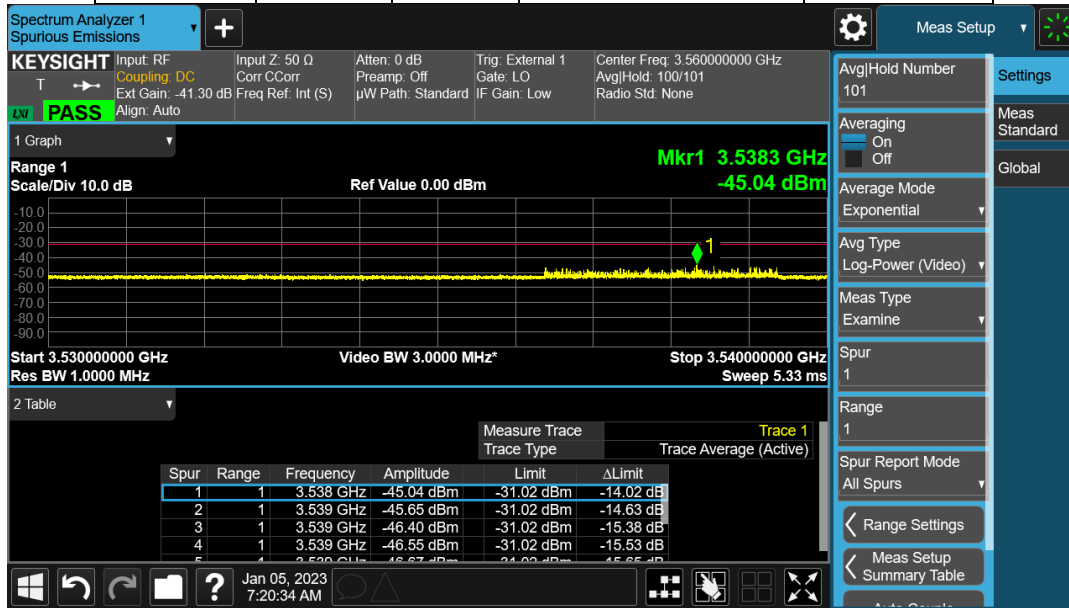
1GHz – 3.53GHz

Test Model	Modulation	TX Port	Channel Frequency (MHz)	Signal BW (MHz)
3.2	QPSK/16QAM	3	3625	20



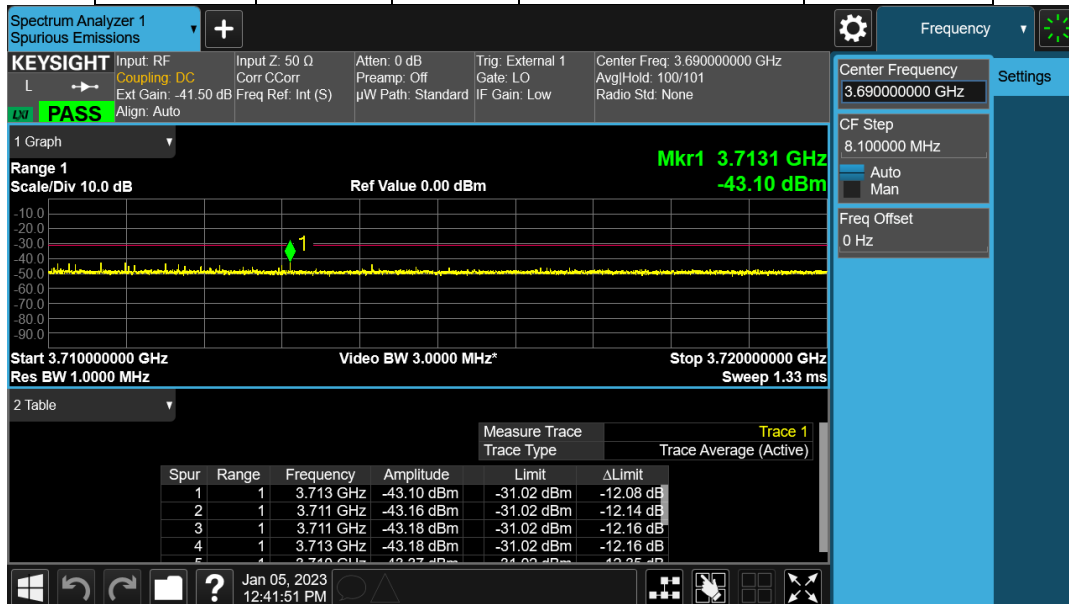
3.53GHz – 3.54GHz

Test Model	Modulation	TX Port	Channel Frequency (MHz)	Signal BW (MHz)
3.1	64QAM	3	3560	20



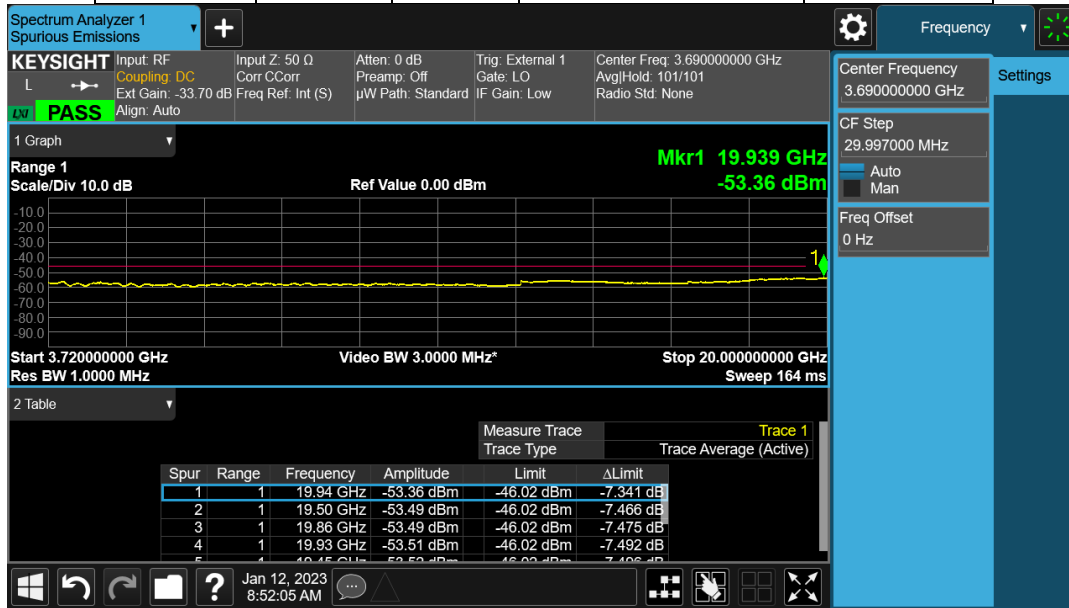
3.71GHz – 3.72GHz

Test Model	Modulation	TX Port	Channel Frequency (MHz)	Signal BW (MHz)
3.1a	256QAM	3	3690	20



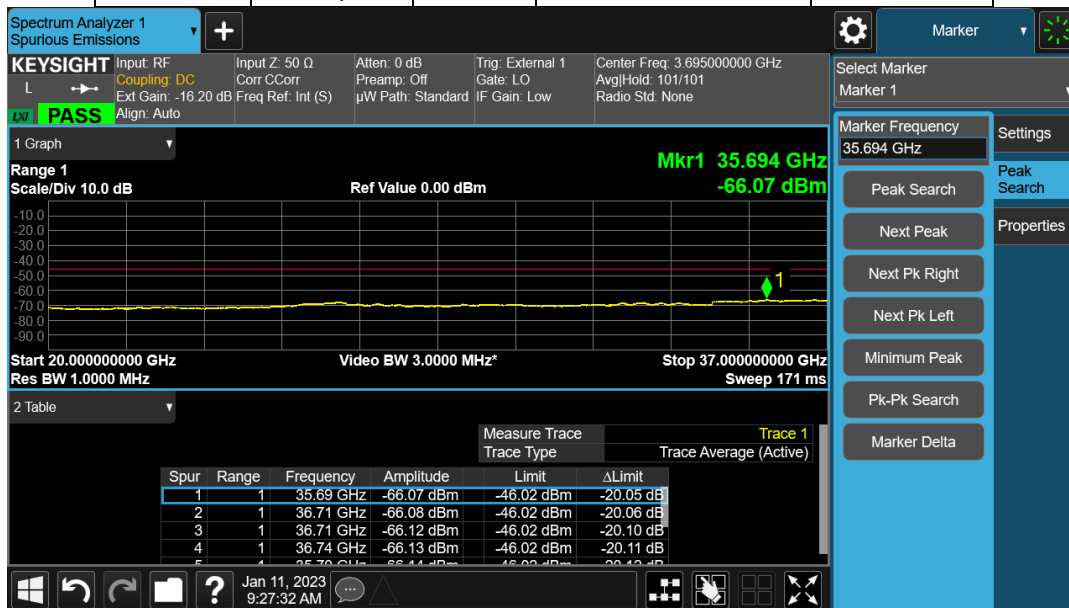
3.72GHz – 20GHz

Test Model	Modulation	TX Port	Channel Frequency (MHz)	Signal BW (MHz)
3.1a	256QAM	3	3690	20



20GHz – 37GHz

Test Model	Modulation	TX Port	Channel Frequency (MHz)	Signal BW (MHz)
3.1a	256QAM	3	3695	10



6. Section 2.1053 - Measurement Required: Field Strength of Spurious Radiation

The field strength measurements of radiated spurious emissions were made in a FCC registered 3-meter semi-anechoic chamber AR-7, (FCC Registration Number: 395774) **NVLAP** Lab Code: 100275-0 and IC (Filing Number: 6933F-7) which is maintained by Nokia Bell Labs in Murray Hill, New Jersey.

6.1 Spurious Radiation and Radiated Emissions Requirements.

This product meets Parts 2,15 and 96 requirements. FCC Part 15 Class B require emissions to be below 54.5 dBuV/m at 3m.

47CFR 96.41 (e)(1) (i) and KDB 940660 D01 Section 3.2 (b)(6) specified that the limits for the emissions outside the fundamental are as follows.

- within 0 MHz to 10 MHz above and below the assigned channel ≤ -13 dBm/MHz,
- greater than 10 MHz above and below the assigned channel ≤ -25 dBm/MHz,
- any emission below 3530 MHz and above 3720 MHz ≤ -40 dBm/MHz.

Title 47CFR section 2.1053 contains the requirements for the levels of spurious radiation as a function of the EIRP of the unmodulated carrier. The reference level for the unmodulated carrier is calculated as the field produced by an isotropic radiator excited by the transmitter output power according to the following relation taken from Reference Data for Radio Engineers, page 27-7, 6th edition, IT&T Corp.

$$E = [(30 \cdot \text{EIRP})^{1/2}] / R$$

Where: E = Field Intensity in Volts/ meter R = Distance in meters = 3 m
P = Emission Power in Watts

Hence,

$$E \text{ (dB}\mu\text{V/m)} = \text{EIRP (dBm)} - 20 \log d \text{ (m)} + 104.77.$$

For EIRP = -13dBm/MHz, E = 82.2 dB μ V/m,

For EIRP = -25dBm/MHz, E = 70.2 dB μ V/m,

For EIRP = -40dBm/MHz, E = 55.2 dB μ V/m.

The field strength of radiated spurious emissions measured was determined by

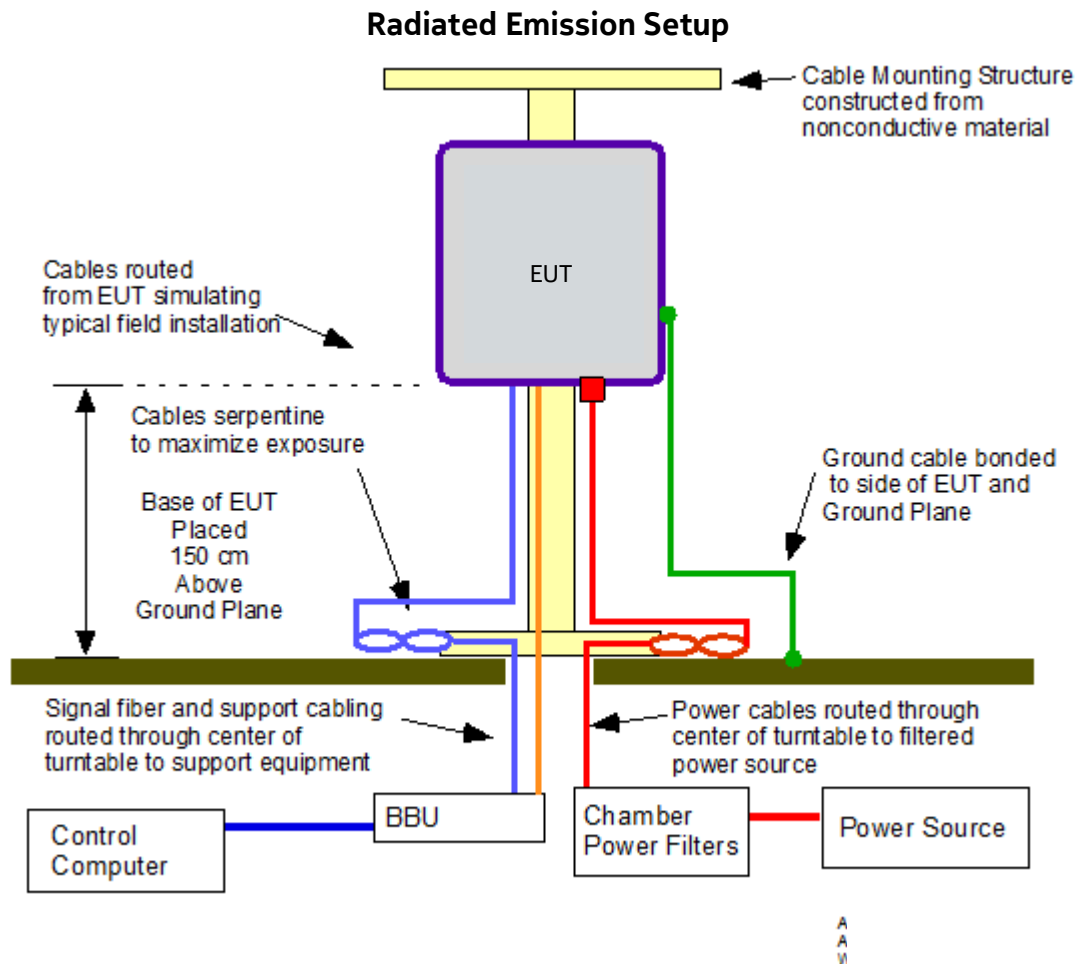
$$E \text{ (dB}\mu\text{V/m)} = V_{\text{meas}} \text{ (dB}\mu\text{V)} + \text{Cable Loss (dB)} + \text{Antenna Factor (dBi/m)}.$$

Field strength measurements of radiated spurious emissions were made in the 3m semi-anechoic chamber, AR-7 as detailed above. The recommendations of ANSI C63.4 and ANSI C63.26 were followed for EUT testing setup, cabling, and measurement approach and procedures. All the measurement equipment used, including antennas, was calibrated in accordance with ISO 9001 process. The EUT setup diagram is given in the Figure 4.5.

Below 18GHz, FCC Part 15 Class B limit 54.5 dBuV/m was used which is worse than FCC Part 96 limit. Above 18GHz, the limit 55.2 dBuV/m was used.

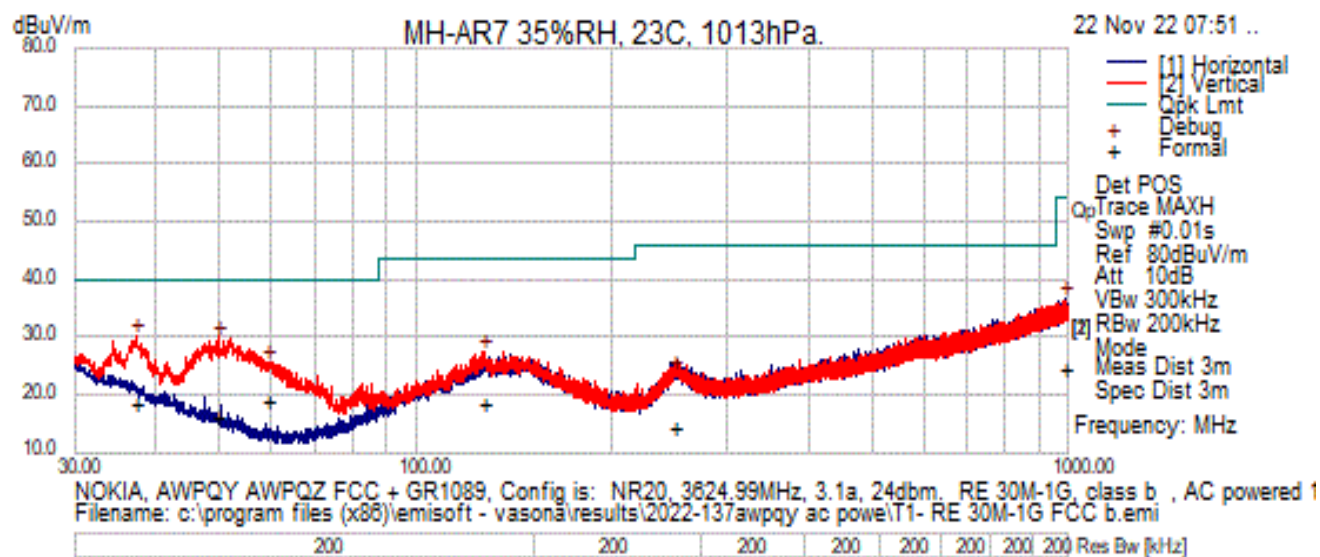
6.2 Field Strength of Spurious Radiation Results:

This product meets Part 96 Requirements. For the Title 47CFR section 96.41(e) and 2.1053 test, the field strength of any spurious radiation, measured at 3m, is required to be less than 55.2dBµV/meter. Emissions equal to or less than 35.2 dBµV/meter are not reportable and may be verified using field strength measurements with broadband antennas.



6.3 Transmitter Measurements of Radiated Spurious Emissions Plots

Radiated Emissions 30MHz – 1GHz



Test Information

Results Title	Radiated E 3m 30MHz-1GHz
File Name	T1- RE 30M-1G FCC b.emi
Test Laboratory	MH-AR7 35%RH, 23C, 1013hPa.
Test Engineer	MJS/BB
Test Software	Vasona by EMISoft, version 6.061
Equipment	NOKIA
EUT Details	2022-0137. AWPQY AWPQZ, Config is: NR20, 3624.99MHz, 3.1a, 24dbm. AC 120v. PS Vendor #1: GreatWall.
Configuration	FCC Pt.15-B. 3 meters distance. Bilog antenna E601, PAE494, ESU-EIH69, AR 7 cable set 1-1,1-2,1-3, RBW/VBW Default
Date	2022-11-22 07:52:43

Formal Data

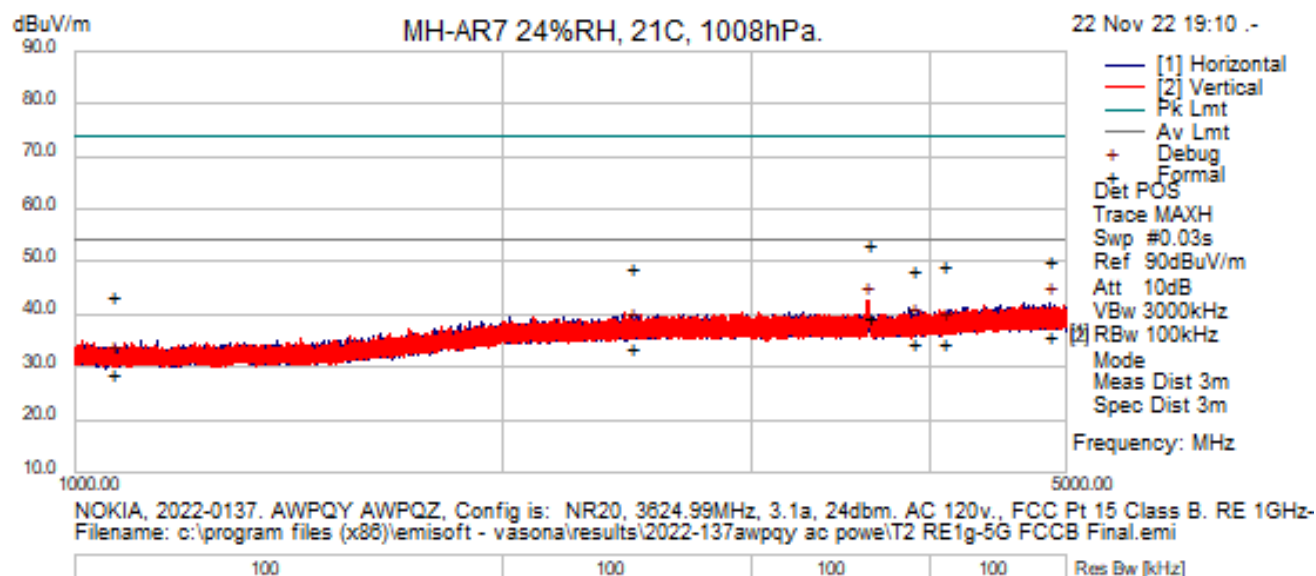
Frequency MHz	Raw dBuV	Cable Loss	AF dB/m	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
59.3425	38.97	1.44	-21.50	18.91	QuasiMax	V	106	169	40.00	-21.09	Pass	
37.275	30.53	1.49	-13.38	18.64	QuasiMax	V	112	321	40.00	-21.36	Pass	
49.885	33.87	1.42	-19.00	16.29	QuasiMax	V	121	358	40.00	-23.71	Pass	
127.60625	27.04	1.68	-10.32	18.40	QuasiMax	V	222	301	43.50	-25.10	Pass	
989.0875	23.38	3.86	-2.82	24.41	QuasiMax	H	118	230	54.00	-29.59	Pass	
249.573	23.11	1.96	-10.77	14.30	QuasiMax	H	207	254	46.00	-31.70	Pass	

Preview Data

Frequency MHz	Raw dBuV	Cable Loss	AF dB/m	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
37.275	42.18	1.49	-13.38	30.29	Debug	V	100	180	40.00	-9.71	Pass	
49.885	47.67	1.42	-19.00	30.09	Debug	V	100	225	40.00	-9.91	Pass	
59.3425	45.69	1.44	-21.50	25.64	Debug	V	100	180	40.00	-14.36	Pass	
127.60625	36.13	1.68	-10.32	27.49	Debug	V	380	0	43.50	-16.01	Pass	
989.0875	35.62	3.86	-2.82	36.65	Debug	H	100	135	54.00	-17.35	Pass	
249.573	32.74	1.96	-10.77	23.93	Debug	H	100	352	46.00	-22.07	Pass	

Note: Preview data was measured using a peak detector to identify frequencies of interest for formal measurement. Formal data consist of all frequencies in the preview list within 6 dB of specification limit or the top six frequencies. Failure in preview data does not necessarily constitute failure in formal data.

Radiated Emissions 1GHz – 5GHz



Test Information

Results Title	Radiated E 3m 1GHz-18GHz
File Name	T2 RE1g-5G FCCB Final.emi
Test Laboratory	MH-AR7 24%RH, 21C, 1008hPa.
Test Engineer	HS/CP-BB/MJS
Test Software	Vasona by EMISoft, version 6.061
Equipment	NOKIA
EUT Details	2022-0137. AWPQY AWPQZ, Config is: NR20, 3624.99MHz, 3.1a, 24dbm. AC 120v. PS Vendor #1: GreatWall.
Configuration	FCC Pt 15 Class B. RE 1GHz-5GHz at 3 meter distance. ESW E1511 RBW 100KHz Preview 1MHz Formal, VBW 3MHz. PA E1166, External Att 6dB Pad E1570, Horn E1074, Cables E1528/ E1529.
Date	2022-11-22 19:10:28

Formal Data

Frequency MHz	Raw dBuV	Cable Loss	AF dB/m	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
3624.316	33.48	10.34	-4.51	39.31	AvgMax	V	223	131	54.00	-14.69	Pass	Reportable
4858.833333	28.00	11.08	-3.32	35.76	AvgMax	H	203	104	54.00	-18.24	Pass	Reportable
4098.710	28.28	10.67	-4.12	34.82	AvgMax	V	201	262	54.00	-19.18	Pass	Reportable
3899.233	28.40	10.54	-4.32	34.62	AvgMax	V	239	108	54.00	-19.38	Pass	Reportable
2468.719	29.81	9.54	-5.51	33.84	AvgMax	H	197	251	54.00	-20.16	Pass	
3624.316	47.75	10.34	-4.51	53.58	PeakMax	V	223	131	74.00	-20.42	Pass	
4858.833333	42.38	11.08	-3.32	50.14	PeakMax	H	203	104	74.00	-23.86	Pass	
4098.710	42.60	10.67	-4.12	49.14	PeakMax	V	201	262	74.00	-24.86	Pass	
2468.719	45.01	9.54	-5.51	49.04	PeakMax	H	197	251	74.00	-24.96	Pass	
1064.780	32.14	8.35	-11.62	28.87	AvgMax	H	225	87	54.00	-25.13	Pass	
3899.233	42.45	10.54	-4.32	48.67	PeakMax	V	239	108	74.00	-25.33	Pass	

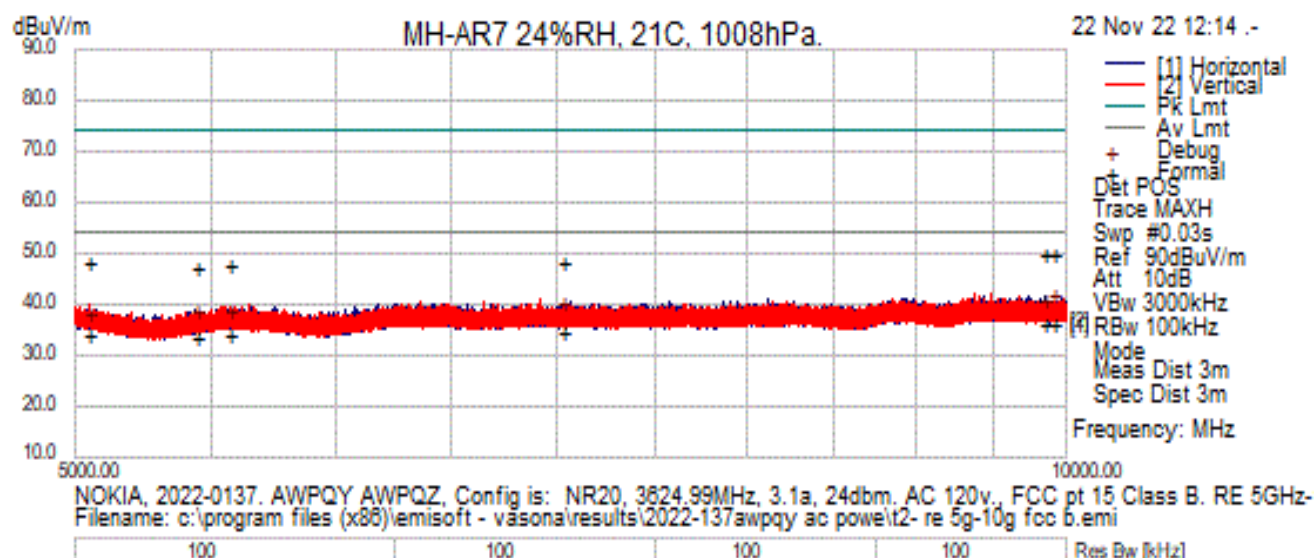
Frequency MHz	Raw dBuV	Cable Loss	AF dB/m	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
1064.780	46.62	8.35	-11.62	43.35	PeakMax	H	225	87	74.00	-30.65	Pass	

Preview Data

Frequency MHz	Raw dBuV	Cable Loss	AF dB/m	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
1064.780	34.49	8.35	-11.62	31.22	Debug	H	107	352	54.00	-22.78	Pass	
2468.719	33.44	9.54	-5.51	37.47	Debug	H	107	352	54.00	-16.53	Pass	
3616.700	36.62	10.34	-4.52	42.44	Debug	V	250	135	54.00	-11.56	Pass	
3899.233	32.02	10.54	-4.32	38.24	Debug	V	107	352	54.00	-15.76	Pass	
4098.710	30.93	10.67	-4.12	37.47	Debug	V	107	352	54.00	-16.53	Pass	
4858.833333	34.38	11.08	-3.32	42.14	Debug	H	250	180	54.00	-11.86	Pass	

Note: Preview data was measured using a peak detector to identify frequencies of interest for formal measurement. Formal data consist of all frequencies in the preview list within 6 dB of specification limit or the top six frequencies. Failure in preview data does not necessarily constitute failure in formal data.

Radiated Emissions 5GHz – 10GHz



Test Information

Results Title	Radiated E 3m 1GHz-18GHz
File Name	t2- re 5g-10g fcc b.emi
Test Laboratory	MH-AR7 24%RH, 21C, 1008hPa.
Test Engineer	CP/HS
Test Software	Vasona by EMISoft, version 6.061
Equipment	NOKIA
EUT Details	2022-0137. AWPQY AWPQZ, Config is: NR20, 3624.99MHz, 3.1a, 24dbm. AC 120v. PS Vendor #1: GreatWall.
Configuration	FCC Pt 15 Class B. RE 5GHz-10GHz at 3 meter distance. ESW E1511 RBW 100KHz Preview 1MHz Formal, VBW 3MHz. PA E1166, HPF E1235, Horn E1074, Cables E1528/ E1529.
Date	2022-11-22 12:16:05

Formal Data

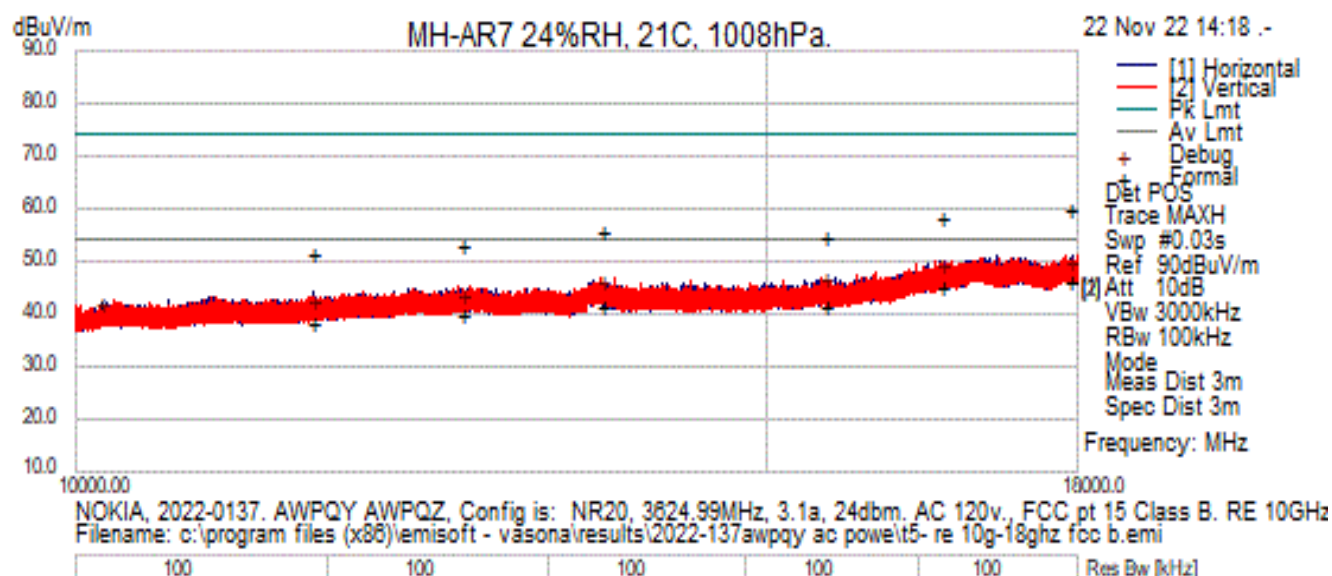
Frequency MHz	Raw dBuV	Cable Loss	AF dB/m	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
9919.812	28.96	8.30	-1.02	36.23	AvgMax	H	195	216	54.00	-17.77	Pass	Reportable
9846.062	29.02	8.30	-1.11	36.22	AvgMax	H	233	139	54.00	-17.78	Pass	Reportable
7040.755	28.12	8.31	-1.79	34.63	AvgMax	H	188	214	54.00	-19.37	Pass	Reportable
5054.009	28.05	9.10	-3.14	34.02	AvgMax	H	215	97	54.00	-19.98	Pass	Reportable
5574.831	27.92	8.58	-2.52	33.98	AvgMax	H	159	29	54.00	-20.02	Pass	
5448.761	27.25	8.69	-2.67	33.28	AvgMax	H	175	37	54.00	-20.72	Pass	
9846.062	42.76	8.30	-1.11	49.95	PeakMax	H	233	139	74.00	-24.05	Pass	
9919.812	42.68	8.30	-1.02	49.95	PeakMax	H	195	216	74.00	-24.05	Pass	
7040.755	41.94	8.31	-1.79	48.45	PeakMax	H	188	214	74.00	-25.55	Pass	
5054.009	42.22	9.10	-3.14	48.18	PeakMax	H	215	97	74.00	-25.82	Pass	
5574.831	41.93	8.58	-2.52	47.99	PeakMax	H	159	29	74.00	-26.01	Pass	
5448.761	41.36	8.69	-2.67	47.39	PeakMax	H	175	37	74.00	-26.61	Pass	

Preview Data

Frequency MHz	Raw dBuV	Cable Loss	AF dB/m	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
9919.812	32.38	8.30	-1.02	39.65	Debug	H	100	352	54.00	-14.35	Pass	
9846.062	31.13	8.30	-1.11	38.32	Debug	H	100	352	54.00	-15.68	Pass	
7040.755	31.60	8.31	-1.79	38.11	Debug	H	100	352	54.00	-15.89	Pass	
5448.761	30.35	8.69	-2.67	36.38	Debug	H	100	352	54.00	-17.62	Pass	
5574.831	30.47	8.58	-2.52	36.53	Debug	H	100	352	54.00	-17.47	Pass	
5054.009	29.89	9.10	-3.14	35.85	Debug	H	100	352	54.00	-18.15	Pass	

Note: Preview data was measured using a peak detector to identify frequencies of interest for formal measurement. Formal data consist of all frequencies in the preview list within 6 dB of specification limit or the top six frequencies. Failure in preview data does not necessarily constitute failure in formal data.

Radiated Emissions 10GHz – 18GHz



Test Information

Results Title	Radiated E 3m 1GHz-18GHz
File Name	t5- re 10g-18ghz fcc b.emi
Test Laboratory	MH-AR7 24%RH, 21C, 1008hPa.
Test Engineer	CP/HS
Test Software	Vasona by EMISoft, version 6.061
Equipment	NOKIA
EUT Details	2022-0137. AWPQY AWPQZ, Config is: NR20, 3624.99MHz, 3.1a, 24dbm, AC 120v. PS Vendor #1: GreatWall.
Configuration	FCC Pt 15 Class B, RE 10GHz-18GHz at 3 meter distance. ESW E1511 RBW 100KHz Preview 1MHz Formal, VBW 3MHz. PA E1166, HPF E1235, Horn E1074, Cables E1528/ E1529.
Date	2022-11-22 14:21:15

Formal Data

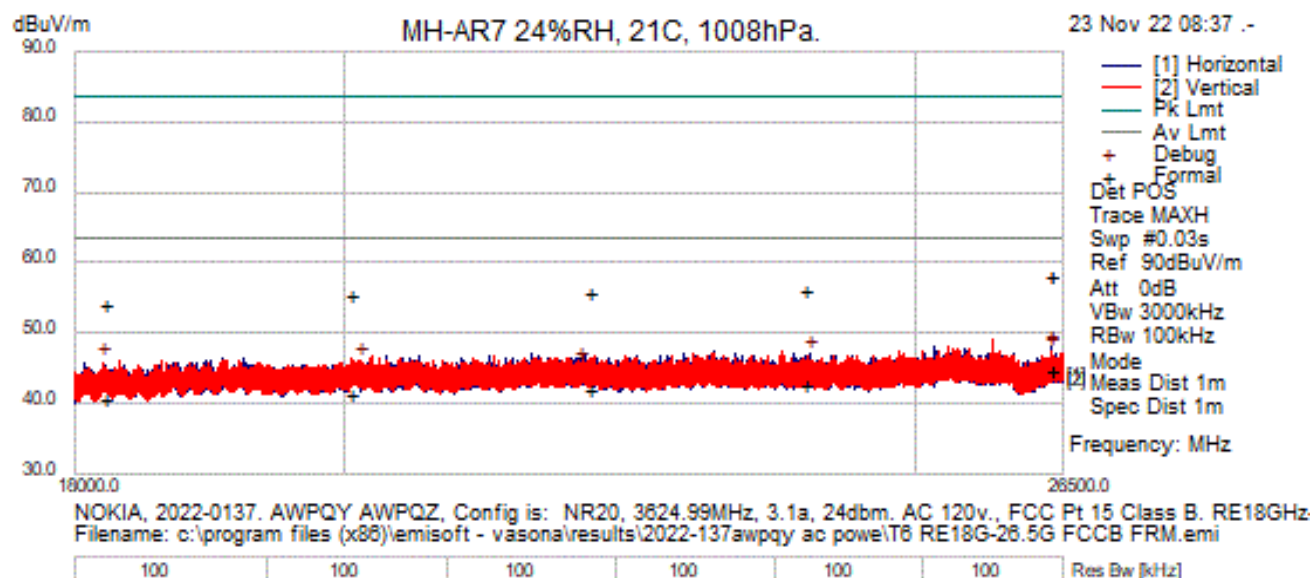
Frequency MHz	Raw dBuV	Cable Loss	AF dB/m	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
17915.557	29.40	10.95	5.59	45.94	AvgMax	H	183	125	54.00	-8.06	Pass	Reportable
16621.992	29.28	10.37	5.26	44.91	AvgMax	H	214	192	54.00	-9.09	Pass	Reportable
13623.018	29.05	9.42	3.15	41.63	AvgMax	H	119	184	54.00	-12.37	Pass	Reportable
15526.425	28.64	9.99	2.83	41.45	AvgMax	H	214	128	54.00	-12.55	Pass	Reportable
12550.552	28.45	9.32	2.24	40.01	AvgMax	H	104	169	54.00	-13.99	Pass	Reportable
17915.557	43.37	10.95	5.59	59.91	PeakMax	H	183	125	74.00	-14.09	Pass	Reportable
16621.992	42.78	10.37	5.26	58.41	PeakMax	H	214	192	74.00	-15.59	Pass	Reportable
11498.130	28.33	9.02	0.68	38.03	AvgMax	H	108	225	54.00	-15.97	Pass	Reportable
13623.018	42.91	9.42	3.15	55.49	PeakMax	H	119	184	74.00	-18.51	Pass	Reportable
15526.425	41.94	9.99	2.83	54.76	PeakMax	H	214	128	74.00	-19.24	Pass	Reportable
12550.552	41.70	9.32	2.24	53.26	PeakMax	H	104	169	74.00	-20.74	Pass	
11498.130	41.98	9.02	0.68	51.69	PeakMax	H	108	225	74.00	-22.31	Pass	

Preview Data

Frequency MHz	Raw dBuV	Cable Loss	AF dB/m	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
17915.557	30.84	10.95	5.59	47.38	Debug	H	100	352	54.00	-6.62	Pass	
16621.992	31.21	10.37	5.26	46.84	Debug	H	100	352	54.00	-7.16	Pass	
15526.425	31.33	9.99	2.83	44.15	Debug	H	100	352	54.00	-9.85	Pass	
13623.018	31.13	9.42	3.15	43.71	Debug	H	100	352	54.00	-10.29	Pass	
12550.552	29.59	9.32	2.24	41.15	Debug	H	100	352	54.00	-12.85	Pass	
11498.130	30.36	9.02	0.68	40.06	Debug	H	100	352	54.00	-13.94	Pass	
10159.968	31.58	8.38	-0.63	39.33	Debug	H	100	352	54.00	-14.67	Pass	

Note: Preview data was measured using a peak detector to identify frequencies of interest for formal measurement. Formal data consist of all frequencies in the preview list within 6 dB of specification limit or the top six frequencies. Failure in preview data does not necessarily constitute failure in formal data.

Radiated Emissions 18GHz - 26.5GHz



Test Information

Results Title	Radiated E 1m 18GHz-26.5GHz
File Name	T6 RE18G-26.5G FCCB FRM.emi
Test Laboratory	MH-AR7 24%RH, 21C, 1008hPa.
Test Engineer	HS/CP-BB/MJS
Test Software	Vasona by EMISoft, version 6.061
Equipment	NOKIA
EUT Details	2022-0137. AWPQY AWPQZ, Config is: NR20, 3624.99MHz, 3.1a, 24dbm. AC 120v. PS Vendor #1: GreatWall.
Configuration	FCC Pt 15 Class B. RE18GHz-26.5GHz at 1 meter distance. ESW E1511 RBW 100KHz Preview 1MHz Formal, VBW 3MHz. PA1387, Horn 3116-E1526, Cables E1528/ E1529.
Date	2022-11-23 08:40:10

Formal Data

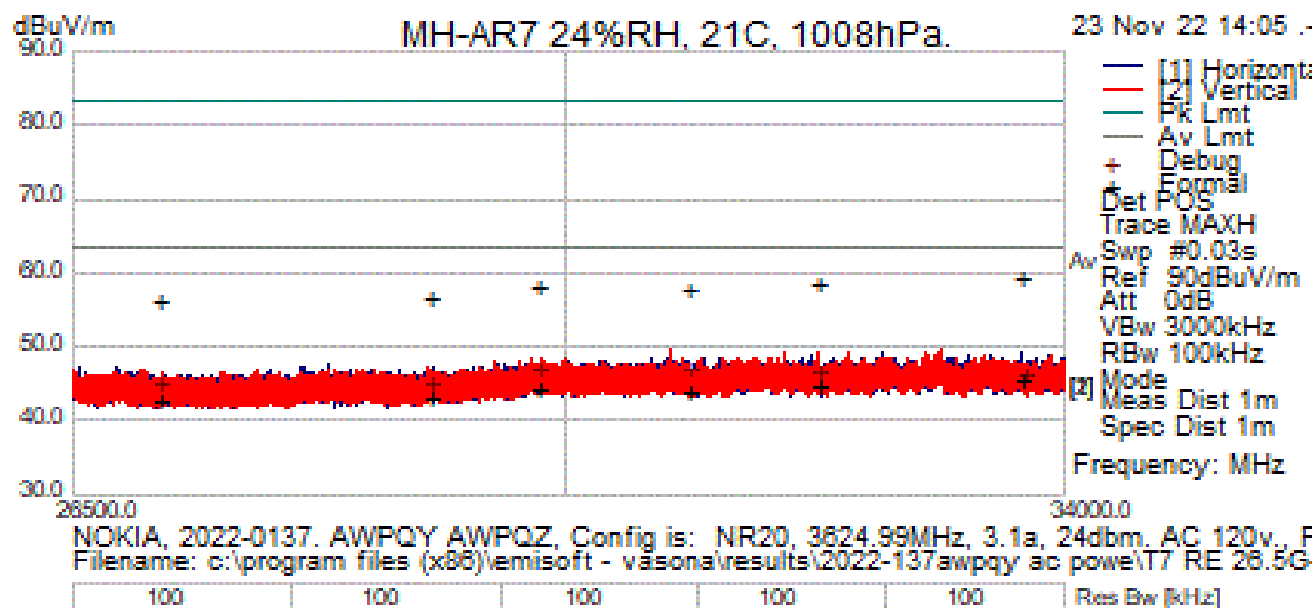
Frequency MHz	Raw dBuV	Cable Loss	AF dB/m	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
26374.814	37.55	12.46	-5.23	44.78	AvgMax	V	100	352	63.50	-18.72	Pass	Noise floor
26375.779	37.52	12.46	-5.23	44.75	AvgMax	V	100	352	63.50	-18.75	Pass	
23950.435	37.05	11.72	-6.14	42.64	AvgMax	V	100	352	63.50	-20.86	Pass	
22028.221	37.94	11.19	-7.04	42.09	AvgMax	V	100	352	63.50	-21.41	Pass	
20069.770	38.53	10.66	-7.68	41.51	AvgMax	V	100	352	63.50	-21.99	Pass	
18217.376	39.12	10.02	-8.55	40.59	AvgMax	V	100	352	63.50	-22.91	Pass	
26375.779	51.08	12.46	-5.23	58.31	PeakMax	V	100	352	83.50	-25.19	Pass	
26374.814	51.04	12.46	-5.23	58.26	PeakMax	V	100	352	83.50	-25.24	Pass	
23950.435	50.65	11.72	-6.14	56.23	PeakMax	V	100	352	83.50	-27.27	Pass	
22028.221	51.58	11.19	-7.04	55.72	PeakMax	V	100	352	83.50	-27.78	Pass	
20069.770	52.65	10.66	-7.68	55.63	PeakMax	V	100	352	83.50	-27.87	Pass	
18217.376	52.57	10.02	-8.55	54.04	PeakMax	V	100	352	83.50	-29.46	Pass	

Preview Data

Frequency MHz	Raw dBuV	Cable Loss	AF dB/m	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
26375.779	40.20	12.46	-5.23	47.43	Debug	V	100	352	63.50	-16.07	Pass	
26374.431	40.09	12.46	-5.23	47.32	Debug	V	100	352	63.50	-16.18	Pass	
24002.408	41.40	11.73	-6.11	47.02	Debug	V	100	352	63.50	-16.48	Pass	
20132.843	42.81	10.68	-7.66	45.83	Debug	V	100	352	63.50	-17.67	Pass	
18208.710	44.41	10.02	-8.55	45.88	Debug	V	100	352	63.50	-17.62	Pass	
21937.207	41.08	11.17	-7.07	45.19	Debug	V	100	352	63.50	-18.31	Pass	

Note: Preview data was measured using a peak detector to identify frequencies of interest for formal measurement. Formal data consist of all frequencies in the preview list within 6 dB of specification limit or the top six frequencies. Failure in preview data does not necessarily constitute failure in formal data.

Radiated Emissions 26.5GHz – 34GHz



Test Information

Results Title	Radiated E 1m 18GHz-26.5GHz
File Name	T7 RE 26.5G-34G FCCB FORM.emi
Test Laboratory	MH-AR7 24%RH, 21C, 1008hPa.
Test Engineer	HS/BB/NPA
Test Software	Vasona by EMISoft, version 6.061
Equipment	NOKIA
EUT Details	2022-0137. AWPQY AWPQZ, Config is: NR20, 3624.99MHz, 3.1a, 24dbm, AC 120v, PS Vendor #1: GreatWall.
Configuration	FCC Pt 15 Class B. RE26.5GHz-34GHz at 1 meter distance. ESW E1511 RBW 100KHz Preview 1MHz Formal, VBW 3MHz. PA1387, Horn 3116-E1526, Cables E1528/ E1529.
Date	2022-11-23 14:07:50

Formal Data

Frequency MHz	Raw dBuV	Cable Loss	AF dB/m	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
33602.852	37.06	13.93	-5.33	45.65	AvgMax	V	138	24	63.50	-17.85	Pass	Reportable
31934.094	35.30	13.61	-4.23	44.67	AvgMax	V	227	161	63.50	-18.83	Pass	Reportable
29770.796	35.37	13.34	-4.21	44.50	AvgMax	V	235	77	63.50	-19.00	Pass	Reportable
30919.365	34.87	13.51	-4.16	44.22	AvgMax	V	177	274	63.50	-19.28	Pass	Reportable
28986.808	34.93	13.05	-4.61	43.38	AvgMax	V	146	224	63.50	-20.12	Pass	
27067.052	35.66	12.48	-5.15	42.99	AvgMax	H	206	81	63.50	-20.51	Pass	
33602.852	50.90	13.93	-5.33	59.49	PeakMax	H	135	183	83.50	-24.01	Pass	
31934.094	49.27	13.61	-4.23	58.64	PeakMax	V	227	161	83.50	-24.86	Pass	
29770.796	49.03	13.34	-4.21	58.16	PeakMax	H	201	205	83.50	-25.34	Pass	
30919.365	48.58	13.51	-4.16	57.92	PeakMax	H	180	5	83.50	-25.58	Pass	
28986.808	48.24	13.05	-4.61	56.69	PeakMax	V	146	224	83.50	-26.81	Pass	

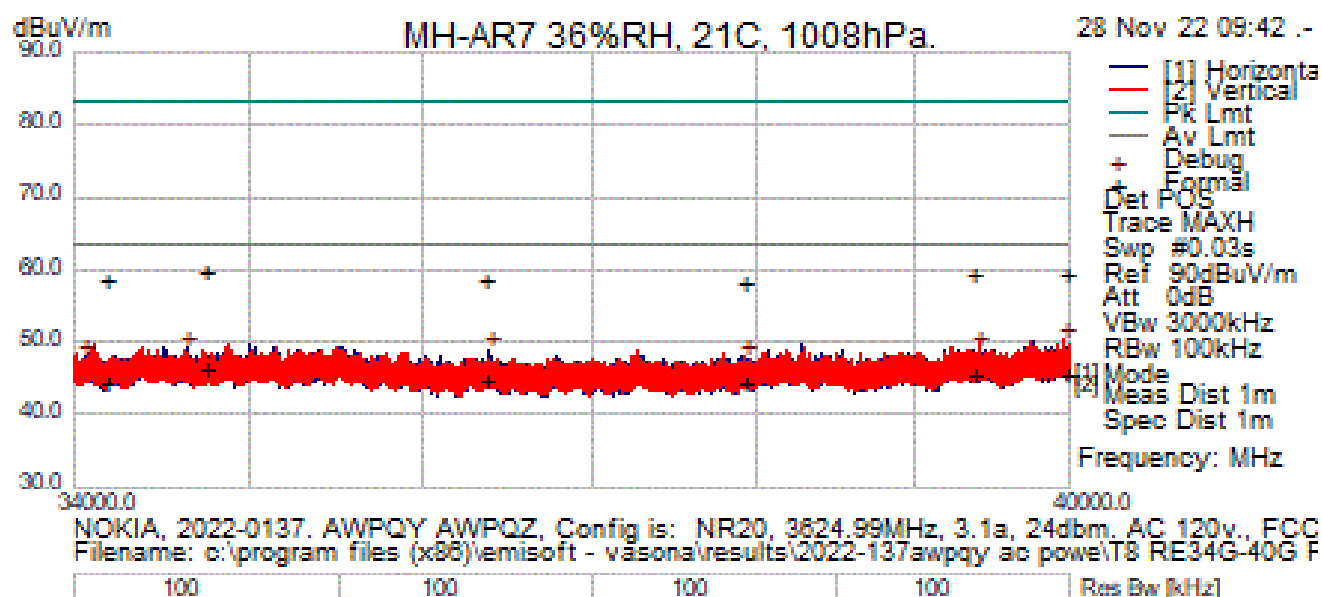
Frequency MHz	Raw dBuV	Cable Loss	AF dB/m	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
27067.052	49.20	12.48	-5.15	56.53	PeakMax	V	203	334	83.50	-26.97	Pass	

Preview Data

Frequency MHz	Raw dBuV	Cable Loss	AF dB/m	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
27074.093	36.05	12.48	-5.15	43.38	Debug	V	100	352	63.50	-20.12	Pass	
28976.600	34.96	13.05	-4.61	43.40	Debug	V	100	352	63.50	-20.10	Pass	
29770.814	36.32	13.34	-4.21	45.45	Debug	V	100	352	63.50	-18.05	Pass	
30916.335	36.06	13.51	-4.16	45.40	Debug	V	100	352	63.50	-18.10	Pass	
31934.367	35.69	13.61	-4.23	45.06	Debug	V	100	352	63.50	-18.44	Pass	
33633.401	36.20	13.93	-5.36	44.77	Debug	V	100	352	63.50	-18.73	Pass	

Note: Preview data was measured using a peak detector to identify frequencies of interest for formal measurement. Formal data consist of all frequencies in the preview list within 6 dB of specification limit or the top six frequencies. Failure in preview data does not necessarily constitute failure in formal data.

Radiated Emissions 34GHz – 40GHz



Test Information

Results Title	Radiated E 1m 18GHz-26.5GHz
File Name	T8 RE34G-40G FCCB Frm.emi
Test Laboratory	MH-AR7 36%RH, 21C, 1008hPa.
Test Engineer	HS/BB/NPA
Test Software	Vasona by EMISoft, version 6.061
Equipment	NOKIA
EUT Details	2022-0137. AWPQY AWPQZ, Config is: NR20, 3624.99MHz, 3.1a, 24dbm, AC 120v. PS Vendor #1: GreatWall.
Configuration	FCC Pt 15 Class B. RE 34GHz-40GHz at 1 meter distance. ESW E1511 RBW 100KHz Preview 1MHz Formal, VBW 3MHz. PA1387, Horn 3116-E1526, Cables E1528/ E1529.
Date	2022-11-28 09:50:00

Formal Data

Frequency MHz	Raw dBuV	Cable Loss	AF dB/m	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
34737.632	38.78	14.11	-6.59	46.30	AvgMax	H	217	283	63.50	-17.20	Pass	Reportable
39966.835	37.54	15.53	-7.30	45.76	AvgMax	V	199	332	63.50	-17.74	Pass	Reportable
39372.396	38.94	15.34	-8.57	45.70	AvgMax	V	208	67	63.50	-17.80	Pass	Reportable
36350.521	39.12	14.40	-8.84	44.68	AvgMax	V	204	166	63.50	-18.82	Pass	Reportable
37934.816	39.85	14.99	-10.34	44.50	AvgMax	V	195	15	63.50	-19.00	Pass	Reportable
34175.517	36.40	13.97	-5.93	44.44	AvgMax	V	231	205	63.50	-19.06	Pass	Reportable
34737.632	52.28	14.11	-6.59	59.80	PeakMax	H	217	283	83.50	-23.70	Pass	
39372.396	52.60	15.34	-8.57	59.37	PeakMax	H	153	335	83.50	-24.13	Pass	
39966.835	51.11	15.53	-7.30	59.34	PeakMax	H	139	225	83.50	-24.16	Pass	
36350.521	53.18	14.40	-8.84	58.73	PeakMax	V	204	166	83.50	-24.77	Pass	
34175.517	50.56	13.97	-5.93	58.60	PeakMax	V	231	205	83.50	-24.90	Pass	
37934.816	53.58	14.99	-10.34	58.23	PeakMax	V	195	15	83.50	-25.27	Pass	

Preview Data

Frequency MHz	Raw dBuV	Cable Loss	AF dB/m	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail	Comments
39959.002	42.08	15.52	-7.32	50.29	Debug	V	100	352	63.50	-13.21	Pass	
39412.961	42.27	15.35	-8.48	49.14	Debug	V	100	352	63.50	-14.36	Pass	
36387.211	43.37	14.40	-8.90	48.86	Debug	V	100	352	63.50	-14.64	Pass	
34638.694	41.44	14.09	-6.54	48.98	Debug	V	100	352	63.50	-14.52	Pass	
34073.854	39.83	13.95	-5.76	48.02	Debug	V	100	352	63.50	-15.48	Pass	
37938.816	43.23	14.99	-10.34	47.88	Debug	V	100	352	63.50	-15.62	Pass	

Note: Preview data was measured using a peak detector to identify frequencies of interest for formal measurement. Formal data consist of all frequencies in the preview list within 6 dB of specification limit or the top six frequencies. Failure in preview data does not necessarily constitute failure in formal data.

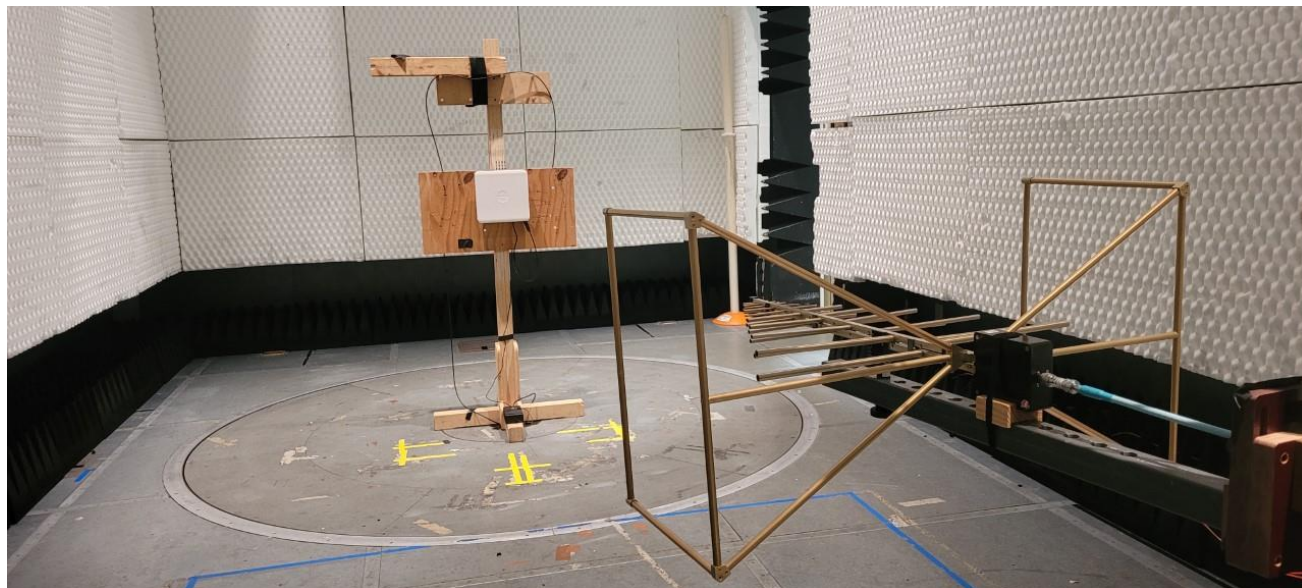
Photographs

Radio Test

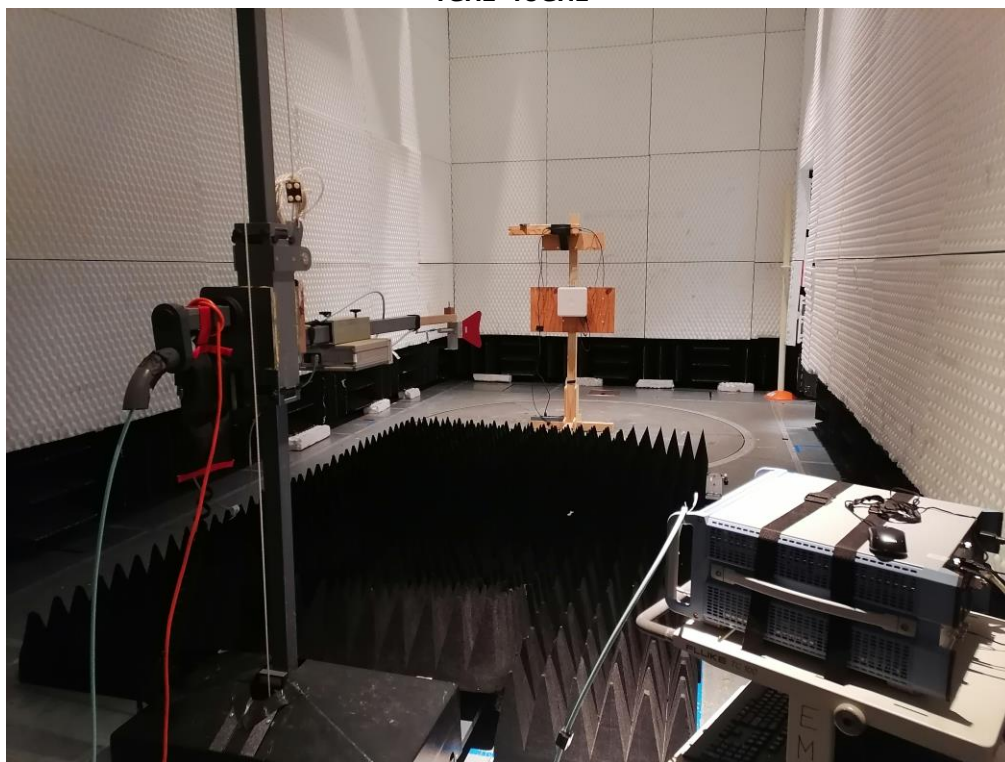


Radiated Emission Test

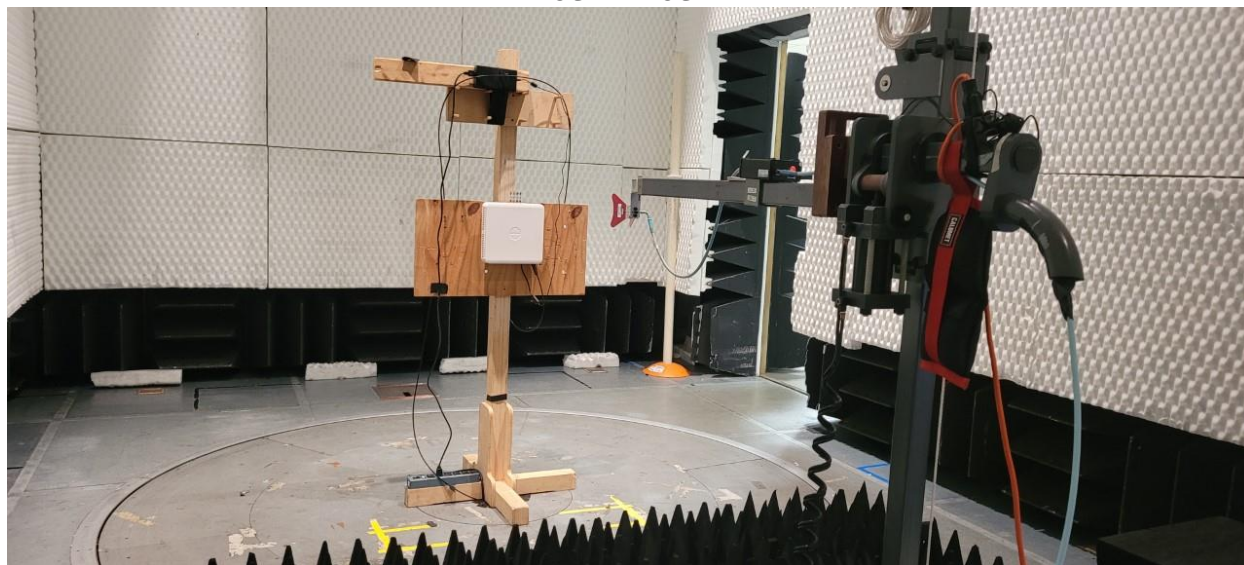
30MHz- 1GHz



1GHz-18GHz



18GHz – 40GHz



Test Equipment

Radio Test Equipment

Asset ID	Manufacturer	Type	Description	Model	Serial	Calibration Date	Calibration Due
E896	Agilent Technologies	Network Analyzer	10 MHz - 40 GHz	N5230C	MY49000897	2021-03-03	2023-03-03
E1338	KeySight Technologies	MXA Signal Analyzer		N9020B	MY57430927	2021-01-07	2023-02-07
E1212	RLC Electronics Inc	Filter, High Pass	10 - 30 GHz, 2W, 5dB	F-19414	1444002	CNR-V	CNR-V
E1156	Weinschel	Attenuator	10dB 0.05GHz-26GHz 25W	74-10-12	1069	CNR-V	CNR-V
E1155	Weinschel	Attenuator	10dB 25Watt 0.05GHz - 26GHz	74-10-12	1068	CNR-V	CNR-V
E1154	Weinschel	Attenuator	30dB 25W 0.05GHz-26GHz	74-30-12	1065	CNR-V	CNR-V
E1480	Reactel, Inc.	Filter, High Pass	DC - 4.3 GHz	11HS-X4.3GS11	SN20-02	CNR-V	CNR-V

CNR-V: Calibration Not Required, Must Be Verified

Test Dates: 10/28/2022 – 1/13/2023

Radiated Emission Test Equipment

Asset ID	Manufacturer	Type	Description	Model	Serial	Calibration Date	Calibration Due
E601	A.H. Systems Inc.	Biological Antenna	25 - 2000 MHz	SAS-521-2	408	2022-06-16	2024-06-16
E1166	Agilent Technologies	Pre-Amplifier	Pre-Amplifier 1-26.5GHz	8449B	3008A01740	2021-01-12	2023-01-12
E1526	ETS Lindgren	Horn Antenna	Double Ridged Horn 10-40 GHz	3116C	0227821	2022-07-08	2024-07-08
E1074	ETS Lindgren	Horn Antenna	Double-Ridged Waveguide Horn 1-18 GHz	3117	00135194	2021-08-03	2023-08-03
E1529	Micro-Coax	Cable	1-40 GHz, 2.92 (m)+2.92 (m), 237 inch., armor, 90 degree bent	UFB142A-0-2370-2002GO	SFC235841	CNR-V	CNR-V
E1528	Micro-Coax	Cable	1-40 GHz, 2.92 (m)+2.92 (m), 36 inch., armor, 90 degree bent	UFB142A-Q-0360-2002GO	SFC235840	CNR-V	CNR-V
E1387	Miteq	Pre-Amplifier	18 GHz-40 GHz, 45dBm	TTA1840-35-HG	2034373	2020-08-28	2022-11-28
EIH69	Rohde & Schwarz	Test Receiver	EMI 20Hz - 40GHz -155 dBm +30 dBm	ESU40	100247	2022-04-27	2024-04-27
E1511	Rohde & Schwarz	Test Receiver	EMI Test Receiver 2 Hz - 44 GHz	ESW44	101965	2021-04-07	2023-04-07
E494	Sonoma Instrument Co.	Amplifier	9kHz-1GHz	310N	185785	2022-04-04	2024-04-04

CNR-V: Calibration Not Required, Must Be Verified

Test Dates: 11/22/22-11/28/22

7. FCC Section 2.1055 - Measurement of Frequency Stability

Frequency Stability testing was completed on: **AWPQZ 3.6GHz** with Microsemi PD-9601GC AC POE DC Power Injector. Testing was performed from 11/18/2022 through 11/21/2022 on the radio, which was located in the T-5 Thermal chamber of the Global Product Compliance Laboratory (GPCL) test facility located in Building 4, Room 4-278, Murray Hill, NJ, by Joe Bordonaro from GPCL.

Table 1: Unit Under Test

Series	Vendor	Serial Number	Comcode
AWPQZ	Nokia	EB2234R0616	476101A.X21
PD-9601GC/AC	Microsemi	C20286281000165	

The temperatures to which the UUT were subjected ranged from a high temperature of +50°C system ambient to a low temperature of -30°C system ambient with measurements recorded at 10°C increments.

Transmit frequency error measures the deviation between the actual transmit frequency and the assigned frequency. The transmit frequency error in this case was measured by capturing the transmitted signal using a receiving antenna and then cabling it to an MXA signal analyzer. The system level frequency stability testing resulted in compliance with established design criteria.

Table 2: Instruments Used for Measurement

Type	Model	Vendor	Serial Number	Cal Due Date
AC Source	6813A	H.P.	3524-00321\	N/A

Unit	Part number	Serial number
ASOE	475587A.101	EA211854050
FYGM	473394A.101	1634000295



FIGURE 1: TEST BLOCK DIAGRAM

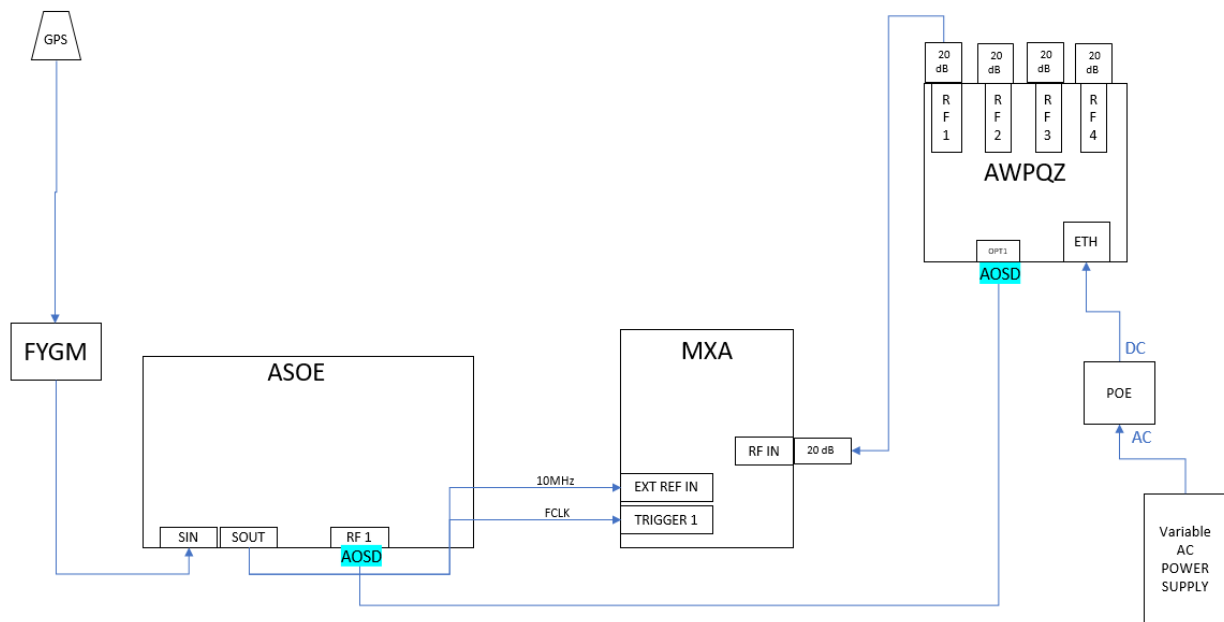
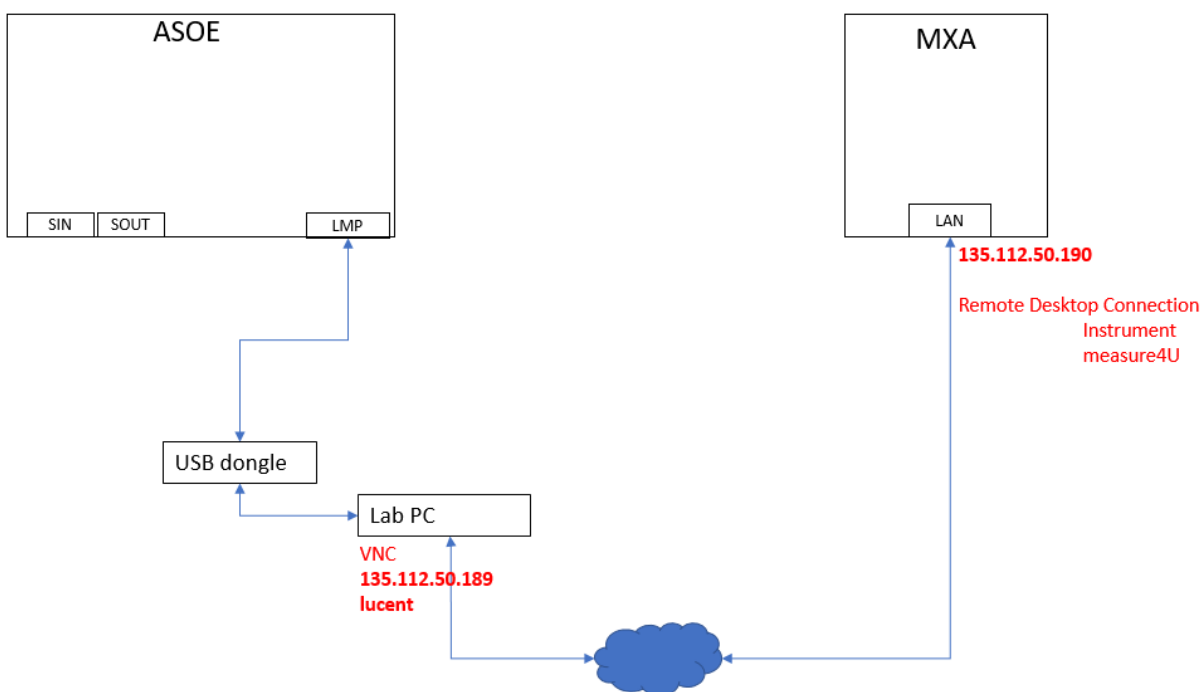


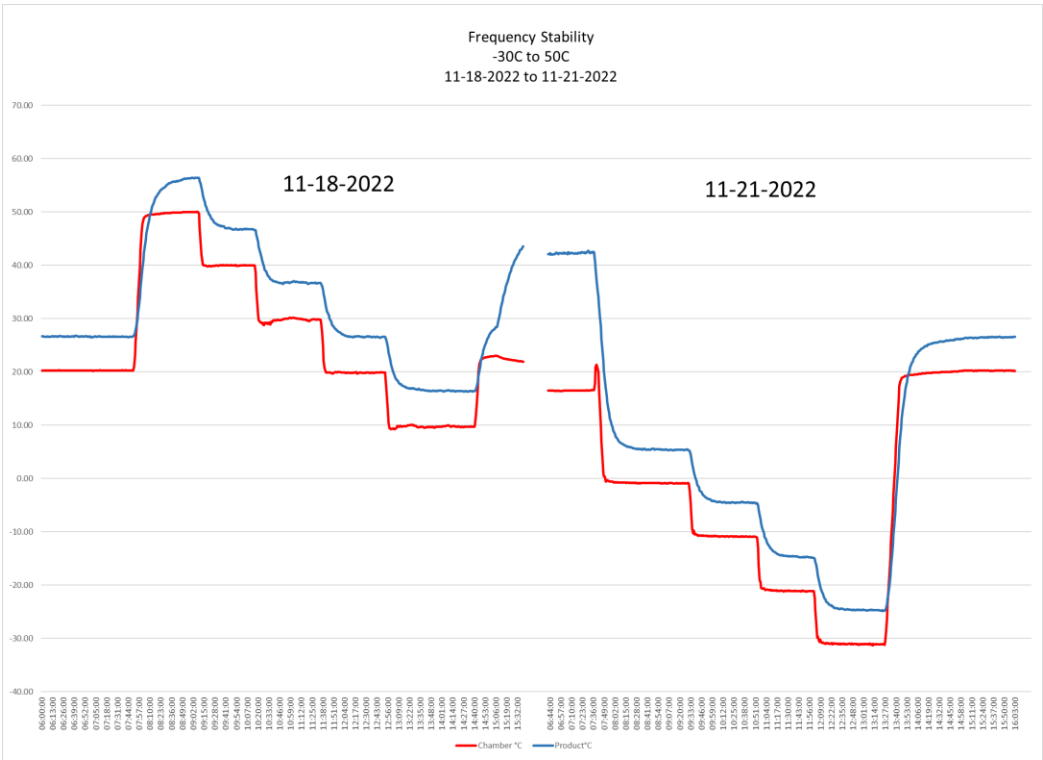
FIGURE 1: TEST BLOCK DIAGRAM (continued)



Test Equipment

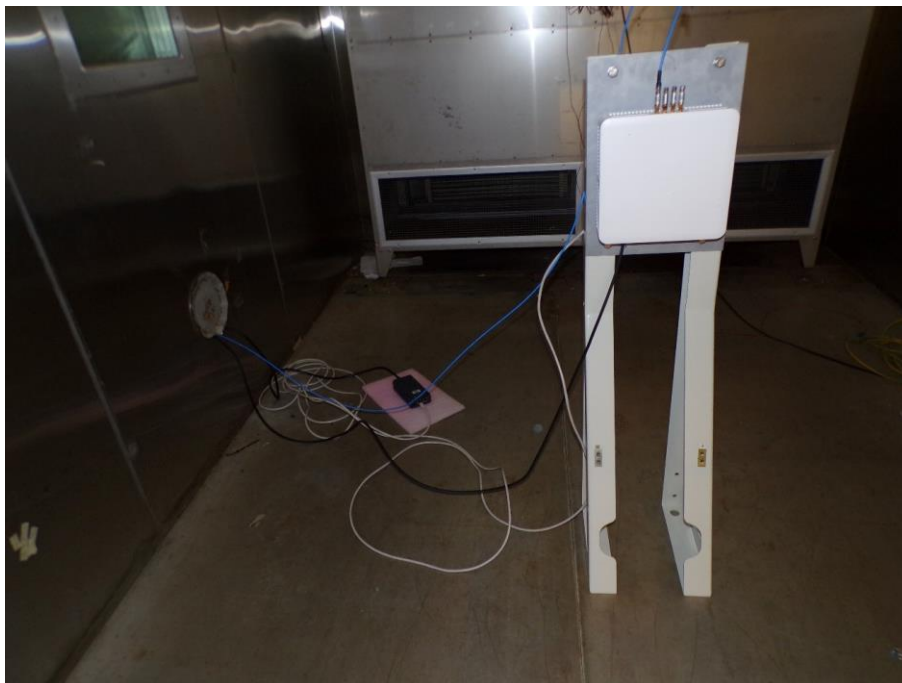
Asset ID	Manufacturer	Type	Description	Model	Serial	Calibration Date	Calibration Due
TH532-T05	Envirotronics	Controller		SPPCM	PCM001345	2021-08-11	2023-08-11
TH069	Extech	Data Logger	Barometric Pressure/Humidity/Temperature	SD700	Q690305	2021-07-20	2023-07-20
TH-T05	Thermotron	Thermal Chamber		N/A	26954	N/R	N/R
MY57431033	Keysight	MXA	Signal Analyzer	N9020B	MY57431033	2022-08-30	2024-08-30
TH305	Yokogawa	Data Acquisition Unit	48 channel Data Acquisition Unit	MV2048-3-4-2-1	S5M105417	2022-06-12	2024-06-12
TH044	Fluke	DMM	Multimeter	83-III	74910377	2022-02-24	2024-02-24

Data Plot

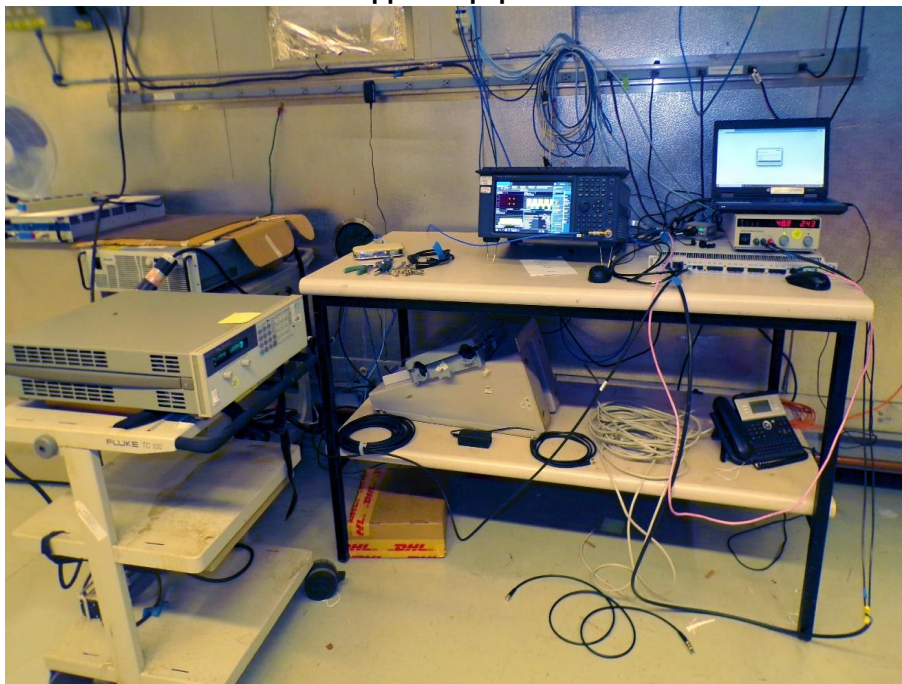


Photographs

Radio in thermal chamber



Support Equipment



Frequency Block Tested: 3.6 GHz RADIO (CF = 3.6000MHz)

Baseline Measurement at +20°C

Transmit Frequency Deviation at +20°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-3.02	-1.28
0.5	-2.93	410.5m
1.0	921.8m	-1.83
1.5	-1.74	-2.62
2.0	-2.04	85.9m
2.5	299.5m	-205.4m
3.0	-3.02	
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +50°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	479.4m	-2.51
0.5	1.86	-2.18
1.0	-731.3m	-1.23
1.5	-3.28	-541.4m
2.0	747.5m	110.8m
2.5	-2.13	-2.62
3.0	1.02	1.65
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +40°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-2.08	-907.4m
0.5	-1.09	-2.94
1.0	-402.6m	-1.69
1.5	-1.20	-3.63
2.0	-2.71	425.1m
2.5	-1.56	-689.9
3.0	758.4m	-2.99
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$

FCC RESULT	PASS	PASS
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Transmit Frequency Deviation at +30°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	1.73	-1.13
0.5	-2.33	466.8m
1.0	1.58	2.19
1.5	2.64	-1.46
2.0	-2.05	-1.99
2.5	-266.5m	851.1m
3.0	-2.26	1.67
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-311.9m	-2.34
0.5	329.8m	2.06
1.0	159.3m	3.12
1.5	2.46	1.99
2.0	-1.89	-182.4m
2.5	-2.93	-2.98
3.0	-576.4m	1.62
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +10°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	3.26	1.37
0.5	-266.8	-1.07
1.0	840.0m	3.84
1.5	364.4m	-1.35
2.0	-2.70	400.1m
2.5	-1.78	1.07

3.0	-585.1m	2.35
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +0°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	463.6	1.43
0.5	-3.16	-1.15
1.0	-1.75	-2.55
1.5	2.12	88.3m
2.0	1.30	-3.96
2.5	409.8m	816.3m
3.0	85.922m	240.3m
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at -10°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-1.04	-4.12
0.5	-2.68	-2.36
1.0	2.52	-2.47
1.5	276.0m	-1.09
2.0	-3.81	-2.67
2.5	-503.1m	3.78
3.0	112.0m	1.28
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS
Transmit Frequency Deviation at -20°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-3.36	-3.11
0.5	-1.16	781.1m
1.0	4.02	-1.12
1.5	2.29	3.45
2.0	1.58	1.72

2.5	-222.3m	-1.66
3.0	-2.47	1.07
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at -30°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-3.10	1.19
0.5	-2.55	-1.74
1.0	1.91	3.55
1.5	-2.23	-1.30
2.0	-2.86	1.81
2.5	445.4m	-1.89
3.0	1.09	-519.1m
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Upon return to +20°C.

Transmit Frequency Deviation at +20°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-2.44	-3.60
0.5	2.14	439.2m
1.0	-2.26	-1.38
1.5	946.6m	-2.86
2.0	1.81	1.85
2.5	-2.07	-830.6
3.0	2.58	1.92
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at +15% of Nominal Voltage, of Nominal Voltage, 120, 240VAC		
	138.0VAC	276VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-1.56	1.73
0.5	-819.3m	-1.65
1.0	-2.02	1.07
1.5	-1.02	636.9m
2.0	2.29	-3.39
2.5	-1.38	1.29
3.0	-1.34	-2.55
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at +12% of Nominal Voltage 120, 240VAC		
	134.40VAC	268.8VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-2.02	1.89
0.5	3.05	1.20
1.0	2.43	367.9m
1.5	-2.92	1.89
2.0	-100.5m	-1.64
2.5	1.40	1.81
3.0	369.2m	1.42

FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at +9% of Nominal Voltage, Voltage, 120, 240VAC		
	130.80VAC	261.6VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	1.21	-1.56
0.5	761.6m	1.08
1.0	1.05	-2.15
1.5	-3.12	-640.6m
2.0	-6.17.8	-3.00
2.5	-1.51	1.12
3.0	-935.4m	120.5m
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at +6% of Nominal Voltage, Voltage, 120, 240VAC		
	127.20VAC	254.4VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-2.67	-2.68
0.5	-3.30	-218.7m
1.0	-1.43	-5.02
1.5	-3.48	-2.90
2.0	365.6m	-1.18
2.5	-1.11	-2.86
3.0	1.89	-750.2m
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at +3% of Nominal Voltage, 120, 240VAC		
	123.60VAC	247.2VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	1.10	1.79
0.5	-1.85	-1.14
1.0	-644.0m	1.37
1.5	2.87	638.6m

2.0	1.15	-2.21
2.5	-1.82	1.05
3.0	-3.99	-156.2m
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at -3% of Nominal Voltage, 120, 240VAC		
	116.40VAC	232.8VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	3.57	-2.24
0.5	-4.98	-1.95
1.0	-5.25	-144.0m
1.5	1.91	1.29
2.0	-935.1m	2.85
2.5	-2.39	-1.89
3.0	1.49	613.1m
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at -6% of Nominal Voltage, 112.80VAC, 120, 240VAC		
	112.8VAC	225.6VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-1.76	-1.47
0.5	1.15	460.9m
1.0	2.12	2.79
1.5	-2.01	1.05
2.0	413.3m	-3.27
2.5	1.75	-190.3m
3.0	-1.82	-1.77
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at -9% of Nominal Voltage, 120, 240VAC		
	109.2VAC	218.4VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-2.74	-1.09
0.5	2.33	1.27
1.0	712.6m	-4.99
1.5	-1.80	1.32
2.0	3.86	-1.52
2.5	1.71	707.2m
3.0	-2.10	-2.52
FCC SPECIFICATION	3.6 GHz (± 0.05 ppm) ± 0.05 ppm = ± 180 Hz	3.6 GHz (± 0.05 ppm) ± 0.05 ppm = ± 180 Hz
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at -12% of Nominal Voltage, 120, 240VAC		
	105.6VAC	211.2VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-2.51	-1.54
0.5	-1.70	-1.15
1.0	1.22	-1.61
1.5	-5.51	-732.8m
2.0	829.8m	4.13
2.5	3.56	-181.0m
3.0	2.07	1.62
FCC SPECIFICATION	3.6 GHz (± 0.05 ppm) ± 0.05 ppm = ± 180 Hz	3.6 GHz (± 0.05 ppm) ± 0.05 ppm = ± 180 Hz
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at -15% of Nominal Voltage, 120, 240VAC		
	102VAC	204VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	3.00	-1.52
0.5	-138.4m	-1.98
1.0	2.17	1.35
1.5	-961.6m	966.7m
2.0	3.21	2.00
2.5	-521.6m	-5.27
3.0	3.61	681.7m

FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Frequency Stability testing was completed on: **AWPQZ 3.6GHz** with Great Wall AC POE DC Power Injector. Testing was performed from 11/28/2022 through 11/29/2022 on the radio, which was located in the T-5 Thermal chamber of the Global Product Compliance Laboratory (GPCL) test facility located in Building 4, Room 4-278, Murray Hill, NJ, by Joe Bordonaro from GPCL.

Table 2: Unit Under Test

Series	Vendor	Serial Number	Comcode
AWPQZ	Nokia	EB2234R0616	476101A.X21
GA150SD2-5602679	Great Wall	517452320705939	

The temperatures to which the UUT were subjected ranged from a high temperature of +50°C system ambient to a low temperature of -30°C system ambient with measurements recorded at 10°C increments.

Transmit frequency error measures the deviation between the actual transmit frequency and the assigned frequency. The transmit frequency error in this case was measured by capturing the transmitted signal using a receiving antenna and then cabling it to an MXA signal analyzer. The system level frequency stability testing resulted in compliance with established design criteria.

Table 2: Instruments Used for Measurement

Type	Model	Vendor		Serial Number	Cal Due Date
AC Source	6813A	H.P.		3524-00321\	N/A

Unit	Part number	Serial number
ASOE	475587A.101	EA211854050
FYGM	473394A.101	1634000295



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FIGURE 1: TEST BLOCK DIAGRAM

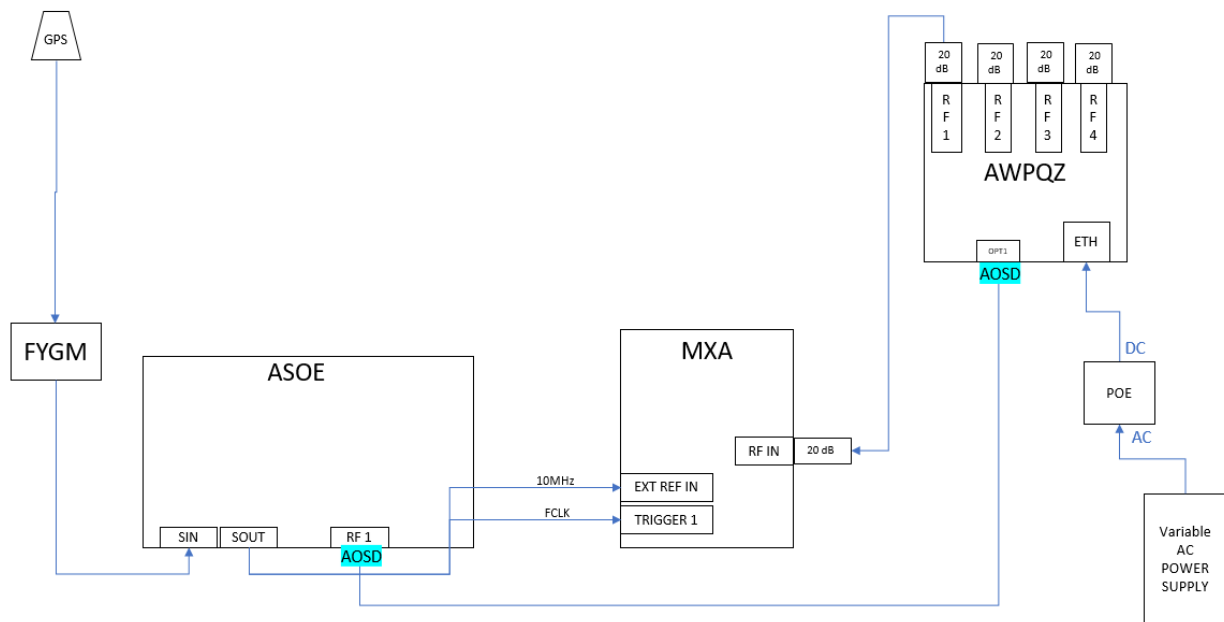
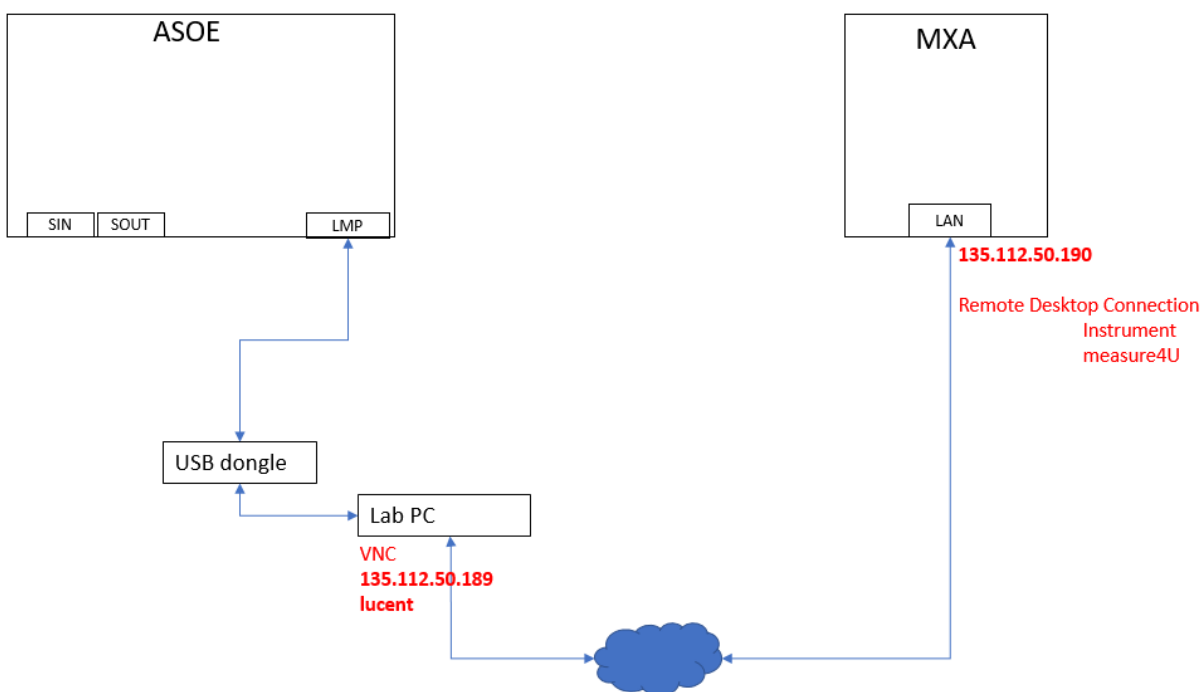


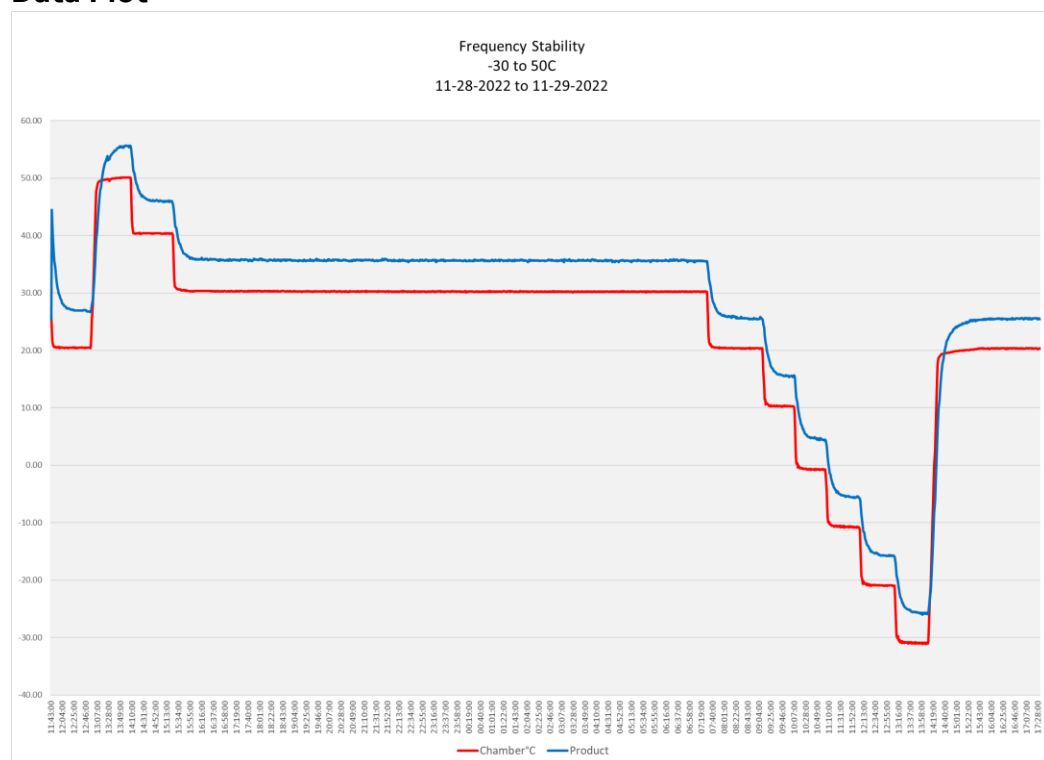
FIGURE 1: TEST BLOCK DIAGRAM (continued)



Test Equipment

Asset ID	Manufacturer	Type	Description	Model	Serial	Calibration Date	Calibration Due
TH532-T05	Envirotronics	Controller		SPPCM	PCM001345	2021-08-11	2023-08-11
TH069	Extech	Data Logger	Barometric Pressure/Humidity/ Temperature	SD700	Q690305	2021-07-20	2023-07-20
TH-T05	Thermotron	Thermal Chamber		N/A	26954	N/R	N/R
MY57431033	Keysight	MXA	Signal Analyzer	N9020B	MY57431033	2022-08-30	2024-08-30
TH305	Yokogawa	Data Acquisition Unit	48 channel Data Acquisition Unit	MV2048-3-4-2-1	S5M105417	2022-06-12	2024-06-12
TH044	Fluke	DMM	Multimeter	83-III	74910377	2022-02-24	2024-02-24

Data Plot



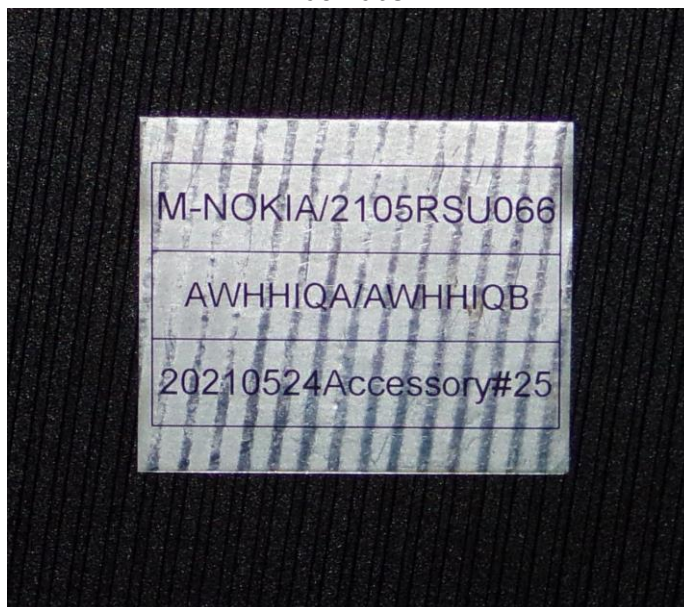
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Photographs

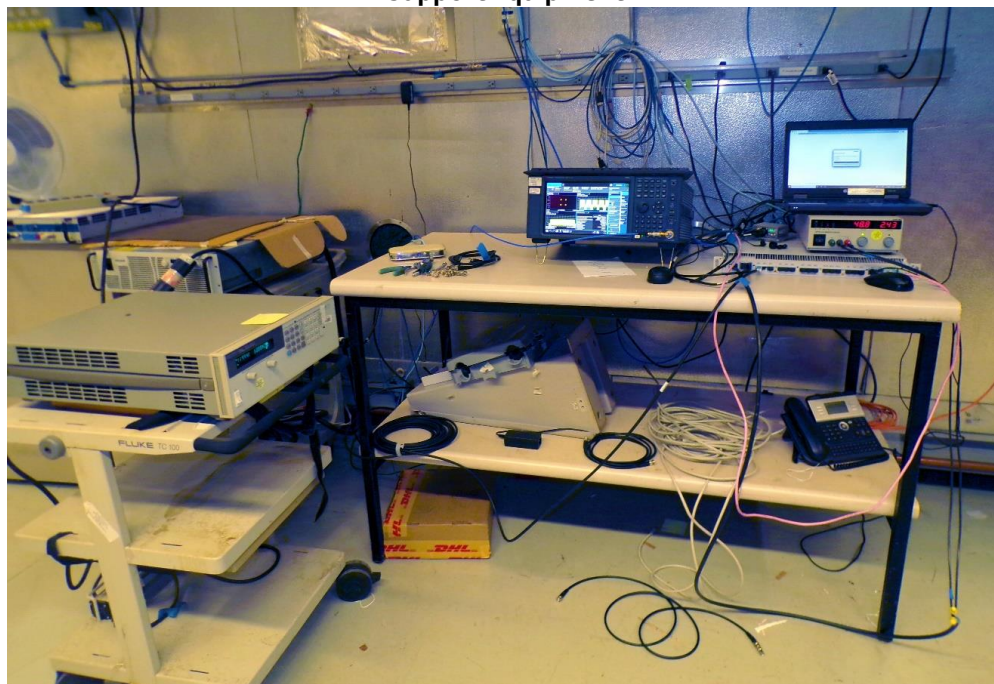
Radio in thermal chamber



Back label



Support Equipment



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Frequency Block Tested: 3.6 GHz RADIO (CF = 3.6000MHz)

Baseline Measurement at +20°C

Transmit Frequency Deviation at +20°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-2.94	1.38
0.5	2.57	-2.97
1.0	-5.14	537.5mHz
1.5	-151.5mHz	-568.5m
2.0	2.53	1.02
2.5	803.7m	-1.87
3.0	3.35	1.11
FCC SPECIFICATION	3.6 GHz (±0.05ppm) ±0.05ppm = ± 180Hz	3.6 GHz (±0.05ppm) ±0.05ppm = ± 180Hz
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +50°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-1.91	-2.79
0.5	2.15	2.28
1.0	-7.6m	-1.84
1.5	1.46	-1.33
2.0	930.6m	1.15
2.5	-331.2m	254.5m
3.0	-1.50	-3.07
FCC SPECIFICATION	3.6 GHz (±0.05ppm) ±0.05ppm = ± 180Hz	3.6 GHz (±0.05ppm) ±0.05ppm = ± 180Hz
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +40°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	2.29	-3.56
0.5	-1.71	-1.05
1.0	-1.65	-2.76
1.5	-4.02	584.1m

2.0	229.3m	-2.90
2.5	-3.49	1.89
3.0	-2.22	-2.71
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +30°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-1.53	1.73
0.5	333.4m	226.2m
1.0	-1.60	-2.45
1.5	-2.22	2.62
2.0	-6.96	494.2m
2.5	-1.55	-643.2m
3.0	1.06	2.89
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	1.96	-524.8m
0.5	2.11	-1.35
1.0	-2.89	-1.22
1.5	-2.77	-3.00
2.0	-1.79	1.29
2.5	2.15	1.10
3.0	-1.17	496.8m
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +10°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time	Transmit Carrier Deviation	Transmit Carrier Deviation

(minutes)	(Hz)	(Hz)
0	-1.38	1.98
0.5	121.2m	-2.26
1.0	-2.54	-1.15
1.5	-1.85	-2.69
2.0	-1.22	-2.03
2.5	-1.17	1.35
3.0	-2.43	-1.08
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +0°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	674.4m	1.98
0.5	-1.42	-2.26
1.0	255..2m	-1.15
1.5	-736.2m	-2.69
2.0	-1.98	-2.03
2.5	1.32	1.35
3.0	973.8m	-1.08
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at -10°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	899.1m	-2.08
0.5	-1.17	-3.48
1.0	-407.3m	-1.10
1.5	-2.15	-1.39
2.0	-1.82	-4.94
2.5	808.1m	-2.97
3.0	-640.3m	1.96
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

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Transmit Frequency Deviation at -20°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-2.31	1.03
0.5	-1.98	-3.17
1.0	2.25	2.71
1.5	-1.75	1.08
2.0	-4.30	-4.45
2.5	1.07	3.09
3.0	-1.97	-4.55
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at -30°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	213.7m	1.31
0.5	-3.36	219.7m
1.0	-2.88	-6.20
1.5	-1.08	1.72
2.0	-2.16	1.37
2.5	--3.49	-924.7m
3.0	-2.90	-1.06
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Upon return to +20°C.

Transmit Frequency Deviation at +20°C at 100% of Nominal Voltage, 120, 240VAC		
	120VAC	240VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-1.65	327.2m
0.5	1.49	-1.16
1.0	2.58	3.71
1.5	-1.30	1.32
2.0	-2.40	-2.77
2.5	-4.03	726.5m
3.0	-335.2m	879.0m
FCC SPECIFICATION	3.6 GHz (± 0.05 ppm) ± 0.05 ppm = ± 180 Hz	3.6 GHz (± 0.05 ppm) ± 0.05 ppm = ± 180 Hz
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at +15% of Nominal Voltage, 120, 240VAC		
	138.0VAC	276VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	1.70	-2.40
0.5	1.36	1.97
1.0	-3.24	-1.07
1.5	974.5m	-775.3m
2.0	-2.62	1.67
2.5	-3.26	-3.26
3.0	1.08	2.35
FCC SPECIFICATION	3.6 GHz (± 0.05 ppm) ± 0.05 ppm = ± 180 Hz	3.6 GHz (± 0.05 ppm) ± 0.05 ppm = ± 180 Hz
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at +12% of Nominal Voltage, 120, 240VAC		
	134.40VAC	268.8VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	713.0m	-214.3m
0.5	-2.41	-3.11
1.0	-193.9m	-629.8m
1.5	-2.30	-2.17
2.0	-1.24	1.48
2.5	-1.83	-289.1m

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3.0	427..0m	458.0m
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at +9% of Nominal Voltage, 120, 240VAC		
	130.80VAC	261.6VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-1.39	-1.01
0.5	-1.21	-676.2m
1.0	-593.7m	-1.81
1.5	87.5m	1.26
2.0	1.57	1.93
2.5	-1.88	602.9m
3.0	-2.44	1.48
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at +6% of Nominal Voltage, 120, 240VAC		
	127.20VAC	254.4VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	546.0m	214.0m
0.5	-572.1m	1.24
1.0	-1.34	-677.9m
1.5	1.22	-507.9m
2.0	-820.0	40.7m
2.5	-1.19	-2.12
3.0	-846.9m	977.7m
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at +3% of Nominal Voltage, 120, 240VAC		
	123.60VAC	247.2VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	2.47	-551.4m

0.5	-502.8m	1.37
1.0	126.2m	-1.01
1.5	48.9m	622.0m
2.0	2.67	-887.0m
2.5	1.43	435.4m
3.0	1.47	-750.2m
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at -3% of Nominal Voltage, 120, 240VAC		
	116.40VAC	232.8VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-2.72	-396.6m
0.5	2.22	879.1m
1.0	750.2m	1.62
1.5	-666.4m	-3.39
2.0	-1.03	1.28
2.5	2.64	-2.61
3.0	2.36	-3.15
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at -6% of Nominal Voltage, 120, 240VAC		
	112.8VAC	225.6VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	-2.13	986.8m
0.5	64.6m	1.22
1.0	-600.1m	-1.21
1.5	-1.84	414.5m
2.0	1.12	1.48
2.5	92.4m	1.91
3.0	1.93	-1.40
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at -9% of Nominal Voltage, 120, 240VAC		
	109.2VAC	218.4VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	1.04	-3.90
0.5	-1.86	-265.4
1.0	-3.80	59.9m
1.5	1.25	-2.69
2.0	-1.61	-910.9m
2.5	-1.84	568.6m
3.0	575.5m	-2.65
FCC SPECIFICATION	3.6 GHz (± 0.05 ppm) ± 0.05 ppm = ± 180 Hz	3.6 GHz (± 0.05 ppm) ± 0.05 ppm = ± 180 Hz
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at -12% of Nominal Voltage, 120, 240VAC		
	105.6VAC	211.2VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	1.14	-829.7m1.15
0.5	710.7m	2.57
1.0	-877.7m	629.7m
1.5	-2.17	-751.7m
2.0	223.4m	1.30
2.5	759.4m	372.0m
3.0	-1.53	
FCC SPECIFICATION	3.6 GHz (± 0.05 ppm) ± 0.05 ppm = ± 180 Hz	3.6 GHz (± 0.05 ppm) ± 0.05 ppm = ± 180 Hz
FCC RESULT	PASS	PASS

Transmit Frequency Deviation at +20°C at -15% of Nominal Voltage, 120, 240VAC		
	102VAC	204VAC
Time (minutes)	Transmit Carrier Deviation (Hz)	Transmit Carrier Deviation (Hz)
0	37.5m	225.5 m
0.5	-611.5m	2.97
1.0	219.8m	-964.9 m
1.5	-2.51	4.24
2.0	-1.44	1.53
2.5	1.05	1.11
3.0	257.4m	-186.6m
FCC SPECIFICATION	3.6 GHz (± 0.05 ppm) ± 0.05 ppm = ± 180 Hz	3.6 GHz (± 0.05 ppm) ± 0.05 ppm = ± 180 Hz
FCC RESULT	PASS	PASS

NOKIA - Proprietary

Use Pursuant to Company Instructions.

DC Unit

Frequency Stability testing was completed on: AWPQZ 3.6GHz DC Unit. Testing was performed from 11/30/2022 through 12/1/2022 on the radio, which was located in the T-5 Thermal chamber of the Global Product Compliance Laboratory (GPCL) test facility located in Building 4, Room 4-278, Murray Hill, NJ, by Joe Bordonaro from GPCL.

Table 3: Unit Under Test

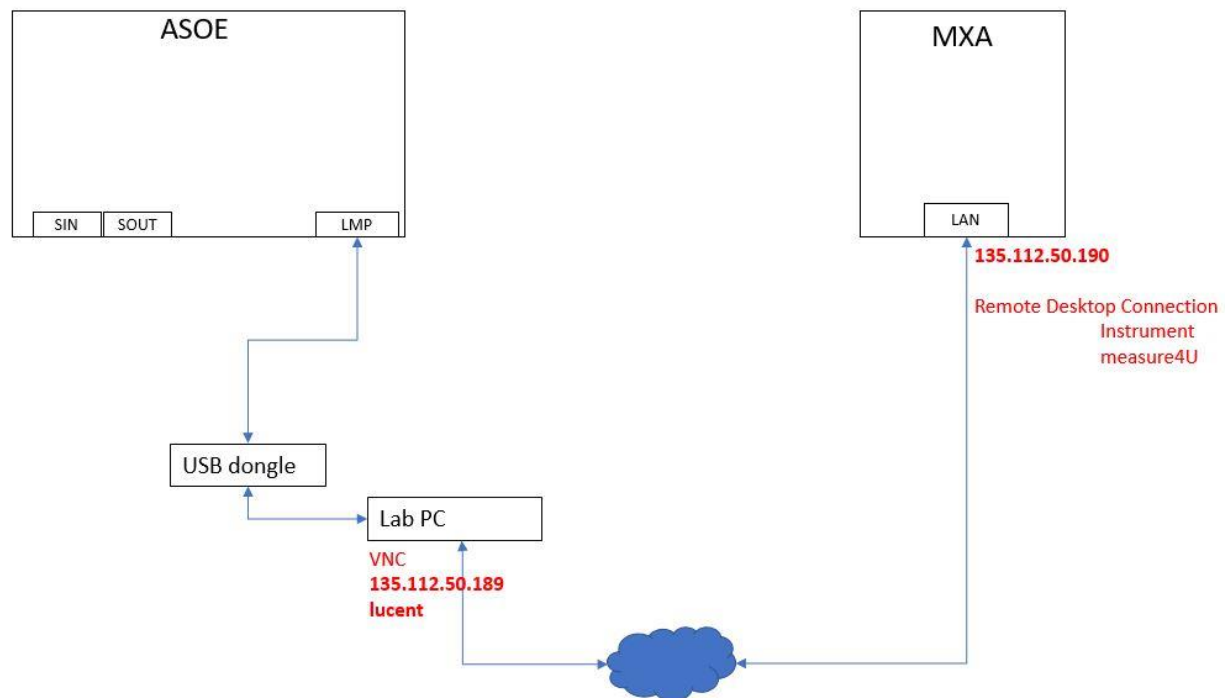
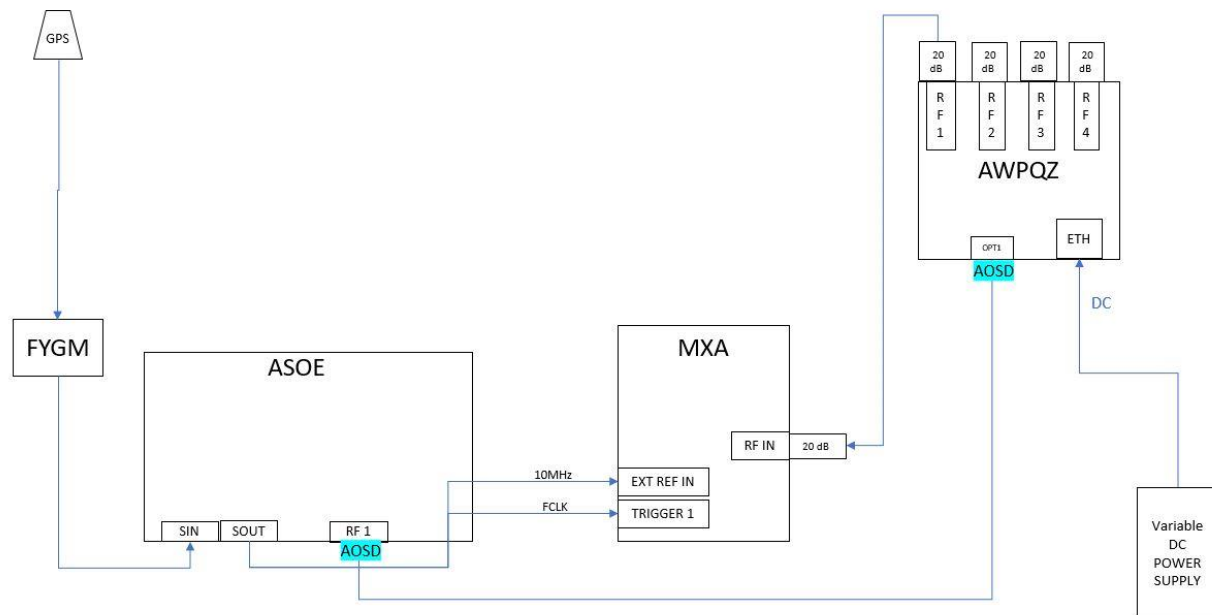
Series	Vendor	Serial Number	Comcode
AWPQZ	Nokia	EB2234R0616	476101A.X21

Table 2: Instruments Used for Measurement

Type	Model	Vendor	Serial Number	Cal Due Date
DC Source	N5767A	Agilent.	US14H9934P	N/A

Unit	Part number	Serial number
ASOE	475587A.101	EA211854050
FYGM	473394A.101	1634000295

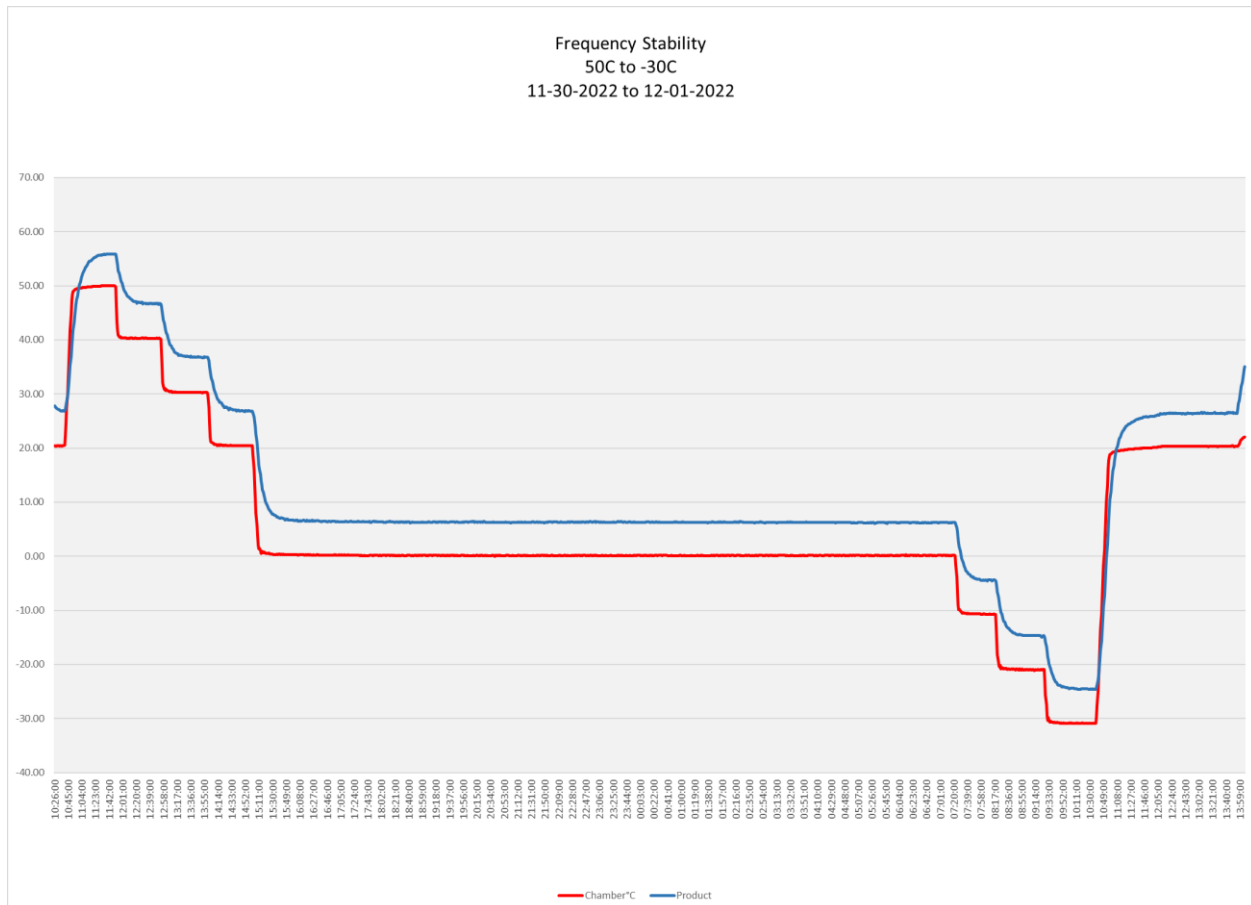




Test Equipment

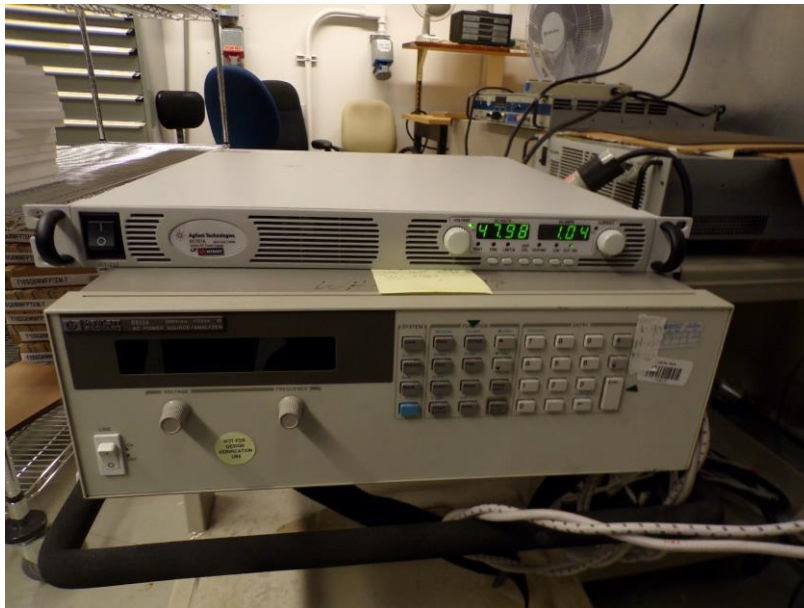
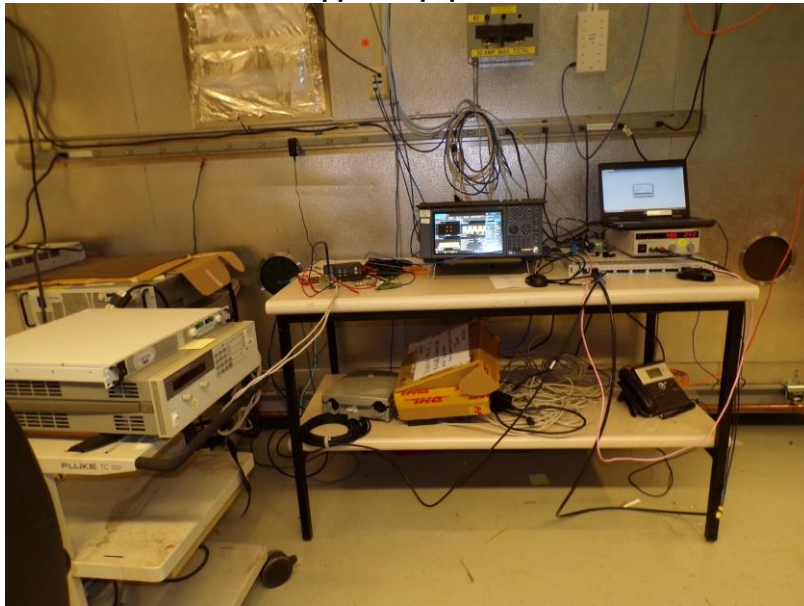
Asset ID	Manufacturer	Type	Description	Model	Serial	Calibration Date	Calibration Due
TH532-T05	Envirotronics	Controller		SPPCM	PCM001345	2021-08-11	2023-08-11
TH069	Extech	Data Logger	Barometric Pressure/Humidity/Temperature	SD700	Q690305	2021-07-20	2023-07-20
TH-T05	Thermotron	Thermal Chamber		N/A	26954	N/R	N/R
MY57431033	Keysight	MXA	Signal Analyzer	N9020B	MY57431033	2022-08-30	2024-08-30
TH305	Yokogawa	Data Acquisition Unit	48 channel Data Acquisition Unit	MV2048-3-4-2-1	S5M105417	2022-06-12	2024-06-12
TH044	Fluke	DMM	Multimeter	83-III	74910377	2022-02-24	2024-02-24

Date Plot



Photographs

Support Equipment



EUT in chamber



Frequency Block Tested AWPQZ *(CF = 3.6000 GHz)***Baseline Measurement at +25°C**

Transmit Frequency Deviation at +25°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	-1.45
0.5	-1.28
1.0	-2.52
1.5	46.32mHz
2.0	-19.4
2.5	1.23
3.0	-2.85
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS

Transmit Frequency Deviation at +50°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	-850.4m
0.5	-3.16
1.0	-1.17
1.5	-2.32
2.0	-3.38
2.5	-1.23
3.0	1.79
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS

Transmit Frequency Deviation at +40°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	-1.79
0.5	-2.37
1.0	-1.17
1.5	-212.7m
2.0	-1.28
2.5	-649.2m
3.0	4.87
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS

Transmit Frequency Deviation at +30°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	136.7m
0.5	-1.74
1.0	-2.94
1.5	1.66
2.0	-462.8m
2.5	44.0m
3.0	-397.6m
FCC SPECIFICATION	3.6 GHz (± 0.05 ppm) ± 0.05 ppm = ± 180 Hz
FCC RESULT	PASS

Transmit Frequency Deviation at +20°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	-1.38
0.5	-420.1m
1.0	2.02
1.5	-3.95
2.0	2.09
2.5	661.8m
3.0	3.70
FCC SPECIFICATION	3.6 GHz (± 0.05 ppm) ± 0.05 ppm = ± 180 Hz
FCC RESULT	PASS

Transmit Frequency Deviation at +10°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	-2.53
0.5	-683.7m
1.0	1.63
1.5	-3.72
2.0	-2.47
2.5	-1.01
3.0	-1.32
FCC SPECIFICATION	3.6 GHz (± 0.05 ppm) ± 0.05 ppm = ± 180 Hz
FCC RESULT	PASS

Transmit Frequency Deviation at 0°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	1.87
0.5	-905.9m
1.0	-2.24
1.5	-1.02
2.0	601.3m
2.5	-321.7m
3.0	1.33
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS

Transmit Frequency Deviation at -10°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	-3.69
0.5	1.35
1.0	-2.36
1.5	2.38
2.0	-3.47
2.5	-1.52
3.0	392.3m
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS

Transmit Frequency Deviation at -20°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	-2.15
0.5	643.5m
1.0	914.2m
1.5	-906.5m
2.0	1.08
2.5	64.0m
3.0	-3.76
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS

Transmit Frequency Deviation at -30°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	-2.75
0.5	-1.48
1.0	-1.88
1.5	-1.91
2.0	-1.54
2.5	535.9m
3.0	-3.49
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS

Upon return to +25°C.

Transmit Frequency Deviation at +25°C at 100% of Nominal Voltage, -48VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	-939.8m
0.5	-1.65
1.0	3.08
1.5	-2.51
2.0	479.3m
2.5	-2.05
3.0	-914.9m
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at 103% of Nominal Voltage, -49.44VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	-1.56
0.5	-2.15
1.0	-265.6m
1.5	-1.28
2.0	-1.70
2.5	-2.31
3.0	1.97
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$

FCC RESULT	PASS
Transmit Frequency Deviation at +25°C at 106% of Nominal Voltage, -50.88VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	1.62
0.5	689.7m
1.0	3.51
1.5	35.5m
2.0	-616.4m
2.5	250.0
3.0	1.98
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at 109% of Nominal Voltage, -52.32VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	2.81
0.5	864.5m
1.0	3.36
1.5	-937.6m
2.0	1.14
2.5	2.22
3.0	-4.15
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at 112% of Nominal Voltage, -53.76VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	-1.36
0.5	1.34
1.0	-1.99
1.5	-460.6m
2.0	-2.05
2.5	-1.83
3.0	1.98
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at 115% of Nominal Voltage, -55.20VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	811.7m
0.5	1.57
1.0	356.6m
1.5	1.54
2.0	-162.6m
2.5	-1.78
3.0	-1.03
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at 100% of Nominal Voltage, -48.0VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	-4.99
0.5	-36.4m
1.0	-1.30
1.5	-2.11
2.0	2.18
2.5	-251.2m
3.0	1.18
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at -3% of Nominal Voltage, -46.56VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	-1.65
0.5	-2.15
1.0	-1.09
1.5	-2.77
2.0	1.51
2.5	-135.1m
3.0	-1.23
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS

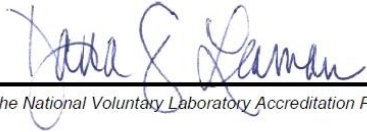
Transmit Frequency Deviation at +25°C at -6% of Nominal Voltage, -45.12VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	2.30
0.5	209.0m
1.0	3.59
1.5	-1.43
2.0	-486.1m
2.5	-1.07
3.0	-786.5m
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at -9% of Nominal Voltage, -43.68VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	1.43
0.5	-2.15
1.0	-706.7m
1.5	-1.60
2.0	2.10
2.5	-1.65
3.0	-2.33
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at -12% of Nominal Voltage, -42.24VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	-600.7m
0.5	-467.1m
1.0	-800.5m
1.5	1.58
2.0	-525.1m
2.5	1.89
3.0	-1.08
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS

Transmit Frequency Deviation at +25°C at -15% of Nominal Voltage, -40.80VDC	
Time (minutes)	Transmit Carrier Deviation (Hz)
0	-1.52
0.5	1.59
1.0	2.69
1.5	667.3m
2.0	-302.6m
2.5	-1.63
3.0	-1.05
FCC SPECIFICATION	3.6 GHz ($\pm 0.05\text{ppm}$) $\pm 0.05\text{ppm} = \pm 180\text{Hz}$
FCC RESULT	PASS

8. NVLAP Certificate of Accreditation

United States Department of Commerce National Institute of Standards and Technology NVLAP[®]  Certificate of Accreditation to ISO/IEC 17025:2017	
NVLAP LAB CODE: 100275-0	
Nokia, Global Product Compliance Lab Murray Hill, NJ	
<i>is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:</i>	
Electromagnetic Compatibility & Telecommunications	
<i>This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).</i>	
2022-09-28 through 2023-09-30 <i>Effective Dates</i>	 For the National Voluntary Laboratory Accreditation Program