LTE Band13
QPSK/16QAM Test Data

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Appendix A: Effective (Isotropic) Radiated Power Output Data

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Appendix B: Peak-to-Average Ratio

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Appendix C: 26dB Bandwidth and Occupied Bandwidth

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Appendix E: Conducted Spurious Emission

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Appendix F: Frequency Stability

Appendix A: Effective (Isotropic) Radiated Power Output Data

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	22.90	PASS
Band13	5MHz	QPSK	23205	1RB#12	23.07	PASS
Band13	5MHz	QPSK	23205	1RB#24	22.93	PASS
Band13	5MHz	QPSK	23205	12RB#0	21.85	PASS
Band13	5MHz	QPSK	23205	12RB#6	21.87	PASS
Band13	5MHz	QPSK	23205	12RB#13	21.91	PASS
Band13	5MHz	QPSK	23205	25RB#0	21.84	PASS
Band13	5MHz	QPSK	23230	1RB#0	23.01	PASS
Band13	5MHz	QPSK	23230	1RB#12	23.05	PASS
Band13	5MHz	QPSK	23230	1RB#24	22.97	PASS
Band13	5MHz	QPSK	23230	12RB#0	21.98	PASS
Band13	5MHz	QPSK	23230	12RB#6	21.96	PASS
Band13	5MHz	QPSK	23230	12RB#13	21.92	PASS
Band13	5MHz	QPSK	23230	25RB#0	21.92	PASS
Band13	5MHz	QPSK	23255	1RB#0	23.04	PASS
Band13	5MHz	QPSK	23255	1RB#12	23.06	PASS
Band13	5MHz	QPSK	23255	1RB#24	22.93	PASS
Band13	5MHz	QPSK	23255	12RB#0	21.92	PASS
Band13	5MHz	QPSK	23255	12RB#6	21.93	PASS
Band13	5MHz	QPSK	23255	12RB#13	21.93	PASS
Band13	5MHz	QPSK	23255	25RB#0	21.90	PASS
Band13	5MHz	16QAM	23205	1RB#0	22.03	PASS
Band13	5MHz	16QAM	23205	1RB#12	22.08	PASS
Band13	5MHz	16QAM	23205	1RB#24	22.17	PASS
Band13	5MHz	16QAM	23205	12RB#0	20.86	PASS
Band13	5MHz	16QAM	23205	12RB#6	20.91	PASS
Band13	5MHz	16QAM	23205	12RB#13	20.95	PASS
Band13	5MHz	16QAM	23205	25RB#0	21.07	PASS
Band13	5MHz	16QAM	23230	1RB#0	22.23	PASS
Band13	5MHz	16QAM	23230	1RB#12	22.30	PASS
Band13	5MHz	16QAM	23230	1RB#24	22.21	PASS
Band13	5MHz	16QAM	23230	12RB#0	21.00	PASS
Band13	5MHz	16QAM	23230	12RB#6	20.95	PASS

Band13	5MHz	16QAM	23230	12RB#13	21.00	PASS
Band13	5MHz	16QAM	23230	25RB#0	20.94	PASS
Band13	5MHz	16QAM	23255	1RB#0	22.01	PASS
Band13	5MHz	16QAM	23255	1RB#12	22.09	PASS
Band13	5MHz	16QAM	23255	1RB#24	22.00	PASS
Band13	5MHz	16QAM	23255	12RB#0	20.99	PASS
Band13	5MHz	16QAM	23255	12RB#6	20.95	PASS
Band13	5MHz	16QAM	23255	12RB#13	20.92	PASS
Band13	5MHz	16QAM	23255	25RB#0	20.95	PASS
Band13	10MHz	QPSK	23230	1RB#0	22.81	PASS
Band13	10MHz	QPSK	23230	1RB#24	22.91	PASS
Band13	10MHz	QPSK	23230	1RB#49	22.90	PASS
Band13	10MHz	QPSK	23230	25RB#0	22.00	PASS
Band13	10MHz	QPSK	23230	25RB#12	22.03	PASS
Band13	10MHz	QPSK	23230	25RB#25	21.93	PASS
Band13	10MHz	QPSK	23230	50RB#0	22.00	PASS
Band13	10MHz	16QAM	23230	1RB#0	22.03	PASS
Band13	10MHz	16QAM	23230	1RB#24	22.18	PASS
Band13	10MHz	16QAM	23230	1RB#49	22.06	PASS
Band13	10MHz	16QAM	23230	25RB#0	20.97	PASS
Band13	10MHz	16QAM	23230	25RB#12	21.02	PASS
Band13	10MHz	16QAM	23230	25RB#25	20.89	PASS
Band13	10MHz	16QAM	23230	50RB#0	20.92	PASS

Appendix B: Peak-to-Average Ratio (CCDF)

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	3.39	13	PASS
Band13	5MHz	QPSK	23205	25RB#0	4.87	13	PASS
Band13	5MHz	QPSK	23230	1RB#0	4.06	13	PASS
Band13	5MHz	QPSK	23230	25RB#0	5.03	13	PASS
Band13	5MHz	QPSK	23255	1RB#0	4.07	13	PASS
Band13	5MHz	QPSK	23255	25RB#0	5.36	13	PASS
Band13	5MHz	16QAM	23205	1RB#0	4.29	13	PASS
Band13	5MHz	16QAM	23205	25RB#0	5.69	13	PASS
Band13	5MHz	16QAM	23230	1RB#0	4.72	13	PASS
Band13	5MHz	16QAM	23230	25RB#0	5.86	13	PASS
Band13	5MHz	16QAM	23255	1RB#0	4.82	13	PASS
Band13	5MHz	16QAM	23255	25RB#0	6.12	13	PASS
Band13	10MHz	QPSK	23230	1RB#0	3.31	13	PASS
Band13	10MHz	QPSK	23230	50RB#0	4.89	13	PASS
Band13	10MHz	16QAM	23230	1RB#0	4.08	13	PASS
Band13	10MHz	16QAM	23230	50RB#0	5.86	13	PASS

Test Graphs

Band13-5MHz-QPSK-23205-1RB#0

Band13-5MHz-QPSK-23205-25RB#0

Band13-5MHz-QPSK-23230-1RB#0

Band13-5MHz-QPSK-23230-25RB#0

Band13-5MHz-QPSK-23255-1RB#0

Band13-5MHz-QPSK-23255-25RB#0

Band13-5MHz-16QAM-23205-1RB#0

Band13-5MHz-16QAM-23205-25RB#0

Band13-5MHz-16QAM-23230-1RB#0

Band13-5MHz-16QAM-23230-25RB#0

Band13-5MHz-16QAM-23255-1RB#0

Band13-5MHz-16QAM-23255-25RB#0

Band13-10MHz-QPSK-23230-1RB#0

Band13-10MHz-QPSK-23230-50RB#0

Band13-10MHz-16QAM-23230-1RB#0

Band13-10MHz-16QAM-23230-50RB#0

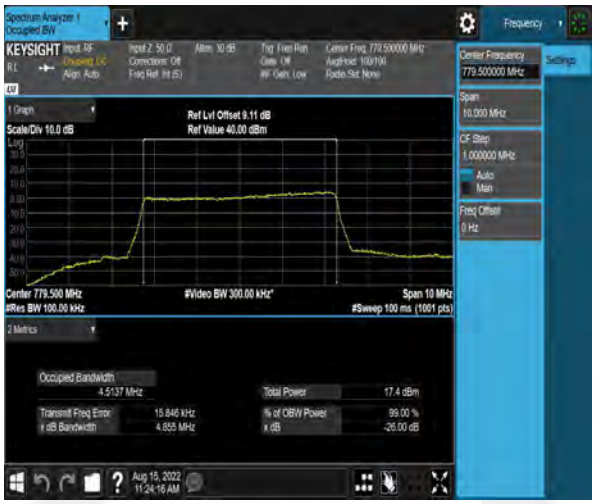
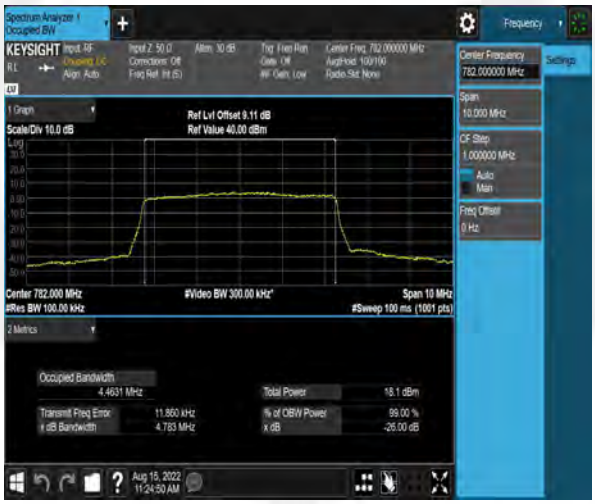
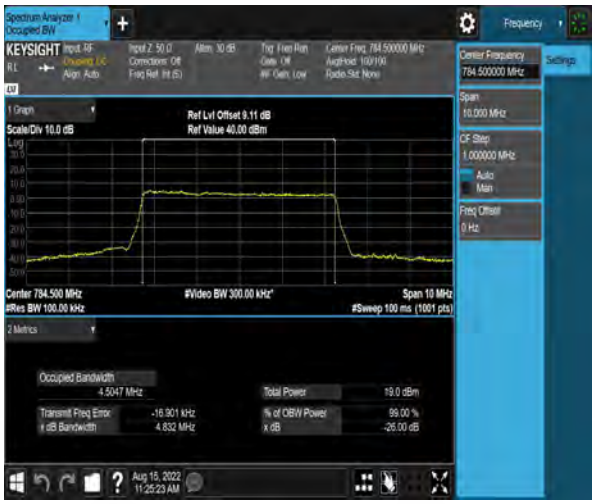
Spectrum Analyzer 1
Power Stat CCDF
KEYSIGHT
Frequency
Center Frequency
782.000000 MHz
Settings
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz
1 Metrics
2 Graph
Average Power
15.21 dBm
44.73 % at 0 dB
10.0 %
3.01 dB
1.0 %
4.97 dB
0.1 %
5.86 dB
0.01 %
6.35 dB
0.001 %
6.67 dB
0.0001 %
6.91 dB
Peak
6.92 dB
22.13 dBm
Gaussian
0.00 dB
20.00 dB
Info BW 25.000 MHz
Aug 15, 2022
11:48:06 AM

Appendix C: 26dB Bandwidth and Occupied Bandwidth

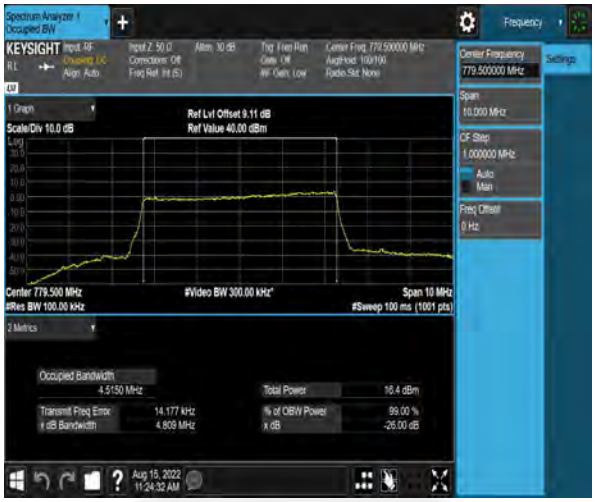
Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	4.5137	4.855	PASS
Band13	5MHz	QPSK	23230	25RB#0	4.4631	4.783	PASS
Band13	5MHz	QPSK	23255	25RB#0	4.5047	4.832	PASS
Band13	5MHz	16QAM	23205	25RB#0	4.5150	4.809	PASS
Band13	5MHz	16QAM	23230	25RB#0	4.4688	4.803	PASS
Band13	5MHz	16QAM	23255	25RB#0	4.5109	4.859	PASS
Band13	10MHz	QPSK	23230	50RB#0	8.9065	9.461	PASS
Band13	10MHz	16QAM	23230	50RB#0	8.9037	9.445	PASS

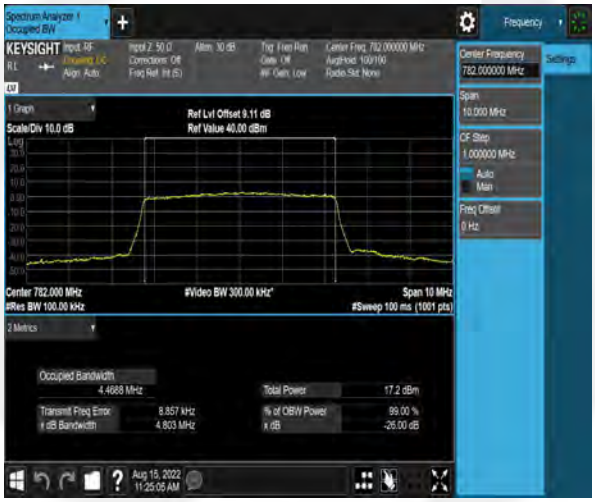
Test Graphs

Band13-5MHz-QPSK-23205-25RB#0

Band13-5MHz-QPSK-23230-25RB#0

Band13-5MHz-QPSK-23255-25RB#0


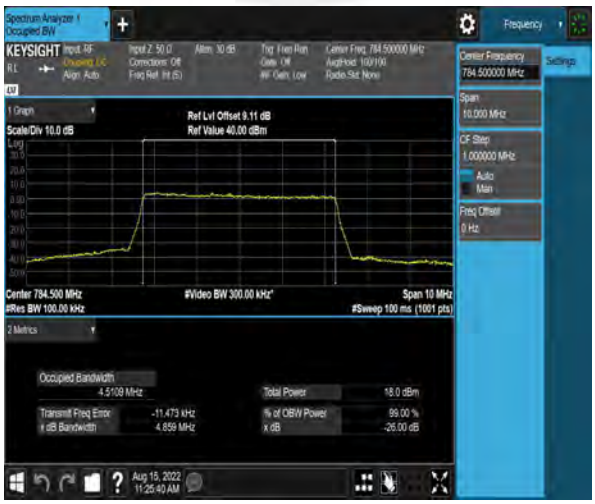
Band13-5MHz-16QAM-23205-25RB#0



Band13-5MHz-16QAM-23230-25RB#0

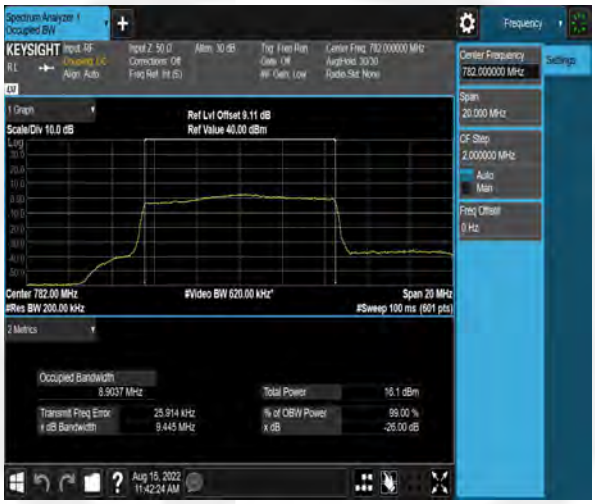


Band13-5MHz-16QAM-23255-25RB#0



Band13-10MHz-QPSK-23230-50RB#0

Band13-10MHz-16QAM-23230-50RB#0

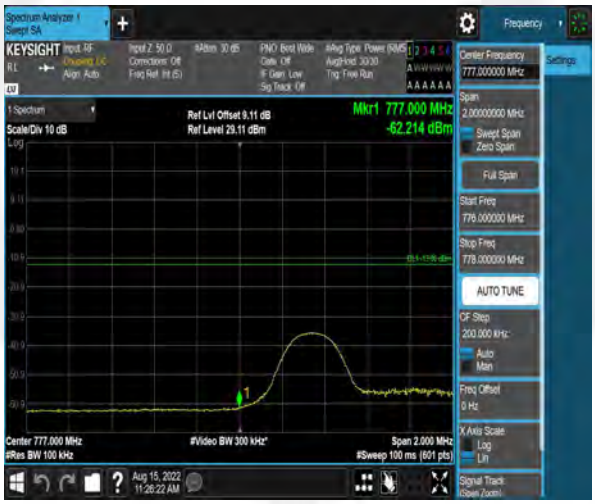


Appendix D: Band Edge

Test Result

Band	Bandwidth	Modulation	Channel	RB Config.	Result (dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	-24.21	PASS
Band13	5MHz	QPSK	23205	1RB#24	-62.21	PASS
Band13	5MHz	QPSK	23205	25RB#0	-36.55	PASS
Band13	5MHz	QPSK	23255	1RB#0	-62.02	PASS
Band13	5MHz	QPSK	23255	1RB#24	-23.14	PASS
Band13	5MHz	QPSK	23255	25RB#0	-33.34	PASS
Band13	5MHz	16QAM	23205	1RB#0	-25.17	PASS
Band13	5MHz	16QAM	23205	1RB#24	-62.39	PASS
Band13	5MHz	16QAM	23205	25RB#0	-36.84	PASS
Band13	5MHz	16QAM	23255	1RB#0	-62.31	PASS
Band13	5MHz	16QAM	23255	1RB#24	-24.73	PASS
Band13	5MHz	16QAM	23255	25RB#0	-34.11	PASS
Band13	10MHz	QPSK	23230	1RB#0	-32.14,-49.05	PASS
Band13	10MHz	QPSK	23230	1RB#49	-57.59,-33.61	PASS
Band13	10MHz	QPSK	23230	50RB#0	-35.25,-33.66	PASS
Band13	10MHz	16QAM	23230	1RB#0	-33.47,-48.90	PASS
Band13	10MHz	16QAM	23230	1RB#49	-57.66,-34.34	PASS
Band13	10MHz	16QAM	23230	50RB#0	-37.05,-34.75	PASS

Test Graphs

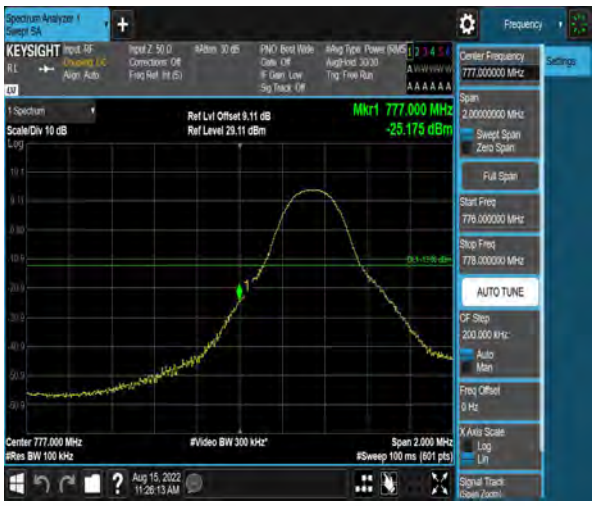
Band13-5MHz-QPSK-23205-1RB#0
Band13-5MHz-QPSK-23205-1RB#24

Band13-5MHz-QPSK-23205-25RB#0

Band13-5MHz-QPSK-23255-1RB#0

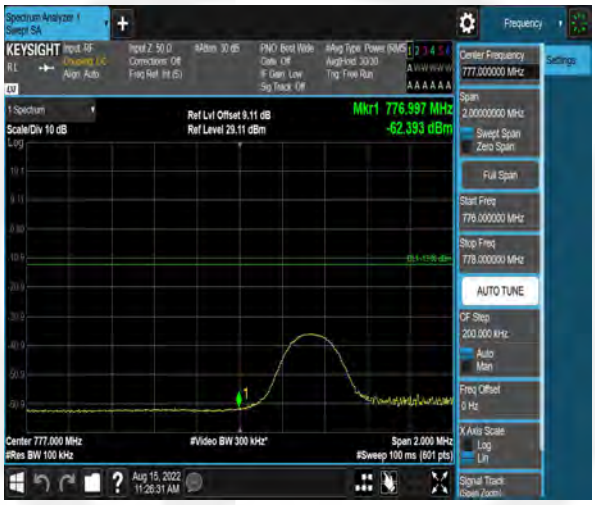
Band13-5MHz-QPSK-23255-1RB#24

Band13-5MHz-QPSK-23255-25RB#0

Band13-5MHz-16QAM-23205-1RB#0

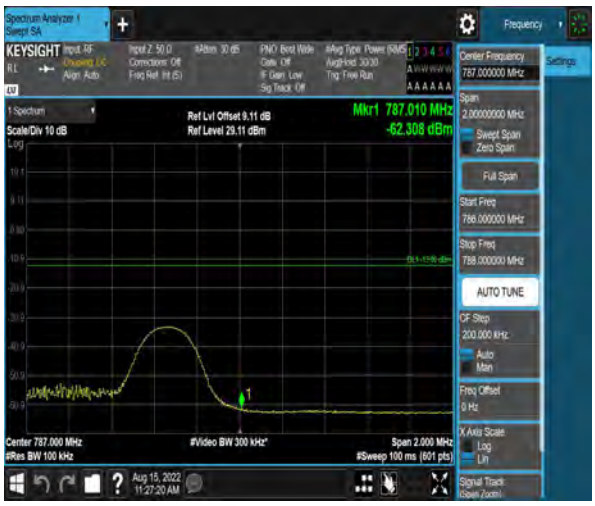


Band13-5MHz-16QAM-23205-1RB#24

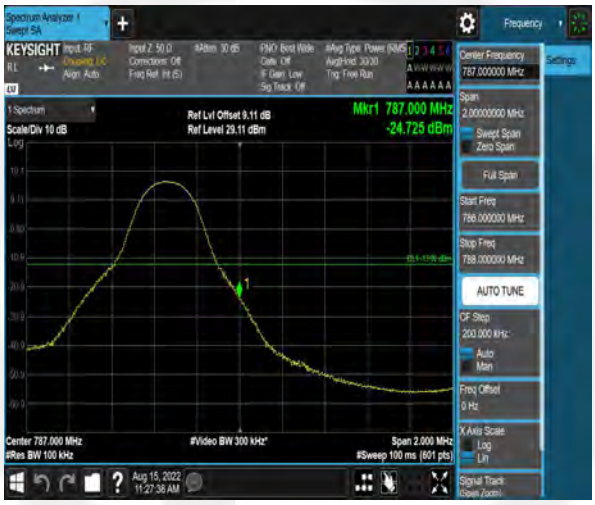


Band13-5MHz-16QAM-23205-25RB#0

Band13-5MHz-16QAM-23255-1RB#0



Band13-5MHz-16QAM-23255-1RB#24



Band13-5MHz-16QAM-23255-25RB#0

Band13-10MHz-QPSK-23230-1RB#0

Band13-10MHz-QPSK-23230-1RB#49

Band13-10MHz-QPSK-23230-50RB#0

Band13-10MHz-16QAM-23230-1RB#0

Band13-10MHz-16QAM-23230-1RB#49

Band13-10MHz-16QAM-23230-50RB#0

Appendix E: Conducted Spurious Emission

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Frequency Range	Result (dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	Range1:30~1000MHz	-46.49	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range3:763~775MHz	-71.77	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range4:793~805MHz	-74.37	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range2:1000~10000MHz	-36.63	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range5:1559~1610MHz	-61.41	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range1:30~1000MHz	-45.56	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range3:763~775MHz	-75.01	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range4:793~805MHz	-72.66	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range2:1000~10000MHz	-35.96	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range5:1559~1610MHz	-60.34	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range1:30~1000MHz	-45.78	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range3:763~775MHz	-74.77	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range4:793~805MHz	-66.64	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range2:1000~10000MHz	-35.85	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range5:1559~1610MHz	-62.01	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range1:30~1000MHz	-46.19	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range3:763~7	-73.36	PASS

					75MHz		
Band13	5MHz	16QAM	23205	1RB#0	Range4:793~805MHz	-73.61	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range2:1000~10000MHz	-35.98	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range5:1559~1610MHz	-61.36	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range1:30~1000MHz	-45.89	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range3:763~775MHz	-75.92	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range4:793~805MHz	-73.98	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range2:1000~10000MHz	-35.52	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range5:1559~1610MHz	-61.42	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range1:30~1000MHz	-46.38	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range3:763~775MHz	-74.89	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range4:793~805MHz	-66.44	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range2:1000~10000MHz	-36.24	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range5:1559~1610MHz	-60.6	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range1:30~1000MHz	-45.21	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range3:763~775MHz	-70.95	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range4:793~805MHz	-60.78	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range2:1000~10000MHz	-34.77	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range5:1559~1610MHz	-59.89	PASS

Band13	10MHz	16QAM	23230	1RB#0	Range1:30~1000MHz	-45.62	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range3:763~775MHz	-69.02	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range4:793~805MHz	-61.66	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range2:1000~10000MHz	-35.98	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range5:1559~1610MHz	-60	PASS

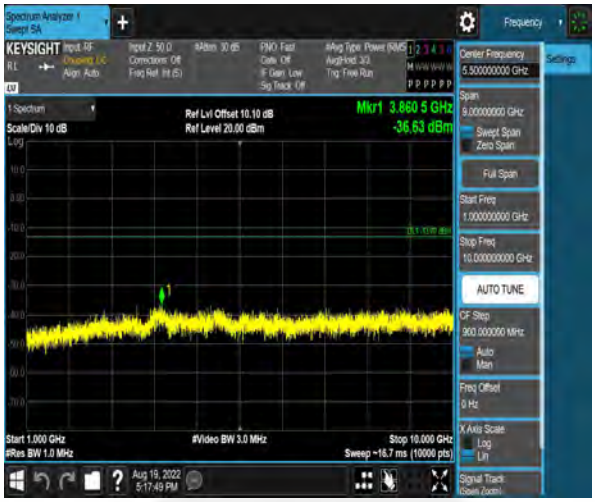
Test Graphs

Band13-5MHz-QPSK-23205-1RB#0-Range1:30~1000MHz

Band13-5MHz-QPSK-23205-1RB#0-Range3:763~775MHz

Band13-5MHz-QPSK-23205-1RB#0-Range4:793~805MHz

Band13-5MHz-QPSK-23205-1RB#0-Range2:1000~10000MHz



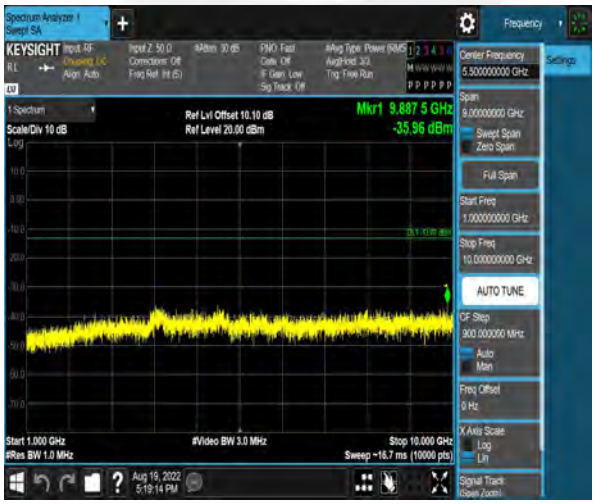
Band13-5MHz-QPSK-23205-1RB#0-Range5:1559~1610MHz

Band13-5MHz-QPSK-23230-1RB#0-Range1:30~1000MHz

Band13-5MHz-QPSK-23230-1RB#0-Range3:763~775MHz

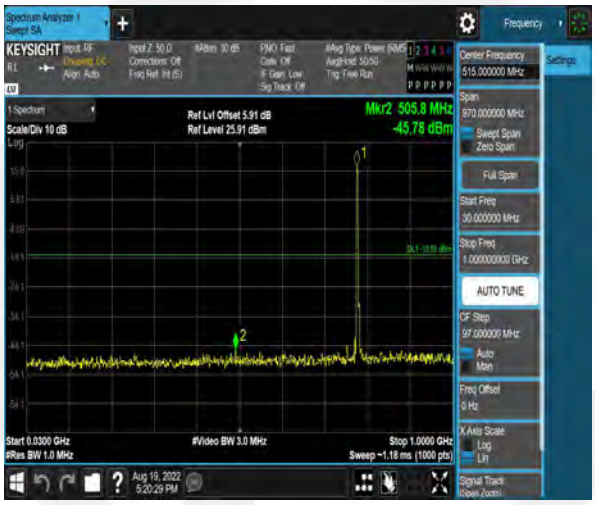
Band13-5MHz-QPSK-23230-1RB#0-Range4:793~805MHz

Band13-5MHz-QPSK-23230-1RB#0-Range2:1000~10000MHz



Band13-5MHz-QPSK-23230-1RB#0-Range5:1559~1610MHz

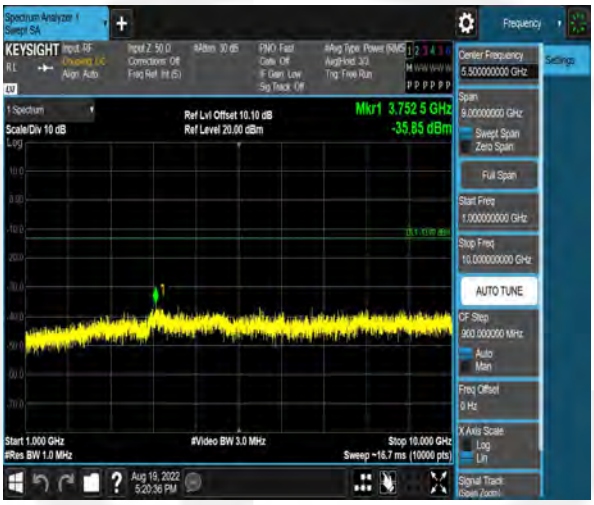
Band13-5MHz-QPSK-23255-1RB#0-Range1:30~1000MHz



Band13-5MHz-QPSK-23255-1RB#0-Range3:763~775MHz

Band13-5MHz-QPSK-23255-1RB#0-Range4:793~805MHz

Band13-5MHz-QPSK-23255-1RB#0-Range2:1000~10000MHz



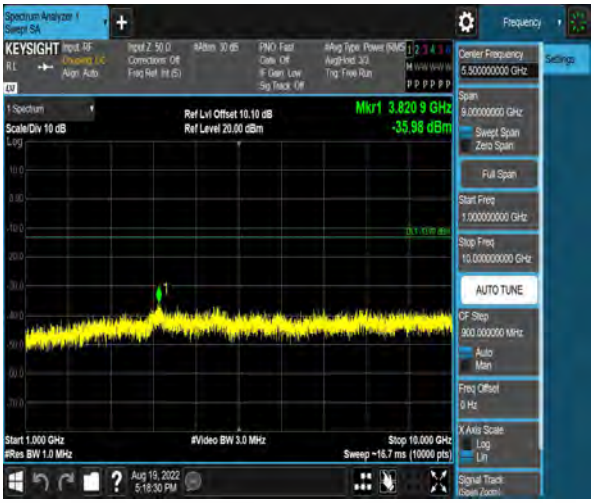
Band13-5MHz-QPSK-23255-1RB#0-Range5:1559~1610MHz

Band13-5MHz-16QAM-23205-1RB#0-Range1:30~1000MHz

Band13-5MHz-16QAM-23205-1RB#0-Range3:763~775MHz

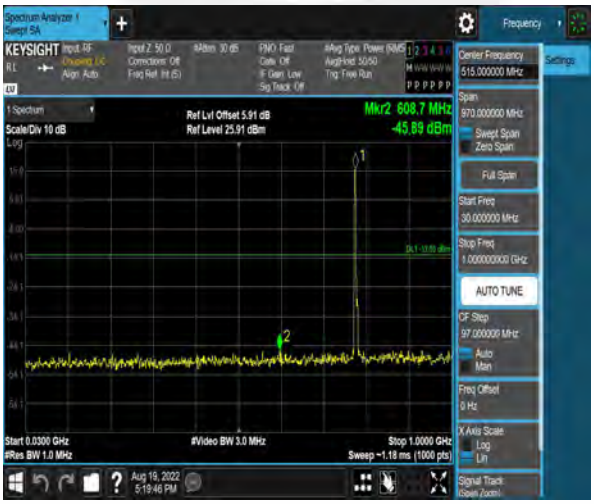
Band13-5MHz-16QAM-23205-1RB#0-Range4:793~805MHz

Band13-5MHz-16QAM-23205-1RB#0-Range2:1000~10000MHz



Band13-5MHz-16QAM-23205-1RB#0-Range5:1559~1610MHz

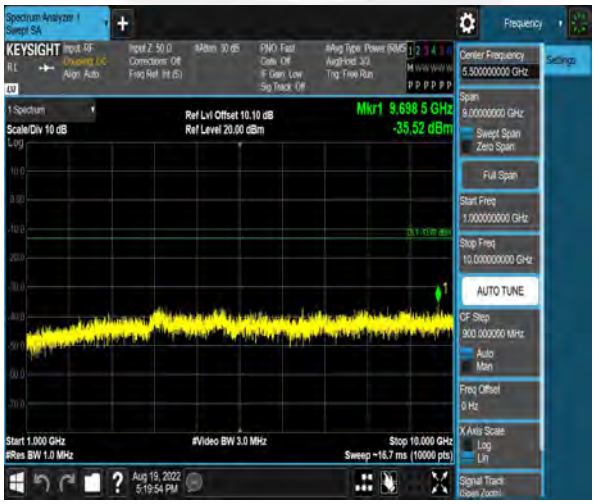
Band13-5MHz-16QAM-23230-1RB#0-Range1:30~1000MHz



Band13-5MHz-16QAM-23230-1RB#0-Range3:763~775MHz

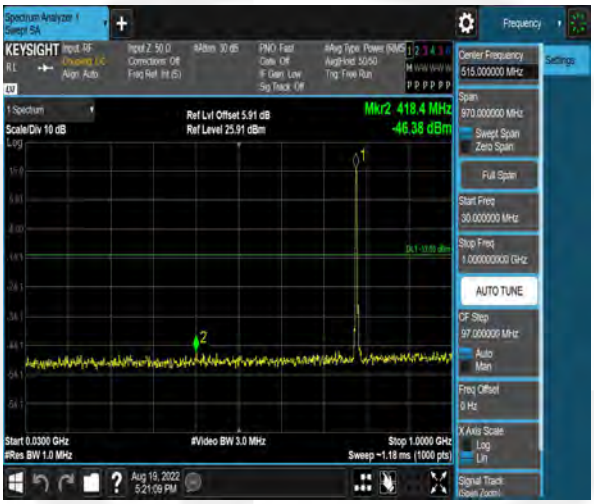
Band13-5MHz-16QAM-23230-1RB#0-Range4:793~805MHz

Band13-5MHz-16QAM-23230-1RB#0-Range2:1000~10000MHz



Band13-5MHz-16QAM-23230-1RB#0-Range5:1559~1610MHz

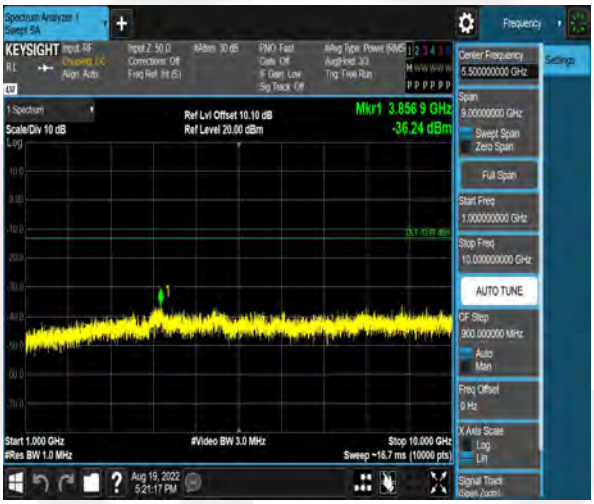
Band13-5MHz-16QAM-23255-1RB#0-Range1:30~1000MHz



Band13-5MHz-16QAM-23255-1RB#0-Range3:763~775MHz

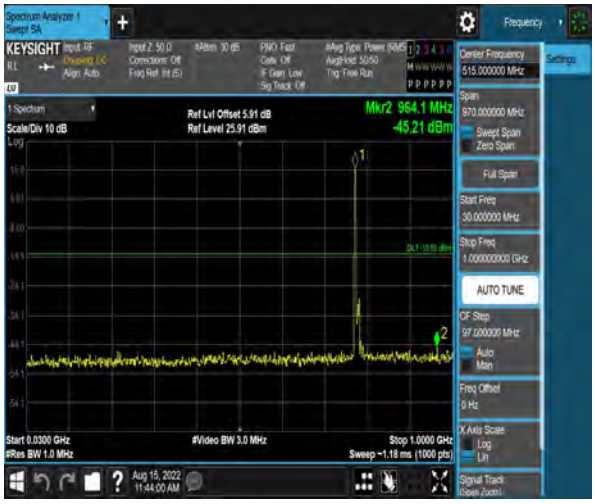
Band13-5MHz-16QAM-23255-1RB#0-Range4:793~805MHz

Band13-5MHz-16QAM-23255-1RB#0-Range2:1000~10000MHz



Band13-5MHz-16QAM-23255-1RB#0-Range5:1559~1610MHz

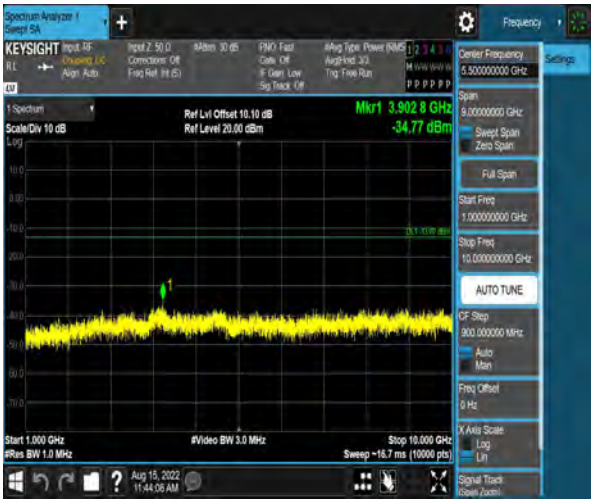
Band13-10MHz-QPSK-23230-1RB#0-Range1:30~1000MHz



Band13-10MHz-QPSK-23230-1RB#0-Range3:763~775MHz

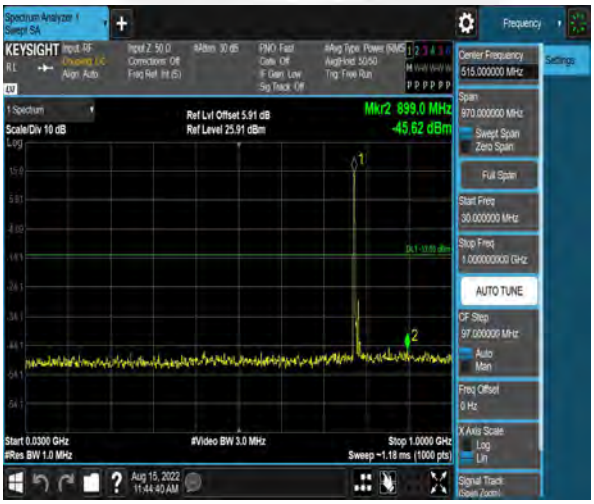
Band13-10MHz-QPSK-23230-1RB#0-Range4:793~805MHz

Band13-10MHz-QPSK-23230-1RB#0-Range2:1000~10000MHz



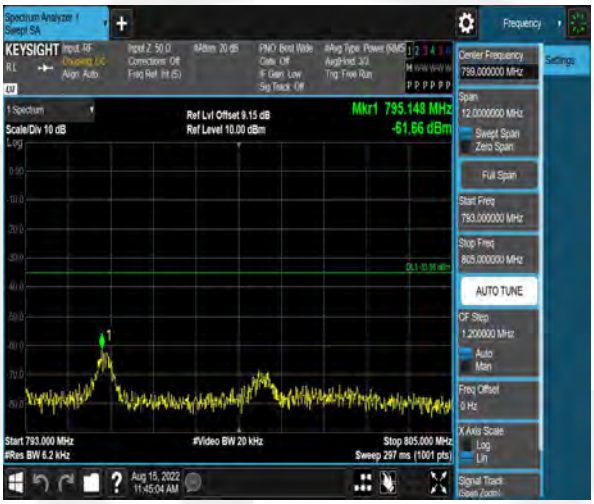
Band13-10MHz-QPSK-23230-1RB#0-Range5:1559~1610MHz

Band13-10MHz-16QAM-23230-1RB#0-Range1:30~1000MHz

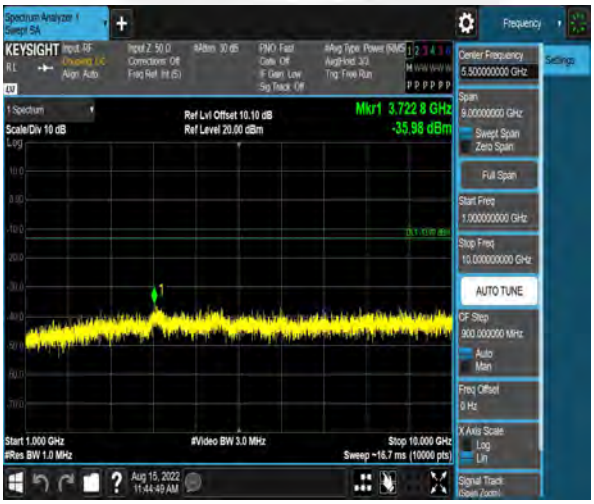


Band13-10MHz-16QAM-23230-1RB#0-Range3:763~775MHz

Band13-10MHz-16QAM-23230-1RB#0-Range4:793~805MHz



Band13-10MHz-16QAM-23230-1RB#0-Range2:1000~10000MHz



Band13-10MHz-16QAM-23230-1RB#0-Range5:1559~1610MHz

KEYSIGHT
Ref Lvl Offset 11.90 dB
Ref Level 0.00 dBm
Mkr1 1.595 975 GHz
-60.00 dBm
Scale/Div 10 dB
Start 1.55900 GHz
#Res BW 1.0 MHz
#Video BW 3.0 MHz
Stop 1.61000 GHz
Sweep 1.00 ms (1001 pts)
Center Frequency
1.594500000 GHz
Span
51.0000000 MHz
Full Span
Start Freq
1.559000000 GHz
Stop Freq
1.610000000 GHz
AUTO TUNE
CF Step
5.100000 MHz
Freq Offset
0 Hz
Signal Track

Appendix F: Frequency Stability

Test Result

Voltage										
Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	VL	NT	5.26	0.006748	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	VN	NT	-4.23	-0.005427	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	VH	NT	6.39	0.008198	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	VL	NT	-4.79	-0.006125	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	VN	NT	-3.18	-0.004066	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	VH	NT	-6.58	-0.008414	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	VL	NT	3.30	0.004207	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	VN	NT	5.94	0.007572	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	VH	NT	-2.07	-0.002639	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	VL	NT	7.91	0.010148	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	VN	NT	5.51	0.007069	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	VH	NT	2.76	0.003541	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	VL	NT	-11.29	-0.014437	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	VN	NT	-5.92	-0.007570	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	VH	NT	-8.01	-0.010243	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	VL	NT	5.31	0.006769	±2.5	PASS

Band13	5MHz	16QAM	23255	25RB#0	VN	NT	8.11	0.010338	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	VH	NT	6.31	0.008043	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VL	NT	-6.57	-0.008402	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VN	NT	2.89	0.003696	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VH	NT	-8.50	-0.010870	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VL	NT	2.47	0.003159	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VN	NT	1.73	0.002212	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VH	NT	-3.20	-0.004092	±2.5	PASS

Voltage										
Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	NV	-30	-4.56	-0.005850	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	-20	-2.15	-0.002758	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	-10	5.46	0.007004	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	0	3.29	0.004221	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	10	-7.20	-0.009237	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	20	4.68	0.006004	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	30	3.18	0.004080	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	40	-3.30	-0.004233	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	50	7.04	0.009031	±2.5	PASS

Band13	5MHz	QPSK	23230	25RB#0	NV	-30	3.00	0.003836	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	-20	3.62	0.004629	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	-10	-4.86	-0.006215	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	0	-2.89	-0.003696	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	10	-3.18	-0.004066	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	20	-5.16	-0.006598	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	30	-4.28	-0.005473	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	40	-4.81	-0.006151	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	50	-5.49	-0.007020	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	-30	4.08	0.005201	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	-20	10.37	0.013219	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	-10	6.97	0.008885	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	0	3.79	0.004831	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	10	7.24	0.009229	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	20	7.65	0.009751	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	30	6.51	0.008298	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	40	5.06	0.006450	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	50	2.13	0.002715	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	-30	2.16	0.00277	±2.5	PASS

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Band13	5MHz	16QAM	23205	25RB#0	NV	-20	4.16	0.005337	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	-10	4.63	0.005940	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	0	6.81	0.008736	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	10	-6.11	-0.007838	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	20	-6.44	-0.008262	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	30	-4.66	-0.005978	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	40	-5.64	-0.007235	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	50	-6.52	-0.008364	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	-30	-6.09	-0.007788	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	-20	-2.57	-0.003286	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	-10	-8.30	-0.010614	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	0	-6.77	-0.008657	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	10	-6.25	-0.007992	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	20	-5.35	-0.006841	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	30	-3.43	-0.004386	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	40	3.22	0.004118	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	50	-9.88	-0.012634	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	-30	8.90	0.011345	±2.5	PASS

Band13	5MHz	16QAM	23255	25RB#0	NV	-20	10.06	0.012823	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	-10	-2.72	-0.003467	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	0	1.76	0.002243	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	10	3.92	0.004997	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	20	4.26	0.005430	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	30	4.58	0.005838	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	40	5.91	0.007533	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	50	6.42	0.008184	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	-30	-5.31	-0.006790	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	-20	2.39	0.003056	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	-10	-2.12	-0.002711	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	0	-8.74	-0.011176	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	10	-6.54	-0.008363	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	20	1.53	0.001957	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	30	-3.06	-0.003913	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	40	-5.97	-0.007634	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	50	4.28	0.005473	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-30	-2.59	-0.003312	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-20	-4.39	-0.0056	±2.5	PASS

								14		
Band13	10MHz	16QAM	23230	50RB#0	NV	-10	-3.66	-0.004680	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	0	-3.63	-0.004642	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	10	-3.98	-0.005090	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	20	-1.79	-0.002289	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	30	2.37	0.003031	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	40	3.58	0.004578	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	50	3.38	0.004322	±2.5	PASS

LTE Band13
64QAM Test Data

Appendix A: Effective (Isotropic) Radiated Power Output Data

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band13	5MHz	64QAM	23205	1RB#0	23.03	PASS
Band13	5MHz	64QAM	23205	1RB#12	22.96	PASS
Band13	5MHz	64QAM	23205	1RB#24	22.98	PASS
Band13	5MHz	64QAM	23205	12RB#0	21.98	PASS
Band13	5MHz	64QAM	23205	12RB#6	21.92	PASS
Band13	5MHz	64QAM	23205	12RB#13	21.85	PASS
Band13	5MHz	64QAM	23205	25RB#0	21.78	PASS
Band13	5MHz	64QAM	23230	1RB#0	23.04	PASS
Band13	5MHz	64QAM	23230	1RB#12	23.07	PASS
Band13	5MHz	64QAM	23230	1RB#24	23.00	PASS
Band13	5MHz	64QAM	23230	12RB#0	21.79	PASS
Band13	5MHz	64QAM	23230	12RB#6	21.82	PASS
Band13	5MHz	64QAM	23230	12RB#13	21.71	PASS
Band13	5MHz	64QAM	23230	25RB#0	21.76	PASS
Band13	5MHz	64QAM	23255	1RB#0	23.04	PASS
Band13	5MHz	64QAM	23255	1RB#12	23.05	PASS
Band13	5MHz	64QAM	23255	1RB#24	23.05	PASS
Band13	5MHz	64QAM	23255	12RB#0	21.80	PASS
Band13	5MHz	64QAM	23255	12RB#6	21.84	PASS
Band13	5MHz	64QAM	23255	12RB#13	21.79	PASS
Band13	5MHz	64QAM	23255	25RB#0	21.73	PASS
Band13	10MHz	64QAM	23230	1RB#0	23.04	PASS
Band13	10MHz	64QAM	23230	1RB#24	23.00	PASS
Band13	10MHz	64QAM	23230	1RB#49	23.01	PASS
Band13	10MHz	64QAM	23230	25RB#0	21.83	PASS
Band13	10MHz	64QAM	23230	25RB#12	21.72	PASS
Band13	10MHz	64QAM	23230	25RB#25	21.73	PASS

Band13	10MHz	64QAM	23230	50RB#0	21.70	PASS

Appendix B: Peak-to-Average Ratio (CCDF)

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band13	5MHz	64QAM	23205	25RB#0	5.84	13	PASS
Band13	5MHz	64QAM	23230	25RB#0	6.09	13	PASS
Band13	5MHz	64QAM	23255	25RB#0	5.78	13	PASS
Band13	10MHz	64QAM	23230	50RB#0	6.10	13	PASS

Test Graphs

Band13-5MHz-64QAM-23205-25RB#0
Band13-5MHz-64QAM-23230-25RB#0
Band13-5MHz-64QAM-23255-25RB#0

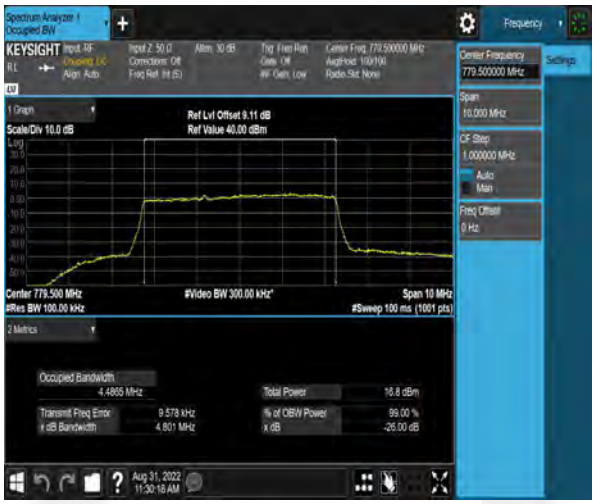
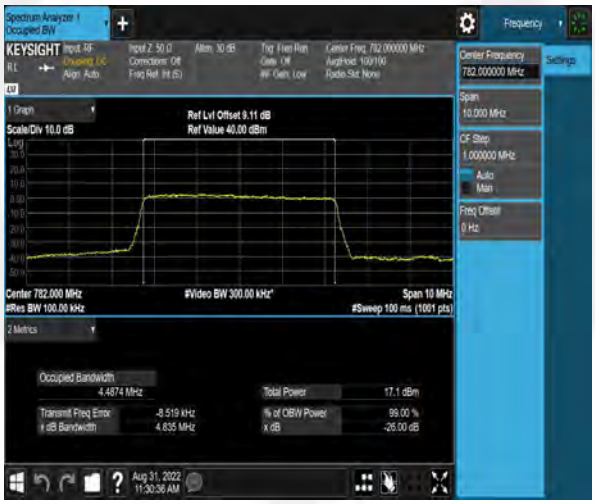
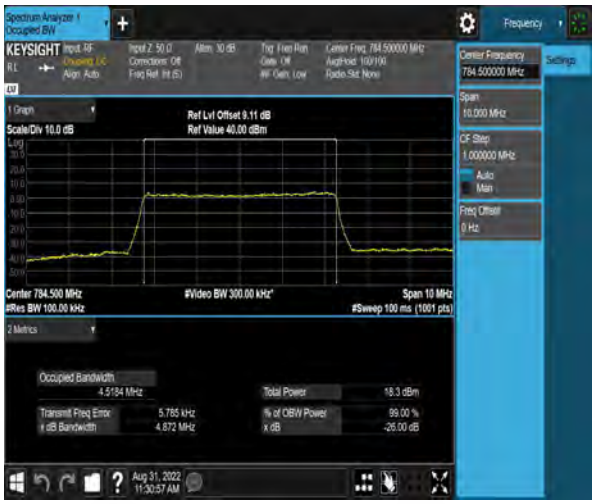
Band13-10MHz-64QAM-23230-50RB#0

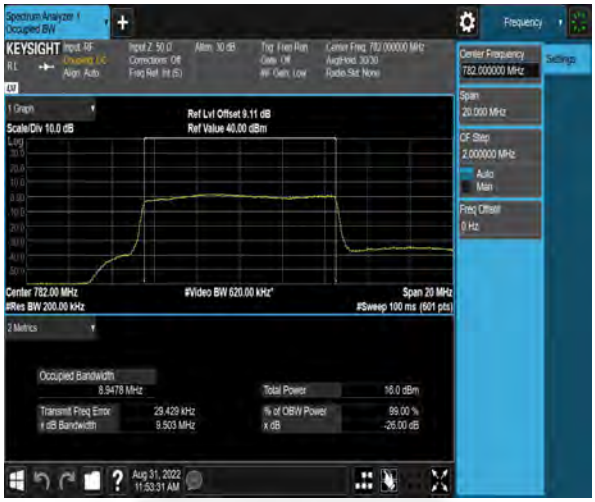
Appendix C: 26dB Bandwidth and Occupied Bandwidth

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band13	5MHz	64QAM	23205	25RB#0	4.4865	4.801	PASS
Band13	5MHz	64QAM	23230	25RB#0	4.4874	4.835	PASS
Band13	5MHz	64QAM	23255	25RB#0	4.5184	4.872	PASS
Band13	10MHz	64QAM	23230	50RB#0	8.9478	9.503	PASS

Test Graphs

Band13-5MHz-64QAM-23205-25RB#0

Band13-5MHz-64QAM-23230-25RB#0

Band13-5MHz-64QAM-23255-25RB#0


Band13-10MHz-64QAM-23230-50RB#0


Appendix D: Band Edge

Test Result

Band	Bandwidth	Modulation	Channel	RB Config.	Result (dBm)	Verdict
Band13	5MHz	64QAM	23205	25RB#0	-36.15	PASS
Band13	5MHz	64QAM	23255	25RB#0	-32.81	PASS
Band13	10MHz	64QAM	23230	50RB#0	-38.83,-36.07	PASS

Test Graphs

Band13-5MHz-64QAM-23205-25RB#0
Band13-5MHz-64QAM-23255-25RB#0
Band13-10MHz-64QAM-23230-50RB#0

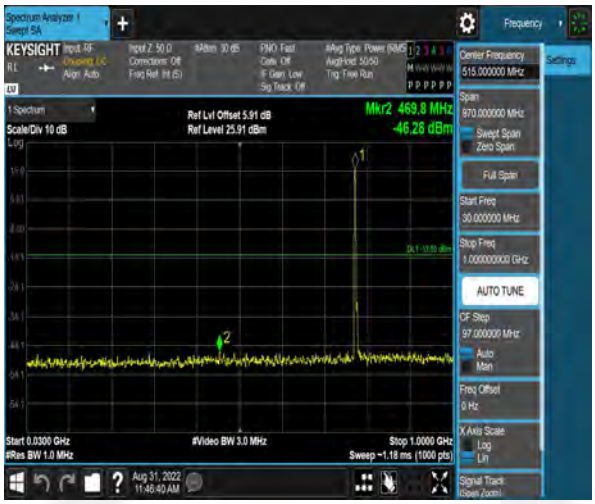
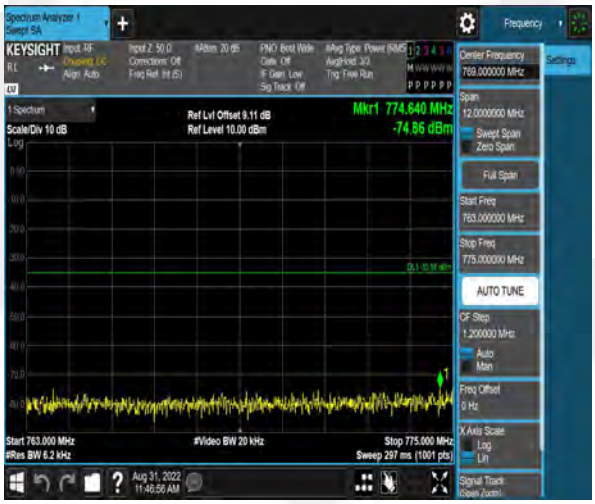
Appendix E: Conducted Spurious Emission

Test Result

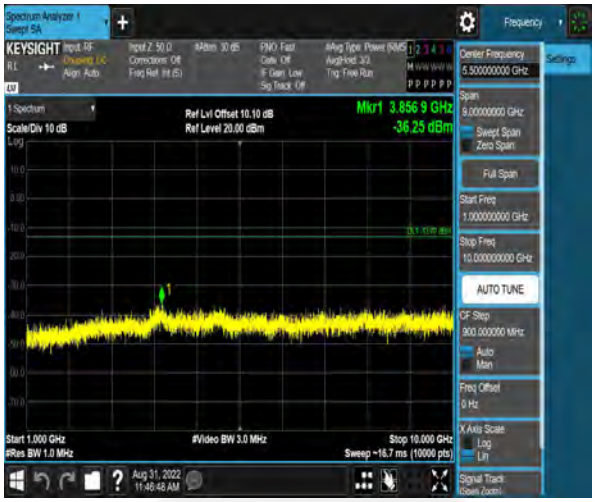
Band	Bandwidth	Modulation	Channel	RB Configuration	Frequency Range	Result (dBm)	Verdict
Band13	5MHz	64QAM	23205	1RB#0	Range1:30~1000MHz	-46.28	PASS
Band13	5MHz	64QAM	23205	1RB#0	Range3:763~775MHz	-74.86	PASS
Band13	5MHz	64QAM	23205	1RB#0	Range4:793~805MHz	-73.84	PASS
Band13	5MHz	64QAM	23205	1RB#0	Range2:1000~10000MHz	-36.25	PASS
Band13	5MHz	64QAM	23205	1RB#0	Range5:1559~1610MHz	-60.36	PASS
Band13	5MHz	64QAM	23230	1RB#0	Range1:30~1000MHz	-45.8	PASS
Band13	5MHz	64QAM	23230	1RB#0	Range3:763~775MHz	-74.15	PASS
Band13	5MHz	64QAM	23230	1RB#0	Range4:793~805MHz	-71.38	PASS
Band13	5MHz	64QAM	23230	1RB#0	Range2:1000~10000MHz	-36.3	PASS
Band13	5MHz	64QAM	23230	1RB#0	Range5:1559~1610MHz	-61.38	PASS
Band13	5MHz	64QAM	23255	1RB#0	Range1:30~1000MHz	-44.78	PASS
Band13	5MHz	64QAM	23255	1RB#0	Range3:763~775MHz	-75.26	PASS
Band13	5MHz	64QAM	23255	1RB#0	Range4:793~805MHz	-65.63	PASS
Band13	5MHz	64QAM	23255	1RB#0	Range2:1000~10000MHz	-35.84	PASS
Band13	5MHz	64QAM	23255	1RB#0	Range5:1559~1610MHz	-61.21	PASS
Band13	10MHz	64QAM	23230	1RB#0	Range1:30~1000MHz	-46.28	PASS
Band13	10MHz	64QAM	23230	1RB#0	Range3:763~7	-74.63	PASS

					75MHz		
Band13	10MHz	64QAM	23230	1RB#0	Range4:793~805MHz	-55.98	PASS
Band13	10MHz	64QAM	23230	1RB#0	Range2:1000~10000MHz	-35.75	PASS
Band13	10MHz	64QAM	23230	1RB#0	Range5:1559~1610MHz	-59.83	PASS

Test Graphs

Band13-5MHz-64QAM-23205-1RB#0-Range1:30~1000MHz

Band13-5MHz-64QAM-23205-1RB#0-Range3:763~775MHz

Band13-5MHz-64QAM-23205-1RB#0-Range4:793~805MHz

Band13-5MHz-64QAM-23205-1RB#0-Range2:1000~10000MHz



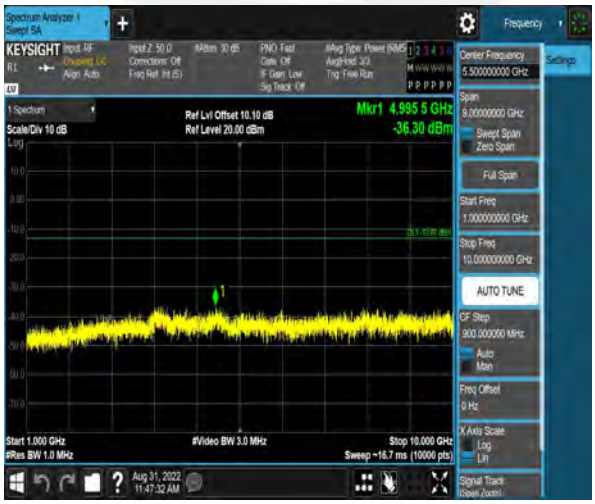
Band13-5MHz-64QAM-23205-1RB#0-Range5:1559~1610MHz

Band13-5MHz-64QAM-23230-1RB#0-Range1:30~1000MHz

Band13-5MHz-64QAM-23230-1RB#0-Range3:763~775MHz

Band13-5MHz-64QAM-23230-1RB#0-Range4:793~805MHz

Band13-5MHz-64QAM-23230-1RB#0-Range2:1000~10000MHz



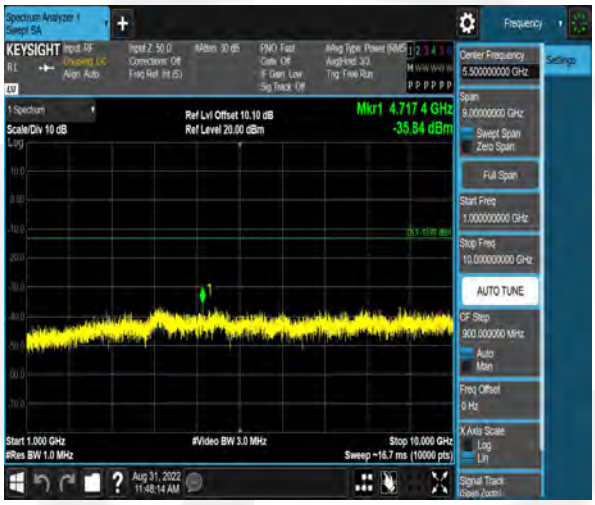
Band13-5MHz-64QAM-23230-1RB#0-Range5:1559~1610MHz

Band13-5MHz-64QAM-23255-1RB#0-Range1:30~1000MHz

Band13-5MHz-64QAM-23255-1RB#0-Range3:763~775MHz

Band13-5MHz-64QAM-23255-1RB#0-Range4:793~805MHz

Band13-5MHz-64QAM-23255-1RB#0-Range2:1000~10000MHz



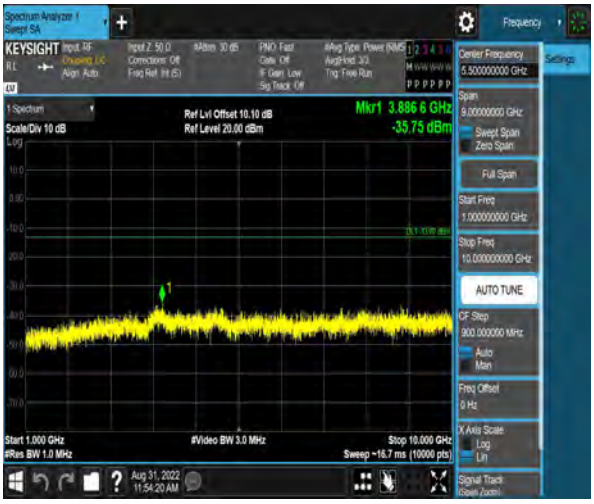
Band13-5MHz-64QAM-23255-1RB#0-Range5:1559~1610MHz

Band13-10MHz-64QAM-23230-1RB#0-Range1:30~1000MHz

Band13-10MHz-64QAM-23230-1RB#0-Range3:763~775MHz

Band13-10MHz-64QAM-23230-1RB#0-Range4:793~805MHz

Band13-10MHz-64QAM-23230-1RB#0-Range2:1000~10000MHz



Band13-10MHz-64QAM-23230-1RB#0-Range5:1559~1610MHz

Appendix F: Frequency Stability

Test Result

Voltage										
Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band13	5MHz	64QAM	23205	25RB#0	VL	NT	2.33	0.002989	±2.5	PASS
Band13	5MHz	64QAM	23205	25RB#0	VN	NT	7.00	0.008980	±2.5	PASS
Band13	5MHz	64QAM	23205	25RB#0	VH	NT	4.25	0.005452	±2.5	PASS
Band13	5MHz	64QAM	23230	25RB#0	VL	NT	-5.95	-0.007609	±2.5	PASS
Band13	5MHz	64QAM	23230	25RB#0	VN	NT	-11.34	-0.014501	±2.5	PASS
Band13	5MHz	64QAM	23230	25RB#0	VH	NT	-5.16	-0.006598	±2.5	PASS
Band13	5MHz	64QAM	23255	25RB#0	VL	NT	5.84	0.007444	±2.5	PASS
Band13	5MHz	64QAM	23255	25RB#0	VN	NT	8.80	0.011217	±2.5	PASS
Band13	5MHz	64QAM	23255	25RB#0	VH	NT	2.75	0.003505	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	VL	NT	-3.33	-0.004258	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	VN	NT	-5.56	-0.007110	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	VH	NT	-4.32	-0.005524	±2.5	PASS

Voltage										
Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band13	5MHz	64QAM	23205	25RB#0	NV	-30	7.14	0.009160	±2.5	PASS
Band13	5MHz	64QAM	23205	25RB#0	NV	-20	-5.04	-0.006466	±2.5	PASS
Band13	5MHz	64QAM	23205	25RB#0	NV	-10	6.37	0.00817	±2.5	PASS

								2		
Band13	5MHz	64QAM	23205	25RB#0	NV	0	4.94	0.006337	±2.5	PASS
Band13	5MHz	64QAM	23205	25RB#0	NV	10	4.62	0.005927	±2.5	PASS
Band13	5MHz	64QAM	23205	25RB#0	NV	20	5.18	0.006645	±2.5	PASS
Band13	5MHz	64QAM	23205	25RB#0	NV	30	-2.40	-0.003079	±2.5	PASS
Band13	5MHz	64QAM	23205	25RB#0	NV	40	4.89	0.006273	±2.5	PASS
Band13	5MHz	64QAM	23205	25RB#0	NV	50	-5.11	-0.006555	±2.5	PASS
Band13	5MHz	64QAM	23230	25RB#0	NV	-30	-3.91	-0.005000	±2.5	PASS
Band13	5MHz	64QAM	23230	25RB#0	NV	-20	-3.13	-0.004003	±2.5	PASS
Band13	5MHz	64QAM	23230	25RB#0	NV	-10	-4.06	-0.005192	±2.5	PASS
Band13	5MHz	64QAM	23230	25RB#0	NV	0	-10.90	-0.013939	±2.5	PASS
Band13	5MHz	64QAM	23230	25RB#0	NV	10	-9.74	-0.012455	±2.5	PASS
Band13	5MHz	64QAM	23230	25RB#0	NV	20	-10.06	-0.012864	±2.5	PASS
Band13	5MHz	64QAM	23230	25RB#0	NV	30	-7.48	-0.009565	±2.5	PASS
Band13	5MHz	64QAM	23230	25RB#0	NV	40	-8.13	-0.010396	±2.5	PASS
Band13	5MHz	64QAM	23230	25RB#0	NV	50	-6.98	-0.008926	±2.5	PASS
Band13	5MHz	64QAM	23255	25RB#0	NV	-30	4.09	0.005214	±2.5	PASS
Band13	5MHz	64QAM	23255	25RB#0	NV	-20	7.37	0.009395	±2.5	PASS
Band13	5MHz	64QAM	23255	25RB#0	NV	-10	2.69	0.003429	±2.5	PASS

Band13	5MHz	64QAM	23255	25RB#0	NV	0	7.41	0.009446	±2.5	PASS
Band13	5MHz	64QAM	23255	25RB#0	NV	10	4.39	0.005596	±2.5	PASS
Band13	5MHz	64QAM	23255	25RB#0	NV	20	9.56	0.012186	±2.5	PASS
Band13	5MHz	64QAM	23255	25RB#0	NV	30	6.85	0.008732	±2.5	PASS
Band13	5MHz	64QAM	23255	25RB#0	NV	40	6.02	0.007674	±2.5	PASS
Band13	5MHz	64QAM	23255	25RB#0	NV	50	4.53	0.005774	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	-30	-3.88	-0.004962	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	-20	-4.12	-0.005269	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	-10	-6.90	-0.008824	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	0	-5.97	-0.007634	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	10	-9.14	-0.011688	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	20	-2.16	-0.002762	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	30	-5.31	-0.006790	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	40	-8.17	-0.010448	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	50	-3.96	-0.005064	±2.5	PASS