Appendix B. Test Results_WCDMA

A: Effective (Isotropic) Radiated Power Output Data

Test Result

Test Band	Test Mode	Test Channel	Average Measured (dbm)	Peak Measured (dbm)	Verdict
Band2	UMTS/TM1	LCH	23.44	26.35	PASS
		MCH	23.54	26.43	PASS
		HCH	23.37	26.29	PASS
Test Band	Test Mode	Test Channel	Average Measured (dbm)	Peak Measured (dbm)	Verdict
Band2	UMTS/TM2	LCH_SubTest-1	22.65	26.05	PASS
		LCH_SubTest-2	22.52	25.87	PASS
		LCH_SubTest-3	22.15	25.59	PASS
		LCH_SubTest-4	22.13	25.55	PASS
		MCH_SubTest-1	22.80	26.13	PASS
		MCH_SubTest-2	22.65	26.00	PASS
		MCH_SubTest-3	22.31	25.65	PASS
		MCH_SubTest-4	22.29	25.62	PASS
		HCH_SubTest-1	22.60	26.00	PASS
		HCH_SubTest-2	22.49	25.84	PASS
		HCH_SubTest-3	22.12	25.54	PASS
		HCH_SubTest-4	22.05	25.43	PASS
Test Band	Test Mode	Test Channel	Average Measured (dbm)	Peak Measured (dbm)	Verdict
Band2	UMTS/TM3	LCH_SubTest-1	21.93	25.30	PASS
		LCH_SubTest-2	19.94	23.20	PASS
		LCH_SubTest-3	20.80	24.22	PASS
		LCH_SubTest-4	19.93	23.16	PASS

		LCH_SubTest-5	21.81	25.10	PASS
		MCH_SubTest-1	22.07	25.37	PASS
		MCH_SubTest-2	19.94	23.20	PASS
		MCH_SubTest-3	21.06	24.43	PASS
		MCH_SubTest-4	20.91	24.31	PASS
		MCH_SubTest-5	21.93	25.23	PASS
		HCH_SubTest-1	21.89	25.26	PASS
		HCH_SubTest-2	19.90	23.30	PASS
		HCH_SubTest-3	20.88	24.28	PASS
		HCH_SubTest-4	19.79	23.27	PASS
		HCH_SubTest-5	21.76	25.00	PASS

Test Band	Test Mode	Test Channel	Average Measured (dbm)	Peak Measured (dbm)	Verdict
Band4	UMTS/TM1	LCH	23.42	26.34	PASS
		MCH	23.48	26.40	PASS
		HCH	23.57	26.46	PASS
Test Band	Test Mode	Test Channel	Average Measured (dbm)	Peak Measured (dbm)	Verdict
Band4	UMTS/TM2	LCH_SubTest-1	22.69	26.11	PASS
		LCH_SubTest-2	22.54	25.95	PASS
		LCH_SubTest-3	22.18	25.64	PASS
		LCH_SubTest-4	22.16	25.59	PASS
		MCH_SubTest-1	22.77	26.22	PASS
		MCH_SubTest-2	22.61	26.05	PASS
		MCH_SubTest-3	22.24	25.76	PASS
		MCH_SubTest-4	22.26	25.71	PASS
		HCH_SubTest-1	22.84	26.27	PASS
		HCH_SubTest-2	22.71	26.13	PASS
		HCH_SubTest-3	22.32	25.78	PASS

		HCH_SubTest-4	22.34	25.73	PASS
Test Band	Test Mode	Test Channel	Average Measured (dbm)	Peak Measured (dbm)	Verdict
Band4	UMTS/TM3	LCH_SubTest-1	21.94	25.38	PASS
		LCH_SubTest-2	20.00	23.42	PASS
		LCH_SubTest-3	20.95	24.33	PASS
		LCH_SubTest-4	19.98	23.23	PASS
		LCH_SubTest-5	21.83	25.29	PASS
		MCH_SubTest-1	22.04	25.50	PASS
		MCH_SubTest-2	19.93	23.45	PASS
		MCH_SubTest-3	20.94	24.50	PASS
		MCH_SubTest-4	20.89	24.34	PASS
		MCH_SubTest-5	21.97	25.42	PASS
		HCH_SubTest-1	22.10	25.53	PASS
		HCH_SubTest-2	20.00	23.51	PASS
		HCH_SubTest-3	21.15	24.45	PASS
		HCH_SubTest-4	20.00	23.36	PASS
		HCH_SubTest-5	22.00	25.45	PASS

Test Band	Test Mode	Test Channel	Average Measured (dbm)	Peak Measured (dbm)	Verdict
Band5	UMTS/TM1	LCH	23.33	26.36	PASS
		MCH	23.46	26.54	PASS
		HCH	23.37	26.46	PASS
Test Band	Test Mode	Test Channel	Average Measured (dbm)	Peak Measured (dbm)	Verdict
Band5	UMTS/TM2	LCH_SubTest-1	22.55	26.00	PASS
		LCH_SubTest-2	22.39	25.82	PASS
		LCH_SubTest-3	22.06	25.52	PASS
		LCH_SubTest-4	22.01	25.47	PASS

		MCH_SubTest-1	22.72	26.14	PASS
		MCH_SubTest-2	22.58	25.97	PASS
		MCH_SubTest-3	22.21	25.67	PASS
		MCH_SubTest-4	22.19	25.60	PASS
		HCH_SubTest-1	22.65	26.05	PASS
		HCH_SubTest-2	22.48	25.88	PASS
		HCH_SubTest-3	22.13	25.54	PASS
		HCH_SubTest-4	22.13	25.53	PASS
Test Band	Test Mode	Test Channel	Average Measured (dbm)	Peak Measured (dbm)	Verdict
Band5	UMTS/TM3	LCH_SubTest-1	21.84	25.27	PASS
		LCH_SubTest-2	19.80	23.26	PASS
		LCH_SubTest-3	20.83	24.18	PASS
		LCH_SubTest-4	19.77	23.26	PASS
		LCH_SubTest-5	21.66	25.20	PASS
		MCH_SubTest-1	22.00	25.39	PASS
		MCH_SubTest-2	19.93	23.39	PASS
		MCH_SubTest-3	21.05	24.44	PASS
		MCH_SubTest-4	20.83	24.34	PASS
		MCH_SubTest-5	21.96	25.25	PASS
		HCH_SubTest-1	21.92	25.31	PASS
		HCH_SubTest-2	19.88	23.23	PASS
		HCH_SubTest-3	20.80	24.18	PASS
		HCH_SubTest-4	19.83	23.17	PASS
		HCH_SubTest-5	21.66	25.08	PASS

B: Peak-to-Average Ratio

Test Result

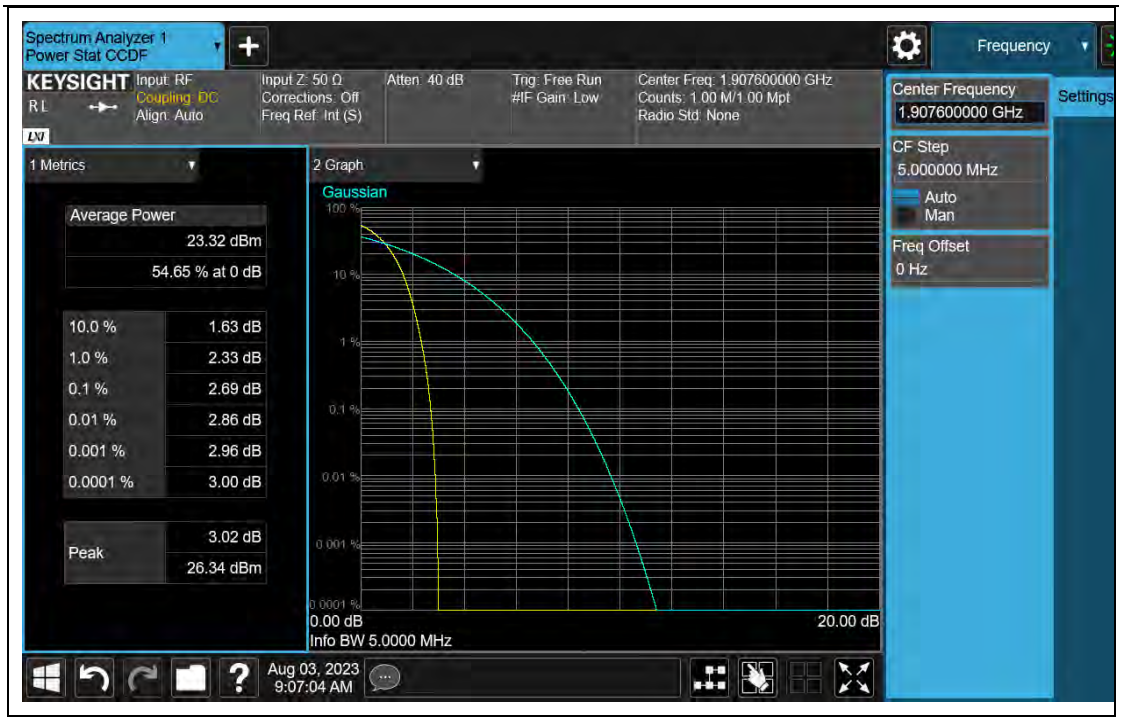
Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
Band2	9262	2.98	13	PASS
Band2	9400	2.98	13	PASS
Band2	9538	2.69	13	PASS
Band4	1312	3.00	13	PASS
Band4	1413	3.08	13	PASS
Band4	1513	3.07	13	PASS
Band5	4132	3.00	13	PASS
Band5	4183	2.98	13	PASS
Band5	4233	2.98	13	PASS

Test Graphs

Band2-9262-PASS

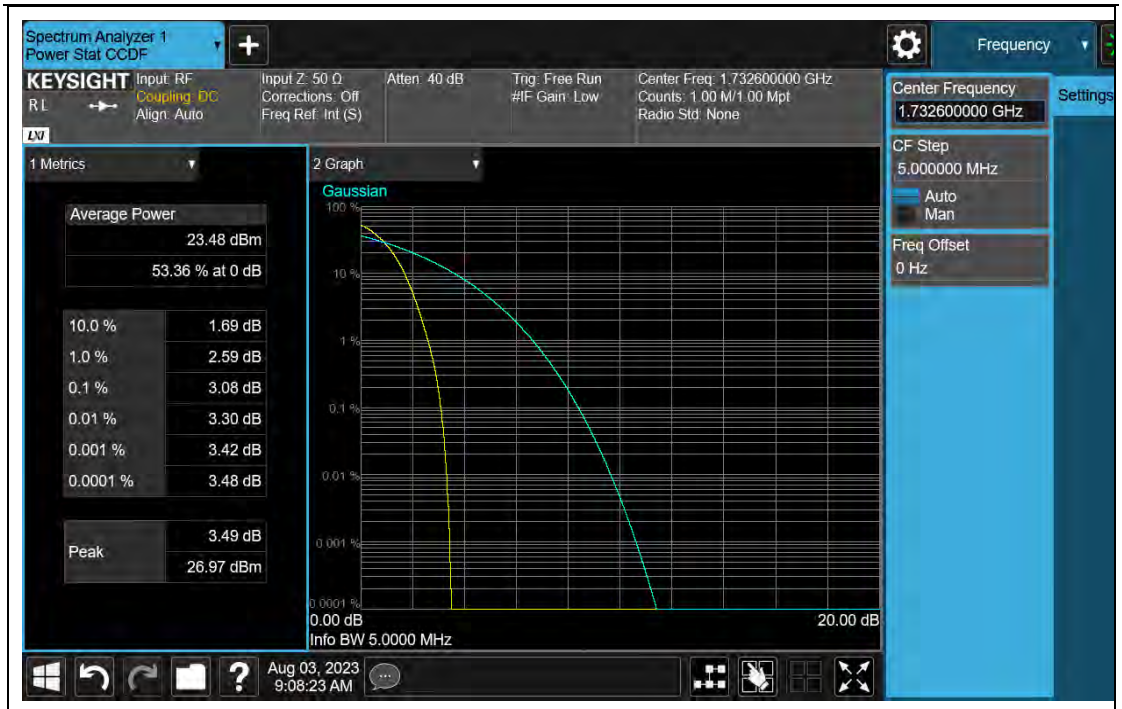
Band2-9400-PASS

Band2-9538-PASS



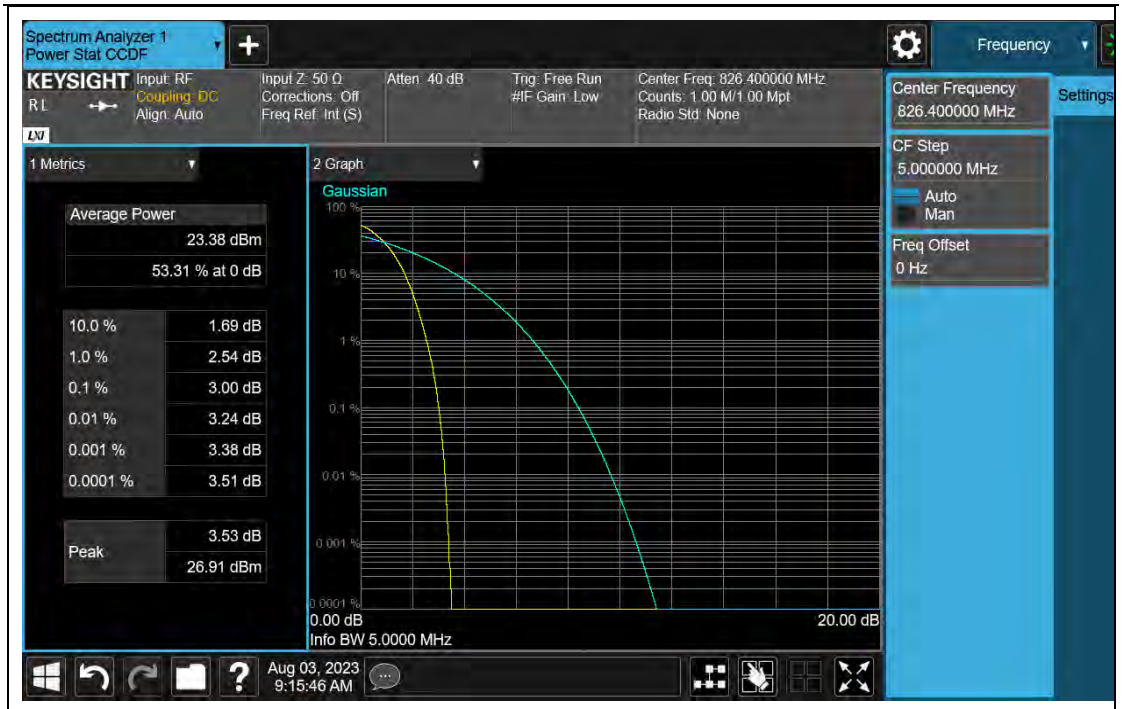
Band4-1312-PASS

Band4-1413-PASS



Band4-1513-PASS

Band5-4132-PASS



Band5-4183-PASS

Band5-4233-PASS

Spectrum Analyzer 1
Power Stat CCDF
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
Atten: 40 dB
Trig: Free Run
#IF Gain: Low
Center Freq: 846.600000 MHz
Counts: 1.00 M/1.00 Mpt
Radio Std: None
Frequency
Center Frequency
846.600000 MHz
Settings
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz
1 Metrics
Average Power
23.37 dBm
53.05 % at 0 dB
10.0 % 1.70 dB
1.0 % 2.53 dB
0.1 % 2.98 dB
0.01 % 3.21 dB
0.001 % 3.34 dB
0.0001 % 3.43 dB
Peak 3.44 dB
26.81 dBm
2 Graph
Gaussian
100 %
10 %
1 %
0.1 %
0.01 %
0.001 %
0.0001 %
0.00 dB
20.00 dB
Info BW 5.0000 MHz
Aug 03, 2023
9:17:08 AM

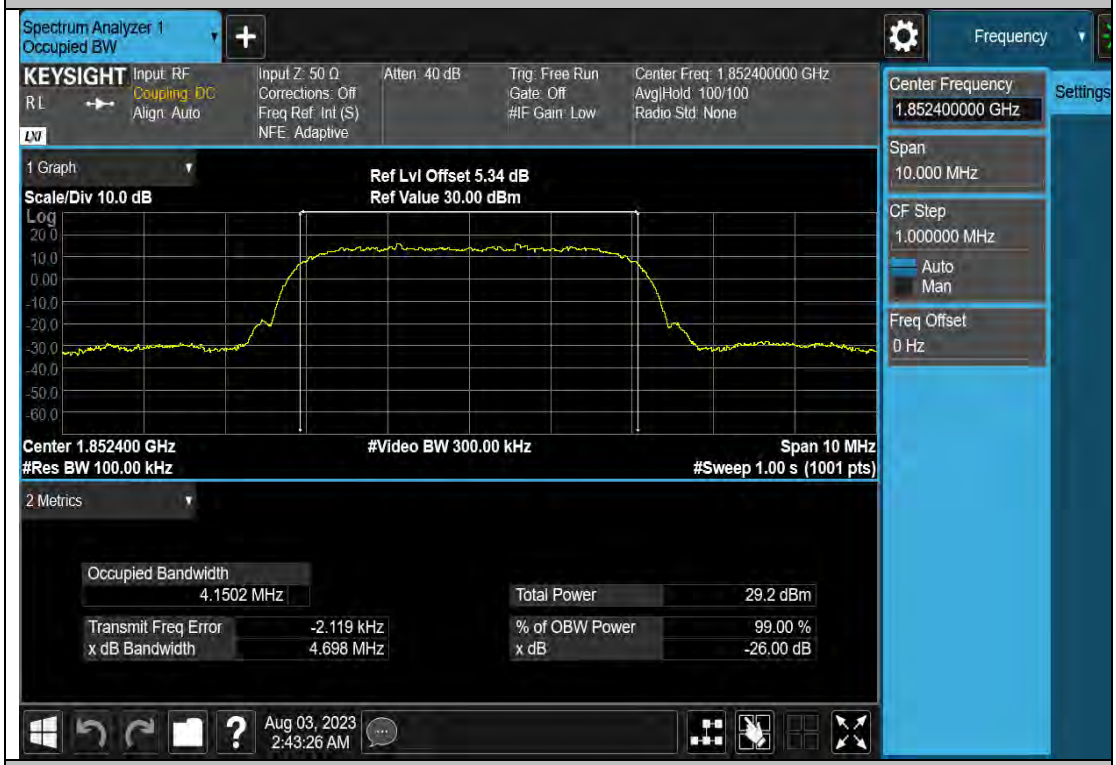
C: 26dB Bandwidth and Occupied Bandwidth

Test Result

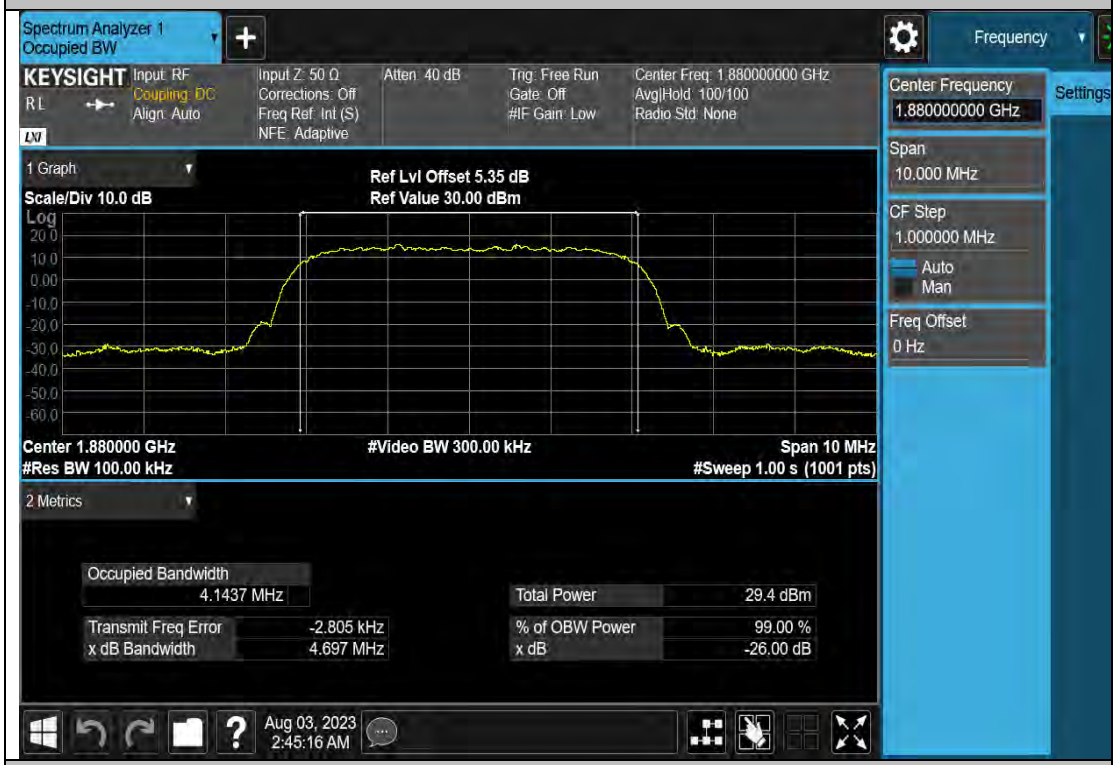
Band	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit(kHz)	Verdict
Band2	9262	4.1502	4.698	---	PASS
Band2	9400	4.1437	4.697	---	PASS
Band2	9538	4.1480	4.709	---	PASS
Band4	1312	4.1430	4.696	---	PASS
Band4	1413	4.1418	4.697	---	PASS
Band4	1513	4.1430	4.690	---	PASS
Band5	4132	4.1471	4.704	---	PASS
Band5	4183	4.1513	4.706	---	PASS
Band5	4233	4.1557	4.699	---	PASS

Test Graphs

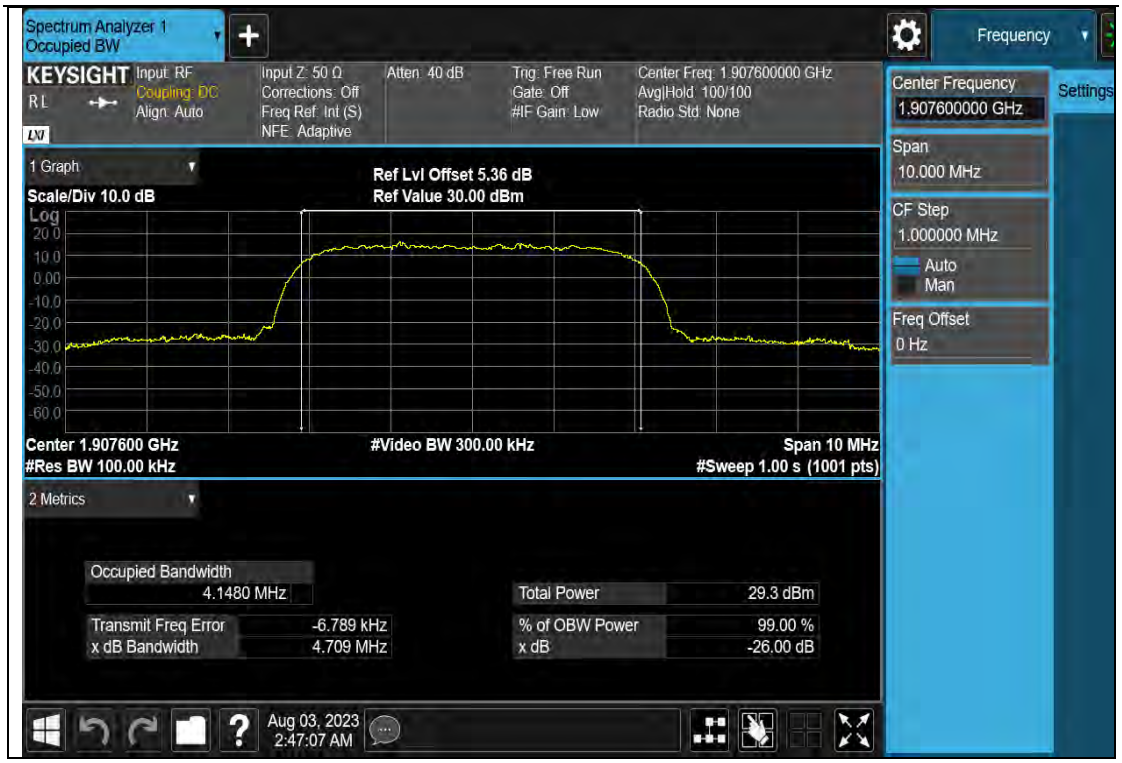
Band2-9262-PASS



Band2-9400-PASS

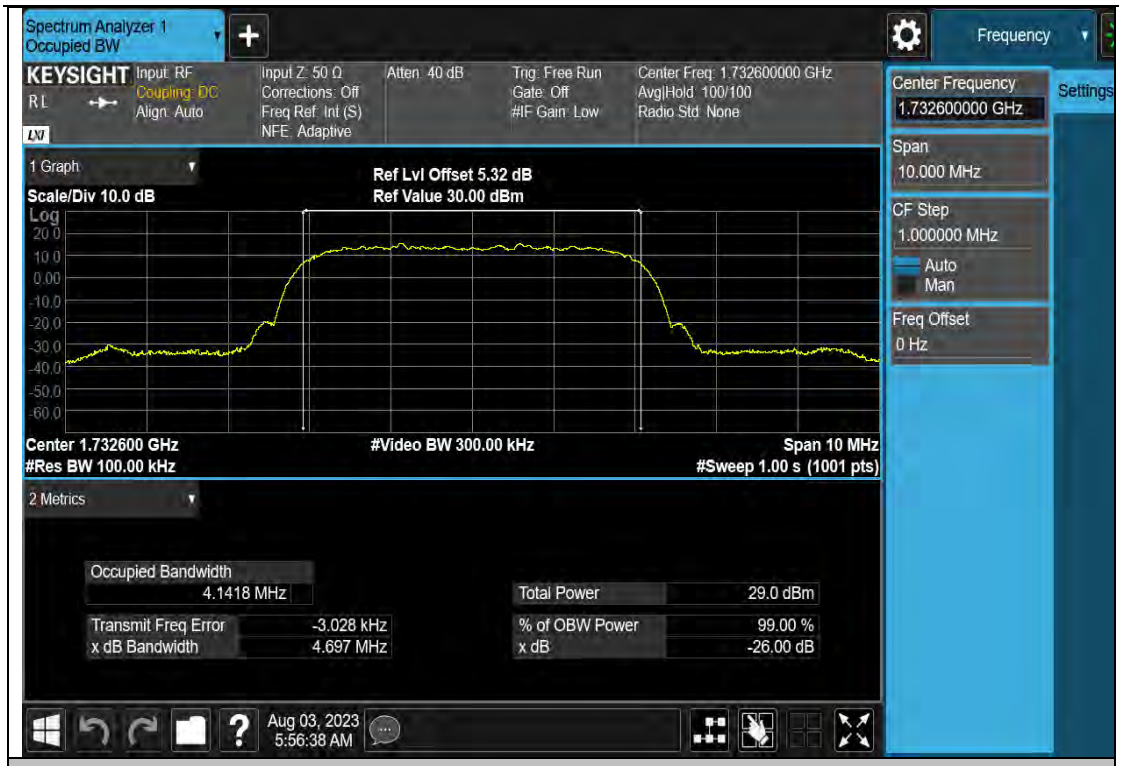


Band2-9538-PASS

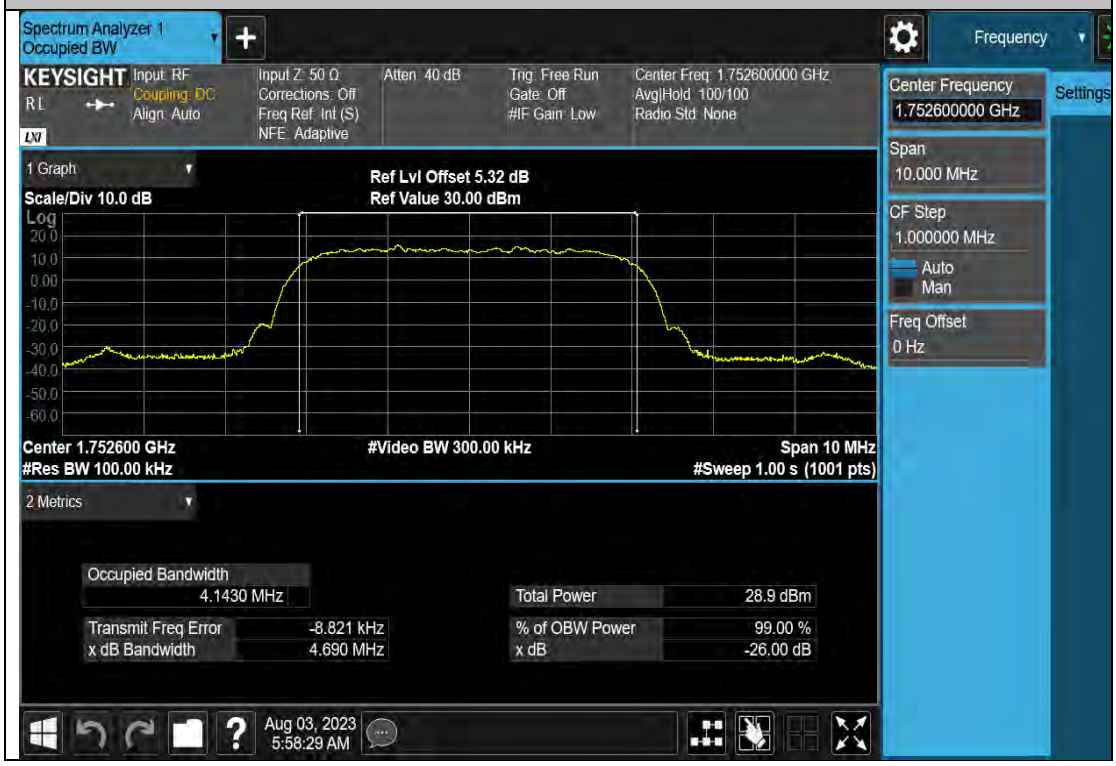


Band4-1312-PASS

Band4-1413-PASS

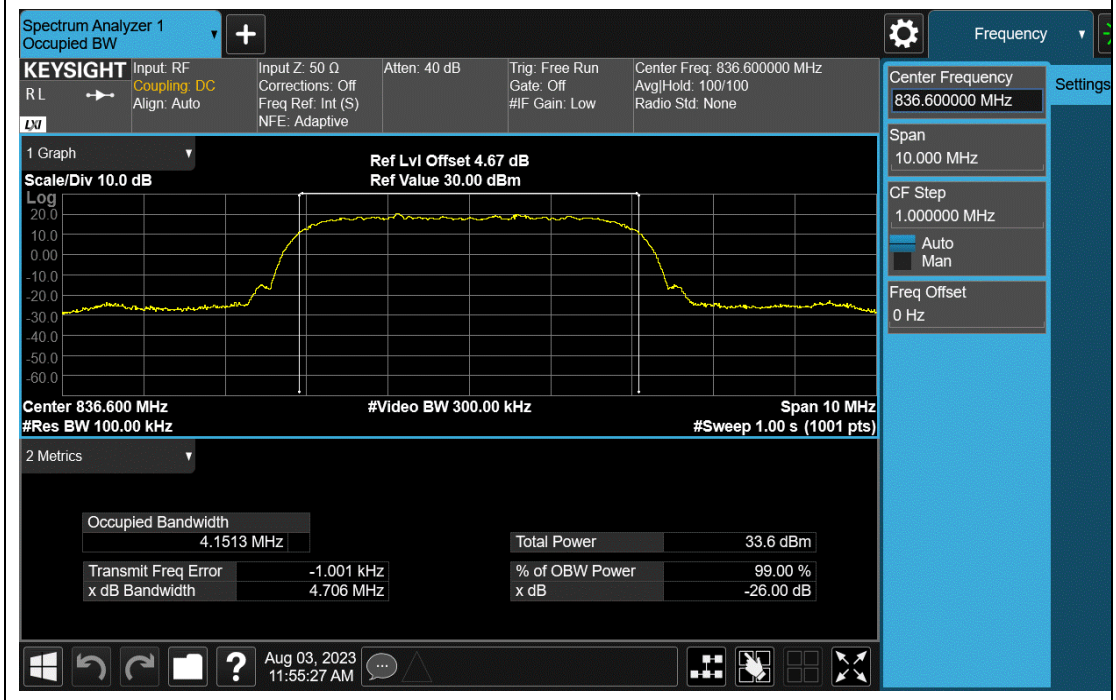


Band4-1513-PASS

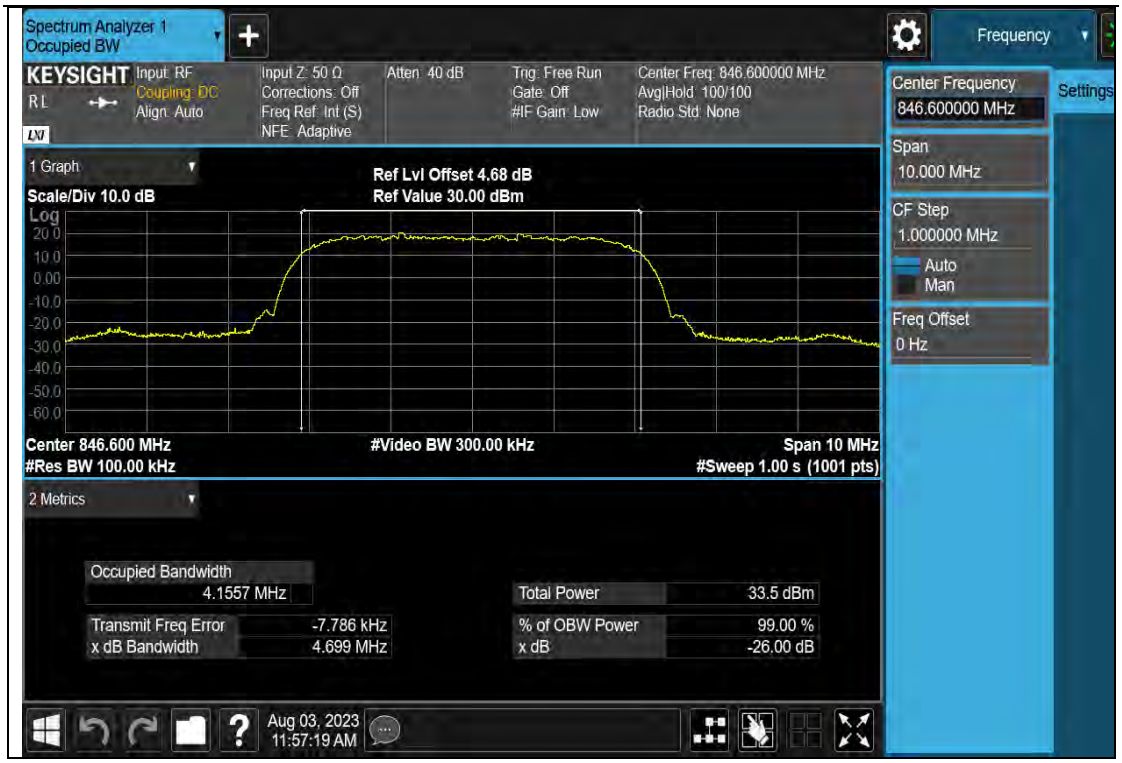


Band5-4132-PASS

Band5-4183-PASS



Band5-4233-PASS


Spectrum Analyzer 1
Occupied BW
Frequency
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
NFE: Adaptive
Atten: 40 dB
Trig: Free Run
Gate: Off
#IF Gain: Low
Center Freq: 846.600000 MHz
Avg|Hold: 100/100
Radio Std: None
Center Frequency
846.600000 MHz
Settings
Span
10.000 MHz
CF Step
1.000000 MHz
Auto
Man
Freq Offset
0 Hz
1 Graph
Scale/Div 10.0 dB
Log
Ref Lvl Offset 4.68 dB
Ref Value 30.00 dBm
Center 846.600 MHz
#Res BW 100.00 kHz
#Video BW 300.00 kHz
Span 10 MHz
#Sweep 1.00 s (1001 pts)
2 Metrics
Occupied Bandwidth
4.1557 MHz
Total Power
33.5 dBm
Transmit Freq Error
-7.786 kHz
x dB Bandwidth
4.699 MHz
% of OBW Power
99.00 %
x dB
-26.00 dB
Aug 03, 2023
11:57:19 AM

D: Band Edge

Test Graphs

Band2-9262-PASS

Band2-9538-PASS

Band4-1312-PASS

Band4-1513-PASS

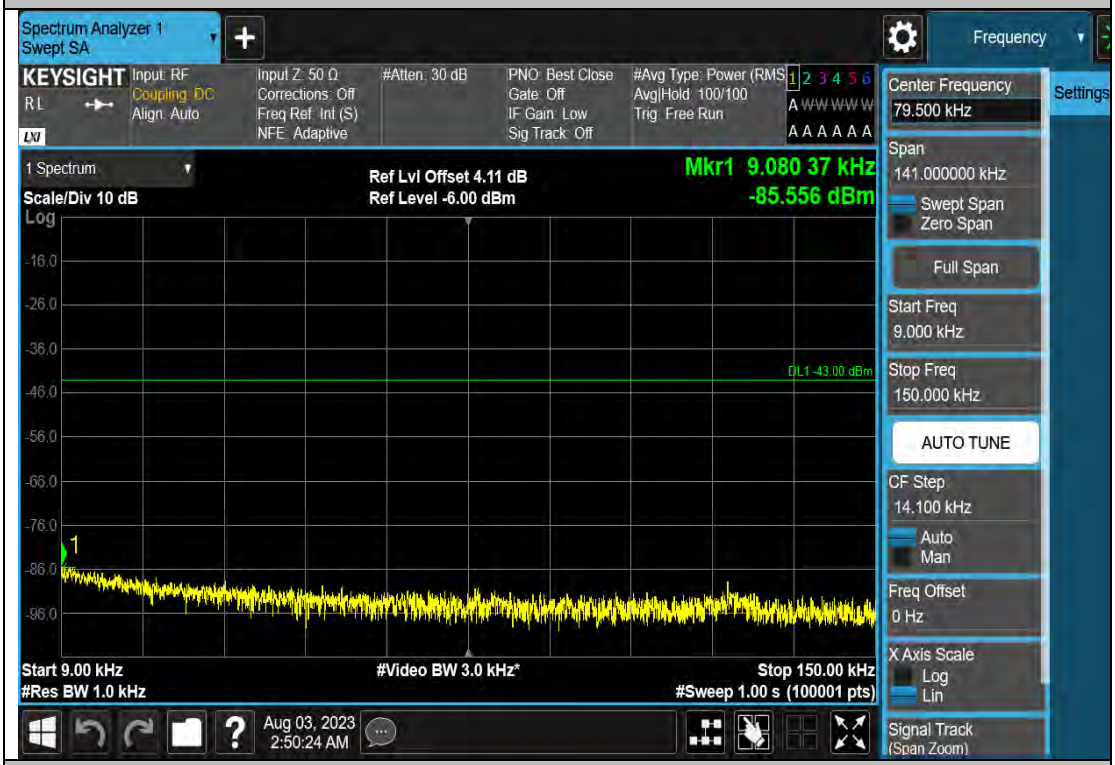
Band5-4132-PASS

Band5-4233-PASS

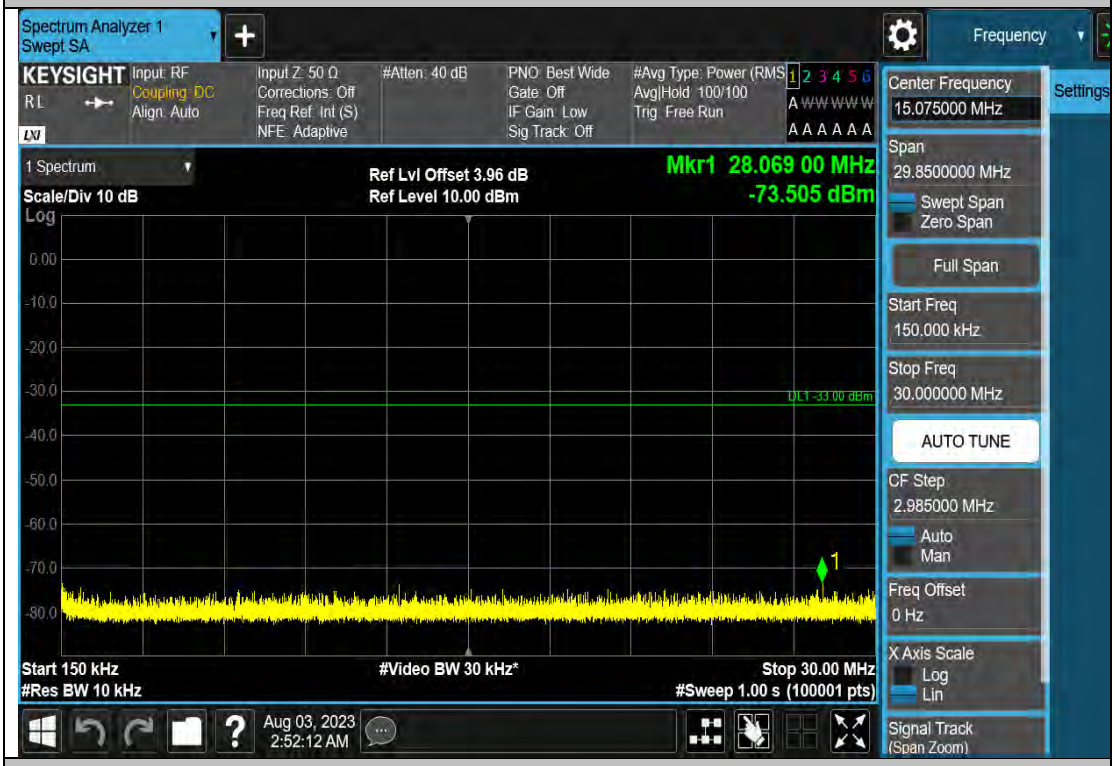
E: Conducted Spurious Emission

Test Graphs

Band2-9262-0.009~0.15MHz-PASS

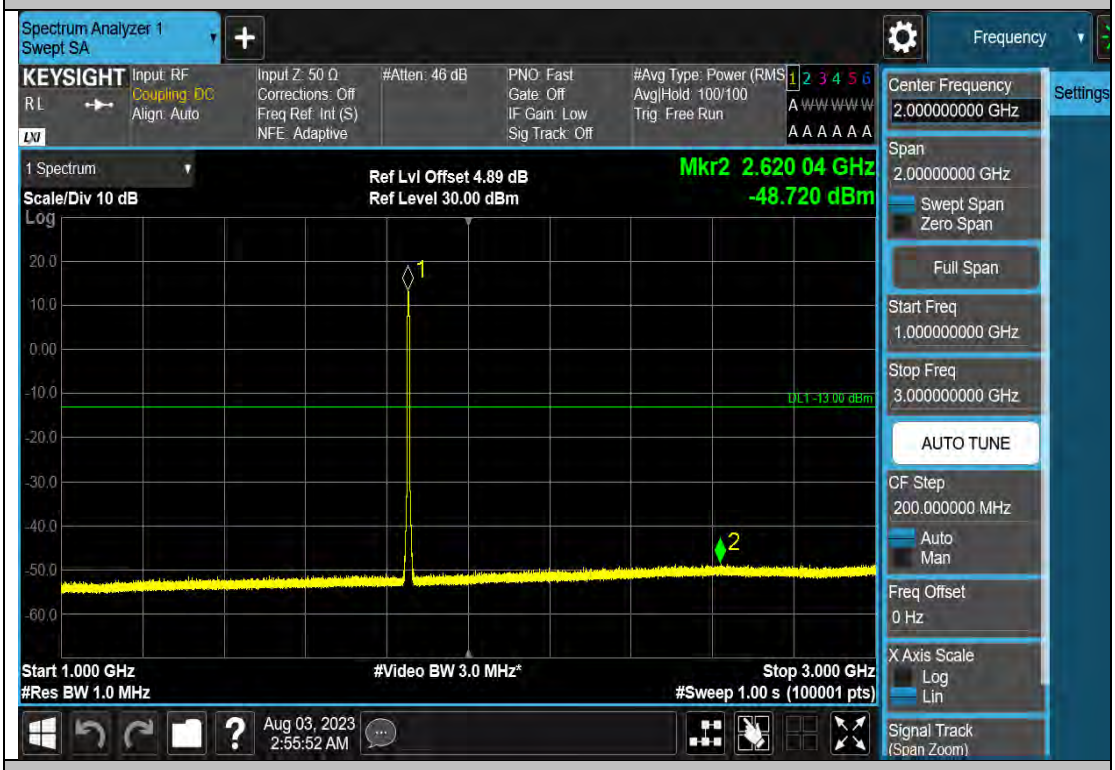


Band2-9262-0.15~30MHz-PASS



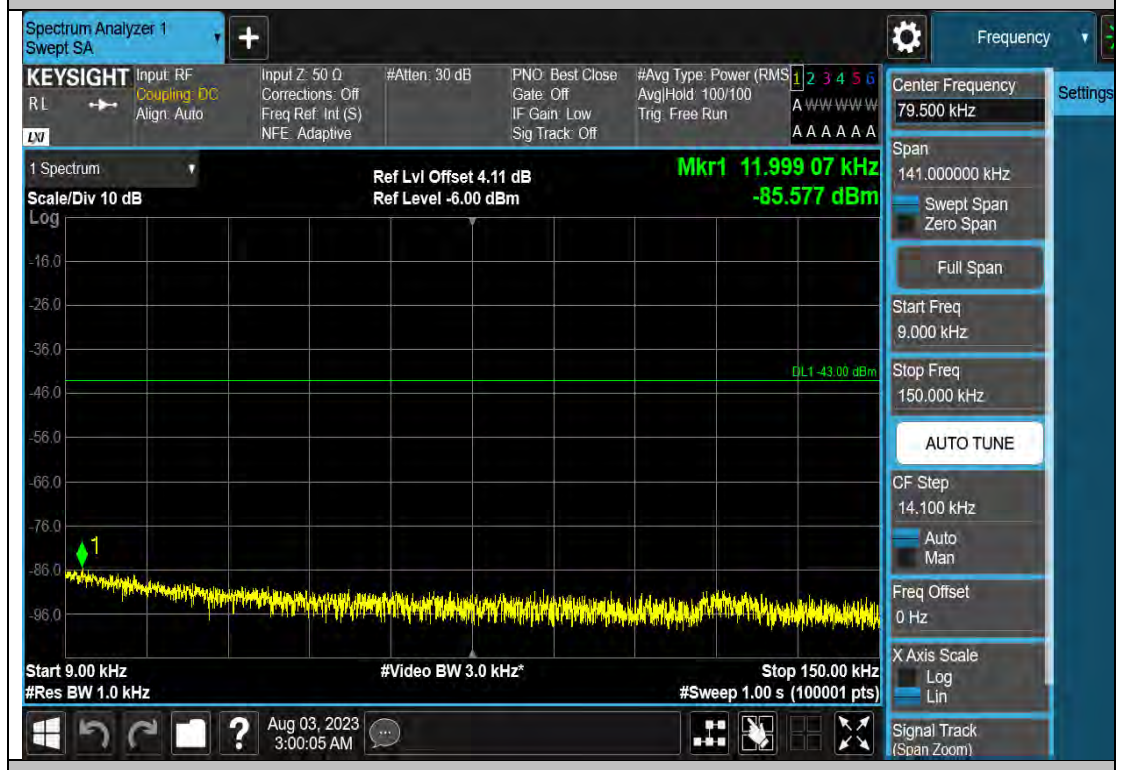
Band2-9262-30~1000MHz-PASS

Band2-9262-1000~3000MHz-PASS

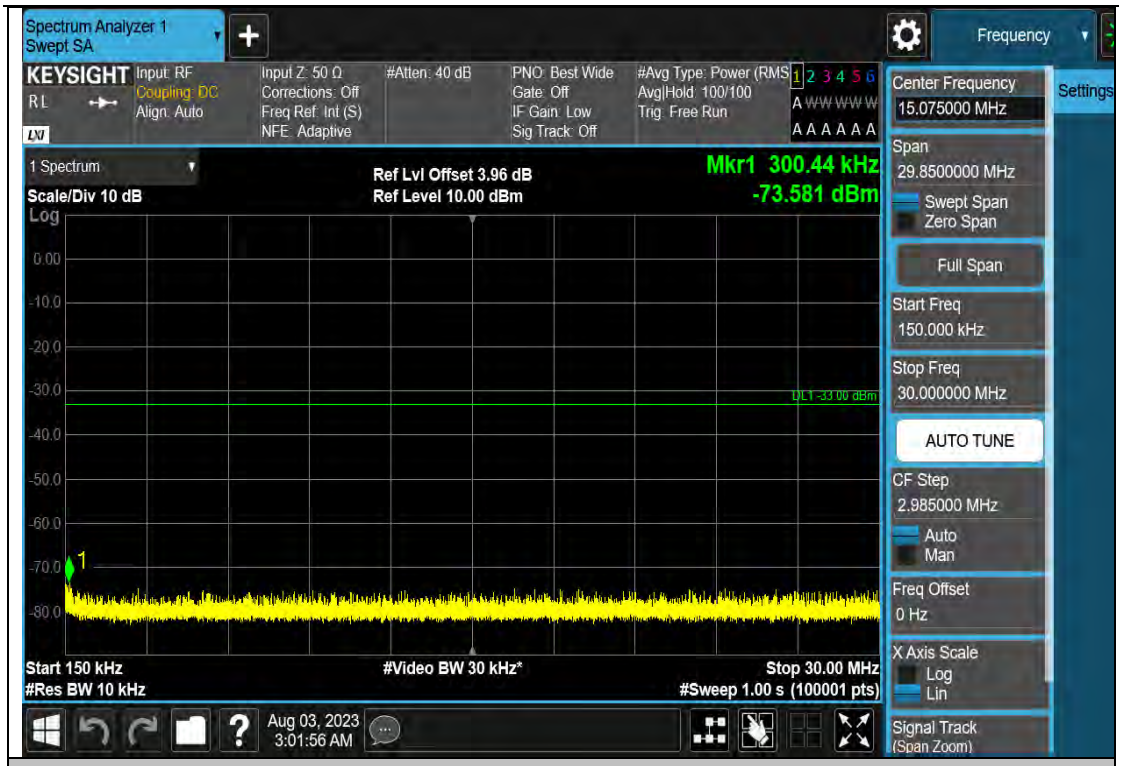


Band2-9262-3000~20000MHz-PASS

Band2-9400-0.009~0.15MHz-PASS

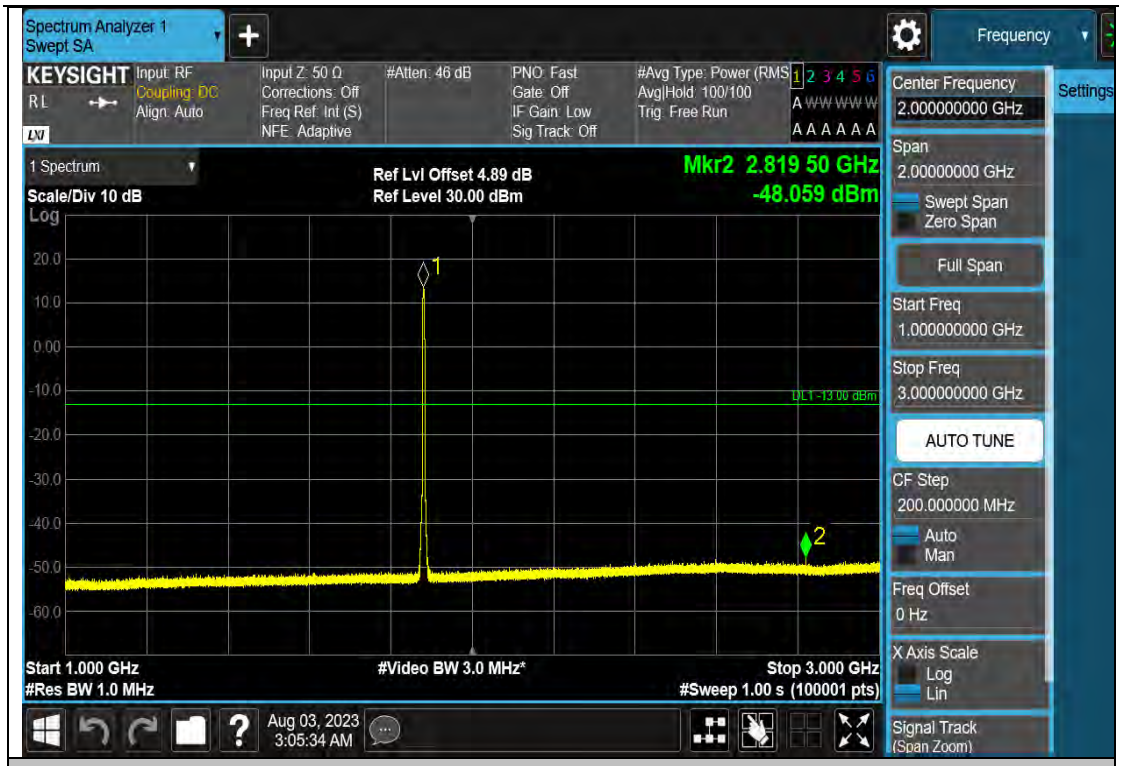


Band2-9400-0.15~30MHz-PASS

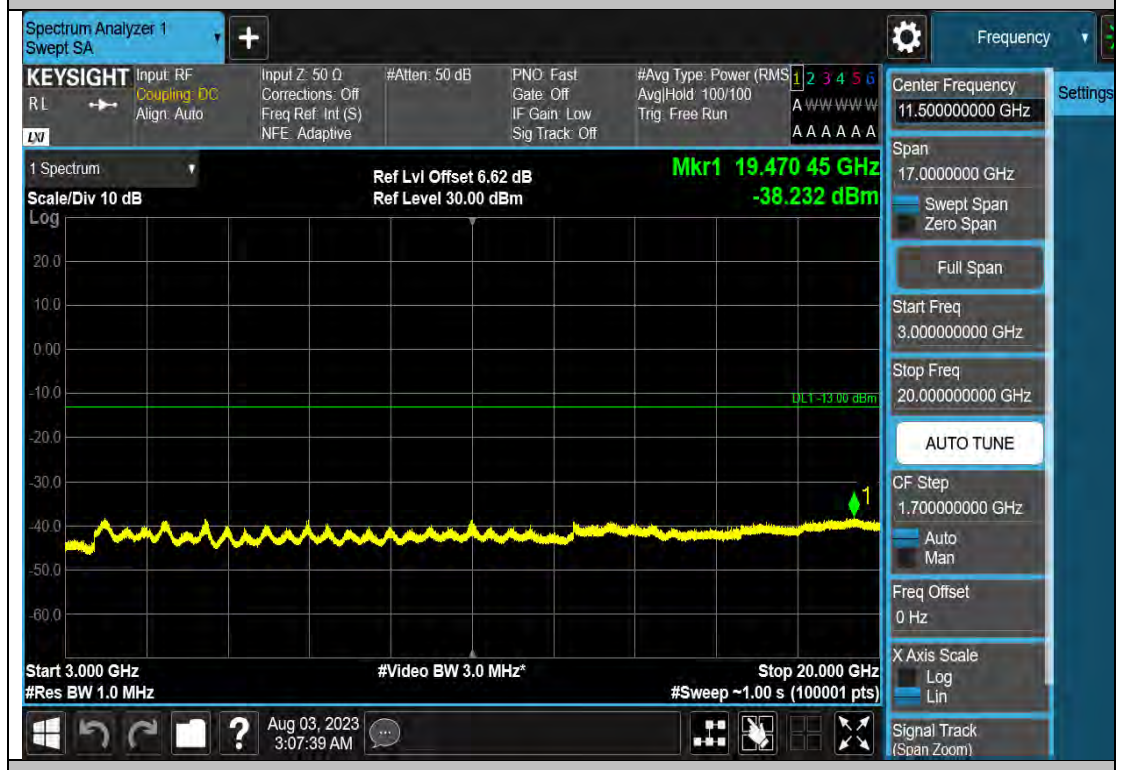


Band2-9400-30~1000MHz-PASS

Band2-9400-1000~3000MHz-PASS

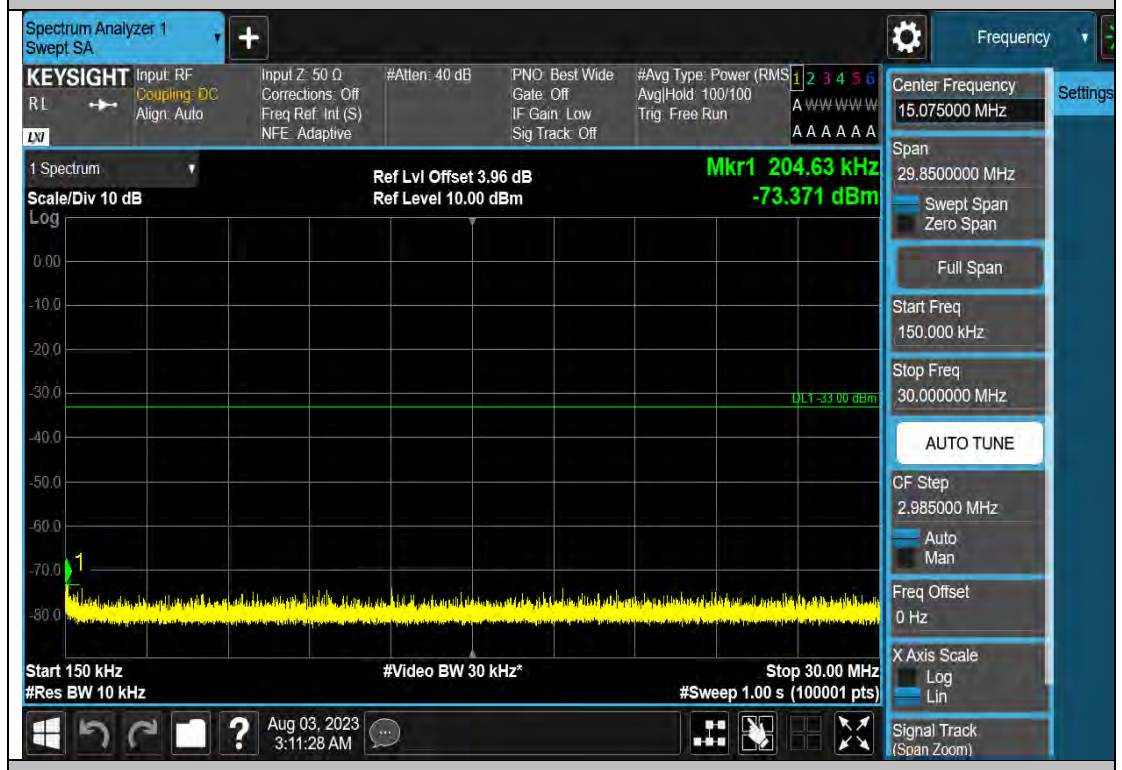


Band2-9400-3000~20000MHz-PASS



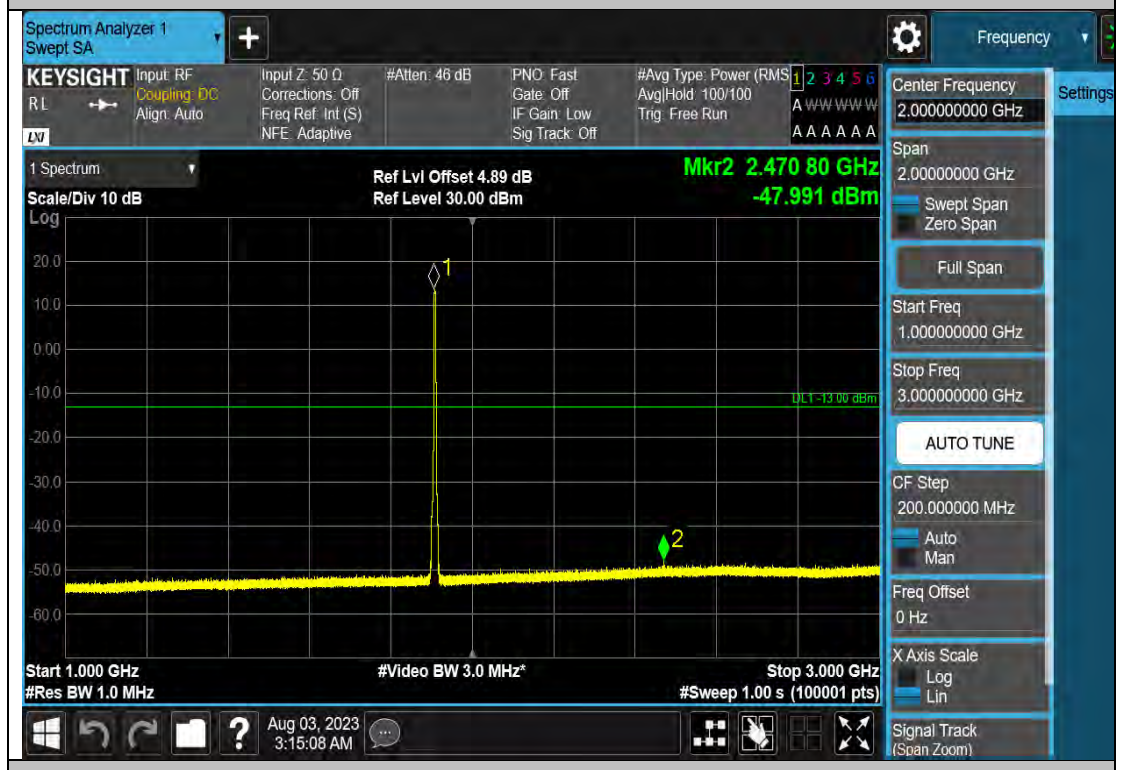
Band2-9538-0.009~0.15MHz-PASS

Band2-9538-0.15~30MHz-PASS



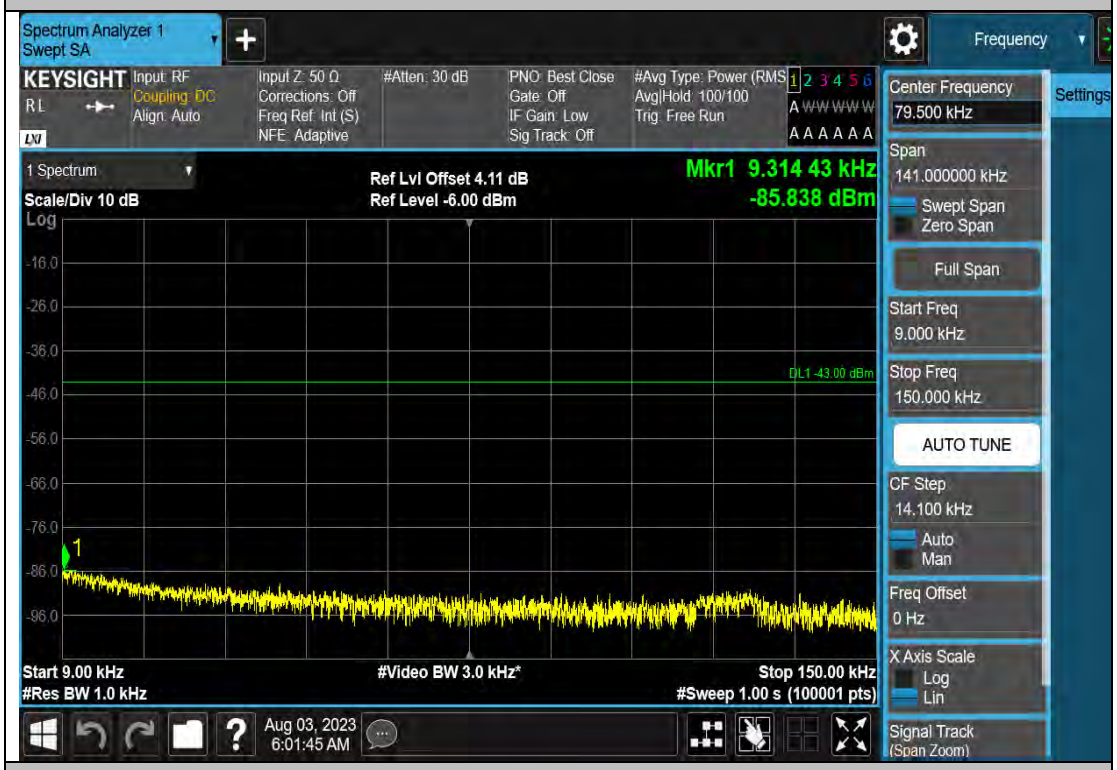
Band2-9538-30~1000MHz-PASS

Band2-9538-1000~3000MHz-PASS

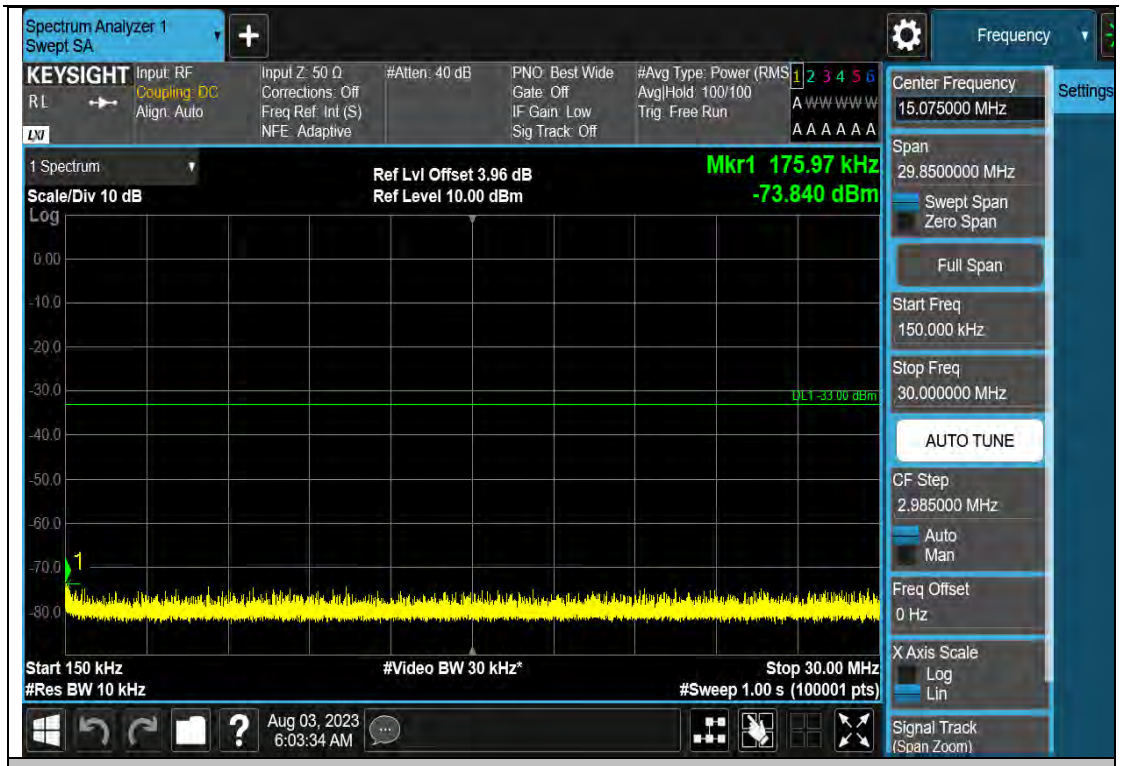


Band2-9538-3000~20000MHz-PASS

Band4-1312-0.009~0.15MHz-PASS

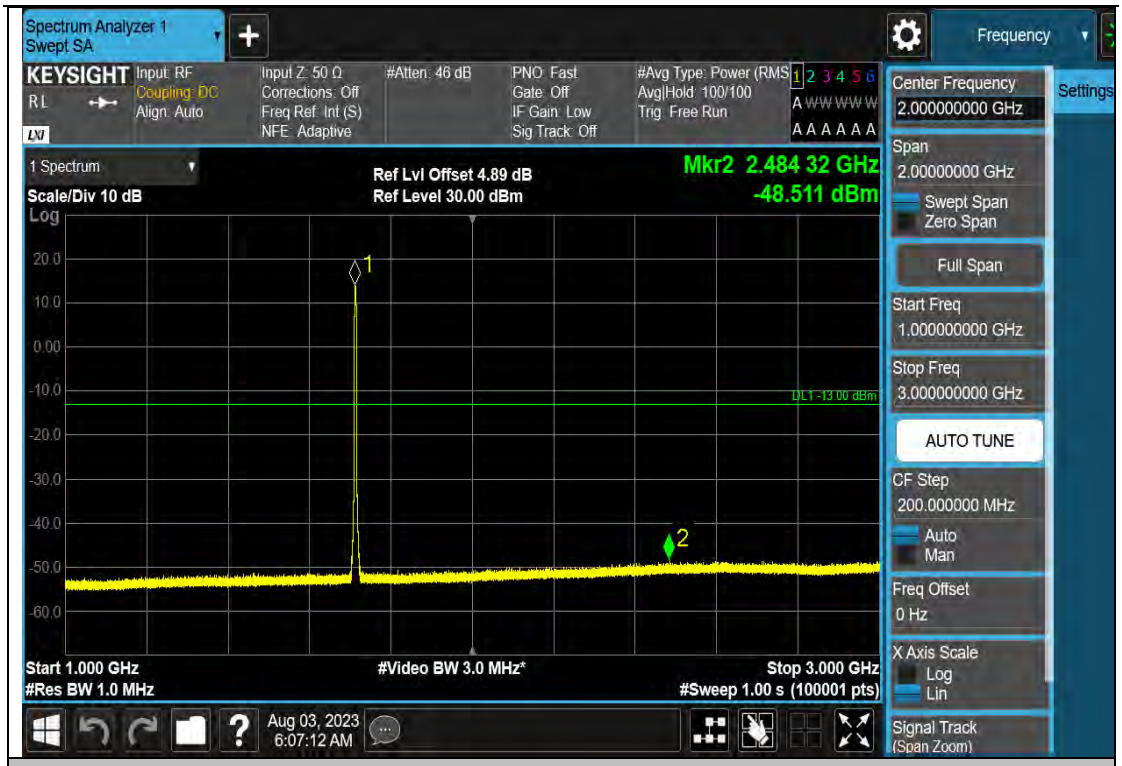


Band4-1312-0.15~30MHz-PASS



Band4-1312-30~1000MHz-PASS

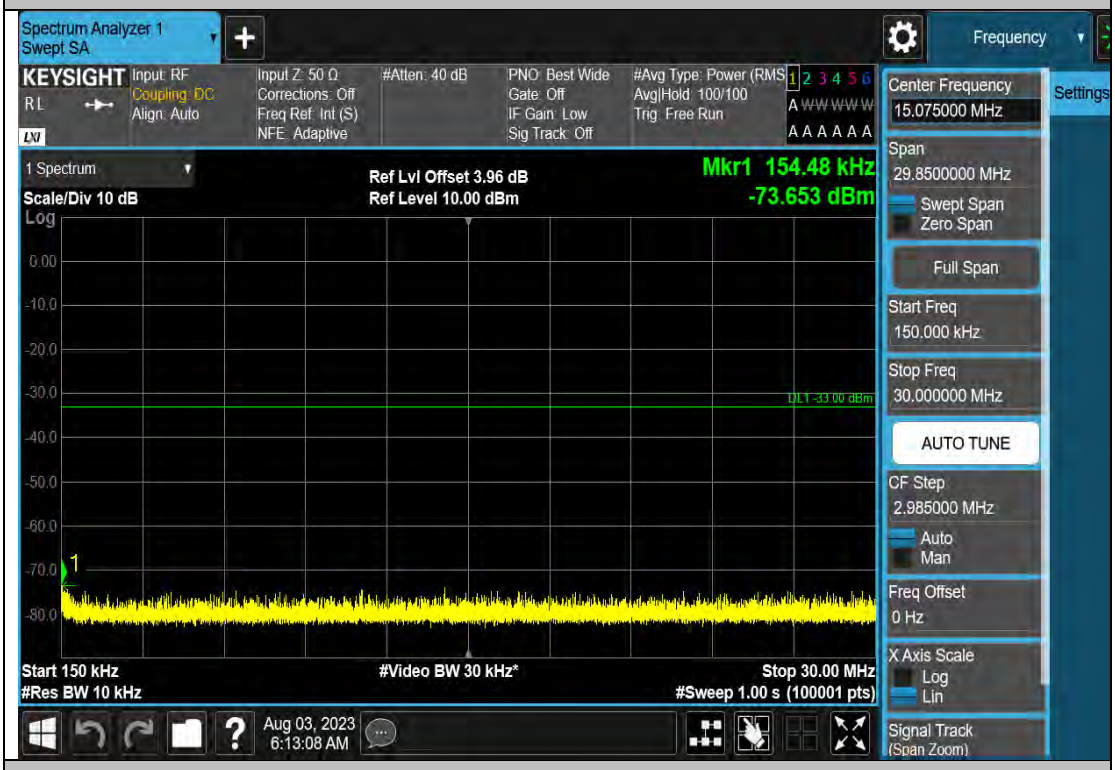
Band4-1312-1000~3000MHz-PASS



Band4-1312-3000~20000MHz-PASS

Band4-1413-0.009~0.15MHz-PASS

Band4-1413-0.15~30MHz-PASS

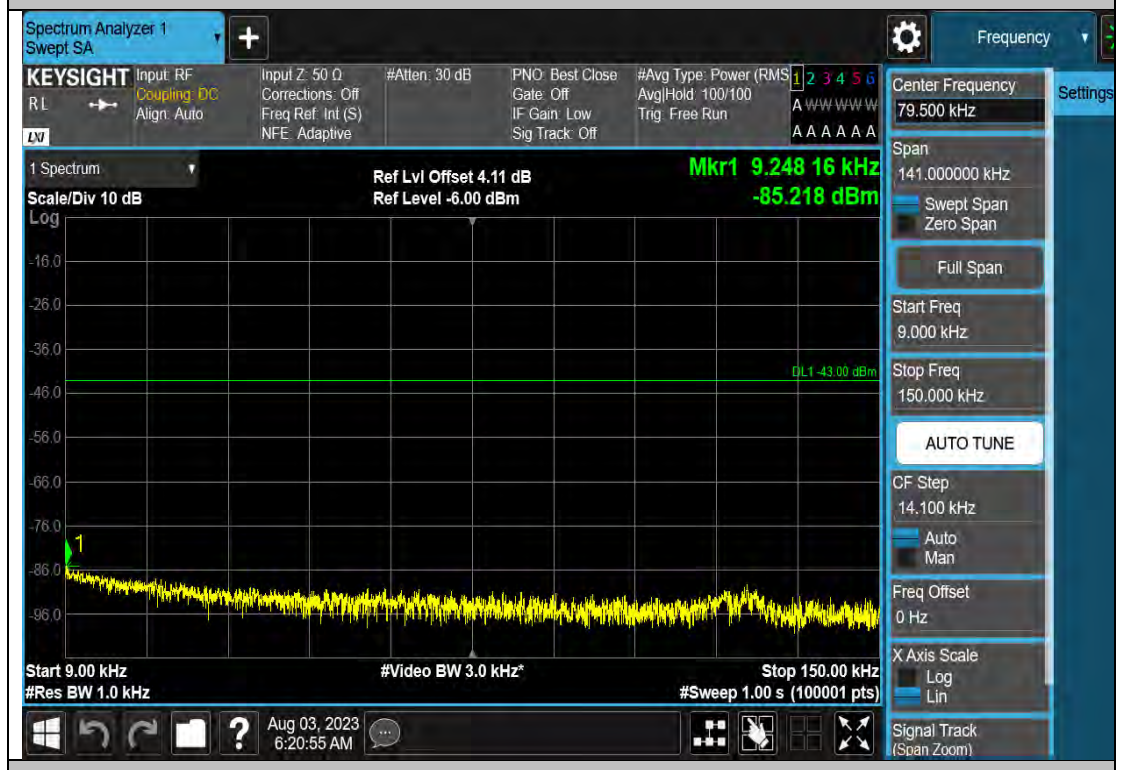


Band4-1413-30~1000MHz-PASS

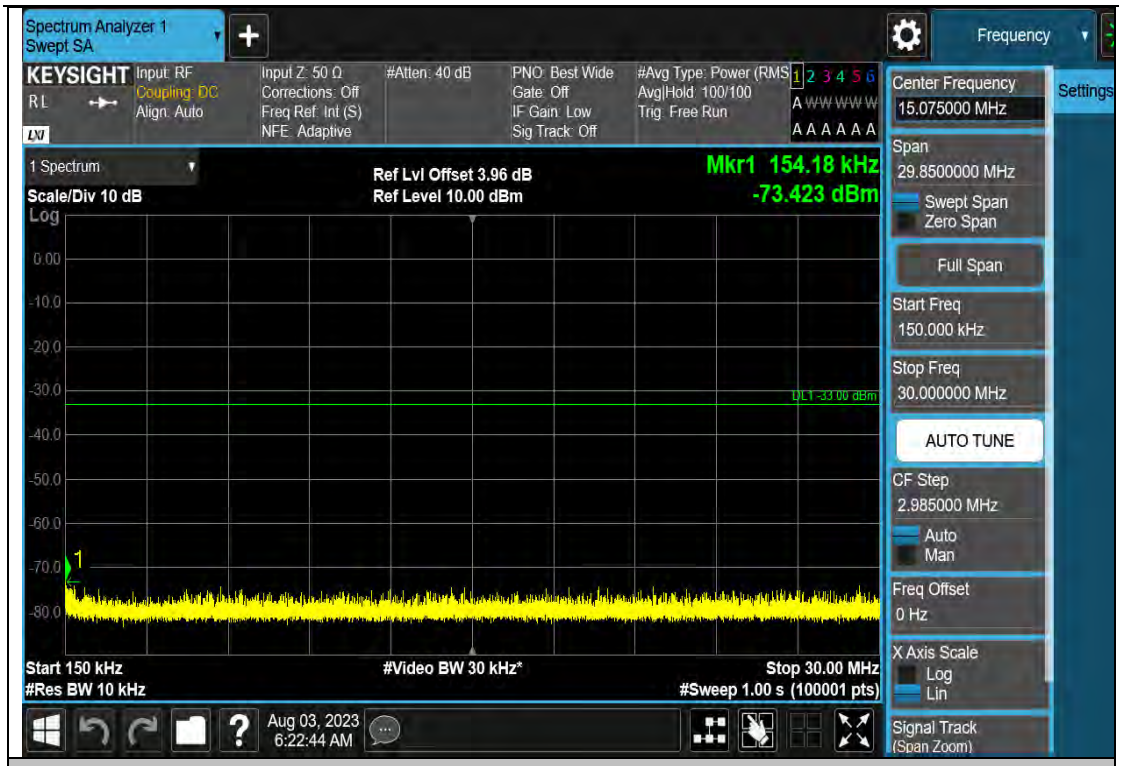
Band4-1413-1000~3000MHz-PASS

Band4-1413-3000~20000MHz-PASS

Band4-1513-0.009~0.15MHz-PASS

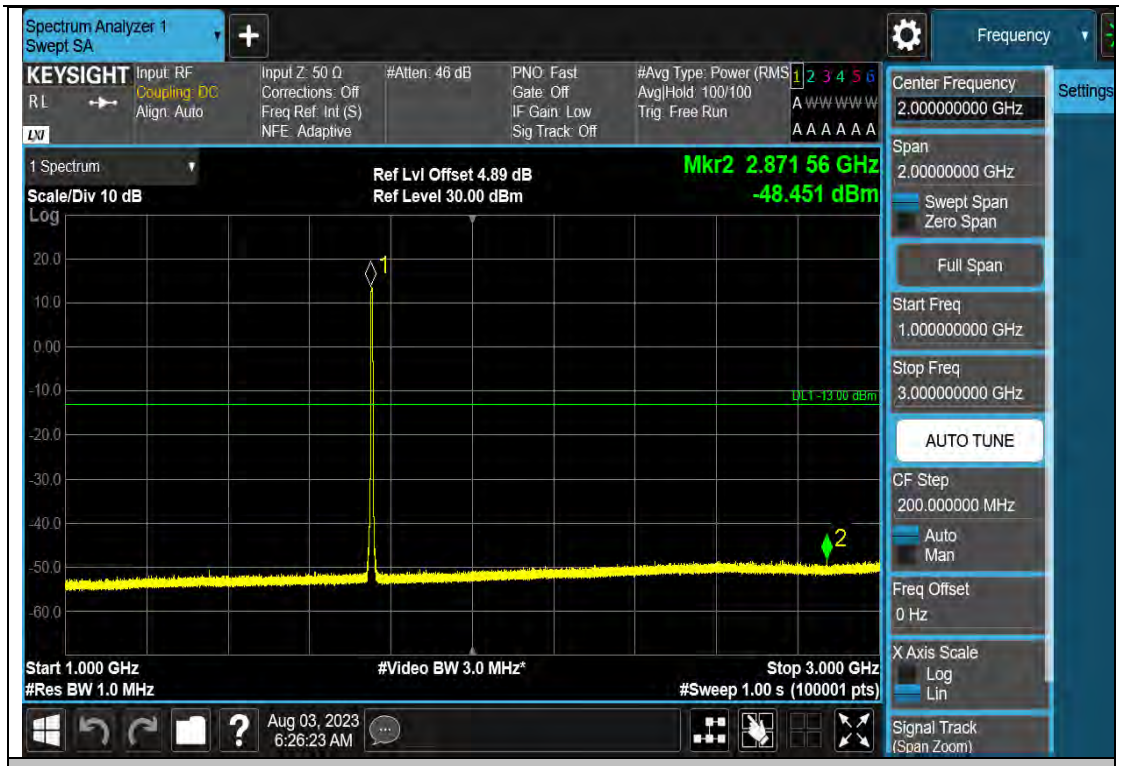


Band4-1513-0.15~30MHz-PASS

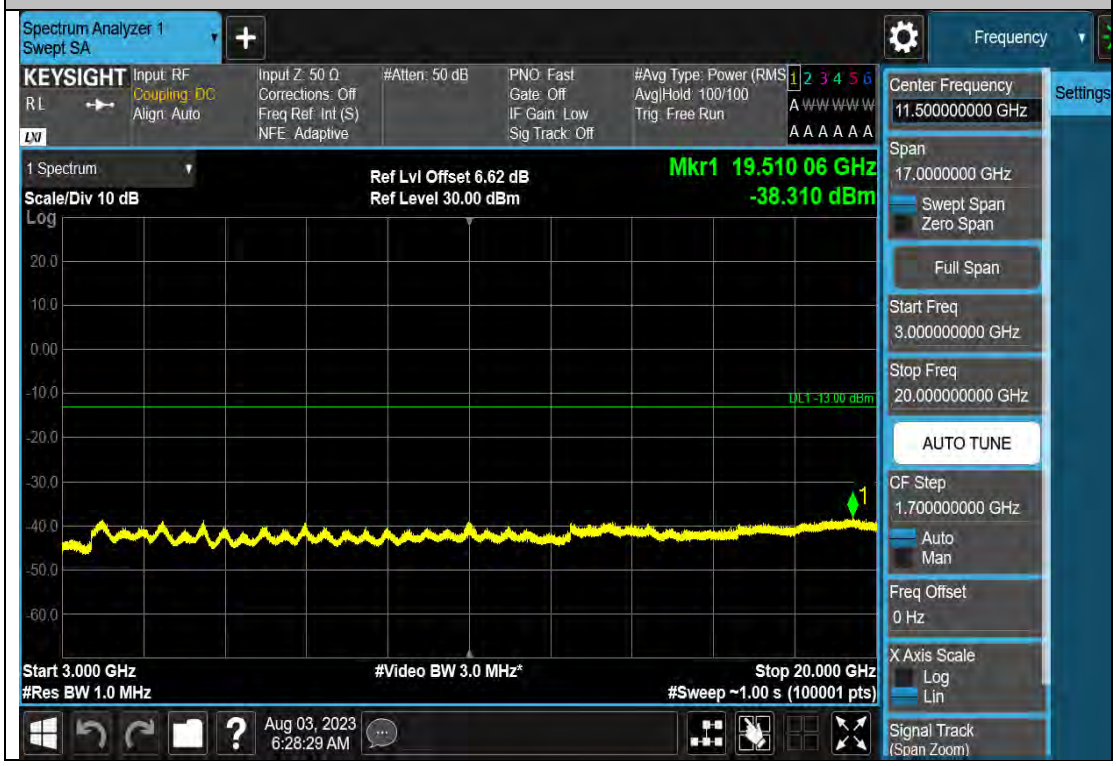


Band4-1513-30~1000MHz-PASS

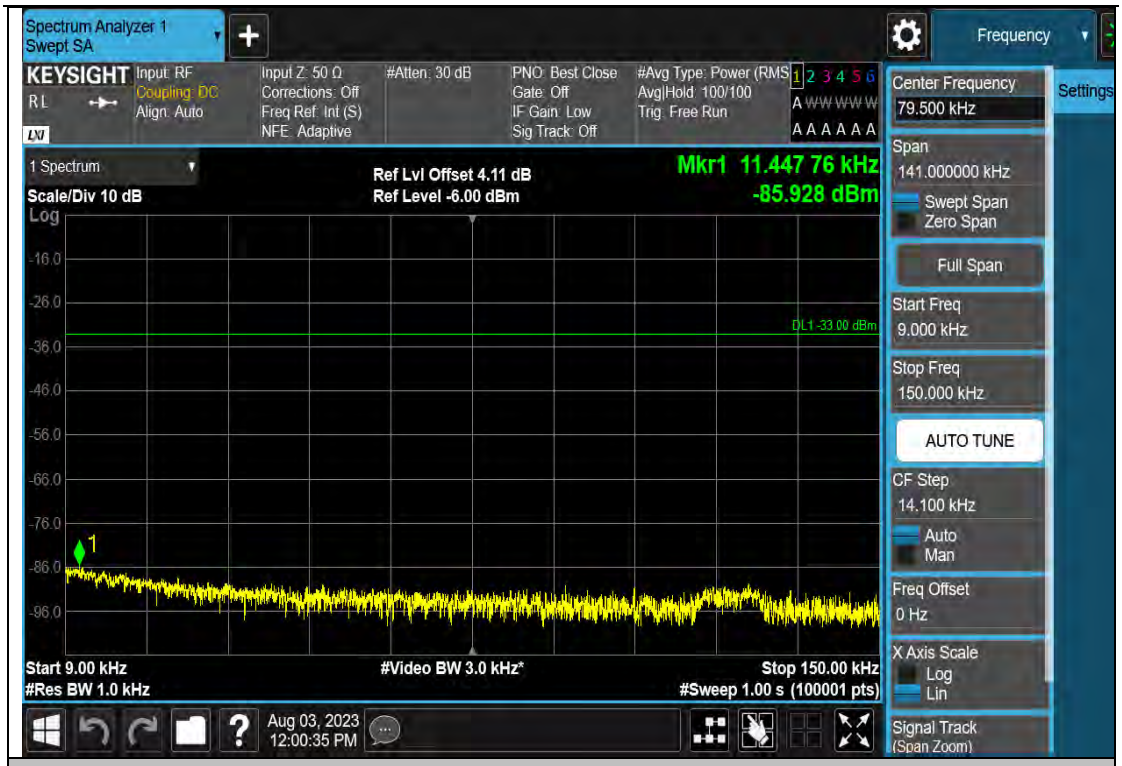
Band4-1513-1000~3000MHz-PASS



Band4-1513-3000~20000MHz-PASS

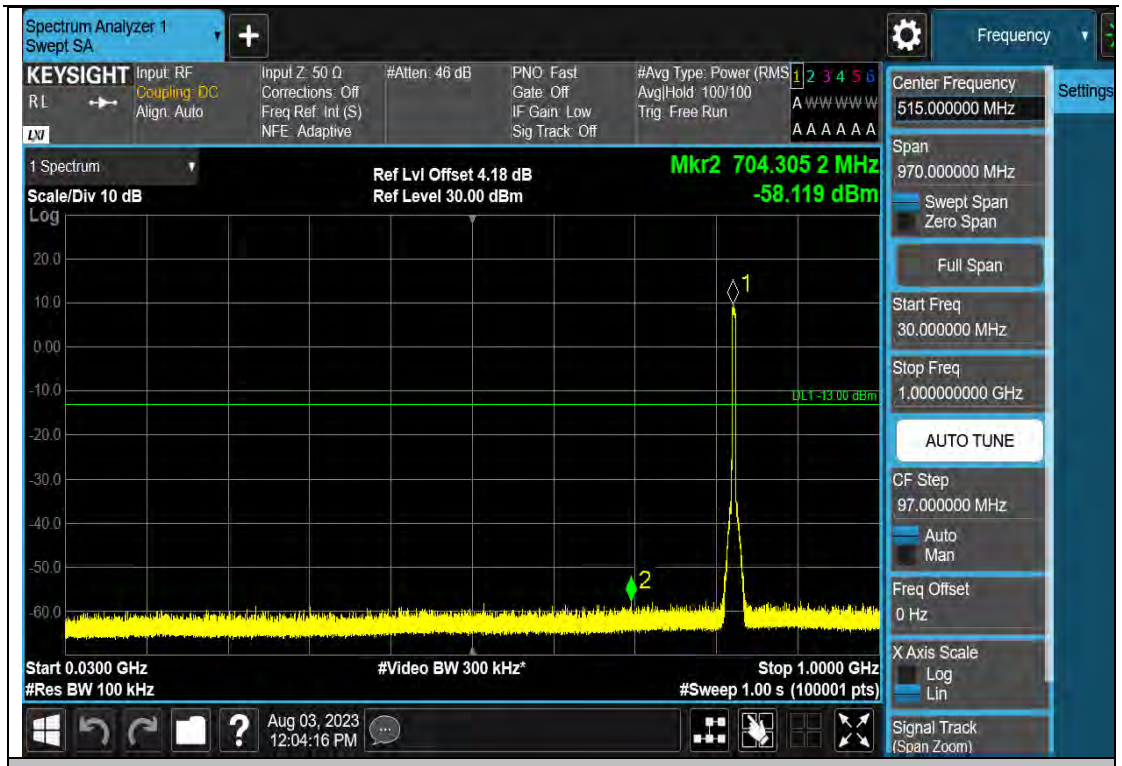


Band5-4132-0.009~0.15MHz-PASS



Band5-4132-0.15~30MHz-PASS

Band5-4132-30~1000MHz-PASS

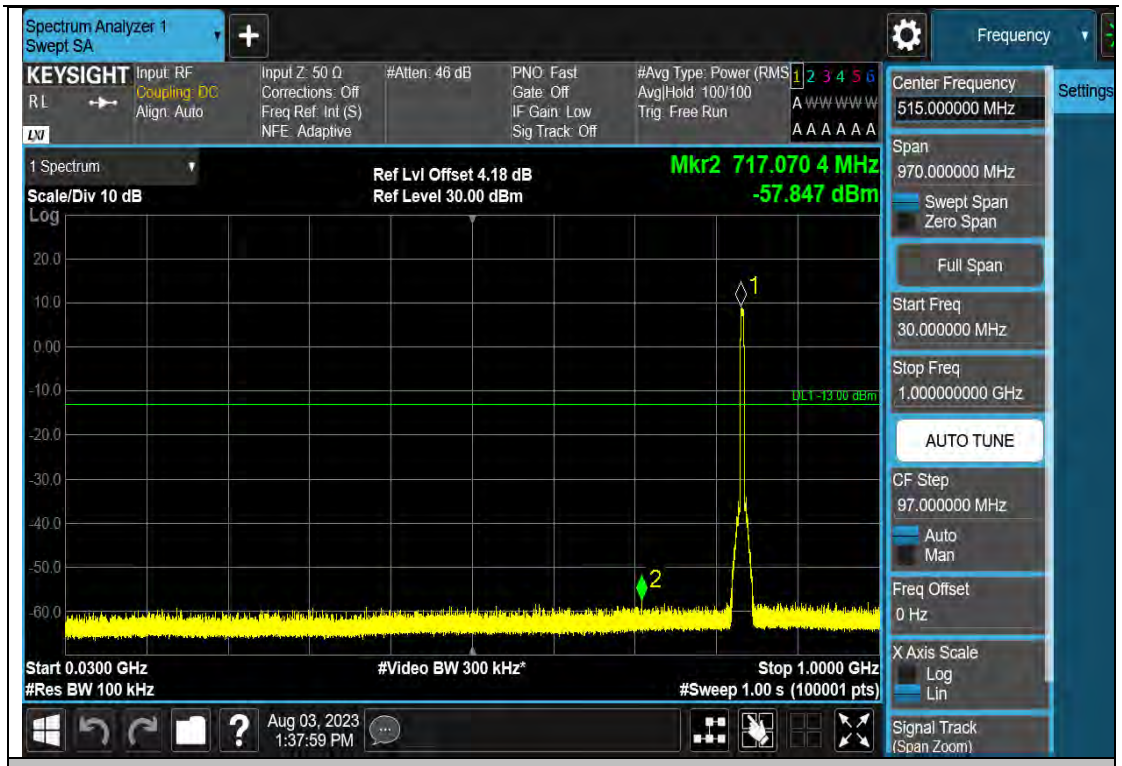


Band5-4132-1000~10000MHz-PASS

Band5-4183-0.009~0.15MHz-PASS

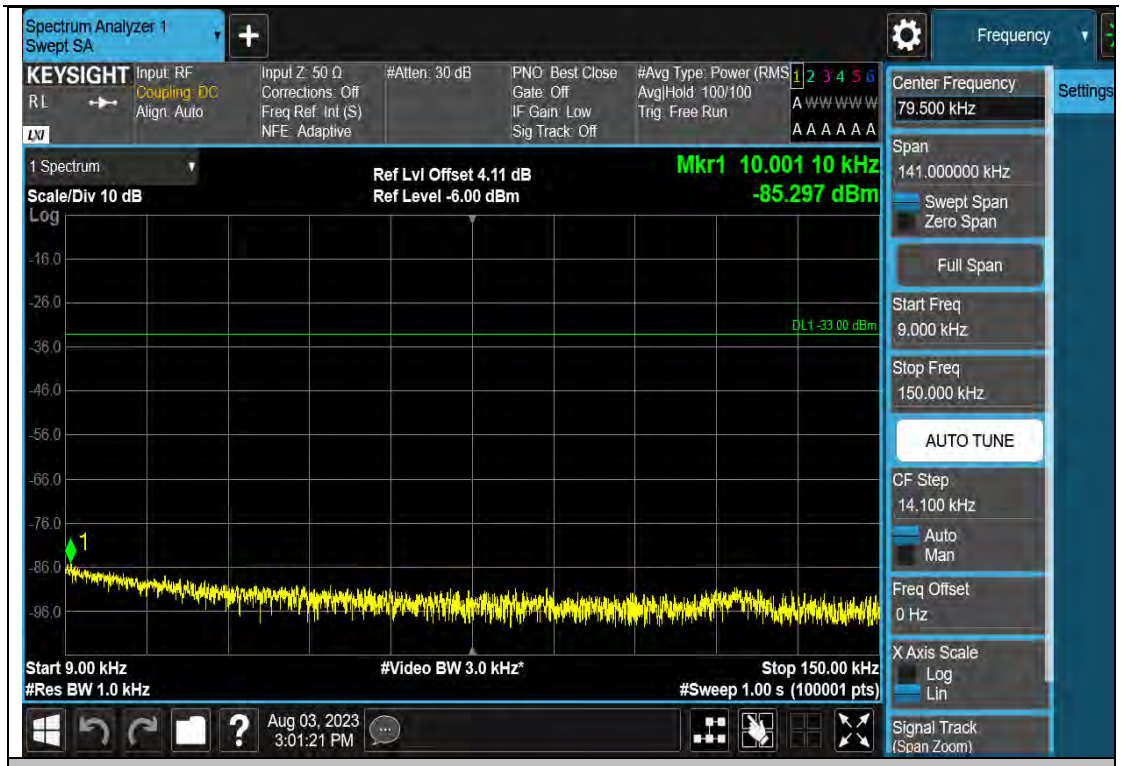
Band5-4183-0.15~30MHz-PASS

Band5-4183-30~1000MHz-PASS



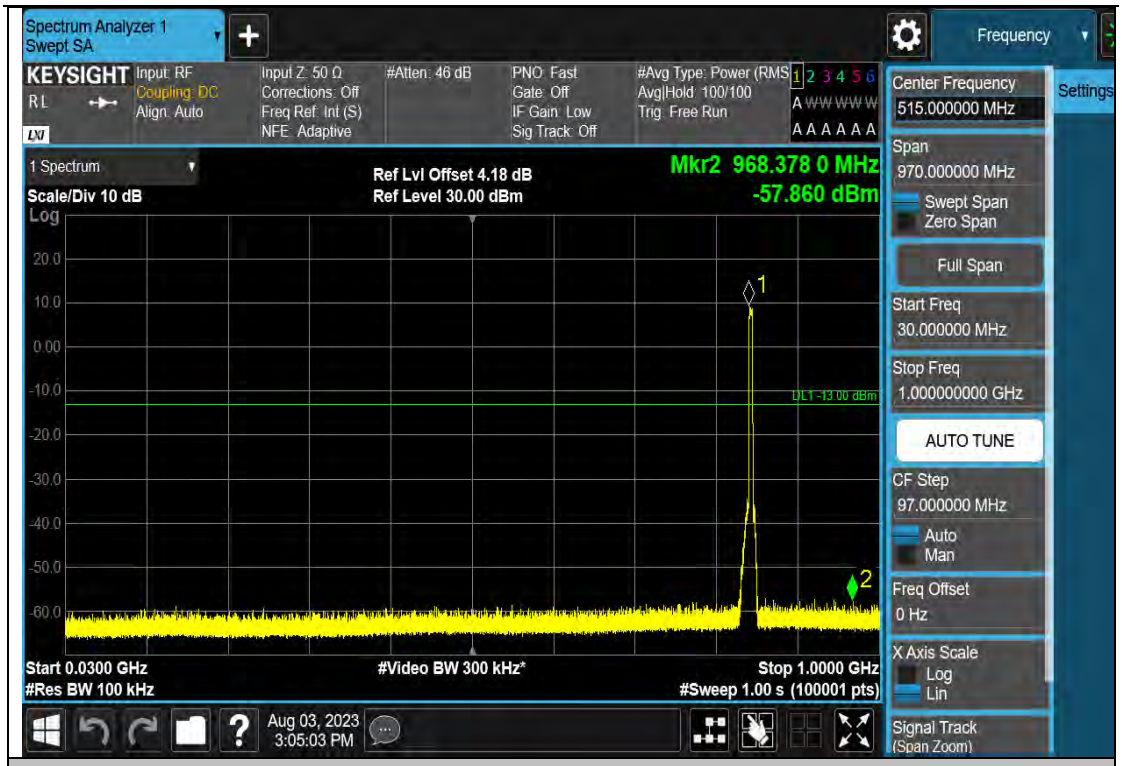
Band5-4183-1000~10000MHz-PASS

Band5-4233-0.009~0.15MHz-PASS



Band5-4233-0.15~30MHz-PASS

Band5-4233-30~1000MHz-PASS



Band5-4233-1000~10000MHz-PASS

F: Frequency Stability

Test Result

Voltage							
Band	Channel	Voltage (Vdc)	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band2	9262	VN	NT	19.79	0.010683	±2.5	PASS
Band2	9262	VL	NT	10.53	0.005685	±2.5	PASS
Band2	9262	VH	NT	14.74	0.007957	±2.5	PASS
Band2	9400	VN	NT	16.43	0.008739	±2.5	PASS
Band2	9400	VL	NT	4.67	0.002484	±2.5	PASS
Band2	9400	VH	NT	9.17	0.004878	±2.5	PASS
Band2	9538	VN	NT	15.38	0.008062	±2.5	PASS
Band2	9538	VL	NT	8.06	0.004225	±2.5	PASS
Band2	9538	VH	NT	10.99	0.005761	±2.5	PASS

Temperature							
Band	Channel	Voltage (Vdc)	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band2	9262	NV	-30	7.74	0.004178	±2.5	PASS
Band2	9262	NV	-20	12.24	0.006608	±2.5	PASS
Band2	9262	NV	-10	12.68	0.006845	±2.5	PASS
Band2	9262	NV	0	17.68	0.009544	±2.5	PASS
Band2	9262	NV	10	11.60	0.006262	±2.5	PASS
Band2	9262	NV	20	9.08	0.004902	±2.5	PASS
Band2	9262	NV	30	10.57	0.005706	±2.5	PASS
Band2	9262	NV	40	11.40	0.006154	±2.5	PASS
Band2	9262	NV	50	15.58	0.008411	±2.5	PASS
Band2	9400	NV	-30	10.73	0.005707	±2.5	PASS
Band2	9400	NV	-20	10.60	0.005638	±2.5	PASS
Band2	9400	NV	-10	8.77	0.004665	±2.5	PASS
Band2	9400	NV	0	19.29	0.010261	±2.5	PASS
Band2	9400	NV	10	14.37	0.007644	±2.5	PASS
Band2	9400	NV	20	11.26	0.005989	±2.5	PASS
Band2	9400	NV	30	15.87	0.008441	±2.5	PASS
Band2	9400	NV	40	17.18	0.009138	±2.5	PASS
Band2	9400	NV	50	18.78	0.009989	±2.5	PASS
Band2	9538	NV	-30	15.61	0.008183	±2.5	PASS
Band2	9538	NV	-20	13.00	0.006815	±2.5	PASS
Band2	9538	NV	-10	17.40	0.009121	±2.5	PASS
Band2	9538	NV	0	13.32	0.006983	±2.5	PASS

Band2	9538	NV	10	8.18	0.004288	±2.5	PASS
Band2	9538	NV	20	21.29	0.011161	±2.5	PASS
Band2	9538	NV	30	13.50	0.007077	±2.5	PASS
Band2	9538	NV	40	17.30	0.009069	±2.5	PASS
Band2	9538	NV	50	13.35	0.006998	±2.5	PASS

Voltage							
Band	Channel	Voltage (Vdc)	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band4	1312	VN	NT	11.95	0.006979	±2.5	PASS
Band4	1312	VL	NT	9.34	0.005454	±2.5	PASS
Band4	1312	VH	NT	17.55	0.010249	±2.5	PASS
Band4	1413	VN	NT	11.57	0.006678	±2.5	PASS
Band4	1413	VL	NT	7.66	0.004421	±2.5	PASS
Band4	1413	VH	NT	14.47	0.008352	±2.5	PASS
Band4	1513	VN	NT	11.58	0.006607	±2.5	PASS
Band4	1513	VL	NT	1.75	0.000999	±2.5	PASS
Band4	1513	VH	NT	11.22	0.006402	±2.5	PASS

Temperature							
Band	Channel	Voltage (Vdc)	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band4	1312	NV	-30	20.11	0.011744	±2.5	PASS
Band4	1312	NV	-20	13.29	0.007761	±2.5	PASS
Band4	1312	NV	-10	13.53	0.007901	±2.5	PASS
Band4	1312	NV	0	15.61	0.009116	±2.5	PASS
Band4	1312	NV	10	16.59	0.009688	±2.5	PASS
Band4	1312	NV	20	17.35	0.010132	±2.5	PASS
Band4	1312	NV	30	9.57	0.005589	±2.5	PASS
Band4	1312	NV	40	15.79	0.009221	±2.5	PASS
Band4	1312	NV	50	13.95	0.008146	±2.5	PASS
Band4	1413	NV	-30	6.97	0.004023	±2.5	PASS
Band4	1413	NV	-20	5.26	0.003036	±2.5	PASS
Band4	1413	NV	-10	8.79	0.005073	±2.5	PASS
Band4	1413	NV	0	12.86	0.007422	±2.5	PASS
Band4	1413	NV	10	10.48	0.006049	±2.5	PASS
Band4	1413	NV	20	10.50	0.006060	±2.5	PASS
Band4	1413	NV	30	12.39	0.007151	±2.5	PASS
Band4	1413	NV	40	11.38	0.006568	±2.5	PASS
Band4	1413	NV	50	12.74	0.007353	±2.5	PASS
Band4	1513	NV	-30	13.41	0.007651	±2.5	PASS

Band4	1513	NV	-20	10.39	0.005928	±2.5	PASS
Band4	1513	NV	-10	8.41	0.004799	±2.5	PASS
Band4	1513	NV	0	13.43	0.007663	±2.5	PASS
Band4	1513	NV	10	8.15	0.004650	±2.5	PASS
Band4	1513	NV	20	11.98	0.006836	±2.5	PASS
Band4	1513	NV	30	6.64	0.003789	±2.5	PASS
Band4	1513	NV	40	5.49	0.003132	±2.5	PASS
Band4	1513	NV	50	5.72	0.003264	±2.5	PASS

Voltage							
Band	Channel	Voltage (Vdc)	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band5	4132	VN	NT	7.74	0.009366	±2.5	PASS
Band5	4132	VL	NT	2.66	0.003219	±2.5	PASS
Band5	4132	VH	NT	11.40	0.013795	±2.5	PASS
Band5	4183	VN	NT	13.02	0.015567	±2.5	PASS
Band5	4183	VL	NT	2.14	0.002559	±2.5	PASS
Band5	4183	VH	NT	10.56	0.012626	±2.5	PASS
Band5	4233	VN	NT	9.26	0.010938	±2.5	PASS
Band5	4233	VL	NT	6.32	0.007465	±2.5	PASS
Band5	4233	VH	NT	9.40	0.011103	±2.5	PASS

Temperature							
Band	Channel	Voltage (Vdc)	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band5	4132	NV	-30	9.11	0.011024	±2.5	PASS
Band5	4132	NV	-20	4.35	0.005264	±2.5	PASS
Band5	4132	NV	-10	13.26	0.016045	±2.5	PASS
Band5	4132	NV	0	7.55	0.009136	±2.5	PASS
Band5	4132	NV	10	11.41	0.013807	±2.5	PASS
Band5	4132	NV	20	7.54	0.009124	±2.5	PASS
Band5	4132	NV	30	14.14	0.017110	±2.5	PASS
Band5	4132	NV	40	10.03	0.012137	±2.5	PASS
Band5	4132	NV	50	8.88	0.010745	±2.5	PASS
Band5	4183	NV	-30	11.03	0.013187	±2.5	PASS
Band5	4183	NV	-20	10.89	0.013020	±2.5	PASS
Band5	4183	NV	-10	11.03	0.013187	±2.5	PASS
Band5	4183	NV	0	9.57	0.011442	±2.5	PASS
Band5	4183	NV	10	9.43	0.011275	±2.5	PASS
Band5	4183	NV	20	9.80	0.011717	±2.5	PASS
Band5	4183	NV	30	14.43	0.017253	±2.5	PASS

Band5	4183	NV	40	12.33	0.014742	±2.5	PASS
Band5	4183	NV	50	14.05	0.016798	±2.5	PASS
Band5	4233	NV	-30	13.37	0.015793	±2.5	PASS
Band5	4233	NV	-20	9.03	0.010666	±2.5	PASS
Band5	4233	NV	-10	14.53	0.017163	±2.5	PASS
Band5	4233	NV	0	13.47	0.015911	±2.5	PASS
Band5	4233	NV	10	8.56	0.010111	±2.5	PASS
Band5	4233	NV	20	8.97	0.010595	±2.5	PASS
Band5	4233	NV	30	11.86	0.014009	±2.5	PASS
Band5	4233	NV	40	9.77	0.011540	±2.5	PASS
Band5	4233	NV	50	13.17	0.015556	±2.5	PASS