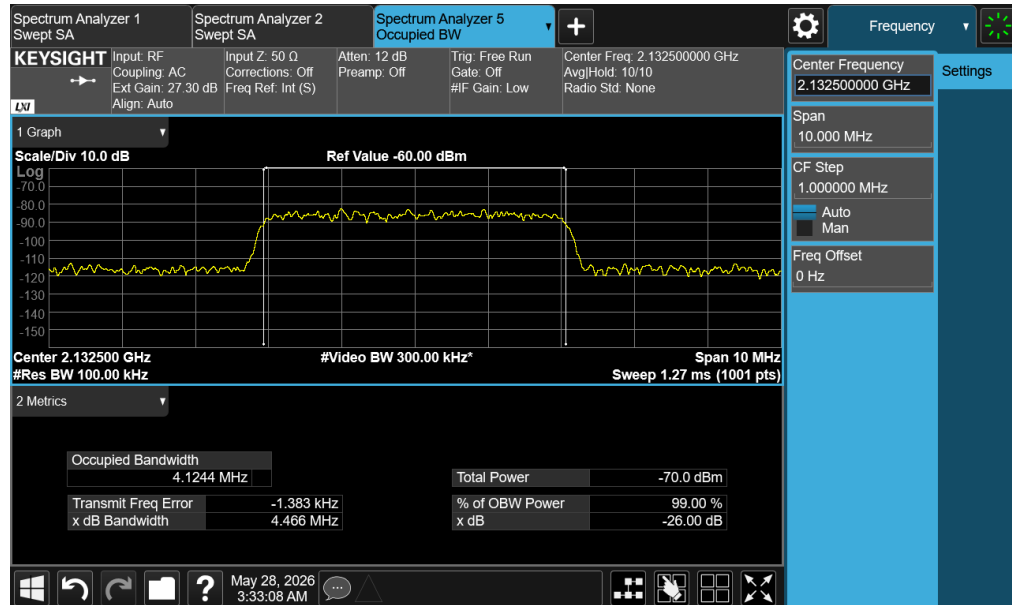


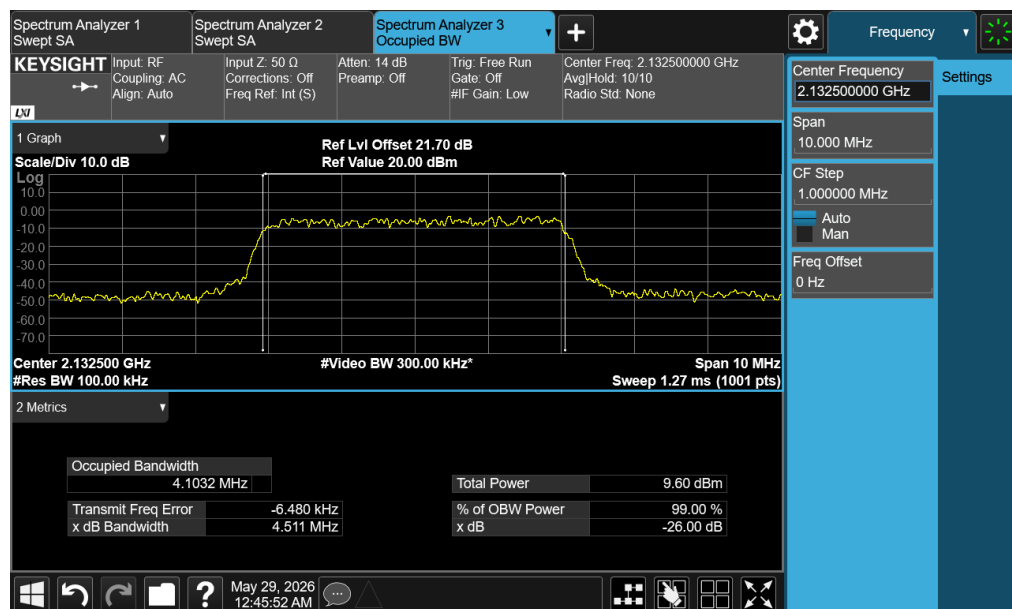
Occupied bandwidth

DL_Middle channel_4.1MHz AWGN signal type

Input



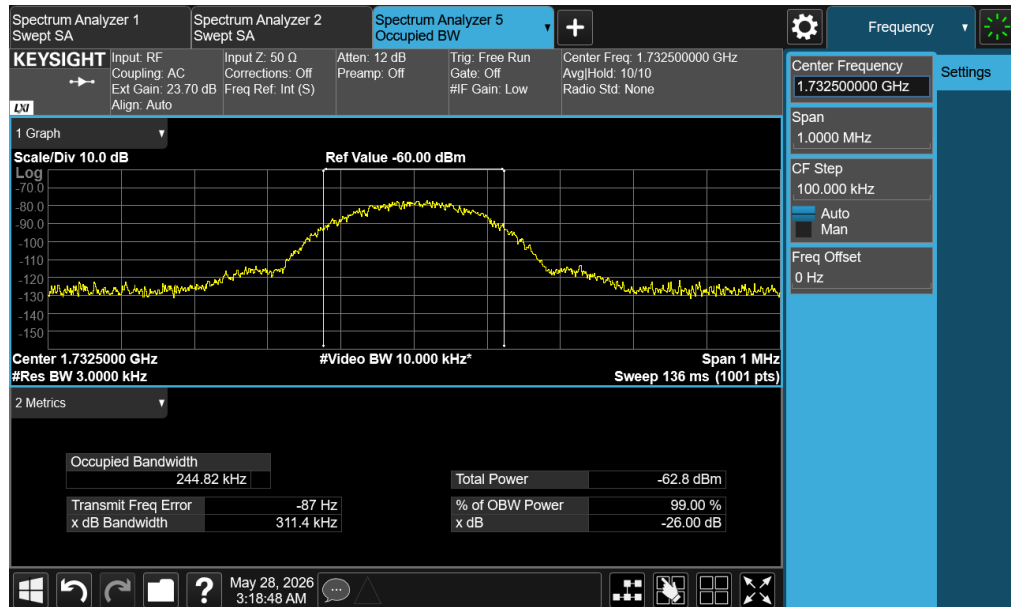
Output



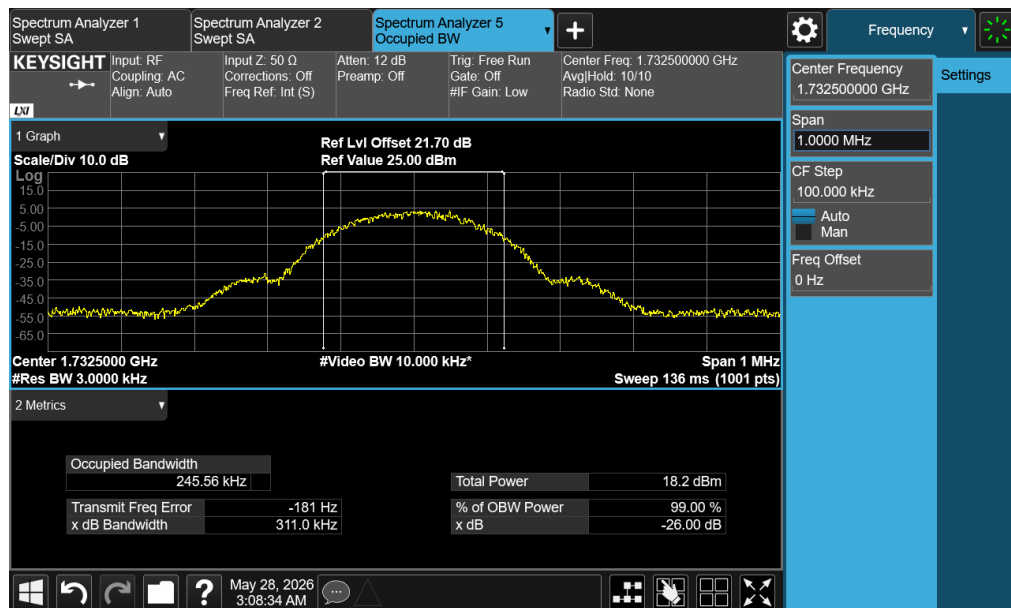
Occupied bandwidth

UL_Middle channel_GSM signal type

Input



Output



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Guangzhou Branch Calibration Laboratory

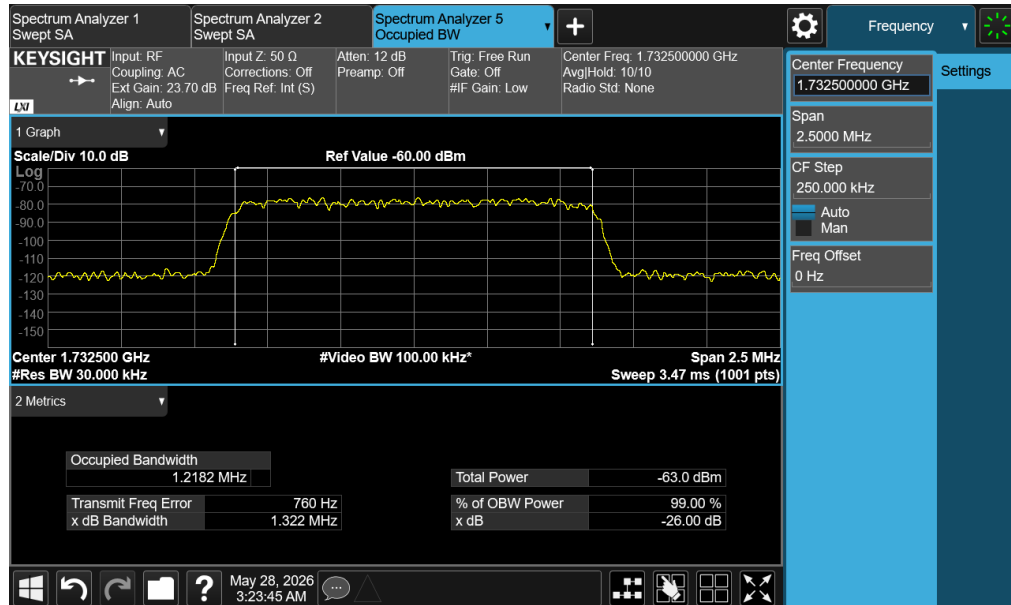
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中国·广东·广州高新技术产业开发区科学城科珠路198号 邮编: 510663

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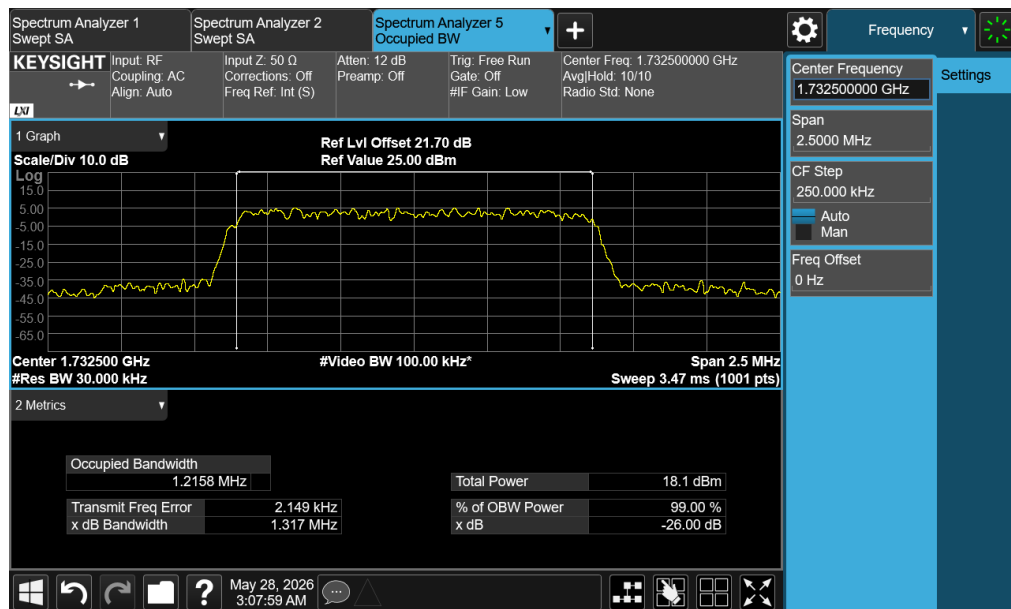
Occupied bandwidth

UL_Middle channel_1.25MHz AWGN signal type

Input



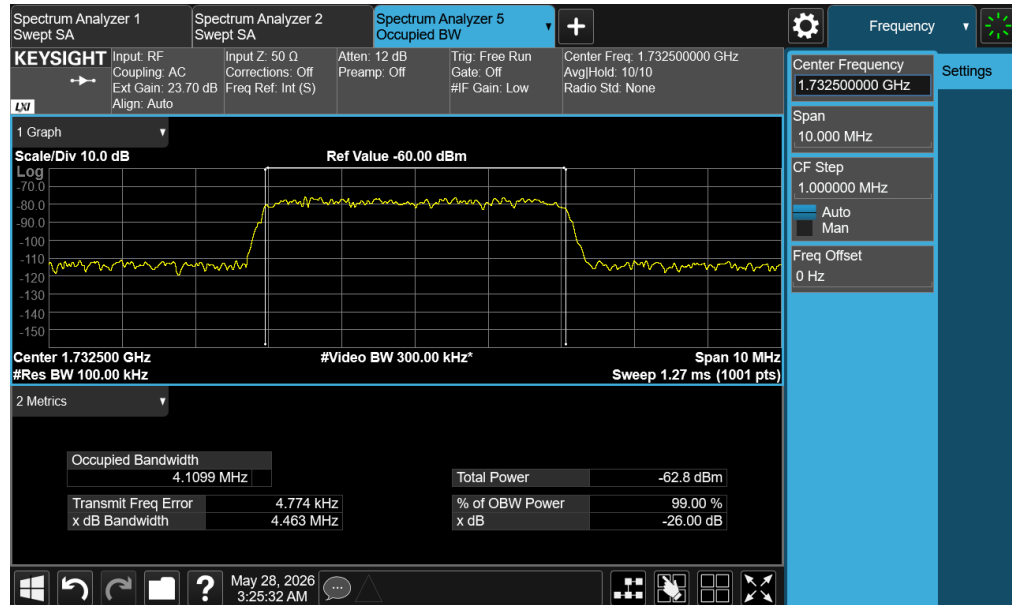
Output



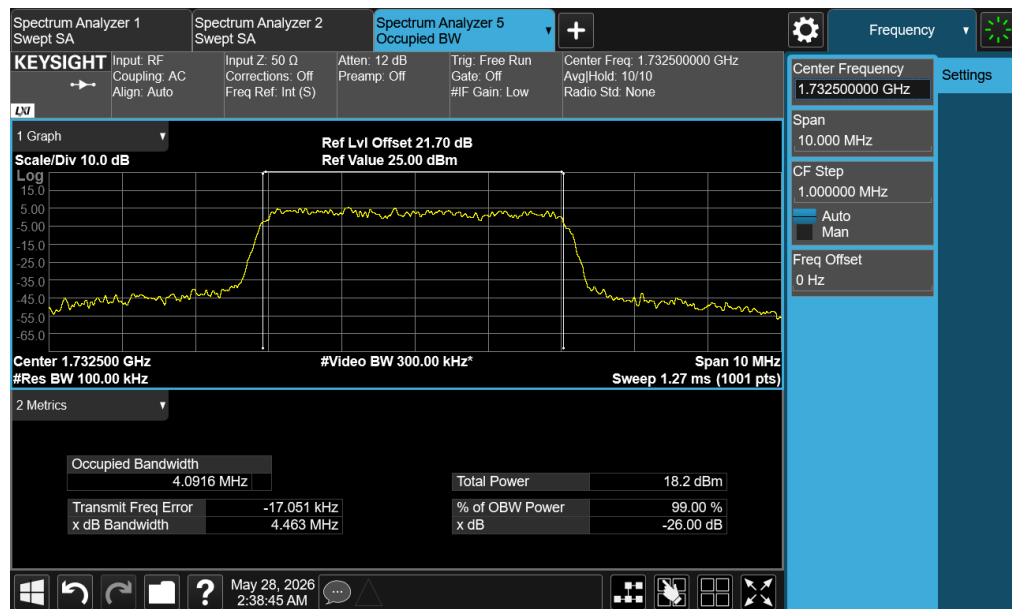
Occupied bandwidth

UL_Middle channel_4.1MHz AWGN signal type

Input



Output



12 Oscillation detection

12.1 Oscillation detection

Oscillation Detection									
Test Path	Test Port	Mitigation Time (s)	Limit (s)	Oscillation Level (dBm)	Number of Restart	Limit	Restart time (s)	Limit (s)	Verdict
DL	ANT	0.025	≤1	-3.0	0	≤5	/	≥60	PASS
UL	ANT1	0.030	≤0.3	-3.4	0	≤5	/	≥60	PASS
	ANT2	0.020		-9.2	0		/		PASS
	ANT3	0.015		-9.7	0		/		PASS
	ANT4	0.030		-17.5	0		/		PASS
	ANT5	0.050		-9.5	0		/		PASS
	ANT6	0.020		-4.9	0		/		PASS

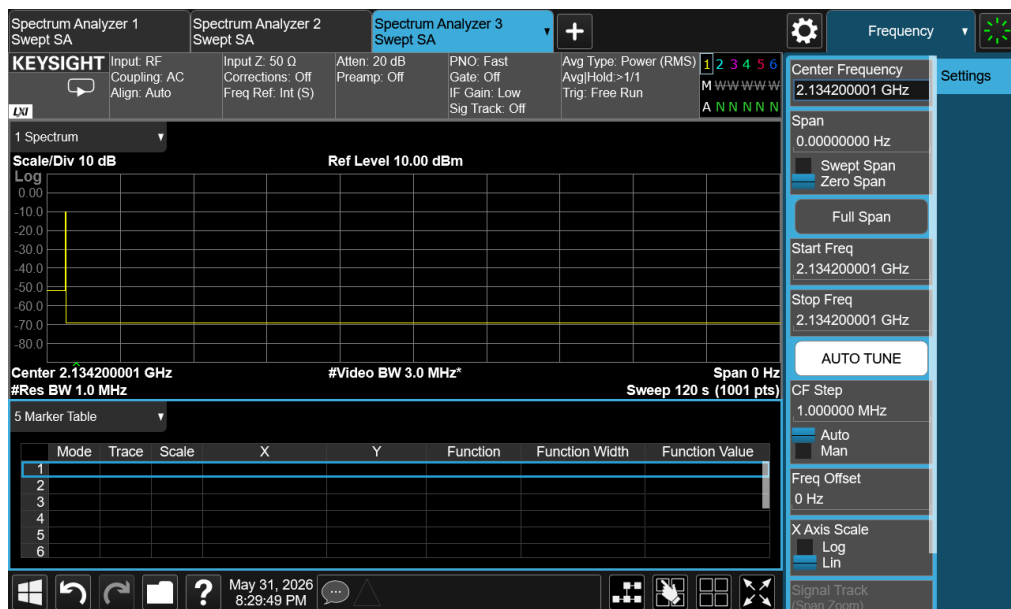
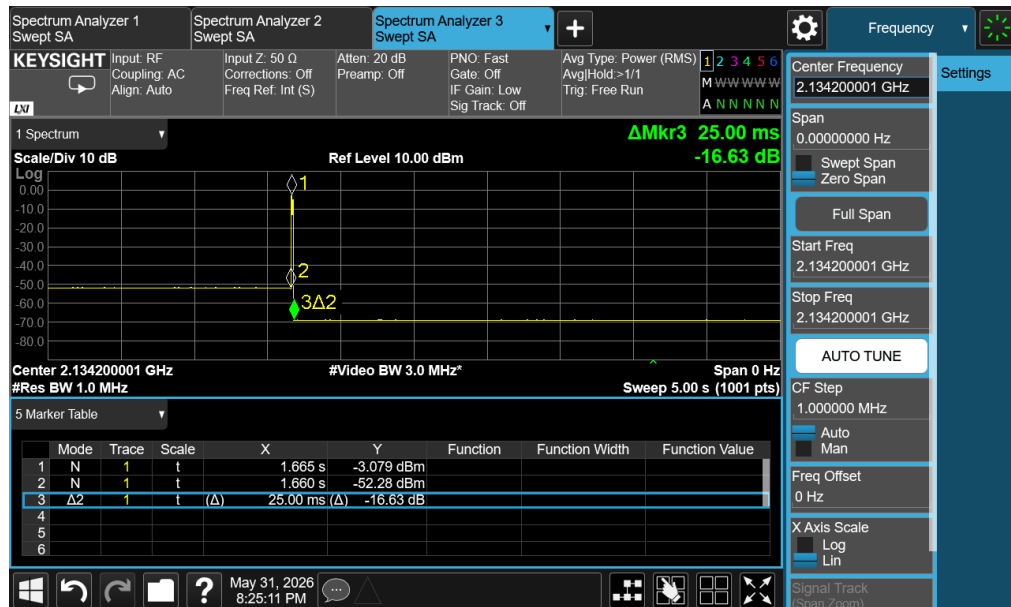
Remark:

The EUT will not restart after oscillation detection and mitigation. It can demonstrate compliance to the restart limit without restart time testing.



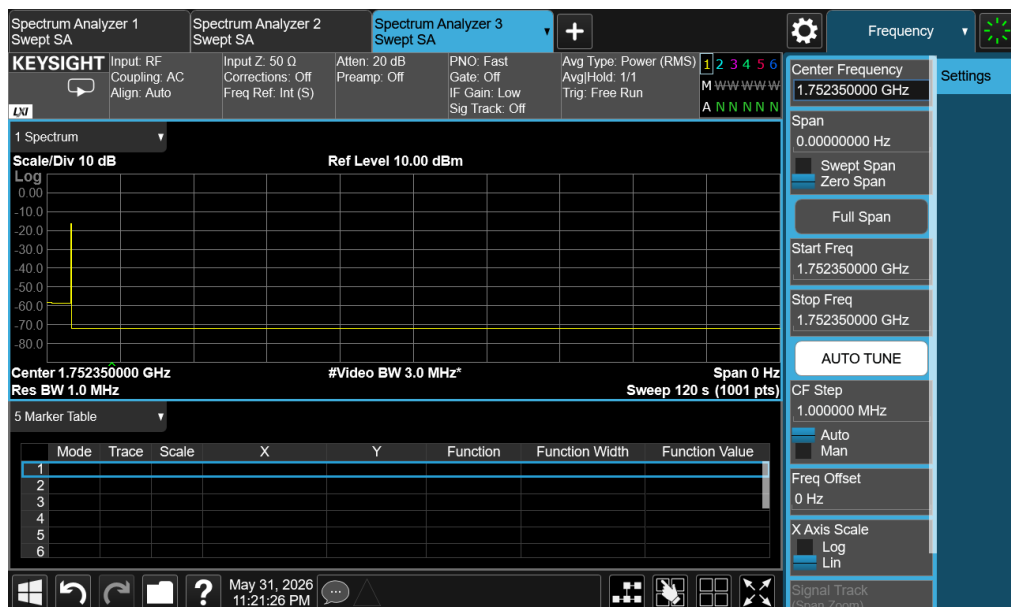
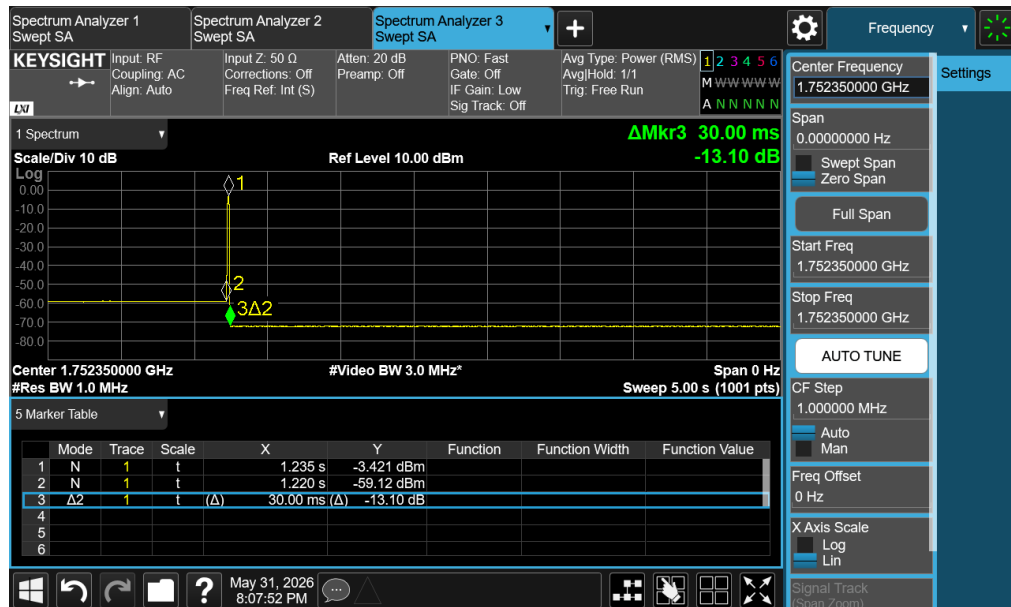
Oscillation detection

DL_ANT



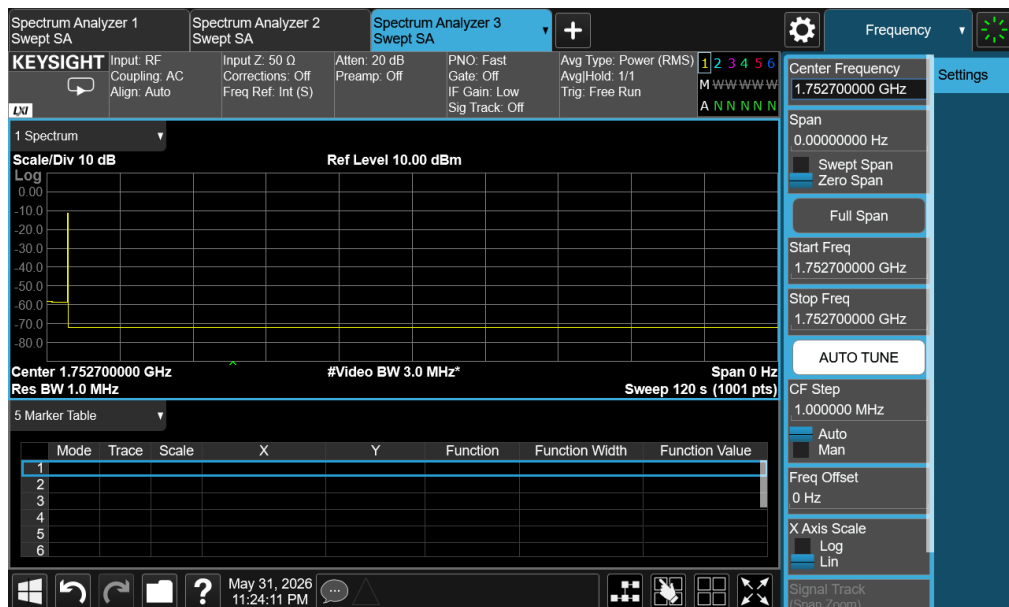
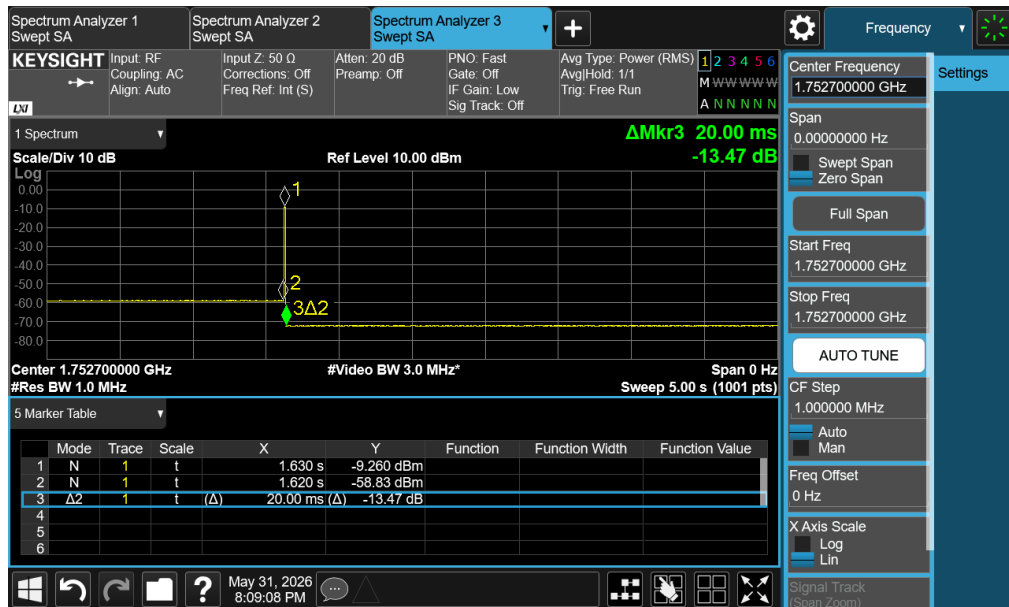
Oscillation detection

UL_ANT1



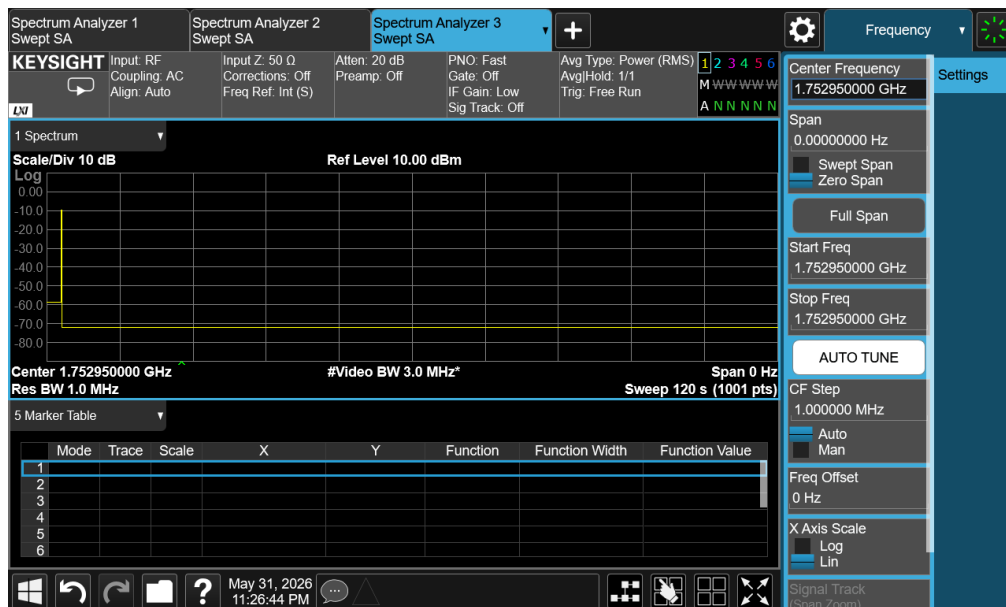
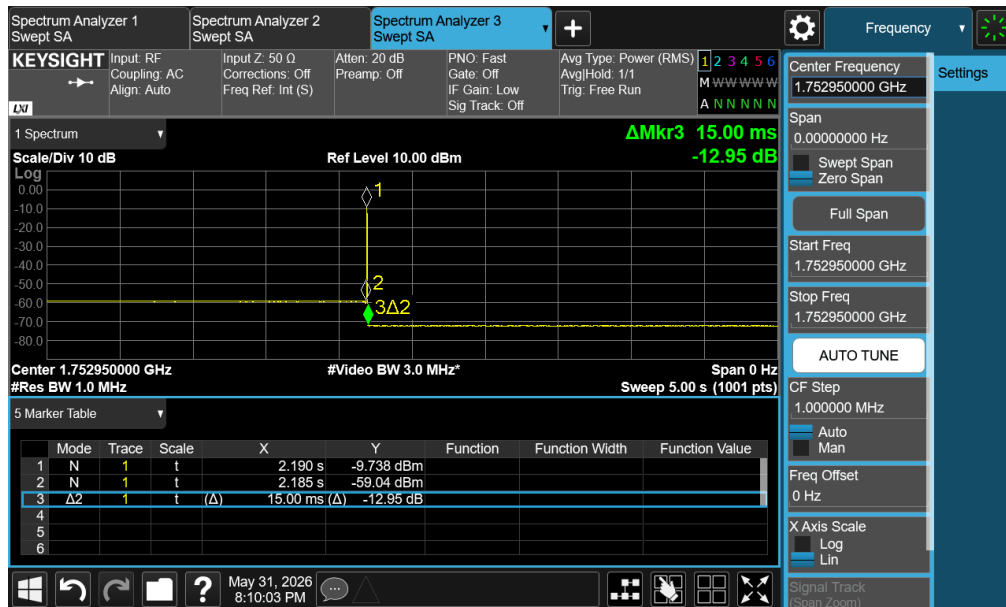
Oscillation detection

UL_ANT2



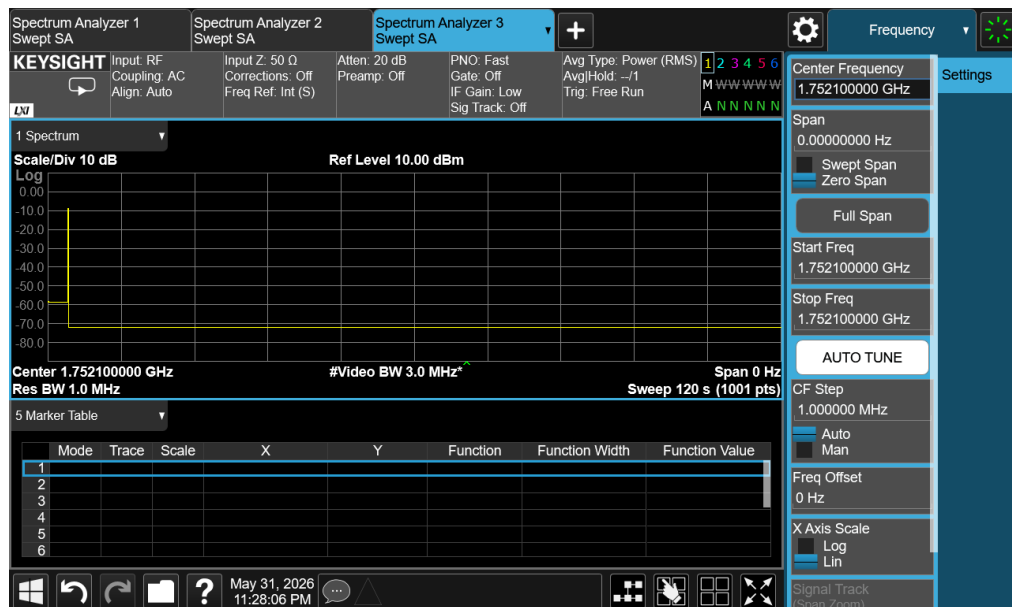
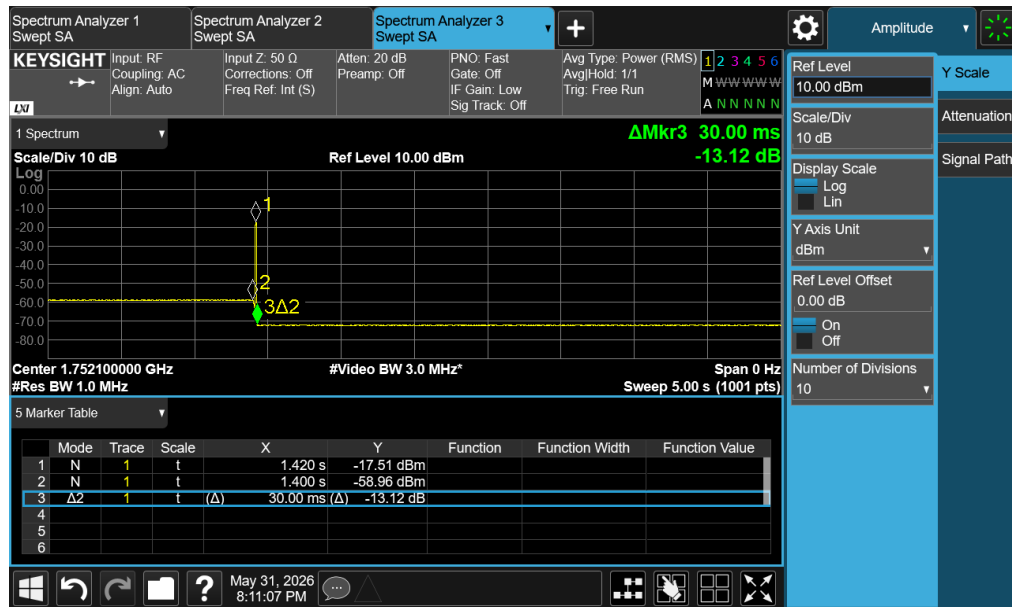
Oscillation detection

UL_ANT3



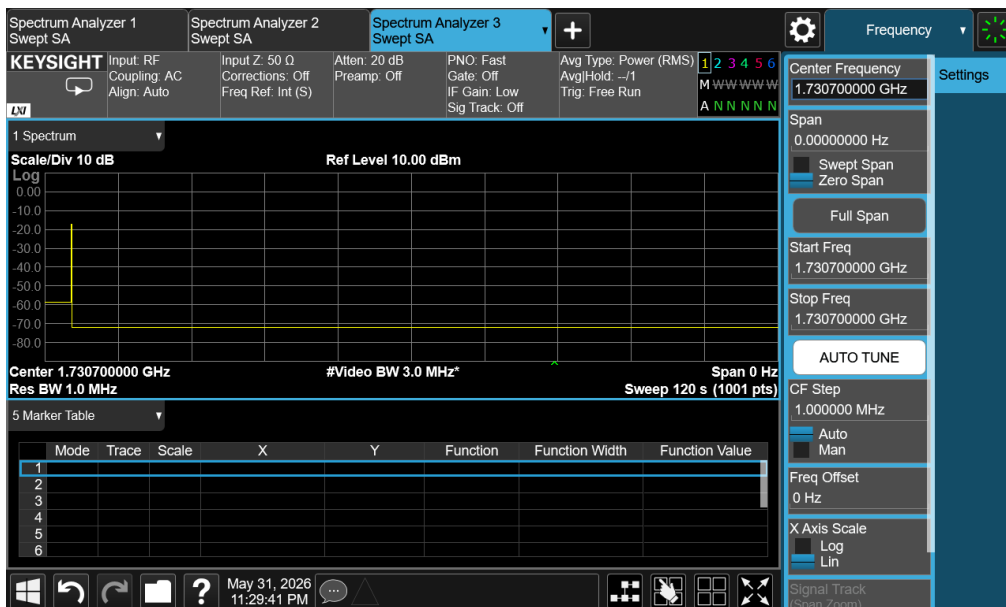
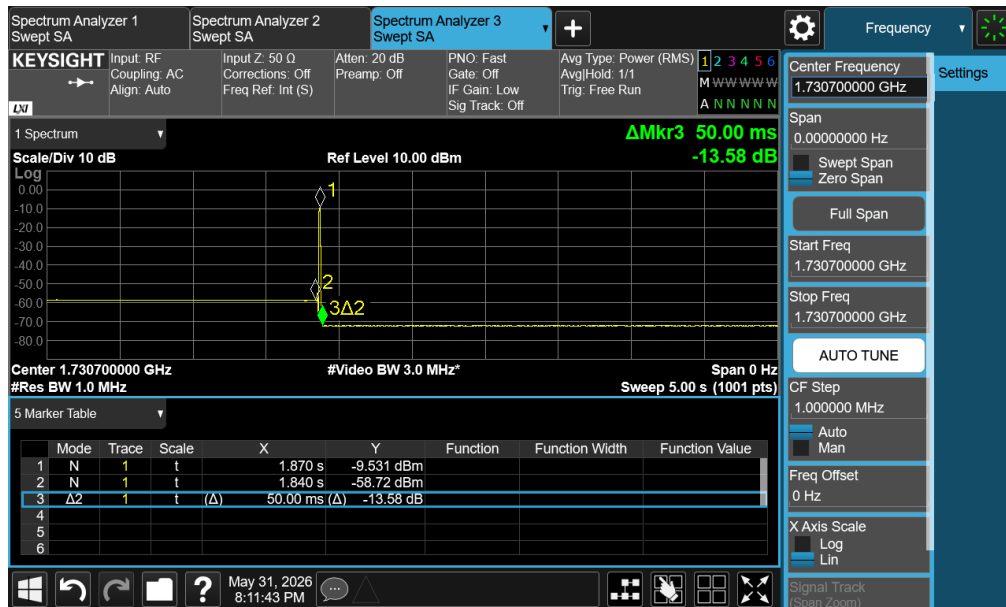
Oscillation detection

UL_ANT4



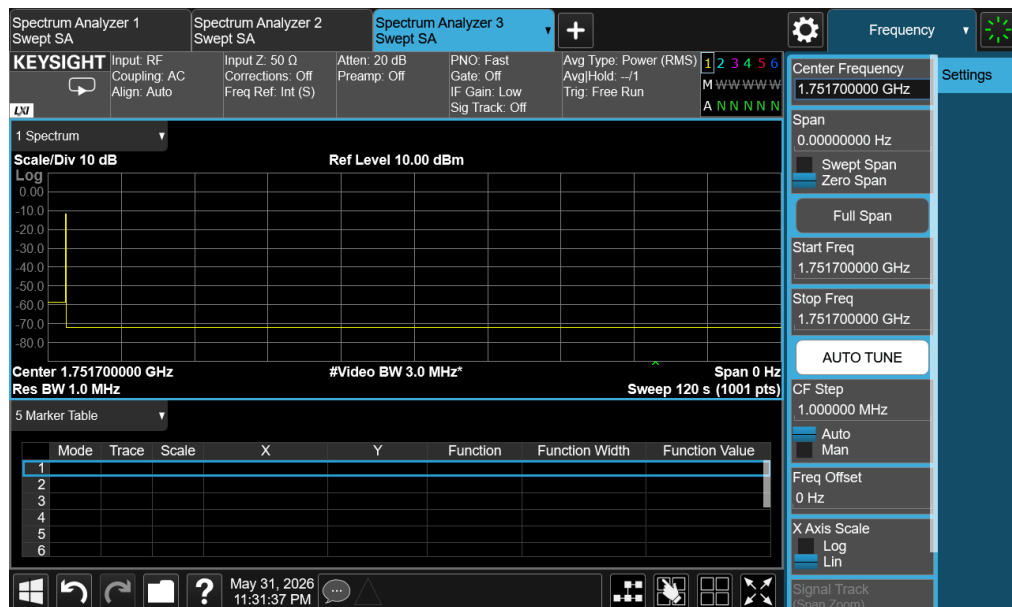
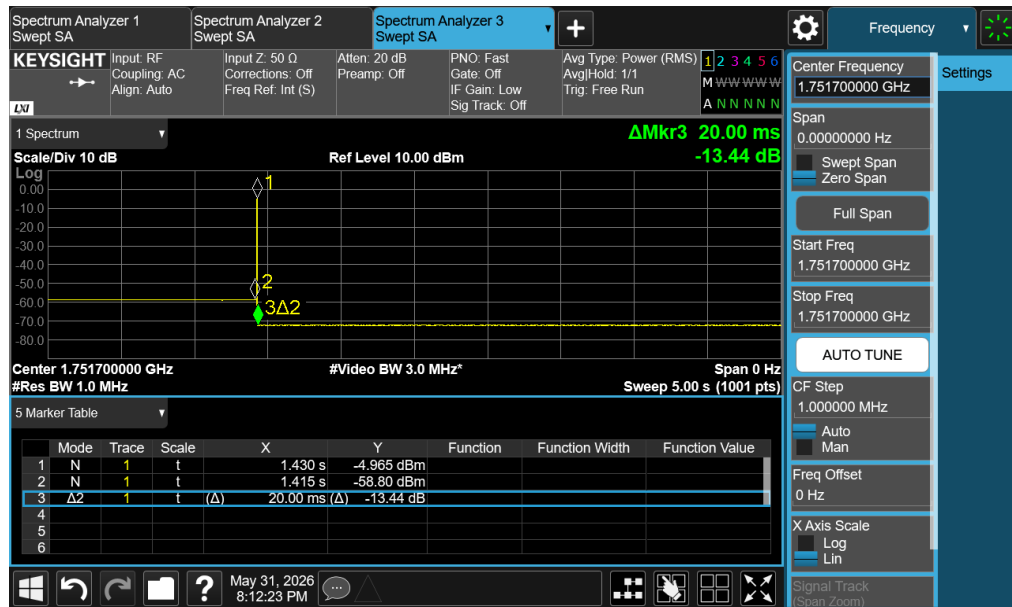
Oscillation detection

UL_ANT5



Oscillation detection

UL_ANT6



12.2 Oscillation mitigation or shutdown

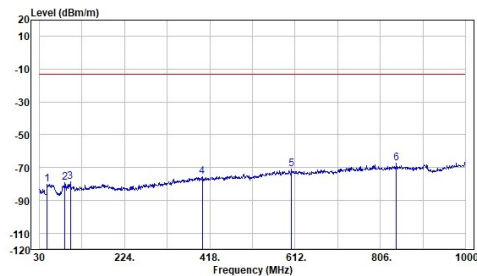
Oscillation Mitigation or Shutdown							
Test Path	Test Port	Isolation (dB)	Oscillation Level				Verdict
			Highest level (dBm)	Lowest level (dBm)	Difference (dB)	Limit (dB)	
DL	ANT	85.04	1.3	-3.0	4.3	≤12	PASS
		84.04	2.6	-1.2	3.8		PASS
		83.04	4.3	3.8	0.5		PASS
		82.04	6.9	5.5	1.4		PASS
		81.04	12.2	7.7	4.5		PASS
		80.04	13.3	9.9	3.4		PASS
		79.04	14.9	10.6	4.3		PASS
		78.04	16.3	11.1	5.2		PASS
		77.04	/	/	/		PASS
		76.04	/	/	/		PASS
		75.04	/	/	/		PASS
Remark: "/" presents the EUT shut down.							



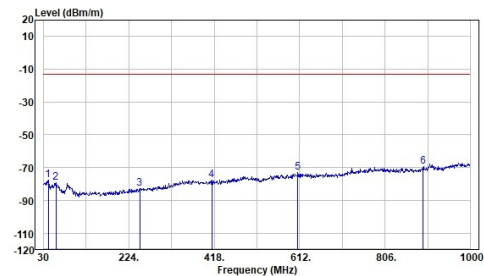
13 Radiated spurious emissions

Radiated spurious emissions

UL_30MHz~1GHz

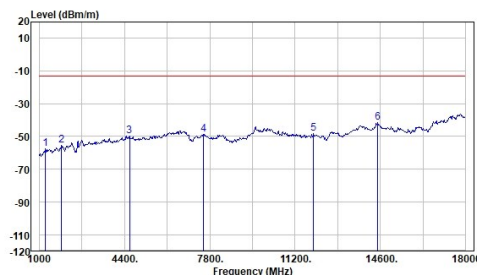


	Freq	Read Level	Correction Factor	Level	Limit Line	Over Limit	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB	
1	47.46	-73.47	-6.61	-80.08	-13.00	-67.08	VERTICAL
2	88.20	-71.45	-7.88	-79.33	-13.00	-66.33	VERTICAL
3	100.81	-72.27	-6.56	-78.83	-13.00	-65.83	VERTICAL
4	400.54	-77.28	1.64	-75.64	-13.00	-62.64	VERTICAL
5	604.24	-75.60	4.44	-71.16	-13.00	-58.16	VERTICAL
6	842.86	-75.73	8.40	-67.33	-13.00	-54.33	VERTICAL

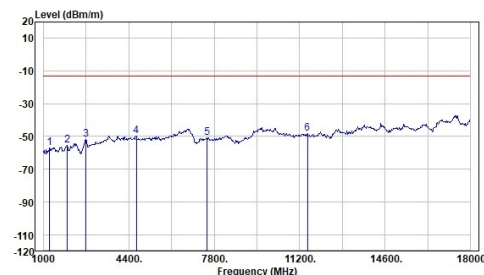


	Freq	Read Level	Correction Factor	Level	Limit Line	Over Limit	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB	
1	40.67	-76.91	-0.81	-77.72	-13.00	-64.72	HORIZONTAL
2	58.13	-76.23	-2.85	-79.08	-13.00	-66.08	HORIZONTAL
3	249.22	-77.63	-5.39	-83.02	-13.00	-70.02	HORIZONTAL
4	412.18	-76.84	-0.70	-77.54	-13.00	-64.54	HORIZONTAL
5	608.12	-75.72	2.65	-73.07	-13.00	-60.07	HORIZONTAL
6	893.30	-77.01	7.71	-69.30	-13.00	-56.30	HORIZONTAL

UL_above 1GHz



	Freq	Read Level	Correction Factor	Level	Limit Line	Over Limit	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB	
1	1238.00	-58.41	0.87	-57.54	-13.00	-44.54	VERTICAL
2	1884.00	-60.31	4.70	-55.61	-13.00	-42.61	VERTICAL
3	4604.00	-61.28	11.77	-49.51	-13.00	-36.51	VERTICAL
4	7545.00	-62.01	13.55	-48.46	-13.00	-35.46	VERTICAL
5	11931.00	-62.16	13.78	-48.40	-13.00	-35.40	VERTICAL
6	14498.00	-62.22	20.71	-41.51	-13.00	-28.51	VERTICAL



	Freq	Read Level	Correction Factor	Level	Limit Line	Over Limit	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB	
1	1238.00	-59.48	2.45	-57.03	-13.00	-44.03	HORIZONTAL
2	1952.00	-59.35	3.88	-55.47	-13.00	-42.47	HORIZONTAL
3	2700.00	-59.02	7.41	-51.61	-13.00	-38.61	HORIZONTAL
4	4786.00	-60.00	11.09	-48.91	-13.00	-35.91	HORIZONTAL
5	7511.00	-62.95	12.40	-50.55	-13.00	-37.55	HORIZONTAL
6	11523.00	-63.69	15.70	-47.99	-13.00	-34.99	HORIZONTAL

Remark:

Pre-test was performed at uplink and downlink path, the test result always keeps more than 20dB margin, The spurious emissions 9kHz to 30MHz were very low and not displayed in this report. Therefore, only show the worst-case data in this report.



14 Out of band gain

Out of band gain								
Test Path	Test Port	Offset (MHz)	Gain (dB)		ATT (dB)		ATT Limit (dB)	Verdict
			Low edge	High edge	Low edge	High edge		
DL	ANT	f _c	79.4		/		/	/
		0	54.8	58.0	-24.6	-21.4	≤-20	PASS
		1	47.7	43.1	-31.7	-36.3	≤-30	PASS
		5	31.1	36.2	-48.3	-43.2	≤-40	PASS
UL	ANT4	f _c	80.1		/		/	/
		0	58.1	56.6	-22.0	-23.5	≤-20	PASS
		1	45.9	47.7	-34.2	-32.4	≤-30	PASS
		5	33.8	32.8	-46.3	-47.3	≤-40	PASS
Remark: 1. f _c is the centre frequency of the pass band of the EUT. 2. ATT is the attenuation referenced to the gain in f _c .								

Out of band gain						
Test Path	Test Port	Offset (MHz)	Gain (dB)		Gain Limit (dB)	Verdict
			Low edge	High edge		
DL	ANT	0.2	53.4	49.9	≤ 60	PASS
		1	43.3	39.9	≤ 45	PASS
UL	ANT4	0.2	57.7	55.5	≤ 60	PASS
		1	40.7	35.6	≤ 45	PASS



15 Frequency Stability

Frequency stability vs temperature							
Test Path	Test Port	Test Channel	Test Voltage	Test Temp. (°C)	Freq. error (Hz)	Tolerance (ppm)	Verdict
DL	ANT	Middle	VN	+50	1.2	0.00056	PASS
				+40	1.5	0.00070	PASS
				+30	1.4	0.00066	PASS
				+20	1.2	0.00056	PASS
				+10	1.2	0.00056	PASS
				0	1.5	0.00070	PASS
				-10	1.6	0.00075	PASS
				-20	1.7	0.00080	PASS
				-30	1.6	0.00075	PASS
UL	ANT1	Middle	VN	+50	1.2	0.00069	PASS
				+40	1.3	0.00075	PASS
				+30	1.3	0.00075	PASS
				+20	1.8	0.00104	PASS
				+10	1.7	0.00098	PASS
				0	1.2	0.00069	PASS
				-10	1.5	0.00087	PASS
				-20	1.8	0.00104	PASS
				-30	2.0	0.00115	PASS



Frequency stability vs voltage							
Test Path	Test Port	Test Channel	Test Temp.	Test Voltage	Freq. error (Hz)	Tolerance (ppm)	Verdict
DL	ANT	Middle	TN	VL	1.2	0.00056	PASS
				VN	1.2	0.00056	PASS
				VH	1.2	0.00056	PASS
UL	ANT1	Middle	TN	VL	1.8	0.00104	PASS
				VN	1.8	0.00104	PASS
				VH	1.8	0.00104	PASS

--End of Appendix--

