

Appendix B

WCDMA Band II & V



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1. Effective (Isotropic) Radiated Power

1.1. Test Result

Band	Channel	Conducted Power (dBm)	EIRP (dBm)	Limit(dBm)	Verdict
Band II	9262	23.08	17.08	33.00	PASS
Band II	9400	23.12	17.12	33.00	PASS
Band II	9538	23.21	17.21	33.00	PASS

Band	Channel	Conducted Power (dBm)	ERP (dBm)	Limit(dBm)	Verdict
Band V	4132	24.02	14.87	38.45	PASS
Band V	4182	24.00	14.85	38.45	PASS
Band V	4233	24.05	14.9	38.45	PASS

Remark:

a: For getting the EIRP (Efficient Isotropic Radiated Power), the following formula should be taken to calculate it,

$ERP [dBm] = \text{Conducted Power} [dBm] + \text{Gain} [dBd]$

$EIRP [dBm] = \text{Conducted Power} [dBm] + \text{Gain} [dBi]$



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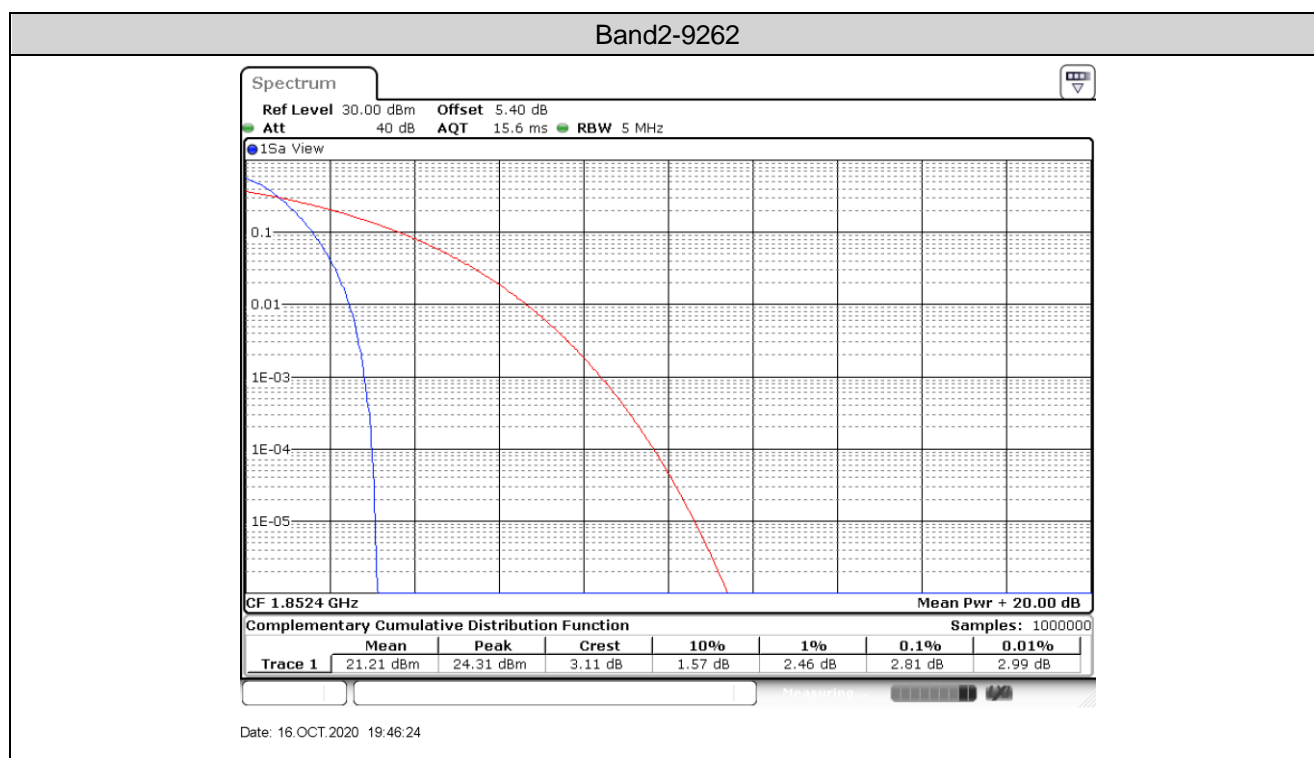
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2. Peak-to-Average Ratio(CCDF)

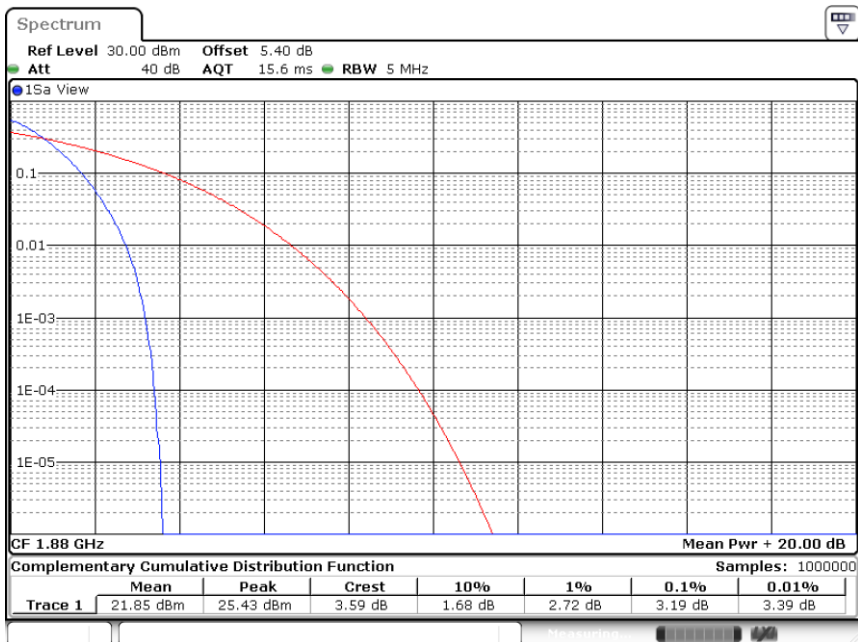
2.1. Test Result

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
Band2	9262	2.81	13	PASS
Band2	9400	3.19	13	PASS
Band2	9538	2.99	13	PASS
Band5	4132	2.7	13	PASS
Band5	4182	3.42	13	PASS
Band5	4233	2.72	13	PASS

2.2. Test Plots

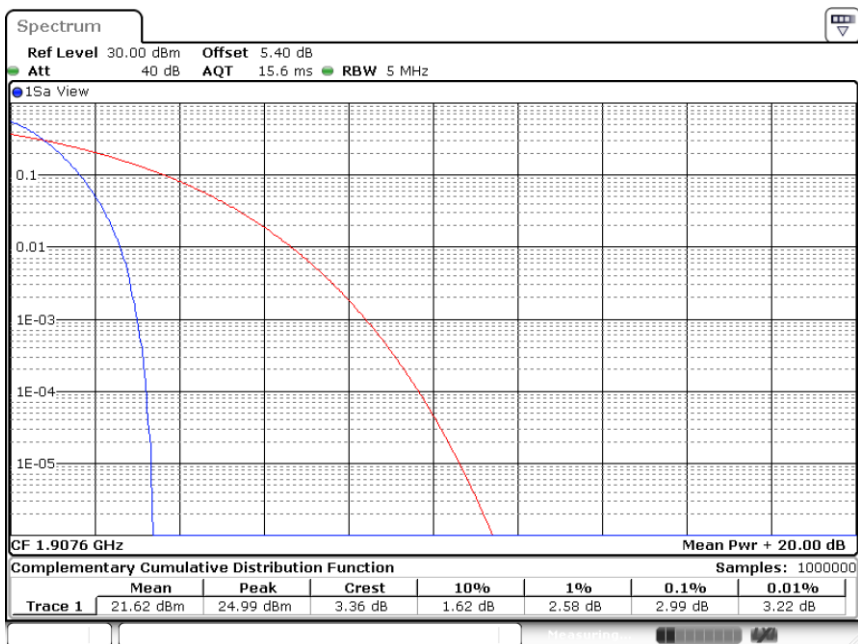


Band2-9400



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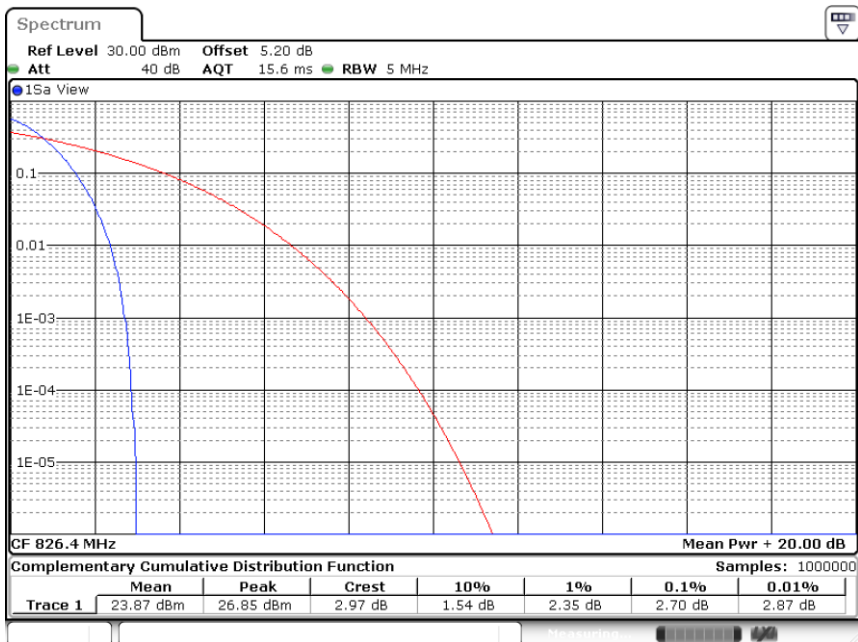
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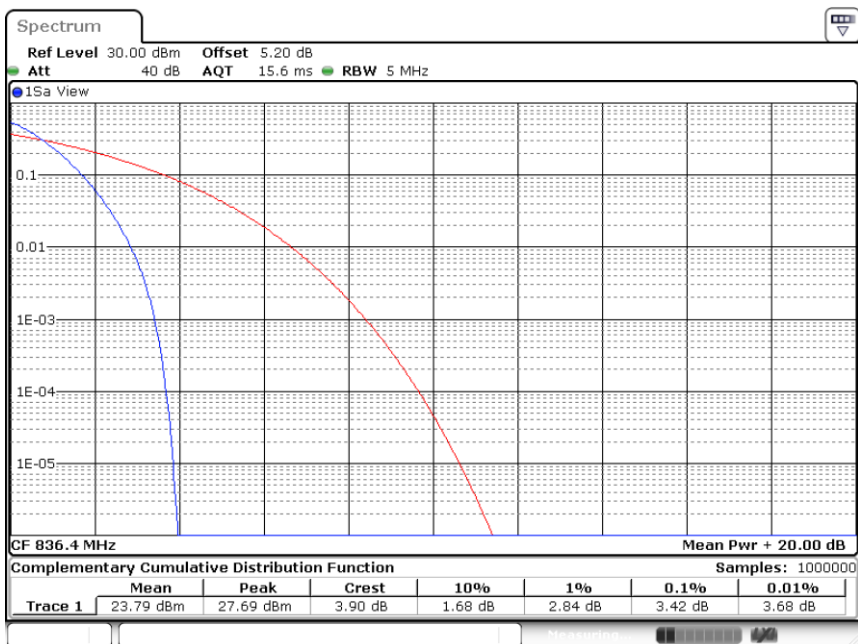


Band5-4132



Date: 16.OCT.2020 20:03:27

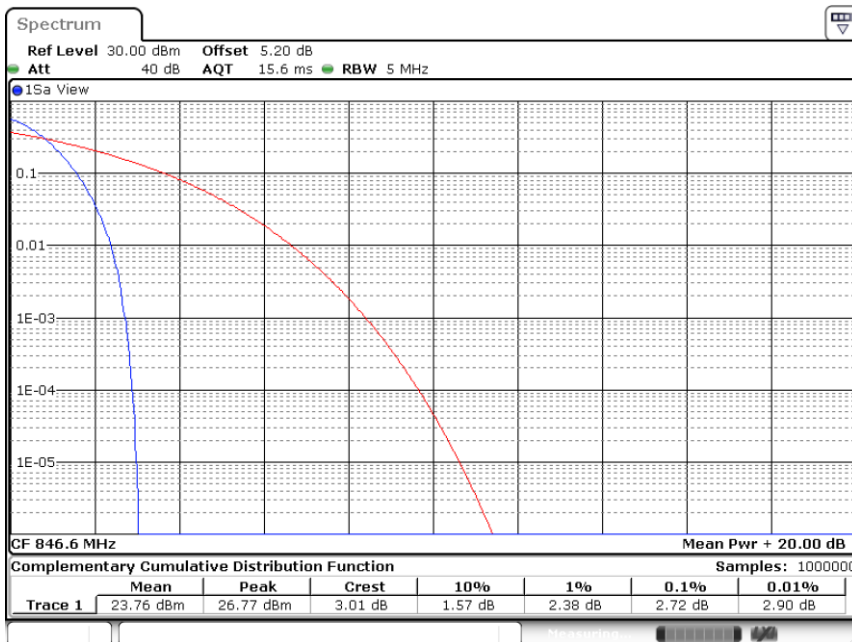
Band5-4182



Date: 16.OCT.2020 20:03:40



Band5-4233



Date: 16.OCT.2020 20:03:52

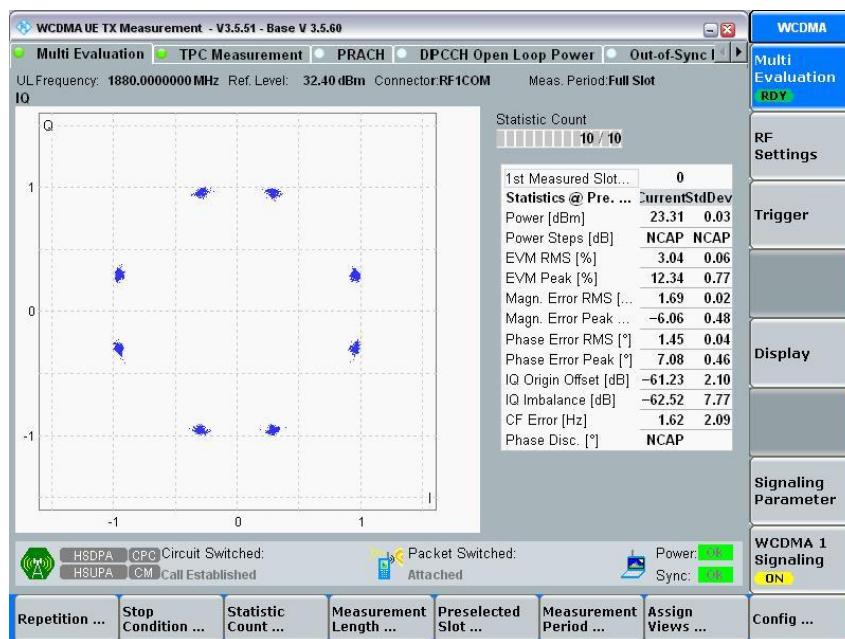


3. Modulation Characteristics

3.1. Test Band = WCDMA Band II

3.1.1. Test Mode = UMTS/TM1

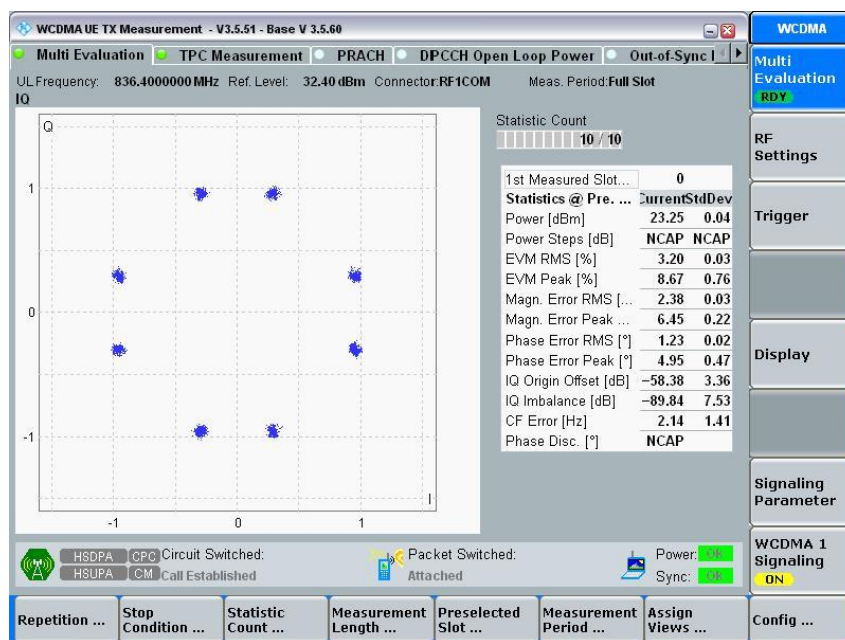
3.1.1.1. Test Channel = MCH



3.2. Test Band = WCDMA Band V

3.2.1. Test Mode = UMTS/TM1

3.2.1.1. Test Channel = MCH



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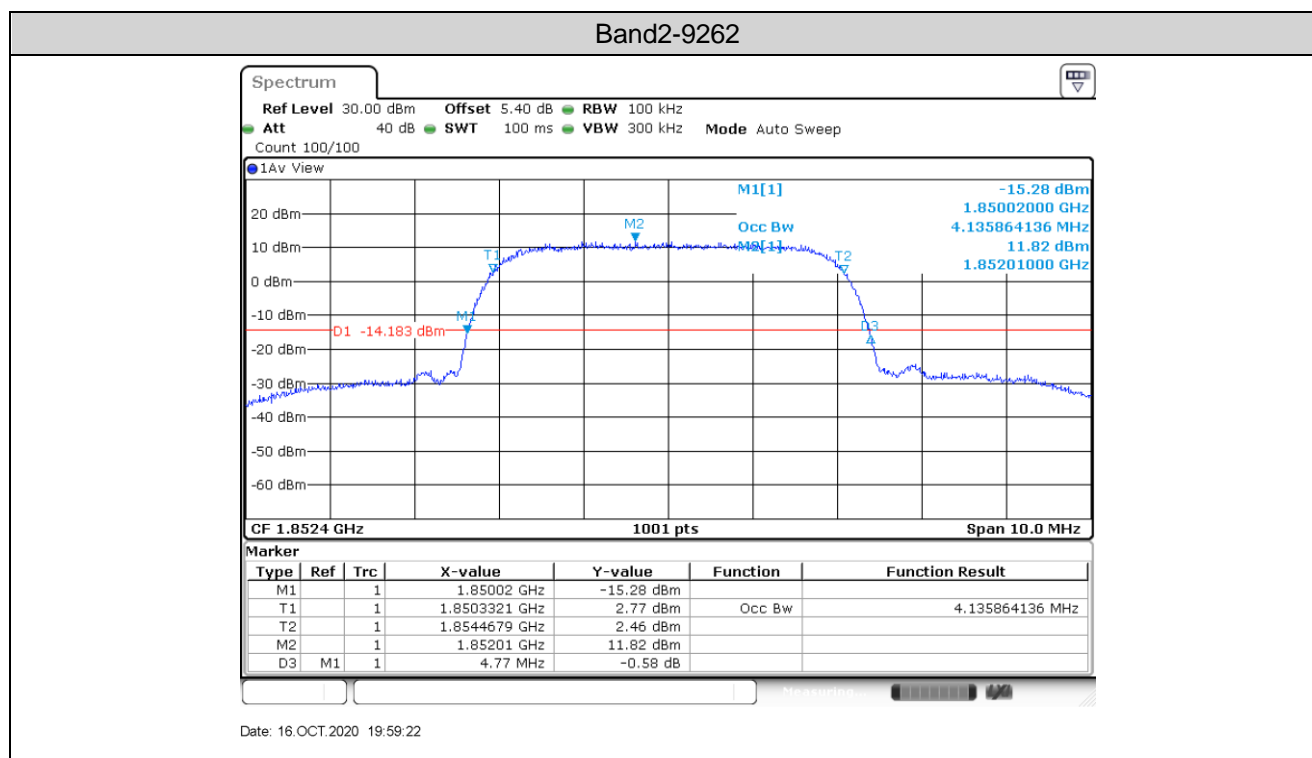


4. 26dB Bandwidth and Occupied Bandwidth

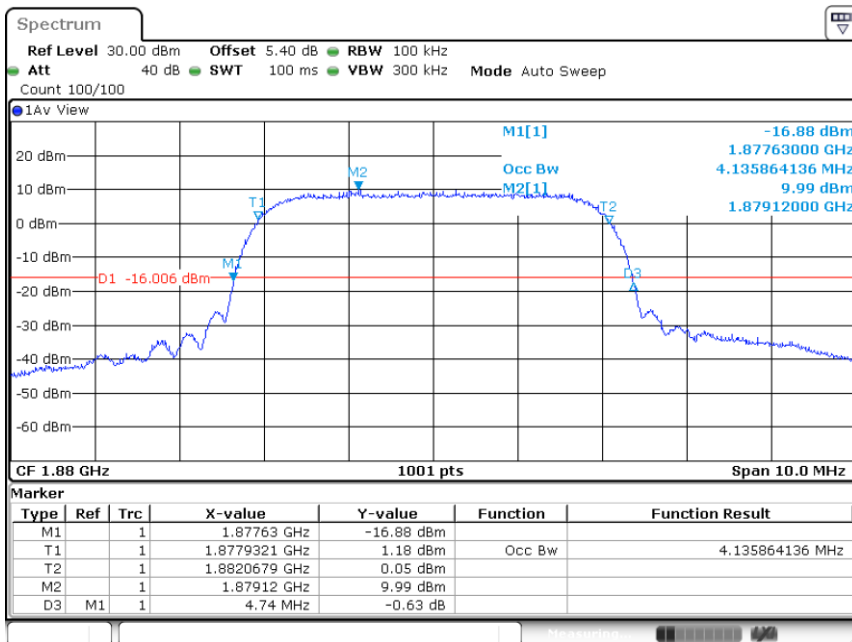
4.1. Test Result

Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit(MHz)	Verdict
Band2	9262	4.136	4.770	---	PASS
Band2	9400	4.136	4.740	---	PASS
Band2	9538	4.126	4.740	---	PASS
Band5	4132	4.136	4.770	---	PASS
Band5	4182	4.126	4.720	---	PASS
Band5	4233	4.146	4.760	---	PASS

4.2. Test Plots

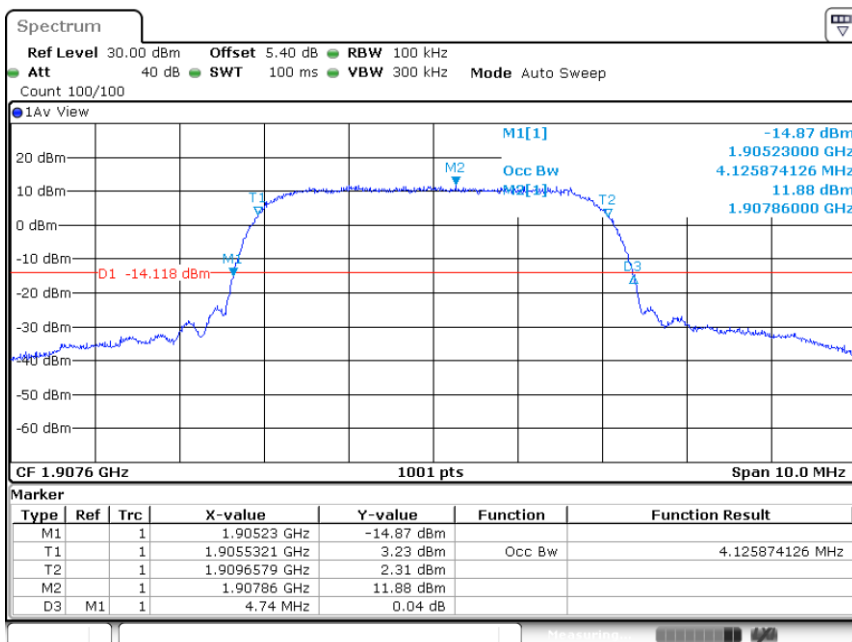


Band2-9400



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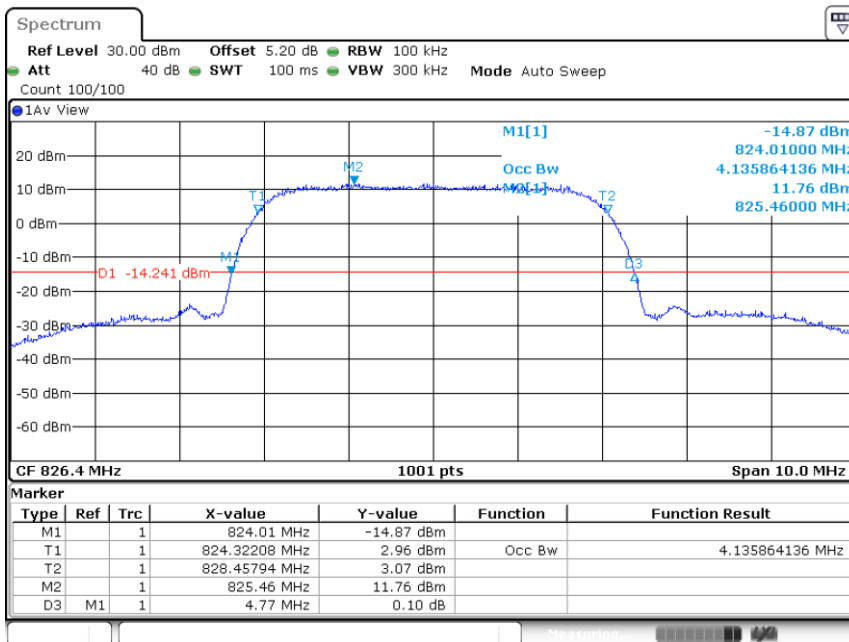
Band2-9538



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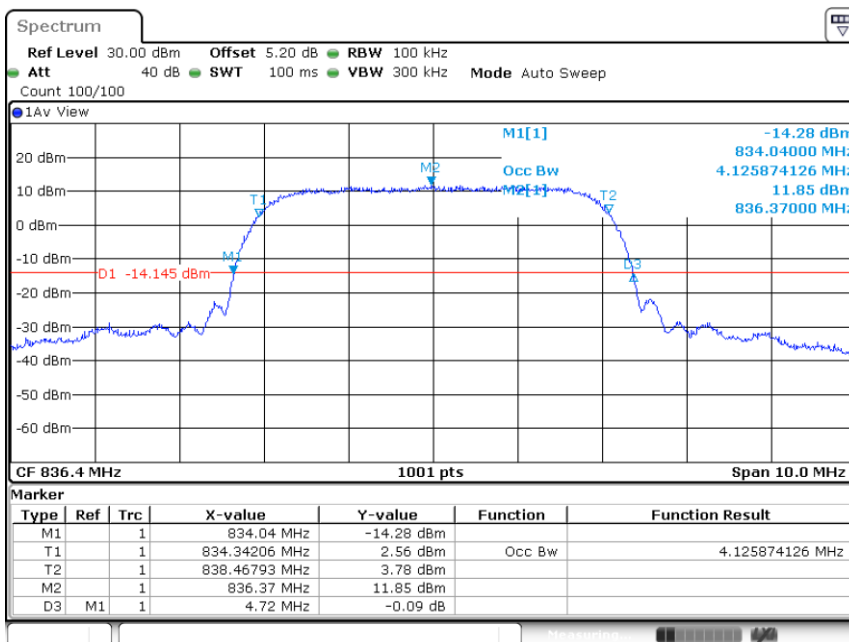


Band5-4132



Date: 16.OCT.2020 20:16:27

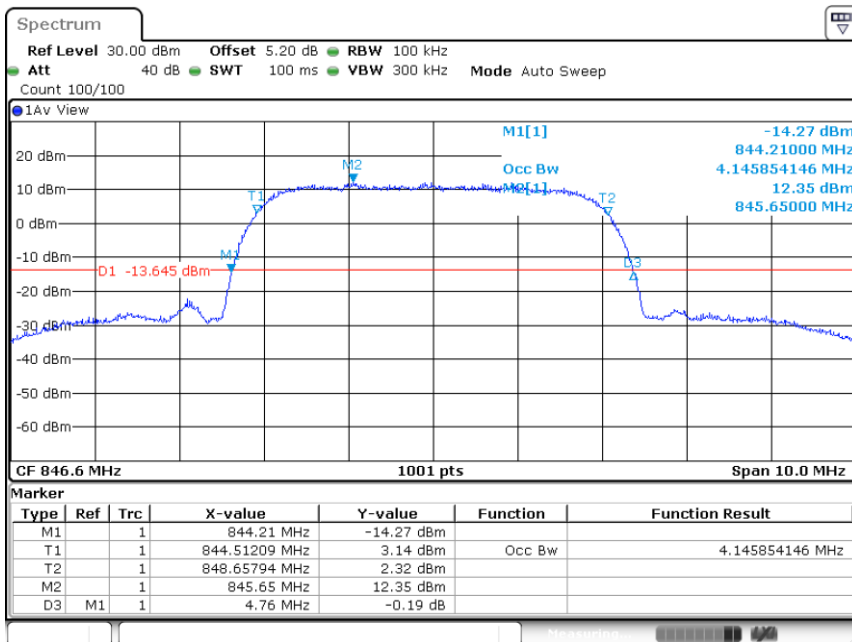
Band5-4182



Date: 16.OCT.2020 20:16:49



Band5-4233

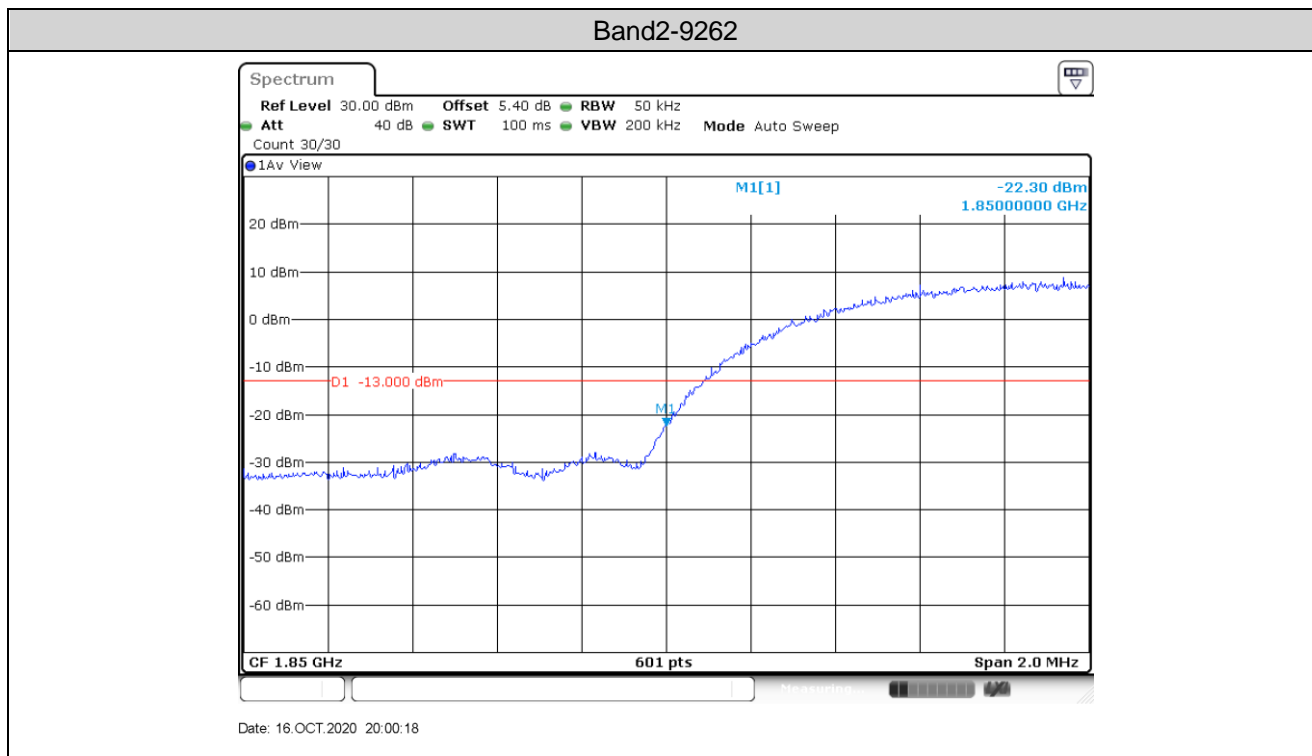


Date: 16.OCT.2020 20:17:10



5. Band Edge Compliance

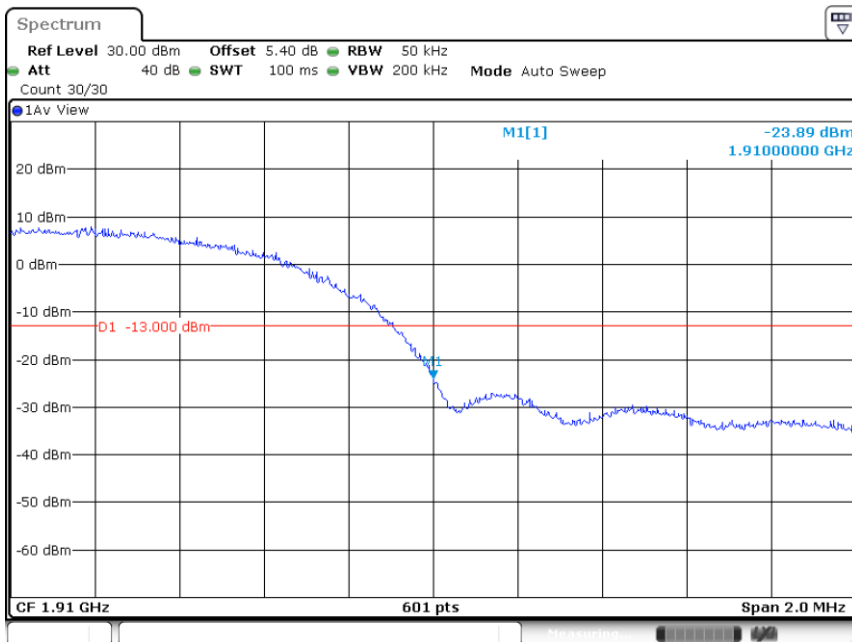
5.1. Test Plots



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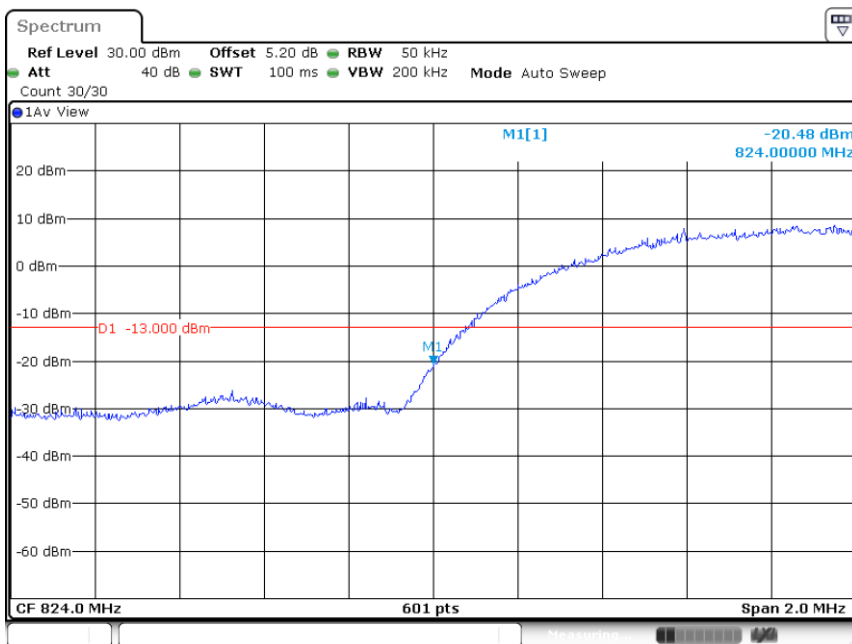
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Band2-9538



Date: 16.OCT.2020 20:00:32

Band5-4132

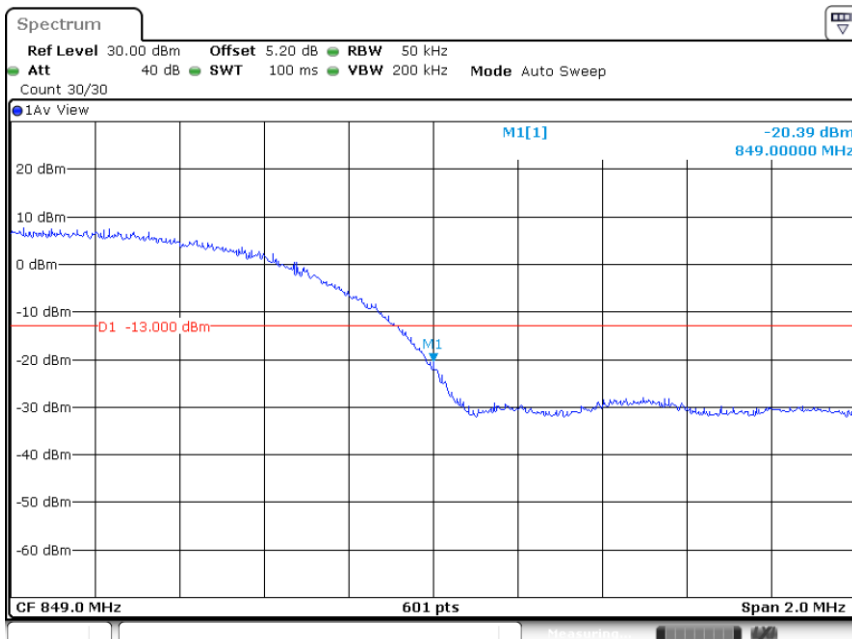


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Band5-4233



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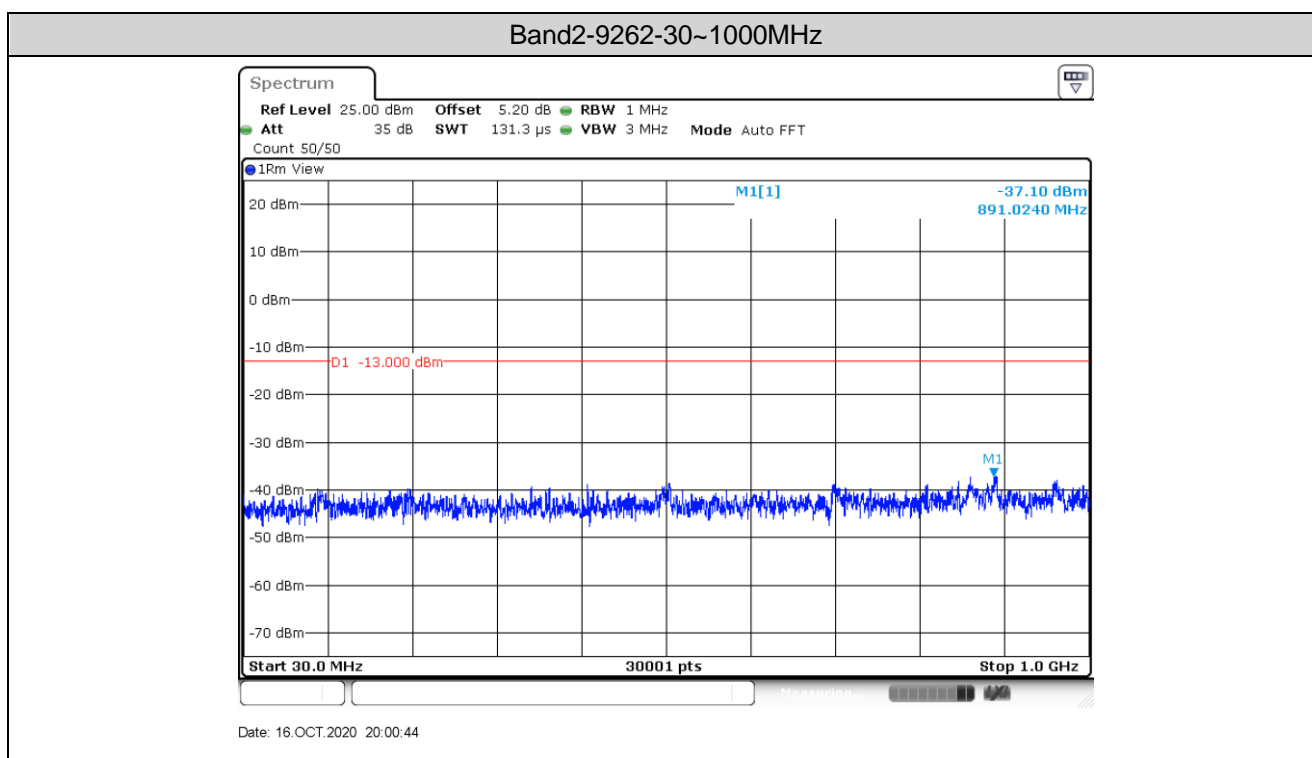
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6. Spurious Emission at Antenna Terminal

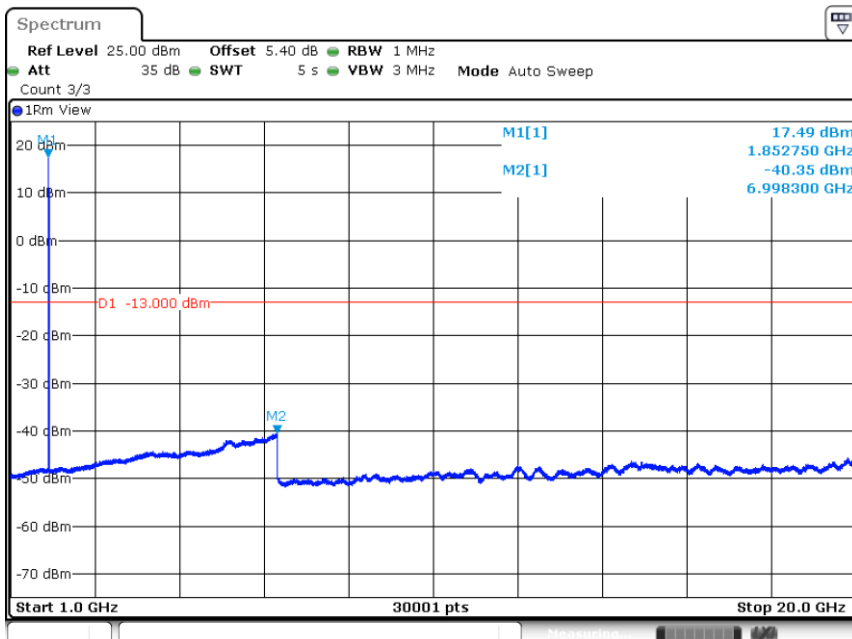
Remark1: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of $< RBW/2$ so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = $k * (\text{Span} / RBW)$ " with k between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

Remark2: only the worst case data displayed in this report.

6.1. Test Plots

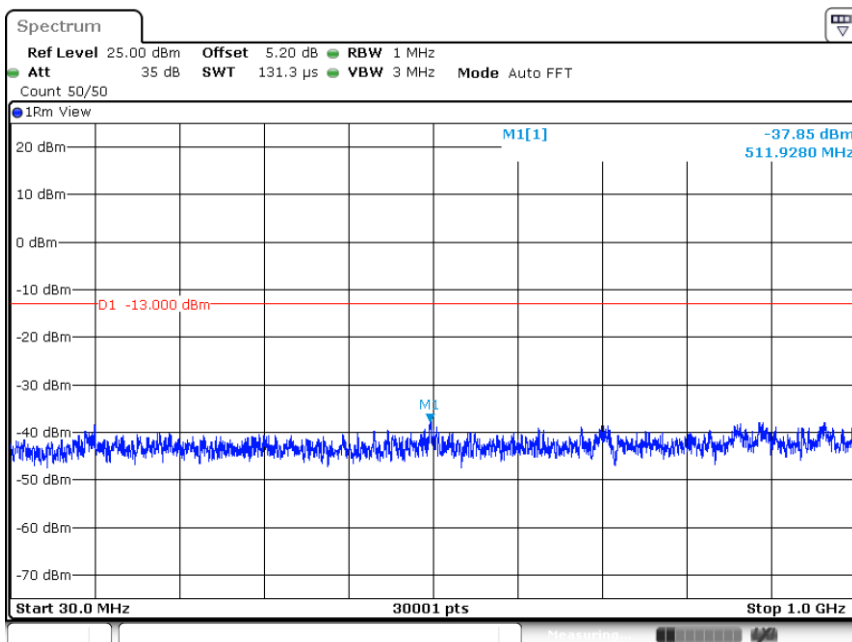


Band2-9262-1000~20000MHz



Date: 16.OCT.2020 20:01:08

Band2-9400-30~1000MHz



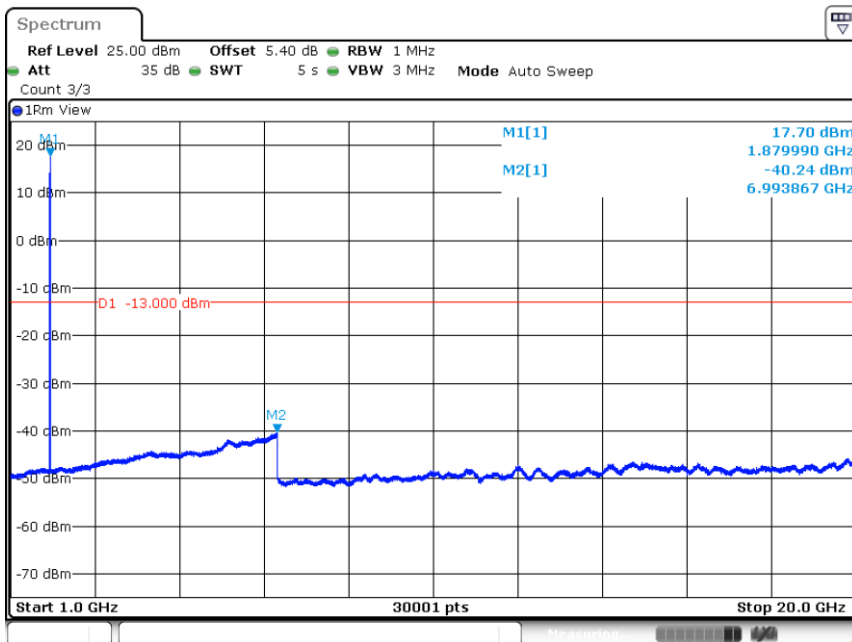
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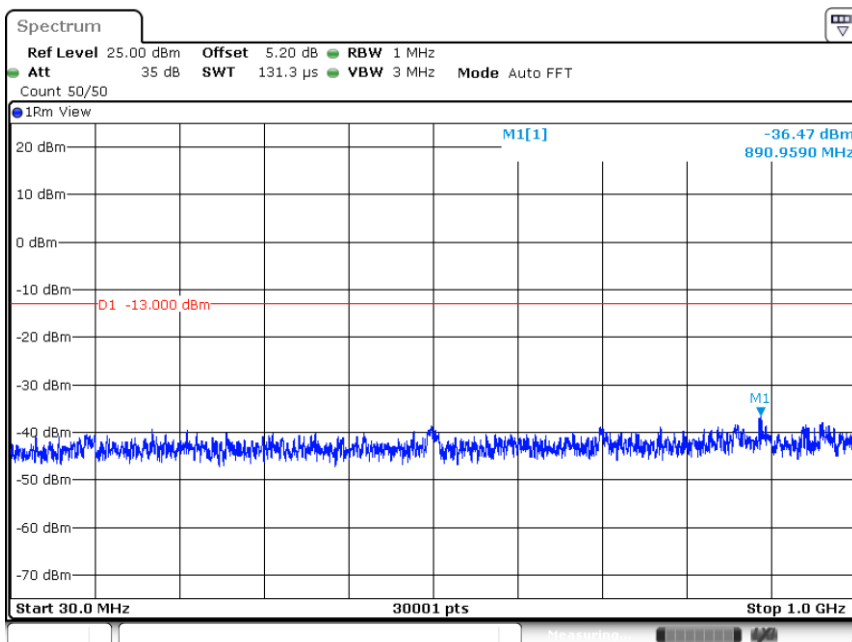
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Band2-9400-1000~20000MHz



Date: 16.OCT.2020 20:01:43

Band2-9538-30~1000MHz



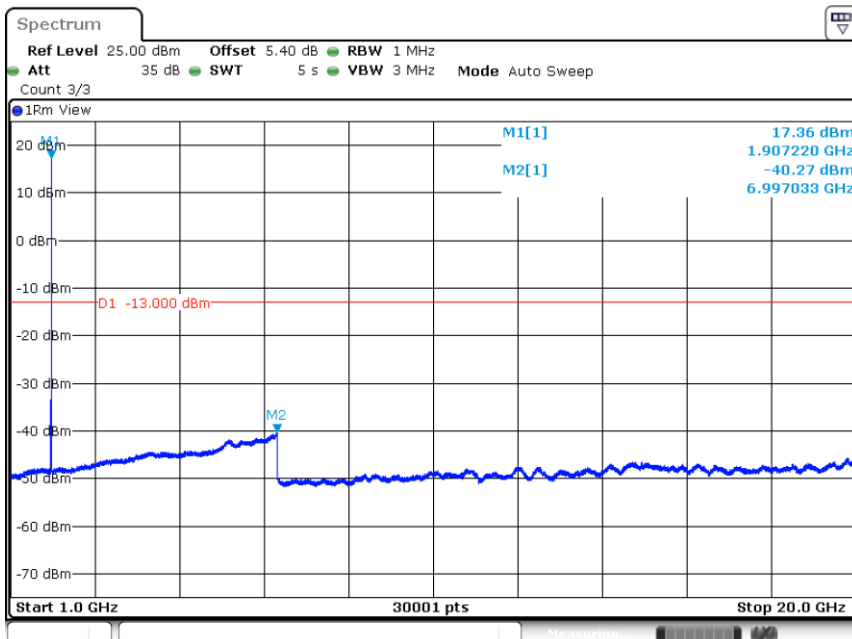
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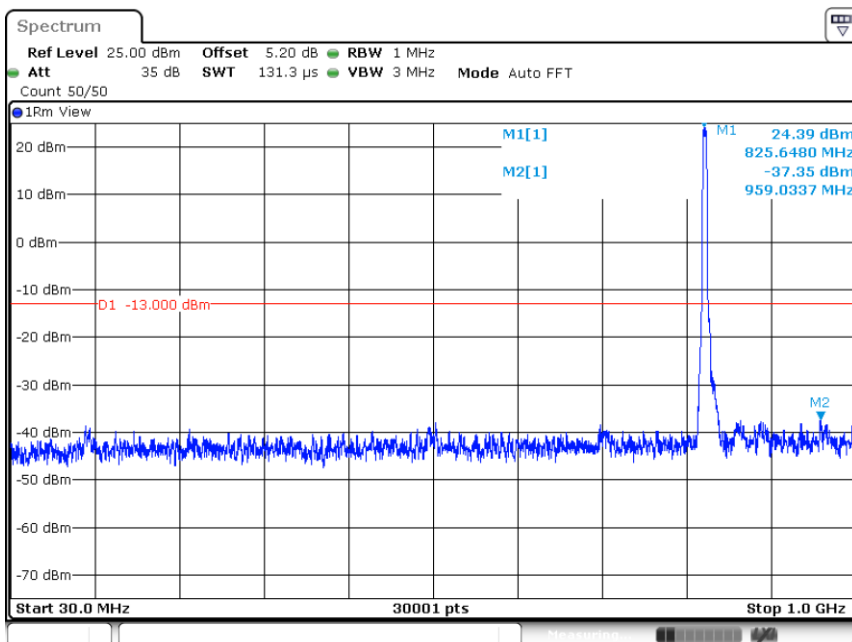
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Band2-9538-1000~20000MHz



Date: 16.OCT.2020 20:02:19

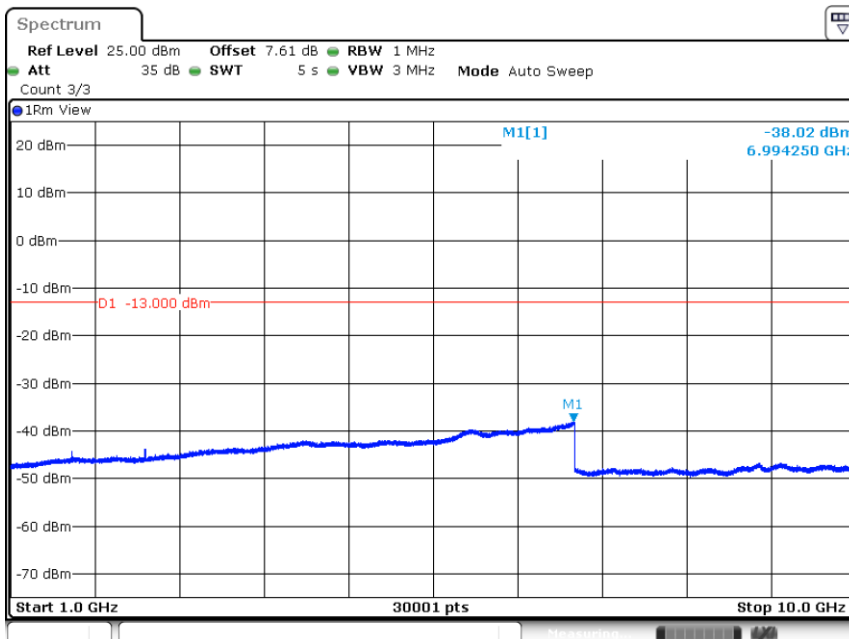
Band5-4132-30~1000MHz



Date: 16.OCT.2020 20:17:50

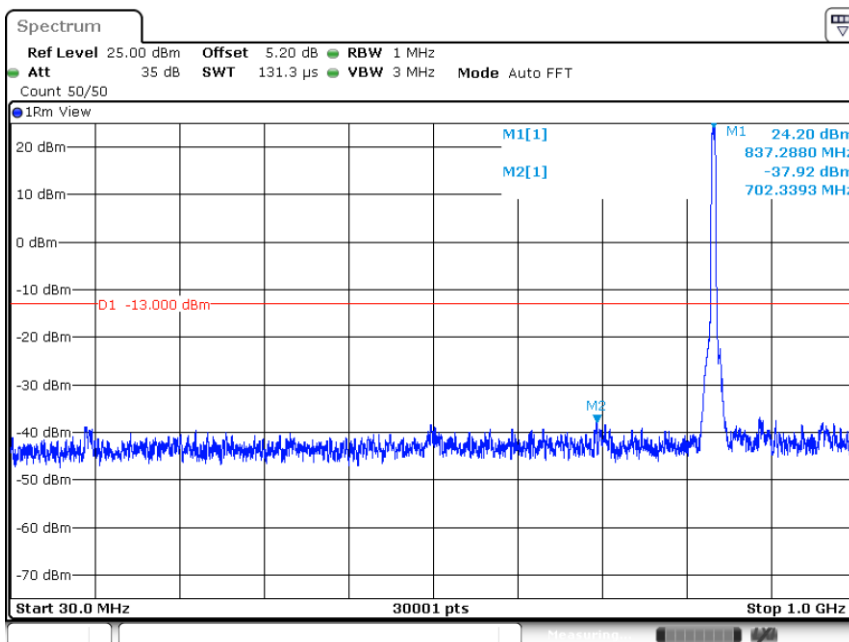


Band5-4132-1000~10000MHz



Date: 16.OCT.2020 20:18:13

Band5-4182-30~1000MHz



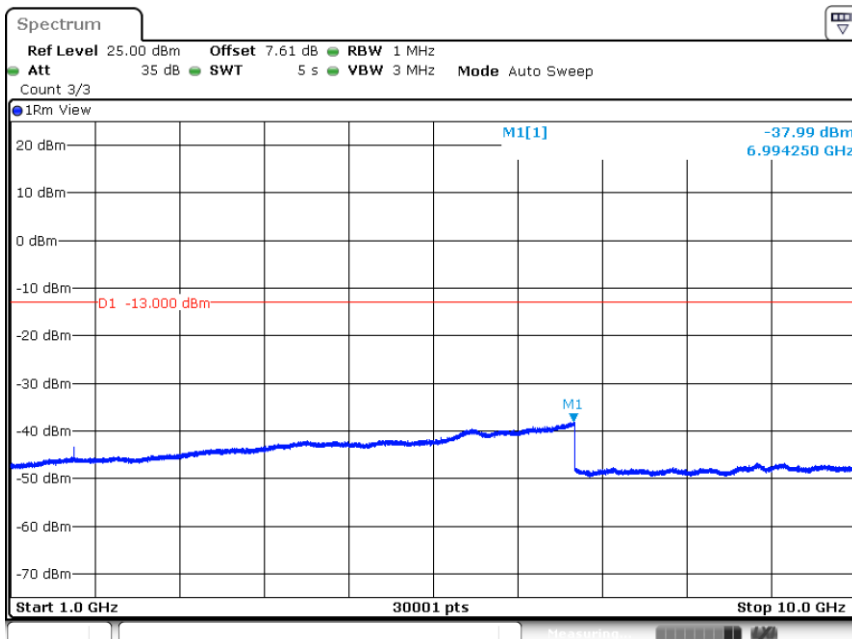
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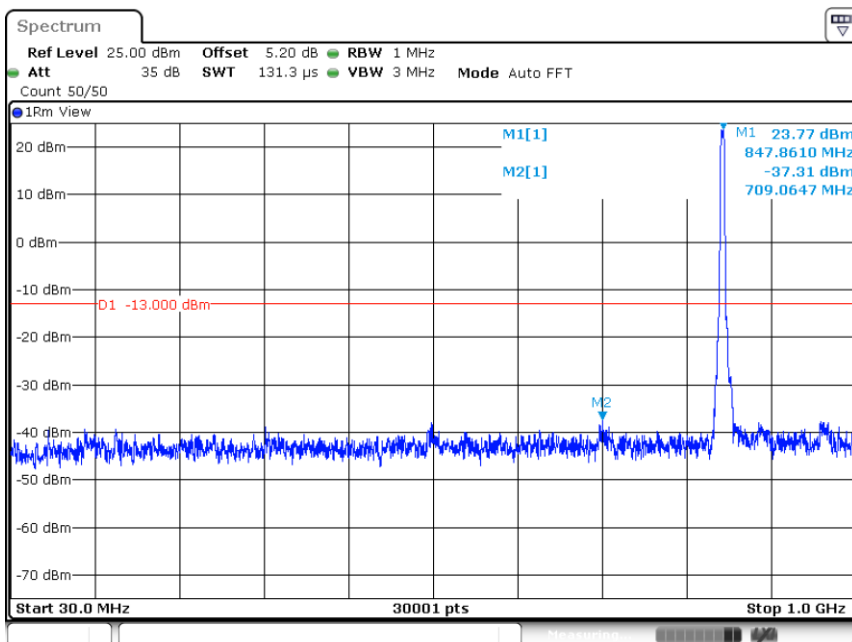
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Band5-4182-1000~10000MHz



Date: 16.OCT.2020 20:18:49

Band5-4233-30~1000MHz

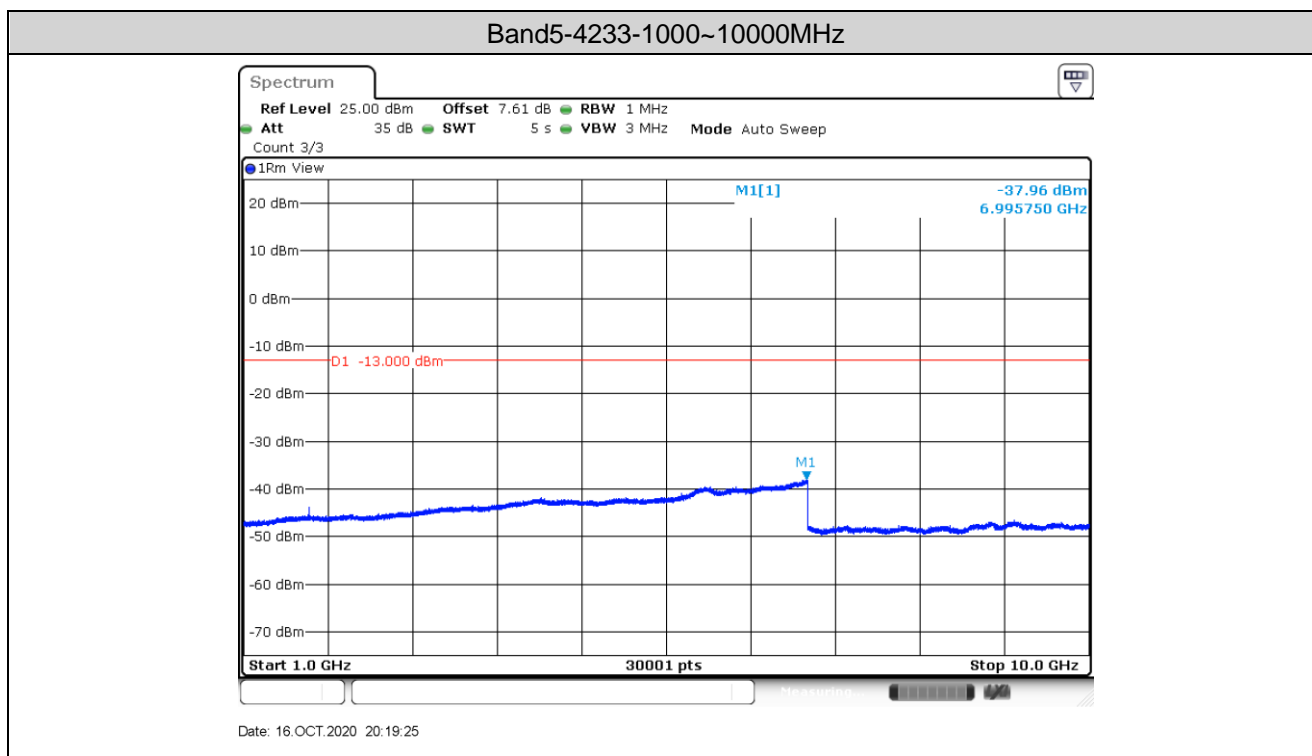


Date: 16.OCT.2020 20:19:02



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7. Field Strength of Spurious Radiation

7.1. Test Band = WCDMA Band II

7.1.1. Test Mode = WCDMA/TM1

7.1.1.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
30.7760	-65.65	-13.00	52.65	194	359	Vertical
114.0062	-64.66	-13.00	51.66	112	138	Vertical
380.2360	-67.00	-13.00	54.00	184	170	Vertical
3633.0211	-61.68	-13.00	48.68	206	170	Vertical
7445.1482	-55.72	-13.00	42.72	233	329	Vertical
17999.0000	-39.86	-13.00	26.86	294	266	Vertical
43.1442	-64.61	-13.00	51.61	211	257	Horizontal
100.9590	-75.10	-13.00	62.10	284	289	Horizontal
246.8543	-67.65	-13.00	54.65	263	67	Horizontal
3639.5213	-61.37	-13.00	48.37	119	35	Horizontal
8023.1674	-56.23	-13.00	43.23	105	353	Horizontal
16386.4462	-43.92	-13.00	30.92	208	226	Horizontal





7.1.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
30.4365	-66.30	-13.00	53.30	194	353	Vertical
110.2715	-64.88	-13.00	51.88	111	226	Vertical
474.8642	-65.84	-13.00	52.84	120	321	Vertical
5642.0881	-57.74	-13.00	44.74	138	194	Vertical
10539.7513	-51.66	-13.00	38.66	184	162	Vertical
17997.9999	-40.27	-13.00	27.27	155	35	Vertical
40.1855	-63.90	-13.00	50.90	196	352	Horizontal
100.3285	-74.96	-13.00	61.96	111	162	Horizontal
235.3108	-67.89	-13.00	54.89	136	289	Horizontal
3762.0254	-58.88	-13.00	45.88	184	352	Horizontal
5642.0881	-59.35	-13.00	46.35	109	131	Horizontal
16399.9467	-43.61	-13.00	30.61	184	258	Horizontal

7.1.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
30.9700	-65.78	-13.00	52.78	181	353	Vertical
105.7123	-65.01	-13.00	52.01	206	4	Vertical
386.9778	-67.61	-13.00	54.61	234	4	Vertical
3768.5256	-62.00	-13.00	49.00	287	99	Vertical
7460.1487	-55.77	-13.00	42.77	222	353	Vertical
17998.5000	-40.48	-13.00	27.48	194	353	Vertical
44.3567	-63.87	-13.00	50.87	185	258	Horizontal
94.9447	-75.22	-13.00	62.22	122	99	Horizontal
231.2851	-68.28	-13.00	55.28	137	258	Horizontal
3640.0213	-61.16	-13.00	48.16	192	353	Horizontal
7329.1443	-56.55	-13.00	43.55	182	162	Horizontal
16378.4459	-43.51	-13.00	30.51	221	353	Horizontal



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7.2. Test Band = WCDMA Band V

7.2.1. Test Mode = WCDMA/TM1

7.2.1.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
30.9215	-66.21	-13.00	53.21	185	352	Vertical
112.2116	-64.99	-13.00	51.99	166	257	Vertical
388.1419	-67.68	-13.00	54.68	102	352	Vertical
1700.1400	-58.96	-13.00	45.96	184	172	Vertical
2697.1394	-51.93	-13.00	38.93	196	321	Vertical
9882.6294	-52.34	-13.00	39.34	103	352	Vertical
44.4537	-64.45	-13.00	51.45	184	289	Horizontal
98.2429	-75.06	-13.00	62.06	166	257	Horizontal
231.0911	-67.41	-13.00	54.41	125	352	Horizontal
1654.5309	-57.92	-13.00	44.92	109	189	Horizontal
2694.3389	-50.85	-13.00	37.85	174	356	Horizontal
9312.1104	-52.70	-13.00	39.70	106	257	Horizontal



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7.2.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
31.0186	-65.75	-13.00	52.75	106	35	Vertical
112.2116	-64.62	-13.00	51.62	111	289	Vertical
467.4919	-66.87	-13.00	53.87	196	35	Vertical
1670.9342	-60.68	-13.00	47.68	173	173	Vertical
2699.9400	-51.97	-13.00	38.97	252	62	Vertical
9298.3433	-52.61	-13.00	39.61	296	353	Vertical
40.5735	-63.58	-13.00	50.58	185	226	Horizontal
102.3171	-75.06	-13.00	62.06	166	99	Horizontal
246.3693	-68.12	-13.00	55.12	152	353	Horizontal
1670.9342	-57.86	-13.00	44.86	196	197	Horizontal
2690.7381	-50.98	-13.00	37.98	132	57	Horizontal
9316.7772	-52.84	-13.00	39.84	199	226	Horizontal

7.2.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
31.1641	-65.63	-13.00	52.63	163	226	Vertical
107.9434	-63.67	-13.00	50.67	111	321	Vertical
337.3114	-67.79	-13.00	54.79	206	321	Vertical
1699.7399	-58.99	-13.00	45.99	274	167	Vertical
2700.3401	-51.86	-13.00	38.86	296	270	Vertical
9888.2296	-51.98	-13.00	38.98	231	99	Vertical
42.6106	-63.99	-13.00	50.99	163	130	Horizontal
80.5880	-75.04	-13.00	62.04	177	258	Horizontal
244.4777	-68.18	-13.00	55.18	105	258	Horizontal
1694.9390	-57.56	-13.00	44.56	196	3	Horizontal
2697.9396	-50.95	-13.00	37.95	137	143	Horizontal
7483.6495	-55.60	-13.00	42.60	198	321	Horizontal



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Remark:

- 1 According to 971168 D01 Power Meas License Digital Systems, The amplitudes of unwanted emissions that are attenuated more than 20 dB below the applicable limit are not required to be reported.
- 2 The disturbance below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the worst case data had been displayed.



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8. Frequency Stability

8.1. Frequency Vs Voltage

Voltage							
Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band2	9262	VL	NT	-0.40	-0.000216	±2.5	PASS
Band2	9262	VN	NT	-0.87	-0.000470	±2.5	PASS
Band2	9262	VH	NT	-0.64	-0.000345	±2.5	PASS
Band2	9400	VL	NT	-0.49	-0.000261	±2.5	PASS
Band2	9400	VN	NT	-0.89	-0.000473	±2.5	PASS
Band2	9400	VH	NT	-0.79	-0.000420	±2.5	PASS
Band2	9538	VL	NT	-1.70	-0.000891	±2.5	PASS
Band2	9538	VN	NT	-1.65	-0.000865	±2.5	PASS
Band2	9538	VH	NT	-1.63	-0.000854	±2.5	PASS
Band5	4132	VL	NT	0.37	0.000448	±2.5	PASS
Band5	4132	VN	NT	0.22	0.000266	±2.5	PASS
Band5	4132	VH	NT	0.21	0.000254	±2.5	PASS
Band5	4182	VL	NT	-0.19	-0.000227	±2.5	PASS
Band5	4182	VN	NT	-0.16	-0.000191	±2.5	PASS
Band5	4182	VH	NT	-0.14	-0.000167	±2.5	PASS
Band5	4233	VL	NT	-0.59	-0.000697	±2.5	PASS
Band5	4233	VN	NT	-0.44	-0.000520	±2.5	PASS
Band5	4233	VH	NT	-0.58	-0.000685	±2.5	PASS



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8.2. Frequency Vs Temperature

Temperature							
Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band2	9262	NV	-30	-0.39	-0.000211	±2.5	PASS
Band2	9262	NV	-20	-0.55	-0.000297	±2.5	PASS
Band2	9262	NV	-10	-0.32	-0.000173	±2.5	PASS
Band2	9262	NV	0	-0.37	-0.000200	±2.5	PASS
Band2	9262	NV	10	-0.17	-0.000092	±2.5	PASS
Band2	9262	NV	20	-0.31	-0.000167	±2.5	PASS
Band2	9262	NV	30	-0.26	-0.000140	±2.5	PASS
Band2	9262	NV	40	-0.21	-0.000113	±2.5	PASS
Band2	9262	NV	50	-0.23	-0.000124	±2.5	PASS
Band2	9400	NV	-30	-0.87	-0.000463	±2.5	PASS
Band2	9400	NV	-20	-0.36	-0.000191	±2.5	PASS
Band2	9400	NV	-10	-0.64	-0.000340	±2.5	PASS
Band2	9400	NV	0	-0.75	-0.000399	±2.5	PASS
Band2	9400	NV	10	-0.53	-0.000282	±2.5	PASS
Band2	9400	NV	20	-0.62	-0.000330	±2.5	PASS
Band2	9400	NV	30	-0.74	-0.000394	±2.5	PASS
Band2	9400	NV	40	-0.61	-0.000324	±2.5	PASS
Band2	9400	NV	50	-0.54	-0.000287	±2.5	PASS
Band2	9538	NV	-30	-1.75	-0.000917	±2.5	PASS
Band2	9538	NV	-20	-1.59	-0.000834	±2.5	PASS
Band2	9538	NV	-10	-1.80	-0.000944	±2.5	PASS
Band2	9538	NV	0	-1.62	-0.000849	±2.5	PASS
Band2	9538	NV	10	-1.54	-0.000807	±2.5	PASS
Band2	9538	NV	20	-1.79	-0.000938	±2.5	PASS
Band2	9538	NV	30	-1.84	-0.000965	±2.5	PASS
Band2	9538	NV	40	-1.65	-0.000865	±2.5	PASS
Band2	9538	NV	50	-1.90	-0.000996	±2.5	PASS
Band5	4132	NV	-30	0.11	0.000133	±2.5	PASS
Band5	4132	NV	-20	0.19	0.000230	±2.5	PASS
Band5	4132	NV	-10	-0.01	-0.000012	±2.5	PASS
Band5	4132	NV	0	0.00	0.000000	±2.5	PASS
Band5	4132	NV	10	0.00	0.000000	±2.5	PASS
Band5	4132	NV	20	0.16	0.000194	±2.5	PASS



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Band5	4132	NV	30	0.14	0.000169	±2.5	PASS
Band5	4132	NV	40	0.11	0.000133	±2.5	PASS
Band5	4132	NV	50	0.10	0.000121	±2.5	PASS
Band5	4182	NV	-30	-0.16	-0.000191	±2.5	PASS
Band5	4182	NV	-20	0.02	0.000024	±2.5	PASS
Band5	4182	NV	-10	-0.06	-0.000072	±2.5	PASS
Band5	4182	NV	0	-0.02	-0.000024	±2.5	PASS
Band5	4182	NV	10	0.06	0.000072	±2.5	PASS
Band5	4182	NV	20	0.04	0.000048	±2.5	PASS
Band5	4182	NV	30	0.01	0.000012	±2.5	PASS
Band5	4182	NV	40	0.00	0.000000	±2.5	PASS
Band5	4182	NV	50	-0.09	-0.000108	±2.5	PASS
Band5	4233	NV	-30	-0.52	-0.000614	±2.5	PASS
Band5	4233	NV	-20	-0.56	-0.000661	±2.5	PASS
Band5	4233	NV	-10	-0.65	-0.000768	±2.5	PASS
Band5	4233	NV	0	-0.44	-0.000520	±2.5	PASS
Band5	4233	NV	10	-0.67	-0.000791	±2.5	PASS
Band5	4233	NV	20	-0.62	-0.000732	±2.5	PASS
Band5	4233	NV	30	-0.51	-0.000602	±2.5	PASS
Band5	4233	NV	40	-0.56	-0.000661	±2.5	PASS
Band5	4233	NV	50	-0.57	-0.000673	±2.5	PASS

The End



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