

Appendix B

WCDMA Band II & IV & 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	23.21	17.21	33.00	PASS
Band II	9400	23.33	17.33	33.00	PASS
Band II	9538	23.08	17.08	33.00	PASS
Band IV	1312	23.27	17.27	30.00	PASS
Band IV	1413	23.22	17.22	30.00	PASS
Band IV	1513	23.38	17.38	30.00	PASS

Band	Channel	Conducted Power (dBm)	ERP (dBm)	Limit(dBm)	Verdict
Band V	4132	24.10	14.95	38.45	PASS
Band V	4182	24.07	14.92	38.45	PASS
Band V	4233	24.06	14.91	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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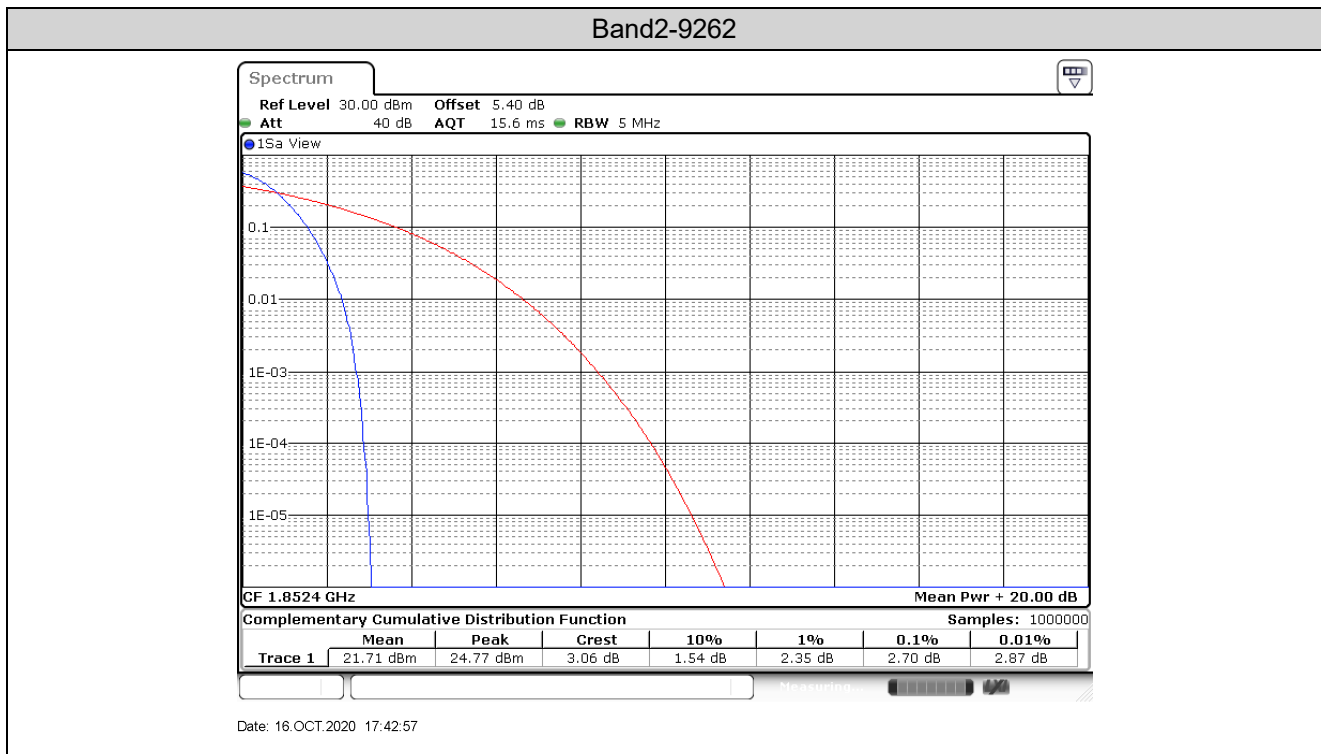
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2. Peak-to-Average Ratio(CCDF)

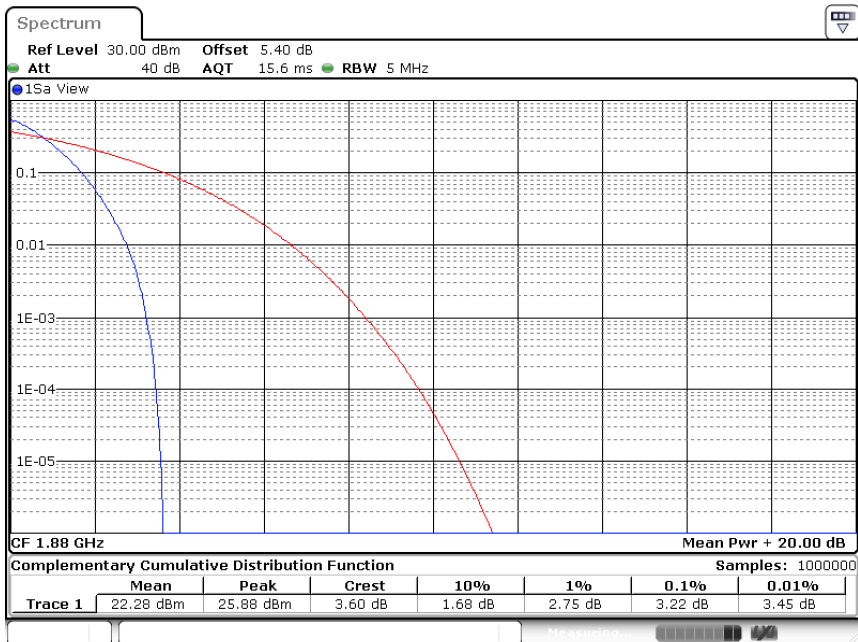
2.1. Test Result

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
Band2	9262	2.70	13	PASS
Band2	9400	3.22	13	PASS
Band2	9538	2.99	13	PASS
Band4	1312	3.01	13	PASS
Band4	1413	2.96	13	PASS
Band4	1513	3.01	13	PASS
Band5	4132	2.61	13	PASS
Band5	4182	3.51	13	PASS
Band5	4233	2.61	13	PASS

2.2. Test Plots

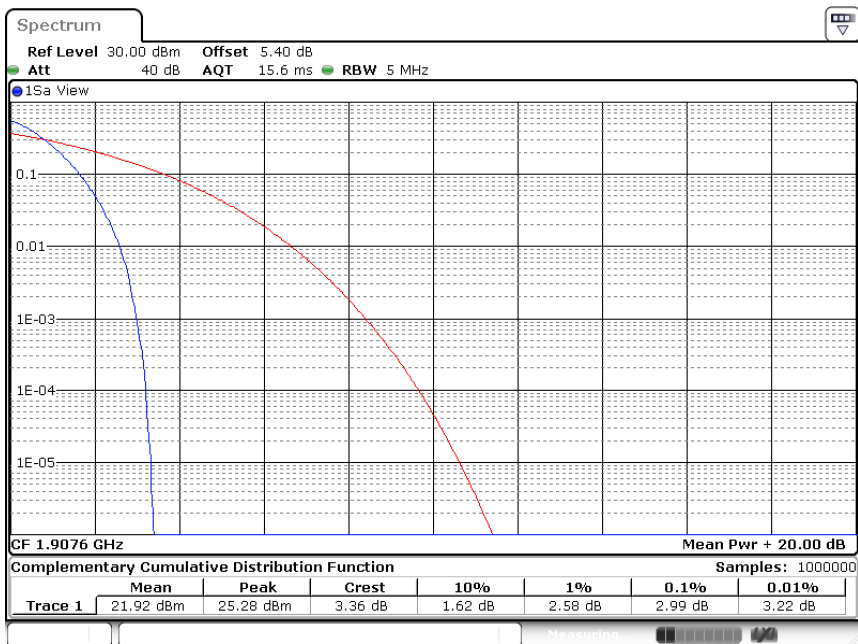


Band2-9400



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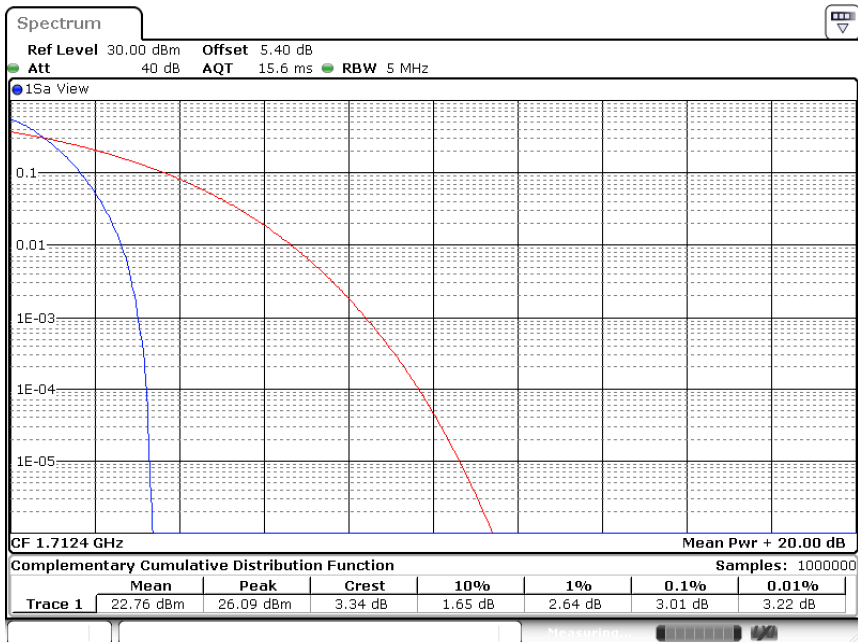
Band2-9538



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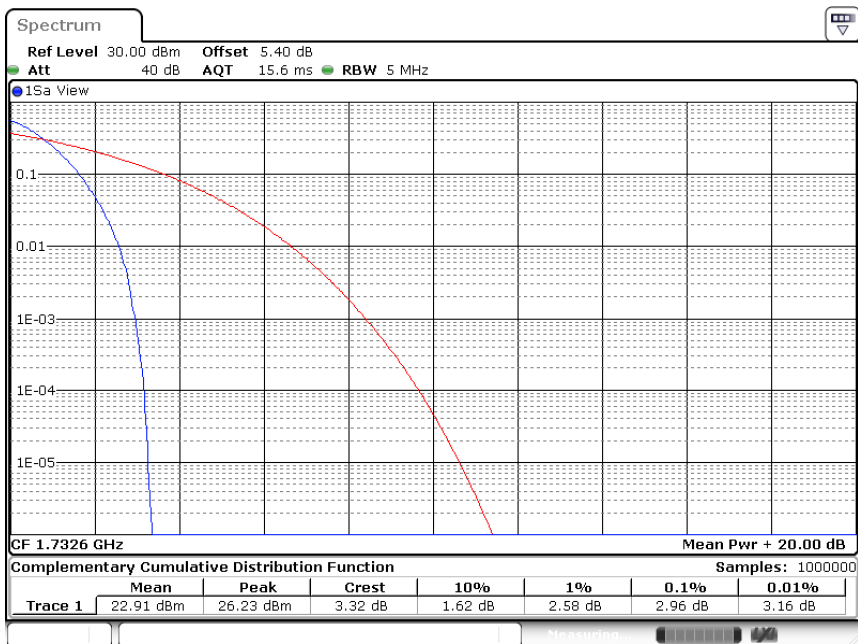


Band4-1312



Date: 16.OCT.2020 18:56:51

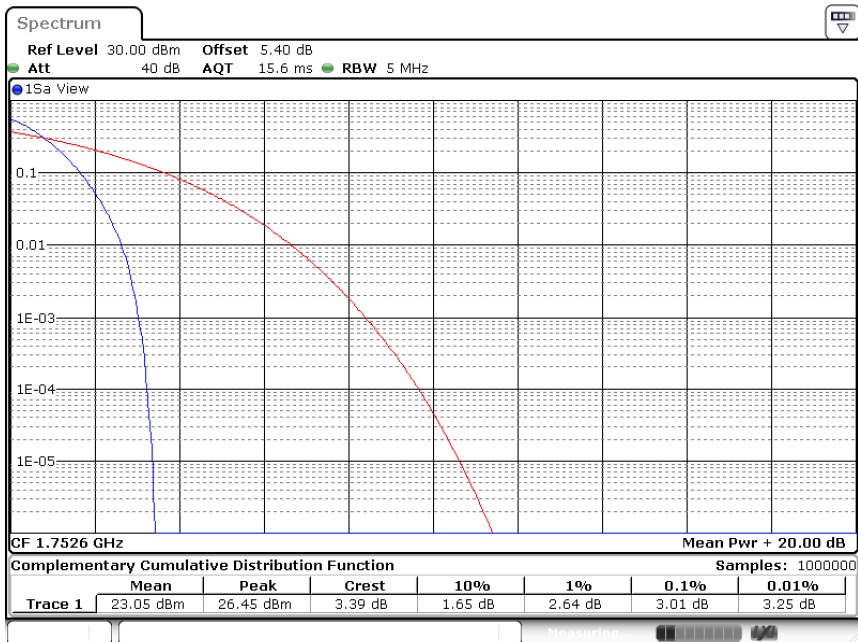
Band4-1413



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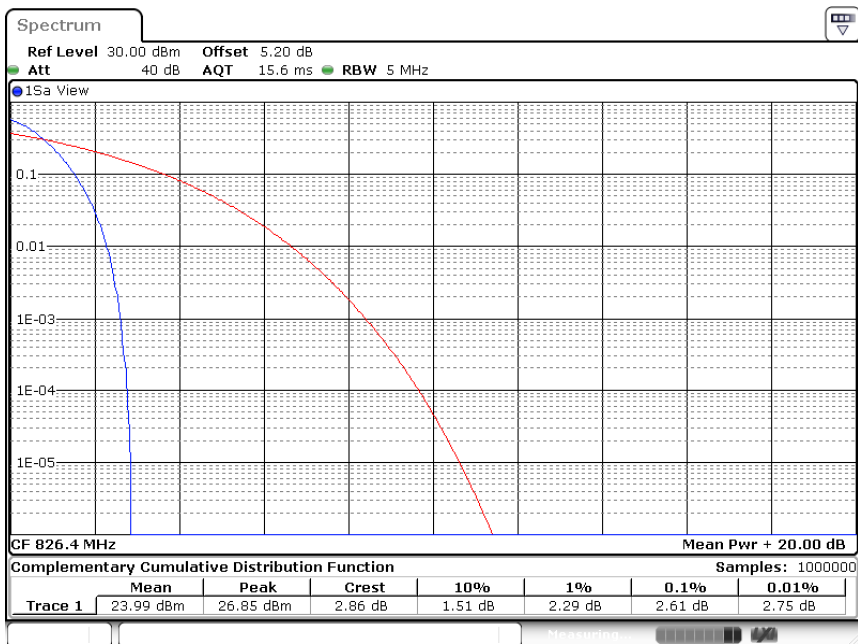


Band4-1513



Date: 16.OCT.2020 18:57:16

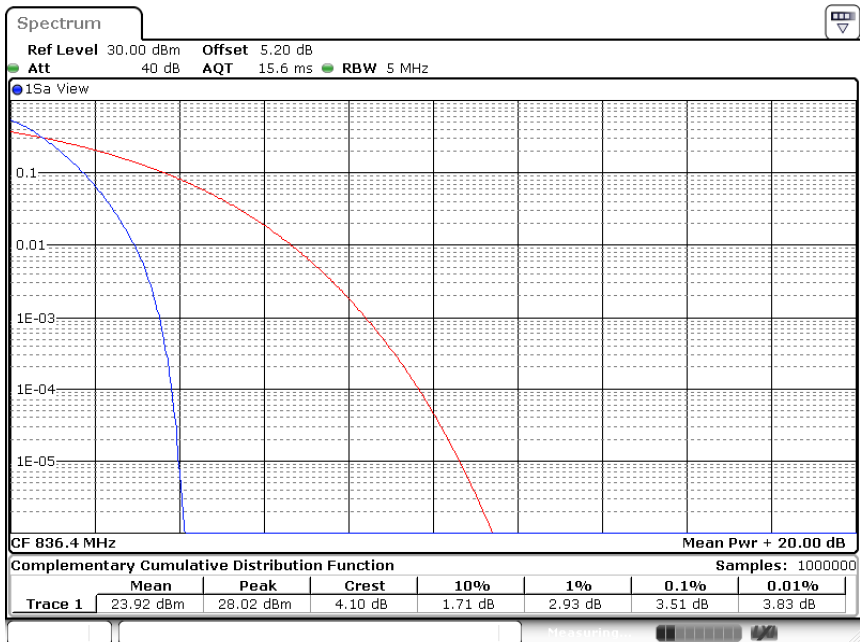
Band5-4132



Date: 16.OCT.2020 18:38:51

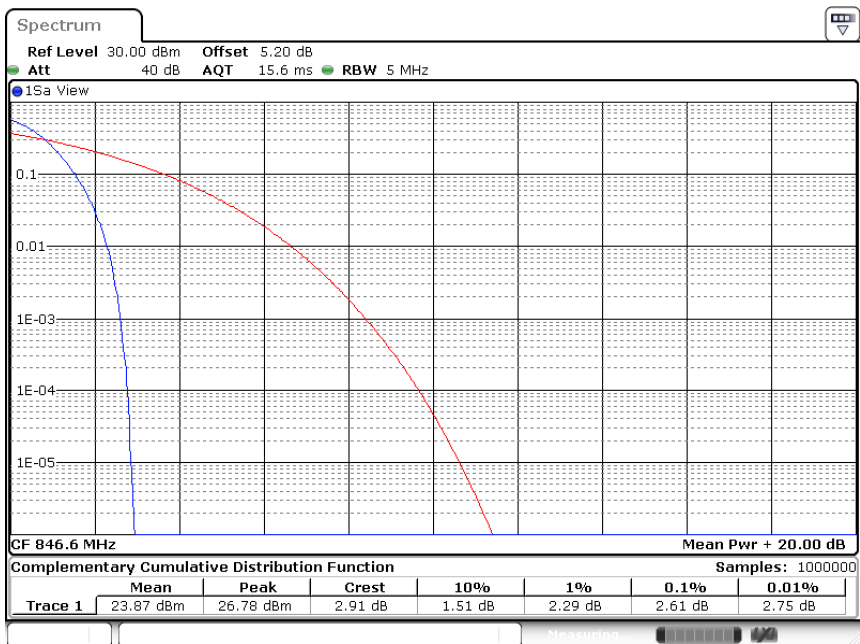


Band5-4182



Date: 16.OCT.2020 18:39:03

Band5-4233



Date: 16.OCT.2020 18:39:16

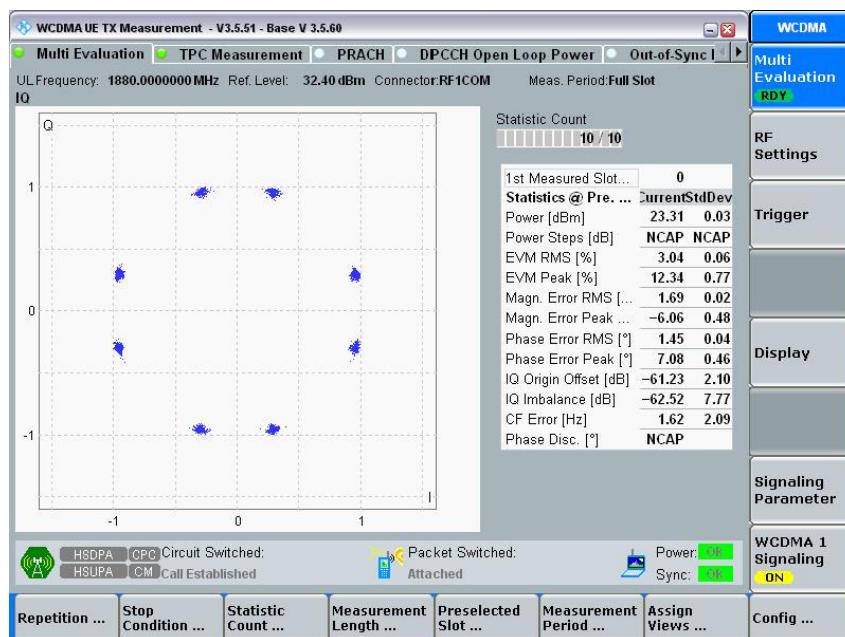


3. Modulation Characteristics

3.1. Test Band = WCDMA Band II

3.1.1. Test Mode = UMTS/TM1

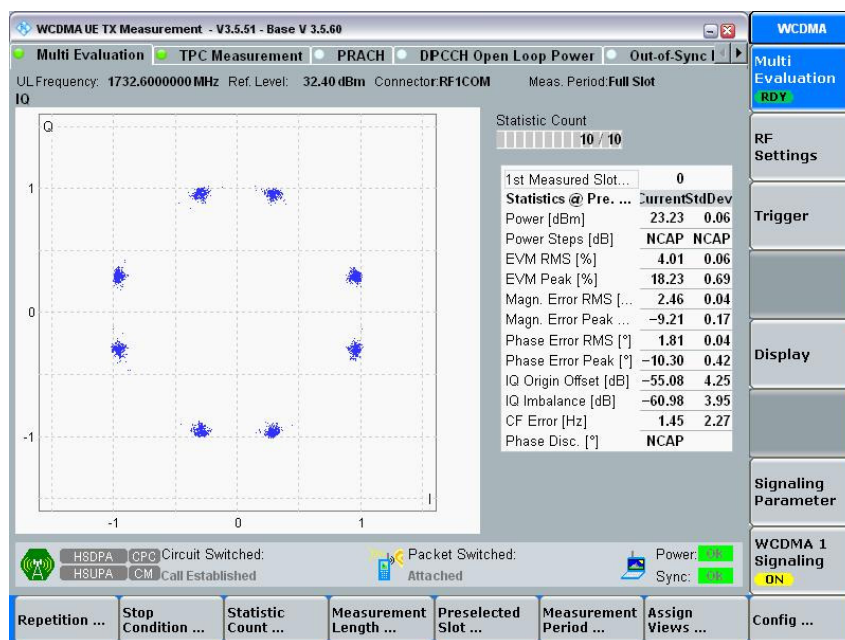
3.1.1.1. Test Channel = MCH



3.2. Test Band = WCDMA Band IV

3.2.1. Test Mode = UMTS/TM1

3.2.1.1. Test Channel = MCH

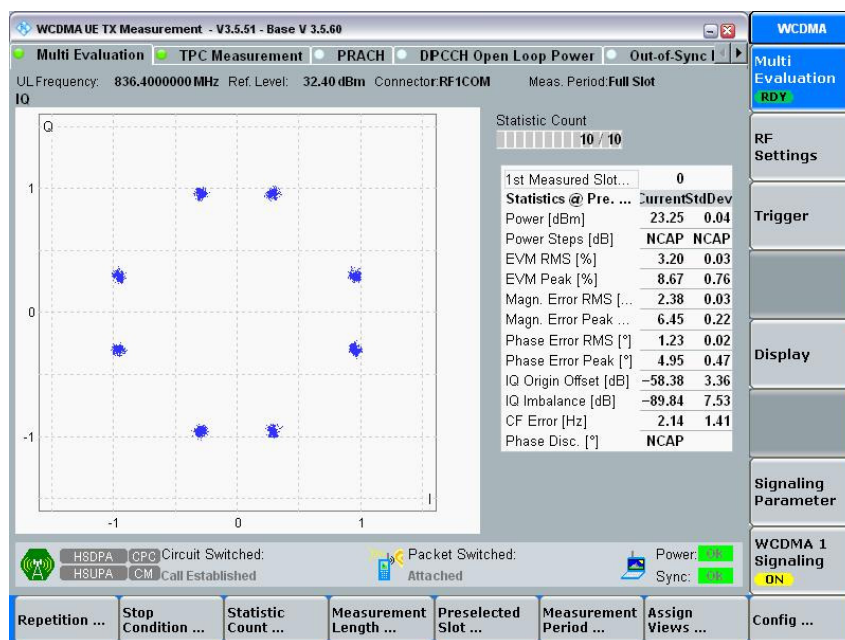


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3.3. Test Band = WCDMA Band V

3.3.1. Test Mode = UMTS/TM1

3.3.1.1. Test Channel = MCH



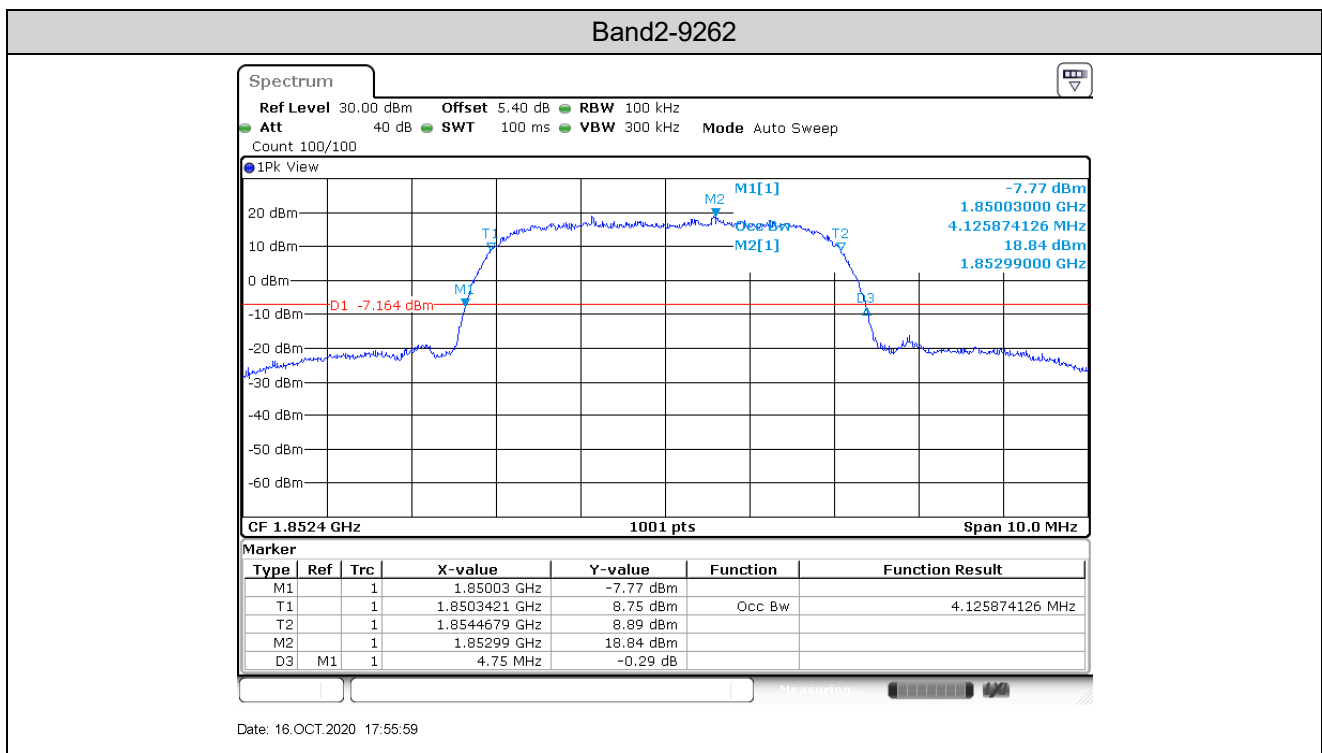
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4. 26dB Bandwidth and Occupied Bandwidth

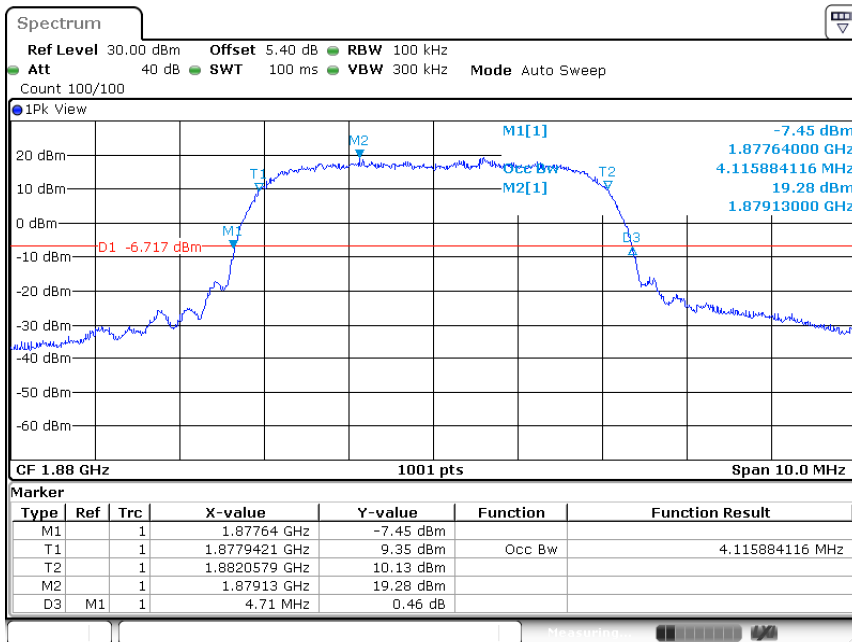
4.1. Test Result

Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit(MHz)	Verdict
Band2	9262	4.126	4.750	---	PASS
Band2	9400	4.116	4.710	---	PASS
Band2	9538	4.116	4.720	---	PASS
Band4	1312	4.106	4.710	---	PASS
Band4	1413	4.116	4.710	---	PASS
Band4	1513	4.116	4.710	---	PASS
Band5	4132	4.116	4.750	---	PASS
Band5	4182	4.106	4.710	---	PASS
Band5	4233	4.116	4.740	---	PASS

4.2. Test Plots

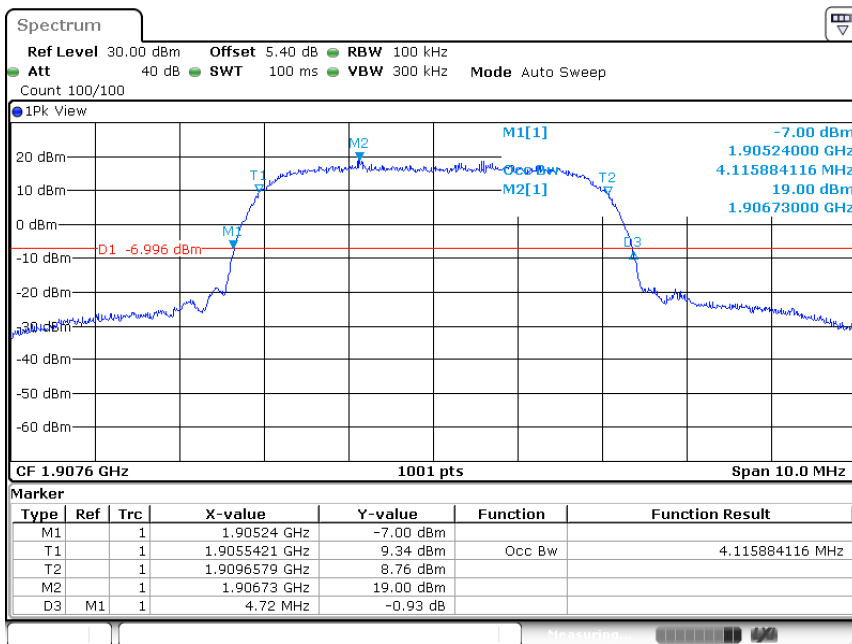


Band2-9400



Date: 16.OCT.2020 17:56:21

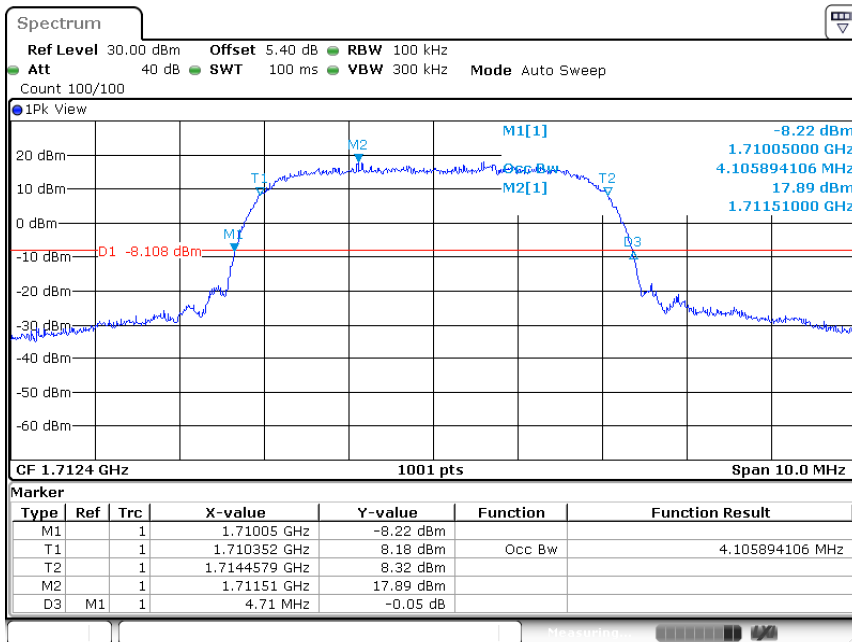
Band2-9538



Date: 16.OCT.2020 17:56:42

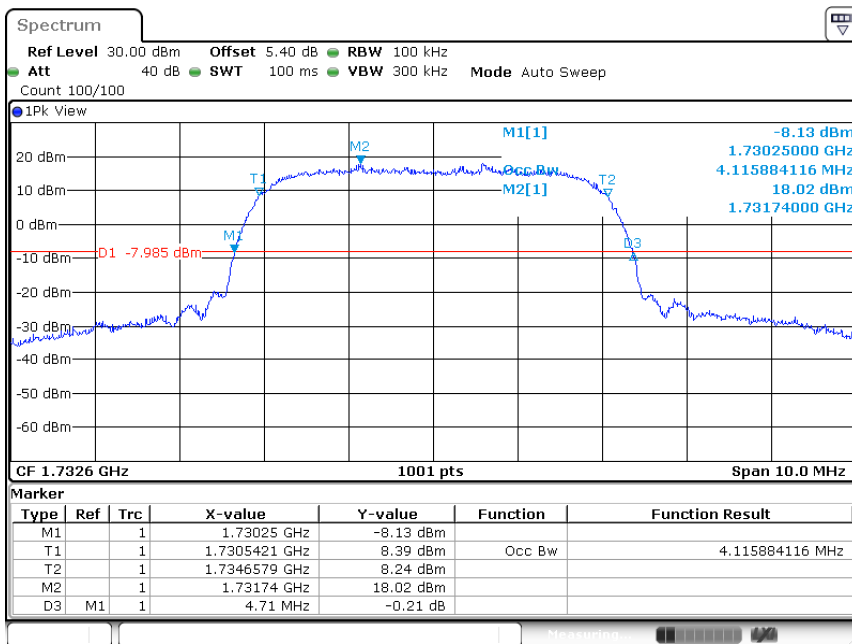


Band4-1312



Date: 16.OCT.2020 19:15:18

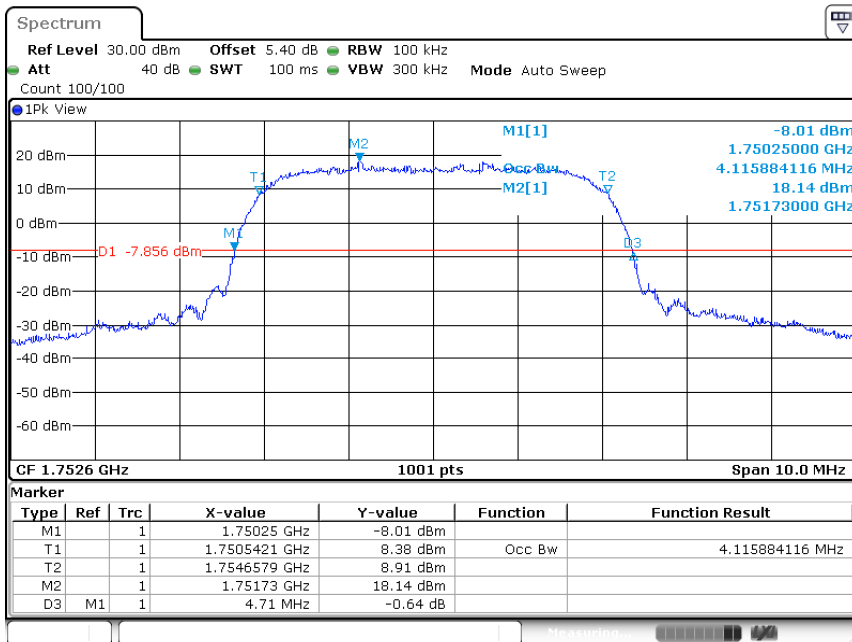
Band4-1413



Date: 16.OCT.2020 19:15:40

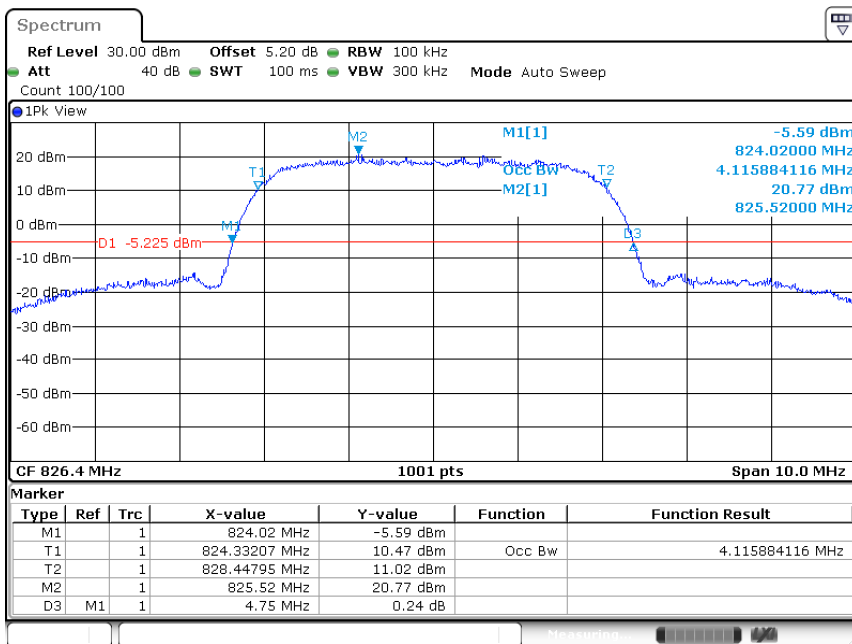


Band4-1513



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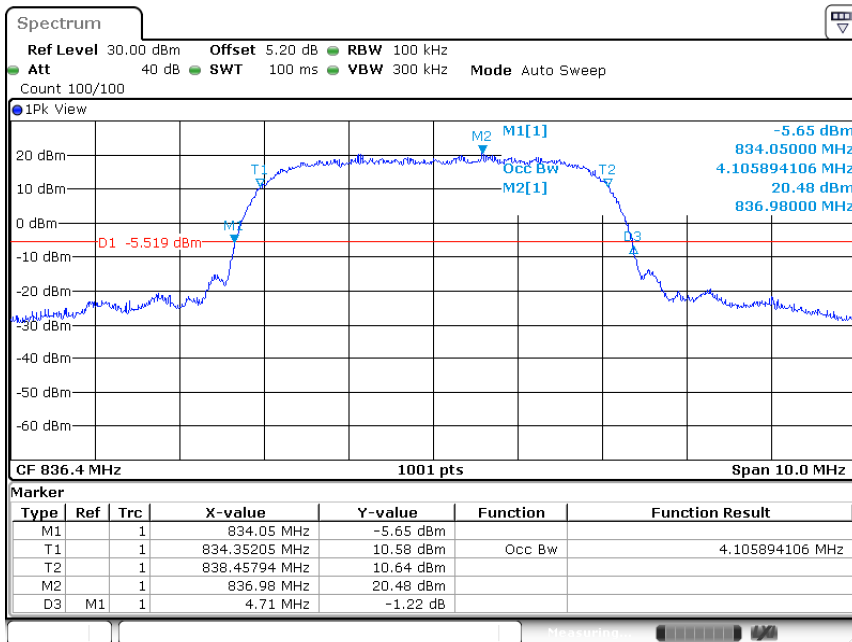
Band5-4132



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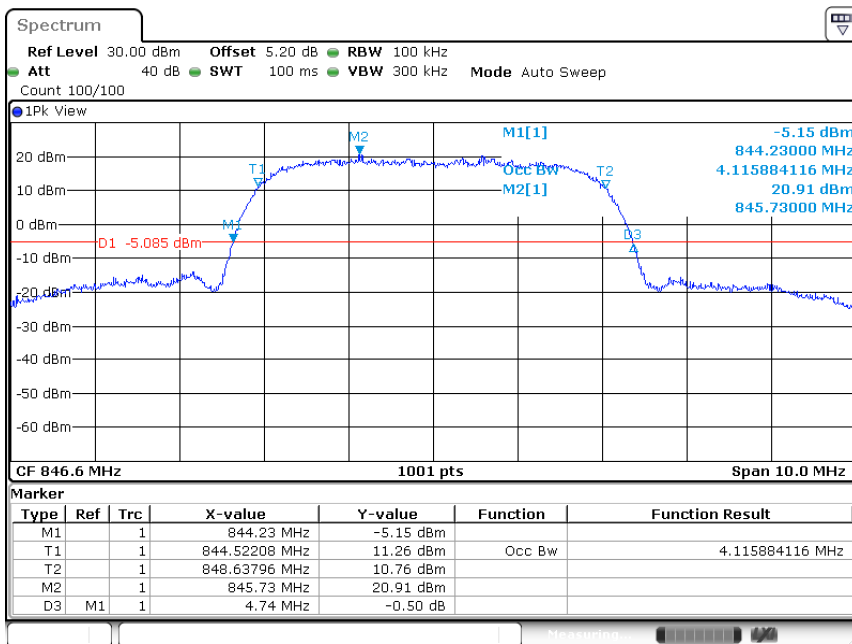


Band5-4182



Date: 16.OCT.2020 18:52:17

Band5-4233

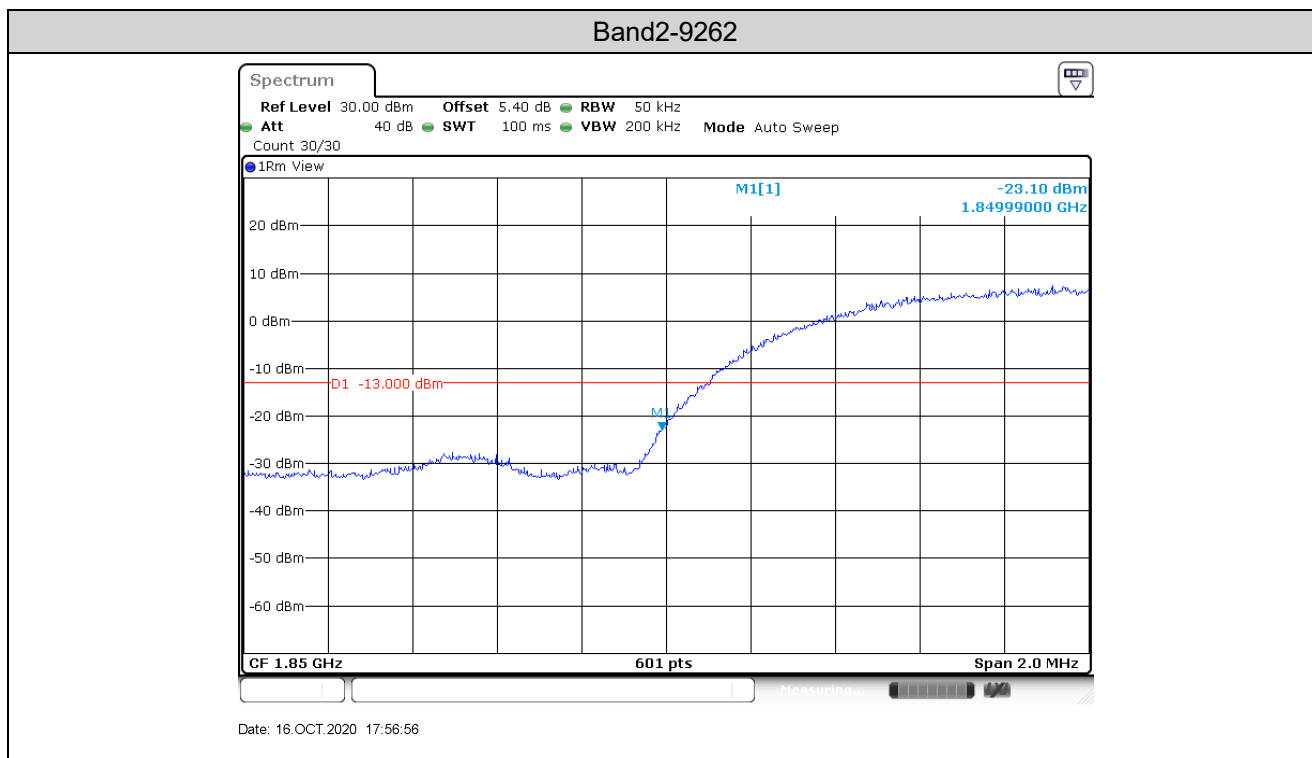


Date: 16.OCT.2020 18:52:38



5. Band Edge Compliance

5.1. Test Plots

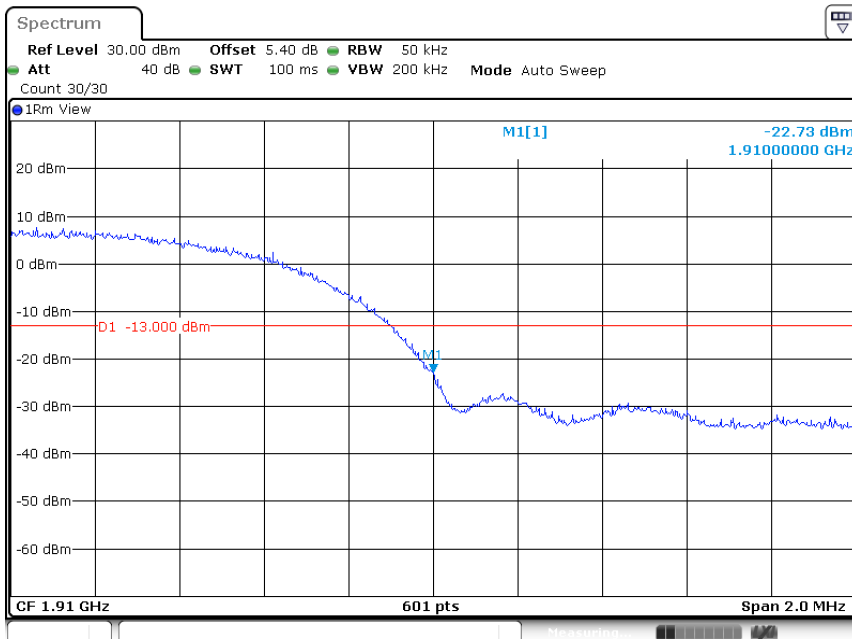


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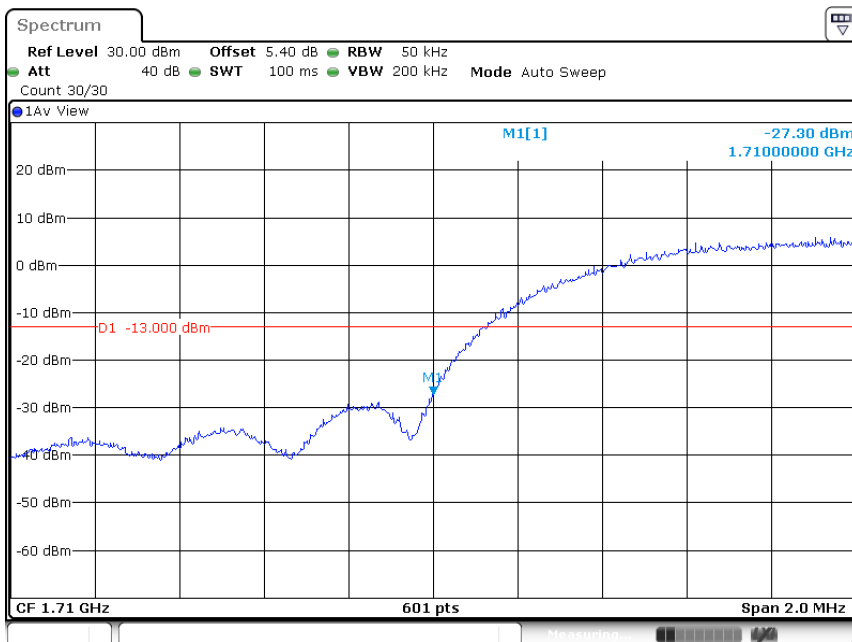
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Band2-9538



Date: 16.OCT.2020 17:57:09

Band4-1312



Date: 16.OCT.2020 19:16:14

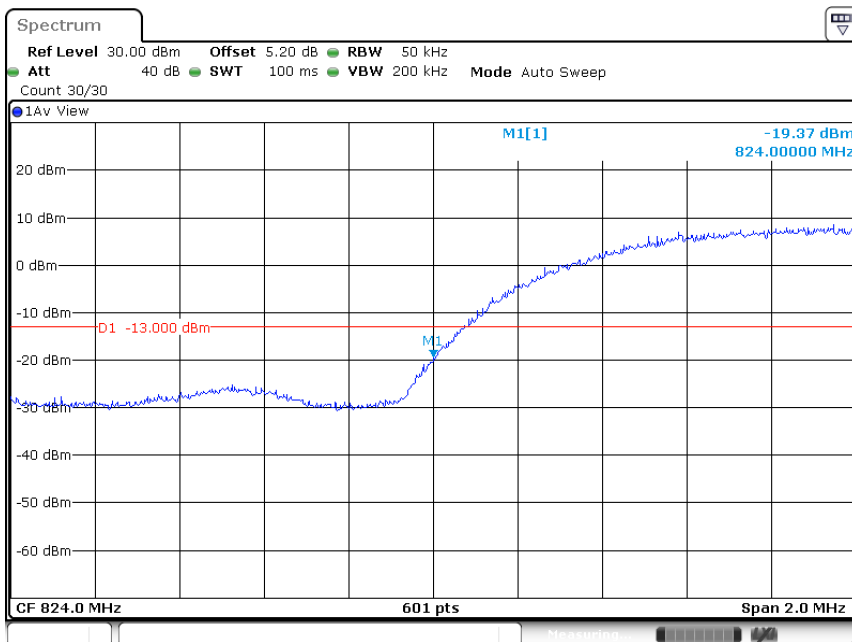


Band4-1513



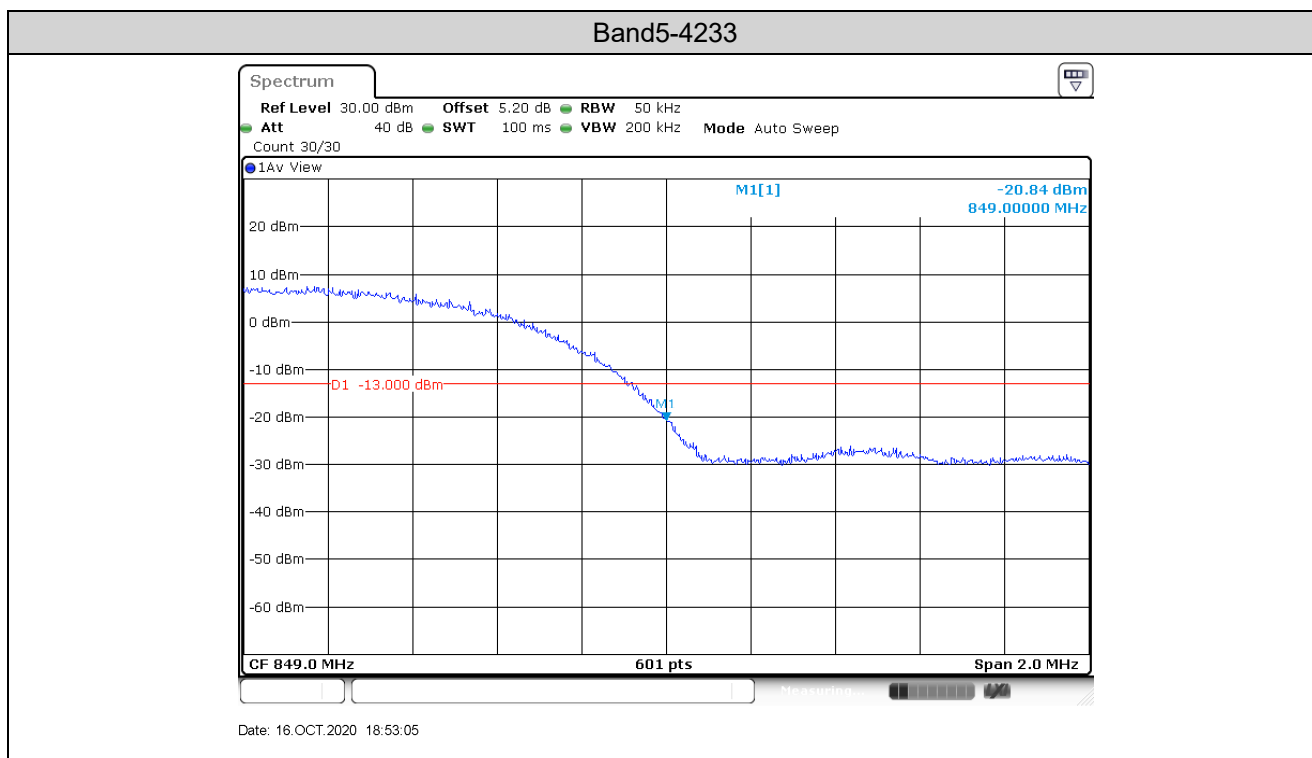
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Band5-4132



Date: 16.OCT.2020 18:52:52





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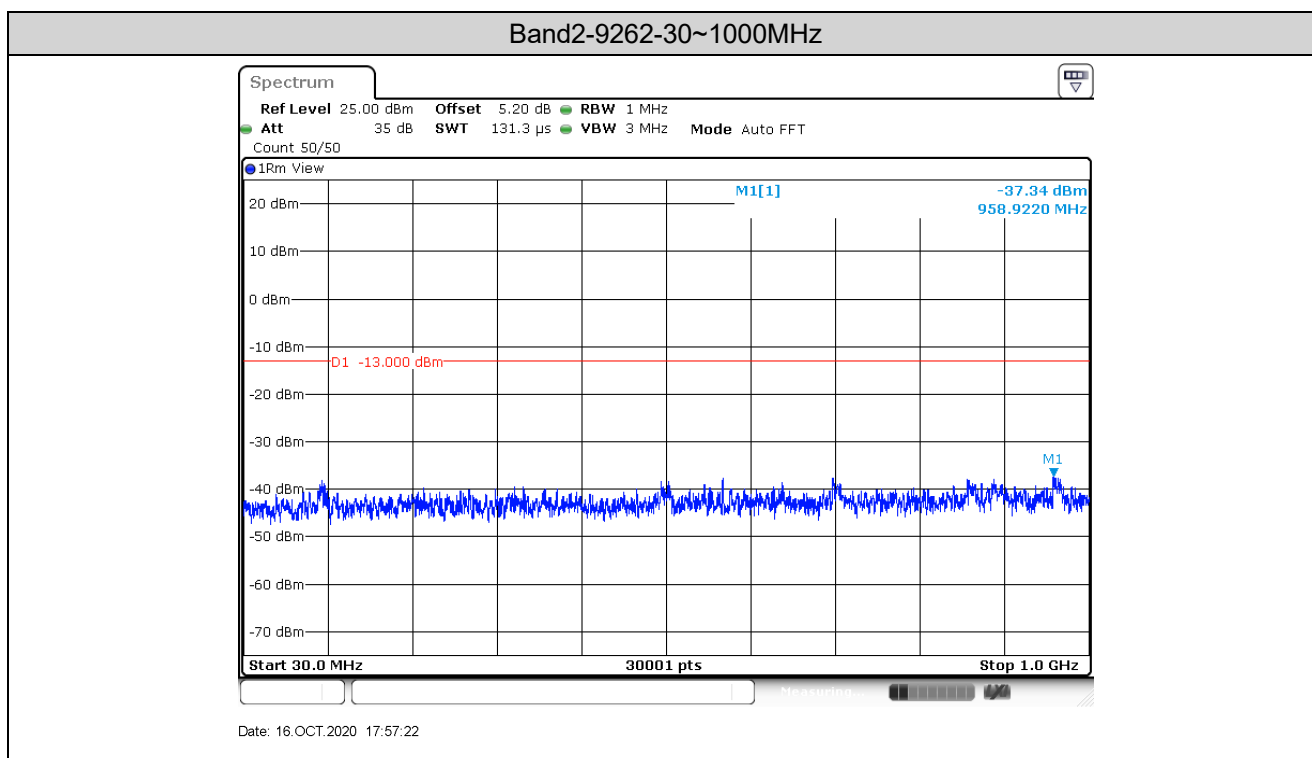
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6. Spurious Emission at Antenna Terminal

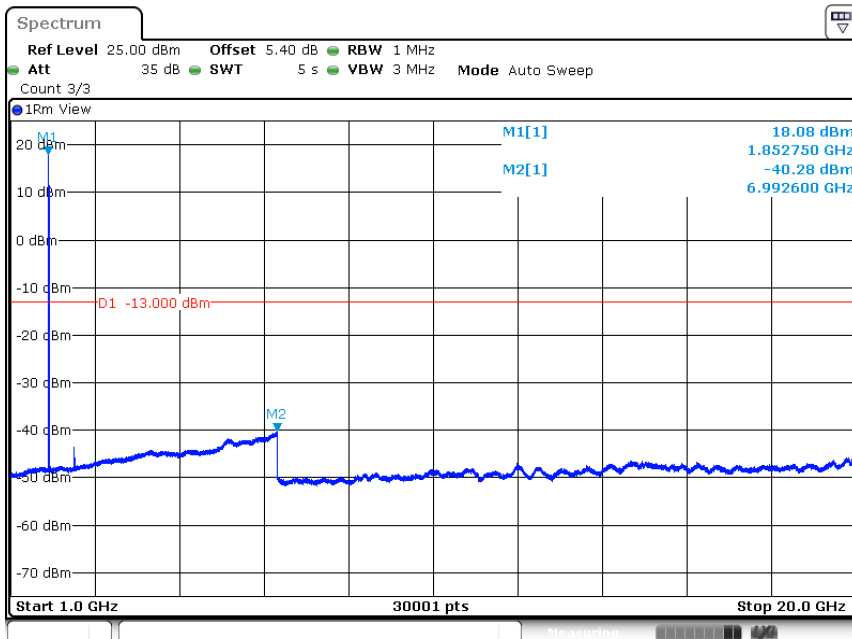
Remark1: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of $< RBW/2$ so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points =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

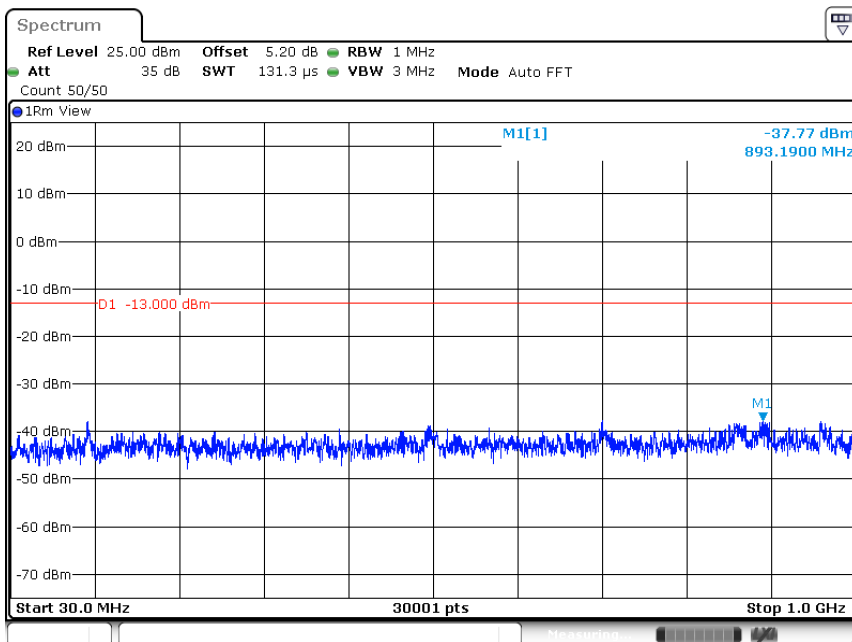


Band2-9262-1000~20000MHz



Date: 16.OCT.2020 17:57:46

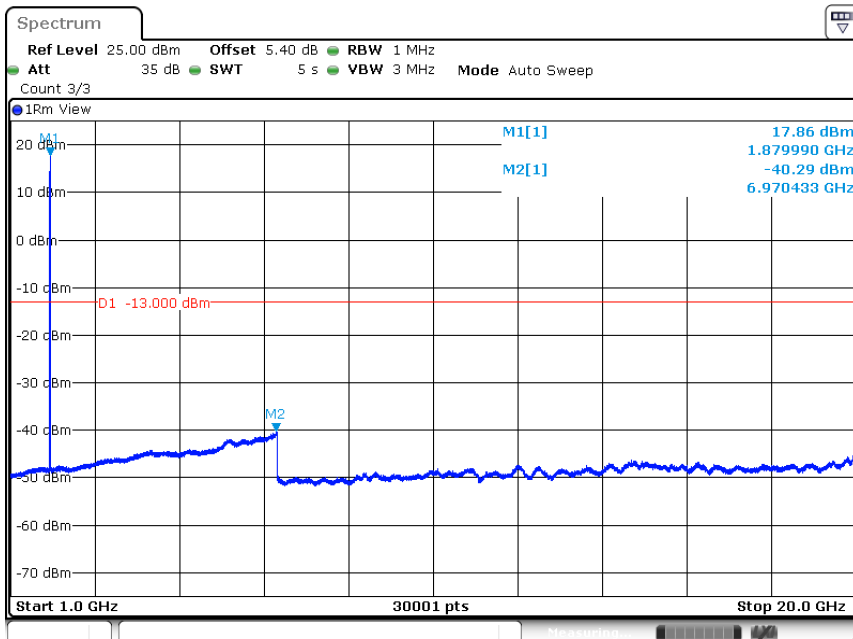
Band2-9400-30~1000MHz



Date: 16.OCT.2020 17:57:58

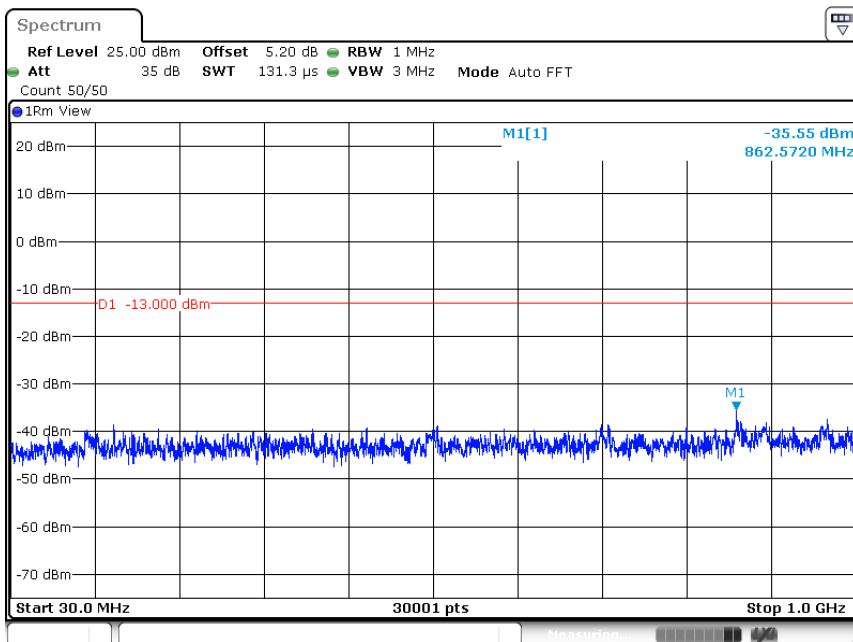


Band2-9400-1000~20000MHz



Date: 16.OCT.2020 17:58:21

Band2-9538-30~1000MHz



Date: 16.OCT.2020 17:58:34

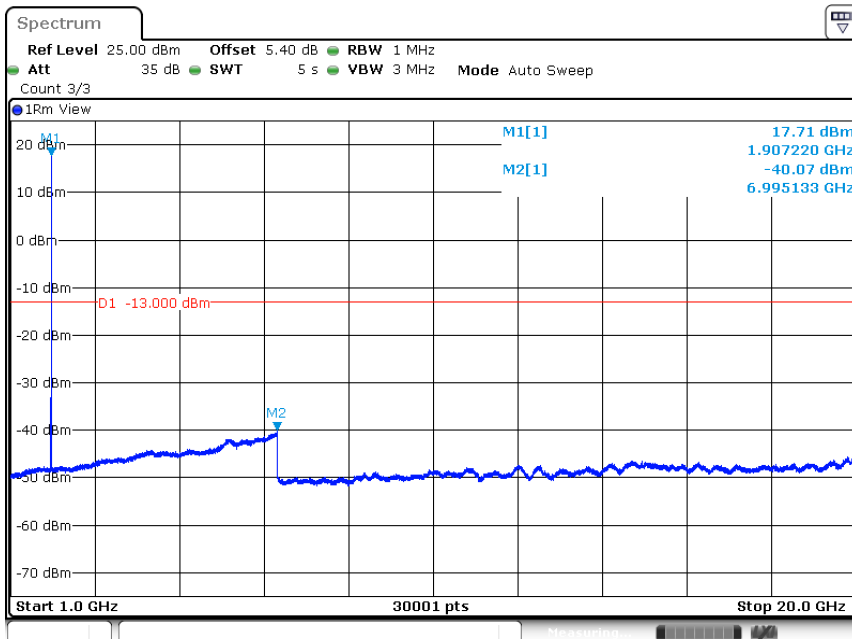


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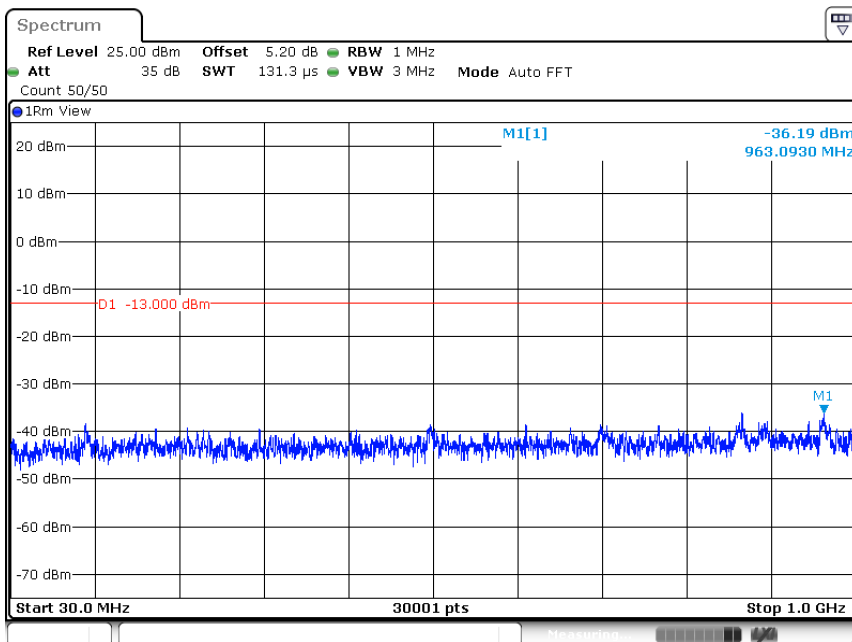
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Band2-9538-1000~20000MHz



Date: 16.OCT.2020 17:58:57

Band4-1312-30~1000MHz



Date: 16.OCT.2020 19:16:40

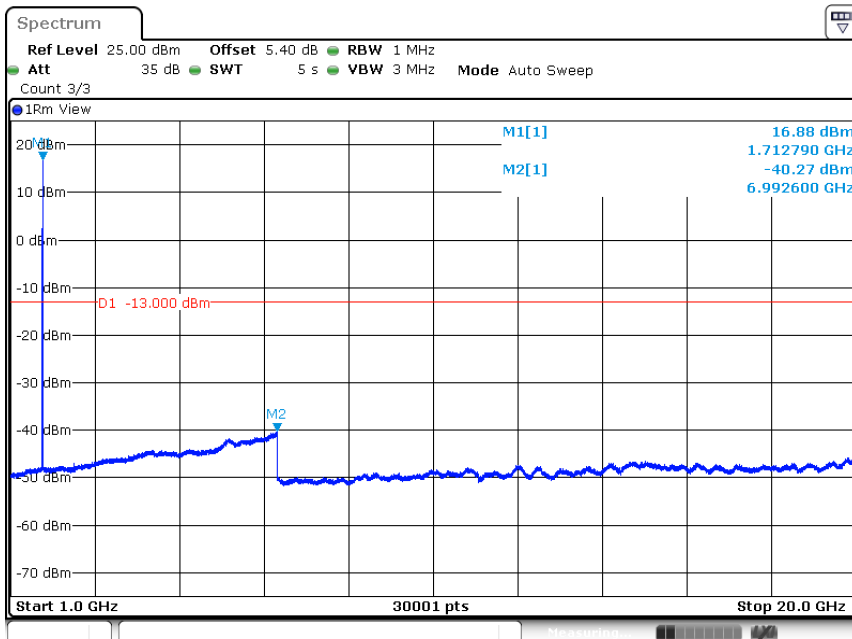


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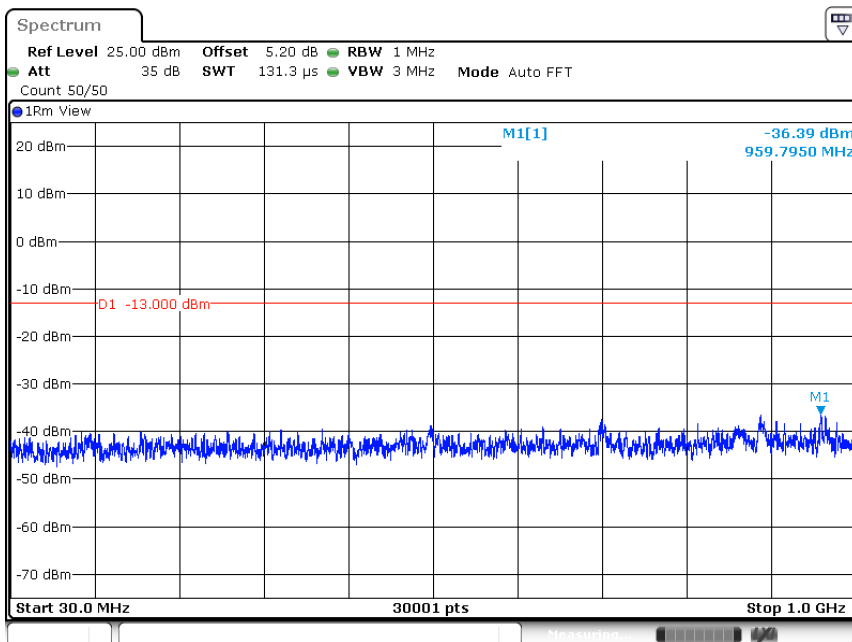
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Band4-1312-1000~20000MHz



Date: 16.OCT.2020 19:17:04

Band4-1413-30~1000MHz



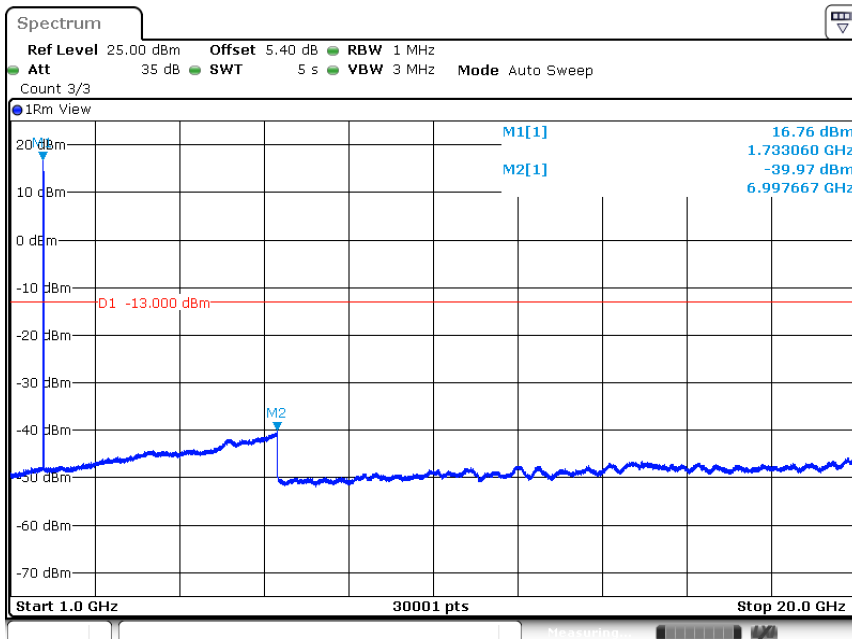
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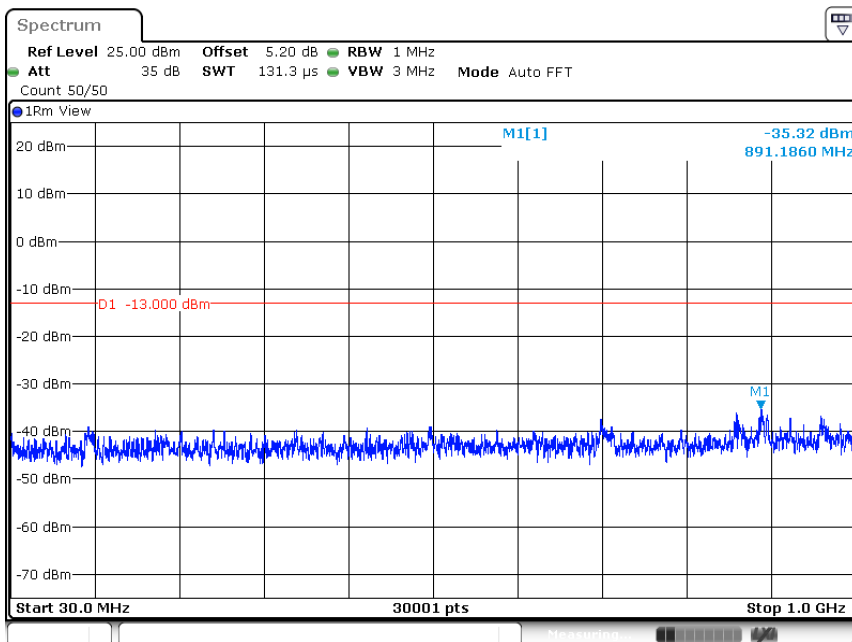
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Band4-1413-1000~20000MHz



Date: 16.OCT.2020 19:17:39

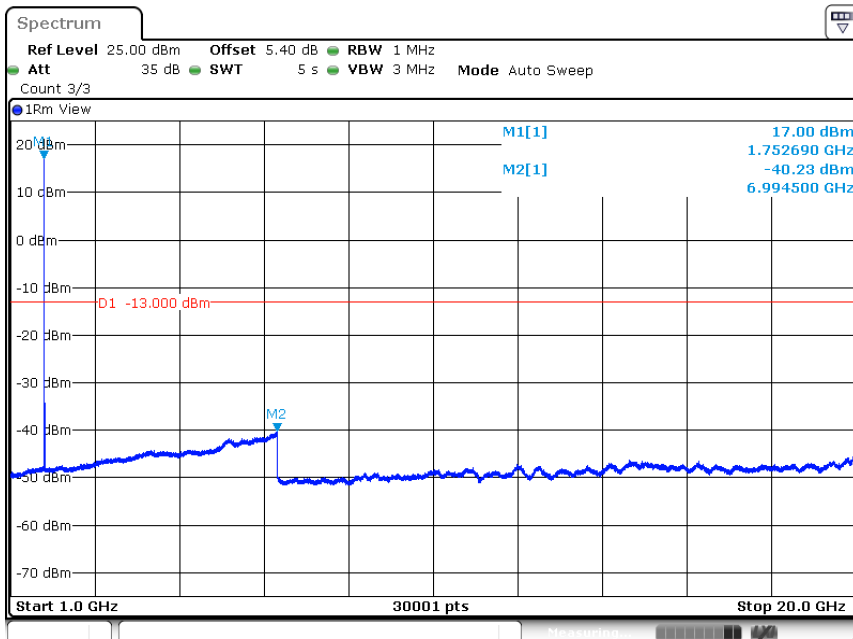
Band4-1513-30~1000MHz



Date: 16.OCT.2020 19:17:51

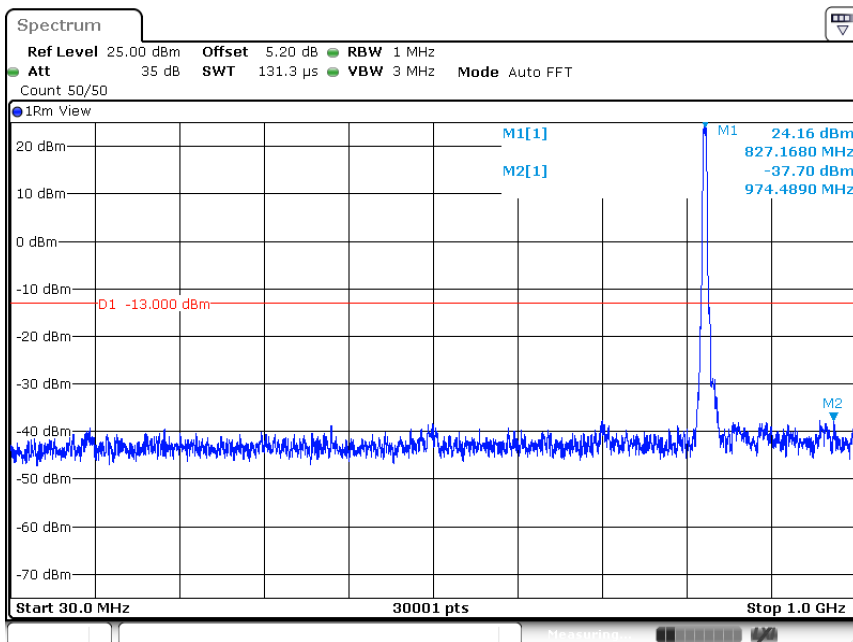


Band4-1513-1000~20000MHz



Date: 16.OCT.2020 19:18:15

Band5-4132-30~1000MHz



Date: 16.OCT.2020 18:53:18

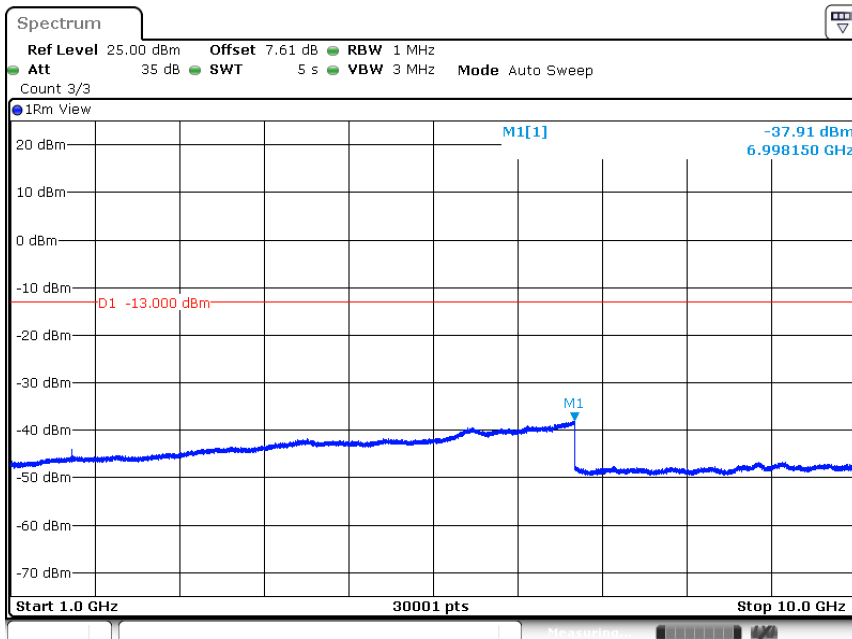


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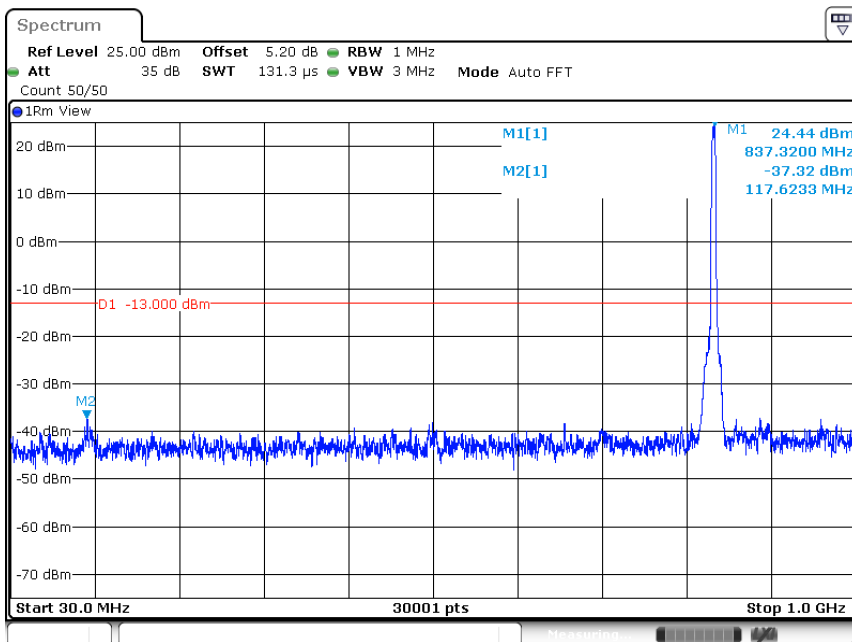
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Band5-4132-1000~10000MHz



Date: 16.OCT.2020 18:53:41

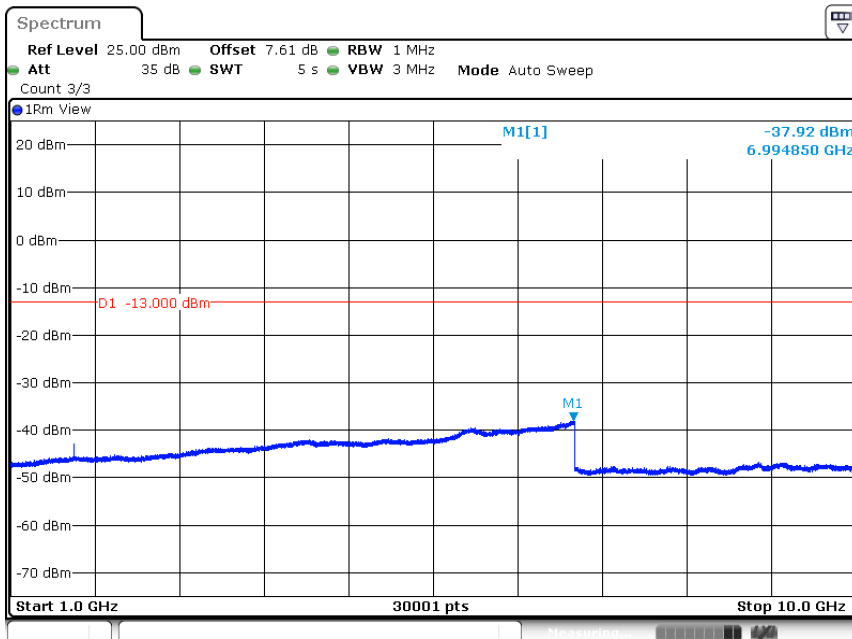
Band5-4182-30~1000MHz



Date: 16.OCT.2020 18:53:54

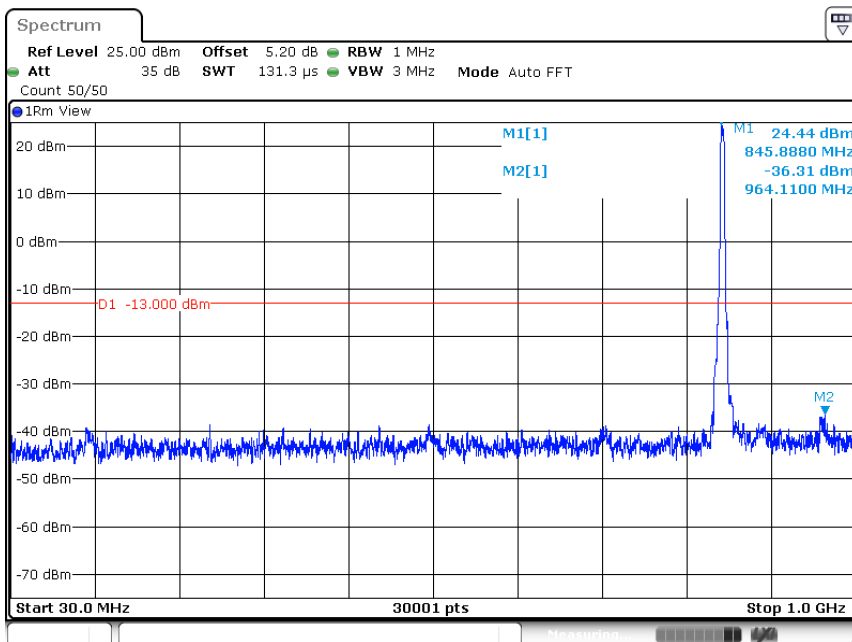


Band5-4182-1000~10000MHz



Date: 16.OCT.2020 18:54:17

Band5-4233-30~1000MHz

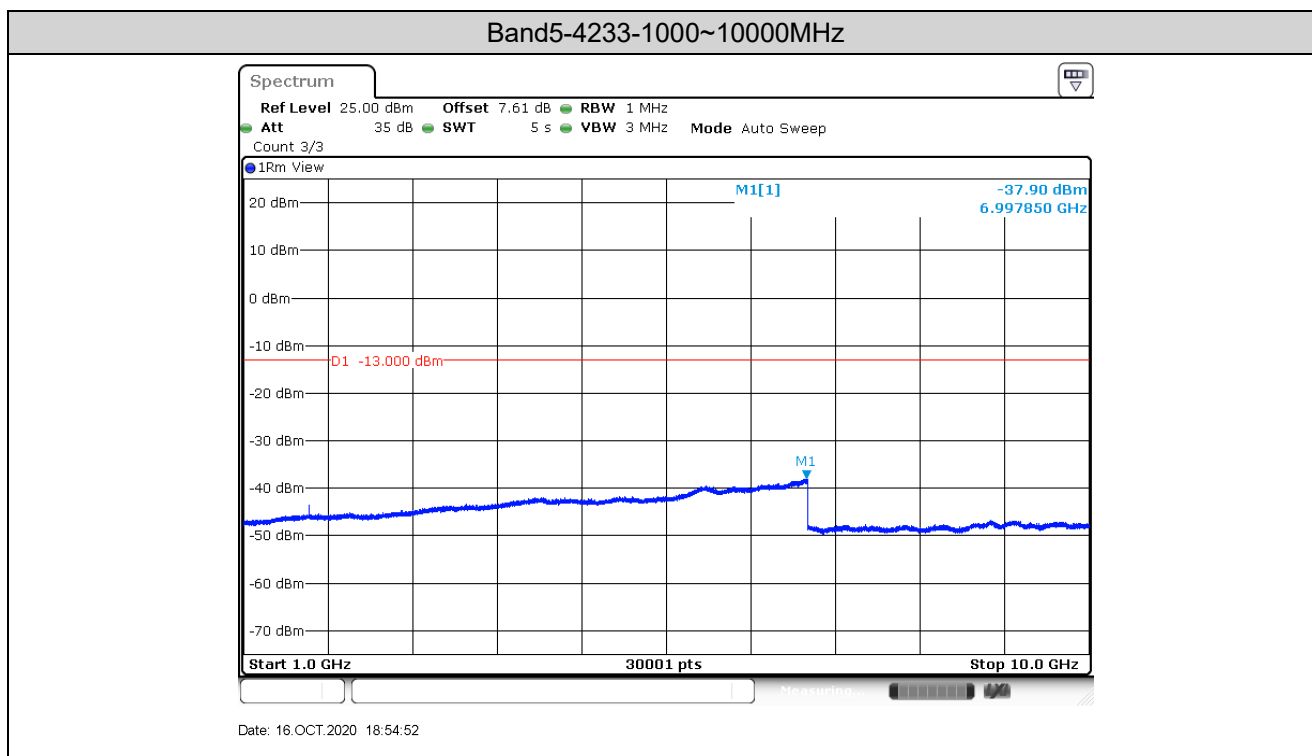


Date: 16.OCT.2020 18:54:30



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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)	Polarization
30.4850	-75.43	-13.00	62.43	Vertical
112.0176	-65.05	-13.00	52.05	Vertical
639.3360	-63.14	-13.00	50.14	Vertical
3765.5255	-61.99	-13.00	48.99	Vertical
7355.6452	-56.06	-13.00	43.06	Vertical
17995.4999	-40.41	-13.00	27.41	Vertical
45.4723	-63.83	-13.00	50.83	Horizontal
87.2329	-76.16	-13.00	63.16	Horizontal
233.5647	-67.65	-13.00	54.65	Horizontal
3646.0215	-61.19	-13.00	48.19	Horizontal
7472.6491	-56.71	-13.00	43.71	Horizontal
16395.9465	-44.08	-13.00	31.08	Horizontal





7.1.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
31.3581	-74.98	-13.00	61.98	Vertical
107.2644	-64.57	-13.00	51.57	Vertical
447.9454	-66.54	-13.00	53.54	Vertical
5023.5675	-62.01	-13.00	49.01	Vertical
7410.1470	-56.03	-13.00	43.03	Vertical
17995.9999	-40.21	-13.00	27.21	Vertical
42.2711	-63.51	-13.00	50.51	Horizontal
100.9590	-74.72	-13.00	61.72	Horizontal
242.1981	-67.87	-13.00	54.87	Horizontal
3648.5216	-61.47	-13.00	48.47	Horizontal
7480.1493	-56.29	-13.00	43.29	Horizontal
16398.4466	-43.68	-13.00	30.68	Horizontal

7.1.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
31.4551	-72.63	-13.00	59.63	Vertical
107.2644	-64.46	-13.00	51.46	Vertical
476.4163	-67.08	-13.00	54.08	Vertical
3711.5237	-61.95	-13.00	48.95	Vertical
7458.1486	-55.93	-13.00	42.93	Vertical
17989.9997	-40.26	-13.00	27.26	Vertical
41.9316	-63.65	-13.00	50.65	Horizontal
106.4398	-75.81	-13.00	62.81	Horizontal
235.3593	-66.48	-13.00	53.48	Horizontal
3530.5177	-61.32	-13.00	48.32	Horizontal
7446.6482	-56.82	-13.00	43.82	Horizontal
16380.4460	-43.53	-13.00	30.53	Horizontal



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7.2. Test Band = WCDMA Band IV**7.2.1. Test Mode = WCDMA/TM1****7.2.1.1. Test Channel = LCH**

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
31.0186	-72.94	-13.00	59.94	Vertical
111.0961	-62.11	-13.00	49.11	Vertical
454.3477	-64.57	-13.00	51.57	Vertical
3426.5142	-56.53	-13.00	43.53	Vertical
7457.6486	-53.50	-13.00	40.50	Vertical
17995.9999	-34.28	-13.00	21.28	Vertical
43.2897	-62.07	-13.00	49.07	Horizontal
98.4854	-73.58	-13.00	60.58	Horizontal
231.9156	-65.33	-13.00	52.33	Horizontal
3426.0142	-56.04	-13.00	43.04	Horizontal
7472.6491	-53.98	-13.00	40.98	Horizontal
16390.9464	-35.48	-13.00	22.48	Horizontal



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7.2.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
30.3395	-73.01	-13.00	60.01	Vertical
110.4170	-62.56	-13.00	49.56	Vertical
382.4186	-65.15	-13.00	52.15	Vertical
3466.0155	-60.28	-13.00	47.28	Vertical
7436.1479	-53.19	-13.00	40.19	Vertical
17990.9997	-34.29	-13.00	21.29	Vertical
41.3981	-62.56	-13.00	49.56	Horizontal
101.0076	-72.47	-13.00	59.47	Horizontal
250.5405	-65.74	-13.00	52.74	Horizontal
3467.0156	-59.04	-13.00	46.04	Horizontal
7511.6504	-53.67	-13.00	40.67	Horizontal
16400.4467	-35.41	-13.00	22.41	Horizontal

7.2.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
30.4850	-73.18	-13.00	60.18	Vertical
108.5739	-62.79	-13.00	49.79	Vertical
434.8982	-64.63	-13.00	51.63	Vertical
3588.5196	-60.42	-13.00	47.42	Vertical
7384.1461	-53.30	-13.00	40.30	Vertical
17999.5000	-34.08	-13.00	21.08	Vertical
39.9430	-61.05	-13.00	48.05	Horizontal
105.8093	-72.56	-13.00	59.56	Horizontal
230.1695	-65.63	-13.00	52.63	Horizontal
3654.5218	-59.84	-13.00	46.84	Horizontal
7445.1482	-53.77	-13.00	40.77	Horizontal
16403.4468	-35.37	-13.00	22.37	Horizontal



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7.3. Test Band = WCDMA Band V

7.3.1. Test Mode = WCDMA/TM1

7.3.1.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
31.6976	-74.28	-13.00	61.28	Vertical
114.2972	-64.90	-13.00	51.90	Vertical
308.0159	-68.26	-13.00	55.26	Vertical
1776.1552	-58.85	-13.00	45.85	Vertical
2697.1394	-51.99	-13.00	38.99	Vertical
9315.1438	-52.35	-13.00	39.35	Vertical
44.3082	-64.33	-13.00	51.33	Horizontal
92.5196	-75.57	-13.00	62.57	Horizontal
237.5419	-68.02	-13.00	55.02	Horizontal
1654.9310	-60.20	-13.00	47.20	Horizontal
2472.6945	-51.25	-13.00	38.25	Horizontal
9324.7108	-52.91	-13.00	39.91	Horizontal





7.3.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
30.8245	-74.68	-13.00	61.68	Vertical
113.9092	-64.98	-13.00	51.98	Vertical
361.7566	-68.29	-13.00	55.29	Vertical
1765.3531	-57.54	-13.00	44.54	Vertical
2703.9408	-51.91	-13.00	38.91	Vertical
9786.9596	-52.51	-13.00	39.51	Vertical
40.6705	-63.83	-13.00	50.83	Horizontal
100.7650	-75.64	-13.00	62.64	Horizontal
234.5347	-68.05	-13.00	55.05	Horizontal
1670.9342	-58.79	-13.00	45.79	Horizontal
2694.3389	-50.80	-13.00	37.80	Horizontal
9331.2444	-52.51	-13.00	39.51	Horizontal

7.3.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
30.0000	-74.46	-13.00	61.46	Vertical
110.3200	-64.81	-13.00	51.81	Vertical
334.9832	-68.88	-13.00	55.88	Vertical
1694.9390	-59.86	-13.00	46.86	Vertical
3000.0000	-51.22	-13.00	38.22	Vertical
9884.7295	-52.41	-13.00	39.41	Vertical
42.0771	-63.81	-13.00	50.81	Horizontal
99.5525	-74.52	-13.00	61.52	Horizontal
231.6731	-67.41	-13.00	54.41	Horizontal
1694.9390	-58.28	-13.00	45.28	Horizontal
2699.5399	-50.85	-13.00	37.85	Horizontal
9976.8992	-52.53	-13.00	39.53	Horizontal

Remark:



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- 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.





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	-0.21	-0.000113	±2.5	PASS
Band2	9262	VN	NT	-0.33	-0.000178	±2.5	PASS
Band2	9262	VH	NT	-0.35	-0.000189	±2.5	PASS
Band2	9400	VL	NT	-1.02	-0.000543	±2.5	PASS
Band2	9400	VN	NT	-1.45	-0.000771	±2.5	PASS
Band2	9400	VH	NT	-0.69	-0.000367	±2.5	PASS
Band2	9538	VL	NT	-1.95	-0.001022	±2.5	PASS
Band2	9538	VN	NT	-2.07	-0.001085	±2.5	PASS
Band2	9538	VH	NT	-2.46	-0.001290	±2.5	PASS
Band4	1312	VL	NT	5.24	0.003060	±2.5	PASS
Band4	1312	VN	NT	4.92	0.002873	±2.5	PASS
Band4	1312	VH	NT	5.43	0.003171	±2.5	PASS
Band4	1413	VL	NT	0.09	0.000052	±2.5	PASS
Band4	1413	VN	NT	0.22	0.000127	±2.5	PASS
Band4	1413	VH	NT	0.08	0.000046	±2.5	PASS
Band4	1513	VL	NT	-6.70	-0.003823	±2.5	PASS
Band4	1513	VN	NT	-6.59	-0.003760	±2.5	PASS
Band4	1513	VH	NT	-6.69	-0.003817	±2.5	PASS
Band5	4132	VL	NT	0.21	0.000254	±2.5	PASS
Band5	4132	VN	NT	0.05	0.000061	±2.5	PASS
Band5	4132	VH	NT	0.05	0.000061	±2.5	PASS
Band5	4182	VL	NT	-0.06	-0.000072	±2.5	PASS
Band5	4182	VN	NT	-0.18	-0.000215	±2.5	PASS
Band5	4182	VH	NT	0.03	0.000036	±2.5	PASS
Band5	4233	VL	NT	-0.77	-0.000910	±2.5	PASS
Band5	4233	VN	NT	-0.54	-0.000638	±2.5	PASS
Band5	4233	VH	NT	-0.79	-0.000933	±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	-0.01	-0.000005	±2.5	PASS
Band2	9262	NV	-20	-0.09	-0.000049	±2.5	PASS
Band2	9262	NV	-10	0.28	0.000151	±2.5	PASS
Band2	9262	NV	0	0.26	0.000140	±2.5	PASS
Band2	9262	NV	10	0.56	0.000302	±2.5	PASS
Band2	9262	NV	20	0.44	0.000238	±2.5	PASS
Band2	9262	NV	30	0.09	0.000049	±2.5	PASS
Band2	9262	NV	40	0.45	0.000243	±2.5	PASS
Band2	9262	NV	50	0.59	0.000319	±2.5	PASS
Band2	9400	NV	-30	-0.80	-0.000426	±2.5	PASS
Band2	9400	NV	-20	-0.56	-0.000298	±2.5	PASS
Band2	9400	NV	-10	-0.54	-0.000287	±2.5	PASS
Band2	9400	NV	0	-0.62	-0.000330	±2.5	PASS
Band2	9400	NV	10	-0.41	-0.000218	±2.5	PASS
Band2	9400	NV	20	-0.64	-0.000340	±2.5	PASS
Band2	9400	NV	30	-0.58	-0.000309	±2.5	PASS
Band2	9400	NV	40	-0.67	-0.000356	±2.5	PASS
Band2	9400	NV	50	-0.65	-0.000346	±2.5	PASS
Band2	9538	NV	-30	-1.83	-0.000959	±2.5	PASS
Band2	9538	NV	-20	-2.27	-0.001190	±2.5	PASS
Band2	9538	NV	-10	-2.16	-0.001132	±2.5	PASS
Band2	9538	NV	0	-2.22	-0.001164	±2.5	PASS
Band2	9538	NV	10	-2.33	-0.001221	±2.5	PASS
Band2	9538	NV	20	-2.65	-0.001389	±2.5	PASS
Band2	9538	NV	30	-2.04	-0.001069	±2.5	PASS
Band2	9538	NV	40	-2.14	-0.001122	±2.5	PASS
Band2	9538	NV	50	-2.12	-0.001111	±2.5	PASS
Band4	1312	NV	-30	5.35	0.003124	±2.5	PASS
Band4	1312	NV	-20	5.54	0.003235	±2.5	PASS
Band4	1312	NV	-10	5.43	0.003171	±2.5	PASS
Band4	1312	NV	0	5.12	0.002990	±2.5	PASS
Band4	1312	NV	10	5.48	0.003200	±2.5	PASS
Band4	1312	NV	20	5.59	0.003264	±2.5	PASS



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Band4	1312	NV	30	5.38	0.003142	±2.5	PASS
Band4	1312	NV	40	5.53	0.003229	±2.5	PASS
Band4	1312	NV	50	5.26	0.003072	±2.5	PASS
Band4	1413	NV	-30	0.21	0.000121	±2.5	PASS
Band4	1413	NV	-20	-1.95	-0.001125	±2.5	PASS
Band4	1413	NV	-10	0.67	0.000387	±2.5	PASS
Band4	1413	NV	0	0.06	0.000035	±2.5	PASS
Band4	1413	NV	10	-0.04	-0.000023	±2.5	PASS
Band4	1413	NV	20	0.09	0.000052	±2.5	PASS
Band4	1413	NV	30	-0.22	-0.000127	±2.5	PASS
Band4	1413	NV	40	-0.04	-0.000023	±2.5	PASS
Band4	1413	NV	50	-0.16	-0.000092	±2.5	PASS
Band4	1513	NV	-30	-5.74	-0.003275	±2.5	PASS
Band4	1513	NV	-20	-5.62	-0.003207	±2.5	PASS
Band4	1513	NV	-10	-5.28	-0.003013	±2.5	PASS
Band4	1513	NV	0	-4.79	-0.002733	±2.5	PASS
Band4	1513	NV	10	-4.63	-0.002642	±2.5	PASS
Band4	1513	NV	20	-4.79	-0.002733	±2.5	PASS
Band4	1513	NV	30	-4.84	-0.002762	±2.5	PASS
Band4	1513	NV	40	-4.81	-0.002744	±2.5	PASS
Band4	1513	NV	50	-4.58	-0.002613	±2.5	PASS
Band5	4132	NV	-30	0.09	0.000109	±2.5	PASS
Band5	4132	NV	-20	0.23	0.000278	±2.5	PASS
Band5	4132	NV	-10	0.14	0.000169	±2.5	PASS
Band5	4132	NV	0	0.33	0.000399	±2.5	PASS
Band5	4132	NV	10	0.21	0.000254	±2.5	PASS
Band5	4132	NV	20	0.35	0.000424	±2.5	PASS
Band5	4132	NV	30	0.34	0.000411	±2.5	PASS
Band5	4132	NV	40	0.19	0.000230	±2.5	PASS
Band5	4132	NV	50	0.36	0.000436	±2.5	PASS
Band5	4182	NV	-30	-0.02	-0.000024	±2.5	PASS
Band5	4182	NV	-20	0.26	0.000311	±2.5	PASS
Band5	4182	NV	-10	-0.06	-0.000072	±2.5	PASS
Band5	4182	NV	0	-0.01	-0.000012	±2.5	PASS
Band5	4182	NV	10	0.04	0.000048	±2.5	PASS
Band5	4182	NV	20	-0.01	-0.000012	±2.5	PASS
Band5	4182	NV	30	0.04	0.000048	±2.5	PASS



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Band5	4182	NV	40	0.04	0.000048	±2.5	PASS
Band5	4182	NV	50	-0.09	-0.000108	±2.5	PASS
Band5	4233	NV	-30	-0.68	-0.000803	±2.5	PASS
Band5	4233	NV	-20	-0.82	-0.000969	±2.5	PASS
Band5	4233	NV	-10	-0.75	-0.000886	±2.5	PASS
Band5	4233	NV	0	-0.81	-0.000957	±2.5	PASS
Band5	4233	NV	10	-0.74	-0.000874	±2.5	PASS
Band5	4233	NV	20	-0.81	-0.000957	±2.5	PASS
Band5	4233	NV	30	-0.69	-0.000815	±2.5	PASS
Band5	4233	NV	40	-0.72	-0.000850	±2.5	PASS
Band5	4233	NV	50	-0.75	-0.000886	±2.5	PASS

The End

