

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	24.12	21.62	33.00	PASS
Band II	9400	24.25	21.75	33.00	PASS
Band II	9538	24.27	21.77	33.00	PASS

Band	Channel	Conducted Power (dBm)	ERP (dBm)	Limit(dBm)	Verdict
Band V	4132	24.46	17.31	38.45	PASS
Band V	4182	24.48	17.33	38.45	PASS
Band V	4233	24.39	17.24	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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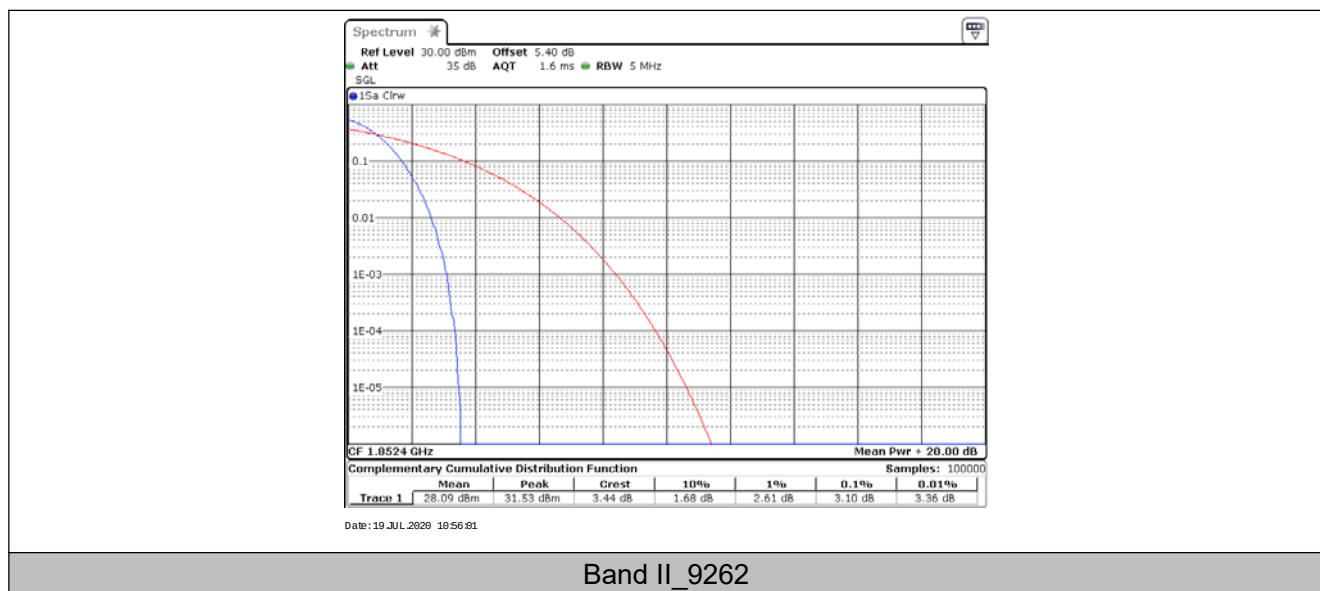
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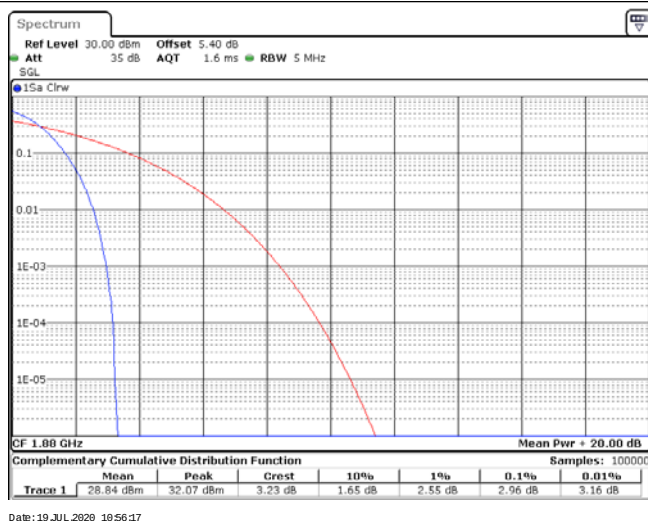
2. Peak-to-Average Ratio(CCDF)

2.1. Test Result

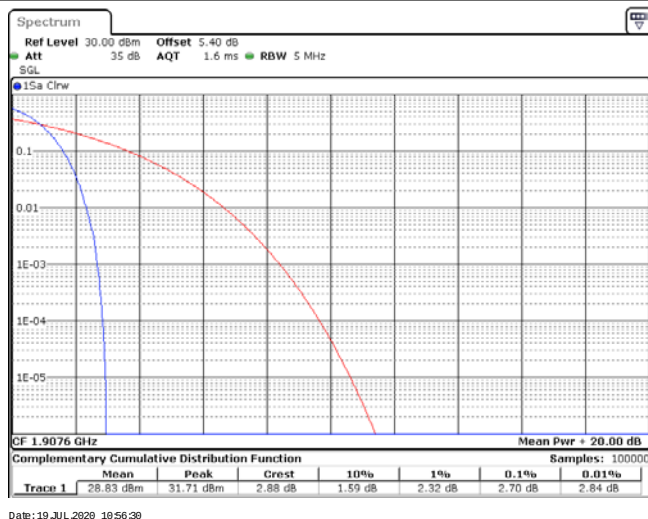
Band	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
Band II	9262	3.10	13	PASS
Band II	9400	2.96	13	PASS
Band II	9538	2.70	13	PASS
Band V	4132	2.72	13	PASS
Band V	4182	2.75	13	PASS
Band V	4233	2.81	13	PASS

2.2. Test Plots



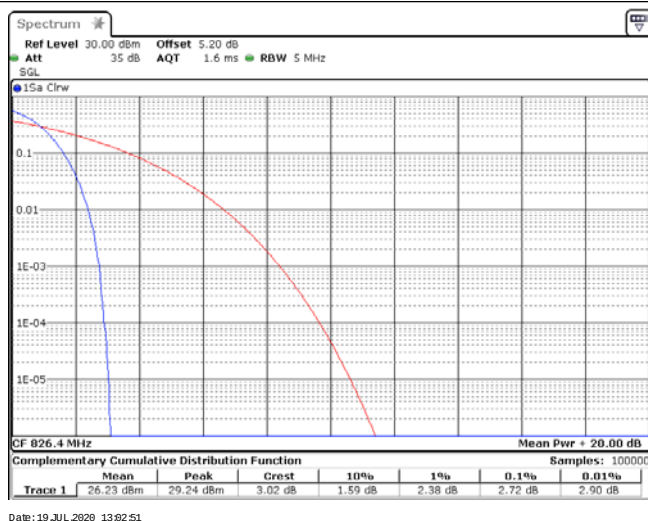


Band II_9400

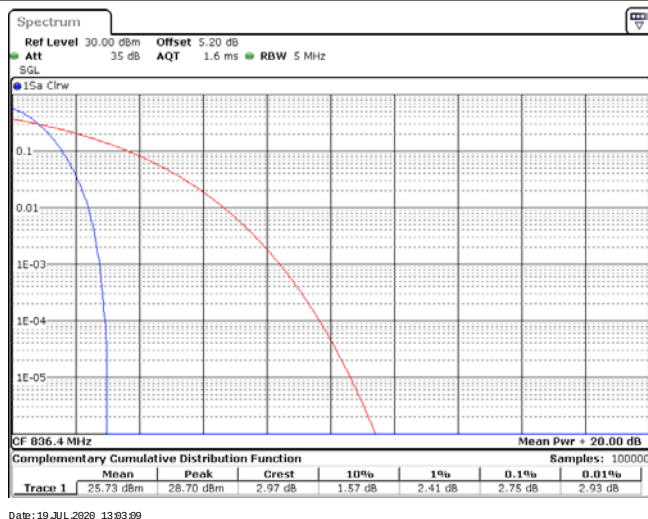


Band II_9538



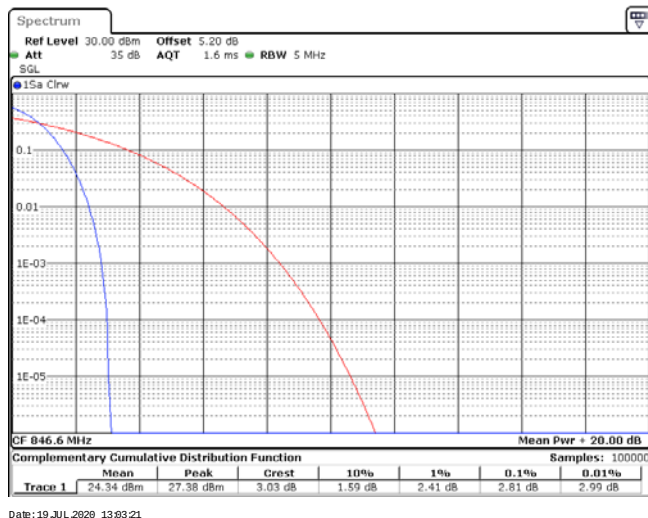


Band V_4132



Band V_4182





Band V_4233

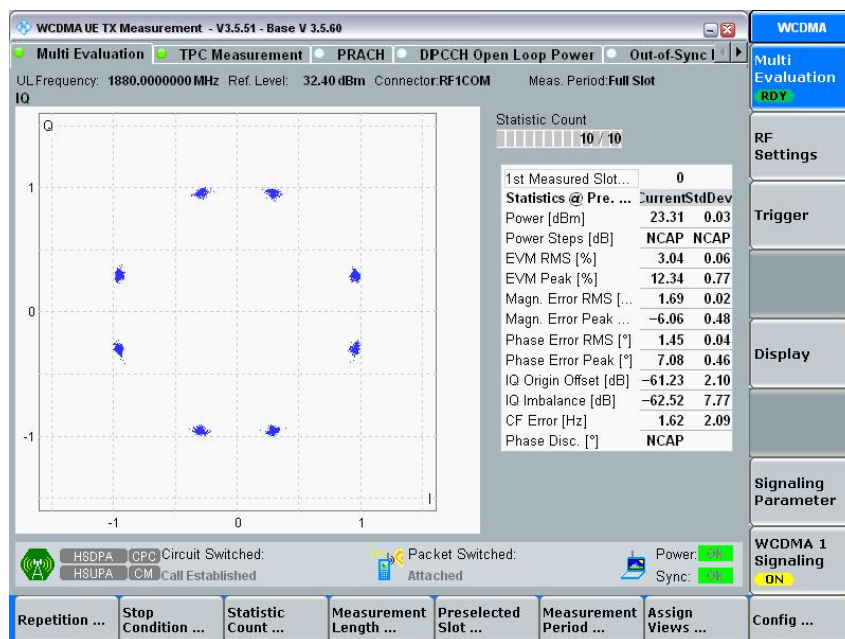


3. Modulation Characteristics

3.1. Test Band = WCDMA Band II

3.1.1. Test Mode = UMTS/TM1

3.1.1.1. Test Channel = MCH

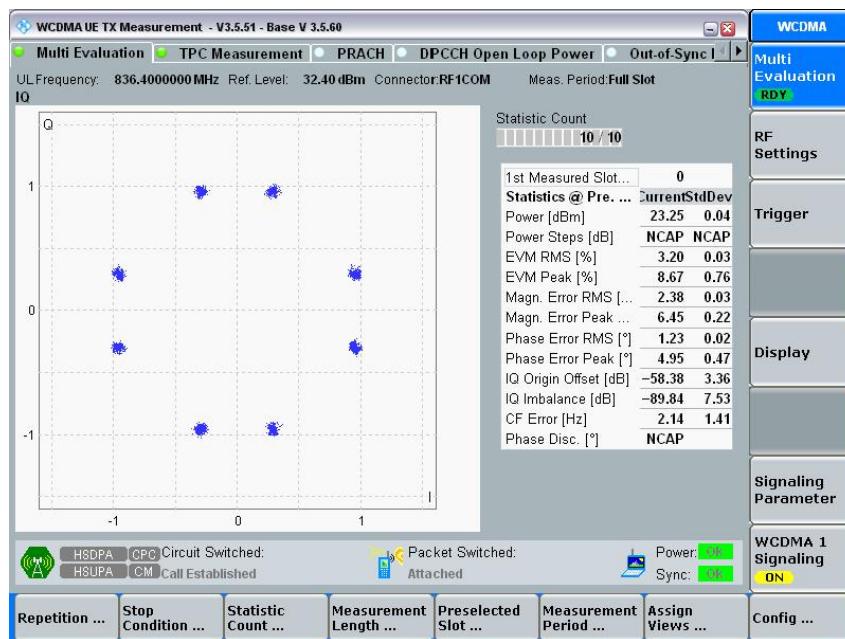


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3.2. Test Band = WCDMA Band V

3.2.1. Test Mode = UMTS/TM1

3.2.1.1. Test Channel = MCH

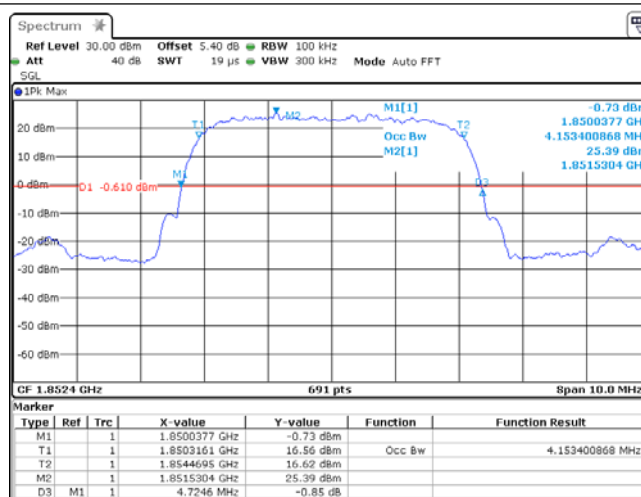


4. 26dB Bandwidth and Occupied Bandwidth

4.1. Test Result

Band	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit(kHz)	Verdict
Band II	9262	4153.4	4725	---	PASS
Band II	9400	4182.3	4754	---	PASS
Band II	9538	4167.9	4754	---	PASS
Band V	4132	4167.9	4768	---	PASS
Band V	4182	4167.9	4754	---	PASS
Band V	4233	4182.3	4754	---	PASS

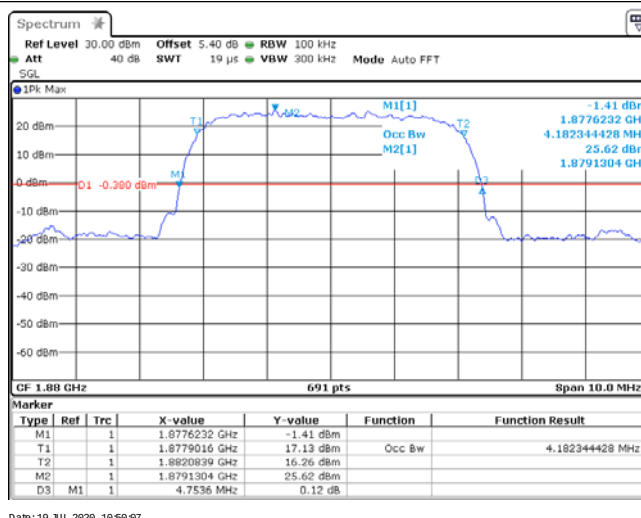
4.2. Test Plots



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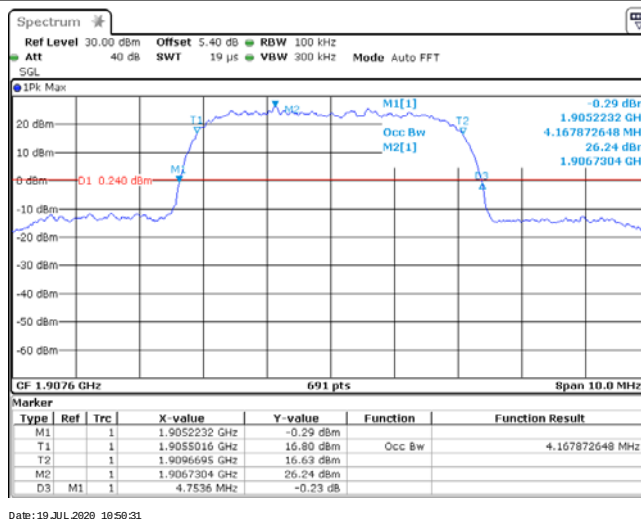
Band II_9262





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Band II_9400



Date: 19 JUL 2020 10:50:31

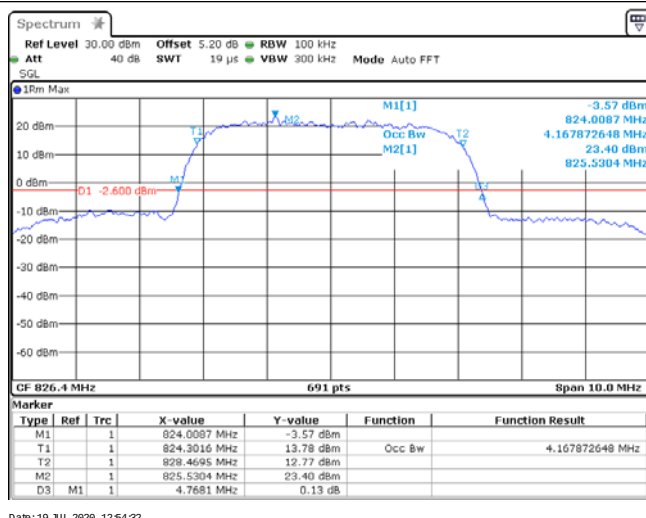
Band II_9538



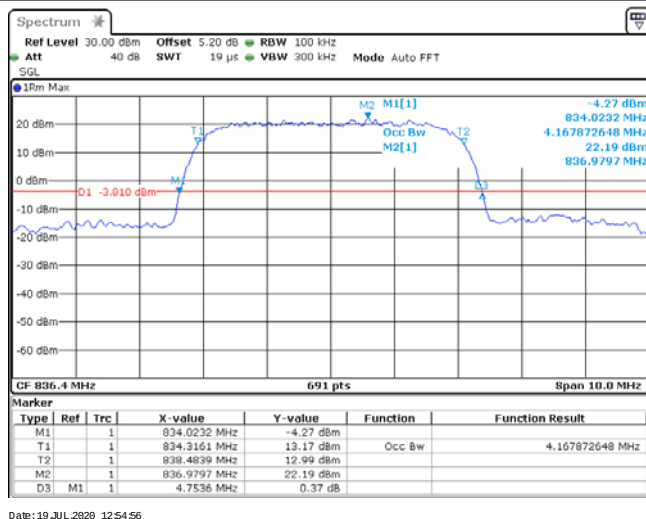
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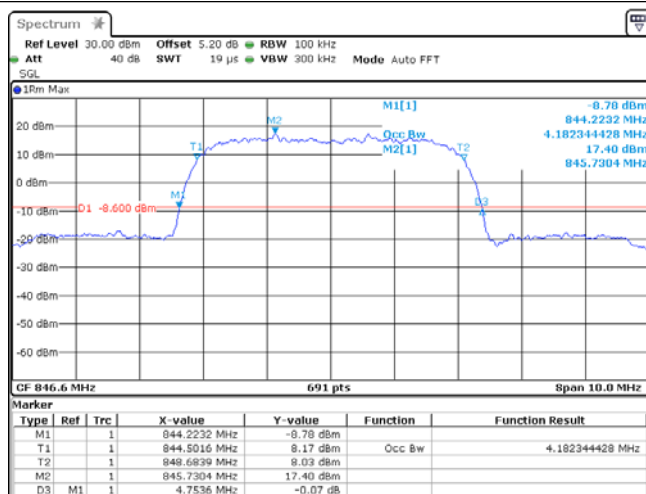


Band V_4132



Band V_4182





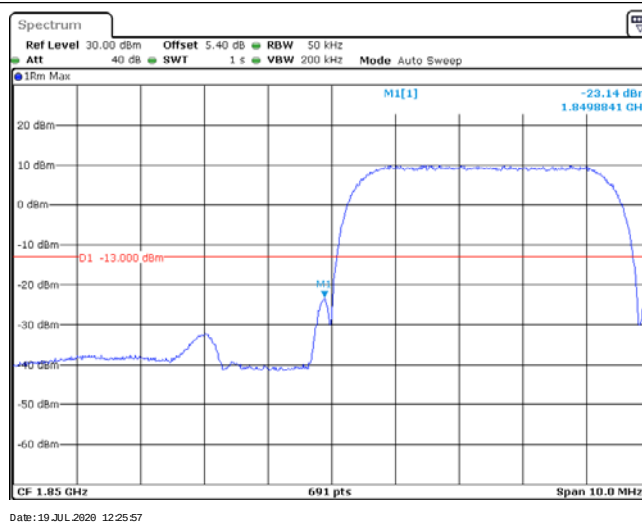
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Band V_4233

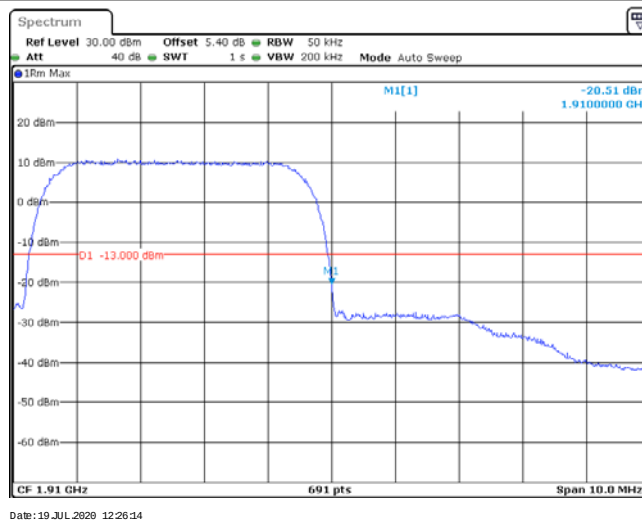


5. Band Edge Compliance

5.1. Test Plots

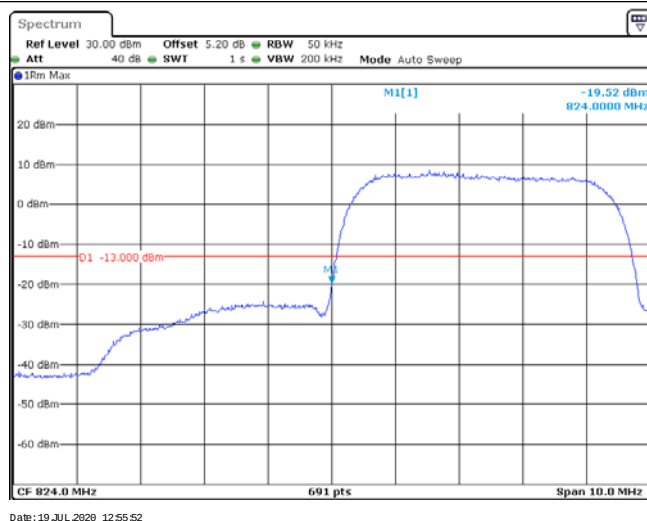


Band II_9262

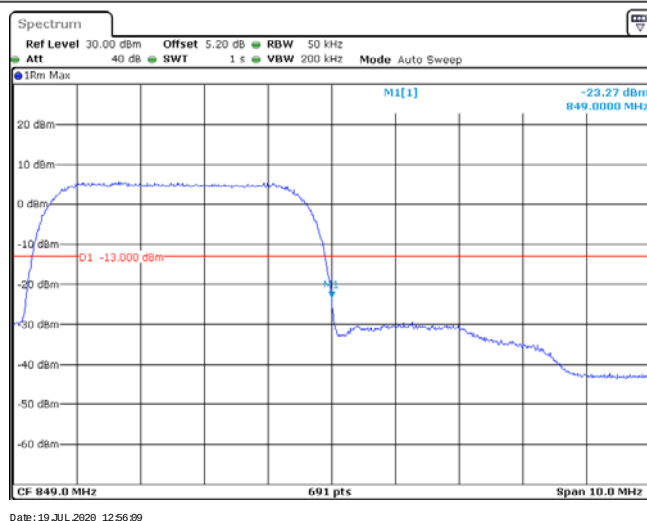


Band II_9538





Band V_4132



Band V_4233



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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

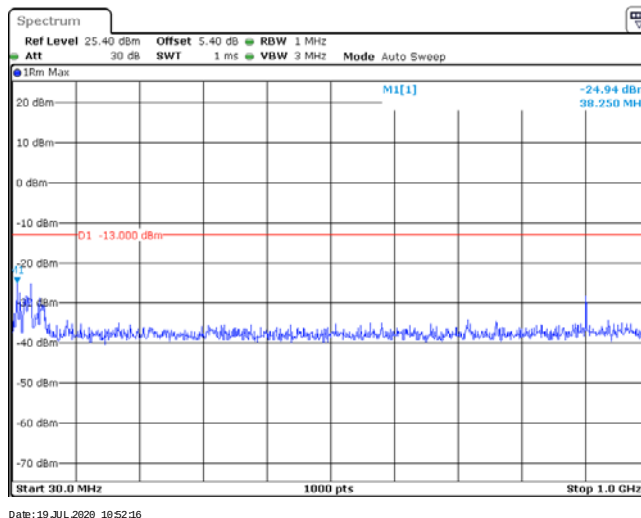


Band II_9262

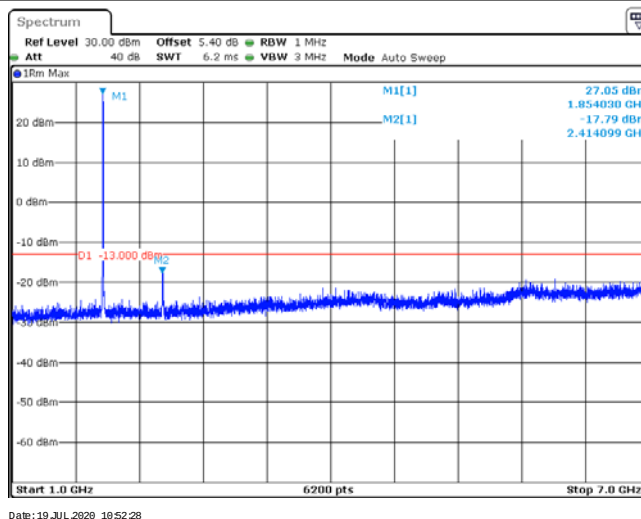


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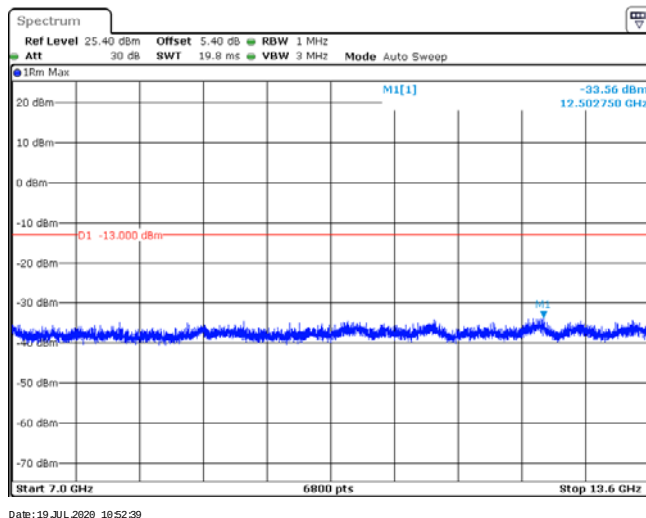


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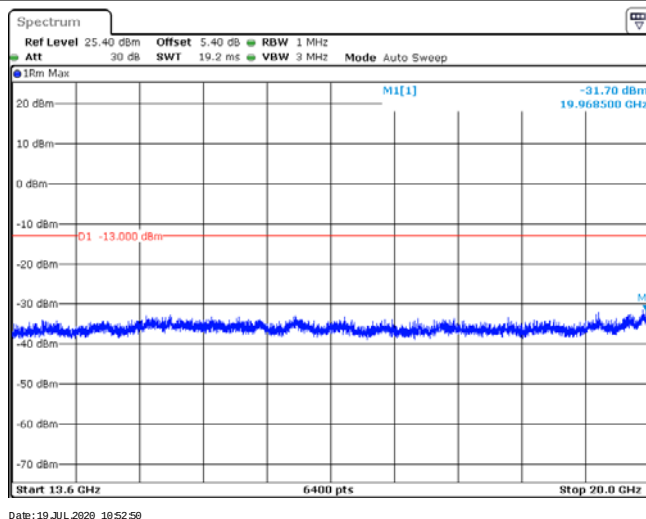


Band II_9262



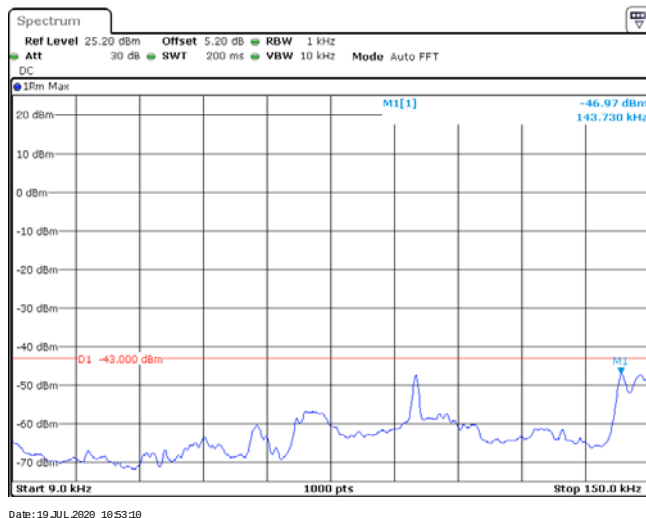


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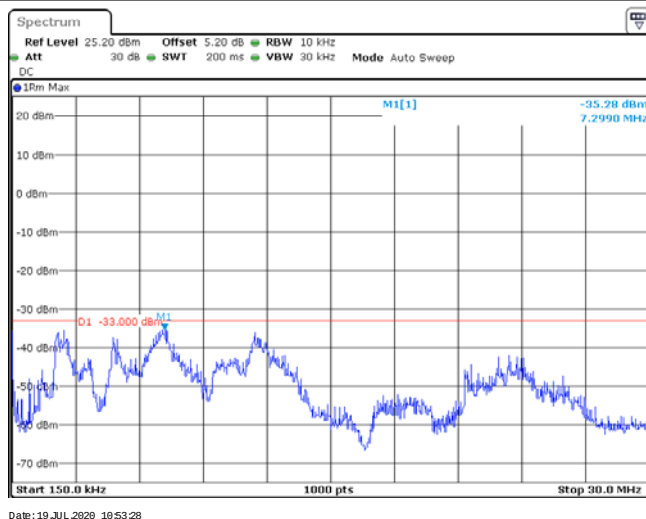


Band II_9262





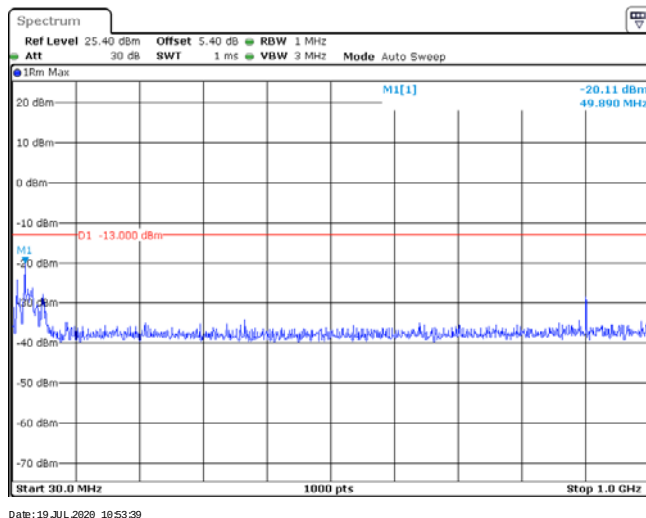
Band II_9400



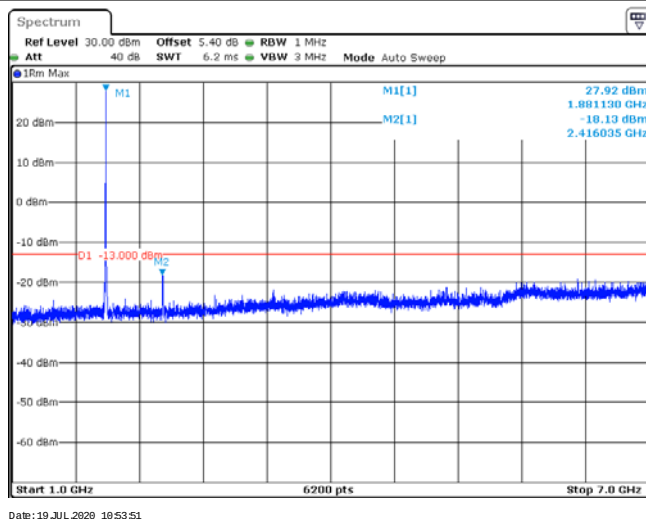
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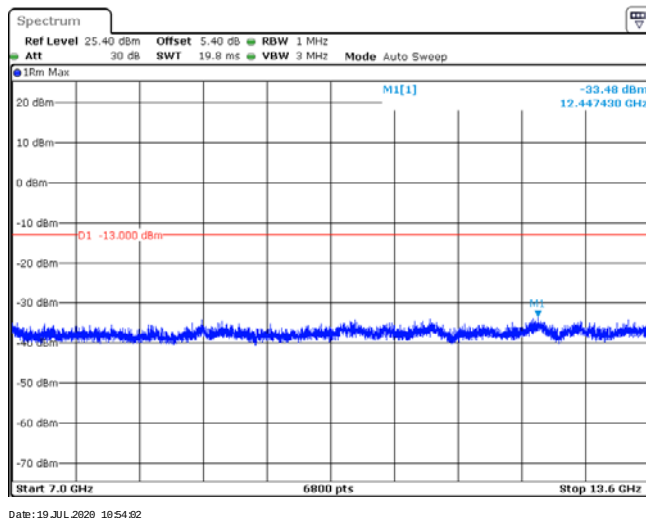


Band II_9400

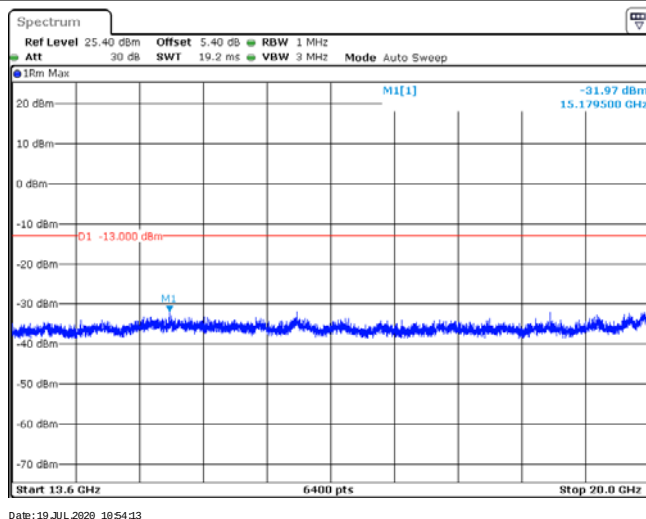


Band II_9400



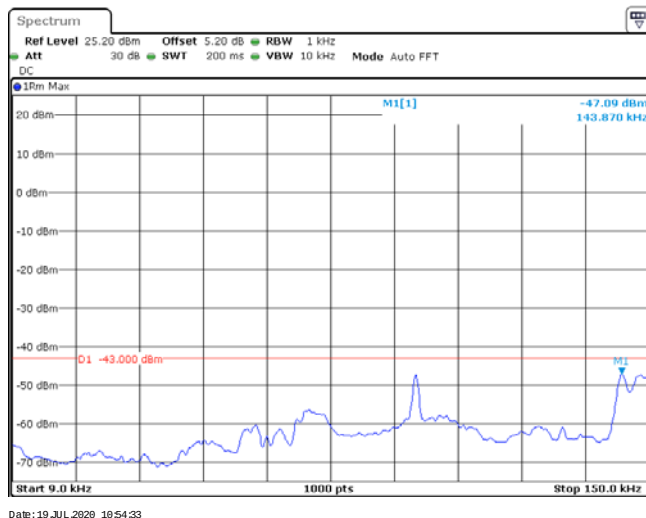


Band II_9400



Band II_9400





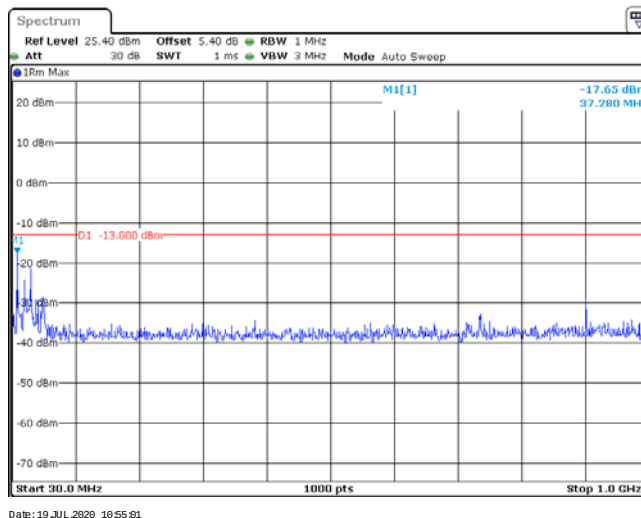
Band II_9538



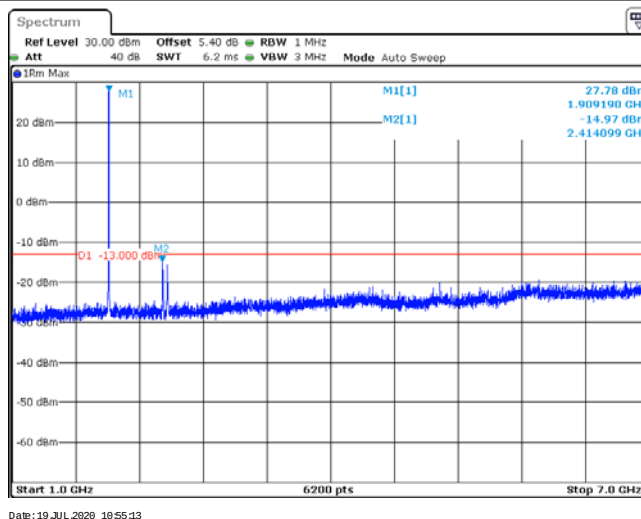
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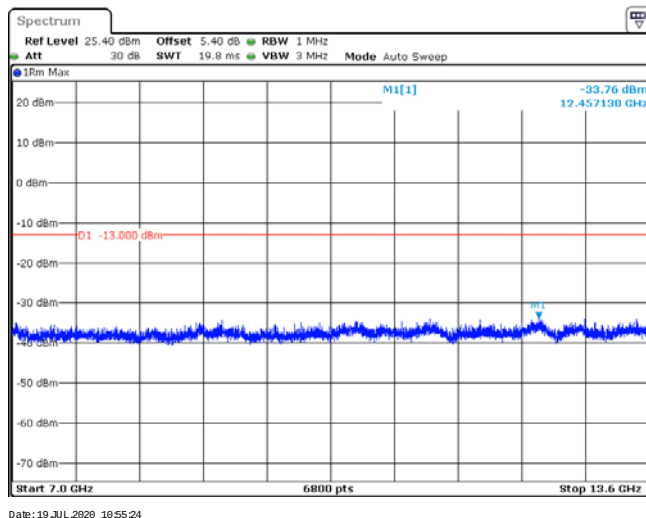
Band II_9538



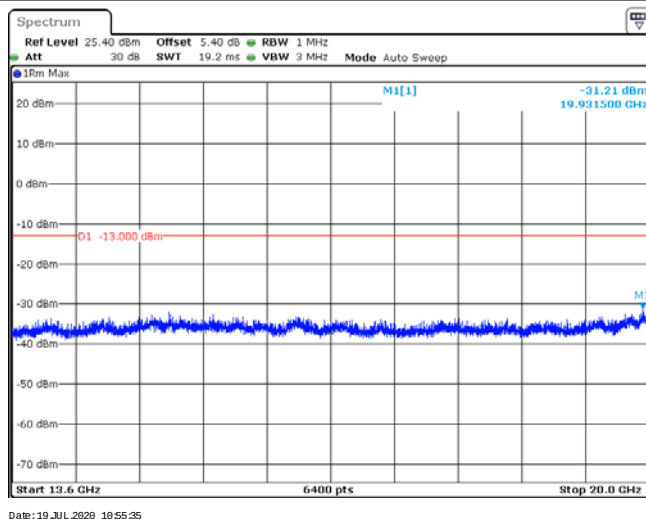
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Band II_9538

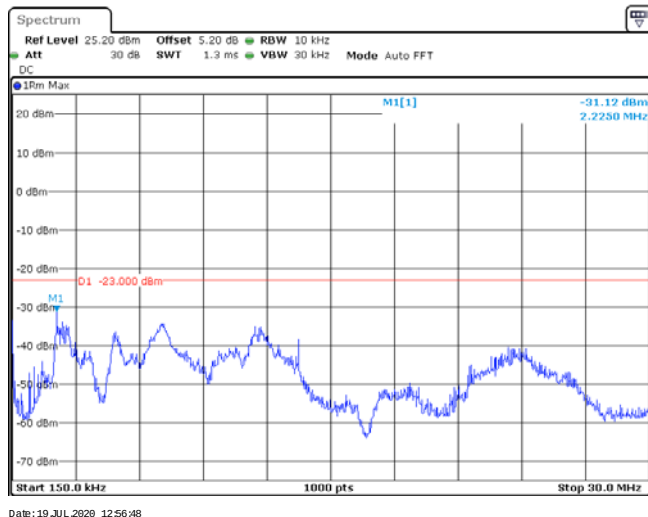


Band II_9538





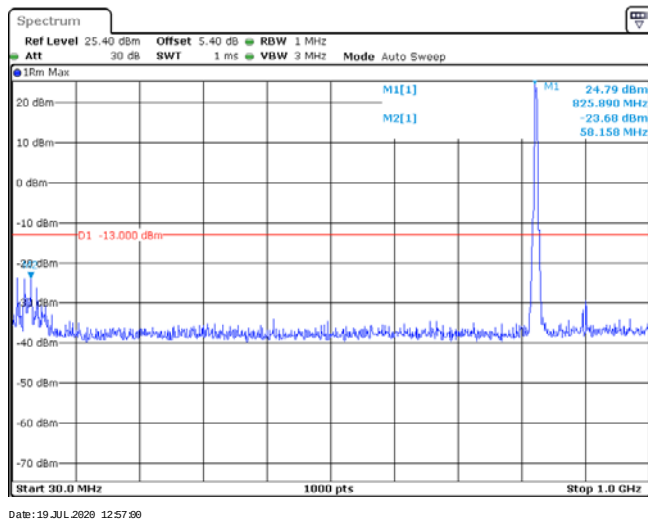
Band V_4132



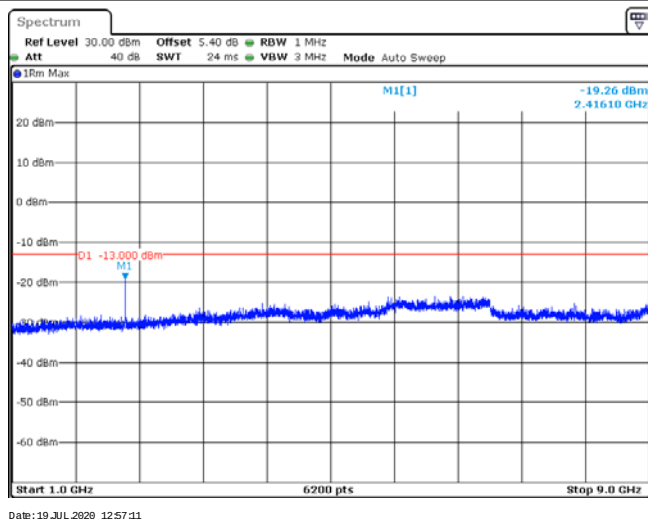
Band V_4132



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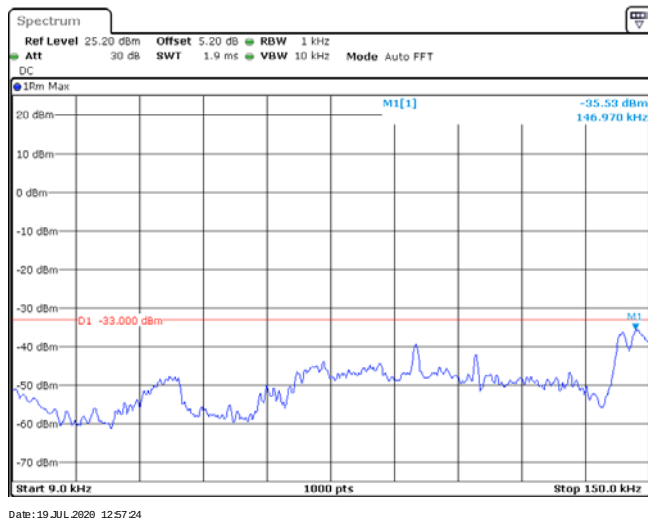


Band V_4132

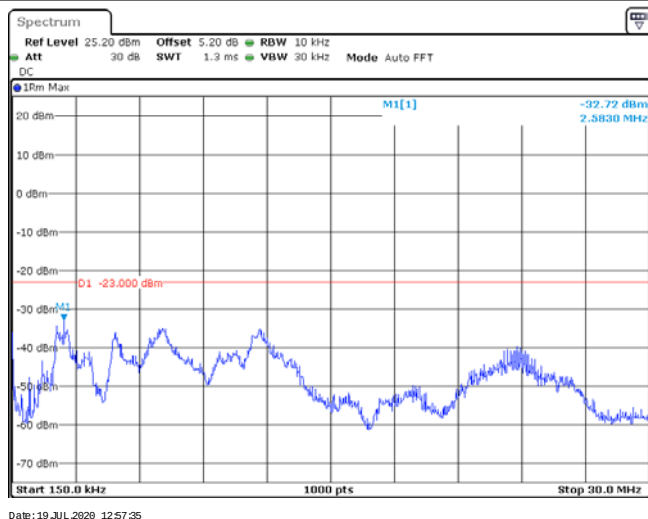


Band V_4132





Band V_4182



Band V_4182

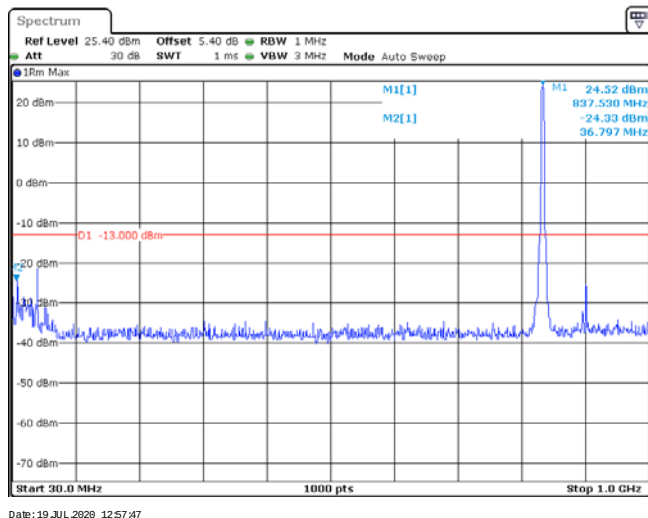


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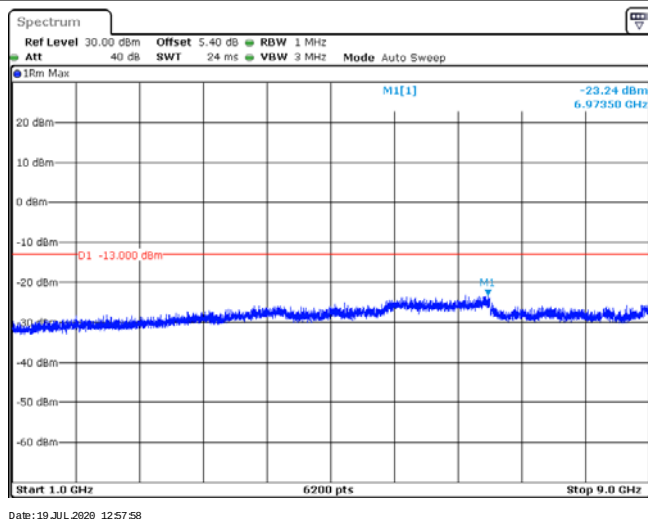
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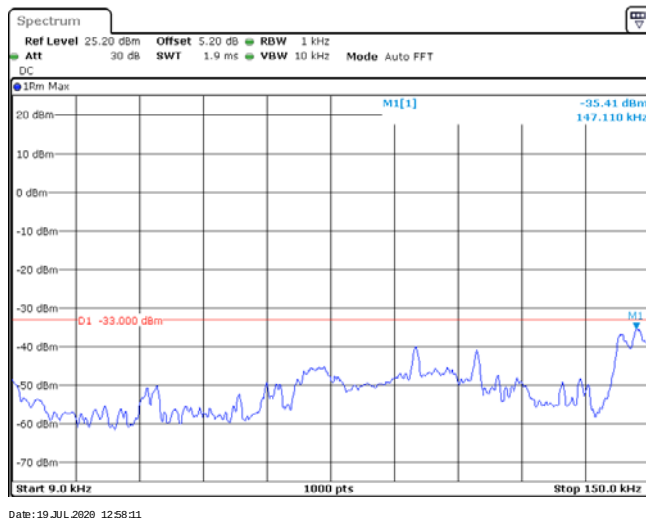
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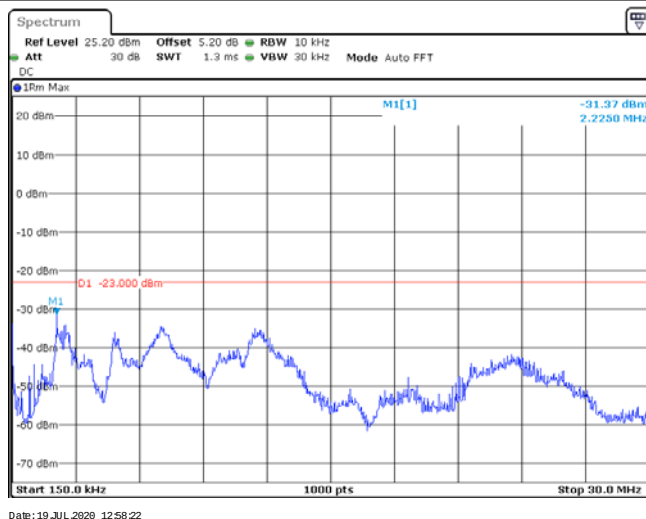
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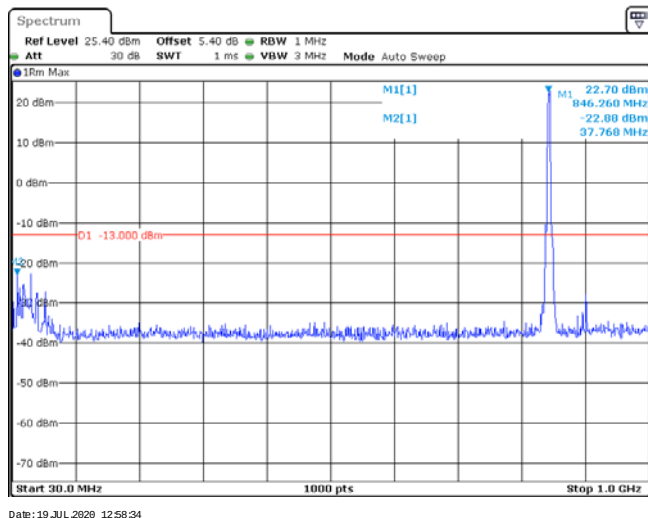
Band V_4233



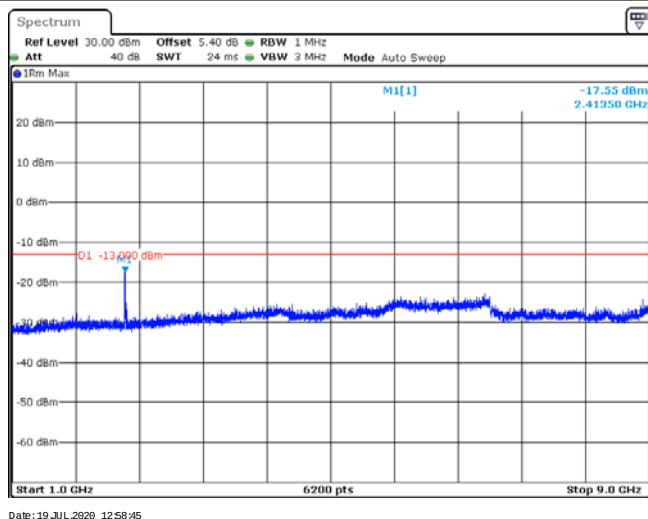
Band V_4233



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Band V_4233



Band V_4233



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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
52.0201	-72.56	-13.00	59.56	274	227	Vertical
110.6595	-65.46	-13.00	52.46	259	227	Vertical
692.4946	-62.80	-13.00	49.80	271	290	Vertical
2701.5403	-36.67	-13.00	23.67	145	24	Vertical
7459.6487	-54.91	-13.00	41.91	195	195	Vertical
17998.5000	-38.39	-13.00	25.39	271	259	Vertical
42.0771	-64.87	-13.00	51.87	271	195	Horizontal
237.7359	-67.98	-13.00	54.98	254	68	Horizontal
504.4992	-65.69	-13.00	52.69	195	227	Horizontal
2698.7397	-35.53	-13.00	22.53	281	283	Horizontal
7460.6487	-55.34	-13.00	42.34	263	36	Horizontal
16391.4464	-42.17	-13.00	29.17	227	354	Horizontal



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7.1.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
48.4794	-72.76	-13.00	59.76	198	139	Vertical
115.7523	-65.07	-13.00	52.07	271	171	Vertical
605.7238	-64.03	-13.00	51.03	148	70	Vertical
2691.9384	-36.52	-13.00	23.52	195	238	Vertical
7386.6462	-54.08	-13.00	41.08	174	359	Vertical
17991.9997	-38.34	-13.00	25.34	198	102	Vertical
44.7932	-64.43	-13.00	51.43	271	257	Horizontal
235.6503	-68.19	-13.00	55.19	259	162	Horizontal
570.2200	-63.61	-13.00	50.61	263	321	Horizontal
2700.7401	-35.52	-13.00	22.52	281	321	Horizontal
7443.1481	-55.10	-13.00	42.10	257	321	Horizontal
16394.4465	-42.35	-13.00	29.35	259	194	Horizontal

7.1.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
50.1285	-72.54	-13.00	59.54	184	99	Vertical
110.0775	-64.14	-13.00	51.14	195	99	Vertical
555.3298	-65.35	-13.00	52.35	178	290	Vertical
2694.7389	-36.64	-13.00	23.64	195	356	Vertical
7396.6466	-54.50	-13.00	41.50	168	258	Vertical
17999.5000	-38.35	-13.00	25.35	175	227	Vertical
42.9016	-64.43	-13.00	51.43	241	162	Horizontal
231.4791	-67.34	-13.00	54.34	285	352	Horizontal
464.5817	-67.85	-13.00	54.85	263	352	Horizontal
2700.3401	-35.43	-13.00	22.43	287	312	Horizontal
7480.6494	-55.38	-13.00	42.38	296	257	Horizontal
16392.4464	-42.62	-13.00	29.62	188	257	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
47.3639	-73.06	-13.00	60.06	198	353	Vertical
111.7751	-64.73	-13.00	51.73	175	226	Vertical
434.8982	-67.47	-13.00	54.47	195	67	Vertical
2853.1706	-51.88	-13.00	38.88	184	248	Vertical
7356.1452	-54.30	-13.00	41.30	162	4	Vertical
17999.0000	-38.00	-13.00	25.00	198	289	Vertical
42.6591	-64.12	-13.00	51.12	198	301	Horizontal
237.9299	-67.81	-13.00	54.81	175	36	Horizontal
1650.9302	-57.23	-13.00	44.23	165	150	Horizontal
2697.1394	-50.73	-13.00	37.73	194	274	Horizontal
8036.1679	-55.02	-13.00	42.02	185	333	Horizontal
15962.4321	-46.05	-13.00	33.05	192	142	Horizontal



7.2.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
48.3339	-72.75	-13.00	59.75	184	35	Vertical
118.0804	-64.48	-13.00	51.48	165	293	Vertical
399.0550	-67.70	-13.00	54.70	184	35	Vertical
2296.2593	-54.43	-13.00	41.43	195	19	Vertical
7466.1489	-54.40	-13.00	41.40	175	4	Vertical
17999.5000	-37.77	-13.00	24.77	198	262	Vertical
43.8232	-63.58	-13.00	50.58	195	36	Horizontal
238.7059	-68.01	-13.00	55.01	184	68	Horizontal
504.4992	-66.33	-13.00	53.33	194	353	Horizontal
2699.1398	-50.80	-13.00	37.80	198	321	Horizontal
7481.6494	-55.44	-13.00	42.44	175	353	Horizontal
16382.4461	-41.95	-13.00	28.95	196	290	Horizontal

7.2.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
44.8417	-72.99	-13.00	59.99	187	66	Vertical
102.6566	-64.54	-13.00	51.54	165	294	Vertical
453.5717	-66.92	-13.00	53.92	184	357	Vertical
2696.7393	-52.01	-13.00	39.01	159	187	Vertical
7364.1455	-54.78	-13.00	41.78	187	228	Vertical
17996.4999	-38.17	-13.00	25.17	196	357	Vertical
39.5065	-63.55	-13.00	50.55	184	130	Horizontal
241.5676	-67.79	-13.00	54.79	175	163	Horizontal
556.4938	-64.92	-13.00	51.92	196	36	Horizontal
2699.9400	-50.81	-13.00	37.81	184	102	Horizontal
7363.6455	-55.32	-13.00	42.32	195	99	Horizontal
16391.4464	-42.57	-13.00	29.57	178	36	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
Band II	9262	VL	TN	5.36	0.002894	±2.5	PASS
Band II	9262	VN	TN	4.88	0.002633	±2.5	PASS
Band II	9262	VH	TN	-3.59	-0.001938	±2.5	PASS
Band II	9400	VL	TN	-14.67	-0.007802	±2.5	PASS
Band II	9400	VN	TN	9.65	0.005135	±2.5	PASS
Band II	9400	VH	TN	-4.39	-0.002336	±2.5	PASS
Band II	9538	VL	TN	4.30	0.002256	±2.5	PASS
Band II	9538	VN	TN	-8.72	-0.004572	±2.5	PASS
Band II	9538	VH	TN	-1.60	-0.000838	±2.5	PASS
Band V	4132	VL	TN	-0.77	-0.000932	±2.5	PASS
Band V	4132	VN	TN	-1.43	-0.001733	±2.5	PASS
Band V	4132	VH	TN	-2.96	-0.003588	±2.5	PASS
Band V	4182	VL	TN	5.33	0.006376	±2.5	PASS
Band V	4182	VN	TN	-6.91	-0.008267	±2.5	PASS
Band V	4182	VH	TN	-3.92	-0.004685	±2.5	PASS
Band V	4233	VL	TN	3.12	0.003690	±2.5	PASS
Band V	4233	VN	TN	-1.85	-0.002185	±2.5	PASS
Band V	4233	VH	TN	-6.53	-0.007708	±2.5	PASS



8.2. Frequency Vs Temperature

Temperature							
BAND	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band II	9262	VN	-30	10.50	0.005668	±2.5	PASS
Band II	9262	VN	-20	-1.30	-0.000702	±2.5	PASS
Band II	9262	VN	-10	8.47	0.004571	±2.5	PASS
Band II	9262	VN	0	-6.05	-0.003267	±2.5	PASS
Band II	9262	VN	10	-10.73	-0.005791	±2.5	PASS
Band II	9262	VN	20	7.58	0.004093	±2.5	PASS
Band II	9262	VN	30	-7.07	-0.003817	±2.5	PASS
Band II	9262	VN	40	-5.80	-0.003129	±2.5	PASS
Band II	9262	VN	50	-1.15	-0.000620	±2.5	PASS
Band II	9400	VN	-30	-9.11	-0.004847	±2.5	PASS
Band II	9400	VN	-20	10.32	0.005491	±2.5	PASS
Band II	9400	VN	-10	-11.42	-0.006074	±2.5	PASS
Band II	9400	VN	0	14.89	0.007920	±2.5	PASS
Band II	9400	VN	10	-12.93	-0.006880	±2.5	PASS
Band II	9400	VN	20	2.68	0.001423	±2.5	PASS
Band II	9400	VN	30	11.70	0.006222	±2.5	PASS
Band II	9400	VN	40	-4.59	-0.002443	±2.5	PASS
Band II	9400	VN	50	5.90	0.003138	±2.5	PASS
Band II	9538	VN	-30	-6.74	-0.003531	±2.5	PASS
Band II	9538	VN	-20	0.32	0.000167	±2.5	PASS
Band II	9538	VN	-10	2.08	0.001093	±2.5	PASS
Band II	9538	VN	0	-5.78	-0.003032	±2.5	PASS
Band II	9538	VN	10	-8.52	-0.004464	±2.5	PASS
Band II	9538	VN	20	9.52	0.004988	±2.5	PASS
Band II	9538	VN	30	-9.19	-0.004820	±2.5	PASS
Band II	9538	VN	40	-6.67	-0.003495	±2.5	PASS
Band II	9538	VN	50	-4.82	-0.002527	±2.5	PASS
Band V	4132	VN	-30	-3.02	-0.003659	±2.5	PASS
Band V	4132	VN	-20	12.53	0.015158	±2.5	PASS
Band V	4132	VN	-10	-10.94	-0.013239	±2.5	PASS
Band V	4132	VN	0	-12.44	-0.015050	±2.5	PASS
Band V	4132	VN	10	1.19	0.001446	±2.5	PASS



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Band V	4132	VN	20	-7.99	-0.009669	±2.5	PASS
Band V	4132	VN	30	12.26	0.014838	±2.5	PASS
Band V	4132	VN	40	2.74	0.003315	±2.5	PASS
Band V	4132	VN	50	-9.30	-0.011248	±2.5	PASS
Band V	4182	VN	-30	-6.07	-0.007255	±2.5	PASS
Band V	4182	VN	-20	-10.91	-0.013040	±2.5	PASS
Band V	4182	VN	-10	-6.43	-0.007692	±2.5	PASS
Band V	4182	VN	0	1.76	0.002106	±2.5	PASS
Band V	4182	VN	10	4.37	0.005220	±2.5	PASS
Band V	4182	VN	20	3.44	0.004117	±2.5	PASS
Band V	4182	VN	30	7.57	0.009051	±2.5	PASS
Band V	4182	VN	40	1.20	0.001439	±2.5	PASS
Band V	4182	VN	50	-6.96	-0.008317	±2.5	PASS
Band V	4233	VN	-30	-11.97	-0.014136	±2.5	PASS
Band V	4233	VN	-20	4.49	0.005300	±2.5	PASS
Band V	4233	VN	-10	10.49	0.012388	±2.5	PASS
Band V	4233	VN	0	-14.44	-0.017053	±2.5	PASS
Band V	4233	VN	10	-2.48	-0.002925	±2.5	PASS
Band V	4233	VN	20	0.33	0.000396	±2.5	PASS
Band V	4233	VN	30	3.99	0.004717	±2.5	PASS
Band V	4233	VN	40	13.29	0.015695	±2.5	PASS
Band V	4233	VN	50	2.56	0.003025	±2.5	PASS

The End

