

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	23.66	22.16	33.00	PASS
Band II	9400	23.47	21.97	33.00	PASS
Band II	9538	23.41	21.91	33.00	PASS

BAND	Channel	Conducted Power(dBm)	ERP(dBm)	Limit(dBm)	Verdict
Band V	4132	23.10	18.75	38.45	PASS
Band V	4182	23.84	19.49	38.45	PASS
Band V	4233	23.84	19.49	38.45	PASS

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

ERP [dBm] = Conducted Power [dBm] + Gain [dBd]

EIRP [dBm] = Conducted Power [dBm] + Gain [dBi]



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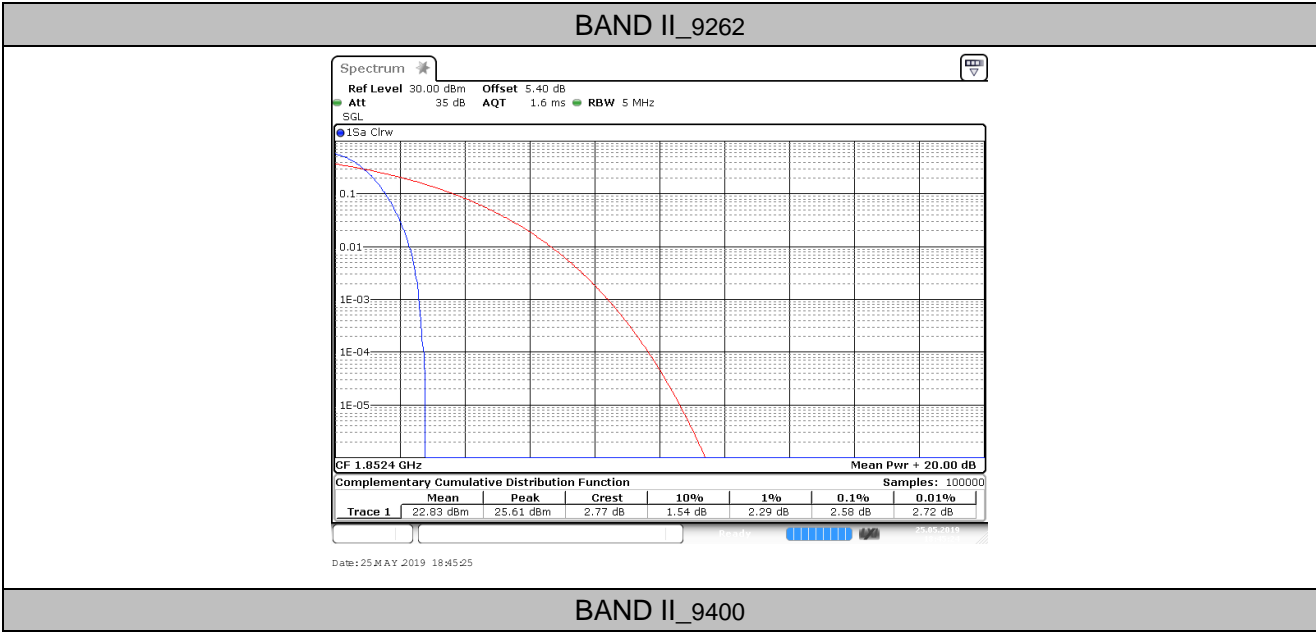
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2. Peak-to-Average Ratio(CCDF)

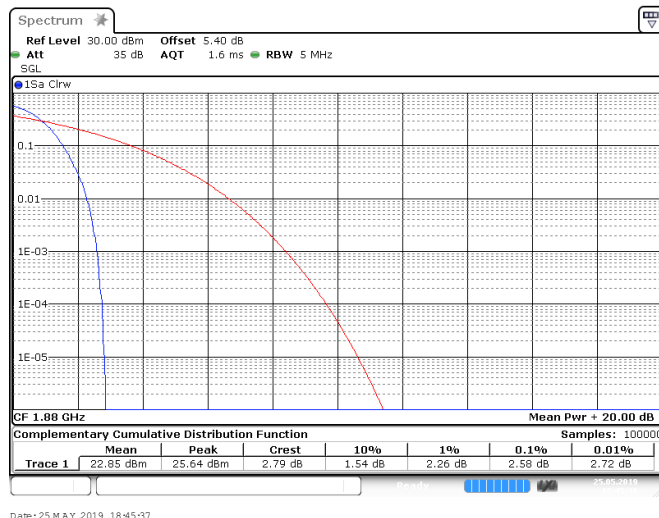
2.1. Test Result

BAND	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
Band II	9262	2.58	13	PASS
Band II	9400	2.58	13	PASS
Band II	9538	2.35	13	PASS
Band V	4132	2.58	13	PASS
Band V	4182	2.61	13	PASS
Band V	4233	2.52	13	PASS

2.2. Test Plots

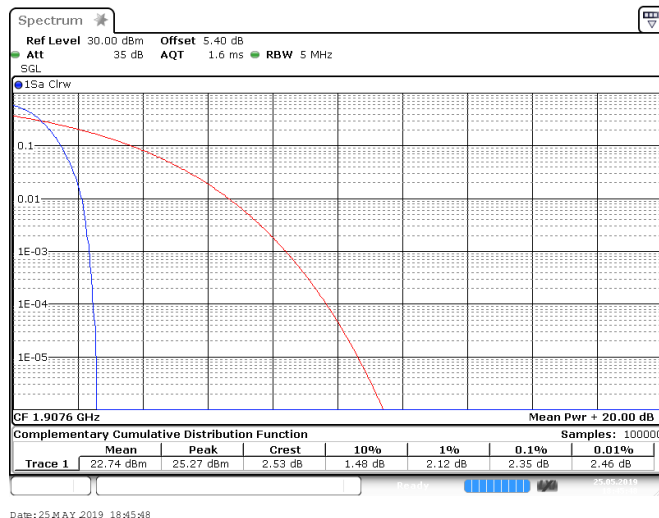


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Date: 25 MAY 2019 18:45:37

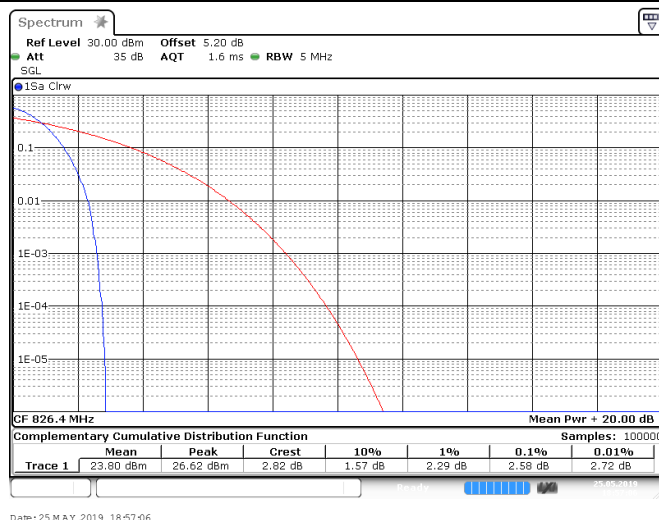
BAND II_9538



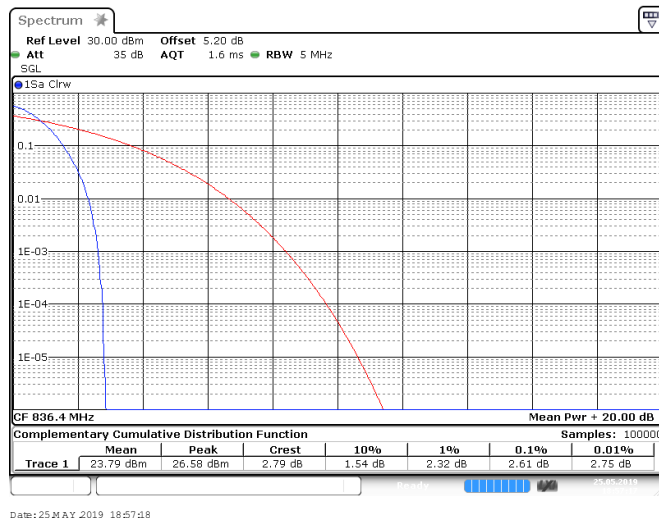
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BAND V_4132



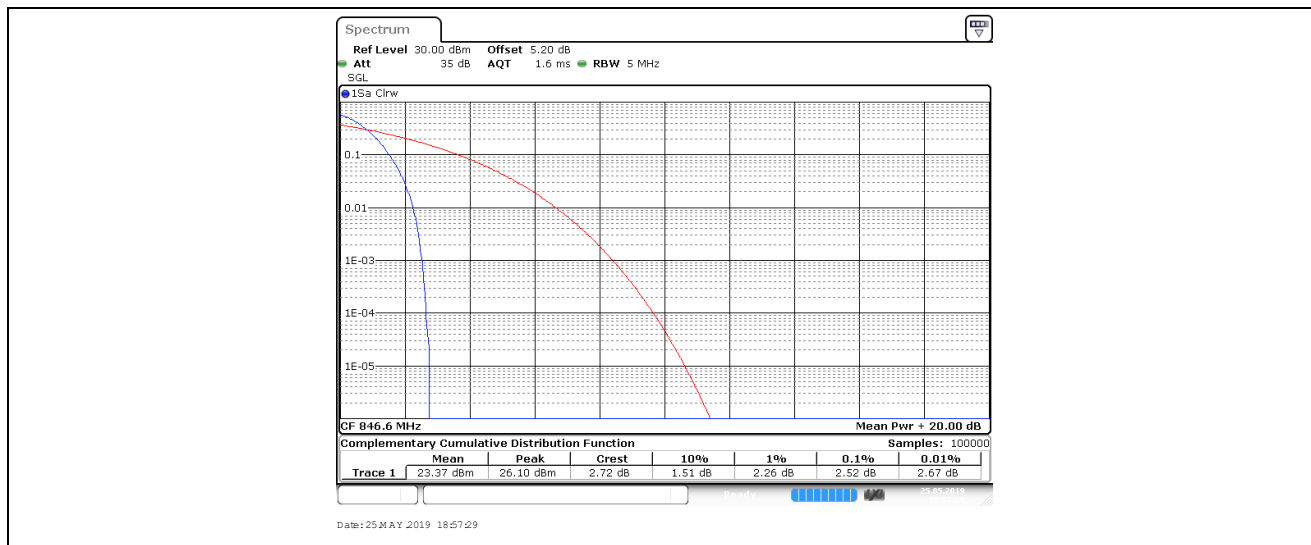


BAND V_4182



BAND V_4233





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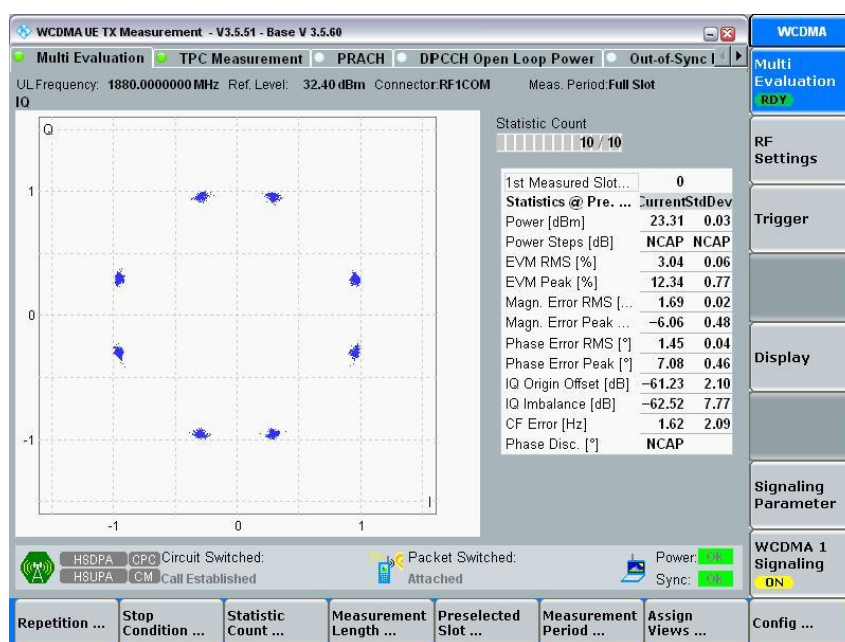
3. Modulation Characteristics

3.1. Test BAND = LTE Band 2

3.2. Test BAND = WCDMA BAND II

3.2.1. Test Mode = UMTS/TM1

3.2.1.1. Test Channel = MCH

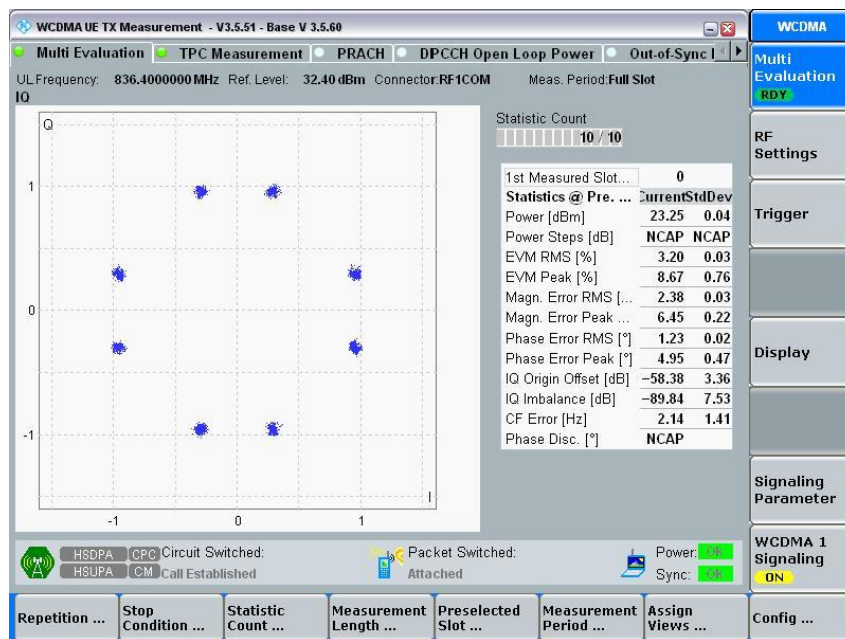


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3.3. Test BAND = WCDMA BAND V

3.3.1. Test Mode = UMTS/TM1

3.3.1.1. Test Channel = MCH



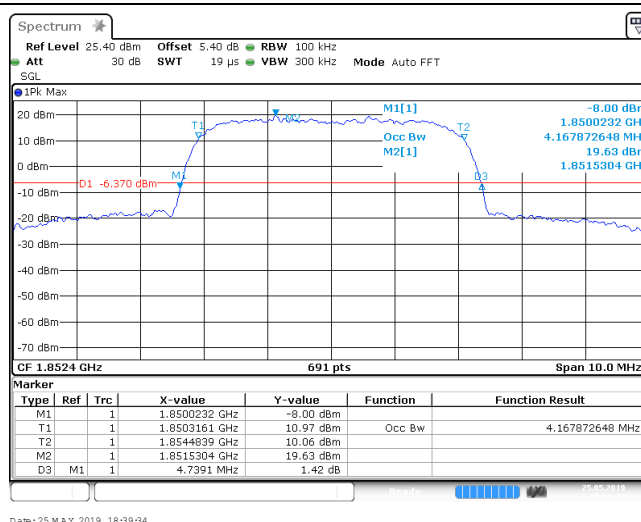


4. 26dB Bandwidth and Occupied Bandwidth

4.1. Test Result

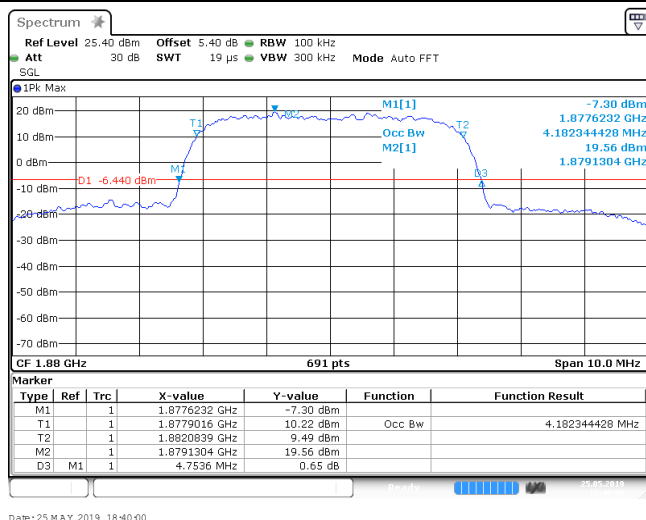
BAND	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit(kHz)	Verdict
Band II	9262	4167.9	4739	---	PASS
Band II	9400	4182.3	4754	---	PASS
Band II	9538	4182.3	4783	---	PASS
Band V	4132	4153.4	4725	---	PASS
Band V	4182	4138.9	4725	---	PASS
Band V	4233	4138.9	4710	---	PASS

4.2. Test Plots

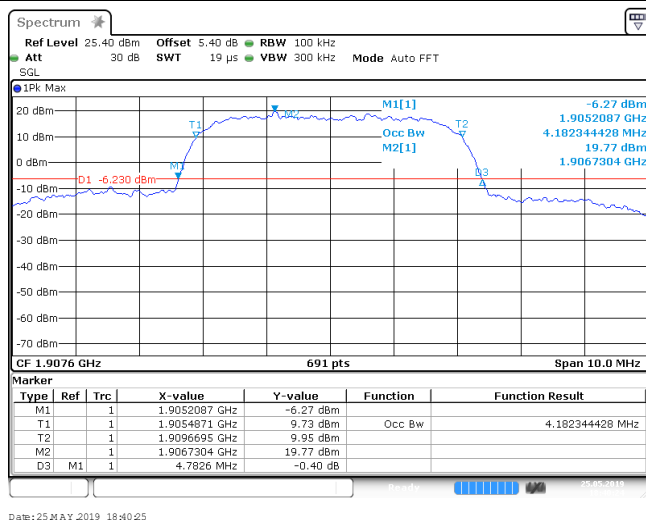


Band II_9262





Band II_9400

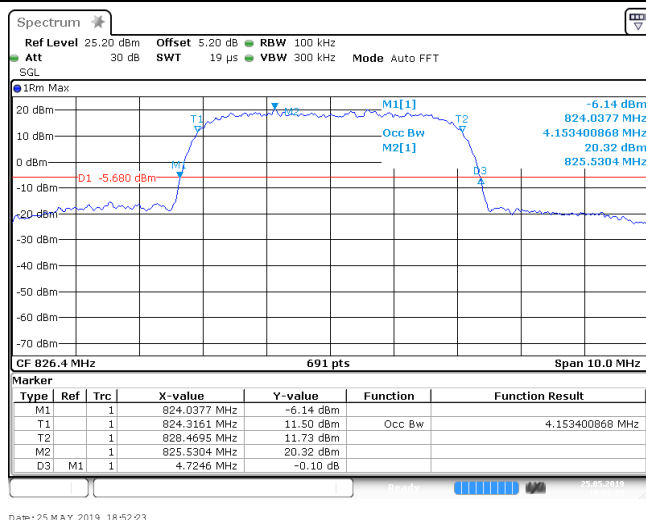


Band II_9538

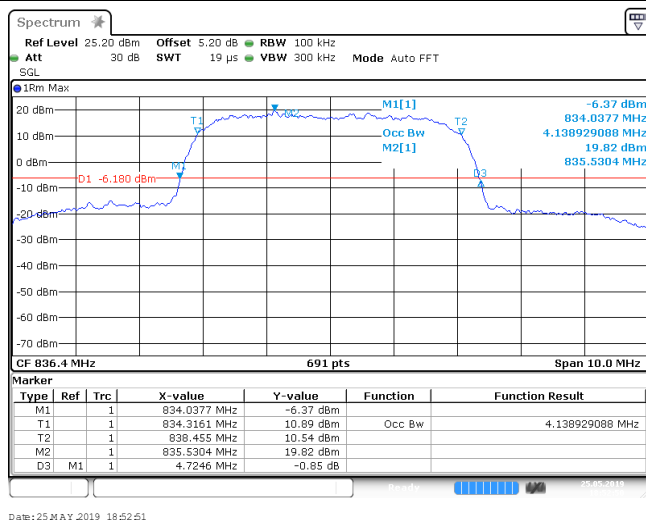


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Band V_4132

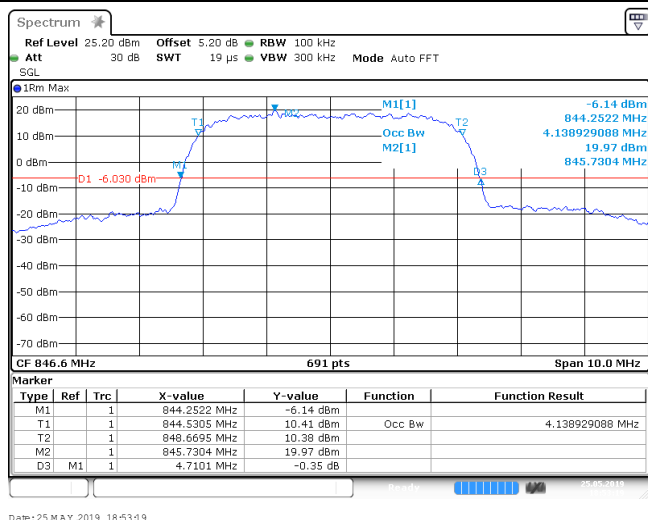


Band V_4182



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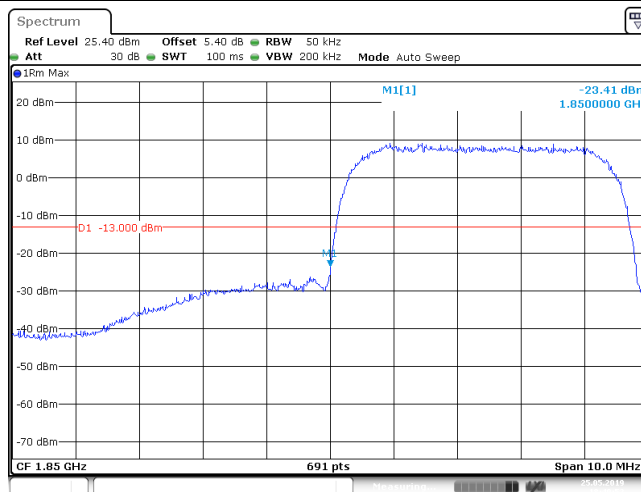


Band V_4233



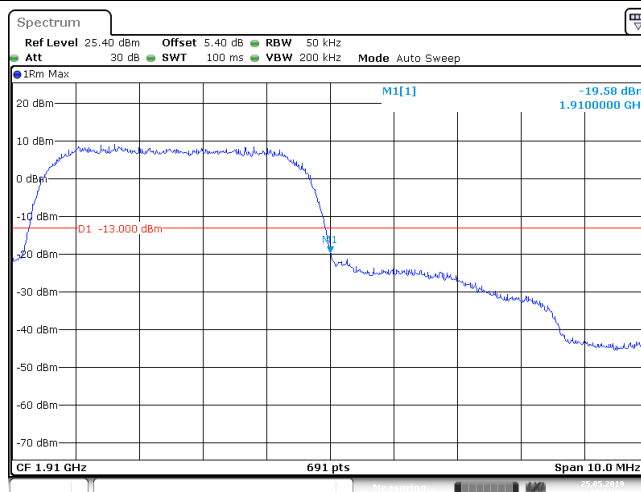
5. Band Edge Compliance

5.1. Test Plots



Date: 25 MAY 2019 18:40:52

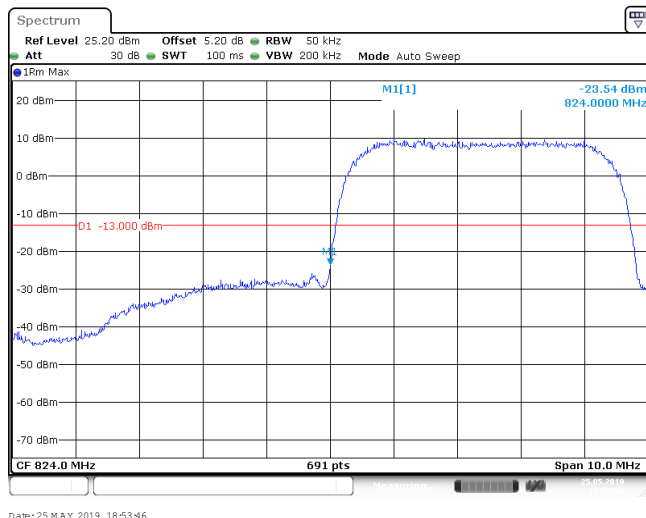
Band II_9262



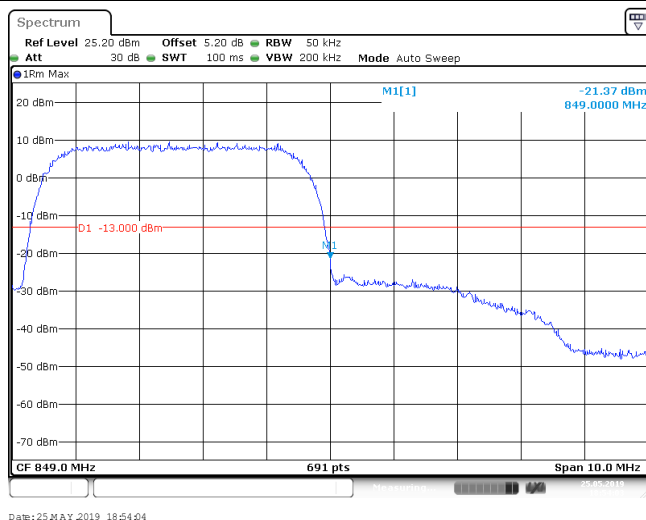
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Band II_9538





Band V_4132



Band V_4233

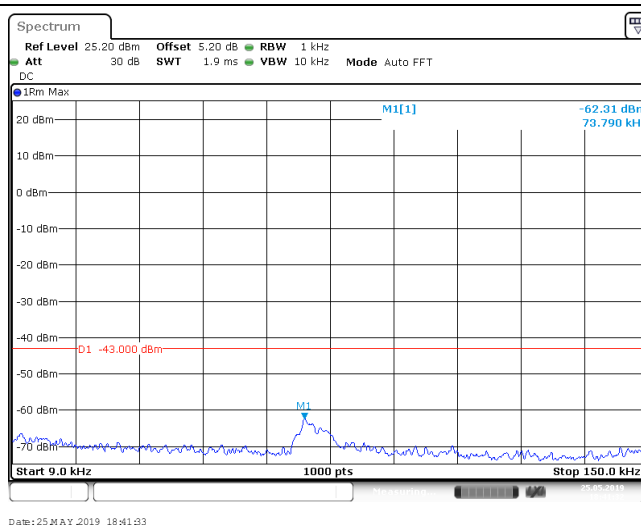


6. Spurious Emission at Antenna Terminal

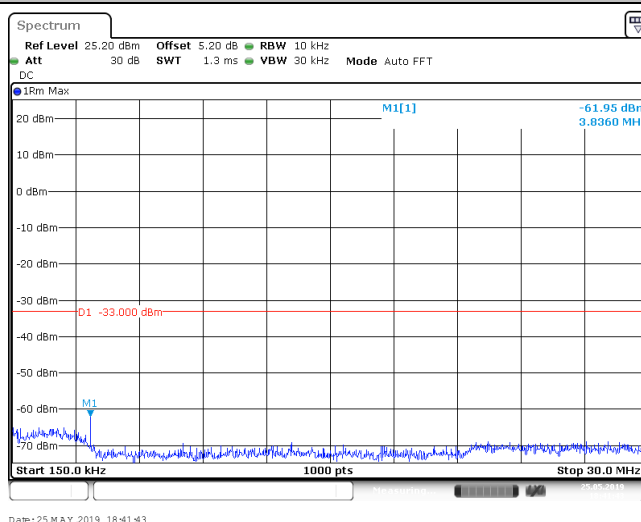
Remark1: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of $< RBW/2$ so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points =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

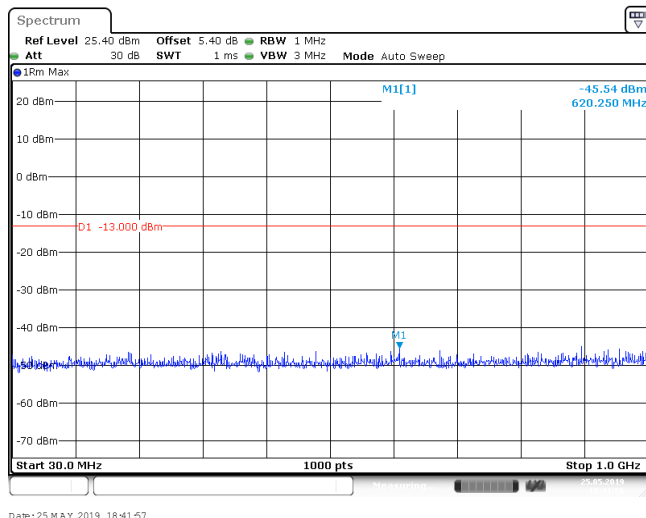


Band II_9262

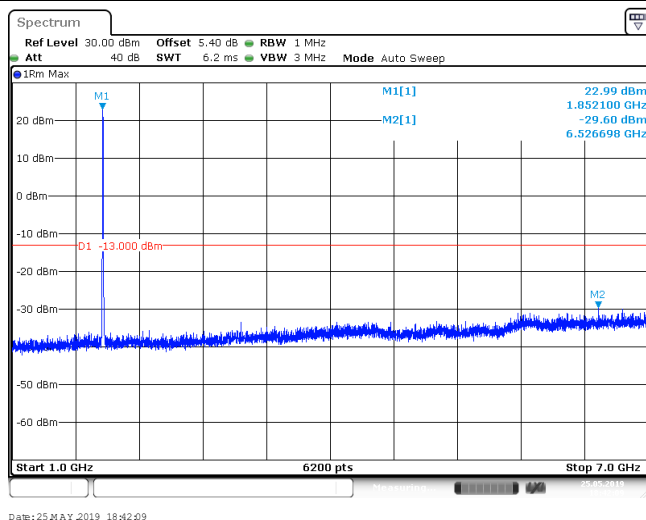


Band II_9262





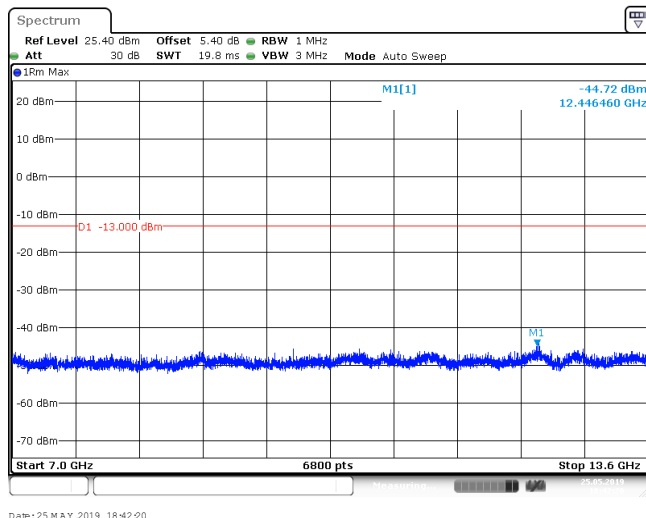
Band II_9262



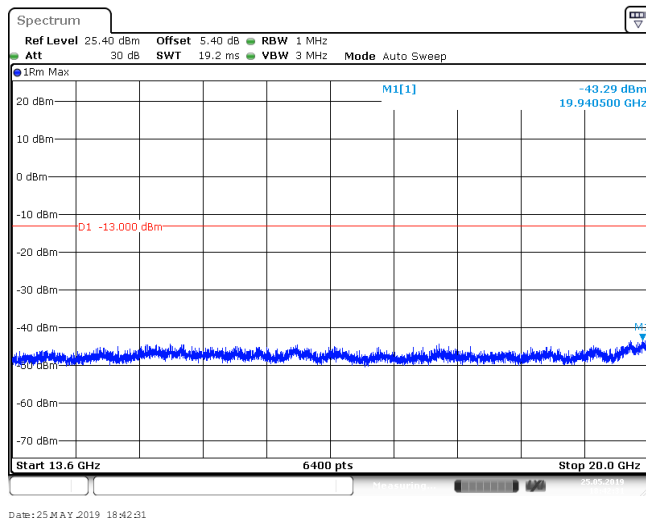
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Band II_9262



Band II_9262

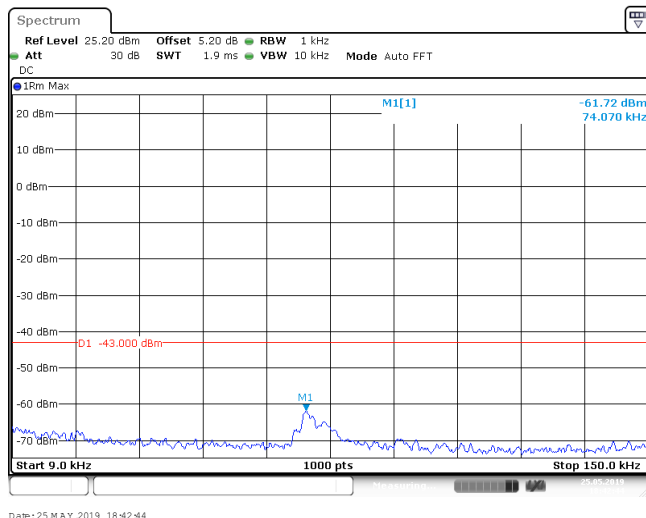


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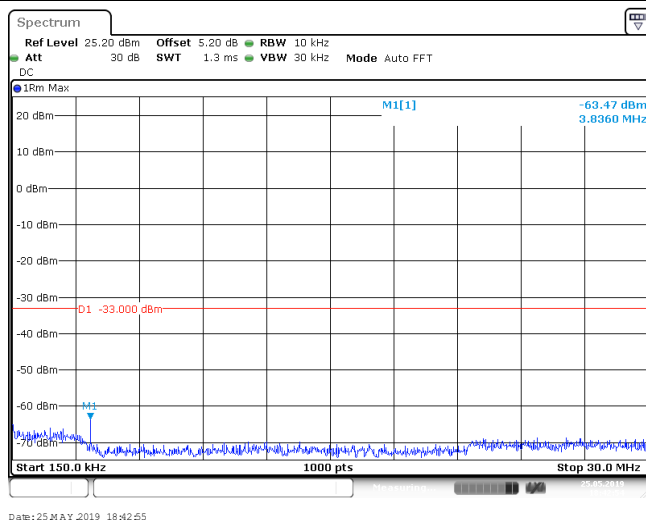
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Band II_9400

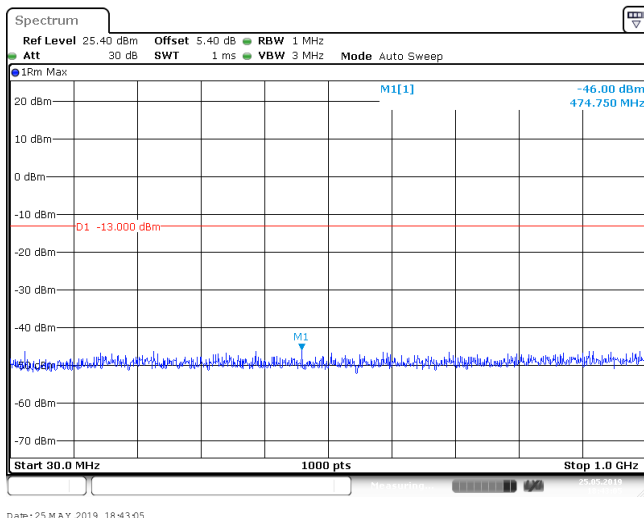


Band II_9400

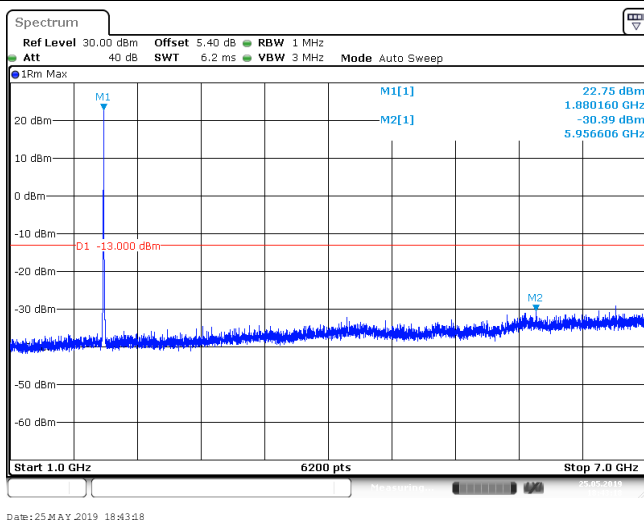


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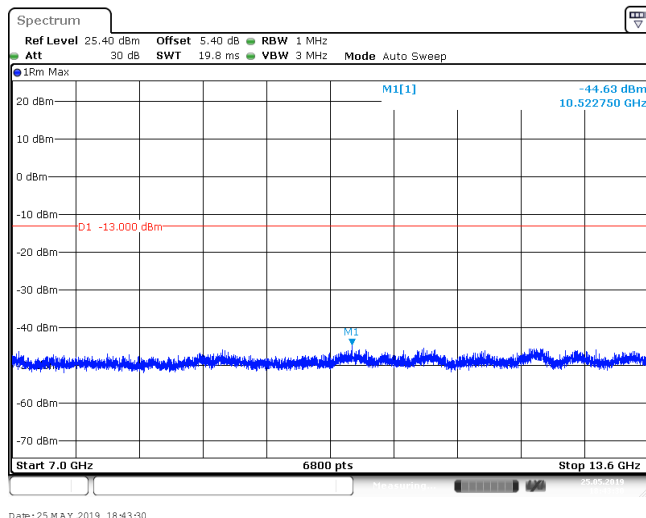
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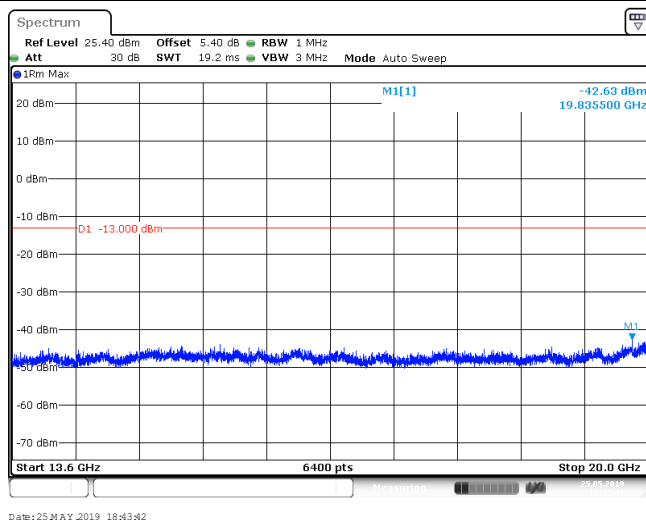
Band II_9400



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Band II_9400

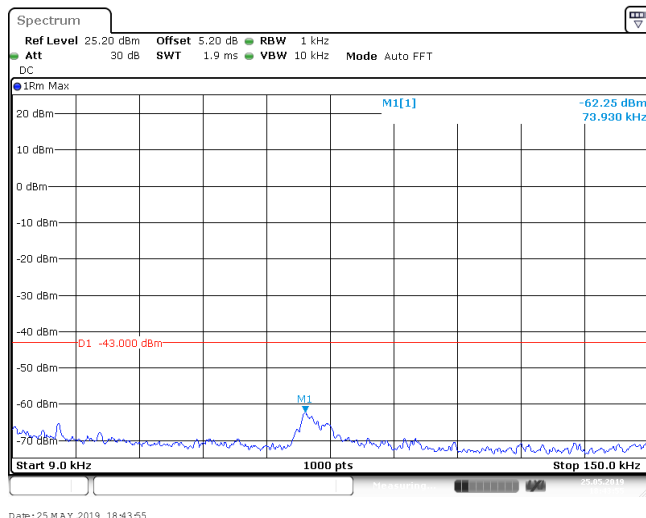


Band II_9400

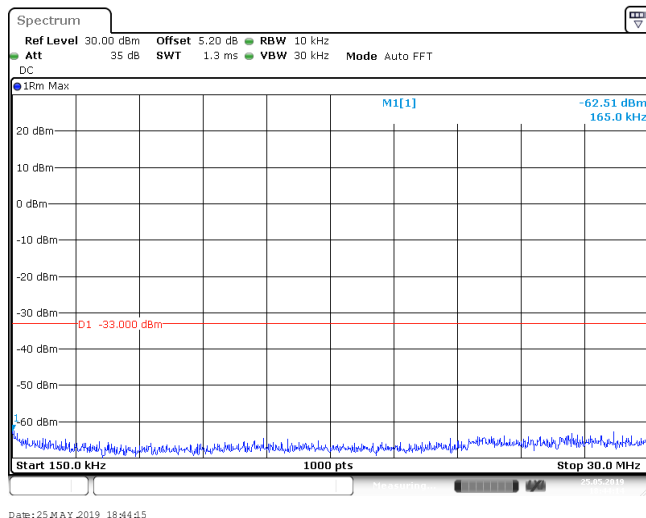


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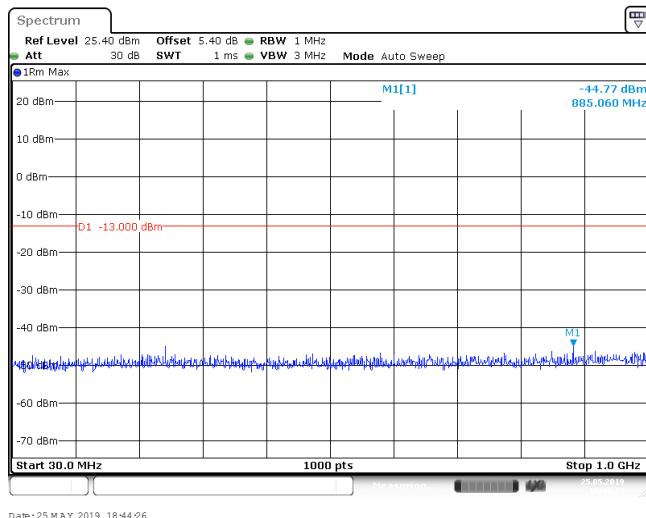


Band II_9538

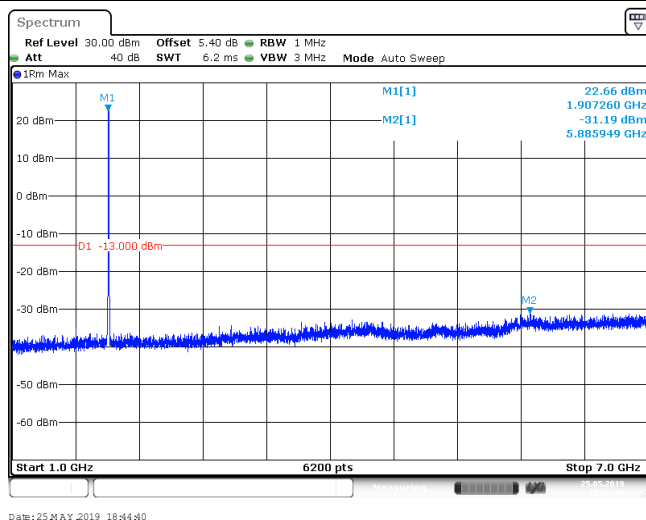


Band II_9538



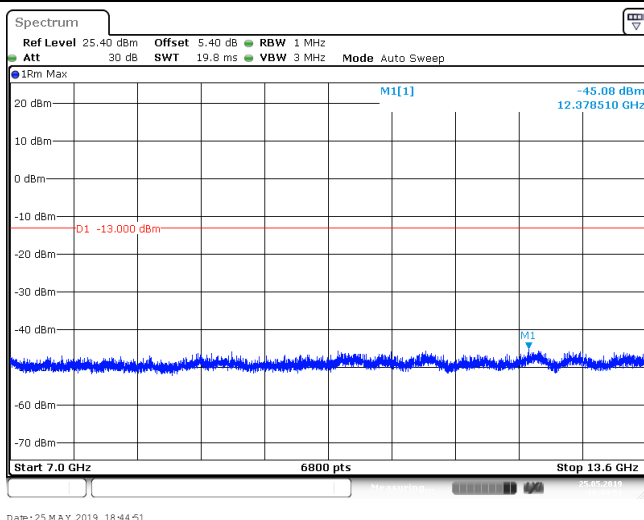


Band II_9538

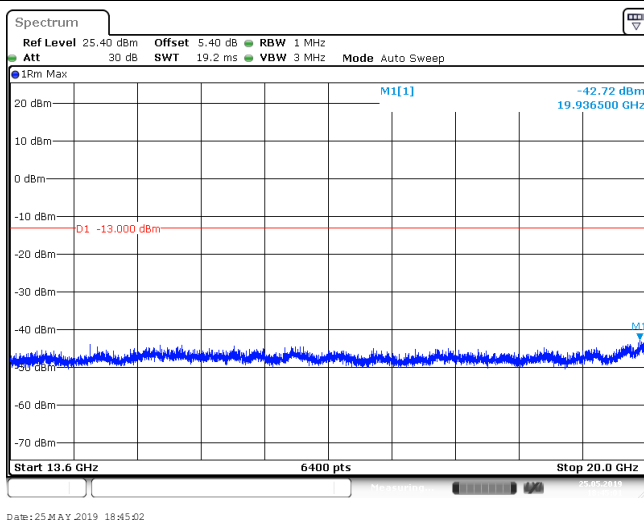


Band II_9538





Band II_9538

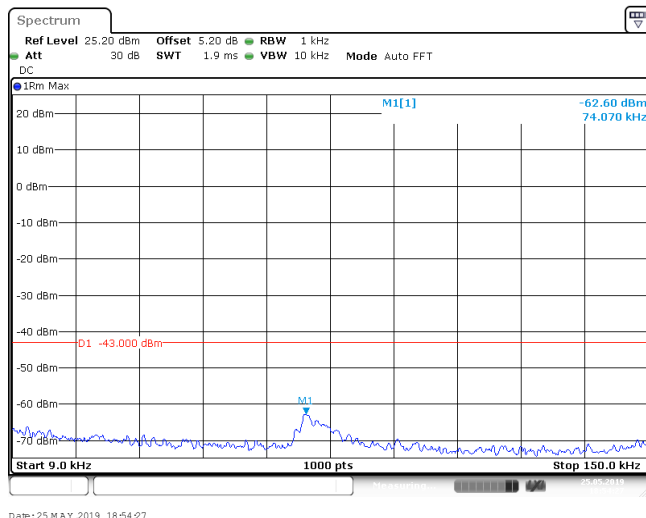


Band II_9538

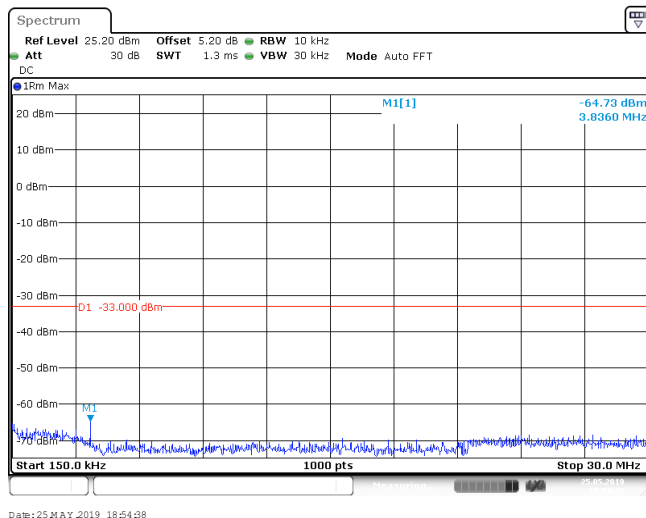


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Band V_4132



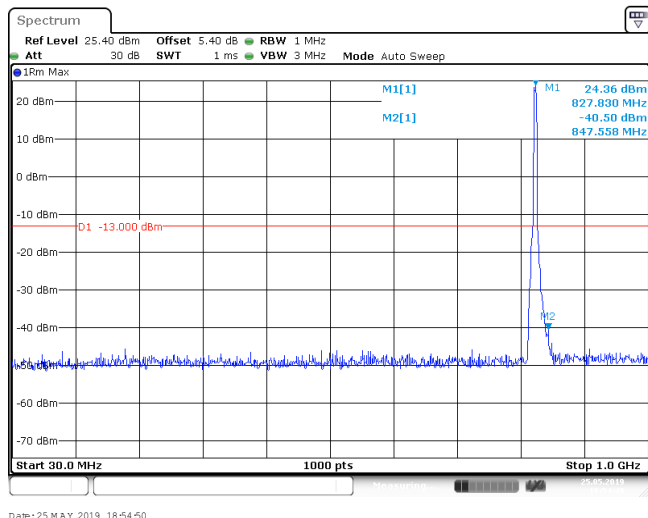
Band V_4132



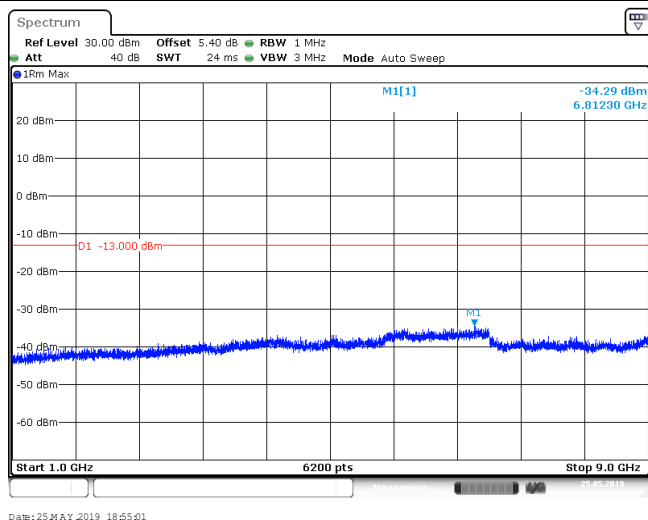
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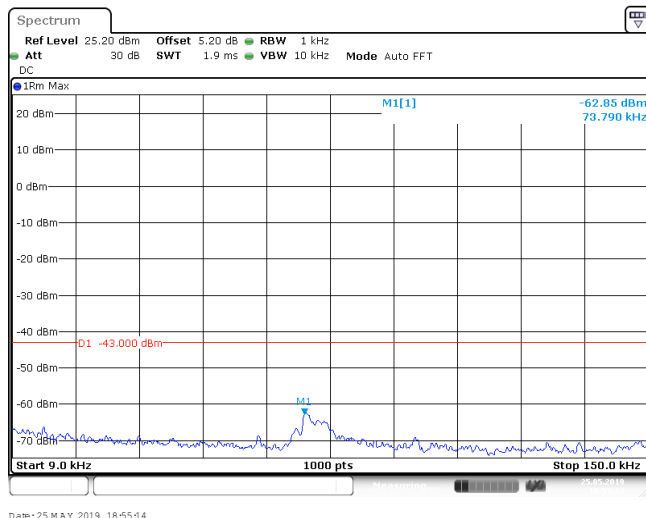


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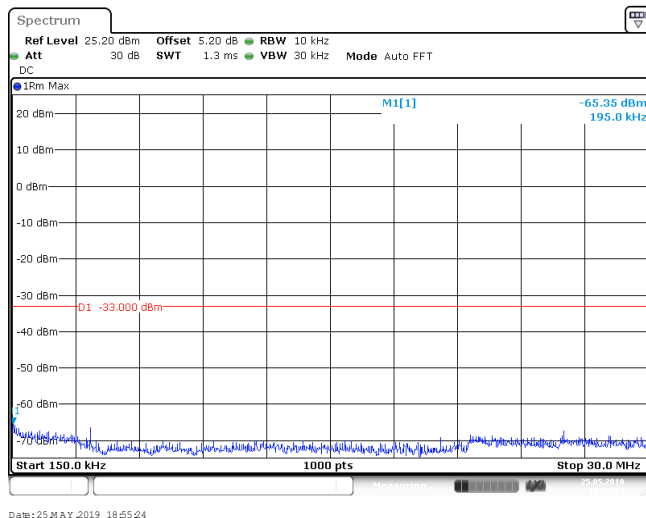


Band V_4132



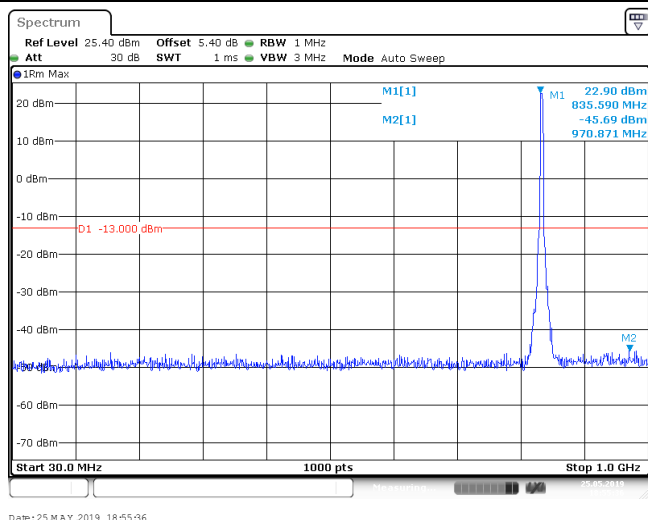


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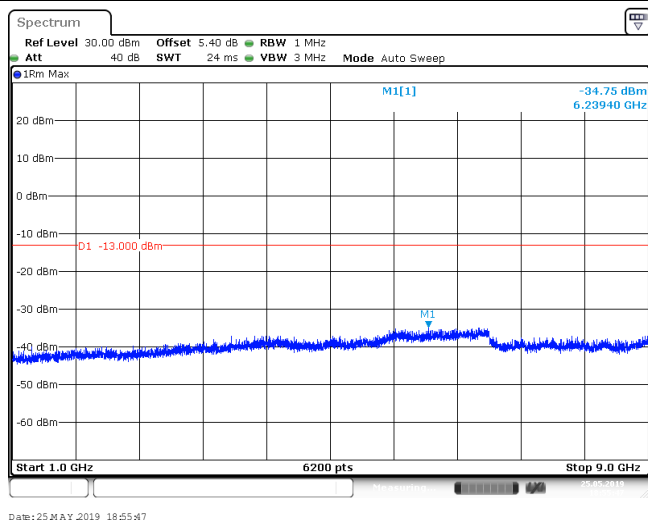


Band V_4182



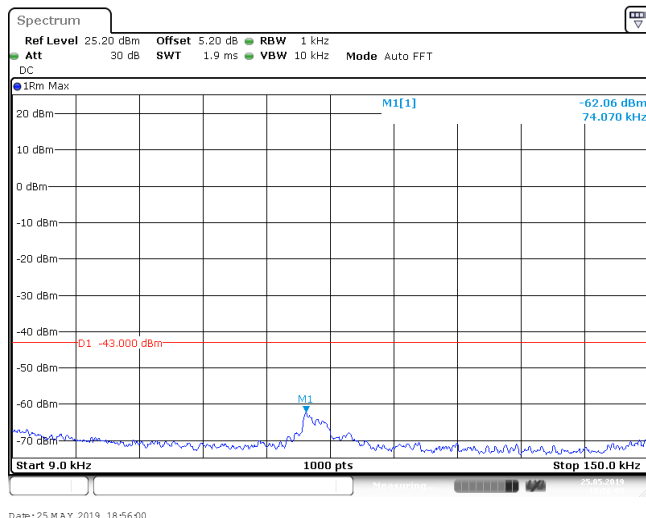


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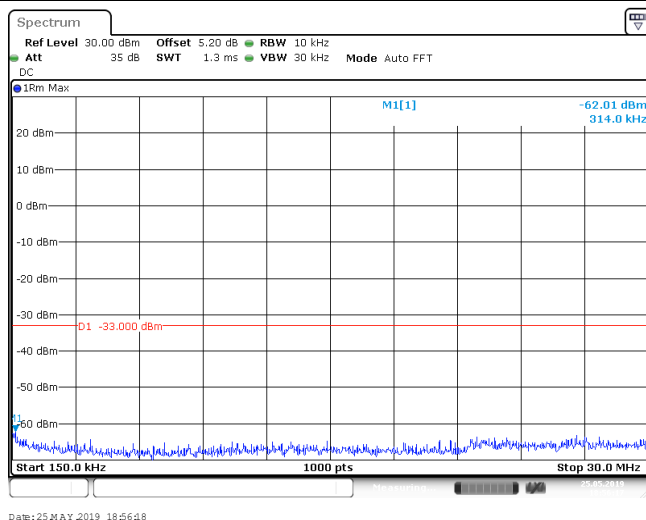


Band V_4182



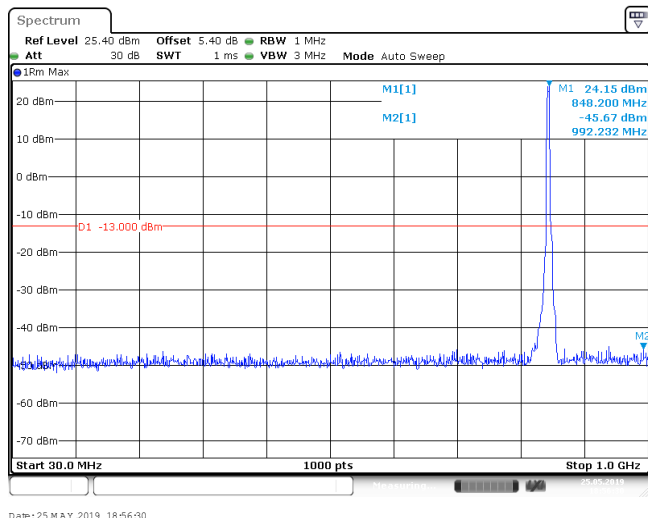


Band V_4233

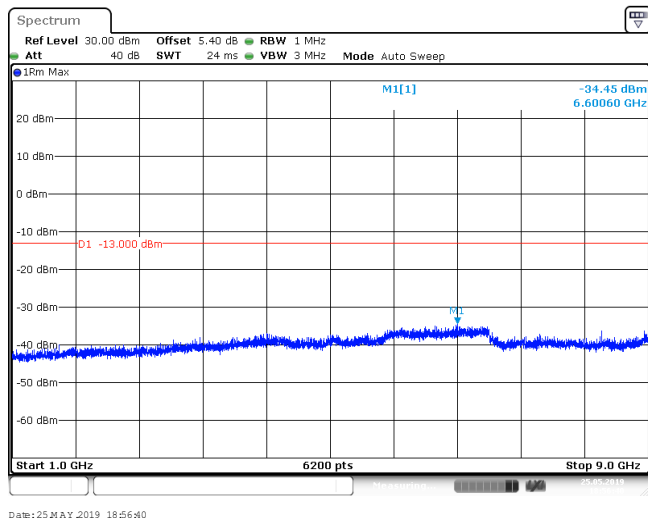


Band V_4233





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)	Polarization
44.3567	-69.05	-13.00	56.05	Vertical
115.6553	-64.21	-13.00	51.21	Vertical
2699.9400	-36.58	-13.00	23.58	Vertical
7414.1471	-51.57	-13.00	38.57	Vertical
14696.8899	-42.20	-13.00	29.20	Vertical
17920.4974	-34.88	-13.00	21.88	Vertical
45.8118	-62.58	-13.00	49.58	Horizontal
620.6625	-62.87	-13.00	49.87	Horizontal
2700.7401	-35.42	-13.00	22.42	Horizontal
3706.5236	-54.67	-13.00	41.67	Horizontal
7392.1464	-52.93	-13.00	39.93	Horizontal
16397.9466	-38.19	-13.00	25.19	Horizontal

7.1.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
41.3011	-70.31	-13.00	57.31	Vertical
114.1517	-64.99	-13.00	51.99	Vertical
2702.7405	-36.59	-13.00	23.59	Vertical
3762.0254	-55.40	-13.00	42.40	Vertical
5637.0879	-53.93	-13.00	40.93	Vertical
17996.9999	-32.82	-13.00	19.82	Vertical
43.3382	-63.29	-13.00	50.29	Horizontal
231.2366	-68.48	-13.00	55.48	Horizontal
2697.5395	-35.37	-13.00	22.37	Horizontal
3762.0254	-53.65	-13.00	40.65	Horizontal
7515.1505	-51.47	-13.00	38.47	Horizontal
16392.9464	-38.30	-13.00	25.30	Horizontal



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7.1.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
41.2526	-69.45	-13.00	56.45	Vertical
110.9991	-64.81	-13.00	51.81	Vertical
2694.7389	-36.59	-13.00	23.59	Vertical
3813.5271	-55.63	-13.00	42.63	Vertical
5720.0907	-53.34	-13.00	40.34	Vertical
17796.4932	-36.54	-13.00	23.54	Vertical
46.1998	-63.12	-13.00	50.12	Horizontal
233.3222	-67.17	-13.00	54.17	Horizontal
2701.5403	-35.23	-13.00	22.23	Horizontal
3816.5272	-52.95	-13.00	39.95	Horizontal
5725.5909	-51.15	-13.00	38.15	Horizontal
16389.9463	-38.19	-13.00	25.19	Horizontal

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)	Polarization
45.6663	-69.25	-13.00	56.25	Vertical
110.8535	-65.06	-13.00	52.06	Vertical
534.0857	-66.16	-13.00	53.16	Vertical
2457.4915	-56.64	-13.00	43.64	Vertical
14704.8902	-42.12	-13.00	29.12	Vertical
17996.9999	-32.98	-13.00	19.98	Vertical
44.3567	-61.65	-13.00	48.65	Horizontal
242.5376	-67.63	-13.00	54.63	Horizontal
1650.5301	-62.61	-13.00	49.61	Horizontal
2423.8848	-53.09	-13.00	40.09	Horizontal
16392.4464	-37.10	-13.00	24.10	Horizontal



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7.2.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
43.0957	-69.84	-13.00	56.84	Vertical
109.0590	-64.11	-13.00	51.11	Vertical
1923.3847	-51.65	-13.00	38.65	Vertical
8058.1686	-51.95	-13.00	38.95	Vertical
17991.4997	-32.76	-13.00	19.76	Vertical
44.1142	-63.39	-13.00	50.39	Horizontal
250.9285	-68.46	-13.00	55.46	Horizontal
1674.5349	-59.23	-13.00	46.23	Horizontal
7490.6497	-53.08	-13.00	40.08	Horizontal
16400.9467	-37.69	-13.00	24.69	Horizontal

7.2.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
43.6292	-71.52	-13.00	58.52	Vertical
112.2116	-64.65	-13.00	51.65	Vertical
1886.5773	-51.75	-13.00	38.75	Vertical
2444.2889	-38.91	-13.00	25.91	Vertical
14630.3877	-42.31	-13.00	29.31	Vertical
17999.0000	-32.66	-13.00	19.66	Vertical
45.6663	-61.30	-13.00	48.30	Horizontal
234.3892	-68.06	-13.00	55.06	Horizontal
1694.5389	-61.42	-13.00	48.42	Horizontal
2697.5395	-55.19	-13.00	42.19	Horizontal
7478.1493	-52.63	-13.00	39.63	Horizontal
16387.9463	-38.00	-13.00	25.00	Horizontal

Remark:

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.

We have tested all modulation and all Bandwidth , but only the worst case data presented in this report.





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	-1.87	-0.001008	±2.5	PASS
Band II	9262	VN	TN	-2.09	-0.001127	±2.5	PASS
Band II	9262	VH	TN	-3.12	-0.001683	±2.5	PASS
Band II	9400	VL	TN	3.15	0.001678	±2.5	PASS
Band II	9400	VN	TN	-0.69	-0.000365	±2.5	PASS
Band II	9400	VH	TN	-2.17	-0.001157	±2.5	PASS
Band II	9538	VL	TN	1.24	0.000652	±2.5	PASS
Band II	9538	VN	TN	1.33	0.000697	±2.5	PASS
Band II	9538	VH	TN	-0.68	-0.000356	±2.5	PASS
Band V	4132	VL	TN	-2.83	-0.003419	±2.5	PASS
Band V	4132	VN	TN	-1.88	-0.002276	±2.5	PASS
Band V	4132	VH	TN	-1.49	-0.001800	±2.5	PASS
Band V	4182	VL	TN	-0.87	-0.001043	±2.5	PASS
Band V	4182	VN	TN	-0.09	-0.000103	±2.5	PASS
Band V	4182	VH	TN	2.91	0.003481	±2.5	PASS
Band V	4233	VL	TN	1.07	0.001267	±2.5	PASS
Band V	4233	VN	TN	0.92	0.001090	±2.5	PASS
Band V	4233	VH	TN	-1.10	-0.001301	±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	-0.78	-0.000421	±2.5	PASS
Band II	9262	VN	-20	-0.87	-0.000467	±2.5	PASS
Band II	9262	VN	-10	1.03	0.000556	±2.5	PASS
Band II	9262	VN	0	0.72	0.000390	±2.5	PASS
Band II	9262	VN	10	0.50	0.000270	±2.5	PASS
Band II	9262	VN	20	-4.18	-0.002259	±2.5	PASS
Band II	9262	VN	30	1.32	0.000710	±2.5	PASS
Band II	9262	VN	40	-1.14	-0.000618	±2.5	PASS



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Band II	9262	VN	50	-3.31	-0.001788	±2.5	PASS
Band II	9400	VN	-30	0.70	0.000373	±2.5	PASS
Band II	9400	VN	-20	-0.16	-0.000084	±2.5	PASS
Band II	9400	VN	-10	-1.14	-0.000605	±2.5	PASS
Band II	9400	VN	0	-0.46	-0.000247	±2.5	PASS
Band II	9400	VN	10	0.68	0.000361	±2.5	PASS
Band II	9400	VN	20	2.24	0.001191	±2.5	PASS
Band II	9400	VN	30	1.42	0.000753	±2.5	PASS
Band II	9400	VN	40	2.18	0.001160	±2.5	PASS
Band II	9400	VN	50	-0.29	-0.000156	±2.5	PASS
Band II	9538	VN	-30	2.73	0.001432	±2.5	PASS
Band II	9538	VN	-20	2.45	0.001282	±2.5	PASS
Band II	9538	VN	-10	2.30	0.001204	±2.5	PASS
Band II	9538	VN	0	-2.45	-0.001282	±2.5	PASS
Band II	9538	VN	10	0.95	0.000499	±2.5	PASS
Band II	9538	VN	20	0.31	0.000161	±2.5	PASS
Band II	9538	VN	30	-2.81	-0.001474	±2.5	PASS
Band II	9538	VN	40	1.08	0.000566	±2.5	PASS
Band II	9538	VN	50	2.44	0.001279	±2.5	PASS
Band V	4132	VN	-30	-3.61	-0.004371	±2.5	PASS
Band V	4132	VN	-20	-1.33	-0.001610	±2.5	PASS
Band V	4132	VN	-10	-1.67	-0.002025	±2.5	PASS
Band V	4132	VN	0	-3.45	-0.004180	±2.5	PASS
Band V	4132	VN	10	-2.91	-0.003523	±2.5	PASS
Band V	4132	VN	20	-1.49	-0.001800	±2.5	PASS
Band V	4132	VN	30	-1.74	-0.002103	±2.5	PASS
Band V	4132	VN	40	-1.84	-0.002224	±2.5	PASS
Band V	4132	VN	50	-3.58	-0.004328	±2.5	PASS
Band V	4182	VN	-30	2.05	0.002446	±2.5	PASS
Band V	4182	VN	-20	-1.62	-0.001933	±2.5	PASS
Band V	4182	VN	-10	0.07	0.000086	±2.5	PASS
Band V	4182	VN	0	-1.03	-0.001231	±2.5	PASS
Band V	4182	VN	10	-0.27	-0.000325	±2.5	PASS
Band V	4182	VN	20	0.74	0.000881	±2.5	PASS
Band V	4182	VN	30	0.06	0.000068	±2.5	PASS
Band V	4182	VN	40	0.66	0.000787	±2.5	PASS
Band V	4182	VN	50	3.78	0.004524	±2.5	PASS
Band V	4233	VN	-30	1.02	0.001200	±2.5	PASS



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Band V	4233	VN	-20	0.11	0.000127	±2.5	PASS
Band V	4233	VN	-10	0.95	0.001124	±2.5	PASS
Band V	4233	VN	0	3.47	0.004098	±2.5	PASS
Band V	4233	VN	10	0.84	0.000988	±2.5	PASS
Band V	4233	VN	20	0.59	0.000693	±2.5	PASS
Band V	4233	VN	30	-0.43	-0.000507	±2.5	PASS
Band V	4233	VN	40	1.03	0.001217	±2.5	PASS
Band V	4233	VN	50	1.40	0.001656	±2.5	PASS

The End



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