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Appendix B

WCDMA Band2&4&5



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1. Appendix A: Effective (Isotropic) Radiated Power Output Data

1.1.Test Result

Band	Channel	Power(dBm)	EIRP(dBm)	Limit(dBm)	Verdict
Band II	9262	22.74	25.74	33	PASS
Band II	9400	22.77	25.77	33	PASS
Band II	9538	22.77	25.77	33	PASS

Band	Channel	Power(dBm)	EIRP(dBm)	Limit(dBm)	Verdict
Band IV	1312	23.28	26.28	30	PASS
Band IV	1413	23.23	26.23	30	PASS
Band IV	1513	23.38	26.38	30	PASS

Band	Channel	Power(dBm)	ERP(dBm)	Limit(dBm)	Verdict
Band V	4132	23.29	24.14	38.5	PASS
Band V	4182	23.47	24.32	38.5	PASS
Band V	4233	23.40	24.25	38.5	PASS

Note:

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

EIRP [dBm] = SGP [dBm] - Cable Loss [dB] + Gain [dBi]

ERP [dBm] = SGP [dBm] - Cable Loss [dB] + Gain [dBd]

b: SGP=Signal Generator Level



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2. Appendix B: Peak-to-Average Ratio

2.1.Test Result

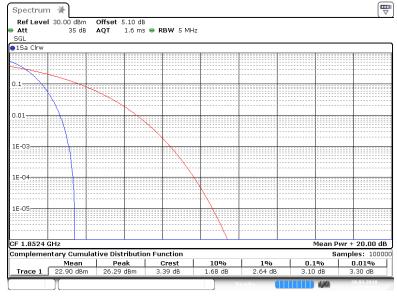
Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
Band II	9262	3.10	13	PASS
Band II	9400	3.10	13	PASS
Band II	9538	3.10	13	PASS
Band IV	1312	2.90	13	PASS
Band IV	1413	2.90	13	PASS
Band IV	1513	2.90	13	PASS
Band V	4132	2.99	13	PASS
Band V	4182	2.99	13	PASS
Band V	4233	2.99	13	PASS

Part II - Test Plots

2.2.For WCDMA band II

2.2.1. Test Mode = WCDMA/TM1

2.2.1.1. Test Channel = LCH



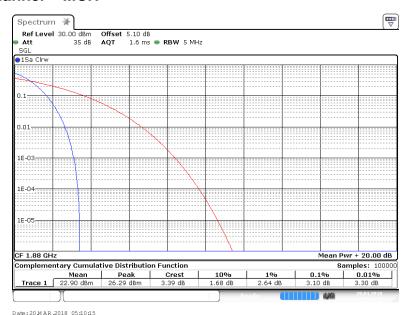
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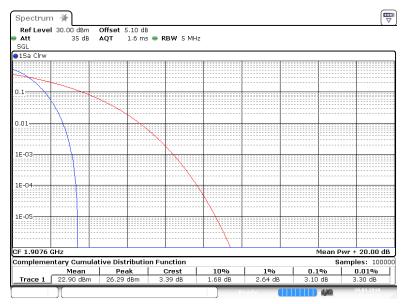
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2.2.1.2. Test Channel = MCH



2.2.1.3. Test Channel = HCH



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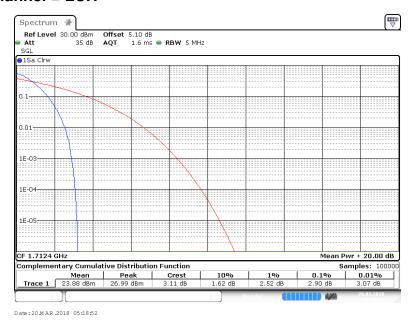
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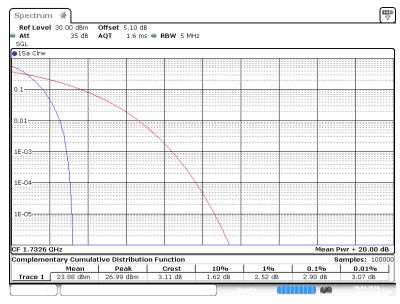
2.3. For WCDMA band IV

2.3.1. Test Mode = WCDMA/TM1

2.3.1.1. Test Channel = LCH



2.3.1.2. Test Channel = MCH



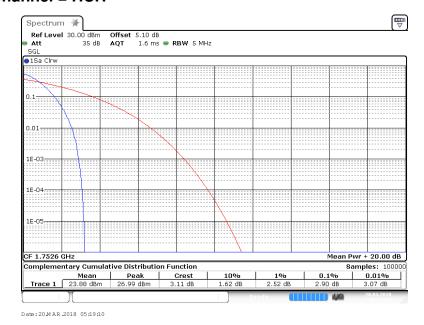
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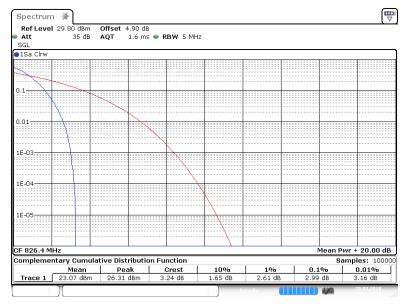
2.3.1.3. Test Channel = HCH



2.4. For WCDMA band V

2.4.1. Test Mode = WCDMA/TM1

2.4.1.1. Test Channel = LCH



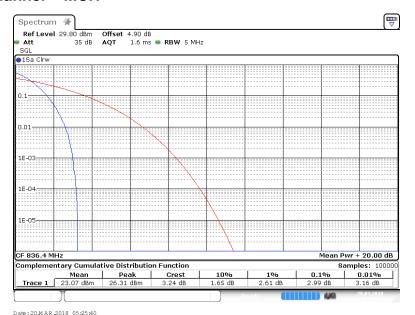
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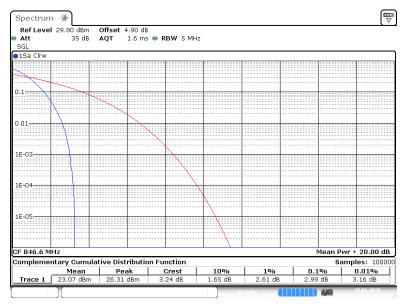
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2.4.1.2. Test Channel = MCH



2.4.1.3. Test Channel = HCH



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3. Modulation Characteristics

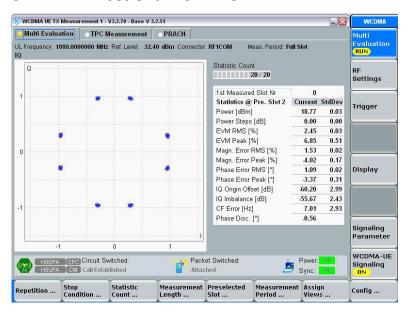
Part I - Test Plots

3.1. For WCDMA

3.1.1. Test Band = WCDMA1900

3.1.1.1. Test Mode = UMTS/TM1

3.1.1.1.1. Test Channel = MCH





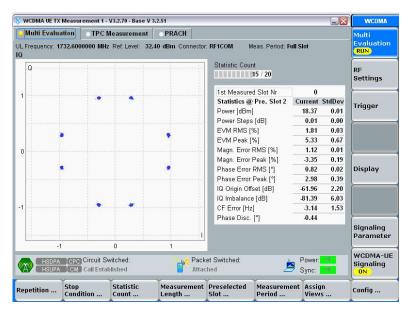
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3.1.2. Test Band = WCDMA1700

3.1.2.1. Test Mode = UMTS/TM1

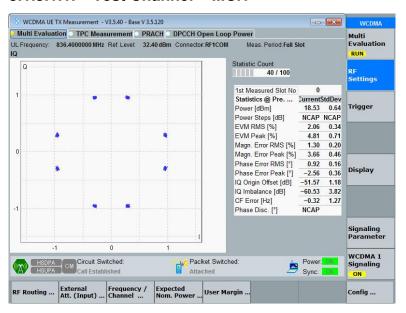
3.1.2.1.1. Test Channel = MCH



3.1.3. Test Band = WCDMA850

3.1.3.1. Test Mode = UMTS /TM1

3.1.3.1.1. Test Channel = MCH





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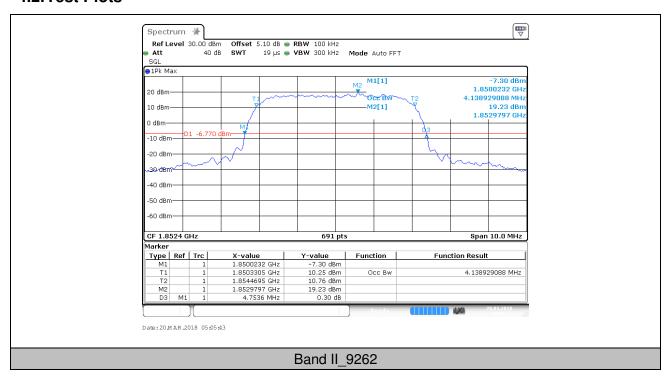
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4. Appendix C: 26dB Bandwidth and Occupied Bandwidth

4.1.Test Result

Band	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit(kHz)	Verdict
	9262	4138.9	4754		PASS
Band II	9400	4124.5	4725		PASS
	9538	4124.5	4725		PASS
	1312	4124.4	4739		PASS
Band IV	1413	4124.5	4739		PASS
	1513	4124.5	4754		PASS
	4132	4124.5	4739		PASS
Band V	4182	4110.0	4696		PASS
	4233	4124.5	4754		PASS

4.2. Test Plots





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5. Appendix D: Band Edge

4.1.Test Result

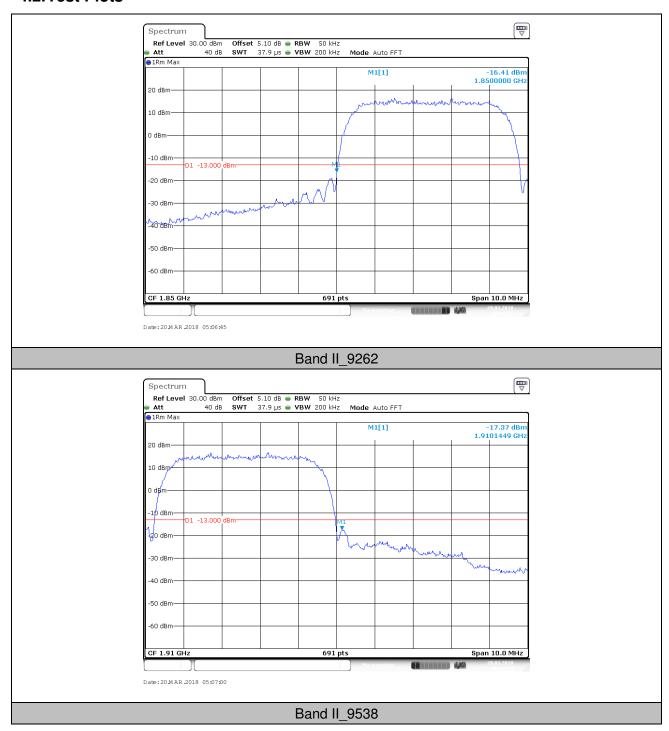
Band	Channel	Value(dBm)	Limit(dBm)	Verdict
Band II	9262	-16.41	-13	PASS
Band II	9538	-17.37	-13	PASS
Band IV	1312	-15.98	-13	PASS
Band IV	1513	-15.40	-13	PASS
Band V	4132	-16.30	-13	PASS
Band V	4233	-16.25	-13	PASS



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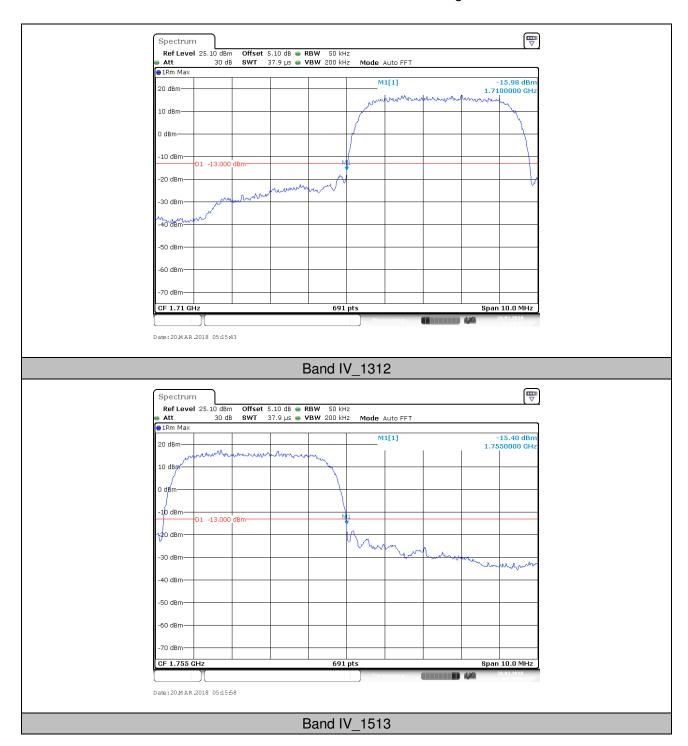
4.2.Test Plots





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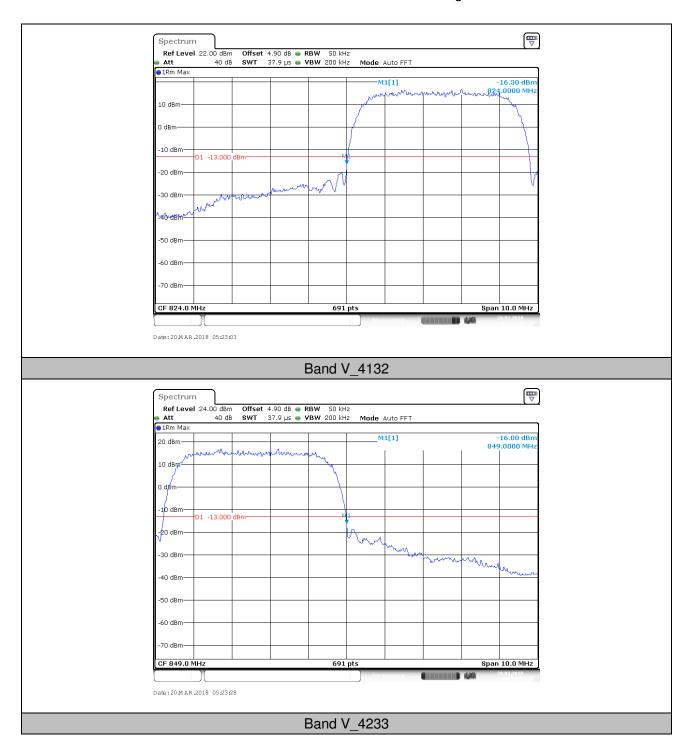
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6. Appendix E: Conducted Spurious Emission

5.1. Test Result

Band	Channel	Frequency Rang(Mhz)	Value(dBm)	Limit(dBm)	Verdict
Band II	9262	0.009~0.15	-66.09	-43	PASS
Band II	9262	0.15~30	-61.82	-33	PASS
Band II	9262	30~1000	-46.20	-13	PASS
Band II	9262	1000~7000	-30.75	-13	PASS
Band II	9262	7000~13600	-44.85	-13	PASS
Band II	9262	13600~20000	-41.94	-13	PASS
Band II	9400	0.009~0.15	-65.96	-43	PASS
Band II	9400	0.15~30	-63.43	-33	PASS
Band II	9400	30~1000	-46.02	-13	PASS
Band II	9400	1000~7000	-30.67	-13	PASS
Band II	9400	7000~13600	-45.57	-13	PASS
Band II	9400	13600~20000	-42.73	-13	PASS
Band II	9538	0.009~0.15	-66.88	-43	PASS
Band II	9538	0.15~30	-62.27	-33	PASS
Band II	9538	30~1000	-46.36	-13	PASS
Band II	9538	1000~7000	-31.06	-13	PASS
Band II	9538	7000~13600	-45.63	-13	PASS
Band II	9538	13600~20000	-43.82	-13	PASS
Band IV	1312	0.009~0.15	-66.56	-43	PASS
Band IV	1312	0.15~30	-59.85	-33	PASS
Band IV	1312	30~1000	-46.11	-13	PASS
Band IV	1312	1000~7000	-39.94	-13	PASS
Band IV	1312	7000~13600	-45.61	-13	PASS
Band IV	1312	13600~20000	-42.50	-13	PASS
Band IV	1413	0.009~0.15	-65.78	-43	PASS
Band IV	1413	0.15~30	-63.58	-33	PASS
Band IV	1413	30~1000	-45.57	-13	PASS
Band IV	1413	1000~7000	-41.19	-13	PASS
Band IV	1413	7000~13600	-45.71	-13	PASS
Band IV	1413	13600~20000	-43.40	-13	PASS
Band IV	1513	0.009~0.15	-66.18	-43	PASS
Band IV	1513	0.15~30	-60.28	-33	PASS
Band IV	1513	30~1000	-45.94	-13	PASS
Band IV	1513	1000~7000	-41.58	-13	PASS

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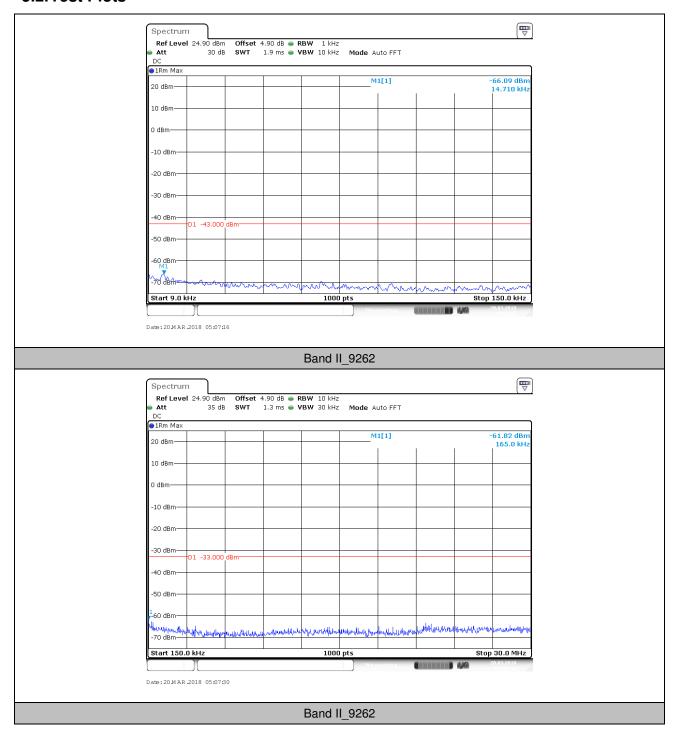
Band IV	1513	7000~13600	-45.31	-13	PASS
Band IV	1513	13600~20000	-43.56	-13	PASS
Band V	4132	0.009~0.15	-66.38	-33	PASS
Band V	4132	0.15~30	-65.30	-23	PASS
Band V	4132	30~1000	-46.38	-13	PASS
Band V	4132	1000~9000	-34.76	-13	PASS
Band V	4182	0.009~0.15	-66.36	-33	PASS
Band V	4182	0.15~30	-65.76	-23	PASS
Band V	4182	30~1000	-46.11	-13	PASS
Band V	4182	1000~9000	-34.98	-13	PASS
Band V	4233	0.009~0.15	-66.80	-33	PASS
Band V	4233	0.15~30	-66.19	-23	PASS
Band V	4233	30~1000	-44.95	-13	PASS
Band V	4233	1000~9000	-35.08	-13	PASS



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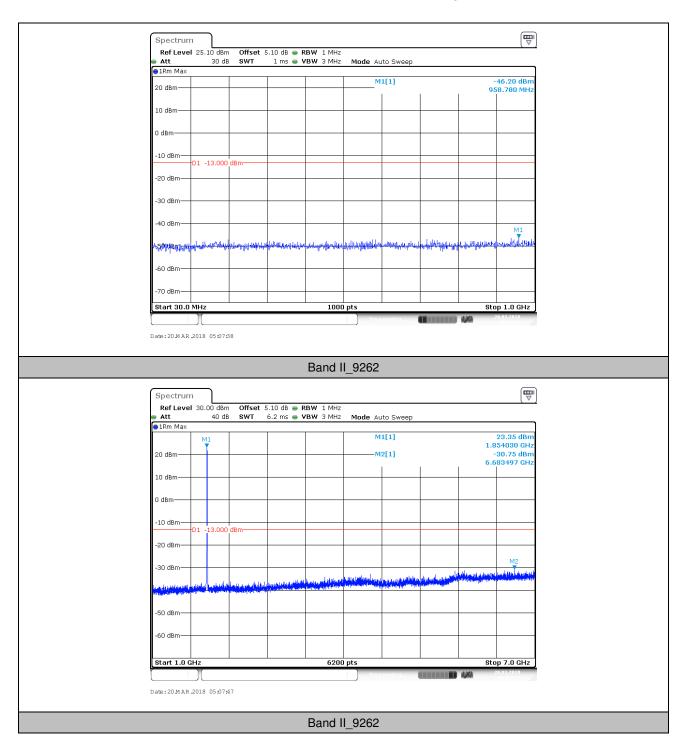
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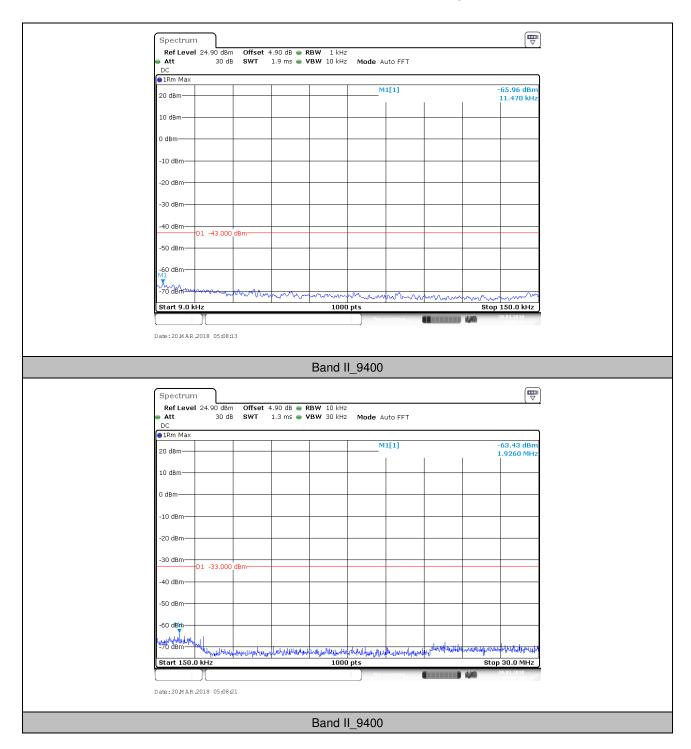
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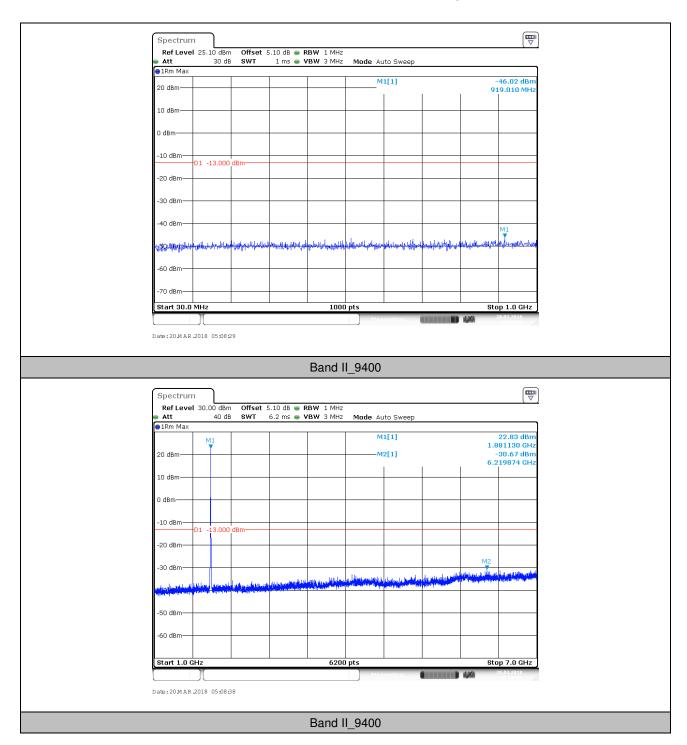
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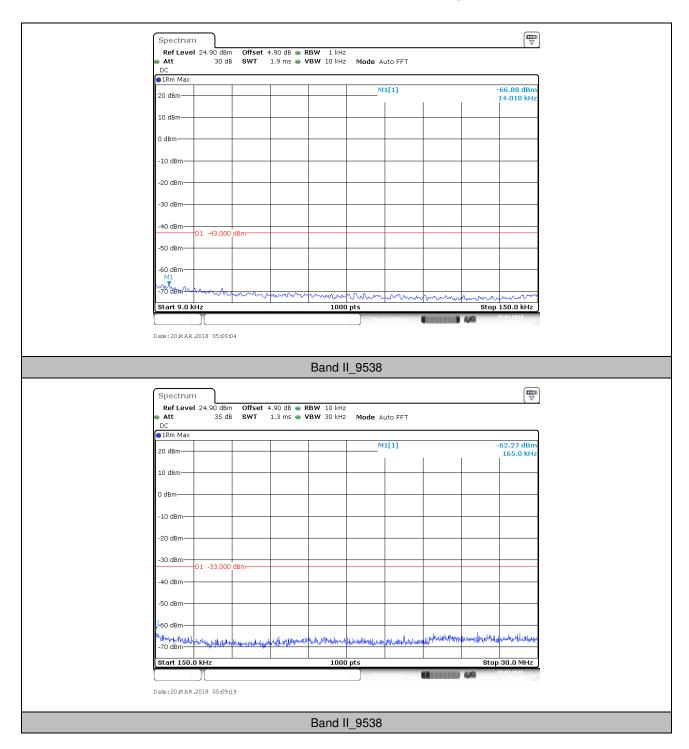
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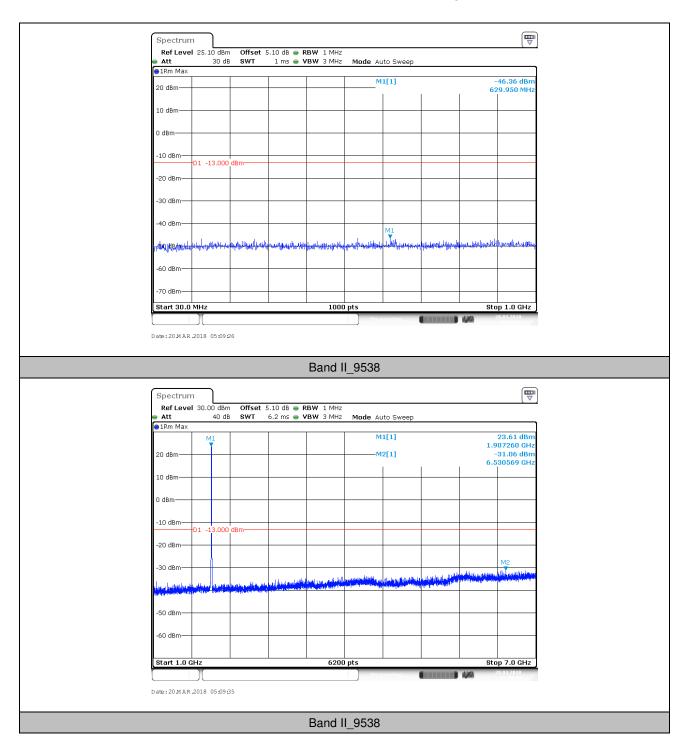
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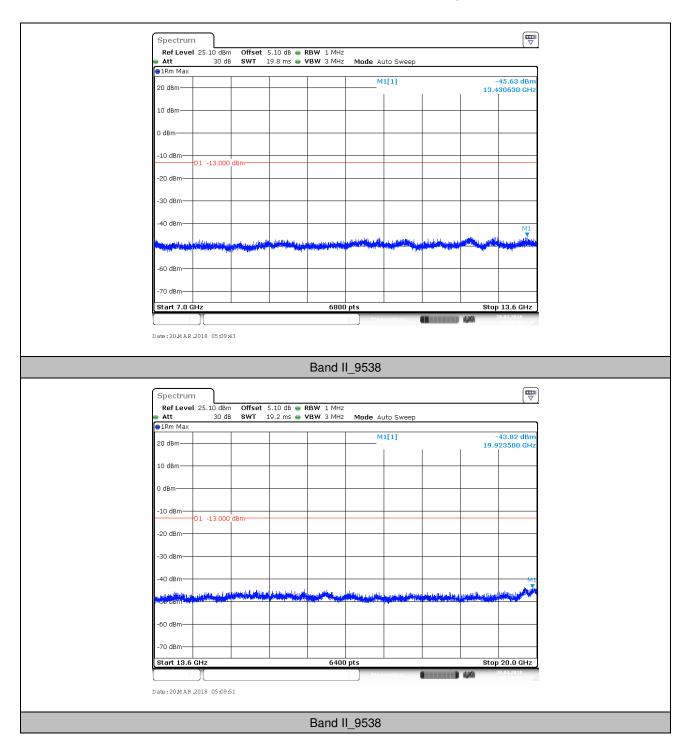
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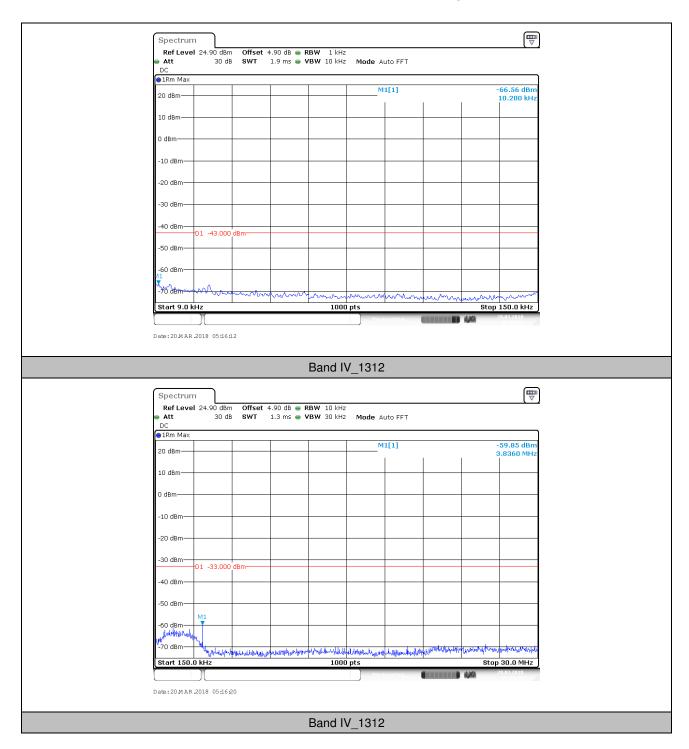
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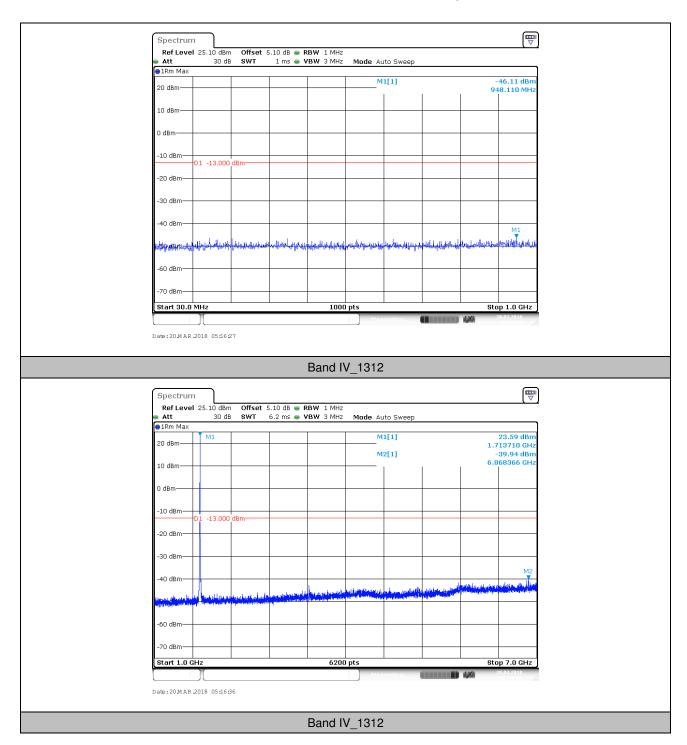
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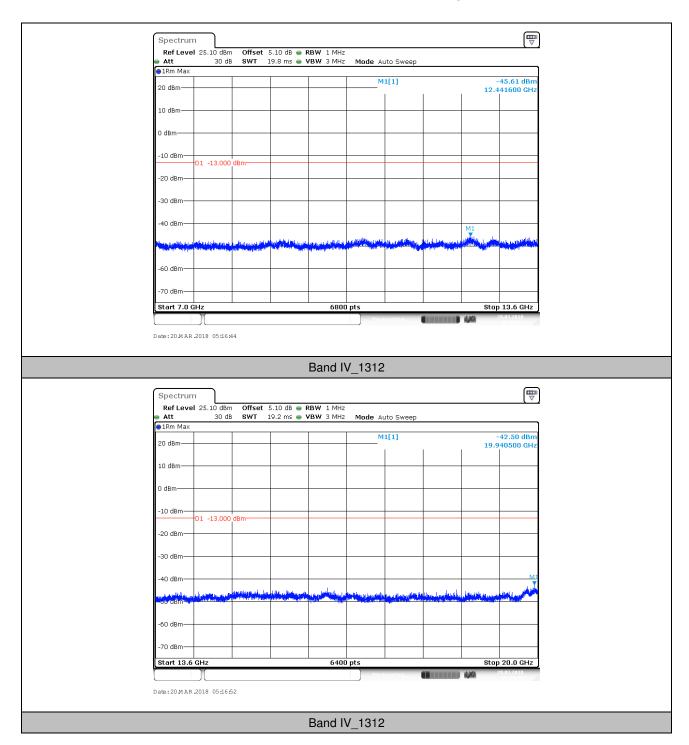
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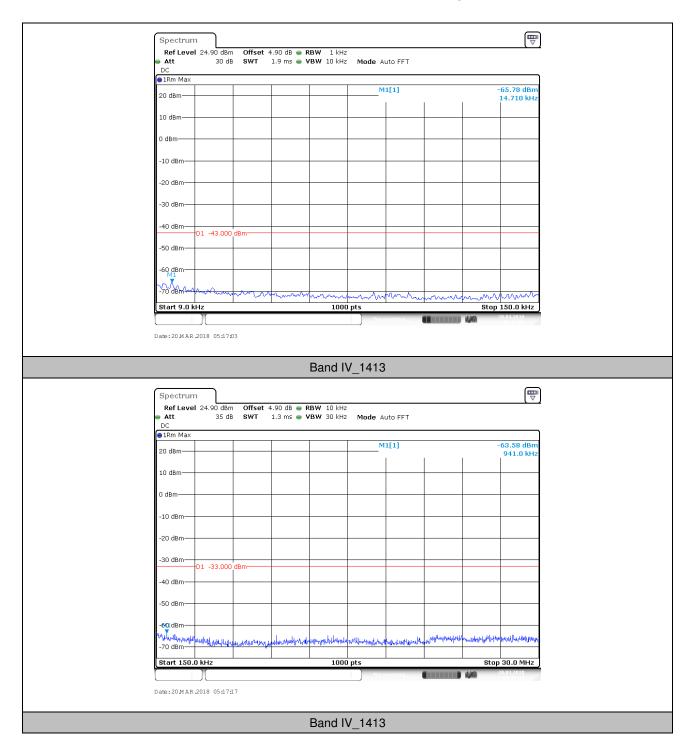
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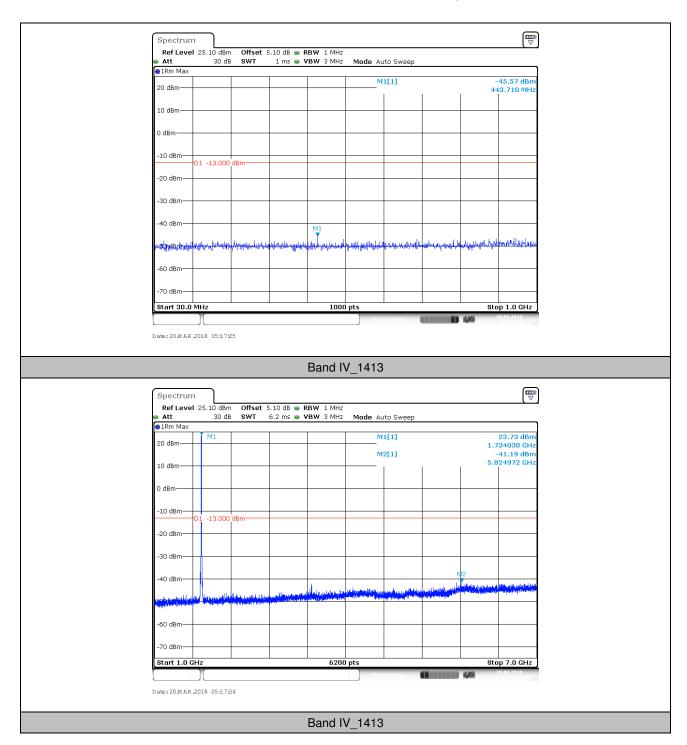
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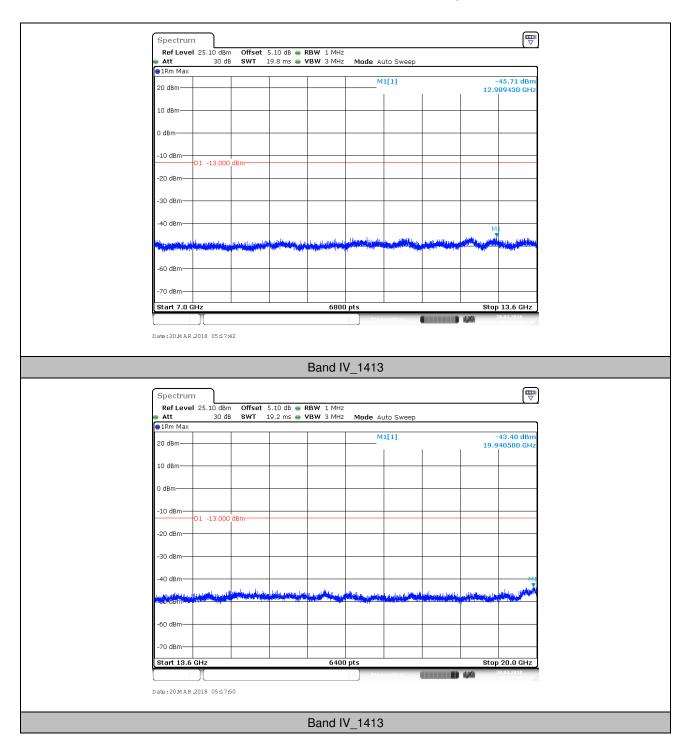
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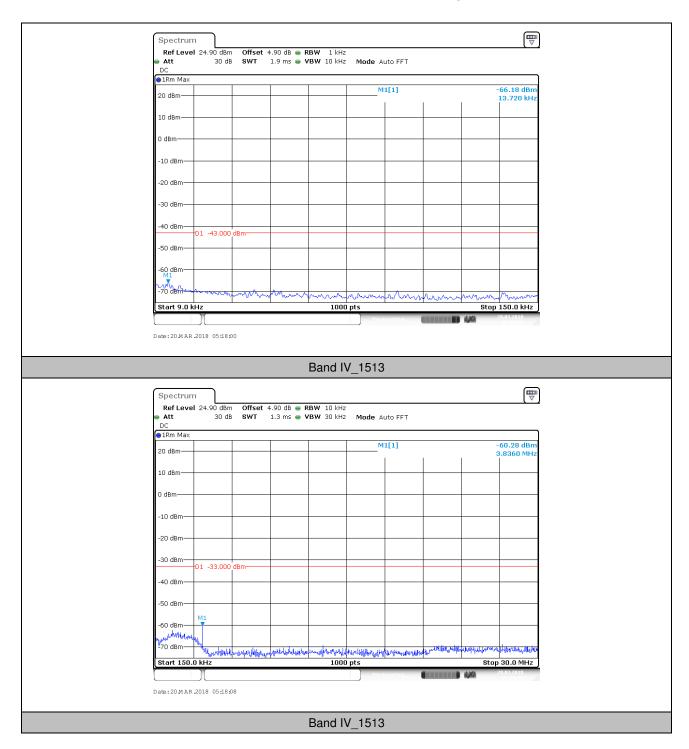
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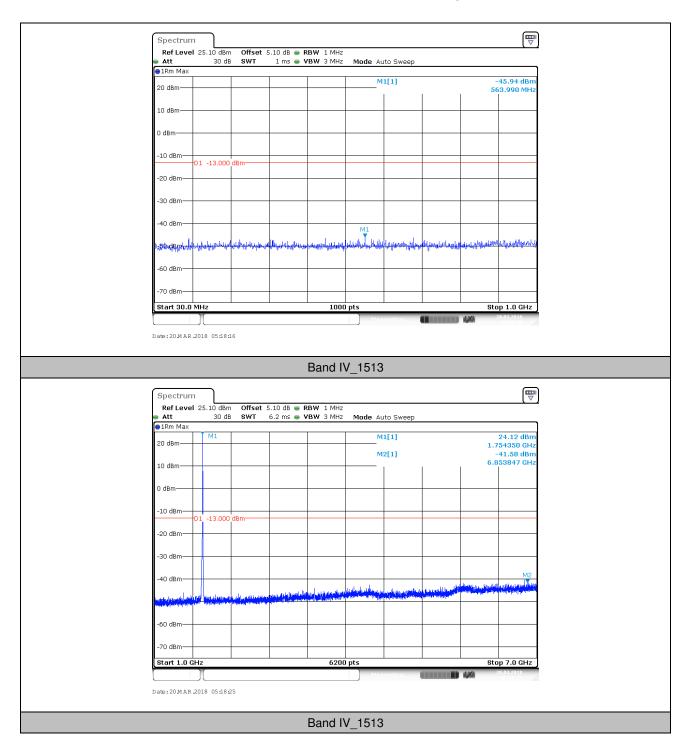
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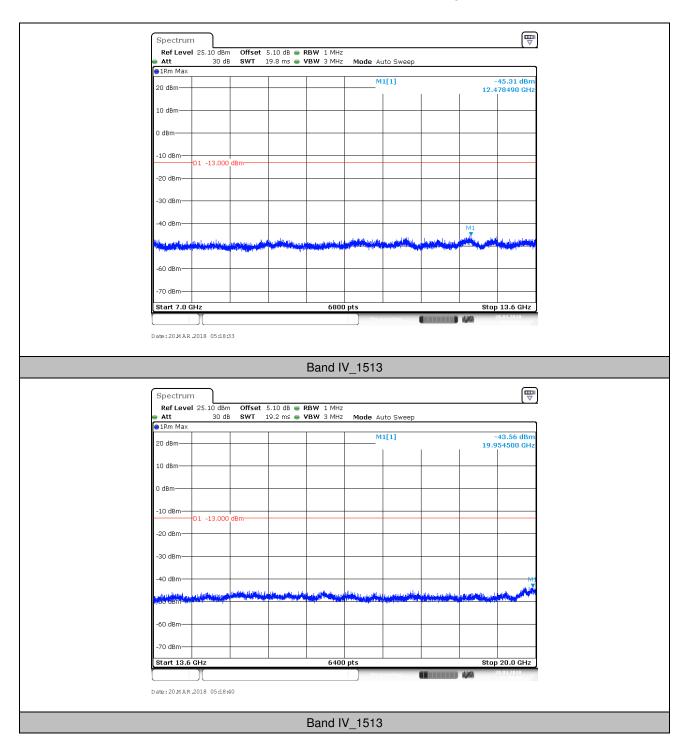
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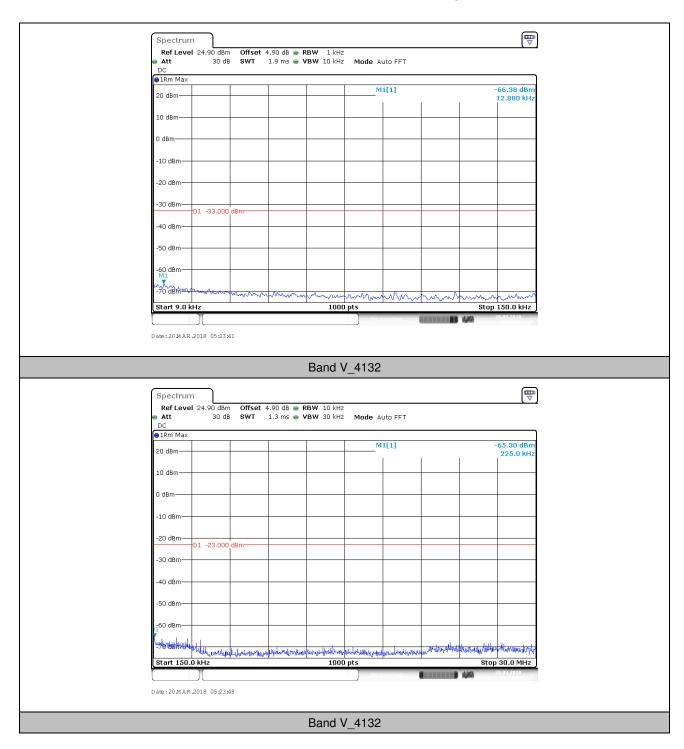
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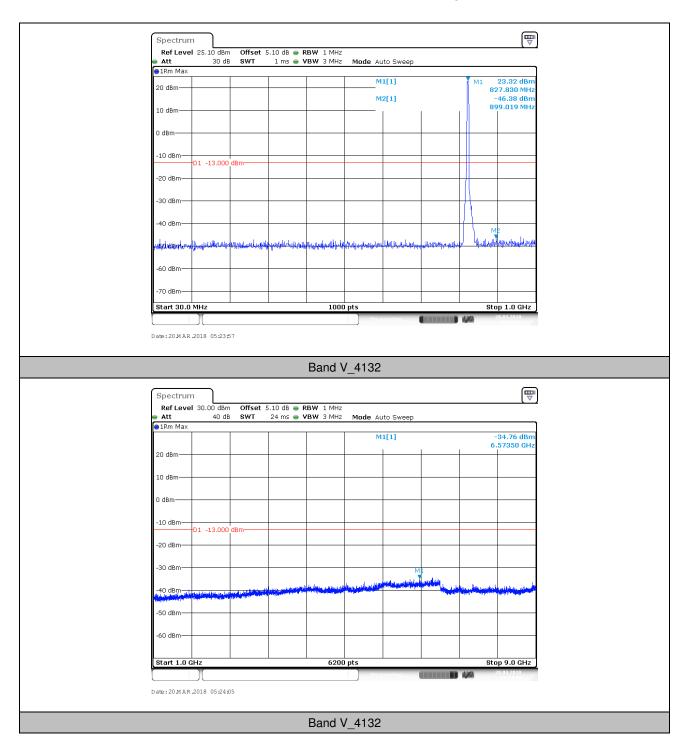
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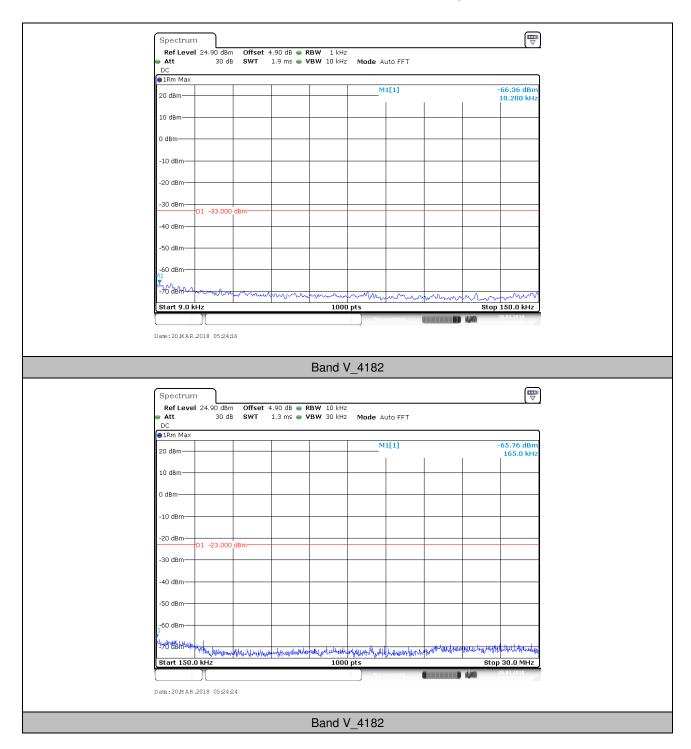
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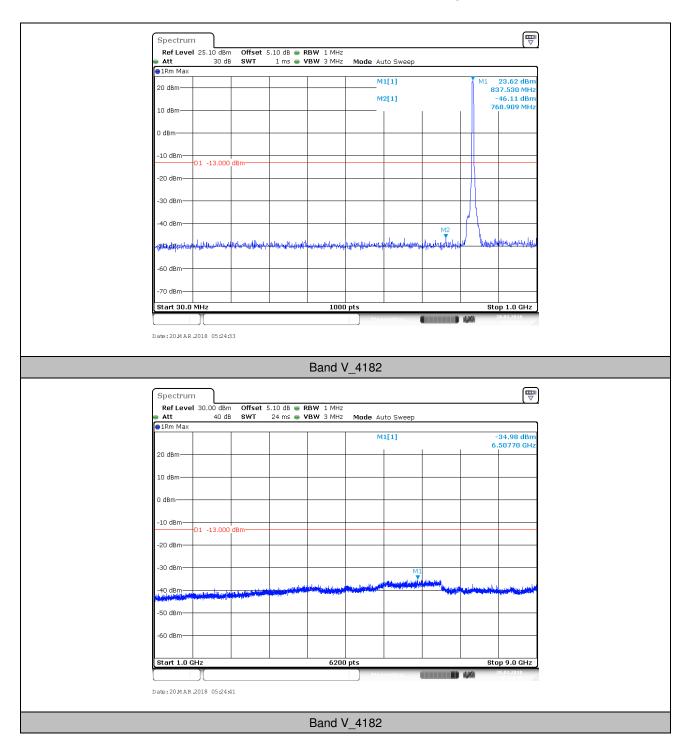
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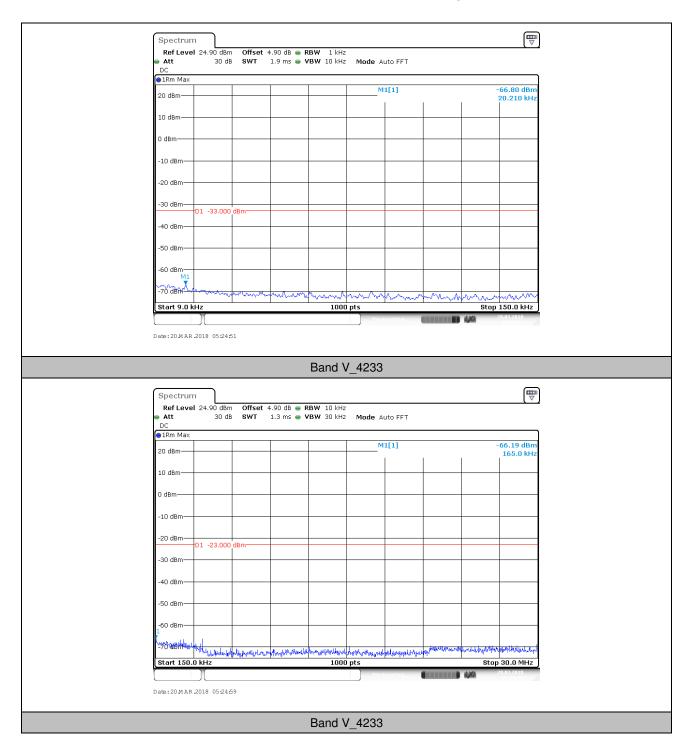
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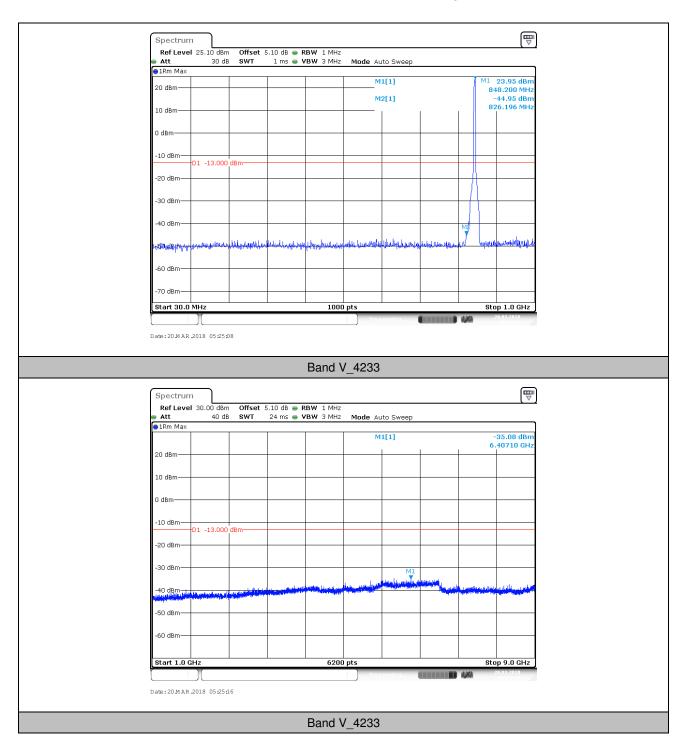
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7. Field Strength of Spurious Radiation

6.1. Test Band = WCDMA 1900

6.1.1. Test Mode = UMTS/TM1

6.1.1.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization	
90.050000	-75.84	-13.00	62.84	Vertical	
345.600000	-73.28	-13.00	60.28	Vertical	
3702.975000	-57.46	-13.00	44.46	Vertical	
5559.700000	-55.42	-13.00	42.42	Vertical	
7406.675000	-64.43	-13.00	51.43	Vertical	
10624.825000	-63.89	-13.00	50.89	Vertical	
90.100000	-74.43	-13.00	61.43	Horizontal	
305.950000	-70.36	-13.00	57.36	Horizontal	
3702.975000	-56.69	-13.00	43.69	Horizontal	
5553.850000	-60.64	-13.00	47.64	Horizontal	
7413.825000	-65.04	-13.00	52.04	Horizontal	
10269.600000	-64.43	-13.00	51.43	Horizontal	

6.1.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization	
90.100000	-76.49	-13.00	63.49	Vertical	
345.600000	-73.49	-13.00	60.49	Vertical	
3758.225000	-51.81	-13.00	38.81	Vertical	
5637.375000	-60.54	-13.00	47.54	Vertical	
7523.025000	-64.80	-13.00	51.80	Vertical	
9639.750000	-64.57	-13.00	51.57	Vertical	
90.600000	-74.96	-13.00	61.96	Horizontal	
308.250000	-70.55	-13.00	57.55	Horizontal	
3758.225000	-57.02	-13.00	44.02	Horizontal	
5642.900000	-63.31	-13.00	50.31	Horizontal	
7250.025000	-65.13	-13.00	52.13	Horizontal	
9242.275000	-64.10	-13.00	51.10	Horizontal	



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6.1.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization	
90.100000	-76.12	-13.00	63.12	Vertical	
345.600000	-73.63	-13.00	60.63	Vertical	
3813.475000	-53.20	-13.00	40.20	Vertical	
5719.600000	-60.45	-13.00	47.45	Vertical	
7630.600000	-64.82	-13.00	51.82	Vertical	
10631.325000	-63.99	-13.00	50.99	Vertical	
89.600000	-74.97	-13.00	61.97	Horizontal	
296.750000	-71.43	-13.00	58.43	Horizontal	
1199.500000	-62.25	-13.00	49.25	Horizontal	
3816.725000	-56.45	-13.00	43.45	Horizontal	
5725.450000	-59.94	-13.00	46.94	Horizontal	
7066.725000	-65.05	-13.00	52.05	Horizontal	

6.2. Test Band = WCDMA 1700

6.2.1. Test Mode = UMTS/TM1

6.2.1.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization	
86.600000	-75.85	-13.00	62.85	Vertical	
345.600000	-73.85	-13.00	60.85	Vertical	
3423.150000	-56.74	-13.00	43.74	Vertical	
5134.275000	-52.78	-13.00	39.78	Vertical	
6846.050000	-64.64	-13.00	51.64	Vertical	
10056.400000	-64.55	-13.00	51.55	Vertical	
90.600000	-75.26	-13.00	62.26	Horizontal	
307.300000	-70.52	-13.00	57.52	Horizontal	
3422.825000	-55.09	-13.00	42.09	Horizontal	
5133.950000	-59.19	-13.00	46.19	Horizontal	
6846.700000	-65.28	-13.00	52.28	Horizontal	
10272.525000	-64.26	-13.00	51.26	Horizontal	

6.2.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization	
89.600000	-74.92	-74.92 -13.00		Vertical	

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345.600000	-73.70	-13.00	60.70	Vertical	
3463.450000	-52.78	-13.00	39.78	Vertical	
5194.725000	-58.30	-13.00	45.30	Vertical	
6925.350000	-64.37	-13.00	51.37	Vertical	
9245.850000	-63.96	-13.00	50.96	Vertical	
90.150000	-72.18	-13.00	59.18	Horizontal	
309.950000	-68.75	-13.00	55.75	Horizontal	
1212.000000	-62.23	-13.00	49.23	Horizontal	
3466.375000	-53.19	-13.00	40.19	Horizontal	
5195.050000	-60.67	-13.00	47.67	Horizontal	
6933.475000	-64.64	-13.00	51.64	Horizontal	

6.2.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization	
90.150000	-73.54	-13.00	60.54	Vertical	
345.600000	-73.81	-13.00	60.81	Vertical	
3506.350000	-54.60	-13.00	41.60	Vertical	
5260.375000	-62.76	-13.00	49.76	Vertical	
6907.800000	-65.25	-13.00	52.25	Vertical	
9247.800000	-64.15	-13.00	51.15	Vertical	
56.150000	-78.13	-13.00	65.13	Horizontal	
90.650000	-72.67	-13.00	59.67	Horizontal	
309.400000	-68.33	-13.00	55.33	Horizontal	
3503.425000	-56.92	-13.00	43.92	Horizontal	
5260.050000	-60.77	-13.00	47.77	Horizontal	
7941.950000	-64.14	-13.00	51.14	Horizontal	

6.3. Test Band = WCDMA 850

6.3.1. Test Mode = UMTS/TM1

6.3.1.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
89.100000	-76.88	-13.00	63.88	Vertical
345.600000	-73.44	-13.00	60.44	Vertical
1651.000000	-50.92	-13.00	37.92	Vertical
2479.500000	-18.95	-13.00	5.95	Vertical
3302.575000	-66.10	-13.00	53.10	Vertical

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4895.400000	-67.14	-13.00	54.14	Vertical	
90.600000	-75.28	-13.00	62.28	Horizontal	
307.250000	-69.72	-13.00	56.72	Horizontal	
1654.500000	-50.60	-13.00	37.60	Horizontal	
2480.000000	-19.66	-13.00	6.66	Horizontal	
3302.575000	-67.75	-13.00	54.75	Horizontal	
4136.200000	-66.16	-13.00	53.16	Horizontal	

6.3.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization	
90.100000	-76.34	-13.00	63.34	Vertical	
345.600000	-73.71	-13.00	60.71	Vertical	
1674.000000	-55.55	-13.00	42.55	Vertical	
2512.000000	-54.30	-13.00	41.30	Vertical	
4306.500000	-67.00	-13.00	54.00	Vertical	
6715.400000	-65.45	-13.00	52.45	Vertical	
91.100000	-74.85	-13.00	61.85	Horizontal	
304.750000	-70.65	-13.00	57.65	Horizontal	
1671.500000	-51.74	-13.00	38.74	Horizontal	
2512.000000	-52.81	-13.00	39.81	Horizontal	
4177.150000	-66.46	-13.00	53.46	Horizontal	
9211.075000	-64.12	-13.00	51.12	Horizontal	

6.3.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization	
90.600000	-75.63	-13.00	62.63	Vertical	
345.600000	-73.62	-13.00	60.62	Vertical	
1692.000000	-54.73	-13.00	41.73	Vertical	
2542.500000	-52.79	-13.00	39.79	Vertical	
3383.175000	-68.79	-13.00	55.79	Vertical	
6049.150000	-65.42	-13.00	52.42	Vertical	
118.950000	-70.01	-13.00	57.01	Horizontal	
304.800000	-70.43	-13.00	57.43	Horizontal	
1691.500000	-49.60	-13.00	36.60	Horizontal	
2542.500000	-51.97	-13.00	38.97	Horizontal	
3326.625000	-69.11	-13.00	56.11	Horizontal	
4237.275000	-65.86	-13.00	52.86	Horizontal	

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NOTE:

1) The disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

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

8. Appendix F: Frequency Stability

7.1. Frequency Vs Voltage

				Voltage			
Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
		VL	TN	0.10	0.000054	2.5	PASS
	9262	VN	TN	1.69	0.000911	2.5	PASS
		VH	TN	1.83	0.000988	2.5	PASS
		VL	TN	-1.65	-0.000879	2.5	PASS
Band II	9400	VN	TN	-1.63	-0.000867	2.5	PASS
		VH	TN	-1.49	-0.000791	2.5	PASS
		VL	TN	-5.38	-0.002820	2.5	PASS
	9538	VN	TN	-3.23	-0.001695	2.5	PASS
		VH	TN	-3.41	-0.001789	2.5	PASS
		VL	TN	8.80	0.005138	2.5	PASS
	1312	VN	TN	9.14	0.005338	2.5	PASS
		VH	TN	9.21	0.005380	2.5	PASS
		VL	TN	-1.02	-0.000590	2.5	PASS
Band IV	1413	VN	TN	-0.87	-0.000500	2.5	PASS
		VH	TN	0.89	0.000512	2.5	PASS
	1510	VL	TN	-9.91	-0.005656	2.5	PASS
	1513	VN	TN	-10.21	-0.005828	2.5	PASS
		VH	TN	-9.02	-0.005146	2.5	PASS
		VL	TN	0.87	0.001056	2.5	PASS
	4132	VN	TN	1.54	0.001869	2.5	PASS
		VH	TN	0.54	0.000649	2.5	PASS
		VL	TN	-1.07	-0.001283	2.5	PASS
Band V 4182	4182	VN	TN	-0.04	-0.000043	2.5	PASS
	VH	TN	-0.67	-0.000795	2.5	PASS	
		VL	TN	-1.61	-0.001901	2.5	PASS
	4233	VN	TN	-1.37	-0.001622	2.5	PASS
		VH	TN	-0.63	-0.000743	2.5	PASS



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7.2. Frequency Vs Temperature

				Temperature			
Donal	Chamal	Voltage	Temperatur	Deviation	Deviation	Limit	Verdic
Band	Channel	(Vdc)	e (℃)	(Hz)	(ppm)	(ppm)	t
Band II	9262	VN	-30	0.91	0.000490	2.5	PASS
			-20	1.62	0.000877	2.5	PASS
			-10	2.23	0.001205	2.5	PASS
			0	-0.23	-0.000124	2.5	PASS
			10	0.81	0.000436	2.5	PASS
			20	1.52	0.000819	2.5	PASS
			30	2.89	0.001560	2.5	PASS
			40	1.22	0.000660	2.5	PASS
			50	2.11	0.001139	2.5	PASS
	9400	VN	-30	-0.48	-0.000255	2.5	PASS
			-20	-1.40	-0.000746	2.5	PASS
			-10	-2.29	-0.001217	2.5	PASS
			0	-1.41	-0.000749	2.5	PASS
			10	-2.46	-0.001309	2.5	PASS
			20	-1.09	-0.000578	2.5	PASS
			30	-0.61	-0.000323	2.5	PASS
			40	-0.51	-0.000274	2.5	PASS
			50	-1.42	-0.000757	2.5	PASS
	9538	VN	-30	-3.83	-0.002006	2.5	PASS
			-20	-3.79	-0.001987	2.5	PASS
			-10	-3.59	-0.001882	2.5	PASS
			0	-2.93	-0.001537	2.5	PASS
			10	-3.38	-0.001774	2.5	PASS
			20	-4.66	-0.002441	2.5	PASS
			30	-4.15	-0.002175	2.5	PASS
			40	-5.40	-0.002831	2.5	PASS
			50	-3.73	-0.001953	2.5	PASS
Band IV	1312	VN	-30	9.12	0.005326	2.5	PASS
			-20	8.99	0.005250	2.5	PASS
			-10	8.20	0.004791	2.5	PASS
			0	9.74	0.005689	2.5	PASS
			10	9.61	0.005610	2.5	PASS
			20	10.14	0.005919	2.5	PASS
			30	9.57	0.005589	2.5	PASS
			40	8.79	0.005133	2.5	PASS
			50	8.85	0.005171	2.5	PASS
	1413	VN	-30	-0.48	-0.000277	2.5	PASS
			-20	0.05	0.000029	2.5	PASS
			-10	0.02	0.000012	2.5	PASS
			0	0.77	0.000446	2.5	PASS
			10	0.31	0.000178 request or accessible at http://www.sqs.co	2.5	PASS

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			20	1.50	0.00000	0.5	DACC
			20	1.56	0.000900	2.5	PASS
			30	0.35	0.000202	2.5	PASS
			40	0.67	0.000388	2.5	PASS
			50	1.22	0.000706	2.5	PASS
	1513	VN	-30	-9.95	-0.005677	2.5	PASS
			-20	-7.92	-0.004518	2.5	PASS
			-10	-10.46	-0.005967	2.5	PASS
			0	-9.56	-0.005456	2.5	PASS
			10	-9.48	-0.005407	2.5	PASS
			20	-10.99	-0.006269	2.5	PASS
			30	-10.31	-0.005881	2.5	PASS
			40	-10.36	-0.005914	2.5	PASS
			50	-10.66	-0.006085	2.5	PASS
			-30	0.31	0.000372	2.5	PASS
		VN	-20	0.64	0.000770	2.5	PASS
			-10	0.71	0.000857	2.5	PASS
			0	0.54	0.000658	2.5	PASS
Band V	4132		10	0.96	0.001160	2.5	PASS
			20	0.70	0.000848	2.5	PASS
			30	-0.12	-0.000147	2.5	PASS
			40	0.13	0.000156	2.5	PASS
			50	0.28	0.000338	2.5	PASS
	4182	VN	-30	-0.89	-0.001060	2.5	PASS
			-20	0.62	0.000735	2.5	PASS
			-10	-0.57	-0.000676	2.5	PASS
			0	0.16	0.000188	2.5	PASS
			10	-1.09	-0.001300	2.5	PASS
			20	0.22	0.000265	2.5	PASS
			30	-0.49	-0.000582	2.5	PASS
			40	0.52	0.000624	2.5	PASS
			50	-0.62	-0.000735	2.5	PASS
	4233	VN	-30	-1.51	-0.001783	2.5	PASS
			-20	-1.57	-0.001850	2.5	PASS
			-10	-1.29	-0.001521	2.5	PASS
			0	-0.69	-0.000820	2.5	PASS
			10	-1.79	-0.002112	2.5	PASS
			20	-1.50	-0.001774	2.5	PASS
			30	-1.58	-0.001867	2.5	PASS
			40	-0.53	-0.000625	2.5	PASS
			50	-1.45	-0.001715	2.5	PASS

The End