Appendix B

WCDMA BAND II & IV & V

CONTENT

Page

1. Effective (Isotropic) Radiated Power Output Data

1.1. Test Result

Test Band	Test Mode	Test Channel	Measured [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
UMTS BAND II	WCDMA	9262	23.34	27.34	33.00	PASS
		9400	23.21	27.21	33.00	PASS
		9538	23.13	27.13	33.00	PASS
	HSUPA	9262	20.56	24.56	33.00	PASS
		9400	20.43	24.43	33.00	PASS
		9538	20.77	24.77	33.00	PASS
	HSDPA	9262	21.95	25.95	33.00	PASS
		9400	21.96	25.96	33.00	PASS
		9538	21.89	25.89	33.00	PASS

Test Band	Test Mode	Test Channel	Measured [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
UMTS BAND IV	WCDMA	1312	23.21	27.21	30.00	PASS
		1413	23.22	27.22	30.00	PASS
		1513	23.16	27.16	30.00	PASS
	HSUPA	1312	20.86	24.86	30.00	PASS
		1413	20.53	24.53	30.00	PASS
		1513	20.57	24.57	30.00	PASS
	HSDPA	1312	22.25	26.25	30.00	PASS
		1413	22.16	26.16	30.00	PASS
		1513	22.21	26.21	30.00	PASS

Test Band	Test Mode	Test Channel	Measured [dBm]	ERP [dBm]	Limit [dBm]	Verdict
UMTS BAND V	WCDMA	4132	23.68	24.53	38.45	PASS
		4182	23.75	24.60	38.45	PASS
		4233	23.70	24.55	38.45	PASS
	HSUPA	4132	20.88	21.73	38.45	PASS
		4182	20.72	21.57	38.45	PASS
		4233	20.63	21.48	38.45	PASS
	HSDPA	4132	21.72	22.57	38.45	PASS
		4182	21.88	22.73	38.45	PASS
		4233	21.79	22.64	38.45	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]

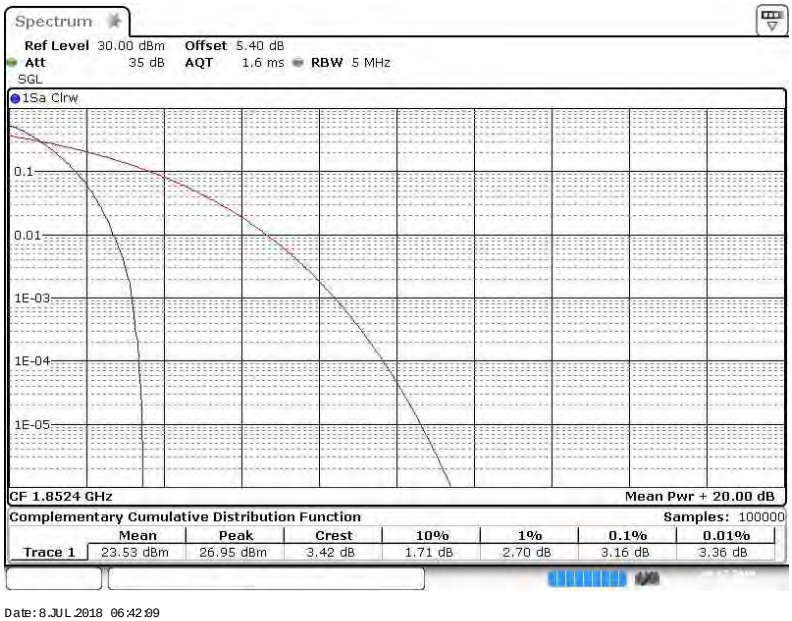
b: SGP=Signal Generator Level

2. Peak-to-Average Ratio

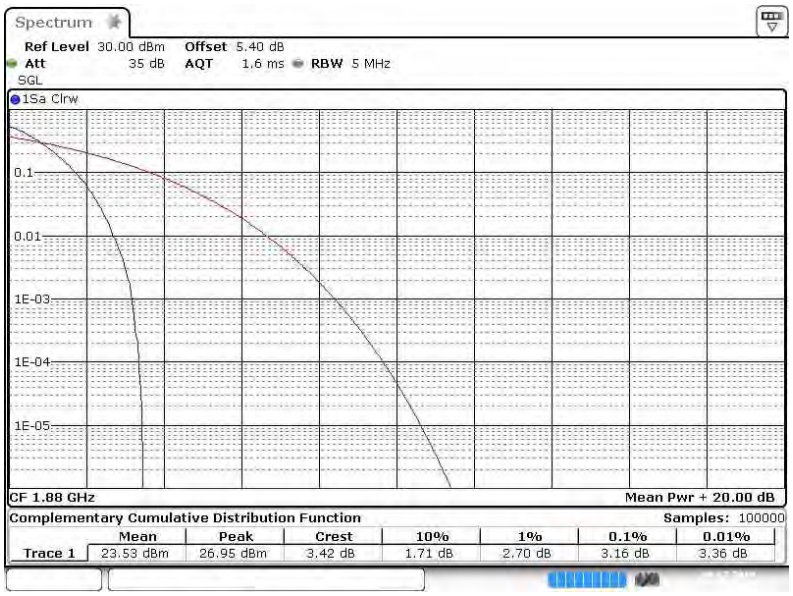
2.1. Test Result

BAND	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
BAND II	9262	3.16	13	PASS
	9400	3.16	13	PASS
	9538	3.16	13	PASS
BAND IV	1312	2.99	13	PASS
	1413	2.99	13	PASS
	1513	2.99	13	PASS
BAND V	4132	2.87	13	PASS
	4182	2.87	13	PASS
	4233	2.87	13	PASS

2.2. Test Plots



BAND II_9262



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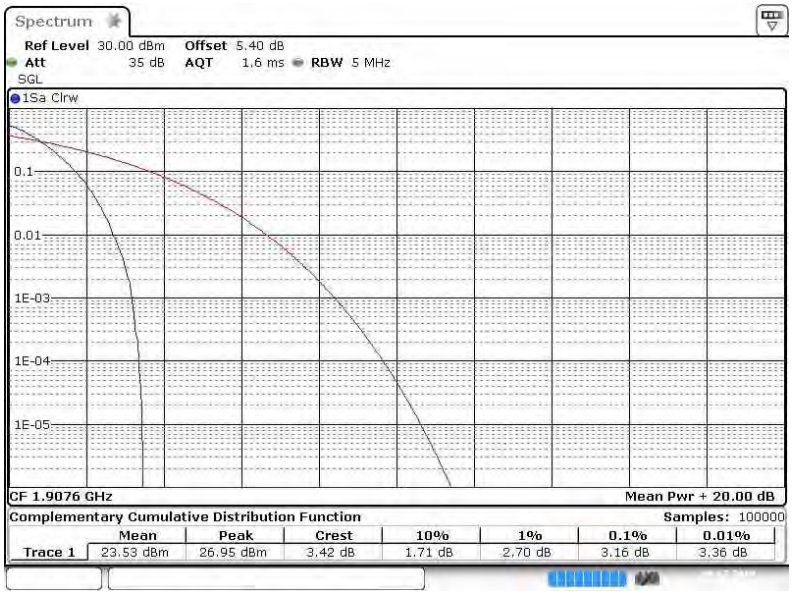

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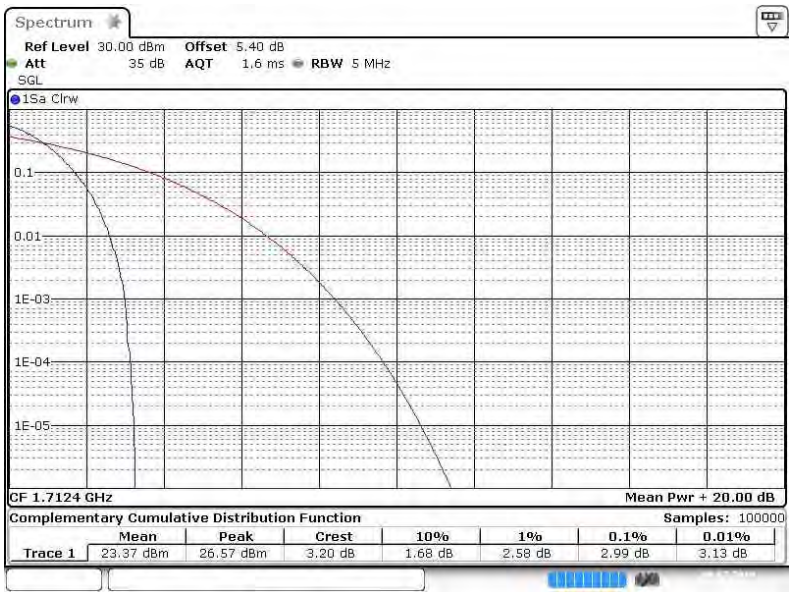

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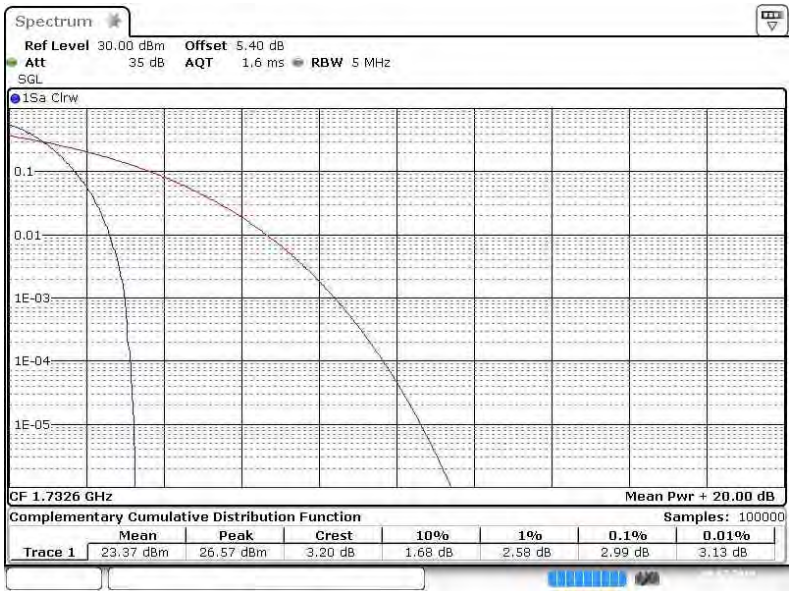
BAND IV_1312



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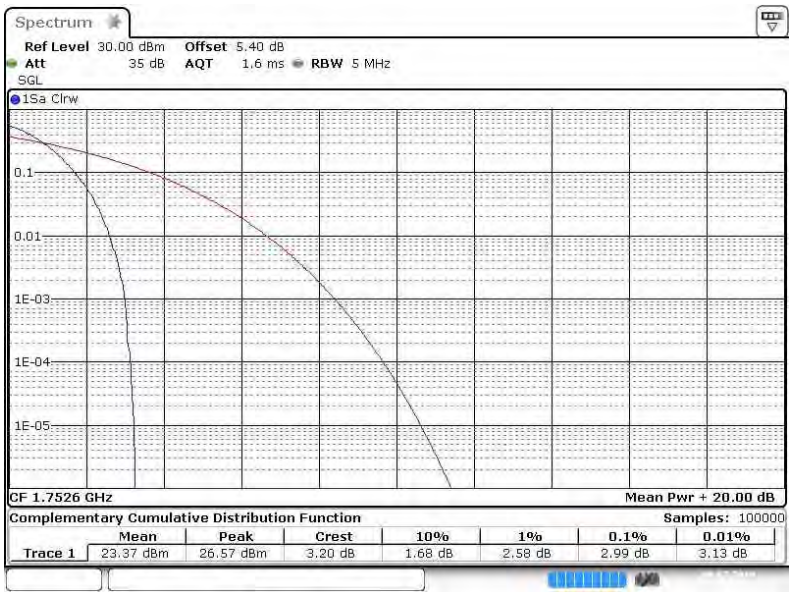

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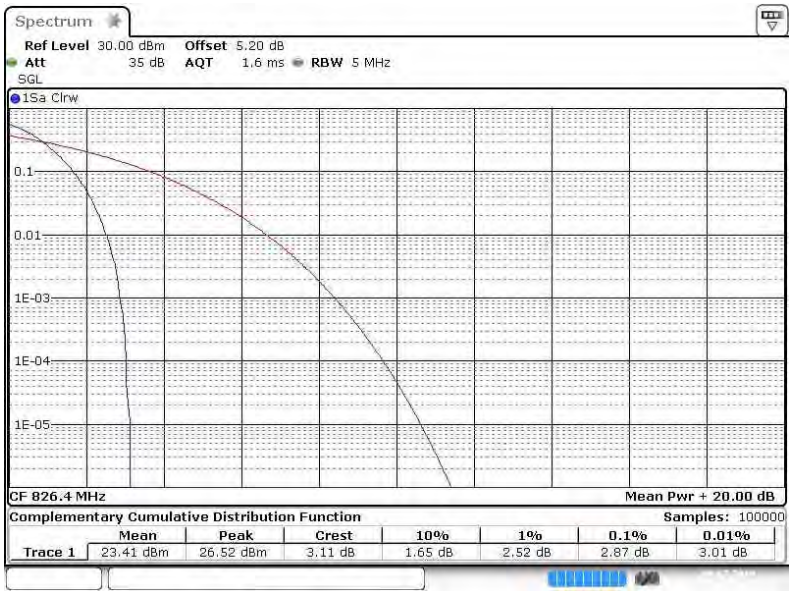

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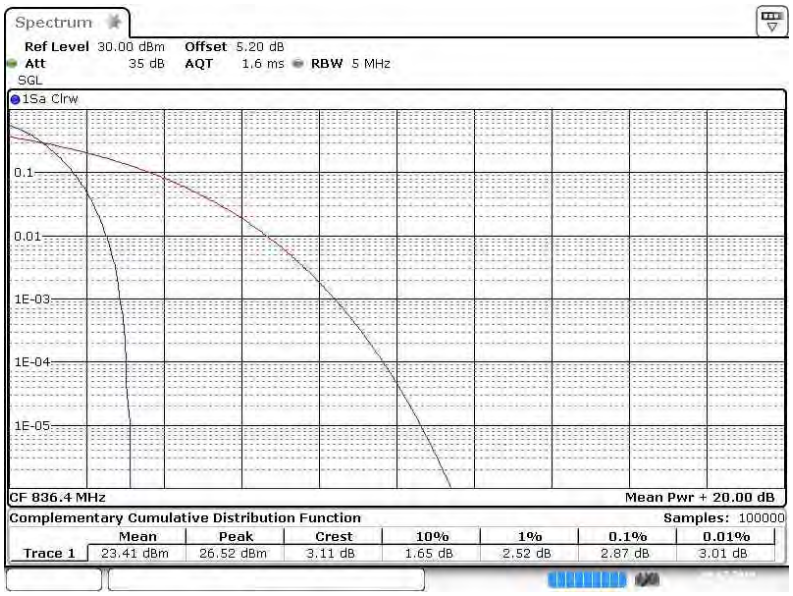
BAND V_4132



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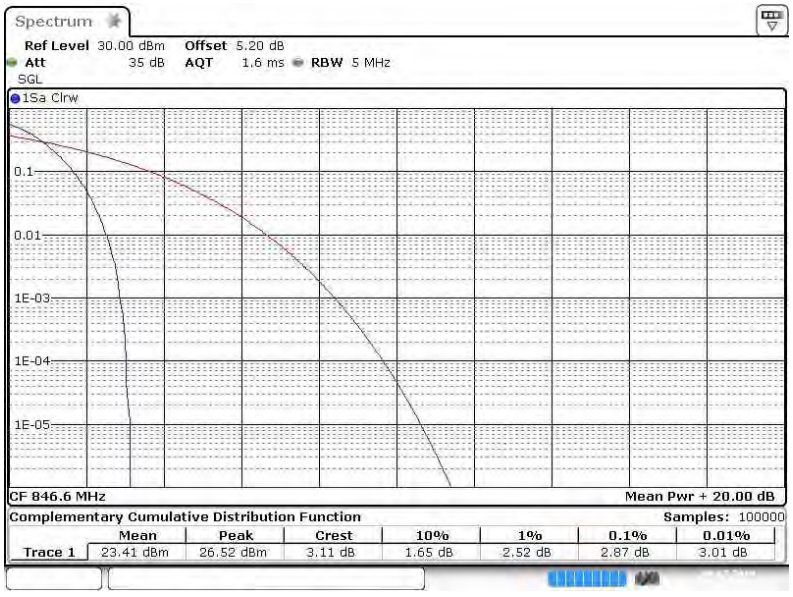
BAND V_4182



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BAND V_4233

3. Modulation Characteristics

Part I - Test Plots

3.1. For WCDMA

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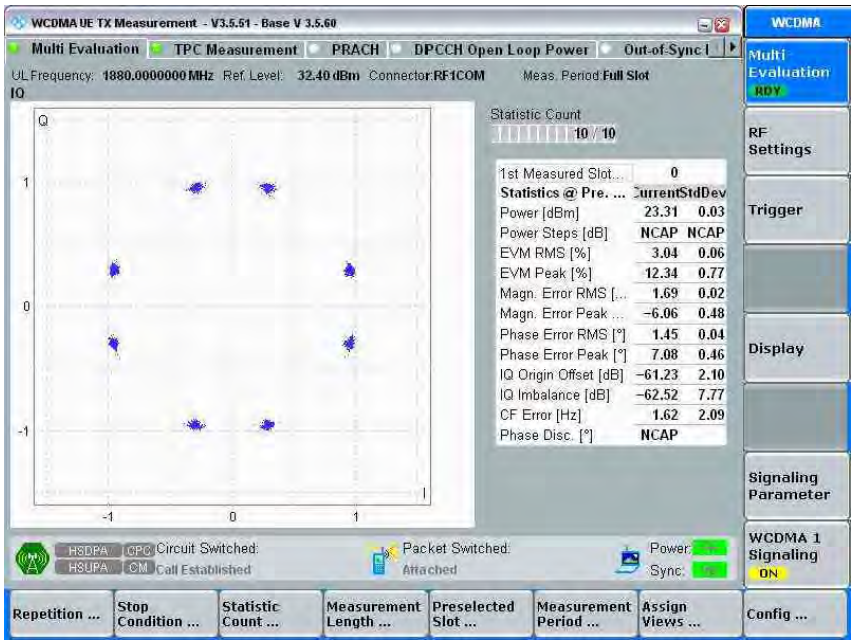
3.1.1.1. Test Mode = UMTS/TM1

3.1.1.1.1. Test Channel = MCH



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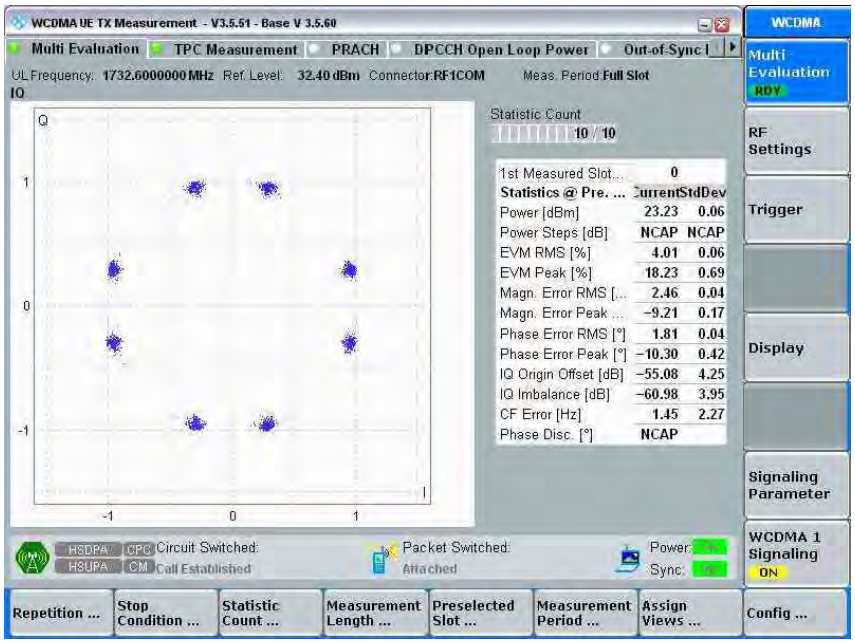
3.1.2.1. Test Mode = UMTS/TM1

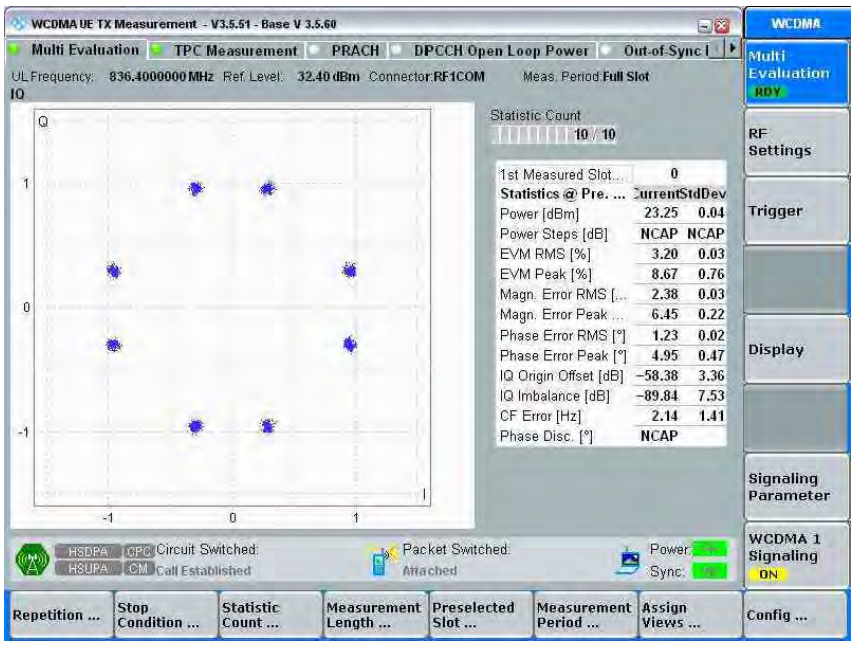
3.1.2.1.1. Test Channel = MCH



3.1.3. Test BAND = WCDMA BAND V

3.1.3.1. Test Mode = UMTS /TM1

3.1.3.1.1. Test Channel = MCH

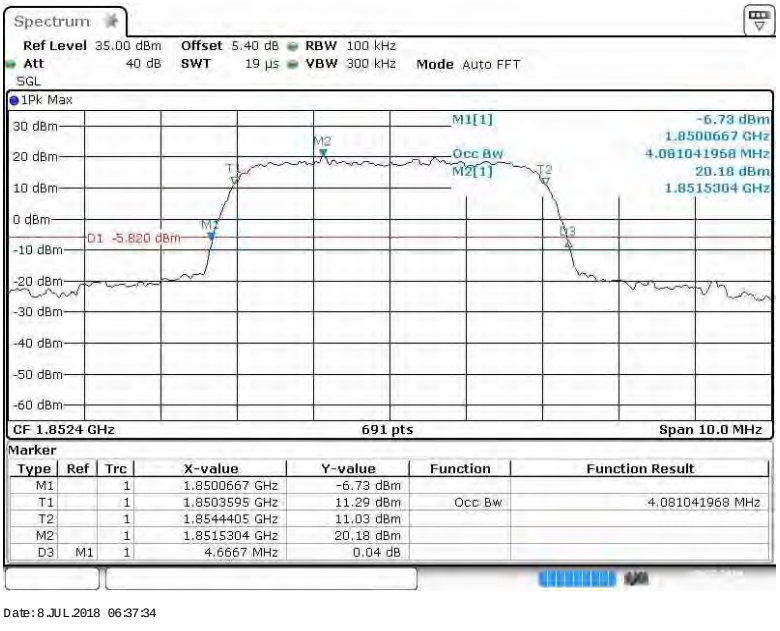


4. 26dB Bandwidth and Occupied Bandwidth

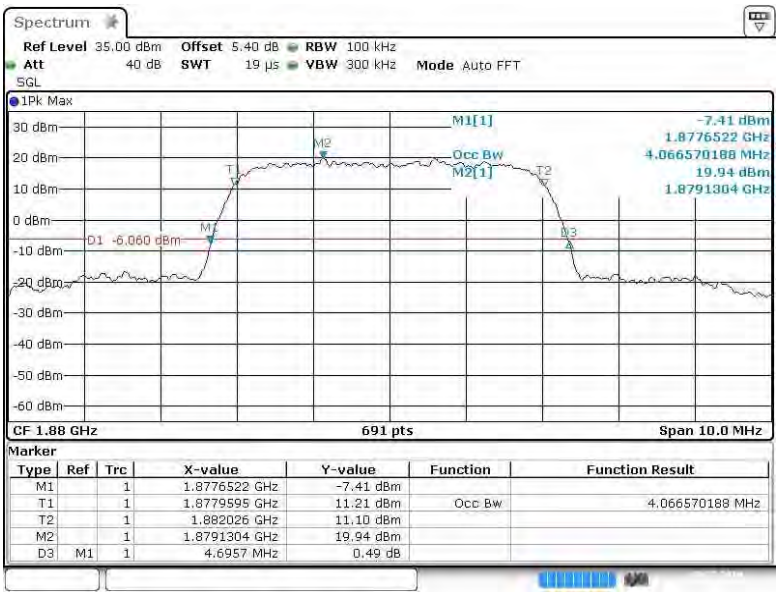
4.1. Test Result

BAND	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit(kHz)	Verdict
BAND II	9262	4081.0	4667	---	PASS
	9400	4066.6	4696	---	PASS
	9538	4081.0	4667	---	PASS
BAND IV	1312	4081.0	4681	---	PASS
	1413	4081.0	4681	---	PASS
	1513	4081.0	4681	---	PASS
BAND V	4132	4066.6	4667	---	PASS
	4182	4081.0	4681	---	PASS
	4233	4110.0	4768	---	PASS

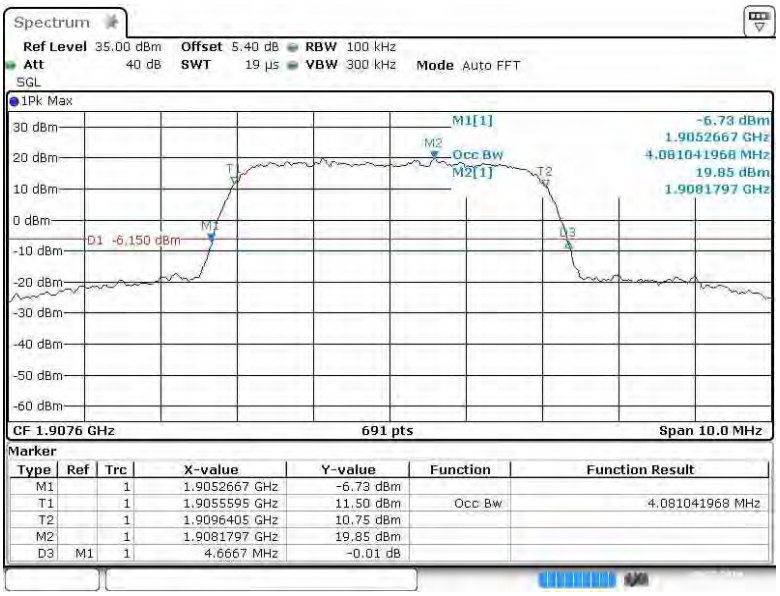
4.2. Test Plots



BAND II_9262



BAND II_9400



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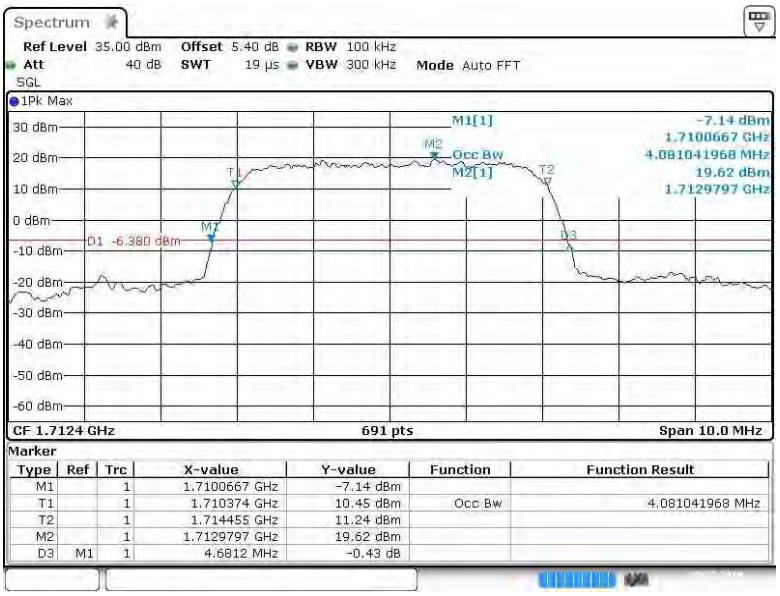
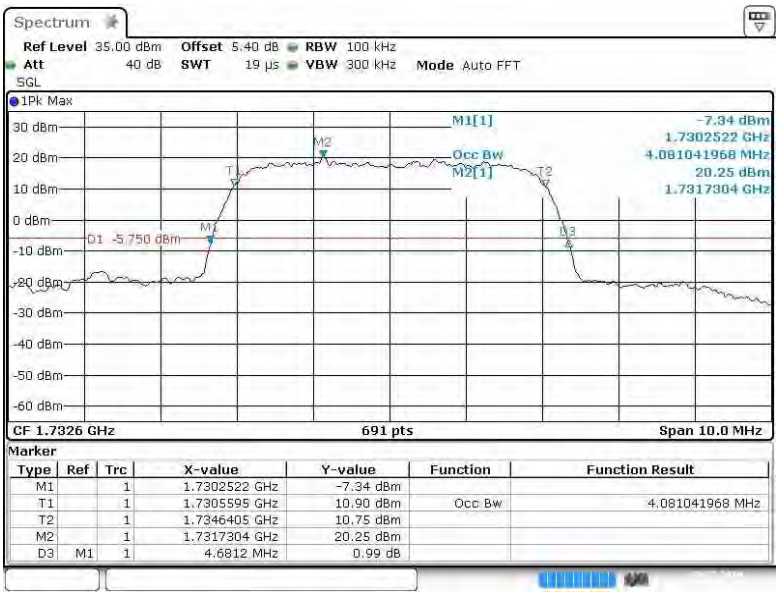


BAND IV_1312



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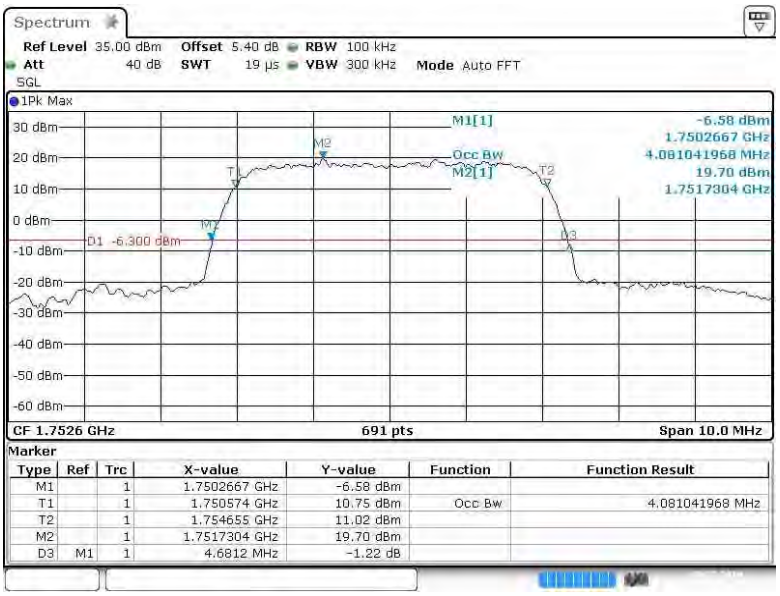
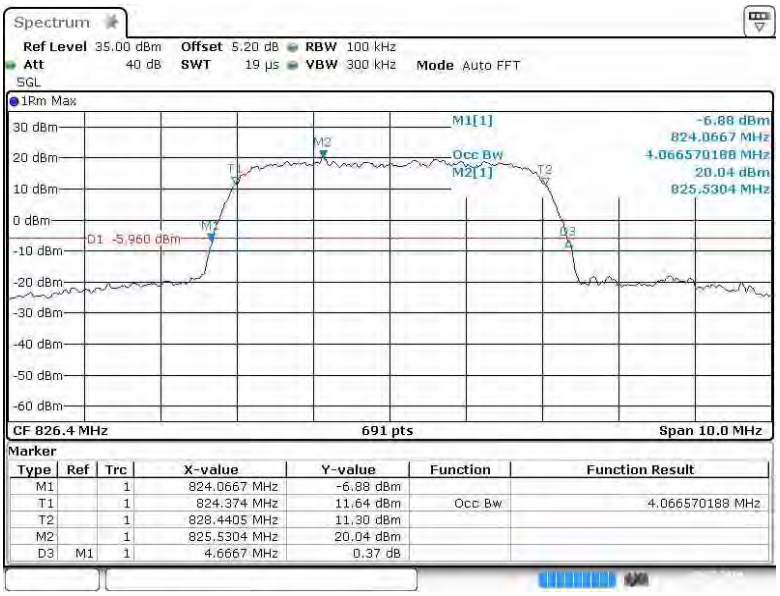
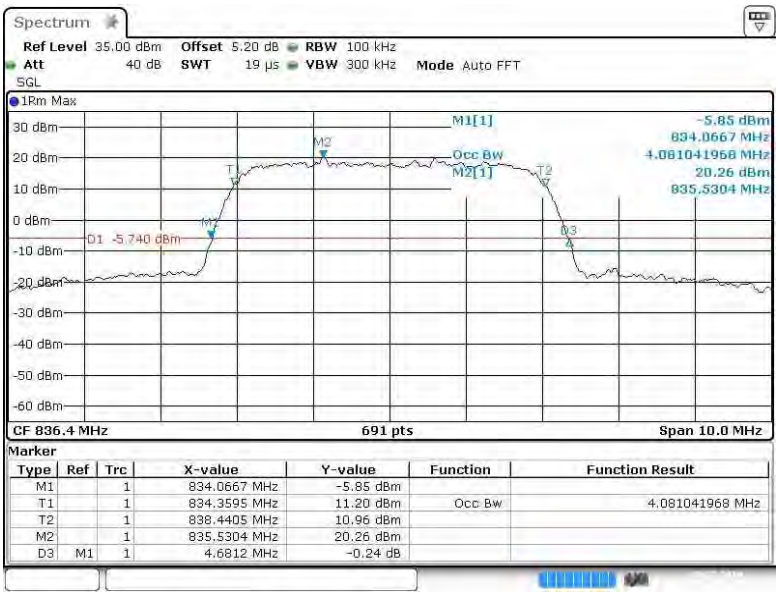


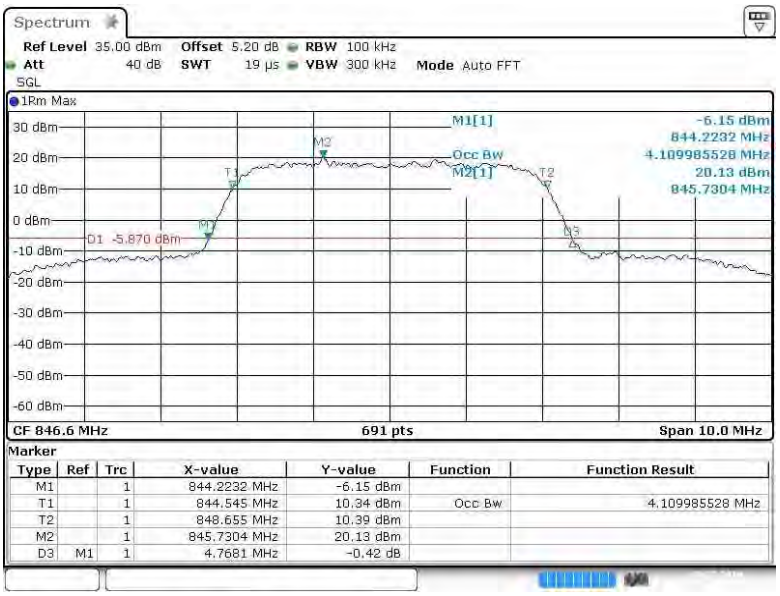
BAND IV_1513



BAND V_4132



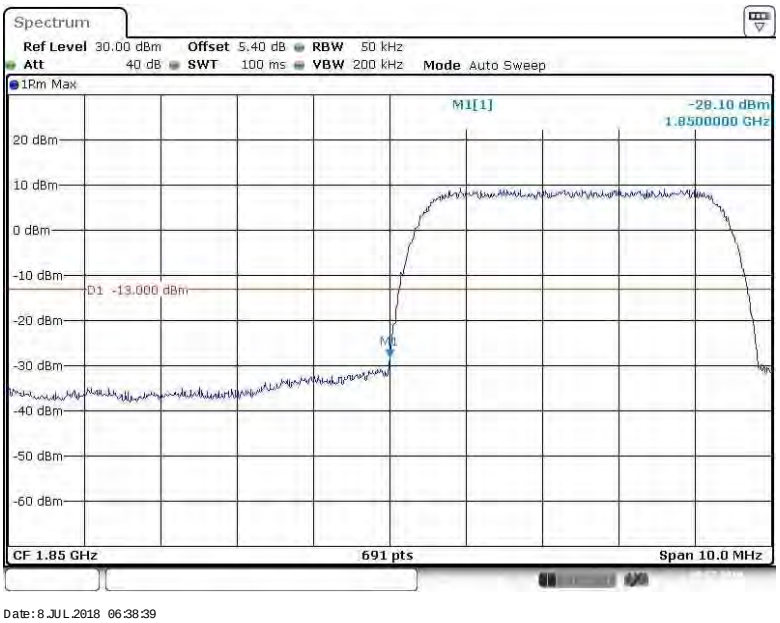
BAND V_4182



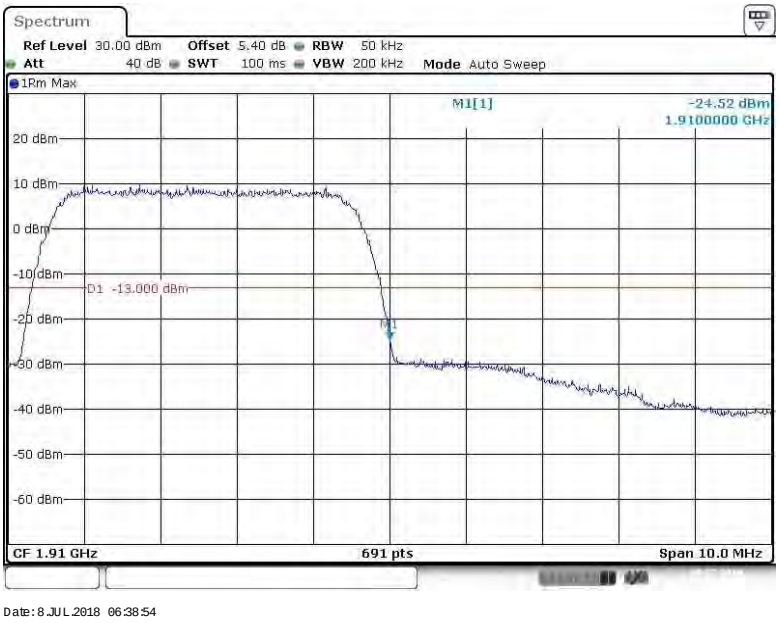
BAND V_4233

5. Band Edge Compliance

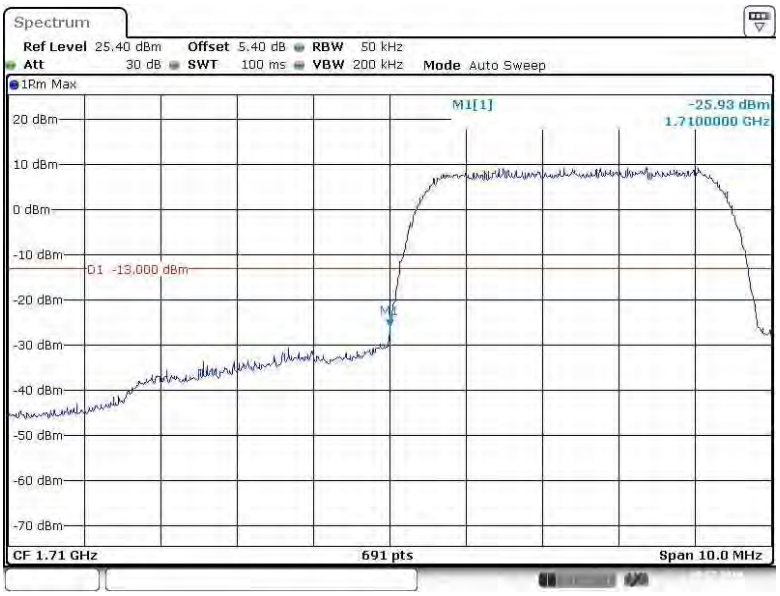
5.1. Test Plots



BAND II_9262



BAND II_9538



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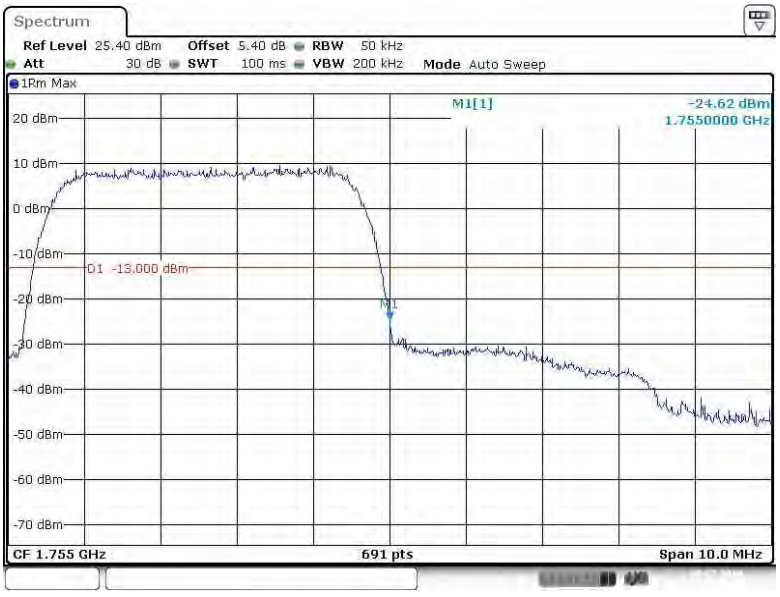
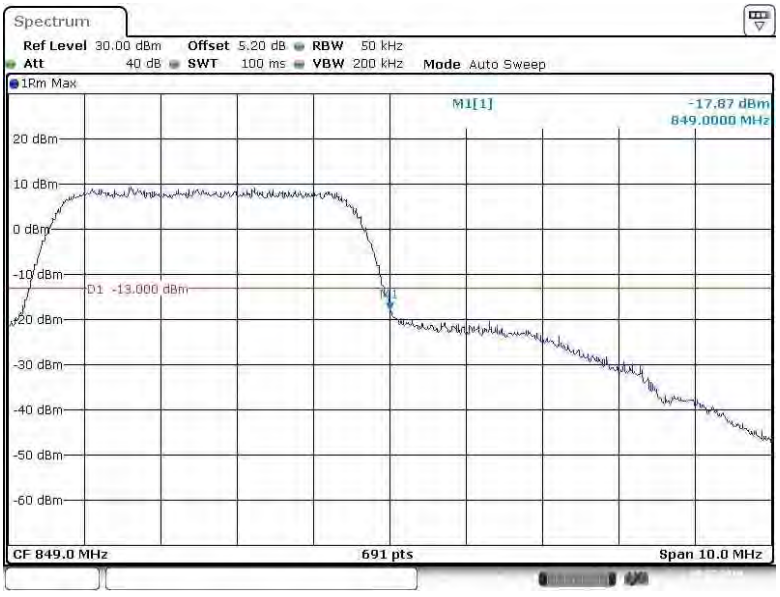


BAND IV_1513

BAND V_4132



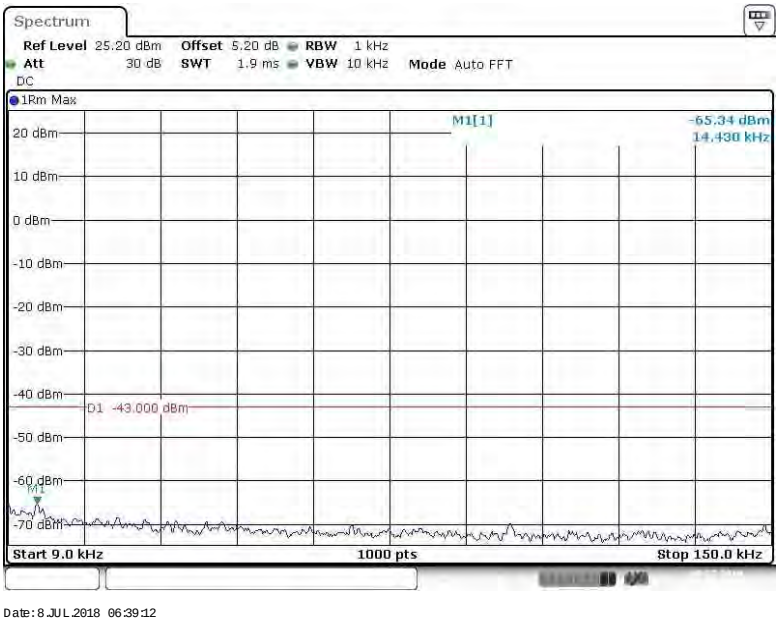
BAND V_4233

6. Spurious Emission at Antenna Terminal

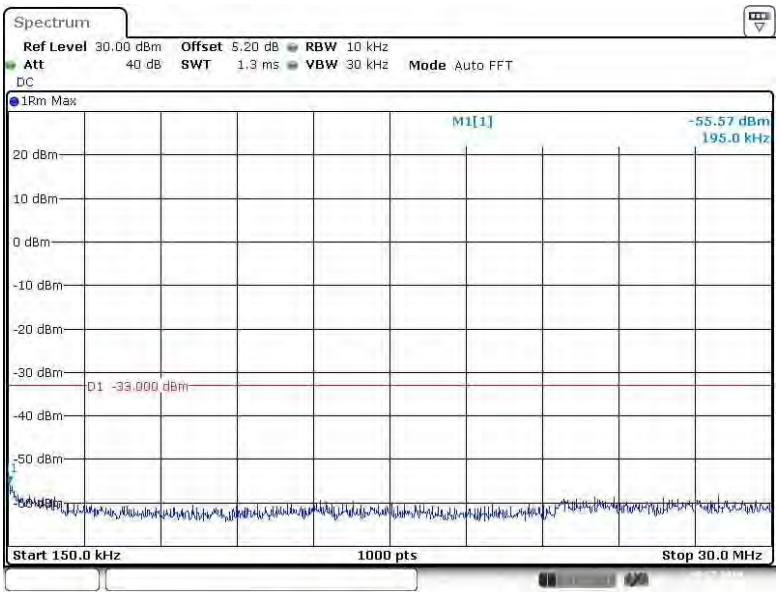
NOTE1: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of < RBW/2 so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = k * (Span / RBW)" with k between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

NOTE2: only the worst case data displayed in this report.

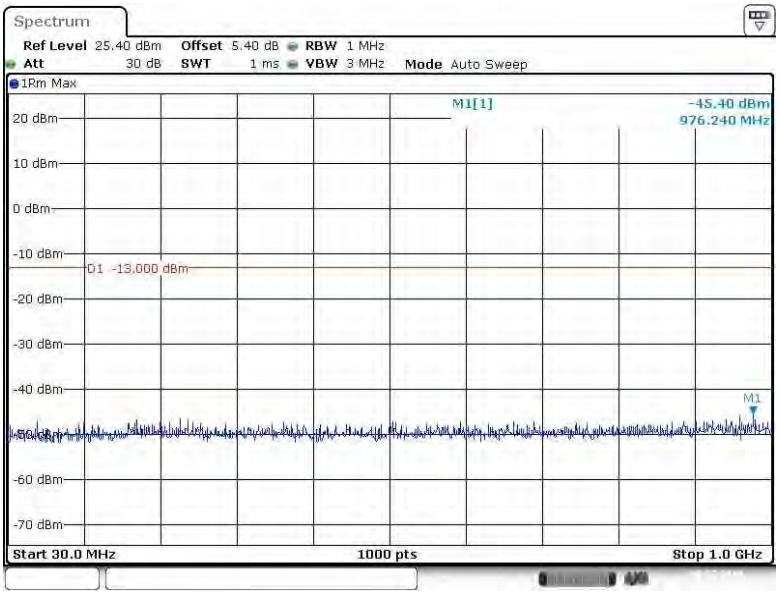
6.1. Test Plots



BAND II_9262



BAND II_9262



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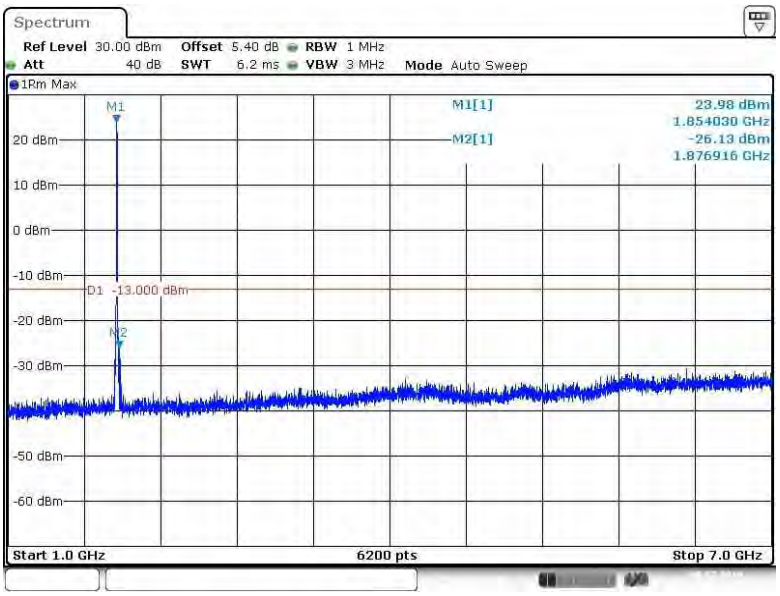
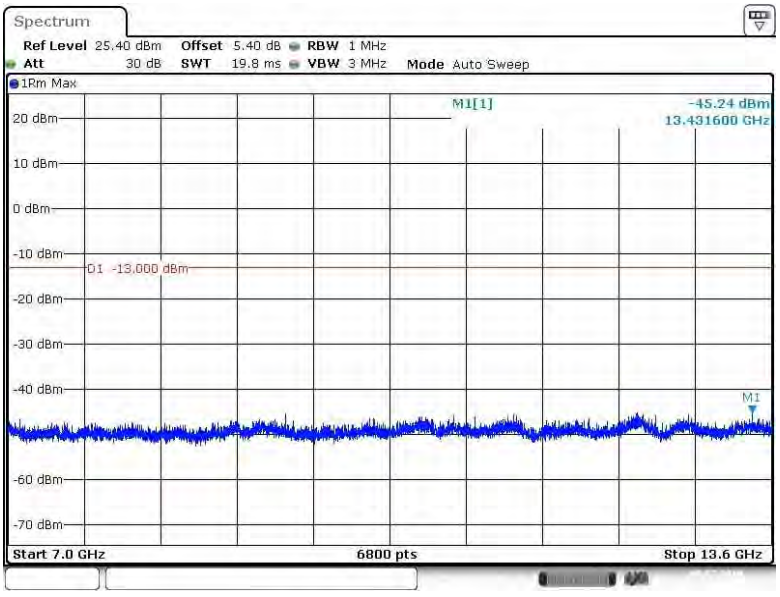


BAND II_9262



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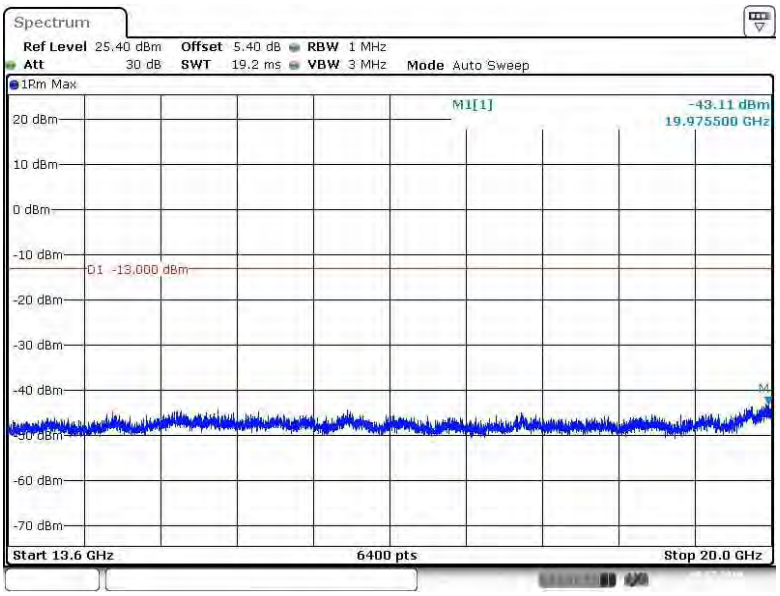

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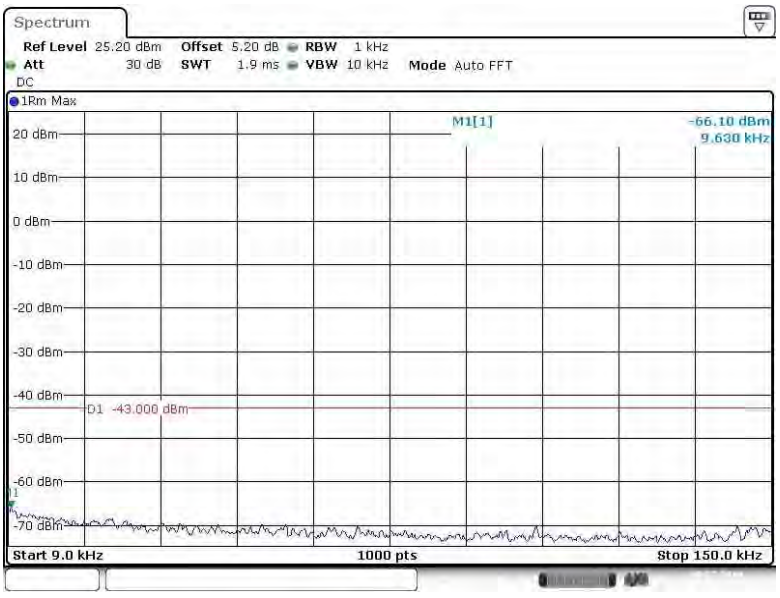
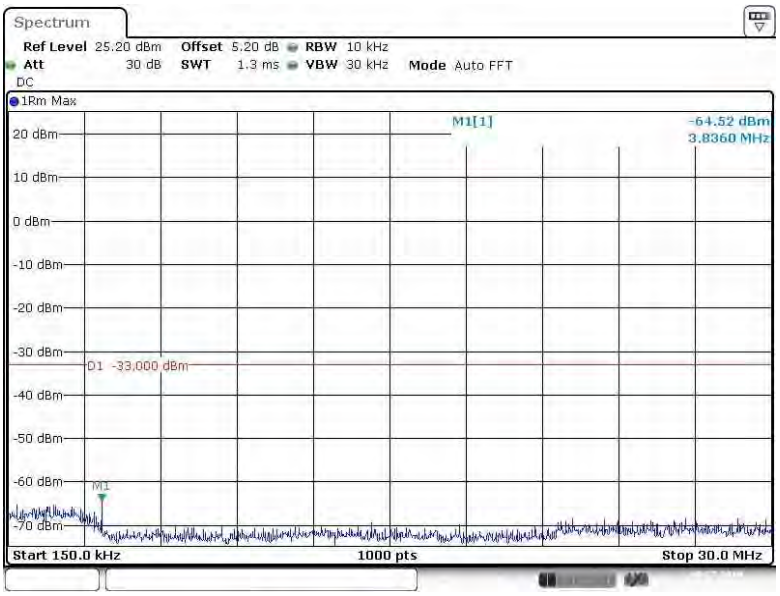


BAND II_9400



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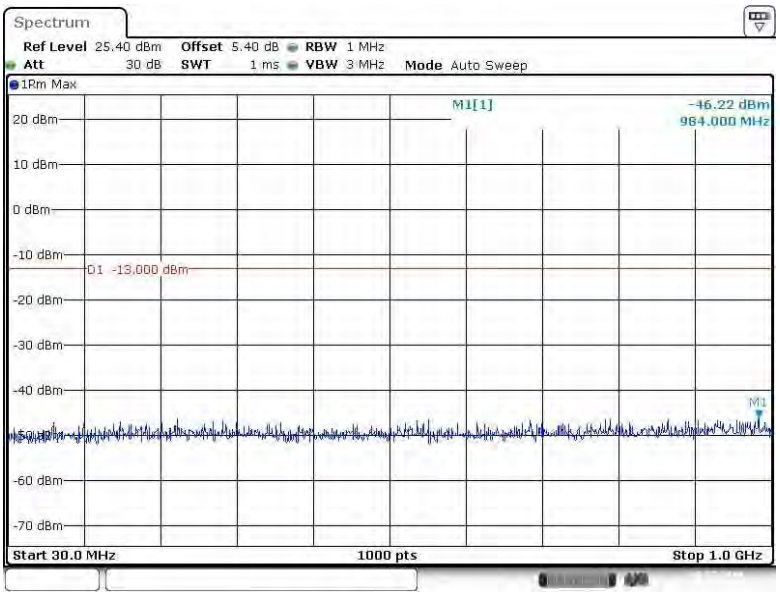

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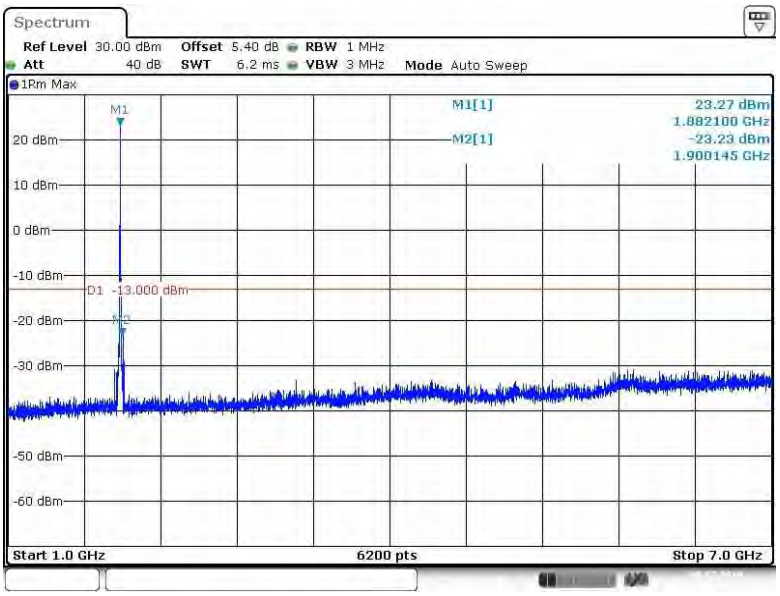

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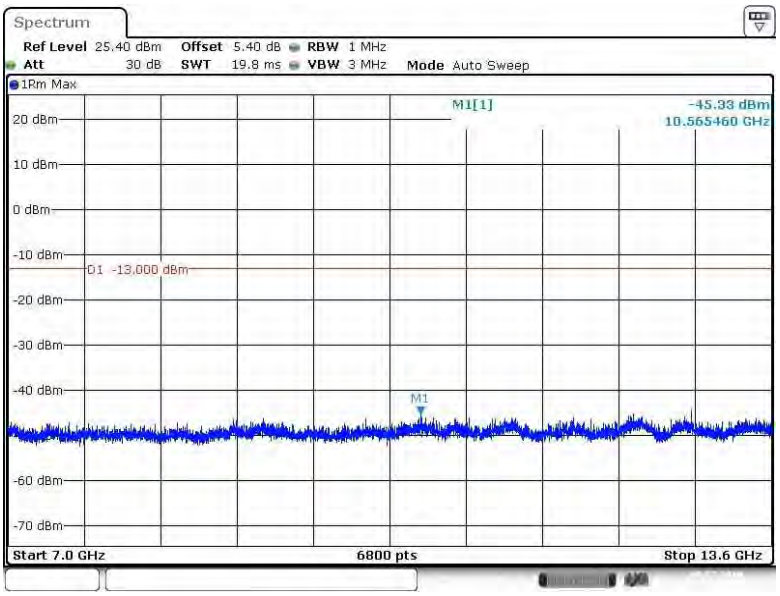

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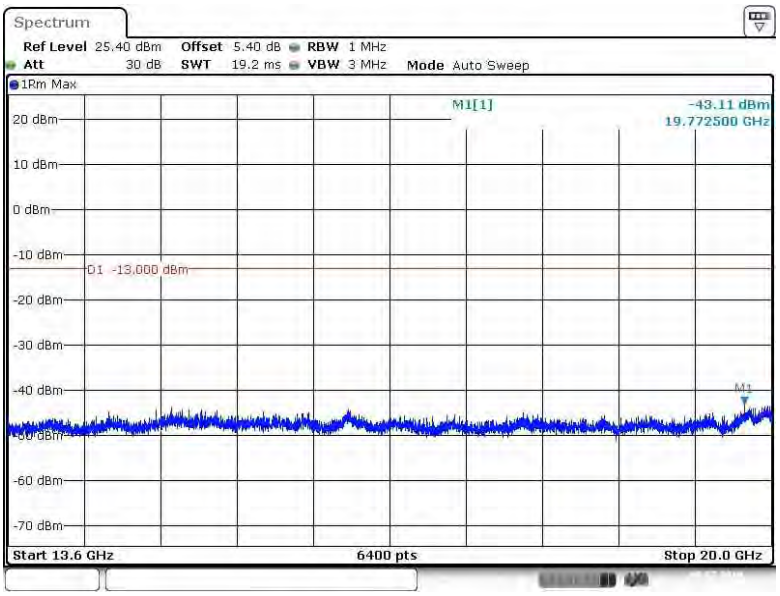

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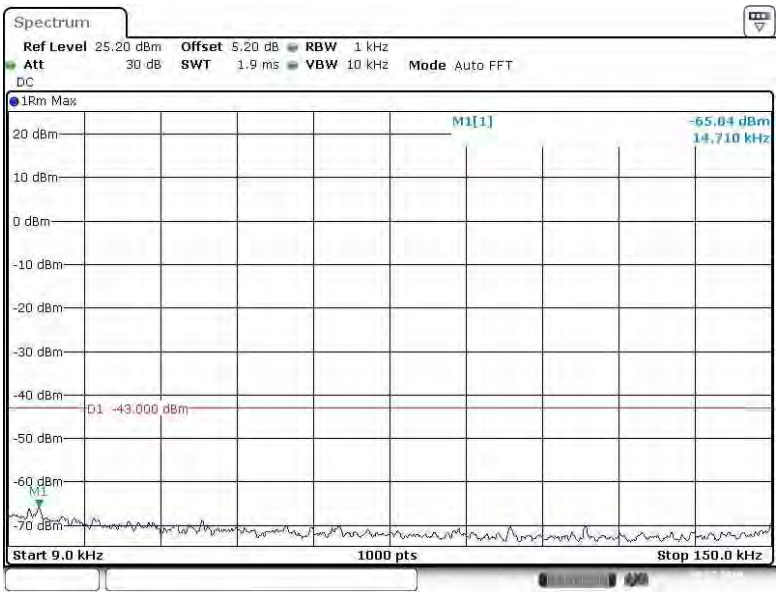

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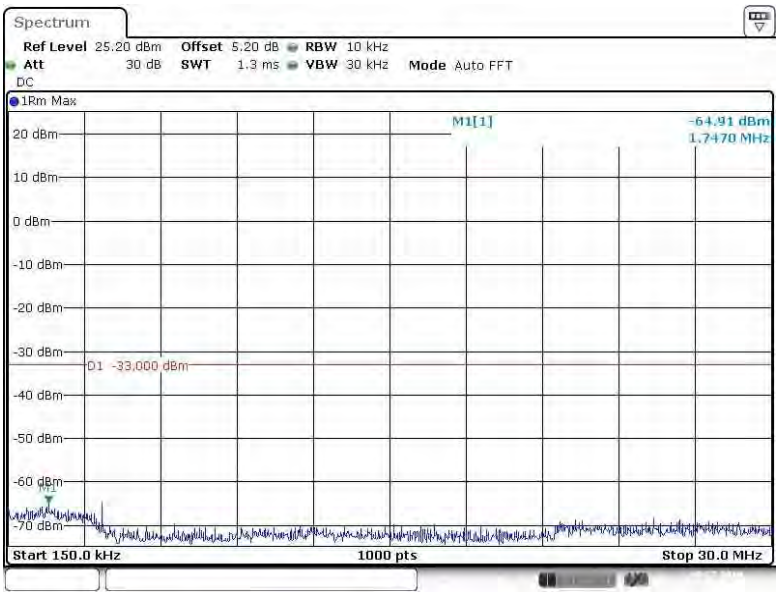

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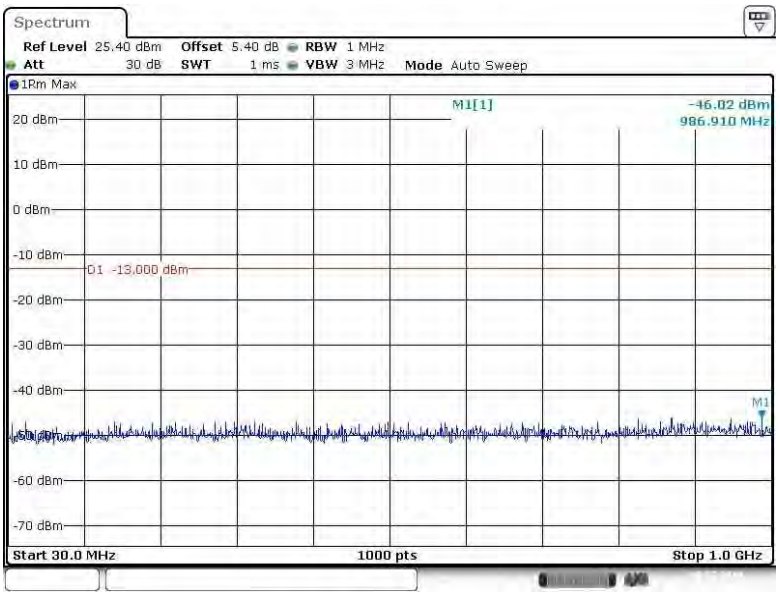

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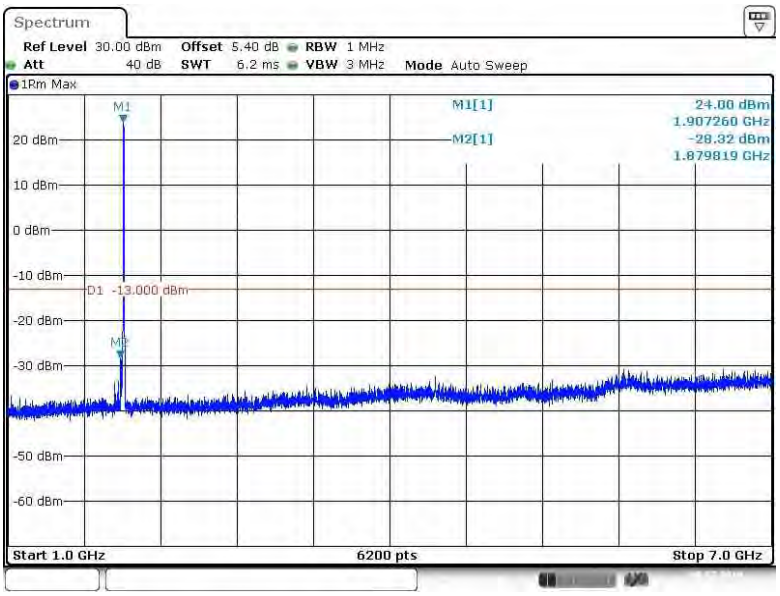

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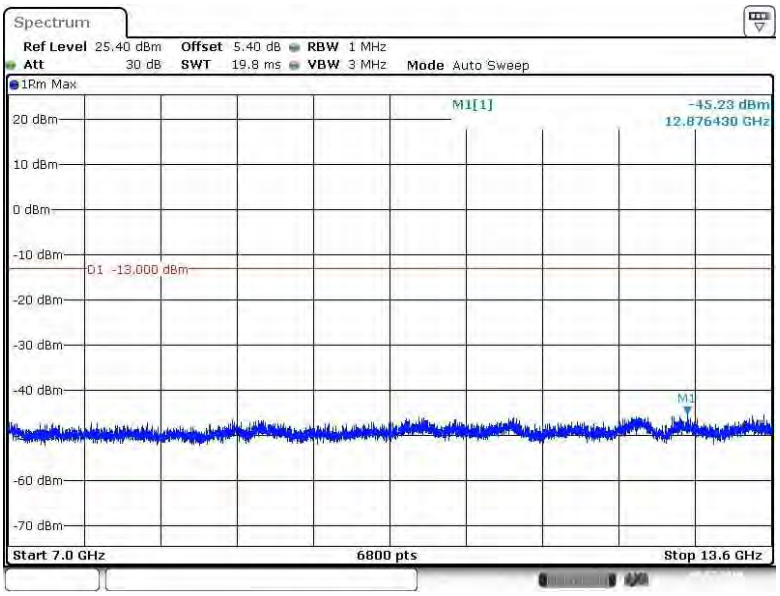

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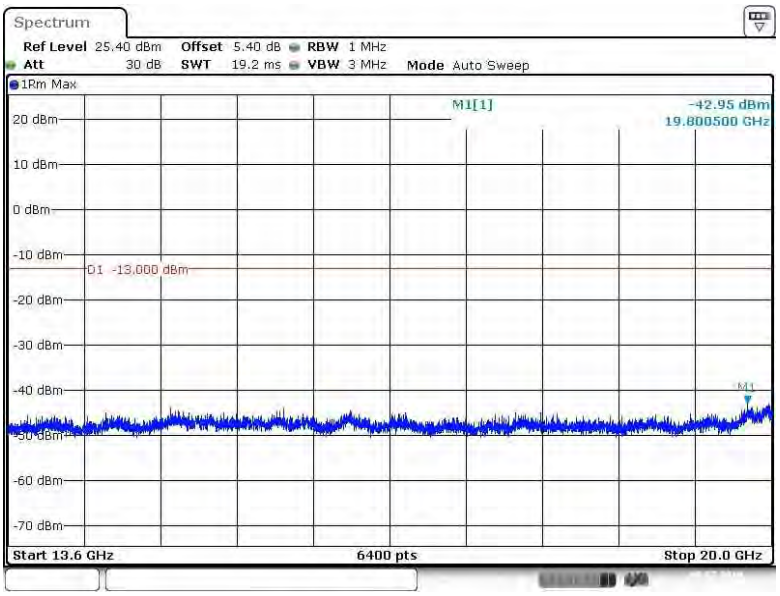

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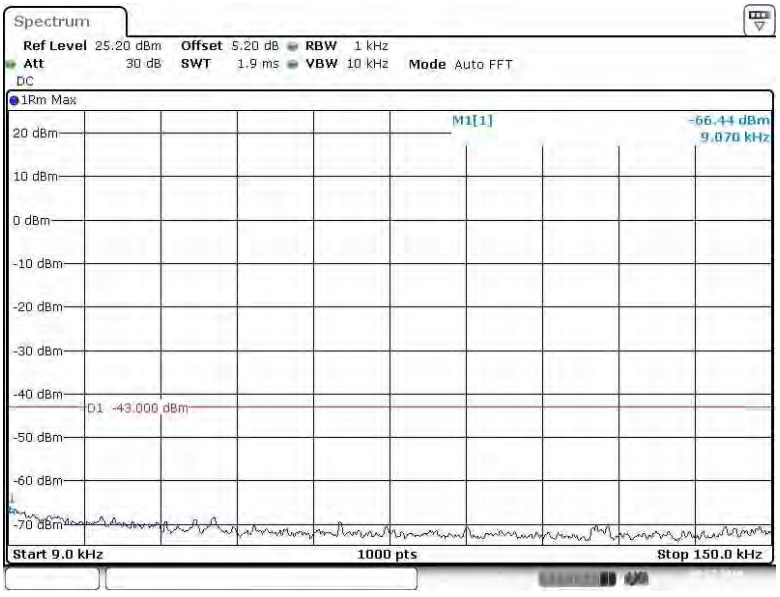

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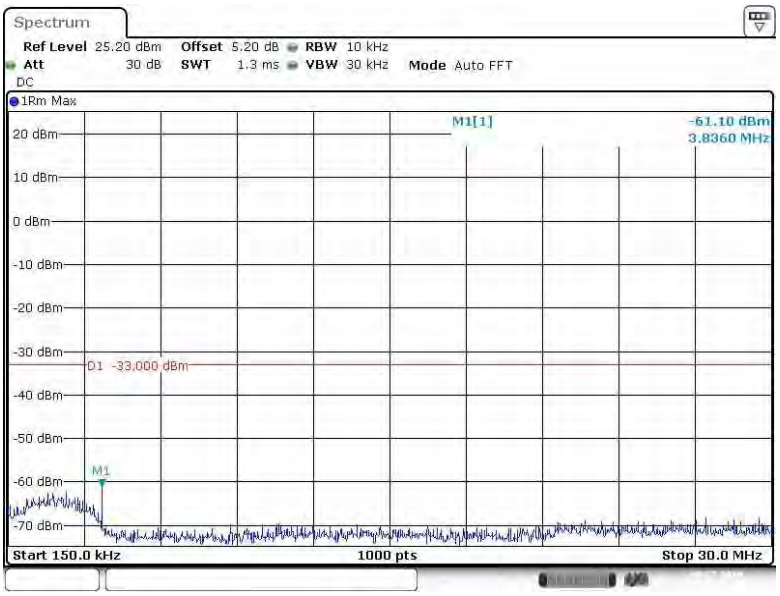

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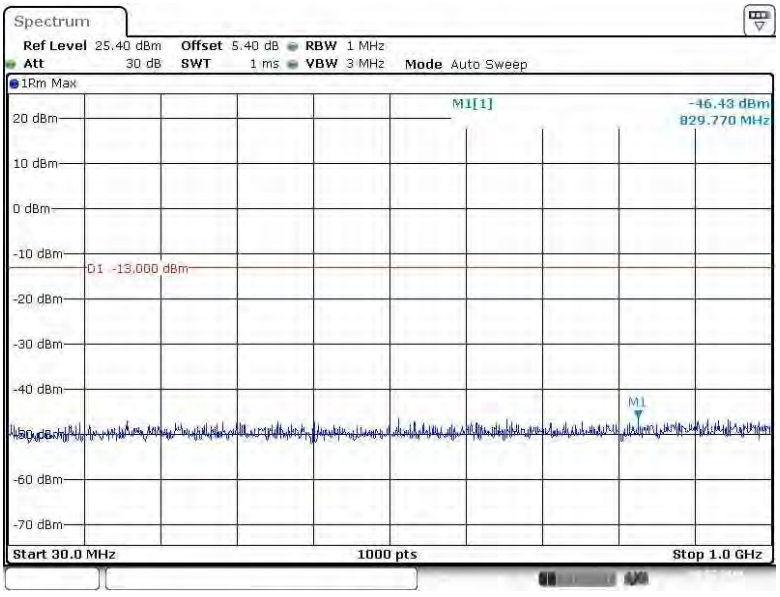

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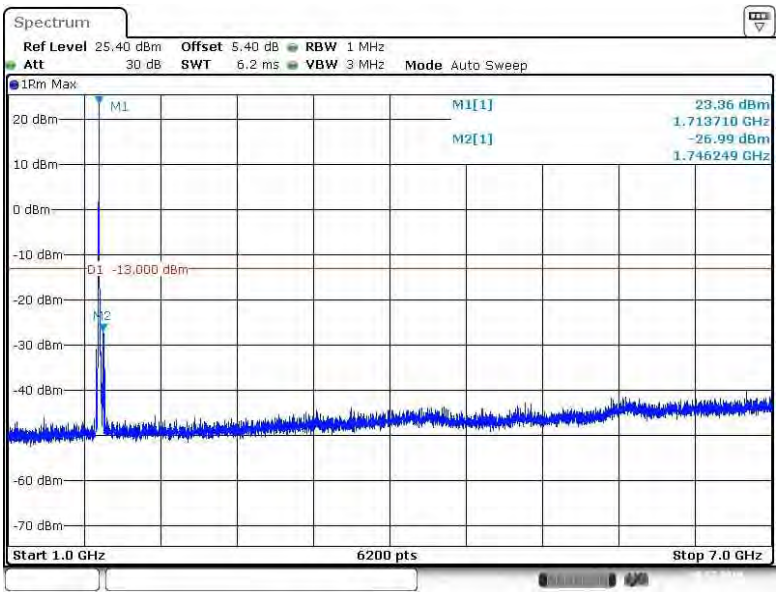

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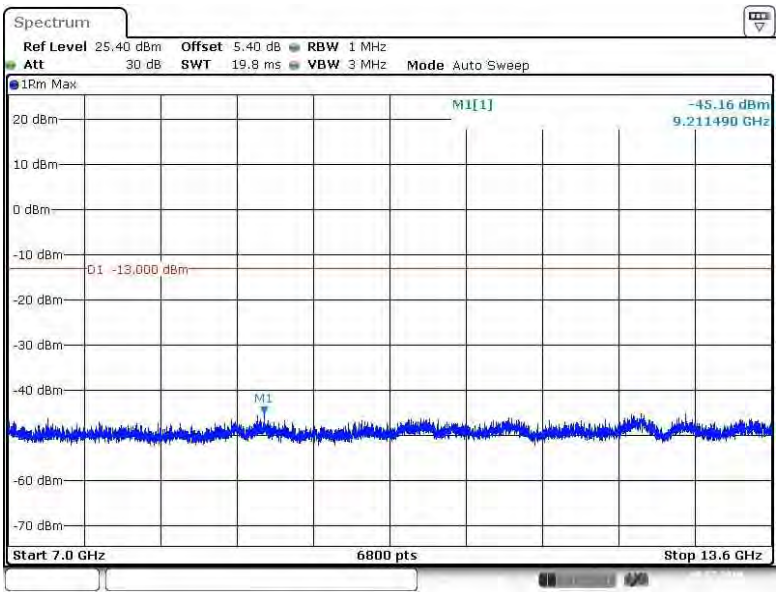
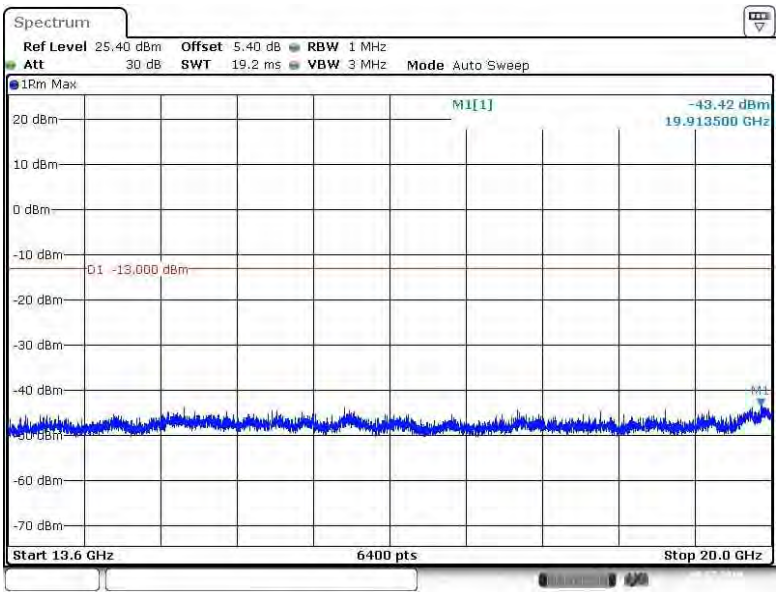
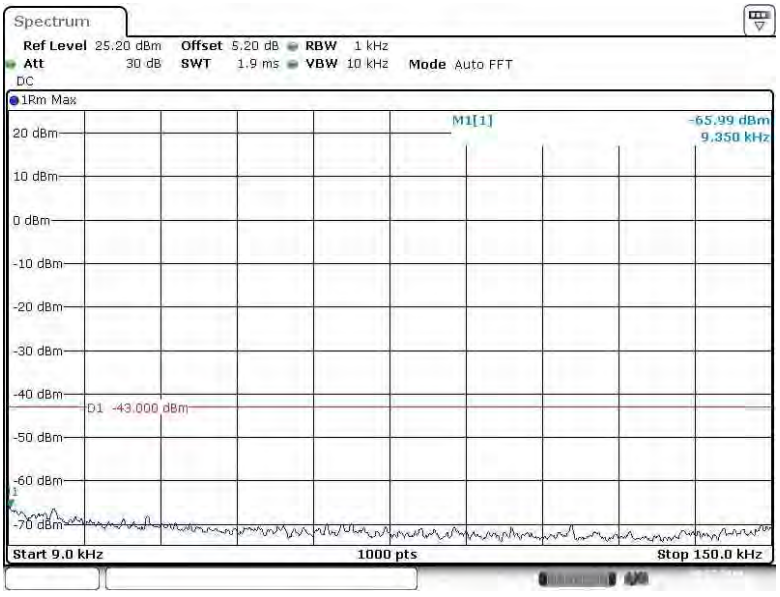


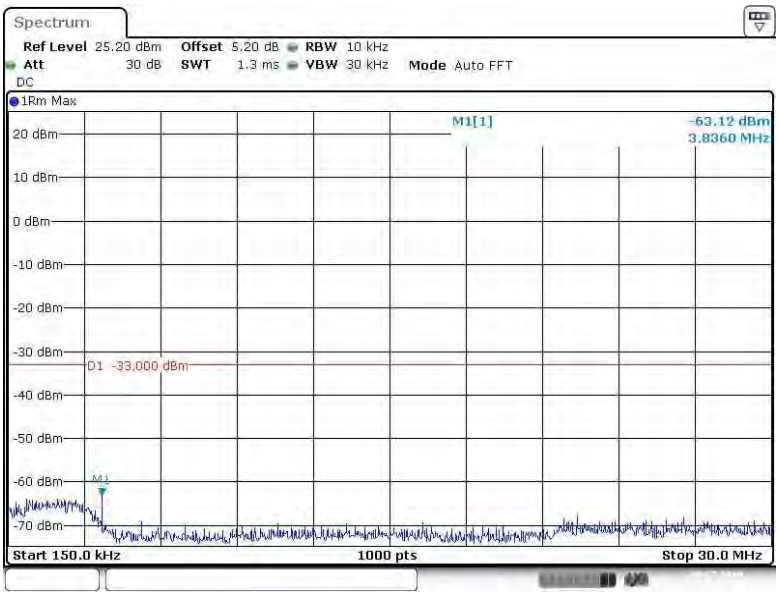
BAND IV_1312



BAND IV_1312



BAND IV_1413



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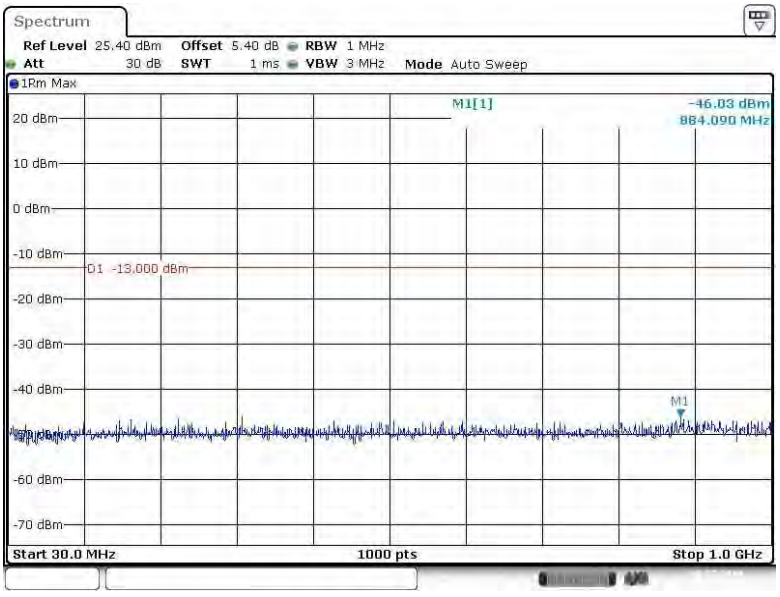

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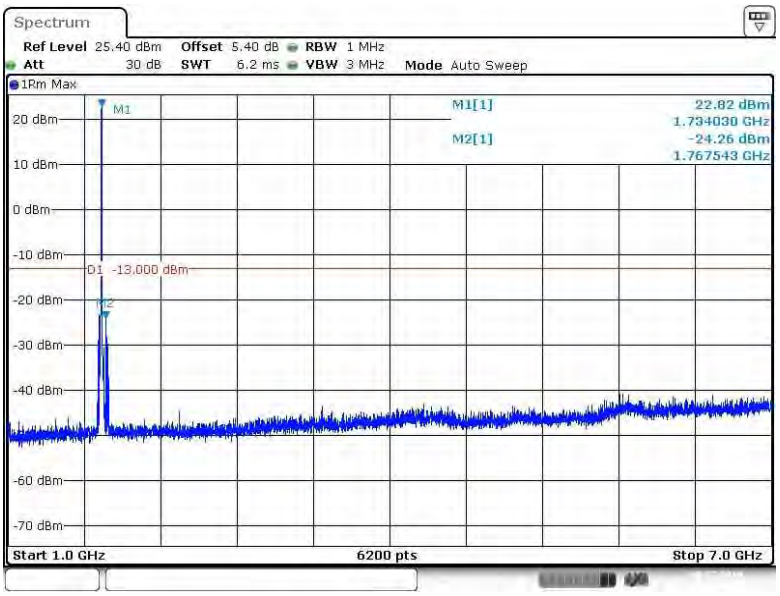

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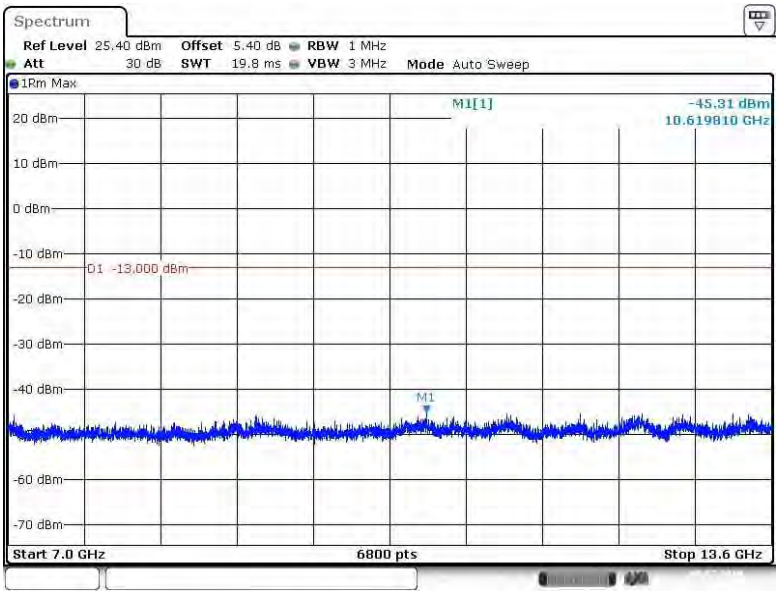

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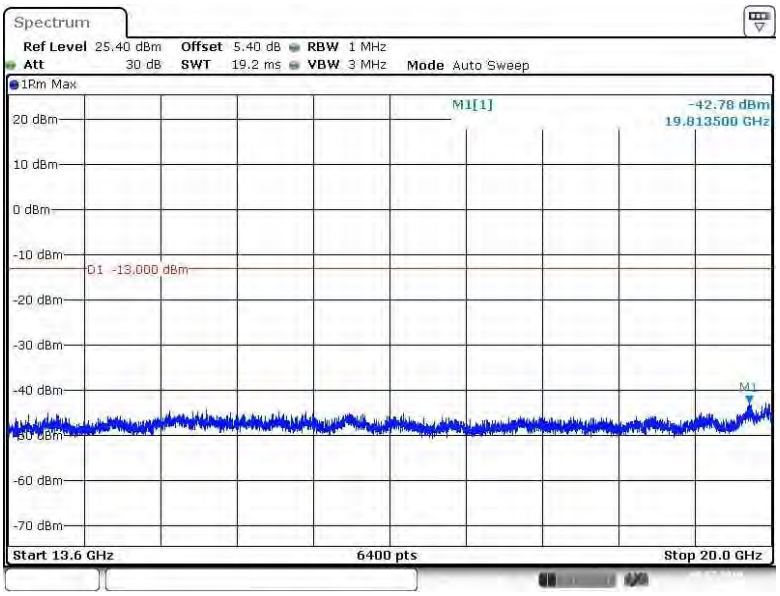
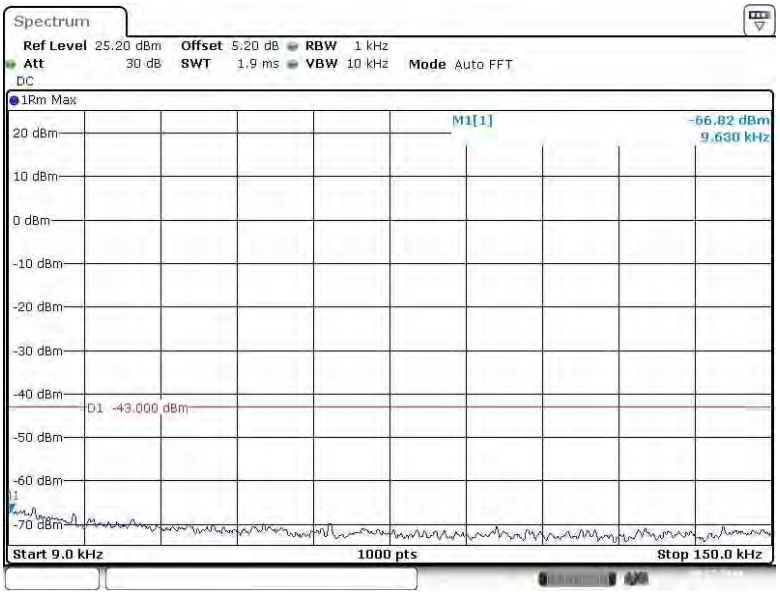


BAND IV_1413



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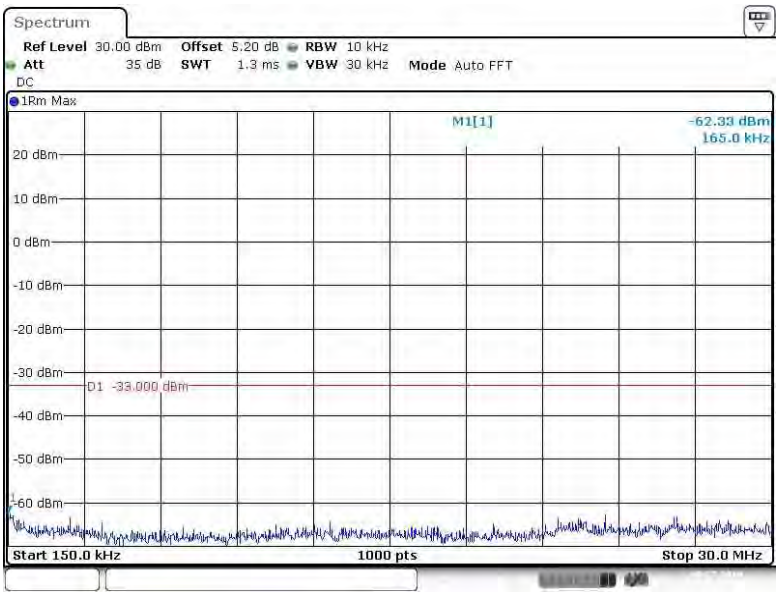

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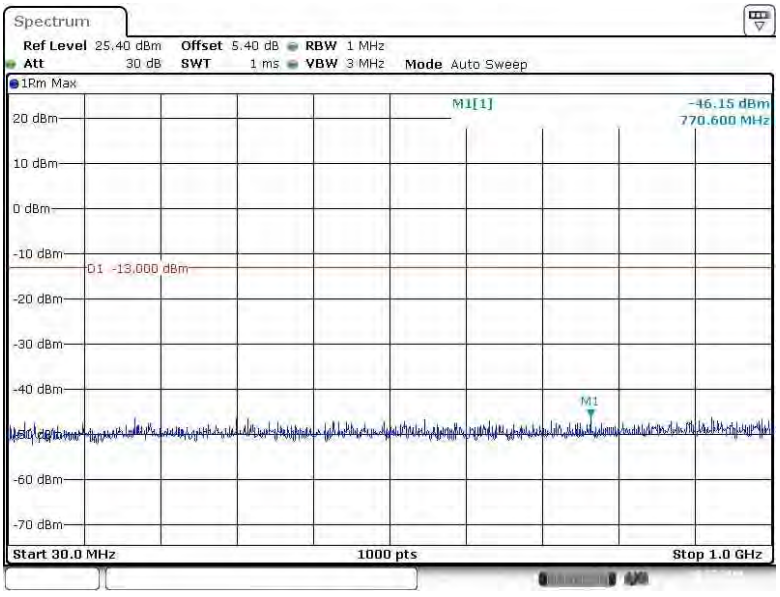

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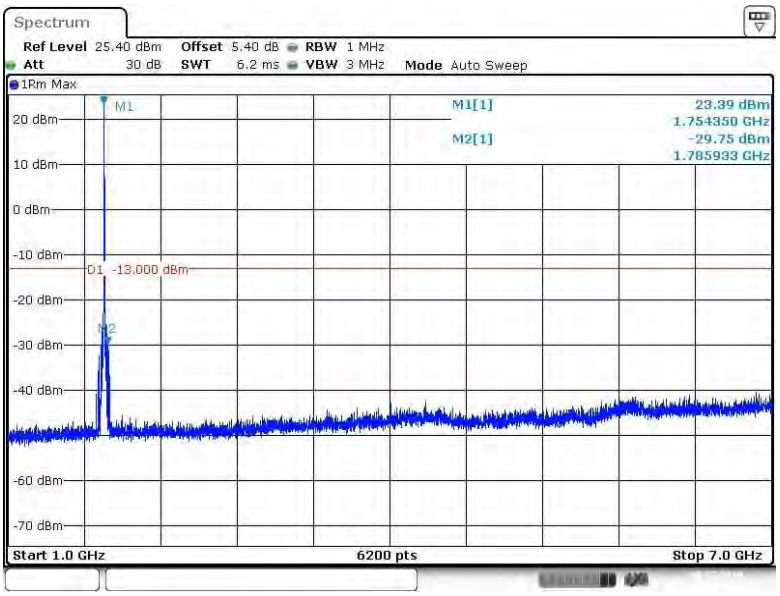
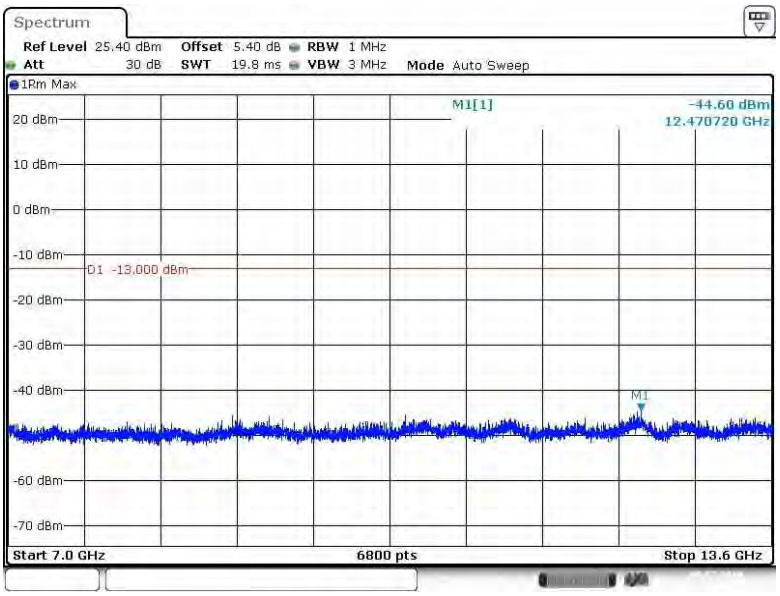
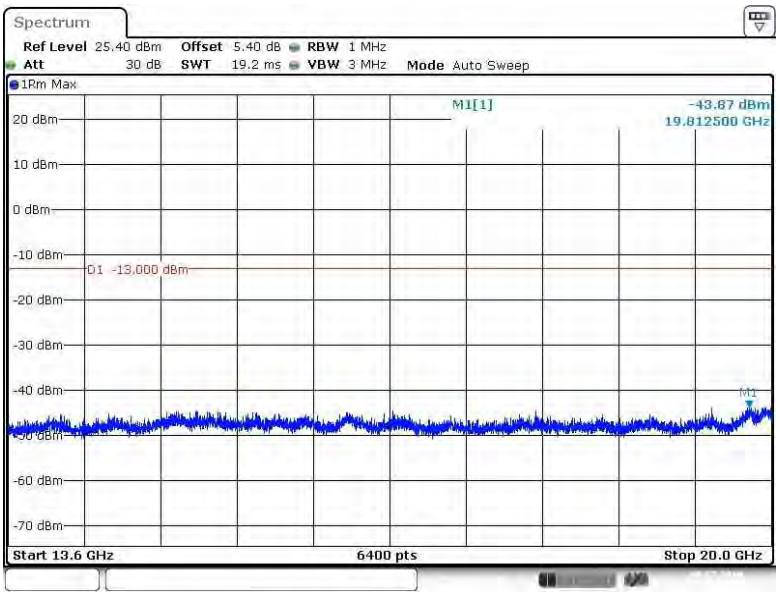


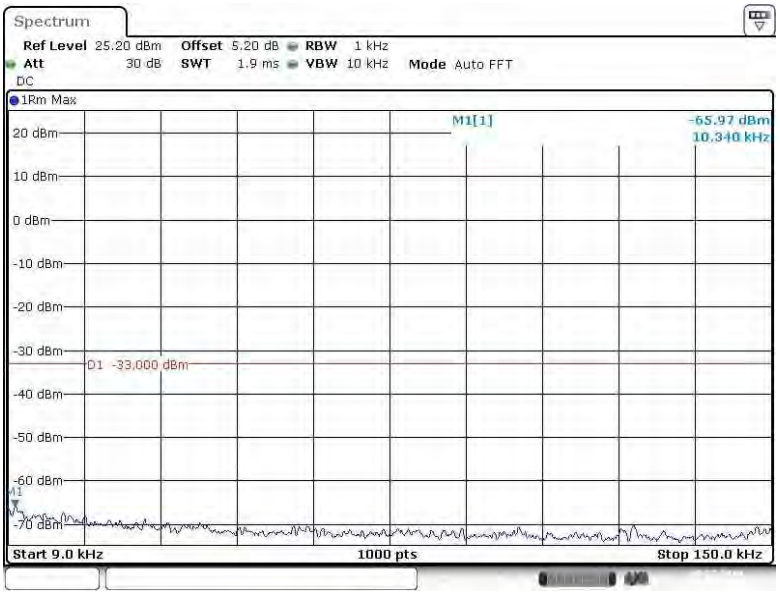
BAND IV_1513



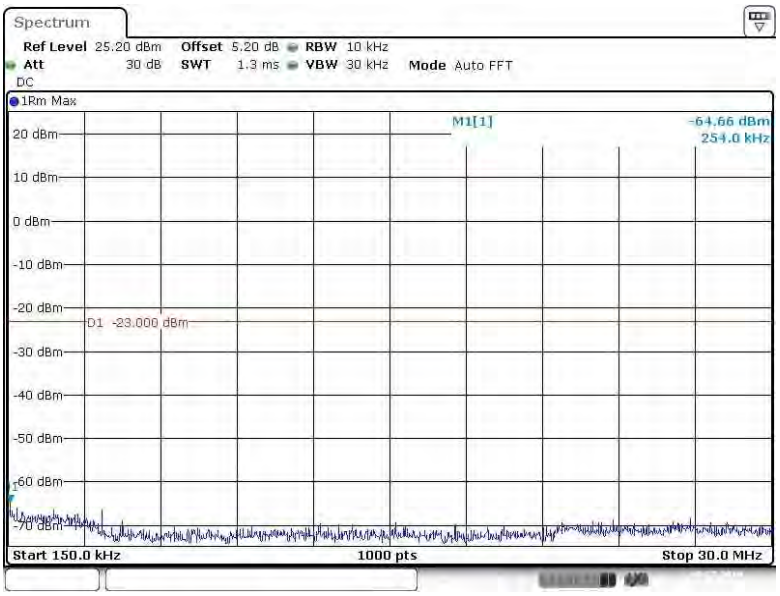
BAND IV_1513



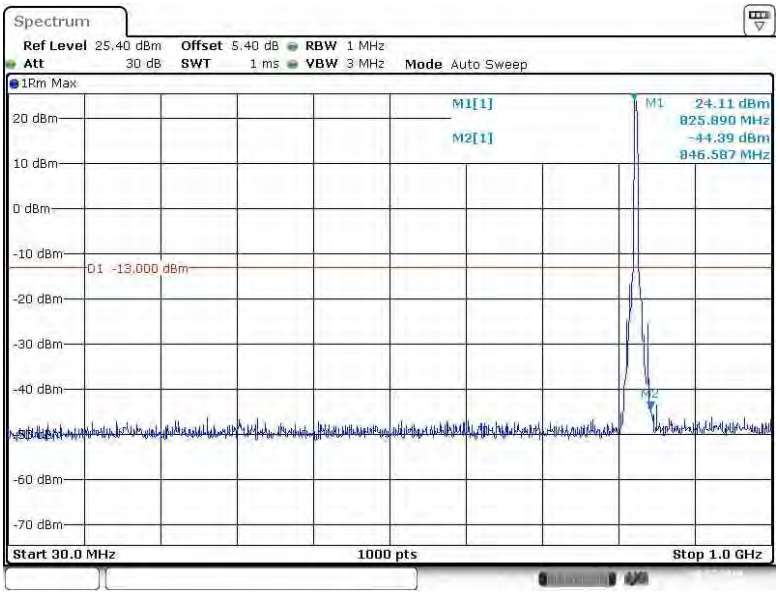
BAND IV_1513



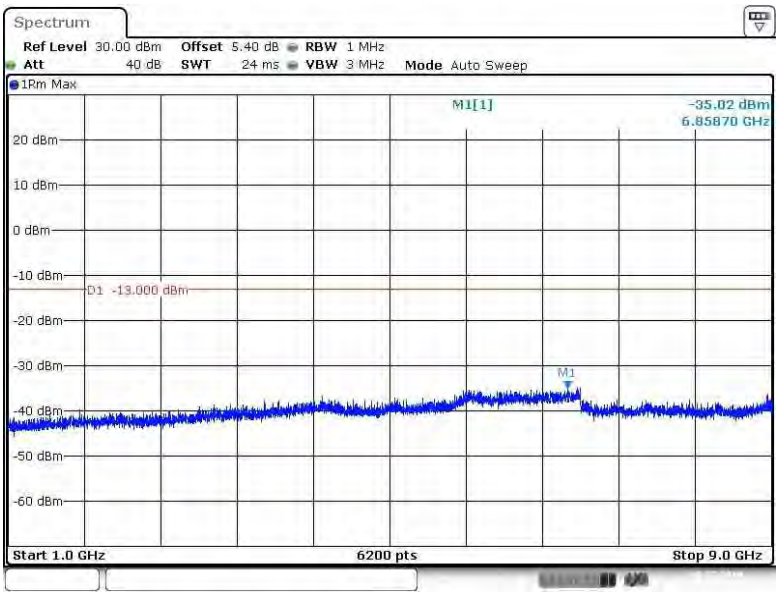
BAND V_4132



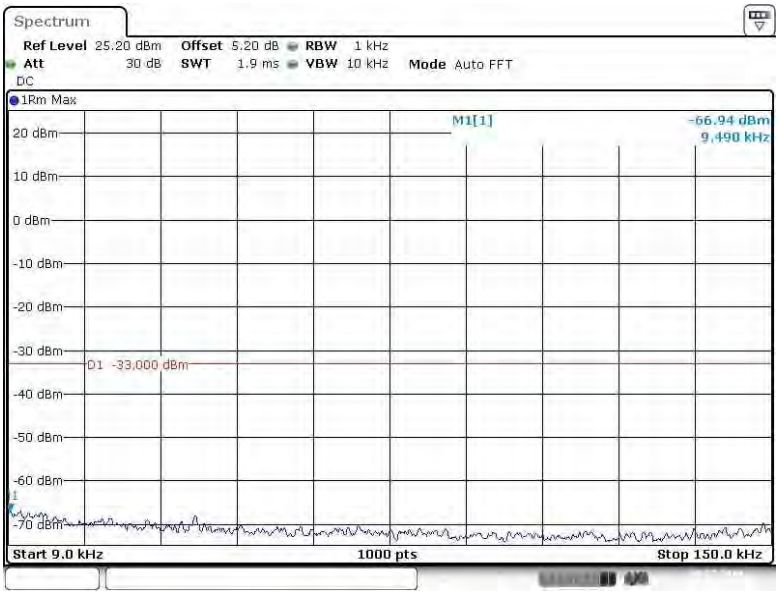
BAND V_4132



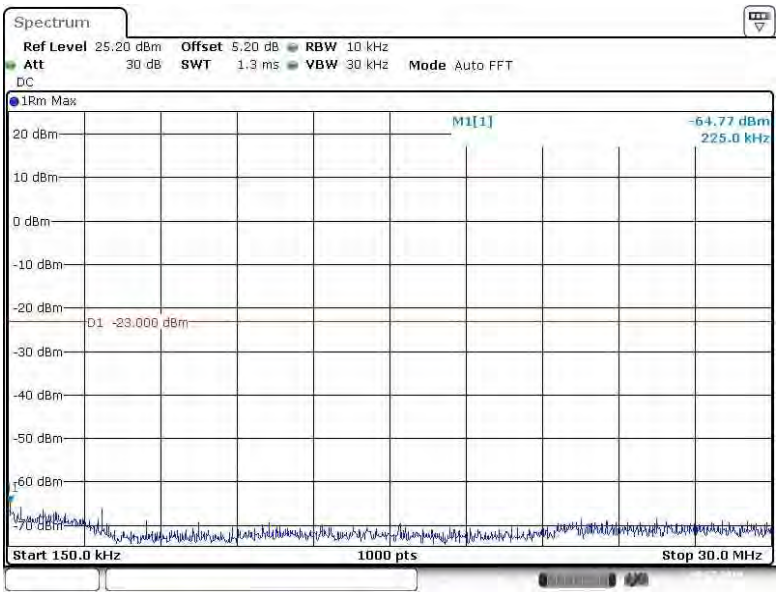
BAND V_4132



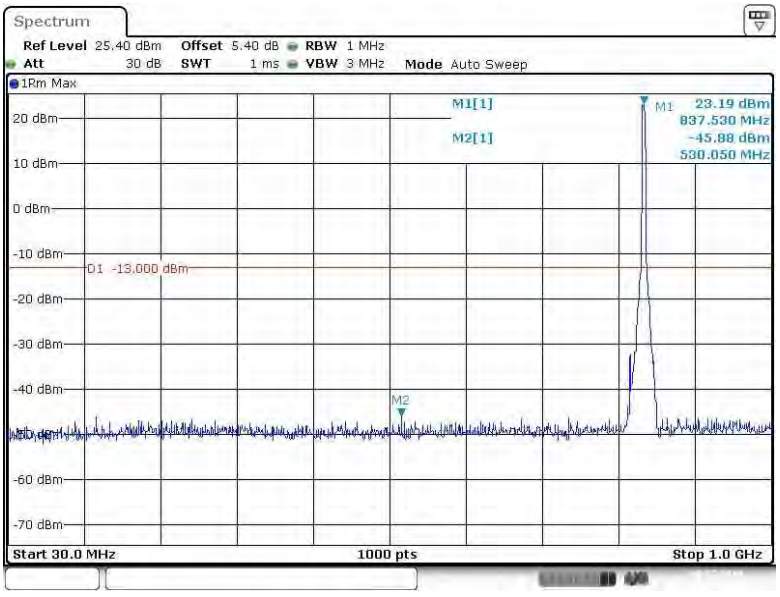
BAND V_4132



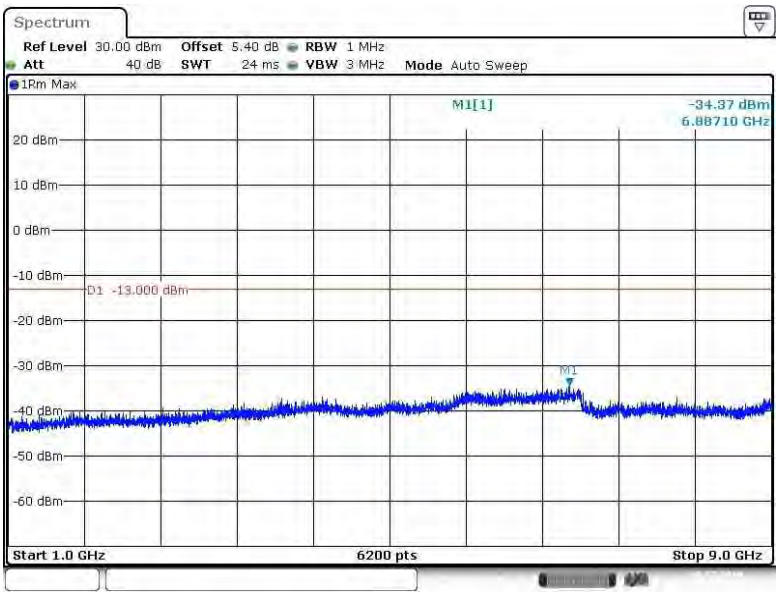
BAND V_4182



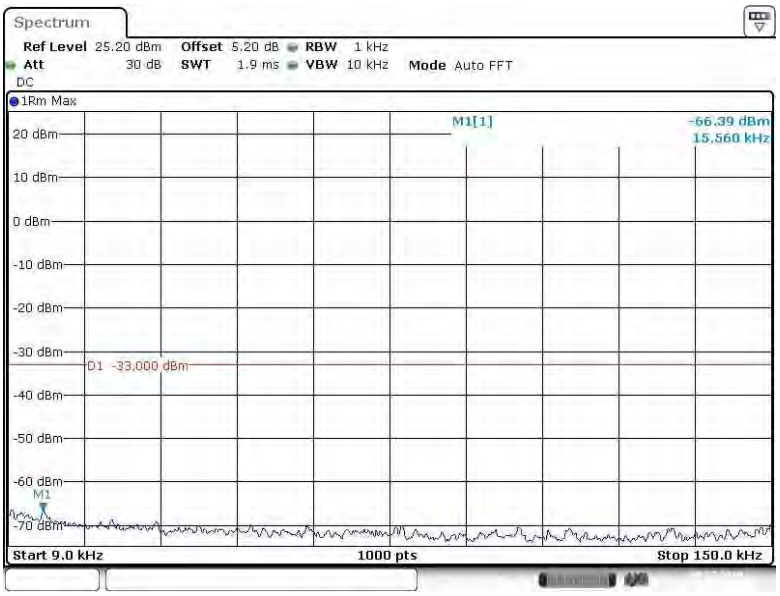
BAND V_4182



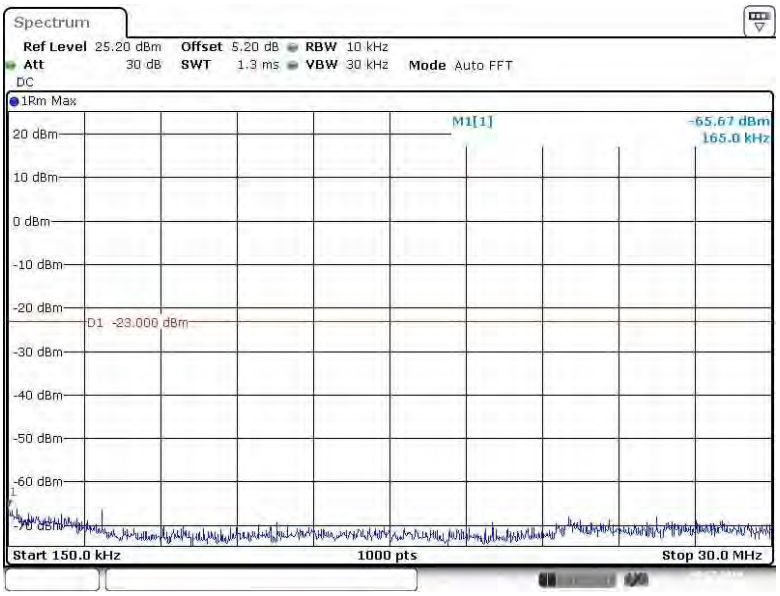
BAND V_4182



BAND V_4182



BAND V_4233



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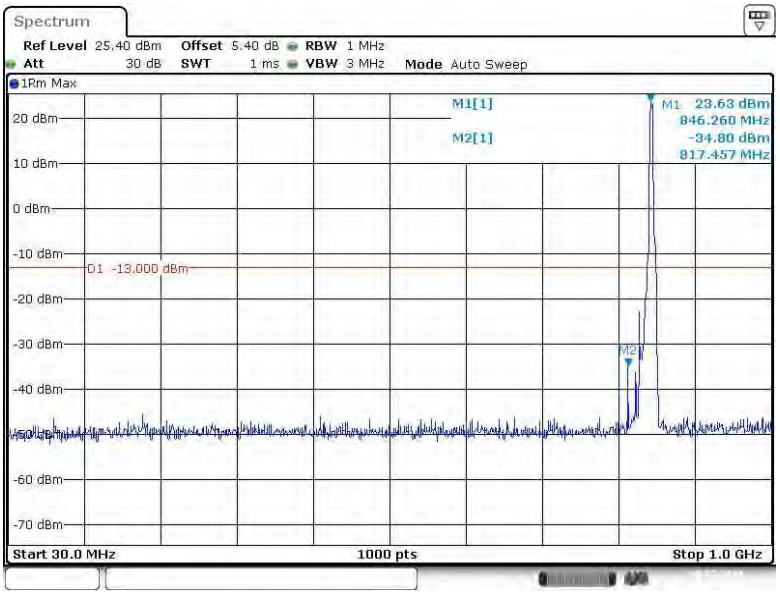
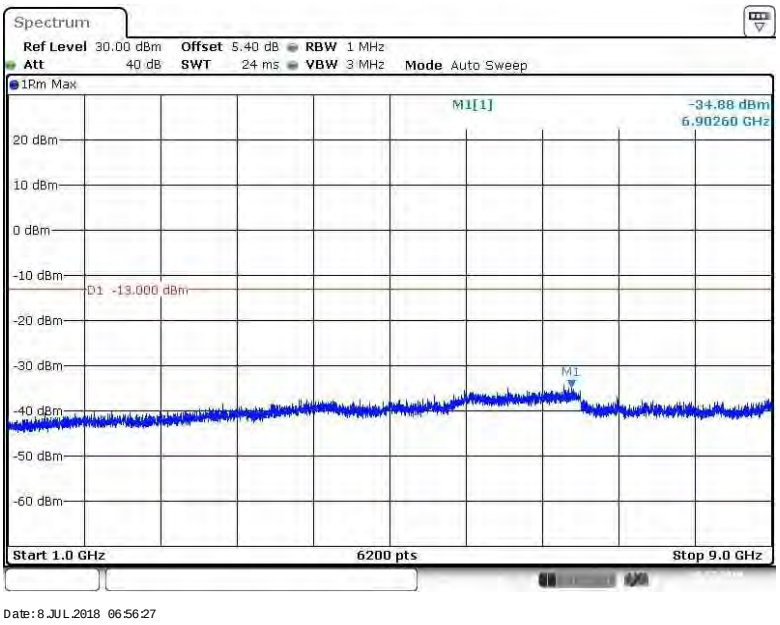


BAND V_4233



BAND V_4233

7. Field Strength of Spurious Radiation

7.1. For WCDMA

7.1.1. Test Band = WCDMA BAND II

7.1.1.1. Test Mode = UMTS/TM1

7.1.1.1.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.450000	-82.08	-13.00	69.08	Vertical
124.950000	-87.21	-13.00	74.21	Vertical
338.950000	-86.41	-13.00	73.41	Vertical
3882.862500	-68.29	-13.00	55.29	Vertical
5512.575000	-66.49	-13.00	53.49	Vertical
7918.387500	-63.96	-13.00	50.96	Vertical
63.150000	-77.58	-13.00	64.58	Horizontal
104.300000	-85.86	-13.00	72.86	Horizontal
271.400000	-87.87	-13.00	74.87	Horizontal
4022.287500	-67.81	-13.00	54.81	Horizontal
6048.337500	-65.01	-13.00	52.01	Horizontal
9266.325000	-62.79	-13.00	49.79	Horizontal

7.1.1.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.600000	-81.94	-13.00	68.94	Vertical
124.950000	-87.68	-13.00	74.68	Vertical
353.100000	-85.93	-13.00	72.93	Vertical
4234.837500	-67.00	-13.00	54.00	Vertical
6488.062500	-64.69	-13.00	51.69	Vertical
10618.650000	-63.26	-13.00	50.26	Vertical
62.550000	-76.98	-13.00	63.98	Horizontal
146.450000	-90.66	-13.00	77.66	Horizontal
455.316667	-85.73	-13.00	72.73	Horizontal
3752.700000	-68.32	-13.00	55.32	Horizontal
5507.700000	-66.44	-13.00	53.44	Horizontal
7615.162500	-64.86	-13.00	51.86	Horizontal

7.1.1.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.350000	-81.64	-13.00	68.64	Vertical
104.300000	-82.10	-13.00	69.10	Vertical
358.550000	-85.62	-13.00	72.62	Vertical
4304.550000	-66.67	-13.00	53.67	Vertical
6050.775000	-64.91	-13.00	51.91	Vertical
9062.062500	-64.20	-13.00	51.20	Vertical
61.250000	-79.91	-13.00	66.91	Horizontal
104.250000	-86.60	-13.00	73.60	Horizontal
272.750000	-87.84	-13.00	74.84	Horizontal
4305.525000	-66.58	-13.00	53.58	Horizontal
6053.212500	-65.11	-13.00	52.11	Horizontal
9351.637500	-65.02	-13.00	52.02	Horizontal

7.1.2. Test Band = WCDMA BAND IV

7.1.2.1. Test Mode = UMTS/TM1

7.1.2.1.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.250000	-81.70	-13.00	68.70	Vertical
104.300000	-81.88	-13.00	68.88	Vertical
343.000000	-86.29	-13.00	73.29	Vertical
4273.837500	-66.89	-13.00	53.89	Vertical
6049.800000	-65.04	-13.00	52.04	Vertical
9255.112500	-63.56	-13.00	50.56	Vertical
62.250000	-77.79	-13.00	64.79	Horizontal
104.300000	-86.62	-13.00	73.62	Horizontal
273.150000	-87.15	-13.00	74.15	Horizontal
4305.525000	-66.59	-13.00	53.59	Horizontal
6053.212500	-65.12	-13.00	52.12	Horizontal
9265.350000	-63.66	-13.00	50.66	Horizontal

7.1.2.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.550000	-82.03	-13.00	69.03	Vertical
104.300000	-80.54	-13.00	67.54	Vertical
347.950000	-86.37	-13.00	73.37	Vertical
4275.300000	-66.78	-13.00	53.78	Vertical
9249.262500	-63.58	-13.00	50.58	Vertical
63.250000	-77.87	-13.00	64.87	Horizontal
104.250000	-86.38	-13.00	73.38	Horizontal
263.200000	-89.10	-13.00	76.10	Horizontal
4203.637500	-67.20	-13.00	54.20	Horizontal
6911.212500	-65.11	-13.00	52.11	Horizontal
9842.550000	-64.14	-13.00	51.14	Horizontal

7.1.2.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
65.100000	-82.63	-13.00	69.63	Vertical
104.300000	-80.09	-13.00	67.09	Vertical
343.000000	-86.25	-13.00	73.25	Vertical
4286.025000	-66.84	-13.00	53.84	Vertical
6498.787500	-64.63	-13.00	51.63	Vertical
9249.750000	-63.55	-13.00	50.55	Vertical
62.350000	-78.02	-13.00	65.02	Horizontal
104.300000	-85.63	-13.00	72.63	Horizontal
271.950000	-87.60	-13.00	74.60	Horizontal
4303.575000	-66.61	-13.00	53.61	Horizontal
6049.800000	-65.10	-13.00	52.10	Horizontal
9265.350000	-63.65	-13.00	50.65	Horizontal

7.1.3. Test Band = WCDMA BAND V

7.1.3.1. Test Mode = UMTS/TM1

7.1.3.1.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
63.100000	-82.01	-13.00	69.01	Vertical
104.250000	-82.35	-13.00	69.35	Vertical

1654.000000	-64.88	-13.00	51.88	Vertical
3899.437500	-67.75	-13.00	54.75	Vertical
5078.212500	-66.11	-13.00	53.11	Vertical
7917.412500	-63.68	-13.00	50.68	Vertical
62.150000	-77.05	-13.00	64.05	Horizontal
104.300000	-85.48	-13.00	72.48	Horizontal
1654.000000	-63.31	-13.00	50.31	Horizontal
2482.500000	-56.48	-13.00	43.48	Horizontal
4299.187500	-66.12	-13.00	53.12	Horizontal
7990.537500	-63.39	-13.00	50.39	Horizontal

7.1.3.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.050000	-81.70	-13.00	68.70	Vertical
104.300000	-83.54	-13.00	70.54	Vertical
1670.000000	-65.04	-13.00	52.04	Vertical
3717.600000	-68.33	-13.00	55.33	Vertical
5125.012500	-66.47	-13.00	53.47	Vertical
7863.300000	-63.70	-13.00	50.70	Vertical
63.250000	-77.93	-13.00	64.93	Horizontal
104.300000	-84.36	-13.00	71.36	Horizontal
1671.500000	-64.81	-13.00	51.81	Horizontal
3719.062500	-68.37	-13.00	55.37	Horizontal
5030.925000	-66.50	-13.00	53.50	Horizontal
7902.787500	-63.70	-13.00	50.70	Horizontal

7.1.3.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.050000	-81.61	-13.00	68.61	Vertical
104.300000	-83.17	-13.00	70.17	Vertical
1695.000000	-64.46	-13.00	51.46	Vertical
4024.725000	-67.75	-13.00	54.75	Vertical
6156.562500	-65.12	-13.00	52.12	Vertical
9084.000000	-63.96	-13.00	50.96	Vertical
61.950000	-77.62	-13.00	64.62	Horizontal
104.250000	-85.44	-13.00	72.44	Horizontal
1689.000000	-64.85	-13.00	51.85	Horizontal

4023.262500	-67.72	-13.00	54.72	Horizontal
6024.937500	-65.24	-13.00	52.24	Horizontal
7990.537500	-63.93	-13.00	50.93	Horizontal

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 and channels, but only the worst case data was displayed in this report.

8. Frequency Stability

8.1. Frequency Vs Voltage

Voltage							
BAND	Channel	Voltage (Vdc)	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
BAND II	9262	VL	TN	2.38	0.001286	2.5	PASS
		VN	TN	-0.25	-0.000135	2.5	PASS
		VH	TN	-6.34	-0.003425	2.5	PASS
	9400	VL	TN	-0.87	-0.000464	2.5	PASS
		VN	TN	2.11	0.001122	2.5	PASS
		VH	TN	1.20	0.000639	2.5	PASS
	9538	VL	TN	1.44	0.000757	2.5	PASS
		VN	TN	2.01	0.001054	2.5	PASS
		VH	TN	-4.38	-0.002298	2.5	PASS
BAND IV	1312	VL	TN	-3.00	-0.001753	2.5	PASS
		VN	TN	-3.72	-0.0021739	2.5	PASS
		VH	TN	2.48	0.0014476	2.5	PASS
	1413	VL	TN	0.58	0.0003344	2.5	PASS
		VN	TN	-0.27	-0.0001531	2.5	PASS
		VH	TN	0.54	0.000313	2.5	PASS
	1513	VL	TN	2.77	0.001578	2.5	PASS
		VN	TN	-3.00	-0.001753	2.5	PASS
		VH	TN	-3.72	-0.002174	2.5	PASS
BAND V	4132	VL	TN	0.81	0.000978	2.5	PASS
		VN	TN	-0.77	-0.000926	2.5	PASS
		VH	TN	2.00	0.002423	2.5	PASS
	4182	VL	TN	-0.85	-0.001018	2.5	PASS
		VN	TN	1.02	0.001214	2.5	PASS
		VH	TN	-0.57	-0.000676	2.5	PASS
	4233	VL	TN	1.14	0.001352	2.5	PASS
		VN	TN	1.36	0.001605	2.5	PASS
		VH	TN	0.74	0.000879	2.5	PASS

8.2. Frequency Vs Temperature

Temperature							
BAND	Channel	Voltage (Vdc)	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
BAND II	9262	VN	-30	0.71	0.000382	2.5	PASS
		VN	-20	1.28	0.000691	2.5	PASS
		VN	-10	-0.01	-0.000008	2.5	PASS
		VN	0	-1.62	-0.000877	2.5	PASS
		VN	10	-0.21	-0.000112	2.5	PASS
		VN	20	-2.84	-0.001533	2.5	PASS
		VN	30	-1.71	-0.000923	2.5	PASS
		VN	40	0.00	0.000000	2.5	PASS
		VN	50	-0.37	-0.000201	2.5	PASS
	9400	VN	-30	-0.82	-0.000434	2.5	PASS
		VN	-20	-3.05	-0.001625	2.5	PASS
		VN	-10	-2.86	-0.001522	2.5	PASS
		VN	0	-1.47	-0.000784	2.5	PASS
		VN	10	-2.00	-0.001065	2.5	PASS
		VN	20	-2.28	-0.001214	2.5	PASS
		VN	30	1.68	0.000894	2.5	PASS
		VN	40	2.93	0.001560	2.5	PASS
		VN	50	-2.00	-0.001061	2.5	PASS

	9538	VN	-30	0.35	0.000184	2.5	PASS
		VN	-20	-2.16	-0.001132	2.5	PASS
		VN	-10	0.78	0.000409	2.5	PASS
		VN	0	1.78	0.000934	2.5	PASS
		VN	10	2.78	0.001455	2.5	PASS
		VN	20	0.02	0.000011	2.5	PASS
		VN	30	-1.48	-0.000776	2.5	PASS
		VN	40	5.54	0.002902	2.5	PASS
		VN	50	4.00	0.002096	2.5	PASS
BAND IV	1312	VN	-30	2.93	0.001710	2.5	PASS
		VN	-20	2.76	0.001614	2.5	PASS
		VN	-10	-2.36	-0.001379	2.5	PASS
		VN	0	-1.41	-0.000826	2.5	PASS
		VN	10	-2.30	-0.001342	2.5	PASS
		VN	20	0.12	0.000067	2.5	PASS
		VN	30	1.54	0.000897	2.5	PASS
		VN	40	2.05	0.001195	2.5	PASS
		VN	50	-2.47	-0.001445	2.5	PASS
	1413	VN	-30	3.25	0.001874	2.5	PASS
		VN	-20	-0.54	-0.000313	2.5	PASS
		VN	-10	-4.98	-0.002872	2.5	PAS

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		VN	0	-1.46	-0.000844	2.5	PASS
		VN	10	1.69	0.000974	2.5	PASS
		VN	20	-1.26	-0.000728	2.5	PASS
		VN	30	-1.51	-0.000874	2.5	PASS
		VN	40	-4.14	-0.002389	2.5	PASS
		VN	50	-0.95	-0.000549	2.5	PASS
	1513	VN	-30	-4.80	-0.002738	2.5	PASS
		VN	-20	1.31	0.000746	2.5	PASS
		VN	-10	0.10	0.000055	2.5	PASS
		VN	0	-3.36	-0.001915	2.5	PASS
		VN	10	-1.00	-0.000569	2.5	PASS
		VN	20	-3.91	-0.002230	2.5	PASS
		VN	30	4.26	0.002432	2.5	PASS
		VN	40	4.33	0.002470	2.5	PASS
		VN	50	-0.61	-0.000347	2.5	PASS
BAND V	4132	VN	-30	0.91	0.001099	2.5	PASS
		VN	-20	0.84	0.001021	2.5	PASS
		VN	-10	0.24	0.000294	2.5	PASS
		VN	0	0.36	0.000433	2.5	PASS
		VN	10	2.06	0.002493	2.5	PASS

		VN	20	-0.33	-0.000398	2.5	PASS
		VN	30	0.26	0.000312	2.5	PASS
		VN	40	1.05	0.001272	2.5	PASS
		VN	50	2.15	0.002605	2.5	PASS
	4182	VN	-30	2.57	0.003079	2.5	PASS
		VN	-20	0.92	0.001103	2.5	PASS
		VN	-10	0.58	0.000693	2.5	PASS
		VN	0	1.75	0.002087	2.5	PASS
		VN	10	-0.50	-0.000599	2.5	PASS
		VN	20	0.11	0.000137	2.5	PASS
		VN	30	-0.35	-0.000419	2.5	PASS
		VN	40	2.18	0.002608	2.5	PASS
		VN	50	0.84	0.001001	2.5	PASS
	4233	VN	-30	1.85	0.002180	2.5	PASS
		VN	-20	1.80	0.002129	2.5	PASS
		VN	-10	0.63	0.000743	2.5	PASS
		VN	0	3.08	0.003633	2.5	PASS
		VN	10	3.53	0.004165	2.5	PASS
		VN	20	1.04	0.001225	2.5	PASS
		VN	30	3.00	0.003540	2.5	PASS
		VN	40	2.95	0.003489	2.5	PAS

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		VN	50	-0.42	-0.000498	2.5	PASS

The End