

Appendix B

WCDMA Band II & IV & V





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1. Effective (Isotropic) Radiated Power

1.1. Test Result

Band	Channel	Conducted Power(dBm)	EIRP (dBm)	Limit (dBm)	Verdict
Band II	9262	22.83	19.8	33.00	PASS
Band II	9400	22.58	19.55	33.00	PASS
Band II	9538	22.51	19.48	33.00	PASS
Band IV	1312	22.91	21.46	30.00	PASS
Band IV	1413	23.15	21.7	30.00	PASS
Band IV	1513	23.35	21.9	30.00	PASS

Band	Channel	Conducted Power(dBm)	ERP (dBm)	Limit (dBm)	Verdict
Band V	4132	23.38	15.28	38.45	PASS
Band V	4182	23.39	15.29	38.45	PASS
Band V	4233	23.41	15.31	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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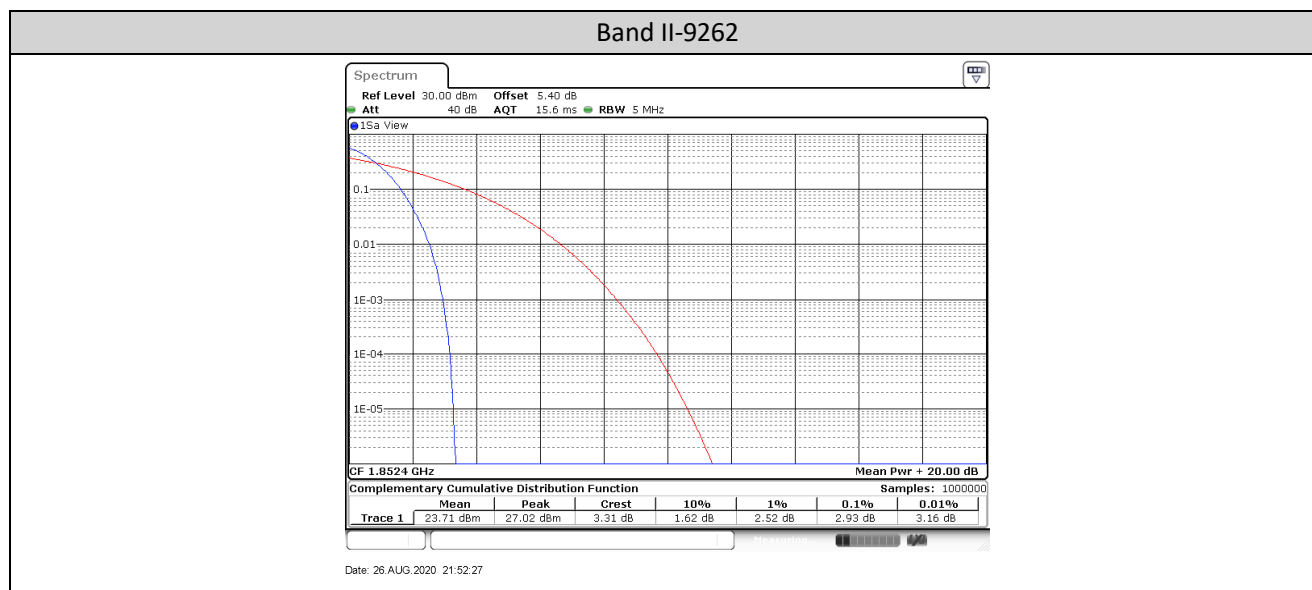
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2. Peak-to-Average Ratio(CCDF)

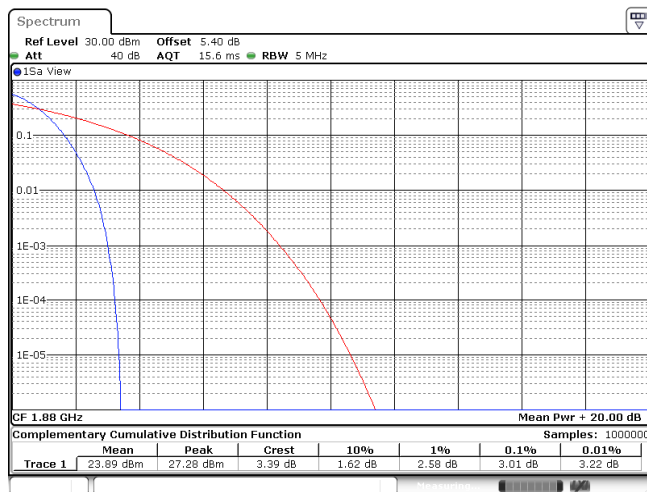
2.1. Test Result

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
Band II	9262	2.93	13	PASS
Band II	9400	3.01	13	PASS
Band II	9538	3.01	13	PASS
Band IV	1312	2.93	13	PASS
Band IV	1413	3.01	13	PASS
Band IV	1513	2.84	13	PASS
Band V	4132	3.1	13	PASS
Band V	4182	2.81	13	PASS
Band V	4233	2.72	13	PASS

2.2. Test Plots

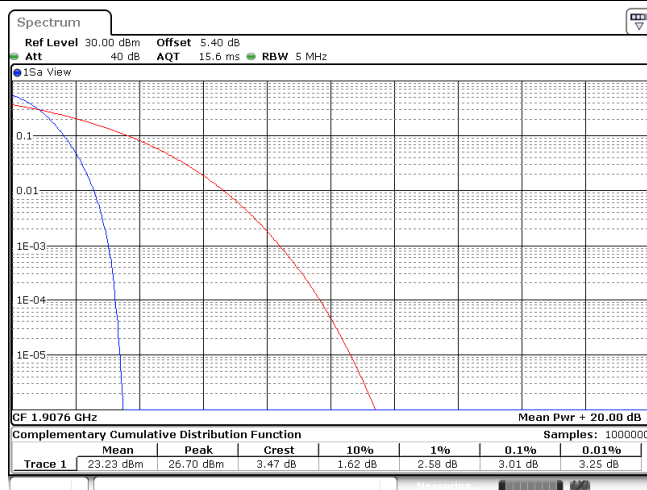


Band II-9400



Date: 26 AUG. 2020 21:52:40

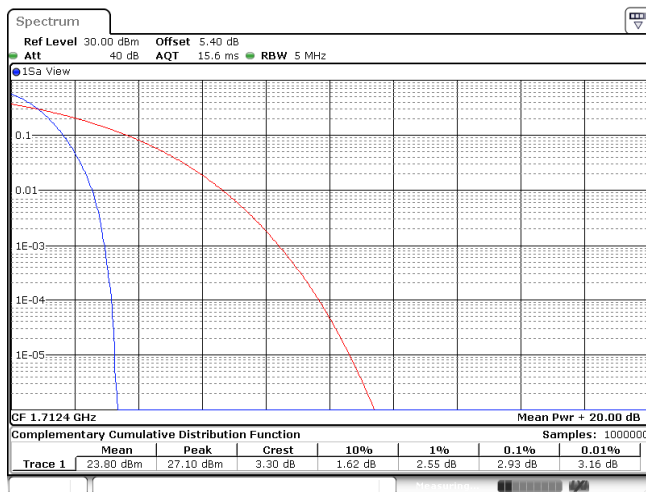
Band II-9538



Date: 26 AUG. 2020 21:53:05

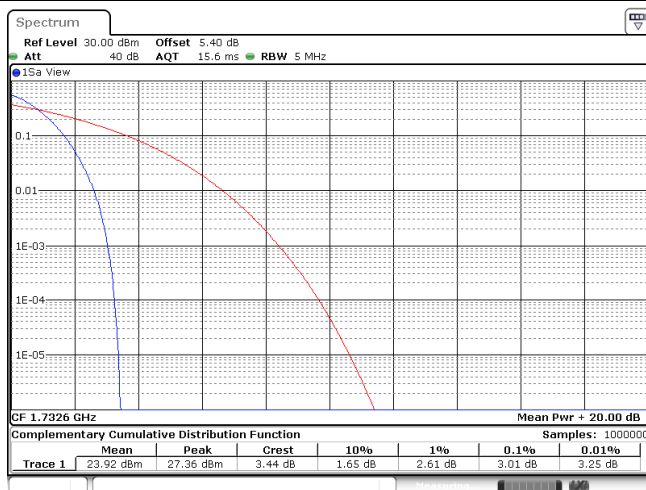


Band IV-1312



Date: 26 AUG. 2020 21:35:17

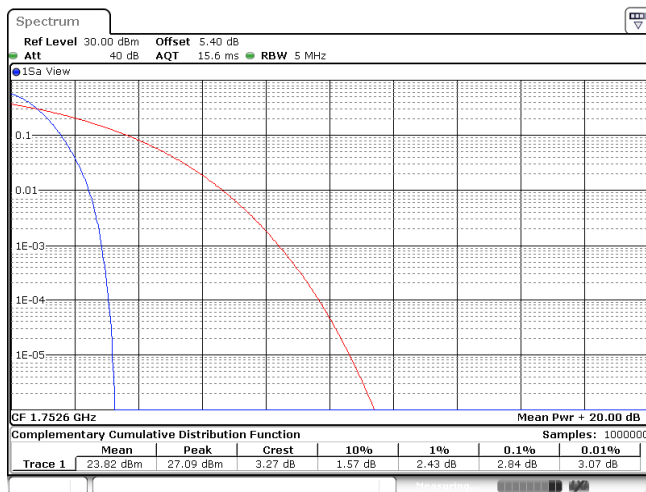
Band IV-1413



Date: 26 AUG. 2020 21:35:30

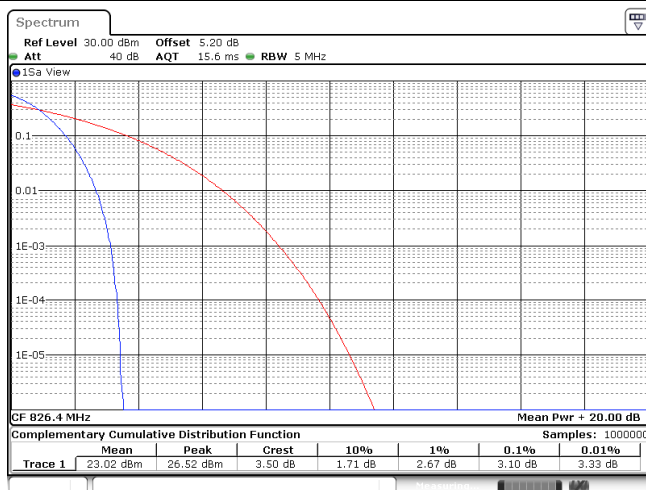


Band IV-1513



Date: 26 AUG. 2020 21:35:44

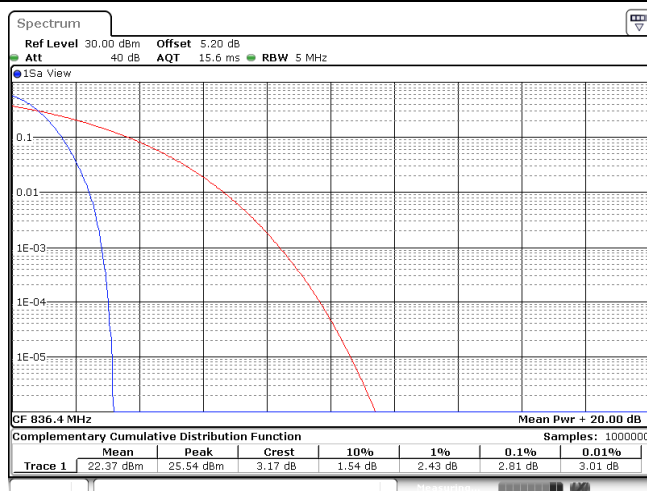
Band V-4132



Date: 26 AUG. 2020 21:41:20

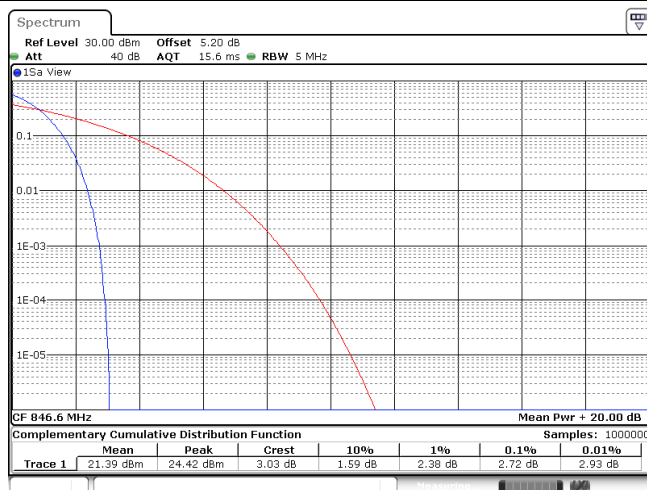


Band V-4182



Date: 26 AUG. 2020 21:41:33

Band V-4233



Date: 26 AUG. 2020 21:41:46

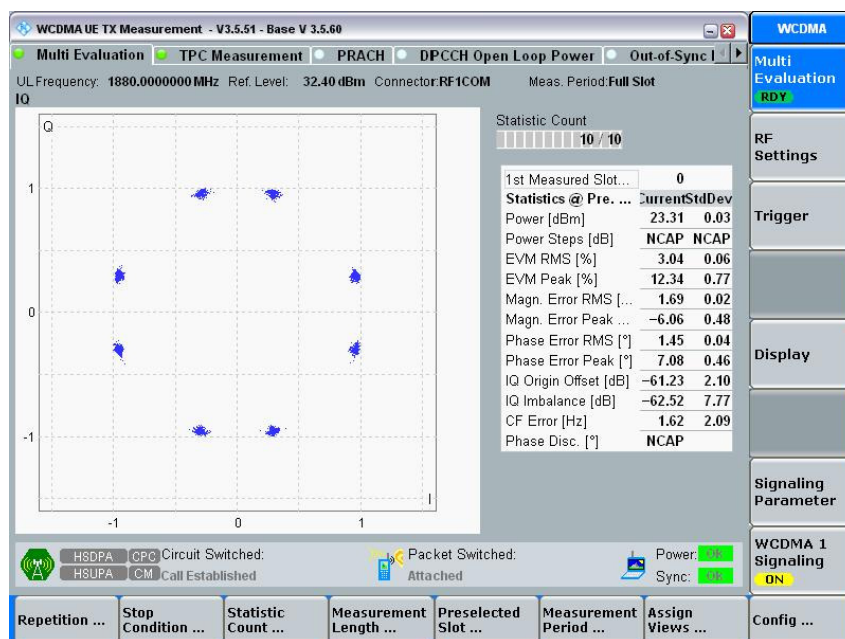


3. Modulation Characteristics

3.1. Test Band = WCDMA Band II

3.1.1. Test Mode = UMTS/TM1

3.1.1.1. Test Channel = MCH

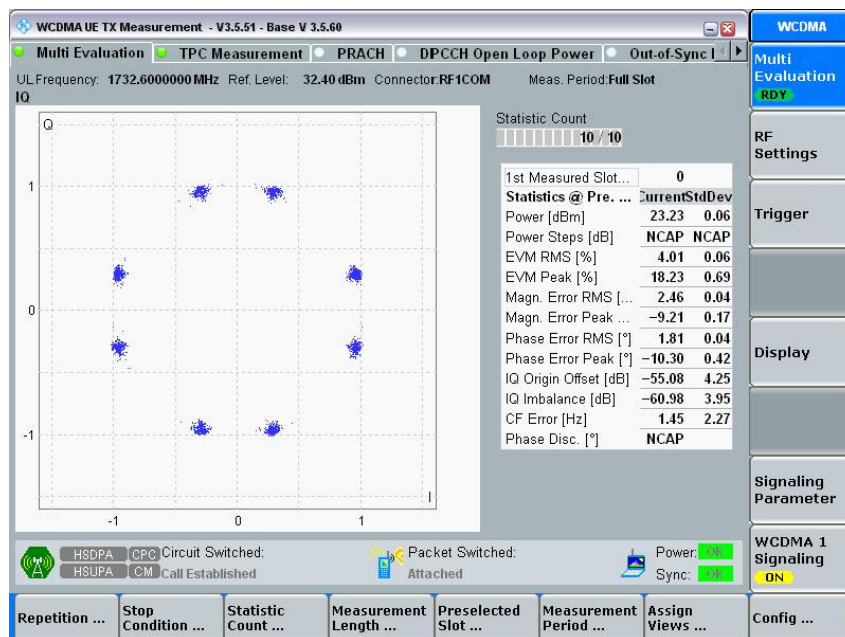


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3.2. Test Band = WCDMA Band IV

3.2.1. Test Mode = UMTS/TM1

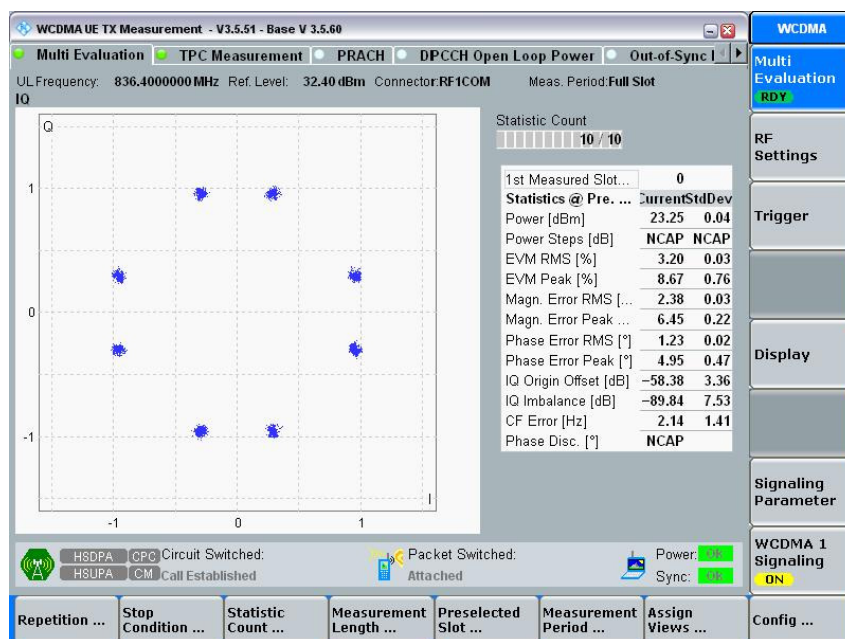
3.2.1.1. Test Channel = MCH



3.3. Test Band = WCDMA Band V

3.3.1. Test Mode = UMTS/TM1

3.3.1.1. Test Channel = MCH

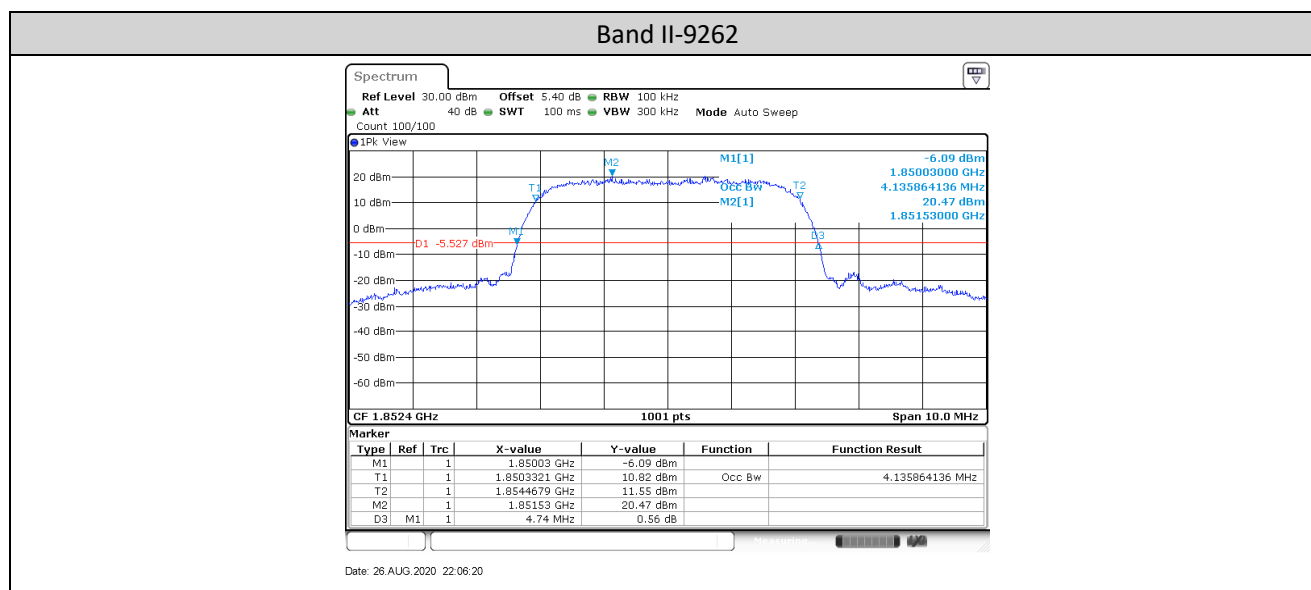


4. 26dB Bandwidth and Occupied Bandwidth

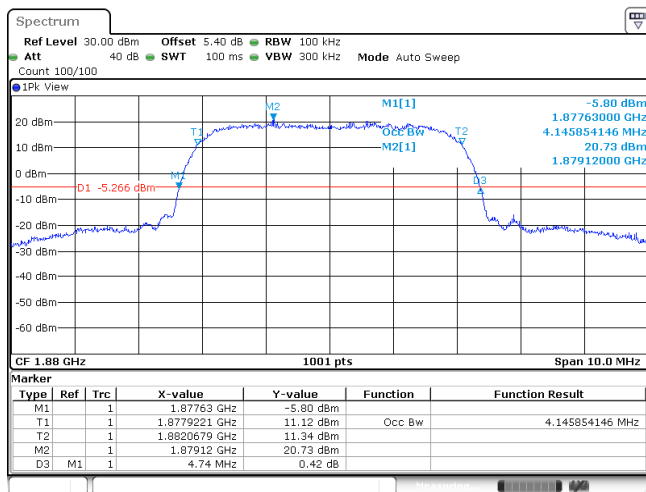
4.1. Test Result

Band	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit(kHz)	Verdict
Band II	9262	4.136	4.740	---	PASS
Band II	9400	4.146	4.740	---	PASS
Band II	9538	4.146	4.740	---	PASS
Band IV	1312	4.116	4.740	---	PASS
Band IV	1413	4.126	4.730	---	PASS
Band IV	1513	4.136	4.750	---	PASS
Band V	4132	4.136	4.720	---	PASS
Band V	4182	4.126	4.720	---	PASS
Band V	4233	4.146	4.730	---	PASS

4.2. Test Plots

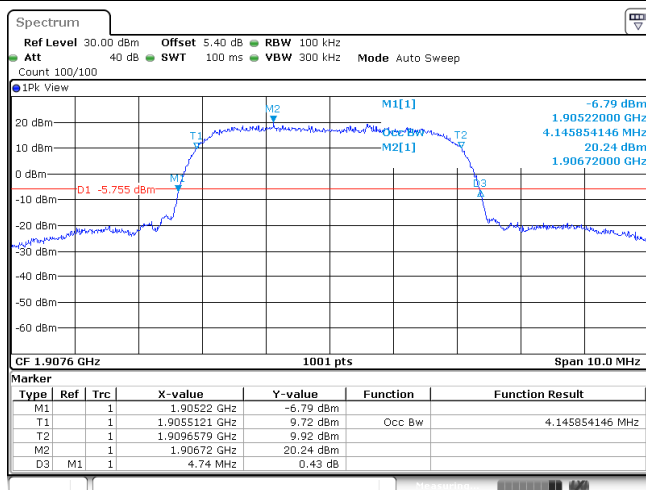


Band II-9400



Date: 26 AUG. 2020 22:06:42

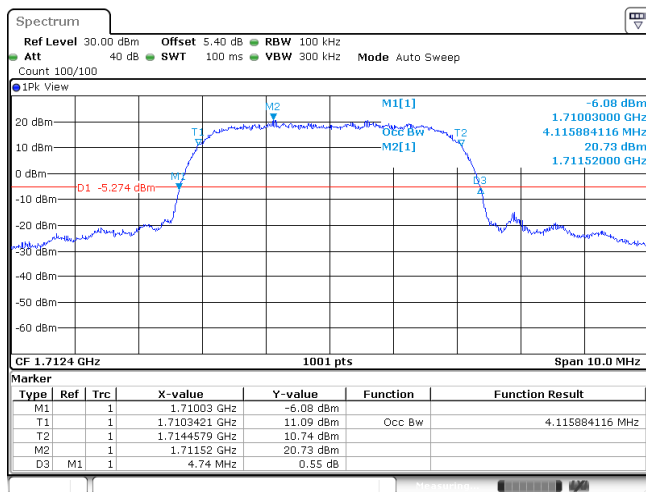
Band II-9538



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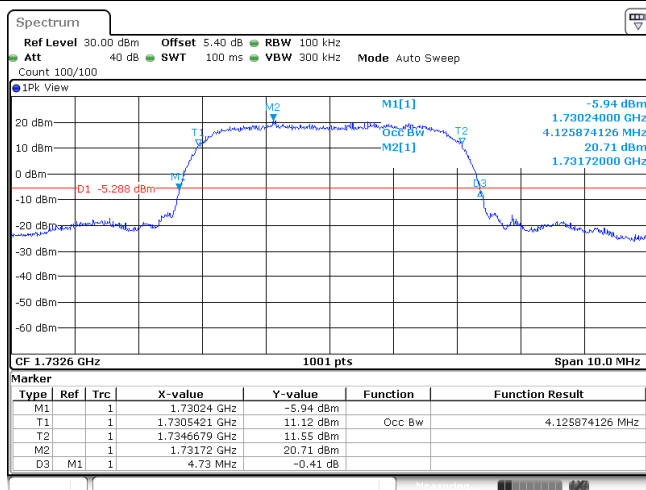


Band IV-1312



Date: 26 AUG. 2020 22:21:42

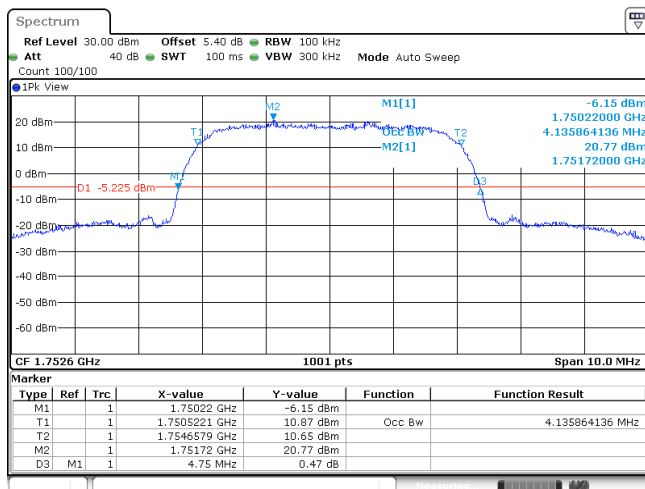
Band IV-1413



Date: 26 AUG. 2020 22:22:04

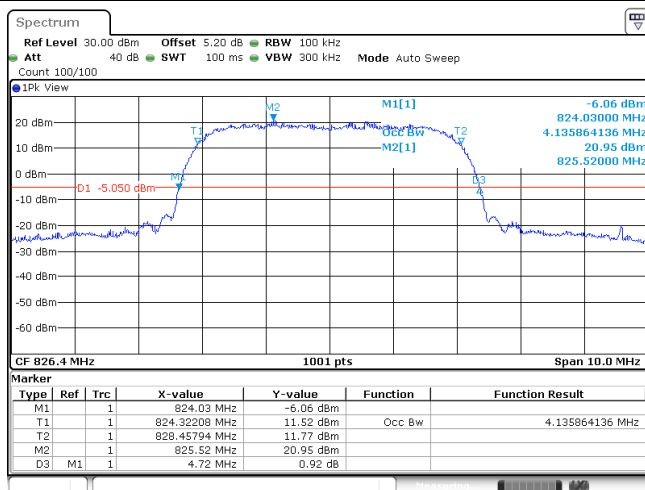


Band IV-1513



Date: 26 AUG. 2020 22:22:26

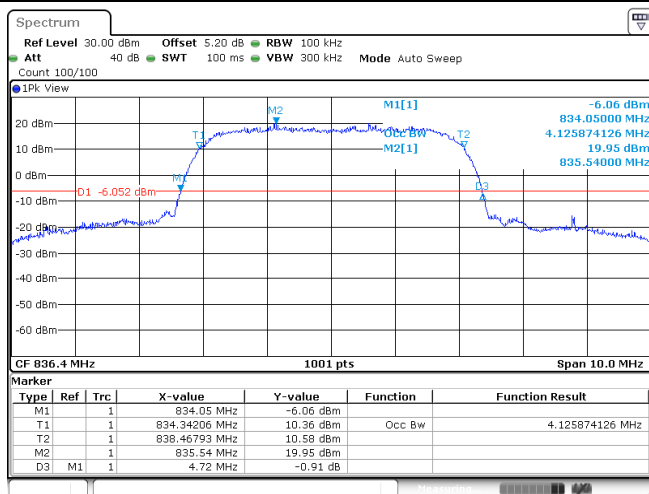
Band V-4132



Date: 26 AUG. 2020 22:49:53

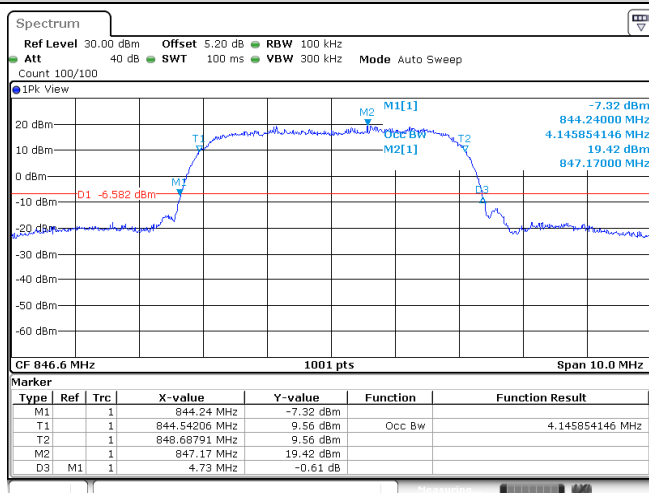


Band V-4182



Date: 26 AUG. 2020 22:50:15

Band V-4233

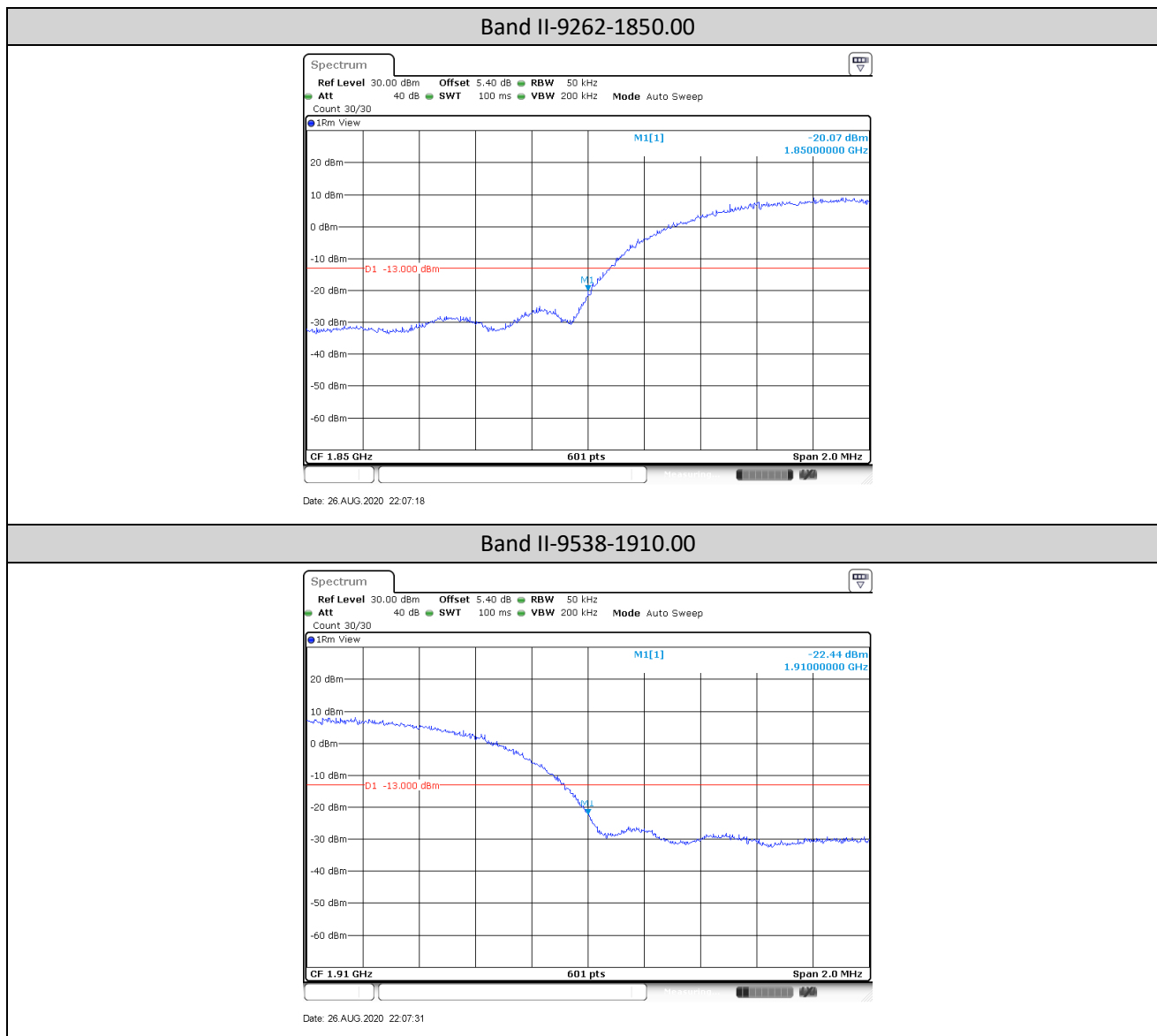


Date: 26 AUG. 2020 22:50:37

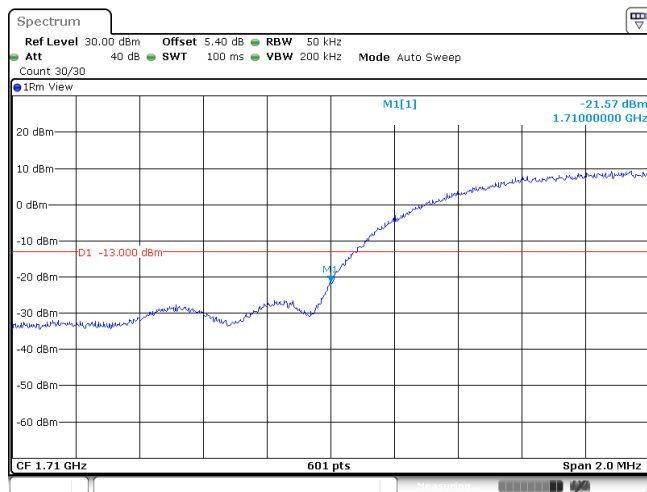


5. Band Edge Compliance

5.1. Test Plots



Band IV-1312-1710.00



Date: 26 AUG. 2020 22:22:40

Band IV-1513-1755.00



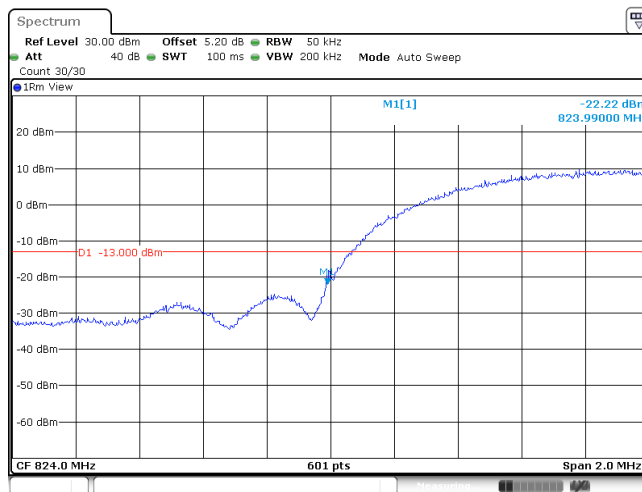
Date: 26 AUG. 2020 22:22:54



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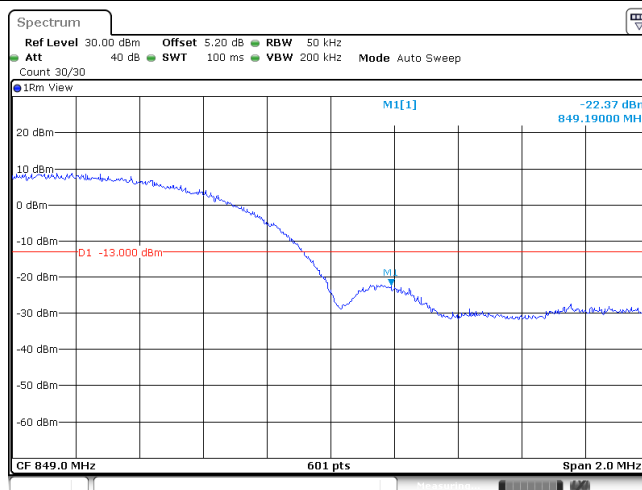
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Band V-4132-823.99



Date: 26 AUG. 2020 22:50:51

Band V-4233-849.19



Date: 26 AUG. 2020 22:51:05



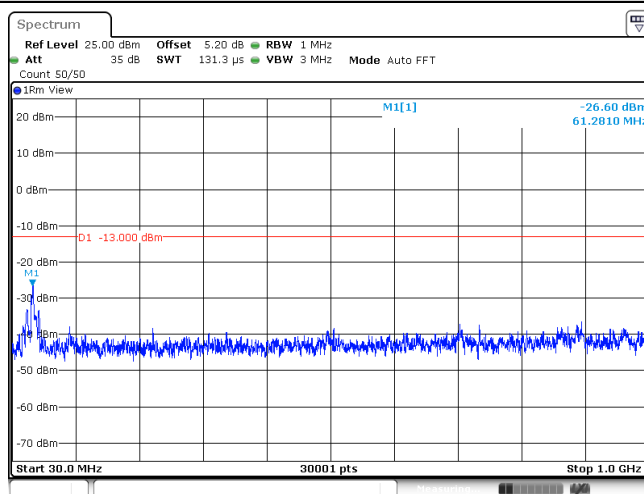
6. Spurious Emission at Antenna Terminal

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.

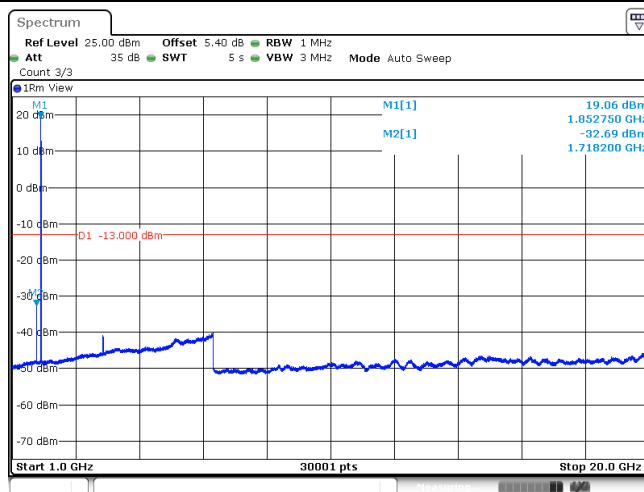
6.1. Test Plots

Band II-9262-30~1000MHz-61.28



Date: 26 AUG. 2020 21:30:44

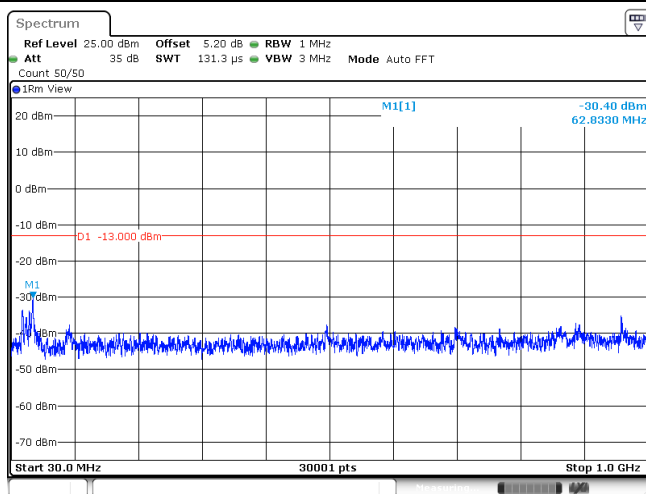
Band II-9262-1000~20000MHz-1718.2



Date: 26 AUG. 2020 21:31:08

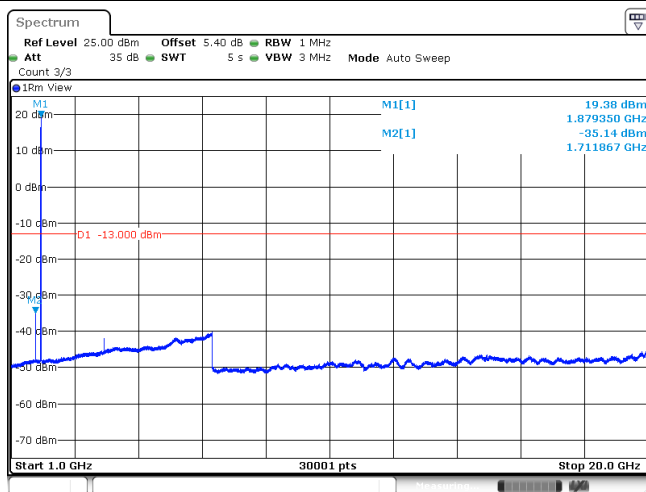


Band II-9400-30~1000MHz-62.83



Date: 26 AUG. 2020 21:31:21

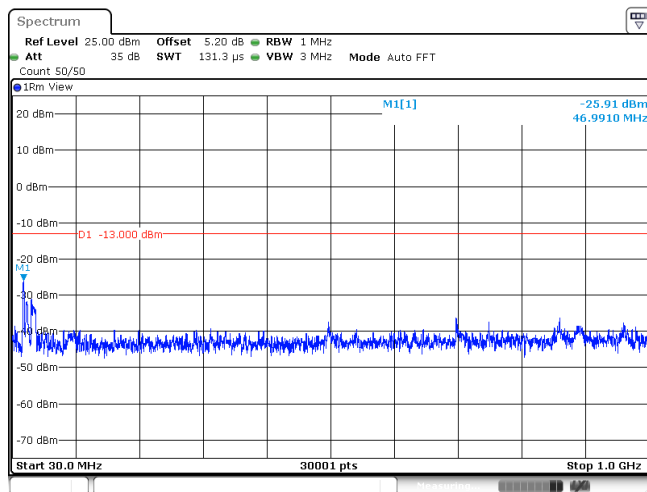
Band II-9400-1000~20000MHz-1711.87



Date: 26 AUG. 2020 21:31:44

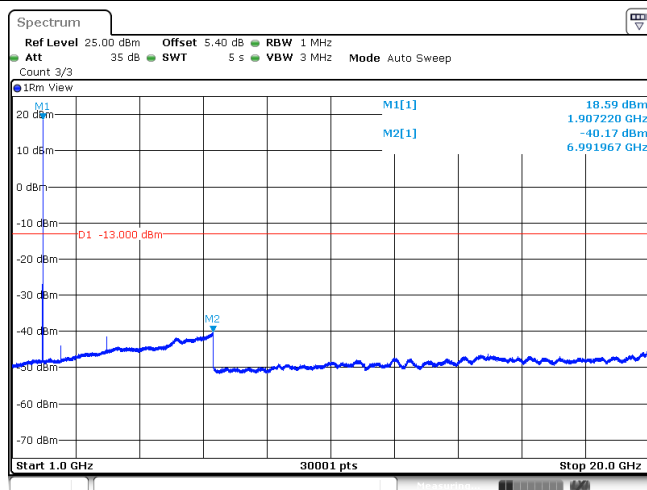


Band II-9538-30~1000MHz-46.99



Date: 26 AUG. 2020 21:31:57

Band II-9538-1000~20000MHz-6991.97



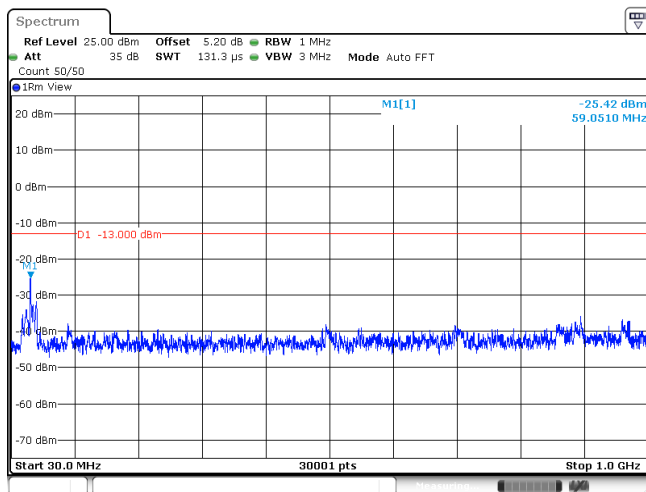
Date: 26 AUG. 2020 21:32:21



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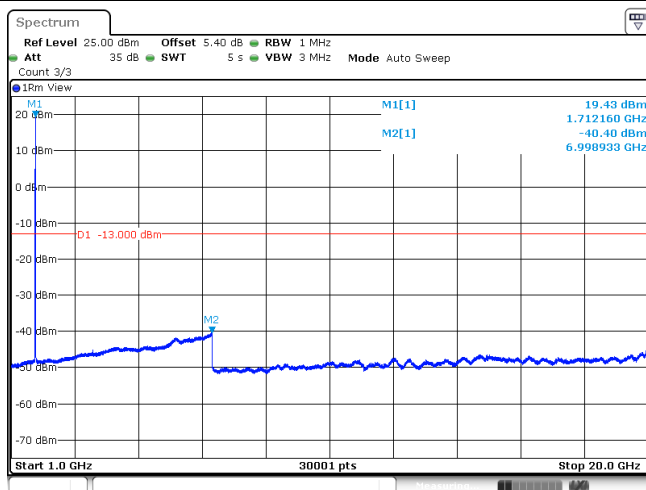
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Band IV-1312-30~1000MHz-59.05



Date: 26 AUG. 2020 21:38:43

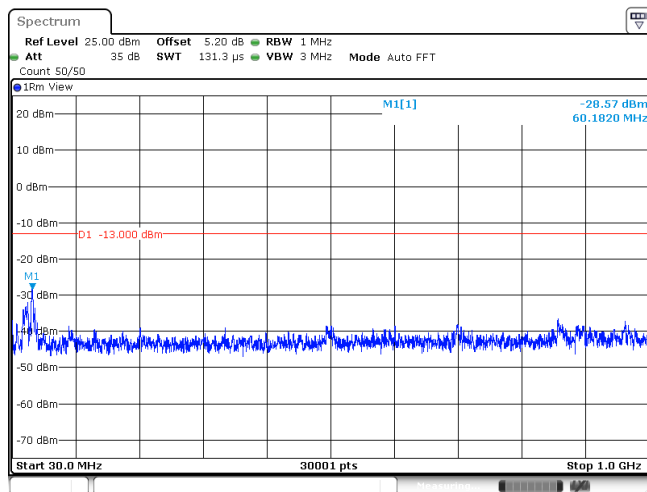
Band IV-1312-1000~20000MHz-6998.93



Date: 26 AUG. 2020 21:39:06

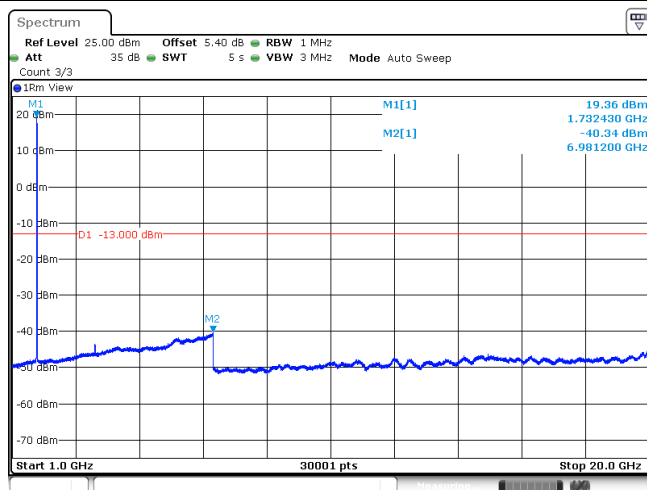


Band IV-1413-30~1000MHz-60.18



Date: 26 AUG. 2020 21:39:19

Band IV-1413-1000~20000MHz-6981.2



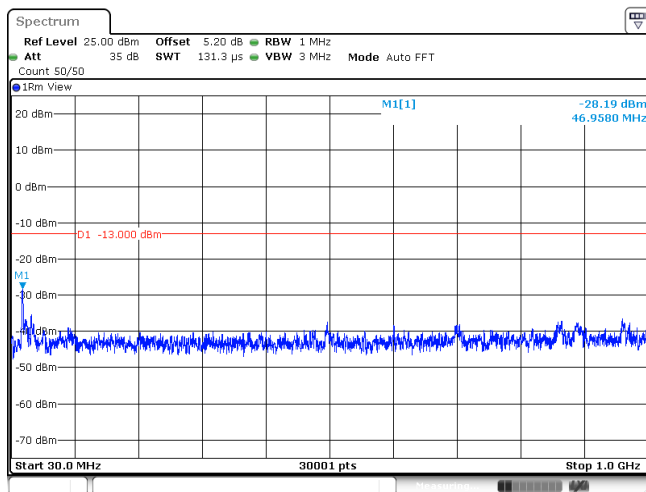
Date: 26 AUG. 2020 21:39:42



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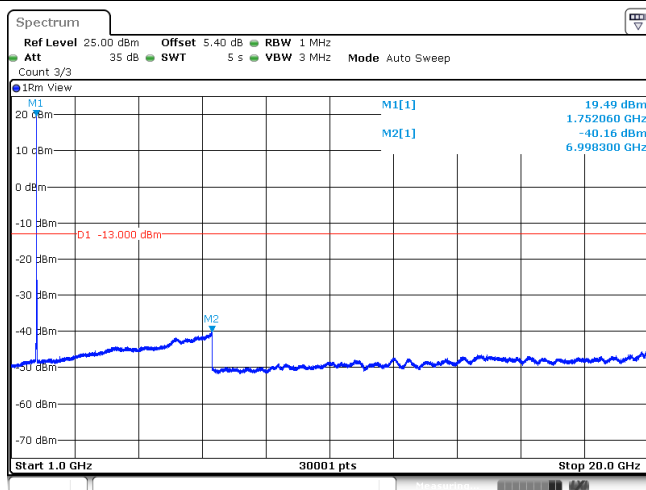
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Band IV-1513-30~1000MHz-46.96



Date: 26 AUG. 2020 21:39:55

Band IV-1513-1000~20000MHz-6998.3



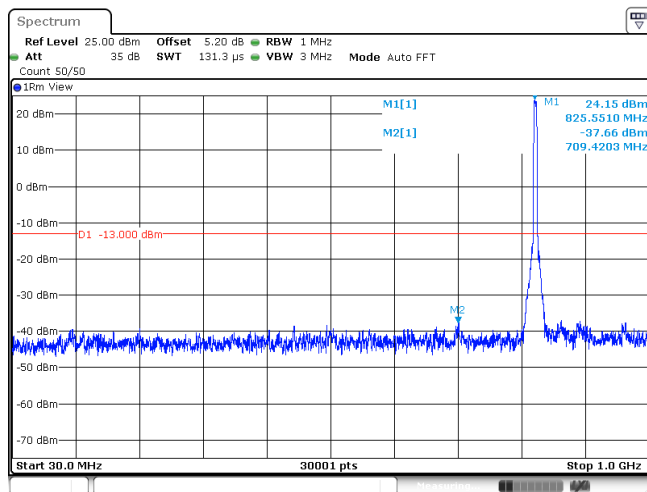
Date: 26 AUG. 2020 21:40:19



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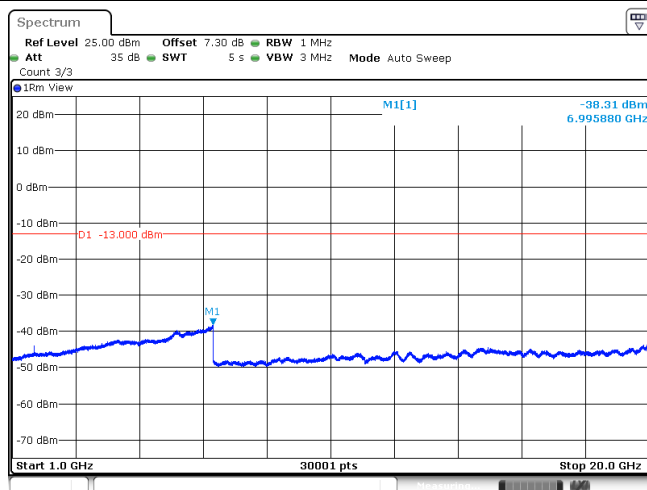
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Band V-4132-30~1000MHz-709.42



Date: 26 AUG. 2020 22:51:19

Band V-4132-1000~20000MHz-6995.88



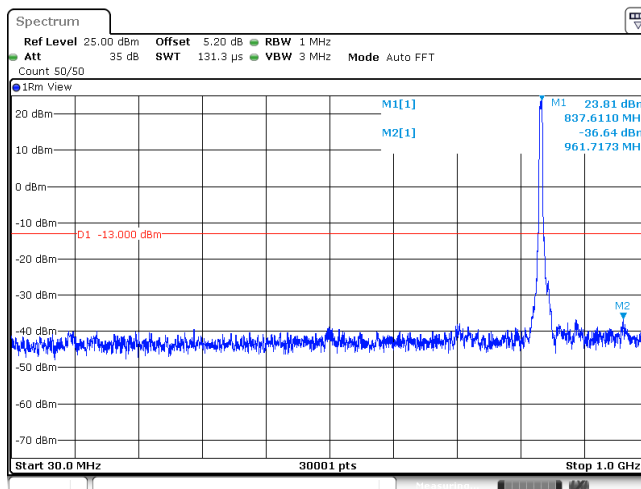
Date: 26 AUG. 2020 22:51:42



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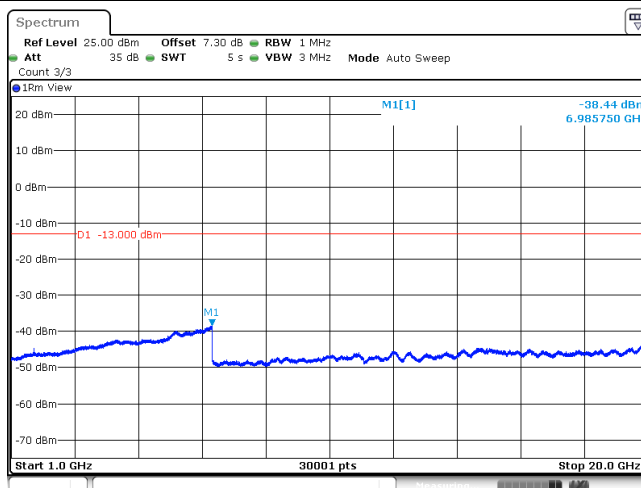
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Band V-4182-30~1000MHz-961.72



Date: 26 AUG. 2020 22:51:56

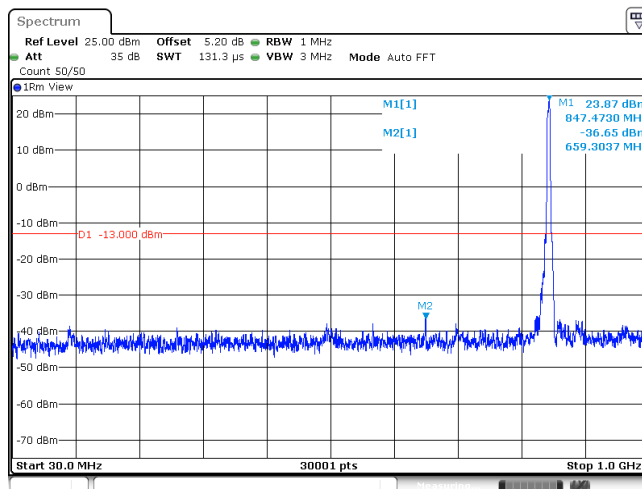
Band V-4182-1000~20000MHz-6985.75



Date: 26 AUG. 2020 22:52:18

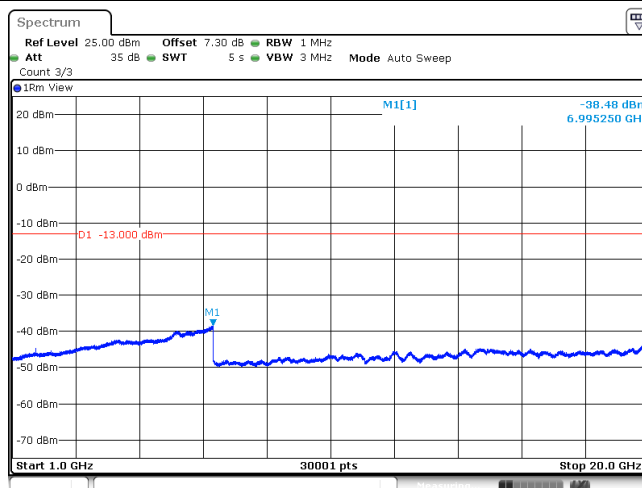


Band V-4233-30~1000MHz-659.3



Date: 26 AUG 2020 22:52:32

Band V-4233-1000~20000MHz-6995.25



Date: 26 AUG 2020 22:52:55



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7. Field Strength of Spurious Radiation

7.1. Test Band = WCDMA Band IV (Up Antenna)

7.1.1. Test Mode = WCDMA/TM1

7.1.1.1. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
112.4541	-62.11	-13.00	49.11	Vertical
597.5269	-61.30	-13.00	48.30	Vertical
2699.9400	-32.12	-13.00	19.12	Vertical
3507.5169	-55.09	-13.00	42.09	Vertical
14440.8814	-42.88	-13.00	29.88	Vertical
17990.9997	-34.09	-13.00	21.09	Vertical
43.7262	-63.08	-13.00	50.08	Horizontal
472.0511	-63.59	-13.00	50.59	Horizontal
2704.3409	-30.97	-13.00	17.97	Horizontal
3504.0168	-47.28	-13.00	34.28	Horizontal
12852.3284	-45.10	-13.00	32.10	Horizontal
16402.4467	-35.48	-13.00	22.48	Horizontal





7.2. Test Band = WCDMA Band IV (Down Antenna)

7.2.1. Test Mode = WCDMA/TM1

7.2.1.1. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
108.4769	-63.28	-13.00	50.28	Vertical
589.6210	-62.04	-13.00	49.04	Vertical
2642.3285	-33.41	-13.00	20.41	Vertical
3506.5169	-57.58	-13.00	44.58	Vertical
14701.8901	-41.65	-13.00	28.65	Vertical
17987.9996	-34.21	-13.00	21.21	Vertical
42.0771	-62.66	-13.00	49.66	Horizontal
576.8163	-61.64	-13.00	48.64	Horizontal
2699.5399	-30.93	-13.00	17.93	Horizontal
3507.0169	-47.47	-13.00	34.47	Horizontal
10068.7356	-49.77	-13.00	36.77	Horizontal
16393.9465	-35.25	-13.00	22.25	Horizontal

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.



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	NT	0.95	0.000513	±2.5	PASS
Band II	9262	VN	NT	0.73	0.000394	±2.5	PASS
Band II	9262	VH	NT	1.18	0.000637	±2.5	PASS
Band II	9400	VL	NT	-2.21	-0.001176	±2.5	PASS
Band II	9400	VN	NT	-2.37	-0.001261	±2.5	PASS
Band II	9400	VH	NT	-2.20	-0.001170	±2.5	PASS
Band II	9538	VL	NT	-7.50	-0.003932	±2.5	PASS
Band II	9538	VN	NT	-7.43	-0.003895	±2.5	PASS
Band II	9538	VH	NT	-7.44	-0.003900	±2.5	PASS
Band IV	1312	VL	NT	14.72	0.008596	±2.5	PASS
Band IV	1312	VN	NT	10.96	0.006400	±2.5	PASS
Band IV	1312	VH	NT	15.74	0.009192	±2.5	PASS
Band IV	1413	VL	NT	-2.20	-0.001270	±2.5	PASS
Band IV	1413	VN	NT	-2.66	-0.001535	±2.5	PASS
Band IV	1413	VH	NT	-2.73	-0.001576	±2.5	PASS
Band IV	1513	VL	NT	-19.73	-0.011258	±2.5	PASS
Band IV	1513	VN	NT	-19.92	-0.011366	±2.5	PASS
Band IV	1513	VH	NT	-19.75	-0.011269	±2.5	PASS
Band V	4132	VL	NT	-0.55	-0.000666	±2.5	PASS
Band V	4132	VN	NT	-0.24	-0.000290	±2.5	PASS
Band V	4132	VH	NT	-0.32	-0.000387	±2.5	PASS
Band V	4182	VL	NT	0.14	0.000167	±2.5	PASS
Band V	4182	VN	NT	0.02	0.000024	±2.5	PASS
Band V	4182	VH	NT	0.04	0.000048	±2.5	PASS
Band V	4233	VL	NT	0.80	0.000945	±2.5	PASS
Band V	4233	VN	NT	0.75	0.000886	±2.5	PASS
Band V	4233	VH	NT	0.84	0.000992	±2.5	PASS



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8.2. Frequency Vs Temperature

Temperature							
Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band II	9262	NV	-30	1.46	0.000788	±2.5	PASS
Band II	9262	NV	-20	1.49	0.000804	±2.5	PASS
Band II	9262	NV	-10	1.67	0.000902	±2.5	PASS
Band II	9262	NV	0	1.95	0.001053	±2.5	PASS
Band II	9262	NV	10	2.05	0.001107	±2.5	PASS
Band II	9262	NV	20	2.36	0.001274	±2.5	PASS
Band II	9262	NV	30	2.18	0.001177	±2.5	PASS
Band II	9262	NV	40	2.33	0.001258	±2.5	PASS
Band II	9262	NV	50	2.23	0.001204	±2.5	PASS
Band II	9400	NV	-30	-2.08	-0.001106	±2.5	PASS
Band II	9400	NV	-20	-2.09	-0.001112	±2.5	PASS
Band II	9400	NV	-10	-2.20	-0.001170	±2.5	PASS
Band II	9400	NV	0	-2.20	-0.001170	±2.5	PASS
Band II	9400	NV	10	-1.93	-0.001027	±2.5	PASS
Band II	9400	NV	20	-2.22	-0.001181	±2.5	PASS
Band II	9400	NV	30	-2.10	-0.001117	±2.5	PASS
Band II	9400	NV	40	-2.16	-0.001149	±2.5	PASS
Band II	9400	NV	50	-2.19	-0.001165	±2.5	PASS
Band II	9538	NV	-30	-7.46	-0.003911	±2.5	PASS
Band II	9538	NV	-20	-7.62	-0.003995	±2.5	PASS
Band II	9538	NV	-10	-7.50	-0.003932	±2.5	PASS
Band II	9538	NV	0	-7.52	-0.003942	±2.5	PASS
Band II	9538	NV	10	-7.47	-0.003916	±2.5	PASS
Band II	9538	NV	20	-7.55	-0.003958	±2.5	PASS
Band II	9538	NV	30	-7.52	-0.003942	±2.5	PASS
Band II	9538	NV	40	-7.57	-0.003968	±2.5	PASS
Band II	9538	NV	50	-7.50	-0.003932	±2.5	PASS
Band IV	1312	NV	-30	16.31	0.009525	±2.5	PASS
Band IV	1312	NV	-20	16.79	0.009805	±2.5	PASS
Band IV	1312	NV	-10	16.94	0.009893	±2.5	PASS
Band IV	1312	NV	0	17.07	0.009968	±2.5	PASS
Band IV	1312	NV	10	17.09	0.009980	±2.5	PASS
Band IV	1312	NV	20	17.34	0.010126	±2.5	PASS



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Band IV	1312	NV	30	17.32	0.010114	±2.5	PASS
Band IV	1312	NV	40	17.49	0.010214	±2.5	PASS
Band IV	1312	NV	50	17.19	0.010039	±2.5	PASS
Band IV	1413	NV	-30	-2.44	-0.001408	±2.5	PASS
Band IV	1413	NV	-20	-2.47	-0.001426	±2.5	PASS
Band IV	1413	NV	-10	-1.90	-0.001097	±2.5	PASS
Band IV	1413	NV	0	-2.32	-0.001339	±2.5	PASS
Band IV	1413	NV	10	-2.65	-0.001529	±2.5	PASS
Band IV	1413	NV	20	-2.25	-0.001299	±2.5	PASS
Band IV	1413	NV	30	-2.42	-0.001397	±2.5	PASS
Band IV	1413	NV	40	-1.60	-0.000923	±2.5	PASS
Band IV	1413	NV	50	-2.30	-0.001327	±2.5	PASS
Band IV	1513	NV	-30	-19.82	-0.011309	±2.5	PASS
Band IV	1513	NV	-20	-19.91	-0.011360	±2.5	PASS
Band IV	1513	NV	-10	-20.06	-0.011446	±2.5	PASS
Band IV	1513	NV	0	-19.96	-0.011389	±2.5	PASS
Band IV	1513	NV	10	-20.23	-0.011543	±2.5	PASS
Band IV	1513	NV	20	-20.07	-0.011452	±2.5	PASS
Band IV	1513	NV	30	-20.03	-0.011429	±2.5	PASS
Band IV	1513	NV	40	-20.06	-0.011446	±2.5	PASS
Band IV	1513	NV	50	-20.07	-0.011452	±2.5	PASS
Band V	4132	NV	-30	-0.43	-0.000520	±2.5	PASS
Band V	4132	NV	-20	-0.42	-0.000508	±2.5	PASS
Band V	4132	NV	-10	-0.41	-0.000496	±2.5	PASS
Band V	4132	NV	0	-0.34	-0.000411	±2.5	PASS
Band V	4132	NV	10	-0.27	-0.000327	±2.5	PASS
Band V	4132	NV	20	-0.29	-0.000351	±2.5	PASS
Band V	4132	NV	30	-0.33	-0.000399	±2.5	PASS
Band V	4132	NV	40	-0.26	-0.000315	±2.5	PASS
Band V	4132	NV	50	-0.31	-0.000375	±2.5	PASS
Band V	4182	NV	-30	0.13	0.000155	±2.5	PASS
Band V	4182	NV	-20	-0.03	-0.000036	±2.5	PASS
Band V	4182	NV	-10	0.08	0.000096	±2.5	PASS
Band V	4182	NV	0	0.13	0.000155	±2.5	PASS
Band V	4182	NV	10	0.01	0.000012	±2.5	PASS
Band V	4182	NV	20	-0.01	-0.000012	±2.5	PASS
Band V	4182	NV	30	0.14	0.000167	±2.5	PASS



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Band V	4182	NV	40	0.05	0.000060	±2.5	PASS
Band V	4182	NV	50	0.04	0.000048	±2.5	PASS
Band V	4233	NV	-30	0.87	0.001028	±2.5	PASS
Band V	4233	NV	-20	0.89	0.001051	±2.5	PASS
Band V	4233	NV	-10	0.82	0.000969	±2.5	PASS
Band V	4233	NV	0	0.83	0.000980	±2.5	PASS
Band V	4233	NV	10	0.83	0.000980	±2.5	PASS
Band V	4233	NV	20	0.83	0.000980	±2.5	PASS
Band V	4233	NV	30	0.77	0.000910	±2.5	PASS
Band V	4233	NV	40	0.86	0.001016	±2.5	PASS
Band V	4233	NV	50	0.73	0.000862	±2.5	PASS

The End

