

# Appendix B

## WCDMA Band II & V





## CONTENT

1.	EFFECTIVE (ISOTROPIC) RADIATED POWER.....	4
1.1.	TEST RESULT.....	4
2.	PEAK-TO-AVERAGE RATIO(CCDF).....	5
2.1.	TEST RESULT.....	5
2.2.	TEST PLOTS .....	5
3.	MODULATION CHARACTERISTICS .....	9
3.1.	TEST BAND = WCDMA BAND II .....	9
3.1.1.	TEST MODE = UMTS/TM1.....	9
3.1.1.1.	TEST CHANNEL = MCH .....	9
3.2.	TEST BAND = WCDMA BAND V .....	10
3.2.1.	TEST MODE = UMTS/TM1.....	10
3.2.1.1.	TEST CHANNEL = MCH .....	10
4.	26DB BANDWIDTH AND OCCUPIED BANDWIDTH.....	11
4.1.	TEST RESULT.....	11
4.2.	TEST PLOTS .....	11
5.	BAND EDGE COMPLIANCE .....	15
5.1.	TEST PLOTS .....	15
6.	SPURIOUS EMISSION AT ANTENNA TERMINAL.....	17
6.1.	TEST PLOTS .....	17
7.	FIELD STRENGTH OF SPURIOUS RADIATION.....	32
7.1.	TEST BAND = WCDMA BAND II .....	32
7.1.1.	TEST MODE =WCDMA/TM1.....	32
7.1.1.1.	TEST CHANNEL = LCH.....	32
7.1.1.2.	TEST CHANNEL = MCH .....	33
7.1.1.3.	TEST CHANNEL = HCH .....	33
7.2.	TEST BAND = WCDMA BAND V .....	34
7.2.1.	TEST MODE =WCDMA/TM1.....	34
7.2.1.1.	TEST CHANNEL = LCH.....	34



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7.2.1.2.	TEST CHANNEL = MCH .....	35
7.2.1.3.	TEST CHANNEL = HCH .....	35
8.	FREQUENCY STABILITY .....	37
8.1.	FREQUENCY VS VOLTAGE .....	37
8.2.	FREQUENCY VS TEMPERATURE .....	38



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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	23.58	19.35	33.00	PASS
Band II	9400	23.61	19.38	33.00	PASS
Band II	9538	23.66	19.43	33.00	PASS

Band	Channel	Conducted Power (dBm)	ERP (dBm)	Limit(dBm)	Verdict
Band V	4132	25.35	15.24	38.45	PASS
Band V	4182	25.31	15.20	38.45	PASS
Band V	4233	25.34	15.23	38.45	PASS

Remark:

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

$ERP [dBm] = \text{Conducted Power} [dBm] + \text{Gain} [dBd]$

$EIRP [dBm] = \text{Conducted Power} [dBm] + \text{Gain} [dBi]$



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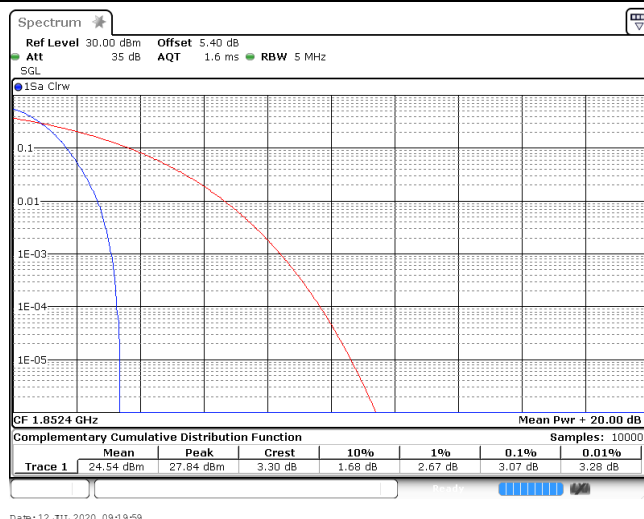
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## 2. Peak-to-Average Ratio(CCDF)

### 2.1. Test Result

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
Band II	9262	3.07	13	PASS
Band II	9400	3.16	13	PASS
Band II	9538	2.78	13	PASS
Band V	4132	2.67	13	PASS
Band V	4182	2.72	13	PASS
Band V	4233	2.67	13	PASS

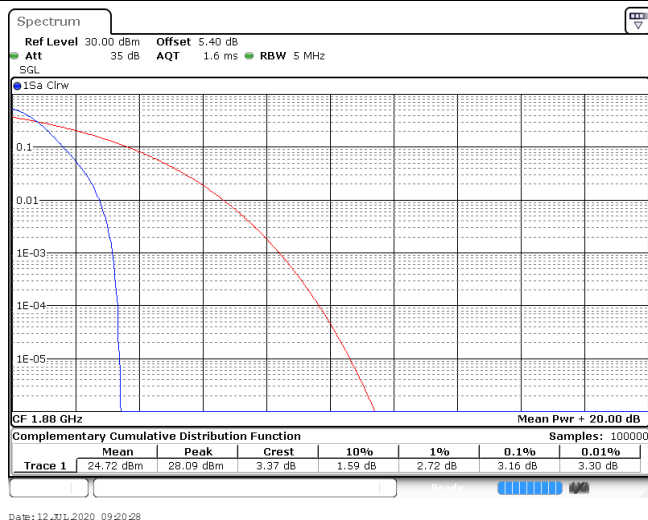
### 2.2. Test Plots



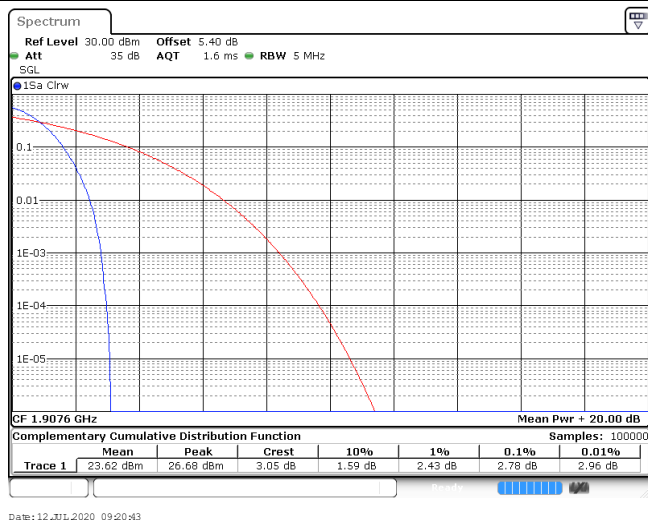
Band II\_9262





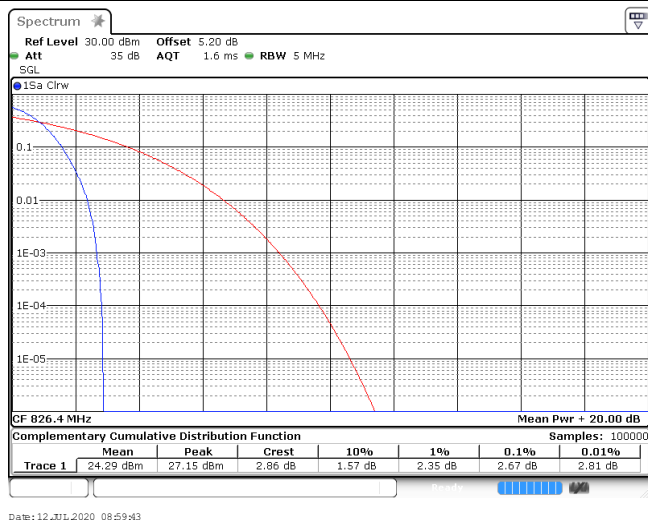


Band II\_9400

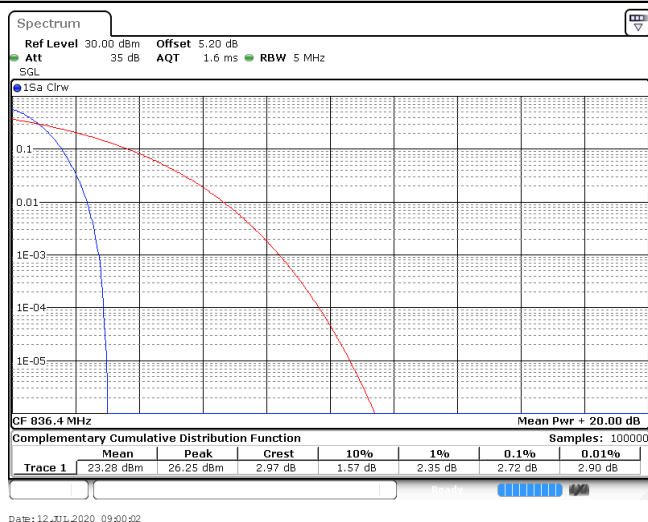


Band II\_9538



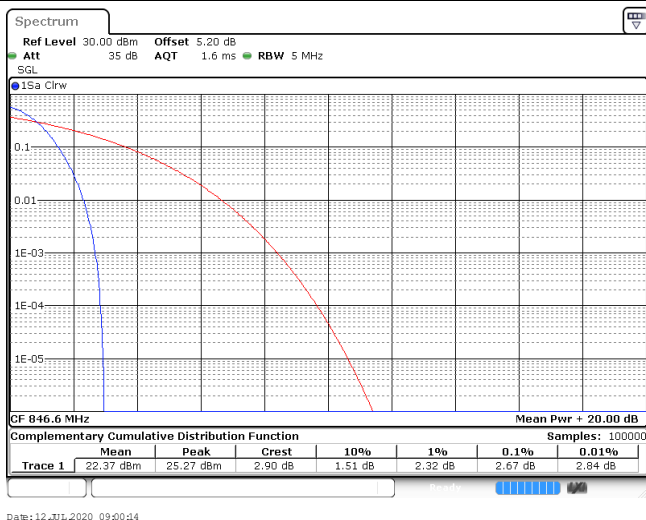


Band V\_4132



Band V\_4182





Band V\_4233



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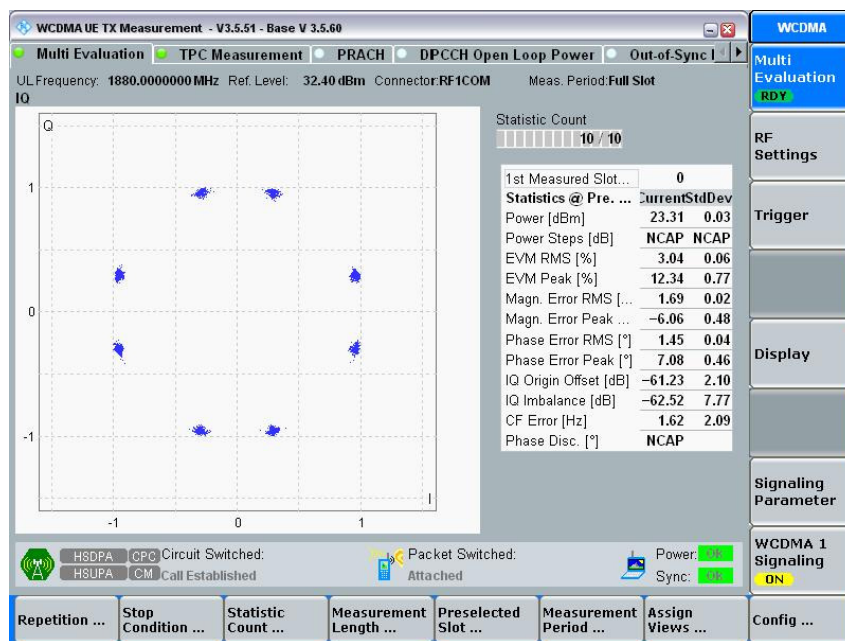


### 3. Modulation Characteristics

#### 3.1. Test Band = WCDMA Band II

##### 3.1.1. Test Mode = UMTS/TM1

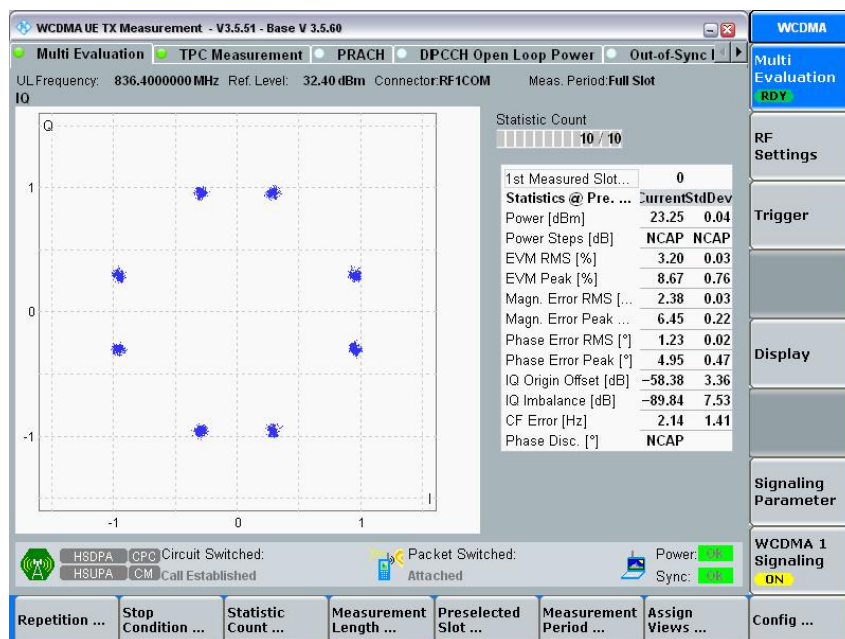
##### 3.1.1.1. Test Channel = MCH



## 3.2. Test Band = WCDMA Band V

### 3.2.1. Test Mode = UMTS/TM1

#### 3.2.1.1. Test Channel = MCH

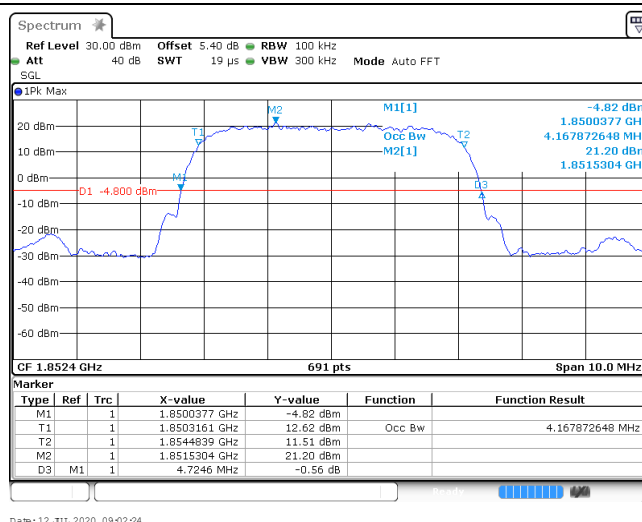


## 4. 26dB Bandwidth and Occupied Bandwidth

### 4.1. Test Result

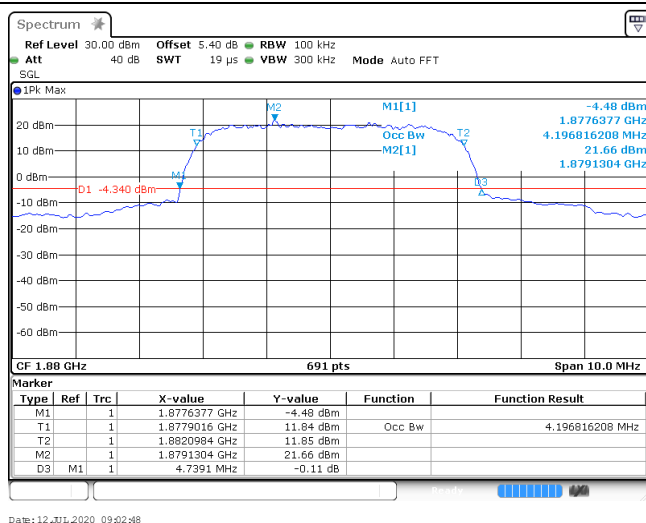
Band	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit(kHz)	Verdict
Band II	9262	4167.9	4725	---	PASS
Band II	9400	4196.8	4739	---	PASS
Band II	9538	4167.9	4754	---	PASS
Band V	4132	4167.9	4768	---	PASS
Band V	4182	4153.4	4754	---	PASS
Band V	4233	4167.9	4754	---	PASS

### 4.2. Test Plots

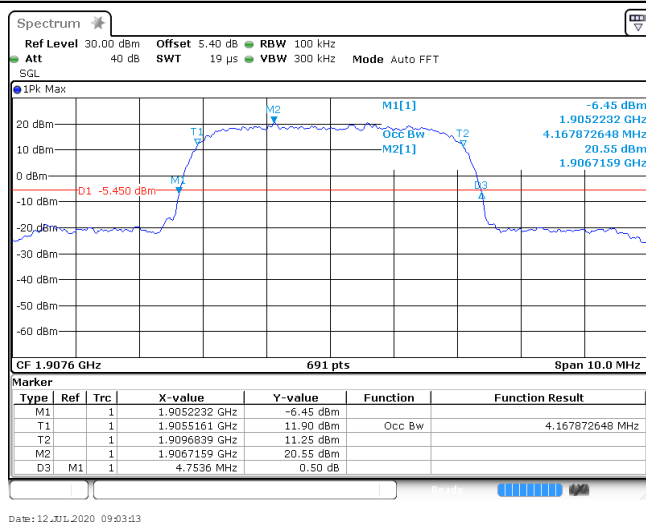


Band II\_9262





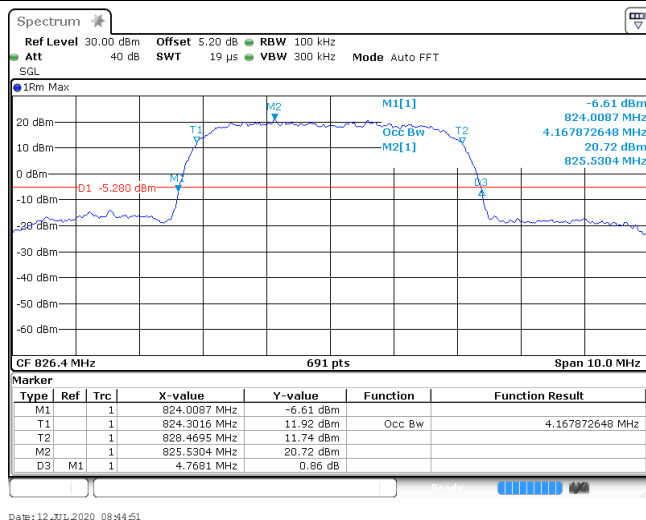
## Band II\_9400



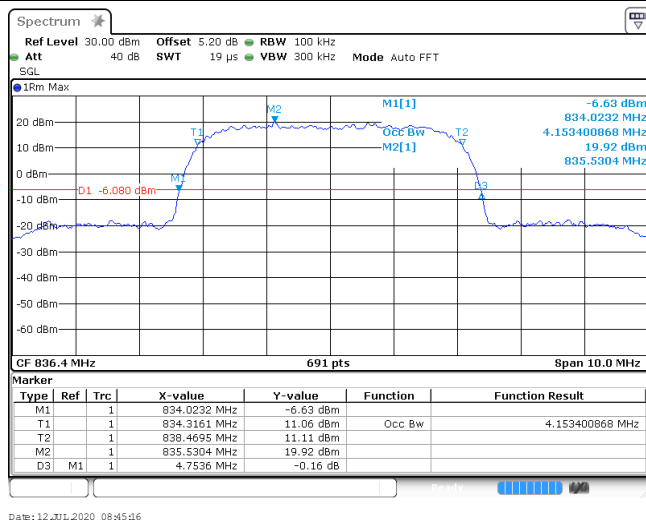
## Band II\_9538







## Band V\_4132



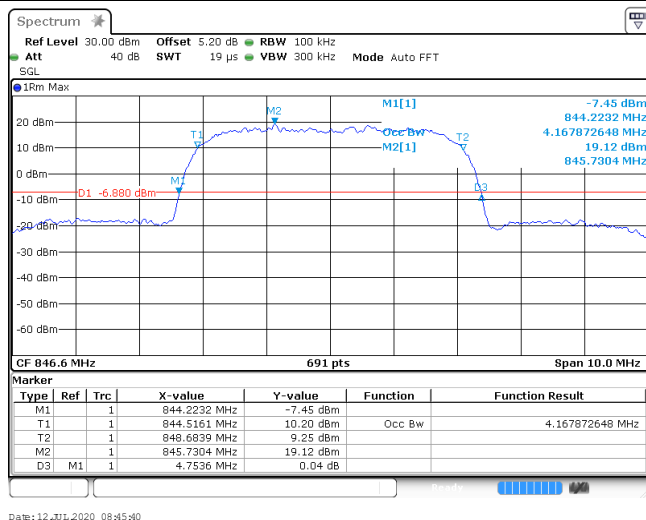
## Band V\_4182



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Band V\_4233



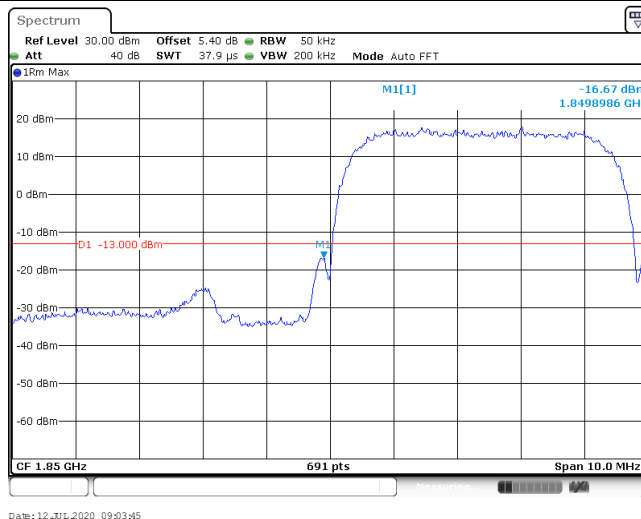
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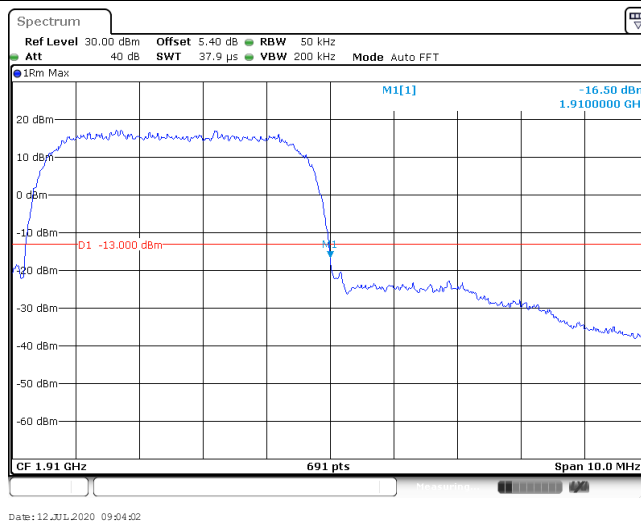
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## 5. Band Edge Compliance

### 5.1. Test Plots

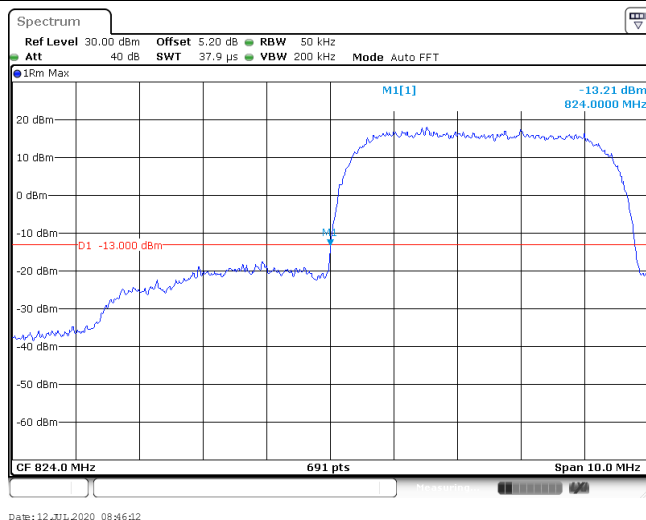


Band II\_9262



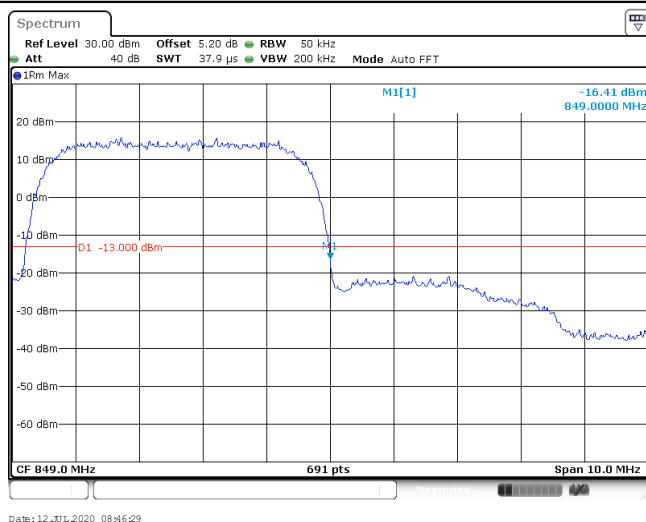
Band II\_9538





Date: 12 JUL 2020 08:46:12

## Band V\_4132



Date: 12 JUL 2020 08:46:29

## Band V\_4233

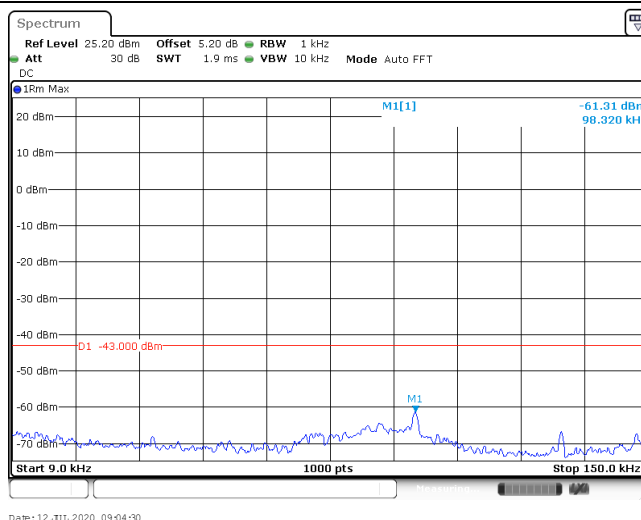


## 6. Spurious Emission at Antenna Terminal

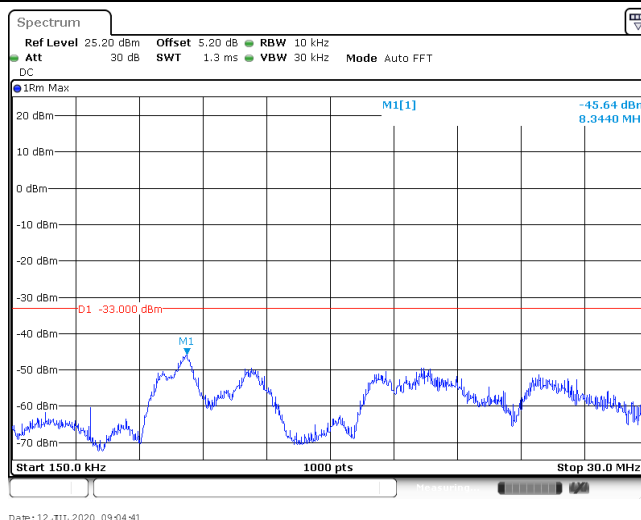
Remark1: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of  $< RBW/2$  so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points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

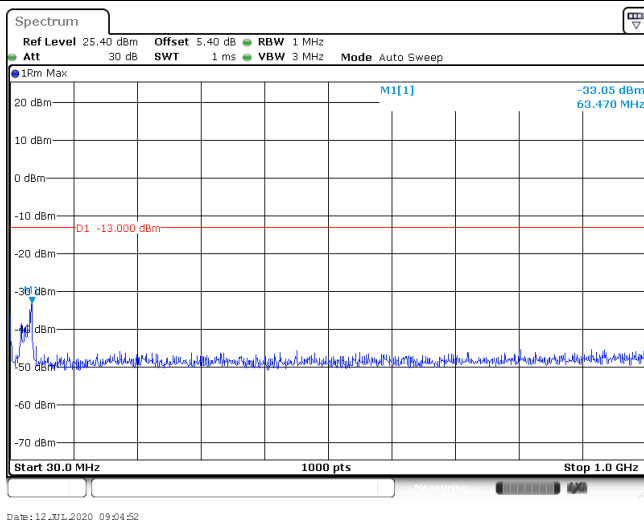


Band II\_9262

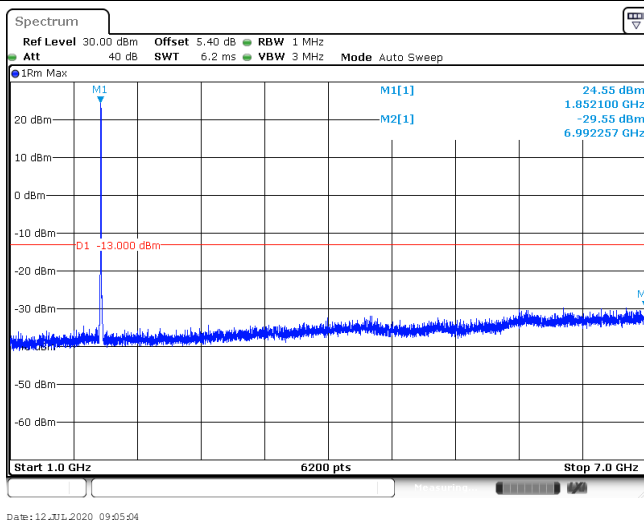


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Band II\_9262



Band II\_9262



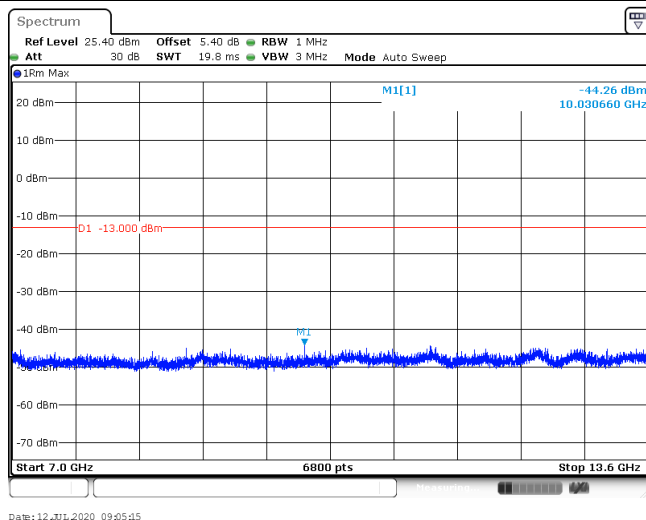
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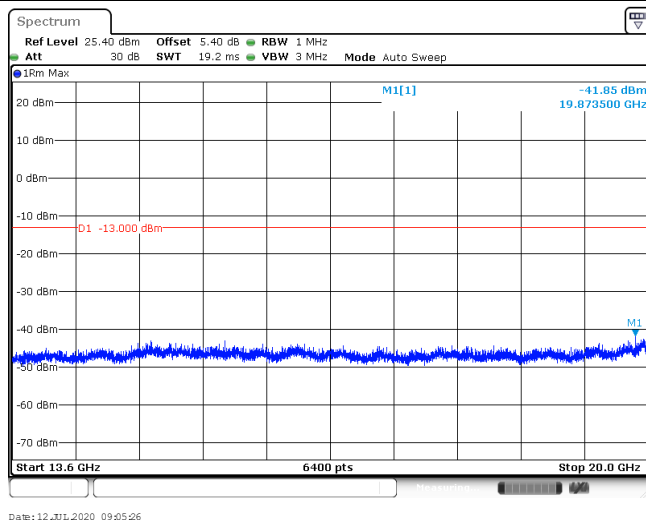
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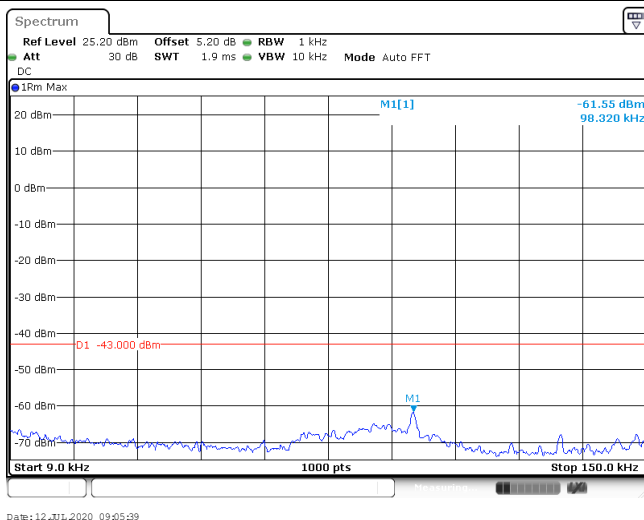
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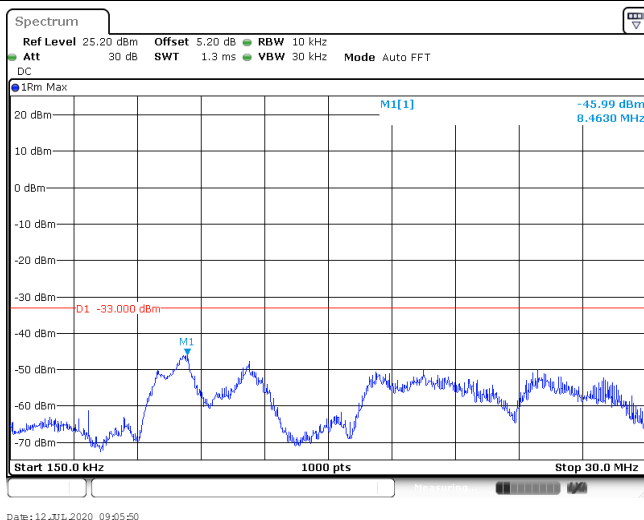
Band II\_9262



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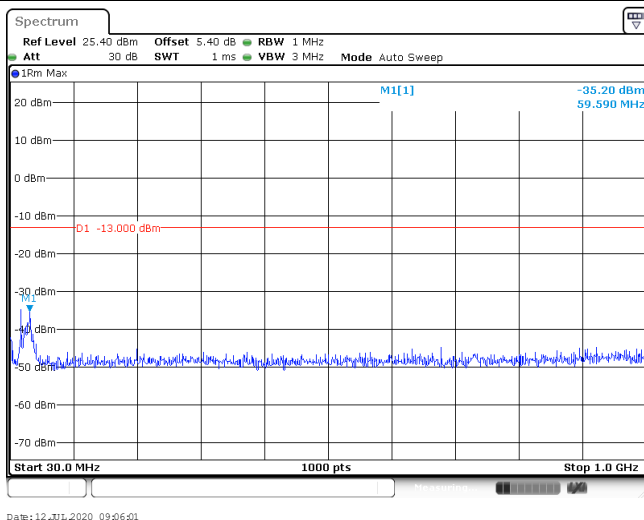


Band II\_9400

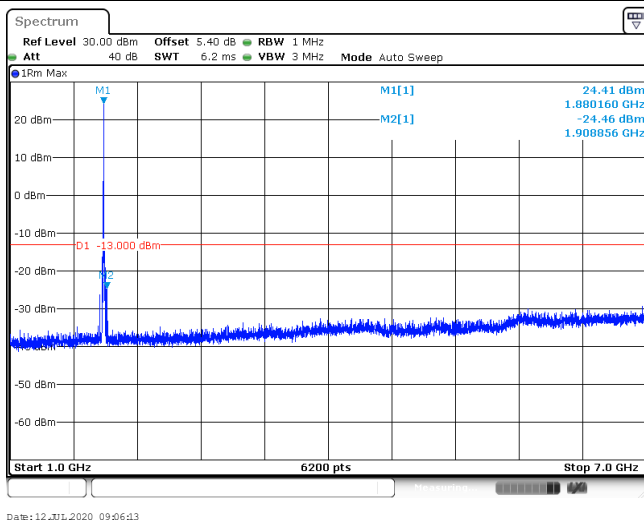


Band II\_9400



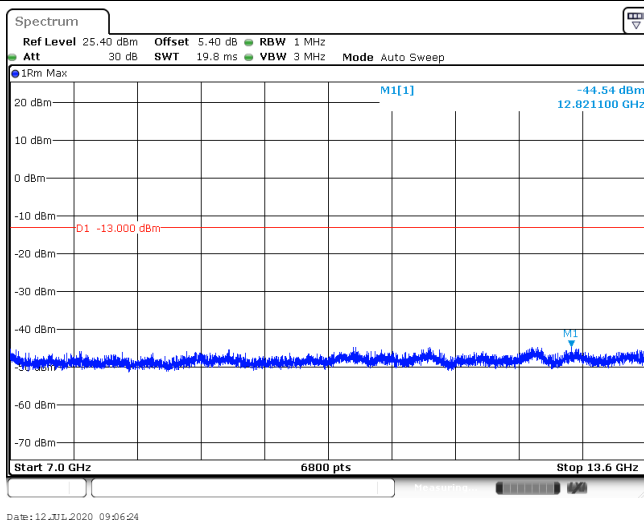


Band II\_9400

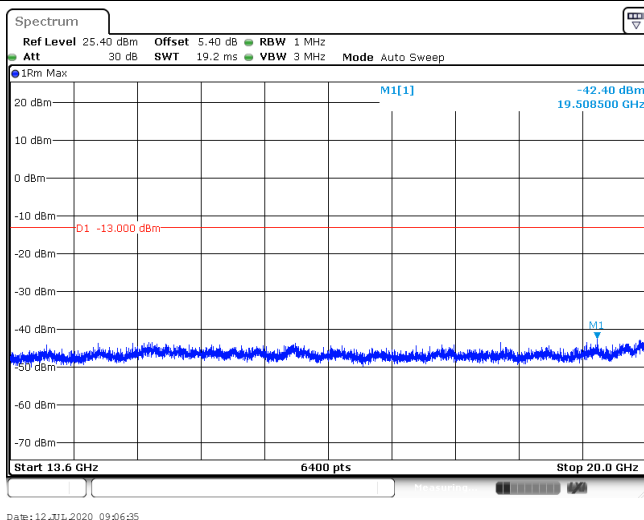


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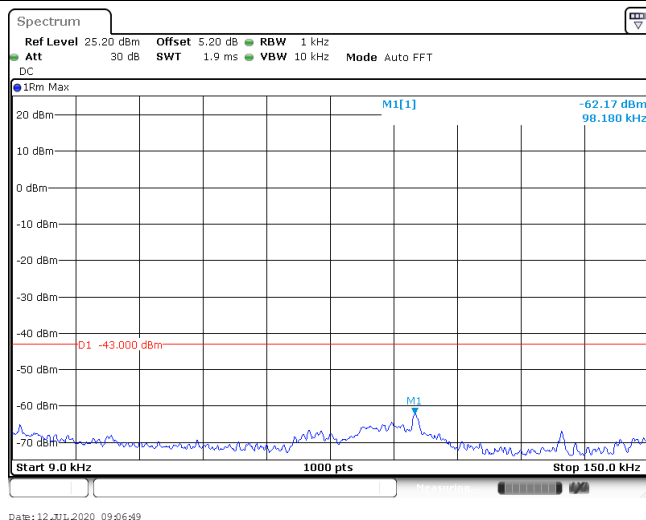


Band II\_9400



Band II\_9400





Band II\_9538

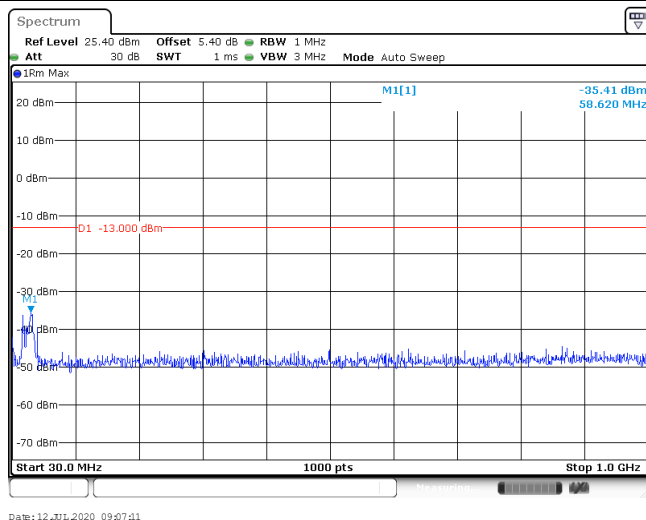


Band II\_9538

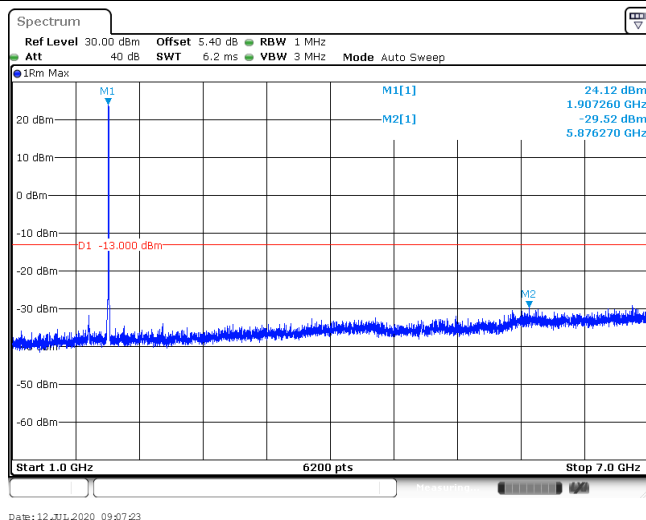


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Band II\_9538



Band II\_9538

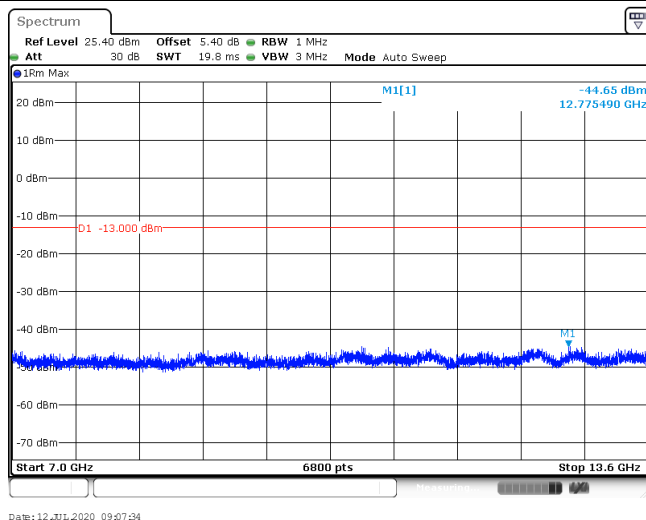


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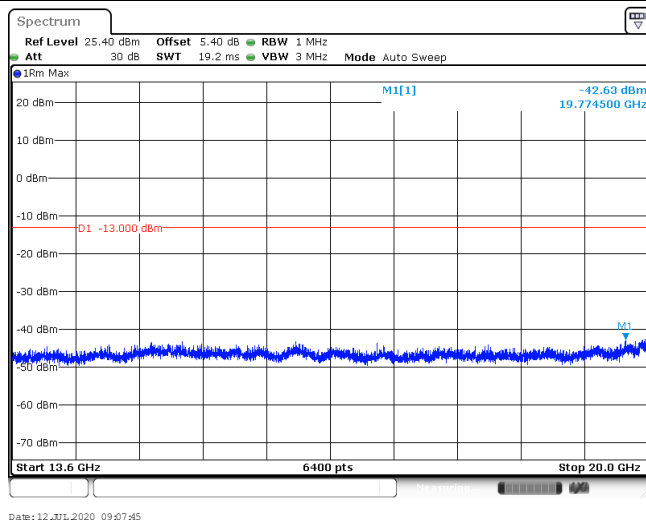
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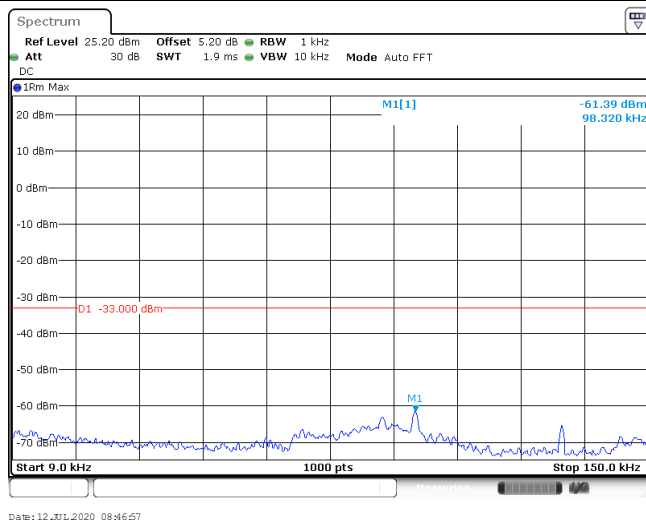


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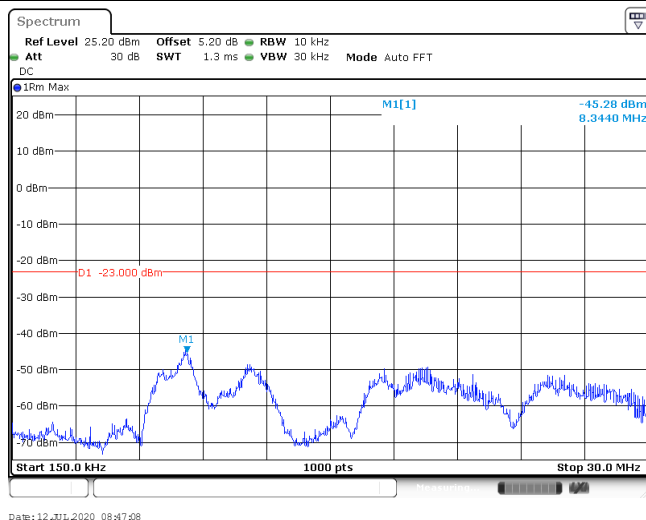


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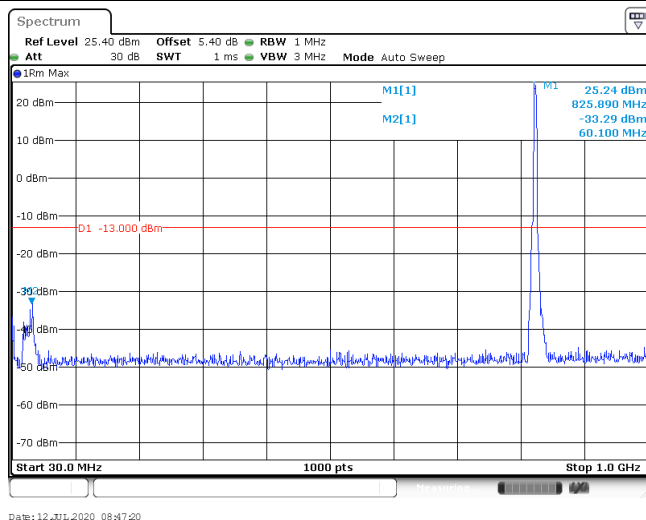
Band V\_4132



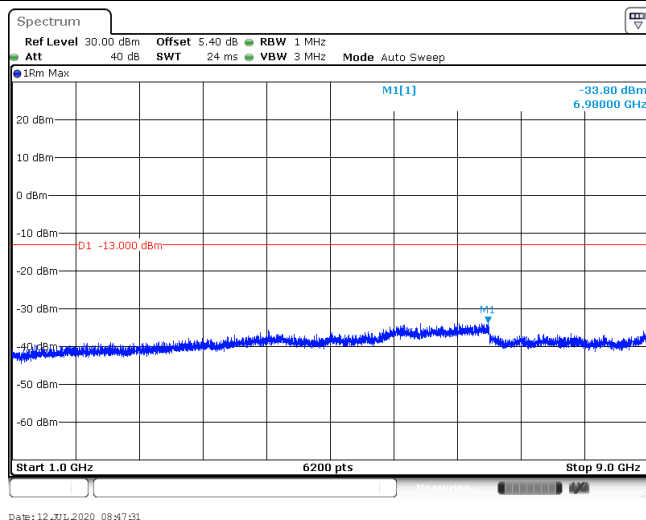
Band V\_4132



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Band V\_4132



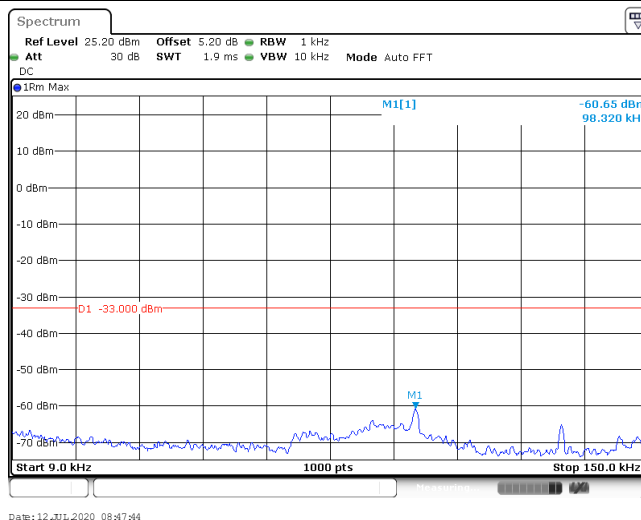
Band V\_4132



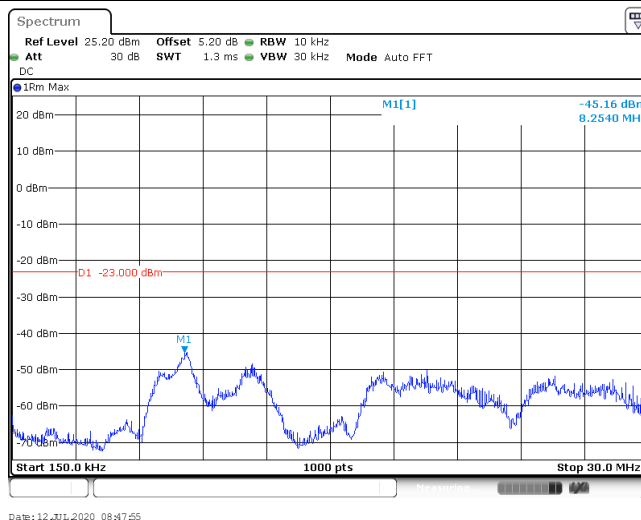
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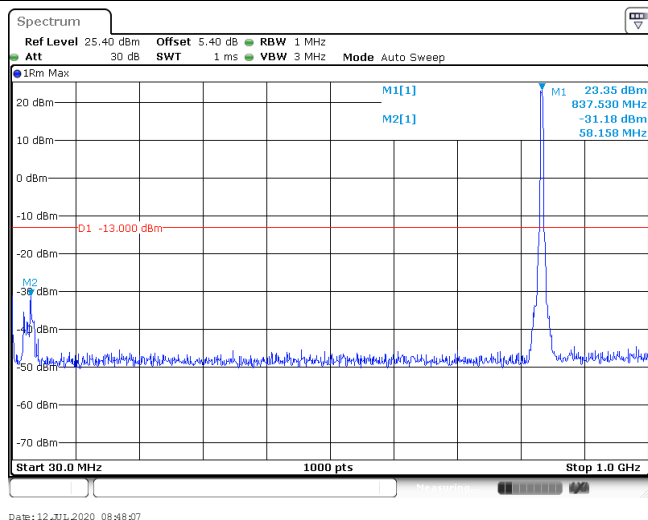
Band V\_4182



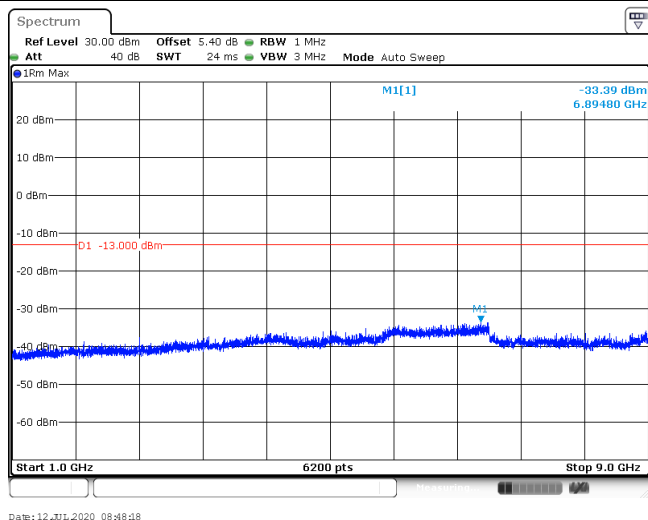
Band V\_4182





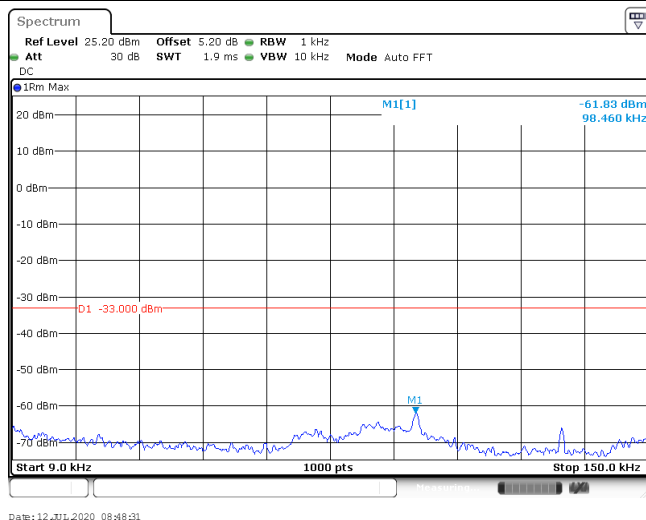


**Band V\_4182**

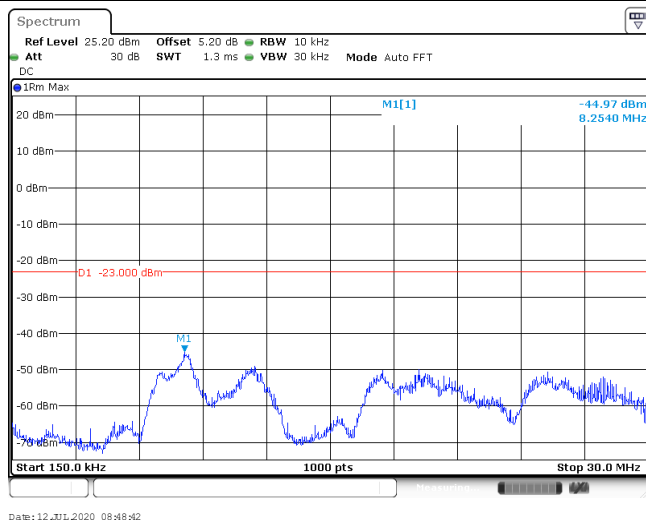


**Band V\_4182**





Band V\_4233



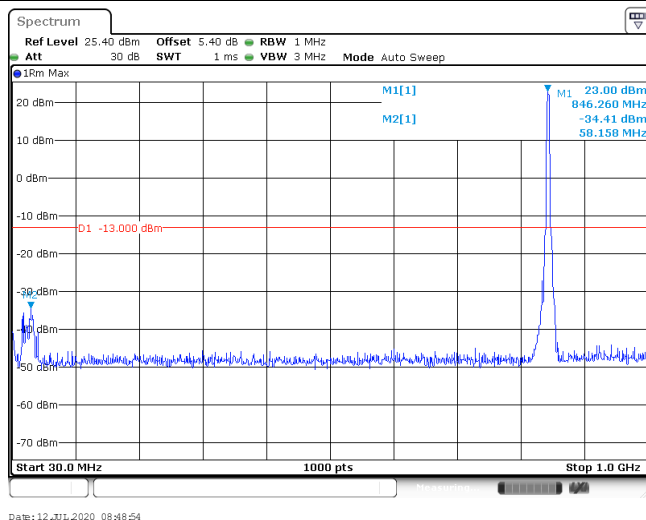
Band V\_4233



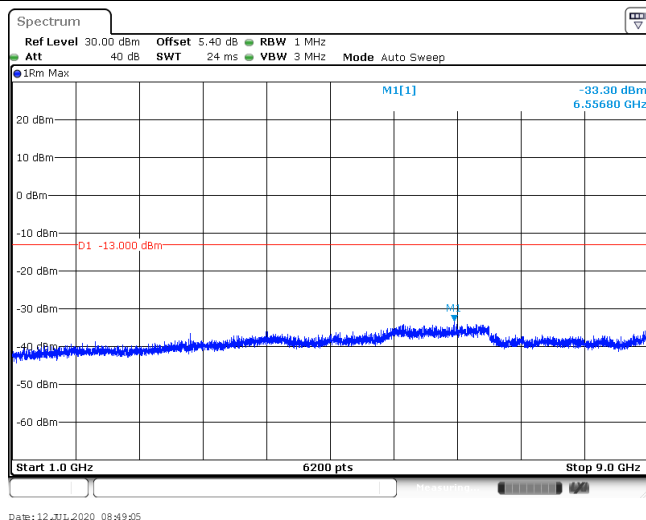
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## 7. Field Strength of Spurious Radiation

### 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
54.4452	-71.68	-13.00	58.68	Vertical
108.7679	-64.83	-13.00	51.83	Vertical
441.9796	-66.70	-13.00	53.70	Vertical
2691.9384	-36.75	-13.00	23.75	Vertical
7350.1450	-55.88	-13.00	42.88	Vertical
17999.5000	-40.13	-13.00	27.13	Vertical
43.0957	□63.72	-13.00	50.72	Horizontal
244.0412	-68.19	-13.00	55.19	Horizontal
513.8117	-66.00	-13.00	53.00	Horizontal
2696.7393	-35.53	-13.00	22.53	Horizontal
7477.1492	-56.21	-13.00	43.21	Horizontal
16403.9468	-43.45	-13.00	30.45	Horizontal





### 7.1.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
50.2255	-72.20	-13.00	59.20	Vertical
111.4841	-64.23	-13.00	51.23	Vertical
458.6644	-67.61	-13.00	54.61	Vertical
2693.1386	-36.84	-13.00	23.84	Vertical
7458.6486	-55.43	-13.00	42.43	Vertical
17998.5000	-39.74	-13.00	26.74	Vertical
42.2226	-63.89	-13.00	50.89	Horizontal
248.6004	-67.44	-13.00	54.44	Horizontal
630.5085	-63.56	-13.00	50.56	Horizontal
2700.3401	-35.47	-13.00	22.47	Horizontal
7460.1487	-56.11	-13.00	43.11	Horizontal
16400.9467	-43.70	-13.00	30.70	Horizontal

### 7.1.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
49.3040	-71.64	-13.00	58.64	Vertical
116.4313	-65.00	-13.00	52.00	Vertical
602.4741	-63.98	-13.00	50.98	Vertical
2715.5431	-36.45	-13.00	23.45	Vertical
7413.6471	-55.77	-13.00	42.77	Vertical
17997.4999	-39.98	-13.00	26.98	Vertical
44.4052	-63.81	-13.00	50.81	Horizontal
235.3593	-68.46	-13.00	55.46	Horizontal
501.7831	-65.75	-13.00	52.75	Horizontal
2699.5399	-35.51	-13.00	22.51	Horizontal
7476.1492	-55.98	-13.00	42.98	Horizontal
16409.4470	-43.49	-13.00	30.49	Horizontal



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**7.2. Test Band = WCDMA Band V****7.2.1. Test Mode = WCDMA/TM1****7.2.1.1. Test Channel = LCH**

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.5337	-70.97	-13.00	57.97	Vertical
110.0290	-64.34	-13.00	51.34	Vertical
387.1719	-68.02	-13.00	55.02	Vertical
2995.1990	-51.31	-13.00	38.31	Vertical
7457.1486	-55.52	-13.00	42.52	Vertical
17993.9998	-39.93	-13.00	26.93	Vertical
38.4879	-64.50	-13.00	51.50	Horizontal
237.4934	-67.63	-13.00	54.63	Horizontal
570.3170	-64.09	-13.00	51.09	Horizontal
1654.9310	-58.79	-13.00	45.79	Horizontal
2693.5387	-50.87	-13.00	37.87	Horizontal
16393.4464	-43.34	-13.00	30.34	Horizontal





### 7.2.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
50.8560	-72.61	-13.00	59.61	Vertical
118.8079	-63.84	-13.00	50.84	Vertical
511.1926	-65.79	-13.00	52.79	Vertical
2501.1002	-50.54	-13.00	37.54	Vertical
7447.1482	-55.57	-13.00	42.57	Vertical
17998.5000	-40.28	-13.00	27.28	Vertical
43.1927	-63.07	-13.00	50.07	Horizontal
234.6802	-67.21	-13.00	54.21	Horizontal
1699.7399	-60.96	-13.00	47.96	Horizontal
2501.1002	-50.30	-13.00	37.30	Horizontal
7494.6498	-55.93	-13.00	42.93	Horizontal
16394.4465	-43.40	-13.00	30.40	Horizontal

### 7.2.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
60.9445	-72.19	-13.00	59.19	Vertical
111.6296	-64.91	-13.00	51.91	Vertical
465.0183	-67.48	-13.00	54.48	Vertical
2993.5987	-51.37	-13.00	38.37	Vertical
7345.6449	-55.50	-13.00	42.50	Vertical
17999.5000	-40.09	-13.00	27.09	Vertical
40.5735	-64.25	-13.00	51.25	Horizontal
236.1838	-67.70	-13.00	54.70	Horizontal
584.5767	-63.88	-13.00	50.88	Horizontal
2698.3397	-50.83	-13.00	37.83	Horizontal
8044.1681	-56.36	-13.00	43.36	Horizontal
16389.9463	-43.48	-13.00	30.48	Horizontal

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- 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	TN	5.23	0.002823	±2.5	PASS
Band II	9262	VN	TN	-11.25	-0.006073	±2.5	PASS
Band II	9262	VH	TN	-13.84	-0.007470	±2.5	PASS
Band II	9400	VL	TN	1.88	0.000998	±2.5	PASS
Band II	9400	VN	TN	0.17	0.000088	±2.5	PASS
Band II	9400	VH	TN	-14.18	-0.007540	±2.5	PASS
Band II	9538	VL	TN	13.55	0.007104	±2.5	PASS
Band II	9538	VN	TN	-5.52	-0.002895	±2.5	PASS
Band II	9538	VH	TN	-14.62	-0.007664	±2.5	PASS
Band V	4132	VL	TN	7.13	0.008627	±2.5	PASS
Band V	4132	VN	TN	6.08	0.007353	±2.5	PASS
Band V	4132	VH	TN	11.90	0.014401	±2.5	PASS
Band V	4182	VL	TN	-1.66	-0.001987	±2.5	PASS
Band V	4182	VN	TN	-7.08	-0.008462	±2.5	PASS
Band V	4182	VH	TN	-13.29	-0.015887	±2.5	PASS
Band V	4233	VL	TN	-9.53	-0.011257	±2.5	PASS
Band V	4233	VN	TN	-8.25	-0.009744	±2.5	PASS
Band V	4233	VH	TN	5.56	0.006570	±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	5.21	0.002813	±2.5	PASS
Band II	9262	VN	-20	-9.37	-0.005060	±2.5	PASS
Band II	9262	VN	-10	8.28	0.004469	±2.5	PASS
Band II	9262	VN	0	0.08	0.000043	±2.5	PASS
Band II	9262	VN	10	3.50	0.001892	±2.5	PASS
Band II	9262	VN	20	6.39	0.003449	±2.5	PASS
Band II	9262	VN	30	-13.78	-0.007438	±2.5	PASS
Band II	9262	VN	40	1.52	0.000819	±2.5	PASS
Band II	9262	VN	50	3.64	0.001967	±2.5	PASS
Band II	9400	VN	-30	-12.81	-0.006814	±2.5	PASS
Band II	9400	VN	-20	-3.26	-0.001736	±2.5	PASS
Band II	9400	VN	-10	2.12	0.001125	±2.5	PASS
Band II	9400	VN	0	9.23	0.004907	±2.5	PASS
Band II	9400	VN	10	2.33	0.001237	±2.5	PASS
Band II	9400	VN	20	8.67	0.004612	±2.5	PASS
Band II	9400	VN	30	8.06	0.004285	±2.5	PASS
Band II	9400	VN	40	-2.14	-0.001136	±2.5	PASS
Band II	9400	VN	50	9.06	0.004821	±2.5	PASS
Band II	9538	VN	-30	-8.79	-0.004610	±2.5	PASS
Band II	9538	VN	-20	-9.87	-0.005172	±2.5	PASS
Band II	9538	VN	-10	-3.75	-0.001963	±2.5	PASS
Band II	9538	VN	0	-10.35	-0.005428	±2.5	PASS
Band II	9538	VN	10	3.24	0.001700	±2.5	PASS
Band II	9538	VN	20	-3.92	-0.002055	±2.5	PASS
Band II	9538	VN	30	-8.07	-0.004230	±2.5	PASS
Band II	9538	VN	40	-12.60	-0.006605	±2.5	PASS
Band II	9538	VN	50	5.73	0.003006	±2.5	PASS
Band V	4132	VN	-30	13.91	0.016829	±2.5	PASS
Band V	4132	VN	-20	9.99	0.012093	±2.5	PASS
Band V	4132	VN	-10	-13.55	-0.016395	±2.5	PASS
Band V	4132	VN	0	8.23	0.009954	±2.5	PASS



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Band V	4132	VN	10	-2.73	-0.003300	±2.5	PASS
Band V	4132	VN	20	-11.90	-0.014400	±2.5	PASS
Band V	4132	VN	30	14.98	0.018130	±2.5	PASS
Band V	4132	VN	40	10.87	0.013159	±2.5	PASS
Band V	4132	VN	50	-14.83	-0.017946	±2.5	PASS
Band V	4182	VN	-30	-4.25	-0.005086	±2.5	PASS
Band V	4182	VN	-20	-10.25	-0.012260	±2.5	PASS
Band V	4182	VN	-10	-8.58	-0.010264	±2.5	PASS
Band V	4182	VN	0	-2.65	-0.003165	±2.5	PASS
Band V	4182	VN	10	2.69	0.003212	±2.5	PASS
Band V	4182	VN	20	13.36	0.015973	±2.5	PASS
Band V	4182	VN	30	4.74	0.005667	±2.5	PASS
Band V	4182	VN	40	-4.14	-0.004947	±2.5	PASS
Band V	4182	VN	50	12.01	0.014355	±2.5	PASS
Band V	4233	VN	-30	-0.48	-0.000566	±2.5	PASS
Band V	4233	VN	-20	1.86	0.002198	±2.5	PASS
Band V	4233	VN	-10	-0.76	-0.000902	±2.5	PASS
Band V	4233	VN	0	-4.29	-0.005067	±2.5	PASS
Band V	4233	VN	10	-10.10	-0.011926	±2.5	PASS
Band V	4233	VN	20	-7.80	-0.009215	±2.5	PASS
Band V	4233	VN	30	12.11	0.014310	±2.5	PASS
Band V	4233	VN	40	-13.96	-0.016492	±2.5	PASS
Band V	4233	VN	50	-13.83	-0.016340	±2.5	PASS

The End

