

# Appendix B

## WCDMA Band II & IV & V





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## 1. Effective (Isotropic) Radiated Power

### 1.1. Test Result

Band	Channel	Power(dBm)	EIRP	Limit(dBm)	Verdict
Band2	9262	23.75	27.75	33	PASS
Band2	9400	23.30	27.30	33	PASS
Band2	9538	23.06	27.06	33	PASS
Band4	1312	24.30	28.30	30	PASS
Band4	1413	24.56	28.56	30	PASS
Band4	1513	24.64	28.64	30	PASS

Band	Channel	Power(dBm)	ERP	Limit(dBm)	Verdict
Band5	4132	23.85	24.7	38.5	PASS
Band5	4182	23.91	24.76	38.5	PASS
Band5	4233	23.91	24.76	38.5	PASS

Remark:

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

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

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

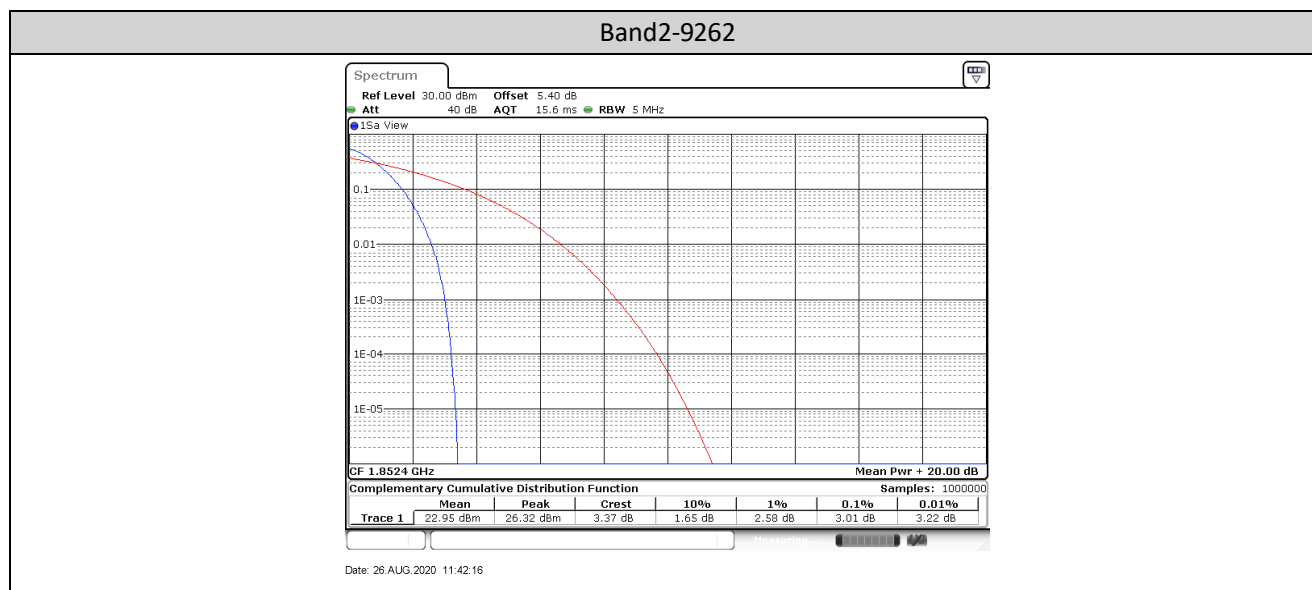


## 2. Peak-to-Average Ratio(CCDF)

### 2.1. Test Result

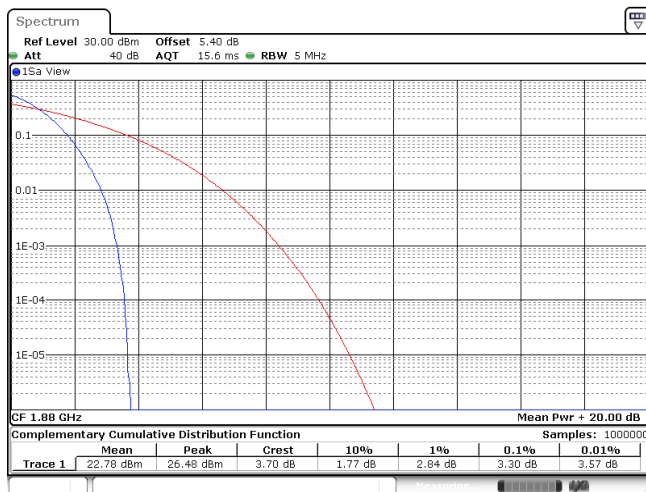
Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
Band2	9262	3.01	13	PASS
Band2	9400	3.3	13	PASS
Band2	9538	3.28	13	PASS
Band4	1312	2.9	13	PASS
Band4	1413	2.9	13	PASS
Band4	1513	2.72	13	PASS
Band5	4132	3.07	13	PASS
Band5	4182	3.16	13	PASS
Band5	4233	2.87	13	PASS

### 2.2. Test Plots



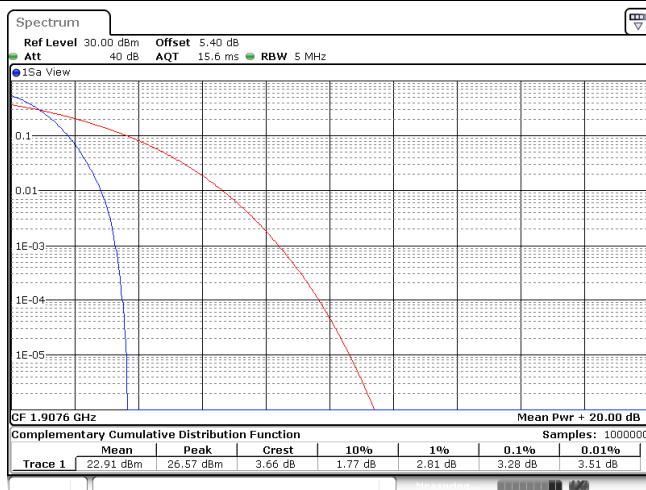


## Band2-9400



Date: 26 AUG. 2020 11:42:29

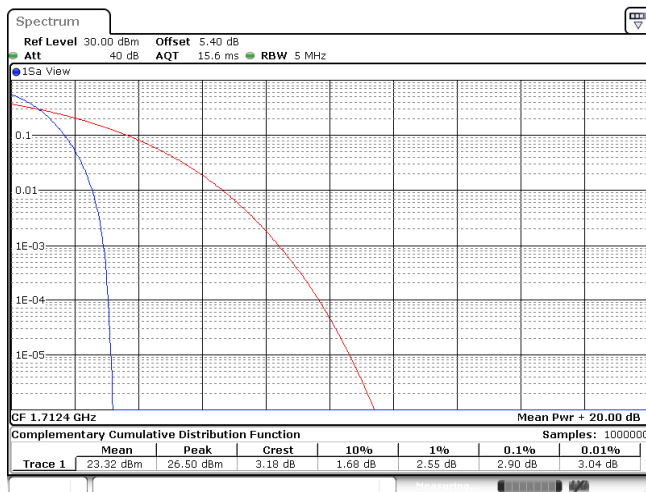
## Band2-9538



Date: 26 AUG. 2020 11:42:42

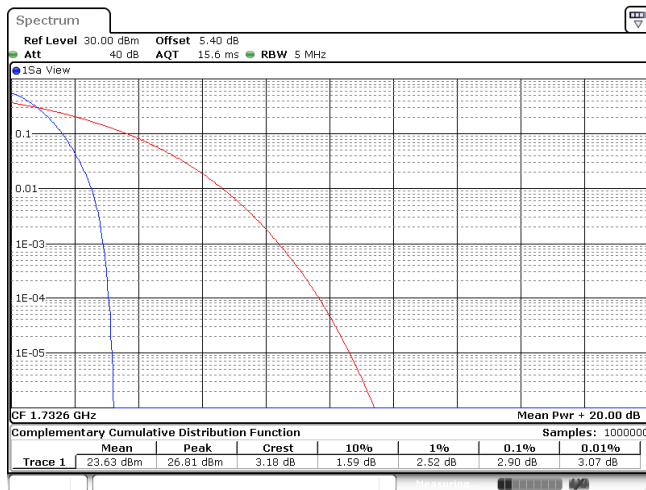


## Band4-1312



Date: 26 AUG. 2020 11:49:44

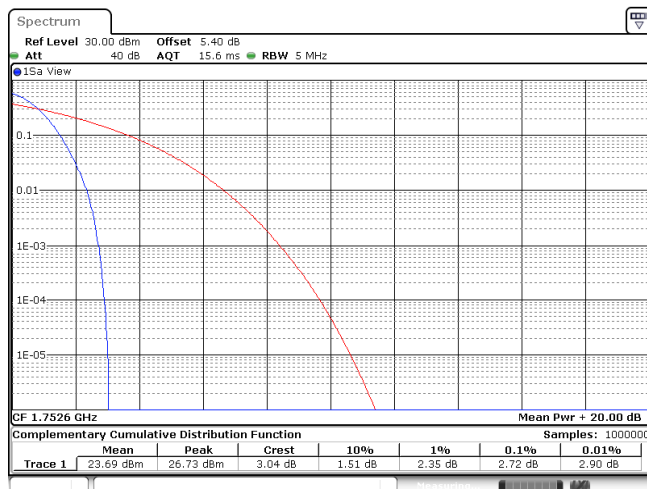
## Band4-1413



Date: 26 AUG. 2020 11:49:57

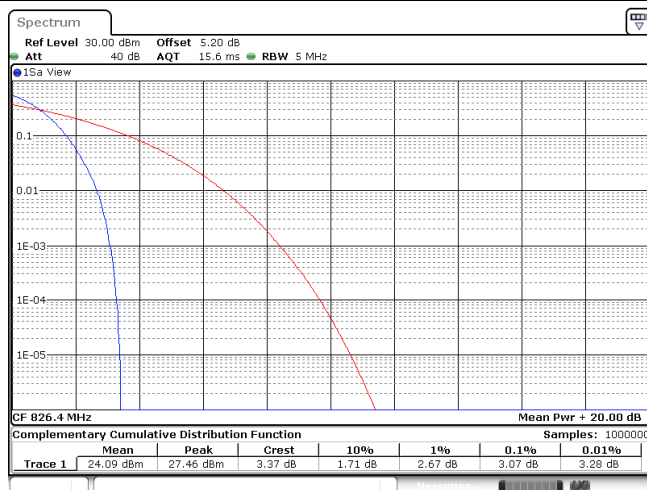


## Band4-1513



Date: 26 AUG. 2020 11:50:10

## Band5-4132

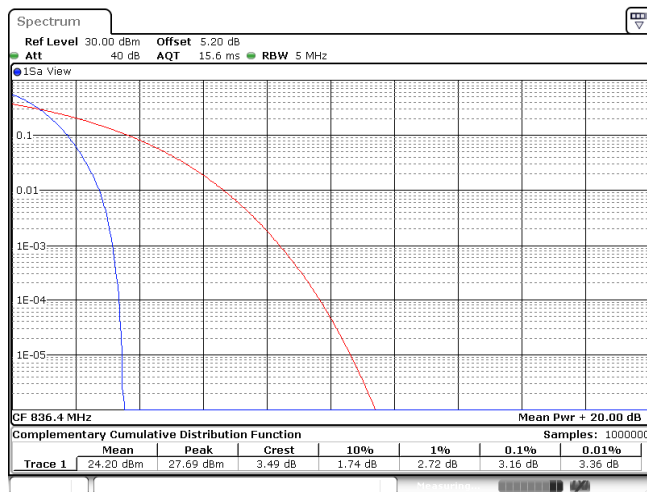


Date: 26 AUG. 2020 11:59:45



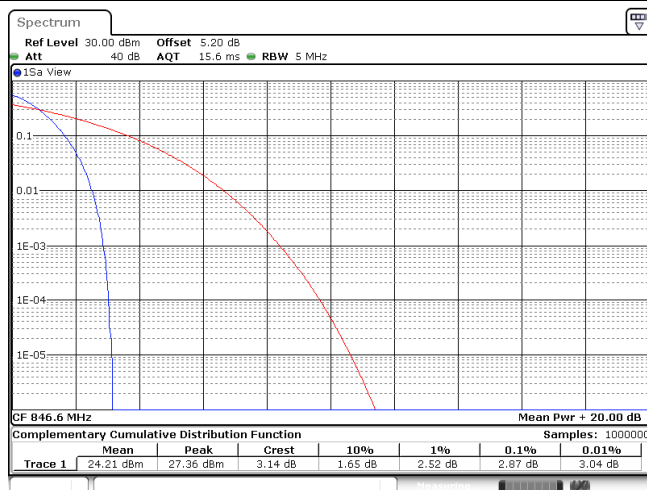


## Band5-4182



Date: 26 AUG. 2020 11:59:59

## Band5-4233



Date: 26 AUG. 2020 12:00:12

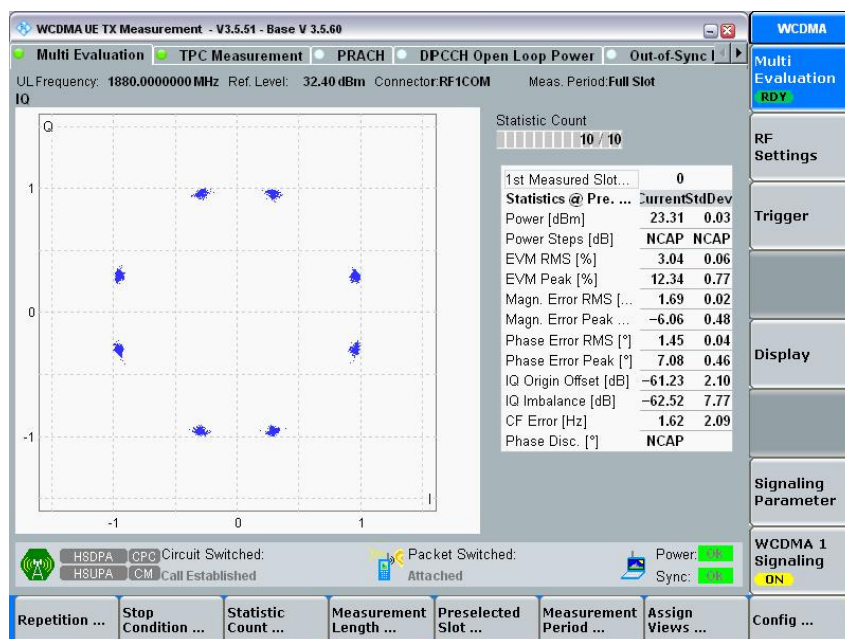


### 3. Modulation Characteristics

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

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

##### 3.1.1.1. Test Channel = MCH

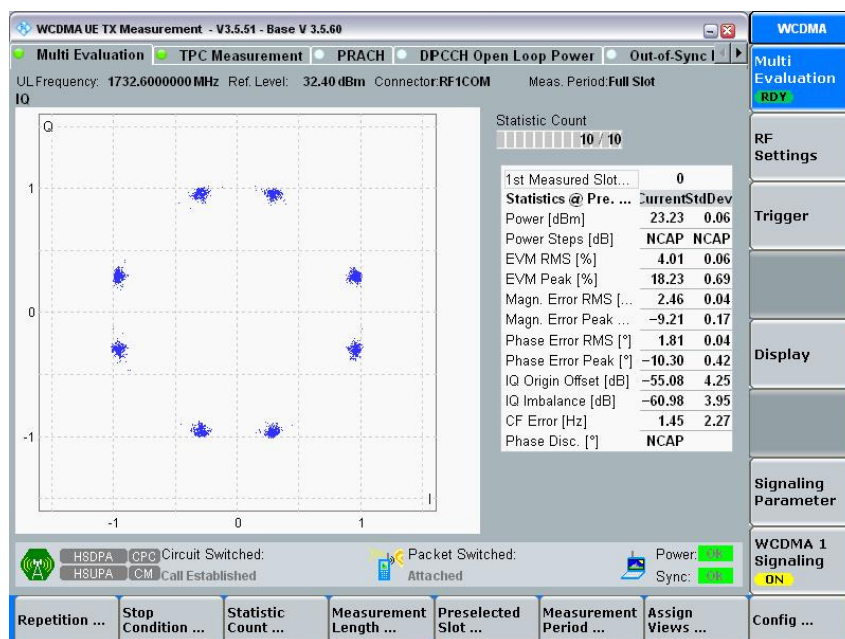


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## 3.2. Test Band = WCDMA Band IV

### 3.2.1. Test Mode = UMTS/TM1

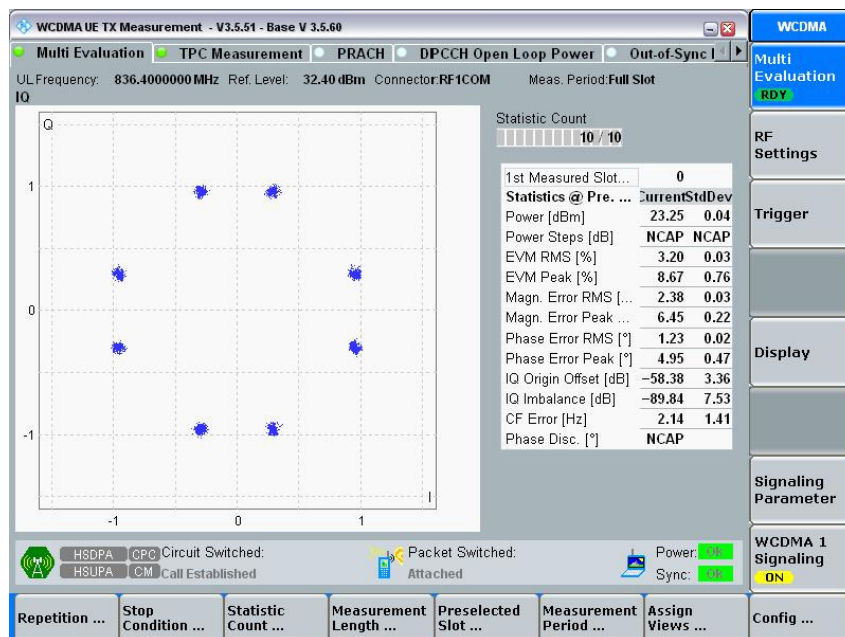
#### 3.2.1.1. Test Channel = MCH



### 3.3. Test Band = WCDMA Band V

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

##### 3.3.1.1. Test Channel = MCH



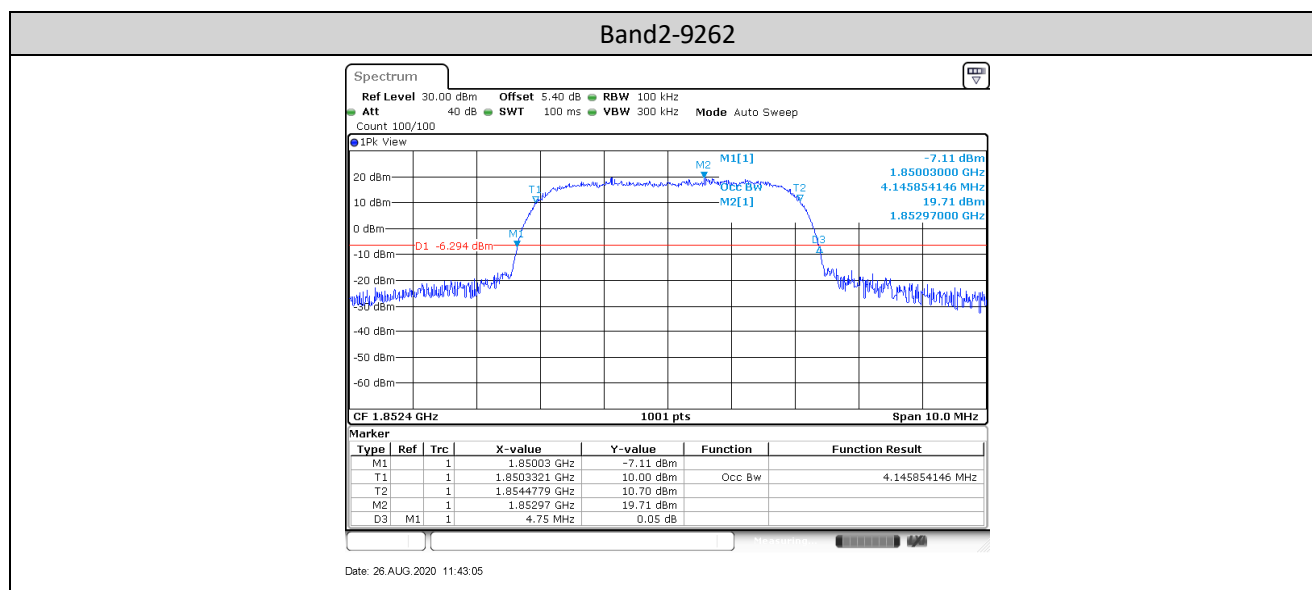


## 4. 26dB Bandwidth and Occupied Bandwidth

### 4.1. Test Result

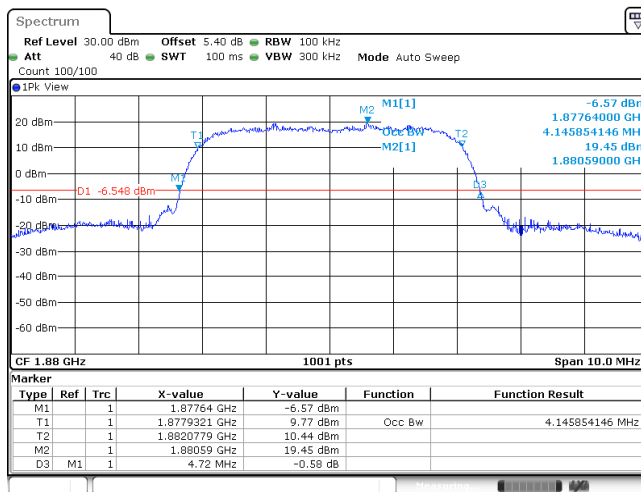
Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit(kHz)	Verdict
Band2	9262	4.146	4.750	---	PASS
Band2	9400	4.146	4.720	---	PASS
Band2	9538	4.146	4.720	---	PASS
Band4	1312	4.156	4.760	---	PASS
Band4	1413	4.156	4.740	---	PASS
Band4	1513	4.156	4.760	---	PASS
Band5	4132	4.136	4.720	---	PASS
Band5	4182	4.136	4.720	---	PASS
Band5	4233	4.126	4.730	---	PASS

### 4.2. Test Plots

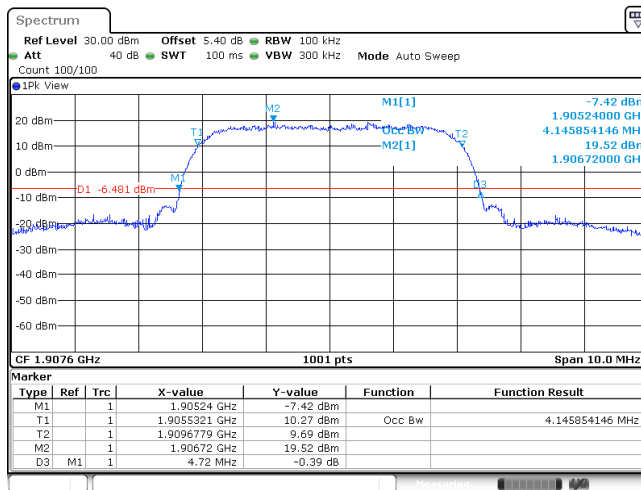




## Band2-9400



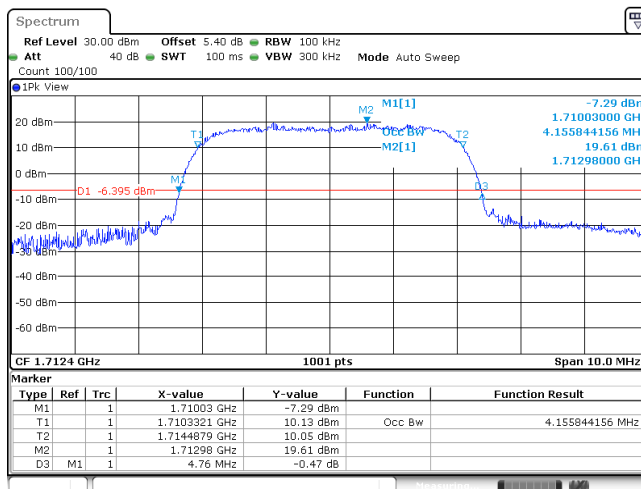
## Band2-9538



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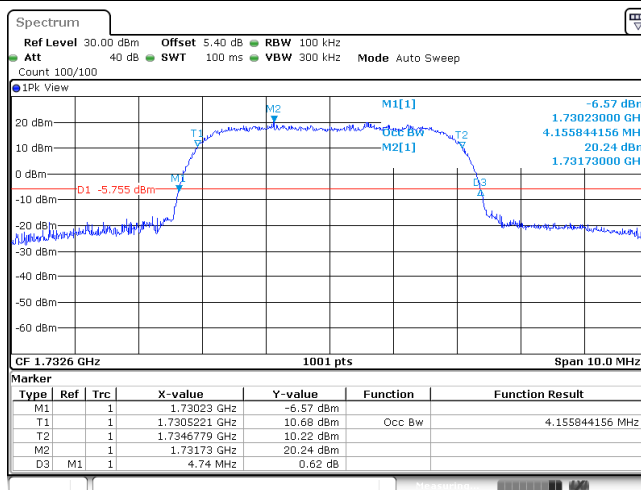
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## Band4-1312



Date: 26 AUG. 2020 11:52:34

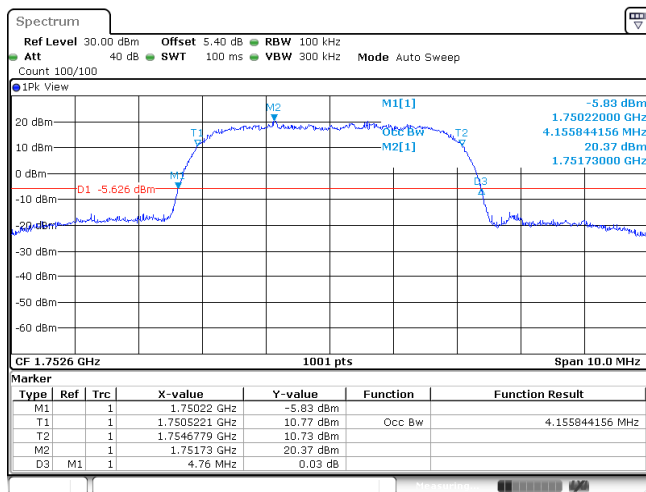
## Band4-1413



Date: 26 AUG. 2020 11:52:55

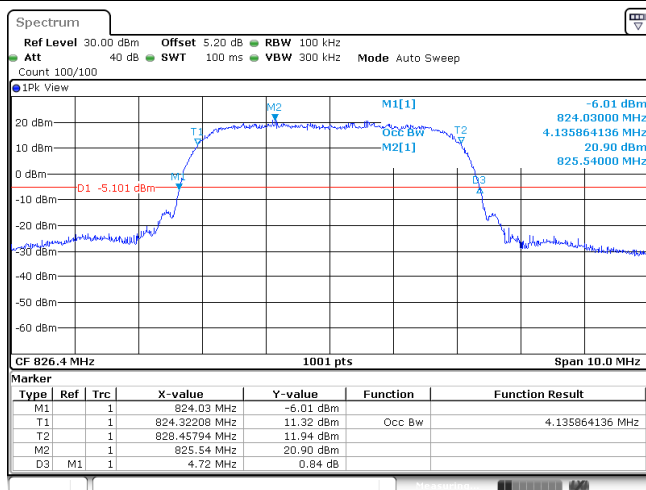


## Band4-1513



Date: 26 AUG. 2020 11:53:17

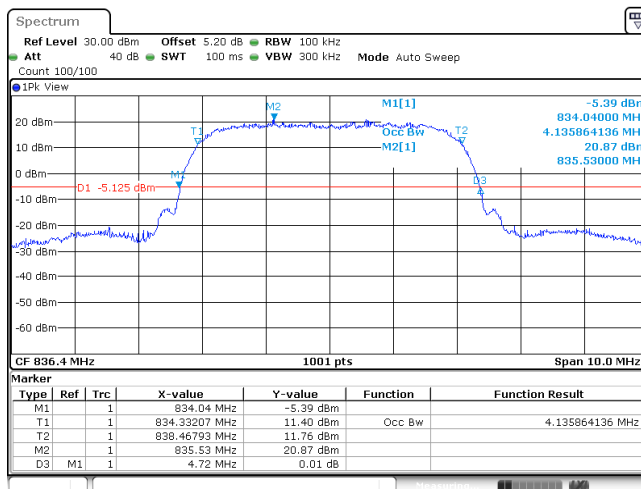
## Band5-4132



Date: 26 AUG. 2020 12:00:34

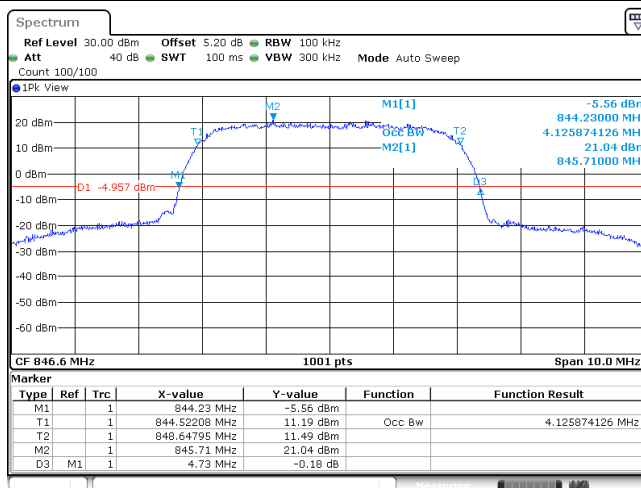


## Band5-4182



Date: 26 AUG. 2020 12:00:56

## Band5-4233

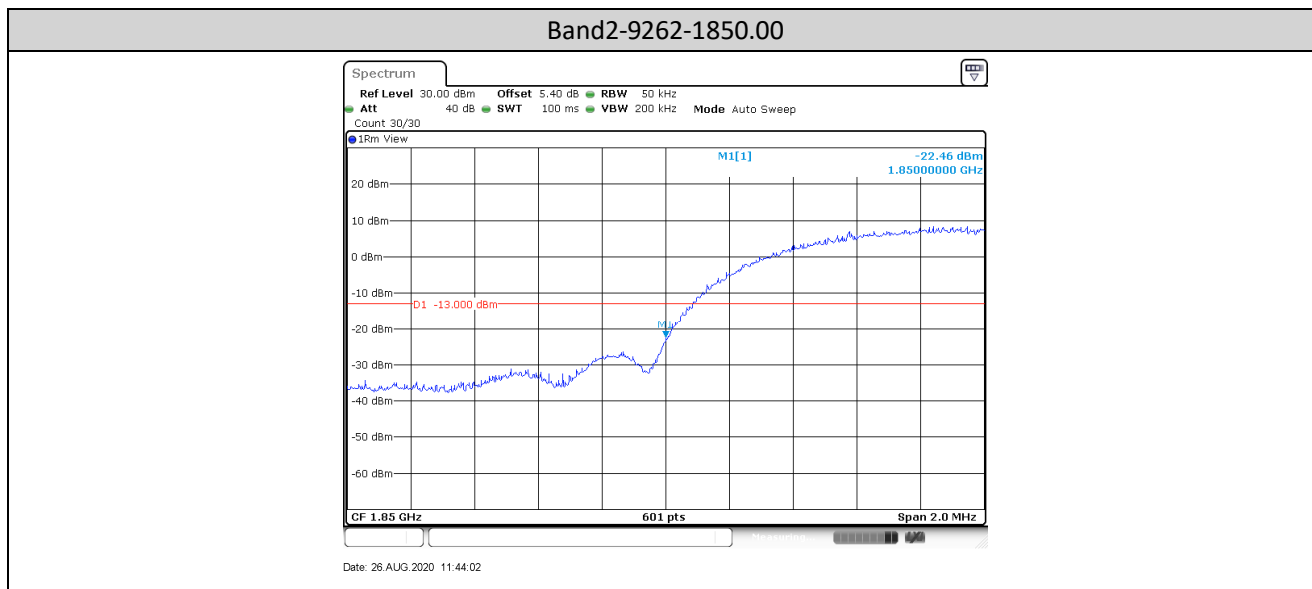


Date: 26 AUG. 2020 12:01:18



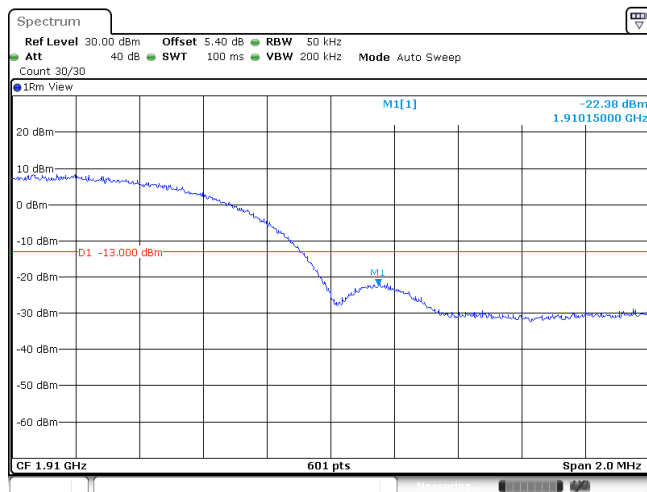
## 5. Band Edge Compliance

### 5.1. Test Plots



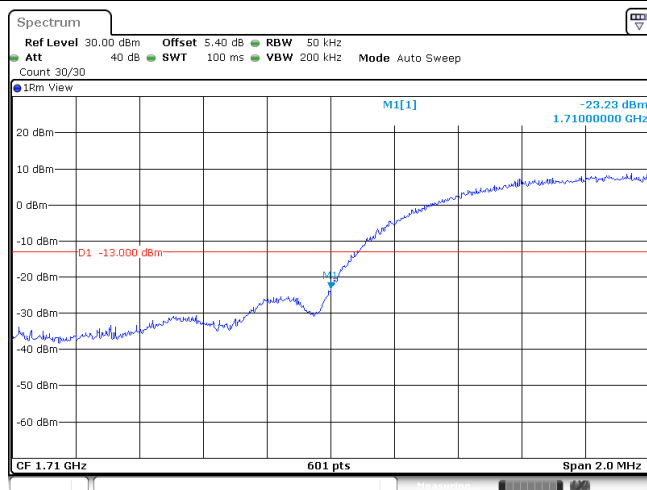


## Band2-9538-1910.15



Date: 26 AUG. 2020 11:44:16

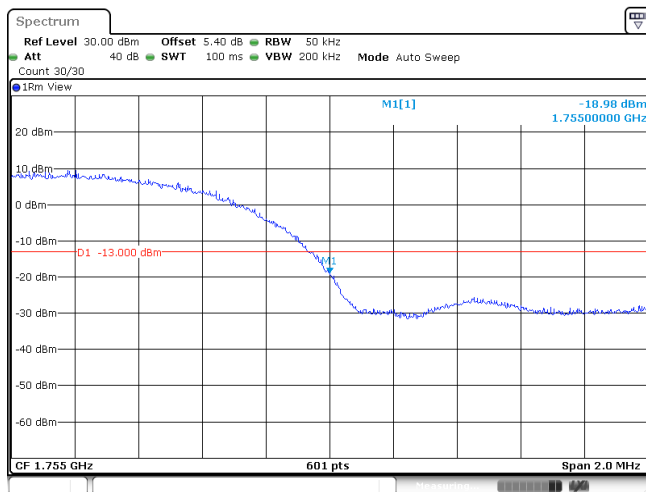
## Band4-1312-1710.00



Date: 26 AUG. 2020 11:53:31

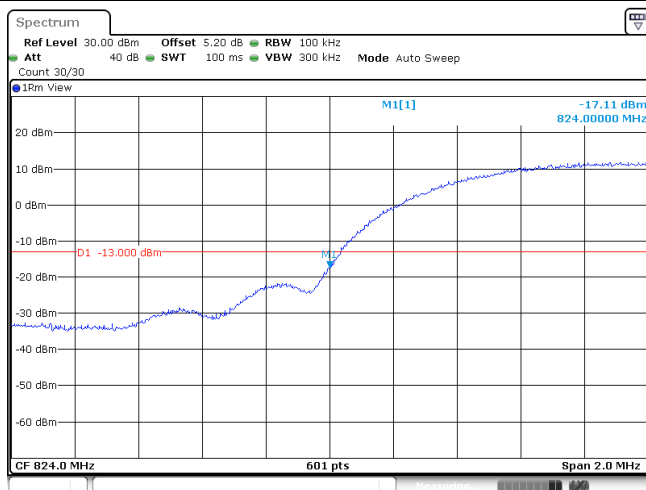


**Band4-1513-1755.00**



Date: 26 AUG. 2020 11:53:45

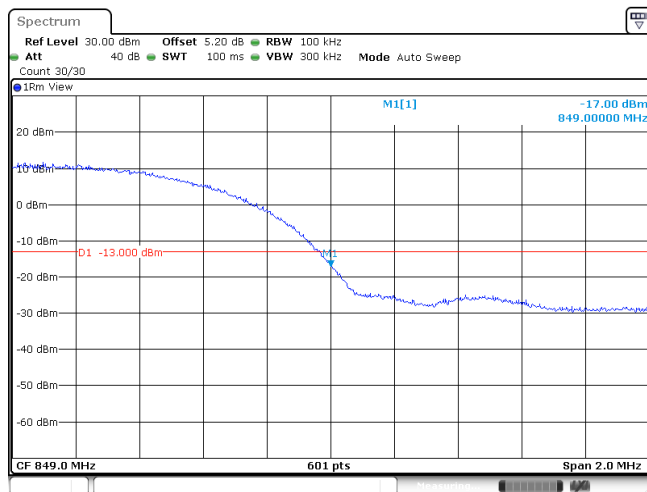
**Band5-4132-824.00**



Date: 26 AUG. 2020 12:01:32



**Band5-4233-849.00**



Date: 26 AUG. 2020 12:01:45



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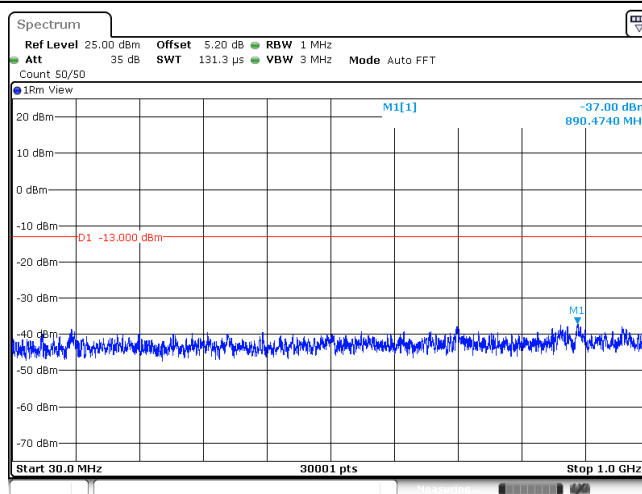
## 6. Spurious Emission at Antenna Terminal

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.

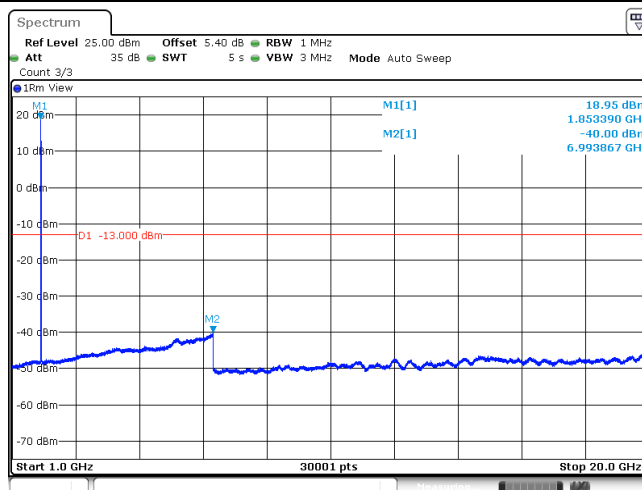
### 6.1. Test Plots

Band2-9262-30~1000MHz-890.47



Date: 26 AUG. 2020 11:44:29

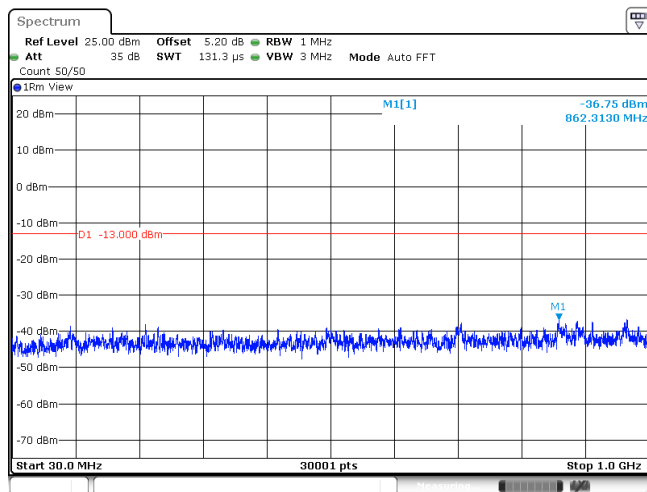
Band2-9262-1000~20000MHz-6993.87



Date: 26 AUG. 2020 11:44:53

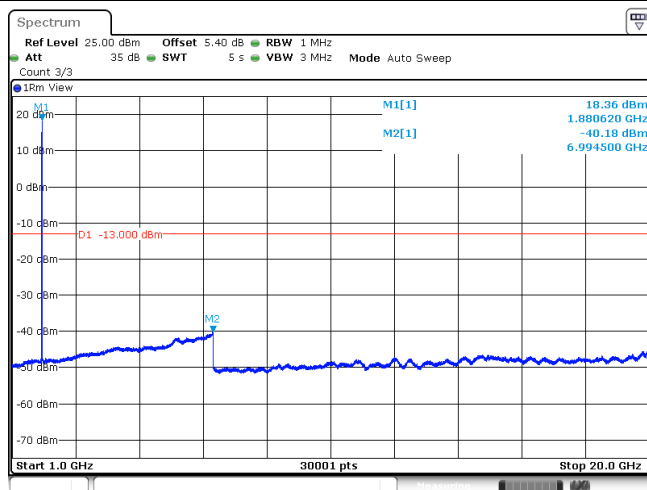


## Band2-9400-30~1000MHz-862.31



Date: 26 AUG. 2020 11:45:06

## Band2-9400-1000~20000MHz-6994.5

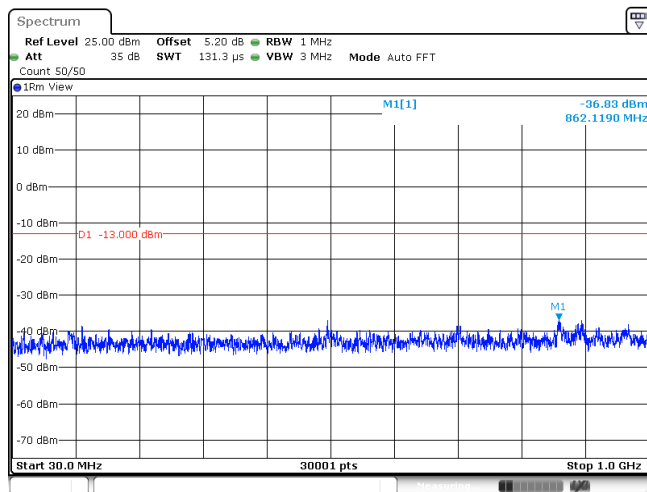


Date: 26 AUG. 2020 11:45:29



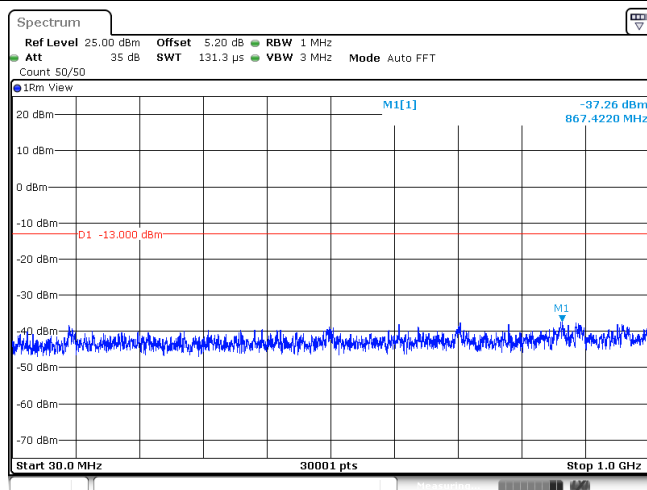


## Band2-9538-30~1000MHz-862.12



Date: 26 AUG. 2020 11:45:42

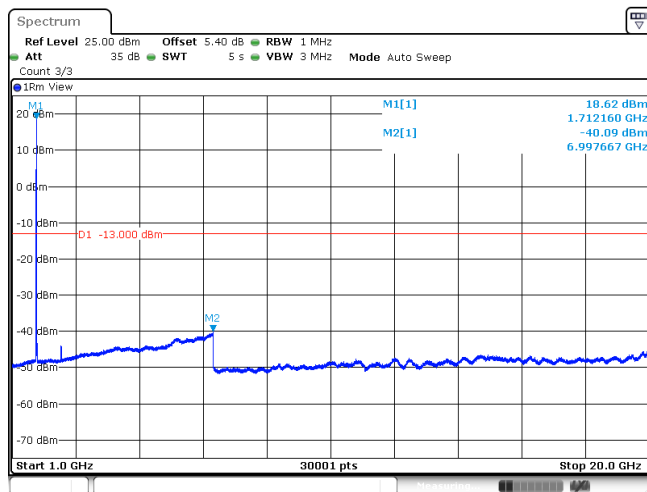
## Band4-1312-30~1000MHz-867.42



Date: 26 AUG. 2020 11:53:58

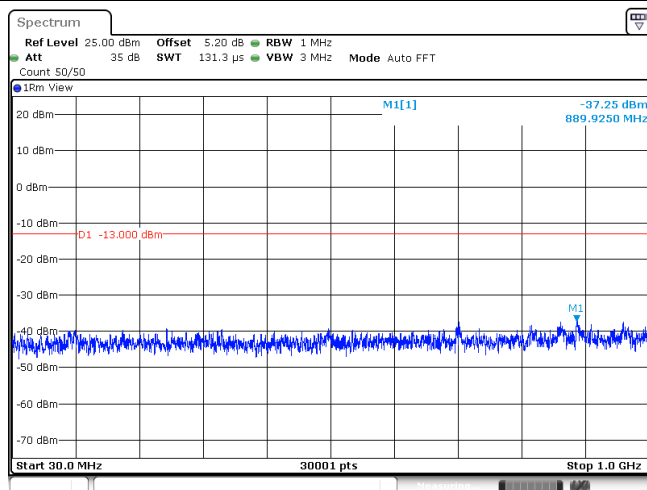


## Band4-1312-1000~20000MHz-6997.67



Date: 26 AUG. 2020 11:54:21

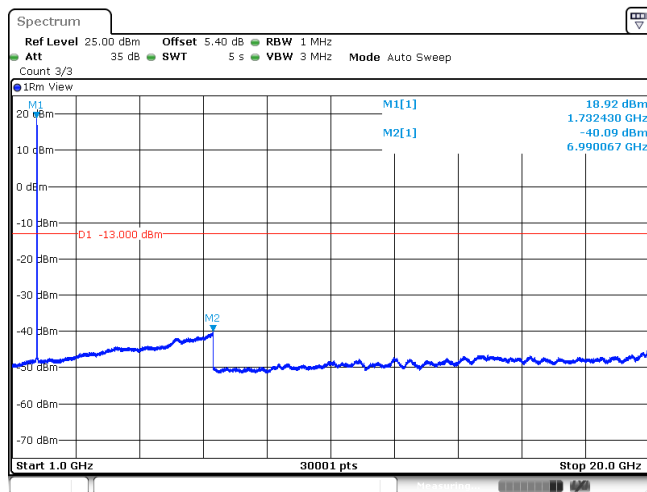
## Band4-1413-30~1000MHz-889.93



Date: 26 AUG. 2020 11:54:34

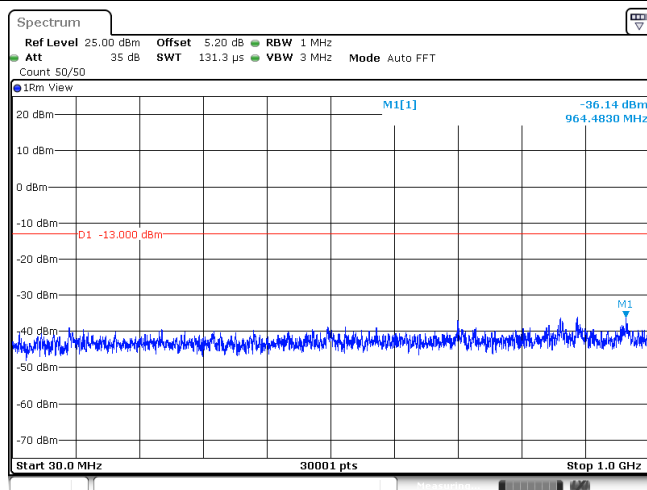


## Band4-1413-1000~20000MHz-6990.07



Date: 26 AUG. 2020 11:54:58

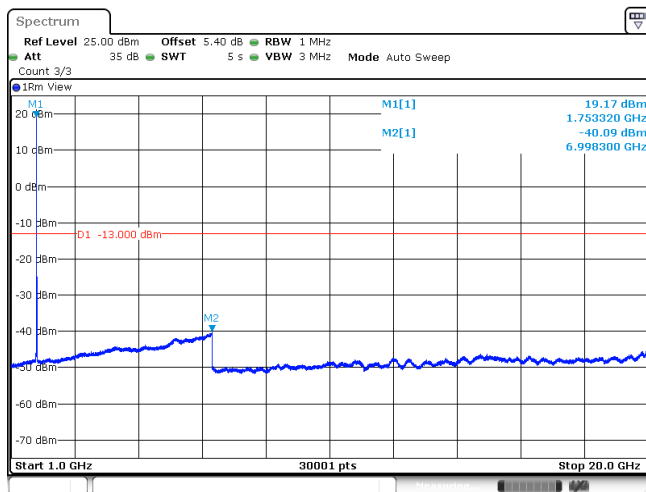
## Band4-1513-30~1000MHz-964.48



Date: 26 AUG. 2020 11:55:10

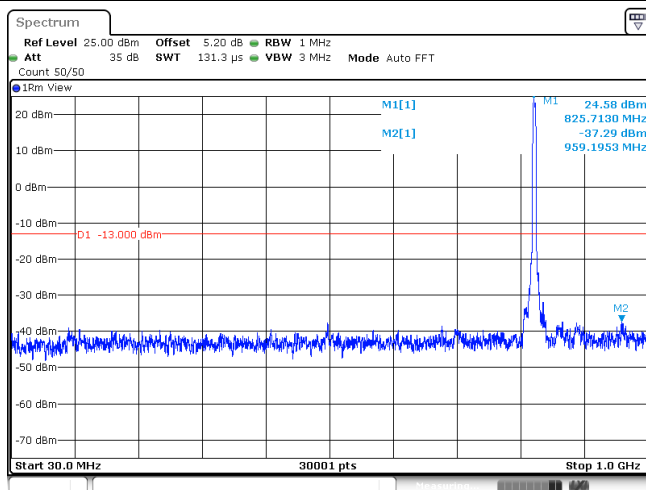


## Band4-1513-1000~20000MHz-6998.3



Date: 26 AUG. 2020 11:55:34

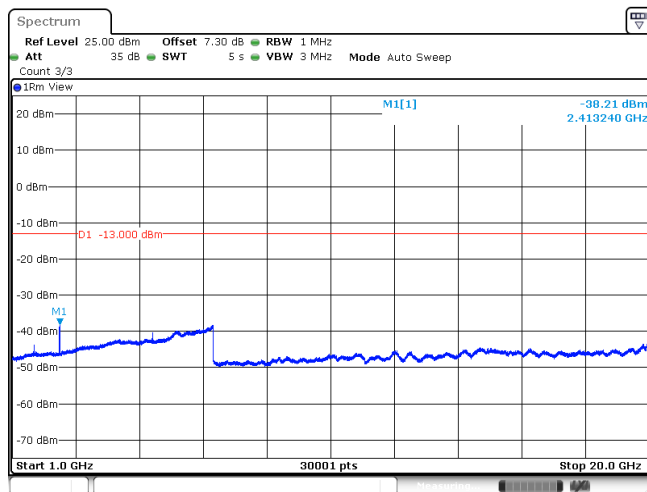
## Band5-4132-30~1000MHz-959.2



Date: 26 AUG. 2020 12:02:00

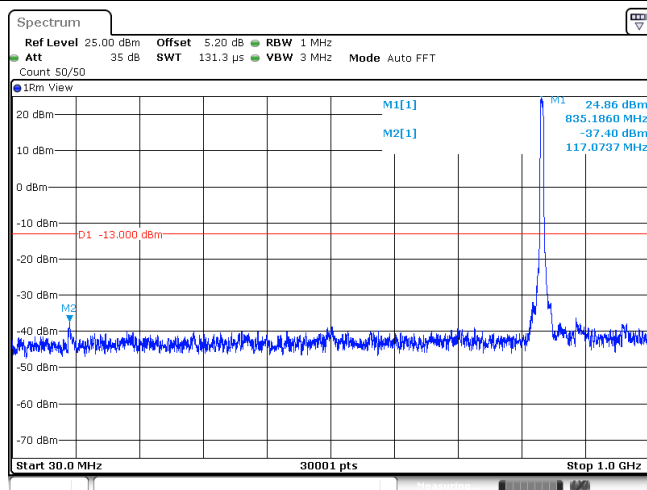


**Band5-4132-1000~20000MHz-2413.24**



Date: 26 AUG. 2020 12:02:23

**Band5-4182-30~1000MHz-117.07**



Date: 26 AUG. 2020 12:02:36



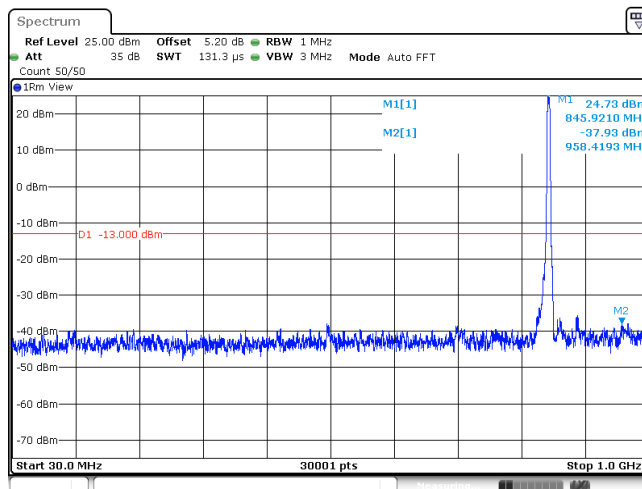
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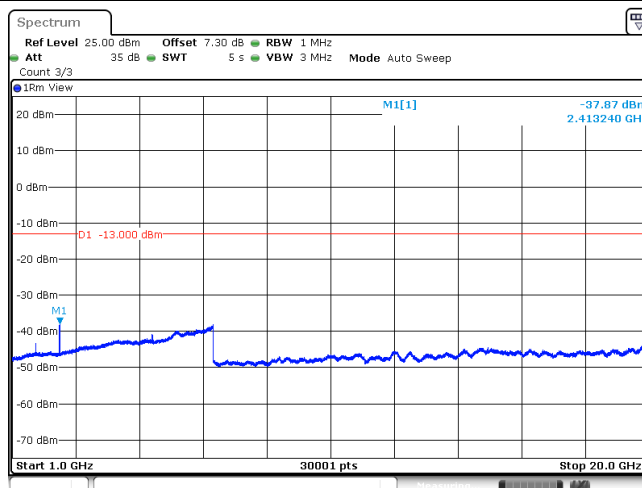


## Band5-4233-30~1000MHz-958.42



Date: 26 AUG. 2020 12:03:12

## Band5-4233-1000~20000MHz-2413.24



Date: 26 AUG. 2020 12:03:35





## 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
73.8462	-63.74	-13.00	50.74	Vertical
117.1589	-64.64	-13.00	51.64	Vertical
382.9521	-67.40	-13.00	54.40	Vertical
3706.0235	-60.40	-13.00	47.40	Vertical
5560.5854	-59.84	-13.00	46.84	Vertical
17996.9999	-40.24	-13.00	27.24	Vertical
44.0657	-64.12	-13.00	51.12	Horizontal
231.6731	-68.23	-13.00	55.23	Horizontal
625.3673	-63.35	-13.00	50.35	Horizontal
3623.0208	-60.48	-13.00	47.48	Horizontal
7387.1462	-56.27	-13.00	43.27	Horizontal
16388.9463	-43.65	-13.00	30.65	Horizontal





### 7.1.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
31.3096	-72.58	-13.00	59.58	Vertical
73.9917	-63.92	-13.00	50.92	Vertical
498.4849	-66.78	-13.00	53.78	Vertical
3762.0254	-59.93	-13.00	46.93	Vertical
7355.1452	-56.00	-13.00	43.00	Vertical
17997.9999	-40.06	-13.00	27.06	Vertical
41.7861	-64.28	-13.00	51.28	Horizontal
239.4335	-67.56	-13.00	54.56	Horizontal
548.5394	-65.00	-13.00	52.00	Horizontal
4494.0498	-61.80	-13.00	48.80	Horizontal
7459.6487	-55.90	-13.00	42.90	Horizontal
16406.9469	-43.80	-13.00	30.80	Horizontal

### 7.1.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
46.3453	-72.93	-13.00	59.93	Vertical
108.9134	-64.54	-13.00	51.54	Vertical
346.2358	-68.32	-13.00	55.32	Vertical
3937.5313	-61.94	-13.00	48.94	Vertical
7393.6465	-55.55	-13.00	42.55	Vertical
17999.0000	-40.08	-13.00	27.08	Vertical
44.0172	-64.49	-13.00	51.49	Horizontal
235.0198	-67.87	-13.00	54.87	Horizontal
576.9133	-63.84	-13.00	50.84	Horizontal
3776.5259	-60.56	-13.00	47.56	Horizontal
7460.6487	-56.18	-13.00	43.18	Horizontal
16395.9465	-43.61	-13.00	30.61	Horizontal



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

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
103.8692	-62.67	-13.00	49.67	Vertical
610.3315	-60.75	-13.00	47.75	Vertical
3423.0141	-59.20	-13.00	46.20	Vertical
5134.5712	-57.04	-13.00	44.04	Vertical
6846.6282	-53.43	-13.00	40.43	Vertical
17961.9987	-34.01	-13.00	21.01	Vertical
43.3867	-62.49	-13.00	49.49	Horizontal
244.4292	-65.58	-13.00	52.58	Horizontal
508.2824	-63.10	-13.00	50.10	Horizontal
3625.5209	-59.56	-13.00	46.56	Horizontal
7469.1490	-53.37	-13.00	40.37	Horizontal
16389.9463	-35.22	-13.00	22.22	Horizontal





### 7.2.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
109.2045	-62.78	-13.00	49.78	Vertical
603.5897	-61.40	-13.00	48.40	Vertical
3467.5156	-58.48	-13.00	45.48	Vertical
5201.0734	-55.79	-13.00	42.79	Vertical
6933.1311	-53.25	-13.00	40.25	Vertical
17973.9991	-33.80	-13.00	20.80	Vertical
41.1071	-62.84	-13.00	49.84	Horizontal
242.2466	-64.71	-13.00	51.71	Horizontal
637.3474	-61.22	-13.00	48.22	Horizontal
3466.5156	-58.69	-13.00	45.69	Horizontal
7461.6487	-53.65	-13.00	40.65	Horizontal
16398.4466	-35.24	-13.00	22.24	Horizontal

### 7.2.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
105.2273	-62.35	-13.00	49.35	Vertical
411.3261	-65.53	-13.00	52.53	Vertical
3503.5168	-54.37	-13.00	41.37	Vertical
5260.5754	-55.87	-13.00	42.87	Vertical
7013.6338	-52.81	-13.00	39.81	Vertical
17998.5000	-34.03	-13.00	21.03	Vertical
45.4723	-62.84	-13.00	49.84	Horizontal
243.1682	-65.59	-13.00	52.59	Horizontal
621.9721	-61.03	-13.00	48.03	Horizontal
3507.0169	-55.89	-13.00	42.89	Horizontal
7015.6339	-53.75	-13.00	40.75	Horizontal
16403.9468	-35.32	-13.00	22.32	Horizontal



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### 7.3. Test Band = WCDMA Band V

#### 7.3.1. Test Mode = WCDMA/TM1

##### 7.3.1.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
75.5923	-63.53	-13.00	50.53	Vertical
113.0847	-65.13	-13.00	52.13	Vertical
400.0735	-66.89	-13.00	53.89	Vertical
1952.5905	-57.85	-13.00	44.85	Vertical
2849.9700	-51.85	-13.00	38.85	Vertical
7349.7117	-54.62	-13.00	41.62	Vertical
41.3011	-63.42	-13.00	50.42	Horizontal
72.3426	-66.10	-13.00	53.10	Horizontal
248.2124	-63.75	-13.00	50.75	Horizontal
1654.9310	-59.25	-13.00	46.25	Horizontal
2478.6957	-50.85	-13.00	37.85	Horizontal
7457.2819	-55.05	-13.00	42.05	Horizontal





### 7.3.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
75.4468	-63.50	-13.00	50.50	Vertical
112.7936	-64.91	-13.00	51.91	Vertical
280.0785	-69.66	-13.00	56.66	Vertical
1699.7399	-60.43	-13.00	47.43	Vertical
2687.5375	-52.02	-13.00	39.02	Vertical
7978.7993	-54.01	-13.00	41.01	Vertical
39.9915	-64.41	-13.00	51.41	Horizontal
67.8804	-67.91	-13.00	54.91	Horizontal
239.5305	-68.03	-13.00	55.03	Horizontal
1674.5349	-59.90	-13.00	46.90	Horizontal
2699.9400	-50.55	-13.00	37.55	Horizontal
7483.1828	-54.87	-13.00	41.87	Horizontal

### 7.3.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
31.3581	-73.87	-13.00	60.87	Vertical
111.5811	-64.67	-13.00	51.67	Vertical
363.8422	-67.57	-13.00	54.57	Vertical
1778.5557	-58.16	-13.00	45.16	Vertical
2862.3725	-52.07	-13.00	39.07	Vertical
7457.9819	-54.65	-13.00	41.65	Vertical
43.3867	-64.58	-13.00	51.58	Horizontal
240.7430	-68.42	-13.00	55.42	Horizontal
1691.3383	-57.28	-13.00	44.28	Horizontal
2700.3401	-50.95	-13.00	37.95	Horizontal
5122.9374	-60.62	-13.00	47.62	Horizontal
7445.6149	-55.21	-13.00	42.21	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.



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## 8. Frequency Stability

### 8.1. Frequency Vs Voltage

Voltage							
Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band2	9262	VL	NT	8.65	0.004670	±2.5	PASS
Band2	9262	VN	NT	7.93	0.004281	±2.5	PASS
Band2	9262	VH	NT	10.06	0.005431	±2.5	PASS
Band2	9400	VL	NT	12.22	0.006500	±2.5	PASS
Band2	9400	VN	NT	11.87	0.006314	±2.5	PASS
Band2	9400	VH	NT	12.03	0.006399	±2.5	PASS
Band2	9538	VL	NT	12.37	0.006485	±2.5	PASS
Band2	9538	VN	NT	12.35	0.006474	±2.5	PASS
Band2	9538	VH	NT	12.54	0.006574	±2.5	PASS
Band4	1312	VL	NT	-4.11	-0.002400	±2.5	PASS
Band4	1312	VN	NT	-8.22	-0.004800	±2.5	PASS
Band4	1312	VH	NT	-1.20	-0.000701	±2.5	PASS
Band4	1413	VL	NT	-11.61	-0.006701	±2.5	PASS
Band4	1413	VN	NT	-11.57	-0.006678	±2.5	PASS
Band4	1413	VH	NT	-11.59	-0.006689	±2.5	PASS
Band4	1513	VL	NT	5.35	0.003053	±2.5	PASS
Band4	1513	VN	NT	4.91	0.002802	±2.5	PASS
Band4	1513	VH	NT	5.26	0.003001	±2.5	PASS
Band5	4132	VL	NT	-5.57	-0.006740	±2.5	PASS
Band5	4132	VN	NT	-6.36	-0.007696	±2.5	PASS
Band5	4132	VH	NT	-5.09	-0.006159	±2.5	PASS
Band5	4182	VL	NT	-0.02	-0.000024	±2.5	PASS
Band5	4182	VN	NT	-0.14	-0.000167	±2.5	PASS
Band5	4182	VH	NT	-0.21	-0.000251	±2.5	PASS
Band5	4233	VL	NT	0.56	0.000661	±2.5	PASS
Band5	4233	VN	NT	0.61	0.000721	±2.5	PASS
Band5	4233	VH	NT	0.54	0.000638	±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
Band2	9262	NV	-30	10.56	0.005701	±2.5	PASS
Band2	9262	NV	-20	10.84	0.005852	±2.5	PASS
Band2	9262	NV	0	11.19	0.006041	±2.5	PASS
Band2	9262	NV	10	11.13	0.006008	±2.5	PASS
Band2	9262	NV	20	11.30	0.006100	±2.5	PASS
Band2	9262	NV	30	12.07	0.006420	±2.5	PASS
Band2	9262	NV	40	11.19	0.006041	±2.5	PASS
Band2	9262	NV	50	11.13	0.006218	±2.5	PASS
Band2	9400	NV	-30	11.71	0.006229	±2.5	PASS
Band2	9400	NV	-20	11.93	0.006346	±2.5	PASS
Band2	9400	NV	0	11.99	0.006378	±2.5	PASS
Band2	9400	NV	10	11.69	0.006218	±2.5	PASS
Band2	9400	NV	20	12.07	0.006420	±2.5	PASS
Band2	9400	NV	30	11.19	0.006041	±2.5	PASS
Band2	9400	NV	40	11.13	0.006218	±2.5	PASS
Band2	9400	NV	50	11.30	0.006032	±2.5	PASS
Band2	9538	NV	-30	12.46	0.006532	±2.5	PASS
Band2	9538	NV	-20	12.47	0.006537	±2.5	PASS
Band2	9538	NV	0	12.17	0.006380	±2.5	PASS
Band2	9538	NV	10	12.27	0.006432	±2.5	PASS
Band2	9538	NV	20	12.47	0.006537	±2.5	PASS
Band2	9538	NV	30	11.30	0.006032	±2.5	PASS
Band2	9538	NV	40	12.46	0.006532	±2.5	PASS
Band2	9538	NV	50	12.47	0.006537	±2.5	PASS
Band4	1312	NV	-30	0.42	0.000245	±2.5	PASS
Band4	1312	NV	-20	1.50	0.000876	±2.5	PASS
Band4	1312	NV	0	2.13	0.001244	±2.5	PASS
Band4	1312	NV	10	2.38	0.001390	±2.5	PASS
Band4	1312	NV	20	3.21	0.001875	±2.5	PASS
Band4	1312	NV	30	12.47	0.006537	±2.5	PASS
Band4	1312	NV	40	0.42	0.000245	±2.5	PASS
Band4	1312	NV	50	1.50	0.000876	±2.5	PASS
Band4	1413	NV	-30	-11.47	-0.006620	±2.5	PASS



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Band4	1413	NV	-20	-11.39	-0.006574	±2.5	PASS
Band4	1413	NV	0	-11.72	-0.006764	±2.5	PASS
Band4	1413	NV	10	-11.46	-0.006614	±2.5	PASS
Band4	1413	NV	20	-11.40	-0.006580	±2.5	PASS
Band4	1413	NV	30	-11.47	-0.006620	±2.5	PASS
Band4	1413	NV	40	-11.39	-0.006574	±2.5	PASS
Band4	1413	NV	50	-11.72	-0.006764	±2.5	PASS
Band4	1513	NV	-30	5.44	0.003104	±2.5	PASS
Band4	1513	NV	-20	5.35	0.003053	±2.5	PASS
Band4	1513	NV	0	5.59	0.003190	±2.5	PASS
Band4	1513	NV	10	5.35	0.003053	±2.5	PASS
Band4	1513	NV	20	5.51	0.003144	±2.5	PASS
Band4	1513	NV	30	5.59	0.003190	±2.5	PASS
Band4	1513	NV	40	5.35	0.003053	±2.5	PASS
Band4	1513	NV	50	5.51	0.003144	±2.5	PASS
Band5	4132	NV	-30	-4.89	-0.005917	±2.5	PASS
Band5	4132	NV	-20	-4.81	-0.005820	±2.5	PASS
Band5	4132	NV	0	-4.64	-0.005615	±2.5	PASS
Band5	4132	NV	10	-4.64	-0.005615	±2.5	PASS
Band5	4132	NV	20	-4.61	-0.005578	±2.5	PASS
Band5	4132	NV	30	-4.89	-0.005917	±2.5	PASS
Band5	4132	NV	40	-4.81	-0.005820	±2.5	PASS
Band5	4132	NV	50	-4.64	-0.005615	±2.5	PASS
Band5	4182	NV	-30	-0.15	-0.000179	±2.5	PASS
Band5	4182	NV	-20	-0.34	-0.000407	±2.5	PASS
Band5	4182	NV	0	-0.12	-0.000143	±2.5	PASS
Band5	4182	NV	10	-0.05	-0.000060	±2.5	PASS
Band5	4182	NV	20	-0.21	-0.000251	±2.5	PASS
Band5	4182	NV	30	-4.64	-0.005615	±2.5	PASS
Band5	4182	NV	40	-4.61	-0.005578	±2.5	PASS
Band5	4182	NV	50	-0.15	-0.000179	±2.5	PASS
Band5	4233	NV	-30	0.54	0.000638	±2.5	PASS
Band5	4233	NV	-20	0.38	0.000449	±2.5	PASS
Band5	4233	NV	0	0.42	0.000496	±2.5	PASS
Band5	4233	NV	10	0.51	0.000602	±2.5	PASS
Band5	4233	NV	20	0.49	0.000579	±2.5	PASS
Band5	4233	NV	30	-0.21	-0.000251	±2.5	PASS



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Band5	4233	NV	40	-0.12	-0.000143	±2.5	PASS
Band5	4233	NV	50	-0.05	-0.000060	±2.5	PASS

The End

