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# Appendix B

**WCDMA Band V** 



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## 1. Effective (Isotropic) Radiated Power

### 1.1. Test Result

Band	Channel Conducted Power (dBm)		Channel Conducted Power (dBm) ERP (dBm)		Verdict
Band V	4132	23.50	19.44	38.45	PASS
Band V	4182	23.42	19.36	38.45	PASS
Band V	4233	23.43	19.37	38.45	PASS

#### Remark:

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

ERP [dBm] = Conducted Power [dBm] + Gain [dBd]

EIRP [dBm] = Conducted Power [dBm] + Gain [dBi]



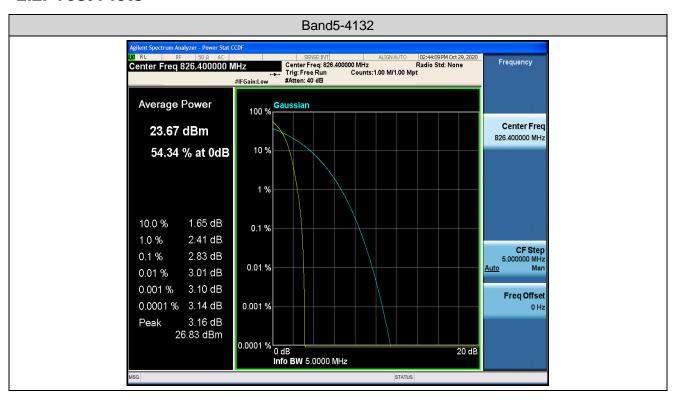
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### 2. Peak-to-Average Ratio(CCDF)

### 2.1. Test Result

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
Band5	4132	2.83	13	PASS
Band5	4182	2.95	13	PASS
Band5	4233	2.85	13	PASS

### 2.2. Test Plots





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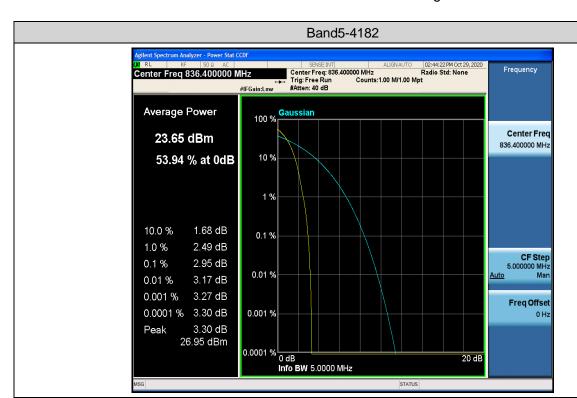
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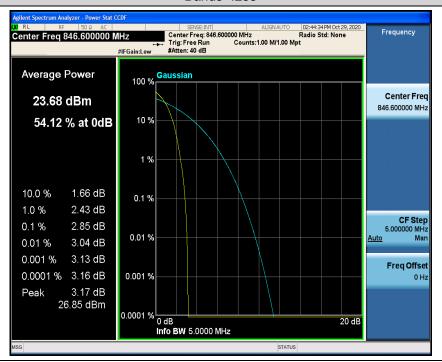


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#### Band5-4233





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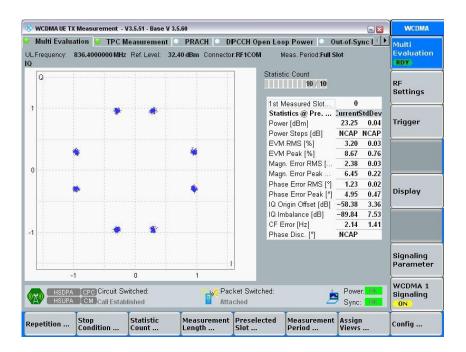
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### 3. Modulation Characteristics

3.1. Test Band = WCDMA Band V

3.1.1.Test Mode = UMTS/TM1

#### Test Channel = MCH 3.1.1.1.





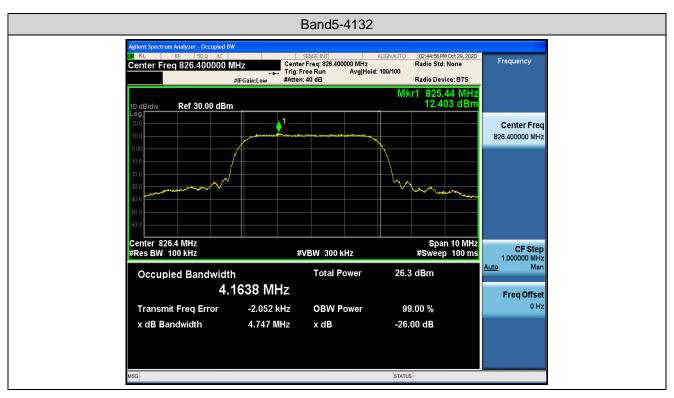
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### 4. 26dB Bandwidth and Occupied Bandwidth

### 4.1. Test Result

Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Limit(MHz)	Verdict
Band5	4132	4.1638	4.747		PASS
Band5	4182	4.1736	4.742		PASS
Band5	4233	4.1653	4.736		PASS

#### 4.2. Test Plots





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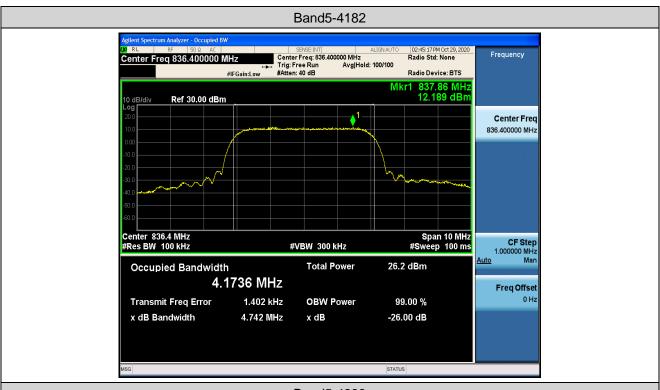
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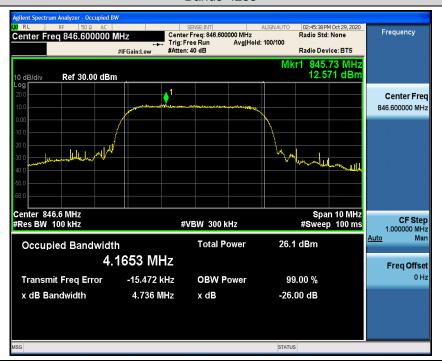


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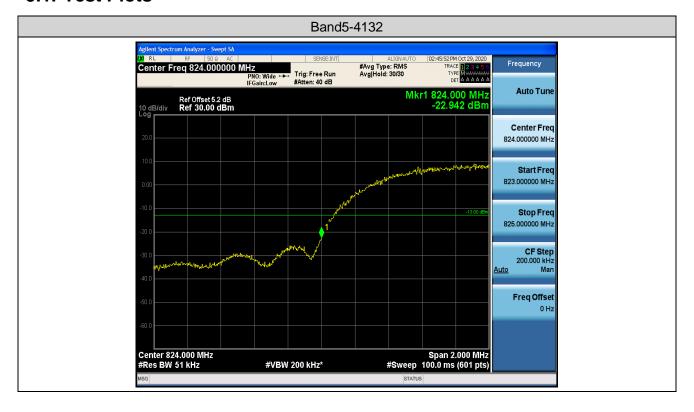
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## 5. Band Edge Compliance

### 5.1. Test Plots





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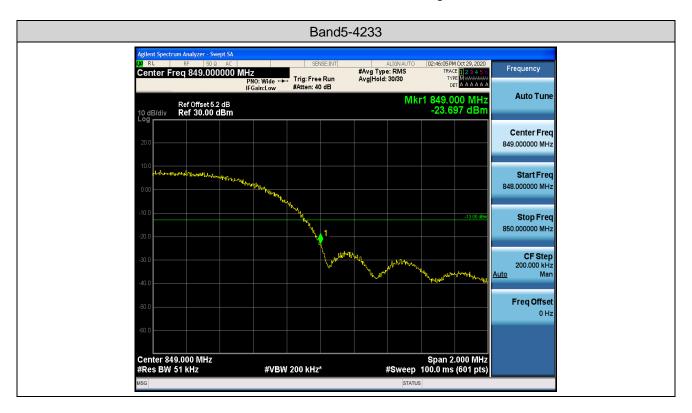
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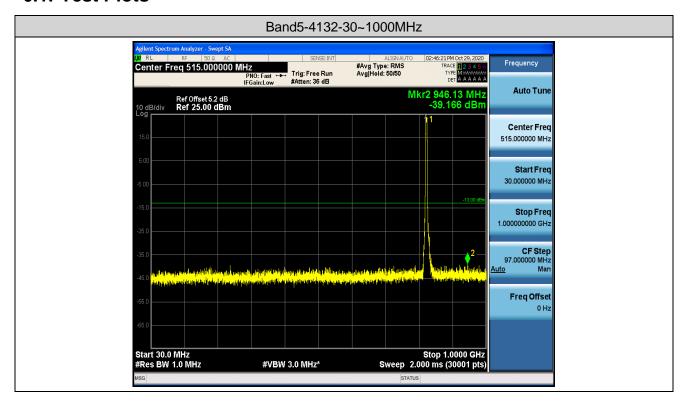
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### 6. Spurious Emission at Antenna Terminal

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 \* (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

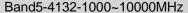






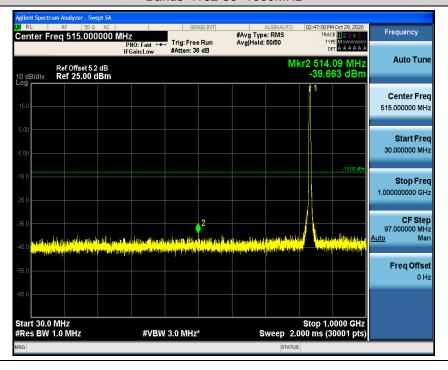
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#### Band5-4182-30~1000MHz





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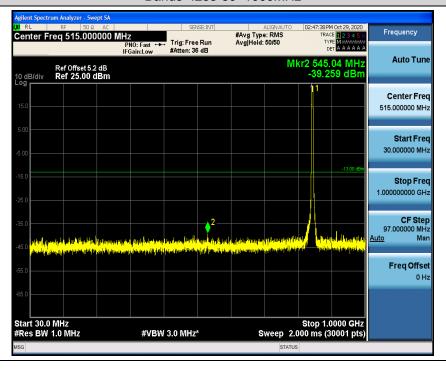
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#### Band5-4233-30~1000MHz





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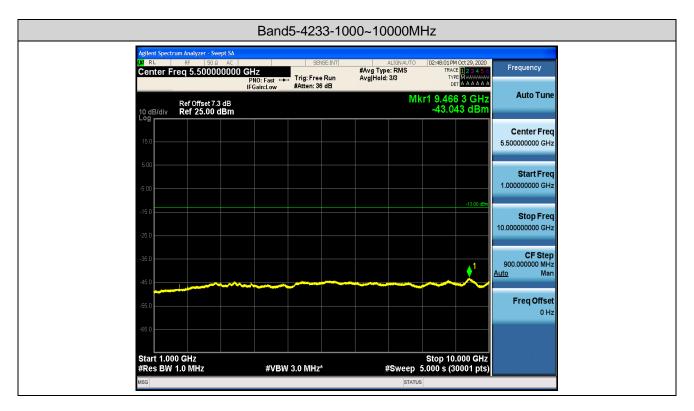
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### 7. Field Strength of Spurious Radiation

### **Firstly Supply:**

7.1 Test Band = WCDMA\_V \_TM1

7.1.1 Test Channel = Low Channel

Susp	Suspected Data List										
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	41.2526	-68.26	-61.43	-13.00	48.43	198	194	Horizontal			
2	99.2130	-70.51	-75.14	-13.00	62.14	187	289	Horizontal			
3	228.1809	-70.75	-68.25	-13.00	55.25	165	67	Horizontal			
4	1651.3303	-59.58	-55.55	-13.00	42.55	184	185	Horizontal			
5	2480.2961	-60.15	-49.18	-13.00	36.18	175	144	Horizontal			
6	4136.6046	-50.24	-59.38	-13.00	46.38	196	257	Horizontal			



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### 7.2Test Band = WCDMA\_V \_TM1 **Test Channel = Low Channel**

Susp	Suspected Data List										
NO	Freq.	Reading	Level	Limit	Margin	Height	Angle	Delevite			
NO.	[MHz]	[dBm]	[dBm]	[dBm]	[dB]	[cm]	[°]	Polarity			
1	30.5820	-63.23	-67.95	-13.00	54.95	241	162	Vertical			
2	110.5625	-70.95	-64.59	-13.00	51.59	258	130	Vertical			
3	380.6725	-70.91	-67.65	-13.00	54.65	263	194	Vertical			
4	1650.9302	-63.96	-59.28	-13.00	46.28	247	125	Vertical			
5	2703.1406	-62.98	-51.34	-13.00	38.34	259	324	Vertical			
6	4135.4378	-52.43	-62.19	-13.00	49.19	258	257	Vertical			



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### 7.3 Test Band = WCDMA\_V \_TM1 **Test Channel = Middle Channel**

Susp	Suspected Data List											
NO	Freq.	Reading	Level	Limit	Margin	Height	Angle	Daladi				
NO.	[MHz]	[dBm]	[dBm]	[dBm]	[dB]	[cm]	[°]	Polarity				
1	41.1071	-70.59	-63.77	-13.00	50.77	184	320	Horizontal				
2	109.2530	-70.63	-75.70	-13.00	62.70	175	288	Horizontal				
3	231.0426	-70.63	-67.80	-13.00	54.80	165	320	Horizontal				
4	1674.9350	-60.83	-57.03	-13.00	44.03	184	190	Horizontal				
5	2512.3025	-57.63	-46.40	-13.00	33.40	197	144	Horizontal				
6	4177.4392	-50.82	-59.89	-13.00	46.89	178	257	Horizontal				



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## 7.4Test Band = WCDMA\_V \_TM1 7.4.1 Test Channel = Middle Channel

Susp	Suspected Data List											
NO	Freq.	Reading	Level	Limit	Margin	Height	Angle	Dalasita				
NO.	[MHz]	[dBm]	[dBm]	[dBm]	[dB]	[cm]	[°]	Polarity				
1	30.8245	-63.83	-68.79	-13.00	55.79	241	162	Vertical				
2	110.1260	-71.15	-64.75	-13.00	51.75	258	35	Vertical				
3	373.5427	-70.56	-67.66	-13.00	54.66	274	162	Vertical				
4	1866.9734	-64.11	-58.89	-13.00	45.89	259	324	Vertical				
5	2512.7025	-60.12	-50.54	-13.00	37.54	263	249	Vertical				
6	4176.0392	-52.00	-61.74	-13.00	48.74	247	256	Vertical				



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## 7.5Test Band = WCDMA\_V \_TM1 7.5.1 Test Channel = High Channel

Susp	Suspected Data List											
NO	Freq.	Reading	Level	Limit	Margin	Height	Angle	Daladi				
NO.	[MHz]	[dBm]	[dBm]	[dBm]	[dB]	[cm]	[°]	Polarity				
1	42.3196	-69.64	-62.76	-13.00	49.76	187	4	Horizontal				
2	101.2986	-70.21	-74.77	-13.00	61.77	141	99	Horizontal				
3	234.1952	-70.84	-68.03	-13.00	55.03	198	194	Horizontal				
4	1690.9382	-62.40	-58.76	-13.00	45.76	174	197	Horizontal				
5	2695.1390	-63.04	-50.25	-13.00	37.25	165	356	Horizontal				
6	9310.9437	-58.51	-52.67	-13.00	39.67	199	194	Horizontal				



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### 7.6 Test Band = WCDMA\_V \_TM1 **Test Channel = High Channel**

Susp	Suspected Data List											
NO	Freq.	Reading	Level	Limit	Margin	Height	Angle	Daladto				
NO.	[MHz]	[dBm]	[dBm]	[dBm]	[dB]	[cm]	[°]	Polarity				
1	30.6305	-65.31	-70.08	-13.00	57.08	241	162	Vertical				
2	110.2230	-70.58	-64.19	-13.00	51.19	258	289	Vertical				
3	369.1290	-70.51	-67.86	-13.00	54.86	263	321	Vertical				
4	1668.1336	-65.04	-60.30	-13.00	47.30	274	356	Vertical				
5	2696.3393	-62.91	-51.31	-13.00	38.31	258	208	Vertical				
6	9880.0627	-58.49	-52.08	-13.00	39.08	269	98	Vertical				



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### **Secondly Supply:**

7.7Test Band = WCDMA\_V \_TM1
7.7.1 Test Channel = Middle Channel

Susp	Suspected Data List										
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity			
1	44.5992	-70.50	-63.50	-13.00	50.50	228	67	Horizontal			
2	223.1852	-70.63	-69.03	-13.00	56.03	271	291	Horizontal			
3	507.9429	-70.68	-65.24	-13.00	52.24	259	259	Horizontal			
4	1674.5349	-63.20	-59.40	-13.00	46.40	254	356	Horizontal			
5	2699.9400	-62.94	-50.01	-13.00	37.01	263	277	Horizontal			
6	7391.0130	-56.04	-56.12	-13.00	43.12	281	131	Horizontal			



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### 7.8Test Band = WCDMA\_V \_TM1 **Test Channel = Middle Channel**

Suspected Data List									
NO.	Freq.	Reading	Level	Limit	Margin	Height	Angle	Delegation	
	[MHz]	[dBm]	[dBm]	[dBm]	[dB]	[cm]	[°]	Polarity	
1	79.1330	-68.51	-66.62	-13.00	53.62	284	355	Vertical	
2	111.6296	-70.46	-64.19	-13.00	51.19	271	227	Vertical	
3	602.3286	-71.13	-63.50	-13.00	50.50	259	291	Vertical	
4	2695.9392	-62.88	-51.29	-13.00	38.29	281	212	Vertical	
5	8018.4673	-56.65	-55.05	-13.00	42.05	263	132	Vertical	
6	9572.2857	-57.26	-51.97	-13.00	38.97	228	132	Vertical	

#### Remark:

- 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	
Band5	4132	VL	NT	0.53	0.000641	±2.5	PASS	
Band5	4132	VN	NT	0.26	0.000315	±2.5	PASS	
Band5	4132	VH	NT	0.51	0.000617	±2.5	PASS	
Band5	4182	VL	NT	-0.09	-0.000108	±2.5	PASS	
Band5	4182	VN	NT	-0.09	-0.000108	±2.5	PASS	
Band5	4182	VH	NT	-0.04	-0.000048	±2.5	PASS	
Band5	4233	VL	NT	-1.51	-0.001784	±2.5	PASS	
Band5	4233	VN	NT	-1.32	-0.001559	±2.5	PASS	
Band5	4233	VH	NT	-1.36	-0.001606	±2.5	PASS	

### 8.2. Frequency Vs Temperature

Temperature								
Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict	
Band5	4132	NV	-30	0.66	0.000799	±2.5	PASS	
Band5	4132	NV	-20	0.93	0.001125	±2.5	PASS	
Band5	4132	NV	-10	0.67	0.000811	±2.5	PASS	
Band5	4132	NV	0	0.97	0.001174	±2.5	PASS	
Band5	4132	NV	10	1.22	0.001476	±2.5	PASS	
Band5	4132	NV	20	1.08	0.001307	±2.5	PASS	
Band5	4132	NV	30	0.91	0.001101	±2.5	PASS	
Band5	4132	NV	40	1.02	0.001234	±2.5	PASS	
Band5	4132	NV	50	1.20	0.001452	±2.5	PASS	
Band5	4182	NV	-30	-0.17	-0.000203	±2.5	PASS	
Band5	4182	NV	-20	-0.06	-0.000072	±2.5	PASS	
Band5	4182	NV	-10	-0.16	-0.000191	±2.5	PASS	
Band5	4182	NV	0	0.04	0.000048	±2.5	PASS	
Band5	4182	NV	10	-0.06	-0.000072	±2.5	PASS	
Band5	4182	NV	20	-0.19	-0.000227	±2.5	PASS	
Band5	4182	NV	30	-0.14	-0.000167	±2.5	PASS	



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Band5	4182	NV	40	0.03	0.000036	±2.5	PASS
Band5	4182	NV	50	0.03	0.000036	±2.5	PASS
Band5	4233	NV	-30	-1.29	-0.001524	±2.5	PASS
Band5	4233	NV	-20	-1.27	-0.001500	±2.5	PASS
Band5	4233	NV	-10	-1.34	-0.001583	±2.5	PASS
Band5	4233	NV	0	-1.39	-0.001642	±2.5	PASS
Band5	4233	NV	10	-1.48	-0.001748	±2.5	PASS
Band5	4233	NV	20	-1.39	-0.001642	±2.5	PASS
Band5	4233	NV	30	-1.53	-0.001807	±2.5	PASS
Band5	4233	NV	40	-1.42	-0.001677	±2.5	PASS
Band5	4233	NV	50	-1.66	-0.001961	±2.5	PASS

The End



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