

7.8.10 Cat-M1 Band 26 (Part 90)

Cat-M1 Band 26, Channel Bandwidth: 1.4 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 26697 (814.7 MHz)		CH 26783 (823.3 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.8	814.699998	-0.002455	823.299998	-0.002429
2.5	814.700005	0.006137	823.299998	-0.002429
4.4	814.699999	-0.001227	823.299996	-0.004858

Note: The applicant defined the normal working voltage is from 2.5 to 4.4 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 26697 (814.7 MHz)		CH 26783 (823.3 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-40	814.699996	-0.004910	823.300005	0.006073
-30	814.700003	0.003682	823.300004	0.004858
-20	814.699999	-0.001227	823.299998	-0.002429
-10	814.699999	-0.001227	823.300001	0.001215
0	814.699999	-0.001227	823.300003	0.003644
10	814.700005	0.006137	823.300001	0.001215
20	814.699997	-0.003682	823.300001	0.001215
30	814.699999	-0.001227	823.300002	0.002429
40	814.700005	0.006137	823.300002	0.002429
50	814.700001	0.001227	823.299997	-0.003644
60	814.700001	0.001227	823.300005	0.006073
70	814.699999	-0.001227	823.300005	0.006073
80	814.699995	-0.006137	823.299995	-0.006073
85	814.699996	-0.004910	823.299998	-0.002429

Cat-M1 Band 26, Channel Bandwidth: 3 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 26705 (815.5 MHz)		CH 26775 (822.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.8	815.500004	0.004905	823.300003	0.003647
2.5	815.500001	0.001226	823.300005	0.006079
4.4	815.500004	0.004905	823.299995	-0.006079

Note: The applicant defined the normal working voltage is from 2.5 to 4.4 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 26705 (815.5 MHz)		CH 26775 (822.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-40	815.500005	0.006131	823.299996	-0.004863
-30	815.499996	-0.004905	823.299999	-0.001216
-20	815.499996	-0.004905	823.300001	0.001216
-10	815.500001	0.001226	823.299997	-0.003647
0	815.499995	-0.006131	823.300002	0.002432
10	815.500001	0.001226	823.300002	0.002432
20	815.500003	0.003679	823.300004	0.004863
30	815.499998	-0.002452	823.300004	0.004863
40	815.499995	-0.006131	823.299999	-0.001216
50	815.500002	0.002452	823.300002	0.002432
50	815.499999	-0.001226	823.300003	0.003647
50	815.499997	-0.003679	823.299999	-0.001216
50	815.499997	-0.003679	823.299997	-0.003647
85	815.499996	-0.004905	823.300001	0.001216

Cat-M1 Band 26, Channel Bandwidth: 5 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 26715 (816.5 MHz)		CH 26765 (821.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.8	816.499998	-0.002449	823.300002	0.002435
2.5	816.500004	0.004899	823.299999	-0.001217
4.4	816.499996	-0.004899	823.300001	0.001217

Note: The applicant defined the normal working voltage is from 2.5 to 4.4 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 26715 (816.5 MHz)		CH 26765 (821.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-40	816.499995	-0.006124	823.300004	0.004869
-30	816.500003	0.003674	823.299996	-0.004869
-20	816.500002	0.002449	823.299996	-0.004869
-10	816.500001	0.001225	823.300001	0.001217
0	816.500005	0.006124	823.300001	0.001217
10	816.499998	-0.002449	823.300005	0.006086
20	816.500004	0.004899	823.300004	0.004869
30	816.500002	0.002449	823.300001	0.001217
40	816.500002	0.002449	823.300001	0.001217
50	816.500001	0.001225	823.299995	-0.006086
50	816.500003	0.003674	823.300002	0.002435
50	816.500004	0.004899	823.299995	-0.006086
50	816.499996	-0.004899	823.299995	-0.006086
85	816.500001	0.001225	823.299996	-0.004869

Cat-M1 Band 26, Channel Bandwidth: 10 MHz

Frequency Stability Versus Voltage		
Voltage (Vdc)	CH 26740 (819 MHz)	
	Frequency (MHz)	Frequency Error (ppm)
3.8	818.999999	-0.001221
2.5	819.000004	0.004884
4.4	818.999997	-0.003663

Note: The applicant defined the normal working voltage is from 2.5 to 4.4 Vdc.

Frequency Stability Versus Temperature		
Temperature (°C)	CH 26740 (819 MHz)	
	Frequency (MHz)	Frequency Error (ppm)
-40	818.999999	-0.001221
-30	818.999996	-0.004884
-20	818.999995	-0.006105
-10	818.999996	-0.004884
0	819.000005	0.006105
10	819.000001	0.001221
20	819.000005	0.006105
30	819.000002	0.002442
40	818.999997	-0.003663
50	819.000004	0.004884
60	819.000004	0.004884
70	819.000004	0.004884
80	818.999999	-0.001221
85	818.999998	-0.002442

7.8.11 Cat-M1 Band 66

Cat-M1 Band 66, Channel Bandwidth: 1.4 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 131979 (1710.7 MHz)		CH 132665 (1779.3 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.8	1710.699995	-0.002923	1779.299999	-0.000562
2.5	1710.700005	0.002923	1779.299999	-0.000562
4.4	1710.699998	-0.001169	1779.300001	0.000562

Note: The applicant defined the normal working voltage is from 2.5 to 4.4 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 131979 (1710.7 MHz)		CH 132665 (1779.3 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-40	1710.699998	-0.001169	1779.299997	-0.001686
-30	1710.699997	-0.001754	1779.300005	0.002810
-20	1710.700004	0.002338	1779.299995	-0.002810
-10	1710.699999	-0.000585	1779.299997	-0.001686
0	1710.699999	-0.000585	1779.300003	0.001686
10	1710.699999	-0.000585	1779.299998	-0.001124
20	1710.699998	-0.001169	1779.300005	0.002810
30	1710.700001	0.000585	1779.299995	-0.002810
40	1710.700001	0.000585	1779.299998	-0.001124
50	1710.700005	0.002923	1779.299997	-0.001686
60	1710.699997	-0.001754	1779.300001	0.000562
70	1710.699995	-0.002923	1779.300001	0.000562
80	1710.699996	-0.002338	1779.299996	-0.002248
85	1710.699999	-0.000585	1779.299998	-0.001124

Cat-M1 Band 66, Channel Bandwidth: 3 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 131987 (1711.5 MHz)		CH 132657 (1778.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.8	1711.500003	0.001753	1778.500005	0.002811
2.5	1711.499997	-0.001753	1778.499995	-0.002811
4.4	1711.500001	0.000584	1778.500001	0.000562

Note: The applicant defined the normal working voltage is from 2.5 to 4.4 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 131987 (1711.5 MHz)		CH 132657 (1778.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-40	1711.499996	-0.002337	1778.500002	0.001125
-30	1711.500001	0.000584	1778.500002	0.001125
-20	1711.500002	0.001169	1778.500001	0.000562
-10	1711.499998	-0.001169	1778.500004	0.002249
0	1711.500005	0.002921	1778.500005	0.002811
10	1711.500002	0.001169	1778.500002	0.001125
20	1711.499998	-0.001169	1778.500001	0.000562
30	1711.499998	-0.001169	1778.500003	0.001687
40	1711.499998	-0.001169	1778.499995	-0.002811
50	1711.500003	0.001753	1778.499998	-0.001125
50	1711.500005	0.002921	1778.499997	-0.001687
50	1711.499998	-0.001169	1778.499998	-0.001125
50	1711.500003	0.001753	1778.499996	-0.002249
85	1711.499996	-0.002337	1778.500001	0.000562

Cat-M1 Band 66, Channel Bandwidth: 5 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 131997 (1712.5 MHz)		CH 132647 (1777.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.8	1712.500001	0.000584	1777.499999	-0.000563
2.5	1712.500004	0.002336	1777.500004	0.002250
4.4	1712.499997	-0.001752	1777.500002	0.001125

Note: The applicant defined the normal working voltage is from 2.5 to 4.4 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 131997 (1712.5 MHz)		CH 132647 (1777.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-40	1712.499997	-0.001752	1777.499999	-0.000563
-30	1712.500003	0.001752	1777.500001	0.000563
-20	1712.500002	0.001168	1777.499996	-0.002250
-10	1712.499997	-0.001752	1777.499997	-0.001688
0	1712.499999	-0.000584	1777.499997	-0.001688
10	1712.499997	-0.001752	1777.500001	0.000563
20	1712.500002	0.001168	1777.499996	-0.002250
30	1712.499995	-0.002920	1777.499998	-0.001125
40	1712.500003	0.001752	1777.500003	0.001688
50	1712.500005	0.002920	1777.499999	-0.000563
50	1712.499997	-0.001752	1777.500001	0.000563
50	1712.499998	-0.001168	1777.500005	0.002813
50	1712.499995	-0.002920	1777.500001	0.000563
85	1712.500001	0.000584	1777.500002	0.001125

Cat-M1 Band 66, Channel Bandwidth: 10 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 132022 (1715 MHz)		CH 132622 (1775 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.8	1714.999997	-0.001749	1774.999995	-0.002817
2.5	1715.000001	0.000583	1775.000002	0.001127
4.4	1714.999998	-0.001166	1775.000003	0.001690

Note: The applicant defined the normal working voltage is from 2.5 to 4.4 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 132022 (1715 MHz)		CH 132622 (1775 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-40	1714.999999	-0.000583	1774.999996	-0.002254
-30	1715.000001	0.000583	1775.000001	0.000563
-20	1714.999999	-0.000583	1774.999995	-0.002817
-10	1714.999996	-0.002332	1775.000005	0.002817
0	1715.000001	0.000583	1775.000003	0.001690
10	1714.999998	-0.001166	1775.000003	0.001690
20	1714.999998	-0.001166	1775.000002	0.001127
30	1715.000001	0.000583	1775.000001	0.000563
40	1714.999998	-0.001166	1775.000004	0.002254
50	1715.000001	0.000583	1775.000004	0.002254
50	1715.000003	0.001749	1775.000004	0.002254
50	1714.999997	-0.001749	1775.000003	0.001690
50	1714.999999	-0.000583	1775.000005	0.002817
85	1715.000002	0.001166	1775.000004	0.002254

Cat-M1 Band 66, Channel Bandwidth: 15 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 132047 (1717.5 MHz)		CH 132597 (1772.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.8	1717.500003	0.001747	1772.499998	-0.001128
2.5	1717.499995	-0.002911	1772.500002	0.001128
4.4	1717.500003	0.001747	1772.500001	0.000564

Note: The applicant defined the normal working voltage is from 2.5 to 4.4 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 132047 (1717.5 MHz)		CH 132597 (1772.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-40	1717.500005	0.002911	1772.500005	0.002821
-30	1717.500003	0.001747	1772.500004	0.002257
-20	1717.499997	-0.001747	1772.500003	0.001693
-10	1717.499995	-0.002911	1772.499996	-0.002257
0	1717.500002	0.001164	1772.500001	0.000564
10	1717.500001	0.000582	1772.500001	0.000564
20	1717.499999	-0.000582	1772.499995	-0.002821
30	1717.500002	0.001164	1772.499996	-0.002257
40	1717.500001	0.000582	1772.500003	0.001693
50	1717.500001	0.000582	1772.500003	0.001693
50	1717.499995	-0.002911	1772.499996	-0.002257
50	1717.500001	0.000582	1772.500002	0.001128
50	1717.499999	-0.000582	1772.499999	-0.000564
85	1717.499999	-0.000582	1772.500005	0.002821

Cat-M1 Band 66, Channel Bandwidth: 20 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 132072 (1720 MHz)		CH 132572 (1770 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.8	1719.999999	-0.000581	1770.000001	0.000565
2.5	1720.000004	0.002326	1770.000003	0.001695
4.4	1720.000003	0.001744	1770.000004	0.002260

Note: The applicant defined the normal working voltage is from 2.5 to 4.4 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 132072 (1720 MHz)		CH 132572 (1770 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-40	1719.999999	-0.000581	1769.999998	-0.001130
-30	1719.999998	-0.001163	1769.999997	-0.001695
-20	1719.999998	-0.001163	1770.000002	0.001130
-10	1719.999995	-0.002907	1770.000004	0.002260
0	1720.000005	0.002907	1770.000002	0.001130
10	1720.000002	0.001163	1770.000001	0.000565
20	1719.999997	-0.001744	1769.999999	-0.000565
30	1720.000001	0.000581	1770.000003	0.001695
40	1720.000002	0.001163	1770.000003	0.001695
50	1719.999995	-0.002907	1769.999999	-0.000565
50	1719.999995	-0.002907	1769.999995	-0.002825
50	1719.999997	-0.001744	1770.000005	0.002825
50	1719.999999	-0.000581	1770.000003	0.001695
85	1720.000004	0.002326	1770.000005	0.002825

7.8.12 Cat-M1 Band 85

Cat-M1 Band 85, Channel Bandwidth: 5 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 134027 (700.5 MHz)		CH 134157 (713.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.8	700.499995	-0.007138	713.499995	-0.007008
2.5	700.499995	-0.007138	713.500001	0.001402
4.4	700.500003	0.004283	713.499996	-0.005606

Note: The applicant defined the normal working voltage is from 2.5 to 4.4 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 134027 (700.5 MHz)		CH 134157 (713.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-40	700.500001	0.001428	713.500003	0.004205
-30	700.500005	0.007138	713.500002	0.002803
-20	700.500002	0.002855	713.499995	-0.007008
-10	700.500003	0.004283	713.499998	-0.002803
0	700.499996	-0.005710	713.499999	-0.001402
10	700.500002	0.002855	713.500001	0.001402
20	700.500001	0.001428	713.499996	-0.005606
30	700.500002	0.002855	713.500001	0.001402
40	700.499999	-0.001428	713.500001	0.001402
50	700.499997	-0.004283	713.499997	-0.004205
60	700.500002	0.002855	713.499995	-0.007008
70	700.500003	0.004283	713.499997	-0.004205
80	700.499996	-0.005710	713.499996	-0.005606
85	700.500001	0.001428	713.499995	-0.007008

Cat-M1 Band 85, Channel Bandwidth: 10 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 134052 (703 MHz)		CH 134132 (711 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.8	703.000003	0.004267	711.000001	0.001406
2.5	702.999998	-0.002845	710.999996	-0.005626
4.4	703.000001	0.001422	710.999999	-0.001406

Note: The applicant defined the normal working voltage is from 2.5 to 4.4 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 134052 (703 MHz)		CH 134132 (711 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-40	703.000005	0.007112	711.000004	0.005626
-30	703.000001	0.001422	710.999999	-0.001406
-20	702.999999	-0.001422	710.999997	-0.004219
-10	702.999997	-0.004267	711.000001	0.001406
0	702.999996	-0.005690	711.000001	0.001406
10	703.000003	0.004267	711.000001	0.001406
20	703.000003	0.004267	711.000002	0.002813
30	703.000004	0.005690	710.999999	-0.001406
40	703.000004	0.005690	710.999995	-0.007032
50	702.999997	-0.004267	711.000004	0.005626
50	703.000005	0.007112	711.000001	0.001406
50	703.000001	0.001422	711.000004	0.005626
50	703.000001	0.001422	711.000005	0.007032
85	702.999997	-0.004267	710.999999	-0.001406

8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

9 Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Lin Kou EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@bureauveritas.com

Web Site: <http://ee.bureauveritas.com.tw>

The address and road map of all our labs can be found in our web site also.

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