7.5. GMS SPECTRAL RESPONSE

The spectral responses for the VISSR channels on GMS-1, 2, 3, 4 and 5 are given in the following tables and illustrated in corresponding figures.

Tables relating counts to temperature and counts to infrared radiances are provided by JMA; however, the radiances values are in units per wavelength. To obtain consistent radiance units, the values are multiplied by a bandwidth: 1.623 μm (GMS-1), 1.214 μm (GMS-2), 2.057 μm (GMS-3), 1.103 μm (GMS-4), and 1.080 μm (GMS-5). The bandwiths for the additional channels on GMS-5 are 2.393 μm for the 6.9 μm channel and 0.958 μm for the 11.5 μm channel.

7.5.1. GMS-1

Table 7.5.1. Normalized Spectral Responses for GMS-1.

Channel 1		Channel 2	
Wavelength (μm)	Response	Wavelength (μm)	Response
0.440	0.000	9.400	0.000
0.450	0.001	9.500	0.002
0.460	0.004	9.600	0.002
0.470	0.045	9.700	0.002
0.480	0.212	9.800	0.002
0.490	0.438	9.900	0.002
0.500	0.598	10.000	0.002
0.510	0.706	10.100	0.004
0.520	0.785	10.200	0.020
0.530	0.871	10.300	0.104
0.540	0.952	10.400	0.355
0.550	0.995	10.500	0.675
0.560	0.995	10.600	0.871
0.570	0.979	10.700	0.943
0.580	0.955	10.800	0.947
0.590	0.988	10.900	0.944
0.600	1.000	11.000	1.000
0.610	0.966	11.100	0.941
0.620	0.881	11.200	0.904
0.630	0.838	11.300	0.857
0.640	0.798	11.400	0.789
0.650	0.834	11.500	0.704
0.660	0.793	11.600	0.652
0.670	0.737	11.700	0.578
0.680	0.651	11.800	0.508
0.690	0.574	11.900	0.489
0.700	0.515	12.000	0.471
0.710	0.496	12.100	0.466
0.720	0.466	12.200	0.465
0.730	0.402	12.300	0.451
0.740	0.346	12.400	0.414
0.750	0.276	12.500	0.404
0.760	0.224	12.600	0.429
0.770	0.192	12.700	0.372
0.780	0.163	12.800	0.210

Normalized Spectral Responses for GMS-1 (continued).

Channel 1		Channel 2	
Wavelength (μm)	Response	Wavelength (μm)	Response
0.790	0.143	12.900	0.088
0.800	0.117	13.000	0.033
0.810	0.093	13.100	0.000
0.820	0.069		
0.830	0.055		
0.840	0.039		
0.850	0.028		
0.860	0.016		
0.870	0.009		
0.880	0.002		
0.890	0.001		
0.900	0.000		

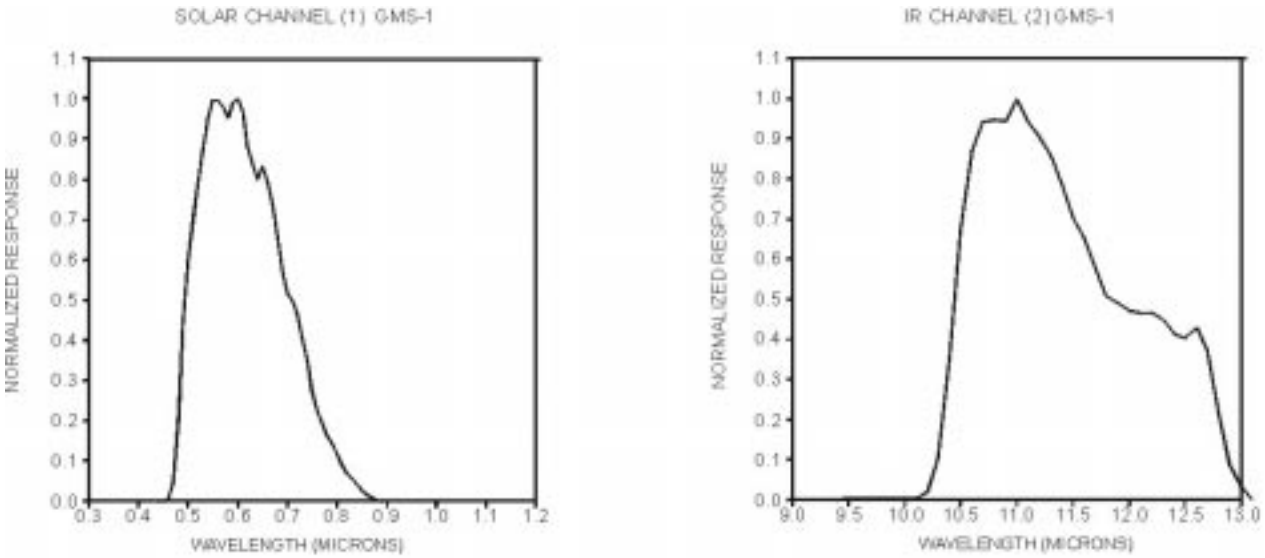

Fig. 7.5.1. Normalized spectral response functions for GMS-1.

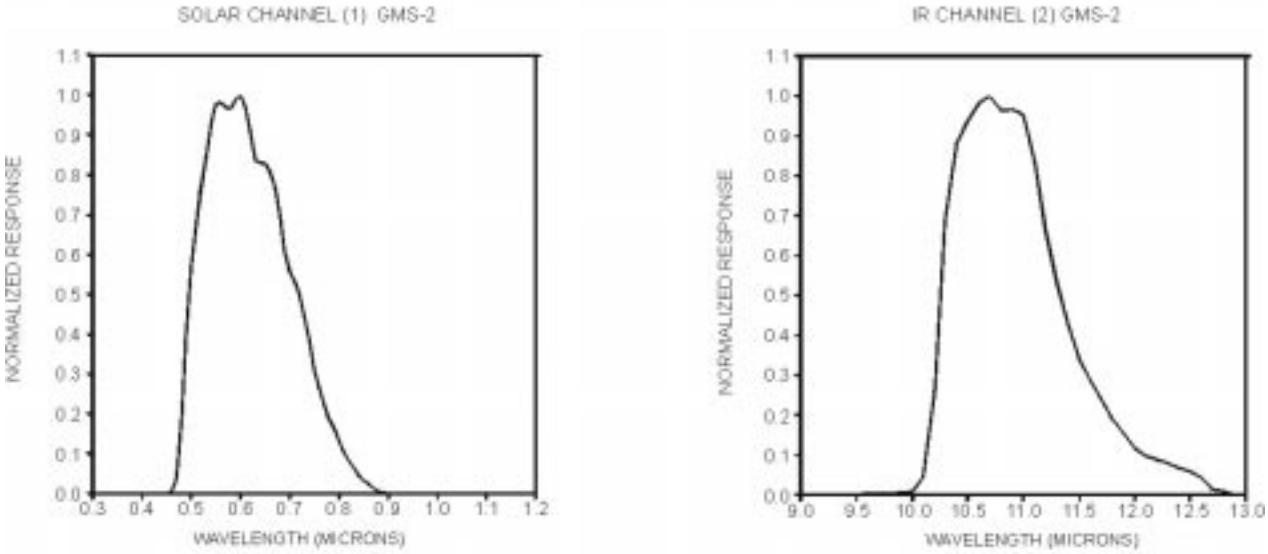

Fig. 7.5.2. Normalized spectral response functions for GMS-2.

7.5.2. GMS-2

Table 7.5.2. Normalized Spectral Responses for GMS-2.

Channel 1		Channel 2	
Wavelength (μm)	Response	Wavelength (μm)	Response
0.450	0.000	9.400	0.000
0.460	0.002	9.500	0.001
0.470	0.036	9.600	0.002
0.480	0.188	9.700	0.002
0.490	0.401	9.800	0.002
0.500	0.573	9.900	0.005
0.510	0.677	10.000	0.008
0.520	0.762	10.100	0.046
0.530	0.843	10.200	0.262
0.540	0.930	10.300	0.691
0.550	0.974	10.400	0.881
0.560	0.983	10.500	0.937
0.570	0.970	10.600	0.982
0.580	0.967	10.700	1.000
0.590	0.987	10.800	0.962
0.600	1.000	10.900	0.966
0.610	0.970	11.000	0.954
0.620	0.908	11.100	0.835
0.630	0.837	11.200	0.664
0.640	0.830	11.300	0.529
0.650	0.829	11.400	0.430
0.660	0.810	11.500	0.341
0.670	0.768	11.600	0.289
0.680	0.690	11.700	0.241
0.690	0.611	11.800	0.193
0.700	0.557	11.900	0.155
0.710	0.532	12.000	0.116
0.720	0.503	12.100	0.097
0.730	0.444	12.200	0.088
0.740	0.385	12.300	0.080
0.750	0.313	12.400	0.067
0.760	0.266	12.500	0.058
0.770	0.221	12.600	0.043
0.780	0.190	12.700	0.014
0.790	0.166	12.800	0.009
0.800	0.133	12.900	0.001
0.810	0.109	13.000	0.000
0.820	0.084		
0.830	0.065		
0.840	0.046		
0.850	0.035		
0.860	0.023		
0.870	0.015		
0.880	0.006		
0.890	0.003		
0.900	0.000		

7.5.3. GMS-3

Table 7.5.3. Normalized Spectral Responses for GMS-3.

Channel 1		Channel 2	
Wavelength (μm)	Response	Wavelength (μm)	Response
0.460	0.000	9.400	0.000
0.470	0.043	9.500	0.001
0.480	0.154	9.600	0.001
0.490	0.314	9.700	0.001
0.500	0.429	9.800	0.001
0.510	0.525	9.900	0.003
0.520	0.614	10.000	0.007
0.530	0.695	10.100	0.045
0.540	0.740	10.200	0.225
0.550	0.804	10.300	0.534
0.560	0.850	10.400	0.637
0.570	0.896	10.500	0.686
0.580	0.944	10.600	0.764
0.590	0.973	10.700	0.822
0.600	0.979	10.800	0.881
0.610	0.989	10.900	0.946
0.620	1.000	11.000	1.000
0.630	0.981	11.100	0.988
0.640	0.983	11.200	0.959
0.650	0.963	11.300	0.967
0.660	0.953	11.400	0.957
0.670	0.924	11.500	0.953
0.680	0.876	11.600	0.957
0.690	0.801	11.700	0.949
0.700	0.734	11.800	0.913
0.710	0.727	11.900	0.849
0.720	0.690	12.000	0.813
0.730	0.623	12.100	0.793
0.740	0.546	12.200	0.796
0.750	0.468	12.300	0.763
0.760	0.395	12.400	0.787
0.770	0.335	12.500	0.749
0.780	0.287	12.600	0.456
0.790	0.239	12.700	0.196
0.800	0.191	12.800	0.073
0.810	0.158	12.900	0.027
0.820	0.124	13.000	0.012
0.830	0.098	13.100	0.008
0.840	0.072	13.200	0.004
0.850	0.055	13.300	0.009
0.860	0.037	13.400	0.014
0.870	0.025	13.500	0.009
0.880	0.013	13.600	0.005
0.890	0.008	13.700	0.005
0.900	0.002	13.800	0.000
0.910	0.001		
0.920	0.000		

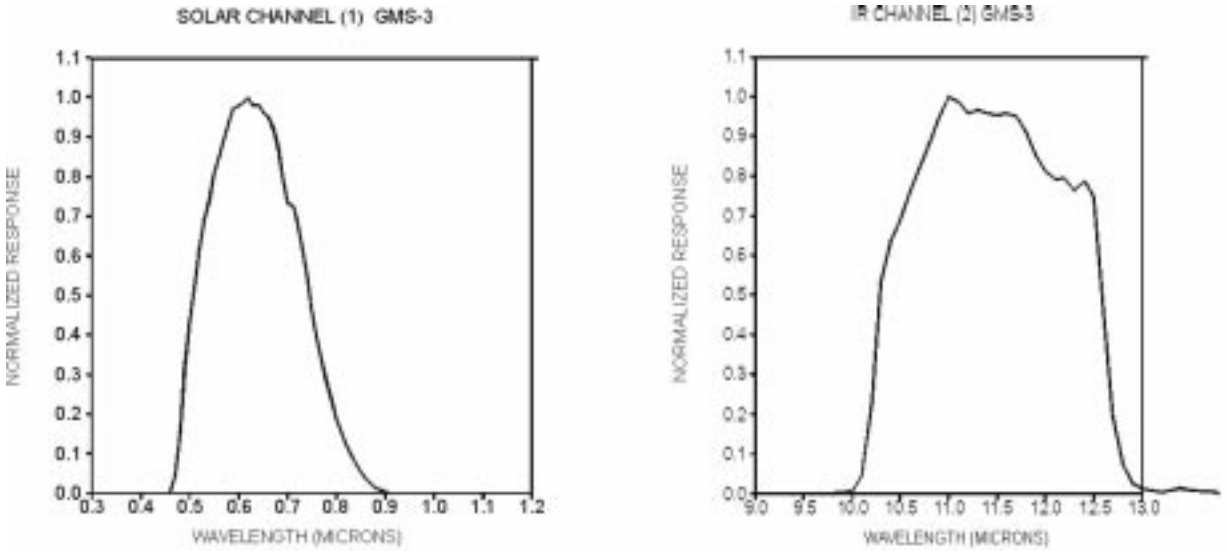

Fig. 7.5.3. Normalized spectral response functions for GMS-3.

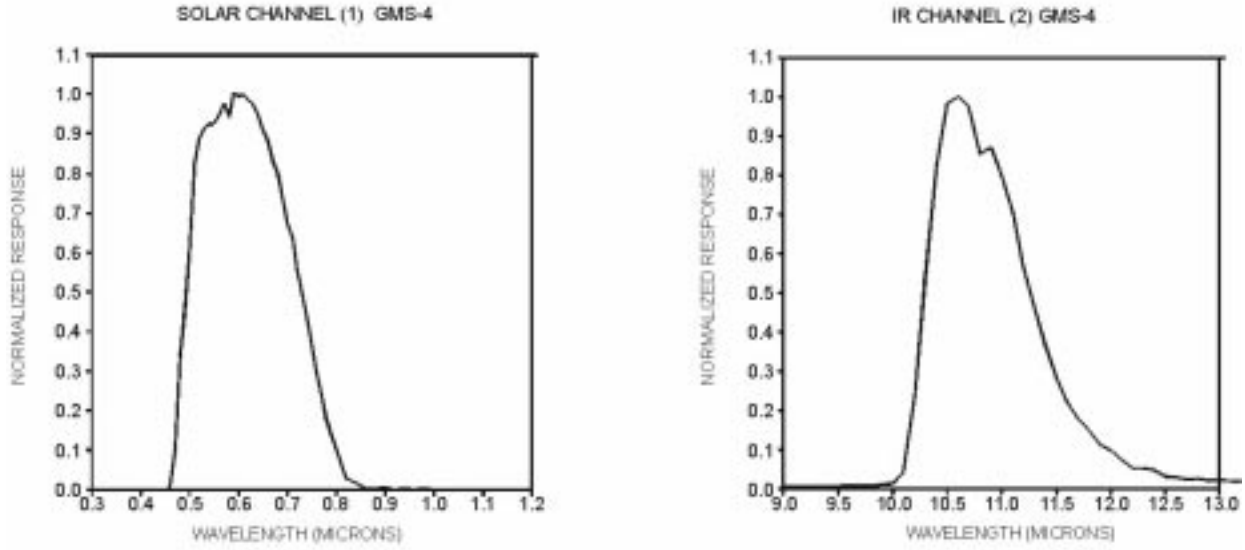

Fig. 7.5.4. Normalized spectral response functions for GMS-4.

7.5.4. GMS-4

Table 7.5.4. Normalized Spectral Responses for GMS-4.

Channel 1		Channel 2	
Wavelength (μm)	Response	Wavelength (μm)	Response
0.4500	0.000	7.800	0.000
0.4600	0.005	8.000	0.004
0.4700	0.099	8.200	0.003
0.4800	0.341	8.400	0.004
0.4900	0.446	8.600	0.004
0.5000	0.603	8.800	0.007
0.5100	0.824	9.000	0.006
0.5200	0.889	9.200	0.007
0.5300	0.915	9.400	0.007
0.5400	0.924	9.600	0.008
0.5500	0.924	9.800	0.008
0.5600	0.946	10.000	0.013
0.5700	0.978	10.100	0.044
0.5800	0.944	10.200	0.242
0.5900	1.000	10.300	0.538
0.6000	0.995	10.400	0.824
0.6100	0.997	10.500	0.982
0.6200	0.985	10.600	1.000
0.6300	0.974	10.700	0.973
0.6400	0.946	10.800	0.856
0.6500	0.908	10.900	0.872
0.6600	0.882	11.000	0.799
0.6700	0.831	11.100	0.704
0.6800	0.797	11.200	0.570
0.6900	0.738	11.300	0.459
0.7000	0.670	11.400	0.368
0.7100	0.637	11.500	0.286
0.7200	0.560	11.600	0.222
0.7300	0.498	11.700	0.180
0.7400	0.432	11.800	0.150
0.7500	0.374	11.900	0.113
0.7600	0.297	12.000	0.097
0.7700	0.236	12.100	0.074
0.7800	0.182	12.200	0.053
0.7900	0.139	12.300	0.053
0.8000	0.102	12.400	0.047
0.8200	0.029	12.500	0.033
0.8400	0.016	12.600	0.029
0.8600	0.004	12.700	0.025
0.8800	0.003	12.800	0.027
0.9000	0.006	12.900	0.023
0.9200	0.000	13.000	0.021
0.9400	0.003	13.200	0.020
0.9600	0.001	13.400	0.020
0.9800	0.002	13.600	0.026
1.0000	0.000	13.800	0.020
		14.000	0.026
		14.200	0.000

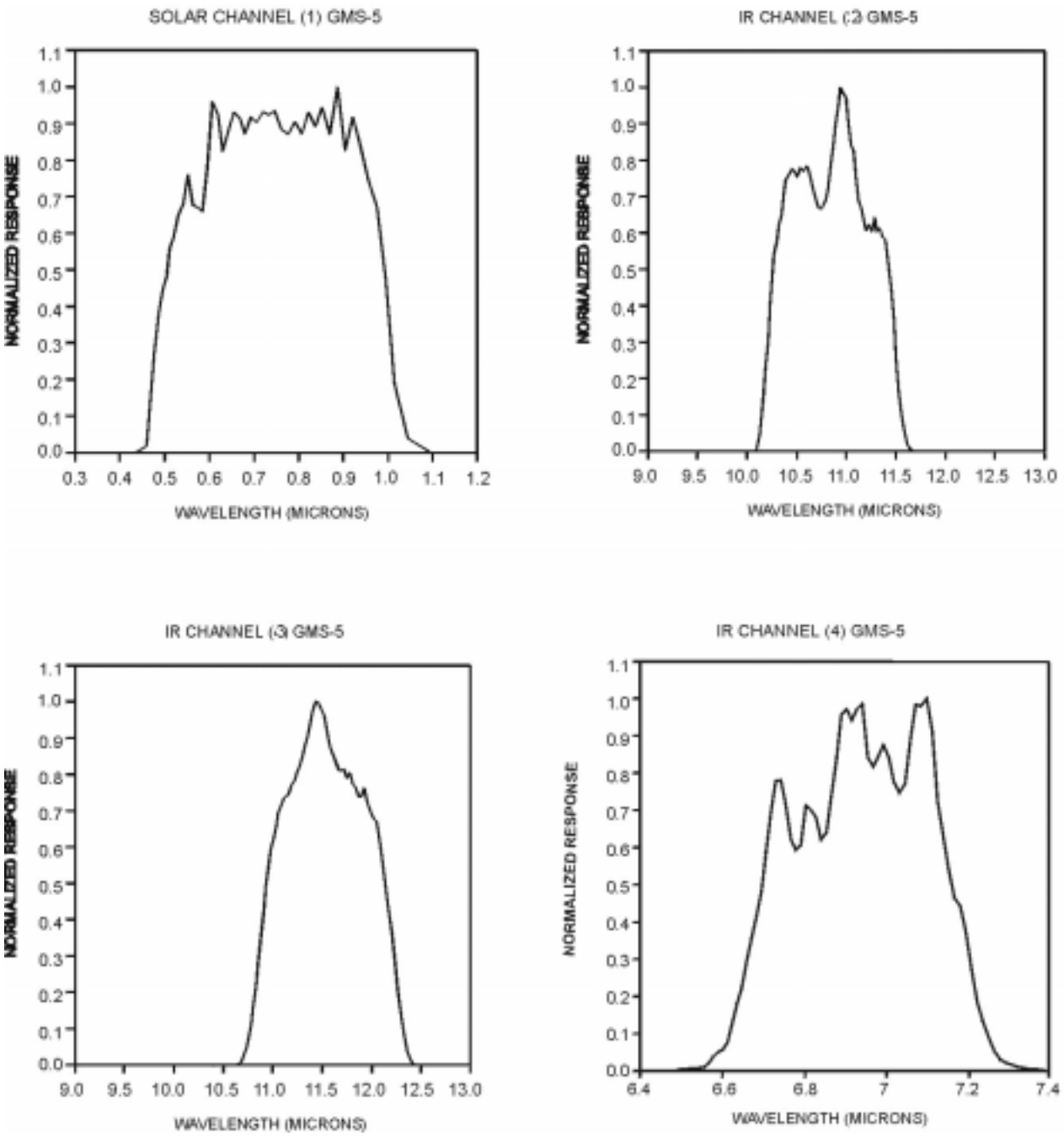

Fig. 7.5.5. Normalized spectral response functions for GMS-5. The channels are shown in the order found on B3 data tapes.

7.5.5. GMS-5

Table 7.5.5. Solar Channel Normalized Spectral Responses for GMS-5.

Channel 1		Channel 2	
Wavelength (μm)	Response	Wavelength (μm)	Response
0.441	0.00000		
0.459	0.01700		
0.477	0.27100		
0.487	0.38500		
0.496	0.44800		
0.506	0.48100		
0.511	0.55800		
0.521	0.58700		
0.531	0.64900		
0.542	0.67900		
0.552	0.76100		
0.563	0.67500		
0.574	0.67200		
0.585	0.65700		
0.596	0.77800		
0.607	0.96000		
0.619	0.92400		
0.631	0.82400		
0.643	0.88100		
0.655	0.93200		
0.668	0.91400		
0.680	0.87000		
0.693	0.91800		
0.706	0.90200		
0.720	0.93300		
0.733	0.92300		
0.747	0.93400		
0.762	0.88400		
0.776	0.87200		
0.791	0.90600		
0.806	0.87000		
0.821	0.93200		
0.837	0.89200		
0.853	0.94600		
0.869	0.87100		
0.886	1.00000		

Solar Channel Normalized Spectral Responses for GMS-5 (continued).

Channel 1		Channel 2	
Wavelength (μm)	Response	Wavelength (μm)	Response
0.903	0.82700		
0.920	0.91900		
0.938	0.83800		
0.956	0.74400		
0.975	0.67200		
0.994	0.47300		
1.013	0.19000		
1.043	0.03800		
1.073	0.00000		

Infrared Channel Normalized Spectral Responses for GMS-5.

Channel 2		Channel 3		Channel 4	
Wavelength (μm)	Response	Wavelength (μm)	Response	Wavelength (μm)	Response
10.079	0.00000	10.424	0.00000	6.466	0.00000
10.100	0.00700	10.447	0.00100	6.477	0.00100
10.122	0.04400	10.470	0.00100	6.488	0.00100
10.144	0.09500	10.493	0.00000	6.499	0.00400
10.166	0.15300	10.517	0.00000	6.511	0.00500
10.188	0.22800	10.540	0.00100	6.522	0.00600
10.210	0.30600	10.564	0.00100	6.533	0.00700
10.232	0.40700	10.588	0.00100	6.545	0.00800
10.254	0.47000	10.611	0.00100	6.556	0.01000
10.276	0.54100	10.635	0.00100	6.567	0.02000
10.299	0.57600	10.659	0.00200	6.579	0.03800
10.321	0.62000	10.684	0.01100	6.590	0.05000
10.344	0.65000	10.708	0.02500	6.602	0.05800
10.367	0.70300	10.732	0.04600	6.613	0.07700
10.389	0.74500	10.757	0.07200	6.625	0.12900
10.412	0.75600	10.781	0.11200	6.637	0.18000
10.435	0.76600	10.806	0.16100	6.648	0.22300
10.459	0.77600	10.831	0.21500	6.660	0.29600
10.482	0.76500	10.856	0.27800	6.672	0.35500
10.505	0.75300	10.881	0.35200	6.684	0.41700
10.529	0.77800	10.906	0.42300	6.696	0.48600
10.552	0.77400	10.931	0.49200	6.707	0.58500
10.576	0.76800	10.956	0.54600	6.719	0.69700
10.600	0.78400	10.982	0.59200	6.731	0.77900
10.623	0.77200	11.008	0.62000	6.743	0.78100
10.647	0.73900	11.033	0.65600	6.755	0.71800
10.671	0.71700	11.059	0.69500	6.768	0.62200
10.696	0.68800	11.085	0.71100	6.780	0.59300
10.720	0.67000	11.111	0.73400	6.792	0.60600
10.744	0.66600	11.138	0.74200	6.804	0.71300
10.769	0.67200	11.164	0.74500	6.817	0.70000
10.794	0.69200	11.190	0.76900	6.829	0.68100
10.818	0.71600	11.217	0.78000	6.841	0.62200
10.843	0.78400	11.244	0.80600	6.854	0.64000
10.868	0.84300	11.271	0.81800	6.866	0.73600
10.893	0.89400	11.298	0.84300	6.879	0.83900
10.918	0.94500	11.325	0.87900	6.891	0.95600
10.944	1.00000	11.352	0.90600	6.904	0.97100
10.969	0.98200	11.379	0.93400	6.916	0.94200
10.995	0.97000	11.407	0.97200	6.929	0.97200
11.020	0.90800	11.434	1.00000	6.942	0.98500
11.046	0.84100	11.462	0.99700	6.955	0.84200
11.072	0.82600	11.490	0.97900	6.968	0.81700
11.098	0.76000	11.518	0.96300	6.980	0.84500
11.124	0.68900	11.546	0.91700	6.993	0.87600

Infrared Channel Normalized Spectral Responses for GMS-5 (continued).

Channel 2		Channel 3		Channel 4	
Wavelength (μm)	Response	Wavelength (μm)	Response	Wavelength (μm)	Response
11.151	0.66600	11.575	0.87500	7.006	0.84200
11.177	0.62500	11.603	0.85300	7.019	0.77600
11.204	0.60500	11.632	0.83200	7.032	0.74700
11.230	0.62400	11.661	0.81200	7.046	0.77100
11.257	0.60300	11.689	0.80900	7.059	0.89300
11.284	0.64100	11.718	0.81100	7.072	0.98300
11.311	0.60100	11.748	0.78800	7.085	0.98000
11.338	0.61200	11.777	0.80400	7.099	1.00000
11.366	0.58900	11.806	0.77400	7.112	0.91200
11.393	0.58100	11.836	0.76200	7.125	0.72200
11.421	0.51500	11.866	0.73800	7.139	0.62600
11.448	0.44800	11.896	0.73900	7.152	0.54200
11.476	0.36000	11.926	0.76200	7.166	0.46500
11.504	0.25700	11.956	0.72300	7.180	0.44300
11.532	0.16100	11.986	0.69800	7.193	0.37700
11.561	0.09700	12.017	0.68000	7.207	0.27600
11.589	0.05100	12.048	0.66700	7.221	0.18500
11.617	0.01900	12.078	0.61700	7.235	0.13500
11.646	0.00400	12.109	0.55900	7.249	0.09200
11.675	0.00000	12.141	0.49500	7.263	0.05400
-	-	12.172	0.43200	7.277	0.03200
-	-	12.203	0.36100	7.291	0.02200
-	-	12.235	0.28300	7.305	0.01700
-	-	12.267	0.20200	7.319	0.01100
-	-	12.299	0.12700	7.333	0.00800
-	-	12.331	0.07500	7.347	0.00500
-	-	12.363	0.03400	7.362	0.00400
-	-	12.396	0.00900	7.376	0.00300
-	-	12.428	0.00100	7.390	0.00000
-	-	12.461	0.00100	-	-
-	-	12.494	0.00100	-	-
-	-	12.527	0.00000	-	-
-	-	12.561	0.00100	-	-
-		12.594	0.00100		
		12.628	0.00100		