

**Table 2.13(c)** Design 97.5 percentile of beam and diffuse irradiance on vertical and horizontal surfaces: Cardiff (St Athan) (2002–2011)

Month	Orientation		Daily mean irradiance (W·m <sup>-2</sup> ) and mean hourly irradiance (W·m <sup>-2</sup> ) for the 21st day of the given month																				
			Mean	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	
January  Sunrise: 0805 Sunset: 1644	Normal to beam		469	0	0	0	0	0	0	0	0	532	641	699	706	709	650	282	0	0	0	0	
	N	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	16	0	0	0	0	0	0	0	13	32	50	66	72	69	48	30	10	0	0	0	0
	NE	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	16	0	0	0	0	0	0	0	13	32	50	66	72	69	48	30	11	0	0	0	0
	E	Beam	33	0	0	0	0	0	0	0	0	346	290	156	0	0	0	0	0	0	0	0	0
		Diffuse	23	0	0	0	0	0	0	0	14	110	107	91	72	69	48	30	10	0	0	0	0
	SE	Beam	110	0	0	0	0	0	0	0	0	525	593	569	463	328	162	8	0	0	0	0	0
		Diffuse	40	0	0	0	0	0	0	0	14	152	173	185	170	141	77	35	10	0	0	0	0
	S	Beam	153	0	0	0	0	0	0	0	0	396	549	648	669	650	547	203	0	0	0	0	0
		Diffuse	50	0	0	0	0	0	0	0	13	122	163	203	219	222	160	92	10	0	0	0	0
	SW	Beam	105	0	0	0	0	0	0	0	0	35	183	348	483	592	611	279	0	0	0	0	0
		Diffuse	40	0	0	0	0	0	0	0	13	38	84	135	175	207	174	115	11	0	0	0	0
	W	Beam	30	0	0	0	0	0	0	0	0	0	0	0	14	186	317	192	0	0	0	0	0
		Diffuse	22	0	0	0	0	0	0	0	14	32	50	66	63	105	110	89	10	0	0	0	0
	NW	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	16	0	0	0	0	0	0	0	14	32	50	66	72	69	48	30	10	0	0	0	0
Horiz.	Beam	46	0	0	0	0	0	0	9	84	159	212	226	211	153	40	4	0	0	0	0	0	
	Diffuse	25	0	0	0	0	0	0	19	52	76	98	107	106	72	58	15	0	0	0	0	0	
	Global	71	0	0	0	0	0	0	28	135	235	310	334	316	225	97	20	0	0	0	0	0	
February  Sunrise: 0714 Sunset: 1740	Normal to beam		429	0	0	0	0	0	90	517	684	687	601	657	560	634	288	0	0	0	0	0	
	N	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	32	0	0	0	0	0	2	35	60	82	96	150	126	132	58	34	5	0	0	0	0
	NE	Beam	1	0	0	0	0	0	0	22	9	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	33	0	0	0	0	0	2	50	58	82	96	150	126	132	58	34	5	0	0	0	0
	E	Beam	39	0	0	0	0	0	0	76	355	329	168	0	0	0	0	0	0	0	0	0	0
		Diffuse	41	0	0	0	0	0	2	67	139	143	119	150	126	132	58	34	5	0	0	0	0
	SE	Beam	103	0	0	0	0	0	0	86	494	612	536	370	273	108	0	0	0	0	0	0	0
		Diffuse	58	0	0	0	0	0	2	70	172	206	201	280	199	166	58	34	5	0	0	0	0
	S	Beam	150	0	0	0	0	0	0	45	343	536	590	530	561	434	412	141	0	0	0	0	0
		Diffuse	74	0	0	0	0	0	2	57	136	189	213	345	296	312	140	78	5	0	0	0	0
	SW	Beam	114	0	0	0	0	0	0	0	146	299	380	520	505	607	274	0	0	0	0	0	0
		Diffuse	65	0	0	0	0	0	2	35	60	102	148	284	282	344	182	116	5	0	0	0	0
	W	Beam	48	0	0	0	0	0	0	0	0	0	0	7	174	281	446	247	0	0	0	0	0
		Diffuse	45	0	0	0	0	0	2	35	60	82	96	133	165	243	147	108	5	0	0	0	0
	NW	Beam	4	0	0	0	0	0	0	0	0	0	0	0	0	0	24	75	0	0	0	0	0
		Diffuse	33	0	0	0	0	0	2	35	60	82	96	150	126	132	56	58	5	0	0	0	0
Horiz.	Beam	74	0	0	0	0	0	1	15	153	268	310	283	295	216	182	46	0	0	0	0	0	
	Diffuse	55	0	0	0	0	0	3	74	97	122	142	266	212	241	87	65	9	0	0	0	0	
	Global	129	0	0	0	0	0	5	89	250	390	452	549	506	457	269	111	9	0	0	0	0	
March  Sunrise: 0613 Sunset: 1828	Normal to beam		584	0	0	0	0	52	498	697	785	830	845	849	843	821	753	625	0	0	0	0	
	N	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	40	0	0	0	0	4	34	70	91	109	122	126	120	106	85	58	29	7	0	0	0
	NE	Beam	10	0	0	0	0	0	27	152	53	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	42	0	0	0	0	4	51	104	88	109	122	126	120	106	85	58	29	7	0	0	0
	E	Beam	62	0	0	0	0	0	49	421	473	365	183	0	0	0	0	0	0	0	0	0	0
		Diffuse	51	0	0	0	0	4	57	172	173	158	131	126	120	106	85	58	29	8	0	0	0
	SE	Beam	129	0	0	0	0	0	43	444	616	640	575	441	268	74	0	0	0	0	0	0	0
		Diffuse	61	0	0	0	0	4	55	177	202	209	203	181	145	98	85	58	29	7	0	0	0
	S	Beam	185	0	0	0	0	0	12	206	398	540	630	657	630	554	432	271	105	0	0	0	0
		Diffuse	69	0	0	0	0	4	47	117	158	190	213	221	212	187	148	100	48	7	0	0	0
	SW	Beam	173	0	0	0	0	0	0	0	124	316	488	624	710	732	663	505	0	0	0	0	0
		Diffuse	67	0	0	0	0	4	34	70	91	112	155	190	210	215	203	176	136	7	0	0	0
	W	Beam	109	0	0	0	0	0	0	0	0	0	0	33	252	450	603	666	610	0	0	0	0
		Diffuse	57	0	0	0	0	4	34	70	91	109	122	106	142	167	179	176	159	8	0	0	0
	NW	Beam	32	0	0	0	0	0	0	0	0	0	0	0	0	0	121	280	357	0	0	0	0
		Diffuse	45	0	0	0	0	4	34	70	91	109	122	126	120	106	90	102	104	7	0	0	0
Horiz.	Beam	150	0	0	0	0	0	10	167	322	436	508	530	509	449	352	222	89	4	0	0	0	
	Diffuse	55	0	0	0	0	6	73	117	129	144	155	159	152	135	109	78	43	10	0	0	0	
	Global	205	0	0	0	0	6	83	284	451	580	664	690	662	584	460	301	133	15	0	0	0	

Table continues

**Table 2.13(c)** Design 97.5 percentile of beam and diffuse irradiance on vertical and horizontal surfaces: Cardiff (St Athan) (2002–2011) — *continued*

Month	Orientation		Daily mean irradiance (W·m <sup>-2</sup> ) and mean hourly irradiance (W·m <sup>-2</sup> ) for the 21st day of the given month																				
			Mean	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	
April Sunrise: 0504 Sunset: 1920	Normal to beam		598	0	0	0	0	220	556	701	791	826	846	855	865	876	868	832	732	0	0	0	
	N	Beam	1	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	57	0	0	0	10	54	73	98	121	140	152	155	150	138	114	84	53	32	3	0	0
	NE	Beam	35	0	0	0	0	163	314	250	104	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	63	0	0	0	10	99	140	132	117	140	152	155	150	138	114	84	53	34	3	0	0
	E	Beam	96	0	0	0	0	215	514	566	504	349	152	0	0	0	0	0	0	0	0	0	0
		Diffuse	73	0	0	0	10	115	186	196	191	175	148	155	150	138	114	84	53	40	4	0	0
	SE	Beam	136	0	0	0	0	141	412	550	608	574	480	337	163	0	0	0	0	0	0	0	0
		Diffuse	77	0	0	0	10	92	163	192	211	217	208	184	148	138	114	84	53	37	3	0	0
	S	Beam	150	0	0	0	0	0	69	212	357	462	526	541	511	439	319	166	7	0	0	0	0
		Diffuse	75	0	0	0	10	44	82	125	164	196	217	222	214	192	150	97	45	32	3	0	0
	SW	Beam	159	0	0	0	0	0	0	0	0	80	264	428	560	652	681	637	503	0	0	0	0
		Diffuse	78	0	0	0	10	44	73	98	121	126	168	201	223	233	219	184	142	34	3	0	0
	W	Beam	121	0	0	0	0	0	0	0	0	0	64	281	484	644	734	704	0	0	0	0	0
		Diffuse	74	0	0	0	10	44	73	98	121	140	152	133	170	201	212	202	181	40	4	0	0
	NW	Beam	48	0	0	0	0	0	0	0	0	0	0	0	0	32	230	401	493	0	0	0	0
		Diffuse	63	0	0	0	10	44	73	98	121	140	152	155	150	113	133	141	140	37	3	0	0
Horiz.	Beam	222	0	0	0	1	46	203	355	494	588	645	660	639	584	486	355	202	64	2	0	0	
	Diffuse	75	0	0	1	17	86	116	137	157	178	191	195	189	175	144	107	72	38	5	0	0	
	Global	297	0	0	1	17	132	318	492	652	766	837	855	828	759	631	462	275	102	7	0	0	
May Sunrise: 0413 Sunset: 2007	Normal to beam		537	0	0	0	38	304	442	608	792	895	967	957	945	939	905	764	296	285	0	0	
	N	Beam	7	0	0	0	13	46	0	0	0	0	0	0	0	0	0	0	26	79	0	0	0
		Diffuse	67	0	0	2	40	89	102	124	135	143	146	148	143	131	115	99	96	77	15	0	0
	NE	Beam	38	0	0	0	34	234	265	243	144	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	72	0	0	2	46	148	173	165	134	143	146	148	143	131	115	99	83	49	15	0	0
	E	Beam	90	0	0	0	35	285	390	468	479	356	159	0	0	0	0	0	0	0	0	0	0
		Diffuse	80	0	0	2	46	164	208	218	194	165	135	148	143	131	115	99	83	49	15	0	0
	SE	Beam	117	0	0	0	16	169	287	419	532	536	459	295	103	0	0	0	0	0	0	0	0
		Diffuse	79	0	0	2	41	128	179	206	203	191	173	155	126	131	115	99	83	49	15	0	0
	S	Beam	122	0	0	0	0	16	125	274	402	490	494	449	363	233	73	0	0	0	0	0	0
		Diffuse	71	0	0	2	29	71	102	137	157	172	177	180	172	152	124	94	83	49	15	0	0
	SW	Beam	136	0	0	0	0	0	0	0	0	33	234	404	531	613	624	511	175	132	0	0	0
		Diffuse	78	0	0	2	29	71	102	124	135	118	145	169	183	185	180	176	143	94	15	0	0
	W	Beam	113	0	0	0	0	0	0	0	0	0	0	77	302	504	650	649	274	266	0	0	0
		Diffuse	80	0	0	2	29	71	102	124	135	143	146	127	153	171	184	202	174	137	15	0	0
	NW	Beam	52	0	0	0	0	0	0	0	0	0	0	0	0	100	295	407	212	244	0	0	0
		Diffuse	73	0	0	2	29	71	102	124	135	143	146	148	143	117	133	156	154	130	15	0	0
Horiz.	Beam	260	0	0	0	6	97	207	368	568	716	818	816	775	704	585	396	110	63	2	0	0	
	Diffuse	83	0	0	3	61	134	177	190	171	156	142	146	144	134	124	129	157	93	24	0	0	
	Global	342	0	0	3	67	231	384	558	739	872	959	962	919	837	709	525	267	156	26	0	0	
June Sunrise: 0354 Sunset: 2036	Normal to beam		581	0	0	0	257	519	738	837	868	911	553	251	1024	979	838	885	805	633	356	0	
	N	Beam	28	0	0	0	100	105	14	0	0	0	0	0	0	0	0	0	86	186	170	0	0
		Diffuse	74	0	0	12	80	94	80	114	132	144	181	194	143	134	125	100	77	89	80	4	0
	NE	Beam	70	0	0	0	234	411	463	364	194	9	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	80	0	0	12	123	174	167	150	135	115	181	194	143	134	125	100	78	55	28	4	0
	E	Beam	124	0	0	0	231	476	641	639	526	371	100	0	0	0	0	0	0	0	0	0	0
		Diffuse	88	0	0	12	122	191	201	195	185	166	187	194	143	134	125	100	78	55	28	4	0
	SE	Beam	118	0	0	0	93	262	444	540	550	517	249	73	100	0	0	0	0	0	0	0	0
		Diffuse	85	0	0	12	77	135	163	178	189	186	224	235	124	134	125	100	78	55	28	4	0
	S	Beam	89	0	0	0	0	0	125	252	359	252	117	442	341	189	62	0	0	0	0	0	0
		Diffuse	75	0	0	12	44	73	94	111	143	164	225	249	161	147	130	88	78	55	28	4	0
	SW	Beam	135	0	0	0	0	0	0	0	0	0	107	93	525	593	542	558	451	279	99	0	0
		Diffuse	86	0	0	12	44	73	94	114	132	144	188	242	170	177	187	162	140	110	59	4	0
	W	Beam	155	0	0	0	0	0	0	0	0	0	0	15	300	497	577	727	724	580	309	0	0
		Diffuse	91	0	0	12	44	73	94	114	132	144	181	216	146	166	193	187	187	179	123	4	0
	NW	Beam	96	0	0	0	0	0	0	0	0	0	0	0	0	110	274	470	573	541	339	0	0
		Diffuse	84	0	0	12	44	73	94	114	132	144	181	194	143	119	144	149	161	170	131	4	0
Horiz.	Beam	271	0	0	1	51	180	364	525	642	751	482	221	874	771	578	500	341	174	46	1	0	
	Diffuse	92	0	0	19	84	120	127	135	150	152	290	376	122	125	148	110	97	83	52	7	0	
	Global	362	0	0	20	135	300	491	660	792	903	773	597	997	896	725	610	438	256	97	8	0	

*Table continues*

Table 2.13(c) Design 97.5 percentile of beam and diffuse irradiance on vertical and horizontal surfaces: Cardiff (St Athan) (2002–2011) — *continued*

Month	Orientation		Daily mean irradiance ( $\text{W}\cdot\text{m}^{-2}$ ) and mean hourly irradiance ( $\text{W}\cdot\text{m}^{-2}$ ) for the 21st day of the given month																				
			Mean	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	
July	Normal to beam		551	0	0	0	153	358	555	667	724	773	752	837	864	832	820	779	704	559	0	0	
	N	Beam	13	0	0	0	58	67	0	0	0	0	0	0	0	0	0	0	41	139	0	0	
		Diffuse	69	0	0	6	55	87	93	116	135	149	160	156	149	140	123	102	73	80	29	4	
	NE	Beam	51	0	0	0	140	284	350	290	160	1	0	0	0	0	0	0	0	0	0	0	
		Diffuse	76	0	0	6	82	153	171	161	143	120	160	156	149	140	123	102	78	51	29	4	
	E	Beam	102	0	0	0	140	335	496	527	459	335	153	0	0	0	0	0	0	0	0	0	
		Diffuse	85	0	0	6	82	168	208	212	202	181	159	156	149	140	123	102	78	51	31	4	
	SE	Beam	116	0	0	0	58	189	351	455	489	472	372	280	122	0	0	0	0	0	0	0	
		Diffuse	83	0	0	6	55	124	171	196	208	207	201	170	137	140	123	102	78	51	32	4	
	Sunrise: 0419 Sunset: 2020	S	Beam	107	0	0	0	0	1	117	233	333	374	430	415	333	228	94	0	0	0	0	
			Diffuse	74	0	0	6	31	65	83	123	157	181	201	194	182	166	136	99	78	51	29	4
		SW	Beam	136	0	0	0	0	0	0	0	0	0	156	328	465	532	561	524	426	272	0	0
			Diffuse	83	0	0	6	31	65	93	116	135	149	160	177	190	198	192	177	152	114	29	4
		W	Beam	128	0	0	0	0	0	0	0	0	0	34	243	419	566	647	644	523	0	0	0
			Diffuse	84	0	0	6	31	65	93	116	135	149	160	130	156	180	193	199	196	176	31	4
		NW	Beam	68	0	0	0	0	0	0	0	0	0	0	0	60	239	391	484	468	0	0	0
			Diffuse	76	0	0	6	31	65	93	116	135	149	160	156	149	121	138	153	164	163	32	4
Horiz.	Beam	250	0	0	1	22	107	249	391	510	612	634	717	717	638	547	423	281	138	22	0		
	Diffuse	89	0	0	10	63	120	149	168	185	192	212	185	170	167	149	130	108	82	42	7		
	Global	339	0	0	11	86	227	398	560	695	803	846	902	887	804	696	553	389	220	63	7		
August	Normal to beam		605	0	0	0	419	532	624	685	722	687	654	737	791	830	791	558	1044	0	0		
	N	Beam	9	0	0	0	0	36	0	0	0	0	0	0	0	0	0	0	180	0	0	0	
		Diffuse	58	0	0	0	15	53	75	101	123	138	151	155	144	127	105	82	60	36	22	0	
	NE	Beam	40	0	0	0	0	315	308	233	102	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	65	0	0	0	17	134	148	142	124	138	151	155	144	127	105	82	60	21	22	0	
	E	Beam	96	0	0	0	0	409	494	510	446	318	137	0	0	0	0	0	0	0	0	0	
		Diffuse	76	0	0	0	17	161	196	206	198	178	155	155	144	127	105	82	60	21	22	0	
	SE	Beam	125	0	0	0	0	264	391	489	529	507	398	267	151	0	0	0	0	0	0	0	
		Diffuse	79	0	0	0	15	119	169	201	215	216	210	192	147	127	105	82	60	21	22	0	
	Sunrise: 0507 Sunset 1926	S	Beam	130	0	0	0	0	58	181	302	400	426	415	440	404	315	170	15	0	0	0	0
			Diffuse	74	0	0	0	15	43	83	129	167	194	216	224	204	175	137	97	57	21	22	0
		SW	Beam	162	0	0	0	0	0	0	0	0	58	204	319	471	586	652	609	388	594	0	0
			Diffuse	79	0	0	0	17	43	75	101	123	125	169	203	210	207	193	176	151	80	22	0
		W	Beam	147	0	0	0	0	0	0	0	0	0	37	226	425	606	691	534	1020	0	0	0
			Diffuse	77	0	0	0	17	43	75	101	123	138	151	140	162	178	185	190	188	126	22	0
		NW	Beam	75	0	0	0	0	0	0	0	0	0	0	0	15	206	369	367	848	0	0	0
			Diffuse	66	0	0	0	15	43	75	101	123	138	151	155	144	105	118	132	146	107	22	0
Horiz.	Beam	198	0	0	0	16	83	188	310	423	511	522	504	547	532	471	344	159	131	0	0		
	Diffuse	80	0	0	1	20	77	123	154	176	191	216	230	195	161	127	105	96	18	36	0		
	Global	278	0	0	1	36	160	311	465	600	702	738	734	742	693	598	449	255	149	36	0		
September	Normal to beam		504	0	0	0	0	546	584	626	658	690	718	744	781	823	890	0	0	0	0		
	N	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	45	0	0	0	1	19	47	75	97	113	122	122	115	100	79	56	101	28	0	0	
	NE	Beam	17	0	0	0	0	0	256	149	15	0	0	0	0	0	0	0	0	0	0	0	
		Diffuse	48	0	0	0	1	22	103	100	88	113	122	122	115	100	79	56	101	28	0	0	
	E	Beam	73	0	0	0	0	0	510	474	395	270	110	0	0	0	0	0	0	0	0	0	
		Diffuse	59	0	0	0	1	25	164	175	171	154	125	122	115	100	79	56	101	28	0	0	
	SE	Beam	127	0	0	0	0	0	465	521	545	519	451	340	194	24	0	0	0	0	0	0	
		Diffuse	67	0	0	0	1	23	153	185	204	206	194	169	132	85	79	56	101	28	0	0	
	Sunrise: 0556 Sunset: 1817	S	Beam	168	0	0	0	0	0	148	263	375	465	528	554	539	490	402	280	0	0	0	0
			Diffuse	73	0	0	0	1	19	77	126	166	195	210	211	198	173	137	99	101	28	0	0
		SW	Beam	151	0	0	0	0	0	0	0	138	295	443	568	670	735	772	0	0	0	0	0
			Diffuse	69	0	0	0	1	22	47	75	97	126	163	189	204	206	198	198	101	28	0	0
		W	Beam	93	0	0	0	0	0	0	0	0	0	73	264	457	638	812	0	0	0	0	0
			Diffuse	59	0	0	0	1	25	47	75	97	113	122	116	145	166	180	206	101	28	0	0
		NW	Beam	23	0	0	0	0	0	0	0	0	0	0	0	0	167	376	0	0	0	0	0
			Diffuse	48	0	0	0	1	23	47	75	97	113	122	122	115	100	94	118	101	28	0	0
Horiz.	Beam	141	0	0	0	60	125	218	307	379	430	451	439	400	330	233	0	0	0	0	0		
	Diffuse	64	0	0	0	6	18	74	116	146	165	173	169	155	131	100	72	169	47	0	0		
	Global	205	0	0	0	6	78	200	334	453	545	603	620	594	531	430	305	169	47	0	0		

Table continues

**Table 2.13(c)** Design 97.5 percentile of beam and diffuse irradiance on vertical and horizontal surfaces: Cardiff (St Athan) (2002–2011) — *continued*

Month	Orientation		Daily mean irradiance (W·m <sup>-2</sup> ) and mean hourly irradiance (W·m <sup>-2</sup> ) for the 21st day of the given month																			
			Mean	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030
October	Normal to beam		458	0	0	0	0	0	0	462	522	587	679	764	794	810	877	0	0	0	0	0
	N	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	29	0	0	0	0	1	27	48	71	86	92	90	82	66	45	75	2	0	0	0
	NE	Beam	3	0	0	0	0	0	0	61	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	29	0	0	0	0	1	26	62	71	86	92	90	82	66	45	75	2	0	0	0
	E	Beam	40	0	0	0	0	0	0	358	309	217	82	0	0	0	0	0	0	0	0	0
		Diffuse	37	0	0	0	0	1	31	140	142	126	95	90	82	66	45	75	2	0	0	0
	SE	Beam	110	0	0	0	0	0	0	446	488	497	481	402	249	69	0	0	0	0	0	0
		Diffuse	50	0	0	0	0	1	31	163	186	191	178	151	113	66	45	75	2	0	0	0
Sunrise: 0646	S	Beam	173	0	0	0	0	0	0	272	381	487	598	671	655	587	510	0	0	0	0	0
Sunset: 1710		Diffuse	61	0	0	0	0	1	27	117	159	189	203	203	190	162	131	75	2	0	0	0
	SW	Beam	143	0	0	0	0	0	0	0	51	191	364	548	678	760	846	0	0	0	0	0
		Diffuse	53	0	0	0	0	1	26	48	78	120	154	179	194	195	194	75	2	0	0	0
	W	Beam	66	0	0	0	0	0	0	0	0	0	103	304	489	687	0	0	0	0	0	0
		Diffuse	39	0	0	0	0	1	31	48	71	86	92	94	124	144	164	75	2	0	0	0
	NW	Beam	5	0	0	0	0	0	0	0	0	0	0	0	0	125	0	0	0	0	0	0
		Diffuse	29	0	0	0	0	1	31	48	71	86	92	90	82	66	59	75	2	0	0	0
	Horiz.	Beam	85	0	0	0	0	0	46	106	178	246	312	350	330	271	193	0	0	0	0	0
	Horiz.	Diffuse	42	0	0	0	0	5	31	83	116	134	133	122	108	86	57	126	19	0	0	0
	Horiz.	Global	127	0	0	0	0	5	78	189	294	380	445	472	438	357	250	126	19	0	0	0
November	Normal to beam		385	0	0	0	0	0	0	548	634	642	660	675	695	0	0	0	0	0	0	0
	N	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	17	0	0	0	0	0	6	28	40	56	64	64	57	43	32	11	0	0	0	0
	NE	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	17	0	0	0	0	0	6	26	40	56	64	64	57	43	37	11	0	0	0	0
	E	Beam	26	0	0	0	0	0	0	0	313	227	78	0	0	0	0	0	0	0	0	0
		Diffuse	22	0	0	0	0	0	6	29	109	98	72	64	57	43	33	11	0	0	0	0
	SE	Beam	96	0	0	0	0	0	0	0	530	560	482	381	253	109	0	0	0	0	0	0
		Diffuse	36	0	0	0	0	0	6	31	159	170	160	138	104	61	28	11	0	0	0	0
Sunrise: 0738	S	Beam	141	0	0	0	0	0	0	0	437	565	604	621	601	553	0	0	0	0	0	0
Sunset: 1620		Diffuse	46	0	0	0	0	0	6	28	137	171	186	190	180	162	32	11	0	0	0	0
	SW	Beam	103	0	0	0	0	0	0	87	239	372	497	597	673	0	0	0	0	0	0	0
		Diffuse	38	0	0	0	0	0	6	26	57	101	136	163	179	189	37	11	0	0	0	0
	W	Beam	30	0	0	0	0	0	0	0	0	0	0	82	244	399	0	0	0	0	0	0
		Diffuse	23	0	0	0	0	0	6	29	40	56	64	73	102	127	33	11	0	0	0	0
	NW	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	17	0	0	0	0	0	6	31	40	56	64	64	57	43	28	11	0	0	0	0
	Horiz.	Beam	46	0	0	0	0	0	0	35	109	175	202	208	185	138	63	0	0	0	0	0
	Horiz.	Diffuse	24	0	0	0	0	1	10	35	64	84	96	96	84	63	31	19	0	0	0	0
	Horiz.	Global	71	0	0	0	0	1	10	70	174	259	298	303	270	201	94	19	0	0	0	0
December	Normal to beam		401	0	0	0	0	0	0	499	604	638	653	628	588	0	0	0	0	0	0	0
	N	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	11	0	0	0	0	0	0	9	26	42	51	53	46	33	16	0	0	0	0	0
	NE	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	11	0	0	0	0	0	0	8	26	42	51	53	46	33	16	0	0	0	0	0
	E	Beam	27	0	0	0	0	0	0	0	297	239	107	0	0	0	0	0	0	0	0	0
		Diffuse	17	0	0	0	0	0	0	9	96	90	68	53	46	33	16	0	0	0	0	0
	SE	Beam	99	0	0	0	0	0	0	0	490	551	506	412	275	133	0	0	0	0	0	0
		Diffuse	32	0	0	0	0	0	0	9	142	159	154	135	101	59	16	0	0	0	0	0
Sunrise: 0814	S	Beam	135	0	0	0	0	0	0	0	396	541	608	629	580	494	0	0	0	0	0	0
Sunset: 1609		Diffuse	40	0	0	0	0	0	0	9	120	156	177	182	167	139	16	0	0	0	0	0
	SW	Beam	93	0	0	0	0	0	0	0	70	214	354	478	546	565	0	0	0	0	0	0
		Diffuse	31	0	0	0	0	0	0	8	41	84	122	150	160	155	16	0	0	0	0	0
	W	Beam	23	0	0	0	0	0	0	0	0	0	0	47	192	306	0	0	0	0	0	0
		Diffuse	16	0	0	0	0	0	0	9	26	42	51	56	83	97	16	0	0	0	0	0
	NW	Beam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Diffuse	12	0	0	0	0	0	0	9	26	42	51	53	46	33	16	0	0	0	0	0
	Horiz.	Beam	32	0	0	0	0	0	0	11	62	124	161	170	144	95	3	0	0	0	0	0
	Horiz.	Diffuse	18	0	0	0	0	0	1	10	42	64	77	79	70	51	26	2	0	0	0	0
	Horiz.	Global	50	0	0	0	0	0	1	22	104	188	238	249	214	145	29	2	0	0	0	0