

Project:

Queequeg_shadow

Licensed user:

ERM ITALIA S.P.A.

Via San Gregorio, 38

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Calculated:

05/01/2024 09:23/3.6.377

SHADOW - Calendar per WTG

Calculation: WC e RC - Results WTG: 1 - WTG01
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4.12	4.66	5.30	6.72	8.25	9.35	10.16	9.45	7.64	5.82	4.65	3.82

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
985	358	99	45	45	1,532	636	546	815	367	1,344	1,988	8,760

	July	August	September	October	November	December
1	05:28 06:39-08:20/101 20:38 19:35-20:03/28	05:53 19:04-19:18/14 06:44-08:25/101 20:19 19:20-19:46/26	06:24 07:30-07:50/20 19:35	06:55 08:15-09:40/85 18:43	06:31 16:11-16:28/17 16:55 07:14-08:33/79	07:06 15:27-15:56/29 16:30
2	05:29 06:40-08:21/101 20:38 19:34-20:03/29	05:54 19:02-19:46/44 20:18 06:44-08:25/101	06:25 07:29-07:51/22 19:33	06:56 08:14-09:40/86 18:41	06:32 16:13-16:28/15 16:54 07:15-08:33/78	07:07 15:28-15:56/28 16:30
3	05:29 06:39-08:21/102 20:38 19:35-20:03/28	05:55 19:00-19:46/46 20:16 06:45-08:25/100	06:26 07:27-07:52/25 19:31	06:57 08:13-09:41/88 18:40	06:33 16:15-16:25/10 16:53 07:16-08:31/75	07:08 15:28-15:56/28 16:30
4	05:30 06:40-08:22/102 20:38 19:36-20:04/28	05:56 18:59-19:45/46 20:15 06:45-08:25/100	06:27 07:26-07:53/27 19:30	06:59 08:12-09:41/89 18:38	06:34 07:17-08:30/73 16:52	07:09 15:29-15:56/27 16:29
5	05:30 06:40-08:21/101 20:38 19:36-20:03/27	05:57 18:58-19:44/46 20:14 06:46-08:24/98	06:28 07:25-07:53/28 19:28	07:00 08:12-09:41/89 18:36	06:35 07:19-08:30/71 16:50	07:10 15:30-15:56/26 16:29
6	05:31 06:40-08:22/102 20:37 19:36-20:04/28	05:58 18:57-19:44/47 20:13 06:46-08:24/98	06:29 07:25-07:53/28 19:26	07:01 08:11-09:42/91 18:35	06:37 07:19-08:28/69 16:49	07:11 15:30-15:57/27 16:29
7	05:31 06:40-08:22/102 20:37 19:36-20:03/27	05:59 18:56-19:43/47 20:12 06:46-08:24/98	06:30 07:24-07:54/30 19:24	07:02 08:10-09:42/92 18:33	06:38 07:21-08:27/66 16:48	07:12 15:31-15:57/26 16:29
8	05:32 06:40-08:22/102 20:37 19:37-20:03/26	06:00 18:55-19:41/46 20:10 06:47-08:23/96	06:32 07:24-07:56/32 19:23	07:03 17:25-17:32/7 18:31	06:39 07:23-08:26/63 16:47	07:13 15:32-15:57/25 16:29
9	05:33 06:41-08:23/102 20:36 19:37-20:04/27	06:01 18:55-19:40/45 20:09 06:47-08:22/95	06:33 07:23-07:56/33 19:21	07:04 17:20-17:35/15 18:30	06:40 07:24-08:24/60 16:46	07:14 15:32-15:57/25 16:29
10	05:33 06:40-08:23/103 20:36 19:39-20:03/26	06:02 18:54-19:26/32 06:48-08:22/94 20:08 19:27-19:38/11	06:34 07:23-07:57/34 19:19	07:05 17:19-17:38/19 18:28	06:42 07:25-08:23/58 16:45	07:15 15:33-15:57/24 16:29
11	05:34 06:41-08:23/102 20:35 19:38-20:03/25	06:03 18:54-19:26/32 20:06 06:48-08:21/93	06:35 07:23-07:57/34 19:18	07:06 17:17-17:39/22 18:26	06:43 07:28-08:22/54 16:44	07:16 15:34-15:58/24 16:29
12	05:35 06:41-08:24/103 20:35 19:39-20:03/24	06:04 18:53-19:26/33 20:05 06:49-08:20/91	06:36 07:24-07:58/34 19:16	07:07 17:15-17:39/24 18:25	06:44 15:35-15:40/5 16:43	07:17 15:35-15:58/23 16:29
13	05:36 06:41-08:24/103 20:34 19:39-20:02/23	06:05 18:53-19:26/33 20:04 06:50-08:20/90	06:37 07:24-07:57/33 19:14	07:08 17:14-17:40/26 18:23	06:45 15:31-15:43/12 16:42	07:18 15:36-15:59/23 16:29
14	05:36 19:30-19:34/4 19:39-20:02/23 20:34 06:41-08:24/103	06:06 18:53-19:26/33 20:02 06:50-08:19/89	06:38 07:25-07:57/32 19:12	07:10 17:13-17:40/27 18:21	06:46 15:29-15:45/16 16:41	07:18 15:36-15:58/22 16:29
15	05:37 19:28-19:37/9 19:40-20:02/22 20:33 06:41-08:24/103	06:07 18:53-19:26/33 20:01 06:51-08:18/87	06:39 07:26-07:57/31 19:11	07:11 17:12-17:40/28 18:20	06:48 15:28-15:47/19 16:40	07:19 15:37-15:58/21 16:29
16	05:38 19:27-19:39/12 19:41-20:01/20 20:33 06:42-08:25/103	06:08 18:53-19:26/33 19:59 06:52-08:17/85	06:40 07:27-07:56/29 19:09	07:12 17:11-17:40/29 18:18	06:49 15:27-15:48/21 16:39	07:20 15:38-15:59/21 16:30
17	05:39 19:26-19:40/14 19:42-20:01/19 20:32 06:42-08:25/103	06:09 18:53-19:25/32 19:58 06:53-08:16/83	06:41 07:29-07:56/27 19:07	07:13 17:12-17:41/29 18:17	06:50 15:26-15:49/23 16:38	07:21 15:38-15:59/21 16:30
18	05:40 19:24-19:40/16 19:43-19:59/16 20:31 06:41-08:25/104	06:10 18:53-19:25/32 19:57 06:54-08:14/80	06:42 07:29-07:55/26 19:06	07:14 17:11-17:41/30 18:15	06:51 15:26-15:51/25 16:37	07:22 15:39-15:59/20 16:30
19	05:40 19:23-19:42/19 19:44-19:58/14 20:31 06:41-08:25/104	06:11 18:53-19:24/31 19:55 06:55-08:13/78	06:43 07:29-07:53/24 19:04	07:15 17:11-17:40/29 18:14	06:53 15:26-15:51/25 16:37	07:22 15:40-16:00/20 16:31
20	05:41 19:23-19:43/20 19:46-19:57/11 20:30 06:42-08:25/103	06:12 18:54-19:23/29 19:54 06:56-08:11/75	06:44 07:30-07:52/22 19:02	07:16 17:11-17:39/28 18:12	06:54 15:25-15:52/27 16:36	07:22 15:40-16:00/20 16:31
21	05:42 19:22-19:43/21 19:49-19:54/5 20:29 06:42-08:25/103	06:13 18:53-19:21/28 19:52 06:57-08:10/73	06:45 07:31-07:50/19 19:00	07:18 17:11-17:38/27 18:11	06:55 15:25-15:52/27 16:35	07:23 15:41-16:01/20 16:32
22	05:43 19:22-19:44/22 20:28 06:42-08:26/104	06:14 18:54-19:20/26 19:51 06:58-08:08/70	06:46 07:33-07:47/14 18:59	07:19 17:12-17:38/26 18:09	06:56 15:26-15:53/27 16:35	07:24 15:41-16:01/20 16:32
23	05:44 19:21-19:45/24 20:27 06:43-08:26/103	06:15 18:55-19:18/23 19:49 07:00-08:06/66	06:47 07:37-07:43/6 18:57	07:20 17:11-17:37/26 18:08	06:57 15:25-15:54/29 16:34	07:24 15:42-16:02/20 16:33
24	05:45 19:21-19:46/25 20:27 06:43-08:26/103	06:16 18:56-19:16/20 19:47 07:01-08:04/63	06:48 08:23-09:33/70 18:55	07:21 17:10-17:36/26 18:06	06:58 15:25-15:54/29 16:33	07:24 15:42-16:02/20 16:33
25	05:46 19:20-19:45/25 20:26 06:42-08:25/103	06:17 18:58-19:14/16 19:46 07:03-08:02/59	06:49 08:21-09:34/73 18:53	07:22 16:09-16:34/25 17:05	07:00 15:25-15:54/29 16:33	07:25 15:42-16:02/20 16:34
26	05:47 19:20-19:45/25 20:25 06:42-08:25/103	06:18 19:02-19:09/7 19:44 07:04-07:58/54	06:50 08:20-09:35/75 18:52	07:23 16:09-16:33/24 17:03	07:01 15:26-15:55/29 16:32	07:25 15:43-16:04/21 16:34
27	05:48 19:20-19:46/26 20:24 06:43-08:26/103	06:19 07:06-07:56/50 19:43	06:51 08:19-09:36/77 18:50	07:24 16:09-16:32/23 17:02	07:02 15:26-15:55/29 16:32	07:26 15:43-16:04/21 16:35
28	05:49 19:19-19:46/27 20:23 06:43-08:26/103	06:20 07:09-07:52/43 19:41	06:52 08:17-09:37/80 18:48	07:26 16:09-16:32/23 17:01	07:03 15:27-15:56/29 16:31	07:26 15:43-16:04/21 16:36
29	05:50 19:19-19:46/27 20:22 06:43-08:26/103	06:21 07:12-07:48/36 19:39	06:53 08:17-09:38/81 18:46	07:27 16:10-16:32/22 16:59	07:04 15:27-15:56/29 16:31	07:26 15:43-16:05/22 16:36
30	05:51 19:19-19:46/27 20:21 06:44-08:26/102	06:22 07:17-07:46/29 19:38	06:54 08:16-09:39/83 18:45	07:28 16:10-16:31/21 16:58	07:05 15:27-15:56/29 16:30	07:26 15:44-16:06/22 16:37
31	05:52 19:07-19:15/8 06:44-08:25/101 20:20 19:19-19:46/27	06:23 07:26-07:49/23 19:36	 	06:29 16:11-16:30/19 16:57	 	07:27 15:44-16:07/23 16:38
Potential sun hours	461	429	375	345	296	286
Sum of minutes with flicker	4034	3289	1655	3383	1501	710

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

SHADOW - Calendar per WTG

Calculation: WC e RC - Results **WTG: 2 - WTG02**
 Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4.12	4.66	5.30	6.72	8.25	9.35	10.16	9.45	7.64	5.82	4.65	3.82

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
985	358	99	45	45	1,532	636	546	815	367	1,344	1,988	8,760

	July	August	September	October	November	December	
1	05:28 19:01-20:11/70 20:38 06:00-06:24/24	05:53 18:35-19:20/45 20:19	06:24 17:16-18:13/57 19:35 18:36-19:06/30	06:55 17:04-18:00/56 18:43 07:33-07:52/19	06:31 06:57-07:27/30 16:55	07:06 15:38-16:04/26 16:30 15:17-15:32/15	
2	05:29 19:01-20:10/69 20:38 06:01-06:25/24	05:54 18:35-19:21/46 20:17	06:25 17:15-18:13/58 19:33 18:36-19:05/29	06:56 17:05-17:58/53 18:41 07:31-07:54/23	06:32 06:57-07:29/32 16:54	07:07 15:39-16:04/25 16:30 15:17-15:34/17	
3	05:29 19:01-20:11/70 20:38 06:01-06:24/23	05:55 18:34-19:21/47 20:16	06:26 17:13-18:14/61 19:31 18:36-19:05/29	06:57 17:06-17:56/50 18:40 07:29-07:55/26	06:33 06:56-07:29/33 16:53	07:08 15:40-16:04/24 16:29 15:16-15:35/19	
4	05:30 19:02-20:11/69 20:38 06:02-06:25/23	05:56 18:34-19:22/48 20:15	06:27 17:12-18:14/62 19:30 18:33-19:04/31	06:59 17:08-17:54/46 18:38 07:27-07:56/29	06:34 06:56-07:29/33 16:52	07:09 15:40-16:03/23 16:29 15:16-15:36/20	
5	05:30 19:02-20:11/69 20:37 06:01-06:24/23	05:57 18:34-19:22/48 20:14	06:28 17:11-18:15/64 19:28 18:30-19:04/34	07:00 17:10-17:51/41 18:36 07:25-07:57/32	06:35 06:58-07:31/33 16:50	07:10 15:41-16:03/22 16:29 15:15-15:37/22	
6	05:31 19:03-20:11/68 20:37 06:02-06:25/23	05:58 18:33-19:23/50 20:13	06:29 17:09-18:15/66 19:26 18:28-19:02/34	07:01 17:12-17:48/36 18:34 07:24-07:57/33	06:37 06:59-07:31/32 16:49	07:11 15:42-16:03/21 16:29 15:15-15:38/23	
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8	05:32 19:04-20:10/66 20:37 06:03-06:24/21	06:00 18:32-19:25/53 20:10	06:31 17:07-18:15/68 19:23 18:25-18:59/34	07:03 17:18-17:40/22 18:31 07:23-07:58/35	06:39 15:45-15:58/13 16:47	07:13 15:44-16:03/19 16:29 15:15-15:40/25	
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27	05:48 18:39-19:17/38 20:24	06:19 17:25-18:07/42 19:43	06:51 17:01-18:05/64 18:50	06:25 16:25-16:36/11 17:02 07:05-07:21/16	07:02 15:37-16:06/29 16:32	07:26 15:57-16:08/11 16:35 15:22-15:50/28	
28	05:49 18:38-19:18/40 20:23	06:20 17:23-18:09/46 19:41	06:52 17:01-18:03/62 18:48	06:26 16:30-16:31/1 17:01 07:02-07:23/21	07:03 15:37-16:06/29 16:31	07:26 15:56-16:09/13 16:36 15:23-15:50/27	
29	05:50 18:37-19:19/42 20:22	06:21 17:21-18:10/49 19:39	06:53 17:02-18:02/60 18:46	06:27 07:01-07:25/24 16:59	07:04 15:37-16:05/28 16:31	07:26 15:56-16:09/13 16:36 15:23-15:51/28	
30	05:51 18:37-19:19/42 20:21	06:22 17:19-18:11/52 19:38	06:54 17:03-18:01/58 18:45	06:28 07:00-07:26/26 16:58	07:05 15:38-16:05/27 16:30	07:26 15:57-16:11/14 16:37 15:25-15:52/27	
31	05:52 18:36-19:20/44 20:20	06:23 17:18-18:12/54 19:36	06:55 07:37-07:49/12 18:45	06:29 06:58-07:27/29 16:57	16:30	07:27 15:57-16:12/15 16:38 15:25-15:52/27	
	Potential sun hours Sum of minutes with flicker	461 2125	429 1806	375 2518	345 1356	296 1167	286 1256

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:

Queequeg_shadow

Licensed user:

ERM ITALIA S.P.A.

Via San Gregorio, 38

IT-20124 Milano

+39 02 6744 0217

Aurora / aurora.finguerra@erm.com

Calculated:

05/01/2024 09:23/3.6.377

SHADOW - Calendar per WTG

Calculation: WC e RC - Results WTG: 3 - WTG03
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4.12	4.66	5.30	6.72	8.25	9.35	10.16	9.45	7.64	5.82	4.65	3.82

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
985	358	99	45	45	1,532	636	546	815	367	1,344	1,988	8,760

	January	February	March	April	May	June
1	07:27 14:12-16:13/121 10:59-12:43/104 16:39 08:11-08:45/34 08:50-09:11/21	07:13 14:14-16:50/156 17:14 11:41-12:17/36	06:36 14:35-17:27/172 17:49 07:39-08:17/38	06:44 17:19-18:57/98 19:24	05:57 19:02-19:25/23 19:57 17:53-18:44/51	05:28 19:25-20:01/36 20:27
2	07:27 14:12-16:14/122 10:59-12:43/104 16:40 08:12-08:44/32 08:51-09:11/20	07:12 14:15-16:51/156 17:15 11:48-12:11/23	06:34 14:37-17:29/172 17:50 07:38-08:19/41	06:43 17:20-18:55/95 19:25	05:56 19:03-19:25/22 19:58 17:55-18:43/48	05:27 19:25-20:01/36 20:28
3	07:27 14:12-16:15/123 11:00-12:43/103 16:41 08:12-08:43/31 08:53-09:10/17	07:11 14:15-16:53/158 17:16	06:33 14:39-17:30/171 17:51 07:36-08:20/44	06:41 17:22-18:55/93 19:26	05:55 19:03-19:23/20 19:59 17:55-18:41/46	05:27 19:26-20:02/36 20:29
4	07:27 14:13-16:16/123 11:01-12:43/102 16:42 08:13-08:41/28 08:54-09:09/15	07:10 14:15-16:54/159 17:18	06:31 14:41-17:31/170 17:52 07:34-08:20/46	06:39 17:25-18:56/91 19:27	05:54 19:04-19:22/18 20:00 17:57-18:39/42	05:26 19:26-20:01/35 20:29
5	07:27 14:13-16:17/124 11:01-12:44/103 16:43 08:14-08:37/23 08:57-09:08/11	07:09 14:16-16:56/160 17:19	06:30 14:43-17:32/169 17:54 07:33-08:21/48	06:37 17:28-18:56/88 19:28	05:52 19:05-19:21/16 20:01 17:59-18:38/39	05:26 19:26-20:02/36 20:30
6	07:27 14:12-16:17/125 11:01-12:43/102 16:44 08:15-08:37/22 08:59-09:05/6	07:08 14:16-16:57/161 17:20	06:28 14:45-17:33/168 17:55 07:32-08:22/50	06:36 17:32-18:56/84 19:29	05:51 19:07-19:20/13 20:02 18:00-18:37/37	05:26 19:27-20:03/36 20:31
7	07:27 14:13-16:18/125 11:02-12:43/101 16:44 08:15-08:36/21	07:06 14:16-16:58/162 17:22	06:26 14:48-17:34/166 17:56 07:31-08:22/51	06:34 17:47-18:57/70 19:31	05:50 19:09-19:18/9 20:03 18:03-18:35/32	05:25 19:28-20:03/35 20:31
8	07:27 14:13-16:19/126 11:03-12:43/100 16:45 08:16-08:36/20	07:05 14:16-16:59/163 17:23	06:25 14:51-17:36/165 17:57 07:31-08:23/52	06:32 17:46-18:57/71 19:32	05:49 18:04-18:32/28 20:04	05:25 19:27-20:03/36 20:32
9	07:27 14:13-16:21/128 11:04-12:44/100 16:47 08:17-08:36/19	07:04 14:17-17:01/164 17:24	06:23 14:54-17:37/163 17:58 07:30-08:22/52	06:31 17:46-18:57/71 19:33	05:47 18:07-18:29/22 20:05	05:25 19:28-20:03/35 20:33
10	07:26 14:13-16:21/128 11:05-12:44/99 16:48 08:18-08:36/18	07:03 14:17-17:02/165 17:25	06:22 14:58-17:38/160 17:59 07:29-08:22/53	06:29 17:46-18:57/71 19:34	05:46 18:10-18:26/16 20:06	05:25 19:28-20:04/36 20:33
11	07:26 14:13-16:22/129 11:05-12:43/98 16:49 08:19-08:34/15	07:02 14:17-17:03/166 17:27	06:20 15:04-17:40/156 18:01 07:29-08:23/54	06:28 17:45-18:57/72 19:35	05:45 19:32-19:42/10 20:07	05:25 19:29-20:04/35 20:34
12	07:26 14:13-16:24/131 08:20-08:34/14 16:50 11:06-12:44/98	07:00 14:18-17:05/167 17:28	06:18 15:25-17:40/135 18:02 07:28-08:22/54	06:26 17:46-18:57/71 19:36	05:44 19:30-19:44/14 20:09	05:24 19:29-20:04/35 20:34
13	07:26 14:13-16:25/132 08:21-08:33/12 16:51 11:07-12:43/96	06:59 14:19-17:06/167 17:29	06:17 15:27-17:41/134 18:03 07:27-08:22/55	06:24 17:45-18:56/71 19:37	05:43 19:28-19:45/17 20:10	05:24 19:30-20:05/35 20:35
14	07:25 14:13-16:26/133 08:24-08:32/8 16:52 11:08-12:43/95	06:58 14:19-17:07/168 17:30	06:15 15:29-17:43/134 18:04 07:28-08:22/54	06:23 17:45-18:56/71 19:38	05:42 19:27-19:46/19 20:11	05:24 19:30-20:05/35 20:35
15	07:25 14:13-16:27/134 16:53 11:09-12:42/93	06:56 14:20-17:09/169 17:32	06:13 15:30-17:44/134 18:05 07:27-08:21/54	06:21 17:46-18:56/70 19:39	05:41 19:26-19:47/21 20:12	05:24 19:30-20:05/35 20:36
16	07:24 14:13-16:29/136 16:54 11:10-12:43/93	06:55 14:21-17:11/170 17:33	06:11 15:32-17:45/133 18:06 07:27-08:20/53	06:20 17:45-18:55/70 19:40	05:40 19:25-19:48/23 20:13	05:24 19:30-20:06/36 20:36
17	07:24 14:13-16:29/136 16:55 11:11-12:42/91	06:54 14:21-17:11/170 17:34	06:10 15:34-17:47/133 18:07 07:27-08:20/53	06:18 17:46-18:55/69 19:41	05:39 19:24-19:49/25 20:14	05:24 19:30-20:06/36 20:36
18	07:23 14:14-16:31/137 16:57 11:12-12:42/90	06:52 14:22-17:13/171 17:35	06:08 15:36-17:47/131 18:08 07:27-08:19/52	06:16 17:45-18:54/69 19:43	05:38 19:25-19:50/25 20:15	05:24 19:30-20:06/36 20:37
19	07:23 14:13-16:32/139 16:58 11:13-12:41/88	06:51 14:22-17:14/172 17:37	06:06 15:38-17:48/130 18:10 07:27-08:18/51	06:15 17:46-18:54/68 19:44	05:37 19:24-19:51/27 20:16	05:24 19:30-20:06/36 20:37
20	07:22 14:14-16:34/140 16:59 11:15-12:41/86	06:50 14:24-17:16/172 17:38	06:05 15:41-17:49/128 18:11 07:27-08:16/49	06:13 19:11-19:20/9 19:45	05:36 19:24-19:51/27 20:17	05:25 19:30-20:06/36 20:37
21	07:22 14:14-16:35/141 17:00 11:16-12:40/84	06:48 14:25-17:16/171 17:39	06:03 15:46-17:51/125 18:12 07:28-08:16/48	06:12 19:09-19:23/14 19:46	05:35 19:23-19:51/28 20:17	05:25 19:30-20:06/36 20:38
22	07:21 14:13-16:36/143 17:01 11:17-12:39/82	06:47 14:26-17:18/172 17:40	06:01 16:10-17:52/102 15:52-16:05/13 18:13 07:28-08:14/46	06:10 19:06-19:23/17 19:47	05:34 19:23-19:52/29 20:18	05:25 19:31-20:07/36 20:38
23	07:20 14:13-16:37/144 17:03 11:18-12:38/80	06:45 14:27-17:19/172 17:42	06:00 16:10-17:53/103 18:14 07:28-08:13/45	06:09 19:05-19:25/20 19:48	05:34 19:24-19:54/30 20:19	05:25 19:31-20:07/36 20:38
24	07:20 14:14-16:39/145 17:04 11:20-12:37/77	06:44 14:28-17:21/173 17:43 07:55-08:03/8	05:58 16:11-17:53/102 18:15 07:30-08:12/42	06:07 19:04-19:25/21 19:49	05:33 19:23-19:55/32 20:20	05:25 19:31-20:07/36 20:38
25	07:19 14:14-16:40/146 17:05 11:22-12:36/74	06:42 14:29-17:22/173 17:44 07:50-08:09/19	05:56 16:11-17:55/104 18:16 07:30-08:10/40	06:06 19:03-19:26/23 19:50	05:32 19:23-19:56/33 20:21	05:26 19:32-20:08/36 20:38
26	07:18 14:14-16:42/148 17:06 11:24-12:34/70	06:41 14:31-17:23/172 17:45 07:46-08:12/26	05:54 16:12-17:56/104 18:17 07:31-08:07/36	06:04 19:03-19:26/23 19:51	05:31 19:24-19:57/33 20:22	05:26 19:32-20:08/36 20:38
27	07:17 14:14-16:43/149 17:08 11:26-12:32/66	06:39 14:32-17:24/172 17:46 07:43-08:14/31	05:53 16:12-17:57/105 18:18 07:32-08:05/33	06:03 19:02-19:26/24 19:52	05:31 19:23-19:57/34 20:23	05:26 19:32-20:07/35 20:38
28	07:17 14:14-16:44/150 17:09 11:28-12:30/62	06:38 14:34-17:26/172 17:48 07:41-08:16/35	05:51 16:14-17:59/105 18:20 07:35-08:03/28	06:02 19:02-19:26/24 19:54	05:30 19:23-19:58/35 20:24	05:27 19:33-20:08/35 20:38
29	07:16 14:14-16:45/151 17:10 11:30-12:28/58	06:37 14:35-17:27/173 17:49 07:42-08:17/34	05:49 17:15-18:59/104 19:21 08:37-09:00/23	06:00 19:03-19:26/23 19:55	05:29 19:24-19:59/35 20:25	05:27 19:33-20:08/35 20:38
30	07:15 14:14-16:47/153 17:11 11:33-12:25/52	06:36 14:36-17:28/174 17:50 07:43-08:18/33	05:48 17:16-18:58/102 19:22 17:16-18:58/102	05:59 19:02-19:25/23 19:56	05:29 19:24-19:59/35 20:25	05:28 19:34-20:09/35 20:38
31	07:14 14:14-16:48/154 17:13 11:37-12:22/45	06:35 14:37-17:29/175 17:51 07:44-08:19/32	05:47 17:17-18:57/99 19:23	05:58 19:01-19:24/22 19:57	05:28 19:24-20:00/36 20:26	05:28 19:34-20:09/35 20:38
Potential sun hours	295	296	369	400	450	455
Sum of minutes with flicker	7299	4851	5552	2355	1050	1068

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

SHADOW - Calendar per WTG

Calculation: WC e RC - Results WTG: 3 - WTG03
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
4.12 4.66 5.30 6.72 8.25 9.35 10.16 9.45 7.64 5.82 4.65 3.82

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
985 358 99 45 45 1,532 636 546 815 367 1,344 1,988 8,760

Table with columns for months (July to December) and rows for each day of the month, including sunrise/sunset times and potential sun hours.

Table layout: For each day in each month the following matrix apply

Matrix for table layout: Day in month, Sun rise (hh:mm), Sun set (hh:mm), First time (hh:mm) with flicker, Last time (hh:mm) with flicker, Minutes with flicker.

Project:

Queequeg_shadow

Licensed user:

ERM ITALIA S.P.A.

Via San Gregorio, 38

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+39 02 6744 0217

Aurora / aurora.finiguerra@erm.com

Calculated:

05/01/2024 09:23/3.6.377

SHADOW - Calendar per WTG

Calculation: WC e RC - Results WTG: 4 - WTG04
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4.12	4.66	5.30	6.72	8.25	9.35	10.16	9.45	7.64	5.82	4.65	3.82

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
985	358	99	45	45	1,532	636	546	815	367	1,344	1,988	8,760

July		August		September		October		November		December	
1	05:28 05:51-09:24/213 15:34-16:41/67	05:53 06:26-09:07/161 15:13-16:59/106	06:24 06:45-08:13/88 14:14-17:03/169	06:55 17:31-18:20/49 07:16-07:51/35	06:30 13:35-15:49/134	07:06 13:46-15:55/129					
2	05:29 05:52-09:25/213 15:34-16:42/68	05:54 06:29-09:06/157 15:11-16:59/108	06:25 06:46-08:12/86 14:12-17:02/170	06:56 17:33-18:19/46 07:17-07:51/34	06:32 13:39-15:49/130	07:07 13:46-15:56/130					
3	05:29 05:53-09:24/205 15:33-16:42/69	05:55 07:02-09:04/122 15:10-17:00/110	06:26 06:47-08:11/84 14:10-17:02/172	06:57 17:35-18:17/42 07:18-07:51/33	06:33 13:41-15:49/128	07:08 13:46-15:57/131					
4	05:30 06:00-09:25/205 15:34-16:43/69	05:56 07:01-09:02/121 15:09-17:00/111	06:27 06:48-08:10/82 14:08-17:02/174	06:58 17:37-18:15/38 07:19-07:50/31	06:34 13:44-15:48/124	07:09 13:46-15:57/131					
5	05:30 06:00-09:24/204 15:33-16:43/70	05:57 07:00-09:00/120 18:44-19:41/57	06:28 06:49-08:09/80 14:07-17:02/175	07:00 17:36-18:13/37 07:20-07:49/29	06:35 13:49-15:48/120	07:10 13:46-15:58/132					
6	05:31 06:01-09:25/204 15:33-16:44/71	05:58 07:00-08:58/118 18:44-19:41/57	06:29 06:50-08:08/78 14:05-17:01/176	07:01 17:34-18:11/37 07:21-07:49/28	06:37 13:50-15:48/118	07:11 13:46-15:59/133					
7	05:31 06:01-09:24/203 15:32-16:44/72	05:59 06:59-08:55/116 18:45-19:42/57	06:30 06:51-08:07/76 14:04-17:01/177	07:02 17:32-18:10/38 07:22-07:48/26	06:38 13:51-15:48/117	07:12 13:47-16:00/133					
8	05:32 06:02-09:24/202 15:32-16:45/73	06:00 06:59-08:53/115 18:45-19:42/57	06:31 06:52-08:06/74 14:03-17:01/178	07:03 17:31-17:59/28 07:23-07:47/24	06:39 13:52-15:47/116	07:13 13:47-16:00/133					
9	05:33 06:02-09:24/202 15:32-16:46/74	06:01 06:58-08:50/112 18:46-19:42/56	06:32 06:53-08:05/72 14:02-17:01/179	07:04 17:30-17:59/29 07:24-07:45/21	06:40 13:53-15:46/115	07:14 13:47-16:01/134					
10	05:33 06:02-09:24/202 15:31-16:46/75	06:02 06:57-08:47/110 18:47-19:41/54	06:33 06:54-08:04/70 14:01-17:01/180	07:05 17:29-17:59/30 07:25-07:44/19	06:41 13:54-15:45/114	07:15 13:48-16:02/134					
11	05:34 06:03-09:24/201 15:31-16:47/76	06:03 06:56-08:44/108 18:48-19:41/53	06:34 06:55-08:03/68 14:00-17:01/181	07:06 17:29-18:00/31 07:27-07:43/16	06:43 13:55-15:45/113	07:16 13:48-16:03/135					
12	05:35 06:04-09:24/200 15:30-16:48/78	06:04 06:56-08:40/104 18:49-19:41/52	06:35 06:56-08:02/66 14:00-17:01/182	07:07 17:28-18:00/32 07:28-07:41/13	06:44 13:56-15:45/112	07:17 13:49-16:03/134					
13	05:36 06:05-09:24/199 15:29-16:47/78	06:05 06:55-08:35/100 18:50-19:40/50	06:36 06:57-08:01/64 14:00-17:01/183	07:08 17:28-18:00/32 07:29-07:39/10	06:45 13:57-15:45/111	07:18 13:47-16:03/136					
14	05:36 06:05-09:23/198 15:29-16:48/79	06:06 06:55-08:30/95 18:52-19:39/47	06:37 06:58-08:00/62 14:00-17:01/184	07:09 17:28-18:00/32 07:30-07:36/6	06:46 13:58-15:45/110	07:19 13:48-16:03/137					
15	05:37 06:06-09:22/196 15:28-16:49/81	06:07 06:54-08:24/90 18:53-19:38/45	06:38 06:59-08:00/60 14:00-17:01/185	07:10 17:28-18:00/32 07:31-07:37/2	06:47 13:59-15:45/109	07:20 13:49-16:04/141					
16	05:38 06:07-09:22/195 15:28-16:50/82	06:08 06:54-08:17/86 18:55-19:37/42	06:39 06:59-08:00/58 14:00-17:01/186	07:11 17:28-18:00/32 07:32-07:38/2	06:48 14:00-16:52/108	07:21 13:49-16:04/140					
17	05:39 06:08-09:22/194 15:28-16:51/83	06:09 06:48-08:17/89 18:41-18:53/42	06:40 06:59-08:00/56 14:00-17:01/187	07:12 17:28-18:00/32 07:33-07:39/2	06:49 14:01-16:52/107	07:22 13:49-16:04/140					
18	05:40 06:09-09:21/194 15:26-16:50/84	06:10 06:46-08:17/91 18:37-18:56/41 19:22-19:31/9	06:41 07:00-08:00/54 14:00-17:01/188	07:13 17:28-18:00/32 07:34-07:40/2	06:50 14:02-16:52/106	07:23 13:49-16:04/141					
19	05:40 06:09-09:21/192 15:25-16:51/86	06:11 06:44-08:17/93 18:34-18:57/23	06:42 07:01-08:00/52 14:00-17:01/189	07:14 17:28-18:00/32 07:35-07:41/2	06:51 14:03-16:52/105	07:24 13:49-16:04/142					
20	05:41 06:09-09:20/191 15:25-16:52/87	06:12 06:43-08:17/94 18:32-18:59/27	06:43 07:02-08:00/50 14:00-17:01/190	07:15 17:28-18:00/32 07:36-07:42/2	06:52 14:04-16:52/104	07:25 13:49-16:04/142					
21	05:42 06:10-09:19/189 15:24-16:53/89	06:13 06:41-08:17/96 18:30-19:19/49	06:44 07:03-08:00/48 14:00-17:01/191	07:16 17:28-18:00/32 07:37-07:43/2	06:53 14:05-16:52/103	07:26 13:49-16:04/142					
22	05:43 06:12-09:18/187 15:23-16:53/90	06:14 06:40-08:17/97 18:29-19:19/50	06:45 07:04-08:00/46 14:00-17:01/192	07:17 17:28-18:00/32 07:38-07:44/2	06:54 14:06-16:52/102	07:27 13:49-16:04/142					
23	05:44 06:13-09:18/185 15:23-16:54/91	06:15 06:39-08:17/98 18:28-19:20/52	06:46 07:05-08:00/44 14:00-17:01/193	07:18 17:28-18:00/32 07:39-07:45/2	06:55 14:07-16:52/101	07:28 13:49-16:04/142					
24	05:45 06:14-09:17/183 15:22-16:55/93	06:16 06:39-08:16/99 18:26-19:20/54	06:47 07:06-08:00/42 14:00-17:01/194	07:19 17:28-18:00/32 07:40-07:46/2	06:56 14:08-16:52/100	07:29 13:49-16:04/142					
25	05:46 06:14-09:16/182 15:20-16:54/94	06:17 06:39-08:16/97 14:29-17:03/154	06:48 07:07-08:00/40 14:00-17:01/195	07:20 17:28-18:00/32 07:41-07:47/2	06:57 14:09-16:52/99	07:30 13:49-16:04/142					
26	05:47 06:15-09:15/180 15:19-16:55/96	06:18 06:39-08:15/96 14:27-17:03/156	06:49 07:08-08:00/38 14:00-17:01/196	07:21 17:28-18:00/32 07:42-07:48/2	06:58 14:10-16:52/98	07:31 13:49-16:04/142					
27	05:48 06:17-09:14/177 15:18-16:56/98	06:19 06:39-08:15/94 14:25-17:03/158	06:50 07:09-08:00/36 14:00-17:01/197	07:22 17:28-18:00/32 07:43-07:49/2	06:59 14:11-16:52/97	07:32 13:49-16:04/142					
28	05:49 06:18-09:13/175 15:17-16:56/99	06:20 06:41-08:15/94 14:22-17:03/161	06:51 07:10-08:00/34 14:00-17:01/198	07:23 17:28-18:00/32 07:44-07:50/2	07:00 14:12-16:52/96	07:33 13:49-16:04/142					
29	05:50 06:20-09:11/171 15:16-16:57/101	06:21 06:42-08:14/92 14:20-17:03/163	06:52 07:11-08:00/32 14:00-17:01/199	07:24 17:28-18:00/32 07:45-07:51/2	07:01 14:13-16:52/95	07:34 13:49-16:04/142					
30	05:51 06:22-09:10/168 15:15-16:57/102	06:22 06:43-08:14/91 14:18-17:03/165	06:53 07:12-08:00/30 14:00-17:01/200	07:25 17:28-18:00/32 07:46-07:52/2	07:02 14:14-16:52/94	07:35 13:49-16:04/142					
31	05:52 06:24-09:08/165 15:14-16:58/104	06:23 06:44-08:13/89 14:16-17:03/167	06:54 07:13-08:00/28 14:00-17:01/201	07:26 17:28-18:00/32 07:47-07:53/2	07:03 14:15-16:52/93	07:36 13:49-16:04/142					
	Potential sun hours 461	429	375	345	296	286					
	Sum of minutes with flicker 11068	9294	9334	6212	5057	5887					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker



Project:

Queequeg_shadow

Licensed user:

ERM ITALIA S.P.A.

Via San Gregorio, 38

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+39 02 6744 0217

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Calculated:

05/01/2024 09:23/3.6.377

SHADOW - Calendar per WTG

Calculation: WC e RC - Results WTG: 5 - WTG05
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
4.12 4.66 5.30 6.72 8.25 9.35 10.16 9.45 7.64 5.82 4.65 3.82

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
985 358 99 45 45 1,532 636 546 815 367 1,344 1,988 8,760

	January	February	March	April	May	June
1	07:27 08:24-09:53/89 07:50-08:10/20 16:39 10:15-11:55/100	07:13 08:45-09:48/63 16:35-16:50/15 17:14 07:56-08:12/16	06:36 06:59-07:13/14 17:49	06:44 07:03-07:19/16 19:24 18:52-19:03/11	05:57 06:17-06:53/36 19:57	05:28 19:46-20:01/15 20:27
2	07:27 08:25-09:53/88 07:50-08:11/21 16:40 10:16-11:55/99	07:12 08:46-09:47/61 16:35-16:51/16 17:15 08:00-08:09/9	06:34 07:02-07:10/8 17:50	06:42 07:01-07:17/16 19:25 18:50-19:03/13	05:56 06:16-06:53/37 19:58	05:27 19:45-20:02/17 20:28
3	07:27 08:25-09:53/88 07:50-08:11/21 16:41 10:17-11:55/98	07:11 08:48-09:46/58 17:16 16:35-16:52/17	06:33 17:51	06:41 06:59-07:15/16 19:26 18:49-19:04/15	05:55 06:14-06:52/38 19:59	05:27 19:45-20:03/18 20:28
4	07:27 08:25-09:53/88 07:50-08:12/22 16:41 10:17-11:55/98	07:10 08:49-09:44/55 16:35-16:54/19 17:18 07:30-07:32/2	06:31 17:52	06:39 06:58-07:16/18 19:27 18:49-19:06/17	05:53 06:14-06:51/37 20:00	05:26 19:44-20:03/19 20:29
5	07:27 08:25-09:53/88 07:49-08:12/23 16:42 10:17-11:55/98	07:08 08:51-09:43/52 16:35-16:55/20 17:19 07:29-07:34/5	06:29 17:53	06:37 06:56-07:15/19 19:28 18:48-19:07/19	05:52 06:14-06:51/37 20:01	05:26 19:44-20:04/20 20:30
6	07:27 08:26-09:54/88 07:49-08:13/24 16:43 10:18-11:55/97	07:07 08:52-09:40/48 16:34-16:56/22 17:20 07:27-07:35/8	06:28 17:55	06:36 06:54-07:14/20 19:29 18:47-19:07/20	05:51 06:15-06:50/35 20:02	05:26 19:44-20:05/21 20:30
7	07:27 08:27-09:54/87 07:49-08:13/24 16:44 10:19-11:55/96	07:06 08:54-09:38/44 16:35-16:58/23 17:21 07:26-07:36/10	06:26 17:56	06:34 06:53-07:14/21 19:30 18:47-19:09/22	05:50 06:15-06:48/33 20:03	05:25 19:43-20:05/22 20:31
8	07:27 08:28-09:55/87 07:49-08:14/25 16:45 10:20-11:55/95	07:05 08:57-09:36/39 16:35-16:58/23 17:23 07:25-07:38/13	06:25 17:57	06:32 06:51-07:14/23 19:31 18:47-19:10/23	05:48 06:15-06:47/32 20:04	05:25 19:42-20:06/24 20:32
9	07:26 08:28-09:55/87 07:49-08:15/26 16:46 10:21-11:55/94	07:04 08:59-09:33/34 16:36-16:57/21 17:24 07:24-07:39/15	06:23 17:58	06:31 06:49-07:13/24 19:33 18:47-19:09/22	05:47 06:16-06:45/29 20:05	05:25 19:42-20:07/25 20:32
10	07:26 08:28-09:55/87 07:48-08:15/27 16:47 10:21-11:55/94	07:03 09:03-09:29/26 16:36-16:56/20 17:25 07:23-07:40/17	06:21 17:59	06:29 06:48-07:12/24 19:34 18:48-19:08/20	05:46 06:18-06:44/26 20:06	05:25 19:42-20:07/25 20:33
11	07:26 08:29-09:55/86 07:48-08:16/28 16:48 10:22-11:55/93	07:01 09:08-09:23/15 16:37-16:56/19 17:26 07:21-07:39/18	06:20 06:39-06:41/2 18:00	06:27 06:46-07:11/25 19:35 18:48-19:07/19	05:45 06:19-06:42/23 20:07	05:24 19:43-20:08/25 20:33
12	07:26 08:30-09:56/86 07:48-08:17/29 16:49 10:24-11:55/91	07:00 07:20-07:40/20 17:01-17:05/4 17:28 16:39-16:55/16	06:18 06:37-06:42/5 18:01	06:26 06:45-07:10/25 19:36 18:49-19:05/16	05:44 06:20-06:39/19 20:08	05:24 19:43-20:09/26 20:34
13	07:25 08:30-09:55/85 07:47-08:16/29 16:51 10:24-11:54/90	06:59 07:19-07:41/22 16:58-17:06/8 17:29 16:41-16:53/12	06:16 06:35-06:42/7 18:03	06:24 06:43-07:09/26 19:37 18:52-19:03/11	05:43 06:22-06:35/13 20:09	05:24 19:43-20:09/26 20:34
14	07:25 08:31-09:55/85 07:47-08:17/30 16:52 10:25-11:54/89	06:58 07:17-07:40/23 16:56-17:07/11 17:30 16:43-16:50/7	06:15 06:34-06:44/10 18:04	06:22 06:41-07:07/26 19:38	05:42 06:25-06:32/7 20:10	05:24 19:43-20:10/27 20:35
15	07:25 08:31-09:55/84 07:46-08:17/31 16:53 10:26-11:53/87	06:56 07:16-07:40/24 17:32 16:55-17:09/14	06:13 06:32-06:44/12 18:05	06:21 06:40-07:06/26 19:39	05:41 20:11	05:24 19:43-20:10/27 20:35
16	07:24 08:32-09:56/84 07:46-08:18/32 16:54 10:27-11:53/86	06:55 07:15-07:41/26 17:33 16:54-17:10/16	06:11 06:30-06:44/14 18:06	06:19 06:38-07:04/26 19:40	05:40 20:12	05:24 19:43-20:10/27 20:36
17	07:24 08:32-09:55/83 07:45-08:18/33 16:55 10:28-11:52/84	06:54 07:13-07:40/27 17:34 16:53-17:11/18	06:10 06:28-06:43/15 18:07	06:18 06:37-07:02/25 19:41	05:39 20:13	05:24 19:43-20:11/28 20:36
18	07:23 08:33-09:56/83 07:45-08:19/34 16:56 10:30-11:52/82	06:52 07:12-07:40/28 17:35 16:53-17:13/20	06:08 06:27-06:44/17 18:08	06:16 06:35-07:01/26 19:42	05:38 20:14	05:24 19:43-20:11/28 20:36
19	07:23 08:34-09:55/81 07:44-08:19/35 16:57 10:31-11:50/79	06:51 07:10-07:38/28 17:36 16:53-17:14/21	06:06 06:25-06:43/18 18:09	06:15 06:34-07:02/28 19:43	05:37 20:15	05:24 19:43-20:11/28 20:37
20	07:22 08:34-09:55/81 07:43-08:18/35 16:59 10:32-11:49/77	06:49 07:09-07:38/29 17:38 16:53-17:16/23	06:04 06:23-06:42/19 18:11	06:13 06:32-07:01/29 19:45	05:36 20:16	05:24 19:43-20:11/28 20:37
21	07:22 08:35-09:55/80 07:44-08:19/35 17:00 10:34-11:49/75	06:48 07:07-07:36/29 17:39 16:52-17:16/24	06:03 06:22-06:41/19 18:12	06:12 06:31-07:01/30 19:46	05:35 20:17	05:25 19:43-20:11/28 20:37
22	07:21 08:36-09:55/79 07:45-08:19/34 17:01 10:35-11:47/72	06:46 07:06-07:35/29 17:40 16:53-17:16/23	06:01 06:20-06:40/20 18:13	06:10 06:29-07:00/31 19:47	05:34 20:18	05:25 19:43-20:11/28 20:38
23	07:20 08:36-09:54/78 07:45-08:19/34 17:02 10:36-11:46/70	06:45 07:04-07:33/29 17:41 16:53-17:15/22	05:59 06:18-06:38/20 18:14	06:09 06:28-07:00/32 19:48	05:33 20:19	05:25 19:44-20:12/28 20:38
24	07:20 08:37-09:54/77 07:45-08:18/33 17:04 10:38-11:44/66	06:43 07:03-07:31/28 17:43 16:54-17:15/21	05:58 06:16-06:36/20 18:15	06:07 06:26-06:59/33 19:49	05:33 20:20	05:25 19:44-20:12/28 20:38
25	07:19 08:38-09:54/76 07:47-08:19/32 17:05 10:40-11:43/63	06:42 07:01-07:18/17 16:55-17:13/18 17:44 07:20-07:27/7	05:56 06:15-06:33/18 18:16	06:06 06:25-06:58/33 19:50	05:32 20:21	05:26 19:44-20:12/28 20:38
26	07:18 08:39-09:53/74 07:48-08:18/30 17:06 10:42-11:41/59	06:40 07:00-07:18/18 17:45 16:56-17:12/16	05:54 06:13-06:29/16 18:17	06:04 06:23-06:57/34 19:51	05:31 20:22	05:26 19:45-20:12/27 20:38
27	07:17 08:40-09:53/73 07:49-08:18/29 17:07 10:44-11:38/54	06:39 06:58-07:16/18 17:46 16:58-17:09/11	05:53 06:11-06:27/16 18:18	06:03 06:22-06:56/34 19:52	05:30 20:23	05:26 19:45-20:12/27 20:38
28	07:16 08:41-09:52/71 07:50-08:17/27 17:09 10:47-11:35/48 16:40-16:44/4	06:37 06:58-07:15/17 17:47	05:51 06:10-06:26/16 18:19	06:01 06:21-06:56/35 19:53	05:30 20:24	05:27 19:45-20:12/27 20:38
29	07:15 08:42-09:51/69 07:51-08:16/25 17:10 10:50-11:31/41 16:38-16:45/7		06:49 07:08-07:21/13 19:20	06:00 06:19-06:54/35 19:54	05:29 20:24	05:27 19:46-20:12/26 20:38
30	07:15 08:43-09:50/67 07:52-08:15/23 17:11 10:54-11:27/33 16:37-16:47/10		06:47 07:06-07:20/14 19:22 18:56-19:00/4	05:59 06:18-06:54/36 19:55	05:29 19:49-19:59/10 20:25	05:27 19:46-20:12/26 20:38
31	07:14 08:44-09:49/65 07:54-08:14/20 17:12 11:00-11:20/20 16:36-16:48/12		06:46 07:04-07:19/15 19:23 18:53-19:01/8		05:28 19:48-20:01/13 20:26	
	Potential sun hours 295	296	369	400	450	455
	Sum of minutes with flicker 5856	1547	340	1020	425	749

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:

Queequeg_shadow

Licensed user:

ERM ITALIA S.P.A.

Via San Gregorio, 38

IT-20124 Milano

+39 02 6744 0217

Aurora / aurora.finiguerra@erm.com

Calculated:

05/01/2024 09:23/3.6.377

SHADOW - Calendar per WTG

Calculation: WC e RC - Results WTG: 5 - WTG05

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4.12	4.66	5.30	6.72	8.25	9.35	10.16	9.45	7.64	5.82	4.65	3.82

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
985	358	99	45	45	1,532	636	546	815	367	1,344	1,988	8,760

	July	August	September	October	November	December
1	05:28 19:47-20:12/25 20:38	05:52 06:30-06:51/21 20:18	06:24 06:45-07:10/25 19:34 18:47-19:06/19	06:55 07:15-07:21/6 18:43	06:30 08:31-08:59/28 16:06-16:26/20	07:06 08:11-09:37/86 07:30-07:58/28
2	05:28 19:47-20:12/25 20:38	05:53 06:29-06:53/24 20:17	06:25 06:46-07:10/24 19:33 18:46-19:06/20	06:56 07:17-07:20/3 18:41	06:32 08:29-09:03/34 16:05-16:26/21	07:07 08:11-09:38/87 07:31-07:58/27
3	05:29 19:47-20:12/25 20:38	05:54 06:28-06:55/27 20:16	06:26 06:47-07:11/24 19:31 18:45-19:07/22	06:57 18:39	06:33 08:26-09:06/40 16:05-16:27/22	07:08 08:11-09:38/87 07:32-07:58/26
4	05:29 19:47-20:11/24 20:37	05:55 06:27-06:57/30 20:15	06:27 06:48-07:11/23 19:29 18:44-19:07/23	06:58 18:38	06:34 08:24-09:08/44 16:04-16:27/23	07:09 08:12-09:39/87 07:33-07:58/25
5	05:30 19:49-20:12/23 20:37	05:56 06:26-06:58/32 20:14	06:28 06:49-07:10/21 19:28 18:43-19:05/22	06:59 18:36	06:35 08:21-09:10/49 16:04-16:26/22	07:10 08:12-09:39/87 07:34-07:58/24
6	05:31 19:50-20:12/22 20:37	05:57 06:25-06:59/34 20:13	06:29 06:50-07:10/20 19:28 18:43-19:03/20	07:00 18:34	06:36 08:21-09:13/52 16:05-16:25/20	07:11 08:12-09:40/88 07:35-07:59/24
7	05:31 19:50-20:11/21 20:37	05:58 06:24-07:00/36 20:11	06:30 06:51-07:10/19 19:24 18:43-19:02/19	07:02 18:33	06:38 08:19-09:14/55 16:05-16:24/19	07:12 08:13-09:40/87 07:36-07:59/23
8	05:32 19:51-20:11/20 20:36	05:59 06:24-07:00/36 20:10	06:31 06:52-07:10/18 19:23 18:43-19:00/17	07:03 18:31	06:40 08:17-09:18/61 16:06-16:22/16	07:13 08:13-09:41/88 07:37-07:59/22
9	05:33 19:51-20:10/19 20:36	06:00 06:23-07:01/38 20:09	06:32 06:53-07:09/16 19:21 18:43-18:58/15	07:04 18:29	06:41 08:16-09:19/63 16:06-16:20/14	07:14 08:13-09:41/88 07:38-07:59/21
10	05:33 19:52-20:10/18 20:36	06:01 06:24-07:02/38 20:07	06:33 06:54-07:10/16 19:19 18:43-18:57/14	07:05 18:28	06:42 08:13-09:26/73 07:21-07:51/30	07:15 08:14-09:42/88 07:39-08:00/21
11	05:34 19:54-20:10/16 20:35	06:02 06:25-07:02/37 20:06	06:34 06:55-07:11/16 19:17 18:44-18:55/11	07:06 18:26	06:43 08:15-09:20/65 07:25-07:45/20	07:16 08:14-09:43/89 07:40-08:00/20
12	05:35 19:55-20:10/15 20:35	06:04 06:26-07:02/36 20:05	06:35 06:56-07:11/15 19:16 18:45-18:53/8	07:07 07:35-07:46/11 18:24	06:44 08:15-09:22/67 07:24-07:47/23	07:17 08:15-09:43/88 07:41-08:01/20
13	05:35 19:56-20:08/12 20:34	06:05 06:27-07:02/35 20:03	06:36 06:57-07:11/14 19:14 18:47-18:52/5	07:08 18:23	06:45 08:14-09:23/69 07:23-07:48/25	07:18 08:15-09:43/88 07:41-08:00/19
14	05:36 19:59-20:06/7 20:34	06:06 06:28-07:03/35 20:02	06:37 06:58-07:11/13 19:12	07:09 07:30-07:48/18 18:21 17:33-17:40/7	06:46 08:13-09:24/71 07:21-07:49/28	07:19 08:15-09:44/89 07:42-08:01/19
15	05:37 20:33	06:07 06:29-07:04/35 20:01	06:38 06:59-07:14/15 19:11	07:10 07:31-07:49/18 18:20 17:30-17:43/13	06:47 08:13-09:26/73 07:21-07:51/30	07:19 08:16-09:44/89 07:43-08:01/18
16	05:38 20:32	06:08 06:29-07:03/34 19:59	06:39 07:00-07:16/16 19:09	07:12 07:32-07:49/17 18:18 17:27-17:44/17	06:40 08:12-09:26/74 07:21-07:51/30	07:20 08:17-09:45/88 07:44-08:02/18
17	05:39 20:32	06:09 06:30-07:04/34 19:58	06:41 07:01-07:17/16 19:07	07:13 07:34-07:50/16 17:26-17:45/19	06:39 08:11-09:27/76 07:20-07:52/32	07:20 08:17-09:45/88 07:44-08:01/17
18	05:39 20:31	06:10 06:31-07:04/33 19:56	06:42 07:02-07:19/17 19:05	07:14 07:35-08:04/29 18:15 17:25-17:47/22	06:38 08:13-09:26/73 07:21-07:51/30	07:21 08:17-09:46/89 07:45-08:02/17
19	05:40 20:30	06:11 06:32-07:05/33 19:55	06:43 07:03-07:22/19 19:04	07:15 07:36-08:05/29 18:13 17:24-17:47/23	06:37 08:11-09:29/78 07:20-07:54/34	07:22 08:17-09:46/89 07:45-08:02/17
20	05:41 20:30	06:12 06:33-07:05/32 19:53	06:44 07:04-07:24/20 19:02	07:16 07:37-08:06/29 18:12 17:23-17:47/24	06:36 08:10-09:30/79 07:20-07:54/34	07:22 08:18-09:47/89 07:46-08:03/17
21	05:42 20:29	06:13 06:34-07:05/31 19:52	06:45 07:05-07:25/20 19:00	07:17 07:38-08:07/29 18:10 17:23-17:47/24	06:35 08:10-09:30/80 07:19-07:54/35	07:23 08:18-09:47/89 07:47-08:04/17
22	05:43 20:28	06:14 06:35-07:05/30 19:50	06:46 07:06-07:26/20 18:58	07:18 07:40-08:09/29 18:09 17:22-17:45/23	06:34 08:10-09:31/81 07:19-07:54/35	07:23 08:19-09:48/89 07:47-08:04/17
23	05:44 20:27	06:15 06:36-07:05/29 19:49	06:47 07:07-07:26/19 18:57	07:20 07:41-08:09/28 18:07 17:23-17:44/21	06:33 08:11-09:32/81 07:21-07:56/35	07:24 08:19-09:48/89 07:47-08:04/17
24	05:45 20:26	06:16 06:37-07:04/27 19:47	06:48 07:08-07:26/18 18:55	07:21 07:42-08:09/27 18:06 17:23-17:42/19	06:32 08:10-09:33/83 07:22-07:56/34	07:24 08:20-09:49/89 07:48-08:05/17
25	05:46 20:25	06:17 06:38-07:04/26 19:46	06:49 07:09-07:26/17 18:53	07:22 06:43-07:09/26 17:05 16:23-16:41/18	06:31 08:10-09:33/83 07:23-07:56/33	07:25 08:20-09:49/89 07:48-08:05/17
26	05:47 20:25	06:18 06:39-07:04/25 19:44	06:50 07:10-07:26/16 18:51	07:23 06:45-07:10/25 17:03 16:24-16:39/15	06:30 08:10-09:34/84 07:24-07:56/32	07:25 08:20-09:49/89 07:48-08:05/17
27	05:48 20:24	06:19 06:40-07:06/26 19:42	06:51 07:11-07:25/14 18:50	07:24 06:46-07:10/24 17:02 16:25-16:38/13	06:32 08:10-09:34/84 07:26-07:57/31	07:26 08:22-09:50/88 07:49-08:07/18
28	05:48 20:23	06:20 06:41-07:07/26 19:41	06:52 07:12-07:24/12 18:48	07:25 06:47-07:10/23 16:26-16:37/11	06:31 08:11-09:36/85 07:27-07:57/30	07:26 08:22-09:50/88 07:49-08:07/18
29	05:49 20:22	06:21 06:42-07:08/26 19:39 18:57-18:58/1	06:53 07:13-07:23/10 18:46	07:26 06:48-07:09/21 16:28-16:35/7	06:31 08:11-09:36/85 07:28-07:58/30	07:26 08:22-09:51/89 07:49-08:07/18
30	05:50 20:21	06:22 06:43-07:09/26 19:38 18:52-19:03/11	06:54 07:14-07:22/8 18:44	07:27 06:49-07:10/20 16:31-16:34/3	06:30 08:11-09:37/86 07:29-07:58/29	07:26 08:23-09:51/88 07:49-08:08/19
31	05:51 20:19	06:23 06:44-07:09/25 19:36 18:49-19:05/16	06:55 07:15-07:25/11 18:44	07:28 06:49-07:10/20 16:07-16:25/18	06:30 08:36-08:54/18 16:07-16:25/18	07:26 08:23-09:51/88 07:49-08:08/19
Potential sun hours	461	429	375	345	296	286
Sum of minutes with flicker	297	985	736	824	4346	6432

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:

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Calculated:

05/01/2024 09:23/3.6.377

SHADOW - Calendar per WTG

Calculation: WC e RC - Results WTG: 6 - WTG06

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
4.12 4.66 5.30 6.72 8.25 9.35 10.16 9.45 7.64 5.82 4.65 3.82

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
985 358 99 45 45 1,532 636 546 815 367 1,344 1,988 8,760

	January	February	March	April	May	June	
1	07:27 15:34-16:13/39 16:39 08:30-11:12/162 2 07:27 15:34-16:14/40 16:40 08:30-11:13/163	07:13 15:32-16:50/78 17:14 08:06-11:19/193 07:12 15:31-16:51/80 15:31-16:51/80 07:11 15:31-16:53/82 17:16 08:24-11:19/195 07:27 15:34-16:15/41 17:10 15:30-16:53/83 16:42 08:31-11:14/163 17:18 08:03-11:18/195 07:27 15:34-16:16/42 17:09 15:29-16:56/87 16:43 08:30-11:13/163 17:19 08:02-11:18/196 07:27 15:34-16:17/43 17:07 15:28-16:56/88 16:44 08:30-11:14/164 17:20 08:01-11:16/195 07:27 15:35-16:18/43 17:06 15:27-16:58/91 16:45 08:31-11:15/164 17:22 07:29-11:16/197 07:27 15:35-16:19/44 17:05 15:27-16:59/92 16:46 08:31-11:15/164 17:23 07:58-11:15/197 07:27 15:36-16:21/45 17:04 15:26-17:01/95 16:47 08:31-11:16/165 17:24 07:57-11:14/197 10 07:26 15:36-16:21/45 17:03 15:26-17:03/97 16:48 08:31-11:16/165 17:25 07:56-11:13/197 11 07:26 15:36-16:22/47 17:02 15:25-17:03/98 16:49 08:31-11:17/166 17:27 07:55-11:12/197 12 07:26 15:37-16:24/47 17:00 15:25-17:05/100 16:50 08:31-11:17/166 17:28 07:54-11:11/197 13 07:26 15:37-16:25/48 16:59 15:25-17:07/102 16:51 08:30-11:17/167 17:29 07:53-11:09/196 14 07:25 15:37-16:26/49 16:58 15:24-17:07/103 16:52 08:30-11:18/168 17:30 07:27-11:07/195 15 07:25 15:37-16:27/50 16:56 15:24-17:09/105 16:53 08:29-11:18/169 17:32 07:51-11:06/195 16 07:24 15:38-16:29/51 16:55 15:24-17:11/107 16:54 08:29-11:19/170 17:33 07:51-11:04/193 17 07:24 15:38-16:30/52 16:54 15:23-17:11/108 07:22-07:37/15 16:55 08:28-11:19/171 17:34 07:50-11:02/192 18 07:23 15:38-16:31/52 16:52 15:23-17:13/110 07:19-07:41/22 16:57 08:27-11:19/172 17:35 07:49-11:00/191 19 07:23 15:38-16:32/53 16:51 15:23-17:14/111 07:16-07:43/27 16:58 08:25-11:19/174 17:37 07:48-10:57/189 20 07:22 15:40-16:33/53 16:49 07:49-07:10/1 07:48-10:55/187 16:59 08:24-11:19/175 17:38 15:23-17:16/113 07:15-07:45/30 21 07:22 15:41-16:35/54 16:48 07:08-07:46/38 07:47-10:52/185 17:00 08:22-11:20/178 17:39 15:22-17:17/115 22 07:21 15:41-16:36/55 16:47 07:06-10:49/223 17:01 08:20-11:20/180 17:40 15:23-17:18/115 23 07:20 15:42-16:36/54 16:45 07:05-10:45/220 17:03 08:18-11:20/182 17:42 15:22-17:19/117 24 07:20 15:42-16:37/55 16:44 07:03-10:42/219 17:04 08:16-11:20/184 17:43 15:23-17:21/118 25 07:19 15:42-16:38/56 16:42 07:01-10:37/216 17:05 08:15-11:21/186 17:44 15:23-17:22/119 26 07:18 15:40-16:40/60 16:41 07:00-10:33/213 17:06 08:13-11:21/188 17:45 15:24-17:24/120 27 07:17 15:39-16:43/64 16:39 06:58-10:28/210 16:56-17:24/28 17:08 08:12-11:20/188 17:46 15:24-16:55/91 28 07:16 15:37-16:44/67 16:37 06:57-10:27/210 16:57-17:25/28 17:09 08:11-11:20/189 17:48 15:24-16:56/92 29 07:16 15:36-16:46/70 17:10 08:09-11:20/191 17:10 08:09-11:20/191 30 07:15 15:34-16:47/73 17:11 08:08-11:20/192 31 07:14 15:33-16:48/75 17:13 08:07-11:20/193 Potential sun hours 295 Sum of minutes with flicker 6993	296 8590	369 9407	400 5536	450 3239	454 3342

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

SHADOW - Calendar per WTG

Calculation: WC e RC - Results WTG: 6 - WTG06
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
4.12 4.66 5.30 6.72 8.25 9.35 10.16 9.45 7.64 5.82 4.65 3.82

Operational time
N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
985 358 99 45 45 1,532 636 546 815 367 1,344 1,988 8,760

Table with columns for months (July to December) and rows for each day of the month, showing time intervals and potential sun hours.

Table layout: For each day in each month the following matrix apply

Day in month Sun rise (hh:mm) First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
Sun set (hh:mm) First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

SHADOW - Calendar per WTG

Calculation: WC e RC - Results WTG: 8 - WTG08
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4.12	4.66	5.30	6.72	8.25	9.35	10.16	9.45	7.64	5.82	4.65	3.82

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
985	358	99	45	45	1,532	636	546	815	367	1,344	1,988	8,760

January		February		March		April		May		June	
1	07:26 14:14-15:10:56 07:49-09:29/100	07:12 15:24-16:43/79	06:36 16:57-17:27/30	06:44 17:48-19:03/75	05:57 06:17-07:01/44	05:28 05:49-06:28/39					
2	07:27 14:14-15:10:56 07:49-09:30/101	07:12 15:24-16:44/79	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
3	07:27 14:15-15:09:51 07:50-09:30/101	07:11 15:23-16:43/79	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
4	07:27 14:16-15:09:53 07:49-09:30/101	07:11 15:23-16:43/79	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
5	07:27 14:17-15:09:52 07:49-09:31/102	07:11 15:23-16:43/79	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
6	07:27 14:18-15:09:51 07:50-09:32/102	07:10 15:22-16:42/79	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
7	07:27 14:19-15:08:49 07:50-09:32/102	07:10 15:22-16:42/79	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
8	07:26 14:21-15:07:46 07:50-09:33/103	07:05 15:21-16:41/79	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
9	07:26 14:21-15:05:44 07:50-09:33/103	07:04 15:20-16:40/79	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
10	07:26 14:25-15:03:38 07:51-09:35/104	07:04 15:20-16:40/79	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
11	07:26 14:24-15:04:42 07:50-09:35/105	07:01 15:19-16:39/79	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
12	07:26 14:25-15:03:38 07:51-09:35/104	07:00 15:18-16:38/79	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
13	07:25 14:27-15:03:36 07:48-09:36/108	06:59 15:40-16:00:20 08:31-09:35/64	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
14	07:25 14:29-15:03:34 07:47-09:37/110	06:57 15:45-15:56/11 08:31-09:33/62	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
15	07:25 14:30-15:02:32 07:46-09:37/111	06:56 15:44-15:55/11 08:31-09:33/62	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
16	07:24 14:32-15:01:29 07:46-09:38/112	06:55 15:43-15:54/11 08:31-09:33/62	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
17	07:24 14:34-14:59:25 07:45-09:38/113 11:52-12:20/28	06:53 16:58-17:11/13 07:35-08:10/35	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
18	07:23 14:36-14:57:21 07:45-09:38/113 11:57-12:14/17	06:52 16:57-17:13/16 07:36-08:09/33	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
19	07:23 14:40-14:55:15 07:44-09:39/115	06:51 16:55-17:14/19 07:37-08:07/30 16:14-16:43/29	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
20	07:22 15:19-16:28/69 10:43-11:48/65	06:49 16:55-17:16/21 07:39-08:06/27 16:16-16:42/26	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
21	07:21 15:19-16:28/69 10:45-11:47/62	06:48 16:54-17:16/22 07:40-08:03/23 16:17-16:40/23	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
22	07:21 15:20-16:30/70 10:47-11:45/58	06:46 16:54-17:17/23 07:43-08:01/18 16:20-16:38/18	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
23	07:20 15:20-16:30/70 10:48-11:43/55	06:45 16:53-17:17/24 07:46-07:57/11 16:23-16:34/11	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
24	07:19 15:20-16:30/70 10:50-11:41/51	06:43 16:54-17:21/27 07:03-07:19/16	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
25	07:19 15:20-16:29/69 10:53-11:38/45	06:42 16:53-17:22/29	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
26	07:18 15:21-16:33/72 10:56-11:36/40	06:40 16:54-17:24/30	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
27	07:17 15:21-16:36/75 11:00-11:32/32	06:39 16:54-17:24/30	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
28	07:16 15:22-16:38/76 11:05-11:27/22	06:37 16:55-17:25/30	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
29	07:15 15:22-16:39/77	06:37 16:55-17:25/30	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
30	07:14 15:23-16:41/78	06:37 16:55-17:25/30	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
31	07:13 15:23-16:42/79	06:37 16:55-17:25/30	06:34 16:58-17:28/30	06:42 17:50-19:03/75	05:56 06:16-07:01/45	05:27 05:49-06:30/41					
Potential sun hours	296	296	369	400	450	454					
Sum of minutes with flicker	9030	4035	1972	2865	3425	2641					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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05/01/2024 09:23/3.6.377

SHADOW - Calendar per WTG

Calculation: WC e RC - Results WTG: 8 - WTG08
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
4.12 4.66 5.30 6.72 8.25 9.35 10.16 9.45 7.64 5.82 4.65 3.82

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
985 358 99 45 45 1,532 636 546 815 367 1,344 1,988 8,760

Calendar table with columns for months (July to December) and rows for each day, showing sunrise and sunset times and potential sun hours.

Table layout: For each day in each month the following matrix apply

Matrix for table layout: Day in month, Sun rise (hh:mm), Sun set (hh:mm), First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker.



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SHADOW - Calendar per WTG

Calculation: WC e RC - Results WTG: 9 - WTG09
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
4.12 4.66 5.30 6.72 8.25 9.35 10.16 9.45 7.64 5.82 4.65 3.82

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
985 358 99 45 45 1,532 636 546 815 367 1,344 1,988 8,760

Table with columns for months (January to June) and rows for each day of the month. Each cell contains a vertical list of time intervals (hh:mm) representing shadow events. Summary rows at the bottom show 'Potential sun hours' and 'Sum of minutes with flicker' for each month.

Summary table with 2 columns: Month and Potential sun hours. Values: January (296), February (296), March (296), April (400), May (450), June (454).

Table layout: For each day in each month the following matrix apply. Matrix with 3 columns: Day in month, Sun rise (hh:mm), Sun set (hh:mm), First time (hh:mm) with flicker, Last time (hh:mm) with flicker, Minutes with flicker.



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Aurora / aurora.finguerra@erm.com
Calculated:
05/01/2024 09:23/3.6.377

SHADOW - Calendar per WTG

Calculation: WC e RC - Results WTG: 11 - WTG11
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]

Table with 12 columns: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec. Values range from 4.12 to 8.82.

Operational time

Table with 13 columns: N, NNE, ENE, E, ESE, SSE, S, SSW, WSW, W, WNW, NNW, Sum. Values range from 985 to 8,760.

Main data table with columns for months (January to June) and rows for each minute of the day. Includes solar position and shadow data.

Potential sun hours

Sum of minutes with flicker

Detailed data table showing sun hours and flicker minutes for each day in each month. Columns include Day in month, Sun rise (hh:mm), Sun set (hh:mm), and flicker minutes.

Table layout: For each day in each month the following matrix apply

Matrix layout table for table data with columns: Day in month, Sun rise (hh:mm), Sun set (hh:mm), First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker.

Project:

Queequeg_shadow

Licensed user:

ERM ITALIA S.P.A.
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Calculated:
05/01/2024 09:23/3.6.377

SHADOW - Calendar per WTG

Calculation: WC e RC - Results WTG: 11 - WTG11
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
4.12 4.66 5.30 6.72 8.25 9.35 10.16 9.45 7.64 5.82 4.65 3.82

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
985 358 99 45 45 1,532 636 546 815 367 1,344 1,988 8,760

Table with columns for months (July to December) and rows for each day of the month, containing sunrise, sunset, and shadow data.

Table layout: For each day in each month the following matrix apply

Matrix with columns: Day in month, Sun rise (hh:mm), Sun set (hh:mm), First time (hh:mm) with flicker, Last time (hh:mm) with flicker/Minutes with flicker.



SHADOW - Calendar per WTG

Calculation: WC e RC - Results WTG: 12 - WTG12
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]

Table with 12 columns (Jan to Dec) and 2 rows of values: 4.12 4.66 5.30 6.72 8.25 9.35 10.16 9.45 7.64 5.82 4.65 3.82

Operational time

Table with 13 columns (N, NNE, ENE, E, ESE, SSE, S, SSW, WSW, W, WNW, NNW, Sum) and 2 rows of values: 985 358 99 45 45 1,532 636 546 815 367 1,344 1,988 8,760

Main shadow calculation table with columns for months (January to June) and rows for each day, containing sun rise/set times, potential sun hours, and minutes with flicker.

Table layout: For each day in each month the following matrix apply

Matrix defining day in month, sun rise/set times, and first/last times with flicker/minutes with flicker.

Project:

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Licensed user:

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Calculated:

05/01/2024 09:23/3.6.377

SHADOW - Calendar per WTG

Calculation: WC e RC - Results WTG: 12 - WTG12
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4.12	4.66	5.30	6.72	8.25	9.35	10.16	9.45	7.64	5.82	4.65	3.82

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
985	358	99	45	45	1,532	636	546	815	367	1,344	1,988	8,760

July		August		September		October		November		December	
1	05:28 05:51-08:47/176	05:52 06:15-06:42/227 06:51-08:50/119	06:24 06:45-07:42/57	06:55 07:15-08:08/53	06:30 06:52-07:27/35 07:52-08:13/21	07:06 13:33-15:55/142 09:15-11:04/109					
2	05:29 05:52-08:47/175	05:53 06:16-06:43/227 06:51-08:50/119	06:25 06:46-07:42/56	06:56 07:17-08:08/51	06:32 06:54-07:29/35 07:49-08:15/26	07:07 13:33-15:55/142 09:15-11:04/109					
3	05:29 05:52-08:48/176	05:54 06:17-06:45/228 06:52-08:49/117	06:26 06:47-07:43/56	06:57 07:18-08:09/50	06:33 06:55-07:30/35 07:48-08:18/30	07:08 13:32-15:55/143 09:15-11:05/110					
4	05:30 05:53-08:48/175	05:55 06:18-06:46/228 06:52-08:49/117	06:27 06:50-07:43/53	06:58 07:19-08:07/48	06:34 14:14-16:17/123 07:43-08:19/36	07:09 13:32-15:55/142 09:15-11:05/110					
5	05:30 05:53-08:48/175	05:56 06:19-06:47/228 06:53-08:49/116	06:28 06:51-07:43/52	06:59 07:20-08:07/47	06:35 14:13-16:16/123 07:40-08:20/40	07:10 13:33-15:55/142 09:16-11:06/110					
6	05:31 05:54-08:49/175	05:57 06:20-06:48/228 06:54-08:48/114	06:29 06:52-07:42/50	07:00 07:21-08:06/45	06:36 14:13-16:16/123 07:38-08:22/44	07:11 13:33-15:54/141 08:52-09:01/9					
7	05:31 05:54-08:49/174	05:59 06:21-06:52/31 06:54-08:48/114	06:30 06:54-07:42/48	07:02 07:23-08:05/43	06:37 14:12-16:15/123 07:37-08:23/46	07:12 13:33-15:54/141 08:50-09/14					
8	05:32 05:55-08:49/174	06:00 06:22-06:47/145	06:31 06:56-07:42/46	07:03 07:24-08:05/42	06:38 14:12-16:15/123 07:36-08:24/49	07:13 13:33-15:54/141 08:49-09/20/17					
9	05:33 05:56-08:49/173	06:01 06:23-06:46/143	06:32 06:59-07:41/42	07:04 07:24-08:05/41	06:39 14:12-16:12/120 07:35-08:25/50	07:14 13:33-15:54/141 08:49-09/20/17					
10	05:33 05:56-08:49/173	06:02 06:24-06:46/142	06:33 06:59-07/41/42	07:05 07:25-08:06/38	06:40 14:12-16:10/118 07:34-08:26/52	07:15 13:34-15:54/140 08:49-09/20/17					
11	05:34 05:57-08-49/172	06:03 06:25-06-45/140	06:34 06:59-07/47/48	07:06 07:26-08/01/36	06:41 07:04-07:32/29 09:14-10:51/97	07:16 13:34-15:54/140 08:48-09/20/17					
12	05:35 05:58-08-50/172	06:04 06:26-08-44/138	06:35 06:59-07/49/50	07:07 06:51-17/53/62 16:47-16:48/1	06:42 07:05-08/28/81	07:17 13:34-15:53/139 08:48-09/11/23					
13	05:36 05:58-08-49/171	06:05 06:27-08-43/136	06:36 06:59-07/51/52	07:08 06:39-17/53/74	06:43 13:42-16:08/146 09:13-10:56/103	07:18 13:34-15:53/139 08:48-09/11/23					
14	05:36 05:59-08-50/171	06:06 06:28-08-42/134	06:37 07:00-07/52/52	07:09 06:18-17/52/77	06:44 13:45-16:07/142 09:12-10:55/101	07:19 13:35-15:54/138 08:48-09/14/26					
15	05:37 06:00-08-50/170	06:07 06:29-08-41/132	06:38 07:00-07/53/53	07:10 06:31-17/52/81	06:45 13:46-16:07/139 09:13-10:54/101	07:20 13:36-15:53/137 08:48-09/15/27					
16	05:38 06:01-08-51/170	06:08 06:30-08-40/130	06:39 07:01-07/54/53	07:11 06:32-17/51/84	06:46 13:47-16:08/142 09:12-10:55/103	07:21 13:37-15:54/137 08:49-09/16/27					
17	05:39 06:02-08-51/169	06:09 06:31-08-38/127	06:40 07:02-07/55/53	07:12 06:33-17/51/86	06:47 13:48-16:09/143 09:13-10:56/104	07:22 13:38-15:54/136 08:49-09/17/28					
18	05:40 06:03-08-51/168	06:10 06:32-08-36/124	06:41 07:03-07/56/53	07:13 06:34-17/51/88	06:48 13:49-16:10/144 09:14-10:57/105	07:23 13:39-15:54/135 08:49-09/18/28					
19	05:40 06:03-08-51/168	06:11 06:33-08-35/122	06:42 07:04-08/00/56	07:14 06:35-17/51/90	06:49 13:50-16:11/145 09:15-10:58/106	07:24 13:40-15:54/134 08:49-09/19/27					
20	05:41 06:04-08-51/167	06:12 06:33-08-33/120	06:43 07:05-08/01/57	07:15 06:36-17/51/92	06:50 13:51-16:12/146 09:16-10:59/107	07:25 13:41-15:54/133 08:49-09/20/17					
21	05:42 06:05-08-51/166	06:13 06:34-08-31/117	06:44 07:06-08/02/57	07:16 06:37-17/51/94	06:51 13:52-16:13/147 09:17-10:60/108	07:26 13:42-15:54/132 08:49-09/21/28					
22	05:43 06:06-08-51/165	06:14 06:35-08-29/114	06:45 07:07-08/03/58	07:17 06:38-17/51/96	06:52 13:53-16:14/148 09:18-10:61/109	07:27 13:43-15:54/131 08:49-09/22/29					
23	05:44 06:07-08-43/306 06:44-08-51/127	06:15 06:36-08-27/111	06:46 07:08-08/04/58	07:18 06:39-17/51/98	06:53 13:54-16:15/149 09:19-10:62/110	07:28 13:44-15:54/130 08:49-09/23/30					
24	05:45 06:08-08-40/32 06:45-08-52/127	06:16 06:37-08-25/108	06:47 07:09-08/05/58	07:19 06:40-17/51/100	06:54 13:55-16:16/150 09:20-10:63/111	07:29 13:45-15:54/129 08:49-09/24/31					
25	05:46 06:08-08-39/31 06:45-08-51/126	06:17 06:38-08-23/105	06:48 07:10-08/06/58	07:20 06:41-17/51/102	06:55 13:56-16:17/151 09:21-10:64/112	07:30 13:46-15:54/128 08:49-09/25/32					
26	05:47 06:09-08-40/31 06:47-08-51/124	06:18 06:39-08-20/101	06:49 07:11-08/07/57	07:21 06:42-17/51/104	06:56 13:57-16:18/152 09:22-10:65/113	07:31 13:47-15:54/127 08:49-09/26/33					
27	05:48 06:10-08-40/30 06:48-08-51/123	06:19 06:40-08-17/97	06:50 07:12-08/08/57	07:22 06:43-17/51/106	06:57 13:58-16:19/153 09:23-10:66/114	07:32 13:48-15:54/126 08:49-09/27/34					
28	05:49 06:11-06-41/30 06:49-08-51/122	06:20 06:41-08-14/93	06:51 07:13-08/09/57	07:23 06:44-17/51/108	06:58 13:59-16:20/154 09:24-10:67/115	07:33 13:49-15:54/125 08:49-09/28/35					
29	05:50 06:12-06-41/29 06:50-08-51/121	06:21 06:42-08-10/88	06:52 07:14-08/10/57	07:24 06:45-17/51/110	06:59 14:00-16:21/155 09:25-10:68/116	07:34 13:50-15:54/124 08:49-09/29/36					
30	05:51 06:13-06-41/28 06:50-08-50/120	06:22 06:43-08-06/83	06:53 07:15-08/11/57	07:25 06:46-17/51/112	07:00 14:01-16:22/156 09:26-10:69/117	07:35 13:51-15:54/123 08:49-09/30/37					
31	05:52 06:14-06-42/28 06:51-08-50/119	06:23 06:44-08-00/76	06:54 07:16-08/12/57	07:26 06:47-17/51/114	07:01 14:02-16:23/157 09:27-10:70/118	07:36 13:52-15:54/122 08:49-09/31/38					
Potential sun hours	461	429	375	345	296	286					
Sum of minutes with flicker	7009	4717	1717	4298	9302	10150					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker



SHADOW - Calendar per WTG

Calculation: WC e RC - Results **WTG: 13 - WTG13**
 Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]
 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 4.12 4.66 5.30 6.72 8.25 9.35 10.16 9.45 7.64 5.82 4.65 3.82

Operational time
 N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
 985 358 99 45 45 1,532 636 546 815 367 1,344 1,988 8,760

	January	February	March	April	May	June
1	07:27 13:58-14:45/47 14:50-16:08/78 16:39 07:50-08:19/29 08:25-09:03/38 07:27 13:59-14:45/46 14:50-16:10/80 16:40 07:50-08:19/29 08:25-09:03/38	07:13 07:41-08:12/31 17:14 15:14-15:44/30 07:12 07:41-08:11/30 17:15 15:17-15:42/25	06:36 06:55-07:36/41 17:49 06:34 06:53-07:35/42 17:50	06:44 07:03-07:59/56 19:24 06:42 07:01-07:59/58 19:25	05:57 06:17-07:52/95 19:57 18:16-19:29/73 05:56 06:16-07:52/96 19:58 18:15-19:28/73	05:28 06:14-07:49/95 20:27 18:16-19:52/96 05:27 06:15-07:49/94 20:28 18:17-19:53/96
2	07:27 14:00-14:45/45 14:51-16:10/79 16:41 07:50-08:19/29 08:26-09:03/37 07:27 14:00-14:44/44 14:50-16:10/80 16:41 07:50-08:18/28 08:27-09:03/36	07:11 07:42-08:11/29 17:16 15:20-15:40/20 07:10 07:43-08:10/27 17:18 15:24-15:36/12	06:33 06:52-07:36/44 17:51 06:31 06:50-07:35/45 17:52	06:41 06:59-07:58/59 19:26 06:39 06:58-07:58/60 19:27	05:55 06:14-07:51/97 19:59 18:15-19:29/74 05:53 06:13-07:51/98 20:00 18:14-19:30/76	05:27 06:15-07:50/95 20:28 18:18-19:54/96 05:26 06:15-07:49/94 20:29 18:18-19:54/96
3	07:27 14:01-14:44/43 14:51-16:10/79 16:42 07:49-08:17/28 08:27-09:02/35 07:27 07:49-08:16/27 14:51-16:11/80 16:43 14:03-14:44/41 08:28-09:02/34	07:08 07:45-08:09/24 17:19 07:07 07:45-08:07/22 17:20	06:29 06:49-07:35/46 17:53 06:28 06:47-07:33/46 17:55	06:37 06:56-07:57/61 19:28 06:36 06:54-07:56/62 19:29	05:52 06:12-07:50/98 20:01 18:14-19:32/78 05:51 06:11-07:50/99 20:02 18:14-19:33/79	05:26 06:16-07:49/93 20:30 18:18-19:54/96 05:26 06:16-07:49/93 20:30 18:19-19:55/96
4	07:27 07:49-08:16/27 14:52-16:11/79 16:44 14:04-14:43/39 08:29-09:02/33 07:27 07:49-08:16/27 14:53-16:12/79 16:45 14:06-14:43/37 08:31-09:02/31	07:06 07:47-08:06/19 17:21 07:05 07:50-08:04/14 17:23	06:26 06:45-07:32/47 17:56 06:25 06:44-07:31/47 17:57	06:34 06:53-07:55/62 19:30 06:32 06:51-07:54/63 19:31	05:50 06:10-07:49/99 20:03 18:13-19:33/80 05:48 06:08-07:49/101 20:04 18:12-19:34/82	05:26 06:16-07:49/93 20:31 18:19-19:54/95 05:25 06:16-07:49/93 20:32 18:19-19:55/96
5	07:26 07:49-08:17/28 14:53-16:12/79 16:46 14:08-14:43/35 08:32-09:02/30 07:26 07:48-08:16/28 14:53-16:12/79 16:47 14:09-14:41/32 08:33-09:01/28	07:04 07:54-08:00/6 17:24 07:03 17:25	06:23 06:42-07:30/48 17:58 06:21 06:40-07:27/47 17:59	06:31 06:49-07:53/64 19:33 06:29 06:48-07:52/64 19:34	05:47 06:07-07:49/102 20:05 18:12-19:35/83 05:46 06:06-07:49/103 20:06 18:12-19:35/83	05:25 06:17-07:49/92 20:32 18:20-19:55/95 05:25 06:17-07:49/92 20:33 18:21-19:56/95
6	07:26 07:48-08:17/29 14:54-16:12/78 16:48 14:11-14:41/30 08:34-09:00/26 07:26 07:48-08:17/29 14:55-16:13/78 16:50 14:14-14:40/26 08:36-09:00/24	07:01 07:21-07:25/4 17:26 07:00 07:20-07:28/8 17:28	06:20 06:39-07:26/47 18:00 06:18 06:37-07:23/46 18:02	06:27 06:46-07:50/64 19:35 06:26 06:45-07:51/66 19:36	05:45 06:05-07:50/105 20:07 18:12-19:36/84 05:44 06:04-07:50/106 20:08 18:12-19:37/85	05:24 06:18-07:50/92 20:33 18:21-19:56/95 05:24 06:18-07:50/92 20:34 18:21-19:56/95
7	07:25 07:47-08:17/30 14:55-16:12/77 16:51 14:16-14:38/22 08:37-08:58/21 07:25 07:47-08:17/30 14:56-16:13/77 16:52 14:20-14:36/16 08:40-08:57/17	06:59 07:19-07:30/11 17:29 06:58 07:17-07:31/14 17:30	06:16 06:35-07:19/44 18:03 06:15 06:34-07:12/38 18:04	06:24 06:43-07:51/68 19:37 06:23 06:41-07:52/71 19:38	05:43 06:03-07:50/107 20:09 18:12-19:39/87 05:42 06:02-07:50/108 20:10 18:12-19:40/88	05:24 06:18-07:50/91 20:35 18:22-19:57/95 05:24 06:18-07:50/91 20:35 18:22-19:57/95
8	07:25 07:46-08:17/31 14:56-16:12/76 16:53 14:25-14:30/5 08:43-08:54/11 07:24 07:46-08:17/31 16:54 14:57-16:12/75	06:56 07:16-07:32/16 17:32 06:55 07:15-07:34/19 17:33	06:13 06:32-07:10/38 18:05 06:11 06:30-07:09/39 18:06	06:21 06:40-07:53/73 19:39 06:19 06:38-07:53/75 19:40	05:41 06:01-07:50/109 20:11 18:12-19:42/90 05:40 06:01-07:50/109 20:12 18:12-19:43/91	05:24 06:19-07:50/91 20:35 18:23-19:57/94 05:24 06:19-07:50/91 20:36 18:23-19:57/94
9	07:24 07:45-08:16/31 15:52-16:11/19 16:55 14:57-15:51/54 07:23 07:45-08:16/31 15:54-16:11/17 16:56 14:58-15:52/54	06:54 07:13-07:34/21 17:34 06:52 07:12-07:35/23 17:35	06:10 06:28-07:07/39 18:07 06:08 06:27-07:05/38 18:08	06:18 06:37-07:53/76 19:41 18:42-19:08/26 06:16 06:35-07:53/78 19:42 18:37-19:11/34	05:39 06:01-07:50/109 20:13 18:12-19:44/92 05:38 06:01-07:49/108 20:14 18:12-19:45/93	05:24 06:19-07:50/91 20:36 18:23-19:57/94 05:24 06:20-07:50/90 20:37 18:23-19:58/95
10	07:23 07:44-08:15/31 15:55-16:10/15 16:58 14:59-15:52/53 07:22 07:43-08:13/30 15:57-16:09/12 16:59 14:59-15:51/52	06:51 07:10-07:35/25 17:37 06:49 07:09-07:35/26 17:38	06:06 06:25-07:03/38 18:09 06:04 06:23-06:59/36 18:11	06:15 06:34-07:54/80 19:43 18:34-19:14/40 06:13 06:32-07:54/82 19:45 18:31-19:22/51	05:37 06:03-07:50/107 20:15 18:13-19:46/93 05:36 06:03-07:50/107 20:16 18:13-19:47/94	05:24 06:20-07:50/90 20:37 18:24-19:58/94 05:24 06:20-07:50/90 20:37 18:24-19:58/94
11	07:22 07:43-08:12/29 16:00-16:07/7 17:00 15:00-15:52/52 07:21 07:42-08:10/28 17:01 15:01-15:51/50	06:48 07:07-07:35/28 17:39 06:46 07:06-07:35/29 17:40	06:03 06:22-06:57/35 18:12 06:01 06:20-06:57/37 18:13	06:12 06:31-07:54/83 19:46 18:29-19:24/55 06:10 06:29-07:54/85 19:47 18:27-19:24/57	05:35 06:03-07:50/107 20:17 18:13-19:47/94 05:34 06:04-07:49/105 20:18 18:13-19:48/95	05:25 06:20-07:50/90 20:37 18:24-19:58/94 05:25 06:21-07:51/90 20:38 18:25-19:59/94
12	07:20 07:41-08:10/29 17:02 15:02-15:51/49 07:20 07:40-08:11/31 17:04 15:02-15:50/48	06:45 07:04-07:35/31 17:41 06:44 07:03-07:36/33 17:43	05:59 06:18-06:58/40 18:14 05:58 06:16-06:58/42 18:15	06:09 06:28-07:54/86 19:48 18:26-19:26/60 06:07 06:26-07:53/87 19:49 18:23-19:26/63	05:33 06:05-07:49/104 20:19 18:13-19:48/95 05:33 06:06-07:50/104 20:20 18:14-19:50/96	05:25 06:21-07:51/90 20:38 18:24-19:59/95 05:25 06:21-07:51/90 20:38 18:24-19:59/95
13	07:19 07:40-08:12/32 17:05 15:04-15:51/47 07:18 07:39-08:12/33 17:06 15:05-15:50/45	06:42 07:01-07:36/35 17:44 06:40 07:00-07:37/37 17:45	05:56 06:15-06:59/44 18:16 05:54 06:13-06:59/46 18:17	06:06 06:25-07:54/89 19:50 18:22-19:27/65 06:04 06:24-07:53/89 19:51 18:20-19:28/68	05:32 06:07-07:49/102 20:21 18:14-19:50/96 05:31 06:09-07:50/101 20:22 18:14-19:50/96	05:26 06:21-07:51/90 20:38 18:24-19:58/94 05:26 06:21-07:52/91 20:38 18:25-19:59/94
14	07:17 07:39-08:12/33 17:07 15:06-15:49/43 07:16 07:39-08:12/33 17:09 15:07-15:49/42	06:37 06:57-07:37/40 17:47 	05:51 06:10-07:00/50 18:19 06:49 07:08-08:00/52 19:20	06:01 06:21-07:53/92 19:53 18:19-19:30/71 06:00 06:19-07:52/93 19:54 18:17-19:29/72	05:30 06:12-07:49/97 20:24 18:15-19:51/96 05:29 06:14-07:49/95 20:24 18:16-19:52/96	05:27 06:22-07:53/91 20:38 18:25-19:59/94 05:27 06:22-07:53/91 20:38 18:25-19:59/94
15	07:15 07:39-08:12/33 17:10 15:09-15:48/39 07:15 07:40-08:12/32 17:11 15:10-15:47/37	17:47 	06:49 07:08-08:00/52 19:20 06:47 07:06-07:59/53 19:22	19:53 18:19-19:30/71 06:00 06:19-07:52/93 19:54 18:17-19:29/72 05:59 06:18-07:52/94	20:24 18:15-19:51/96 05:29 06:14-07:49/95 20:24 18:16-19:52/96 05:29 06:14-07:49/95	20:38 18:25-19:59/94 05:27 06:21-07:53/91 20:38 18:25-20:00/95 05:27 06:21-07:53/92
16	07:14 07:40-08:12/32 17:12 15:12-15:46/34	17:12 15:12-15:46/34 	06:46 07:04-07:59/55 19:23 	19:56 18:17-19:29/72 	05:28 06:14-07:49/95 20:26 18:16-19:53/97 	20:38 18:25-19:59/94
	Potential sun hours 295 Sum of minutes with flicker 3897	296 727	369 1358	400 3034	450 5898	455 5596

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

SHADOW - Calendar per WTG

Calculation: WC e RC - Results WTG: 13 - WTG13
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
4.12 4.66 5.30 6.72 8.25 9.35 10.16 9.45 7.64 5.82 4.65 3.82

Operational time
N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
985 358 99 45 45 1,532 636 546 815 367 1,344 1,988 8,760

Table with columns for months (July to December) and rows for each day of the month, showing sunrise and sunset times and potential sun hours.

Table layout: For each day in each month the following matrix apply

Matrix with columns: Day in month, Sun rise (hh:mm), Sun set (hh:mm), First time (hh:mm) with flicker, Last time (hh:mm) with flicker, Minutes with flicker.

SHADOW - Calendar per WTG

Calculation: WC e RC - Results WTG: 14 - WTG14
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4.12	4.66	5.30	6.72	8.25	9.35	10.16	9.45	7.64	5.82	4.65	3.82

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
985	358	99	45	45	1,532	636	546	815	367	1,344	1,988	8,760

	January	February	March	April	May	June
1	07:27 07:50-08:11/21 16:39 15:17-15:58/41	07:13 15:52-16:33/41 17:14	06:36 07:00-07:53/53 17:49	06:44 19:24	05:57 06:17-06:41/24 19:57 18:36-19:15/39	05:28 05:49-06:45/56 20:27
2	07:27 07:50-08:11/21 16:40 15:17-16:06/49	07:12 15:52-16:33/41 17:15	06:34 07:00-07:51/51 17:50	06:42 19:25	05:56 06:15-06:41/26 19:58 18:36-19:13/37	05:27 05:49-06:45/56 20:28
3	07:27 07:50-08:12/22 16:40 15:18-16:08/50	07:11 15:53-16:33/40 17:16	06:33 07:02-07:49/47 17:51	06:41 19:26	05:55 06:14-06:42/28 19:59 18:37-19:12/35	05:27 05:49-06:46/57 20:28
4	07:27 07:50-08:12/22 16:41 15:19-16:10/51	07:10 07:34-07:41/7 17:17 15:54-16:33/39	06:31 07:02-07:47/45 17:52	06:39 19:27	05:53 06:13-06:44/31 20:00 18:38-19:12/34	05:26 05:48-06:45/57 20:29
5	07:27 07:49-08:12/23 16:42 15:19-16:11/52	07:08 07:30-07:46/16 17:19 15:53-16:31/38	06:29 07:04-07:44/40 17:53	06:37 19:28	05:52 06:12-06:45/33 20:01 18:39-19:11/32	05:26 05:48-06:45/57 20:30
6	07:27 07:49-08:12/23 16:43 15:20-16:13/53	07:07 07:27-07:48/21 17:20 15:54-16:31/37	06:28 07:06-07:26/20 17:55 07:31-07:39/8	06:36 19:29	05:51 06:11-06:45/34 20:02 18:40-19:09/29	05:26 05:48-06:45/57 20:30
7	07:27 07:49-08:13/24 16:44 15:21-16:15/54	07:06 07:26-07:50/24 17:21 15:56-16:31/35	06:26 07:08-07:22/14 17:56	06:34 19:30	05:50 06:09-06:45/36 20:03 18:41-19:07/26	05:25 05:47-06:44/57 20:31
8	07:27 07:49-08:13/24 16:45 15:22-16:16/54	07:05 07:25-07:52/27 17:23 15:57-16:30/33	06:25 07:15-07:16/1 17:57	06:32 18:57-19:03/6 19:31	05:48 06:08-06:46/38 20:04 18:43-19:06/23	05:25 05:47-06:44/57 20:32
9	07:26 07:49-08:14/25 16:46 15:23-16:18/55	07:04 07:24-07:53/29 17:24 15:58-16:29/31	06:23 17:58	06:31 18:51-19:08/17 19:32	05:47 06:07-06:46/39 20:05 18:45-19:04/19	05:25 05:47-06:44/57 20:32
10	07:26 07:48-08:13/25 16:47 15:23-16:18/55	07:03 07:23-07:55/32 17:25 15:59-16:27/28	06:21 17:59	06:29 18:48-19:11/23 19:34	05:46 06:06-06:47/41 20:06 18:47-19:01/14	05:24 05:47-06:44/57 20:33
11	07:26 07:49-08:14/25 16:48 15:24-16:20/56	07:01 07:21-07:55/34 17:26 16:01-16:26/25	06:20 18:00	06:27 18:45-19:12/27 19:35	05:45 06:05-06:47/42 20:07 18:52-18:56/4	05:24 05:47-06:44/57 20:33
12	07:26 07:50-08:14/24 16:49 15:26-16:21/55	07:00 07:20-07:57/37 17:28 16:03-16:24/21	06:18 18:01	06:26 18:43-19:13/30 19:36	05:44 06:04-06:47/43 20:08	05:24 05:47-06:44/57 20:34
13	07:25 07:50-08:14/24 16:51 15:26-16:22/56	06:59 07:19-07:58/39 17:29 16:07-16:22/15	06:16 18:03	06:24 18:42-19:15/33 19:37	05:43 06:03-06:47/44 20:09	05:24 05:47-06:44/57 20:34
14	07:25 07:51-08:14/23 16:52 15:28-16:23/55	06:58 07:17-07:58/41 17:30 16:12-16:15/3	06:15 18:04	06:22 18:40-19:16/36 19:38	05:42 06:02-06:47/45 20:10	05:24 05:47-06:44/57 20:35
15	07:25 07:52-08:13/21 16:53 15:28-16:24/56	06:56 07:16-07:58/42 17:31	06:13 18:05	06:21 18:39-19:17/38 19:39	05:41 06:01-06:48/47 20:11	05:24 05:47-06:44/57 20:35
16	07:24 07:53-08:14/21 16:54 15:30-16:25/55	06:55 07:15-07:59/44 17:33	06:11 18:06	06:19 18:38-19:17/39 19:40	05:40 06:01-06:47/46 20:12	05:24 05:47-06:44/57 20:36
17	07:24 07:54-08:13/19 16:55 15:31-16:26/55	06:54 07:13-07:59/46 17:34	06:10 18:07	06:18 18:37-19:18/41 19:41	05:39 06:01-06:47/46 20:13	05:24 05:47-06:44/57 20:36
18	07:23 07:56-08:13/17 16:56 15:34-16:27/53	06:52 07:12-07:59/47 17:35	06:08 18:08	06:16 18:36-19:18/42 19:42	05:38 06:01-06:47/46 20:14	05:24 05:47-06:44/57 20:36
19	07:23 07:57-08:12/15 16:57 15:36-16:28/52	06:51 07:10-07:59/49 17:36	06:06 18:09	06:15 18:35-19:18/43 19:43	05:37 05:59-06:48/49 20:15	05:24 05:47-06:44/57 20:37
20	07:22 07:58-08:10/12 16:59 15:38-16:28/50	06:49 07:09-07:59/50 17:38	06:04 18:10	06:13 18:35-19:18/43 19:45	05:36 05:57-06:48/51 20:16	05:24 05:47-06:44/57 20:37
21	07:22 08:02-08:09/7 17:00 15:44-16:30/46	06:48 07:07-07:59/52 17:39	06:03 18:12	06:12 18:35-19:19/44 19:46	05:35 05:56-06:48/52 20:17	05:24 05:47-06:44/57 20:37
22	07:21 15:50-16:30/40 17:01	06:46 07:06-07:59/53 17:40	06:01 18:13	06:10 18:34-19:18/44 19:47	05:34 05:55-06:47/52 20:18	05:25 05:48-06:45/57 20:38
23	07:20 15:50-16:30/40 17:02	06:45 07:04-07:58/54 17:41	05:59 18:14	06:09 18:34-19:18/44 19:48	05:33 05:54-06:47/53 20:19	05:25 05:48-06:45/57 20:38
24	07:19 15:50-16:31/41 17:04	06:43 07:03-07:58/55 17:43	05:58 18:15	06:07 18:34-19:18/44 19:49	05:33 05:54-06:47/53 20:20	05:25 05:48-06:45/57 20:38
25	07:19 15:50-16:32/42 17:05	06:42 07:01-07:57/56 17:44	05:56 18:16	06:06 18:34-19:18/44 19:50	05:32 05:53-06:47/54 20:21	05:25 05:48-06:45/57 20:38
26	07:18 15:50-16:32/42 17:06	06:40 07:00-07:56/56 17:45	05:54 18:17	06:04 18:34-19:17/43 19:51	05:31 05:52-06:46/54 20:22	05:26 05:49-06:46/57 20:38
27	07:17 15:50-16:32/42 17:07	06:39 06:59-07:55/56 17:46	05:52 18:18	06:03 06:22-06:30/8 19:52 18:34-19:17/43	05:30 05:52-06:47/55 20:23	05:26 05:49-06:46/57 20:38
28	07:16 15:51-16:33/42 17:09	06:37 07:00-07:54/54 17:47	05:51 18:19	06:01 06:21-06:35/14 19:53 18:35-19:17/42	05:30 05:51-06:46/55 20:24	05:27 05:49-06:47/58 20:38
29	07:15 15:51-16:33/42 17:10		06:49 19:20	06:00 06:19-06:37/18 19:54 18:34-19:15/41	05:29 05:51-06:46/55 20:24	05:27 05:50-06:47/57 20:38
30	07:14 15:51-16:33/42 17:11		06:47 19:22	05:59 06:18-06:39/21 19:55 18:35-19:15/40	05:29 05:50-06:46/56 20:25	05:27 05:50-06:47/57 20:38
31	07:14 15:51-16:33/42 17:12		06:46 19:23		05:28 05:50-06:46/56 20:26	
Potential sun hours	295	296	369	400	450	455
Sum of minutes with flicker	1956	1448	279	908	1676	1788

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

SHADOW - Calendar per WTG

Calculation: WC e RC - Results WTG: 15 - WTG15

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [AMENDOLA]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
4.12 4.66 5.30 6.72 8.25 9.35 10.16 9.45 7.64 5.82 4.65 3.82

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
985 358 99 45 45 1,532 636 546 815 367 1,344 1,988 8,760

Table with columns for months (January to June) and rows for days (1-31), showing sunrise/sunset times and shadow flicker minutes.

Table layout: For each day in each month the following matrix apply

Day in month Sun rise (hh:mm) Sun set (hh:mm) First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker



