

Surtur

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Berlin (Germany), Sep 2018

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Introduction

This pdf file is heavily loaded with information on Surtur data and data acquisition actually used by the Cassini spacecraft. It is intended to document as much information as possible from my work to produce the irregular moon images. It includes all IOI files ("decoded"; in "readable" format) that were used to command the Cassini Surtur observations with the ISS camera.

For preparation of the observations, I made use of the "notes field" in ISSPT to have the most relevant specific information (like object geometry, filter usage strategy, pointing offsets, dark frames, and other specifics) in hand while working out the shutters. This information is included here for each observation request.

The text enhancements were not part of the original IOI files. Furthermore, after downlink of the images to Earth, I also added information on the downlinks, on data losses, and on the object location in the images (especially for the observation requests later in the mission).

For more information and scientific results, check out my **Outer Moons of Saturn** website (<https://tilmandenk.de/outersaturnianmoons/>) and my **Surtur page** (<https://tilmandenk.de/outersaturnianmoons/surtur>) as well as the links therein.

Definitions and abbreviations

ISSPT	ISS Planning Tool; software with the purpose of planning ISS observations
PDT	Pointing Design Tool; from JPL, used to command the spacecraft attitude and instrument triggering for individual observations; created BC (c-kernel) and SFOF files.
IOI	ISS Operation Interface; camera command file
SFOF.....	"Shortform"; the file that commanded the spacecraft attitude and the trigger; created with PDT.
Trigger	Unique number that connected the IOI file with the SFOF; the latter contained a command that "triggers" the IOI at a well-defined time.
Telemetry Rate	Defined the rate for sending data from the ISS device to the SSR recorder. S&ER3 was almost exclusively used for the irregular moons.
Footprint.....	One "pointing"; for example, a 2x3 mosaic has 6 footprints
SSR.....	Solid State Recorder – two data storage devices onboard Cassini. Both SSRs (SSR-A and SSR-B) together had a capacity of a little bit less than 4 Gb (Gigabits).
Tracking duration ...	Duration Cassini followed ("tracked") the target object, in units of hh:mm:ss.
NAC.....	Narrow Angle Camera of the ISS
WAC.....	Wide Angle Camera of the ISS
Darks.....	Dark frames; used same parameters as the regular images, but the shutter opening was inhibited. Intended to use for data calibration.
Range.....	Distance between Cassini and the targeted irregular moon.
NAC res.	Spatial resolution of the irregular moon in the NAC for un-binned images.
Calc. mag.	Predicted visual magnitude of the irregular moon during the observation.
Saturn angle.....	Angle between object (irregular moon) and Saturn with Cassini as the vertex.
Earth angle.....	Angle between object (irregular moon) and Earth with Cassini as the vertex. A value between 75° and 105° (90° ± 15°) was best with respect to planning of the reaction-wheel turns which were a major issue during the implementation stage of planning (see also https://tilmandenk.de/cassiniplanning/).
RA/Dec.....	Right ascension and Declination of the irregular moon in the sky of Cassini; see also sheet (8B) of each individual irregular moon website.
7OFFSET.....	Command to slightly shift the pointing away from the original tracking point. X offsets caused a horizontal shift of the object, Z offsets a vertical (Y were not used, these would just have caused a twist). Positive directions were left and down, unit is milliradians. The 7OFFSET command was set with PDT.
clr.....	Broadband 'clear' filter. Used color filters were 'Ultraviolet' (Uv3), 'Blue' (Bl1), 'Green' (Grn), an 'Infrared' (Ir1 or Ir2 or Ir3), and others.
2sum.....	Observation done in "summation mode" (2x2 pixel binning resulting in an image 512x512 pixels wide, not 1024x1024). Rarely, 4sum was used (binning 16 pixels, resulting in 256x256 pixel images).
fullres.....	Observation done with no binning (image size: 1024x1024 pixels).
AB	Anti-blooming; when 'ON', it suppressed electron flow into neighboring pixels in case of strong saturation. However, we found that using ab=ON reduced the photometric accuracy by about one order of magnitude.

Information that was not part of the IOI, but added to the file after data downlink:

Data policing..... When ISS sent more data to the SSR than allocated to ISS (all ISS observations on a particular day), the SSR stopped recording and the final images were not recorded anymore – but lost.

Object location Approximate location of the irregular moon in the image, in x,y or sample,line coordinates, with the origin at upper left. "Ftrprt" = "footprint".

Single frames listing:

IM# Offset C Bot Cat Exp Sum G Cnv Cm FW1 FW2 BPP SSR PFW PDN FT I L/C

IM# Image number

Offset..... Time offset from trigger start

C..... Camera (N = NAC, W = WAC)

Bot "BOTSIM" ("both simultaneously"); indicates if NAC and WAC were operated simultaneously.

Cat Image category; SC = "science"

Exp Exposure time in seconds

Sum..... Summation mode (pixel binning): 1x1, 2x2, or 4x4

G Gain state: 0 (## e⁻/DN), 1 (## e⁻/DN), 2 (29 e⁻/DN), or 3 (13 e⁻/DN).
e⁻ = electrons; DN = 'data number' (number of possible different gray values). For 8-bit data, 0 ≤ DN ≤ 255, for 12-bit data, 0 ≤ DN ≤ 4095.

Cnv Conversion type; 'none' = 12-bit data (exclusively used for the lightcurves; other options were 'LUT' = 8-bit data through look-up table and 'L8SB' = least eight significant bits)

Cm..... Compression; 'LL' = Huffman lossless (nothing else was used for the lightcurves)

FW1 FW2 Filter wheel 1 and 2

BPP..... Bits per pixel (but not accurate, see next note (SSR)).

SSR..... Megabits needed for this single frame. However, this number was mostly too low. More realistic was ~1.6...1.7 Mb for a typical 220s clr 2-sum g=2 exposure.

PFW, PDN Information on saturation; not relevant because ISSPT had no brightness information for the irregulars (except Phoebe).

FT Frame Time; total amount of time needed to prepare the image, execute the shutter, and readout the data, in seconds.

I..... Information if additional settings not shown in the table were used (Y=yes, N=no)

L/C..... Loops/cyclics; command options not used for the irregulars.

v v v G34 DOY 300 v v v [example] ... Information on detailed downlink (added after downlink). DSN (deep space network): M=Madrid, G=Goldstone, C=Canberra; 34=34 meters, 70 = 70 meters. DOY=day-of-year; 'v v v' = downlink begin, '^ ^ ^' = downlink end, 'x x x' = downlink expected, but no data arrived on that day.

Team member Tilmann Denk (FU Berlin), Thomas Roatsch (DLR Berlin)

SFOF name ISS_177OT_SURROT015_PRIME_4

Trigger # 2682

Telemetry Rate S&ER3 (24)

number footprints 1

number param sets 1

number of images 39

total Data Volume 71.8798

total Duration 5:38:10

Alloc. SSR = 120 Mb.
 Range = 13.9 mio km; NAC res. = 83 km/pxl; phase = 15 deg;
 calc. mag = 16.1; Saturn angle = 130 deg; RA/Dec = 228/-4.7 deg.
 39 NAC clr 2sum g=3 **460s exposures.**

Object not found in data. :-(

IM#	Offset	C	Bot	Cat	Exp	Sum	G	Cnv	Cm	FW1	FW2	BPP	SSR	PFW	PDN	FT	I	L/C
Footprint: 1 (Loop_count=, Loop_pos=, Loop_wait=)																		
1	0:00:10	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
2	0:08:50	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
3	0:17:30	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
4	0:26:10	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
5	0:34:50	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
6	0:43:30	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
7	0:52:10	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
8	1:00:50	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
9	1:09:30	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
10	1:18:10	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
11	1:26:50	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
12	1:35:30	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
13	1:44:10	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
14	1:52:50	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
15	2:01:30	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
16	2:10:10	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
17	2:18:50	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
18	2:27:30	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
19	2:36:10	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
20	2:44:50	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
21	2:53:30	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
22	3:02:10	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
23	3:10:50	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
24	3:19:30	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
25	3:28:10	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
26	3:36:50	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
27	3:45:30	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
28	3:54:10	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
29	4:02:50	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
30	4:11:30	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
31	4:20:10	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
32	4:28:50	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
33	4:37:30	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
34	4:46:10	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
35	4:54:50	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
36	5:03:30	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
37	5:12:10	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
38	5:20:50	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
39	5:29:30	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	

Team member Tilmann Denk (FU Berlin), Thomas Roatsch (DLR Berlin)

SFOF name **ISS_177OT_SURROT012_PRIME_2**

Trigger # 2686

Telemetry Rate S&ER3 (24)

number footprints 1

number param sets 3

number of images **97**

total Data Volume 178.778

total Duration 14:00:12

Alloc. SSR = 400 Mb.

Range = 15.5 mio km; NAC res. = 93 km/pxl; phase = 12 deg;

calc. mag = 16.3; Saturn angle = 6 deg; RA/Dec = 224/-6.1 deg.

97 NAC clr 2sum g=3 exposures, 96 of them **460 s**, the middle one 220 s.

Increasing background brightness due to close-by Saturn glare.

Saturated pixels begin in frame #62 (~8:40 h).

Completely saturated are frames #68 (~9:40 h) and later.

Object not found in data. :-)

IM#	Offset	C	Bot	Cat	Exp	Sum	G	Cnv	Cm	FW1	FW2	BPP	SSR	PFW	PDN	FT	I	L/C
Footprint: 1 (Loop_count=, Loop_pos=, Loop_wait=)																		
1	0:00:00	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
2	0:08:40	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
3	0:17:20	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
4	0:26:00	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
5	0:34:40	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
6	0:43:20	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
7	0:52:00	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
8	1:00:40	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
9	1:09:20	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
10	1:18:00	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
11	1:26:40	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
12	1:35:20	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
13	1:44:00	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
14	1:52:40	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
15	2:01:20	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
16	2:10:00	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
17	2:18:40	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
18	2:27:20	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
19	2:36:00	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
20	2:44:40	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
21	2:53:20	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
22	3:02:00	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
23	3:10:40	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
24	3:19:20	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
25	3:28:00	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
26	3:36:40	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
27	3:45:20	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
28	3:54:00	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
29	4:02:40	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
30	4:11:20	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
31	4:20:00	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
32	4:28:40	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
33	4:37:20	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
34	4:46:00	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
35	4:54:40	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
36	5:03:20	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
37	5:12:00	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
38	5:20:40	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
39	5:29:20	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
40	5:38:00	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	
41	5:46:40	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y	

42	5:55:20	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
43	6:04:00	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
44	6:12:40	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
45	6:21:20	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
46	6:30:00	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
47	6:38:40	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
48	6:47:20	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
49	6:57:54	N	NO	SC	220.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	264	N
50	7:04:12	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
51	7:12:52	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
52	7:21:32	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
53	7:30:12	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
54	7:38:52	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
55	7:47:32	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
56	7:56:12	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
57	8:04:52	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
58	8:13:32	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
59	8:22:12	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
60	8:30:52	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
61	8:39:32	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y

Pixel saturation "start"

62	8:48:12	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
63	8:56:52	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
64	9:05:32	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
65	9:14:12	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
66	9:22:52	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
67	9:31:32	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y

Completely saturated

68	9:40:12	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
69	9:48:52	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
70	9:57:32	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
71	10:06:12	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
72	10:14:52	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
73	10:23:32	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
74	10:32:12	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
75	10:40:52	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
76	10:49:32	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
77	10:58:12	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
78	11:06:52	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
79	11:15:32	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
80	11:24:12	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
81	11:32:52	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
82	11:41:32	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
83	11:50:12	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
84	11:58:52	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
85	12:07:32	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
86	12:16:12	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
87	12:24:52	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
88	12:33:32	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
89	12:42:12	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
90	12:50:52	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
91	12:59:32	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
92	13:08:12	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
93	13:16:52	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
94	13:25:32	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
95	13:34:12	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
96	13:42:52	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y
97	13:51:32	N	NO	SC	460.	2x2	3	None	LL	CL1	CL2	6.70	1.84	.00	.00	520	Y

Team member Tilmann Denk (FU Berlin), Thomas Roatsch (DLR Berlin)
 SFOF name ISS_233OT_SURROT044_PRIME_7
 Trigger # 2839
 Telemetry Rate S&ER3 (24)
 number footprints 24
 number param sets 35
 number of images 348
 total Data Volume 424.059
 total Duration 25:45:29

Alloc. SSR = 600 Mb. 342 Surtur NAC shutters, 6 NAC darks.
 Req. start UTC: 2016-081T09:44:00; end: 2016-082T12:44:00.
 Tracking begin: 2016-081T10:21:30; end: 2016-082T12:07:00.
 Total tracking time = 25:45:30 h.
 Range = 11.6 mio km; NAC res. = 70 km/pxl; phase = 44 deg; calc. mag = 16.0;
 Saturn angle = 120 deg; Earth angle = 140 deg; RA/Dec = 298/-35.
 12 times 1x2 mosaic; turn every 1:06:35 h except 1st to 2nd ftprt.
 15 clr 220s 2sum g=2 12-bit AB=N exposures per panel except 1st (8 shutters) and last (10 shutters).
 Darks are in 1st, 6th, 7th, 12th, 16th, 18th ftprts.
 => 171 Surtur shutters in each panel.

1x2 mosaic details (7OFFSETS from sfof):
 1st ftprt: 7OFFSET - CMD Parameters: (-2.013,0.0,-0.096;)
 2nd ftprt: 7OFFSET - CMD Parameters: (2.013,0.0,0.096;)

Object not found in data :- (

IM#	Offset	C	Bot	Cat	Exp	Sum	G	Cnv	Cm	FW1	FW2	BPP	SSR	PFW	PDN	FT	I	L/C

xxx G34 DOY 083 xxx																		
vvv G34 DOY 084 vvv																		
Footprint: 2 (Loop_count=, Loop_pos=, Loop_wait=)																		
1	0:00:52	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	N	
2	0:05:16	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
3	0:09:40	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
4	0:14:04	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
5	0:18:28	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
6	0:22:52	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
7	0:27:16	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
8	0:31:40	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
Footprint: 3 (Loop_count=, Loop_pos=, Loop_wait=)																		
9	0:36:39	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
10	0:41:03	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
11	0:45:27	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
12	0:49:51	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
13	0:54:15	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
14	0:58:39	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
15	1:03:03	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
16	1:07:27	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
17	1:11:51	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
18	1:16:15	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
19	1:20:39	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
20	1:25:03	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
21	1:29:27	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
22	1:33:51	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
23	1:38:15	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
Footprint: 4 (Loop_count=, Loop_pos=, Loop_wait=)																		
24	1:43:14	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
25	1:47:38	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
26	1:52:02	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	
27	1:56:26	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y	

28	2:00:50	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
29	2:05:14	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
30	2:09:38	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
31	2:14:02	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
32	2:18:26	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
33	2:22:50	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
34	2:27:14	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
35	2:31:38	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
36	2:36:02	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
37	2:40:26	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
38	2:44:50	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y

Footprint: 5 (Loop_count=, Loop_pos=, Loop_wait=)

39	2:49:49	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
40	2:54:13	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
41	2:58:37	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
42	3:03:01	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
43	3:07:25	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
44	3:11:49	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
45	3:16:13	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
46	3:20:37	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
47	3:25:01	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
48	3:29:25	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
49	3:33:49	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
50	3:38:13	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
51	3:42:37	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
52	3:47:01	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
53	3:51:25	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y

Footprint: 6 (Loop_count=, Loop_pos=, Loop_wait=)

54	3:56:24	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
55	4:00:48	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
56	4:05:12	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
57	4:09:36	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
58	4:14:00	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
59	4:18:24	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
60	4:22:48	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
61	4:27:12	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
62	4:31:36	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
63	4:36:00	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
64	4:40:24	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
65	4:44:48	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
66	4:49:12	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
67	4:53:36	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
68	4:58:00	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y

Footprint: 7 (Loop_count=, Loop_pos=, Loop_wait=)

69	5:02:59	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
70	5:07:23	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
71	5:11:47	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
72	5:16:11	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
73	5:20:35	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
74	5:24:59	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
75	5:29:23	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
76	5:33:47	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	N
77	5:38:11	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
78	5:42:35	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
79	5:46:59	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
80	5:51:23	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
81	5:55:47	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
82	6:00:11	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
83	6:04:35	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y

Footprint: 8 (Loop_count=, Loop_pos=, Loop_wait=)

84	6:09:34	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
85	6:13:58	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
86	6:18:22	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
87	6:22:46	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
88	6:27:10	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
89	6:31:34	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
90	6:35:58	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
91	6:40:22	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	N
92	6:44:46	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y

93	6:49:10	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
94	6:53:34	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
95	6:57:58	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
96	7:02:22	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
97	7:06:46	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
98	7:11:10	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
Footprint: 9 (Loop_count=, Loop_pos=, Loop_wait=)																	
99	7:16:09	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
100	7:20:33	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
101	7:24:57	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
102	7:29:21	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
103	7:33:45	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
104	7:38:09	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
105	7:42:33	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
106	7:46:57	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
107	7:51:21	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
108	7:55:45	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
109	8:00:09	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
110	8:04:33	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
111	8:08:57	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
112	8:13:21	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
113	8:17:45	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
Footprint: 10 (Loop_count=, Loop_pos=, Loop_wait=)																	
114	8:22:44	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
115	8:27:08	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
116	8:31:32	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
117	8:35:56	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
118	8:40:20	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
119	8:44:44	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
120	8:49:08	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
121	8:53:32	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
122	8:57:56	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
123	9:02:20	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
124	9:06:44	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
125	9:11:08	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
126	9:15:32	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
127	9:19:56	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
128	9:24:20	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
Footprint: 11 (Loop_count=, Loop_pos=, Loop_wait=)																	
129	9:29:19	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
130	9:33:43	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
131	9:38:07	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
132	9:42:31	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
133	9:46:55	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
134	9:51:19	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
135	9:55:43	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
136	10:00:07	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
137	10:04:31	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
138	10:08:55	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
139	10:13:19	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
140	10:17:43	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
141	10:22:07	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
142	10:26:31	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
143	10:30:55	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
Footprint: 12 (Loop_count=, Loop_pos=, Loop_wait=)																	
144	10:35:54	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
145	10:40:18	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
146	10:44:42	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
147	10:49:06	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
148	10:53:30	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
149	10:57:54	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
150	11:02:18	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
151	11:06:42	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
152	11:11:06	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
153	11:15:30	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
154	11:19:54	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
155	11:24:18	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
156	11:28:42	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
157	11:33:06	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y

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158 11:37:30 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
Footprint: 13 (Loop_count=, Loop_pos=, Loop_wait=)
159 11:42:29 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
160 11:46:53 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
161 11:51:17 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
162 11:55:41 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
163 12:00:05 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
164 12:04:29 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
165 12:08:53 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
166 12:13:17 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 N
167 12:17:41 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
168 12:22:05 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
169 12:26:29 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
170 12:30:53 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
171 12:35:17 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
172 12:39:41 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
173 12:44:05 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
Footprint: 14 (Loop_count=, Loop_pos=, Loop_wait=)
174 12:49:04 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
175 12:53:28 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
176 12:57:52 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
177 13:02:16 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
178 13:06:40 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
179 13:11:04 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
180 13:15:28 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
181 13:19:52 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
182 13:24:16 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
183 13:28:40 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
184 13:33:04 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
185 13:37:28 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
186 13:41:52 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
187 13:46:16 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
188 13:50:40 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
Footprint: 15 (Loop_count=, Loop_pos=, Loop_wait=)
189 13:55:39 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
190 14:00:03 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
191 14:04:27 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
192 14:08:51 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
193 14:13:15 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
194 14:17:39 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
195 14:22:03 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
196 14:26:27 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
197 14:30:51 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
198 14:35:15 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
199 14:39:39 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
200 14:44:03 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
201 14:48:27 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
202 14:52:51 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
203 14:57:15 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
Footprint: 16 (Loop_count=, Loop_pos=, Loop_wait=)
204 15:02:14 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
205 15:06:38 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
206 15:11:02 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
207 15:15:26 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
208 15:19:50 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
209 15:24:14 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
210 15:28:38 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
211 15:33:02 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
212 15:37:26 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
213 15:41:50 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
214 15:46:14 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
215 15:50:38 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
216 15:55:02 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
217 15:59:26 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
218 16:03:50 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
Footprint: 17 (Loop_count=, Loop_pos=, Loop_wait=)
219 16:08:49 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
220 16:13:13 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y
221 16:17:37 N NO      SC 220. 2x2 2 None LL CL1 CL2 4.40 1.21 .00 .00 264 Y

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287	21:10:21	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
288	21:14:45	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
289	21:19:09	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
290	21:23:33	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
291	21:27:57	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
292	21:32:21	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
293	21:36:45	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
Footprint: 22 (Loop_count=, Loop_pos=, Loop_wait=)																	
294	21:41:44	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
295	21:46:08	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
296	21:50:32	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
297	21:54:56	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
298	21:59:20	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
299	22:03:44	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
300	22:08:08	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
301	22:12:32	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
302	22:16:56	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
303	22:21:20	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
304	22:25:44	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
305	22:30:08	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
306	22:34:32	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
307	22:38:56	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
308	22:43:20	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
Footprint: 23 (Loop_count=, Loop_pos=, Loop_wait=)																	
309	22:48:19	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
310	22:52:43	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
311	22:57:07	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
312	23:01:31	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
313	23:05:55	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
314	23:10:19	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
315	23:14:43	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
316	23:19:07	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
317	23:23:31	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
318	23:27:55	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
319	23:32:19	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
320	23:36:43	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
321	23:41:07	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
322	23:45:31	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
323	23:49:55	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
Footprint: 24 (Loop_count=, Loop_pos=, Loop_wait=)																	
324	23:54:54	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
325	23:59:18	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
326	24:03:42	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
327	24:08:06	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
328	24:12:30	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
329	24:16:54	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
330	24:21:18	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
331	24:25:42	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
332	24:30:06	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
333	24:34:30	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
334	24:38:54	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
335	24:43:18	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
336	24:47:42	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
337	24:52:06	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
338	24:56:30	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
Footprint: 25 (Loop_count=, Loop_pos=, Loop_wait=)																	
339	25:01:29	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
340	25:05:53	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
341	25:10:17	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
342	25:14:41	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
343	25:19:05	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
344	25:23:29	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
345	25:27:53	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
346	25:32:17	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
347	25:36:41	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y
348	25:41:05	N	NO	SC	220.	2x2	2	None	LL	CL1	CL2	4.40	1.21	.00	.00	264	Y