VCO Observation Program List

2018/11/06

Contents

1 Description of the format of this list

1.1 observation program id (valid date range): name

brief description of the observation program ID.

- cam: name of camera
- #: order of taking images. This starts from 1. [integer]
- kind: this indicates what kind of the image is taken.
- rec-#: order of recording images. This starts from 1. [integer]
- rec?: this indicates whether image is recorded to the partition 0x07 that is nominal storage for images. [boolean]
- object: target object of the image.

- filter: this indicates which filter was used for taking image.
- mode: this indicates which Optical Black (OB) mode was used for UVI or which accumulation parameters were used for LIR.
- exp: exposure time for taking image in seconds [integer/float]
- median?: if yes, taken three consecutive images and applied median filtering for each pixel value. [boolean]

2 List

2.1 0x00_v1 (2010-05-20T00:00:00 –): Health check for all cameras

This observation program is for health check for all cameras. This observation program will not be used.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	dark 1	2	yes	DARK	dark		7.833	no
	2	cal. lamp+ext. 1	1	yes	CAL+External	0.90 um day		7.833	yes
ir2	3	dark 2	4	yes	DARK	dark		6.97	no
	4	cal. lamp+ext. 2	3	yes	CAL+External	2.26 um		6.97	no
uvi	5	dark 3	5	yes	SHUTTER	shutter	TopOB	0.046	no
	6	signal-0-exp 1	6	yes	any	283 nm	NormOB	0.0	no
	7	signal 1	7	yes	any	283 nm	NormOB	0.004	no
	8	signal 2	8	yes	any	365 nm	TopOB	0.046	no
lir	9	signal 3	9	yes	any	10 um	(1,1)	N/A	no
	10	signal 4	10	yes	any	10 um	(32,32)	N/A	no

2.2 0x01_v1 (2010-05-20T00:00:00 – 2016-06-16T00:00:00): Nightside deluxe (IR2, LIR)

This observation program is primarily for nightside observation of Venus by IR2 with the 1.735-um, the 2.26-um, and the 2.32-um filters, and by LIR. The IR2 images, “Venus 1” and “Venus 2”, are stored to DR with HIREW compression, after subtraction of mean of “pre-dark 1” and “post-dark 1” by DE onboard. The IR2 image, “Venus 3”, is stored to DR with HIREW compression, after subtraction of mean of “pre-dark 2” and “post-dark 2” by DE onboard. The IR2 dark images, “pre-dark #” and “post-dark #”, where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x09 where is not nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir2	1	pre-dark 1	3	no	DARK	dark		6.97	yes
	2	Venus 1	2	yes	VENUS	1.735 um		6.97	yes
	3	Venus 2	1	yes	VENUS	2.26 um		6.97	yes
	4	post-dark 1	4	no	DARK	dark		6.97	yes
	5	pre-dark 2	6	no	DARK	dark		12.97	yes
	6	Venus 3	5	yes	VENUS	2.32 um		12.97	yes
	7	post-dark 2	7	no	DARK	dark		12.97	yes
lir	8	Venus 4	8	yes	VENUS	10 um	(32,32)	N/A	no

2.3 0x01_v2 (2016-06-16T00:00:00 –): Nightside deluxe (IR2, LIR)

This observation program is primarily for nightside observation of Venus by IR2 with the 1.735-um, the 2.26-um, the 2.02-um, and the 2.32-um filters, and by LIR. The IR2 images, “Venus 1” and “Venus 2”, are stored to DR with HIREW compression, after subtraction of mean of “pre-dark 1” and “post-dark 1” by DE onboard. The IR2 images, “Venus 3” and “Venus 4”, are stored to DR with HIREW compression, after subtraction of mean of “pre-dark 2” and “post-dark 2” by DE onboard. The IR2 dark images, “pre-dark

#" and "post-dark #", where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x09 where is not nominally downlinked. This observation program is the update of 0x01_v1, and the updated content is that observation by IR2 with the 2.02-um filter was added.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir2	1	pre-dark 1	3	no	DARK	dark		6.97	yes
	2	Venus 1	2	yes	VENUS	1.735 um		6.97	yes
	3	Venus 2	1	yes	VENUS	2.26 um		6.97	yes
	4	post-dark 1	4	no	DARK	dark		6.97	yes
	5	pre-dark 2	7	no	DARK	dark		12.97	yes
	6	Venus 3	6	yes	VENUS	2.02 um		12.97	no
	7	Venus 4	5	yes	VENUS	2.32 um		12.97	yes
	8	post-dark 2	8	no	DARK	dark		12.97	yes
lir	9	Venus 5	9	yes	VENUS	10 um	(32,32)	N/A	no

2.4 0x02_v1 (2010-05-20T00:00:00 –): Nightside slim (IR2, LIR)

This observation program is primarily for nightside observation of Venus by IR2 with the 2.26-um filter and by LIR. The IR2 image, "Venus 1", is stored to DR with HIREW compression, after subtraction of mean of "pre-dark 1" and "post-dark 1" by DE onboard. The IR2 dark images, "pre-dark 1" and "post-dark 1", are stored to DR with HIREW compression in the partition 0x09 where is not nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir2	1	pre-dark 1	2	no	DARK	dark		6.97	yes
	2	Venus 1	1	yes	VENUS	2.26 um		6.97	yes
	3	post-dark 1	3	no	DARK	dark		6.97	yes
lir	4	Venus 2	4	yes	VENUS	10 um	(32,32)	N/A	no

2.5 0x03_v1 (2010-05-20T00:00:00 – 2011-02-13T00:00:00): Nightside deluxe (IR1)

This observation program is for nightside observation of Venus by IR1 with the 0.97-um, the 1.01-um, and the 0.90-um for nightside filters. The IR1 images, "Venus 1" and "Venus 2", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark 1" and "post-dark 1" by DE onboard. The IR1 image, "Venus 3", is stored to DR with HIREW compression, after subtraction of mean of "pre-dark 2" and "post-dark 2" by DE onboard. The IR1 dark images, "pre-dark #" and "post-dark #", where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x08 where is not nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	3	no	DARK	dark		10.833	yes
	2	Venus 1	2	yes	VENUS	0.97 um		10.833	yes
	3	Venus 2	1	yes	VENUS	1.01 um		10.833	yes
	4	post-dark 1	4	no	DARK	dark		10.833	yes
	5	pre-dark 2	6	no	DARK	dark		30.833	yes
	6	Venus 3	5	yes	VENUS	0.90 um night		30.833	yes
	7	post-dark 2	7	no	DARK	dark		30.833	yes

2.6 0x03_v2 (2011-02-13T00:00:00 – 2016-09-29T00:00:00): Nightside deluxe (IR1)

This observation program is for nightside observation of Venus by IR1 with the 0.97-um, the 1.01-um, and the 0.90-um for nightside filters. The IR1 images, "Venus 1" and "Venus 2", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark 1" and "post-dark 1" by DE onboard. The

IR1 image, “Venus 3”, is stored to DR with HIREW compression, after subtraction of mean of “pre-dark 2” and “post-dark 2” by DE onboard. The IR1 dark images, “pre-dark #” and “post-dark #”, where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x08 where is not nominally downlinked. This observation program is the update of 0x03_v1, and the updated content is that exposure time for all observations was set to 30.833 seconds, about three times longer than before.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	3	no	DARK	dark		30.833	yes
	2	Venus 1	2	yes	VENUS	0.97 um		30.833	yes
	3	Venus 2	1	yes	VENUS	1.01 um		30.833	yes
	4	post-dark 1	4	no	DARK	dark		30.833	yes
	5	pre-dark 2	6	no	DARK	dark		30.833	yes
	6	Venus 3	5	yes	VENUS	0.90 um night		30.833	yes
	7	post-dark 2	7	no	DARK	dark		30.833	yes

2.7 0x03_v3 (2016-09-29T00:00:00 –): Nightside deluxe (IR1)

This observation program is for nightside observation of Venus by IR1 with the 0.97-um, the 0.90-um for nightside, and the 1.01-um filters. The IR1 images, “Venus 1” and “Venus 2”, are stored to DR with HIREW compression, after subtraction of mean of “pre-dark 1” and “post-dark 1” by DE onboard. The IR1 image, “Venus 3”, is stored to DR with HIREW compression, after subtraction of mean of “pre-dark 2” and “post-dark 2” by DE onboard. The IR1 dark images, “pre-dark #” and “post-dark #”, where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x08 where is not nominally downlinked. This observation program is the update of 0x03_v2, and the updated content is that exposure time for some observations was set to 100.833 seconds, about three times longer than before.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	3	no	DARK	dark		100.833	yes
	2	Venus 1	2	yes	VENUS	0.97 um		100.833	yes
	3	Venus 2	1	yes	VENUS	0.90 um night		100.833	yes
	4	post-dark 1	4	no	DARK	dark		100.833	yes
	5	pre-dark 2	6	no	DARK	dark		30.833	yes
	6	Venus 3	5	yes	VENUS	1.01 um		30.833	yes
	7	post-dark 2	7	no	DARK	dark		30.833	yes

2.8 0x04_v1 (2010-05-20T00:00:00 – 2011-02-13T00:00:00): Nightside slim (IR1)

This observation program is for nightside observation of Venus by IR1 with the 1.01-um filter. The IR1 image, “Venus 1”, is stored to DR with HIREW compression, after subtraction of mean of “pre-dark 1” and “post-dark 1” by DE onboard. The IR1 dark images, “pre-dark 1” and “post-dark 1”, are stored to DR with HIREW compression in the partition 0x08 where is not nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		10.833	yes
	2	Venus 1	1	yes	VENUS	1.01 um		10.833	yes
	3	post-dark 1	3	no	DARK	dark		10.833	yes

2.9 0x04_v2 (2011-02-13T00:00:00 –): IR1 nightside slim

This observation program is for nightside observation of Venus by IR1 with the 1.01-um filter. The IR1 image, “Venus 1”, is stored to DR with HIREW compression, after subtraction of mean of “pre-dark 1” and “post-dark 1” by DE onboard. The IR1 dark images, “pre-dark 1” and “post-dark 1”, are stored to DR with HIREW compression in the partition 0x08 where is not nominally downlinked. This observation

program is the update of 0x04_v1, and the updated content is that exposure time for all observations was set to 30.833 seconds, about three times longer than before.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		30.833	yes
	2	Venus 1	1	yes	VENUS	1.01 um		30.833	yes
	3	post-dark 1	3	no	DARK	dark		30.833	yes

2.10 0x05_v1 (2010-05-20T00:00:00 – 2016-06-16T00:00:00): Dayside deluxe (UVI, IR1, IR2, LIR)

This observation program is primarily for dayside observation of Venus by IR1 with the 0.90-um for dayside filter, by IR2 with the 2.02-um filter, by UVI with the 283-nm and the 365-nm filters, and by LIR. The IR1 and IR2 images, "Venus #", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark #" and "post-dark #" by DE onboard, where # is 1 or 2. The IR1 and IR2 dark images, "pre-dark #" and "post-dark #", are stored to DR with HIREW compression in the partitions 0x08 and 0x09, respectively, where are not nominally downlinked. The UVI mean dark images of "pre-dark ##" and "post-dark ##", where ## is 3 or 4, are stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([Venus ##] - ([pre-dark ##]+[post-dark ##])/2) - ([Venus-0-exp ##] - ([pre-dark-0-exp ##]+[post-dark-0-exp ##])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is a ROI-disabled version of 0x17_v2.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		7.833	yes
	2	Venus 1	1	yes	VENUS	0.90 um day		7.833	yes
	3	post-dark 1	3	no	DARK	dark		7.833	yes
ir2	4	pre-dark 2	5	no	DARK	dark		6.97	yes
	5	Venus 2	4	yes	VENUS	2.02 um		6.97	yes
	6	post-dark 2	6	no	DARK	dark		6.97	yes
uvi	7	pre-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	8	pre-dark 3	?	no	SHUTTER	shutter	NormOB	0.25	yes
	9	Venus-0-exp 3	?	no	VENUS	283 nm	NormOB	0.0	yes
	10	Venus 3	?	yes	VENUS	283 nm	NormOB	0.25	yes
	11	post-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	12	post-dark 3	?	no	SHUTTER	shutter	NormOB	0.25	yes
	13	pre-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	yes
	14	pre-dark 4	?	no	SHUTTER	shutter	NormOB	0.046	yes
	15	Venus-0-exp 4	?	no	VENUS	365 nm	NormOB	0.0	yes
	16	Venus 4	?	yes	VENUS	365 nm	NormOB	0.046	yes
	17	post-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	yes
	18	post-dark 4	?	no	SHUTTER	shutter	NormOB	0.046	yes
lir	19	Venus 5	?	yes	VENUS	10 um	(32,32)	N/A	no

2.11 0x05_v2 (2016-06-16T00:00:00 – 2017-10-11T00:00:00): Dayside deluxe (UVI, IR1, IR2, LIR)

This observation program is primarily for dayside observation of Venus by IR1 with the 0.90-um for dayside filter, by IR2 with the 2.02-um filter, by UVI with the 283-nm and the 365-nm filters, and by LIR. The IR1 and IR2 images, "Venus #", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark #" and "post-dark #" by DE onboard, where # is 1 or 2. The IR1 and IR2 dark images, "pre-dark #" and "post-dark #", are stored to DR with HIREW compression in the partitions 0x08 and 0x09, respectively, where are not nominally downlinked. The UVI mean dark images of "pre-dark ##" and "post-dark ##", where ## is 3 or 4, are stored to DR with HIREW compression in the partition

0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([Venus ##] - ([pre-dark ##]+[post-dark ##])/2) - ([Venus-0-exp ##] - ([pre-dark-0-exp ##]+[post-dark-0-exp ##])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is the update of 0x05_v1, and the updated content is that exposure time for UVI with the 283-nm filter is set to 0.5 seconds, two times longer than before. This observation program is a ROI-disabled version of 0x17_v3.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		7.833	yes
	2	Venus 1	1	yes	VENUS	0.90 um day		7.833	yes
	3	post-dark 1	3	no	DARK	dark		7.833	yes
ir2	4	pre-dark 2	5	no	DARK	dark		6.97	yes
	5	Venus 2	4	yes	VENUS	2.02 um		6.97	yes
	6	post-dark 2	6	no	DARK	dark		6.97	yes
uvi	7	pre-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	8	pre-dark 3	?	no	SHUTTER	shutter	NormOB	0.5	yes
	9	Venus-0-exp 3	?	no	VENUS	283 nm	NormOB	0.0	yes
	10	Venus 3	?	yes	VENUS	283 nm	NormOB	0.5	yes
	11	post-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	12	post-dark 3	?	no	SHUTTER	shutter	NormOB	0.5	yes
	13	pre-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	yes
	14	pre-dark 4	?	no	SHUTTER	shutter	NormOB	0.046	yes
	15	Venus-0-exp 4	?	no	VENUS	365 nm	NormOB	0.0	yes
	16	Venus 4	?	yes	VENUS	365 nm	NormOB	0.046	yes
	17	post-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	yes
	18	post-dark 4	?	no	SHUTTER	shutter	NormOB	0.046	yes
lir	19	Venus 5	?	yes	VENUS	10 um	(32,32)	N/A	no

2.12 0x05_v3 (2017-10-11T00:00:00 –): Dayside slim (UVI, LIR)

This observation program is primarily for dayside observation of Venus by UVI with the 283-nm and the 365-nm filters, and by LIR. The UVI mean dark images of "pre-dark #" and "post-dark #", where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([Venus #] - ([pre-dark #]+[post-dark #])/2) - ([Venus-0-exp #] - ([pre-dark-0-exp #]+[post-dark-0-exp #])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is the update of 0x05_v2, and the updated content is that IR1 and IR2 observations were removed. This observation program is a ROI-disabled version of 0x09_v5.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	pre-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	yes
	2	pre-dark 1	?	no	SHUTTER	shutter	NormOB	0.5	yes
	3	Venus-0-exp 1	?	no	VENUS	283 nm	NormOB	0.0	yes
	4	Venus 1	?	yes	VENUS	283 nm	NormOB	0.5	yes
	5	post-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	yes
	6	post-dark 1	?	no	SHUTTER	shutter	NormOB	0.5	yes
	7	pre-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	yes
	8	pre-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	yes
	9	Venus-0-exp 2	?	no	VENUS	365 nm	NormOB	0.0	yes
	10	Venus 2	?	yes	VENUS	365 nm	NormOB	0.046	yes
	11	post-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	yes
	12	post-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	yes
lir	13	Venus 3	?	yes	VENUS	10 um	(32,32)	N/A	no

2.13 0x06_v1 (2010-05-20T00:00:00 – 2016-06-16T00:00:00): Dayside slim (UVI, IR1, IR2, LIR)

This observation program is primarily for dayside observation of Venus by IR1 with the 0.90-um for dayside filter, by IR2 with the 2.02-um filter, by UVI with the 365-nm filter, and by LIR. The IR1 and IR2 images, "Venus #", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark #" and "post-dark #" by DE onboard, where # is 1 or 2. The IR1 and IR2 dark images, "pre-dark #" and "post-dark #", are stored to DR with HIREW compression in the partitions 0x08 and 0x09, respectively, where are not nominally downlinked. The UVI mean dark image of "pre-dark 3" and "post-dark 3" is stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI image is calculated as ([Venus 3] - ([pre-dark 3]+[post-dark 3])/2) - ([Venus-0-exp 3] - ([pre-dark-0-exp 3]+[post-dark-0-exp 3])/2) by DE onboard and is stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		7.833	yes
	2	Venus 1	1	yes	VENUS	0.90 um day		7.833	yes
	3	post-dark 1	3	no	DARK	dark		7.833	yes
ir2	4	pre-dark 2	5	no	DARK	dark		6.97	yes
	5	Venus 2	4	yes	VENUS	2.02 um		6.97	yes
	6	post-dark 2	6	no	DARK	dark		6.97	yes
uvi	7	pre-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	8	pre-dark 3	?	no	SHUTTER	shutter	NormOB	0.046	yes
	9	Venus-0-exp 3	?	no	VENUS	365 nm	NormOB	0.0	yes
	10	Venus 3	?	yes	VENUS	365 nm	NormOB	0.046	yes
	11	post-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	12	post-dark 3	?	no	SHUTTER	shutter	NormOB	0.046	yes
lir	13	Venus 4	?	yes	VENUS	10 um	(32,32)	N/A	no

2.14 0x06_v2 (2016-06-16T00:00:00 – 2016-09-29T00:00:00): Dayside slim (IR1, IR2, LIR)

This observation program is primarily for dayside observation of Venus by IR1 with the 0.90-um for dayside filter and the diffuser, by IR2 with the 2.02-um filter, and by LIR. The IR1 images, "Venus 1" and "flat 1", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark 1" and "post-dark 1" by DE onboard. The IR2 image, "Venus 2", is stored to DR with HIREW compression, after subtraction of mean of "pre-dark 2" and "post-dark 2" by DE onboard. The IR1 and IR2 dark images, "pre-dark #" and "post-dark #", where # is 1 or 2, are stored to DR with HIREW compression in the partitions 0x08 and 0x09, respectively, where are not nominally downlinked. This observation program is the update of 0x06_v1, and the updated contents are that observation by UVI was removed, and observation by IR1 with the diffuser was added.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	3	no	DARK	dark		7.833	yes
	2	Venus 1	2	yes	VENUS	0.90 um day		7.833	yes
	3	flat 1	1	yes	DIFFUSER	diffuser		7.833	yes
	4	post-dark 1	4	no	DARK	dark		7.833	yes
ir2	5	pre-dark 2	6	no	DARK	dark		6.97	yes
	6	Venus 2	5	yes	VENUS	2.02 um		6.97	yes
	7	post-dark 2	7	no	DARK	dark		6.97	yes
lir	8	Venus 3	8	yes	VENUS	10 um	(32,32)	N/A	no

2.15 0x06_v3 (2016-09-29T00:00:00 –): Dayside slim (IR1, IR2, LIR)

This observation program is primarily for dayside observation of Venus by IR1 with the 0.90-um for dayside filter, by IR2 with the 2.02-um filter, and by LIR. The IR1 and IR2 images, "Venus #", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark #" and "post-dark #" by DE onboard, where # is 1 or 2. The IR1 and IR2 dark images, "pre-dark #" and "post-dark #", are stored to DR with HIREW compression in the partitions 0x08 and 0x09, respectively, where are not nominally downlinked. This observation program is the update of 0x06_v2, and the updated content is that observation by IR1 with the diffuser was removed.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		7.833	yes
	2	Venus 1	1	yes	VENUS	0.90 um day		7.833	yes
	3	post-dark 1	3	no	DARK	dark		7.833	yes
ir2	4	pre-dark 2	5	no	DARK	dark		6.97	yes
	5	Venus 2	4	yes	VENUS	2.02 um		6.97	yes
	6	post-dark 2	6	no	DARK	dark		6.97	yes
lir	7	Venus 3	7	yes	VENUS	10 um	(32,32)	N/A	no

2.16 0x07_v1 (2010-05-20T00:00:00 – 2016-06-16T00:00:00): Vicinity deluxe (UVI, LIR)

This observation program is primarily for dayside observation of Venus in the vicinity of Venus by UVI with the 283-nm and the 365-nm filters, and by LIR. The UVI mean dark images of "pre-dark #" and "post-dark #", where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([Venus #] - ([pre-dark #]+[post-dark #])/2) - ([Venus-0-exp #] - ([pre-dark-0-exp #]+[post-dark-0-exp #])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	pre-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	yes
	2	pre-dark 1	?	no	SHUTTER	shutter	NormOB	0.25	yes
	3	Venus-0-exp 1	?	no	VENUS	283 nm	NormOB	0.0	yes
	4	Venus 1	?	yes	VENUS	283 nm	NormOB	0.25	yes
	5	post-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	yes
	6	post-dark 1	?	no	SHUTTER	shutter	NormOB	0.25	yes
	7	pre-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	yes
	8	pre-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	yes
	9	Venus-0-exp 2	?	no	VENUS	365 nm	NormOB	0.0	yes
	10	Venus 2	?	yes	VENUS	365 nm	NormOB	0.046	yes
	11	post-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	yes
	12	post-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	yes
lir	13	Venus 3	?	yes	VENUS	10 um	(32,32)	N/A	no

2.17 0x07_v2 (2016-06-16T00:00:00 – 2016-09-29T00:00:00): Vicinity deluxe (UVI, LIR)

This observation program is primarily for dayside observation of Venus in the vicinity of Venus by UVI with the 283-nm and the 365-nm filters, and by LIR. The UVI mean dark images of "pre-dark #" and "post-dark #", where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([Venus #] - ([pre-dark #]+[post-dark #])/2) - ([Venus-0-exp #] - ([pre-dark-0-exp #]+[post-dark-0-exp #])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is the update of 0x07_v1, and the updated contents are that the median filtering

was removed from UVI observations, exposure time for observation by UVI with the 283-nm filter is set to 0.5 seconds, two times longer than before, and the observation by LIR was changed to acquiring 32 images with m=32 and n=1 from one image with m=32 and n=32.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	pre-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	no
	2	pre-dark 1	?	no	SHUTTER	shutter	NormOB	0.5	no
	3	Venus-0-exp 1	?	no	VENUS	283 nm	NormOB	0.0	no
	4	Venus 1	?	yes	VENUS	283 nm	NormOB	0.5	no
	5	post-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	no
	6	post-dark 1	?	no	SHUTTER	shutter	NormOB	0.5	no
	7	pre-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	no
	8	pre-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	no
	9	Venus-0-exp 2	?	no	VENUS	365 nm	NormOB	0.0	no
	10	Venus 2	?	yes	VENUS	365 nm	NormOB	0.046	no
	11	post-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	no
	12	post-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	no
lir	13	Venus 3	?	yes	VENUS	10 um	(32,1)x32	N/A	no

2.18 0x07_v3 (2016-09-29T00:00:00 –): Vicinity deluxe (UVI, LIR)

This observation program is primarily for dayside observation of Venus in the vicinity of Venus by UVI with the 283-nm and the 365-nm filters, and by LIR. The all UVI images are acquired with "TOP OB" mode, and are stored to DR in the partition 0x07 where is nominally downlinked with HIREW compression, but without subtraction of dark images. This observation program is the update of 0x07_v2, and the updated contents are that UVI observations were changed not to apply smear correction onboard and their observation mode was changed to "TOP OB" to be able to apply smear correction at the ground, and bug in the LIR image operations by DE onboard was fixed.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	dark-0-exp 1	1	yes	SHUTTER	shutter	TopOB	0.0	no
	2	dark 1	2	yes	SHUTTER	shutter	TopOB	0.5	no
	3	Venus-0-exp 1	3	yes	VENUS	283 nm	TopOB	0.0	no
	4	Venus 1	4	yes	VENUS	283 nm	TopOB	0.5	no
	5	dark-0-exp 2	5	yes	SHUTTER	shutter	TopOB	0.0	no
	6	dark 2	6	yes	SHUTTER	shutter	TopOB	0.046	no
	7	Venus-0-exp 2	7	yes	VENUS	365 nm	TopOB	0.0	no
	8	Venus 2	8	yes	VENUS	365 nm	TopOB	0.046	no
lir	9	Venus 3	9	yes	VENUS	10 um	(32,1)x32	N/A	no

2.19 0x08_v1 (2010-05-20T00:00:00 – 2015-10-23T00:00:00): Vicinity slim (UVIx2, LIR)

This observation program is primarily for dayside observation of Venus in the vicinity of Venus by UVI with the 365-nm filter, and by LIR. The UVI mean dark images of "pre-dark #" and "post-dark #", where # is 1 or 2, are stored to DR with JPEG 2000 compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([Venus #] - ([pre-dark #]+[post-dark #])/2) - ([Venus-0-exp #] - ([pre-dark-0-exp #]+[post-dark-0-exp #])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	pre-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	yes
	2	pre-dark 1	?	no	SHUTTER	shutter	NormOB	0.046	yes
	3	Venus-0-exp 1	?	no	VENUS	365 nm	NormOB	0.0	yes
	4	Venus 1	?	yes	VENUS	365 nm	NormOB	0.046	yes
	5	post-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	yes
	6	post-dark 1	?	no	SHUTTER	shutter	NormOB	0.046	yes
	7	pre-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	yes
	8	pre-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	yes
	9	Venus-0-exp 2	?	no	VENUS	365 nm	NormOB	0.0	yes
	10	Venus 2	?	yes	VENUS	365 nm	NormOB	0.046	yes
	11	post-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	yes
	12	post-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	yes
lir	13	Venus 3	?	yes	VENUS	10 um	(32,32)	N/A	no

2.20 0x08_v2 (2015-10-23T00:00:00 – 2016-06-16T00:00:00): Vicinity slim (UVIx2, LIR)

This observation program is primarily for dayside observation of Venus in the vicinity of Venus by UVI with the 365-nm filter, and by LIR. The UVI mean dark images of "pre-dark #" and "post-dark #", where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([Venus #] - ([pre-dark #]+[post-dark #])/2) - ([Venus-0-exp #] - ([pre-dark-0-exp #]+[post-dark-0-exp #])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is the update of 0x08_v1, and the updated content is that compression for UVI dark images was changed to HIREW from JPEG 2000.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	pre-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	yes
	2	pre-dark 1	?	no	SHUTTER	shutter	NormOB	0.046	yes
	3	Venus-0-exp 1	?	no	VENUS	365 nm	NormOB	0.0	yes
	4	Venus 1	?	yes	VENUS	365 nm	NormOB	0.046	yes
	5	post-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	yes
	6	post-dark 1	?	no	SHUTTER	shutter	NormOB	0.046	yes
	7	pre-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	yes
	8	pre-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	yes
	9	Venus-0-exp 2	?	no	VENUS	365 nm	NormOB	0.0	yes
	10	Venus 2	?	yes	VENUS	365 nm	NormOB	0.046	yes
	11	post-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	yes
	12	post-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	yes
lir	13	Venus 3	?	yes	VENUS	10 um	(32,32)	N/A	no

2.21 0x08_v3 (2016-06-16T00:00:00 – 2016-09-29T00:00:00): Vicinity slim (UVIx2, LIR)

This observation program is primarily for dayside observation of Venus in the vicinity of Venus by UVI with the 365-nm filter, and by LIR. The UVI mean dark images of "pre-dark #" and "post-dark #", where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([Venus #] - ([pre-dark #]+[post-dark #])/2) - ([Venus-0-exp #] - ([pre-dark-0-exp #]+[post-dark-0-exp #])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is the update of 0x08_v2, and the updated contents are that the median filtering was removed from UVI observations, and the observation by LIR was changed to acquiring 32 images with m=32 and n=1 from one image with m=32 and n=32.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	pre-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	no
	2	pre-dark 1	?	no	SHUTTER	shutter	NormOB	0.046	no
	3	Venus-0-exp 1	?	no	VENUS	365 nm	NormOB	0.0	no
	4	Venus 1	?	yes	VENUS	365 nm	NormOB	0.046	no
	5	post-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	no
	6	post-dark 1	?	no	SHUTTER	shutter	NormOB	0.046	no
	7	pre-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	no
	8	pre-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	no
	9	Venus-0-exp 2	?	no	VENUS	365 nm	NormOB	0.0	no
	10	Venus 2	?	yes	VENUS	365 nm	NormOB	0.046	no
	11	post-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	no
	12	post-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	no
lir	13	Venus 3	?	yes	VENUS	10 um	(32,1)x32	N/A	no

2.22 0x08_v4 (2016-09-29T00:00:00 – 2016-12-15T03:50:00): Vicinity slim (UVIx2, LIR)

This observation program is primarily for dayside observation of Venus in the vicinity of Venus by UVI with the 365-nm filter, and by LIR. The all UVI images are acquired with "TOP OB" mode, and are stored to DR in the partition 0x07 where is nominally downlinked with HIREW compression, but without subtraction of dark images. This observation program is the update of 0x08_v3, and the updated contents are that UVI observations were changed not to apply smear correction onboard and their observation mode was changed to "TOP OB" to be able to apply smear correction at the ground, the time interval between two UVI observations is set to 20 minutes from 10 minutes, and bug in the LIR image operations by DE onboard has been fixed.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	dark-0-exp 1	1	yes	SHUTTER	shutter	TopOB	0.0	no
	2	dark 1	2	yes	SHUTTER	shutter	TopOB	0.046	no
	3	Venus-0-exp 1	3	yes	VENUS	365 nm	TopOB	0.0	no
	4	Venus 1	4	yes	VENUS	365 nm	TopOB	0.046	no
	5	dark-0-exp 2	5	yes	SHUTTER	shutter	TopOB	0.0	no
	6	dark 2	6	yes	SHUTTER	shutter	TopOB	0.046	no
	7	Venus-0-exp 2	7	yes	VENUS	365 nm	TopOB	0.0	no
	8	Venus 2	8	yes	VENUS	365 nm	TopOB	0.046	no
lir	9	Venus 3	9	yes	VENUS	10 um	(32,1)x32	N/A	no

2.23 0x08_v5 (2016-12-15T03:50:00 –): Vicinity scan (UVI 365)

This observation program is for dayside observation of Venus in the vicinity of Venus by UVI with the 365-nm filter. The all UVI images are acquired with "TOP OB" mode, and are stored to DR in the partition 0x07 where is nominally downlinked with HIREW compression, but without subtraction of dark images.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	dark-0-exp 1	1	yes	SHUTTER	shutter	TopOB	0.0	no
	2	dark 1	2	yes	SHUTTER	shutter	TopOB	0.046	no
	3	Venus-0-exp 1	3	yes	VENUS	365 nm	TopOB	0.0	no
	4	Venus 1	4	yes	VENUS	365 nm	TopOB	0.046	no

2.24 0x09_v1 (2010-05-20T00:00:00 – 2015-10-23T00:00:00): Vicinity slim (UVIx7, LIR)

This observation program is primarily for dayside observation of Venus in the vicinity of Venus by UVI with the 365-nm filter, and by LIR. The UVI mean dark images of "pre-dark #" and "post-dark #", where # is 2, 3, 4, 5, 6, 7, or 8, are stored to DR with JPEG 2000 compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([Venus #] - ([pre-dark #]+[post-dark #])/2) - ([Venus-0-exp #] - ([pre-dark-0-exp #]+[post-dark-0-exp #])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
lir	1	Venus 1	1	yes	VENUS	10 um	(32,32)	N/A	no
uvi	2	pre-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	yes
	3	pre-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	yes
	4	Venus-0-exp 2	?	no	VENUS	365 nm	NormOB	0.0	yes
	5	Venus 2	?	yes	VENUS	365 nm	NormOB	0.046	yes
	6	post-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	yes
	7	post-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	yes
	8	pre-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	9	pre-dark 3	?	no	SHUTTER	shutter	NormOB	0.046	yes
	10	Venus-0-exp 3	?	no	VENUS	365 nm	NormOB	0.0	yes
	11	Venus 3	?	yes	VENUS	365 nm	NormOB	0.046	yes
	12	post-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	13	post-dark 3	?	no	SHUTTER	shutter	NormOB	0.046	yes
	14	pre-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	yes
	15	pre-dark 4	?	no	SHUTTER	shutter	NormOB	0.046	yes
	16	Venus-0-exp 4	?	no	VENUS	365 nm	NormOB	0.0	yes
	17	Venus 4	?	yes	VENUS	365 nm	NormOB	0.046	yes
	18	post-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	yes
	19	post-dark 4	?	no	SHUTTER	shutter	NormOB	0.046	yes
	20	pre-dark-0-exp 5	?	no	SHUTTER	shutter	NormOB	0.0	yes
	21	pre-dark 5	?	no	SHUTTER	shutter	NormOB	0.046	yes
	22	Venus-0-exp 5	?	no	VENUS	365 nm	NormOB	0.0	yes
	23	Venus 5	?	yes	VENUS	365 nm	NormOB	0.046	yes
	24	post-dark-0-exp 5	?	no	SHUTTER	shutter	NormOB	0.0	yes
	25	post-dark 5	?	no	SHUTTER	shutter	NormOB	0.046	yes
	26	pre-dark-0-exp 6	?	no	SHUTTER	shutter	NormOB	0.0	yes
	27	pre-dark 6	?	no	SHUTTER	shutter	NormOB	0.046	yes
	28	Venus-0-exp 6	?	no	VENUS	365 nm	NormOB	0.0	yes
	29	Venus 6	?	yes	VENUS	365 nm	NormOB	0.046	yes
	30	post-dark-0-exp 6	?	no	SHUTTER	shutter	NormOB	0.0	yes
	31	post-dark 6	?	no	SHUTTER	shutter	NormOB	0.046	yes
	32	pre-dark-0-exp 7	?	no	SHUTTER	shutter	NormOB	0.0	yes
	33	pre-dark 7	?	no	SHUTTER	shutter	NormOB	0.046	yes
	34	Venus-0-exp 7	?	no	VENUS	365 nm	NormOB	0.0	yes
	35	Venus 7	?	yes	VENUS	365 nm	NormOB	0.046	yes
	36	post-dark-0-exp 7	?	no	SHUTTER	shutter	NormOB	0.0	yes
	37	post-dark 7	?	no	SHUTTER	shutter	NormOB	0.046	yes
	38	pre-dark-0-exp 8	?	no	SHUTTER	shutter	NormOB	0.0	yes
	39	pre-dark 8	?	no	SHUTTER	shutter	NormOB	0.046	yes
	40	Venus-0-exp 8	?	no	VENUS	365 nm	NormOB	0.0	yes
	41	Venus 8	?	yes	VENUS	365 nm	NormOB	0.046	yes
	42	post-dark-0-exp 8	?	no	SHUTTER	shutter	NormOB	0.0	yes
	43	post-dark 8	?	no	SHUTTER	shutter	NormOB	0.046	yes

2.25 0x09_v2 (2015-10-23T00:00:00 – 2016-06-16T00:00:00): Vicinity slim (UVIx7, LIR)

This observation program is primarily for dayside observation of Venus in the vicinity of Venus by UVI with the 365-nm filter, and by LIR. The UVI mean dark images of "pre-dark #" and "post-dark #", where # is 2, 3, 4, 5, 6, 7, or 8, are stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([Venus #] - ([pre-dark #]+[post-dark #])/2) - ([Venus-0-exp #] - ([pre-dark-0-exp #]+[post-dark-0-exp #])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is the update of 0x09_v1, and the updated content is that compression for UVI dark images was changed to HIREW from JPEG 2000.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
lir	1	Venus 1	1	yes	VENUS	10 um	(32,32)	N/A	no
uvi	2	pre-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	yes
	3	pre-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	yes
	4	Venus-0-exp 2	?	no	VENUS	365 nm	NormOB	0.0	yes
	5	Venus 2	?	yes	VENUS	365 nm	NormOB	0.046	yes
	6	post-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	yes
	7	post-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	yes
	8	pre-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	9	pre-dark 3	?	no	SHUTTER	shutter	NormOB	0.046	yes
	10	Venus-0-exp 3	?	no	VENUS	365 nm	NormOB	0.0	yes
	11	Venus 3	?	yes	VENUS	365 nm	NormOB	0.046	yes
	12	post-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	13	post-dark 3	?	no	SHUTTER	shutter	NormOB	0.046	yes
	14	pre-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	yes
	15	pre-dark 4	?	no	SHUTTER	shutter	NormOB	0.046	yes
	16	Venus-0-exp 4	?	no	VENUS	365 nm	NormOB	0.0	yes
	17	Venus 4	?	yes	VENUS	365 nm	NormOB	0.046	yes
	18	post-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	yes
	19	post-dark 4	?	no	SHUTTER	shutter	NormOB	0.046	yes
	20	pre-dark-0-exp 5	?	no	SHUTTER	shutter	NormOB	0.0	yes
	21	pre-dark 5	?	no	SHUTTER	shutter	NormOB	0.046	yes
	22	Venus-0-exp 5	?	no	VENUS	365 nm	NormOB	0.0	yes
	23	Venus 5	?	yes	VENUS	365 nm	NormOB	0.046	yes
	24	post-dark-0-exp 5	?	no	SHUTTER	shutter	NormOB	0.0	yes
	25	post-dark 5	?	no	SHUTTER	shutter	NormOB	0.046	yes
	26	pre-dark-0-exp 6	?	no	SHUTTER	shutter	NormOB	0.0	yes
	27	pre-dark 6	?	no	SHUTTER	shutter	NormOB	0.046	yes
	28	Venus-0-exp 6	?	no	VENUS	365 nm	NormOB	0.0	yes
	29	Venus 6	?	yes	VENUS	365 nm	NormOB	0.046	yes
	30	post-dark-0-exp 6	?	no	SHUTTER	shutter	NormOB	0.0	yes
	31	post-dark 6	?	no	SHUTTER	shutter	NormOB	0.046	yes
	32	pre-dark-0-exp 7	?	no	SHUTTER	shutter	NormOB	0.0	yes
	33	pre-dark 7	?	no	SHUTTER	shutter	NormOB	0.046	yes
	34	Venus-0-exp 7	?	no	VENUS	365 nm	NormOB	0.0	yes
	35	Venus 7	?	yes	VENUS	365 nm	NormOB	0.046	yes
	36	post-dark-0-exp 7	?	no	SHUTTER	shutter	NormOB	0.0	yes
	37	post-dark 7	?	no	SHUTTER	shutter	NormOB	0.046	yes
	38	pre-dark-0-exp 8	?	no	SHUTTER	shutter	NormOB	0.0	yes
	39	pre-dark 8	?	no	SHUTTER	shutter	NormOB	0.046	yes
	40	Venus-0-exp 8	?	no	VENUS	365 nm	NormOB	0.0	yes
	41	Venus 8	?	yes	VENUS	365 nm	NormOB	0.046	yes
	42	post-dark-0-exp 8	?	no	SHUTTER	shutter	NormOB	0.0	yes
	43	post-dark 8	?	no	SHUTTER	shutter	NormOB	0.046	yes

2.26 0x09_v3 (2016-06-16T00:00:00 – 2016-09-29T00:00:00): Vicinity slim (UVIx7, LIR)

This observation program is primarily for dayside observation of Venus in the vicinity of Venus by UVI with the 365-nm filter, and by LIR. The UVI mean dark images of "pre-dark #" and "post-dark #", where # is 2, 3, 4, 5, 6, 7, or 8, are stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([Venus #] - ([pre-dark #]+[post-dark #])/2) - ([Venus-0-exp #] - ([pre-dark-0-exp #]+[post-dark-0-exp #])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is the update of 0x09_v2, and the updated contents are that the median filtering was removed from UVI observations, and the observation by LIR was changed to acquiring 32 images with m=32 and n=1 from one image with m=32 and n=32.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
lir	1	Venus 1	1	yes	VENUS	10 um	(32,1)x32	N/A	no
uvi	2	pre-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	no
	3	pre-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	no
	4	Venus-0-exp 2	?	no	VENUS	365 nm	NormOB	0.0	no
	5	Venus 2	?	yes	VENUS	365 nm	NormOB	0.046	no
	6	post-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	no
	7	post-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	no
	8	pre-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	no
	9	pre-dark 3	?	no	SHUTTER	shutter	NormOB	0.046	no
	10	Venus-0-exp 3	?	no	VENUS	365 nm	NormOB	0.0	no
	11	Venus 3	?	yes	VENUS	365 nm	NormOB	0.046	no
	12	post-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	no
	13	post-dark 3	?	no	SHUTTER	shutter	NormOB	0.046	no
	14	pre-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	no
	15	pre-dark 4	?	no	SHUTTER	shutter	NormOB	0.046	no
	16	Venus-0-exp 4	?	no	VENUS	365 nm	NormOB	0.0	no
	17	Venus 4	?	yes	VENUS	365 nm	NormOB	0.046	no
	18	post-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	no
	19	post-dark 4	?	no	SHUTTER	shutter	NormOB	0.046	no
	20	pre-dark-0-exp 5	?	no	SHUTTER	shutter	NormOB	0.0	no
	21	pre-dark 5	?	no	SHUTTER	shutter	NormOB	0.046	no
	22	Venus-0-exp 5	?	no	VENUS	365 nm	NormOB	0.0	no
	23	Venus 5	?	yes	VENUS	365 nm	NormOB	0.046	no
	24	post-dark-0-exp 5	?	no	SHUTTER	shutter	NormOB	0.0	no
	25	post-dark 5	?	no	SHUTTER	shutter	NormOB	0.046	no
	26	pre-dark-0-exp 6	?	no	SHUTTER	shutter	NormOB	0.0	no
	27	pre-dark 6	?	no	SHUTTER	shutter	NormOB	0.046	no
	28	Venus-0-exp 6	?	no	VENUS	365 nm	NormOB	0.0	no
	29	Venus 6	?	yes	VENUS	365 nm	NormOB	0.046	no
	30	post-dark-0-exp 6	?	no	SHUTTER	shutter	NormOB	0.0	no
	31	post-dark 6	?	no	SHUTTER	shutter	NormOB	0.046	no
	32	pre-dark-0-exp 7	?	no	SHUTTER	shutter	NormOB	0.0	no
	33	pre-dark 7	?	no	SHUTTER	shutter	NormOB	0.046	no
	34	Venus-0-exp 7	?	no	VENUS	365 nm	NormOB	0.0	no
	35	Venus 7	?	yes	VENUS	365 nm	NormOB	0.046	no
	36	post-dark-0-exp 7	?	no	SHUTTER	shutter	NormOB	0.0	no
	37	post-dark 7	?	no	SHUTTER	shutter	NormOB	0.046	no
	38	pre-dark-0-exp 8	?	no	SHUTTER	shutter	NormOB	0.0	no
	39	pre-dark 8	?	no	SHUTTER	shutter	NormOB	0.046	no
	40	Venus-0-exp 8	?	no	VENUS	365 nm	NormOB	0.0	no
	41	Venus 8	?	yes	VENUS	365 nm	NormOB	0.046	no
	42	post-dark-0-exp 8	?	no	SHUTTER	shutter	NormOB	0.0	no
	43	post-dark 8	?	no	SHUTTER	shutter	NormOB	0.046	no

2.27 0x09_v4 (2016-09-29T00:00:00 – 2016-12-15T03:50:00): Vicinity slim (UVIx7, LIR)

This observation program is primarily for dayside observation of Venus in the vicinity of Venus by UVI with the 365-nm filter, and by LIR. The all UVI images are acquired with "TOP OB" mode, and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked, but without subtraction of dark images. This observation program is the update of 0x09_v3, and the updated contents are that UVI observations were changed not to apply smear correction onboard and their observation mode was changed to "TOP OB" to be able to apply smear correction at the ground, and bug in the LIR image operations by DE onboard has been fixed.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
lir	1	Venus 1	1	yes	VENUS	10 um	(32,1)x32	N/A	no
uvi	2	dark-0-exp 2	2	yes	SHUTTER	shutter	TopOB	0.0	no
	3	dark 2	3	yes	SHUTTER	shutter	TopOB	0.046	no
	4	Venus-0-exp 2	4	yes	VENUS	365 nm	TopOB	0.0	no
	5	Venus 2	5	yes	VENUS	365 nm	TopOB	0.046	no
	6	dark-0-exp 3	6	yes	SHUTTER	shutter	TopOB	0.0	no
	7	dark 3	7	yes	SHUTTER	shutter	TopOB	0.046	no
	8	Venus-0-exp 3	8	yes	VENUS	365 nm	TopOB	0.0	no
	9	Venus 3	9	yes	VENUS	365 nm	TopOB	0.046	no
	10	dark-0-exp 4	10	yes	SHUTTER	shutter	TopOB	0.0	no
	11	dark 4	11	yes	SHUTTER	shutter	TopOB	0.046	no
	12	Venus-0-exp 4	12	yes	VENUS	365 nm	TopOB	0.0	no
	13	Venus 4	13	yes	VENUS	365 nm	TopOB	0.046	no
	14	dark-0-exp 5	14	yes	SHUTTER	shutter	TopOB	0.0	no
	15	dark 5	15	yes	SHUTTER	shutter	TopOB	0.046	no
	16	Venus-0-exp 5	16	yes	VENUS	365 nm	TopOB	0.0	no
	17	Venus 5	17	yes	VENUS	365 nm	TopOB	0.046	no
	18	dark-0-exp 6	18	yes	SHUTTER	shutter	TopOB	0.0	no
	19	dark 6	19	yes	SHUTTER	shutter	TopOB	0.046	no
	20	Venus-0-exp 6	20	yes	VENUS	365 nm	TopOB	0.0	no
	21	Venus 6	21	yes	VENUS	365 nm	TopOB	0.046	no
	22	dark-0-exp 7	22	yes	SHUTTER	shutter	TopOB	0.0	no
	23	dark 7	23	yes	SHUTTER	shutter	TopOB	0.046	no
	24	Venus-0-exp 7	24	yes	VENUS	365 nm	TopOB	0.0	no
	25	Venus 7	25	yes	VENUS	365 nm	TopOB	0.046	no
	26	dark-0-exp 8	26	yes	SHUTTER	shutter	TopOB	0.0	no
	27	dark 8	27	yes	SHUTTER	shutter	TopOB	0.046	no
	28	Venus-0-exp 8	28	yes	VENUS	365 nm	TopOB	0.0	no
	29	Venus 8	29	yes	VENUS	365 nm	TopOB	0.046	no

2.28 0x09_v5 (2016-12-15T03:50:00 –): Dayside slim (UVI, LIR) ROI

This observation program is primarily for dayside observation of Venus by UVI with the 283-nm and the 365-nm filters using ROI function, and by LIR. The UVI mean dark images of "pre-dark #" and "post-dark #", where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([Venus #] - ([pre-dark #]+[post-dark #])/2) - ([Venus-0-exp #] - ([pre-dark-0-exp #]+[post-dark-0-exp #])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is a ROI-enabled version of 0x05_v2.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	pre-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	yes
	2	pre-dark 1	?	no	SHUTTER	shutter	NormOB	0.5	yes
	3	Venus-0-exp 1	?	no	VENUS	283 nm	NormOB	0.0	yes
	4	Venus 1	?	yes	VENUS	283 nm	NormOB	0.5	yes
	5	post-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	yes
	6	post-dark 1	?	no	SHUTTER	shutter	NormOB	0.5	yes
	7	pre-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	yes
	8	pre-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	yes
	9	Venus-0-exp 2	?	no	VENUS	365 nm	NormOB	0.0	yes
	10	Venus 2	?	yes	VENUS	365 nm	NormOB	0.046	yes
	11	post-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	yes
	12	post-dark 2	?	no	SHUTTER	shutter	NormOB	0.046	yes
lir	13	Venus 3	?	yes	VENUS	10 um	(32,32)	N/A	no

2.29 0x0a_v1 (2010-05-20T00:00:00 – 2016-06-16T00:00:00): Limb (UVI, IR1)

This observation program is primarily for dayside limb observation of Venus in the vicinity of Venus by UVI with the 365-nm filter and by IR1 with the 0.90-um for dayside filter. The UVI mean dark image of "pre-dark 1" and "post-dark 1" is stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI image is calculated as ([Venus 1] - ([pre-dark 1]+[post-dark 1])/2) - ([Venus-0-exp 1] - ([pre-dark-0-exp 1]+[post-dark-0-exp 1])/2) by DE onboard and is stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. The IR1 image, "Venus 2", is stored to DR with HIREW compression, after subtraction of mean of "pre-dark 2" and "post-dark 2" by DE onboard. The IR1 dark images, "pre-dark 2" and "post-dark 2", are stored to DR with HIREW compression in the partition 0x08 where is not nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	pre-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	yes
	2	pre-dark 1	?	no	SHUTTER	shutter	NormOB	4	yes
	3	Venus-0-exp 1	?	no	VENUS	365 nm	NormOB	0.0	yes
	4	Venus 1	?	yes	VENUS	365 nm	NormOB	4	yes
	5	post-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	yes
	6	post-dark 1	?	no	SHUTTER	shutter	NormOB	4	yes
ir1	7	pre-dark 2	?	no	DARK	dark		30.833	no
	8	Venus 2	?	yes	VENUS	0.90 um day		30.833	no
	9	post-dark 2	?	no	DARK	dark		30.833	no

2.30 0x0a_v2 (2016-06-16T00:00:00 – 2016-09-29T00:00:00): Limb (UVI, IR1, IR2)

This observation program is primarily for dayside limb observation of Venus in the vicinity of Venus by IR1 with the 0.90-um for dayside filter, by IR2 with the 2.02-um filter, and by UVI with the 365-nm filter. The IR1 and IR2 images, "Venus #", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark #" and "post-dark #" by DE onboard, where # is 1 or 2. The UVI mean dark image of "pre-dark 3" and "post-dark 3" is stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI image is calculated as ([Venus 3] - ([pre-dark 3]+[post-dark 3])/2) - ([Venus-0-exp 3] - ([pre-dark-0-exp 3]+[post-dark-0-exp 3])/2) by DE onboard and is stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is the update of 0x0a_v1, and the updated content is that observation of IR2 with the 2.02-um filter was added.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		30.833	no
	2	Venus 1	1	yes	VENUS	0.90 um day		30.833	no
	3	post-dark 1	3	no	DARK	dark		30.833	no
ir2	4	pre-dark 2	5	no	DARK	dark		18.97	no
	5	Venus 2	4	yes	VENUS	2.02 um		18.97	no
	6	post-dark 2	6	no	DARK	dark		18.97	no
uvi	7	pre-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	8	pre-dark 3	?	no	SHUTTER	shutter	NormOB	4	yes
	9	Venus-0-exp 3	?	no	VENUS	365 nm	NormOB	0.0	yes
	10	Venus 3	?	yes	VENUS	365 nm	NormOB	4	yes
	11	post-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	12	post-dark 3	?	no	SHUTTER	shutter	NormOB	4	yes

2.31 0x0a_v3 (2016-09-29T00:00:00 –): Limb (UVI, IR1, IR2, LIR)

This observation program is primarily for dayside limb observation of Venus in the vicinity of Venus by IR1 with the 0.90-um for dayside filter, by IR2 with the 2.02-um filter, by UVI with the 283-nm and the 365-nm filters, and by LIR. The IR1 and IR2 images, "Venus #", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark #" and "post-dark #" by DE onboard, where # is 1 or 2. The IR1 and IR2 dark images, "pre-dark #" and "post-dark #", are stored to DR with HIREW compression in the partitions 0x08 and 0x09, respectively, where are not nominally downlinked. The all UVI images are stored to DR in the partition 0x07 where is nominally downlinked, without applying any operations such as subtraction of dark images, except for HIREW compression. This observation program is the update of 0x0a_v2, and the updated contents are that the median filtering was removed from UVI observations, UVI observations were changed not to apply smear correction onboard and their observation mode was changed to "TOP OB" to be able to apply smear correction at the ground, exposure time for UVI observation with the 365-nm filter was changed to 0.046 seconds from 4 seconds, UVI observation with the 283-nm filter was added, and LIR observation was added.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		30.833	no
	2	Venus 1	1	yes	VENUS	0.90 um day		30.833	no
	3	post-dark 1	3	no	DARK	dark		30.833	no
ir2	4	pre-dark 2	5	no	DARK	dark		18.97	no
	5	Venus 2	4	yes	VENUS	2.02 um		18.97	no
	6	post-dark 2	6	no	DARK	dark		18.97	no
uvi	7	dark-0-exp 3	7	yes	SHUTTER	shutter	NormOB	0.0	no
	8	dark 3	8	yes	SHUTTER	shutter	NormOB	0.5	no
	9	Venus-0-exp 3	9	yes	VENUS	283 nm	NormOB	0.0	no
	10	Venus 3	10	yes	VENUS	283 nm	NormOB	0.5	no
	11	dark-0-exp 4	11	yes	SHUTTER	shutter	NormOB	0.0	no
	12	dark 4	12	yes	SHUTTER	shutter	NormOB	0.046	no
	13	Venus-0-exp 4	13	yes	VENUS	365 nm	NormOB	0.0	no
	14	Venus 4	14	yes	VENUS	365 nm	NormOB	0.046	no
lir	15	Venus 5	15	yes	VENUS	10 um	(32,1)x32	N/A	no

2.32 0x0b_v1 (2010-05-20T00:00:00 – 2016-06-16T00:00:00): Nightside vicinity scan (IR2, LIR)

This observation program is primarily for nightside observation of Venus in the vicinity of Venus by IR2 with the 2.26-um filter, and by LIR. The IR2 image, "Venus 1", is stored to DR with JPEG 2000 compression, after subtraction of mean of "pre-dark 1" and "post-dark 1" by DE onboard. The IR2 dark images, "pre-dark 1" and "post-dark 1", are stored to DR with JPEG 2000 compression in the partition 0x09 where is not nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir2	1	pre-dark 1	2	no	DARK	dark		6.97	no
	2	Venus 1	1	yes	VENUS	2.26 um		6.97	no
	3	post-dark 1	3	no	DARK	dark		6.97	no
lir	4	Venus 2	4	yes	VENUS	10 um	(32,32)	N/A	no

2.33 0x0b_v2 (2016-06-16T00:00:00 – 2016-09-29T00:00:00): Nightside vicinity scan (IR2, LIR)

This observation program is primarily for nightside observation of Venus in the vicinity of Venus by IR2 with the 1.735-um and the 2.26-um filters, and by LIR. The IR2 images, "Venus 1" and "Venus 2", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark 1" and "post-dark 1"

by DE onboard. The IR2 dark images, “pre-dark 1” and “post-dark 1”, are stored to DR with HIREW compression in the partition 0x09 where is not nominally downlinked. This observation program is the update of 0x0b_v1, and the updated contents are that observation by IR2 with the 1.735-um filter was added, and the observation by LIR was changed to acquiring 32 images with m=32 and n=1 from one image with m=32 and n=32.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir2	1	pre-dark 1	3	no	DARK	dark		6.97	no
	2	Venus 1	2	yes	VENUS	1.735 um		6.97	no
	3	Venus 2	1	yes	VENUS	2.26 um		6.97	no
	4	post-dark 1	4	no	DARK	dark		6.97	no
lir	5	Venus 3	5	yes	VENUS	10 um	(32,1)x32	N/A	no

2.34 0x0b_v3 (2016-09-29T00:00:00 –): Nightside vicinity scan (IR2, LIR)

This observation program is primarily for nightside observation of Venus in the vicinity of Venus by IR2 with the 1.735-um and 2.26-um filters, and by LIR. The IR2 images, “Venus 1” and “Venus 2”, are stored to DR with HIREW compression, after subtraction of mean of “pre-dark 1” and “post-dark 1” by DE onboard. The IR2 dark images, “pre-dark 1” and “post-dark 1”, are stored to DR with HIREW compression in the partition 0x09 where is not nominally downlinked. This observation program is the update of 0x0b_v2, and the updated content is that bug in the LIR image operations by DE onboard has been fixed.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir2	1	pre-dark 1	3	no	DARK	dark		6.97	no
	2	Venus 1	2	yes	VENUS	1.735 um		6.97	no
	3	Venus 2	1	yes	VENUS	2.26 um		6.97	no
	4	post-dark 1	4	no	DARK	dark		6.97	no
lir	5	Venus 3	5	yes	VENUS	10 um	(32,1)x32	N/A	no

2.35 0x0c_v1 (2010-05-20T00:00:00 – 2016-06-16T00:00:00): Dayside vicinity scan (UVI, IR1, IR2, LIR)

This observation program is primarily for dayside observation of Venus in the vicinity of Venus by IR1 with the 0.90-um for dayside filter, by IR2 with the 2.02-um filter, by UVI with the 365-nm filter, and by LIR. The IR1 and IR2 images, “Venus #”, are stored to DR with HIREW compression, after subtraction of mean of “pre-dark #” and “post-dark #” by DE onboard, where # is 1 or 2. The IR1 and IR2 dark images, “pre-dark #” and “post-dark #”, are stored to DR with HIREW compression in the partitions 0x08 and 0x09, respectively, where are not nominally downlinked. The UVI mean dark image of “pre-dark 3” and “post-dark 3” is stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI image is calculated as ([Venus 3] - ([pre-dark 3]+[post-dark 3])/2) - ([Venus-0-exp 3] - ([pre-dark-0-exp 3]+[post-dark-0-exp 3])/2) by DE onboard and is stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		7.833	no
	2	Venus 1	1	yes	VENUS	0.90 um day		7.833	no
	3	post-dark 1	3	no	DARK	dark		7.833	no
ir2	4	pre-dark 2	5	no	DARK	dark		6.97	no
	5	Venus 2	4	yes	VENUS	2.02 um		6.97	no
	6	post-dark 2	6	no	DARK	dark		6.97	no
uvi	7	pre-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	no
	8	pre-dark 3	?	no	SHUTTER	shutter	NormOB	0.046	no
	9	Venus-0-exp 3	?	no	VENUS	365 nm	NormOB	0.0	no
	10	Venus 3	?	yes	VENUS	365 nm	NormOB	0.046	no
	11	post-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	no
	12	post-dark 3	?	no	SHUTTER	shutter	NormOB	0.046	no
lir	13	Venus 4	?	yes	VENUS	10 um	(32,32)	N/A	no

2.36 0x0c_v2 (2016-06-16T00:00:00 – 2016-09-29T00:00:00): Dayside vicinity scan (UVI, IR1, IR2, LIR)

This observation program is primarily for dayside observation of Venus in the vicinity of Venus by IR1 with the 0.90-um for dayside filter, by IR2 with the 2.02-um filter, by UVI with the 365-nm filter, and by LIR. The IR1 and IR2 images, “Venus #”, are stored to DR with HIREW compression, after subtraction of mean of “pre-dark #” and “post-dark #” by DE onboard, where # is 1 or 2. The IR1 and IR2 dark images, “pre-dark #” and “post-dark #”, are stored to DR with HIREW compression in the partitions 0x08 and 0x09, respectively, where are not nominally downlinked. The UVI mean dark image of “pre-dark 3” and “post-dark 3” is stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI image is calculated as ([Venus 3] - ([pre-dark 3]+[post-dark 3])/2) - ([Venus-0-exp 3] - ([pre-dark-0-exp 3]+[post-dark-0-exp 3])/2) by DE onboard and is stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is the update of 0x0c_v1, and the updated content is that the observation by LIR was changed to acquiring 32 images with m=32 and n=1 from one image with m=32 and n=32.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		7.833	no
	2	Venus 1	1	yes	VENUS	0.90 um day		7.833	no
	3	post-dark 1	3	no	DARK	dark		7.833	no
ir2	4	pre-dark 2	5	no	DARK	dark		6.97	no
	5	Venus 2	4	yes	VENUS	2.02 um		6.97	no
	6	post-dark 2	6	no	DARK	dark		6.97	no
uvi	7	pre-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	no
	8	pre-dark 3	?	no	SHUTTER	shutter	NormOB	0.046	no
	9	Venus-0-exp 3	?	no	VENUS	365 nm	NormOB	0.0	no
	10	Venus 3	?	yes	VENUS	365 nm	NormOB	0.046	no
	11	post-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	no
	12	post-dark 3	?	no	SHUTTER	shutter	NormOB	0.046	no
lir	13	Venus 4	?	yes	VENUS	10 um	(32,1)x32	N/A	no

2.37 0x0c_v3 (2016-09-29T00:00:00 –): Dayside vicinity scan (UVI, IR1, IR2, LIR)

This observation program is primarily for dayside observation of Venus in the vicinity of Venus by IR1 with the 0.90-um for dayside filter, by IR2 with the 2.02-um filter, by UVI with the 365-um filter, and by LIR. The IR1 and IR2 images, “Venus #”, are stored to DR with HIREW compression, after subtraction of mean of “pre-dark #” and “post-dark #” by DE onboard, where # is 1 or 2. The all UVI images are acquired with “TOP OB” mode, and are stored to DR in the partition 0x07 where is nominally

downlinked, without applying any operations such as subtraction of dark images, except for HIREW compression. This observation program is the update of 0x0c_v2, and the updated contents are that UVI observation was changed not to apply smear correction onboard and their observation mode was changed to "TOP OB" to be able to apply smear correction at the ground, and bug in the LIR image operations by DE onboard has been fixed.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		7.833	no
	2	Venus 1	1	yes	VENUS	0.90 um day		7.833	no
	3	post-dark 1	3	no	DARK	dark		7.833	no
ir2	4	pre-dark 2	5	no	DARK	dark		6.97	no
	5	Venus 2	4	yes	VENUS	2.02 um		6.97	no
	6	post-dark 2	6	no	DARK	dark		6.97	no
uvi	7	dark-0-exp 3	7	yes	SHUTTER	shutter	TopOB	0.0	no
	8	dark 3	8	yes	SHUTTER	shutter	TopOB	0.046	no
	9	Venus-0-exp 3	9	yes	VENUS	365 nm	TopOB	0.0	no
	10	Venus 3	10	yes	VENUS	365 nm	TopOB	0.046	no
lir	11	Venus 4	11	yes	VENUS	10 um	(32,1)x32	N/A	no

2.38 0x0d_v1 (2010-05-20T00:00:00 – 2010-10-11T00:00:00): Zodiacal light

This observation program is for zodiacal light observation during the cruise to Venus by IR2 with the 1.65-um filter. The IR2 images, "zodiacal light #", where # is 1, 2, or 3, are stored to DR without subtraction of dark images, except for HIREW compression. The IR2 dark images, "pre-dark 1" and "post-dark 1", are stored to DR with HIREW compression. This observation program doesn't work properly, so no data had been acquired.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir2	1	pre-dark 1	1	yes	DARK	dark		122.83	no
	2	zodiacal light 1	2	yes	ZODIACAL LIGHT	1.65 um		122.83	no
	3	zodiacal light 2	3	yes	ZODIACAL LIGHT	1.65 um		122.83	no
	4	zodiacal light 3	4	yes	ZODIACAL LIGHT	1.65 um		122.83	no
	5	post-dark 1	5	yes	DARK	dark		122.83	no

2.39 0x0d_v2 (2010-10-11T00:00:00 – 2015-10-23T00:00:00): Zodiacal light

This observation program is for zodiacal light observation during the cruise to Venus by IR2 with the 1.65-um filter. The IR2 images, "zodiacal light #", where # is 1, 2, or 3, are stored to DR with HIREW compression, after subtraction of the dark image, "pre-dark 1". The IR2 dark images, "pre-dark 1" and "post-dark 1", are stored to DR with HIREW compression. This observation program is the update of 0x0d_v1, and the updated content is that inappropriate image operations by DE onboard was fixed.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir2	1	pre-dark 1	1	yes	DARK	dark		122.83	no
	2	zodiacal light 1	2	yes	ZODIACAL LIGHT	1.65 um		122.83	no
	3	zodiacal light 2	3	yes	ZODIACAL LIGHT	1.65 um		122.83	no
	4	zodiacal light 3	4	yes	ZODIACAL LIGHT	1.65 um		122.83	no
	5	post-dark 1	5	yes	DARK	dark		122.83	no

2.40 0x0d_v3 (2015-10-23T00:00:00 – 2016-06-16T00:00:00): Nightside deluxe (IR2, LIR) ROI

This observation program is primarily for nightside observation of Venus by IR2 with the 1.735-um, the 2.26-um, and the 2.32-um filters using ROI function, and by LIR. The IR2 images, "Venus 1" and

"Venus 2", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark 1" and "post-dark 1" by DE onboard. The IR2 image, "Venus 3", is stored to DR with HIREW compression, after subtraction of mean of "pre-dark 2" and "post-dark 2" by DE onboard. The IR2 dark images, "pre-dark #" and "post-dark #", where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x09 where is not nominally downlinked. This observation program is a ROI-enabled version of 0x01_v1.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir2	1	pre-dark 1	3	no	DARK	dark		6.97	yes
	2	Venus 1	2	yes	VENUS	1.735 um		6.97	yes
	3	Venus 2	1	yes	VENUS	2.26 um		6.97	yes
	4	post-dark 1	4	no	DARK	dark		6.97	yes
	5	pre-dark 2	6	no	DARK	dark		12.97	yes
	6	Venus 3	5	yes	VENUS	2.32 um		12.97	yes
	7	post-dark 2	7	no	DARK	dark		12.97	yes
lir	8	Venus 4	8	yes	VENUS	10 um	(32,32)	N/A	no

2.41 0x0d_v4 (2016-06-16T00:00:00 –): Nightside deluxe (IR2, LIR) ROI

This observation program is primarily for nightside observation of Venus by IR2 with the 1.735-um, the 2.26-um, the 2.02-um, and the 2.32-um filters using ROI function, and by LIR. The IR2 images, "Venus 1" and "Venus 2", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark 1" and "post-dark 1" by DE onboard. The IR2 images, "Venus 3" and "Venus 4", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark 2" and "post-dark 2" by DE onboard. The IR2 dark images, "pre-dark #" and "post-dark #", where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x09 where is not nominally downlinked. This observation program is the update of 0x0d_v3, and the updated content is that observation by IR2 with the 2.02-um filter was added. This observation program is a ROI-enabled version of 0x01_v2.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir2	1	pre-dark 1	3	no	DARK	dark		6.97	yes
	2	Venus 1	2	yes	VENUS	1.735 um		6.97	yes
	3	Venus 2	1	yes	VENUS	2.26 um		6.97	yes
	4	post-dark 1	4	no	DARK	dark		6.97	yes
	5	pre-dark 2	7	no	DARK	dark		12.97	yes
	6	Venus 3	6	yes	VENUS	2.02 um		12.97	no
	7	Venus 4	5	yes	VENUS	2.32 um		12.97	yes
	8	post-dark 2	8	no	DARK	dark		12.97	yes
lir	9	Venus 5	9	yes	VENUS	10 um	(32,32)	N/A	no

2.42 0x0e_v1 (2010-05-20T00:00:00 – 2015-10-23T00:00:00): UVI health check (flat)

This observation program is for health check and for acquiring flat field data of UVI with the diffuser. The all UVI images are acquired with "TOP OB" mode, and are stored to DR without applying any operations such as subtraction of dark images, except for compressions. Each image is compressed by two ways, HIREW compression and JPEG 2000 compression. All of the compressed images are stored to DR in the partition 0x07 where is nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	noise-0-exp 1	1	yes	SHUTTER	shutter	TopOB	0.0	no
	2	noise 1	2	yes	SHUTTER	shutter	TopOB	1.0	no
	3	flat-0-exp 1	3	yes	DIFFUSER	diffuser	TopOB	0.0	no
	4	flat 1	4	yes	DIFFUSER	diffuser	TopOB	1.0	no

2.43 0x0e_v2 (2015-10-23T00:00:00 –): Nightside slim (IR2, LIR) ROI

This observation program is primarily for nightside observation of Venus by IR2 with the 2.26-um filter using ROI function, and by LIR. The IR2 image, "Venus 1", is stored to DR with HIREW compression, after subtraction of mean of "pre-dark 1" and "post-dark 1" by DE onboard. The IR2 dark images, "pre-dark 1" and "post-dark 1", are stored to DR with HIREW compression in the partition 0x09 where is not nominally downlinked. This observation program is a ROI-enabled version of 0x02_v1. This observation program was never used.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir2	1	pre-dark 1	2	no	DARK	dark		6.97	yes
	2	Venus 1	1	yes	VENUS	2.26 um		6.97	yes
	3	post-dark 1	3	no	DARK	dark		6.97	yes
lir	4	Venus 2	4	yes	VENUS	10 um	(32,32)	N/A	no

2.44 0x0f_v1 (2010-05-20T00:00:00 – 2011-02-13T00:00:00): UVI lightning and stars

This observation program is primarily for lightning observation in the Venus atmosphere or star observation by UVI with the 365-um filter. The UVI mean dark image of "pre-dark 1" and "post-dark 1" is stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. The smear corrected UVI image is calculated as ([signal 1] - ([pre-dark 1]+[post-dark 1])/2) - ([signal-0-exp 1] - ([pre-dark-0-exp 1]+[post-dark-0-exp 1])/2) by DE onboard and is stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	pre-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0	yes
	2	pre-dark 1	?	no	SHUTTER	shutter	NormOB	11	yes
	3	signal-0-exp 1	?	no	any	365 nm	NormOB	0	yes
	4	signal 1	?	yes	any	365 nm	NormOB	11	yes
	5	post-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0	yes
	6	post-dark 1	?	no	SHUTTER	shutter	NormOB	11	yes

2.45 0x0f_v2 (2011-02-13T00:00:00 – 2016-06-16T00:00:00): UVI lightning and stars

This observation program is primarily for lightning observation in the Venus atmosphere or star observation by UVI with the 365-um filter. The UVI mean dark image of "pre-dark 1" and "post-dark 1" is stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI image is calculated as ([signal 1] - ([pre-dark 1]+[post-dark 1])/2) - ([signal-0-exp 1] - ([pre-dark-0-exp 1]+[post-dark-0-exp 1])/2) by DE onboard and is stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is the update of 0x0f_v1, and the updated contents are that partition that stores the mean dark image was changed to 0x0c from 0x07, and the median filtering was removed from UVI observation.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	pre-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0	no
	2	pre-dark 1	?	no	SHUTTER	shutter	NormOB	11	no
	3	signal-0-exp 1	?	no	any	365 nm	NormOB	0	no
	4	signal 1	?	yes	any	365 nm	NormOB	11	no
	5	post-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0	no
	6	post-dark 1	?	no	SHUTTER	shutter	NormOB	11	no

2.46 0x0f_v3 (2016-06-16T00:00:00 –): UVI lightning and stars

This observation program is primarily for lightning observation in the Venus atmosphere or star observation by UVI with the 283-nm and the 365-nm filters. The UVI mean dark images of "pre-dark #" and "post-dark #", where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([signal #] - ([pre-dark #]+[post-dark #])/2) - ([signal-0-exp #] - ([pre-dark-0-exp #]+[post-dark-0-exp #])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is the update of 0x0f_v2, and the updated content is that UVI observation with the 283-nm filter was added.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	pre-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	no
	2	pre-dark 1	?	no	SHUTTER	shutter	NormOB	11	no
	3	signal-0-exp 1	?	no	any	283 nm	NormOB	0.0	no
	4	signal 1	?	yes	any	283 nm	NormOB	11	no
	5	post-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	no
	6	post-dark 1	?	no	SHUTTER	shutter	NormOB	11	no
	7	pre-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	no
	8	pre-dark 2	?	no	SHUTTER	shutter	NormOB	11	no
	9	signal-0-exp 2	?	no	any	365 nm	NormOB	0.0	no
	10	signal 2	?	yes	any	365 nm	NormOB	11	no
	11	post-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	no
	12	post-dark 2	?	no	SHUTTER	shutter	NormOB	11	no

2.47 0x10_v1 (2010-05-20T00:00:00 – 2016-06-16T00:00:00): UVI health check (TOP OB)

This observation program is for health check of UVI with the 283-nm and the 365-nm filters. The all UVI images are acquired with "TOP OB" mode, and are stored to DR in the partition 0x07 where is nominally downlinked, without applying any operations such as subtraction of dark images, except for HIREW compression.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	noise-0-exp 1	1	yes	SHUTTER	shutter	TopOB	0.0	no
	2	noise 1	2	yes	SHUTTER	shutter	TopOB	0.25	no
	3	signal-0-exp 1	3	yes	any	283 nm	TopOB	0.0	no
	4	signal 1	4	yes	any	283 nm	TopOB	0.25	no
	5	signal-0-exp 2	5	yes	any	365 nm	TopOB	0.0	no
	6	signal 2	6	yes	any	365 nm	TopOB	0.046	no
	7	noise-0-exp 2	7	yes	SHUTTER	shutter	TopOB	0.0	no
	8	noise 2	8	yes	SHUTTER	shutter	TopOB	0.046	no

2.48 0x10_v2 (2016-06-16T00:00:00 –): UVI health check (TOP OB)

This observation program is for health check of UVI with the 283-nm and the 365-nm filters. The all UVI images are acquired with "TOP OB" mode, and are stored to DR in the partition 0x07 where is nominally downlinked, without applying any operations such as subtraction of dark images, except for HIREW compression. This observation program is the update of 0x10_v1, and the updated content is that exposure time for observation by UVI with the 283-nm filter is set to 0.5 seconds, two times longer than before.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	noise-0-exp 1	1	yes	SHUTTER	shutter	TopOB	0.0	no
	2	noise 1	2	yes	SHUTTER	shutter	TopOB	0.5	no
	3	signal-0-exp 1	3	yes	any	283 nm	TopOB	0.0	no
	4	signal 1	4	yes	any	283 nm	TopOB	0.5	no
	5	signal-0-exp 2	5	yes	any	365 nm	TopOB	0.0	no
	6	signal 2	6	yes	any	365 nm	TopOB	0.046	no
	7	noise-0-exp 2	7	yes	SHUTTER	shutter	TopOB	0.0	no
	8	noise 2	8	yes	SHUTTER	shutter	TopOB	0.046	no

2.49 0x11_v1 (2010-05-20T00:00:00 – 2011-02-13T00:00:00): IR1 Nightside all wavelengths

This observation program is for star observation by IR1 with the 0.97-um, the 1.01-um, and the 0.90-um for nightside filters. The IR1 images, “star 1” and “star 2”, are stored to DR with HIREW compression, after subtraction of mean of “pre-dark 1” and “post-dark 1” by DE onboard. The IR1 image, “star 3”, is stored to DR with HIREW compression, after subtraction of mean of “pre-dark 2” and “post-dark 2” by DE onboard. The IR1 dark images, “pre-dark #” and “post-dark #”, where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x08 where is not nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	3	no	DARK	dark		10.833	no
	2	star 1	2	yes	STAR	0.97 um		10.833	no
	3	star 2	1	yes	STAR	1.01 um		10.833	no
	4	post-dark 1	4	no	DARK	dark		10.833	no
	5	pre-dark 2	6	no	DARK	dark		10.833	no
	6	star 3	5	yes	STAR	0.90 um night		10.833	no
	7	post-dark 2	7	no	DARK	dark		10.833	no

2.50 0x11_v2 (2011-02-13T00:00:00 –): IR1 Nightside all wavelengths

This observation program is for star observation by IR1 with the 0.97-um, the 1.01-um, and the 0.90-um for nightside filters. The IR1 images, “star 1” and “star 2”, are stored to DR with HIREW compression, after subtraction of mean of “pre-dark 1” and “post-dark 1” by DE onboard. The IR1 image, “star 3”, is stored to DR with HIREW compression, after subtraction of mean of “pre-dark 2” and “post-dark 2” by DE onboard. The IR1 dark images, “pre-dark #” and “post-dark #”, where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x08 where is not nominally downlinked. This observation program is the update of 0x11_v1, and the updated content is that exposure time for all observations was set to 30.833 seconds, about three times longer than before.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	3	no	DARK	dark		30.833	no
	2	star 1	2	yes	STAR	0.97 um		30.833	no
	3	star 2	1	yes	STAR	1.01 um		30.833	no
	4	post-dark 1	4	no	DARK	dark		30.833	no
	5	pre-dark 2	6	no	DARK	dark		30.833	no
	6	star 3	5	yes	STAR	0.90 um night		30.833	no
	7	post-dark 2	7	no	DARK	dark		30.833	no

2.51 0x12_v1 (2010-05-20T00:00:00 –): IR2 nightside all wavelengths

This observation program is for star observation by IR2 with the 1.735-um, the 2.32-um, and the 2.26-um filters. The IR2 images, “star 1” and “star 2”, are stored to DR with HIREW compression, after subtraction of mean of “pre-dark 1” and “post-dark 1” by DE onboard. The IR2 image, “star 3”, is stored to DR with

HIREW compression, after subtraction of mean of “pre-dark 2” and “post-dark 2” by DE onboard. The IR2 dark images, “pre-dark #” and “post-dark #”, where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x09 where is not nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir2	1	pre-dark 1	3	no	DARK	dark		18.97	no
	2	star 1	2	yes	STAR	1.735 um		18.97	no
	3	star 2	1	yes	STAR	2.32 um		18.97	no
	4	post-dark 1	4	no	DARK	dark		18.97	no
	5	pre-dark 2	6	no	DARK	dark		12.97	no
	6	star 3	5	yes	STAR	2.26		12.97	no
	7	post-dark 2	7	no	DARK	dark		12.97	no

2.52 0x13_v1 (2010-05-20T00:00:00 – 2016-06-16T00:00:00): IR1 health check

This observation program is for health check of IR1 with the 0.90-um for dayside filter. The IR1 images, “cal. lamp 1” and “ext. light 1”, are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked, after subtraction of mean of “pre-dark 1” and “post-dark 1” by DE onboard. The IR1 dark images, “pre-dark 1” and “post-dark 1”, are stored to DR with HIREW compression in the partition 0x08 where is not nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	3	no	DARK	dark		7.833	no
	2	cal. lamp 1	2	yes	CAL	DARK		7.833	no
	3	ext. light 1	1	yes	EXTERNAL LIGHT	0.90 um day		7.833	no
	4	post-dark 1	4	no	DARK	dark		7.833	no

2.53 0x13_v2 (2016-06-16T00:00:00 –): IR1 health check

This observation program is for health check of IR1 with the 0.90-um for dayside filter. The IR1 images, “cal. lamp 1” and “ext. light 1”, are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked, after subtraction of mean of “pre-dark 1” and “post-dark 1” by DE onboard. The IR1 dark images, “pre-dark 1” and “post-dark 1”, are stored to DR with HIREW compression in the partition 0x08 where is not nominally downlinked. This observation program is the update of 0x13_v1, and the updated content is that “a null reading” using dark filter was added before taking “pre-dark 1”.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	3	no	DARK	dark		7.833	no
	2	cal. lamp 1	2	yes	CAL	DARK		7.833	no
	3	ext. light 1	1	yes	EXTERNAL LIGHT	0.90 um day		7.833	no
	4	post-dark 1	4	no	DARK	dark		7.833	no

2.54 0x14_v1 (2010-05-20T00:00:00 – 2016-06-16T00:00:00): IR2 health check

This observation program is for health check of IR2 with the 2.02-um filter. The IR2 images, “cal. lamp 1” and “ext. light 1”, are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked, after subtraction of mean of “pre-dark 1” and “post-dark 1” by DE onboard. The IR2 dark images, “pre-dark 1” and “post-dark 1”, are stored to DR with HIREW compression in the partition 0x09 where is not nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir2	1	pre-dark 1	3	no	DARK	dark		6.97	no
	2	cal. lamp 1	2	yes	CAL	DARK		6.97	no
	3	ext. light 1	1	yes	EXTERNAL LIGHT	2.02 um		6.97	no
	4	post-dark 1	4	no	DARK	dark		6.97	no

2.55 0x14_v2 (2016-06-16T00:00:00 –): IR2 health check

This observation program is for health check of IR2 with the 2.02-um filter. The IR2 images, "cal. lamp 1" and "ext. light 1", are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked, after subtraction of mean of "pre-dark 1" and "post-dark 1" by DE onboard. The IR2 dark images, "pre-dark 1" and "post-dark 1", are stored to DR with HIREW compression in the partition 0x09 where is not nominally downlinked. This observation program is the update of 0x14_v1, and the updated content is that "a null reading" using dark filter is added before taking "pre-dark 1".

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir2	1	pre-dark 1	3	no	DARK	dark		6.97	no
	2	cal. lamp 1	2	yes	CAL	DARK		6.97	no
	3	ext. light 1	1	yes	EXTERNAL LIGHT	2.02 um		6.97	no
	4	post-dark 1	4	no	DARK	dark		6.97	no

2.56 0x15_v1 (2010-05-20T00:00:00 – 2016-06-16T00:00:00): IR1 flat

This observation program is for acquiring flat field data of IR1 with the diffuser. The IR1 flat field image, "flat 1", is stored to DR with HIREW compression, after subtraction of mean of "pre-dark 1" and "post-dark 1" by DE onboard. The IR1 dark images, "pre-dark 1" and "post-dark 1", are stored to DR with HIREW compression in the partition 0x08 where is not nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		7.833	yes
	2	flat 1	1	yes	DIFFUSER	diffuser		7.833	yes
	3	post-dark 1	3	no	DARK	dark		7.833	yes

2.57 0x15_v2 (2016-06-16T00:00:00 – 2016-09-29T00:00:00): IR1 flat

This observation program is for acquiring flat field data of IR1 with the diffuser. The IR1 flat field images, "flat 1", "flat 2", and "flat 3", are stored to DR with HIREW compression, after subtraction of "pre-dark 1" by DE onboard. The IR1 dark images, "pre-dark 1" and "post-dark 1", are also stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is the update of 0x15_v1, and the updated contents are that partition that stores the IR1 dark images was changed to 0x07 from 0x08, and the median filtering was removed while keeping number of images with the diffuser three.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	4	yes	DARK	dark		7.833	no
	2	flat 1	1	yes	DIFFUSER	diffuser		7.833	no
	3	flat 2	2	yes	DIFFUSER	diffuser		7.833	no
	4	flat 3	3	yes	DIFFUSER	diffuser		7.833	no
	5	post-dark 1	5	yes	DARK	dark		7.833	no

2.58 0x15_v3 (2016-09-29T00:00:00 – 2017-10-11T00:00:00): IR1 dayside smear correction

This observation program is for dayside observation of Venus with smear image of IR1 with the 0.90-um for dayside filter. The IR1 images, “signal 1”, “smear 1”, “dark signal 1”, and “dark smear 1”, are stored to DR with HIREW compression after median filtering, but without subtraction of dark images. This observation program was never used.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	signal 1	2	yes	unknown	0.90 um day		14.229	yes
	2	smear 1	1	yes	unknown	0.90 um day		14.229	yes
	3	dark signal 1	4	yes	DARK	dark		14.229	yes
	4	dark smear 1	3	yes	DARK	dark		14.229	yes

2.59 0x15_v4 (2017-10-11T00:00:00 –): Dayside slim for large phase angle (UVI, LIR) ROI

This observation program is primarily for dayside observation of Venus with large phase angle by UVI with the 283-nm and the 365-nm filters using ROI function, and by LIR. The UVI mean dark images of “pre-dark #” and “post-dark #”, where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([Venus #] - ([pre-dark #]+[post-dark #])/2) - ([Venus-0-exp #] - ([pre-dark-0-exp #]+[post-dark-0-exp #])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is a variant of 0x09_v5 with shorter exposure times.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	pre-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	yes
	2	pre-dark 1	?	no	SHUTTER	shutter	NormOB	0.18	yes
	3	Venus-0-exp 1	?	no	VENUS	283 nm	NormOB	0.0	yes
	4	Venus 1	?	yes	VENUS	283 nm	NormOB	0.18	yes
	5	post-dark-0-exp 1	?	no	SHUTTER	shutter	NormOB	0.0	yes
	6	post-dark 1	?	no	SHUTTER	shutter	NormOB	0.18	yes
	7	pre-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	yes
	8	pre-dark 2	?	no	SHUTTER	shutter	NormOB	0.016	yes
	9	Venus-0-exp 2	?	no	VENUS	365 nm	NormOB	0.0	yes
	10	Venus 2	?	yes	VENUS	365 nm	NormOB	0.016	yes
	11	post-dark-0-exp 2	?	no	SHUTTER	shutter	NormOB	0.0	yes
	12	post-dark 2	?	no	SHUTTER	shutter	NormOB	0.016	yes
lir	13	Venus 3	?	yes	VENUS	10 um	(32,32)	N/A	no

2.60 0x16_v1 (2010-05-20T00:00:00 – 2016-09-29T00:00:00): LIR single 1

This observation program is for observation of Venus by LIR with the parameters m=1 and n=1 with calibration of “OFPN1”, “Range”, and “OFPN2” onboard. The LIR raw images with opening shutter (“opn” or “open” image), with closing shutter (“sht”, “cls”, or “close” image), and subtracted image (“pic” image) are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
lir	1	Venus 1	1	yes	VENUS	10 um	(1,1)	N/A	no

2.61 0x16_v2 (2016-09-29T00:00:00 –): LIR m032_n001

This observation program is for observation of Venus by LIR with the parameters m=32 and n=1.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
lir	1	Venus 1	1	yes	VENUS	10 um	(32,1)	N/A	no

2.62 0x17_v1 (2010-05-20T00:00:00 – 2015-10-23T00:00:00): LIR single 2

This observation program is for observation of Venus by LIR with the parameters m=1 and n=1 with calibration of "Range" and "OFPN2" onboard. The LIR raw images with opening shutter ("opn" or "open" image), with closing shutter ("sht", "cls", or "close" image), and subtracted images ("pic" image) are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
lir	1	Venus 1	1	yes	VENUS	10 um	(1,1)	N/A	no

2.63 0x17_v2 (2015-10-23T00:00:00 – 2016-06-16T00:00:00): Dayside deluxe (UVI, IR1, IR2, LIR) ROI

This observation program is primarily for dayside observation of Venus by IR1 with the 0.90-um for dayside filter using ROI function, by IR2 with the 2.02-um filter using ROI function, by UVI with the 283-nm and the 365-nm filters using ROI function, and by LIR. The IR1 and IR2 images, "Venus #", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark #" and "post-dark #" by DE onboard, where # is 1 or 2. The IR1 and IR2 dark images, "pre-dark #" and "post-dark #", are stored to DR with HIREW compression in the partitions 0x08 and 0x09, respectively, where are not nominally downlinked. The UVI mean dark images of "pre-dark ##" and "post-dark ##", where ## is 3 or 4, are stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([Venus ##] - ([pre-dark ##]+[post-dark ##])/2) - ([Venus-0-exp ##] - ([pre-dark-0-exp ##]+[post-dark-0-exp ##])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is a ROI-enabled version of 0x05_v1.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		7.833	yes
	2	Venus 1	1	yes	VENUS	0.90 um day		7.833	yes
	3	post-dark 1	3	no	DARK	dark		7.833	yes
ir2	4	pre-dark 2	5	no	DARK	dark		6.97	yes
	5	Venus 2	4	yes	VENUS	2.02 um		6.97	yes
	6	post-dark 2	6	no	DARK	dark		6.97	yes
uvi	7	pre-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	8	pre-dark 3	?	no	SHUTTER	shutter	NormOB	0.25	yes
	9	Venus-0-exp 3	?	no	VENUS	283 nm	NormOB	0.0	yes
	10	Venus 3	?	yes	VENUS	283 nm	NormOB	0.25	yes
	11	post-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	12	post-dark 3	?	no	SHUTTER	shutter	NormOB	0.25	yes
	13	pre-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	yes
	14	pre-dark 4	?	no	SHUTTER	shutter	NormOB	0.046	yes
	15	Venus-0-exp 4	?	no	VENUS	365 nm	NormOB	0.0	yes
	16	Venus 4	?	yes	VENUS	365 nm	NormOB	0.046	yes
	17	post-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	yes
	18	post-dark 4	?	no	SHUTTER	shutter	NormOB	0.046	yes
lir	19	Venus 5	?	yes	VENUS	10 um	(32,32)	N/A	no

2.64 0x17_v3 (2016-06-16T00:00:00 –): Dayside deluxe (IR1, IR2, UVI, LIR) ROI

This observation program is primarily for dayside observation of Venus by IR1 with the 0.90-um for dayside filter using ROI function, by IR2 with the 2.02-um filter using ROI function, by UVI with the 283-nm and the 365-nm filters using ROI function, and by LIR. The IR1 and IR2 images, "Venus #", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark #" and "post-dark #" by DE onboard, where # is 1 or 2. The UVI mean dark images of "pre-dark ##" and "post-dark ##", where ## is 3 or 4, are stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([Venus ##] - ([pre-dark ##]+[post-dark ##])/2) - ([Venus-0-exp ##] - ([pre-dark-0-exp ##]+[post-dark-0-exp ##])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is the update of 0x17_v2, and the updated content is that exposure time for UVI with the 283-nm filter is set to 0.5 seconds, two times longer than before. This observation program is a ROI-enabled version of 0x05_v2.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		7.833	yes
	2	Venus 1	1	yes	VENUS	0.90 um day		7.833	yes
	3	post-dark 1	3	no	DARK	dark		7.833	yes
ir2	4	pre-dark 2	5	no	DARK	dark		6.97	yes
	5	Venus 2	4	yes	VENUS	2.02 um		6.97	yes
	6	post-dark 2	6	no	DARK	dark		6.97	yes
uvi	7	pre-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	8	pre-dark 3	?	no	SHUTTER	shutter	NormOB	0.5	yes
	9	Venus-0-exp 3	?	no	VENUS	283 nm	NormOB	0.0	yes
	10	Venus 3	?	yes	VENUS	283 nm	NormOB	0.5	yes
	11	post-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	12	post-dark 3	?	no	SHUTTER	shutter	NormOB	0.5	yes
	13	pre-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	yes
	14	pre-dark 4	?	no	SHUTTER	shutter	NormOB	0.046	yes
	15	Venus-0-exp 4	?	no	VENUS	365 nm	NormOB	0.0	yes
	16	Venus 4	?	yes	VENUS	365 nm	NormOB	0.046	yes
	17	post-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	yes
	18	post-dark 4	?	no	SHUTTER	shutter	NormOB	0.046	yes
lir	19	Venus 5	?	yes	VENUS	10 um	(32,32)	N/A	no

2.65 0x18_v1 (2010-05-20T00:00:00 –): LIR single 3

This observation program is for observation of Venus by LIR with the parameters m=1 and n=1.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
lir	1	Venus 1	1	yes	VENUS	10 um	(1,1)	N/A	no

2.66 0x19_v1 (2010-05-20T00:00:00 –): LIR m032_n032

This observation program is for observation of Venus by LIR with the parameters m=32 and n=32. The LIR raw images with opening shutter ("opn" or "open" image) and subtracted images ("pic" image before executing second accumulation) are stored to DR with HIREW compression in the partition 0x0d where is not nominally downlinked. The resultant LIR image after second accumulation is stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
lir	1	Venus 1	1	yes	VENUS	10 um	(32,32)	N/A	no

2.67 0x1a_v1 (2010-05-20T00:00:00 – 2016-06-16T00:00:00): UVI exposure time test

This observation program is for exposure time test of UVI with the 283-nm and the 365-nm filters. The UVI images, "signal #", where # is from 1 to 16, are acquired with different exposure durations from 0 seconds to 0.714 seconds with the 283-nm filter and from 0 seconds to 0.128 seconds with the 365-nm filter. The UVI images are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	signal 1	1	yes	any	283 nm	NormOB	0	no
	2	signal 2	2	yes	any	283 nm	NormOB	0.09	no
	3	signal 3	3	yes	any	283 nm	NormOB	0.128	no
	4	signal 4	4	yes	any	283 nm	NormOB	0.18	no
	5	signal 5	5	yes	any	283 nm	NormOB	0.25	no
	6	signal 6	6	yes	any	283 nm	NormOB	0.357	no
	7	signal 7	7	yes	any	283 nm	NormOB	0.5	no
	8	signal 8	8	yes	any	283 nm	NormOB	0.714	no
	9	signal 9	9	yes	any	365 nm	NormOB	0	no
	10	signal 10	10	yes	any	365 nm	NormOB	0.016	no
	11	signal 11	11	yes	any	365 nm	NormOB	0.0228	no
	12	signal 12	12	yes	any	365 nm	NormOB	0.032	no
	13	signal 13	13	yes	any	365 nm	NormOB	0.046	no
	14	signal 14	14	yes	any	365 nm	NormOB	0.064	no
	15	signal 15	15	yes	any	365 nm	NormOB	0.09	no
	16	signal 16	16	yes	any	365 nm	NormOB	0.128	no

2.68 0x1a_v2 (2016-06-16T00:00:00 – 2016-09-29T00:00:00): UVI health check (Diffuser flat)

This observation program is for health check and acquiring flat field data of UVI with the diffuser. The all UVI images are acquired with "TOP OB" mode, and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	noise-0-exp 1	1	yes	SHUTTER	shutter	TopOB	0.0	no
	2	noise 1	2	yes	SHUTTER	shutter	TopOB	0.046	no
	3	signal-0-exp 1	3	yes	DIFFUSER	diffuser	TopOB	0.0	no
	4	signal 1	4	yes	DIFFUSER	diffuser	TopOB	0.046	no

2.69 0x1a_v3 (2016-09-29T00:00:00 –): UVI health check (Diffuser flat)

This observation program is for health check and acquiring flat field data of UVI with the diffuser. The all UVI images are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is the update of 0x1a_v2, and the updated content is that observation mode was changed from "TOP OB" mode to "Normal OB" mode.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	noise-0-exp 1	1	yes	SHUTTER	shutter	NormOB	0.0	no
	2	noise 1	2	yes	SHUTTER	shutter	NormOB	0.046	no
	3	signal-0-exp 1	3	yes	DIFFUSER	diffuser	NormOB	0.0	no
	4	signal 1	4	yes	DIFFUSER	diffuser	NormOB	0.046	no

2.70 0x1b_v1 (2010-05-20T00:00:00 – 2011-02-13T00:00:00): IR1 health check

This observation program is for health check of IR1 with the 0.90-um for dayside filter. The IR1 images, "cal. lamp 1" and "Venus 1", are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked, after subtraction of mean dark image of "pre-dark1" and "post-dark 1" by DE onboard. The IR1 dark images, "pre-dark 1" and "post-dark 1", are stored to DR with HIREW compression in the partition 0x08 where is not nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	3	no	DARK	dark		7.833	no
	2	cal. lamp 1	2	yes	CAL	dark		7.833	no
	3	Venus 1	1	yes	VENUS	0.90 um day		7.833	no
	4	post-dark 1	4	no	DARK	dark		7.833	no

2.71 0x1b_v2 (2011-02-13T00:00:00 – 2011-03-02T00:00:00): Venus photometry

This observation program is for photometry of Venus from the orbit around the Sun by IR1 with the 0.90-um for dayside filter, by IR2 with the 2.02-um filter, by UVI with the 283-nm and the 365-nm filters, and by LIR. The IR1 and IR2 images, "Venus #", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark #" and "post-dark #" by DE onboard, where # is 1 or 2. The IR1 and IR2 mean dark images, "pre-dark #" and "post-dark #", are stored to DR with HIREW compression in the partitions 0x08 and 0x09, respectively, where are not nominally downlinked. The UVI mean dark images of "pre-dark ##" and "post-dark ##", where ## is 3 or 4, are stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([Venus ##] - ([pre-dark ##]+[post-dark ##])/2) - ([Venus-0-exp ##] - ([pre-dark-0-exp ##]+[post-dark-0-exp ##])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		7.833	no
	2	Venus 1	1	yes	VENUS	0.90 um day		7.833	no
	3	post-dark 1	3	no	DARK	dark		7.833	no
ir2	4	pre-dark 2	5	no	DARK	dark		6.97	no
	5	Venus 2	4	yes	VENUS	2.02 um		6.97	no
	6	post-dark 2	6	no	DARK	dark		6.97	no
uvi	7	pre-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	no
	8	pre-dark 3	?	no	SHUTTER	shutter	NormOB	0.25	no
	9	Venus-0-exp 3	?	no	VENUS	283 nm	NormOB	0.0	no
	10	Venus 3	?	yes	VENUS	283 nm	NormOB	0.25	no
	11	post-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	no
	12	post-dark 3	?	no	SHUTTER	shutter	NormOB	0.25	no
	13	pre-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	no
	14	pre-dark 4	?	no	SHUTTER	shutter	NormOB	0.046	no
	15	Venus-0-exp 4	?	no	VENUS	365 nm	NormOB	0.0	no
	16	Venus 4	?	yes	VENUS	365 nm	NormOB	0.046	no
	17	post-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	no
	18	post-dark 4	?	no	SHUTTER	shutter	NormOB	0.046	no
lir	19	Venus 5	?	yes	VENUS	10 um	(1,1)	N/A	no
	20	Venus 2	?	yes	VENUS	10 um	(32,32)	N/A	no

2.72 0x1b_v3 (2011-03-02T00:00:00 – 2015-10-23T00:00:00): Venus photometry

This observation program is for photometry of Venus from the orbit around the Sun by IR1 with the 0.90-um for dayside filter, by IR2 with the 2.02-um filter, by UVI with the 283-nm and the 365-nm filters, and by LIR. The IR1 and IR2 images, "Venus #", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark #" and "post-dark #" by DE onboard, where # is 1 or 2. The IR1 and IR2 mean dark images, "pre-dark #" and "post-dark #", are stored to DR with HIREW compression in the partitions 0x08 and 0x09, respectively, where are not nominally downlinked. The UVI mean dark images of "pre-dark ##" and "post-dark ##", where ## is 3 or 4, are stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([Venus ##] - ([pre-dark ##]+[post-dark ##])/2) - ([Venus-0-exp ##] - ([pre-dark-0-exp ##]+[post-dark-0-exp ##])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is the update of 0x1b_v2, and the updated content is that exposure time was increased for UVI observations.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		7.833	no
	2	Venus 1	1	yes	VENUS	0.90 um day		7.833	no
	3	post-dark 1	3	no	DARK	dark		7.833	no
ir2	4	pre-dark 2	5	no	DARK	dark		6.97	no
	5	Venus 2	4	yes	VENUS	2.02 um		6.97	no
	6	post-dark 2	6	no	DARK	dark		6.97	no
uvi	7	pre-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	no
	8	pre-dark 3	?	no	SHUTTER	shutter	NormOB	0.714	no
	9	Venus-0-exp 3	?	no	VENUS	283 nm	NormOB	0.0	no
	10	Venus 3	?	yes	VENUS	283 nm	NormOB	0.714	no
	11	post-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	no
	12	post-dark 3	?	no	SHUTTER	shutter	NormOB	0.714	no
	13	pre-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	no
	14	pre-dark 4	?	no	SHUTTER	shutter	NormOB	0.09	no
	15	Venus-0-exp 4	?	no	VENUS	365 nm	NormOB	0.0	no
	16	Venus 4	?	yes	VENUS	365 nm	NormOB	0.09	no
	17	post-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	no
	18	post-dark 4	?	no	SHUTTER	shutter	NormOB	0.09	no
lir	19	Venus 5	?	yes	VENUS	10 um	(1,1)	N/A	no
	20	Venus 6	?	yes	VENUS	10 um	(32,32)	N/A	no

2.73 0x1b_v4 (2015-10-23T00:00:00 – 2016-09-29T00:00:00): IR1 nightside deluxe ROI

This observation program is for nightside observation of Venus by IR1 with the 0.97-um, the 1.01-um, and the 0.90-um for nightside filters using ROI function. The IR1 images, "Venus 1" and "Venus 2", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark 1" and "post-dark 1" by DE onboard. The IR1 image, "Venus 3", is stored to DR with HIREW compression, after subtraction of mean of "pre-dark 2" and "post-dark 2" by DE onboard. The IR1 dark images, "pre-dark #" and "post-dark #", where # is 1 or 2, are stored to DR with HIREW compression in the partition 0x08 where is not nominally downlinked. This observation program is a ROI-enabled version of 0x03_v2.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	3	no	DARK	dark		30.833	yes
	2	Venus 1	2	yes	VENUS	0.97 um		30.833	yes
	3	Venus 2	1	yes	VENUS	1.01 um		30.833	yes
	4	post-dark 1	4	no	DARK	dark		30.833	yes
	5	pre-dark 2	6	no	DARK	dark		30.833	yes
	6	Venus 3	5	yes	VENUS	0.90 um night		30.833	yes
	7	post-dark 2	7	no	DARK	dark		30.833	yes

2.74 0x1b_v5 (2016-09-29T00:00:00 –): Dayside deluxe (UVI, IR1 smear correction, IR2, LIR) ROI

This observation program is primarily for dayside observation of Venus by IR1 with the 0.90-um for dayside filter using ROI function, by IR2 with the 2.02-um filter using ROI function, by UVI with the 283-nm and the 365-nm filters using ROI function, and by LIR. The IR1 image for Venus is calculated as ([0.90 um signal 1] - [0.90 um smear 1] - ([dark signal 1] - [dark smear 1])) by DE onboard and is stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. The IR1 dark images are stored as (2*[dark signal 1]) and (-2*[dark smear 1]) to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The IR2 image, "Venus 2", is stored to DR with HIREW compression, after subtraction of mean of "pre-dark 2" and "post-dark 2" by DE onboard. The IR2 dark images, "pre-dark 2" and "post-dark 2", are stored to DR with HIREW compression in the partition 0x09 where is not nominally downlinked. The UVI mean dark images of "pre-dark #" and "post-dark #", where # is 3 or 4, are stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI images are calculated as ([Venus #] - ([pre-dark #]+[post-dark #])/2) - ([Venus-0-exp #] - ([pre-dark-0-exp #]+[post-dark-0-exp #])/2) by DE onboard and are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is a variant of 0x17_v3 with onboard smear correction for IR1 observation.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	dark signal 1	?	no	DARK	dark		7.833	yes
	2	0.90 um signal 1	?	yes	VENUS	0.90 um day		7.833	yes
	3	0.90 um smear 1	?	no	VENUS	0.90 um day		7.833	yes
	3	dark smear 1	?	no	DARK	dark		7.833	yes
ir2	4	pre-dark 2	?	no	DARK	dark		6.97	yes
	5	Venus 2	?	yes	VENUS	2.02 um		6.97	yes
	6	post-dark 2	?	no	DARK	dark		6.97	yes
uvi	7	pre-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	8	pre-dark 3	?	no	SHUTTER	shutter	NormOB	0.5	yes
	9	Venus-0-exp 3	?	no	VENUS	283 nm	NormOB	0.0	yes
	10	Venus 3	?	yes	VENUS	283 nm	NormOB	0.5	yes
	11	post-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	12	post-dark 3	?	no	SHUTTER	shutter	NormOB	0.5	yes
	13	pre-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	yes
	14	pre-dark 4	?	no	SHUTTER	shutter	NormOB	0.046	yes
	15	Venus-0-exp 4	?	no	VENUS	365 nm	NormOB	0.0	yes
	16	Venus 4	?	yes	VENUS	365 nm	NormOB	0.046	yes
	17	post-dark-0-exp 4	?	no	SHUTTER	shutter	NormOB	0.0	yes
	18	post-dark 4	?	no	SHUTTER	shutter	NormOB	0.046	yes
lir	19	Venus 5	?	yes	VENUS	10 um	(32,32)	N/A	no

2.75 0x1c_v1 (2010-05-20T00:00:00 – 2015-10-23T00:00:00): invalid

This observation program was never used.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	3	no	DARK	dark		7.833	no
	2	cal. lamp 1	2	yes	CAL	dark		7.833	no
	3	signal 1	1	yes	any	0.90 um day		7.833	no
	4	post-dark 1	4	no	DARK	dark		7.833	no
ir2	5	pre-dark 2	7	no	DARK	dark		6.97	no
	6	cal. lamp 2	6	yes	CAL	DARK		6.97	no
	7	signal 2	5	yes	any	2.02 um		6.97	no
	8	post-dark 2	8	no	DARK	dark		6.97	no

2.76 0x1c_v2 (2015-10-23T00:00:00 – 2016-09-29T00:00:00): IR1 nightside slim ROI

This observation program is for nightside observation of Venus by IR1 with the 1.01-um filter using ROI function. The IR1 image, "Venus 1", is stored to DR with HIREW compression, after subtraction of mean of "pre-dark 1" and "post-dark 1" by DE onboard. The IR1 dark images, "pre-dark 1" and "post-dark 1", are stored to DR with HIREW compression in the partition 0x08 where is not nominally downlinked. This observation program is a ROI-enabled version of 0x04_v2.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		30.833	yes
	2	Venus 1	1	yes	VENUS	1.01 um		30.833	yes
	3	post-dark 1	3	no	DARK	dark		30.833	yes

2.77 0x1c_v3 (2016-09-29T00:00:00 – 2018-01-27T00:00:00): IR1 flat (smear correction)

This observation program is for acquiring IR1 flat field data and smear correction data with the diffuser. This observation program was never used.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	diffuser signal 1	?	yes	DIFFUSER	diffuser		14.229	yes
	2	diffuser smear 1	?	yes	DIFFUSER	diffuser		14.229	yes
	3	dark signal 1	?	yes	DARK	dark		14.229	yes
	4	dark smear 1	?	yes	DARK	dark		14.229	yes

2.78 0x1c_v4 (2018-01-27T00:00:00 –): Vicinity scan (UVI 283)

This observation program is for dayside observation of Venus in the vicinity of Venus by UVI with the 283-nm filter. The all UVI images are acquired with "TOP OB" mode, and are stored to DR in the partition 0x07 where is nominally downlinked, without subtraction of dark images, except for HIREW compression. This observation program is a variant of 0x08_v5 with the 283-nm filter instead of the 365-nm filter.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
uvi	1	pre-dark-0-exp 1	1	yes	SHUTTER	shutter	TopOB	0.0	no
	2	pre-dark 1	2	yes	SHUTTER	shutter	TopOB	0.5	no
	3	Venus-0-exp 1	3	yes	VENUS	283 nm	TopOB	0.0	no
	4	Venus 1	4	yes	VENUS	283 nm	TopOB	0.5	no

2.79 0x1d_v1 (2010-05-20T00:00:00 – 2016-06-16T00:00:00): LIR raw data for health check

This observation program is for health check of LIR with different combination of the parameters, m and n. The LIR raw images with opening shutter ("opn" or "open" image) and subtracted images ("pic" image before executing second accumulation) are stored to DR with HIREW compression in the partition 0x0d where is not nominally downlinked. The resultant LIR images after second accumulation are stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
lir	1	Venus 1	1	yes	VENUS	10 um	(128,32)	N/A	no
	2	Venus 2	2	yes	VENUS	10 um	(64,32)	N/A	no
	3	Venus 3	3	yes	VENUS	10 um	(32,32)	N/A	no
	4	Venus 4	4	yes	VENUS	10 um	(16,32)	N/A	no
	5	Venus 5	5	yes	VENUS	10 um	(8,32)	N/A	no
	6	Venus 6	6	yes	VENUS	10 um	(4,32)	N/A	no
	7	Venus 7	7	yes	VENUS	10 um	(2,32)	N/A	no
	8	Venus 8	8	yes	VENUS	10 um	(1,32)	N/A	no

2.80 0x1d_v2 (2016-06-16T00:00:00 – 2016-09-29T00:00:00): Vicinity scan (LIR)

This observation program is for observation of Venus in the vicinity of Venus by LIR.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
lir	1	Venus 1	1	yes	VENUS	10 um	(32,1)x32	N/A	no

2.81 0x1d_v3 (2016-09-29T00:00:00 –): Vicinity scan (LIR)

This observation program is for observation of Venus in the vicinity of Venus by LIR. This observation program is the update of 0x1d_v2, and the updated content is that bug in the LIR image operations by DE onboard has been fixed.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
lir	1	Venus 1	1	yes	VENUS	10 um	(32,1)x32	N/A	no

2.82 0x1e_v1 (2010-05-20T00:00:00 –): LIR OFPN setup sequence

This observation program is for executing setup sequence of LIR including upload of OFPN (on-chip fixed pattern noise) data.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?

2.83 0x1f_v1 (2010-05-20T00:00:00 – 2015-10-23T00:00:00): Earth (UVI, IR1, IR2, LIR)

This observation program is for observation of the Earth by IR1 with the 0.90-um for dayside filter, by IR2 with the 2.02-um filter, by UVI with the 365-nm filter, and by LIR. The IR1 and IR2 images, "Venus #", are stored to DR with HIREW compression, after subtraction of mean of "pre-dark #" and "post-dark #" by DE onboard, where # is 1 or 2. The IR1 and IR2 dark images, "pre-dark #" and "post-dark #", are stored to DR with HIREW compression in the partitions 0x08 and 0x09, respectively, where are not nominally downlinked. The UVI images, "Venus 3" and "Venus 4", are stored to DR in the partition 0x0c where is not nominally downlinked without any compression nor subtraction of dark image. The UVI mean

dark image of “pre-dark 3” and “post-dark 3” is stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI image of “Venus 3” is calculated as ([Venus 3] - ([pre-dark 3]+[post-dark 3])/2) - ([Venus-0-exp 3] - ([pre-dark-0-exp 3]+[post-dark-0-exp 3])/2) by DE onboard and is stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. The storing order to DR of UVI images are raw image of “Venus 3”, raw image of “Venus 4”, dark image calculated by averaging “pre-dark 3” and “post dark 3”, and smear corrected image of “Venus 3”.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		7.833	no
	2	Earth 1	1	yes	EARTH	0.90 um day		7.833	no
	3	post-dark 1	3	no	DARK	dark		7.833	no
ir2	4	pre-dark 2	5	no	DARK	dark		6.97	no
	5	Earth 2	4	yes	EARTH	2.02 um		6.97	no
	6	post-dark 2	6	no	DARK	dark		6.97	no
uvi	7	pre-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	no
	8	pre-dark 3	?	no	SHUTTER	shutter	NormOB	0.128	no
	9	Earth-0-exp 3	?	no	EARTH	365 nm	NormOB	0.0	no
	10	Earth 3	?	yes	EARTH	365 nm	NormOB	0.128	no
	11	Earth 4	?	no	EARTH	365 nm	NormOB	0.09	no
	12	post-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	no
	13	post-dark 3	?	no	SHUTTER	shutter	NormOB	0.128	no
lir	14	Venus 5	?	yes	VENUS	10 um	(1,1)	N/A	no
	15	Venus 6	?	yes	VENUS	10 um	(32,32)	N/A	no

2.84 0x1f_v2 (2015-10-23T00:00:00 – 2016-06-16T00:00:00): Dayside slim (UVI, IR1, IR2, LIR) ROI

This observation program is primarily for dayside observation of Venus by IR1 with the 0.90-um for dayside filter using ROI function, by IR2 with the 2.02-um filter using ROI function, by UVI with the 365-nm filter using ROI function, and by LIR. The IR1 and IR2 images, “Venus #”, are stored to DR with HIREW compression, after subtraction of mean of “pre-dark #” and “post-dark #” by DE onboard, where # is 1 or 2. The IR1 and IR2 dark images, “pre-dark #” and “post-dark #”, are stored to DR with HIREW compression in the partition 0x08 and 0x09, respectively, where are not nominally downlinked. The UVI mean dark image of “pre-dark 3” and “post-dark 3” is stored to DR with HIREW compression in the partition 0x0c where is not nominally downlinked. The smear corrected UVI image is calculated as ([Venus 3] - ([pre-dark 3]+[post-dark 3])/2) - ([Venus-0-exp 3] - ([pre-dark-0-exp 3]+[post-dark-0-exp 3])/2) by DE onboard and is stored to DR with HIREW compression in the partition 0x07 where is nominally downlinked. This observation program is a ROI-enabled version of 0x06_v1.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		7.833	yes
	2	Venus 1	1	yes	VENUS	0.90 um day		7.833	yes
	3	post-dark 1	3	no	DARK	dark		7.833	yes
ir2	4	pre-dark 2	5	no	DARK	dark		6.97	yes
	5	Venus 2	4	yes	VENUS	2.02 um		6.97	yes
	6	post-dark 2	6	no	DARK	dark		6.97	yes
uvi	7	pre-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	8	pre-dark 3	?	no	SHUTTER	shutter	NormOB	0.046	yes
	9	Venus-0-exp 3	?	no	VENUS	365 nm	NormOB	0.0	yes
	10	Venus 3	?	yes	VENUS	365 nm	NormOB	0.046	yes
	11	post-dark-0-exp 3	?	no	SHUTTER	shutter	NormOB	0.0	yes
	12	post-dark 3	?	no	SHUTTER	shutter	NormOB	0.046	yes
lir	13	Venus 4	?	yes	VENUS	10 um	(32,32)	N/A	no

2.85 0x1f_v3 (2016-06-16T00:00:00 –): Dayside slim (IR1, IR2, LIR) ROI

This observation program is primarily for dayside observation of Venus by IR1 with the 0.90-um for dayside filter using ROI function, by IR2 with the 2.02-um filter using ROI function, and by LIR. The IR1 and IR2 images, “Venus #”, are stored to DR with HIREW compression, after subtraction of mean of “pre-dark #” and “post-dark #” by DE onboard, where # is 1 or 2. The IR1 and IR2 dark images, “pre-dark #” and “post-dark #”, are stored to DR with HIREW compression in the partitions 0x08 and 0x09, respectively, where are not nominally downlinked. This observation program is the update of 0x1f_v2, and the updated content is that observation by UVI was removed. This observation program is a ROI-enabled version of 0x06_v2 but without observation by IR1 with the diffuser.

cam	#	kind	rec-#	rec?	object	filter	mode	exp (s)	median?
ir1	1	pre-dark 1	2	no	DARK	dark		7.833	yes
	2	Venus 1	1	yes	VENUS	0.90 um day		7.833	yes
	3	post-dark 1	3	no	DARK	dark		7.833	yes
ir2	4	pre-dark 2	5	no	DARK	dark		6.97	yes
	5	Venus 2	4	yes	VENUS	2.02 um		6.97	yes
	6	post-dark 2	6	no	DARK	dark		6.97	yes
lir	7	Venus 3	7	yes	VENUS	10 um	(32,32)	N/A	no