XMM-Newton CCF Release Note

XMM-CCF-REL-134

RGS SAS temperature limits for the November 2002 cooling campaign and beyond

A. M. T. Pollock

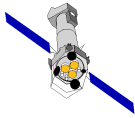December 5, 2002

1 CCF components

CCF component	VALDATE	EVALDATE	Blocks changed	XSCS flag
RGS2_HKPARMINT_0011	2002-11-04T00:00:00	2003-01-11T00:00:00	HKPARMINT	NO
RGS1_HKPARMINT_0012	2002-11-13T23:00:00	2003-01-11T00:00:00	HKPARMINT	NO
RGS2_HKPARMINT_0012	2002-11-13T22:00:00	—	HKPARMINT	NO
RGS1_HKPARMINT_0013	2002-11-14T20:10:00	—	HKPARMINT	NO
XMM_MISCDATA_0017	2002-11-04T00:00:00	2003-01-11T00:00:00	MISCDATA	NO
XMM_MISCDATA_0018	2002-11-13T22:00:00	—	MISCDATA	NO
XMM_MISCDATA_0019	2002-11-14T20:10:00	—	MISCDATA	NO

2 Changes

RGS temperature data are held among miscellaneous XMM data. For the warm instruments :

- `XMM_MISCDATA(MISCDATA) RGS1 REFERENCE_TEMP 193.15 K`

- `XMM_MISCDATA(MISCDATA) RGS1 DELTA_TCCD      10    K`

- `XMM_MISCDATA(MISCDATA) RGS1 DELTA_TFPA      20    K`

- `XMM_MISCDATA(MISCDATA) RGS2 REFERENCE_TEMP 193.15 K`

- `XMM_MISCDATA(MISCDATA) RGS2 DELTA_TCCD      10    K`

- `XMM_MISCDATA(MISCDATA) RGS2 DELTA_TFPA      20    K`

Limit checks were made by the SAS on the focal-plane temperatures of the warm RGS1 and RGS2 as follows :

- `RGS1_HKPARMINT(HKPARMINT) RFC-CCD_FULL_TMP G5333 in [-85:-75]`

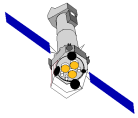- `RGS2_HKPARMINT(HKPARMINT) RFC-CCD_FULL_TMP L5333 in [-85:-75]`

In order for the SAS to run as flexibly as possible on data collected during the cooling campaign, in particular for the observations of Mkn421 made as the cooling was taking place, these limits have been relaxed in a temporary set of files designed to expire at the end of the campaign. The temporary limits are determined by the original intention to lower the operating temperature from -80°C to -115°C:

- `XMM_MISCDATA_0017(MISCDATA) RGS1 DELTA_TCCD        40      K`

- `XMM_MISCDATA_0017(MISCDATA) RGS1 DELTA_TFPA        40      K`

- `XMM_MISCDATA_0017(MISCDATA) RGS2 DELTA_TCCD        40      K`

- `XMM_MISCDATA_0017(MISCDATA) RGS2 DELTA_TFPA        40      K`

- `RGS1_HKPARMINT_0012(HKPARMINT) RFC-CCD_FULL_TMP G5333 in [-120:-75]`

- `RGS2_HKPARMINT_0011(HKPARMINT) RFC-CCD_FULL_TMP L5333 in [-120:-75]`

For reasons connected with proper thermal control, it was eventually decided to set the operating temperature at -110°C, so that in the new stable cool regime the following values apply :

- `XMM_MISCDATA_0018(MISCDATA) RGS2 REFERENCE_TEMP 163.15 K`

- `XMM_MISCDATA_0018(MISCDATA) RGS2 DELTA_TCCD         5      K`

- `XMM_MISCDATA_0018(MISCDATA) RGS2 DELTA_TFPA        10      K`

- `RGS2_HKPARMINT_0012(HKPARMINT) RFC-CCD_FULL_TMP L5333 in [-115:-105]`

- `XMM_MISCDATA_0019(MISCDATA) RGS1 REFERENCE_TEMP 163.15 K`

- `XMM_MISCDATA_0019(MISCDATA) RGS1 DELTA_TCCD         5      K`

- `XMM_MISCDATA_0019(MISCDATA) RGS1 DELTA_TFPA        10      K`

- `RGS1_HKPARMINT_0013(HKPARMINT) RFC-CCD_FULL_TMP G5333 in [-115:-105]`

where the `DELTA_TCCD` values have been made to agree with the `HKPARMINT` limits.

3   Disablement of CCD voltage limit checks

The opportunity has also been taken, at the suggestion of the instrument team, to disable all the CCD voltage limit checks as listed for completeness in two appendices below. Such checks in the SAS context are not useful as any such out-of-limit conditions would have triggered operational alarms and most probably resulted in shutdown of the instrument concerned.

4   Scientific Impact of this Update

None except for enabling the SAS to run.

5   Estimated Scientific Quality

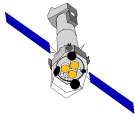None.

6   Expected Updates

None.

7   Test procedures

- Use `fv` to look at the new files and ensure that the data are correct.

- Run `cifbuild` to check that the new files are correctly selected.

- Process data taken before during and after the 3 relevant CCF `VALDATE`s.

8   Summary of the test results

- `fv` shows the correct temperatures and limits.

- The `ccf.cif` files made by `cifbuild` index the correct files.

- The SAS runs properly to completion before, during and after cooling both RGS1 and RGS2.
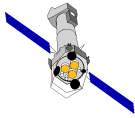
A Disablement of RGS1 CCD voltage checks

- RGS1_HKPARMINT_0013(HKPARMINT) CCD-1_VDRAIN1   G6110 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-1_VDRAIN2   G6111 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-1_VSUBSTR   G6112 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-1_VGATE1   G6113 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-1_VGATE2   G6114 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-1_VRES.DRAIN G6115 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-1_IDRAIN1   G6116 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-1_IDRAIN2   G6117 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-1_VL_RES-CLK G6118 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-1_VH_IMG-CLK G6119 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-1_VH_STR-CLK G6120 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-1_VH_RES-CLK G6121 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-1_VH_SER-CLK G6122 limit check disabled

- RGS1_HKPARMINT_0013(HKPARMINT) CCD-2_VDRAIN1   G6210 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-2_VDRAIN2   G6211 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-2_VSUBSTR   G6212 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-2_VGATE1   G6213 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-2_VGATE2   G6214 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-2_VRES.DRAIN G6215 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-2_IDRAIN1   G6216 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-2_IDRAIN2   G6217 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-2_VL_RES-CLK G6218 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-2_VH_IMG-CLK G6219 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-2_VH_STR-CLK G6220 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-2_VH_RES-CLK G6221 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-2_VH_SER-CLK G6222 limit check disabled

- RGS1_HKPARMINT_0013(HKPARMINT) CCD-3_VDRAIN1   G6310 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-3_VDRAIN2   G6311 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-3_VSUBSTR   G6312 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-3_VGATE1   G6313 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-3_VGATE2   G6314 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-3_VRES.DRAIN G6315 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-3_IDRAIN1   G6316 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-3_IDRAIN2   G6317 limit check disabled
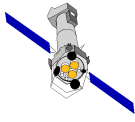
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-3_VL_RES-CLK G6318 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-3_VH_IMG-CLK G6319 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-3_VH_STR-CLK G6320 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-3_VH_RES-CLK G6321 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-3_VH_SER-CLK G6322 limit check disabled

- RGS1_HKPARMINT_0013(HKPARMINT) CCD-4_VDRAIN1   G6410 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-4_VDRAIN2   G6411 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-4_VSUBSTR   G6412 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-4_VGATE1   G6413 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-4_VGATE2   G6414 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-4_VRES.DRAIN G6415 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-4_IDRAIN1   G6416 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-4_IDRAIN2   G6417 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-4_VL_RES-CLK G6418 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-4_VH_IMG-CLK G6419 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-4_VH_STR-CLK G6420 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-4_VH_RES-CLK G6421 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-4_VH_SER-CLK G6422 limit check disabled

- RGS1_HKPARMINT_0013(HKPARMINT) CCD-5_VDRAIN1   G6510 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-5_VDRAIN2   G6511 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-5_VSUBSTR   G6512 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-5_VGATE1   G6513 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-5_VGATE2   G6514 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-5_VRES.DRAIN G6515 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-5_IDRAIN1   G6516 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-5_IDRAIN2   G6517 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-5_VL_RES-CLK G6518 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-5_VH_IMG-CLK G6519 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-5_VH_STR-CLK G6520 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-5_VH_RES-CLK G6521 limit check disabled
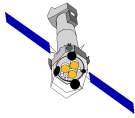- RGS1_HKPARMINT_0013(HKPARMINT) CCD-5_VH_SER-CLK G6522 limit check disabled

- RGS1_HKPARMINT_0013(HKPARMINT) CCD-6_VDRAIN1   G6610 limit check already disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-6_VDRAIN2   G6611 limit check already disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-6_VSUBSTR   G6612 limit check disabled

- RGS1_HKPARMINT_0013(HKPARMINT) CCD-6_VGATE1   G6613 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-6_VGATE2   G6614 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-6_VRES.DRAIN G6615 limit check already disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-6_IDRAIN1   G6616 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-6_IDRAIN2   G6617 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-6_VL_RES-CLK G6618 limit check already disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-6_VH_IMG-CLK G6619 limit check already disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-6_VH_STR-CLK G6620 limit check already disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-6_VH_RES-CLK G6621 limit check already disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-6_VH_SER-CLK G6622 limit check already disabled

- RGS1_HKPARMINT_0013(HKPARMINT) CCD-8_VDRAIN1   G6810 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-8_VDRAIN2   G6811 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-8_VSUBSTR   G6812 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-8_VGATE1   G6813 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-8_VGATE2   G6814 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-8_VRES.DRAIN G6815 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-8_IDRAIN1   G6816 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-8_IDRAIN2   G6817 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-8_VL_RES-CLK G6818 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-8_VH_IMG-CLK G6819 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-8_VH_STR-CLK G6820 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-8_VH_RES-CLK G6821 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-8_VH_SER-CLK G6822 limit check disabled

- RGS1_HKPARMINT_0013(HKPARMINT) CCD-9_VDRAIN1   G6910 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-9_VDRAIN2   G6911 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-9_VSUBSTR   G6912 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-9_VGATE1   G6913 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-9_VGATE2   G6914 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-9_VRES.DRAIN G6915 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-9_IDRAIN1   G6916 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-9_IDRAIN2   G6917 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-9_VL_RES-CLK G6918 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-9_VH_IMG-CLK G6919 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-9_VH_STR-CLK G6920 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-9_VH_RES-CLK G6921 limit check disabled
- RGS1_HKPARMINT_0013(HKPARMINT) CCD-9_VH_SER-CLK G6922 limit check disabled
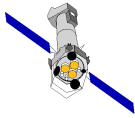
B Disablement of RGS2 CCD voltage checks

- RGS2_HKPARMINT_0012(HKPARMINT) CCD-1_VDRAIN1   L6110 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-1_VDRAIN2   L6111 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-1_VSUBSTR   L6112 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-1_VGATE1   L6113 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-1_VGATE2   L6114 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-1_VRES.DRAIN L6115 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-1_IDRAIN1   L6116 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-1_IDRAIN2   L6117 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-1_VL_RES-CLK L6118 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-1_VH_IMG-CLK L6119 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-1_VH_STR-CLK L6120 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-1_VH_RES-CLK L6121 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-1_VH_SER-CLK L6122 limit check disabled

- RGS2_HKPARMINT_0012(HKPARMINT) CCD-2_VDRAIN1   L6210 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-2_VDRAIN2   L6211 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-2_VSUBSTR   L6212 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-2_VGATE1   L6213 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-2_VGATE2   L6214 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-2_VRES.DRAIN L6215 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-2_IDRAIN1   L6216 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-2_IDRAIN2   L6217 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-2_VL_RES-CLK L6218 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-2_VH_IMG-CLK L6219 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-2_VH_STR-CLK L6220 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-2_VH_RES-CLK L6221 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-2_VH_SER-CLK L6222 limit check already disabled

- RGS2_HKPARMINT_0012(HKPARMINT) CCD-3_VDRAIN1   L6310 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-3_VDRAIN2   L6311 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-3_VSUBSTR   L6312 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-3_VGATE1   L6313 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-3_VGATE2   L6314 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-3_VRES.DRAIN L6315 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-3_IDRAIN1   L6316 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-3_IDRAIN2   L6317 limit check disabled
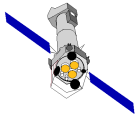
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-3_VL_RES-CLK L6318 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-3_VH_IMG-CLK L6319 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-3_VH_STR-CLK L6320 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-3_VH_RES-CLK L6321 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-3_VH_SER-CLK L6322 limit check disabled

- RGS2_HKPARMINT_0012(HKPARMINT) CCD-5_VDRAIN1   L6510 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-5_VDRAIN2   L6511 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-5_VSUBSTR   L6512 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-5_VGATE1   L6513 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-5_VGATE2   L6514 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-5_VRES.DRAIN L6515 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-5_IDRAIN1   L6516 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-5_IDRAIN2   L6517 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-5_VL_RES-CLK L6518 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-5_VH_IMG-CLK L6519 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-5_VH_STR-CLK L6520 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-5_VH_RES-CLK L6521 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-5_VH_SER-CLK L6522 limit check disabled

- RGS2_HKPARMINT_0012(HKPARMINT) CCD-6_VDRAIN1   L6610 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-6_VDRAIN2   L6611 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-6_VSUBSTR   L6612 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-6_VGATE1   L6613 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-6_VGATE2   L6614 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-6_VRES.DRAIN L6615 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-6_IDRAIN1   L6616 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-6_IDRAIN2   L6617 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-6_VL_RES-CLK L6618 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-6_VH_IMG-CLK L6619 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-6_VH_STR-CLK L6620 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-6_VH_RES-CLK L6621 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-6_VH_SER-CLK L6622 limit check disabled

- RGS2_HKPARMINT_0012(HKPARMINT) CCD-7_VDRAIN1   L6710 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-7_VDRAIN2   L6711 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-7_VSUBSTR   L6712 limit check disabled

- RGS2_HKPARMINT_0012(HKPARMINT) CCD-7_VGATE1   L6713 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-7_VGATE2   L6714 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-7_VRES.DRAIN L6715 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-7_IDRAIN1   L6716 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-7_IDRAIN2   L6717 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-7_VL_RES-CLK L6718 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-7_VH_IMG-CLK L6719 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-7_VH_STR-CLK L6720 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-7_VH_RES-CLK L6721 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-7_VH_SER-CLK L6722 limit check disabled

- RGS2_HKPARMINT_0012(HKPARMINT) CCD-8_VDRAIN1   L6810 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-8_VDRAIN2   L6811 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-8_VSUBSTR   L6812 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-8_VGATE1   L6813 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-8_VGATE2   L6814 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-8_VRES.DRAIN L6815 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-8_IDRAIN1   L6816 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-8_IDRAIN2   L6817 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-8_VL_RES-CLK L6818 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-8_VH_IMG-CLK L6819 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-8_VH_STR-CLK L6820 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-8_VH_RES-CLK L6821 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-8_VH_SER-CLK L6822 limit check disabled

- RGS2_HKPARMINT_0012(HKPARMINT) CCD-9_VDRAIN1   L6910 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-9_VDRAIN2   L6911 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-9_VSUBSTR   L6912 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-9_VGATE1   L6913 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-9_VGATE2   L6914 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-9_VRES.DRAIN L6915 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-9_IDRAIN1   L6916 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-9_IDRAIN2   L6917 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-9_VL_RES-CLK L6918 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-9_VH_IMG-CLK L6919 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-9_VH_STR-CLK L6920 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-9_VH_RES-CLK L6921 limit check disabled
- RGS2_HKPARMINT_0012(HKPARMINT) CCD-9_VH_SER-CLK L6922 limit check disabled