

**1. Overview**

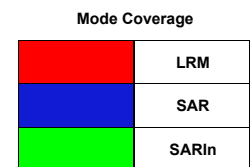
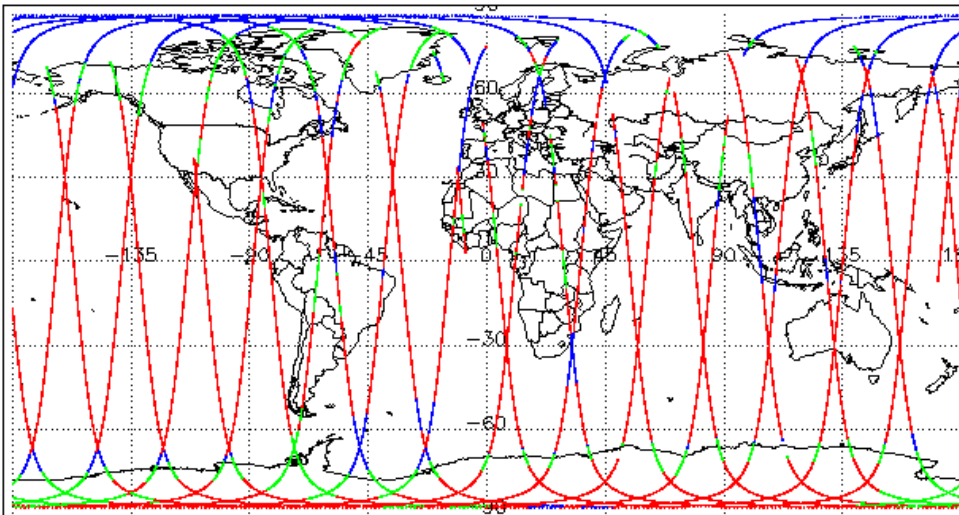
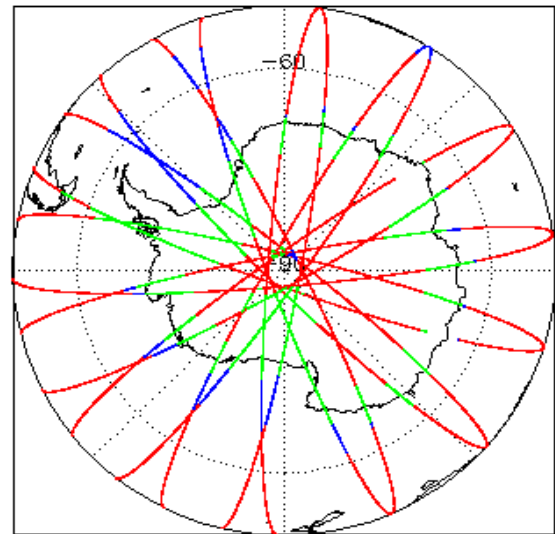
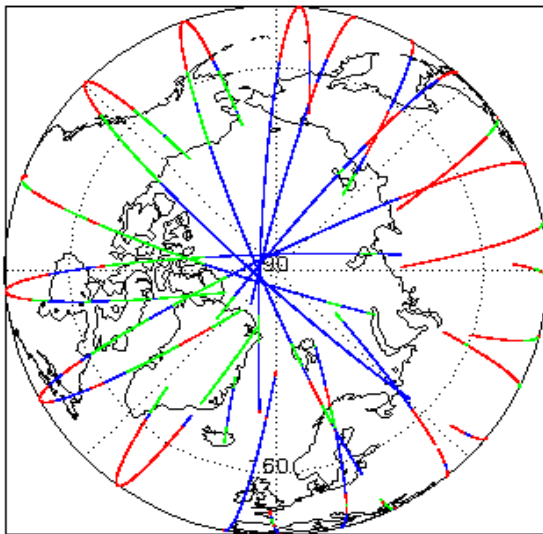
|                           |  |
|---------------------------|--|
| <b>Report Production:</b> | 29-Mar-2021  |
| <b>Processor Used:</b>    | CryoSat Ocean Processor                                      |
| <b>Data Used:</b>         | Near Real Time Ocean Products (NOP)<br>L1B & L2 Science Data |

| Check                                     | L1 & L2                 |
|---|-------------------------|
| Server check: science-pds.cryosat.esa.int | Nominal                 |
| Server check: calval-pds.cryosat.esa.int  | Nominal                 |
| Product Software Check                    | Nominal                 |
| Product Format Check                      | Nominal                 |
| Product Header Analysis                   | Nominal                 |
| Auxiliary Data File Usage Check           | Nominal                 |
| Auxiliary Correction Error Check          | See Section 5.4         |
| Measurement Confidence Data Check         | See Section 4.5, 4.6    |
| Measurement Quality Flag Check            | See Section 5.6         |
| Ocean Retracking Quality Check            | See Section 5.7         |
| QCC Error/ Warning Check                  | See Section 7.1 and 7.2 |

**Mission / Instrument News**

|             |                 |
|-------------|-----------------|
| 25-Mar-2021 | None            |
| 26-Mar-2021 | None            |
| 27-Mar-2021 | Nothing planned |

**2. Global Coverage**



**3. Instrument Configuration**

The SIRAL instrument configuration for the day of acquisition is provided below.

|                                    |                |
|------------------------------------|----------------|
| <b>SIRAL instrument(s) in use:</b> | SIRAL - A      |
| <b>Star Tracker(s) in use:</b>     | Star Tracker 1 |

**4. NOP Level 1B Data Quality Check**

**4.1 L1B Product Format Check**

Each product, retrieved and unpacked from the science server, is checked to ensure it consists of both an XML header file (.HDR) and a binary product file (.DBL).

Number of products with errors: 0

## 4.2 L1B Product Header Analysis

For all products, a series of pre-defined checks are performed on the MPH and SPH in order to identify any inconsistencies and/or errors raised by the ground-segment processing chain.

**L1B Processing Quality HR:** The l1b\_proc\_flag\_hr flag is currently set all L1B IOPR and IOPN products because the l1b\_processing\_quality\_hr field is not correctly configured in the OSAR and OSARIn chains. A modification is required in the next release.

Number of products with errors: 0

## 4.3 L1B Auxiliary Data File Usage Check

Each product is checked for missing Data Set Descriptors with respect to a pre-determined baseline and also to check the validity of Auxiliary Data Files is correct.

**Dynamic Atmospheric Correction:** The DAC is missing in all products because the auxiliary files required are not available in time for processing. This known and expected behaviour.

Number of products with errors: 0

## 4.4 L1B Auxiliary Correction Error Check

CryoSat L1B data includes a correction error flag for each measurement record. The bit value of this flag indicates any problems when set.

Number of products with errors: 0

## 4.5 L1B Measurement Confidence Data Check

CryoSat L1B data includes a measurement confidence flag for each measurement record. The bit value of this flag indicates any problems when set.

> **Attitude Correction Missing:** This flag is currently set in error for NOPR products due to a configuration issue. This is being investigated and will be updated in the next SW update.

Number of products with errors: 0

## 4.6 L1B Waveform Group Data Check

CryoSat L1B data includes a waveform data flag for each measurement record. The bit value of this flag indicates any problems when set.

> **Loss of Echo Flag:** This flag is currently set for products over land, but this is to be expected.

Number of products with errors: 17

| Product   | Test Failed  | Description  |
|---|--------------|--|
| CS_OFFL_SIR_NOPM1B_20210326T021514_20210326T022858_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_NOPM1B_20210326T022900_20210326T022954_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_NOPM1B_20210326T145233_20210326T150155_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_NOPM1B_20210326T231322_20210326T231835_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_NOPN1B_20210326T033426_20210326T033727_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_NOPN1B_20210326T033835_20210326T034049_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_NOPN1B_20210326T124901_20210326T125423_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_NOPN1B_20210326T133954_20210326T134334_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_NOPN1B_20210326T143313_20210326T143450_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_NOPN1B_20210326T151851_20210326T152003_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_NOPN1B_20210326T152135_20210326T152359_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_NOPN1B_20210326T160041_20210326T160431_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_NOPN1B_20210326T165813_20210326T170036_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_NOPN1B_20210326T215040_20210326T215133_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_NOPR1B_20210326T033011_20210326T033154_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_NOPR1B_20210326T101307_20210326T101323_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_NOPR1B_20210326T103216_20210326T103536_C001 | Loss of Echo | The tracking echo is missing for one or more records |

## 5. NOP Level 2 Data Quality Check

### 5.1 L2 Product Format Check

Each product, retrieved and unpacked from the science server, is checked to ensure it consists of both an XML header file (.HDR) and a binary product file (.DBL).

Number of products with errors: 0

### 5.2 L2 Product Header Analysis

For all products, a series of pre-defined checks are performed on the MPH and SPH in order to identify any inconsistencies and/or errors raised by the ground-segment processing chain.

Number of products with errors: 0

### 5.3 L2 Auxiliary Data File Usage Check

Each product is checked for missing Data Set Descriptors with respect to a pre-determined baseline and also to check the validity of Auxiliary Data Files is correct.

**Wind Model File Usage:** This file is currently not included in all L2 products.

Number of products with errors: 0

### 5.4 L2 Auxiliary Correction Error Check

For all products, the auxiliary corrections within the Geophysical Group are checked for the default error value (32767).

**Currently, there are some common auxiliary correction errors raised in the Level 2 products which are expected due to surface type. All common flags are summarised in the list below, followed by a table highlighting any additional issues which may arise from this test.**

> **ECMWF Meteo Corrections:** Currently the following corrections are not computed over CONTINENTAL ICE: Dry Tropospheric Correction, Wet Tropospheric Correction, Inverse Barometric Correction and the U-Wind and V-Wind components of the ECMWF model wind vector. This is a known anomaly (CRYO-COP-3) and will be resolved in a future IPF update.

> **Mean Sea Surface:** The error value is currently set for products over land and sea ice, but this is to be expected.

> **Mean Dynamic Topography:** The error value is currently set for products over land and sea ice, but this is to be expected.

> **Altimetric Wind Speed Error:** The error value is currently set for products over land and sea ice, but this is to be expected.

**Number of products with errors:** 42

| Product   | Test Failed   | Description  |
|---|---|--|
| CS_OFFL_SIR_NOPN_2_20210326T011706_20210326T011845_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1)   | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_NOPN_2_20210326T015544_20210326T015709_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or more records  |
| CS_OFFL_SIR_NOPN_2_20210326T020036_20210326T020134_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1)   | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_NOPN_2_20210326T025450_20210326T025702_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1)   | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_NOPN_2_20210326T033835_20210326T034049_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1)   | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_NOPN_2_20210326T042510_20210326T042656_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or more records  |
| CS_OFFL_SIR_NOPN_2_20210326T043341_20210326T043946_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1)   | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_NOPN_2_20210326T051518_20210326T051914_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or more records  |
| CS_OFFL_SIR_NOPN_2_20210326T060504_20210326T060737_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or more records  |
| CS_OFFL_SIR_NOPN_2_20210326T061447_20210326T061643_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or more records  |
| CS_OFFL_SIR_NOPN_2_20210326T092402_20210326T092521_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or more records  |
| CS_OFFL_SIR_NOPN_2_20210326T101050_20210326T101223_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or more records  |
| CS_OFFL_SIR_NOPN_2_20210326T110322_20210326T110447_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1)   | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_NOPN_2_20210326T110957_20210326T111303_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1), Total Geocentric Ocean Tide (GOT), Total Geocentric Ocean Tide (FES), Non-Equilibrium Long Period Ocean Tide | There is an error with the MSS height (solution 1), the Mean Dynamic Topography (solution 1) and the tidal corrections for one or more records   |
| CS_OFFL_SIR_NOPN_2_20210326T124354_20210326T124649_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1)   | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_NOPN_2_20210326T124901_20210326T125423_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1)   | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_NOPN_2_20210326T133954_20210326T134334_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1), Total Geocentric Ocean Tide (GOT), Total Geocentric Ocean Tide (FES), Non-Equilibrium Long Period Ocean Tide | There is an error with the MSS height (solution 1), the Mean Dynamic Topography (solution 1) and the tidal corrections for one or more records   |
| CS_OFFL_SIR_NOPN_2_20210326T142337_20210326T142612_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1)   | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_NOPN_2_20210326T151851_20210326T152003_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1), Total Geocentric Ocean Tide (GOT)  | There is an error with the MSS height (solution 1), the Mean Dynamic Topography height (solution 1) and the Total Geocentric Ocean Tide height (solution 1: GOT) for one or more records |
| CS_OFFL_SIR_NOPN_2_20210326T160041_20210326T160431_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1)   | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_NOPN_2_20210326T165813_20210326T170036_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1)   | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_NOPN_2_20210326T170053_20210326T170237_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or more records  |
| CS_OFFL_SIR_NOPN_2_20210326T174057_20210326T174248_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1)   | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_NOPN_2_20210326T175111_20210326T175321_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or more records  |
| CS_OFFL_SIR_NOPN_2_20210326T183802_20210326T184234_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or more records  |
| CS_OFFL_SIR_NOPN_2_20210326T192035_20210326T192213_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or more records  |
| CS_OFFL_SIR_NOPN_2_20210326T210031_20210326T210412_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1)   | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_NOPN_2_20210326T224000_20210326T224317_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1)   | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_NOPN_2_20210326T224829_20210326T224955_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or more records  |
| CS_OFFL_SIR_NOPN_2_20210326T233048_20210326T233147_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1)   | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_NOPR_2_20210326T002235_20210326T003021_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1)   | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_NOPR_2_20210326T020134_20210326T020716_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1)   | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_NOPR_2_20210326T034050_20210326T034524_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1)   | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_NOPR_2_20210326T034524_20210326T034735_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or more records  |

|   |   |  |
|---|---|--|
| CS_OFFL_SIR_NOPR_2_20210326T051914_20210326T052436_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1) | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records |
| CS_OFFL_SIR_NOPR_2_20210326T085304_20210326T085347_C001 | Mean Dynamic Topography (1)                       | There is an error with the Mean Dynamic Topography height for one or more records  |
| CS_OFFL_SIR_NOPR_2_20210326T162936_20210326T163655_C001 | Mean Dynamic Topography (1)                       | There is an error with the Mean Dynamic Topography height for one or more records  |
| CS_OFFL_SIR_NOPR_2_20210326T183210_20210326T183310_C001 | Mean Dynamic Topography (1)                       | There is an error with the Mean Dynamic Topography height for one or more records  |
| CS_OFFL_SIR_NOPR_2_20210326T183339_20210326T183802_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1) | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records |
| CS_OFFL_SIR_NOPR_2_20210326T200739_20210326T202014_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1) | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records |
| CS_OFFL_SIR_NOPR_2_20210326T215133_20210326T215920_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1) | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records |
| CS_OFFL_SIR_NOPR_2_20210326T233147_20210326T234203_C001 | Mean Sea Surface (1), Mean Dynamic Topography (1) | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) for one or more records |

## 5.5 L2 Measurement Confidence Data Check

CryoSat L2 data includes a measurement confidence flag for each 20-Hz measurement record. The bit value of this flag indicates any problems when set.

Number of products with errors: 0

## 5.6 L2 Measurement Quality Flag Check

### L2 Quality Flags (20Hz)

CryoSat L2 data includes Quality Flags for each 20 Hz, 20 Hz PLRM and 1 Hz measurement record. The bit value of this flag indicates any problems when set.

Currently, there are several common flags raised in the Level 2 products, which are summarised below. The table provides the full list of products flagged.

> **Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags:** These flags are currently set for some records over ocean.

> **OCOG Altimeter Range and Backscatter Quality Flags:** These flags are currently set for some records over continental ice.

Number of products with errors: 85

| Product   | Test Failed  | Description  |
|---|--|--|
| CS_OFFL_SIR_NOPM_2_20210326T235552_20210326T000200_C001 | OCOG Altimeter Range Quality, OCOG Backscatter Quality   | The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPM_2_20210326T003305_20210326T010635_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPM_2_20210326T010838_20210326T011345_C001 | OCOG Altimeter Range Quality, OCOG Backscatter Quality   | The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPM_2_20210326T011405_20210326T011705_C001 | OCOG Altimeter Range Quality, OCOG Backscatter Quality   | The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPM_2_20210326T012445_20210326T015518_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPM_2_20210326T021514_20210326T022858_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPM_2_20210326T022900_20210326T022954_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPM_2_20210326T023006_20210326T024556_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPM_2_20210326T024738_20210326T025244_C001 | OCOG Altimeter Range Quality, OCOG Backscatter Quality   | The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPM_2_20210326T025251_20210326T025258_C001 | OCOG Altimeter Range Quality, OCOG Backscatter Quality   | The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPM_2_20210326T030222_20210326T031221_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPM_2_20210326T031840_20210326T033010_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPM_2_20210326T035224_20210326T035232_C001 | OCOG Altimeter Range Quality, OCOG Backscatter Quality   | The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPM_2_20210326T035236_20210326T040829_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPM_2_20210326T041009_20210326T042457_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |





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|---|--|--|
| CS_OFFL_SIR_NOPM_2_20210326T213656_20210326T213808_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPM_2_20210326T214851_20210326T215002_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPM_2_20210326T220322_20210326T223757_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPM_2_20210326T224318_20210326T224829_C001 | OCOG Altimeter Range Quality, OCOG Backscatter Quality   | The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPM_2_20210326T225013_20210326T231005_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPM_2_20210326T234203_20210327T001546_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPN_2_20210326T053545_20210326T053927_C001 | OCOG Altimeter Range Quality, OCOG Backscatter Quality   | The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPN_2_20210326T061114_20210326T061120_C001 | OCOG Altimeter Range Quality, OCOG Backscatter Quality   | The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPN_2_20210326T093304_20210326T093418_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPN_2_20210326T102451_20210326T102549_C001 | OCOG Altimeter Range Quality, OCOG Backscatter Quality   | The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPN_2_20210326T232028_20210326T232036_C001 | OCOG Altimeter Range Quality, OCOG Backscatter Quality   | The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPR_2_20210326T025244_20210326T025251_C001 | OCOG Altimeter Range Quality, OCOG Backscatter Quality   | The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPR_2_20210326T025258_20210326T025303_C001 | OCOG Altimeter Range Quality, OCOG Backscatter Quality   | The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPR_2_20210326T025702_20210326T030221_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPR_2_20210326T123725_20210326T124017_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPR_2_20210326T141738_20210326T142337_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPR_2_20210326T170352_20210326T170610_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPR_2_20210326T183210_20210326T183310_C001 | OCOG Altimeter Range Quality, OCOG Backscatter Quality   | The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.  |

## L2 Quality Flags (20Hz PLRM)

Currently, there are several common flags raised in the Level 2 products, which are summarised below. The table provides the full list of products flagged.

> **Ocean Altimeter Range, SSHA, SWH and Backscatter PLRM Quality Flags:** These flags are currently set for occasional records over sea ice.

> **OCOG Altimeter Range and Backscatter PLRM Quality Flags:** These flags are currently set for occasional records over continental ice.

**Number of products with errors:** 79

| Product   | Test Failed  | Description  |
|---|--|--|
| CS_OFFL_SIR_NOPN_2_20210326T015544_20210326T015709_C001 | OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPN_2_20210326T024557_20210326T024738_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPN_2_20210326T031221_20210326T031327_C001 | OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPN_2_20210326T033426_20210326T033727_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPN_2_20210326T033835_20210326T034049_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |







|   |  |  |
|---|--|--|
| CS_OFFL_SIR_NOPR_2_20210326T103216_20210326T103536_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPR_2_20210326T111303_20210326T111513_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPR_2_20210326T120417_20210326T121431_C001 | OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPR_2_20210326T132530_20210326T132959_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPR_2_20210326T133232_20210326T133325_C001 | OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPR_2_20210326T140328_20210326T140415_C001 | OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPR_2_20210326T152620_20210326T152939_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPR_2_20210326T162936_20210326T163655_C001 | OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPR_2_20210326T170238_20210326T170341_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPR_2_20210326T170352_20210326T170610_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPR_2_20210326T174025_20210326T174057_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPR_2_20210326T183210_20210326T183310_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPR_2_20210326T183339_20210326T183802_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPR_2_20210326T191929_20210326T192035_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPR_2_20210326T200739_20210326T202014_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPR_2_20210326T211735_20210326T212205_C001 | OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPR_2_20210326T214434_20210326T214750_C001 | OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPR_2_20210326T215133_20210326T215920_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPR_2_20210326T220050_20210326T220128_C001 | OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_NOPR_2_20210326T223757_20210326T224000_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPR_2_20210326T232812_20210326T233048_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
| CS_OFFL_SIR_NOPR_2_20210326T233147_20210326T234203_C001 | Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |

## L2 Quality Flags (1 Hz & 1Hz PLRM)

Currently, there are several common flags raised in the Level 2 products, which are summarised below.

> 1Hz and 1Hz Ocean SSHA Quality Flags: These flags are currently set for products over sea ice, which is to be expected.

Number of products with errors: 177

## 5.7 L2 Ocean Retracking Quality Check

### L2 Retracking Flags (20Hz)

CryoSat L2 data includes an ocean retracking quality flag for each 20-Hz measurement record. The bit value of this flag indicates any problems when set.

Ocean Retracking Quality Flag: This flag is currently set for products falling at ocean/ land boundaries, but this is expected.

Number of products with errors: 59

## L2 Retracking Flags (20Hz, PLRM)

CryoSat L2 data includes an ocean retracking quality flag for each 20-Hz PLRM measurement record. The bit value of this flag indicates any problems when set.

**Ocean Retracking Quality Flag (PLRM):** This flag is currently set for products NOPR and NOPN products over sea ice, but this is to be expected.

**Number of products with errors:** 134

## 7. NOP QCC Report Analysis

The Quality Control for CryoSat (QCC) facility performs a primary survey of data products immediately after production by the PDS and LTA processing facilities. A list of the tests which raised errors or warnings is provided below.

| Product type | No. Products | No. QCC Reports | No. Valid | No. Warnings | No. Errors |
|--------------|--------------|-----------------|-----------|--------------|------------|
| SIR_NOPM1B   | 168          | 168             | 3         | 165          | 0          |
| SIR_NOPR1B   | 92           | 92              | 0         | 92           | 0          |
| SIR_NOPN1B   | 104          | 104             | 2         | 102          | 0          |
| SIR_NOPM_2   | 168          | 168             | 122       | 46           | 0          |
| SIR_NOPR_2   | 92           | 92              | 25        | 66           | 1          |
| SIR_NOPN_2   | 104          | 104             | 37        | 67           | 0          |

### 7.1 QCC Errors

**Number of QCC reports with errors:** 4

**Total number of occurrences of each error**

| Product Type | RLOBOPNCDF | RL | RLOBOPNCDF | RL | - | - | - | - | - | - |
|--------------|------------|----|------------|----|---|---|---|---|---|---|
| SIR_NOPR_2   | 1          | 1  | 1          | 1  | - | - | - | - | - | - |

#### Test Description Key:

| Abbreviation | Test name                       | Details   |
|--------------|---------------------------------|---|
| RLOBOPNCDF   | RangeLatitudeOrBlankOP_7NetCDF  | Latitude should be between -90E7 and 90E7 - NetCDF    |
| RL           | RangeLatitude_7                 | Latitude should be between -90E7 and 90E7             |
| RLOBOPNCDF   | RangeLongitudeOrBlankOP_7NetCDF | Longitude should be between -180E7 and 180E7 - NetCDF |
| RL           | RangeLongitude_7                | Longitude should be between -180E7 and 180E7          |

### 7.2 QCC Warnings

**Number of QCC reports with warnings** 1615

**Total number of occurrences of each warning**

| Product Type | BCSHNCDF | IOHHMOOR | MVIOEPDNCDF | MVIOEPNCDF | MVIONCDF | RBSZOPEPFDNCDF | RBSZOPEPFDPLRMNCDF |
|--------------|----------|----------|-------------|------------|----------|----------------|--------------------|
| SIR_NOPM1B   | 165      | 0        | 0           | 0          | 0        | 0              | 0                  |
| SIR_NOPM_2   | 0        | 0        | 32          | 36         | 0        | 39             | 0                  |
| SIR_NOPN1B   | 102      | 0        | 0           | 0          | 0        | 0              | 0                  |
| SIR_NOPN_2   | 0        | 0        | 10          | 32         | 3        | 31             | 33                 |
| SIR_NOPR1B   | 86       | 0        | 0           | 0          | 0        | 0              | 0                  |
| SIR_NOPR_2   | 0        | 1        | 24          | 39         | 0        | 21             | 21                 |

| Product Type | RBSZOPEPNCDF | RNELPOTONCDF | RPEOPFDLRMNCDF | RPEOPFDPLRMSARNCDF | RPEOPFDPLRMSINNCDF | RPEOPFDSARNCDF | RPEOPFDSINNCDF |
|--------------|--------------|--------------|----------------|--------------------|--------------------|----------------|----------------|
| SIR_NOPM1B   | 0            | 0            | 0              | 0                  | 0                  | 0              | 0              |
| SIR_NOPM_2   | 34           | 0            | 27             | 0                  | 0                  | 0              | 0              |
| SIR_NOPN1B   | 0            | 0            | 0              | 0                  | 0                  | 0              | 0              |
| SIR_NOPN_2   | 19           | 1            | 0              | 0                  | 22                 | 0              | 39             |
| SIR_NOPR1B   | 0            | 0            | 0              | 0                  | 0                  | 0              | 0              |
| SIR_NOPR_2   | 14           | 2            | 0              | 38                 | 0                  | 45             | 0              |

| Product Type | RPEOPLRMNCDF | RPEOPARSARNCDF | RPEOPARSINNCDF | RSSBONCDF | RSSHAOFDNCDF | RSSHAOFDPLRMNCDF | RSSHAONCDF |
|--------------|--------------|----------------|----------------|-----------|--------------|------------------|------------|
| SIR_NOPM1B   | 0            | 0              | 0              | 0         | 0            | 0                | 0          |
| SIR_NOPM_2   | 20           | 0              | 0              | 7         | 22           | 0                | 4          |
| SIR_NOPN1B   | 0            | 0              | 0              | 0         | 0            | 0                | 0          |
| SIR_NOPN_2   | 0            | 0              | 27             | 22        | 45           | 62               | 31         |
| SIR_NOPR1B   | 0            | 0              | 0              | 0         | 0            | 0                | 0          |
| SIR_NOPR_2   | 0            | 40             | 0              | 0         | 49           | 28               | 6          |

| Product Type | RSWHOEPDNCDF | RSWHOEPDPLRMNCDF | RSWHOEPNCDF | SOOHIFHD | SCSTODHRNCDF | SCSTODNCDF | - |
|--------------|--------------|------------------|-------------|----------|--------------|------------|---|
| SIR_NOPM1B   | 0            | 0                | 0           | 0        | 0            | 0          |   |
| SIR_NOPM_2   | 27           | 0                | 4           | 0        | 0            | 0          |   |
| SIR_NOPN1B   | 0            | 0                | 0           | 0        | 45           | 0          |   |
| SIR_NOPN_2   | 33           | 37               | 16          | 1        | 0            | 0          |   |
| SIR_NOPR1B   | 0            | 0                | 0           | 0        | 92           | 6          |   |
| SIR_NOPR_2   | 33           | 40               | 0           | 2        | 0            | 0          |   |

#### Test Description Key:

| Abbreviation       | Test name   | Details  |
|--------------------|---|--|
| BCSHNCDF           | BurstCounterStep20HzNetCDF                                  | The burst counter should be one higher with regard to the previous burst counter   |
| IOHHMOOR           | IndexOf1Hzin20HzMappingOutOfRange                           | The mapping of 20 Hz to 1 Hz measurements should be in the range 0 to (number of 1 Hz samples - 1)                                       |
| MVIOEPDNCDF        | MissingValueIntOceanExcludingPolarFD2NetCDF                 | The value should not be a 'missing value' for surface type 0 only for latitudes between -70 and 70 degrees                               |
| MVIOEPNCDF         | MissingValueIntOceanExcludingPolarNetCDF                    | The value should not be a 'missing value' for surface type 0 only for latitudes between -70 and 70 degrees                               |
| MVIONCDF           | MissingValueIntOceanNetCDF                                  | The value should not be a 'missing value' for surface type 0 only  |
| RBSZOPEPFDNCDF     | RangeBackscatterSigmaZeroOPOceanExcludingPolarFD2NetCDF     | The backscatter sigma zero should be between 700 and 7500 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees |
| RBSZOPEPFDPLRMNCDF | RangeBackscatterSigmaZeroOPOceanExcludingPolarFD2PLRMNetCDF | The backscatter sigma zero should be between 700 and 7500 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees |
| RBSZOPEPNCDF       | RangeBackscatterSigmaZeroOPOceanExcludingPolarNetCDF        | The backscatter sigma zero should be between 700 and 7500 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees |
| RNELPOTONCDF       | RangeNELPOceanTideOceanNetCDF                               | The Non-equilibrium long period ocean loading tide height should be between -40mm and 40mm (or missing) for surface type = ocean         |
| RPEOPFDLRMNCDF     | RangePeakinessExcludingPolarOPFD2LRMNetCDF                  | The Peakiness should be between 0 and 6400 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees                |
| RPEOPFDPLRMSARNCDF | RangePeakinessExcludingPolarOPFD2PLRMSARNetCDF              | The Peakiness should be between 0 and 15000 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees               |
| RPEOPFDPLRMSINNCDF | RangePeakinessExcludingPolarOPFD2PLRMSINNetCDF              | The Peakiness should be between 0 and 90000 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees               |
| RPEOPFDSARNCDF     | RangePeakinessExcludingPolarOPFD2SARNetCDF                  | The Peakiness should be between 0 and 15000 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees               |
| RPEOPFDSINNCDF     | RangePeakinessExcludingPolarOPFD2SINNetCDF                  | The Peakiness should be between 0 and 90000 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees               |
| RPEOPLRMNCDF       | RangePeakinessExcludingPolarOPLRMNetCDF                     | The Peakiness should be between 0 and 6400 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees                |
| RPEOPARSARNCDF     | RangePeakinessExcludingPolarOPSARNetCDF                     | The Peakiness should be between 0 and 15000 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees               |
| RPEOPARSINNCDF     | RangePeakinessExcludingPolarOPSINNetCDF                     | The Peakiness should be between 0 and 90000 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees               |

|                  |  |  |
|------------------|--|--|
| RSSBONCDF        | RangeSeaStateBiasCorrectionOceanNetCDF                     | The sea state bias correction should be between -500mm and 0mm (or missing) for surface type = ocean   |
| RSSHAOFDNCDF     | RangeSeaSurfaceHeightAnomalyOceanFD3NetCDF                 | The sea surface height anomaly should be between -3000mm and 3000mm (or missing) for surface type = ocean                                    |
| RSSHAOFDPLRMNCDF | RangeSeaSurfaceHeightAnomalyOceanFD3PLRMNetCDF             | The sea surface height anomaly should be between -3000mm and 3000mm (or missing) for surface type = ocean                                    |
| RSSHAONCDF       | RangeSeaSurfaceHeightAnomalyOceanNetCDF                    | The sea surface height anomaly should be between -3000mm and 3000mm (or missing) for surface type = ocean                                    |
| RSWHOEPDNCDF     | RangeSignificantWaveHeightOceanExcludingPolarFD2NetCDF     | The significant wave height should be between 0mm and 15000mm (or missing) for surface type = ocean for latitudes between -70 and 70 degrees |
| RSWHOEPDPLRMNCDF | RangeSignificantWaveHeightOceanExcludingPolarFD2PLRMNetCDF | The significant wave height should be between 0mm and 15000mm (or missing) for surface type = ocean for latitudes between -70 and 70 degrees |
| RSWHOEPNCDF      | RangeSignificantWaveHeightOceanExcludingPolarNetCDF        | The significant wave height should be between 0mm and 15000mm (or missing) for surface type = ocean for latitudes between -70 and 70 degrees |
| SOOHHIFHD        | SameOrOneHigher1HzIndexFor20HzData                         | The 1 Hz index of a 20 Hz sample should be the same or 1 higher than its previous sample   |
| SCSTODHRNCDF     | SequenceCounterStepTODHRNetCDF                             | The sequence counter should be modulo 4 higher with regard to the previous sequence counter  |
| SCSTODNCDF       | SequenceCounterStepTODNetCDF                               | The sequence counter should be one higher (modulo 16384) with regard to the previous sequence counter  |

### 7.3 Missing QCC Reports

Number of products with missing QCC reports: 0