SCIAMACHY	Operation Change Request	OCR No: 014 Issue: A

Title: Doubling of the vertical sampling in limb scattering mode

Description of Request: That the elevation step size be reduced by a factor of 2 from ~3.25 km to ~1.6 km. This will improve precision and/or vertical resolution in the troposphere and stratosphere. Simple co-addition of adjacent elevation steps leads to an improvement of square root of 2 for shot noise limited absorbers.
I suggest that the lower limit of the scan range remain constant and that the upper altitude limit of the scan be halved (from ~100 to ~50 km). This request need not permanently replace the present vertical sampling. If this request is honoured for one orbit the originator would satisfied.

Originator: Christopher Sioris	Date of Issue: Feb. 2nd, 2004	Signature: e-mail, C. Sioris 2004-02-02

Assessment of SSAG (necessary for requests by scientists):
The change is recommended by the SSAG.

SSAG:	Date: 2004-02-11	Signature: 29.SSAG, MoM

Classification of OCR: D

OCR Analysis (incl. Implementation Option):
Implementation of the reduced vertical stepsize will be done as a special mesurement only by modifying the scanner state table of the wide swath limb states. The modified CTI tables will be sent to ESOC for uplink as soon they have been generated. Since no timeline changes are required it allows to decouple special measurement implementation from planning cycles.

We propose to execute the special measurements for a full day (14 orbits instead of only 1 - please confirm) in order to ensure availability of measurement data (both in NRT and offline). After special measurement completion the nominal limb settings with about 3 km vertical stepsize will be re-established.

If approval of the OCR can be achieved quickly it is expected to run the special measurements in the second half of March/early April timeframe.

SOST: M. Gottwald, DLR-IMF (ESA, Industry if necessary)	Date: 18/02/2004	Signature: via e-mail 18/02/2004

Approval of Proposed Implementation:

Originator Approval: Ch. Sioris	Date:2004-02-18	Signature: e-mail, Ch. Sioris, 2004-02-18
SSAG Approval: H. Bovensmann	Date:3.3.2004	Signature: e-mail,H. Bovensmann, 4.3.2004

Decision / Approval:
The proposed implementation of 14 orbits measurements with reduced step size in Limb as described by DLR SOST (see: OCR analysis) shall be performed.

DLR Approval: Ch. Chlebek	Date: 2004-03-03	Signature: e-mail, Ch. Chlebek, 2004-03-03

Implementation by SOST:

The execution of the 6 nominal limb-states 28 to 33 is modified by

a) changing the elevation step width to 1.5 km by setting the rel_prof factor for rel_prof1 to '3'
b) lifting the tangential height of the first set from -3 km below the horizon to approx. +10km above the horizon by setting in bas_prof 2 the value for ELV to -0.234943 rad = -13.4612deg thereby producing readings approx. between 10 km and 57km altitude (this additional feature has been discussed with SSAG - H. Bovensmann and is agreed).

The execution of the special operation is scheduled for orbits 10767 (March 22, 06:21:00 UTC) to 10783 (March 23, 10:51:00 UTC) for 17 orbits total to obtain orbits covering the full Arabian peninsula and 3 orbits over the Sahara.

Note: After having implemented step b) it was realized that lifting the start altitude might not be the preferred option. Since the associated CTI tables were already ingested into the ENVISAT mission planning system it was decided (telecon Krieg/Bovensmann/Chlebek/Gottwald, 08/03/2004) to add 14 orbits where the limb vertical step size is reduced to 1.5 km (step a) above) but the start altitude remains at -3 km as in the nominal limb scans. These measurements will be executed from orbit 10797 (March 24, 08:39:00 UTC) to 10810 (March 25, 08:07:00 UTC).

SOST DLR-IMF E.Krieg	Date: 08.03.2004	Signature: e-mail 08.03.2004