

DATA CONTENT OF DIRECT BROADCAST SERVICES FOR THE EUMETSAT POLAR SYSTEM (EPS)

This paper provides a summary on the data content of the Advanced High Resolution Picture Transmission (AHRPT) and the Low Resolution Picture Transmission (LRPT) service, provided by the Metop satellite within the EUMETSAT Polar System.

The paper has been written in response to CGMS action 30.03

DATA CONTENT OF DIRECT BROADCAST SERVICES FOR EPS

1 INTRODUCTION

The Metop satellite series will, as the space segment component of the EUMETSAT Polar System, provide measurement data from the following meteorological instruments:

- Advanced Very High Resolution Radiometer (AVHRR/3)
- High Resolution Infrared Radiation Sounder (HIRS/4)
- Advanced Microwave Sounding Unit – A (AMSU-A1 and A2)
- Microwave Humidity Sounder (MHS)
- Infrared Atmospheric Sounding Interferometer (IASI)
- Advanced Scatterometer (ASCAT)
- Global Ozone Monitoring Experiment (GOME-2)
- Global Navigation Satellite System (GNSS) Radio Occultation Atmospheric Sounder (GRAS)

Metop will provide data from the morning (AM) orbit with an equator crossing time of 09:30 Local Solar Time (LST) (ascending node).

2 DIRECT BROADCAST SERVICES

The data services on Metop will continue the direct broadcast service, i.e. the Advanced High Resolution Picture Transmission (AHRPT) and Low Resolution Picture Transmission (LRPT) both in digital form. AHRPT is an improved HRPT service, as on today's NOAA/TIROS-N satellites, whereas LRPT replaces the current analogue Automatic Picture Transmission (APT) Service on NOAA/TIROS-N.

2.1 HRPT application data

The application data provided with the HRPT link are as follows:

- Full resolution AVHRR imagery
- Infrared and microwave sounding raw data from HIRS, IASI, AMSU-A1, AMSU-A2 and MHS
- SEM data
- DCS data
- Data provided by ASCAT and GOME
- Spacecraft Housekeeping data
- GRAS positioning and timing data
- GRAS Occultation data.
- Administrative messages, including orbit state in TBUS format and also SPOT-5 elements

The data are provided at raw data level. The data rate budget for HRPT is 3.5 mbps. The nominal carrier frequencies are either 1701.300 MHz or 1707.000 MHz.

2.2 LRPT application data

The application data provided with the LRPT link are as follows:

- Compressed resolution imagery on selected channels of the AVHRR instrument (modified JPEG compression to adapt to a fixed compression ratio option and a continuous instrument operation mode). Three compressed channels will be delivered to the user on the ground
- Infrared and microwave sounding data from HIRS, AMSU-A1, AMSU-A2 and MHS
- SEM data
- Spacecraft Housekeeping data
- GRAS positioning and timing data
- Administrative message

The data are provided at raw data level. The data rate budget for LRPT is 72000 bps. The nominal carrier frequencies are either 137.1 MHz or 137.9125 MHz.

3 SUMMARY

The direct broadcast services available today will be continued on the Metop satellites within the EUMETSAT Polar System. All instrument information will be available to users in the HRPT service, the LRPT service will include a reduced image information from AVHRR and the full ATOVS sounding information.