

CGMS-XXX JPN-WP-04
Prepared by JAPAN
Agenda Item: C.2
Discussed in Plenary

FUTURE PLAN ON MULTI-FUNCTIONAL TRANSPORT SATELLITES

To report the future plan on Multi-functional Transport Satellites(MTSAT-1R/-2).

No action is required on this subject

FUTURE PLAN ON MULTI-FUNCTIONAL TRANSPORT SATELLITES

After the launch failure of MTSAT on 15 November 1999, the Japan Meteorological Agency(JMA) and the Japan Civil Aviation Bureau (JCAB) settled on a new plan to launch MTSAT-1R as a replacement of MTSAT and a follow-on MTSAT-2. The contracts for MTSAT-1R and MTSAT-2 manufacturing was signed in March and July 2000, respectively.

Operation plan of both satellites is shown in Figure 1. MTSAT-1R will be operated from the end of 2003. Meteorological mission of MTSAT-2 will be operated from 2008 after stand-by operation in a geostationary orbit.

Functions of meteorological mission of MTSAT-1R and MTSAT-2 will be almost the same as those of the planned MTSAT and there will be some additions as shown in the following.

- (1) Each imager to be onboard MTSAT-1R and MTSAT-2 will have the same number of channels as the MTSAT; four infrared channels including a 3.7 micron channel and one visible channel.
- (2) Low-resolution digital image data will be disseminated by the Low Rate Information Transmission (LRIT) to the Small-scale Data Utilization Station (SDUS) as planned in MTSAT. There will be a transition period to disseminate both LRIT and WEFAX during operation of MTSAT-1R.
- (3) Image data have 5km (1km) resolution at sub-satellite point and 10bit (6bit) quantization levels for IR (VIS) channels, and will be disseminated to Medium-scale Data Utilization Station(MDUS) by High Resolution Imager Data(HiRID). The format of HiRID is compatible to that of Stretched-VISSR of GMS-5.
- (4) HRIT (High Rate Information Transmission) will be newly introduced in addition to HiRID in order to disseminate image data at original resolution (4km for IR and 1km for VIS) and at original quantization levels to MDUS (Medium-scale Utilization Station).
- (5) Current ranging system will be replaced by the system using a turn-around HRIT signal at CDAS (Command and Data Acquisition System). Current trilateration ranging system will be used for GMS-5 until the end of its life.

There will be two transitions in the methods of image data dissemination, one from WEFAX to LRIT and the other from HiRID to HRIT, during the operations of MTSAT-1R and MTSAT-2 (see Figure 1). During the transition period, WEFAX and LRIT as well as HiRID and HRIT will be disseminated by a time sharing method on the same center frequency.

MTSAT-1R observations schedule are shown in Figure 2-1/2. Observations will consist of hourly full disk observations and hourly observations of the northern hemisphere. And also six-hourly sequential hemisphere observations for wind vector extraction will be operated.

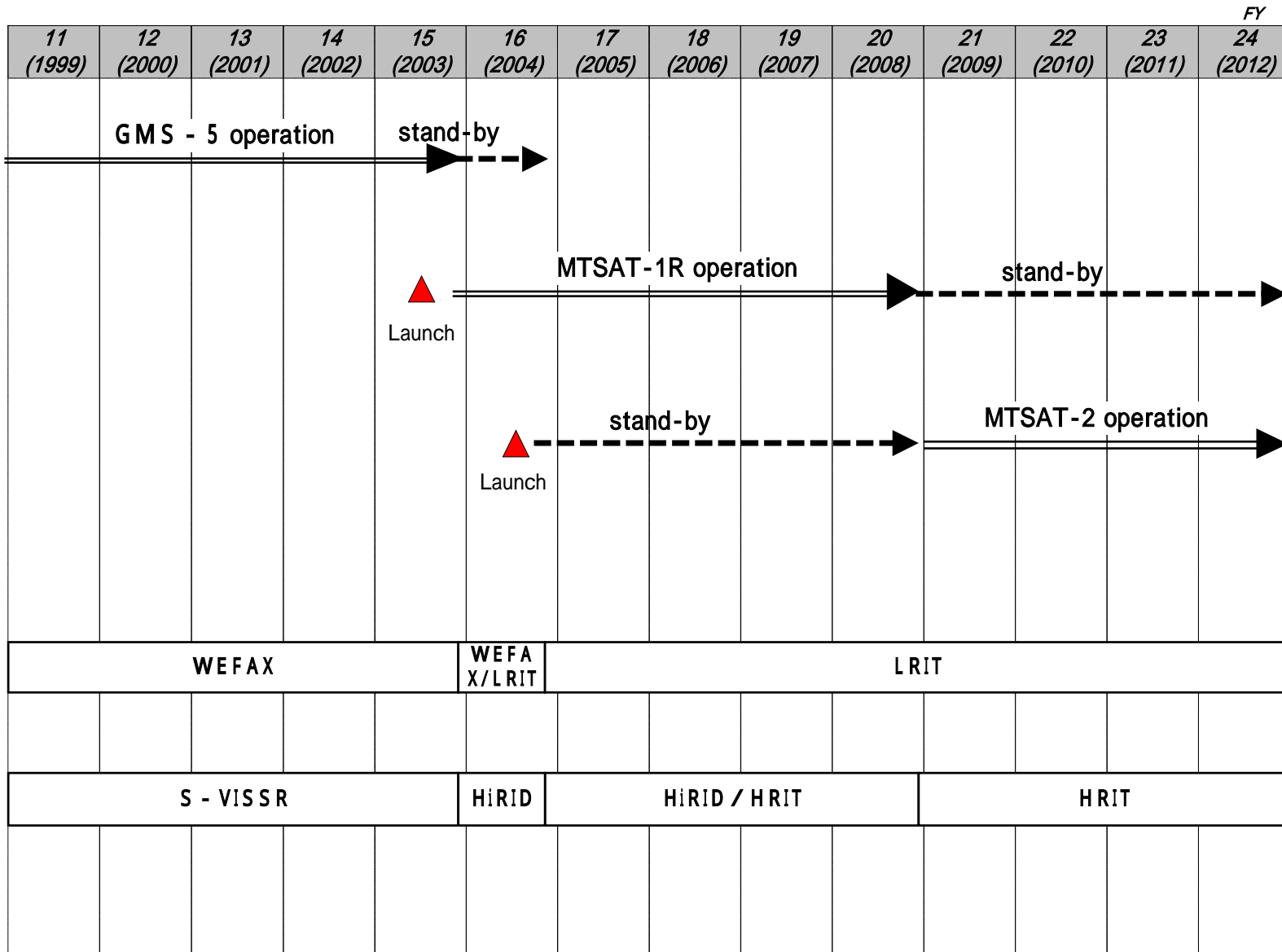
MDUS is to receive the High Rate Information Transmission (HRIT) and the High Resolution Imager Data (HiRID). Full disk Images and Northern hemisphere Images will be disseminated in both HRIT and HiRID. HRIT will start to operate at the end of March 2005,

and HiRID to be initiated at the beginning of the MTSAT-1R nominal operation will be terminated in March 2008.

SDUS is to receive the Low Rate Information Transmission (LRIT) and WEFAX. In WEFAX, Hourly Far-East Area images and 3-hourly Full disk images will be disseminated. WEFAX starting from the MTSAT-1R nominal operation will be terminated in March 2005. On the other hands, in LRIT full disk Images and Northern hemisphere images (especially, Far-East Area) will be disseminated from the end of 2003.

MTSAT-1R can disseminate data to both MDUS and SDUS stations at the same time, but can't broadcast to the same type station in the two modes at the same time (for example, HRIT and HiRID can't be used at the same time in the case of MDUS). The dissemination schedule of HRIT, HiRID, LRIT and WEFAX are shown in Figure 2-1/2.

Figure 1 Plan of Satellite operation and data dissemination (Draft)



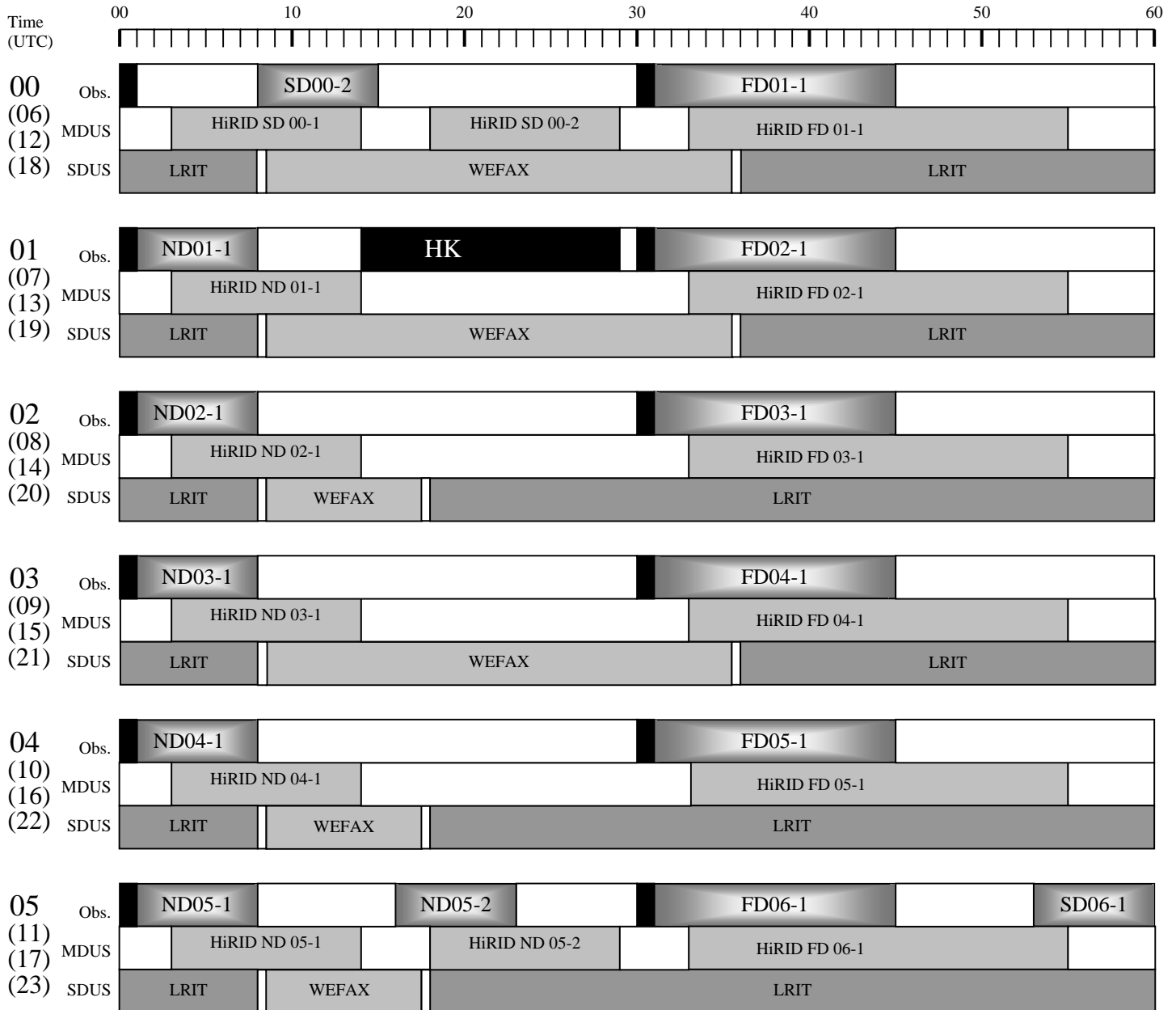


Figure 2-1 MTSAT-1R Observation and Dissemination Schedule for 2003-2004 (Draft)

Legend:

- FD : Full Disk
- ND : Northern half Disk
- SD : Southern half Disk
- HK : House Keeping

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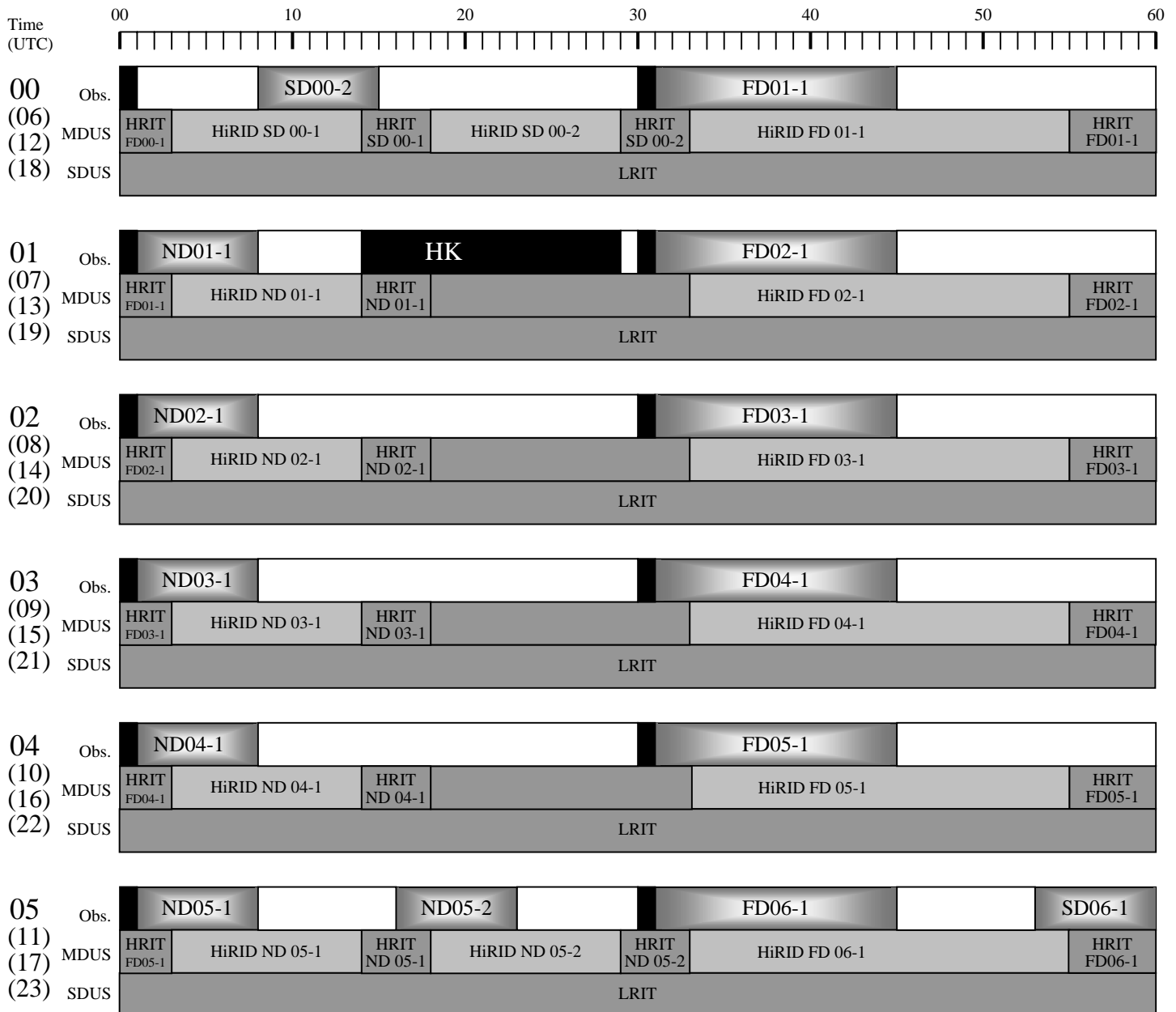


Figure 2-2 MTSAT-1R Observation and Dissemination Schedule for 2005-2007 (Draft)

Legend:

- FD : Full Disk
- ND : Northern half Disk
- SD : Southern half Disk
- HK : House Keeping