CGMS-XXXI IND-WP-05

Prepared by INDIA
Agenda Item: V/1.2
Discussed in Plenary

INSTALLATION OF 40-DIGITAL METEOROLOGICAL DATA DISSEMINATION STATIONS IN INDIA

Installation of 40-Digital Meteorological data Dissemination stations in India

CGMS Members are invited to take note.

INSTALLATION OF 40-DIGITAL METEOROLOGICAL DATA DISSEMINATION STATIONS IN INDIA

1.0 INTRODUCTION

Processed satellite cloud imageries , analyzed fax charts and coded weather messages are being disseminated through INSAT Meteorological Data Dissemination (MDD) scheme since 1989. The transmission of cloud imagery data is currently being done in analogue form and therefore the images are of limited operational use and not usable for detailed quantitative analysis in weather forecasting. Also the transmission of cloud imageries takes about 10 minutes for one image. The quality of satellite imagery received from present system is sometimes adversely affected due to noise and transmission problem inherent with analogue based systems. Since the technology is old and the current systems will soon outlive their useful life, it is desirable to replace the present MDD receiving systems with the latest state – of – art system.

The MDD equipments installed at 35 locations are of old technology. 25 stations were installed during 1989 to 1995 and 8 stations during 1997- 1999. These old equipments need replacement for efficient dissemination of frequently available satellite imageries and weather products for operational use by the weathermen all over Indian continent including 3 stations in neighbouring countries at Maldivies, Srilanka and Bangladesh. New technology will also improve quality of data and give rise to improved utilization of data at field stations. Replacements will be done in a phased manner with older equipments replaced first.

The availability of improved quality of INSAT Satellite imageries, analyzed FAX charts and meteorological data at forecasting offices on an operational basis in real time will enhance the weather forecasting capability of the Department. Uninterrupted data availability at field stations located all over the country and in neighbouring countries will help in better monitoring of weather systems on an operational basis which will give rise to improved forecasting services to the users. Particularly in the cyclone prone coastal areas of India, availability of such data will

give rise to better monitoring of cyclonic storms. Field forecasting officers can also use improved quality of MDD data for research work on various operational aspects of weather forecasting.

2.0 System Goal and requirement

Currently, IMD is operating 33 + 2 Analogue MDD systems in India and abroad. These are to be replaced with Digital MDD uplinking & data receiving equipments and total number of stations will be increased to 40 stations. IAF & Indian Navy and other organizations are also using Analogue MDD systems at more than 50 locations in India. The DMDD will gradually replace all Analogue MDD stations in the country in phased manner. Initially about 40 stations of IMD are proposed to be replaced with DMDD receivers and workstations along with one DMDD uplinking equipments (in redundant mode) at New Delhi.

Also there is a need to introduce HRIT / LRIT formats for dissemination of satellite imagery, satellite data products, Weather Fax charts and conventional meteorological GTS data as per WMO and CGMS guidelines for users in Global formats. (Reference : CGMS 03 LRIT / HRIT Global Spec. 2.6 dated 12 August 1999)

A block schematic diagram of the total end-to-end system is shown in Fig.1and 2. Schematic diagram of the proposed receive system to be installed at all field stations is shown in Fig.3.

3.0 Advantages of Digital MDD system

- Digital transmission
- One satellite image will take approx 30 sec. for transmission.
- Data rate 64 Kbps
- Analysed Fax weather Charts and conventional Met data also in digital format i.e. *.jpg and ASCII files
- 40 Digital MDD stations breakup
  - 25 stations for 1st Phase stations replacement
  - 8 stations for 2nd Phase stations replacement
  - 2 stations (for Sri Lanka and Maldives)
  - 3 stations for newly created states as and when needed
  - 2 station equipment as spare to operate the network

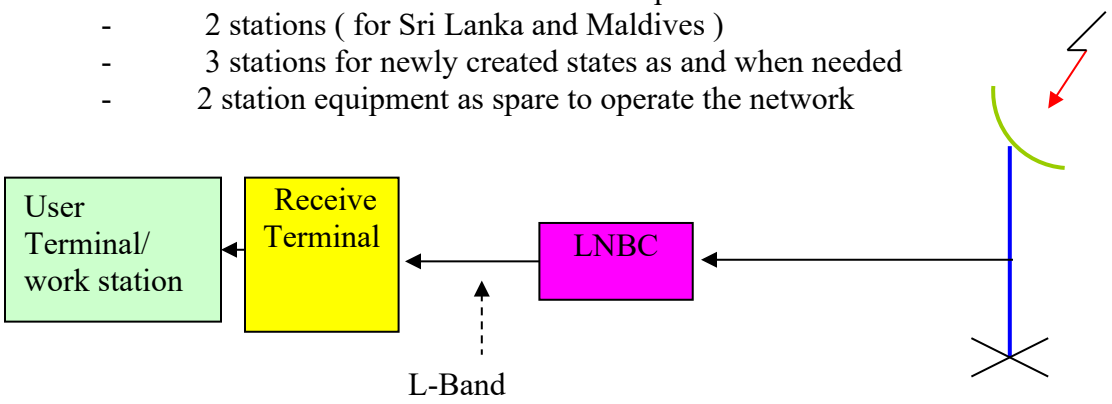

Fig.1 Concept diagram for Digital MDD RECEIVE SYSTEM

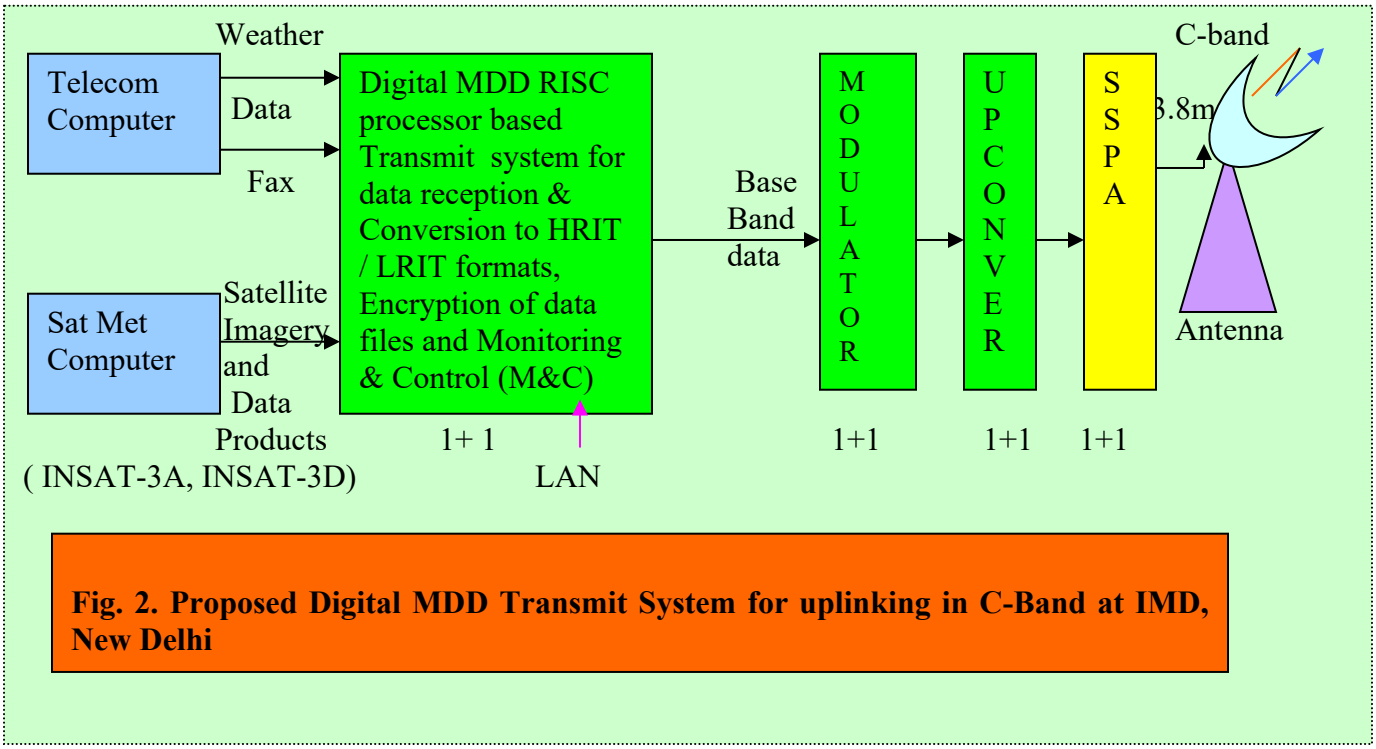

Fig. 2. Proposed Digital MDD Transmit System for uplinking in C-Band at IMD, New Delhi

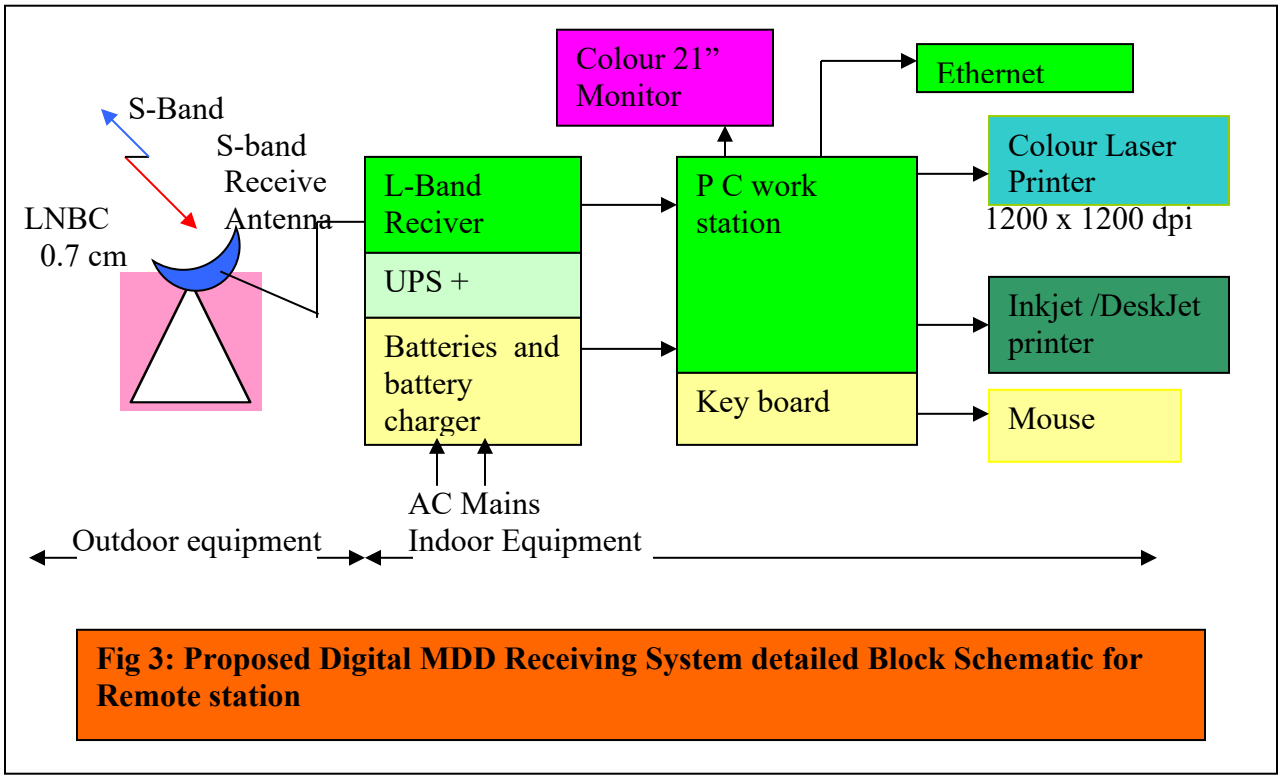

Fig 3: Proposed Digital MDD Receiving System detailed Block Schematic for Remote station