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Prepared by CMA  
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## **Disseminating Meteorological Satellite Data Via CMA ShineTek DVB System**

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### Summary and purpose of paper

This paper briefs on the DVB system by CMA/NSMC. DVB provides a way for sharing meteorological satellite data in China. Now there are over 100 users across the country.

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## Disseminating Meteorological Satellite Data Via CMA ShineTek DVB System

### Introduction

The CMA ShineTek DVB System is developed to disseminate meteorological satellite data received by China Meteorological Satellite Ground System, which consists of three ground receiving stations located respectively in Beijing, Guang Zhou, and Urumuqi. The raw data from three ground stations is processed into 1A/1B level format and broadcasted nationwide via the DVB System. Users equipped with DVB terminals can receive near real time data and process to generate products for their own practical interests (see Fig1. CMA ShineTek DVB System).

Currently there are over 100 users of CMA ShineTek DVB-S in China.

### Data via CMA ShineTek DVB-S

Data transmitted via CMA ShineTek DVB System includes: FY-1D CHRPT, FY-2C/MTSAT-1R, NOAA-16/17-HRPT, EOS/AM1- MODIS, EOS/PM1-MODIS.

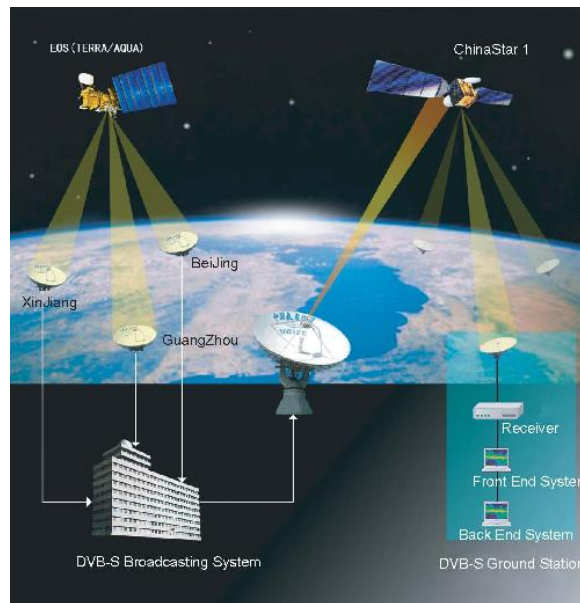


Fig.1 CMA ShineTek DVB System

### CMA ShineTek DVB ground station

CMA ShineTek DVB Ground Station (DVB-S) is designed for users to receive meteorological satellite data broadcast by CMA/NSMC in Ku-band with DVB technology. (see fig 2.)

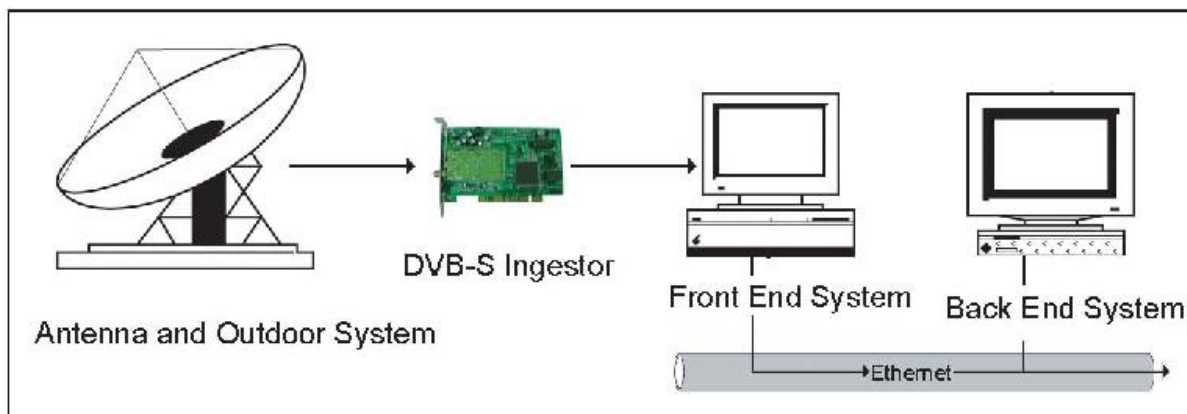


Fig 2. A complete DVB-S system includes a satellite receiving dish, an LNB (low noise block) to convert 11GHz signal into 1 GHz and amplify for cable loss, the satellite cable terminated with F-connectors to connect LNB to DVB card, and the DVB card which fits into one of the PCI slots inside the PC.

The remote sensing satellite data from FY-1, -2, NOAA, MTSAT and EOS/MODIS is transferred via optical fiber to the central station located at CMA/NSMC. The collected data files are packed and be sent to the ChinaStar-1. The DVB-S antenna receives ChinaStar-1 transmission. The front-end software unpacks to recover the data files from various data packages, displays the incoming image, and uploads the data files to the back end system, where processing is carried out to generate products for various application purposes.

**Data coverage**

Please refer to fig 3 for data coverage.

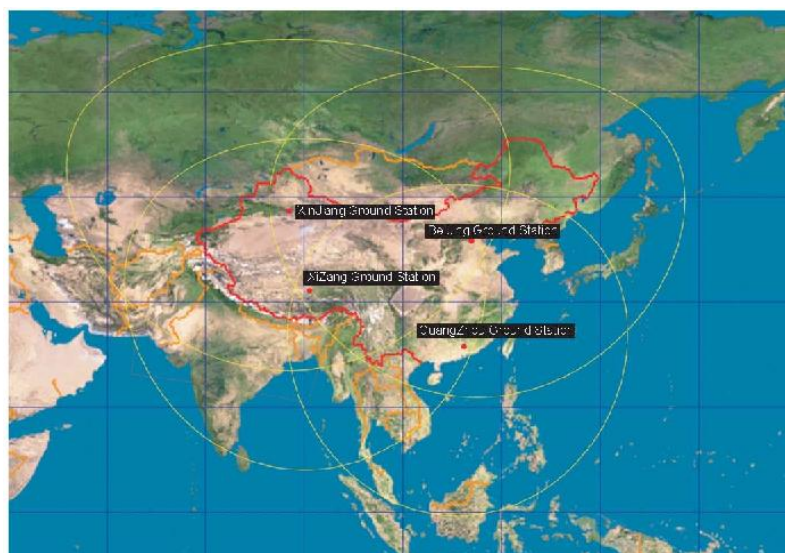


Fig 3. The coverage of data disseminated via DVB system

**Transmission range**

Please refer to Fig 4 for transmission range.

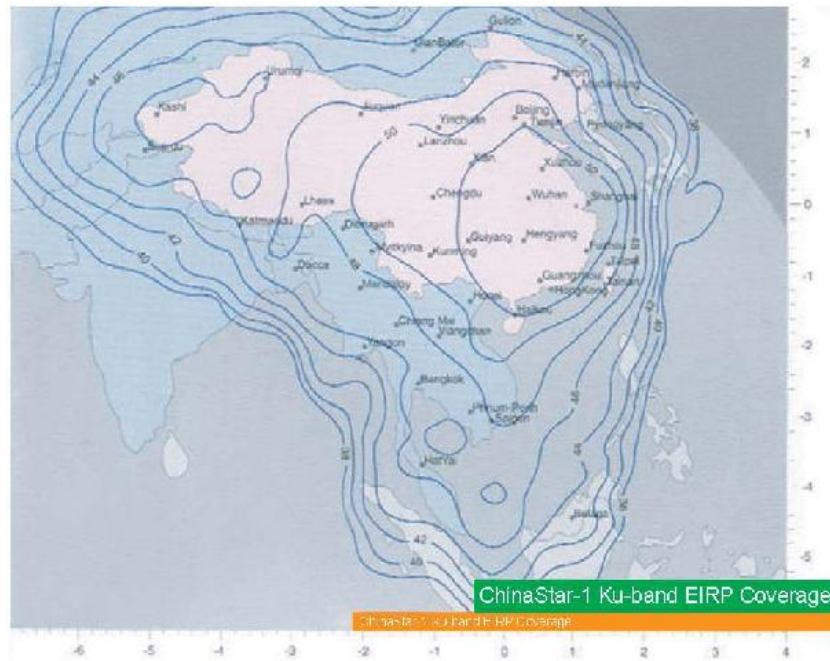


Fig 4. ChinaStar-1 Ku-band EIRP Coverage

**Technical specification of CMA ShineTek DVB-S**

**Antenna:** 1.2m/ 1.8m dish

gain: 41.3 dB for 1.2m, 44.9 for 1.8m

HP: 1.46° for 1.2m, 0.97° for 1.8m

**LNB:** noise: 0.8dB

gain: 60dB

LO frequency: 11.30 GHz

impedance: 75 Ω

**Ingestor:** demodulation: QPSK

Impedance: 75 Ω