1. Services

The MediaMobil Gateway is available to establish up- and down links via Ku-band satellites. It is located at Bremen in Northern Germany. The EIRP up to 68.7 dBW enables carrier bit rates up to 34 Mbit/s and higher depending on the satellite and the RF characteristics of the terminal at the other end.

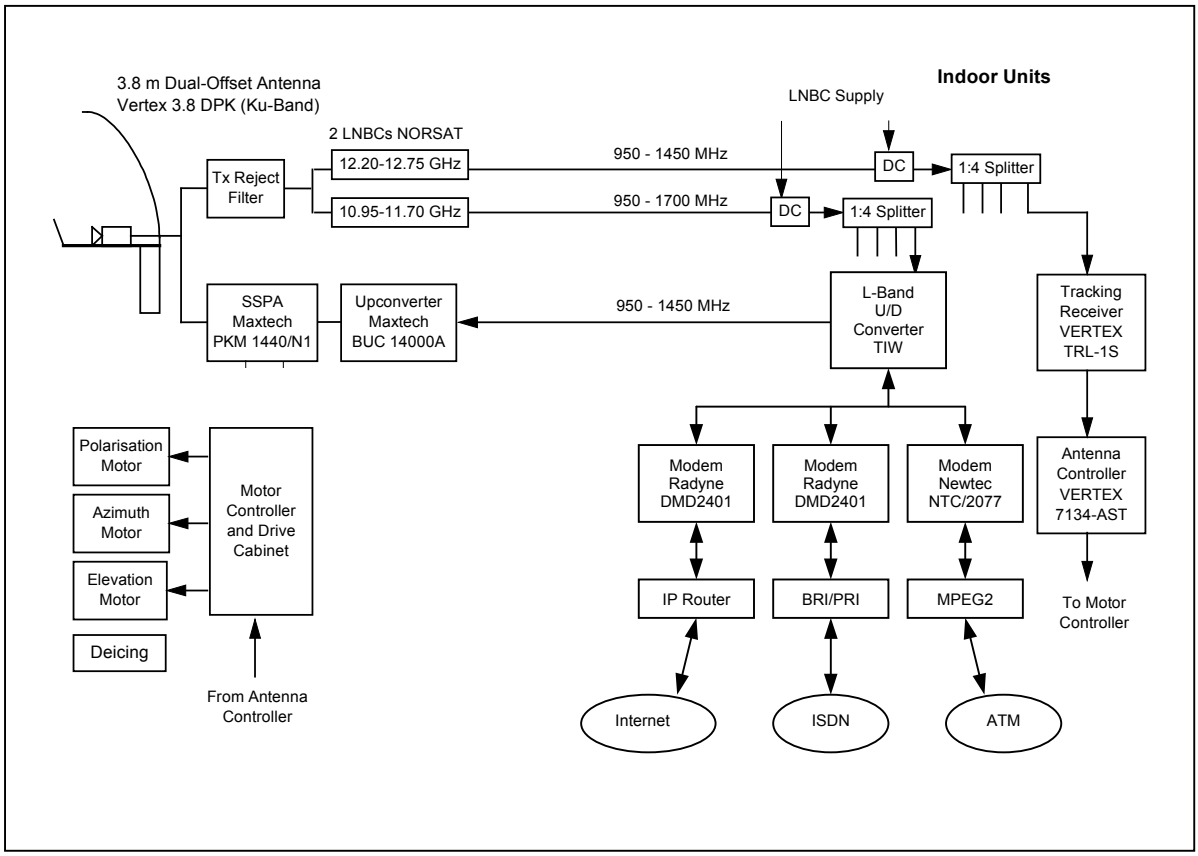
The modem equipment currently installed supports carrier bit rates up to 4 Mbit/s for non-DVB carriers and up to 45 Mbit/s for DVB carriers. Other modem equipment may be installed on request.

The antenna system is fully motorised. This enables access to any satellite between 70° East and 40° West in the geostationary orbit with automatic acquisition and tracking (also of inclined orbit satellites). Change between satellites is typically possible within less than 30 minutes (including line up).

The Gateway is currently connected to ISDN (up to 2 Mbit/s) and to the Internet (up to 10 Mbit/s). Connections to Leased Lines and ATM networks used by broadcasters can be provided on request.

2. System Description

The Gateway system is shown in the following block diagram:



The outdoor antenna system consists of a 3.8 m Ku-band dual offset reflector antenna with wideband feed assembly. Deicing is provided for both the reflector and the feed. The antenna is motorized with azimuth, elevation and polarisation drives. For satellite acquisition and tracking a tracking receiver and antenna controller is available.

Also part of the outdoor equipment is the 40 W SSPA with built-in block upconverter and the LNBC system covering the low and high receive bands. The interconnection between the outdoor and the indoor equipment is at L-band. The existing modems are operated with 70 MHz IF and are connected via an up- and down-converter. Other modems can also be connected via converter or directly at L-band.

The following modem types are currently installed:

- Radyne Comstream DMD 2401 (9.6 kBit/s to 4.375 Mbit/s, QPSK/8-PSK, non-DVB)
- Newtec NTC/2077/Fx (55 kBit/s to 45 Mbit/s, QPSK/8-PSK/16-QAM, DVB Modulator)

Other models can be provided on request.

The following interconnections with terrestrial networks are available or can be provided:

- Internet connection via IP routers (access bandwidth at gateway up to 10 Mbit/s).
- ISDN connection using multiple BRI interfaces (with inverse multiplexer up to 512 kBit/s per carrier) or a PRI interface up to 2 Mbit/s per carrier.
- ATM connection (e.g. to the ATM Broadcast Network of German Telekom).
- Leased lines.

3. Antenna and RF-Subsystem Specifications

Transmit frequency range	14.00 - 14.50 GHz
Transmit gain	> 53 dBi
SSPA saturated output power	40 Watt
Approved E.I.R.P.	68.7 dBW max.
Two-tone intermodulation	-30 dBc typical
Receive frequency range	10.95 - 12.75 GHz
Receive gain	> 51 dBi
Noise temperature @ 20° elevation	35° K
Typical G/T @ 20° elevation, clear sky	> 32 dB/K
Sidelobe compliance	ITU-RS-580, FCC 25.209, Eutelsat, Intelsat
Tracking control options	Step-track, target-track, program-track,

	manual
Deicing	Full reflector and feed
Gateway location	53.1° N, 8.8° E
Eutelsat earth station code	D-BRE-002
Azimuth range	113° to 233°
Elevation range	5° to 45°
Satellite accessibility	70° E to 40° W