

Alcatel-Lucent 9600 DTR

UNIVERSAL DIGITAL TELEVISION CORE EXCITER

The Alcatel-Lucent 9600 DTR Exciter is the core building block of the Alcatel-Lucent 9600 DTR Digital TV Transmitters product line. It includes all the necessary functions from backhaul interfacing to network management processing, including signal generation, modulation and conditioning in all frequency bands targeted for terrestrial digital television (including DVB-T/H/SH, CMMB, DMB-T and T-DMB). The Alcatel-Lucent 9600 DTR Exciter can generate up to three contiguous independent radio frequency (RF) carriers at any frequency band from ultra-high frequency (UHF) to upper S bands, thanks to its integrated low-noise broadband up-converter. Alcatel-Lucent transmitters are completed with a full range of power-amplification options. We can manage single- or double-drive configurations with a simple high-reliability electromechanical switch, and do not need any additional changeover unit.



Key features

- Triple carrier RF multiplex with independent relative levels and bandwidths in UHF, L and S-bands
- Managed backhaul interfaces for easy network integration: DVB-S/S2 L-band, Gigabit Ethernet and ASI
- Integrated GPS receiver for SFN synchronization
- Software and firmware state-of-the-art download capability using double bank memory
- Management and configuration through SNMP agent and http web server
- Linear and non-linear pre-correction
- Connections and removable fan cassette on front panel, for versatile installation and maintenance
- All in a compact 44.45 mm (1U) x 483 mm (19 in.), 450 mm-deep rack

Key benefits

- Optimal solution for new network deployment
- Ideal in mixed networks that may involve different frequencies
- Perfect for possible future evolutions of networks (frequency or waveform)
- Operates with any power amplifiers, and manages them through a standard RS485 serial bus
- Scalable for multiple drive configurations for ultimate service availability
- Easy installation and maintenance in any rack configuration

Applications

- Medium- or high-power transmitters for umbrella coverage
- Low-power repeaters for gap filling and deep indoor coverage
- Hybrid satellite-terrestrial mobile TV SFN networks
- Typical transmitter configurations (other power levels available):
 - UHF from 50 to 12,000 W
 - L band from 50 to 1000 W
 - S bands from 50 to 500 W

Technical specifications

MPEG TS input interfaces

- 1 ASI input for 188/204 bytes compliant with EN 50083-9 ASI interface standard, packet and burst mode
- Connector type: BNC female, impedance 75 ohms
- 1 Gigabit Ethernet input: electrical or optical
- Integrated DVB-S/S2 L band (950 to 2150 MHz) integrated receiver/descrambler (IRD)

Monitoring interfaces

- 2 x Ethernet 10/100Base-T for local and remote management
- Connector type: RJ45
- External housekeeping alarms: 8 inputs and outputs
- Local RS485 multipoint bus

Modulation and channel coding

- Double bank firmware download, compatible with any popular waveform and coding: DVB-T/H/SH, CMMB, DMBT, T-DMB
- Example of DVB-SH firmware features (compliant with ETSI EN 302 583): COFDM
- Turbo code: 1/5, 2/9, 1/4, 2/7, 1/3, 2/5, 1/2, 2/3
- Guard interval: 1/4, 1/8, 1/16 and 1/32
- Constellation: QPSK, 16 QAM
- Channel bandwidth: (1.7), 5, 6, 7 and 8 MHz
- SHIP processing for in-band configuration

Network type

- Three independent RF carriers with separately adjustable relative levels and combinations of different bandwidths
- SFN: manual or automatic (SHIP/MIP or network management) modulator settings or MFN
- Management of TX ID, TX time offset and TX power
- Real-time processing of satellite ephemeris for SFN operation with inclined orbit satellites

Pre-correction

- Linear pre-correction
- Non-linear pre-correction

Control mode

- Local control: direct control with laptop and web browser (embedded web server)
- Remote control, management and configuration: SNMP, FTP and HTTP

RF monitoring input

- For complete transmitter ALC and auto-adaptive pre-correction options (integrated detector)
- Signal level: -10 dBm nominal on SMA connector

RF output

- Single carrier or multiplex of 2 or 3 adjacent carriers
- UHF ([470; 862] MHz) in 1 Hz steps
- L band ([1450; 1495] and [1670; 1675] MHz) in 1 Hz steps
- S band ([2000; 2020], [2170; 2200], [2300; 2400] and [2480; 2690] MHz) in 1 Hz steps
- Signal level (main): -10 to -20 dBm in 0.1 dB steps
- Signal stability: ± 0.3 dB
- Modulation error ratio (MER): 36 dB (UHF), >30 dB (L and S bands)
- Return loss: >15 dB (SMA connector)

Clock reference

- Internal 10 MHz
- Synchronized by internal GPS receiver or through external 1 pps/10 MHz inputs

Power supply

- -48 VDC or 110 to 220 VAC (50 – 60 Hz)

Mechanical

- Operating temperature:
 - Outdoor cabinet -33°C to +50°C (outside air temperature)
 - Indoor cabinet -10°C to +45°C
- Storage conditions: ETSI EN 300 019-1-1 class 1.2 (-25°C to +55°C)
- Dimensions:
 - Height: 1U (44.45 mm)
 - Width: 436.8 mm + 2 x 22.9 mm (19") 483 mm
 - Depth: 450 mm
- Weight: 10 kg
- All connections from front side only

Compliances

- ETSI EN 302 583
- ETSI EN 300 744
- ETSI EN 302 296
- ETSI EN 300 019
- ETSI EN 301 489-14 v1.2.1
- ETSI EN 302 307 v1.1.2
- CENELEC EN 50083-9
- IEEE 802.3-2005
- ETSI EN 301 192 v1.4.1
- CE marking
- RoHS compliant
- UL compliant