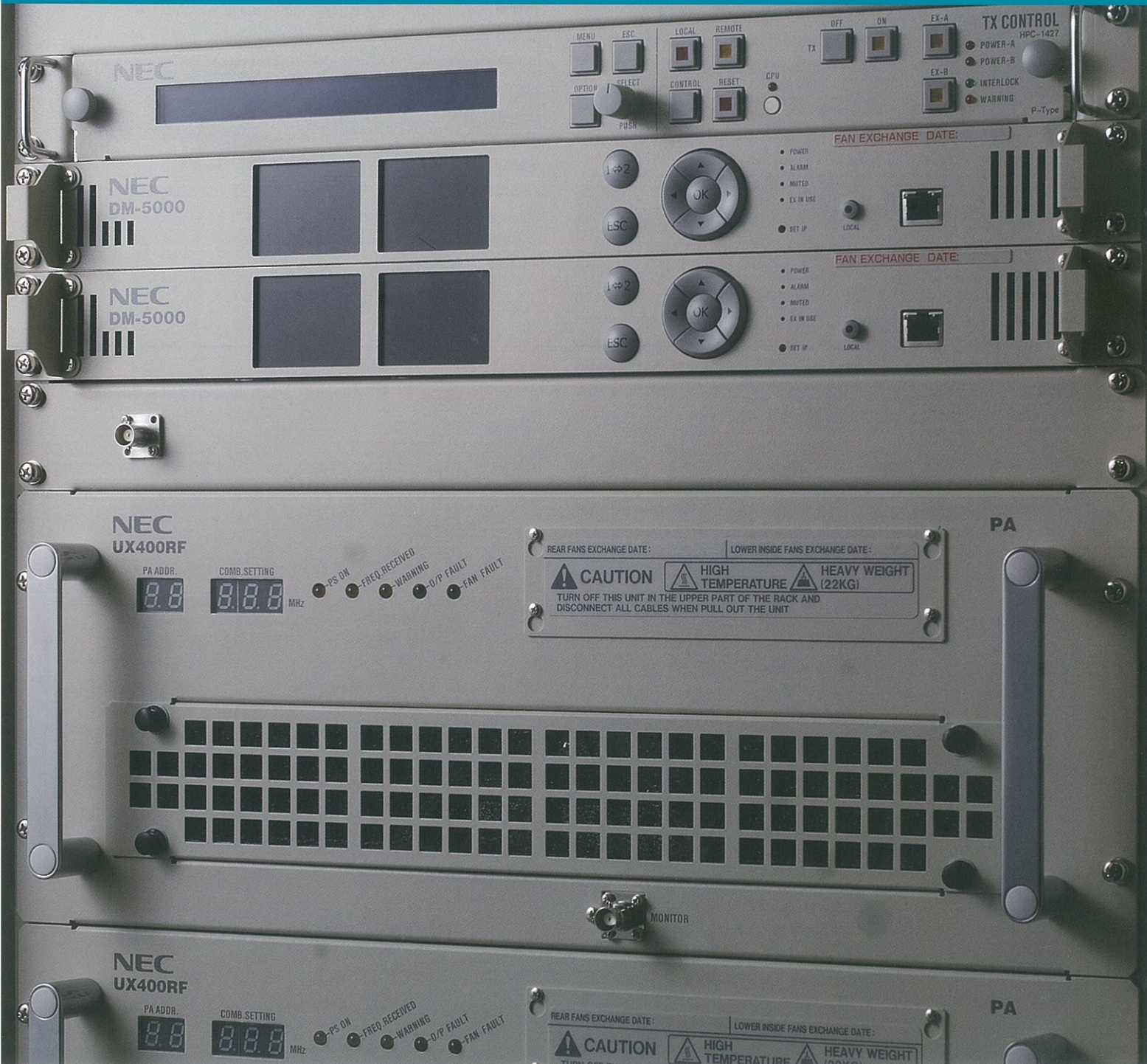


DTL-30 Series Low/middle-Power Digital UHF TV Transmitter



There is no comparison with NEC new professional standard

DTL-30 must be one of the most reasonable choices when you think about higher grade of air-cooled digital transmitter. NEC offers you a new professional standard established on our excellent achievement and brilliant experiences cultivated over a century of history. Our new concept of "high-efficiency" transmitter and its sophisticated design will surely attract you and contribute your professional digital TV operation.

New Concept of Doherty Transmitter

NEC has a rich experience in Doherty technology with the first NEC commercial-based transmitter with Doherty amplifiers manufactured in 2011 for Tokyo Metropolitan area, achieving drastic improvement in power consumption (more than 40% better than the existing model). NEC market share of Doherty TX segment in Tokyo has now reached to nearly 50%. And this time, by making the most of this brilliant experience, NEC proposes DTL-30 series with a new concept of Doherty transmitter for global customers.

The core philosophy of NEC Doherty transmitter is to enable the customer to always enjoy the best energy efficiency of each selected channel (up to 38%). By initially fixing the operational frequency of each PA unit into a single channel, DTL-30 achieves the most beneficial and appropriate form of Doherty transmitter. Once users become needed to change channel frequency, a bit of time and work will be requested. But the process is simple; only a few components of the amplifiers have to be replaced and it neither requires any special instruments nor skills. The customers may have to be asked to take such a little burden, but there is no more concern that the enjoyable performance would be fluctuated depending on the designated channel. Minimal lifetime cost solutions (both CAPEX and OPEX efficient) would be effectively ensured.

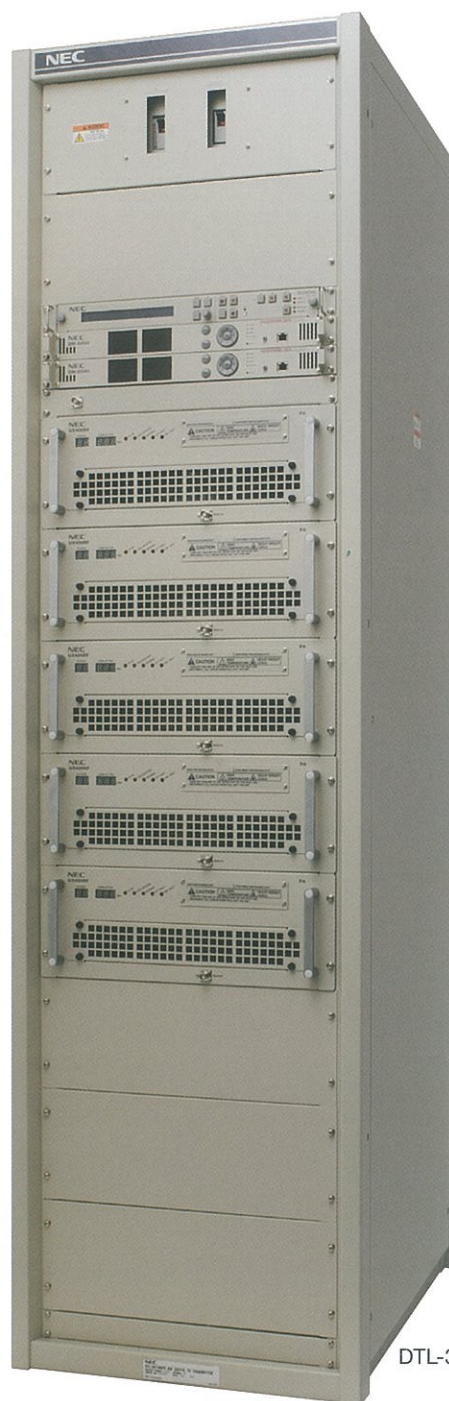
Further Contribution to Energy Savings

As well as Doherty technology, various factors newly innovated for the NEC latest transmitters considerably contribute to significant improvement of energy efficiency.

Especially reform of the PA combiner has effectively reduced accumulated power loss. Furthermore, total power consumption of the cooling system has been remarkably improved by renovation of its fundamental designs. These sophisticated skills are multi-laterally supporting stable performance with high energy efficiency.

Easy Conversion between Doherty and Wideband Mode

The flexibly designed power amplifiers for DTL-30 allows the customer to switch from high-efficiency mode to wideband operation through a little modification work. It could contribute to the savings in the number of spare amplifiers to be held.



DTL-30/1R8PD

DTL-30 Series Low/middle-Power Digital UHF TV Transmitter

Two Lineups of Power Amplifier

Two types of power amplifier with different power range are available for DTL-30 series.

UX400RF is for low-mid power range and approximately 380W is enabled with the single unit (about 320W in wideband-mode). UX800RF can cover higher range, and the single amplifier can realize approximately 760W in high-efficiency mode (called Doherty-mode).

By choosing one of two lineups adequately according to the customer's diverse needs, cost and space can be effectively saved.



UX800RF



UX400RF

Both amplifiers employ LDMOS (Lateral Diffused Metal Oxide Semiconductors) output devices with protection and monitoring circuits, and strongly support the high linearity and reliability of DTL-30 series.

3-phase 4-wire system is authentically supported by new amplifiers (as well as single phase). The electric current can be kept stable without breaking the balance of power supply network.

Customer-oriented Design

High density design

Up to 3.6kW output power (average) using 5 sets of air-cooling PA units or 5 sets of complete transmitter with 780W potential (average) can be provided in a single rack. This idea will greatly contribute to space saving.

Hot-swappable Power Amplifier

This is also remarkable character for the customer's easy operation. Each PA employs individual cooling fan, and it enables to maintain/replace the PAs without disturbing transmitter's operation.

Auxiliary Function for Signal Analysis

This function can make it possible to measure and display some fundamental data (e.g. MER, IM, etc.) without preparing any test equipment. The customers can lighten one of their stress on maintaining their operation.

Digital Exciter

DTL-30 employs compact-designed (1RU size) and multi format digital exciter. All of the major standard (DVB-T/T2, ISDB-T/Tb and ATSC) are widely covered and flexibly meet the customer's request.

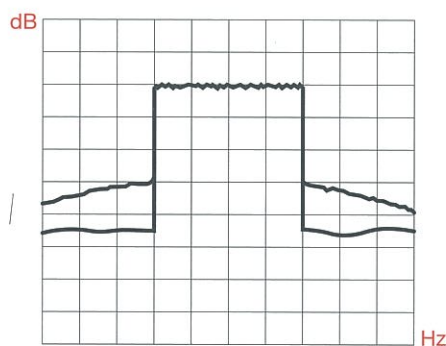
DM-5000 digital exciter has built-in GPS receiving function, and ready for SFN operation. The same unit can be also utilized for DTU-70D, NEC high-power digital transmitter.



DM-5000

Adaptive Digital Correction (ADC)

The adaptive digital corrector incorporated in NEC digital exciter has linear and non-linear pre-corrective function, and stably keeps signal quality and service coverage optimum. The reliability and stability of DTL-30 are strongly boosted up by this NEC performance advantage.



Sample of improvement by ADC

Remote Control/Monitoring System

DTL-30 series is equipped with an IP network interface, the customer can easily access NEC transmitters through a web browser and remotely check the signal quality and actual status of the transmitters.



DTL-30 Series Low/middle-Power Digital UHF TV Transmitter

Configuration Table

DTL-30 with high range power amplifier, UX800RF

| Composition | | Output Power | | Model Name (Dual-exciter Type) *1 |
|-------------|------|--------------|-----------------|--------------------------------------|
| PA | Rack | [Doherty] | [Wideband Mode] | |
| 1 | 1 | 760 | 650 | DTL-30/R7PEHD |
| 2 | 1 | 1,400 | 1,280 | DTL-30/1R4PHD |
| 3 | 1 | 2,200 | 1,920 | DTL-30/2R2PD |
| 4 | 1 | 2,900 | 2,550 | DTL-30/2R9PD |
| 5 | 1 | 3,600 | 3,170 | DTL-30/3R6PD |

*1: Single-exciter type is also available. The power variations are the same as shown above.
*2: Optional line up in 1(one) rack up to 8 PAs

DTL-30 with low-mid range power amplifier, UX400RF

| Composition | | Output Power | | Model Name (Dual-exciter Type) *1 |
|----------------|------|--------------|-----------------|--------------------------------------|
| PA | Rack | [Doherty] | [Wideband Mode] | |
| 1 | 1 | 380 | 320 | DTL-30/R3PED |
| 2 | 1 | 740 | 640 | DTL-30/R7PD |
| 3 | 1 | 1,100 | 960 | DTL-30/1R1PD |
| 4 | 1 | 1,400 | 1,270 | DTL-30/1R4PD |
| 5 | 1 | 1,800 | 1,580 | DTL-30/1R8PD |
| 6 ² | 1 | 2100 | 1890 | DTL-30/2R1PD |
| 7 ² | 1 | 2500 | 2200 | DTL-30/2R5PD |
| 8 ² | 1 | 2800 | 2500 | DTL-30/2R8PD |

Specifications*3

| | DVB-T | DVB-T2 | ISDB-T/Tb | ATSC |
|---------------------------|--|---------------------------------------|------------------|---------------------------|
| Output Power | 380W – 3.6kW (320W – 3.1kW in wide-band mode) | | | |
| Output Frequency | 470 - 862 MHz (Band-IV/V) | | | |
| Output Impedance | 50Ω | | | |
| Input | 2 x ASI, BNC 75Ω | 2 x ASI (TS/T2-MI), BNC 75Ω 2 x IP | 2 x ASI, BNC 75Ω | 2 x SMPTE310/ASI, BNC 75Ω |
| Power Supply Voltage | 380/400/415V, 3-phase 4-wire 200/208/220/230V, 3-phase 3-wire 220/230/240V, 1-phase 2-wire | | | |
| Voltage Fluctuation | +/-15% | | | |
| Power Supply Frequency | 50/60Hz +/-2% | | | |
| Ambient Temperature Range | 0°C - 45°C | | | |
| Relative Humidity (max) | 90% (no condensation) | | | |

*3: Measured before mask filter.

Standard Performance*4

| | DVB-T | DVB-T2 | ISDB-T/Tb | ATSC |
|------------------------------|---|----------------------|----------------------|---|
| Frequency Stability | $\leq \pm 2.5 \times 10^{-7}$ (internal reference use) (it is also possible to lock an external 10MHz reference) | | | |
| Amplitude-frequency Response | $\leq \pm 0.5\text{dB}$ (excluding BPF) | | | |
| Bandwidth | 6, 7, 8MHz | 5, 6, 7, 8MHz | 6, 8MHz | 6MHz |
| Intermodulation Products | < -36dB | < -36dB | < -36dB | --- |
| MER (Modulation Error Ratio) | > 32dB | > 32dB | > 32dB | --- |
| SNR (Signal to Noise Ratio) | --- | --- | --- | $\geq 27\text{dB}$ |
| Spurious Emission | $\leq -60\text{dBc}$ | $\leq -60\text{dBc}$ | $\leq -60\text{dBc}$ | FCC Emission Mask with Output Filter |

*4: The values shown above are our standard specifications for practical use and higher performance can be set on request.

ISO 9000 Series



ISO 9001 JMI-0119
NEC Broadcast and Video

ISO 14001



JQA-E-90066
NEC



Safety precautions

To install, make connections and operate this product, please carefully read and observe instructions, precautions and recommendations in our instruction manuals.

● The colours in this brochure may differ from those of the actual unit. Designs and specifications of this product is subject to change without prior notice.

NEC Corporation
Americas and Global Platform Division
Europe, the Middle East and Africa Division
Greater China and Asia Pacific Division

7-1, Shiba 5-chome, Minato-ku, Tokyo,
108-8001, Japan
Tel: +81-3-3798-5463
Fax: +81-3-3798-6359

© 2014 NEC Corporation. NEC and the NEC logo are registered trademarks of NEC Corporation.

NEC Europe Ltd.

Athens, Odyssey Business Park
West End Road, South Ruislip,
Middlesex HA4 6QE, United Kingdom
Tel: +44-20-8836-2000
Fax: +44-20-8836-2001

NEC Asia Pacific Pte. Ltd.

No. 1 Maritime Square
#12-10 HarbourFrontCenter
Singapore 099253
Tel: +65-6278-1818
Fax: +65-6271-2088

NEC Latin America S.A.

Av. Paulista, 2.300
01310-300 Sao Paulo, SP
Tel: +55-11-3151-7000
Fax: +55-11-3151-7218

Cat.No. H99-13110003E-2