EGATEL® Serie TUWH3000

Medium Power UHF TV Transmitters
Air cooling system - Multi-standard
DVB-T/H, DVB-T2, ISDB-T/TB, ATSC

WHET® Wideband High Efficiency Transmitter

Efficient, reliable, compact

Maximum flexibility installation and operation

Egatel

The new TUWH3000 Series represents a step ahead in the technology of high power UHF air cooled transmitters. The series employs ultrawideband Doherty technology, covering with only one model of amplifier from 470 to 800 MHz. Therefore, no modifications in the amplifiers are required when the operator needs to change the RF channel inside this UHF band.

The TUWH4000E transmitters features a market-leading energy efficiency, offering an efficiency up to 42% and providing broadcasters with a high economic benefit.

They are equipped with the most advanced technology in signal processing and with an automatic efficiency optimization system, provide the most economical operation possible for all types of operating scenarios.

The customer oriented and extremely compact design provides full flexibility and multiple configurations per rack, saving a lot of space in the transmitter site. The rapid and easy strat-up of the transmitter and the power of the Web Server ensures fast commissioning and easy operation. The different options for redundancy and optimal design of critical modules guarantee continuity of service throughout the life of the transmitter.

- Output power up to 300 Wrms in only 3RU (1U Exciter - 2U Amplifier).
- High energy efficiency over the whole UHF band without tuning adjustements.
- Efficiency up to 38% for COFDM waveforms and 42% for ATSC.
- Power amplifiers based on LDMOS-50 volt ultrawideband Doherty technology, with high power density.
- Outstanding compact design that allows to integrate several transmitters with Dual Drive or N+1 redundancy in a single cabinet.
- Digital modulations: (DVB-T/-H/-T2, ISDB-T/-TB, ATSC).
- Automatic efficiency optimization.
- "Output channel" and "Impulse channel response" show via web server.
- Digital Adaptive Precorrection.
- N+1 redundancy ready.
- Multiple options for local operation: through the display of the exciter/Control Unit or Web Server.
- Wide range of possibilities for remote monitoring: dry contacts and SNMP / Web Server.
- Standalone Control unit module with front panel LCD Display included for measurement / configuration.

TECHNICAL SPECIFICATIONS

EXCITER

DVB-T/-H/-T2	
Standard	EN300744, EN302304, EN302755, TS 102831, TS 102 773 (T2-MI)
Inputs	2xASI BNC (F), 75 ohm / 2xTSoIP 10/100/1000 RJ45.
FFT	1K (DVB-T2), 2K, 4K, 8K, 16K (DVB-T2), 32K (DVB-T2)
Code rate	1/2, 2/3, 3/4, 5/6, 3/5 (DVB-T2), 4/5 (DVB-T2)
Guard interval	1/32, 1/16, 1/8, 1/4, 19/256 (DVB-T2), 19/128 (DVB-T2), 1/128 (DVB-T2)
Constellation	QPSK, 16QAM, 64QAM, 256QAM (DVB-T2). Rotated and non rotated (DVB-T2)
ATSC	
Standard	ATSC A/53, A/54, A/64, A/153, A/110B, SMPTE-310M
Inputs	2xSMPTE BNC (F), 75 ohm - 2xASI BNC (F), 75 ohm
Constellation	8VSB
Symbol rate	10.76 Msymbols/s
Data rate	19.39 Mbits/s
Trellis coding	2/3
Reed-Solomon encoder	207 / 187 / 10
ISDB -T/-T_B	
Standard	ARIB STB-B31, TR-B14
Inputs	2xASI BNC (F), 75 ohm
FFT	2K, 4K, 8K
Code rate	1/2, 2/3, 3/4, 5/6, 7/8
Guard interval	1/4, 1/8, 1/16, 1/32
Carrier spacing	4 KHz, 2 KHz, 1 KHz
Hierarchical modulation	Up to 3 layers
Constellation	QPSK, 16QAM, 64QAM, DQPSK
Clock and synchronization	
Internal clock	10 MHz
External reference	10 MHz BNC (F). Impedance = 50 ohm / high (configurable). Level = -5 to +10 dBm
1pps reference	BNC (F). Impedance = 50 ohm / high (configurable)
SFN	Resolution SFN = ±100 ns. SFN configurable delay = ±500 ms
Local and remote control	
Display	Local operation through the display and keyboard located on the front panel
RJ-45	Remote network management and local operation interface (Web Server and/or SNMP agent)
Parallel interface	Floating contacts for messages and commands

UHF TRANSMITTER

Digital TV (*)	TUWH3201	TUWH3301
Output power before the filter: DVB-T/H/T2, ISDB-T/T_B	200 Wrms	300 Wrms
Output power before the filter: ATSC	250 Wrms	400 Wrms
Number of amplifiers (**)	1	1
Output RF connector	7/16 ”	

General	
Frequency range	UHF: 470 - 800 MHz (resolution: 1Hz).
Channel bandwidth	6, 7, 8 MHz plus 1.7, 5 and 10 MHz for DVB-T2 | ISDB-T/TB , ATSC: 6 MHz.
Cooling	Air - cooled
Power supply	Single phase: 100VAC....240VAC, 47 to 63Hz (other on request).
Max. installation altitude	Up to 2500 m (> 2500 m on request).

(*) The models are referenced according to standard: TUW3xxxE - DVB-T/H/T2, TUWH3xxxEB - ISDB-T/TB, TUWH3xxxEA - ATSC
Example: TUWH3301BS - 300 Wrms ISDB-T/T_B

(**) Other configurations of output power and number of amplifiers, on request.

Remark: To comply with the out-of-band emissions regulations and with the required shoulder attenuation, the RF output of the transmitters must be connected to an appropriate filter.

Egatel

Parque Tecnolóxico de Galicia - Ourense - Spain
Tel. +34 988 368 118 - Fax +34 988 368 119
Mail: egatel@egatel.es - Web: www.egatel.es