



TrueUDC™

mmWave Up/Down Converter

5 ppb frequency drift ensures superior precision and stability for RF development

The YTTEK TrueUDC mmWave Up/Down Converter delivers a robust, two-way frequency conversion solution for 26/28 GHz 5G mmWave and Ka-band LEO applications. With two IF inputs, two IF outputs, and two mmWave I/O ports, it supports 5G mmWave dual-polarization transmissions within a 2.6 GHz–5.8 GHz IF range. This ensures broad compatibility with various IF transceivers, providing flexibility for advanced system designs.

Exceptional frequency precision for RF R&D

The TrueUDC delivers outstanding frequency drift of under 5 ppb, ensuring the highest precision and stability for demanding RF R&D. Poor performance can cause interference with adjacent frequency bands and increase modulation errors, measured by EVM.

3GPP 5G NR FR2
Frequency error minimum requirement

BS class	Accuracy
Wide Area BS	±50 ppb
Medium Range BS	±100 ppb
Local Area BS	±100 ppb

TrueUDC's 5 ppb frequency drift outperforms 3GPP's standard.

Applications

Academy and R&D

Key features

- 5 ppb frequency drift
- Supports 5G mmWave and Ka-band LEO
- Wide IF frequency range: 2.6 GHz to 5.8 GHz
- Two-way RF output for dual-polarization antenna arrays
- Internal 1 Hz high-resolution OCXO reference clock
- 5 dBm TX output P1dB with 30 dB adjustable gain range

Seamless integration with SDR platforms

Fully compatible with YTTEK’s PluSDR platform, the TrueUDC enables 5G NR mmWave signal transmission and reception for antenna array testing, beam measurement, and signaling tests, ensuring streamlined configuration and reliable performance.

Versatile testing and measurement applications

The TrueUDC seamlessly transforms into a 28 GHz mmWave arbitrary waveform generator, spectrum analyzer, signal analyzer, or dual-link real-time mmWave radio transmission system, making it essential for advanced wireless research and development.

Specifications

Model name	YTUD
RF frequency range	26.5 – 29.5 GHz
IF frequency range	2.6 – 5.8 GHz
Frequency drift	± 5 ppb (25°C ± 10°C)
Operation mode	TDD
RF output gain range	30 dB
RF output P1dB	5 dBm
RF input gain range	30 dB
RF input IIP3	7 dBm
RF input noise figure	17 dB
Channel isolation	50 dB
Bandwidth	800 MHz
TX power consumption	13.2 W (1.1A)
RX power consumption	12 W (1.0A)
Dimensions	211 mm × 123 mm × 84 mm



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