

ZTE Telecom Power Commissioning Report Template - Official Technical Overview & Hardware Datasheet

EXECUTIVE SUMMARY

ZTE Corporation, a global leader in telecommunications infrastructure, is pleased to present the ZTE Telecom Power Commissioning Report Template (T-PCRT). This official product overview and hardware datasheet defines a systematic, carrier-grade framework for documenting the installation, verification, and performance validation of ZTE power systems deployed in central offices, data centers, and remote telecom shelters worldwide. The T-PCRT serves as both a procedural guide and a compliance record, ensuring that all power commissioning activities adhere to rigorous engineering standards, regional safety codes, and ZTE's internal quality benchmarks.

As power infrastructure forms the critical foundation of any telecom network—responsible for maintaining uptime, protecting sensitive equipment, and enabling energy-efficient operations—the T-PCRT delivers a structured approach to capturing real-time measurements, alarm thresholds, load distribution profiles, and environmental parameters. This document is designed to be utilized by field engineers, project managers, and network operations teams, providing a repeatable, auditable trail from initial power-on to full service acceptance. The template integrates seamlessly with ZTE's broader suite

of network management tools, ensuring data consistency and facilitating post-commissioning performance analysis.



ARCHITECTURE & CHASSIS DESIGN

The ZTE Telecom Power Commissioning Report Template is structured around a modular architecture that mirrors the physical and logical hierarchy of a typical ZTE power system. The template is divided into five primary sections, each corresponding to a distinct phase of the commissioning lifecycle:

1. **PRE-COMMISSIONING VERIFICATION:** This section documents site readiness, equipment inventory checks, cabling verification, and environmental pre-conditions (temperature, humidity, and ventilation) prior to energizing any power module.

2. INITIAL POWER-ON SEQUENCE: Captures step-by-step procedures for applying DC or AC power to rectifiers, converters, and distribution panels, including voltage stabilization intervals and first-level alarm monitoring.

3. PARAMETER CONFIGURATION & CALIBRATION: Records all programmable settings such as output voltage setpoints, current limits, battery charge profiles, and communication parameters (Modbus, SNMP, or CAN bus). Calibration logs for voltage and current sensors are mandated within this section.

4. PERFORMANCE LOAD TESTING: Documents results of controlled load tests across various load percentages (e.g., 25%, 50%, 75%, and 100% of rated capacity), measuring efficiency, ripple voltage, and transient response times.

5. FINAL ACCEPTANCE & HANDOVER: Collates all test results, alarm summaries, and deviation reports into a consolidated sign-off sheet, endorsed by both the commissioning engineer and the customer representative.

The template's chassis-like structure ensures that each module (section) can be independently reviewed, updated, and archived, while maintaining a cohesive overall report. The design prioritizes clarity with dedicated fields for timestamps, instrument serial numbers, and firmware versions, ensuring traceability to the

specific hardware batch and software release.

HARDWARE FEATURES

The T-PCRT is engineered to support ZTE's entire portfolio of telecom power solutions, ranging from compact -48V DC systems for micro-cell sites to high-capacity 240V/336V DC plants for mega data centers. Key hardware-oriented features documented within the template include:

- RECTIFIER MODULE CONFIGURATION: Per-module output current, efficiency curves, and active power factor correction (PFC) performance.
- BATTERY STRING MANAGEMENT: Voltage, current, temperature, and internal resistance measurements per battery string, with fields for string configuration (series/parallel) and manufacturer-specific model numbers.
- DISTRIBUTION CABINET METRICS: Branch circuit load monitoring for each outgoing feeder, including fuse/breaker ratings and alarm thresholds.
- THERMAL MANAGEMENT: Airflow direction, fan speed redundancy, and thermal imaging readings for critical power components.
- COMMUNICATION INTERFACES: Ethernet, RS-232, RS-485, and dry contact closure states, with validation of protocol handshaking and remote monitoring system integration.

Additionally, the template incorporates a dedicated system identification block that captures the unique asset tag, plant serial number, and geographical location coordinates—enabling seamless integration with ZTE's global asset management and predictive maintenance platforms.

COMPLIANCE & STANDARDS

The T-PCRT is meticulously aligned with international and regional standards governing telecom power systems. Each commissioning step includes a compliance check box referencing the applicable clause from standards such as:

- IEC 62040-3: Uninterruptible power systems (UPS) – method of specifying performance and test requirements.
- EN 300 132-2: Environmental Engineering (EE); Power supply interface at the input to telecommunications equipment; Part 2: Direct current (DC) power supply interface operating at -48V.
- GR-1089-CORE: Electromagnetic compatibility and electrical safety – generic criteria for network telecommunications equipment.
- IEEE 485: Recommended practice for sizing lead-acid batteries for stationary applications.
- ZTE INTERNAL STANDARD ZTE-QMS-XXX: Quality management standard for field commissioning documentation.

The template further includes pre-populated fields for environmental compliance (RoHS, WEEE) and energy efficiency ratings aligned with the EU Code of Conduct on Energy Efficiency for Data Centers.

TECHNICAL SPECIFICATIONS

Below is a consolidated summary of the critical technical specifications managed within the T-PCRT framework. These parameters are captured and verified during the commissioning process, with threshold alerts triggered for any measured value falling outside the specified range.

Parameter	Specification
Form Factor	3RU Chassis (Standard 19-inch rack mount)
Switching Capacity	N/A (Power distribution and monitoring)
Power Supply	1+1 Redundant AC/DC, 110-240V AC or -48V DC
Input Voltage Range	90 - 290V AC (wide-range) / -40 to -60V DC
Output Voltage Setpoint	-48V DC (adjustable: -42 to -56V DC)

Rectifier Modules Supported	6 (Base) / 15 (Advanced) / 30 (Pro)
Battery String Capacity	Up to 3000 Ah (lead-acid or lithium-ion)
Measurement Accuracy	+/- 0.5% (voltage), +/- 1.0% (current)
Communication Protocols	SNMP, Modbus TCP/RTU, CAN bus, RS-485
Alarm Contact Outputs	8 x dry contacts (Form C)
Operating Temperature	-5°C to +55°C (derated above 45°C)
Relative Humidity	5% to 95% (non-condensing)
Regulatory Compliance	IEC 62040-3, EN 300 132-2, GR-1089-CORE, IEEE 485
MTBF (System Level)	> 150,000 hours at 40°C ambient
Weight (Fully Populated)	Approx. 28 kg
Dimensions (H x W x D)	132.5 mm x 482.6 mm x 450 mm

ORDERING OPTIONS

The ZTE Telecom Power Commissioning Report Template is available in three tailored variants to suit diverse deployment scales and documentation workflows:

- T-PCRT-BASE: Intended for standard -48V DC rectifier-based systems supporting up to 10 rectifier modules. Includes all core verification and test sections, without advanced analytics.
- T-PCRT-ADV: Designed for high-capacity systems (up to 30 rectifiers) with integrated battery monitoring, thermal imaging entry points, and advanced alarm mapping tables.
- T-PCRT-PRO: Full-featured enterprise variant compatible with all ZTE power products, including AC-to-AC UPS, DC-to-DC converters, and solar hybrid systems. Incorporates automated data entry templates for integration with ZTE's ePower management software, enabling one-click report generation and cloud-based archiving.

Each ordering option includes a site license for unlimited use within a single legal entity, free software updates for 24 months, and direct access to ZTE's technical support portal for template customization assistance. Bulk licensing discounts are available for multi-site and national network operators.

