



**NATIONAL STANDARD OF THE
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**Code for engineering technology of digital trunking
communication**

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1 General

1.0.1 This specification is formulated for the purpose of standardizing the engineering construction, operation and maintenance of 800MHz digital trunking networks of various standards in my country, and promoting the healthy and orderly development of digital trunking private networks and shared networks.

1.0.2 This specification applies to new construction, reconstruction and expansion of 800MHz digital trunking network [including digital trunking system (A), digital trunking system (B), digital trunking based on Global System for Mobile Communications (GSM) technology, and based on CDMA (CDMA) technology digital trunking] planning, design, construction, engineering acceptance and operation and maintenance.

1.0.3 Digital trunking network is suitable for dispatching network, not suitable for use as public mobile phone network.

1.0.4 When preparing to build a digital trunking network, it is advisable to build a digital trunking shared network in order to fully utilize frequency resources and save investment.

1.0.5 The engineering construction of the digital trunking network should make full use of the existing public infrastructure such as municipal administration and communication, so as to reduce the construction cost and improve the economic benefits.

1.0.6 The engineering construction of digital trunking network should pay attention to energy saving, emission reduction and environmental protection.

1.0.7 The frequency used by the digital trunking network must be approved by the national or provincial radio management agency. The transmission equipment used must have the

"Radio Transmission Equipment Type Approval Certificate" issued by the national radio management agency.

1.0.8 The engineering construction of the digital trunking network shall not only implement this specification, but also comply with the current relevant national standards.

2.1.1 trunking communication system

Refers to a mobile communication system in which multiple users share a set of wireless channels and use these channels dynamically, mainly for dispatching communication. Including analog trunking communication system and digital trunking communication system.

2.1.2 digital trunking communication network digital trunking communication network

Trunking communication network composed of digital trunking communication system, referred to as digital trunking network in this specification.

2.1.3 single area network single area network

It is composed of a basic trunking communication system. There is a mobile exchange (or system control center) and several base stations in the network, including two structures. single-zone single-base station network and single-zone multi-base station network.

2.1.4 area network district area network

It is a multi-zone cluster communication network formed by connecting multiple single-zone networks through the regional control center (or the system control centers are connected to each other), and the network has the function of automatic roaming or semi-automatic roaming.

2.1.5 call-loss system

When the traffic channel of the system is fully busy, the new call application will be lost, and the user must re-apply for the call.

2.1.6 Waiting system call-delay system

When the traffic channels of the system are all busy, new call applications will enter the waiting queue. Once a free channel appears, the system will assign channels according to the principle of first-come-first-served.

2.1.7 time-limit talk

In order to ensure the effective use of the channel and shorten the waiting time, the system

can use mandatory methods to limit the call time, and the time limit parameters can be adjusted by the system administrator.

2.1.8 dynamic regrouping

According to business needs, system administrators can reorganize certain users from different groups into a temporary group for communication.

2.1.9 probability of call-delay

In a waiting system, the probability that a user's call is blocked and the call is delayed.

2.1.10 control center control center

The control center includes a system controller and a system management terminal, which mainly controls and manages the operation, exchange and connection of the entire trunking communication system.

2.1.11 Scope of base station coverage

The area covered by a base station.

2.1.12 cluster private network professional trunking network

The unit or department has a working frequency and a non-operating cluster communication network with a full set of network equipment.

2.1.13 common trunking network

A trunked communication network that can be commercially operated is established by multiple units or departments to share frequencies and network infrastructure, and with the permission of the telecommunications management department.

2.2 Symbols

AAA - authentication, authorization and accounting (Authentication, Authorization, Accounting);

AC - Authentication Center (Authentication Center);

BSC--Base Station Controller (Base Station Controller);

BTS--Base Transceiver Station (Base Transceiver Station);

CDMA - code division multiple access (Code Division Multiple Access);

DCC - Dispatch Control Center (Dispatch Control Center);

DHR--Dispatch Home Register;

FE - Fast Ethernet (Fast Ethernet);
GE - Gigabit Ethernet (Gigabit Ethernet);
GSM-Global system for mobile communications;
GPS - Global Positioning System (Global Positioning System);
GCR - Group Call Register (Group Control Register);
GGSN--Gateway GPRS Support Node (Gateway GPRS SupportNode);
HLR - Home Location Register (Home Location Register);
IP - Internet Protocol (Internet Protocol);
MS - Mobile Station (Mobile Station);
MSC - Mobile Switching Center (Mobile Switching Center);
MPC - Mobile Position Center (Mobile Position Center);
OMC - Operation and Maintenance Center PAMR--Public Access Mobile Radio;
PCU--packet control unit (Packet Control Unit);
PDSN - Packet Data Serving Node (Packet Data Serving Node);
PDE - Position Determining Entity (Position Determining Entity);
PMR - cluster private network (Private Mobile Radio);
PN--pseudo-noise (Pseudo-Noise);
PTT - push to talk (Push To Talk);
SCP--Service Control Point (Service Control Point);
SSP - Service Switching Point (Service Switching Point);
SGSN--Serving GPRS Support Node (Serving GPRS Support Node);
SMC - Short Message Center (Short Message Center);
SME - short message entity (Short Message Entity);
VLR - Visited Location Register.

3.0.1 Digital trunking network planning should follow the following principles.

- 1 Business forecasting should be carried out according to the economic development status of each region and the communication development plan of each department, and the network organization plan should be determined;
- 2 When connecting to the public telephone network, it should meet the network access