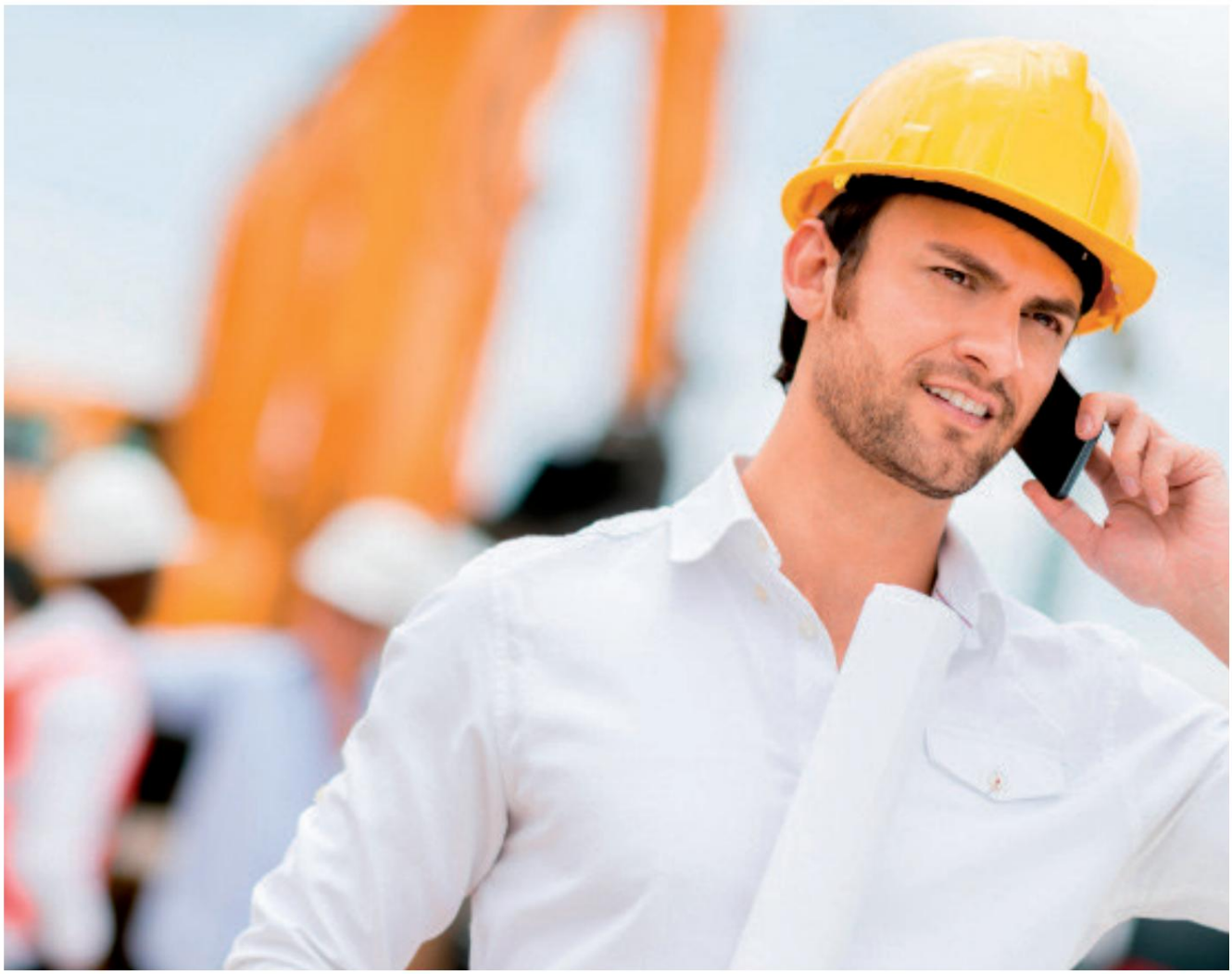
ИНФОРМ ТЕХНИКА

Microcellular system
radio communication MiniCom-DECT



DECT (Digital Enhanced Cordless Telecommunication) radio technology was developed by the European Institute ETSI in the early 90s of the 20th century to provide radio access to networks of all types.

Informtekhnika Group of Companies is a recognized leader on the Russian market in the development and implementation of wireless systems of the DECT standard.

DECT technology has a number of advantages:

- high quality of speech transmission, comparable with digital wired communication systems, through the use of adaptive PCM coding (ADCM) at a speed of 32 Kbit/s;
- high physiological safety when long-term use due to very low radiation power (10 mW);
- the ability to provide (at low signal power) a significant range of the system through the use of an improved signal processing circuit - up to 10 km (or more) subject to line of sight;
- possibility of implementing medium- and high-speed data transmission;
- ease of deployment and expansion of the system due to the absence of the need for frequency planning;
- a single frequency range specially allocated by the decision of the SCRF for the entire territory of the Russian Federation with a simplified registration procedure;
- open standard specifications, ensuring compatibility of equipment from different manufacturers.

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Main technical characteristics of the MiniCom-DECT system	
General characteristics	
System composition	• basic equipment: base station controller (BSC), base station (BS), repeater, heating cabinet • terminal subscriber radio units (TARB) MiniCom DT-20 • portable subscriber radio units (PARB) (radio tubes) • antenna-feeder equipment for BS and TARB • operator's workplace
Number of subscribers registered in the controller	KBS - up to 512
Number of radio channels on air	System based on KBS and BS - up to 120
Access profile	GAP
Speech coding	ADPCM, 32 Kbps
Data transmission (Internet access), Kbit/s	Dial-Up modem: • up to 9.6-14.4 when using a standard resource (1 time slot) • up to 56 when using double resource
Interfaces with the control system	• via RS-232 interface • via an IP network using a converter RS-232 interface • Ethernet
Synchronization	• from external sync port • from the PCM path
Radio interface	
Frequency range, MHz	1880-1900
Frequency bandwidth, MHz	20
Number of available frequency channels	10 (if necessary, the operator can turn off some frequencies)
Frequency channel spacing, KHz	1728
Modulation type	GFSK
Sensitivity at the receiver input, dBm	-86 (BER < 10-3)
Peak transmitter output power, mW	250
Principle of access organization	Time Frequency Division Multiple Access (TDMA/FDMA), Time Division Duplex (TDD)
Channel distribution	continuous dynamic channel selection (no frequency planning required)
Frame duration, ms	10
Number of available channels	12 (at one frequency)

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Interface with the telephone network	
Electrical characteristics	E1 (G.703)
Digital stream speed, Kbit/s	2048 ±50 ppm
Wave impedance, Ohm	120/75
Linear code	HDB3 (AMI)
Frame structure	G.704
Alarm system	E-DSS1, 2BSK (R1.5), V5.2
Maximum distance from the telephone exchange, m	• over a physical line - up to 1000 (twisted pair cat. 5) • via digital transmission system - unlimited.

There are two main areas of application of the DECT standard:

- digital radiotelephones for home and office;
- microcellular communication systems for medical institutions (Multicell).

The undoubted advantage of DECT technology is digital radio signal transmission with excellent speech quality, a high degree of protection against eavesdropping and the appearance of radio doubles. The low power of mobile phones (10 mW) provides users with high environmental safety. For enterprises that would like to organize microcellular communications, the DECT standard is also convenient because it does not require complex procedures for obtaining frequency permits.

Employees who, due to the nature of their official duties, are forced to frequently move around the territory of the enterprise, remain without communication for a long time and cannot receive prompt information in a timely manner, contact clients in a timely manner, quickly notify colleagues about urgent events, etc. Time is wasted
and that means money.

The DECT radio network allows mobile subscribers to be within reach throughout the entire enterprise. Wherever users are - in the workshop, in the yard, in the parking lot, in a conference room or in a warehouse - a telephone call will always find a subscriber. Effective information exchange is established and unproductive time is sharply reduced. The enterprise becomes more dynamic and adapted to market relations.

MiniCom-DECT easily integrates into any wired telephone exchange and is an excellent addition to it. When building a communication network based on MiniCom-DECT, it becomes possible to move DECT subscribers throughout the entire network deployment area (roaming function).

The MiniCom-DECT system creates a radiotelephone communication network covering the territory of the entire enterprise. This network consists of several radio zones overlapping each other. Radio zones are formed by base stations (BS), designed to establish connections with wireless telephones. The range of such a zone is 200-300 meters in an open area and about 50 meters in a building. The MiniCom-DECT system itself determines which zone the called subscriber is in and sends him a city or internal call. If during a conversation there is a need to move from one end of the enterprise to another, you can do this without interrupting the conversation and without noticing transitions from the coverage area of one base station to another. The system itself monitors the necessary connections. Each base station allows up to 12 simultaneous conversations, which ensures a high density of subscribers within the coverage area of one base station. Directional antennas optimize the number of base stations needed for reliable communication throughout the enterprise.