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GENERAL
TECHNICAL REQUIREMENTS
to SOSM function facilities
at trunking mobile radiotelephony systems
(SOSM - TMRS)

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1. SOSM purpose

1.1. Technical facilities for System of Operative-Search Measures (SOSM) at trunking mobile radiotelephony systems (TMRS) are intended for operative monitoring of connections and locations of certain users of the trunking mobile radiotelephony according with current legislation of the Russian Federation. Operative monitoring should be fulfilled from the remote Control Point (CP) by its interaction with hardware and software of SOSM TMRS.

1.2. The present General Technical Requirements (GTR) covers SOSM TMRS intended for public telecommunication networks and private communication networks irrespective of departmental belonging and property forms. Extent of the present GTR fulfillment is defined by possibilities of trunking radiocommunication standards and protocols (SmarTrank, MPT-1327, SmartNet, LTR, ESAS, EDACS, TETRA and others), introduced at Russian networks.

When being agreed with FSS of the Russian Federation SOSM TMRS fulfillment according special technical requirements is admitted. These special technical requirements can be developed by certification centres of State Committee of the Russian Federation on Telecommunications on the base of GTR to SOSM for TMRS.

1.3. SOSM TMRS should be fulfilled as hardware and software included in TMRS equipment, which is supplied or developed in accordance with standards and protocols of trunking communications.

1.4. The present requirements should be provided independently on cryptography security and encoding methods used in trunking systems.

1.5. SOSM TMRS should provide the following:

- the database to keep information about TMRS users under monitoring and operative managing data from CP;
- interaction with CP via data communication channels (links), and output to CP speech channels for monitoring of connections;
- interface with equipment of line path 2048 Kbit/s or with physical lines;
- protection against unauthorized access to SOSM TMRS information, including protection against TMRS personnel access.

1.6. SOSM TMRS should be an obligatory part of regular equipment of TMRS.

SOSM TMRS should include the following:

- software and hardware part included in regular equipment of a communications operator's station part;
- control point (CP);
- communication lines (channels) between the station part of SOSM TMRS and CP.

The present TR covers the regular equipment of the communications operator's station part.

1.7. Realizing SOSM functions shouldn't deteriorate qualitative characteristics of TMRS subscribers servicing. Parties of communication sessions under monitoring should have no possibility to determine presence of monitoring.

2. Technical requirements to SOSM TMRS

2.1. Monitoring at TMRS

2.1.1. SOSM TMRS should provide monitoring of definite subscribers of TMRS on using the following parameters:

- on using individual identity of a subscriber radiostation (SRS);
- on using PSTN number assigned to SRS;
- on using a group identity of the SRS;

2.1.2. SOSM TMRS should provide the following:

- monitoring of outgoing and incoming calls for TMRS subscribers, which have been set for monitoring;
- affording data about locations of radiosubscribers (RS) under monitoring, during their moving (for multizonal TMRS only);
- keep monitoring of connected call in a case of control handover between base stations (BS) in multizonal TMRSs;
- monitoring of calls when furnishing supplementary services for RS.

- monitoring of connections, which provide transmission of telephone and non-telephone information (data communications, facsimile communications, status messages, short and expanded data blocks);

2.1.3. Individual and group identities of SRSs under monitoring and assigned them PSTN numbers should be assigned from CP and stored in the corresponding SOSM TMRS database.

2.1.4. Maximum number of identities of SRSs under monitoring, which are attached to given TMRS, should be 128 for system with capacity 10000 subscriber addresses, but not more than 1024 while increasing the system capacity up to maximum value.

Then SOSM TMRS should provide simultaneous monitoring for the following utmost number of completed connections (see Table 1).

Table 1

Subscriber capacity of TMRS	Number of identities under monitoring	Simultaneous monitoring of connections, not more than	Number of monitoring connecting lines, not more than	Number of PCM-30 highways, not more than
up to 1000	16	4	8	1
2500	32	8	16	1
5000	64	14	28	1
10000	128	28	56	2

Note: Number of monitoring connecting lines (MCL) and number of simultaneous connections under monitoring can be changed on agreement with FSS of RF.

2.1.5. Monitoring connecting lines, used to transmit information from speech paths to CP, should be set in parallel with monitored call. At this only unidirectional path to CP is set.

2.2. Categories of monitoring

2.2.1. The following categories of monitoring should be assigned to monitored subscribers of given TMRS:

a) full monitoring:

combined monitoring of A and B subscribers mode;

separated monitoring of A and B subscribers mode;

b) statistical monitoring.

Note: Mode of separated monitoring of A and B subscribers is used for monitoring of individual calls.

2.2.2. In the case of full monitoring, information about phases of connection set up, data about monitored calls should be transferred in real time. Information, transmitted in the operating channel or in control channel of the radiosubscriber under monitoring should be taken away and transferred to CP.

In the mode of separate monitoring of A and B subscribers, two monitoring connecting lines should be dedicated for them.

In the case of full monitoring, a status can be assigned to a user under monitoring, which provides possibility of priority taking away information transmitted in the operating channel and its transferring to CP on all the MCL busy.

2.2.3. Category “statistical monitoring” means, that an operating channel doesn’t switched through to CP, but information about phases of a connection set up, data about calls under monitoring and information of control channel should be transmitted to CP in real time.

2.2.4. When both the subscribers in a call are objects under monitoring, monitoring of every subscriber is fulfilled accordingly assigned it category.

2.3. Monitoring of SRS location

2.3.1. Monitoring of location means, that data about SRS location when moving within multizonal TMRS should be transferred to CP. During monitoring of location a basic station (BS) number in TMRS should be defined (according TMRS topology), in which operating zone the SRS is registered at the present moment.

2.3.2. Monitoring of location should be fulfilled in active state of SRS.

2.3.3. Monitoring of location should be included by request of SOSM administrator into full or statistical monitoring.

2.4. Information about phases of connection set up and data about calls under monitoring

2.4.1. For every call under monitoring information about certain phases of connection set up should be transferred to CP:

2.4.1.1. For individual call the following information about phases of connection set up should be transferred:

- receiving of a full phone number of called subscriber or individual identity of radiosubscriber;
- answer of a called subscriber;
- disconnection;
- using supplementary services;

2.4.1.2. For group call the following information about phases of connection set up should be transferred:

- initializing of a group call;
- disconnection.

2.4.2. At this, messages with data about calls under monitoring should be sent to CP for every phase in accordance with requirements, described in i. 7.

Notes:

- a) information about location should be sent at all the phases of connection set up;
- b) at group calls information about location of a group call initiator should be sent.

2.5. Setting for monitoring and removal from monitoring

2.5.1. SOSM should provide setting for monitoring and removal from monitoring for subscribers of given TMRS at receiving commands with data from CP in accordance with requirements described in i.7.

2.5.2. Admissible time of setting for monitoring or changing SOSM data tables after completing a session of transmitting a full package of necessary information from CP should be not more than 30 sec.

3. Methods of monitoring

3.1. Hardware and software of SOSM TMRS should provide collecting digital information about connections under monitoring and transmission of this information to CP via data communication channel.

3.2. Calling number identification (when CCS is not available) for incoming communication from fixed telephone network should be fulfilled by the line signal “response” and sending request signal of frequency 500 Hz to outgoing exchange and following reception frequency information about the calling subscriber number from it.

Electrical parameters of transmitted and received frequency signals should correspond with requirements to similar signals used in ANI equipment at its operation at exchanges of the national fixed telephone network.

3.3. Connecting CP equipment to speech paths of TMRS subscribers under monitoring should be fulfilled through monitoring connecting lines (MCL). Number of MCLs should correspond with necessary number of simultaneous connections under monitoring.

3.4. Reaction time of SOSM (from the moment of event registration at the system till the moment of writing information about this event into SOSM transmission port) when its operating in real time should be not more than minimum time of connection between TMRS radiosubscribers set up.

4. SOSM operability check

4.1. During operating of SOSM hardware and software, functional check of its efficiency against the background of TMRS equipment operation, and checkup with using metrological facilities and maintenance facilities should be foreseen.

4.2. All the information about faults, which affect SOSM operation, should be transferred to CP. Fault codes should be provided by TMRS equipment suppliers and should be agreed at the stage of development of Supplement 1 to TT&C.

5. Protecting information against unauthorized access

5.1. Possibility of unauthorized access to data and software of SOSM and CP interaction should be eliminated.

5.2. Possibility of unauthorized intervention in the process of SOSM and CP functioning and interaction should be eliminated.

5.3. All the attempts of unauthorized access and intervention in SOSM and TMRS functioning or in the process of information interchange via data channels between SOSM and CP should be reported to CP.

5.4. Possibility of logging data about subscribers under monitoring and interaction between SOSM and CP into system log or other storage medium should be eliminated.

6. Initializing and restart of SOSM

6.1. When restarting TMRS equipment corresponding message should be sent to CP.

6.2. In the case of emergency stop of TMRS equipment and its following restart, no data about objects under monitoring are restored, they should be resent from CP.

6.3. Technological conditions of TMRS equipment restart should include SOSM restart procedures. Possibility of SOSM restart by the command from CP against the background of the TMRS operation should be provided.

7. Technical requirements to information interchange channels between SOSM and CP

7.1. Technical requirements to information interchange channels between SOSM and CP for TMRS should correspond to document “Technical requirements to information interchange channels between SOSM and CP for mobile radiotelephony networks” approved by order #70 of the State Committee for Telecommunications of the Russian Federation dated 04.20.99.

7.2. Taking into consideration peculiarities and possibilities of trunking communication standards and protocols, realizing of communications interface and information interchange protocol in a data communication channel between SOSM and CP for TMRS in accordance with special technical requirements is admitted. These special technical requirements are agreed by certification centres with equipment suppliers and FSS of the Russian Federation.