



MULTILATERATION SURVEILLANCE SYSTEM "TETRA-M" FOR MONITORING OF CHARACTERISTICS OF MAINTAINING BY AN AIRCRAFT OF RELATIVE HEIGHT



Principle of detection of height maintaining errors

MLSS "**TETRA-M**" is intended for reception of signals from aircraft equipped with transponder of A/C and S modes and flying with reduced vertical separation minima, for defining of location of such aircraft, tracking, identification and calculation of values of an aircraft deviation from assigned separation minima (Assigned altitude deviation (AAD)), evaluation of summed-up error in height (Total vertical error (TVE)) and altitude measuring system error (Altimetry system error (ASE)), and for submitting this data to consumers.

MLSS "TETRA-M" ensures receiving data of calculated geometrical altitude of flight separation levels within MLSS coverage zone via agreed unified interface protocols.

Coverage zone of MLSS "TETRA-M" is the area of airspace, in which the measurement is provided of characteristics of relative altitude maintaining for aircraft, which performs horizontal and straight flight on flight separation levels from the level of 290 (8850 m) up to and including the level of 410 (12500m) within 30s or more.





MLSS "TETRA-M" ensures serviceability for the time of up to 15 minutes at disappearance of industrial mains voltage.

MLSS "TETRA-M" is designed basing on modular principle, which provides consolidating of single functional modules by means of fiber-optic communication links, Ethernet or radio-links.

MLSS "TETRA-M" comprises the following: - Receiving station (from 5 up to 10 pcs); - SW-HW complex for data processing; - Remote control terminal;

- SPTA set.





Cabinet of SW-HW Complex for Processing of data

Receiver Cabinet

Basic Technical Specifications

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Parameter Denomination	Value
Number of tracked objects	50
Time of continuos registration, days	30
Time of availability for service, minutes, not more than	5
Rate of data transfer in LAN, not less than	100 MB/s
Power supply voltage with frequency of	230 <u>+</u> 10 V 50 <u>+</u> 1 Hz
Time of continuos operation, hrs, not less than	24
Standard deviation for instantaneous measurement of aircraft altitude, not more than	50 m
Standard deviation for measurement of altitude of an aircraft air-route, not more than	15 m
Probability of aircraft identification within 5 s	0.999
Probability of false identification of aircraft within 5 s	10 ⁻⁶
Probability of data renewal rate with the period of 1 s for aircraft, not less than	0.95
MTBF, hrs, not less than MTTR, hrs, not more than	10 000 0.5

The system ensures fulfillment of the following basic functions:

- Reception of data from receiving stations;
- -Correlation in time and timing of all data obtained;
- Defining aircraft coordinates and parameters;
- Obtaining meteorological data;

Calculation of TVE, AAD and ASE;
Output of "warnings" in case of exceeding of prespecified values of TVE, ASE or AAD;

- Output of calculation results of objects locations and system technical status in the format of ASTERIX, Categories 20 and 19;

Diagnostics, monitoring and control of basic elements of the system;

Generating of report documents and submitting it totheusers;

Registration of meteorological data received and of data processing results;

- Storage of registered data within not less than 30 days.

Implemented projects





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