159343 4M automated command system for signal-M. Spares for 159343 were supplied to the 35th, 39th and 42nd divisions.

153601 Perimeter

159961 Displays for 1591M,159961 were provided to the three armies and Odintsovo-10.

1591273 Reference to a simulator for VHF radio 1591273 (not identifiably SRF)

15Э1305 (Рундук-С1) Satellite communications station; Supplied to 54 Division.

15Э1310-04 (Дублер-CO) is a system to transmit and receive alerts (probably part of a security system). It was supplied to the 54th division.

1591313?? Fibre-optic transmission system. (not clearly SRF)

15Э1331 (Батискаф) Special monitoring instruments Батискаф. Supplied to 54th and 60th divisions. Automated confidential high-speed communications telecode for exchange between control stations and mobile facilities. Also a reference to software for a simulator for telecode equipment 15Э1331 and another to high speed telecode connection 15Э1331.

15 \ni 1345 (Кефаль) is a hands-free loudspeaker communications system for fixed and mobile control centres. 18 sets were supplied to the 13th and 54th divisions.

15 \ni 1347- Π is an exchange system. 32 sets were supplied to all divisional headquarters and to training academies. In 2008, 4 were supplied to Odintsovo-10, and others to the 27th and 33rd armies and to the Znamensk missile test facility.

1591353 For the remote monitoring of radio and cable systems. 1591353-01 is a vehicle-mounted system. 1591353-05 is for the automated support of C3 systems to keep them at constant readiness. 1591353-03 is a vehicle-mounted system which remotely monitors wire and cable systems. Contract in 2007/8 for software. Supplied in 2007/8 to 7 Divisions and the 27th army.

1591354 Communications product; 1 ordered for 60th Division, without antenna

1591356 is a vehicle-mobile cable repair system.

15 \ni 1371-09 (Кефаль-Ц) is a radiation-hardened exchange system which handles encrypted messages and maintains connections through fibre-optic, VHF, HF, microwave and satellite communications channels. 3 sets were supplied to the 13th and 54th divisions.

1531377 New mobile antenna which can be quickly erected

15 \ni 1383-ГМ-30 (Бета-1) is a system for switching between channels. It was supplied to the 60^{th} division.

1591389 is a system for retaining radio communications when faced with active electronic countermeasures. It was supplied to the 7th, 13th and 51st divisions, 27th and 33rd armies and Odintsovo-10.

15B142 Communications system, exchange with automated morse. Mobile capability. Spares for 27 Army.

15B155Y Spares ordered in 2007/8 and 2010.

15B210 Communications system, exchange with automated morse. Mobile capability. Spares for

15B220 Telegraph and morse components similar to 15B142 and 15B210.

15B221 Command component. This includes 1591389 (radio system), 1591391 (controlling/monitoring communications) and 1591394 (exchange of documentary information). A contract was issued to maintain 15B221 at Odintsovo-10.

15B222 HF, FM and LF transmitter, phased-shift reciever with power supplies, clutter analysis and information exchange for coded message, encrypting system and automated organisation of communications channels. Spares ordered in 2007/8; Spares for 27 Army 2008/9;

15 \ni 1386 Supplied to Mirny Archangel, SRF closed town and cosmodrome. Linked to 14 Π 05 (Π poctop-P)

15Э1389 (Бриолит) HF radio system (Cerb-KK) - Network KK (15Э1347 exchange includes donnection with Сеть-КК) - KK possibly space command ?? For Odintsovo-10, 27 Army, 35 and 39 Divisions.

15Э1391 (Байонет-P) is a system for controlling and monitoring telegraphic communications centres. 43 sets were supplied to army and divisional headquarters and Odintsovo-10.

1591392 (Барограф) Radio range prediction for command posts. Supplied to 27 Army. Produced by Vicor.

15Э1394 Networking exchange of documentary information between fixed, mobile and hardened command posts (стационарных, подвижных и высокозащищенных пунктов управления). Reference to hardware / software for.

15Э1835 (Буссоль) Anti-jamming system. Supplied to 13, 14, 39, 54, 60 and 62 Divisions.

15Э1836 (Бекас) Means of transmitting video and thermal imaging information (security)

1591837 (Брус-1) travelling wave radio antenna. Supplied to Odintsovo-10 and Klyuchi, Kamchatchka (produced by Vicor)

15Э1838 (Брус-2) phased-array radio antenna. Supplied to Odintsovo-10.

15 \ni 1839 is a system for selection communication channels, including satellite communications. 10 sets were ordered in 2009. The locations to which this was deployed include the 54th division and the facility at the missile test impact area, Klyuchi in Kamchatka region.

15Э1841 (Баллиста) is a system for monitoring and testing Rocket Forces fibre-optic and wire communications channels and reconfiguring the network as required. It supports the 15Э1391 system. Sets were supplied to all army and divisional headquarters and Odintsovo-10. The contract included installing 15Э1841 at the Grotto underground control centre near Kitlim. ²

1531847 is a new system for monitoring and selecting communications channels. Its function is to detect faults and damage and to identify detours in order to maintain communications. It works in conjunction with 1531383 and 1531839.³

15 $ext{3}$ 1858-2, described as a protected ground antenna complex for HF reception. This has been designed to minimise the effects of jamming. 4

15Э1859 (Стеллит-06) Miniature antenna for mobile command posts. Supplied to 14, 35, 39 51 and 54 Divisions.

15Э1862 (Критик) Automated satellite control system, supplied to Gagarin, Smolensk.

¹ http://doc.gostorgi.ru/7/2009-01-15/248948/3.doc; http://doc.gostorgi.ru/7/2009-01-15/248948/18.doc

² http://www.mpi.ru/tender690688.html

³ http://www.army.informost.ru/2010/sbornik/4-1.pdf

⁴ http://vicor.org.ru/doc/booklet.pdf