

**The European Union's Tacis programme
for Azerbaijan, Georgia and Armenia**

Supervision of supply of an optical cable for communication and signalling to the railways of Azerbaijan, Georgia and Armenia

*Completion report
21 May 2003*



This project is funded by
European Union



A project implemented by
FINNROAD Ltd.

Supervision of supply of an
optical cable for
communication and signalling
to the railways of Azerbaijan,
Georgia and Armenia
Completion Report
May 2003

Form 1.2. REPORT COVER PAGE

Project Title: **Supervision of Supply of an Optical Cable System for Communication and Signalling to the Railways of Azerbaijan, Georgia and Armenia**

Project Number : **Traceca1999**

Country : **Azerbaijan, Georgia, Armenia**

	Local Operator	Local operator	Local Operator	EC Consultant
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Date of report: May 2003

Reporting period: Completion report

Author of report: RAS/Finnroad, IK/Corenet

EC Monitoring team _____
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EC Delegation _____
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TACIS
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1. Project Synopsis

Form 1.3 PROJECT SYNOPSIS

Project Title: : Supervision of Supply of an Optical Cable System for Communication and Signalling to the Railways of Azerbaijan, Georgia and Armenia

Project Number : Traceca1999

Country : Azerbaijan, Georgia, Armenia

Wider objectives:

The wider objective of the programme in Caucasus is to support the full use of the Traceca transport corridors through Caucasus and provide means for efficient transmission of telecommunications data for both railways and private telecommunications companies throughout the Caucasus region. It will enhance safety and security for railway operations and simultaneously enable the private telecom operators to penetrate the Trans-Caucasus communications market.

Specific Project objectives:

The objectives of this consulting assignment are to provide technical supervision of the manufacture, supply, installation, witness testing jointly with the Railways and hand-over of the optical cable system, as well as monitoring that adequate training and transfer of know-how is provided by the supplier. The consultant provides also certificates for partial and final acceptance.

Outputs:

Optical cable system installed and operational according to specifications and approved by the Supervision consultant and Recipients

Inputs:

Supervision will include monitoring and approval of manufacture and factory tests, monitoring of works progress on site, monitoring and approval of partial field testing and final testing, provision of certificates to the Contractor on accepted deliveries. Supervision will be carried out using part time expatriate principal supervisor, part time expatriate technical supervisors, as well as part time local supervisors one in each country.

Project Starting Date: 21.8.2002

Project Duration: 9 months

2. Summary of project progress since the start

2.1. General

The inception phase was reported in the inception report 7 October 2002.

Because of the slow start of the project and the slow progress in the previous phase of the project the new deadlines were agreed and an updated time schedule were issued by Siemens and recipient enterprises. EC confirmed the extension and issued an addendum to the supply contract and signed a new extended supervision contract basing on the new deadlines.

The original completion dates of the Contracts were in May 2002. The new dead line of the Contract was May 2003. It was also stated clearly that no further extension to project completion could be granted anymore.

In order to complete the project according to the specified dead lines more cooperation was required in order for all parties to be fully aware of the project progress and practical problems and to adjust the plans accordingly.

Siemens needed to retain active supervision in order to get all the civil works completed in time. It was agreed that Siemens and Railways together would inspect all installations of the cable and reconstruction of technical rooms.

One of the key aspects for the smooth and timely implementation of the project was the correct timing of activities of the Contractor and the three railways organisations. The project also needed the co-operation of the Governments for successful conclusion.

2.2. Coordination Team Meetings

After the kick-off meetings, which were held in September/October, there have been three sets of Coordination team meetings in the project countries. Representatives of the Recipient, Contractor and Supervising Consultant have participated in all meetings. The Task Manager of the EC participated in the October meetings and he urged the parties to work hard in order to meet the target of the project.

The new proposed deadlines to complete the project by the 17th of May 2003 were agreed first time in the kick-off meetings. Some changes had to be agreed mutually to the deadlines in the December and in the March Coordination Team Meetings of this assignment.

The deadlines for the works in all three countries were agreed in the signed minutes of coordination team meetings and in the signed protocols.

2.3. Project Progress

The project was completed in all three countries in the extension phase and the acceptance test certification was performed. The project progress in final project period is briefly described in chapter 3.3.

The requirements for the acceptance test certification in general is the following:

- Network installation must be completed and all tests have to be performed according to the test procedures
- The test reports of the cable, OTN and Hicom must be given to the Railways
- High level design documentation and as-built documentation for the network and stations must be given to the Railways
- Operation and Maintenance manuals for the system must be given to the Railways
- Training of the personnel of the Railways must be completed

2.3.1. Georgian Railways

The subcontractor of the Railways has laid the duct and blown the cable (total 547 km). Reconstruction works of the technical rooms are completed. The installation works of the OTN and Hicom are completed. All the original deliveries have been received.

The Principal Supervisor has witnessed the testing and issued the acceptance certificate as described in chapter 3.3 and in Annex 7.

2.3.2. Azerbaijan Railways

The subcontractor of the Railways has laid the duct and blown the cable (total 550 km). Reconstruction works of the technical rooms are completed. The installation works of the OTN and Hicom are completed. All the original deliveries have been received

The Principal Supervisor has witnessed the testing and issued the acceptance certificate as described in chapter 3.3 and in Annex 7.

2.3.3. Armenian Railways

The subcontractor of the Railways has laid the duct and blown the cable (total 315 km). Reconstruction works of the technical rooms are completed. The installation works of the OTN and Hicom are completed. All the original deliveries have been received

The Principal Supervisor has witnessed the testing and issued the acceptance certificate as described in chapter 3.3 and in Annex 7.

3. Project Progress in final project period

3.1. Achievements in comparison with planned results

The new dead lines to complete the project by the 17th of May 2003 were agreed in the October Coordination Team Meetings. The dead lines for the works in all three countries were agreed in the signed minutes of coordination team meetings and in the signed protocols.

The supervision services under this contract have been continuing and verifying the progress of the project and also given technical support for finding ways to complete the project inside the stated deadlines.

The project was completed and certified within the new deadlines.

3.2. Coordination Team Meetings

The latest Coordination team meetings were held between 18.4-17.5.2003 in connection with the acceptance testing of the systems in all the three countries. All the meetings were participated by the Recipient, Contractor and Supervising Consultant. The project progress and the readiness to issue the acceptance certification by the 17th of May 2003 were agreed in the Coordination Team Meetings.

3.3. Progress of Works

3.3.1. Georgian Railways

The progress of the works in the final period was the following:

Civil work progress:

- All civil works including PTT connection were completed.

Contractor's work progress:

- All installation works except for Tbilisi Crossing were completed. The installation and commissioning of Tbilisi Crossing will be completed by the 21st of May 2003.
- The commissioning was completed. The testing of the subscriber connections was going on in the existing subscriber network.

The Principal Supervisor has witnessed the following acceptance procedure:

- Checked the test results of the cable and system
- Witness tested together with the Railways the operation of the system
- Confirmed together with the Railways that the system in practice operates according to the specifications
- Confirmed that the training have been performed
- Confirmed the documentation

Based on the witness testing and test results the Principal Supervisor confirmed the partial acceptance and provisional acceptance of the system in Georgia provided that the following outstanding items will be completed by the contractor:

- The complete set of test results of the cable and system will be given to the Railways
- The complete set of network and as-built documentation will be given to the Railways

The above mentioned list of outstanding items will be solved by the contractor after acceptance. None of these items does not limit the use of the system in its major purpose.

3.3.2. Azerbaijan Railways

The progress of the works in the final period was the following:

Civil work progress

- The connections to the PTT in Ganja and Baku were not yet completed. The equipment for the PTT connections were ready for delivery at the factory.
- All transformers have been connected to the main power.
- The commissioning of the last three air conditioning have been completed.

Contractor's work progress

- The test results for the cable blowing were sent to Finnroad on the 24th of April. Finnroad has studied the measurement results.
- Installation and commissioning of the equipment were completed.
- Network integration and commissioning of the whole system will be completed when the PTT connections are ready.
- The delivery of the spare parts has been handed over to Railways.

The Principal Supervisor has witnessed the following acceptance procedure:

- Checked the test results of the cable and system
- Witness tested together with the Railways the operation of the system
- Confirmed together with the Railways that the system in practice operates according to the specifications
- Confirmed that the training have been performed
- Confirmed the documentation

Based on the witness testing and test results the Principal Supervisor confirmed the partial acceptance and provisional acceptance of the system in Azerbaijan provided that the following outstanding items will be completed by the contractor:

- The complete set of test results of the cable and system will be given to the Railways
- The complete set of network and as-built documentation will be given to the Railways
- The operation of the system between Azerbaijan and Georgia has been confirmed by the Railways

The above mentioned list of outstanding items will be solved by the contractor after acceptance. None of these items does not limit the use of the system in its major purpose.

3.3.3. Armenian Railways

The progress of the works in the final period was the following:

Civil work progress

- The Railways has solved the problem of 2Mbit digital path from PTT to the technical room with PTT. The connection will be ready by the 20th of May 2003.

Contractor's work progress

- Installation works were completed by the 14th of May 2003.
- The remaining two sections in the cable route were completed by the 15th of May 2003. Siemens must provide measurement results of the remaining cable sections by the 20th of May 2003.
- Commissioning of the system has been completed. The test results must be completed and provided by Siemens by the 20th of May 2003.

The Principal Supervisor has witnessed the following acceptance procedure:

- Checked the test procedures of the cable and system
- Confirmed that the installation and commissioning of the system have been performed according to the specified procedures
- Witness tested together with the Railways that the system in practice operates according to the specifications
- Confirmed that the training have been performed
- Confirmed the documentation

Based on the witness testing and test results the Principal Supervisor confirms the partial acceptance and provisional acceptance of the system in Armenia provided that the following outstanding items will be completed by the contractor:

- The installation and commissioning of the system is completed by the Contractor and confirmed by the Railways
- The complete set of test results of the cable and system will be given to the Railways
- The complete set of network and as-built documentation will be given to the Railways
- The operation of the system between Armenia and Georgia has been confirmed by the Railways

The above mentioned list of outstanding items will be solved by the contractor after acceptance. None of these items does not limit the use of the system in its major purpose.

3.4. Deviations from updated original planning and reasons

3.4.1. General

The reasons for the delays in civil works in the original time frame of the project were many. The Railways were unaccustomed to the techniques used in laying of the ducts and blowing of the cable. Overall planning was poor especially to mobilise enough local resources. On the other hand Siemens supervision of civil works was inadequate to give advice on correct work methods and work planning.

Especially in Armenia the funding of civil works created long delay. As the railway did not have enough own funding, it used the World Bank funded project as a vehicle for engaging an outside contractor. The procedures took quite a lot of time and actual progress was only witnessed at the end of the period.

Bureaucracy in getting permits and tax exemption hindered equipment deliveries.

3.4.2. Georgian Railways

In the final phase of the project the progress of the project in Georgian Railways followed the updated time schedule

3.4.3. Azerbaijan Railways

In the final phase of the project the progress of the project in Azerbaijan followed mainly the updated time schedule.

3.4.4. Armenian Railways

In the final phase of the project the extremely cold winter caused the main delays in the progress of the project

4. Overall report on the total project

In the start situation of the assignment the contract between EU and the Contractor (Siemens) had just been signed. The role of the supervision consult was agreed to be monitoring project progress, to witness testing jointly with the railways and to provide certificates for the partial and final acceptance.

Kick-off meetings were organised in September/October 2002 in all the countries. Representatives of the Recipient, Contractor and Supervising Consultant have participated in all meetings. The Task Manager of the EC participated in the October meetings and he urged the parties to work hard in order to meet the target of the project.

It was agreed that the main monitoring tool would be the periodic supervision missions to all three countries supported by design and documentation checks and local expert supervision.

The Inception report was published 7 October 2002.

The first coordination team meetings were held in December 2002 in all the three countries and progress of the project was discussed. Second coordination meetings were held in March 2003. In that phase there were still some threats that the deadlines of the project would not be met in all three countries, especially because of the extremely cold winter in Armenia.

The last coordination round was organised in April / May 2003 and it was noticed that the parties had speeded up the progress of the project and the target of the optical cable project would be met successfully.

5. Lessons learnt and recommendations

Project Management:

Throughout the implementation of the project, it has been evident that the project would need more management and control. The contract model is fairly complicated since it is a mixed contract consisting of equipment supply, installation, civil works contract, and service delivery. There are several parties affecting the contract performance. The national railways have large civil works responsibilities and the contractor needs to co-operate very closely with the civil works contractors. There is no quick problem solving mechanism. The monitoring and verification type function under this contract is not designed and equipped to solve practical problems and the Siemens/Railways interaction requires an impartial guidance mechanism.

Contract model

The contract model that has been used is basically between the Contractor and EC. There are several requirements to be performed by the Railways in order for the contractor to keep the schedule. There is no clear mechanism to bind the Railways into the same contractual schedule with Siemens. This is the main reason for the coordination meetings and subsequent agreements between Siemens and the Railways. This should have been designed at the onset of the project.

Cooperation

The contract places a large responsibility for the contractor to cooperate closely with the recipient organisations. It is evident that the contractor has not taken seriously enough this role. Due to weak project management structure this has led to several problems because of inefficient problem solving mechanism and dialogue in general.

Technical Specifications

The technical specifications for the project have caused a more difficult and complicated civil work requirement and installation procedure than would have been necessary. In our opinion with a better selection of the cable type, a lot of savings would have been possible due to easier installation. We would have selected an armoured cable and thus saved the duct and blowing work. We also believe that an armoured cable would have been more durable due to less installation faults.

6. LIST OF ANNEXES

- Annex 1: FORM 2.2 PROJECT PROGRESS REPORT
- Annex 2: FORM 2.3 RESOURCE UTILISATION REPORT
- Annex 3: FORM 2.4 OUTPUT PERFORMANCE REPORT
- Annex 4. FORM 3.3 OUTPUT PERFORMANCE SUMMARY
- Annex 5 FORM 3.2 PROJECT COMPLETION REPORT
- Annex 6: Minutes of the meetings
- Annex 7: Acceptance certificates for Armenia, Azerbaijan and Georgia , 27.5.03.

Annex 1: FORM 2.2 PROJECT PROGRESS REPORT

Form 2.2. PROJECT PROGRESS REPORT

Project title : Caucasus Optical Cable System Supervision				Project number : Traceca1999				Country :Azerbaijan, Georgia, Armenia				Page :				
Planning period : 01-06/2002				Prepared on : 21.5.2003				EC Consultant : Finnroad with Corenet (previous Railtelia), Helsinki								
Project objectives : Specific objective of this supervision project is to assure the proper technical execution of the supply of an optical cables system for communication and signalling to the railways of Azerbaijan, Georgia and Armenia. The overall objective is to improve communication systems, promote the full use of TRACECA corridor as well as to increase competition in the telecommunications sector in Caucasus.																
No		ACTIVITIES		TIME FRAME 2003				INPUTS								
				Months				PERSONNEL EC CONSULTANT		LOCAL CONSULTANTS		EQUIPMENT AND MATERIAL		OTHER		
				01	02	03	04	05	06	Planned	Utilised	Planned	Utilised	Planned	Utilised	Planned
1.	Coordination team meetings							22 d	22 d	24 d	24 d					Flights + DSAs as per contract
2.	Certificate of deliveries							2 d	2 d	0 d	0 d					
3.	Monitoring acceptance test of the cabling							1 d	1 d	8 d	8 d					
4.	Monitoring acceptance test of the technical rooms							1 d	1 d	8 d	8 d					
5.	Monitoring equipment installation in Azerbaijan, Georgia and Armenia							4 d	4 d	22 d	22 d					
6.	Witness testing of the partial and system testing							22 d	22 d	22 d	22 d					
7.	Certificate of partial and system tests							2 d	2 d	2 d	2d					
8.	Progress reports							3 d	3 d	8 d	8 d					
9.	Certificate of Completion report							5 d	5 d	6 d	6 d					
				TOTAL (days)				62 d	62 d	100 d	100 d					

Annex 2: FORM 2.3 RESOURCE UTILISATION REPORT

FORM 2.3 RESOURCE UTILIZATION REPORT

Project title: Caucasus Optical Cable System Supervision		Project number: Traceca 1999		Country: Azerbaijan, Georgia, Armenia		Page: 1/1
Planning period: 1.1.2003 – 21.5.2003		Prepared on: 21.05.2003		EC Consultant: Finnroad with Corenet (previous Railtelia), Helsinki		
Project objectives: See Synopsis						
SOURCE INPUT	TOTAL PLANNED	PERIOD PLANNED (6 mth)	PERIOD REALISED (3 mth)	TOTAL REALIZED	AVAILABLE FOR REMAINDER	
PERSONNEL						
EC Consultant	95 d	62 d	62 d	33+62 d= 95 d	0 d	
Local Experts	150 d	100 d	100 d	50+100 d= 150 d	0 d	
Sub-total						
EQUIPMENT AND MATERIAL						
Sub-total						
OTHER INPUTS						
Sub-total						
TOTAL						

Annex 3: FORM 2.4 OUTPUT PERFORMANCE REPORT

FORM 2.4 OUTPUT PERFORMANCE REPORT

Project title: Caucasus Optical Cable System Supervision	Project number: Traceca 1999	Country: Azerbaijan, Georgia, Armenia	Page: 1/1
Prepared on: 21.05.2003		EC Consultant: Finnroad with Corenet , Helsinki	
Output results	Deviation original plan + or - %	Reason for deviation <i>Verifiable Indicators</i>	Comment or constrains & assumptions
1. Reconstruction works (including air conditioning, grounding, power supply) completed by Railways in all 3 countries	0 %	1. Site approval letters has not yet issued by Supplier to each Recipient	1.
3. Cable corrections must be completed in Armenia and Georgia (31.12.02)	+ 10 %	2. For the cold winter Siemens could not make the closures and provide the final Cable joint test results	2. C: Siemens will complete all closures by the 6 th of March and provide all cable measurement results by the 30 th of April 2003.
4. Equipment delivery completed by Supplier in all 3 countries	0 %	3. <i>Number and type of equipment verified by Consultant to match with the supply contract</i>	3. A: Consultant can check delivery upon arrival in one location in each country
5. Installation and commissioning of the system completed by Supplier (20.04.03)	+ 10 %	4. <i>Partial and system Acceptance Test reports and Test of Completion reports provided by Supplier and approved by Consultant</i>	4.
6. Training of system operators completed by Supplier (21.05.03)	0 %	5. <i>Lists of trained staff in each country including signed presence sheets, as well as contents and material of each training course submitted by Supplier and approved by Recipient</i>	5. A: Adequate number of qualified trainees will be made available by each Recipient
7. As-built drawings of system delivered by Supplier to the Recipients (21.05.03)	0%	6. <i>As-built drawings approved by Recipients</i>	6. A: Translations of all manuals shall be made by qualified telecom technical translators
8. System handed over to the Recipients (17.05.03)	0%	7. <i>Certificate of Acceptance issued by each Recipient, Certificate of Completion issued by Consultant</i>	7.

Annex 4. FORM 3.3 OUTPUT PERFORMANCE SUMMARY

FORM 3.2 : P ROJECT COMPLETION REPORT

Project title : Caucasus Optical Cable system spv		Project number : Traceca 1999		Country : Armenia, Georgia, Azerbaijan		Page :	
Reporting period : 08/2002 – 05/2003		Prepared on : May 2003		EC Consultant : Finnroad, Corenet			
REPORTING PERIOD	MAIN ACTIVITIES UNDERTAKEN	EC CONSULTANT		INPUTS UTILISED			
				MATERIALS AND EQUIPMENT	OTHER		
		Period	Cumulative	N/a			
08/2002-12/2002	Supervision services	33	33				
1/2003 -5/2003	Supervision services	62	95				
	TOTAL	95 Days		N.A.	N.A.		

Annex 5: FORM 3.2 PROJECT COMPLETION REPORT

FORM 3.3 : OUTPUT PERFORMANCE SUMMARY

Project title : Caucasus Optical Cable system spv		Project number : Traceca 1999		Country : Armenia, Georgia, Azerbaijan		Page :	
Prepared on : May 2003				EC Consultant : Finnroad Corenet,Finland			
Output results		Deviation original plan +/-		Reason for deviation		Comment on constraints and assumptions	
Coordination team meetings		No deviation					
Certificate of deliveries		No deviation					
Monitoring acceptance test of the cabling		No deviation					
Monitoring acceptance test of the technical rooms		No deviation					
Monitoring equipment installation in Azerbaijan, Georgia and Armenia		No deviation, but delay by one month					
Witness testing of the partial and system testing		No deviation, but delay because of delays in installation and commissioning					
Certificate of partial and system tests		No deviation, but delay because of delays in installation and commissioning					
Progress reports		No deviation					
Certificate of Completion report		No deviation					

Annex 6: Minutes of the meetings

SUPPLY OF AN OPTICAL CABLE FOR COMMUNICATION AND SIGNALLING TO THE RAILWAYS OF GEORGIA, ARMENIA AND AZERBAIJAN

COORDINATION TEAM MEETING IN BAKU, 29.4.2003

MINUTES OF THE MEETING

Participants:

National Railways:	Mr Vahid Karaev Mr Djamshid Garakhanov
Contractor (Siemens):	Mr Georg Strasser Mr Thomas Hubert Ms Sevinj Kerimova
Supervisor (Finnroad):	Ms Irja Koskela Mr Mamedali Aminov

1. Opening of the meeting

Mr Karaev opened the meeting and welcomed the participants.

2. Present situation of the Project

Civil work progress

- The connections to the PTT in Ganja and Baku are not yet completed. The equipment for the PTT connections are ready for delivery at the factory. The Railways will pay the equipment by the 5th of May after which it will be sent to Azerbaijan.
- All transformers will be connected to the main power by the end of April.
- The commissioning of the last three air conditioning will be completed by the end of April.

Contractor's work progress

- The test results for the cable blowing were sent to Finnroad on the 24th of April. Finnroad has studied the measurement results.
- Installation and commissioning of the equipment are completed.
- Network integration and commissioning of the whole system will be completed when the PTT connections are ready.
- The delivery of the spare parts has been handed over to Railways.

3. Documentation

High level design documentation and as-built documentation for the network and stations has been given to the Railways. Operation and Maintenance manuals has been given to the Railways. The Measurement results (Test protocols) and Partial acceptance test report will be provided by Siemens by the 10th of May.

4. Training

The personnel of the Railways has attended the training courses for the cable, OTN and PABX. The Railways will give the protocols of the training to Finnroad.

5. Acceptance Certification

The requirements for the acceptance test certification in general is following:

- Network installation must be completed and all tests have to be performed according to the test procedures
- The test reports of the cable, OTN and Hicom must be given to the Railways and Finnroad
- High level design documentation and as-built documentation for the network and stations must be given to the Railways and Finnroad
- Operation and Maintenance manuals for the system must be given to the Railways
- Training of the personnel of the Railways must be completed

The acceptance certification in general will be performed by:

- Finnroad will check the test results
- Finnroad together with the Railways will witness test some sites by asking Siemens repeat some measurements
- Finnroad together with the Railways will confirm that the system in practice operates according to the specifications
- When the results indicate that the system meet the specifications and are accepted by Railways, Finnroad will issue the acceptance certificates

The Railways stated that they have been involved in the commissioning of the system and tested already the operation of some services. Therefore they are ready to accept the system to be taken into operation.

Siemens stated that as a supervisor of the civil works they are ready to accept the civil works as such when the last minor deficiencies will be eliminated.

So far Finnroad has studied the measurement results of the cable. The measurement results meets the specifications and therefore they are acceptable. The study of the OTN and PABX measurement results is going on. The witness testing will be performed by the 2nd of May. When the testing results will meet the specifications Finnroad will issue Partial Acceptance Certificate. The Test of Completion Acceptance Certificate will be issue when also the PTT connections are installed and commissioned.

Basing on the information at the moment the Test of Completion Acceptance Certificate (Provisional acceptance certificate) for Azerbaijan can be issued before 17th of May provided that the specifications will be met.

6. Deficiencies (if any) and their deadlines

If some minor deficiencies will be find out during the acceptance testing, the system can be accepted provided that the deficiencies will be eliminated by the agreed dead-lines. The elimination of these corrections must be informed in written to Tacis/TRACECA.

Signed in Azerbaijan on the 29th of April 2003

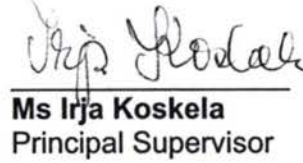
For Azerbaijan Railways


Mr Vahid Karaev
Head of Department

For Contractor


Mr Georg Strasser
Project Manager

For Supervising Consultant


Ms Irja Koskela
Principal Supervisor

SUPPLY OF AN OPTICAL CABLE FOR COMMUNICATION AND SIGNALLING TO THE RAILWAYS OF GEORGIA, ARMENIA AND AZERBAIJAN

COORDINATION TEAM MEETING IN TBILISI, 16.05. 2003

MINUTES OF THE MEETING

Participants:

National Railways:	Mr Tengiz Donadze Mr Soso Rostiashvili
Tele Communications Administration :	Mr Jemamal Vashakidze
Contractor (Siemens):	Mr Georg Strasser Mr Thomas Hubert
Supervisor (Finnroad):	Ms Irja Koskela Mr Mamuka Chantladze
Sakkavshirmsheni, Subcontractor of NR:	Temur Kutchukhidze

1. Opening of the meeting

Mr Donadze opened the meeting and welcomed the participants.

2. Present situation of the Project

Civil work progress:

- All civil works including PTT connection are completed.

Contractor's work progress:

- All installations works except Tbilisi Crossing are completed. The installation and commissioning of Tbilisi Crossing will be completed by the 21st of May 2003.
- The commissioning is completed. The testing of the subscriber connections is going on in the existing subscriber network and it will be completed by the 21st of May 2003.

3. Documentation

High level design documentation and Operation and Maintenance manuals for the network has been given to the Railways. As-built documentation, Measurement results (Test protocols) and Partial acceptance test report will be provided by Siemens by the 21th of May.

4. Training

The personnel of the Railways has attended the training courses for the cable, OTN and PABX. Siemens advised that it is necessary to organise on-the-job training when the system will be taken in to use.

5. Spare parts

Siemens has delivered a set of spare parts to the Railways. Siemens will give a list a spare parts to the Railways.

6. Acceptance Certification

The requirements for the acceptance test certification in general is the following:

- Network installation must be completed and all tests have to be performed according to the test procedures
- The test reports of the cable, OTN and Hicom must be given to the Railways and Finnroad
- High level design documentation and as-built documentation for the network and stations must be given to the Railways and Finnroad
- Operation and Maintenance manuals for the system must be given to the Railways
- Training of the personnel of the Railways must be completed

The acceptance certification in general will be performed by the following procedure:

- Finnroad will check the test results
- Finnroad together with the Railways will witness test some sites by asking Siemens repeat some measurements
- Finnroad together with the Railways will confirm that the system in practice operates according to the specifications
- When the results indicate that the system meet the specifications and are accepted by Railways, Finnroad will issue the acceptance certificates.

The Railways stated that they have been involved in the commissioning of the system and basing on the information they have today they are ready to accept the system to be taken into operation after the remaining installation and commissioning works are completed by Siemens.

Siemens stated that they don't have any complaints.

So far Finnroad has witness tested some services of the system and studied part of the measurement results. The measurement results meet the specifications and they are acceptable. The Partial Acceptance Certificate and the Test of Completion Acceptance Certificate will be issued, provided that the sample testing of subscribers will be completed successfully by the 21st of May 2003.

7. Deficiencies (if any) and their deadlines

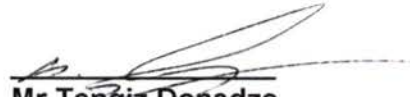
Based on the information at the moment the Test of Completion Acceptance Certificate (Provisional acceptance certificate) for Georgia can be issued on the 21st of May provided that the sample testing of subscribers will be completed by that date and the test results indicate that the specifications are met. Siemens and the Railways will send a written protocol at the latest on the 21st of May to Finnroad and TRACECA Coordinating Unit.

8. Other matters

Siemens promised to give one test equipment for the cable to the Railways.

Signed in Georgia on the 16th of May 2003.

For Georgian Railways



Mr Tengiz Donadze

Technical Director, Deputy General Director

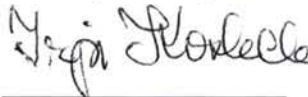
For Contractor



Mr Georg Strasser

Project Manager

For Supervising Consultant



Ms Irja Koskela

Principal Supervisor

SUPPLY OF AN OPTICAL CABLE FOR COMMUNICATION AND SIGNALLING TO THE RAILWAYS OF GEORGIA, ARMENIA AND AZERBAIJAN

COORDINATION TEAM MEETING IN YEREVAN, 13.5. 2003

MINUTES OF THE MEETING

Participants:

Armenian Railways:	Mr Vahagn Karaghezyan Mr Arshak Hovanessyan
Contractor (Siemens):	Mr Thomas Hubert Ms Zara Airyan
Supervisor (Finnroad):	Ms Irja Koskela Mr Khachatur Manukyan

1. Opening of the meeting

Mr Karaghezyan opened the meeting and welcomed the participants.

2. Present situation of the Project

Civil work progress

- The Railways has solved the problem of 2Mbit digital path from PTT to the technical room with PTT. The connection will be ready by the 20th of May 2003 (previous dead-line >15.4).

Contractor's work progress

- All other stations are installed except Yerevan. Yerevan will be completed by the 14th of May 2003 (previous dead-line >6.4).
- There are still two sections in the cable route which has to be corrected. The new cable will be blown and the closures will be completed by the 15th of May 2003 (>10.4). Measurement results of the remaining cable sections must be provided by Siemens by the 20th of May 2003 (previous dead-line >30.4).
- Commissioning of the system has not yet been completed. Commissioning of the system and the test results must be completed and provided by Siemens by the 20th of May 2003 (previous dead-line >20.4).

3. Documentation

High level design documentation and Operation and Maintenance manuals for the network has been given to the Railways. As-built documentation will be given by the 20th of May 2003. The Measurement results (Test protocols) and Partial acceptance test report will be provided by Siemens by the 20th of May (previous dead-line >10.5).

4. Training

The personnel of the Railways has attended the training courses for the cable, OTN and PABX. Siemens gave the protocols of the training to Finnroad. Siemens advised that it is necessary to organise on-the-job training when the system will be taken in to use.

5. Spare parts

Siemens has delivered a set of spare parts to the Railways. Siemens will give a list a spare parts to the Railways.

6. Test procedures

The system should have been ready for acceptance test made by the Railways and Finnroad on the 21st of April 2003. When the system as a whole is not yet ready it was agreed that Siemens will provide the remaining test results latest by the 20th of May. Siemens and the Railways will sign a acceptance protocol and send it on the 20th of May to Finnroad and TRACECA Coordinating Unit. After this Finnroad is able to issue Provisional Acceptance Certificate.

7. Acceptance Certification

The requirements for the acceptance test certification in general is the following:

- Network installation must be completed and all tests have to be performed according to the test procedures
- The test reports of the cable, OTN and Hicom must be given to the Railways and Finnroad
- High level design documentation and as-built documentation for the network and stations must be given to the Railways and Finnroad
- Operation and Maintenance manuals for the system must be given to the Railways
- Training of the personnel of the Railways must be completed

The acceptance certification in general will be performed by the following procedure:

- Finnroad will check the test results
- Finnroad together with the Railways will witness test some sites by asking Siemens repeat some measurements
- Finnroad together with the Railways will confirm that the system in practice operates according to the specifications
- When the results indicate that the system meet the specifications and are accepted by Railways, Finnroad will issue the acceptance certificates

The Railways stated that they have been involved in the commissioning of the system and basing on the information they have today they are ready to accept the system to be taken into operation after the remaining deficiencies are eliminated and the installation works completed by Siemens.

Siemens stated that they don't have any complaints.

So far Finnroad has studied part of the measurement results of the cable. The measurement results meet the specifications and therefore they are acceptable. Finnroad has studied the measurement protocols of the system. When the commissioning of the system will be completed according to the procedures and the testing results will meet the specifications the Partial Acceptance Certificate will be issued. The Test of Completion Acceptance Certificate will be issue when also the PTT connections are installed and commissioned.

8. Deficiencies (if any) and their deadlines

Basing on the information at the moment there are possibilities that the Test of Completion Acceptance Certificate (Provisional acceptance certificate) for Armenia can be issued on the 21st of May provided that the installation works will be completed according to the dates which has been specified earlier in this minutes of meeting and when the test results indicate that the specifications will be met and Siemens and the Railways will sign a acceptance protocol and send it on the 20th of May to Finnroad and TRACECA Coordinating Unit.

Signed in Armenia on the 14th of May 2003

For Armenian Railways



Mr Vahagn Karaghezyan
First Vice Director of Armenian Railways

For Contractor



Mr Thomas Hubert
Site Project Manager

For Supervising Consultant



Ms Irja Koskela
Principal Supervisor

Annex 7: Acceptance certificates for Armenia, Azerbaijan and Georgia , 27.5.03.

PARTIAL ACCEPTANCE CERTIFICATE
PROVISIONAL ACCEPTANCE CERTIFICATE
FOR AZERBAIJAN

NUMBER AND PROJECT TITLE:

MC 9901; Supply of an Optical Cable System for Communication and Signalling to the Railways of Georgia, Armenia and Azerbaijan

The requirements for the acceptance test certification in general is the following:

- Network installation must be completed and all tests have to be performed according to the test procedures
- The test reports of the cable, OTN and Hicom must be given to the Railways
- High level design documentation and as-built documentation for the network and stations must be given to the Railways
- Operation and Maintenance manuals for the system must be given to the Railways
- Training of the personnel of the Railways must be completed

The Principal Supervisor has witnessed the following acceptance procedure:

- Checked the test results of the cable and system
- Witness tested together with the Railways the operation of the system
- Confirmed together with the Railways that the system in practice operates according to the specifications
- Confirmed that the training have been performed
- Confirmed the documentation

This is to certify that the Contractor has performed the installation and commissioning of the above mentioned contract in accordance with the Technical Specifications forming an integral part of the contract.

Based on the witness testing and test results the Principal Supervisor confirms the partial acceptance and provisional acceptance of the system in Azerbaijan provided that the following outstanding items will be completed by the contractor:

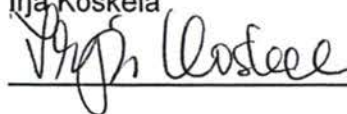
- The complete set of test results of the cable and system will be given to the Railways
- The complete set of network and as-built documentation will be given to the Railways
- The operation of the system between Azerbaijan and Georgia has been confirmed by the Railways

The above mentioned list of outstanding items will be solved by the contractor after acceptance. Non of these items does not limit the use of the system in it's major purpose.

Place and Date: Helsinki, Finland 27.5.2003

Name: Irja Koskela

Signature:



Title: Principal Supervisor

PARTIAL ACCEPTANCE CERTIFICATE
PROVISIONAL ACCEPTANCE CERTIFICATE
FOR ARMENIA

NUMBER AND PROJECT TITLE:

MC 9901; Supply of an Optical Cable System for Communication and Signalling to the Railways of Georgia, Armenia and Azerbaijan

The requirements for the acceptance test certification in general is the following:

- Network installation must be completed and all tests have to be performed according to the test procedures
- The test reports of the cable, OTN and Hicom must be given to the Railways
- High level design documentation and as-built documentation for the network and stations must be given to the Railways
- Operation and Maintenance manuals for the system must be given to the Railways
- Training of the personnel of the Railways must be completed

The Principal Supervisor has witnessed the following acceptance procedure:

- Checked the test procedures of the cable and system
- Confirmed that the installation and commissioning of the system have been performed according to the specified procedures
- Witness tested together with the Railways that the system in practice operates according to the specifications
- Confirmed that the training have been performed
- Confirmed the documentation

This is to certify that the Contractor has performed the installation and commissioning of the above mentioned contract in accordance with the Technical Specifications forming an integral part of the contract.

Based on the witness testing and test results the Principal Supervisor confirms the partial acceptance and provisional acceptance of the system in Armenia provided that the following outstanding items will be completed by the contractor:

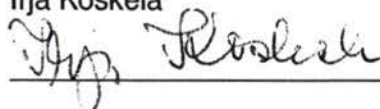
- The installation and commissioning of the system is completed by the Contractor and confirmed by the Railways
- The complete set of test results of the cable and system will be given to the Railways
- The complete set of network and as-built documentation will be given to the Railways
- The operation of the system between Armenia and Georgia has been confirmed by the Railways

The above mentioned list of outstanding items will be solved by the contractor after acceptance. Non of these items does not limit the use of the system in it's major purpose.

Place and Date: Helsinki, Finland 27.5.2003

Name: Irja Koskela

Signature:



Title: Principal Supervisor

PARTIAL ACCEPTANCE CERTIFICATE
PROVISIONAL ACCEPTANCE CERTIFICATE
FOR GEORGIA

NUMBER AND PROJECT TITLE:

MC 9901; Supply of an Optical Cable System for Communication and Signalling to the Railways of Georgia, Armenia and Azerbaijan

The requirements for the acceptance test certification in general is the following:

- Network installation must be completed and all tests have to be performed according to the test procedures
- The test reports of the cable, OTN and Hicom must be given to the Railways
- High level design documentation and as-built documentation for the network and stations must be given to the Railways
- Operation and Maintenance manuals for the system must be given to the Railways
- Training of the personnel of the Railways must be completed

The Principal Supervisor has witnessed the following acceptance procedure:

- Checked the test results of the cable and system
- Witness tested together with the Railways the operation of the system
- Confirmed together with the Railways that the system in practice operates according to the specifications
- Confirmed that the training have been performed
- Confirmed the documentation

This is to certify that the Contractor has performed the installation and commissioning of the above mentioned contract in accordance with the Technical Specifications forming an integral part of the contract.

Based on the witness testing and test results the Principal Supervisor confirms the partial acceptance and provisional acceptance of the system in Georgia provided that the following outstanding items will be completed by the contractor:

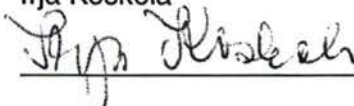
- The complete set of test results of the cable and system will be given to the Railways
- The complete set of network and as-built documentation will be given to the Railways

The above mentioned list of outstanding items will be solved by the contractor after acceptance. Non of these items does not limit the use of the system in it's major purpose.

Place and Date: Helsinki, Finland 27.5.2003

Name: Irja Koskela

Signature:



Title: Principal Supervisor

Attachment 1:

Protocol of works completion for construction of fiber-optic cable network in Georgia

ictrl-ICN Georgia

НОМЕР ТЕЛЕФОНА: +995 32 921903

ИДЕНТИФИКАЦИОННЫЙ КОД: 11:02 CTR1

Protocol of works completion for
construction of fiber-optic cable
network in Georgia

Date: 20.05.03

Hirewith Georgian Railway confirms the
completeness of works for FOC network
including the following:

- Installation of equipment (OTN nodes
and HiCOM switches)
- Installation of cable and closures
- Distribution and Programming for all
stations
- Installation of PC, fax machines and
phone sets
- Hand-over of all appropriate materials,
and software according the contract
00/0058
- The fully testing of cable and
equipment

Протокол о завершении
строительных работ оптико-
волоконной сети в Грузии.

Число: 20.05.03

Настоящим ЖОД Грузии подтверждает,
полное завершение работ по оптико-
волоконной сети Грузии, включая
следующее:

- Установка оборудования (Узлы
OTN и HiCOM-ы)
- Установка кабеля и муфт
- Распределение и
программирование для всех
станций
- Установка компьютеров, факсовых и
телефонных аппаратов
- Передача необходимых
материалов и программного
обеспечения согласно контракту
00/0058
- Полное тестирование кабеля и
оборудования

Siemens AG

RW Department

