1. Course Title

Long Range Digital Line of Sight (LR DLOS) Operator/Technician

2. Identification Number (ID)

024

3. Purpose of the Course

To provide Military and Civilian NATO personnel with the knowledge and skills to perform:

- Technical Maintenance of the LR LOS equipment

4. Learning Objectives

Upon completion of the course, the qualified student will be able to:

- Operate the LR DLOS system
- Perform Level 1 Maintenance Tasks
- Perform Basic Fault-finding
- Perform Troubleshooting on the LR DLOS system as part of a Deployable Communications and Information System (DCIS)

5. Qualification

Long Range Digital Line of Sight (LR DLOS) Operator/Technician

6. Student Criteria

- The students enrolled in this course should have a base common knowledge in communications and should be employed in communications fields
- Be assigned or about to be assigned to a NATO post in one of the Signal Battalions
- Have successfully completed a national military course on basic electronics
- Have met the Background Knowledge Prerequisites
- Have knowledge of the general safety procedures for working with hazardous voltages
7. Rank

Soldiers, NCOs and Civilian Technicians/Engineers

8. Language Proficiency

According to STANAG 6001: English SLP 3232

9. Security Clearance

NATO RESTRICTED

10. Course Length

5 working days

11. Special Instructions

Protective Clothing: All Students are to bring a set of BDUs/Combat wear/Overalls, protective footwear and working/protective gloves

12. Class Size
- Maximum
- Recommended
- Minimum

6/6/3

13. Nomination Procedures

www.nciss.nato.int
14. Pre-course Study Material

Student has to attend the ADL Course 606 Digital Communication https://jadl.act.nato.int/ See ADL Joining Instructions at http://www.nciss.nato.int/ADL_joining_instruction.php

15. Location

The course is conducted at the NATO Communications and Information Systems School (NCISS), Latina Italy

16. Background Knowledge Prerequisites

The students have attended the Short Range Line Of Sight Communications System (SR LOS) Operator/Technician course (ID 025)

The student must be able to display and prove the following theoretical and/or practical skills:

APPLIED MATHEMATICS
- Simple algebraic equations, functions exponential, logarithm
- Trigonometry (sine, cosine, tangent, graphical representation)
- Decibel Notation (dB, dBW, dBm)
- Computation and relative conversion to the bases 10 / 2 / 8 / 16

ELECTRICITY
- Direct Current (DC) - Ohm's law - Units of measurements for voltage, current and resistance
- Alternate Current (AC) - Wave forms, Peak Values, RMS Values, Transformers
- DC/AC power - Impedance - Power Factor
- Components (switches, contactors, breakers)

ELECTRONICS
- Integrated Circuits
- Devices – Digital
- Operational Amplifiers
- Input / Output Units

EQUIPMENT
- Antennae and antenna propagation
- Polarization

TELECOMMUNICATIONS
- Principles of analogue/digital radio transmission of multichannel telephony
• (PCM, PDH)
• Line Codes (AMI, HDB3, RZ, NRZ)
• Multiplexing - TDM
• Modulation PSK, QPSK
• Types of Optical Fibre’s (Single Mode, Multi-Mode)
• Principles of Fiber Optic transmission, optical windows

STANDARDS and PROTOCOLS
• EIA - RS 232C
• EIA - RS 422, RS 423, RS 449, RS 530
• ITU V.24, V.28
• ITU V.35
• ITU G703/G 704

TEST EQUIPMENT
• Digital Multimeter
• Oscilloscope
• Spectrum Analyser

INFORMATION TECHNOLOGY
• LAN topology
• Router/switches
• MAC addressing, principles
• IP addressing, principles
• Subnet masks, principles