1. Course Title
NATO X-Band Transportable Satellite Ground Terminal (TSGT) Generation 3 (G3) Operator.

2. Identification Number (ID)
043

3. Purpose of the Course
To provide military and civilian personnel with knowledge and skills to operate the NATO TSGT G3 system.

4. Learning Objectives
Upon completion of the course, the qualified student will be able to:
- Deploy, teardown, and operate the NATO TSGT G3 X-Band T-1 and T-2 terminals as designated for operations and exercises.
- Perform basic activities to check the performances of the system
- Maintain operational the system to ensure Satellite communications.
- Perform manual satellite acquisition

5. Qualification
NATO X-Band TSGT G3 Operator

6. Student Criteria
1. Been assigned to a NATO or National Signal Establishment with the role of technician or Operator,
2. Have met the Background Knowledge Prerequisites (see item 14: Student has to complete the SATCOM basics (ID 601) course at https://jadl.act.nato.int/ There will be an Exam on arrival questions are taken from the above on-line training).
3. Have successfully completed a national military or civilian course on basic electronics,
4. Knowledge of the general safety procedures for working with hazardous voltages.

7. Rank
- Officers
- NCO’s
- Civilian technicians and engineers
8. Language Proficiency
Language Proficiency according to STANAG 6001: English SLP 3232 and a detailed knowledge of the applicable English electronic terminology.

9. Security Clearance
NATO CONFIDENTIAL (minimum)

10. Course Length
10 working days

11. Special Instructions
Homework and self-study will be requested to the students. Internet access will be granted since SATCOM Basic and other study material are online.

12. Class Size
- Maximum
- Recommended
- Minimum
6/6/3

13. Nomination Procedures
See joining instructions and nomination procedure on www.nciss.nato.int

14. Pre-course Study Material
Student has to complete the SATCOM basics (ID 601) course at https://jadl.act.nato.int/
There will be an Exam on arrival questions are taken from the above on-line training.

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

16. Background Knowledge Prerequisites
Completion of the ADL Course ID 601- SATCOM Basics Ver 3.0 is mandatory

I. BASIC MATHEMATICS
1. Simple algebraic equations, functions exponential & logarithms.
2. Trigonometry (sine, cosine, tangent & graphical representation).
4. Decibel Notation (dB, dBW & dBm).
5. Basic knowledge of BOOLEAN ALGEBRA.

II. THEORETICAL KNOWLEDGE BY TECHNICAL SUBJECT
A. ELECTRICITY
1. Direct Current (DC) - Ohm’s law - Kirchhoff’s laws. Units of measurements for voltage, current & resistance.
2. Alternate Current (AC) - Wave shapes, Peak Values, rms Values.
3. DC/AC power – Impedance.

B. ELECTRONICS
1. Passive components (resistors, capacitors, inductors) fixed and variable.
2. Operational and Solid State Power Amplifiers (SSPA).
3. UPS.

C. TELECOMMUNICATIONS - PRINCIPLES AND TECHNIQUES.
1. RF basics.
2. Multiplexing basics (TDM, FDM).
3. Modulation – BPSK, QPSK and 8PSK.
4. Error detection / correction techniques.
5. Antenna and propagation basics.

D. READING AND INTERPRETING ELECTRONIC / ELECTRICAL CIRCUITS AND INTERCONNECTION DIAGRAMS.

E. USE OF TEST EQUIPMENT.
1. Analog and Digital Multi-meter.
2. Digital Data Tester & Data generator - Analyser.
4. Microwave Power Meter.
5. Earth resistance measurements.

F. PRACTICAL EXPERIENCE BY FIELD OF ACTIVITIES.
1. Minimum 2 months basic experience on communication systems (e.g. SATCOM, VHF-UHF, HF, LOS).

17. Modules
N/A