1. Course Title
NATO Ku-Band Very Small Aperture Terminal (VSAT) Operator

2. Identification Number (ID)
045

3. Purpose of the Course
To provide military and civilian personnel with knowledge and skills to
a. install and operate a VSAT Spoke as a standalone SATCOM terminal;
b. VSAT Hub antenna pointing and operate the VSAT Hub;
c. perform limited preventive maintenance on the VSAT terminals. Repair actions are limited
to the replacement of the Lowest Replaceable Unit (LRU) sub-assembly.

4. Learning Objectives
Upon completion of the course, the qualified student will be able to:

- Change satellite on VSAT Hub terminal and perform operations.
- Deploy, teardown, and operate the VSAT Spoke terminal designated for
operations and exercises.
- Perform basic activities to check the performances of the VSAT Hub and Spoke systems.
- Maintain operational the VSAT Hub and Spoke systems to ensure Satellite communications.

5. Qualification
NATO Ku-Band SATCOM VSAT 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 16: Student has to complete
   the SATCOM basics (ID 601) course (pre-course study material) 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,

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
5 working days

11. Special Instructions

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. Decibel Notation (dB, dBW & dBm).

II. THEORETICAL KNOWLEDGE BY TECHNICAL SUBJECT
A. ELECTRICITY
1. Direct Current (DC) - Ohm's law.
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

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

E. PRACTICAL EXPERIENCE BY FIELD OF ACTIVITIES - USE OF TEST EQUIPMENT.
1. Digital Multi-meter.
2. Digital Data Tester & Data generator - Analyser.
4. Earth resistance measurements.

F. PRACTICAL EXPERIENCE BY FIELD OF ACTIVITIES - USE OF TEST EQUIPMENT.

III. Basic Communication Systems (e.g. SATCOM, VHF-UHF, HF, LOS)

17. Modules
N/A