	Unit ID: 2284
Domain	**TELECOMMUNICATION AND WIRELESS TECHNOLOGY**
Title:	**Demonstrate an understanding of terrestrial technologies**
Level: 4	**Credits: 5**

Purpose

This unit standard is intended for those who demonstrate an understanding of terrestrial technologies. People credited with this unit standard are able to demonstrate an understanding of the fundamental of satellites, demonstrate an understanding of the fundamentals of satellite communication, demonstrate an understanding in satellite and VSAT satellite and demonstrate an understanding of space environment and its effect on satellite.

This unit standard is intended for those who work in the information and communication technology environment.

Special Notes

1. Entry information:

   Prerequisite:

   - None

2. This unit standard is to be delivered and assessed in the context of information and communication technology.

3. Assessment evidence may be collected from a real or a simulated workplace in which telecommunication and wireless technology operations are carried out.

4. Tools and equipment may include but are not limited to computer, external devices, storage devices and other and basic computer applications.

5. Performance of all elements in this unit standard must comply with industry standards.

6. Regulations and legislation relevant to this unit standard include the following:
   - Labour Act 2007(Act No 11, 2007)
   - Regulations relating to the health and Safety of employees at work under Schedule 1 (2) of the Labour Act No.11 of 2007 and all subsequent amendments.

Quality Assurance Requirements

This unit standard and others within this sub-field may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the Namibia Training Authority and which comply with the national assessment and moderation requirements. Details of specific accreditation requirements and the national assessment arrangements are available from the Namibia Qualifications Authority on www.namqa.org and the Namibia Training Authority on www.nta.com.na

Elements and Performance Criteria

Element 1: Demonstrate an understanding of the fundamental of satellites

Performance Criteria

1.1 Classification of satellites are listed and described.

1.2 Satellite orbital parameters are described.

1.3 Orbital perturbations caused by the earth are explained.

1.4 Basic physics of satellite orbits is explained.

Element 2: Demonstrate an understanding of the fundamentals of satellite communication

Performance Criteria

2.1 Key features of satellite communications are explained.

2.2 Satellite frequency bands, utilization and polarization techniques are described.

2.3 Key features of communications via satellites in different orbits are explained.

Element 3: Demonstrate an understanding in satellite and VSAT satellite

Range

Subcomponents may include but not limited to: Antenna, Inter-facility Link, RF Equipment, Very Small Aperture Terminal (VSAT) interface equipment and network management system.

Performance Criteria

3.1 Very Small Aperture Terminal (VSAT) satellite' is explained.

3.2 Basic operation and application of a VSAT satellite network is described.

3.3 Key features of a VSAT satellite network are described.

3.4 VSAT satellite system components and their basic operation are identified.

3.5 Subcomponents, inter-working and functionalities of the RF equipment are described.

Element 4: Demonstrate an understanding of factors that affect satellite communication signal quality

Range

Sun emissions may include but not limited to: Solar activity cycles, solar electromagnetic radiation, solar wind, solar flares, cosmic rays and solar thermal energy.

Performance Criteria

4.1 Key features of the space environment are outlined.

4.2 Effect of the earth's atmosphere on a satellite is described.

4.3 Effect of sun emissions on a satellite is described.

4.4 Effect of the earth's magnetic field on a satellite is described.

4.5 Effect of space debris and meteoroids on a satellite is described.

4.6 Effects of environmental conditions on satellite communication are explained.

Registration Data

Subfield:	Information and Communication Technology
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Body responsible for review:	Namibia Training Authority