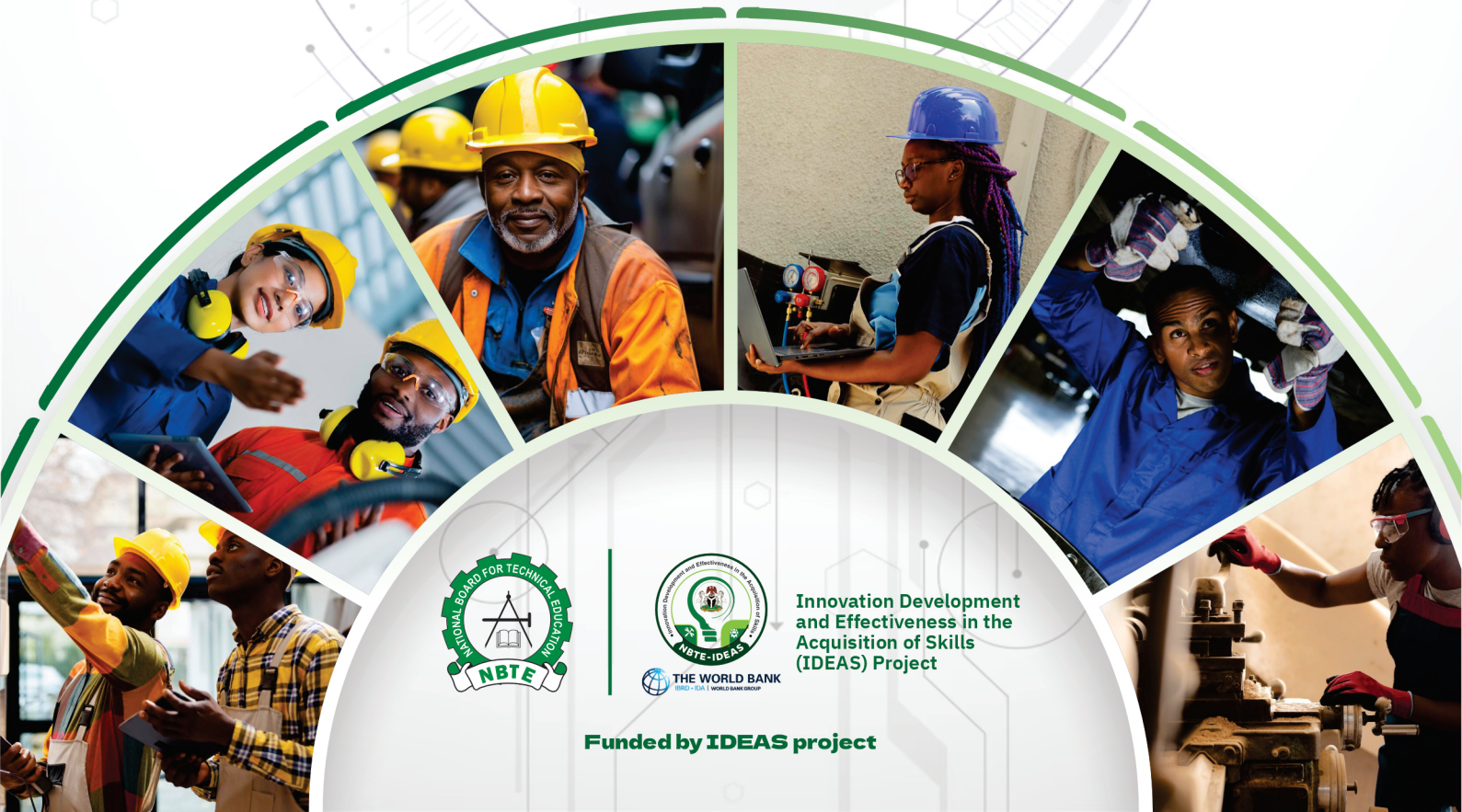
FEDERAL MINISTRY OF EDUCATION

National Skills Qualifications FOR SATELLITE TV ANTENNA INSTALLATION AND MAINTENANCE

LEVEL 1, 2 & 3

February, 2025



NATIONAL BOARD FOR TECHNICAL EDUCATION NBTE

Innovation Development and Effectiveness in the Acquisition of Skills (IDEAS) Project

THE WORLD BANK

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National Board for Technical Education

Plot B, Bida Road, P.M.B. 2239, Kaduna, Nigeria

NATIONAL SKILLS QUALIFICATION

SATELLITE TV ANTENNA INSTALLATION AND MAINTENANCE

LEVEL 1-3

FEBRUARY, 2025

NATIONAL SKILLS QUALIFICATION

Contents

NATIONAL SKILLS QUALIFICATION

SATELLITE TV ANTENNA INSTALLATION AND MAINTENANCE

LEVEL 1

FEBRUARY, 2025

NSQ LEVEL 1: SATELLIATE *TV INSTALLATION*

GENERAL INFORMATION

QUALIFICATION PURPOSE

This qualification is designed for an **assistant satellite TV antenna installer**, equipping them with the foundational knowledge and skills to assist in the installation and maintenance of satellite TV antennas.

QUALIFICATION OBJECTIVES

Upon completion, the learner should be able to:

i. Observe health and safety practices in the work environment.
ii. Communicate effectively in the workplace.
iii. Work efficiently as part of a team.
iv. Perform basic Satellite TV antenna operations (e.g., changing an F-connector).
v. Identify various satellite TV antenna components and accessories.
vi. Carry out simple satellite TV antenna installation and maintenance tasks.
vii. Follow proper procedures for satellite TV antenna assembly.
viii. Connect coaxial cables between two endpoints.
ix. Perform basic electrical connections related to satellite TV antenna installation.

Mandatory Units

Unit No	Reference Number	NOS Title	Credit Value	Guided Learning Hours	Remark
Unit 001	ICT/SAT/001/L1	Principles and practices of Health and Safety	2	20	*Mandatory*
Unit 002	ICT/SAT/002/L1	Communication Skills in Work Environment	2	20	*Mandatory*
Unit 003	ICT/SAT/003/L1	Teamwork in carrying satellite TV antenna installation.	2	20	*Mandatory*
Unit 004	ICT/SAT/004/L1	Basic Principles and Practice of Satellite TV Antenna	3	30	*Mandatory*
Unit 005	ICT/SAT/005/L1	Satellite TV Antenna Components and Accessories	3	30	*Mandatory*
Unit 006	ICT/SAT/006/L1	Instruments and Tools in Satellite TV Antenna Installation & Maintenance.	3	30	*Mandatory*
Unit 007	ICT/SAT/007/L1	Coaxial Cable wiring for Satellite TV Antenna	3	30	*Mandatory*
Unit 008	ICT/SAT/008/L1	Basic Electricity for TV Antenna installation	3	30	*Mandatory*
		TOTAL	21	210	

NOTE: *This qualification consists of 21 credits. Each credit is equivalent to approximately 10 guided learning hours (GLH). The Total Learning Hours will include the GLH plus additional independent learning hours, which generally range between 50% and 150% of the GLH. Therefore, the minimum total learning hours per credit will be 15 hours.*

NATIONAL SKILLS QUALIFICATION

LEVEL 1: *SATELLITE TV INSTALLATION*

Unit 001: PRINCIPLES AND PRACTICES OF HEALTH AND SAFETY

Unit Reference Number: ICT/SAT/001/L1
NSQ Level: 1
Credit Value: 2
Guided Learning Hours: 20

Unit Purpose: *This unit is designed to equip the learners with knowledge and skills of applications of the principles and practice of satellite TV antenna installation.*

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in a real workplace environment in which learning and human development are carried out.

Assessment methods to be used include:

1. Direct Observation/Oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS)

UNIT 001: OCCUPATIONAL HEALTH AND SAFETY

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Understand Occupational Health and Safety.	1.1	Explain safe work practices and instructions.									
	1.2	Identify safety signs and symbols.									
	1.3	Identify health and safety risks in satellite									
	1.4	Explain environmental hazards in satellite TV antenna installation and maintenance									
	1.5	Apply environmental protection methods									
LO 2: Know PPE	2.1	Identify the type of PPE used in satellite installation.									
	2.2	Use clean and appropriate Personal Protective Equipment									
	2.3	Identify health, safety, and other relevant regulations and guidelines									
	2.4	Explain treatment of cuts, grazes, and wounds properly									
	2.5	Explain procedures for Reporting illness and infection									
	2.6	State your responsibilities under the Nigeria Factory Health and Safety Act, 2015, as they relate to your role.									
	2.7	State general rules on hygiene that must be followed									
LO 3: Know First Aid Procedures and Security of Work Environment	3.1	Identify the first aid materials and equipment, along with their locations.									
	3.2	Select appropriate first aid materials.									
	3.3	Apply appropriate first aid methods.									
	3.4	State the importance of working in a healthy, safe and secure workplace									
	3.5	Explain procedures for reporting accidents or near misses.									
	3.6	Explain the procedures of waste disposal of organic and inorganic waste and Pollution control									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
	3.7	Explain sound and noise control and protection									
LO 4: Know Emergency Procedures	4.1	State the possible causes of fire in the workplace									
	4.2	Identify emergencies that may happen in your own									
	4.3	Explain where to find the first-aid equipment									
	4.4	Identify who registered first-aider is in the workplace.									
	4.5	Explain organizational emergencies procedures, in particular fire, and how these should be followed									
	4.6	Explain how to minimize the possibility of fire in the workplace									
	4.7	State where to find the alarms and how to set them									

Learner's Signature	Date:
Assessor's Signature	Date:
IQA's Signature	Date:
EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

LEVEL 1: *SATELLITE TV INSTALLATION*

Unit 002: COMMUNICATION IN WORKPLACE

Unit Reference Number: ICT/SAT/002/L1
NSQ Level: 1
Credit Value: 2
Guided Learning Hours: 20

Unit Purpose: *This unit is designed to equip learners with knowledge and skills to effectively communicate in the work environment.*

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in a real workplace environment in which learning and human development are carried out.

Assessment methods to be used include:

1. Direct Observation/Oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS)

UNIT 002: COMMUNICATION IN A WORKPLACE

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Use of a non-complex communication in work environment	1.1	Explain communication methods and a simple verbal means to pass on necessary information									
	1.2	Apply non-verbal means to pass necessary information, e.g. body language									
	1.3	Identify symbols and signs appropriately									
LO 2: Identify the source of information in a work environment	2.1	Identify the source of information in an organization, e.g. Sign board, safety charts, etc.									
	2.2	Explain the sources of information as stated in 2.1.									
	2.3	Identify the general flow of information systems in a work environment.									
	2.4	Report findings in accordance to procedure in a work environment									
LO 3: Use of various Communication means in a work environment	3.1	Identify the various communication equipment in the work environment									
	3.2	Use effectively the general communication equipment in a work environment									
	3.3	Communicate effectively to the right personnel									
	3.4	Convey information effectively using symbols, signs, and codes.									
	3.5	Comply with general instructions in line with ethics of the work environment									

Learner's Signature	Date:
Assessor's Signature	Date:
IQA's Signature	Date:
EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

LEVEL 1: *SATELLITE TV INSTALLATION*

Unit 003: TEAMWORK IN WORK ENVIRONMENT

Unit Reference Number: ICT/SAT/003/L1
NSQ Level: 1
Credit Value: 2
Guided Learning Hours: 20

Unit Purpose: T*his unit is designed to equip the learners with knowledge and skills of positive working relationships with colleagues.*

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in a real workplace environment in which learning and human development are carried out.

Assessment methods to be used include:

1. Direct Observation/Oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS)

UNIT 003: TEAMWORK

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Establish Positive working relationship with colleagues	1.1	Explain positive working relationship									
	1.2	Describe the importance of relating with others in a work environment									
	1.3	Explain procedure of Communicating information to personnel									
LO 2: Take responsibilities within the team	2.1	Explain your own role and responsibilities within a team									
	2.2	Explain your own tasks in line with the team rules									
	2.3	Define teamwork.									
LO 3: Work in compliance with policy of	3.1	Identify organization's code of practice									
	3.2	Identify organisation standards									
	3.3	Explain the differences between code of practice and standards									

Learner's Signature	Date:
Assessor's Signature	Date:
IQA's Signature	Date:
EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

LEVEL 1: *SATELLITE TV INSTALLATION*

Unit 004: PRINCIPLES AND PRACTICE OF SATELLITE TV ANTENNA.

Unit Reference Number: ICT/SAT/004/L1
NSQ Level: 1
Credit Value: 3
Guided Learning Hours: 30

Unit Purpose: *This unit is designed to equip the learners with knowledge and skills of applications of the principles and practice of satellite TV antenna installation.*

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in a real workplace environment in which learning and human development are carried out.

Assessment methods to be used include:

1. Direct Observation/Oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal Statement/Reflective Account (PS)

Unit 004: PRINCIPLES AND PRACTICE OF SATELLITE TV ANTENNA.

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Understand the Basic Operation of Communications Satellite	1.1	Explain the history of communications satellite									
	1.2	Define the following: i. Satellite dish/Reflector Design ii. Transmitter iii. Receiver iv. Transponder v. Radio wave vi. Satellite Footprint									
	1.3	Explain communications satellite									
	1.4	Explain the applications of a communications satellite (e.g. Weather forecasting, Radio and TV broadcast, Military, Navigation, Global Mobile Communication and connecting									
	1.5	Identify satellite communications providers (e.g. INTELSAT, U.S. DOMSATS, Eutelsat, Polar Orbit Satellite)									
LO 2: Know the Basic Operations of Satellite Antennas	2.1	Identify the different types of antennas used in communications satellite									
	2.2	Explain the functions of satellite antennas									
	2.3	Explain the applications of satellite antennas									
	2.4	Explain the use of common and special satellite antennas									
LO 3: Understand the Basic Operations of Satellite Receiver	3.1	Identify the various types of satellite receivers									
	3.2	Describe the features of a satellite receiver									
	3.3	Distinguish between common and special satellite receiver									
	3.4	Explain the various applications of a satellite receiver.									

Learner's Signature	Date:
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EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

LEVEL 1: *SATELLITE TV INSTALLATION*

Unit 005: SATELLITE TV ANTENNA COMPONENTS AND ACCESSORIES

Unit Reference Number: ICT/SAT/005/L1
NSQ Level: 1
Credit Value: 3
Guided Learning Hours: 30

Unit Purpose: *This unit is designed to equip the learner with knowledge and skills to use various satellite TV antenna components and accessories in installation.*

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in a real workplace environment in which learning and human development are carried out.

Assessment methods to be used include:

1. Direct Observation/Oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal Statement/Reflective Account (PS)

UNIT 005: SATELLITE TV ANTENNA COMPONENTS AND ACCESSORIES

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Know components of Satellite TV Antenna	1.1	Identify types of components used for the satellite dish installation									
	1.2	Explain the applications of the components of satellite TV Antenna									
	1.3	Describe the main features of the components									
LO 2: Know accessories of Satellite TV Antenna installation and maintenance	2.1	Identify types of accessories used for the satellite antenna Installations									
	2.2	Explain the applications of the accessories									
	2.3	Describe the main features of the accessories used in satellite dish installation									
	2.4	Select appropriate components and accessories for satellite installation									
LO 3: Set up Business of Satellite TV Antenna installation and Maintenance	3.1	Explain the potential of Antenna business									
	3.2	Identify customer needs in satellite TV									
	3.3	Identify the state government policy in relation to satellite TV business									
	3.4	Describe how to set a business environment in satellite TV Antenna installation									

Learner's Signature	Date:
Assessor's Signature	Date:
IQA's Signature	Date:
EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

LEVEL 1: *SATELLITE TV INSTALLATION*

Unit 006: INSTRUMENTS AND TOOLS IN SATELLITE TV ANTENNA INSTALLATION AND MAINTENANCE.

Unit Reference Number: ICT/SAT/006/L1
NSQ Level: 1
Credit Value: 3
Guided Learning Hours: 30

Unit Purpose: *This Unit is designed to equip learners with basic knowledge and skills of using various types of measuring instruments and tools in satellite TV antenna installation.*

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in a real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/Oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal Statement/Reflective Account (PS)

UNIT 006: INSTRUMENTS IN SATELLITE TV ANTENNA INSTALLATION AND MAINTENANCE.

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Know various types of measuring instruments	1.1	Explain types of measuring instruments used in satellite TV Antenna installation									
	1.2	Explain the applications of the measuring instruments.									
	1.3	Explain the signal strength/quality									
	1.4	Measure the signal strength accurately using the selected instrument.									
LO 2: Know Types of Tools Used in Satellite TV Antenna Installation	2.1	Identify the essential tools required for satellite TV antenna installation.									
	2.2	Identify the appropriate tools required for satellite TV antenna installation.									
	2.3	Demonstrate safety handling of tools used in satellite TV antenna installation.									
LO 3: Apply basic procedures for assembling a satellite TV antenna	3.1	Select appropriate satellite TV antenna									
	3.2	Select the materials required for assembling the satellite TV antenna									
	3.3	Select the appropriate tools and equipment for assembling the satellite TV antenna									
LO 4: Carry out assembling of a satellite TV antenna	4.1	Identify the correct procedures for assembling satellite TV antenna									
	4.2	Align and connect the parabolic parts according to the manufacturer's instructions.									
	4.3	Couple antenna carrier/mounting base following the correct procedures									
LO 5: Carry out disassembling of a satellite TV antenna	5.1	Explain the steps involved in disassembling a complete satellite TV antenna									
	5.2	Identify all components of the antenna carrier/mounting base before assembly.									
	5.3	Ensure the work area is clean and free of hazards after disassembly.									

Learner's Signature	Date:
Assessor's Signature	Date:
IQA's Signature	Date:
EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

LEVEL 1: *SATELLITE TV INSTALLATION*

Unit 007: COAXIAL CABLE WIRING FOR SATELLITE TV ANTENNA

Unit Reference Number: ICT/SAT/007/L1
NSQ Level: 1
Credit Value: 3
Guided Learning Hours: 30

Unit Purpose: *This unit is designed to equip learners with basic knowledge and skills to use various types of coaxial cable wiring in satellite TV antenna installation and maintenance.*

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in a real workplace environment in which learning and human development are carried out.
Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal Statement/Reflective Account (PS)

UNIT 007: COAXIAL CABLE WIRING FOR SATELLITE TV ANTENNA

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Understand Coaxial Cables.	1.1	Explain different types of coaxial cables.									
	1.2	State the applications of coaxial cable									
	1.3	Identify components and accessories used in coaxial cable wiring.									
LO 2: Know Coaxial Cable tools and equipment	2.1	Mention the type of tools and equipment used in coaxial cable wiring.									
	2.2	Demonstrate safe uses of Coaxial Cable tools and equipment.									
	2.3	Categorize trunking and surface wiring accessories based on their functions and applications.									
	2.4	Categorize conduit wiring accessories based on their functions and applications.									
LO 3: Apply basic techniques of laying Coaxial Cable.	3.1	Perform the punch-down wall technique following standard installation procedures.									
	3.2	Correct drilling techniques to prevent damage to the wall structure.									
	3.3	Use the correct tools to fasten clips securely without damaging cables.									
	3.4	Cut trunking to the required length using the appropriate tools.									
	3.5	Follow safety regulations and industry standards while performing conduit wiring techniques.									
LO 4: Understand termination of Coaxial Cable in wiring.	4.1	Conduct coaxial cable termination.									
	4.2	Setup the grounding box correctly									
	4.3	Terminate the coaxial cable and hook it up.									
	4.4	Demonstrate safe use of coaxial cable conduit fittings.									

Learner's Signature	Date:
Assessor's Signature	Date:
IQA's Signature	Date:
EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

LEVEL 1: *SATELLITE TV INSTALLATION*

Unit 008: BASIC ELECTRICITY FOR SATELLITE TV ANTENNA INSTALLATION

Unit Reference Number: ICT/SAT/009/L1
NSQ Level: 1
Credit Value: 2
Guided Learning Hours: 20

Unit Purpose: *This unit is designed to equip learners with knowledge and skills to apply basic principles of electricity in the satellite TV antenna installation.*

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in a real workplace environment in which learning and human development are carried out.

Assessment methods to be used include:

1. Direct Observation/Oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal Statement/Reflective Account (PS)

UNIT 008: BASIC ELECTRICITY FOR SATELLITE TV ANTENNA INSTALLATION

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Identify electrical components and their uses.	1.1	Explain the following electrical components: i. Resistor ii. Capacitor iii. Transformer iv. Inductor									
	1.2	Mention the uses of the above components									
	1.3	State colour code of resistors									
	1.4	State the meaning of the following: i. Voltage ii. Current iii. Resistance									
	1.5	Explain soldering procedures									
	1.6	Explain applications of soldering in electrical/electronic circuits									
	1.7	List the materials necessary to carry out soldering process									
	1.8	Perform simple soldering of electronics components									
LO 2: Distinguish between AC and DC current and voltage	2.1	Explain the meaning of AC and DC in electrical quantities									
	2.2	State the basic sources of ac and dc quantities									
	2.3	State the basic applications of ac and dc									
	2.4	Mention common abbreviations used in electrical/electronic circuits. I = current A = Ampere C = Capacitor V = Voltage R = Resistor L = Inductor									
	2.5	Sketch simple symbols of components used in electrical/electronic circuit (e.g. resistor, switch, socket outlet, etc.)									
	2.6	List common measuring instruments used in electrical/electronic system									
	2.7	Measure voltage in a simple circuit using a relevant instrument.									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 3: Know protective devices and tools.	3.1	List the simple electrical tools used in domestic installation									
	3.2	State the uses of each tool in carrying out domestic installation									
	3.3	Identify common types of protective devices, such as: circuit breakers and fuse.									

Learner's Signature	Date:
Assessor's Signature	Date:
IQA's Signature	Date:
EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

SATELLITE TV ANTENNA INSTALLATION AND MAINTENANCE

LEVEL 2

FEBRUARY, 2025

NATIONAL SKILLS QUALIFICATION

NSQ LEVEL 2 - *SATELLITE TV INSTALLATION*

GENERAL INFORMATION

QUALIFICATION PURPOSE

This qualification is designed to equip learners with the fundamental knowledge and practical skills required to install and maintain satellite TV antenna systems.

QUALIFICATION OBJECTIVES

Upon completion of this qualification, learners should be able to:

i. Identify health and safety requirements in the workplace.
ii. Communicate effectively in a workplace environment.
iii. Demonstrate teamwork in a workplace setting.
iv. Differentiate between terrestrial and satellite dish antennas.
v. Install a terrestrial TV antenna.
vi. Identify different types of LNBF (Low Noise Block Feedhorn).
vii. Install a satellite dish antenna.
viii. Identify factors affecting satellite antenna performance.

Mandatory Units

Unit No	Reference Number	NOS Title	Credit Value	Guided Learning Hours	Remark
Unit 001	ICT/SAT/001/L2	Occupational, Health and Safety	2	20	*Mandatory*
Unit 002	ICT/SAT/002/L2	Communication Skills in Work Environment	2	20	*Mandatory*
Unit 003	ICT/SAT/003/L2	Teamwork in work environment	2	20	*Mandatory*
Unit 004	ICT/SAT/004/L2	Terrestrial and Dish Antenna	3	30	*Mandatory*
Unit 005	ICT/SAT/005/L2	Installations of Terrestrial Antenna	4	40	*Mandatory*
Unit 006	ICT/SAT/006/L2	Low noise block feed horn (LNBF) and its types	3	30	*Mandatory*
Unit 007	ICT/SAT/007/L2	Installations of Satellite dish antenna	4	40	*Mandatory*
Unit 008	ICT/SAT/007/L2	Satellite Antenna Performance	4	40	*Mandatory*
		TOTAL	**24**	**240**	

NOTE: This qualification consists of 24 credits. Each credit is equivalent to approximately 10 Guided Learning Hours (GLH). The total learning hours will include both GLH and independent learning hours, which typically range from 50% to 150% of the GLH. As a result, the total learning hours for each credit will be a minimum of 15 hours.

NATIONAL SKILLS QUALIFICATION

LEVEL 2: *SATELLITE TV INSTALLATION*

Unit 001: PRINCIPLES AND PRACTICES OF HEALTH AND SAFETY

Unit Reference Number: ICT/SAT/001/L2
NSQ Level: 2
Credit Value: 2
Guided Learning Hours: 20

Unit Purpose: *This unit is designed to equip learners with knowledge and skills to observe health and safety in the working environment.*

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in a real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/Oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal Statement/Reflective Account (PS)

UNIT 001: OCCUPATIONAL HEALTH AND SAFETY

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Health, Safety, Environment	1.1	Explain occupational health and safety									
	1.2	Identify health and safety risks in satellite									
	1.3	Explain environmental hazards in satellite TV antenna installation and maintenance									
	1.4	Explain the effects of environmental hazards									
	1.5	Apply environmental protection methods									
LO 2: Observe Personal Safety Measures in Satellite TV Antenna Installation	2.1	Equipment such as Head Protection, Foot Protection, Face and eye protection, Hand and Body protection and regulatory protection									
	2.2	Demonstrate compliance with health and safety and other relevant regulations and guidelines									
	2.3	Explain the procedures of treating cuts, grazes, and wounds									
	2.4	Explain the procedures of reporting illness and infection									
	2.5	State own responsibility under the Nigeria factory Health and Safety Act, 2015, as it relates to own occupation									
	2.6	State general rules on hygiene that must be followed									
	2.7	State the importance of maintaining good personal hygiene									
LO 3: First Aid Procedures and Security of Work Environment	3.1	Identify first aid materials and equipment and their location									
	3.2	Select first aid materials									
	3.3	Apply first aid methods									
	3.4	State the importance of working in a healthy, safe and secure workplace									
	3.5	Explain procedures for reporting accidents or near misses.									
	3.6	Explain the procedures of waste disposal of organic and inorganic waste and Pollution control									
	3.7	Explain sound and noise control and protection									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 4: Know Emergency Procedures	4.1	State the possible causes of fire in the workplace									
	4.2	Identify emergencies that may happen in your own									
	4.3	Explain where to find the first-aid equipment									
	4.4	Identify who registered first aider is in the workplace.									
	4.5	Explain organizational emergencies procedures, in particular fire, and how these should be followed									
	4.6	Explain how to minimize the possibility of fire in the workplace									
	4.7	State where to find the alarms and how to set them									

Learner's Signature	Date:
Assessor's Signature	Date:
IQA's Signature	Date:
EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

LEVEL 2: *SATELLITE TV INSTALLATION*

Unit 002: Communication in workplace

Unit Reference Number: ICT/SAT/002/L2
NSQ Level: 2
Credit Value: 2
Guided Learning Hours: 20

Unit Purpose: *This unit is designed to equip learners with knowledge and skills to maintain good communication skills in the work environment.*

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in a real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS)

UNIT 002: COMMUNICATION IN A WORKPLACE

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Use of a non-complex Communication in Work Environment	1.1	Explain communication methods and use a simple verbal means to pass on necessary information									
	1.2	Apply non-verbal means to pass necessary information, e.g. body language									
	1.3	Interpret symbols and signs appropriately									
LO 2: Identify the source of information in a work environment	2.1	identify the source of information in an organization									
	2.2	Explain source of information									
	2.3	Explain the general information flow systems in a work environment									
	2.4	Report findings in accordance to procedure in a work environment									
LO 3: Use of various Communication means in a work environment	3.1	Locate the various communication equipment in the work environment									
	3.2	Use effectively the general communication equipment in a work environment									
	3.3	Pass information effectively to the right personnel									
	3.4	Pass information effectively using symbols, signs and codes									
	3.5	Comply with general instructions in line with ethics of the work environment									

Learner's Signature	Date:
Assessor's Signature	Date:
IQA's Signature	Date:
EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

LEVEL 2: *SATELLITE TV INSTALLATION*

Unit 003: TEAMWORK IN WORK ENVIRONMENT

Unit Reference Number: ICT/SAT/003/L2
NSQ Level: 2
Credit Value: 2
Guided Learning Hours: 20

Unit Purpose: *This unit is designed to equip learners with knowledge and skills to develop positive working relationships with colleagues.*

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in a real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/Oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS)

UNIT 003: TEAMWORK

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Establish Positive working relationship with colleagues	1.1	Explain positive working relationship									
	1.2	Describe the significance of building positive relationships with others in the workplace.									
	1.3	Explain procedure of Communicating information to									
LO 2: Take responsibilities within the team	2.1	Explain your role and responsibilities within a team									
	2.2	Explain own tasks in line with the team rules									
	2.3	Explain teamwork and its role in achieving common goals in the workplace.									
LO 3: Work in compliance with policy of	3.1	Explain organization code of practice									
	3.2	Explain organisation standards									
	3.3	Differentiate between code of practice and standards									

Learner's Signature	Date:
Assessor's Signature	Date:
IQA's Signature	Date:
EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

LEVEL 2: *SATELLITE TV INSTALLATION SPECIALIST*

Unit 004: **TERRESTRIAL AND DISH ANTENNA**

Unit Reference Number: ICT/SAT/004/L2
NSQ Level: 2
Credit Value: 3
Guided Learning Hours: 30

Unit Purpose: *This Unit is designed to equip learners with knowledge and skills of terrestrial and dish antenna*

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in a real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/Oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal Statement/Reflective Account (PS)

UNIT 004: TERRESTRIAL AND DISH ANTENNA

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Understand DTT, DTH, LS, ATSC, and ISDB-T TDMB.	1.1	Discuss terrestrial antenna									
	1.2	Describe different types of terrestrial antenna									
	1.3	Discuss Direct-To-Home (DTH) antennas									
	1.4	Discuss Local Terrestrial (Indigenous local stations)									
	1.5	Discuss Advanced Television Systems Committee (ATSC)									
	1.6	Discuss Integrated Services Digital Broadcasting (ISDB-T)									
	1.7	Discuss Terrestrial-Digital Multimedia Broadcasting (T-DMB)									
	1.8	Discuss Digital Video Broadcasting (DVB-T)									
LO 2: Understand the difference between parabolic and Offset Antennas	2.1	Describe Parabolic Dish Antenna									
	2.2	Describe offset Dish Antenna									
	2.3	Describe mesh Dish Antenna									
	2.4	State the applications of 2.1-2.3 above									
	2.5	State the advantages and disadvantages of each of the antennas mentioned above.									
LO 3: Know the environmental Impact of Terrestrial Antenna	3.1	Explain the impact of lighting and Bird Behaviour to Antenna									
	3.2	Explain power consumption in local terrestrial antennas.									
	3.3	Describe the impact of electromagnetic radiation on terrestrial antennas, especially those used for cellular networks and broadcasting.									

Learner's Signature	Date:
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IQA's Signature	Date:
EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

LEVEL 2: *SATELLITE TV INSTALLATION*

Unit 005: INSTALLATIONS OF TERRESTRIAL ANTENNA

Unit Reference Number: ICT/SAT/005/L2
NSQ Level: 2
Credit Value: 4
Guided Learning Hours: 40

Unit Purpose: *This Unit is designed to equip learners with knowledge and skills to carry out basic installation of the terrestrial Antenna*

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in a real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/Oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal Statement/Reflective Account (PS)

UNIT 005: INSTALLATIONS OF TERRESTRIAL ANTENNA

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Carry out various Connections in the Terrestrial TV Antenna	1.1	Identify cable specifications used in Terrestrial Antenna Installation									
	1.2	Determine the appropriate cable lengths to be used in the installation									
	1.3	Demonstrate the ability to connect the F-connector to the cable.									
	1.4	Follow step-by-step procedures for grounding the coaxial cable.									
	1.5	Connect the cable from the terrestrial antenna to the receiver terminals using F-Connectors									
	1.6	Turn the Antenna side by side to determine the signal strength quality using satellite finder or TV Monitor									
LO 2: Know TV Satellite Configuration	2.1	Identify the configuration menu of the receiver using remote control									
	2.2	Describe the procedures involved in antenna signal reception from the antenna									
	2.3	Demonstrate how to add a satellite station to a receiver									
	2.5	Identify the types of satellite receiver set-up (First-time setup, alternate setup)									
LO 3: Know Signal Configuration	3.1	Identify the satellite to track									
	3.2	Demonstrate how to insert frequency manually									
	3.3	Demonstrate how to scan manually and Automatically									

Learner's Signature	Date:
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IQA's Signature	Date:
EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

LEVEL 2: *SATELLITE TV INSTALLATION*

Unit 006: Low Noise Block Feed Horn (LNBF) AND ITS TYPE

Unit Reference Number: ICT/SAT/006/L2
NSQ Level: 2
Credit Value: 3
Guided Learning Hours: 30

Unit Purpose: *This unit is designed to equip learners with basic knowledge and skills for applications of LNBF.*

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in a real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/Oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal Statement/Reflective Account (PS)

UNIT 006: LNBF AND ITS TYPE

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Understand Types of LNBF	1.1	Discuss common frequency bands of satellite communication									
		Explain frequency range of the C-Band									
		Explain K-U Band LNBF.									
	1.2	Distinguish between C-Band and K-U LNBF									
	1.3	Set polarization of the LNBF									
	1.4	Explain how to use smart LNBF									
	1.5	Explain the purpose of single solutions LNBF									
LO 2: Know the methods of Testing LNBF Performance	2.1	Explain methods of testing LNBF performance									
	2.2	Perform polarity tests on electrical connections to ensure correct wiring.									
	2.3	Discuss LNBF Temperature Variations									
	2.4	Connect the Smart LNBF to the receiver and check for proper power supply.									
LO 3: Know the Function of an LNBF	3.1	Explain the functions of an LNBF									
	3.2	Demonstrate the procedures of Polarization Selection									
	3.3	Describe how LNBF amplifies signals									

Learner's Signature	Date:
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NATIONAL SKILLS QUALIFICATION

LEVEL 2: *SATELLITE TV INSTALLATION*

Unit 007: INSTALLATIONS OF SATELITTE DISH ANTENNA

Unit Reference Number: ICT/SAT/007/L2
NSQ Level: 2
Credit Value: 4
Guided Learning Hours: 40

Unit Purpose: *This Unit is designed to equip learners with knowledge and skills to carry out installation of satellite antenna*

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in a real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:
1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal Statement/Reflective Account (PS)

UNIT 007: INSTALLATION OF SALITTE DISH ANTENNA

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Carry out connections in the satellite TV antenna	1.1	Identify cable specifications used in satellite dish installations									
	1.2	Determine appropriate cable lengths to be used in installations									
	1.3	Connect F-Connector to the cable									
	1.4	Follow step-by-step procedures in grounding the cable									
	1.5	Connect the cable from satellite dish to receiver terminal using F_Connector									
	1.6	Adjust the dish to determine the signal strength and quality using satellite finder									
LO 2: Know how to set the Receiver of the TV Satellite	2.1	Demonstrate the use of Digital Satellite Equipment Control (DiSEqC)									
	2.2	Connect the Diseqc to the Satellite Dish									
	2.3	Identify the configuration menu of the receiver using remote control									
	2.4	Describe the procedures involved in satellite signal reception from dish									
	2.5	Add stations to a satellite receiver									
	2.6	Add frequency to a satellite receiver									
LO 3: Demonstrate Signal Tracking	3.1	Use a satellite signal meter or receiver to measure signal strength during adjustments.									
	3.2	Use a satellite signal meter or receiver to monitor changes in signal level.									
	3.3	Use Sat Finder to determine signal strength									

Learner's Signature	Date:
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EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

LEVEL 2: *SATELLITE TV INSTALLATION*

Unit 008: SATELLITE TV ANTENNA PERFORMANCE

Unit Reference Number: ICT/SAT/008/L2
NSQ Level: 2
Credit Value: 4
Guided Learning Hours: 40

Unit Purpose: *This Unit is designed to equip learners with basic knowledge and skills of the factors affecting Satellite dish performance*

Unit assessment requirements/ evidence requirements:
Assessment must be carried out in a real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:
1. Direct Observation/Oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Personal Statement/Reflective Account (PS)

UNIT 008: SATELLITE TV ANTENNA PERFORMANCE

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Know factors affecting Satellite Antenna Hardware	1.1	Explain the effect of dish size in satellite TV Antenna									
	1.2	Explain the effect of Location and Line-of-Site in satellite TV Antenna									
	1.3	Explain how heavy rain, snow and wind in affect signal quality									
	1.4	Explain the effect of improper sighting of an Antenna									
	1.5	Explain how coaxial Quality, the type length and quality of cable affect signal quality									
	1.6	Discuss remedies to get maximum performance of satellite TV antenna									
LO 2: Know Factors affecting satellite performance	2.1	Explain the effect of outdated software in the satellite TV Antenna installation									
	2.2	Explain the importance of Signal Metering and Monitoring in satellite TV Antenna installation									
	2.3	Explain Satellite satellite positioning and Tracking Systems used to determine and maintain the precise location									
	2.4	Explain how Receiver models affect the performance of reception in satellite TV Antenna installation									
LO 3: Know Factors Increasing Signal Performance	3.1	Describe the accessories used to amplify signal strength									
	3.2	Explain factors to consider when mounting satellite TV Antenna									
	3.3	Demonstrate the methods of optimizing Frequency Bands									

Learner's Signature	Date:
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EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

SATELLITE TV ANTENNA INSTALLATION AND MAINTENANCE

LEVEL 3

FEBRUARY, 2025

NATIONAL SKILLS QUALIFICATION

NSQ LEVEL 3 - *STAETILLATE TV INSTALLATION SPECIALIST*

GENERAL INFORMATION

QUALIFICATION PURPOSE

This qualification aims at exposing the on competent skills on a comprehensive list of tools, advanced equipment, and technical practices that reflect global standards in satellite technology.

QUALIFICATION OBJECTIVES

The learner should be able to

i. Install, configure, and troubleshoot complex satellite systems, including motorized antennas and Mult switch setups.
ii. Use advanced tools like satellite signal meters and spectrum analyzers for precise installations and diagnostics.
iii. Follow international standards and regulations for satellite installation, delivering compliant and high-quality work.

Mandatory Units

Unit No	Reference Number	NOS Title	Credit Value	Guided Learning Hours	Remark
Unit 001	ICT/SAT/001/L3	Health and Safety	2	20	*Mandatory*
Unit 002	ICT/SAT/002/L3	Communication	2	20	*Mandatory*
Unit 003	ICT/SAT/003/L3	Teamwork	2	20	*Mandatory*
Unit 004	ICT/SAT/004/L3	Tools and Equipment for Satellite Installation	3	30	*Mandatory*
Unit 005	ICT/SAT/005/L3	Advanced Satellite Dish Settings and Configurations	3	30	*Mandatory*
Unit 006	ICT/SAT/006/L3	Testing and Troubleshooting Advanced Satellite Systems	3	30	*Mandatory*
		TOTAL	15	150	

NOTE: *Explain how the learner can achieve the total credit hours from mandatory and optional units*

NATIONAL SKILLS QUALIFICATION

LEVEL 3: *SATELLITE TV INSTALLATION SPECIALIST*

Unit 001: OCCUPATIONAL HEALTH AND SAFETY

Unit Reference Number: ICT/SAT/001/L3

NSQ Level: 3

Credit Value: 3

Guided Learning Hours: 30

Unit Purpose:

This unit aims to equip Trainees with the essential knowledge and practical skills required to ensure workplace health and safety while conducting satellite TV antenna installation and maintenance tasks.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS)

UNIT 001: OCCUPATIONAL HEALTH AND SAFETY

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Principles and Practices of Health and Safety	1.1	Conduct a detailed risk assessment for satellite installation activities, focusing on potential hazards such as working at heights, electrical risks, and falling objects.									
	1.2	Explain new hazards that may arise from changing weather conditions, site layout, or complex installations (e.g., urban vs. rural environments).									
	1.3	Demonstrate control measures to mitigate identified hazards, including the use of barriers, warning signs, and proper work zoning.									
	1.4	Know importance of implementing control measures through continuous monitoring during the installation process.									
LO 2: Application of Advanced Personal Protective Equipment (PPE) and Safety Gear	2.1	Identify appropriate PPE specific to complex satellite installations, such as full-body harnesses, shock-absorbing lanyards, and insulated gloves for electrical safety.									
	2.2	Demonstrate procedures for inspecting and maintaining PPE to ensure functionality, including checking expiration dates and performing routine equipment inspections.									
	2.3	Explain the importance of ergonomics when selecting PPE for extended periods of use, particularly for tasks involving repetitive movements or working in awkward positions.									
	2.4	Perform a safety drill involving the use of PPE, simulating emergency situations (e.g., a fall or electrical shock) and demonstrating proper response techniques									
LO 3: Emergency Preparedness	3.1	Develop emergency response plans specific to satellite installations,									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
and Response Procedures		addressing fire, electrical hazards, and working at heights emergencies.									
	3.2	Explain role of emergency evacuation plans and the importance of identifying and maintaining clear escape routes during large installations.									
	3.3	Demonstrate emergency communication devices (e.g., two-way radios, emergency alarms) to notify team members and emergency services during a crisis.									
	3.4	Carry out emergency evacuation drill, where learners practice responding to an incident such as a fire or medical emergency, ensuring all safety protocols are followed.									

Learner's Signature	Date:
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NATIONAL SKILLS QUALIFICATION

LEVEL 3: *SATELLITE TV INSTALLATION SPECIALIST*

Unit 002: Communication in workplace

Unit Reference Number: ICT/SAT/002/L3

NSQ Level: 3

Credit Value: 3

Guided Learning Hours: 30

Unit Purpose:

To develop effective communication skills essential for trainees' interactions within the satellite TV antenna installation industry.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS)

UNIT 002: COMMUNICATION IN A WORKPLACE

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: Advanced Professional Communication Techniques	1.1	Demonstrate clear and concise verbal communication to convey technical instructions and safety guidelines during satellite installation projects.									
	1.2	Explain active listening techniques in discussions with team members and clients, ensuring that feedback and concerns are understood and addressed.									
	1.3	Explain tailoring communication to suit the audience, such as using technical language with colleagues and simplified explanations for clients or non-technical personnel.									
	1.4	Role-playing exercise where learners manage communication between team members and clients, focusing on clarity, tone, and professionalism.									
LO 2: Handling Communication in High-Pressure Situations	2.1	Demonstrate maintain composure and use effective communication during high-pressure scenarios, such as project delays or safety incidents.									
	2.2	Explain assertive communication to resolve conflicts within a team or with clients without escalating the situation.									
	2.3	Apply de-escalation techniques when communicating with clients or team members who may be upset or frustrated due to unforeseen project challenges.									
	2.4	Simulate situation where learners must communicate effectively with both their team and clients to resolve a project issue or safety concern.									
LO 3: Digital Communication Tools for Remote Work and Team Coordination	3.1	Use of digital communication tools (e.g., email, project management software, messaging apps) for coordinating remote teams during satellite installations.									
	3.2	Explain the importance of keeping detailed digital communication records, including email chains, project updates,									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
		and client feedback, to ensure accountability and traceability.									
	3.3	Know Role of video conferencing and virtual collaboration tools in facilitating communication between geographically distributed teams.									
	3.4	Demonstrate monitoring remote satellite installation project using digital communication tools.									

Learner's Signature	Date:
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EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

LEVEL 3: *SATELLITE TV INSTALLATION SPECIALIST*

Unit 003: TEAMWORK

Unit Reference Number: ICT/SAT/003/L3

NSQ Level: 3

Credit Value: 3

Guided Learning Hours: 30

Unit Purpose:

The focus is on fostering a culture of collaboration, mutual respect, and accountability to enhance productivity and innovation.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS)

UNIT 003: TEAMWORK

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Advanced Team Dynamics and Leadership Skills	1.1	Explain roles and responsibilities within a satellite installation team.									
	1.2	Demonstrate leadership techniques that promote team cohesion.									
	1.3	Discuss the importance of adaptability within a team.									
	1.4	Conduct a group exercise where learners assume different leadership roles and work on solving a project challenge, applying team dynamics and leadership principles.									
LO 2: Collaborative Problem-Solving in Satellite Installation Projects	2.1	Demonstrate complex satellite installation challenges									
	2.2	Apply critical thinking and collaborative decision-making techniques.									
	2.3	Explain time management in collaborative work.									
	2.4	Perform a group task where trainees must collaboratively solve a technical problem (e.g., a signal issue) using effective communication, resource allocation, and decision-making skills.									
LO 3: Building Trust and Accountability in Teams	3.1	Discuss the role of trust in high-functioning teams and how establishing clear expectations and transparency leads to better collaboration and accountability.									
	3.2	Explain the impact of individual accountability on team success, focusing on how each member's contribution affects the overall project outcome.									
	3.3	Demonstrate techniques for providing constructive feedback and encouraging self-assessment to improve performance and foster accountability in a team setting.									
	3.4	Conduct an activity where learners give and receive feedback within a team, focusing on building trust and accountability through open communication and mutual respect.									

Learner's Signature	Date:
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EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

LEVEL 3: *SATELLITE TV INSTALLATION SPECIALIST*

Unit 004: TOOLS AND EQUIPMENT FOR SATELLITE TV ANTENNA INSTALLATION

Unit Reference Number: ICT/SAT/004/L3

NSQ Level: 3

Credit Value: 3

Guided Learning Hours: 30

Unit Purpose:

To provide learners with comprehensive knowledge and practical experience to handle standard tools, specialized signal meters, and diagnostic equipment to ensure precise, efficient, and professional installations.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS)

UNIT 004: TOOLS AND EQUIPMENT FOR SATELLITE TV ANTENNA INSTALLATION

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: **Basic Tools (Standard for All Levels)**	1.1	**Describe basic tools such as Screwdrivers (Phillips, flathead), Drills (corded or cordless), Wrenches and Ratchets, Wire cutters/Strippers, Pliers, and cables ties**									
	1.2	Discuss different types and brands of tools. For example, compare cordless vs. corded drills for different installation environments (e.g., residential vs. commercial).									
	1.3	Select tools based on installation needs, including durability, power, and adaptability to different job types.									
LO 2: Understand the procedure of Mounting Satellite TV Equipment	2.1	**Identify the necessary tools, materials, and safety gear required for the installation.**									
	2.2	**Inspect the satellite dish and related equipment for defects or damage.**									
	2.3	**Use appropriate tools to securely mount the dish on walls, poles, or other structures.**									
	2.4	**Use a satellite signal meter or compatible software to locate the satellite and optimize signal strength.**									
	2.5	**Use weather-resistant coaxial cables and connectors for outdoor installations.**									
	2.6	**Connect the satellite receiver to the TV and verify signal input.**									
	2.7	**Use ladders, harnesses, or other equipment to ensure safe working conditions at heights.**									
	2.8	**Demonstrate the ability to troubleshoot minor signal or connectivity issues.**									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 3: Introduction to Digital and Software Tools for Satellite Alignment	3.1	use digital satellite finders to achieve precise satellite alignment.									
	3.2	Use smartphone apps and software-based tools to calculate azimuth, elevation, and polarization angles based on geographic location.									
	3.3	Compare the accuracy and ease of use between traditional manual tools and digital alignment tools for both commercial and residential installations.									
LO 4: Calibration and Maintenance Tools for Satellite Equipment	4.1	Discuss the importance of regular calibration and maintenance of satellite installation tools, such as **signal meters**, **oscilloscopes**, and **calibration kits**.									
	4.2	Calibrate a **signal strength meter** for accurate readings during dish alignment and maintenance.									
	4.3	Use **electrical test tools** (e.g., multimeters) to diagnose power supply issues and faulty components in satellite receivers and amplifiers.									
	4.4	Perform routine maintenance on installation tools, including testing signal accuracy, recalibrating tools, and ensuring the integrity of cables and connectors.									

Learner's Signature	Date:
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EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

LEVEL 3: *SATELLITE TV INSTALLATION SPECIALIST*

Unit 005: ADVANCED SATELLITE DISH SETTING AND CONFIGURATIONS

Unit Reference Number: ICT/SAT/005/L3

NSQ Level: 3

Credit Value: 3

Guided Learning Hours: 30

Unit Purpose:

To develop advanced skills in configuring and aligning satellite dishes for optimal performance, including motorized systems and Mult satellite setups.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS)

UNIT 005: ADVANCED SATELLITE DISH SETTING AND CONFIGURATION

LEARNING OBJECTIVE (LO) **The learner will:**		**PERFORMANCE CRITERIA** **The learner can:**	**Evidence Type**					**Evidence Ref. Page No.**			
LO 1: Understand Dish Alignment and Tracking	1.1	Discuss Dish Alignment with Geostationary Satellite									
	1.2	Discuss Motorized Satellite Antennas (DiSEqC Motor)									
	1.3	Program DiSEqC (Digital Satellite Equipment Control)									
	1.4	Explain Polar Mount Systems									
	1.5	Troubleshooting common issues with polar mount systems, such as misalignment or motor failure									
LO 2: Understand Multiswitch Systems	2.1	Describe Single Satellite to Multiple Receiver Setup									
	2.2	Discuss Multisatellite Configuration									
	2.3	Configure Cascade Systems for Apartment Buildings									
LO 3: **Signal Distribution and Integration**	3.1	Demonstrate Signal Amplification and Attenuation									
	3.2	Diagnose issues related to signal degradation over long cable runs.									
	3.3	Fix issues found in 3.2									
	3.4	Combine Satellite TV with Terrestrial (TV Aerial) Signals									
	3.5	Discuss SMATV (Satellite Master Antenna Television)									
LO 4: Testing and Troubleshooting Advanced Satellite Systems	4.1	Use Spectrum Analyzer for Interference Detection									
	4.2	Identify different types of interference (e.g., electromagnetic, signal overlap) and how to resolve them.									
	4.3	Use Field Strength Meters for signal detection									
	4.4	Perform Satellite Receiver Firmware Updates									
	4.5	Identify Cable Faults									
	4.6	Resolve 4.5									

Learner's Signature	Date:
Assessor's Signature	Date:
IQA's Signature	Date:
EQA's Signature	Date:

NATIONAL SKILLS QUALIFICATION

LEVEL 3: *SATELLITE TV INSTALLATION SPECIALIST*

Unit 006: TESTING AND TROUBLESHOOTING ADVANCED SATELLITE SYSTEMS

Unit Reference Number: ICT/SAT/006/L3

NSQ Level: 3

Credit Value: 3

Guided Learning Hours: 30

Unit Purpose:

This unit ensures learners can identify and fix signal problems, cable faults, and system malfunctions, maintaining high-quality performance standards.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS)

UNIT 006: TESTING AND TROUBLESHOOTING ADVANCED SATELLITE SYSTEMS

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
LO 1: Understand Advanced Signal Testing Tools	1.1	Use Advanced Spectrum Analyser for Satellite Systems									
	1.2	Explain Signal Path Analysis and Optimization									
	1.3	Advanced Receiver Diagnostics									
	1.4	Signal Quality and Modulation Schemes									
LO 2: Global Best Practices and Standards	2.1	Discuss Best Practices for Multi-Satellite Systems									
	2.2	Explain Standards for High-Frequency Satellite Systems									
	2.3	Explain Global Standards for Satellite Security									
	2.4	Discuss Environmental and Sustainability Standards for Satellite Installations									
LO 3: Signal Optimization Techniques for Satellite Systems	3.1	Discuss advanced techniques for optimizing signal quality, including the use of **adaptive modulation and coding (ACM)** to adjust for changes in weather and interference.									
	3.2	Explain the role of **error correction methods** like **forward error correction (FEC)** in improving signal integrity and data throughput.									
	3.3	Demonstrate the optimization of satellite dish alignment for **multi-beam satellites** or **high-throughput satellite (HTS)** networks									
	3.4	Explore techniques for optimizing **uplink power control** to minimize interference and maintain signal quality in variable atmospheric conditions.									
LO 4: Advanced Troubleshooting of Satellite Ground Systems	4.1	Explain the process of troubleshooting **uplink and downlink** systems, focusing on signal interference, attenuation, and equipment calibration.									
	4.2	Troubleshoot issues with **satellite modems**, **signal amplifiers**, and **low-noise block downconverters (LNBs)**.									
	4.3	Resolve issues in 4.2									

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type					Evidence Ref. Page No.			
	4.4	Identify common causes of **signal attenuation** in long-distance cable runs and how to mitigate these issues using **repeaters** and **amplifiers**.									
	4.4	Troubleshoot satellite ground equipment									
	4.5	Explore techniques for maintaining **redundancy** in satellite ground systems.									

Learner's Signature	Date:
Assessor's Signature	Date:
IQA's Signature	Date:
EQA's Signature	Date:

National Skills Qualifications

FOR

SATELLITE TV ANTENNA INSTALLATION AND MAINTENANCE

LEVEL 1, 2 & 3

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