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SECTION 3.0

LOCKOUT TAGOUT

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1 Purpose

In line with the Alcatel-Lucent (ALU) Environment, Health and Safety (EHS) Policy, the purpose of

this Lockout/Tagout (LOTO) Procedure is to protect employees against unexpected and

uncontrolled release of energy that may cause serious injury arising from job execution.

This approach follows the 6 Step Method for LOTO and establishes a best practices approach for

LOTO Management.

ALU Operations can adopt this Procedure and/or supplement their locally existing Procedures to

make them consistent with this Procedure.

2 Scope

This Lockout/Tagout Procedure applies to all ALU employees who perform service, maintenance,

adjustments, cleaning, unjamming, etc. on equipment or energy systems capable of producing

worker injury or equipment/property damage through the unexpected energization, start-up or

release of stored energy. Lockout/Tagout devices shall be used to ensure that machinery,

equipment, or processes are isolated from hazardous energy whenever an employee must remove

or bypass a guard, or wherever any part of the body could become injured.

Lockout/Tagout procedures apply to all forms of hazardous energy including but not limited to:

electrical, pneumatic, hydraulic, mechanical, thermal, spring activated, gravity feed, etc.

Lockout/Tagout procedures do not apply when work is performed on corded and plug-connected

electrical equipment where:

• Exposure to the hazardous energy or start-up of the equipment is usually controlled by

unplugging the equipment from the energy.

The plug is under the exclusive control of the employee performing the service or

maintenance.

This document does not pertain to any procedures where a system is required to be worked on

while energized.

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3 Roles and Responsibilities

Individual/Group	Role/Responsibility	
	Some of the roles and responsibilities can be done by the same	
	person	
Field Operations	Identify job functions and work areas where Lockout/Tagout hazards	
	may be present.	
	Ensure that appropriate work practices are implemented to minimize	
	worker exposure to energized energy.	
	Ensure employees have been trained in Lockout/Tagout Safety.	
	Ensure Lockout/Tagout Kits are maintained and available for use.	
	Ensure that installers understand the requirements to complete the	
	Lockout/Tagout System Specific Form when performing	
	Lockout/Tagout operations.	
	Ensure the 6-step procedure is followed and documented on the	
	Lockout/Tagout System Specific Form.	
	Deploy Lockout/Tagout Kits as requested by sites.	
Affected Employees	Follow the procedures outlined in this document and in the	
	Lockout/Tagout Safety training.	
	Attend Lockout/Tagout Safety training	
	Perform all work functions according to instructions	
EHS Organization	Conduct Lockout Tagout Safety training	
	Conduct periodic reviews of Lockout/Tagout procedures performed	
	in their designated areas.	
	Conduct the periodic assessment of the Lockout/Tagout Procedure in	
	order to verify effectiveness of the Procedure (Refer to Appendix B).	

4 Definitions and Acronyms

The ALU Terminology (alterm) database provides terms, acronyms and abbreviations with definitions, technical concepts and related links:

http://aww.alcatel.com/group/cto/tm/alterm/homepage/homeALterm.htm

The link provided above is useful, but sometimes it provides multiple choices for one acronym.

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The list below is tailored to this procedure.

Affected Employees: An employee who operates or works in the area of machinery or equipment

where Lockout/Tagout is being performed.

Authorized Employee: A thoroughly trained employee who implements the actual Lockout/

Tagout procedures on machines or equipment. An authorized employee and affected employee

may be the same person when the affected employee's duties include performing the required

maintenance or service on the locked/tagged equipment.

Capable of being Locked Out: An energy isolating device is capable of being locked out when its

design includes a part to which a lock can be affixed to prevent its removal. This part may be in

the form of a hasp or other attachment/locking mechanism.

Energized: Connected to an energy source or containing potential or stored energy.

Kinetic Energy: Energy in motion.

Lockout: The placement of a locking mechanism on an energy-isolating device to ensure that the

equipment cannot be operated until the lockout device is removed in accordance with established

procedures.

Multiple Lockout Device: An adapter placed on a single energy isolating device in order to

accommodate the placement of several locks by various employees working on the same piece of

equipment.

Lockout Device: A mechanism that utilizes a positive means to hold an energy-isolating device in

a "safe" position so that machinery or equipment cannot be energized. (i.e., lock and key)

Potential Energy: Energy at rest, (stored energy).

Servicing and/or Maintenance: Workplace activities such as, but not limited to, constructing,

installing, adjusting, modifying, lubricating, cleaning and unjamming. The Lockout/Tagout

procedures are only required if the activities are performed where the employee may be exposed

to the unexpected start-up or release of hazardous energy.

Setting up: Any work performed to prepare machines, equipment or processes to perform their

normal operation.

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Tagout: The secure placement of a tagging mechanism on an energy-isolating device to indicate that the equipment under control shall not be operated.

Tagout Device: A <u>conspicuous</u> warning mechanism (Tag and means of attachment) which can be securely fastened to an energy-isolating device.

Acronyms

LOTO	Lockout Tagout
EHS	Environmental, Health and Safety
OSHA	Occupational Safety & Health Administration
PPE	Personal Protective Equipment

5 Referenced and Supplementary Documents

Document No.	Document Title or Source
Section 2	Electrical Safety Procedure
Appendix A	Lockout Tagout System Specific Form
Appendix B	Lockout Tagout Review Form

6 Process Flow Diagram

None

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7 Process/ Procedure/ Work Instruction

7.1 Lockout Tagout Procedure

7.1.1 All equipment shut downs must be coordinated with the customer as applicable.

7.1.2 Before the Lockout/Tagout Procedure is begun, all affected employees must be

notified of the application of Lockout Tagout devices. After affected employees are notified,

Lockout/Tagout must be accomplished according to the 6-step procedure described in the

following paragraphs.

A Lockout /Tagout System Specific Form is required to document a Lockout/Tagout procedure

every time Lockout/Tagout is performed during equipment maintenance or service as specified

in Appendix A "Alcatel-Lucent's Lockout Tagout System Specific Form".

7.1.3 The employee completing the form shall enter the information required by the form for

each energy source which is present. Information specific to the machine/equipment shall be

entered for each of the 6 steps involved in the procedure.

Step 1 - Preparations for Shutdown

Before equipment is turned OFF, (in order to Lockout/Tagout), the authorized employee must

know:

a. The type and amount of energy that powers equipment

b. The hazards of the energy involved

c. How the energy can be controlled

Step 2 - Equipment Shutdown

An orderly shutdown must be implemented to avoid additional hazards. Therefore, equipment

must be de-energized using normal shutdown procedures._While Lockout/Tagout procedures

are being performed, the authorized employee must use caution to avoid improper, inaccurate,

or unsafe shutdown procedures.

Step 3 - Isolating Equipment

The following procedures must be observed for equipment isolation:

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a. Use energy isolating devices to physically isolate the equipment from the energy source.

b. Be sure to isolate all energy sources - (secondary as well as main supply).

c. Never pull an electrical switch while it is under load unless it is designed for that purpose.

d. Never remove a fuse from an energized fuse holder rather than disconnecting the source.

e. Reaffirm that all valves are closed before breaking into stem, hydraulic, pneumatic, water

lines, etc.

Step 4 - Applying Lockout/Tagout Devices

The following procedures must be followed when applying Lockout/Tagout devices:

a. Only authorized employees must affix Lockout/Tagout devices to each energy-isolating

device.

b. Only singularly identified devices supplied by the company are to be used for

Lockout/Tagout.

A multiple lock hasp must be used when it is necessary for more than one employee to

"Lockout/Tagout" a single energy-isolating device. Tags must be securely attached when used

instead of locks (Refer to Section 7.3). The best Lockout/Tagout device is the one that uses

both Lock and Tag.

Step 5- Control of Stored Energy

Perform the following applicable steps when it is necessary to relieve, disconnect, restrain, or

otherwise render safe any energy that is left in the equipment after it has been isolated from

its energy source:

a. Inspect all moving parts to verify that none are in motion

b. Inspect ground wires or operate grounding switches, discharge capacitors.

c. Release pressure on springs, or block the movement of spring driven devices.

d. Block or brace parts that could fall because of gravity.

e. Block parts in hydraulic and pneumatic systems that could move from loss of pressure.

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f. Bleed lines and leave vent valves open.

g. Drain systems and close valves to prevent the flow of hazardous materials.

h. Purge tanks and lines.

i. Dissipate extreme heat and cold.

j. When stored energy can accumulate, monitor it to ensure that it stays below hazardous

levels.

Step 6 - Verify Isolation of Equipment

After ensuring that all danger areas are clear of personnel, use any of the following steps

necessary to verify that equipment is isolated from all forms of energy:

WARNING: MANY ENERGY SYSTEMS MUST ALSO BE DISSIPATED, BLED, PURGED, DISCHARGED,

ETC. AFTER THEY ARE ISOLATED. FAILURE TO DO SO CAN CAUSE, AND HAS CAUSED, SEVERE

INJURY AND EVEN DEATH.

a. Verify that the main supply disconnect switch or circuit breaker cannot be moved to the

"ON" position.

b. Use a voltage tester or other approved instrument to check systems and components on

electrical equipment. Only qualified persons may do a voltage test.

c. Press (activate) all start buttons and other activating controls to verify they are unusable.

d. On other equipment (piping, springs, flywheels, etc.) attempt to activate the isolating

device (valve, flange, mechanical block, etc.) to verify that it is locked in place.

e. Verify that air, stored electrical energy, hydraulic, and/or other pressure has been relieved

(bled) by recording the readings on gauges or other indicating devices.

f. Set all machine controls to "OFF" when testing is complete.

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7.2 Protective Materials and Hardware

a. Authorized employees shall be provided with locks, tags, isolating devices, self-locking

fasteners, and/or other hardware necessary for isolating, securing, or blocking

processes, or equipment from energy sources.

b. Lockout and Tagout Devices shall be "singularly identified". This requirement can be

met by any method of singular identification including color, shape, number, etc.

These devices shall not be used for any other purposes.

c. Lockout and Tagout devices must be durable enough to withstand the environment to

which they are exposed. They must be substantial enough to prevent accidental

removal or removal without the use of excessive force.

d. Lockout and Tagout devices must, by some means, identify the employee applying the

device. (This is extremely important for emergency removal).

e. Locks, Tags and Keys must be individually assigned. Only the owner of the lock shall

have the key or keys of the lock. In areas where local management deems it necessary

to utilize a spare key, the key shall be under the direct control and responsibility of the

lock owner's supervisor, only.

7.3 Tags versus Locks

a. Tags are warning devices. When attached to energy-isolating devices, these do not

provide the physical restraint offered by locks.

b. In isolated cases, a Tagout alone may be used only when a lock will not work. This

system must provide the employees with full protection.

c. The Tagout device "attachment" must be of the non-useable type, attachable by hand,

self-locking, and non-releasable with a minimum unlocking strength.

d. Tags must be completely filled out, legible, and easily understood. They must be

securely attached to the energy-isolating device.

e. When a tag is attached to an energy isolating means, it is not to be removed without

authorization of the authorized person responsible for it, and it is never to be

bypassed, ignored, or otherwise defeated.

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f. A tag used without a lock shall be implemented by at least one additional safety

measures that provides a level of safety equivalent to that obtained by the use of a

lock. Examples of additional safety measures include the removal of an isolating circuit

element, blocking of a controlling switch, or opening of an extra disconnecting device.

7.4 Performing Work

a. Plan ahead; avoid doing anything that could reactivate the equipment.

b. Use only approved Lockout/Tagout devices

c. Do not bypass the Lockout or Tagout when installing new components to machines or

equipment.

7.5 Removing Lockout/Tagout

The following procedures shall be completed before Lockout or Tagout Devices are

removed:

a. Inspect the area to make sure that equipment is fully assembled and safe to operate

and that tool have been removed from the work area.

b. Make sure that all employees are clear of and/or safely positioned around the area. All

affected employees must be notified that a Lockout/Tagout is being removed.

c. The employee who applied the device must remove each Lockout/Tagout Device from

each energy-isolating device. (Refer to Section 7.6 below for exceptions to this rule).

7.6 Exceptions to the Lockout/Tagout Removal Rule

When the authorized employee is not available to remove lockout/tagout devices, a

manager or lead person may then remove that device with permission from and under the

direction of management.

Specific procedures and training for such removal must be developed, documented and

incorporated into the overall Lockout/Tagout Procedure. These procedures must

demonstrate that the safety provided is equivalent to that of the removal by the original

authorized employee. Specific removal procedures must also include the following

elements:

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a. Verification by management/lead person that the original authorized employee is not

at the facility.

b. Verification that all-reasonable efforts are made to contact and inform the original

authorized employee that the Locks/Tags have been removed.

c. Verification that the original authorized employee has this knowledge before he or she

resumes work at the location.

7.7 Special Situations

7.7.1 Temporary Removal

When Lockout or Tagout devices must be temporarily removed to energized the

equipment in order to test or position, the following sequence of events must be

followed:

a. Clear equipment of excess tools and materials

b. Relocate or safely position employees

c. Remove Lockout/Tagout as specified in Removal Paragraph of this section

d. Energize and proceed with testing or positioning

e. De-energize all systems and re-apply energy control measures using the 6-step

procedures as specified in Section 7.1.3. Continue service or maintenance.

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7.7.2 Subcontractors

a. When subcontractors or servicing personnel are engaged in activities

covered by energy control regulations, the Alcatel-Lucent authorized

employee and subcontractor shall inform each other of the Lockout/Tagout

Procedures.

b. Employee must remain alert for new type of energy-isolating devices and

procedures.

7.7.3 Group Lockout/Tagout

a. Periodically, more than one crew, craft or department is involved in a work

assignment involving Lockout/Tagout. The overall effort will be the

responsibility of one authorized employee, designed to coordinate work

forces and ensure continuity of protection.

b. Even when coordination of the implementation of necessary locks and tags

is the responsibility of one authorized employee, each remaining

authorized employee shall affix his or her personal lock to the group

Lockout device (Gang Lock) or comparable mechanism when beginning

work. An authorized employee shall remove only his or her lock after

completing work on the equipment being serviced.

c. When tags are used, individual employees shall affix their personnel tags to

the isolating devices.

7.7.4 Shift Changes

a. Shift or personnel change procedures shall ensure the orderly transfer of

Lockout/Tagout devices between off-going and on-coming employees.

b. Employees leaving work shall not remove their locks until oncoming

employees are ready to lockout.

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7.8 Training

7.8.1 All authorized and affected employees must receive the LOTO training course to

ensure that they understand the purpose of the Lockout/Tagout Procedure. This

training course requires an assessment.

7.8.2 Following initial training, each authorized employee must receive additional

training when any of the following occurs:

a. Review or inspection reveals Procedure discrepancies

b. Major changes to the Lockout/Tagout Procedure/Procedures

7.8.3 Training documentation must be readily available to verify that the training has

been accomplished and must be kept up to date. These records shall be maintained

in the corporate training database (SABA) and must be retained for the length of

employment. Training documentation must include employee's name, course

name, course code and dates of training.

8 Measures

Effectiveness of this Procedure will be measured through:

a. Results of periodic reviews performed by Regional EH&S Managers of Lockout/Tagout

Procedures utilized in the field (Refer to Appendix B),

b. Results of the annual assessments of the Lockout/Tagout Procedure (Refer to Appendix B)

NOTE: A sampling approach, representative of all Lockout/Tagout procedures reviewed

throughout the year, will be employed for this assessment,

c. Results obtained from periodic site safety reviews,

d. And the resolution of items found to be in need of improvement.

9 Records

a. Lockout/ Tagout System Specific Forms (Refer to Appendix A)

b. Lockout/Tagout Review Forms (Refer to Appendix B)

c. Periodic documented assessment of the Lockout/Tagout Procedure

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d. SABA Training Records (Alcatel-Lucent University's Learning Management System)

End of Document Text

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APPENDIX A- LOCKOUT TAGOUT SYSTEM SPECIFIC FORM

General

A LOTO System Specific Form is required every time LOTO is performed during equipment maintenance or service, except:

- a) When a form already exists
- b) When a specific Lockout/Tagout Procedure has already been written

Appendix A shall be used on all Alcatel-Lucent Operations where LOTO is in use. (Company or customer locations). The employee responsible for installing equipment or performing maintenance/repairs on equipment is responsible for completing this form.

The employee completing this form shall enter the information required by the form for each energy source which is present. Information specific to the machine/equipment shall be entered for each of the six (6) steps involved in the procedure.

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LOCKOUT/TAGOUT SYSTEM SPECIFIC FORM

Form completed by:	
Title:	
Manufacturer's Name:	
II. Identification of Hazardous Energy Sources Pres Electrical Hydraulic Pressurized Gas (other than air) Steam Mechanical (gravity activated, spring activated, spring of the company of	 Pneumatic (pressurized air) Chemical Thermal (heat, other than steam) Water (high pressure) flywheel activated, etc.)
Energy source #1:	Amount of associated energy:
Hazards associated with energy source:	T
Description and location of energy Control Point:	Lockout/Tagout requirements: Lockout/Tagout required Tagout only (if lockout is not possible)
AFTER LOCKOUT, does stored or residual energy remre-accumulate?	
Energy source #2 (if present):	Amount of associated energy:
Hazards associated with energy source:	7 minounity of approximated one, 5).
Description and location of energy Control Point:	Lockout/Tagout requirements: Lockout/Tagout required Tagout only (if lockout is not possible)
AFTER LOCKOUT, does stored or residual energy remre-accumulate?	ain or can it NO YES

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Description of Lockout/Tagout Procedure:	
1. Prepare for Shutdown	
2. Equipment Shutdown	
3. Isolate Equipment	
4. Apply Lockout Tagout Devices	
5. Control Stored Energy	
6. Verify Isolation of Equipment	

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APPENDIX B- LOCKOUT TAGOUT REVIEW FORM

Ins	pector: Date:
	ation
	chine or Equipment:horized employee being observed:
	ID Number: Review: Simulated or Actual
	Review Procedures
Top	pics to be reviewed.
<u>No</u>	rmal Lockout/Tagout Routine:
	Preparation for shutdown
•	Have employees been trained in the Control of Hazardous Energy
•	Have authorized and affected employees been identified?
•	Has customer been contacted to de-energize the equipment?
•	Have other contractors been notified?
•	Have drawings and procedures been reviewed?
•	Are equipment specific lockout/tagout procedures available?
•	If electrical work is above 50 V has the manager reviewed and approved the work?
•	If electrical work is above 50 V are at least two employees performing work?
•	Are employees wearing the appropriate PPE?
	Perform equipment shutdown
•	Has the customer de-energized the equipment? If equipment has not been turned over to customer the authorized employee should de-energize equipment.
•	If customer indicates equipment cannot be de-energized, is documentation available, which states de- energizing the equipment will introduce a greater hazard or would adversely affect service?
•	Is employee following equipment specific procedures?
•	Have all affected employees and contractors been notified?
•	De-energize the equipment.
	Isolating Equipment
•	Are all energy isolating devices that are needed to control the energy to the equipment physically located and operated in such a manner as to isolate the equipment from energy sources?
•	If equipment has more than one shutdown point, have all points been isolated from power?
•	Has the desired/correct piece of equipment been isolated? (Check for power lights or other indication equipment is operating).
	Applying Lockout/Tagout devices
•	Is Lockout/Tagout Kit present at jobsite?
•	Have Lockout and Tagout devices been affixed to equipment by the authorized employee?

only procedures ensuring tag provides equal protection as a lock.

Have both lockout and tagout devices been attached? If a lockout device cannot be attached refer to tagout

Has all required information been placed on the lockout tag? (Employee who locked out equipment, date and

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time of lockout, equipment which is locked out, and the type of work being performed.)
Has an individual lock been assigned to the authorized employee?
Assure lock has been placed on isolating device.
Control/release of stored energy
Ensure the equipment is de-energized by trying to operate the equipment. First check that no employees are exposed if the equipment is activated. Verify the isolation of the equipment by operating push button or other normal operating switch or control. Return the operating controls to the off or neutral position after verifying the isolation of the equipment.
Inspect ground wires or operate grounding switches, discharge capacitors if applicable.
Verify no voltage (zero voltage) is present at the energy source in the equipment using a voltmeter.
Verify zero energy state
Has it been verified that lockout and tagout devices are in place prior to starting any work operation?
Has it been verified that no voltage or stored energy is present prior to starting any work operation?
Were required work activities conducted using appropriate PPE?
Has it been verified that lockout and tagout devices are in place and no voltage is present before re-starting any work operation after a work interruption?
Transfer and removal of Lockout/Tagout devices. The authorized employee must:
Inspect work area to ensure all tools, spare parts, debris are removed from the work area. Replace any guards/panels that were removed to perform the work so the equipment is safe to operate.
Have all affected employees as well as other workers in vicinity been notified before the removal of the lockout and start up? Be sure no one is in way of possible danger upon start up.
Are transfer procedures required for employee shift changes?
Are procedures available to remove lockout/tagout devices should the employee not be at the job site?
After the lockout device has been removed and prior to starting the equipment, have all affected employees been notified that the lockout device has been removed and the equipment is ready for use?
gout Only Procedures:
Limitations of Tag only procedure
Tags are not to be removed, ignored, or defeated
Tags must be legible and understandable
Tags must be secured and not easily removed
Control/release of stored energy
Transfer and removal of Lockout/Tagout devices

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Summarize Identified Deficiencies and Corrective Action Required