

**EXHIBIT 3**

**Section 2.1033 (b)(3) INSTALLATION AND OPERATING INSTRUCTIONS**

A copy of the installation and operating instructions to be furnished to the user. A draft copy of the instructions may be submitted if the actual document is not available. The actual document shall be furnished to the FCC when it becomes available.

Response

A copy of the operation and installation manual for 9764 Metro Cell Outdoor Wi-Fi Access Point is attached to this exhibit.



# Alcatel-Lucent 9764

Metro Cell Outdoor Wi-Fi AP

Operation and Installation

3MN-WiFi-AP

Issue 1.01 | November 2013

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# About this document

## Purpose

The purpose of this document is to provide product operation information and hardware installation instructions for an Alcatel-Lucent 9764 Metro Cell Outdoor Wi-Fi Access Point (hereafter referred to as the 9764 MCO Wi-Fi AP).

## Reason for reissue

Issue number	Issue date	Reason for reissue
1.01	November 2013	Added “Appendix A: Product conformance statements”

## Supported systems

This document applies to the following:

- 9764 Metro Cell Outdoor Wi-Fi Access Point

## How to use this document

The first chapter provides an overview of the 9764 MCO Wi-Fi AP physical architecture and operations.

The second chapter provides 9764 MCO Wi-Fi AP hardware installation steps.

The appendix provides 9764 MCO Wi-Fi AP product conformances applicable within the United States.

## Safety information

For your safety, this document contains safety statements. Safety statements are given at points where risks of damage to personnel, equipment, and operation may exist. Failure to follow the directions in a safety statement may result in serious consequences.

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## Prerequisites

None

## Conventions used

### Typographical conventions

The typographical conventions used in this document are described in the following table.

Appearance	Description
<i>emphasis</i>	Text that is emphasized
document titles	Titles of books or other documents
<b>graphical user interface text</b>	Text that is displayed in a graphical user interface
<i>variables</i>	A value or command-line parameter that the user provides

### Technical conventions

Lengths and other measurements are given in metric units, with non-metric units given as equivalents for use in non-metric markets.

For manufactured parts, the following system of conventions is used:

- Metric sizes of nuts, bolts, flat washers, and lock washers are identified by an uppercase letter M followed immediately by a size in millimeters (example: M10)
- American fractional sizes of nuts, bolts, anchor bolts, and washers are identified by a number followed immediately by a double apostrophe (example: 3/8"). In the case of lengths measured in feet, "2 feet" is used rather than "2'" so that the single apostrophe is not overlooked.

The illustrations in this document do not contain all details and exceptions, but are intended to highlight main points. Dimensions are usually shown in millimeters, with inches in parenthesis. As an example, 680.0 (26.77) equals 680 millimeters or 26.77 inches.

Wire gauges are specified in metric units. Equivalent sizes in the American Wire Gauge (AWG) system are given in the following table:

### Standard cross-sections and wire diameter of round copper conductors

The following table is from CEI/IEC 60947-1:2004, *Table 1, Standard cross-sections of round copper conductors and approximate relationship between mm<sup>2</sup> and AWG/kcmil sizes* for reference. Additional wire sizes are included in this document as appropriate for the topic.

ISO rated cross-sectional area (mm <sup>2</sup> )	AWG/kcmil size
0.2	24
0.34	22
0.5	20
0.75	18
1	-
1.5	16
2.5	14
4	12
6	10
10	8
16	6
25	4
35	2
-	1
50	0 (1/0)
70	00 (2/0)
95	000 (3/0)
-	0000 (4/0)
120	250 kcmil
150	300 kcmil
185	350 kcmil
-	400 kcmil
240	500 kcmil
300	600 kcmil
NOTE: The dash, when it appears, counts as a size when considering connecting capacity (see 7.1.7.2 in the standard).	

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# 1 Safety statements

## Overview

### Purpose

This chapter provides general information on the structure of safety instructions and summarizes general safety requirements.

### General safety and residual risk

The equipment has been developed in line with state-of-the-art technology and conforms with current national and international safety requirements.

The equipment is considered safe during normal operation when safe working practices are complied with. However, hazards may arise if procedures are not followed correctly or safe working practices are not complied with.

### Contents

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<a href="#">Safety - specific hazards</a>	1-5
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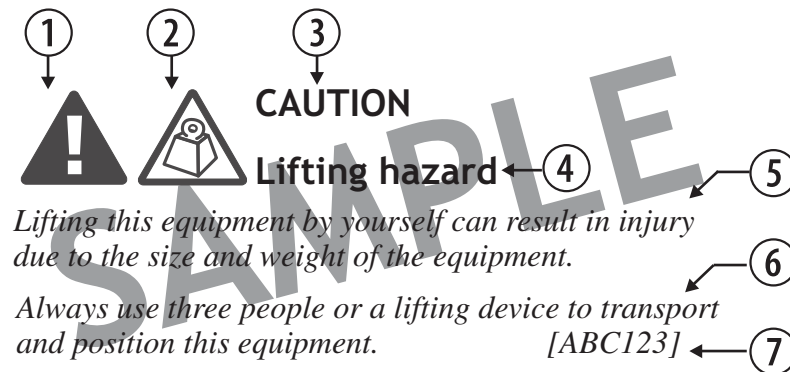
# Structure of safety statements

## Overview

This topic describes the components of safety statements that appear in this document.

## General structure

Safety statements include the following structural elements:



Item	Structure element	Purpose
1	Safety alert symbol	Indicates the potential for personal injury (optional)
2	Safety symbol	Indicates hazard type (optional)
3	Signal word	Indicates the severity of the hazard
4	Hazard type	Describes the source of the risk of damage or injury
5	Safety message	Consequences if protective measures fail
6	Avoidance message	Protective measures to take to avoid the hazard
7	Identifier	The reference ID of the safety statement (optional)

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**Signal words**

The signal words identify the hazard severity levels as follows:

<b>Signal word</b>	<b>Meaning</b>
DANGER	Indicates an extremely hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates a hazardous situation not related to personal injury.

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# Safety

## General precautions for installation procedures



### WARNING

Failure to observe these safety precautions may result in personal injury or damage to equipment.

- *Read and understand all instructions.*
- *Follow all warnings and instructions marked on this product.*
- *Installation and maintenance procedures must be followed and performed by trained personnel only.*
- *The equipment must be provided with a readily accessible disconnect device as part of site preparation.*
- *Grounding and circuit continuity is vital for safe operation of the equipment. Never operate the equipment with grounding/bonding conductor disconnected.*
- *Before servicing, disconnect power input to reduce the risk of energy hazards.*
- *If installed in ambient temperatures above 46°C (115°F), this unit must be installed only in restricted access locations, where access is limited to qualified service personnel only.*

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## Safety - specific hazards



*Working in severe weather can result in personal injury or death and damage to the equipment.*

*Never install or perform maintenance during severe weather (high winds, lightning, blizzards, hurricane etc.).*



*Use of unspecified cleaning agents can result in personal injury.*

*Use only specified cleaning agents. Never use flammable solvents.*

*Always ensure there is adequate ventilation in the work area and wear the appropriate personal protective equipment.*



*RF exposure in excess of applicable limits can result in adverse health effects.*

*Metro Cells are designed and installed in order to comply with the international exposure guidelines laid down by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and/or the Institute of Electrical & Electronics Engineers (IEEE) C95.1. ICNIRP guidelines have been implemented by the European Commission and a number of other countries. IEEE guidelines have been implemented in North America and some other countries.*

*Workers that are required to work in close proximity to the equipment, for example maintenance personnel, should strictly follow instructions provided by their employer.*

*Workers equipped with personal medical electronic devices, such as pacemakers and hearing aids, shall consult the manufacturer's instructions and consult their occupational health practitioner.*

**CAUTION****Electrical energy hazard**

*Some parts of all electrical installations are energized. Failure to observe this fact and the safety warnings may lead to bodily injury and property damage.*

*For this reason, only trained and qualified personnel (electrical workers as defined in IEC 60215 + A1 or EN 60215) may install or service the installation.*

**CAUTION****Electrical energy hazard**

*The power supply lines to the network element are energized. Contact with parts carrying voltage can cause health problems, possibly including death, even hours after the event.*

*Open and lockout the load disconnect switch in the distribution box to completely de-energize the network element.*

**WARNING****Fall hazard**

*Falls can occur when working at heights resulting in serious personal injury or death.*

*To prevent a fall when working at heights (ladder, scaffold, manlift, roof etc.) follow safe work practices and wear appropriate fall protection equipment.*

**NOTICE****Condensation**

*Sudden changes in the weather may lead to the formation of condensation on components. Operating the unit when condensation moisture is present can destroy the unit.*

*Units which show signs of condensation must be dried before installation.*

**NOTICE****Tools**

*Tools left in the working area can cause short circuits during operation which can lead to the destruction of units.*

*Make sure after finishing your work that no tools, testing equipment, flashlights, etc., have been left in or on the equipment.*

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## Product safety

### Equipment safety

Safety information for this equipment can be found on various Caution, Warning, Danger, information labels or instructions affixed to or included with the product or included within this document. Informational and cautionary labels may appear near the item they address or may be grouped in a single location on the equipment. Warnings are typically adjacent to the hazard that is noted on the label. The instructions, cautions and warnings found on these labels must be understood and observed by all personnel involved with the equipment installation and maintenance.



# 2 9764 MCO Wi-Fi Access Point

## Overview

### Purpose

This appendix provides an overview of the Alcatel-Lucent 9764 Metro Cell Outdoor Wi-Fi AP (9764 MCO Wi-Fi AP).

Two models are available:

- 9764 Metro Cell Outdoor Wi-Fi AP V1.0 MG (contains medium-gain antennas)
- 9764 Metro Cell Outdoor Wi-Fi AP V1.0 HG (contains high-gain antennas)

The information contained herein applies to both models unless otherwise specified.

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## Functional description

### General description

The Alcatel-Lucent 9764 Metro Cell Outdoor Wi-Fi AP (9764 MCO Wi-Fi AP) is an optional product that enables Alcatel-Lucent 9764 Metro Cell Outdoor UEs to access the Wi-Fi® network.

### Product features and attributes

The 9764 MCO Wi-Fi AP is a field replaceable unit (FRU) installed on the bottom of the 9764 MCO module (simple plug-in). It is designed to be used outdoors and shares backhaul with the 9764 MCO to which it is attached.

The 9764 MCO Wi-Fi AP supports

- Co-location with Alcatel-Lucent 9764 MCO variants.
- Dual-band dual-concurrent communication (802.11 a/n, b/g/n).

Meaning, simultaneous support of 2.4 / 5 GHz dual frequency bands (802.11 b/g/n, 802.11a/n).

- 20/40 MHz bandwidth.
- Integrated antennas optimized for 2x2 MIMO.
- Maximum physical data rate throughput of 2x300Mbps.
- Carrier grade Wi-Fi® to help offload the macro network.
- OAM using the Alcatel-Lucent 9772 Wi-Fi Service Controller.

### Performance

The 9764 MCO Wi-Fi AP:

- Supports up to 256 simultaneously connected users.
- Supports IEEE standards 802.11 a/n (5 GHz) and 802.11 b/g/n (2.4 GHz).
- Supports all data rates up to peak for 802.11n/a/g/b mode according to selected BW/MIMO operation.

### Reliability and availability

The 9764 MCO Wi-Fi AP:

- Is designed to have a minimum lifetime of 10 years.
- Will continue operating in degraded mode with limited functionality, in the event of a failure. That is, in the case of one Tx or one Rx RF path failure, the 9764 MCO Wi-Fi AP continues operating in single Tx or Rx mode.

---

## IP and QoS

Internet protocol (IP) and Quality of Service (QoS) functionalities are outlined herein.

### IP

The 9764 MCO Wi-Fi AP transport interface supports IPv4.

### DHCP

The 9764 MCO Wi-Fi AP supports:

- DHCP for automatic address assignment as well as supporting static addresses.
- DHCP relay per SSID.
- DHCP server per SSID.

### WMM®

The 9764 MCO Wi-Fi AP supports:

- Wi-Fi Multimedia™ (WMM®) QoS on access link.
- Mapping between DSCP and WMM access classes (ACs), configurable through management.

### Rate limiting

The 9764 MCO Wi-Fi AP supports rate limiting. Rate limiting limits the maximum rate sent to or received from the wireless network (and WLAN) per wireless client, preventing any single user from overwhelming the wireless network and providing differential service for service providers. Rate limiting is configurable through management.

### Traffic filtering

The 9764 MCO Wi-Fi AP supports layer 2-7 stateful traffic filtering firewall.

### Prioritization

The 9764 MCO Wi-Fi AP supports:

- Different priority levels per subscription.
- Different priority levels per SSID (configurable by management).

## Security

The 9764 MCO Wi-Fi AP addresses security for both hardware and software.

### Hardware

The 9764 MCO Wi-Fi AP module is locked in place using Torx screws when mounted to the bottom of the 9764 MCO.

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## Software

The 9764 MCO Wi-Fi AP supports:

- Concurrent open and 802.1x-based authentication mechanisms on separate SSIDs.
- Authentication Protocols: EAP-SIM, EAP-AKA, EAP-TLS, EAP-TTLS/PAP, EAP-TTLS/CHAP, EAP-TTLS/MSCHAP, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, and EAP-FAST.
- Supports authentication and also blacklist based on client MAC address.
- Supports VPN clients and VPN passthrough.
- Supports layer 2-7 stateful traffic filtering firewall and configuration thereof.

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## Physical description

### Product overview

The 9764 Metro Cell Outdoor Wi-Fi AP is housed in a weatherized enclosure containing the following active components:

- Integrated antennas supporting 2x2 MIMO.

This figure reflects the location of the 9764 MCO Wi-Fi AP module when attached to the 9764 MCO.

**Figure 2-1 9764 MCO Wi-Fi AP attached to 9764 MCO hardware variants**



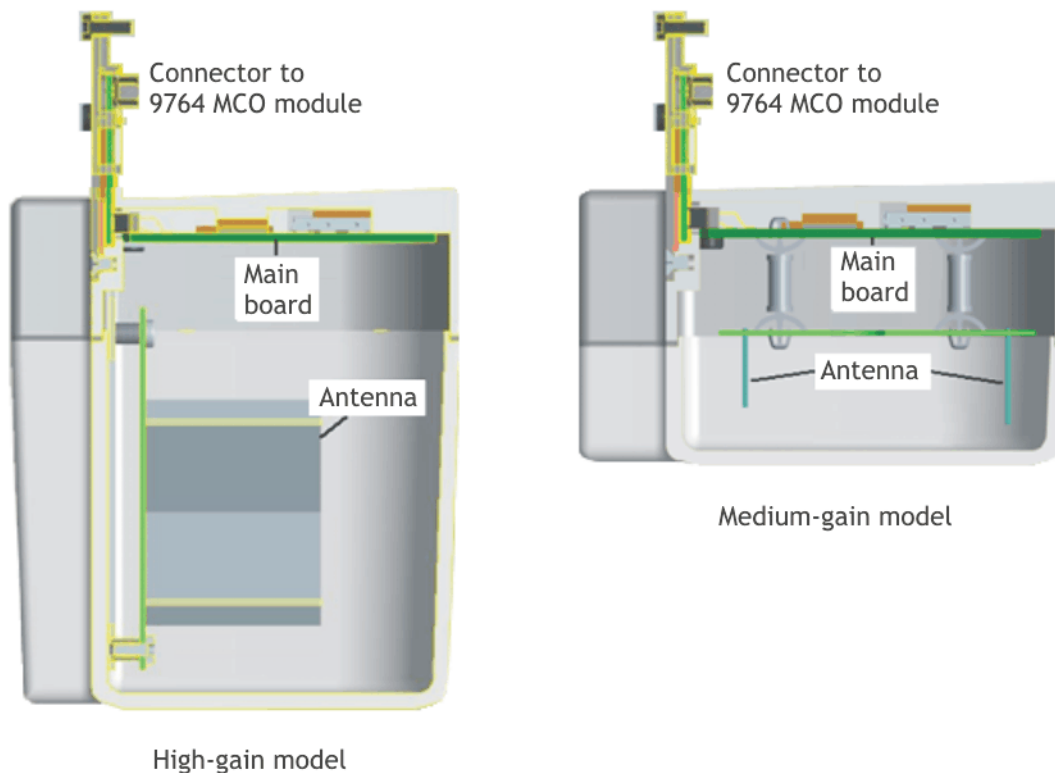
This figure reflects the available 9764 MCO Wi-Fi AP module models (9764 Metro Cell Outdoor Wi-Fi AP V1.0 HG [high gain] and 9764 Metro Cell Outdoor Wi-Fi AP V1.0 MG [medium gain]).

**Figure 2-2 9764 MCO Wi-Fi AP - closed housing**



This figure reflects the major components of both the High-gain and Medium-gain models of the 9764 MCO Wi-Fi AP.

**Figure 2-3 9764 MCO Wi-Fi AP - cutaway view**



The physical dimensions of the 9764 MCO Wi-Fi AP module are:

**Table 2-1 9764 MCO Wi-Fi AP physical characteristics**

Physical property	9764 MCO Wi-Fi AP V1.0 MG model	9764 MCO Wi-Fi AP V1.0 HG model
<b>Dimension (Height x Width x Depth)</b>	5cm x 13cm x 7cm	9cm x 13cm x 7cm
<b>Volume</b>	0.5 liters	0.8 liters
<b>Weight</b>	0.35 kg	0.4 kg

**Product base items and configurations**

The 9764 MCO Wi-Fi AP module is a single, field-replaceable, unit that may be mounted to many Alcatel-Lucent 9764 Metro Cell Outdoor variants.

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Available models include:

- 9764 Metro Cell Outdoor Wi-Fi AP V1.0 HG (contains High-gain integrated antennas)
- 9764 Metro Cell Outdoor Wi-Fi AP V1.0 MG (contains Medium-gain integrated antennas)

The unit is shipped with 3 M3 10mm Torx screws used to secure the 9764 MCO Wi-Fi AP module to the 9764 MCO.

### Connection interfaces

The 9764 MCO Wi-Fi AP module has a single interface connector that plugs into the back bottom of the 9764 MCO, carrying both power and all communication between the two components.

This figure reflects the connection point on the back bottom of the 9764 MCO.

**Figure 2-4 9764 MCO Wi-Fi AP connection point on 9764 MCO**



### Antennas

The 9764 MCO Wi-Fi AP supports 2 integrated antennas optimized for 2x2 MIMO with up to 2 spatial streams.

Two hardware models are available:

- 9764 MCO Wi-Fi AP V1.0 MG model with Medium-gain integrated antennas.
- 9764 MCO Wi-Fi AP V1.0 HG model with High-gain integrated antennas.

### Status indicators

There is an external single bi-color LED (amber/green) on the upper side of the 9764 MCO Wi-Fi AP module housing (pointing up towards the 9764 MCO radome).

Although external, this LED is not easily visible and is not used for post-installation troubleshooting. During initial cell power-up, however, the installation technician may observe the LED changes as the unit goes through its booting sequences. Once the cell is in normal operation for 30 minutes, the LED will turn off automatically.

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Refer to [“LED state description - 9764 MCO Wi-Fi AP”](#) (p. 3-7) for details.

## Product labeling

To the top of the 9764 MCO Wi-Fi AP module will be affixed three labels:

1. A product label reflecting:
  - Vendor name/Icon
  - Model name
  - Part number
  - Serial number
  - MAC address
  - CLEI code (U.S. only)
  - Data matrix barcode for Part number, Serial number, MAC address, and CLEI code (CLEI code is for U.S. only)
2. A regulatory label reflecting:
  - Vendor name/Icon
  - Product name
  - Regulatory rules
  - Power input
  - Enclosure rating
  - Applicable regulatory and environmental certification logos (for example, CE and WEEE recycling logos)
  - Manufacturer name
3. An FCC label reflecting:
  - Vendor name/Icon
  - FCC ID

# System architecture

## Timing architecture and interface

The 9764 MCO Wi-Fi AP is connected via Gigabit Ethernet to the 9764 MCO.

## Power architecture

The 9764 MCO Wi-Fi AP is powered via the 9764 MCO.

The 9764 MCO Wi-Fi AP consumes/dissipates not more than 8W average (averaged over several minutes), and has a peak power consumption of 12W.

## Antenna architecture

The 9764 MCO Wi-Fi AP provides downward tilt relative to metro cellular beam and uses advanced antenna design to support IEEE standard 802.11n, providing optimized MIMO performance and coverage.

The 9764 MCO Wi-Fi AP targets best in class receiver sensitivity, with minimum performance requirements in the range of -90 dBm @ 1 Mbps and -80 dBm @ 60 Mbps.

### MIMO

Multiple-input and multiple-output (MIMO) refers to the use of multiple antennas at both the transmitter and receiver to improve communication performance. The 9764 MCO Wi-Fi AP supports 2x2 MIMO with up to 2 spatial streams up to 20/40 MHz peak rate.

### Transmission power

9764 MCO Wi-Fi AP module transmit power is configurable in 1dBm steps from minimum to maximum configuration. The commercial product supports:

**Table 2-2 Transmit power**

	9764 MCO Wi-Fi AP V1.0 HG				9764 MCO Wi-Fi AP V1.0 MG			
Frequency band	2.4 GHz		5.4 GHz		2.4 GHz		5.4 GHz	
Region (market)	NAR	EU / RoW	NAR	EU / RoW	NAR	EU / RoW	NAR	EU / RoW
Max conducted power per chain (dBm)	22	11	18	18	22	13	18	18
Typical Max EIRP (dBm) / per band	31	20	28	28	29	20	27	27



EIRP: Effective Isotropic Radiated Power

### Gain

The 9764 MCO Wi-Fi AP supports two integrated internal antennas supporting the following:

**Table 2-3 Antenna gain**

Antenna attributes	9764 MCO Wi-Fi AP V1.0 HG (Internal, High-gain, 2 ports)		9764 MCO Wi-Fi AP V1.0 MG (Internal, Medium-gain, 2 ports)	
	2.4 GHz	5.4 GHz	2.4 GHz	5.4 GHz
Typical antenna gain	5.7 dBi	6.9 dBi	3.5 dBi	5.5 dBi

## Frequencies and channels

The 9764 MCO Wi-Fi AP is a dual-band dual-concurrent product, meaning simultaneous support of 2.4 / 5 GHz dual-band (802.11 b/g/n, 802.11a/n).

### 2.4 GHz ISM band

In the 2.4 GHz industrial, scientific and medical (ISM) band, 9764 MCO Wi-Fi AP supports:

- IEEE 802.11 b/g/n
- 20 MHz (default) IEEE 802.11n mixed mode
- 40 MHz IEEE 802.11n
- All allowed operating channels up to 32dBm.

### 5 GHz U-NII band

In the 5 GHz Unlicensed National Information Infrastructure (U-NII) band, 9764 MCO Wi-Fi AP supports:

- IEEE 802.11 a/n
- 40 MHz IEEE 802.11n mixed mode
- 20 MHz and 40 MHz IEEE 802.11n
- All allowed operating channels up to 30dBm (using the high gain antenna configuration).
- Dynamic frequency switching (DFS) and transmit power control (TPC).

## Backhaul architecture

The 9764 MCO Wi-Fi AP shares a common backhaul with the 9764 MCO.

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## Environmental architecture

The 9764 MCO Wi-Fi AP is capable of cold start -30°C and operation in the temperature range of -40°C/+55°C.

The 9764 MCO Wi-Fi AP meets all the same environmental requirements and conditions as the 9764 MCO to which it is attached.

## Standards and Regulatory Compliance

The 9764 MCO Wi-Fi AP is compliant with applicable environmental and regulatory standards and specifications.

### Certifications - US

For commercial use in the United States, the 9764 MCO Wi-Fi AP is compliant with applicable standards, such as:

- NEBS
- UL®
- FCC

### Certifications - Wi-Fi Alliance®

The 9764 MCO Wi-Fi AP meets the following standards:

- 802.11b/g/n, 802.11a/n
- WPA1™ and WPA2™ Personal and Metro Cell
- WMM™ (Wi-Fi Multimedia™), WMM Power Save
- Wi-Fi CERTIFIED Passpoint™ (phase 1)
- Authentication Protocols: EAP-SIM, EAP-AKA, EAP-TLS, EAP-TTLS/PAP, EAP-TTLS/CHAP, EAP-TTLS/MSCHAP, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, and EAP-FAST.

### IEEE

The 9764 MCO Wi-Fi AP is compliant with IEEE standards:

- 802.11 (2007).
- 802.11n HT-Mixed Mode in 2.4 GHz and 5 GHz.
- 802.11n HT-Greenfield Mode in 5 GHz (no 802.11a clients supported).
- 802.11d and updates or all equivalent taking into account new 802.11n, 5GHz bands, Dynamic Frequency Selection (DFS) and Transmit Power Control (TPC).
- 802.11i (including 802.1x authentication for RADIUS).
- 802.11e (QoS, T-Spec).
- 802.11u (interworking with external networks), SW upgradeable.

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### Telecommunications Specifications

The 9764 MCO Wi-Fi AP module supports the Alcatel-Lucent lightRadio Wi-Fi solution based on 3GPP SaMOG (S2a-based Mobility over GTP) and ANDSF (Access Network Discovery and Selection Function).

### Environmental/Electrical/Regulatory Specifications

The 9764 MCO Wi-Fi AP is developed to meet all applicable basic environmental, electrical health/safety, and regulatory specifications (such as ETSI, IEC, TP, GR, and Telcordia), and meets all the same requirements and conditions as the 9764 MCO to which it is attached.

The 9764 MCO Wi-Fi AP module is designed to operate in a -40C to +55C ambient environment. The unit is a passively-cooled design. The unit will not be equipped with heaters for cold temperature operation or cold start, however supports a cold start at -30C.

### RF Exposure

- Europe: EU 1999/519/EC, EU 2004/40/EC, EN50383, EN50384, EN50385, ICNIRP Guidelines, IEC62232.

The RF exposure to the module itself in “Touch” conditions complies with general public exposure limits defined in Europe and ICNIRP based regulations when combined with the 9764 MCO.

- North America: US FCC 47CFR 1.1310, US FCC OET65 (including supplements), Canada Safety Code 6, Canada RSS 102, IEC62232.

The module combined with the 9764 MCO complies with FCC 47CFR1.1310 (US) and Safety Code 6 (Canada) RF exposure limits for uncontrolled (general public) environments. The module must be installed and operated with a minimum separation distance of 20 cm (8 inches) between the radiator and user (see: USA – FCC OET Bulletin 65 and supplements and Canada – RSS 102).

Installation of the 9764 MCO Wi-Fi AP shall be performed in accordance with all applicable manufacturer's recommendations, and national laws and regulations.

See the Product Conformance appendix for details of 9764 MCO conformances.

### OA&M

The 9764 MCO Wi-Fi AP is managed via the Alcatel-Lucent 9772 Wi-Fi Service Controller (9772 Wi-Fi SC).

# 3 Installation of the 9764 MCO Wi-Fi AP

## Overview

### Purpose

This appendix provides instructions for attaching the Alcatel-Lucent 9764 Metro Cell Outdoor Wi-Fi AP to the 9764 MCO.

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## Procedure 3-1: Attach 9764 MCO Wi-Fi AP module to 9764 MCO module

### Purpose

This topic describes the procedures to attach the 9764 MCO Wi-Fi AP module to the 9764 MCO module.

### Prerequisites

The following tools may be used during installation:

- Screwdrivers (power and/or manual):
  - Phillips (flat blade)
  - Torx (T10)

Before installation begins, ensure the following:

- Internet service is available.
- Required tools are available.
- The 9764 MCO Wi-Fi AP product is available.
- The rear of the 9764 MCO module is accessible.

### Product delivery contents

The following items are supplied with the 9764 MCO Wi-Fi AP:

- The 9764 MCO Wi-Fi AP module
- Three M3 10mm Torx screws (to secure the 9764 MCO Wi-Fi AP module to the 9764 MCO module).

---

**Attach 9764 MCO Wi-Fi AP module to 9764 MCO module**

*Semiconductor devices can be damaged by electrostatic discharges (ESD)*

*The following rules must be complied with when handling any module containing semiconductor components:*

- *Wear conductive or antistatic working clothes (for example, coat made of 100% cotton).*
- *Wear a grounded wrist strap.*
- *Wear shoes with conductive soles on a conductive floor surface or conductive work mat.*
- *Leave the modules in their original packaging until ready for use.*
- *Make sure there is no difference in potential between yourself, the workplace, and the packaging before removing, unpacking, or packing a module.*
- *Whenever handling ESD-sensitive components, do not touch any connection pins or tracks.*
- *Place modules removed from the equipment on a conductive surface.*
- *Test or handle the module only with grounded tools on grounded equipment.*
- *Handle defective modules exactly like new ones to avoid causing further damage.*

Perform the following steps to attach the 9764 MCO Wi-Fi AP module to the 9764 MCO module:

- 
- 1 Remove the 9764 MCO Wi-Fi AP module from its packaging.
- 
- 2 Using a T10 Torx screwdriver, remove the cover over the Wi-Fi AP connector on the lower back of the 9764 MCO module by unscrewing the three screws.

The following figure shows the Wi-Fi AP connector cover:

Figure 3-1 Wi-Fi AP connector cover on 9764 MCO module



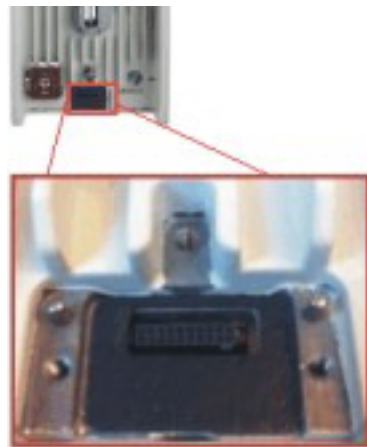
Cover over 9764 MCO Wi-Fi AP connector

**Important!** Ensure that the appropriate gasket surrounding the connector is in place on the 9764 MCO module (as shown in [Figure 3-2, “Wi-Fi AP connector on 9764 MCO module”](#) (p. 3-4)).

**Note:** Retain the cover and the three (3) cover screws. Should the need arise to remove but not replace the 9764 MCO Wi-Fi AP module in the future, the dummy cover and its screws must be reattached to the 9764 MCO module.

- 3 Push the 9764 MCO Wi-Fi AP module onto the Wi-Fi AP connector.

Figure 3-2 Wi-Fi AP connector on 9764 MCO module



9764 MCO Wi-Fi AP connector

- 
- 4 Using a T10 Torx screwdriver and the three M3 10mm Torx screws shipped with the 9764 MCO Wi-Fi AP module, screw the attachment plate to the 9764 MCO module and to the back of the 9764 MCO Wi-Fi AP module, and tighten all screws.

Torque screws to 0.6 Nm (0.443 lb ft).

The following figure shows the 9764 MCO Wi-Fi AP module attached to the 9764 MCO:

**Figure 3-3 9764 MCO Wi-Fi AP module attached to 9764 MCO module**



END OF STEPS

---

### 9764 MCO Wi-Fi AP integration overview

Integration refers to the entire process from hardware installation to “normal operation”.

9764 MCO Wi-Fi AP integration proceeds as follows:

1. Hardware is installed and mounted.
2. Power is applied to the 9764 MCO (and by default, to the 9764 MCO Wi-Fi AP module).
3. The switch on the 9764 MCO module contains a default configuration that connects the 9764 MCO Wi-Fi AP port to the backhaul port (there are no 9764 MCO Wi-Fi AP OAM parameters to be configured prior to initial power-up).

The switch will forward Wi-Fi packages as soon as the 9764 MCO module software has booted and as soon as the 9764 MCO Wi-Fi AP software is running.

4. A connection between 9764 MCO Wi-Fi AP and Alcatel-Lucent 9772 Wi-Fi Service Controller (9772 Wi-Fi SC) is automatically established.



- 
5. The 9764 MCO Wi-Fi AP downloads the latest software version from the appropriate file server (if applicable).
  6. The 9764 MCO Wi-Fi AP is provisioned and configured via the 9772 Wi-Fi SC.

A timer is started after the configuration is sent successfully from the 9772 Wi-Fi SC. During this time, the LED on top of the 9764 MCO Wi-Fi AP module illuminates and is visible through the narrow gap between the bottom of the 9764 MCO module and the top of the 9764 MCO Wi-Fi AP module.

7. The field technician may choose to observe the LED colors and blinking patterns to ensure error-free boot-up and normal operation. Refer to [“LED state description - 9764 MCO Wi-Fi AP”](#) (p. 3-7) for details.
  - If normal operation is achieved, then the LED is automatically turned off when the timer expires.
  - If there are problems, then the LED displays the applicable error color/pattern. Refer to [“LED state description - 9764 MCO Wi-Fi AP”](#) (p. 3-7) for details.
8. The field technician will make the first test call – provided all necessary core network elements (NEs) are configured properly (for example, WLAN GW, AAA, etc.).

---

## LED state description - 9764 MCO Wi-Fi AP

### Overview

The 9764 MCO Wi-Fi AP module has a single external bi-color LED (red/green) on the top of the module housing.

The LED illuminates with different colors and blinking patterns during boot-up, then is automatically turned off after normal operation has been achieved and the timer expires. If there are problems, then the LED displays the applicable error color/pattern.

Due to limited visibility requiring direct line-of-site between the 9764 MCO Wi-Fi AP module and the 9764 MCO module, the LED is not intended for ongoing troubleshooting after the unit has been successfully deployed. However, the field technician installing/replacing the 9764 MCO Wi-Fi AP module may watch the LED during boot-up if desired.

### LED statuses

The LED reflects 9764 MCO Wi-Fi AP statuses as follows:

**Table 3-1 9764 MCO Wi-Fi AP LED description**

9764 MCO Wi-Fi AP Status	LED appearance
Booting and self-test	Blink red and green simultaneously at 5Hz (appears as orange blinking)
Unadopted	Blink red at 5Hz
Normal operation	- 5GHz radio disabled: Blink red at five-second intervals - 5GHz radio activity: Steady red - 2.4GHz radio disabled: Blink green at five-second intervals - 2.4GHz radio activity: Steady green
Firmware update running	Blink green at 5Hz
Timer has expired and unit is operating normally	No LED lit



# Appendix A: Product conformance statements

## Overview

### Purpose

This section presents the product conformance statements that apply to the 9764 MCO Wi-Fi Access Point equipment.

The statements that are required are determined primarily by national or multinational regulations. However, in some regions, contract terms determine which statements are required.

The presence of the statement indicates that the product does comply with that statement wherever it is required to do so.

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# United States compliance

## Federal Communications Commission

### Federal Communications Commission

**Important!** Changes or modifications not expressly approved by Alcatel-Lucent, Inc. could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

### 47 CFR FCC Part 15 Class B

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

### RF approval

This equipment complies with 47 CFR Part 2, Subpart J - Equipment Authorization Procedures, of the FCC Rules.

This equipment complies with 47 CFR Part 15, Subpart C – Intentional Radiators and Subpart E – Unlicensed National Information Infrastructure Devices

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## Product safety conformance statements

### Product safety conformance

The 9764 MCO Wi-Fi AP is Safety Certified as part of 9764 Metro Cell Outdoor for the United States of America by a Nationally Recognized Test Laboratory (NRTL) accredited by the US Department of Labor, Occupational Safety and Health Administration (OSHA), such as UL, CSA, or others. The product bears this certification mark of this certification laboratory on its main nameplate label. Should the local authority having jurisdiction (AHJ) require prior or additional verification of this certification, a product certificate of compliance can be obtained from the specific certification laboratory by the business/product unit Applicant for the product or by contacting Alcatel-Lucent Technical Support. See the Alcatel-Lucent Support web site (<http://www.alcatel-lucent.com/support/> (<http://www.alcatel-lucent.com/support/>)) for contact information.

Any modifications to this equipment are not permitted without review and official written authorization from the specific Certification Body. Unauthorized changes may violate the Product Safety Certification. Modifications or changes authorized by official CN/CNN are assumed to have received prior approval from this Lab.

---

## Antenna exposure statements

### RF exposure

This equipment complies with FCC RF radiation exposure limits set forth in 47 CFR Part 1, Subpart I, Section 1.1310 for a general population/uncontrolled exposure environment.

The antenna(s) used for this transmitter shall be installed to provide a separation distance of at least 20 cm from all persons when they are not co-located or operating in conjunction with any other antenna or transmitter. Any changes to the antenna or other equipment in the transmit path may require re-evaluation of the exposures to electromagnetic fields.

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## Eco-environmental statements

### Packaging collection and recovery requirements

Countries, states, localities, or other jurisdictions may require that systems be established for the return and/or collection of packaging waste from the consumer, or other end user, or from the waste stream. Additionally, reuse, recovery, and/or recycling targets for the return and/or collection of the packaging waste may be established.

For more information regarding collection and recovery of packaging and packaging waste within specific jurisdictions, contact the Alcatel-Lucent Environment, Health and Safety organization or Alcatel-Lucent Hazardous Waste Center technical support at (888) 539-2783.

### Material content compliance

The following notification applies to Alcatel-Lucent products distributed for sale, resale, or use.

This product, part, or both may include a lithium-manganese dioxide battery, which contains very small amounts of a perchlorate substance. Special handling may apply.

For California:

Perchlorate Material - special handling may apply.

See (<http://www.dtsc.ca.gov/hazardouswaste/perchlorate/>).



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