

Spectralink VIEW Certified Configuration Guide

LANCOM Systems

LANCOM LN-170xB, LN-830U, LN-86xacn

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Chapter 1: Introduction

Spectralink's Voice Interoperability for Enterprise Wireless (VIEW) Certification Program is designed to ensure interoperability and high performance between Spectralink Wireless Telephones and wireless LAN (WLAN) infrastructure products.

Certified Product Summary

Manufacturer:	LANCOM Systems	LANCOM Systems			
Certified products:	Standalone		AP models: LN-170xB, I	N-830U, LN-86xacn	
AP Radio(s):	Radio1 (Dual 802.11n radio) 2.4 GHz (802.11b/g/n), 5 GHz (802.11a/n) Radio 2 (802.11ac radio) 5 GHz (802.11ac)				
Security:	None, WPA2-PSK, WPA2-Enterprise (TLS and PEAPv0/MSCHAPv2) with OKC and FT (802.11r) roaming. Please see Known Limitations section below for specific information.				
QoS:	Wi-Fi Standard for Versity models, 84-series models				
Network topology:	Bridged at AP				
AP and WLC software versions approved:	LANCOM 10.32.0021				
Handset* models tested:	Spectralink Versity 9	95-Series and 96-S	Series ***		
Handset radio mode:	802.11b	802.11b/g	802.11bgn	802.11a & 802.11an & 802.11ac	
Meets VIEW minimum call capacity per AP**:	10	10	10	12	
Handset models tested:	Spectralink 84-Serie	S			
Handset radio mode:	802.11b	802.11b/g	802.11bgn	802.11a	
Meets VIEW minimum call capacity per AP:	8	8	8	10	

*Spectralink handset and smartphone models and their OEM derivatives are verified compatible with the WLAN hardware and software identified in the table. Throughout the remainder of this document they will be referred to collectively as "phones" or "handsets". Versity smartphones may be referred to as "smartphones".

**Maximum calls tested per the VIEW Certification Test Plan. The certified product may support a higher number of maximum calls

***Higher maximum calls are for networks with Versity smartphones by themselves. When both 84-Series and Versity smartphones were include, the lower number passed.

Known Limitations

- Using the LN-1700B, the 84-series phones could not perform an OKC roam on the 802.11ac radio. It was successful with the 802.11bgn/an radio. Recommended workaround: use WPA2-PSK with the 84-series phones.
- Using the LN-830U or the LN-86xacn APs, the 84-series phones could not perform an OKC roam on the 802.11bgn/an radio. It was successful with the 802.11ac radio. Recommended workaround: use WPA2-PSK with the 84-series phones.
- The 802.11bgn/an radios in all products did not pass multicast in a manner to support the Spectralink PTT feature. The feature did work correctly on the 802.11ac radios in all products.
- The TSPEC/WMM_AC function is not supported in LANCOM products, nor is it planned to ever be supported. There are no plans to support this function in the Spectralink Versity models.
- 84-series handsets must be operated in an 802.11n disabled mode for best network resource usage.
- 84-series handsets do not support 802.11r (Fast) roaming. They do support OKC roaming.
- Versity handset versions 1.6 and below have an issue with 802.11r (Fast) roaming. The 1.6 version has a workaround to prefer PMK/OKC roaming if available. When the issue is fixed (currently scheduled for the 1.7 release) the phone will prefer to roam with FT. The easiest configuration solution is to advertise all types of roaming in the SSID's.

Spectralink References

All Spectralink support documents are available at http://support.spectralink.com.

	Partner Access Spectralink.com Contact Support Search Q
spectralink 💈 support	PRODUCT RESOURCES RMAS SERVICE REQUESTS CUSTOMER MANAGEMENT
Welcome to Spectralink Suppor	Find resources for your product, or log in for more support options.
PRODUCT RESOURCES	
Search for product documents and downloads Product Category: Product Type: - Any - FIND	Find all product resources All Documents & Downloads > Feature Requests Product Alerts > Service Policies FAQs > Contact Support
RMAS AND SERVICE REQUESTS	CUSTOMER MANAGEMENT
RMA StatusMy Service RequestsRMA FormsMy Company's Service RequestsRMA RequestsRepair PricingMy Company's RMAs	 Warranty and Entitlement Lookup My Company's Entitlements Batch Warranty and Entitlement Lookup
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To go to a specific product page:

Select the Product Category and Product Type from the dropdown lists and then select the product from the next page. All resources for that particular product are displayed by default under the All tab. Documents, downloads and other resources are sorted by the date they were created so the most recently created resource is at the top of the list. You can further sort the list by the tabs across the top of the list to find exactly what you are looking for. Click the title to open the link.

Support Documents

Spectralink Versity Deployment Guide provides a high-level overview of the deployment process for Spectralink Versity smartphones. This includes the interface with an EMM, the method for getting Versity connected to the wireless LAN, and the interface with the Spectralink Application Management (SAM) server.

Spectralink 84-Series Wireless Telephone Administration Guide provides a comprehensive list of every parameter available on Spectralink 84-Series Wireless Telephones.

The *Spectralink 84-Series Deployment Guide* is your essential reference for provisioning and deploying Spectralink 84-Series handsets in any environment.

The *Web Configuration Utility User Guide* explains how to use a web browser to configure the Spectralink 84-Series handsets on a per handset basis.

White Papers

Spectralink White Papers are available at http://www.spectralink.com/resources/white-papers.

For the Spectralink 84-Series Wireless Telephones, please refer to *Best Practices Guide for Deploying Spectralink 84-Series Handsets* for detailed information on wireless LAN layout, network infrastructure, QoS, security and subnets.

For additional details on RF deployment please see *The challenges of ensuring excellent voice quality in a Wi-Fi workplace* and *Deploying Enterprise-Grade Wi-Fi Telephony*.

These White Papers identify issues and solutions based on Spectralink's extensive experience in enterprise-class Wi-Fi telephony. It provides recommendations for ensuring that a network environment is adequately optimized for use with Spectralink Wireless Telephones.

Product Support

LANCOM Support Portal:

https://www.lancom-systems.com/service-support/support-warranty/support-contact/

Support for End customers and NON-LANCOM Partners:

Support for End customers

LANCOM Support Portal

For submission and processing of written support requests, we provide you with our support portal.

Open Support Portal

Important:

- > Please note that we give preference to support requests from our partners. For this reason, we point out that there may be longer waiting times when processing your request.
- > With the chargeable LANCOM Emergency Support, you can alternatively get short-term and solution-oriented access to the LANCOM support with a maximum response time of 30 minutes. All required information is available on the product website.

Support for LANCOM Partners:

Support for LANCOM partners

LANCOM partners receive a phone number with preferred support according to their partner status.

Important:

E-mail support for LANCOM partners remains available from the usual contact addresses – now in an improved format. A portal solution for LANCOM partners is currently under development.

LANCOM Knowledge Base (Configuration Guidance):

https://www.lancom-systems.com/service-support/instant-help/knowledge-base/

Chapter 2: Network Topology





Note: Example configuration shown

This is a modified diagram and not all components are shown for every system type.

Chapter 3: LANCOM Configuration

This document will focus on those places where the configuration needed to support Spectralink wireless handsets differs from the factory default configuration

There are several ways to configure LANCOM System APs including WEBConfig, LANConfig, controller-based, and from the cloud. The VIEW testing was performed using LANConfig, with WEBConfig used where necessary. These directions are described below. Another method may be used if the same settings are achieved.

Configuring a New Access Point (AP) Starting from Factory Defaults

- 1 Download the LANconfig tool to a Windows PC or laptop from https://www.lancomsystems.com/downloads/
- 2 From a factory default state (press and hold the reset button for 5 seconds if needed), attach the AP to a network with a DHCP server.

LANconfig							
File E	vice Group	View Tools Help		No.			
3 x 2	• • •	< C Ø C %	> ₽- ୬ &	2 QuickFi	nder		LANCOM Systems
🔄 LANconfig		Name	Comment		Cluster Name	Address	Location
		٠ [III				•
Date	Time	Name	Address	Message			
10/1/2019	9:50:56 AM	7154_700B	172.29.109.112	Automatic bac	kup of the curre	nt device config	uration started

3 Start the LANconfig tool on the PC.

- 4 From the LANconfig main screen, choose **File>Find Devices**.
- 5 Enter an address range that matches the DHCP scope of the attached network.



🔍 Find	Devices					? ×
Q	Search parameters: Pick the methods to be used to scan for new devices and decide on additional search parameters as necessary.					
	Search the local	network		for 3	second	ds
	🔽 Search an IP rar	ige	us	ing 3 🛓	tries	
	From:	172.29.109.1	•	To:		172.29.109.20 🔻
	– 💌 Additional meth	ods				
	V Extend search t	o managed APs				
					S	earch Cancel

6 Click on Add selected devices.

✓ Name	Device Type	Address	Serial Number	
LANCOM LN-1700B	LANCOM LN-1700B	172.29.109.13	40051592321001	
LANCOM LN-1700B	LANCOM LN-1700B	172.29.109.18	40055177321002	
(Þ	

7 For each device, run the Setup Wizard. Start by clicking on Next.

Setup Wizard for LANCOM LN-1700B
Setup Wizard for LANCOM LN-1700B Basic settings
Warning This device type is an access point and can either be configured manually or automatically controlled by LANCOM Management Cloud or a LANCOM WLAN controller.
If the LANCOM Management Cloud or a WLAN controller is used please cancel the current WLA
If the access point is used without LANCOM Management Cloud or a WLAN controller please continue device configuration.
< Back Next > Cancel

8 Enter a name for each device.

Setup Wizard for LANCO	M LN-1700B
Setup Wizard for ANC Basic settings	COM LN-1700B
Please specify the name	e of your device
Device name:	LN-1700B_7154
The device nam multiple devices standard name.	e is a helpful identification attribute, particularly if you manage of the same type. Otherwise the device name will remain the
	< Back Next > Cancel

9 Give each device a root access password. Please remember the password, as the only way to recover it is to restore the device to factory defaults.

Setup Wizard for LANCOM LN-17	00B	— X —
Basic settings Configuratior		
Enter a password to protect this d can only be read or changed using	evice's configuration. Afterw g this password.	ards, the configuration
Administrator name (optional): roo	vt]
Main device password:	•••••	Show
Repeat:	•••••	
Allow device access via following Local networks Local and remote networks (or	networks: nly encrypted protocols)	
	< Back	Next > Cancel

10 Select the DHCP mode of the AP.

- Off if the AP has a static address
- Client if the AP obtains its address for the network infrastructure
- **Server** if the AP is to act as a server for the network. Be careful of this choice: the network should have only one DHCP server.

🎾 Setup Wiza	ard for LANCOM LN-	-1700B			×
Setup Wiz Basic s	zard for LANCOM LI	N-1700B			
Select t	the DHCP mode of you	r device.			
As you this dev	do already operate a D vice in 'DHCP client mo	HCP server w de' or 'DHCP	vithin your local nei server off'.	twork, you shoul	d operate
DHCP	mode:	Off	•]	
(i)	If there is not already a the operating mode 'Se TCP/IP configuration o this device you have to pages.	DHCP server rver'. If the de f other device configure fur	within your local r evice works as a D es in your local net ther TCP/IP settin	network, you may HCP server it wi work automatica gs on the followi	y select ill do the illy. For ing
	When set to 'Client', all itself automatically. Wh settings on the following	further TCP/I en set to 'Off', g pages.	P settings will be o you have to confi	configured by you igure further TCF	ur device P/IP
Ş			< Back	Next >	Cancel

This example shows a static entry with a Netmask, Gateway address, and DNS server.

>> Setup Wizard for LANCOM LN-1700B				
Setup Wizard for LANCOM L Basic settings	N-1700B			
Please assign a local network netmask.	IP address to this device, along	with the relevant		
IP address:	172.29.109.112			
Netmask:	255.255.255.128			
Gateway address:	172.29.109.1			
DNS server:	172.29.109.4			
	< Back	Next > Cancel		

11 Enter the **Time zone**, **Daylight saving time**, and **Time server** (NTP server).

•	
	_

Note: 84-Series handsets require a time server for Enterprise security.

If the AP is not acting as a DHCP server, the 84-series will receive the time server from the DHCP server on the infrastructure if the DHCP option is given or from other provisioning methods.

Setup Wizard for LANCOM	LN-1700B
Basic settings System Time Settings	
Please select the appropria	ate time zone and daylight saving time of your location.
Time zone:	-07: Arizona, Mountain Tim 🔻
Daylight saving time:	Automatic - USA
Here you may choose the o synchronizing the device ti	domain name or enter the IP address of the time server for me.
Time server:	172.29.0.37 👻
The preselected va	lue will be a good choice in most cases.
	< Back Next > Cancel

12 Application detection analyzes the inbound and outbound connections at each tracked interface, and it stores the statistics of the specified applications. See the Reference manual on the LANCOM support site for more information.

Setup Wizard for LANCOM LN-1700B	x
Basic settings Layer-7 application detection	
Using Layer 7 application detection you can correlate traffic passing through the device to certain internet applications on a per user basis.	
Use layer 7 application detection.	
< Back Next > Cance	:

13 Choose the method for updating AP firmware. Note that this method obtains the updates from the LANCOM support site.

>> Setup Wizard for LANCOM LN-1700B
Basic settings Configuration access
Choose whether your device should automatically look for and install software updates. look for and install new LCOS versions look for and install security updates only no automatic updating When new updates are available, installation will occur between 02:00 and 04:00. This time frame can be modified within the device configuration.
< Back Next > Cancel

14 Choose cloud management if desired. A network of standalone APs was used for VIEW testing.

Setup Wizard for LANCOM	LN-1700B						
Basic settings LANCOM Management Cl	Basic settings LANCOM Management Cloud						
Do you want to use this de Enable using the LANC Using the LANCOM management purpodevice through a V	Do you want to use this device with the LANCOM Management Cloud? C Enable using the LANCOM Management Cloud with this device. Vising the LANCOM Management Cloud and a WLC at the same time for management purposes is not reasonable. Should you intend to manage this device through a WLC, do not enable the use the cloud.						
	< Back Next > Cancel						
Setup Wizard for LANCOM	LN-1700B						
	Setup Wizard for LANCOM LN-1700B You have configured all necessary basic settings required for a proper device startup. Please select 'Finish' to apply the new settings. The process may take about 60 seconds. After that the setup wizard restarts and further settings may be done.						

< Back

Finish

Cancel

First Connection to the AP after the Setup Wizard

Chincomig		ana ana amin'ny taona dia Galago		المتكافية المتحد		
File Edit De	vice Group	View Tools Help				
<i>¥ % </i>	• • •	🖌 🖻 🖉 🖬 📏 🛛	🚽 🖗 🗞 🧯	QuickFinder		LANCOM Systems
🏐 LANconfig		Name	Comment	Cluster Name	Address	Location
		LANCOM LN-1700B			172.29.109.18	
		ALANCOM LN-1700B			172.29.109.13	
		•				•
Date	Time	Name	Address	Message		
10/1/2019	9:50:56 AM	7154_700B	172.29.109.112	Automatic backup of the currer	nt device configurat	tion started
10/1/2019	9:50:56 AM	7154_700B	172.29.109.112	Configuration saving started (C	:\Users\rschuyler\A	ppData\Roaming\LANCC
10/1/2019	9:50:56 AM	7154_700B	172.29.109.112	Configuration uploading starte	d	
📀 10/1/2019	9:51:35 AM	7154_700B	172.29.109.112	Configuration read successfully	r	
💿 10/1/2019	9:51:52 AM	7154_700B	172.29.109.112	Automatic backup of the current	nt device configurat	tion started
10/1/2019	9:51:52 AM	7154_700B	172.29.109.112	Configuration saving started (C	:\Users\rschuyler\A	ppData\Roaming\LANCC
10/1/2019	9:51:53 AM	7154_700B	172.29.109.112	Configuration uploading starte	d	
	9:52:22 AM	7154_700B	172.29.109.112	Configuration read successfully	r	
📀 10/1/2019						
 10/1/2019 10/1/2019 	9:52:41 AM	7154_700B	172.29.109.112	Automatic backup of the currer	nt device configurat	tion started 👻
<pre> 10/1/2019 10/1/2019 </pre>	9:52:41 AM	7154_700B	172.29.109.112 ""	Automatic backup of the currer	nt device configurat	tion started

1 Open the LANconfig program on a Windows PC or laptop.

2 Enter the **IP/name** of the AP (in this example, a static address was entered in the wizard), **root** for the **Administrator**, and the password entered in the wizard for the **Password** field. The AP will appear in the list as shown in the second screenshot.

New Device	3 ×
General Backup	Interface
	Image: Check the status of this device at statup Image: Check automatically for possible firmware updates General Administrator: Password: Description:
	OK Cancel

🚰 LANconfig							x
File Edit De	vice Group	View Tools Help					
\$ % ₹	• • •	< 2 2 3 1 ×	- - ≫ & (2 QuickFinder		LANCI Systems	MC
🏐 LANconfig		Name	Comment	Cluster Name	Address	Location	
		LANCOM LN-1700B			172.29.109.18		
		ALANCOM LN-1700B			172.29.109.13		
		@LN-1700B_7154			172.29.109.112		
		•	III				•
Date	Time	Name	Address	Message			^
10/1/2019	9:50:56 AM	7154_700B	172.29.109.112	Automatic backup of the curre	nt device configurat	tion started	
10/1/2019	9:50:56 AM	7154_700B	172.29.109.112	Configuration saving started (C	:\Users\rschuyler\A	ppData\Roaming\LANC	эс
10/1/2019	9:50:56 AM	7154_700B	172.29.109.112	Configuration uploading starte	d		
📀 10/1/2019	9:51:35 AM	7154_700B	172.29.109.112	Configuration read successfully	/		
10/1/2019	9:51:52 AM	7154_700B	172.29.109.112	Automatic backup of the curre	nt device configurat	tion started	
10/1/2019	9:51:52 AM	7154_700B	172.29.109.112	Configuration saving started (C	:\Users\rschuyler\A	ppData\Roaming\LANC	эс
10/1/2019	9:51:53 AM	7154_700B	172.29.109.112	Configuration uploading starte	d		
3 10/1/2019	9:52:22 AM	7154_700B	172.29.109.112	Configuration read successfully	/		
10/1/2019	9:52:41 AM	7154_700B	172.29.109.112	Automatic backup of the curre	nt device configurat	tion started	-
•							2
3 Device(s)							

Installing Firmware

As shown in the setup wizard above, the firmware can be set to automatically update.

To update firmware by choice, perform the following steps:

- 1 Open LANconfig.
- 2 Highlight the desired AP.
- 3 Right click.
- 4 Click on **Configure** from the dropdown menu.

Carl LANconfig								
File Edit Device Group	View Tools	s Help						
३ २२ © ∅ ✓	🖌 🖪 🖉	🖊 🖻 🐼 🚍 🎾 🖥 🕶 🥙 🔗 🕐 QuickFinder						
🏐 LANconfig	Name	C	omment	Cluster Name	Add	lress	Location	
	ALN-830U_	B51F			172	29.109.114		
	ALN-830U	_B51E			172	29.109.113		
		Configure		(Ctrl+O	19.109.118		
	ST LIN-I	Setup Wizard		C	trl+W	9.109.112		
		Quick Rollback		(Ctrl+Q			
		Check		С	trl+F5			
		Configuration Ma	anagement		×			
		Firmware Manage	ement		+			
		WEBconfig / Con	sole Session		+			
		Linking device to	LANCOM Managemer	nt Cloud				
		Monitor Device						
		Monitor Device T	emporarily	C	Ctrl+M			
	•	Monitor WLAN D	evice					4
Date Time	Nan	Monitor WLAN D	evice Temporarily					^
10/11/2019 2:51:32 PM	LN-1	Create Trace Out	put		Ctrl+L			
10/11/2019 2:51:53 PM	LIN	Set Date/Time						
10/11/2019 3:47:51 PM	LN-	Activate Software	Option					
0 10/11/2019 3:47:51 PM	LN-1	Activate License						
10/11/2019 3:47:54 PM	LN-:	Activate Configur	ration Synchronization	Settings				
☑ 10/11/2019 3:47:55 PM	LN-1	Add to Wireless e	Paper Server					=
10/11/2019 3:48:31 PM	LIN	Check CC Compl	liance					-
•		Reboot						•
Opens configuration for the se	elected dev	Unlock SIM Card.						
		Change SIM Card	I PIN					
		Delete			Del			
		Cancel Action						
		Properties		Alt-	+Enter			

5 Click on Firmware Management>Upload New Firmware.

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6 Browse to the location of the desired firmware and click on **Open.** The firmware will be installed.

Select Firmware for one 'LANCOM LN-1700B' Device							
Look in: 📗	Lancom	G 🤌 📂 🛄 -					
Name	*	Date modified	Тур				
LC-LN-1	700-10.32.0021-Rel.upx	9/25/2019 8:37 AM	UPX				
•			•				
File name:	LC-LN-1700-10.32.0021-Rel.upx	Of the					
Files of type:	Firmware Files						
Description: Firmware update, version 10.32.0021 Rel of 8/27/2019							
After upload, start the new firmware in test mode							
Autonomously fallback after 5 immutes to the currently running firmware.							
If the new fir be proposed	mware can be connected successfully afte to switch it active permanently and thereb	er its boot sequence, you y terminate the test mode	will				

Chapter 4: Configure General Settings

This section configures general settings for ARP, country, IGMP snooping (for Spectralink's PTT feature), the time source, and event logging (if desired).

Configure Wireless LAN General Settings

1 Open LANconfig on a Windows PC or laptop, highlight the desired AP name, and right click on **Configure** to reach the configuration for the desired AP.

🚰 LANconfig						
File Edit Dev	vice Group	View Tools Help				
<i>~~~</i> ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	• • •	< C C C > C	∃ - ∛ & €	QuickFinder		LANCOM Systems
🟐 LANconfig		Name	Comment	Cluster Name	Address	Location
		LANCOM LN-1700B LANCOM LN-1700B LN-1700B_7154			172.29.109.18 172.29.109.13 172.29.109.112	·
		•	III			•
Date	Time	Name	Address	Message		•
10/1/2019	9:50:56 AM	7154_700B	172.29.109.112	Automatic backup of the currer	nt device configurat	ion started
10/1/2019	9:50:56 AM	7154_700B	172.29.109.112	Configuration saving started (C	:\Users\rschuyler\A	ppData\Roaming\LANCC
10/1/2019	9:50:56 AM	7154_700B	172.29.109.112	Configuration uploading starte	d	
📀 10/1/2019	9:51:35 AM	7154_700B	172.29.109.112	Configuration read successfully	r	
📵 10/1/2019	9:51:52 AM	7154_700B	172.29.109.112	Automatic backup of the curre	nt device configurat	ion started
10/1/2019	9:51:52 AM	7154_700B	172.29.109.112	Configuration saving started (C	:\Users\rschuyler\A	ppData\Roaming\LANCC
💿 10/1/2019	9:51:53 AM	7154_700B	172.29.109.112	Configuration uploading starte	d	
📀 10/1/2019	9:52:22 AM	7154_700B	172.29.109.112	Configuration read successfully	r	
10/1/2019	9:52:41 AM	7154_700B	172.29.109.112	Automatic backup of the curren	nt device configurat	ion started 👻
•			III			•
3 Device(s)						

- 2 Navigate to Configuration>Wireless LAN>General.
- 3 Ensure **ARP handling** is checked.
- 4 Ensure the proper **Country** is selected. The channels available on a certain radio/country setting combination are described in the data sheets on the LANCOM support site.

LN-1700B_7154, Configuration		ି x
G Image: Configuration Image: Manage: Annt Image: Manage: Manage: Manage: Annt Image: Manage: Manag	General This is where you can program common settings Country: ARP handling Email address for WLAN events: Send emails Interfaces This is where you can program physical and logic Physical WLAN settings Point-to-Point This is where you can program wireless point-to-to-to-to-to-to-to-to-to-to-to-to-to	for all wireless LAN interfaces. Germany Germany Germany cal (MultiSSID) wireless LAN settings. Logical WLAN settings. Logical WLAN settings point settings (P2P). Point-to-Point partners Point-to-Point transmission rates
 IP Router Routing protocols Firewall/QoS Certificates Public-Spot RADIUS Miscellaneous Services 	Expert WLAN settings Blink mode	WLAN transmission rates 802.11k Roaming Targets
Systems		OK Cancel

Configure IGMP for PTT

- 1 Open LANConfig, highlight an AP, and right click on **Configure** as before to begin the configuration process.
- 2 Navigate to Interface>Snooping.

E LN-1700B_7154, Configuration	5 ×
 LN-17008_7154, Configuration General Client management Security Stations/LEPS Encryption 802.1X 802.11u WLC AutoWDS Trace IoT Interfaces LAN WAN VLAN Sonoping Spanning Tree Date & Time Log & Trace Communication IPv4 IPv6 IP Router Routing protocols Firewall/QoS Certificates Public-Spot RADIUS Miscellaneous Services Services 	IGMP snooping Router advertisement snooping In this table you can configure for each port the protocol filter for router advertisement messages. RA-Snooping DHCP snooping DHCP snooping allows for the interception of DHCP packets, which can be modified and/or filtered based on their contents and the interface they are received on. DHCP snooping DHCP snooping PPPoE snooping PPPoE snooping allows for the interception of PPPoE packets, which can be modified and/or filtered based on their contents and the interface they are received on. PPPoE snooping PPPoE snooping allows for the interception of PPPoE packets, which can be modified and/or filtered based on their contents and the interface they are received on. PPPoE snooping
	OK Cancel

3 Turn IGMP snooping module active to **Off** for PTT multicast transmission. This will keep the data stream from experiencing a timeout and stopping the stream if it is idle.

IGMP snooping	and the second	? X
IGMP snooping module act	i Off 🗸	
Unregistered data packets:	Flood to router ports 🔻	Ĵ
	Port table]
	Static members	
	Simulated queriers]
Advertise interval:	20	seconds
Query interval:	125	seconds
Query-Response interval:	10	seconds
Robustness:	2	
	ОК	Cancel

Configure Date & Time

- 1 Open LANConfig, highlight an AP, and right click on **Configure** as before to begin the configuration process.
- 2 Navigate to **Configuration>Data & Time > Synchronization**.

LN-1700B_7154, Configuration			8 ×
 ③ ▼	Select the adjustment method for th No regular adjustment of the de Synchronize to a time server using NTP client settings Request interval: Number of tries:	e implemented realtime clock: vice time ng NTP at regular intervals Time server 86,400 0	seconds
 IPv4 IPv6 IP Router Routing protocols Firewall/QoS Certificates Public-Spot RADIUS Miscellaneous Services 	NTP server settings Your device can serve as a local synchronize. Additionally, it can s local network. Access via WAN: Access via WAN: Authentication Broadcast mode (IPv4 only) Broadcast interval:	time server to which other device end the time in constant intervals NTP network list No •	es or stations can to all of the stations on your]] seconds
	Extended settings	NTP authentication	
Systems			OK Cancel

3 Click on **Time serve**r and enter the NTP address. Note: this is unnecessary if the step was performed while running the wizard when first connecting to the AP.

Ti	me server				? X
	Domain name or IP address	Source addr.	Authentication	Key ID	ОК
	172.29.0.37		Off	1	Cancel
	Ş				
	₽ QuickFinder		Add	Edit Copy Remove]

Configure Event Logging

- 1 Open LANConfig, highlight an AP, and right click on **Configure** as before to begin the configuration process.
- 2 Navigate to **Configuration>Log & Trace>General**.
- 3 Click on SYSLOG servers and enter a server if desired for system logging.

SLOG servers			S.c.	-													(
Server address	Source addr.	Port	Protocol	System	Login	System time	Console login	Connections	Accounting	Administration	Router	Alert	Error	Warning	Information	Debug	ОК
127.0.0.1	INTRANET	514	UDP	Off	Off	On	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Cancel
127.0.0.1	INTRANET	514	UDP	On	Off	Off	Off	Off	Off	Off	Off	On	On	On	On	On	Cancer
127.0.0.1	INTRANET	514	UDP	Off	Off	Off	Off	On	Off	Off	Off	On	On	Off	Off	Off	
127.0.0.1	INTRANET	514	UDP	Off	Off	5	Off	Off	Off	On	Off	Off	Off	Off	On	Off	
127.0.0.1	INTRANET	514	UDP	Off	On	Off	Off	Off	Off	Off	Off	Off	On	Off	On	Off	
127.0.0.1	INTRANET	514	UDP	Off	Off	Off	On	Off	Off	Off	Off	On	Off	Off	On	Off	
127.0.0.1	INTRANET	514	UDP	Off	Off	Off	Off	Off	On	Off	Off	Off	Off	Off	Off	Off	
127.0.0.1	INTRANET	514	UDP	Off	Off	Off	Off	Off	Off	Off	On	On	Off	Off	Off	Off	
₽ QuickFinder											Add		Edit		opy	Remove	

- 4 Click on Edit.
- 5 Enter the Server address.
- 6 Check the desired Priority for the types of messages saved in the log.

SYSLOG servers - Edit Ent	try	? X
Server address:	172.29.109.109	
Source address (opt.):	INTRANET -	Select
Port:	514	
Protocol:	UDP -]
Source		
System	Login	
V System time	Console login	
Connections	Accounting	
🔲 Administratid	Router	
Priority		
V Alert	The second secon	
📝 Waming	Information	
Debug		
	ОК	Cancel

Chapter 5: LAN Settings

Configure Radio Settings (Physical WLAN settings)

•—	
•	
•—	

Note: 84-Series handsets default to 802.11n disabled

84-Series handsets manufactured with 5.3+ will default to 802.11n disabled. In other words, they will advertise as legacy a/b/g devices. They **must** have 802.11n disabled for best network interoperability.

- 1 Open LANConfig, highlight an AP, and right click on **Configure** as before to begin the configuration process.
- 2 Navigate to Configuration>Wireless LAN>General
- 3 Click on Physical WLAN Settings.

Configuration	General	for all wireless I AN interfaces
Management General Central Admin Admin Authentication Costs Budget Advanced Software update Wireless LAN General	Country: ARP handling Email address for WLAN events: Send emails Interfaces This is where you can program physical and logic Physical WLAN settings Physical WLAN settings WLAN interface 1 (On) Point to-Poin WLAN interface 2 (Off)	Germany Cal (MultiSSID) wireless LAN settings. Logical WLAN settings
Crick management Events Stations/LEPS Security B02.1X B02.1X WLC AutoWDS	This is where you can program wireless point to f Common point to point settings Extended settings The following physical wireless and logical LAN s	Point to -Point partners Point to -Point transmission rates settings generally do not need to be changed.
Q Trace InT Interfaces ⊘ Date & Time S Log & Trace	Expert WLAN settings Blink mode	WLAN transmission rates 802.11k Roaming Targets
Communication IPv4 IPv4 IPv6 PRouter Routing protocols Firewall/OoS		

4 On the **Operation** tab, leave **WLAN interface enabled** for each operating radio.

5 Leave the WLAN operation mode as Access point.

Physical WLAN settings - WLAN	l interface 1
Operation Radio Adaptive R Op	timization Performance Client mode
WLAN interface enabled	
WLAN operation mode:	Access point
Broken LAN link detection:	None
Link LED function:	Connection count signal strength' only makes sense in 'Client mode' WLAN
operation. It denotes the sign point. Signal strength and thus the faster the link LED blinks the	al strength between this station and the connected access connection quality is indicated by the blinking frequency. The better the connection is.
	OK Cancel

•—	
:=	
< 100 M	

Note: 84-Series and PIVOT smartphones are not 802.11ac

Some Spectralink phone models are not used in 802.11n and 802.11ac, so the Greenfield radio mode will not work.

- 6 Max. channel bandwidth should be set to 20 MHz.
- 7 Leave background scans at 0. Background scans are disruptive to the audio in phone calls.

- 8 Choose Indoor only mode activated if appropriate.
- **9** The channel number can be set to Auto, which lets AP algorithms choose the channel, or to a certain channel. The AP, during testing, frequently changed the channel when it detected interference. To test DFS channels, the AP was placed on Auto with only DFS channels available in the Channel list.

Physical WLAN settings - WLAN	l interface 1	? ×
Operation Radio Adaptive RF Op	timization Performance Client mode	
Frequency band:	2.4 GHz (802.11b/a/n)	
Sub-bands:	1 *	
Channel number:	Channel 1 (2.412 GHz)	
2.4 GHz mode:	Auto	
5 GHz mode:	Auto IEEE 802.11b/g/n (mixed)	
Max. channel bandwidth:	IEEE 802.11b/g/n (2Mbit compatible/whixed) IEEE 802.11g/n (mixed)	
Power-Setting:	IEEE 802.11b/g (mixed) IEEE 802.11b/g (2Mbit compatible, mixed)	
Tx Power:	IEEE 802.11n (Greenfield mode) IEEE 802.11g	
TX power reduction:	IEEE 802.11D	
Maximum distance:	0 km	
Channel list:	Select	
Background scan:	0	
Background scan unit:	seconds 👻	
Time of DFS rescan:	2	
Number of channels to scan:	2	
Rescan free channels:	No	
Adaptive Noise Immunity:	On 🔹	
Adaptive Noise Immunity is part of th (ARC).	e LANCOM WLAN optimization concept Active	Radio Control
Indoor only mode activated		
	ОК	Cancel

10 Open the **Perfomance** tabl

11 Check Enable QoS according to 802.11e (WME). If the option is grayed out, it means that the AP model sets it to always on. The option is not available to be turned off.

	T WEAR Settings - T	TLAIN IIIteriace 1			
peration	Radio Adaptive F	F Optimization P	erformance	Client mode	
Super	A/G				
Us	e TX burst (Bundling o	f WLAN frames - n	ot for 802.11	n)	
Quality	of Service				
🗸 En	able QoS according to	802.11e (WME)			
i)	Data packets with th On disabled QoS the treated equal.	e highest priority ar packet priorisation	e forwarded l is not taken	before packets with lo into account. All pac	ower priority. kets are
Airtime	faimess				
Airtime	faimess mode:	Equal media	a time		



Note: DSCP Tags

LANCOM Systems APs that do not act as routers do not adjust DSCP/ToS/CoS settings. They leave the DSCP tags unaltered and use the standard meanings of the DSCP/CoS/ToS mapping. If this is not appropriate for the given network setup, map a correspondence between the tags



Note: Versity and LANCOM don't support WMM_AC

Versity and LANCOM do not implement WMM_AC (Admission Control). Bandwidth can be controlled with the Airtime fairness setting. Use of this setting is beyond the scope of this document.

Client mode was tested in the default settings shown.

Physical WLAN settings - WLAN	N interface 1		? X
Operation Radio Adaptive RF Op	otimization Performance	Client mode	
Network type:	Infrastructure		
V Keep client connection alive			
Scan bands:	2.4 GHz only	•	
Exclusive BSS ID:	00:00:00:00:00		
Address adaptation			
AP selection preference:	Signal strength	•	
		ОК	Cancel

Configure SSID Settings (Logical WLAN settings)

Configure general SSID settings

- 1 Open LANConfig, highlight an AP, and right click on **Configure** as before to begin the configuration process.
- 2 Navigate to Configuration>Wireless LAN>General
- 3 Click on Logical WLAN Settings.

LN-1700B_7154, Configuration			<u></u>	2
3 ● ▼ ♀ QuickFinder	General			
			11 · 1 · 1 ANI · · · ·	
Management	This is where you can program common sett	ings to	r all wireless LAN interfaces.	
Wireless LAN	Country:	0	Germany 🗸 🗸	·
	ARP handling			_
🍶 Client management				-
Security	Email address for WLAN events:			
itations/LEPS	Send emails			
incryption 🍠				
📥 802.1X	The states			
<i>Solution 3</i> 802.11u	This is where you can program physical and	logical	(MultiSSID) wireless LAN settings.	
	Physical WLAN settings		Logiçal WLAN settings	1
AutoWDS		22 V	WLAN interface 1 - Network 1 (On)	h
	Point-to-Point	a v	VLAN interface 2 - Network 1 (On)	ł
John Martaces	This is where you can program wireless point	a v	VLAN interface 1 - Network 2 (Off)	I
Date & Time	Common point to point settings	a v	VLAN interface 1 - Network 3 (Off)	I
Log & Trace	Common point to point settings	a v	VLAN interface 1 - Network 4 (Off)	I
Ma Communication		a v	VLAN interface 1 - Network 5 (Off)	I
攝 IPv4	Estado de ativada	a v	VLAN interface 1 - Network 6 (Off)	ł
💑 IP√6	Extended settings	a v	VLAN interface 1 - Network 7 (Off)	I
Several IP Router	The following physical wireless and logical L	a v	VLAN interface 1 - Network 8 (Off)	I
🗱 Routing protocols	Expert WLAN settings	a v	VLAN interface 2 - Network 2 (Off)	I
Firewall/QoS	Diale mode	2 2 V	VLAN interface 2 - Network 3 (Off)	I
le Certificates	Blink mode	2 2 V	VLAN interface 2 - Network 4 (Off)	I
Public-Spot		2 2 V	VLAN interface 2 - Network 5 (Off)	I
RADIUS		2 2 V	VLAN interface 2 - Network 6 (Off)	I
Miscellaneous Services		a a v	VLAN interface 2 - Network 7 (Off)	I
COM Ports		a v	VLAN interface 2 - Network 8 (Off)	I
COMPORT		a v	VLAN interface 1 - Network 9 (Off)	I
		a v	VLAN interface 1 - Network 10 (Off)	I
		a v	VLAN interface 1 - Network 11 (Off)	I
		a v	VLAN interface 1 - Network 12 (Off)	ł
stems		a v	VLAN interface 1 - Network 13 (Off)	
		a v	VLAN interface 1 - Network 14 (Off)	ł
		a v	VLAN interface 1 - Network 15 (Off)	
		28 V	VLAN interface 1 - Network 16 (Off)	
		28 V	VLAN interface 2 - Network 9 (Off)	
		28 V	VLAN interface 2 - Network 10 (Off)	
		28 V	VLAN interface 2 - Network 11 (Off)	
		28 V	WLAN interface 2 - Network 12 (Off)	
		28 V	WLAN interface 2 - Network 13 (Off)	
		28 V	WLAN interface 2 - Network 14 (Off)	
		28 V	WLAN interface 2 - Network 15 (Off)	

- 1 Set WLAN network enabled for all active SSIDs.
- 2 Fill in Network name (SSID).
- 3 For a hidden network, set **Suppress SSID broadcast** to Yes if desired.
- 4 For VIEW testing, MAC filter enabled was unchecked.
- 5 Choose Allow for this SSID for Direct traffic between stations. This allow peer-topeer communication.

- 6 Check (U-)APSD/WMM powersave activated. The 84-series phones will not connect if this is not checked. They use WMM-PS to preserve battery life.
- **7** Ensure that **Transmit only unicasts**, **suppress multicasts and broadcast** is unchecked for PTT operation and for many 3rd party applications.

😑 Logical WLAN settings - WLAN i	nterface 1 - Network 1	(? X		
Network Encryption Transmission	Alams			
Interface:	WLAN interface 1 - Network 1			
WLAN network enabled				
Network name (SSID):	data			
Suppress SSID broadcast:	No 🗸]		
MAC filter enabled				
Maximum count of clients:	0			
Minimal client signal strength:	0	%		
Client Bridge Support:	No 🗸]		
TX bandwidth limit:	0	kbit/s		
RX bandwidth limit:	0	kbit/s		
Client TX bandwidth limit:	0	kbit/s		
Client RX bandwidth limit:	0	kbit/s		
RADIUS accounting activated				
RADIUS accounting server:		Select		
Accounting start condition:	Connected ~]		
RADIUS CoA activated				
Enable LBS tracking				
LBS tracking list:				
Direct traffic between stations:	Allow for this SSID 🔹			
(U-)APSD / WMM powersave ac Trapemit only unicasts, suppress	tivated			
Transmit only unicasts, suppress multicasts and broducasts				
		OK Cancel		

Configure security settings

Navigate to the **Encryption** tab for all security types.

For Open security, uncheck Encryption activated.

Logical WLAN settings - WLAN interface 1 - Network 1				
Network Encryption Transmission Alarms				
Encryption activated				
Method / Key 1 length:	802.11i (WPA)-PSK -			
Key 1/passphrase:	Generate password	Show		
RADIUS server:	· · · · · · · · · · · · · · · · · · ·	Select		
WPA version:	WPA2 -]		
WPA1 session key type:	TKIP]		
AES-CCMP-128 AES-	CCMP-256 AES-GCMP-12	28 AES-GCMP-256		
WPA rekeying cycle:	Standard] seconas		
Client EAP method:	TLS -			
IAPP passphrase:	Generate password	Show		
PMK caching	 √ Pre authentic	ation		
Encrypt management frames:	No]		
WPA 802.1X security level:	Standard -]		
		OK Cancel		

WPA2-PSK

- 1 From the Encryption tab, check Encryption activated
- 2 For Method/Key 1 length, select 802.11i (WPA)-PSK
- 3 Enter a **Key 1/ passphrase.** Ensure that this is the same value that is entered for the **Password** in the Versity handsets and the **Passphrase** in the 84-series handsets.
- 4 Select **WPA2** for the WPA version.
- 5 Select Standard for WPA2/3 key management.

- 6 Enter a common value for the **IAPP passphrase** on each AP that will be providing the same SSID. This ties the standalone APs into a common network.
- 7 For 84-series use, enter **No** for **Encrypt management frames.** If there are only Versity handsets on the SSID, **Yes** can be selected.

Logical WLAN settings - WLAN	interface 1 - Network 1			
Nwork Encryption Transmission	Aams			
Encryption activated				
Method / Key 1 length:	802.11i (WPA)-PSK 🔹			
Key 1/passphrase:	Generate password			
RADIUS server:	Select			
WPA version:	WPA2			
WPA1 session key type:	TKIP 👻			
WPA2 and WPA3 session key typ AES-CCMP-128 AES-C	CCMP-256 AES-GCMP-128 AES-GCMP-256			
WPA rekeying cycle:	0 seconds			
WPA2/3 key management:	Standard 👻			
Client EAP method:	TLS 👻			
IAPP passphrase:	•••••			
Repeat:	••••••			
PMK caching	✓ Pre authentication			
Encrypt management frames:	No			
WPA 802.1X security level:	Standard 👻			
	OK Cancel			

I		
	=	
	<	

Note: IAPP passphrase identifies network membership for standalone APs.

For phones to roam between standalones APs with the same SSID, the must have the same entry for the **IAPP passphrase.**

∎

Note: For 84-series handsets, select only AES-CCMP-128.

During testing, it was found that the 84-series would only connect to networks that advertised **AES-CCMP-128** only for the **WPA2 and WPA3 session key types**. The Versity phone would connect when all of the session key types were selected.

WPA2 – Enterprise



Note: Spectralink handsets work with WPA1/WPA2/WPA3.

During testing, it was found that the 84-series would only connect to networks that advertised **AES-CCMP-128** only for the **WPA2 and WPA3 session key types**. The Versity phone would connect when all of the session key types were selected.

- 1 Check Encryption activated.
- 2 For Method/Key 1 length, select 802.11i (WPA)-802.1x.
- 3 Add a RADIUS server. From the **Encryption** tab, click on **Select**.

Logical WLAN settings - WLAN	interface 1 - Network 1				
Network Encryption Transmission Alarms					
Encryption activated					
Method / Key 1 length: Key 1/passphrase:	802.11i (WPA)-802.1x Generate password				
RADIUS server:	EXTRADIUS				
WPA version:	WPA1/2/3				
WPA1 session key type:	TKIP/AES 🔻				
WPA rekeving cycle:	CCMP-256 AES-GCMP-128 AES-GCMP-256				
WPA rekeying cycle:	U seconas				
Client EAP method:					
IAPP passphrase:	Generate password				
PMK caching	V Pre authentication				
Encrypt management frames:	No				
WPA 802.1X security level:	Standard				
	OK Cancel				

lect inp	out for RADIUS se	rver	2 X
Value	Source	Configuration path	
RADI Wire	IUS servers [Nam less LAN / 802.1X	e] (0) / Authentication via RADIUS	Manage source 🗸
<mark>₽ Qu</mark>	ickFinder		OK Cancel

- 4 Click on Manage source for an external server
- 5 Click on Add
- 6 Fill in the fields for:
 - » Name
 - » Server address
 - » Leave the default value for Server port
 - » Enter the Secret
 - » Repeat the secret
- 7 Click on OK.

RADIUS servers - Rew Entr	? X				
Name:	EXTRADIUS				
Server address:	172.29.65.18				
Server port:	1,812				
Attribute values:					
Secret:	•••••	Show			
Repeat:	•••••]			
Monitoring profile:	-	Select			
Backup server:	-	Select			
The device determines the correct source IP address for the destination network automatically. If a certain source IP address should be used, insert it here symbolically or directly.					
	ОК	Cancel			

Check the name and Click on **OK** to use the new RADIUS server definition in the SSID authentication.

ADIUS server	2				_		[3] X
Name	Server address	Server port	Attribute values	Monitoring profile	Backup server	Source addr.	ОК
EXTRADIUS	172.29.65.18	1,812					Cancel
•			III			•	
₽ QuickFir	nder	Default serve	r Add	Edit	Copy	Remove	

- 8 Pick WPA1/2, WPA2, or WPA2/3 for the **WPA version**
- 9 Choose AES-CCMP-128 for WPA2 and WPA3 session key type. The 84-series will not associate if the other options are also checked. The 84-series will not connect if SHA256 is included for WPA2/3 key management.
- **10** Enter **Standard** for OKC roaming. Enter **Fast roaming** for 802.11r. It is recommended to select both fast roaming types for the most compatibility with other devices.

11 Select **PEAP/MSCHAPV2** for the Client EAP method, even if EAP-TLS is the desired security type.

Logical WLAN settings - WLAN	interface 1 - Network 1	? ×			
Network Encryption Transmission	Network Encryption Transmission Alarms				
Encryption activated					
Method / Key 1 length:	802.11i (WPA)-802.1x -	·			
Key 1/passphrase:	•	Show			
	Generate password				
RADIU server:	EXTRADIUS -	Select			
WPA version:	WPA1/2/3	•			
WPA1 session key type:	TKIP/AES •	·			
WPA rekeying cycle:	CCMP-256 AES-GCMP-1	28 AES-GCMP-256 seconds			
WPA2/3 key management:	Standard & Fast roaming 🔹	•			
Client EAP method:	PEAP/MSCHAPV2	•			
IAPP passphrase:	•	Show			
	Generate password	7			
PMK caching	🔽 Pre authentic	ation			
Encrypt management frames:	No	·			
WPA 802.1X security level:	Standard 🗸	•			
		OK Cancel			

12 Check PMK caching and Preauthentication

- **13** Because of the lack of this feature in LANconfig, one setting must be set from WEBconfig. It is very important to perform the following steps for OKC roaming until the problem is fixed.
 - **a** Open a browser window and type https://xxx.xxx.xxx where the x's represent the IP address of the AP.

	nttps:// 172.29.109.11	8/frames/Start.html?CON 🛛 🐨 🔽 🔍 Se	earch	立	111\		≡
X Setup Wizards System information System information Configuration Configuration Configuration Sile management	System inform	ation Search		L	.AN	100	אכ
🕂 🌾 Extras	System data	Device status Syslog Services					
Logout	Name:	LN-1700B_D9B9					
	Location:						
	Administrator:						
	Comments:						
) 					
	Device type:	LANCOM EN-1700B					
	Hardware release:	C 2019-08-26 MOD C01					
	Firmware version:	10.32.0021Rel / 27.08.2019					
	Senar number.	400331/132100214					

b Navigate to LCOS Menu Tree>Setup.

← → ♂ ₯	① 🔏 https://172.29.109.118/config/2/?CONF 🛛 🗐 🚥 😎 🏠 🔍 Search	± II\ ⊡ ® ≡
 ➡ X Setup Wizards ③ System information ➡ Configuration ➡ LCOS Menu Tree ➡ Status 	LCOS Menu Tree	LANCOM Systems
Status Setup Firmware Other File management Extras HTTP-Session Logout	LCOS Menu Tree LCOS Menu Tree LCOS Menu Tree LCOS Menu Tree LCOS Menu Tree LCOS Menu Tree LCOS	
	✔ ↓ LLDP ✔ ↓ LLDP <td></td>	

- c Navigate further to Interfaces>WLAN>Encryption.
- **d** Highlight the desired SSID and click on it. The SSID's are numbered in this way:
 - The first SSID on the first radio is WLAN-1, the first SSID on the second radio is WLAN-2
 - The rest of the SSID's on a given radio are numbered as WLAN-1-2, WLAN-1-3, or WLAN-2-2, WLAN-2-3 etc.

Setup Wizards System information System information Sonfiguration Configuration Status	.COS Menu & Logout	ı Tree		Sear	ch								LA Systems			*
Setup Firmware Other File management Castas File Management Factors File Management Factors File Management F	LCOS Menu Setu LCOS Menu Encrypt	LTree UP Interfaces WLAN														ш
	lfc	Encryption	Default- Key	Method	Key	RADIUS- Profile	WPA- Version	WPA1- Session- Keytypes	WPA2-3- Session- Keytypes	WPA- Rekeying- Cycle	WPA2-Key- Management	SAE- Groups	Prot Mgmt- Frames	PMK- Caching	Client-EAP- Method	
	WLAN-1	Yes	1	802.11i- WPA-802.1x	*	EXTRADIUS	WPA1/2/3	TKIP/AES	AES- CCMP-128	0	Fast-Roaming	secp256r1 secp384r1 secp521r1	No	Yes	PEAP/MSCH	4
	WLAN-2	Yes	1	802.11i- WPA-PSK	*		WPA1/2/3	TKIP/AES	AES- CCMP-128	0	Fast-Roaming Standard	secp256r1 secp384r1 secp521r1	No	Yes	TLS	
	WLAN-1-2	No	1	802.11i- WPA-PSK	*		WPA2	TKIP	AES- CCMP-128	0	Standard	secp256r1 secp384r1 secp521r1	No	Yes	TLS	
	<u>WLAN-1-3</u>	Yes	1	802.11i- WPA-PSK	*		WPA2	TKIP	AES- CCMP-128	0	Fast-Roaming Standard	secp256r1 secp384r1 secp521r1	No	Yes	TLS	

e The settings should be the same as their values from the LANconfig tool (if they have been saved by touching OK before WEBconfig is opened). The important additional setting here is set OKC to **Yes.**

LCOS Menu Tree			LANCOM
Logout Search			Systems
LCOS Menu Tree Setup Interfaces WLAN			
Encryption			
Ø lfc	WLAN-1		
Encryption	Yes 🔻		
Ø Default-Key	1	(max. 1 characters)	
Wethod	802.11i-WPA-802.1x		
Wey	•	(max, 63 characters)	
(Repeat)		· · · · ·	
Key	•	(max. 63 characters)	
2 RADIUS-Profile	EXTRADIUS	(max. 16 characters)	
WPA-Version	WPA1/2/3 -		
WPA1-Session-Keytypes	TKIP/AES 👻		
WPA2-3-Session-Keytypes	TKIP ZAES-CCMP-128 AES-CCMP-256 AES-GCMP-128 AES-GCMP-256		
WPA-Rekeying-Cycle	0	(max. 10 characters)	
WPA2-Key-Management	✓ Fast-Roaming SHA256 Standard	х , ,	
SAE-Groups	 ✓ secp256r1 ✓ secp384r1 ✓ secp521r1 		
ProtMgmt-Frames	No 👻		
PMK-Caching	Yes 🔻		
Olient-EAP-Method	PEAP/MSCHAPv2 -		
Pre-Authentication	Yes 👻		
WPA-802.1X-Security-Level	Standard 🗸		
0 OKC	Yes 👻		
Enhanced-Open-Groups	 ✓ secp256r1 ✓ secp384r1 ✓ secp521r1 		
PMK-IAPP-Secret	•	(max. 64 characters)	
(Repeat)			
PMK-IAPP-Secret	•	(max. 64 characters)	
2 Authentication	Open-System 👻		
	Send Reset		

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Note: Management Frame Protection is supported by Versity

Versity handsets support Management Frame Protection (802.11w). When WPA3 is in use, the industry security standard requires that Management Frame Protection be set to at least optional. The 84-Series handsets do not support Management Frame Protection. LANCOM is advertising optional even when set to No when WPA3 is selected. The APs are properly detecting whether the handset can handle encrypted management frames with all settings.

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Note: Fast roaming supported by Versity

Fast roaming (802.11r) is supported by Versity. It is not supported by the 84-series handsets. Advertising **Standard & Fast roaming** in the **WPA2/3 key management** setting is the best way for one SSID to support both handset model families.

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Note: Fast roaming issue on Versity

There is an issue at the radio chip level on Versity phones with Fast roaming. It is present on all version prior to 1.7. It is expected to be fixed in 1.7. In versions 1.0 to 1.5, fast roaming is chosen above other roaming choices. In 1.6, as a workaround, OKC is preferred. When fast roaming is fixed, 1.7 will return to preferring fast roaming.

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Note: Set OKC to Yes from WEBconfig

Until the OKC setting is added to LANconfig on the LANCOM tool, it is necessary to use WEBconfig to set it to yes.

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Note: Problem with 84-series and roaming

Using the LN-170xB, the 84-series phones could not perform an OKC roam on the 802.11ac radio. It was successful with the 802.11bgn/an radio. Using the LN-830U or the LN-86Xacn, the 84-series phones could not perform an OKC roam on the 802.11bgn/an radio. It was successful with the 802.11ac radio. Recommended workaround: use WPA2-PSK with the 84series phones

END DOCUMENT