



Spectralink Versity Smartphone

LTE Carrier Interoperability

Interoperability Guide: Version 1

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The *Product Warranty and Software License and Warranty* and other support documents are available at <http://support.spectralink.com>.

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About This Guide

LTE is type of 4G that delivers fast connection for a mobile internet experience. It is the globally-accepted 4G wireless standard. This interoperability guide explains how Versity LTE models support 4G technology and how to implement Versity as an LTE smartphone. This document also explains how specific carrier service requirements can vary and the accommodations Spectralink has made to allow Versity smartphones to use LTE 4G with carriers that certify Versity smartphones.

Product Support

Spectralink wants you to have a successful installation. If you have questions, please contact the Customer Support Hotline at 1-800-775-5330.

The hotline is open Monday through Friday, 6 a.m. to 6 p.m. Mountain Time.

For Technical Support: <mailto:technicalsupport@Spectralink.com>

For Knowledge Base: <http://support.Spectralink.com>

For Return Material Authorization: <mailto:nalarma@Spectralink.com>

Chapter 1: Deploying LTE Models

LTE is type of 4G carrier technology that delivers fast data connection for a mobile internet experience. It is the globally-accepted 4G wireless standard. LTE offers speeds up to 10 times faster than 3G. To use LTE, both the phone and the carrier must support it. However, not all areas and carriers offer LTE phones and services. It is important to determine the level of service in your area for LTE phones.

Versity is a standard, albeit ruggedized, Android smartphone running Spectralink software based on Android 8.1 also known as “Oreo”. Versity comes in four models, two of which---9640 and 9653---support LTE 4G cellular technology in addition to facility-centric VoWLAN calling.

Dialers and Phone Applications

With two calling modalities, Versity ships with two different phone applications aka “dialers”. The ability to use LTE calling technology is managed by the choice of app used to make the call.

- The Biz Phone app from Spectralink is used for calls that utilize the Wi-Fi network installed in the facility.
- The Google Phone app that comes as a standard phone application in Android phones is frequently used by a cell phone carrier but a different phone app may be specified by the carrier.

Versity LTE models can be programmed to make both types of calls available. When both types of calling are fully enabled, when you place an outgoing call from a phone number link you may be given the choice of which dialer to use.

Phone numbers

The two dialers have separate phone numbers. When you place a call, the Caller ID that is displayed to the recipient depends on which app was used to initiate the call.

- The Spectralink Biz Phone dialer uses the Wi-Fi network in the facility. Biz Phone rings when your internal extension is called. This is your business phone number that has been assigned by the facility using an on premise SIP PBX or cloud SIP service..
- The LTE carrier manages a network connection to a phone through a SIM card. The carrier provides a unique phone number for each phone device. When that number is called, it rings on the Google Phone dialer.

Outgoing calls can use direct dialing through the carrier network connection 2G, 3G, VoLTE or use Wi-Fi calling that places calls through a Wi-Fi network. “Wi-Fi calling” or “VoWi-Fi” calls can be made on a Wi-Fi network installed at home or business facility or at a café or library, provided these are able to connect to the carrier network. It’s like any other phone call, and uses the carrier-assigned number and the Google Phone app but is distinct from a Biz Phone Wi-Fi call.

How Does Versity Use Both Wi-Fi and LTE?

For the sake of clarity, let’s define our terms.

Terms used by LTE carriers

- VoLTE refers to using LTE for calling on a carrier network connection using a dialer app provided by or supported by the carrier (e.g., Google Dialer). Aka “Enhanced 4G LTE Mode”

Each carrier has specific requirements for any smartphone to work on its network. Versity can work with any carrier but must be programmed to work with the specific carrier. Carriers require testing and certification for a smartphone to be allowed on their network. Some carriers will allow uncertified devices but may limit functionality. Contact Spectralink and the specific carrier for additional information. Currently Versity only has carrier certifications with Telia.

- Wi-Fi calling refers to using a private Wi-Fi network connection such as you might have at home or work or airport to place and receive calls using the carrier phone number and a dialer app provided by or supported by the carrier. Aka VoWi-Fi

The Wi-Fi calling option must be enabled on both the Device side and the carrier side in order for Wi-Fi calling to work. The carrier network includes special gateways to take the Wi-Fi call on to their network and manage quality of service (QOS). If Wi-Fi calling option does not appear on the carrier side, it is not supported by the carrier. Contact the carrier if you do not see the Wi-Fi calling option.

- VoWi-Fi is synonymous with Wi-Fi calling and is the technical term.

Terms used by facility-based Wi-Fi systems

- VoWLAN refers to using a private facility-based call server and Wi-Fi Local Area Network infrastructure to place voice calls using a private call server. Spectralink’s Biz Phone uses VoWLAN.

For VoWLAN, the Biz Phone app uses SIP technology to place a VoIP call over the wireless LAN---a data network with prioritized voice packets---aka VoWLAN. Call servers are used to support users and extensions and route internal and external calls.

- VoIP is an acronym for Voice Over Internet Protocol, a technology used by Spectralink and other services to provision communications over a packet-switched network. Biz Phone uses this calling technology.

Using both types

Versity 96xx models support direct carrier calling using a dialer app provided by or supported by the carrier (e.g., Google Phone). The carrier's SIM card must be installed and support voice calling. Versity 96xx models also support VoWLAN using the Biz Phone app and the supporting infrastructure.

In situations where both types of calling are needed, provision Biz Phone for inhouse facility calling and install a LTE SIM card for outside calling and Wi-Fi calling. When outside the facility Wi-Fi range, the phone will use the LTE network. It will prefer Wi-Fi calling but will seamlessly fall back to VoLTE when Wi-Fi calling is not available. When going back into the facility, LTE direct calls and Wi-Fi calling through the carrier dialer app still works wherever LTE coverage is available. To use Biz Phone you must have network access to the company SIP server. This requires either being connected to the corporate Wi-Fi network or having a VPN connection from the LTE network that allows you to connect to the SIP server. To use both Biz Phone and carrier dialing you must disable Wi-Fi calling/VoLTE in the carrier app or in Network settings if not available in the carrier app settings. Due to common SIP port usage across servers and networks, carrier calling using VoLTE or WiFi-Calling and Biz Phone are mutually exclusive; you can use both, but not at the same time. When using Biz Phone over the LTE-VPN connection the call quality cannot be guaranteed by Spectralink as the voice traffic is treated by the carrier as unprioritized data.

LTE behavior notes

Please note that for any Versity LTE SKU, Spectralink validates service of all Spectralink applications and SIP communication for a corporate Wi-Fi network with our recommended guidelines ONLY. In other environments such as LTE, VPN via LTE, VPN via Private Wi-Fi, Spectralink applications functionality is not guaranteed and support is on best effort only.

When the device is in a location where Android switches between LTE and corporate Wi-Fi, Versity will prioritize Wi-Fi.

In an LTE-only environment, the Biz Phone app will not be operational without the VPN connection to the SIP server and Wi-Fi calling disabled. Communication will be via the carrier network and a Wireless Telecom Subscription is required. A call manager can be configured so SIP calls forward to the GSM number.

Emergency Calls Using LTE

On all Versity models, tapping EMERGENCY on a locked screen opens a Google Dialer where the emergency number can be entered manually. The number entered will be checked against

the list of pre-programmed emergency numbers in the Biz Phone app, if any. If it is on the list, and if Biz Phone is configured the call will be placed by the Biz Phone app.

For LTE models, if the manually-entered number is not listed in the Biz Phone app, then it will be checked against the emergency numbers listed by the SIM or Android. If the number is available, the call will be placed by the Google dialer, if there is a cellular connection.

If emergency calls should be placed through the carrier cellular network, the number **SHOULD NOT BE** entered in the Biz Phone app. The number must be manually entered in the Google dialer when the emergency call feature opens, and it will be checked as above and go through on the cellular network. Instruct your cellular users about what number to dial in an emergency.

Versity LTE Certifications

Versity has certification from these entities:

PTCRB offers certification of wireless devices according to standards developed by the CTIA organization. It is a U.S. organization.

GCF is an independent global certification organization that offers certifications to help ensure global interoperability between mobile devices and networks. It is a U.K organization.

Carriers: Versity is an unlocked device. With PTCRB and GCF certification most carriers will allow Versity on their network. Some carriers certify phones and approve them for functionality on their network. Verizon is one of these.

As of 1.6.xxx Versity is certified by Telia, a carrier that primarily operates in Scandinavia. See Chapter 2 below.

Versity Channels

GSM: 850/900/1800/1900UMTS: B1/2/4/5/8

LTE-FDD: B1/2/3/4/5/7/8/12/13/20/25/26/28/66

LTE-TDD: B38DL

2CA(Cat6):1A-3A, 1A-7A, 1A-8A, 1A-20A,2A-2A, 2A-4A, 2A-5A, 2A-12A, 2A-13A, 2A-66A, 3A-3A, 3C, 3A-7A, 3A-8A, 3A-20A, 3A-28A,4A-4A, 4A-5A, 4A-12A, 4A-13A, 5A-5A, 5B, 5A-66A, 7C, 7A-20A, 7A-28A, 12A-66A, 13A-66A, 25A-25A, 25A-26A, 38C, 66A+66A, 66B, 66C

Carrier Technologies

Carrier technologies have advanced along a timeline that began before 1993. The below table outlines the technologies that are supported by Versity and their development timeline. Carriers that use these technologies also support Versity.

1993		2000			2010		2018	
Second Gen		Third Gen					Fourth Gen	
GSM GPRS	EDGE	UMTS		HSDPA	HSUPA	HSPA+ R7	HSPA+ R8	
							LTE FDD TDD	LTE Advanced

Versity supports all of the above technologies and can function in an environment that does not support 4G LTE in its entirety. Options include:

LTE: Voice and data

Data: 3G

Voice: GSM circuit switch

Voice: VOIP-LTE or OTT

SIM Card Instructions

LTE phones use a “SIM” card to store user information. A carrier will provide a SIM card for their service and this card must be installed on Versity before it can connect to the carrier’s network.

SIM card size

The Versity SIM card port supports a “micro” size SIM card. An adapter is provided in the Versity box for adapting a “nano” card to the micro size. Consult with your carrier to get the nano SIM card.



Caution: Use provided micro adapter

Spectralink has found that SIM card thickness varies and these variations can affect performance. For this reason, Spectralink provides a nano to micro adapter with every Versity. This adapter meets our exact specifications.

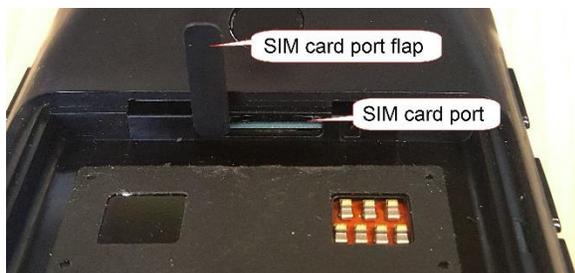
For best results, use a nano card from your carrier and use the nano to micro adapter that is provided with the Versity smartphone as described here. Do this even if the carrier offers a micro SIM card.

This photo shows a nano to micro adapter:



SIM card location

The SIM card is inserted into a slot at the top of the battery compartment. The slot is protected by a flap that must be pried open. Pry it from the right and rotate it into a vertical position as shown here.



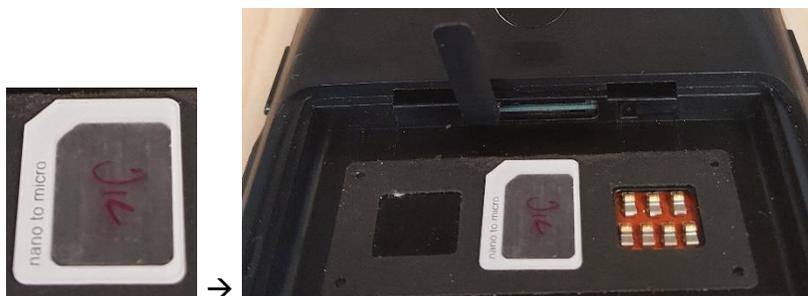
Inserting the SIM card



Admin Tip: Tool may be required

In order to insert the SIM card into the slot, you may need to use a tool such as tweezers.

- 1 Remove the battery and open the SIM card port flap.
- 2 Position the SIM card as shown in the picture below. The angled edge is at the top left.



- 3 Position the nano card in the adapter in the area as shown and insert the adapter into the port.



Tip: Nano card positioning

The position of the SIM card in the adapter is “down” when placed into the port. Although the nano SIM fits snugly into the adapter and is unlikely to fall out, please keep a good hold on the adapter assembly with the included tweezers as you insert it into the port.

- 4 Close the flap, being careful to snug it tight.
- 5 Install the battery and turn on the phone.

Removing the SIM card

- 1 Open the flap by prying it from the right side and swiveling it up.

- 2** Push on the SIM card, it will pop out part way and then pull the SIM card out of the port using a tool such as tweezers. Pull it straight out. Do not bend or twist the adapter.
- 3** Remove the nano card from the adapter.
- 4** Reposition the flap to the closed position.

Chapter 2: Telia Company

As of 1.6.xxx Versity is being tested for certification by Telia Company, a carrier that primarily operates in Scandinavia.

Implementation Specifics

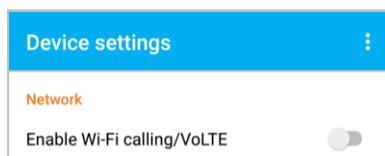
The following information applies to the Android Phone app, not Spectralink Biz Phone as they are mutually exclusive. To use the Biz Phone app instead of using LTE and the Google Phone app, simply disable the Wi-Fi calling/VoLTE settings described below for Device settings and Biz Phone will be fully functional.

Wi-Fi calling (option for LTE only)

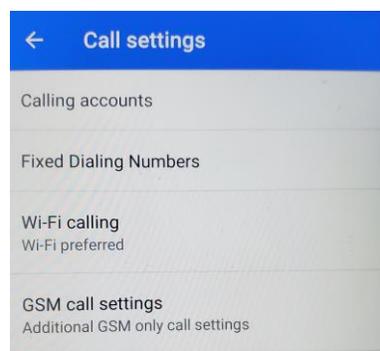
In order to deploy Versity (models 9640/9653 only) using Telia:

- 1 Insert a Telia SIM card (see instructions in Chapter 1).
- 2 Navigate to the Spectralink Device app> Device settings. Scroll down to Network.
- 3 Enable Wi-Fi calling/VoLTE.
- 4 Navigate to Android Settings and search on “Wi-Fi calling” or navigate to Network settings.
- 5 Enable Wi-Fi calling. Reboot the phone for the settings to take effect. [E-1231,-1232]

Spectralink Device settings



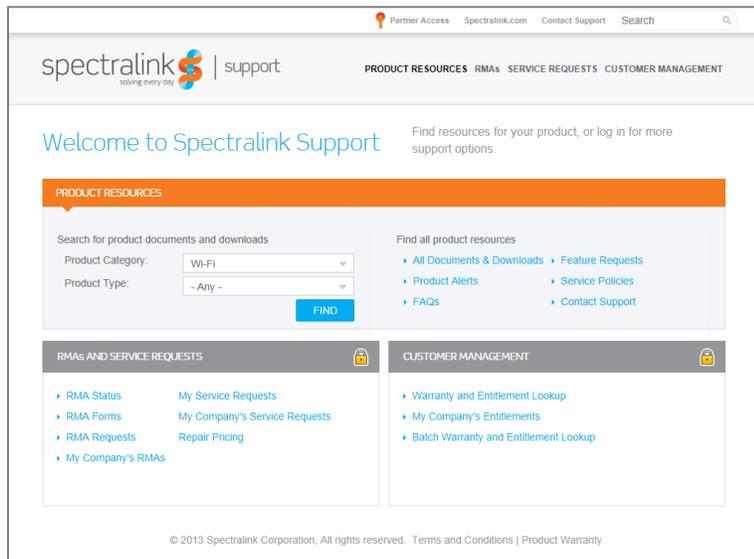
Android Call settings



This activation allows the phone to move seamlessly between LTE calls and Wi-Fi calling (when a configured SSID is available).

Appendix A: Spectralink References

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



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.

Specific Documents

Spectralink Versity software and support documents are available on the Spectralink support site at <http://support.spectralink.com/versity>.

Spectralink SAM software and support documents are available on the Spectralink support site at <http://support.spectralink.com/sam>.

Release Notes accompany every software release and provide the new and changed features and resolved issues in the latest version of the software. Please review these for the most current information about your software.

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 Applications Management Guide The Spectralink Applications Management (SAM) Guide provides information about every setting and option for the Spectralink applications that are available to the administrator on the SAM server. Time-saving shortcuts, troubleshooting tips and other important maintenance instructions are also found in this document.

The *Spectralink Versity User Guide* offers comprehensive instructions for using each of the Spectralink Applications deployed on the handsets.

For information on IP PBX and soft switch vendors, see the *Spectralink Call Server Interoperability Guide*.

Technical Bulletins and Feature Descriptions explain workarounds to existing issues and provide expanded descriptions and examples.

AP Configuration Guides explain how to correctly configure access points and WLAN controllers (if applicable) and identify the optimal settings that support Spectralink Versity smartphone. You can find them on the *VIEW Certified* webpage.

White Papers

Spectralink White Papers are available at <https://www.spectralink.com/resources/white-papers-ebooks?page=1>.

These White Papers identify issues and solutions based on Spectralink’s extensive experience in enterprise-class Wi-Fi telephony. They provide recommendations for ensuring that a network environment is adequately optimized for use with Spectralink devices.

Conventions Used In This Document

Typography

A few typographic conventions, listed next, are used in this guide to distinguish types of in-text information.

<i>Convention</i>	<i>Description</i>
Bold	Highlights interface items such as menus, softkeys, file names, and directories. Also used to represent menu selections and text entry to the handset.
<i>Italics</i>	Used to emphasize text, to show example values or inputs, and to show titles of reference documents available from the Spectralink Support Web site and other reference sites.
<u>Underlined blue</u>	Used for URL links to external Web pages or documents. If you click text in this style, you will be linked to an external document or Web page.
Bright orange text	Used for cross references to other sections within this document. If you click text in this style, you will be taken to another part of this document.
<code>Fixed-width-font</code>	Used for code fragments and parameter names.

This guide also uses a few writing conventions to distinguish conditional information.

<i>Convention</i>	<i>Description</i>
<MACaddress>	Indicates that you must enter information specific to your installation, handset, or network. For example, when you see <MACaddress>, enter your handset's 12-digit MAC address. If you see <installed-directory>, enter the path to your installation directory.
>	Indicates that you need to select an item from a menu. For example, Settings> Basic indicates that you need to select Basic from the Settings menu.

*****END OF DOCUMENT*****