

Vertex[®] Channel Emulator

Release 4.70

System Release Summary

Vertex® Channel Emulator

Release 4.70 – System Release Summary

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Overview

This document contains information about the features and enhancements included in Spirent Vertex® channel emulator release 4.70.

NOTE:

Vertex release 4.70 can only be installed on an instrument that has a 6GHz RF module (SDE-RFUD6). This release will **NOT** work with any Vertex system that has a 4GHz RF module (SDE_RFUD4).

This document is also available on the Spirent Customer Service Center website: <http://support.spirent.com>. Use the e-mail address and password assigned to you by Spirent to log into the Customer Service Center and access the latest release.

New Features

This release introduces the following new features:

- High speed remote programming interface (HSRPI) for the DSPM2, which is an advanced mode of operation for the RPI that significantly improves the speed of command execution of the Vertex channel emulator
- Live streaming dynamic environment emulation (LSDEE) for the DSPM2, which is an advanced feature that provides a high-speed control mechanism for an extensive set of emulation parameters. LSDEE is built on top of the existing DEE feature and uses the DEE engine. Unlike traditional DEE, there is no requirement to predefine and precompile the emulation states or the inter-state duration.
- Support for mmW conversion in High Frequency Converter (HFC) mode
- Support for V2X and D2D channel models
- Support for SSH protocol with RPI
- Band concatenation for 400MHz or greater bandwidth mode
- Ability for Vertex to support 3D geometric channel model (GCM) with the DSPM2
- Improved output power steps linearity to 0.25dB uncertainty range per step during power sweeping
- Multi-instrument DBIC unit (Vertex Baseband Synchronizer) and rack design
- Support for Spirent XA6
- 99 new RPI commands
- Temporal Player for the DSPM2. The Temporal Player enables you to monitor or capture the real-time input/output power of RF ports.

Enhancements and Fixes

This release provides the following enhancements and fixes:

- The following mesh topologies have been added:
 - 16 Node Mesh (FDD)
 - 16 Node Mesh (TDD)
 - Bidirectional Mesh:
 - Full
 - Convoy
 - Star
 - Loop
 - SISO
 - 1x2
 - 2x2
 - 4-N 1x4
 - 4N-4x4
- The following topologies have been added:
 - 16-SISO Bidirectional
 - Dual 16x16
 - 2x8 Bidirectional
 - 2x16 Bidirectional
 - 16x24 Unidirectional
 - 24x16 Unidirectional
 - 8x2 ICM TDD (for Spirent Live2LAB VDT-CT)
 - 8x4 Bidirectional + FDD 4x4 Unidirectional
 - 8x4 Bidirectional + FDD 2x2 Bidirectional FDD
 - 3x3 ICM + SISO
 - 16x2 Bidirectional TDD
 - 14x4 Bidirectional TDD
 - 12x4 Bidirectional TDD
 - 12x6 Bidirectional TDD
 - 3x2 Bidirectional TDD
 - Quad-4x4 Unidirectional with XD5 support (100MHz bandwidth)
 - 8x3 Bidirectional FDD
 - 8x3 Bidirectional TDD

- The following Wi-Fi 6 (IEEE 802.11ax)channel models have been added:
 - **Outdoor models:**
 - Urban Macro (LOS, DS93)
 - Urban Macro (NLOS, DS363)
 - Urban Micro (LOS, DS65)
 - Urban Micro (NLOS, DS129)
 - Urban Micro (O-to-I, DS240)
 - **Indoor models:**
 - Model B (LOS_160M) (Path Reduced)
 - Model B (LOS_80M)
 - Model B (NLOS_160MHz) (Path Reduced)
 - Model B (NLOS_80MHz)
 - Model C (LOS_160M) (Path Reduced)
 - Model C (LOS_80M) (Path Reduced)
 - Model C (NLOS_160M) (Path Reduced)
 - Model C (NLOS_80M) (Path Reduced)
 - Model D (LOS_160M) (Path Reduced)
 - Model D (LOS_80M) (Path Reduced)
 - Model D (NLOS_160M) (Path Reduced)
 - Model D (NLOS_80M) (Path Reduced)
 - Model E (LOS_160M) (Path Reduced)
 - Model E (LOS_80M) (Path Reduced)
 - Model E (NLOS_160M) (Path Reduced)
 - Model E (NLOS_80M) (Path Reduced)
 - Model F (LOS_160M, No Fluorescent Lights) (Path Reduced)
 - Model F (LOS_80M, No Fluorescent Lights) (Path Reduced)
 - Model F (NLOS_160M, No Fluorescent Lights) (Path Reduced)
 - Model F (NLOS_80M, No Fluorescent Lights) (Path Reduced)

NOTE:

The bell shape is not supported currently.

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- An FPGA fix has been made that addresses the issue with pause (bad spectrum) that does not break the RL insertion delay and RL enable/disable consistency.
- DEE start variable delay has been fixed.
- Dual 4x2 Bidirectional TDD/FDD SISO bypass issue with lower/secondary cell (100MHz) has been fixed.
- Real-time VOTA – output power issue with LoS model has been fixed.
- The following dual-instrument setup issues have been fixed:
 - DEE cannot work with some dual-instrument connection setups such as 16x4 Bi, 16x8 Bi, 32x2 Bi, and 32x4 Bi.
 - Bulk delay is not accurate in a dual-Vertex setup in which both systems have DSPM2 modules.
 - When you launch the correlation editor with a 32x4 Bi connection setup, the GUI will be disconnected.

Installation Instructions

To install Vertex release 4.70, follow the instructions provided in the *Spirent Vertex® Channel Emulator Release 4.70 System Deployment Instructions, 71-008948, Version A0*.

This document is available on the Spirent Customer Service Center website:
<http://support.spirent.com>.

Documentation

The following table lists the documentation related to Vertex release 4.70.

Document	Part Number
<i>Spirent Vertex® Channel Emulator Release 4.70 System Release Summary</i>	71-008947, Version A0
<i>Spirent Vertex® Channel Emulator Release 4.70 System Deployment Instructions</i>	71-008948, Version A0
<i>Spirent Vertex® Channel Emulator Release 4.70 User Manual</i>	71-008949, Version A0
<i>Spirent Vertex® Channel Emulator Release 4.70 RPI Command Reference Manual</i>	71-007840, Version A10
<i>Spirent Setup Guide: Vertex® Channel Emulator</i>	71-007894, Version A8
<i>Spirent Setup Guide: Multilink Duplexing Test System – Vertex®</i>	71-008027, Version A0

To access the latest versions of these documents, perform the following steps:

1. Log into the Spirent Customer Service Center website (<http://support.spirent.com>) using the email address and password assigned to you by Spirent.
2. In the Search Knowledge Base box, enter **DOC10797** and click on **Search KB**.
The results list appears.
3. Click on **Spirent Vertex® Channel Emulator Documentation**.
The Spirent Vertex® Channel Emulator Documentation page appears.
4. Click on the link for the document in which you are interested.
The page for the selected document appears.
5. Click on the link in the Attachment area to view the corresponding PDF.

How to Contact Us

To obtain technical support for any Spirent Communications product, please contact our Support Services department using any of the following methods:

Americas

E-mail: support@spirent.com

Web: <http://support.spirent.com>

Toll Free: +1 800-SPIRENT (+1 800-774-7368) (North America)

Hours: Monday through Friday, 05:30 to 18:00 Pacific Time

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Information about Spirent Communications and its products and services can be found on the main company website at <http://www.spirent.com>.

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Known Issues

This section describes the known issues in this release.

Vertex GUI

Product	Vertex Channel Emulator 4.70
Description	Vertex keeps updating values in the Phase Calibration Values window when you change input frequency using the RPI command while the Phase Calibration Values window is open.
Impact	There is no impact on the application. However, the GUI display looks abnormal.
Workaround	Close the Phase Calibration Values window if you change the input frequency using the RPI command.
Disposition	Spirent intends to fix this issue in a future release.

Product	Vertex Channel Emulator 4.70
Description	When you disable all radio links in a Bidirectional connection setup, the B1/B2 ports of Vertex still show measured power.
Impact	This is a display issue, and it has no impact on your application.
Workaround	None.
Disposition	Spirent intends to fix this issue in a future release.

Product	Vertex Channel Emulator 4.70
Description	GUI crashes when you select HFC bands in 3DGCM mode.
Impact	You must configure HFC bands before entering 3DGCM mode.
Workaround	Use HFC mode in Real-time classical/GCM or IQP mode.
Disposition	Spirent intends to fix this issue in a future release.

Dual Instrument Setup

Product	Vertex Channel Emulator 4.70
Description	Insertion delay varies for limited links across reboot for dual instrument connection setups.
Impact	The phase or delay of some radio links may change after reboot.
Workaround	Reboot (which fixes the issue approximately 50% of the time) or manually tune the phase of the changed radio link.
Disposition	Spirent intends to fix this issue in a future release.

IQ Player

Product	Vertex Channel Emulator 4.70
Description	IQ Player DEE-Lite with AWGN does not work reliably with the 32x4 Bidirectional topology.
Impact	You cannot dynamically change AWGN within the IQ playback file.
Workaround	None. Do not enable IQ Playback DEE-Lite with AWGN when using the 32x4 Bidirectional topology.
Disposition	Spirent intends to fix this issue in a future release.

DEE

Product	Vertex Channel Emulator 4.70
Description	On a limited number of systems, an internal communication failure occurred after running a DEE stress test for a long period of time (such as a few hours) with the 8x4+2x2 Bidirectional FDD topology.
Impact	DEE may not work properly after running a few hours.
Workaround	None.
Disposition	Spirent intends to fix this issue in a future release.

Product	Vertex Channel Emulator 4.70
Description	Insertion delay varies for limited links across reboots.
Impact	DEE may not work properly after running a few hours.
Workaround	None.
Disposition	Spirent intends to fix this issue in a future release.

Product	Vertex Channel Emulator 4.70
Description	Insertion delay varies for limited links across reboot for dual instrument connection setups.
Impact	The phase or delay of some radio links may change after reboot.
Workaround	Reboot (which fixes the issue approximately 50% of the time) or manually tune the phase of the changed radio link.
Disposition	Spirent intends to fix this issue in a future release.

MIMO-OTA Environment Builder

NOTE:

MIMO-OTA Environment Builder does not work with a dual-Vertex setup in offline mode in Vertex release 4.70.

Product	Vertex Channel Emulator 4.70
Description	You cannot change the chamber setup in offline mode if you select a dual-Vertex configuration of MIMO-OTA.
Impact	You cannot build a dual-Vertex MIMO-OTA model file in offline mode. However, you can still use it by connecting to a “real” Vertex system.
Workaround	Build the model when you are connected to a “real” Vertex system.
Disposition	Spirent intends to fix this issue in a future release.

Product	Vertex Channel Emulator 4.70
Description	You cannot change the power level by clicking the arrow key in the GUI of the MIMO-OTA Environment Builder software. When you click the arrow key for the power setting, you will get the following Exception message: System.NullReferenceException: Object reference not set to an instance of an object....
Impact	You cannot use the arrow key in the GUI of MIMO-OTA Environment Builder software to change the power level.
Workaround	Set the power level by typing in the value.
Disposition	Spirent intends to fix this issue in a future release.