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DATASHEET

Spirent Vertex® Multi-Band High Frequency Converter

Enabling Channel Emulation for 5G FR2 Applications

The Vertex Multi-Band High Frequency Converter (MB-HFC) was developed to bring advanced channel emulation test capabilities to 5G NR applications by extending the Vertex RF channel emulator frequency range from radio frequency (RF) bands to higher mmWave frequency bands. A single unit can support multiple 5G NR FR2 bands from 24.25GHz to 48.2GHz. FR2 bands can be switched remotely through Ethernet commands. It incorporates high gain low noise amplifiers which compensate the path loss for mmW device test in radiated OTA (over the air) mode.

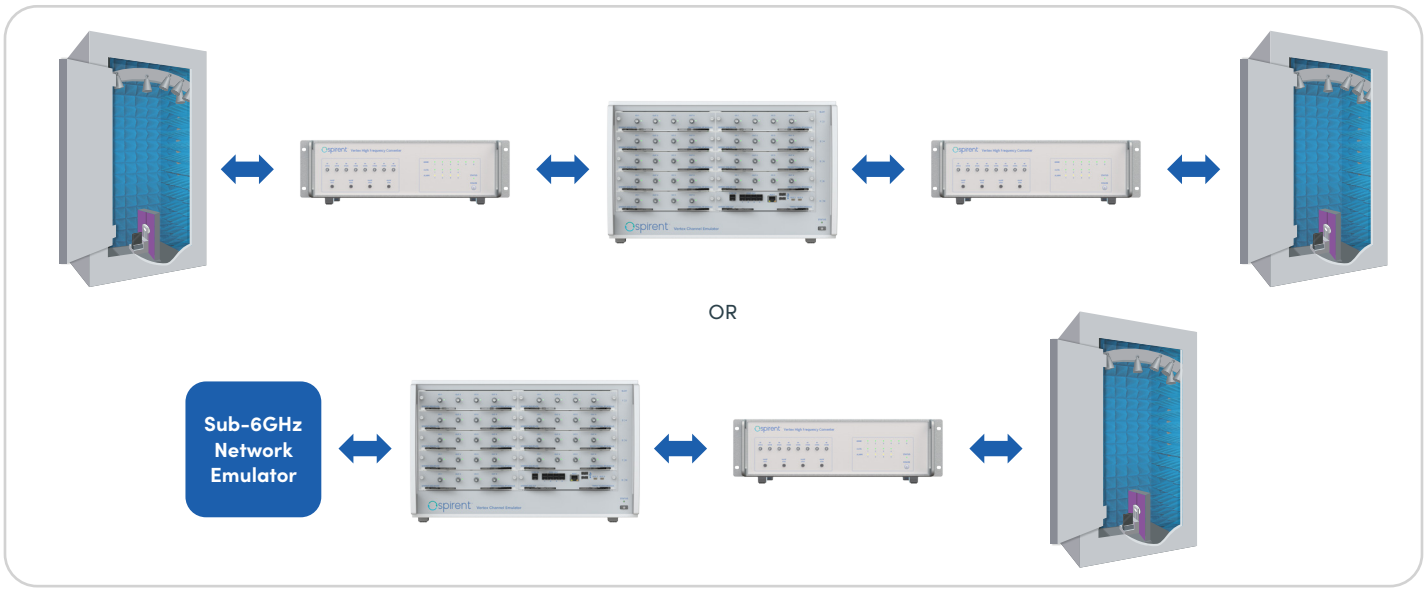
Typical Application Scenarios

The Vertex MB-HFC can be used to inject RF channel emulation between a mmW band gNodeB (gNB) with Vertex RF channel emulator which natively supports a frequency range below 6GHz.

The MB-HFC unit can be used for a mmW band device, end to end OTA test system, and or used between sub-6GHz network emulator and mmW band device tests.

Key Features

- Six 5G NR FR2 bands: N257, N258, N259, N260, N261, N262
- Remote band switching and up/down configuration through ethernet control
- 4 Independent channels
- Embedded mmWave and RF amplifiers
- Lock detect, PA alarms, and temperature monitoring capabilities



Technical Specifications:

5G NR FR2 Bands	N257	N258	N259	N260	N261	N262
Frequency range	**26.5 - 29.5GHz**	**24.25 - 27.5GHz**	**39.5 - 43.5GHz**	**37.0 - 40.0GHz**	**27.5 - 28.35GHz**	**47.2 - 48.2GHz**
LO	23.5GHz	21.5GHz	Split 37.5 - 43GHz	43GHz	23.5GHz	43GHz
Input frequency	3 - 6GHz	2.75 - 6GHz	2 - 6GHz	3 - 6GHz	4 - 4.85GHz	4.2 - 5.2GHz
Nominal and Maximum Input power level to any RF/mmWave port input – down- convert mode	-40/10dBm	-40/10dBm	-40/10dBm	-40/10dBm	-30/10dBm	-30/10dBm
Nominal and Maximum Input power to any IF port	-37/0dBm	-37/0dBm	-37/0dBm	-37/0dBm	-35/0dBm	-35/0dBm
Typical EVM for 5G NR 100 MHz with PAPR of 15 dB nominal input power (single channel)	< 1.5%	< 1.5%	< 1.8%	< 1.8%	< 1.8%	< 1.8%
Typical Up/Down Conversion gain simplex mode	32/30dB	32/30dB	33/30dB	34/30dB	22/20dB	22/20dB
Typical Up/Down Conversion gain Duplex mode	26/24dB	26/24dB	27/24dB	28/24dB	14/16dB	14/16dB
Typical in band ripple per 100 MHz band	2dB	2dB	3dB	2dB	3dB	3dB
10MHz reference	External	External	External	External	External	External
In Band Spurious Emission	-40dBc	-40dBc	-40dBc	-40dBc	-40dBc	-40dBc
Impedance	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms	50 ohms
Input VSWR	<1.95	<1.95	<1.95	<1.95	<1.95	<1.95

Note 1: When multiple HFCs are used in a system to increase channel capacity, please be sure their external clocks are all connected to the same qualified 10MHz clock source.

Note 2: This product is not meant to be used in a standalone configuration, it must be used with Vertex Channel Emulator.

Note 3: There is a spectral inversion for band N260 and part of N259.

About Spirent Communications
Spirent Communications (LSE: SPT) is a global leader with deep expertise and decades of experience in testing, assurance, analytics and security, serving developers, service providers, and enterprise networks. We help bring clarity to increasingly complex technological and business challenges. Spirent's customers have made a promise to their customers to deliver superior performance. Spirent assures that those promises are fulfilled. For more information visit: **www.spirent.com**

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