

N9910XVDI

Millimeter-Wave Frequency Extenders for FieldFox Handheld Analyzers

50 to 75 GHz, 60 to 90 GHz

Introduction

Field engineers require precise millimeter-wave (mmWave) measurements to advance modern wireless communications and radar systems. This precision is essential for 5G, 6G, aerospace and defense, and automotive radar transmission and reception testing. Keysight FieldFox meets this need by enabling mmWave measurements in a lightweight, portable solution when paired with the Keysight N9910XVDI frequency extender modules. Covering 50–75 GHz (WR15 or V-band) and 60–90 GHz (WR12 or E-band), this solution provides a cost-effective and practical tool for mmWave signal analysis in both field and lab environments.



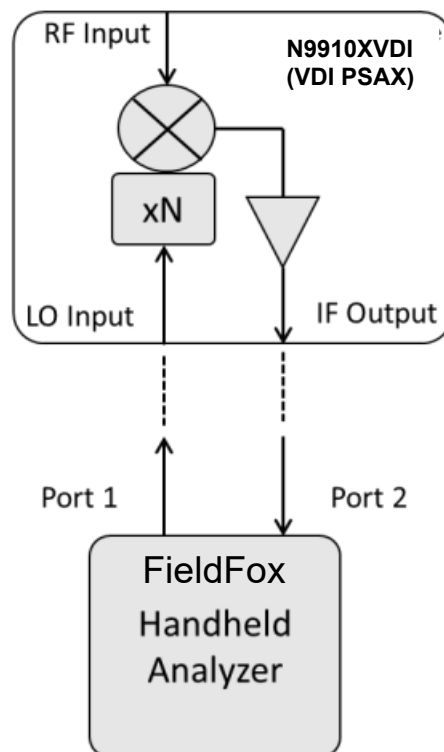
Product Description

The Keysight N9910XVDI mmWave Frequency Extenders, originally designed and built by the Virginia Diode Inc. (VDI) as PSAX products, are specifically built for FieldFox Handheld Analyzers.

When directly connected to compatible FieldFox models (those with a maximum frequency of 18 GHz or higher ¹), the N9910XVDI extends the analyzer's frequency range to mmWave bands: Option N9910X-W15 for 50–75 GHz (WR15 or V-band) or N9910XVDI-E12 for 60–90 GHz (WR12 or E-band). The N9910XVDI enhances mmWave performance and supports FieldFox's in-band signal analysis through spectrum analysis mode, IQ analysis mode, or Real-Time Spectrum Analyzer (RTSA) mode—all in a highly cost-effective manner.

Weighing less than 4 kg in total, the combination of an N9910XVDI frequency extender and a FieldFox analyzer provides an ideal mmWave spectrum analysis solution for both field and lab environments.

Block Diagram



¹ The compatible FieldFox models include N9917A/B, N9918A/B, N9937A/B, N9938A/B, N9950A/B, N9951A/B, N9952A/B, N9960A/B, N9961A/B, N9962A/B. For the combo analyzers (N991xA/B, and N995xA/B), the spectrum analyzer option (Option 233) is required.

Specifications

Description	N9910XVDI-W15	N9910XVDI-W12
RF frequency band	50 - 75 GHz	60 – 90 GHz
RF power limits (P1B est./Damage typ.)	-10 dBm/+17 dBm	-10 dBm/+17 dBm
Maximum IF output frequency	7.5 GHz	9 GHz
SSB conversion loss (typ.) ¹	-8 dB	-8 dB
Noise figure (typ.)	12 dB	12 dB
LO harmonic factor (N)	6	6
Current draw (typ. @ +5.5 V)	300 mA	300 mA

General information for both N9910XVDI-W15 and N9910XVDI-W12

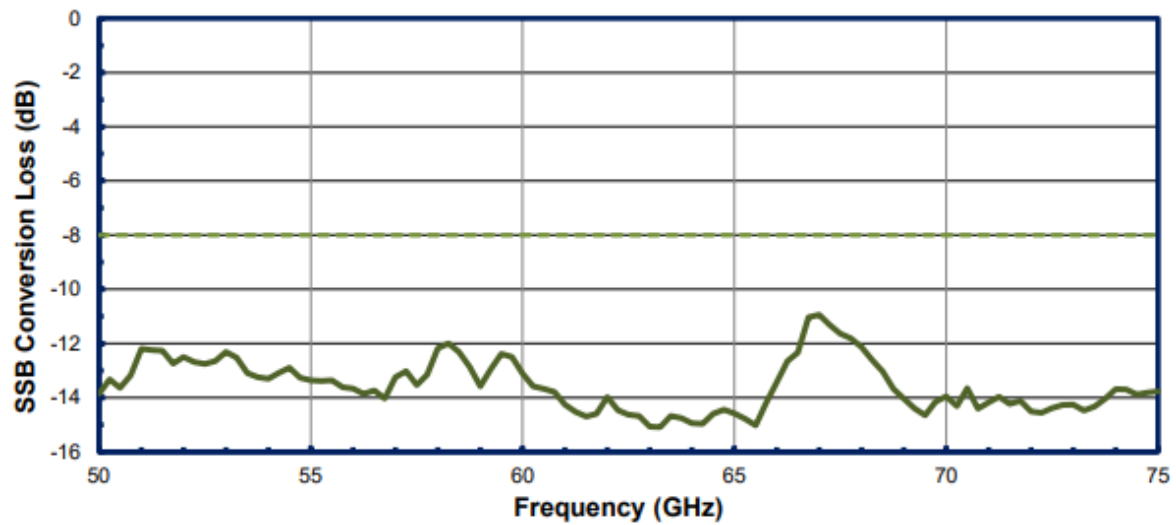
Description	Specification	Connector
LO input	Typical/Damage 0 dBm ±3 dB/8 dBm	2.92 mm (f)
IF output	Minimum frequency 100 MHz	2.92 mm (f)
	Maximum frequency See table above	
RF test port	VDI precision flange WR15 to WR12	UG-387
DC bias port ²	- +5.5 to +7.5 V	LEMO 00
Maximum weight	- 0.88 lb (0.4 kg), est'd	-
Enclosure dimension	Typical (L x W x H) 3.00" x 4.50" x 1.50"	-
Operating temperature	Typical/Recommended 25 °C/20-30 °C	-
Maximum rated humidity	At 30 °C ~75%	-

¹ SSB Conversion Loss is specified at 1 IF and is measured from the RF test port to IF output port. This includes intrinsic mixer conversion loss and IF amplifier gain. Negative conversion loss is conversion gain. When operating at higher IF frequencies, the N*LO may need to be set within the RF frequency band. When setting N*LO outside of the RF frequency band the N9910XVDI will have reduced performance which is not guaranteed.

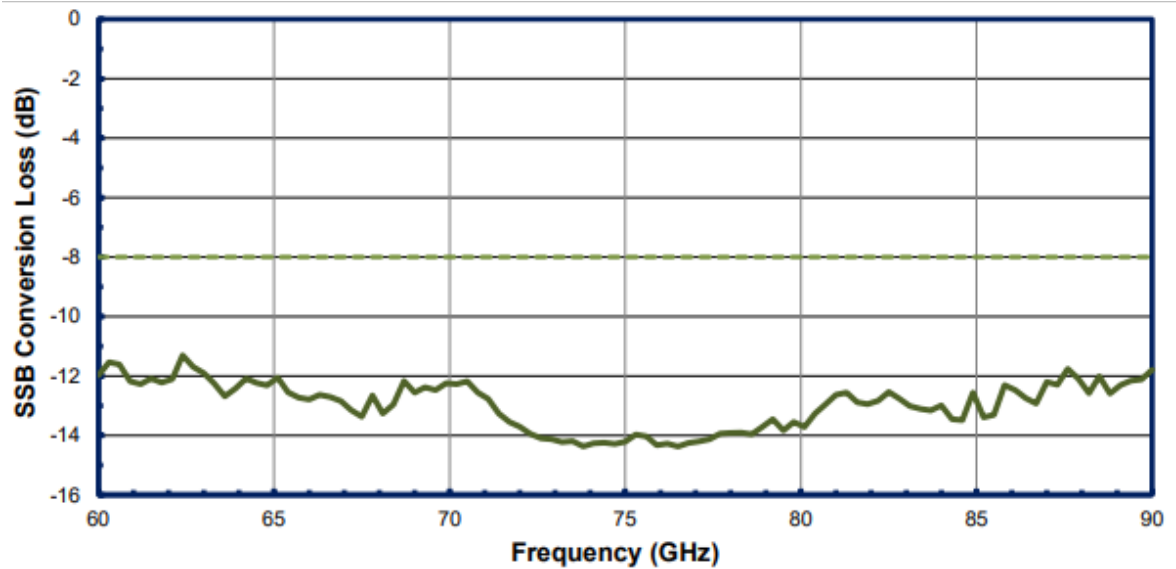
² Includes Quantity 2 of 12-inch LEMO 00 to SMB cables to SMB port on FieldFox handheld analyzer - One for operation, and the other as a spare or replacement.

SSB Conversion Loss

N9910XVDI-W15 (WR15PSAX)



N9910XVDI-W12 (WR12PSAX)



Ordering Information

Model/option number	Description	Note
N9910XVDI mmWave extenders		
N9910XVDI	VDI frequency extenders for FieldFox	Top model
N9910XVDI-W15	WR15 frequency extender, 50 to 75 GHz	VDI WR15PSAX module
N9910XVDI-W12	WR12 frequency extender, 60 to 90 GHz	VDI WR12PSAX module
N9910XVDI-100	DC power cable replacement	Only required for cable replacement
N9910XVDI-101	Male-SMA to female-SMA adapters	For connection to an N9918A/B or N9938A/B equipped with Option 100
N9910XVDI-102	Male-type-N to male-SMA adapters	For connection to an N9917A/B, N9937A/B
N9910XVDI-103	Female-2.4 mm to male-SMA adapters	For connection to an N995xA/B, N996xA/B
N9910XVDI-104	Female-SMA to male-SMA adapter, right angle, for connecting GPS antenna or Trigg/Ref input	Only required when the GPS antenna or Trigger/Ref input is connected
N9910XVDI-105	Coaxial straight female-SMA to female-type-N as spacer	To add extra space when connecting to an N9917A/B or N9937A/B
FieldFox handheld analyzer		
N9917A/B, N9918A/B N995xA/B	FieldFox handheld combo analyzer	
N9937A/B, N9938A/B, N996xA/B	FieldFox handheld spectrum analyzer	
N9917A/B-233, N9918A/B-233 N995xA/B-233	Spectrum analyzer	Required only for the combo analyzer. Upgradable ¹

¹ A license key enabled upgrade is available to an existing FieldFox handheld analyzer.

Conclusion

This datasheet provides an overview of the key performance and features of the Keysight N9910XVDI mmWave frequency extenders. When paired with a Keysight FieldFox handheld analyzer, it delivers a cost-effective mmWave signal analysis solution for both field and lab environments.

For further information, please contact VDI by accessing [Portable Spectrum Analyzer Extenders \(PSAX\)](#)