



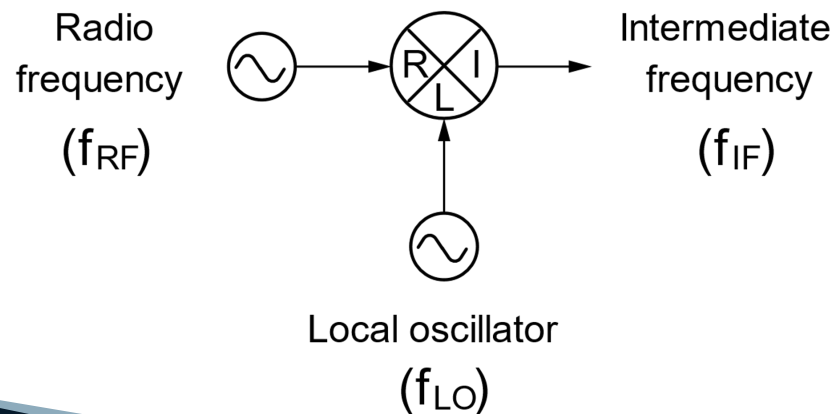
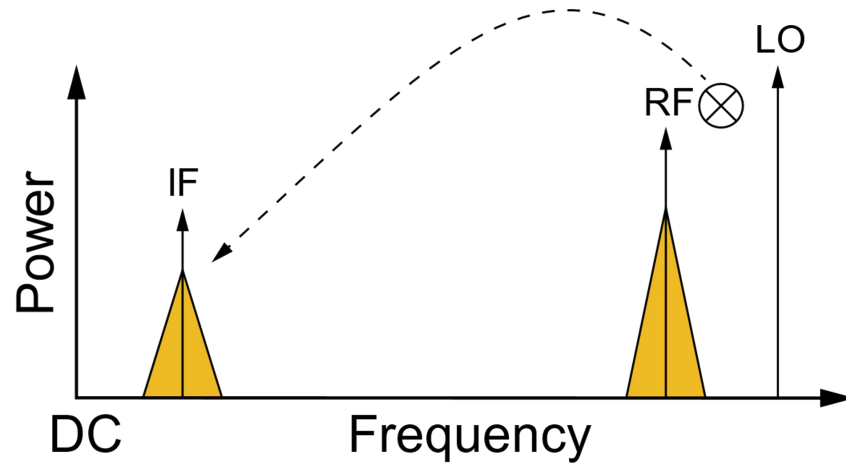
UD Box 5G Introduction & Applications

V2.1

Frequency Conversion

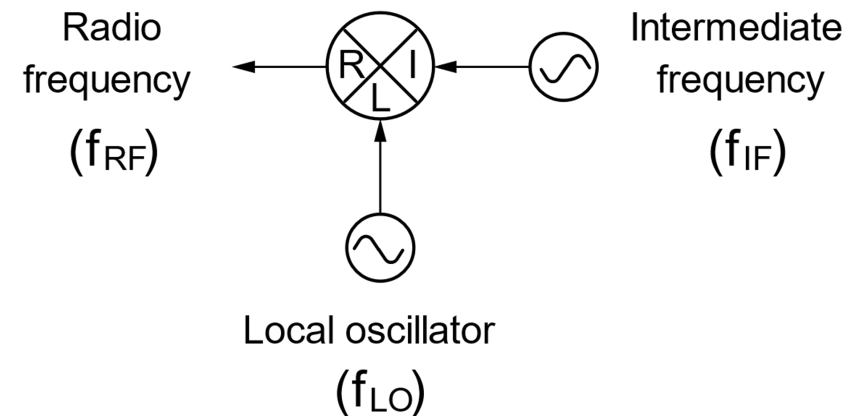
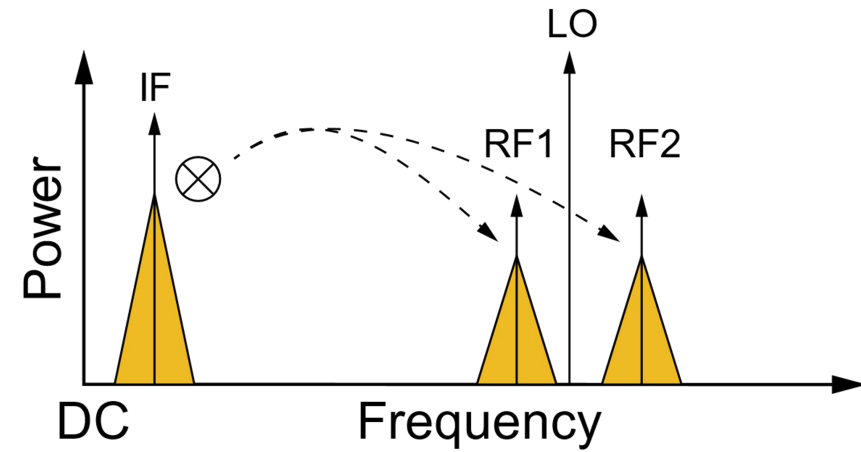
Downconversion

$$f_{IF} = |f_{LO} - f_{RF}|$$



Upconversion

$$f_{RF1} = f_{LO} - f_{IF} \quad f_{RF2} = f_{LO} + f_{IF}$$



UD Box 5G Brief Introduction

- UD Box is broadband up/downconverter built for 5G applications.
- High precision OCXO enables high-quality, low-noise built-in LO.
- 100 MHz Sync Signal to synchronize multiple UD Box units.
- 10 MHz Sync Signal for instrument synchronization.

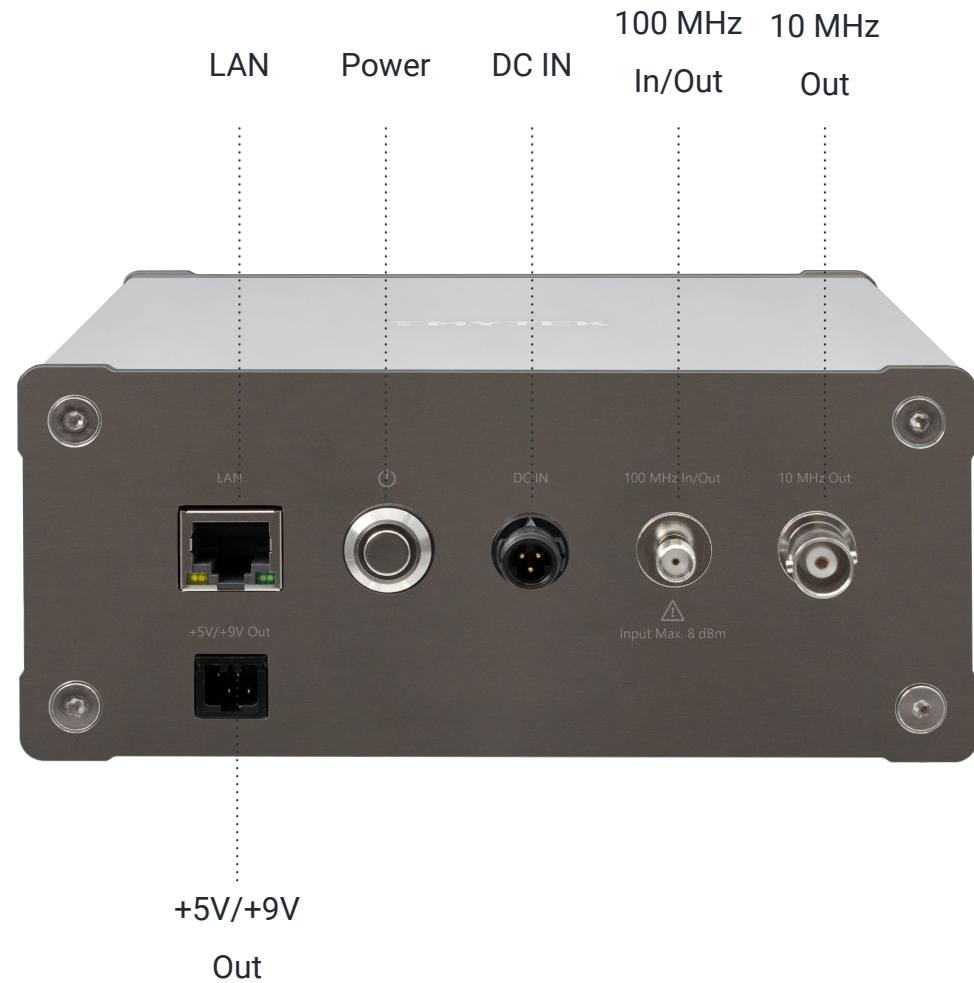
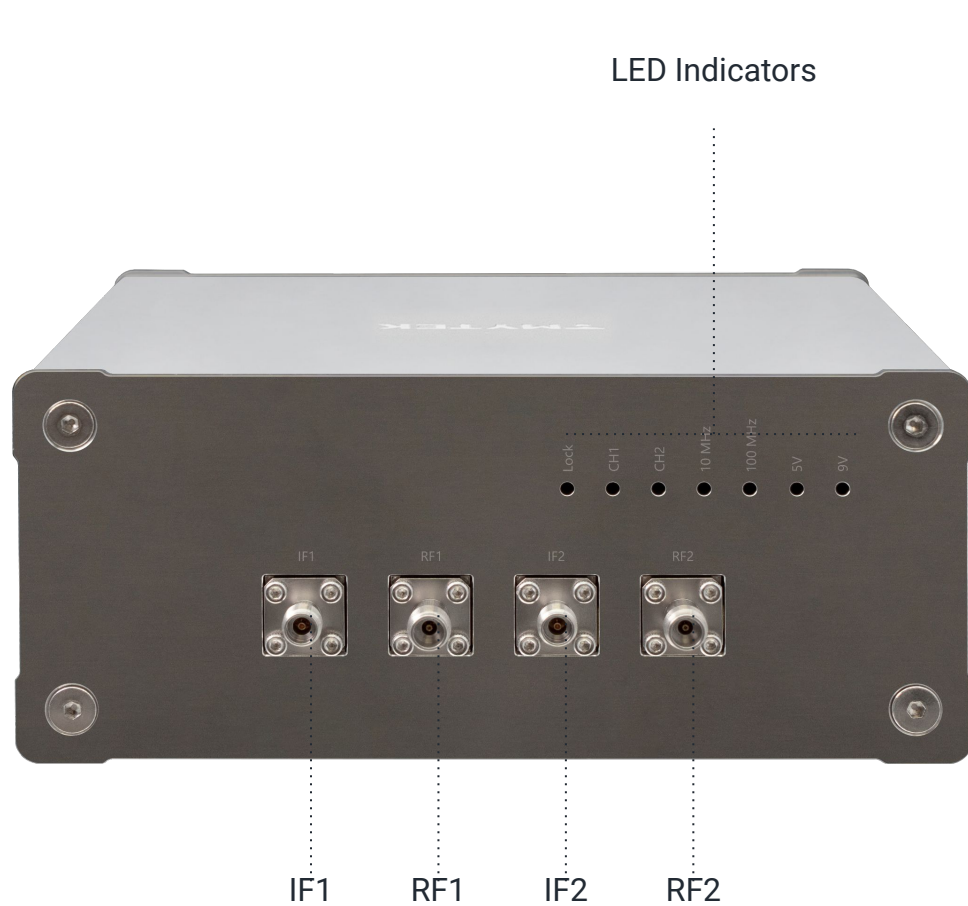


Single



Dual

UD Box 5G Brief Introduction



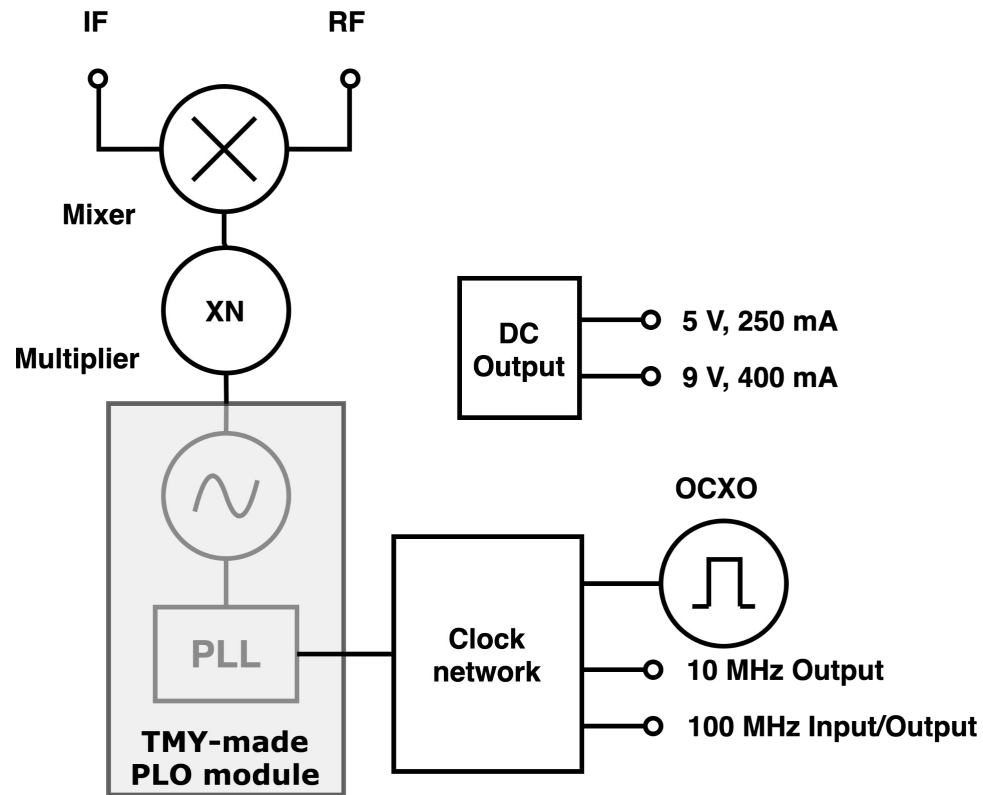
UD Box 5G Feature



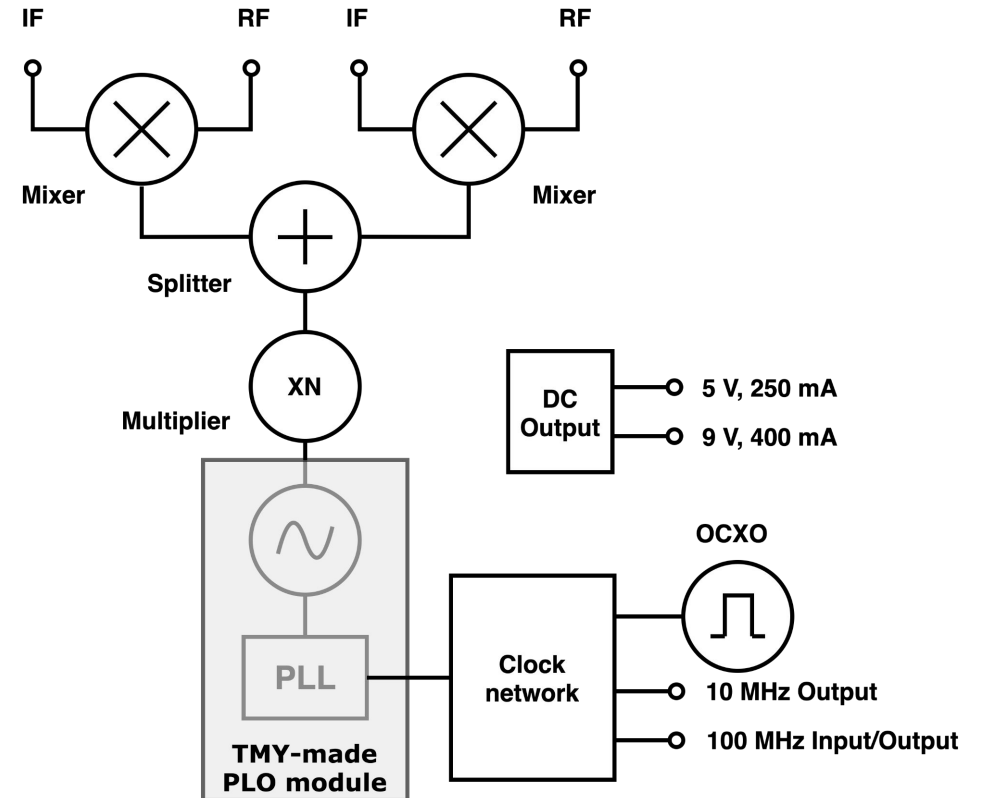
Dual

- RF: 24 to 44 GHz
- IF: 0.01 to 14 GHz
- Adjustable LO frequency: 24 to 44 GHz
- Conversion Loss: 12 dB (typical)
- Integrated with internal LO source
- Choices of single or dual channels
- Up and down conversion in the same box
- Ideal for 5G communication application
- RoHS Compliant

UD Box 5G Architecture



Single



Dual

UD Box 5G Software

The screenshot displays the TMYTEK UD Box 5G Software interface. At the top left, there is a "Scan Local Device" button and a device icon labeled "UD BOX" with ID "UDBOX123423432". Below this, a "UD BOX Single Channel" section shows the same device ID. To the right, a "Ref Source" panel has radio buttons for "Internal" and "External", with "External" selected. The main "Frequency Setting" panel includes a "Loopback" radio button, a "100 MHz" dropdown menu, and a "Bandwidth" label. It also features a "Harmonic" radio button. The "Occupied Frequency Range" is shown as "23,950-24,050 MHz". The "RF" is set to "24,000 MHz" and the "IF" is "100 MHz". A "High-Side Injection" sub-panel shows "LO" selected, with "HSI" and "LSI" both set to "23,900 MHz". A "Reset" button is located below this sub-panel. To the right of the frequency settings is a schematic diagram of a mixer circuit with a "100MHz" LO input, and "IF1" and "RF1" outputs. At the bottom, there are three control panels: "Channel Control" with a "Lock" indicator and a "CH 1" toggle; "Ref Control" with "10MHz" and "100MHz" toggles; and "Output Voltage" with "+5V ext" and "+9V ext" toggles. A device icon is shown at the bottom right.

UD Box 5G + SDR (Single Channel)

Compatible with...

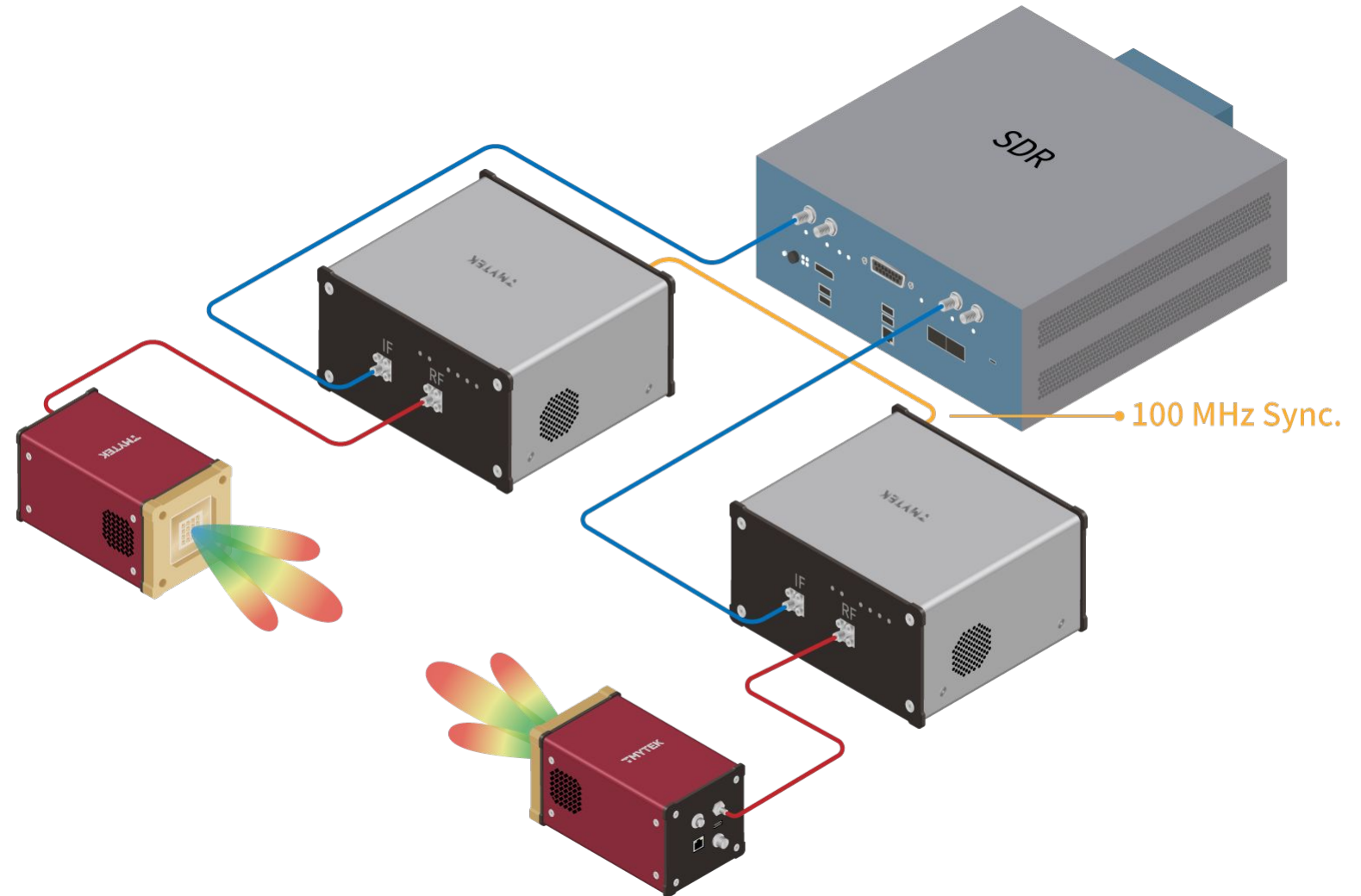
NI-PXI-Series

NI-USRP-2974

Amarisoft Callbox

ABIT AU-500

Xilinx RFSoc



UD Box 5G + SDR (Single Channel)

Compatible with...

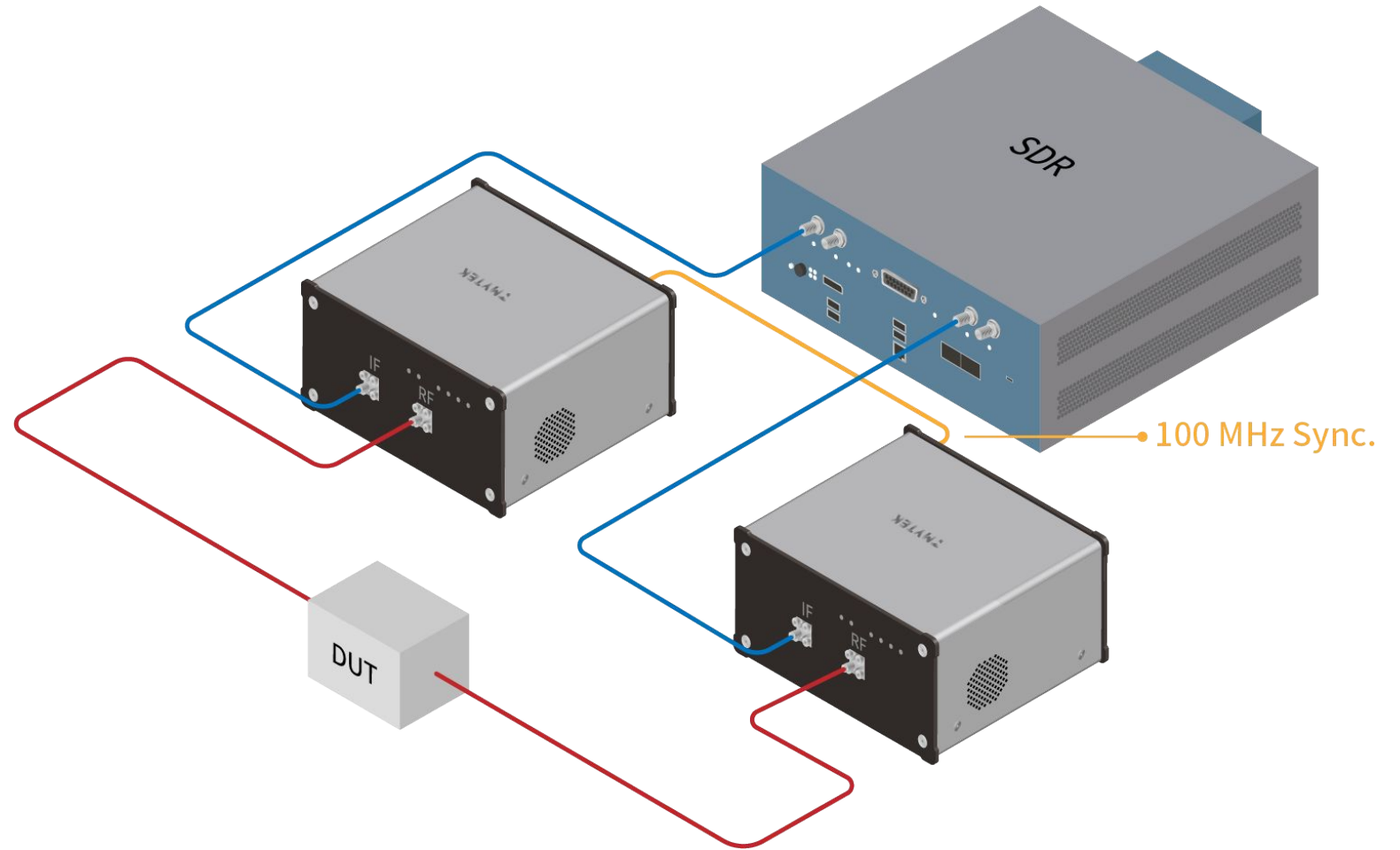
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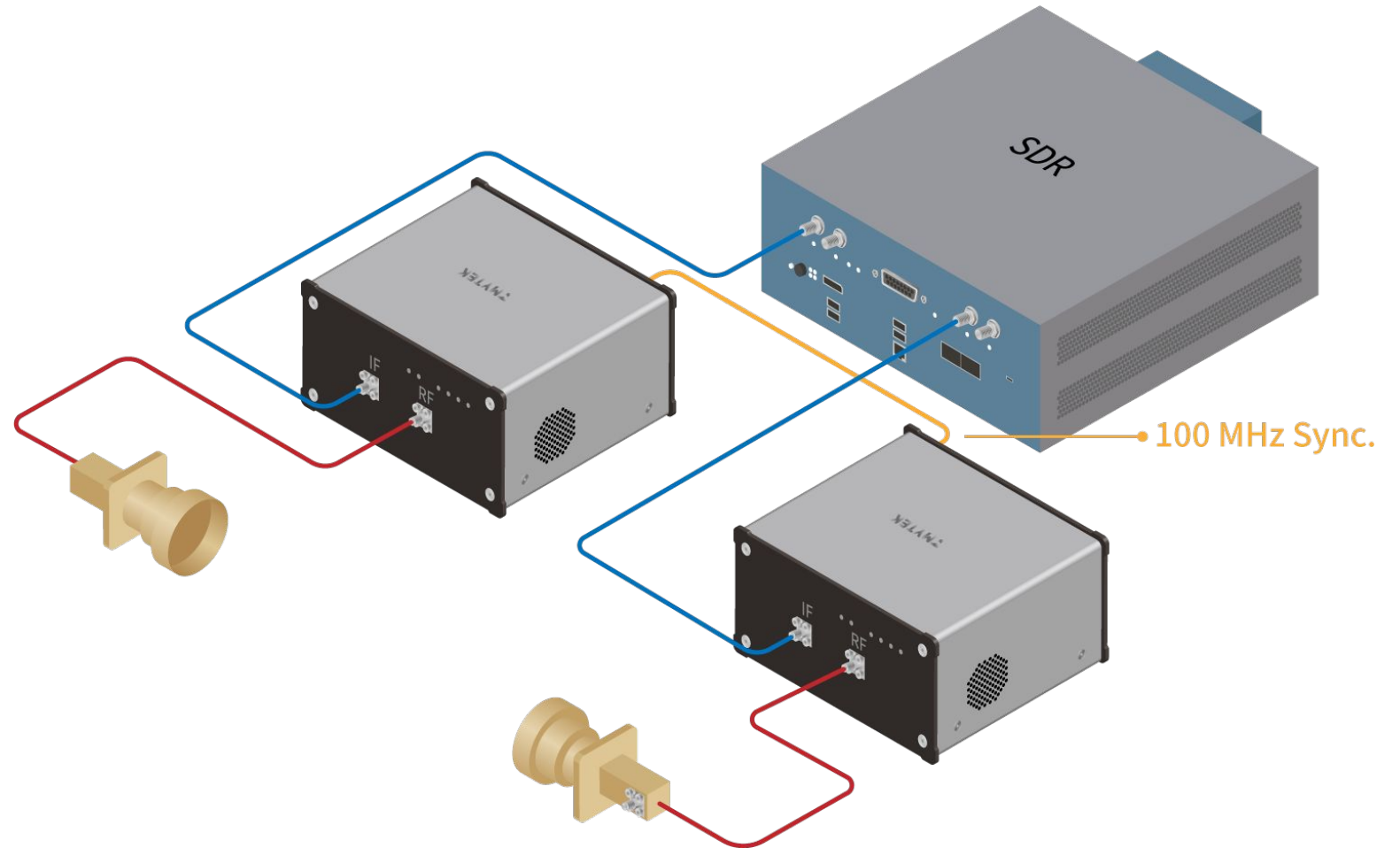
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UD Box 5G + SDR (Dual Channel)

Compatible with...

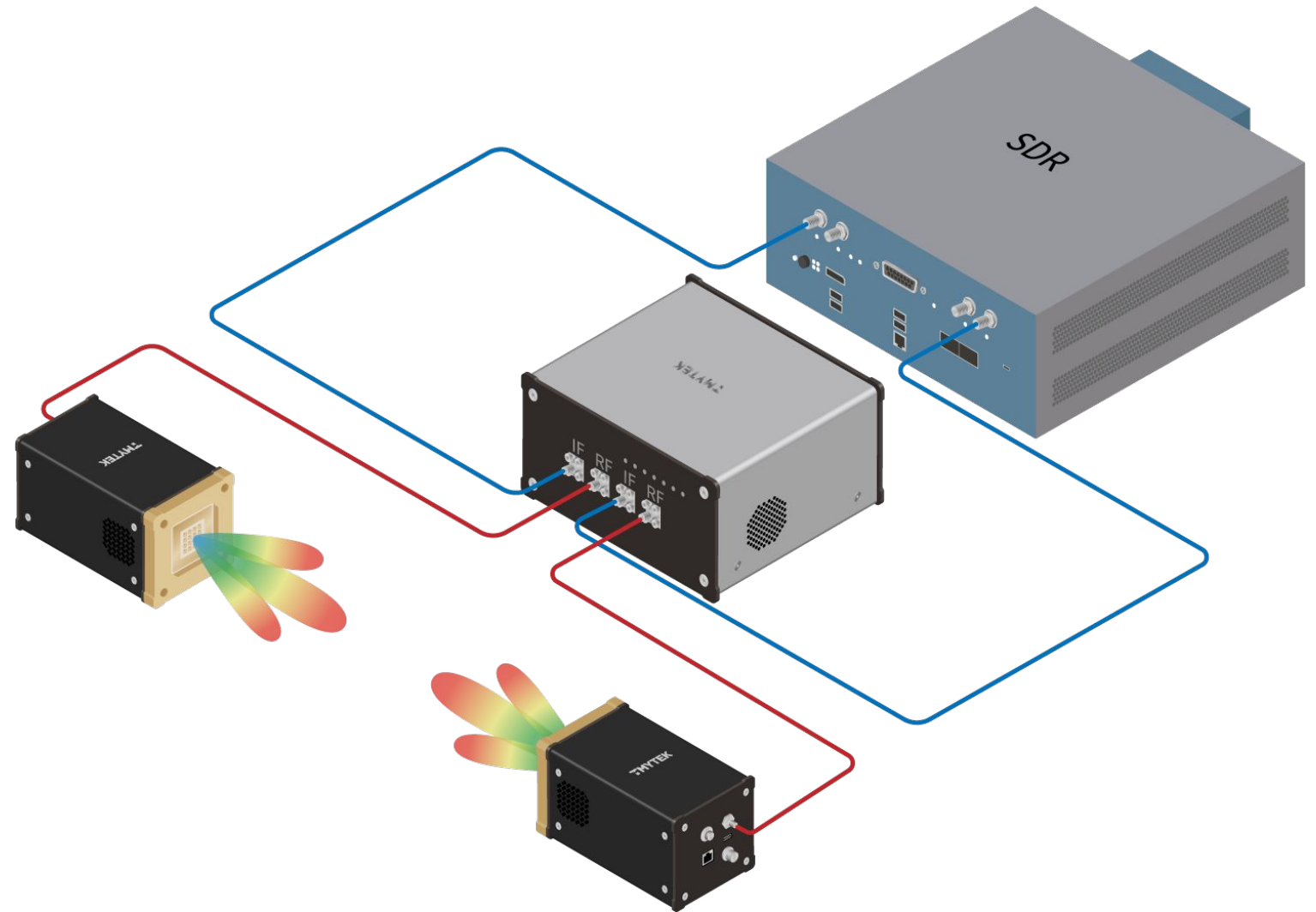
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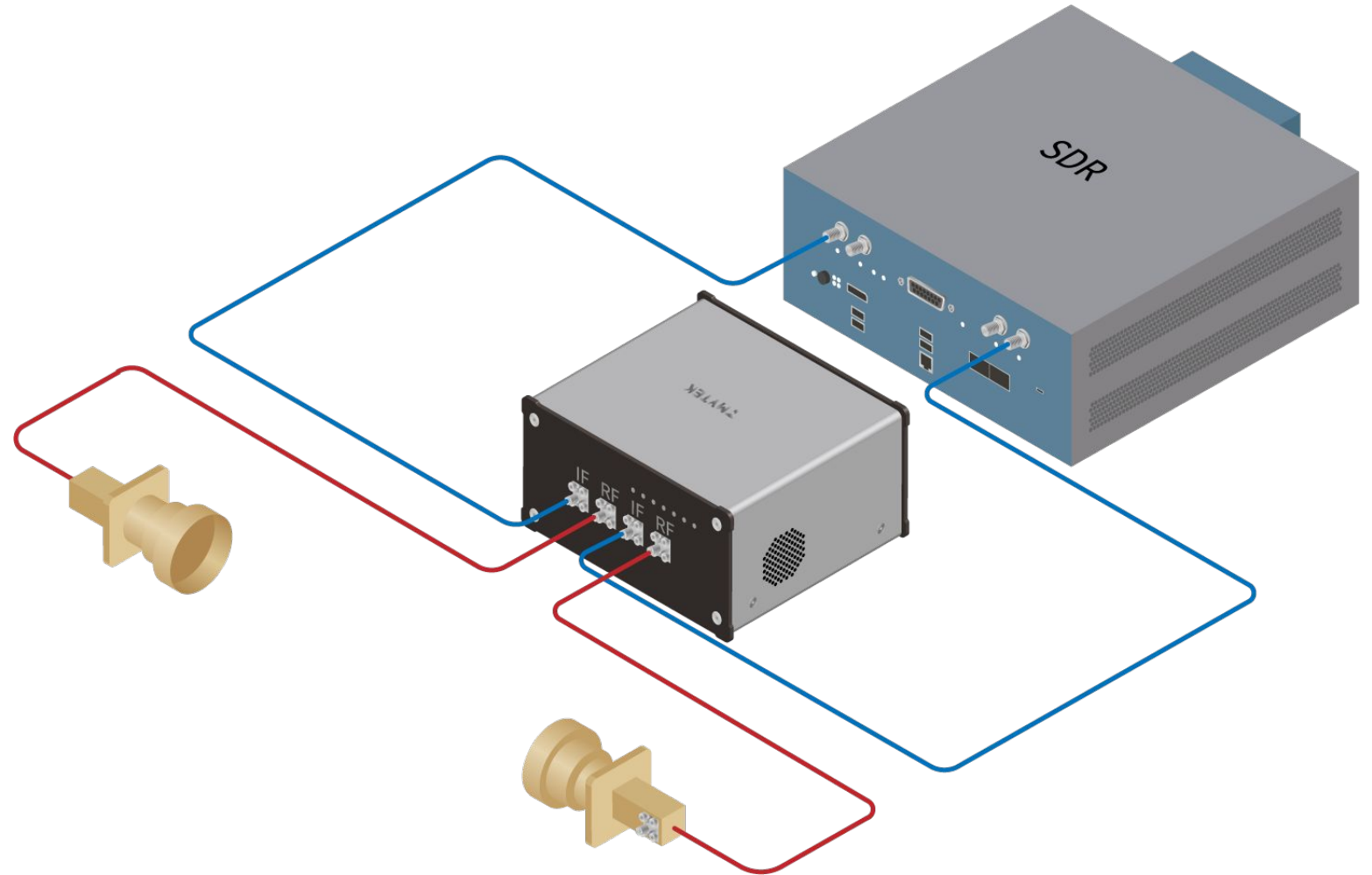
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UD Box 5G + Radio Communication Analyzer (Single Channel)

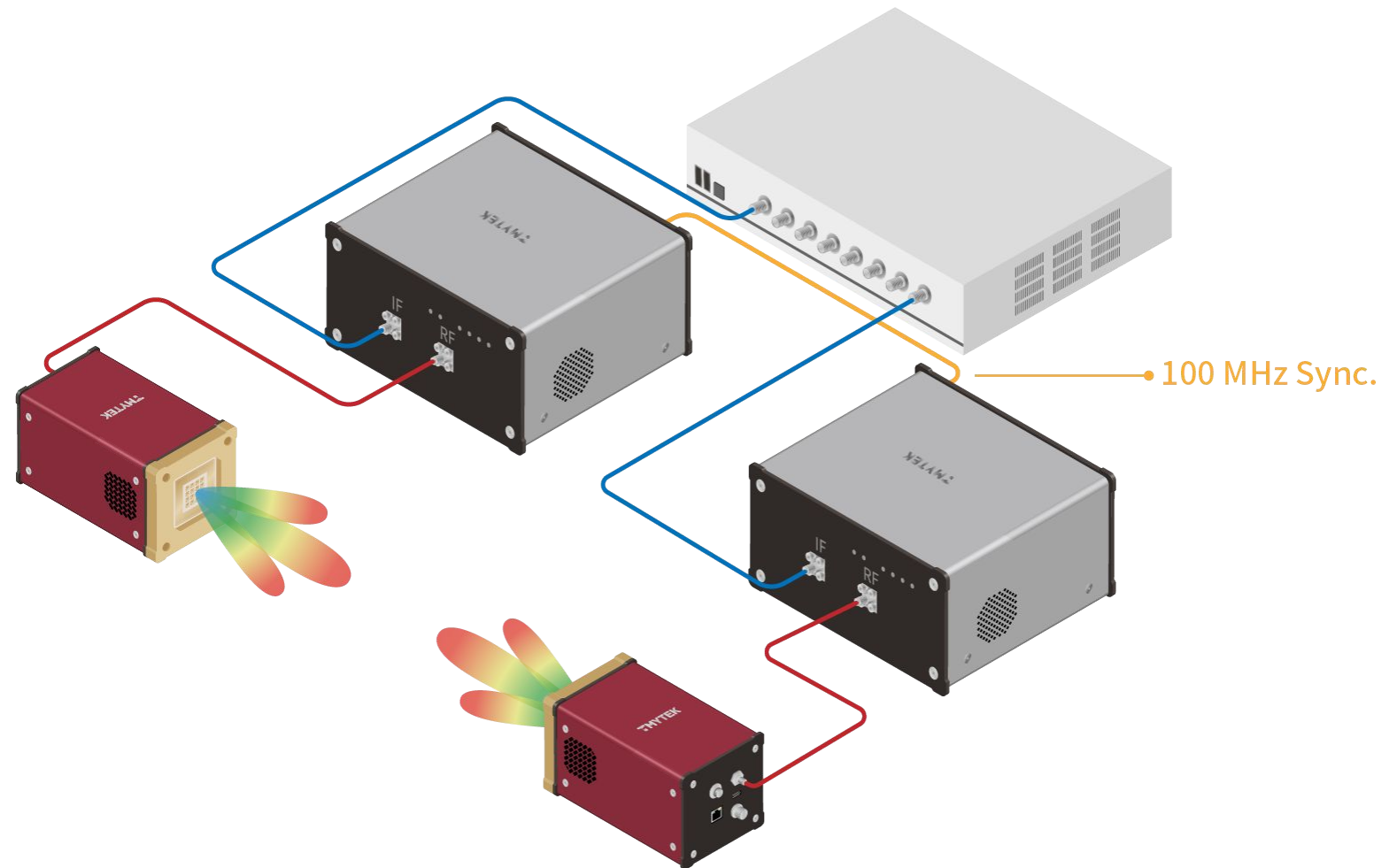
Compatible with...

LitePoint-IQxstream

R&S CMW100

Anritsu MT8870A

Keysight E7515B
UXM 5G



UD Box 5G + Radio Communication Analyzer (Single Channel)

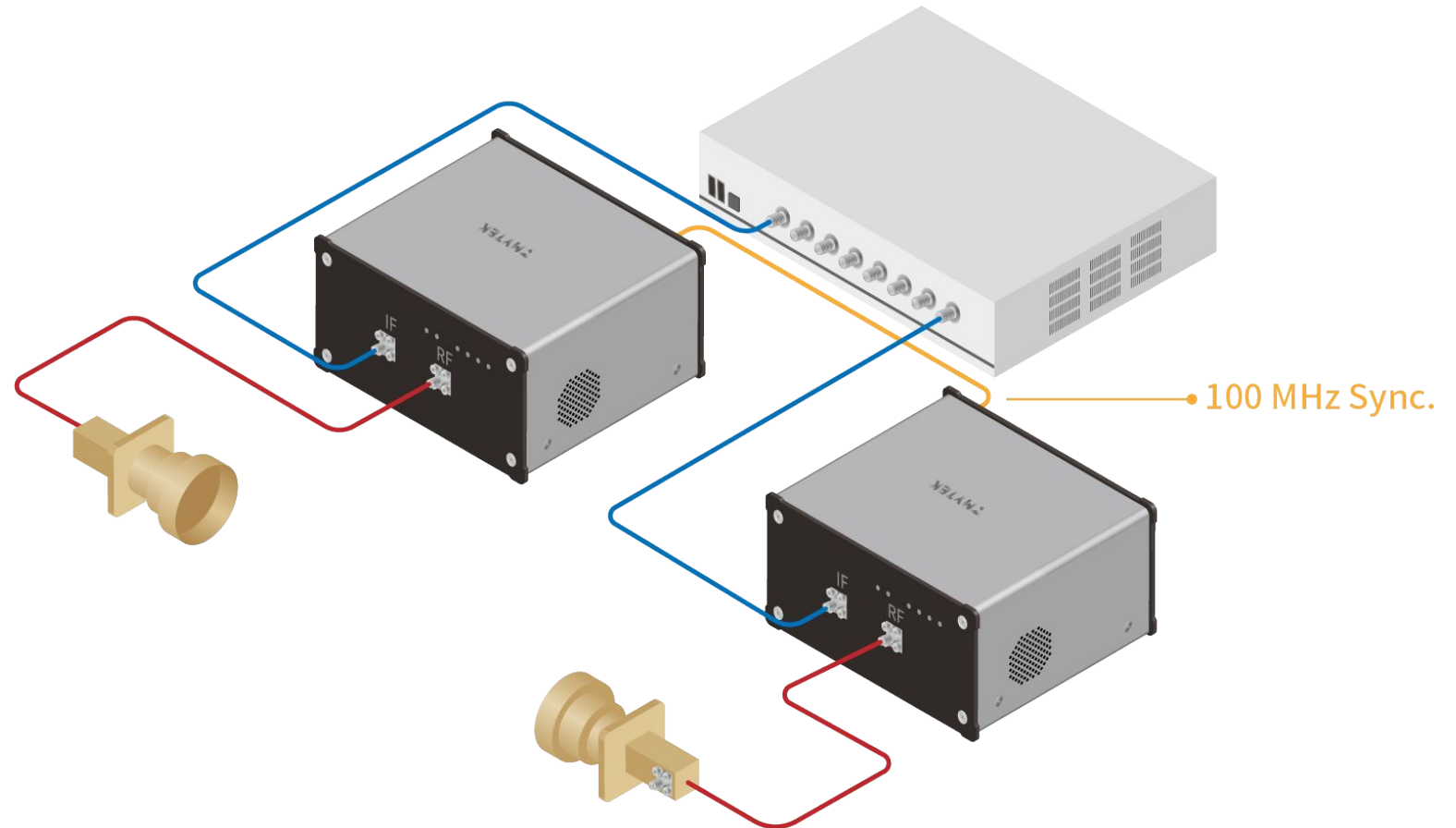
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UD Box 5G + Radio Communication Analyzer (Dual Channel)

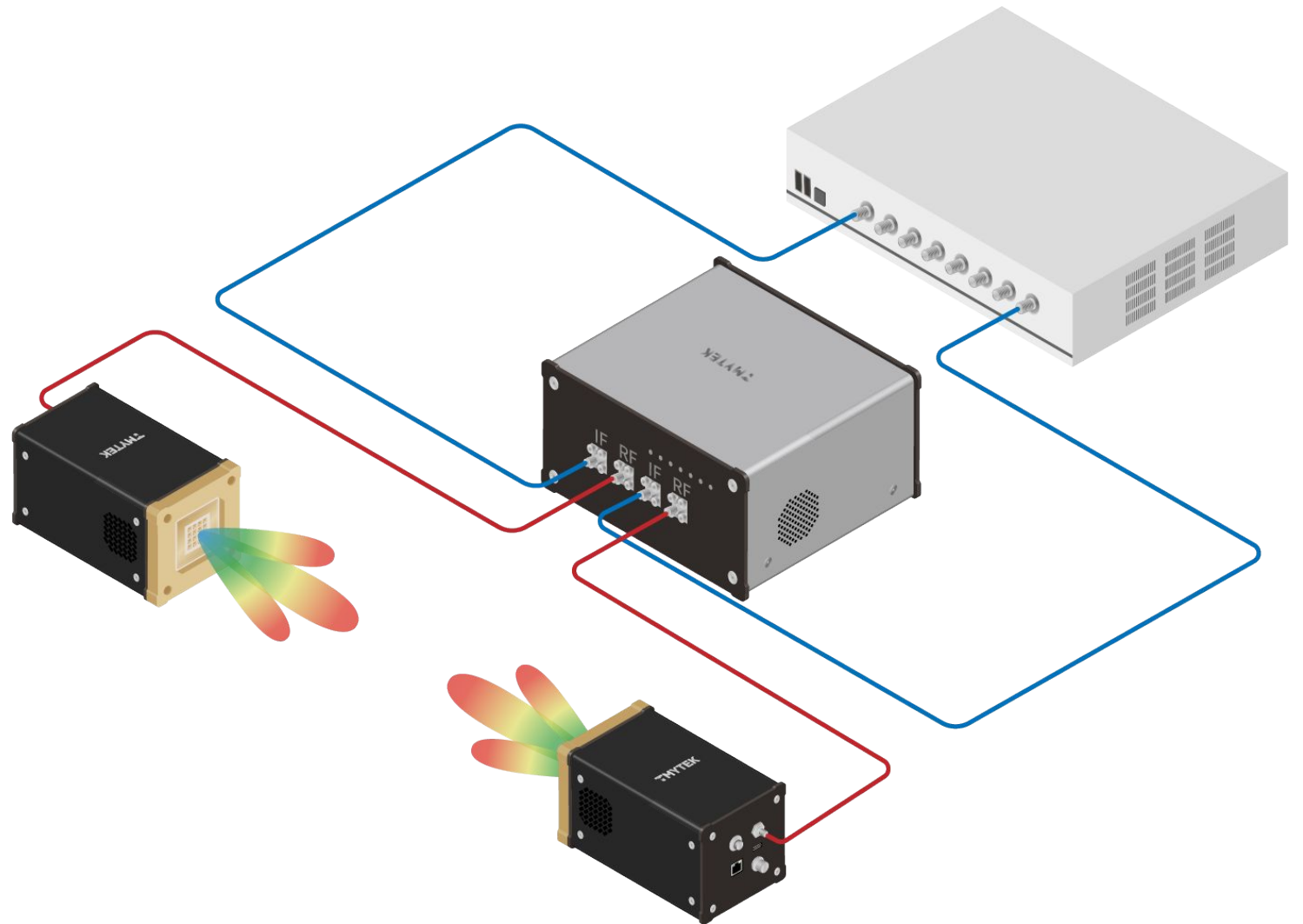
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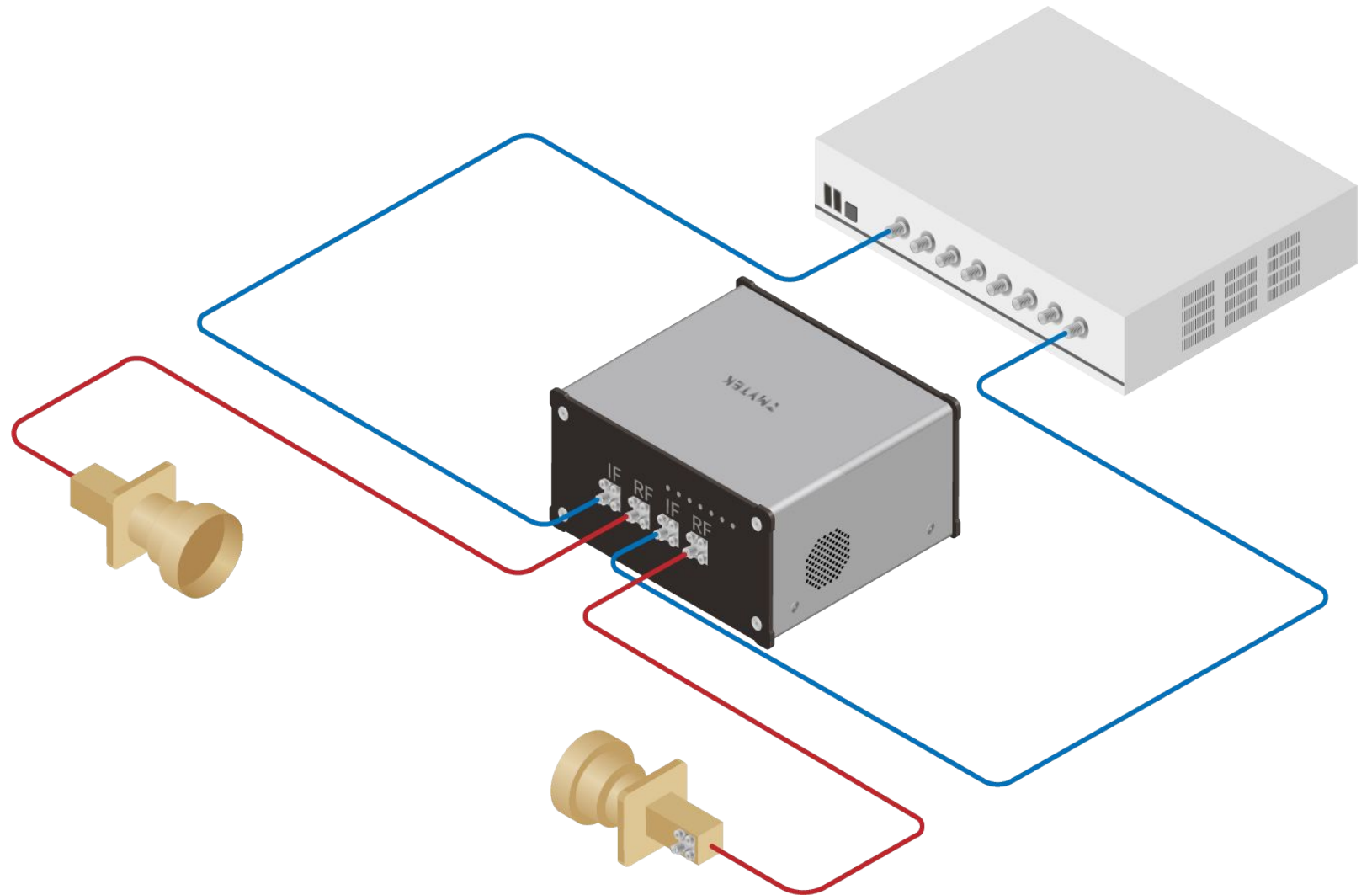
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UD Box 5G + Signal/Spectrum Analyzer

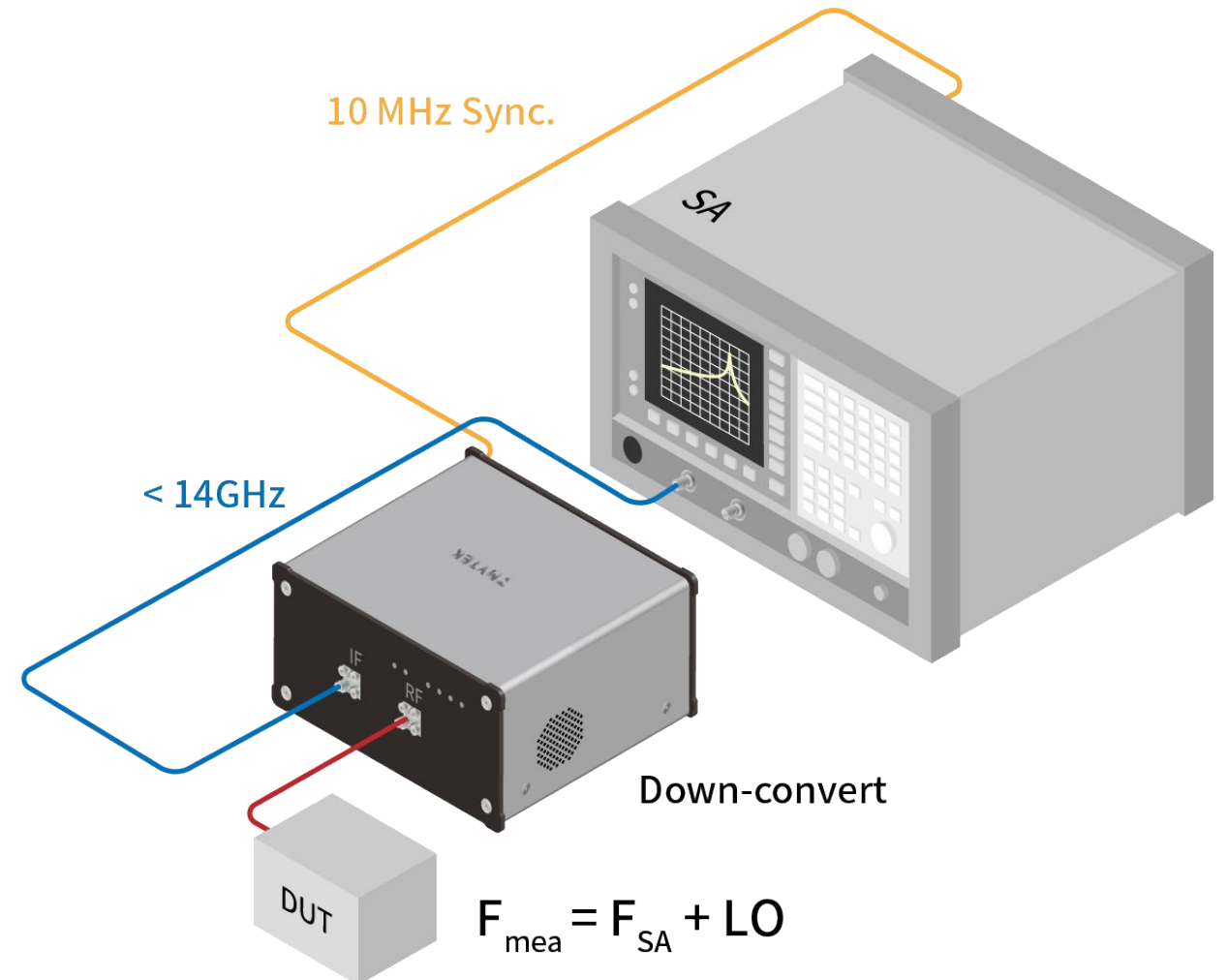
Compatible with...

Keysight-E4407B

R&S®FSW

Anritsu MS2090A

Lite Point z8653 6 GHz



RF signal input extend to 24-44GHz

UD Box 5G + Signal Generator

Compatible with...

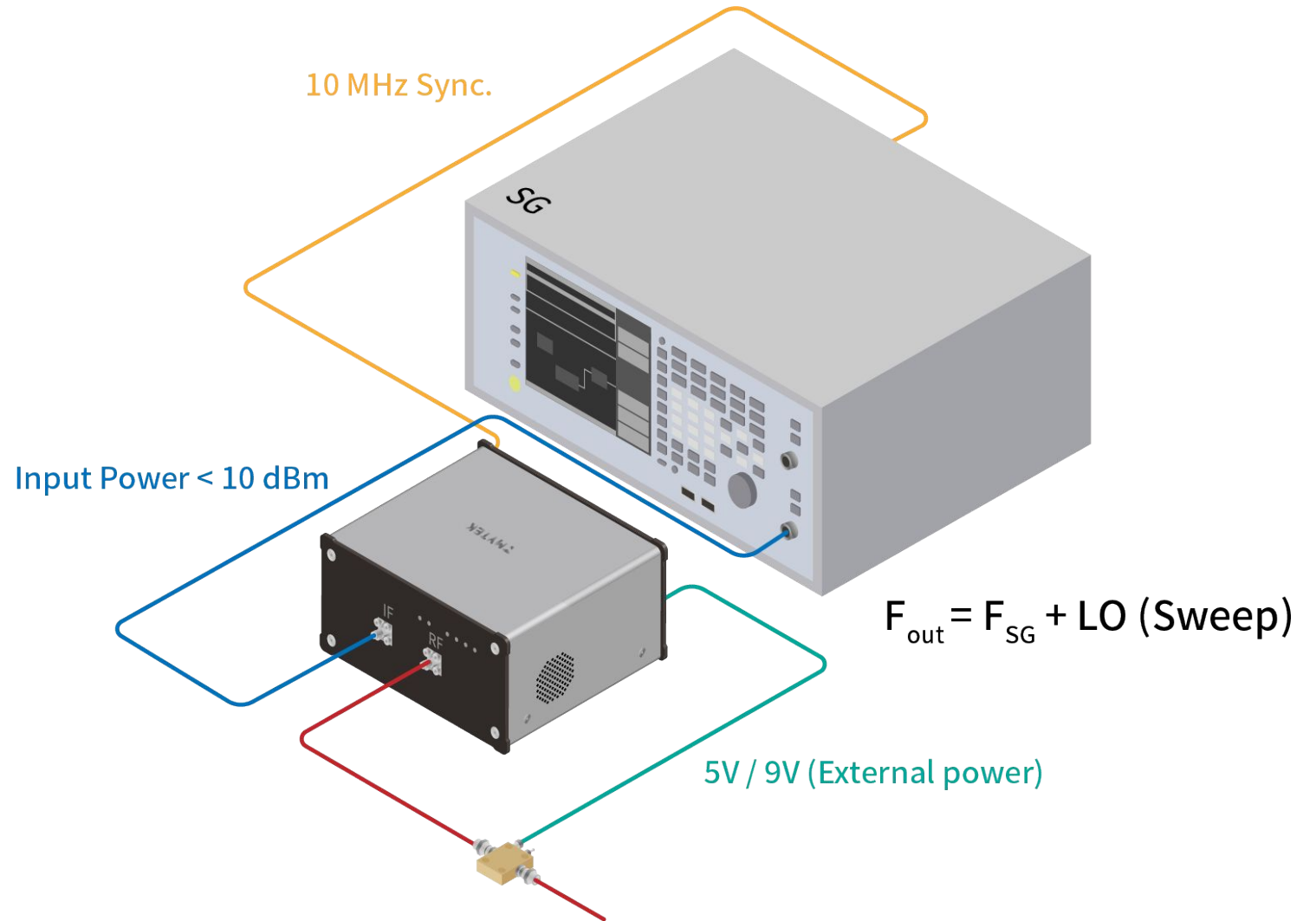
Keysight M9383A

Keysight N5193A

Keysight E8257D

R&S SMB100A

Anritsu MG3740A



UD Box 5G + Signal Generator (or AWG) + SA (Signal Analyzer or Spectrum)

SG

Compatible with...

Keysight M9383A

Keysight N5193A

Keysight E8257D

R&S SMB100A

Anritsu MG3740A

SA

Compatible with...

Keysight-E4407B

R&S®FSW

Anritsu MS2090A

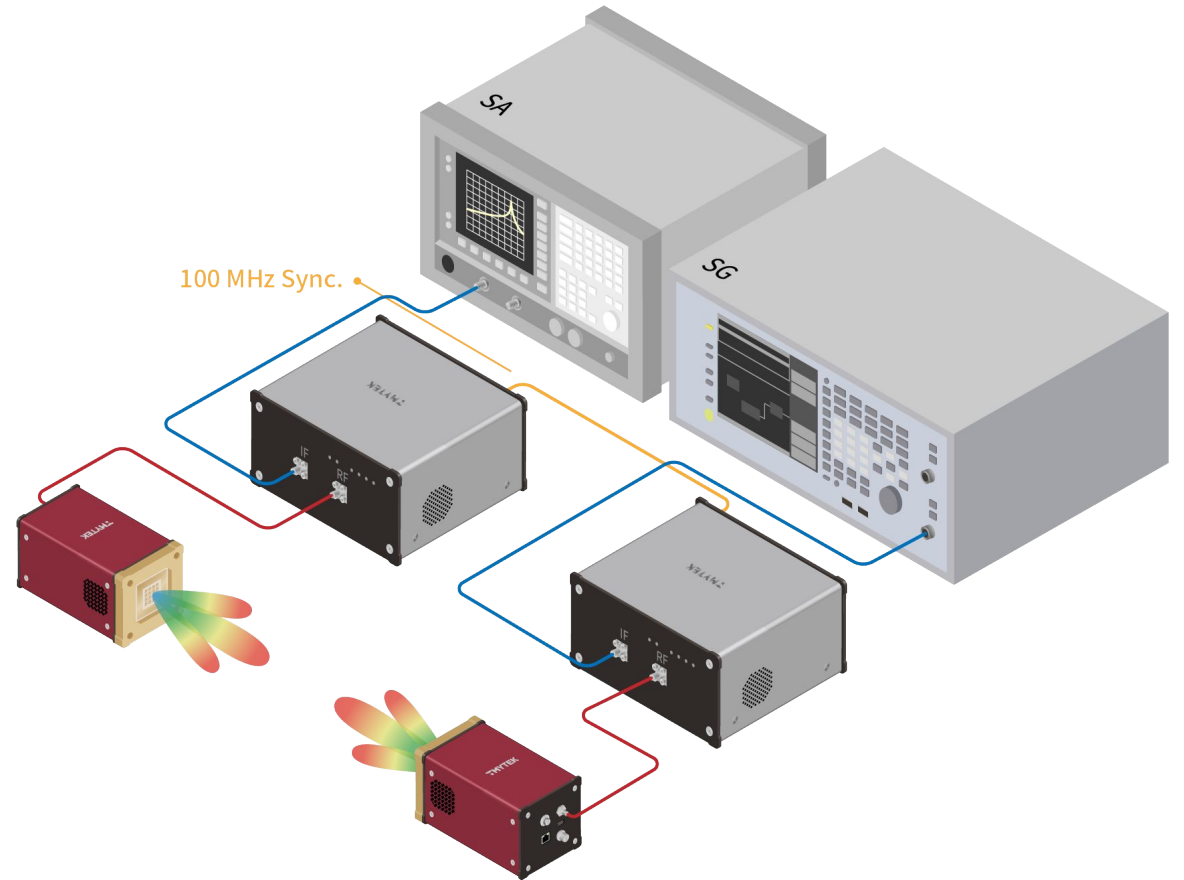
AWG

Compatible with...

Rigol DG2000

Tektronix AWG5202

Keysight M8195A



UD Box 5G + Signal Generator (or AWG) + SA (Signal Analyzer or Spectrum)

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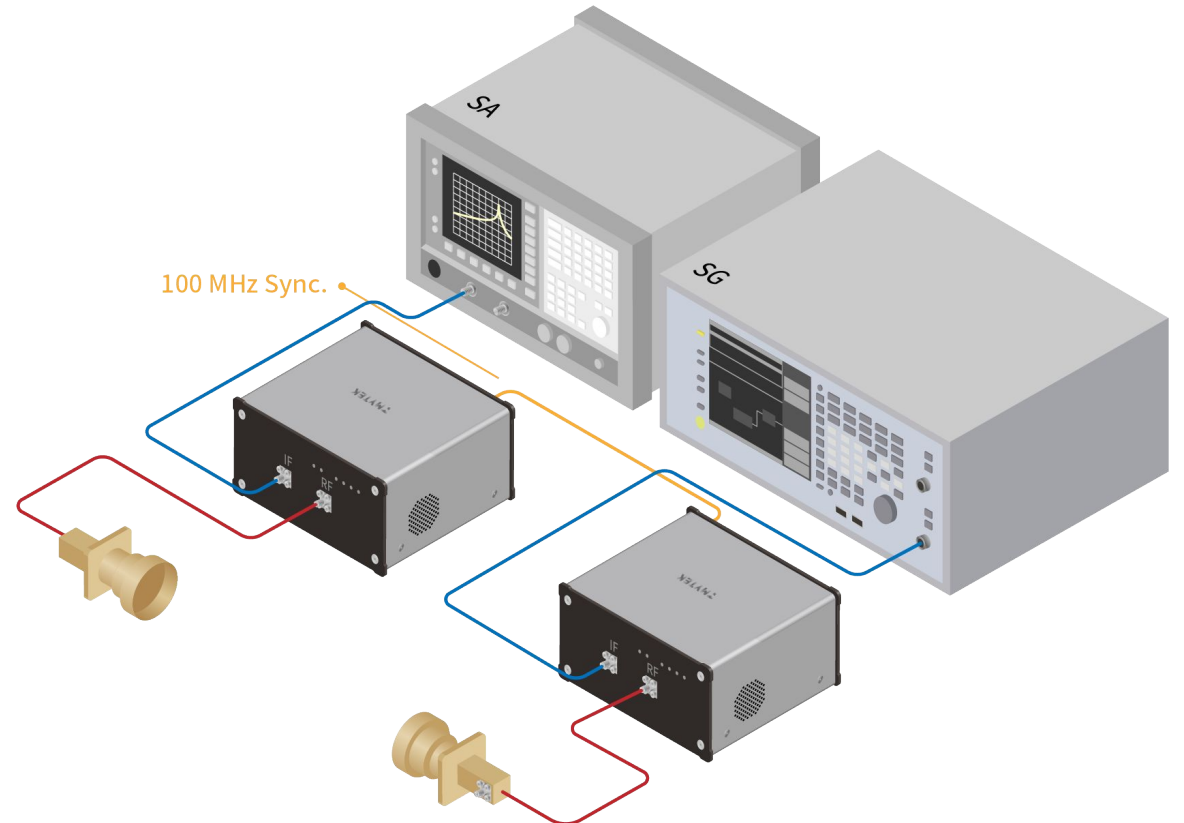
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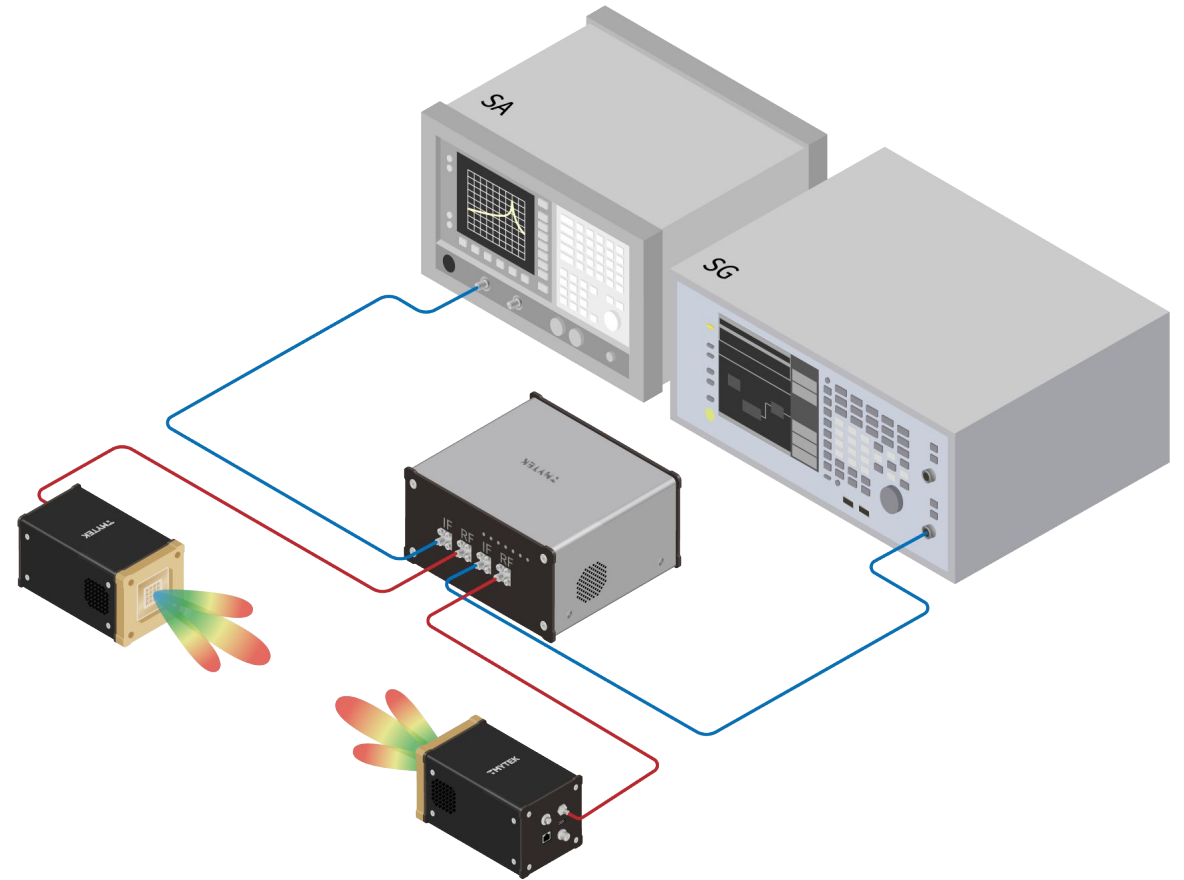
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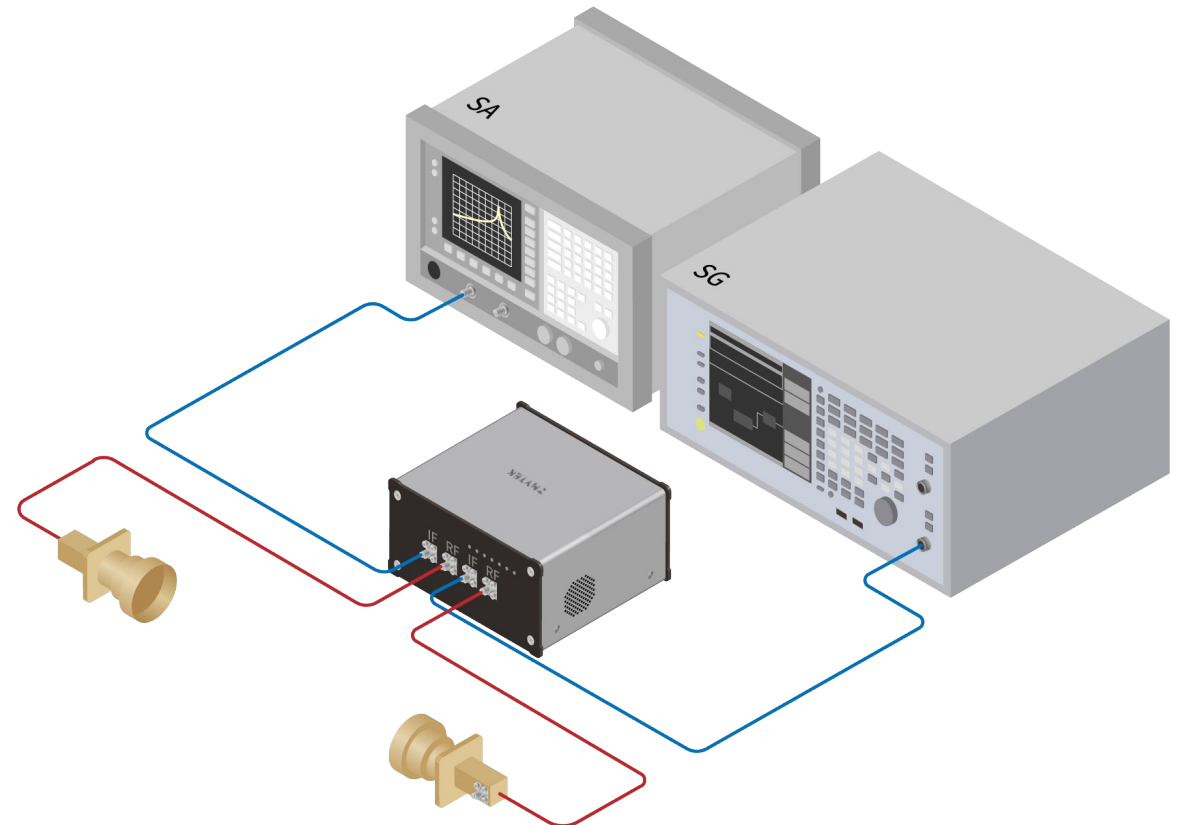
AWG

Compatible with...

Rigol DG2000

Tektronix AWG5202

Keysight M8195A



UD Box 5G + VNA

VNA

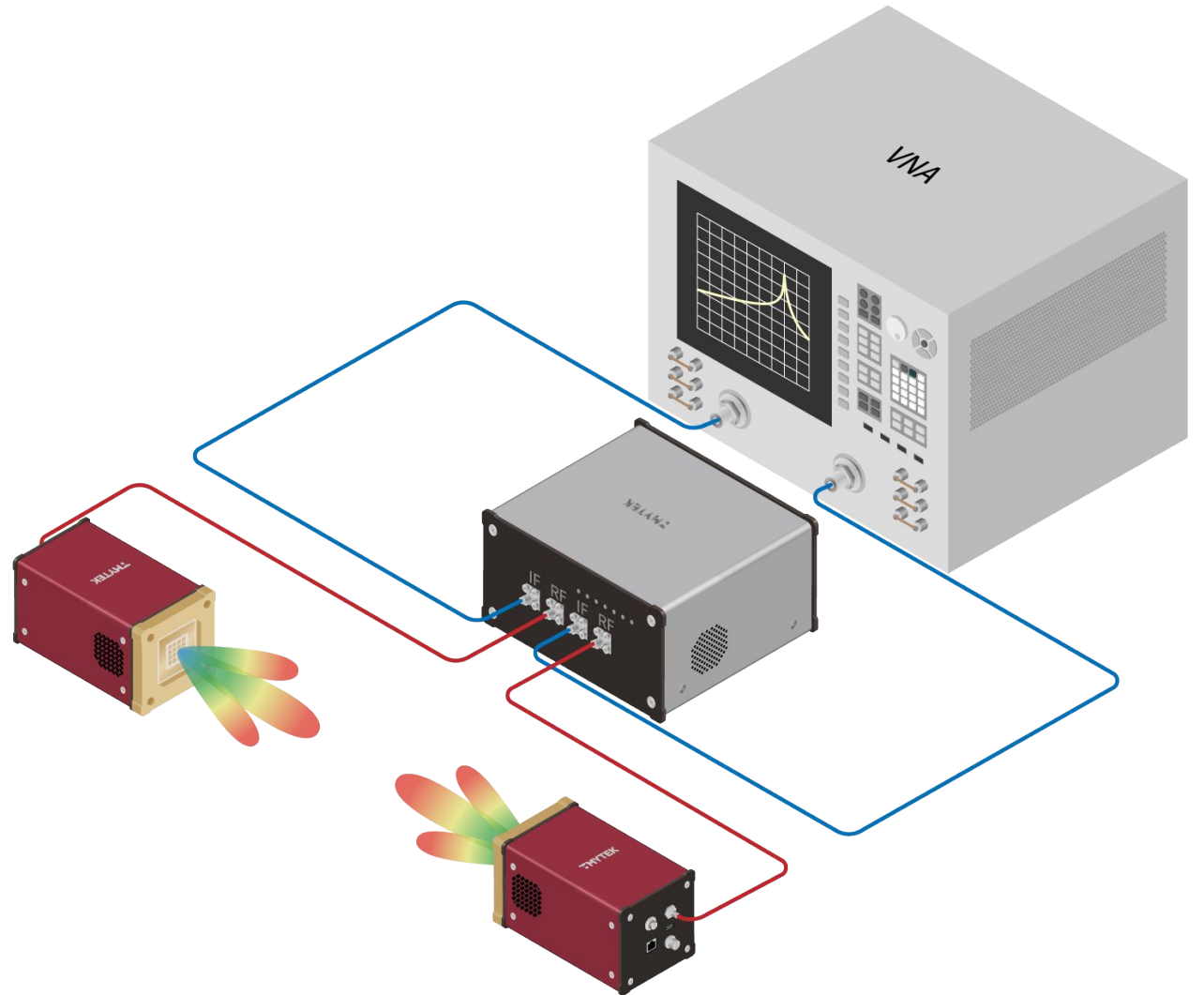
Compatible with...

Anritsu MS2028C
VNA Master

Anritsu MS46122A

Keysight E5080A

R&S®ZNA26



UD Box 5G + VNA

VNA

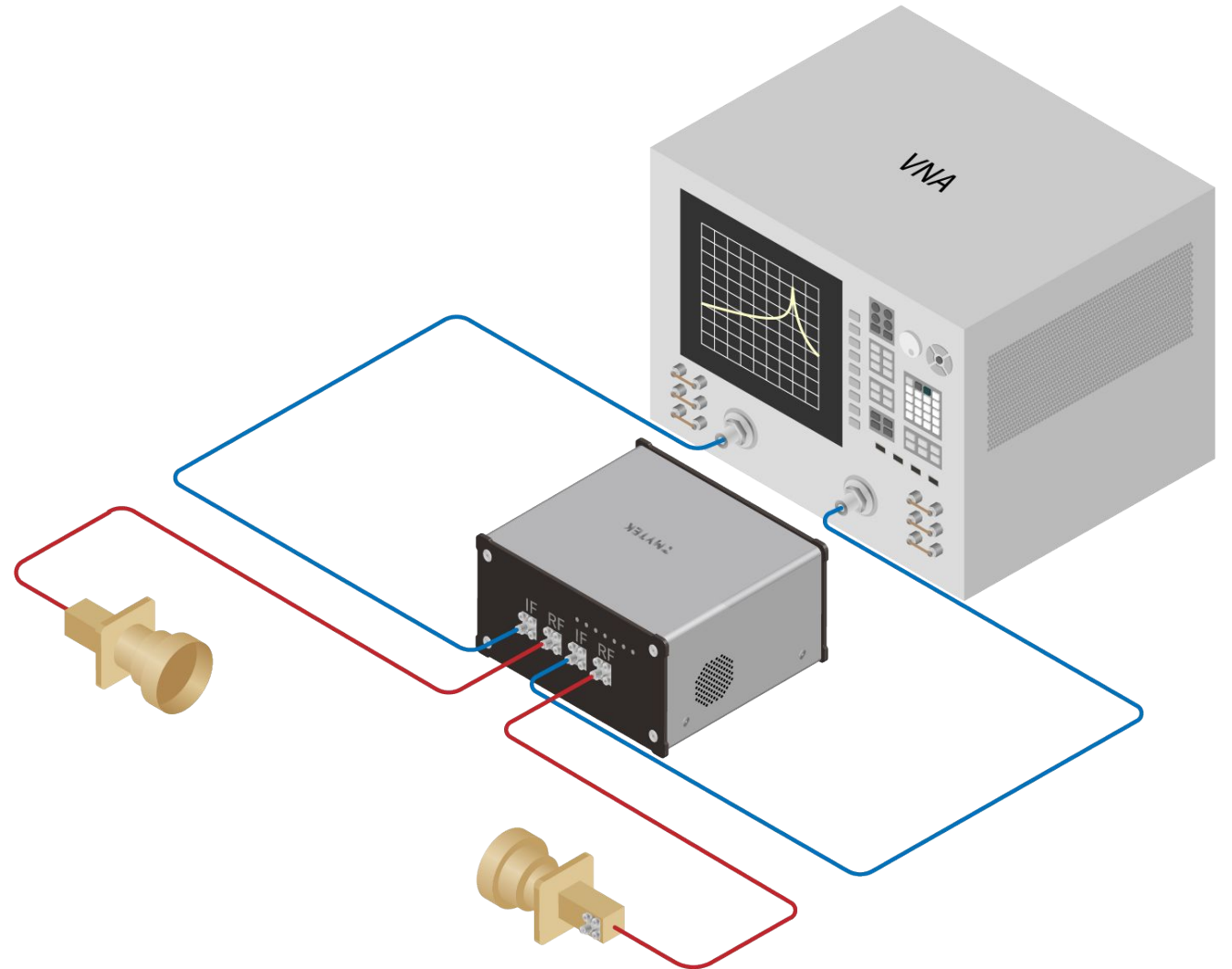
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R&S®ZNA26



THANK YOU!

