



OML MxxHWDX Series Harmonic Mixer Setup

For use with Keysight X-Series Signal Analyzer

This documentation provides the step-by-step setup procedure for OML MxxHWDX series harmonic mixers to use with Keysight X-Series Signal Analyzer.

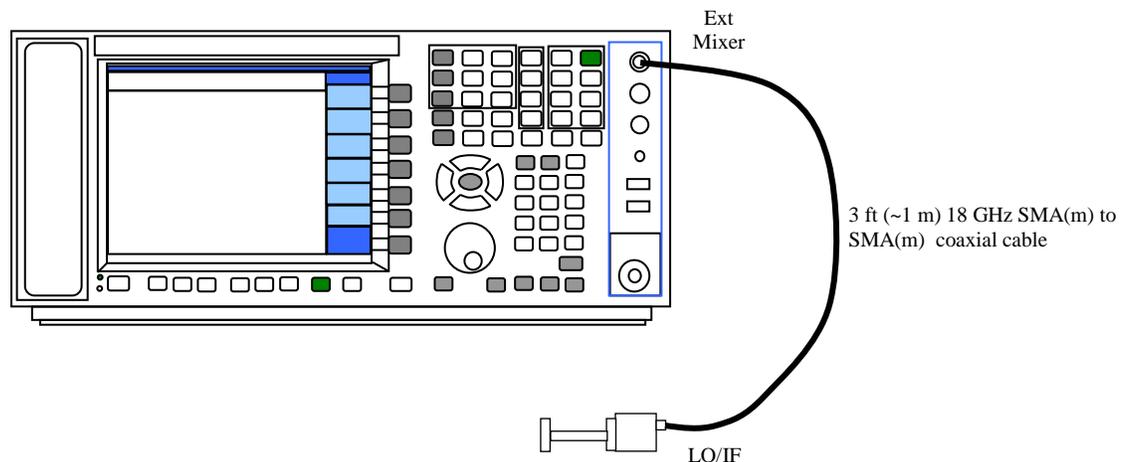


Figure 1 – Hardware Configuration

Hardware Setup (EXM option installed in X-series signal analyzer)

1. Remove the 50 ohm termination from the “**Ext Mixer**” SMA(f) connector.
2. Connect one end of a good quality 3 feet (~ 1 m) 18 GHz SMA(m)-to-SMA(m) coaxial cable to the Keysight signal analyzer Ext Mixer SMA(f) connector and the other end of the coaxial cable to OML MxxHWDX LO/IF SMA(f) connector as shown in figure 1.

Harmonic Mixer Operating Band and Multiplication Factor Setup

The multiplication factor for the harmonic mixer is preset once the waveguide band is selected. See Table 1 for detailed reference information.

1. Energize Keysight X-Series Signal Analyzer.
2. Push the **‘Input/Output’** hard key under **ANALYZER SETUP** block to access the Input/Output menu.
3. Push the **“External Mixer [Agilent 11970A]”** soft key located on the right hand side of the display to open the External Mixer menu.
(Note: may need to push the soft key the second time to open the External Mixer menu)
3. Push the **“Ext Mix Setup [Agilent 11970A]”** soft key to log on to the Ext Mix Setup menu.
4. Push **“Mixer Preset”** soft key to log on to the Mixer Presets menu.
5. For WR28, WR19, WR15 and WR12, push the **“Single Harmonic”** soft key to access the Single Harm menu.
 - a. Push the **“A-Band [26.5-40 GHz]”** soft key for **M28HWDX**.
 - b. Push the **“U-Band [40-60 GHz]”** soft key for **M19HWDX**.
 - c. Push the **“V-Band [50-75 GHz]”** soft key for **M15HWDX**.
 - d. Push the **“E-Band [60-90 GHz]”** soft key for **M12HWDX**.
6. For WR42, WR22, WR10, WR08, WR06 WR05, WR04 and WR03, push the **“Single Harmonic w/doubler”** soft key to get into the Single w/dblr menu.
 - a. Push the **“K-Band [18-26.5 GHz]”** soft key for **M42HWDX**.
 - b. Push the **“Q-band [33-50 GHz]”** soft key for **M22HWDX**.
7. For W waveguide band [75 to 110 GHz] and above, push **“More 1 of 3”** to get into the second page menu.
 - a. Push the **“W-Band [75-110 GHz]”** soft key for **M10WDX**.
 - b. Push the **“F-Band [90-140 GHz]”** soft key for **M08WDX**.
 - c. Push the **“D-Band [110-170 GHz]”** soft key for **M06WDX**.
 - d. Push the **“G-Band [140-220 GHz]”** soft key for **M050WDX**.
 - e. Push the **“Y-Band [170-260 GHz]”** soft key for **M04WDX**.
 - f. Push the **“J-Band [220-325 GHz]”** soft key for **M03WDX**.

Table 1 - X-Series Signal Analyzer Preset Harmonic Table

WG Band	Mixer Model	Harmonic	LO Doubler	Min Freq	Max Freq
K	M42HWDX	-2	On	18.0 GHz	26.5 GHz
A	M28HWDX	-6	Off	26.5 GHz	40.0 GHz
U	M19HWDX	-4	On	33.0 GHz	50.0 GHz
Q	M22HWDX	-8	Off	40.0 GHz	60.0 GHz
V	M15HWDX	-10	Off	50.0 GHz	75.0 GHz
E	M12HWDX	-12	Off	60.0 GHz	90.0 GHz
W	M10HWDX	-8	On	75.0 GHz	110.0 GHz
F	M08HWDX	-10	On	90.0 GHz	140.0 GHz
D	M06HWDX	-14	On	110.0 GHz	170.0 GHz
G	M05HWDX	-16	On	140.0 GHz	220.0 GHz
Y	M04HWDX	-20	On	170.0 GHz	260.0 GHz
J	M03HWDX	-24	On	220.0 GHz	325.0 GHz

Mixer Bias Current Setup

The bias current required for the mixer will appear on the harmonic mixer label and in the data package. In the data package, the bias current is listed on the laminated hardcopy datasheet below the conversion loss graph and in the second row of the csv file.

1. To gain access to the “**Mixer Bias**” soft key to enter mixer bias current
 - a. Push the “**Input/Output**” Hard key, then “**External Mixer**” soft key and follow by the “**Ext Mix Setup**” soft key to log onto the Ext Mix Setup menu
OR
 - b. Push the “**Return**” hard key until Ext Mix Setup menu appears.
2. Toggle the “**Mixer Bias**” soft key to activate mixer bias to the “**On**” condition. Use either the control knob or numeric key entry to enter the bias current as listed in the laminated hardcopy datasheet or in the csv file.

Loading Conversion Loss csv file to the X-series Signal Analyzer

1. Insert USB memory stick provided to the signal analyzer USB port.
2. Push the “**Recall**” hard key under UTILITY block.
3. Push the “**Data (Import 1) Correction 1**” soft key.
4. Push the “**Open ...**” soft key to open the “**Open**” dialog box.
5. Use the mouse to locate the csv file in the removable USB memory stick and double left click with the mouse to load the csv conversion loss data file into the signal analyzer.

KEYSIGHT X-SERIES SIGNAL ANALYZER HARMONIC MIXER PARAMETERS SETUP LOW DIAGRAM

