



Harmonic Mixer Module Setup with Keysight FieldFox



OML has developed a frequency extender module solution that can be used with Keysight's FieldFox. With this harmonic mixer making millimeter wave measurements in the field are now at your fingertips.

This paper will take you through the setup steps on the FieldFox to allow for millimeter wave measurements.

1. Connect OML harmonic mixer module (MxxHxDC) to Keysight Field Fox as shown.
2. Energize the FieldFox using the **ON/OFF** hard key.
3. Press **MODE** hard key and then **SA** * soft key to load SA application.
4. Press **MODE** hard key and then **Measure** hard key to access tracking generator*.
5. Press **Source** soft key to set the tracking generator parameters for the harmonic mixer module.

6. Press **Source Power -15dBm** soft key and enter value **-3** using the **numeric keypad** and press **dBm** soft key to accept the user defined tracking generator output power.
7. Press **Advanced** soft key and verify **Tracking Offset** is **OFF** and **OfstRrk Reversal** is **OFF**.
8. Press **Source Mode [CW]** soft key and press **CW** soft key, if required, to decouple tracking generator from spectrum analyzer and to set tracking generator to single frequency output.
9. Press **Source Enable OFF** soft key from **OFF** to **ON** to activate the tracking generator.
10. Press **Source CW freq [3.0000 GHz]** soft key and use the **numeric keypad** to enter the desired output frequency and press **GHz** soft key to accept the value.

Example 1: Down convert a 77 GHz CW RF signal to an IF of .5 GHz

Use equation $LO = (RF-IF)/6^*$

CW Freq = $(77-.5)/6 = 12.75$ GHz (Source CW Freq 12.7500 GHz)

Example 2: Down convert a RF signal channel of 77 GHz to 81 GHz to an IF of .5 to 5.5 GHz

Use equation $LO = (RF-IF)/6^*$

CW Freq = $(77-.5)/6 = 12.75$ GHz (Source CW Freq 12.7500 GHz)

* divisor number depends on the harmonic mixer module model

11. Press **Freq/Dist** hard key and use the **Start** , **Stop** soft key and the **numeric keypad** to set the viewing IF frequency bandwidth

For Example : to view IF frequency span of 0.1 to 4.1 GHz

Set Start = 100 MHz

Set Stop = 4.1 GHz

12. Press **Mode** hard key and then **Trace** hard key to access trace display **Trace 1 2 3 4** function and trace 1 screen display (**Optional**)
13. Press **State [Clr/Wr]** soft key and **MaxHold** soft key to capture the measured signals (**Optional**)