



Frequency Extender

MEX series

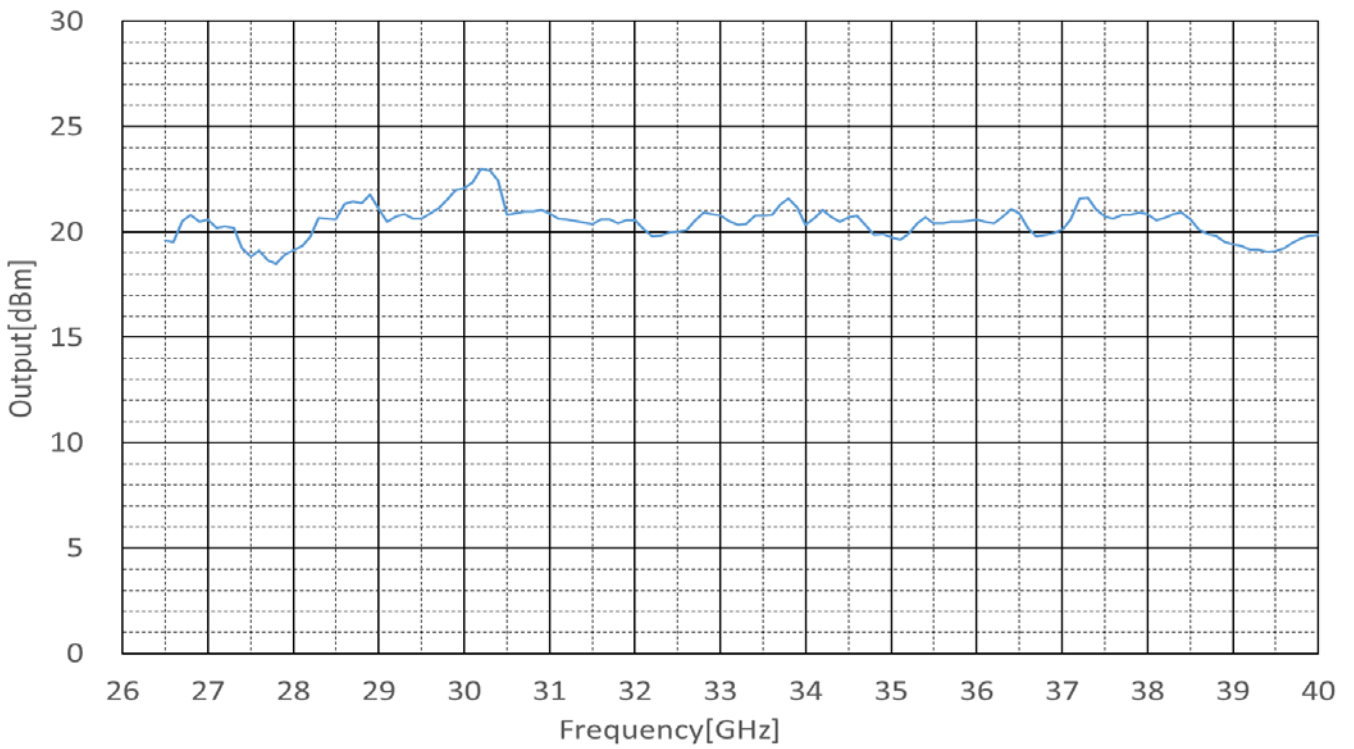
When we measure the mm-wave band, we have often face the upconverting the signal frequency band. For that situation, MWF is please to start the support the Frequency Extender as our standard products. Line-uped Ka, U and E-band each for.

Parameters \ Type #	MEX2640-X4	MEX4060-X4	MEX6090-X6
Band	Ka-Band	U-Band	E-Band
RF Output Frequency	26.5 - 40GHz	40 - 60GHz	60 - 90GHz
RF Input Frequency	6.625 - 10GHz	10 - 15GHz	10 - 15GHz
LO Frequency	3.3 - 5GHz	4 - 6GHz	7.44 - 15.34GHz
IF Frequency	DC - 1300MHz	DC - 1300MHz	5 - 6000MHz
RF Output Power	+20dBm (typ.)	+15dBm (typ.)	+15 dBm(typ.)
RF Input Power	+5dBm (typ.)	+5dBm (typ.)	+5 dBm(typ.)
LO Input Power	+15dBm	+15dBm	+15dBm
REF Conversion Loss	58dB	58dB	55dB
Interfaces ; RF OUT RF IN LO IN IF OUT Power Supply	WR-28(UG599) SMA-F SMA-F SMA-F RM12BRB-4S	WR-19(UG383) SMA-F SMA-F SMA-F RM12BRB-4S	WR-12(UG387) SMA-F SMA-F SMA-F RM12BRB-4S
Size [mm] (W x D x H) *	100 x 300 x 100	100 x 300 x 100	100 x 300 x 100
Weight	3.7Kg	3.9Kg	3.7Kg

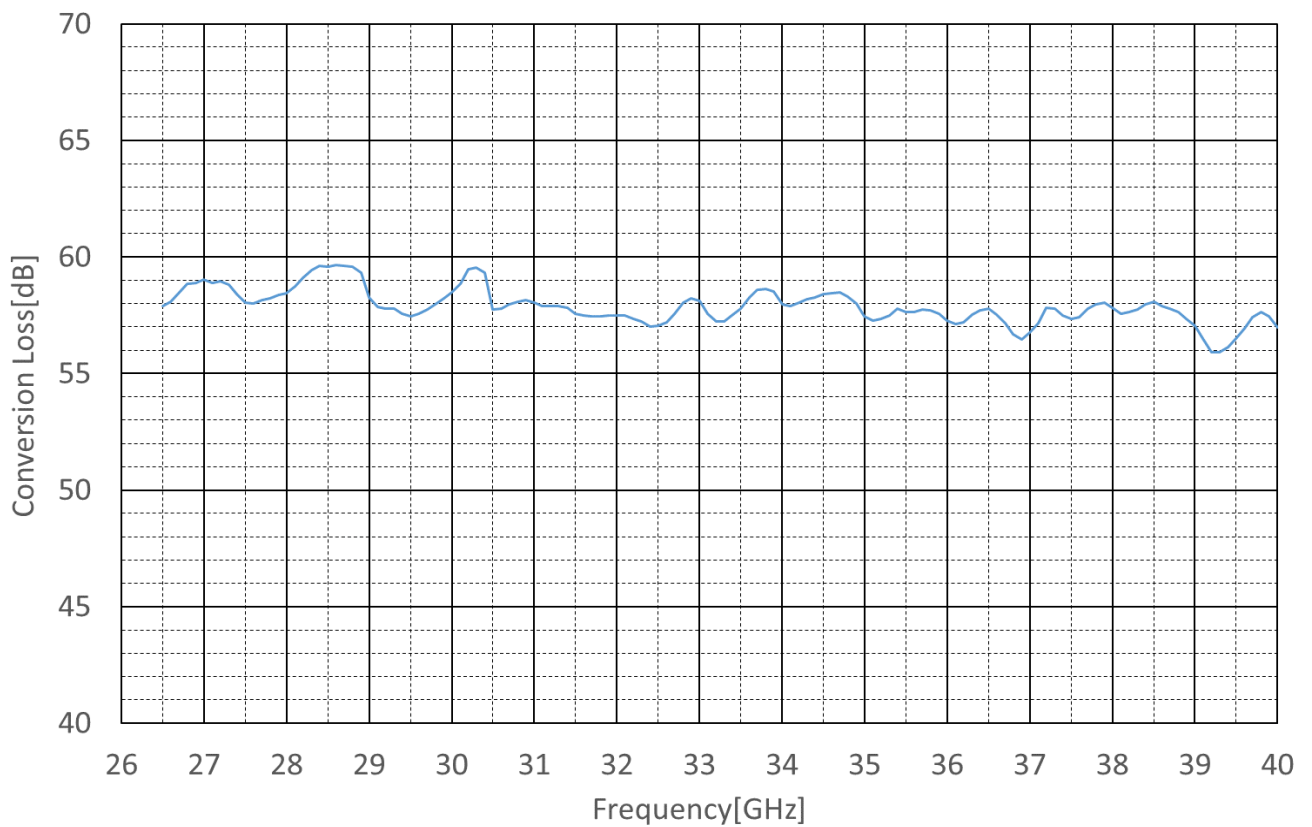
* except for Connectors protrusion



RF Output Response@Ka-band



REF Conversion Loss @Ka-band



Options ;

We, MWF, have much experienced many measurement system designing as RF, Microwave and mm-wave expert. Based on that experience, we like to support the several options as a CORE solution of MEX series Extenders, which is designed of easy to utilize the measurement systems with Network Analyzers. However, there are some difficulties to utilize those systems, so our options in below must solve some your difficulties.

1. Case of difficulties to adjust RF input signals

1. In wide band solution, it would be often difficult to expand the RF Input signal level of +5dBm to the full-band, i.e. to stable the in-band signal levels, because of cable-loss each for frequency response.
Then, we could support to built-in **Limit-Amp** on the RF Input stage, otherwise, to supply its Limit-Amp as another equipment with RF Input/Interface adjustment (overview described in follows).
2. In case of built-in Limit-Amp, it is demanded another power supply unit of DC12V, which is another PSU for MEX core circuits. Then, it is also available to built-in **Bias Tee circuits** to solve that issue (to avoid two power line).
3. In case of choice for external Limit-Amp unit, one unit enable to connect with each for MEX Extenders, thus the customer don't have to purchase multi optioned-Extenders each for band.

2. Case of Demand to simple connection IF / LO signals

It is available to built-in **Duplexer circuits** with the Interface stage of IF / LO signals on boarded MEX series. This duplexer makes reduce the cable numbers in measurement systems, and is also available for Down-Converter in Receive path.

3. Case of using Reflection measurement

In case of using RF output of MEX series to Reflection measurement directly, it is available to add the circuits stage to measure S_{11} followed RF output of MEX Extenders. In this option, the case size become longer as 100 x 400 x 100mm.

4. Case of non-demanded IF / LO output

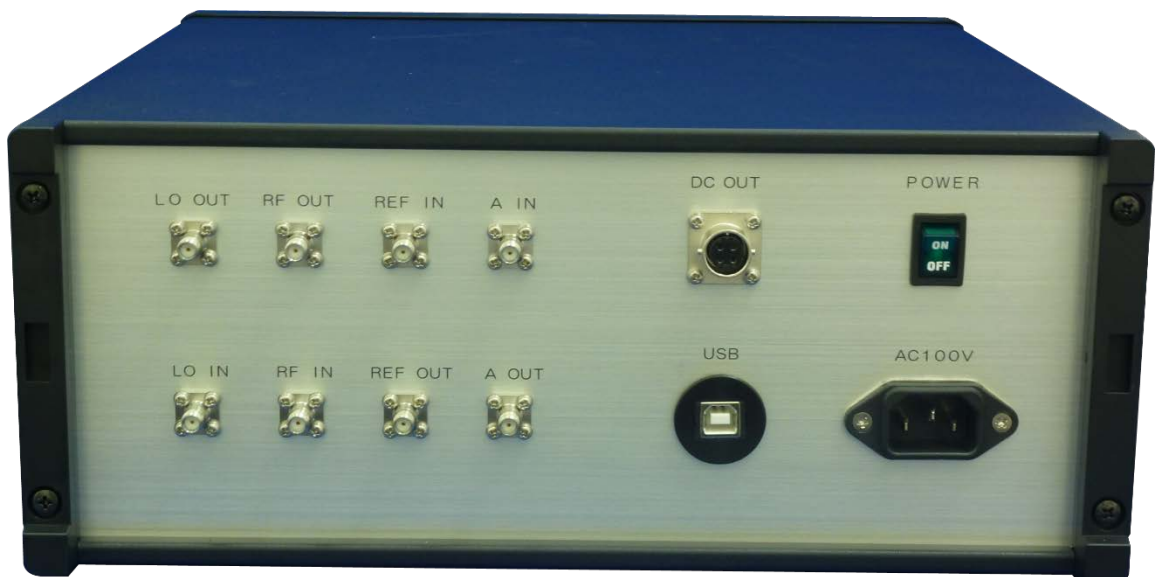
It is available to support the first stage circuits of MEX Extenders, **Multiplier circuits**, as stand alone unit, which is removed the IF / LO Input/Output and connectors.

MPA-LIMIT-PS

This is packaged Amp-unit of on-board optional as RF input stage of MEX series, for three bands (Ka / U / E-Band).

And also, this is on-board the Bias Tee circuits, which is another option of MEX series.

Parameters	Specifications	Notes
RF Frequency [GHz]	6 ~ 18	
RF Gain [dB] typ.	+40	
RF Output Power [dBm] typ.	+15	
RF Input Power range [dBm]	-20 ~ +20	
LO Frequency [GHz]	2 ~ 8 6 ~ 18	Ka/U-Band E-Band
LO Gain [dB] typ.	40 30	Ka/U-Band E-Band
LO Output Power [dBm] typ.	+19	
LO Input Power range [dBm]	-20 ~ +20	
IF Frequency [MHz]	DC ~ 1000	
DC OUT Output Voltage [V]	12	
DC OUT Output Current [mA]	700	
Power Supply	AC100V	
Interfaces RF IN / OUT LO IN / OUT REF IN / OUT A IN / OUT DC OUT USB Power Supply	SMA-F SMA-F SMA-F SMA-F RM12BRB-4S USB 2.0 Type B F IEC60320 C14	
Size [mm] (W x D x H)	320 x 350 x 132.5	
Weight [Kg]	3.7	



MLI-MODULE

This is explained as Option 2 in Page 3.

Parameters	Specifications	Notes
LO / IF / DC Frequency [GHz]	DC ~ 8 DC ~ 15.44	Ka/U-Band E-Band
LO Input Power range [dBm]	-20 ~ +20	
DC Input Voltage [V] typ.	12	
LO Output Frequency [GHz]	2 ~ 8 7.44 ~ 15.44	Ka/U-Band E-Band
LO Gain [dB] typ.	40	
LO Output Power [dBm] typ.	+19	
IF Frequency [MHz]	DC ~ 1300	
DC Output Voltage [V] typ.	+8	
DC Current Capacity [mA] max.	700	
Interfaces LO / IF / DC LO IF DC OUT	SMA-F SMA-F SMA-F RM12BRB-4S	
Size [mm] (W x D x H)	160 x 230 x 88	
Weight [Kg]	1.5	



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