



WILEY ELECTRONICS, LLC  
PO BOX 361  
SAUGERTIES NY 12477  
845.247.4708 office  
845.839.2792 fax  
www.we-llc.com

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To: PV module installers who use the WEEB bonding and grounding system

Re: Modules that are NOT compatible with the WEEB.

This documentation is intended to inform the installers and designers of solar photovoltaic systems about modules that are not compatible with the WEEB. In order to safely and effectively bond the metal components together the WEEB must make solid contact with the interfacing materials. The following is a list of modules known to be incompatible with the WEEB. This list should not be considered exhaustive. Installers should check any new module frames against the requirements of this bulletin before installing.

Schott Solar Inc. USA Poly – Polycrystalline Solar Modules

Poly 220/225/230/235  
Poly 195/202/210/217

Sharp Electronics Corporation

VE frame, when mounted along short side

NA-V115H5 – Thin Film (IEC)  
NA-V121H5 – Thin Film (IEC)  
NA-V128H5 – Thin Film (IEC)  
NA-V142H5 – Thin Film (IEC)  
NA-V135H5 – Thin Film (IEC)  
NA-V115H1 – Thin Film (UL)  
NA-V121H1 – Thin Film (UL)  
NA-V128H1 – Thin Film (UL)  
NA-V135H1 – Thin Film (UL)

## 1. Module Frame Geometric Compatibility

The Washer, Electrical Equipment Bond (WEEB) requires two flat surfaces in order to embed properly. Figure 1 illustrates the position of the WEEB with respect to a mounting rail and compatible module. When the clamp is tightened the WEEB teeth embed up into the module frame and down into the mounting rail, establishing a reliable electrical connection.

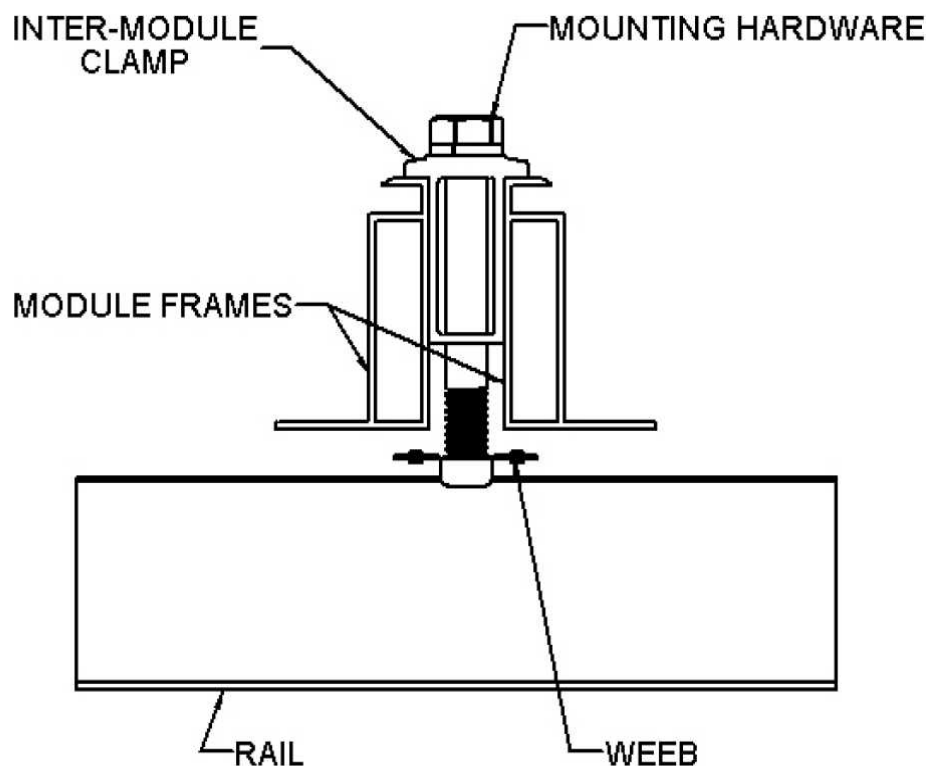
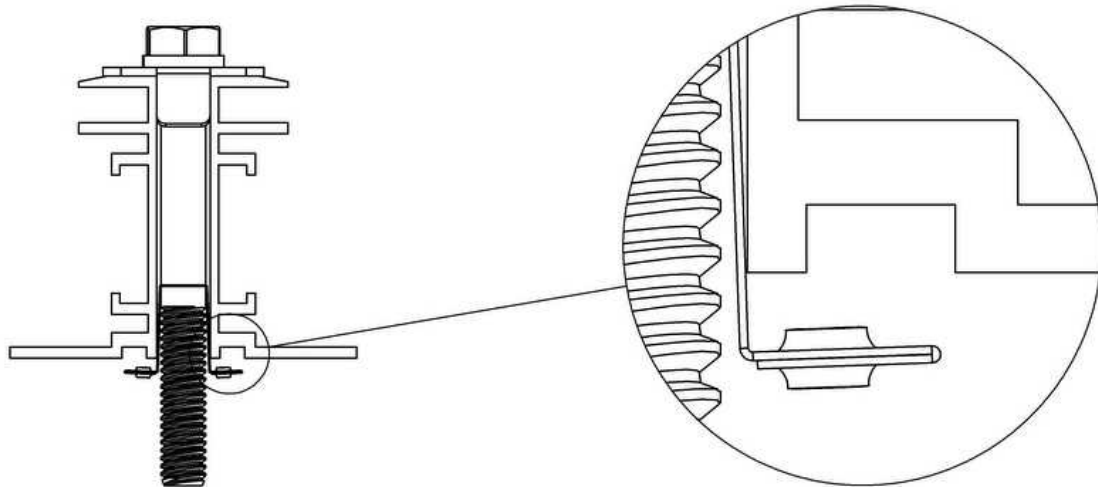


Figure 1: compatible module WEEB installation

## A. Module frames with channels on the bottom

Modules that are extruded with a channel in the frame as illustrated in figure 2 below are NOT compatible with WEEBs. When the clamp is tightened, the WEEB teeth will not contact the module frame and therefore the module frame will not be grounded.



*Figure 2: Incompatible module with channel*

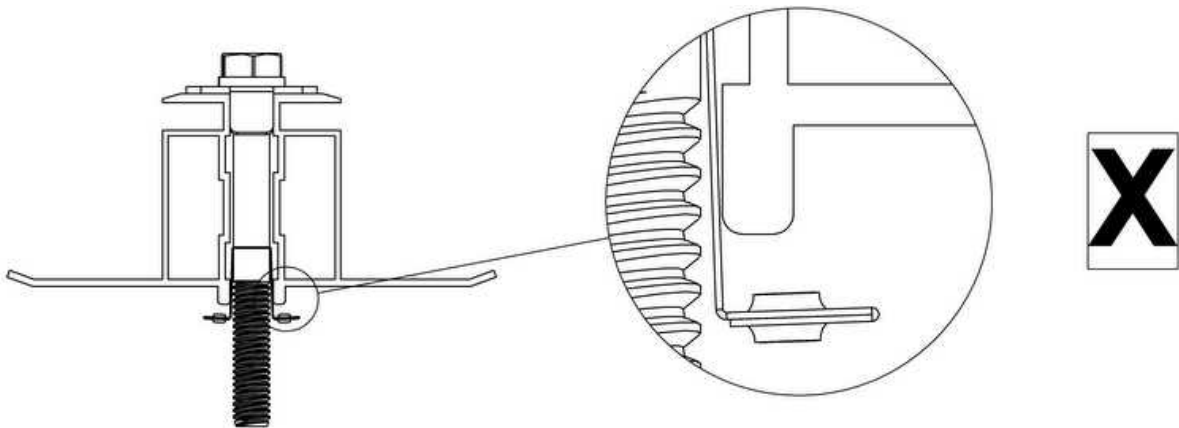
The following is a list of modules known to have channels and that are not compatible with the WEEB. This list should not be considered exhaustive. Installers should check any new module frames for a similar feature before installing.

Schott Solar Inc. USA Poly – Polycrystalline Solar Modules

Poly 220/225/230/235  
Poly 195/202/210/217

## B. Module frames with lips on the bottom

Modules that are extruded with a lip in the frame as illustrated in figure 3 below are NOT compatible with WEEBs. When the clamp is tightened, the WEEB teeth will not fully contact the module frame and therefore the module frame will not be properly bonded.



*Figure 3: Incompatible module with lip*

The following is a list of modules known to not be compatible with the WEEB. This list should not be considered exhaustive. Installers should check any new module frames for a similar feature before installing.

### Sharp Electronics Corporation - VE frame

The Sharp VE frame has this feature on the short side of the module and is therefore incompatible with the **WEEB when clamping on the short side**. The Sharp installation manual expressly states that clamping is not allowed on the short side of the module and will void the warranty of the product. WEEBs will still work **when clamping on the long side of the module**.

## 2. Module Frame Strength Compatibility

Recent testing has revealed that certain module frames do not have enough structural strength to withstand the force required to embed a WEEB. These frames will deform and therefore not allow sufficient penetration of the WEEB teeth. The general requirements for minimum module frame thickness of “boxed” type module frames are illustrated below.

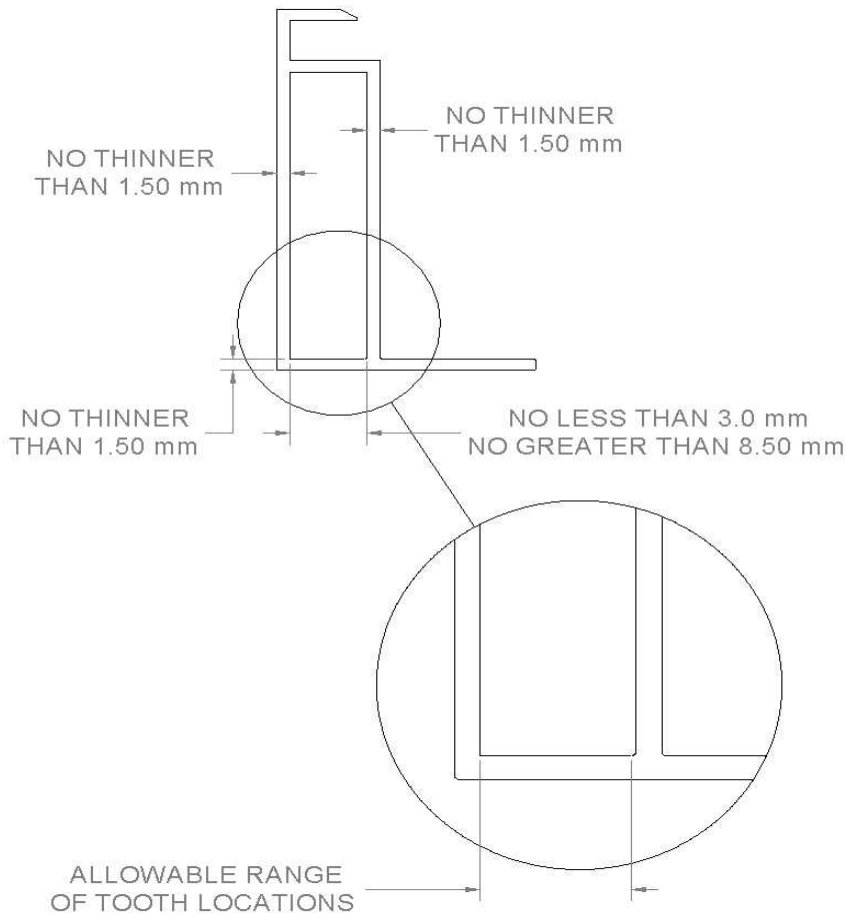


Figure 4: Required module frame thickness



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The following is a list of modules that are not compatible with the WEEB due to insufficient structural strength. This list should not be considered exhaustive. Installers should check any new module frames for this feature before installing.

### Sharp Electronics Corporation

- NA-V115H5 – Thin Film (IEC)
- NA-V121H5 – Thin Film (IEC)
- NA-V128H5 – Thin Film (IEC)
- NA-V142H5 – Thin Film (IEC)
- NA-V135H5 – Thin Film (IEC)
- NA-V115H1 – Thin Film (UL)
- NA-V121H1 – Thin Film (UL)
- NA-V128H1 – Thin Film (UL)
- NA-V135H1 – Thin Film (UL)



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Wiley is dedicated to providing top quality products. Our engineers are continuously analyzing the latest products on the market. Please contact us with any questions you may have or notify us of any module frames that may not meet the requirements of this bulletin.

Best Regards,

Engineering Team  
Wiley Electronics  
[www.we-llc.com](http://www.we-llc.com)  
845-247-4708