



# MI.HUB XR/R COLLECTOR UPGRADE KIT

## Installation Instructions

### PRODUCT

MI.HUB XR/R - 4G/LTE Cellular Module Field Replaceable Unit

- Part Number: MS-FRU-XR-CEL

### DOCUMENT INFORMATION

Title:	Mi-HUB XR/R 4G LTE Cellular Module Field Replaceable Unit
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## REVISION HISTORY

Version	Date	Author	Comment
A	5-14-20	D.Wentzler	Initial Draft for Internal Release
B	8-10-20	D.Wentzler	Add comments from FAE, & label pictures
B.1	8-20-20	D.Wentzler	Add comments for NOC notification
B.2	3-5-21	D.Wentzler	Revise FCC label and mounting & add SIMM card
C	7-23-21	D.Wentzler	Add EMC/RFI suppression parts
D	10-15-21	D.Wentzler	Add 4G modem identifier blue dot
E	02-09-22	R.Campbell	Reorganize procedure

## ABOUT THIS DOCUMENT

This document describes the replacing the 3G cellular module used in the Mi.Hub XR collector, with a 4G LTE cellular modem. It describes the EMC/RFI spurious emissions suppression required for FCC certification.

**This document is part of the Mi.Hub XR LTE Retrofit Kit.**

MS-FRU-XR-CEL Field Replacement Kit Components	Quantity	Mueller Part Number
LTE cellular modem module.	1	690-2000-001
Flex Antenna with cable and ufl conn (m)	1	145-2000-001
Field Installation Guide document	1	880-2000-001
Plastic Bag	1	UB012
Label - RetroFit Kit	1	130-0115-001
Label - modified FCC	1	130-0136-001
SIM Card	1	810-0016-001
ESD wrist strap	1	105-0004-001
Ferrite Choke Material 61	1	605-0036-001
Ferrite Choke Material 75	2	605-0037-001

**Tools Required**

- Large Phillips head screwdriver
- Small Phillips head Screwdriver

**IMPORTANT SAFETY PRECAUTIONS**

Ensure AC power to the MiHub XR is disconnected from AC Power.

Ensure you use ESD protection when handling the cellular module.

Use a certified static wrist strap (included) that is grounded to the circuitry (the antenna loop on the outside bottom of the enclosure is a preferred grounding location).

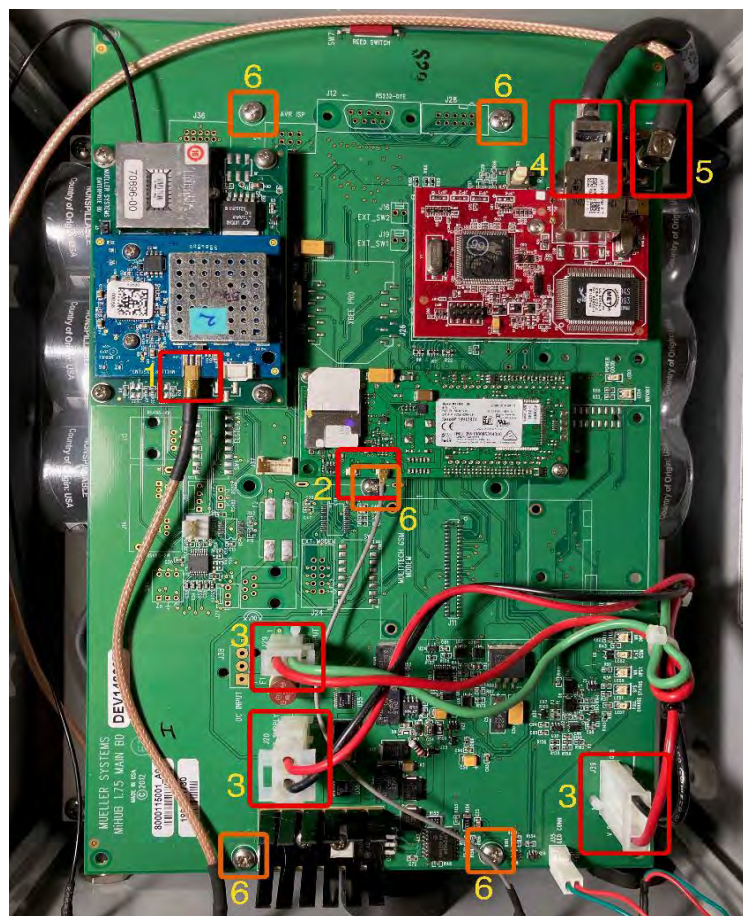
### Remove the AC power to the Collector.

Refer to image on the following page for “Location #” references.

Open the enclosure by removing the 4 screws (Location 6) in the corners of the enclosure.



### Installation of the EMC/RFI suppression



Within the Kit, locate the ferrite chokes that will be installed into the Collector.

605-0037-001 - Material 75 (qty=2)

605-0036-001 - Material 61 (qty=1)

Disconnect the SMB connector from the 900MHz modem PCB. (Location 1)

Disconnect the antenna connector on the Cellular modem (Location 2) by using your fingernails to pull the plug upwards perpendicular to the PCB.

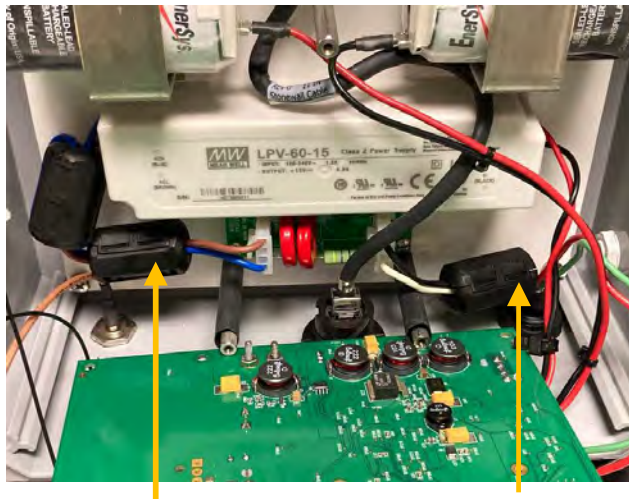
Disconnect the DC solar power input, DC battery backup, and the main DC power input to the PCB. (All Location 3s)

Disconnect the Ethernet cable from the main PCB (Location 4).

Disconnect the SMA connector of the GPS antenna from the main PCB. (Location 5) by pulling perpendicular from the main PCB.

Remove the 5 screws that mount the main PCB to the enclosure. (Location 6)

**Fold down the PCB to expose the hardware mounted under the PCB**



Clamp Material 75 Ferrite Choke Around the Brown and Blue wires

Clamp Material 75 Ferrite Choke Around the Black and White wires

**NOTE:** There is an existing ferrite choke already mounted onto the Blue and Brown wires. It must remain.

Remount the main PCB back into the enclosure. Re-install the screws. (Location 6)



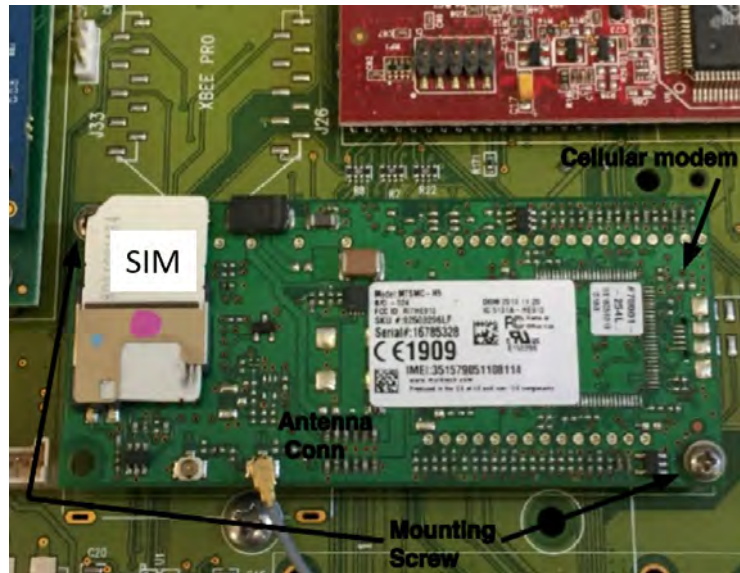
## Modem Replacement Procedure

Locate the cellular modem currently installed in the Mi.Hub XR.

Disconnect the **antenna connector** from the cellular modem assembly. Remove and **discard** this SIM Card.

Remove the 2 screws holding the modem PCB assembly on the main board.

Retain the screws to be reinstalled later.

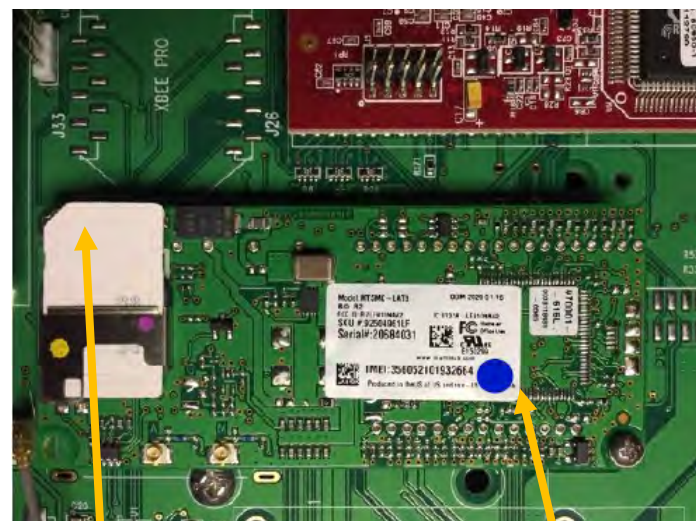


Within the Kit, locate the new LTE cellular modem assembly. (690-2000-001) Carefully align the cellular modem pins and mount it into the sockets on the main PCB.

Reinstall the 2 screws to secure the modem to the main PCB.

Insert the **new SIM card** (810-0016-001) into the Cellular modem's SIM slot.

**Note the orientation of the SIM card's notch for proper alignment.**



Notch

The Blue dot is used to identify the new 4G cellular modem PCB

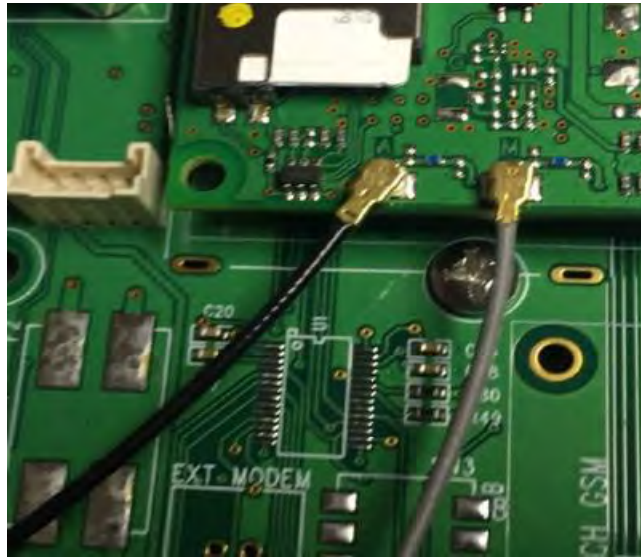
Locate the old antenna cable and carefully attach its plug to the **right-most** RF connector as shown. (Location 2)



Within the Kit, locate the **internal antenna** (145-2000-001):



Attach the plug of the internal antenna wire onto the **left-most** RF connector as shown. ([Location 2](#))



Remove the adhesive cover on the back of the internal antenna. Mount the internal antenna to the side wall of the enclosure as shown.

**Take caution to not over-bend the cable of the internal antenna.**





Mount a **Material 61** ferrite choke onto the GPS antenna cable as shown, looping the cable once thru the ferrite choke.

Re-attach the GPS antenna cable.  
([Location 5](#))



Reattach all remaining cable harnesses ([Locations 1,3 and 4](#))

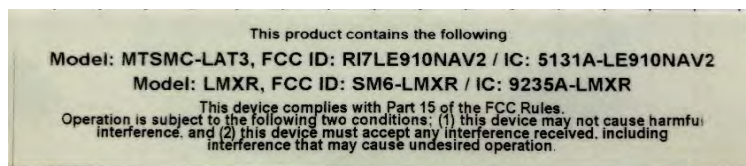


**Final Assembly**

Locate the **old** FCC label mounted on the exterior of the collector.



Locate the **new** FCC label from the kit (130-0136-001)



Clean off the surface of the current label on the unit. Remove the protective adhesive cover from the new label and mount the new label **over the lower third of the current** label as shown



Replace the cover of the collector and reapply AC power.

Once the modem has been replaced, please contact your NOC Analyst or the Network Operations Center at **800-423 1323, Opt 4, Opt 2, Opt 2** to confirm proper functionality.

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