# PIM Finder

# External PIM Measurement

- Measuring PIM within the antenna infrastructure is now routine and carried out in many countries
- However PIM sources can occur externally to the antenna infrastructure and will effect network quality in the same way
- Locating PIM sources when they are external to the antenna has been difficult until now.
- Kaelus PIM Finder is a product to assist in the location of PIM external to the antenna infrastructure in a more efficient and effective way
- PIM finder is a software option to be used in conjunction with the Kaelus iVA cable and antenna analyser and iPA portable passive intermodulation products

# PIM Finder – What do I need

iPA Portable PIM Analyzer & Tablet

iVA With PIM Finder Software
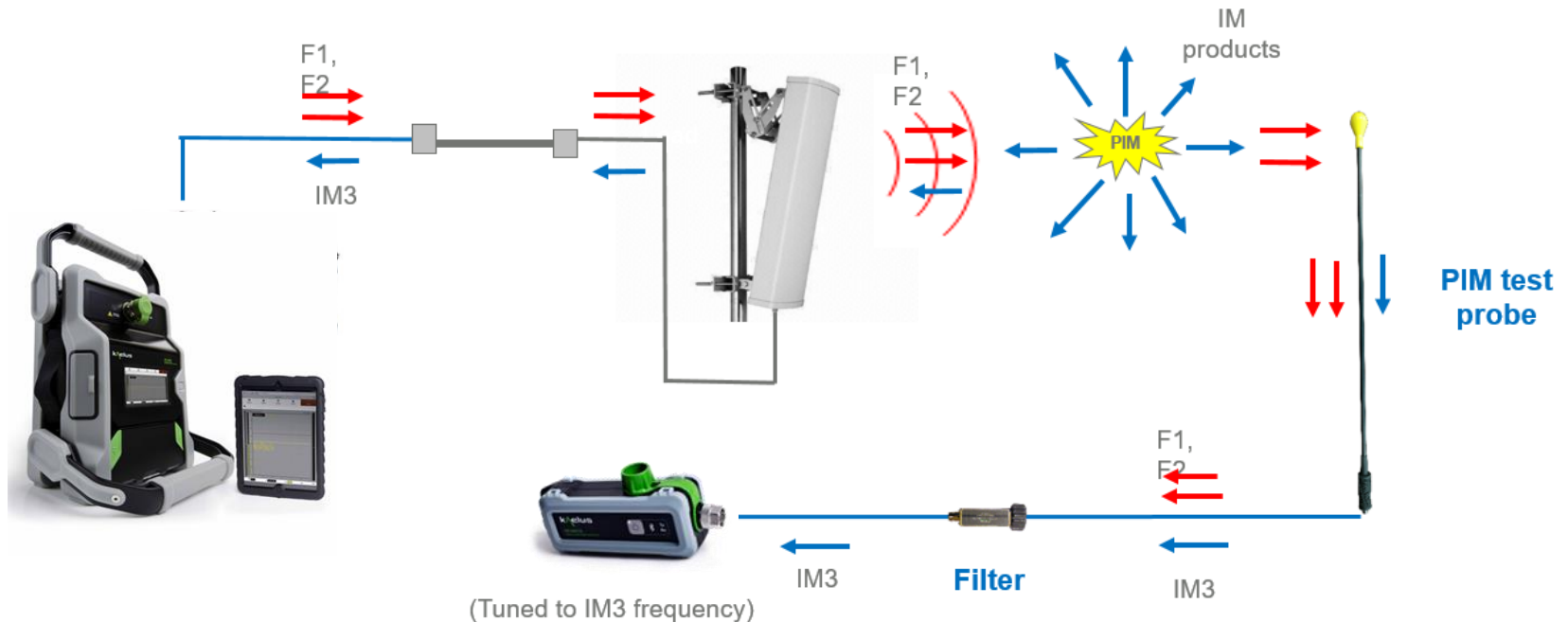Note: Software is an upgrade option on existing iVA hardware

Interference Mitigation Filter
Tuned to pass low level PIM signals
Reject Tones from the iPA,
and any other high power signal at the sites

Low PIM 560-2750MHz PIM Test Probe

# External PIM measurement
# How it works (Refer App Note)



- iPA provides 2 x 20W RF carriers to be transmitted
- iVA provides a receiver for measuring the externally generated PIM
- Device with the free Kaelus unify app installed
- The filters attenuate the iPA transmit carriers before the receiver
- The probe provides the ability to hunt for external PIM sources

# Process works for all site types



Tower macro

Rooftop macro

DAS

Small cell

- The probe provides the ability to hunt for external PIM sources by
  - Lightly touching metal surfaces of suspected PIM sources
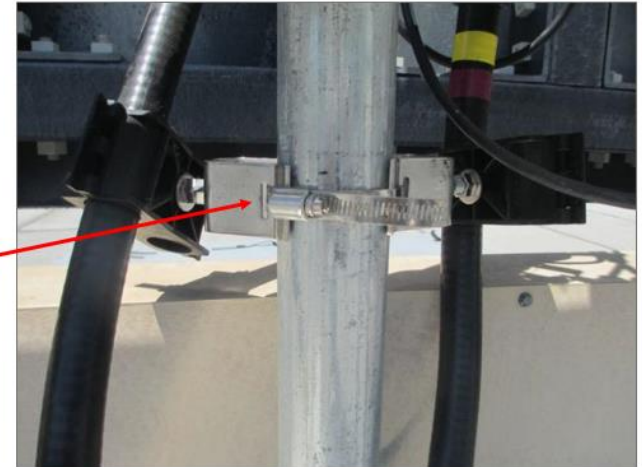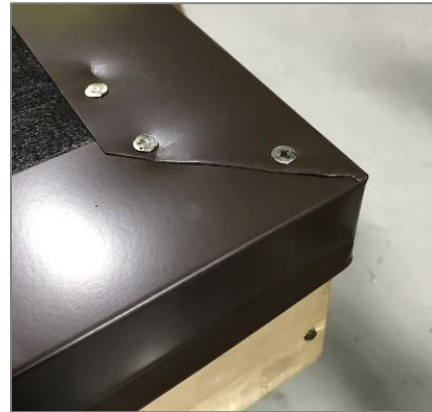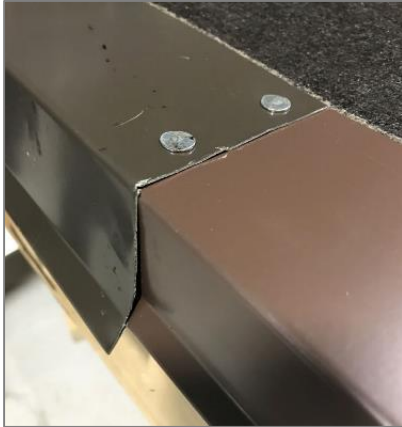  - Placing in close proximity to potential PIM sources
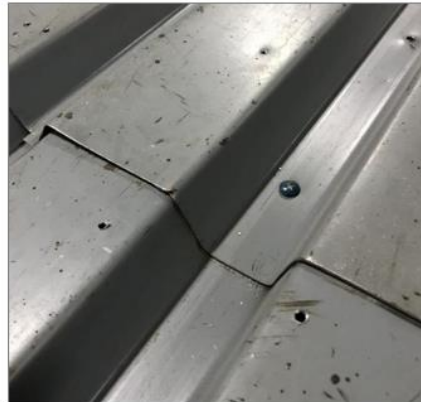
# Common sources

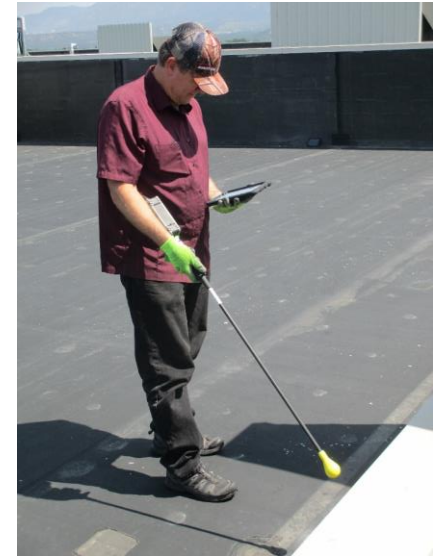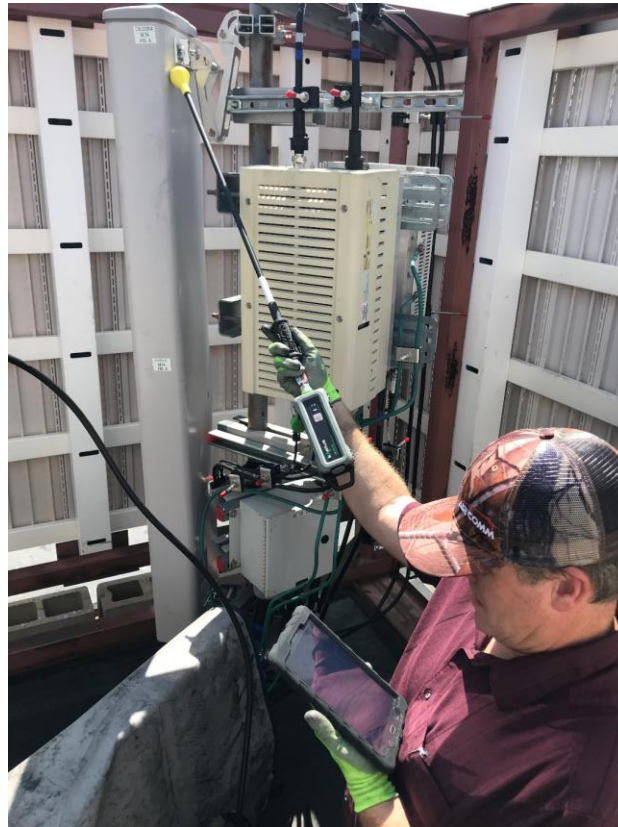Loose mounting brackets

Cable support brackets

# Common sources





Parapet walls / flashing.
Fasteners under roof membrane

# Field Measurement

an INFINITe company

# Majority of new PIM issues likely to be external

- Bands deployed on separate antennas

- Short jumper connection to radio (few connections)

- Signals able to mix at PIM sources beyond the antenna

Proprietary Information – External Use By Permission Only
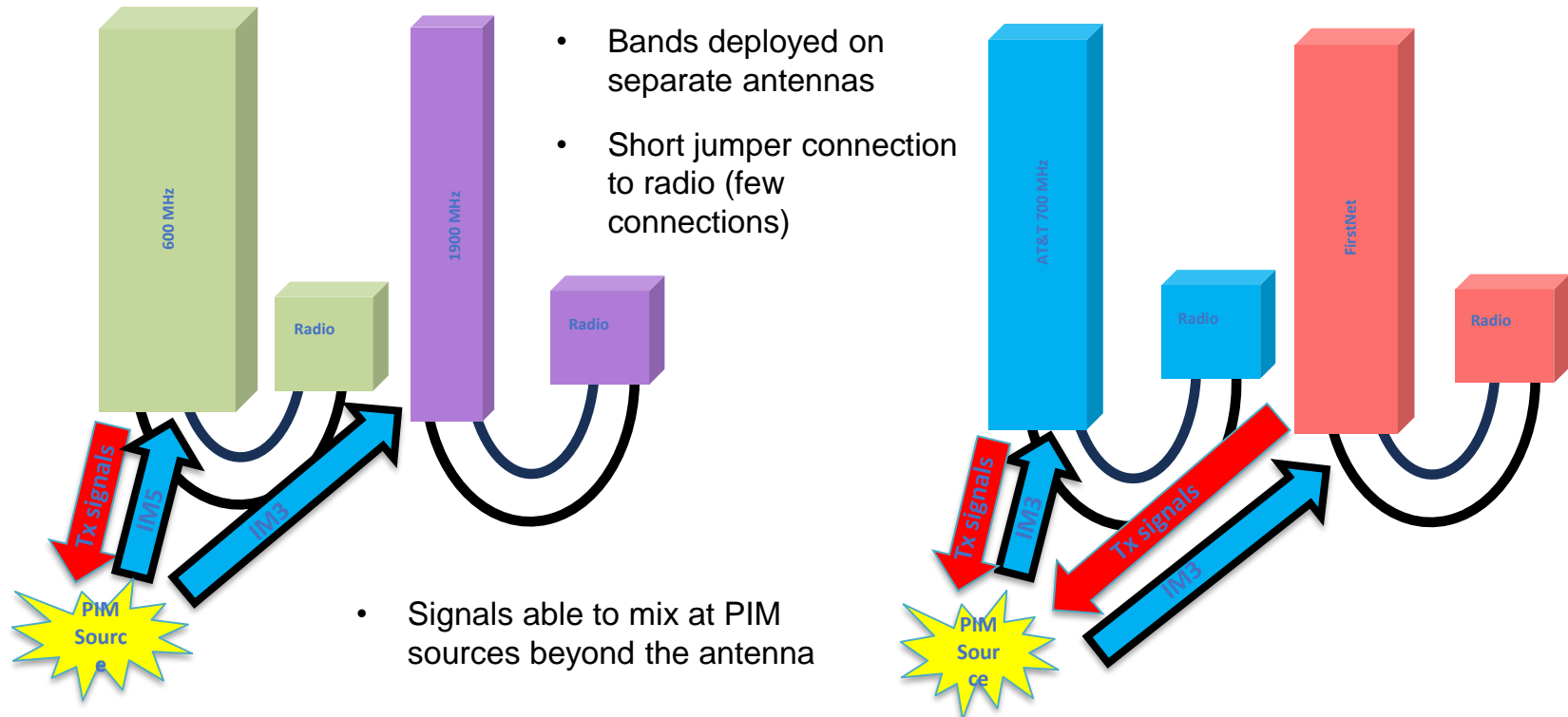
# External PIM measurement process



**REPEAT**

Measure PIM → Measure DTP / RTF → Adjust limit alarm on SPA → Hunt and mark PIM sources → Cover PIM sources w/ RF barrier → IM3 PASS ?

**NO** (from IM3 PASS back to REPEAT)

**YES** → Record PIM values

**CONNECT TO NEXT PORT**

Record PIM values → All ports tested ?

**NO** (to CONNECT TO NEXT PORT)

**YES** → Document required repairs
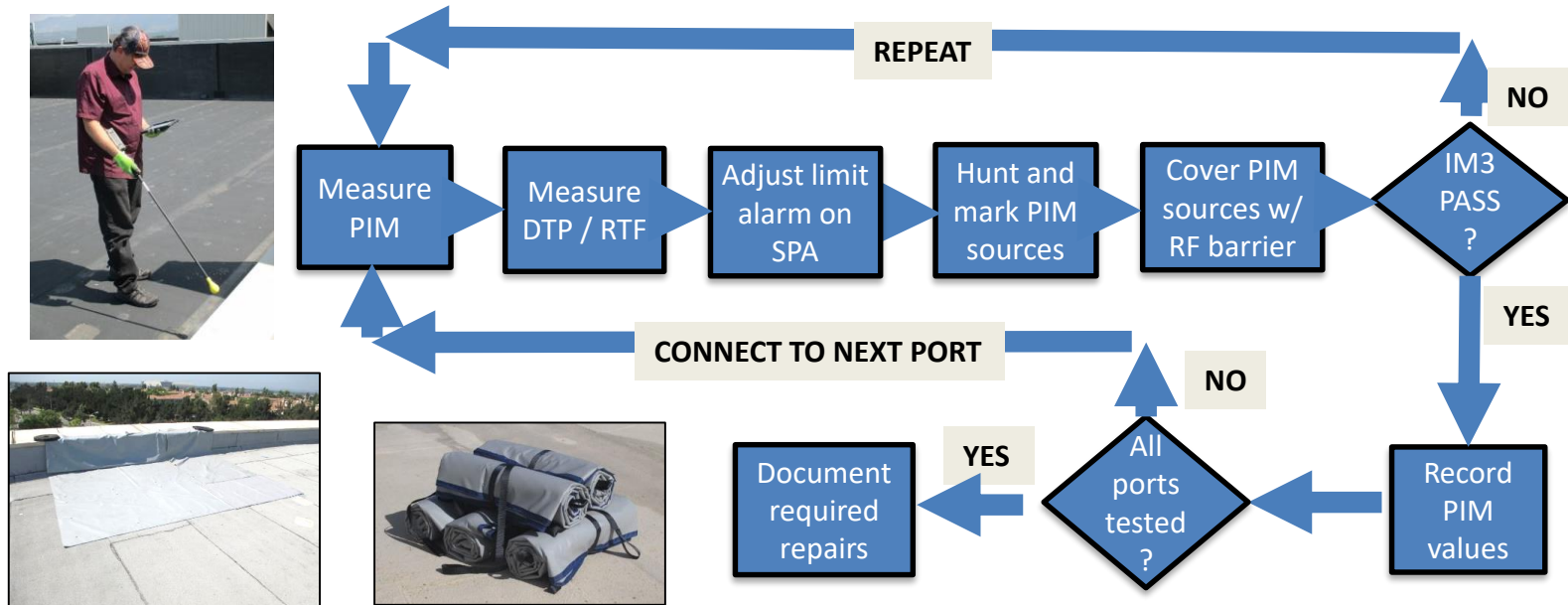
# Concealfab – PIM Mitigation Products and PIM Training
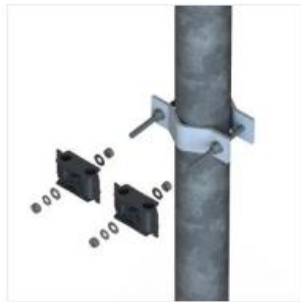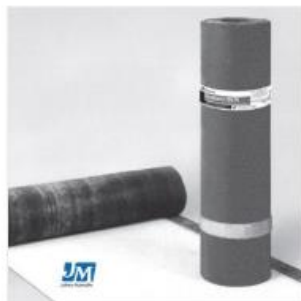

LOW PIM CABLE SUPPORT BRACKETS™


PIM BLANKET™


PIM CERTIFICATION TRAINING


PIM PROBE™


PIM SHIELD ROOFING™


PIM SHIELD TAPE™