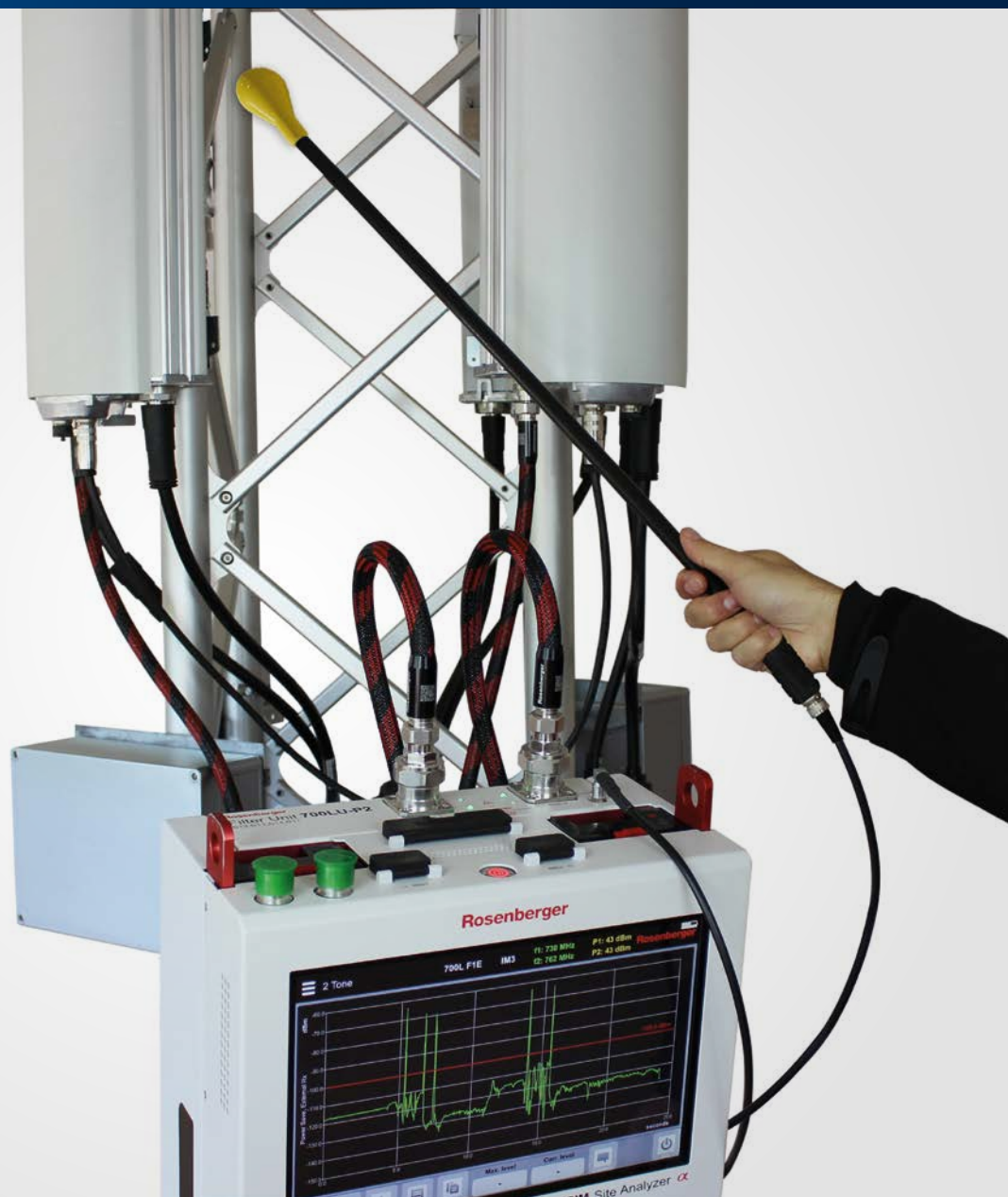
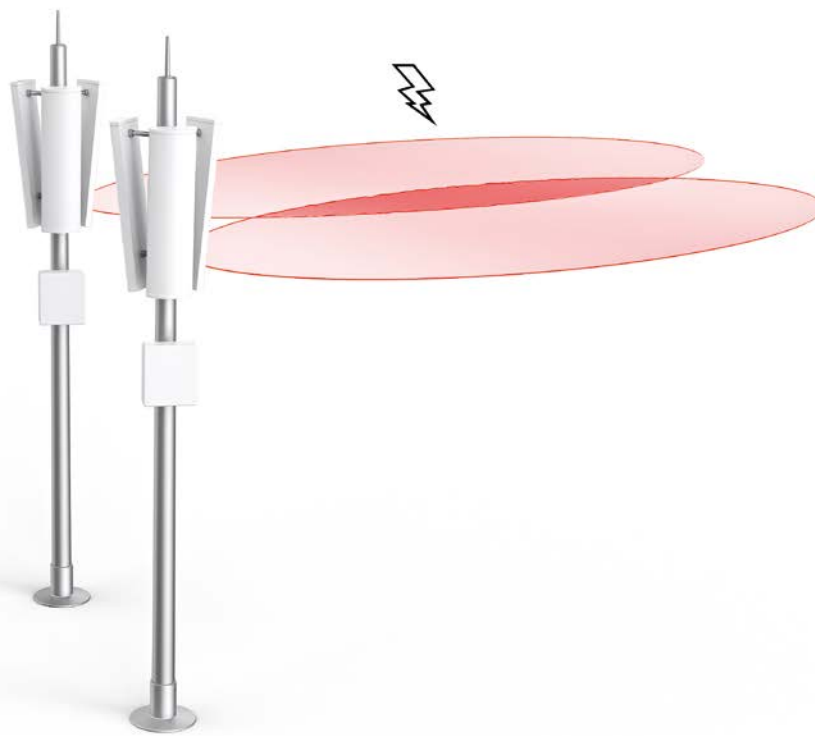


Reliable Classification and Detection of External PIM

## 2-Port PIM Test Solution

COMMUNICATION





## SELF-INTERFERENCE FROM MIXED SIGNALS

### Impact to Site Performance

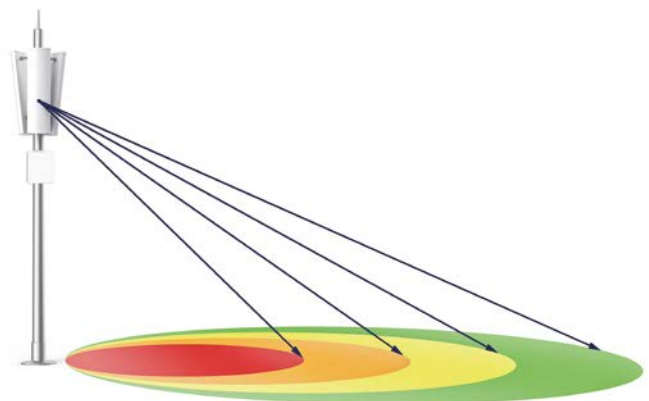
Carrier adds and colocated equipment from different operators run the risk of system self-interference from mixed signals. In some cases, PIM (passive intermodulation) generated in such a scenario (external PIM, outside antenna line system) can even have a bigger impact to site performance compared to “internal” PIM, generated within the antenna line system.

However, traditional PIM testing systems with just one test port cannot distinguish and classify external PIM caused by this growing phenomenon, especially prevalent in commercial and public safety wavebands in the 700 MHz range.

PIM problems, caused by mixed signals can massively impact on the performance and reliability of a cell site by significantly reducing its footprint, value and ROI.

This often results in increased capex and opex spending on additional sites to compensate for the loss of available capacity.

Example of how PIM problems can affect site performance:



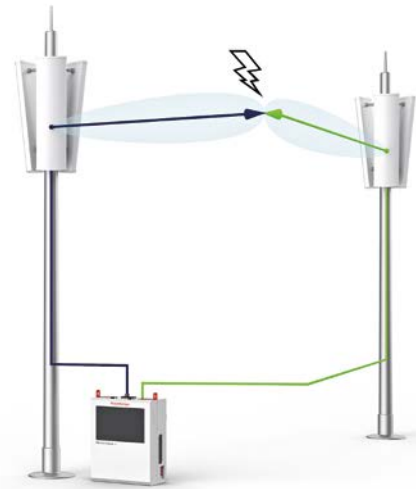
Red: inefficient site, e.g., reduced data throughput/coverage, green: maximum site efficiency.

## 2-Port PIM Test Solution

The versatile Rosenberger 2-port PIM testing solution combines the functionality of a traditional one port test system with a new 2-port test system to distinguish internal PIM-sources from external PIM-sources.



One port: same power of f1 and f2 at PIM-source.  
If PIM is found, source can be internal (transmission path) or external (beyond antenna).



2-ports: f1 to Antenna 1, f2 to Antenna 2.  
No PIM on transmission path possible. If PIM is found, it must be external.

## PIM Hunting

Furthermore the additional RX port on the 2 port filter unit enables the built-in receiver. In combination with a PIM hunting probe it is possible to detect external PIM-sources around the antennas. With this integrated solution an additional spectrum analyzer to operate the PIM hunting probe is not needed.



2-Port PIM testfilter



PIM test probe

## Benefits

- PIM test under typical scenarios (e.g. 2 antennas using different wavebands)
- Configurable menu (1 or 2 port measurement)
- Clearly differentiate internal from external PIM
- Additional RX port for connection of test probe for external PIM detection
- Integrated DTF module
- No separate spectrum analyzer needed

## Specifications

|                         |  |
|-------------------------|--|
| Band Filter unit 2-port | IM-B-FI-700LU-P2 / B12, B13, B14, B17            |
| ETSI Band               | B12, B13, B14, B14, B17                          |
| Transmit Path TX1       | 728 – 740 MHz, switchable to port 2              |
| Transmit Path TX2       | 750 – 764 MHz, switchable to port 2              |
| Receive Path RX1        | 698 – 716 MHz                                    |
| Receive Path RX1        | 776 – 798 MHz                                    |
| Residual PIM            | < -125 dBm (< -168 dBc), referred to 2 x +43 dBm |
| Weight                  | 4.38 kg  |



## Website

For more information refer to our website:  
[www.rosenberger.com/pia](http://www.rosenberger.com/pia)

## Rosenberger

Rosenberger Hochfrequenztechnik GmbH & Co. KG

Hauptstraße 1 | 83413 Fridolfing

P.O. Box 1260 | 84526 Tittmoning

Germany

Phone +49 8684 18-0

[info@rosenberger.com](mailto:info@rosenberger.com)

[www.rosenberger.com](http://www.rosenberger.com)

Certified by IATF 16949 · DIN EN 9100 · ISO 9001 · ISO 14001

Order No.

pA 426831 · Info584PIMTestFlyEN

1000/2019

Rosenberger® is a registered trademark of Rosenberger Hochfrequenztechnik GmbH & Co. KG.  
All rights reserved.

© Rosenberger 2019