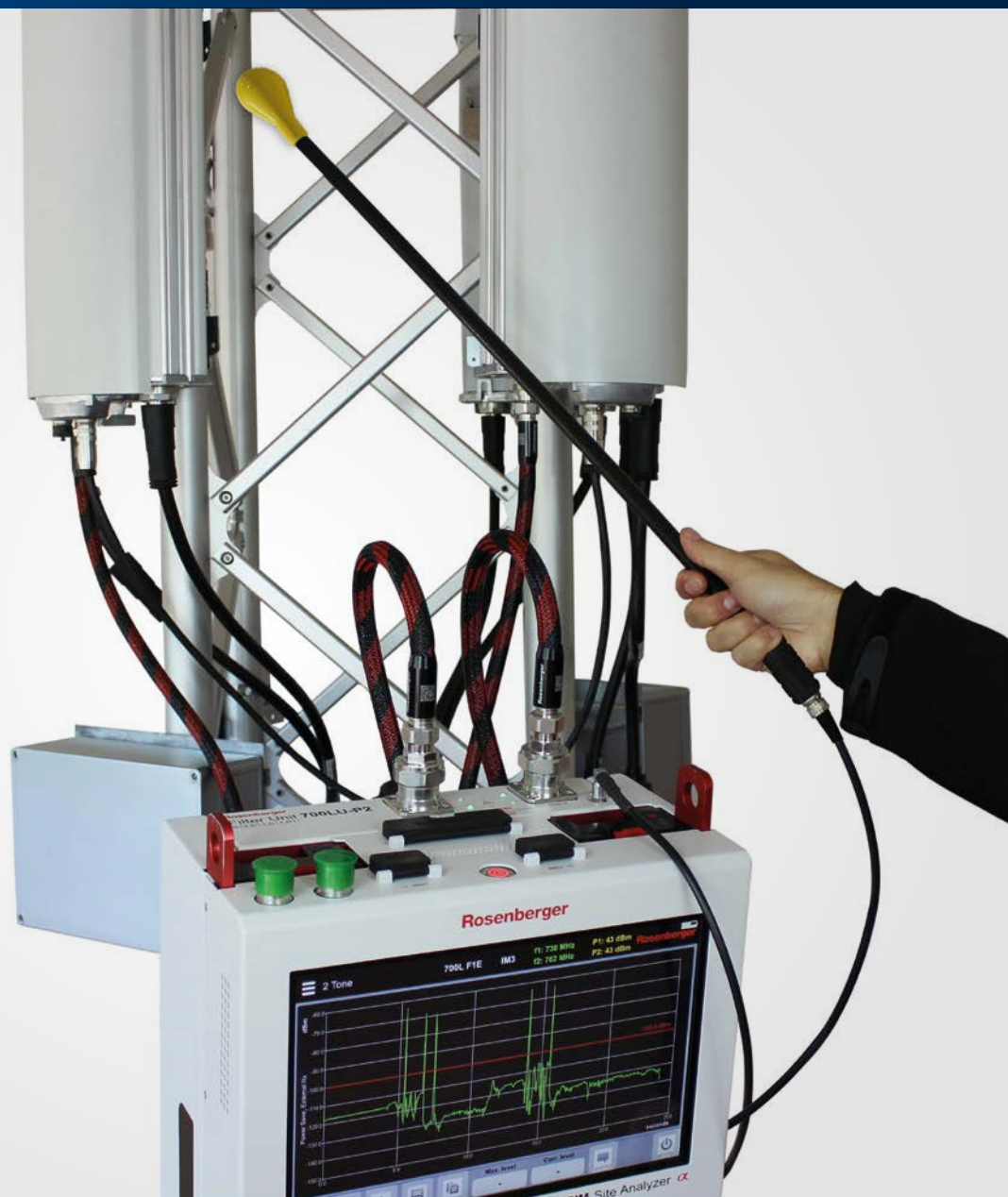
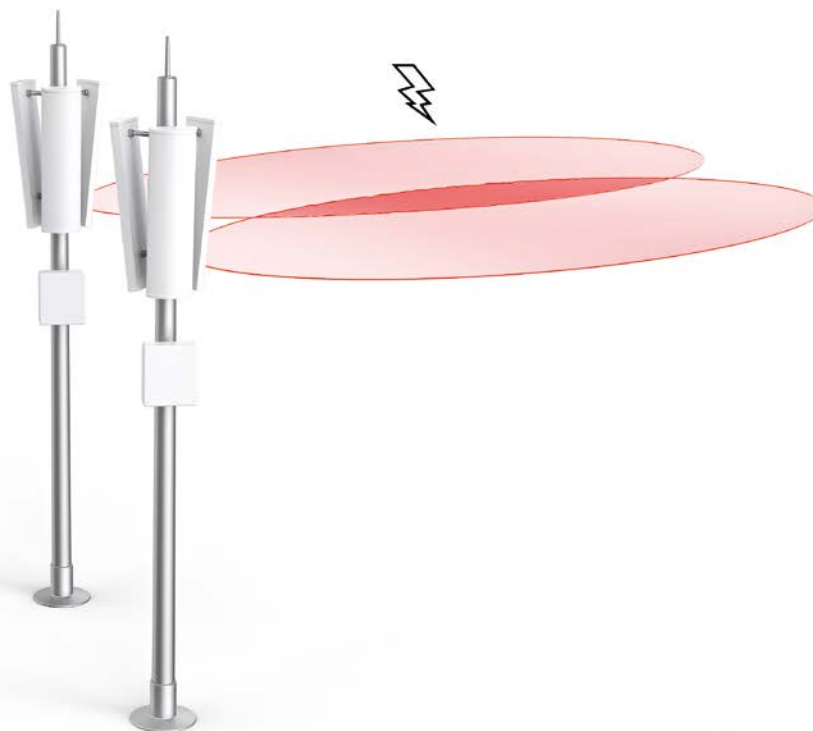


Reliable Classification and Detection of External PIM

2-Port PIM Test Solution

COMMUNICATION





SELF-INTERFERENCE FROM MIXED SIGNALS

Impact to Site Performance

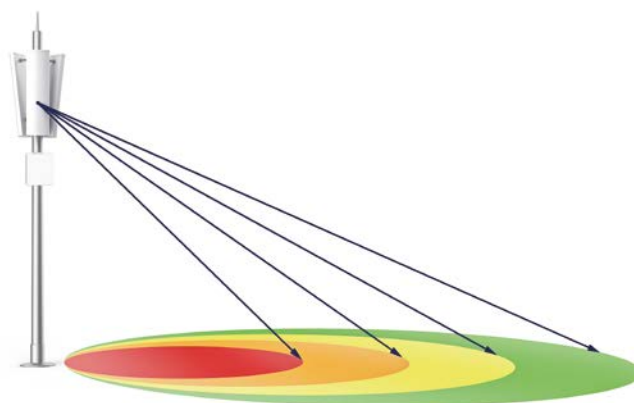
Carrier adds and colocated equipment from different operators run the risk of system self-interference from mixed signals. In some cases, PIM (passive intermodulation) generated in such a scenario (external PIM, outside antenna line system) can even have a bigger impact to site performance compared to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



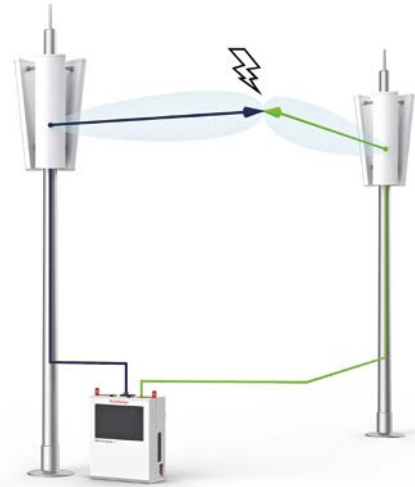
Red: inefficient site, e.g., reduced data throughput/coverage, green: maximum site efficiency.

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
- Adjustable PIM level beep tone via bluetooth speaker or remote tablet

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

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