

# IQ Fiber Master™ MT2780A

A New Testing Methodology for Diagnosing PIM  
and RF Interference Problems

**Anritsu**  
envision : ensure

# What is the IQ Fiber Master MT2780A?

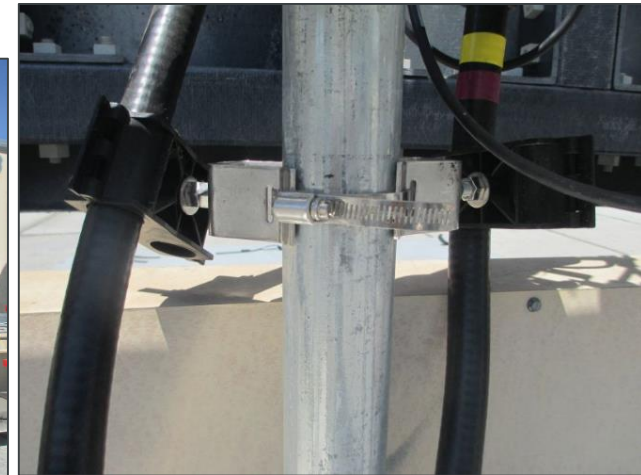
The IQ Fiber Master MT2780A performs a full PIM analysis that measures the dB impact to your carrier using live traffic without taking down the site.

Its analysis includes diagnosing:

- PIM or RF interference
- Internal or external PIM
- Hottest transmitter in multi-band tower
- When is PIM happening (Monitoring)
- No tower climb
- No site takedown

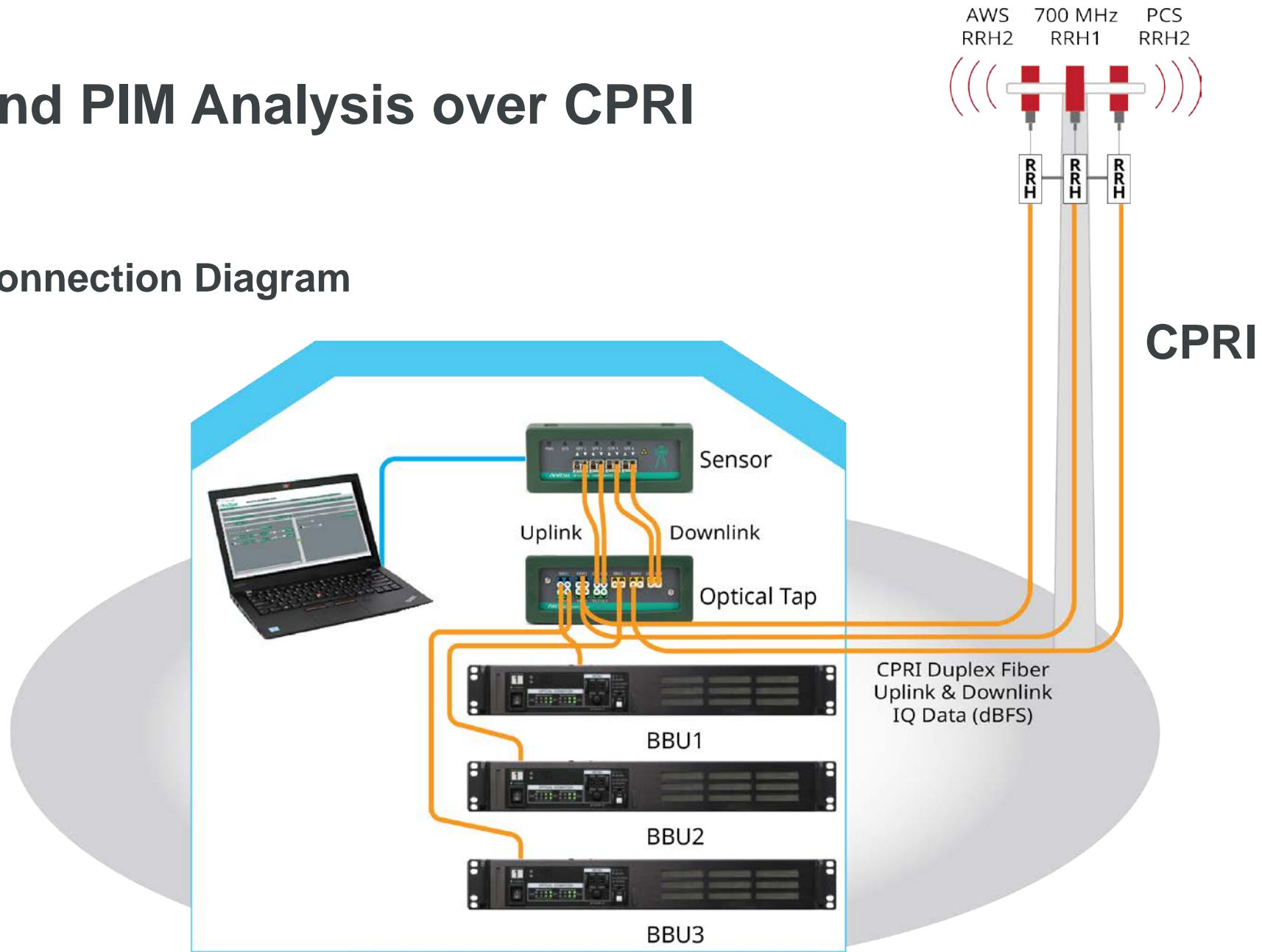
Advanced troubleshooting concepts:

- DTP with minor calibrations
- PIM Hunting/Troubleshooting



# Multi-Band PIM Analysis over CPRI

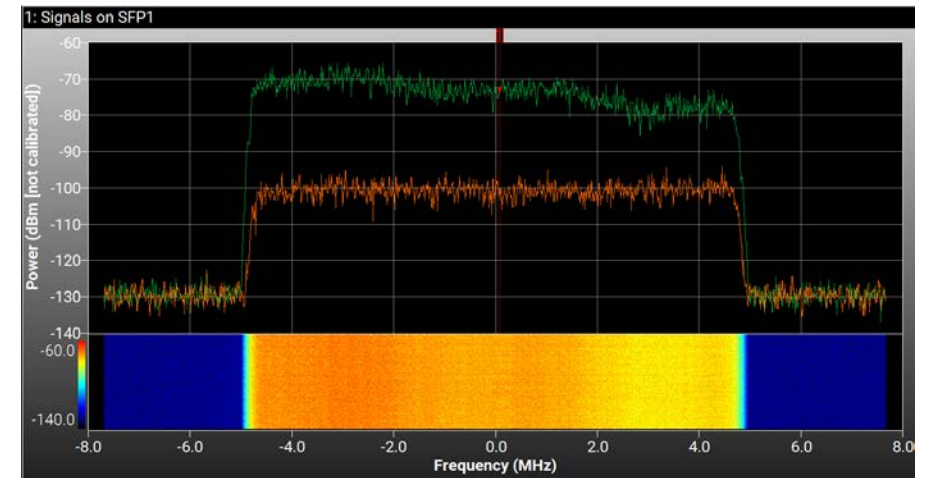
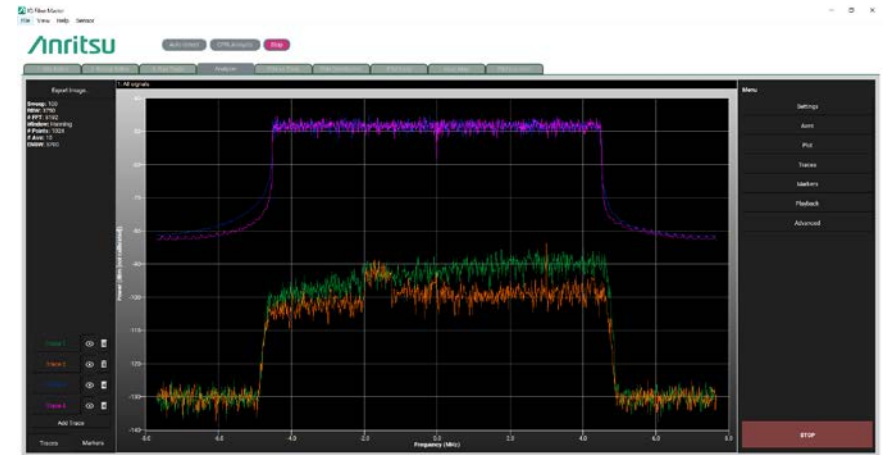
## Connection Diagram



# IQ Fiber Master MT2780A – RF Spectrum Analysis

## Monitor the Uplink or Downlink RF Spectrum

- Spectrum Graph of Sector uplink and/or downlink
- Normal adjustments for axis scaling, RBW, etc
- Normal graph functions such as measurements, markers, persistence, spectrogram
- **Up to 12 simultaneous trace displays**
- **4 SFP inputs**
- Fast trace display
- Data taken directly from IQ data of CPRI link



# IQ Fiber Master MT2780A – PIM Analysis Over CPRI

## Determine Levels and Location of PIM

- Uses OCNS/AILG transmit power to perform PIM analysis
  - PIM Detection
  - PIM Level
  - Internal or external PIM source
  - Distance to PIM
- Various transmitter and receiver scenarios can be analyzed in the same test run

UL impacted by PIM	UL 709MHz	UL 709MHz
Antenna branch/port	Ant1	Ant2
PASS/FAIL	FAIL	PASS
PIM level	-98.1dBm	-108.9dBm
PIM source location	External	

Measuring UL 709MHz Ant2 ...

RX desens	6.2dB	0.8dB
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Site Details	
Site:	ID
Report Created:	January 27, 2020 15:06
Last Updated:	January 27, 2020 15:39
Operator:	
Contact Phone:	
Company Name:	

Instrument Details	
Software Version:	IQ Fiber Master v1.7.4.8 build 14
Firmware Version:	1.6 (build 18)
Sensor Id:	MT2780A-AAUK19500004
Test Roster:	tr_user.xml



# IQ Fiber Master MT2780A – PIM Analytics

## Analytics Functions for Monitoring Longer Term PIM

- PIM vs Time: Monitor PIM over days or weeks
- PIM Distribution: Know the amount of PIM exceeding thresholds
- Daily PIM graph
- “Expert” results based on PIM analysis data
- PIM heatmap: Report of “hottest” transmitters contributing to PIM



### Heatmap Summary

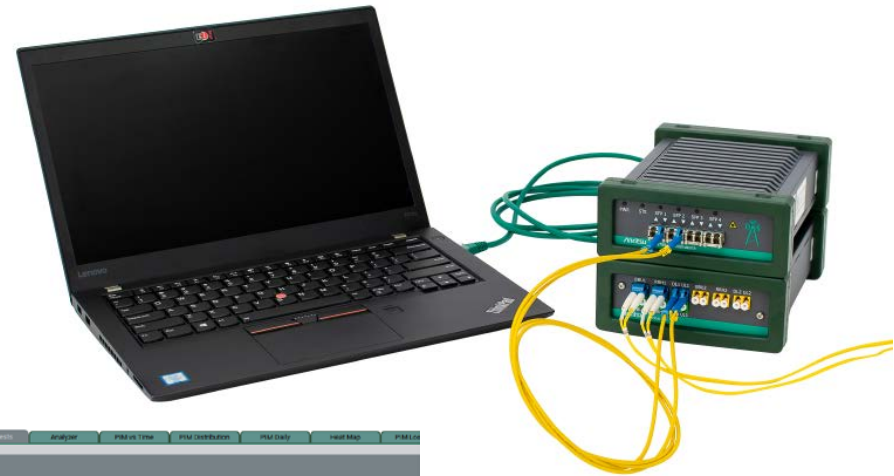
Internal/External	PIM is likely to be <b>INTERNAL</b> on UL 782MHz Ant1 caused by DL 751MHz Ant2
Internal/External	No pim found on UL 782MHz Ant2

alpha		Rx Antenna Port		
		709#1	709#2	
		<b>FAIL</b>	<b>PASS</b>	
Tx Antenna Port	739#1	0	-5.27	0.0 -25.0
	739#2	-14.28	0	
	763#1	0	-10.11	
	763#2	-16.99	0	
	763#3	-21.17	-6.15	
	763#4	-20	-8.19	

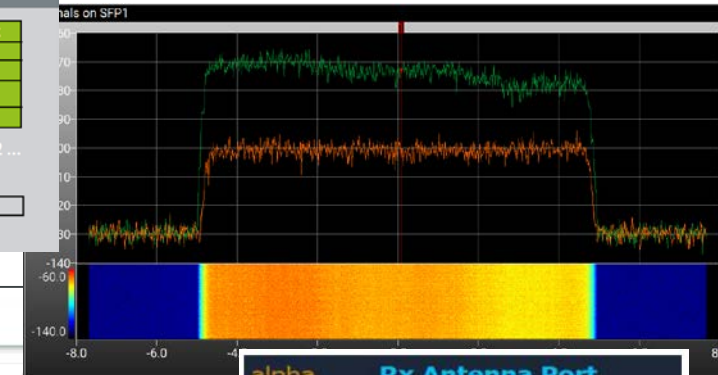
# IQ Fiber Master MT2780A Summary

## All-in-one CPRI based RF and PIM analyzer

- Diagnose RF/PIM Problems
  - RF spectrum
  - PIM Analysis including DTP
  - PIM Analytics (monitoring)
    - PIM Heat map
    - Intermittent PIM
- PIM Analysis using real traffic
  - Non-invasive: Site remains operational.
  - Accurate “real-world” testing
- Supports all LTE bands in one sensor (LTE 700, AWS, PCS, WCS, 800 MHz, 900 MHz)
- Supports all major equipment manufacturers: Nokia, Ericsson, Huawei, Samsung
- CPRI line rates 1 – 8
- Up to 4x4 MIMO Support
- No certification required to operate
- Will not transmit signals outside of band
- Small and compact, weighs 1 kg (2.2 lbs)



Measurement: PIM Level		
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PIM source location	External	
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	709#1	709#2	
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763#1	0	-10.11	
763#2	-16.99	0	
763#3	-21.17	-6.15	
763#4	-20	-8.19	

The image features the Anritsu logo in white on a teal background. The logo consists of the word 'Anritsu' in a bold, sans-serif font, with a stylized 'A' that has a diagonal slash. Below it is the tagline 'envision : ensure' in a smaller, lowercase sans-serif font. The background is a solid teal color with rounded corners. There are also teal shapes in the bottom-left and top-right corners of the overall image.

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