

Advanced PIM Certification



Introduction:

Passive Intermodulation Measurements (PIM) testing is now a standard for radio site commissioning and certification. PIM has been around since the beginning of radio communication and has become a major performance issue for wireless carriers in recent years. Wireless broadband and 4G networks along with utilities, government agencies and private users are converging to higher data rates with higher spectral bandwidth requirements which drive the necessity to reduce PIM at radio sites. Wireless carriers now require PIM testing and certification of all new sites as well as testing existing installations in an effort to increase call quality and reduce lost data.

Effective PIM testing requires knowledge, practical skills and appropriate tools. Kaelus and TESSCO now offers on-site training workshops to teach engineers, technicians and installation crews the skills needed to construct and maintain “low PIM” RF infrastructure.



This **One Day Course** is moderately technical and does not require prerequisites although prior radio or installation experience is a plus. The student will learn what PIM is, how it is tested and the difference between PIM testing and other antenna testing techniques. This course is more than 50% hands-on with test equipment, site RF network simulations, and verifications associated with instrument operation. An Advanced PIM Certification wallet card will be issued upon successful completion of both written and practical tests.

What you receive:

1. Course Manual
2. Advanced PIM Certification Wallet Card upon passing of written and practical tests
3. Advanced PIM Certification Certificate upon passing of written and practical tests

Syllabus:

Introduction to PIM

- Product overview
- Term & definitions
- Standards defined
- What is PIM
- Why PIM is important
- Fixed Frequency Testing

Technology Overview

- dB – dBm – dBc
- Intermodulation overview
- Spurious Emissions
- Radiated – non-radiated sources
- Loads and antennas
- PIM Vs Line Sweep
- Methods & Procedures

How PIM is created

- Internal PIM sources
- External PIM Sources
- Finding the right frequencies

PIM Testing (Hands On)

- Safety Review -Teams
- Setting up the equipment
- Equipment verification

- Why power is important
- Load Vs Antenna
- Taking an outage
- Verifying equipment
- Conducting the test

Results – Interpretation

- Spectrum Analysis
- Reading the numbers
- What they mean
- Troubleshooting

RF connector care (Hands on)

- Breaking connections
- Torque Specifications
- Cleanliness
- Remaking connections

Summary and Review

- Core elements review
- Questions and answers

Certification Testing

- **Written test – 70% Pass**
- **Practical test – 70% Pass**