



Panel-Tuning for Precision: Best Practices for Measurements and Modelling

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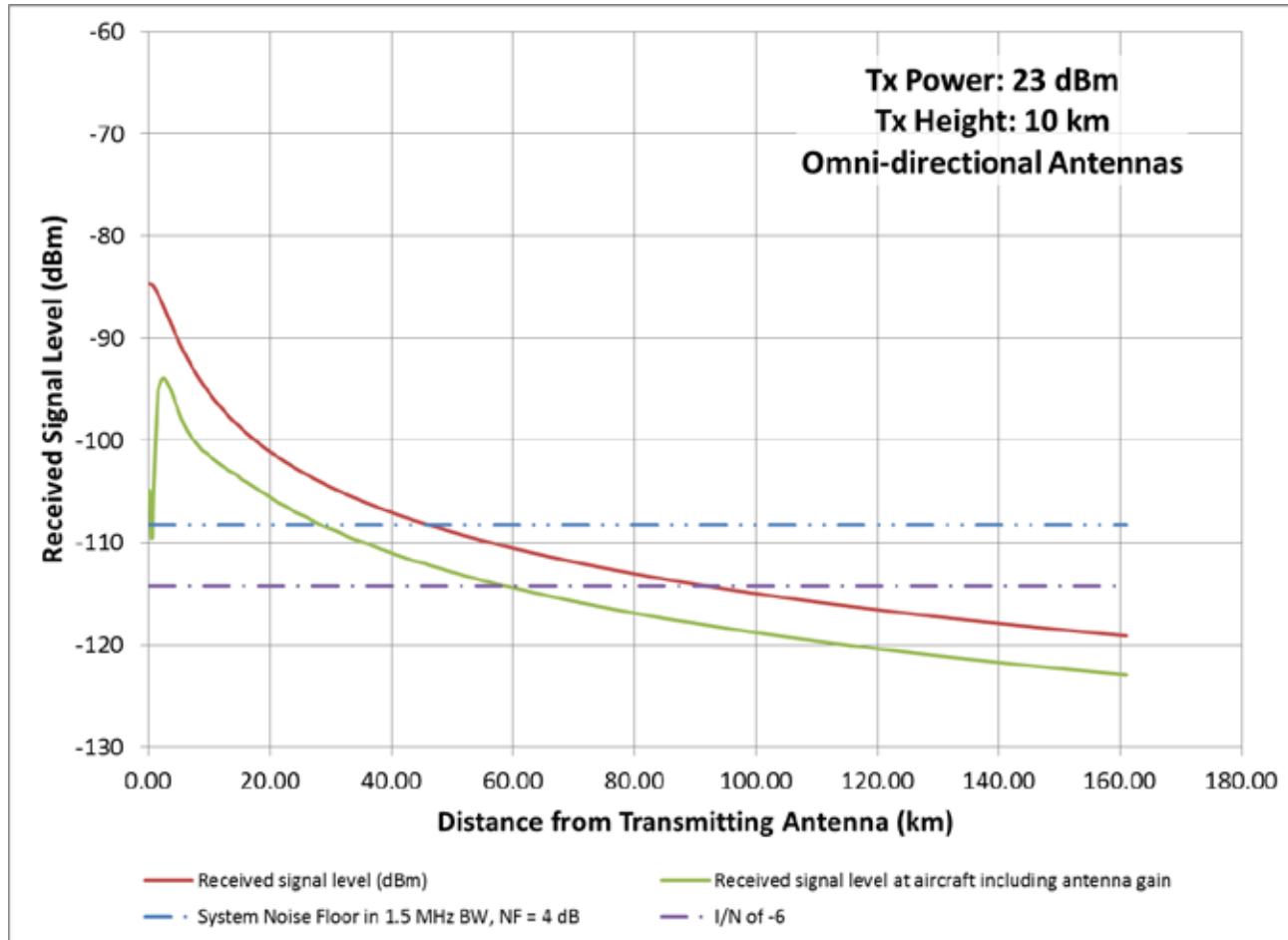
Outline

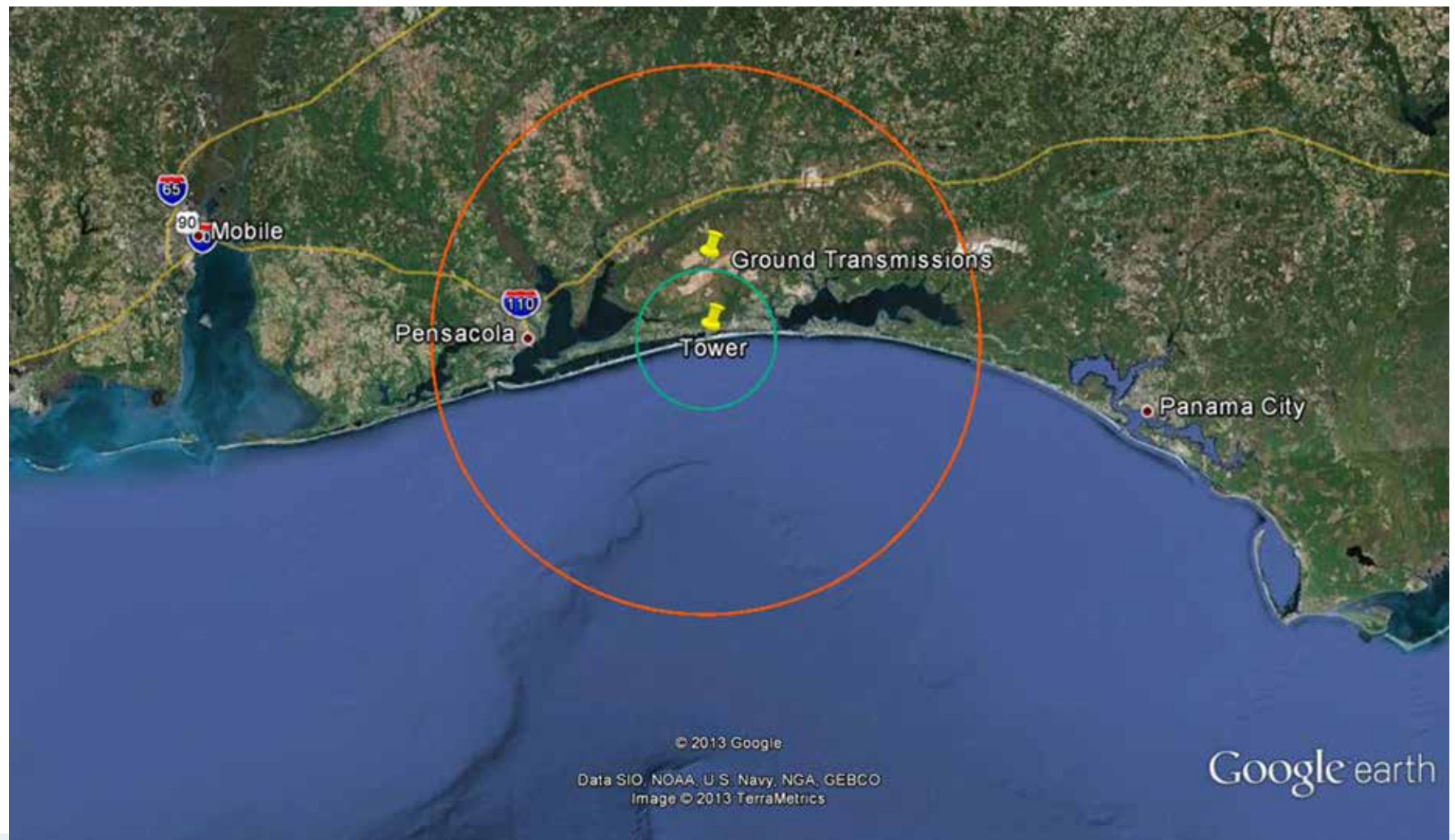
- Significance of Propagation Measurements
- Well-thought out experiments
 - § Answers a specific question or set of questions
 - § Flexible enough to overcome unforeseen problems
 - § Ability to quickly answer questions on-site
 - § For ITS, answers policy questions
- Measurement Considerations
- Model Uncertainties

What is the significance of propagation measurements?

- Measurements are considered to be the ground truth
- Measurements are used to develop/inform/verify propagation models
- What if there are errors in the measurements/models?
 - § Components measurements
 - § Antenna gain patterns
 - § Dynamic range
 - § Model inputs
 - § Model assumptions

Why are well-thought out measurements important?





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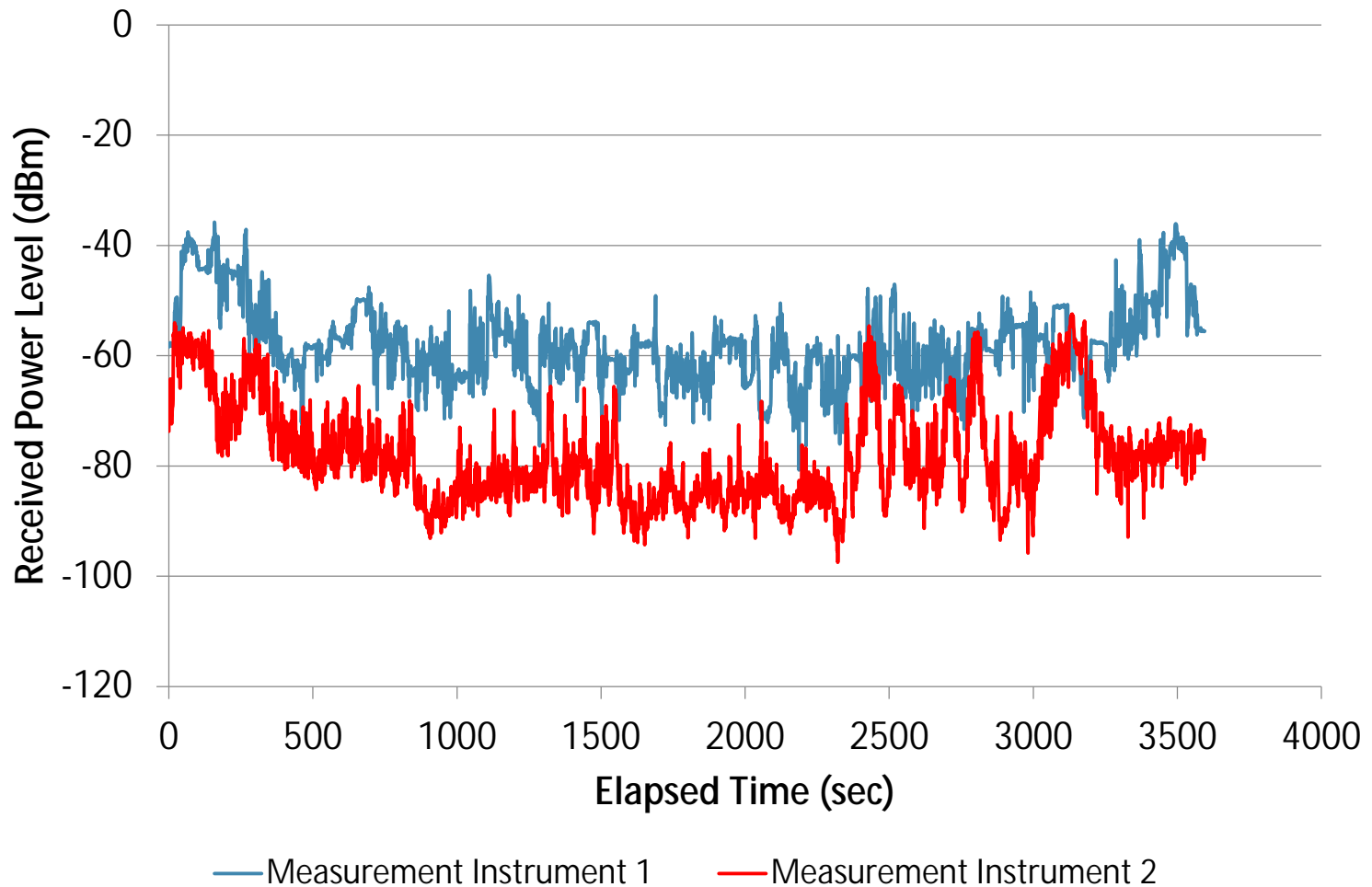
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
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Measurement Considerations

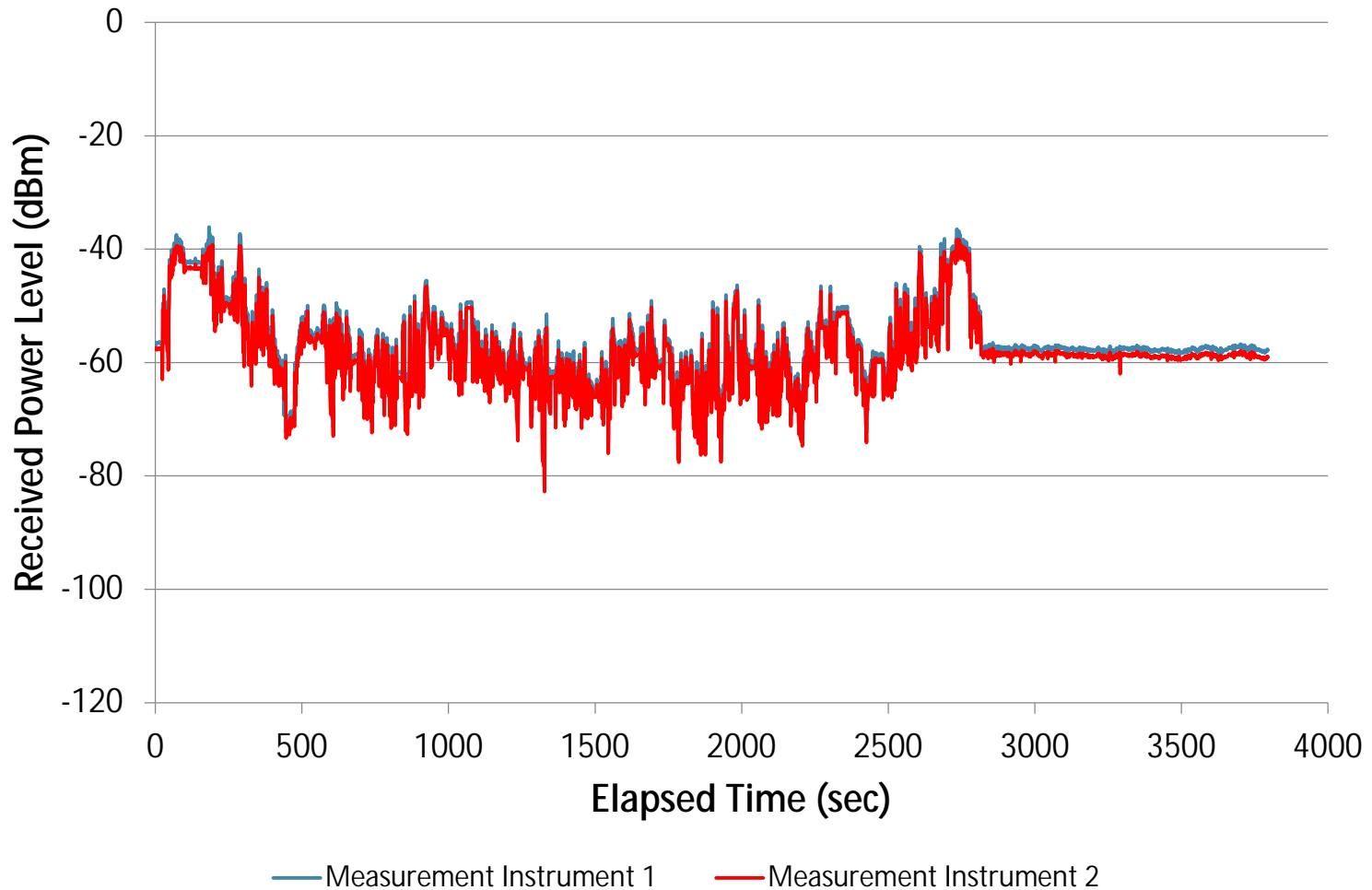
- What does good data look like?
- Was equipment set up correctly to capture needed information?
 - System Noise floor
 - Dynamic range
 - Preselectors
 - Filters
 - Check Standards?
- What is the measurement/model uncertainty? How much can you trust the data?
 - § Where do uncertainties arise?
 - Measurements
 - Models
 - § How repeatable are measurements?

Which is the correct measurement?



What about now?

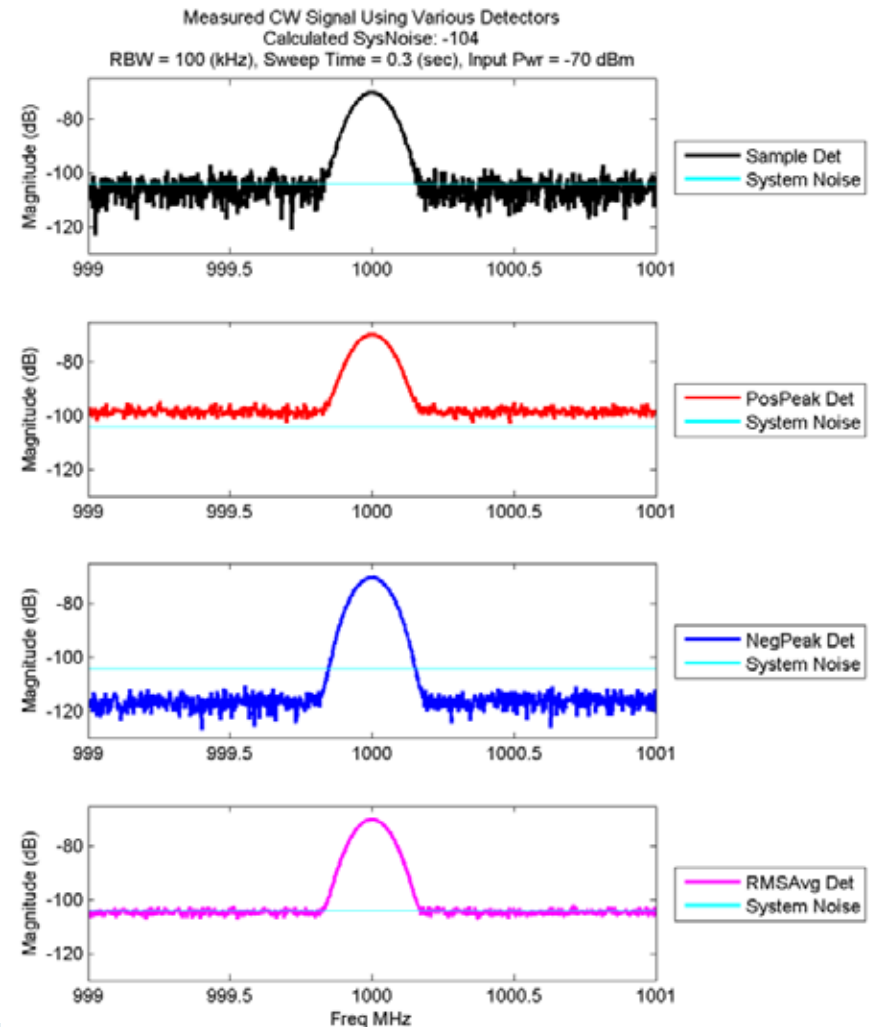
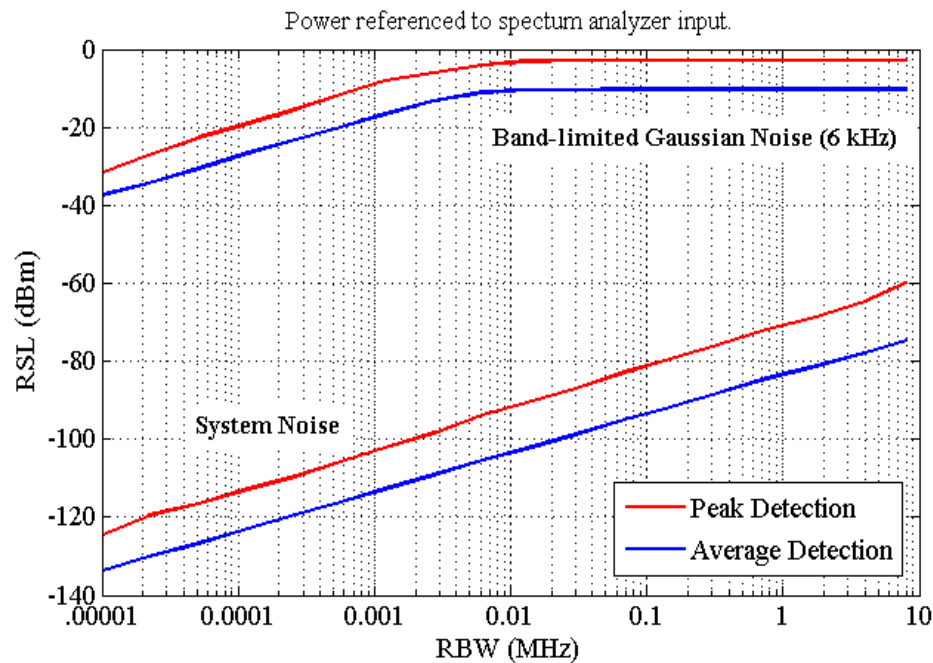
Would you have more confidence in the data?



Measurement Equipment Setup Correctly?

- What is the system's minimal detectable signal level?
- Will a preselector help me?
- What is the dynamic range – what is your measurement range?

Know your measurement instrument intimately!



System Noise Floor and Dynamic Range

