

Technical Challenges in Modern Spectrum Forensics



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Detecting signals - challenges

■ Bandwidths:

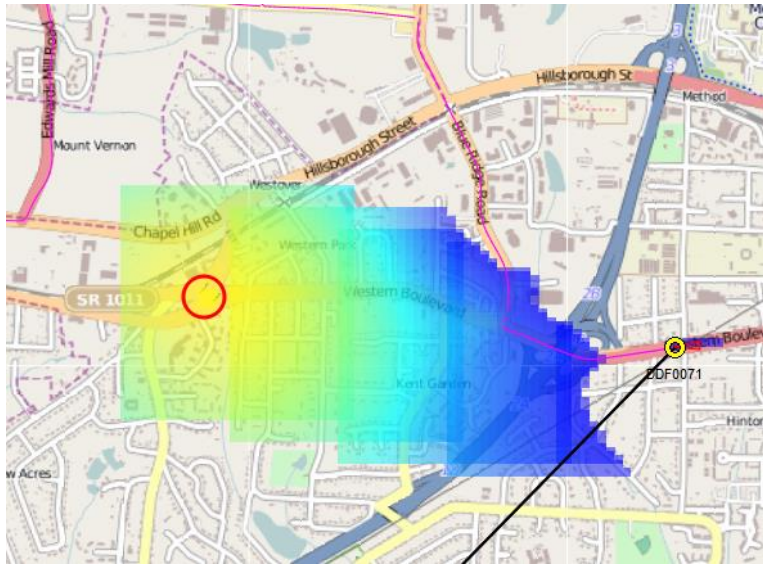
- Modulated signals becoming wider
- Frequency agile / frequency hopping
- Where we should be looking – do we try to monitor DC to daylight?
- Antennas need to match frequencies

■ Frequencies:

- Higher and higher frequencies
- Limited coverage / propagation
- Equipment more expensive
- Direction finding more difficult



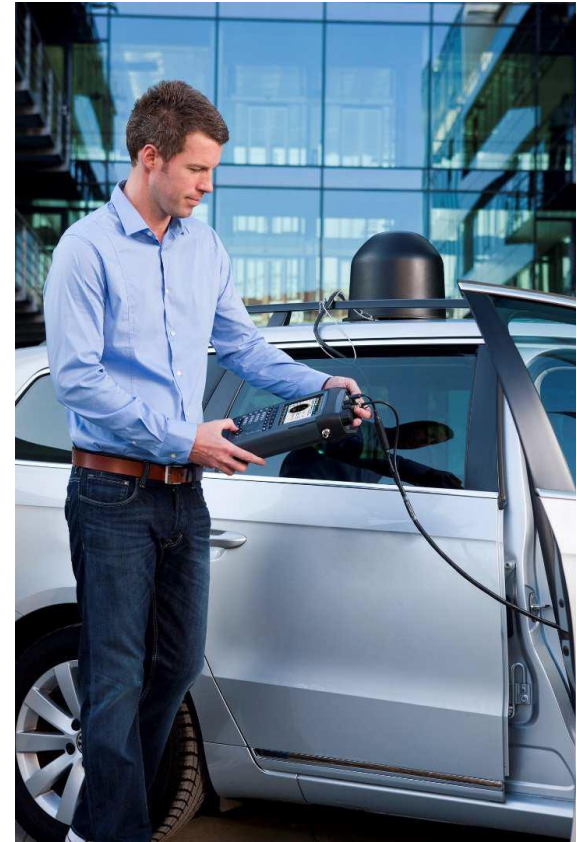
Locating Signals - challenges



- Phases of interference hunting:
 - Geographic
 - Local (driving)
 - Specific (walking)
- Which methodologies work best in what circumstances?
- Where can sensors add value?
- How to deploy systems before we know where the target is?
- Issues with moving / co-channel targets.
- Short-duration interferers

Analyzing Signals –challenges

- Modulated vs unmodulated
 - Don't assume all interferers are modulated / intentional signals
 - Unintended modulation – identify devices based on RF characteristics that are independent of the intended modulation
- Content analysis
 - How do we do content analysis?
 - Does content analysis even help?
 - Encryption now de facto on many communications technologies



Discussion

