



PIONEERING LOCATION SOLUTIONS FOR A SAFER WORLD



Overview of Caller Location in the US

112 Roundtable – Poland
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Presentation Outline

- USA overview of E911 Caller Location
 - FCC Mandate Phase I, Phase II
 - Carrier Model
 - Financing Model
 - PSAP experience

- Lessons learned
 - What worked
 - Areas of improvement
 - Future FCC rule changes
 - Summary



Overview of Caller Location in the US

FCC – (Federal Communications Commission)

Mandate Phase I

- Caller Location Accuracy is standard Cell ID level accuracy

Mandate Phase II

- Caller Location Accuracy for GSM network based solution
 - 67% < 100m Accuracy
 - 95% < 300m Accuracy
- Caller Location Accuracy for GPS Handset based solution
 - 67% < 50m Accuracy
 - 95% < 150m Accuracy



Overview – E911 Phase II

Model

- Each carrier deployed their own system
 - GSM – UTDOA (Network Based)
 - CDMA – AGPS (Handset Based) (Europe no CDMA, few GPS)
 - Tier III – UTDOA and ECID
- Extensive redundancy
 - Integrated solution not available at onset
 - No shared Carrier solution

Financing Model

- Cost Recovery
- 40+ state implementation plans
- Differing rules
- State/local Level control

PSAP Experience

- Inconsistent performance depending upon circumstances



Overview – E911 Phase II - *Lessons Learned*

- 2 Standards – moving to one
- Varied funding rules
- Flexible testing standard

- GSM
 - No GPS in handset - Requires network based solution
 - EOTD
 - UTDOA

- CDMA
 - Initial focus UTDOA
 - Deployed AGPS with AFLT after rules changes



USA Future

Updated FCC rules

- PSAP level accuracy
- One standard for CDMA and GSM
- In building coverage



FCC Rules Changes

- Recent events indicate push for more stringent E911 rules
 - APCO
 - Indicates E911 solutions may not work at the PSAP level
 - Dale Hatfield Testimony
 - Outlines strengths and weaknesses of network and handset solutions
 - Increasing importance of indoor performance
40-60% of calls indoors
- Many circumstances drove recent FCC NPRM
 - PSAP level accuracy requirements
 - In building requirements
 - More stringent accuracy standard
 - Potential Hybrid requirement

Better Accuracy, Including Indoor Performance, may be Required



PSAP Level Performance Requirement

- Although performance in most PSAP areas actually would meet a proposed PSAP level requirement, some of PSAP areas would not
 - Rural PSAPs with a minimal number of cell sites and difficult terrain challenging for network based solutions
 - Urban and indoor PSAPs especially challenging for AGPS solutions
- Hybrid solution required to provide PSAP level accuracy
 - AGPS in rural areas
 - AGPS + UTDOA hybrid in dense urban, urban, and some suburban areas to complement UTDOA



Summary

1. Single National Standard
2. Consistent, dedicated Financing Plan
3. Clearly articulated rules
4. Leverage installed technology (if available)



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