HTSG Requirements – Scope and Purpose

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Background

- Market expectations exist for continual significant increase in WLAN speed and performance and thus renewed product success
- 802.11a represents a 1st generation solution for high data rate WLANs
  - Legacy behavior will limit attainable performance
    - Low power operation
    - Capacity / peak throughput / range
    - QoS
- Incremental enhancements to 802.11a/g will limit the capabilities improvement achieved, and may miss market requirements in the medium to long term
  - Will also result in market fragmentation
- Only one option:
  - Make *Significant* improvements through introduction of new, scalable technologies

Drivers

- In order to ensure continuing WLAN market expansion and product life extension, the second generation standard needs to be carefully designed in terms of:
    - Optimized cost / power / capacity / performance envelope
    - Backward compatibility or coexistence with first generation systems
    - Support of new applications as they emerge over time

HTSG Proposed Purpose

To define PHY and Medium Access Control protocol that can be gracefully deployed in the 5 GHz band and support:

- 100-200Mbps for raw peak user rate, together with higher effective cell throughput (70-140Mbps)
- low bit rate applications (increased voice capacity)
- flexible tradeoff between power, capacity and performance.

HTSG Requirements Proposal (2/2)

Other PHY	.11a	Target for HTSG	Importance
Tradeoff flexibility between power, throughput and capacity/spectrum efficiency	Reference	Significantly improved possibilities for supporting various tradeoffs, depending of the deployement and application scenario	Key
Improved range and robustness	Reference	1.5x range extension for similar power and user data-rate	Key
Higher mobility operation	Pedestrian	Moderate vehicular	Not critical

System aspects	.11a	Target for HTSG	Importance
QoS	Reference .11e	Improved native support of QoS	Key
Coexistence with 802.11a	Reference	HTSG user in the same band creates less interference than 11a operating at the same effective user bit-rate	Key
Interference avoidance	Reference .11h	Improved interference avoidance and robustness mechanisms (vs. 802.11a and radar issue in Europe)	Useful
Networking modes	Reference	Efficient support of both centralized, Peer to Peer and ad Hoc networking mode	Useful
IP support	Reference	Effective support of packet sizes and statistics that are characteristic of IPv4 and IPv6	Useful
Cellular inter-working	Reference	Signalling mechanism for allowing effective management of hybrid networks	Useful
Network / system management	Reference	Lower cost network management	Useful

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