Functional Requirements for Installation and Deployment related aspects

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Note: This document is supposed to be re-submitted using ppt file format.

Summary

In order to help creating 11ah FR/EC document, this submission manifests a few requirements for reliable deployment and installation of sensor network, which should be common in all usecase 1 and 2;

(1) To enhance the link reliability by circumventing the obstacles in over-the-air propagation path, an AP-side site diversity helps if any proper margin of GI (CP) is ensured to avoid undesired beamforming and serious black out area as the side effect.

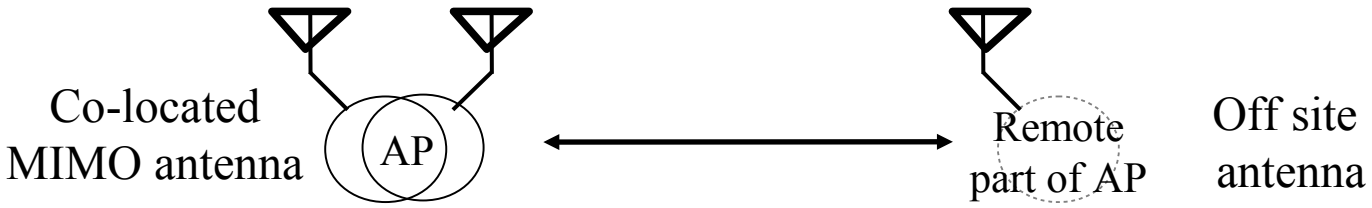
(2) Similar to the site diversity, a radiating (leaky) coaxial cable (LCX) and a passive repeater may help for sensor network deployment where any impediment of coverage by usual AP allocation exists.

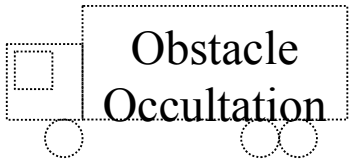
“Functional requirement for Easy deployment ;

Capability to utilize AP-side site diversity, LCX, and passive repeater”

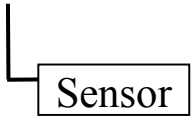
Site diversity (or Off site MIMO)

Long GI enabling Site Diversity (or Off site MIMO)





Any of ;
(1) Remote Ant.
(2) Remote RF
(3) Remote synchronized AP



Required GI length

- If typical AP coverage radius is assumed 500 m,

  → Propagating time = 1.66 uS GI >= 3.2 uS at least.

- If maximum AP coverage radius of 1 km is assumed,

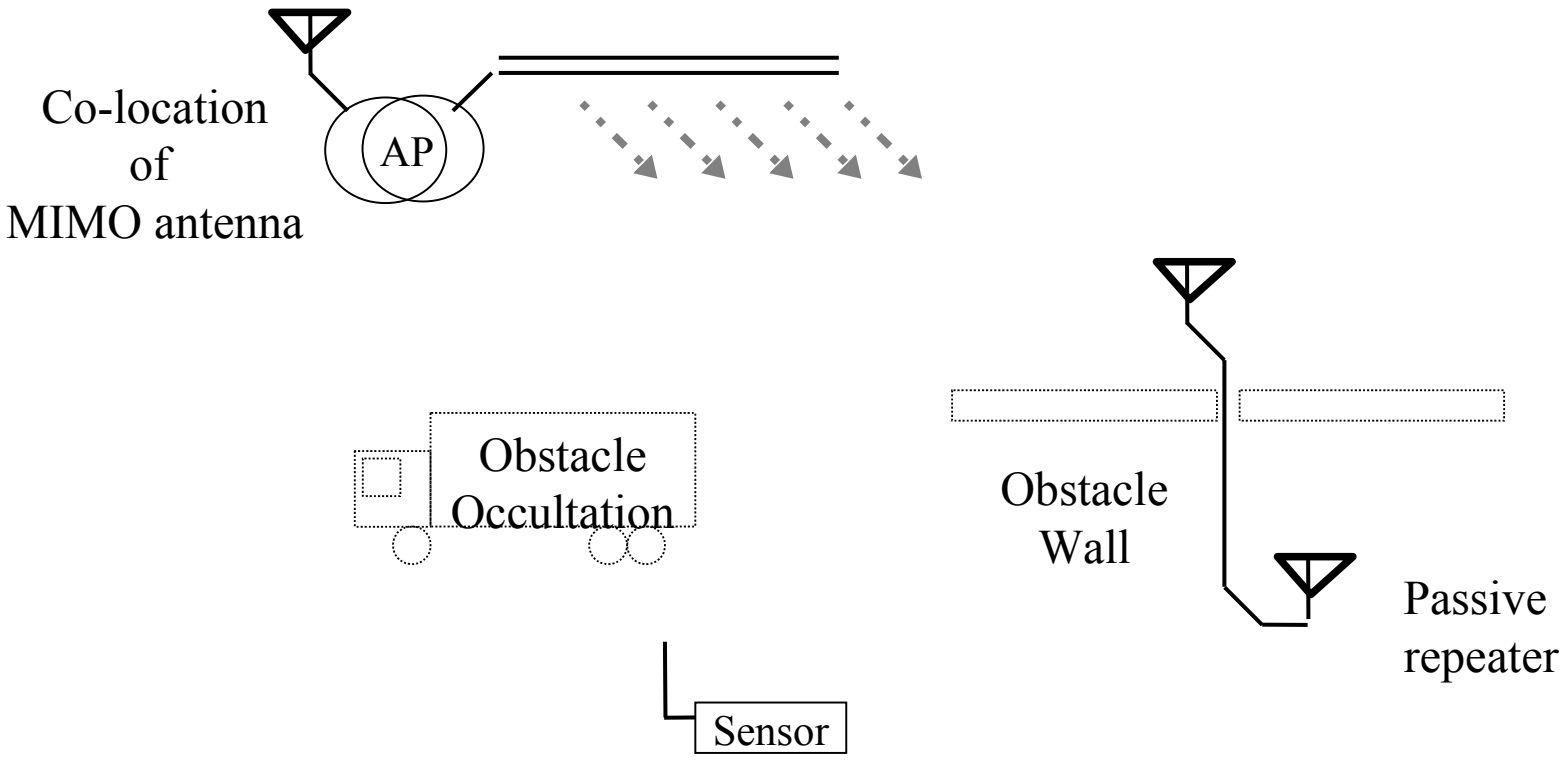
  → Propagatio time = 3.33 uS preferable GI >= 6.4 uS

++ Because 11ah have no legacy compatibility issue,

→ CSD (Cyclic Shift Diversity) should span fully over GI value above.

Leaky coaxial cable (LCX) and passive repeater

Long GI enabling LCX and Passive repeater



Required 11ah MIMO behavior

- Degenerated channel by LCX or passive repeater may appear

  → Adaptive to “poorly multipath but faded” channel.

- CSD still has to work,

  → Propagation time of LCX or Passive repeater <= 1 uS (200 m)
  (additional)

++ The room for RF-chain/antenna calibration may be affected.

End