Transmission of IPv6 Packets over IEEE 802.11p Networks

draft-petrescu-ipv6-over-80211p-00.txt

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What is 802.11p?

• Amendment to 802.11 for Wireless Access in Vehicular Environments

• short range wireless technology used in vehicular networking is different than the short wireless technologies used in other environments.
How is 802.11p different than e.g. 802.11a/b/g/n?

– Operation Outside the Context of a BSS (OCB):
  • Lack of Beacons, Ass’n Request/Response, Challenge.
  • Fake BSSID: wildcard 48 1 bits.

– New Timing Advertisement message
  • Absent in other 802.11 variants

– Frequency range in the 5.9GHz band
  • Compared to 2.4GHz, or 5GHz bands for 802.11a/b

– Explicit prohibition of IPv6 on channel 178 (180 in Europe)
  • A strange prohibition

– Half-rate encoding
  • Compared to full-rate encoding on e.g. 802.11b

– High power levels (33 dBm in Europe, 44 dBm in US)
  • Compared to 20 dBm on e.g. 802.11b outdoors
IPv6 works over 802.11p as over e.g. 802.11b

- MTU: default 1500 bytes
- Frame Format: Ethernet Adaptation Layer
- EtherType: 0x86DD, as with Ethernet
- Link-local Addresses, as with Ethernet (RFC2464)
- Address mapping, as with Ethernet
- Very frequent Router Advertisements may be necessary to ease IP handovers in OCB context, as with Mobile IPv6.
Adaptation Layer used by 802.11p and by e.g. 802.11b