HT-mixed mode operation in secure mesh (`authsae`)

Sony

Technical Report

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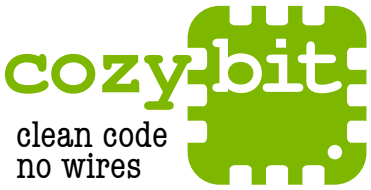

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Document Changes

Revision	Changes from prior revision	Initials
0.1	First release to Sony.	TP

1 Scope

Outline the steps required to satisfy the "Add MBSS High Throughput mixed mode operation" SOW for secure mesh. Summarized as:

- Advertise BSSBasicRateSet and disallow peering with mismatched BSSBasicRateSet
- Advertise mandatory MCS set as BSSBasicMCSSet
- Allow peering with mixed channel types (except mismatched HT40+/-)
- Configure the appropriate HT protection mode according to 9.23.3.5 (reduced scope is to only consider mesh peers)

2 Implementation Approach

In order to duplicate the HT mixed mode mesh functionality in the kernel, the following changes need to take place.

kernel

1. Support BSSBasicRateSet nl80211 API for mesh
2. Support HT protection mode nl80211 API for mesh

authsae

1. Configure BSSBasicRateSet in kernel.
2. Indicate the BSSBasicRateSet in the supported rates elements originating in userspace.
3. Check BSSbasicRateSet matching on receipt of a peering frame (a beacon with mismatched BSSBasicRateSet will be ignored by the kernel).
4. Add the HT operation IE to mesh peering frames.
5. Indicate the mandatory PHY MCS set as BSSBasicMCSSet in HT operation IEs originating in userspace.
6. Determine and set the HT protection mode according to 9.23.3.5 while only considering mesh peers.