Improved encoding of Duration/ID field

The efficiency of certain aspects of the Duration/ID field can be improved, with no loss of functionality, by adding usage–identification bits to this field.

The proposed encoding uses the most–significant bits to indicate the type of information in the field.

BIT 15	BIT 14	BITS 13–0	USAGE
0	0 – 32767		Duration (microseconds from end of this frame)
1	0	0	Contention free frames without a CID or an SID
1	0	1 – 16383	Connection ID (CID) for TBS frames
1	1	0 – 16383	Station ID (SID) in PS–Poll frames

Benefits of this improved encoding

- **The existing Duration/ID field is unambiguous to the pair of communicating stations**
- **However, during the contention–free period, the Duration/ID field may be ambiguous to other stations**
- **With this encoding:**
  - **Stations that miss the CF–End frame can clear their NAVs upon detection of DCF traffic, because ALL PCF traffic has a Duration/ID value >32767**
  - **NAV update is simpler since stations do not have to decode frame type/subtype to know if this field contains a duration**
  - **The (slight) risk is eliminated that a station might set its NAV too high by misinterpreting a CID as a duration**
  - **Contention free period integrity is improved because newly active stations can passively detect a CF–period in progress**

Drawbacks to this improved encoding

No drawbacks are apparent:

- Durations as long as 32767 microseconds can be represented.
  - The longest duration that needs to be represented (assuming the PHY could handle a full-length MSDU with WEP without fragmentation) is about 20K microseconds.
- Up to 16383 connections can be identified per BSS.
  - This far exceeds the practical number of connections with the available bandwidth of the wireless PHYs.
- Up to 16383 stations can be identified per BSS.
  - This far exceeds the practical number of stations associated with a single access point.
  - This far exceeds the number of power-managed stations that can receive traffic advisories using the defined TIM encoding.

Motions

Motion #1

- **That the modified encoding for the Duration/ID field proposed in document 95/139 be adopted and the modified text on Duration/ID encoding in 95/139 be placed into the draft standard.**

Motion #2

NOTE: The subject matter of Motion #2 is fully independent of the encoding used for duration values. Motion #2 can be adopted whether or not Motion #1 is adopted.

- **That the new text from document 95/139 that specifies how duration values are calculated for the various frame types & subtypes be adopted and placed into the draft standard.**