IEEE P802.11
Wireless LANs

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| Modification Text to cover 30.5.8.5.2 Dual carrier modulation (DCM) SQPSK |
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Abstract

This document proposes modification text for subcaluse 30.5.8.5.2 of the describing **Dual carrier modulation (DCM)** π/2-SQ**PSK** transmissionsin [1].

Discussion:

The updated text for Dual carrier modulation (DCM) SQPSK including the following features:

* Rename the “DCM SQPSK “ to “DCM pi/2-SQPSK” and make it to be compatible to all other modulation name in SC;
* Delete the duplicate definitions in N*CBPB* in the section and use the definition in Table 25 directly;
* Unify the expression in “2.16+2.16 GHz” and “4.32+4.32GHz”;
* Correct some typos;

**30.5.8.5.2 Dual carrier modulation (DCM) π/2-SQPSK**

A frequency domain diversity scheme based on DCM π/2-SQPSK may be applied to EDMG PPDU transmission over 2.16+2.16 GHz or 4.32+4.32 GHz channels. An EDMG STA shall only apply DCM π/2-SQPSK to an EDMG PPDU transmitted to a peer EDMG STA if the DCM π/2-SQPSK Supported field in the peer STA’s EDMG Capabilities element is one.

The DCM π/2-SQPSK modulation is applied if a BW field indicates bandwidth configuration 2.16+2.16 GHz or 4.32+4.32 GHz, a Channel Aggregation bit is set to one, a Number of SS field indicates 2 spatial streams, and a DCM SQPSK Applied is set to one in the EDMG-Header-A (see Table 24, 30.3.3.3.2.3). The EDMG-MCS1 and EDMG-MCS2 fields in the Table 25 shall be the same with a value in the range from 2 to 6.

The DCM **π/2-**SQPSK modulation is defined as follows:

1. After LDPC encoding the bit stream of the first space-time stream (*iSTS* = 1) and the second space-time stream (*iSTS* = 2) is broken into the groups of *NCBPB*×*NCB* bits as  and  respectively, where *q* denotes the SC symbol block number, *q* = 0, 1, …, *NBLKS* – 1. The *NCBPB* is defined in Table 55 as for π/2-BPSK case, *NCB* = 1 for 2.16+2.16 GHz and *NCB* = 2 for 4.32+4.32 GHz bandwidth configuration.
2. Each pair of bits  of *q*-th SC data block, *k* = 0, 1, …, *NCBPB*×*NCB* – 1, is converted into the pair of constellation points as follows:





1. Finally, the *q*-th SC data block of the first space-time stream , *k* = 0, 1, …, *NCBPB*×*NCB* – 1, is assigned to the channel containing the primary 2.16 GHz channel and the second space-time stream , *k* = 0, 1, …, *NCBPB*×*NCB* – 1, is assigned to the channel that does not contain the primary channel.

The DCM π/2-SQPSK modulation uses the same symbol blocking structure as for a SU PPDU defined in 30.5.8.2.2.3.

**SP: Do you agree to update the text suggested in “11-17-1432-01-00ay-text-to-cover-30-5-8-5-2-dual-carrier-modulation-dcm-sqpsk” into the 11ay draft?**

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**References:**

1. P802.11ay\_D0.5