Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: [Proposal for IEEE802.15.3d, channel assignment plans]
Date Submitted: [8 September 2016]
Source: [Akifumi Kasamatsu, all contributors are listed in "Contributors" slide]
Company: [NICT]
Address [4-2-1, Nukuikita, Koganei, 184-8795, Tokyo, Japan]
Voice:[+ 81 42 327 6824], FAX: [+81 42 327 6669], E-Mail:[kasa@nict.go.jp]

Re: []

Abstract: [Proposal of channel assignments for IEEE 802.15 TG3d.]

**Purpose:** [To be considered in TG3d baseline document.]

List of Contributors

- Akifumi Kasamatsu (NICT)
- Iwao Hosako (NICT)
- Norihiko Sekine (NICT)
- Hiroyo Ogawa (NICT)
- Minoru Fujishima (Hiroshima University)
- Thomas Kürner (TU Braunschweig)
- Sebastian Rey (TU Braunschweig)

Summary

- This document shows two channel assignment plans (A/B).
- The plan A is selected for a baseline document because it can assign more channels and contributes to higher rate communications.
- Center frequencies of channels having 4.32 GHz or wider are settle to multiple of 2.16 GHz with consideration of hardware implementation.

Channel Assignment Plan-A
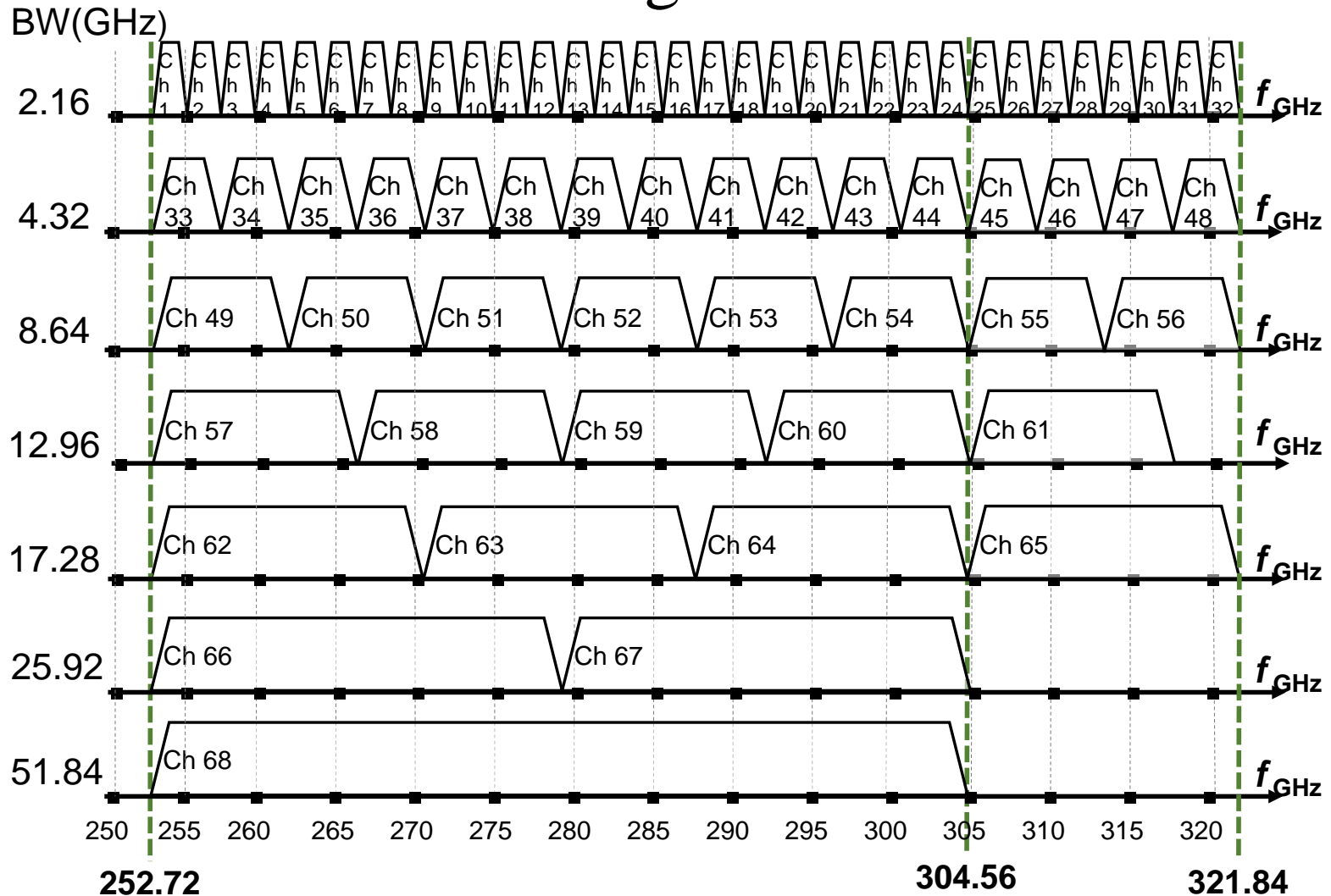
Channel Assignment Plan-B
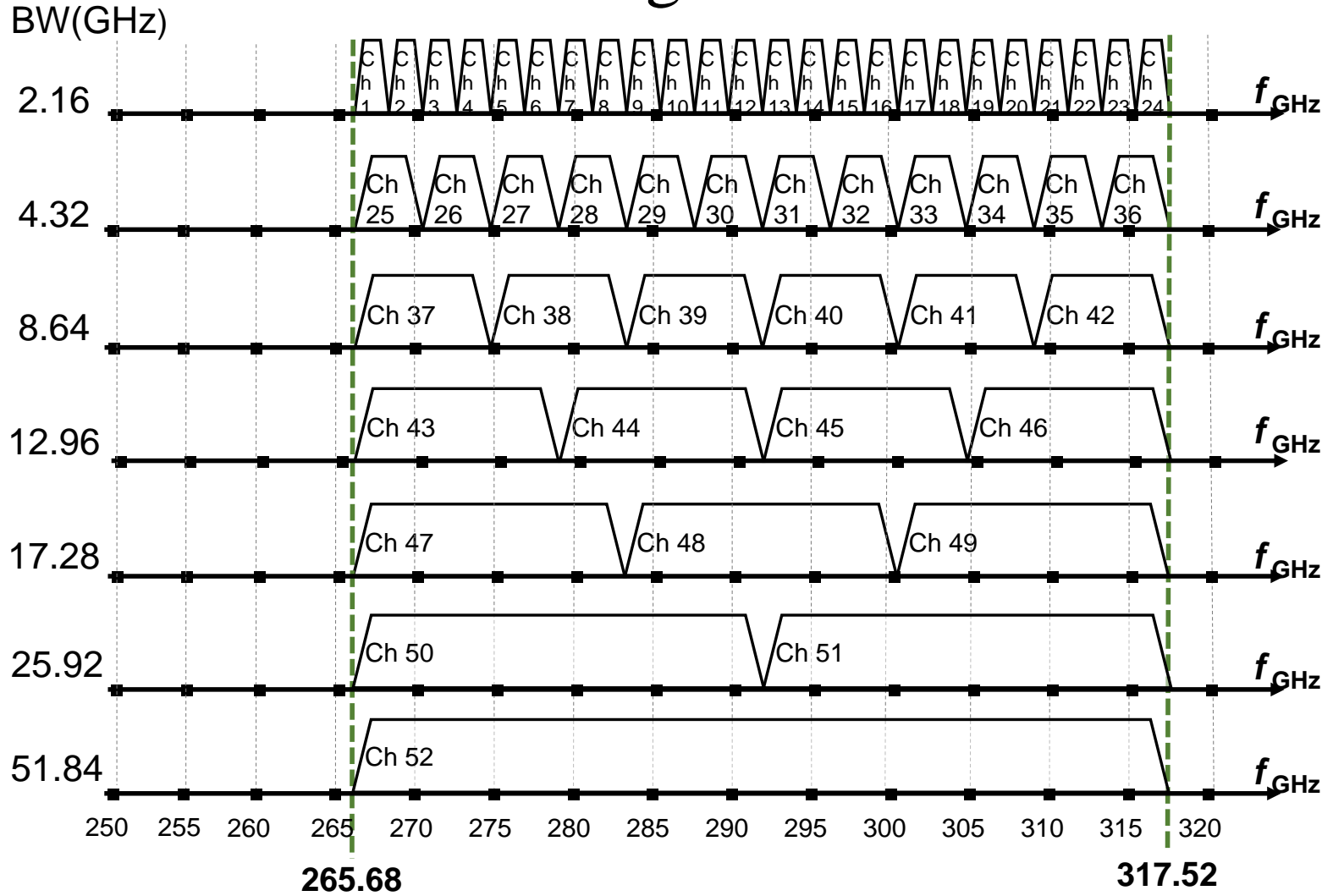
Discussion about the center frequency of channels

- When using high-data-rate modulation in wide-bandwidth channel at very high frequency around 300 GHz, the local oscillator is required very good phase noise such as -100 dBc/Hz@1MHz offset. Therefor, the center frequency of channel is expected to be "integer" multiple of a reference oscillator because some fractional (not integer) sequences cause degradation of oscillation.
- The reference oscillation is recommended to be 2.16 GHz which can generate the center frequency of 4.32 GHz or wider channels with integer multiplication, and also can be made by integer multiple (18 x) of 120 MHz generated by a crystal oscillator.
- In the case of 2.16-GHz-width channels, we can accept that the center frequency is intermediate value of multiple of 2.16 GHz because the requirement of the phase noise may be relax for narrower channel-width, then we can use some frequency shift techniques.

Akifumi Kasamatsu, NICT

Discussion about the center frequencies of channels

In the case of 2.16 GHz width channel, center frequencies are intermediate value of multiples of 2.16 GHz.

In the case of 4.32 GHz width or wider channels, center frequencies are multiples of 2.16 GHz.