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

Submission Title: [60 GHz Channel Plan Proposal]
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Abstract: [Proposal of 60 GHz Channel Plan supported by IHP, France Telecom and IMEC]

Purpose: []

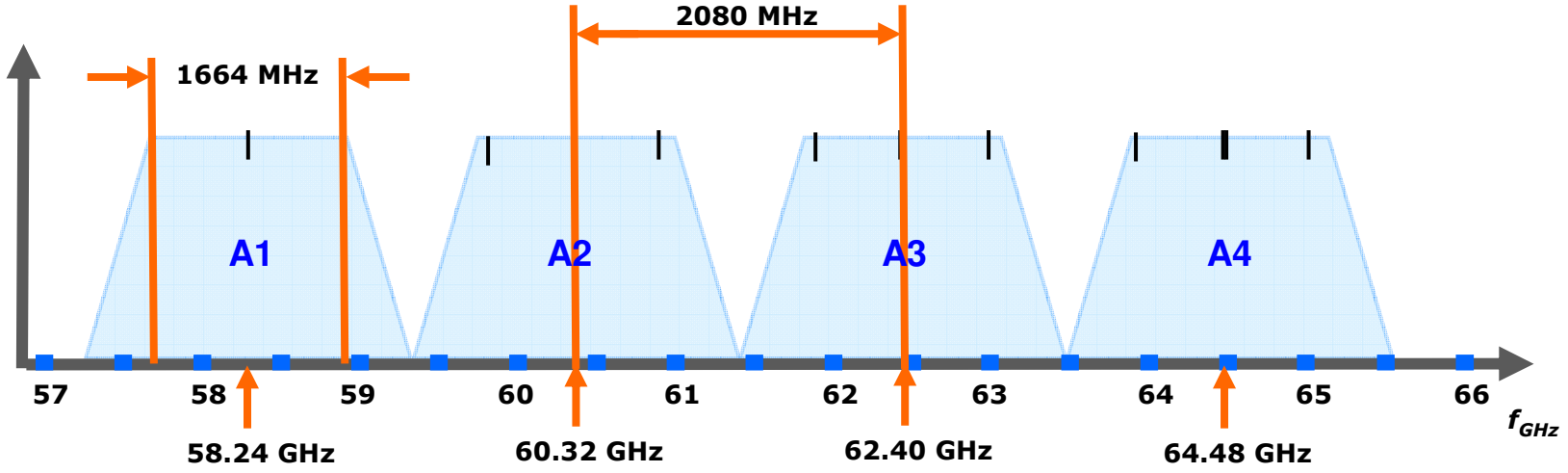
2 GHz / 500 MHz Channel Plan Proposal

- Based on 2 GHz wideband channels (WBC) A1 to A4 and 500 MHz narrow band channels (NBC) B1 to B12
- Three NBC fit into one WBC
- NBC is for:
  - LDR applications (return channel, audio channels, control channels),
  - low power/low cost applications,
  - common mode (to be clarified)
- WBC is for HDR applications
  - HDTV, Kiosk, download, e.t.c.
- WBC and NBC are based on the same crystal

2GHz/500MHz Channel Plan (for 26 MHz crystal)

Wide Band Channels (WBC) A1 to A4

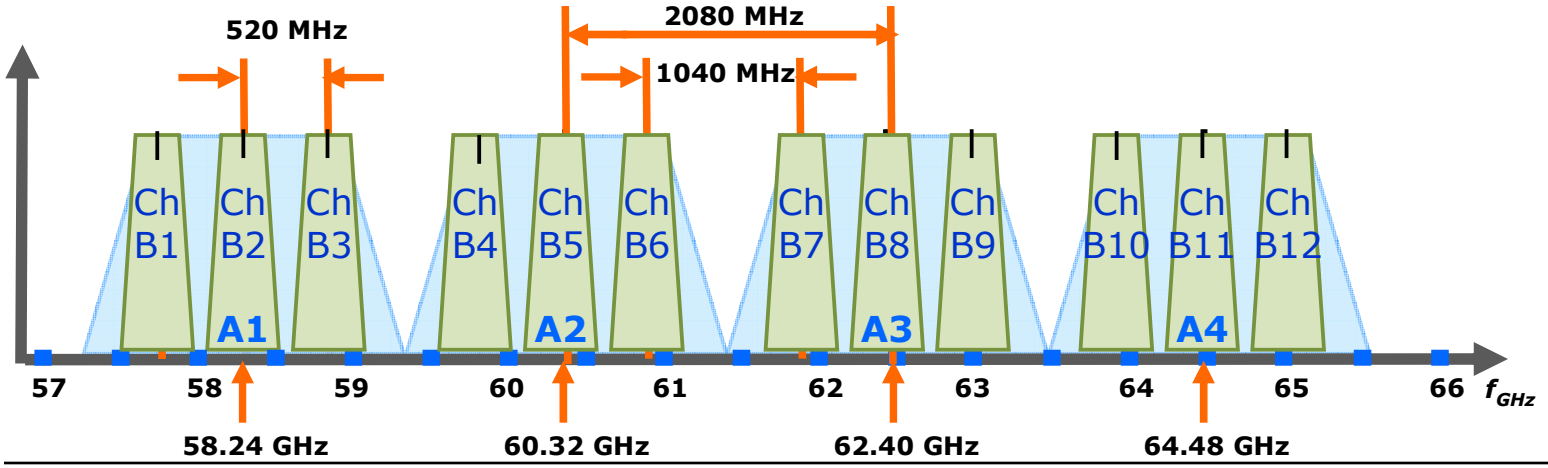
Channel Number	Low Freq. (GHz)	Center Freq. (GHz)	High Freq. (GHz)	Nyquist BW (MHz)	Roll-Off Factor
A1	57.20	58.24	59.28	1664	0.25
A2	59.28	60.32	61.36	1664	0.25
A3	61.36	62.4	63.44	1664	0.25
A4	63.44	64.48	65.52	1664	0.25



2GHz/500MHz Channel Plan (for 26 MHz crystal)

Narrow Band Channels (NBC) B1 to B12

Channel Number	Low Freq. (GHz)	Center Freq. (GHz)	High Freq. (GHz)	Nyquist BW (MHz)	Roll-Off Factor
B1	57.46	57.72	57.98	416	0.25
B2	57.98	58.24	58.5	416	0.25
B3	58.5	58.76	59.02	416	0.25
B4	59.54	59.8	60.06	416	0.25
B5	60.06	60.32	60.58	416	0.25
B6	60.58	60.84	61.1	416	0.25
B7	61.62	61.88	62.14	416	0.25
B8	62.14	62.4	62.66	416	0.25
B9	62.66	62.92	63.18	416	0.25
B10	63.7	63.96	64.22	416	0.25
B11	64.22	64.48	64.74	416	0.25
B12	64.74	65	65.26	416	0.25



Justification for 500 MHz NBC-Channels

(In Comparison to 1 GHz NBC-Channels)

1. A 4x factor between wide-band channels (WBC) and narrow-band channels (NBC) gives more system flexibility than a 2x factor!
   - The 500 MHz H/W can be significantly cheaper than the 1 or 2 GHz H/W
   - The utilization of the available spectrum is very good (75 %)
   - There is a reasonable number of NBC available in all regions (i.e. 9)
   - No overlap problems between NBC and WBC
2. The NBC centre-frequencies can be easily derived from a 26 MHz crystal. The same principle is possible for centre-frequencies based on a 19.2 MHz crystal.
3. Implementation of the common mode using 500 MHz channels requires less costly H/W
4. There are similarities with the W-HD LDR channels. W-HD will probably insist on LDR channels anyway.
5. *There is no overlap with UWB data rates and applications since UWB is power limited and, hence, the UWB datarate and/or distance is much lower!*