**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) | |
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| Re: |  | |
| Abstract | This contribution contains an additional section for the description on the intra-device use case for TG3d's Applicaton Requirements Document | |
| Purpose | Supporting document for the development of the amendment 3d of IEEE 802.15.3 | |
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# Intra-Device Communication

### Typical transmission rate

To illustrate realistic datarates, let’s consider for instance imaging devices (video-projector or super hi-vision camera). Video-projectors use generally the LCOS (liquid crystal on silicon) technology or the LCD (liquid crystal display) technology. In higher end video-projectors, three LCOS chips or LCD panels are used, each one modulate light in the three primary colors: red, green, and blue. Both LCOS and LCD projectors deliver the red, green, and blue components of the light to the screen simultaneously. The LCOS technology has usually a very high resolution and the system should support very high datarates. There is no spinning color wheel used in these projectors as there is in single-chip Digital Light Processing projectors. Other possible scenario can be super Hi-Vision camera. An example is illustrated in this paper [7]. Figure 5.2 illustrates the Camera head that support 8K4K, 120Hz video format.

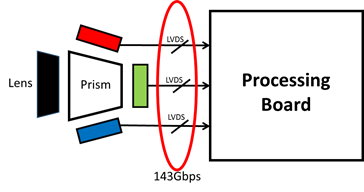


Figure 5.2 Camera head of a super Hi-Vision Camera (8K4K/120Hz and 36bits of pixel resolution).

Table 5.3 provides some bitrates (in Gbps) needed to transmit some common video formats:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Pixel resolution | Frame rate | 720x 1280 | 1080x 1920 | 1440x 2560 | 2160x 3840 | 2880x 5120 | 4320x 7680 |
| 24 | 30Hz | 0.664 | 1.494 | 2.654 | 5.971 | 10.610 | 23.887 |
| 24 | 60Hz | 1.327 | 2.985 | 5.304 | 11.934 | 21.206 | 47.774 |
| 24 | 120Hz | 2.654 | 5.971 | 10.610 | 23.872 | 42.420 | 95.548 |
| 36 | 30Hz | 0.995 | 2.238 | 3.977 | 8.948 | 15.900 | 35.830 |
| 36 | 60Hz | 1.990 | 4.477 | 7.955 | 17.898 | 31.804 | 71.660 |
| 36 | 120Hz | 3.980 | 8.955 | 15.913 | 35.804 | 63.623 | 143.320 |
| 48 | 30Hz | 1.327 | 2.985 | 5.304 | 11.934 | 21.206 | 47.774 |
| 48 | 60Hz | 2.654 | 5.971 | 10.610 | 23.872 | 42.420 | 95.548 |
| 48 | 120Hz | 5.308 | 11.943 | 21.222 | 47.749 | 84.887 | 191.096 |

Table 5.3: Bitrates in Gbps versus video format

References

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| --- | --- |
| [7] | “120Hz-frame-rate SUPER HI-VISION Capture and Display Devices”, The 2012 Annual Technical Conference & Exhibition. |