

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

Submission Title: [Radiation characteristics of HBC and its comparison with wireless communication]

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Source: [Hwang, Jung Hwan / Kang, Sung Weon] Company [ETRI]

Address: [161, Gajeong-Dong, Yuseong-Gu, Daejeon, South Korea]

Voice:[+82-42-860-1176], **FAX:** [+82-42-860-5236], **E-Mail:**[jhhwang@etri.re.kr]

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Abstract: [Introduction of radiation characteristics of human body communication]

Purpose: [To introduce the channel characteristics of the human body communication]

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Radiation characteristics of HBC and its comparison with wireless communication

2008. 5. 12.

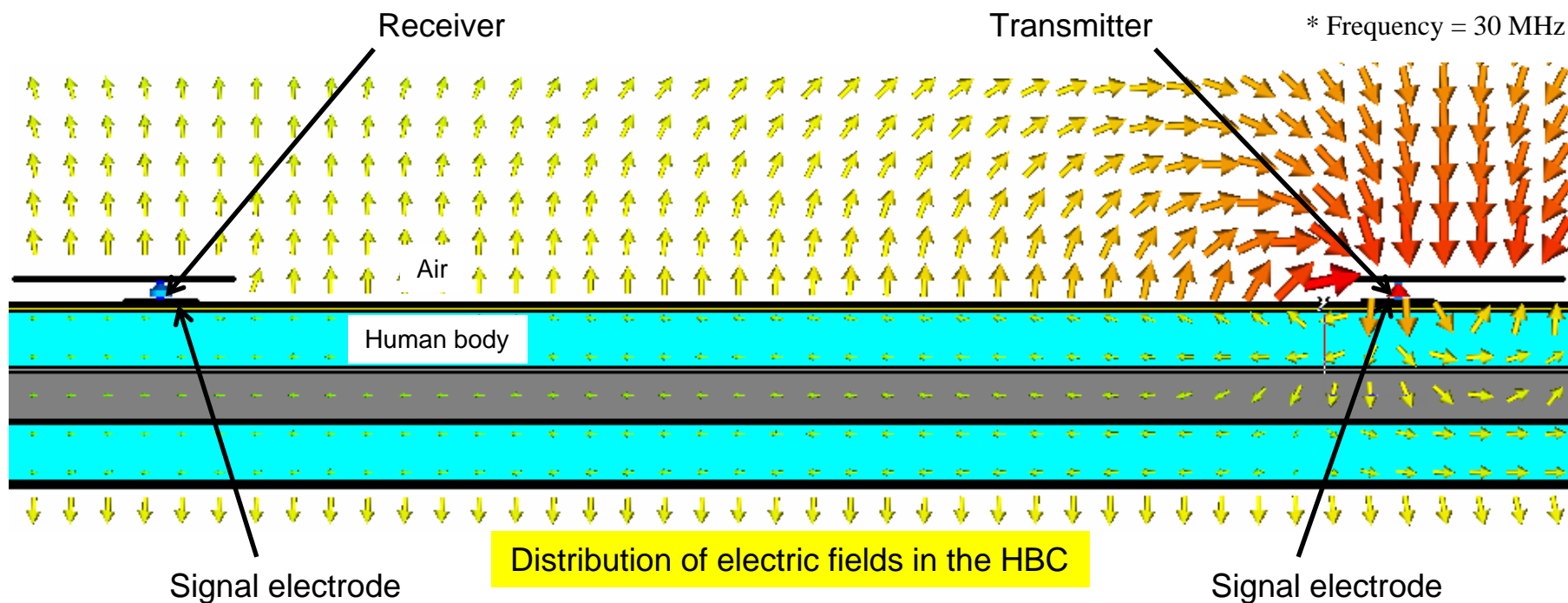
Human Body Communication SoC Team

Hwang, Jung Hwan / Kang, Sung Weon

ETRI

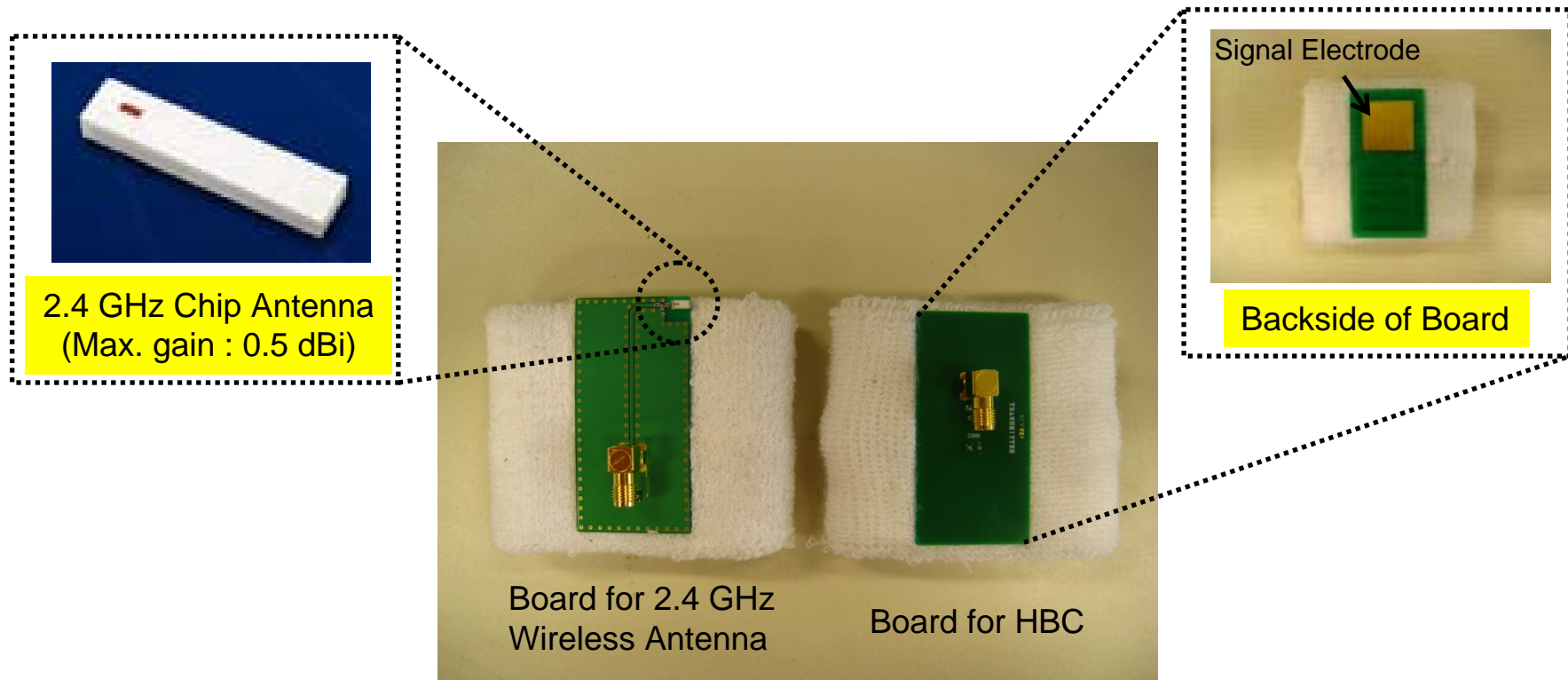
Human Body Communication

- In the HBC(Human Body Communication), the human body is used as the transmission medium for data signal.



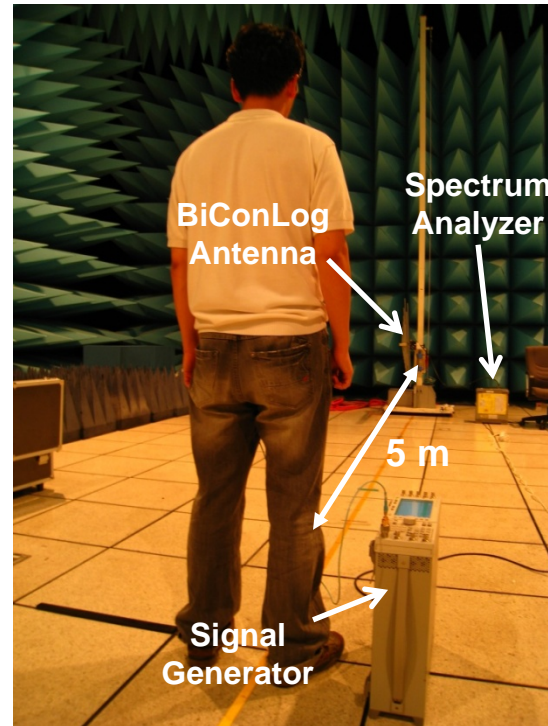
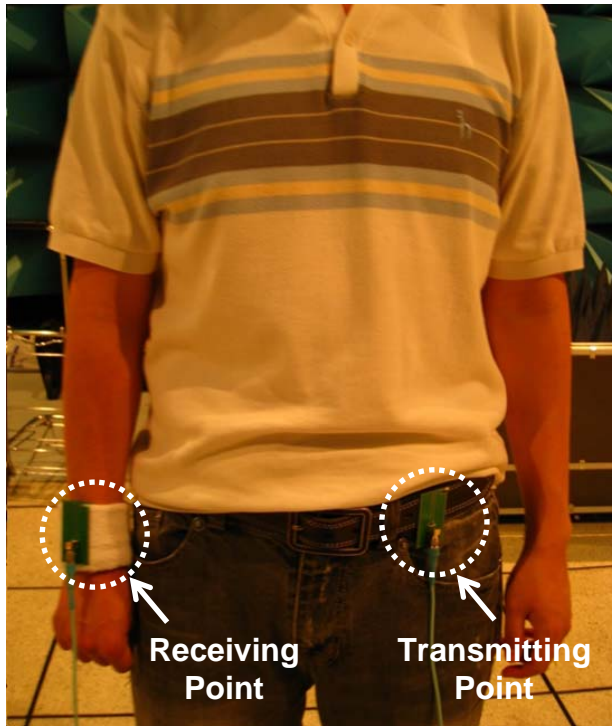
Boards for HBC and 2.4 GHz Wireless Antenna

- The boards for HBC and 2.4 GHz wireless antenna have been used for the measurement of radiation characteristics.



Measurement Setup

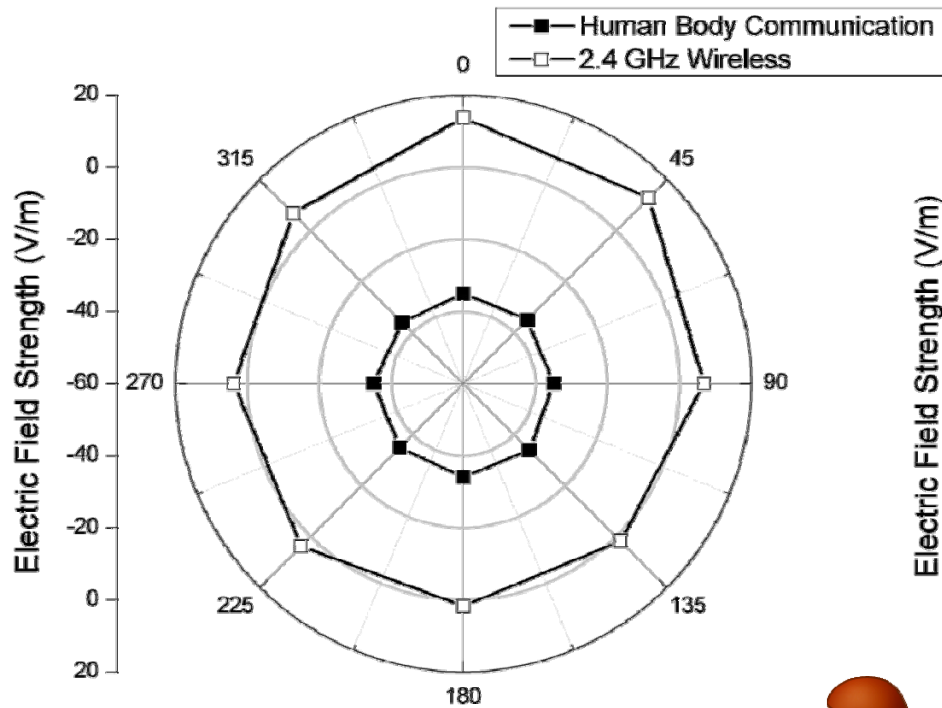
- All measurements have been performed in the anechoic chamber.
- The receiving power is the same in the cases of HBC and 2.4 GHz wireless antenna.



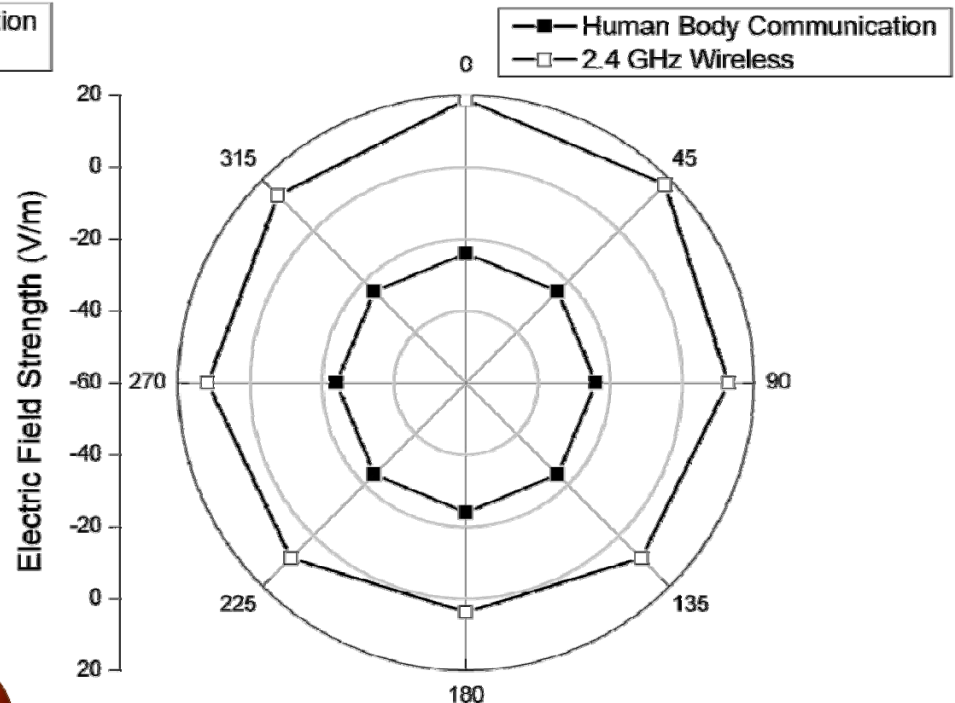
BiConLog Antenna
(26 MHz - 3 GHz)

Measurement Results

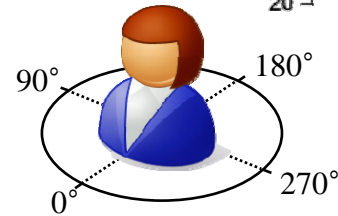
- In comparison with 2.4 GHz antenna, the radiation power is much lower about 20 dB ~ 40 dB in the case of HBC.



Vertical Polarization



Horizontal Polarization



Summary

- In comparison with 2.4 GHz wireless antenna, the HBC has very low radiation profile because
 1. It uses very low frequency band under 50 MHz.
 2. It uses the body as the transmission medium.
- Therefore, the channel interference is less severe in the human body communication.