

HBC (Human Body Communication) Band Information and References

The Human Body Communication (HBC) band of WBAN is galvanic, meaning there may be actual electrical currents and/or static discharges being used to collect the biosensor data from your body. The band is duplex so they can also send electricity through your body. They are actually electrocuting us. This is measurable by a Tiny Spectrum Analyzer you can get for under \$100 and you can see when your phone connects you for real-time two way monitoring and control. They are in our bodies and in our heads and telling you it is all for your health and security. You can get details on the Tiny SA at my website, in the recent Blog posts like this one <https://reject5g.info/2024/03/23/without-your-consent/> . We are living out multiple Sci-Fi horror shows here. You are going to need to do more than shut off the wi-fi and the cell phone, here. It is about your body and your BIOFIELD and taking it back. Suggested mitigations include: Biofield Training, Safe Detox, Limit wireless access to the body, and Environmental grounding and body earthing. The battle is on and the battleground is YOU.

I do believe that HBC Band actually specified in the IEEE Standard 802.15.6, but I have not purchased it to verify that. Here are other references showing that the WBAN intra-body band is electric, described as galvanic and electrostatic and electro quasi-static. They are obfuscating. This is electricity doing the intra-body communications:

https://www.researchgate.net/publication/224215458_An_overview_of_IEEE_802156_standard, excerpt as follows:

3) Human Body Communications PHY (HBC): HBC PHY operates in two frequency bands centered at 16 MHz and 27 MHz with the bandwidth of 4 MHz. Both operating bands are valid for the United States, Japan, and Korea, and the operating band at 27MHz is valid for Europe. HBC is the Electrostatic Field Communication (EFC) specification of PHY, which covers the entire protocol for WBAN such as packet structure, modulation, preamble/SFD, etc. Fig. 5 describes the PPDU structure of EFC that is composed of a preamble, SFD, PHY header and PSDU...

<https://www.sciencedirect.com/science/article/pii/S2772375522000740> Indwelling robots for ruminant health monitoring: A review of elements. Excerpt:

The above-mentioned RF-based communication technologies work in a frequency range of hundreds of MHz to a few GHz. Such high-frequency communication paradigms are energy inefficient as well as physically insecure. Devices based on Bluetooth are radiative in nature and the transmitted signals are available 5-10 m away from the body. This makes the signal available for attackers with white box or black box knowledge of the system. Ensuring physical layer security of data can add another layer to the security measures present in current WBAN architectures like encryptions. A physically secure system in conjunction with encryption methodologies can further

protect data from hackers. To tackle the physical layer security issues as well as to make the communication system less power-hungry, a low-frequency alternative to the RF-based communication technology can be used.

An alternative to the traditional RF-based methods is using the conductive properties of body tissues to transmit the signals at low frequencies of less than 10 MHz. Intrabody communication using the body's conductive properties was first proposed by Zimmerman et al. [125] whereas galvanic Intrabody communication for implantable devices was proposed by Wegmueller et al. [126]. Capacitive Intrabody communication [127] uses a signal plate with a floating ground plate with a direct path to the earth's ground. Due to no direct path being available between the signal plates and the earth's ground for devices implanted into a body, the capacitive modality of intrabody communication cannot be used for implantable device technology. In Galvanic Intrabody communication, a differential signal is passed through two signal plates of the transmitter. The fringe fields pass through the body and are captured at the receiver side attached to the body. Physical layer security [128] is observed in the Electro Quasistatic (EQS) regime where the signal leakage is limited to 5-10 cm around the body. Intra-body communication in the EQS domain also enhances the energy efficiency of the system. The energy efficiency of less than 10 pJ/bit [129,130] and sub- μ W power consumption [131] have been shown for broadband intra-body communication with the frequency of operation in the EQS domain. This gives us orders of magnitude improvement on the energy efficiency and power consumed when compared to popular RF-based methods like Bluetooth and LoRa and hence, this is appropriate for indwelling ruminal robot data communication.

<https://www.nature.com/articles/s41598-018-38303-x> Enabling Covert Body Area Network using Electro-Quasistatic Human Body Communication.

and

<https://www.nature.com/articles/s41598-020-79788-9> Inter-body coupling in electro-quasistatic human body communication: theory and analysis of security and interference properties

<https://www.biorxiv.org/content/10.1101/2020.11.23.394395v1.full> Bio-Physical Modeling of Galvanic Human Body Communication in Electro-Quasistatic Regime

The HBC Band is duplex and there are communication to the body and brain as well as harvesting. There may be other methods for accessing it than the ones described here.