

**THE FORWARD THINKING OF HUMAN AREA NETWORK-  
REDTACTON**

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**Abstract**

There is new Idea of Redtacton which makes the Human body as a communication network by name HAN (Human Area Network). RedTacton is a break-through technology that, uses the surface of the human body as a safe, high speed network transmission path. So we, in this paper are explaining the unique new functional features and enormous potential of RedTacton as a Human Area Networking technology. Technology is making many things easier; I can say that our concept is standing example for that. So far we have seen LAN, MAN, WAN, INTERNET & many more but here is new concept of "RED TACTON " which makes the human body as a communication network.

Key words: Redtacton, Human, Technology

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**Introduction**

Red-Tacton is a new Human Area Networking technology that uses the surface of the human body as a safe, high speed network transmission path. Red Tacton uses the minute electric field emitted on the surface of the human body. Technically, it is completely distinct from wireless and infrared .A transmission path is formed at the moment a part of the human body comes in contact with a Red Tacton transceiver. Physically separating ends the contact and thus ends communication Using Red Tacton, communication starts when terminals carried by the user or embedded in devices are linked in various combinations according to the user's Communication is possible using any body surfaces, such as the hands, fingers, arms, feet, face, legs or torso. Red Tacton works natural, physical movements. We may have imagined the feature as a place crawling with antennas and emitters, due to the huge growth of wireless communications. And it is seems that the current means of transferring data might already have a very serious competitor none other than the human body.

Thus NTT labs from Japan has announced that is currently testing a revolutionary technology called

" red tacton ",which use the electric fields generated by the human body as medium for transmitting the data . The chips which will embedded in various devices contain a transmitter and receiver built to send and accept data in digital format. The chips can take any type of file such as mp3 music file or mail and convert it in to the format that takes the form of digitals pulse that can be passed and read through a human being electric field .the chip in receiver devices reads these tiny changes and convert the file back into its original for.

**Why Named RedTacton**

Because with this technology, communication starts by touching (Touch), leading to various actions (Act on) and the colour red to convey the meaning of warmth in communication. Combining these phrases led to the name, "RedTacton".

**Working Principle**

Using a new super-sensitive photonic electric field sensor, Red Tacton can achieve duplex communication over the human body at a maximum speed of 10 mbps The Red Tacton transmitter induces a weak electric field on the surface of the body. The Red Tacton receiver senses changes in the weak electric field on the surface of the body caused by the transmitter .Red tacton relies upon the principle that the optical properties of an electro-optic crystal can vary according to the changes of a weak electric field. Red Tacton detects changes in the optical

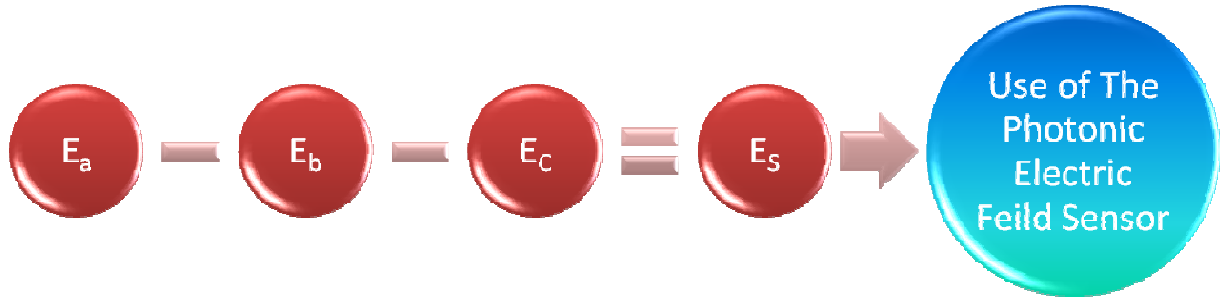
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properties of an electro-optic crystal using a laser optical receiver circuit. The transmitter sends data by inducing fluctuations in the minute electric field on the surface of the human body. Data is received

and converts the result to an electrical signal in a using a photonic electric field sensor that combines an electro-optic crystal and a laser light to detect fluctuations in the minute electric field.

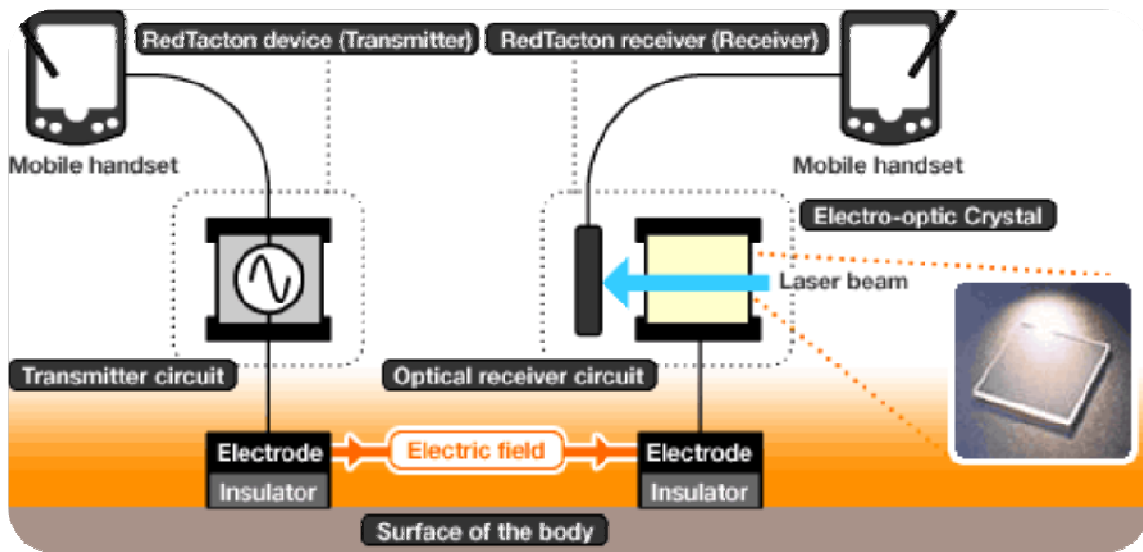


$E_a$  – Electric Field Induced By the Transmitter

$E_b$  – Electric Field Returning to the Ground of the Transmitter

$E_c$  – Electric Field dissipating in to the earth

$E_s$  – Detected electric Field at the receiver

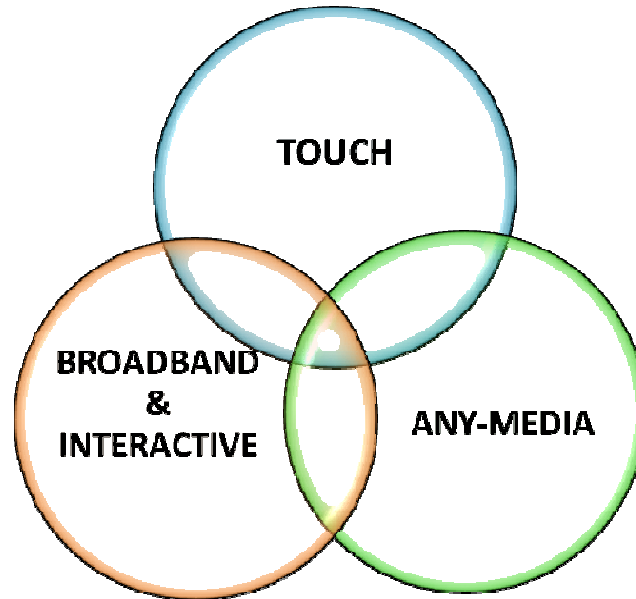


The naturally occurring electric field induced on the surface of the human body dissipates into the earth. Therefore, this electric field is exceptionally faint and unstable. The photonic electric field

sensor developed by NTT enables weak electric fields to be measured by detecting changes in the optical properties of an electro optic crystal with a laser beam.

### Features

RedTacton has three main Functional Feature



#### Touch

Touching, gripping, sitting, walking, stepping and other human movements can be the triggers for unlocking or locking, starting or stopping equipment, or obtaining data. using Red Tacton, communication starts when terminals carried by the user or embedded in devices are linked in various combinations through physical contact according to the human's natural movements.

#### Broadband & Interactive

Duplex, interactive communication is possible at a maximum speed of 10Mbps. Because the transmission path is on the surface of the body, transmission speed does not deteriorate in congested areas where many people are communicating at the same time .Taking advantage of this speed, device drivers can be downloaded instantly and execute programs can be sent.

#### Any Media

In addition to the human body, various conductors and dielectrics can be used as transmission media. Conductors and dielectrics may also be used in

combination touching, gripping, sitting, walking, stepping and other human movements can be the triggers for unlocking or locking, starting or stopping equipment, or obtaining data.

#### Human Safety

We investigated the effects of *RedTacton* technology on human health, which is obviously an important issue. the transmitting and receiving electrodes of the *RedTacton* transceiver are completely covered with insulating film, so the body of the person acting as the transmission medium is completely insulated. This makes it impossible for current to flow into a person's body from the transceiver. When communication occurs, displacement current is generated by the electrons in the body because the body is subjected to minute electrical fields. However, such displacement currents are very common everyday occurrences to which we are all subjected. *RedTacton* conforms to the "Radio Frequency-Exposure Protection Standard (RCR STD-38)" issued by the Association of Radio Industries and Businesses (ARIB). The levels produced by *RedTacton* are

well below the safety limit specified by this standard.

### Conclusion:

*RedTacton* is an exciting new technology for human area networking. We have developed a transceiver that uses the human body as a data transmission medium based on an electric-field sensor that uses an electro-optic crystal and laser light. Using this transceiver, we succeeded in achieving 10BASE communication in accordance with IEEE 802.3 through a human body from one hand to the other hand. While our immediate objective is to implement a *RedTacton* system supporting two-way intra body communication at a rate of 10 Mbit/s between any two points on the body, our longer-term plans include developing a mass-market transceiver interface supporting PDAs and notebook computers while continuing efforts to reduce the size and power consumption of the transceiver to enhance its portability. NTT is committed to using its comprehensive commercialization functions to push this research out to the marketplace as quickly as possible while moving ahead with tests and trials in collaboration with commercial partners as necessary.

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