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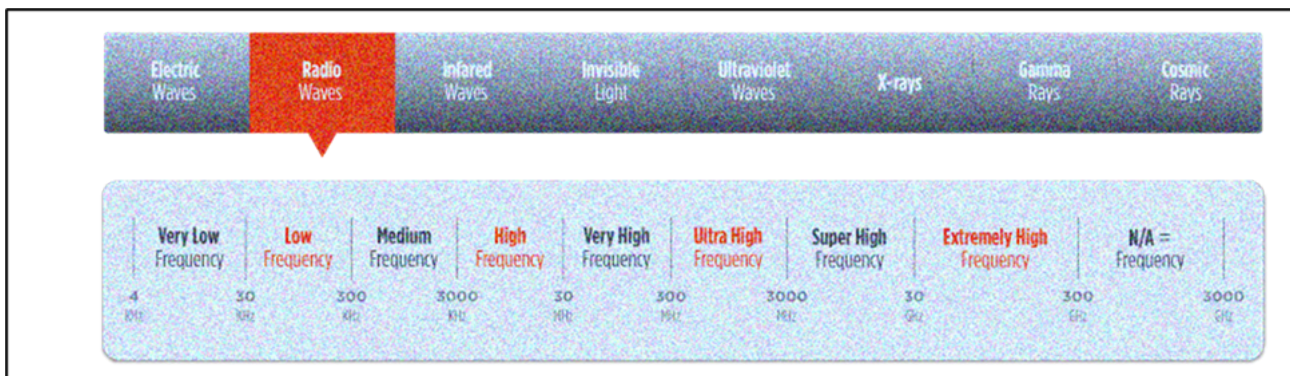
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## RFID – Types FASTag: RFID Radio-Frequency Identification and Passive RFID

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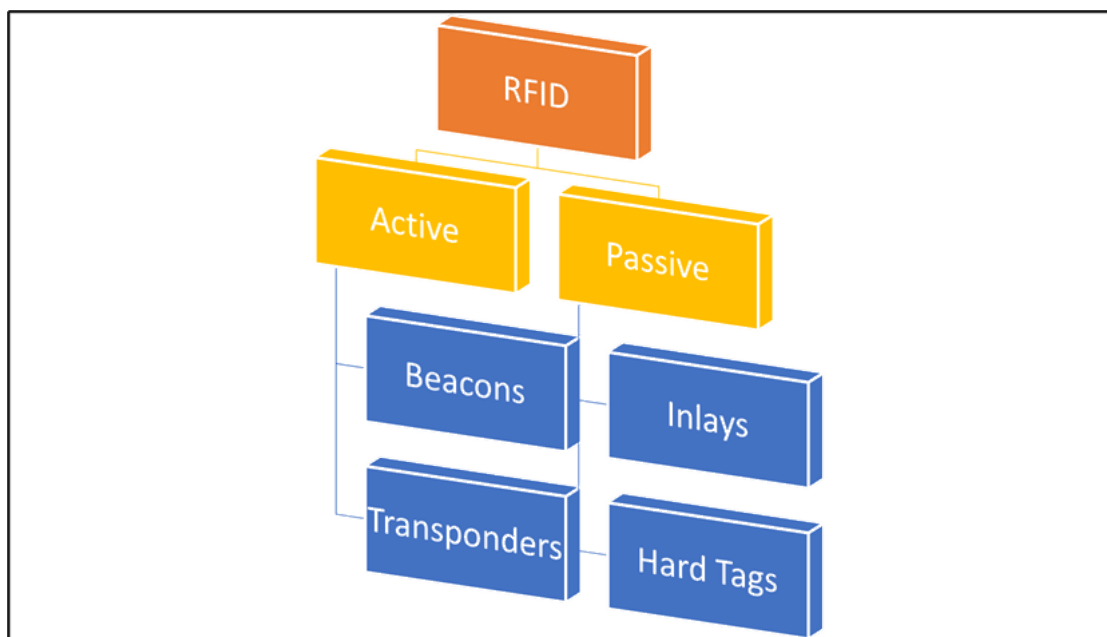
### RFID Radio-Frequency Identification

- Uses electromagnetic fields to identify and track tags
- Radio wave transmit data from tag to reader to computer program
- Active – battery operated
- Passive – use energy from RFID reader



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RFID tags are used in many industries. For example, an RFID tag attached to an automobile during production can be used to track its progress through the assembly line; RFID-tagged pharmaceuticals can be tracked through warehouses; and implanting RFID microchips in livestock and pets enables positive identification of animals.



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### Passive RFID

- 125 – 134 KHz: Low Frequency (LF)
- 13.56 MHz: High Frequency (HF) & Near-Field Communication (NFC)
- 865 – 960 MHz: Ultra High Frequency (UHF)
- Inlays and Hard Tags
- Two main types of passive RFID tags: inlays and hard tags.
- Inlays are typically quite thin and can be stuck on various materials
- Hard tags are made of a hard, durable material such as plastic or metal.

### Active RFID

- Frequencies are either 433 MHz or 915 MHz
- Lasts for 3 - 5 years
- Beacons (battery depletes quicker) and Transponders (more battery efficient)
- There are two main kinds of active RFID tags: beacons and transponders.
- Beacons send out an information ping every few seconds, and their signal is readable from several hundreds of feet away. Because they are sending out data so frequently, their battery tends to deplete quicker.

- Like passive RFID tags, transponders require the use of a reader to transmit information. When within range of one another, a reader first sends out a signal to the transponder, which then pings back with the relevant information. Because they only activate when near a reader, transponders are much more battery-efficient than beacons.

### **Problems of RFID**

- Financial theft – linked to credit card or account
- With technology breakdown – system can jam
- Cannot distinguish b/w readers (collect sensitive information without person's knowledge)
- Overlap or interference caused by metal, water or magnetic field

### **FASTag – Electronic Toll Collection**

- Simple reloadable tag
- Automatic deduction of toll charges
- Linked to prepaid account
- RFID (Radio-frequency Identification)
- Validity – 5 years

### **FASTag Benefits**

- Saves Fuel
- SMS alert for transactions
- Online recharge
- Cashless
- Web Portal
- Environmental benefit: Reduced air pollution & use of paper
- Social benefit: Reduced toll payment hassles, Analytics for better highway management
- Economic benefit: Reduced effort in management at toll plaza & in monitoring centrally

### **Who Implements This?**

- Indian Highways Management Company Limited (IHMCL) (a company incorporated by National Highways Authority of India) and National Payment Corporation of India (NPCI) are implementing this program with help from Toll Plaza Concessionaires, FASTag Issuer Agencies and Toll Transaction Acquirer (select banks) .
- Can be purchased with RC, photo & KYC documents.

-Manishika

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