

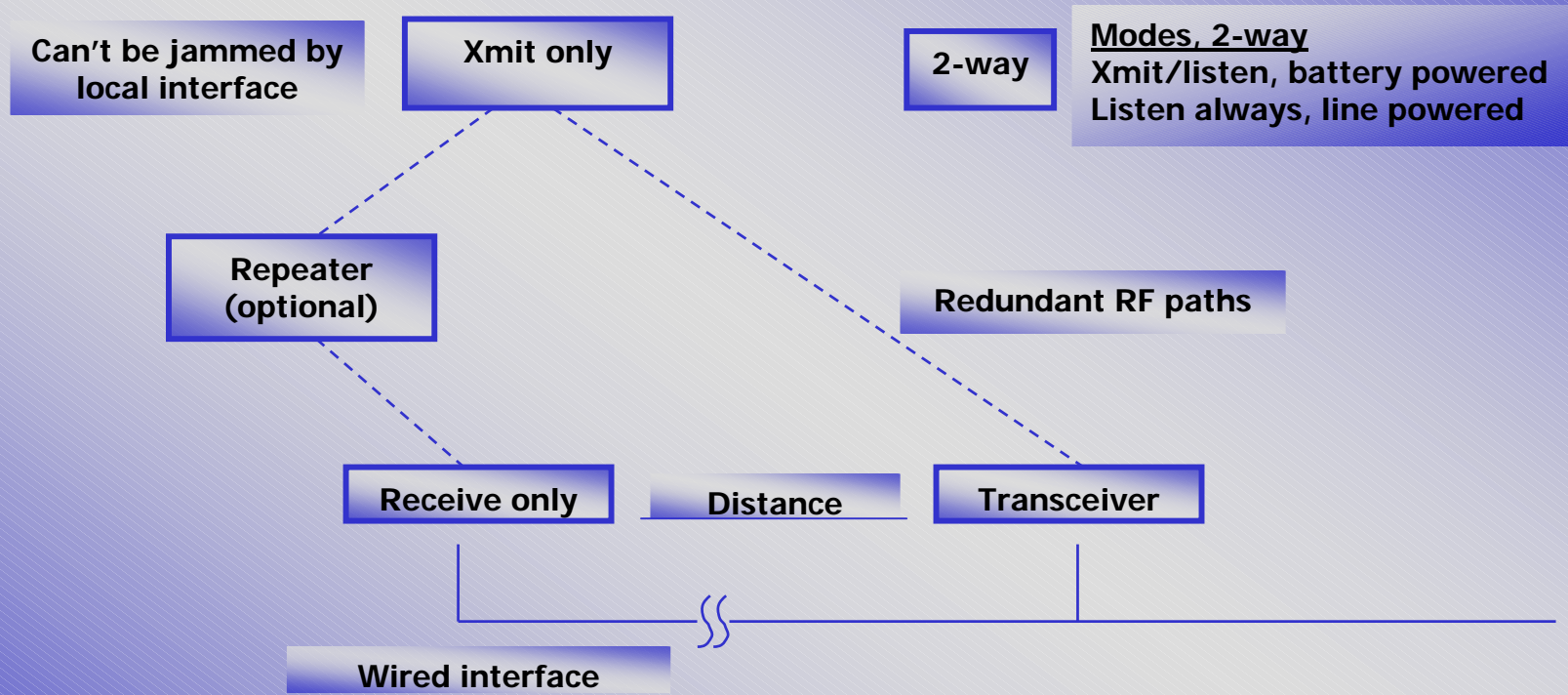
AUTOMATION SERIAL PROTOCOL ASP

RF System Level Requirements - Physical Layer -



Axonn, LLC
New Orleans, Louisiana
www.axonn.com

SYSTEM ELEMENTS



Axon makes both 900 and 2.4 GHz DSSS products
ASP meets international DSSS requirements for unlicensed operation.

RF MODULATION CHARACTERISTICS

- Center Frequencies, f_c
- Spread Spectrum Modulation
- On-Air Data Modulation
- Chip Rate, Transmit-Only
- Chip Rate, Transceiver
- On-Air Data Rate
- Direct Sequencing Synchronization
- Code Division Multiple Access
- Carrier Sense Multiple Access
- FCC Part 15 Multilateration Restrictions
- Antenna Remoting
- Repeater Provision
- Fallback Frequency Usage, Transceiver
- Future Enhancements:
 Redundant Frequency Channels
- Transmit-only Device Density
- Receiver Redundancy
- Minimum Acceptable SNR
- Maximum Transmit Message Duration

ON-AIR MESSAGE FORMAT

- **Leader Field**
- **Sync Field**
- **Reposition Field**
- **Vendor Code Field**
- **Vendor Code / Priority Field**
- **Property Code Field**
- **Control Field**
- **Length Field**
- **Payload Field**
- **CRC Field**

AXONN PHYSICAL ON-AIR PROTOCOL BENEFITS

DATA RELIABILITY

63 chip code, supports 18dB process gain
Chip rate 1.22 Mc/s
915 MHz operation

PHYSICALLY RELIABLE

Industrial temp range -40 to $+85^{\circ}\text{C}$
Manufacturable, over 11 million fielded

LONG BATTERY LIFE

5 – 10 year battery life
Fast signal acquisition

LOW MANUFACTURING COST

BPSK DSSS, low cost demodulation
ASK Data, low cost modulation & demodulation
low cost crystals and CMOS

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