

## AR 100B Communications

### 3.2.1. Communications Hardware.

#### 3.2.1.1. Transmitters.

Downlink BMS CT4520

Uplink BMS

##### 3.2.1.1.1. Hard set? No

##### 3.2.1.1.2. Tunable? Yes

#### 3.2.1.2. Receivers.

Downlink BMS DR4500

Uplink BMS

##### 3.2.1.2.1. Hard set? No

##### 3.2.1.2.2. Tunable? Yes

#### 3.2.1.3. Duplexers/diplexers.

No

##### 3.2.1.3.1. Bandpass Ranges.

N/A

##### 3.2.1.3.2. Other Limiters.

N/A

#### 3.2.1.4. Cables and connectors, ground planes, heat sinks.

N/A

### 3.2.2. Links (include frequencies, range, bandwidth, and baud rate).

#### 3.2.2.1. Uplinks

Frequency 434 Mhz, Power output 2 W, BW 34 KHz/-40 db, Baud Rate bps

Might change to 900 MHz unlicensed

#### 3.2.2.2. Downlinks

Frequency 2.4 Ghz, COFDM, Power output 100 mw, BW 25 Mhz/-40 db

First Channel 4500 MHz - 1 MHz increments, No sub carrier, one data stream  
rate 5 mbs, DVB-T  
compliant

### 3.2.3. Antennas for each link.

#### 3.2.3.1. Types.

Uplink TX: H360° V60° 5db, Uplink RX: vertical 0db,

Downlink TX: vertical 90° 3db dipol, Downlink RX: diversity planar and  
radial

#### 3.2.3.2. Size and Location.

Uplink TX: ground, Uplink RX: air top of unit, Downlink TX:  
air bottom of unit, Downlink RX: ground

### 3.2.4. Please provide any link analyses which have been done, including:

### 3.2.4.1. Signal Masking.

#### 3.2.4.1.1. Antenna patterns, including polarization.

Based on Experience

#### 3.2.4.1.2. Location of airborne and ground antennas.

Based on Experience

#### 3.2.4.1.3. Masking due to antenna position on UA during maneuvering.

Masking of uplink receiving antenna can only occur when system is flown directly above ground station

#### 3.2.4.1.4. Pilots/operators aware of these items/issues.

Yes

### 3.2.4.2. Effective radiated power and verifications.

Performed by vendor of transmitter systems, available in Form DD1494

### 3.2.4.3. Distance of link and attenuation (atmosphere and ground)

N/A

### 3.2.4.4. Signal latency if satellite or other than line of sight.

N/A

### 3.2.4.5. Multipath.

N/A

### 3.2.4.6. Line of Sight.

Max range test at different altitude

## 3.2.5. Is any type of link security employed? Yes

## 3.2.6. What indicators does the operator have?

### 3.2.6.1. RF Strength.

Uplink, Indicator in display

Downlink, Quality of video signal and display

### 3.2.6.2. Data Being Received.

Video display

### 3.2.6.3. Operator indicators or critical issues.

No GPS availability center of main display

Battery status on flight platform

Battery status on GCS

Activation status of Return Home on Lost Link

Activation status of GPS