

Technical Description

Submitted by Joel Thorsheim on behalf of Insitu
The Boeing Company
Frequency Management Services
P.O. Box 3707 MC: 2T-22
Seattle, WA 98124-2207
206-544-6066 Office
206-662-0701 Fax

Dates of Operation:

Start Date: 23 October 2015
Stop Date: 28 February 2016

Equipment and Frequency Requirements

Command and Control Uplink from Ground Station to UAS

Frequency Band: 902-928 MHz
Channels/Spacing: Frequency hopping; 50 to 112 center frequencies, user selectable, 112 channels in 230.4 KHz increments starting with 902.2464 MHz
Emission: 230KF1D
Transmit Output: 1 Watt
Output Power: 61 Watts ERP
Manufacturer: Freewave Technologies
Model: FGRM-501X005
Antenna Gain: 20 dB
Antenna Type: 1.8 Meter Parabolic Reflector
Ant. Vert. Beamwidth: 15 degrees
Ant. Horz. Beamwidth: 15 degrees

Mobile Command and Control Downlink from UAS to Ground Station

Frequency Band: 902-928 MHz.
Channel Spacing: Frequency hopping; 50 to 112 center frequencies, user selectable, 112 channels in 230.4 KHz increments starting with 902.2464 MHz
Emissions: 230KF1D
Transmit Output: 1 Watt
Output Power: 1 Watt ERP
Manufacturer: Freewave Technologies
Model: FGRM-501X005
Antenna Gain: 0 dB
Antenna Type: Center-Fed Half-Wave Dipole (Vertical)

Mobile Video Downlink from UAS to Ground Station

Frequencies: 2411, 2434, 2453, 2463, 2473, and 2486 MHz
Emissions: 18M0F9W and 16M0F3F
Transmit Output: 2 Watts
Output Power: 1.22 Watt ERP
Manufacturer/Model: L-3 Southern California Microwave/VNTX Series
Manufacturer/Model: Global Microwave Systems/NT series
Antenna Gain: 0 dB
Antenna Type: Dipole

Transponder

Manufacturer/Model: Sagetech Corporation
Model Part Number 400-819506R00
Modes: 3/A/C
Frequency: 1090 MHz
Emissions: 11M0M1D

Transmit Output:	175 Watts Peak
Output Power:	107 Watts ERP
Antenna Gain:	0 dB
Antenna Type:	Monopole
Pulse Rate:	1.0 Mpps
Pulse Width:	0.45 usec +/- 0.1 usec
Pulse Rise Time:	0.05 usec to 0.1 usec
Pulse Fall Time:	0.05 usec to 0.2 usec

Stop buzzer for this operation is Insitu Operations Action Center at 866-637-4691.

Ground Control Station Locations

City and State:	Taiban, New Mexico
Latitude and Longitude:	34-29-36 N 104-0-23 W
Radius of Operation:	Fixed within 2 kilometers

City and State:	Mountainair, New Mexico
Latitude and Longitude:	34-30-24 N 106-11-51 W
Radius of Operation:	Fixed within 2 kilometers

Mobile UAS Location

City and State:	Fort Sumner to Mountainair, New Mexico NW Corner N34°48'00.00", W106°35'60.00" SW Corner N34°18'00.00", W106°36'00.00" SE Corner N34°18'0.00", W103°54'0.00" NE Corner N34°48'0.00", W103°54'0.00"
Radius of Operation:	See above Lat/Long
Flight Level:	1,200 ft AGL