



A Textron Company

May 13, 2020

**Federal Communications Commission 445 12th Street SW
Washington, DC 20554**

Title: Bell Textron License Request – STA – Ft. Worth, TX

Dear FCC,

This request for Special Temporary Authority (STA) is submitted pursuant to 47 CFR 5.61 to request frequency authorization.

Bell plans to conduct testing of a small model aircraft known as the Micro-UAV with a weight of less than one pound. Initial testing is planned at the Greater Southwest Aero Modelers airfield at the address indicated below. The STA is for frequency licensing of the bi-directional datalink controlling the Micro-UAV. The datalink hardware is the Microhard model MHS118200 – pDDL1800 which is a single frequency communication device operating within the band of 1810-1850 MHz. Bell would like to perform testing within the four different bandwidths indicated by the emission designators below. In the interest of resolving any potential frequency conflict, Bell is requesting licensing for the operational range from channels 1 through 56; however, only one channel will be used at any given time.

Location:

Greater Southwest Aero Modelers
6903 Randol Mill Rd
Fort Worth, TX 76120
Tarrant County
Maximum Flight Altitude 300 ft AGL
Test Area Center Point: 32° 46' 53.9" N 97° 12' 23.9" W
MIRAD: 0.18 (300 m)
Reference figures 1 and 2 below.

Dates of operation:

06/01/2020 to 12/01/2020

Frequency:

1811 - 1869 MHz S-band (1MHz BW, CH 1-59)
1812 - 1868 MHz S-band (2MHz BW, CH 2-58)
1813 - 1867 MHz S-band (4MHz BW, CH 3-57)
1814 - 1866 MHz S-band (8MHz BW, CH 4-56)

Emission Designators:

- 1M06X2D
- 2M12X2D
- 4M23X2D
- 8M38X2D

Power:

2 Watts (Max)

Effective Radiated Power (ERP):

2 Watts (Max)

Antenna:

Three-inch linear polarized whip antenna (unity gain).

Operations:

Flight operations will be performed during daylight hours in clear and calm weather conditions. Flights will be limited in occurrence and duration as testing at this site is limited to initial checkout in preparation for further testing at another site. There is separate filing with the FCC for the other site. In short, this testing is not much different than that of model hobbyists for which this site is intended with the exception that the frequency transmission requires an FCC license. Figure 1 shows the Greater Southwest Aero Modelers location relative to the Ft. Worth, Texas area. Figure 2 shows the area within which the testing will be conducted and for which frequency coverage is requested. Exhibit A contains technical information regarding the Micro-Hard data link module. Figure 3 shows areas of trees and structures surrounding test area that would help to attenuate or contain the radio frequency emissions.

Figure 1: Test Site Location Relative to the Dallas/Ft. Worth Texas Area

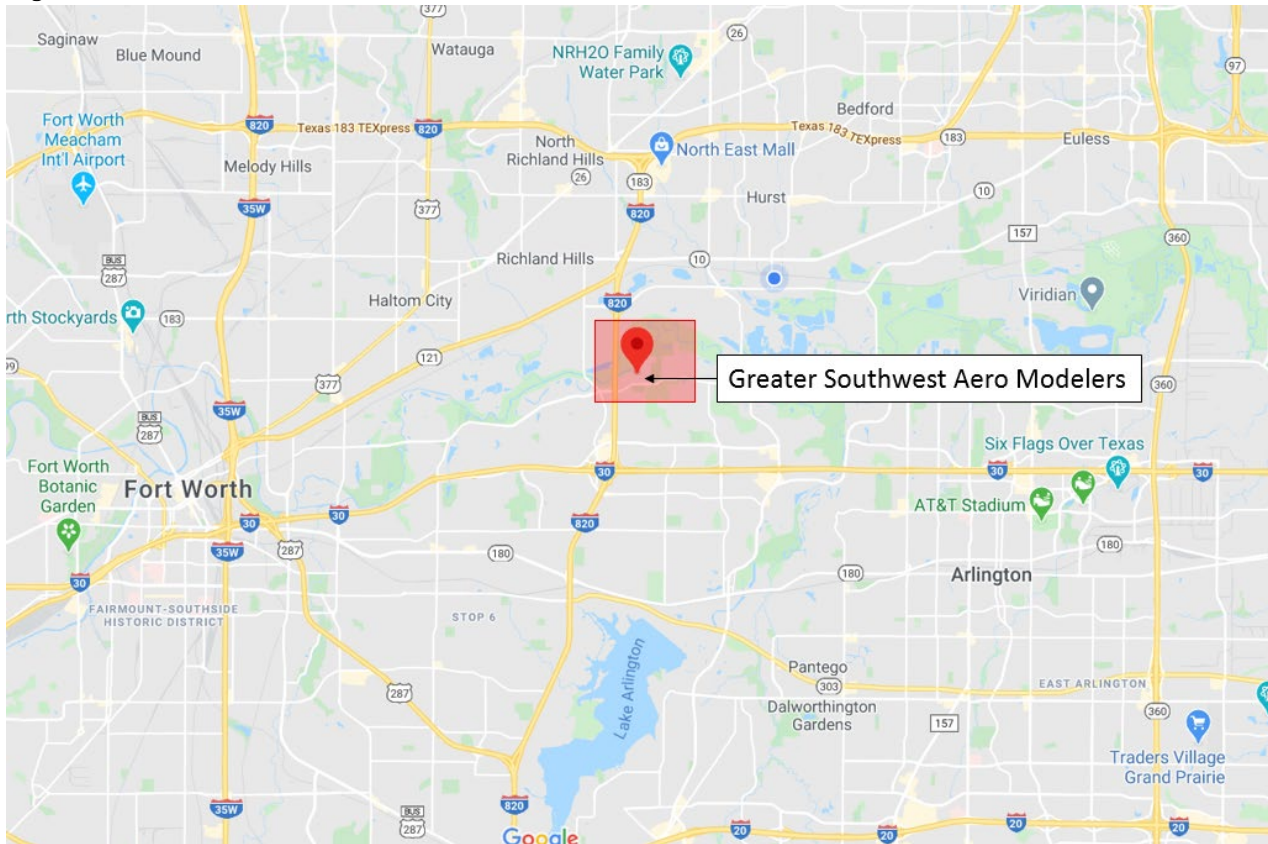


Figure 2: Test Site Location Relative to the Dallas/Ft. Worth Texas Area

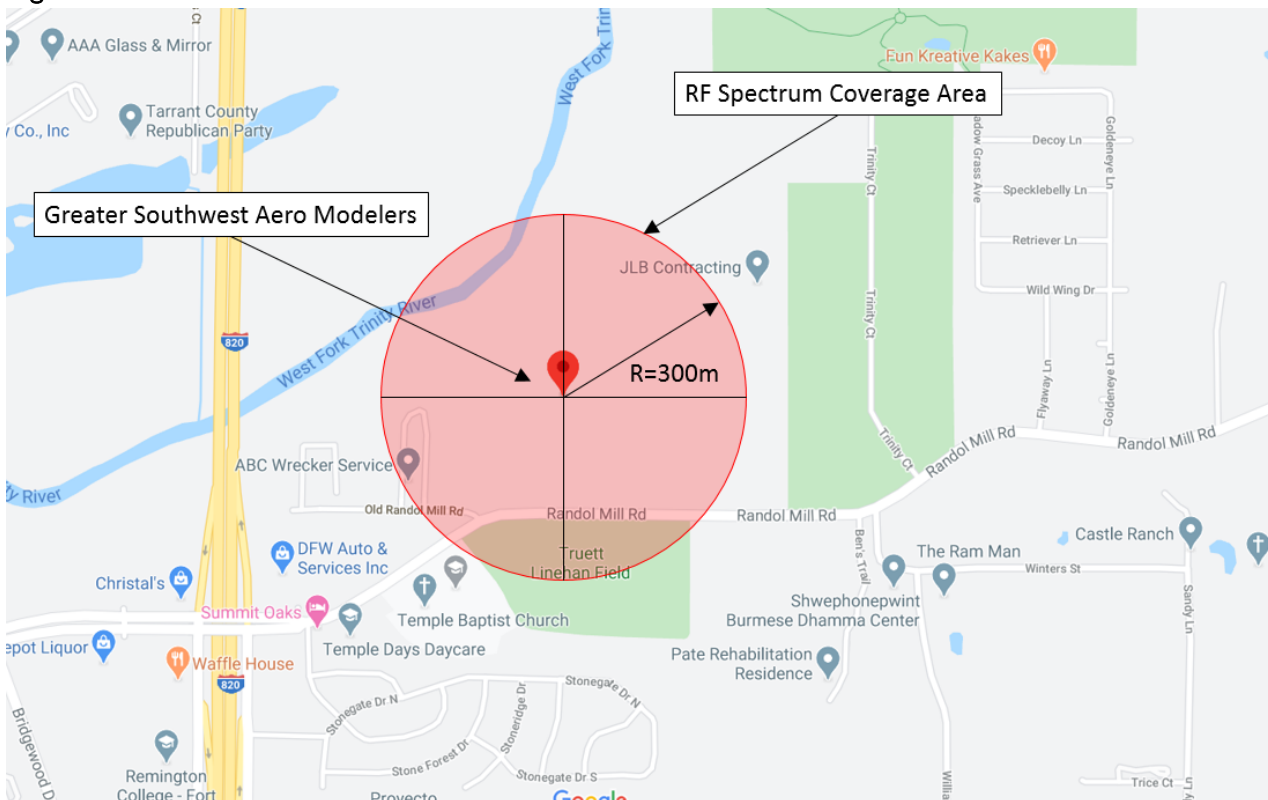


Figure 3: Test Site Location Showing Areas of Trees and Structures in the Surrounding Area



Stop Buzzer Contact:
Mark Stoufflet
Bell Textron
(817) 280-7984

Kind Regards,

Mark Stoufflet
Bell Frequency Coordinator

EXHIBIT A:

Hardware Specifications

Miniature OEM 900MHz/2.4 GHz Digital Data Link

The Pico Digital Data Link is a dual frequency, software selectable 900 MHz & 2.4 GHz wireless OEM solution that provides the bandwidth and range needed for complex data intensive applications. The pDDL900 features secure, simultaneous Ethernet and Serial Data communications. Robust digital modulation technology provides secure data transfer and long range capabilities.

Up to 25Mbps

900 MHz & 2.4 GHz

Ethernet + Serial

Up to 1 Watt

PTP & Multipoint

Weights only 10g!



1.3" X 1.05" X 0.30"

Features

- Software Selectable 900 MHz & 2.4 GHz
- Up to 25 Mbps Input Throughput @ 8MHz channel (-78dBm)
- Extremely small foot print and very lightweight
- Serial Communication Port
- Dual 10/100 Ethernet Ports (LAN/WAN)
- Supports Point-to-Point and Point-to-Multipoint Networks
- Master & Remote Operating Modes.
- Adjustable transmit power (up to 1W)
- Interface through local console, telnet, and web browser
- Local and remote wireless firmware upgrading through FTP

Interface Options



pDDL Motherboard



pDDL Enclosed

◆ Dual Frequency

◆ Ethernet

◆ Serial

◆ Security

Specifications

Frequencies (selectable)		902 - 928 MHz / 2.402 - 2.478 GHz	Performance Specifications			
Error Detection		32 bits of CRC, ARQ	Modulation	Multicast iPerf Throughput (Mbps)	Throughput @ Sensitivity (dBm)	Maximum Tx Power (dBm) +/- 1dB
Encryption <i>(Requires Export Permit)</i>		128-bit AES				
Ports		Serial Data/Console Ethernet USB RS232 TTL level (300bps to 921kbps) Dual 10/100BaseT IEEE802.3 (LAN/WAN) 2.0 (Future Development)	8 MHz			
			BPSK_1/2	3	-96	30dBm
			QPSK_1/2	6	-94	30dBm
Firewall		Port Forwarding, Access Control, IP/MAC List.	QPSK_3/4	9	-91	30dBm
Operating Modes		Point-to-Point, Point-to-Multipoint, Mesh (future)	16QAM_1/2	12	-88	29dBm
Diagnostics		Remote Diagnostics, Ping, Traceroute, ARP table, DHCP active leases, SNR, RSSI	16QAM_3/4	17	-85	29dBm
Management		Local Serial Port Console, Telnet, WebUI, SNMP, FTP Upgrade, TFTP, CLI (Command Line Interface)	64QAM_2/3	23	-80	27dBm
Rejection		Excellent strong signal interference & rejection characteristics	64QAM_3/4	25	-78	27dBm
Input Voltage		OEM Motherboard/ENC Digital Voltage = 3.3V / RF Voltage = 5V 7 - 30 VDC	64QAM_5/6	28	-76	27dBm
Connectors:			4 MHz			
		OEM Motherboard/ENC Antenna: UFL x2 (900MHz, 2.4 GHz) Data: 80 Pin SMT Antenna (Enclosed): RP-SMA Female x2 Data: RJ-45 x2 (Ethernet) Female DB9 (Serial) USB Type A (Future) 4 PiN Interlock (Vin, I/O)	BPSK_1/2	1.5	-99	30dBm
			QPSK_1/2	3	-98	30dBm
			QPSK_3/4	4.5	-96	30dBm
		Environmental Temperature Humidity	16QAM_1/2	6	-92	29dBm
			16QAM_3/4	9	-88	29dBm
			64QAM_2/3	11.5	-83	27dBm
Weight		OEM Motherboard Enclosed Approx. 10 grams Approx. 55 grams Approx. 175 grams	64QAM_3/4	12.5	-82	27dBm
			64QAM_5/6	14	-80	27dBm
Dimensions		OEM Motherboard Enclosed Approx. 1.05" x 1.3" x .30" (27mm x 33mm x 8mm) Approx. 2.5" x 3.0" x 0.70" (64mm x 76mm x 18mm) Approx. 3.05" x 2.2" x 1.1" (77mm x 55mm x 28mm)	2 MHz			
			BPSK_1/2	0.78	-101	30dBm
			QPSK_1/2	1.5	-100	30dBm
Approvals		FCC IC	QPSK_3/4	2.2	-97	30dBm
		FCC IC	16QAM_1/2	2.9	-93	29dBm
			16QAM_3/4	4.3	-90	29dBm
			64QAM_2/3	5.5	-86	27dBm
			64QAM_3/4	6	-84	27dBm
			64QAM_5/6	6.5	-82	27dBm
Frequency Options						
MHS118100 - pDDL900		Dual Frequency 900MHz/2.4GHz				
MHS118200 - pDDL1800		Single Frequency 1810-1850MHz, Single Antenna				

Contact Information

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