

Information Required for Experimental License Application

Below is the technical information required to properly fill out the FCC Form for Experimental License Applications. Claude Wells with EIS is responsible for filing FCC experimental license applications and can provide additional information if necessary. Supplemental information may be required.

1. Is this application for a new license or modification of an existing license? If existing, then please provide the call sign. **New license.**
2. Is confidentiality required for this license? **No.** If yes, then please provide a separate statement explaining why confidentiality is required. There is an additional fee associated with requesting confidentiality.
3. Is the experimental license to be used for fulfilling a Federal government contract? **Yes.** If yes, then include a detailed narrative statement describing the experiment, government project, agency, and contract number. The experimental description must be answered in enough detail to explain the research project to someone not familiar with it or someone who does not have an engineering degree. **See Exhibit 1.**
4. Is the license to be used for the exclusive purpose of developing radio equipment for export to be employed by stations under the jurisdiction of a foreign government? **No.** If YES, please provide the contract number and the name of the foreign government concerned.
5. Is this license to be used for providing communications essential to a research project? **No.** If YES, please provide an exhibit with the following information:
 - a) A description of the nature of the research project being conducted,
 - b) A showing that the communications facilities requested are necessary for the research project involved, and
 - c) A showing that existing communications facilities are inadequate.
6. If all the answers to Numbers 3, 4, and 5 are no, then please provide a detailed narrative statement describing in detail the following items: These questions must be answered in enough detail to explain the research project to someone not familiar with it or someone who does not have an engineering degree. **See Exhibit 1.**
7. Please provide an estimate of the time required to complete the experimental program – in months or years. The FCC will generally not authorize an experimental license longer than 2 years. However, in some instances experimental licenses are granted for 5 years. **Two years or 24 months.**

8. The following questions must also be answered:

Will the facilities be located in a wilderness area? **No.**

Will the facilities be located in a wildlife preserve? **No.**

Will the experiment affect threatened or endangered species? **No.**

Will the facilities affect Indian religious sites? **No.**

Will the facilities be located in a flood plain? **No.**

Will construction of the facilities involve filling in wetlands, deforestation or water diversion? **No.**

If the answer is yes to any of these questions, then significant environmental assessments or impact statements are required. Please contact Claude Wells.

9. Please provide a list of all transmitting equipment that will be used in the experiment. Include the following information for each piece of equipment:

a) Manufacturer; **GPS Source, Inc.**

b) Model Numbers; **L1L22GP & A11XLV**

c) Number of Units; **26 each**

d) Whether the equipment is experimental or unique. **No.**

For more information, see Exhibit 3.

10. Is the transmitting equipment listed in Question 9 capable of station identification? **No.**

According to the FCC rules, each experimental station must, unless specifically exempted, transmit its assigned call sign at the end of each complete transmission. The transmission of the call sign at the end of each transmission is not required for projects requiring continuous, frequent, or extended use of the transmitting apparatus, if, during such periods, the call sign is transmitted at least once every thirty minutes. The station identification must be transmitted in clear voice or Morse code. All digital encoding and digital modulation must be disabled during station identification.

Contact for any Questions: David Wye 703-413-5603 or david.wye@lmco.com

Technical Information:

All questions must be answered completely.

Antenna Information: For EACH antenna, please provide the following information:

All antennas have the same technical characteristics.

1. Is the antenna fixed/base, mobile, or base and mobile?

Fixed.

2. Please indicate the geographical location where the experiment(s) will take place. Specify the datum used in determining the geographical coordinates. The latitude and longitude for locations in the US must be referenced to either the North American Datum of 1927 (NAD 27) or 1983 (NAD 83). Topographical maps should indicate which datum is used (or websites).

All locations are from NAD 83 and confirmed by GPS position measurements.

Location 1:

USAF Plant 42, Site 7, Building 730. Three transmit antennas.

Latitude: W 118 05.735
Longitude: N 34 37.128
Identifier: 730T1

Latitude: W 118 05.755
Longitude: N 34 37.115
Identifier: 730T2

Latitude: W 118 05.791
Longitude: N 34 37.110
Identifier: 730T3

Location 2:

USAF Plant 42, Site 7, Building 740. One transmit antenna.

Latitude: W 118 05.710
Longitude: N 34 37.20
Identifier: 740T1

Location 3:

USAF Plant 42, Site 7, Building 762. One transmit antenna.

Latitude: W 118 05.709
Longitude: N 34 37.259
Identifier: 762T1

Location 4:

USAF Plant 42, Site 7, Building 763. One transmit antenna.

Latitude: W 118 05.520
Longitude: N 34 37.326
Identifier: 763T1

Location 5:

USAF Plant 42, Site 7, Building 751. One transmit antenna.

Latitude: W 118 05.565
Longitude: N 34 37.384
Identifier: 751T1

Location 6:

USAF Plant 42, Site 7, Building 750. One transmit antenna.

Latitude: W 118 05.565
Longitude: N 34 37.359
Identifier: 750T1

Location 7:

Lockheed Martin Aeronautics Co. Plant 10, Building 602, North Hangar. Three transmit antennas.

Latitude: W 118 07.092
Longitude: N 34 37.110
Identifier: 602T2

Latitude: W 118 07.126
Longitude: N 34 37.111
Identifier: 602T3

ADP Avionics Laboratory, Room 309:

Latitude: W 118 07.100
Longitude: N 34 37.097
Identifier: 602T1

Location 8:

Lockheed Martin Aeronautics Co. Plant 10, Building 602, South Hangar. Two transmit antennas.

Latitude: W 118 07.126
Longitude: N 34 37.064
Identifier: 602T4

Latitude: W 118 07.092
Longitude: N 34 37.064
Identifier: 602T5

Location 9:

Lockheed Martin Aeronautics Co. Plant 10, Building 601, East Hangar. Four transmit antennas.

Latitude: W 118 07.125

Longitude: N 34 36.833
Identifier: 601T3

Latitude: W 118 07.052
Longitude: N 34 36.835
Identifier: 601T4

ADP Avionics Laboratory, Room 111:
Latitude: W 118 07.038
Longitude: N 34 36.860
Identifier: 601T6

EMI/EMC Development Laboratory, Room 135:
Latitude: W 118 07.130
Longitude: N 34 36.862
Identifier: 601T7

Location 10:

USAF Plant 42, Site 2, Building 214. One transmit antenna.

Latitude: W 118 05.129
Longitude: N 34 38.232
Identifier: 214T1

Location 11:

Lockheed Martin Aeronautics Co. Plant 10, Building 681A (Flight Line stall 1). One transmit antenna.

Latitude: W 118 06.925
Longitude: N 34 37.180
Identifier: 681T1

Location 12:

Lockheed Martin Aeronautics Co. Plant 10, Building 601, West Hangar. Two transmit antennas.

Latitude: W 118 07.175
Longitude: N 34 36.791
Identifier: 601T1

Latitude: W 118 07.177
Longitude: N 34 36.835
Identifier: 601T2

Location 13:

Lockheed Martin Aeronautics Co. Plant 10, Building 601, Room 307. One transmit antenna.

Latitude: W 118 07.170
Longitude: N 34 36.861
Identifier: 601T5

Location 14:

USAF Plant 42, Site 2, Building 210. Four transmit antennas.

Latitude: W 118 05.383

Longitude: N 34 38.270
Identifier: 210T1

Latitude: W 118 05.366
Longitude: N 34 38.251
Identifier: 210T2

Latitude: W 118 05.428
Longitude: N 34 38.250
Identifier: 210T3

Latitude: W 118 05.422
Longitude: N 34 38.270
Identifier: 210T4

3. If part of the entire operation will be conducted at a fixed site, please provide the state, county, and city of the location. **California, Los Angeles County, Palmdale.**

4. For base and mobile operations, where there is a wide area of operation, provide the approximate area of operation. For example, "approximately 10 km around a fixed location." **Not applicable.**

5. If the antenna is directional, provide the beam width, horizontal orientation and the vertical orientation. **180 degrees vertical, 360 degrees horizontal.**

6. Will the antenna extend more than 6 meters above the ground or above an existing building? **No.** Will the proposed antenna be mounted on an existing structure or a structure other than a building? **Yes.**

Frequency Information: For EACH antenna, the following information is required:

For more information, see Exhibit 2.

1. Frequency range (or frequencies)): Provide the lower and upper frequencies in MHz. **For ALL antennas: 1227.6 MHz and 1575.42 MHz.**

2. Power Output: Provide the maximum RF power at the transmitter output terminals. **See Table 1.**

3. Effective Radiated Power: Provide the maximum ERP from the antenna. If pulsed emission, specify the Peak Power. **See Table 1.**

TABLE 1	L1				L2		
Reradiator Identifier	Maximum RF Power at the Transmitter Output Terminals	Maximum ERP from the Antenna			Maximum RF Power at the Transmitter Output Terminals	Maximum ERP from the Antenna	
	Watts	dBm	Watts		Watts	dBm	Watts
730T3	30.0 pW	-70.32	92.8pW		36.3pW	-70.90	81.3pW
730T1	26.0 pW	-70.96	80.2pW		37.5pW	-70.75	84.0pW
730T2	24.8 pW	-71.16	76.6pW		29.8pW	-71.76	66.7pW
740T1	34.9 pW	-69.67	108.0pW		39.4pW	-70.54	88.3pW
762T1	9.3 pW	-75.44	28.6pW		9.6pW	-76.69	21.4pW
763T1	9.3 pW	-75.44	28.6pW		9.6pW	-76.69	21.4pW
751T1	13.6 pW	-73.77	42.0pW		14.9pW	-74.76	33.4pW
750T1	13.6 pW	-73.77	42.0pW		14.9pW	-74.76	33.4pW
602T3	28.9 pW	-70.49	89.3pW		41.3pW	-70.34	92.4pW
602T2	28.9 pW	-70.49	89.3pW		41.3pW	-70.34	92.4pW
602T1	29.2 pW	-70.44	90.3pW		31.8pW	-71.47	71.2pW
602T5	28.9 pW	-70.49	89.3pW		41.3pW	-70.34	92.4pW
602T4	28.9 pW	-70.49	89.3pW		41.3pW	-70.34	92.4pW
601T4	32.4 pW	-69.99	100.1pW		45.7pW	-69.91	102.2pW
601T3	32.4 pW	-69.99	100.1pW		45.7pW	-69.91	102.2pW
601T6	4.6 pW	-78.49	14.2pW		5.4pW	-79.16	12.1pW
601T7	4.6 pW	-78.49	14.2pW		5.4pW	-79.16	12.1pW
601T1	32.4 pW	-69.99	100.1pW		45.7pW	-69.91	102.2pW
601T2	32.4 pW	-69.99	100.1pW		45.7pW	-69.91	102.2pW
601T5	7.7 pW	-76.21	23.9pW		8.6pW	-77.15	19.3pW
681T1	20.4 pW	-71.99	63.2pW		22.0pW	-73.08	49.2pW
210T2	45.4 pW	-68.53	140.2pW		63.1pW	-68.50	141.3pW
210T3	41.1 pW	-68.96	127.1pW		61.1pW	-68.64	136.8pW
210T1	12.6 pW	-74.10	38.9pW		17.3pW	-74.12	38.7pW
210T4	9.1 pW	-75.51	28.1pW		14.9pW	-74.78	33.3pW
214T1	17.4 pW	-72.70	53.7pW		18.6pW	-73.81	41.6pW

4. Mean or Peak Power: Is the Power the mean or peak power? **Mean.**

5. Tolerance: Provide the applicable level of tolerance as a percentage of carrier frequency. **.001%.**

Emissions Information: For EACH antenna, the following information is also needed:

1. Emission Designator. Provide the three symbols necessary to determine the emission designator. Emission designators can be found in Section 2.201 of the FCC rules. See http://www.access.gpo.gov/nara/cfr/waisidx_01/47cfr2_01.html for assistance. 20M4W7D, which applies to both L1 and L2.

2. Modulating Signal. Provide, as appropriate for the type of modulation, the:

- a) Maximum speed for keying in bauds;
- b) Maximum audio modulating frequency;
- c) Frequency deviation of carrier; and
- d) Pulse duration and repetition rate.

Not applicable.

For complex emissions, provide detailed information describing the modulating signal and indicate the frequency range that it is associated with.

Wideband Amplifier. System only retransmits GPS signals (L1 & L2) as received.

3. Necessary Bandwidth. Provide the necessary bandwidth measurement and the units. Provide how the necessary bandwidth was calculated for all indicated frequencies. **Two 20.4 MHz.**