

Exhibit 1
Frequencies & Necessary Bandwidth

The frequency allocations for the L-3 Comm Fixed Wireless Loop (FWL) application are as follows:

2103 to 2302 MHz Frequency Allocations

Channel	Sub-Channel	Forward (MHz)	Reverse (MHz)	Tx/Rx Spacing
1	A	2222.500	2103.500	119
	B	2225.125	2106.125	119
	C	2228.625	2109.625	119
	D	2232.125	2113.125	119
2	A	2236.500	2117.500	119
	B	2239.125	2120.125	119
	C	2242.625	2123.625	119
	D	2246.125	2127.125	119
3	A	2250.500	2131.500	119
	B	2253.125	2134.125	119
	C	2256.625	2137.625	119
	D	2260.125	2141.125	119
4	A	2264.500	2145.500	119
	B	2267.125	2148.125	119
	C	2270.625	2151.625	119
	D	2274.125	2155.125	119
5	A	2278.500	2159.500	119
	B	2281.125	2162.125	119
	C	2284.625	2165.625	119
	D	2288.125	2169.125	119
6	A	2292.500	2173.500	119
	B	2295.125	2176.125	119
	C	2298.625	2179.625	119
	D	2302.125	2183.125	119

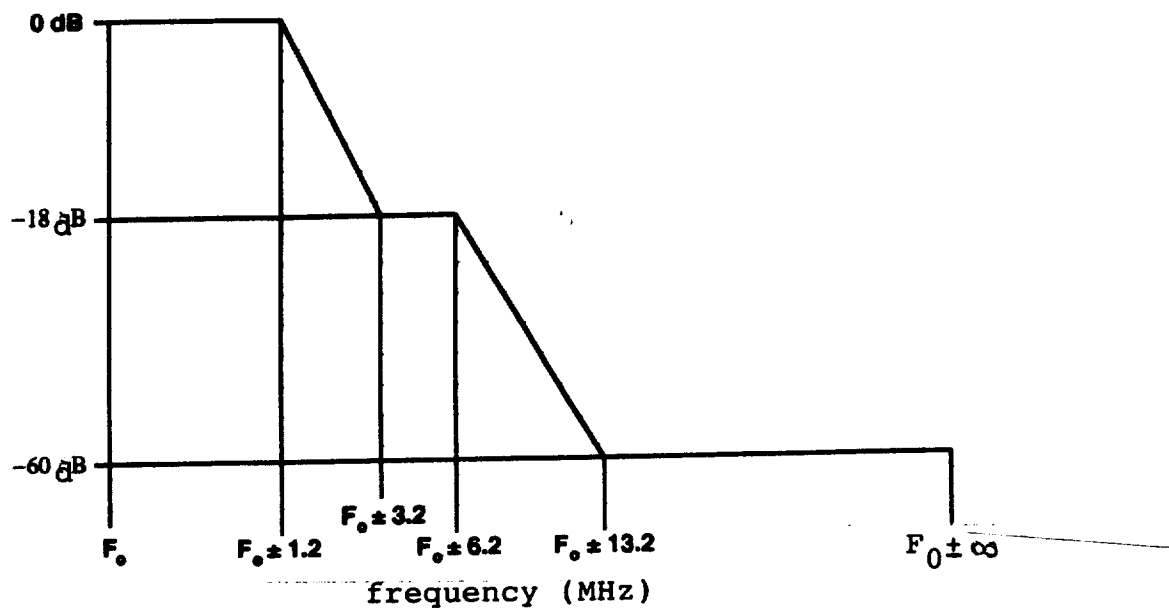
2486 to 2685 Frequency Allocations

Channel	Sub-Channel	Forward (MHz)	Reverse (MHz)	Tx/Rx Spacing
1	A	2605.75	2486.75	119
	B	2608.375	2489.375	119
	C	2611.875	2492.875	119
	D	2615.375	2496.375	119
2	A	2619.75	2500.75	119
	B	2622.375	2503.375	119
	C	2625.875	2506.875	119
	D	2629.375	2510.375	119
3	A	2633.75	2514.75	119
	B	2636.375	2517.375	119
	C	2639.875	2520.875	119
	D	2643.375	2524.375	119
4	A	2647.75	2528.75	119
	B	2650.375	2531.375	119
	C	2653.875	2534.875	119
	D	2657.375	2538.375	119
5	A	2661.75	2542.75	119
	B	2664.375	2545.375	119
	C	2667.875	2548.875	119
	D	2671.375	2552.375	119
6	A	2675.75	2556.75	119
	B	2678.375	2559.375	119
	C	2681.875	2562.875	119
	D	2685.375	2566.375	119

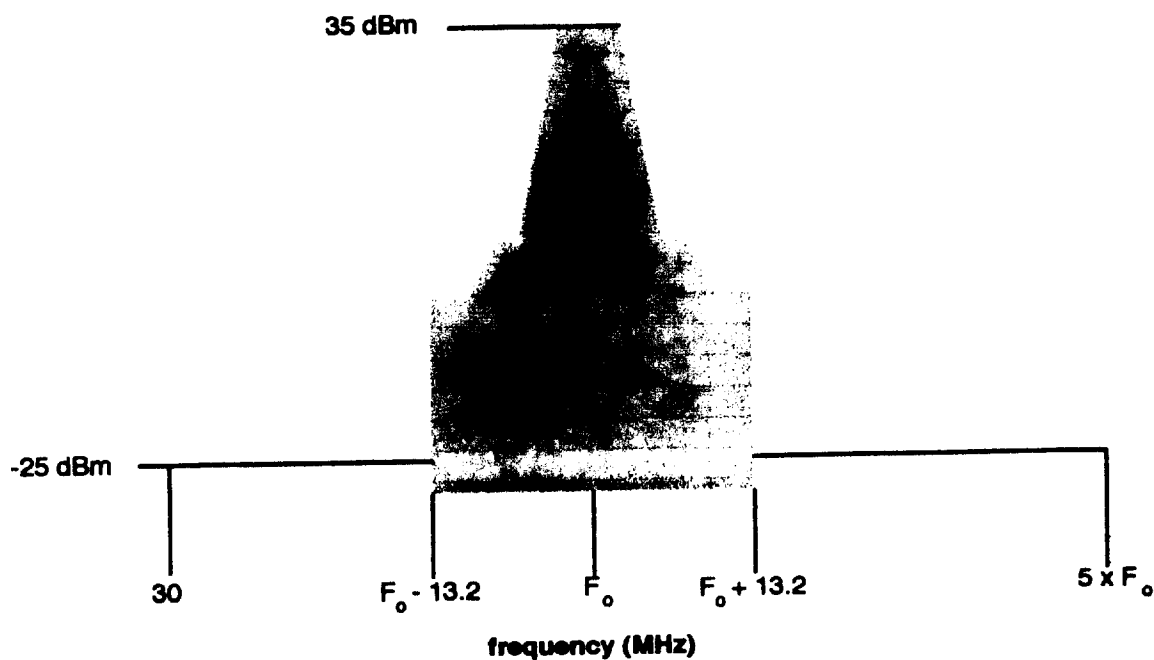
2033 to 2274 MHz Frequency Allocations

Channel	Sub-Channel	Forward (MHz)	Reverse (MHz)	Tx/Rx Spacing
1	A	2208.25	2033.25	175
	B	2211.75	2036.75	175
	C	2215.25	2040.25	175
	D	2218.75	2043.75	175
2	A	2222.25	2047.25	175
	B	2225.75	2050.75	175
	C	2229.25	2054.25	175
	D	2232.75	2057.75	175
3	A	2236.25	2061.25	175
	B	2239.75	2064.75	175
	C	2243.25	2068.25	175
	D	2246.75	2071.75	175
4	A	2250.25	2075.25	175
	B	2253.75	2078.75	175
	C	2257.25	2082.25	175
	D	2260.75	2085.75	175
5	A	2264.25	2089.25	175
	B	2267.75	2092.75	175
	C	2271.25	2096.25	175
	D	2274.75	2099.75	175

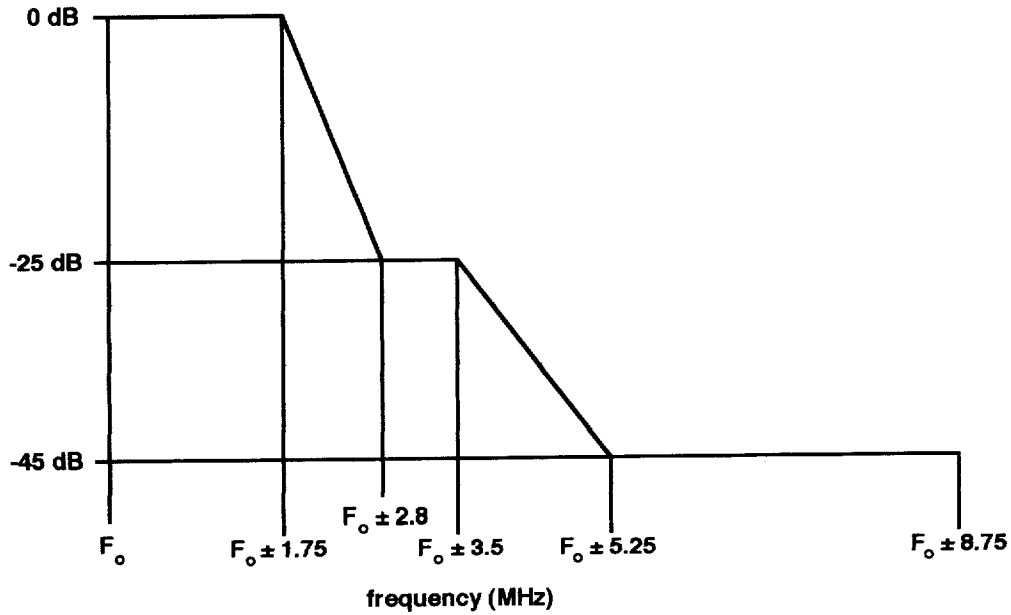
Spectral Mask for Transmission 2.1 to 27 GHz



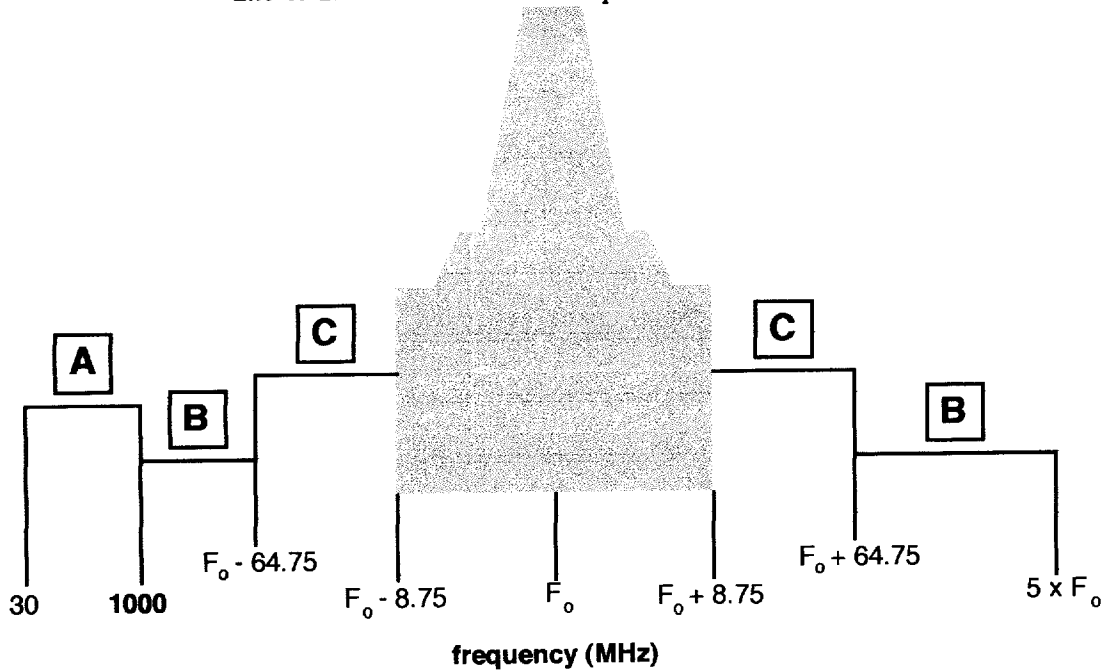
2.1 to 27 GHz Transmitter Spurious Emissions



Spectral Mask for Transmission
2.0 to 2.3 GHz



2.0 to 2.3 GHz Transmitter Spurious Emissions



Necessary Bandwidth & Frequency Interference Mitigation

The majority of the signal lies within a 3.5 MHz spectrum and within the spectral masks as shown on pages 4 and 5 of this Exhibit, Item 4 (a), (g). Channel spacing is as follows:

- 2.1 to 2.2 GHz: channel spacings of 3.5 GHz
- 2.1 to 2.3 GHz: channel spacings of 2.7, 3.5, and 4.3 MHz
- 2.5 to 2.7 GHz: channel spacings of 2.7, 3.5, and 4.3 MHz

Because the system employs CDMA technology, the coding will prevent any interference from affecting L-3 Comm's signals except for a noise floor increase. While L-3 Comm has observed no interfering signals at exactly its operating frequencies, the system has the capability to select another of the four sub-channel frequencies should a problem arise.

Exhibit 2
Geographic Coordinates

Field testing of up to 150 subscriber units (SUs) will be geographically separated at various locations from 100 meters to 63 kilometers from the radio base unit (RBU) antenna which will be located on Building D of the L-3 Comm facility at 322 North 2200 West, Salt Lake City, Utah. The exact location of the RBU antenna is: 40° 46' 39" N, 111° 57' 07" W.

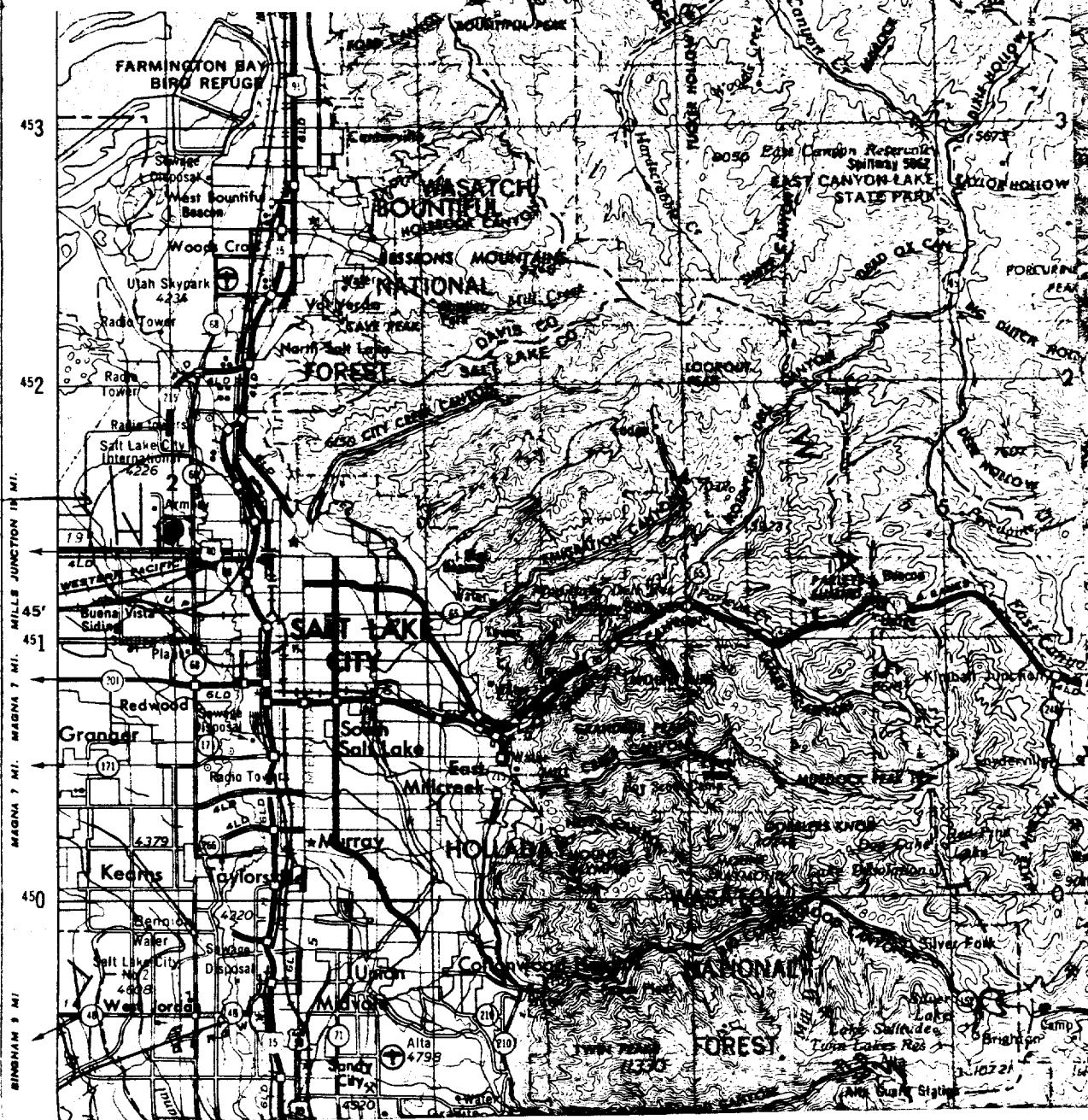
The SUs will be tested in a range within the following coordinates:

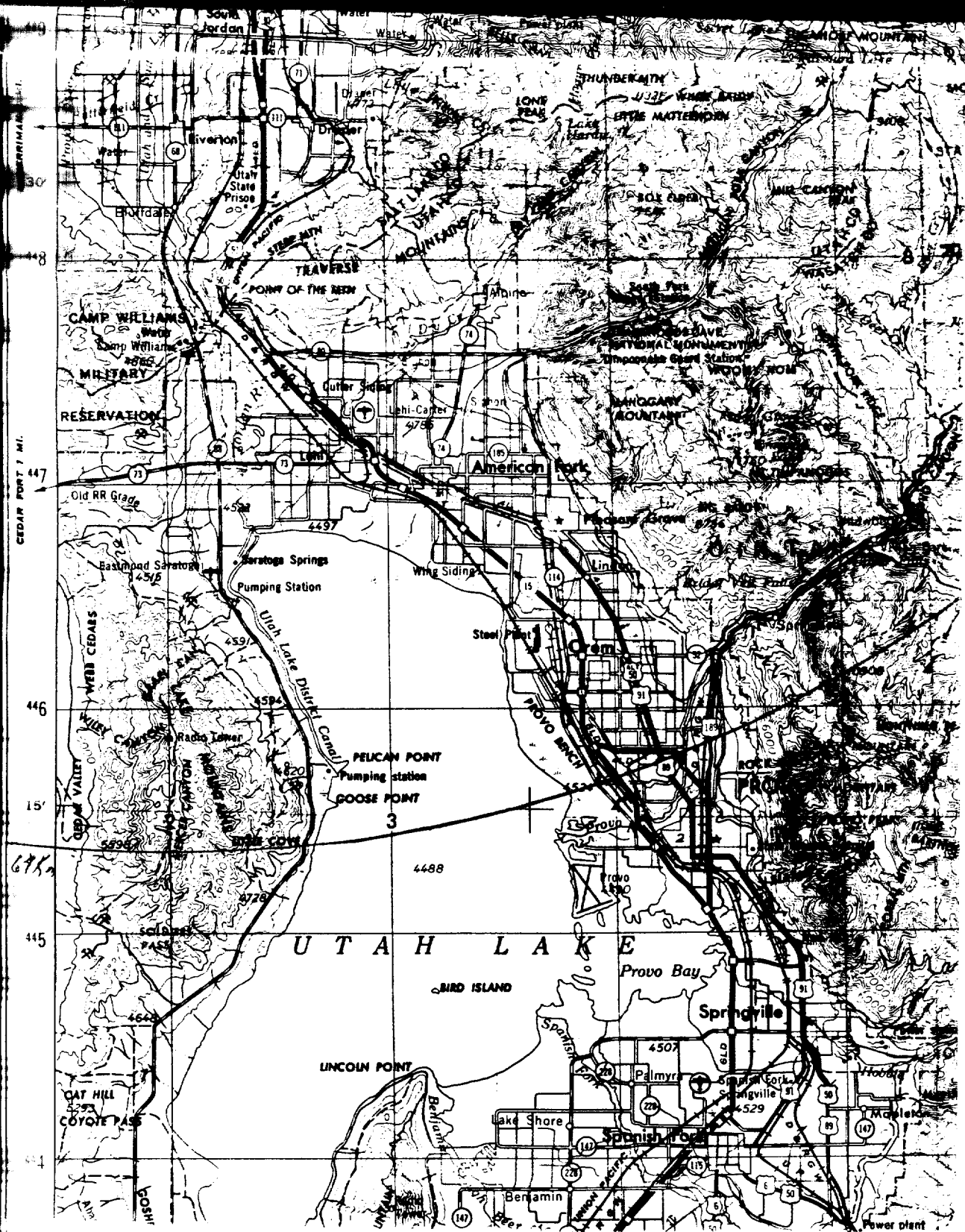
40° 29' N to 41° 13' N

111° 42' W to 112° 11' W

A map of the testing area is included in this Exhibit 2.

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Item 5 (b) (1)
Attachment/Exhibit 2







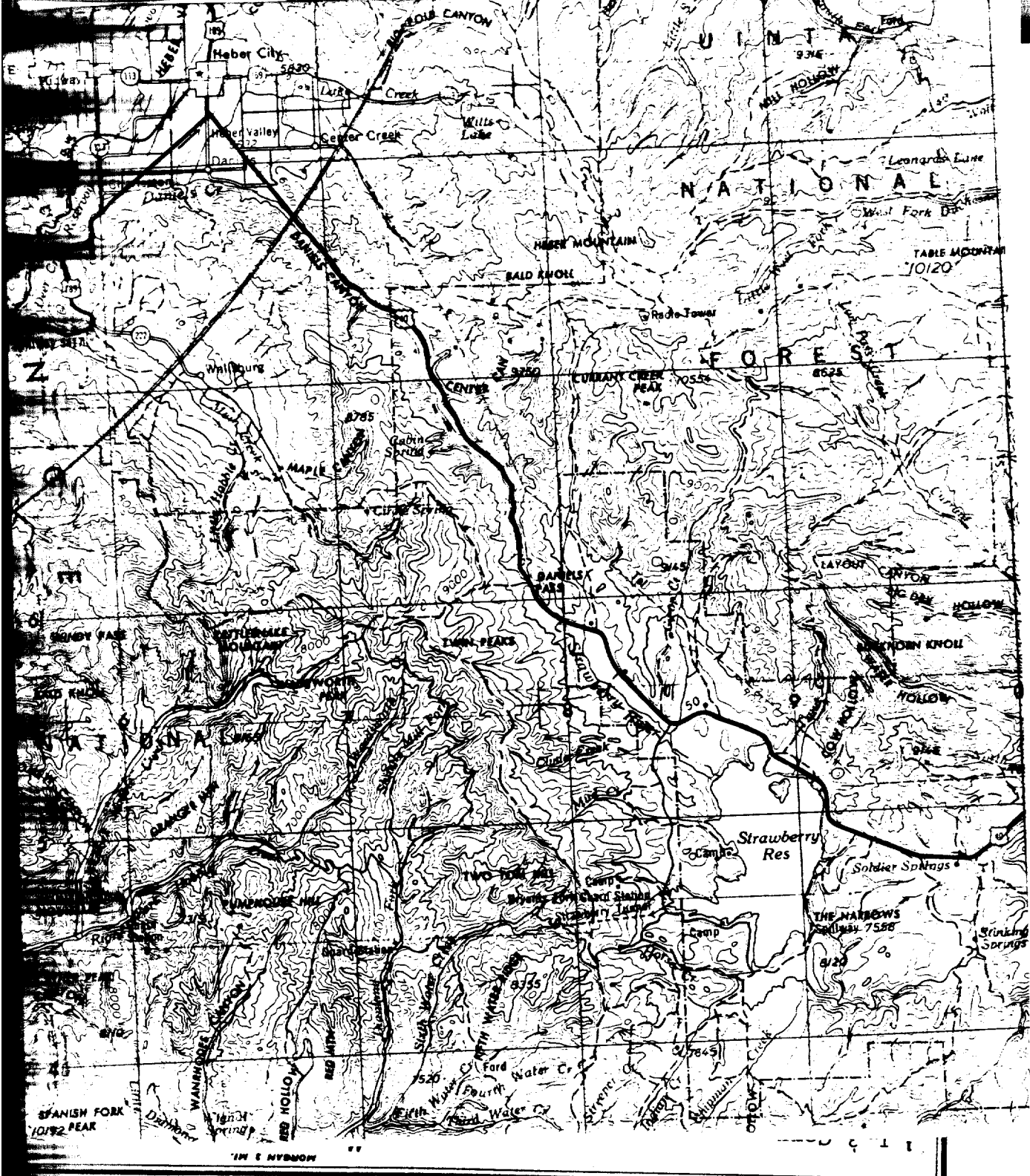


Exhibit 3 Antenna Specifications

The RBU is capable of operation with a family of omni-directional antennas to support a particular requirement. The antenna configurations include left hand circularly polarized (LHCP) and 60°, 90°, and 120° azimuth RBU sectored antennas to improve performance within a particular frequency band. The width of the beam at the half-power point is $\pm 5^\circ$ elevation at the RBU at $\pm 180^\circ$ azimuth, $\pm 90^\circ$ azimuth, $\pm 60^\circ$ azimuth, $\pm 45^\circ$ azimuth, and $\pm 10^\circ$ azimuth and elevation for the SUs. These antenna characteristics for specific requirements are listed below.

Antenna Type	Operating Frequency	Polarization	Parameters		
			Gain (dBic, Min.	Max. Gain Variation (dB)	-3 dB Beamwidth (degrees)
Subscriber Unit (ETSI, Low Band, High Band)	2.0 – 2.7 GHz	RHCP	18	<u>+2 dB</u>	22 Degrees minimum in azimuth
Radio Base Unit (ETSI)	2.025 to 2.290 GHz	RHCP	8	<u>+2 dB</u>	Omnidirectional in azimuth and 10 degrees in elevation
(Low Band)	2.1 to 2.3 GHz	RHCP	8	<u>+2 dB</u>	Omnidirectional in azimuth and 10 degrees in elevation
(High Band)	2.484 to 2.688 GHz	RHCP	8	<u>+2 dB</u>	Omnidirectional in azimuth and 10 degrees in elevation

The location of the SUs during full power tests will be at various locations from within a four (4) km to 63 km range from the RBU. To ensure the required line of sight operation, these location will be concentrated along the east bench of the Wasatch Mountains and the foothills of the Oquirre Mountains.

The RBU antenna will be located on the roof of Building D of the L-3 Comm facility located at 322 North 2200 West in Salt Lake City and be approximately 43 feet off the ground. The SUs will be

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positioned at elevations above interfering structures on the sides of building or on tripods in remote locations with line of sight to the RBU during manned tests of short duration.

Exhibit 4 Narrative Statement

L-3 Communications Systems West ("L-3 Comm" or "Applicant") intends to conduct experimental research on the performance of its 2.0 to 2.7 GHz Fixed Wireless Local Loop (FWLL) System. Based on a point to multipoint architecture using synchronous Code Division Multiple Access (CDMA) technology, the system will provide full duplex telephony and X.21 data with high link quality. The transmitted signal is a direct sequence spread spectrum QPSK signal with a capability of up to 127 channels.

The system is intended for use outside of the US, but needs proof of concept demonstration and acceptance testing at the Applicant's site in Salt Lake City. During the testing and demonstration, L-3 Comm will conduct operational parameter tests to ensure that the components of the system will provide voice and data at expected times. 150 subscriber units (SUs) will be needed to ensure that the system is capable of accommodating various antenna and system configurations. The system will operate with a forward link near 2652 MHz and a return link near 2533 MHz or 2000 MHz to 2300 MHz. Maximum average transmit power will be four (4) watts.

Testing will verify design specifications and demonstrate performance at a system level in a real wireless environment. L-3 Comm will complete the wireless loop, measuring sensitivity and maximum range of operation, the effect on performance of multiple users and, in particular, the number of users approaching the system's limit. Additionally, simultaneous operation of two (2) radio base units (RBUs) in the same or unique frequency bands will be tested.

The system will not interfere with other spectrum users since the Applicant's site is located in a valley which limits emissions to a small geographic area. Additionally, spread spectrum transmission techniques will be utilized which minimize peak output power. In the event that interference does occur, L-3 Comm's product can be easily modified by changing the channels on the system through the programming of the base station and subscriber units.

This program has a reasonable promise of contributing to the development of communication technology. Fixed Wireless Loop (FWL) technology can be useful in areas where wireline facilities would be too expensive or difficult to install. Potential applications of this technology include connection of subscribers in rural areas where FWL may be more cost-effective than a wireline alternative, and connection of subscribers awaiting fiber installation. Research and development of L-3 Comm's product will thus provide a valuable contribution to the radio art.

This request for and Experimental Radio License is for the testing of a product to be exported only. It is not intended for use in the United States.