

# Notes

## Physical Optics

### FCC Experimental License Application

1654-EX-ST-2017

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## 1 Additional Radar Information

During the course of this experiment an upgrade to the radar is planned. The table below shows the specifications for the original and upgraded units.

Specification	Original System	Upgraded System
Frequency Range	15400 - 15700 MHz	15400 - 15700 MHz
F <sub>0</sub>	15550 MHz	15550 MHz
BW	300 MHz	300 MHz
Duty Cycle	100% duty cycle. (transmit is always on). <ul style="list-style-type: none"><li>• Upchirp 82%</li><li>• Downchirp 9%.</li><li>• Settling time 11%</li></ul>	82% (The transmit will be shutoff during the downchirp)
LFM	1 ms pulsewidth	0.25 ms pulsewidth. (4KHz PRF)
Power amplifier Transmit Power	1.6 W (32 dBm)	2.0 W (33 dBm)
Cable losses	2 dB	2 dB
Antenna Directivity	16 dB	6-8 dB
Antenna efficiency	0.5 (-3 dB)	0.5 (-3 dB)
Antenna Gain	13 dB	3-5 dB
EIRP	43 dBm (20W) (32-2+13) +44 dBm max = 25W	37 dBm (5W) (33 - 2 + 5 + 1 (for margin))