Beam Characteristics and Calculations						
Multiple lasers for FAA reference						
Make and Model	**KVANT Spectum 33**	**KVANT Clubmax 6000**				
Quantity in this configuration:	4	8				
Mode of operation:	Continuous wave	Continuous wave				
a. Laser and beam characteristics						
Laser type:	Diode (DPSS)	Diode (DPSS and OPSL)				
Laser hazard class	Class 4	Class 4				
Maximum Power Watts (W)	6	33				
Pulse energy *Joules (J)*	*(not applicable)*	*(not applicable)*				
Pulse duration *Seconds (s)*	*(not applicable)*	*(not applicable)*				
Beam diameter at 1/e points *Centimeters (cm)*	0.06	0.045				
Beam divergence 1/e at full angle *Milliradians (mrad)*	0.75	0.63				
Wavelength(s) *Nanometers (nm)*	445, 460, 532, 577, 637	445, 520, 637				
b. Maximum permissible exposure (MPE) values (used to calculate the NOHD)						
Pre-corrected power (PCP) Watts (W)	33	6				
Visual Correction Factor (VCF) *Used FAA AC 70-1 Table 3*	0.4796	0.2707				
Visually Corrected Power *See FAA AC 70-1*	15.83	1.62				
14. Protection distances	**Slant range (feet)**	**Slant range (feet)**				
a. NOHD (based on MPE value)	5,619	2,891				
b. SZED (for 100 µW/cm2)	19,231	7,591				
c. CZED (for 5 µW/cm2)	85,951	33,928				
d. LFED (for 50 nW/cm2)	859,744	339,372				
Please refer to the FAA Laser Configuration Worksheet for values based on this show's horizontal and veriticl distances.						
Appendix A: Correction factors used						
Laser 1: Spectrum 33						
Wavelength (nm)	FAA AC 70-1 nm used	Power (W)	Correction Factor	Weighted		
637	635	7	0.2202	1.5414		
577 OPSL	575	5	0.9110	4.555		
532 OPSL	535	10	0.9073	9.073		
460 +445	460	11	0.0599	0.6589		
		33		**0.4796**	Corrected	
				15.83	Corrected power (W)	
Laser 1: Spectrum 33						
Wavelength (nm)	FAA AC 70-1 nm used	Power (W)	Correction Factor	Weighted		
637	635	1.36	0.2202	0.299472		
520	520	1.8	0.7092	1.27656		
445	445	3	0.0305	0.0915		
		6.16		**0.2707**	Corrected	
				1.67	Corrected power (W)	