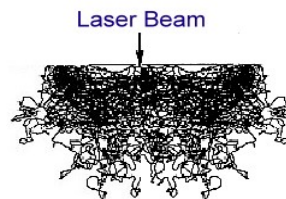


## Low Level Laser Therapy (LLLT) Protocol Calculation: Dose-Time Table

Condition:	<b>Alopecia</b>		
LD Wavelength:	<b>655 ~ 660 nm</b>		
LD Power:	P	<b>17.3 ~ 250 mW</b>	
Frequency:	Continuous		
Target Dose:	D	3 J/cm <sup>2</sup>	Bald Area
		1.5 J/cm <sup>2</sup>	Risky Area
		0.5 J/cm <sup>2</sup>	Normal Area
Treatment Sessions:	3	Time/Week (1st 4 weeks)	
	2	Time/Week (After 4 weeks)	
Power Density:	I	I (W/cm <sup>2</sup> ) = P (mW) / 1000 / A (cm <sup>2</sup> )	
Irradiated Energy:	E	E (Joule) = P (mW) / 1000 x T (Second)	
Cal. Treatment Time:	Tc	<b>Tc (Second) = D (J/cm<sup>2</sup>) x A (cm<sup>2</sup>) / P (mW) x 1000</b>	

The Monte Carlo method for simulating photon migration in biological tissue



<b>Device:</b>		<b>Aculas-HB-850A</b>								
<b>LD Wavelength:</b>		<b>660 nm</b>								
<b>LD Power:</b>		<b>100 mW</b>								
<b>Energy Irradiated in 15 Minutes:</b>		<b>90 Joule</b>								
<b>Estimated Scalp Area:</b>		<b>150 cm<sup>2</sup></b>								
Area	Scalp Area		Laser Effective Area	CW Power	Power Density	Target Dosage	Target Energy	Calculated Treatment Time		Calculated Total Treatment Time
	%	(cm <sup>2</sup> )	A	P	I	D	E	Tc	Ta	
Bald	25%	37.5	22	100	0.00455	3	113	660	11.0	18.8
Risky	25%	37.5	22	100	0.00455	1.5	56	330	5.5	9.4
Normal	50%	75.0	22	100	0.00455	0.5	38	110	1.8	6.3
<b>Total Treatment Time</b>										<b>34.4</b>

<b>Device:</b>		<b>Aculas-HB-850B</b>								
<b>LD Wavelength:</b>		<b>660 nm</b>								
<b>LD Power:</b>		<b>250 mW</b>								
<b>Energy Irradiated in 15 Minutes:</b>		<b>225 Joule</b>								
<b>Estimated Scalp Area:</b>		<b>150 cm<sup>2</sup></b>								
Area	Scalp Area		Laser Effective Area	CW Power	Power Density	Target Dosage	Target Energy	Calculated Treatment Time		Calculated Total Treatment Time
	%	(cm <sup>2</sup> )	A	P	I	D	E	Tc	Ta	
Bald	25%	37.5	22	250	0.01136	3	113	264	4.4	7.5
Risky	25%	37.5	22	250	0.01136	1.5	56	132	2.2	3.8
Normal	50%	75.0	22	250	0.01136	0.5	38	44	0.7	2.5
<b>Total Treatment Time</b>										<b>13.8</b>

<b>Device:</b>		<b>HairMax</b>								
<b>LD Wavelength:</b>		<b>655 nm</b>								
<b>LD Power:</b>		<b>17.3 mW</b>								
<b>Energy Irradiated in 15 Minutes:</b>		<b>15.57 Joule</b>								
<b>Estimated Scalp Area:</b>		<b>150 cm<sup>2</sup></b>								
Area	Scalp Area		Laser Effective Area	CW Power	Power Density	Target Dosage	Target Energy	Calculated Treatment Time		Calculated Total Treatment Time
	%	(cm <sup>2</sup> )	A	P	I	D	E	Tc	Ta	
Bald	25%	37.5	0.42	17.3	0.04119	3	113	73	1.2	108.4
Risky	25%	37.5	0.42	17.3	0.04119	1.5	56	36	0.6	54.2
Normal	50%	75.0	0.42	17.3	0.04119	0.5	38	12	0.2	36.1
<b>Total Treatment Time</b>										<b>198.7</b>