

Mitochondriak® Maxi UVB infrared panel

Spectral measurement, flicker and EMF · 28 October 2026 · Protocol **ML-2026-10-MAXI-UVB**

Measurement date	28 October 2026
Performed by	Mitochondriak® Lab, Easy Light s.r.o., Slovakia
Device	Mitochondriak® Maxi UVB infrared panel · 300 LEDs · 910 × 298 × 65 mm · 9 wavelengths 295–850 nm
Mode	RED/NIR and UV + blue on, full intensity, no pulsing
Instruments	certified OHSP-350UVF spectrometer (230–900 nm, 1 nm steps), second certified spectrometer UPRtek CV600 with calibration certificate (380–780 nm, 1 nm steps), TES 1333 solar meter (400–1,100 nm), Cornet ED88 electrosmog meter and triple EMF meter
Distances from the panel face	30, 50, 70 and 100 cm (recommended distance in use: 50 to 60 cm)
Power supply	mains 230 V / 50 Hz
Units	irradiance in mW/cm ² (1 mW/cm ² = 10 W/m ²), spectral irradiance in mW/m ² /nm

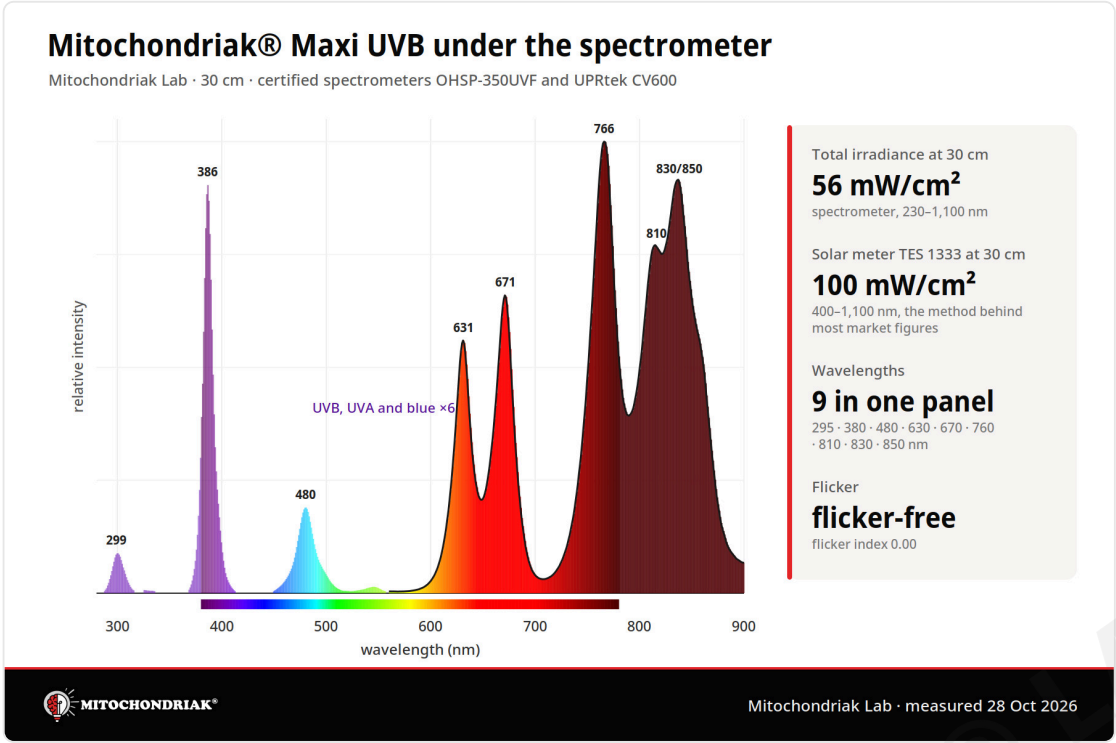
Summary

The Mitochondriak® Maxi UVB infrared panel emits 9 wavelengths from UVB to the near infrared. The spectrometers measured peaks at 299, 386, 480, 631, 671 and 766 nm and, in the infrared, at 816, 838 and 850 nm. At 30 cm the total irradiance is 56 mW/cm² (certified spectrometers, 230–1,100 nm); the TES 1333 solar meter reads 100 mW/cm² at the same point. Of this, 18 mW/cm² is red (600–700 nm) and 36 mW/cm² near infrared (700–1,100 nm). UVB peaking at 299 nm reaches 78 µW/cm², corresponding to a UV index of 19. At the recommended distance of 50 cm the total irradiance is 49 mW/cm² and the UV index 18. The light is virtually flicker-free (flicker index 0.00) and from 30 cm the electromagnetic field is at background level (0.1 µT, 0 V/m).

Key results

Parameter	30 cm (market reference point)	50 cm (recommended distance)
Total irradiance 230–1,100 nm certified spectrometers OHSP-350UVF and UPRtek CV600; the part above 900 nm calculated from the spectrum	56 mW/cm ²	49 mW/cm ²
TES 1333 solar meter, 400–1,100 nm the method behind most irradiance figures on the market	100.4 mW/cm ² (1,004 W/m ²)	78.8 mW/cm ²
Red 600–700 nm	18.2 mW/cm ²	17.4 mW/cm ²
Near infrared 700–1,100 nm the 900–1,100 nm part calculated from the spectrum	35.8 mW/cm ²	29.7 mW/cm ²
UVB 280–315 nm (peak 299 nm)	78 µW/cm ²	74 µW/cm ²
UVA 315–400 nm (peak 386 nm)	0.84 mW/cm ²	0.66 mW/cm ²
Blue 400–500 nm (peak 480 nm)	0.57 mW/cm ²	0.66 mW/cm ²
UV index calculated from the spectrum using the CIE erythema action spectrum (ISO 17166)	19	18
Time to 1 standard erythema dose (1 SED) SED = 100 J/m ² of erythemally weighted UV	approx. 3.4 min	approx. 3.7 min
Flicker UPRtek CV600; OHSP-350UVF: modulation depth 0.0 % – virtually flicker-free	flicker index 0.00 · percent flicker 1.78 %	flicker index 0.00 · percent flicker 1.78 %
Magnetic field Cornet ED88, LF600	0.1 µT (1 mG) – background level	0.1 µT (1 mG) – background level
Electric field · radio-frequency radiation triple EMF meter	0 V/m · 0.000 mW/cm ²	0 V/m · 0.000 mW/cm ²

Spectrum at 30 cm

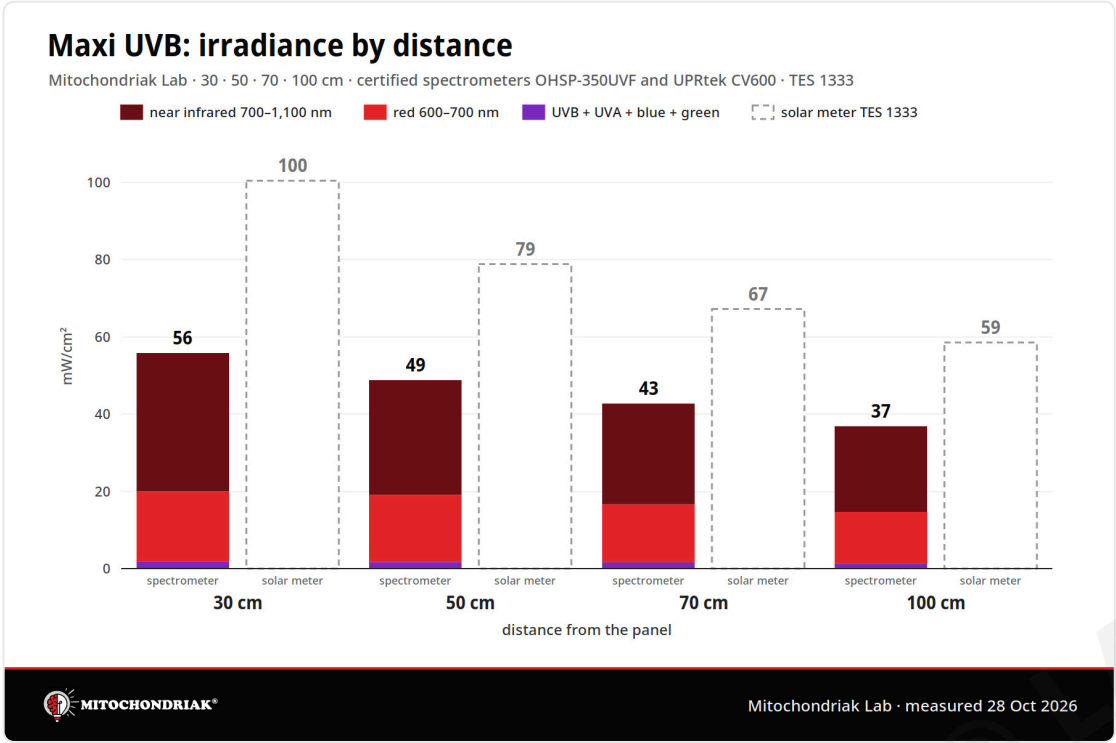


Spectrum of the Mitochondriak® Maxi UVB at 30 cm, OHSP-350UVF, 280–900 nm, normalised; UVB, UVA and blue region magnified 6×.

Wavelengths

Band	LED type	Measured peak (OHSP-350UVF)	Full width at half maximum
UVB	295 nm	299 nm	14 nm
UVA	380 nm	386 nm	12 nm
blue	480 nm	480 nm	22 nm
red	630 nm	631 nm	22 nm
red	670 nm	671 nm	24 nm
near infrared	760 nm	766 nm	31 nm
near infrared	810 nm	816 nm	shared band 800–880 nm
near infrared	830 nm	838 nm	shared band 800–880 nm
near infrared	850 nm	850 nm	shared band 800–880 nm

Irradiance by distance

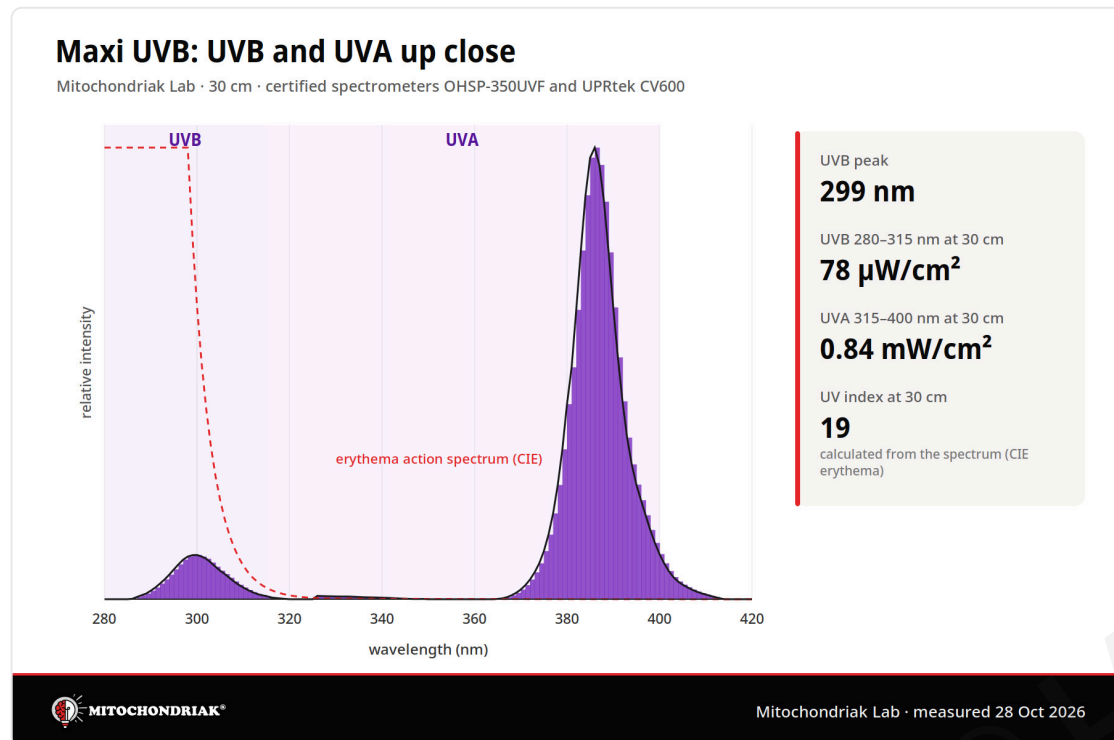


Total irradiance by distance: coloured bars = certified spectrometers (split into bands), dashed bars = TES 1333 solar meter.

Quantity	30 cm	50 cm	70 cm	100 cm
Total irradiance 230–1,100 nm (mW/cm²)	56	49	43	37
TES 1333 solar meter, 400–1,100 nm (mW/cm²)	100.4	78.8	67.2	58.5
Red 600–700 nm (mW/cm²)	18.2	17.4	15.0	13.3
Near infrared 700–1,100 nm (mW/cm²)	35.8	29.7	26.1	22.2
UVB 280–315 nm (µW/cm²)	78	74	56	39
UVA 315–400 nm (mW/cm²)	0.84	0.66	0.54	0.49
Blue 400–500 nm (mW/cm²)	0.57	0.66	0.71	0.63
UV index (CIE, calculated from the spectrum)	19	18	14	10
UPRtek CV600, 380–780 nm (mW/cm²)	28.1	25.2	23.9	18.9

Spectrometer values are the mean of two OHSP-350UVF measurements at each distance; the UPRtek CV600 covers 380–780 nm and confirms the OHSP-350UVF results in the shared range (30 cm: 28.1 vs 27.3 mW/cm²).

UVB and UVA



UVB peaking at 299 nm and UVA peaking at 386 nm at 30 cm; red dashed curve = CIE erythema action spectrum.

UVB peaking at 299 nm lies in the range in which the skin forms previtamin D3 most efficiently (CIE 174:2006 action spectrum, maximum around 295–300 nm). At 30 cm it reaches 78 $\mu\text{W}/\text{cm}^2$ and a UV index of 19; one standard erythema dose (1 SED) corresponds to approx. 3.4 minutes.

Mitochondriak® recommended routine: a 30-second photosensitivity test, then gradually from 1 minute on one area of the body (not the face) up to 5 minutes, recommended distance 50 to 60 cm, protective goggles, and UV always together with RED/NIR.

Flicker and electromagnetic field

0.00

flicker index

1.78 %

percent flicker (UPRtek CV600)

The UPRtek CV600 measured a flicker index of 0.00 and percent flicker of 1.78 % at all four distances. The OHSP-350UVF in flicker mode (50 kHz sampling) recorded a flat line with a modulation depth of 0.0 %. Result: virtually flicker-free, far below the low-risk threshold of IEEE 1789.

0.1 µT

magnetic field at 30 cm

0 V/m

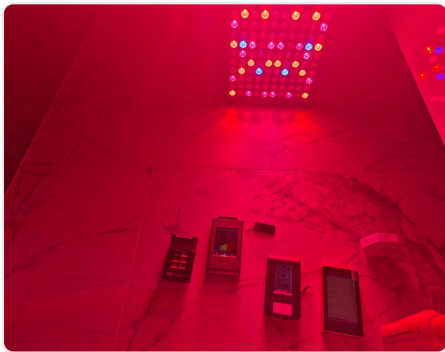
electric field

At 30 cm the Cornet ED88 (LF600) showed 0.1 µT (1 mG), the normal background level of a household. The triple EMF meter showed 0.4 mG at 15 cm, an electric field of 0 V/m and radio-frequency radiation of 0.000 mW/cm². From 30 cm the device's electromagnetic field is at background level.

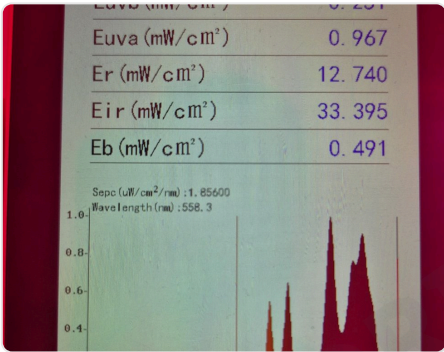
Comparison with the sun

On 28 October 2026 at 14:20 the same TES 1333 solar meter measured 915.6 W/m² (91.6 mW/cm², 400–1,100 nm) in direct sunlight. Based on the shape of the ASTM G173 reference solar spectrum, approx. 56 mW/cm² of this falls in the 600–1,100 nm range. At 30 cm the Maxi UVB delivers 54 mW/cm² in the same range – a dose of red and near-infrared light comparable to the October afternoon sun.

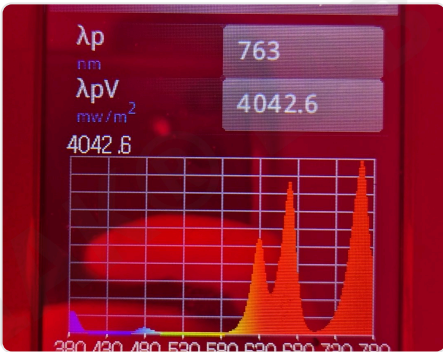
Display photographs



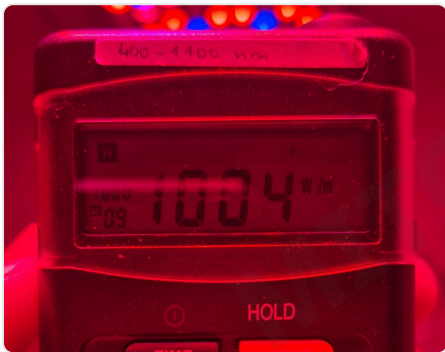
Measurement setup: Maxi UVB and the Mitochondriak® Lab instruments.



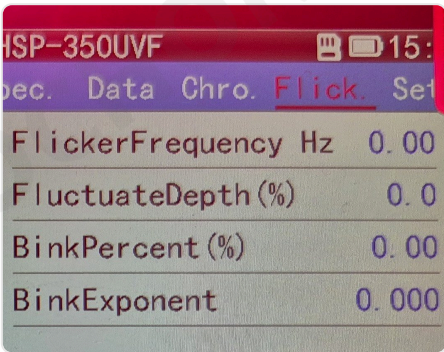
OHSP-350UVF at 30 cm.



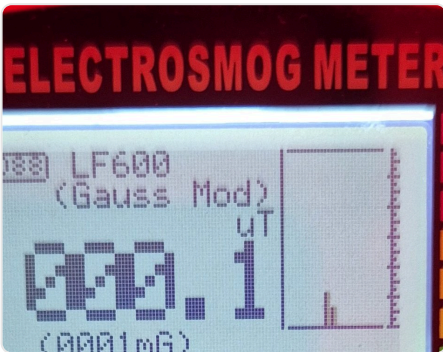
UPRtek CV600 at 30 cm.



TES 1333 solar meter at 30 cm: 1,004 W/m².



Flicker: OHSP-350UVF at 30 cm, modulation depth 0.0 %.



Cornet ED88 at 30 cm: 0.1 µT.

Data and citation

Full data in 1 nm steps (CSV, both spectrometers, 4 distances):

<https://mitochondriak-media.fsn1.your-objectstorage.com/products/maxi-uvb/measurements/mitochondriak-maxi-uvb-spectrum-data.csv>

Citation: Mitochondriak® Lab (2026). Mitochondriak® Maxi UVB infrared panel – measurement protocol ML-2026-10-MAXI-UVB, 28 October 2026. www.mitochondriak.com. Citation with attribution permitted.

Methodology

- Spectra:** certified OHSP-350UVF spectrometer (230–900 nm) and a second certified spectrometer, UPRtek CV600, with calibration certificate (380–780 nm), both in 1 nm steps, sensor perpendicular to the panel face on its axis. Two OHSP-350UVF measurements at each distance; the tables show their mean and, at 30 cm, also the range depending on sensor position in front of individual LEDs.
- Band irradiance:** $E = \sum E(\lambda) \cdot \Delta\lambda$, $\Delta\lambda = 1$ nm (UVB 280–315 nm, UVA 315–400 nm, blue 400–500 nm, green 500–600 nm, red 600–700 nm, near infrared 700–1,100 nm). The 900–1,100 nm part is calculated from the exponential course of the NIR LED spectrum between 870 and 900 nm.
- UV bands:** UVB and UVA are evaluated from the OHSP-350UVF spectrum after subtracting the instrument background (linear baseline 285–325 nm under the 299 nm peak, and the 340–360 nm level for UVA). The instrument display shows the sum without background subtraction (Eu_{vb} 0.25 mW/cm²); the protocol gives the net value.
- UV index:** $UVI = 40 \text{ m}^2/\text{W} \cdot \sum E(\lambda) \cdot s_{\text{er}}(\lambda) \cdot \Delta\lambda$, where s_{er} is the CIE erythema action spectrum (ISO 17166). 1 SED = 100 J/m² of erythemally weighted dose.
- The TES 1333 solar meter** is calibrated to the solar spectrum. With narrow LED bands it reads 1.6–1.8× higher than the spectral integral of the spectrometers; we give both values so they can be compared with market figures and with the spectral reality.
- Flicker:** UPRtek CV600 (flicker index and percent flicker), OHSP-350UVF in flicker mode (50 kHz sampling), with the panel's pulsing switched off.
- EMF:** magnetic field with the Cornet ED88 (LF600, µT/mG), triple EMF meter (magnetic field, electric field in V/m, radio-frequency radiation in mW/cm²).

Spectral table (5 nm steps, mW/m²/nm; UV range after subtracting the instrument background)

nm	OHSP 30 cm	OHSP 50 cm	OHSP 70 cm	OHSP 100 cm	UPRtek 30 cm
280	0.0	0.0	0.0	0.0	
285	0.0	0.0	0.0	0.0	
290	10.1	8.8	6.6	3.6	
295	37.9	35.6	26.5	20.2	
300	56.6	54.3	42.2	30.1	
305	35.0	35.4	26.6	17.8	
310	13.6	12.1	9.5	5.0	
315	3.0	2.1	1.7	0.0	
320	0.0	0.0	0.0	0.0	
325	0.0	0.0	0.0	0.0	
330	4.8	4.9	4.3	3.5	
335	4.5	3.8	3.1	2.7	
340	2.9	2.0	1.9	2.0	
345	1.0	1.1	1.3	1.0	
350	0.0	0.0	0.0	0.0	
355	0.0	0.0	0.0	0.0	
360	0.0	0.0	0.0	0.0	
365	0.0	0.0	0.0	0.0	
370	14.2	11.5	9.2	8.1	
375	77.2	62.4	51.5	45.6	
380	295.0	229.8	190.8	169.1	482.2
385	652.7	505.9	420.9	377.9	500.5
390	433.9	334.0	277.2	247.9	361.8
395	174.6	134.9	111.7	99.5	173.3
400	90.6	73.8	62.5	55.2	79.2
405	42.4	35.6	30.4	27.3	34.4
410	26.3	22.3	19.3	17.2	14.2
415	17.2	15.0	13.5	11.8	7.1
420	14.3	12.5	11.6	9.7	3.5
425	12.9	11.8	10.9	9.5	0.8
430	12.7	12.0	10.9	9.9	0.9
435	13.8	13.0	12.2	10.4	1.2
440	15.8	15.2	14.2	12.2	2.1
445	18.8	18.7	17.5	15.1	5.0
450	23.1	23.4	23.2	20.2	8.8
455	30.2	32.7	33.2	29.1	16.0
460	42.1	47.9	50.3	43.7	30.1
465	60.3	72.0	78.0	68.2	54.1
470	94.7	117.2	130.8	114.5	90.9
475	149.5	186.8	213.3	188.2	129.1
480	177.9	223.6	257.0	227.5	135.3
485	142.4	179.3	204.4	180.6	106.8

nm	OHSP 30 cm	OHSP 50 cm	OHSP 70 cm	OHSP 100 cm	UPRtek 30 cm
490	95.9	119.8	134.0	117.5	74.1
495	70.9	87.5	96.3	83.7	50.9
500	53.4	64.4	69.4	60.1	34.0
505	37.9	43.8	46.6	40.2	21.1
510	27.9	31.1	32.0	28.1	14.0
515	23.2	24.8	24.9	21.8	9.4
520	21.1	21.1	20.9	18.4	5.9
525	19.8	18.7	18.1	15.8	3.0
530	20.1	17.8	16.7	14.9	3.8
535	21.5	18.5	17.2	15.3	2.2
540	23.9	19.9	18.2	16.3	2.0
545	25.1	20.7	19.0	16.9	1.2
550	22.8	18.5	17.1	15.1	3.2
555	19.3	16.2	14.9	13.0	2.0
560	18.2	15.1	14.0	12.4	2.7
565	17.4	15.2	13.9	12.4	3.5
570	17.8	16.4	15.0	13.4	7.4
575	20.1	19.5	18.0	15.9	11.3
580	24.8	25.0	23.8	20.8	20.4
585	33.9	35.7	34.1	30.1	35.6
590	50.3	53.8	51.8	45.8	60.4
595	79.2	86.0	83.6	73.8	104.7
600	130.7	141.3	137.4	122.4	179.1
605	224.4	239.6	235.2	210.0	304.5
610	388.4	415.5	408.1	366.4	516.9
615	683.9	735.0	720.7	648.6	873.7
620	1,166.1	1,260.5	1,233.8	1,111.3	1,395.5
625	1,900.9	2,058.4	2,013.8	1,812.7	1,997.7
630	2,601.9	2,822.9	2,754.0	2,473.1	2,210.8
635	2,311.0	2,505.7	2,421.0	2,160.7	1,713.8
640	1,581.6	1,670.9	1,573.7	1,398.5	1,109.1
645	1,274.3	1,275.8	1,144.9	1,013.5	949.0
650	1,338.0	1,266.7	1,075.3	947.4	1,179.2
655	1,792.0	1,637.7	1,338.9	1,176.2	1,686.6
660	2,541.4	2,295.4	1,848.7	1,624.7	2,427.7
665	3,660.1	3,284.3	2,633.5	2,313.8	3,232.0
670	4,736.2	4,233.2	3,387.6	2,968.4	3,514.6
675	4,288.4	3,834.6	3,048.2	2,666.4	2,672.1
680	2,773.7	2,476.6	1,963.7	1,715.9	1,414.9
685	1,597.0	1,418.2	1,124.7	979.7	629.0
690	865.5	761.5	603.3	523.1	277.5
695	470.8	409.0	324.1	280.7	142.2
700	280.5	240.1	192.6	168.2	101.4
705	195.0	164.5	135.5	119.0	99.4
710	163.5	134.2	113.0	100.5	123.9
715	162.9	128.1	111.6	99.7	170.5
720	189.1	139.9	125.2	111.7	248.8
725	243.2	171.2	155.2	138.7	366.0
730	331.9	224.2	203.9	183.4	550.0
735	475.9	313.0	285.1	256.7	806.8
740	686.0	449.8	408.1	365.4	1,188.7
745	999.7	655.4	594.3	533.5	1,706.5
750	1,428.1	945.8	857.0	770.0	2,380.7
755	1,946.8	1,297.7	1,178.6	1,061.3	3,155.2
760	2,563.4	1,718.9	1,567.5	1,414.2	3,859.5
765	2,984.2	2,044.9	1,870.3	1,688.7	3,988.0
770	2,902.5	2,052.8	1,877.9	1,694.8	3,192.6
775	2,311.1	1,697.4	1,535.5	1,369.4	2,144.6
780	1,819.0	1,400.0	1,242.3	1,082.7	1,845.5
785	1,610.8	1,305.0	1,133.5	961.5	
790	1,643.7	1,395.9	1,192.5	989.7	
795	1,849.0	1,604.5	1,360.0	1,117.2	
800	2,221.4	1,952.4	1,646.5	1,345.0	
805	2,742.1	2,423.5	2,047.0	1,670.3	

nm	OHSP 30 cm	OHSP 50 cm	OHSP 70 cm	OHSP 100 cm	UPRtek 30 cm
810	3,281.3	2,906.1	2,460.2	2,004.5	
815	3,425.6	3,026.5	2,568.4	2,095.6	
820	3,240.9	2,825.4	2,410.1	1,975.8	
825	3,155.1	2,696.2	2,315.6	1,911.4	
830	3,325.6	2,802.1	2,417.8	2,015.0	
835	3,553.4	2,989.3	2,599.2	2,176.1	
840	3,489.4	2,969.3	2,598.6	2,179.5	
845	3,096.7	2,688.6	2,370.3	1,993.2	
850	2,766.7	2,462.5	2,183.7	1,842.9	
855	2,576.3	2,341.6	2,085.5	1,767.7	
860	2,377.7	2,178.2	1,957.8	1,663.1	
865	1,928.1	1,795.0	1,613.2	1,372.8	
870	1,398.8	1,314.5	1,183.4	1,014.6	
875	961.3	900.1	818.6	703.1	
880	670.9	626.8	567.3	491.6	
885	491.2	467.3	423.8	362.5	
890	405.7	377.8	335.5	288.4	
895	347.7	321.2	287.3	247.6	
900	326.8	301.5	272.7	234.6	