

S1: Luminaire Preference Rating, China

Scenery: Sun-City

Table S1. Statistical evaluation of the sun-city scenery rating, differences of the mean values $\Delta\bar{x}$, z-score, probability value p , effect power r and quantification of it. If $p < 0.05$, it is bold marked. Participants are summed up in the heading.

Luminaire Setting	Scenery: Sun-City, China, $n = 148$														
	L3					L4					L5				
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
L1	0.182	1.976	4.81×10^{-2}	0.162	weak	0.095	1.022	0.307	not sign.	not sign.	-0.041	-0.581	0.562	not sign.	not sign.
L3	–	–	–	–	–	-0.088	-0.955	0.343	not sign.	not sign.	-0.223	-2.601	9.30×10^{-3}	0.214	weak
L4	–	–	–	–	–	–	–	–	–	–	-0.135	-1.943	5.18×10^{-2}	0.160	weak
L5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Luminaire Setting	L6					L7					L8				
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
L1	-0.318	-2.966	3.02×10^{-3}	0.244	weak	-0.142	-1.273	0.203	not sign.	not sign.	1.236	7.812	5.55×10^{-15}	0.642	strong
L3	-0.500	-4.853	1.22×10^{-6}	0.399	medium	-0.324	-3.000	2.70×10^{-3}	0.247	weak	1.054	7.092	1.32×10^{-12}	0.583	strong
L4	-0.412	-4.280	9.37×10^{-6}	0.352	medium	-0.236	-2.478	1.32×10^{-2}	0.204	weak	1.142	7.168	7.62×10^{-13}	0.589	strong
L5	-0.277	-3.104	1.65×10^{-3}	0.255	medium	-0.101	-0.846	0.398	not sign.	not sign.	1.277	7.457	8.84×10^{-14}	0.613	strong
L6	–	–	–	–	–	0.176	2.165	3.04×10^{-2}	0.178	weak	1.554	8.352	0.00	0.687	strong
L7	–	–	–	–	–	–	–	–	–	–	1.378	8.053	8.88×10^{-16}	0.662	strong
L8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Scenery: Country

Table S2. Statistical evaluation of the country scenery rating, differences of the mean values $\Delta\bar{x}$, z-score, probability value p , effect power r and quantification of it. If $p < 0.05$, it is bold marked. Participants are summed up in the heading.

Luminaire Setting	Scenery: Country, China, $n = 148$														
	L3					L4					L5				
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
L1	-0.054	-0.666	0.515	not sign.	not sign.	0.027	0.285	0.775	not sign.	not sign.	-0.264	-2.431	1.51×10^{-2}	0.200	weak
L3	—	—	—	—	—	0.081	0.810	0.424	not sign.	not sign.	-0.209	-2.562	1.04×10^{-2}	0.211	weak
L4	—	—	—	—	—	—	—	—	—	—	-0.291	-3.390	5.24×10^{-4}	0.279	medium
L5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
L6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
L7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
L8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	L6					L7					L8				
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
L1	-0.345	-3.545	2.89×10^{-4}	0.291	medium	-0.392	-4.108	3.99×10^{-5}	0.338	medium	0.797	6.377	1.81×10^{-10}	0.524	strong
L3	-0.291	-3.041	2.10×10^{-3}	0.250	medium	-0.338	-3.514	3.29×10^{-4}	0.289	medium	0.851	6.199	5.68×10^{-10}	0.510	strong
L4	-0.372	-4.343	5.92×10^{-6}	0.357	medium	-0.419	-4.535	2.47×10^{-6}	0.373	medium	0.770	5.806	6.40×10^{-9}	0.477	strong
L5	-0.081	-0.666	0.509	not sign.	not sign.	-0.128	-1.251	0.212	not sign.	not sign.	1.061	6.909	4.89×10^{-12}	0.568	strong
L6	—	—	—	—	—	-0.047	-0.705	0.481	not sign.	not sign.	1.142	7.665	1.78×10^{-14}	0.630	strong
L7	—	—	—	—	—	—	—	—	—	—	1.189	7.587	3.29×10^{-14}	0.624	strong
L8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Scenery: Forest

Table S3. Statistical evaluation of the forest scenery rating, differences of the mean values $\Delta\bar{x}$, z-score, probability value p , effect power r and quantification of it. If $p < 0.05$, it is bold marked. Participants are summed up in the heading.

Luminaire Setting	Scenery: Forest, China, $n = 148$														
	L3					L4					L5				
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
L1	0.331	3.637	1.97×10^{-4}	0.299	medium	0.257	3.139	1.69×10^{-3}	0.258	medium	0.182	2.016	4.38×10^{-2}	0.166	weak
L3	–	–	–	–	–	-0.074	-0.818	0.414	not sign.	not sign.	-0.149	-1.735	8.23×10^{-2}	0.143	weak
L4	–	–	–	–	–	–	–	–	–	–	-0.074	-0.796	0.430	not sign.	not sign.
L5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	L6					L7					L8				
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
L1	-0.054	-0.679	0.497	not sign.	not sign.	-0.189	-2.150	3.17×10^{-2}	0.177	weak	0.892	6.167	6.97×10^{-10}	0.507	strong
L3	-0.385	-3.893	9.88×10^{-5}	0.320	medium	-0.520	-4.897	9.72×10^{-7}	0.403	strong	0.561	4.568	4.92×10^{-6}	0.375	medium
L4	-0.311	-3.494	4.76×10^{-4}	0.287	medium	-0.446	-4.500	6.80×10^{-6}	0.370	medium	0.635	4.531	5.88×10^{-6}	0.372	medium
L5	-0.236	-2.686	7.23×10^{-3}	0.221	weak	-0.372	-3.944	8.01×10^{-5}	0.324	medium	0.709	4.838	1.31×10^{-6}	0.398	medium
L6	–	–	–	–	–	-0.135	-1.661	0.097	not sign.	not sign.	0.946	6.263	3.77×10^{-10}	0.515	strong
L7	–	–	–	–	–	–	–	–	–	–	1.081	7.206	5.78×10^{-13}	0.592	strong
L8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Scenery: Night

Table S4. Statistical evaluation of the night scenery rating, differences of the mean values $\Delta\bar{x}$, z-score, probability value p , effect power r and quantification of it. If $p < 0.05$, it is bold marked. Participants are summed up in the heading.

Luminaire Setting	Scenery: Night, China, $n = 148$														
	L3					L4					L5				
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
L1	0.128	1.759	0.079	not sign.	not sign.	0.122	1.289	0.201	not sign.	not sign.	0.074	0.857	0.392	not sign.	not sign.
L3	—	—	—	—	—	-0.007	-0.235	0.816	not sign.	not sign.	-0.054	-0.591	0.563	not sign.	not sign.
L4	—	—	—	—	—	—	—	—	—	—	-0.047	-0.530	0.600	not sign.	not sign.
L5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
L6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
L7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
L8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Luminaire Setting	L6					L7					L8				
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
L1	0.034	0.172	0.865	not sign.	not sign.	-0.128	-1.681	0.093	not sign.	not sign.	0.682	4.866	1.14×10^{-6}	0.400	strong
L3	-0.095	-1.144	0.257	not sign.	not sign.	-0.257	-2.876	3.70×10^{-3}	0.236	weak	0.554	4.255	2.09×10^{-5}	0.350	medium
L4	-0.088	-0.852	0.396	not sign.	not sign.	-0.250	-2.654	7.56×10^{-3}	0.218	weak	0.561	4.129	3.65×10^{-5}	0.339	medium
L5	-0.041	-0.518	0.607	not sign.	not sign.	-0.203	-2.210	2.64×10^{-2}	0.182	weak	0.608	4.551	5.34×10^{-6}	0.374	medium
L6	—	—	—	—	—	-0.162	-2.431	1.51×10^{-2}	0.200	weak	0.649	4.611	4.01×10^{-6}	0.379	strong
L7	—	—	—	—	—	—	—	—	—	—	0.811	5.735	9.75×10^{-9}	0.471	strong
L8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Luminaire baseline setting, L8: Comparison within Sceneries.

Table S5. Statistical evaluation of the L8 rating, differences of the mean values $\Delta\bar{x}$, z-score, probability value p , effect power r and quantification of it. If $p < 0.05$, it is bold marked. Participants are summed up in the heading.

Sceneries	Luminaire setting L8, China, $n = 148$														
	Country					Forest					Night				
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
Sun City	-0.372	-3.570	3.57×10^{-4}	0.293	medium	-0.426	-3.859	1.14×10^{-4}	0.317	medium	-0.838	-6.508	7.61×10^{-11}	0.535	strong
Country	—	—	—	—	—	-0.054	-0.538	0.590	not sign.	not sign.	-0.466	-4.307	1.65×10^{-5}	0.354	medium
Forest	—	—	—	—	—	—	—	—	—	—	-0.412	-3.365	7.64×10^{-4}	0.277	medium
Night	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

S2: Luminaire Preference Rating, Europe

Scenery: Sun-City

Table S6. Statistical evaluation of the sun-city scenery rating, differences of the mean values $\Delta\bar{x}$, z-score, probability value p , effect power r and quantification of it. If $p < 0.08$, it is bold marked. Participants are summed up in the heading.

Luminaire Setting	Scenery: Sun-City, Europe, $n = 16$														
	L3					L4					L5				
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
L1	0.250	0.930	0.325	not sign.	not sign.	0.000	0.000	1.000	not sign.	not sign.	-0.125	-0.239	0.797	not sign.	not sign.
L3	–	–	–	–	–	-0.250	-0.837	0.489	not sign.	not sign.	-0.375	-0.635	0.560	not sign.	not sign.
L4	–	–	–	–	–	–	–	–	–	–	-0.125	0.000	1.000	not sign.	not sign.
L5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	L6					L7					L8				
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
L1	-0.250	-0.642	0.525	not sign.	not sign.	-0.438	-0.887	0.395	not sign.	not sign.	0.875	2.236	2.25×10^{-2}	0.559	strong
L3	-0.500	-1.029	0.336	not sign.	not sign.	-0.688	-1.653	0.125	not sign.	not sign.	0.625	1.573	0.135	not sign.	not sign.
L4	-0.250	-0.679	0.510	not sign.	not sign.	-0.438	-1.219	0.264	not sign.	not sign.	0.875	2.105	3.20×10^{-2}	0.526	strong
L5	-0.125	-0.486	0.795	not sign.	not sign.	-0.313	-1.061	0.363	not sign.	not sign.	1.000	1.698	8.20×10^{-2}	0.424	strong
L6	–	–	–	–	–	-0.188	-0.482	0.630	not sign.	not sign.	1.125	1.751	6.84×10^{-2}	0.438	strong
L7	–	–	–	–	–	–	–	–	–	–	1.313	2.263	2.23×10^{-2}	0.566	strong
L8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Scenery: Country

Table S7. Statistical evaluation of the country scenery rating, differences of the mean values $\Delta\bar{x}$, z-score, probability value p , effect power r and quantification of it. If $p < 0.08$, it is bold marked. Participants are summed up in the heading.

Luminaire Setting	Scenery: Country, Europe, $n = 16$														
	L3					L4					L5				
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
L1	-0.063	-0.366	0.797	not sign.	not sign.	-0.438	-1.219	0.264	not sign.	not sign.	-0.500	-1.113	0.271	not sign.	not sign.
L3	—	—	—	—	—	-0.375	-0.926	0.359	not sign.	not sign.	-0.438	-0.968	0.371	not sign.	not sign.
L4	—	—	—	—	—	—	—	—	—	—	-0.063	-0.298	1.000	not sign.	not sign.
L5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
L6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
L7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
L8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	L6					L7					L8				
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
L1	-0.500	-1.038	0.333	not sign.	not sign.	-0.500	-1.173	0.281	not sign.	not sign.	0.688	1.596	0.115	not sign.	not sign.
L3	-0.438	-0.994	0.340	not sign.	not sign.	-0.438	-1.140	0.283	not sign.	not sign.	0.750	2.132	3.03×10^{-2}	0.533	strong
L4	-0.063	-0.209	0.830	not sign.	not sign.	-0.063	-0.155	0.887	not sign.	not sign.	1.125	2.340	1.42×10^{-2}	0.585	strong
L5	0.000	-0.209	0.830	not sign.	not sign.	0.000	-0.181	0.812	not sign.	not sign.	1.188	2.243	1.76×10^{-2}	0.561	strong
L6	—	—	—	—	—	0.000	0.000	1.000	not sign.	not sign.	1.188	2.455	9.28×10^{-3}	0.614	strong
L7	—	—	—	—	—	—	—	—	—	—	1.188	2.276	1.53×10^{-2}	0.569	strong
L8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Scenery: Forest

Table S8. Statistical evaluation of the forest scenery rating, differences of the mean values $\Delta\bar{x}$, z-score, probability value p , effect power r and quantification of it. If $p < 0.08$, it is bold marked. Participants are summed up in the heading.

Luminaire Setting	Scenery: Forest, Europe, $n = 16$														
	L3					L4					L5				
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
L1	0.563	1.726	8.98×10^{-2}	0.432	strong	0.313	0.582	0.595	not sign.	not sign.	0.063	0.120	0.892	not sign.	not sign.
L3	—	—	—	—	—	-0.250	-0.882	0.484	not sign.	not sign.	-0.500	-1.242	0.239	not sign.	not sign.
L4	—	—	—	—	—	—	—	—	—	—	-0.250	-0.605	0.574	not sign.	not sign.
L5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
L6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
L7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
L8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Luminaire Setting	L6					L7					L8				
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
L1	-0.188	-0.098	0.909	not sign.	not sign.	-0.250	-0.455	0.700	not sign.	not sign.	0.750	1.932	6.15×10^{-2}	0.483	strong
L3	-0.750	-2.029	4.74×10^{-2}	0.507	strong	-0.813	-2.161	2.73×10^{-2}	0.540	strong	0.188	0.611	0.553	not sign.	not sign.
L4	-0.500	-1.137	0.266	not sign.	not sign.	-0.563	-1.445	0.170	not sign.	not sign.	0.438	1.394	0.151	not sign.	not sign.
L5	-0.250	-0.770	0.468	not sign.	not sign.	-0.313	-0.785	0.459	not sign.	not sign.	0.688	1.342	0.185	not sign.	not sign.
L6	—	—	—	—	—	-0.063	-0.283	0.777	not sign.	not sign.	0.938	1.826	7.57×10^{-2}	0.457	strong
L7	—	—	—	—	—	—	—	—	—	—	1.000	2.022	4.79×10^{-2}	0.506	strong
L8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Scenery: Night

Table S9. Statistical evaluation of the night scenery rating, differences of the mean values $\Delta\bar{x}$, z-score, probability value p , effect power r and quantification of it. If $p < 0.08$, it is bold marked. Participants are summed up in the heading.

Luminaire Setting	Scenery: Night, Europe, $n = 16$														
	L3					L4					L5				
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
L1	0.188	0.749	0.449	not sign.	not sign.	0.313	1.035	0.371	not sign.	not sign.	0.250	0.744	0.531	not sign.	not sign.
L3	–	–	–	–	–	0.125	0.212	0.848	not sign.	not sign.	0.063	0.000	1.000	not sign.	not sign.
L4	–	–	–	–	–	–	–	–	–	–	-0.063	-0.189	1.000	not sign.	not sign.
L5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
L8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	L6					L7					L8				
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
L1	0.063	0.052	0.910	not sign.	not sign.	-0.125	-0.624	0.617	not sign.	not sign.	0.438	0.982	0.322	not sign.	not sign.
L3	-0.125	-0.300	0.832	not sign.	not sign.	-0.313	-0.960	0.348	not sign.	not sign.	0.250	0.405	0.700	not sign.	not sign.
L4	-0.250	-0.789	0.516	not sign.	not sign.	-0.438	-1.269	0.195	not sign.	not sign.	0.125	0.122	0.824	not sign.	not sign.
L5	-0.188	-0.864	0.465	not sign.	not sign.	-0.375	-1.066	0.281	not sign.	not sign.	0.188	0.250	0.836	not sign.	not sign.
L6	–	–	–	–	–	-0.188	-0.275	0.784	not sign.	not sign.	0.375	0.852	0.438	not sign.	not sign.
L7	–	–	–	–	–	–	–	–	–	–	0.563	1.458	0.201	not sign.	not sign.
L8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Luminaire baseline setting, L8: Comparison within Sceneries.

Table S10. Statistical evaluation of the L8 rating, differences of the mean values $\Delta\bar{x}$, z-score, probability value p , effect power r and quantification of it. If $p < 0.08$, it is bold marked. Participants are summed up in the heading.

Sceneries	Luminaire setting L8, Europe, $n = 16$														
	Country					Forest					Night				
	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level	$\Delta\bar{x}$	z	p (asym.)	r	level
Sun City	-0.125	-0.270	0.787	not sign.	not sign.	-0.125	-0.323	0.774	not sign.	not sign.	-1.000	-1.752	7.81×10^{-2}	0.438	strong
Country	–	–	–	–	–	0.000	-0.142	1.000	not sign.	not sign.	-0.875	-2.319	2.15×10^{-2}	0.580	strong
Forest	–	–	–	–	–	–	–	–	–	–	-0.875	-2.101	4.61×10^{-2}	0.525	strong
Night	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–