




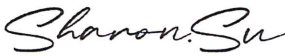


TEST REPORT

Of IES LM-79-08

Kunde: <i>Client:</i>	Shenzhen Penel Optoelectronics Technology Co.,Ltd
Adresse: <i>Address:</i>	The 1st Building ,Xi'en Industrial District, No.227, Xiangshan Avenue, Yanluo Street, Bao'an District, Shenzhen, China
Hersteller: <i>Manufacturer:</i>	Shenzhen Penel Optoelectronics Technology Co.,Ltd
Adresse: <i>Address:</i>	The 1st Building ,Xi'en Industrial District, No.227, Xiangshan Avenue, Yanluo Street, Bao'an District, Shenzhen, China
Name der Marke: <i>Brand Name:</i>	
Beschreibung des Produkts: <i>Product Description:</i>	LED FLOOD LIGHT
Modelle: <i>Models:</i>	FL-NSO5-150
Bewertung: <i>Rating:</i>	AC100-240V, 50/60Hz, 150W, 4000K
Verfahren: <i>Method:</i>	IES LM-79-08: Approved Method for Electrical and Photometric Measurements of Solid-State Lighting Products
Prüfergebnis*: <i>Test result*:</i>	N/A

Datum der Prüfung: <i>Date of Test:</i>	Datum der Emission: <i>Date of Issue:</i>	Klassifizierung: <i>Classification:</i>	Gegenstand der Prüfung: <i>Test item:</i>
2021-01-20-2021-01-25	2021-01-26	Commission Test	IES LM-79-08

Prüflabor (Testlabor) / Testing Laboratory:
Shenzhen Southern LCS Compliance Testing Laboratory Ltd.

Test von/Test by:  Sharon Su/ Project Engineer	Check von/Check by:  Ian Luo/ Director	Genehmigt von/Approved by:  Jesse Liu/ Manager
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Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.
Remark: The duplication of this report or parts of it and its use for advertising purposes is only allowed with permission of the testing laboratory. This report contains the result of examination of the product sample submitted by the appliance. A general statement concerning the quality of the products from the series manufacturer cannot be derived therefore.



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1. Test Method

Test Item.....:	Integrating Sphere Test
Ambient Condition	25.1°C
Stabilization time(h):	0.5h
Orientation(burning position) of SSL product during test	down
Test Method	<p>The sample was tested according to the IES LM-79-2008.</p> <p>The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.</p>
Test Item.....:	Goniophotometer Test
Ambient Condition.....:	25.1°C
Total operated time of the product for measurements including stabilization..... (h):	1.0h
Orientation(burning position) of SSL product during test	down
Test Method.....:	<p>The sample was tested according to the IES LM-79-2008.</p> <p>Photometric parameters were measured using a type C goniophotometer and software. The sample reference plane was located at the center of the sample goniometer at a test distance of 26m from the detectors. The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, Luminous efficacy, zonal flux were calculated from the software taken at 1 ° vertical intervals and 22.5 ° horizontal intervals.</p>



2. Product Information

Product description.....:	LED FLOOD LIGHT
Model Number.....:	FL-NSO5-150
Rated Inputs.....:	AC100-240V, 50/60Hz
Rated Power.....:	150W
Declared CCT.....:	4000K
LED Manufacturer.....:	CREE
LED Model.....:	3030LEDs
Forward current of the LED chip.....:	400mA
Date of Receipt Samples.....:	January 19, 2021
Quantity of Receipt Samples.....:	1 unit

3. Test equipment list

Manufacturer	Description	Equipment ID	Model	Calibration Date	Calibration Due Date
EVERFINE	Full-field Speed Goniophotometer	SLCS-S-112	GO-R5000	2020/07/02	2021/07/01
EVERFINE	Digital Power Meter	SLCS-S-103	PF2010	2020/06/24	2021/06/23
EVERFINE	AC Testing Power Source	SLCS-S-115	DPS1060	2020/06/24	2021/06/23
EVERFINE	Total Spectral Radiant Flux Standard Lamp	SLCS-S-143	D908S	2020/07/02	2021/07/01
SENSING	2 Meter Integrating Sphere	SLCS-S-038	SPR-3000	2020/07/02	2021/07/01
YOKOGAWA	Digital Power Meter	SLCS-S-058	WT310	2020/06/24	2021/06/23
ALL POWER ELECTRONIC	AC Testing Power Source	SLCS-S-111	APW-105N	2020/06/24	2021/06/23
SENSING	Standard Lamp	SLCS-S-118	S11010017	2020/07/02	2021/07/01



4. Integrating Sphere Test Results

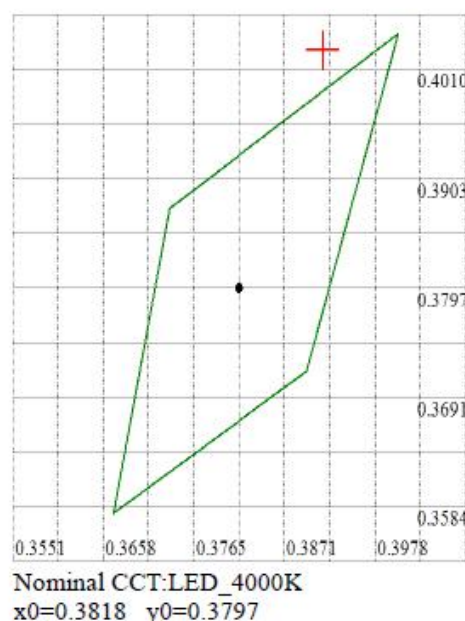
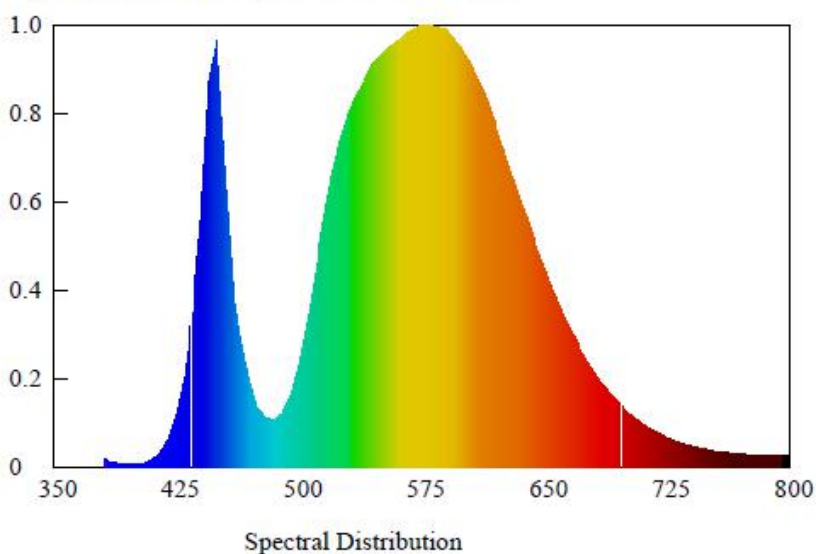
4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	230.08	50.01	0.6662	0.9850	150.97

Test type	CCT (K)	CRI	Duv	Luminous flux (lm)	Luminous efficacy(lm/W)
Output	3901	70.2	+0.00858	21387.71	141.7

4.2 Spectrum

Spectroradiometric Parameters



Chromaticity Coordinates: $x=0.3917$ $y=0.4028$ $u'=0.2222$ $v'=0.5142$

Correlated Color Temperature: 3901 K

Colour Fidelity Index: $R_f=71$

Luminous Flux: 21387.71 lm

Chromaticity Difference: +0.00858Duv

Color Ratio: $K_r=36.1\%$ $K_g=57.7\%$ $K_b=6.2\%$

Bandwidth: 136.5nm

Photosynthetically Active Radiation(PAR): 54.52W

Rendering Index: $R_a=70.2$

Dominant Wavelength: 574.0 nm(E)

Gamut Index: $R_g=93$

Purity: 0.3833

Peak Wavelength: 580.0 nm

Radiant Flux: 56.234 W

Photosynthetic Photon Flux(PPF): 258.33 $\mu\text{mol/s}$

$R_1=67$ $R_2=75$ $R_3=82$ $R_4=71$ $R_5=65$ $R_6=64$ $R_7=83$ $R_8=54$

$R_9=-29$ $R_{10}=41$ $R_{11}=65$ $R_{12}=32$ $R_{13}=69$ $R_{14}=90$ $R_{15}=61$ $R_e=59$



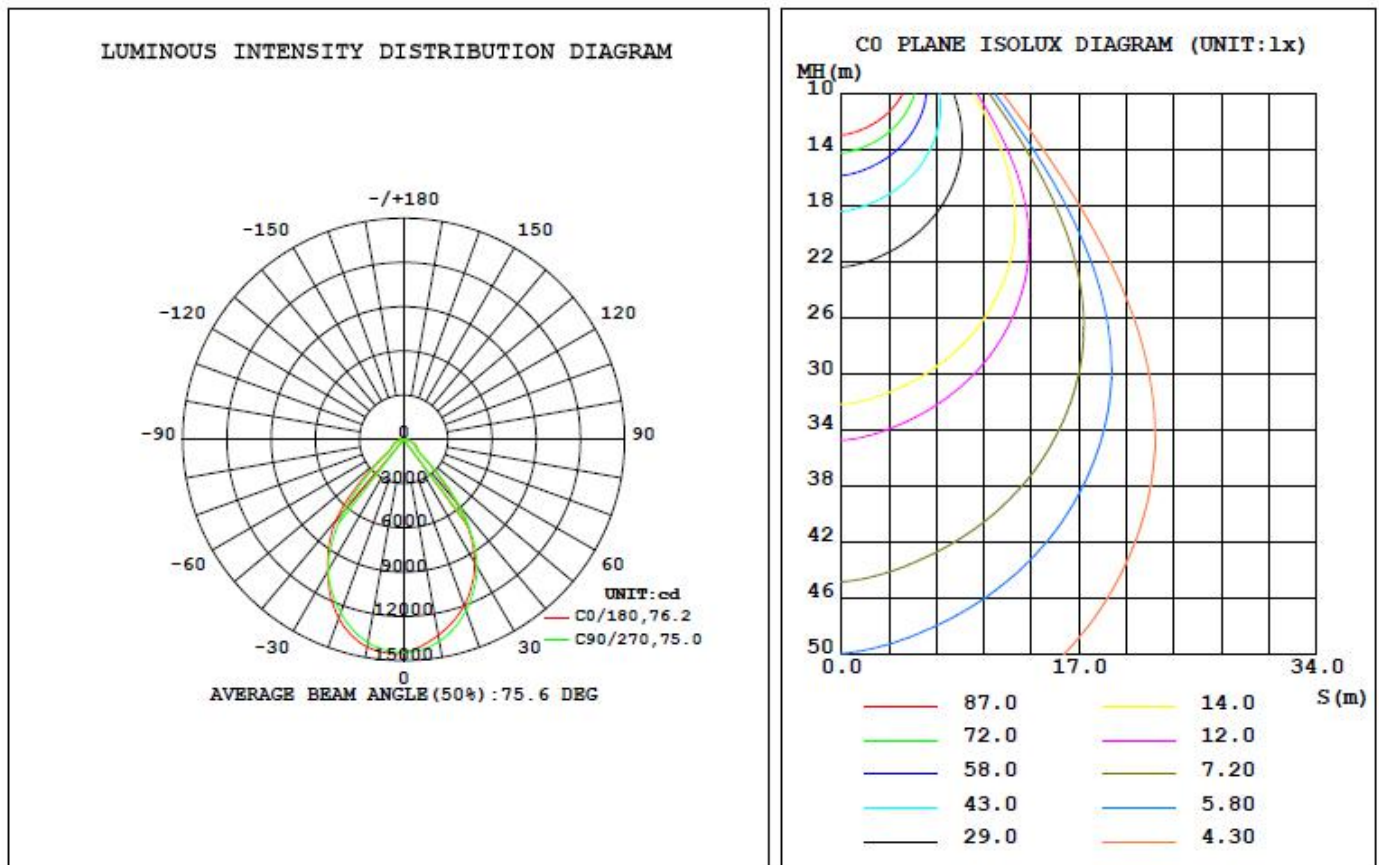
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	230.1	50.01	0.6659	0.9847	150.9

Test type	Total Flux (lm)	Luminous efficacy(lm/W)	Imax (cd)	Spacing Criteria (0~180°)	Spacing Criteria (90~270°)
Output	21342.6	141.44	14528	1.10	1.09

5.2 Luminous Intensity Distribution Diagram and C0 Plane Isolux Diagram (Unit : lx)



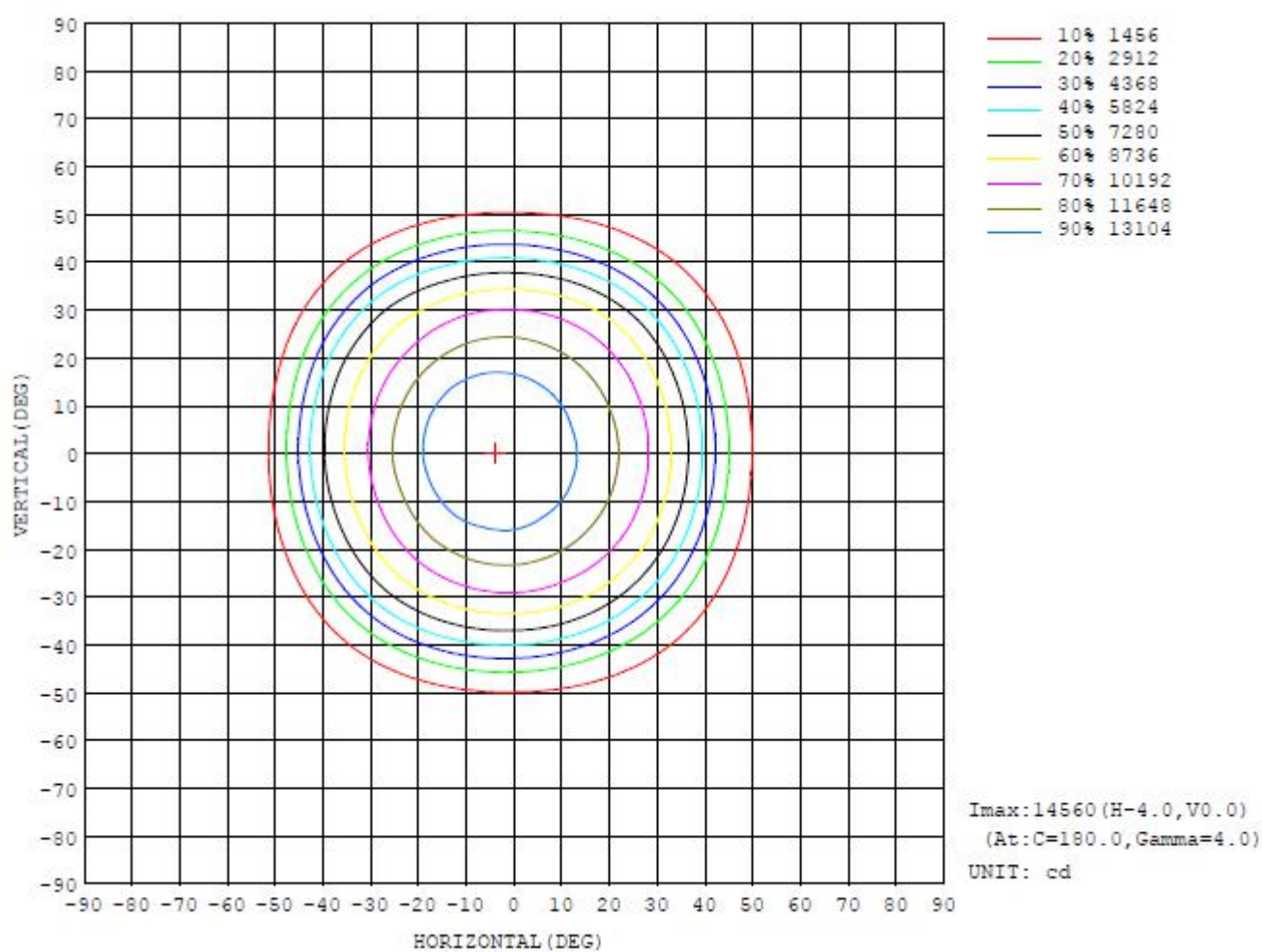


5.3 Zonal Flux Diagram

y	C0	C45	C90	C135	C180	C225	C270	C315	y	Φ zone	Φ total	%lum, lamp
10	1349	1361	1390	1419	1428	1426	1398	1363	0- 10	1353	1353	6.52,6.52
20	1199	1205	1235	1270	1289	1287	1251	1217	10- 20	2736	5089	24.5,24.5
30	966.0	971.7	992.8	1015	1032	1032	1024	995.0	20- 30	5202	10292	49.6,49.6
40	550.7	544.9	583.8	654.8	714.6	703.0	624.5	595.9	30- 40	5163	15454	74.5,74.5
50	141.9	143.8	142.8	162.5	184.7	180.4	153.7	152.9	40- 50	2792	18246	88,88
60	103.5	102.7	85.90	94.05	91.18	90.02	82.19	98.71	50- 60	1004	19250	92.8,92.8
70	72.89	73.21	57.63	65.00	61.89	62.02	52.30	70.38	60- 70	788.3	20028	96.6,96.6
80	21.54	20.52	32.75	28.59	28.84	26.50	28.60	29.17	70- 80	502.6	20541	99,99
90	0.4437	0.5704	0.3362	0.2239	0.1496	0.1271	0.1272	0.3050	80- 90	145.1	20686	99.7,99.7
100	0.5340	0.1270	0.1048	0.1276	0.5603	0.1719	0.1123	0.1726	90-100	1.721	20688	99.7,99.7
110	0.2322	0.1270	0.0898	0.1276	0.2395	0.1668	0.1647	0.1802	100-110	2.078	20690	99.7,99.7
120	0.1795	0.1419	0.1123	0.1276	0.2920	0.2767	0.2695	0.3078	110-120	1.796	20692	99.8,99.8
130	0.7626	0.6789	0.6721	0.5471	0.5848	0.5167	0.4730	0.6090	120-130	3.331	20695	99.8,99.8
140	1.819	1.584	1.734	1.448	1.289	1.069	1.258	1.263	130-140	7.473	20703	99.8,99.8
150	2.971	2.868	2.894	2.736	2.224	2.048	2.248	2.319	140-150	12.38	20715	99.9,99.9
160	3.502	3.467	3.495	3.337	3.204	3.051	3.250	3.206	150-160	13.53	20728	99.9,99.9
170	4.084	4.184	4.362	4.088	3.646	3.707	3.885	4.008	160-170	10.18	20739	100,100
180	4.574	4.529	4.484	4.376	4.432	4.424	4.402	4.502	170-180	4.019	20743	100,100
DEG	LUMINOUS INTENSITY:×10cd									UNIT:lm		



5.4 Isocandela Diagram





5.5 Luminous Distribution Intensity Data

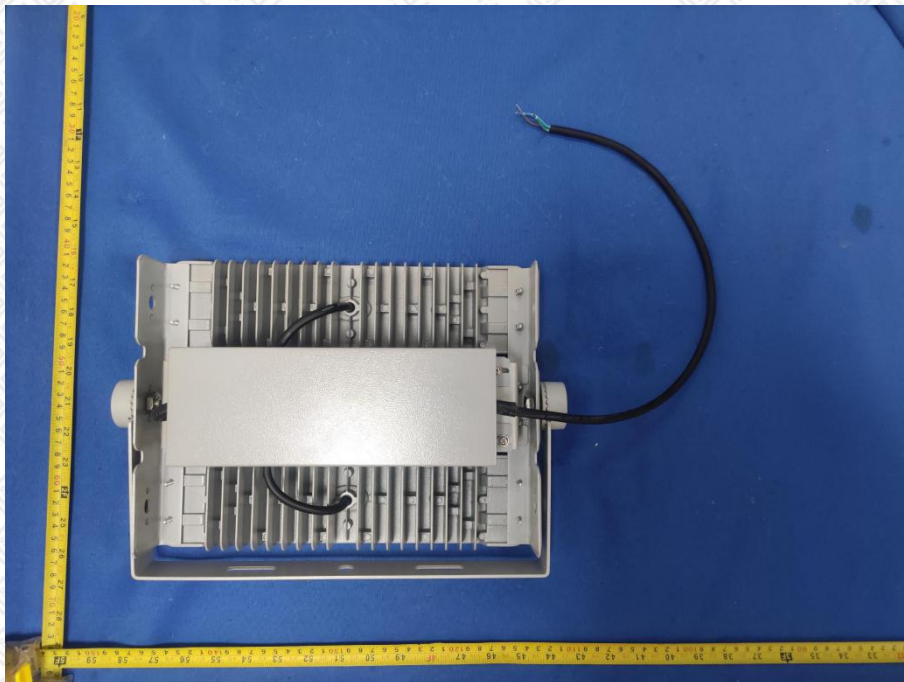
Table---1																	UNIT: ×10cd			
C (DEG) y (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5				
0	1444	1444	1444	1444	1444	1444	1444	1444	1444	1444	1444	1444	1444	1444	1444	1444				
5	1406	1408	1413	1422	1431	1440	1446	1451	1452	1451	1447	1442	1434	1424	1415	1407				
10	1349	1353	1361	1374	1390	1405	1419	1426	1428	1431	1426	1412	1398	1381	1363	1353				
15	1282	1285	1293	1305	1326	1340	1359	1370	1374	1378	1373	1357	1336	1316	1300	1287				
20	1199	1200	1205	1217	1235	1250	1270	1281	1289	1294	1287	1271	1251	1234	1217	1205				
25	1095	1096	1101	1111	1126	1139	1151	1159	1175	1176	1170	1163	1150	1132	1116	1103				
30	966	967	972	978	993	1004	1015	1021	1032	1036	1032	1034	1024	1010	995	978				
35	791	790	792	802	813	835	860	871	887	894	891	869	848	842	832	806				
40	551	542	545	563	584	615	655	681	715	720	703	653	624	608	596	568				
45	290	283	286	303	324	350	377	405	445	451	429	399	370	346	327	306				
50	142	142	144	143	143	152	162	170	185	189	180	167	154	154	153	149				
55	114	115	114	108	102	103	108	108	105	106	105	99.6	97.9	103	111	115				
60	104	104	103	95.1	85.9	89.3	94.1	93.5	91.2	91.2	90.0	85.3	82.2	90.1	98.7	104				
65	90.1	91.5	89.0	80.8	70.0	74.1	80.0	79.8	77.6	77.6	76.3	70.3	65.9	76.8	85.3	91.2				
70	72.9	75.4	73.2	66.7	57.6	59.9	65.0	65.3	61.9	63.0	62.0	55.6	52.3	61.8	70.4	74.7				
75	48.3	56.2	54.8	48.7	47.3	43.9	48.6	48.7	42.8	46.5	45.3	40.0	41.2	45.3	51.9	56.0				
80	31.5	34.2	30.5	29.7	32.8	26.9	28.6	29.8	28.8	28.5	26.5	24.4	28.6	27.5	29.2	34.5				
85	17.5	15.2	12.8	11.4	12.7	10.9	10.9	12.9	13.5	12.3	10.6	10.0	11.7	11.3	12.2	15.5				
90	0.44	0.54	0.57	0.44	0.34	0.24	0.22	0.24	0.15	0.14	0.13	0.13	0.13	0.17	0.30	0.70				
95	0.14	0.16	0.14	0.13	0.12	0.12	0.13	0.14	0.14	0.14	0.13	0.11	0.11	0.12	0.14	0.14				
100	0.53	0.36	0.13	0.11	0.10	0.11	0.13	0.36	0.56	0.29	0.17	0.12	0.11	0.12	0.17	0.32				
105	0.42	0.28	0.13	0.10	0.09	0.10	0.13	0.27	0.32	0.22	0.17	0.14	0.13	0.13	0.17	0.23				
110	0.23	0.19	0.13	0.10	0.09	0.10	0.13	0.22	0.24	0.22	0.19	0.17	0.16	0.16	0.18	0.21				
115	0.17	0.16	0.13	0.10	0.09	0.10	0.13	0.17	0.24	0.23	0.21	0.20	0.20	0.21	0.21	0.22				
120	0.18	0.16	0.14	0.12	0.11	0.11	0.13	0.17	0.29	0.29	0.28	0.26	0.27	0.29	0.31	0.30				
125	0.39	0.39	0.36	0.35	0.35	0.30	0.28	0.29	0.39	0.40	0.37	0.31	0.38	0.34	0.42	0.45				
130	0.76	0.73	0.68	0.71	0.67	0.61	0.55	0.56	0.58	0.58	0.52	0.47	0.47	0.48	0.61	0.63				
135	1.18	1.13	1.05	1.17	1.10	1.04	0.89	0.98	0.87	0.83	0.73	0.77	0.87	0.81	0.86	0.92				
140	1.82	1.73	1.58	1.76	1.73	1.65	1.45	1.53	1.29	1.22	1.07	1.18	1.26	1.32	1.26	1.34				
145	2.41	2.32	2.18	2.36	2.33	2.27	2.07	2.05	1.74	1.65	1.53	1.70	1.72	1.82	1.76	1.84				
150	2.97	2.93	2.87	2.93	2.89	2.81	2.74	2.58	2.22	2.15	2.05	2.22	2.25	2.37	2.32	2.33				
155	3.28	3.32	3.23	3.25	3.23	3.16	3.11	2.95	2.73	2.65	2.61	2.72	2.75	2.84	2.70	2.84				
160	3.50	3.50	3.47	3.45	3.49	3.44	3.34	3.26	3.20	3.07	3.05	3.15	3.25	3.20	3.21	3.21				
165	3.84	3.74	3.74	3.84	3.87	3.72	3.71	3.64	3.41	3.39	3.37	3.48	3.55	3.58	3.65	3.45				
170	4.08	4.06	4.18	4.27	4.36	4.18	4.09	4.07	3.65	3.66	3.71	3.79	3.89	3.88	4.01	3.77				
175	4.54	4.43	4.53	4.60	4.60	4.49	4.43	4.38	4.19	4.16	4.12	4.19	4.18	4.28	4.32	4.10				
180	4.57	4.42	4.53	4.38	4.48	4.49	4.38	4.38	4.43	4.49	4.42	4.54	4.40	4.49	4.50	4.38				



6. Photo of sample

Photo document

Photos of FL-NSO5-150



----- End of test report -----