



Fraunhofer

**TESTED[®]
DEVICE**

LS Cable Ltd.
Power & Control/Signal Cable
Report No. LS 0605-349

DUPLIKAT

Statement of
Qualification

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Manufacturer of object to be tested: LS Cable Ltd.
555 Hogye-dong, Dongan-gu
Anyang-si, Gyeonggi-do
431-831, Korea

Component tested: Cabel Systems

Type: Power & Control Cable / Signal Cable

Test parameters of object to be assessed: Stroke length: 820 mm
Set of parameters 1 : $v_1 = 0.5 \text{ m/s}$; $a_1 = 1.0 \text{ m/s}^2$
Set of parameters 2 : $v_2 = 1.2 \text{ m/s}$; $a_2 = 2.0 \text{ m/s}^2$
Set of parameters 3 : $v_3 = 2.0 \text{ m/s}$; $a_3 = 5.0 \text{ m/s}^2$

Performed tests: Random check measurements of particle emission (airborne) at representative points.

Test results / classification: When the below mentioned test pieces are being operated at the conditions of the following table, they are suitable for use in cleanrooms fulfilling the air cleanliness specifications according to ISO 14644-1 respectively acc. to US Fed. Std. 209 E.

Type	Air Cleanliness Class acc. to ISO 14644-1/ US Fed. Std. 209 E		
	$v_1=0.5 \text{ m/s}$	$v_2=1.2 \text{ m/s}$	$v_3=2.0 \text{ m/s}$
Power & Control Cable (ROIREU (-SB) Type)	ISO Class 3 US Class 1	ISO Class 3 US Class 1	ISO Class 4 US Class 10
Signal Cable (ROIREU (-SB) Type)	ISO Class 3 US Class 1	ISO Class 3 US Class 1	ISO Class 4 US Class 10
Power & Control Cable (ROFHU (-SB) Type)	ISO Class 3 US Class 1	ISO Class 4 US Class 10	ISO Class 4 US Class 10
Signal Cable (ROFHU (-SB) Type)	ISO Class 3 US Class 1	ISO Class 3 US Class 1	ISO Class 3 US Class 1

Standards used for the qualification: VDI 2083 Part 1, 4 and 8; ISO 14644-1

Test environment: Cleanroom of Air Cleanliness Class ISO Class 1 (according to ISO 14644-1)

Air flow velocity: 0.45 m/s

Air flow guidance: vertical unidirectional air flow from ceiling to floor (raised floor)

Temperature: 71.6°F ± 0.9°F

Relative humidity: 45% ± 5%

The measuring equipment used for the qualification is regularly calibrated and is based on national and international standards. In the case where no national standards exist, the measuring procedure used corresponds with technical regulations and norms valid at the time of the measurement. The documents drawn up for this procedure are available for viewing.