



# KHAMSIN

NOISE MEASUREMENTS



**AYRTON**  
Digital Lighting

## Inspection instructions

This test was carried out in the semi-silencing room of Guangzhou Quality Supervision and Testing Institute (GQT). The indoor environmental noise was less than 5dB (A). The stage lamp was placed on the standard test table of the semi-silencing room. When the stage lamp was turned on, the test microphone was 1m away from the four directions of the stage lamp to detect its sound pressure level.



Figure 1: Test setup



Figure 2 Sample serial number information

Instrumentation

No	Equipment	Type	Number	Calibration period
1	Anechoicrooms	---	R40010	2023.05
2	Noise Analyzer	3160-A-042	R40011-2	2022.05

**Noise Detection Results of Stage Luminaires  
(The Auto mode)**

Frequency (Hz)	Sound Pressure Level in Auto Mode (dB)							
	Static				Dynamic			
	No 1	No 2	No 3	No 4	No 1	No 2	No 3	No 4
20	40.1	33.8	35.0	35.7	36.0	57.1	35.4	36.1
25	39.1	35.6	36.1	37.1	37.5	47.3	36.3	37.7
31.5	34.3	29.7	28.2	28.0	32.3	38.0	29.6	28.2
40	26.3	22.4	23.7	21.9	23.8	35.8	27.1	22.7
50	26.7	26.4	27.7	27.4	26.6	28.0	27.3	26.8
63	20.7	15.5	20.1	17.2	23.6	22.7	22.2	22.8
80	22.2	16.2	20.5	17.8	23.4	22.0	22.6	22.3
100	27.2	21.3	24.6	21.6	28.4	25.3	25.4	27.0
125	36.3	33.9	34.0	29.2	35.5	34.2	32.8	33.7
160	30.1	26.1	30.5	26.3	34.9	33.5	35.4	32.1
200	36.1	29.4	35.0	29.1	42.5	41.6	43.2	40.1
250	38.2	32.5	37.7	32.3	47.3	47.6	47.9	46.7
315	34.6	29.3	34.2	30.7	45.9	45.9	48.3	45.9
400	34.2	28.8	33.8	26.8	47.0	43.6	44.7	42.6
500	37.1	32.8	35.4	32.2	41.1	41.4	41.7	39.0
630	39.3	36.3	39.0	35.9	38.5	38.6	39.4	39.1
800	35.2	30.6	35.9	29.9	37.1	36.6	36.9	36.8
1000	30.2	30.0	31.5	30.0	35.8	36.1	36.3	35.0
1250	35.3	31.1	34.1	30.3	35.8	36.1	36.1	34.9
1600	34.5	27.0	32.7	28.6	35.7	35.9	35.6	35.4
2000	31.9	23.8	31.2	24.1	32.7	33.0	32.7	32.6
2500	28.4	20.1	27.7	22.0	30.1	30.6	30.5	30.1
3150	24.1	20.1	23.2	19.7	29.0	30.8	28.8	29.2
4000	24.1	18.7	24.0	19.5	27.4	29.7	28.0	27.8
5000	23.2	16.7	22.7	17.2	25.3	27.5	25.3	24.8
6300	19.4	13.5	21.0	15.4	22.5	24.3	23.1	21.8
8000	15.3	10.0	18.7	14.0	19.6	20.6	21.1	19.6
10000	12.8	9.0	16.1	14.4	16.6	19.5	18.6	17.5
12500	14.3	11.0	18.8	15.4	17.9	21.3	19.8	18.1
16000	21.0	20.9	19.4	23.3	23.1	23.8	24.1	22.4
20000	40.9	42.1	33.4	44.2	42.6	42.9	43.6	41.9
Leq	50.5	46.2	47.3	47.2	53.8	67.2	54.2	52.6
A-weighted dB (A)	44.4	40.5	43.6	40.8	48.4	48.0	48.7	47.3
Average sound pressure level dB(A)	42.7				48.1			

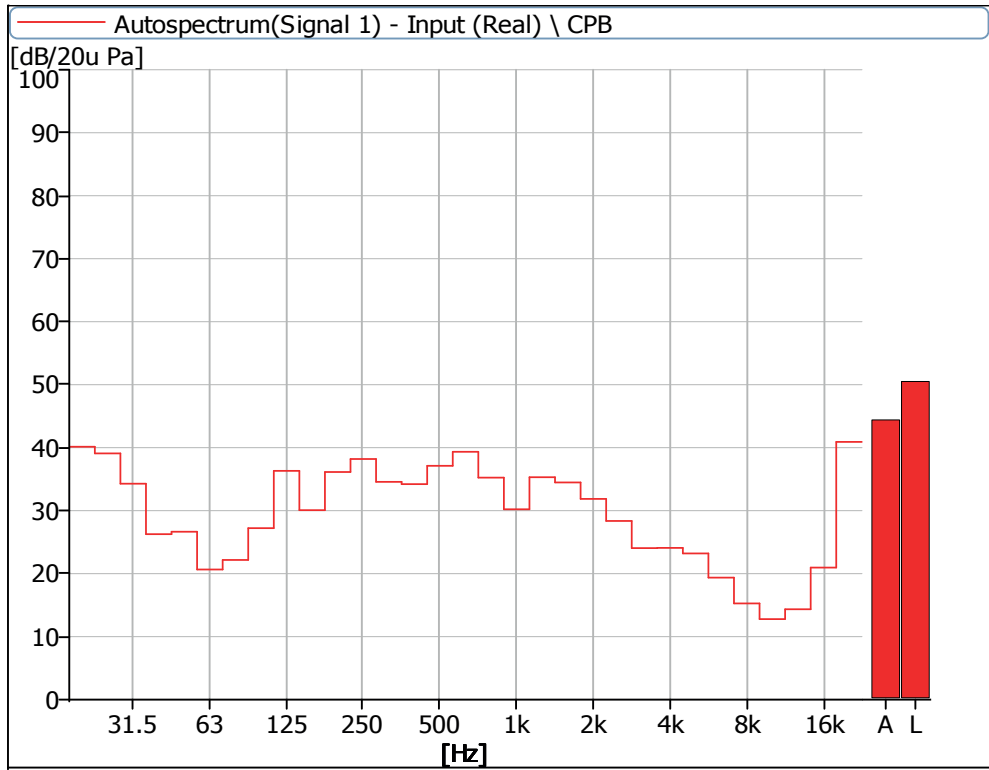


Figure 3 Noise Spectrum of Stage Luminaires  
(The Auto mode, static, No 1)

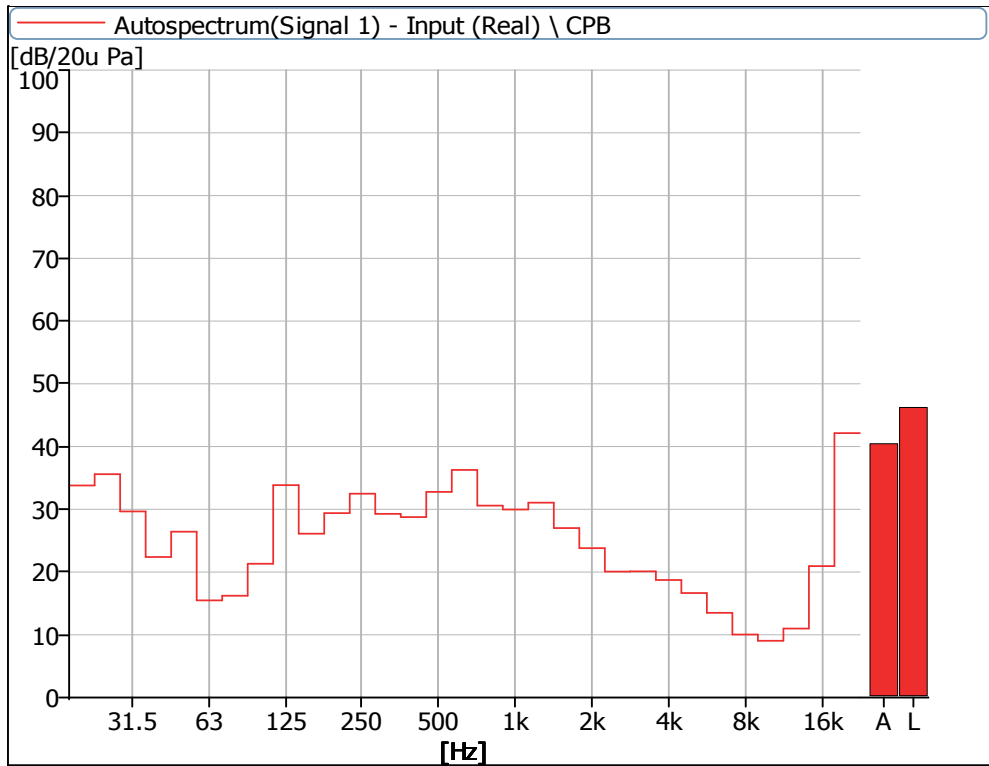


Figure 4 Noise Spectrum of Stage Luminaires  
(The Auto mode, static, No 2)

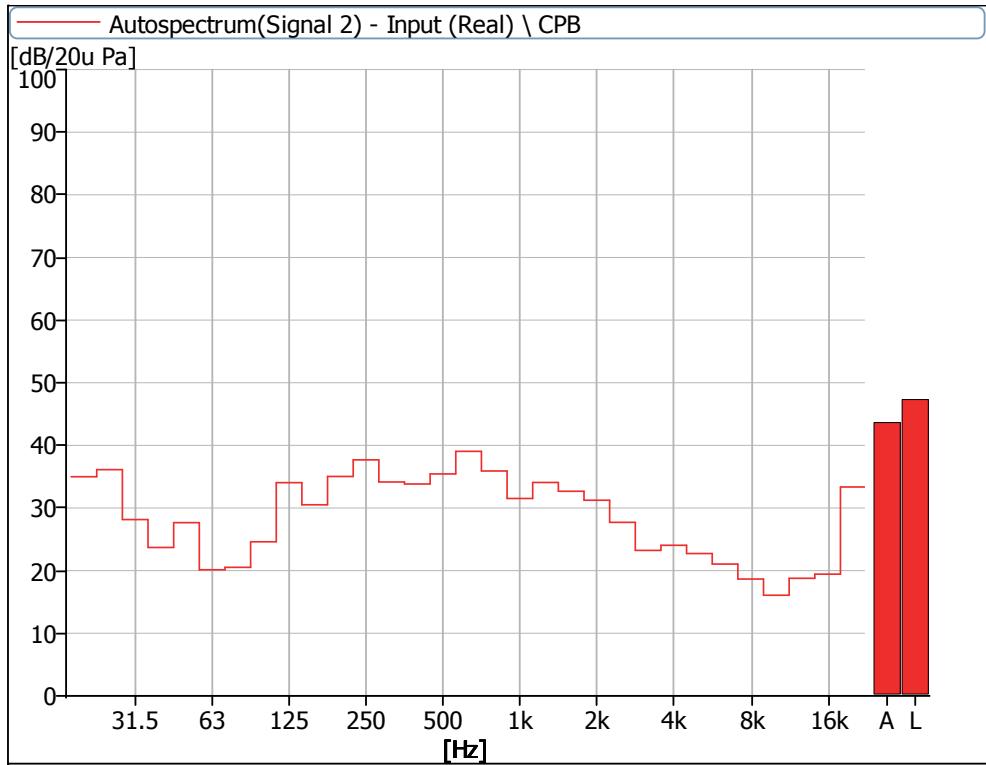


Figure 5 Noise Spectrum of Stage Luminaires  
(The Auto mode, static, No 3)

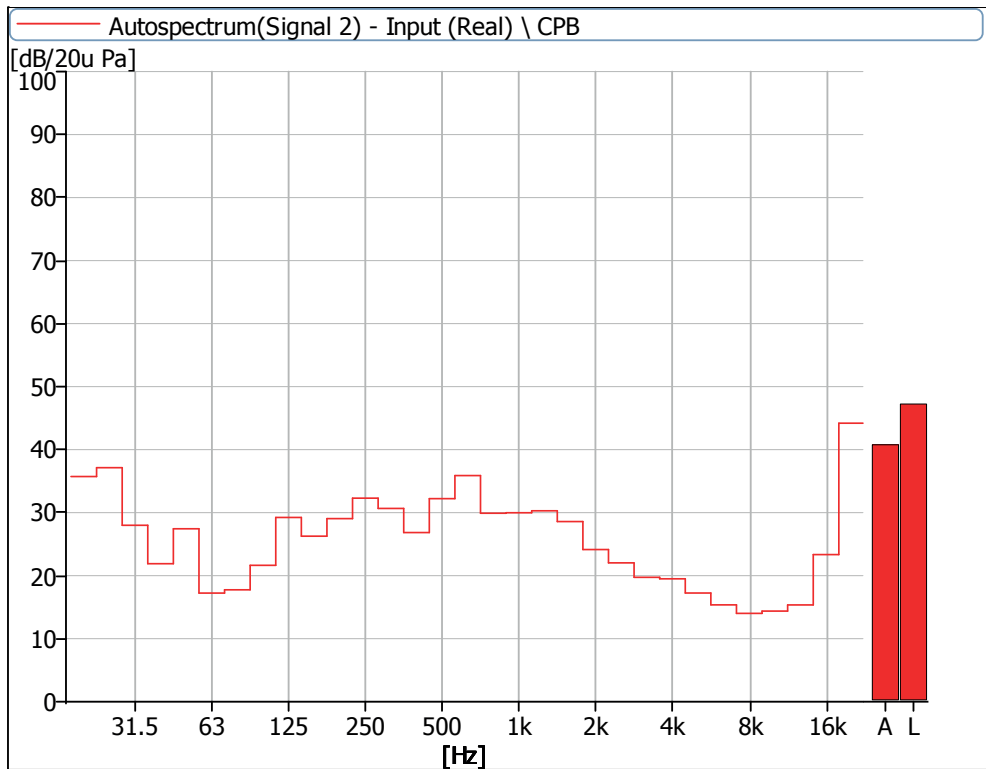


Figure 6 Noise Spectrum of Stage Luminaires  
(The Auto mode, static, No 4)

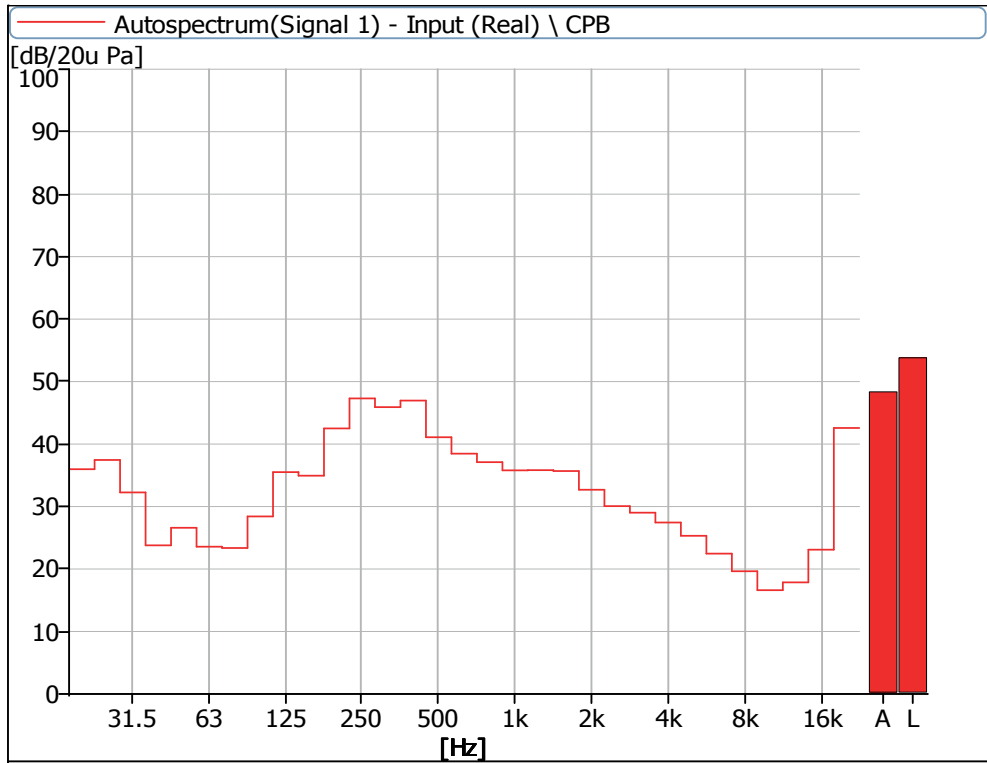


Figure 7 Noise Spectrum of Stage Luminaires  
(The Auto mode, Dynamic, No 1)

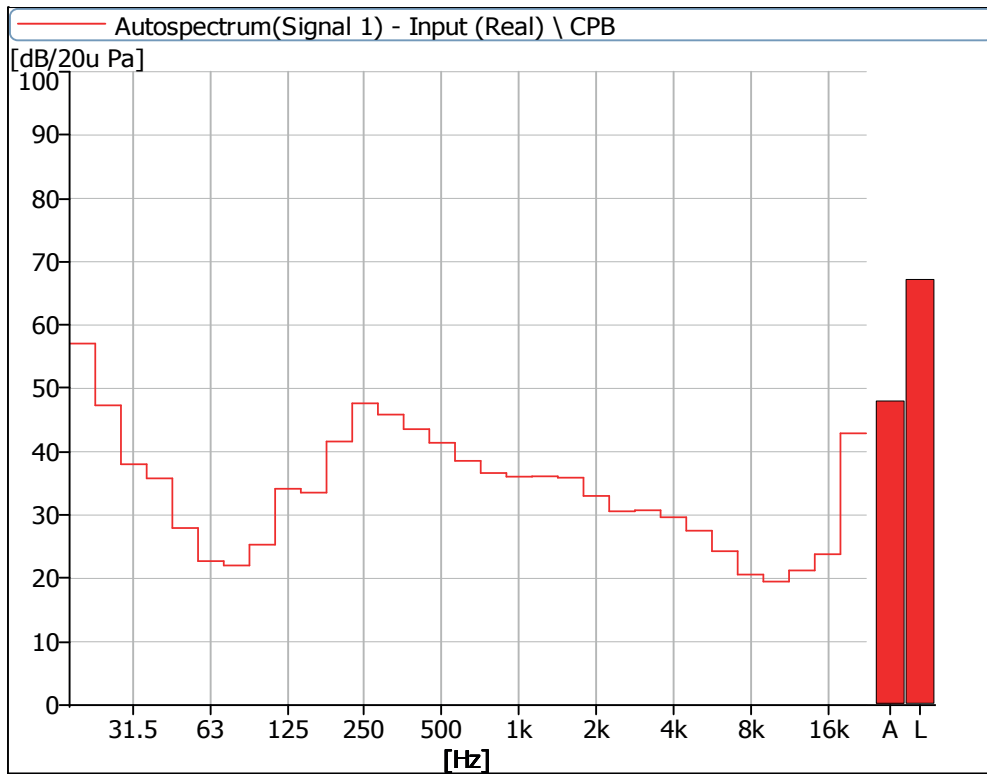


Figure 8 Noise Spectrum of Stage Luminaires  
(The Auto mode, Dynamic, No 2)

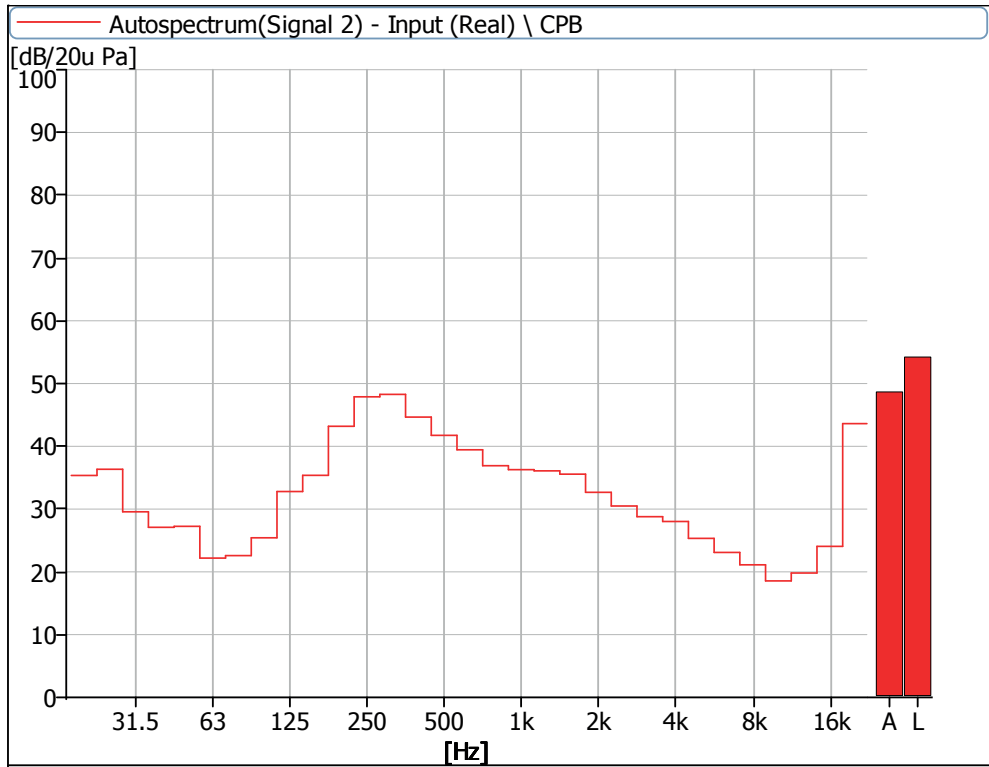


Figure 9 Noise Spectrum of Stage Luminaires  
(The Auto mode, Dynamic, No 3)

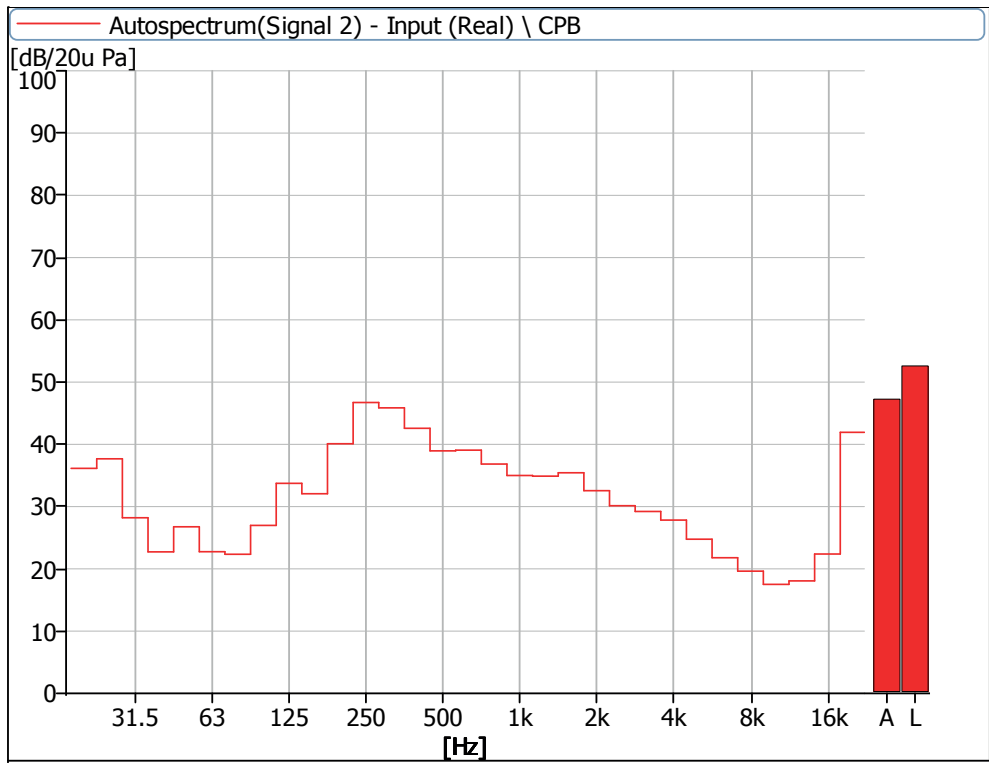


Figure 10 Noise Spectrum of Stage Luminaires  
(The Auto mode, Dynamic, No 4)

**Noise Detection Results of Stage Luminaires  
(The Stage mode)**

Frequency (Hz)	Sound Pressure Level in Stage Mode (dB)							
	Static				Dynamic			
	No 1	No 2	No 3	No 4	No 1	No 2	No 3	No 4
20	46.0	34.3	34.8	37.7	37.4	34.2	35.0	37.7
25	43.8	31.1	30.5	32.4	32.8	30.6	30.8	31.5
31.5	40.8	29.9	28.0	28.2	31.8	30.1	27.4	28.0
40	34.2	23.9	25.1	23.0	24.8	24.6	25.7	24.1
50	29.9	27.4	28.1	26.9	26.8	27.4	27.8	26.7
63	26.7	21.3	22.8	22.6	25.2	22.8	24.0	24.2
80	25.5	21.9	23.3	22.3	24.3	23.4	23.6	24.1
100	27.2	24.6	24.8	24.6	28.6	25.9	26.1	27.5
125	34.1	36.5	33.8	32.0	35.4	34.1	33.2	33.4
160	29.7	29.6	31.3	28.2	34.2	33.5	34.8	32.1
200	38.2	37.1	38.5	35.5	42.9	41.8	43.5	40.9
250	43.0	42.0	43.4	40.3	47.6	48.0	48.1	47.2
315	37.8	35.1	37.6	33.2	44.4	45.0	45.6	45.6
400	40.5	36.9	41.1	34.8	46.5	45.2	45.3	45.1
500	41.7	38.9	40.5	37.5	42.4	42.7	42.3	42.1
630	42.6	41.3	42.8	41.0	40.5	40.3	40.4	40.7
800	40.8	39.1	42.1	39.2	40.8	39.7	41.1	40.0
1000	36.8	39.4	37.0	39.6	38.7	38.5	39.1	37.7
1250	37.4	37.2	36.9	38.2	38.5	38.5	38.9	37.7
1600	39.6	34.1	36.1	37.9	38.7	38.2	38.7	38.1
2000	38.3	34.6	36.9	37.6	36.2	35.6	36.1	35.7
2500	34.9	32.8	34.4	32.7	33.4	33.0	33.7	32.4
3150	31.1	30.4	30.3	34.3	33.4	33.6	33.9	31.9
4000	31.3	29.2	31.2	34.9	32.5	32.8	33.0	31.1
5000	30.0	26.3	28.8	28.2	28.9	29.3	29.3	27.6
6300	26.1	21.9	27.0	25.5	26.1	26.5	26.9	25.1
8000	22.6	20.0	24.9	22.3	22.9	22.8	24.1	22.4
10000	19.2	16.8	21.1	19.3	18.9	19.6	20.3	18.8
12500	18.8	16.0	21.4	17.5	19.0	20.4	20.5	18.7
16000	21.1	19.3	21.7	20.8	22.8	23.5	24.1	22.5
20000	39.4	39.3	37.1	39.4	42.1	42.6	43.5	41.8
Leq	55.1	50.1	51.3	50.1	54.1	53.9	54.3	53.6
A-weighted dB (A)	49.0	47.2	48.5	48.1	49.8	49.6	50.0	49.3
Average sound pressure level dB(A)	48.3				49.7			

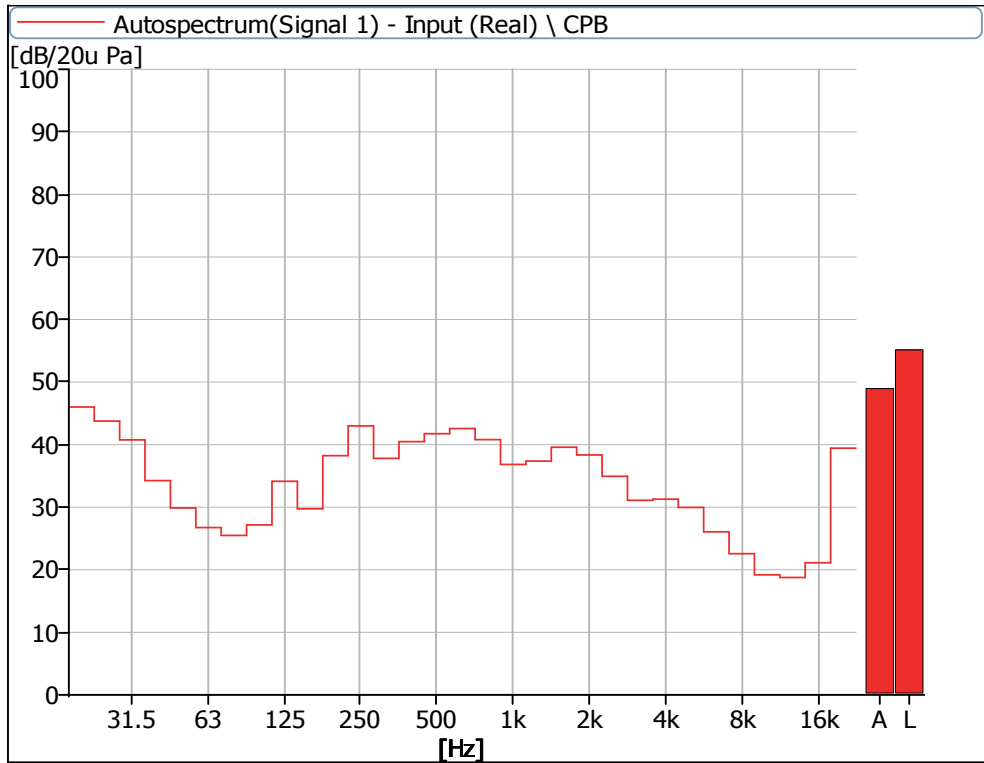


Figure 11 Noise Spectrum of Stage Luminaires  
(The Stage mode, static, No 1)

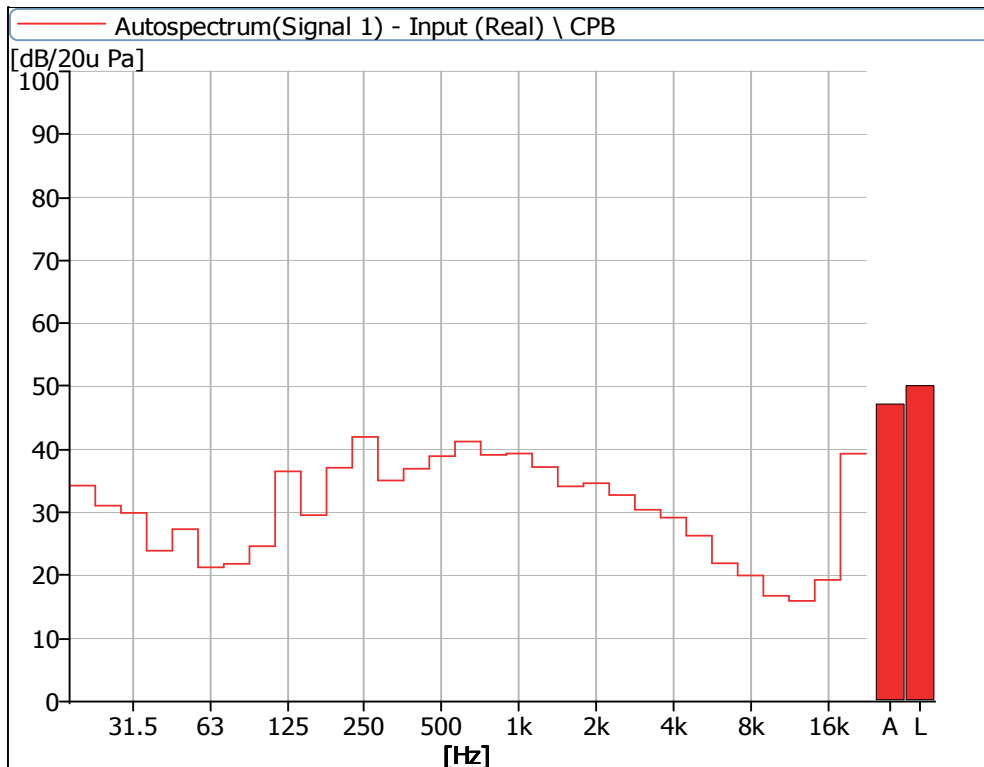


Figure 12 Noise Spectrum of Stage Luminaires  
(The Stage mode, static, No 2)

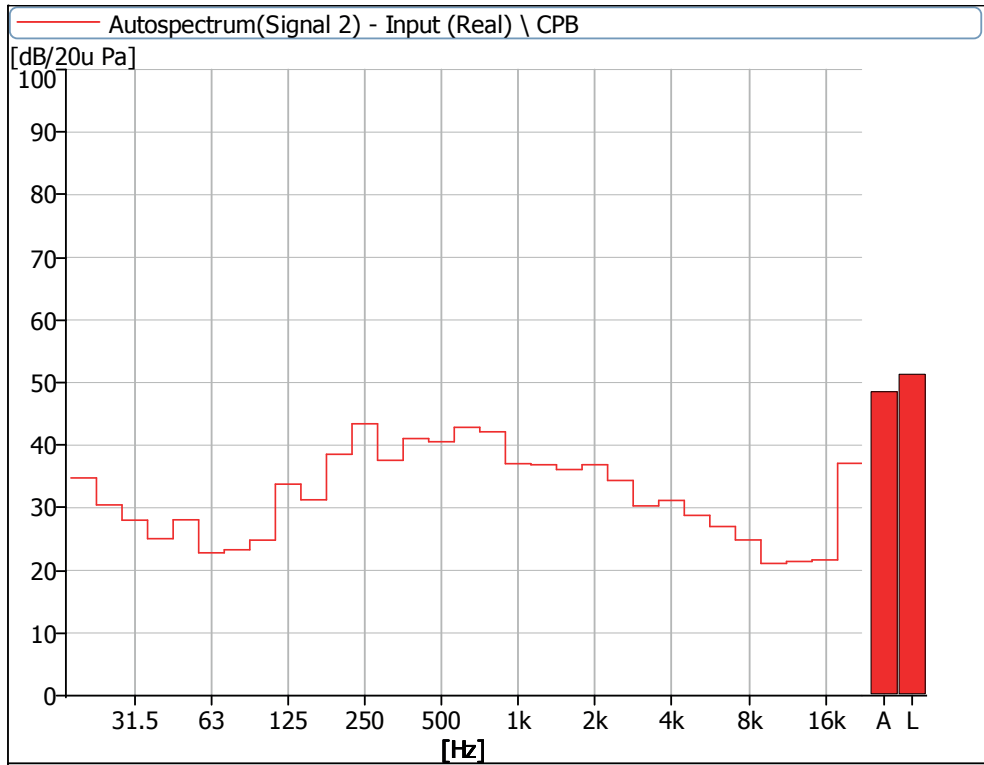


Figure 13 Noise Spectrum of Stage Luminaires  
(The Stage mode, static, No 3)

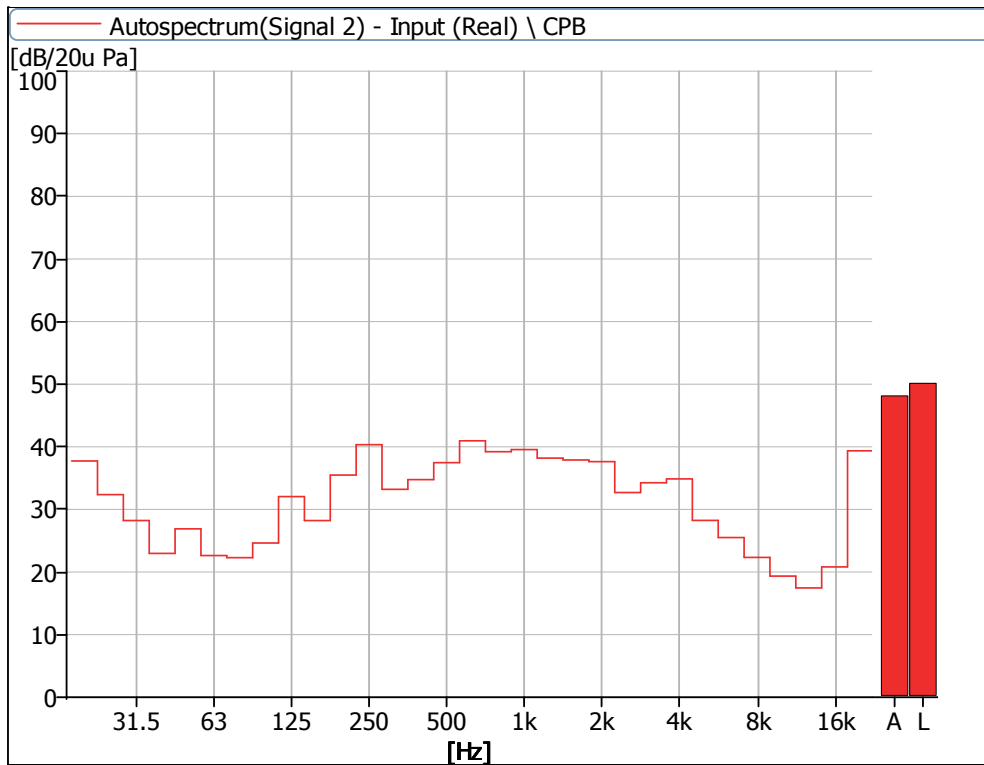


Figure 14 Noise Spectrum of Stage Luminaires  
(The Stage mode, static, No 4)

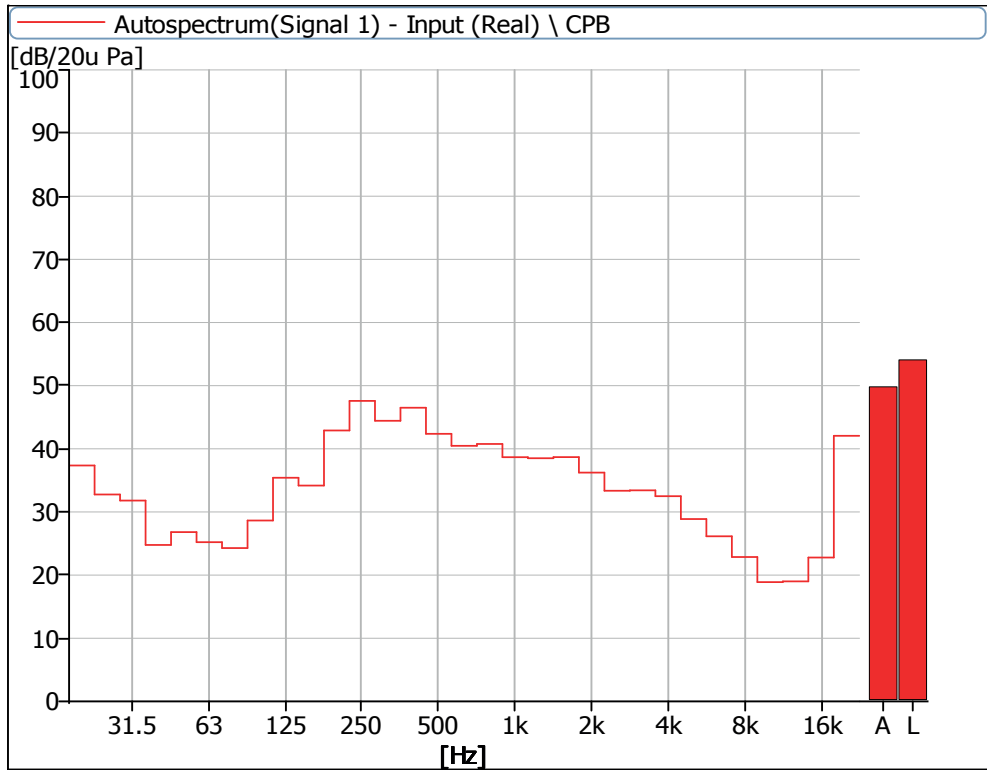


Figure 15 Noise Spectrum of Stage Luminaires  
(The Stage mode, Dynamic, No 1)

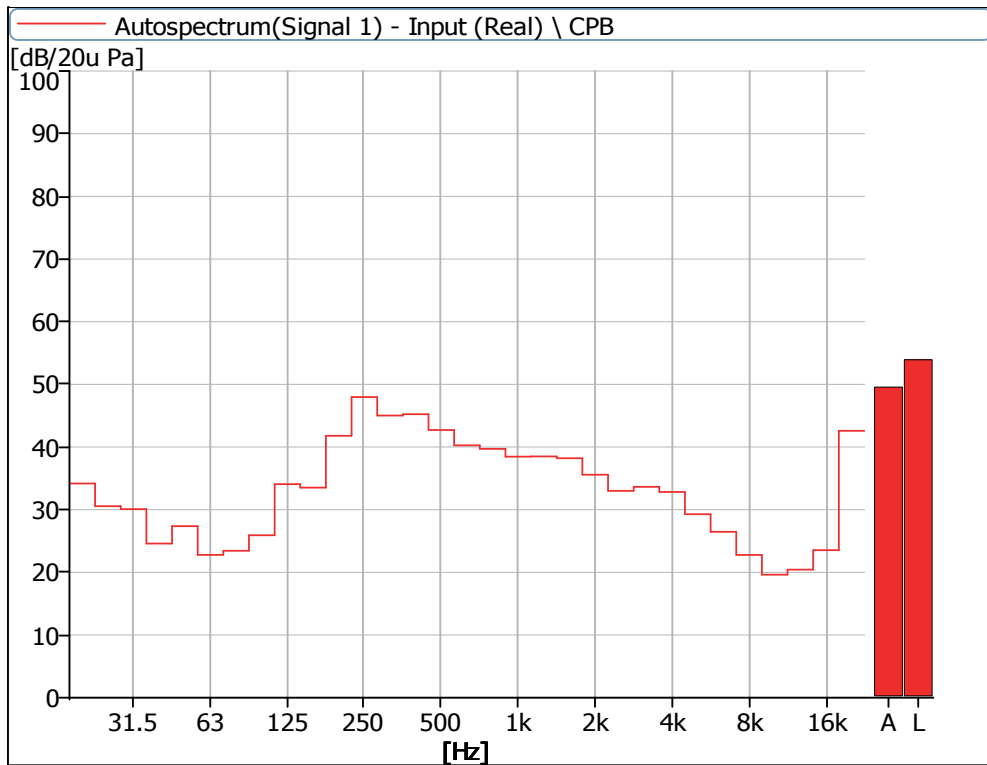


Figure 16 Noise Spectrum of Stage Luminaires  
(The Stage mode, Dynamic, No 2)

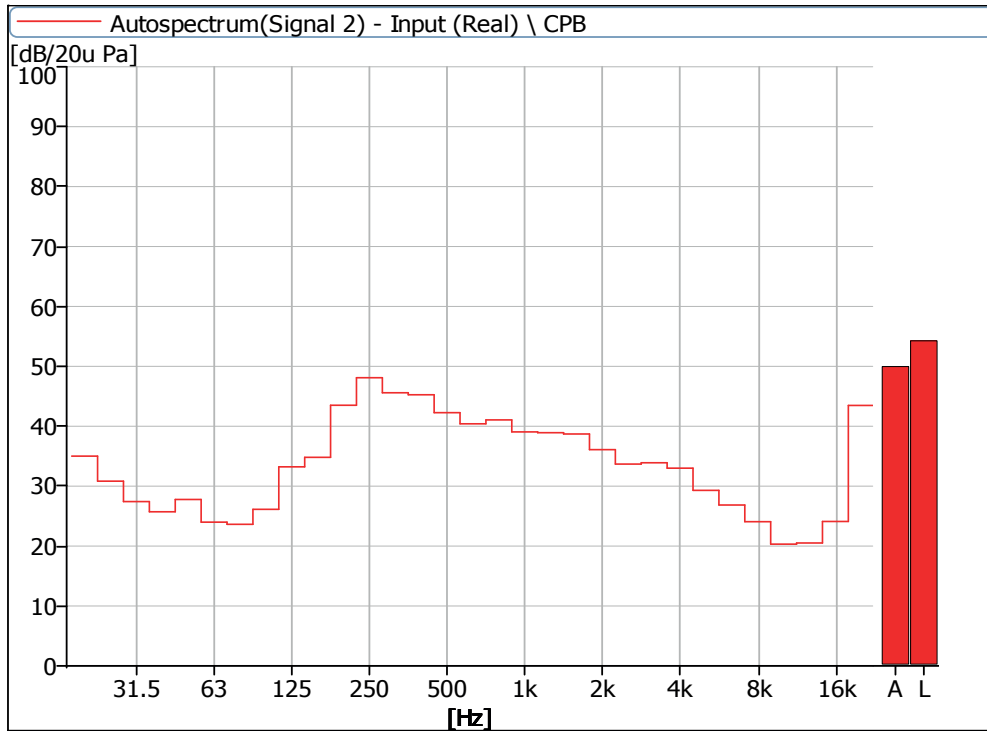


Figure 17 Noise Spectrum of Stage Luminaires  
(The Stage mode, Dynamic, No 3)

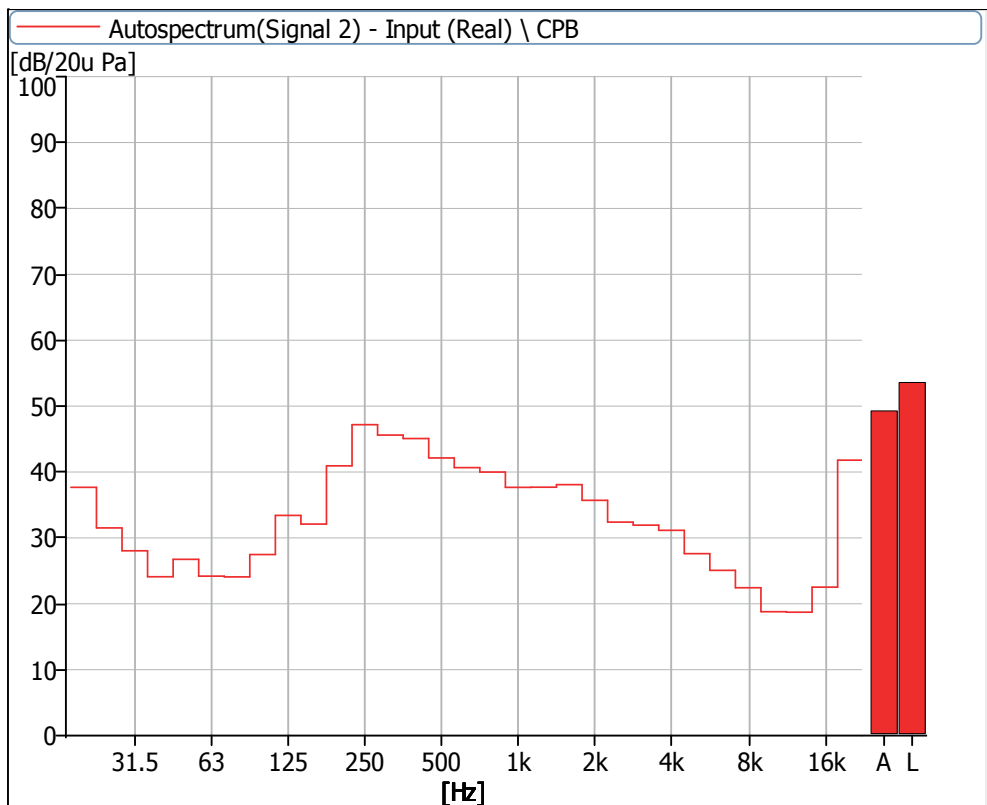


Figure 18 Noise Spectrum of Stage Luminaires  
(The Stage mode, Dynamic, No 4)

**Noise Detection Results of Stage Luminaires**  
(The Silence mode)

Frequency (Hz)	Sound Pressure Level in Silence Mode (dB)							
	Static				Dynamic			
	No 1	No 2	No 3	No 4	No 1	No 2	No 3	No 4
20	37.5	34.9	35.1	38.3	37.5	34.9	35.0	38.4
25	32.0	29.9	30.3	32.2	31.6	31.2	30.8	31.9
31.5	32.0	29.7	28.0	27.7	31.5	30.1	27.5	27.5
40	22.3	23.5	23.9	22.7	23.3	23.2	24.3	22.1
50	24.6	26.6	27.2	26.0	26.1	26.2	27.7	27.8
63	17.5	14.9	17.0	16.0	19.2	17.4	17.7	20.4
80	19.1	14.2	17.6	15.9	20.8	20.1	20.4	19.4
100	22.3	15.7	19.6	18.9	25.6	22.0	22.7	24.3
125	20.3	17.0	19.3	16.8	28.5	27.9	26.4	27.4
160	20.1	18.3	22.1	19.0	33.2	33.9	33.6	31.6
200	28.8	27.8	28.9	25.2	40.8	42.0	41.8	40.9
250	29.9	28.3	28.5	27.2	46.5	46.5	46.2	46.1
315	25.6	25.5	26.2	24.4	45.0	44.9	45.2	45.1
400	26.4	23.8	26.1	21.8	45.4	42.9	42.9	44.7
500	29.9	29.8	27.4	25.6	38.6	41.3	41.1	39.1
630	28.5	27.7	28.9	26.4	34.2	35.8	34.4	35.1
800	24.8	23.5	25.7	23.3	32.0	31.8	33.2	31.3
1000	21.2	23.7	23.4	25.4	29.7	30.8	30.6	28.2
1250	25.8	24.0	26.9	27.4	29.4	30.8	30.0	29.6
1600	24.5	22.8	22.7	23.4	28.5	28.5	29.6	28.4
2000	19.1	16.6	20.4	17.0	25.5	25.0	25.6	24.2
2500	18.2	14.2	17.9	14.9	24.2	24.1	24.8	23.5
3150	14.4	14.9	16.0	15.5	21.3	22.6	23.5	20.1
4000	17.0	14.4	18.4	15.7	20.9	24.2	22.6	19.9
5000	17.0	12.7	17.0	14.7	21.3	23.2	19.8	19.3
6300	15.6	11.2	17.4	14.2	17.9	20.8	20.4	18.0
8000	10.5	8.8	15.3	14.0	15.8	19.4	18.2	16.3
10000	11.8	9.1	15.0	14.2	14.5	17.2	17.2	15.6
12500	12.4	9.6	16.4	14.8	16.7	19.7	17.6	16.6
16000	18.7	13.4	18.5	20.7	22.7	22.7	23.2	22.0
20000	38.7	32.4	35.1	40.8	42.4	42.5	43.3	42.0
Leq	43.7	40.9	41.8	44.2	52.3	52.2	52.2	52.0
A-weighted dB (A)	35.7	34.0	35.3	35.7	45.7	45.8	45.8	45.5
Average sound pressure level dB(A)	35.2				45.7			

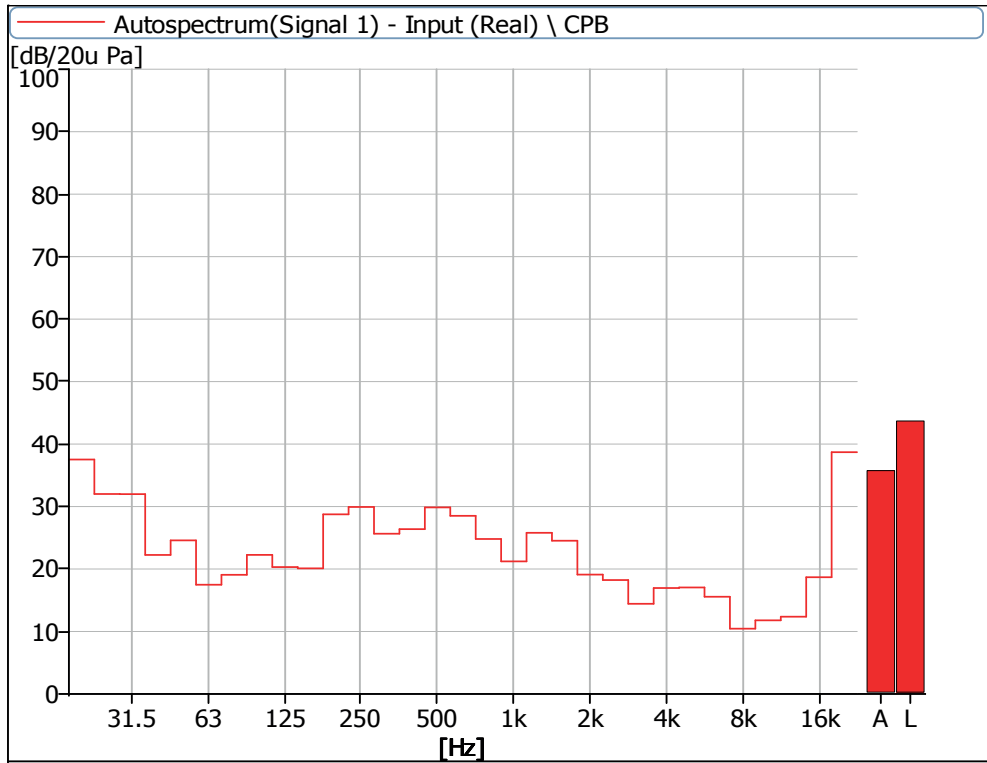


Figure 19 Noise Spectrum of Stage Luminaires  
(The Silence mode, static, No 1)

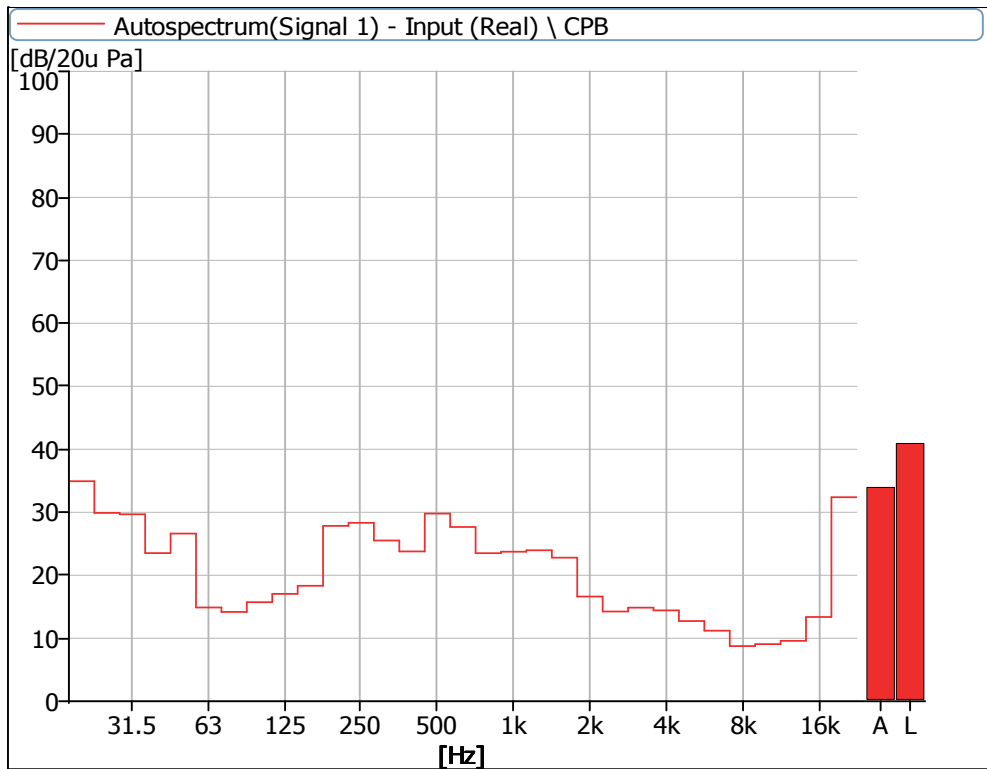


Figure 20 Noise Spectrum of Stage Luminaires  
(The Silence mode, static, No 2)

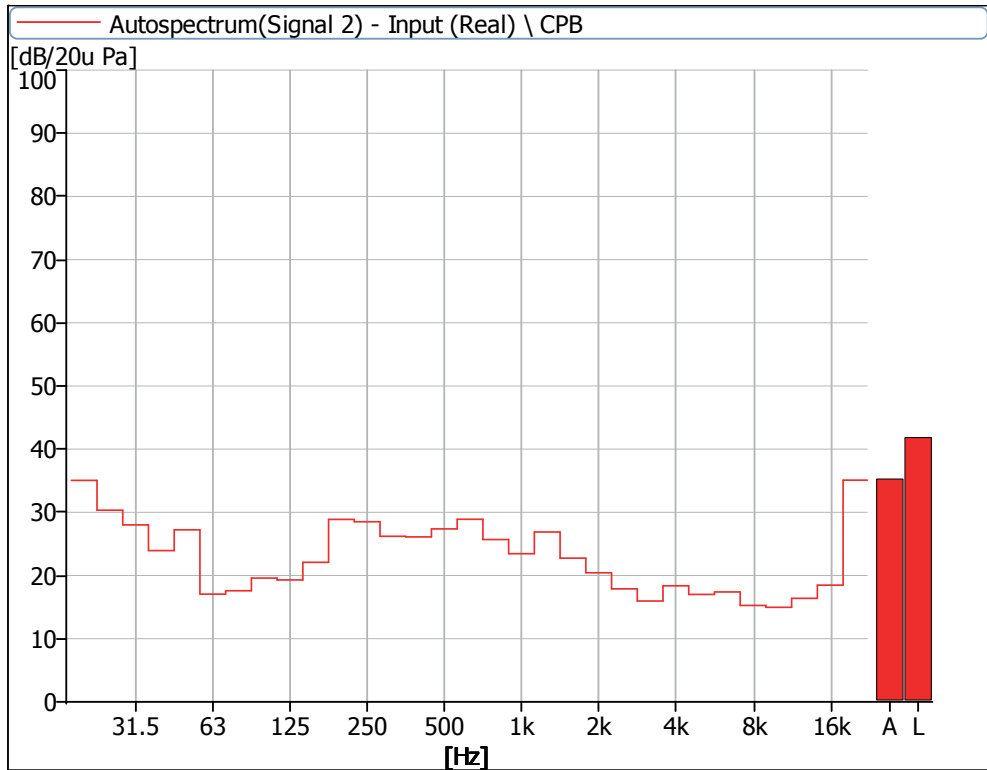


Figure 21 Noise Spectrum of Stage Luminaires  
(The Silence mode, static, No 3)

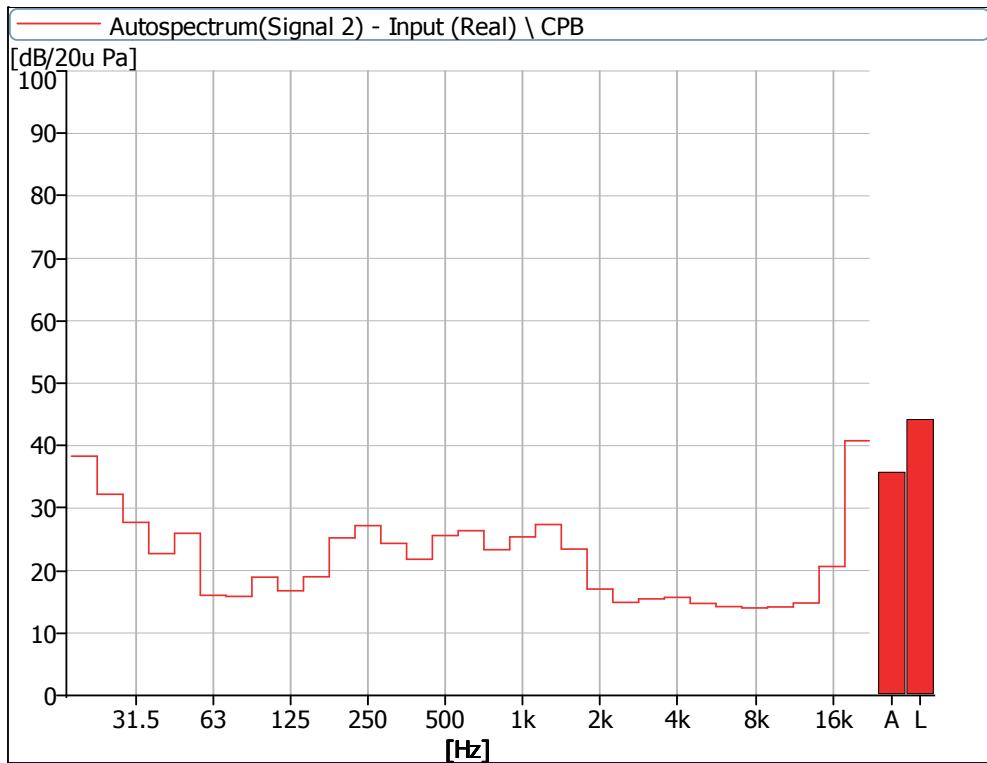


Figure 22 Noise Spectrum of Stage Luminaires  
(The Silence mode, static, No 4)

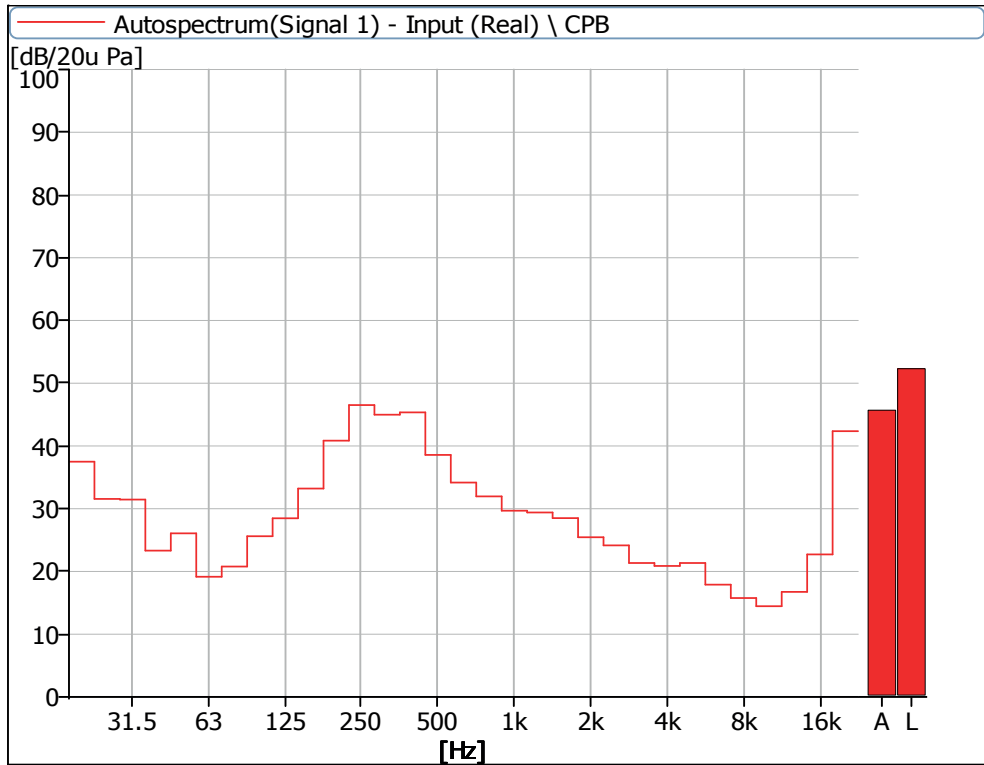


Figure 23 Noise Spectrum of Stage Luminaires  
(The Silence mode, Dynamic, No 1)

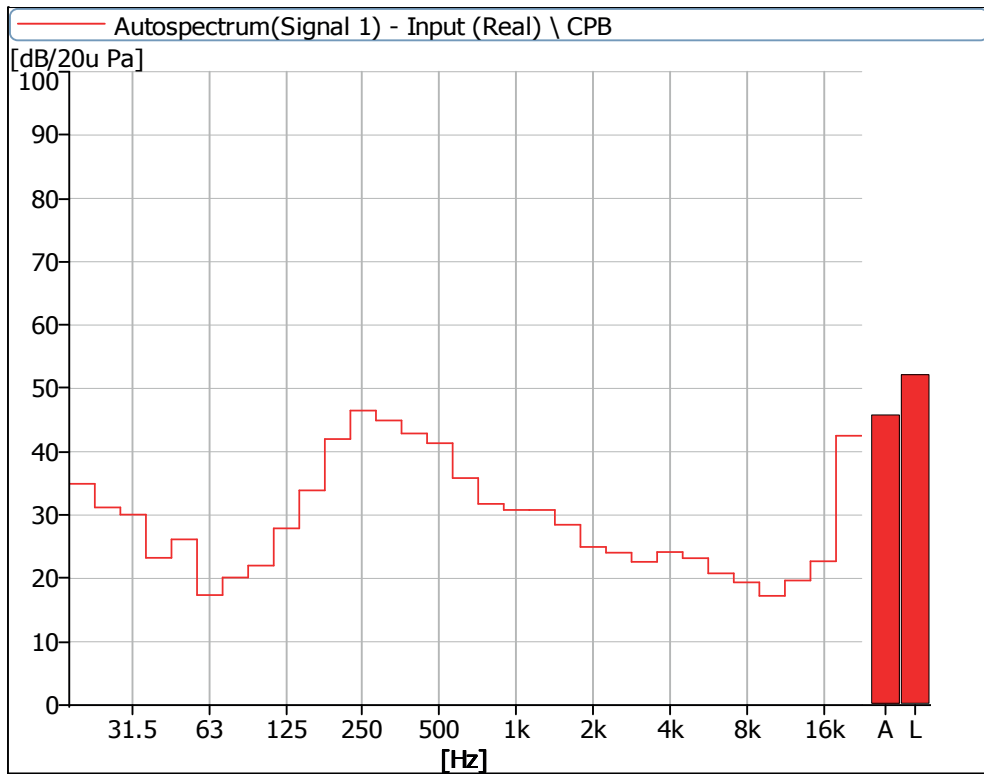


Figure 24 Noise Spectrum of Stage Luminaires  
(The Silence mode, Dynamic, No 2)

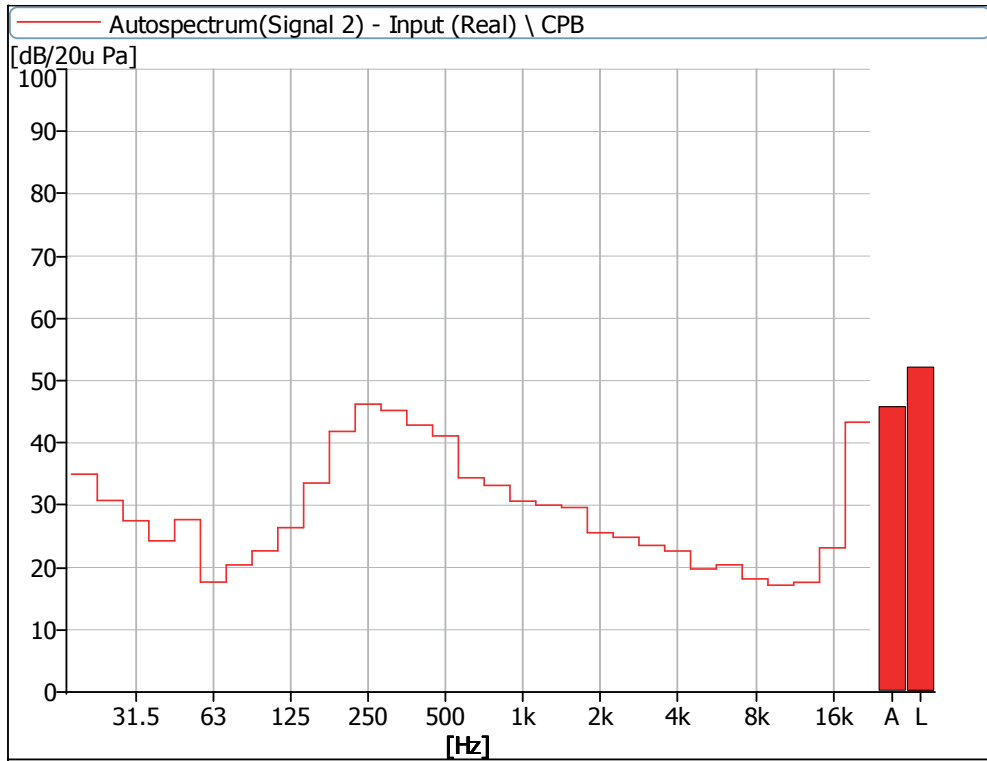


Figure 25 Noise Spectrum of Stage Luminaires  
(The Silence mode, Dynamic, No 3)

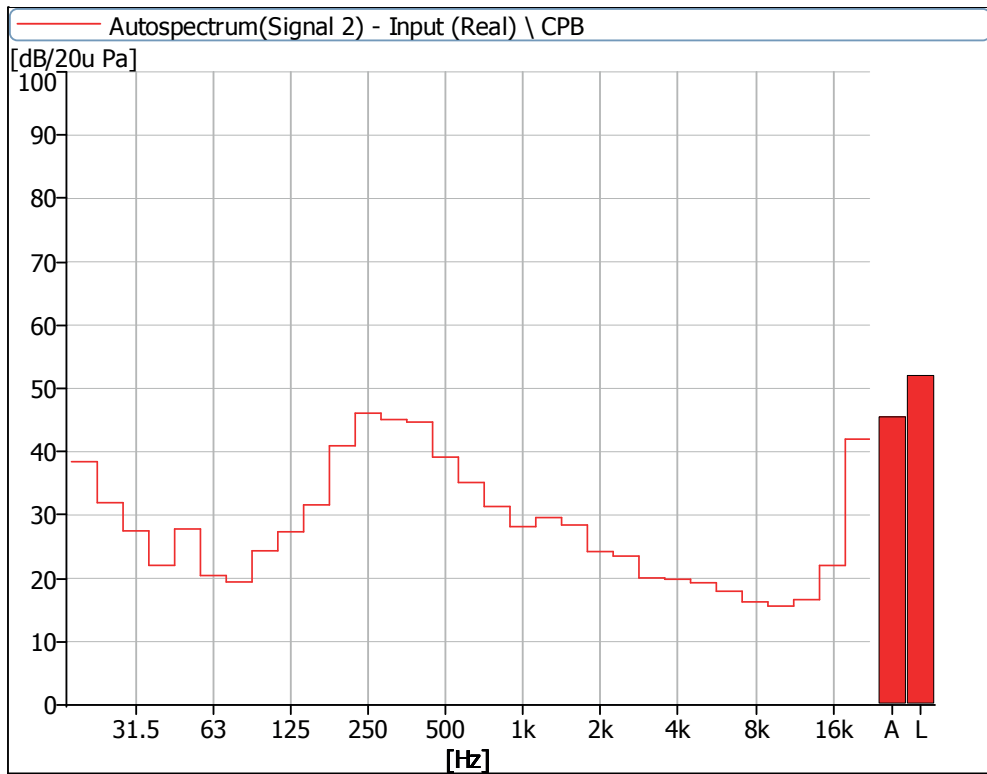


Figure 26 Noise Spectrum of Stage Luminaires  
(The Silence mode, Dynamic, No 4)

**Noise Detection Results of Stage Luminaires  
(The Super Silence mode)**

Frequency (Hz)	Sound Pressure Level in Super Silence Mode (dB)							
	Static				Dynamic			
	No 1	No 2	No 3	No 4	No 1	No 2	No 3	No 4
20	38.0	33.9	35.9	36.2	37.7	35.5	35.6	38.5
25	32.3	30.3	30.9	32.2	31.9	30.6	30.5	32.4
31.5	31.3	29.8	27.3	28.1	32.2	30.1	27.6	28.2
40	22.1	23.3	24.5	21.3	23.5	24.3	24.8	22.9
50	24.8	26.4	26.4	26.2	26.6	27.2	28.0	27.1
63	16.4	13.5	14.9	16.2	20.3	17.8	17.9	19.7
80	16.8	13.6	14.9	16.3	21.4	22.4	20.8	22.0
100	23.2	15.7	20.3	20.4	26.8	23.5	24.1	25.8
125	14.9	12.0	14.8	12.9	28.5	27.8	27.4	26.6
160	20.0	17.6	20.4	18.0	35.6	32.8	35.7	31.3
200	23.2	19.4	21.6	18.1	42.7	43.2	43.9	42.4
250	26.8	22.3	24.6	21.7	46.0	46.6	46.4	46.2
315	20.7	19.2	21.3	19.0	42.5	45.3	43.9	43.8
400	21.0	16.6	21.2	16.3	43.4	44.8	43.5	45.0
500	22.0	22.4	21.4	21.5	38.6	40.8	40.1	38.9
630	21.6	20.6	22.2	22.2	34.2	34.9	35.3	34.2
800	20.5	17.4	19.7	16.5	32.9	31.9	31.3	30.9
1000	15.5	16.9	16.7	17.6	28.2	29.7	29.6	26.6
1250	22.9	22.4	24.5	23.6	28.9	30.4	30.1	28.8
1600	22.1	19.1	20.9	21.1	27.6	28.2	28.4	28.2
2000	14.5	11.2	16.6	13.4	24.5	24.7	24.9	24.3
2500	11.8	10.5	15.1	12.0	23.7	23.9	24.9	23.7
3150	11.2	10.9	14.9	12.8	19.3	21.0	20.8	19.5
4000	13.6	12.7	17.2	13.9	19.1	25.3	20.0	18.9
5000	15.7	10.1	16.3	13.2	18.5	22.8	19.2	18.2
6300	12.0	9.4	15.5	13.4	16.9	21.0	18.2	17.5
8000	10.5	8.9	14.9	13.6	14.4	18.2	17.2	16.1
10000	9.7	8.8	14.9	14.2	13.4	17.1	16.2	15.5
12500	14.0	9.6	15.5	14.7	14.8	18.3	16.9	16.8
16000	20.1	19.8	20.0	21.7	21.7	22.6	23.2	22.1
20000	39.9	41.2	39.6	42.3	42.1	42.5	43.4	42.0
Leq	43.5	43.0	42.6	44.2	51.6	52.6	52.2	52.0
A-weighted dB (A)	33.4	33.5	33.6	34.7	44.7	46.1	45.5	45.3
Average sound pressure level dB(A)	33.8				45.4			

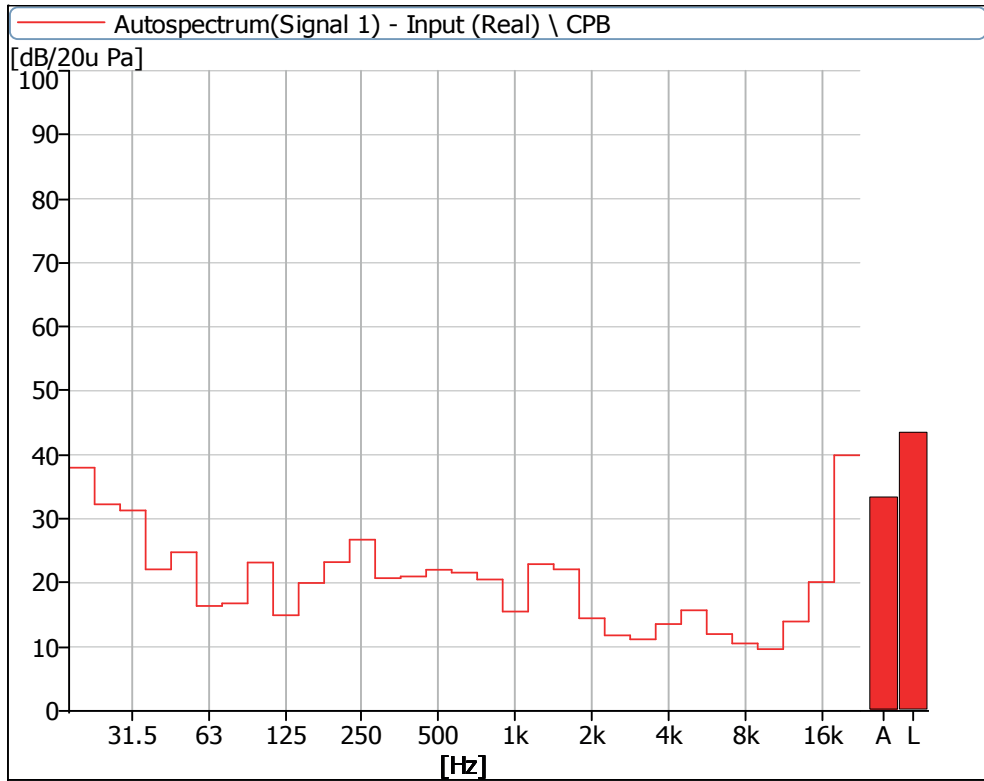


Figure 27 Noise Spectrum of Stage Luminaires  
(The Super Silence mode, static, No 1)

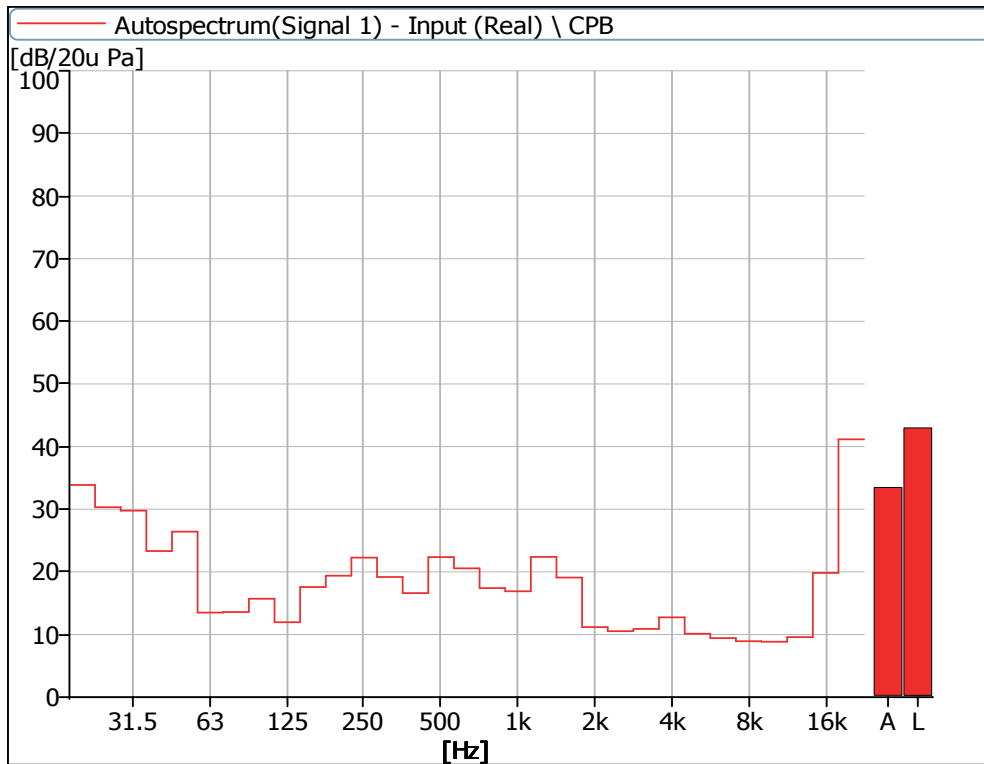


Figure 28 Noise Spectrum of Stage Luminaires  
(The Super Silence mode, static, No 2)

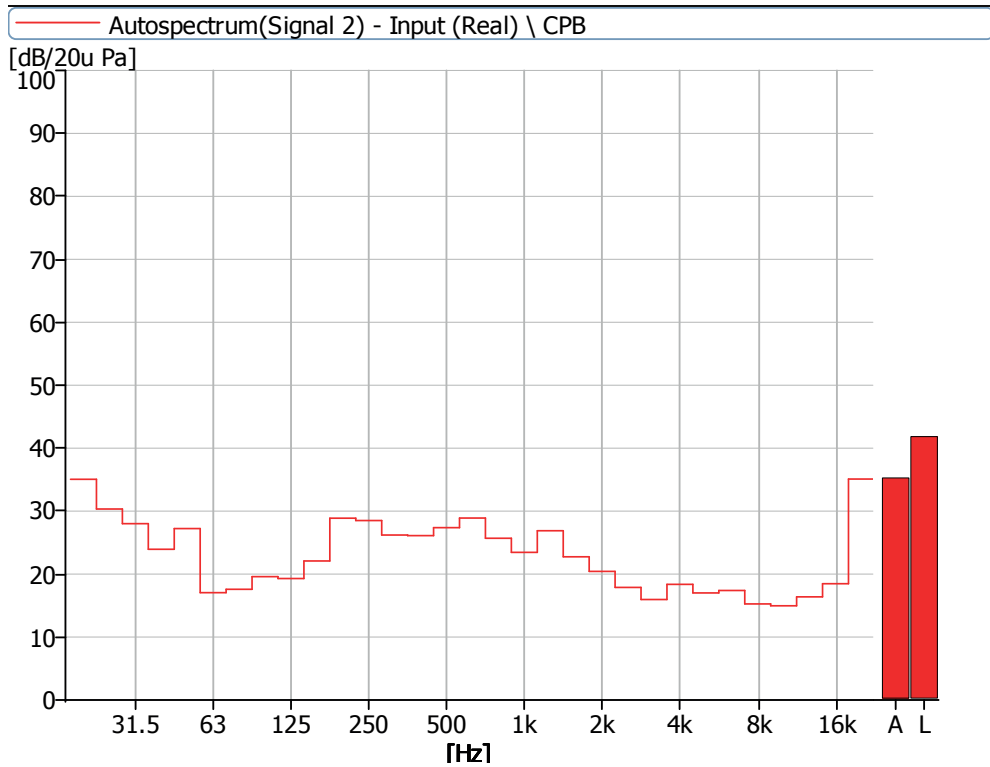


Figure 29 Noise Spectrum of Stage Luminaires  
(The Super Silence mode, static, No 3)

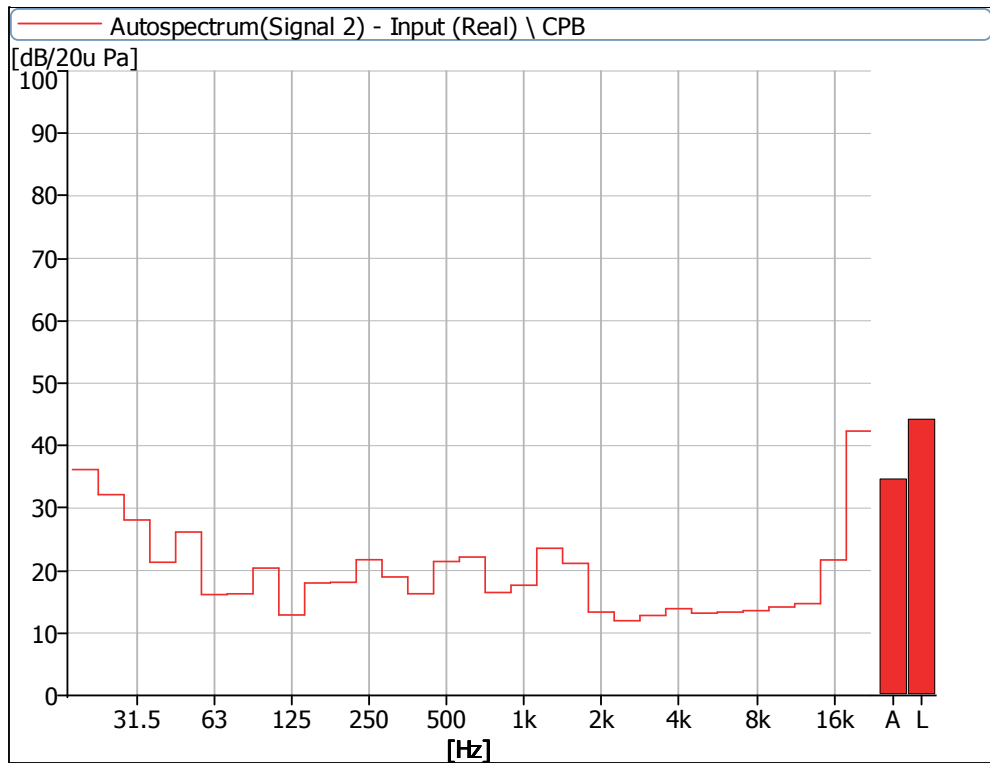


Figure 30 Noise Spectrum of Stage Luminaires  
(The Super Silence mode, static, No 4)

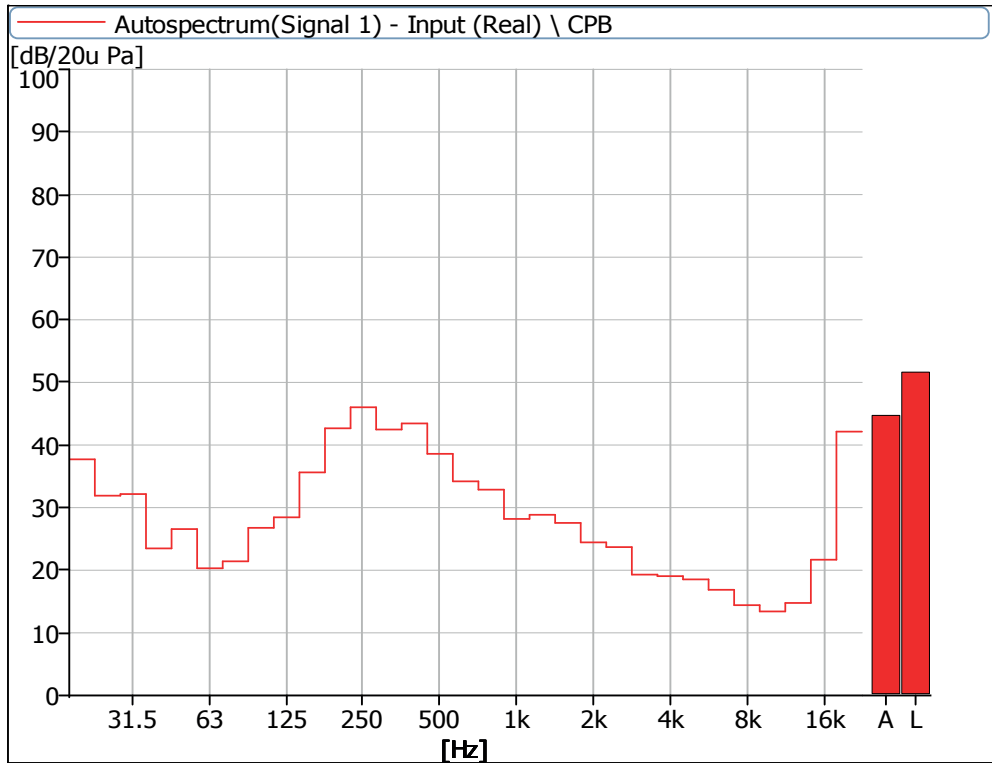


Figure 31 Noise Spectrum of Stage Luminaires  
(The Super Silence mode, Dynamic, No 1)

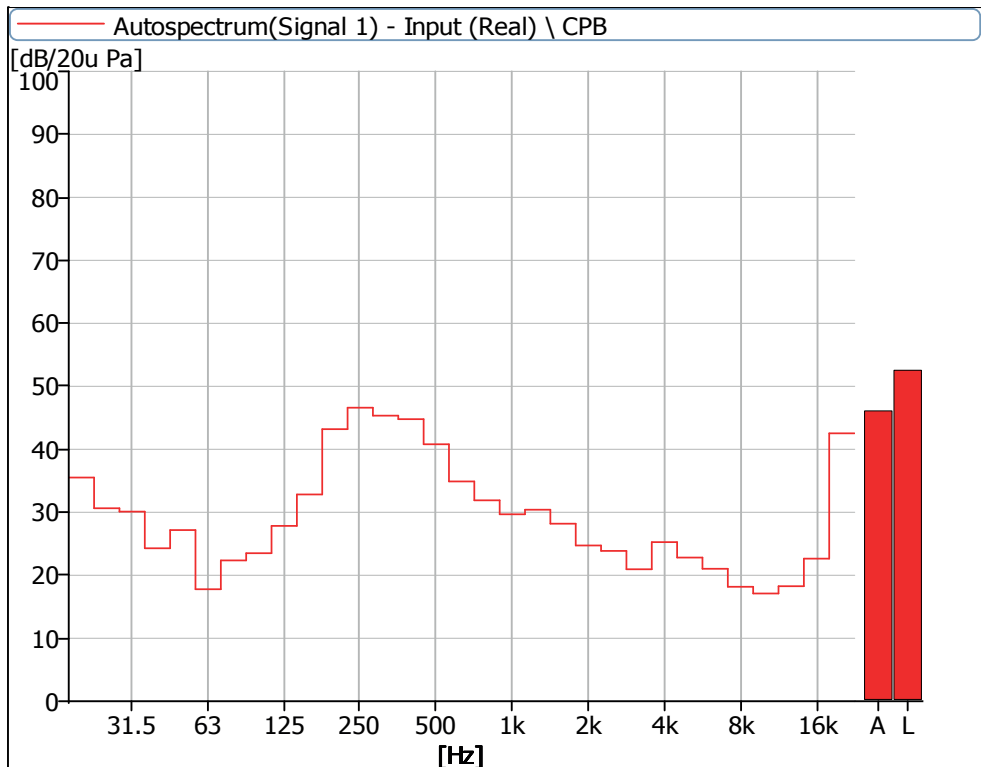


Figure 32 Noise Spectrum of Stage Luminaires  
(The Super Silence mode, Dynamic, No 2)

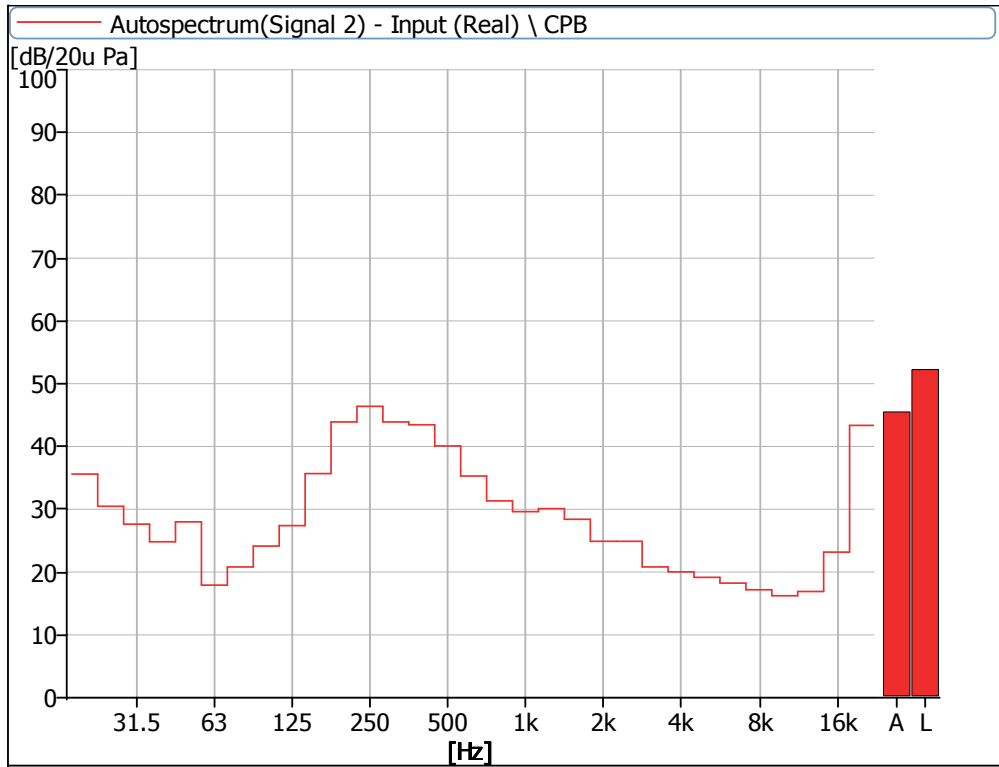


Figure 33 Noise Spectrum of Stage Luminaires  
(The Super Silence mode, Dynamic, No 3)

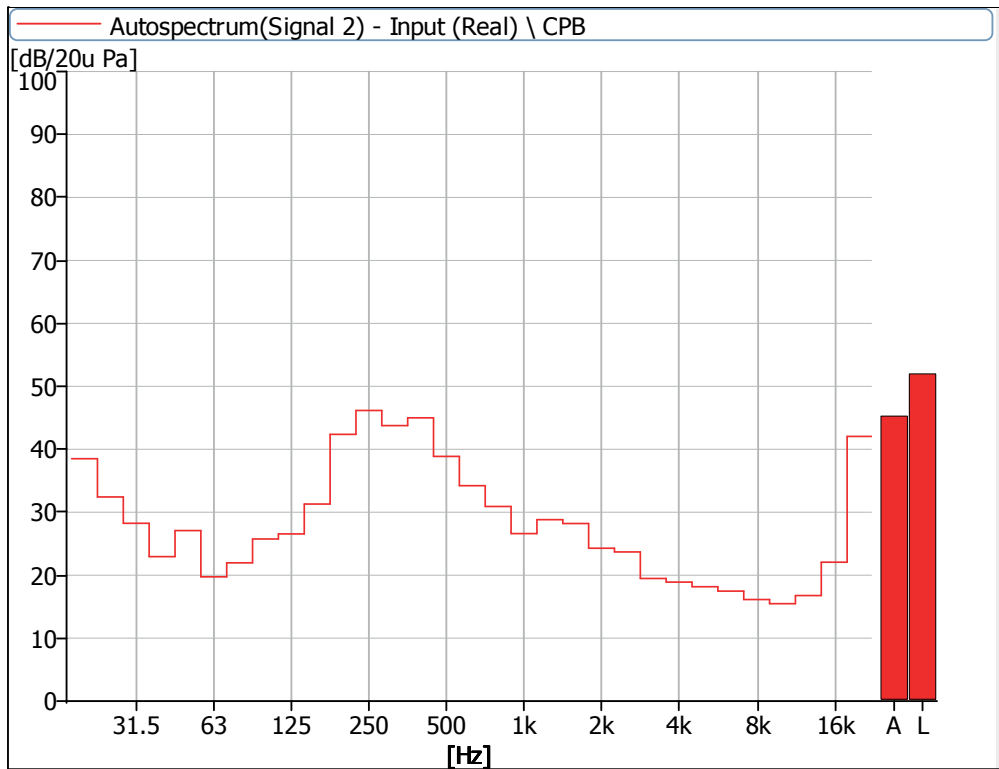


Figure 34 Noise Spectrum of Stage Luminaires  
(The Super Silence mode, Dynamic, No 4)



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