



BORA

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	34.6	34.5	43.0	36.7	34.0	33.6	33.0	35.2
25	37.4	35.7	40.1	37.6	37.8	35.8	36.8	37.7
31.5	31.8	29.7	34.5	27.6	32.3	31.3	29.3	29.3
40	23.6	23.1	30.3	22.1	23.7	23.8	25.2	22.0
50	25.8	25.8	28.9	25.9	25.8	26.3	28.9	26.4
63	20.3	16.3	20.8	17.3	19.5	17.8	19.0	18.8
80	21.2	16.5	21.0	17.2	24.5	20.9	22.3	21.6
100	27.2	20.8	24.7	24.2	29.3	25.3	26.1	29.0
125	27.0	22.4	27.1	21.8	33.1	31.4	31.3	30.2
160	28.8	24.5	29.7	24.9	36.8	36.4	37.1	34.3
200	31.9	30.4	33.9	30.8	40.3	40.6	41.5	39.1
250	34.7	34.2	36.3	35.0	46.9	46.5	46.9	46.6
315	33.0	28.7	33.1	29.2	46.5	45.9	45.9	45.6
400	36.8	30.3	34.3	29.6	41.9	40.4	41.7	38.7
500	39.4	36.8	39.8	36.7	45.7	43.5	45.2	41.9
630	38.8	36.4	39.9	35.6	37.4	36.6	38.2	36.6
800	36.2	37.0	37.6	35.5	39.0	38.1	38.7	37.1
1000	32.7	36.7	33.8	36.9	36.0	35.7	36.5	34.6
1250	31.0	32.3	32.9	31.3	34.3	34.6	34.7	32.9
1600	32.6	29.8	32.3	31.7	33.4	32.9	33.8	32.2
2000	31.3	27.5	32.8	30.8	32.9	32.1	33.3	31.6
2500	28.6	25.7	30.5	30.1	30.8	30.0	31.1	29.4
3150	24.8	26.8	27.5	28.3	28.5	28.0	29.5	27.6
4000	22.1	21.9	25.8	24.8	26.8	26.4	28.0	26.0
5000	21.7	20.3	24.3	21.2	25.3	25.0	25.0	23.0
6300	18.4	14.8	20.7	17.8	21.7	21.5	22.3	20.4
8000	14.6	11.6	18.4	16.0	20.3	18.6	20.9	18.4
10000	12.5	10.4	16.7	14.8	16.8	16.7	18.8	16.6
12500	13.7	13.2	17.2	16.0	17.1	17.5	19.1	17.4
16000	18.9	15.6	20.0	19.0	21.6	22.0	22.4	21.2
20000	38.4	33.5	37.6	36.9	40.5	40.4	41.0	39.8
Leq	47.7	46.0	51.8	46.7	53.5	52.7	53.3	52.2
A-weighted dB (A)	43.9	43.1	44.9	43.4	48.3	47.4	48.3	46.6
Average sound pressure level dB(A)	43.9				47.7			

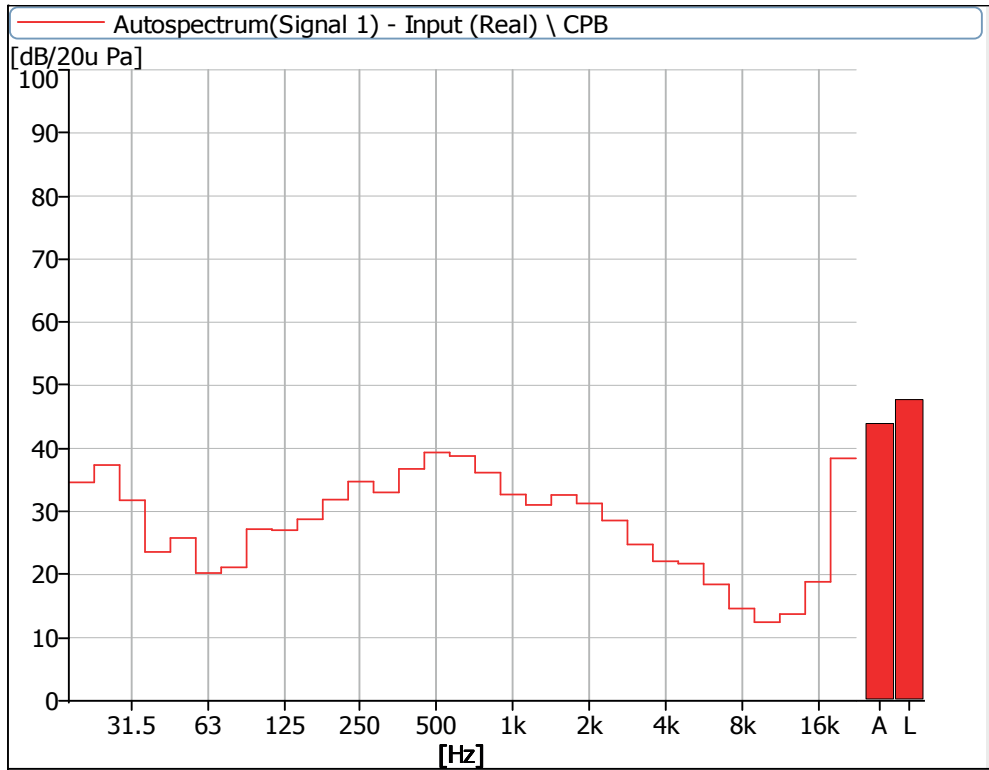


Figure 3 Noise Spectrum of Stage Luminaires
(The Auto mode, static, No 1)

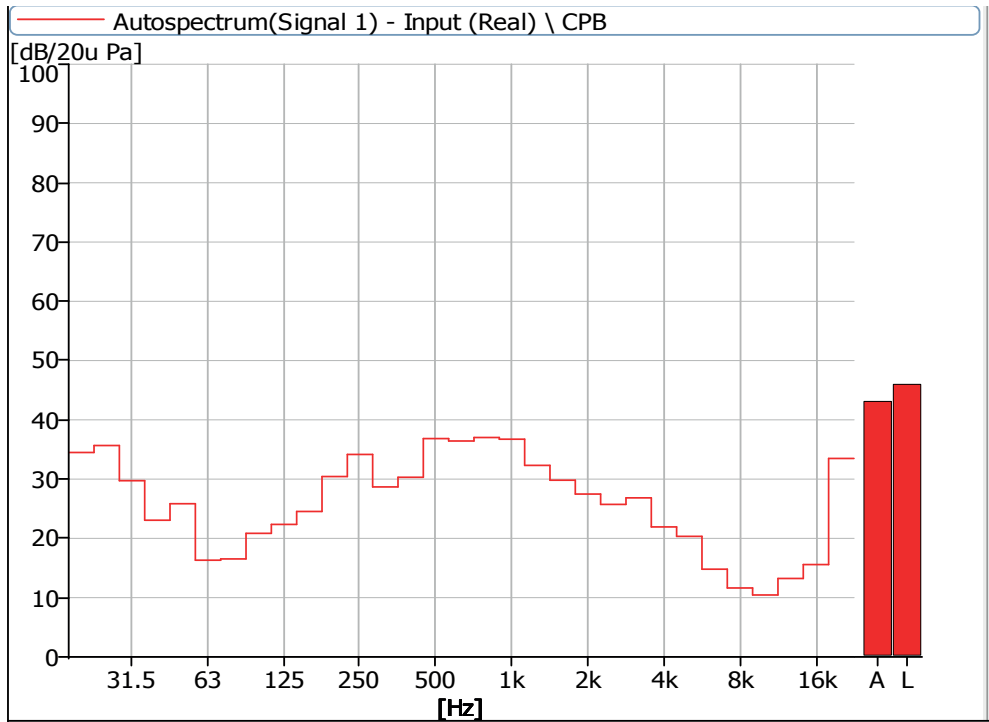


Figure 4 Noise Spectrum of Stage Luminaires
(The Auto mode, static, No 2)

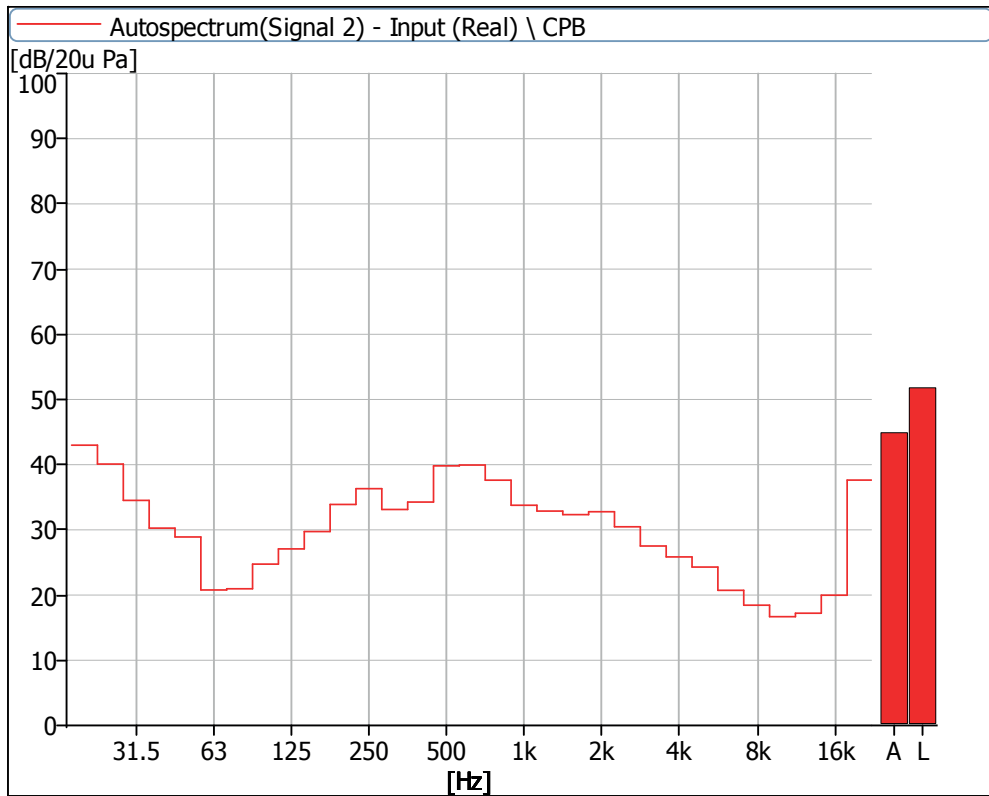


Figure 5 Noise Spectrum of Stage Luminaires
(The Auto mode, static, No 3)

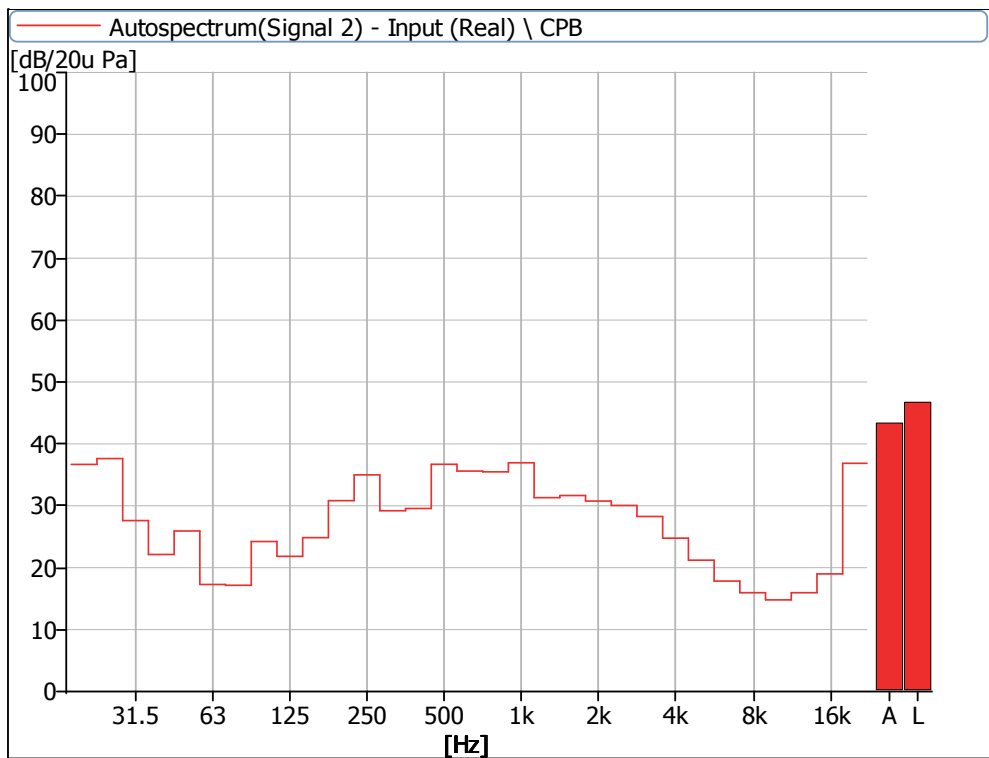


Figure 6 Noise Spectrum of Stage Luminaires
(The Auto mode, static, No 4)

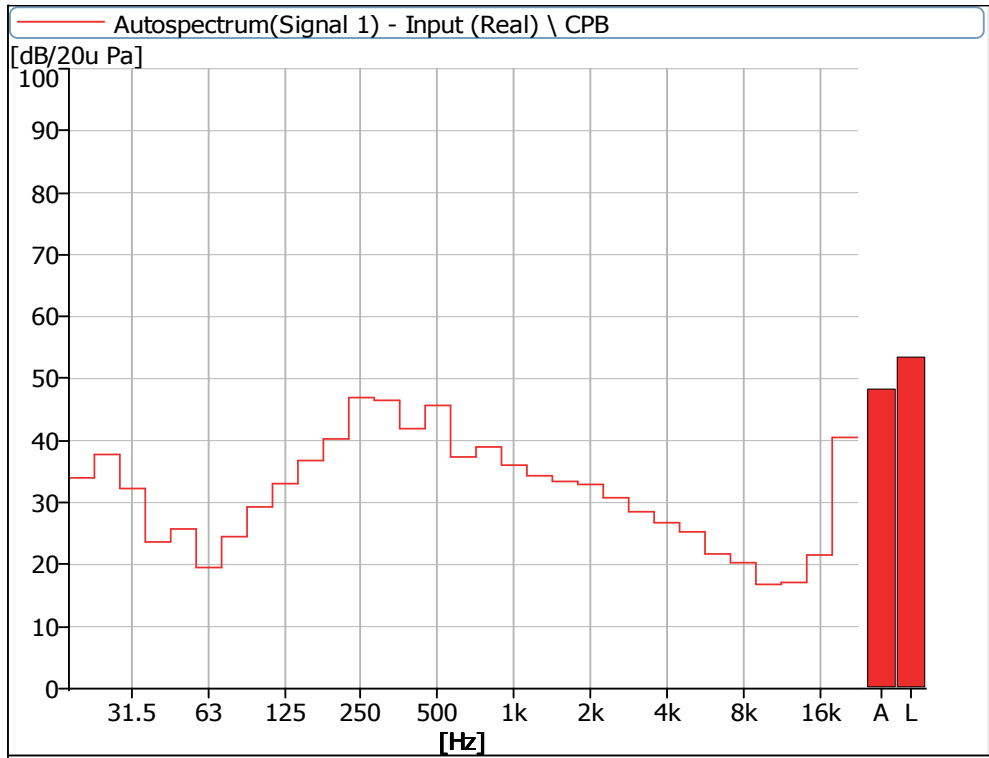


Figure 7 Noise Spectrum of Stage Luminaires
(The Auto mode, Dynamic, No 1)

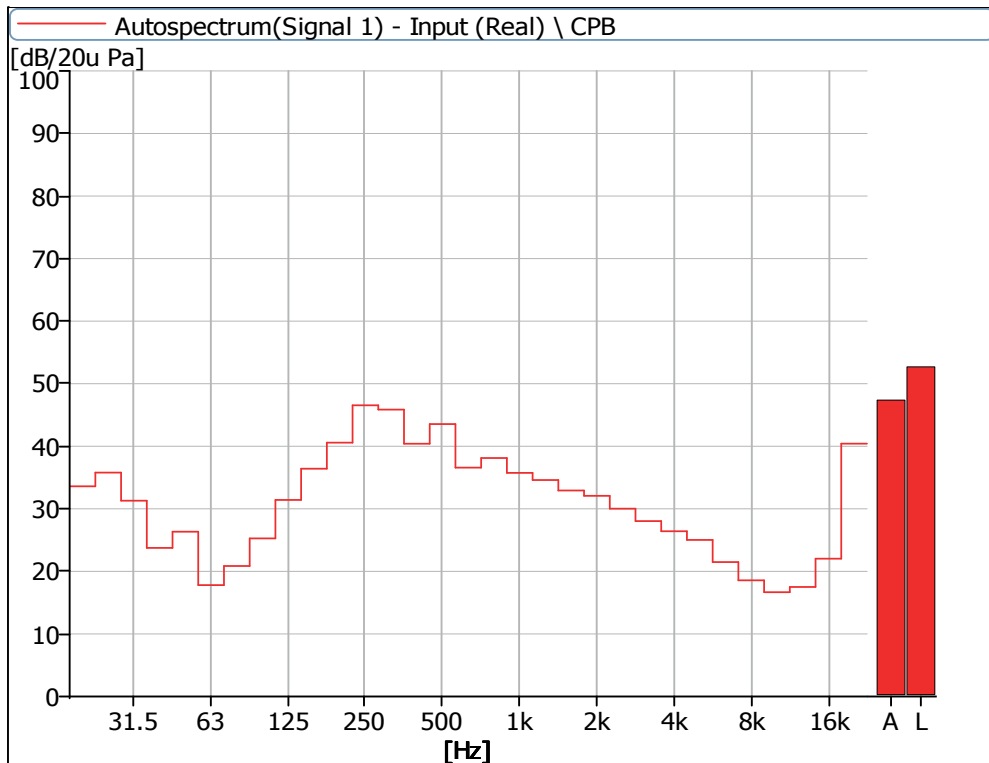


Figure 8 Noise Spectrum of Stage Luminaires
(The Auto mode, Dynamic, No 2)

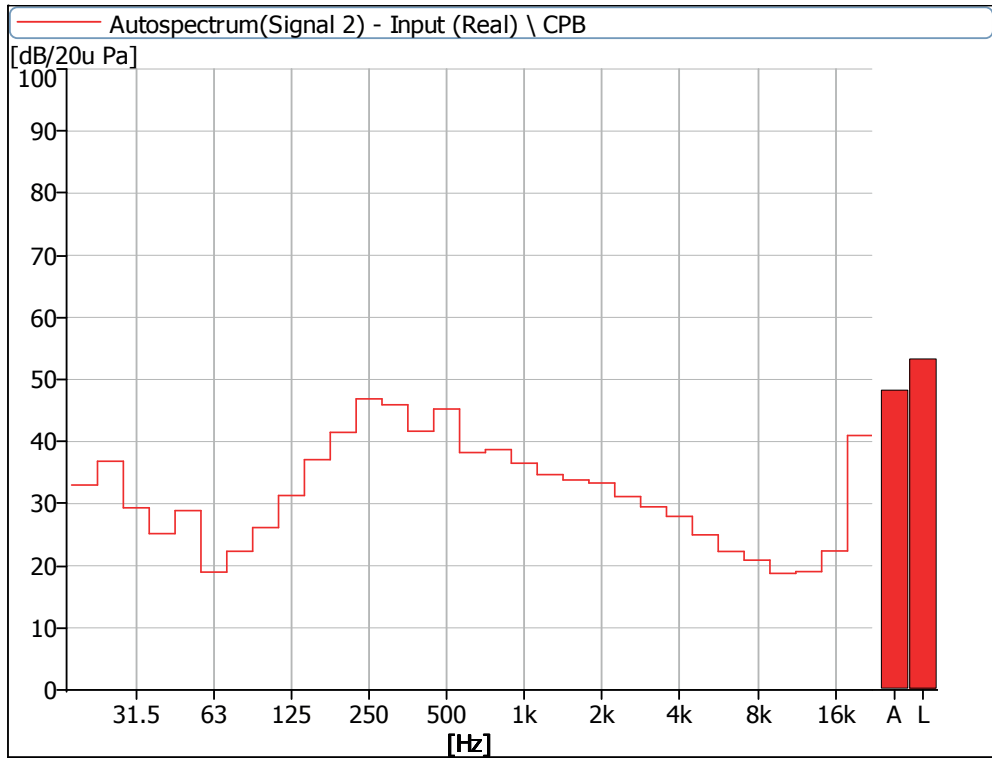


Figure 9 Noise Spectrum of Stage Luminaires
(The Auto mode, Dynamic, No 3)

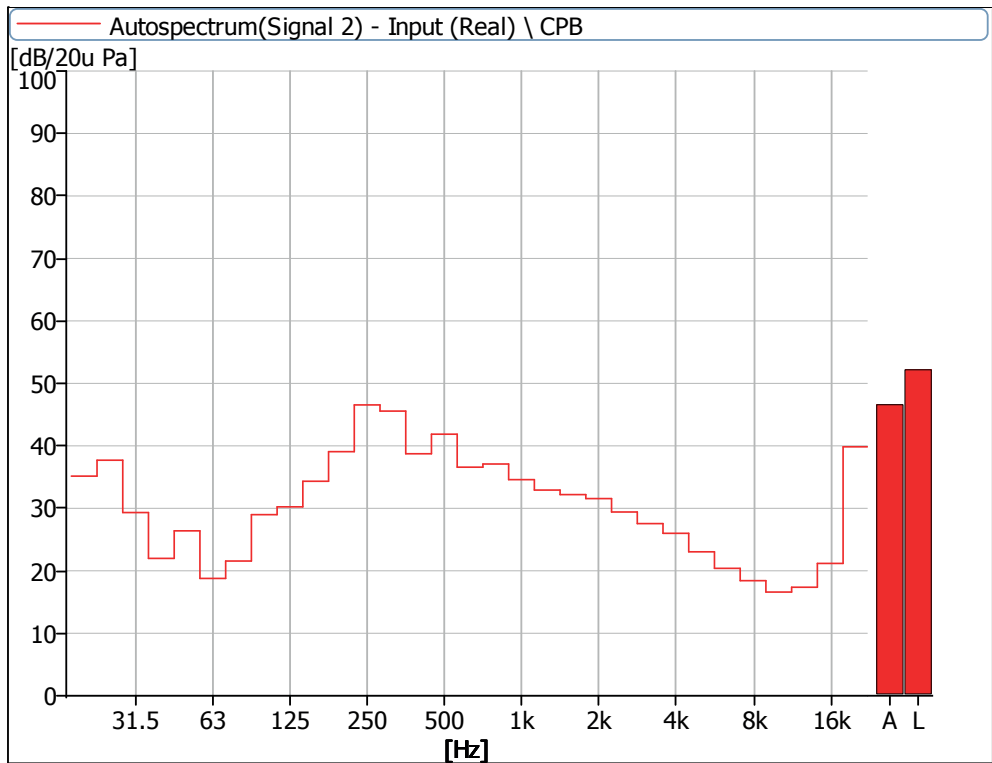


Figure 10 Noise Spectrum of Stage Luminaires
(The Auto mode, Dynamic, No 4)

**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	46.5	34.2	35.6	36.2	35.6	35.3	35.0	37.2
25	45.1	35.3	36.5	37.6	37.2	35.4	36.5	37.4
31.5	41.6	29.8	28.2	28.3	33.3	32.4	31.2	29.9
40	38.8	26.0	25.9	22.1	23.2	25.1	25.3	22.0
50	34.6	26.7	29.3	26.2	25.8	26.7	28.0	27.0
63	28.4	18.7	24.0	18.8	22.0	20.6	22.4	20.9
80	27.5	21.0	27.6	18.9	25.9	26.7	27.7	24.3
100	28.7	21.8	28.0	24.2	29.1	25.4	26.8	27.8
125	35.8	34.4	38.6	35.2	34.3	32.9	32.4	31.4
160	33.3	28.1	33.2	27.3	37.4	37.5	37.7	35.3
200	40.3	35.2	41.6	32.9	42.0	42.0	42.8	40.6
250	43.3	38.5	44.6	37.9	47.5	47.1	47.2	47.1
315	41.9	34.3	42.0	34.1	46.4	46.3	45.7	46.2
400	42.0	35.0	41.7	33.7	43.0	41.6	42.9	41.2
500	52.6	44.7	52.6	43.4	50.2	49.1	51.1	49.4
630	51.3	41.1	51.6	40.6	45.7	44.8	47.2	45.4
800	45.0	38.2	43.9	39.1	43.0	41.8	42.6	41.4
1000	42.3	40.7	40.8	41.9	42.4	41.9	42.5	41.2
1250	39.4	36.4	39.4	35.8	39.5	39.6	39.7	38.5
1600	40.5	33.5	41.8	32.3	40.1	40.2	40.6	39.9
2000	42.1	33.5	41.2	32.1	39.0	38.4	39.6	38.0
2500	40.9	33.1	39.4	29.7	37.5	36.6	37.6	36.3
3150	36.5	30.7	34.7	30.6	34.8	34.6	35.4	33.8
4000	36.5	27.7	35.0	26.3	34.4	34.2	35.2	33.6
5000	36.6	24.7	33.6	23.2	32.8	32.4	32.7	31.2
6300	33.1	21.0	31.2	19.9	30.6	30.7	31.1	29.5
8000	30.8	17.4	30.0	18.0	27.9	27.9	28.9	27.0
10000	28.9	13.8	26.4	15.6	23.3	22.9	24.2	22.0
12500	28.3	13.7	24.5	16.3	21.0	21.0	22.0	20.0
16000	25.1	19.2	23.4	18.6	22.7	22.7	23.3	21.8
20000	31.1	39.1	38.4	36.2	40.4	39.9	40.7	39.5
Leq	58.6	50.4	57.2	50.0	56.0	55.3	56.3	55.3
A-weighted dB (A)	55.0	47.8	54.8	47.4	52.8	52.1	53.3	52.0
Average sound pressure level dB(A)	52.6				52.6			

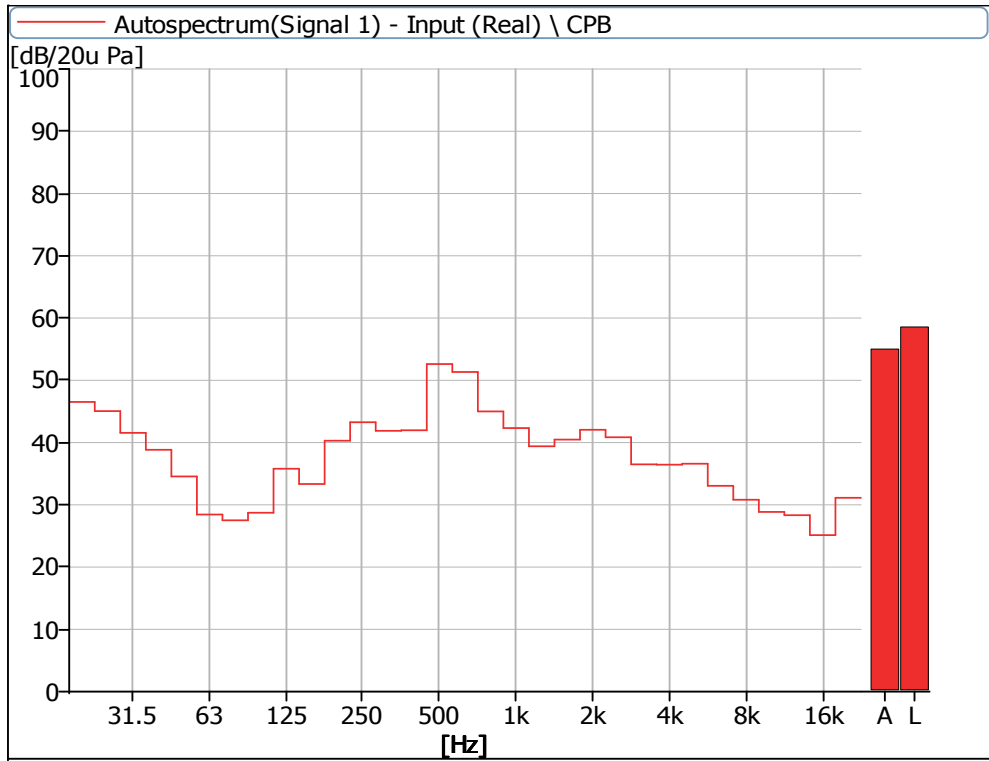


Figure 11 Noise Spectrum of Stage Luminaires
(The Stage mode, static, No 1)

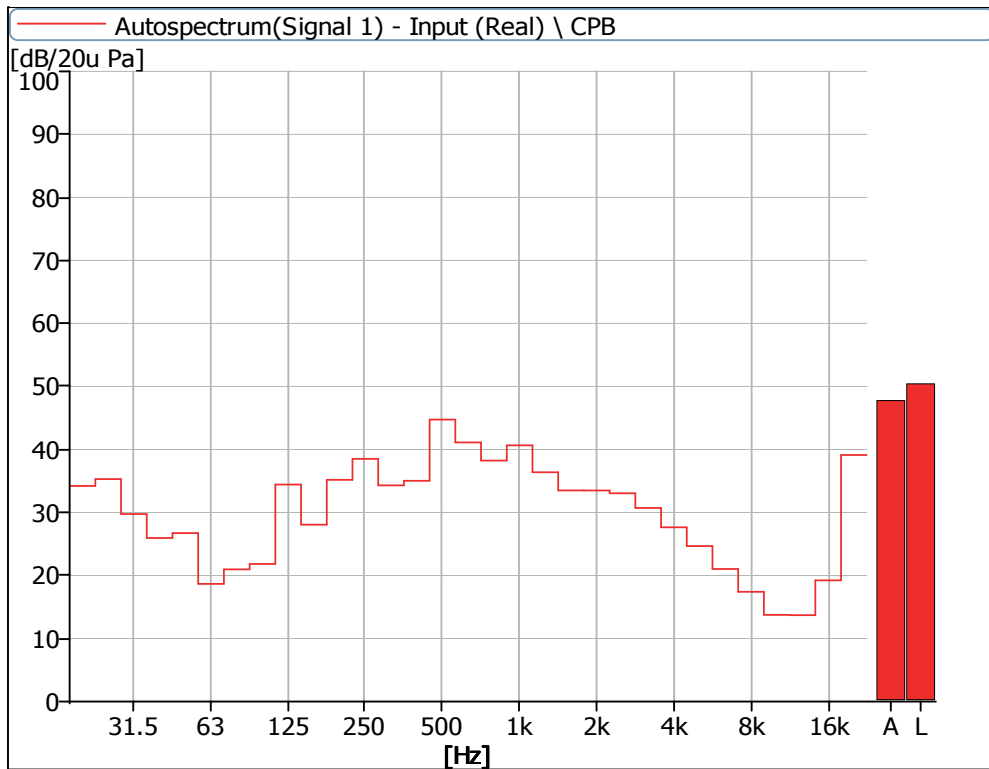


Figure 12 Noise Spectrum of Stage Luminaires
(The Stage mode, static, No 2)

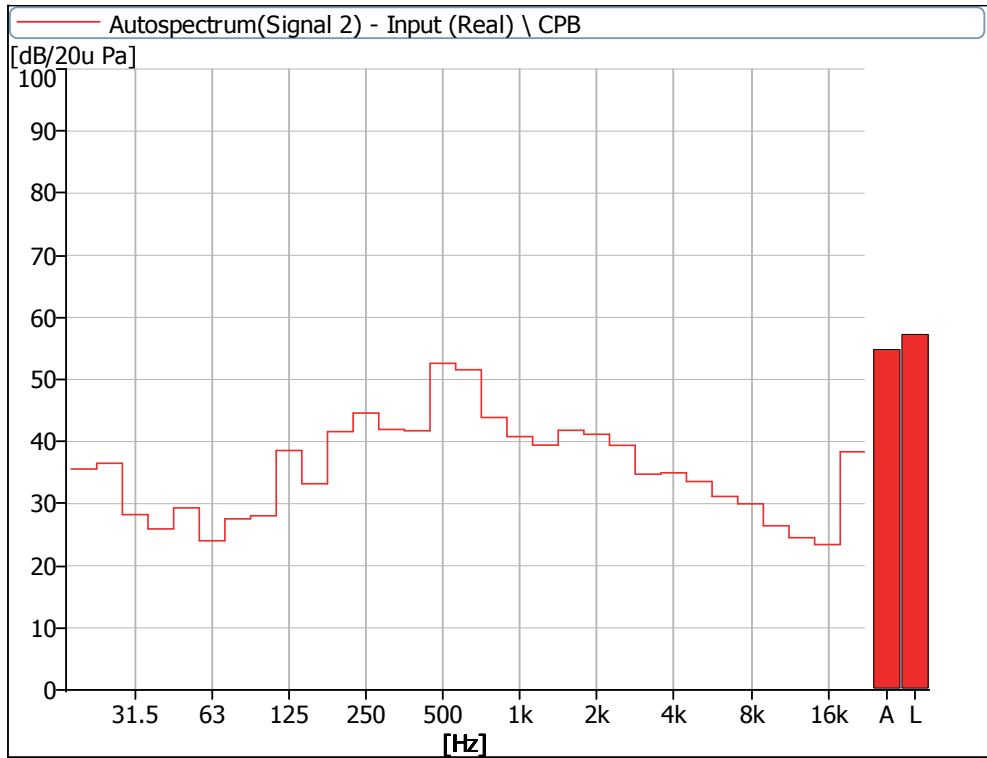


Figure 13 Noise Spectrum of Stage Luminaires
(The Stage mode, static, No 3)

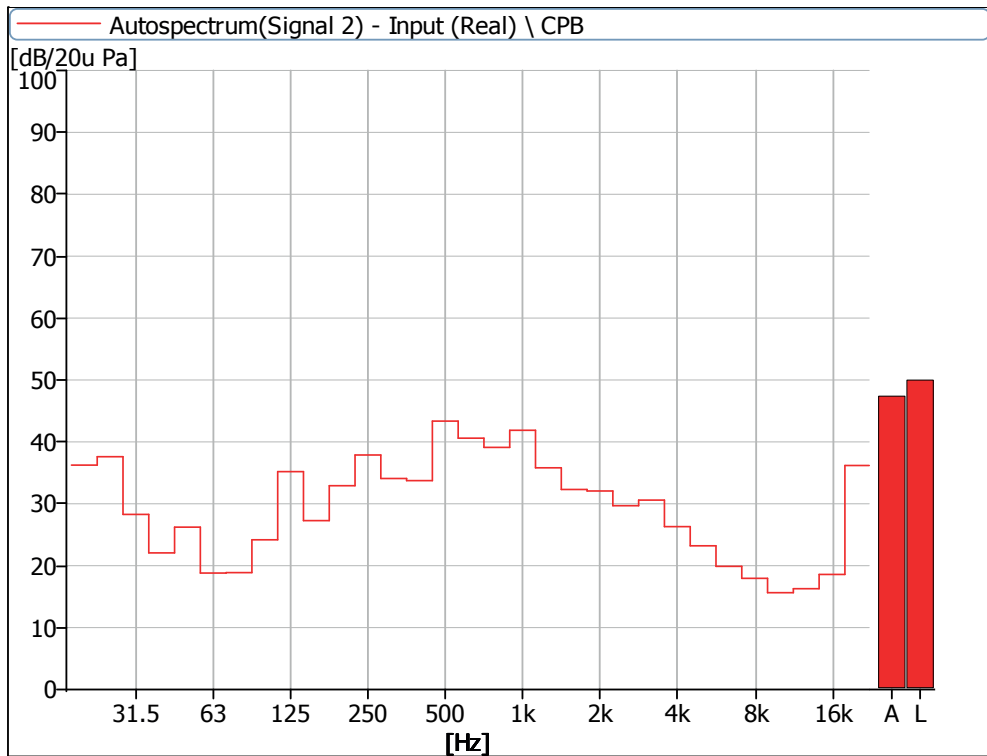


Figure 14 Noise Spectrum of Stage Luminaires
(The Stage mode, static, No 4)

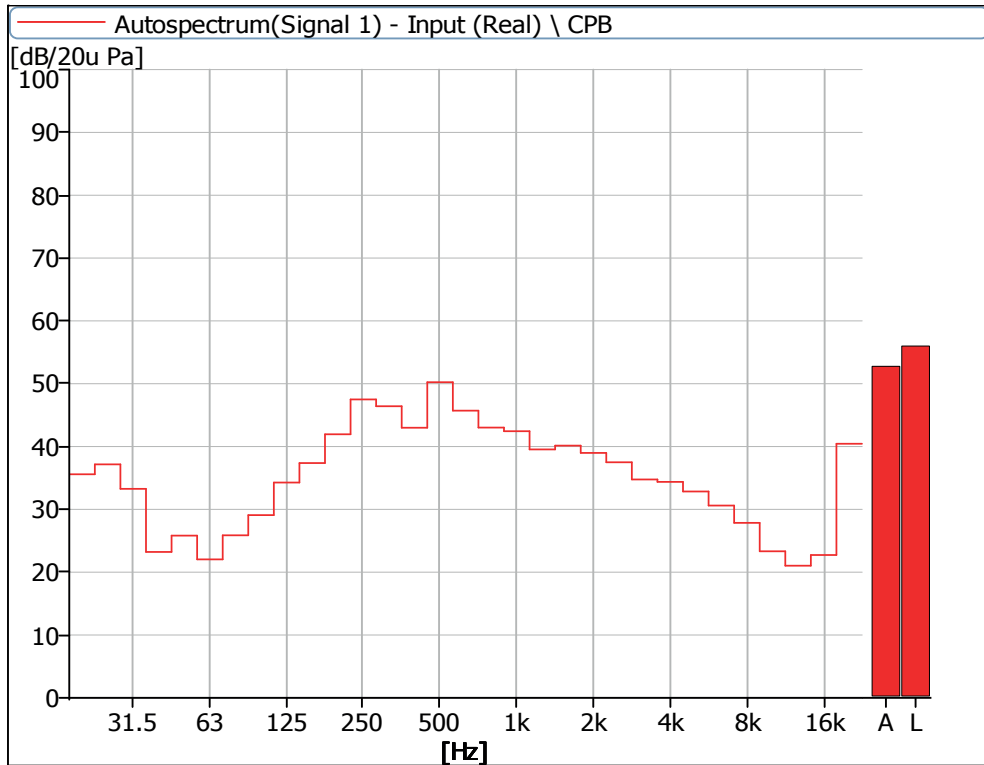


Figure 15 Noise Spectrum of Stage Luminaires
(The Stage mode, Dynamic, No 1)

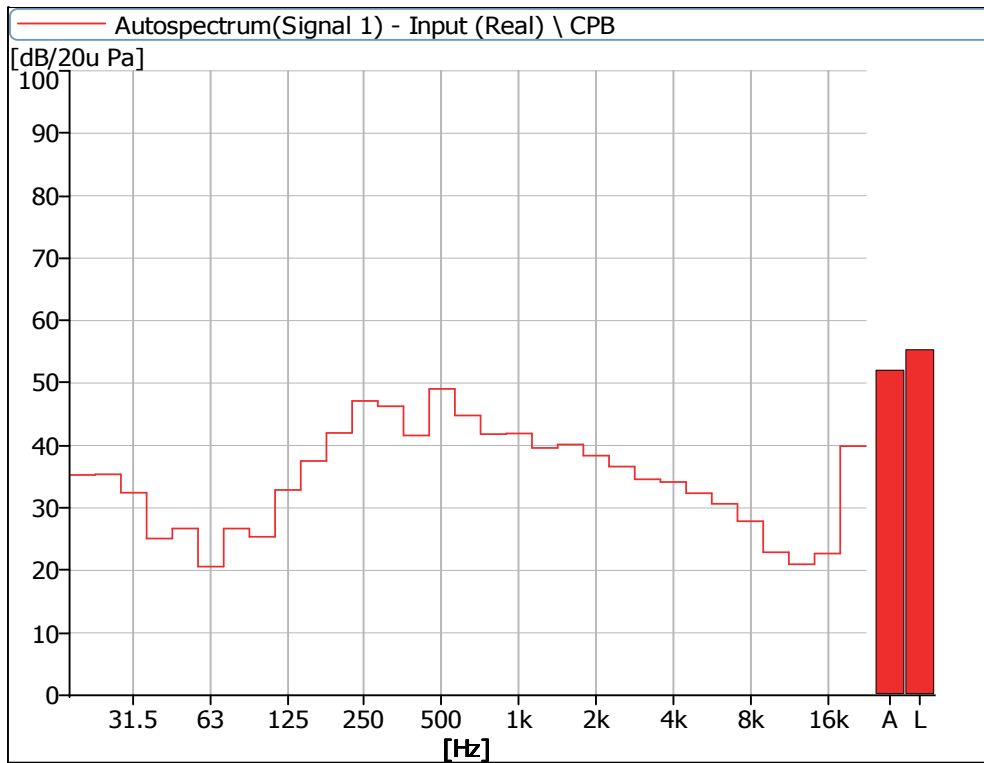


Figure 16 Noise Spectrum of Stage Luminaires
(The Stage mode, Dynamic, No 2)

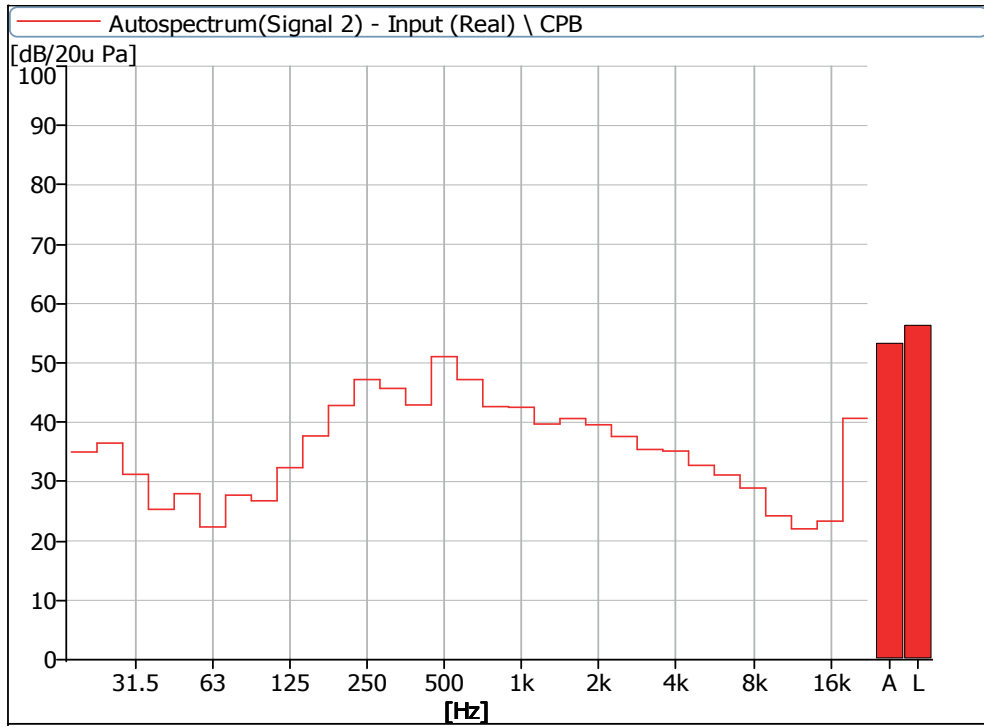


Figure 17 Noise Spectrum of Stage Luminaires
(The Stage mode, Dynamic, No 3)

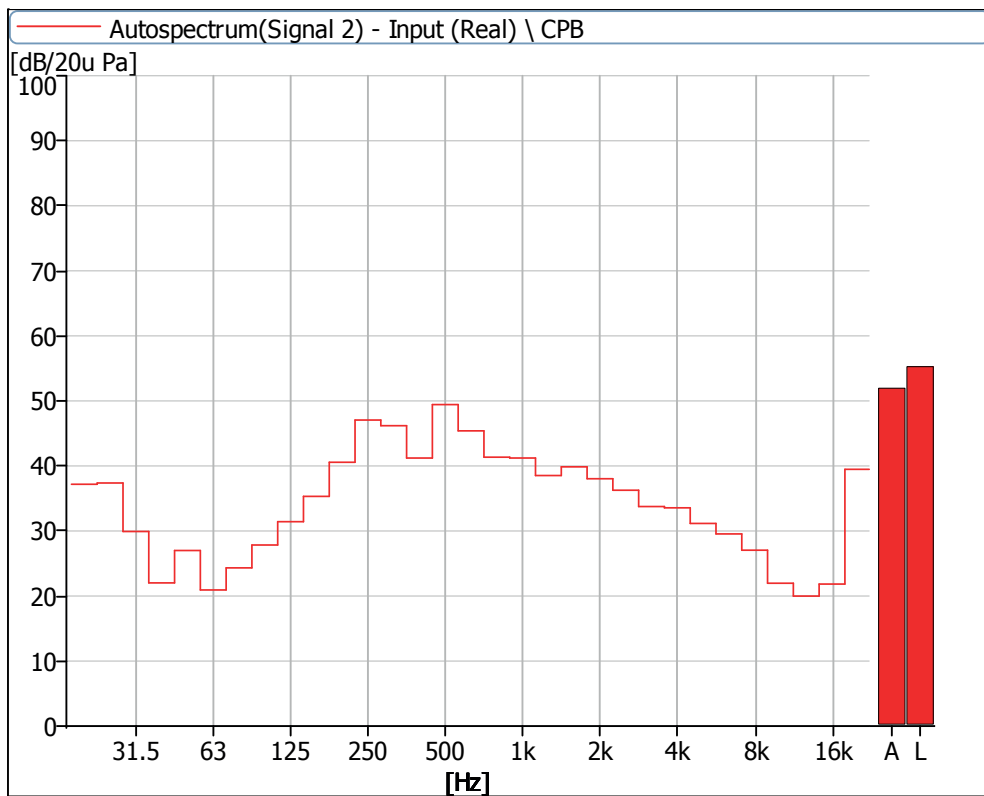


Figure 18 Noise Spectrum of Stage Luminaires
(The Stage mode, Dynamic, No 4)

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	34.6	34.0	34.2	36.0	36.1	35.0	35.3	36.8
25	37.4	35.4	37.1	37.1	37.3	35.6	36.8	37.6
31.5	32.2	30.1	27.6	27.9	32.8	30.1	28.2	28.5
40	23.3	22.6	24.4	22.5	23.9	24.2	25.7	23.0
50	25.1	25.7	26.8	26.2	25.0	27.2	27.5	29.1
63	17.8	15.0	17.3	16.5	17.2	16.7	16.7	17.6
80	18.9	14.4	18.1	15.2	22.6	19.8	21.0	20.5
100	23.6	15.5	20.7	20.2	27.3	21.4	25.2	26.0
125	20.7	14.0	19.1	15.1	30.2	28.4	29.4	27.5
160	23.6	21.9	25.0	21.8	36.7	35.2	36.0	34.4
200	27.0	26.5	28.9	26.1	40.4	40.3	41.0	38.9
250	29.3	25.6	29.7	27.2	45.9	45.4	45.6	46.0
315	31.0	24.1	29.9	25.0	46.4	45.5	45.3	45.8
400	29.9	24.1	28.7	24.6	40.5	38.7	39.4	38.0
500	34.5	32.9	35.0	31.6	44.9	39.9	43.9	41.3
630	31.4	29.1	32.9	28.3	33.7	32.5	33.5	33.1
800	27.1	28.9	29.4	25.7	34.6	33.3	33.9	33.6
1000	26.2	26.7	28.5	28.1	33.3	32.1	33.6	29.6
1250	25.3	26.3	28.4	25.3	31.6	29.7	31.6	27.3
1600	24.6	22.1	24.9	25.0	29.2	28.3	29.6	28.0
2000	23.3	19.0	25.2	21.3	27.7	26.4	27.4	25.7
2500	20.1	14.4	21.4	20.7	25.6	24.7	25.9	24.0
3150	15.9	14.6	17.2	19.0	22.0	21.5	22.0	19.7
4000	14.5	12.2	17.1	16.2	20.0	20.5	20.7	18.5
5000	14.4	11.1	16.0	14.8	17.5	18.3	18.3	17.2
6300	12.0	11.3	15.3	14.1	16.3	17.5	17.8	16.8
8000	10.8	8.4	14.0	13.7	14.1	15.6	18.0	15.9
10000	10.4	9.1	14.5	13.9	12.9	14.3	16.2	15.5
12500	13.3	10.9	15.7	14.8	14.6	15.3	16.9	16.3
16000	15.9	14.7	20.8	18.3	19.6	19.8	21.0	20.1
20000	34.1	34.1	40.8	36.8	39.2	38.9	39.9	38.6
Leq	43.9	42.3	45.3	43.5	52.6	51.3	52.0	51.6
A-weighted dB (A)	37.4	36.1	39.2	36.3	46.6	44.8	46.0	45.0
Average sound pressure level dB(A)	37.4				45.7			

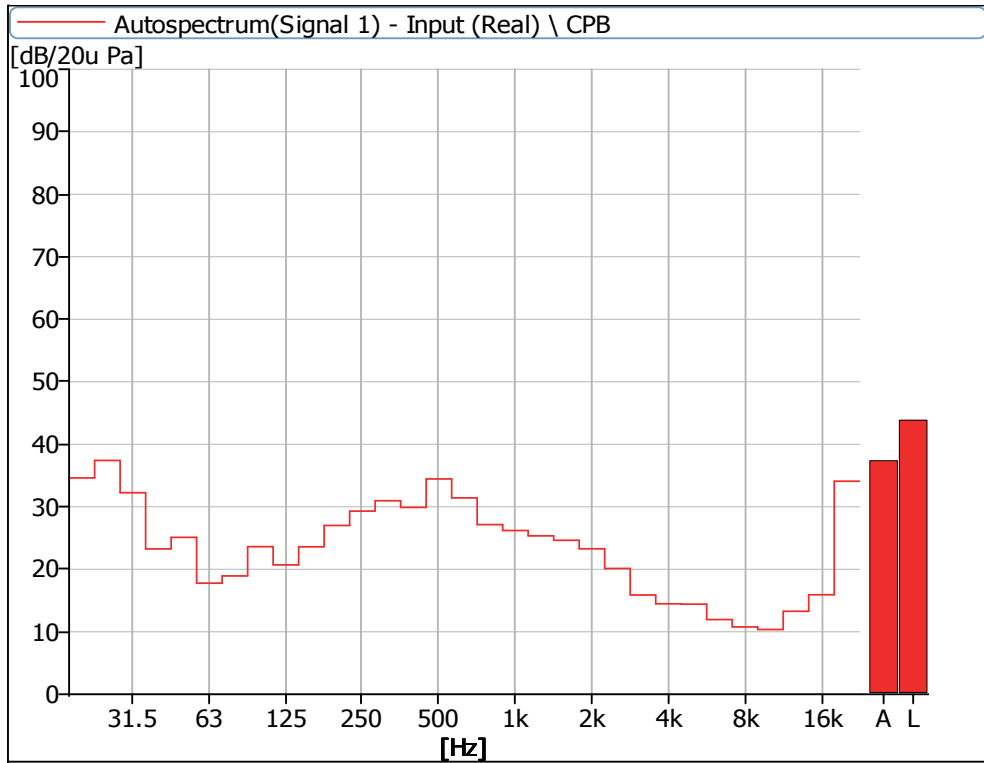


Figure 19 Noise Spectrum of Stage Luminaires
(The Silence mode, static, No 1)

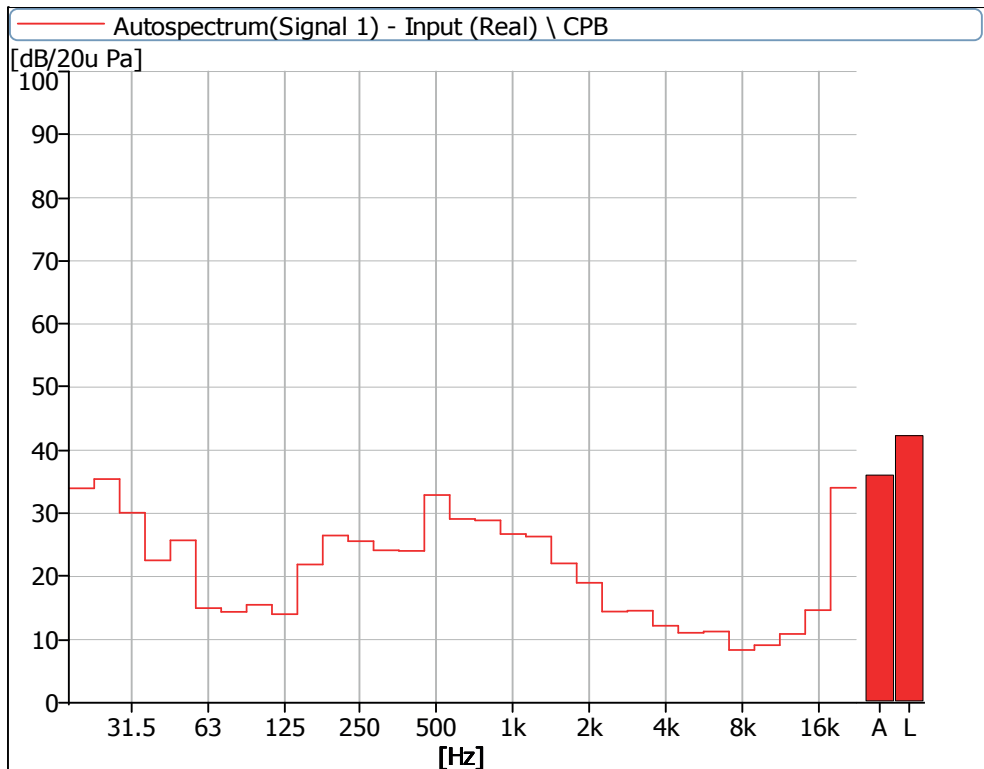


Figure 20 Noise Spectrum of Stage Luminaires
(The Silence mode, static, No 2)

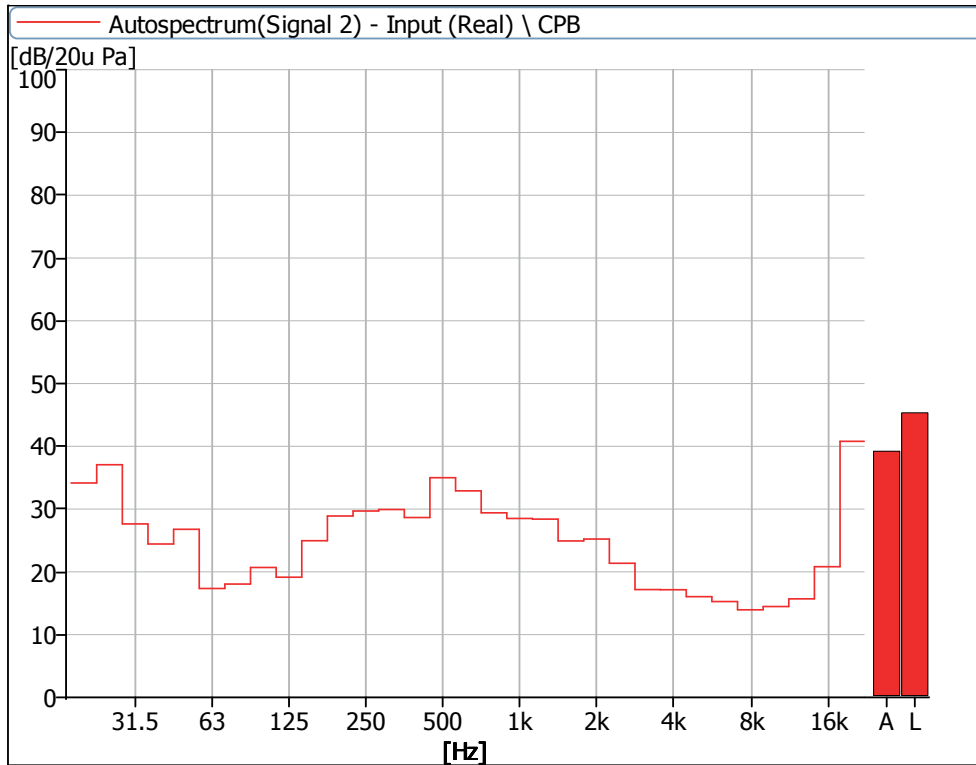


Figure 21 Noise Spectrum of Stage Luminaires
(The Silence mode, static, No 3)

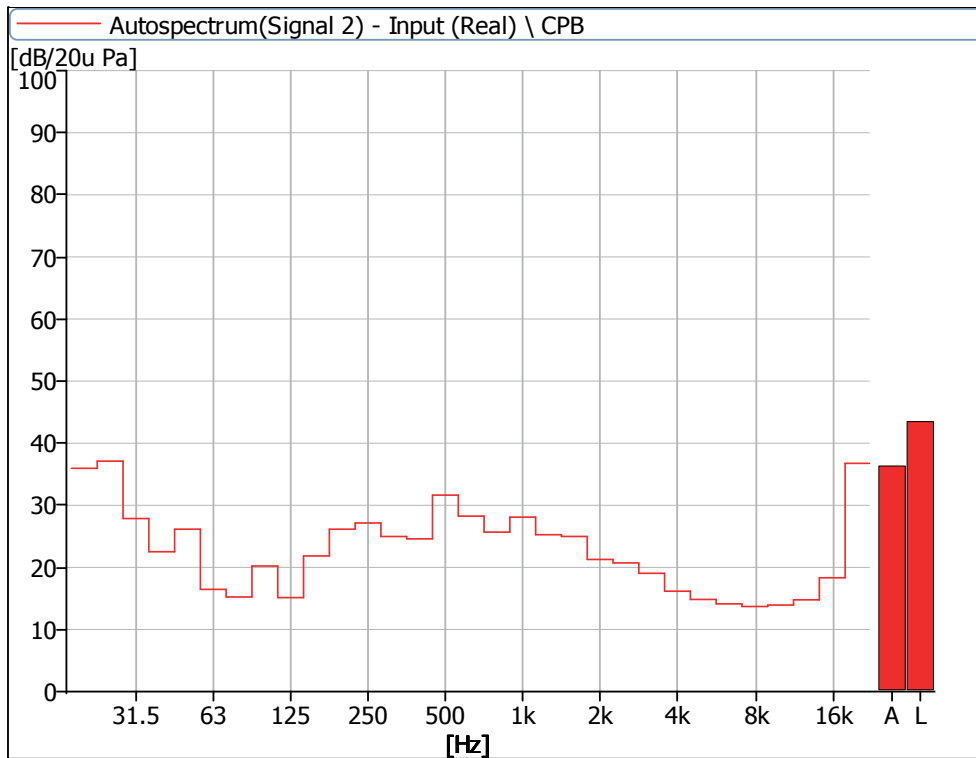


Figure 22 Noise Spectrum of Stage Luminaires
(The Silence mode, static, No 4)

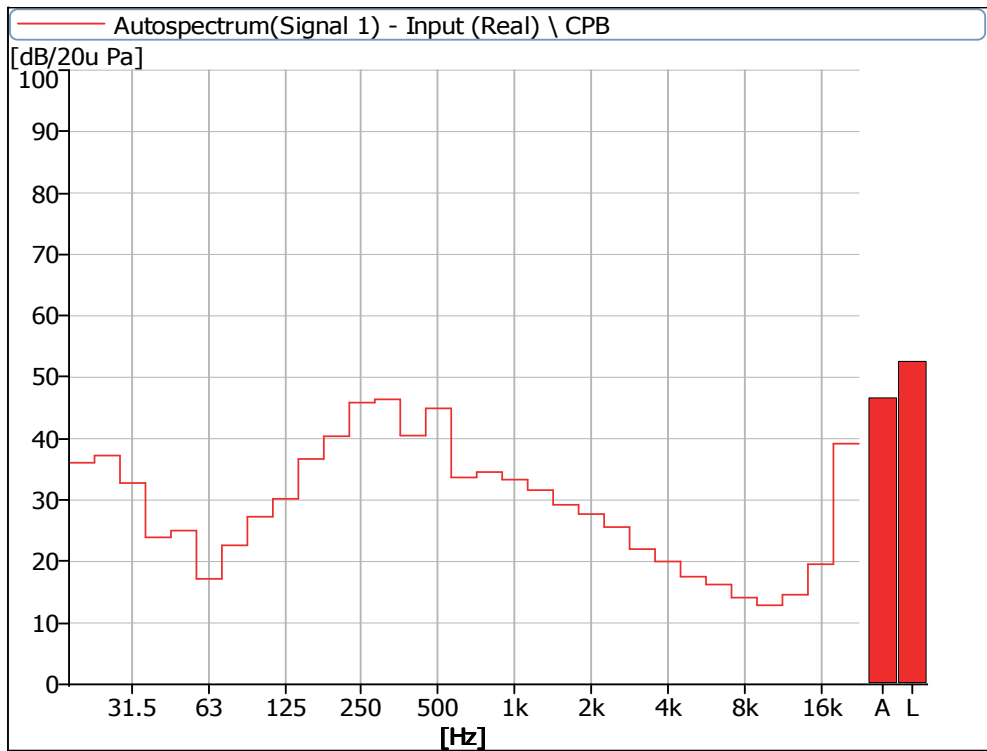


Figure 23 Noise Spectrum of Stage Luminaires
(The Silence mode, Dynamic, No 1)

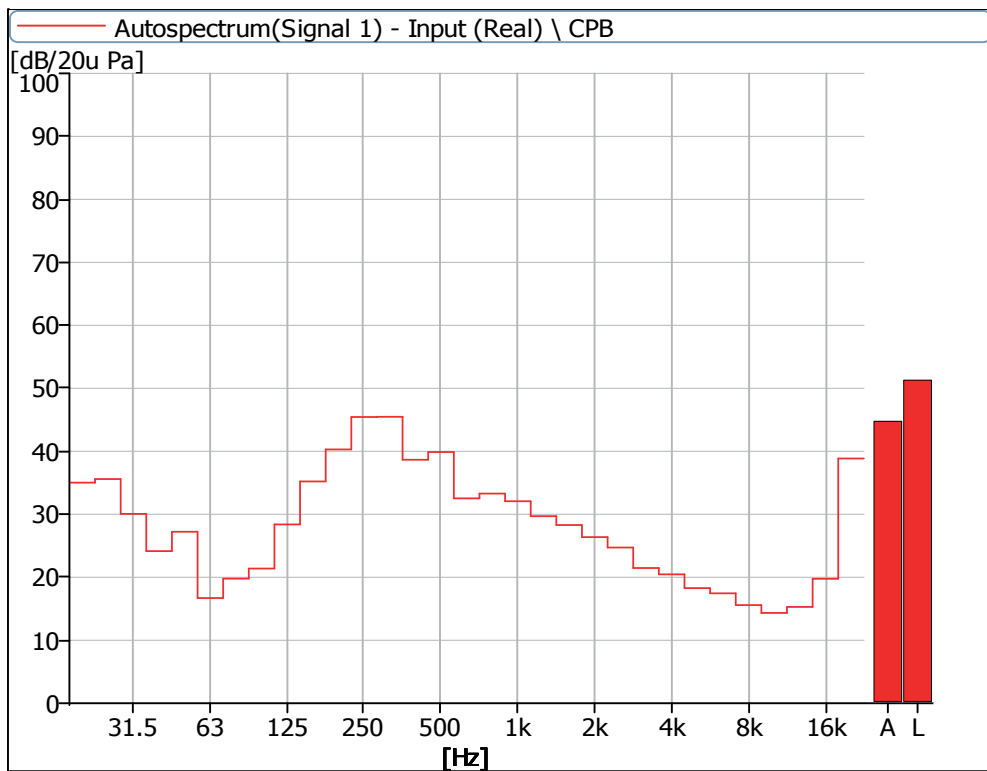


Figure 24 Noise Spectrum of Stage Luminaires
(The Silence mode, Dynamic, No 2)

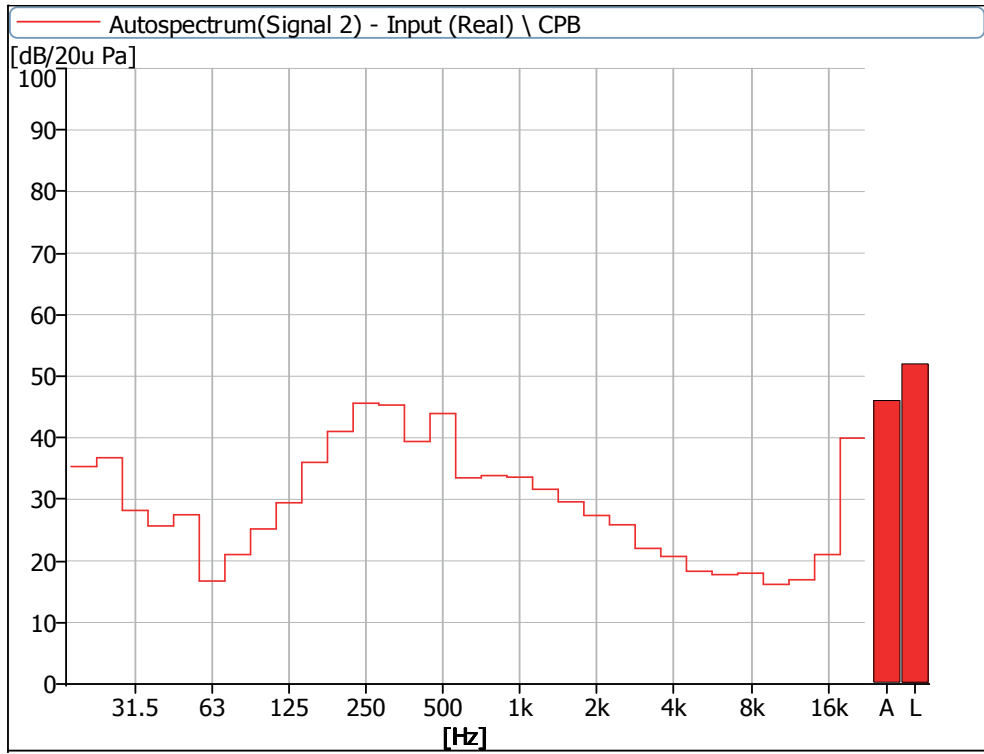


Figure 25 Noise Spectrum of Stage Luminaires
(The Silence mode, Dynamic, No 3)

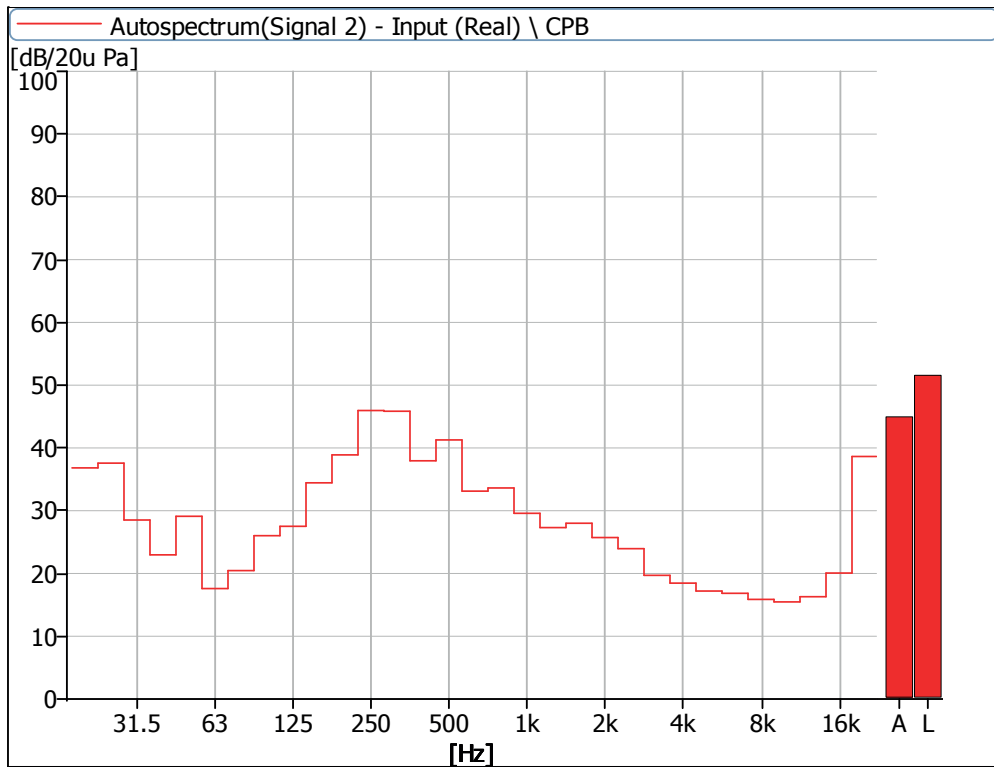


Figure 26 Noise Spectrum of Stage Luminaires
(The Silence mode, Dynamic, No 4)

**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	37.4	34.6	36.5	36.5	36.7	34.9	36.1	37.1
25	37.2	35.3	36.6	37.3	36.9	35.4	36.7	37.2
31.5	32.8	29.2	27.9	27.5	31.8	30.4	28.4	27.9
40	22.1	21.7	23.5	21.4	23.7	22.9	25.4	21.4
50	23.7	25.6	27.5	26.8	25.6	26.4	26.5	27.2
63	14.3	14.1	14.6	16.0	15.5	14.9	16.4	17.1
80	15.4	13.0	13.4	14.7	22.7	21.3	21.9	19.0
100	22.0	14.9	18.3	19.1	28.2	22.6	25.5	26.7
125	11.8	11.4	12.4	12.3	31.0	29.4	30.1	26.7
160	14.7	14.6	17.4	16.9	37.1	35.5	37.1	33.8
200	21.2	21.7	20.9	19.7	41.8	40.9	43.0	40.1
250	29.5	32.0	29.1	31.5	46.8	44.9	46.7	45.6
315	20.0	19.5	20.6	19.6	45.9	44.3	45.6	44.0
400	19.1	17.7	20.3	15.9	41.1	36.4	39.5	37.0
500	15.6	20.0	17.3	20.4	44.0	42.3	44.2	41.2
630	15.0	16.5	15.5	15.8	31.1	30.5	31.0	31.3
800	14.5	13.7	14.4	14.0	33.5	31.9	32.3	31.5
1000	13.9	15.6	14.3	15.4	30.4	30.9	29.7	27.9
1250	15.6	16.6	13.7	16.6	29.1	29.7	29.1	27.5
1600	11.2	11.0	13.0	12.2	28.3	26.4	27.7	25.6
2000	13.5	12.5	15.3	13.9	27.0	24.5	26.6	23.9
2500	11.1	10.4	14.7	11.5	24.4	23.2	25.2	22.7
3150	9.3	8.8	13.0	12.5	21.0	18.3	20.1	17.7
4000	11.2	10.0	14.6	13.8	20.1	19.1	19.8	17.7
5000	11.3	9.3	16.7	13.2	15.3	16.3	16.6	15.5
6300	9.2	8.5	14.5	13.3	14.5	15.4	16.3	15.5
8000	8.8	8.2	14.2	13.6	15.1	15.0	16.9	15.9
10000	10.3	8.3	14.3	13.9	12.0	12.9	15.6	15.0
12500	12.8	9.0	15.5	14.4	12.5	13.5	15.8	15.3
16000	14.9	12.4	19.1	19.1	18.4	19.1	20.6	19.3
20000	34.6	31.8	37.4	38.7	38.6	38.6	40.1	38.2
Leq	42.6	40.7	42.6	43.3	52.5	50.8	52.5	50.8
A-weighted dB (A)	28.9	28.7	31.0	31.8	46.1	44.4	46.0	44.0
Average sound pressure level dB(A)	30.3				45.2			

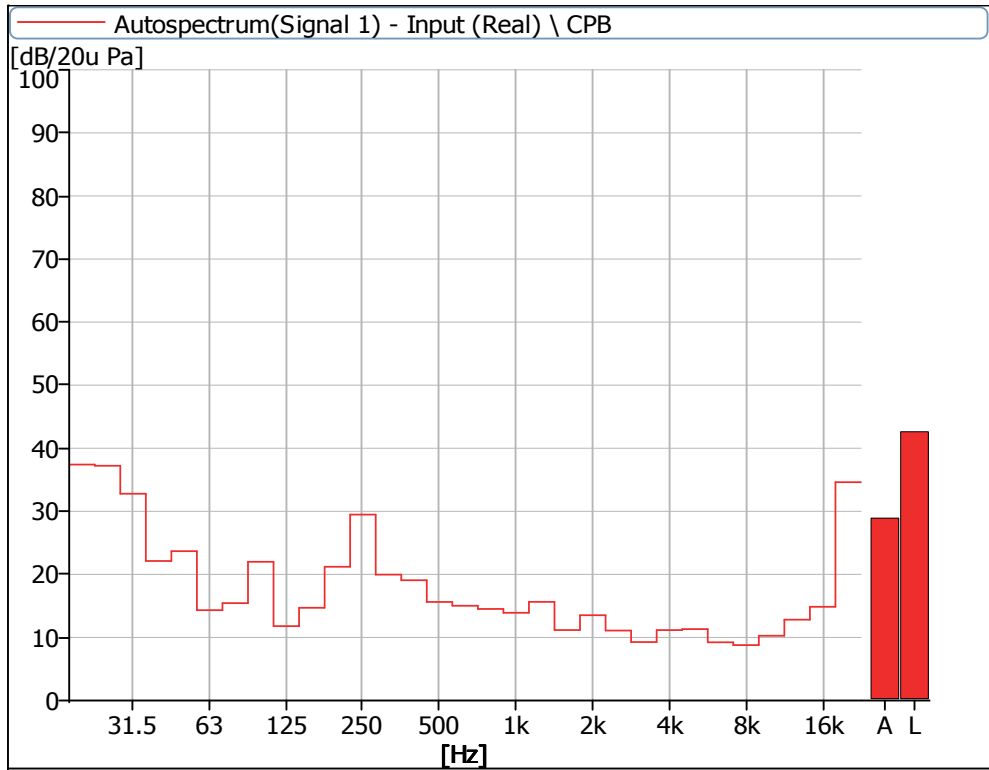


Figure 27 Noise Spectrum of Stage Luminaires
(The Super Silence mode, static, No 1)

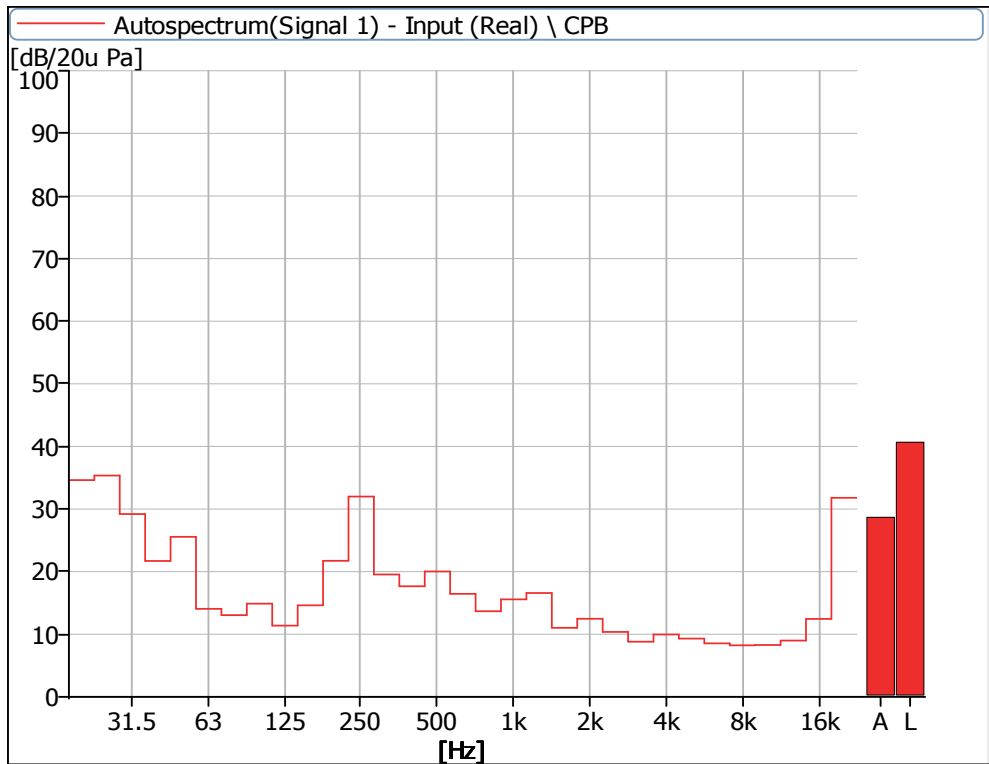


Figure 28 Noise Spectrum of Stage Luminaires
(The Super Silence mode, static, No 2)

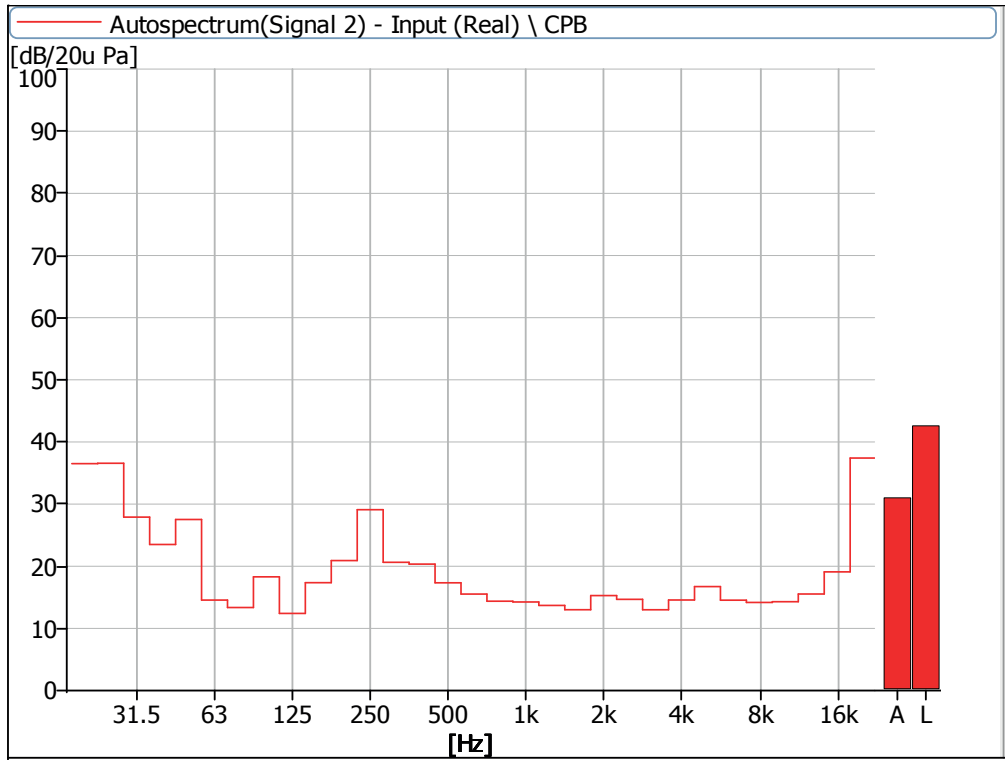


Figure 29 Noise Spectrum of Stage Luminaires
(The Super Silence mode, static, No 3)

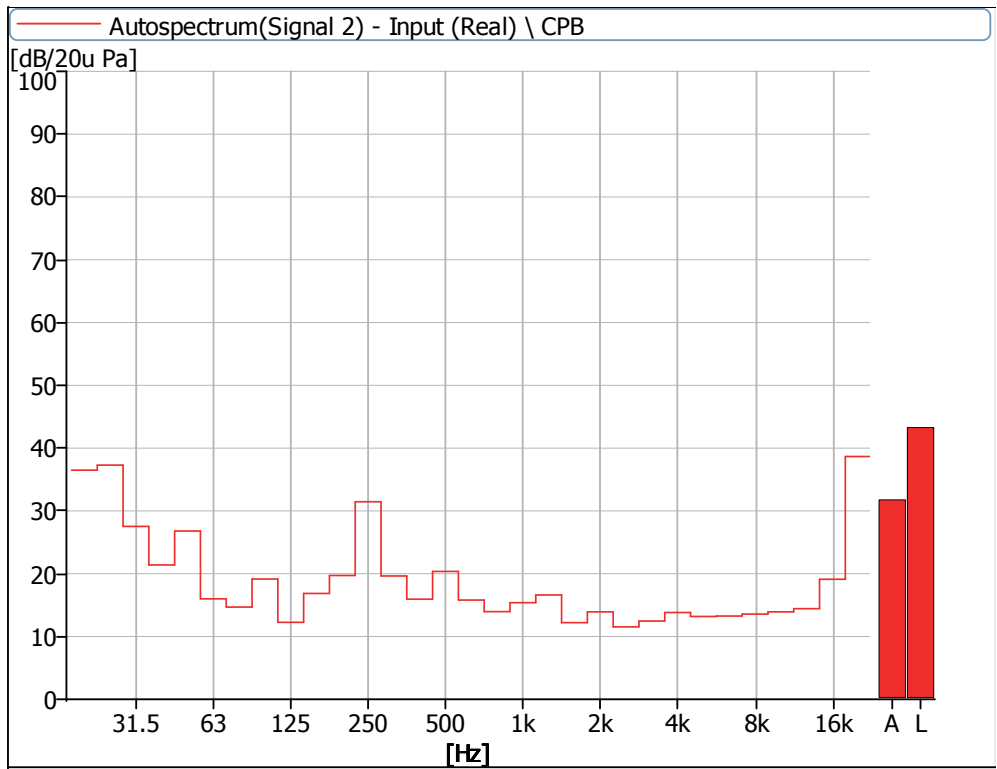


Figure 30 Noise Spectrum of Stage Luminaires
(The Super Silence mode, static, No 4)

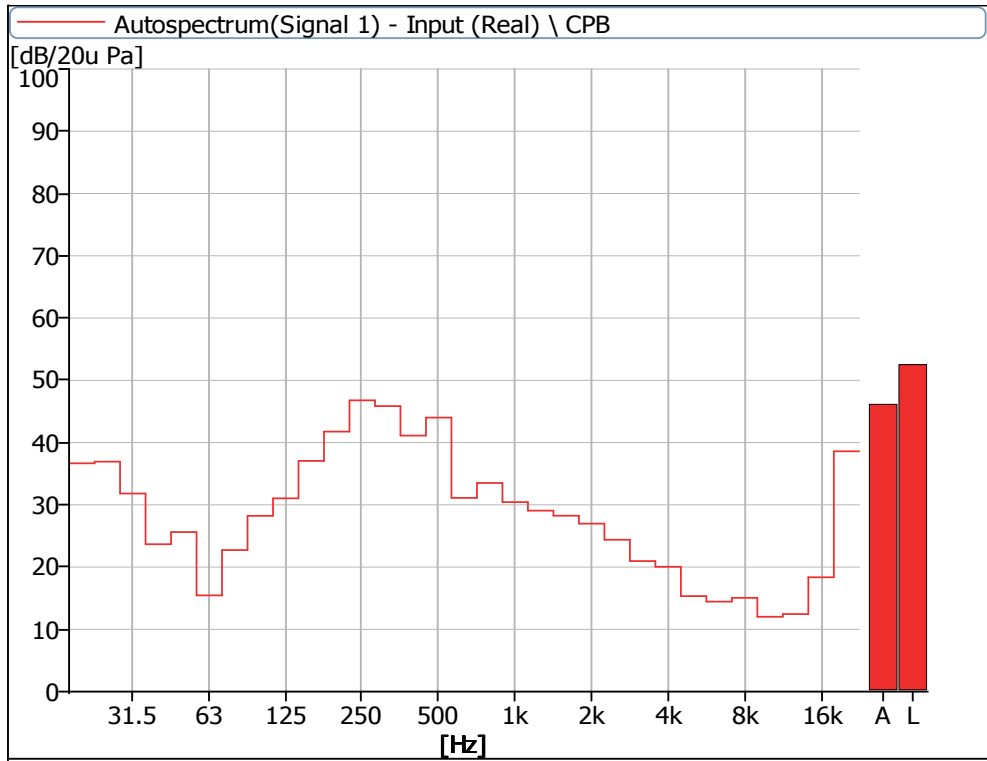


Figure 31 Noise Spectrum of Stage Luminaires
(The Super Silence mode, Dynamic, No 1)

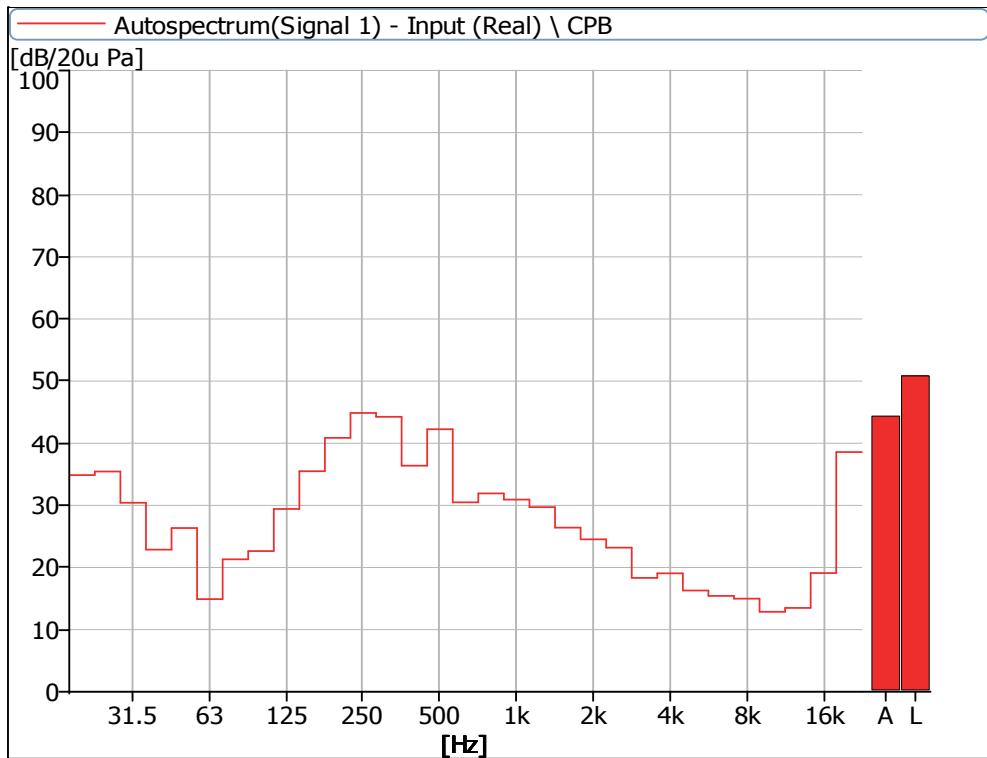


Figure 32 Noise Spectrum of Stage Luminaires
(The Super Silence mode, Dynamic, No 2)

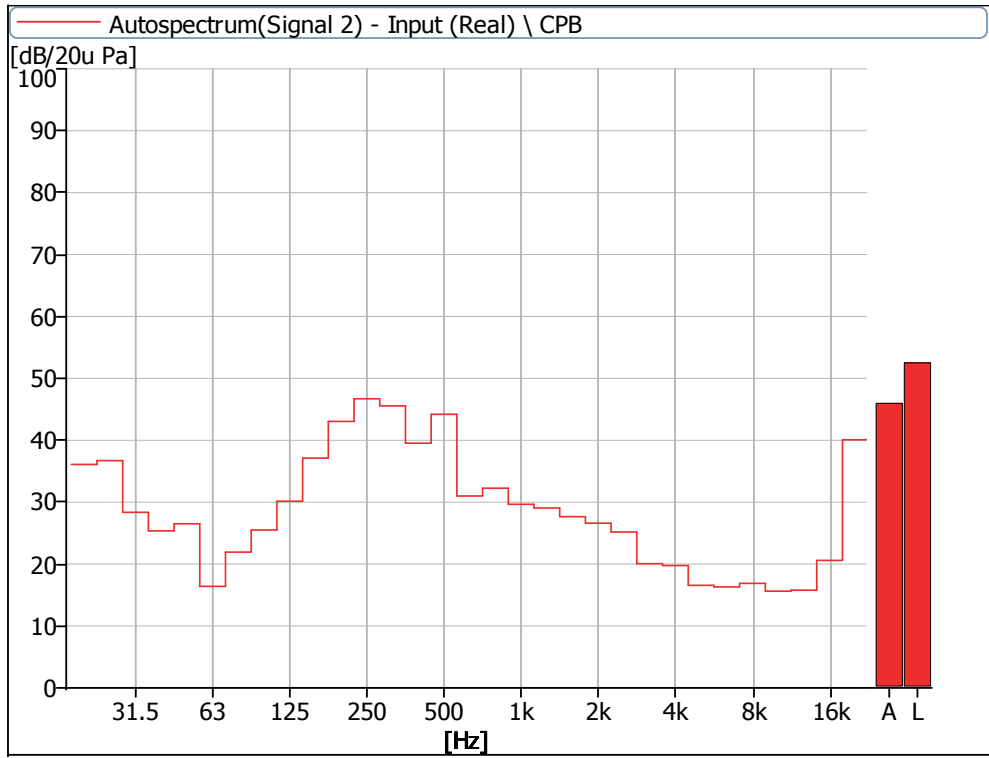


Figure 33 Noise Spectrum of Stage Luminaires
(The Super Silence mode, Dynamic, No 3)

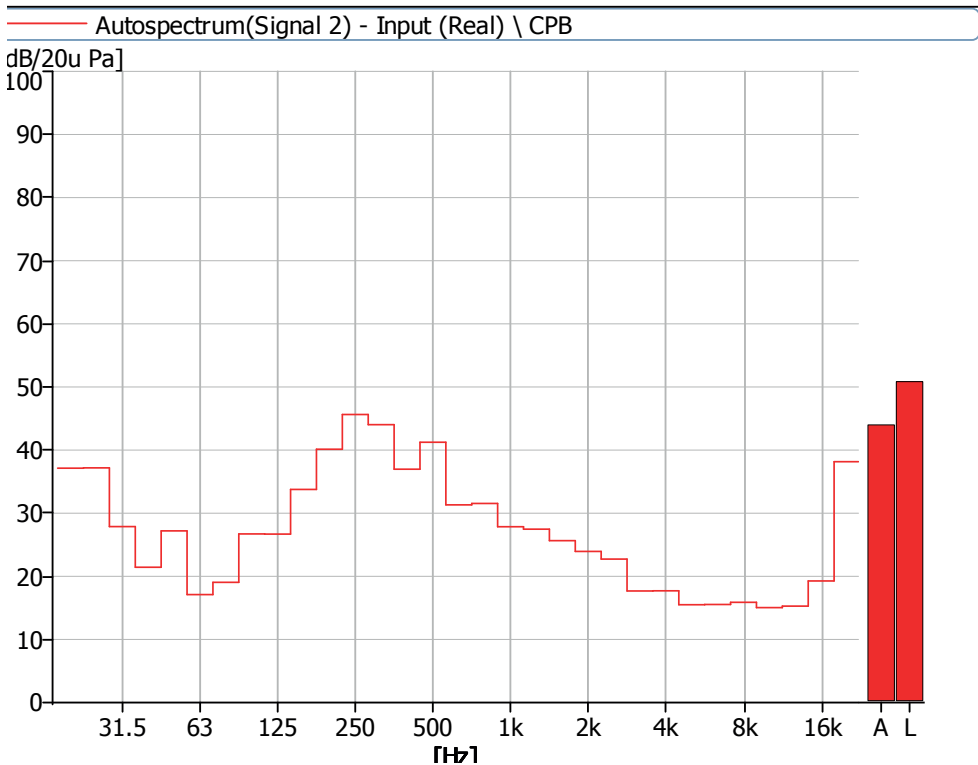


Figure 34 Noise Spectrum of Stage Luminaires
(The Super Silence mode, Dynamic, No 4)



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