



DIABLO

NOISE MEASUREMENTS



AYRTON
Digital Lighting

1 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 semisilencing 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.

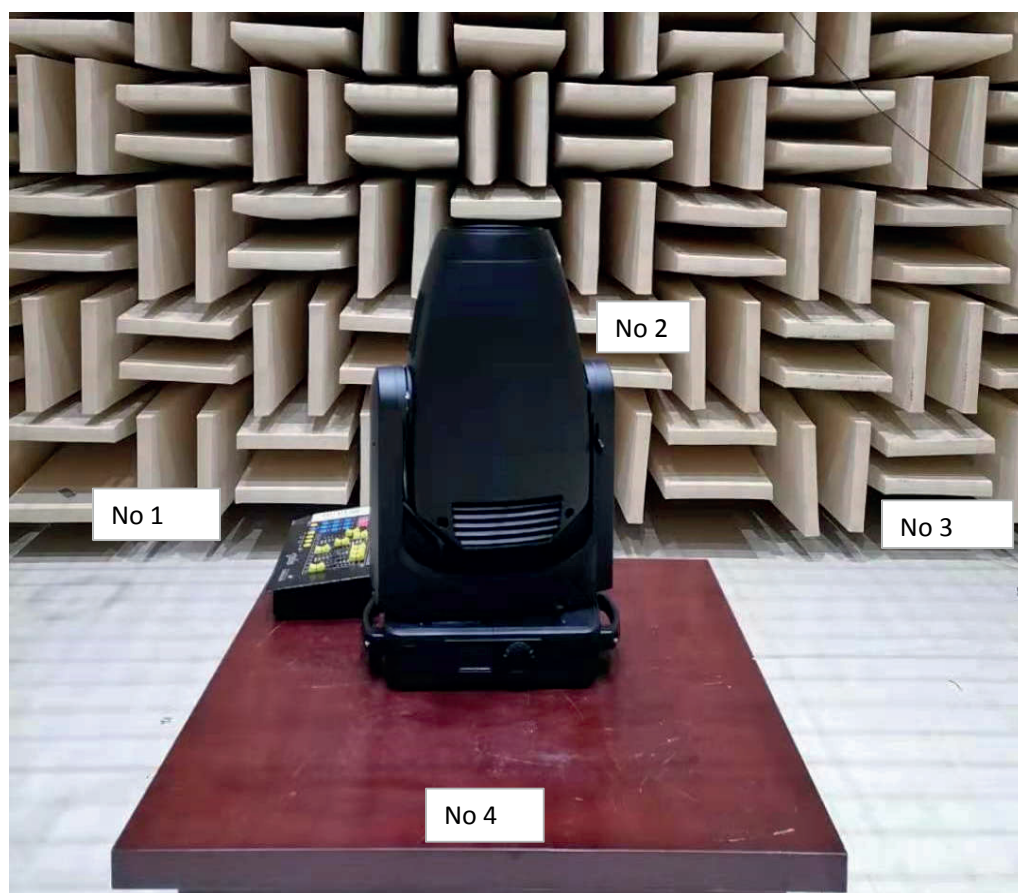


Figure 1 Test setup



Figure 2 Sample serial number information

2 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
63	18.2	15.7	18.5	16.0	18.2	19.0	17.2	18.2
80	19.0	15.4	17.7	15.2	22.2	22.5	22.1	24.9
100	22.1	20.4	21.6	20.9	30.0	27.9	28.4	27.9
125	16.3	16.0	18.9	14.9	27.3	25.7	25.8	28.2
160	19.7	18.3	19.5	18.8	29.6	29.3	29.2	29.4
200	24.5	24.5	25.8	23.7	30.1	29.2	29.2	28.5
250	31.5	31.4	33.3	32.1	39.9	39.8	41.5	41.0
315	31.4	30.1	32.7	29.8	40.5	42.9	41.5	41.1
400	29.2	29.3	29.7	27.3	37.0	36.3	36.3	34.9
500	33.1	33.9	33.6	34.0	37.0	37.1	37.5	37.2
630	33.2	33.2	33.5	33.4	35.9	34.5	34.9	35.0
800	30.5	29.7	33.5	31.9	34.3	32.6	34.8	33.1
1000	27.4	30.6	31.8	29.3	31.9	31.7	32.0	32.0
1250	26.8	31.6	29.9	29.3	32.7	31.3	32.3	31.8
1600	28.4	32.6	30.7	29.8	32.6	31.8	31.9	31.3
2000	27.6	29.4	29.7	27.0	31.3	30.2	30.5	29.0
2500	25.5	27.8	28.0	27.0	30.9	29.5	29.2	28.0
3150	23.5	29.8	29.9	24.7	30.5	28.6	28.1	27.3
4000	23.9	22.3	24.2	21.9	25.1	23.5	25.4	23.3
5000	20.3	22.8	21.4	19.5	24.4	22.6	23.8	23.1
6300	20.2	24.0	20.1	17.2	23.6	21.7	22.1	20.6
8000	17.9	18.0	17.1	13.7	19.3	18.1	19.0	17.6
10000	19.7	14.1	17.5	12.4	16.4	16.2	17.7	17.1
12500	13.5	11.7	12.9	10.5	15.6	16.1	17.5	18.1
16000	13.2	11.3	12.1	11.7	16.2	16.5	17.2	18.3
20000	28.5	26.6	28.5	24.1	33.4	32.3	33.2	33.6

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
Leq	42.9	44.3	44.7	42.7	47.7	48.2	48.0	47.5
A-weighted dB (A)	39.1	41.1	41.3	39.8	43.9	43.4	43.8	43.1
Average sound pressure level dB (A)	40.5				43.6			

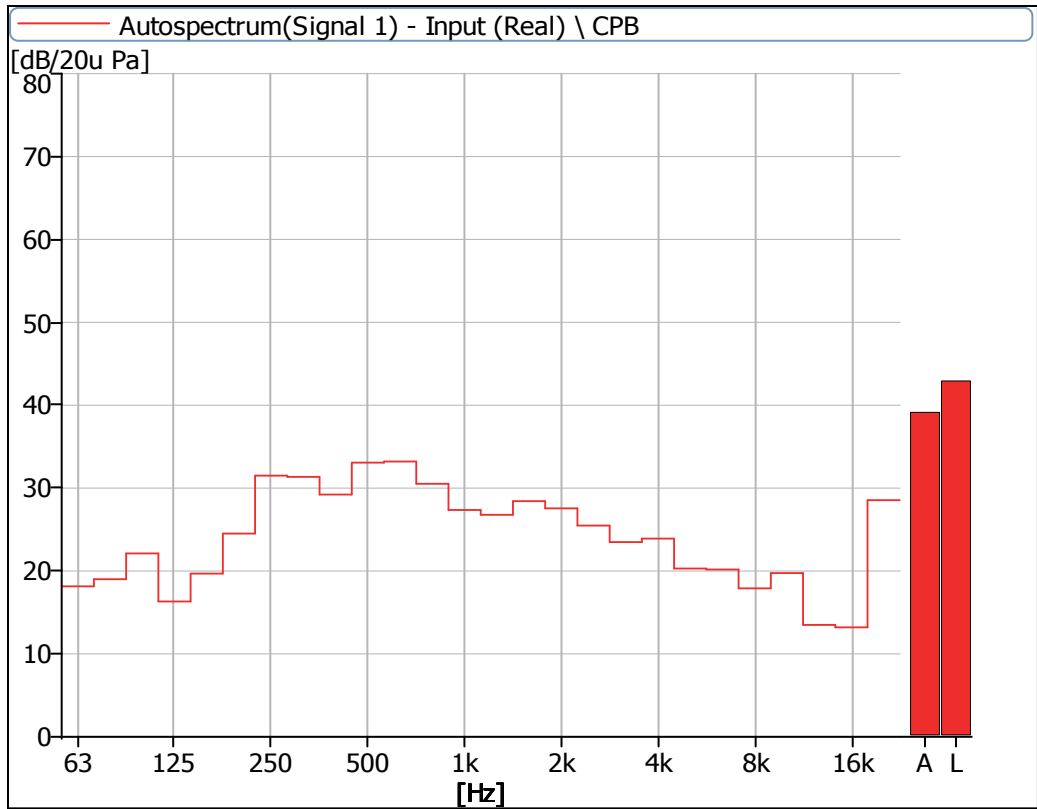


Figure 3 Noise Spectrum of Stage Luminaires (The Auto mode, Static, No 1)

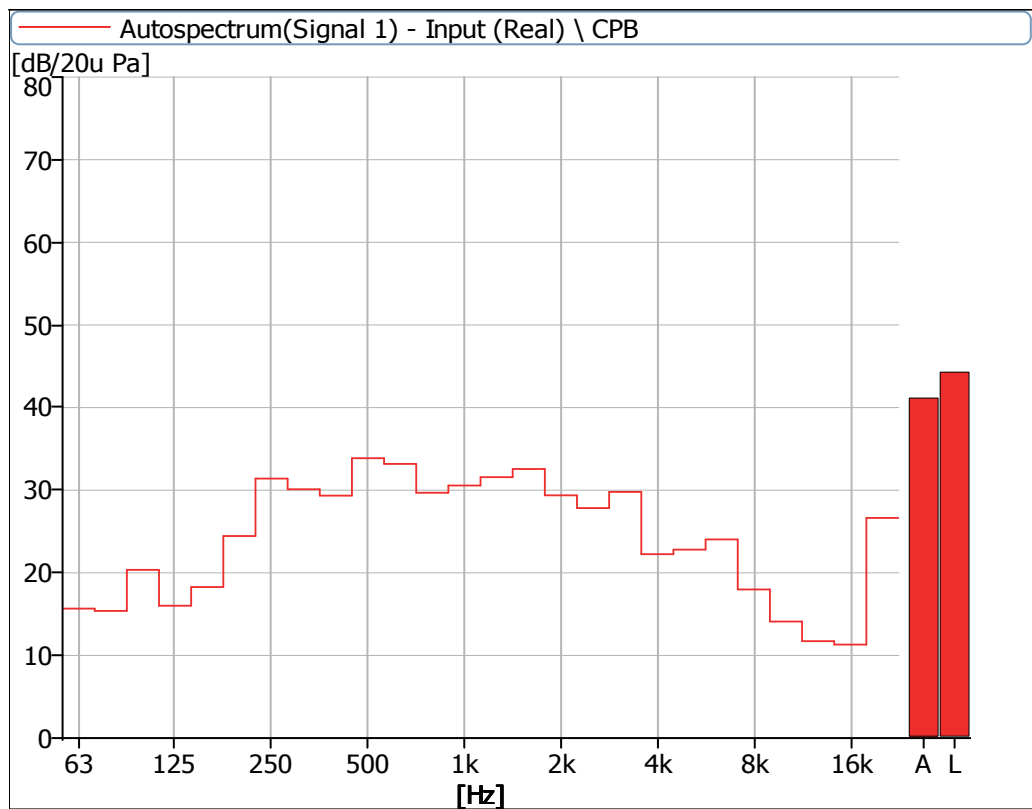


Figure 4 Noise Spectrum of Stage Luminaires (The Auto mode, Static, No 2)

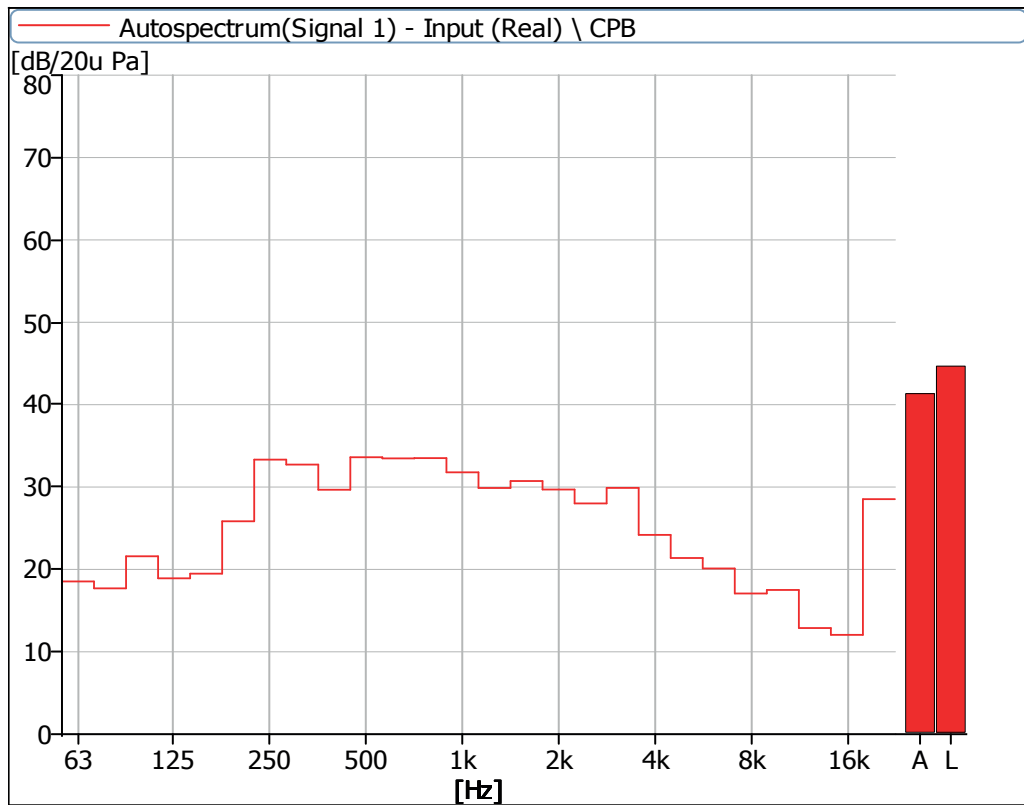


Figure 5 Noise Spectrum of Stage Luminaires (The Auto mode, Static, No 3)

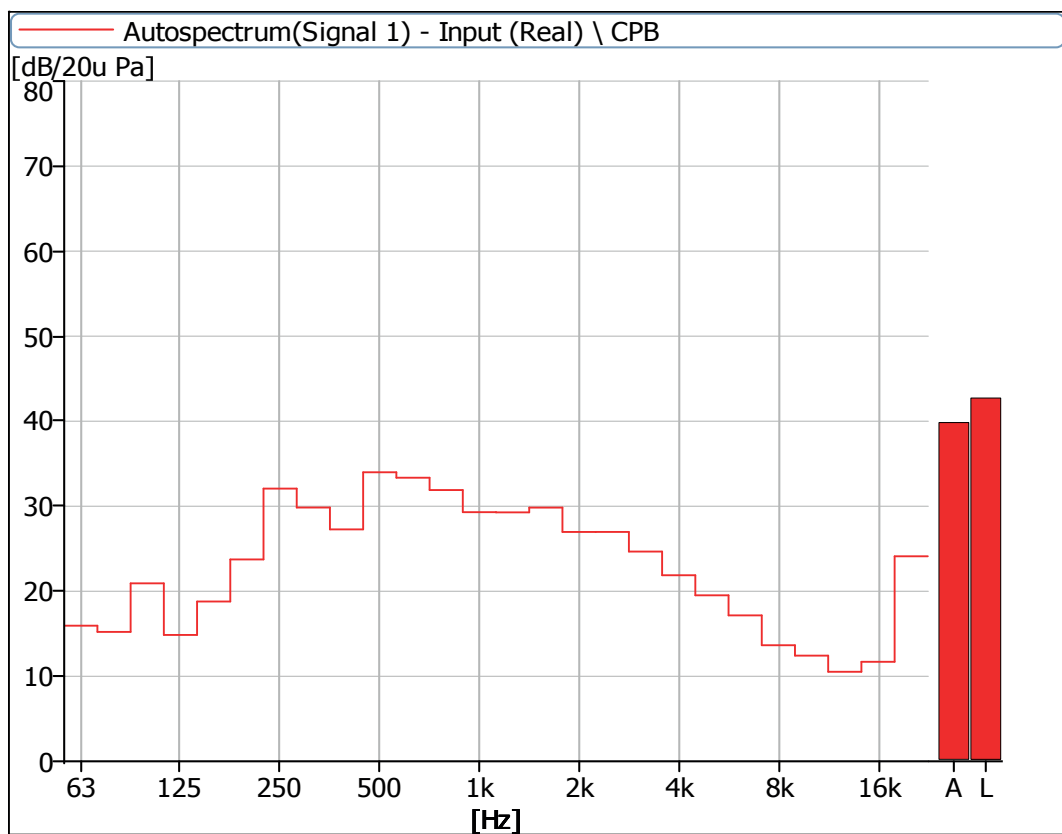


Figure 6 Noise Spectrum of Stage Luminaires (The Auto mode, Static, No 4)

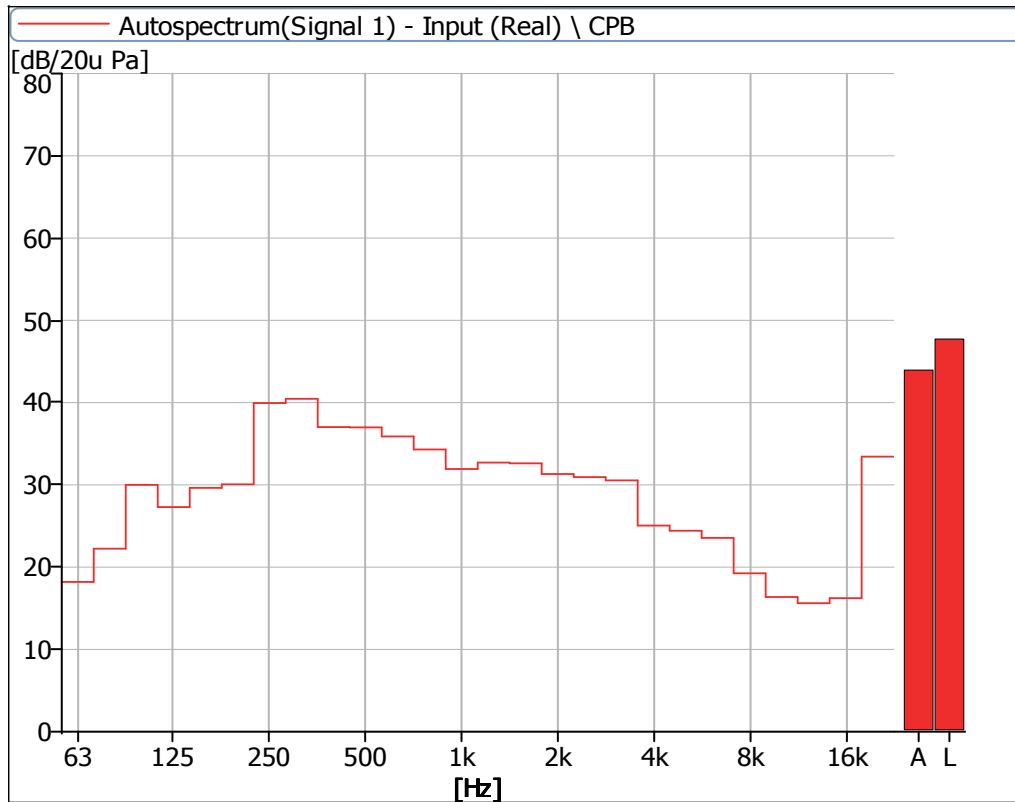


Figure 7 Noise Spectrum of Stage Luminaires (The Auto mode, Dynamic, No 1)

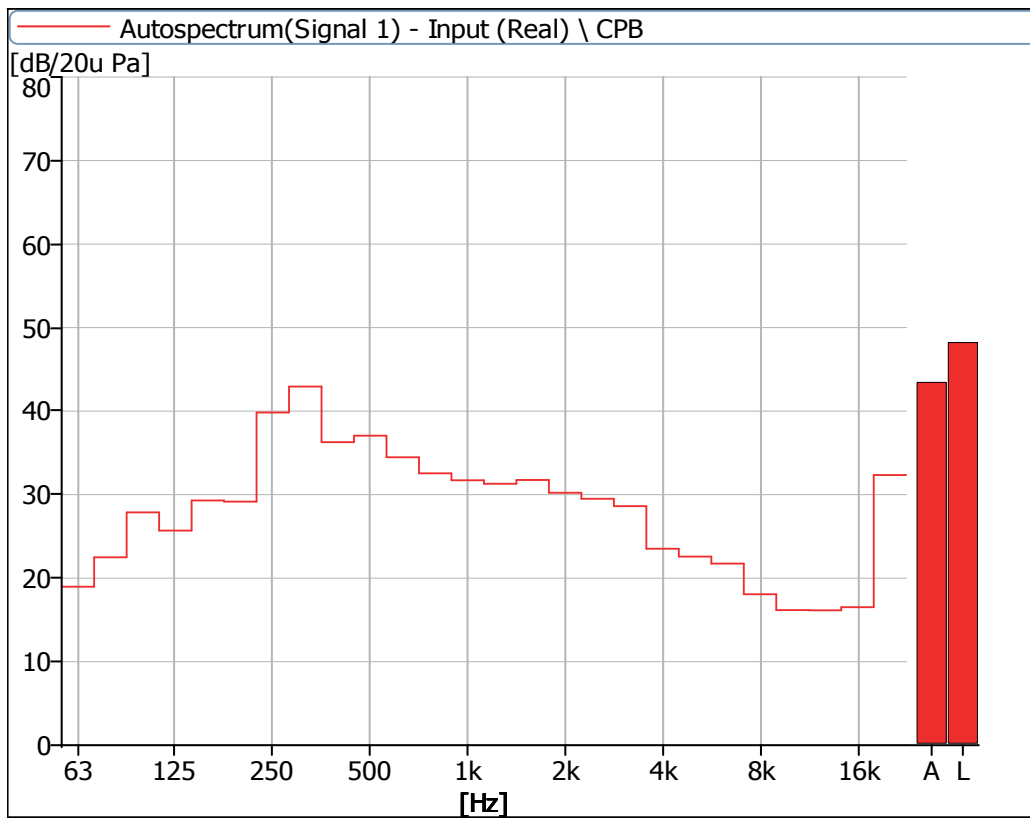


Figure 8 Noise Spectrum of Stage Luminaires (The Auto mode, Dynamic, No 2)

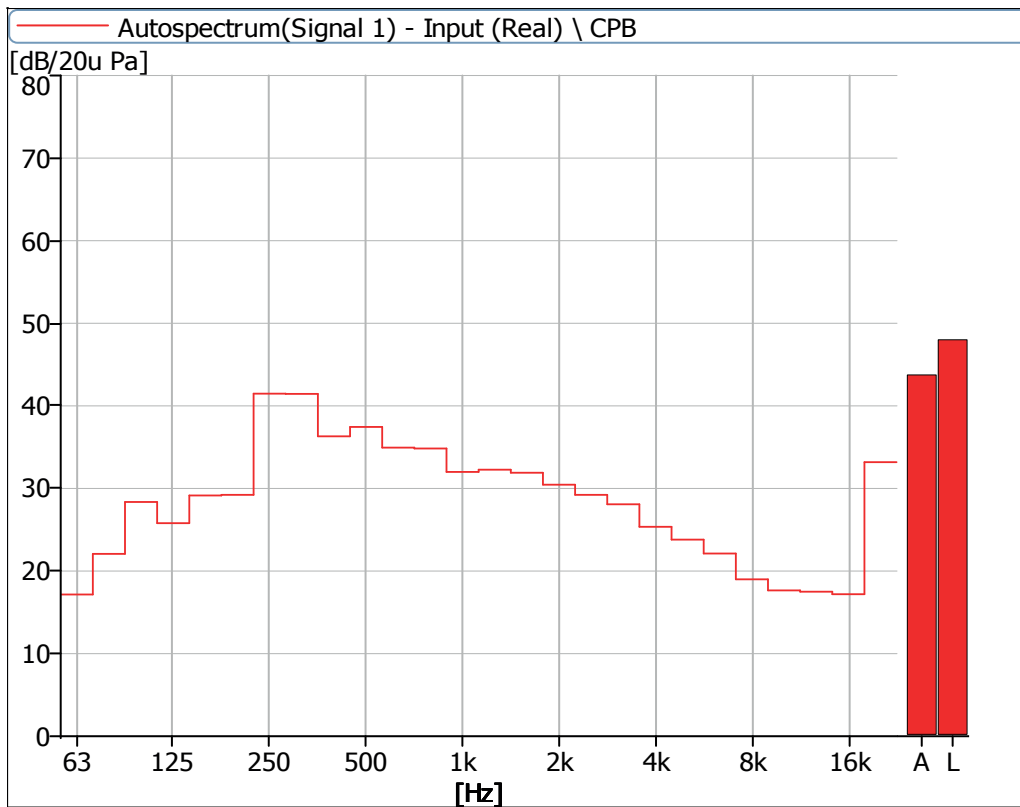


Figure 9 Noise Spectrum of Stage Luminaires (The Auto mode, Dynamic, No 3)

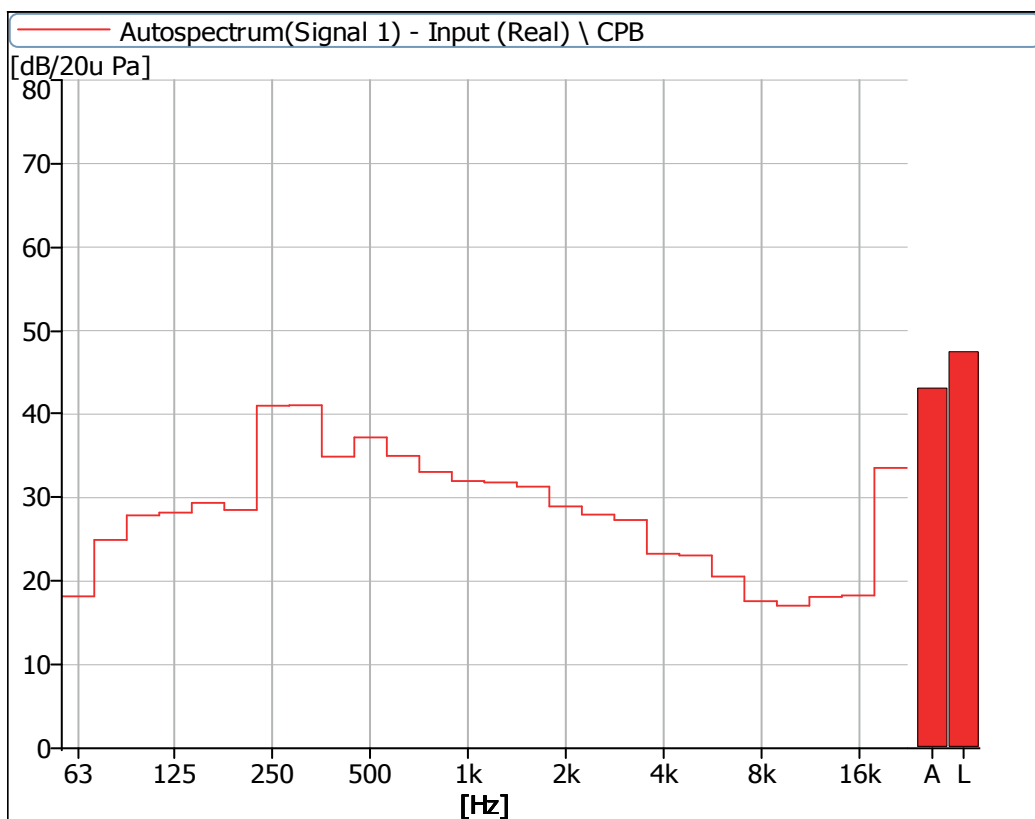


Figure 10 Noise Spectrum of Stage Luminaires (The Auto mode, Dynamic, No 4)

3 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
63	20.0	16.2	16.6	15.8	19.9	20.3	18.6	20.0
80	19.2	15.2	16.5	15.9	22.3	23.6	22.0	25.7
100	24.6	20.2	23.3	22.4	30.7	28.5	28.4	29.6
125	18.7	16.0	17.4	14.0	27.1	25.4	25.5	28.7
160	21.0	19.2	19.9	18.4	29.8	30.3	29.8	30.0
200	28.2	26.1	27.5	24.6	29.7	30.2	30.1	29.6
250	34.1	33.3	34.1	32.1	41.1	42.0	43.4	43.0
315	31.2	30.1	30.2	29.5	41.5	44.1	42.7	42.7
400	33.9	29.8	33.3	30.6	37.7	38.3	37.3	36.1
500	34.4	35.3	28.5	29.0	37.6	38.4	37.9	38.2
630	35.2	34.5	29.1	27.6	37.1	35.4	36.0	35.7
800	36.0	33.0	33.0	31.6	36.0	35.2	36.8	36.3
1000	33.9	32.6	29.0	27.0	33.6	33.9	33.9	33.7
1250	32.3	35.3	25.9	28.1	35.1	34.1	34.9	33.7
1600	32.3	35.0	26.3	26.9	34.4	33.8	33.9	33.6
2000	31.4	32.3	26.0	27.7	33.7	33.0	32.8	32.1
2500	30.3	29.2	25.0	28.8	32.7	31.8	31.5	30.6
3150	30.7	32.6	24.1	25.2	32.6	32.3	31.2	30.8
4000	26.6	24.7	19.0	22.5	26.9	26.1	27.6	26.1
5000	25.0	25.4	15.7	19.1	26.1	24.7	25.8	25.6
6300	23.2	27.7	15.5	17.0	26.4	25.2	24.8	23.7
8000	20.2	21.5	14.4	13.1	21.9	21.1	21.4	20.2
10000	22.0	17.1	16.6	12.0	18.5	17.9	19.1	18.5
12500	17.0	14.3	12.3	10.5	17.1	17.7	18.2	19.4
16000	15.7	12.7	12.7	12.3	17.2	17.5	17.8	18.1
20000	32.2	24.7	30.8	28.1	33.6	32.5	32.8	33.1

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
Leq	45.7	45.8	43.1	42.1	48.8	49.7	49.3	49.1
A-weighted dB(A)	43.2	43.6	38.5	38.6	45.5	45.4	45.5	45.1
Average sound pressure level dB(A)	41.6				45.4			

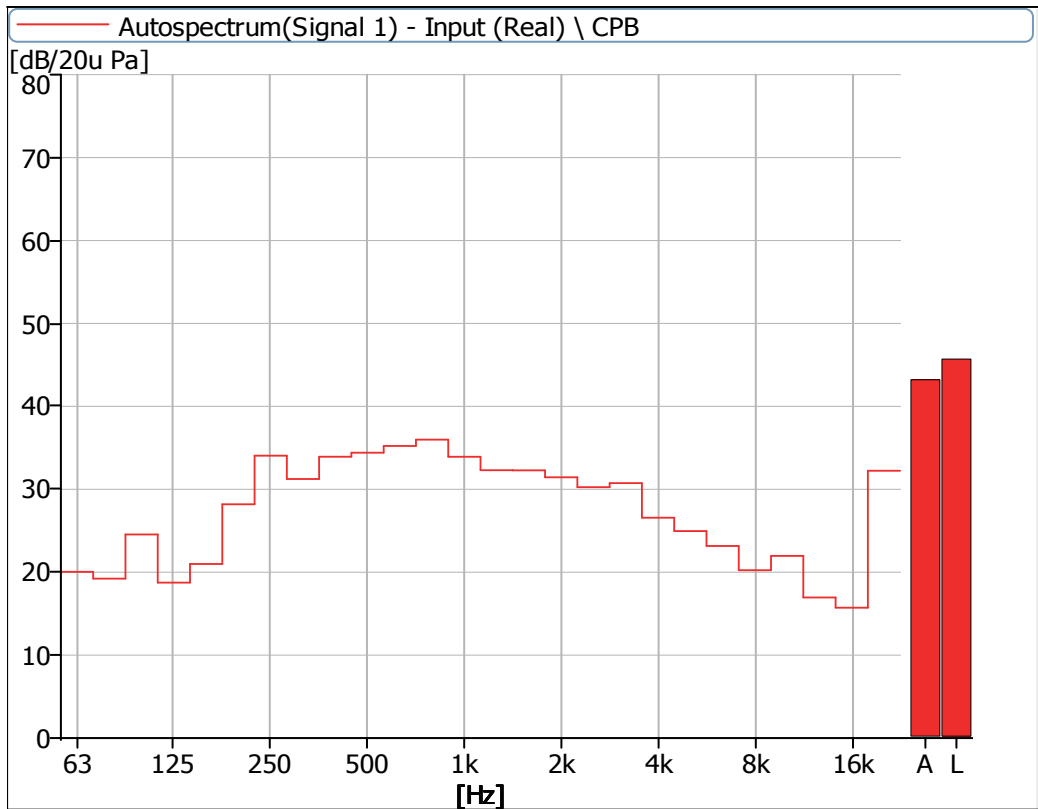


Figure 11 Noise Spectrum of Stage Luminaires (The Stage mode, Static, No 1)

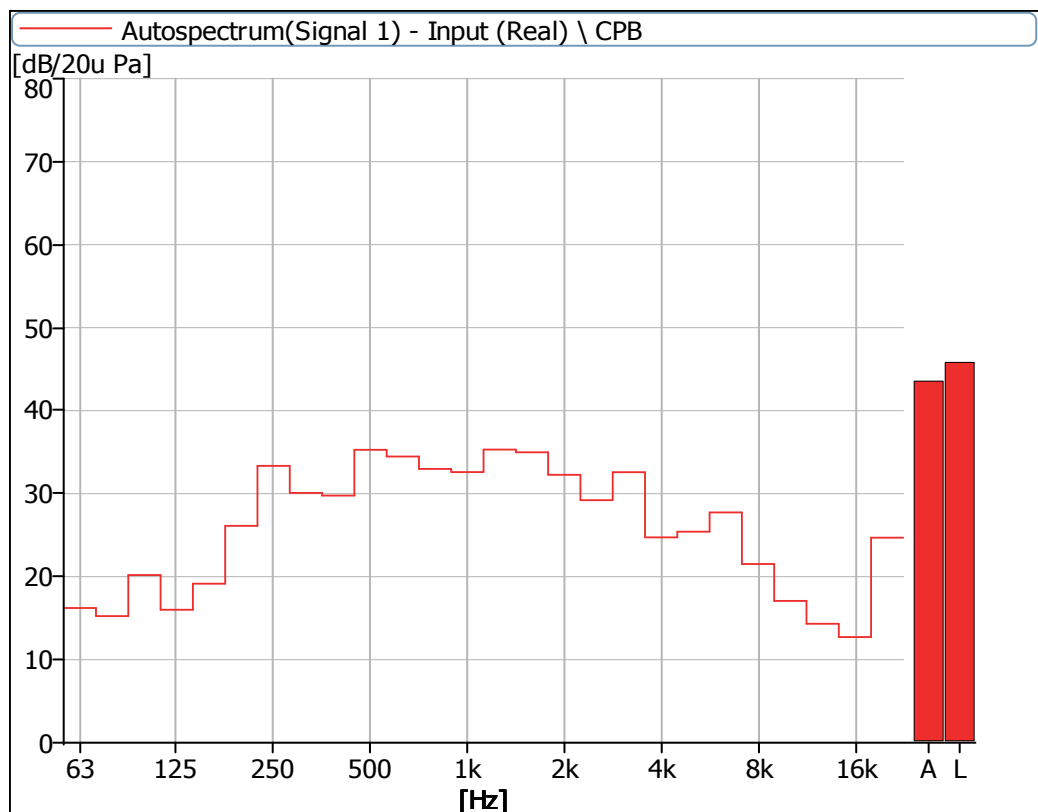


Figure 12 Noise Spectrum of Stage Luminaires (The Stage mode, Static, No 2)

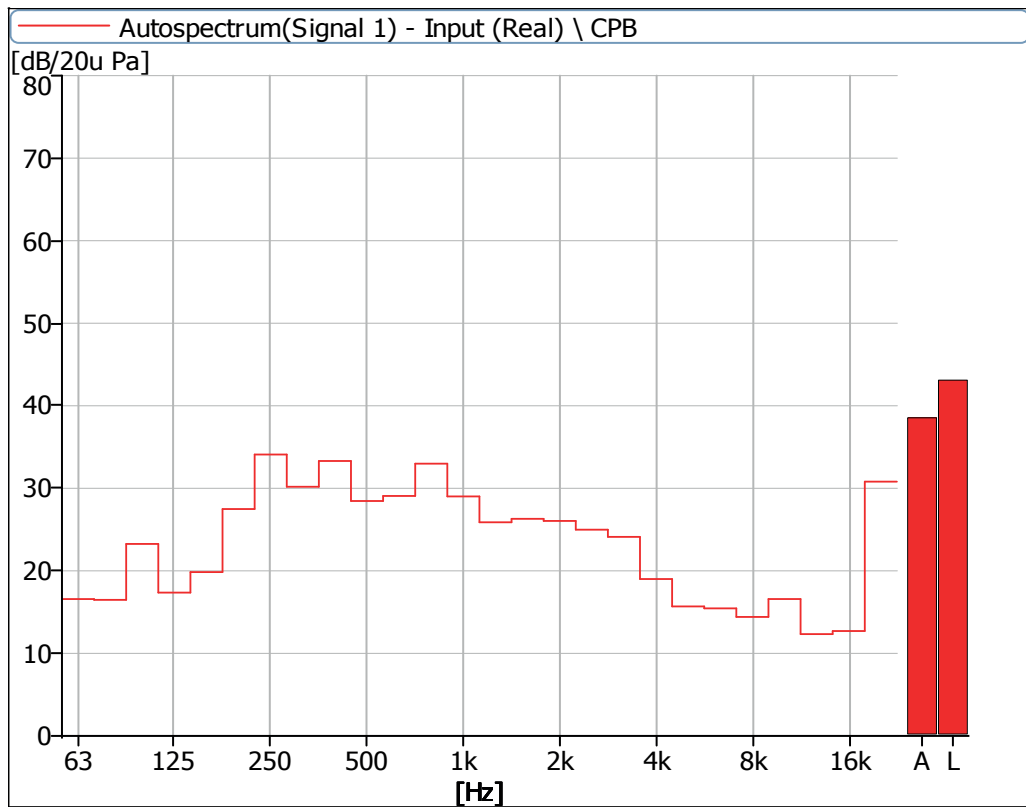


Figure 13 Noise Spectrum of Stage Luminaires (The Stage mode, Static, No 3)

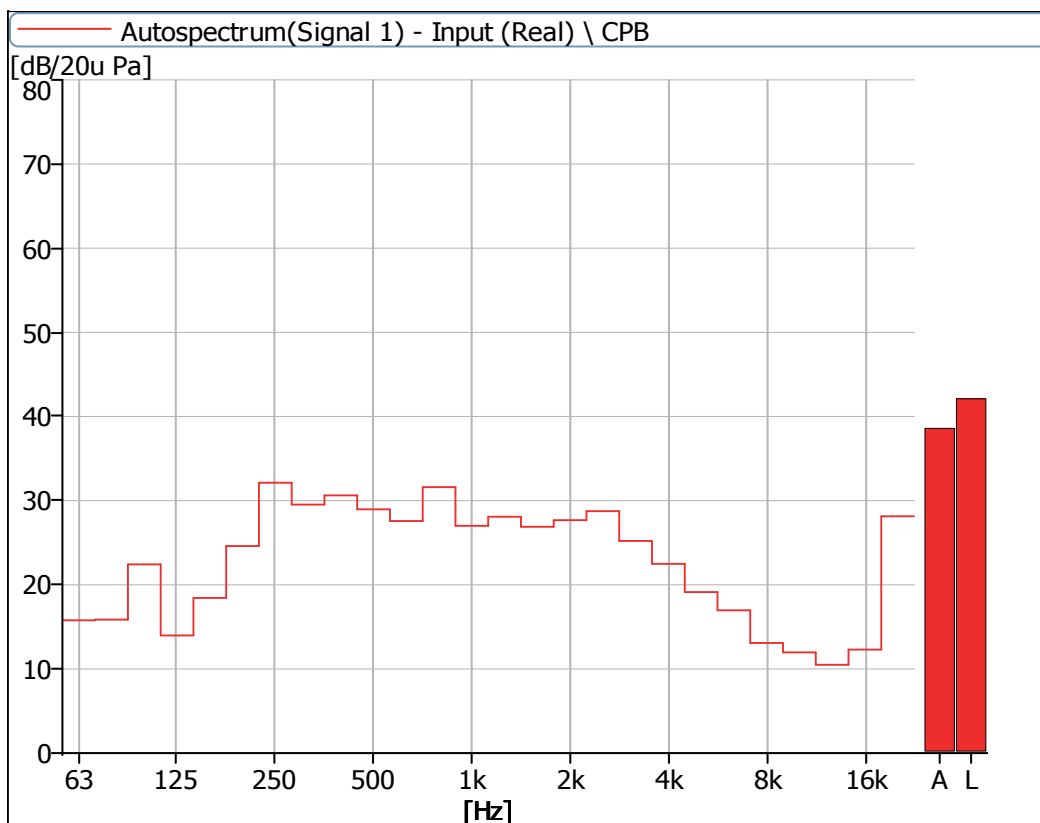


Figure 14 Noise Spectrum of Stage Luminaires (The Stage mode, Static, No 4)

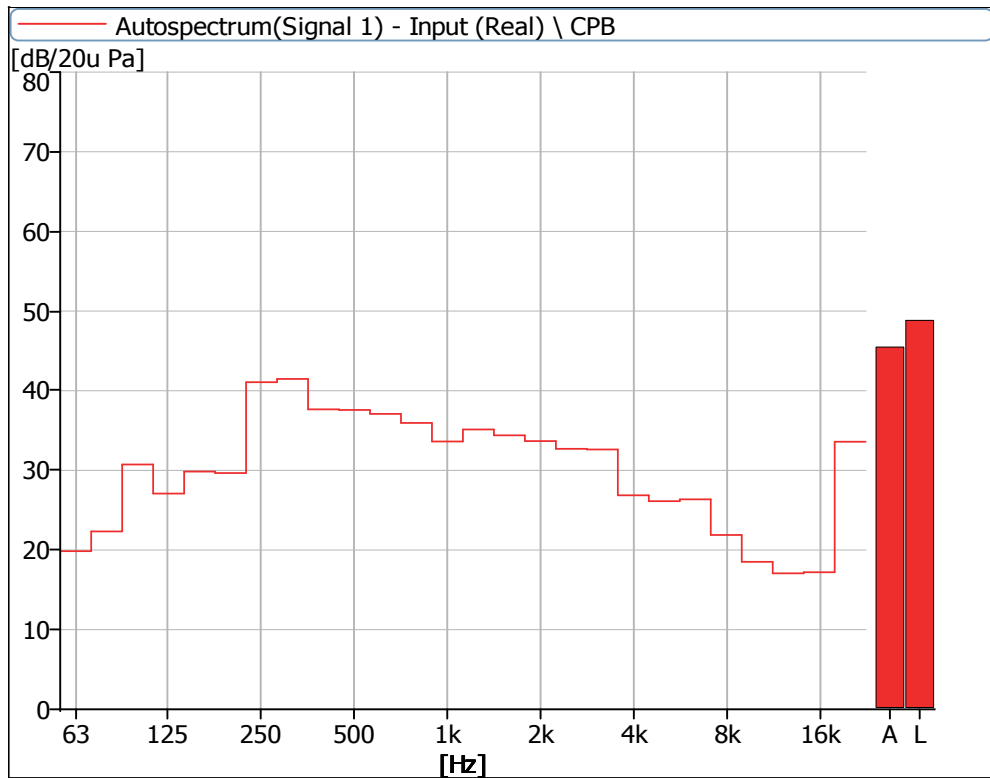


Figure 15 Noise Spectrum of Stage Luminaires (The Stage mode, Dynamic, No 1)

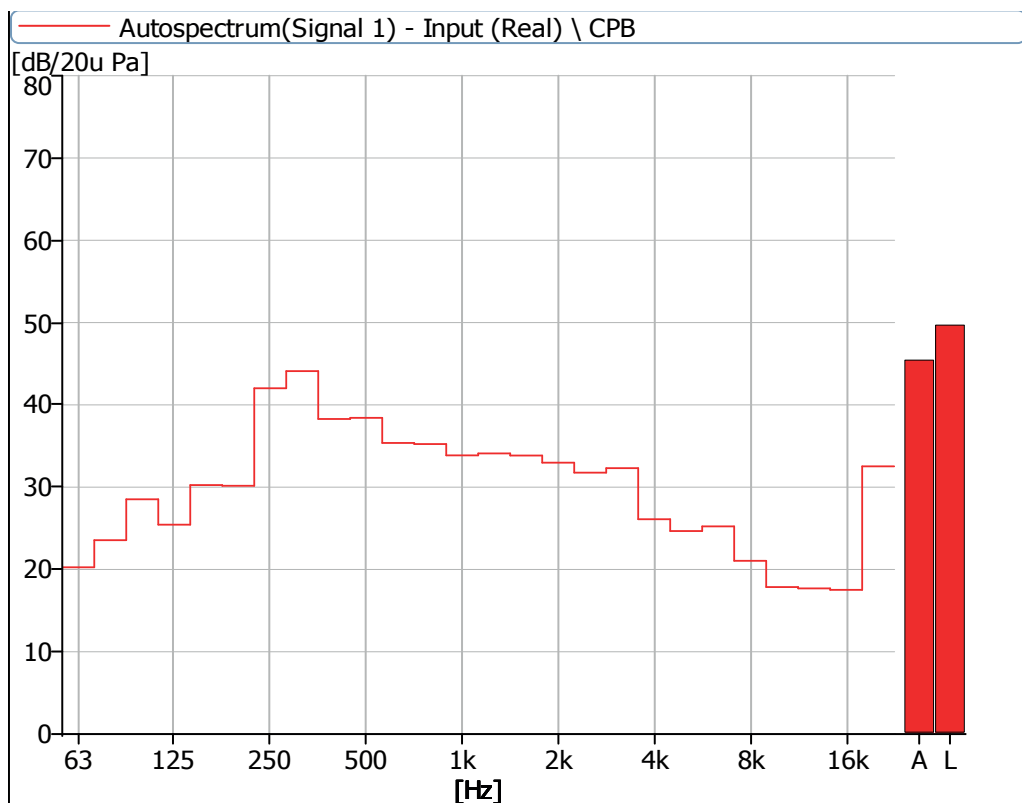


Figure 16 Noise Spectrum of Stage Luminaires (The Stage mode, Dynamic, No 2)

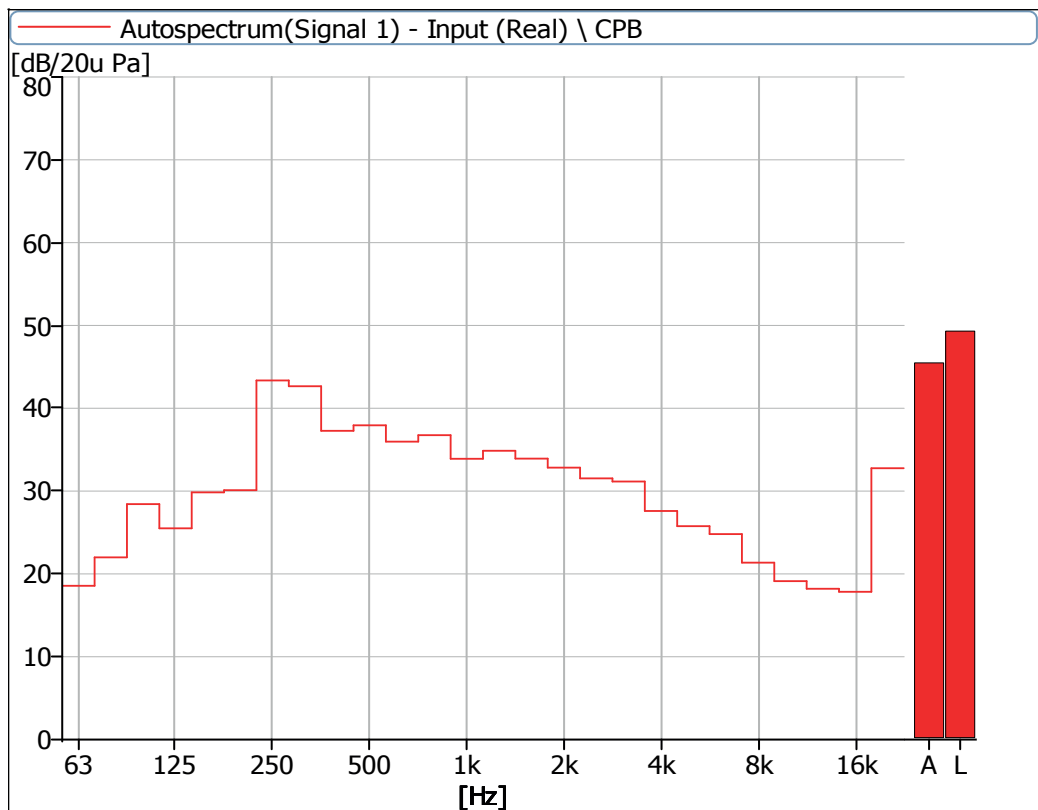


Figure 17 Noise Spectrum of Stage Luminaires (The Stage mode, Dynamic, No 3)

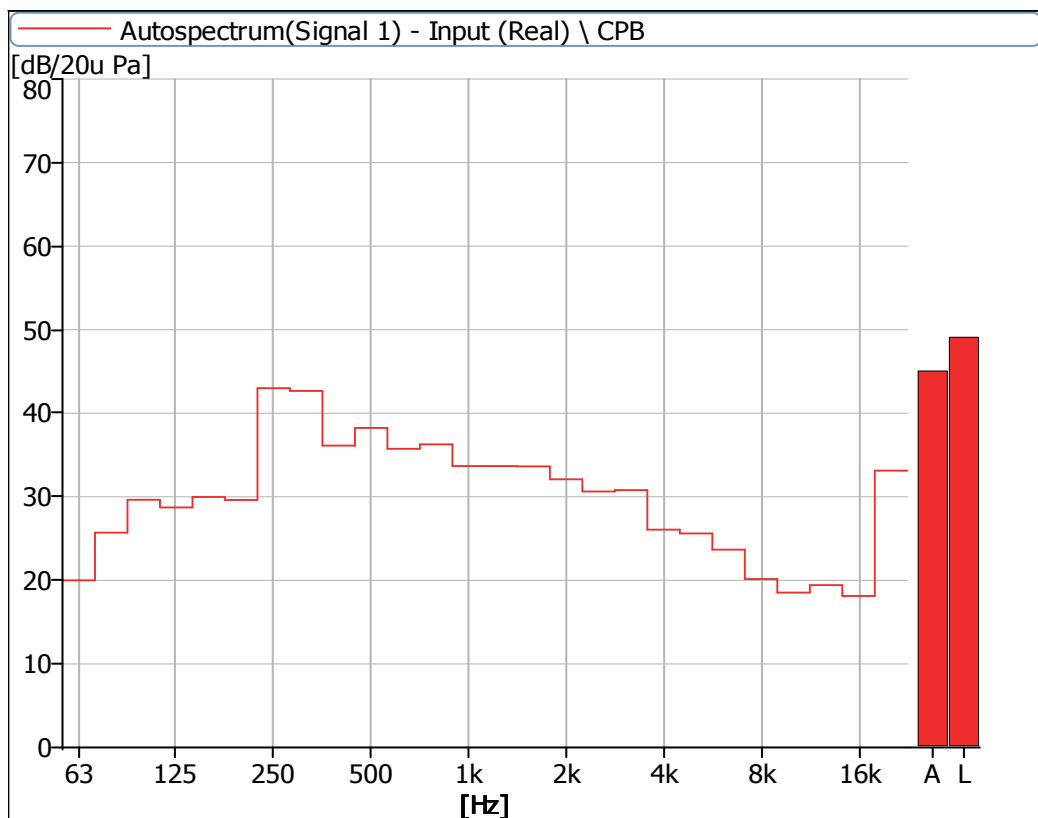


Figure 18 Noise Spectrum of Stage Luminaires (The Stage mode, Dynamic, No 4)

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
63	16.7	17.2	15.3	14.4	18.4	19.0	17.6	18.7
80	18.0	14.1	14.8	13.5	21.3	22.9	22.9	26.1
100	20.3	16.0	17.2	19.9	29.4	27.9	28.5	29.4
125	14.1	11.9	14.9	11.3	26.5	25.1	25.6	29.1
160	16.4	14.7	17.4	14.7	29.3	30.5	30.0	30.6
200	19.8	16.0	19.0	15.6	26.1	27.2	28.3	28.2
250	28.3	25.2	28.7	25.5	41.4	41.7	44.4	44.0
315	24.4	19.4	24.4	20.7	41.6	44.1	43.1	42.6
400	20.8	17.0	19.6	17.9	36.1	36.6	36.8	35.8
500	22.3	21.0	22.2	20.4	33.6	34.9	35.1	35.6
630	20.1	18.1	19.7	17.6	31.1	31.7	31.9	32.3
800	20.3	16.9	21.1	18.2	29.8	30.2	31.9	30.2
1000	17.3	15.3	18.4	16.0	29.1	29.4	30.7	28.6
1250	16.6	16.7	16.2	19.2	28.0	27.9	30.6	28.0
1600	14.8	13.7	16.6	14.0	25.2	24.8	25.4	25.1
2000	13.9	12.4	15.5	13.0	22.5	22.5	23.0	22.0
2500	13.6	11.3	13.3	13.5	23.0	23.2	22.9	22.5
3150	18.5	11.0	13.2	12.8	19.0	18.6	20.2	19.0
4000	18.2	11.1	13.5	13.6	17.7	17.6	19.2	18.2
5000	14.4	9.3	12.0	12.8	18.4	18.1	20.0	19.0
6300	17.3	9.4	12.4	10.9	16.1	15.7	17.6	16.2
8000	13.5	9.3	11.6	9.3	15.6	14.8	16.8	14.8
10000	16.6	9.5	13.8	9.6	14.8	15.0	16.7	15.6
12500	12.5	9.1	10.3	9.4	14.9	16.7	17.8	18.2
16000	13.1	10.2	10.7	9.5	16.5	16.5	17.8	17.6
20000	31.5	27.7	27.6	22.0	33.3	32.4	34.0	33.3

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
Leq	40.1	40.8	40.6	40.1	47.1	48.5	48.9	48.2
A-weighted dB(A)	30.5	27.1	29.5	27.7	40.9	41.9	42.6	41.9
Average sound pressure level dB(A)	28.9				41.8			

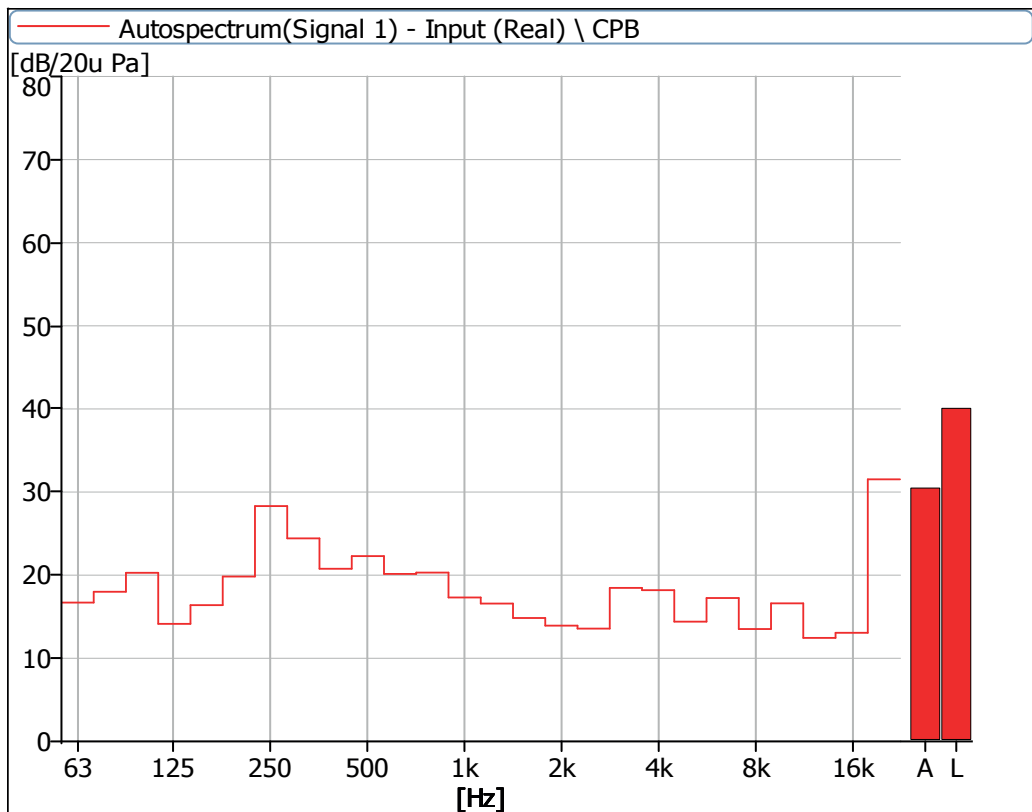


Figure 19 Noise Spectrum of Stage Luminaires (The Silence mode, Static, No 1)

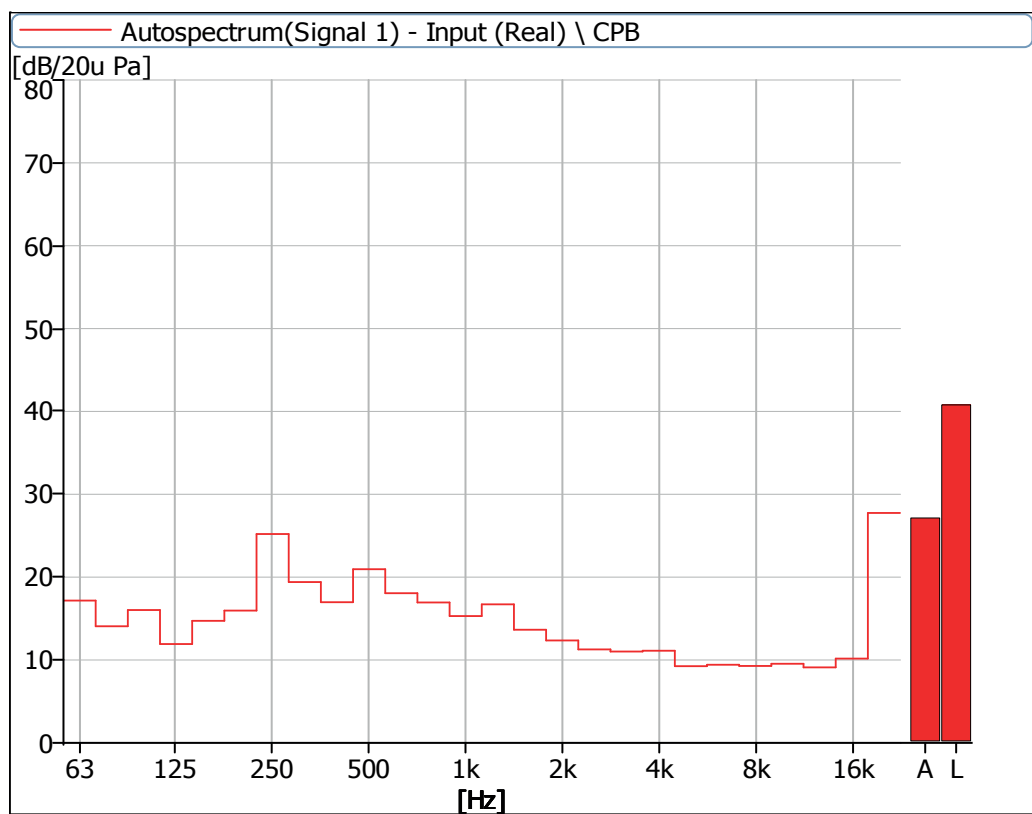


Figure 20 Noise Spectrum of Stage Luminaires (The Silence mode, Static, No 2)

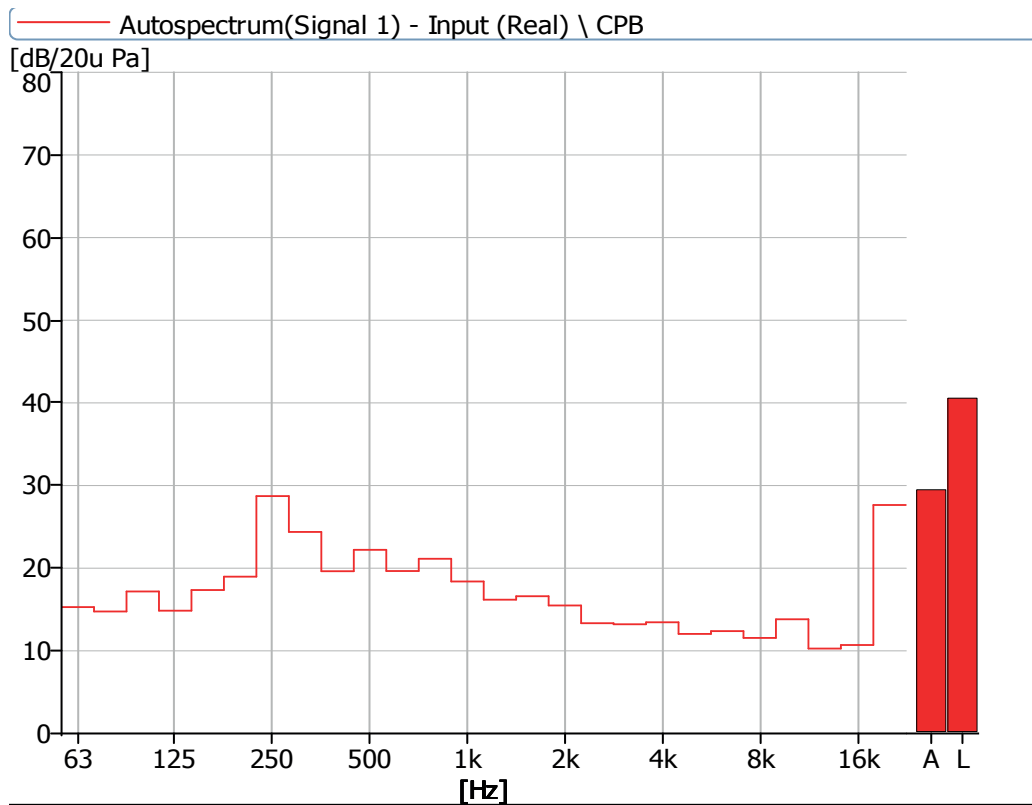


Figure 21 Noise Spectrum of Stage Luminaires (The Silence mode, Static, No 3)

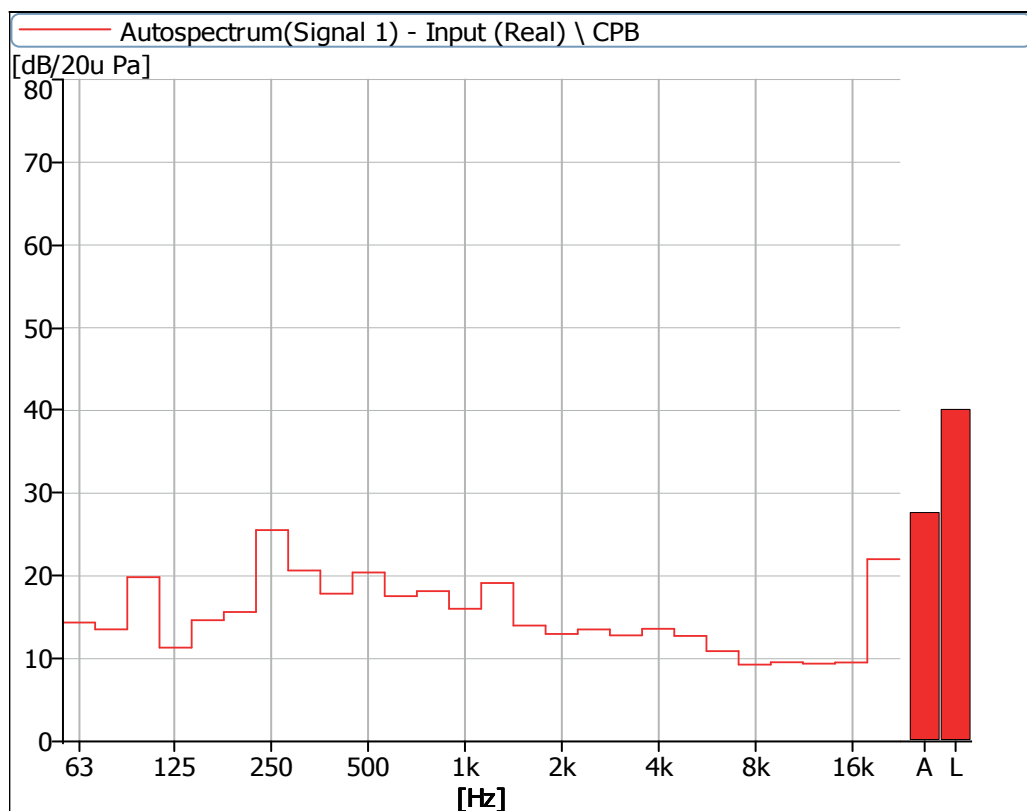


Figure 22 Noise Spectrum of Stage Luminaires (The Silence mode, Static, No 4)

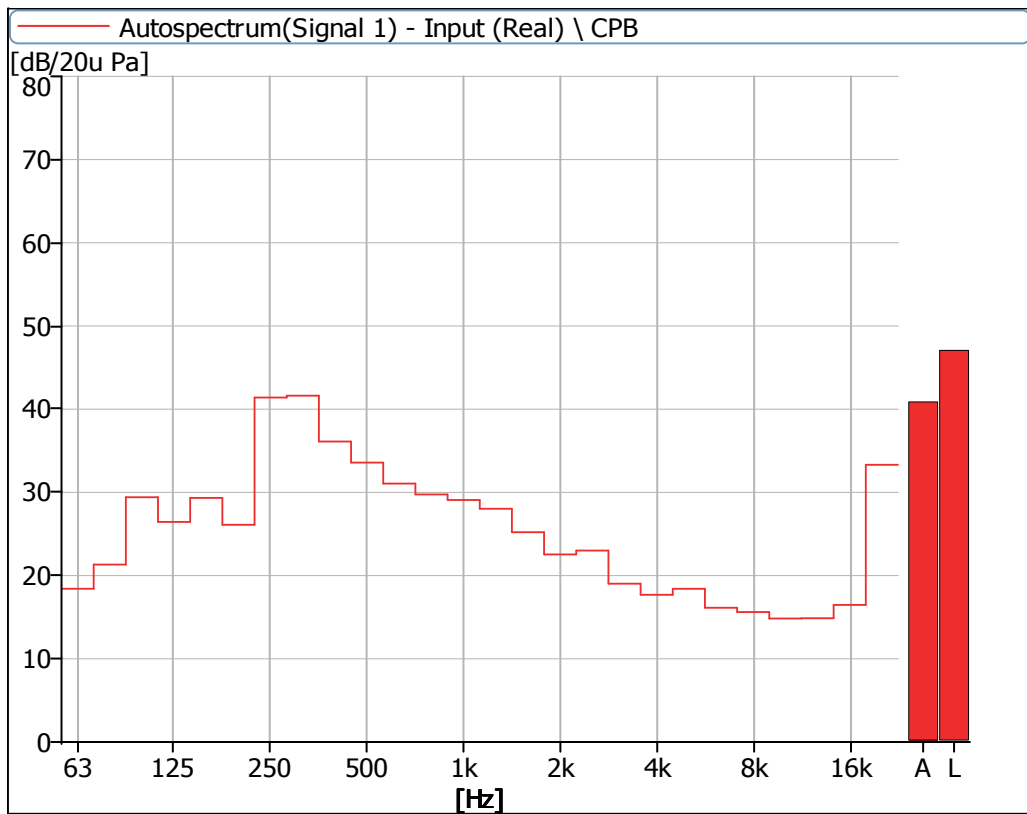


Figure 23 Noise Spectrum of Stage Luminaires (The Silence mode, Dynamic, No 1)

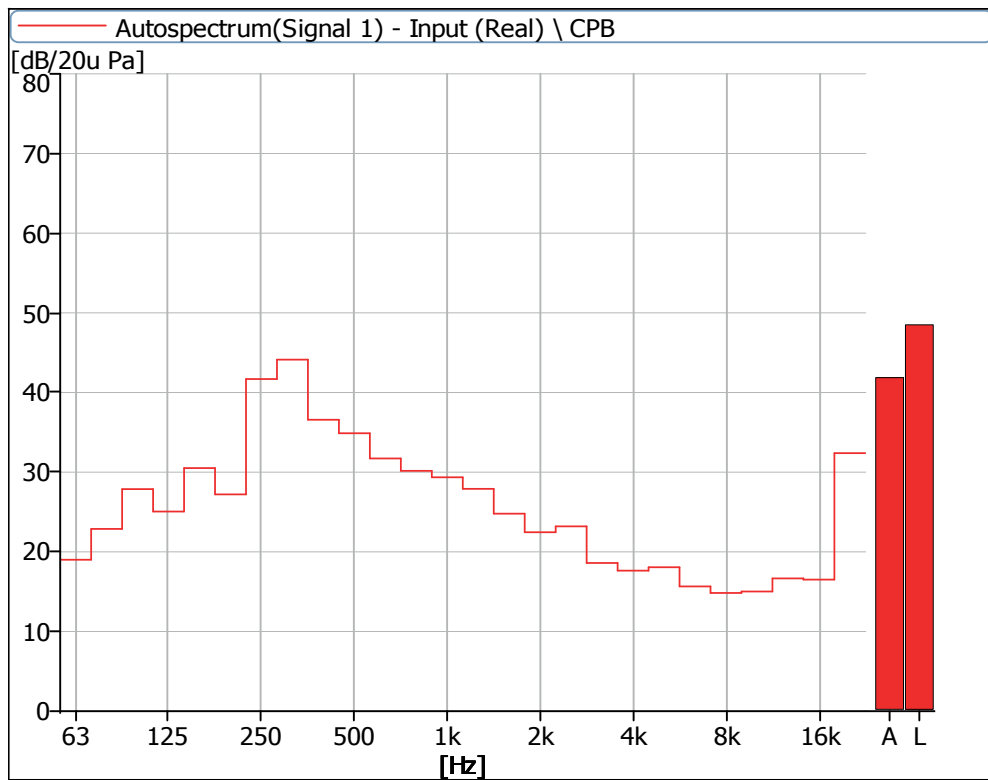


Figure 24 Noise Spectrum of Stage Luminaires (The Silence mode, Dynamic, No 2)

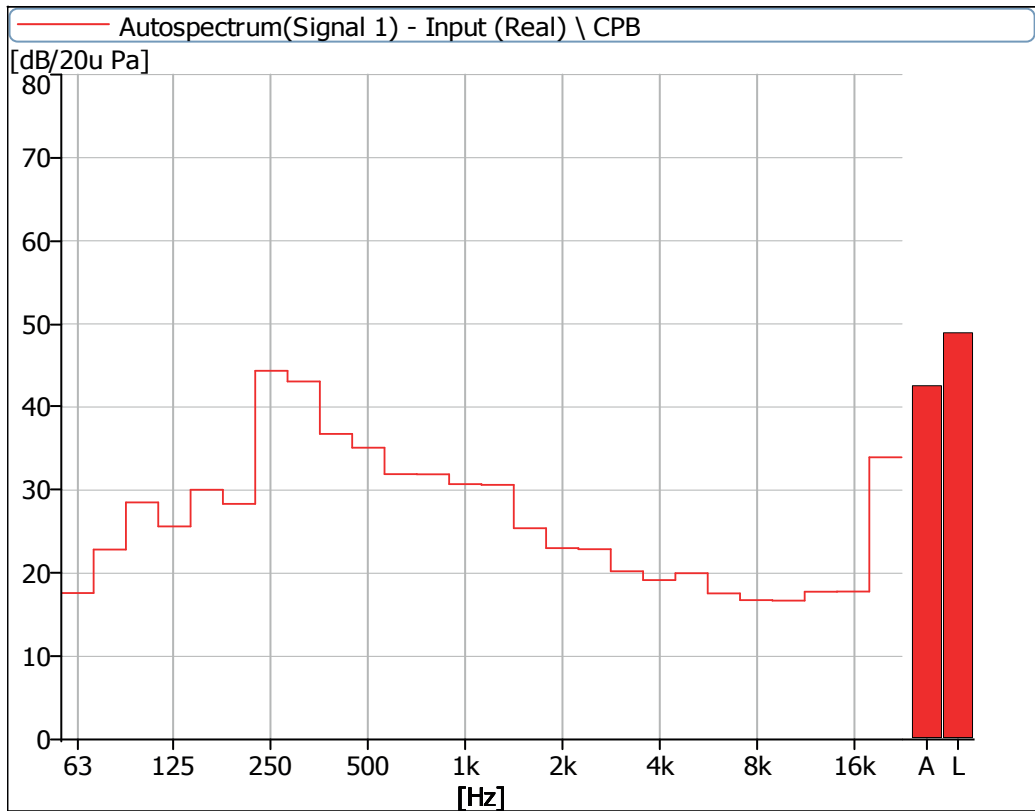


Figure 25 Noise Spectrum of Stage Luminaires (The Silence mode, Dynamic, No 3)

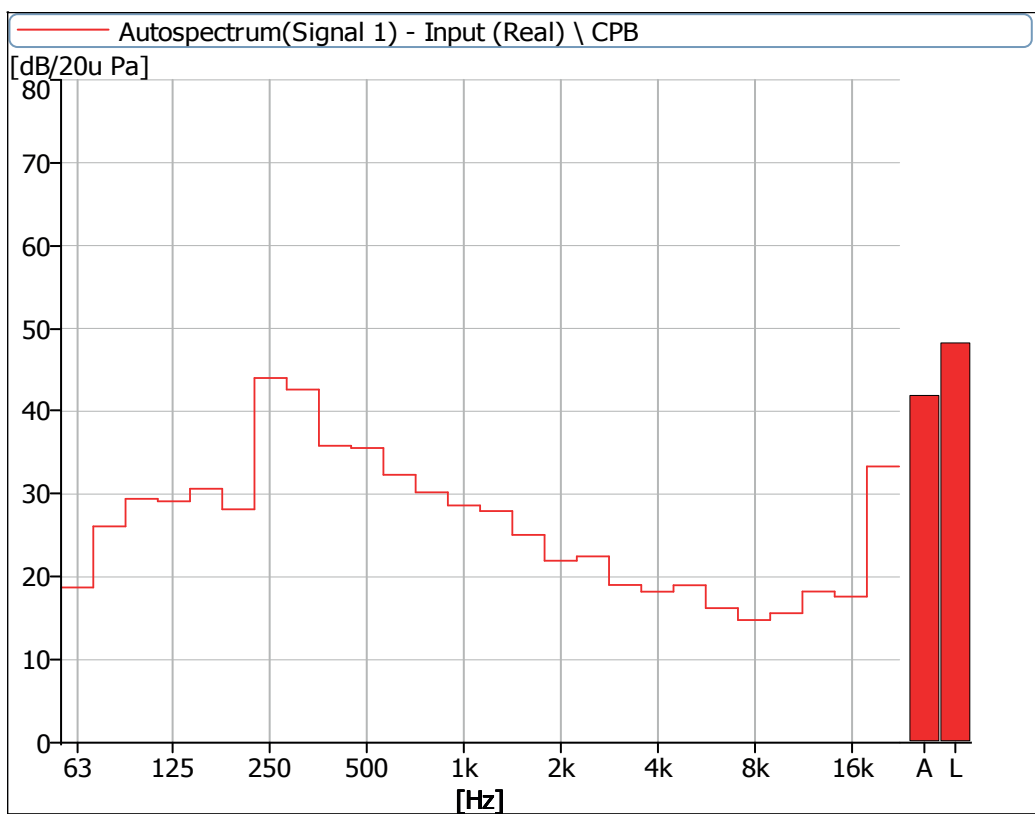


Figure 26 Noise Spectrum of Stage Luminaires (The Silence mode, Dynamic, No 4)

5 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
63	18.4	15.4	14.1	14.3	18.6	18.6	17.1	19.1
80	18.1	14.4	14.9	14.1	23.3	23.2	22.6	26.2
100	19.7	16.2	16.7	19.5	32.5	29.4	29.2	29.9
125	13.9	11.9	14.3	11.5	28.1	27.0	25.8	29.0
160	15.9	14.6	15.6	14.4	30.8	31.1	29.6	30.4
200	18.6	15.9	18.0	15.4	28.2	27.7	28.2	28.6
250	27.0	24.4	26.8	25.1	43.5	43.3	44.4	44.6
315	21.1	18.5	22.3	20.9	42.9	43.3	42.3	42.2
400	18.6	16.1	18.9	17.3	38.0	38.0	37.0	35.8
500	20.2	20.0	20.9	20.1	35.5	35.5	35.2	35.8
630	19.3	18.2	18.6	17.2	32.5	31.8	32.0	32.3
800	18.9	16.7	19.5	18.2	30.6	29.6	31.7	30.7
1000	16.6	15.3	17.0	16.0	29.4	30.0	30.6	29.1
1250	16.5	17.3	16.6	19.3	28.0	28.4	30.5	28.4
1600	13.6	14.0	15.9	14.0	25.4	25.1	25.2	24.8
2000	13.0	11.5	14.5	12.5	22.2	22.5	23.1	21.5
2500	12.4	10.6	12.7	13.7	23.6	22.0	22.9	22.3
3150	18.2	10.7	13.4	12.6	19.5	19.7	20.3	19.5
4000	18.8	11.9	14.1	13.8	19.4	19.0	19.3	18.3
5000	15.1	9.1	11.9	12.1	20.3	19.5	20.2	19.5
6300	17.6	10.1	12.6	10.9	17.3	16.5	17.3	16.5
8000	12.7	9.1	11.3	9.0	15.5	15.1	15.5	14.9
10000	15.5	9.2	13.2	9.4	16.0	15.4	16.3	15.9
12500	11.8	8.5	10.5	8.9	18.1	17.0	18.5	18.7
16000	12.3	8.8	11.3	9.8	17.7	16.8	17.8	18.5
20000	30.4	22.8	29.3	24.1	34.1	33.1	33.8	33.6

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
Leq	41.2	42.8	42.0	41.0	48.7	49.2	48.9	48.8
A-weighted dB(A)	29.6	26.5	28.7	27.6	42.2	42.2	42.4	42.1
Average sound pressure level dB(A)	28.3				42.2			

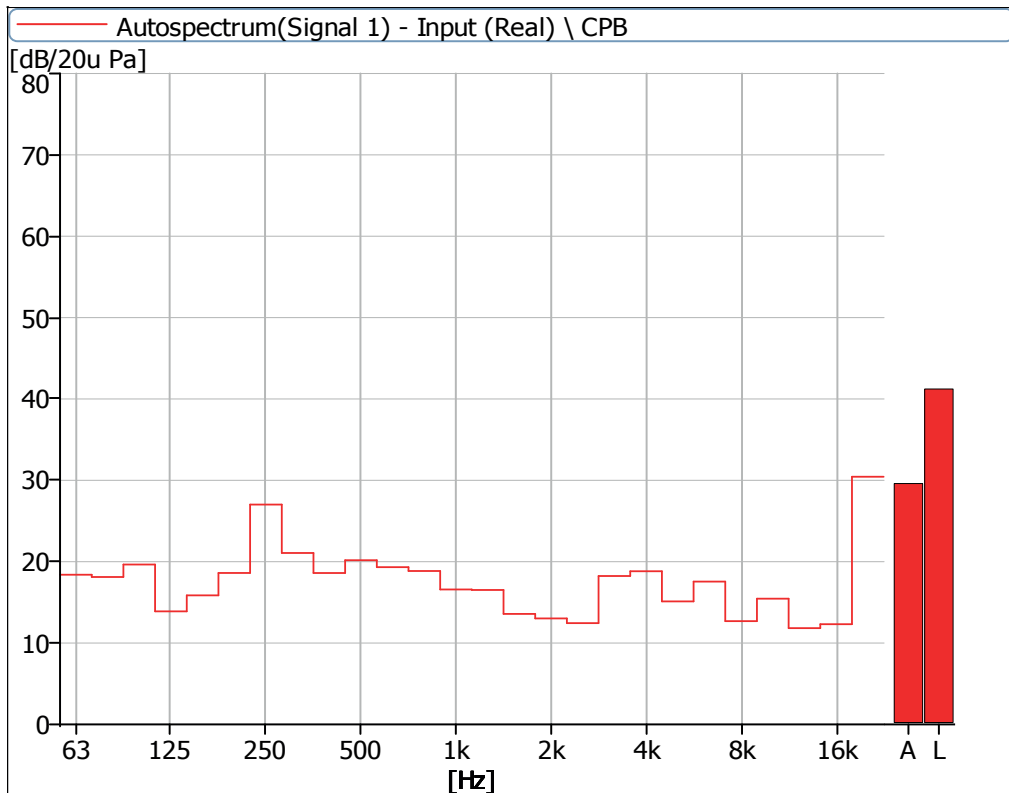


Figure 27 Noise Spectrum of Stage Luminaires (The Super Silence mode, Static, No 1)

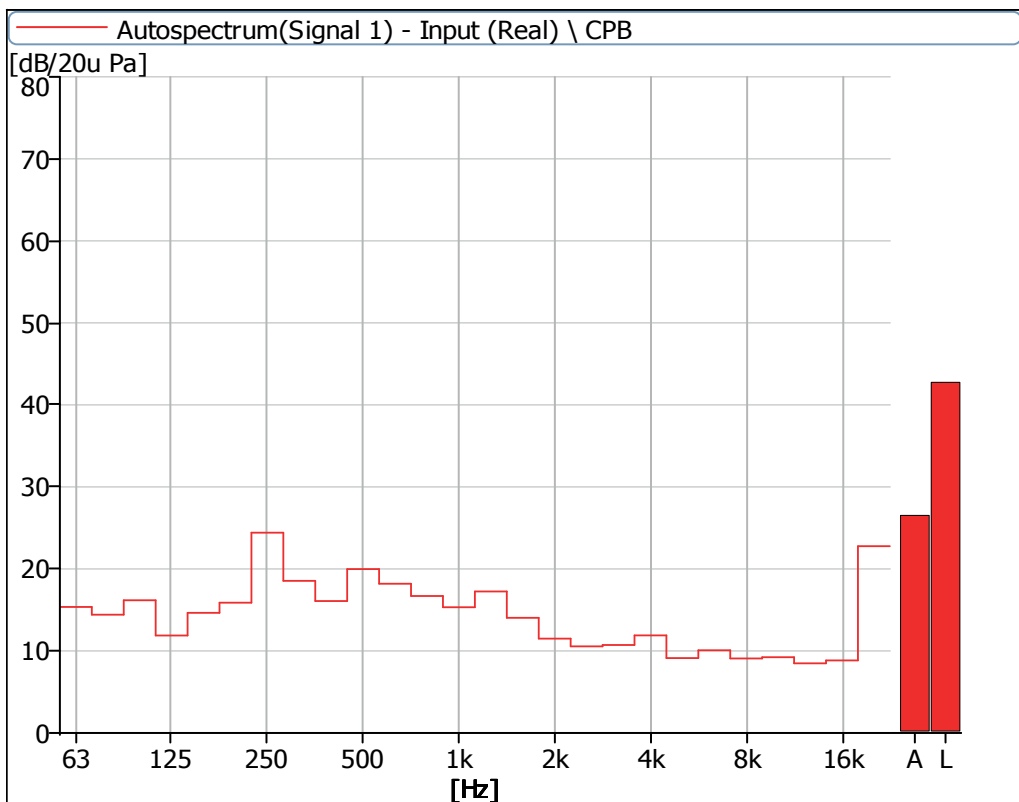


Figure 28 Noise Spectrum of Stage Luminaires (The Super Silence mode, Static, No 2)

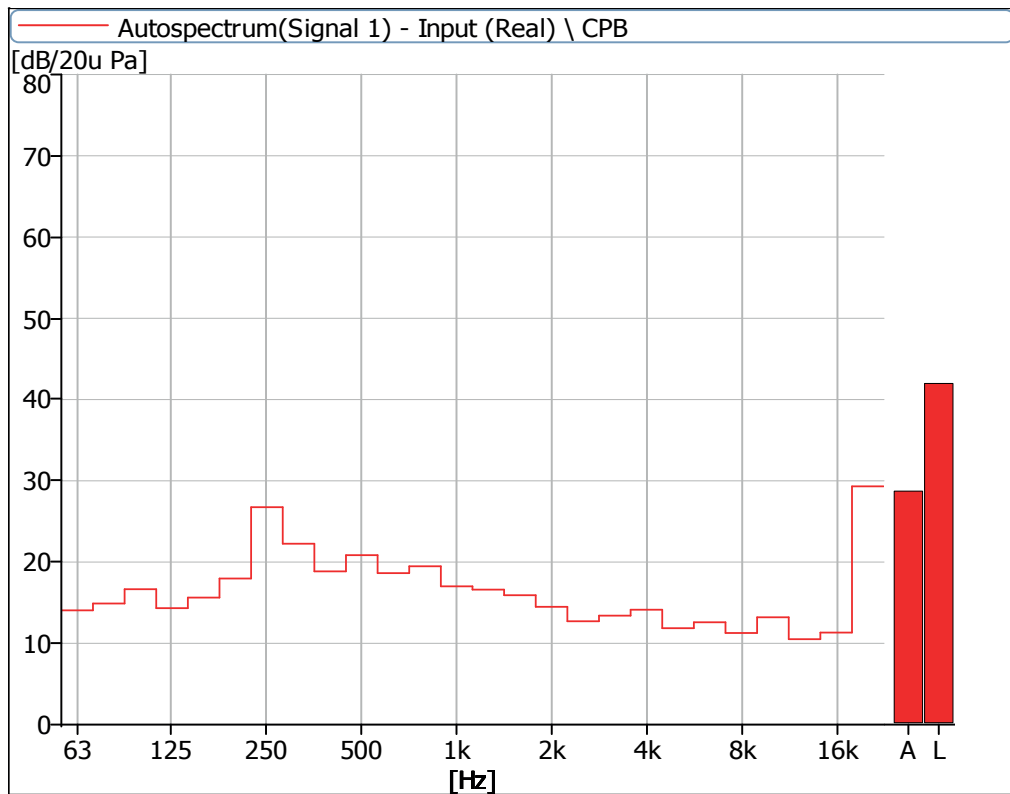


Figure 29 Noise Spectrum of Stage Luminaires (The Super Silence mode, Static, No 3)

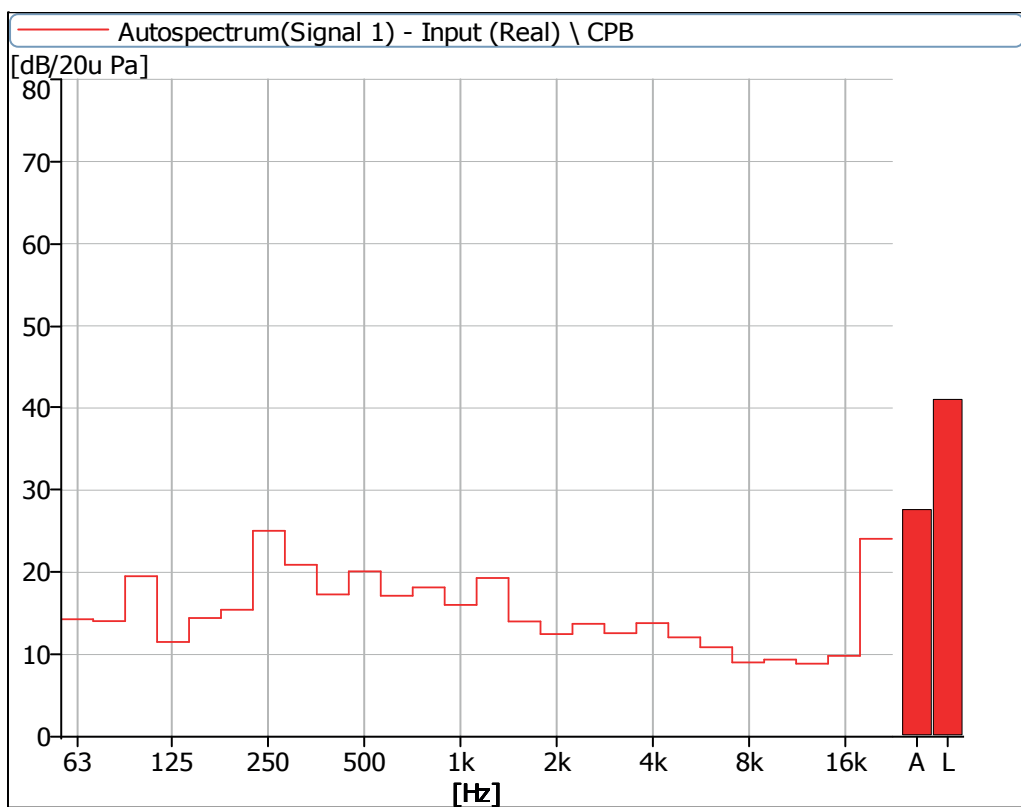


Figure 30 Noise Spectrum of Stage Luminaires (The Super Silence mode, Static, No 4)

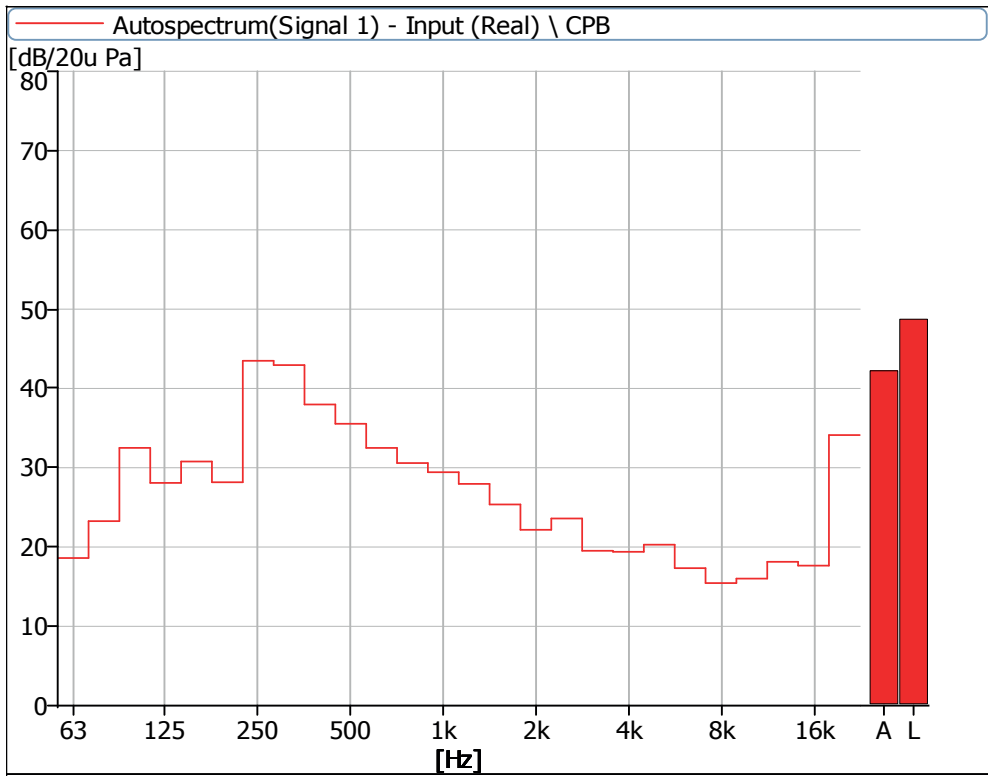


Figure 31 Noise Spectrum of Stage Luminaires (The Super Silence mode, Dynamic, No 1)

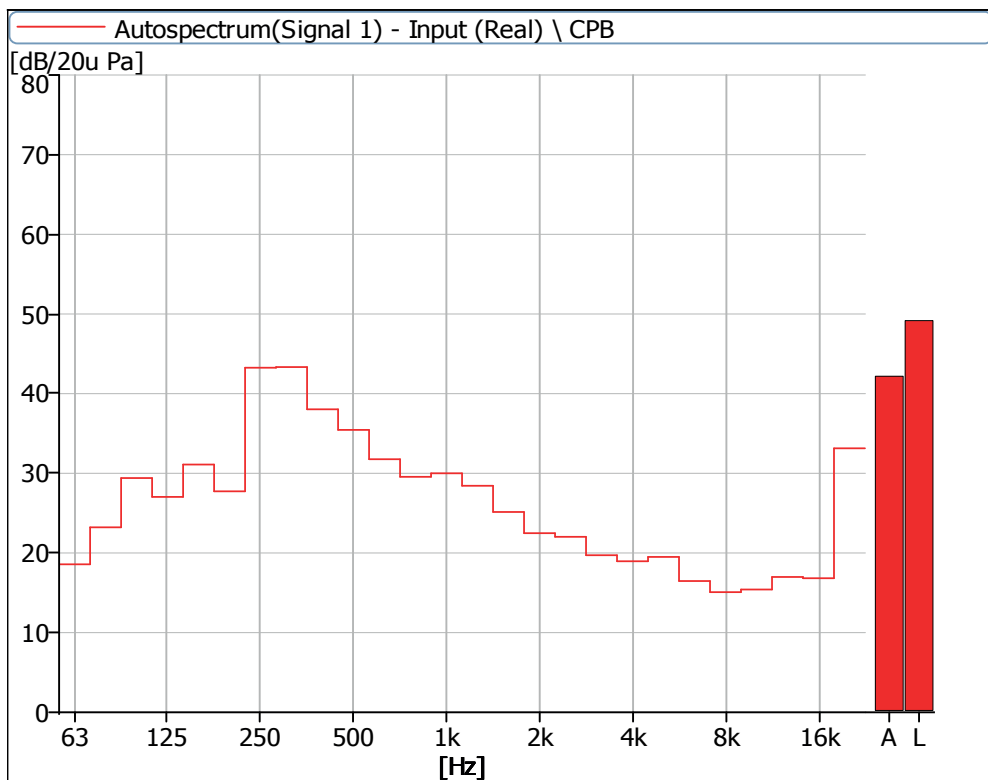


Figure 32 Noise Spectrum of Stage Luminaires (The Super Silence mode, Dynamic, No 2)

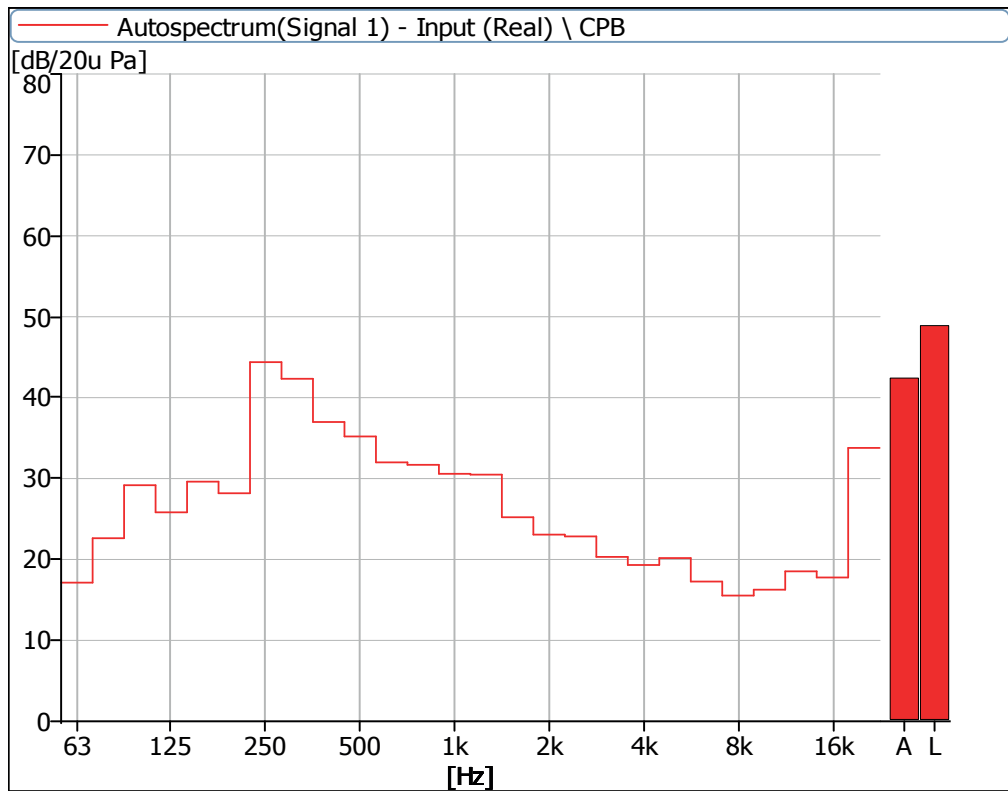


Figure 33 Noise Spectrum of Stage Luminaires (The Super Silence mode, Dynamic, No 3)

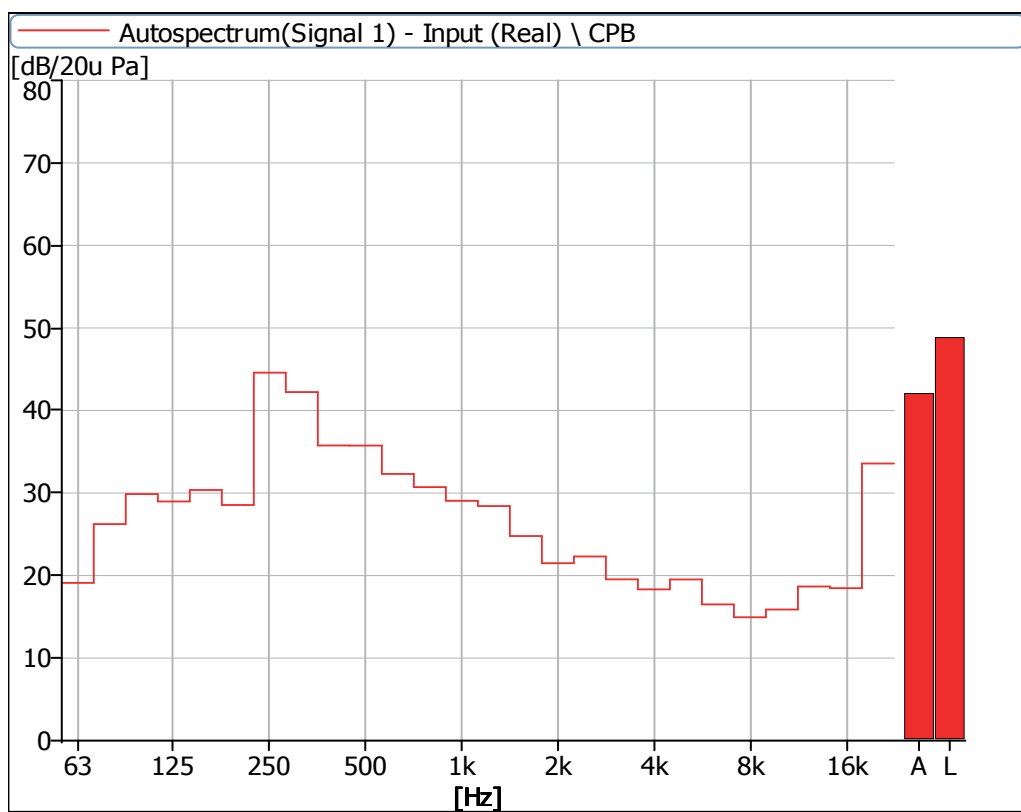


Figure 34 Noise Spectrum of Stage Luminaires (The Super Silence mode, Dynamic, No 4)

Instrumentation

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



AYRTON

Digital Lighting