



# MISTRAL

NOISE MEASUREMENTS

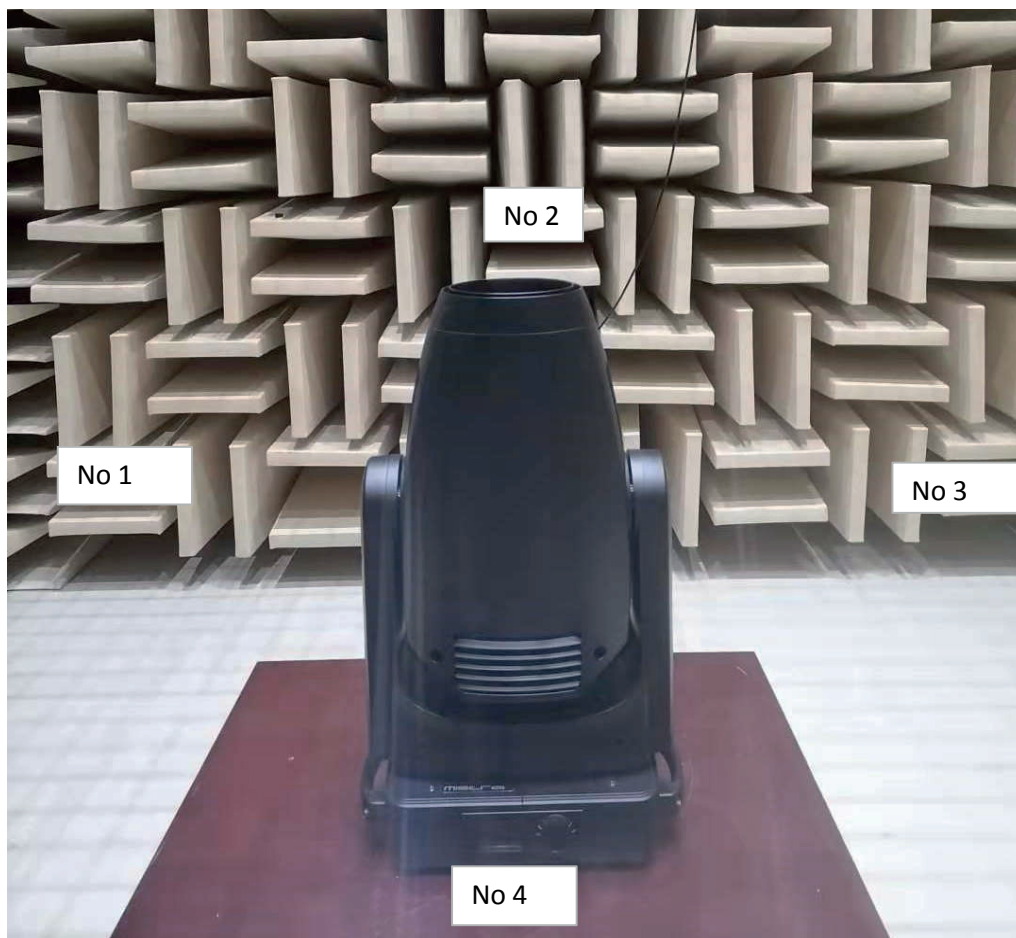


**AYRTON**  
Digital Lighting

## 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

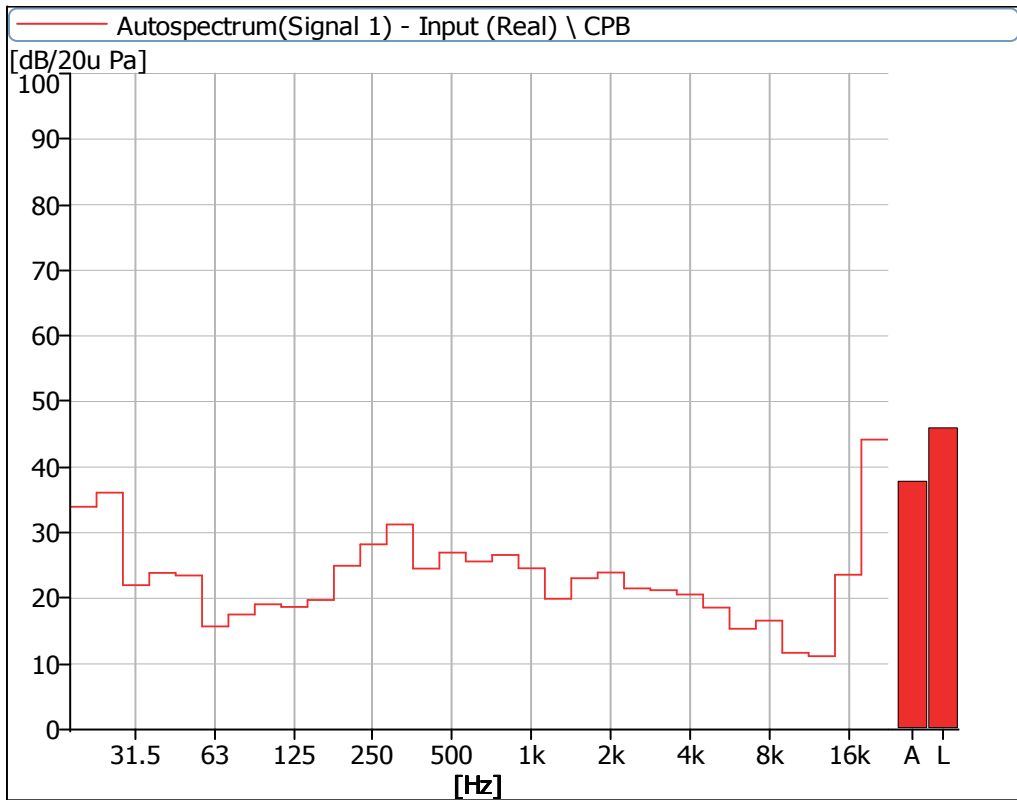


**Figure 2** Sample serial number information

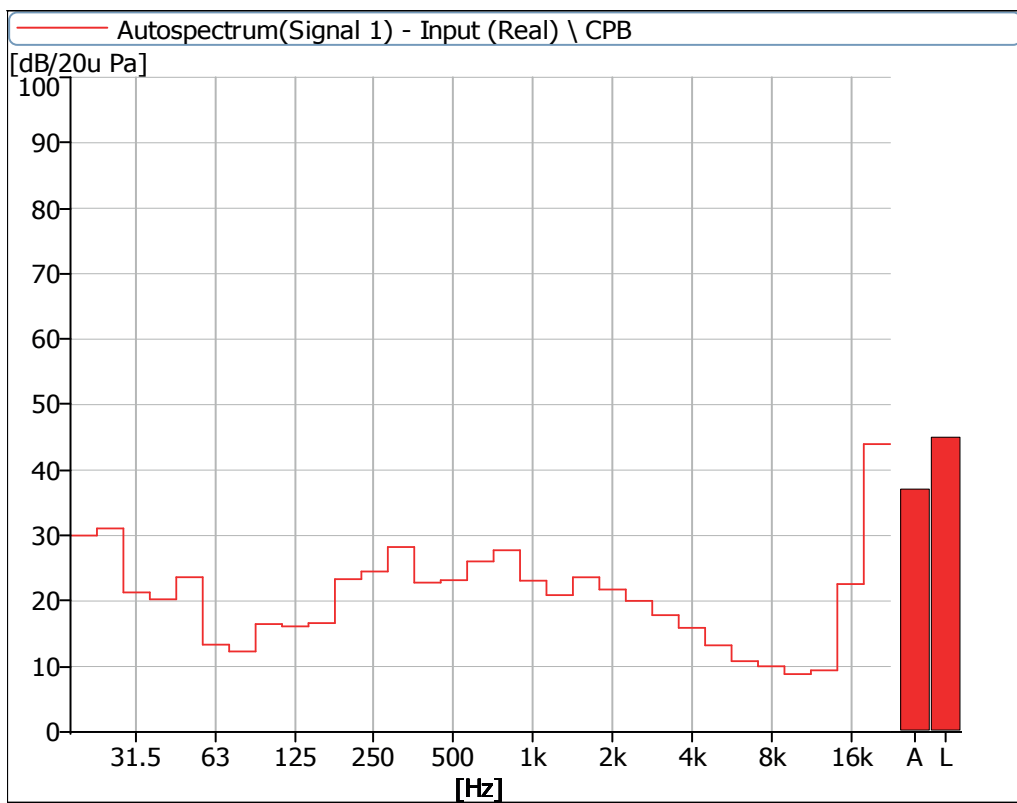
## 2 Noise Detection Results of Stage Luminaires (The Auto mode)

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
20	34.0	30.0	30.7	35.0	32.6	30.1	31.4	33.5
25	36.1	31.1	31.7	34.6	35.9	33.1	34.2	34.8
31.5	22.0	21.3	21.6	22.9	20.5	23.3	24.2	20.8
40	23.9	20.3	20.1	25.2	25.5	27.0	27.7	25.6
50	23.5	23.6	22.5	27.1	22.4	23.5	23.4	24.9
63	15.7	13.3	14.4	17.8	16.4	14.6	14.9	18.1
80	17.5	12.3	13.9	18.3	17.4	17.8	17.9	18.6
100	19.1	16.5	19.4	19.3	31.7	30.5	32.4	31.9
125	18.7	16.1	21.5	20.4	31.0	29.2	30.4	31.0
160	19.7	16.6	20.4	18.5	36.8	34.7	35.4	36.0
200	25.0	23.3	25.7	23.0	32.1	32.2	32.9	31.1
250	28.2	24.5	26.5	27.0	44.2	45.5	47.0	45.2
315	31.3	28.2	32.3	30.2	42.4	42.4	44.1	43.4
400	24.5	22.8	25.5	24.3	39.8	40.1	41.7	40.7
500	27.0	23.2	27.4	25.9	45.8	48.4	48.8	51.4
630	25.6	26.1	26.8	26.0	36.4	36.1	37.3	39.0
800	26.6	27.8	28.2	30.4	32.4	32.2	32.2	32.1
1000	24.6	23.1	24.4	23.8	30.8	30.7	31.0	30.6
1250	19.9	20.9	21.0	21.4	29.5	30.0	30.2	28.9
1600	23.1	23.6	24.4	25.3	29.6	31.1	32.3	32.3
2000	23.9	21.8	25.1	24.9	27.6	29.1	28.9	28.7
2500	21.5	20.0	24.3	27.1	31.2	30.7	29.6	30.7
3150	21.2	17.8	24.8	25.8	24.7	25.2	25.5	25.4
4000	20.6	15.9	22.8	27.6	23.1	24.8	24.4	23.3
5000	18.6	13.2	19.4	23.4	24.7	24.7	24.0	24.5
6300	15.4	10.8	16.5	19.4	17.9	18.4	19.0	18.8
8000	16.6	10.0	16.6	18.9	17.0	17.0	18.8	18.3
10000	11.7	8.8	15.0	15.5	14.3	13.9	16.4	16.0
12500	11.2	9.4	15.7	15.7	13.9	13.6	16.6	16.1
16000	23.6	22.6	28.3	25.2	25.2	26.1	28.5	25.3
20000	44.2	44.0	49.4	46.3	46.4	47.5	49.8	46.3

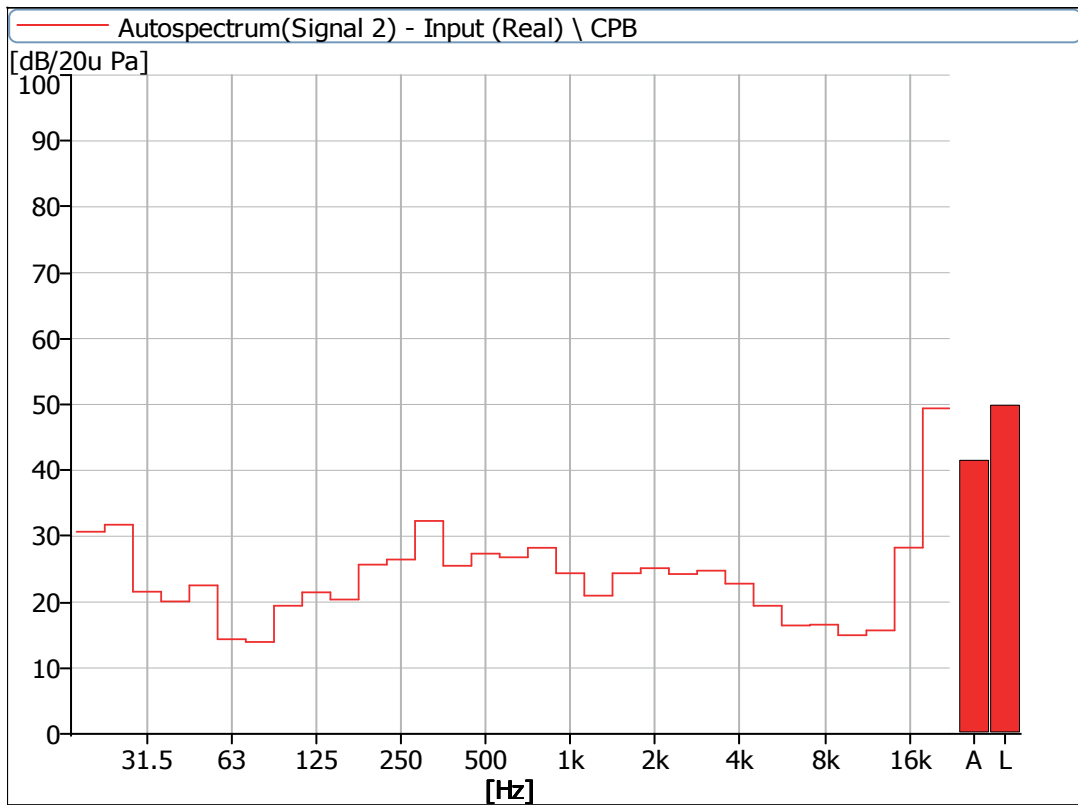
Frequency (Hz)	Sound Pressure Level in Auto Mode (dB)							
	Static				Dynamic			
	No 1	No 2	No 3	No 4	No 1	No 2	No 3	No 4
Leq	46.0	45.0	49.9	47.7	52.1	53.2	54.6	54.4
A-weighted dB(A)	37.8	37.1	41.5	40.1	46.6	48.1	48.9	50.0
Average sound pressure level dB(A)	39.5				48.6			



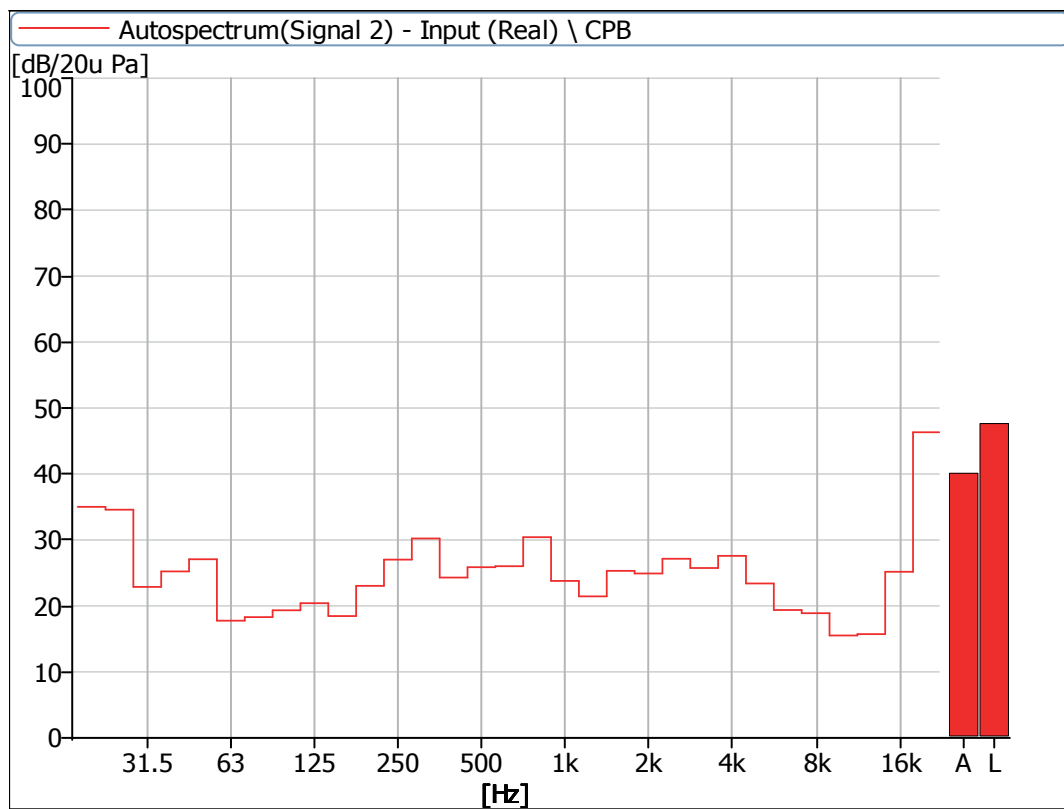
**Figure 3** Noise Spectrum of Stage Luminaires (The Auto mode, Static, No 1)



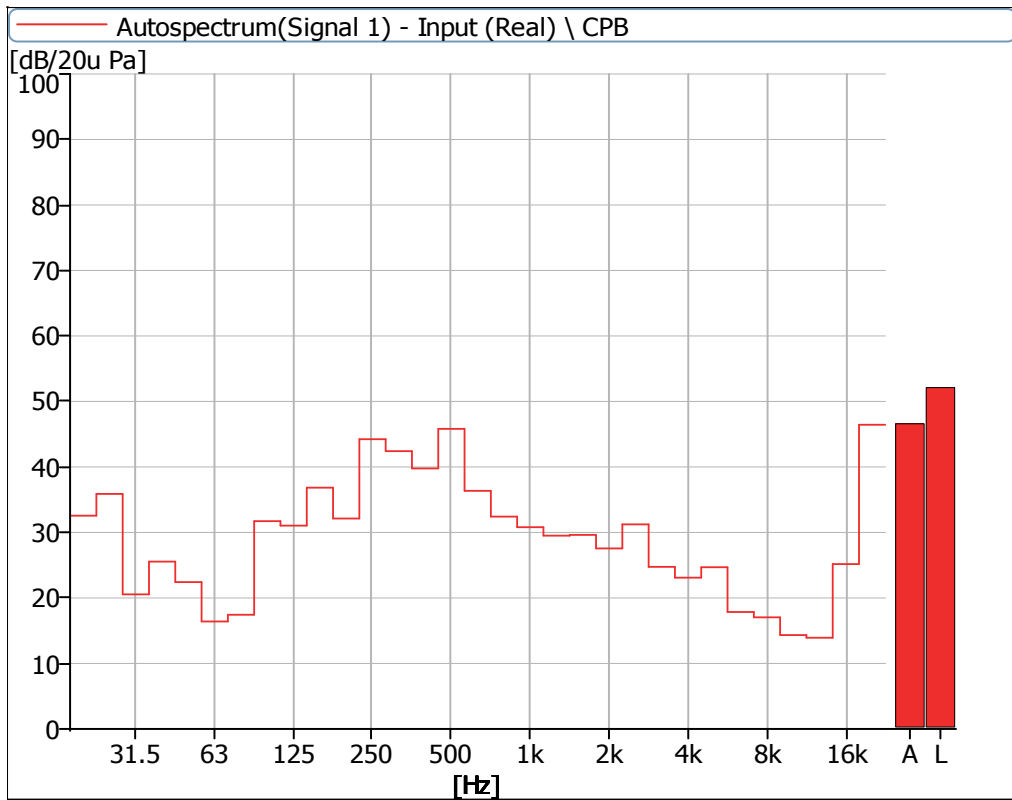
**Figure 4** Noise Spectrum of Stage Luminaires (The Auto mode, Static, No 2)



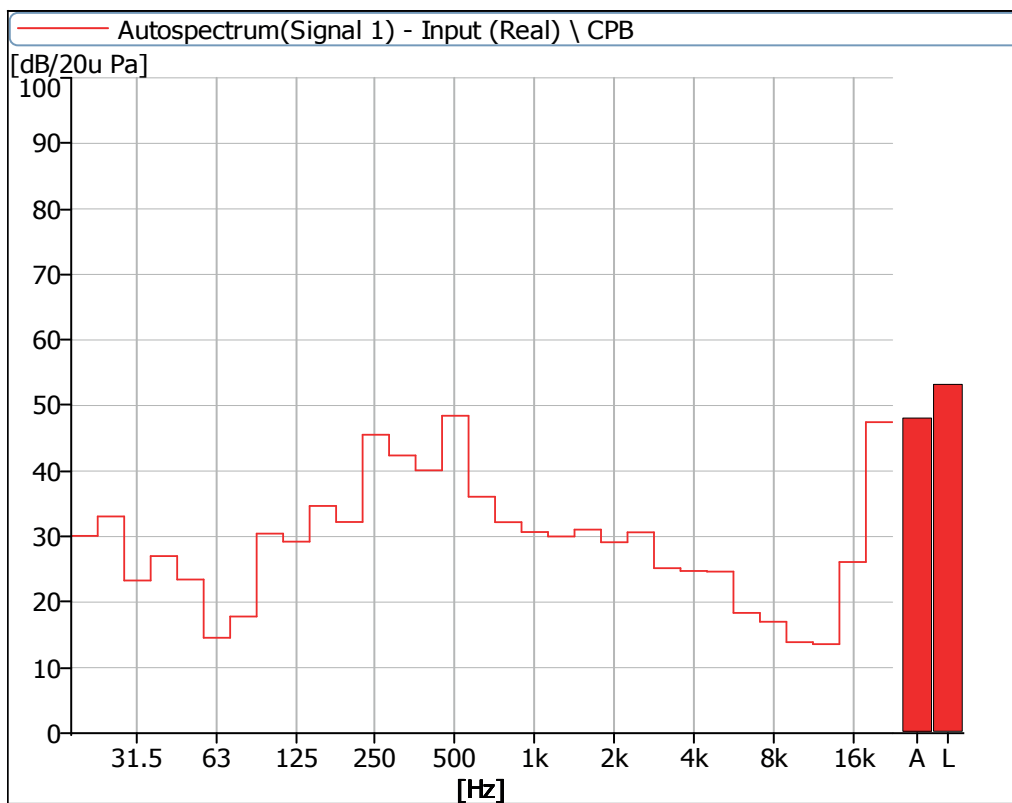
**Figure 5** Noise Spectrum of Stage Luminaires (The Auto mode, Static, No 3)



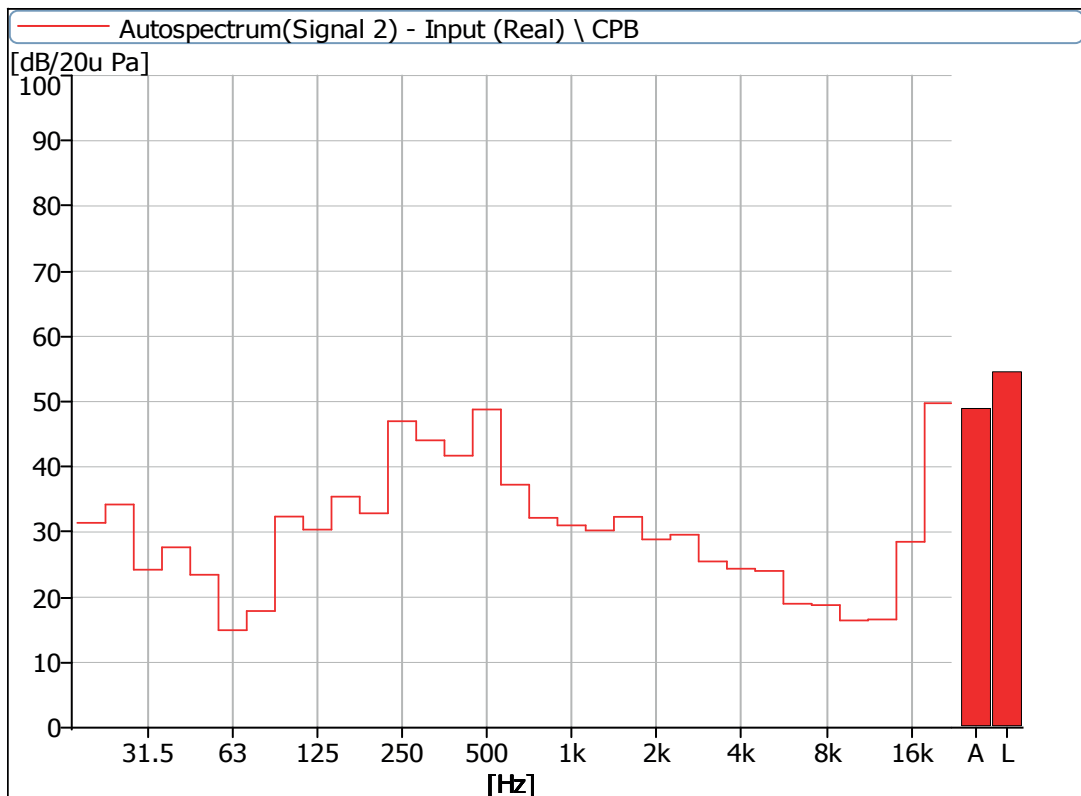
**Figure 6** Noise Spectrum of Stage Luminaires (The Auto mode, Static, No 4)



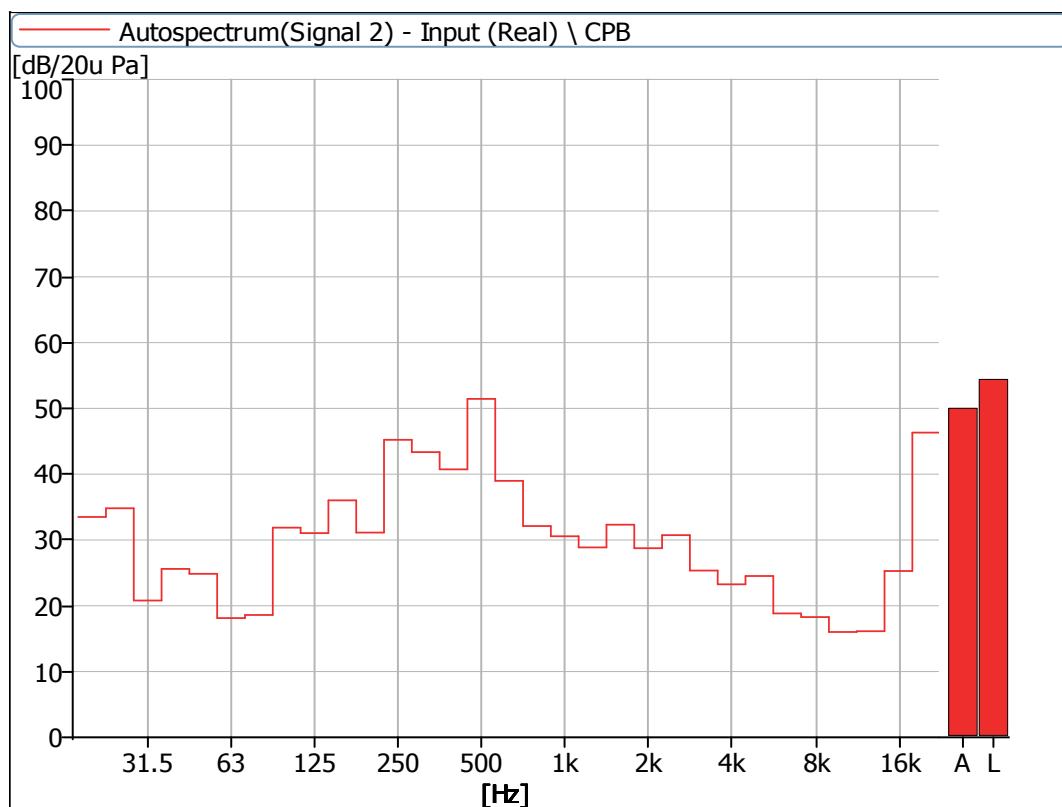
**Figure 7** Noise Spectrum of Stage Luminaires (The Auto mode, Dynamic, No 1)



**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)

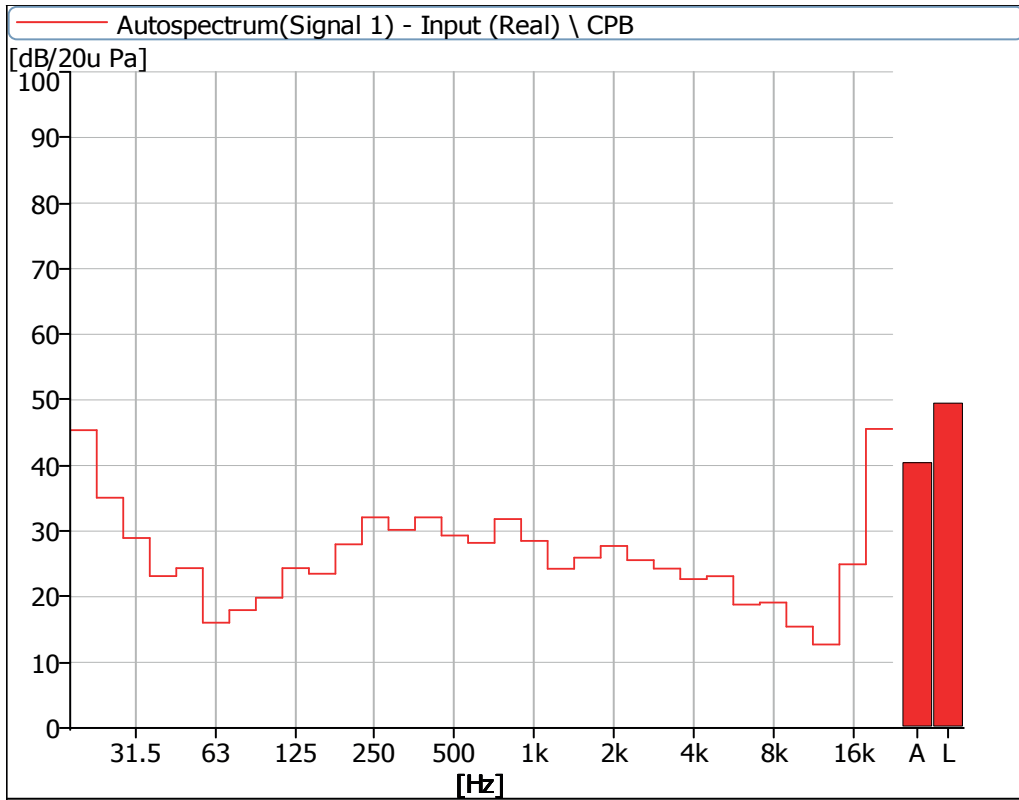


**Figure 10** Noise Spectrum of Stage Luminaires (The Auto mode, Dynamic, No 4)

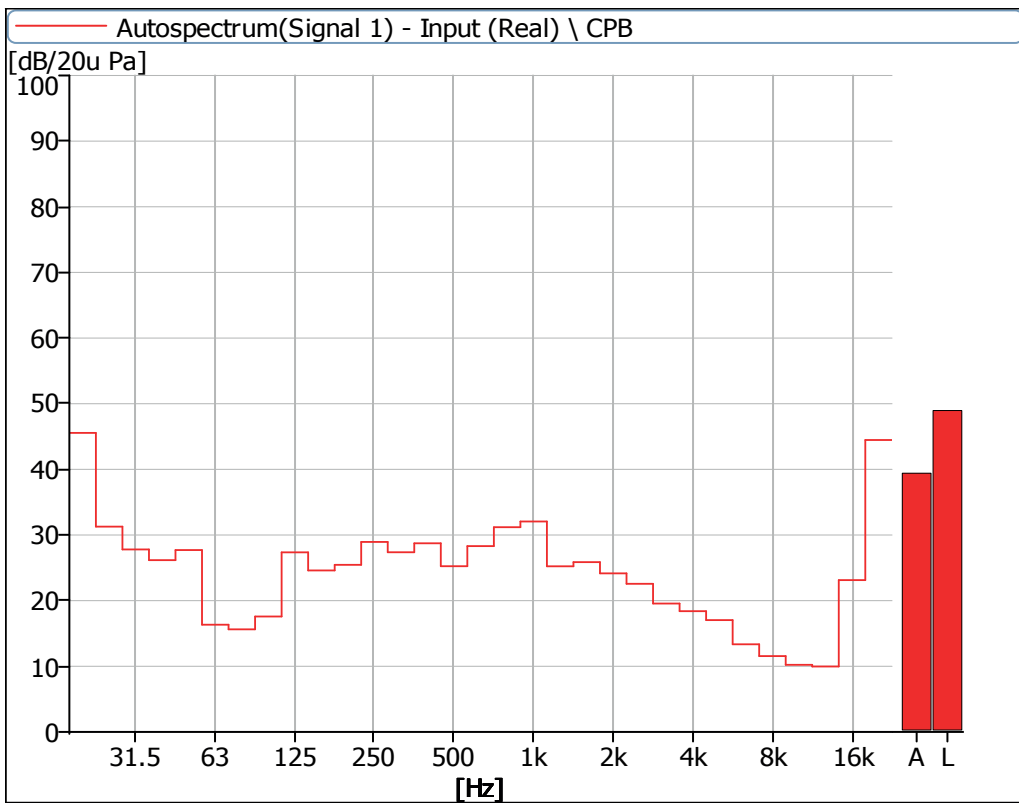
### 3 Noise Detection Results of Stage Luminaires (The Stage mode)

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
20	45.4	45.6	45.6	46.4	45.2	45.1	45.0	46.2
25	35.1	31.3	32.3	35.1	35.7	32.4	33.7	35.2
31.5	29.0	27.8	27.8	28.9	32.0	28.6	29.4	30.5
40	23.1	26.2	26.8	24.9	25.2	27.7	28.2	25.4
50	24.4	27.7	27.6	26.7	27.5	27.3	26.0	28.6
63	16.0	16.3	17.8	17.5	17.6	17.5	17.6	19.0
80	18.0	15.6	16.8	17.8	19.5	19.3	19.8	20.4
100	19.8	17.6	20.3	19.3	31.8	29.5	31.5	33.0
125	24.4	27.4	31.7	29.7	35.5	34.2	34.2	35.7
160	23.5	24.6	28.9	27.6	37.4	34.1	34.2	37.3
200	28.0	25.5	27.8	24.9	31.6	32.0	32.4	31.7
250	32.1	28.9	30.2	29.1	43.4	43.7	45.0	45.1
315	30.2	27.4	31.0	28.9	42.3	42.5	43.6	43.6
400	32.1	28.7	33.8	30.3	39.7	39.8	41.4	41.5
500	29.3	25.2	29.2	26.5	45.0	46.9	47.2	51.4
630	28.2	28.3	29.6	27.5	36.1	36.1	36.9	38.6
800	31.8	31.2	33.5	30.5	34.2	35.1	35.5	34.7
1000	28.5	32.1	28.2	30.4	33.2	32.5	32.8	33.5
1250	24.3	25.2	24.4	25.2	31.1	31.5	31.6	31.1
1600	26.0	25.9	26.3	27.3	31.4	32.1	33.3	33.1
2000	27.7	24.2	27.8	26.7	29.2	30.9	30.9	30.7
2500	25.6	22.6	26.0	29.2	31.3	31.3	30.9	31.9
3150	24.3	19.6	26.8	28.7	26.6	27.6	28.2	27.5
4000	22.7	18.4	24.2	29.4	25.0	26.8	26.8	25.9
5000	23.1	17.0	26.4	30.9	27.7	28.2	27.1	27.5
6300	18.8	13.4	18.6	22.6	20.1	21.7	21.7	21.2
8000	19.1	11.6	17.4	20.7	18.2	19.2	20.5	19.7
10000	15.4	10.2	16.0	19.1	16.9	18.0	19.3	18.3
12500	12.7	10.0	16.0	16.9	14.2	14.8	17.1	16.6
16000	24.9	23.1	28.6	26.9	24.6	26.7	27.9	24.8
20000	45.6	44.5	49.8	48.2	45.7	48.0	48.9	45.6

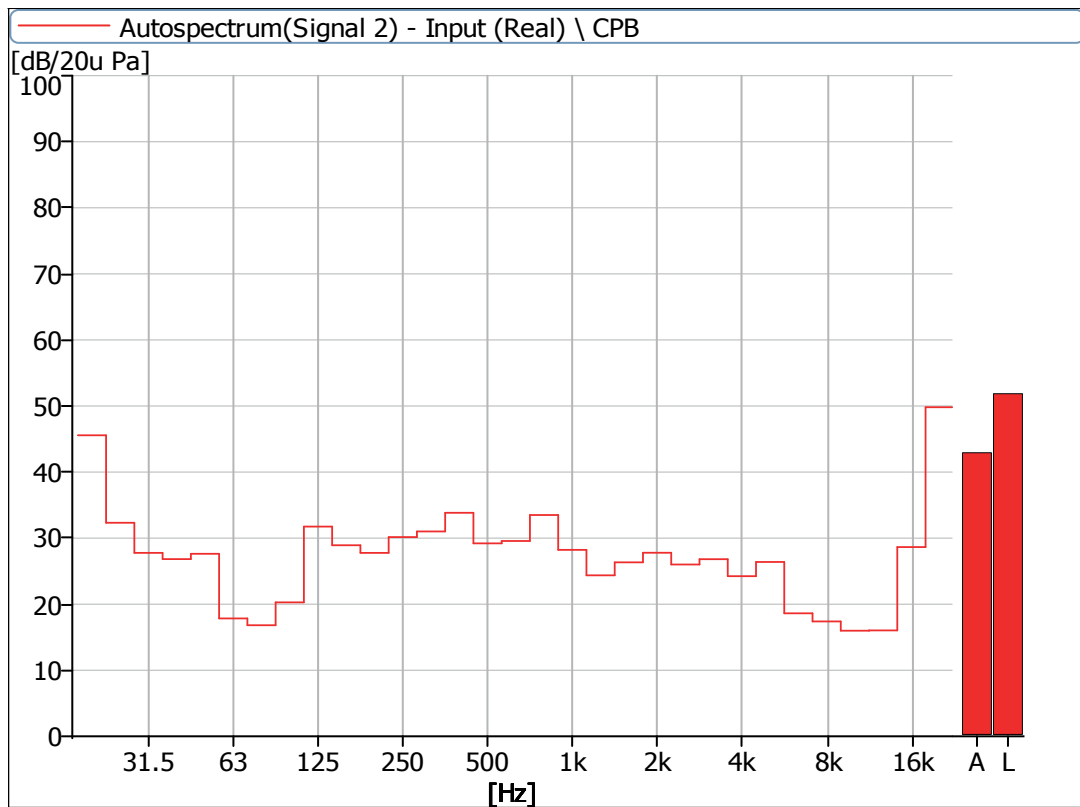
Frequency (Hz)	Sound Pressure Level in Stage Mode (dB)							
	Static				Dynamic			
	No 1	No 2	No 3	No 4	No 1	No 2	No 3	No 4
Leq	49.5	49.0	51.9	51.1	52.7	53.5	54.2	55.1
A-weighted dB(A)	40.4	39.4	42.9	42.4	46.5	47.6	48.2	50.2
Average sound pressure level dB(A)	41.5				48.3			



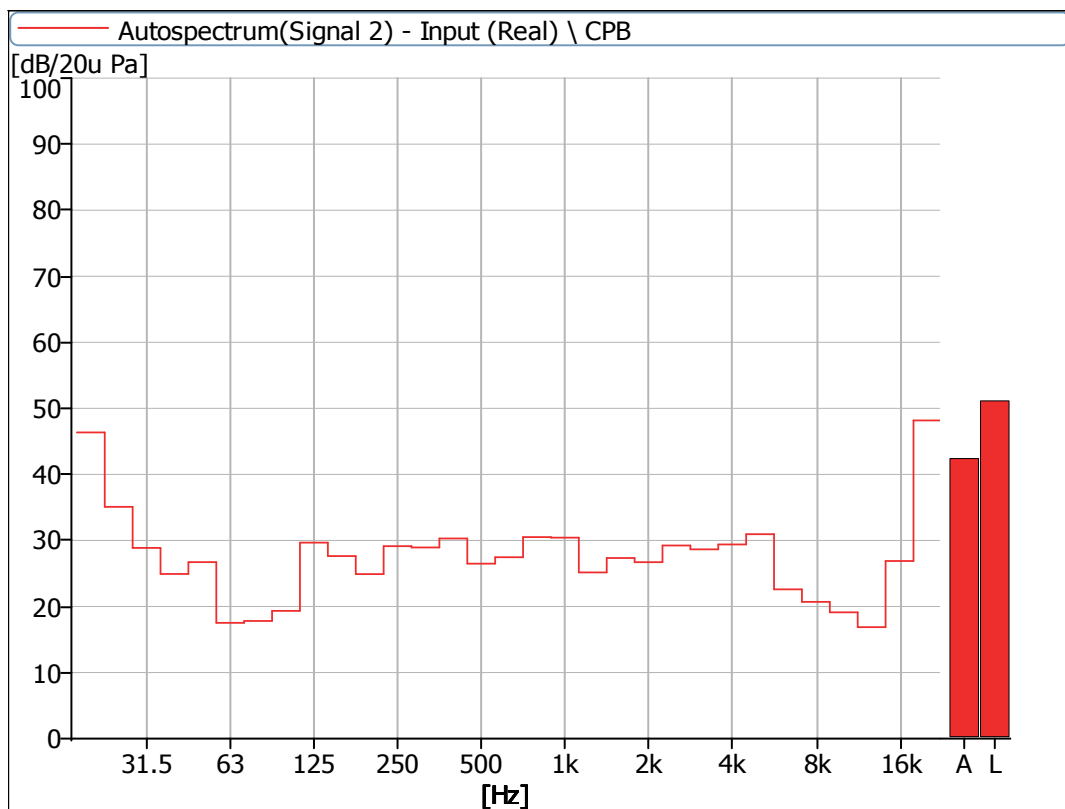
**Figure 11** Noise Spectrum of Stage Luminaires (The Stage mode, Static, No 1)



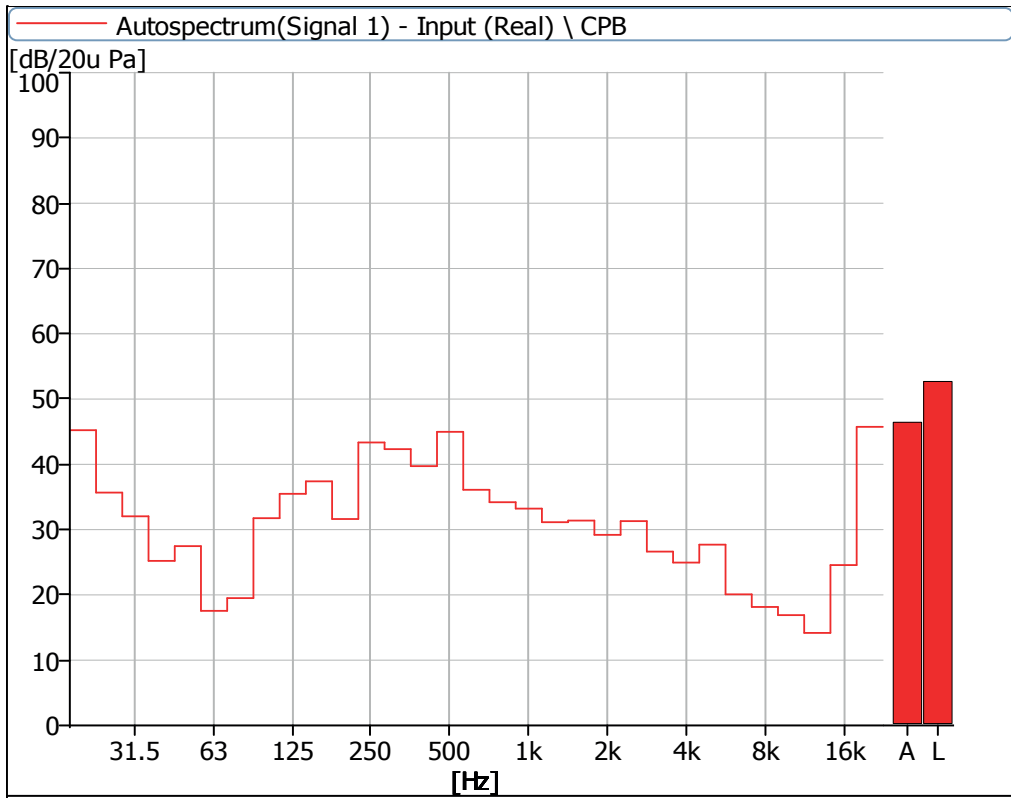
**Figure 12** Noise Spectrum of Stage Luminaires (The Stage mode, Static, No 2)



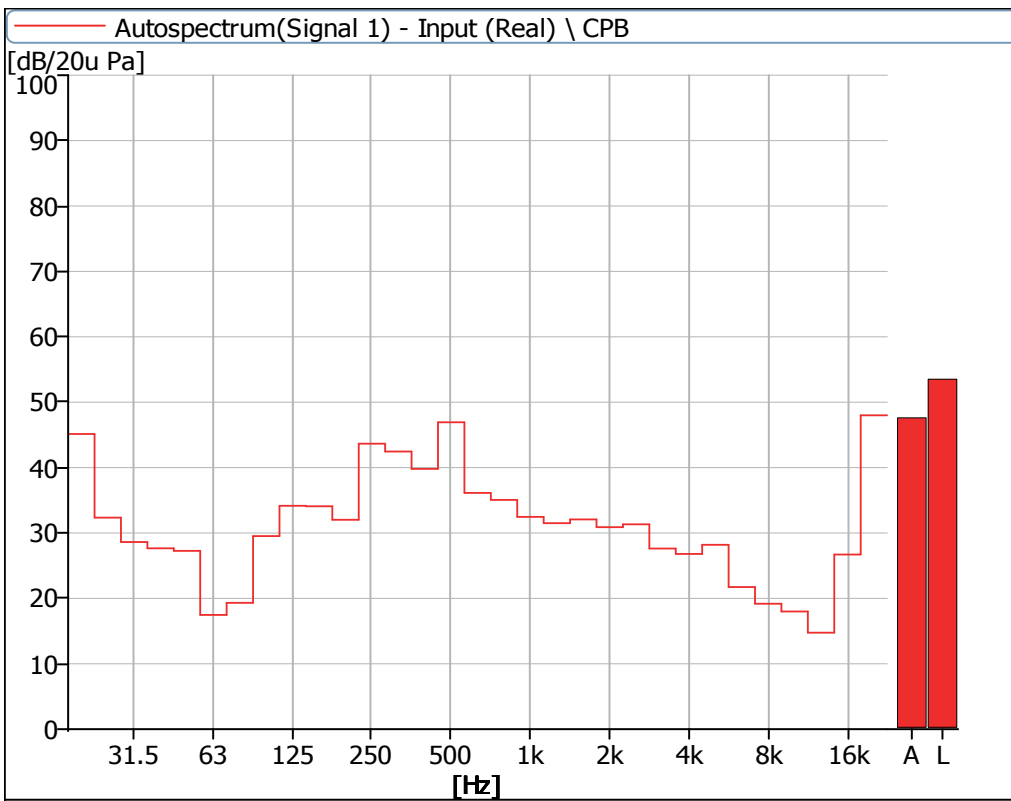
**Figure 13** Noise Spectrum of Stage Luminaires (The Stage mode, Static, No 3)



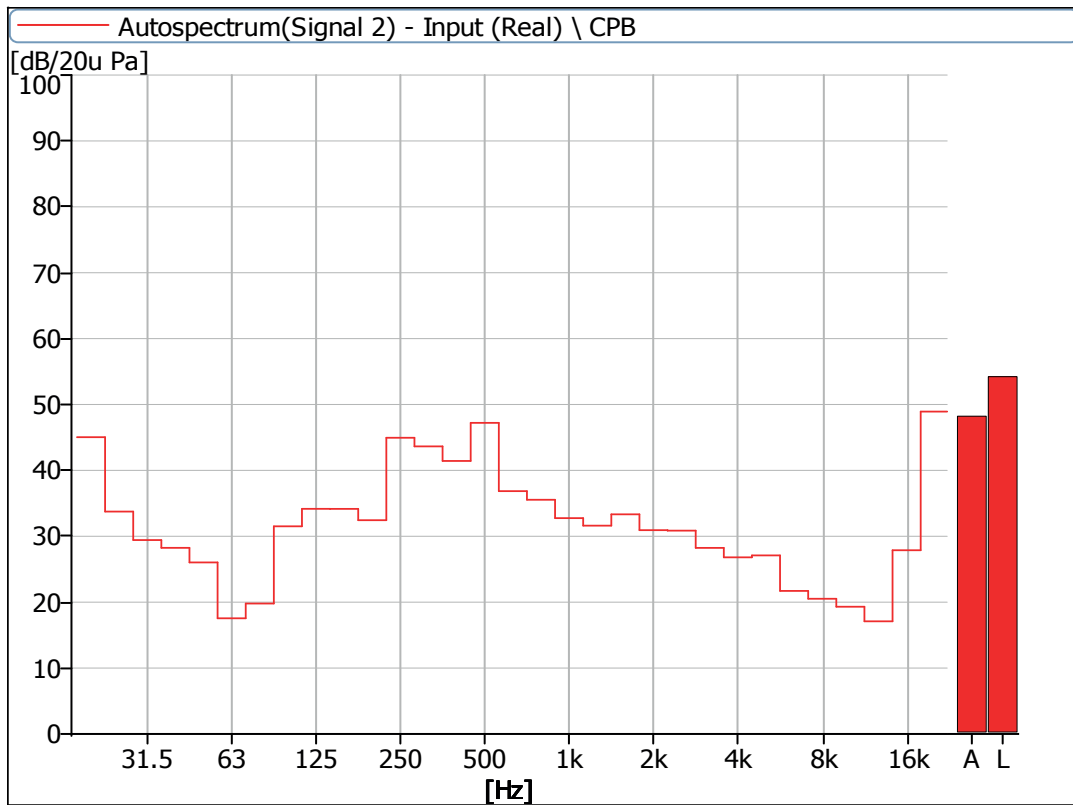
**Figure 14** Noise Spectrum of Stage Luminaires (The Stage mode, Static, No 4)



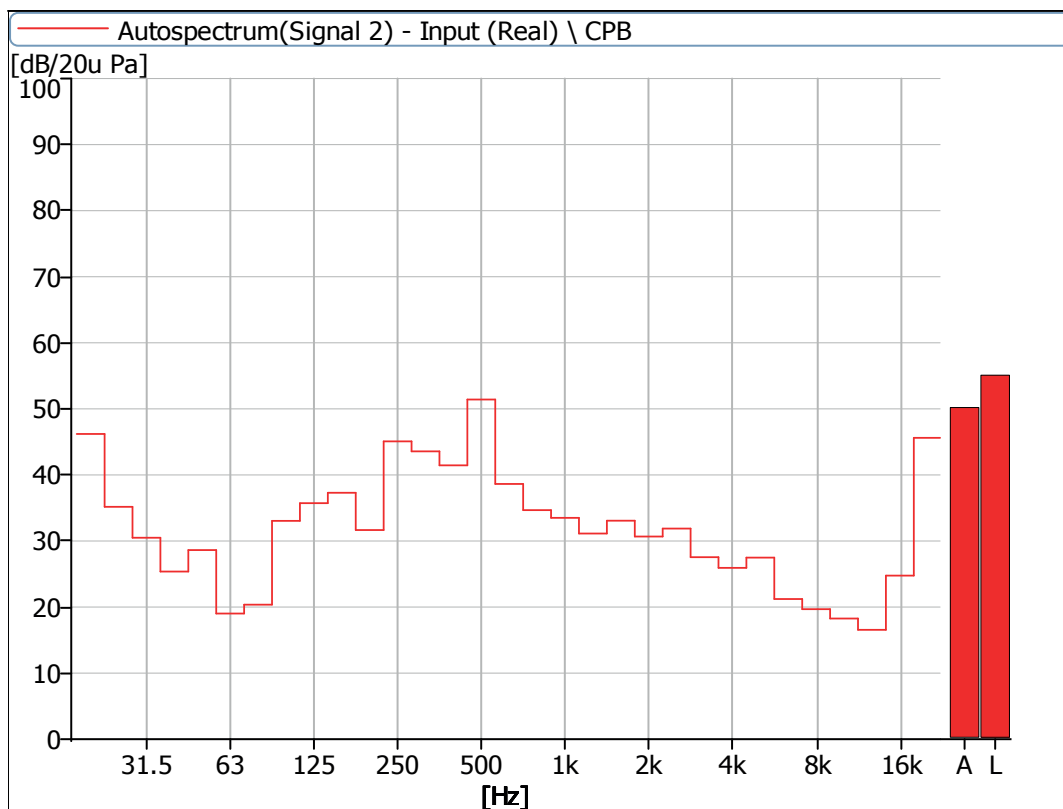
**Figure 15** Noise Spectrum of Stage Luminaires (The Stage mode, Dynamic, No 1)



**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)

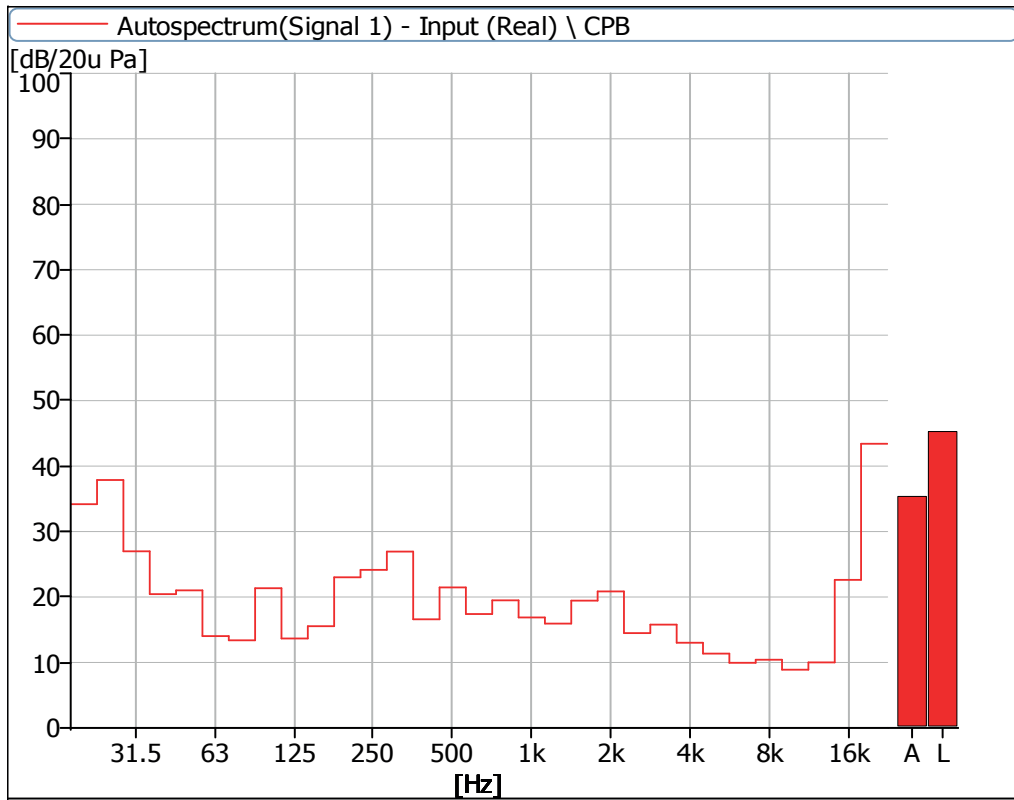


**Figure 18** Noise Spectrum of Stage Luminaires (The Stage mode, Dynamic, No 4)

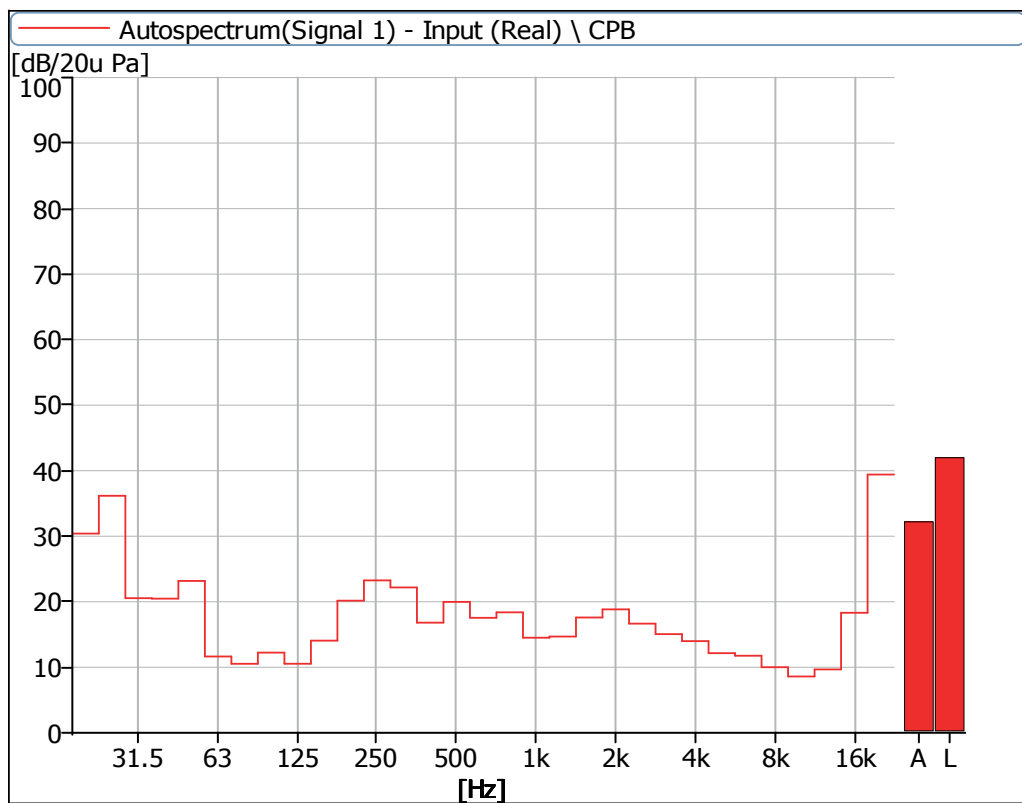
#### 4 Noise Detection Results of Stage Luminaires (The Silence mode)

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
20	34.2	30.4	31.9	33.2	44.4	44.9	44.6	45.0
25	37.9	36.2	35.1	37.2	33.2	31.7	31.3	32.7
31.5	27.0	20.5	25.7	22.4	32.3	30.3	27.9	28.7
40	20.4	20.5	20.9	19.8	28.2	27.6	27.9	28.3
50	21.0	23.2	24.0	23.5	28.1	28.5	27.1	28.4
63	14.0	11.6	14.0	14.7	18.0	15.7	16.8	18.9
80	13.4	10.5	12.7	13.7	19.0	19.4	20.6	19.5
100	21.3	12.2	18.3	18.4	33.6	32.2	34.0	34.7
125	13.7	10.5	13.6	13.1	31.9	30.6	32.1	32.8
160	15.5	14.1	17.8	17.1	37.8	35.3	35.5	37.5
200	23.0	20.2	21.1	19.5	31.7	32.4	33.0	31.7
250	24.1	23.3	25.1	21.4	44.8	45.3	46.7	46.1
315	26.9	22.2	22.7	22.6	42.4	43.4	45.4	43.9
400	16.6	16.8	18.7	15.8	39.4	40.5	42.9	41.7
500	21.5	20.0	21.3	18.7	44.9	48.0	48.7	51.4
630	17.4	17.5	18.8	19.2	34.9	35.7	36.7	38.7
800	19.5	18.4	20.2	19.4	31.1	30.7	32.4	29.7
1000	16.9	14.5	17.8	15.5	29.6	29.7	30.0	29.4
1250	15.9	14.7	16.2	17.5	28.5	28.5	29.9	27.1
1600	19.4	17.6	18.3	17.5	23.9	23.4	25.2	24.1
2000	20.9	18.8	19.5	17.7	22.7	22.5	23.6	23.1
2500	14.5	16.7	15.5	14.5	29.5	28.7	29.1	29.2
3150	15.8	15.1	18.5	13.8	21.4	20.7	21.7	21.2
4000	13.0	14.0	20.3	13.6	17.1	17.2	18.6	17.4
5000	11.4	12.2	15.8	12.9	23.3	21.8	21.8	21.9
6300	9.9	11.8	14.7	13.3	13.6	13.6	15.5	15.3
8000	10.4	10.0	16.0	13.8	14.2	13.8	16.5	16.2
10000	8.9	8.6	14.3	13.9	13.0	12.4	15.5	15.5
12500	10.0	9.7	14.9	15.0	13.7	13.3	16.4	16.1
16000	22.6	18.3	21.8	25.9	24.6	27.2	28.7	25.7
20000	43.4	39.4	41.8	47.2	45.8	48.6	50.0	46.8

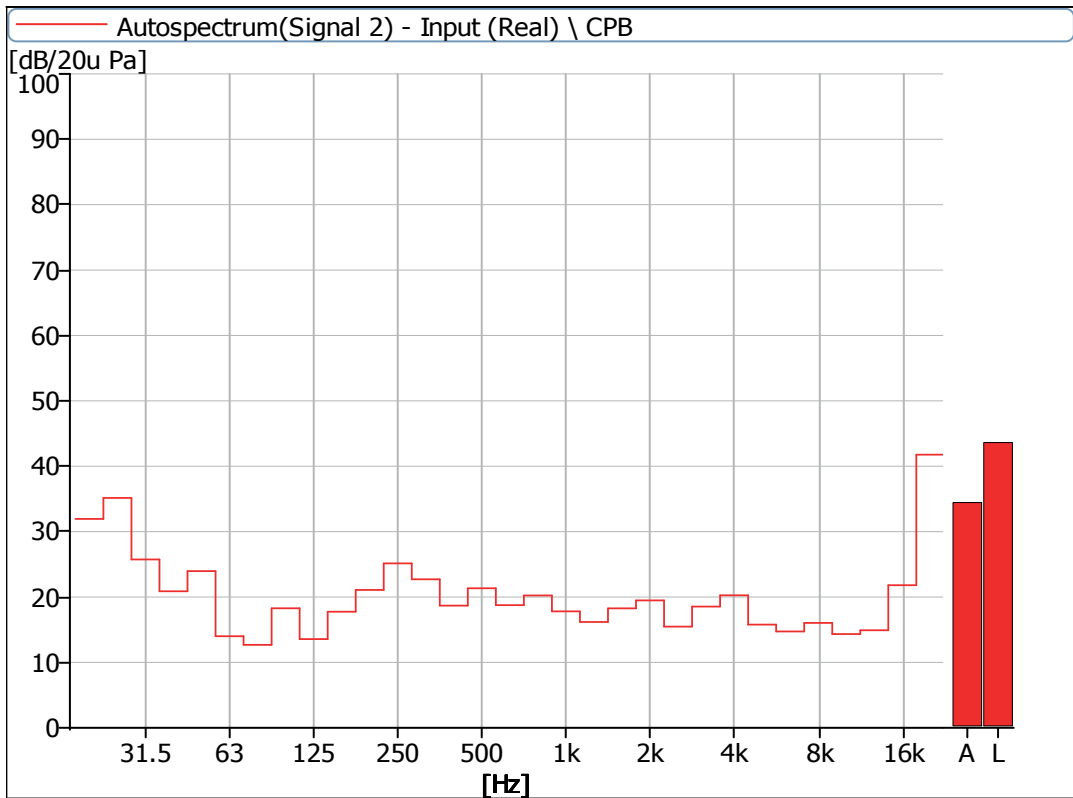
Frequency (Hz)	Sound Pressure Level in Silence Mode (dB)							
	Static				Dynamic			
	No 1	No 2	No 3	No 4	No 1	No 2	No 3	No 4
Leq	45.3	42.0	43.6	47.9	52.6	54.1	55.2	55.1
A-weighted dB(A)	35.4	32.2	34.5	38.3	45.7	47.7	48.9	49.9
Average sound pressure level dB(A)	35.6				48.3			



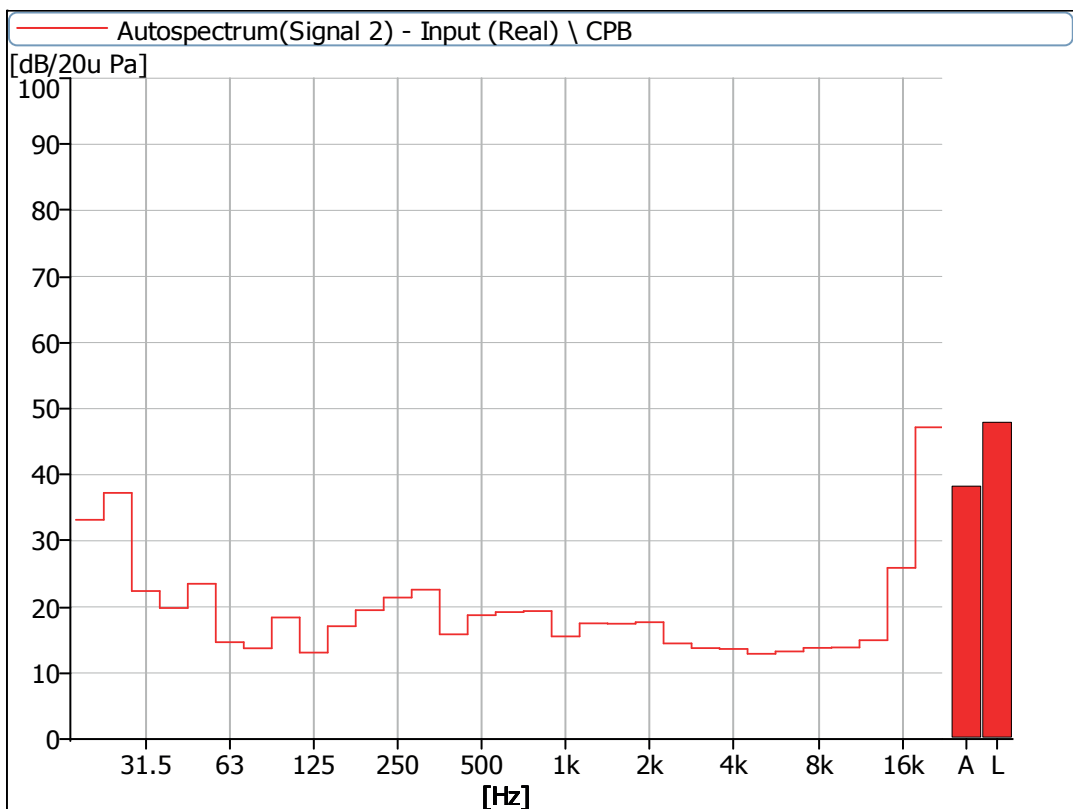
**Figure 19** Noise Spectrum of Stage Luminaires (The Silence mode, Static, No 1)



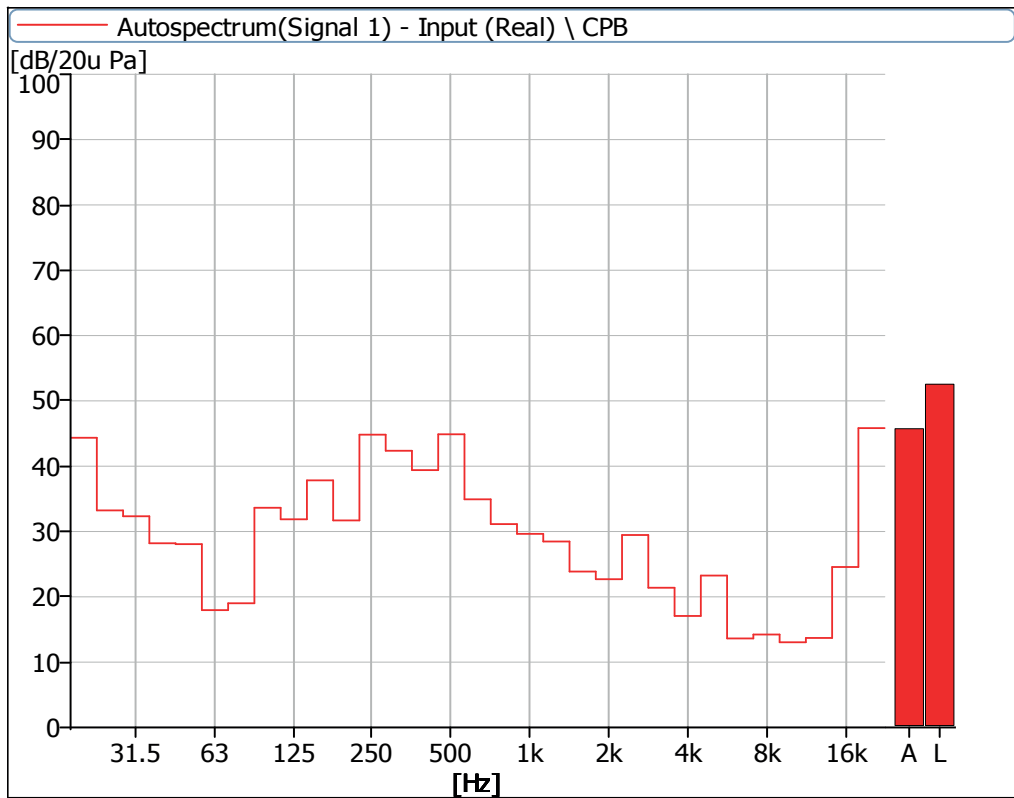
**Figure 20** Noise Spectrum of Stage Luminaires (The Silence mode, Static, No 2)



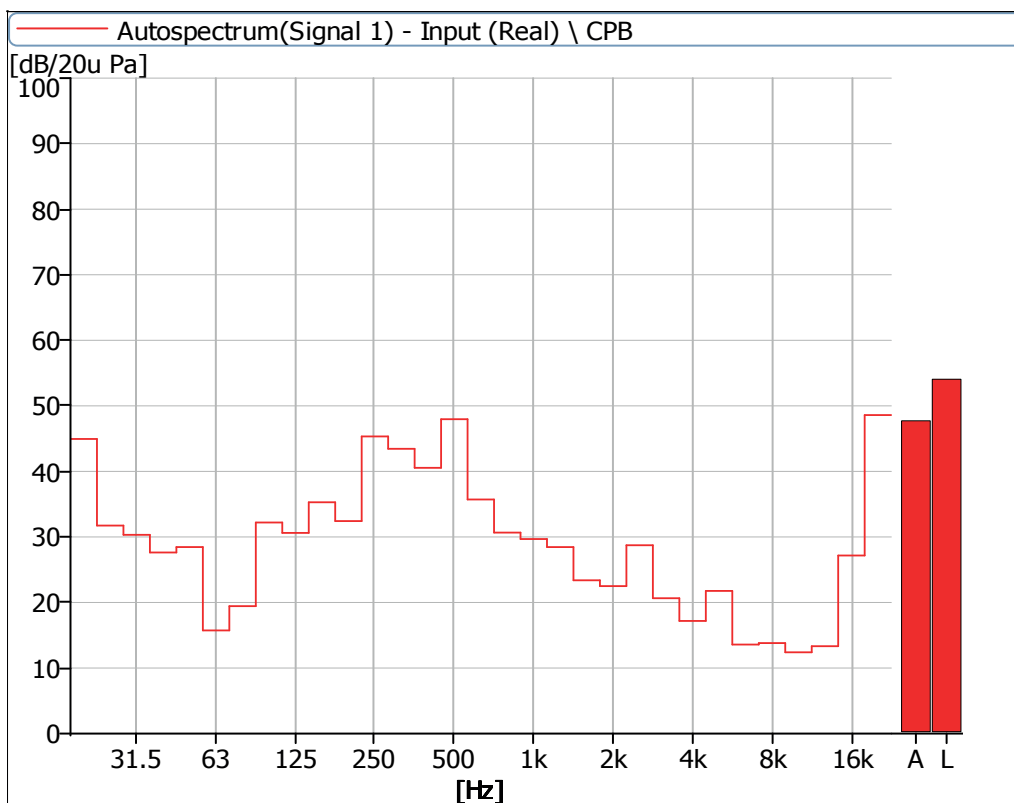
**Figure 21** Noise Spectrum of Stage Luminaires (The Silence mode, Static, No 3)



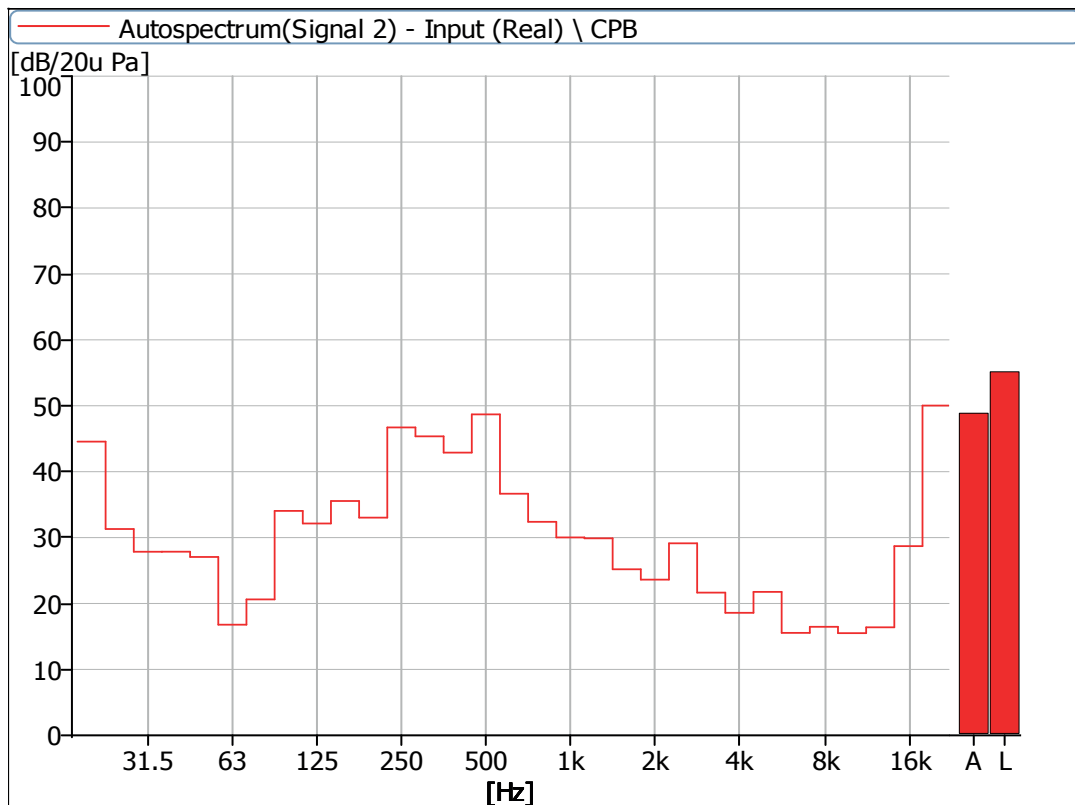
**Figure 22** Noise Spectrum of Stage Luminaires (The Silence mode, Static, No 4)



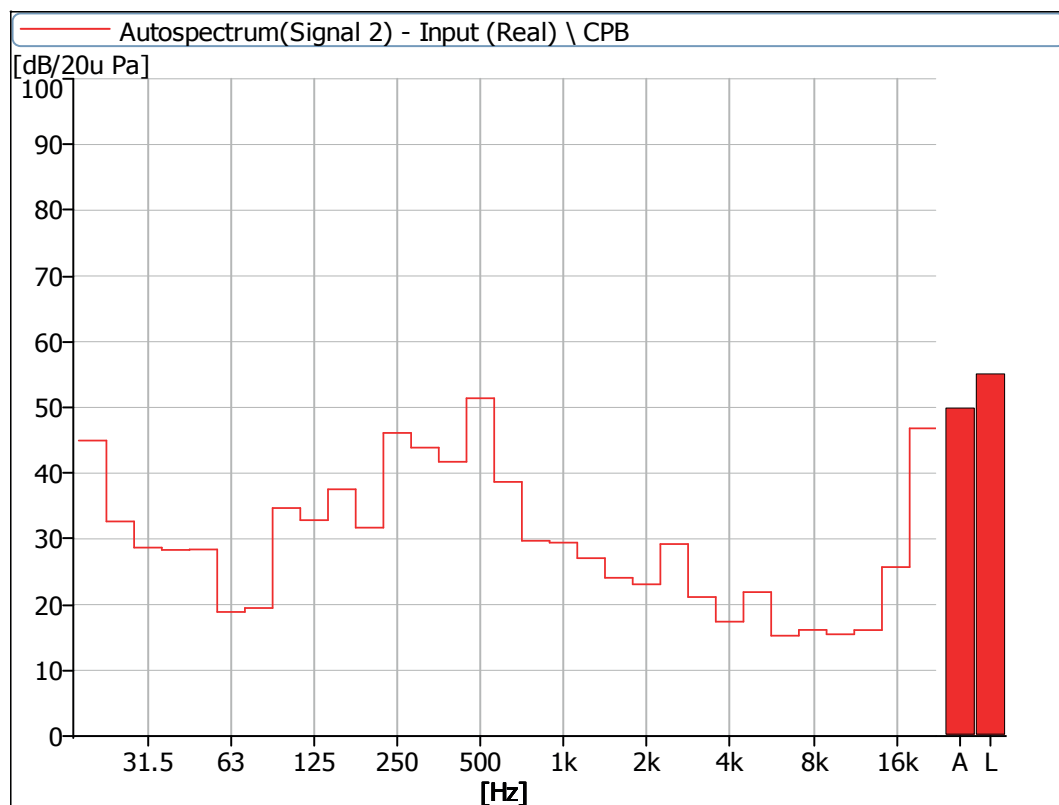
**Figure 23** Noise Spectrum of Stage Luminaires (The Silence mode, Dynamic, No 1)



**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)

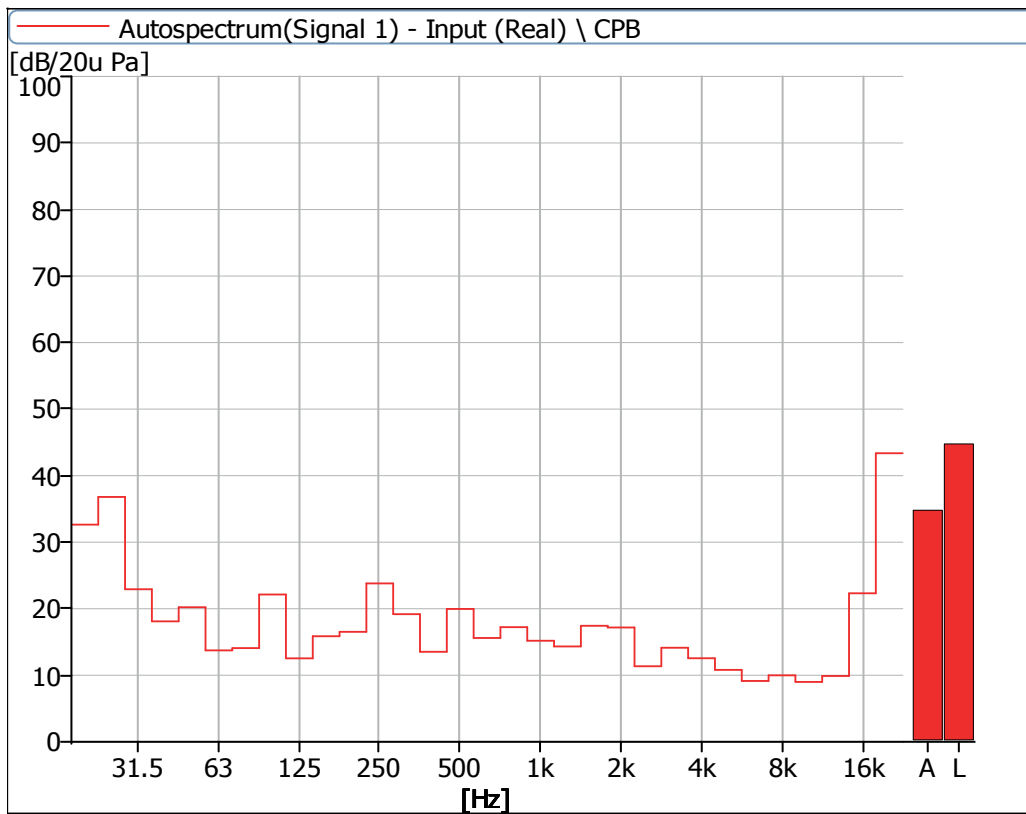


**Figure 26** Noise Spectrum of Stage Luminaires (The Silence mode, Dynamic, No 4)

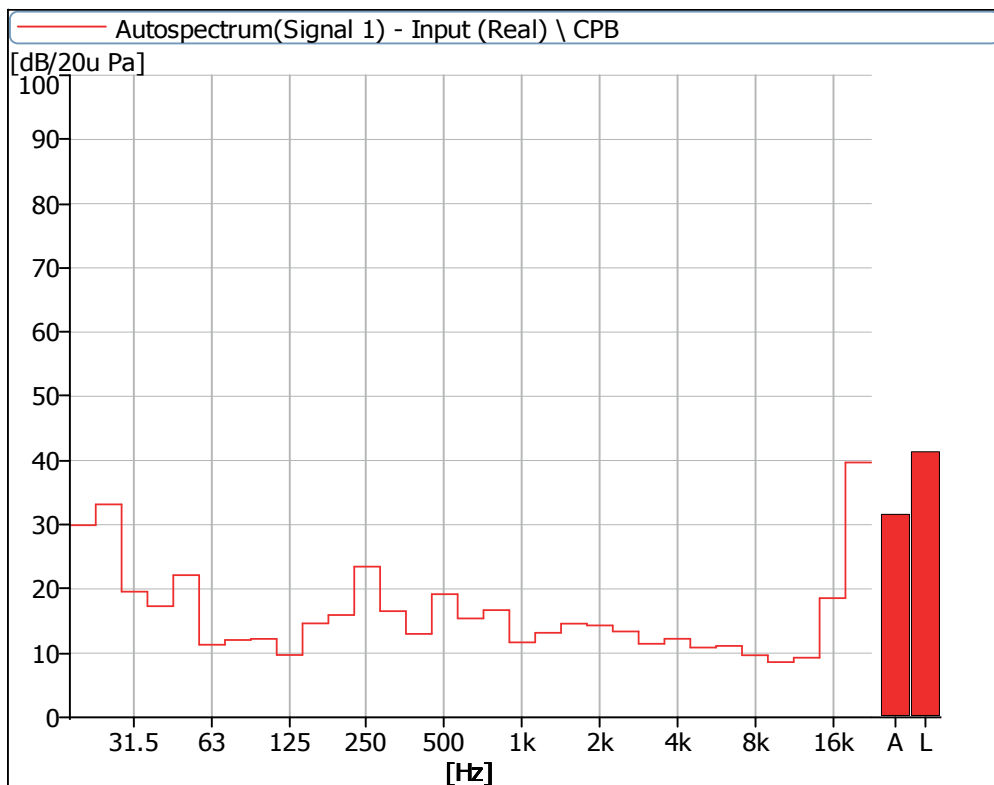
## 5 Noise Detection Results of Stage Luminaires (The Super Silence mode)

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
20	32.6	29.9	30.0	33.2	40.7	35.9	36.6	40.9
25	36.8	33.2	33.9	34.9	33.6	29.9	30.1	32.8
31.5	22.9	19.6	22.0	20.5	32.4	29.7	28.4	28.4
40	18.1	17.3	19.5	16.8	26.6	27.7	28.5	26.0
50	20.2	22.1	22.7	22.5	26.5	28.5	27.7	27.9
63	13.7	11.3	14.1	13.6	17.3	16.0	16.5	17.9
80	14.1	12.0	13.0	15.1	19.6	19.4	20.0	20.0
100	22.1	12.2	18.4	18.1	34.5	30.8	32.5	35.2
125	12.5	9.7	12.5	11.2	32.0	28.6	30.1	33.0
160	15.9	14.6	18.2	16.5	37.9	32.8	33.2	37.7
200	16.5	15.9	18.0	15.0	30.6	31.8	32.4	30.8
250	23.8	23.5	26.8	20.5	45.0	45.8	46.4	45.8
315	19.2	16.5	20.8	15.5	42.2	43.1	45.2	43.9
400	13.5	13.0	15.7	12.4	38.8	41.1	43.4	41.5
500	20.0	19.2	20.0	17.1	44.7	47.7	48.4	51.4
630	15.6	15.4	16.6	16.1	34.5	35.4	37.0	38.4
800	17.2	16.7	19.0	17.1	30.8	29.3	30.9	29.5
1000	15.2	11.7	16.3	13.4	30.1	30.0	30.5	29.1
1250	14.3	13.2	15.7	17.6	28.5	29.1	30.2	26.9
1600	17.4	14.6	15.8	15.2	24.1	23.0	26.2	23.3
2000	17.2	14.3	17.2	13.9	21.9	21.0	22.4	22.0
2500	11.4	13.4	13.6	12.1	29.9	28.9	30.0	29.5
3150	14.1	11.5	18.0	12.7	21.2	20.1	21.1	20.8
4000	12.6	12.2	20.1	13.4	16.8	16.4	18.0	17.2
5000	10.8	10.9	15.6	12.9	23.6	22.0	22.4	22.7
6300	9.1	11.1	14.7	13.1	13.7	13.2	15.5	15.2
8000	10.0	9.7	16.1	13.6	13.8	13.3	16.3	15.9
10000	9.0	8.6	14.5	13.8	13.1	12.2	15.3	15.4
12500	9.9	9.3	14.9	14.4	13.7	13.4	16.5	16.2
16000	22.3	18.6	22.6	22.0	24.5	27.6	29.2	25.7
20000	43.4	39.7	42.9	42.7	45.8	49.1	50.6	46.9

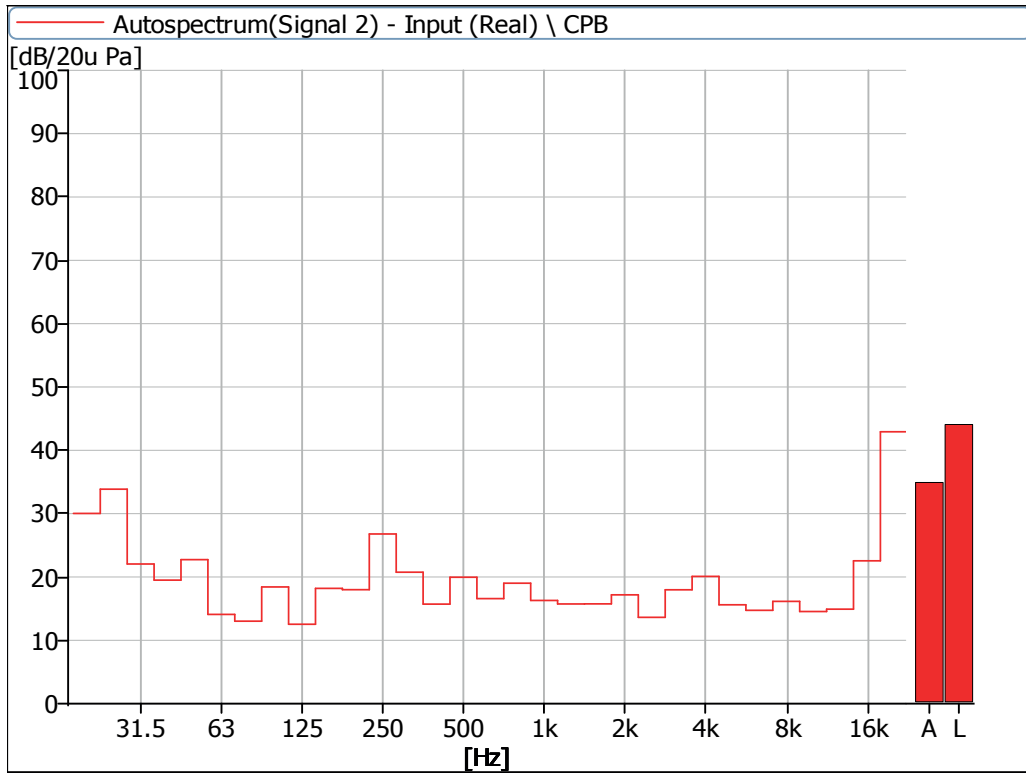
Frequency (Hz)	Sound Pressure Level in Super Silence Mode (dB)							
	Static				Dynamic			
	No 1	No 2	No 3	No 4	No 1	No 2	No 3	No 4
Leq	44.8	41.4	44.1	44.1	52.0	53.6	54.9	54.8
A-weighted dB(A)	34.8	31.6	34.9	34.2	45.6	47.7	48.9	49.9
Average sound pressure level dB(A)	34.1				48.3			



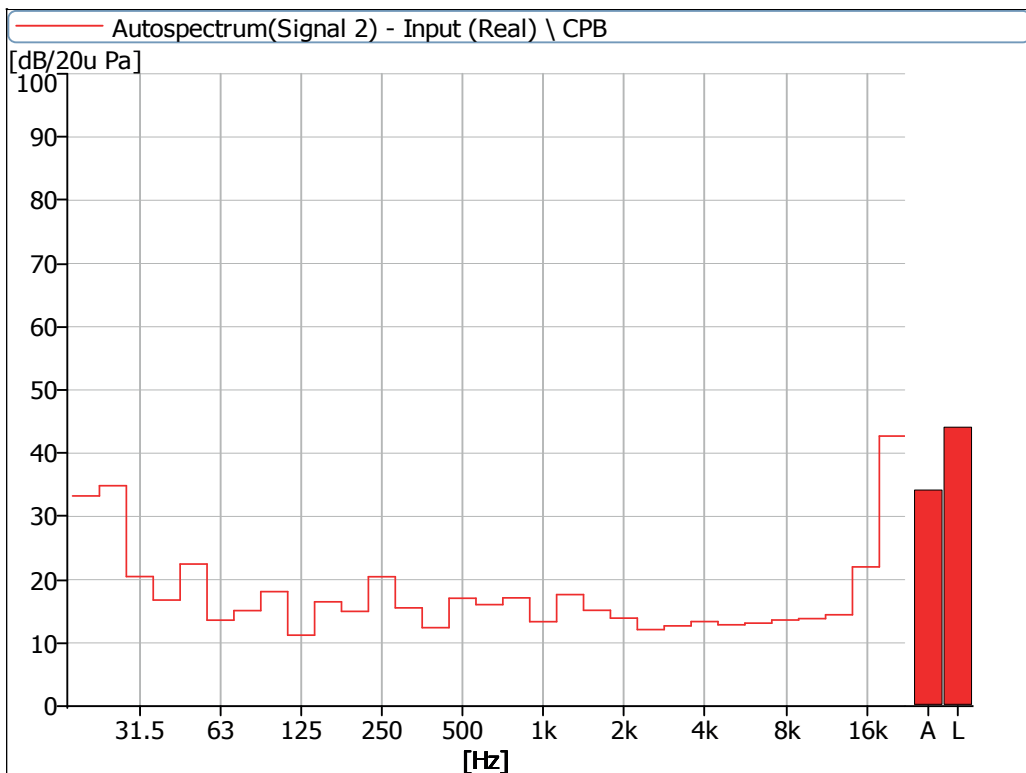
**Figure 27** Noise Spectrum of Stage Luminaires (The Super Silence mode, Static, No 1)



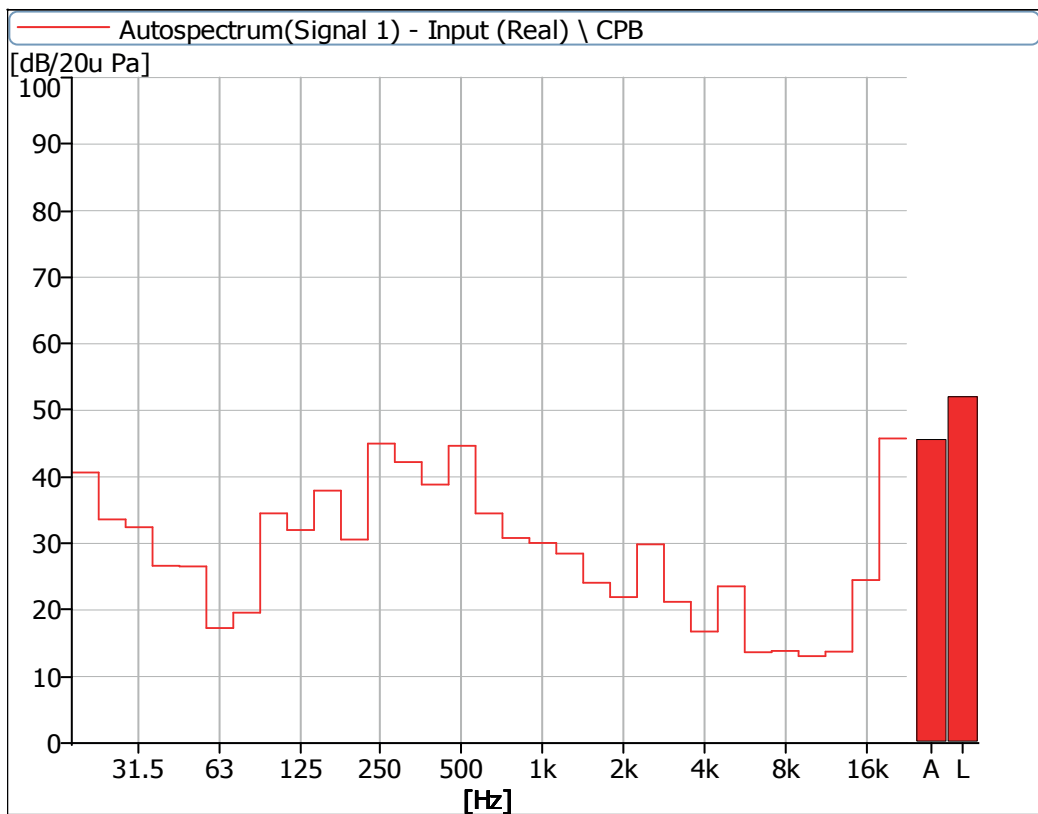
**Figure 28** Noise Spectrum of Stage Luminaires (The Super Silence mode, Static, No 2)



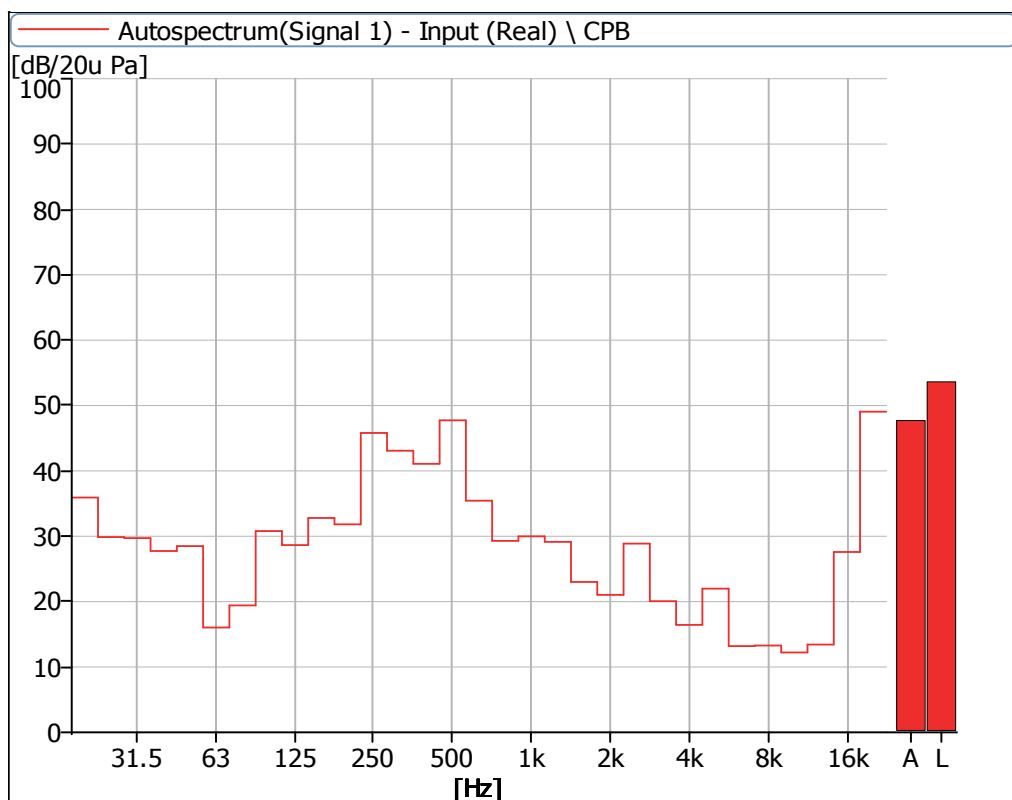
**Figure 29** Noise Spectrum of Stage Luminaires (The Super Silence mode, Static, No 3)



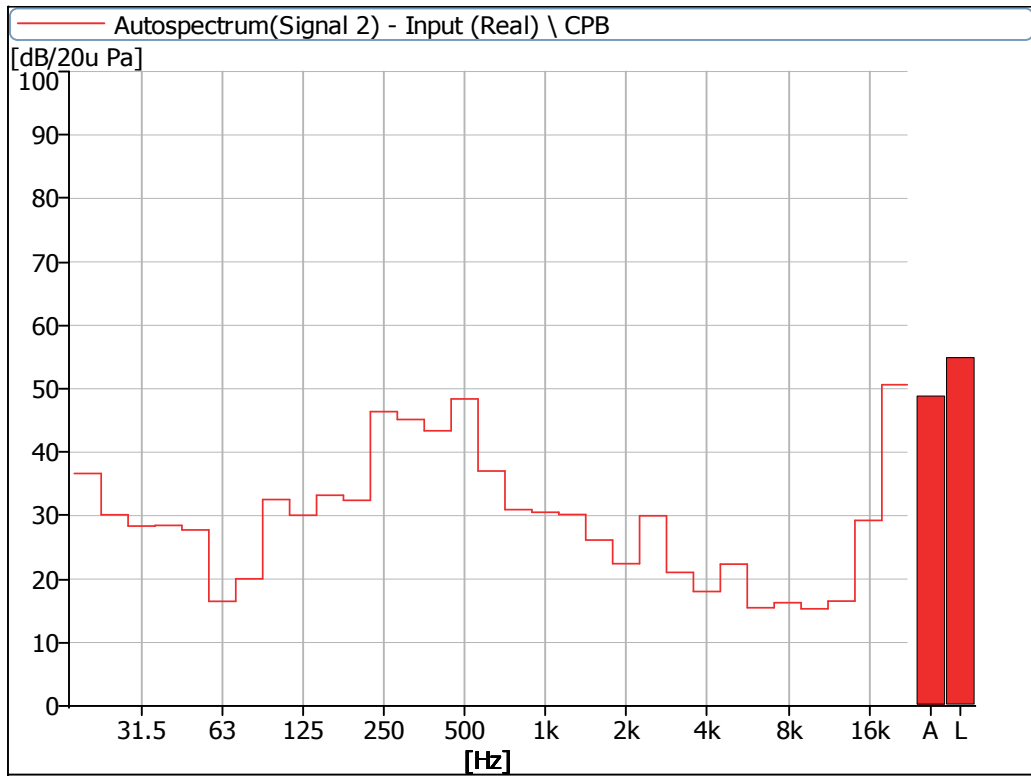
**Figure 30** Noise Spectrum of Stage Luminaires (The Super Silence mode, Static, No 4)



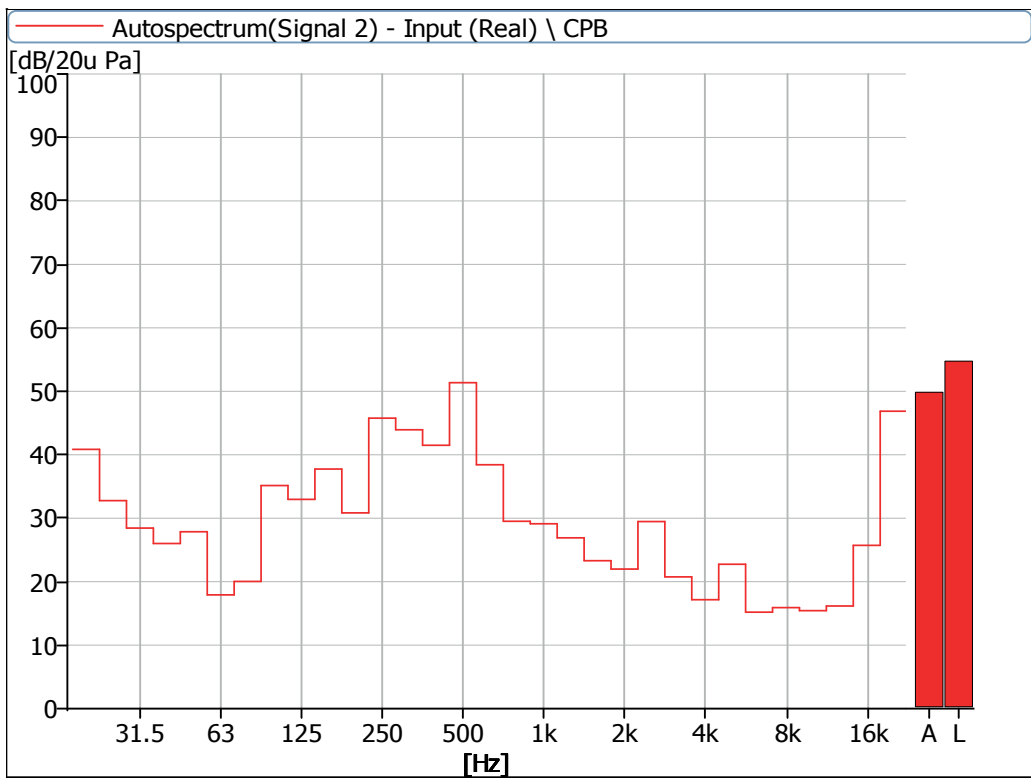
**Figure 31** Noise Spectrum of Stage Luminaires (The Super Silence mode, Dynamic, No 1)



**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





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