



DATE: 18/02/2016	APPLICANT: Giorgio Rosati
DEPARTMENT	Vivatronics
PRODUCT LINE	GUARDIAN
COMMESSA	

SUBJECT: GATEWAY ULTRASOUNDS EMISSION MEASUREMENT

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APPARATUS:

ITEM SPECS	PICTURE
<p>Materials:</p> <ul style="list-style-type: none"> No.1 SMARTFLOW No.1 RACK 2GM70 No.1 GATEWAY No.1 POWER SUPPLY EDAC_12[VDC]_5[A] No.1 GM500 CAGE MODIFIED TO HOST THE MICROPHONE 	
<p>Instruments:</p> <ul style="list-style-type: none"> No.1 PHONOMETER_BRÜEL &KJAER_3052-A-030_s/n 3052-105888 No.1 MICROPHONE_ BRÜEL &KJAER_4939-A-011_s/n 2971644 	



METHOD

Smart Flow settings: Positive pressure mode, 75[ACH] -20[%].

The microphone, oriented towards the GATEWAY, is located:

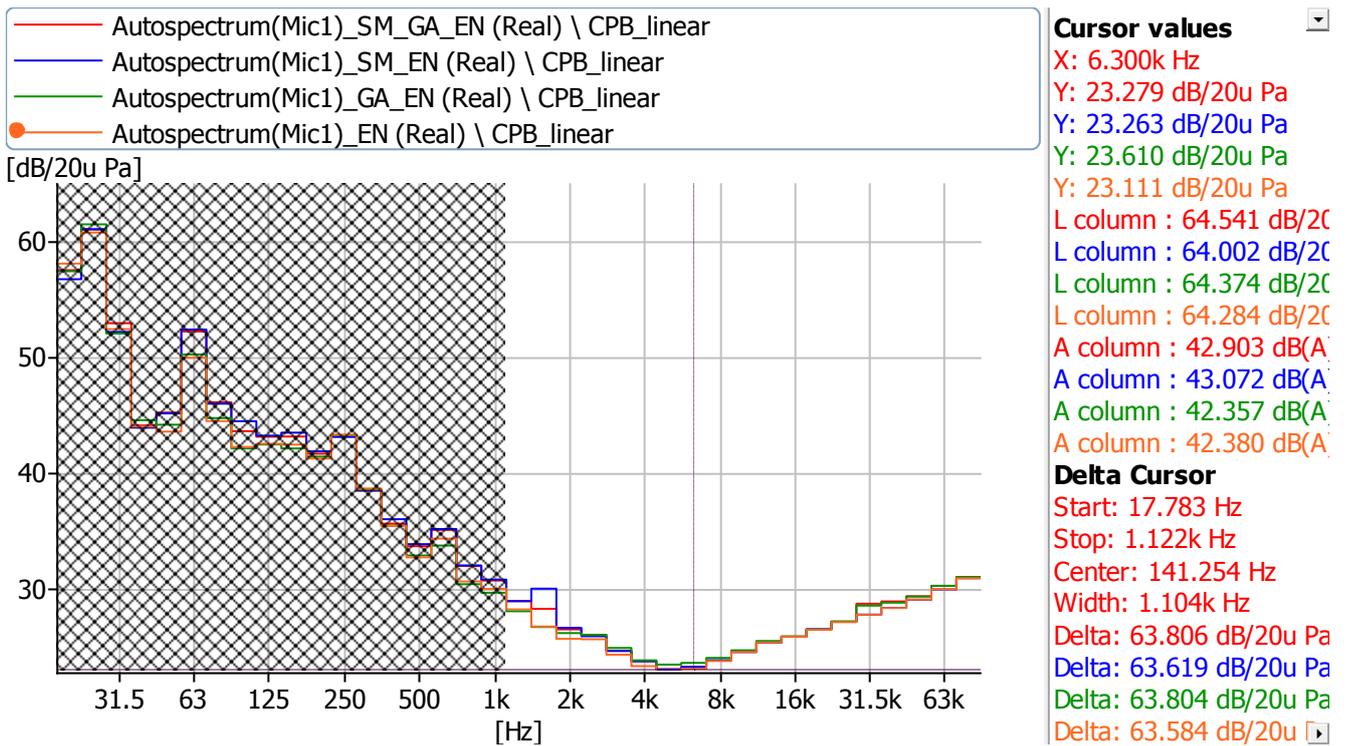
1. 100[cm] left, at the same height of the GATEWAY
2. 100[cm] front, at the same height of the GATEWAY
3. Into the cage located in A7, about 30[cm] from the GATEWAY;
4. Into the cage located in A8, about 25[cm] from the GATEWAY;

Measures are:

1. **EN**= Environment, GATEWAY and SMART FLOW off;
2. **GA_EN**= Gateway ON, Smart Flow OFF;
3. **SM_EN**= Smart Flow ON, Gateway OFF;
4. **SM_GA_EN**= Smart Flow ON, Gateway ON.

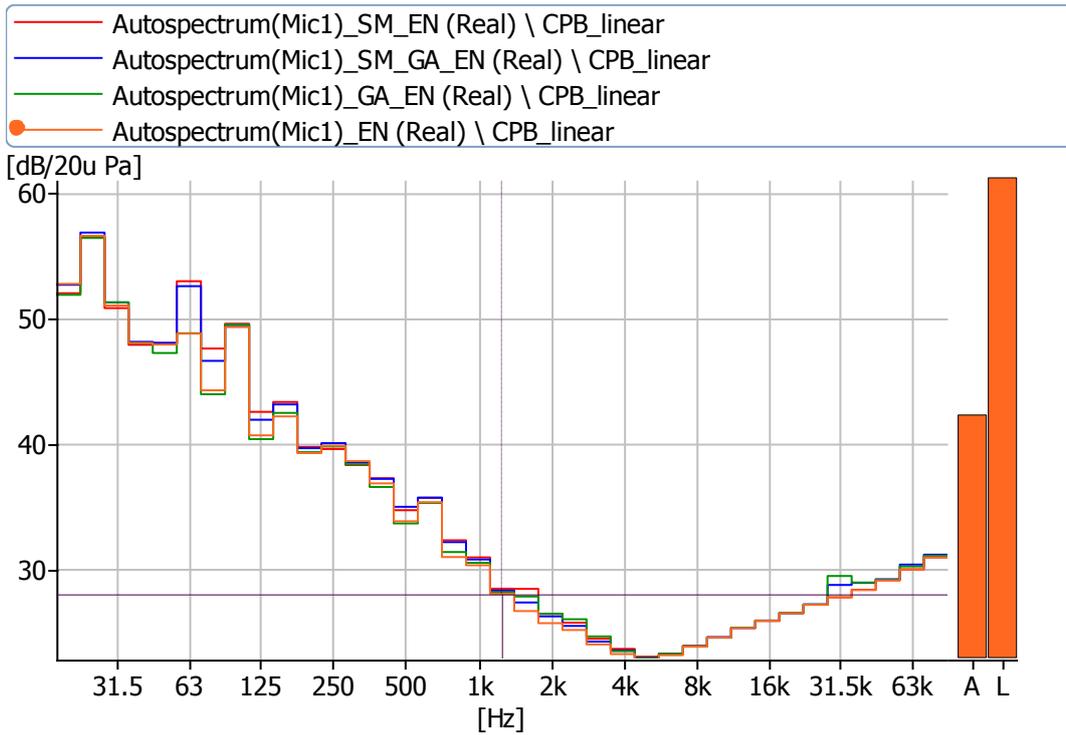
OUTCOME:

1. **100[cm] left, at the same height of the GATEWAY**



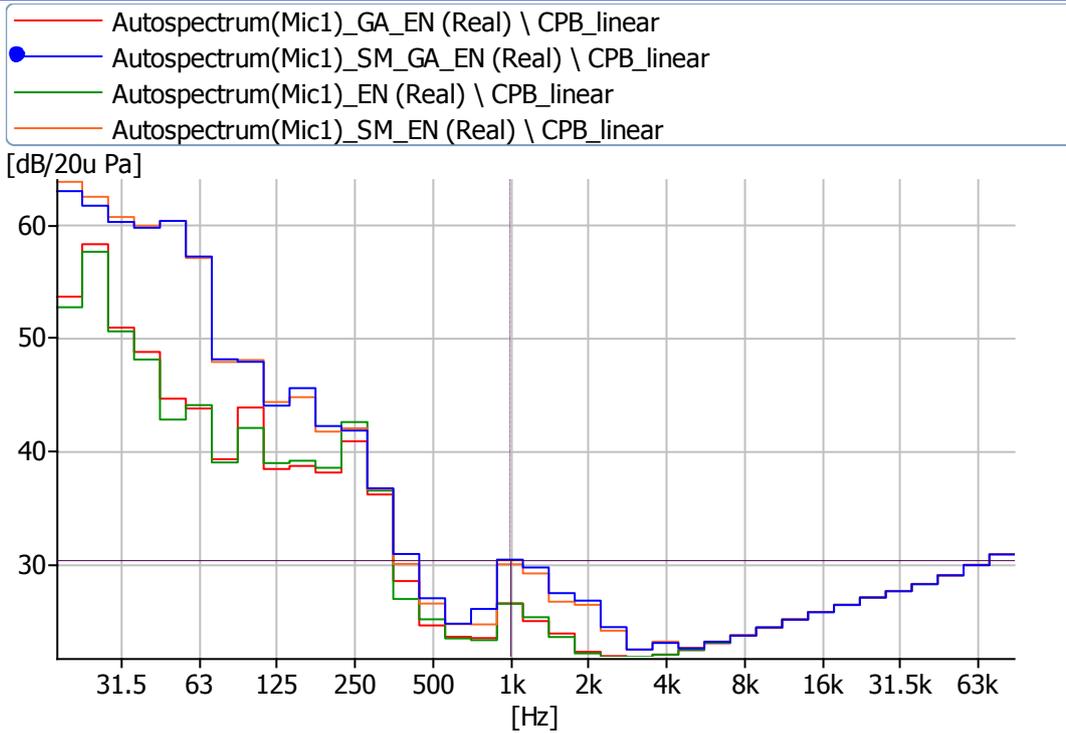


2. 100[cm] front, at the same height of the GATEWAY



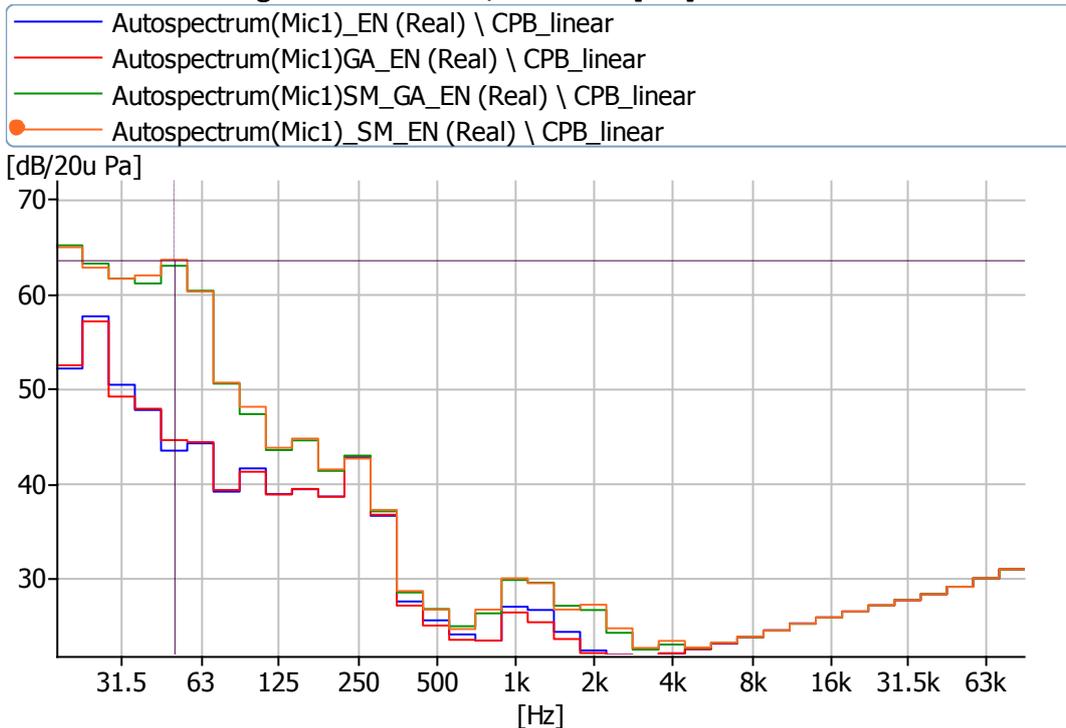
3. Into the cage located in A7, about 30[cm] from the GATEWAY





Cursor values
 X: 1.000k Hz
 Y: 26.562 dB/20u Pa
 Y: 30.414 dB/20u Pa
 Y: 26.520 dB/20u Pa
 Y: 30.006 dB/20u Pa
 L column : 61.576 dB/20u Pa
 L column : 70.210 dB/20u Pa
 L column : 61.233 dB/20u Pa
 L column : 70.683 dB/20u Pa
 A column : 38.920 dB(A),
 A column : 42.306 dB(A),
 A column : 39.385 dB(A),
 A column : 42.083 dB(A),

4. Into the cage located in A8, about 25[cm] from the GATEWAY



Cursor values
 X: 50.000 Hz
 Y: 43.446 dB/20u Pa
 Y: 44.555 dB/20u Pa
 Y: 62.977 dB/20u Pa
 Y: 63.619 dB/20u Pa
 L column : 60.943 dB/20u Pa
 L column : 60.666 dB/20u Pa
 L column : 71.923 dB/20u Pa
 L column : 71.956 dB/20u Pa
 A column : 39.599 dB(A),
 A column : 39.493 dB(A),
 A column : 42.812 dB(A),
 A column : 42.949 dB(A),



RESULTS

1. **100[cm] left, at the same height of the GATEWAY:** Sound intensity at low frequencies ($0\pm 1\text{KHz}$) are mainly due to the blowers, is still about 63 dB(L). At high frequencies, no differences between the different trials are detected
2. **100[cm] front, at the same height of the GATEWAY:** Sound intensity at low frequencies ($0\pm 1\text{KHz}$) are mainly due to the blowers, is still about 63 dB(L). At high frequencies, no differences between the different trials are detected
3. **Into the cage located in A7, about 30[cm] from the GATEWAY:** sound intensity differences in frequency range $0\div 2\text{KHz}$ are due to the SmartFlow only, in fact switching ON the GATEWAY no differences are detected.
The GATEWAY and the SmartFlow do not affect the detected sound intensity at high frequencies (no ultra-sounds are emitted)
4. **Into the cage located in A8, about 25[cm] from the GATEWAY:** sound intensity differences in frequency range $0\div 2\text{KHz}$ are due to the SmartFlow only, in fact switching ON the GATEWAY no differences are detected.
The GATEWAY and the SmartFlow do not affect the detected sound intensity at high frequencies (no ultra-sounds are emitted)