RESOLUTION NUMBER 2010-024

A RESOLUTION OF THE KEY WEST PLANNING BOARD GRANTING APPROVAL OF A MAJOR MODIFICATION TO A MAJOR DEVELOPMENT PLAN APPROVAL AND GRANTING APPROVAL OF MODIFICATIONS TO REQUIRED AISLE WIDTH AND PARKING STALL SIZE FOR PROPERTY LOCATED AT 512 GREENE STREET (RE# 00001170-000000), KEY WEST FLORIDA; PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the subject property is located in the Historic Residential Commercial Core, Gulf Side (HRCC-1), zoning district; and

WHEREAS, Section 108-91C(3) and (4) of the Code of Ordinances allows applicants to request Major Modifications to Major Development Plans including changes to specific conditions of development approvals and those requests are required to be treated in the same manner as the original approval; and

WHEREAS, the original Major Development Plan and Conditional Use proposal was recommended for approval by the Planning Board through Resolution 2009-030 and was subsequently approved by the City Commission on October 13, 2009 through Resolution 09-242; and

Chairman

Planning Director

WHEREAS, the applicant requested to modify the design of the Major Development Plan and modify conditions six and seven of City Commission approval 09-242; and

WHEREAS, Section 108-641 requires that isle widths for parking lots designed at a 90 degree angle be 24' wide and the stalls be 9' by 18'; and

WHEREAS, Section 108-641 provides a footnote allowing modifications to the aisle width and stall size requirement be approved by the City Commission, guided by the Architectural Graphics of Ramsey and Sleeper, in conjunction with the City Engineer recommendation; and

WHEREAS, the applicant requested a modified aisle width of 20'7" and compact parking sized stalls of 9'6" by 15'; and

WHEREAS, this matter came before the Planning Board at a duly noticed public hearing on June 17, 2010; and

WHEREAS, the granting of a Conditional Use will be in harmony with the general purpose and intent of the Land Development Regulations, and will not be injurious to the neighborhood, or otherwise detrimental to the public welfare;

WHEREAS, the granting of a combined Conditional Use and Major Modification to the

Major Development Plan is consistent with the criteria in the code; and

WHEREAS, the recommendation of approval of the combined Conditional Use and Major Development Plan is in harmony with the general purpose and intent of the Land Development Regulations, and will not be injurious to the neighborhood, or otherwise detrimental to the public welfare; and

WHEREAS, the granting of a modified parking aisle width and parking stall size is consistent with the criteria in the code; and

WHEREAS, the approval is consistent with the criteria in the Code; and

NOW, THEREFORE, BE IT RESOLVED by the Planning Board of the City of Key West, Florida:

Section 1. That the above recitals are incorporated by reference as if fully set forth herein.

Section 2. That a Modification to a Major Development Plan for the redesign of the approved parking lot to eliminate an access easement and relocate the garbage area, including the modification of conditions number six and seven of approval (Resolution 09-242) per Section 108-91C(3) and (4), and modifications to required aisle width and parking stall size per Section 108-641, under the Code of Ordinances of the City of Key West, Florida, is hereby recommended for City Commission approval for property located at 512 Greene Street (RE#00001170-000000), as shown

Chairman

Planning Director

in the attached site plans dated May 26, 2010, with conditions as follows:

1. The parking lot shall be used for handicap parking and compact cars only.

2. The applicant voluntarily agrees to donate the 1.0 Equivalent Single Family Unit associated with the single family residence to the City of Key West through the execution of a donation waiver.

3. The applicant will install and maintain a programmable distributive sound system consistent with that described in the document prepared by The Audio Bug and submitted on July 25, 2009, to assure compliance with the "unreasonable noise" definition of Section 26-191 of the Code of Ordinances, and that such referenced document shall be updated to include that a computerized sound monitoring system is installed and real time monitoring access is provided to the City.

4. Prior to the issuance of the Certificate of Occupancy City Staff will confirm that the sound system is functioning as provided for in Condition 3.

5. The applicant expressly agrees to provide the City's agents unfettered access to the computer-generated reports and full, real-time web-based access to the digital monitoring of on-site acoustics for the purpose of assuring compliance with the conditions contained herein.

6. There will be no live music, disc jockeys, or karaoke anywhere on the site unless located indoors and approved under a special event permit per Section 6-86 of the Code of Ordinances. Under no circumstances will these venues be allowed outdoors.

7. Security cameras will be provided on site and security personnel will be present during the hours of operation.

8. Waste handling shall be consistent with the Solid Waste Management plan dated April 16, 2010. The applicant will recycle materials accepted by the city's waste handling contractor.

9. Compliance with the plans dated May 26, 2010, is a condition of approval and specifically incorporated herein; except that the applicant will modify the site plan and landscape plan to provide a fixed barrier and vegetative buffer to prevent vehicular access but allow pedestrian access no less than six feet in width in the area on the site plan dated May 26, 2010, labeled as Future Landscape Area.

Chairman

Planning Director

10. No outdoor consumption area has been approved. ✓

Section 3. Full, complete, and final application for all permits required for which this resolution is wholly or partly necessary, shall be submitted in its entirety within 12 months after the date hereof.

Section 4. This Conditional Use request and Major Modification to a Major Development Plan application recommended for approval to the City Commission, do not constitute a finding as to ownership or right to possession of the property, and assumes, without finding, the correctness of applicant's assertion of legal authority respecting the property.

Section 5. This resolution shall go into effect immediately upon its passage and adoption and authentication by the signatures of the presiding officer and the Clerk of the Commission.

Section 6. This resolution is subject to appeal periods as provided by the City of Key West Code of Ordinances (including the Land Development Regulations). After the City appeal period has expired, this permit or development order will be rendered to the Florida Department of Community Affairs. Pursuant to Chapter 9J-1, F.A.C., this permit or development order is not effective for forty five (45) days after it has been properly rendered to the DCA with all exhibits and applications attached to or incorporated by reference in this approval; that within the forty five (45) day review period the DCA can appeal the permit or development order to the Florida Land and Water Adjudicatory Commission; and that such an appeal stays the effectiveness of the permit until the appeal is resolved by agreement or order.

Read and passed on first reading at a meeting held this 17 day of June, 2010.

_____ Chairman

_____ Planning Director

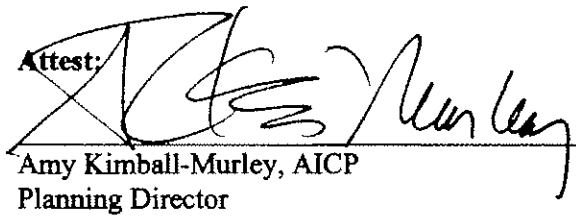
Authenticated by the Chairman of the Planning Board and the Planning Director.

JULY 6, 2010

Richard Klitenick, Chairman
Key West Planning Board

Date

Attest:

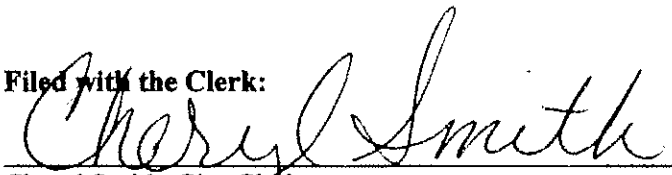


July 6, 2010

Amy Kimball-Murley, AICP
Planning Director

Date

Filed with the Clerk:



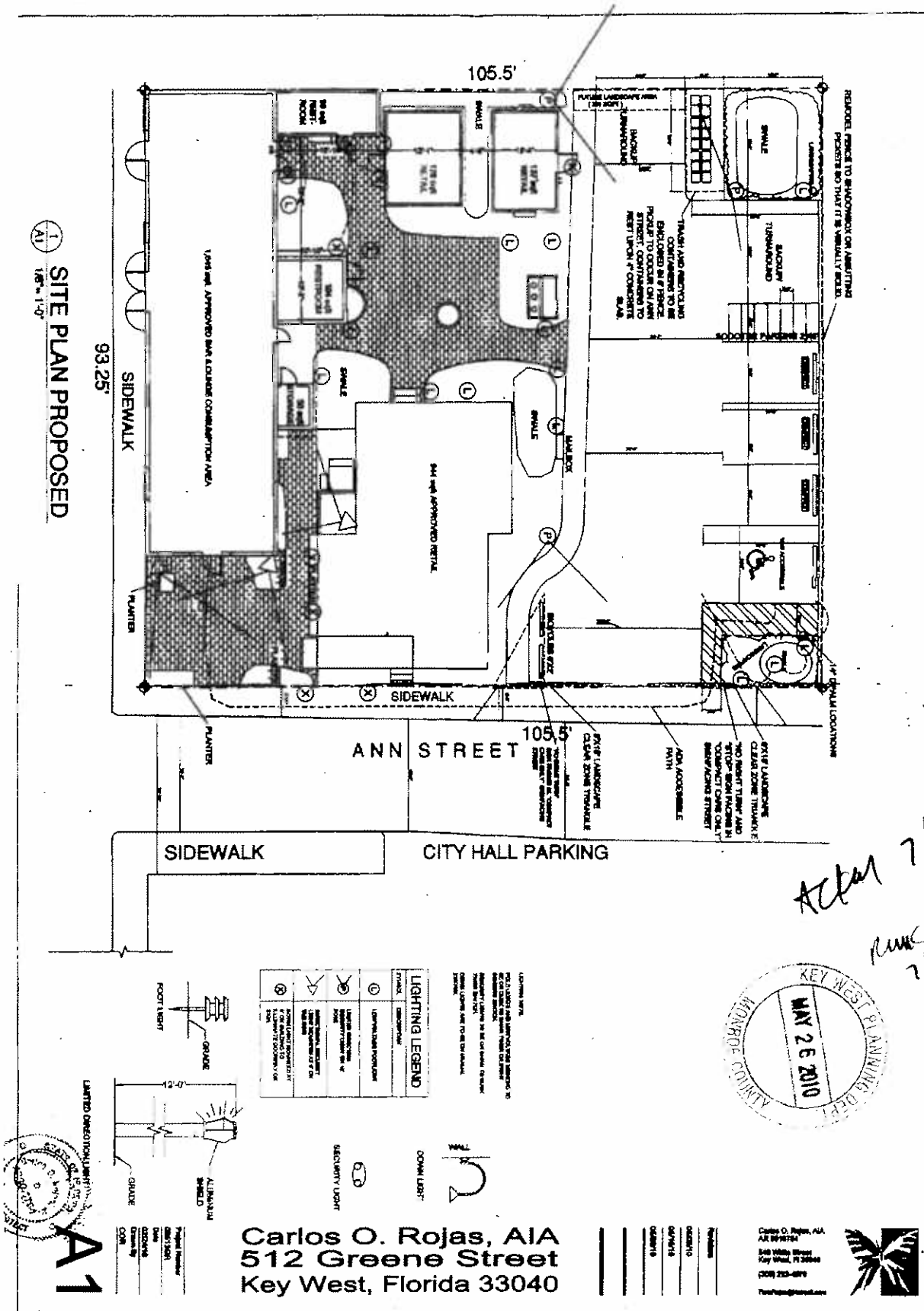
7-7-10

Cheryl Smith, City Clerk

Date

Chairman

Planning Director



A1 SITE PLAN PROPOSED
1/8" = 1'-0"

Acted 7/6/10

Rec'd 7/6/10

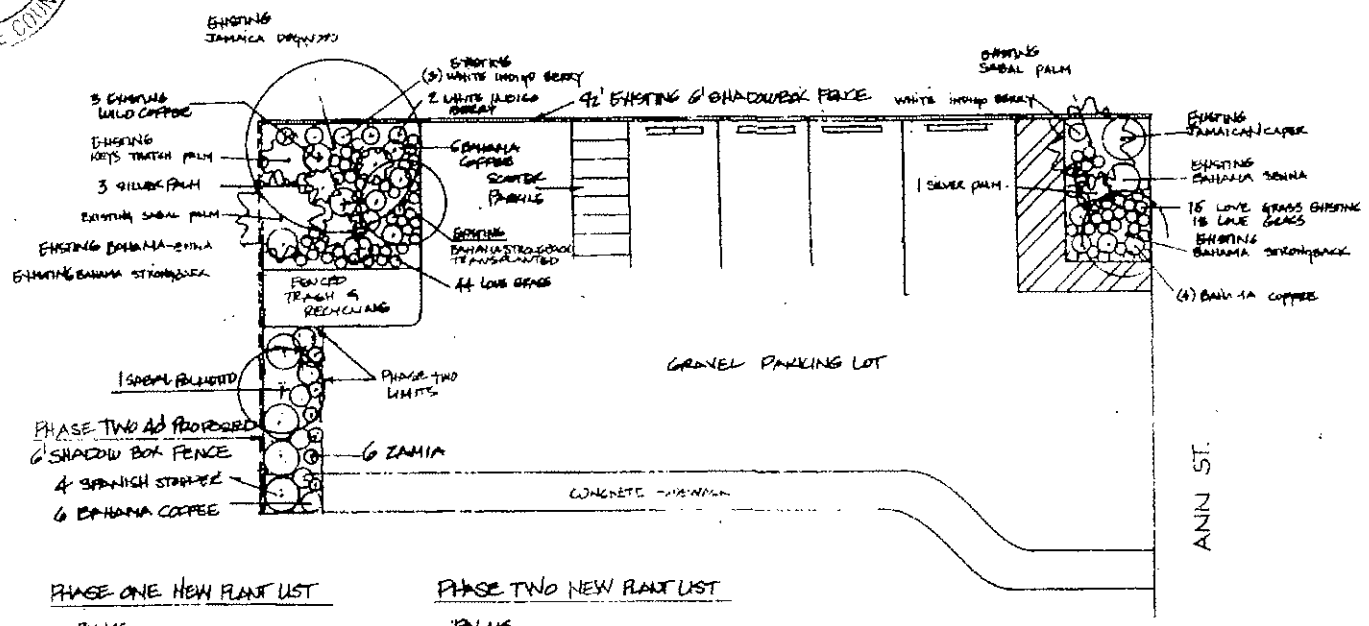
KEY WEST PLANNING BOARD
MONROE COUNTY
MAY 26 2010

LIMITED DIRECTIONAL LIGHTING

Carlos O. Rojas, AIA
512 Greene Street
Key West, Florida 33040

A1

MAY 1 2 2010
PLANNING DEPT
MONROE COUNTY



PHASE ONE NEW PLANT LIST

PALMS
4 COCCOTHRINAX ARGENTATA 15GAL

SHRUBS/GROUNDCOVER
9 BAHAMA COFFEE 3GAL
5 COONTIE 3GAL
62 LOVE GRASS 1GAL
2 WHITE INDIGO BERRY 7GAL

PALM REMOVAL PERMIT
#5328 MAY 12, 2009

PHASE TWO NEW PLANT LIST

PALMS
1 SABAL PALMETTO - FG 24' OA

SHRUBS/GROUNDCOVER
4 SPANISH STOPPER 25GAL 6'-8'
6 BAHAMA COFFEE 3GAL
6 ZAMIA FLORIDANA 3GAL

LANDSCAPE OPEN SPACE CALCULATIONS

9838 SF x .20 = 1968 SF REQUIRED
EXISTING 2068 SF PROVIDED
PHASE ONE (205 SF) DECREASE
PHASE TWO 120 SF INCREASE
PHASE ONE/TWO PROPOSED 1983 SF PROVIDED

NORTH

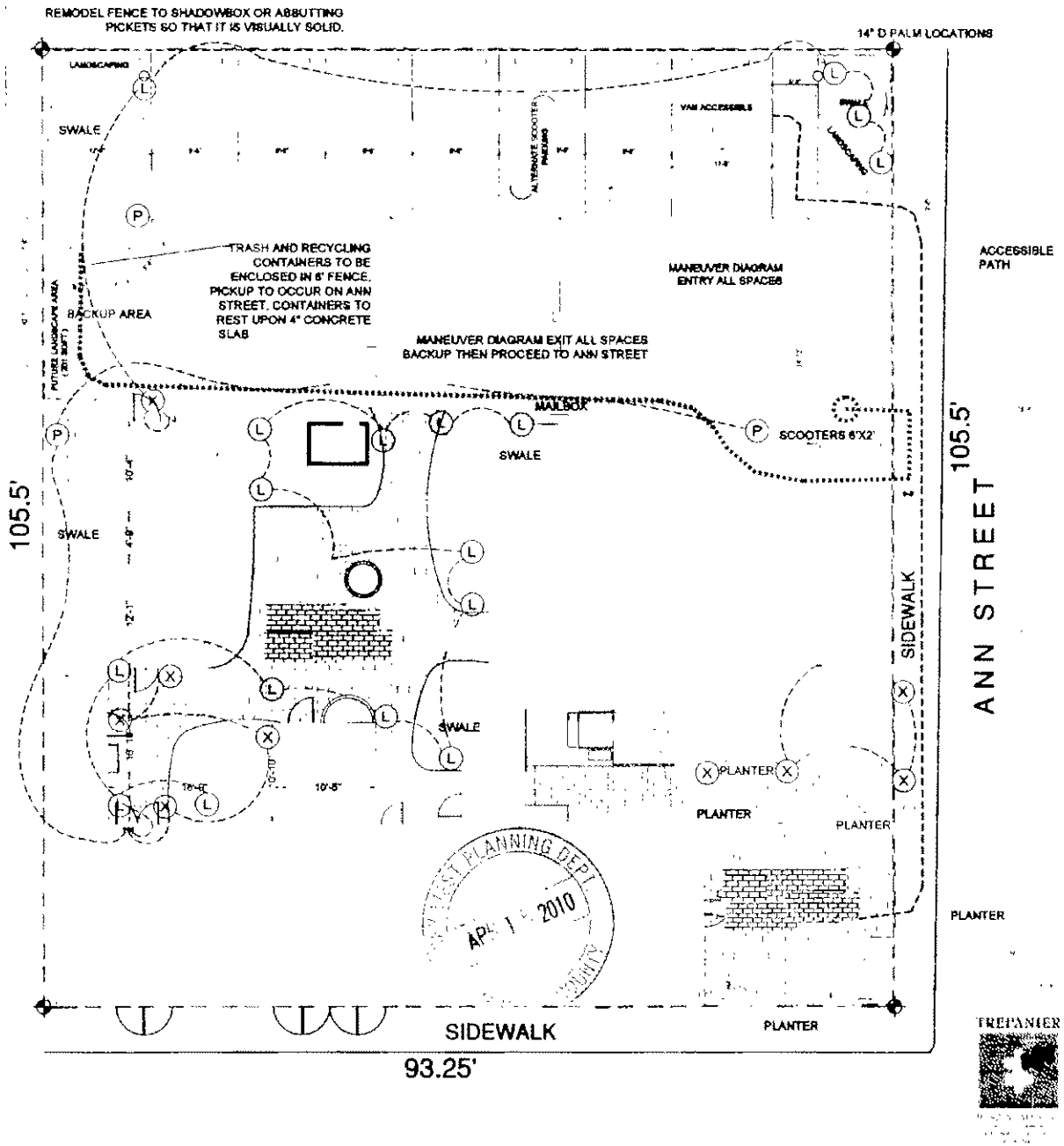
AS BUILT & PROPOSED LANDSCAPE PLAN
SCALE: 1/8" = 1'-0"

ELIZABETH NEWLAND
LANDSCAPE ARCHITECT
LA 000 1288

512 GREENE ST. AS BUILT & PROPOSED LANDSCAPE

LANDSCAPE CONTRACTOR:
NATIVE LANDSCAPE DESIGN
P.O. BOX 2847 KEY WEST
DRAWN BY: SWH

5-10-10



Solid Waste Management Plan

Pathway for pick-up

Waste pick-up to be determined by generation on an as-needed basis

Anticipate 2 36-inch square "toters" to be sufficient

"Toters" to be moved street side at the end of business prior to pick-up

"Toters" shall be returned to a screened enclosure in the morning after pick-up

"Toters" shall not block the public right-of-way

Solid Waste Management Plan overlaid on site plan by Carlos Rojas, Architect

512 GREENE STREET

MAJOR DEVELOPMENT PLAN & CONDITIONAL USE

NOISE STUDY

TREPANIER

& ASSOCIATES INC
LAND USE PLANNING
DEVELOPMENT CONSULTANTS

This study was presented to the Planning Board on July 30th 2009. The Planning Board requested additional information to be included in the report, for the City Commission hearing, regarding recommendations for sound control and mitigation, the technical aspects of the system, and speaker locations. This report consists of the following:

Section I – Noise Study: 512 Greene Street

Section II – Addendum: Recommendations for Sound Control and Mitigation

Section III – Professional Resume of Mr. Donald J. Washburn, President – The Audio Bug, Inc.

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2009

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402 Appelrouth Lane • P.O. Box 2155 • Key West, FL • 33045-2155
Phone: 305-293-8983 • Fax: 305-293-8748 • Email: mail@owentrepanier.com

Amended Noise Mitigation

ACKM
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7/6/10

THE AUDIO BUG, INC.

3800 HILLCREST DRIVE • HOLLYWOOD, FL. 33021-7937 • 954-983-2788 • FAX: 954-083-2789 • audiobug1@aol.com

To the attention of the City of Key West Planning Board

The following are recommendations for Sound Control and Mitigation at 512 Greene Street, Key West:

I. Sound System: The system should be designed to fully comply with local noise ordinances, employing the following techniques to accomplish this goal:

A. Deployment of multiple closely spaced speakers driven at low individual volumes. This system design will distribute sound uniformly within the listening area in such a manner as not to interfere with normal conversational level of the clientele. Maximum long-term system levels are to be limited to 75 dBA SPL, with user access restricted to the selection of program material and manual reduction only of system levels. No increase above maximum design sound levels shall be possible by Staff. The system shall include eight (8) loudspeakers to ensure uniform coverage in the listening area. Loudspeaker layout and quantities are detailed in the attached data developed using EASE 4.2, a computer-assisted design program used to predict sound system and acoustical performance. The electronics package shall offer maximum control to the designer. Speakers shall be operated as a high impedance distribution system connected to an amplifier suitable for the application. Zone control shall be provided as required by the physical layout of the facility. **No outdoor speakers will be permitted.**

B. QSC Audio's DSP-30, a computer control and digital signal processor, shall form the heart of the system. With this device, the system will include the following functions and safeguards:

1. All controls under lock and key, with no access once the system has been commissioned.
2. The system shall be divided into two zones, each with a preset maximum level, separate dynamic equalization and signal alignment, sound compression., and intelligent gain adjustment feature which will raise and lower music volume in response to patron conversation noise.
3. Local control shall consist only of source selection and the ability to turn the system down from preset maximums.

C. A Radio Design Labs FP-ALC2 Automatic Level Control will be included to control the inevitable disparities between source and selection sound levels, further ensuring consistent playback levels. Leveling removes the possibility of one song sounding louder than the previous or subsequent song. For example, if a Billy Joel vocal/piano ballad were followed by a song with a significantly different complement of vocals and instrumentals, the second song would normally sound louder at an equal volume setting. With leveling, the two songs would be reproduced at virtually the same sound level.

C. The House System will provide an input for pre-recorded music; i.e., CD player, iPod, satellite audio feed.
No live music will be proffered except for special events subject to specific permit by the City of Key West.[1] For such events, the live sound mixer would be substituted for the pre-recorded music source.

D. Computerized sound monitoring system. Utilizing an inexpensive net-book or laptop computer, appropriate software and an external microphone, the club shall be equipped to self-monitor sound levels on the property to ensure and document compliance with the City's Noise Ordinance. Calibration of the system during its installation will allow direct correlation of sound levels on property with those at any location off property. Simple operation and reliable documentation will ensure that code violation claims can be refuted with accurate information at any time. Visit http://www.fesb.hr/~mateljan/arta/ for details on obtaining this software.

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1 - If permitted as a special event under KW Code Sec. 6-86

ARTICLE IV. SOUND CONTROL

Sec. 26-191. Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Commercial district means the HRO, HRCC-1, HRCC-2, HRCC-3, HNC-1, HNC-2, HCT, HPS (Mallory Square only), CL, CG, CT and A zoning districts.

Decibel means a measure of a unit of sound pressure. Sound waves having the same decibel level "sound" louder or softer to the human ear depending upon the frequency of the sound wave in cycles per second (i.e., whether the pitch of the sound is high or low). Thus, an A-weighted filter, constructed in accordance with the specifications of the American National Standards Institute, which automatically takes account of the varying effect on the human ear of different pitches shall be used on any sound level measurements required by this article. Accordingly, all measurements are expressed in dBA to reflect the use of this A-weighted filter.

Disturbing noise means an uninvited or disruptive level of noise that is unreasonably loud or that is raucous and jarring, due to volume, character, or duration, and that causes an actual interference with a person's ability to enjoy peacefully his residence or place of business.

Emergency and *emergency work* mean any occurrence or set of circumstances involving or creating actual or imminent physical trauma or property damage which demands immediate attention.

Property boundary means the imaginary line along the surface, and its vertical plane extension, which separates the real property owned, rented, or leased by one person from that owned, rented, or leased by another person.

Public right-of-way means any street, avenue, boulevard, lane, highway, sidewalk, alley, or similar place normally accessible to the public which is owned or controlled by a governmental entity or which has been dedicated to use or access for the benefit of the public or adjacent property owners.

Residential district means the HMDR, HPRD, HPS (except Mallory Square), HHDR, C-OW, C-FW, C-TW, CM, C-UH, LDR-C, SF, MDR-C, MDR, HDR, RO, PRD, and PS zoning districts.

Unreasonable noise means:

(1) Any noise in or emanating from a commercial district which equals or exceeds a measured sound level of 75 dBA (maximum permitted sound level in decibels) collectively for more than 30 seconds of any measurement period which shall not be less than five minutes.

(2) Any noise in or emanating from a residential district which equals or exceeds a measured sound of 75 dBA between 8:00 a.m. and 7:59 p.m. and 60 dBA from 8:00 p.m. to 7:59 a.m. (maximum permitted sound level in decibels) collectively for more than 30 seconds of any measurement period which shall not be less than five minutes.

(Code 1986, § 55.01)

Cross references: Definitions generally, § 1-2.

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Sec. 26-192. Prohibition against unreasonable noise.

No person shall make, continue, or cause to be made any unreasonable noise or disturbing noise.

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(Code 1986, § 55.02(a))

Sec. 26-193. Exceptions.

The prohibitions contained in this article shall not apply to the following:

(1) *Emergencies.* The emission of sound for the purpose of alerting persons to the existence of an emergency or emergency vehicle or to the performance of emergency work.

(2) *Religious service or observance.* Sound levels produced from a religious service or observance.

(3) *Construction/demolition.* Sound levels produced from tools and equipment in commercial construction, demolition, drilling, or reasonably similar activities. However, such sound levels are limited to the hours of 8:00 a.m. to 7:00 p.m., Monday through Friday, and 9:00 a.m. to 5:00 p.m. on Saturday. The tools and equipment must be muffled and maintained equal to the functional standards of the industry. No exceptions contained in this subsection shall apply on Thanksgiving Day, Christmas Day and New Year's Day.

(4) *Domestic power tools.* Sound levels produced from any hand-powered or mechanically powered saw, sander, drill, grinder, lawn/garden tool or reasonably similar tools. However, to be lawful, sound producing the use must conform to industry standards for the equipment and must occur only between 8:00 a.m. and 7:00 p.m., Monday through Friday, and 9:00 a.m. and 5:00 p.m. on Saturday and Sunday only.

(5) *Public events.* Sound levels from public events and celebrations sponsored by the city or approved by resolution of the city commission, but only during the hours designated by the resolution.

(6) *Government radio transmissions.* Sound levels from equipment used by police, fire, and other city department radio or emergency equipment, and from similar equipment used by other government agencies in performance of official duties.

(7) *Public address systems.* Sound levels from public address broadcast systems used in public stadiums, ballfields, parks and schoolyards.

(8) *Sunset celebration.* Sound levels produced by performers engaged in activities sponsored by the city's lessee at Mallory Square Dock during sunset celebration.

(9) *Franchisees.* Narration of tours of the city's franchisees upon the city right-of-way.

(10) *Industrial equipment.* Noise levels for industrial equipment, including but not limited to air conditioners, generators, and pool pumps, must be set to reasonable industry standards for properly maintained equipment.

(Code 1986, § 55.03)

Sec. 26-194. Citation procedure.

(a) Except as provided in subsection (e) of this section, all citations for violations issued under this article shall be based on a complaint to the city. The complainant shall be identified by name and address, the sound source shall be identified, and the investigating officer shall verify all information provided by the complainant. The investigating officer shall provide the complainant with a copy of the complaint form which may serve as a record of complaints relating to a property.

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(b) A decibel meter shall be used for a complaint of unreasonable noise made at or within 100 feet of the property line of the sound source. The decibel reading shall be made at the location of the complaint. The investigating officer shall issue a citation for unreasonable noise, unless in his judgment a warning is sufficient to cease the violation. There shall be no more than a total of one warning per offending person or establishment.

(c) A complaint of disturbing noise may be made when the location of the complaint is beyond 100 feet of the property line of a commercial property sound source. Additionally, a complaint of disturbing noise may be made when the location of the complaint is a residential property and the location of the sound source is a residential property or a commercial property that was a residential property as of September 1, 2000, at any distance from each other. A decibel meter measurement is not required to determine disturbing noise. The investigating officer shall issue a citation if the complainant suffers disturbing noise within the boundaries of his property. The investigating officer may issue a warning if in his judgment a warning is sufficient to cease the violation. There shall be no more than a total of one warning per offending person or establishment.

(d) If a complaint arises of unreasonable noise emanating from a multistory structure, the determination of whether such sound constitutes unreasonable noise shall be made from a story height equal to that of the sound source or from the nearest accessible point on the ground floor.

(e) Upon the authorization of the city manager, the city may act as the complainant of unreasonable noise when a commercial establishment from which alleged unreasonable noise is emanating holds an entertainment license pursuant to division 2 of article II of chapter 18. A code enforcement officer shall conduct the decibel reading at any point beyond the property line of the sound source. In addition to its being subject to citation for unreasonable noise, the establishment shall also be subject to the further penalties set forth in division 2 of article II of chapter 18.

(f) Citations issued for unreasonable noise or disturbing noise under this article shall be of a content-neutral character.

(g) Either a police officer or a code enforcement officer may issue a citation to an offender under this article.

(Code 1986, §§ 55.02(b)--(g), 55.07(b))

Sec. 26-195. Liability; citizen suit.

(a) *Liability.* The maker or creator of unreasonable noise or disturbing noise and the operator and/or owner of the premises that are its sound source shall each be subject to liability for violations of this article. If prosecuted jointly, each shall be jointly and severally liable for any fines imposed pursuant to this article. The sponsor of a special event shall not be liable for unreasonable noise or disturbing noise unless conditions placed upon the sponsor in the special event permit are violated.

(b) *Citizen suit.* In addition to any other remedy available to the city, including code enforcement, the city or any other adversely affected party may enforce the terms of this article in law or equity. Any citizen of the city may seek injunctive relief and damages in a court of competent jurisdiction to prevent a violation of this article. No section of this article shall be interpreted to prevent any person from commencing a civil action on his own behalf against any person who is alleged to be in violation of any section of this article. Attorney's fees and costs incurred in an action to enforce this article may be awarded to a substantially prevailing party in the discretion of the court.

(c) *Mediation services.* Upon request of parties to a residential noise dispute, the city manager

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shall provide mediation services.

(Code 1986, § 55.07(a), (c), (d))

Sec. 26-196. Motor vehicle noise emissions.

(a) Motor vehicles operating on the public right-of-way are regulated as set forth in F.S. § 403.415. The decibel measurements of this statute shall pertain to motor vehicle noise. It shall be unlawful to operate a vehicle, moped, scooter or motorcycle in the city in violation of a provision of this statute. In addition, every vehicle, moped, scooter and motorcycle shall be equipped with a muffler in constant operation and be properly maintained to prevent disturbing or unreasonable noise. Furthermore, it shall be unlawful for a person to engage in rapid throttle advancing or revving of an internal combustion engine of a vehicle, moped, scooter or motorcycle that is at a standstill or that is in the flow of traffic where such rapid throttle advancing or revving is not necessary for its safe operation, thus resulting in increased noise.

(b) No person shall operate or cause to be operated any motor vehicle off a public right-of-way in violation of this article. This article shall apply to all motor vehicles, whether or not duly licensed or registered, including but not limited to commercial or recreational racing vehicles, motorcycles, dirt bikes, mopeds, go-carts, amphibious vehicles, campers, power boats, personal watercraft, or any other engine-powered vehicle; provided, however, that a vessel owner may operate an engine for a reasonable period of time in order to flush out the engine with fresh water.

(c) A citation issued under this section need not be initiated by citizen complaint. It may be issued by a police officer in the course of his duties.

(Code 1986, § 55.04; Ord. No. 03-13, § 1, 6-3-2003)

Sec. 26-197. Animals.

The owner of an animal that creates a noise nuisance as provided in section 10-2 is subject to citation for violation of this article. Animal noise need not be measured by decibel meter to be unreasonable. If animal noise disturbs at least two persons residing in separate residences adjacent to or within 100 feet of the property on which the animal is kept and such persons file a joint complaint or separate complaints with the city as provided in section 26-194, their complaint shall constitute prima facie evidence of a violation.

(Code 1986, § 55.05)

Cross references: Animals, ch. 10.

Sec. 26-198. Retail establishment sound amplifiers; setback.

(a) The property owner or operator of a retail establishment shall establish an interior 15-foot setback for sound amplifiers and speakers. This requirement pertains to sound that emanates directly from the retail establishment to a street, sidewalk or alley. All sound amplifiers and speakers shall be located inside the retail establishment at least 15 feet from the plane of the front, side or rear entrance and at least 15 feet from the plane of any open window. "Retail" shall be determined by business tax receipt status. This regulation shall apply only to the retail portion of a mixed-use commercial establishment.

(b) A property owner may apply to the board of adjustment for a variance to this section. The property owner must demonstrate a hardship based on the size or configuration of the retail establishment.

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Noise Report

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TREPANIER

512 GREENE STREET

MAJOR DEVELOPMENT PLAN & CONDITIONAL USE

NOISE STUDY

& ASSOCIATES INC
LAND USE PLANNING
DEVELOPMENT CONSULTANTS

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PLANNING DEPT
- 5 2009

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402 Appelrouth Lane • P.O. Box 2155 • Key West, FL • 33045-2155
Phone: 305-293-8983 • Fax: 305-293-8748 • Email: mail@owentrepanier.com

THE AUDIO BUG, INC.
3800 HILLCREST DRIVE, # 102 • HOLLYWOOD, FL 33021 • PHONE: 954-983-2788 • FAX: 954-983-2789 • audiobug1@aol.com

July 25, 2009

Mr. Owen Trepanier, President
Trepanier & Associates, Inc.
402 Appelrouth Lane, P.O. Box 2155
Key West, FL 33405-2155
Phone: 305-293-8983, Fax: 305-293-8748

Reference: Noise Study, Greene Street Project
512 Greene Street, Key West, FL

Dear Mr. Trepanier,

I'm pleased to present the results of this Noise Study on the above referenced project. As Applicant of Record to the City of Key West for a Conditional Use approval, I'm addressing this report to your office for distribution to the appropriate parties including the owners of the subject property and members of the City Staff.

This Study was prompted by the City's interest in obtaining an accurate assessment of the acoustical environment surrounding the Greene Street project location and any possible noise impact the operation of the subject property might present to this environment. The process of developing a useful acoustical study involves the following steps:

1. Observe and measure current acoustical conditions (on-site survey)
2. Post-process and analyze collected data
3. Utilize information obtained to generate a report summarizing our findings and conclusions
4. Provide recommendations for sound control and mitigation as required.

The first step in this process, measurement and observation, took place beginning on Friday, July 10, and continuing through Saturday morning, July 11. Locations for acoustical measurements were selected during the survey as representative of the neighborhood. They are indicated on the attached area map (Figure 1) as Locations 11 through 15. Ambient noise levels typical of the neighborhood surrounding the subject property were measured and recorded during three time periods:

1. Early evening, beginning shortly after 7:00 p.m.
2. 11:30 p.m. to Midnight
3. 4:20 a.m. to 4:45 a.m. (after closing)

The accumulated data obtained during this process represents a comprehensive assessment of sound within the area over the span of a full evening/morning. Subsequent analysis of this data has led to observations and recommendations which will assist in determining what if any adverse impact the proposed facility will have on the surrounding environment and how to minimize any such impact identified during the study.

NSCA

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THE AUDIO BUG, INC.
3800 HILLCREST DRIVE, # 102 • HOLLYWOOD, FL 33021 • PHONE: 954-983-2788 • FAX: 954-983-2789 • audiobug1@aol.com

The Greene Street property is somewhat removed from the main entertainment district, which is centered on Duval Street. Sound levels recorded during the evening hours were substantially lower than those noted along Duval Street.

Figures 2 through 6 show sound levels measured at various locations as identified on each chart. The measurements depicted in the charts represent the lowest average sound levels observed, as they were gathered after the close of business for most entertainment venues in the district. These figures most closely represent true ambient sound levels within the surrounding neighborhood, i.e., the lowest sound levels which might be expected under normal conditions (weather, etc.).

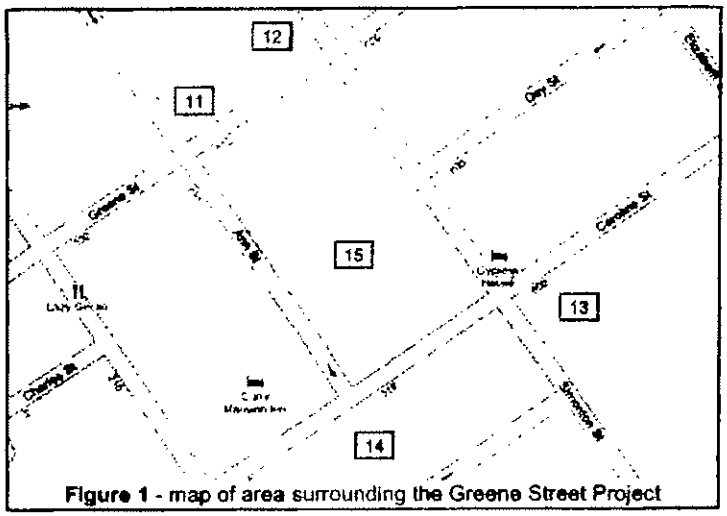

Figure 1 - map of area surrounding the Greene Street Project

Additional measurement data is provided at the bottom of each of these charts showing times and average sound levels recorded at times other than those represented in the charts. Comparison with data gathered along Duval Street (see Figure 7) clearly indicates that the area surrounding the property at Ann and Greene is substantially quieter.

With regard to an in-house sound system, we have recommended utilizing a distributed loudspeaker system intended to control sound levels within the bar area. The system will consist of multiple small, closely spaced speakers positioned to evenly distribute music throughout the bar at moderate levels. The system would be similar to that now used at the Hard Rock Café on Duval Street. During the course of my work on this survey, Dave Floerke and I took a short break, spending about 30 minutes at the bar in the Hard Rock. While there, we chatted with the bartender and could easily converse without interference from the music system. A ten-minute sound measurement indicated an average sound level reading of 79.8 dBA, a comfortable foreground music level. Sound levels were extremely consistent throughout the entire seating area, a condition not often achieved in such facilities. By contrast, most if not all of the systems now in place at clubs within the entertainment district use a "brute force" method, with only a few large loudspeakers played at very high levels. Detailed specifications for the proposed sound system appear below.

A side benefit to this distributed design approach is minimized leakage to the outside. Since sound levels within the bar would be well controlled, little impact on the outside environment would be experienced, even when patrons entered or exited the building.

NSCA

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Currently, vehicular and pedestrian traffic represent the primary sound influences near the subject property. The intermittent nature of these events can be seen on the sound level graphs. While one would certainly anticipate an increase in such traffic as a result of the new facility, this might not necessarily represent a problem. Hours of operation might be used as a control factor with respect to this issue.

Based on our evaluation of neighboring properties, sound levels currently experienced in the area and a facility which clearly represents a low-impact usage, we can say with considerable confidence that this property will have no adverse impact on its neighbors with regard to sound or noise nuisance. Unlike many of the higher profile establishments within the entertainment district, this operation should blend into its neighborhood with little if any affect.

I welcome any questions you, the client or City Staff might have concerning our report and look forward to assisting with the process in any way possible. Please feel free to contact me by either phone or e-mail at your convenience.

Respectfully submitted,

Donald J. Washburn

Donald J. Washburn
President

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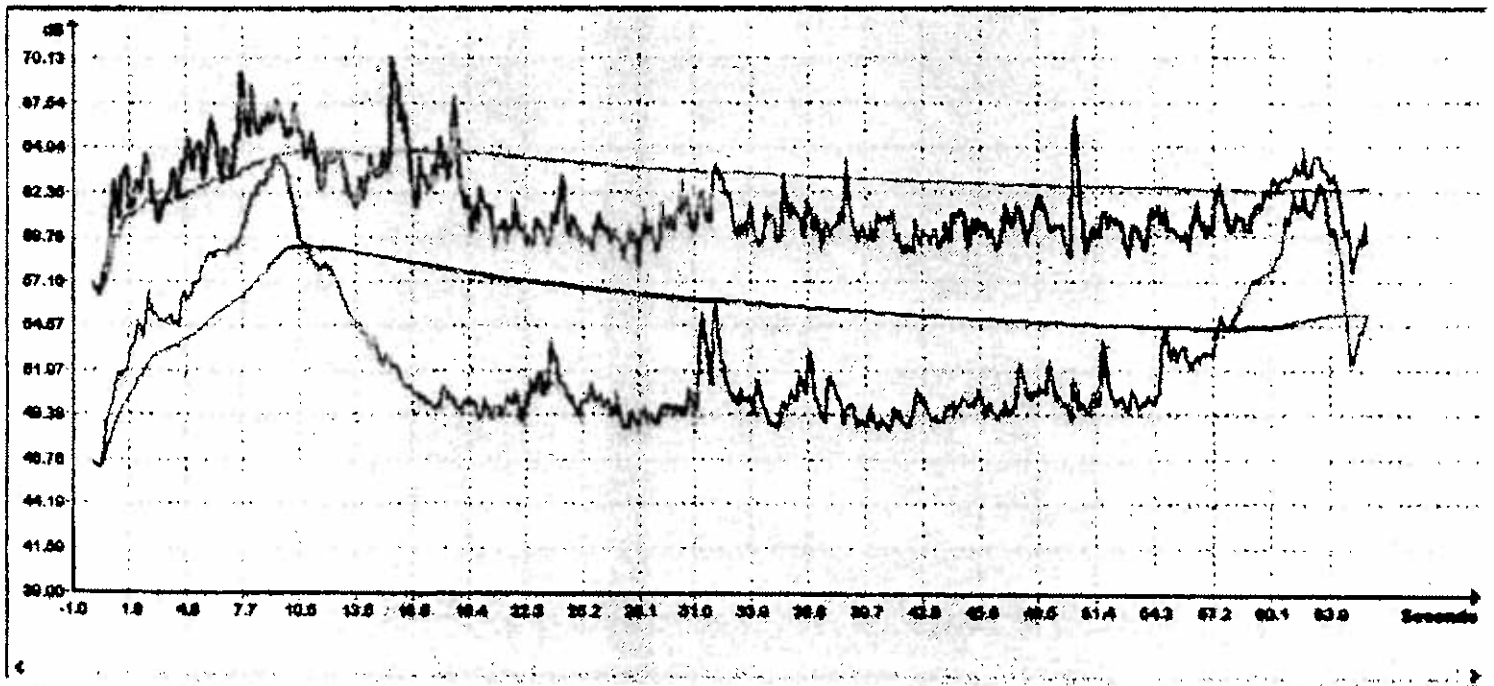
One-minute Leq at Location 11 - Ann and Greene Streets, 4:30 a.m. July 11, 2009



Color	Data Type	Cursor Value	Avg Selection V...	Cumulative Value
Select	A fast			
Select	A leq			55.24
Select	C fast			
Select	C leq			62.46

Ann 7/16/10

Punk 7/16/10

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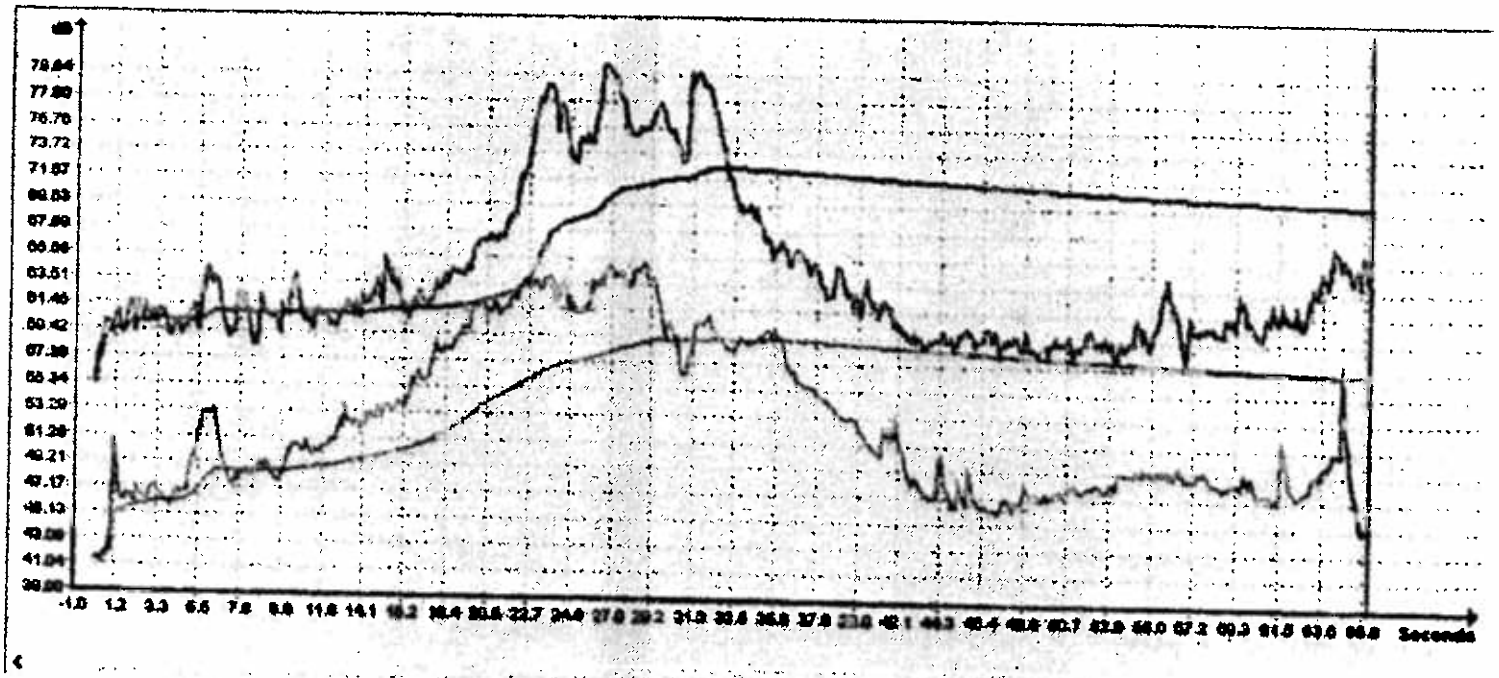
One-minute Leq at Location 12 - Simonton and Greene Streets, 4:25 a.m. July 11, 2009



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Select	A leq	57.11		57.10
Select	C fast	64.45		
Select	C leq	70.14		70.13

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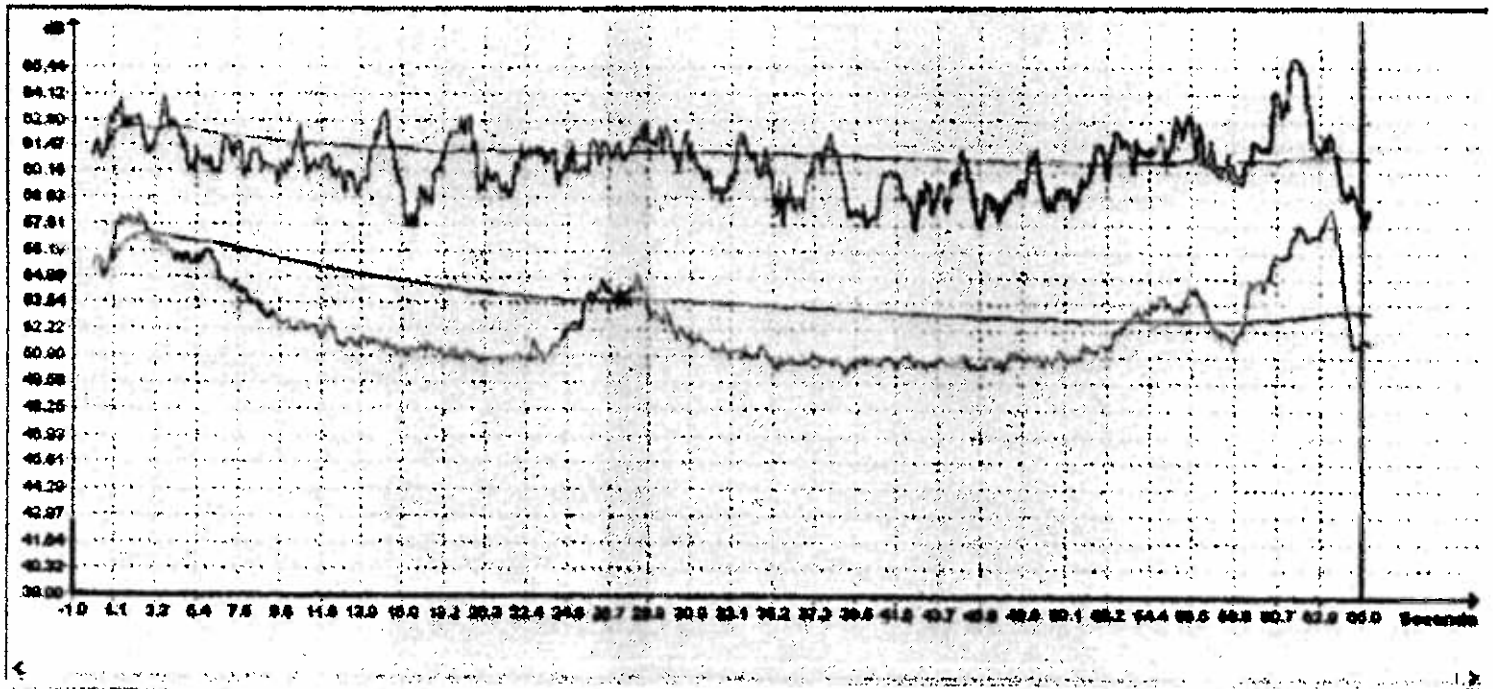
One-minute Leq at Location 13 - Simonton and Caroline Streets, 4:22 a.m. July 11, 2009



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Select	A leq	53.22		53.21
Select	C fast	58.37		
Select	C leq	60.97		60.96

7/6/10

7/6/10

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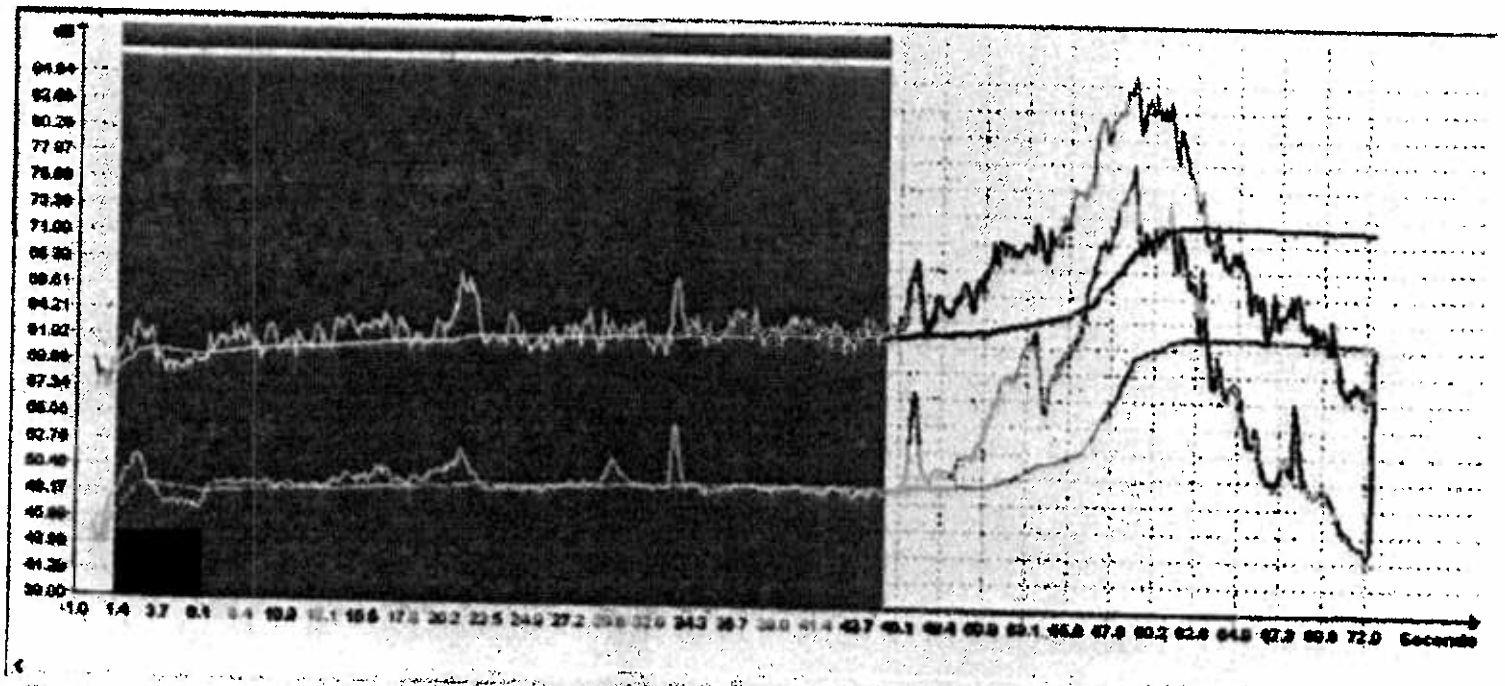
One-minute Leq at Location 14 - Ann and Caroline Streets, 4:41 a.m. July 11, 2009



Color	Data Type	Cursor Value	Avg Selection Value	Cumulative Value
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Select	A leq		49.09	62.47
Select	C fast		62.59	
Select	C leq		61.85	72.34

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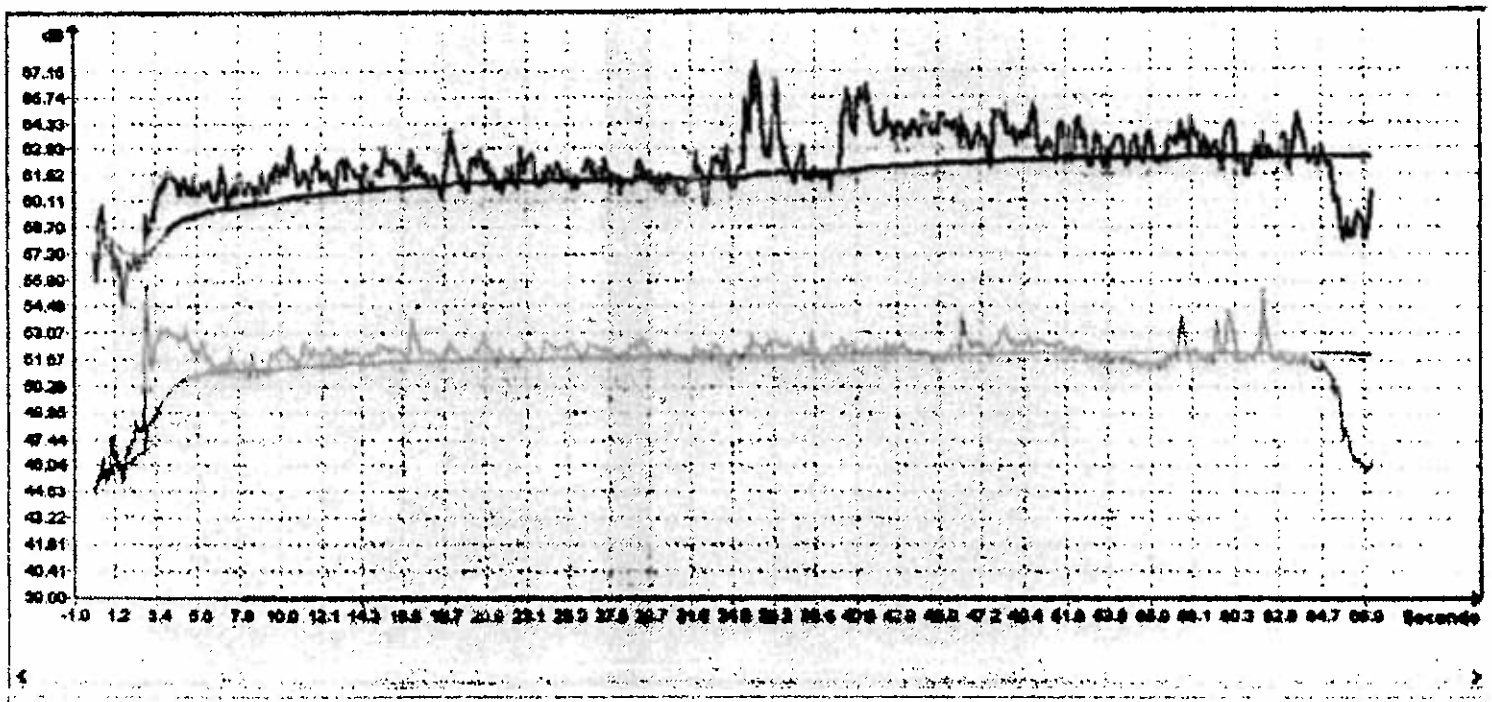
One-minute Leq at Location 15 - 217 Ann Street, 4:38 a.m. July 11, 2009



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Select	A fast			
Select	A leq			52.01
Select	C fast			
Select	C leq			62.51

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ACEM 7/6/10

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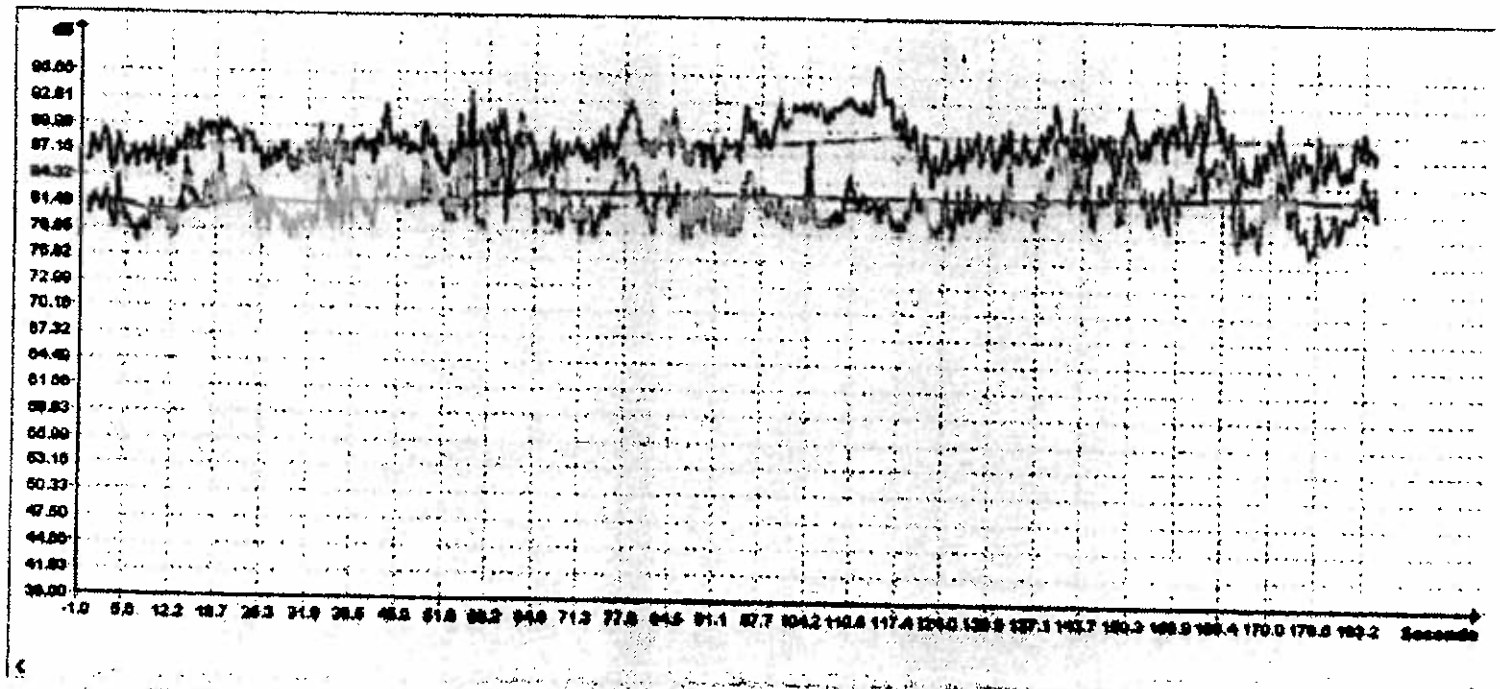
3-minute Leq measurement at Charles and Duval beginning at 1:04 a.m. on July 11, 2009



Color	Data Type	Cursor Value	Avg Selection V...	Cumulative Value
Select	A fast			
Select	A leq			83.05
Select	C fast			
Select	C leq			89.33

RMK 7/6/10

ACKM 7/6/10

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3800 Hillcrest Drive, # 102 • Hollywood, FL 33021-7937
Phone: 954-983-2788 • Fax: 954-983-2789
E-mail: audiobug1@aol.com

NOISE LEVEL ANALYSIS TERMS

Sound Pressure Level (SPL) = The RMS sound pressure expressed in dB re 20 microPa, the lowest threshold of hearing for 1 kHz for a healthy auditory system. [As points of reference, 0 dB-SPL equals the threshold of hearing, while 140 dB-SPL equals irreparable hearing damage.] See: **Inverse square law** below. 1 Pascal = 94 dB SPL. Average face-to-face conversation equals approximately 65 dB SPL.

Decibel (dB) = means of expressing power ratios, i.e. the difference between two sound levels, or an absolute sound level expressed in Sound Pressure Level (SPL) referenced to a standard pressure, i.e. 94 dB SPL = 1 Pascal.

dBA = "A" weighted sound pressure level. Please refer to the attached discussion of weighting filters and their applications.

SLM = Sound Level Meter. Device used to measure sound pressure levels.

L_{min} = Lowest, or softest, Sound Pressure Level measured during the test period.

L_{max} = Highest, or loudest, Sound Pressure Level measured during the test period.

L_{eq} = Equivalent continuous sound level. The steady level which would produce the same sound energy over the test period as the specified time-varying sound. This figure is useful for studying long-term trends in environmental noise. A single L_{eq} number is often used to define an entire measurement period.

L_{10} = Sound level exceeded 10% of the measurement period. Highest of the Ln figures.

L_{50} = Sound level exceeded 50% of the measurement period. Median of the Ln figures.

L_{90} = Sound level exceeded 90% of the measurement period. Lowest of the Ln figures. This figure is most commonly used in estimating true ambient noise level.

L_{mean} = Mathematically averaged Sound Pressure Level.

NC = Noise Criteria, a standardized method of characterizing noise loudness. Extensively used in the analysis of noise and vibration.

Sone = a subjective unit of loudness for an average listener equal to the loudness of a 1 kHz. sound that has an intensity 40 decibels above the listener's own threshold of hearing.

Phon = the unit of loudness on a scale beginning at zero for the faintest audible sound (0.00002 Pascals) and corresponding to the decibel scale of sound intensity with the number of phons of a given sound being equal to the decibels of a pure 1 kHz tone judged by the average listener to be equal in loudness to the given sound.

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E-mail: audiobug1@aol.com

Inverse Square Law = inverse square law Sound Pressure Level. Sound propagates in all directions to form a spherical field, thus sound energy is inversely proportional to the square of the distance, i.e., doubling the distance quarters the sound energy (the inverse square law), so SPL is attenuated 6 dB for each doubling of distance from the source.

Noise Reduction Coefficient (NRC) = The average of the individual sound absorption coefficients at 250, 500, 1000 and 2000 Hz, to the nearest .05.

Impact Insulation Class (IIC) = Single-number rating that indicates the amount of impact noise isolation provided by a floor/ceiling assembly. The higher the number, the better the floor/ceiling assembly.

Sound Transmission Class (STC) = A single-number rating that indicates the sound transmission loss of a partition or ceiling system between adjacent closed rooms. STC Ratings are:

25 Normal speech can be understood quite clearly
30 Loud speech can be understood fairly well
35 Loud speech is audible but not intelligible
42 Loud speech is audible as a murmur
45 Must strain to hear loud speech
48 Some loud speech is barely audible
50 Loud speech is not audible

Definitions

1) **sonic**: utilizing, produced by, or relating to sound waves; broadly: of or involving sound: having a frequency within the audibility range of the human ear: of, relating to, or being the speed of sound in air or about 761 miles per hour (1224 kilometers per hour) at sea level at 59°F (15°C)
2) **subsonic**: of, relating to, or being a speed less than that of sound in air
3) **supersonic**: of, being, or relating to speeds from one to five times the speed of sound in air
4) **hypersonic**: of or relating to speed five or more times that of sound in air
5) **audio**: of or relating to acoustic, mechanical, or electrical frequencies corresponding to normally audible sound waves which are of frequencies approximately from 20 to 20,000 hertz
6) **infrasonic**: having or relating to a frequency below the audibility range of the human ear (< 20 Hz)
7) **ultrasonic**: having a frequency above the human ear's audibility limit of about 20,000 hertz
8) **audible**: heard or capable of being heard
9) **intelligible**: capable of being understood or comprehended
10) **aural**: heard or perceived with the ear

7/6/10

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11) **auditory**: of, relating to, or experienced through the sense of hearing

12) **acoustic**: of or relating to the sense or organs of hearing, to sound, or to the science of sounds

13) **vibration**: a periodic motion of the particles of an elastic body or medium in alternately opposite directions from the position of equilibrium when that equilibrium has been disturbed (as when a stretched cord produces musical tones or particles of air transmit sounds to the ear)

14) **noise**:
- **1** loud, confused, or senseless shouting or outcry
- **2** **a:** SOUND; *esp.* : one that lacks agreeable musical quality or is noticeably unpleasant
  - **b:** any sound that is undesired or interferes with one's hearing of something
  - **c:** an unwanted signal or a disturbance (as static or a variation of voltage) in an electronic device or instrument (as radio or television); *broadly* : a disturbance interfering with the operation of a usu. mechanical device or system
  - **d:** electromagnetic radiation (as light or radio waves) that is composed of several frequencies and that involves random changes in frequency or amplitude
  - **e:** irrelevant or meaningless data or output occurring along with desired information

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Fletcher-Munson Equal-Loudness Contours

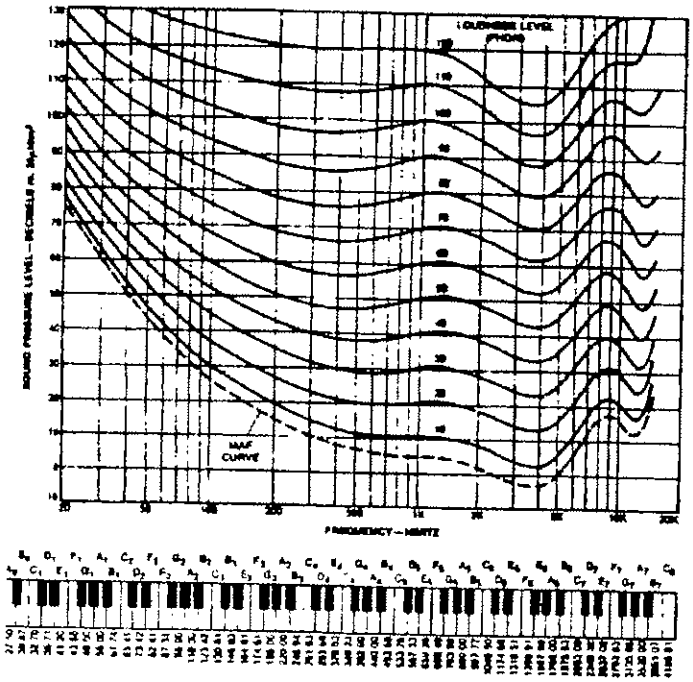

Figure 3-28 Equal-loudness contours.

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E-mail. audiobug1@aol.com

Sound Level Meter Weighting Networks

The following brief description of how the various weighting networks are used is intended to provide the reader an understanding of the purposes for and applications of standard weighting networks found in professional sound level meters. The information is an extract from "The New Audio Cyclopedia, Handbook for Sound Engineers", edited by Glen Ballou. It can be found on page 21 of that reference publication.

1.16 Weighting Networks

Sound level meters come with one or more weighting networks built in. The question confronting the user is, "Which one should I use?" The frequency responses of the three standard networks (A, B and C) are shown in figure 1-16. In the simplest terms, these different curves are designed to give readings of sound pressure level that will correspond, at least roughly, with human response to the sound. As we shall see in Chapter 2 "Psycho Acoustics," the Fletcher-Munson curves show that the human ear is less sensitive at lower frequencies than at a frequency of 1 kHz. This effect is greater for lower-level sounds than for louder sounds. Therefore, it makes sense to reduce the sensitivity of the sound level meter (chiefly in the lower frequencies) so that its readings follow the characteristics of the ear more closely.

The A-weighted curve of Fig. 1-16 is based on the 40 phon Fletcher-Munson equal-loudness contour and is to be preferred for measuring lower-level sounds such as background noise. The B-weighted curve is based on the 70-phon equal-loudness contour and is suitable for measuring sounds of intermediate level. Measurements taken with the A and B weighting are called *weighted sound levels*. The C weighting is essentially flat and is used for very loud sounds. It is also used when *sound pressure levels* are to be measured and generally when the sound level meter feeds a signal to other instruments for analysis.

Table 1-4. Use of Weighting Networks

Sound Level Range, in dB	Recommended Weighting Network
20 - 55	A
55 - 85	B
85 - 140	C

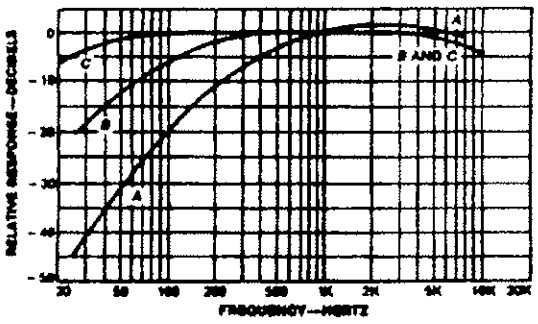
Table 1-4 gives general suggestions as to which weighting to use for different sound level ranges.

When comparing different sound levels, such as in Table 1-5, it may be expedient to use the A-weighting for the entire range rather than to shift weighting in the midst of a series of measurements to be directly compared.

Table 1-5. Typical A-Weighted Sound Levels

Sound Source	Sound Pressure Level, Decibels, (A-Weighted)
Jet airplane taking off (200 ft.)	120
Subway train (20 ft.)	90
Freight Train (100 ft.)	70
Speech (1 ft.)	70
Shopping Mall	60
Average residence with TV	50
Quiet residential area at night	40
Soft whisper	30
Recording studio background noise	30
Threshold of hearing	20

Figure 1.16 - Weighting Networks



Frequency Response Characteristics in the American National Standard Specification for Sound Level Meters, ANSI-31.4-1971.

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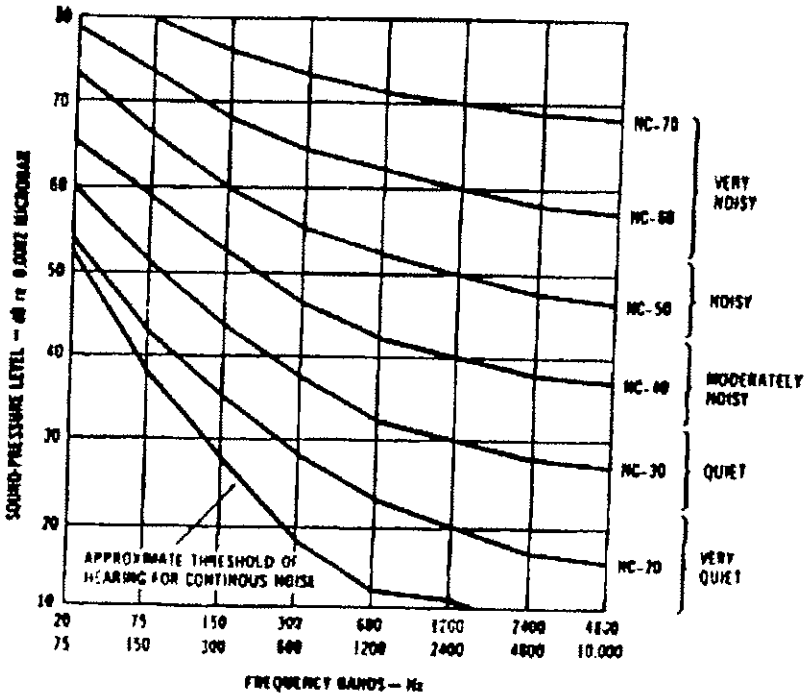
Subjective Assessment of Noise Criteria Data



Subjective assessment of noise annoyance based on Noise Criteria measurements.

ACK 7/6/10

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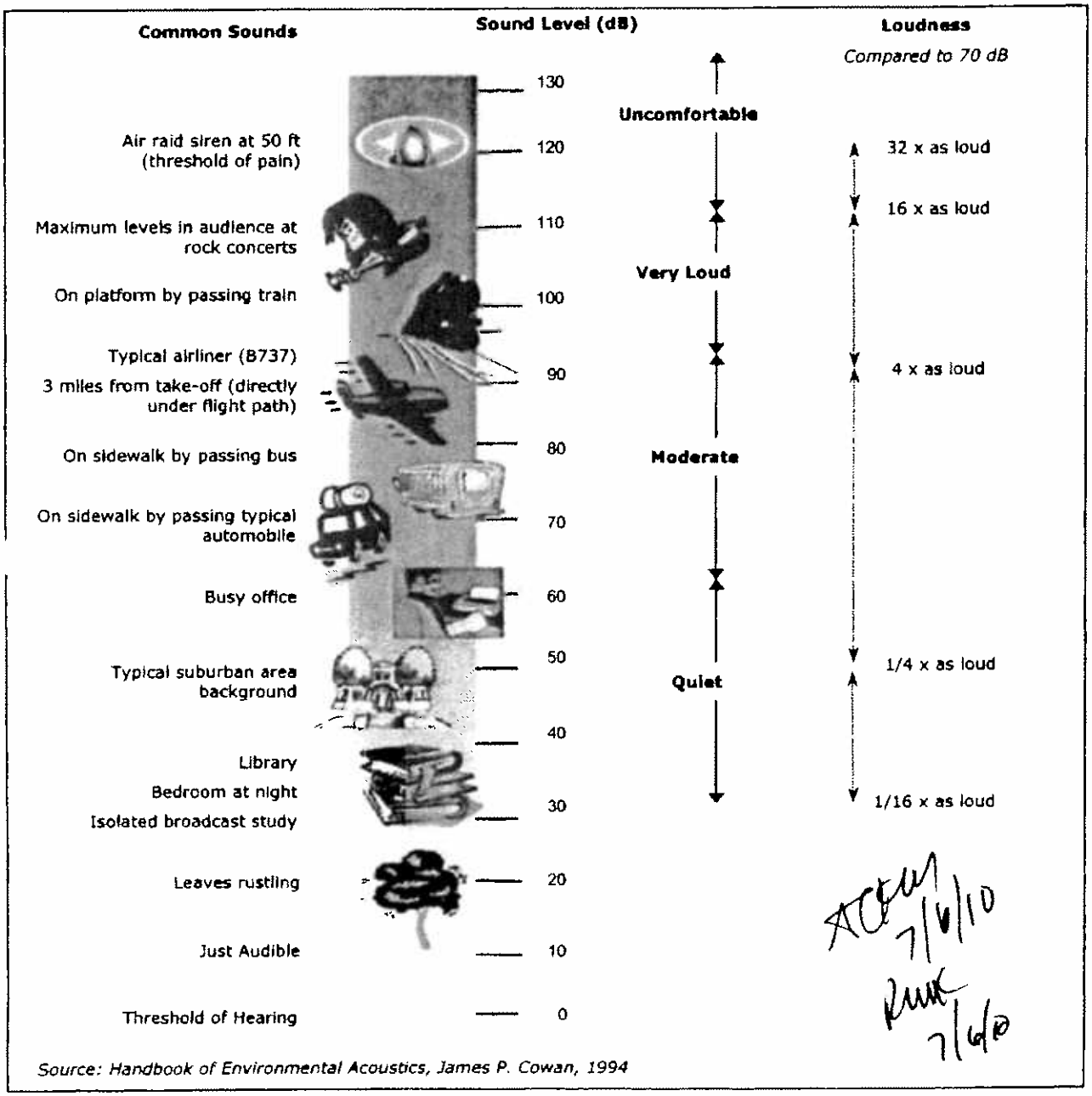
Typical Sound Levels



Source: Handbook of Environmental Acoustics, James P. Cowan, 1994

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wyle laboratories

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Phone: 954-983-2788 • Fax: 954-983-2789
E-mail: audiobug1@aol.com

Ranges of Indoor Design Goals for HVAC System Noise Control

TYPE OF AREA	Range of "A" Weighted Sound Levels in dB	Range of NC Curves
Residences:		
Private homes (rural and suburban)	25 - 35	20 - 30
Private homes (urban)	30 - 40	25 - 35
Apartment houses, 2 & 3 family units	35 - 45	30 - 40
Hotels:		
Individual rooms or suites	35 - 45	30 - 40
Ballrooms, banquet rooms	35 - 45	30 - 40
Halls and corridors, lobbies	40 - 50	35 - 45
Garages	45 - 55	40 - 50
Kitchens and laundries	45 - 55	40 - 50
Hospitals and Clinics:		
Private rooms	30 - 40	25 - 35
Operating rooms, wards	35 - 45	30 - 40
Laboratories, Halls, corridors, lobbies and waiting rooms	40 - 50	35 - 45
Washrooms and toilets	45 - 55	40 - 50
Offices:		
Board rooms	25 - 35	20 - 30
Conference rooms	30 - 40	25 - 35
Executive office	35 - 45	30 - 40
Supervisor office, reception room	35 - 45	30 - 40
General open offices, drafting rooms	40 - 55	35 - 50
Halls and corridors	40 - 55	35 - 55
Tabulation and computation	45 - 65	40 - 60

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ACM 7/6/10

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Auditoriums and Music Halls:		
Concert and Opera Halls, Studios for sound reproduction	25 - 35	20 - 25
Legitimate theaters, multipurpose halls	30 - 40	25 - 30
Movie theaters, TV audience studios, semi-outdoor amphitheaters, lecture halls, planetarium	35 - 45	30 - 35
Lobbies	40 - 50	35 - 45
Public Buildings:		
Public libraries, museums, courtrooms	35 - 45	30 - 40
Post offices, general banking areas, lobbies	40 - 50	35 - 45
Washrooms and toilets	45 - 55	40 - 50
Churches and schools:		
Sanctuaries	25 - 35	20 - 30
Libraries	35 - 45	30 - 40
School classrooms	35 - 45	30 - 40
Laboratories	40 - 50	35 - 45
Recreation halls	40 - 55	35 - 50
Corridors and halls	40 - 55	35 - 50
Kitchens	45 - 55	40 - 50
Restaurants, cafeterias, lounges:		
Restaurants	40- 50	35 - 45
Cocktail lounges	40 - 55	35 - 50
Night clubs	40 - 50	35 - 45
Cafeterias	45 - 55	40 - 50
Retail stores:		
Clothing, department stores (upper floors)	40 - 50	35 - 45
Department stores (main floor), small retail stores	45 - 55	40 - 50
Supermarkets	45 - 55	40 – 50

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Phone: 954-983-2788 • Fax: 954-983-2789
E-mail: audiobug1@aol.com

Sports activities - Indoor:		
Coliseums	35 - 45	30 - 40
Bowling alleys, gymnasiums	40 - 50	35 - 45
Swimming pools	45 - 60	40 - 55
Transportation (rail, bus, airports):		
Ticket sales offices	35 - 45	30 - 40
Lounges and waiting rooms	40 - 55	35 - 50

NOTE: This information is provided by ASHRAE*, a professional organization which develops standards for the HVAC industry. These guidelines are used during the design, installation and balancing of HVAC systems and are intended to prevent intrusive noise levels in a wide variety of venues.

*ASHRAE: American Society of Heating, Refrigeration and Air-Conditioning Engineers

RMW 7/6/10
ACPM 7/6/10

Section II

Addendum: Recommendations for Sound Control and Mitigation

TREPANIER

7/6/10 7/6/10

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To the attention of the City of Key West Planning Board

The following are recommendations for Sound Control and Mitigation at 512 Greene Street, Key West:

I. Sound System: The system should be designed to fully comply with local noise ordinances, employing the following techniques to accomplish this goal:

A. Deployment of multiple closely spaced speakers driven at low individual volumes. This system design will distribute sound uniformly within the listening area in such a manner as not to interfere with normal conversational level of the clientele. Maximum long-term system levels are to be limited to 75 dBA SPL, with user access restricted to the selection of program material and manual reduction only of system levels. No increase above maximum design sound levels shall be possible by Staff. The system shall include eight (8) loudspeakers to ensure uniform coverage in the listening area. Loudspeaker layout and quantities are detailed in the attached data developed using EASE 4.2, a computer-assisted design program used to predict sound system and acoustical performance. The electronics package shall offer maximum control to the designer. Speakers shall be operated as a high impedance distribution system connected to an amplifier suitable for the application. Zone control shall be provided as required by the physical layout of the facility. **No outdoor speakers will be permitted.**

B. QSC Audio's DSP-30, a computer control and digital signal processor, shall form the heart of the system. With this device, the system will include the following functions and safeguards:

1. All controls under lock and key, with no access once the system has been commissioned.
2. The system shall be divided into two zones, each with a preset maximum level, separate dynamic equalization and signal alignment, sound compression., and intelligent gain adjustment feature which will raise and lower music volume in response to patron conversation noise.
3. Local control shall consist only of source selection and the ability to turn the system down from preset maximums.

C. A Radio Design Labs FP-ALC2 Automatic Level Control will be included to control the inevitable disparities between source and selection sound levels, further ensuring consistent playback levels. Leveling removes the possibility of one song sounding louder than the previous or subsequent song. For example, if a Billy Joel vocal/piano ballad were followed by a song with a significantly different complement of vocals and instrumentals, the second song would normally sound louder at an equal volume setting. With leveling, the two songs would be reproduced at virtually the same sound level.

C. The House System will provide an input for pre-recorded music; i.e., CD player, iPod, satellite audio feed.
No live music will be proffered except for special events subject to specific permit by the City of Key West.[1] For such events, the live sound mixer would be substituted for the pre-recorded music source.

D. Computerized sound monitoring system. Utilizing an inexpensive net-book or laptop computer, appropriate software and an external microphone, the club shall be equipped to self-monitor sound levels on the property to ensure and document compliance with the City's Noise Ordinance. Calibration of the system during its installation will allow direct correlation of sound levels on property with those at any location off property. Simple operation and reliable documentation will ensure that code violation claims can be refuted with accurate information at any time. Visit http://www.fesb.hr/~mateljan/arta/ for details on obtaining this software.

1 - if permitted as a special event under KW Code Sec. 6-86

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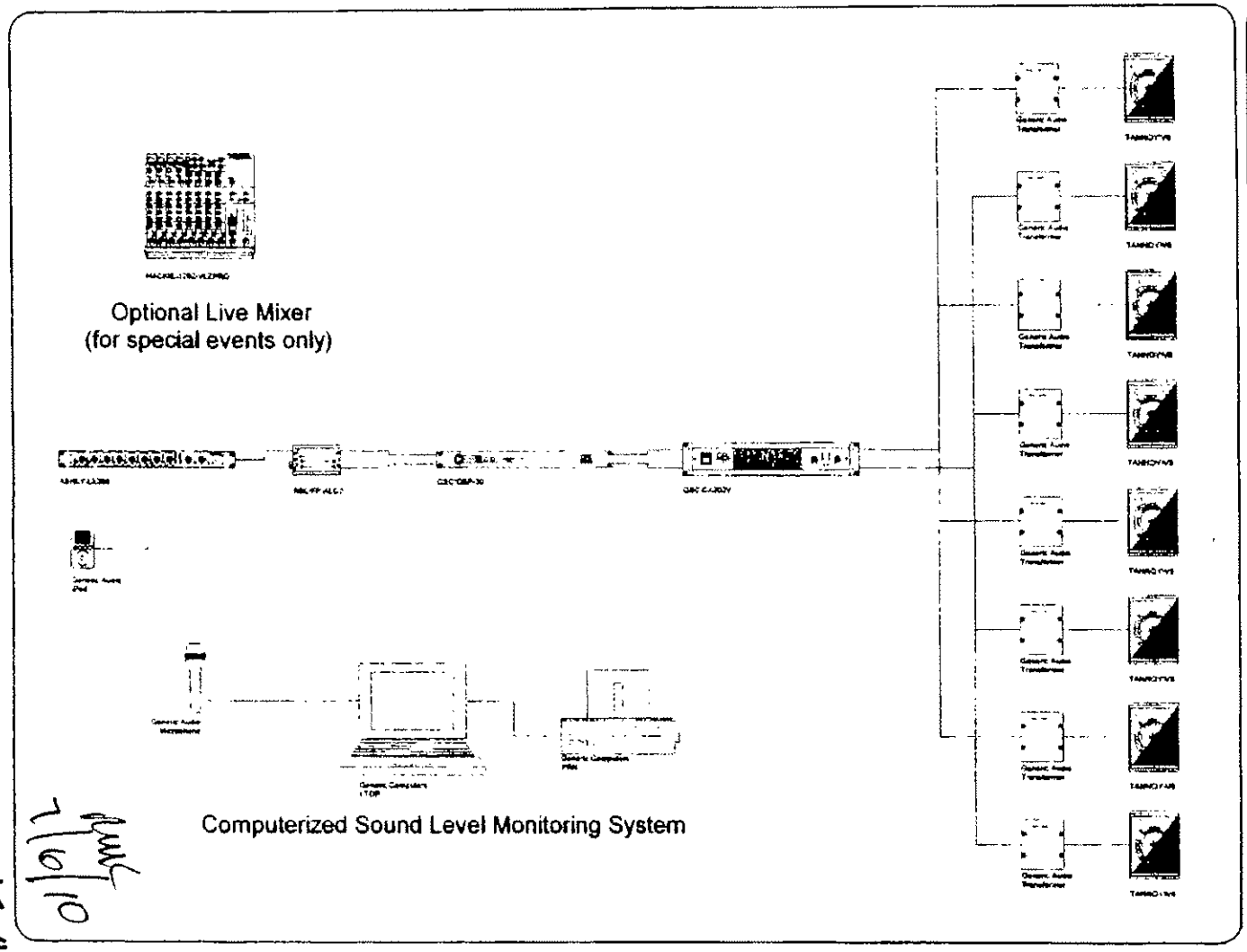

Rev	Date	Notes

Symbols Used

Client
512 Greene Street LLC
Key West, Florida

Title
Bar Sound System

The Audio Bug, Inc.
3800 Hillcrest Drive, Unit 102
Hollywood
Florida
33021-7837
U.S.A.
Tel 954-983-2784
Fax 954-983-2789
E-mail audiobug1@aol.com

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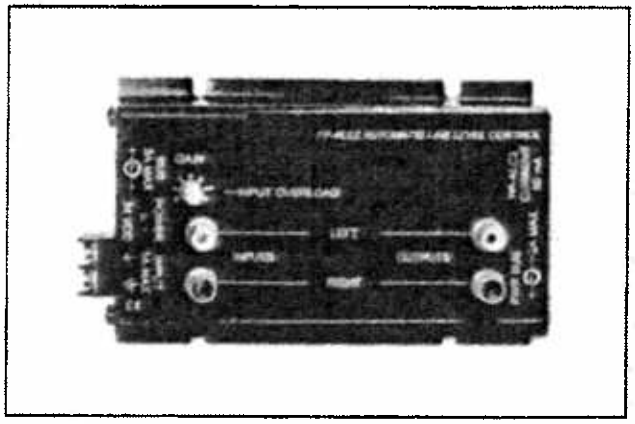
RDL®
Radio Design Labs

SPECIALISTS IN PRACTICAL PRECISION ENGINEERING ™

FLAT-PAK™ SERIES

Model FP-ALC2

Automatic Level Control



ANYWHERE YOU NEED...

- Consistent Levels from Variable Sources
- Split-Band AGC for Audio Transparency
- Self-Adjusting Attack and Release Times
- AGC with Simple Single Control Setup
- Level Control Range >20 dB
- Gated Control to Avoid Level "Seeking"
- Convenience of RDL FLAT-PAKs

You Need The FP-ALC2!

The FP-ALC2 is part of the group of versatile FLAT-PAK products from Radio Design Labs. The unique FLAT-PAK case can be directly screwed or bolted to cabinets or shelves. Optionally available rack-mounting accessories permit single or multiple FLAT-PAK module mounting. All FLAT-PAK modules are supplied with a power interconnect cable for daisy-chaining multiple modules from a single power supply.

APPLICATION: The FP-ALC2 is the ideal choice in many applications where consistent stereo audio levels are needed from consumer sources with varying audio output levels. Power connections are made using either the full-size barrier block terminals or a dc power jack located in one end panel. A second dc power jack is provided on the other end panel for connecting additional FLAT-PAK modules.

The FP-ALC2 is a two channel (stereo) module featuring phono jack **INPUTS** and **OUTPUTS**. A single user adjustment makes installation simple and efficient. The gain adjustment is set as high as possible with the loudest source without the **INPUT OVERLOAD** indicator flashing. No further adjustments are needed. Foreground as well as background sound systems fed from variable audio source levels, such as multiple CD changers or satellite receivers, benefit from consistent levels.

The automatic level control circuitry in the FP-ALC2 maintains a consistent –10 dBV output for input signal variations as great as 25 dB. Yet the operation of the module is nearly transparent to the listener for a wide variety of source material from rock to classical. The level pumping effect frequently associated with automatic gain and compression devices is minimized in the FP-ALC2 by controlling mid and high band audio separately from the bass frequencies. The automatic gain circuitry and compression attack release times adjust according to the program material to further reduce any audible effects of the module. The level seeking effect also associated with various automatic level products is avoided in the FP-ALC2. When audio levels fall and remain below a level appropriate to that source, the module stops increasing the gain. As audio levels fade out, the module tracks the level for a natural sound. These features combine to produce nearly inaudible adjustment yet consistent levels without the listener fatigue associated heavily compressed music dynamics.

The FP-ALC2's low profile and compact size permit mounting in confined spaces and in various locations in equipment racks. The location of the input/output jacks permits high density mounting against flat surfaces while maintaining accessibility to the connectors. The economical cost can provide assurance of correct signal levels in nearly any stereo audio system. The FP-ALC2 may be mounted where needed, to rack sides or in an equipment rack (either the front or rear rack rails) using the RDL FP-RRA. Use the FP-ALC2 individually, or combine it with other RDL products as part of a complete audio/video system.

RDL • 850 N. 4th St. • Prescott, AZ., USA 86301 • (928) 443-8391 • FAX (928) 443-8392 • www.rdlnet.com

RMC 7/6/10
ACKM 7/6/10

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Radio Design Labs

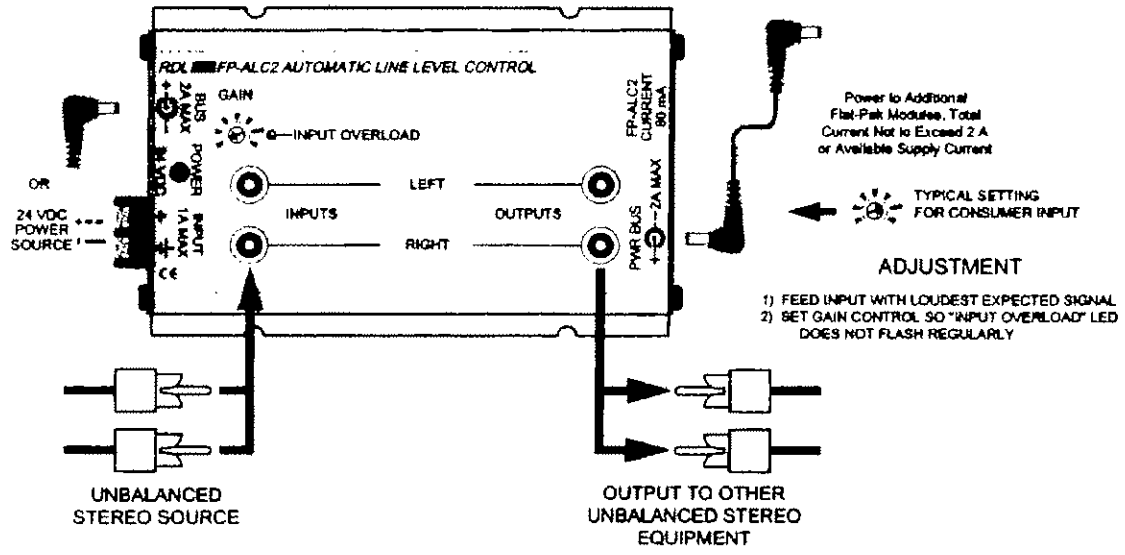
SPECIALISTS IN PRACTICAL PRECISION ENGINEERING ™

FLAT-PAK™ SERIES

Model FP-ALC2
Automatic Level Control

Installation/Operation

CE EN55103-1 E1-E5; EN55103-2 E1-E4
Typical Performance reflects product at publication time exclusive of EMC data, if any, supplied with product. Specifications are subject to change without notice



TYPICAL PERFORMANCE

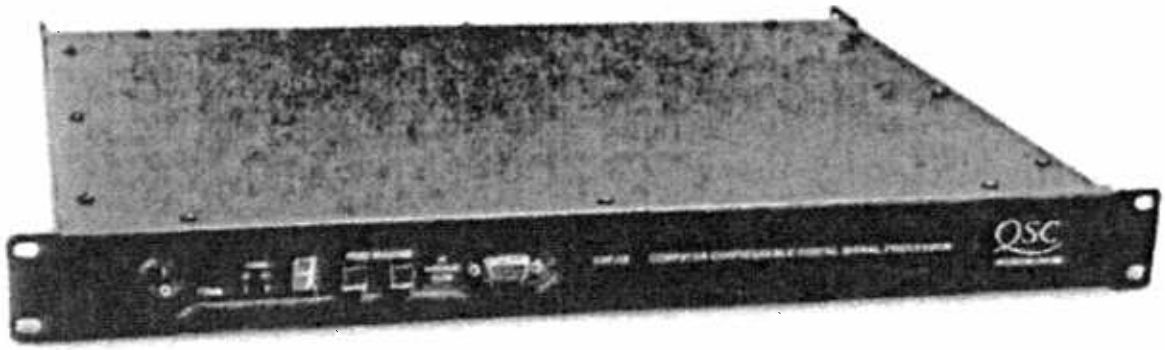
Inputs (2):	10 kΩ unbalanced phono jack
Input Level:	-10 dBV (nominal)
Output:	200 Ω unbalanced phono jack
Output Level:	-10 dBV
Automatic Level Range:	-30 to 0 dBV
Gate Threshold:	-40 dBV (20 Hz to 3 kHz)
Frequency Response (excluding AGC):	20 Hz to 20 kHz (+/- 0.5 dB)
THD+N (excluding AGC):	< 0.15% (20 Hz to 20 kHz)
Noise:	< -90 dB (below –10 dBV)
Crosstalk:	-75 dB (typical, 1 kHz)
Headroom:	> 18 dB
Indicator (1):	**INPUT OVERLOAD**
Power Requirement:	24 Vdc @ 80 mA, Ground-referenced
Overall Dimensions:	Height: 1.20 in. 3.05 cm
	Width: 3.25 in. 8.26 cm
	Length: 5.75 in. 14.61 cm

RMK 7/6/10
AC 7/6/10

QSC

DSP-30

Computer Configurable Digital Signal Processor



Featuring intuitive PC system configuration combined with "set-and-forget" convenience, the DSP-30 unites easy-to-use, customizable, two channel digital signal processing (DSP) with a simple preset selection interface that requires only two buttons. It can be used with all amplifiers and is housed in a 1RU, 19" rack mount steel chassis. Sampling frequency is 48 kHz with 24-bit resolution. Dynamic range is greater than 95 dB. Rugged and dependable in the spirit of all QSC professional audio products, the DSP-30 is well suited to a variety of applications including mobile DJ, club PA, and pro touring.

Powerful

The DSP-30's powerful processor enables a wide range of signal processing functions. Whether you need speaker crossovers, EQ, signal delay, or infrasonic filters, the DSP-30 is as flexible as your system's needs.

Each channel includes:

- Crossover filtering
- Compression and limiting
- Multiple Parametric EQs
- Precision attenuation
- Shelf filtering
- Mixing
- Multiple Delays (up to 910 ms)
- Tone and noise generation

Configurable

The DSP-30's processing horsepower is dynamically assignable, so you are not limited by a fixed signal chain. Simply use QSC's powerful PC-based Signal Manager software to easily configure multiple processing functions and signal flow with "drag-and-drop" tools. The DSP-30 provides eight fully configurable user presets, selectable from front-panel switches.

Cost-effective

The power and flexibility of the DSP-30 eliminates the need for individual outboard signal processors—reducing cost, space, and installation time for almost any application. Housed in a 1RU, 19-inch rack-mount steel chassis, it can be used with all audio systems.

RMK 7/6/10
ACM 7/6/10

DSP-30

Signal Processing Functions and Additional Features

Multiple Parametric Filters, assignable anywhere in the signal chain:

Variable Frequency	Variable Q
Variable Gain	Show Response

Multiple Delays, assignable anywhere in the signal chain
20.83 µsec incremental
910 msec maximum (total of all delays)

Compressor, assignable anywhere in the signal chain:

Gain	Release Time
Threshold	Show Response
Ratio	Bypass
Attack Time	

Output Peak Limiter, assignable anywhere in the signal chain:

Gain	Release Time
Threshold	Show Response
Attack Time	Bypass

High and Low-Pass Crossover Filters, assignable anywhere in the signal chain:
Butterworth 6, 12, 18, 24 dB per octave slope
Bessel 6, 12, 18, 24 dB per octave slope
Linkwitz-Riley 12 and 24 dB per octave slope

High and Low-Pass Shelf Filters, assignable anywhere in the signal chain:

Variable Corner Frequency	Variable Q
Variable Gain	Show Response

Signal Mute

Attenuation 0.1 dB steps

Mix Post Crossover Audio (2→1 Mixer)

Signal Splitter

Built-in Noise Generator (Pink & White)

Built-in Variable Frequency Tone Generator

Signal Polarity Reversal

Frequency Response readout for each filter

RMS and Peak Metering with Clip Indication

Add or delete up to 7 additional bands of "EQ" per filter block

Visual editing of composite filter response, using cursor controls in graphical display

Individual or group bypass of EQ bands per filter block

Predictive Delay Feature – produces less signal distortion than analog compressor/limiters – especially for fast attack times

Hardware

Two independent channels of DSP

48 kHz, 24-bit converters

No turn on pops or "zipper" noise

If the memory or hardware fails, unit turns on muted to prevent driver damage

Easy PC connection with front panel RS-232

Balanced Neutrik® Combo (XLR and 1/4") inputs and XLR outputs

Power and signal present LEDs with signal level

Numeric display indicates current preset

Eight fully configurable user presets

Preset Browse and Accept buttons with lock-out feature

Selectable input sensitivity: 1.5, 4, 9, 18 Vrms; 6, 14.5, 21.5, 27.5 dBu; 3.5, 12, 19, 25 dBV

Software

"Drag-and-drop" configuration software

Hard copy printout of configuration layout or parameter settings

DSP processing power and memory is dynamically assigned to signal processing functions – eliminating the limitations imposed by fixed signal chain designs

Graphical representation of DSP resources

Firmware upgrades via RS-232

Download the latest Signal Manager software at www.qscaudio.com

System Requirements

Windows® 98, NT4 (SP6), and 2000 (SP1)*

SVGA monitor at 800 x 600 (min.); 1024 x 768 recommended

CD-ROM drive

32 MB RAM (min.)

10 MB free hard disk space (min.)

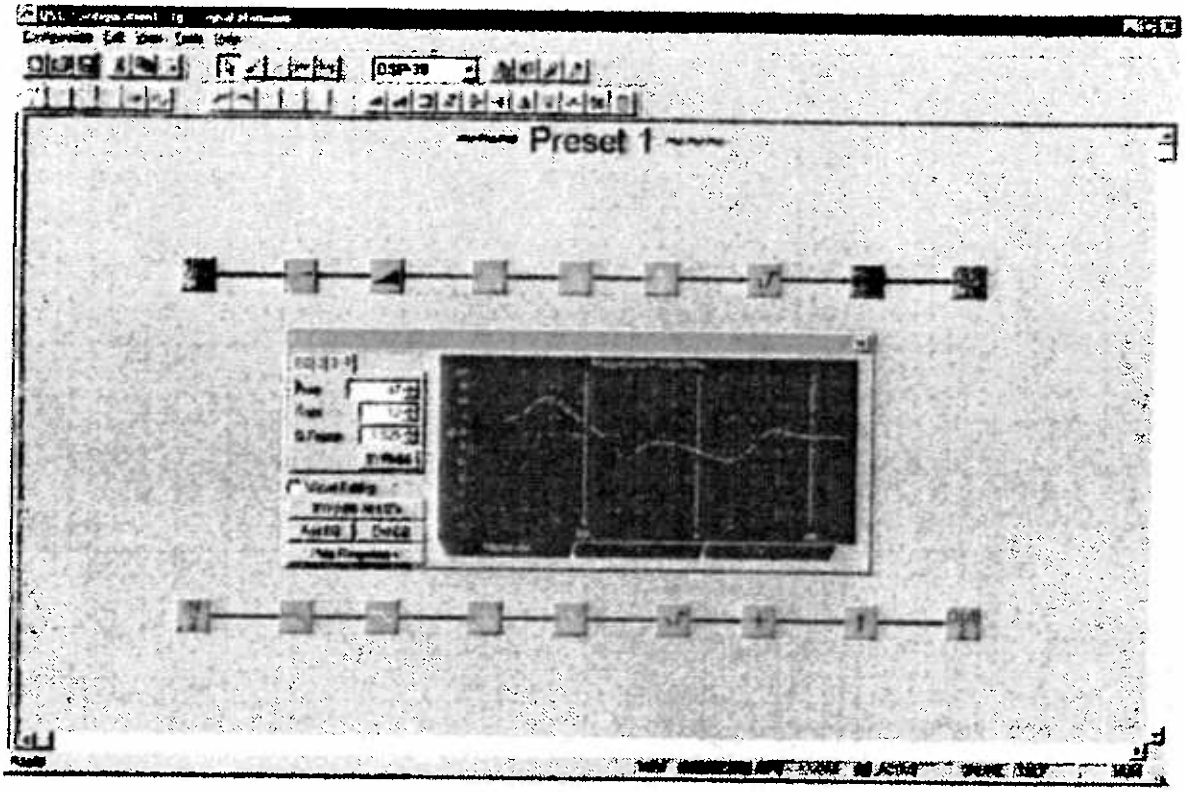
Available RS-232 COM port

Male to female 9-pin serial cable (for programming)

* *Windows Me not supported*

AQM 7/6/10

RMF 7/6/10



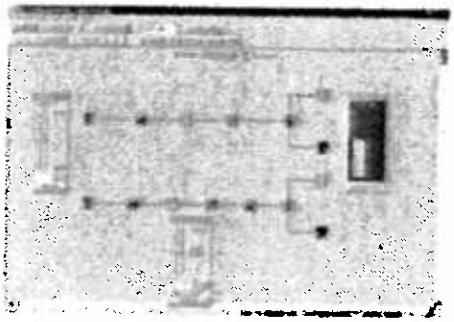
Signal Manager

Advanced "Drag and Drop" Software Configuration

DSP configuration is made simple with a PC-based "drag-and-drop" software program called Signal Manager. Users access a DSP "toolbox" and simple drawing tools to configure processing functions and signal flow. DSP processing power and memory is dynamically assigned to signal processing functions. Any combination of functions may be configured until the total capacity is used. DSP resources are graphically displayed at the bottom of the screen.

Configurations can be downloaded directly to the DSP-30 via an RS-232 serial connection. The software package also offers real-time control and set-and-forget convenience. Once saved, configurations (presets) can be recalled via the DSP-30's front panel switches-without the need for a computer.

The DSP is configured with an easy-to use software interface. Signal processing icons from the toolbar are dropped onto the workspace and the signal path is routed with simple drawing tools



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DSP-30

Specifications

Audio Converters	24 bit, 48 kHz
Frequency Response	20 Hz to 20 kHz ± 0.4 dB at 1 dB below full scale input voltage (all sensitivities)
Distortion	< 0.007% THD+N at 1 dB below full scale output (all sensitivities) 20 Hz to 20 kHz
Throughput Delay	1.00 milliseconds (A/D – DSP – D/A)
Dynamic Range (AES-17 -60 dB method)	> 95 dB unweighted, 1.5V, 4V and 9V input sensitivities | > 93 dB unweighted, 18V input sensitivities
Polarity	In-phase or inverted
Mute	> 95 dB attenuation
Indicators	Power: 1 blue LED | Channel 1 and Channel 2 signal level, 2 green LEDs | Preset Display: 7 segment LED

Input Sensitivity	Volts	dBU	dBV
Full scale sine wave RMS before clipping.	1.5	6.0	3.5
Full scale output voltage 9.3 Vrms.	4	14.5	12.0
	9	21.5	19.0
	18	27.5	25.0

Audio Input Connectors	
Program Inputs	2
Connector	Balanced Neutrik Combo
Type	Electronically balanced
Grounding	All shield terminals connected to chassis
Input Impedance	8.3k ohm balanced, 3.7k ohm unbalanced
Commom Mode Rejection	> 54 dB, 20 Hz – 20 kHz
Crosstalk (inter-channel within DataPort pair)	> 78 dB separation, 20 Hz - 20 kHz
Audio Output Connectors	
Program Outputs	2
Connector	3-pin male XLR receptacle
Type	Electronically balanced
Grounding	All shield terminals connected to chassis
Output Level	Level and units are selectable in software interface
Maximum Output (full scale)	9.3 Vrms (+21.5 dBu), THD < 1.0%
Output Pad	-6 dB
Output Impedance	600Ω balanced
Power Amplifier Interface - compatibility	Works with all professional audio products
RS-232 Port	
Port Type	RS-232, female
Cable Type	9-pin serial cable, male-to-female (serial extension cable)
Maximum Length	25 feet (7.6 meters)
Contact Closure Input	
Inputs	1 discrete input (pin #9 of RS-232 port)
Configuration	Single-ended input, pull LOW (to GND, pin5) for closure detect
Resistance for closure detect	< 150Ω
Resistance for open detect TTL compatible thresholds with 9V DC max input	> 1.9k ohms
Physical	
Chassis	Steel (chassis and covers)
Dimensions (HWD)	1.73" (4.39 cm) x 18.9" (48.0 cm) including rack ears x 14.9" (37.8 cm) including rack ears / 13.7" (34.8 cm) excluding rack ears
Weight - Net / Shipping	9.5 lbs (4.31 kg) / 12.5 lbs (5.67 kg)
Mounting	May be rack mounted or may be used separate from rack
Operating Temperature	0° to 50° Celsius
Internal Power Requirements	
AC Input Voltage	Autodetect 100-240 VAC
AC Input Current	0.3 A RMS
Frequency	50 to 60 Hz
Power Cord	IEC type detachable 6 ft. cord

Ackel 7/6/10
Rmk 7/6/10

CX 2-channel
Professional Power Amplifiers

CX302 | CX502 | CX702 | CX902 | CX1102 | CX302V | CX602V | CX1202V

All models include an integrated security cover for tamper-proof installations

The CX Series is designed to meet the specialized needs of sound contractors. Eight 2-channel models have been designed from the ground up, combining the exclusive QSC PowerLight™ technology with specific features to meet the requirements of fixed installations.

With high-output power, versatile loading options, high thermal capacity and unmatched reliability, the CX Series is the perfect solution to any permanently installed sound system.

CX 2-channel Amplifiers

		Watts per channel		
Model	70 V*	8Ω**	4Ω**	2Ω†
CX302	–	200	325	600
CX502	–	300	500	800
CX702	–	425	700	1200
CX902	440	550	900	1500
CX1102	1000	700	1100	1700
CX302V	250	–	–	–
CX602V	440	550	–	–
CX1202V	1000	700	1100	–

*1 kHz, 0.05% THD
**20 Hz - 20 kHz, 0.05% THD
†1 kHz, 1% THD

Features

- 8 models to meet your exact power requirements
- Exclusive PowerLight switch-mode power supply technology for high performance and compact size
- Custom integrated security cover for tamper proof installations
- Variable speed fan for low noise
- 1 dB detented gain controls for fast and accurate gain settings
- Active inrush limiting eliminates AC inrush current, removing the need for expensive power sequencers
- XLR and detachable Euro-style input connectors
- HD15 DataPort connector for QSControl computer control or signal processing accessories
- Dip switch control for clip limiters, high-pass filters, bridge-mono and parallel operation
- Selectable high-pass filters protect speakers and prevent speaker transformer saturation with minimal effect on program material (33 Hz or 75 Hz on non-V models, 50 Hz or 75 Hz on V models)
- Comprehensive front panel indicators including signal, clip, protect and QSC's exclusive bridge-mono and parallel input LEDs
- Barrier strip output connector
- Comprehensive protection circuitry including DC, infrasonic, thermal overload and short circuit protection
- Class H complementary bipolar output circuitry for high efficiency (CX702, CX902, CX1102 & CX1202V)
- Optional external transformer accessory pack for isolated 70 and 100 volt outputs (converts CX302 to 400 watts per channel isolated output)
- Compact size – all models only 2 RU and 14" deep for reduced rack cost and floor space
- Lightweight – all models only 21 pounds (9.5 kg) for easier racking and shipping
- 3-year warranty plus optional 3-year extended service contract

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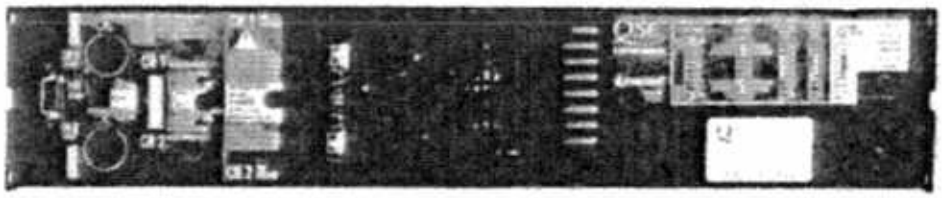
CX 2-Channel

Specifications

		CX302	CX502	CX702	CX902	CX1102	CX302V	CX602V	CX1202V
Stereo Mode (both channels driven)					Continuous average output power per channel				
8Ω / 20 Hz - 20 kHz / 0.05% THD		200 W	300 W	425 W	550 W	700 W	-	550 W	700 W
4Ω / 20 Hz - 20 kHz / 0.05% THD		325 W	500 W	700 W	900 W	1100 W	-	-	1100 W
2Ω / 1 kHZ / 1% THD		600 W	800 W	1200 W	1500 W	1700 W	-	-	-
70V / 20 Hz - 20 kHz / 0.05% THD		-	-	-	400 W	800 W	200 W	400 W	800 W
70V / 1 kHz / 0.05% THD		-	-	-	440 W	1000 W	250 W	440 W	1000 W
70V / 1 kHz / 1% THD		-	-	-	600 W	1200 W	300 W	600 W	1200 W
Bridge-Mono Mode					Bridge-mono mode operation				
16Ω / 20 Hz - 20 kHz / 0.1% THD		400 W	600 W	850 W	1100 W	1400 W	-	1100 W	1400 W
8Ω / 20 Hz - 20 kHz / 0.1% THD		700 W	1100 W	1500 W	2000 W	2200 W	-	-	2200 W
4Ω / 1 kHz / 1% THD		1200 W	1600 W	2400 W	3000 W	3400 W	-	-	-
140V / 20 Hz - 20 kHz / 0.1% THD		-	-	-	800 W	1600 W	400 W	800 W	1600 W
140V / 1 kHz / 0.05% THD		-	-	-	880 W	2000 W	500 W	880 W	2000 W
140V / 1 kHz / 1% THD		-	-	-	1200 W	2400 W	600 W	1200 W	2400 W
Signal to Noise (20 Hz - 20 kHz)		> -107 dB	> -107 dB	> -106 dB	> -106 dB	> -106 dB	> -106 dB	> -106 dB	> -106 dB
Input Sensitivity at 8Ω		1.26 Vrms	1.23 Vrms	1.16 Vrms	1.17 Vrms	1.35 Vrms	1.26 Vrms	1.26 Vrms	1.26 Vrms
Gain at 8Ω		30 dB	32 dB	34 dB	35 dB	35 dB	35 dB	35 dB	35 dB
Output Circuitry		Class AB+B	Class AB+B	2-tier Class H	2-tier Class H	2-tier Class H	Class AB+B	Class AB+B	2-tier Class H
Distortion (SMPTE-IM)		< 0.02%							
Distortion (typical)									
20 Hz - 20 kHz 10 dB below rated power		< 0.01% THD							
1.0 kHz and below, full rated power		< 0.01% THD							
Frequency Response		20 Hz - 20 kHz, ± 0.2 dB							
Damping Factor		> 500							
Input Impedance		6k ohms unbalanced, 12k ohms balanced							
Input Clipping		30 Vrms (+22 dBu)							
Cooling		Variable-speed fan, rear-to-front air flow							
Connectors		Input: 3-pin XLR & 3-pin detachable terminal blocks (1 each per channel) Output: Safety shrouded barrier strip							
Amplifier Protection		Full short circuit, open circuit, thermal, ultrasonic, RF protection. Stable into reactive or mismatched loads							
Load Protection		On/off muting, DC-fault power supply shutdown							
Dimensions (HWD)		3.5" (8.9 cm) 2 RU x 19" (48.3 cm) rack mounting x 14" (35.6 cm) from front mounting rails							
Weight - Net / Shipping		21 lb (9.5 kg) / 27 lb (12.3 kg)							
120V Current Consumption	Idle	0.8 A	0.9 A	0.9 A	0.9 A	0.9 A	0.8 A	0.9 A	0.9 A
1/8 power pink noise (typical of program material at maximum undistorted power)	8Ω	3.8 A	5.6 A	5.0 A	6.0 A	7.6 A	-	-	-
	4Ω	6.0 A	9.0 A	7.9 A	9.5 A	11.6 A	-	-	-
	2Ω	9.6 A	14.0 A	11.8 A	14.0 A	16.6 A	-	-	-
	70V	-	-	-	-	-	5.7 A	8.7 A	12.0 A
1/3 power pink noise (typical of program material with severe clipping)	8Ω	5.4 A	8.0 A	8.4 A	11.0 A	13.1 A	-	-	-
	4Ω	8.9 A	13.3 A	13.5 A	17.0 A	20.0 A	-	-	-
	2Ω	14.3 A	21.0 A	22.0 A	27.0 A	-	-	-	-
	70V	-	-	-	-	-	8.0 A	13.0 A	19.0 A



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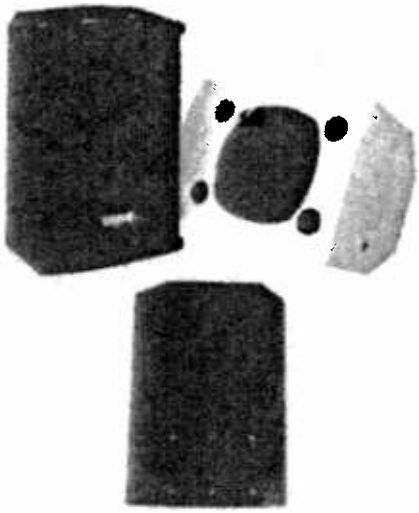
V8

TANNOY



V8 is a high quality installation loudspeaker that provides a compact, yet punchy, solution for high performance music and speech reproduction in small to medium sized venues. This versatile design also has, due to acoustic matching to other V Series models, a wide range of other applications in more space-restricted areas within larger installations.

The high power handling 200mm (8.00") version of Tannoy's exclusive point source, constant directivity Dual Concentric™ drive unit technology, with it's reinforced paper cone LF, twin roll cambric surround and 25mm (1.00") titanium domed, neodymium magnet system HF, ensures high power output with high sensitivity. With the HF mounted in the throat of the LF driver these two sources are coincidentally aligned into a single point source. This is a configuration, exclusive to the Dual, delivers a smooth and uniform frequency response over a wide area. The CAD designed Tulip WaveGuide™ for the HF unit combines 90 degree conical dispersion, for optimum coverage, exceptional forward gain and excellent acoustic impedance characteristics. The dispersion characteristics of the Dual enhance speaker placement flexibility; allowing vertical or horizontal mounting of single or multi-cabinet arrays without any compromise to sound quality.

This conical coverage pattern makes the V8 an ideal low profile stage monitor; the exceptionally wide dispersion allowing the performer greater freedom of movement than allowed by conventional horn loaded designs. An inherent feature of this point source Dual Concentric™ driver design is that clusters and arrays have minimal lobing, and this is achieved without the use of any electronic signal processing.

The convenient aspect ratio of the asymmetric design of the multi layer birch ply cabinet allows installation in a wide range of configurations. Available in black or white, the V8 has a range of colour matched Secure-ET™ hardware options to allow yoke, wall mount, ceiling saddle or cluster bar arrangements of 2, 3 or 4 units. Although designed to perform without any external controller, the addition of one of the Tannoy digital system controllers will further enhance performance by equalising the system to improve bass performance; this as well as providing a 2-way crossover function to facilitate use with a separate subwoofer system.

- 200mm (8.00") point source Dual Concentric™ driver
- 90 degree controlled conical dispersion for optimum coverage and forward gain
- Compact, versatile enclosure
- High power handling
- High efficiency and low distortion
- Rugged birch plywood construction
- Convenient aspect ratio
- Integral carrying handle
- Integral flying points
- Secure-ET™ mounting options
- Five year loudspeaker warranty

- Live sound reinforcement
- High quality public address
- Theme pubs and nightclubs
- Theatre front of house and effects
- Movie theatre and cinema
- Side fill in large-scale music reinforcement
- Theme parks and leisure venues
- Sports and multi-use stadiums
- Audio visual
- Houses of worship

Tannoy United Kingdom	T: 00 44 01 1236 420199	E: enquiries@tannoy.com
Tannoy North America	T: 00 (519) 745 1158	E: enquiries@tannoyna.com
Tannoy Deutschland	T: 00 49 (180) 1111 881	E: anfragen@tannoy.com
Tannoy France	T: 00 33 01 7036 7473	E: vente@tannoy.com

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Tannoy adopts a policy of continuous improvement and product specification is subject to change

V8 data file w issue 1.05 6.16.01.08

Rulk 7/6/10

V8

TANNOY

TECHNICAL SPECIFICATIONS

System	V8
Frequency Response (-3dB) [1]	85Hz - 22kHz
Frequency Range (-10dB) [1]	62Hz - 30kHz
System Sensitivity (1W @1m) [2]	92dB (1W = 2.83V for 8 Ohms)
Dispersion (-6dB)	90 degrees conical
Driver Complement	Point source Dual Concentric™
Low frequency section	200mm (8.00")
High frequency section	25mm (1.00")
Crossover	Passive 1.7kHz with dynamic HF protection
Directivity Factor (Q)	6.8 averaged 1kHz to 10kHz
Directivity Index (DI)	7.9 averaged 1kHz to 10kHz
Rated Maximum SPL [2]	
Average	113dB
Peak	119dB
Power Handling	
Average	130W
Programme	260W
Peak	520W
Recommended Amplifier Power	260W @ 8 Ohms
Nominal Impedance	8 Ohms

Distortion

10% Full Power (10.2V)	2nd Harmonic	3rd Harmonic
250Hz	0.12%	0.15%
1kHz	0.23%	0.64%
10kHz	1.35%	0.16%

1% Full Power (3.2V)	2nd Harmonic	3rd Harmonic
250Hz	0.16%	0.14%
1kHz	0.09%	0.53%
10kHz	0.53%	0.17%

Construction	
Enclosure	17 litre vented, internally braced 15mm (0.62") birch plywood cabinet with 15mm (0.62") MDF front baffle.
Certification	DIN 18 032 part 3 (April 1997)
Finish	Textured black or white paint, with custom colours available on request. Foam covered, powder coated perforated steel grille
Connectors	2 x Speakon NL4MP
Fittings	4 x M10 Flying inserts, 2 x M10 yoke bracket inserts 1 x recessed carrying handle Blanking plate for optional VTH pole mount
Optional Accessories	Black or white power coated perforated steel grille
Dimensions	386 x 280 x 275mm (H x W x D) 15.28 x 11.02 x 10.83" (H x W x D)
NET Weight	8.2kg (18.0lbs)

Notes:
(1) Average over stated bandwidth. Measured at 1 metre on axis
(2) Unweighted pink noise input, measured at 1 metre in an anechoic chamber

A full range of measurements, performance data, CLF and Essa™ Data can be downloaded from www.tannoy.com

Full independent verification of published specifications carried out by NWAA Labs, California can also be obtained from the downloads section of www.tannoy.com

Tannoy operates a policy of continuous research and development. The introduction of new materials or manufacturing methods will always equal or exceed the published specifications, which Tannoy reserves the right to alter without prior notice. Please verify the latest specifications when dealing with critical applications

Ordering Information

PART NUMBER	MODEL NAME	COLOUR	PACKED QUANTITY
8001 2610	V8	Black	1
8001 2650	V8	White	1

Tannoy United Kingdom T: 00 44 (0) 1236 420199 E: enquiries@tannoy.com
Tannoy North America T: 00 1 (519) 745 1158 E: inquiries@tannoyna.com
Tannoy Deutschland T: 00 49 (180) 1111 881 E: anfragen@tannoy.com
Tannoy France T: 00 33 (0)1 7036 7473 E: ventes@tannoy.com

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V8 data file / issue 1.08 / 19.01.08

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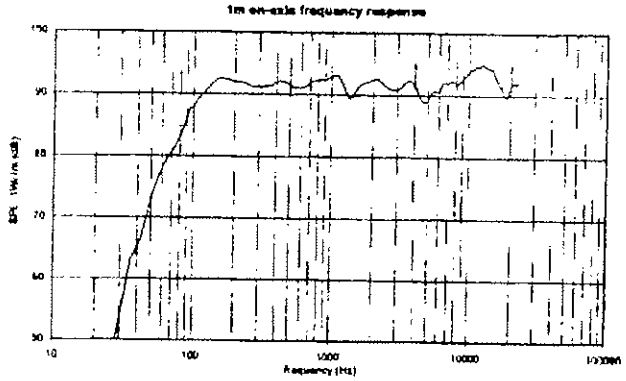
RMC 7/6/10

V8

TANNOY

PERFORMANCE MEASUREMENTS



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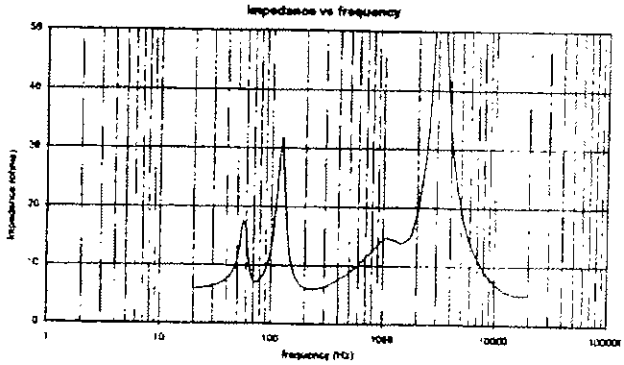

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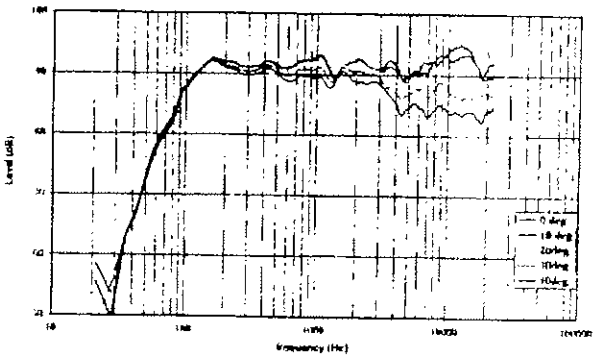

OFF AXIS RESPONSE

Tannoy United Kingdom T 00 44 (0) 1236 420199 E enquiries@tannoy.com
Tannoy North America T 00 1 (519) 745 1158 E enquiries@tannoyna.com
Tannoy Deutschland T 00 49 (180) 1111 881 E anfragen@tannoy.com
Tannoy France T 00 33 (0)1 7036 7473 E ventes@tannoy.com

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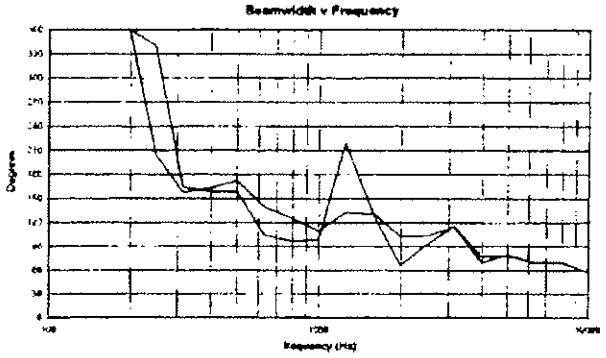
PERFORMANCE MEASUREMENTS



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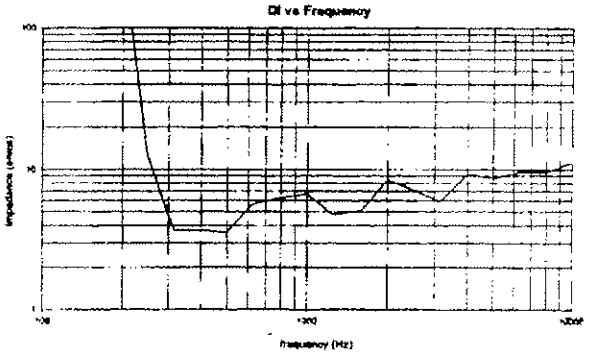

DIRECTIVITY INDEX

Tannoy United Kingdom T 00 44 (0) 1236 420199 E enquiries@tannoy.com
Tannoy North America T 00 1 (519) 745 1158 E inquiries@tannoyna.com
Tannoy Deutschland T 00 49 (180) 1111 881 E anfragen@tannoy.com
Tannoy France T 00 33 (0)1 7036 7473 E vertes@tannoy.com

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RMK 7/6/10

V8

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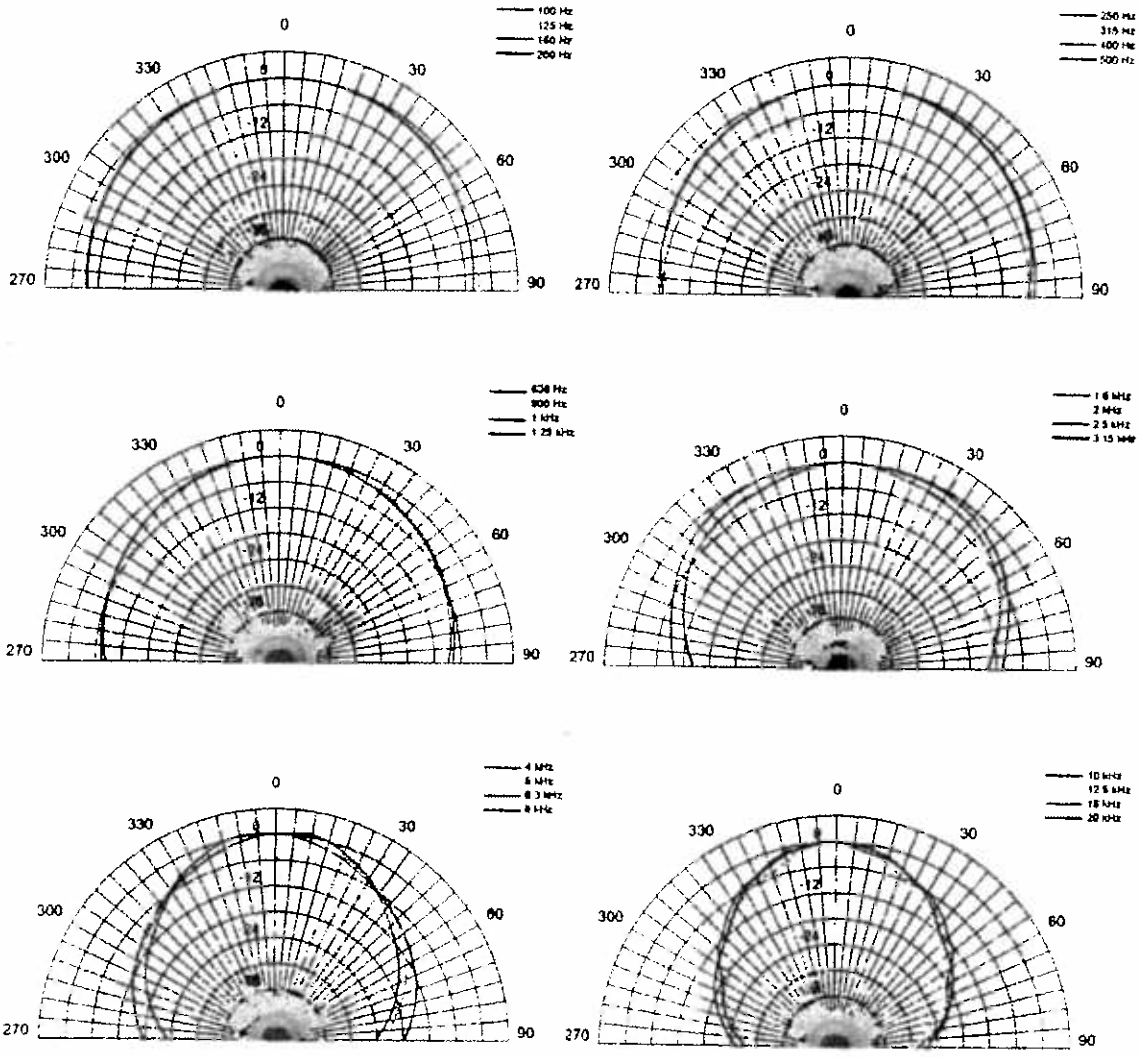
PERFORMANCE MEASUREMENTS POLAR PLOTS (1/3 OCTAVE)



Tannoy United Kingdom T: 00 44 (0) 1236 420199 E: enquiries@tannoy.com
Tannoy North America T: 00 1 (519) 745 1158 E: mountain@tannoyna.com
Tannoy Deutschland T: 00 49 (180) 5 111 881 E: anfragen@tannoy.com
Tannoy France T: 00 33 (0) 1 7636 7473 E: enquiries@tannoy.com

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V8 data file – issue 1.00 – 15.01.08

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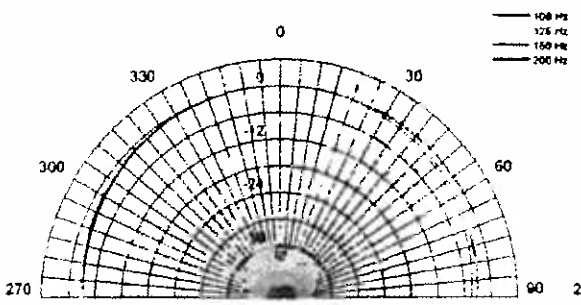
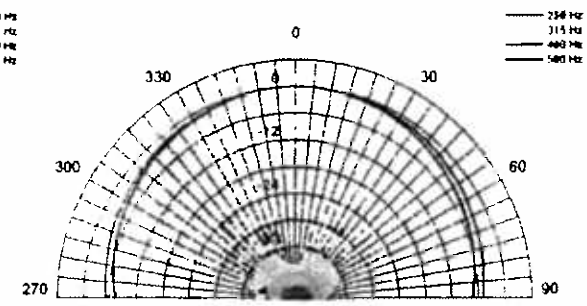
RMK 7/6/10

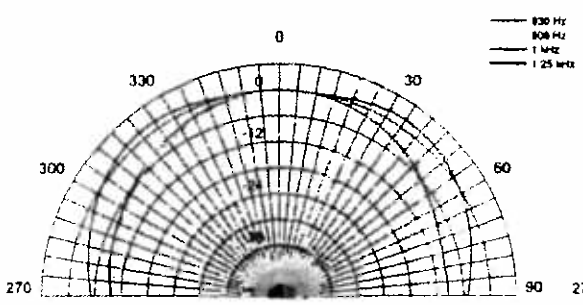
V8

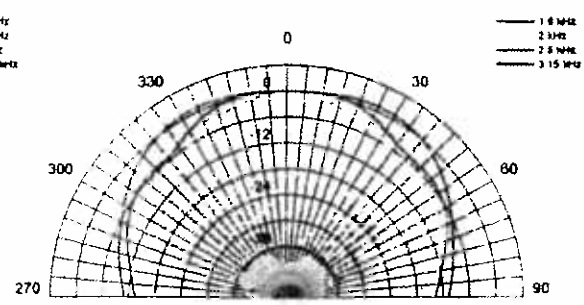
TANNOY

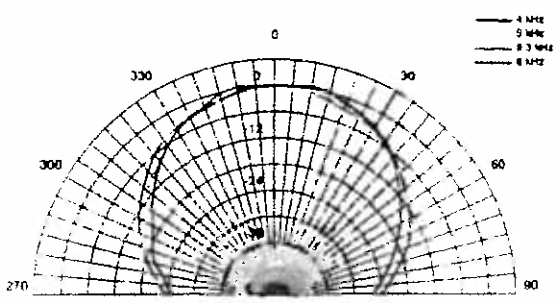
PERFORMANCE MEASUREMENTS

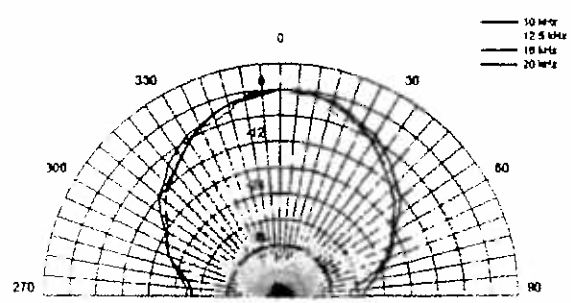












Tannoy United Kingdom T 00 44 (0) 1226 420199 E enquiries@tannoy.com
Tannoy North America T 00 1 (519) 745 1158 E inquiries@tannoyna.com
Tannoy Deutschland T 00 49 (180) 1 11 881 E anfragen@tannoy.com
Tannoy France T 00 33 (0) 7036 7473 E ventes@tannoy.com

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V8 data file 2 issue 1.06 = 15.01.08

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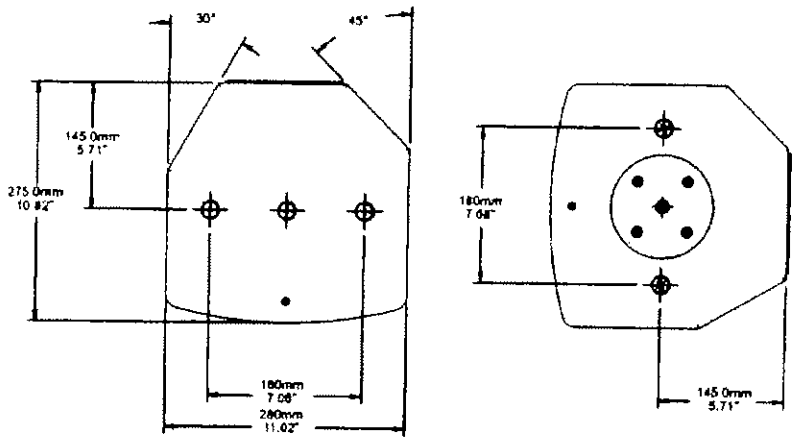
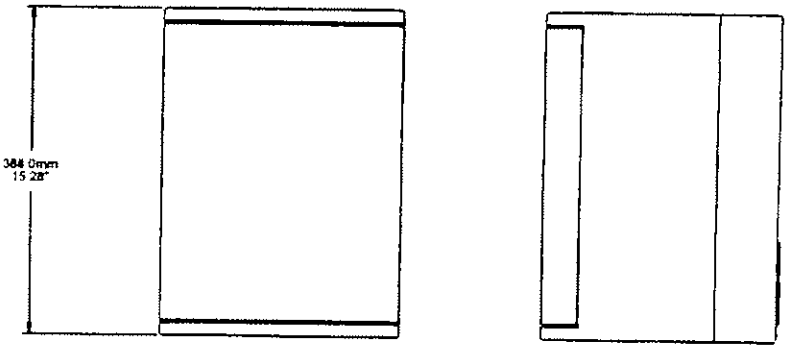
RMK 7/6/10

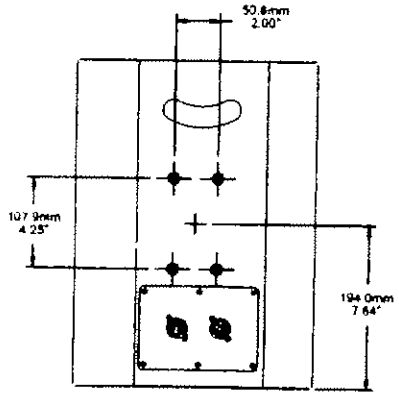
V8

TANNOY

DIMENSIONAL SKETCHES







Tannoy United Kingdom T: 00 44 (0) 1236 420199 E: enquiries@tannoy.com
Tannoy North America T: 00 1 (519) 745 1158 E: industrial@tannoyna.com
Tannoy Deutschland T: 00 49 (180) 1 111 88 E: anfragen@tannoy.com
Tannoy France T: 00 33 (0) 1 7036 7473 E: ventes@tannoy.com

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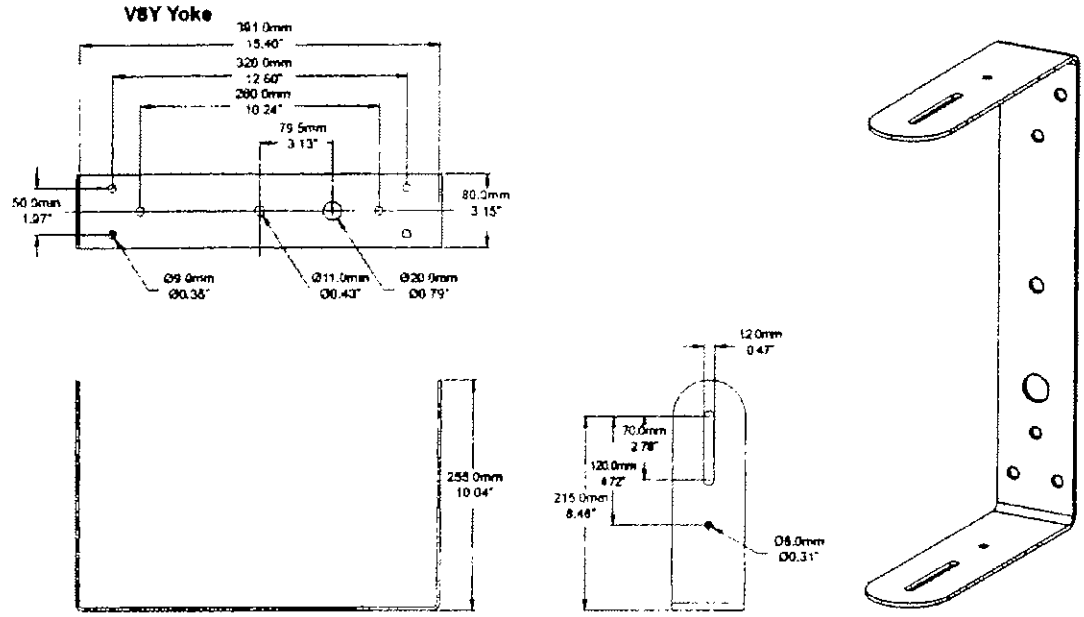
V8

TANNOY

MOUNTING OPTIONS DIMENSIONAL SKETCHES

V8Y Yoke



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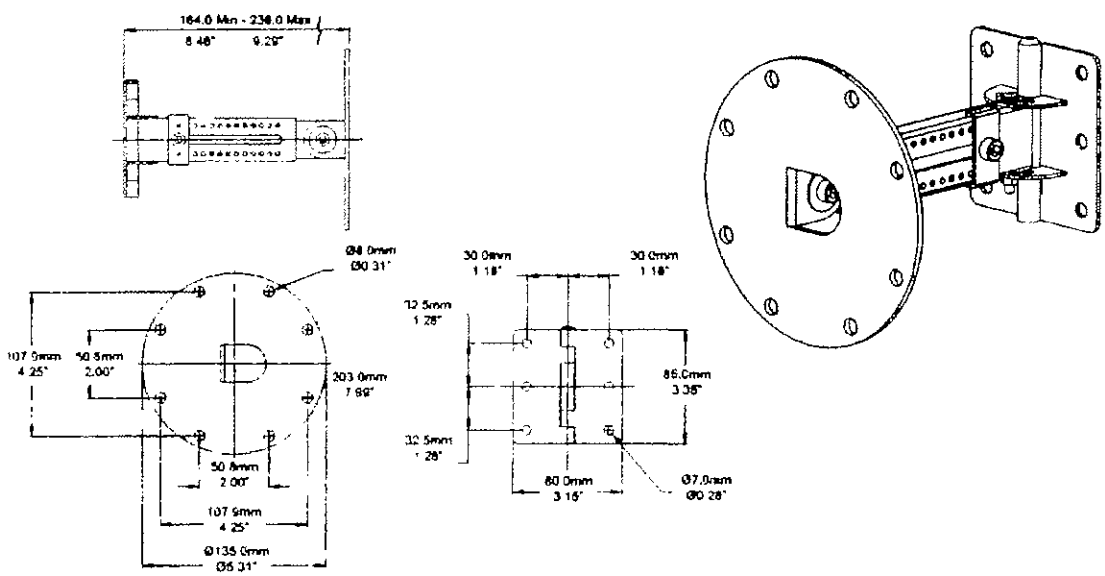

SPEAKER END OF MOUNTING BRACKET

WALL END OF MOUNTING BRACKET

Tannoy United Kingdom T 00 44 (0) 1236 420199 E enquiries@tannoy.com
Tannoy North America T 00 1 (519) 745 1158 E enquiries@tannoyna.com
Tannoy Deutschland T 00 49 (180) 1111 881 E anfragen@tannoy.com
Tannoy France T 00 33 (0)1 7036 7473 E ventes@tannoy.com

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RMC 7/6/10

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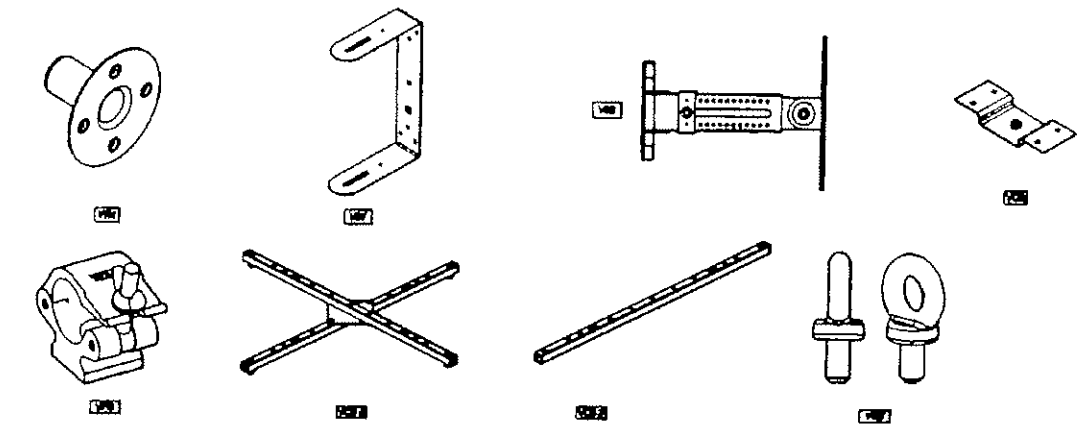
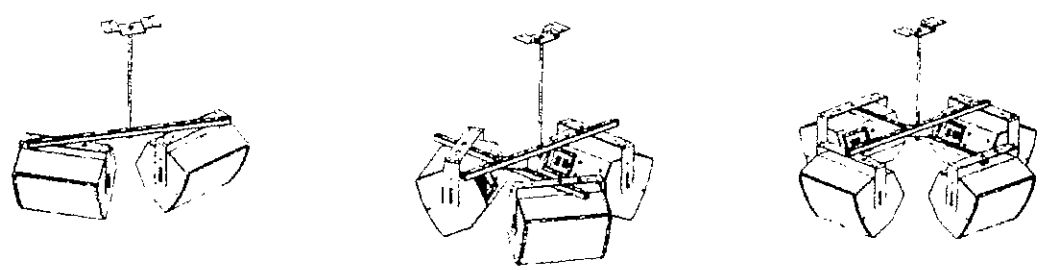
V8

TANNOY

MOUNTING OPTIONS ORDERING INFORMATION





V8 Cluster x 2 V8 Cluster x 3 V8 Cluster x 4

Ordering Information

PART NUMBER	MODEL NAME	COLOUR	PACKED QUANTITY
8001 2700	V8Y	Black	1
8001 2710	V8Y	White	1
8001 2720	V8B	Black	1
8001 2730	V8B	White	1
8001 2740	VCB 2	Black	1
8001 2750	VCB 2	White	1
8001 2760	VCB 4	Black	1
8001 2770	VCB 4	White	1
8001 2820	VEB	-	1
8001 2830	VCS	Black	1
8001 2840	VCS	White	1
8001 2860	VTH	Black	1
8001 2870	VTH	White	1
8001 2850	VPC	-	1
8001 3270	Grille V8	Black	1
8001 3271	Grille V8	White	1

Tannoy United Kingdom T 00 44 (0) 1236 420199 E emjuinus@tannoy.com
Tannoy North America T 00 1 (519) 745 1158 E inquiries@tannoyna.com
Tannoy Deutschland T 00 49 (180) 1111 881 E anfragen@tannoy.com
Tannoy France T 00 33 (0)1 7036 7473 E ventes@tannoy.com

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The loudspeaker shall consist of a 200mm (8.00") full range, single point source Dual Concentric™ transducer. The low and the high frequency elements shall be combined by an internal passive crossover network operating at 1.7kHz, with 2nd order high pass, 2nd order low pass. A configurable switching arrangement on the input panel allows the user to select between full range passive or bi-amped two way powering modes.

Performance of the loudspeaker, without any electronic control shall meet or exceed the following criteria: frequency response measured at 1 metre on axis with swept sine wave shall be 65Hz - 22kHz (+/-3dB). Sensitivityshall be at least 92dB (anechoic) for 2.83 volts @ 1 metre and shall be capable of producing a peak output level of 119dB (anechoic) on axis at 1 metre.

The dispersion of the loudspeaker shall be 90 degrees conical (-6dB). The system shall have a nominal impedance of 8 Ohms, maximum power handling shall be 520 Watts (programme). The enclosure shall be an optimally tuned 37.5 litre vented enclosure of birch plywood construction. The enclosure shall be fitted with an integral carrying handle, blanked off recess for optional pole-mount socket installation, 2 x M10 bracket inserts for landscape or portrait mounting and 4 x M10 mounting points for flying hardware. The enclosure shall not exceed the following dimensions:
388 x 280 x 275mm or 15.28 x 11.02 x 10.83" (H x W x D)

The loudspeaker shall be the Tannoy...V8.

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NOTES

Tannoy United Kingdom T 00 44 (0) 1236 420199 E enquiries@tannoy.com
Tannoy North America T 00 1 (519) 745 1158 E inquiries@tannoyna.com
Tannoy Deutschland T 00 49 (180) 1111 881 E anfrage@tannoy.com
Tannoy France T 00 33 (0)1 7036 7473 E vertes@tannoy.com

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512 Greene Street Bar - Sound System Design and Specification

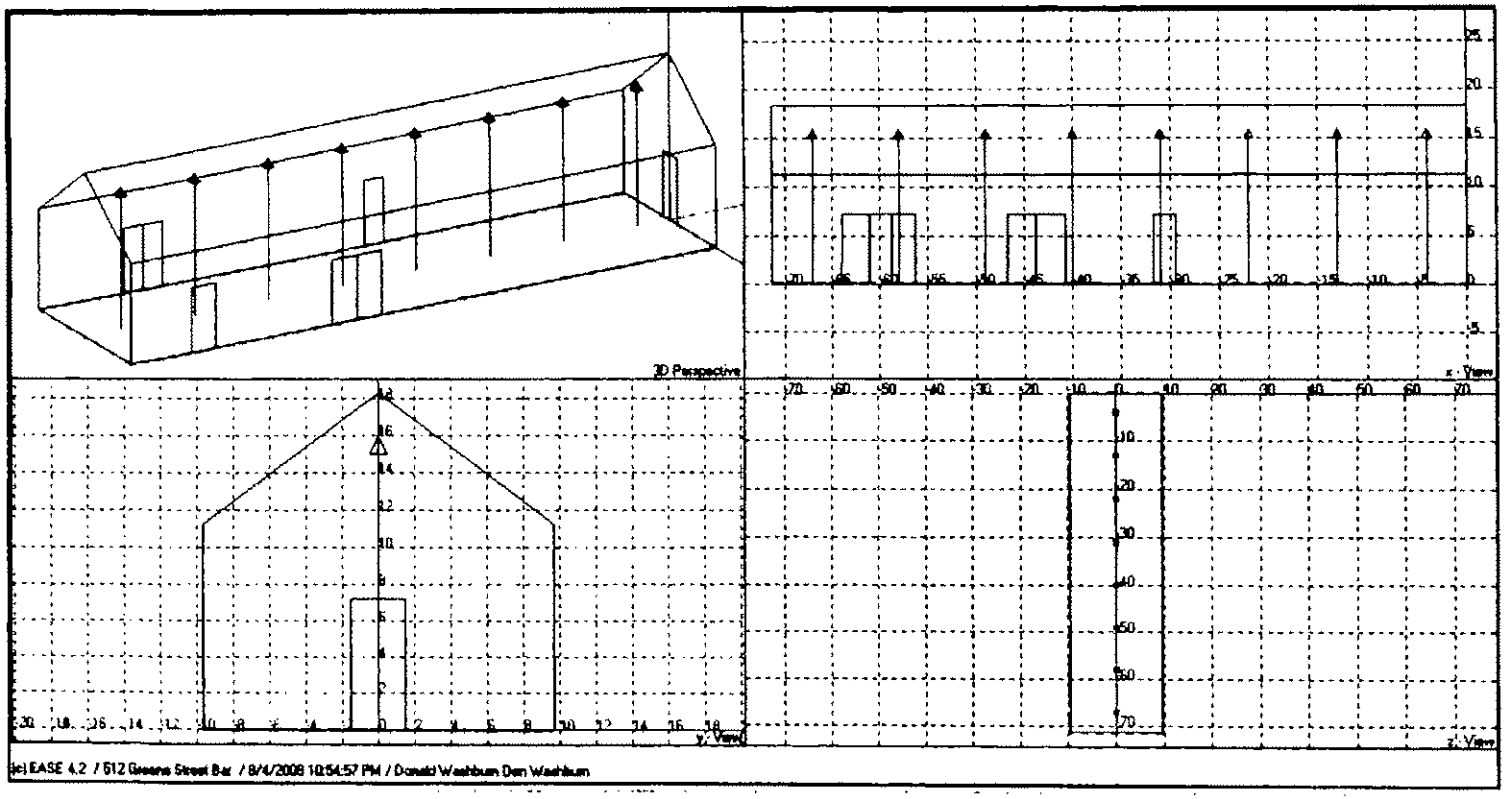

Figure 1 - OmniView of Greene Street Bar as rendered in EASE 4.2

512 Greene Street Bar - Sound System Design and Specification

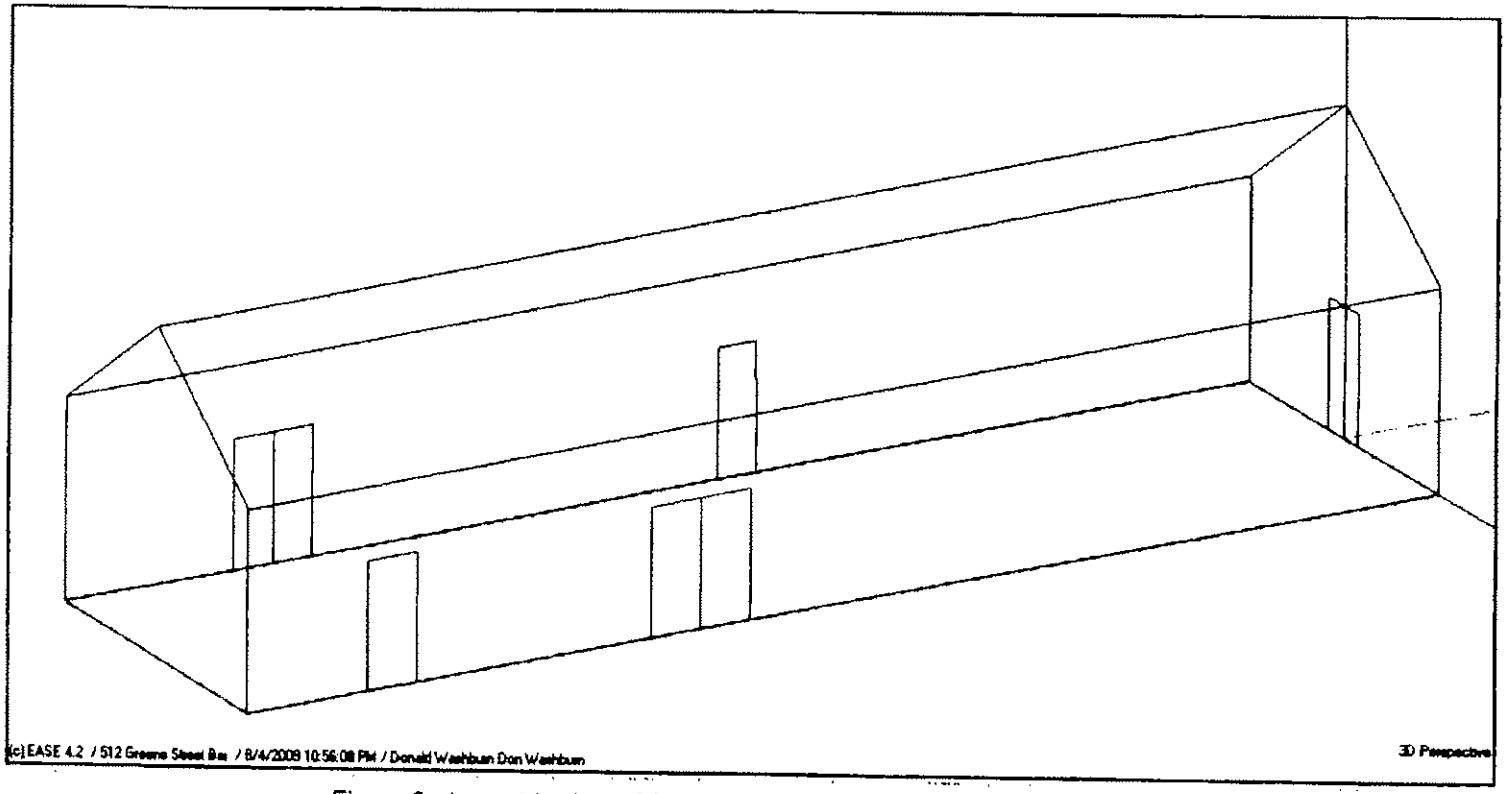

Figure 2 - Isometric view of Greene Street Bar as rendered in EASE 4.2

512 Greene Street Bar - Sound System Design and Specification

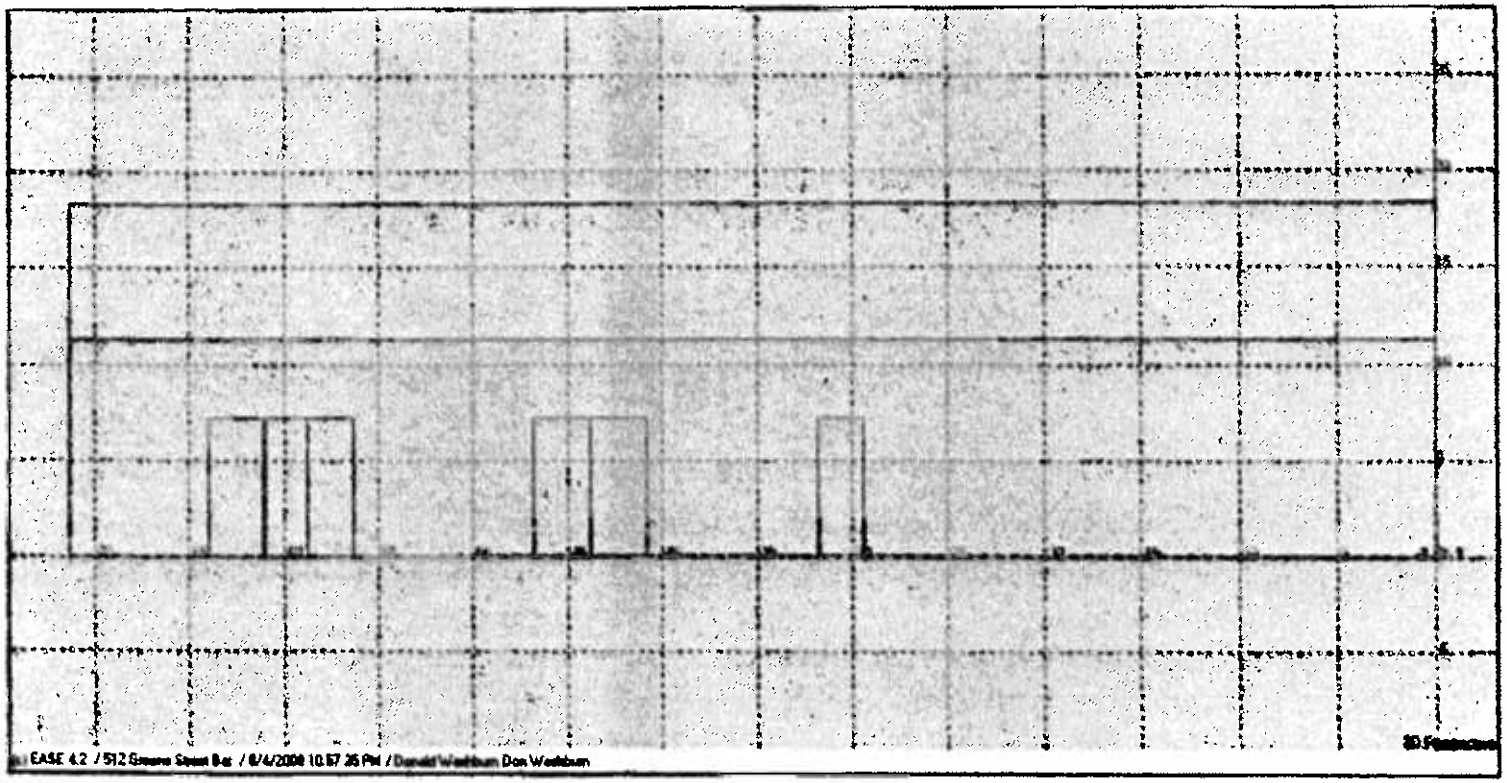

Figure 3 - Side elevation view of Greene Street Bar as rendered in EASE 4.2

512 Greene Street Bar - Sound System Design and Specification

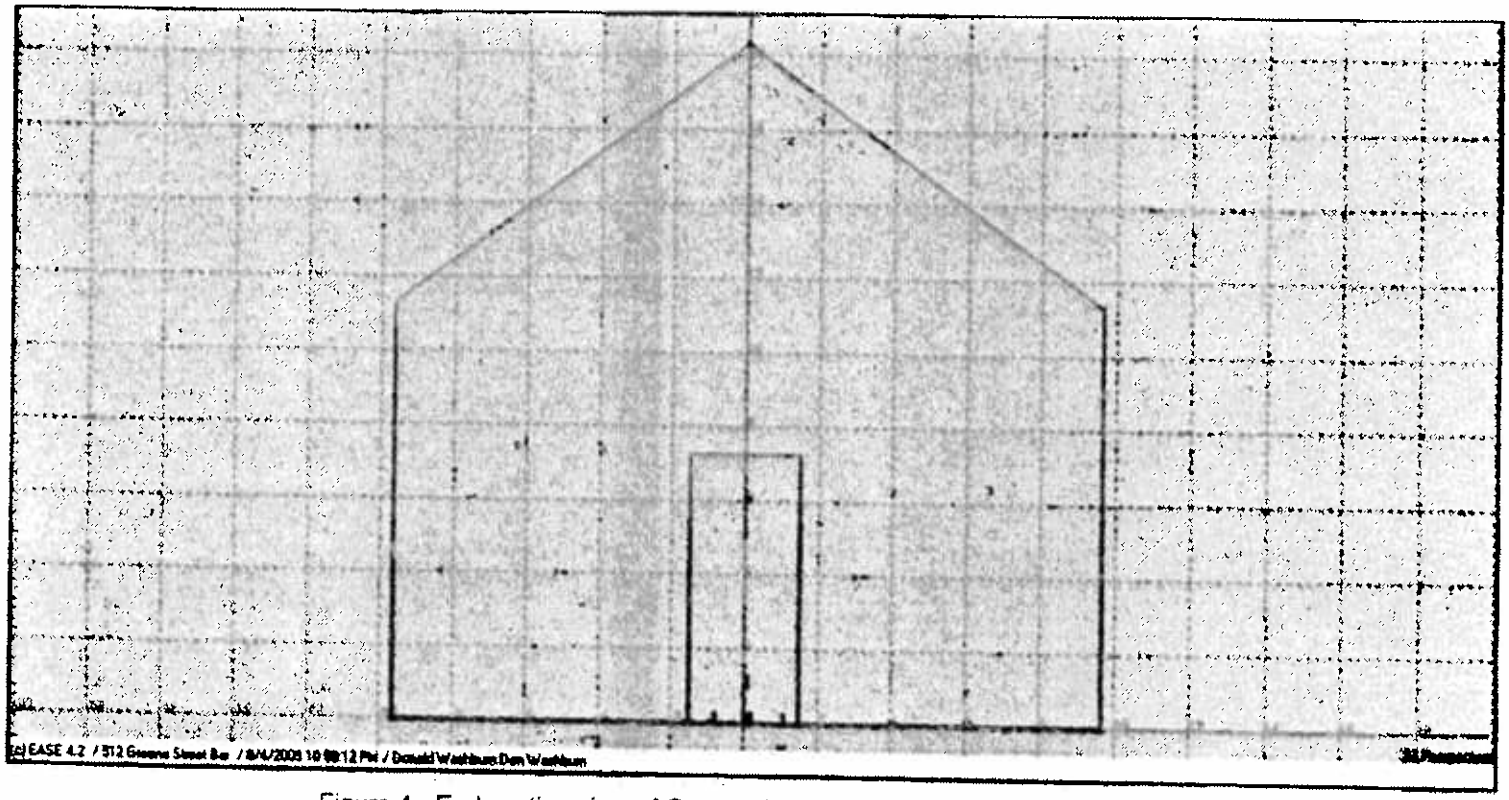

Figure 4 - End section view of Greene Street Bar as rendered in EASE 4.2

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512 Greene Street Bar - Sound System Design and Specification

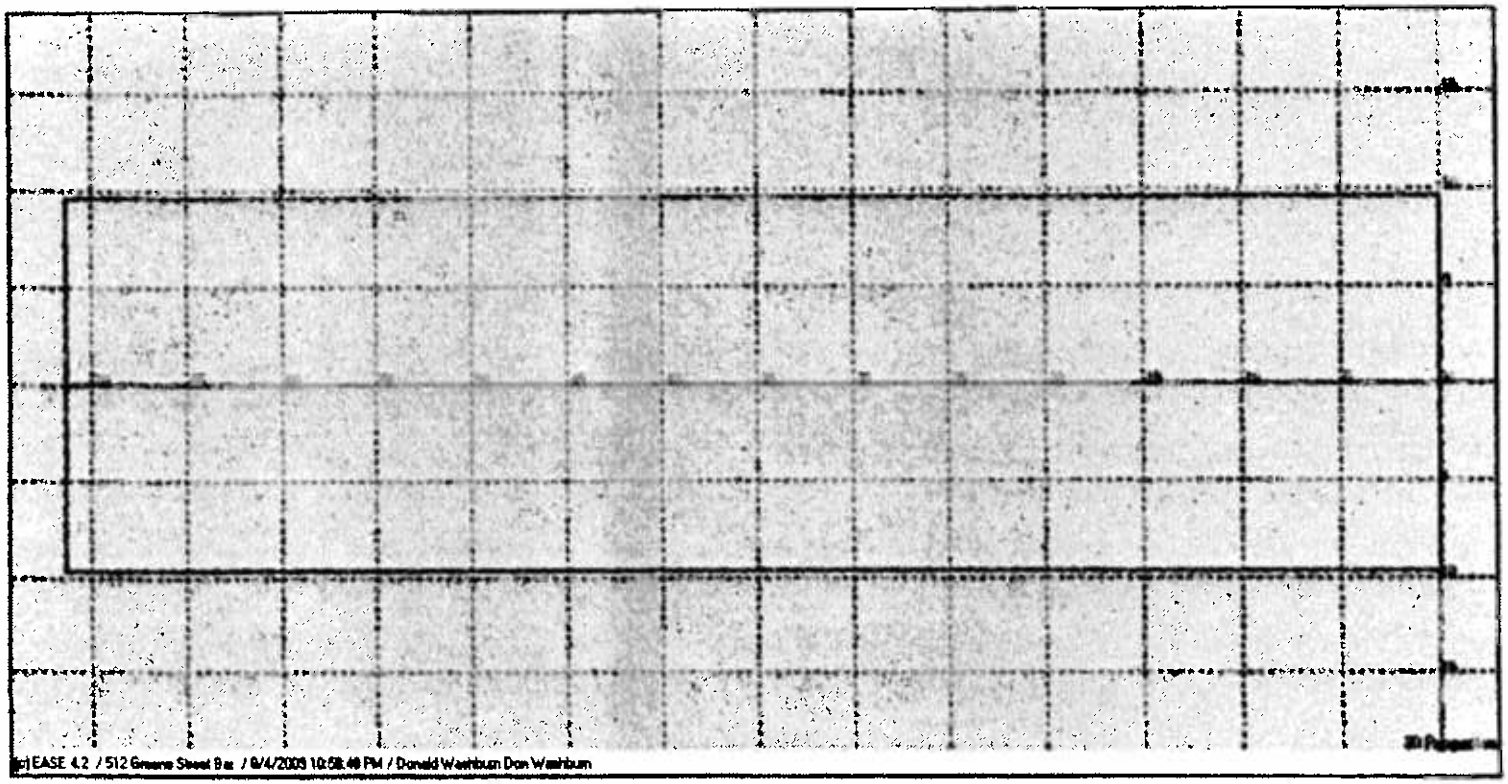

Figure 5 - Plan view of Greene Street Bar as rendered in EASE 4.2

512 Greene Street Bar - Sound System Design and Specification

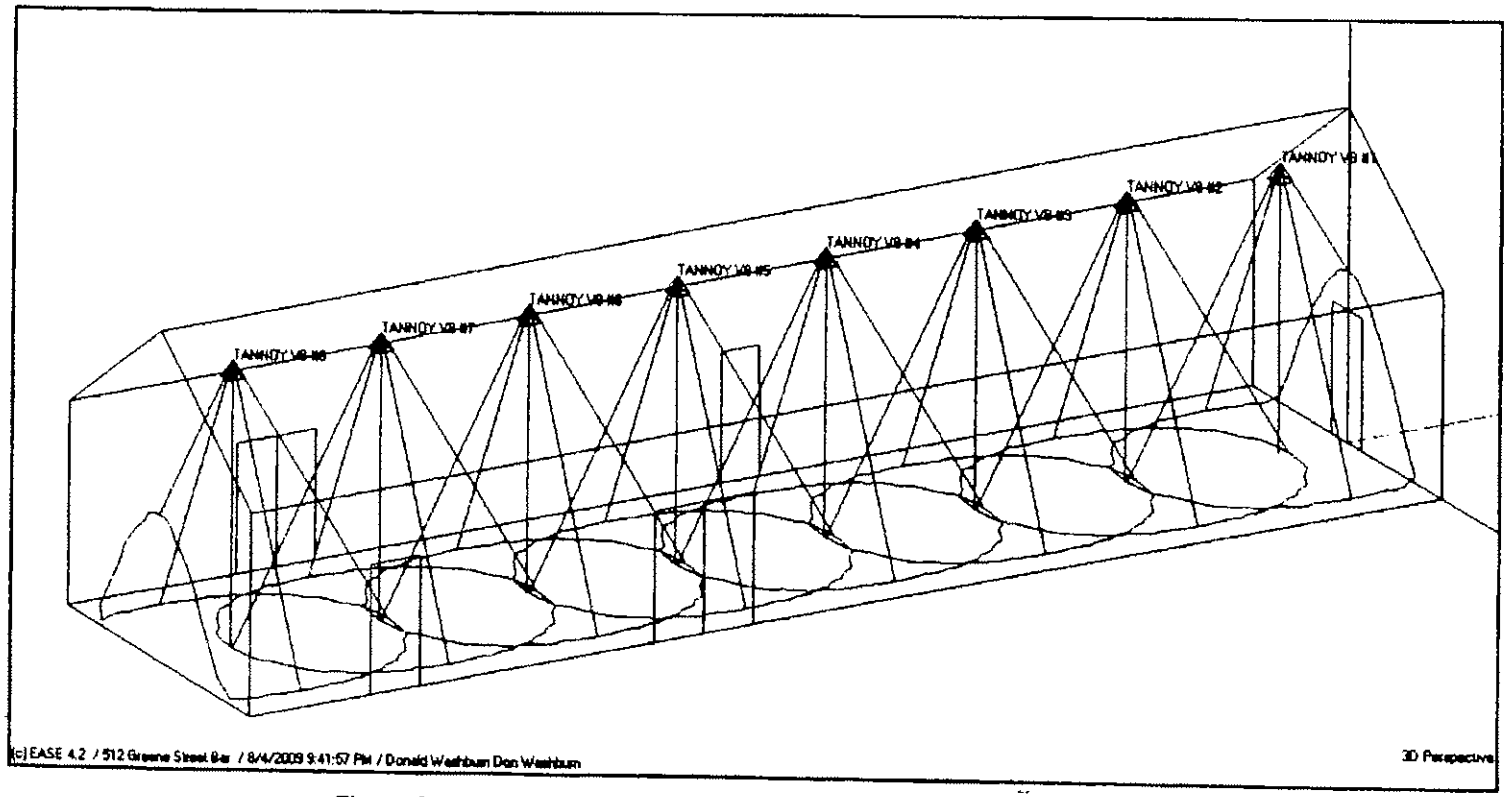

Figure 6 - Isometric view of Greene Street Bar as rendered in EASE 4.2
showing loudspeaker locations and -3 dB isobars @ 5 kHz

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RWK 7/9/10

512 Greene Street Bar - Sound System Design and Specification

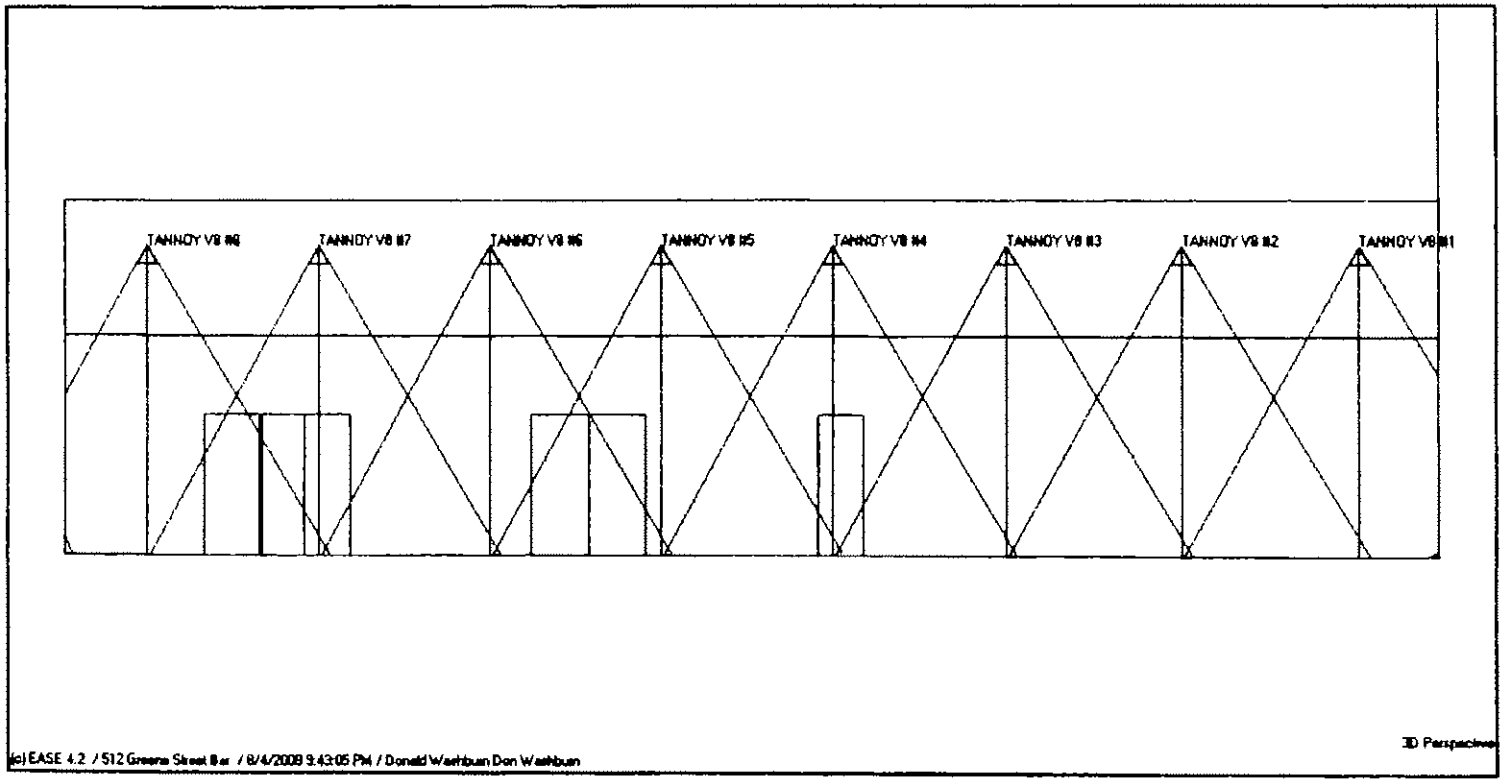

Figure 7 - Side elevation view of Greene Street Bar as rendered in EASE 4.2 showing loudspeaker locations and -3 dB isobars @ 5 kHz

512 Greene Street Bar - Sound System Design and Specification

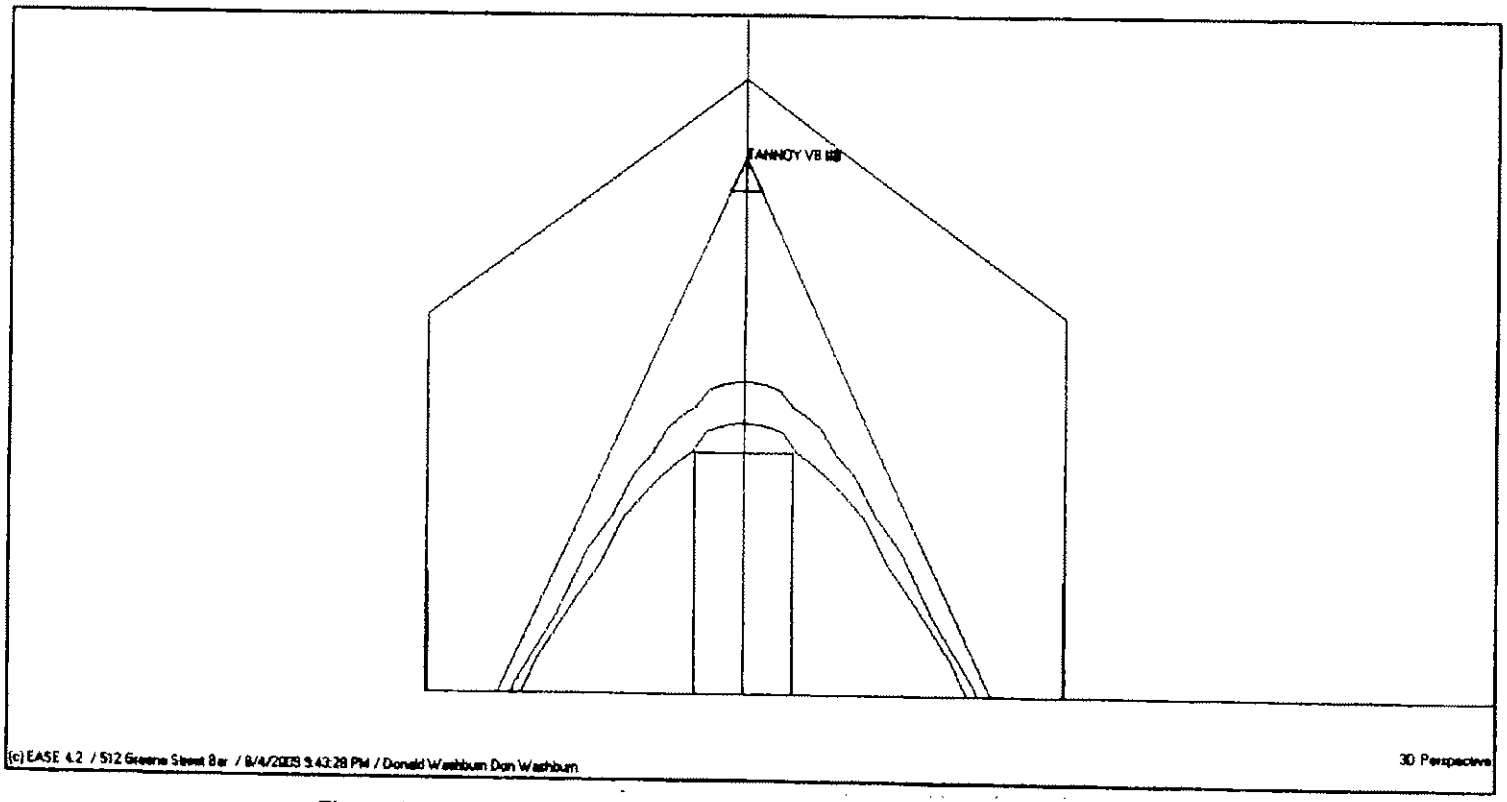

Figure 8 - End section view of Greene Street Bar as rendered in EASE 4.2
showing loudspeaker locations and -3 dB isobars @ 5 kHz

512 Greene Street Bar - Sound System Design and Specification

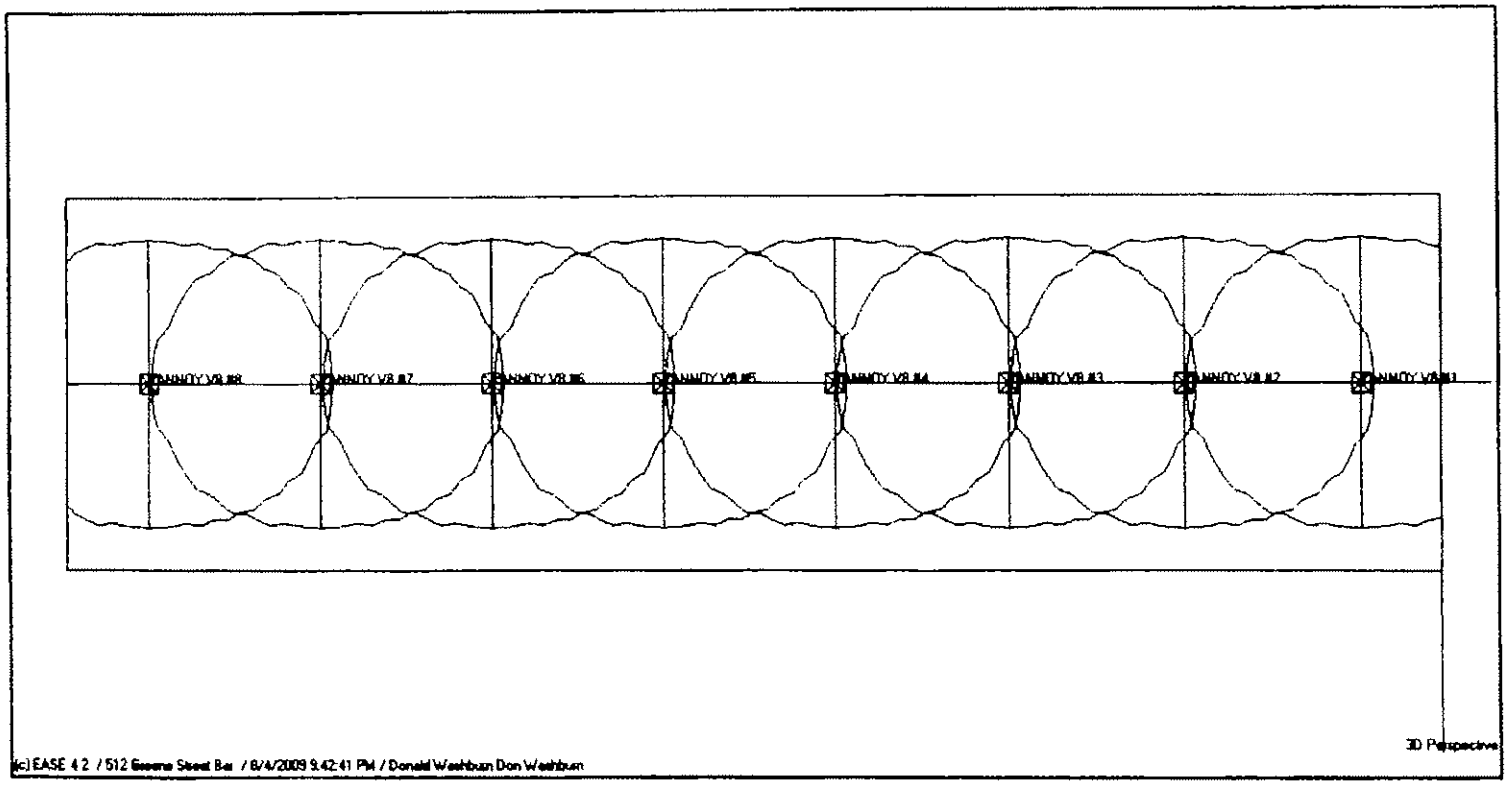

Figure 9 - Plan view of Greene Street Bar as rendered in EASE 4.2
showing loudspeaker locations and -3 dB isobars @ 5 kHz

512 Greene Street Bar - Sound System Design and Specification

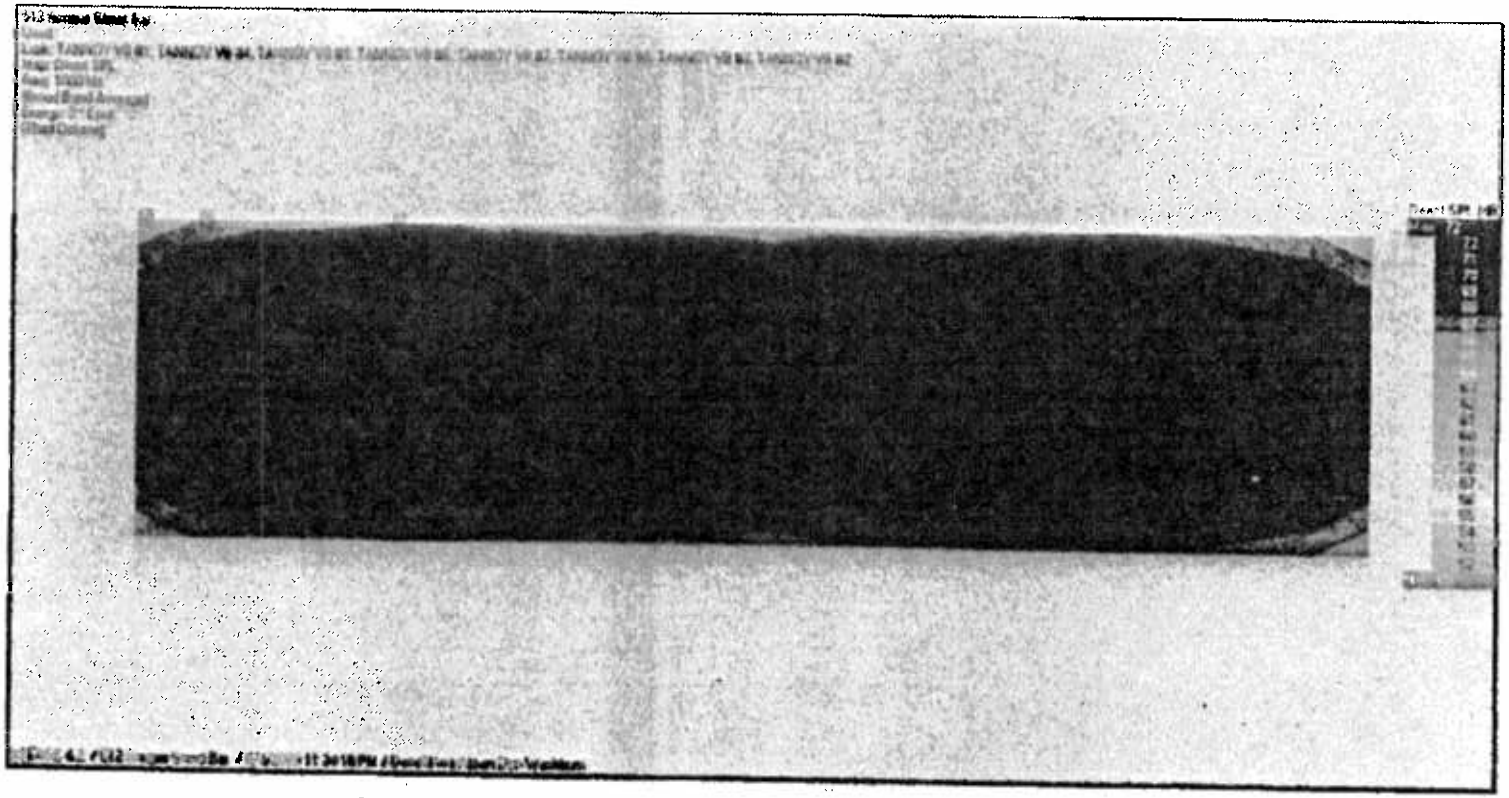

Figure 10 - Plan view of Greene Street Bar as rendered in EASE 4.2
showing uniformity of broadband direct sound coverage (+/- 3 dB)

512 Greene Street Bar - Sound System Design and Specification

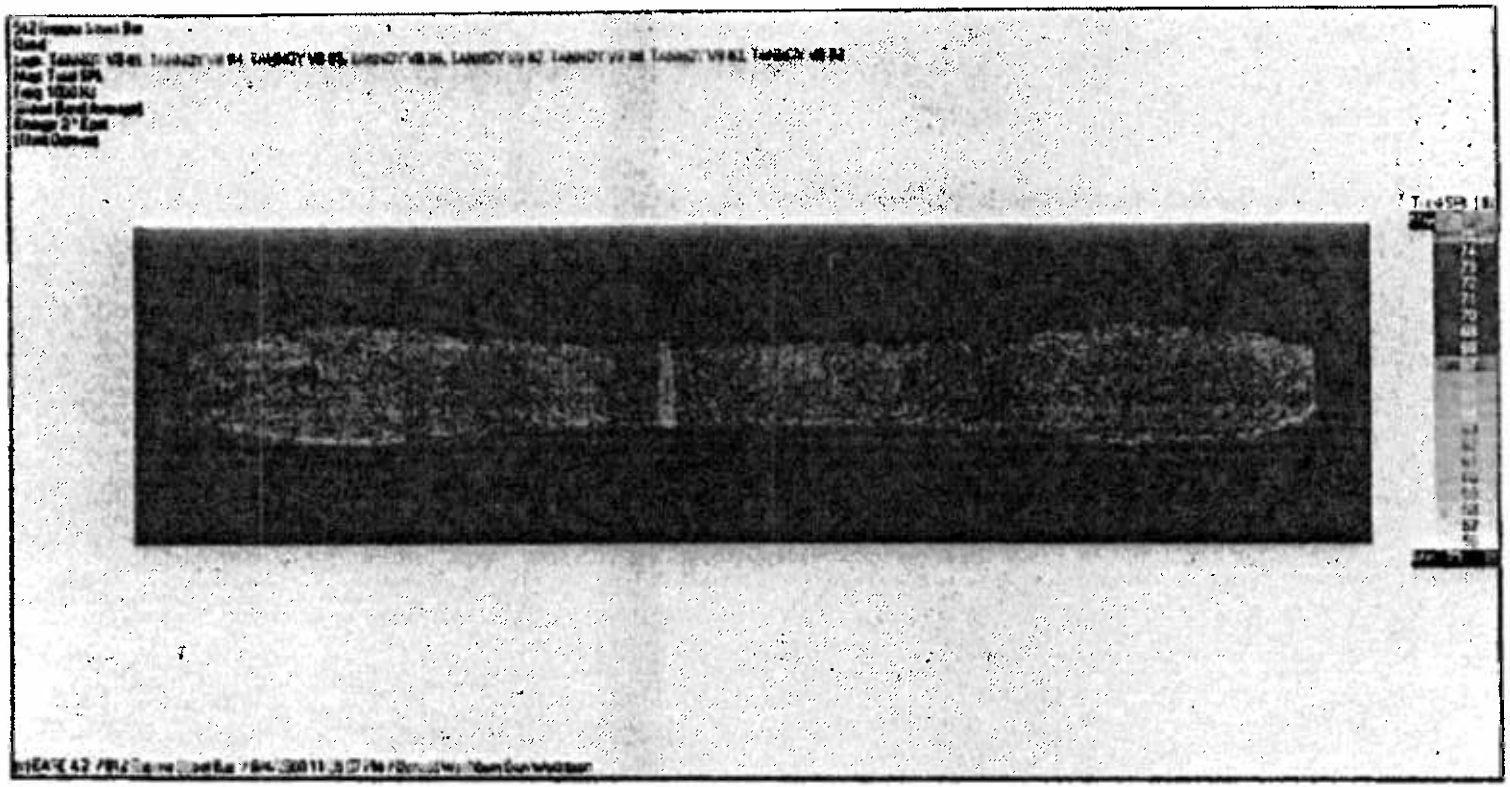

Figure 11 - Plan view of Greene Street Bar as rendered in EASE 4.2
showing uniformity of broadband total sound coverage (+/- 1 dB)

512 Greene Street Bar - Sound System Design and Specification

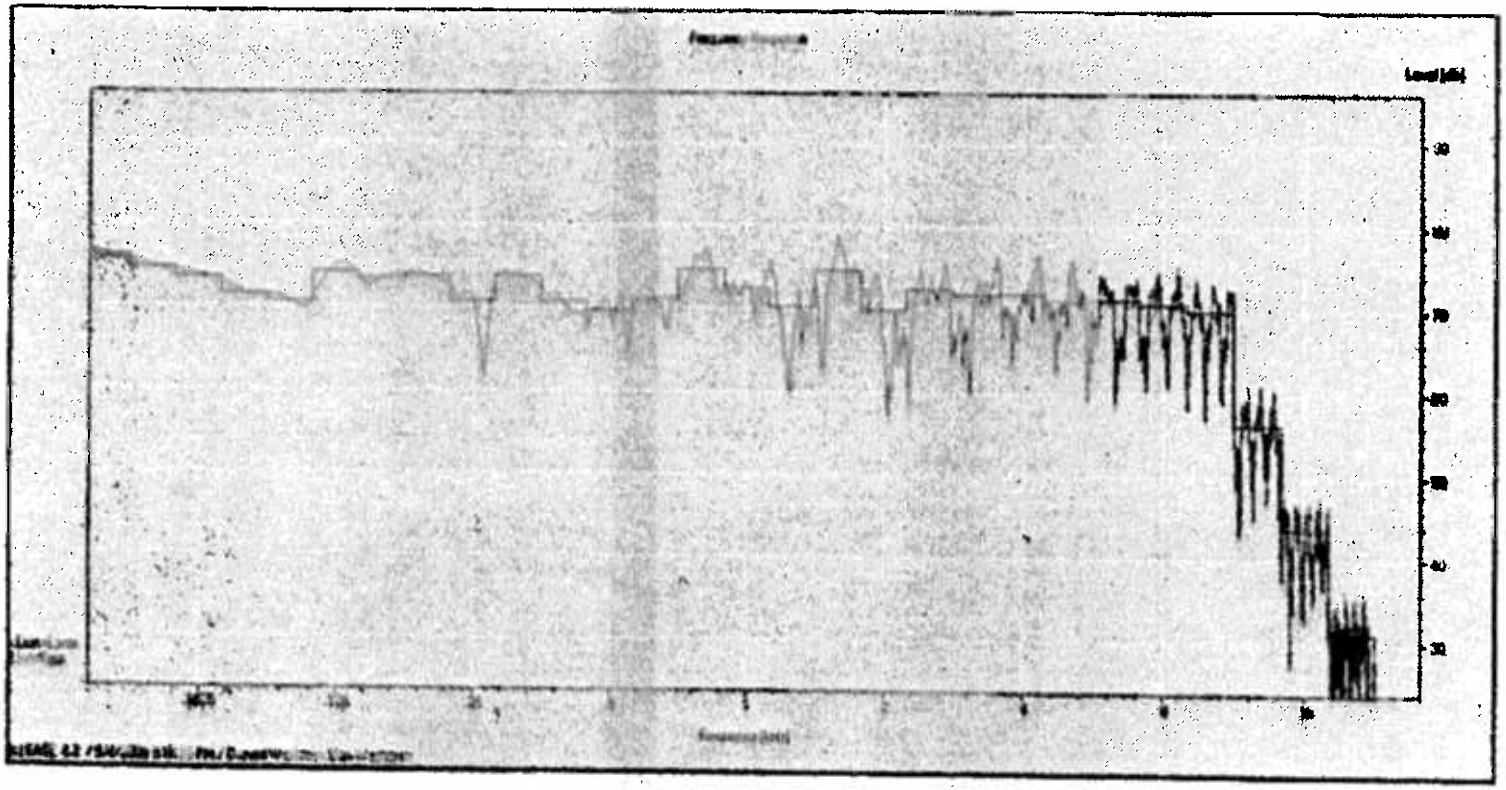

Figure 12 - Typical system response predicted in EASE 4.2
showing uniformity of frequency response (+/- 3 dB)

512 Greene Street Bar - Sound System Design and Specification

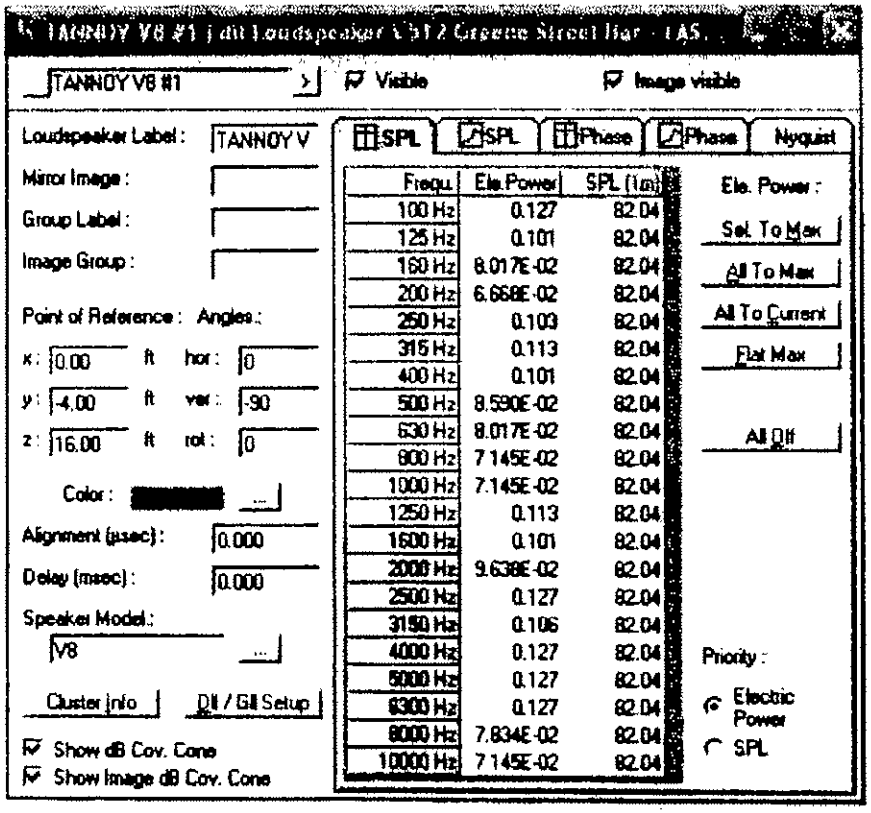

Figure 13 - Loudspeaker properties (typical of 8)

Section III

Professional Resume of Mr. Donald J. Washburn,

President – The Audio Bug, Inc.

TREPANIER

7/6/10 7/6/10

THE AUDIO BUG, INC.

3800 HILLCREST DRIVE • HOLLYWOOD, FL. 33021-7937 • 954-983-2788 • FAX: 954-083-2789 • audiobug1@aol.com

July 13, 2009

Subject: Resume of Don Washburn

To whom it may concern:

Mr. Washburn has been working in the fields of electronics and acoustics since 1974, when he established The Audio Bug, Inc. For more than twenty years, The Audio Bug, Inc. provided design, installation and maintenance services of professional sound reinforcement systems for a variety of clientele, including the United States District Court, Southern District; the United States Bankruptcy Court; the Cities of N. Miami, Miami Beach, N. Miami Beach, Pembroke Pines; a variety of Houses of Worship; the U.S. Postal Service, Homestead Air Force Base and many commercial facilities.

In the course of his work, Mr. Washburn's attention was drawn to the testing, measurement and documentation aspects of sound system contracting. Analysis of the performance of various devices, both electronic and electro-acoustic, became an intense interest and led to the purchase of an ever growing inventory of sophisticated measurement equipment.

The quest to better understand the how the systems he designed and installed interacted with the acoustical environments in which they operated led Mr. Washburn to study advanced electro-acoustics with some of the industry's most significant leaders. An association with Synergetic Audio Concepts, a teaching program founded by Don and Carolyn Davis, resulted in regular liaison with a worldwide association of peers seeking excellence in systems design and improved measurement techniques.

In 1995, Mr. Washburn discontinued the sound contracting aspect of The Audio Bug, Inc. to concentrate on consulting. Since then, his focus has been on providing electro-acoustical consulting services, product assessment for manufacturers, systems design and teaching. He has authored several technical papers for industry publications, conducted numerous training seminars for sound contracting firms and addressed a number of technical organizations including the Audio Engineering Society and the National Systems Contractors Association.

Employing the industry's most sophisticated measurement equipment, Mr. Washburn provides objective, state-of-the-art product evaluations, computer-assisted system designs and acoustical services to manufacturers, industry and end users. He has testified in the capacity of expert witness in several cases involving community noise annoyance matters and has become a leading authority in community noise planning and abatement.

A wide variety of clientele has engaged The Audio Bug to solve difficult acoustical problems in a wide variety of environments. A partial listing of clients is attached for your review.

Mr. Washburn sits on the TEF Advisory Board and is a certified TEF instructor. He is a member of the Acoustical Society of America, the American Institute of Physics, the National Systems Contractor Association and Synergetic Audio Concepts.

7/6/10

NSCA

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THE AUDIO BUG, INC.

3800 HILLCREST DRIVE • HOLLYWOOD, FL. 33021-7937 • 954-983-2788 • FAX: 954-083-2789 • audiobug1@aol.com

Partial Listing of Clients

Florida Gulf Coast University
Mr. Eric Balmer
Assistant Director of Campus Reservations
10501 FGCU Boulevard, South
Ft. Myers, Florida 33965-6565
Phone: 239-590-1141, Fax: 239-590-1012
ebalmer@fgcu.edu
Reference: Alico Arena Acoustical and Electro-Acoustical Study

Concerto Networks, Attn: Mr. Jerry Hogan
11000 Metro Parkway, Suite 31
Fort Myers, Florida 33966
Service: 800-314-8802, Sales 800-314-8803
E-mail: Jhogan@AllDigitalTechnology.com
Project Name: Edison College, Lee Campus
Corbin Auditorium Sound System Testing
8099 College Parkway, Room J-103
Fort Myers, Florida 33919

Alexander I. Tachmes, Esq.
Shutts and Bowen LLP
201 S. Biscayne Boulevard., Suite 1500
Miami, Florida 33131
Phone: 305-347-7341, Fax: 305-347-7754
atachmes@shutts.com
Ref: Mondrian, 1100 West Properties, LLC,
Mondrian Hotel Neighborhood Impact Establishment
Assist with Conditional Use Application

Raleigh Hotel
Michael Ryan, Hotel Manager
1775 Collins Avenue
Miami Beach, Florida 33139
Phone: (305) 612-1152, Fax: (305) 538-8140
mryan@raleighhotel.com
Reference: Sound and Noise Mitigation Project

Grove Isle, Attn: Ben Arbermann
One Grove Isle Drive
Coconut Grove, Florida 33133
Phone: 305-858-1207
Architectural Acoustics Analysis of Sound Transmission in Condominium Structure

Johnson and Wales University
Attn: Don McGregor
1701 N.E. 127th Street
N. Miami, Florida 33181
Phone: 305-892-7035
Environmental Noise Impact Study

Beth David Congregation
2625 S.W. 3rd Avenue
Miami, Florida 33129-2314
Phone: 305-854-3911
Acoustical Analysis of Sanctuary leading to redesign of sound system and HVAC system

The Township Community Master Association, Inc.
Attn: Claudia Genteel, Artistic Director
2424 Lyons Road
Coconut Creek, Florida 33063
Phone: 954-973-8094, Fax: 954-973-1762
Acoustical Analysis of Performing Arts Theater and Ballroom facilities, leading to redesign of sound systems for both

Miami-Dade School Board Contract Services
Department, Coral Reef Maintenance
15301 S.W. 117th Avenue, Miami, Florida 33177
Phone: 305-256-3119, Fax: 305-256-5432
DDeRyke@dadeschools.net
Ref: Miami Palmetto Senior High School
Acoustics Design for Gymnasium
Purchase Order # ROMO16849

Red Design Group, L.L.C. Architects
Attn: Rick Hernandez
1221 SW 27th Avenue, Suite 200
Miami, FL 33135
Phone: 305-631-7004, Fax: 305-631-7024
rhernandez@reddesigngroup.net
Reference: Multiple projects at University of Miami Richter Library, Whitten Learning Center, Frost School of Music,

Arthur J. Marcus, Architect
1450 Lincoln Road, Suite # 806
Miami Beach, Florida 33139
Phone: 305-674-8945
E-mail: marcus_a@bellsouth.net
Consult on Noise & Vibration at Bath Club

St. John the Evangelist
625 111th Avenue
Naples, FL 34108-1825
Phone: 941-566-8740
stjohnnev@aol.com
Father Thomas Glackin, Pastor
Design of new sound system as highlighted in the December issue of "Church Production Magazine"

7/6/11 7/6/10

THE AUDIO BUG, INC.

3800 HILLCREST DRIVE • HOLLYWOOD, FL. 33021-7937 • 954-983-2788 • FAX: 954-083-2789 • audiobug1@aol.com

Holy Family Catholic Church
Father Franky Jeane, Pastor
14500 N.E. 11th Avenue
N. Miami, Florida 33161
Phone: 305-947-1471
Sanctuary acoustical analysis with recommendations for redesign of sanctuary acoustics

First Presbyterian Church of Bonita Springs
9751 Bonita Beach Road
Bonita Springs, Florida 34135-4530
Phone: 941-992-3233
Evaluation of sanctuary acoustics and sound system

Bank Atlantic
Mark Begelman, Senior Vice President
2100 West Cypress Creek Road
Ft. Lauderdale, Florida 33309
Phone: 954-940-5286
E-mail: mbegelman@bankatlantic.com
Consult on various branch bank acoustical issues

Canaveral Port Authority
Mark Blake, Director of Engineering
200 George King Boulevard
Cape Canaveral, Florida 32920
Phone: 321-783-7831, ext. 217
E-mail: mblake@portcanaveral.org
Cruise Terminal Public Address System Design

Dave and Mary Alper Jewish Community Center
Ed Rosen, Executive Director
11155 S.W. 112th Avenue
Miami, Florida 33176
Phone: 305-271-9000
E-mail: erosen@alpercc.org
Consulted on PAC acoustical problems

Island Pointe
Elliott Sharaby, Developer
10350 West Bay Harbor Drive
Bay Harbor Islands, Florida 33154
Phone: 305-993-1300
E-mail: elliott@thefallstaffgroup.com
Consulted on Noise & Vibration issue with large HVAC unit

James E. Rauh, Esq.
1111 Lincoln Road, Suite 400
Miami Beach, FL 33139
Phone: 786-276-2343, Fax: 305-673-5505
Email: jrauh@terminello.com
Consult in multiple Neighborhood Impact Establishment Conditional Use Applications

Waterview Condo
Attn: Harvey Rosenberg, CAM
20505/15 East Country Club Drive
Aventura Fla. 33180-3057
Office: 305-935-4541, Fax: 305-933-0489
hrosenberg@fdn.com
Ref: Sound Transmission Project

Mr. Eric Margules
Margules Properties, Inc.
381 Park Avenue South, Suite 120
New York, NY 10016
Phone: (212) 684-7079, Fax: (212) 684-3879
emargules@margulesproperties.com
Reference: Community Noise Impact Study
12th + Collins Parking Garage
1155 Collins Avenue
Miami Beach, Florida 33139

Facchina-McGaughan, LLC
Derek Murphy, Project Executive
6600 N. Andrews Avenue, Suite 200
Ft. Lauderdale, Florida 33309-2110
Phone: 954-771-6677, Fax: 954-771-6697
derek.murphy@facchina-mcgaughan.com
Reference: Sound Transmission Testing
Quantum By The Bay
1900 North Bayshore Drive
Miami, Florida 33132

Murdock Baptist Church
Mark Smith, Pastor
18375 Cochran Boulevard
Port Charlotte, FL 33948-3330
Phone: 941-627-6352, Fax: 941-627-6653
pastormark@murdockbaptistchurch.com
Acoustics Design for Sanctuary

RaceTrac Petroleum, Inc.
Glen J. Cheatham, Facilities Brand Manager
3225 Cumberland Boulevard, Suite 100
Atlanta, GA 30339
Phone: 800-388-8035 x1127
Fax: 678-503-1076
gcheatham@racetrac.com
Gas Station Community Noise Impact Study
Project Address: 3996 Pembroke Road
Pembroke Park, FL 33021

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