

445 Hamilton Avenue, 14th Floor White Plains, New York 10601 Tel 914.761.1300 Fax 914.761.5372 www.cuddyfeder.com

December 3, 2015

### VIA OVERNIGHT DELIVERY

Hon. Robert Stein, Chairman and Members of the Connecticut Siting Council 10 Franklin Square New Britain, Connecticut 06051

Re:

Connecticut Siting Council Docket 463

American Towers, LLC (ATC) & New Cingular Wireless PCS, LLC (AT&T)

Proposed Wireless Telecommunications Tower Facility

351A Boston Post Road, Connecticut

Dear Chairman Stein and Members of the Siting Council:

On behalf of American Towers, LLC (ATC) and New Cingular Wireless PCS, LLC (AT&T) and in connection with the above referenced Certificate Application, we respectfully enclose an original and fifteen copies of AT&T's Responses to Connecticut Siting Council Pre-Hearing Questions Set I, dated December 3, 2015.

Additionally, enclosed please find an Affidavit of Posting and photographs evidencing that a sign noticing the upcoming public hearing on December 15, 2015 was posted at the site on November 30, 2015 by Chris Dobon.

Should the Siting Council or Staff have any questions regarding this matter, please do not hesitate to contact us.

Very truly yours.

Christopher B. Fisher

cc: Tracy M. Collins, Esq.

First Selectman Mark C. Nickerson

Matthew Russell, ATC Michele Briggs, AT&T

# STATE OF CONNECTICUT CONNECTICUT SITING COUNCIL

IN RE:

APPLICATION OF AMERICAN TOWERS LLC (ATC) AND NEW CINGULAR WIRELESS PCS, LLC (AT&T) FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE AND OPERATION OF A TELECOMMUNICATIONS TOWER FACILITY IN EAST LYME, CONNECTICUT

DOCKET NO. 463

December 3, 2015

#### RESPONSES TO CSC INTERROGATORIES

- 1. Which frequencies would AT&T install at the proposed site, e.g. 700 MHz, 850 MHz, 1900 MHz, etc.? Would antennas serving all of these frequencies be installed initially, or would some be installed at a later date?
- 1A. All three bands (700 MHz, 850 MHz and 1900 MHz) will be on-air when the site enters service.
- 2. Are all frequencies used to transmit voice and data services? Are all frequencies LTE capable? Please explain.
- 2A. Yes, all frequencies will be used to transmit voice and data. With respect to current implementation, AT&T will deploy LTE on the 700 and 1900 MHz frequencies, but not on the 850 MHz frequencies. The 850 MHz frequencies will be used to provide service to the "legacy" customer equipment that uses GSM (2G and 2.5 G) or UMTS (3G) technology. The broadband nature of the UMTS and LTE air interface precludes them from sharing the 850 MHz spectrum, so there will be a period of transition as the customer equipment base is eventually migrated to LTE.
- 3. What is the service level threshold for which AT&T designs its system? Is the threshold the same for each frequency?
- 3A. For 700 MHz LTE, the design criteria are -83 and -93 dBm. For PCS LTE, the design criteria are -86 and -96 dBm. For 850 MHz, the coverage criteria are -74 and -82 dBm.
- 4. Identify adjacent AT&T sites that would interact with the proposed facility. Include addresses, structure type, antenna heights and distance/direction from the proposed site.
- 4A. Adjacent sites are listed in the table below:

Site Name	Address	Town	Latitude	Longitude	Antenna Centerline (feet)	Distance to Proposed Site (miles)	Structure Type	Ground Elevation (feet)
CT5218	269 Flanders Road	East Lyme	41.3619	-72.2091	107	0.8	Power Line	31
CT5217	93 Roxbury Road	East Lyme	41.3358	-72.2225	79	1.6	Water Tank	672
CT5216	15 Liberty Way	East Lyme	41.3189	-72.2437	62	2.8	Stealth	164
CT2196	38 Hatchets Hill Road	Old Lyme	41.3176	-72.2700	165	3.6	Monopole	197
CT2198	62-1 Boggy Hole road	Old Lyme	41.3223	-72.3070	145	4.8	Monopole	276

- 5. In regards to the Radio Frequency Analysis Report in the Application (Tab 1), why was 850 MHz selected as the frequency to demonstrate wireless service capability? What antenna height was used in the analysis? The coverage models depict the site as CT1345C but the legend lists it as CT1345B. Please clarify.
- 5A. This is a relocation or "relo" site intended to replace as much coverage as possible of a currently operational site that must be decommissioned. When the current site is decommissioned, the most immediate and noticeable effect on customers will be the loss of existing 850 MHz voice service. For that reason, the 850 MHz service was chosen for the plots in the Radio Frequency Analysis Report in order to show the most customer-impacting loss of service when the current site is decommissioned and the extent to which the proposed site will remedy that loss of service.

The proposed height of the replacement facility was used for the analysis.

With respect to the C and B references: This relocation site planning has been in process for an extended period of time. The letter designations of the numerous candidate and alternate sites have been updated and reorganized through multiple iterations of the site as various "primary" and alternate locations were eliminated from consideration for various reasons. The C vs. B reference is the result of a typographical error where the legend on the plot was updated, but the site label was not.

- 6. Would the site provide adequate service to the coverage area for other frequencies AT&T would deploy?
- 6A. The proposed site would provide the best available replacement coverage for all AT&T frequencies.
- 7. Application page 11 mentions "future facilities" to serve the East Lyme area. Please elaborate.
- 7A. The proposed site is the best available replacement for the current site. This statement is simply an acknowledgement that AT&T will very likely need more sites in East Lyme in

the future to further expand service and capacity, but these sites have not been identified for development yet.

- 8. Please estimate the number of residences with visibility within 0.5 miles of the site.
- 8A. Approximately 50 residential properties within 0.5 miles of the Site could potentially have views of at least a portion of the Facility seasonally when the leaves are off the trees. This estimate is based on computer modeling (APT did not have access to private properties for confirmation) which over predicts seasonal visibility. Therefore, although the "footprint" of seasonal visibility depicted on the viewshed maps cover several acres, experience confirms that views will not be achieved from all locations within those areas. The majority of potential seasonal views would be obstructed during leaf-off conditions by intervening tree trunks and branches or structures.
- 9. What is the distance, direction and address of the nearest off-site residential dwelling from the proposed site?
- 9A. Distance ±354' (Taken from center of proposed tower)
  Direction-Northwest
  Address -Richard W. & Evelyn A. Perry
  351B Boston Post Road
  East Lyme, CT 06333
- 10. How many residential dwellings are within 1,000 feet of the site?
- $10A. \pm 39$
- 11. Would the tower's setback radius encroach on any adjoining properties? If so, state the distance of the encroachment and who owns these properties.
- 11A. The tower would not have a 1x (194') tower height setback from all property lines.

Property A: Richard W. & Evelyn A. Perry 351B Boston Post Road East Lyme, CT 06333 Setback = 100'

Property B: Lewis J. & Cynthia L. Mostowy 335 Boston Post Road East Lyme, CT 06333 Setback = 152'

12. Identify the safety standards and/or codes by which equipment, machinery, or technology would be used or operated at the proposed facility.

- 12A. OSHA and ET docket 93-62 and 47 CFR parts 1,2,15,42 and 97 as well as OET Bulletin 65, Edition 97-01.
- 13. What security measures would be employed to prevent vandalism and unwanted intrusion into the facility?
- 13A. There will be an 8' tall chain link fence (locked at all times) and AT&T's equipment shelter also includes a combination lock door and a light (motion-activated). The facility itself is remotely monitored 24/7 for intrusion. The fence surrounding the compound is an anti-climb weave chain link fence.
- 14. What is the status of consultations with the USFWS, as discussed on Application p. 18?
- 14A. APT completed a habitat assessment for northern long-eared bat and small whorled pogonia and submitted its findings to the USFWS for review as part of a Federal Endangered Species Act Section 7 consultation. APT determined that the subject property does not provide suitable habitat for small whorled pogonia and the project would not result in an adverse impact to this species. Small whorled pogonia, also a State-listed Endangered Species, was not identified by CTDEEP NDDB during consultation with this agency.

The proposed tower site development will result in approximately 0.4 acre of forest removal, which potentially provides habitat for northern long-eared bat. Since the proposed development will not result in a significant area of tree removal and will not result in fragmentation of a core forest block (the proposed Facility would be located within edge forest habitat), no significant change to the overall nature and function of this forest habitat would occur due to the proposed development. As a result, no adverse effect on potential habitat for northern long-eared bat would result from the proposed project.

A formal response from USFWS has not been received to date. Based on previous experience with northern long-eared bat and consultations with USFWS for similar projects as that proposed in this Docket, the Applicants anticipate the USFWS may recommend a time-of-year restriction avoiding tree clearing activities between April 15 and August 31, although that period could possibly extend out to September 30. Should it be recommended by USFWS, the Applicants would coordinate construction activities accordingly.

- 15. Estimate the number of trees (12-inch dbh) to be removed for the project.
- 15A.  $\pm 96$  (final approximation count to be included in Site grading plan).
- 16. Identify the backup power source and duration of emergency power for AT&T's and T-Mobile's installation.
- 16A. See shared generator specifications annexed as Attachment B.

- 17. What is the expected cumulative noise level at the nearest property line from the proposed facility assuming the generator(s) and air conditioning unit(s) are running at the same time?
- 17A. Please refer to Acoustical Evaluation report prepared by HMB Acoustics, LLC annexed as Attachment A demonstrating compliance with State Noise Regulations.
- 18. Regarding the Site Search Summary in Application Tab 2:
  - a) List the specific reason why sites #5, #6, #10, #11, #12, #13, & #17 were rejected for radio frequency issues. What heights were examined at these locations?
  - b) For site #8, provide a coverage plot for the height examined. What height would be required to provide adequate service?
  - c) For site #9, what height is required to provide adequate service? With whom did the Applicant discuss potential tower availability? What was the specific reason given as to why this existing facility is not available for colocation?
  - d) For site #15, what entity is proposing a tower in this location? What tower height is necessary to provide adequate service from this location?
  - e) For site #18, provide a coverage plot for the height examined.
  - f) For site #24, provide a coverage plot for the height examined.
- 18A. All of these sites were analyzed up to and including 199' above ground level. That height was chosen as a maximum height based on a combination of FAA requirements for tower-top lighting on towers 200 feet or more above ground level and the Applicants' understanding of Town of East Lyme perspectives on this tower relocation project.
  - a) #5- This location is blocked by the hill that the current tower site is on. It does not have enough ground elevation to provide coverage at any tower height that would not require lighting the tower, so it was rejected for further acquisition efforts.
    - #6-This location is blocked by the hill that the current tower site is on. It does not have enough ground elevation to provide coverage at any tower height that would not require lighting the tower, so it was rejected for further acquisition efforts.
    - #10- This location is blocked by elevated terrain along Boston Post Road. It does not have enough ground elevation to provide coverage at any tower height that would not require lighting the tower, so it was rejected for further acquisition efforts.
    - #11- This location is blocked by elevated terrain along Boston Post Road. It does not have enough ground elevation to provide coverage at any tower height that would not require lighting the tower, so it was rejected for further acquisition efforts.

#12- This location is blocked by the hill that the current tower site is on. It does not have enough ground elevation to provide coverage at any tower height that would not require lighting the tower, so it was rejected for further acquisition efforts.

#13- This location is blocked by the hill that the current tower site is on. It does not have enough ground elevation to provide coverage at any tower height that would not require lighting the tower, so it was rejected for further acquisition efforts.

#17- This location is blocked by elevated terrain along Boston Post Road. It does not have enough ground elevation to provide coverage at any tower height that would not require lighting the tower, so it was rejected for further acquisition efforts.

- b) #8-This location is outside the coverage area and at a low ground elevation. To provide adequate service, a tower at this location would have to be well in excess of the height requiring lighting, so it was rejected for further acquisition efforts. The current tower at this location is approximately 75 feet from Flanders School. In addition, most of its coverage would duplicate current coverage from other AT&T sites. See plot in attachment C.
- c) #9-This location is blocked by the hill that the current tower site is on. It does not have enough ground elevation to provide coverage at any tower height that would not require lighting the tower, so it was principally rejected for further acquisition efforts. Additionally, the site is on U.S. military property and used by the CT State Police. Because it is an existing tower, AT&T discussed a replacement tower up to 199' with the CT State Police. AT&T was advised the State was having its own issues with a ground lease with the U.S. military.
- d) #15-This location is outside the coverage area and one of the lower ground elevations. To provide service, a tower at this location would have to be well in excess of the height requiring lighting, so it was rejected for further acquisition efforts.
- e) #18-This location is a water tank approximately 45' tall, so the coverage analysis was done at that height. See plot in attachment C.
- f) #24-This location is outside the coverage area. To provide service, a tower at this location would have to be well in excess of the height requiring lighting, so it was rejected for further acquisition efforts. See plot in attachment C.
- 19. Were the following properties examined as potential candidates? If so, why were they rejected? If not, are they suitable for AT&T's needs?
  - a) 63 Scott Road (M29/L14)
  - b) 397 Boston Post Road (M29/L14)
  - c) 21 Legendary Road (M35.3/L2)
  - d) 12 Seebeck Road (M25/L34)
  - e) Flanders Lane (M 31/L1)
  - f) Ancient Hwy (M25/L30)
  - g) 84 Lovers Lane (M25.1/L85)
  - h) 94 Lovers Lane (M25.1/L88)

- 19A. None of these specific properties were examined as potential candidates. None are suitable alternatives though for the reasons listed below and as developed as part of the Applicants' overall due diligence and municipal consultations.
  - a) 63 Scott Road (M29/L14)
     This location is blocked by the hill that the current tower site is on and will not provide adequate coverage.
  - b) 397 Boston Post Road (M29/L14)
    This location is blocked by the hill that the current tower site is on and will not provide adequate coverage.
  - c) 21 Legendary Road (M35.3/L2)
    This location is blocked by the hill that the current tower site is on and will not provide adequate coverage.
  - d) 12 Seebeck Road (M25/L34)
    This location is adjacent to the Drabik and Gateway sites evaluated by AT&T and in the area where the Mohegan Tribe identified ceremonial landscapes and an adverse effect on tribal resources for purposes of federal law.
  - e) Flanders Lane (M31/L1)

    This location is largely blocked by the hill to its west and will not provide adequate coverage. Additionally, those portions of the lot along Ancient Highway and adjacent to the Drabik and Gateway sites evaluated by AT&T are in the area where the Mohegan Tribe identified ceremonial landscapes and an adverse effect on tribal resources for purposes of federal law.
  - f) Ancient Hwy (M25/L30)
    This location is blocked by the hill to its northwest and will not provide adequate coverage. This location is also adjacent to the Drabik and Gateway sites evaluated by AT&T and in the area where the Mohegan Tribe identified ceremonial landscapes and an adverse effect on tribal resources for purposes of federal law.
  - g) 84 Lovers Lane (M25.1/L85)
    This location is blocked by the hill to its northeast and will not provide adequate coverage. It additionally is an area opposed for tower siting by members of a community group.
  - h) 94 Lovers Lane (M25.1/L88)

    This location is blocked by the hill to its northeast and will not provide adequate coverage. It additionally is an area opposed for tower siting by members of a community group.
- Were return receipts received for each abutting landowner identified in the Application? If not, describe any other attempts to provide notice.
- 20A. Notice to the following abutter was returned to us marked "refused 10/1/15": Nancy M. Birchall, 339 Boston Post Road, East Lyme, CT 06333

All other receipts were received.

- 21. Has a site plan been developed showing site topography, areas of clearing, grading, and storm water control features? If so, please provide.
- 21A. Please see attached site grading and drainage control plan annexed in Attachment D.
- 22. Provide an 8.5" x 11" aerial photograph that shows both the existing tower and the proposed site.
- 22.A Please see attached Aerial photograph showing both existing tower location and proposed site annexed in Attachment E.

Dated: December 3, 2015

Christopher B. Fisher Cuddy & Feder LLP 445 Hamilton Avenue, 14<sup>th</sup> Floor White Plains, New York 10601 (914)-761-1300

### **CERTIFICATE OF SERVICE**

I hereby certify that on this day, an original and fifteen (15) copies of the foregoing was sent electronically and by overnight mail to the Connecticut Siting Council with a copy to:

The Town of East Lyme First Selectman Mark C. Nickerson P.O. Box 519 108 Pennsylvania Avenue Niantic, Connecticut 06357

Tracy M. Collins, Esq. Waller, Smith & Palmer, P.C. 52 Eugene O'Neill Drive New London, CT 06320

Dated: December 3, 2015

Christopher B. Fisher

# ATTACHMENT A



Noise Evaluation Report

AT&T CT 1345 351A Boston Post Road East Lyme, CT

December 2, 2015

Prepared For: Camilo A. Gaviria, P.E. Centek Engineering, Inc. 63-2 North Branford Road Branford, CT

Prepared By: Allan Smardin HMB Acoustics LLC 3 Cherry Tree Lane Avon, CT - 1 -

Introduction

AT&T CT 1345 has proposed a wireless facility to be located at 351A Boston Post Road, East Lyme, CT. The proposed site will include a T-Mobile RBS 6102 Cabinet; An

American Tower Company (ATC) 80 kw shared generator enclosed in a recommended Level 2 Sound Enclosure; and an AT&T equipment shelter with (2) Marvin HVAC units.

The purpose of the evaluation is to determine whether the generator will comply with the

State of CT Noise Regulations.

It is important to note that the emergency generator operates for approximately 15-20

minutes each week for testing. All testing is done during the daytime hours. Other than

these testing periods, the generator runs only in times of emergency, when commercial

power to the facility is interrupted.

This report and the State of CT Noise Regulations utilize a dBA scale. This scale is

used because it closely approximates the response characteristic of the human ear to

loudness, and is the scale most commonly used in the measurement of community

noise.

**Noise Regulations** 

The State of CT has enacted regulations which limit the amount of noise which may be

transferred from one property to another. In pertinent part, the Regulations provide as

follows:

Daytime hours: The hours between 7 a.m. and 10 p.m., local time.

(Sec. 22a-69-1.1(h)).

Nighttime hours: The hours between 10 p.m. and 7 a.m., local time.

(Sec. 22a-69-1.1(n)).

"Noise created as a result of, or relating to, an emergency."

(Sec. 22a-69-1.8(f), Exemptions).

#### **Noise Level Standards**

The three subject noise emitters are the T-Mobile Cabinet; the emergency generator; and the Marvair HVAC units. Typically only one of the two HVAC units on the equipment shelter operates at any one time.

No person in a Residential Noise Zone shall emit noise beyond the property line of his / her premises exceeding the levels stated herein:

	Allowable Nois	se Levels (dBA)
Emitter Zone	At a Residentia	l Receptor Zone
Residential	Residential / Day	Residential / Night
	55	45

#### **Noise Evaluation Results**

The dBA levels take into account the effect of acoustical shielding provided by other structures on the property. The calculated noise data demonstrates that the noise levels meet the conditions for compliance as set forth in the State of CT Noise Regulations when projected to the nearest residential property lines.

45 dBA - from the generator to the residential property line parcel ID 29.0 44 (Northwest).

55 dBA - from the generator to the residential property line parcel ID 30.3 5 (East).

35 dBA - from the (2) HVAC units running simultaneously to the residential property line to the East.

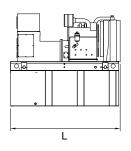
38 dBA - from the (2) HVAC units running simultaneously to the residential property line to the Northwest.

29 dBA - from the Cabinet to the nearest residential property line to the East.

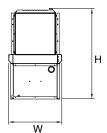
38 dBA - from the Cabinet to the nearest residential property line to the Northeast.



# dimensions, weights and sound levels

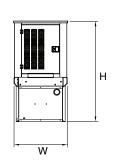


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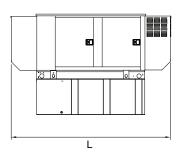


OPEN	SET

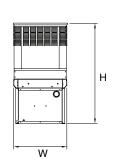
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RUN TIME HOURS	USABLE CAPACITY (GAL)	L	W	Н	WT	dBA*
NO TANK	-	93	40	49	2425	
13	79	93	40	62	2947	
30	189	93	40	74	3183	
48	300	93	40	86	3407	87
56	350	110	40	86	3809	
81	510	117	47	86	3790	
93	589	128	49	86	4269	



RUN TIME HOURS	USABLE CAPACITY (GAL)	L	W	Н	WT	dBA*
NO TANK	-	112	41	56	2850	
13	79	112	41	69	3372	
30	189	112	41	81	3608	
48	300	112	41	93	3832	81.4
56	350	112	41	93	4234	
81	510	117	47	93	4215	
93	589	128	49	93	4694	

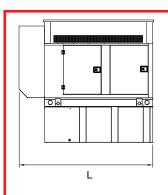


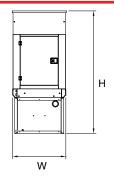
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#### **LEVEL 1 SOUND ENCLOSURE**

RUN TIME HOURS	USABLE CAPACITY (GAL)	L	W	Н	WT	dBA*
NO TANK	-	130	41	56	2875	
13	79	130	41	69	3397	
30	189	130	41	81	3633	
48	300	130	41	93	3857	74.8
56	350	130	41	93	4259	
81	510	130	47	93	4240	
93	589	130	49	93	4719	





#### **LEVEL 2 SOUND ENCLOSURE**

RUN TIME HOURS	USABLE CAPACITY (GAL)	L	W	Н	WT	dBA*
NO TANK	-	112	41	69	3050	
13	79	112	41	82	3572	
30	189	112	41	94	3808	
48	300	112	41	106	4032	71.7
56	350	112	41	106	4434	
81	510	117	47	106	4415	
93	589	128	49	106	4894	

\*All measurements are approximate and for estimation purposes only. Weights are without fuel in tank. Sound levels measured at 23ft (7m) and does not account for ambient site conditions

	Tank Options	
0	MDEQ	OPT
$\circ$	Florida DERM/DEP	OPT
$\circ$	Chicago Fire Code	OPT
$\circ$	IFC Certification	CALL
0	ULC	CALL

Other Custom Options Available from your Generac Industrial Power Dealer

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.





#### MARVAIR SOUND DATA "AVP MODELS"

THE TABULATED SOUND LEVEL DATA WAS TAKEN DIRECTLY IN LINE WITH THE FRONT OF THE CONDENSER COIL / CONDENSER AIR OUTLETS OF EACH WALL – MOUNT AIR CONDITIONER. THE METER WAS PLACED APPROXIMATELY 5 FEET ABOVE GROUND LEVEL AND THE MICROPHONE ANGLED AT APPROXIMATELY 70° UP FROM HORIZONTAL.

THE TABULATED DATA HAS NOT BEEN CORRECTED WITH RESPECT TO BACKGROUND NOISE.

ALL MEASURED SOUND LEVELS HAVE BEEN ROUNDED TO THE NEAREST DECIBEL.

THE VALUE CONTAINED IN THE TABULATED DATA SHOULD BE VIEWED AS APPROXIMATE / REFERENCE VALUES ONLY. ACTUAL VALUES MAY VARY WITH EACH SITUATION.





#### MARVAIR SOUND DATA "AVP MODELS"

TEST MODEL: AVP12ACA TEST DATE: 03/16/00

DISTANCE FROM UNIT	SOUND LEVEL
"FEET"	"dBA"
5	65
10	62
20	60
30	56
40	53
50	52
60	51

BACKGROUND: 42-46 dBA

TEST MODEL: AVP24ACA TEST DATE: 03/16/00

DISTANCE FROM UNIT	SOUND LEVEL
"FEET"	"dBA"
5	66
<del>-</del>	61
10	
20	56
30	53
40	51
50	50
60	49

BACKGROUND: 39-49 dBA



### MARVAIR SOUND DATA "AVP MODELS"

TEST MODEL: AVP36 COMPAC I

TEST DATE: 03/16/00

DISTANCE FROM UNIT	
"FEET"	
5	
10	
20	
30	
40	
50	
60	

SOUND LEVEL
"dBA"
70
66
62
58
56
55
53

BACKGROUND: 42 - 48 dBA

TEST MODEL: AVP48 COMPAC II

TEST DATE: 03/16/00

DISTANCE FROM UNIT "FEET"	
5	
10	
20	
30	
40	
50	
60	

BACKGROUND: 42-48 dBA



### MARVAIR SOUND DATA "AVP MODELS"

TEST MODEL: AVP60 COMPAC II

TEST DATE: 03/16/00

DISTANCE FROM UNIT	SOUND LEVEL
"FEET"	"dBA"
5	73
10	70
20	65
30	63
40	61
50	60
60	58
70	57
80	56

BACKGROUND: 42-48 dBA

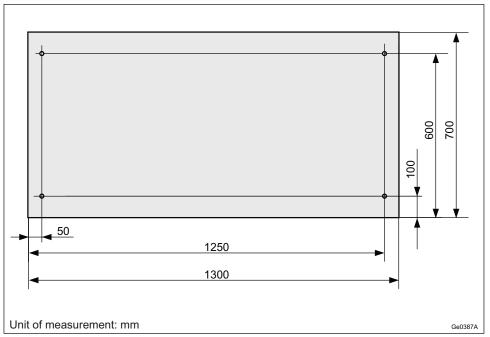


Figure 5 Drill Pattern

# 3.3 Acoustic Noise Summary

Table 2, Table 3 and Table 4 shows the sound pressure levels according to EN ISO 11201, at a bystander position 1 meter from the cabinet and 1.5 meter above the floor. The calculations are valid for a free field installation. If the RBS is located in a room, the sound pressure level will be higher than indicated in Table 2, Table 3 and Table 4. The calculations are in accordance with EN ISO 11203.

Table 2 shows the values for typical sub configurations for AC-powered RBS with standard climate.

Table 2 Sound Pressure Level, Bystander Position Measured at 20°C

No. of RUs	RF output dBm	Sound Pressure level at Bystander Position of 1 meter, L <sub>pa</sub> dB				
	иын	Front	Left	Right	Back	Тор
6	47.8	44	37	38	42	38

Table 3 shows the values for an RBS configured up to the design maximum heat load capacity with standard climate.

Table 3 Sound Pressure Level, Bystander Position, with standard climate

Operating Condition	Operating Sound Pressure level at Bystander Position of 1 meter, L <sub>pa</sub> dB			
Condition	Front	Left	Right	Back
20°C	51	45	46	49
25°C	55	47	49	50
30°C	58	49	49	55
45°C	67	56	56	62

Table 4 shows the values for an RBS configured up to the design maximum heat load capacity with extended climate.

Table 4 Sound Pressure Level, Bystander Position, with extended climate

Operating Condition				
Condition	Front	Left	Right	Back
20°C	53	46	46	51
25°C	55	48	47	53
30°C	58	50	50	55
45°C	70	60	60	65

Detailed information about acoustic noise emission can be found in Section 9 on page 54.

### 3.4 Environmental Characteristics

This section describes the environmental characteristics of the RBS.

### 3.4.1 Operating Environment

The following is a list of values for the RBS operating environment:

Temperature -33 to +45°C (with heater)<sup>(1)</sup>

+-0 to +45°C (without heater)

Relative humidity 15 to 100%

Absolute humidity 0.26 to 25 g/m<sup>3</sup>

Maximum temperatu 0.5°C/min

re change

(1) For a DC-powered RBS, cold start up has a lower limit of -25° C.

# ATTACHMENT B





# **Industrial Diesel Generator Set**

**EPA Certified Stationary Emergency** 

**Standby Power Rating** 100kVA 80kW

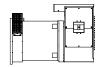
**SD080** 

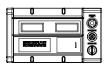
**Prime Power Rating** 90kVA 72KW



Generator image used for illustration purposes only

\*EPA Certified Prime ratings are not available in the U.S. or its Territories for engine model year 2011 and beyond





## features

#### **Generator Set**

- PROTOTYPE & TORSIONALLY TESTED
- **UL2200 TESTED**
- RHINOCOAT PAINT SYSTEM
- WIDE RANGE OF ENCLOSURES AND TANKS

- EPA COMPLIANT
- INDUSTRIAL TESTED, GENERAC APPROVED
- POWER-MATCHED OUTPUT
- INDUSTRIAL GRADE

#### Alternator

- TWO-THIRDS PITCH
- LAYER WOUND ROTOR & STATOR
- CLASS H MATERIALS
- DIGITAL 3-PHASE VOLTAGE CONTROL

## benefits

- PROVIDES A PROVEN UNIT
- **ENSURES A QUALITY PRODUCT**
- IMPROVES RESISTANCE TO ELEMENTS
- PROVIDES A SINGLE SOURCE SOLUTION
- **ENVIRONMENTALLY FRIENDLY**
- **ENSURES INDUSTRIAL STANDARDS**
- **ENGINEERED FOR PERFORMANCE**
- IMPROVES LONGEVITY AND RELIABILITY
- **ELIMINATES HARMFUL 3RD HARMONIC**
- IMPROVES COOLING
- HEAT TOLERANT DESIGN
- **FAST AND ACCURATE RESPONSE**

- ENCAPSULATED BOARD W/ SEALED HARNESS
- 4-20mA VOLTAGE-TO-CURRENT SENSORS
- SURFACE-MOUNT TECHNOLOGY
- ADVANCED DIAGNOSTICS & COMMUNICATIONS
- EASY, AFFORDABLE REPLACEMENT
- NOISE RESISTANT 24/7 MONITORING
- PROVIDES VIBRATION RESISTANCE
- HARDENED RELIABILITY













2 of 5



# application and engineering data

#### **ENGINE SPECIFICATIONS**

**SD080** 

<u>General</u>	
Make	Iveco / FPT
EPA Emissions Compliance	Stationary Emergency
EPA Emissions Reference	See Emissions Data Sheet
Cylinder #	4
Туре	Diesel
Displacement - L (cu. in.)	4.5 (274)
Bore - mm (in.)	105 (4.1)
Stroke - mm (in.)	132 (5.2)
Compression Ratio	17.5:1
Intake Air Method	Turbocharged
Cylinder Head Type	2 Valve
Piston Type	Aluminum
Crankshaft Type	Forged Steel
Engine Block Type	Cast Iron / Wet Sleeve

#### **Engine Governing**

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	± 0.25%

#### **Lubrication System**

Oil Pump Type	Gear
Oil Filter Type	Full Flow
Crankcase Capacity - L (qts)	13.6 (14.4)

#### **Cooling System**

Cooling System Type	Closed
Water Pump Flow	Belt Driven Centrifugal
Fan Type	Pusher
Fan Blade Number	2538
Fan Diameter mm (in.)	26
Coolant Heater Wattage	1500
Coolant Heater Standard Voltage	120

#### **Fuel System**

Fuel Type*	Ultra Low Sulfur Diesel Fuel
Fuel Specifications	ASTM
Fuel Filtering (microns)	5
Fuel Inject Pump Make	Stanadyne
Fuel Pump Type	Engine Driven Gear
Injector Type	Mechanical
Engine Type	Direct Injection
Fuel Supply Line - mm (in.)	1/4" NPT
Fuel Return Line - mm (in.)	1/4" NPT

#### **Engine Electrical System**

System Voltage	12VDC
Battery Charging Alternator	Std
Battery Size (at 0°C)	995 CCA
Battery Group	31
Battery Voltage	12 Volt DC
Ground Polarity	Negative

#### **ALTERNATOR SPECIFICATIONS**

Standard Model	390 mm Generac		
Poles	4		
Field Type	Revolving		
Insulation Class - Rotor	Н		
Insulation Class - Stator	Н		
Total Harmonic Distortion	< 5%		
Telephone Interference Factor (TIF)	< 50		
Standard Excitation	Synchronous Brushless		
Bearings	One-Pre Lubed & Sealed		
Coupling	Direct, Flexible Disc		
Load Capacity - Standby	100%		
Prototype Short Circuit Test	Yes		

Voltage Regulator Type	Digital		
Number of Sensed Phases	3		
Regulation Accuracy (Steady State)	± 0.25%		

#### **CODES AND STANDARDS COMPLIANCE (WHERE APPLICABLE)**

 NFPA 99
 BS5514

 NFPA 110
 SAE J1349

 ISO 8528-5
 DIN6271

ISO 1708A.5 IEEE C62.41 TESTING ISO 3046 NEMA ICS 1

Rating Definitions:

3 of 5

# **SD080**

# operating data (60Hz)

#### **POWER RATINGS (kW)**

		STANDBY		PRIME
Single-Phase 120/240VAC @1.0pf	80 kW	Amps: 333	72 kW	Amps: 300
Three-Phase 120/208VAC @0.8pf	80 kW	Amps: 278	72 kW	Amps: 250
Three-Phase 120/240VAC @0.8pf	80 kW	Amps: 241	72 kW	Amps: 217
Three-Phase 277/480VAC @0.8pf	80 kW	Amps: 120	72 kW	Amps: 108
Three-Phase 346/600VAC @0.8pf	80 kW	Amps: 96	72 kW	Amps: 87

#### STARTING CAPABILITIES (sKVA)

	sKVA	VS.	<b>Voltage</b>	Din
--	------	-----	----------------	-----

		480VAC						208/2	40VAC				
Alternator	kW	10%	15%	20%	25%	30%	35%	10%	15%	20%	25%	30%	35%
Standard	80	59	88	117	147	176	205	44	66	88	110	132	154
Upsize 1	100	79	118	157	197	236	275	59	89	118	148	177	206
Upsize 2	125	116	174	232	290	348	406	87	131	174	218	261	305

#### **FUEL**

#### Fuel Consumption Rates\*

Fuel Pump Lift - in (mm)	_
36 (900)	

Total Fuel Pump Flow (Combustion + Return)	
13.6 gph	

	STANDBY			PRIME	
Percent Load	gph	lph	Percent Load	gph	lph
25%	2.1	7.9	25%	1.9	7.2
50%	3.7	14.0	50%	3.4	12.9
75%	5.2	19.7	75%	4.7	17.8
100%	6.3	23.8	100%	5.8	22.0

<sup>\*</sup> Refer to "Emissions Data Sheet" for maximum fuel flow for EPA and SCAQMD permitting purposes.

### COOLING

		STANDBY	PRIME
Coolant Flow per Minute	gpm (lpm)	32.7 (123.8)	32.7 (123.8)
Heat Rejection to Coolant	BTU/hr	232,270	213,830
Inlet Air	cfm (m3/min)	6,360 (180)	6,360 (180)
Max. Operating Radiator Air Temp	F° (C°)	122 (50)	122 (50)
Max. Operating Ambient Temperature	F° (C°)	104 (40)	104 (40)
Coolant System Capacity	gal (L)	(4.5) 17.44	(4.5) 17.44
Maximum Radiator Backpressure	in H <sub>2</sub> 0	1.5	1.5

### **COMBUSTION AIR REQUIREMENTS**

		STANDBY	PRIME
Flow at Rated Power	cfm (m3/min)	306 (8.67)	275 (7.80)

#### **ENGINE**

		STANDBY	PRIME
Rated Engine Speed	rpm	1800	1800
Horsepower at Rated kW**	hp	131	127
Piston Speed	ft/min	1559 (475)	1559 (475)
BMEP	psi	210	194

<sup>\*\*</sup> Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

#### **EXHAUST**

		STANDBY	PRIME
Exhaust Flow (Rated Output)	cfm (m³/min)	790 (22.4)	743 (21.0)
Max. Backpressure (Post Silencer)	inHg (Kpa)	1.5 (5.1)	1.5 (5.1)
Exhaust Temp (Rated Output)	°F (°C)	887 (475)	887 (475)
Exhaust Outlet Size (Open Set)	NPT (male)	3.0	3.0

4 of 5



# standard features and options

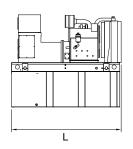
SD	080			S
GEN	ERATOR SET		<u>CON</u>	ITROL SYSTEM
•	Genset Vibration Isolation	Std		Control Panel
0	IBC Seismic Certified/Seismic Rated Vibration Isolators	Opt	•	Digital H Control Pa
0	Extended warranty	Opt	0	Digital G-100 Contr
0	Gen-Link Communications Software	Opt	0	Digital G-200 Parall
0	Steel Enclosure	Opt	•	. 3
0	Aluminum Enclosure	Opt		21-Light Remote Ar
				Remote Relay Panel
ENG	INE SYSTEM		•	7-Day Programmable
	General	<u> </u>		Special Applications RS-232
•	Oil Drain Extension	Std		RS-485
0	Oil Make-Up System	Opt	•	All-Phase Sensing [
0	Oil Heater	Opt	•	Full System Status
•	Air cleaner	Std	•	Utility Monitoring (F
•	Fan guard	Std	•	2-Wire Start Compa
•	Radiator duct adapter	Std	•	Power Output (kW)
			•	Power Factor
	Fuel System		•	Reactive Power
•	Fuel lockoff solenoid	Std	•	All phase AC Voltag
•	Secondary fuel filter	Std	•	All phase Currents
•	Stainless steel flexible exhaust connection	Std	•	Oil Pressure
•	Industrial Exhaust Silencer	Std	•	Coolant Temperature
0	Critical Exhaust Silencer	Opt	•	Coolant Level
0	Flexible fuel lines	Opt	0	Oil Temperature
0	Primary fuel filter	Opt	•	Fuel Pressure
0	Single Wall Tank (Export Only)	-	•	Engine Speed
0	UL 142 Fuel Tank	Opt	•	Battery Voltage
	Cooling System		•	Frequency
0	120VAC Coolant Heater	Opt	•	Date/Time Fault His
0	208VAC Coolant Heater	Opt	0	Low-Speed Exercise
0	240VAC Coolant Heater	Opt	•	Isochronous Govern -40deg C - 70deg C
0	Other Coolant Heater	-		Waterproof Plug-In
	Closed Coolant Recovery System	Std		Audible Alarms and
•	UV/Ozone resistant hoses	Std		Not in Auto (Flashin
	Factory-Installed Radiator	Std		Auto/Off/Manual Sw
•	Radiator Drain Extension	Std	•	E-Stop (Red Mushro
	Engine Electrical System		0	Remote E-Stop (Bre
•	Battery charging alternator	Std	0	Remote E-Stop (Red
•	Battery cables	Std	0	Remote E-Stop (Red
•	Battery tray	Std	•	NFPA 110 Level I ar
0	Battery box	Opt	•	Remote Communica
0	Battery heater	Opt	0	Remote Communica
•	Solenoid activated starter motor	Std	0	Remote Communica
0	2.5A UL battery charger	Opt	0	10A Run Relay
0	10A UL float/equalize battery charger	Opt		Alarms (Programma
	Rubber-booted engine electrical connections	Std	0	Low Fuel
			•	Oil Pressure (Pre-pr
ALTI	ERNATOR SYSTEM		•	Coolant Temperature
•	UL2200 GENprotectTM	<b>■</b> 4	•	Coolant Level (Pre-
0	Main Line Circuit Breaker		0	Oil Temperature
0	2nd Circuit Breaker	Opt	•	Engine Speed (Pre-
0	3rd Circuit Breaker	-	•	Voltage (Pre-progra
0	Alternator Upsizing	Opt	•	Battery Voltage
0	Anti-Condensation Heater	Opt		Other Options
0	Tropical coating	Opt	0	Caron Optionio
0	Permanent Magnet Generator	Opt	0	

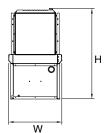
	Control Panel	8 0
	Digital H Control Panel - Dual 4x20 Display	Std
)	Digital G-100 Control Panel - Touchscreen	na
)	Digital G-200 Paralleling Control Panel - Touchscreen	na
	Programmable Crank Limiter	Sto
)	21-Light Remote Annunciator	Op
)	Remote Relay Panel (8 or 16)	Opt
)	7-Day Programmable Exerciser	Sto
)	Special Applications Programmable PLC	Std
)	RS-232	Sto
)	RS-485	Sto
)	All-Phase Sensing DVR	Sto
)	Full System Status	Sto
)	Utility Monitoring (Req. H-Transfer Switch)	Sto
)	2-Wire Start Compatible	Sto
)	Power Output (kW)	Sto
)	Power Factor	Sto
)	Reactive Power	Sto
)	All phase AC Voltage	Sto
)	All phase Currents	Sto
,	Oil Pressure	Sto
)	Coolant Temperature	Sto
)	Coolant Level	Sto
)	Oil Temperature	Op:
,	Fuel Pressure	Sto
,		Sto
,	Engine Speed	Sto
,	Battery Voltage	
	Frequency	Sto
)	Date/Time Fault History (Event Log)	Sto
)	Low-Speed Exercise	-
)	Isochronous Governor Control	Sto
)	-40deg C - 70deg C Operation	Sto
)	Waterproof Plug-In Connectors	Sto
)	Audible Alarms and Shutdowns	Sto
)	Not in Auto (Flashing Light)	Sto
)	Auto/Off/Manual Switch	Sto
)	E-Stop (Red Mushroom-Type)	Sto
)	Remote E-Stop (Break Glass-Type, Surface Mount)	Op
)	Remote E-Stop (Red Mushroom-Type, Surface Mount)	Op
)	Remote E-Stop (Red Mushroom-Type, Flush Mount)	Op
)	NFPA 110 Level I and II (Programmable)	Sto
)	Remote Communication - RS232	Sto
)	Remote Communication - Modem	Op
)	Remote Communication - Ethernet	Op
)	10A Run Relay	Op
	Alarms (Programmable Tolerances, Pre-Alarms and Shutdowns)	
)	Low Fuel	Op
,	Oil Pressure (Pre-programmed Low Pressure Shutdown)	Sto
,	Coolant Temperature (Pre-programmed High Temp Shutdown)	Sto
,	Coolant Level (Pre-programmed Low Level Shutdown)	Sto
,	Oil Temperature	Op:
	•	
	Engine Speed (Pre-programmed Overspeed Shutdown)	Sto
	Voltage (Pre-programmed Overvoltage Shutdown)	Sto
,	Battery Voltage	Sto
	Other Options	



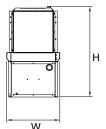
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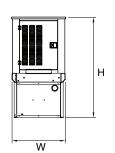
# dimensions, weights and sound levels





	0	Н
		<u> </u>



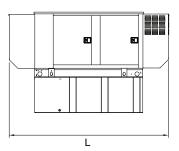


#### **OPEN SET**

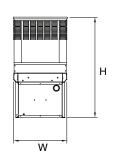
RUN TIME HOURS	USABLE CAPACITY (GAL)	L	W	Н	WT	dBA*
NO TANK	-	93	40	49	2425	
13	79	93	40	62	2947	
30	189	93	40	74	3183	
48	300	93	40	86	3407	87
56	350	110	40	86	3809	
81	510	117	47	86	3790	
93	589	128	49	86	4269	



RUN TIME HOURS	USABLE CAPACITY (GAL)	L	W	Н	WT	dBA*
NO TANK	-	112	41	56	2850	
13	79	112	41	69	3372	
30	189	112	41	81	3608	
48	300	112	41	93	3832	81.4
56	350	112	41	93	4234	
81	510	117	47	93	4215	
93	589	128	49	93	4694	

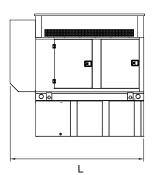


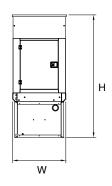
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#### **LEVEL 1 SOUND ENCLOSURE**

RUN TIME HOURS	USABLE CAPACITY (GAL)	L	W	Н	WT	dBA*
NO TANK	-	130	41	56	2875	
13	79	130	41	69	3397	
30	189	130	41	81	3633	
48	300	130	41	93	3857	74.8
56	350	130	41	93	4259	
81	510	130	47	93	4240	
93	589	130	49	93	4719	





#### **LEVEL 2 SOUND ENCLOSURE**

RUN TIME HOURS	USABLE CAPACITY (GAL)	L	W	Н	WT	dBA*
NO TANK	-	112	41	69	3050	
13	79	112	41	82	3572	
30	189	112	41	94	3808	
48	300	112	41	106	4032	71.7
56	350	112	41	106	4434	
81	510	117	47	106	4415	
93	589	128	49	106	4894	

\*All measurements are approximate and for estimation purposes only. Weights are without fuel in tank. Sound levels measured at 23ft (7m) and does not account for ambient site conditions.

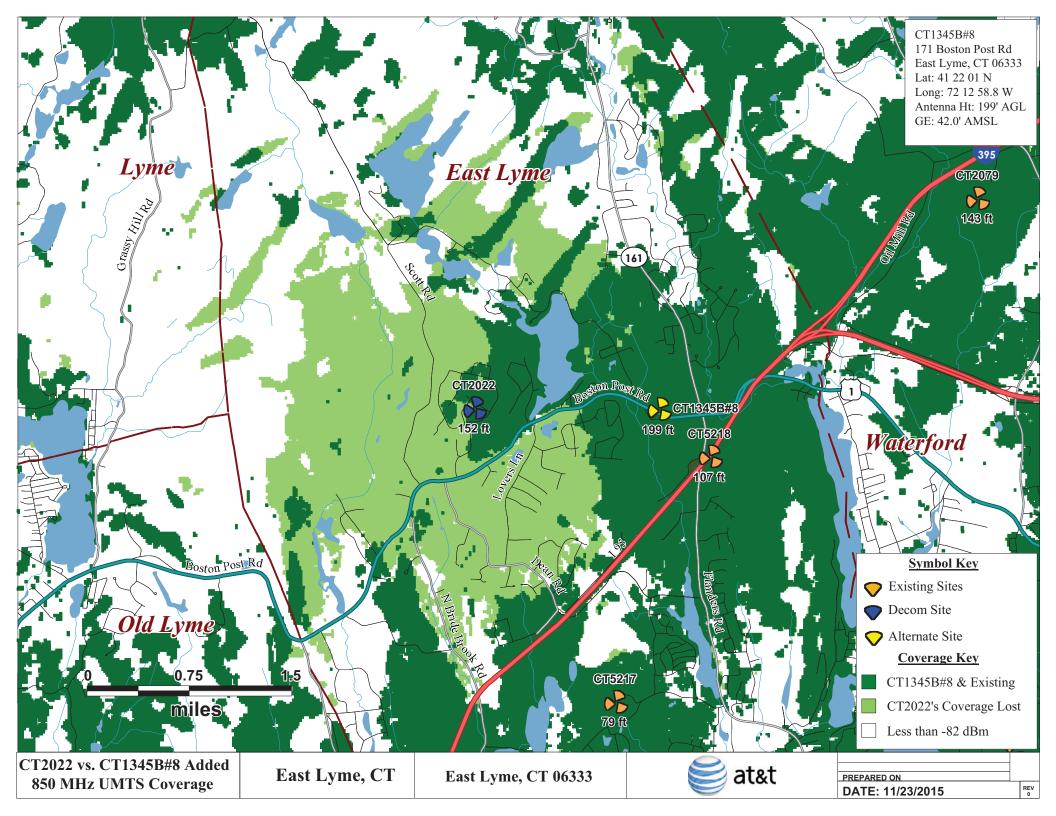
	Tank Options	
0	MDEQ	OPT
0	Florida DERM/DEP	OPT
0	Chicago Fire Code	OPT
0	IFC Certification	CALL
0	ULC	CALL

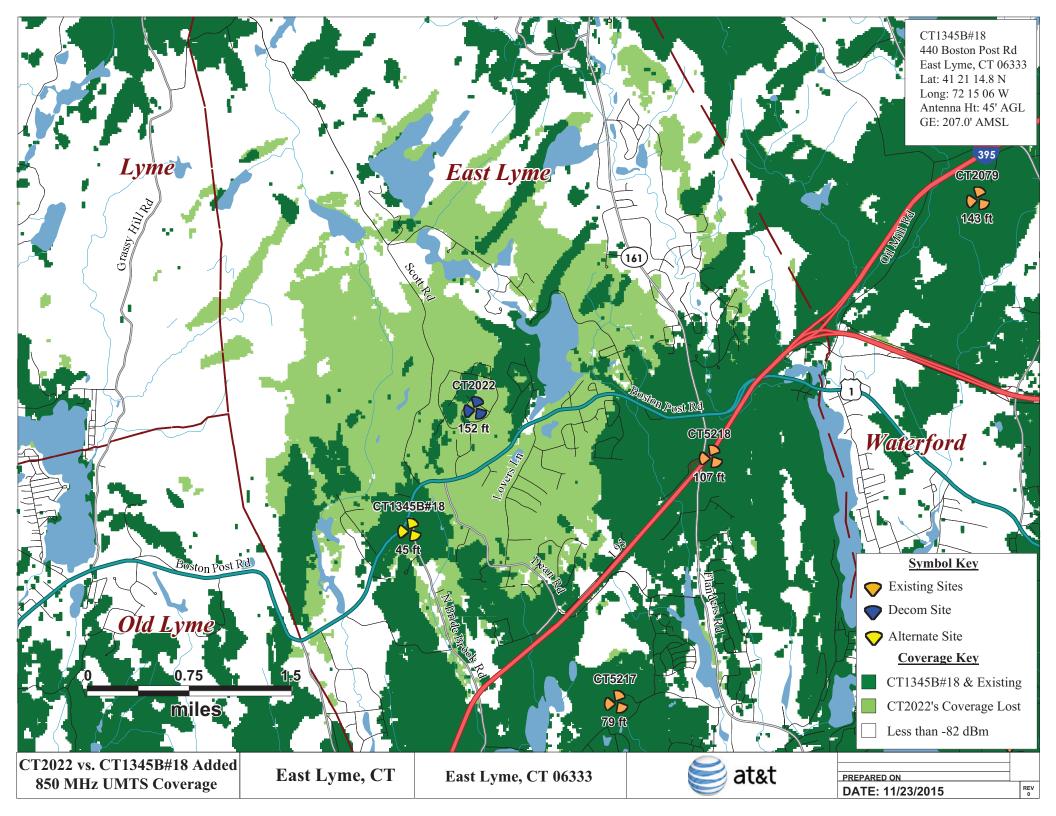
Other Custom Options Available from your Generac Industrial Power Dealer

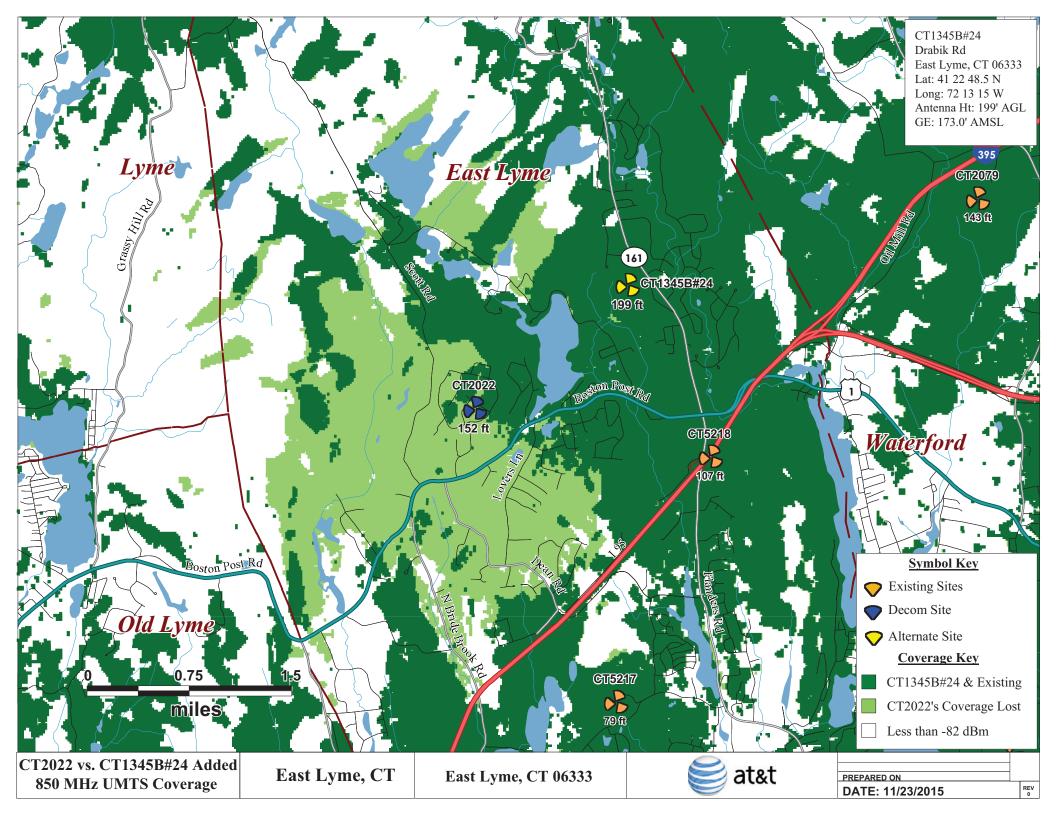
YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

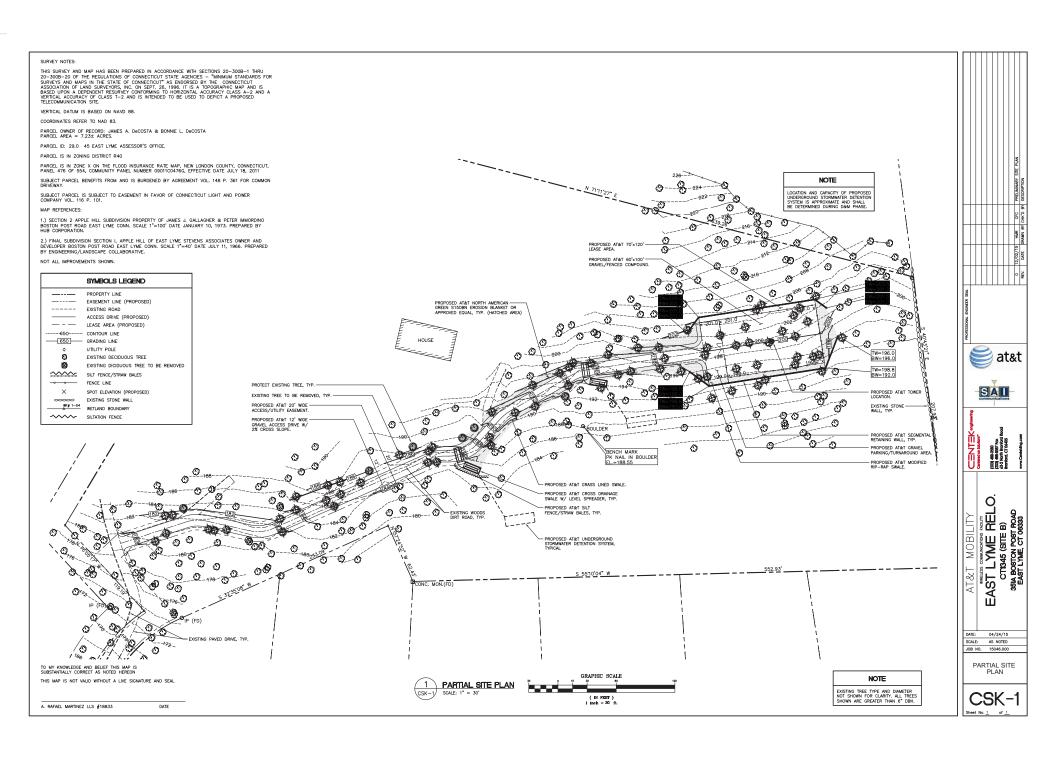
# ATTACHMENT C





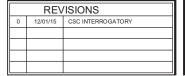


# ATTACHMENT D



# ATTACHMENT E







(203) 488-0580 (203) 488-8587 Fax 63-2 North Branford Road, Branford, CT 06405

### EAST LYME RELO CT1345

351A BOSTON POST RD. EAST LYME, CT 06333

PROJECT NO:	15046.000
DRAWN BY:	
CHECKED BY:	
SCALE:	
DATE:	12/01/2015



