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19 February 2026

Sentinel Green Fig, LLC
505 5th Avenue, Floor 27
New York, New York 10017
c/o Nick Marzorati
nmarzorati@sentineldatacenters.com

Re: Acoustical Evaluation of Proposed Data Centers
Sentinel Green Fig
East Whiteland, Pennsylvania
LSG&A File 2025136

Dear Mr. Marzorati:

As requested, Lewis S. Goodfriend & Associates (LSG&A) has conducted an updated acoustical evaluation of the proposed data centers in East Whiteland, Pennsylvania, which includes further developments of the design and addresses concerns raised during the 28 January 2026 Planning Commission hearing. This letter summarizes LSG&A's acoustical evaluation and noise control measures for the application. The results indicate that by implementing the proposed noise control measures, the sound levels due to the typical operation of the proposed equipment are in all cases materially below limits of the noise regulation.

The main changes to the sound model depicted in the results below are summarized as follows:

1. The make & model of the chiller manufacturer were finalized due to developing designs. This new chiller has a sound reduction software package, and is also of higher capacity which reduces the total quantity of chillers proposed to be installed from 144 to 112 per building.
2. The new chillers have reduced sound levels at lower octave bands relative to the previously modeled chillers; noise from lower octave bands dissipate over longer distances than higher octave bands.
3. For completeness and transparency, additional air handling equipment have been included on the "Admin/Office" portion of the building, similar to that of a small office building. This equipment is also screened with rooftop sound barriers and presents minimal impact to the overall noise analysis.
4. An addition sound receptor was added (Location 12) to represent the Church Farm School in West Whiteland Township for analysis purposes.

1.0 SITE LAYOUT

The site is located at 13 South Bacton Hill Road in East Whiteland Township, Pennsylvania. Two data center buildings are proposed with rooftop air-cooled chillers and (as of this updated letter) rooftop Admin/Office air handing units for each building have been added for model completeness.

Emergency-only generators are located on the east and west sides of each building, within acoustical enclosures, and also acoustically screened with sound wall structure on the north and sound ends of the generator areas. Residential properties are located to the north across Swedesford Road and to the east across South Bacton Hill Road. The PECO Planebrook Substation is located to the south of the site, commercial/industrial properties are located to the east of the site, and unimproved land and farmland are located to the west of the site in West Whiteland Township, with a school property further to the southwest (Evaluation Location 12 was added since the last report to represent this school). The site and adjacent areas are shown in Figure 1.

2.0 REQUIREMENTS OF THE NOISE REGULATION

The local noise regulation is set forth in Chapter 133 of the Code of the Township of East Whiteland. Section 133-4.A provides the following sound level limits:

> *(1) No person, firm or business entity shall play, use or operate, or knowingly permit to be played, used or operated, any radio receiving set, musical instrument, phonograph, sound amplifier, bell, siren, firework, rocket, whistle, alarm, audio signaling device, loudspeaker, exhaust or other machine or device that generates or reproduces sound, upon real or personal property owned, occupied or controlled by him or it, in such a manner that the sound emanating from such machine or device equals or exceeds, at any boundary of such property: [Amended 1-9-2019 by Ord. No. 306-2019]*
>
> *(a) Ten decibels greater than the background noise level; or*
>
> *(b) Sixty-five decibels during the hours of 7:00 a.m. to 9:00 p.m., or 60 decibels during the hours of 9:00 p.m. to 7:00 a.m.*
>
> *(2) Noise levels shall be measured according to American National Standards Institute Methods for the Measurement of Sound Pressure Levels, ANSI SI.13-1971 (R. 1986), or other equivalent method.*

It is assumed that the decibel levels referred to in the code are the overall A-weighted[1] sound levels, as the code refers to the measurement procedure described in the ANSI standard S1.13, which requires that the A-weighted sound levels be reported.

[1] A-weighting, noted as dB(A), is a standardized sound level meter setting having a frequency characteristic similar to the human ear/brain frequency sensitivity.

In addition, Section 133-7 states the following:

> *It shall be unlawful for any person or business entity, or their agents or employees owning or occupying any building or premises in the Township of East Whiteland, to operate or permit to be operated any type of vehicle, machinery, appliance, equipment or hand tool which emits noise in violation of the decibel provisions of § 133-4A herein, between the hours of 9:00 p.m. and 7:00 a.m. (9:00 a.m. on Sundays and national holidays) local time. When the vehicle, machinery, appliance, equipment or hand tool is being used in conjunction with agricultural activities, an emergency, snow removal or repair of a public utility such as a gas main, water main or electrical power line, this section shall not apply.*

LSG&A understands that a power outage causing all of the proposed generators to operate simultaneously would be extremely rare given the close proximity to the PECO Planebrook Substation. Further, based on the language of the noise regulation LSG&A believes that such an emergency situation would not be subject to noise code enforcement. Routine testing of the generators, however, would be subject to the limits of the noise regulation.

3.0 ACOUSTICAL EVALUATION & RECOMMENDATIONS

In order to calculate the sound levels due to the proposed equipment, LSG&A developed a model of the site with SoundPLAN 3D acoustical modeling software, using ISO Standard 9613-2 methodology for the calculations. This standard assumes favorable conditions for sound propagation including all receivers downwind of sources and nighttime atmospheric refraction. The acoustical model considered the propagation of sound over distance, the shielding and reflection of sound due to buildings and barriers, and the effect of topography. Additional attenuation due to ground absorption, air absorption, and foliage was not considered in the model, in order to produce conservative results. The following sound sources were incorporated into the analysis:

3.1 Chillers

Each building was evaluated with 112 rooftop chillers (reduced from 144 in prior design), equipped with a Low Noise operation mode that limits the fan speed to 60%. LSG&A understands that 75% building utilization on a hot summer design day is typical worst-case condition given redundancy and loading buffers typical of the use-case, with each chiller operating at 55% name-plate load with a sound power level of 96.4 dB(A). LSG&A also considered practical worst-case 100% building utilization on a hot summer design day with each chiller operating at 79% name-plate load with a sound power level of 98.6 dB(A).

LSG&A understands that each chiller's compressor system will be equipped with BRD Standard SC jacketing, which reduces the sound power level of the chiller by approximately 4 dB(A). In addition, barriers were also included on the north roof perimeter and portions of the east and west roof perimeter with a top height of four feet above the top of the chillers. Figure 1 shows the sound barrier placement.

For comparison, the previously-approved Land Use Plan used open cooling towers that employ large fans and a waterfall-like mechanism whereby the noise-producing elements constantly run regardless of building loading all year round, unlike the currently proposed air-cooled chillers that will modulate based on building loading and outside temperature. Moreover, open cooling towers tend to generate a "whooshing / roaring" sound that carries far (low-frequency noise) and are prone to imbalance and "wobble" creating noise effects more likely to be experienced from a distance if resonating. The currently proposed plan uses air-cooled chillers with multiple smaller fans condenser fans of composite propeller-type, which are lighter and less prone to imbalance and low-frequency noise.

3.2 Air Handing Units

Each building was evaluated with 8 rooftop air handing units (AHUs) for the administration area, each with a sound power level of 89 dB(A). Sound barriers were also included on the north, east, and west roof perimeters of each administration area, with a top height of four feet above the top of the air handlers. Figure 1 shows the sound barrier placement.

3.3 Generators

Each building is proposed to have emergency generators installed in a two-level stacked arrangement on the east and west sides of each building. LSG&A understands that each generator will be housed in an acoustical enclosure with a sound level rating of 72 dB(A) at 23 feet.

Note, the total quantity of generators does not have an impact on the routine testing sound model, as the simultaneous operation of all generators would only occur during a catastrophic set of conditions (described within the Appendix A).

The regular expected operation of generators would be for readiness testing of which each generator is run in isolation for approximately 1 hour per month. A worst-case routine testing scenario was modeled which includes the northernmost top level generators operating (four operating simultaneously for the site, which is very unlikely given operational constraints), which will be an activity limited to daytime hours. Additionally, sound barriers were included at the north and south ends of each generator area, with a top height of 50 feet above grade for further mitigating potential generator noise. Figure 1 shows the sound barrier placement.

4.0 RESULTS AND DISCUSSION

The tables below show the expected sound levels due to the proposed equipment and noise control measures in various operating conditions, compared to the applicable limits of the noise regulation.

Table 1, below, shows the results of the anticipated loading of the chillers for the buildings based on industry standard building utilization (approximately 75% electrical power utilization) which is the typical expected worst-case noise output.

Table 1 – Results of a Typical Worst-Case Operating Scenario (Chillers Operating at a 75% Building Utilization on a Hot Summer Design Day), Sentinel Green Fig Data Centers, East Whiteland, Pennsylvania.

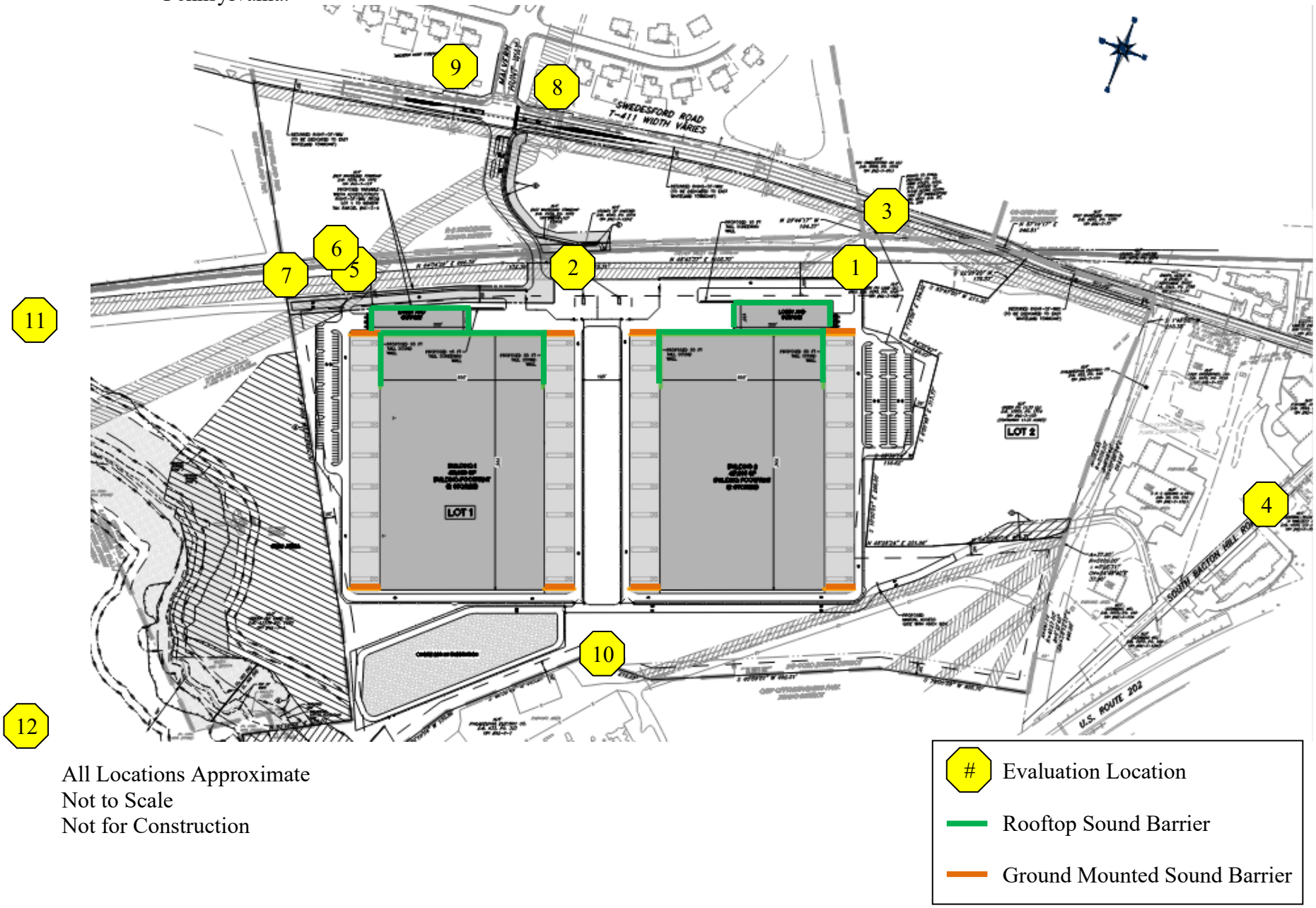
Location	Sound Level, dB(A)	
	Chillers & AHUs	Chillers, AHUs & Generator Maintenance Testing
1: Northeast Property Line	44	49
2: North Property Line	49	53
3: Northeast Road	48	51
4: East Residences	49	50
5: Northwest Property Line	44	50
6: Northwest Property Line	44	50
7: Northwest Property Line	50	54
8: North Residences	52	53
9: North Residences	51	52
10: South Property Line	57	57
11: West Property Line	50	51
12: West School Property Line	50	51
Average of Locations	**49**	**52**
Ordinance Limit	**60**	**65**
Average below limit	**-11**	**-13**

Table 2, below shows the expected sound levels under a worst-case building electrical utilization, which is rarely expected to occur.

Table 2 – Results of a Worst-Case Operating Scenario (Chillers Operating at a 100% Building Utilization on a Hot Summer Design Day), Sentinel Green Fig Data Centers, East Whiteland, Pennsylvania.		
Location	**Sound Level, dB(A)**	
	Chillers & AHUs	**Chillers, AHUs & Generator Maintenance Testing**
1: Northeast Property Line	46	49
2: North Property Line	50	53
3: Northeast Road	49	52
4: East Residences	51	51
5: Northwest Property Line	45	50
6: Northwest Property Line	46	50
7: Northwest Property Line	52	55
8: North Residences	54	54
9: North Residences	53	53
10: South Property Line	59	59
11: West Property Line	52	52
12: West School Property Line	52	52
Average of Locations	**51**	**53**
Ordinance Limit	**60**	**65**
Average Below Limit	**-9**	**-12**

For additional information, the octave band results of the modeling are shown in Figures 2 through 5, below.

Figure 1 – Partial Site Plan Acoustical Evaluation and Sound Barrier Locations, Sentinel Green Fig Data Centers, East Whiteland, Pennsylvania.



All Locations Approximate
Not to Scale
Not for Construction

Figure 2 – Expected Sound Pressure Levels due to Data Center Equipment, Sentinel Green Fig Data Centers, East Whiteland, Pennsylvania.

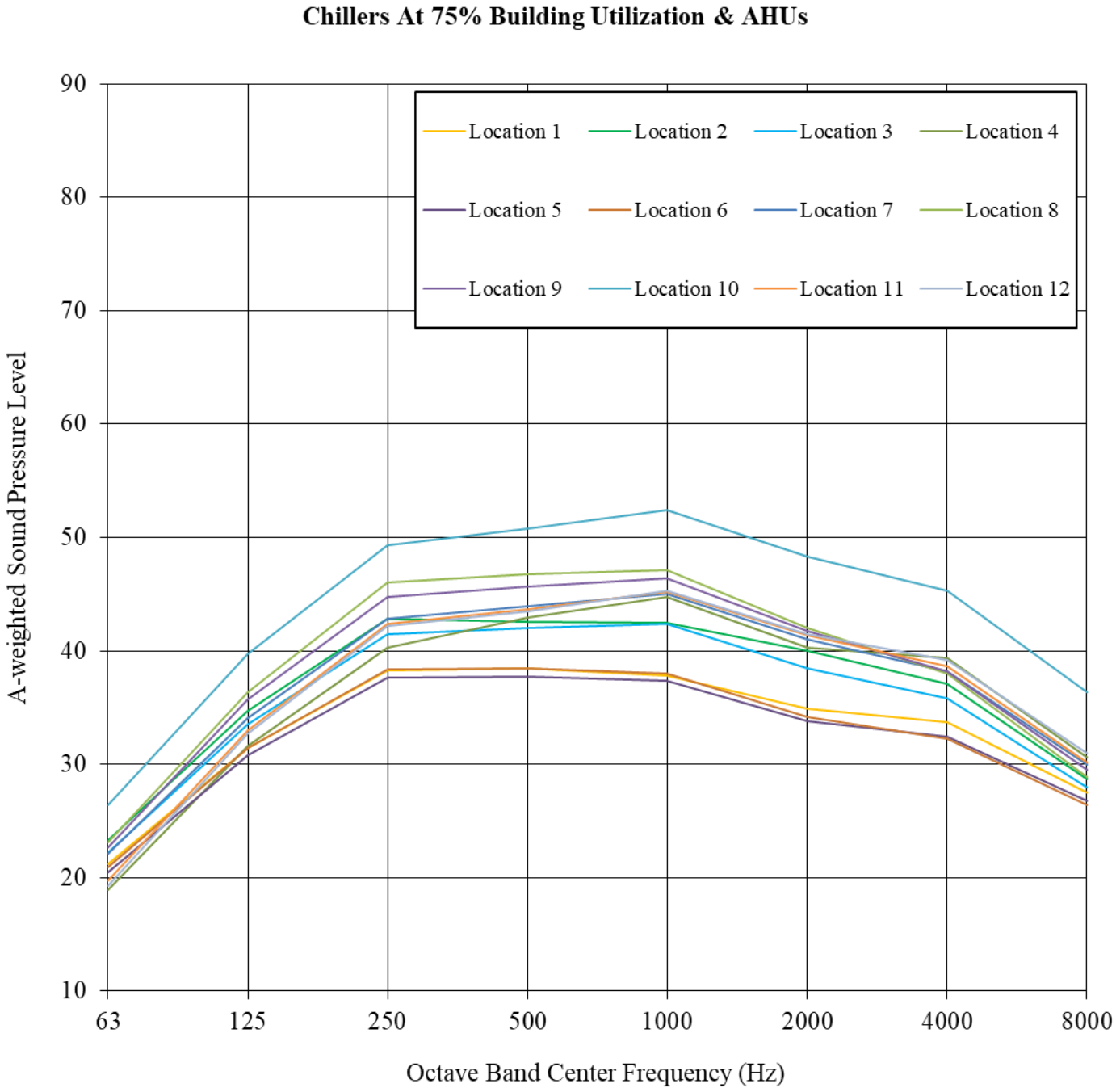


Figure 3 – Expected Sound Pressure Levels due to Data Center Equipment, Sentinel Green Fig Data Centers, East Whiteland, Pennsylvania.

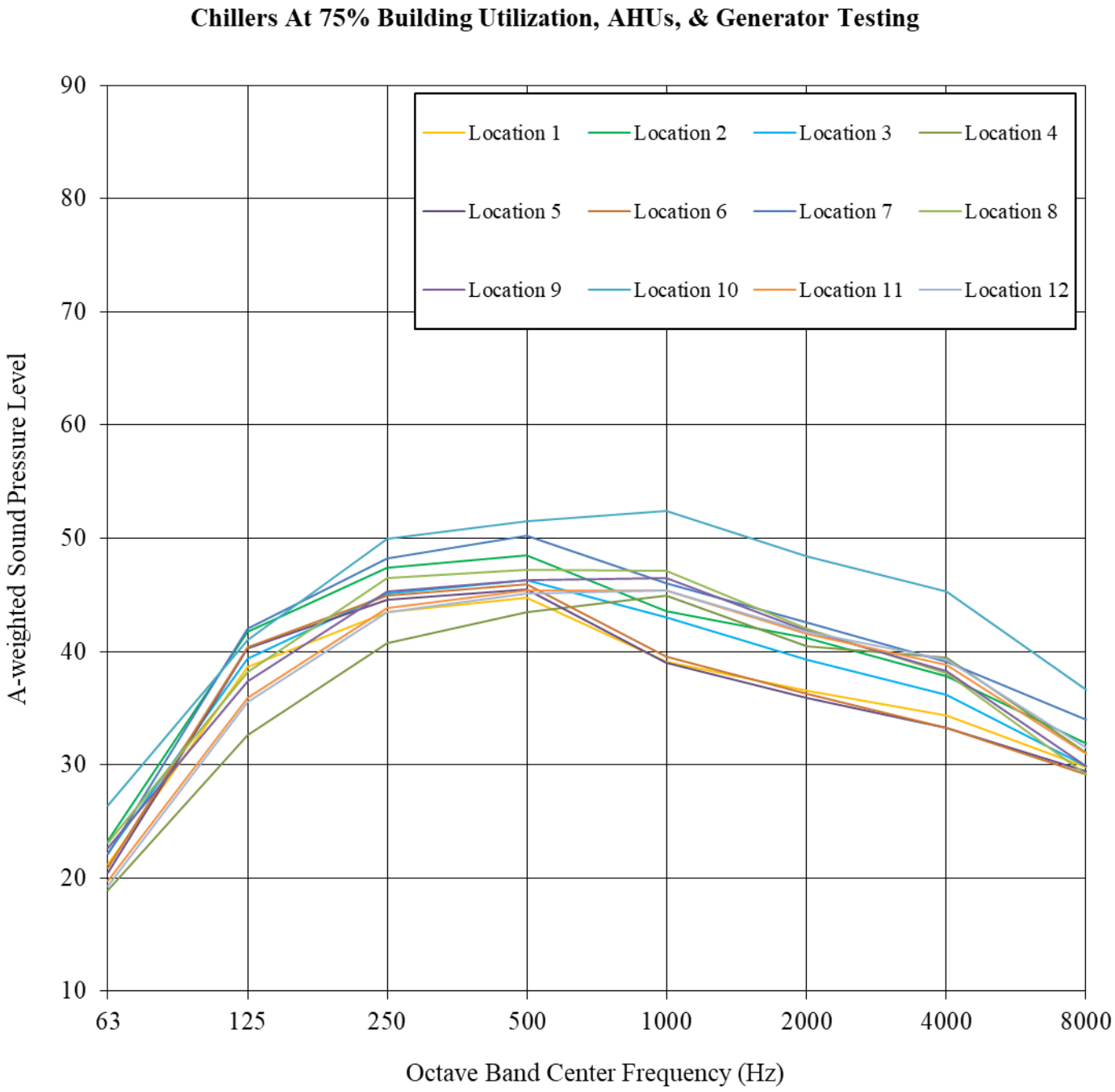


Figure 4 – Expected Sound Pressure Levels due to Data Center Equipment, Sentinel Green Fig Data Centers, East Whiteland, Pennsylvania.

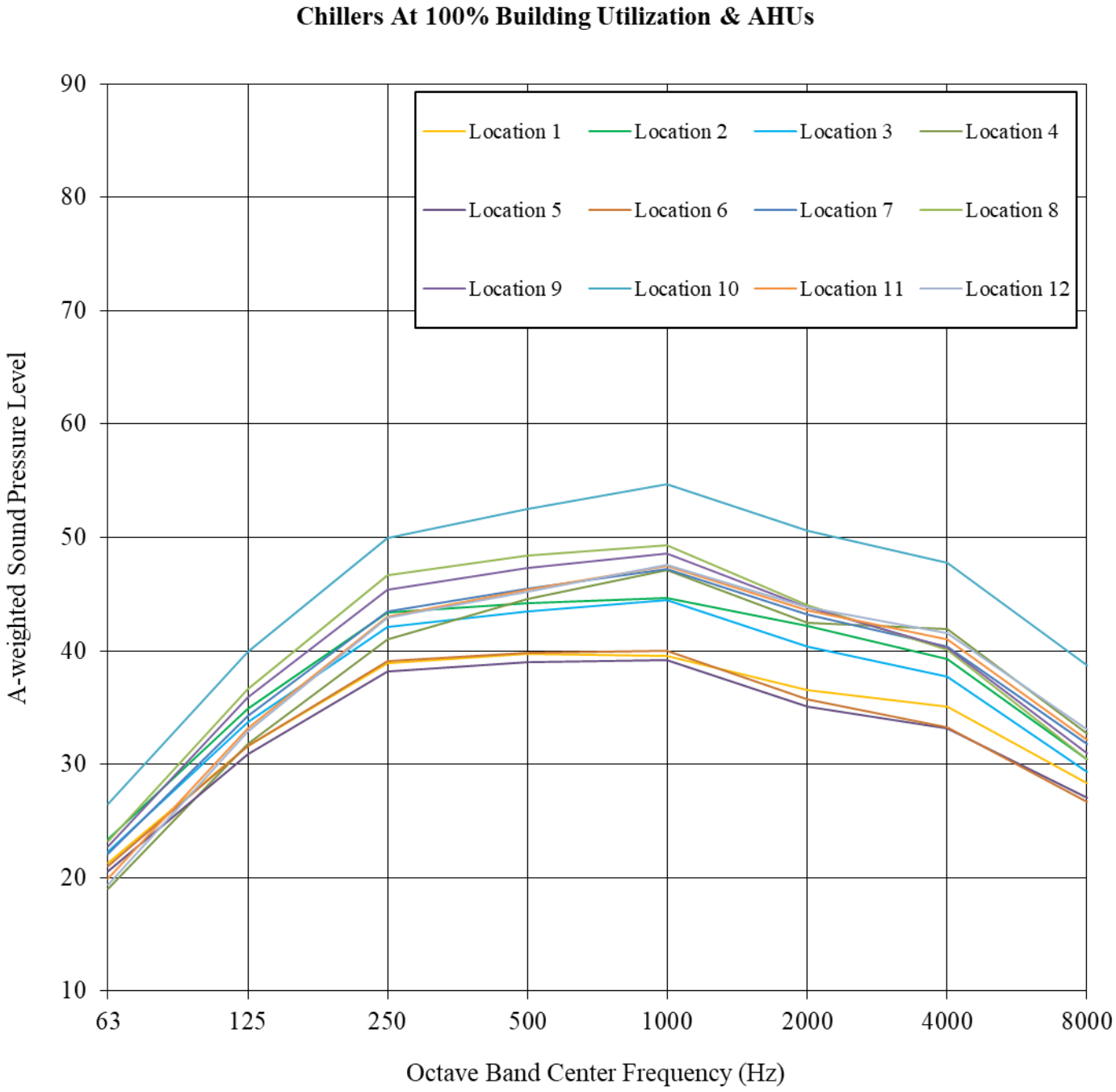
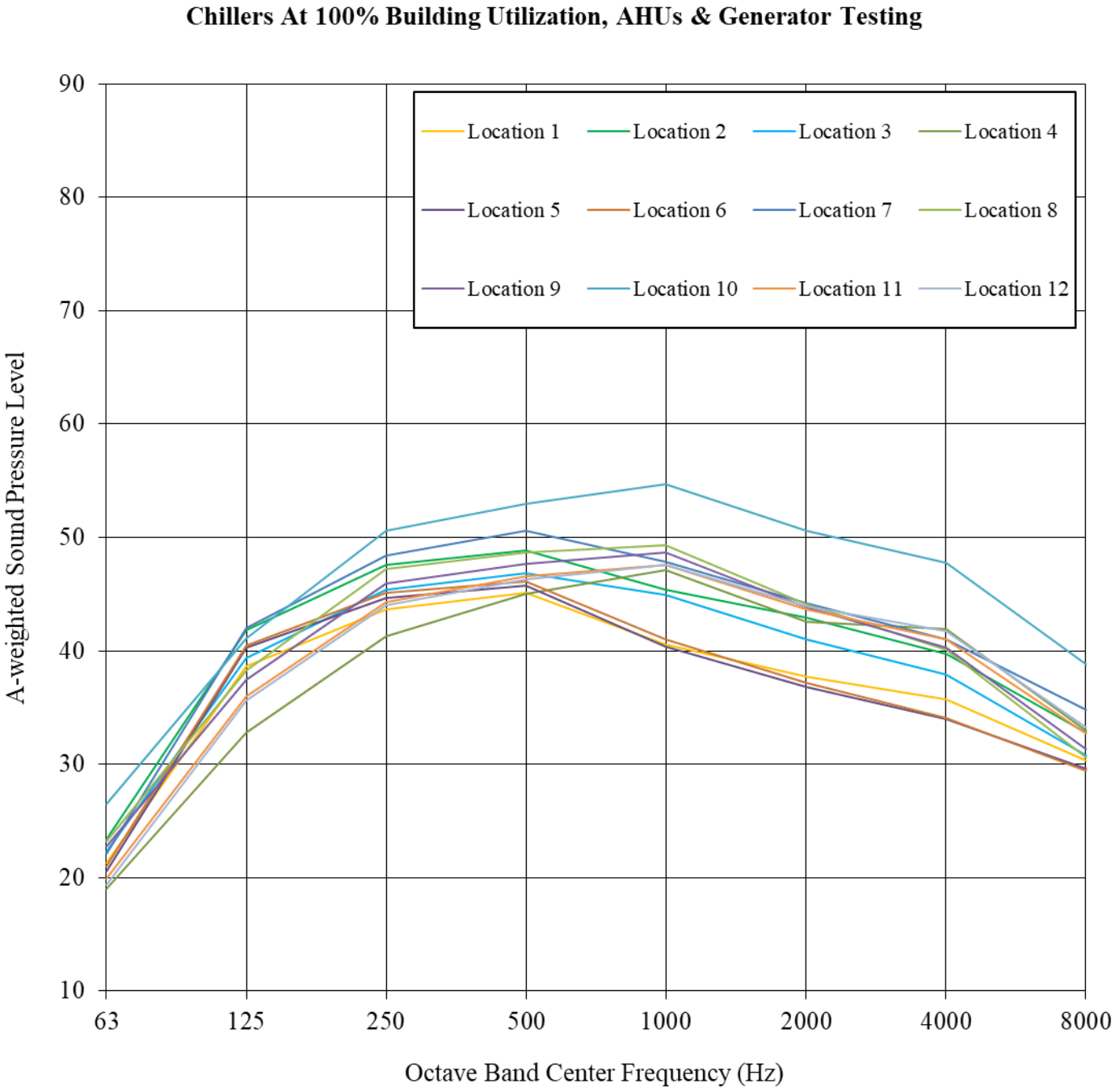


Figure 5 – Expected Sound Pressure Levels due to Data Center Equipment, Sentinel Green Fig Data Centers, East Whiteland, Pennsylvania.



The results indicate that by implementing the proposed noise control measures, the sound levels due to the typical operation of the proposed equipment are in all cases materially below limits of the noise regulation.

I trust that this information is sufficient for your present needs. Please call if you have any questions regarding this report.

Very truly yours,

LEWIS S. GOODFRIEND & ASSOCIATES



Jack A. Zybura, P.E., INCE Bd. Cert.
Associate Principal

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APPENDIX A: EMERGENCY OPERATION SCENARIO

The emergency generators would only all be operating simultaneously in the event that the site loses electrical utility power entirely, which would be considered a catastrophic emergency and very unlikely to occur as:

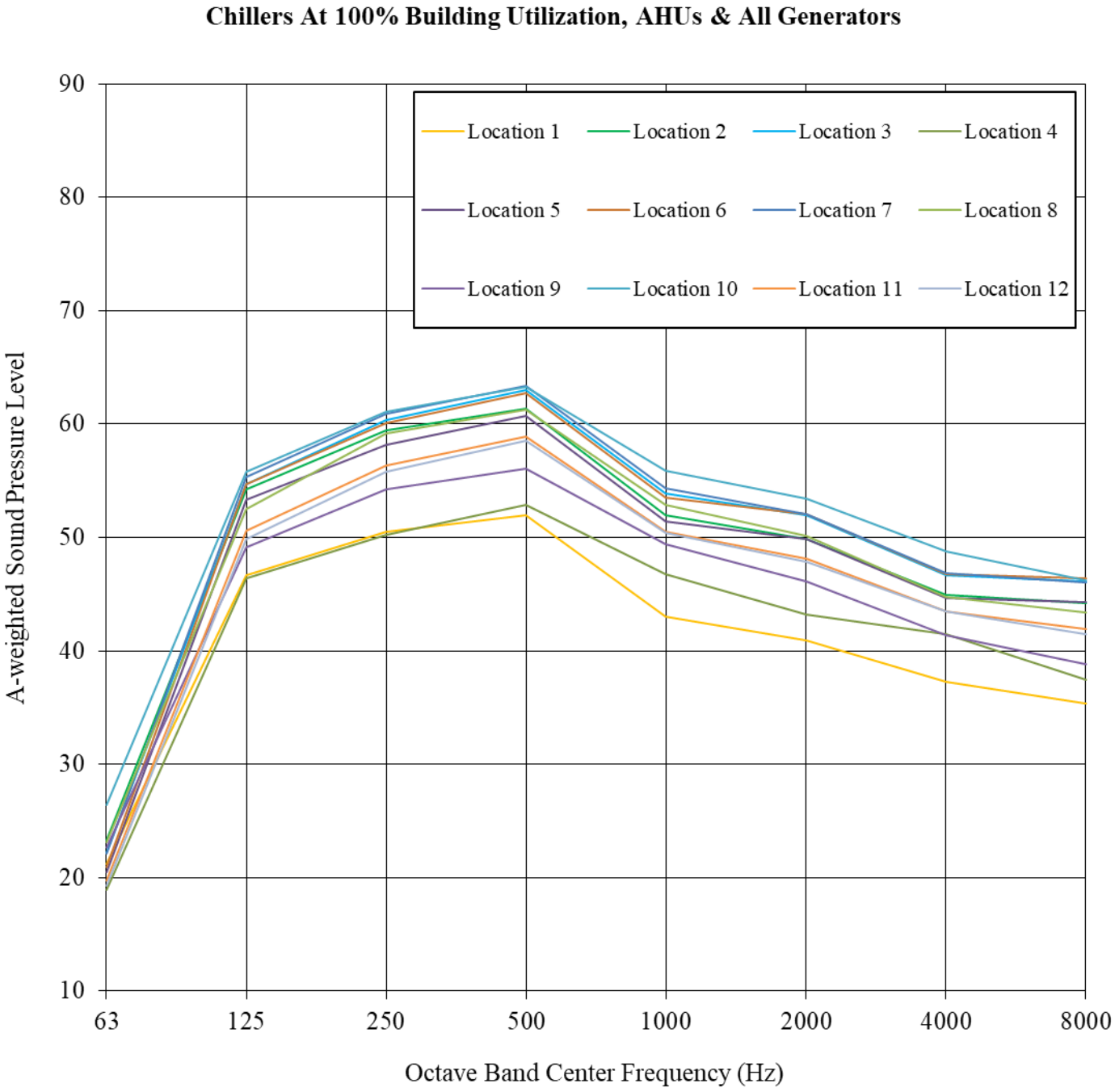
- This campus is fed electrically by (2) redundant and highly reliable 230kV High Voltage distribution circuits, and both circuits would need to be out of service for generators to be on (concurrent failures is very unlikely)
- These distribution circuits are fed by PECO's Planebrook substation, which sits directly adjacent to the site and therefore are very short distances.
- These distribution circuits are physically diverse (one circuit is on one end of the site and overhead, the other circuit is on the other end of the site and underground).
- The PECO Planebrook substation is a 230kV high Voltage switching substation which is fed by (4) 230kV High Voltage transmission lines and considered the highest reliability in the transmission system. For reference, records provided by PECO indicate that the Planebrook substation's high voltage lines (the line's relevant to applicant's project) have not been down simultaneously in over twenty years since the regional blackout in 2003 and, as an example, were not down during Hurricane Sandy despite outages on many of the lower voltage distribution lines downed by wind and tree damage.

While not explicitly subject to the noise regulation, Table 3 and Figure 6, below, show the results of this emergency scenario during a complete power failure with all generators operating, for informational purposes.

Table 3 – Results of Emergency Operating Scenario, Sentinel Green Fig Data Centers, East Whiteland, Pennsylvania.

Location	Sound Level, dB(A)
	Chillers, AHUs & All Generators Under Catastrophic Emergency / Complete 230kV Transmission Line Utility Outage
1: Northeast Property Line	56
2: North Property Line	65
3: Northeast Road	66
4: East Residences	56
5: Northwest Property Line	64
6: Northwest Property Line	66
7: Northwest Property Line	66
8: North Residences	64
9: North Residences	60
10: South Property Line	67
11: West Property Line	62
12: West School Property Line	62

Figure 6 – Expected Sound Pressure Levels due to Data Center Equipment, Sentinel Green Fig Data Centers, East Whiteland, Pennsylvania.



APPENDIX B: CHILLER PRODUCT DATA

TECHNICAL SELECTION

TMA 4D2100B C28 13 2W1 HT

GEOCLIMA
Smart HVAC Solutions

TECHNICAL DATA

TMA 4D2100B C28 13 2W1 HT

COOLING

PERFORMANCE DATA		
Cooling capacity (A2)	TR	603.0
Spare Capacity	-	27.3%
Minimum Cooling Capacity(A4)	TR	66.07
Total input power (A2)	kW	248.1
Compressor input power	kW	237.6
Input current (E0)	A	361
EER	Btu/Wh	29.17
SOURCE		
Altitude	ft	0.00
Dry bulb outdoor air	°F	75.0
Outdoor air Relative humidity	%	40.4
Air flow rate	cfm	248573.5
Fan input power	kW	10.52
Fan input current	A	18.5
Fans available static pressure	inH2O	0.00

DESIGN AND SIZING DATA

GENERAL DATA		
Number of circuits		2
Minimum capacity step	%	-
Refrigerant type		R513A
GWP		629.5
Total refrigerant charge (R1)	lb	1322.8
CO2 equivalent charge	lb	832660.2

DIMENSIONS		
Length	in	602.0
Width	in	82.7
Height	in	103.1
Shipping weight	lb	26739.9
Net weight	lb	27617.3

COMPRESSORS		
Type		TT450-G-1-ST-LL
Compressor type		Turbocor
Capacity steps		Inverter
Number of compressors	n°	4
Nominal power input (max)(A3)	kW	70.10
Running current (max)(A3)	A	95.5
Max current	A	180
Starting current (each)	A	5.00

FANS		
Fan type		Axial
Fan motor		EC
Number of fans		28
Maximum input power (P1)	kW	72.80
Maximum input current (E0)	A	112

HYDRONIC CONNECTIONS (IN/OUT)		
Main		6"/6"

ELECTRICAL DATA		
Nominal voltage supply	Ph/V/Hz	3/460/60
Maximum voltage supply	V	480
Minimum voltage supply	V	440
Maximum input power (P1)	kW	571.5
MCA	A	877
MOP	A	1000

Maximum Efficiency Operation @ 603T and hot summer day

SOUND POWER OCTAVE BAND	Hz	63	125	250	500	1000	2000	4000	8000	Pressure	Power
Sentinel PA 4D2100 2W1 HT - fans 100%	dB(A)	69.3	86.4	88.3	95.0	98.7	95.5	91.1	84.9	69.0	102.5

Low Sound Operation @ 603T and hot summer day

SOUND POWER OCTAVE BAND	Hz	63	125	250	500	1000	2000	4000	8000	Pressure	Power
Sentinel PA - fans 60%	dB(A)	61.1	74.3	84.1	89.4	94.6	92.8	89.3	81.5	65.2	98.6

332Ts and hot summer day (reduced building utilization)

SOUND POWER OCTAVE BAND	Hz	63	125	250	500	1000	2000	4000	8000	Pressure	Power
Sentinel PA 4D2100 2W1 HT - fans 60% 332ton 93°F	dB(A)	61.0	74.1	83.4	87.7	92.3	90.5	86.8	79.2	62.9	96.4

What is it designed for?

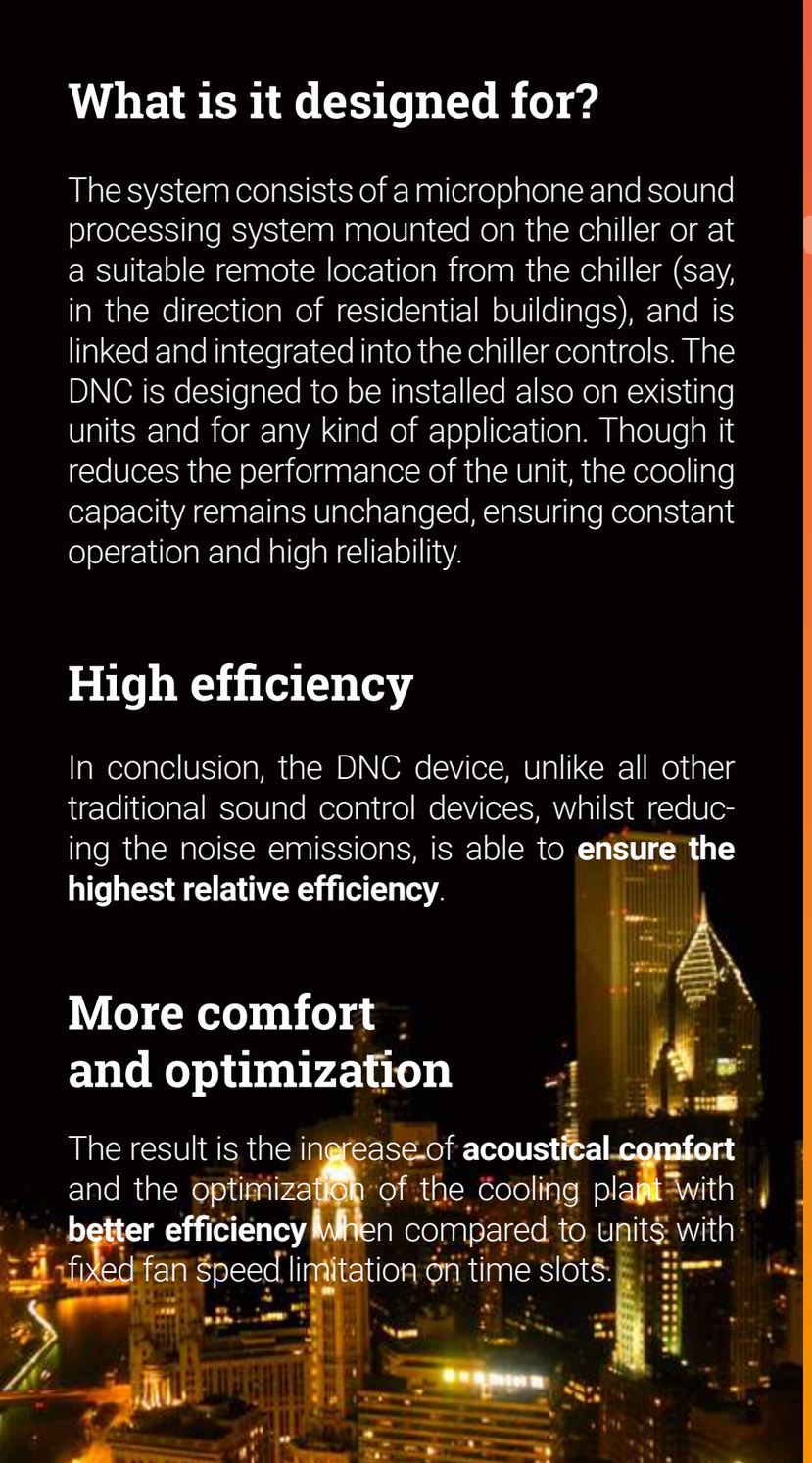
The system consists of a microphone and sound processing system mounted on the chiller or at a suitable remote location from the chiller (say, in the direction of residential buildings), and is linked and integrated into the chiller controls. The DNC is designed to be installed also on existing units and for any kind of application. Though it reduces the performance of the unit, the cooling capacity remains unchanged, ensuring constant operation and high reliability.

High efficiency

In conclusion, the DNC device, unlike all other traditional sound control devices, whilst reducing the noise emissions, is able to **ensure the highest relative efficiency**.

More comfort and optimization

The result is the increase of **acoustical comfort** and the optimization of the cooling plant with **better efficiency** when compared to units with fixed fan speed limitation on time slots.





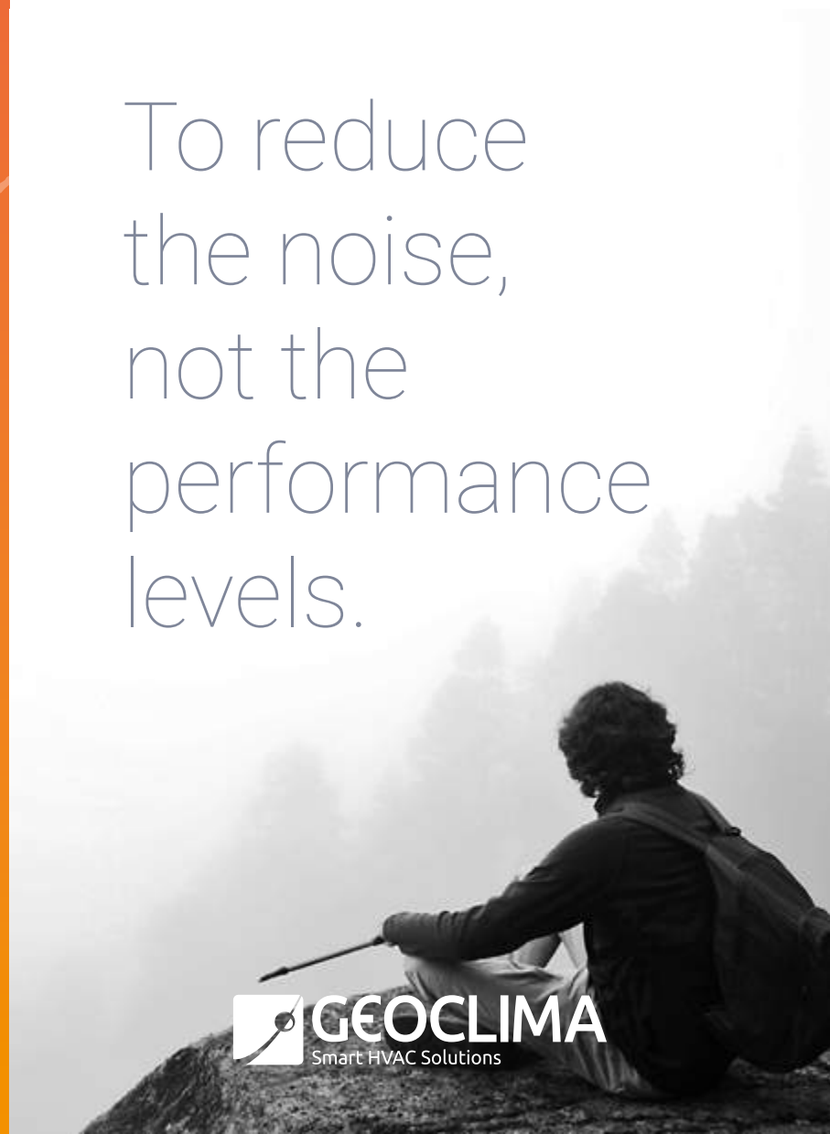
For contacts and information, please visit

www.geoclima.com

GEOCLIMA
Smart HVAC Solutions

DYNAMIC® NOISE CONTROL

To reduce the noise, not the performance levels.



GEOCLIMA
Smart HVAC Solutions

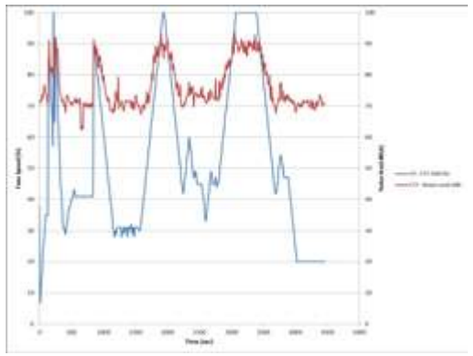


What is it?

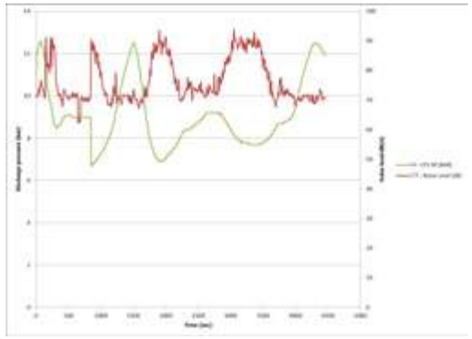
DNC (Dynamic Noise Control) is a device that enables the **measurement of the noise** produced by the chiller and that **adapts the performance** of the chiller in order to not exceed the noise constraints and to provide always a very quiet running.

The weak spot of the traditional sound control devices.

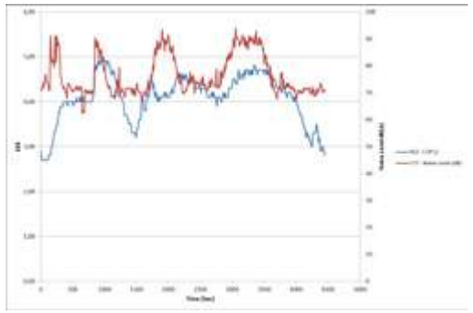
Traditional sound control devices are set up to reduce the noise levels and, as a result of this, the performance, in specific time slots. The weak spot of these systems is represented by the impossibility of adjusting the performance levels on the basis of the actual noise emissions generated by the chiller: as a consequence, there may be a reduction in performance even when it is not necessary.



Fans Speed reduction under DNC operation



Condenser Discharge pressure trend under DNC operation



EER trend under DNC operation

How the smart DNC works.

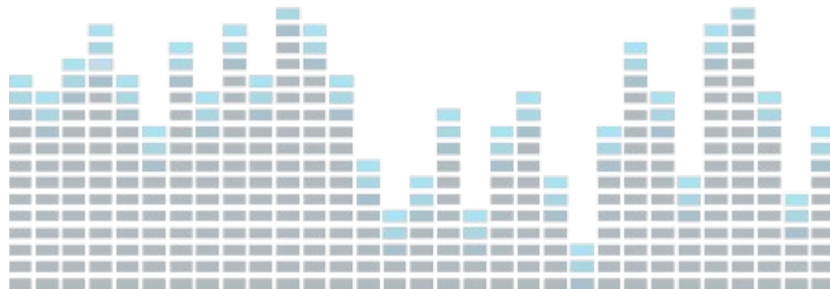
The DNC is designed to avoid this problem: it is designed to be “smart”.

The system constantly measures the noise produced by the chiller and is able to “adapt” the chiller performance in order to not exceed the noise limits set for different time slots.

The main difference between DNC and other systems consists in the fact that **with the Dynamic Noise Control what must be set are only the noise limits, and not the performance levels**: it is the DNC that regulates the fan speed, reducing the performance in order to fall within the highest permissible noise level.

The DNC is also able to **identify the noise source** and “understand” if it is generated by the chiller or by any external source.

This is a very important aspect that helps to ensure precision and reliability to the entire plant.



Munters Geoclima Chiller TMA 4D2100B C28 2W1 Submittal

Key Accounts Manager: Hunter Herwald 540-817-4010



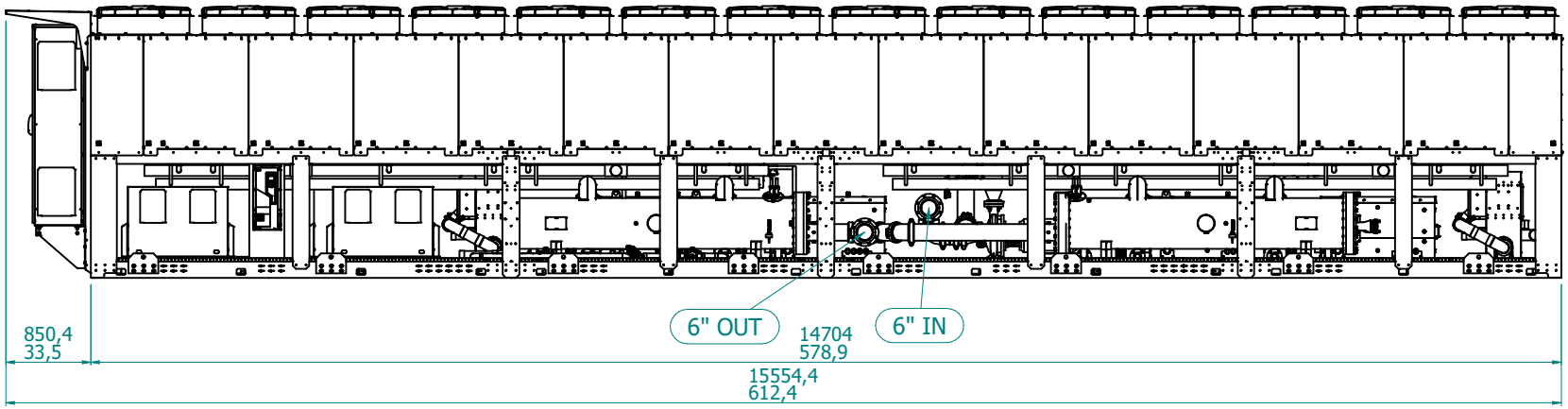
Revision Level
Initial Submittal - 2/5/2026

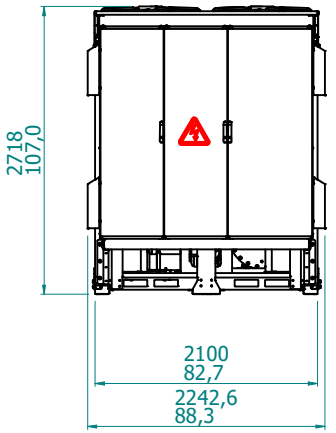
Each air cooled chiller includes the following:

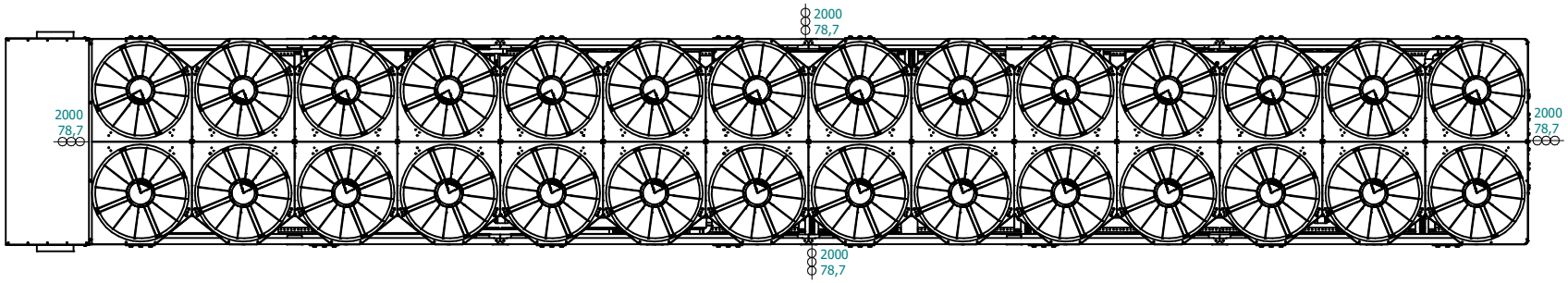
- AHRI certified performance
- Powder coated steel support frame and sheet metal panels.
- Cylindrical “circlemiser” condenser design with extended condenser surface area
    - Micro-channel design polyester coated for corrosion protection
    - Intake hail guards
    - Variable speed EC condenser fans
    - Neoprene Isolators
- Four compressor arrangement
    - Turbocor magnetic bearing with integrated variable frequency drive
    - Discharge and suction isolation valves
    - R-513A low GWP refrigerant
    - Refrigerant economizer liquid sub-cooling
    - Refrigerant pump for improved low lift
- Flooded evaporator
    - Refrigerant in shell, water through tube design rated for 225 PSIG
    - Drain and vent
    - Water flow proving switch
    - Water return and supply temperature sensors
    - Flanged type contractor water connections
- Integrated evaporator waterside pump
    - IP55 motor
    - Variable speed drive
    - Sized for internal pressure loss plus scheduled external
    - Pump with bronze impeller, stainless steel shaft
- Low ambient design (water flow required during all freezing ambient conditions)
    - Insulated compressor boxes with heaters
    - 25 mm evaporator / piping insulation with heat trace (including pump housing)
    - 25 mm refrigerant suction line insulation with heat trace and motorized isolation valve
- Electrical and controls
    - Three power connections:
        - Qty (1) 460/3 feed for chiller
        - Qty (1) 460/3 feed for pump and chiller controls
            - Chiller mounted UPS will be removed
        - Qty (1) 460/3 feed for heat trace and convenience outlet
    - PLC controller BACnet or Modbus compatible.
        - Factory controls package to maintain target water temperature to the data center and automatically regulate compressors and fans to optimize overall system efficiency
        - Water flow, temperature (return and supply) and evaporator pressure drop sensors
        - Cellular connectivity for remote monitoring and support (through IST and final turnover; optional afterwards)
        - 7” touch screen HMI
    - Controls are powered from the main power feed and include capacitor type UPS.
    - Rapid restart if main power is interrupted
    - All power wiring (>50VAC) shall be in wire trays or outdoor UV rated wiring. All low voltage control wiring (<50VAC) shall be in plenum-rated cable, not in conduit.
    - ETL labeled at 65kAIC SCCR rating.
- Shipped loose, installed by others
    - Air separator
    - Passive harmonic filter

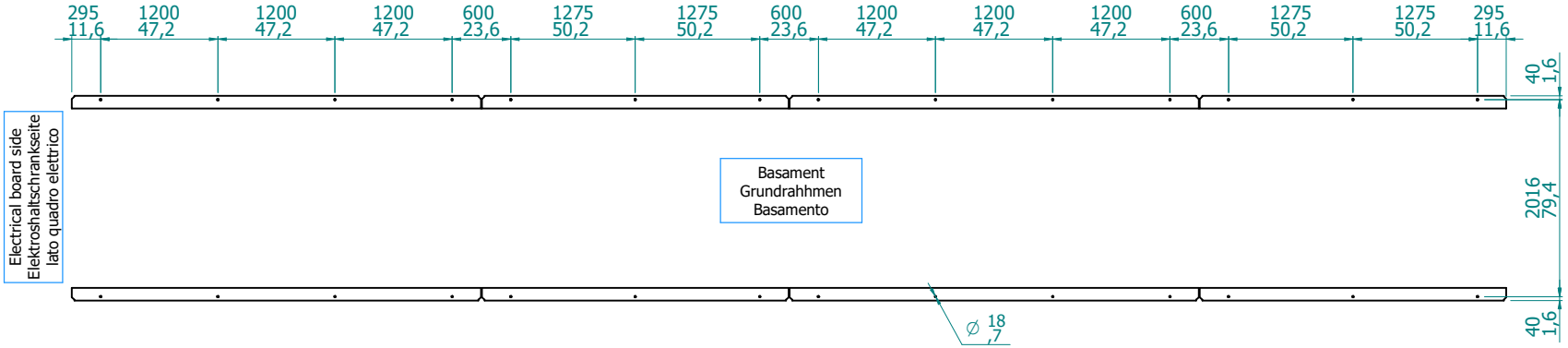
GEOCLIMA
Smart HVAC Solutions

PRELIMINARY









AZIENDA CERTIFICATA ISO 9001:2015 (EA 18)
Mod. 092_01 del 01/07/2024
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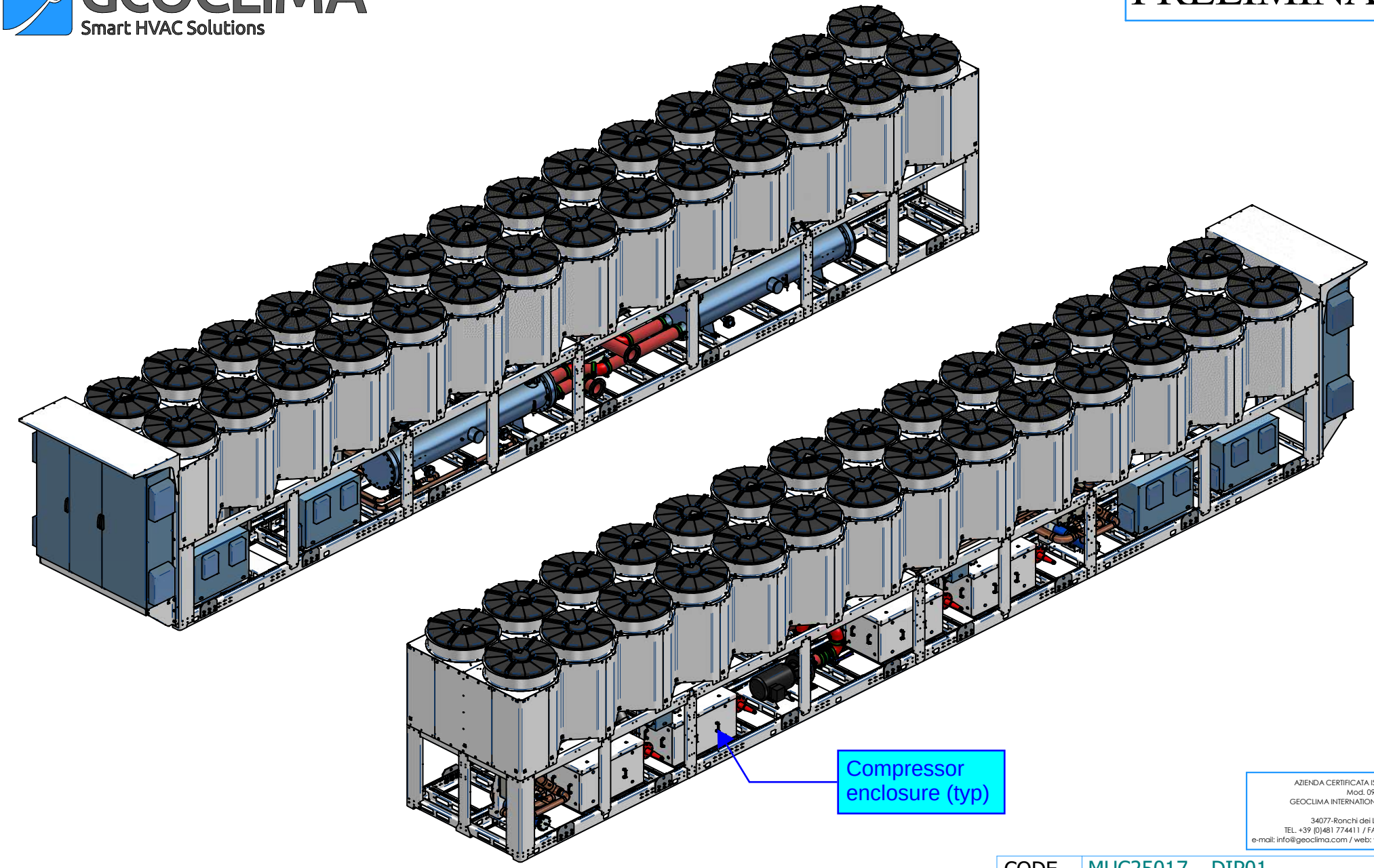
CODE	MUC25017__DIP01
MODEL	TMA 4D2100B C28 13 2W1 HT

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.

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GEOCLIMA
Smart HVAC Solutions

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For contacts and information, please visit

www.geoclima.com

GEOCLIMA
Smart HVAC Solutions



Turbocor® - TTS

COMPRESSOR TTS450HGH2S010X0XXS428
Turbocor® - TTS
TT Series 450 Aero Config
Major Revision H 460V/60Hz
High Temperature Application
Mains Plate 2.48 in
RS232/RS485 IO Brd - 5m Cable
New Compressor
TLH Factory (CE Rated)
Gen Covers/Plate - EN/FR/CH
No CPN (Standard)
No accessories
DTC SW 4.4.0 TGS380/TTS450 (S428)

Model code: TTS450HGH2S010X0XXS428

Danfoss Turbocor® TTS series: Oil free compressors using HFC134a refrigerant
Highly energy efficient and environmentally friendly compressor
Danfoss Turbocor® oil-free centrifugal compressors are specifically designed for the HVAC industry, utilizing magnetic bearings, two stage centrifugal compression, variable speed permanent magnet motor and intelligent electronic controls resulting in the highest efficiencies in the industry in a light weight and compact footprint with low sound levels.
The Danfoss Turbocor® TTS Series of centrifugal compressors delivers nominal capacities of 60 – 200 tons / 200 – 700 kW using environmentally friendly refrigerant HFC134a, with no Ozone Depletion Potential and no phase-out date per the Montreal Protocol. In addition, low GWP, non-flammable (A1 safety rating) R513A refrigerant is available as an option.

PRODUCT DETAILS

Product Series	TT Series
Build	New Compressor
Compressor Capacity	450 Aero Config
Major Revision	Major Revision H
Voltage Code	460V/60Hz
Application	High Temperature Application
Mains Plate Size	Mains Plate 2.48 in
I/O Board Option	RS232/RS485 IO Brd - 5m Cable
Factory	TLH Factory (CE Rated)
Customer Spec Configuration	Gen Covers/Plate - EN/FR/CH
Customer Engraved Nameplate	No CPN (Standard)
Accessories Configuration	No accessories
Software	DTC SW 4.4.0 TGS380/TTS450
Software Version	S428
Modelcode01	TTS450HGH2S010X0XXS428
Product Catalog	Global (Standard)
Calc. Net Weight [KG]	133

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A3G910-AV12-03

EC axial fan - HyBlade

sickle-shaped blades (S series)

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Amtsgericht (court of registration) Stuttgart · HRB 590142

Nominal data

Type	**A3G910-AV12-03**
Motor	**M3G150-NA**

Phase		3~
Nominal voltage	VAC	400
Nominal voltage range	VAC	380 .. 480
Frequency	Hz	50/60
Method of obtaining data		ml
Speed (rpm)	min^{-1}	1020
Power consumption	W	3100
Current draw	A	4.7
Max. back pressure	Pa	220
Max. back pressure	in. wg	0.88
Min. ambient temperature	°C	-40
Max. ambient temperature	°C	60

ml = Max. load · me = Max. efficiency · fa = Free air · cs = Customer specification · ce = Customer equipment
Subject to change

Data according to Commission Regulation (EU) 327/2011 (EN 17166)

		Actual	Req. 2015
01 Overall efficiency η_{es}	%	49.2	36.8
02 Measurement category		A	
03 Efficiency category		Static	
04 Efficiency grade N		52.4	40
05 Variable speed drive		Yes	

09 Power consumption P_{ed}	kW	3.1
09 Air flow q_v	m^3/h	23440
09 Pressure increase p_{fs}	Pa	224
10 Speed (rpm) n	min^{-1}	1025
11 Specific ratio*		1.00

Data obtained at optimum efficiency level.

* Specific ratio = 1 + p_{fs} / 100 000 Pa

LU-201996

The efficiency values displayed for achieving conformity with the Ecodesign Regulation EU 327/2011 has been reached with defined air duct components (e.g. inlet rings).
The dimensions must be requested from ebm-papst. If other air conduction geometries are used on the installation side, the ebm-papst evaluation loses its validity/the conformity must be confirmed again.

The product does not fall within the scope of Regulation (EU) 2019/1781 due to the exception specified in Article 2 (2a) (motors completely integrated into a product).

EC axial fan - HyBlade

sickle-shaped blades (S series)

Technical description

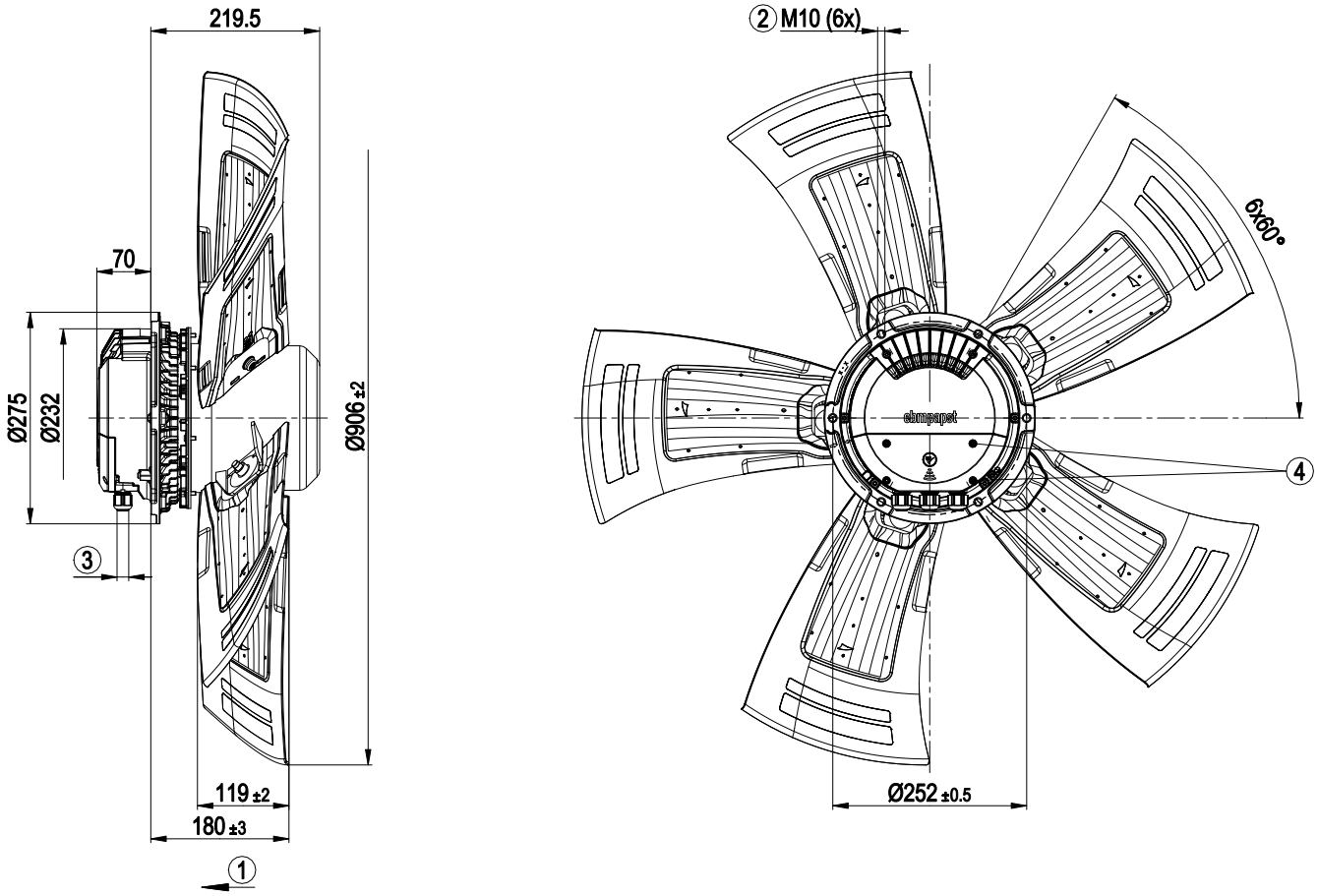
Weight	30.02 kg
Size	910 mm
Motor size	150
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum, painted gray
Blade material	Sheet aluminum insert, sprayed with PP plastic
Number of blades	5
Blade pitch	0°
Airflow direction	V
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP55
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H2
Ambient temperature note	Occasional start-up at temperatures between -40°C and -25°C is permitted. For continuous operation at ambient temperatures below -25°C (such as refrigeration applications), use must be made of a fan design with special low-temperature bearings.
Max. permitted ambient temp. for motor (transport/storage)	+80 °C
Min. permitted ambient temp. for motor (transport/storage)	-40 °C
Installation position	Shaft horizontal or rotor on bottom; rotor on top on request
Condensation drainage holes	On rotor side
Mode	S1
Motor bearing	Ball bearing
Technical features	- Operation and alarm display with LED - External 15-50 VDC input (parameterization) - Alarm relay - Integrated PI controller - Configurable inputs/outputs (I/O) - MODBUS V6.3 - Motor current limitation - RS-485 MODBUS-RTU - Soft start - Voltage output 3.3-24 VDC, Pmax = 800 mW - Control interface with SELV potential safely disconnected from the mains - Thermal overload protection for electronics/motor - Line undervoltage / phase failure detection
EMC immunity to interference	According to EN 61000-6-2 (industrial environment)
EMC interference emission	According to EN 61000-6-3 (household environment), except EN 61000-3-2 for professionally used equipment with a total rated power greater than 1 kW
Touch current according to IEC 60990 (measuring circuit Fig. 4, TN system)	<= 3.5 mA
Electrical hookup	Terminal box
Motor protection	Reverse polarity and locked-rotor protection
Protection class	I (with customer connection of protective earth)
Conformity with standards	EN 61800-5-1; CE
Approval	UL 1004-7 + 60730-1; EAC; CSA C22.2 No. 77 + CAN/CSA-E60730-1

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EC axial fan - HyBlade

sickle-shaped blades (S series)

Product drawing



1	Airflow direction "V"
2	Max. clearance for screw 20 mm
3	Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm
	(The tightening torque is designed for PVC cables. If the cable materials are different, the tightening torque may have to be adjusted)
4	Tightening torque 1.5 ± 0.2 Nm

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