



44 dB Gain, 20 dBm P1dB, 0.5 GHz to 40 GHz, Broadband AC Low Noise Amplifier, Bench-Top, 110/220VAC, 4.5 dB Noise Figure, 2.92mm

## TECHNICAL DATA SHEET

**PE15A63031**

The PE15A63031 is an AC powered Bench-Top Low Noise Amplifier that operates across an ultra wideband frequency range from 500 MHz to 40 GHz. This 50 Ohm highly linear design exhibits impressive typical performance that includes 44 dB gain, 4.5 dB noise figure, +20 dBm P1dB, and +25 dBm output IP3. Maximum RF input power (CW) is -15 dBm across 26.5 GHz to 40 GHz. The rugged MIL Grade aluminium package is finished in gray paint and has 2.92mm Female connectors at the RF input and output ports, and an indicator light on the front panel. The rear panel supports an IEC 320-C14 AC power socket (IEC 320-C13 plug required), and an On/Off switch. The module supports a wide operating AC voltage range from 110VAC to 220VAC with 60 mA supply current. Designed for high reliability, the package supports an integrated heatsink and cooling fan and is suitable for outdoor operation (moisture exposure dependent on temperature and humidity conditions). The amplifier has an operational temperature range from -40°C to +85°C and meets a series of environmental test conditions including Altitude, Vibration, Humidity, and Shock.

### Features

- AC Powered Bench-Top Low Noise Amplifier/500 MHz to 40 GHz
- High Linearity
- Small Signal Gain 44 dB typ
- Noise Figure 4.5 dB typ
- VSWR 1.9:1 typ
- Output P1dB +20 dBm typ
- Output Psat +22 dBm typ
- Output IP3 +25 dBm typ
- AC Supply 110-220VAC @ 60 mA
- Max RF Input Power (CW) -15 dBm across 26.5 GHz to 40 GHz
- 50 Ohm Design
- Integrated Heatsink and Cooling Fan
- RF Input and Output 2.92mm Female Connectors
- On/Off Switch and Indicator Light
- Operational Temperature Range -40°C to +85°C
- Rugged MIL Grade Aluminum Package Design with Gray Paint finish
- Guaranteed Environmental Test Conditions Altitude, Vibration, Humidity, Shock

### Applications

- Test & Measurement
- 5G Communication
- Wireless Infrastructure
- Military & Commercial Communications
- Military Electronic Systems
- Research & Development
- Microwave Radio
- VSAT
- Fiber Optics

### Electrical Specifications (TA= 25°C)

Description	Minimum	Typical	Maximum	Units
Frequency Range	0.5		40	GHz
Gain	37	44		dB
Gain Flatness		±3		dB
Gain Variation over Temp.		±1.5		dB/°C
Output at 1 dB Compression Point		+20		dBm
Saturation Output Power		+22		dBm
Output 3 <sup>rd</sup> Intercept Point		+25		dBm
Reverse Isolation		-70		dB
Noise Figure		4.5		dB
Input VSWR		2:1		

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Output VSWR	1.8:1	
Operating AC Voltage	110 to 220	VAC
Supply Current (AC 110-220V)	60	mA
Operating Temperature Range (OTR)	-40	+85 °C

**Performance by Frequency**

Biasing Up Procedure		Power OFF Procedure	
Step 1	Connect input and output with 50 Ohm source and load with in band return loss better than 10dB.	Step 1	Flip switch to "OFF" position
Step 2	Connect AC Plug	Step 2	Remove AC Plug
Step 3	Flip switch to "ON" position	Step 3	Remove RF Connection

**Absolute Maximum Rating**

Parameter	Rating
Supply Voltage	110V to 240V AC
RF Input Power (RFIN)*	@0.5-6GHz -22dBm
	@6-26.5GHz -18dBm
	@26.5-40GHz -15dBm

\*Note: Maximum RF input power is defined to protect the amplifier from damage. Input power may be increased at the users ownrisk to achieve the full output power of the amplifier. Please reference gain and power curves and monitor the temperature.

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### Mechanical Specifications

#### Size

Length	6.46 in [164.08 mm]
Width	5.83 in [148.08 mm]
Height	2.28 in [57.91 mm]
Weight	2.5 lbs [1.13 kg]
Input Connector	2.92mm Female
Output Connector	2.92mm Female

### Environmental Specifications

#### Temperature

Operating Range	-40 to +85 deg C
Storage Range	-50 to +105 deg C

#### Humidity

Shock	100% RH at 35°C, 95%RH at 40°C
Vibration	20G for 11msec half sine wave, 3 axis both directions
Altitude	25g RMS (15 degrees 2KHz) endurance, 1 hour per axis 30,000 ft.

**Compliance Certifications** (see [product page](#) for current document)

### Plotted and Other Data

Notes:

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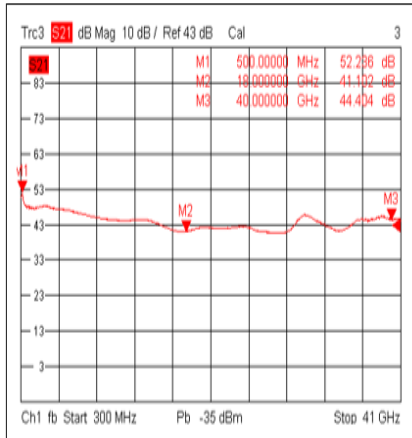
44 dB Gain, 20 dBm P1dB, 0.5 GHz to 40 GHz, Broadband AC Low Noise Amplifier, Bench-Top, 110/220VAC, 4.5 dB Noise Figure, 2.92mm

**TECHNICAL DATA SHEET**

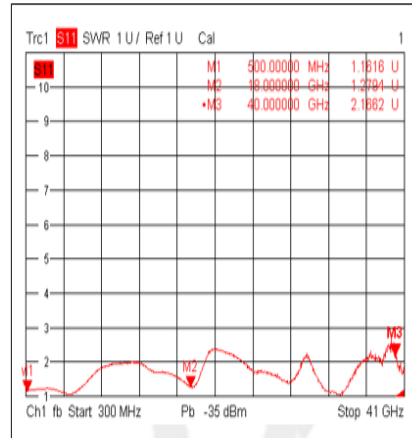
**PE15A63031**

**Typical Performance Data**

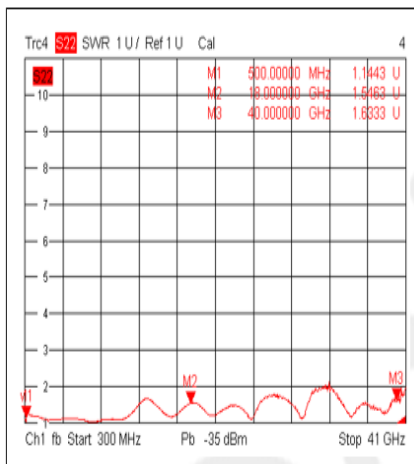
**Gain**



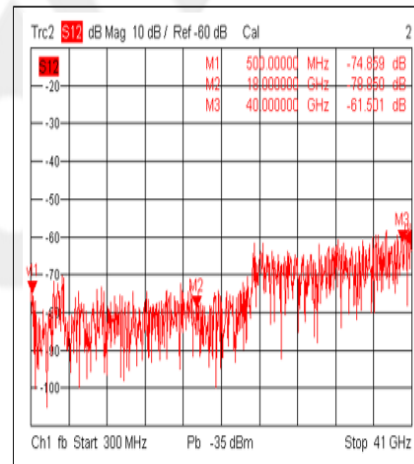
**Input VSWR**



**Output VSWR**



**Isolation**



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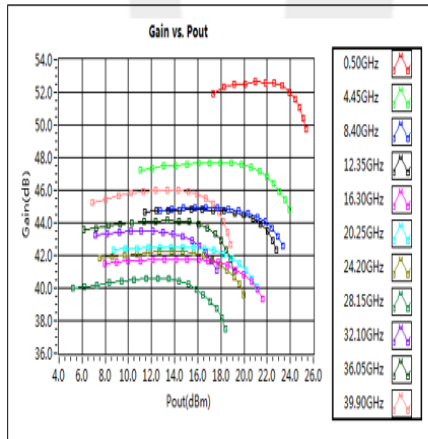


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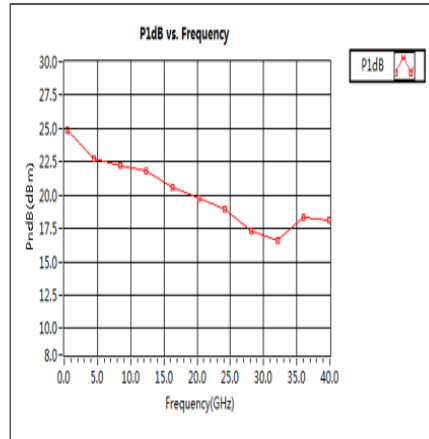
**TECHNICAL DATA SHEET**

**PE15A63031**

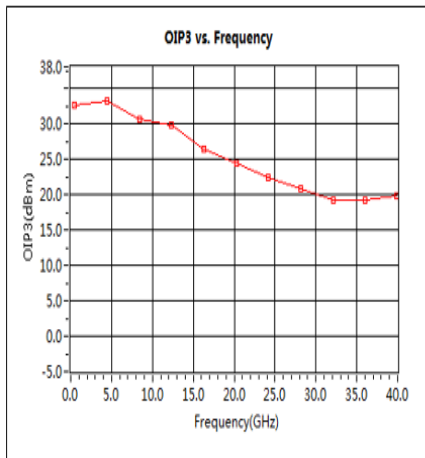
**Gain vs. Output Power**



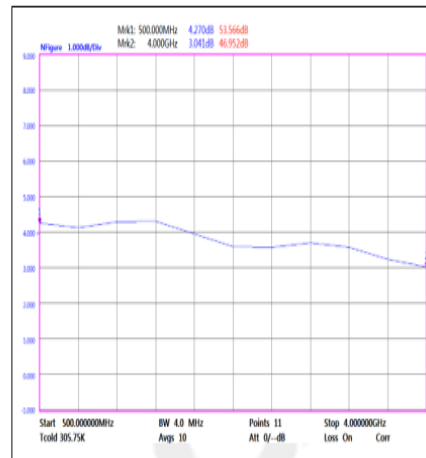
**P1dB vs. Frequency**



**Output Third Order Intercept (OIP3)**



**Noise Figure(0.5-4GHz)**



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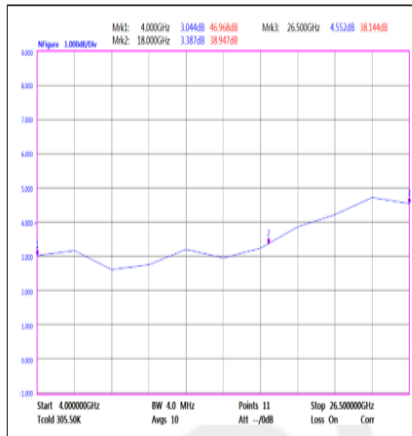


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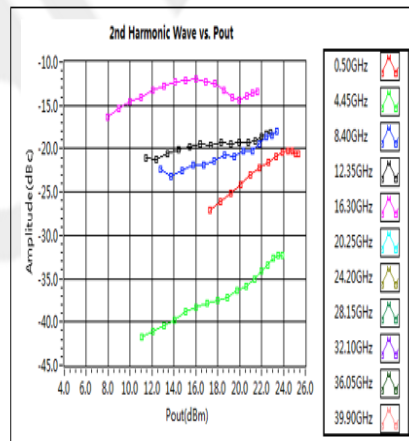
**TECHNICAL DATA SHEET**

**PE15A63031**

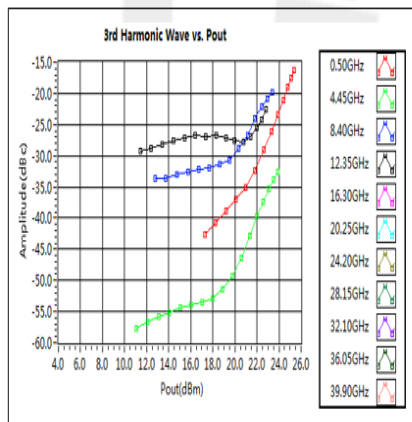
**Noise Figure(4-26.5GHz)**



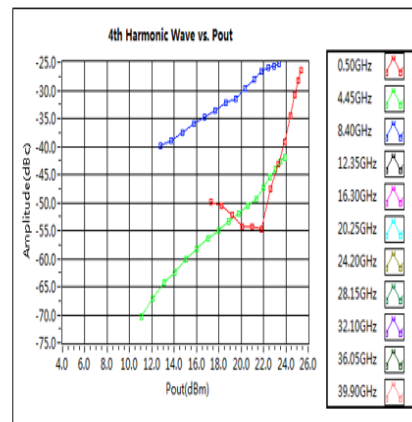
**2nd Harmonic Wave Output Power**



**3rd Harmonic Wave Output Power**



**4th Harmonic Wave Output Power**



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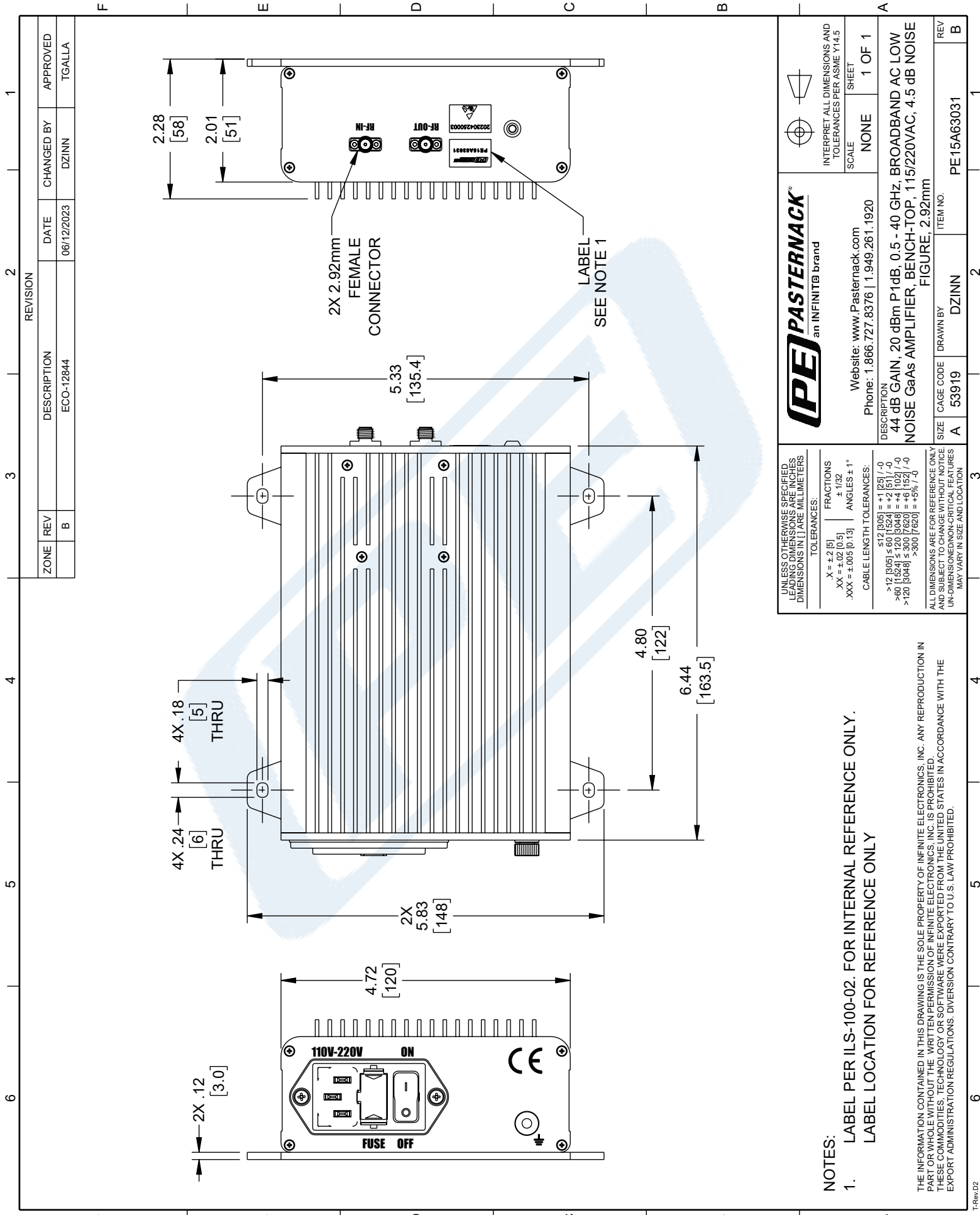
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# PE15A63031 CAD Drawing

44 dB Gain, 20 dBm P1dB, 0.5 GHz to 40 GHz, Broadband AC Low Noise Amplifier, Bench-Top, 110/220VAC, 4.5 dB Noise Figure, 2.92mm



ZONE	REV	DESCRIPTION	DATE	CHANGED BY	APPROVED
	B	ECO-12844	06/12/2023	DZINN	TGALLA

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TOLERANCES:  
 .X = ±.2 [5] FRACTIONS  
 .XX = ±.02 [0.5] ±.1/32  
 .XXX = ±.005 [0.13] ANGLES ± 1°

CABLE LENGTH TOLERANCES:  
 ≤12 [305] = +1 [25] / -0  
 >12 [305] ≤ 60 [1524] = +2 [51] / -0  
 >60 [1524] ≤ 120 [3048] = +4 [102] / -0  
 >120 [3048] ≤ 300 [7620] = +6 [152] / -0  
 >300 [7620] = +8% / -0

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INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5  
SCALE NONE SHEET 1 OF 1

DESCRIPTION: 44 dB GAIN, 20 dBm P1dB, 0.5 - 40 GHz, BROADBAND AC LOW NOISE GaAs AMPLIFIER, BENCH-TOP, 115/220VAC, 4.5 dB NOISE FIGURE, 2.92mm

REV	B
ITEM NO.	PE15A63031
SIZE	A
CAGE CODE	53919
DRAWN BY	DZINN

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