

WAVES

EMC-EMI

ENCLOSURES



WAVES
Quality power
to the point

“

Don't let unwanted frequencies interfere with system performance.”



Double Beadings

DC UPS
with EMC-EMI enclosures
IP55

Client: MTU Rolls-Royce

Importance of EMC

- Electromagnetic Compatibility (EMC) requires that systems/equipment be able to tolerate a specified degree of interference and not generate more than a specified amount of interference.
- EMC is becoming more important because there are so many more opportunities today for EMC issues.

Concept & Definitions

- **Electromagnetic Interference (EMI)**

Electromagnetic emissions from a device or system that interfere with the normal operation of another device or system.
-Also referred to as Radio Frequency Interference (RFI).

- **Electromagnetic Compatibility (EMC)**

The ability of equipment or system to function satisfactorily in its Electromagnetic Environment (EME) without introducing intolerable electromagnetic disturbance to anything in that environment.



WAVES
Quality power
to the point

Testing Standards

- 1 IP (Ingress Protection) Test as per IEC 60529
- 2 ET(Environmental Test) as per JSS 55555
- 3 EMC-EMI Test as per MIL STD 461 E/F



NLCP, Battery charger, LCD display, Transformer and Battery bank with
EMC-EMI enclosures
IP44,IP55 & IP56

Client: Indian Navy, INS Vikrant



Tolerate a specified degree of interference,



Not generate more than a specified amount of interference



Be self-compatible



We offer panels with EMC-EMI enclosures in both assembled and ready to assemble forms.



WAVES
Quality power
to the point

Standard Dimensions

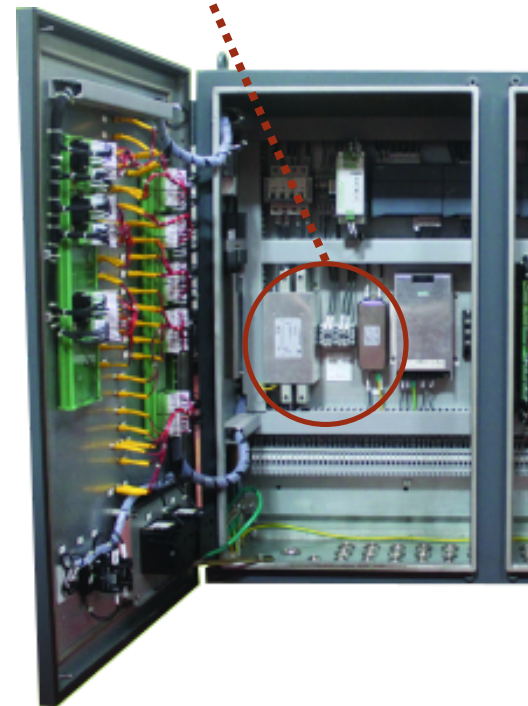
Width (in mm)	Height (in mm)	Depth (in mm)
300	300	210
500	400	250
500	550	250
600	700	300
650	850	350
600	1500	475
800	1000	300
800	1000	350



Clear EMC-EMI Window



Line Filter

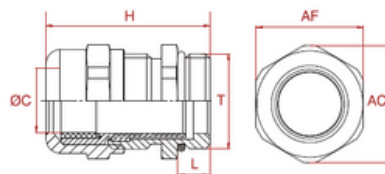


Other Dimensions are available upon request.

- Enclosure Material: 2mm thickness GI sheet
- Protection: IP22 /44/54/55/56
- Color:
 - Light Grey (RAL 7035)
 - Light Admiralty Grey (RAL 631)
 - Dark Admiralty Grey (RAL 632)

CABLE GLANDS - EMC

(With Electromagnetic Compatibility for Shielded Cables)



Properties

Dome Nut
Gland Body
Sealing Ring
Flat / O Ring
Temperature Range

Nickel Plated Brass
Nickel Plated Brass
Nitrile Rubber NBR
Nitrile Rubber NBR
-20°C / +100°C

Technical Data

Connecting Thread
Protection Grade
Test Standard
Pitch
UL File No.
Approvals

Metric as per EN 60423
IP 68
UL 514B
1.5 mm
E466603
Activate Window Settings to activate

UL US CE



WAVES
Quality power
to the point

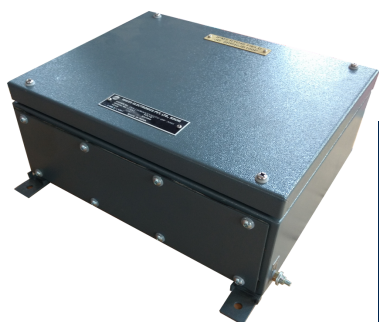


NLCP,LCD Display,Relay box & Junction boxes
with EMC-EMI enclosures
IP54 & IP56

Client: GRSE Survey Vessel Large (SVL) Project

Sewage Treatment Plant Control Panel
with EMC-EMI enclosures
IP55

Client: GRSE Survey Vessel Large(SVL) Project



Junction Box with EMC-EMI enclosure
IP54

Client: Cochin Shipyard Limited

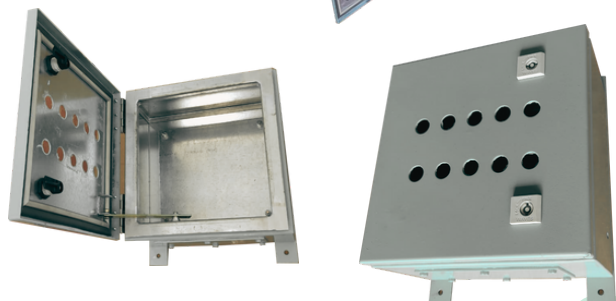
Sewage Treatment Plant H2S Panel with EMC-EMI enclosure
IP55

Client: GRSE Survey Vessel Large(SVL) Project



EMC-EMI enclosures
IP55

Client: Dhanvanthiri Engineering



WAVES
Quality power
to the point

Equipment Under Test (EUT)	Navigation Light Control Panel
Model Number of EUT	-
Serial Number of EUT	5269
Manufactured by	M/s. Waves Electronics Pvt. Ltd., Cochin


**MIL/EMC TEST REPORT FOR NAVIGATION LIGHT CONTROL PANEL
MANUFACTURED BY M/s. WAVES ELECTRONICS PVT. LTD., COCHIN**



Test Request Particular

- 01. Test request from : M/s. Waves Electronics Pvt. Ltd., Cochin
- 02. Equipment Under Test (EUT) : Navigation Light Control Panel
- 03. Number of test sample(s) : One
- 04. Types of tests requested :
 1. Conducted Emission Test (CE102)
 2. Radiated Emission Test (RE 101)
 3. Radiated Emission Test (RE 102)
 4. Conducted Susceptibility (CS101)
 5. Conducted Susceptibility (CS114)
 6. Conducted Susceptibility (CS115)
 7. Conducted Susceptibility (CS116)
 8. Radiated Susceptibility (RS101)
 9. Radiated Susceptibility (RS103)
 -All tests as per MIL-STD-461E, 1999 Surface Ship Applications
- 05. Manufacturer : M/s. Waves Electronics Pvt. Ltd., Cochin
- 06. Model Number of EUT : -
- 07. Serial Number of EUT : 5269
- 08. Test plan conformed by : Mr. Harthy George, Engineer -Projects
Waves Electronics Pvt. Ltd., Cochin
- 09. EUT Arrived on : May 02, 2011
- 10. Test Date(s) : May 06, 09 & 10, 2011
- 11. Test Venue : SAMEER-CEM, Chennai
- 12. Status of EUT on Receipt : Functional

Certified that the data reported in this report are valid only for the test sample mentioned above at the time of and under the stated conditions of measurement. Particulars of Manufacturer / Supplier, given in this report, are based on the information given by the customer, along with test request and SAMEER-CEM does not assume any responsibility for the correctness of that information for the above mentioned equipment under test.

Test Plan & Reviewed by: Approved by:


 (A.A. Ramesh)
 Scientist-C
 S-CHEM/CEM/FRO/2010/11/WAVES-200
 Page 2 of 43


 (Dr. B. Subbarao)
 Head, EMC Division


Equipment Under Test (EUT)	Battery Charger - Type - C 39VDC, 1.5A
Model Number of EUT	-
Serial Number of EUT	5683
Manufactured by	M/s. Waves Electronics Pvt. Ltd., Cochin

**MIL/EMC TEST REPORT FOR BATTERY CHARGER - TYPE - C 39VDC, 1.5A
MANUFACTURED BY M/s. WAVES ELECTRONICS PVT. LTD., COCHIN**

Test Request Particular

- 01. Test request from : M/s. Waves Electronics Pvt. Ltd., Cochin
- 02. Equipment Under Test (EUT) : Battery Charger - Type - C 39VDC, 1.5A
- 03. Number of test sample(s) : One
- 04. Types of tests requested :
 1. Conducted Emission Test (CE101)
 2. Conducted Emission Test (CE 102)
 3. Radiated Emission Test (RE 101)
 4. Radiated Emission Test (RE 102)
 5. Conducted Susceptibility (CS101)
 6. Conducted Susceptibility (CS114)
 7. Conducted Susceptibility (CS115)
 8. Conducted Susceptibility (CS116)
 9. Radiated Susceptibility (RS101)
 10. Radiated Susceptibility (RS103)
 -All tests as per MIL-STD-461E, 1999 Surface Ship Metallic below deck Applications
- 05. Manufacturer : M/s. Waves Electronics Pvt. Ltd., Cochin
- 06. Model Number of EUT : -
- 07. Serial Number of EUT : 5683
- 08. Test plan conformed by : Mr. A.J. Ajith, Engineer -Projects
Waves Electronics Pvt. Ltd., Cochin
- 09. EUT Arrived on : July 29, 2013
- 10. Test Date(s) : July 29 - 31, 2013
- 11. Test Venue : SAMEER-CEM, Chennai
- 12. Status of EUT on Receipt : Functional

Certified that the data reported in this report are valid only for the test sample mentioned above at the time of and under the stated conditions of measurement. Particulars of Manufacturer / Supplier, given in this report, are based on the information given by the customer, along with test request and SAMEER-CEM does not assume any responsibility for the correctness of that information for the above mentioned equipment under test.

Test Plan & Reviewed by: Approved by:


 (T. Praveen)
 Research Scientist



 (Saranjeev Babakrishna)
 Head, EMC Division
 S-CHEM/CEM/FRO/2010/13/WAVES-200
 Page 2 of 43

TATA ADVANCED SYSTEMS

EMC Centre Test Report	Report No: TABL/1705/EMC/199/MIL/01222090	Mode No: NA	Page 6 of 62
	SLS - 70482200000000E	Serial No: 6467	

1. General Information

Name of the Applicant	M/s. HP-Point Devices (P) Pvt. Ltd
Contact Name	Mr. Dhanu Indira
Contact No	+919321112021
Email id	avulase@hpdevice.com
EUT Manufacturer Name and Address	M/s.Waves Electronics Pvt.Ltd, Plot.No.171/204, 4th Floor P.B.No.66/11, Cochin, Open R.Economic Zone, Kakkanad, Kochi-682237
EUT Name	3TP Interface control Panel
Model No	NA
Serial No	6467
Supply Voltage & Current	415V AC, 3 Ph, 9.3 Amps & 24V DC
Test Location	MIL/TABL, 42 - 43 Electronics City Hosur Road, Bengaluru - 602100
Tests Conducted	CE101, CE102, RE101, RE102, CS101, CS114, CS115, CS116, RS101 & RS103
Test Standards	MIL-STD-461 E/F
Status of EUT on receipt	EUT was received in Good Condition
EUT Received on	10/10/2021
Dates of Test	10/10/2021, 17/10/2021 and 18/10/2021
Test Report issued on	09/11/2022
Test witnessed by	Mr. Girish N M
Test Result	Pass
Statement of conformity	Declaration of conformity of the results is based as per the SSI limits
Test Report Prepared	Mr. Loganathan P
Test Engineer and Reviewer Details	
Tested by Loganathan P Test Engineer	Reviewed by R Rajasekhar Lab in Charge J Dhanathan Technician Manager

Note: This report is digitally signed by the approving authority through a secured workflow

Version: A Issue Date : 9/09/2021 Rev No: 03 Rev Date : 24/11/2021

WAVES ELECTRONICS

OUR PRODUCTS

- Battery Chargers
- Navigation Light Control Panel
- Main Switch Board
- Emergency Switch Boards
- Shore Connection Box
- Consoles
- EMI-EMC Enclosures

- Junction Box
- Distribution Board
- Starters/Motor Control Center
- Soft Starter Panels
- Variable Frequency Drive Panels
- Automatic Power Factor Correction Panel

and more ...

REACH US

📍 Waves Electronics Pvt. Ltd
Kizhakkambalam-683562
Ernakulam, Kerala, India

📞 +91 9895901052
+91 9747000508
✉ waves72@gmail.com
🌐 www.waveselectronics.com

