



# Low Cost - Operationally Proven - Submarine Satellite Communications

P.E. Composites Ltd (PECL), supported by NSSL Ltd of Redhill and QinetiQ of Farnborough have designed, manufactured and qualified a range of low cost submarine Mast Top Assemblies (MTA) to support the COTS Marine INMARSAT Fleet 77, 55 and 33, Broadband 500 and 250 SATCOM systems. The Fleet 77 and 55 variant systems are already operationally proven in submarine service.

The illustration shows the core Fleet 55 MTA (EMS) which has been designed for universal fitting to any submarine mast. This hermetically sealed MTA is fully compliant with UK MoD DEF STAN requirements.

This MTA provides the following:

PECL's advanced composite design and materials minimise the mass and dimensions of the MTA -  
Mass 110kgs (antenna installed) Height 830mm  
Diameter 585mm

The radome element of the MTA has been designed to match the INMARSAT operating frequency, therefore ensuring the certified link budget is maintained

The radome is also designed to utilise QinetiQ's advanced materials to assist in the minimisation of the visual and radar aspects of above water signature

The composite base section provides thermal management to allow 24/7 working in an ambient temperature of 40°C

Can be installed on penetrating, Non Hull Penetrating or stub masts. If circumstances demand it the MTA can also be hard mounted

Requires no additional cooling or other electrical services other than that currently provided by the INMARSAT COTS terminals



PECL provide bespoke design and manufacture for out of hull additional requirements for a submarine such as a pressure resistant coaxial feeder and mechanical interface to the F55 MTA's desired mounting point.

**QinetiQ**

**NSSL**  
SATCOM-SOLUTIONS

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