

HUMAN SPACE ENDEAVOURS SYMPOSIUM (B3)  
New Technologies, Processes and Operating Modes Enabling Future Human Missions (7)

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DEVELOPMENT OF THE INTERNATIONAL BERTHING AND DOCKING MECHANISM  
COMPATIBLE WITH THE INTERNATIONAL DOCKING SYSTEM STANDARD

**Abstract**

This International Docking System Standard (IDSS) is the result of a collaboration by the International Space Station membership to establish a recommended standard docking interface to enable on-orbit crew rescue operations and joint collaborative endeavors utilizing different spacecraft. The purpose of the IDSS is to provide basic common design parameters to allow developers to independently design compatible docking systems. The IDSS is intended for uses ranging from crewed to autonomous space vehicles, and from Low Earth Orbit (LEO) to deep-space exploration missions.

Whereas the IDSS defines the meshing geometry that a docking system, implementing the standard, shall comply to, it does not define other criteria to which a flight-worthy docking system shall comply to. ESA is currently designing the International Berthing and Docking Mechanism (IBDM) to be compatible with the IDSS definition. At the same time, NASA is also conducting the design and manufacturing of their NDS (NASA Docking System) compatible with the IDSS definition. In a cooperation framework those inter-operability parameters not defined in the IDSS will be jointly defined as the detailed definition of both designs progresses.

Ultimately, compatibility of the docking interfaces will be demonstrated through joint testing of the IBDM against NASA's docking system .

QinetiQ Space, under ESA contract, has designed the IBDM. Currently an Evolved Engineering Development Unit is under construction for both the Soft Capture System (SCS) and the Hard Capture System (HCS). This unit will be used for the joint testing at NASA.

This manuscript will describe the present design concepts.