Hi-SIDE

HSDC Element Design - Complete!

Hi-SIDE recently achieved a major milestone with the completion of the detailed design descriptions for the high speed data chain elements (HSDC).

Detailed designs, meeting the rigorous requirements for space flight, are now available for the seven elements in the high speed data chain—on board network, on-board processor, file protection scheme, compression module, mass memory, RF downlink and optical downlink.

The individual design descriptions include detailed architectures of the principle components and overall system designs for each element. At each stage of the process the design descriptions were informed by the HSDC use cases and data chain requirements and specifications produced in the first year of the project.

In the next phase of the project these designs will be the blueprint for the manufacturing and testing of the individual elements in preparation for end to end demonstration of the complete data chain.

Hi-SIDE data sheets now available!

Are you interested in learning more about the individual HSDC elements?

Hi-SIDE recently published a set of data sheets as quick reference guides on the function, performance and innovative aspects of each element.

The data sheets are available to download from the Hi-SIDE website:

www.hi-side.space

The need for speed.

The overarching aim of Hi-SIDE is to increase the amount of information that can be collected, processed, stored, and delivered to ground by satellites. This data is of immense social and economic value, being used in applications that include climate, environmental and disaster monitoring, and weather forecasting.

As its resolution becomes finer and its volume increases the value of satellite data increases significantly. This is driving the development of new instrument and observing techniques which can deliver on the data demand. However, it has also created a problem, how to quickly and efficiently get the vast amount of data generated to ground.

This is the problem driving the Hi-SIDE project. Our solution, is an enabling high-speed data chain technology including:

- Data-handling network technology to collect data from high data-rate instruments,

- High-volume and fast storage technology to store that data on board the spacecraft until it can be sent to ground,

- Efficient data compression techniques that can compress data to significantly reduce its volume without introducing artefacts in the data,

- On-board processing technology that can, for example, process data from multiple instruments into single products ready to distribute rapidly to end users,

- RF and optical downlink transmitters that can send the data to ground at very high data rates, including high power, wide bandwidth power amplifiers, and nimble optical terminals,

- File encoding techniques that can recover data that is lost on its way to ground due to temporary signal degradation due to atmospheric conditions,

- High data-rate RF ground station receivers, decoders, and related test equipment.

Find out more at www.hi-side.space.

The Hi-SIDE project is a collaboration between the following companies, universities and a research institutes. Find out more about the partners involved in the project at www.hi-side.space/project-partners.

- **AIRBUS DEFENCE AND SPACE**
- **TESAT SPACECOM**
- **DLR**
- **STAR DUNDEE**
- **STAR-BARCELONA**

- **INTEGRATED SYSTEMS DEVELOPMENT**
- **KONGSBERG SPACETEC**
- **ERZIA TECHNOLOGIES**
- **UNIVERSITAT AUTONOMA BARCELONA**
- **NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS**
- **MODUS RESEARCH AND INNOVATION**

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