



R5 RIC Asterix Video Protocol Specification

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1 INTRODUCTION

R5 RIC (Radar Interface Card) is a Radar Extractor hardware and software solution that takes analogue radar video and converts it into digital video that is sent out on broadcast UDP.

This document aims to describe one of the digital video protocols, the Asterix Cat.240 implementation.



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2 OVERVIEW

The radar video data is communicated via UDP multicast for maximum throughput. Each packet contain only one strobe, but depending on the network layout one complete pulse may or may not fit within one UDP packet. The packet size and data type used are determined by the device settings.

The R5 RIC implementation of the Asterix Cat.240 protocol is based on “Eurocontrol Standard Document for Surveillance Data Exchange Category 240 – Radar Video Transmission” v. 1.2 (Aug 2009).

2.1 Extent of implementation

So far, only a subset of the features of the Cat.240 have been implemented. Currently the following Asterix Cat.240 Data Items are utilized:

- I240/000 - Message Type
- I240/010 - Data Source Identifier
- I240/020 - Video Record Header
- I240/030 - Video Summary
- I240/040 - Video Header Nano
- I240/048 - Video Cells Resolution & Data Compression Indicator
- I240/049 - Video Octets & Video Cells Counters
- I240/051 - Video Block Medium Data Volume
- I240/140 - Time of Day

2.2 Package content / Data Items

2.2.1 Message Type

For the *Message Type* data item, both **001 – Video Summary Message** and **002 – Video Message** has been implemented.

In the current implementation the Video Summary Message always contain: I240/000, I240/010, I240/030 and I240/140.

The Video Summary Message will be sent once per antenna revolution. I.e. when the ARP pulse or equivalent is detected.

The Video Message contain: I240/000, I240/010, I240/020, I240/040, I240/048, I240/049, I240/051 and I240/140.

2.2.2 Data Source Identifier

The SIC and SAC parameter of the data item *I240/010 – Data Source Identifier* are configurable through the R5 RIC configuration interfaces.



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2.2.3 Video Summary

The data item *I240/020 – Video Summary* is currently always set to a 30 character long string “Saab TransponderTech – Asterix”.

2.2.4 Video Cells Resolution & Data Compression Indicator

Data Item *I240/048 - Video Cells Resolution & Data Compression Indicator* contains information regarding sample resolution and whether or not compression is used. Currently the R5 RIC does not support compression in Asterix packages.

Sample resolution is configurable to 8 or 16 bits.

2.2.5 Video Block Medium Data Volume

Currently only medium sized video messages are supported. This entails a maximum size of 16320 bytes in each package.

2.2.6 Time of Day

The *Time of Day* data item (*I240/140*) is currently implemented as a 24 bit counter of the system uptime with a 1/128 s resolution.