

Project: List of Review Items Discrepancies								
Equipment:		Review: SpWire RT Protocol Def draft 1.1 12th May						
RID No.	RID Title/Topic	Page/Section	Originator	Discrepancy incl. Recommendation	Classification	Contractor Answer	Personal Remarks	RID No.
1	Out of date references	2	ct	<p>The reference document RD 2-5 relating to TCons were never published and were withdrawn by CCSDS in favour of the SOIS documents which have superseded the initial TCons work. There are also conflicts between the documents which must be avoided.</p> <p>Remove RD1-5</p>				1
2	SOIS Relationships	all	ct	<p>The SOIS documents have been correctly made applicable but are not mentioned at all in the text. The relationship between SpaceWire RT and SOIS must be made clear from the beginning to avoid divergence and conflicting text.</p> <p>Introduce a section at the beginning of the document which covers the relationship with SOIS. Make it clear that the SpaceWire RT protocol is intended to provide data transfer capabilities in compliance with SOIS defined services. Generally align the text with SOIS.</p>				2
3	Service definition	all	ct	<p>The document does not contain a service definition rather it mixes service and protocol information throughout the text. This is not only confusing but is in conflict with the latest approach being taken by ECSS E50 for protocol specifications and indeed by CCSDS SOIS. The service definition acts as a requirement on the protocol in terms of capabilities to be provided, and as a simple description of what is provided to the user. It is therefore a key part of the spec and considered mandatory.</p> <p>Include a service specification which is compatible with that of the SOIS defined services. Include a subsection which maps between the two. Avoid mixing service interface text within the protocol specification. The service provided appears to be the sois Packet service.</p>			e.g. section 3.5.1	3

4	sequence preserving	3		<p>The question of sequence preservation in the best effort service needs to be resolved as it is currently TBD and in conflict with the SOIS definition. A possible way forward is to review the applications which will use the service and evaluate the impact of out of sequence packet delivery. We should bear in mind that the best effort service normally works 100% correctly and (apart from the out of sequence) may be the choice of users, whereas the use of assured service may introduce unwanted delay.</p> <p>The issue here is that if data is delivered out of order extra code will be required service users to trap the situation and take any necessary action.</p> <p>Examples  Commanding – sequence can be very important, prefer to drop packet  Sensor sampling – probably best to lose a sample rather than give one out of timing sequence  Voice video – prefer to drop a packet  Also, the interaction between sequence preservation and other protocol features needs to be considered. These features include flow control, retransmission, channelisation and prioritisation. Can sequence preservatio</p>				4
5	MTU size	3.5.2	ct	<p>The reason behind the selection of the maximum PDU size of 250 octets is not given and 250 octets is smaller than a typical TM packet size of 1k. Have there been any trade-offs as to an optimum size based e.g based on a typical number of users and latency requirements? 1553, for instance is driven by the number of avionics sensors and actuators and their minimum sampling time. This gives the time granularity of meaasges required</p> <p>Provide background to 250 octet selection with reference to number of users, required bandwidths and required latencies.</p>				5

6	Other protocols	all	ct	<p>Has any consideration been given to other protocols for example to manage the network and to support services such as Time access and device discovery?</p> <p>There is a danger in developing the spacewire protocol suite piecemeal which may result in an over complex set of implementations</p> <p>Suggest that more thought is given to the range of protocols required in the long term and a layered protocol structure is developed supporting a phased development. There should be an opportunity for a core set of procedures common to some or all Spacewire services with service specific functions layered on top</p>				6
7	DocumentTitle	all	ct	<p>The document is entitled Spacewire RT when it fact it covers both RT and non RT services. What it actually provides is the SOIS defined packet service over spacewire - rename document "Spacewire packet service"</p>				7