EDCP Transmitter Standard Proposal (incl. implementation plan 2024 – 2027 and funding requirements)

Presented to CGMS-52 WG-I session, agenda item 7.3

Coordination Group for Meteorological Satellites

EUMETSAT CGMS

Executive summary of the WP

The WGI Task Group on DCS has been working on the Enhanced DCP standard for the last 3 years. The standard is now mature enough to move to building and testing a prototype. This will allow the standard to be tested and the expectations on the performance of the standard to be verified. The standard itself are contained in a standalone document EUM/CGMS/STD/23/1380795.

The paper that this viewgraph is supporting (CGMS-52-WGI-WP-14) also includes a version of the standard in its annex.

INTRODUCTION

- The DCS WGI TG presents the document EUM/CGMS/STD/23/1380795 for endorsement. The document captures the enhanced standard and is intended to be a reference for industry to use in producing prototype platforms for testing, that comply with the standard. The standard will be refined and republished after the prototype phase.

SCOPE

- This presentation support the document CGMS-52-WGI-WP-14 which outlines the plan needed to bring this standard into operation.

STANDARD

- The task group has been working on this standard for the last 3 years. The document presented covers the specifications of the new standard. The standard that has been chosen means that it is should be possible to realise the new standard with just firmware updates to the existing DCP transmitter hardware. The standard is now mature enough to allow industry to proceed with building a prototype.

- It would use a 1500Hz bandwidth for each channel. It will be able to operate at 400 or 800 baud dependent on the modulation type.
  1. Modulation Format 1 – 400 BPS/BPSK
  2. Modulation Format 2 – 800 BPS/OQPSK

STANDARD - continued

- The ground receivers would be able to automatically detect which mode was being used. It will optionally use different code block sizes which will mean smaller messages could use smaller block sizes. There is a new header defined that would allow the GPS co-ordinates, battery voltage etc. to be included in each transmission. This is one aspect that needs a further discussion to arrive at the agreed definitive list. Some of them would be of benefit to the operators and manufacturers and some would be of benefit to the users. There is naturally a trade off between the size of the header and using this capacity for the message package. We believe this could be made configurable making the use of the header optional. The 400-baud setting would provide a platform which would be more robust to movement and interference at the cost of speed. The 800-baud would provide better speed at the cost of robustness. The best mode could be chosen for the environmental conditions. This operational mode would be automatically detected on the receiver side making it very flexible.

- An additional point to note is that the receivers would also need to be modified to allow the reception of this new standard. It is expected this would be realised with firmware updates.

PLAN

2024

- Finalise the EDCP standard with the agreement of all agencies and CGMS (JMA, EUM, NOAA)
- Relocate current DCPs away from the international identified channels
- Confirm the project funding plan.

2025

- Produce and test a prototype transmitter
- Modify on of the receive sites to enable the reception of the EDCP
- Test the system and verify the performance of the prototype and ensure it covers the different modes

2026

- Certify the EDCP transmitters from the manufacturers
- Modify the reception systems of all agencies
- Test the reception for all agencies and satellites

2027

- Declare EDCP operational

This would give us the common standard which would once again allow international use of DCPs.

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FUNDING

- The current plan is to split the funding between the agencies. As NOAA already works and both the receiver and transmitter side closely with Microcom we propose to allow them to work together to produce a prototype and modify the reception system to receive the new standard. EUMETSAT will work together with OTT-Sutron on the transmitter prototype and directly with the receiver contractor to ensure the new standard could be processed by EUMETSAT. There is still an open point on the involvement that JMA would like to take and some question as to whether they would adopt the new standard. If they choose not to take part, it would affect the international objective of the new standard.

Conclusions:

- CGMS Working Group I is invited to propose to CGMS Plenary the endorsement of the standard outlined in the document EUM/CGMS/STD/23/1380795, as well as the proposed plan for activities leading up to declaring the EDCP standard as operational, and related schedule and funding approach.