Tagged-Item Performance Protocol (TIPP)
Grade Submission Procedure

R1.0 — DEC 01 2015

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1 INTRODUCTION

GS1 US defined a Tagged Item Performance Protocol (TIPP) that establishes a set of performance grades for radio frequency identification (RFID) tagged items and a test procedure to validate the grade of a tagged item.

Performance grades are not directly related to item category or use case. However, as use cases expand and new technology becomes available, it is expected that new grades will need to be developed to accommodate the range of performance required. This document defines a draft process for establishing new grades.

2 GRADE SUBMISSION PROCEDURE

Grades are added by request from the end user community. A community member submits a grade proposal request to GS1 US Apparel and General Merchandise Initiative Item Level Implementation Workgroup. Group members review the grade proposal, provide feedback, and reach consensus on the proposed grade. Consensus may necessitate combining this grade with another existing (or newly proposed grade) or modifying the grade.

If accepted, the new grade will be approved via the GS1 US Guideline approval and documentation process. This process will include a Workgroup review and ballot for passage, and final approval of the GS1 US Apparel and General Merchandise Executive Leadership Committee.

Standard rules of order for participation, contribution and reaching consensus and voting will be the responsibility of the facilitator of the Workgroup and the GS1 Global Standards Management Process (GSMP) for this will be followed.

3 PROCESS Q/A

3.1 WHO MAY SUBMIT REQUESTS FOR NEW GRADES?

Any end user member of the GS1 US Item Level Implementation Workgroup may submit new grade proposals. An "end user" is defined by GS1 US as: *companies and other organizations that make use of components of the GS1 System of Standards to conduct their business*.

Additionally, the group may consider submissions from GS1 US Item Level Implementation Workgroup member organizations made on behalf of a sponsoring end user.

Grade submissions that come to the group from someone other than a Workgroup member will be considered on a case by case basis.

It is the goal of GS1 US to have every grade used by the community. Since TIPP is for communication of RFID performance requirements between end users, their sponsorship is required for a new grade submission.

3.2 WHAT DOES A GRADE PROPOSAL SUBMISSION CONTAIN?

A grade submission must contain:

- The performance tables for the grade with the performance levels indicated. (Samples are provided in the Appendix.)
- If the item is not in the catalog document, drawings of the item placement are required.

A grade submission may contain:

- A proposed name for the grade.
- A description of a use case that motivates the new grade.
- A test report of a tagged-item that meets the grade level with a description of the item and tagging solution.

3.3 TO WHOM DOES THE REQUEST GET SUBMITTED?

Grade requests must be submitted using the GS1 US Grade Submission Form to ApparelGM@gs1us.org.

3.4 HOW DO I KNOW IF MY PERFORMANCE REQUIREMENTS MERIT A NEW GRADE?

During TIPP development, technical participants outlined a maximum level of granularity in the grading system. A maximum level of granularity was defined to ensure that the industry makes efficient use of new grades, allowing significant performance differences to be reflected by grade levels without an excess proliferation of grades.

It was determined that one of the following differences would merit consideration for a new grade:

- ***If the grades' peak sensitivity differs significantly from existing grades.***
  - The Workgroup participants concluded that ≥ 2 dB was a significant difference.

- ***If the grades' peak backscatter power differs significantly from existing grades***
  - The Workgroup participants concluded that > 2 dB was a significant difference.

- ***If the orientation response differs from existing grades significantly.***
  - The Workgroup participants concluded that a tagged-item 3 dB beam-width difference of 60 degrees in azimuth or elevation was a significant difference.

3.5 WHAT IS THE REVIEW PROCESS?

The following outlines the grade review process:

1. The Workgroup facilitator will announce and circulate the grade proposal at least three calendar days in advance of an initial grade review.

2. At the preliminary review meeting, the proposal submitter will present and rationalize the new grade during the initial grade proposal review meeting.

3. At the close of the preliminary review meeting, the Workgroup facilitator will announce (via email) the start of the review period of the grade proposal.

4. A minimum 21-calendar day review period will commence that allows all parties to give feedback on the grade and perform any testing necessary.

5. After the review period, a 2nd review meeting will be held to discuss any feedback and any proposed alterations to the grade proposal, including the grade name. If consensus is reached, and a quorum is present, the grade proposal can be approved by the Workgroup.

6. If consensus is not reached or a quorum is not present, the grade proposal will be revisited at the subsequent meeting(s) at the discretion of the facilitator. If consensus or quorum is still not reached, the grade will go to a Workgroup ballot for approval.

7. The submitter may withdraw the proposal at any time before the grade is approved or rejected.

3.6 WHAT HAPPENS DURING A REVIEW?

During review, the members evaluate the current grade proposal to:

- Ensure that the performance levels in the grade proposal are physically realizable with existing technology.

- Evaluate the grade proposal relative to existing grades and granularity levels to ensure that it provides enough performance difference to justify the new grade.

- Evaluate the performance numbers for the grade and determine the appropriate name for the grade. This evaluation may also include defining a new grade class.

3.7 HOW DO I GIVE FEEDBACK DURING A REVIEW?

Feedback is given during the review period via the Workgroup mailing list and/or regularly schedule Workgroup meetings.

3.8 CAN MY GRADE PROPOSAL BE MODIFIED?

During the review process, members can provide feedback on the proposal. Feedback may include combining with or merging with another grade or modifying this grade to meet other members' TIPP requirements. This is a consensus-driven process, and it's expected that there may be changes to the grade proposed by the community during the feedback process. However, the submitter has the discretion to accept or reject feedback and modifications.

3.9 HOW LONG WILL IT TAKE TO GET MY GRADE PROPOSAL REVIEWED AND APPROVED?

GS1 US will hold grade proposal review meetings during TIPP Workgroup calls. A grade proposal review will be on the agenda at least once per calendar month. If more than one grade has been submitted, they will be placed on the agenda in the order of submission. In the event that not all grade submissions have been presented/discussed, follow up meetings will be scheduled. It's expected that it will take 30-45 days to approve a new grade.

3.10 HOW DOES MY APPROVED GRADE GET PUBLISHED?

Once a grade is approved by the TIPP Workgroup, it must go through the GS1 US publication process. It is at the discretion of the GS1 US facilitator to submit approved grades to GS1 US for approval individually or as a group if there are multiple grades in the review process within the Workgroup.

This publication process may take up to 30-60 days to complete. The Workgroup may work from a "draft" version of the publication as the document is prepared for publication.

4 APPENDIX – SAMPLE GRADE DATA FILE

Include these tables for each grade submission. If the grade is an M grade and has stacking requirements, include stacked grade tables as well.

SENSITIVITY				
	ANTENNA			
	1	2	3	4
0				
30				
60				
120				
150				
180				
210				
240				
300				
330				

BACKSCATTER				
	ANTENNA			
	1	2	3	4
0				
30				
60				
120				
150				
180				
210				
240				
300				
330				

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