R2 Equipment Categorization

THE FRAMEWORK FOR EVALUATING ELECTRONIC EQUIPMENT, COMPONENTS, AND MATERIALS, AND CATEGORIZING THEIR R2 STATUS THROUGHOUT EACH STEP OF THE R2 PROCESS.

SUSTAINABLE ELECTRONICS RECYCLING INTERNATIONAL (SERI)

Version 1.0

This R2 Equipment Categorization (REC) is used to determine the R2 process applicability for all equipment, components and materials upon receipt and throughout processing, and to assign the cosmetic, functional, and data sanitization status to Collectible and Specialty Electronics, and Functional Products after processing. These categories are integrated with the R2 Standard to ensure the proper handling of the equipment by the R2 Facility. While these categories may be applied to individual pieces of equipment or components, they may alternatively be used to identify the status of batches of equipment or components, or specific storage areas.

The status assigned under the REC is also intended to be accepted by other R2 Certified facilities to allow for the continued processing or use of used electronic equipment with confidence and understanding of the equipment categories assigned by the previous R2 Facility.

While this categorization is only intended for use by R2 Certified organizations, it may be used by an organization that is not R2 Certified to standardize the categorization of electronic equipment for resale and recycling. The REC is not written or intended for use in commercial trade but is not prohibited from use in trade.

While it is preferred that an R2 Facility use the exact REC categories in identifying equipment in their operation and on their records, the R2 Facility may alternatively use an equivalent equipment grading and categorization system by cross-referencing their existing categories with this REC, using a written and audited cross-reference document to ensure consistency. It is also anticipated that not every category specified in this REC will be applicable to each R2 Facility. Therefore, only the categories relevant to each facility should be used from the REC.

Common categories are specified to cover the broad range of electronic devices received and managed by R2 Facilities. More detailed categories consistent with the common categories may be specified for individual equipment types to provide more detailed descriptions of each category consistent with the type of equipment. However, specific categories by types of equipment may be no less detailed or stringent than the common categories. They simply offer better detail based on the type of the equipment and its features.

Alternative categorization specifications, such as grading specifications established and maintained by other organizations, may be adopted as needed in the future. Such specifications must be approved and added to this REC. Approval is subject to continued conformance with the R2 Standard and may be withdrawn at any time.

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Disclaimer

This R2 Equipment Categorization (REC) is intended to be used for descriptive purposes in accordance with the R2 Standard to allow for a certified R2 Facility to assign and thereby define agreed upon cosmetic, functional, and data sanitization statuses to equipment and components upon receipt, in-process, and after processing.

These categories are integrated with the R2 Standard to ensure the proper handling of the equipment by the R2 Facility in accordance with the R2 Standard but are never to be used in any manner that expressly or impliedly indicates the equipment and components are themselves R2 Certified, which is prohibited.

It is also intended to be accepted by other certified R2 facilities to allow for the continued processing or use of used electronic equipment with confidence and understanding of the assigned R2 Standard specified categories by the previous R2 Facility.

While this categorization is only intended for the operations of R2 Certified organizations, it is acknowledged that it may be used by an organization that is not R2 Certified to normalize the categorization of electronic equipment for resale and recycling.

The R2 Equipment Categorization specification is not written or intended for use in commercial trade but is not prohibited from use in trade. The R2 Equipment Categorization (REC) is only offered for use on an "AS IS" basis for R2 Standard conformance only and is not intended to substitute for any other descriptions or categorizations that may otherwise be necessary, whether for contractual purposes, legal compliance, safety, or any other purpose.

All use of the R2 Equipment Categorization (REC) categories, whether in communications, marketing, negotiations, contracts, or in an organization's efforts to legally or otherwise comply with its own statutory, regulatory, or other private or public environmental, safety, or any other requirements of any kind, is done so at the sole risk of the organization utilizing such descriptions, and SERI makes no representations, warranties, (express or implied), guarantees, or assertions of any kind as to the suitability, fitness for purpose, appropriateness, comprehensiveness, or sufficiency for any purpose whatsoever, other than the use of such descriptions for conformance with the R2 Standard.

Certification Bodies shall only review complaints regarding the use of the R2 Equipment Categorization (REC) to the extent necessary to determine whether a non-conformance with the R2 Standard may have occurred by mis-categorization or other misuse; however, neither SERI, nor any Accreditation Bodies or Certification Bodies, will be responsible for resolution of any other disputes of any kind, whether relating to contractual, transactional, commercial, false advertising or any other allegations or charges arising from disputes directly or indirectly relating to the use of the R2 Equipment Categorization (REC).

R2 PROCESSING CATEGORIES
(Applicable to all equipment, component, and material streams)

When equipment, components, and materials are received by an R2 Facility, they are in an unknown state until sorted, evaluated and further processed. Equipment, components, and materials must be controlled under the R2 Standard until it can be demonstrated that they do not meet the definition of an R2 Controlled Stream under the R2 Applicability table.

Table 1: R2 Applicability
This table identifies which material streams must be processed and controlled under the R2 Standard, and what the next R2 process for the material stream may be. When equipment has been sanitized, tested and verified functioning, it can move from the *R2 Applicability* categories, to the *Functioning Product* categories (*Table 4)*.

R2 Applicability	

R2 CONTROLLED STREAMS		UNRESTRICTED STREAMS	
R2 evaluation and processing required		*No further R2 processing or DSV verification*	
Unevaluated equipment, components & materials	Core Requirement 6	New equipment/components in unopened, original OEM packaging	Not R2 applicable
Unsanitized devices/media	Core Requirement 7	Non-electronic equipment	Core Requirement 2
Equipment/components for test & repair	Appendix A, C, or D	Non-focus materials	Core Requirement 2
FM containing equipment/components	Appendix A, E, or F	Planned return equipment/components*	Non-R2 applicable return
Focus materials	Appendix A, E, or F		

* Planned return includes:

- *Warranty Return* – failed component is returned to the manufacturer under warranty for a replacement to repair equipment for reuse.
- *Recall* – equipment or component is returned to the manufacturer under a recall.
- *Return to Individual Owner* – personal equipment is returned to the individual owner after attempted service has failed.
- *Failed Equipment* – the return of failed equipment or components that were purchased as Tested and Working Equipment.
- *Errant Shipment* – equipment or component was received in error and is returned to the sender.
- *Damaged in Shipment* – reusable equipment or components are damaged in shipment and are rejected and returned.
- *Nonconforming Equipment* – equipment delivered does not meet the purchase specifications and is rejected and returned.

Table 2: ***Data Sanitization Status***
This table identifies the data sanitization status of the electronic equipment or components.

Data Sanitization Status

PRE-SANITIZATION *Requires Data Evaluation and/or Sanitization*	NON-DATA *Sanitized or free of data storage media*
Not Evaluated – Presence of data unknown	Non-data device
Contains Data – Sanitization required	Evaluated as not containing data
	Sanitized through physical destruction of data or device
	Sanitized with software

FUNCTIONING PRODUCT CATEGORIES
(Applicable to Collectible/Specialty Electronics, and tested and confirmed Functioning Products)

Table 3: Cosmetic Categories
This table identifies the cosmetic condition and physical appearance of the equipment.

Category	Cosmetic Description
C0	Not categorized
C1	**Damaged** (For materials recovery)
C2	**Used Poor** – Heavy use and age · Cosmetic blemishes are significant, such as multiple heavy dents, may require repair · Damages to latches, hinges, keyboards, etc. are prevalent · Critical parts are missing
C3	**Used Fair** (Moderate use and age) · Cosmetic blemishes are consistent with wear, including multiple dents, discoloration, and light to heavy scratches · Damage to latches, hinges, keyboards, etc. · Some parts, panels, bezels, or covers may be missing
C4	**Used Good** · Cosmetic blemishes include scratches and/or other surface imperfections from consistent use, but equipment is in good condition overall · Minor wear of labeling may be visible · Small dents and small areas of discoloration may be present from the removal of tags · No damage to latches or hinges, nor any missing parts, panels, bezels, or covers
C5	**Used Very Good** · Cosmetic blemishes include minor scratches and/or other surface imperfections from consistent use, but equipment is in good condition · Minor wear of labeling may be visible · Minor dents and areas of discoloration from the removal of tags · No missing parts
C6	**Used Excellent** · Overall excellent cosmetic condition · May have light scratches or other minor blemishes from normal wear · Minor cosmetic blemishes have no impact on the system's overall functionality or performance · Fully cleaned with all non-original labels removed · No missing parts
C7	**Certified Pre-Owned** (Seller or Manufacturer Refurbished) · Used equipment that has been fully restored to like-new condition with warranty · Fully cleaned and cosmetically repaired with no blemishes · No missing parts
C8	**Unused** · New, out of box, unused equipment removed from original packaging with no signs of wear or alteration
C9	**New Open Box** · New, unused equipment in original packaging where factory seals have been broken · No signs of wear or alteration

Table 4: ***Functioning Product Categories***
This table identifies the level of functionality of the item as well as any defects and missing parts or components.

Category	Product Functionality Description
F1	**Collectible or Specialty Equipment** (*Core Requirement 6.(e)(3)(A)*) · Collectibles are rare, vintage, and no longer manufactured or supported by the OEM · Specialty equipment are rare and specialized equipment not generally available in retail · May have broken or missing parts
F2	**Verified Specialty Electronics** (*Appendix D*) · Verified removed from operation with no known defects in functionality · No physical damage or defects · No corrosion · No missing parts · Part numbers and serial numbers verified accurate
F3	**Key Functions Working** (*Appendix C – Test and Repair*) · A subset of the primary functions of the device that an ordinary user of the device expects to function are verified working through manual or software tests · Software may not be loaded or configured · Hardware required for key functions to be tested may have been removed after testing (e.g. Hard Drive) · May be missing components or parts not essential to key functions · Secondary functions may not be tested or working · May not include Focus Materials (e.g. Battery) that are not working or not tested · All missing components or parts will be listed for each item
F4	**Hardware Functional** (*Appendix C – Test and Repair*) · All hardware is tested and verified working through manual or software tests · No missing or damaged components or parts · Software not loaded or configured · No hardware defects
F5	**Refurbished** (*Appendix C – Test and Repair*) · All functions tested and verified working through software tests · Loaded and configured with legally licensed software for full operations · Software test results are available · No hardware or software defects
F6	**Like New** (*Appendix C – Test and Repair*) · All functions tested and verified working through software tests · Repaired with OEM original parts · Loaded and configured with original manufacturer's legally licensed software for full operation · Meets OEM specifications for full original functionality · Software test results are available · Zero defects

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SPECIFIC EQUIPMENT CATEGORIZATION

This section is intentionally blank and reserved for alternative categorization specifications, such as grading specifications established and maintained by other organizations. Alternative categorization specifications may be adopted as needed in the future for specific types of equipment. Such specifications must be approved and added to this REC. Approval is subject to continued conformance with the R2 Standard and may be withdrawn at any time.

APPENDICIES

Appendix A: Enhanced Cosmetic Category Info

Category	Title	Description	Visual Appearance	Label Condition	Dents & Scratches	Discoloration	Missing Parts	Latches & Hinges Damaged	Cleaned (Inside/Outside)	Packaging
C0	Not Categorized	Not yet evaluated or categorized	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
C1	Damaged	Not Reusable	Poor	Poor	Major	Major	Yes	Yes	No	None
C2	Used Poor	Missing critical parts	Poor	Poor	Major	Major	Yes	Yes	Yes	None
C3	Used Fair	Missing non-critical parts	Fair	Fair	Moderate	Moderate	Yes	Yes	Yes	None
C4	Used Good	No missing parts	Good	Good	Minor	Minor	No	No	Yes	None
C5	Used Very Good	Minor imperfections not affecting functionality	Good	Good	Minor	Minor	No	No	Yes	None
C6	Used Excellent	Refurbished equipment in like-new condition	Excellent	Excellent	None	None	No	No	Yes	No Factory Packaging
C7	Certified Pre-Owned	Like New	New	Excellent	None	None	No	No	Yes	No Factory Packaging
C8	Unused	Not in original packaging	New	Excellent	None	None	No	No	Yes	No Factory Packaging
C9	New Open Box	In original unsealed packaging	New	Excellent	None	None	No	No	Yes	Unsealed Factory

Appendix B: Linkage with Functioning and Cosmetic Categories

Products are equipment that have been processed and ready to be sold for reuse (finished goods). Products are assigned a combination of functional and cosmetic categories to ensure the product is finished processing.

Product Functionality Description	Cosmetic Category
F1 – Collectible or Specialty equipment · Collectibles are rare, vintage, and no longer manufactured or supported by original manufacturers · Specialty equipment are rare and specialized equipment not generally available in retail. · Inspected and determined to be viable for reuse or parts. · May have broken or missing pieces. · Data sanitized or free of data storage media	C6 – Used Excellent C5 – Used Very Good C4 – Used Good C3 – Used Fair
F2 – Verified Specialty Equipment · Verified removed from operation with no known defects in functionality · No physical damage or defects · No corrosion · No missing parts · Original part numbers and serial numbers verified accurate · Data sanitized or free of data storage media	C7 – Certified Pre-Owned C6 – Used Excellent
F3 – Key Functions Working · A subset of the original functions of the device that an ordinary user of the device expects to function are verified working through manual or automated tests. · Software may not be loaded or configured · Hardware required for key functions to be tested may have been removed after testing (e.g. Hard Drive) · May be missing components not essential to key functions. · Secondary functions may not be tested or working. · May not include Focus Materials (e.g. Battery) that are not working or not tested. · All missing parts or cosmetic damages will be listed for each item. · Data sanitized or free of data storage media	C6 – Used Excellent C5 – Used Very Good C4 – Used Good C3 – Used Fair
F4 – Hardware Functional · All hardware is tested manually or with diagnostic software and verified working · No missing or damaged components or parts · Software not loaded or configured · No hardware defects · Data sanitized or free of data storage media	C6 – Used Excellent
F5 – Refurbished · All functions tested with diagnostic software · Loaded and configured with legally licensed software for full operations ready for the user. · Electronic test results are available. · No hardware or software defects · Data sanitized or free of data storage media	C6 – Used Excellent

Product Functionality Description	Cosmetic Category
F6 – Like New · All functions tested with diagnostic software · Repaired with OEM original parts · Loaded and configured with original manufacturer's legally licensed software. · Meets OEM specifications for full original functionality. · Electronic test results are available. · Zero defects · Data sanitized or free of data storage media	C7 – Certified Pre-Owned

Revision History

Approved Date	Effective Date	Version	Description of Change
July 1, 2020	July 1, 2020	1.0	Initial Publication