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5 **Power Supply Profile**

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Foreword

120 The Power Supply Profile (DSP1015) was prepared by the Server Management Working Group.

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122 management and interoperability.

123

Introduction

124 The information in this specification and referenced specifications should be sufficient for a provider or
125 consumer of this data to identify unambiguously the classes, properties, methods, and values that shall
126 be instantiated and manipulated to represent and manage power supplies and redundant power supplies
127 of managed systems and subsystems that are modeled using the DMTF CIM core and extended model
128 definitions.

129 The target audience for this specification is implementers who are writing CIM-based providers or
130 consumers of management interfaces that represent the component described in this document.

131

Power Supply Profile

132 1 Scope

133 The Power Supply Profile extends the management capabilities of referencing profiles by adding the
134 capability to represent power supplies for manageability and describe power supplies in a redundant
135 configuration. The power supply as a logical device is modeled as referencing the power supply physical
136 package for physical asset information and profile versioning for the schema implementation version
137 information.

138 2 Normative References

139 The following referenced documents are indispensable for the application of this document. For dated
140 references, only the edition cited applies. For undated references, the latest edition of the referenced
141 document (including any amendments) applies.

142 2.1 Approved References

143 DMTF DSP0200, *CIM Operations over HTTP 1.2.0*

144 DMTF DSP0004, *CIM Infrastructure Specification 2.3.0*

145 DMTF DSP1000, *Management Profile Specification Template*

146 DMTF DSP1001, *Management Profile Specification Usage Guide*

147 2.2 References Under Development

148 DMTF DSP1011 *Physical Asset Profile*

149 DMTF DSP1033, *Profile Registration Profile*

150 2.3 Other References

151 ISO/IEC Directives, Part 2, *Rules for the structure and drafting of International Standards*,
152 <http://isotc.iso.org/livelink/livelink.exe?func=ll&objId=4230456&objAction=browse&sort=subtype>

153 Unified Modeling Language (UML) from the Open Management Group (OMG), <http://www.uml.org>

154 3 Terms and Definitions

155 For the purposes of this document, the following terms and definitions apply.

156 3.1

157 **can**

158 used for statements of possibility and capability, whether material, physical, or causal

159 3.2

160 **cannot**

161 used for statements of possibility and capability, whether material, physical, or causal

- 162 **3.3**
163 **conditional**
164 indicates requirements to be followed strictly in order to conform to the document when the specified
165 conditions are met
- 166 **3.4**
167 **mandatory**
168 indicates requirements to be followed strictly in order to conform to the document and from which no
169 deviation is permitted
- 170 **3.5**
171 **may**
172 indicates a course of action permissible within the limits of the document
- 173 **3.6**
174 **need not**
175 indicates a course of action permissible within the limits of the document
- 176 **3.7**
177 **optional**
178 indicates a course of action permissible within the limits of the document
- 179 **3.8**
180 **referencing profile**
181 indicates a profile that owns the definition of this class and can include a reference to this profile in its
182 "Referenced Profiles" table
- 183 **3.9**
184 **shall**
185 indicates requirements to be followed strictly in order to conform to the document and from which no
186 deviation is permitted
- 187 **3.10**
188 **shall not**
189 indicates requirements to be followed strictly in order to conform to the document and from which no
190 deviation is permitted
- 191 **3.11**
192 **should**
193 indicates that among several possibilities, one is recommended as particularly suitable, without
194 mentioning or excluding others, or that a certain course of action is preferred but not necessarily required
- 195 **3.12**
196 **should not**
197 indicates that a certain possibility or course of action is deprecated but not prohibited
- 198 **3.13**
199 **Spare Power Supply**
200 indicates an instance of CIM_PowerSupply that represents a spare power supply in any condition

201 4 Symbols and Abbreviated Terms

202 4.1

203 CIM

204 Common Information Model

205 5 Synopsis

206 **Profile Name:** Power Supply Profile

207 **Version:** 1.0.0c

208 **Organization:** DMTF

209 **CIM Schema Version:** 2.11.0

210 **Central Class:** CIM_PowerSupply

211 **Scoping Class:** CIM_ComputerSystem

212 The Power Supply Profile extends the management capability of the referencing profiles by adding the
213 capability to describe power supplies and redundant power supplies.

214 Table 1 identifies profiles on which this profile has a dependency.

215 **Table 1 – Referenced Profiles**

Profile Name	Organization	Version	Relationship
Physical Asset Profile	DMTF	1.0	Optional
Profile Registration Profile	DMTF	1.0	Mandatory

216 6 Description

217 The Power Supply Profile describes power supplies and power supply redundancies in a managed
218 system. The profile also describes the relationship of the power supply class to the power supply's
219 physical aspects, such as FRU data, and DMTF profile version information.

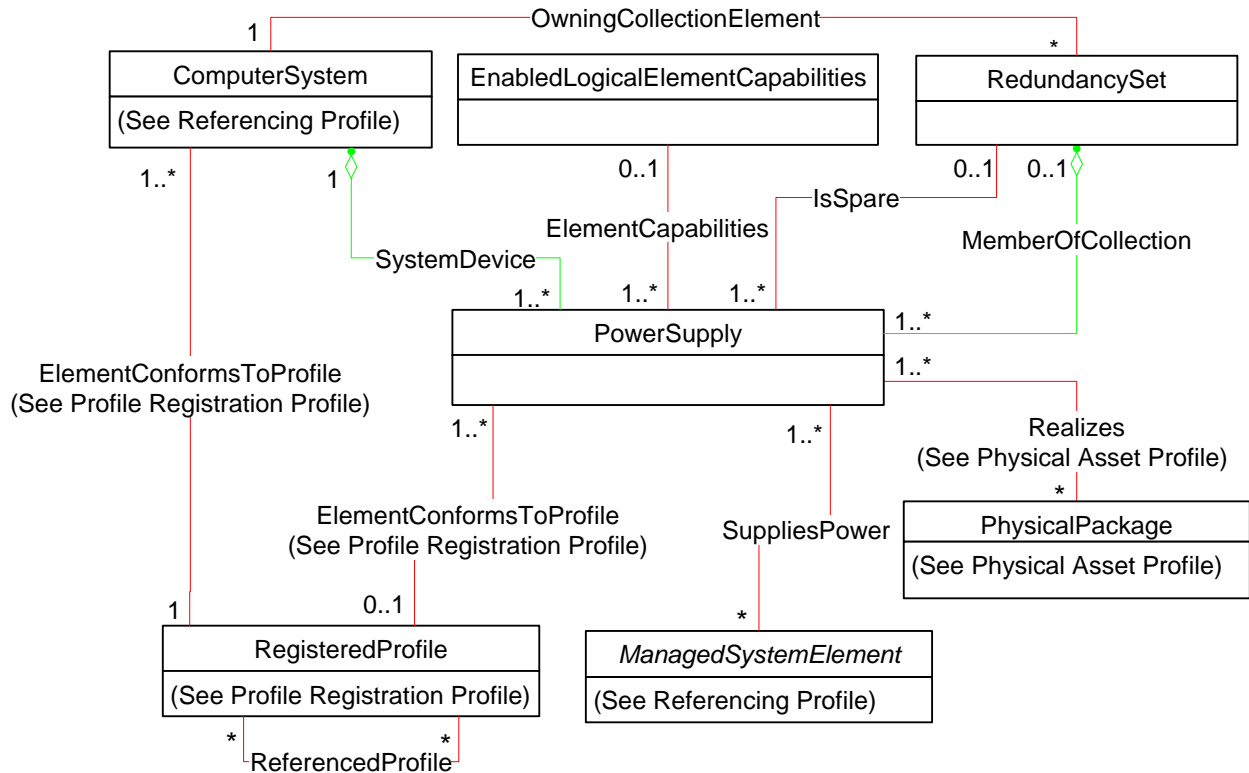
220 Figure 1 represents the class schema for the Power Supply Profile. For simplicity, the prefix CIM_ has
221 been removed from the names of the classes.

222 The power supply in a managed system is represented by the instance of CIM_PowerSupply. The
223 capability to disable and enable the power supply is advertised through the
224 CIM_EnabledLogicalElementCapabilities instance.

225 The managed elements that receive power from the power supply are associated to the instance of
226 CIM_PowerSupply through an instance of CIM_SuppliesPower. When the CIM_PowerSupply instance is
227 not referenced by the CIM_SuppliesPower association, the power supply represented by the
228 CIM_PowerSupply instance supplies power to the managed system that is scoped through the
229 CIM_SystemDevice association.

230 The power supply's physical aspects can be represented by one or more instances of
231 CIM_PhysicalPackage.

232 The profile information is represented with the instance of CIM_RegisteredProfile.



233

234

Figure 1 – Power Supply Profile: Class Diagram

235 **6.1 Power Supply Redundancy**

236 An instance of CIM_RedundancySet represents the redundancy of power supplies in a managed system.
 237 Each of the instances of CIM_PowerSupply that corresponds to a redundant power supply is associated
 238 to the instance of CIM_RedundancySet through an instance of CIM_MemberOfCollection. The Spare
 239 Power Supplies within the redundancy are also associated with the CIM_RedundancySet instance
 240 through an instance of CIM_IsSpare.

241 **7 Implementation Requirements**

242 Requirements and guidelines for propagating and formulating certain properties of the classes are
 243 discussed in this section. Methods are listed in section 8 and properties are listed in section 10.

244 **7.1 CIM_PowerSupply**

245 At least one instance of CIM_PowerSupply shall be instantiated.

246 **7.2 CIM_EnabledLogicalElementCapabilities**

247 When the CIM_EnabledLogicalElementCapabilities class is instantiated, the instance of
 248 CIM_EnabledLogicalElementCapabilities shall be associated with the CIM_PowerSupply instance
 249 through an instance of CIM_ElementCapabilities and used for advertising the capabilities of the
 250 CIM_PowerSupply instance.

251 There shall be at most one instance of CIM_EnabledLogicalElementCapabilities associated with a given
 252 instance of CIM_PowerSupply.

253 **7.2.1 CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported**

254 CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported is an array that contains the
 255 supported requested states for the instance of CIM_PowerSupply. This property shall be the super set of
 256 the values to be used as the RequestedState parameter in the RequestStateChange() method (see
 257 section 8.1). The value of the CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported
 258 property shall be an empty array or contain any combination of the following values: 2 (Enabled), 3
 259 (Disabled), 6 (Offline), or 11 (Reset).

260 **7.2.2 CIM_EnabledLogicalElementCapabilities.ElementNameEditSupported**

261 This property shall have a value of TRUE when the implementation supports client modification of the
 262 CIM_PowerSupply.ElementName property.

263 **7.2.3 CIM_EnabledLogicalElementCapabilities.MaxElementNameLen**

264 The MaxElementNameLen property shall be implemented when the ElementNameEditSupported
 265 property has a value of TRUE.

266 **7.3 Power Supply State Management (Optional)**

267 The power supply state management consists of the CIM_PowerSupply.RequestStateChange() method
 268 being supported (see section 8.1) and the value of the CIM_PowerSupply.RequestedState not matching
 269 12 (Not Applicable).

270 **7.3.1 Power Supply State Management Support**

271 When no CIM_EnabledLogicalElementCapabilities instance is associated with the CIM_PowerSupply
 272 instance, the power supply state management shall not be supported.

273 When a CIM_EnabledLogicalElementCapabilities instance is associated with the CIM_PowerSupply
 274 instance but the value of the CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported
 275 property is an empty array, the power supply state management shall not be supported.

276 When a CIM_EnabledLogicalElementCapabilities instance is associated with the CIM_PowerSupply
 277 instance and the value of the CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported
 278 property is not an empty array, the power supply state management shall be supported.

279 **7.4 CIM_PowerSupply.RequestedState**

280 The CIM_PowerSupply.RequestedState property shall have a value of 12 (Not Applicable), 5 (No
 281 Change), or a value contained in the
 282 CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported property array of the associated
 283 CIM_EnabledLogicalElementCapabilities instance (see section 7.2.1).

284 When the power supply state management is supported and the RequestStateChange() method is
 285 successfully executed, the RequestedState property shall be set to the value of the parameter
 286 RequestedState of RequestStateChange() method. After the RequestStateChange() method has
 287 successfully executed, RequestedState and EnabledState shall have equal values with the exception of
 288 the transitional requested state 11 (Reset). The value of the RequestedState property may also change
 289 as a result of a request for change to the power supply's enabled state by non-CIM implementation.

290 **7.4.1 RequestedState – 12 (Not Applicable) value**

291 When the power supply state management is not supported, the value of the
 292 CIM_PowerSupply.RequestedState property shall be 12 (Not Applicable).

293 7.4.2 RequestedState – 5 (No Change) value

294 When the power supply state management is supported, the initial value of the
295 CIM_PowerSupply.RequestedState property shall be 5 (No Change).

296 7.5 CIM_PowerSupply.EnabledState

297 Table 2 describes the mapping between the values of the CIM_PowerSupply.EnabledState property and
298 the corresponding description of the state of the power supply. The CIM_PowerSupply.EnabledState
299 property shall match the values that are specified in Table 2. When the RequestStateChange() method
300 executes but does not complete successfully, and the power supply is in an indeterminate state, the
301 CIM_PowerSupply.EnabledState property shall have value of 5 (Not Applicable). The value of this
302 property may also change as a result of a change to the power supply's enabled state by non-CIM
303 implementation.

304 **Table 2 – EnabledState Value Description**

Value	Description	Extended Description
2	Enabled	Power supply shall be enabled.
3	Disabled	Power supply shall be disabled.
5	Not Applicable	Power supply state is indeterminate, or the power supply state management is not supported.
6	Enabled but Offline	Power supply shall be enabled but shall not actively supply power (used in redundant configuration; see section 7.7).

305

306 7.6 CIM_SystemDevice and CIM_SuppliesPower

307 When no instance of CIM_SuppliesPower references the instance of CIM_PowerSupply, the power
308 supply represented by CIM_PowerSupply supplies power to the whole managed system. In this case, the
309 CIM_ComputerSystem instance and the CIM_PowerSupply instance shall only be associated through an
310 instance of CIM_SystemDevice.

311 When at least one instance of CIM_SuppliesPower references the instance of CIM_PowerSupply, all of
312 the power-receiving elements shall be associated with the CIM_PowerSupply instance through an
313 instance of CIM_SuppliesPower.

314 7.7 Modeling Power Supply Redundancy (Optional)

315 Modeling of power supply redundancy is optional. Even when a managed system supports and
316 implements the redundancy, the redundant power supplies may co-exist with non-redundant power
317 supplies. The conditions and requirements in this section refer only to the CIM_PowerSupply instances
318 that represent redundant power supplies.

319 Power supply redundancy is modeled using CIM_RedundancySet, which is associated with the
320 CIM_PowerSupply instances through instances of CIM_MemberOfCollection and CIM_IsSpare.

321 When power supply redundancy is implemented, at least one instance of CIM_RedundancySet shall
322 exist. The CIM_MemberOfCollection association shall be used to associate the CIM_RedundancySet
323 instance with the CIM_PowerSupply instance. In addition to the CIM_MemberOfCollection association,
324 the CIM_IsSpare association may be used to associate the CIM_RedundancySet instance with the
325 CIM_PowerSupply instance, depending on the type of redundancy implemented (see section 7.7.1).

326 7.7.1 CIM_RedundancySet.TypeOfSet

327 When the CIM_RedundancySet.TypeOfSet property contains a value of 3 (Load Balanced), and/or 2
328 (N+1), or both, and does not contain any other values, the CIM_PowerSupply instances that are
329 associated with the CIM_RedundancySet instance shall comply with the following requirements:

- 330 • The CIM_PowerSupply instances shall be associated with the CIM_RedundancySet instance
331 through an instance of CIM_MemberOfCollection.
- 332 • The CIM_PowerSupply instances shall not be associated with the CIM_RedundancySet instance
333 through an instance of CIM_IsSpare.
- 334 • The CIM_PowerSupply.EnabledState property shall not have value of 6 (Enabled but Offline).

335 When the CIM_RedundancySet.TypeOfSet property has a value of 4 (Sparing), 5 (Limited Sparing), or
336 both, Spare Power Supplies may exist. The Spare Power Supply shall be associated with the
337 CIM_RedundancySet instance and shall comply with the following requirements:

- 338 • The Spare Power Supply shall be associated with the CIM_RedundancySet through instances of
339 both CIM_IsSpare and CIM_MemberOfCollection.
- 340 • The Spare Power Supply shall comply to one of the following requirements:
 - 341 – When the CIM_PowerSupply.EnabledState property has a value of 6 (Enabled but Offline),
342 the SpareStatus property of the referencing CIM_IsSpare instance shall have a value of 2
343 (Hot Standby).
 - 344 – When the CIM_PowerSupply.EnabledState property has a value of 3 (Disabled), the
345 SpareStatus property of the referencing CIM_IsSpare instance shall have a value of 3
346 (Cold Standby).
 - 347 – When the CIM_PowerSupply.EnabledState property has a value other than 3 (Disabled) or
348 6 (Enabled but Offline), the SpareStatus property of the referencing CIM_IsSpare instance
349 shall have a value of 0 (Unknown).

350 7.8 CIM_PowerSupply.ElementName

351 The CIM_PowerSupply.ElementName property shall be formatted as a free-form string of variable length
352 (pattern “.*”).

353 7.8.1 CIM_PowerSupply.ElementName Is Modifiable

354 Implementations may allow the CIM_PowerSupply.ElementName to be modified by a client. This behavior
355 is conditional. This section describes the CIM elements and behavior requirements when an
356 implementation supports client modification of the CIM_PowerSupply.ElementName property.
357 CIM_PowerSupply.ElementName property shall be modifiable when the ElementNameEditSupported
358 property of the associated CIM_EnabledLogicalElementCapabilities instance has a value of TRUE.

359 8 Methods

360 This section details the requirements for supporting intrinsic operations and extrinsic methods for the CIM
361 elements defined by this profile.

362 8.1 Method: CIM_PowerSupply.RequestStateChange()

363 Invocation of the CIM_PowerSupply.RequestStateChange() method will change the element’s state to
364 the value that is specified in the RequestedState parameter.

Power Supply Profile

365 Return values for RequestStateChange() shall be as specified in Table 3 where the method-execution
366 behavior matches the return-code description. RequestStateChange() method's parameters are specified
367 in Table 4.

368 When the power supply state management is supported, the RequestStateChange() method shall be
369 implemented and shall not return a value of 1 (Not Supported) (see section 7.3.1).

370 When the value of the RequestedState parameter is 6 (Offline) and the power supply is not a Spare
371 Power Supply, the RequestStateChange() method shall return a value of 2 (Error Occurred).

372 Invoking the CIM_PowerSupply.RequestStateChange() method multiple times could result in earlier
373 requests being overwritten or lost.

374 No standard messages are defined for this method.

375 **Table 3 – CIM_PowerSupply.RequestStateChange() Method: Return Code Values**

Value	Description
0	Request was successfully executed.
1	Method is not supported in the implementation.
2	Error occurred
4096	Job started

376 **Table 4 – CIM_PowerSupply.RequestStateChange() Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN, REQ	RequestedState	uint16	Valid state values: 2 (Enabled) 3 (Disabled) (see section 8.1.1) 6 (Offline) (see section 8.1.1) 11 (Reset)
OUT	Job	CIM_ConcreteJob REF	Returned if job started
IN, REQ	TimeoutPeriod	Datetime	Client specified maximum amount of time the transition to a new state is supposed to take: 0 or NULL – No time requirements <interval> – Maximum time allowed

377 **8.1.1 RequestStateChange() for the Spare Power Supply**

378 After the successful execution of the RequestStateChange() method on the Spare Power Supply with the
379 RequestedState parameter set to 6 (Offline), the SpareStatus of the referenced CIM_IsSpare association
380 shall have value of 2 (Hot Standby).

381 After the successful execution of the RequestStateChange() method on the Spare Power Supply with the
382 RequestedState parameter set to 3 (Disabled), the SpareStatus of the referenced CIM_IsSpare
383 association shall have value of 3 (Cold Standby).

384 **8.2 Method: CIM_RedundancySet.Failover()**

385 The CIM_RedundancySet.Failover() method forces a failover from one member of a
386 CIM_RedundancySet collection to another. When the method executes successfully, the power supply
387 that is represented by the CIM_PowerSupply instance referenced by the FailoverFrom parameter will

388 become inactive. The power supply that is represented by the CIM_PowerSupply instance referenced by
389 the FailoverTo parameter will take over as the active power supply.

390 The Failover() method may be supported if the FailoverSupported property of at least one instance of
391 CIM_IsSpare that references the CIM_RedundancySet has a value of 3 (Manual) or 4 (Both Manual and
392 Automatic).

393 The Failover() method shall not be supported if the FailoverSupported property of every instance of
394 CIM_IsSpare that references the CIM_RedundancySet has a value of 2 (Automatic).

395 The execution of the Failover() method shall return a value of 2 (Error Occurred) under the following
396 conditions:

- 397 • The CIM_PowerSupply instance that is referenced by the FailoverTo parameter is not a Spare
398 Power Supply.
- 399 • The CIM_PowerSupply instance that is referenced by the FailoverFrom parameter is not
400 associated with the CIM_RedundancySet instance only through the CIM_MemberOfCollection
401 association.

402 After the Failover() method executes successfully:

- 403 • the CIM_PowerSupply instance that is referenced by the FailoverTo parameter shall take over as
404 the active power supply. The CIM_PowerSupply instance that is referenced by the FailoverTo
405 parameter shall be associated with the CIM_RedundancySet only through the
406 CIM_MemberOfCollection association.
- 407 • The CIM_PowerSupply instance that is referenced by FailoverFrom parameter shall become a
408 Spare Power Supply.
- 409 • When the power supply state management is supported, the EnabledState property of the
410 CIM_PowerSupply instance that is referenced by the FailoverFrom parameter shall not have a
411 value of 2 (Enabled) but may have a value of 6 (Enabled but Offline).

412 CIM_RedundancySet.Failover() return values shall be as specified in Table 5.

413 CIM_RedundancySet.Failover() parameters are specified in Table 6.

414 No standard messages are defined for this method.

415 **Table 5 – CIM_RedundancySet.Failover() Method: Return Code Values**

Value	Description
0	Request was successfully executed.
1	Method is not supported in the implementation.
2	Error occurred

416 **Table 6 – CIM_RedundancySet.Failover() Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN, REQ	FailoverFrom	CIM_ManagedElement REF	The redundant element that will become inactive
IN, REQ	FailoverTo	CIM_ManagedElement REF	The redundant element that will become active and take over the inactivated element

417 **8.3 Profile Conventions for Operations**

418 Support for operations for each profile class (including associations) is specified in the following
 419 subclauses. Each subclause includes either the statement “All operations in the default list in section 8.3
 420 are supported as described by DSP0200 version 1.2” or a table listing all of the operations that are not
 421 supported by this profile or where the profile requires behavior other than that described by DSP0200.

422 The default list of operations is as follows:

- 423 • GetInstance
- 424 • EnumerateInstances
- 425 • EnumerateInstanceNames
- 426 • Associators
- 427 • AssociatorNames
- 428 • References
- 429 • ReferenceNames

430 A compliant implementation shall support all of the operations in the default list for each class, unless the
 431 “Requirement” column states something other than *Mandatory*.

432 **8.4 CIM_ElementCapabilities Operations**

433 Table 7 lists operations that either have special requirements beyond those from DSP0200 or shall not be
 434 supported.

435 **Table 7 – CIM_ElementCapabilities Operations**

Operation	Requirement	Messages
EnumerateInstances	Unspecified	None
EnumerateInstanceNames	Unspecified	None
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

436 8.5 CIM_EnabledLogicalElementCapabilities Operations

437 All operations in the default list in section 8.3 are supported as described by DSP0200 version 1.2.

438 8.6 CIM_IsSpare Operations

439 Table 8 lists operations that either have special requirements beyond those from DSP0200 or shall not be
440 supported.

441 **Table 8 – CIM_IsSpare Operations**

Operation	Requirement	Messages
EnumerateInstances	Unspecified	None
EnumerateInstanceNames	Unspecified	None
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

442 8.7 CIM_MemberOfCollection Operations

443 Table 9 lists operations that either have special requirements beyond those from DSP0200 or shall not be
444 supported.

445 **Table 9 – CIM_MemberOfCollection Operations**

Operation	Requirement	Messages
EnumerateInstances	Unspecified	None
EnumerateInstanceNames	Unspecified	None
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

446 8.8 CIM_OwningCollectionElement Operations

447 Table 10 lists operations that either have special requirements beyond those from DSP0200 or shall not
448 be supported.

449 **Table 10 – CIM_OwningCollectionElement Operations**

Operation	Requirement	Messages
EnumerateInstances	Unspecified	None
EnumerateInstanceNames	Unspecified	None
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

450 8.9 CIM_PowerSupply Operations

451 Table 11 lists operations that either have special requirements beyond those from DSP0200 or shall not
452 be supported.

453 **Table 11 – CIM_PowerSupply Operations**

Operation	Requirement	Messages
ModifyInstance	Optional. See section 8.9.1.	None

454 8.9.1 CIM_PowerSupply—ModifyInstance

455 This section details the requirements for the ModifyInstance operation applied to an instance of
456 CIM_PowerSupply. The ModifyInstance operation may be supported.

457 The ModifyInstance operation shall be supported and CIM_PowerSupply.ElementName shall be
458 modifiable when the ElementNameEditSupported property of the
459 CIM_EnabledLogicalElementCapabilities instance that is associated with the CIM_PowerSupply instance
460 has a value of TRUE. See section 8.9.1.1.

461 8.9.1.1 CIM_PowerSupply.ElementName

462 When the ElementNameEditSupported property of the CIM_EnabledLogicalElementCapabilities instance
463 that is associated with the CIM_PowerSupply instance has a value of TRUE, the implementation shall
464 allow the ModifyInstance operation to change the value of the ElementName property of the
465 CIM_PowerSupply instance. The ModifyInstance operation shall enforce the length restriction specified in
466 the MaxElementNameLen property of the CIM_EnabledLogicalElementCapabilities instance.

467 When the ElementNameEditSupported property of the CIM_EnabledLogicalElementCapabilities instance
468 has a value of FALSE, the implementation shall not allow the ModifyInstance operation to change the
469 value of the ElementName property of the CIM_PowerSupply instance.

470 8.10 CIM_RedundancySet Operations

471 All operations in the default list in section 8.3 are supported as described by DSP0200 version 1.2.

472 8.11 CIM_SuppliesPower Operations

473 Table 12 lists operations that either have special requirements beyond those from DSP0200 or shall not
474 be supported.

475 **Table 12 – CIM_SuppliesPower Operations**

Operation	Requirement	Messages
EnumerateInstances	Unspecified	None
EnumerateInstanceNames	Unspecified	None
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

476 8.12 CIM_SystemDevice Operations

477 Table 13 lists operations that either have special requirements beyond those from DSP0200 or shall not
478 be supported.

479 **Table 13 – CIM_SystemDevice Operations**

Operation	Requirement	Messages
EnumerateInstances	Unspecified	None
EnumerateInstanceNames	Unspecified	None
Associators	Unspecified	None
AssociatorNames	Unspecified	None
References	Unspecified	None
ReferenceNames	Unspecified	None

480 9 Use Cases

481 This section contains object diagrams and use cases for the Power Supply Profile.

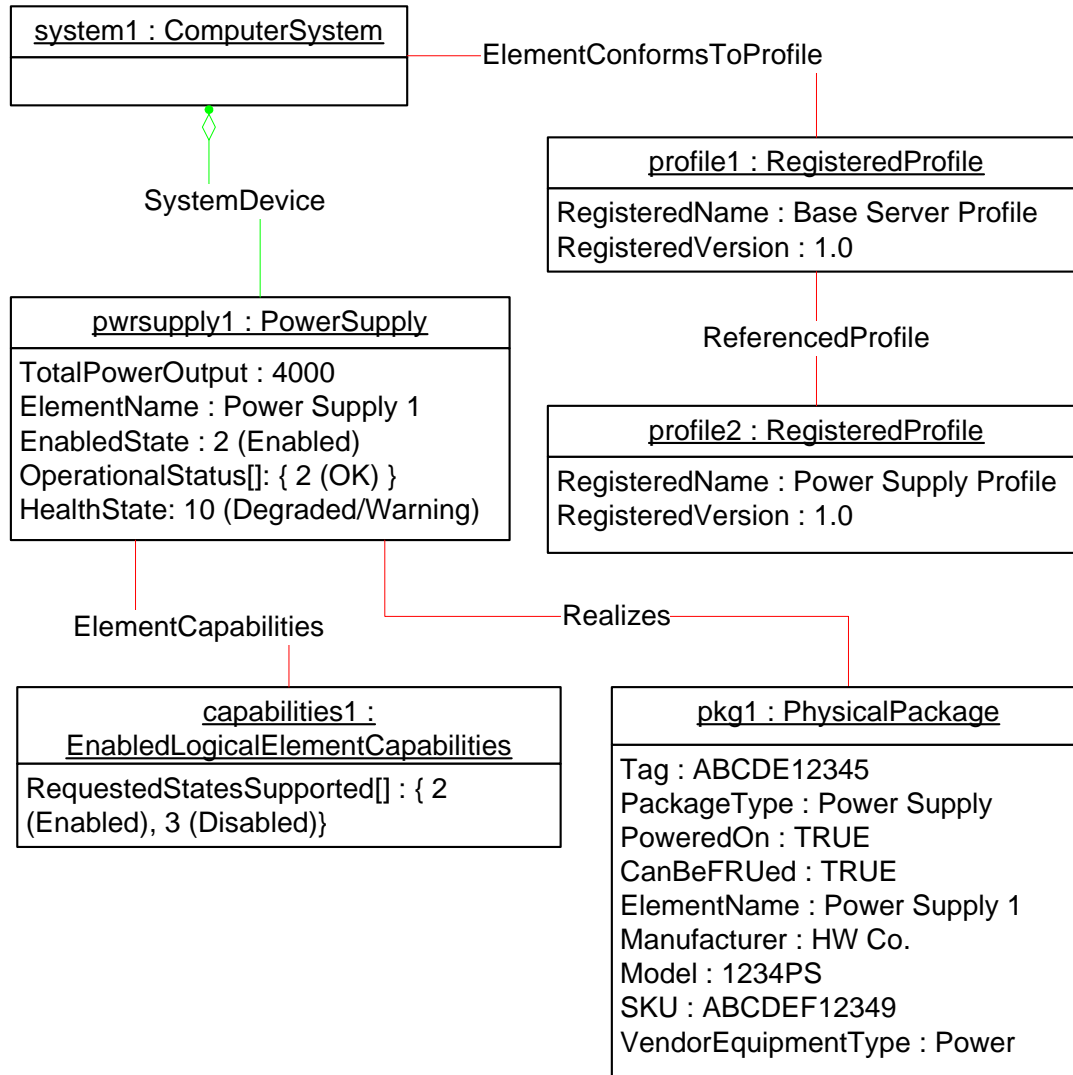
482 9.1 Object Diagrams

483 Figure 2 represents a possible instantiation of the Power Supply Profile. In this instantiation, the managed
484 system, system1, has a power supply, pwrsupply1. The power supply is operating but in a degraded
485 state. pwrsupply1 produces 4000 milliwatts of power. pwrsupply1's physical package information is
486 represented as well.

487 Because pwrsupply1 does not have the CIM_SuppliesPower association reference, pwrsupply1 is
488 supplying power to system1, which is denoted by the CIM_SystemDevice association. system1 is also the
489 scoping instance for pwrsupply1. Thus, following the CIM_ElementConformsToProfile association to
490 profile1 and then the referenced CIM_ReferencedProfile association to a CIM_RegisteredProfile instance
491 with the RegisteredName property set to "Power Supply Profile", the client can retrieve profile2. profile2
492 will show the version of the current Power Supply Profile implementation.

493 For simplicity, the prefix CIM_ has been removed from the names of the classes in the figure.

Power Supply Profile



494

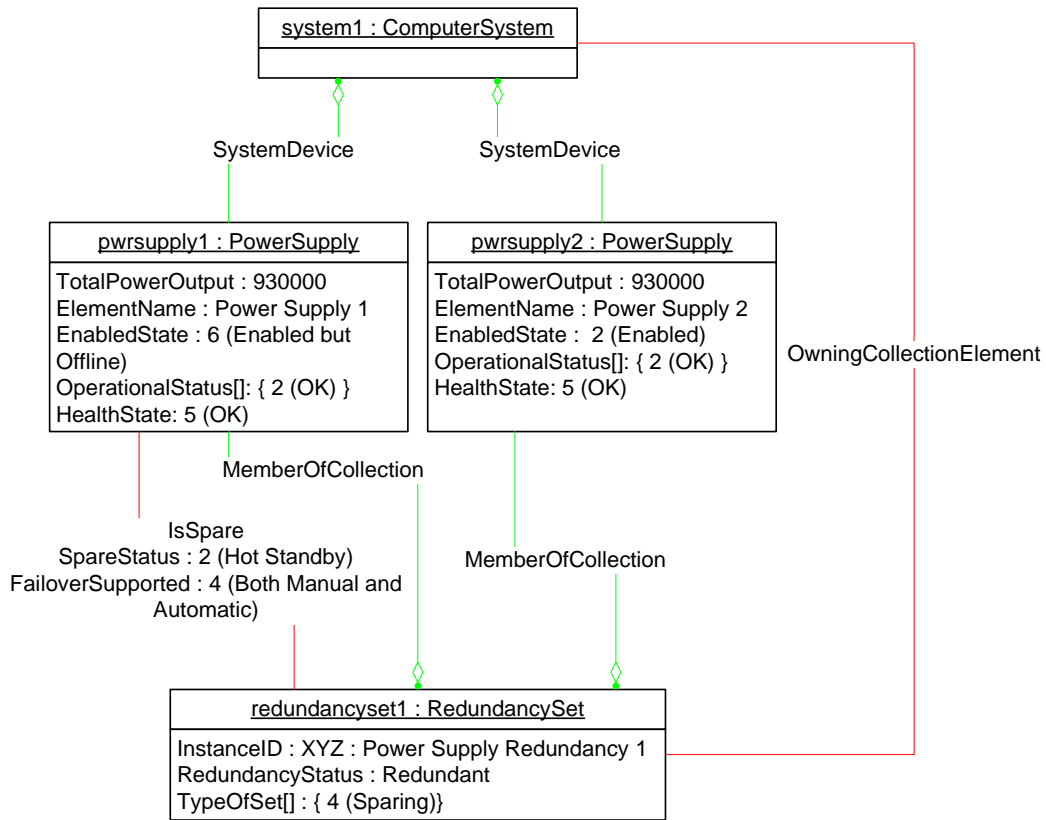
495

Figure 2 – Power Supply Profile: Object Diagram

496 Figure 3 represents a possible instantiation of the Power Supply Profile with redundancy. system1 has
 497 spare power supply redundancy. Because pwrsupply1 is associated with redundancysset1 through the
 498 CIM_IsSpare association, and the value of the pwrsupply1's EnabledState property is 6 (Enabled but
 499 Offline), the pwrsupply1 is a Spare Power Supply that is enabled but is not actively providing power to
 500 system1. pwrsupply2 is the active power supply of system1 because the value of its EnabledState
 501 property is 2 (Enabled) and pwrsupply2 is associated with redundancysset1 only through the
 502 CIM_MemberOfCollection association.

503 If redundancysset1 supports the Failover() method, a client can execute the Failover() method with the
 504 FailoverFrom parameter referencing pwrsupply2 and the FailoverTo parameter referencing pwrsupply1.

505 When the Failover() method executes successfully, pwrsupply1 will be the active power supply for
 506 system1 with an EnabledState property value of 2 (Enabled) and will not be associated with
 507 redundancysset1 through the CIM_IsSpare association. Additionally, pwrsupply2 will not have an
 508 EnabledState property value of 2 (Enabled) and will be associated to redundancysset1 through the
 509 CIM_IsSpare association. Because pwrsupply1 and pwrsupply2 do not have the CIM_SuppliesPower
 510 association reference, both are supplying power to system1, which is denoted by the CIM_SystemDevice
 511 association.

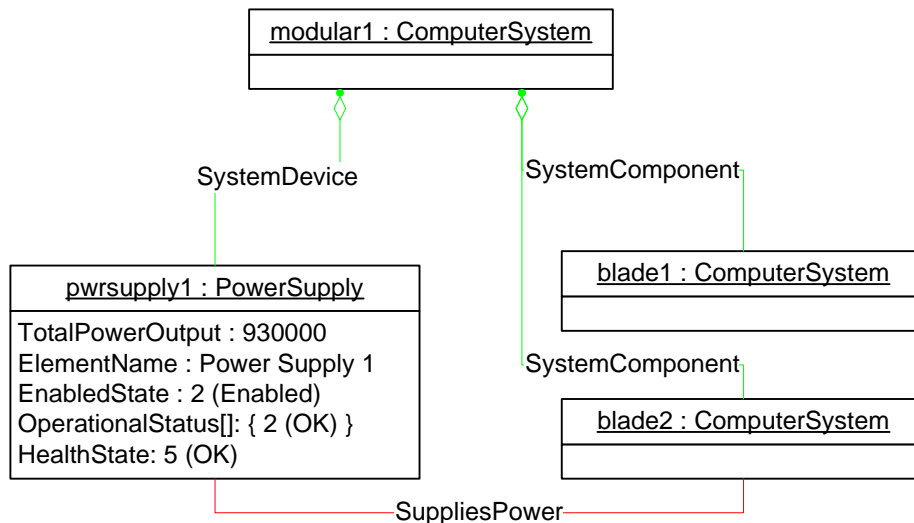


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Figure 3 – Power Supply Profile: Redundancy Object Diagram

514 Figure 4 shows a possible instantiation of the Power Supply Profile in which the power supply is
 515 dedicated to supply power to a particular managed element. In this diagram, pwrsupply1 is associated to
 516 blade2 through the CIM_SuppliesPower association. This association denotes that pwrsupply1 supplies
 517 power only to blade2 and does not supply power to modular1 and blade1. In this case, the
 518 CIM_SystemDevice association does not reference the element to which pwrsupply1 supplies power.



519

520

Figure 4 – Power Supply Profile: Dedicated Power Supply

521 **9.2 Retrieve the Power Supply's Power Output Information**

522 A client can determine the power output information for a given instance of CIM_PowerSupply by
523 retrieving the TotalPowerOutput property.

524 **9.3 Reset the Power Supply**

525 A client can reset the power supply as follows:

- 526 1) For the given instance of CIM_PowerSupply, find the associated instance of
527 CIM_EnabledLogicalElementCapabilities.
- 528 2) If the CIM_EnabledLogicalElementCapabilities.RequestedStatesSupported property is a non-
529 empty array that contains the value 11 (Reset), execute the RequestStateChange() method
530 with the value of the RequestedState parameter set to 11 (Reset), which will disable and then
531 enable the power supply represented by this instance.

532 **9.4 Retrieve the Power Supply Redundancy Status**

533 A client can determine the redundancy status for a given instance of CIM_PowerSupply as follows:

- 534 1) Find the instance of CIM_RedundancySet that is associated with the instance of
535 CIM_PowerSupply through an instance of CIM_MemberOfCollection.
- 536 2) Retrieve the value of the CIM_RedundancySet.RedundancyStatus property.

537 **9.5 Find the Elements to Which the Power Supply Supplies Power**

538 A client can determine the elements to which a given instance of CIM_PowerSupply supplies power as
539 follows:

- 540 1) Find all of the CIM_SuppliesPower association instances that reference the given instance of
541 CIM_PowerSupply.
- 542 2) If the CIM_SuppliesPower association instances exist, the CIM_SuppliesPower.Dependent
543 properties will reference all the instances of the subclass of CIM_ManagedSystemElement that
544 receive power from the power supply.
- 545 3) If no CIM_SuppliesPower association instances exist, select the CIM_ComputerSystem
546 instance associated with the given instance of the CIM_PowerSupply instance through the
547 CIM_SystemDevice association.

548 **9.6 Determine Whether the CIM_PowerSupply.ElementName Is Modifiable**

549 A client can determine whether it can modify the CIM_PowerSupply.ElementName property as follows:

- 550 1) Find the CIM_EnabledLogicalElementCapabilities instance that is associated with the
551 CIM_PowerSupply instance.
- 552 2) Query the value of the ElementNameEditSupported property of the instance. If the value is
553 TRUE, the client can modify the CIM_PowerSupply.ElementName property.

554 **10 CIM Elements**

555 Table 14 shows the instances of CIM Elements for this profile. Instances of the CIM Elements shall be
556 implemented as described in Table 14. Sections 7 ("Implementation Requirements") and 8 ("Methods")
557 may impose additional requirements on these elements.

558

Table 14 – CIM Elements: Power Supply Profile

Element Name	Requirement	Description
Classes		
CIM_ElementCapabilities	Conditional	See section 10.1.
CIM_EnabledLogicalElementCapabilities	Optional	See sections 7.2 and 10.2.
CIM_IsSpare	Optional	See section 10.3.
CIM_MemberOfCollection	Conditional	See section 10.4.
CIM_OwningCollectionElement	Conditional	See section 10.9.
CIM_PowerSupply	Mandatory	See sections 7.1 and 10.5.
CIM_RedundancySet	Optional	See sections 7.7 and 10.6.
CIM_RegisteredProfile	Mandatory	See section 10.7.
CIM_SuppliesPower	Optional	See sections 7.6 and 10.10.
CIM_SystemDevice	Mandatory	See sections 7.6 and 10.8.
Indications		
None defined in this profile		

559 10.1 CIM_ElementCapabilities

560 CIM_ElementCapabilities is used to associate an instance of CIM_PowerSupply with an instance of
 561 CIM_EnabledLogicalElementCapabilities that describes the capabilities of the CIM_PowerSupply
 562 instance. CIM_ElementCapabilities is mandatory when the CIM_EnabledLogicalElementCapabilities
 563 instance is instantiated.

564

Table 15 – CIM_ElementCapabilities

Properties	Requirement	Notes
ManagedElement	Mandatory	Key: Shall reference the instance of CIM_PowerSupply Cardinality 1..* indicating one or more references
Capabilities	Mandatory	Key: Shall reference the instance of CIM_EnabledLogicalElementCapabilities Cardinality 0..1 indicating zero or one reference

565 10.2 CIM_EnabledLogicalElementCapabilities

566 CIM_EnabledLogicalElementCapabilities represents the capabilities of the power supply.

567

Table 16 – CIM_EnabledLogicalElementCapabilities

Properties	Requirement	Notes
InstanceID	Mandatory	Key
RequestedStatesSupported	Mandatory	See section 7.2.1.
ElementNameEditSupported	Mandatory	See section 7.2.2.
MaxElementNameLen	Conditional	See section 7.2.3.

568 **10.3 CIM_IsSpare**

569 CIM_IsSpare is used to associate an instance of CIM_PowerSupply with the instance of
 570 CIM_RedundancySet of which the CIM_PowerSupply instance is a member and is a Spare Power
 571 Supply.

572 **Table 17 – Class: CIM_IsSpare**

Properties	Notes	Notes
Antecedent	Mandatory	Key: Shall reference the CIM_RedundancySet instance of which the CIM_PowerSupply instance is a member and where the CIM_PowerSupply instance is a spare Cardinality 0..1 indicating zero or one reference
Dependent	Mandatory	Key: Shall reference the CIM_PowerSupply instance Cardinality 1..* indicating one or more references
SpareStatus	Mandatory	None
FailoverSupported	Mandatory	None

573 **10.4 CIM_MemberOfCollection**

574 CIM_MemberOfCollection is used to associate an instance of CIM_PowerSupply with the instance of
 575 CIM_RedundancySet of which the CIM_PowerSupply is a member. CIM_MemberOfCollection is
 576 mandatory when CIM_RedundancySet is instantiated.

577 **Table 18 – Class: CIM_MemberOfCollection**

Properties	Requirement	Notes
Collection	Mandatory	Key: Shall reference the CIM_RedundancySet instance of which the CIM_PowerSupply instance is a member. Cardinality 0..1 indicating zero or one reference
Member	Mandatory	Key: Shall reference the CIM_PowerSupply instance Cardinality 1..* indicating one or many references

578 **10.5 CIM_PowerSupply**

579 CIM_PowerSupply is used to represent the power supply.

580 **Table 19 – Class: CIM_PowerSupply**

Properties and Methods	Requirement	Notes
SystemCreationClassName	Mandatory	Key
SystemName	Mandatory	Key
CreationClassName	Mandatory	Key
DeviceID	Mandatory	Key
TotalOutputPower	Mandatory	Shall match 0 when the power supply's total output power is unknown
ElementName	Mandatory	See section 7.8.
OperationalStatus	Mandatory	None
HealthState	Mandatory	None
EnabledState	Mandatory	See section 7.5.
RequestedState	Mandatory	See section 7.4.
RequestStateChange()	Conditional	See section 8.1.

581 **10.6 CIM_RedundancySet**

582 CIM_RedundancySet is used to represent the aggregation of redundant power supplies.

583 **Table 20 – Class: CIM_RedundancySet**

Properties and Methods	Requirement	Notes
InstanceID	Mandatory	Key
RedundancyStatus	Mandatory	None
TypeOfSet	Mandatory	See section 7.7.1.
MinNumberNeeded	Mandatory	Shall match 0 when the minimum number of power supplies needed for the redundancy is unknown
ElementName	Mandatory	Shall be formatted as a free-form string of variable length (pattern ".*")
Failover()	Optional	See section 8.1.1.

584 **10.7 CIM_RegisteredProfile**585 The CIM_RegisteredProfile class is defined by the Profile Registration Profile. The requirements denoted
586 in Table 21 are in addition to those mandated by the Profile Registration Profile.587 **Table 21 – Class: CIM_RegisteredProfile**

Properties	Requirement	Notes
RegisteredName	Mandatory	This property shall have a value of "Power Supply Profile".
RegisteredVersion	Mandatory	This property shall have a value of "1.0.0c".
RegisteredOrganization	Mandatory	This property shall have a value of 2 (DMTF).

588 **10.8 CIM_SystemDevice**

589 CIM_SystemDevice is used to associate an instance of CIM_PowerSupply with the instance of
590 CIM_ComputerSystem of which the CIM_PowerSupply instance is a member.

591 **Table 22 – Class: CIM_SystemDevice**

Properties	Requirement	Notes
GroupComponent	Mandatory	Key: Shall reference the CIM_ComputerSystem instance of which the CIM_PowerSupply instance is a member Cardinality 1 indicating one reference
PartComponent	Mandatory	Key: Shall reference the CIM_PowerSupply instance Cardinality 1..* indicating one or more references

592 **10.9 CIM_OwningCollectionElement**

593 CIM_OwningCollectionElement is used to associate an instance of CIM_RedundancySet with the
594 instance of CIM_ComputerSystem of which the CIM_RedundancySet instance is a member. The instance
595 of CIM_OwningCollectionElement is conditional on the instantiation of the CIM_RedundancySet class.

596 **Table 23 – Class: CIM_OwningCollectionElement**

Properties	Requirement	Notes
OwningElement	Mandatory	Key: Shall reference the CIM_ComputerSystem instance of which the CIM_RedundancySet instance is a member Cardinality 1 indicating one reference
OwnedElement	Mandatory	Key: Shall reference the CIM_RedundancySet instance Cardinality * indicating zero or more references

597 **10.10 CIM_SuppliesPower**

598 CIM_SuppliesPower is used to associate an instance of CIM_PowerSupply with the instance of
599 CIM_ManagedSystemElement to which the power supply represented by the CIM_PowerSupply instance
600 supplies power. See section 7.6.

601 **Table 24 – Class: CIM_SuppliesPower**

Properties	Requirement	Notes
Antecedent	Mandatory	Key: Shall reference the CIM_PowerSupply instance Cardinality 1..* indicating one or more references
Dependent	Mandatory	Key: Shall reference the instance of the subclass of CIM_ManagedSystemElement that represents the element receiving the power Cardinality * indicating zero or more references

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ANNEX A
(informative)
Change Log

Version	Date	Description
1.0.0c	04/24/2006	Incorporated Cpubs corrections. Release as Preliminary Standard

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610
611

ANNEX B (informative)

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