Below is the instantiated safety case for the GPCA (Generic Patient-Controlled Analgesia) system. The hierarchical tree format uses dashes (-) to denote different levels:

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- G1: Operational safety is verified in GPCA system

- S1: Argument over the satisfaction of all specs over GPCA system

- C1: All specs are given by specific instances related with GPCA

- Undeveloped

- G2: All operational hazards are mitigated

- S3: Argument over operational hazards

- C2: Operational hazards are given by specific instances related with GPCA

- Multiplicity: operational hazard.allInstances()

- G3: Patient overdosing hazard is mitigated

- S4: Argument over the applied scenarios of the patient overdosing hazard

- C3: All related scenarios are given by specific instances of patient overdosing hazard

- Multiplicity: patient overdosing hazard.scenario.allInstances()

- G4: Patient overdosing hazard is mitigated under normal operation scenario

- S5: Argument over all specs related to normal operation scenario

- C4: All related specs are given by normal operation scenario

- Multiplicity: normal operation scenario.spec.allInstances()

- G5: Dosage control specification is appropriate for normal operation scenario

- S6: Argument the appropriateness of dosage control specification over properties

- C5: Properties are given by dosage control specification.property.allinstances()

- Multiplicity: dosage control specification.property.allInstances()

- G6: Dosage accuracy property is appropriate for dosage control specification

- S7: Argument over the source of the dosage accuracy property definition

- C6: Source is given by dosage accuracy property.source

- G7: Manufacturer specifications are appropriate and trustworthy

- Sn1: Manufacturer documentation

- G8: Dosage accuracy property definition is sufficient

- Sn2: Verification tests

- G3: Patient underdosing hazard is mitigated

- S4: Argument over the applied scenarios of the patient underdosing hazard

- C3: All related scenarios are given by specific instances of patient underdosing hazard

- Multiplicity: patient underdosing hazard.scenario.allInstances()

- G4: Patient underdosing hazard is mitigated under normal operation scenario

- S5: Argument over all specs related to normal operation scenario

- C4: All related specs are given by normal operation scenario

- Multiplicity: normal operation scenario.spec.allInstances()

- G5: Dosage control specification is appropriate for normal operation scenario

- S6: Argument the appropriateness of dosage control specification over properties

- C5: Properties are given by dosage control specification.property.allinstances()

- Multiplicity: dosage control specification.property.allInstances()

- G6: Dosage accuracy property is appropriate for dosage control specification

- S7: Argument over the source of the dosage accuracy property definition

- C6: Source is given by dosage accuracy property.source

- G7: Manufacturer specifications are appropriate and trustworthy

- Sn1: Manufacturer documentation

- G8: Dosage accuracy property definition is sufficient

- Sn2: Verification tests

- S2: Argument over reliability in all suitable levels of GPCA system

- Undeveloped

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This safety case instantiation fills placeholders with specific details related to the GPCA system, focusing on hazards like patient overdosing and underdosing, ensuring the appropriateness of dosage control specifications, and verifying manufacturer specifications and property definitions.