EMISSION DEVICE. An irrigation system component that is used to dispense irrigation water to the landscape at a specific rate.

Sprinkler. An emission device consisting of a sprinkler body with one or more orifices to convert irrigation water pressure to high velocity water discharge through the air, discharging a minimum of 0.5 gallon per minute (1.9 liters per minute) at the largest area of coverage available for the nozzle series when operated at 30 psi (206.8 kPa) or more with a full-circle pattern.

Spray. A sprinkler with a spray sprinkler body. ~~that continuously applies water in a pattern to a defined landscape area.~~

Rotor. A sprinkler with a rotor sprinkler body. ~~that applies water in a pattern by means of one or more rotating streams to a defined landscape area.~~

SPRINKLER BODY. The exterior case or shell of a sprinkler incorporating a means of connection to the piping system, designed to convey water to a nozzle or orifice.

Rotor sprinkler body. A sprinkler body that: contains components to drive the rotation of the nozzle or orifice during operation; and lacks an integral control valve.

Spray sprinkler body. A sprinkler body that: does not contain components to drive the rotation of the nozzle or orifice during operation; and lacks an integral control valve.

Valve-in-head sprinkler body. A sprinkler body that contains an integral control valve.

VALVE-IN-HEAD SPRINKLER. A sprinkler that includes a valve-in-head sprinkler body. ~~with an integral control valve intended to be operated from a remote location.~~

APPENDIX A
SPRAY SPRINKLER BODY PERFORMANCE TEST METHOD

A101.1 Test procedure. Spray sprinkler bodies shall be tested in accordance with this Appendix.

A101.1.1 Product sampling and selection. Products shall be sampled and selected for testing in accordance with Section 303.1.1 of this standard.

A101.1.2 Testing of selection. Each selected test sample shall be tested in accordance with the methodology outlined in this Appendix.

A101.1.3 Test conditions. Test conditions shall be in accordance with Section 303.1.4 of this standard.

A101.1.4 Sample conditioning. Test samples shall be conditioned in accordance with Section 303.1.2 of this standard.

A101.2 Performance test. Calibration and performance testing of the sample shall be in accordance with Sections A101.2.1 through A101.2.4

A101.2.1 Initial calibration. The test sample shall be initially calibrated so that the flow is 1.5 +/- 0.1 gpm (5.7 +/- 0.38 lpm) at the regulation pressure specified by the manufacturer, measured at the test sample inlet. The flow rate shall be controlled by a needle valve. Once the flow rate is established at the regulation pressure, there shall be no further adjustment of the needle valve for that test sample.

A101.2.2 Testing at four pressure levels. The test sample shall be tested at four inlet pressures as follows:

1. The initial calibration point regulation pressure of Section A101.2.1.
2. 10.0 psi (68.9 kPa) greater than the initial calibration point regulation pressure.
3. 60.0 psi (414 kPa)
4. 70.0 psi (483 kPa) or the manufacturer's specified maximum operating pressure, whichever is greater.

A101.2.3 Inlet pressure measurement location. Inlet pressure shall be measured at the inlet to the sprinkler body as shown in Figure A101.2.3.

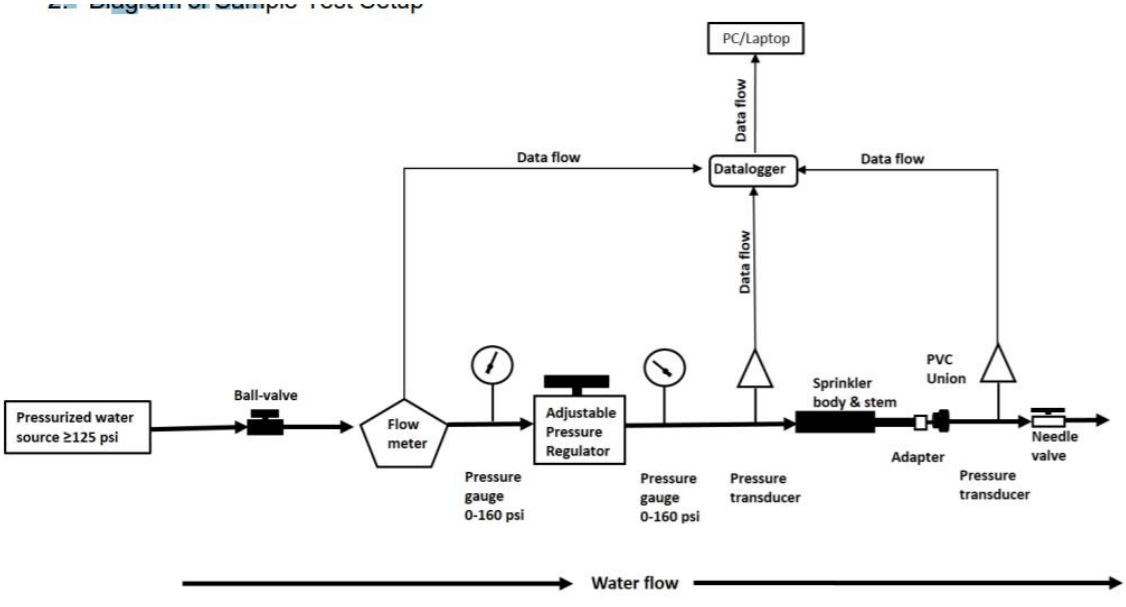

FIGURE A101.2.3
Equipment Setup for Pressure Regulation Test

A101.2.3.1 Pressure stabilization. For all inlet pressure test points, the inlet pressure shall be adjusted to within 1.0 psi (6.9 kPa) of the required test pressure and allowed to stabilize. Stabilization shall be considered achieved when three consecutive pressure readings are within +/- 1.0 psi (6.9 kPa) of the required test pressure.

A101.2.3.2 Pressure reset. After testing the sample at each pressure test point, the inlet pressure shall be reduced to 0.0 psi (0.0 kPa) for not less than 2 minutes prior to setting the test pressure for a different test pressure.

A101.2.4 Outlet pressure measurement location. Outlet pressure shall be measured downstream of the integral pressure regulation device and as close as practical to the needle valve shown in Figure A101.2.3.

A101.3 Data logging. Pressures and flow rates for the sample under test shall be measured and recorded in accordance with Sections A101.3.1 through A101.3.2, and logged at intervals of not greater than 30 seconds. The data collection period at each test pressure shall be not less than 3 minutes and not greater than 5 minutes.

A101.3.1 Outlet pressure logging. The outlet pressure shall be measured and recorded only for the initial calibration required by Section A101.2.1.

A101.3.2 Inlet pressure logging. The inlet pressure shall be measured and recorded at each of the four inlet pressures indicated in Section A101.2.2.

A101.3.3 Flow rate logging. The flow rate shall be measured and recorded at each of the four inlet pressures indicated in Section A101.2.2.

A101.4 Test report. For each tested sample, a test report shall be created from the data logging. For each test pressure, the report shall indicate the average, minimum, and maximum of pressure values and flow rate values. The test report shall indicate the duration of time at each test pressure.

A101.5 Test equipment. The equipment required for testing shall be as follows:

1, Two pressure transducers capable of measuring pressure from 0 to at least 145 psi (1 000 kPa) with at least 0.1 psi (6.9 kPa) resolution. Accuracy, including linearity, hysteresis, and repeatability, shall be within 0.3% of full-scale output.

2. Two liquid-filled pressure gauges having a range of 0-160 psi (0 - $1e^9$ kPa) and a ¼ inch (76.2 mm) MNPT bottom connection.

3. Flow meter capable of resolving at least 0.05 gpm (0.189 lpm) within a range of at least 1.5 to 15 gpm (5.7 to 56.8 lpm) and accuracy of 100 percent +/- 1.5 percent for the range of flow measured. The flow meter shall be conditioned in accordance with manufacturer's instructions and shall be installed in accordance with ASME PTC 19.5.

4. Data logger capable of recording the pressure transducer and flow meter outputs.

5. Piping lengths as needed to conform to the manufacturer's recommendations for the installation of the pressure transducers and the flow meter.

6. A ¼ inch NPT (6.4 mm) needle-type steel metering valve having ¼ inch FNPT (6.4 mm) connections, a maximum flow range of 5 gpm (18.9 lpm) and maximum pressure of 5000 psi (34 474 kPa).

7. An adapter of not less than 0.6 inch (15.24 mm) inside diameter, including attachments, to minimize flow disturbance and connect the needle valve to the sprinkler body stem.

8. Test samples supplied with straight, smooth piping that is free of fittings, except for compliant pressure taps. The length of the supplied piping shall be not less than 20 times the inlet diameter of the sprinkler body to be tested. Supply piping shall be ½" (12.7 mm) nominal diameter schedule 40 polyvinyl chloride. All pressure taps shall comply with ASME PTC 19.2.

A101.6 Reference standards. The following standards are referenced in this Appendix:

ASME

PTC 19.2 – 2010 Performance Test Code

PTC 19.5 – 2004 Flow Measurement