General Specifications

Inspection & Test Procedure

1. Factory Test

1.1 General

Annunciator factory test can include, component, module, and final assembly tests. In some cases, users specify specific tests to confirm that annunciators will operate as required in special applications.
annunciator should be fulfilled in a proper test procedure fitted with Industrial electric, electronec and control equipmint.

1.2 Dielectric Strength

Dielectric Strength tests, sometimes referred to as high potential or high pot tests, are usually performed on annunciator final assemblies to confirm that insulation and clearances are adequate between circuits and cabinets and also between separate circuits.
To avoid damage, solid state circuit modules are usually removed, grounded, or shorted during these tests.

Test voltages range from 1000 to 1500 volts ac and are usually applied for on minute.
Dielectric strength standards are included in (1) National Electrical Manufacturers Association Standard NEMA ICS 1, Part ICS 1-109, “Industrial Controls and Systems, Tests and Reset Procedures,” and (2) American National Standards ANSI C39.5 “America National Standards Safety Requirements for Electrical and Electronic Measuring and controlling Instrumentation.”

1.3 Functional

Functional tests are usually performed on annunciator modules and final assemblies to confirm that the operation is as specified. Tests on final assemblies are sometimes referred to as simulation tests.

Functional tests usually include operation in all of the normal operating modes and also in abnormal modes such as high and low power source voltage, grounds, short circuits, and unusual service conditions. Cabinet internal temperatures are often measured to confirm ventilation designs.

1.4 Surge Withstand Capability

Annunciator solid state logic circuits operate at low power levels. Annunciator circuits aredesigned to suppress electical surges and transients that may be induced in field wiring.
Tests are usually performed on prototype modules to confirm that expected surges andtransients do not cause false operation or damage.

1.5 Radio Frequency Interference

There is some possibility that false operation of annunciator solid state logic circuits can be caused by operation of nearby portable radio transmitters, especially when cabinet doors are open.

A radio frequency interference test method and a classification of signal field strengths and frequency bands are included in Scientific Apparatus. Makers Association Standard SAMA PMAC 33.1, “Electromagnetic Susceptibility of Press Control Instrumentation.”

1.6 Seismic

In some applications, annunciators may be requited to operate during and after specified earthquakes, or annunciator cabinets may be required only to remain intact exteranlly so as not to endanger nearby personnel or equipment. When required, seismic tests are usually performed on prototype assemblies.

Seismic test producers are included in “Institute of Electrical and Electronics Engineers Standard IEEE 344” and IEEE Recommended Practices for Seismic Qualification of Class 1E Equipmint for Nuclear Power Generating Stations.

1.7 Class 1E Equipment for Muclear Generating Stations

Annunciators that perform Class 1E safety related functions in nuclear power generating stations must be qualified to confirm the adequacy of the equipment design under all expected normal and abnormal operation conditions.

Qualification procedures making use of type testing, operating experience, and analysis are included in Institute of Electrical and Electronics Engineers Standard IEEE323, “IEEE Standard for Qualitying Class 1E Equipment for Nuclear Power Generating Stations.”