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METHODS OF MEASUREMENT OF RADIO INFLUENCE VOLTAGE (RIV) OF HIGH VOLTAGE APPARATUS

Reaffirmed with No Text Changes, December 1993

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Foreword

This standard supersedes and is an extensive revision of NEMA Standards Publication No. 107-1964 (R 1971, 1976, 1981), *Methods of Measurement of Radio Influence Voltage (RIV) of High-Voltage Apparatus*.

Users of this NEMA Standards Publication are advised that radio influence voltage (RIV) measurements are not meant to be similar to corona measurements even though the source phenomena may be the same.

In the preparation of this Standards Publication, input of users and other interested parties has been sought and evaluated. Inquiries, comments, and proposed or recommended revisions should be submitted to the concerned NEMA subdivision by contacting the:

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Scope

This standard covers the methods of measurement of radio influence voltage in the frequency range of 0.015 to 30 megahertz that may be associated with high-voltage power apparatus used on transmission and distribution systems at line voltages of 0.6 kilovolts and above.

The decision as to whether this standard applies to a specific test sample may be determined from the specifications or standards which apply to the equipment in question.

The radio influence voltage which is of principal concern in this standard is that voltage appearing at the terminals of test samples, or on conductors of power systems, which affects the coordination between power and communication circuits. Acceptable low level radio influence voltage measured on the terminals of power equipment may not affect the coordination between power systems and communication circuits, but, may be of concern in the life of the equipment's internal insulation.

Because of the large voltage range and, consequently, the large change in dimensions of high-voltage test equipment, it is not feasible to define a single standard high- voltage test circuit. The general form of the test circuit is defined, and nominal limits are placed on components of the circuit. In order that uniform and significant radio influence voltage measurements may be made, it is necessary that the test circuits be accurately calibrated as described in this standard. By means of this calibration, the effects of circuit elements and stray circuit constants of the test circuit are taken into consideration.

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METHODS OF MEASUREMENT OF RADIO INFLUENCE VOLTAGE (RIV) OF HIGH-VOLTAGE APPARATUS

Section 1

REFERENCED STANDARDS AND DEFINITIONS

1.1 REFERENCED STANDARDS

The following publications are adopted, in whole or in part as indicated, by reference in this standards publication.

American National Standards Institute (ANSI)
1430 Broadway,
New York, NY 10018

ANSI C63.2-1980	American National Standard, *Specifications for Electromagnetic Noise and Field-Strength Instrumentation, 10kHz to 1 GHz*
ANSI C63.4-1981	American National Standard, *Method of Measurement of Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 10 kHz to 1 GHz*
ANSI C50.10-1977	American National Standard, *General Requirements for Synchronous Machines*
ANSI/IEEE 100-1984	IEEE Standard, *Dictionary of Electrical Terms*

1.2 DEFINITIONS

The following definitions apply specifically and only to the subject treated in this standard. For additional definitions see ANSI/IEEE 100-1984.

NEMA Standard 5-27-1987.

1.2.1 Radio Noise

1.2.1.1 BROAD-BAND RADIO NOISE

Radio noise having a spectrum which is broad compared with the nominal bandwidth of the radio-noise meter.

NEMA Standard 5-27-1987.

1.2.1.2 IMPULSIVE RADIO NOISE

Radio noise characterized by non-overlapping transient disturbances. This includes corona and other high-voltage discharges.

NEMA Standard 5-27-1987.

1.2.1.3 Radio Influence Voltage (RIV)

The voltage which appears on the conductors of electric equipment or circuits, as measured with a standard radio-noise meter used as a 2-terminal voltmeter in accordance with the methods described herein.

NEMA Standard 5-27-1987.

1.2.2 Tests

1.2.2.1 CIRCUIT RIV FACTOR (P)

The ratio of the voltage at the terminals of the radio-noise meter (E_{cd}) to the signal generator voltage (E_{ab}). Thus, $E_{cd}/E_{ab} = P$.

NEMA Standard 5-27-1987.

1.2.2.2 FACTORY TESTS

Tests which can be made in a factory or outdoor area, using a calibrated high-voltage test circuit, with the test sample energized at its rated test voltage so that operating conditions are simulated.

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1.2.2.3 FIELD TESTS

Tests which can be made (usually in an outdoor area) on energized power system equipment or lines, using a high-voltage coupling capacitor and the circuitry described herein.

NEMA Standard 5-27-1987.

1.2.2.4 LABORATORY TESTS

Tests which are made under controlled conditions of ambient radio noise, usually in a shielded enclosure, using a calibrated high-voltage test circuit and a filtered power supply, with the test sample energized so that operating conditions are simulated.

NEMA Standard 5-27-1987.

1.2.3 Test Sample

The equipment (unit, component assembly or system) which is to be tested to determine the RIV level. Test samples shall be permitted to include any power system equipment, such as insulators, bushings, transformers, switchgear, conductors, and so forth.

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Section 2
GENERAL TEST CONDITIONS

2.1 TEST AREA

For laboratory, factory, or field tests, the test area shall be of a suitable size to maintain adequate clearances so that the electric field around the test sample is not distorted. See Figure 2-1.

NEMA Standard 5-27-1987.

2.1.1 Ambient RIV

It is desirable that the ambient RIV level at each measurement frequency be measured for reference purposes at the required test voltage with the test sample disconnected. Where an allowable RIV limit is specified in the applicable specification or standard, it is usually desirable that the ambient RIV level be at least 6 decibels below (one-half) the specified limit.

Authorized Engineering Information 5-27-1987.

2.1.2 Calibration Accuracy

Evidence shall be given that the calibrations of the measuring instruments used are accurate for the temperature at which they are used. Further, the test sample, radio-noise meters, indicating devices and equipment shall be at the test location for a sufficient time prior to making calibrations and measurements to allow the temperature of the equipment to become stabilized with respect to the temperature of the testing location.

NEMA Standard 5-27-1987.

2.1.3 Humidity

Tests are conducted under atmospheric conditions prevailing at the time and place of the test, but it is recommended that tests be avoided when the vapor pressure exceeds 0.6 inch of mercury. Although there are no correction factors to cover the effect of humidity and barometric pressure currently, it is recommended that the barometric pressure and wet and dry-bulb thermometer readings be recorded so that, if suitable correction factors are determined in the future, they may be applied to previous measurements.

Authorized Engineering Information 5-27-1987.

2.1.4 Temperature

The ambient temperatures of the testing location should be within the range of 10 °C to 40 °C (50 ° F to 104 ° F).

Authorized Engineering Information 5-27-1987.

2.2 TEST SAMPLE SETUP

The arrangement of the components, interconnecting cable assemblies, and supporting structures of the test sample shall simulate actual installation and operation insofar as is practicable.

NEMA Standard 5-27-1987.

2.2.1 RIV Test Voltage

The test voltage shall be as stated in the individual equipment specification or standard.

NEMA Standard 5-27-1987.

2.2.2 Conditioning of Test Sample

The test sample shall be clean and dry, and energized for a sufficient period of time so that representative RIV conditions can be obtained on the specimen prior to making measurements.

NEMA Standard 5-27-1987.

2.2.3 Test Sample Grounding

The test sample shall be grounded in order to simulate installation conditions.

NEMA Standard 5-27-1987.

2.2.4 Test Sample Leads

The high-voltage leads which are used to connect the test samples to the high-voltage bus shall be free of RIV and corona at the test voltage.

NEMA Standard 5-27-1987.

2.3 INSTRUMENTATION AND MEASUREMENTS

Radio-noise instrumentation (meters) shall meet the requirements of ANSI C63.2.

NEMA Standard 5-27-1987.

2.3.1 RIV Impulses

When making measurements on RIV impulses with repetition rates so low that meter fluctuation makes reading of either the minimum or maximum pointer deflection doubtful, the slow-speed indicating output meter listed in ANSI C63.2 shall be used. The highest pointer deflection of the meter during a 15-second interval of observation shall be recorded as the RIV in order to minimize the differences between various operators in recorded results for noise sources with low repetition rates.

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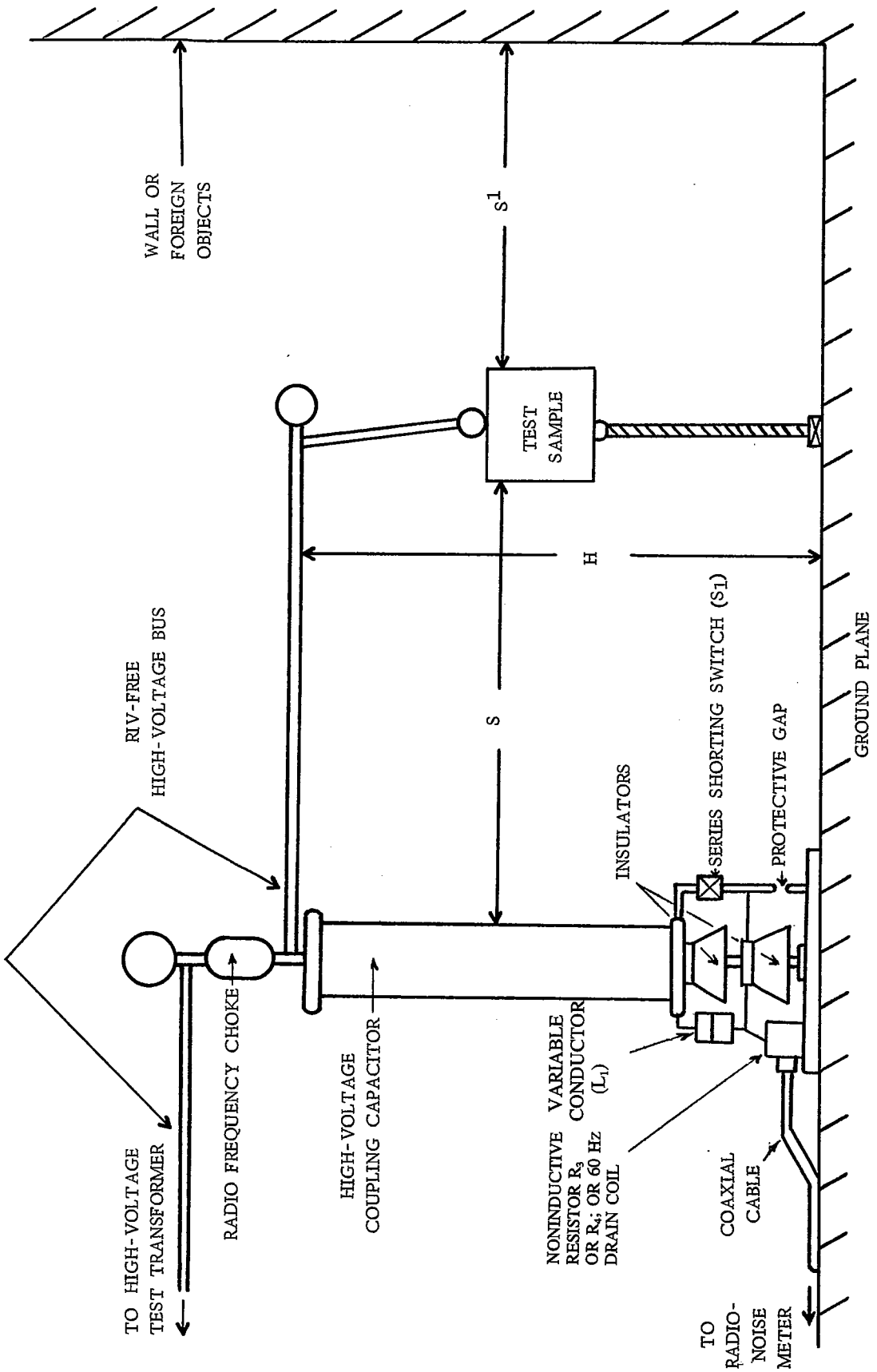

Figure 2-1
SETUP OF HIGH-VOLTAGE RIV TEST CIRCUIT

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2.3.2 Radio-Noise Meter Calibration

Calibrations and adjustments shall be made as specified in the instruction manual for the radio-noise meter.

NEMA Standard 5-27-1987.

2.3.3 Detector Function Selection

The detector function selector switch shall be set to the quasi-peak position on the radio-noise meter.

NEMA Standard 5-27-1987.

2.3.4 Monitoring

When it is desired to identify the character of the RIV, measurements should be monitored using either a headset, loud-speaker, or oscilloscope. Precautions should be taken to determine whether these devices affect the radio-noise meter indications during measurements.

Authorized Engineering Information 5-27-1987.

2.3.5 Preferred Measurement Frequency

Radio interference studies have indicated that if radio influence voltages are generated by power system apparatus, readings can be obtained at 1 megahertz, the approximate midpoint of the AM broadcast band. Because of this, radio influence tests at the single frequency of 1 megahertz can be considered to produce representative test results, and tests on high-voltage power system apparatus may be carried out at this single frequency.

Authorized Engineering Information 5-27-1987.

2.3.6 Other Measurement Frequencies

For tests requiring measurements from 0.015 to 30 megahertz, the test frequencies given in Table 2-1 are recommended.

Authorized Engineering Information 5-27-1987.

Table 2-1
MEGAHERTZ

0.015	0.080	0.35	1.5	8.0
0.020	0.100	0.50	2.0	10.0
0.028	0.120	0.60	2.8	12.0
0.035	0.15	0.80	3.5	15.0
0.050	0.20	1.00	5.0	20.0
0.060	0.28	1.20	6.0	25.0
				30.0

2.3.7 Not Listed Frequencies

Other frequencies which are not listed for measurement in Table 2-1 can be scanned while monitoring with a headset or speaker. If any indicated peaks occur during scanning, measurements should be taken at each frequency where such a peak occurs. If an unwanted radio signal is encountered at any of the listed frequencies, another frequency on either side of the signal should be substituted.

Authorized Engineering Information 5-27-1987.

2.4 ACCEPTABLE RIV TEST LEVEL

The RIV level of a test sample shall be considered acceptable as long as the measured RIV level, which includes both the test area ambient and test sample RIV, is below the limit specified in the applicable test sample specification standard.

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Section 3

LABORATORY AND FACTORY RIV TESTS—0.015 TO 30 MEGAHERTZ

3.1 TEST CIRCUIT

For laboratory and factory RIV tests, the circuit shown in Figure 3-1 shall be used. Because of the wide frequency range to be covered by this test circuit and the variable attenuation factors which will occur due to stray circuit constants (see C_1 and C_2, stray capacitances, and the series inductance, L_s), the circuit shall be calibrated for each frequency at which RIV measurements are made. Below 1.0 megahertz where the reactance of the high-voltage coupling capacitor, C, is generally high, a variable inductor (circuit element L_1) which is capable of producing series resonance in the high-voltage measuring circuit at the test frequency shall be introduced.

NEMA Standard 5-27-1987.

3.2 TEST CIRCUIT CALIBRATION

3.2.1 High Voltage Apparatus

The Figure 3-1 circuit shall be calibrated by applying at points "a" and "b," with the test specimen not connected; the unmodulated sine wave output of a signal generator tuned to the desired test frequency. The output of this signal generator shall be set to a level at least ten times the ambient noise level which is measured by the radio-noise meter when tuned to the output of the signal generator. If tests are to be made at or above 1.0 megahertz, switch S_1 shall be closed. For tests below 1.0 megahertz, switch S_1 shall be open and variable inductance L_1 varied until a maximum signal is obtained on the radio-noise meter. The inductance of L_1 shall be held constant while the voltages E_{ab} (signal generator voltage at point ab) and E_{cd} (voltage at the radio-noise meter terminals, point cd) are measured.

NEMA Standard 5-27-1987.

3.2.2 Energized Power System

The Figure 3-2 circuit shall be calibrated by applying at points "a" and "b," with point "a" not connected to the power conductor "PC," the unmodulated sine wave output of a signal generator tuned to the desired test frequency. The signal generator output and other calibration provisions shall be the same as outlined in 3.2.1.

NEMA Standard 5-27-1987.

3.2.3 Voltage Measurement

Calibrating voltages may be measured by either a high-frequency electronic voltmeter and oscilloscope or the radio-noise meter "M" when used as a 2-terminal voltmeter.

Authorized Engineering Information 5-27-1987.

3.2.4 Voltage Measurement Variables

Both calibrating voltages (E_{ab} and E_{cd}) shall be measured by the same instrument so that error is minimized. The coaxial cable, CA, of the length to be used for RIV measurements shall be in the circuit when the test circuit calibration is made.

NEMA Standard 5-27-1987.

3.2.5 Circuit RIV Factor (P)

The circuit RIV factor (P) should be held above 0.25 at midband at approximately 1 megahertz. The circuit RIV Factor (P) for other test frequencies between 0.03 and 5 megahertz should preferably be held greater than 0.2.

Authorized Engineering Information 5-27-1987.

3.2.6 RIV Factor Curve

Since this factor (P) will vary with frequency, a curve of the RIV factor can be obtained for the test circuit. The calibration curve so obtained may not be valid if the circuit components or the circuit configuration is changed.

Authorized Engineering Information 5-27-1987.

3.3 RIV METER READINGS

In carrying out radio influence voltage tests with the sample positioned at point ab, RIV meter readings shall be made in the manner described in 2.3. The reading so obtained shall then be divided by the circuit RIV factor (P), at the specific test frequency, to obtain the RIV level of the equipment under test.

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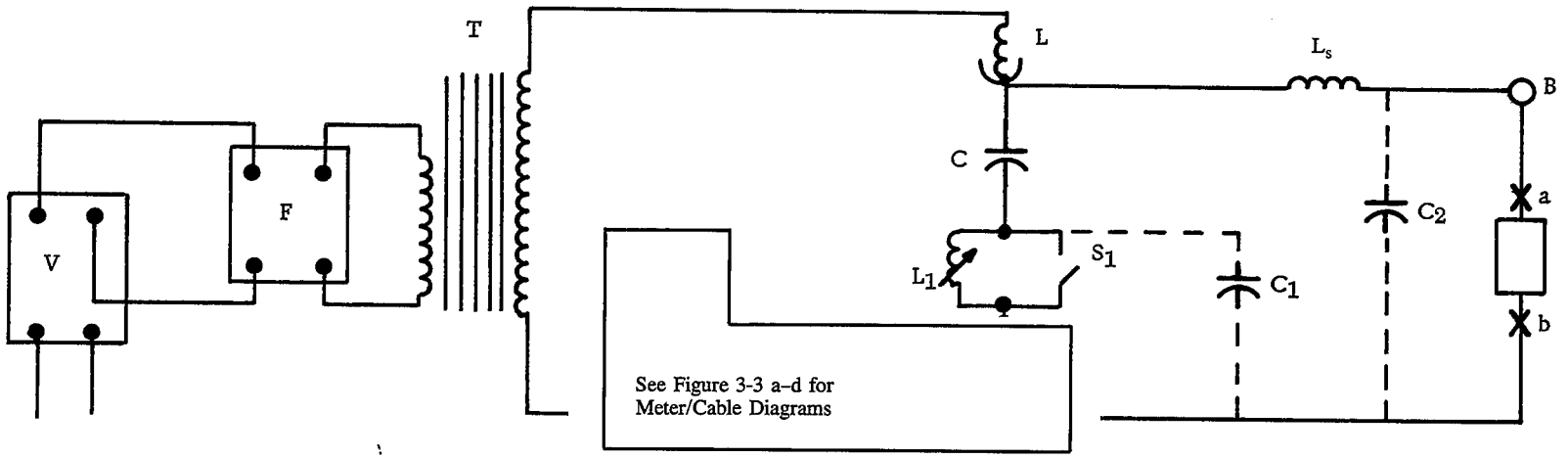
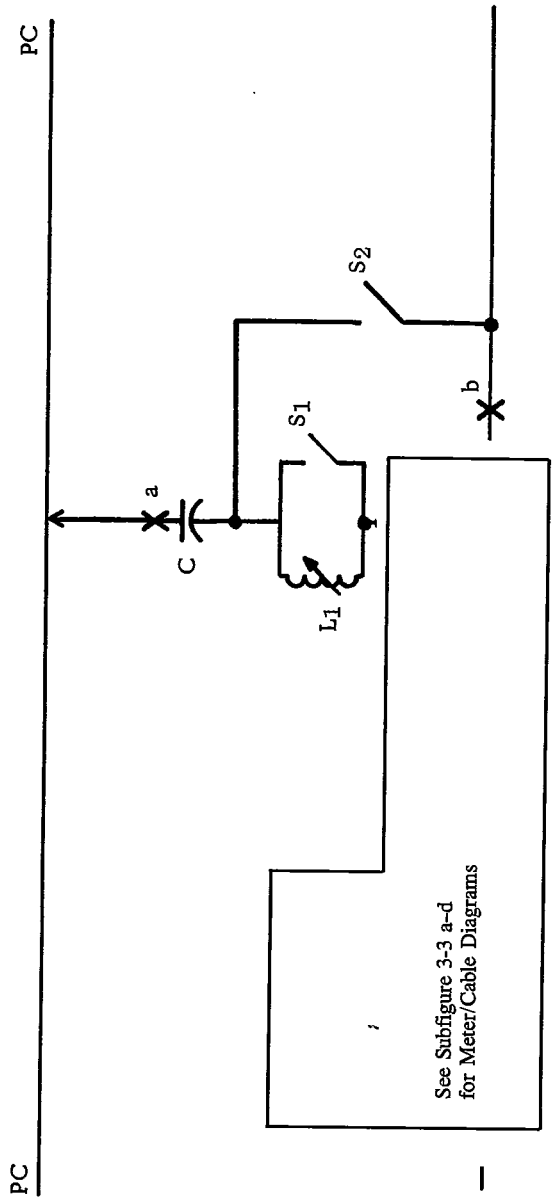


Item	*Description*	*See Paragraph(s)*
B	High-voltage bus	5.10
L_s	Bus inductance	5.10
C	High-voltage coupling capacitor	5.7.1, 5.7.2
C_1 and C_2	Stray capacitance of test circuit	5.10
F	Power line filter	5.3
L	Radio-frequency choke	5.6
L_1	Variable inductor	5.8
S_1	Series shorting switch	5.9
T	High-voltage test transformer	5.5
V	Variable voltage source	5.4
Point ab	Position of test sample or calibrating signal generator	3.2.1, 1.2.2.1

Figure 3-1
CIRCUIT FOR THE MEASUREMENT OF RADIO-INFLUENCE VOLTAGE OF HIGH-VOLTAGE APPARATUS, 0.015 TO 30 MEGAHERTZ

107-87 4702470 0000012 8



Item	*Description*	*See Paragraph(s)*
C	High-voltage coupling capacitor	5.7.1, 5.7.2
L_1	Variable inductor	5.8
PC	Power system conductor	5.11
S_1	Series shorting switch	5.9
S_2	Capacitor grounding switch	
Point ab	Position of calibrating signal, switch S_2 open, point a not connected to PC	3.2.2, 1.2.2.1

Figure 3-2
CIRCUIT FOR THE MEASUREMENT OF RADIO-INFLUENCE VOLTAGE FROM AN ENERGIZED POWER SYSTEM

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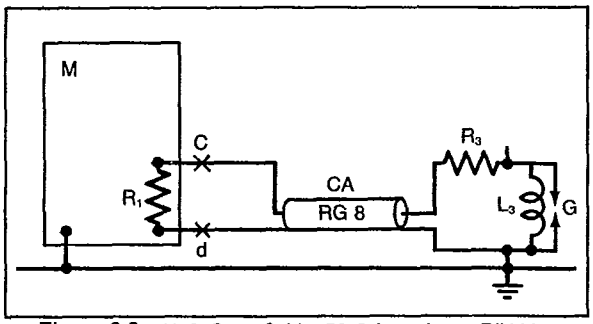
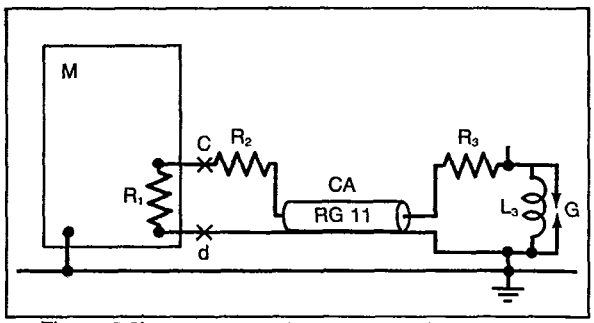


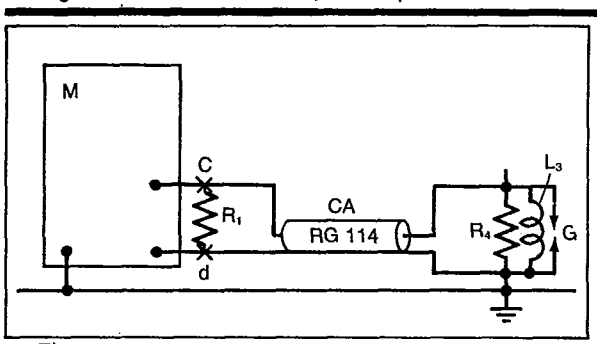
R_1 = 50 Ohm Internal Meter Impedance
R_3 = 100 Ohm Non-Inductive Resistor
L_3 = 60 Hz Drain Coil (Impedance at Test Frequency greater than 1500 Ohms)
CA = 50 Ohm Cable Impedance

Figure 3-3a 50 Ω Coax Cable, 50 Ω Impedance RIV Meter



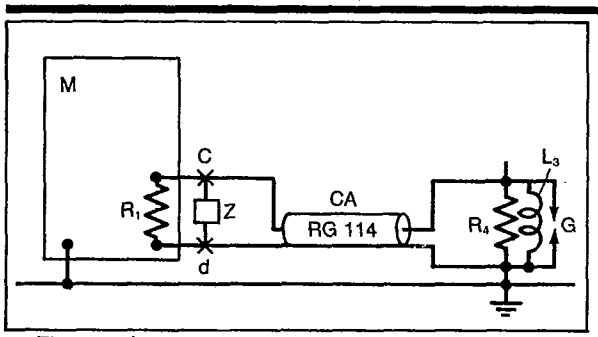
R_1 = 50 Ohm Internal Meter Impedance
R_2 = 25 Ohm Non-Inductive Resistor
R_3 = 75 Ohm Non-Inductive Resistor
L_3 = 60 Hz Drain Coil (Impedance at Test Frequency greater than 1500 ohms)
CA = 75 Ohm Cable Impedance

Figure 3-3b 75 Ω Coax Cable, 50 Ω Impedance RIV Meter



R_1 = 185 Ohm Non-Inductive Resistor
R_4 = 800 Ohm Non-Inductive Resistor
L_3 = 60 Hz Drain Coil (Impedance at Test Frequency greater than 1500 Ohms)
CA = 185 Ohm Cable
M = Meter Impedance Greater Than 1 Megohm

Figure 3-3c 185 Ω Coax Cable, High Impedance RIV Meter



R_1 = 50 Ohm Internal Meter Impedance
R_4 = 50 Ohm Non-Inductive Resistor
Z = 185/50 Ohm Matching Impedance and/or Attentuate
L_3 = 60 Hz Drain Coil (Impedance at Test Frequency greater than 1500 Ohms)
CA = 185 Ohm Cable Impedance

Figure 3-3d 185 Ω Coax Cable, 50 Ω Impedance RIV Meter

Figure 3-3
CIRCUIT DIAGRAMS FOR USE OF 50, 75, AND 185-OHM COAXIAL CABLE, IN CONJUNCTION WITH FIGURES 3-1 AND 3-2

Item	*Description*	*See Paragraph(s)*
CA	Coaxial cable	5.15
G	Protective gap	5.14
L_3	60 Hz drain coil	5.17
M	Radio-noise meter	2.3
R_1, R_2, R_3, R_4	Non-inductive resistors	5.12
Z	185/50-ohm matching impedance and/or attenuator	5.13
Point ab	RIV measurement point or place at which E_{cd} is measured	3.2.4, 1.2.2.1

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Section 4

FIELD MEASUREMENTS OF RIV—0.015 TO 30

4.1 MEASURING CIRCUIT

For the measurements of RIV from the conductors and apparatus of an energized power system, the measuring circuit shown in Figure 3-2 may be used. Extreme care should be taken to insure that the application of this measuring circuit to the power system does not interfere with the normal operation of the circuit and that proper grounding of the low-voltage measuring circuit is carried out so that the equipment and the operators are not endangered.

Authorized Engineering Information 5-27-1987.

4.2 FIELD MEASUREMENT CIRCUIT CALIBRATION

The measuring circuit may be calibrated in accordance with 3.1 before the high-voltage coupling capacitor is connected to the power system. In carrying out this field calibration, precautions should be taken to insure that radio influence fields and conducted influence voltages (RIF and RIV) from the power system do not affect the calibration.

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Section 5

HIGH-VOLTAGE TEST-CIRCUIT COMPONENTS

5.1 GENERAL

The following components refer to items which are associated with the high-voltage RIV test circuits indicated schematically in Figures 3-1, 3-2, and 3-3, and illustrated in Figure 2-1.

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5.2 60-HERTZ VOLTAGE SOURCE

The power supply for the high-voltage test circuit shall have a kVA rating which is sufficient to supply a 60-Hertz sine wave voltage of acceptable commercial standard as defined in ANSI C50.10.

NEMA Standard 5-27-1987.

5.3 POWER LINE FILTER (F)

The power line filter, when employed, shall not distort the supply voltage. It shall suppress any RIV which may be on the power mains so that the conditions given in 2.1.1 will be met.

NEMA Standard 5-27-1987.

5.4 VARIABLE VOLTAGE (V)

A variable and undistorted voltage shall be supplied to the primary of the high-voltage test transformer.

NEMA Standard 5-27-1987.

5.5 HIGH-VOLTAGE TEST TRANSFORMER (T)

The high-voltage test transformer should be free of RIV within the voltage range at which tests are to be made.

Authorized Engineering Information 5-27-1987.

5.6 RADIO-FREQUENCY CHOKE (L)

A radio-frequency choke with an impedance of not less than 1500 ohms at the measurement frequency shall be installed at or near the top of the high-voltage coupling capacitor. This element shall limit the loss of conducted radio-freqency energy for the test sample and shall be free of RIV within the voltage range of the test circuit.

NEMA Standard 5-27-1987.

5.7 HIGH-VOLTAGE COUPLING CAPACITOR (C)

5.7.1 Radio Influence Voltage

The high-voltage coupling capacitor of the required voltage rating shall be free of RIV within the voltage range of the test circuit.

NEMA Standard 5-27-1987.

5.7.2 Coupling Capacitor

A coupling capacitor of small capacitance will draw a minimum current, but at the lower test frequencies it will appear as an excessively high reactive element and produce a low RIV factor (P) as described in Section 3. It is recommended that the capacitance be not less than 0.001 microfarad. The capacitance from the bottom end of the coupling capacitor to ground should be kept small so that this capacitance will not appreciably reduce the impedance of 150 ohms obtained from the metering system (Figure 3-3).

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5.8 VARIABLE INDUCTOR (L_1)

A variable inductor or inductors shall be used at the lower test frequencies (below 1 megahertz) to balance out the capacitive reactance of the high-voltage coupling capacitor, C.

NEMA Standard 5-27-1987.

5.9 SERIES SHORTING SWITCH (S_1)

A series shorting switch shall be applied across variable inductor L_1, when L_1 is used, to short out the inductor during RIV tests at 1.0 megahertz and above.

NEMA Standard 5-27-1987.

5.10 HIGH-VOLTAGE BUS (B)

A corona-free bus shall be connected from the high-voltage coupling capacitor to the test sample. This bus shall be supported by a minimum number of RIV-free insulators to minimize stray capacitance (C_2) to ground and shall be as short as possible to minimize series inductance (L_s).

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5.11 CONDUCTOR DIAMETER

The smooth conductor diameter for a corona-free bus for voltages up to 400 kilovolts may be obtained by allowing at least 0.01 inch of bus diameter per kilovolt of test voltage. Above 400 kilovolts bundled conductors may be preferred to single conductors.

Authorized Engineering Information 5-27-1987.

5.12 NONINDUCTIVE RESISTORS (R_1, R_2, R_3, and R_4)

Resistors R_1, R_2, R_3, and R_4 shall be high frequency, noninductive elements (Figure 3-3 a-d).

NEMA Standard 5-27-1987.

5.13 185/50-OHM MATCHING IMPEDANCE AND/OR ATTENUATOR (Z)

A 185/50-ohm matching impedance and/or attenuator shall be between the coaxial metering cable and RIV meter whenever a 185-ohm cable is used with a low impedance RIV meter (See Figure 3-3 d).

Authorized Engineering Information 5-27-1987.

5.14 PROTECTIVE GAP (G)

A suitable protective gap (breakdown not to exceed 500 volts) shall be connected across circuit element L3 (Figure 3-3 a-d).

NEMA Standard 5-27-1987.

5.15 COAXIAL CABLE (CA)

50-, 75-, and 185-ohm coaxial cables can be used providing the proper cable terminations at the sending and receiving ends are utilized. See Figure 3-3 a-d for the proper noninductive resistors or 185/50-ohm matching impedance and/or attenuator specifications. The coaxial cable designation may be either RG-8, RG-11, or RG-114.

Authorized Engineering Information 5-27-1987.

5.16 COAXIAL CABLE LENGTH

Because of cable attenuation, it is recommended that the cable length be kept as short as possible in order to meet the circuit RIV factor (P) recommendations.

Authorized Engineering Information 5-27-1987.

5.17 DRAIN COIL (L3)

A 60-Hz drain coil with an impedance of not less than 1500 ohms at the measurement frequency, shall be installed in the metering circuit across gap (G). For safety reasons, this unit shall be substantial in size, and all electrical connections shall be made mechanically and electrically secure.

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NEMA STANDARDIZATION

The purpose of NEMA Standards, their classification and status are set forth in certain clauses of the NEMA Bylaws, which are quoted below:

Purpose of Standards

National Electrical Manufacturers Association Standards are adopted in the public interest and are designed to eliminate misunderstandings between the manufacturer and the purchaser and to assist the purchaser in selecting and obtaining the proper product for its particular need. Existence of a National Electrical Manufacturers Association Standard does not in any respect preclude any member or nonmember from manufacturing or selling products not conforming to the standard.

(Bylaw—Art. V, Sec. 1)

Definition of a Standard

A standard of the National Electrical Manufacturers Association defines a product, process or procedure with reference to one or more of the following: nomenclature, composition, construction, dimensions, tolerances, safety, operating characteristics, performance, rating, testing, and the service for which they are designed.

(Bylaw—Art. V, Sec. 2, Subsection A)

Dimensions

Where dimensions are given for interchangeability purposes, alternate dimensions satisfying the other provisions of the standards publication may be capable of otherwise equivalent performance.

(NEMA Policy Memorandum 84-2, dated June 7, 1984)

Classes of Standards

National Electrical Manufacturers Association Standards are of two classes:

1. NEMA Standard, which relates to a product commercially standardized and subject to repetitive manufacture, which standard has been approved by at least 90 percent of the members of the Subdivision eligible to vote thereon;
2. Suggested Standard for Future Design, which may not have been regularly applied to a commercial product, but which suggests a sound engineering approach to future development, which standard has been approved by at least two-thirds of the members of the Subdivision eligible to vote thereon.

(Bylaw—Art. V, Sec. 6, 1st Sentence)

Official Standards Proposal

An Official Standards Proposal is an official draft of a proposed standard which is formally recommended to an outside organization(s) for consideration, comment and/or approval.

(Bylaw—Art. V, Sec. 4, Subsection A)

Identification of Status

Standards in NEMA Standards Publications are identified in the foreword or following each standard as "NEMA Standard" or "Suggested Standard for Future Design." These indicate the status of the standard. These words are followed by a date which indicates when the standard was adopted in its present form by the Association.

The material identified as "Authorized Engineering Information" and "Official Standards Proposal" is designated similarly.

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