

**Alabama Public Service Commission
Telecommunications Division
Engineering Section**

CENTRAL OFFICE QUALITY CHECKLIST

SAFETY

References:

A: RUS BULLETIN 1753-001 (form 522)

B: ALABAMA PUBLIC SERVICE COMMISSION TELEPHONE RULE T-21

C. NATIONAL ELECTRICAL CODE ARTICLE 701

1. Are exit signs posted?

YES__NO__
Comments: _____

2. Are exit routes clear?

YES__NO__
Comments: _____

3. Are evacuation plan drawings posted?

YES__NO__
Comments: _____

4. Are first aid kits available?

YES__NO__
Comments: _____

5. Are materials in First Aid Kit up to date?

YES__NO__
Comments: _____

6. Is there emergency lighting?

YES__NO__
Comments: _____

7. Is there fire protection of some kind?

YES__NO__
Comments: _____

Safety Continued

8. Are hand-held halon extinguishers utilized? Are they accessible and up to date?

YES__NO__

Comments: _____

9. Is there a fire alarm?

YES__NO__

Comments: _____

10. If so where does it alarm?

Comments: _____

11. Is there 911 or E911?

YES__NO__

Comments: _____

12. If so where is the E911 switch?

Comments: _____

13. What counties are served by this switch?

Comments: _____

RECTIFIERS

References:

A: RUS BULLETIN 1751E-001 (FORM 522)

B: ALABAMA PUBLIC SERVICE COMMISSION TELEPHONE RULE T-21

1. Are there spare chargers?

YES__NO__

Comments: _____

2. If one charger is turned off, do other chargers assume the load?

YES__NO__

Comments: _____

3. Are the charger alarms wired and are alarms initiated if the units are turned off?

YES__NO__

Comments: _____

4. Type chargers --model--current capacity

Comments: _____

5. Do chargers have a manual on and off switch?

YES__NO__

Comments: _____

BATTERIES

References:

A: RUS BULLETIN 1753E-001 (Form 522)

B: ALABAMA PUBLIC SERVICE COMMISSION TELEPHONE RULE T-21

C. NATIONAL ELECTRICAL CODE ARTICLE 701

1. Are straps clean and free of tarnish and corrosion?

YES__NO__

Comments: _____

2. Are cells filled to proper level?

YES__NO__

Comments: _____

3. Are battery records up to date?

YES__NO__

Comments: _____

4. Do cells show cracking or warpage?

YES__NO__

Comments: _____

5. What are the brand of batteries and date installed?

Comments: _____

6. Are batteries lead antimony, calcium or Jell?

Comments: _____

7. Are there voltage reading across cells 1-24?

YES__NO--

Comments: _____

8. Does above voltage reading approximate voltage shown on volt meter at power board?

YES__NO__

Comments: _____

Batteries Continued

9. Do the batteries have a reserve capacity in ampere hours, less than four times the current capacity of the largest charger?

YES__NO__

Comments: _____

10. Is the safety board up to date?

YES__NO__

Comments: _____

POWER BOARD

Reference:

A: RUS BULLETIN 1753E-001 (form 522)

1. Does amp meter read approximately the same amount of current drain as the total amount indicated by all chargers collectively?

YES__NO__

Comments: _____

SWITCH ROOM

References:

- A. RUS BULLETIN 1751F-810
- B. RUS BULLETIN 1753E-001 (Form 522).
- C. ALABAMA PUBLIC SERVICE COMMISSION TELEPHONE RULE T-21

1. Does the switch room appear clean, orderly and well kept?
YES__NO__
Comments: _____

2. Are switch filters clean? If so how often are they cleaned?
YES__NO__
Comments: _____

3. Is a trunking diagram available?
YES__NO__
Comments: _____

4. What is the manufacture's recommended temperature and humidity?
minimum_____ maximum_____
Comments: _____

5. What is the temperature and humidity in the switch room?
Comments: _____

6. Is the office equipped with an alarm sending unit of some type?
YES__NO__
Comments: _____

7. Where are alarms monitored? (Example: service center, contractor, etc.)
Comments: _____

8. Is back up memory for the switch stored off site?
YES__NO__
Comments: _____

RINGING GENERATORS

References:

A. RUS BULLETIN 1753-001 (Form 522)

B. ALABAMA PUBLIC SERVICE COMMISSION TELEPHONE RULE T-21

1. Is there redundant ringing?

YES__NO__

Comments: _____

2. What type of ringing is utilized? (decimonic, synchomonic, harmonic)

Frequency: _____

Output voltage: _____

TRANSMISSION

1. Is the DSX panel present and clearly marked?

YES__NO__

Comments: _____

2. Are all carrier, fiber and DSA electronics within the same areas of the office?

YES__NO__

Comments: _____

3. Are the transmission racks clearly identified as to their function?

YES__NO__

Comments: _____

4. Is the proper test equipment available for carrier, fiber and special service testing?

YES__NO__

Comments: _____

GENERATOR

References:

- A. REA BULLETIN 1751E-320
- B. NATIONAL ELECTRICAL CODE ARTICLE 700
- C. ALABAMA PUBLIC SERVICE COMMISSION TELEPHONE RULE T-21

1. Does the generator start?

YES__NO__
Comments: _____

2. Are generator records current?

YES__NO__
Comments: _____

3. Who is the manufacture of the generator and what is the kilowatt rating?

Comments: _____

4. Does the frequency meter work?

YES__NO__
Comments: _____

5. Is there a test switch to simulate a commercial power failure?

YES__NO__
Comments: _____

6. Is there a generator alarm and is it working?

YES__NO__
Comments: _____

GROUNDING

References:

- A. RUS BULLETIN 1751F-810
- B. NATIONAL ELECTRICAL CODE ARTICLE 250

1. Are Central Office ground readings current and posted and what are the readings?

YES__NO__
Comments: _____

2. Is metallic central office door(s) painted with metallic paint with doorknobs left bare? Is the door(s) and frame(s) grounded to the building structural ground or the MGB?

YES__NO__
Comments: _____

3. Are metallic fences that are within 6 feet (183 cm) of the exchange building, storage facilities, ground field, etc. properly bonded to the COGF outside of the central office building? Handhold enclosure is to be used for the COGF connection to permit inspection and disconnect for earth resistance testing. (Refer to RUS TE&CM 810, Appendix C, Item 4.6.1)

YES__NO__
Comments: _____

4. Is a qualified metallic water system present? If so, inspect the MGB connecting conductor to ensure that it is properly sized and installed by the most direct route with no sharp bends and that it is clamped solidly on the water pipes. (Refer to RUS TE&CM 810, Item 4.3.3 for details on metallic water system grounding.)

YES__NO__
Comments: _____

5. All power and grounding conductors are to be continuous, end to end, with no splices, size discontinuity or intermediate terminations. If an exception is necessary, care must be taken to assure proper bonding between the two sections. (Refer to RUS TE&CM 810, Appendix C, section 5.)

YES__NO__
Comments: _____

6. Are all ground conductors void of sharp bends along their entire lengths? (Refer to RUS TE&CM 810, Item 8.2.2)

YES__NO__
Comments: _____

Grounding Continued

7. Ground conductors should only be placed in nonmetallic conduit. Those routed through metallic conduit require that both ends of the conduit be bonded to the ground conductor. If metallic conduct is used, are both ends bonded? (Refer to RUS TE&CM 810, Item 8.2.4)

Attachment 2

YES__NO__

Comments: _____

8. Are ground conductors encircled by metallic clamp? Metallic straps are to be removed and replaced with nonmetallic clamps. (Refer to RUS TE&CM 810, Item 8.2.4.)

YES__NO__

Comments: _____

9. If metallic conduit is used, is it insulated from all ironwork?

YES__NO__

Comments: _____

10. Is the required central office supplier electrostatic discharge plates, wrist wraps, anti- static floor mats, etc. available and properly installed? (Refer to RUS TE&CM 810, Item 12.3.)

YES__NO__

Comments: _____

MASTER GROUND BAR (MGB)

Attachment 2

- 1. The designated P, A, N, and I segments of the master ground bar (MGB) should be clearly identified. (Refer to RUS TE&CM 810, Figure 1 for MGB segmentation arrangement.) See attached Central Office protection grounding diagram.

YES__NO__

Comments: _____

- 2. Check for appearance and proper location of the following on MGB:

- A. R- Interior radio equipment(1)
B. C- Cable entrance ground bar(1)
C. M- MDF ground bar
D. G- Standby power equipment frame ground(1)
E. N- Commercial power MGN(2)
F. B- Building structure ground(2)
G. L- Central office ground field(2)
H. W- Water pipe system(2)
I. N1- Battery Return(3)
J. N2- Outside IGZ: _____(3)
K. N3- Outside IGZ: _____(3)
L. I1- Ground window bar(4)
M. I2- Ground window bar(4)

YES__NO__

Comments: _____

- (1) Surge Producer - (P)
(2) Surge Absorber - (A)
(3) Grounds to non-IGZ Equipment - (N)
(4) Grounds to IGZ Equipment (GWB'S) - (I)

- 3. Are all connections to MGB two-hole bolted down copper crimped or compression type terminal lugs? NOTE: No solder connections are permitted.

YES__NO__

Comments: _____

- 4. Is the MGB properly insulated from the mounting surface?

YES__NO__

Comments: _____

- 5. Are all connections tight?

YES__NO__

Comments: _____

Master Ground Bar (MGB) Continued

- 6. Does the MGB have an anticorrosion coating of the type which enhances conductivity?

YES__NO__

Comments: _____

7. Is the bar clearly stenciled or legibly labeled "MGB?"

YES__NO__

Comments: _____

8. Are all ground leads properly sized and labeled as to point of origin? (Refer to RUS TE&CM 810, Item 8.3.1 and section 8.1.)

YES__NO__

Comments: _____

GROUND WINDOW BAR (GWB)

Attachment 2

- 1. Are all equipment grounds that originate inside of an Isolated Ground Zone (IGZ) terminated on the GWB which is preferably located physically inside the IGZ and insulated from its support? (Refer to RUS TE&CM 810, Item 5.1.)

YES__NO__

Comments: _____

- 2. Is each GWB connected to the MGB by the most direct route with a conductor of 2/0 - gauge or coarser, or resistance of less than 0.005 ohms? Parallel conductors for redundancy if required by the supplier. (Refer to RUS TE&CM 810, Item 8.1.2.)

YES__NO__

Comments: _____

- 3. Is the metal framework grounds of only that switching equipment and associated electrical equipment located inside of the IGZ connected to the GWB as required by the central office equipment supplier? (Refer to RUS TE&CM 810, Item 5.5.)

YES__NO__

Comments: _____

- 4. Is the GWB clearly stenciled or labeled "GWB?"

YES__NO__

Comments: _____

- 5. Are all connections tight?

YES__NO__

Comments: _____

ISOLATED GROUND ZONE (IGZ)

1. Are IGZ areas clearly marked on the floor or in some other easily recognizable manner? (Refer to RUS TE&CM 810, Item 6.1.1)

YES__NO__

Comments: _____

2. Confirm that all framework, cabinets, etc., within the IGZ are ground connected only to the GWB. (Refer to RUS TE&CM 810, Item 5.5.)

YES__NO__

Comments: _____

3. Does all cable racks, ground mats, switching and transmission equipment within the IGZ have ground leads only to the GWB? (Refer to RUS TE&CM 810, Item 5.5.2.)

YES__NO__

Comments: _____

4. Does all ironwork, metallic conduit, and other equipment associated with the switch properly insulated at the IGZ boundary as stipulated by the supplier? (Refer to RUS TE&CM 810, Item 6.2.)

YES__NO__

Comments: _____

ENTRANCE AND TIP CABLES

1. When neither a cable vault nor a splicing trough exists, the outside plant cable should be brought into the central office and spliced to tip cables with a PVC outer jacket (ALVYN^R) or equivalent as close as practical to the cable entrance. (Refer to RUS TE&CM 810, Item 7.3.4.)

YES__NO__
Comments: _____

2. Are all outside entrance cables and all tip cable shields separated by at least a 3-inch (7.6 cm) gap between shield ends?

YES__NO__
Comments: _____

3. Are all entrance cable shields bonded separately to #6 AWG or larger insulated wire or bonding ribbon and connected to the Cable Entrance Ground Bar (CEGB) by most direct route with minimum bends?

YES__NO__
Comments: _____

4. Are outside plant cable shields connected only to the CEGB and the tip cable shields connected only to the Main Distributing Frame Bar (MDFB)?

YES__NO__
Comments: _____

CABLE ENTRANCE GROUND BAR (CEGB)

Attachment 2

1. Is the CEGB properly insulated from the mounting surface? (Refer to TE&CM 810, Item 4.2.1)
YES__NO__
Comments: _____
2. Is the CEGB located as close as possible to the physical ends of the entrance cable shields?
YES__NO__
Comments: _____
3. Are all connections two-hole bolted down copper crimped or compression type terminal lugs? NOTE: No solder connections are permitted.
YES__NO__
Comments: _____
4. Are all connections tight?
YES__NO__
Comments: _____
5. Is the bar clearly stenciled or legibly labeled "CEGB?"
YES__NO__
Comments: _____
6. Are all ground leads properly sized and labeled?
YES__NO__
Comments: _____
7. Does the CEGB have an anticorrosion coating of the type which enhances conductivity?
YES__NO__
Comments: _____
8. Is the CEGB connected to the MGB by a properly sized conductor and by the most direct route? (Refer to RUS TE&CM 810, section 8.1.)
YES__NO__
Comments: _____

MAIN DISTRIBUTING FRAME (MDF)

References:

- A. RUS BULLETIN 1751F-810
- B. ALABAMA PUBLIC SERVICE COMMISSION TELEPHONE RULE T-21
- C. NATIONAL ELECTRICAL CODE ARTICLE 800

1. Are the MDF protector assemblies mounted directly on the vertical frame ironwork? Is the protector assemblies on each vertical are interconnected with each other and the Main Distributing Frame Bar (MDFB) with a #6 copper grounding conductor? Alternative means of connecting to the MDFB are also acceptable which do not rely on the frame ironwork for conducting surge currents to ground. (Refer to RUS TE&CM 810, section 7.)

YES__NO__

Comments: _____

2. Are protective “ground connections” provided between the MDFB and the frame ironwork for personnel protection regardless of the type of protector assembly used? Protective ground leads 14-gauge, less than 12 inches (30.5 cm) in length with paint thoroughly removed at point of connection to the ironwork. (Refer to RUS TE&CM 810, Item 7.1.3.)

YES__NO__

Comments: _____

3. Is the MDFB insulated from the frame ironwork in all cases where it is used as a Master Ground Bar (MGB)? (Refer to RUS TE&CM 810, Item 7.1.2.)

YES__NO__

Comments: _____

4. Where the MDFB is used as the MGB in very small offices the protective “ground connections” should be connected on the N section of the bar. The MDF line protector assembly grounds should be connected to the P section of the bar. (Refer to RUS TE&CM 810, Item 7.1.4.)

YES__NO__

Comments: _____

5. Is the MDFB connected to the MGB by the most direct path with minimum bends and proper conductor size? (Refer to RUS TE&CM 810, Item 8.1.4.)

YES__NO__

Comments: _____

6. Is the MDFB free of all other ground leads when not used as an MGB?

YES__NO__

Comments: _____

Main Distributing Frame (MDF) Continued

Attachment 2

7. Alternative arrangements which insulate the line protector assemblies and MDFB from the frame ironwork may require a direct ground connection of the frame ironwork to the MGB for personnel protection. Is the conductor properly sized and tightened with paint removal on main frame ironwork at point of connection?

YES__NO__

Comments: _____

8. What type modules is being used, carbon, gas, solid state?

Comments: _____

9. Are ground straps tight?

YES__NO__

Comments: _____

10. Do all protector strips have modules plugged into each cable pair?

YES__NO__

Comments: _____

11. Are frame blocks covered?

YES__NO__

Comments: _____

12. If not, is there wire, trash, and other dirt present?

YES__NO__

Comments: _____

13. Does frame look neat?

YES__NO__

Comments: _____

14. Is maintenance bag available?

YES__NO__

Comments: _____

15. Is general housekeeping good?

YES__NO__

Comments: _____

POWER SERVICE PROTECTION AND GROUNDING

References:

- A. RUS BULLETIN 1751 F-810
- B. NATIONAL ELECTRICAL CODE ARTICLES 280, 250

1. Is the ground conductor between the ac power system multi grounded neutral (MGN) at the main ac disconnect panel and the master ground bar (MGB) properly sized and connected? (Refer to RUS TE&CM 810, Items 2.19, 4.3.1 and 8.1.3.)

YES__NO__

Comments: _____

2. Minimum protection for ac power serving the central office buildings should consist of a secondary arrester at the service entrance. Are arresters used? (Refer to RUS TE&CM 810, section 9.)

YES__NO__

Comments: _____

3. Are properly sized conductor for ground bonding between the standby power plant framework (not separately derived) and the MGB provided to equalize framework voltages for personnel safety reasons? (Refer to RUS TE&CM 810, Item 4.2.4.)

YES__NO__

Comments: _____

MISCELLANEOUS

References:

- A. ALABAMA PUBLIC SERVICE COMMISSION TELEPHONE RULE T-21
- B. NATIONAL ELECTRICAL CODE ARTICLE 250

1. Are all non-IGZ equipment frames, relay racks, cable racks and other ironwork properly connected to the MGB? (Refer to TE&CM 810, Item 4.4.)

YES__NO__

Comments: _____

2. Are shields on high frequency intra-office cables properly isolated and connected only to an isolation ground bar in the relay rack? Are all shielded cables entering the IGZ referenced at the IGZ termination point as given by the manufacturer? (Refer to RUS TE&CM 810, Item 7.2.1.2)

YES__NO__

Comments: _____

3. Are isolation ground bars in the relay racks properly connected to the MGB with appropriate sized conductor with no sharp bends?

YES__NO__

Comments: _____

4. Are all radio equipment cabinet (s) least 10 feet (305 cm) from the IGZ?

YES__NO__

Comments: _____

5. Is the metal spare parts cabinet grounded with a new #6 AWG or larger insulated wire to non-IGZ cable rack, etc. or directly to the MGB?

YES__NO__

Comments: _____