CELL SITE PREVENTIVE MAINTENANCE ROUTINE (PMR) CHECKLIST FORM

1st Half of the Year – General Intensive PMR

Clear Form

Site No: 732 Site Name: BAIS RS PMR Date: JANUARY 12, 2017 FO Engr: KTAmpong

I. ANTENNA SYSTEM (Outdoor Installation):

1. VSWR - Record/Update VSWR Reading per sector (for Ericsson via LMT, for Huawei/NSN as applicable)	☑OK ☐Rect'n ☐N/A	**Remarks:**
2. COMBINERS - Diplexers, Triplexers and Combiners must be installed properly. Adjoining ports must be tightened and outdoor installations must be sealed with electrical and rubber tape.	☐OK ☐Rect'n ☑N/A	**Remarks:**
3. GROUNDING - All antenna and cable must be properly grounded with correct cable size and terminated to appropriate bus bar	☐OK ☑Rect'n ☐N/A	**Remarks:** Uses 38mm sq ground wire instead of 50mm sq as standard.
4. VSAT - SSPA,LNA and MBUC must be free from physical damaged - Fan units must be properly working and clean - Cable and connectors must be properly groomed, terminated and sealed - Visual checking of Alarms	☐OK ☐Rect'n ☑N/A	**Remarks:**
5. GPS ANTENNA AND CABLE - Should be provided with Surge Suppressor. - Should be grounded / connected to bus bar with correct cable size and fitted with terminal lug and terminated to the Main Bus bar. - Check if the GPS antenna is properly installed, there must be a rubber and electrical tape around the GPS connector - Clean GPS cover & ensure that the GPS antenna is free from obstruction	☐OK ☐Rect'n ☑N/A	**Remarks:**
6. FTP/STP CABLE AND RJ45 CONNECTORS - Check for any damage or punctures on the CAT5e cable insulation that might cause water drip inside the cable. - FTP outdoor cable should be attached to the cable ladder and binded with cable tie. - Cable loop approximately two (2) feet should be provided near the AP. - Drip loop should be provided prior to cable entry at porthole. - Label should be provided to each cable to its corresponding color using a reflectorized color sticker with the same color code of AP. - Check the shielding of RJ45 if soldered. FTP cables should be grounded on both ends.	☑OK ☐Rect'n ☐N/A	**Remarks:**
7. FEEDER CABLES - Check main feeder cables (running from antenna to indoor equipment/outdoor RRU) and antenna jumper cables, ends must be properly sealed with electrical and rubber tape, tightened to avoid water seepage, and are free from sharp bends and twists. - Grounding kits properly installed and tightly fixed to bus bar: antenna side, middle and feeder entry. - All main feeder cable clamps must be secured and properly spaced or free from sagging.	☑OK ☐Rect'n ☐N/A	**Remarks:**
8. ODU AND CABLES - Heliax, IF and Flextwist Cables must be free from physical damage - Heliax, IF and Flextwist cables are properly clamped every 3 feet. Cables are free from sagging - Tighten and properly harness ODU grounding - ODU has no physical damage and properly mounted - Apply sealant to both ends of Heliax, IF and Flextwist Connectors - Optical Cables must be properly secured and terminated to antenna and/or RRU and must be free from sharp bends	☑OK ☐Rect'n ☐N/A	**Remarks:**
9. RADIO (SDH/PDH INCLUDING PACKET RADIOS) - Line of sight is clear from obstruction - U-bolts/Bolts & Nuts are properly tightened and with paint markings - Back portion of the antenna is labeled with Site Number of the B-End. - Side Struts are properly installed, tightened with paint markings, and free from corrosion or rust - Mounting pole is properly installed with paint markings, and free from corrosion or rust - Radio Antenna is properly mounted to mounting pole and with paint markings	☑OK ☐Rect'n ☐N/A	**Remarks:**
10. ACCESS POINT - Record/Update actual tilting and azimuth of antennas. - Record/Update all MSN and ESN.	☑OK ☐Rect'n ☐N/A	**Remarks:**
11. ANTENNA (PANEL) - Inspect antenna housing for any physical damage - Check antenna bracket/hose clamp for corrosion and rust. - Check stability of antenna bracket. Ensure bolts of tilting brackets are tightened. - Check canopy antenna mounting bracket if properly mounted on top of Antenna mounting pole - Check if Hose clamp at every Canopy AP are complete.	☑OK ☐Rect'n ☐N/A	**Remarks:**

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II. NETWORK EQUIPMENTS (Indoor Installation):

12. BACK-UP OF XML/CONFIGURATION FILES - Export back-up of configuration files (Access & Transport equipment as applicable)	☑OK ☐Rect'n ☐N/A	**Remarks:**
13. MICROWAVE RSL RECORDING - Record all Microwave Receive Signal Levels (RSL)	☑OK ☐Rect'n ☐N/A	**Remarks:**
14. EQUIPMENT LABELS - Labels of equipment must be properly intact	☑OK ☐Rect'n ☐N/A	**Remarks:**
15. EQUIPMENT HOUSEKEEPING - Perform alarms simulations, AC Mains, Battery Low - Check Alarm History and Current Alarms - Clean-up of indoor equipment, plug-in units and filter (as applicable) - Indoor cabinet must be properly leveled and stainless steel footing clamps must be properly bolted to the flooring vinyl, wood and metal plate.	☑OK ☐Rect'n ☐N/A	**Remarks:**
16. EQUIPMENT GROUNDING - Access, Broadband, Transport and rectifier equipment must be properly grounded and terminated to each appropriate bus bar with the correct cable size and fitted with terminal lugs	☑OK ☐Rect'n ☐N/A	**Remarks:**
17. INDOOR CABLES - Indoor jumper cables, ends must be properly tightened and are free from sharp bends and twists. - DC cable with properly crimped lugs must be properly routed to rectifier cabinet using tie wrap cross stretch every other horizontal of the indoor cable ladder and connected to a circuit breaker of the rectifier with the correct ampere rating - Transmission cable/fiber must be properly routed, fixed and terminated to DDF/ODF. - Optical cables connected to various network elements must be properly terminated and free from sharp bends.	☑OK ☐Rect'n ☐N/A	**Remarks:**
18. FTP/STP CABLES AND RJ45 CONNECTORS - Check Proper Lay-out of the FTP/STP cables on the cable ladder going to the rack. - Check the shielding of STP Cable if properly soldered to RJ45.	☑OK ☐Rect'n ☐N/A	**Remarks:**
19. SURGE SUPPRESSORS - Surge suppressors must be grounded/connected to Grounding Strip Bus bar with the correct cable size and fitted with terminal lug. - Check for loose termination of RJ45 connectors at Surge Suppressor Ports. - Surge Suppressor should be installed at the bottom of the cable ladder where it will not obstruct existing cable runs. - Conduct grounding Continuity Test from equipment to Bus bar	☑OK ☐Rect'n ☐N/A	**Remarks:**
20. CMM/ROUTER - IP addresses of APs should be indicated on the Datasheet attached at CMM panel cover - Check If Router is in its working status and is free from airflow obstruction	☐OK ☐Rect'n ☑N/A	**Remarks:**
21. 19" RACKS - Should be grounded / connected to bus bar with correct cable size and fitted with terminal lug, scraped clean both of the surface prior to final termination - Should be mounted with wall or top support bracket for stability - Should be installed with complete mounting accessories – washers, screws, bolts and nuts.	☑OK ☐Rect'n ☐N/A	**Remarks:**
22. RADIO IDU (SDH/PDH INCLUDING PACKET RADIOS) - Properly cleaned, installed, and fixed (Equipment) IDU - Fan unit & filter system are working and properly cleaned - IDU is properly labeled (IP Address and Direction) - Power cable is Properly groomed, fixed, labeled and with protection. - IF cable & RF cables are tightened, groomed & no physical damage - E1/FE/Fiber cable must be properly fixed, groomed and labeled - Check and update port labels (Bandwidth, Service, Destination) - Check for Major/Critical Alarms - E1 DDF and patch panels must be properly labelled - Check status of Dehydrator (as applicable) - Check the dual-power feed, must be terminated to separate rectifiers	☐OK ☑Rect'n ☐N/A	**Remarks:** IF cables for clamping
23. MULTIPLEXERS - Multiplexers must be properly cleaned, installed and fixed - Fan unit & Filter system are clean and properly working - Properly labeled Mux (NE address and Direction) - Power cables must be properly groomed, fixed, Labeled and Protected - Properly Fixed, Groomed, Labeled patch Cords, UTP & E1 Cables - Alarms Checking - check the dual-power feed, must be terminated to separate rectifiers	☐OK ☐Rect'n ☑N/A	**Remarks:**
24. ODF/PATCH PANELS - Properly installed ODF and patch panels - Properly fixed, groomed, labeled patch cords and UTP Cables - Properly fixed, terminated and groomed grounding connections	☐OK ☐Rect'n ☑N/A	**Remarks:**

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25. LEASE CABLE FACILITY - Properly labeled (PL/Circuit Number and Direction) - Equipment must be properly cleaned, installed, and fixed - E1 Cable/Drop Wire/Fiber must be properly fixed, groomed and labeled - Alarms Checking	☐OK ☐Rect'n ☑N/A	**Remarks:**
26. VSAT - Record TX Power and EB/NO - Check if Fan is properly working - Check Cables and Connectors if properly terminated and groomed	☐OK ☐Rect'n ☑N/A	**Remarks:**
27. SYNCHRONIZATION - Alarms Checking - Properly Labeled input and output terminations - Properly installed Antenna system for GPS & clear from obstruction - Cable system for GPS is intact no physical damage & with sealant	☑OK ☐Rect'n ☐N/A	**Remarks:**

III. SUPPORT FACILITIES:

28. DC POWER PLANT (RECTIFIERS) - check for defective Rectifier Modules (RM) - check for rectifier voltage reading - distribution breakers must be properly labeled - alarms checking - check for battery (per bank) voltage reading	☑OK ☐Rect'n ☐N/A	**Remarks:**
29. BATTERY DISCHARGE TEST - Perform Battery Discharge Test - Record estimated battery backup time using 2-hour discharge test (include accomplished form as attachment)	☑OK ☐Rect'n ☐N/A	**Remarks:**
30. TVSS AND SURGE PROTECTION - Check for unusual heating components - Visual checking of TVSS & Surge Suppressor (Green LED)	☑OK ☐Rect'n ☐N/A	**Remarks:**
31. AC POWER PLANT - Check all Circuit breakers for unusual heating/vibration - All electrical connections (Main CB, MTS/ATS) must be tightly terminated - MDP must be properly sealed/no insect infestation	☑OK ☐Rect'n ☐N/A	**Remarks:**
32. GENSET AND ATS - ATS must AUTO Switch to Genset if commercial power is turned OFF and Return to its normal position after the resumption of Commercial Power/simulation testing is done - Perform Test Run for 10 minutes - Check if Genset supplies power during commercial power failure simulation - Genset grounding is tightened and secured to grounding pit - Genset room and/or surrounding must be free of oil leaks and flammable items	☑OK ☐Rect'n ☐N/A	**Remarks:**
33. COMMERCIAL POWER LINE / WIND AND SOLAR POWER - Check for possible power line tree and grass obstruction, record illegal connections - Check if the wind and solar power is functioning (as applicable) - Check if wind and solar power is charging the batteries (as applicable)	☐OK ☑Rect'n ☐N/A	**Remarks:** Subject for power line rehab - awaiting approval of quotation from WFM
34. TOWER - Visual check for tower verticality - Quick check for tower deterioration and present of rust in the bolt and other tower member, as well as tower guy tension and record slacks - Visual check on tower grounding and tower bus bars Top, Mid and Bottom, tighten connection to tower and each equipment ground terminated - Check Lightning Arrester and its down conductor must be insulated to tower, its zone of protection must be inside 45 degrees - Lifeline must be intact, properly terminated and free of rust, tighten if necessary	☑OK ☐Rect'n ☐N/A	**Remarks:**
35. RADIO ROOM - Van / Equipment Room should be no holes, water seepage and watermarks, insect infestation, as well as dilapidations - BTS Cooling air entry fans, exhaust fan, ducts, pipes, vents, filters and timers must be working properly and free of obstruction, clean if necessary - Ensure that all portholes are properly sealed with silicon sealant. - Equipment room groundings must be properly terminated, bolts tightened to grounding pit	☑OK ☐Rect'n ☐N/A	**Remarks:**
36. PREMISE - Check Guard house and toilet condition, take photo if needed - Check Photocell Switch (Should be working properly) - Status of Intruder Alarm, simulate if working - Take photo/s of excess materials and record for ARDA processing	☑OK ☐Rect'n ☐N/A	**Remarks:**
37. SITE PHOTO - Take photos of premise, van/room/outdoor cabinet, as well as site equipment	☑OK ☐Rect'n ☐N/A	**Remarks:**

Performed By Field Engineer:	KTAmpong	**Reviewed By Supervisor:**		**SITE CLASS:**	☑A ☐B ☐C	**Date:**	