ภาคผนวก ข

ฐานความรู้ของระบบผู้เชี่ยวชาญ

ไฟล์ psres.clp

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;*****************************************************
; psres.clp :: Jess-Java Expert System Shell Script
; by g4440159@cm.edu
; ATCR-33S Primary Radar Expert System Knowledge Base
; April 1, 2003
;-----------------------------------------------------
; Rule Syntax
;=============
;+++ Question / Query Panel +++
;(defrule <rule-name>
;   (<fact-pattern-0>)
;   =>
;   (new <HTMLDisplayClass> <displayMessage> <items>
;            (create$
;           "<user-Choice-1>" "(<fact-pattern-1>)"
;              .
;              .
;              .
;           "<user-Choice-n>" "(<fact-pattern-n>)")
;            (fetch "ReteControl"))
;)
; where as:
;   - <rule-name> name of rule
;   - <fact-pattern-0> fact on the LHS-Left hand side
;   - <HTMLDisplayClass> Classes for HTML Panel
;            EsMainPanel - Display Main Panel
;            EsSelectPanel - Display Selection Drop-down Lists
;            EsQueryPanel - Display a Query Panel
;   - <displayMessage> Information message or question
;              message for the Panel
;   - <items> number of facts component for the Panel
;   - <user-Choice-item1> ... <user-Choice-itemN>
;            user-label for button-n
;   - <fact-pattern-item1> ... <fact-pattern-itemN>
;            fact-pattern bind to each user-label
;
;++++ Anwer Panel ++++
;(defrule <rule-name>
;   (<fact-pattern>)
;   =>
;   (new EsAnsPanel <displayMessage>
;            (fetch "ReteControl"))
;)
;where as:
;   - <rule-name> name of rule
;   - <fact-pattern> fact on the LHS-Left hand side
;   - <displayMessage> Suggession message for the Panel
;
;*****************************************************


;**********************************
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;   DEFINE TEMPLATE
;            FOR
;    UN-ORDER FACTS
;***********************************

(deftemplate codelru
 (slot code)
 (slot card)
 (slot unit)
 (slot section)
 (slot position)
 (slot image
             (default "/images/selogo3.jpg"))
 (multislot cm)
)

(deftemplate node
 (slot name)
 (slot type)
 (slot question)
 (slot yes-node)
 (slot no-node)
 (slot answer)
)

;***********************************
;    Define FACTS for RECEIVER
;        DATA PROCESSOR
;***********************************

(deffacts rx-dp-fact
 (codelru (code 1)(card MPU)(unit DRU)(section DP) (position XA05)
             (image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24))
 (codelru (code 2)(card PRM)(unit DRU)(section DP) (position XA07)
             (image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24))
 (codelru (code 3)(card ASU)(unit DRU)(section DP) (position XA06)
             (image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24))
 (codelru (code 4)(card DPM)(unit DRU)(section DP) (position XA04)
             (image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24 cm15))
 (codelru (code 5)(card MNI)(unit DRU)(section DP) (position XA08)
             (image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24))
 (codelru (code 6)(card IMF)(unit DRU)(section DP) (position XA09)
             (image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24))
 (codelru (code 7)(card PTG)(unit DRU)(section DP)
             (position XA10)(image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24))
 (codelru (code 8)(card NTMG)(unit DRU)(section DP)
             (position XA15)(image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24))
 (codelru (code 9)(card PECO)(unit DRU)(section DP)
             (position XA12)(image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24))
 (codelru (code 10)(card CBIM)(unit DRU)(section RF)
             (position A21)(image "/images/selogo3.jpg")(cm cm1 cm11 cm24))
 (codelru (code 11)(card RXINT)(unit DRU)(section DP) (position XA14)
             (image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24))
 (codelru (code 12)(card MIO)(unit DRU)(section DP) (position XA16)
             (image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24))
 (codelru (code 13)(card MIO)(unit DRU)(section DP) (position XA17)
             (image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24))
 (codelru (code 14)(card DTI)(unit DRU)(section DP) (position XA13)
             (image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24))
 (codelru (code 15)(card AFS)(unit DRU)(section DP) (position XA11)
             (image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24))
 (codelru (code 16)(card EDR)(unit DRU)(section DP) (position XA19)
             (image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24))
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 (codelru (code 17)(card MPU)(unit DRU)(section DP) (position XA03)
             (image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24))
 (codelru (code 18)(card PRM)(unit DRU)(section DP) (position XA01)
             (image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24))
 (codelru (code 19)(card ASU)(unit DRU)(section DP) (position XA02)
             (image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24))
;    (codelru (code 20)(card ASU)(unit DRU)(section DP) (position XA05)
;               (image "/images/rx/dp/fig3313.jpg")(cm cm1 cm2 cm24))
)

;**********************************
;    Define FACTS for RECEIVER
;         SIGNAL PROCESSOR
;**********************************

(deffacts rx-sp-fact
 (codelru (code 21)(card PE)(unit DRU)(section SP) (position XA03)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 22)(card AGC)(unit DRU)(section SP) (position XA04)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 23)(card MO)(unit DRU)(section SP) (position XA05)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 24)(card ME)(unit DRU)(section SP) (position XA06)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 25)(card MI)(unit DRU)(section SP) (position XA07)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 26)(card MI)(unit DRU)(section SP) (position XA08)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 27)(card FA)(unit DRU)(section SP) (position XA09)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24 cm16))
 (codelru (code 28)(card BA)(unit DRU)(section SP) (position XA10)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 29)(card BE)(unit DRU)(section SP) (position XA11)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 30)(card TI)(unit DRU)(section SP) (position XA12)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 31)(card TE)(unit DRU)(section SP) (position XA13)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 32)(card TA)(unit DRU)(section SP) (position XA14)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 33)(card GI)(unit DRU)(section SP) (position XA18)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 34)(card GA)(unit DRU)(section SP) (position XA19)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 35)(card STC)(unit DRU)(section SP) (position XA20)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24 cm17))
 (codelru (code 36)(card NI)(unit DRU)(section SP) (position XA21)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 37)(card NE)(unit DRU)(section SP) (position XA22)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24 cm18))
 (codelru (code 38)(card MU)(unit DRU)(section SP) (position XA24)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 39)(card AID)(unit DRU)(section SP) (position XA25)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 40)(card ICI)(unit DRU)(section SP) (position XA26)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 41)(card ICI)(unit DRU)(section SP) (position XA27)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 42)(card SLB)(unit DRU)(section SP) (position XA28)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 43)(card CAFEE)(unit DRU)(section SP) (position XA29)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
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 (codelru (code 44)(card CAFEE)(unit DRU)(section SP) (position XA30)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 45)(card CAFEE)(unit DRU)(section SP) (position XA31)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 46)(card FDM)(unit DRU)(section SP) (position XA32)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 47)(card MA)(unit DRU)(section SP) (position XA35)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 48)(card MA)(unit DRU)(section SP) (position XA36)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm24))
 (codelru (code 49)(card CO)(unit DRU)(section SP) (position XA39)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm3 cm24))
 (codelru (code 50)(card CO)(unit DRU)(section SP) (position XA40)
             (image "/images/rx/sp/sp_rack.jpg")(cm cm1 cm2 cm3 cm24))
)

;***********************************
;    Define FACTS for RECEIVER
;             RF/IF
;***********************************
(deffacts rx-rf-fact
 (codelru (code 74)(card COHO)(unit "RF/IF")(section RF) (position "A3-A10,A3-A8")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm4 cm24 pm7))
 (codelru (code 75)(card "OSC Group1")(unit "RF/IF")(section RF) (position "A3-A5")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm5 cm24 pm8))
 (codelru (code 76)(card "OSC Group2")(unit "RF/IF")(section RF) (position "A3-A20")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm5 cm24 pm9))
 (codelru (code 77)(card "x16 MUL1")(unit "RF/IF")(section RF) (position "A3-A14")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm4 cm24))
 (codelru (code 78)(card "x16 MUL2")(unit "RF/IF")(section RF) (position "A3-A13")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm4 cm24))
 (codelru (code 79)(card "MPA(STALO)1")(unit "RF/IF")(section Exciter) (position "A2-A13")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm6 cm24))
 (codelru (code 80)(card "MPA(STALO)2")(unit "RF/IF")(section Exciter) (position "A2-A12")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm6 cm24))
 (codelru (code 81)(card "640/670MKz")(unit "RF/IF")(section RF) (position "A3-A4,A3-A19")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm4 cm24 pm6))
 (codelru (code 82)(card "640/670MHz")(unit "RF/IF")(section RF) (position "A3-A4,A3-A20")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm4 cm24 pm6))
 (codelru (code 83)(card "MPA")(unit "RF/IF")(section Exciter) (position "A2-A10,A2-A1")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm6 cm24 pm9))
 (codelru (code 84)(card "HPA")(unit "RF/IF")(section Exciter) (position "A2-A1,A2-A3")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm6 cm24 pm9))
 (codelru (code 85)(card "LNA2")(unit "RFPG")(section FER) (position "A3-A2")
             (image "/images/rx/rfif/fig511.jpg")(cm cm1 cm7 cm24 cm27))
 (codelru (code 87)(card "LNA3")(unit "RFPG")(section FER) (position "A2-A2")
             (image "/images/rx/rfif/fig511.jpg")(cm cm1 cm7 cm24 cm27))
 (codelru (code 89)(card "LNA1")(unit "RFPG")(section FER) (position "A2-A5")
             (image "/images/rx/rfif/fig511.jpg")(cm cm1 cm7 cm24 cm27))
 (codelru (code 95)(card "SAW Expander")(unit "RF/IF")(section RF) (position "A3-A12,A3-A11")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm4 cm24 pm11))
 (codelru (code 96)(card "WG TR SW")(unit "RFPG")(section FER) (position "SW1")
             (image "/images/rx/rfif/fig511.jpg")(cm cm1 cm9 cm24 pm4))
 (codelru (code 97)(card "SPDT SW")(unit "RF/IF")(section RF) (position "A2-A2")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm6 cm24))
 (codelru (code 102)(card "PIF-IF(MAIN)")(unit "RF/IF")(section IF) (position "A3-A1")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm4 cm24 cm27))
 (codelru (code 103)(card "PIF-IF(AUX)")(unit "RF/IF")(section IF) (position "A3-A16")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm4 cm24 cm27))
 (codelru (code 104)(card "PIF-IF(WEA)")(unit "RF/IF")(section IF) (position "A4-A1")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm4 cm24 cm27))
 (codelru (code 105)(card "SAW(MAIN)")(unit "RF/IF")(section IF) (position "A3-A2")
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             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm4 cm24 cm27 pm10))
 (codelru (code 106)(card "SAW(AUX)")(unit "RF/IF")(section IF) (position "A3-A17")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm4 cm24 cm27 pm10))
 (codelru (code 107)(card "SAW(WEA)")(unit "RF/IF")(section IF) (position "A4-A2")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm4 cm24 cm27 pm10))
 (codelru (code 110)(card "PHASE DET.(T.C.)")(unit "RF/IF")(section IF) (position "A3-A3")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm4 cm24 cm27))
 (codelru (code 111)(card "PHASE DET.(T.C.)")(unit "RF/IF")(section IF) (position "A3-A18")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm4 cm24 cm27))
 (codelru (code 114)(card "PHASE DET.(WEA)")(unit "RF/IF")(section IF) (position "A4-A3")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm4 cm24 cm27))
 (codelru (code 115)(card "PHASE DET.(WEA)")(unit "RF/IF")(section IF) (position "A4-A4")
             (image "/images/rx/rfif/fig512.jpg")(cm cm1 cm4 cm24 cm27))
)


;***********************************
;    Define FACTS for RECEIVER
;          POWER SUPPLY
;***********************************
(deffacts rx-ps-fact
 (codelru (code 51)(card "P.S. +5V/+28V")(unit DRU-A)(section PS)
             (cm cm1 cm12 cm24))
 (codelru (code 52)(card "P.S. +/- 5V,15V")(unit DRU-A) (section PS)
             (cm cm1 cm12 cm24))
 (codelru (code 53)(card "P.S. +5V/+28V")(unit DRU-B)(section PS)
             (cm cm1 cm12 cm24))
 (codelru (code 54)(card "P.S. +/- 5V,15V")(unit DRU-B) (section PS)
             (cm cm1 cm12 cm24))
 (codelru (code 55)(card "Multi-Volt Power Supply")(unit RFPG) (section PS)
             (cm cm1 cm13 cm24))
 (codelru (code 56)(card "Multi-Volt Power Supply")(unit RF-IF)(section PS)
             (cm cm1 cm14 cm24))
)

;***********************************
;       Define FACTS for
;              TEMPERATURE & FANS
;***********************************
(deffacts rx-tf-fact
 (codelru (code 58)(card "THERMO SWITCH")(unit DRU-A)(section TF)(cm cm19))
 (codelru (code 59)(card "THERMO SWITCH")(unit DRU-B)(section TF)(cm cm19))
 (codelru (code 64)(card "THERMO SWITCH")(unit RFPG)(section TF)(cm cm20))
 (codelru (code 65)(card "THERMO SWITCH")(unit RFIF)(section TF)(cm cm21))
 (codelru (code 60)(card "FAN CONTROL BITE")(unit RFPG) (section TF)(cm cm20))
 (codelru (code 61)(card "FAN CONTROL BITE")(unit RFIF) (section TF)(cm cm21))
 (codelru (code 62)(card "FAN CONTROL BITE")(unit DRU-A) (section TF)(cm cm19))
 (codelru (code 63)(card "FAN CONTROL BITE")(unit DRU-B) (section TF)(cm cm19))
)

;***********************************
;       Define FACTS for
;                TRANSMITTER
;***********************************
(deffacts tx-facts

;;Problem 1:MCA(Main Control Assy) Failure
             (node (name tx1)(type decision)(question "On Local Control Panel:<br>
               Press MAIN Pushbutton to get the<br>
               Transmitter Maintenance Mode.<br>
               Is the System Operating?")(yes-node tx11)(no-node tx12))
             (node (name tx11)(type decision)(question "Probable Failure on a redundated
module.<br>
               Select the Setting Display Page and verify which is NOT<br>
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                the Operating Channel.<br>
                Replace the IONT Card and verify that the TX Control Panel WARNING
Alarm?")
                (yes-node tx1211)(no-node tx112))
              (node (name tx12)(type decision)(question "Proable Failure on the NOT
Redundated Card (MUX).<br>
                Set MCA PWS Breaker to OFF.<br>
                Replace the MUX Card and verify that the TX Control Panel WARNING
Alarm?")
                (yes-node tx121)(no-node tx122))
              (node (name tx121)(type decision)(question "Replace the IONT Card and verify
that<br>
                the TX Control Panel WARNIING Alarm?")(yes-node tx1211)(no-node tx112))
              (node (name tx112)(type answer)(answer "The IONT card is Faulty."))
              (node (name tx122)(type answer)(answer "The MUX card is Faulty."))
              (node (name tx1211)(type answer)(answer "Replace the PRU Card."))

;;Problem 2:Lack of RF Power Output
              (node (name tx2)(type decision)(question "Disconnected Cable W209 from J2
Connector <br>
                and by POWER METER verify the RF-Signal at the Applied Power <br>
                (Maximum value is +37 dBm).<br>
                POWER Level Correct?")(yes-node tx21)(no-node tx22))
              (node (name tx21)(type decision)(question "Replace the TX-Control Panel.<br>
                Does Alarm Exist?")(yes-node tx211)(no-node tx212))
              (node (name tx22)(type decision)(question "By means of Power Meter verify
that each <br>
                HPA Module is delivering the expected Power.<br>
                (+59 dBm Nominal Level)<br>
                Does Present Power?")(yes-node tx221)(no-node tx222))
              (node (name tx221)(type answer)(answer "Replace the RF Combiner Module."))
              (node (name tx222)(type answer)(answer "Inspect the RF Paths
                between the RF Combiner and the RF Power Sensor."))
              (node (name tx211)(type answer)(answer "The Tx-Control Panel is GOOD.<br>
                But the MCA is Failure."))
              (node (name tx212)(type answer)(answer "The Tx-Control Panel Failure."))

;;Problem 3:RF Driver Fault
              (node (name tx3)(type decision)(question "Replace the RF Driver Module <br>
                and Restore normal Operation by Performing the <br>
                RF Driver Adjustment (Procedure CM28).<br>
                Does the Alarm Exists?")(yes-node tx31)(no-node tx32))
              (node (name tx31)(type decision)(question "The RF Module is not faulty.<br>
                Switch the status of MUX Card.<br>
                Does the Alarm Exists?")(yes-node tx311)(no-node tx312))
              (node (name tx311)(type decision)(question "Replace the PRU Card.<br>
                Does the Alarm still Exists?")(yes-node tx3111)(no-node tx3112))
              (node (name tx32)(type answer)(answer "The RF Driver Module is Faulty."))
              (node (name tx312)(type answer)(answer "The MUX Card is Faulty."))
              (node (name tx3111)(type answer)(answer "Replace the TX-Control Panel(Micro-
Terminal)."))
              (node (name tx3112)(type answer)(answer "The PRU Card is Faulty."))

;;Problem 4:Cannot switch on Local Control Panel
              (node (name tx4)(type decision)(question "Remove P111 Connector from A4-LCP-
J1<br>
                and by means of a Multimeter verify presence of 220Vac <br>
                across Pins A and B.<br>
                Is Power Present?")(yes-node tx41)(no-node tx42))
              (node (name tx41)(type answer)(answer "Replace the Micro-Terminal"))
              (node (name tx42)(type decision)(question "Connect mating connector P111 and
verify <br>
                presence of 380Vac across Contacts A2,B2,C2 of the K1 Contractor<br>
                located on the AC Distribution Panel.<br>
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              Is Power Present?")(yes-node tx421)(no-node tx422))
            (node (name tx421)(type answer)(answer "Inspect Connection between A4-J1 and
A2-CB2 Breaker."))
            (node (name tx422)(type answer)(answer "Inspect Connection between J1
Connector <br>
              and A2-CB1 Breaker or/and Replace A2-CB1 Breaker."))

;;Problem 5:Final & Driver HPA Low output Power Alarm
            (node (name tx5)(type decision)(question "Connect the POWER METER at J5
Connector<br>
              located on te HPA Front Panel.<br>
              Is Signal Level = -1.5 dBm?")(yes-node tx51)(no-node tx52))
            (node (name tx51)(type answer)(answer "Replace the MCA Card."))
            (node (name tx52)(type decision)(question "Connect the POWER METER at J6
Connector<br>
              located on the HPA Front Panel.<br>
              Is Signal Level = -1.4 dBm?")(yes-node tx521)(no-node tx522))
            (node (name tx521)(type answer)(answer "Inspect the Connection between<br>
              the RF DRIVER and HPA Module."))
            (node (name tx522)(type answer)(answer "Replace the RF-DRIVER Module."))

;;Problem 6:Cannot switch on Transmitter
            (node (name tx6)(type decision)(question "By Digital Multimeter verify that
Main Power is available.<br>
              380 Vac +/- 53V shall be present across pins A,B,C of A2-J1 Connector.<br>
              Is Main Power Present?")(yes-node tx61)(no-node tx62))
            (node (name tx61)(type decision)(question "Set CB1 and CB2 Breakers to ON and
by Digital Multimeter <br>
              verify Presence of 380 Vac +/-53 V across contacts 1,2,3 of T1
Transformer.<br>
              Is section Power Present?")(yes-node tx611)(no-node tx612))
            (node (name tx62)(type answer)(answer "Perform Power-supply Off-Line
Test."))
            (node (name tx611)(type decision)(question "Remove P108 Connector from the
Relay Box and <br>
              verify that 19Vac +/-1.9V exists across Pins 11,12,13 of Relay box J1
Connector.<br>
              Is there a correct voltage?")(yes-node tx6111)(no-node tx6112))
            (node (name tx612)(type answer)(answer "Replace A2A2 CB2 Breaker."))
            (node (name tx6112)(type answer)(answer "Replace T1 Transformer."))
            (node (name tx6111)(type decision)(question "Connect mating connector P108 and
remove connector P109.<br>
              By Digital Multimeter verify that 19Vac +/-1.9V <br>
              exists across pins 11,12,13 of Relay Box J1 Connector.<br>
              Is there a correct voltage?")(yes-node tx61111)(no-node tx61112))
            (node (name tx61111)(type answer)(answer "Replace the SPS(Sterbilize Power
Supply) Cord of the MCA Basket."))
            (node (name tx61112)(type answer)(answer "Replace the Relay Box."))
)

;***********************************
;            Define FACTS for
;            RADAR HEAD PROCESSING
;***********************************
;DEFINE FACTS TEMPLATE
;;Problem 1:No Moving Target on Console Teminal
;            (node (name <node-name>)(type decision)(question "<Your Question>")(yes-
node <yes-node-name>)(no-node <no-node-name>))
;            (node (name <yes-node-name>)(type answer)(answer "<your-answer-yes>"))
;            (node (name <no-node-name>)(type answer)(answer "<your-answer-no>"))


(deffacts rhp-facts

;;Problem 1:No Moving Target on Console Teminal
```

```
            (node (name rhp1)(type decision)(question "Check INPUT LINE STATUS TABLE
and <br>
              OUTPUT LINE STATUS TABLE
              on Console Terminal VT520.<br>
              Is LINE STATUS TABLE all ON?")(yes-node rhp11)(no-node rhp12))
            (node (name rhp11)(type decision)(question "On RCMS : The RADAR-LINE Status
is RED?")
              (yes-node rhp111)(no-node rhp112))
            (node (name rhp111)(type decision)(question "Change RADAR-LINE to other
channel.<br>
              On RCMS menu : select System/Select Radar Line then click apply.<br>
              RADAR-LINE status change to GREEN?")(yes-node rhp1)(no-node rhp112))
            (node (name rhp112)(type decision)(question "Remove the DIA-Card Position 3
on DIA Basket.<br>
              And Install it again.<br>
              Do you see NUMBER of TRACK occur in the TABLE?")(yes-node rhp1121)(no-node
rhp1122))
            (node (name rhp12)(type decision)(question "Enter IST ON command for INPUT
LINE STATUS.<br>
              or OST ON for OUTPUT LINE STATUS.<br>
              Do you see NUMBER of TRACK occur in the TABLE?")(yes-node rhp1121)(no-node
rhp1122))
            (node (name rhp1121)(type answer)(answer "The Problem is a signal Conflict
<br>
              inside the DIA card."))
            (node (name rhp1122)(type answer)(answer "Check the Hardware of the
MULTIPLEXER Cabinet."))

;;Problem 2:Cannot Record Radar Data
            (node (name rhp2)(type decision)(question "First,try to change the ROLE
STATUS of the node.<br>
              Check RECORD STATUS by 'REC SHO REC' Command'<br>
              REC STATUS is ON?")(yes-node rhp21)(no-node rhp22))
            (node (name rhp21)(type answer)(answer "The problem is a bug in Application
Software.<br>
              My Recommendation is you have to RESTART  other Node now."))
            (node (name rhp22)(type decision)(question "Shutdown both SERVER and Restart
Only One Server.<br>
              REC STATUS is ON?")(yes-node rhp21)(no-node rhp222))
            (node (name rhp222)(type answer)(answer "Re-install Application
Software.<br>
              (See Phitsanulok Radar Software Installation Manual.)"))

;;Problem 3:Network Problem
            (node (name rhp3)(type decision)(question "On Console Terminal: Enter
Command F14 <br>
              to exit from OPERAMODE to DEBUG MODE.<br>
              Perform 'ping' command follow by its own IP Address.<br>
              Can you see a message Reply from IP-Address?")(yes-node rhp31)(no-node
rhp32))
            (node (name rhp31)(type decision)(question "Ping other IP-address inside
network.<br>
              Can you see a message Replay from Destination IP address?")(yes-node
rhp311)(no-node rhp312))
            (node (name rhp32)(type answer)(answer "Change Network card.<br>
              And Perform netsetup command ,
              as explained in Software Installation Manual."))
            (node (name rhp312)(type answer)(answer "Perform netsetup command ,
              as explained in Software Installation Manual."))
            (node (name rhp311)(type answer)(answer "The network is not Failure.<br
              My recommendation is you have to <br>
              try to Restart the node again."))


;;Problem 4:Boot Problem
```

```
             (node  (name  rhp4)(type  decision)(question  "Verify  that  your  system
recognizes the boot device,<br>
               using the SHOW DEVICE command on Console mode prompt (<<<).<br>
               Check that the boot device environment variable <br>
               correctly identifies the boot device DKA0.<br>
               Do you see the Boot Device DKA0 ?")(yes-node rhp41)(no-node rhp42))
             (node  (name  rhp41)(type  answer)(answer  "Type  'b  dka0'  follow  by  enter
key."))
             (node (name rhp42)(type answer)(answer "Replace Hardisk RZ2CC-KA."))
)

;**********************************
;             Define FACTS for
;        DISPLAY SYSTEM
;**********************************
(deffacts display-facts

;;Problem 1.No Graphic representation on display monitor
             (node (name display1)(type decision)(question "Bring a Terminal VT520
               connect to COM2 of Workstation.<br>
               Restart a Workstation.<br>
               Do you see a system message on a Terminal?")
             (yes-node dis11)(no-node dis12))
             (node (name dis11)(type answer)(answer "Wait about 3 minute.<br>
                If  you  cannot  see  a  LOGIN  Window,<br>  Replace  a  AGX3D-PD  PCB  with
spare one!."))
             (node (name dis12)(type answer)(answer "Change Harddisk RZ2CC-KA."))

;;Problem 2.No Moving Target on display monitor
             (node  (name  display2)(type  decision)(question  "Make  sure  that  there  is  a
radar track
               display in INPUT STATISTICAL TABLE (IST).<br>
               Try to change a current DISSIMINATOR Node to other.<br>
               (On RCMS Menu - click Configuration / Dissiminator Change)<br>
                Is there a Target on Display Monitor?")(yes-node dis21)(no-node dis22))
             (node  (name  dis21)(type  answer)(answer  "Restart  the  old  Dissiminator
node."))
             (node (name dis22)(type answer)(answer "Check a OUTPUT STATISICAL TABLE on
               the Console Terminal of the Server."))

;;Problem 3.Slow graphic response
             (node  (name  display3)(type  decision)(question  "Shutdown  and  Restart  the
Workstation.<br>
               Wait untill Login Window occure, then login to the system.<br>
               Is the Graphic still Slow?")(yes-node dis31)(no-node dis32))
             (node  (name  dis31)(type  answer)(answer  "Defragmentation  all  domain  file
system of the workstation<br>
               as explained in Defragmentation Procedure."))
             (node  (name  dis32)(type  answer)(answer  "The  problem  is  too  much  temporary
files.<br>
               However, when you restart a system, temporary file has gone."))
)

;**********************************
;               RULE SECTION
;                     FOR
;               DECITION TREE
;**********************************

(defrule ask-decision-node-question
             ?node<-(current-node ?name)
             (node (name ?name)
               (type decision)
               (question ?question))
             (not (answer ?))
             =>
```

```
              (new EsQueryPanel ?question 2
                (create$ "YES" "(answer yes)"
                         "NO" "(answer no)")
                (fetch "ReteControl"))
)

(defrule proceed-to-yes-branch
              ?node <- (current-node ?name)
              (node (name ?name)
                (type decision)
                (yes-node ?yes-branch))
              ?answer <-(answer yes)
              =>
              (retract ?node ?answer)
              (assert (current-node ?yes-branch))
)

(defrule proceed-to-no-branch
              ?node <- (current-node ?name)
              (node (name ?name)
                (type decision)
                (no-node ?no-branch))
              ?answer <- (answer no)
              =>
              (retract ?node ?answer)
              (assert (current-node ?no-branch))
)

(defrule proceed-to-answer-node
              ?node <- (current-node ?name)
              (node (name ?name)(type answer)
                (answer ?value))
              (not (answer ?))
              =>
              (new EsAnsPanel ?value
                (fetch "ReteControl"))
)

;***********************************
;             MAIN SECTION
;***********************************
(defrule first-query
(initial-fact)
=>
(new EsMainPanel "What type of Problem?" 5
 (create$
  "Antenna" "(equip antenna)"
  "Transmitter" "(equip tx)"
  "Receiver" "(equip rx)"
  "Radar Head Processing" "(equip rhp)"
  "Display System" "(equip display)")
 (fetch "ReteControl"))
)

;***********************************
;       RULES SECTION
;                FOR
;          ANTENNA
;***********************************

(defrule equip-antenna
(equip antenna)
=>
(new EsSelectPanel "Select problem?" 5
```

```
(create$
 "66:Encoder 1 Fault" "(lru 66)"
 "67:Encoder 2 Fault" "(lru 67)"
 "68:Azimuth motor driver unit fault" "(lru 68)"
 "69:Tilt assy fault" "(lru 69)"
 "Antena Oil level LOW alarm"
              "(ant-oil-low-alarm)")
(fetch "ReteControl"))
)

(defrule lru-66-67
 (or (lru 66)(lru 67))
 =>
 (new EsQueryPanel "Open the PLD/AS Cabinet door and
              on the EDR with the fail LED lit<br>
              verify if at least one of the two LED en1 en2 is lit" 2
              (create$
   "OK" "(edr-fail-ok)"
   "NOT OK" "(edr-fail-nok)")
              (fetch "ReteControl"))
)

(defrule edr-fail-nok
 (edr-fail-nok)
 =>
 (new EsQueryPanel "How many encoder are installed?" 2
              (create$
   "One" "(one-encoder)"
   "Two" "(two-encoder)")
  (fetch "ReteControl"))
)

(defrule one-encoder
 (one-encoder)
 =>
 (new EsQueryPanel "Check presence of ACP1 and NRP1
              on TP J1-14 and J1-11 respectively" 2
  (create$
   "OK" "(edr-fail-ok)" ;; replace the card
   "NOT OK" "(acp-nrp-nok)" )
              (fetch "ReteControl"))
)

(defrule two-encoder
 (two-encoder)
 =>
 (new EsQueryPanel "Check presence of ACP1,NRP1,ACP2 and NRP2
        on TP J1-14 J1-11 J1-19 and J1-23 respectively" 2
              (create$
   "OK" "(edr-fail-ok)" ;;replace the card
   "NOT OK" "(acp-nrp-nok-two-cable)")
              (fetch "ReteControl"))
)

(defrule acp-nrp-nok
 (acp-nrp-nok)
 =>
 (new EsQueryPanel "Install EDR on extender and
              check ACP and NRP on relavant pins" 2
              (create$
   "OK" "(edr-fail-ok)"
   "NOT OK" "(no-signal)")
```

```
             (fetch "ReteControl"))
)

(defrule acp-nrp-nok-two-cable
 (acp-nrp-nok-two-cable)
 =>
 (new EsQueryPanel "Install EDR on extender
             and check ACPD and NRPD on relavant pins" 2
             (create$
   "OK" "(edr-fail-ok)"
   "NOT OK" "(no-signal-two)")
             (fetch "ReteControl"))
)

(defrule no-signal-two
 (no-signal-two)
 =>
 (new EsQueryPanel "Inspect the cable between
             PLD/AS and Antenna" 2
             (create$
   "OK" "(cable-ok)"
   "NOT OK" "(cable-nok)")
             (fetch "ReteControl"))
)

(defrule lru-68
 (lru 68)
 =>
 (new EsQueryPanel "Press the RESTORE pushbutton
        on the RELAY-K2 <br> in the AMDU Unit<br>
             and then Restart the ANTENNA Rotation.<br>
             Does the ANTENNA Rotate?" 2
             (create$
   "YES" "(ant-rotate)"
   "NO" "(ant-not-rotate)")
             (fetch "ReteControl"))
)

(defrule lru-68-11
 (ant-rotate)
 =>
 (new EsAnsPanel "Restore the operative condition."
 (fetch "ReteControl"))
)

(defrule lru-68-01
 (ant-not-rotate)
 =>
 (new EsQueryPanel "Check the MOTOR current load compare
             this value with the used MOTOR.<br>
             Is it correct?" 2
             (create$ "YES" "(current-yes)"
   "NO" "(current-not)")
             (fetch "ReteControl"))
)

(defrule lru-68-11-01
 (current-not)
 =>
 (new EsAnsPanel "Replace the ANTENNA MOTOR."
             (fetch "ReteControl"))
)
```

```
(defrule lru-68-11-11
 (current-yes)
 =>
 (new EsAnsPanel "Replace RELAY-K2."
  (fetch "ReteControl"))
)

(defrule ant-oil-low-alarm
 (ant-oil-low-alarm)
 =>
 (new EsQueryPanel "Oil Level Failure LED lit on the LCP.<br>
             STOP the Antenna Rotation.<br>
             Activate the SAFETY Switch on the AMDU.<br>
             Then CHECK the Antenna Base OIL Level." 2
             (create$ "OK" "(oil-ok)"
   "NOT OK" "(oil-nok)")
             (fetch "ReteControl"))
)

(defrule ant-base-oil-nok
 (oil-nok)
 =>
 (new EsAnsPanel "Fill oil up to the correct level and verify<br>
             alarm is exstinguished<br>
             Restore the Operative Condition"
             (fetch "ReteControl"))
)

(defrule ant-base-oil-ok
 (oil-ok)
 =>
 (new EsQueryPanel "Verify if the Connector on
        the antenna base is well tiyed.<br>
             Is the alarm still present?" 2
             (create$ "YES" "(still-alarm)"
   "NO" "(alarm-gone)")
             (fetch "ReteControl"))
)

(defrule alarm-gone
 (alarm-gone)
 =>
 (new EsAnsPanel "Restore the Operative Condition"
             (fetch "ReteControl"))
)

(defrule still-alarm
 (still-alarm)
 =>
 (new EsQueryPanel "Disconnect the cable
             and verify by mean of an OHMMETER<br>
             that the oil level Switch contact are open" 2
             (create$ "OK" "(contact-ok)"
   "NOT OK" "(contact-nok)")
             (fetch "ReteControl"))
)

(defrule contact-ok
 (contact-ok)
 =>
 (new EsAnsPanel "Replace the PAC PCB. 964321-A1 <br>
             Position XA-09 of the ASC Basket.<br>
```

```
              <p>Restore the Opearative Condition."
              (fetch "ReteControl"))
)

(defrule contact-nok
 (contact-nok)
 =>
 (new EsAnsPanel "Replace the Level Switch.<br>
              <br>Restore the Operative Condition."
              (fetch "ReteControl"))
)


;*********************************
;           RULES SECTION
;            FOR
;           TRANSMITTER-TX
;*********************************

(defrule equip-tx
 (equip tx)
=>
 (new EsSelectPanel "Select problem?" 6
 (create$
  "MCA (Main Control Assy) Failure" "(current-node tx1)"
  "Lack of RF Power Output" "(current-node tx2)"
  "RF Driver fault" "(current-node tx3)"
  "Final & Driver Low Output Power Alarm" "(current-node tx5)"
  "Cannot Switch On the Transmitter!" "(current-node tx6)"
  "Cannot Switch On TX-Control Panel" "(current-node tx4)")
 (fetch "ReteControl"))
)

;*********************************
;           RULES SECTION
;            FOR
;            RECEIVER-RX
;*********************************

(defrule equip-rx
 (equip rx)
=>
 (new EsSelectPanel "Select sub-problem for Receiver?" 5
 (create$
  "Data Processor" "(sect dp)"
  "Signal Processor" "(sect sp)"
  "RF/IF" "(sect rf)"
  "Power Supply" "(sect ps)"
  "Temperature and Fan" "(sect tf)"
 )
 (fetch "ReteControl")
 )
)

(defrule sub-rx-dp
 (sect dp)
=>
 (new EsSelectPanel "Select LRU code" 19
  (create$
   "1:XA05 MPU1 board fault" "(lru 1)"
   "2:XA07 PRM1 board fault" "(lru 2)"
   "3:XA06 ASU1 board fault" "(lru 3)"
   "4:XA04 DPM board fault" "(lru 4)"
   "5:XA08 MNI board fault" "(lru 5)"
```

```
   "6:XA09 IMF board fault" "(lru 6)"
   "7:XA10 PTG board fault" "(lru 7)"
   "8:XA15 NTMG board fault" "(lru 8)"
   "9:XA12 PECO board fault" "(lru 9)"
   "10:CBIM board fault" "(lru 10)"
   "11:XA14 RX INT board fault" "(lru 11)"
   "12:XA16 MI01 board fault" "(lru 12)"
   "13:XA17 MI02 board fault" "(lru 13)"
   "14:XA13 DTI board fault" "(lru 14)"
   "15:XA11 AFS board fault" "(lru 15)"
   "16:XA19 EDR board fault" "(lru 16)"
   "17:XA03 MPU2 board fault" "(lru 17)"
   "18:XA01 PRM2 board fault" "(lru 19)"
   "19:XA02 ASU2 board fault" "(lru 19)"
   "20:Other data processor fault" "(lru 20)")
   (fetch "ReteControl"))
)

(defrule sub-rx-sp
 (sect sp)
=>
 (new EsSelectPanel "Select fault" 30
  (create$
   "21:XA03 PE board fault" "(lru 21)"
   "22:XA04 AGC board fault" "(lru 22)"
   "23:XA05 MO board fault" "(lru 23)"
   "24:XA06 ME board fault" "(lru 24)"
   "25:XA07 MI EVEN board fault" "(lru 25)"
   "26:XA08 MI ODD board fault" "(lru 26)"
   "27:XA09 FA board fault" "(lru 27)"
   "28:XA10 BA board fault" "(lru 28)"
   "29:XA11 BE board fault" "(lru 29)"
   "30:XA12 TI board fault" "(lru 30)"
   "31:XA13 TE board fault" "(lru 31)"
   "32:XA14 TA board fault" "(lru 32)"
   "33:XA18 GI board fault" "(lru 33)"
   "34:XA19 GA board fault" "(lru 34)"
   "35:XA20 STC board fault" "(lru 35)"
   "36:XA21 NI board fault" "(lru 36)"
   "37:XA22 NE board fault" "(lru 37)"
   "38:XA24 MU board fault" "(lru 38)"
   "39:XA25 AID board fault" "(lru 39)"
   "40:XA26 ICI EVEN board fault" "(lru 40)"
   "41:XA27 ICI ODD board fault" "(lru 41)"
   "42:XA28 SLB board fault" "(lru 42)"
   "43:XA29 CAFFE WEA board fault" "(lru 43)"
   "44:XA30 CAFFE EVEN board fault" "(lru 44)"
   "45:XA31 CAFEE ODD board fault" "(lru 45)"
   "46:XA32 FDM board fault" "(lru 46)"
   "47:XA35 MA Weather board fault" "(lru 47)"
   "48:XA36 MA Target board fault" "(lru 48)"
   "49:XA39 A/D converter Weather channel" "(lru 49)"
   "50:XA40 A/D converter Target channel" "(lru 50)")
   (fetch "ReteControl"))
)

(defrule sub-rx-rf
 (sect rf)
=>
 (new EsSelectPanel "Select fault" 28
  (create$
```

```
   "10:CBIM board fault" "(lru 10)"
   "74:COHO fault" "(lru 74)"
   "75:Oscillator group 1 fault" "(lru 75)"
   "76:Oscillator group 2 fault" "(lru 76)"
   "77:X16 multiplier 1 fault" "(lru 77)"
   "78:X16 multiplier 2 fault" "(lru 78)"
   "79:STALO medium power amplifier 1 fault" "(lru 79)"
   "80:STALO medium power amplifier 2 fault" "(lru 80)"
   "81:670 MHz generator fault" "(lru 81)"
   "82:640 MHz generator fault" "(lru 82)"
   "83:Medium power driver amplifier fault" "(lru 83)"
   "84:High power driver amplifier fault" "(lru 84)"
   "85:LNA failure front end receiver MAIN" "(lru 85)"
;         "86:TR failure front end receiver MAIN" "(lru 86)"
   "87:LNA failure front end receiver AUX" "(lru 87)"
;         "88:TR failure front end receiver AUX" "(lru 88)"
   "89:LNA failure front end receiver Weather" "(lru 89)"
;         "90:TR failure front end receiver Weather" "(lru 90)"
   "95:SAW Expander fault" "(lru 95)"
   "96:Waveguide Transfer switch fault" "(lru 96)"
   "97:SPDT Switch fault" "(lru 97)"
;         "100:Test target generator fault" "(lru 100)"
   "102:IF receiver MAIN" "(lru 102)"
   "103:IF receiver AUX" "(lru 103)"
   "104:IF receiver WEATHER" "(lru 104)"
   "105:SAW Compressor MAIN" "(lru 105)"
   "106:SAW Compressor AUX" "(lru 106)"
   "107:SAW Compressor WEATHER" "(lru 107)"
   "110:Phase detector target channel-A fault" "(lru 110)"
   "111:Phase detector target channel-B fault" "(lru 111)"
   "114:Phase detector weather channel-A fault" "(lru 114)"
   "115:Phase detector weather channel-B fault" "(lru 115)")
  (fetch "ReteControl"))
)

(defrule sub-rx-ps
 (sect ps)
=>
 (new EsSelectPanel "Select fault" 6
  (create$
   "51:Linear power supply REC-A fault" "(lru 51)"
   "52:Switching power supply REC-A fault" "(lru 52)"
   "53:Linear power supply REC-B fault" "(lru 53)"
   "54:Switching power supply REC-B fault" "(lru 54)"
   "55:Power supply RF Plumbing fault" "(lru 55)"
   "56:Power supply RF/IF fault" "(lru 56)")
  (fetch "ReteControl"))
)

(defrule sub-rx-tf
 (sect tf)
=>
 (new EsSelectPanel "Select fault" 8
  (create$
   "58:High temperature on DRU-A cabinet" "(lru 58)"
   "59:High temperature on DRU-B cabinet" "(lru 59)"
   "60:FAN fault on RFPG cabinet" "(lru 60)"
   "61:FAN fault on RF/IF cabinet" "(lru 61)"
   "62:FAN fault on DRU-A cabinet" "(lru 62)"
   "63:FAN fault on DRU-B cabinet" "(lru 63)"
   "64:High temperature on RFPG cabinet" "(lru 64)"
```

```
  "65:High temperature on RF/IF cabinet" "(lru 65)")
  (fetch "ReteControl"))
)

;**********************************
;           RULES SECTION
;             FOR
;          RX/TEMPERATURE & FANS
;**********************************
(defrule ex
             (lru ?lru)
             (codelru (code ?lru) (card ?card)(section TF)(unit ?unit))
=>
;(new EsAnsPanel "TEST!"
             (new EsQueryPanel (str-cat "Open the " ?unit " Cabinet.<br>"
               "Check the LED indication on the LED Control Bite Assy.<br><br>"
               "Is there a FAULT indication?") 2
               (create$ "YES" "(fault-led-yes)"
                       "NO" "(fault-led-no)")
                       (fetch "ReteControl"))
)

(defrule rx-tf-temp-01
             (lru ?lru)
             (codelru (code ?lru) (card ?card)(section TF)(unit ?unit))
             (fault-led-no)
=>
             (new EsQueryPanel (str-cat "Switch of the ATCR-33S Receiver as explained
in <a href=""/procedure/corrective/cm1.html""> Procedure CM1.</a><br>"
               "Replace the " ?card " as explained in <a
href=""/procedure/corrective/cm23.html""> Procedure CM23</a><br>"
               "Switch on the ATCR-33S Receiver as explained in <a
href=""/procedure/corrective/cm24.html""> Procedure CM24</a><br>"
               "Then reset the BITE alarm (Press RESET pushbutton on the LCP menu<br>
                       (PSR FAULT / MONITOR / TEMP&FANS / DIAGNOSIS / RESET) <br><br>"
                       "Is the Diagnosis still present?") 2
                       (create$ "YES" "(fault-led-no-still)"
                               "NO" "(fault-led-no-gone)")
                               (fetch "ReteControl"))
)

(defrule rx-tf-temp-02
             (lru ?lru)
             (codelru (code ?lru) (card ?card)(section TF)(unit ?unit)(cm ?cm))
             (fault-led-yes)
=>
             (new EsQueryPanel (str-cat "Switch of the ATCR-33S Receiver as explained
in <a href=""/procedure/corrective/cm1.html""> Procedure CM1.</a><br>"
               "Replace the BLOWER fault as explained in <a
href=""/procedure/corrective/" ?cm ".html""> Procedure " (upcase ?cm) "</a><br>"
               "Switch on the ATCR-33S Receiver as explained in <a
href=""/procedure/corrective/cm24.html""> Procedure CM24</a><br>"
               "Then reset the BITE alarm (Press RESET pushbutton on the LCP menu<br>
                       (PSR FAULT / MONITOR / TEMP&FANS / DIAGNOSIS / RESET) <br><br>"
                       "Is the Diagnosis still present?") 2
                       (create$ "YES" "(fault-led-no)"
                               "NO" "(fault-led-no-gone)")
                               (fetch "ReteControl"))
)


;**********************************
;           RULES SECTION
```

```
;             FOR
;     RADAR HEAD PROCESSING-RHP
;**********************************

(defrule equip-rhp
 (equip rhp)
=>
 (new EsSelectPanel "Select Fault" 4
  (create$
  "No MOVING TARGET on Console Terminal" "(current-node rhp1)"
  "Can not RECORD Radar Data" "(current-node rhp2)"
  "Network Problem" "(current-node rhp3)"
  "Boot Problem" "(current-node rhp4)")
  (fetch "ReteControl"))
)

;**********************************
;           RULES SECTION
;            FOR
;         DISPLAY SUB-SYSTEM
;**********************************

(defrule equip-display
 (equip display)
=>
 (new EsSelectPanel "Select Fault" 3
  (create$
  "No graphic presentation on Display Monitor" "(current-node display1)"
  "No Moving Target on Display Monitor" "(current-node display2)"
  "Slow Graphic Response" "(current-node display3)")
  (fetch "ReteControl"))
)


;~~~~~~~~~~~~~~~~~~~~~~~~~
;             ANTENNA SECTION
;       Final
;
;~~~~~~~~~~~~~~~~~~~~~~~~~

(defrule edr-fail-ok
 (edr-fail-ok)
 =>
 (new EsAnsPanel "Replace the concerned EDR pcb."
 (fetch "ReteControl"))
)

(defrule no-signal
 (no-signal)
 =>
 (new EsAnsPanel "Replace the ENCODER and
             then perform NORTH alignment."
             (fetch "ReteControl"))
)

(defrule cable-ok
 (cable-ok)
 =>
 (new EsAnsPanel "Replace the ENCODER and
             then perform NORTH alignment."
             (fetch "ReteControl"))
)

(defrule cable-nok
 (cable-nok)
```

```
 =>
 (new EsAnsPanel "Refix the correct operation of the cable."
             (fetch "ReteControl"))
)

(defrule lru-69-final
             (lru 69)
             =>
             (new EsAnsPanel "See G-33 Antenna Manual."
               (fetch "ReteControl"))
)
;~~~~~~~~~~~~~~~~~~~~~~~~
;             RECEIVER
;DATA PROCESSOR - Final
;
;~~~~~~~~~~~~~~~~~~~~~~~~
(defrule dp-cm1-2-24
 (lru ?lru)
 (codelru (code ?lru) (card ?card) (unit ?unit) (section DP)
             (position ?position) (image ?image) (cm cm1 cm2 cm24))
=>
 (new EsAnsPanel (str-cat "Involve Hardware : " ?card "<br>"
  "Unit : " ?unit "<br>"
  "Section : Data Processor<br>"
  "Position : <a href=" ?image ">" ?position "</a><br>"
  "Switch off the ATCR-33S DRU cabinet as explained in
       <a href=""/procedures/corrective/cm1.html"">Procedure CM1</a><br>"
  "Replace " ?card " PCB as explained in
       <a href=""/procedures/corrective/cm2.html"">Procedure CM2</a><br>"
  "Switch on the ATCR-33S DRU cabinet as explained in
       <a href=""/procedures/corrective/cm24.html"">Procedure CM24</a><br>"
  "Restore the operative condition.<br>")
      (fetch "ReteControl"))
)


;~~~~~~~~~~~~~~~~~~~~~~~~
;             RECEIVER
;SIGNAL PROCESSOR - Final
;
;~~~~~~~~~~~~~~~~~~~~~~~~

(defrule sp-cm1-2-24
 (lru ?lru)
 (codelru (code ?lru) (card ?card) (unit ?unit) (section SP)
             (position ?position) (image ?image) (cm cm1 cm2 cm24))
=>
 (new EsAnsPanel (str-cat "Involve Hardware : " ?card "<br>"
  "Unit : " ?unit "<br>"
  "Section : Signal Processor<br>"
  "Position : <a href=" ?image ">" ?position "</a><br>"
  "Switch off the ATCR-33S DRU cabinet as explained in
             <a href=""/procedures/corrective/cm1.html"">Procedure CM1</a><br>"
  "Replace " ?card " PCB as explained in
             <a href=""/procedures/corrective/cm2.html"">Procedure CM2</a><br>"
  "Switch on the ATCR-33S DRU cabinet as explained in
             <a href=""/procedures/corrective/cm24.html"">Procedure CM24</a><br>"
  "Restore the operative condition.<br>" )
      (fetch "ReteControl"))
)

(defrule sp-cm1-2-24-xx
 (lru ?lru)
```

```
 (codelru (code ?lru) (card ?card) (unit ?unit) (section SP)
             (position ?position) (image ?image) (cm cm1 cm2 cm24 ?xx))
=>
 (new EsAnsPanel (str-cat "Involve Hardware : " ?card "<br>"
  "Unit : " ?unit "<br>"
  "Section : Signal Processor<br>"
  "Position : <a href=" ?image ">" ?position "</a><br>"
  "Switch off the ATCR-33S DRU cabinet as explained in
        <a href=""/procedures/corrective/cm1.html"">Procedure CM1</a><br>"
  "Replace " ?card " PCB as explained in
        <a href=""/procedures/corrective/cm2.html"">Procedure CM2</a><br>"
  "Switch on the ATCR-33S DRU cabinet as explained in
        <a href=""/procedures/corrective/cm24.html"">Procedure CM24</a><br>"
  "Perform <a href=""/procedures/corrective/" ?xx ".html"">
        Procedure " (upcase ?xx) "</a><br>"
  "Restore the operative condition.<br>" )
     (fetch "ReteControl"))
)

(defrule sp-cm1-2-xx-24
 (lru ?lru)
 (codelru (code ?lru) (card ?card) (unit ?unit) (section SP)
             (position ?position) (image ?image) (cm cm1 cm2 ?xx cm24))
=>
 (new EsAnsPanel (str-cat "Involve Hardware : " ?card "<br>"
  "Unit : " ?unit "<br>"
  "Section : Signal Processor<br>"
  "Position : <a href=" ?image ">" ?position "</a><br>"
  "Switch off the ATCR-33S DRU cabinet as explained in
        <a href=""/procedures/corrective/cm1.html"">Procedure CM1</a><br>"
  "Replace " ?card " PCB as explained in
        <a href=""/procedures/corrective/cm2.html"">Procedure CM2</a><br>"
  "Set A/D converter as shown in
        <a href=""/procedures/corrective/" ?xx ".html"">
        Procedure " (upcase ?xx) "</a><br>"
  "Switch on the ATCR-33S DRU cabinet as explained in
        <a href=""/procedures/corrective/cm24.html"">Procedure CM24</a><br>"
  "Restore the operative condition.<br>" )
     (fetch "ReteControl"))
)

;~~~~~~~~~~~~~~~~~~~~~~~~
;      RECEIVER
;    RF/IF - Final
;
;~~~~~~~~~~~~~~~~~~~~~~~~
(defrule rf-cm1-xx-24
 (lru ?lru)
 (codelru (code ?lru) (card ?card) (unit ?unit) (section RF)
             (position ?position) (image ?image) (cm cm1 ?xx cm24))
=>
 (new EsAnsPanel (str-cat "Involve Hardware : " ?card "<br>"
  "Unit : " ?unit "<br>"
  "Section : RF<br>"
  "Position : <a href=" ?image ">" ?position "</a><br>"
  "Switch off the ATCR-33S DRU cabinet as explained in
        <a href=""/procedures/corrective/cm1.html"">Procedure CM1</a><br>"
  "Replace " ?card " strip as explained in
        <a href=""/procedures/corrective/" ?xx ".html"">
        Procedure " (upcase ?xx) "</a><br>"
  "Switch on the ATCR-33S DRU cabinet as explained in
        <a href=""/procedures/corrective/cm24.html"">Procedure CM24</a><br>"
  "Restore the operative condition.<br>" )
```

```
      (fetch "ReteControl"))
)

(defrule rf-cm1-xx-24-xx-01
 (lru ?lru)
 (codelru (code ?lru) (card ?card) (unit ?unit) (section RF)
             (position ?position) (image ?image) (cm cm1 ?cm cm24 ?pm))
=>
 (new EsAnsPanel (str-cat "Involve Hardware : " ?card "<br>"
  "Unit : " ?unit "<br>"
  "Section : RF<br>"
  "Position : <a href=" ?image ">" ?position "</a><br>"
  "Switch off the ATCR-33S DRU cabinet as explained in
        <a href=""/procedures/corrective/cm1.html"">Procedure CM1</a><br>"
  "Replace " ?card " strip as explained in
        <a href=""/procedures/corrective/" ?cm ".html"">
        Procedure " (upcase ?cm) "</a><br>"
  "Perform <a href=""/procedures/corrective/" ?pm ".html"">
        Procedure " (upcase ?pm) "</a><br>"
  "Switch on the ATCR-33S DRU cabinet as explained in
        <a href=""/procedures/corrective/cm24.html"">Procedure CM24</a><br>"
  "Restore the operative condition.<br>" )
     (fetch "ReteControl"))
)

(defrule rf-cm1-xx-24-xx-02
 (lru ?lru)
 (codelru (code ?lru) (card ?card) (unit ?unit) (section FER)
             (position ?position) (image ?image) (cm cm1 ?cm cm24 ?pm))
=>
 (new EsAnsPanel (str-cat "Involve Hardware : " ?card "<br>"
  "Unit : " ?unit "<br>"
  "Section : Front-end Receiver<br>"
  "Position : <a href=" ?image ">" ?position "</a><br>"
  "Switch off the ATCR-33S DRU cabinet as explained in
        <a href=""/procedures/corrective/cm1.html"">Procedure CM1</a><br>"
  "Replace " ?card " strip as explained in
        <a href=""/procedures/corrective/" ?cm ".html"">
        Procedure " (upcase ?cm) "</a><br>"
  "Perform <a href=""/procedures/corrective/" ?pm ".html"">
        Procedure " (upcase ?pm) "</a><br>"
  "Switch on the ATCR-33S DRU cabinet as explained in
        <a href=""/procedures/corrective/cm24.html"">Procedure CM24</a><br>"
  "Restore the operative condition.<br>" )
     (fetch "ReteControl"))
)

(defrule rf-cm1-xx-24-xx-03
 (lru ?lru)
 (codelru (code ?lru) (card ?card) (unit ?unit) (section Exciter)
             (position ?position) (image ?image) (cm cm1 ?cm cm24 ?pm))
=>
 (new EsAnsPanel (str-cat "Involve Hardware : " ?card "<br>"
  "Unit : " ?unit "<br>"
  "Section : Exciter<br>"
  "Position : <a href=" ?image ">" ?position "</a><br>"
  "Switch off the ATCR-33S DRU cabinet as explained in
        <a href=""/procedures/corrective/cm1.html"">Procedure CM1</a><br>"
  "Replace " ?card " strip as explained in
        <a href=""/procedures/corrective/" ?cm ".html"">
        Procedure " (upcase ?cm) "</a><br>"
  "Perform <a href=""/procedures/corrective/" ?pm ".html"">
        Procedure " (upcase ?pm) "</a><br>"
```

```
  "Switch on the ATCR-33S DRU cabinet as explained in
        <a href=""/procedures/corrective/cm24.html"">Procedure CM24</a><br>"
  "Restore the operative condition.<br>" )
     (fetch "ReteControl"))
)

(defrule rf-cm1-cm4-24-cm27
 (lru ?lru)
 (codelru (code ?lru) (card ?card) (unit ?unit) (section IF)
             (position ?position) (image ?image) (cm cm1 cm4 cm24 cm27))
=>
 (new EsAnsPanel (str-cat "Involve Hardware : " ?card "<br>"
  "Unit : " ?unit "<br>"
  "Section : IF<br>"
  "Position : <a href=" ?image ">" ?position "</a><br>"
  "Switch off the ATCR-33S DRU cabinet as explained in
        <a href=""/procedures/corrective/cm1.html"">Procedure CM1</a><br>"
  "Replace " ?card " strip as explained in
        <a href=""/procedures/corrective/cm4.html"">
        Procedure CM4</a>.<br>"
  "Switch on the ATCR-33S DRU cabinet as explained in
        <a href=""/procedures/corrective/cm24.html"">Procedure CM24</a><br>"
  "Perform <a href=""/procedure/corrective/cm27.html"">Procedure CM27 </a><br>"
  "Restore the operative condition.<br>" )
     (fetch "ReteControl"))
)
(defrule rf-cm1-cm4-cm24-cm27-pm10
 (lru ?lru)
 (codelru (code ?lru) (card ?card) (unit ?unit) (section IF)
             (position ?position) (image ?image) (cm cm1 cm4 cm24 cm27 pm10))
=>
 (new EsAnsPanel (str-cat "Involve Hardware : " ?card "<br>"
  "Unit : " ?unit "<br>"
  "Section : IF<br>"
  "Position : <a href=" ?image ">" ?position "</a><br>"
  "Switch off the ATCR-33S DRU cabinet as explained in
        <a href=""/procedures/corrective/cm1.html"">Procedure CM1</a><br>"
  "Replace " ?card " strip as explained in
        <a href=""/procedures/corrective/cm4.html"">
        Procedure CM4</a>.<br>"
  "Switch on the ATCR-33S DRU cabinet as explained in
        <a href=""/procedures/corrective/cm24.html"">Procedure CM24</a><br>"
  "Perform <a href=""/procedure/corrective/cm27.html"">Procedure CM27 </a> and
        <a href=""/procedure/preventive/pm10.html"">Procedure PM10 </a><br>"
  "Restore the operative condition.<br>" )
     (fetch "ReteControl"))
)

;~~~~~~~~~~~~~~~~~~~~~~~~~
;            RECEIVER
;POWER SUPPLY - Final
;
;~~~~~~~~~~~~~~~~~~~~~~~~~
(defrule ps-cm1-xx-24
 (lru ?lru)
 (codelru (code ?lru) (card ?card) (unit ?unit)(section PS)(cm cm1 ?xx cm24))
=>
 (new EsAnsPanel (str-cat "Involve Hardware : " ?card "<br>"
  "Unit : " ?unit "<br>"
  "Switch off the ATCR-33S DRU cabinet as explained in
            <a href=""/procedures/corrective/cm1.html"">Procedure CM1</a><br>"
  "Replace " ?card " as explained in
```

```
             <a href=""/procedures/corrective/" ?xx ".html"">Procedure" (upcase ?xx)
"</a><br>"
  "Switch on the ATCR-33S DRU cabinet as explained in
             <a href=""/procedures/corrective/cm24.html"">Procedure CM24</a><br>"
  "Restore the operative condition.<br>" )
     (fetch "ReteControl"))
)


;~~~~~~~~~~~~~~~~~~~~~~~~
;             RECEIVER
;TEMPERATURE & FANS - Final
;
;~~~~~~~~~~~~~~~~~~~~~~~~
(defrule rx-tf-temp-final1
             (fault-led-no-gone)
             =>
             (new EsAnsPanel "Restore the Operative Condition"
               (fetch "ReteControl"))
)

(defrule rx-tf-temp-final2
             (fault-led-no-still)
             =>
             (new EsAnsPanel (str-cat "Check the Interconnection.<br><br>"
             "Restore the Operative Condition")
               (fetch "ReteControl"))
)
```