

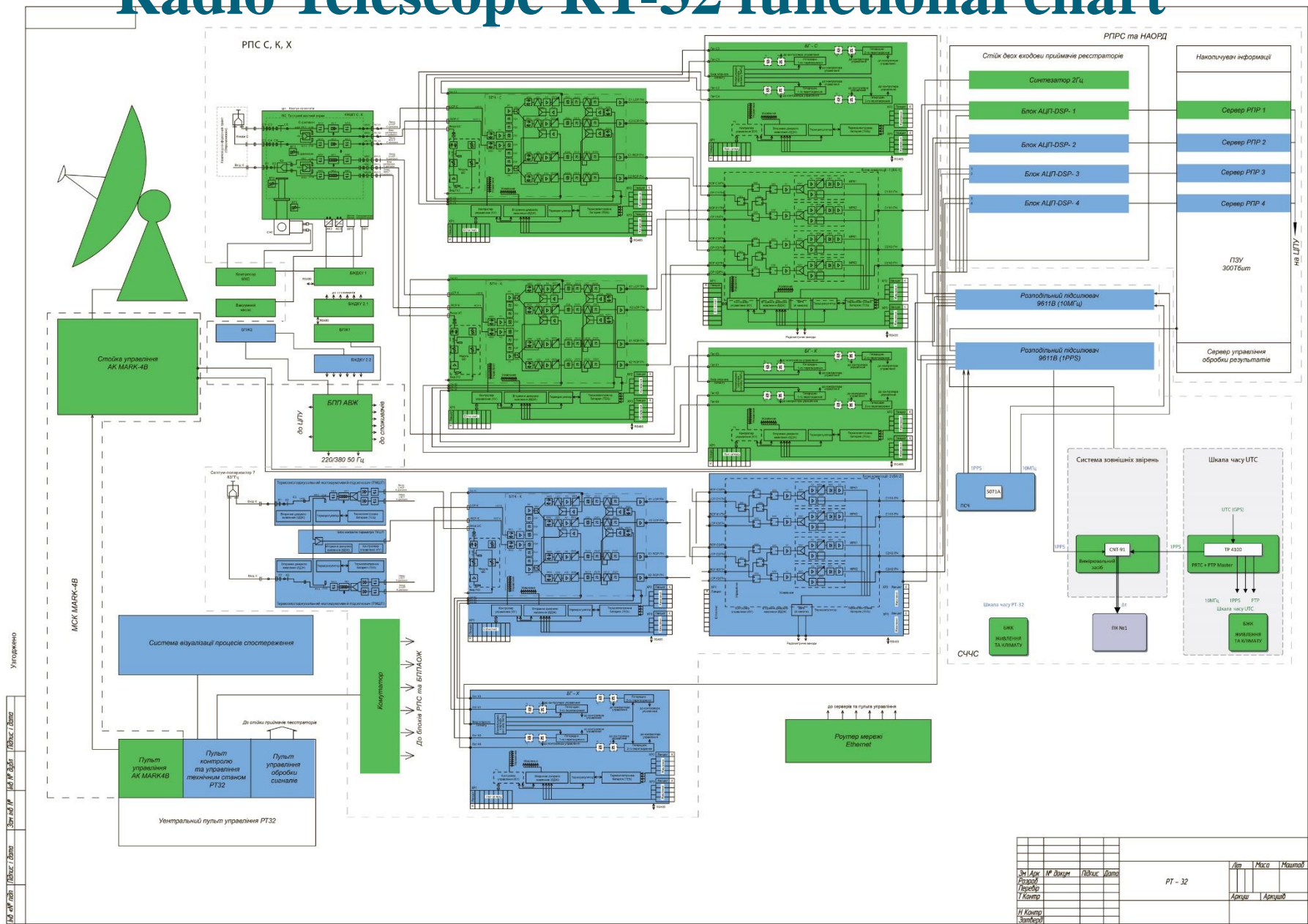
# Private Joint Stock Company “Scientific and Production Enterprise “SATURN”

Modernization of the Antenna Complex for  
Radio Telescope

# Radio Telescope RT-32 in Zolochiv, Ukraine

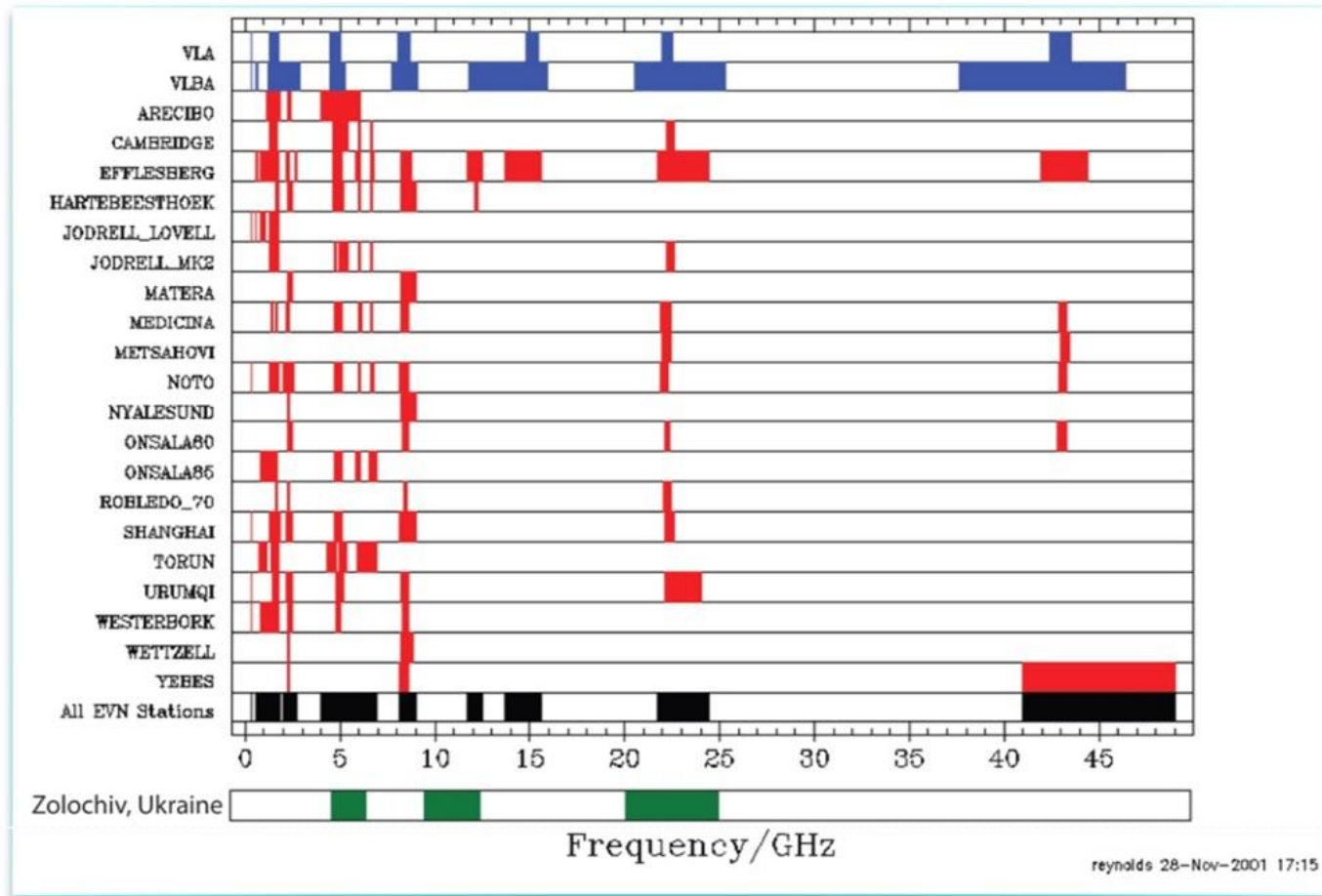


# Radio Telescope RT-32 functional chart





# Frequency covered by EVN Telescopes

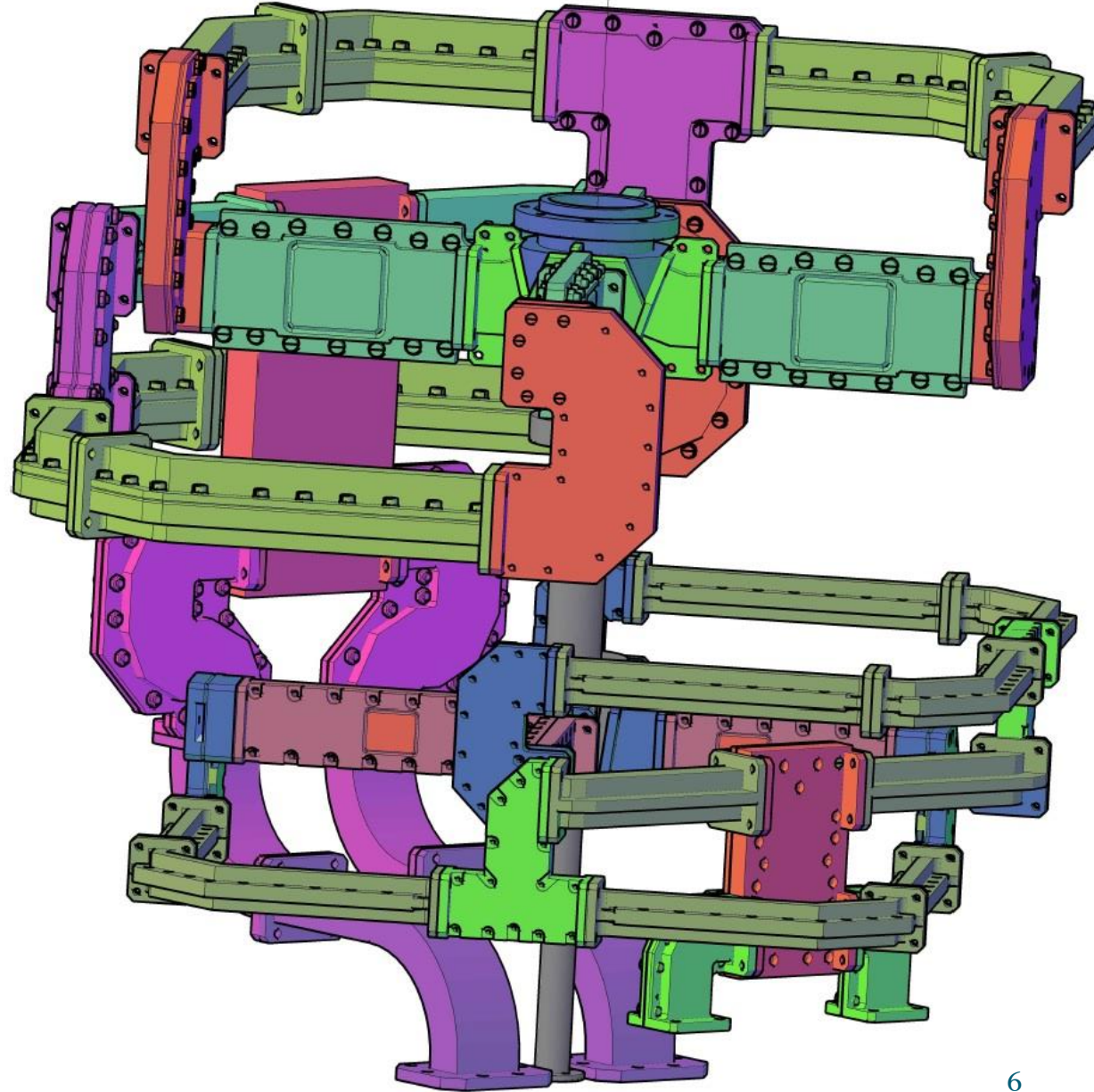


The frequency ranges of the 20 best radio telescopes in the world and the frequency ranges of the equipment supplied by PJSC “SPE “Saturn” to RT-32 in Zolochiv, Ukraine

# Cryogenic Receiving Focal Unit, Zolochiv



# Separator of C, X, K - bands

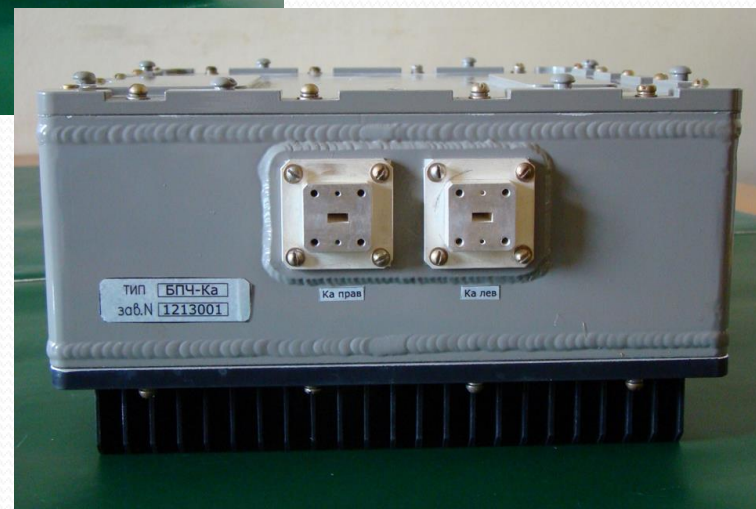
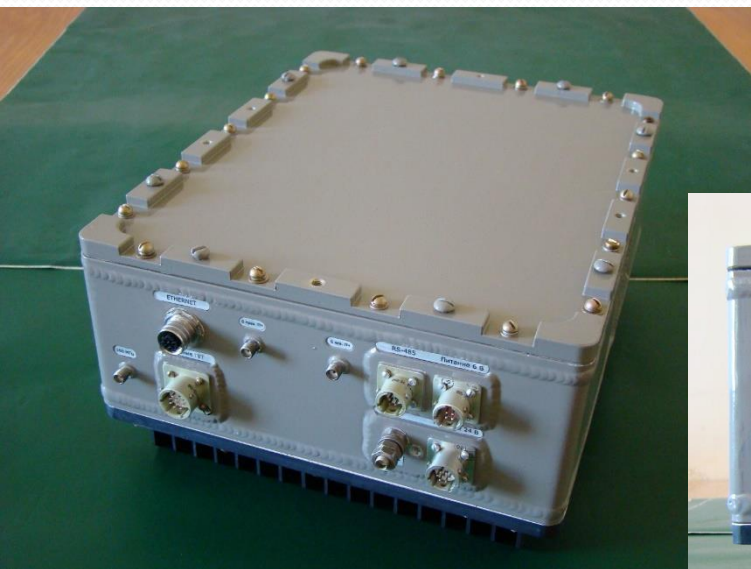


# Heat-cooled X-band low-noise amplifier, Zolochiv





# The structural design of the units included in the radio astronomy receiving system



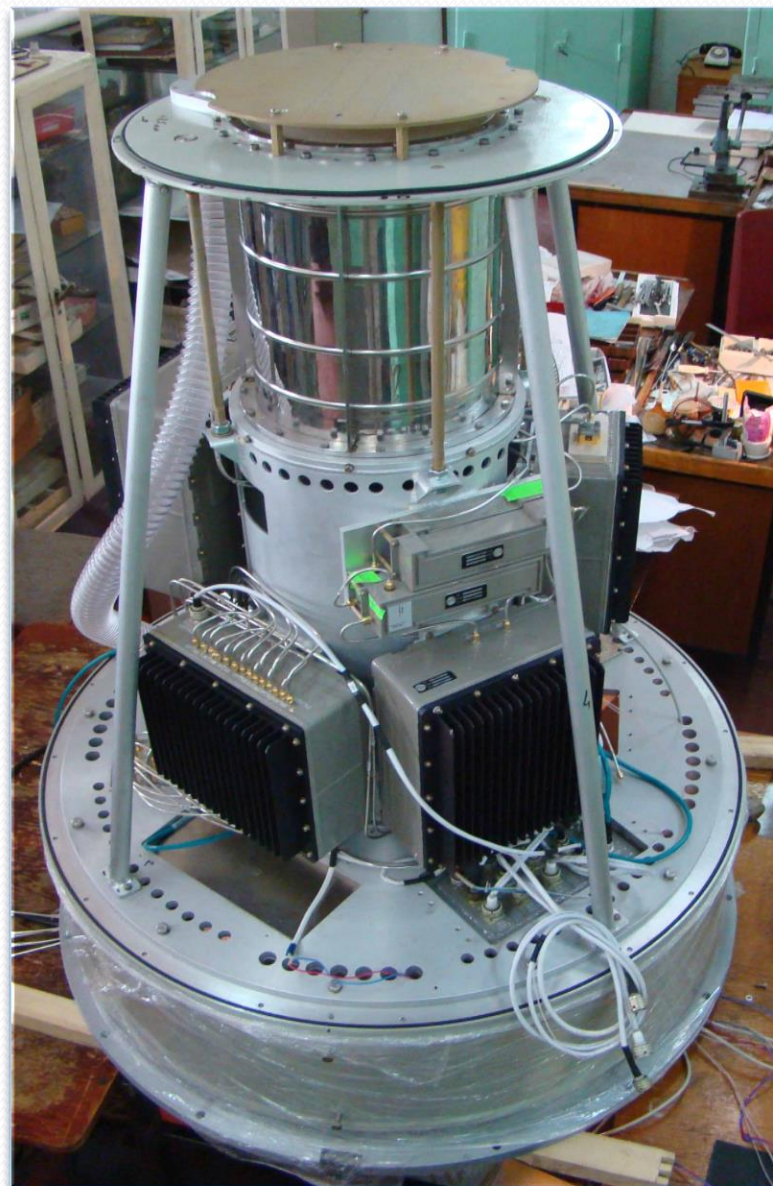


# Antenna Complex KTNA-200

9

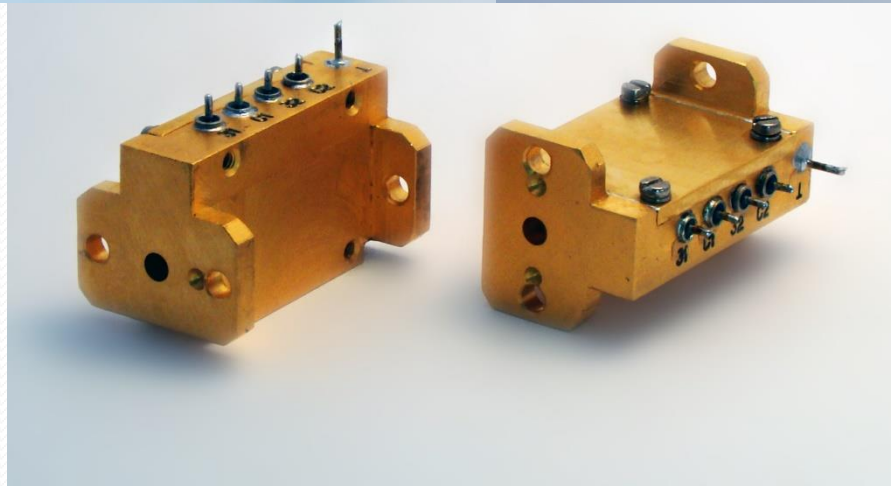
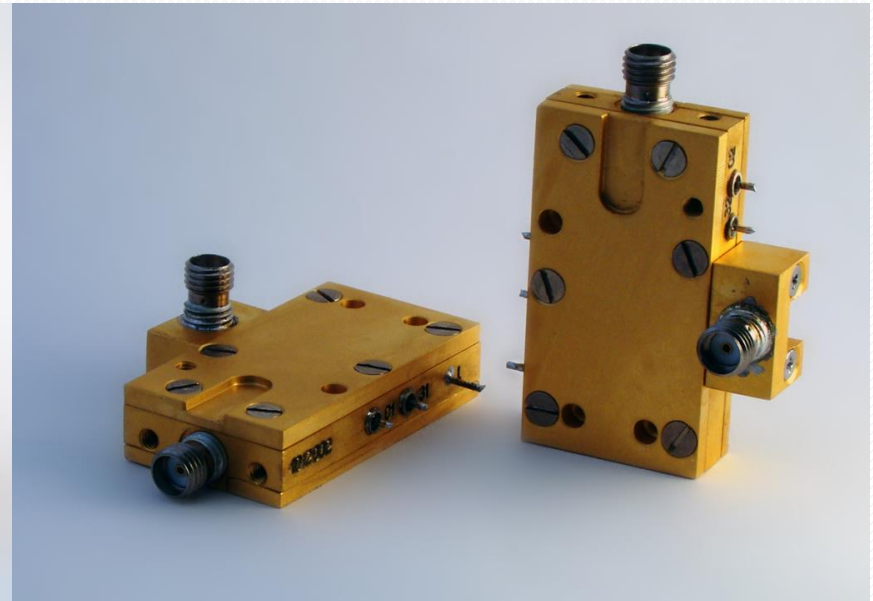
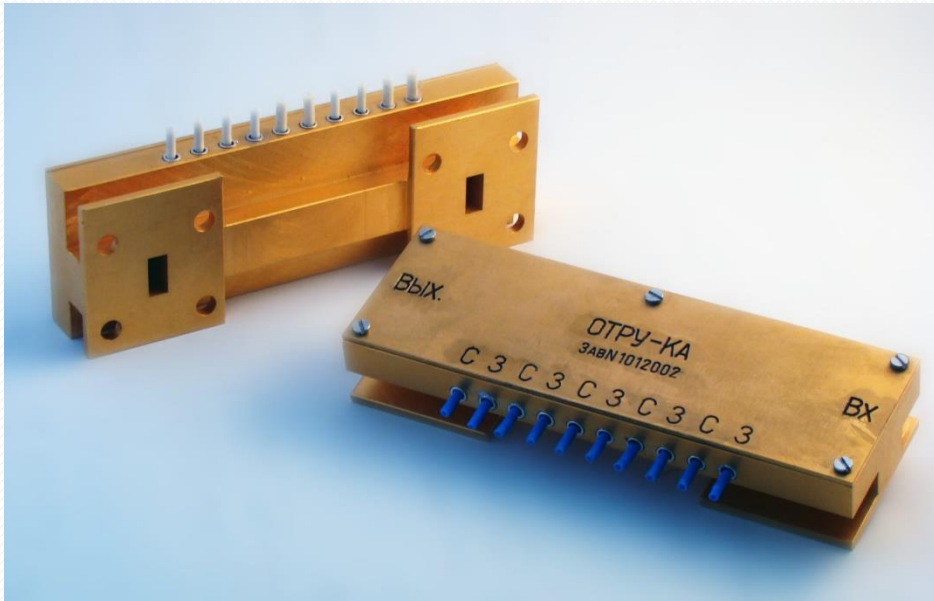


# Radio astronomy receiving system of three bands (S, X, Ku)



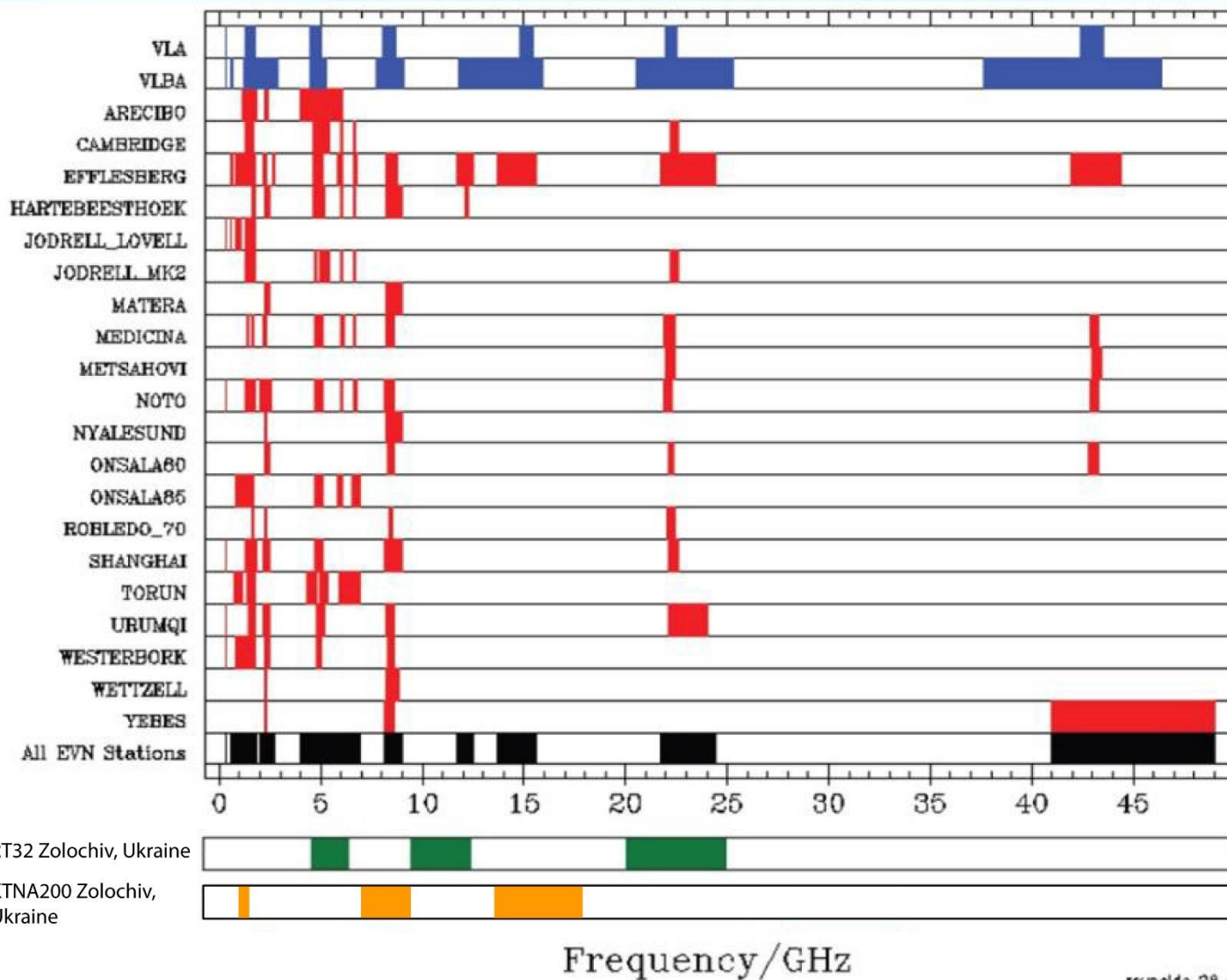


**The low-noise amplifiers, operating when cooled to 15K.  
They are located in the cryostat of the receiving device**



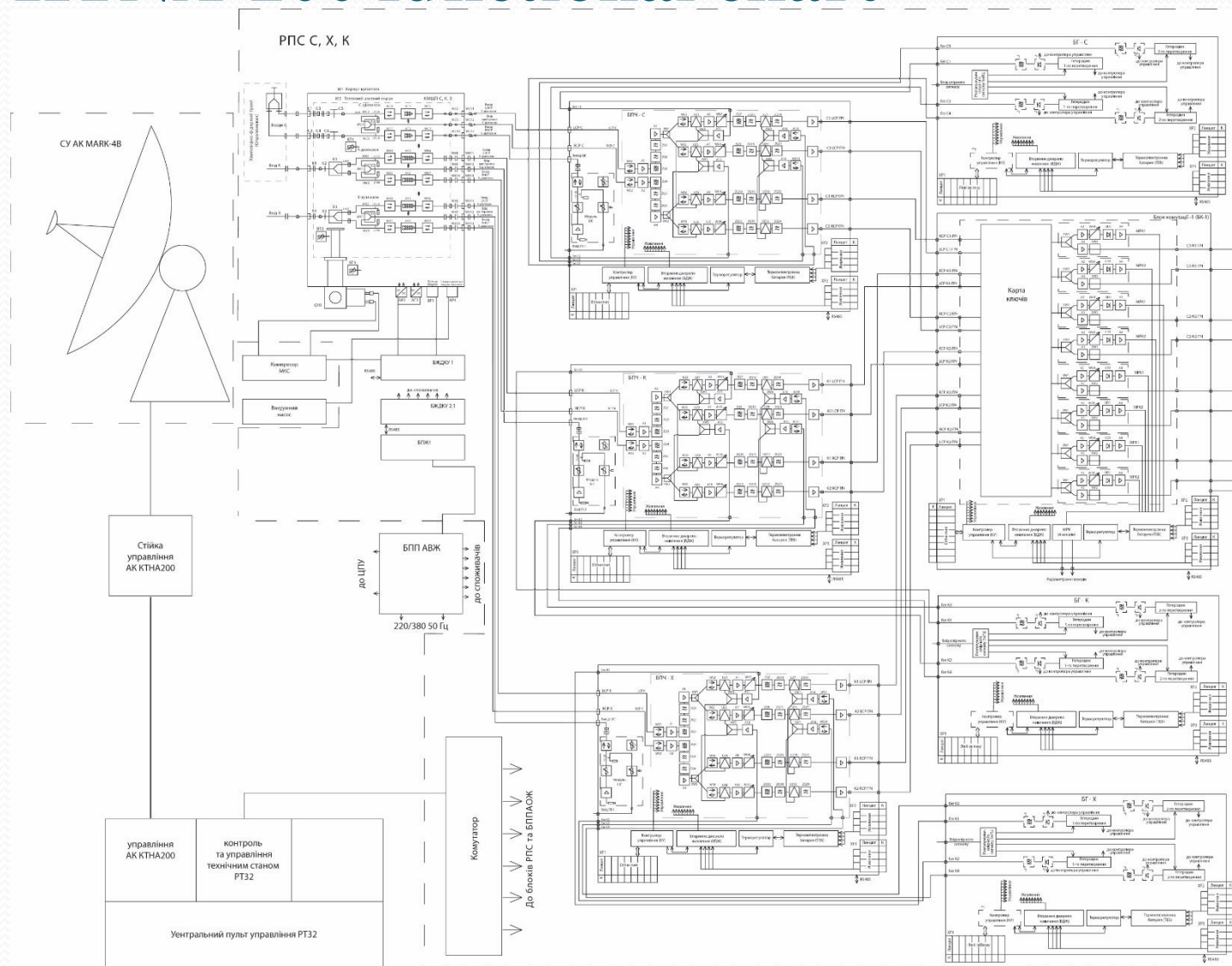


# Frequency covered by EVN Telescopes and new KTNA-200 in Zolochiv



# Radio astronomy receiving system

## KTNA-200 functional chart



# The Central Control Panel of the radio telescope in Zolochiv, which provides automatic execution of the mission plan of observation sessions





# Management decisions matrix

$$Y_1 = f x(x_{11} + x_{12} \dots + x_{1n})$$

$$Y_2 = f x(x_{21} + x_{22} \dots + x_{2n})$$

...

$$Y_m = f x(x_{m1} + x_{m2} \dots + x_{mn}),$$

- where  $x_{mn}$  – factors that affect the operation of the system,
- and  $Y_m$  – managerial decisions based on the results of logical processing of monitoring data on technical condition of  $x_{mn}$ , or input data for a session of observation (communication).

# Control and management structure

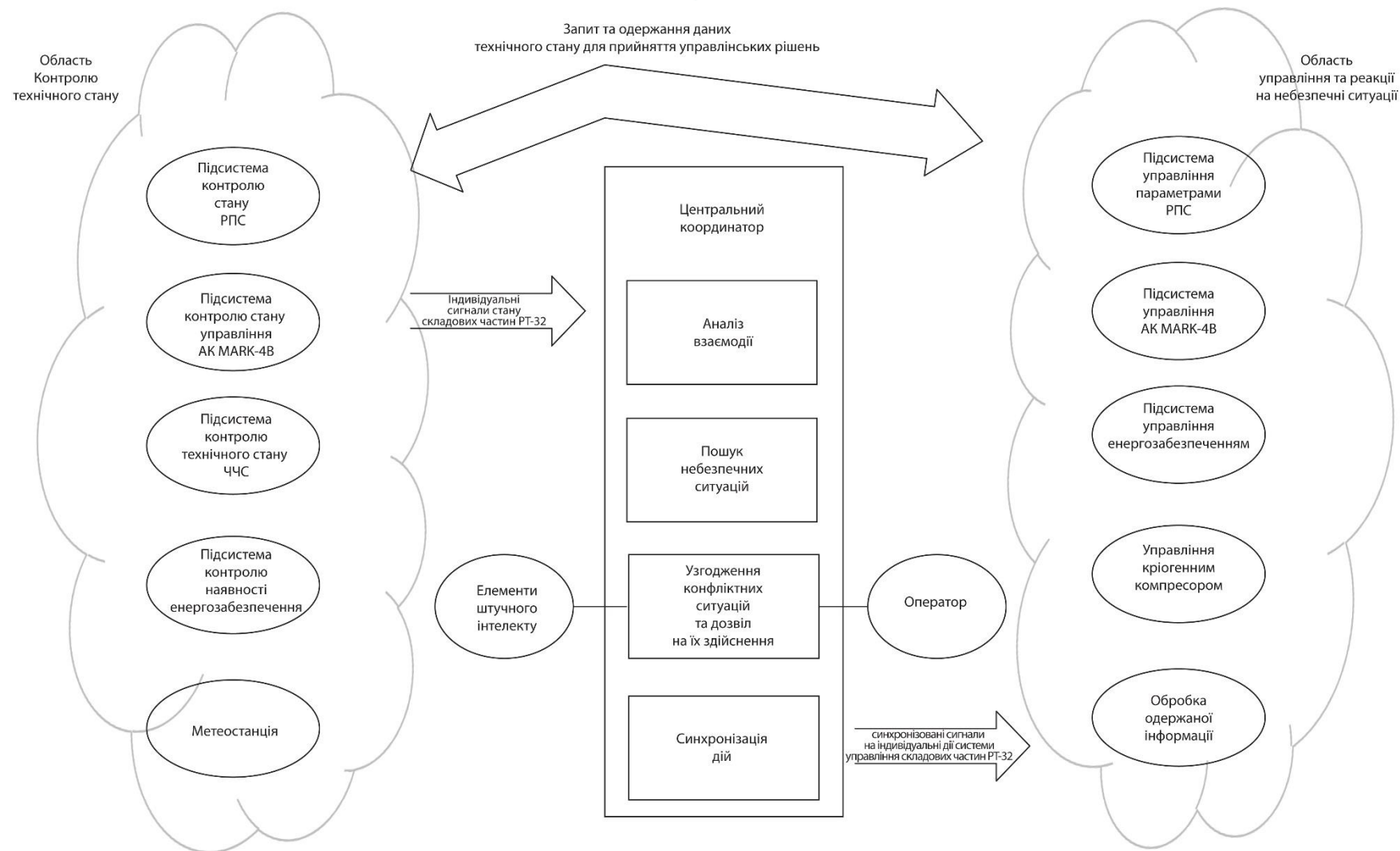


Рис1

Структура побудови контролю технічного стану та керування радіотелескопом РТ-32

# Algorithm of RT-32 operation

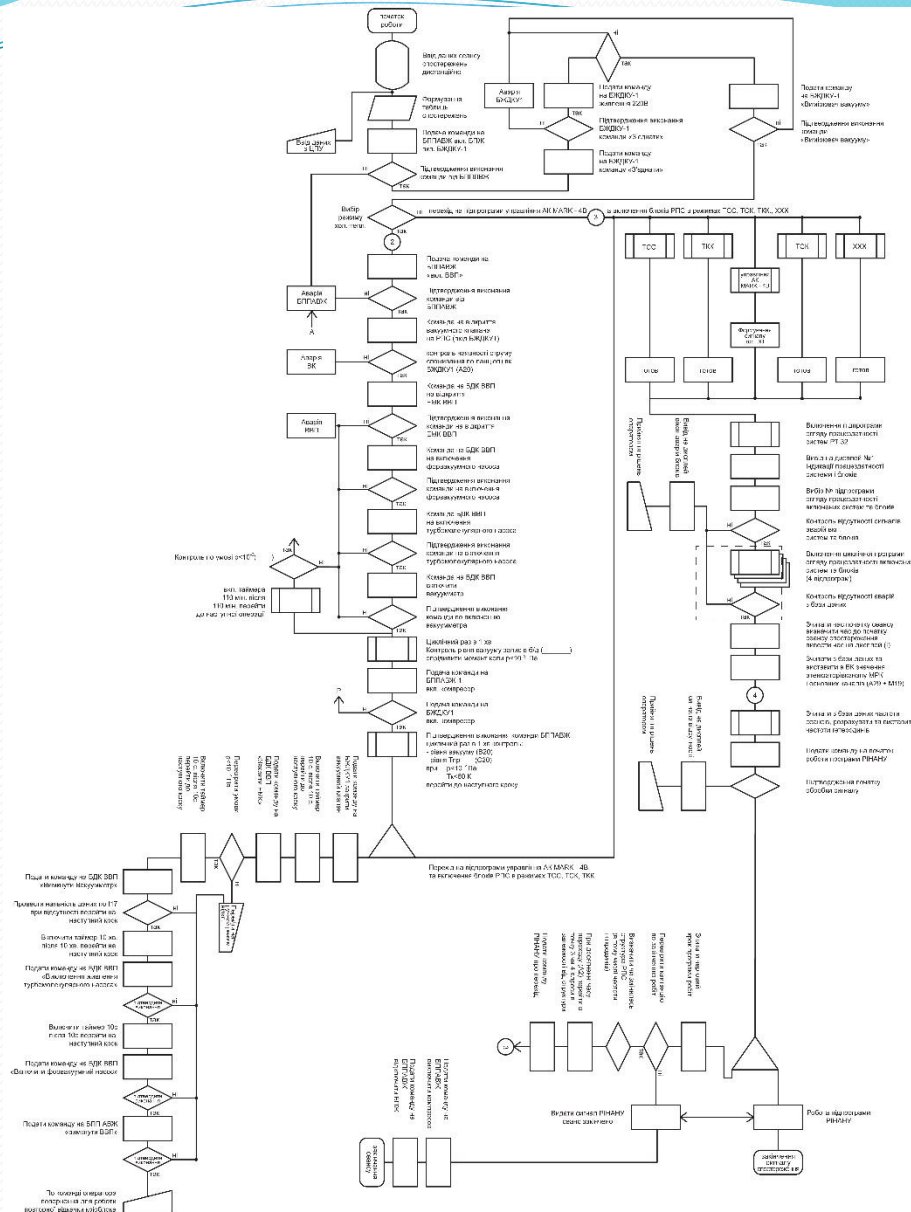
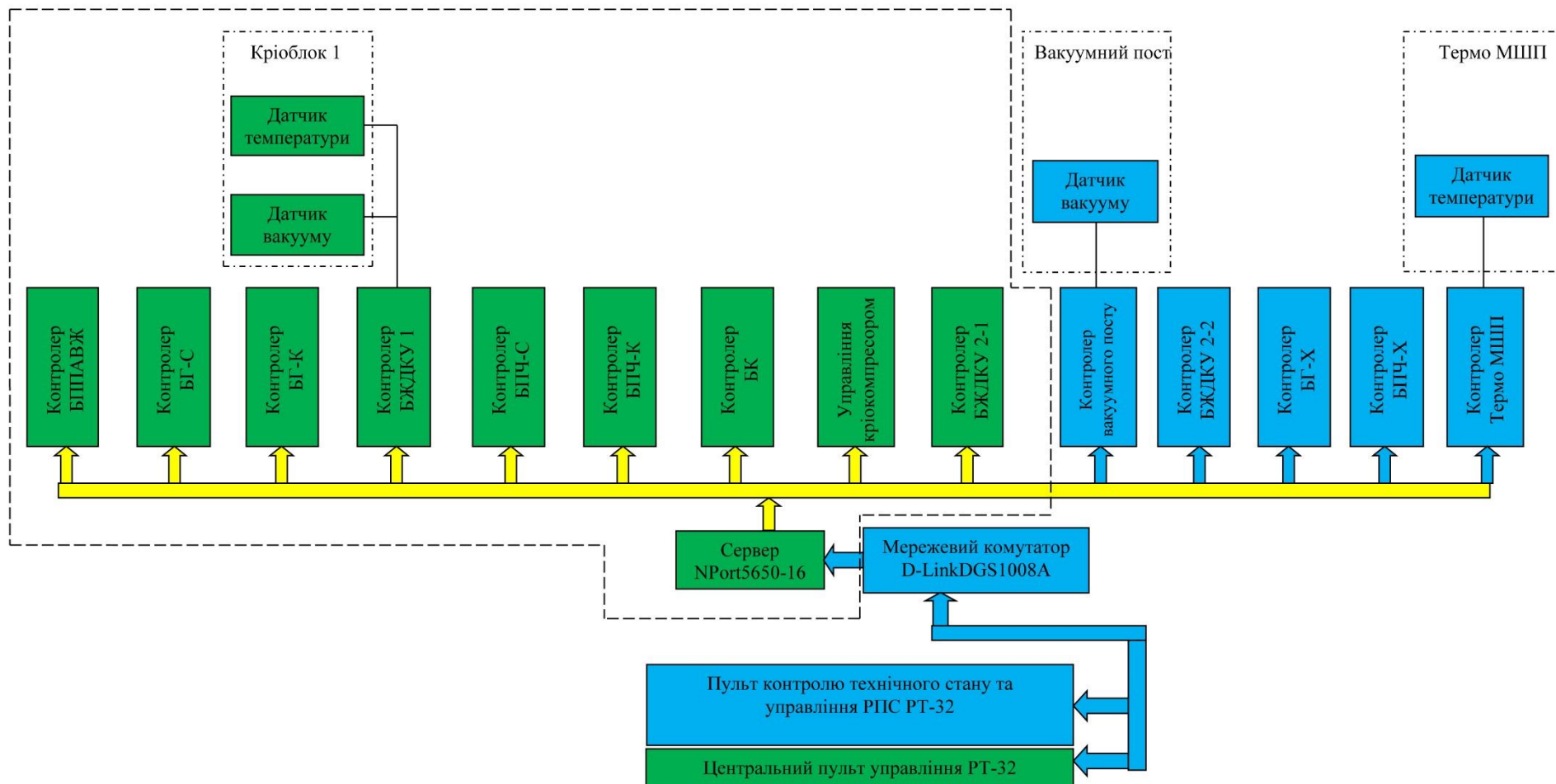


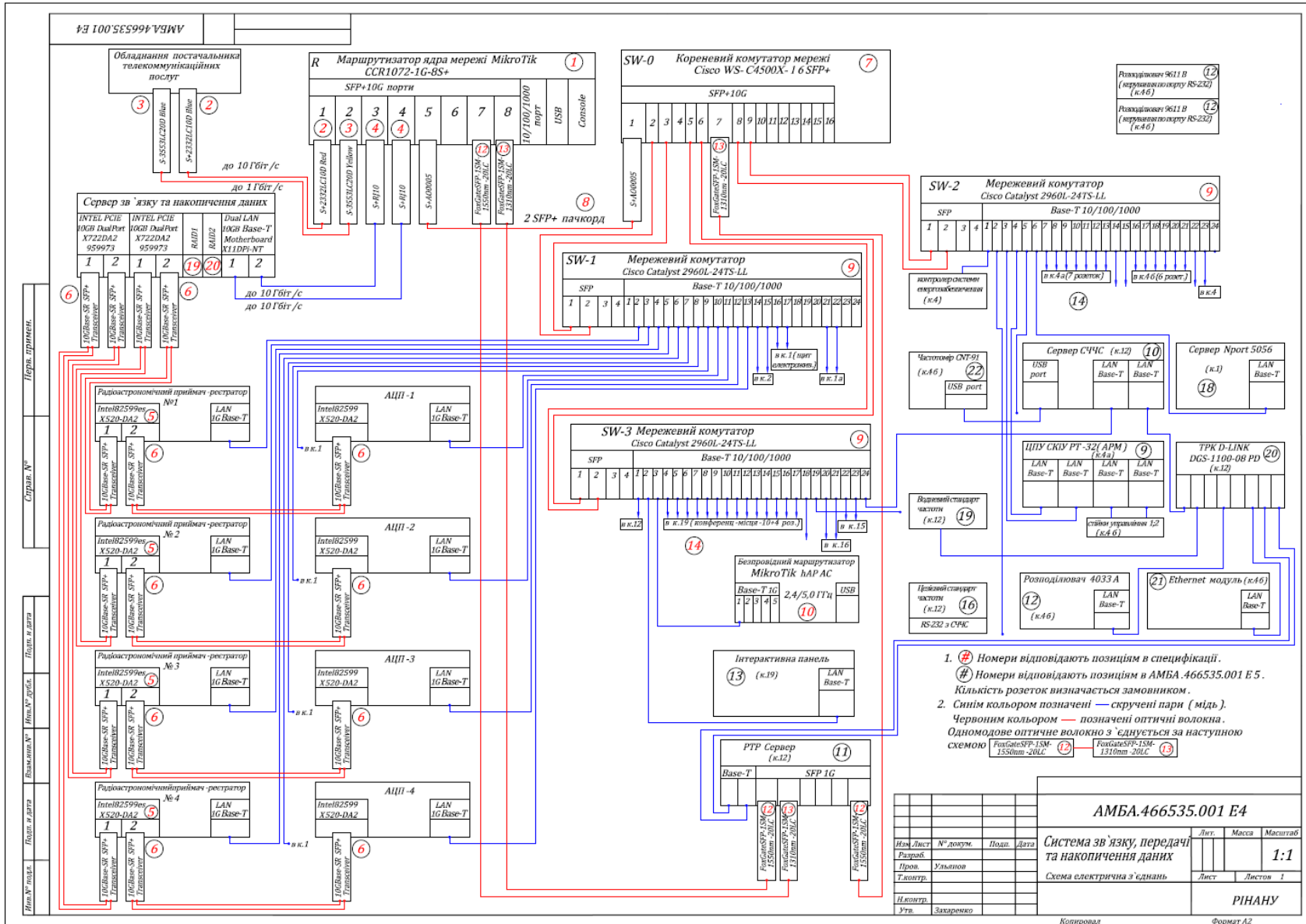
Рис. 2  
Алгоритм роботи радіотелескопу РТ32



# Block-diagram of the control of the radio receiving system



## Reference diagram





Thank you for attention!