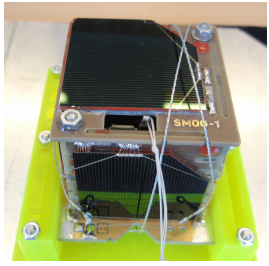
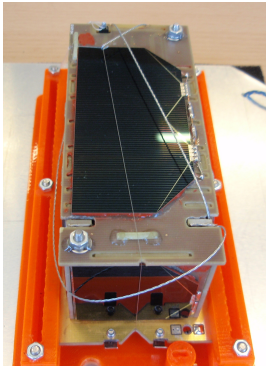
Műegyetemen fejlesztett zsebműholdak

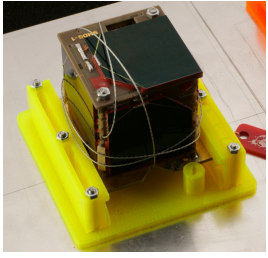
Dudás Levente, Gschwindt András



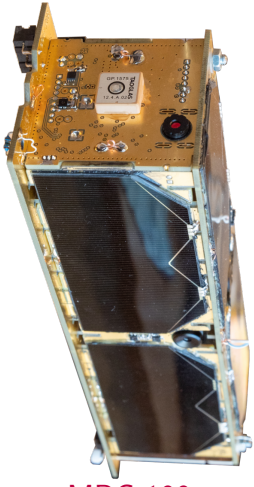
SMOG-P



ATL-1



SMOG-1



MRC-100

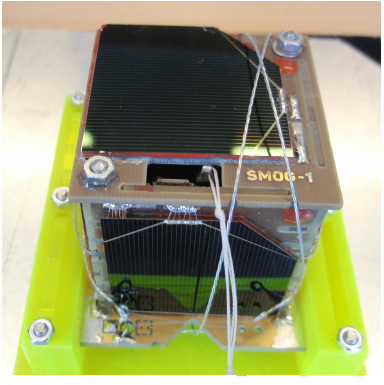
SMOG-1 & SMOG-P

1. DVB-T sávú spektrum monitor.
2. Totál ionizáló dózismérő rendszer.
3. Passzív pályaélettartam csökkentő eljárás mágneses elven.

Egy-pont meghibásodásra méretezett, hidegtartalékolt alrendszerek elosztott intelligenciával.

- 50 x 50 x 50 mm
- 183 g tömeg
- $-40... + 80C$
- $20g$ gyorsulás

- 2019-12-06, Electron - SMOG-P
- 2021-03-22, Soyuz - SMOG-1

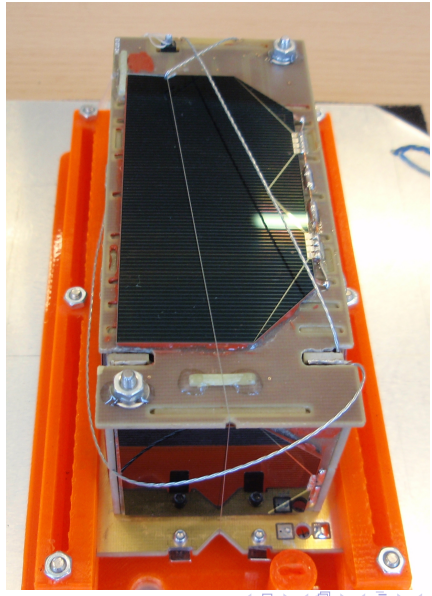


ATL-1 2 PQ - az első magyar magánműhold

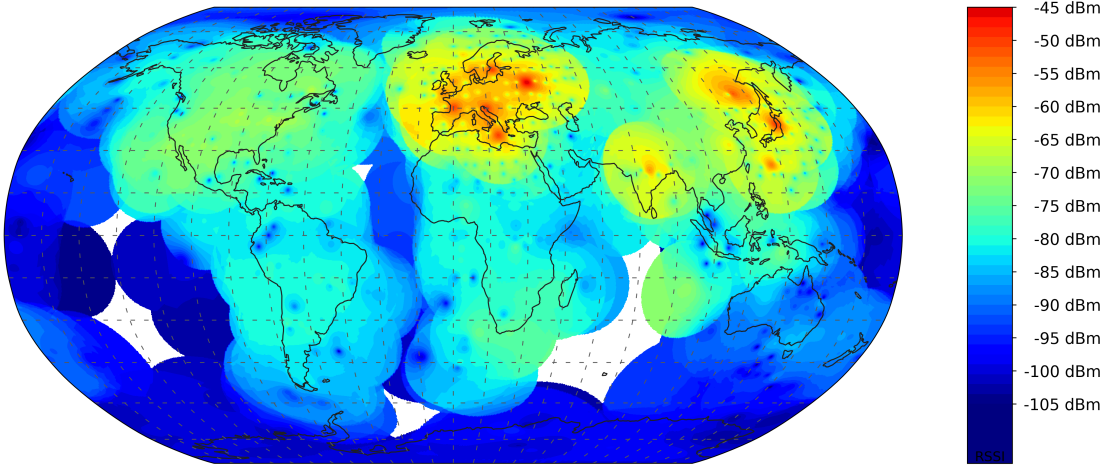
- 5 x 5 x 10 cm
- 336 g tömeg
- avg. 500 mW DC, 1 W csúcs

- 4 akkumulátor
- 3 különleges hőszigetelő anyag

- 2019-12-06, Electron



Globális TV sávú szennyezettségi térkép

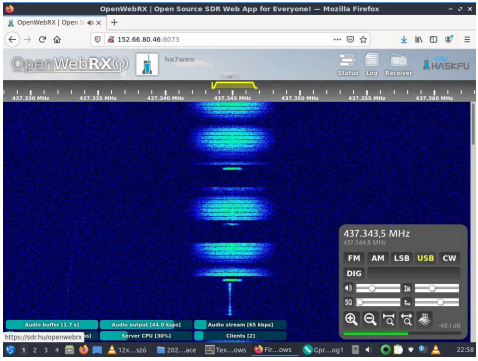


Takács Donát, Markotics Boldizsár - BME VIK TDK 2020

SMOG-1 - Soyuz start 22.03.2021



SMOG-1 első jelei 2021-03-25 0:46

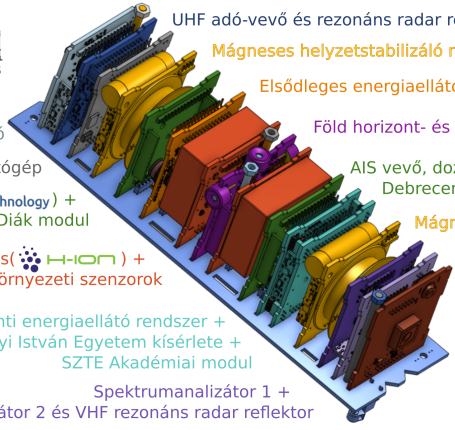




AZ MRC-100 POCKETQUBE MŰHOLD

MŰEGYETEM 1782

BME VILLAMOSMÉRNÖKI ÉS INFORMATIKAI KAR



UHF adó-vevő és rezonáns radar reflektor

Mágneses helyzetstabilizáló rendszer

Elsődleges energiaellátó rendszer

Föld horizont- és Nap szenzor

S sávú adó

Fedélzeti számítógép

AIS vevő, dozimétert (27G) + Debreceni Egyetem kísérlete

AIS vevő, dozimétert (27G-Technology) + SZE Diák modul

Mágneses helyzetstabilizáló rendszer

Optikai szenzor és GPS vevő

Akkumulátorvédelem és szigetelés(H-ION) + környezeti szenzorok

Központi energiaellátó rendszer + Széchenyi István Egyetem kísérlete + SZTE Akadémiai modul

Spektrumanalizátor 1 + Spektrumanalizátor 2 és VHF rezonáns radar reflektor

Támogatóink

NMHH

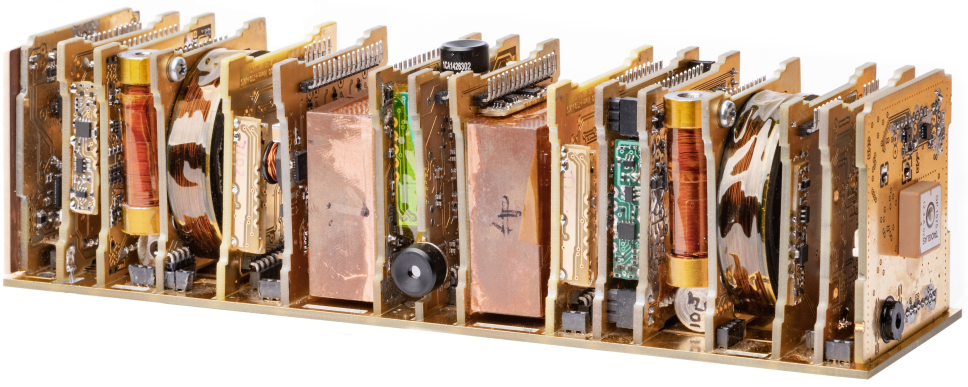
hvt

KÜLGAZDASÁGI ÉS KÜLÜGYMINISZTÉRIUM

Radar Research Group

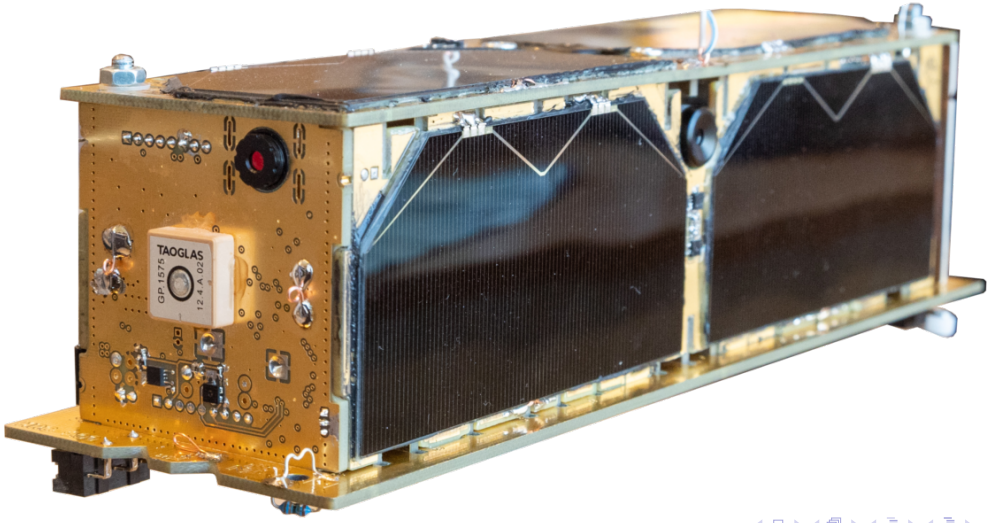
HA4TI

MRC-100 - 3 PQ

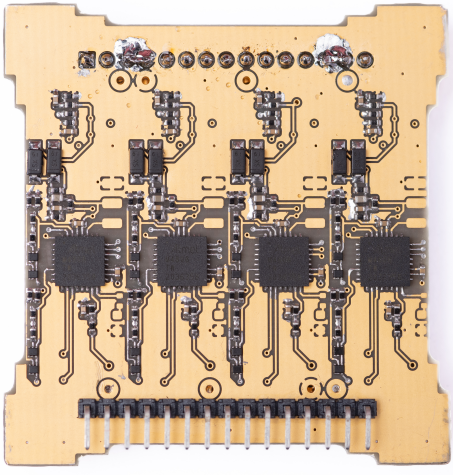


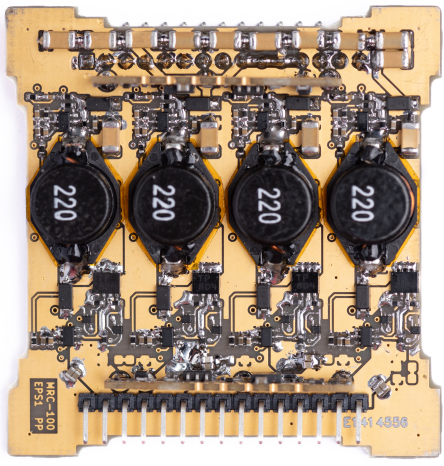
MRC-100 - 3 PQ

578 g - 5 x 5 x 15 cm - 800 mW DC

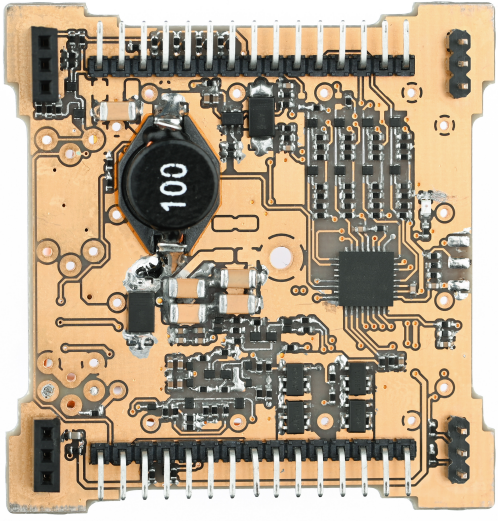


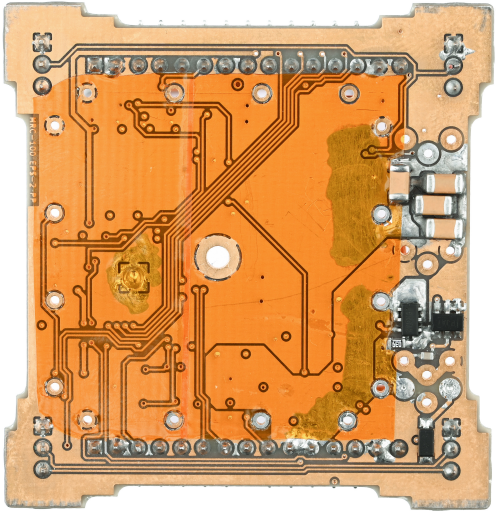
MRC-100 EPS1





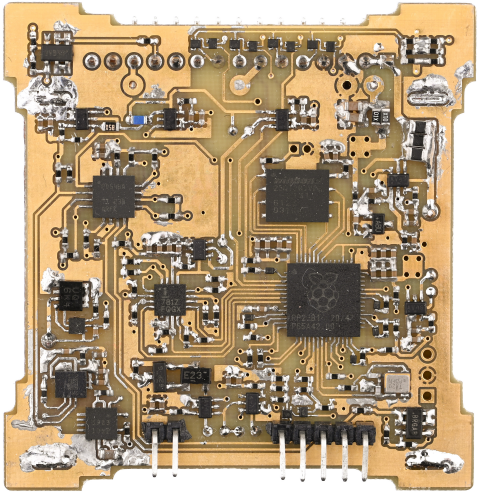
MRC-100 EPS2



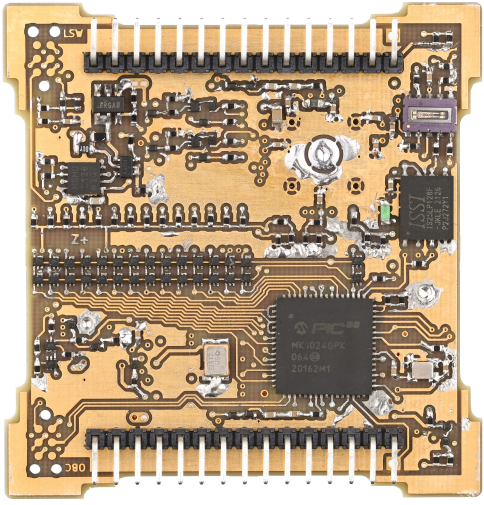


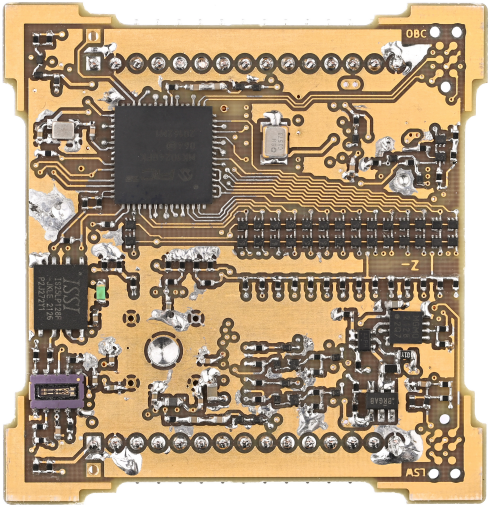
MRC-100 Battery



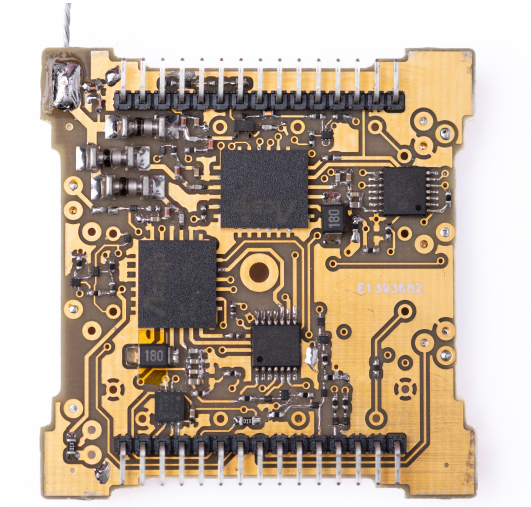


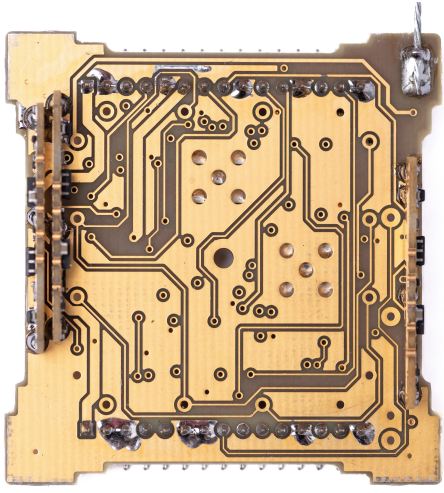
MRC-100 OBC



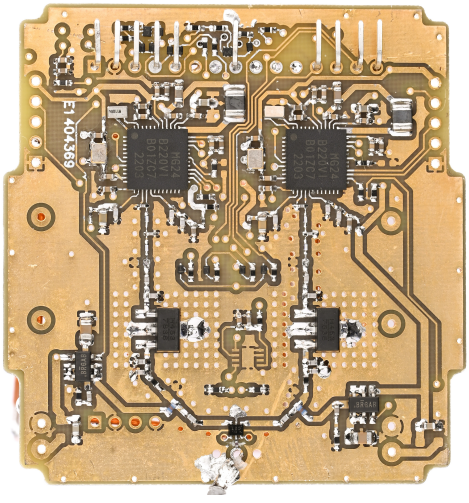


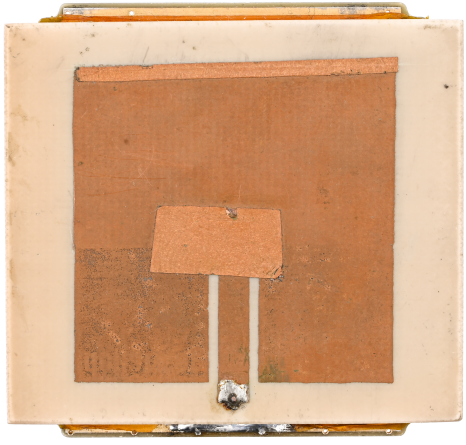
MRC-100 UHF COM



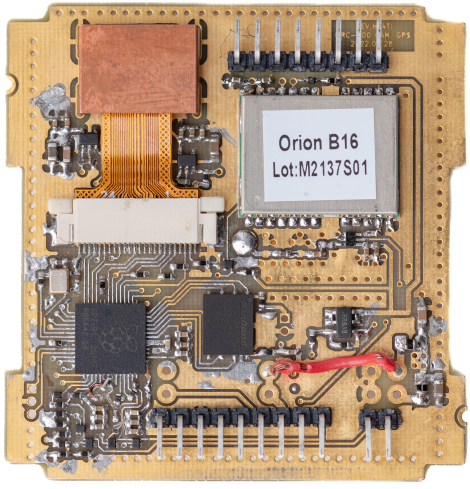


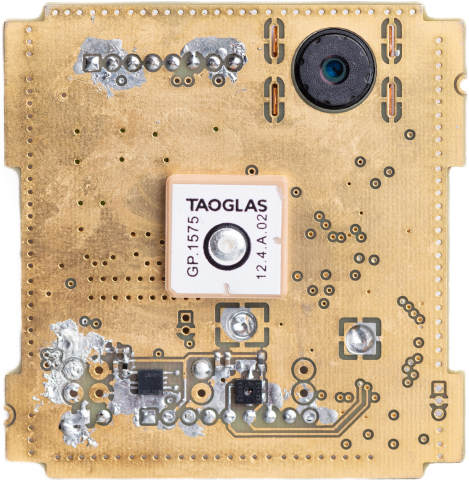
MRC-100 S-band TX



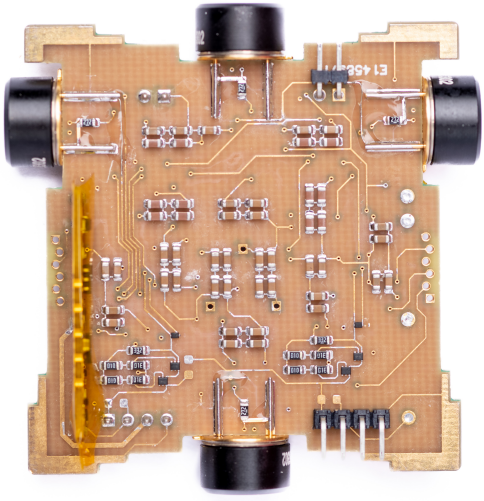


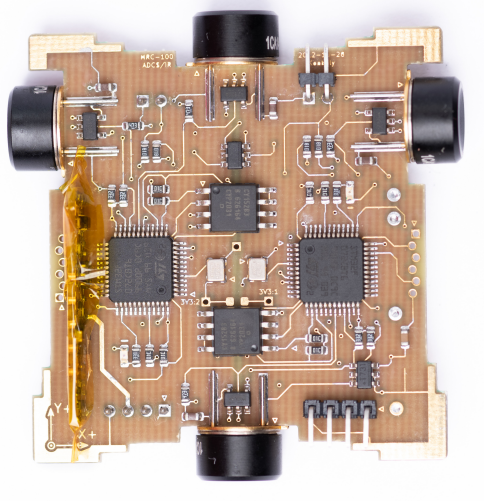
MRC-100 GPS + CAM



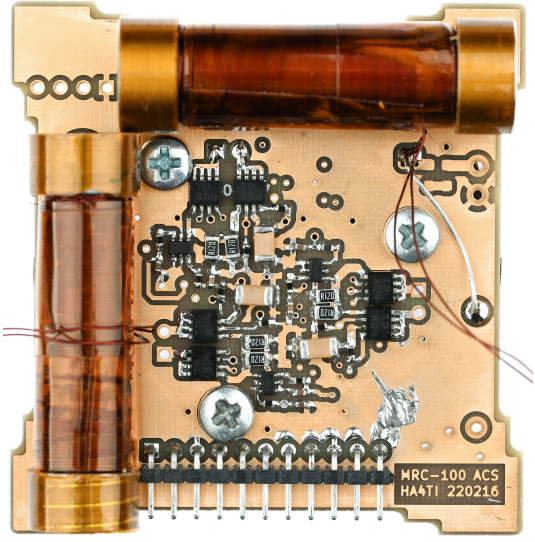


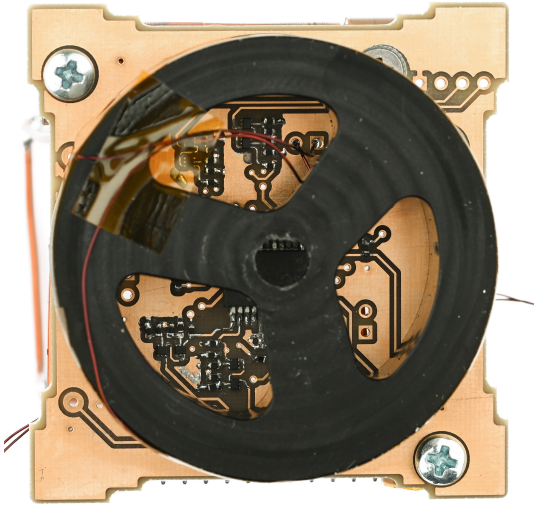
MRC-100 SUN



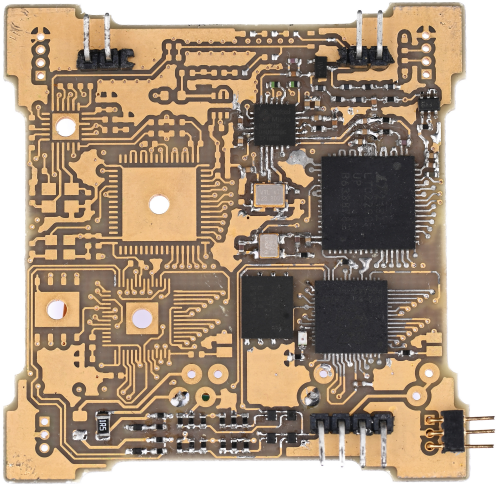


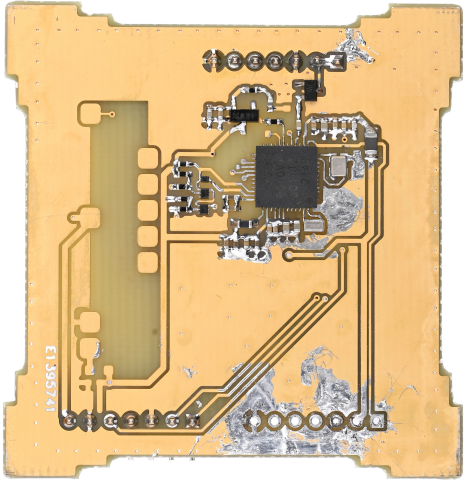
MRC-100 ACS



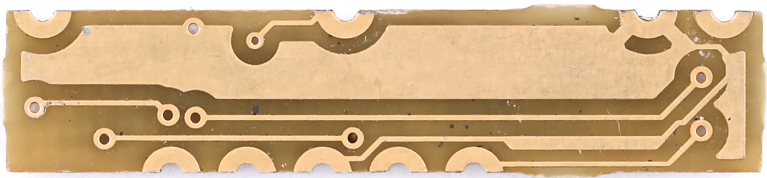


MRC-100 SPA

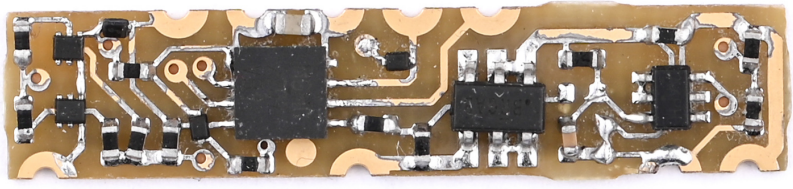




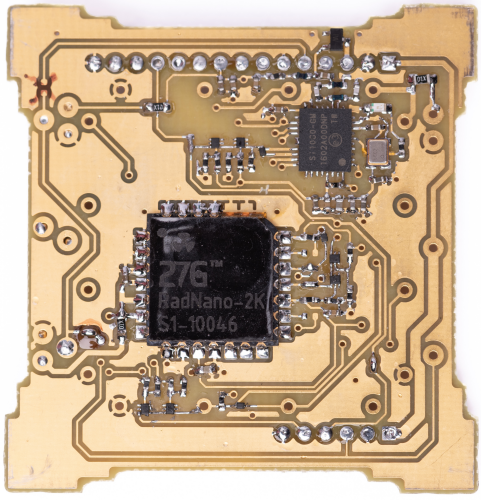
MRC-100 LSW

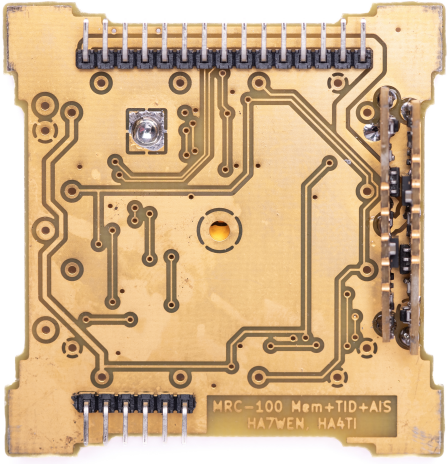


32 db áramhatároló kapcsoló: feszültség és áram mérés, túláram védelem.



MRC-100 MEM + TID + AIS





MRC-100 TID

27G RadNano doziméterek



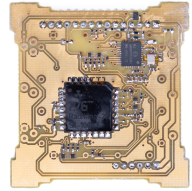
- Ionizáló sugárzási környezet monitorozása a műhold küldetése során
- 2 db. független egység az MRC-100 fedélzetén

Digitálisan előálló mérési eredmények:

- Teljes dózis (TID) mérés szilíciumban
- Precíziós hőmérséklet mérés (+/- 0,5 °C)
- Tápfeszültség mérés
- Precíz időzítés, 30 másodpercenként frissülnek az adatok

Főbb műszaki paraméterek:

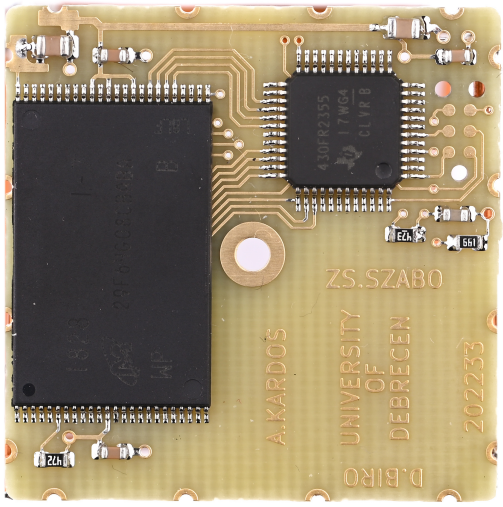
- 1 mGy… 20 Gy (0.1 … 2000 rad) mérési tartomány
- 12.7x12.7x2.5 mm befoglaló méret
- < 10 µW standby fogyasztás, < 10 mW méréskor
- 0.89 g össztömeg



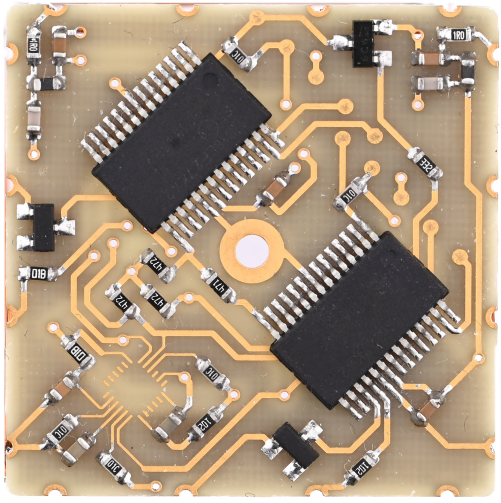
A 27G-Technology (27G) 2020-ban indult a SMOG-P indítása után, a fejlesztő csapat néhány végzett mérnök hallgatója alkotja a startup magját.

- Bővebb információk a 27G honlapján: www.27g.space

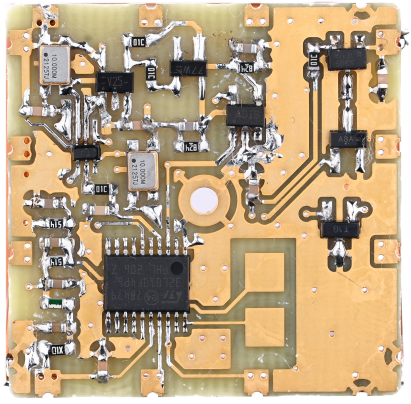
MRC-100 Debrecen

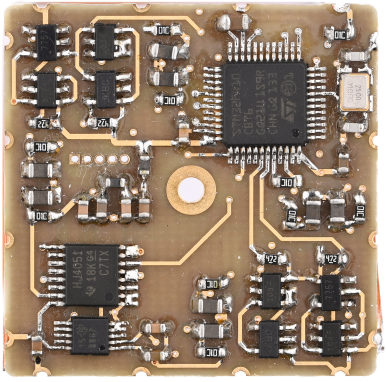


MRC-100 Győr

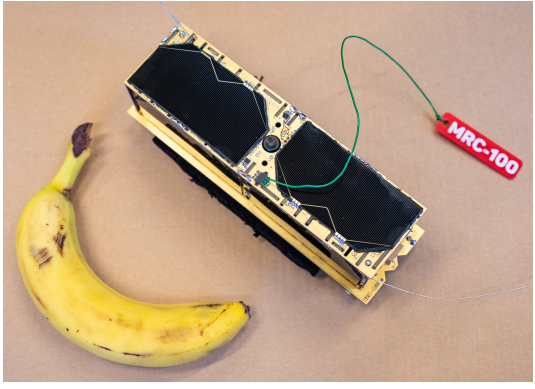

0R
10R
33R
0R
0IB
47R
47R
47R

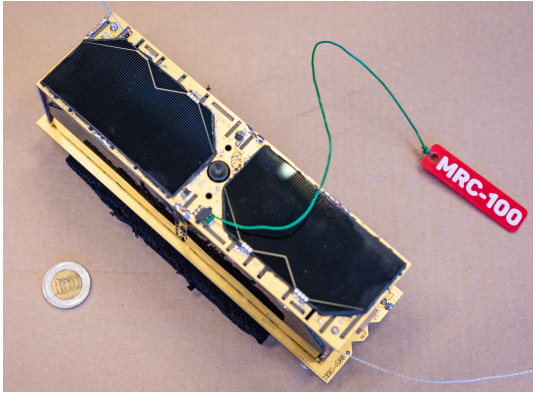
MRC-100 Szeged





MRC-100 - start 2023. június eleje





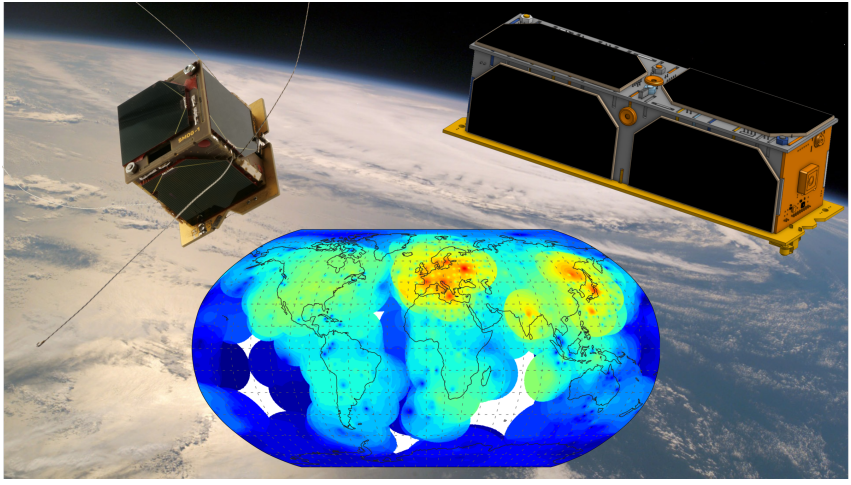
A földi állomás készen áll: https://gnd.bme.hu



https://gnd.bme.hu/

http://152.66.80.46/smog1

http://152.66.80.46/mrc100dec



dudas.levente@vik.bme.hu