

1.

KSR-III

(UVR) KSR-I, -II

8

(LEP) KSR-II
70-150km

가

(AGP)
(airglow)

(MAG) 가

fluxgate-type
(Attitude Information Magnetometer, AIM)

search-coil-type (Scientific Investigation
magnetometer, SIM) . AIM DC

IGRF(International Geomagnetic Reference
Field)

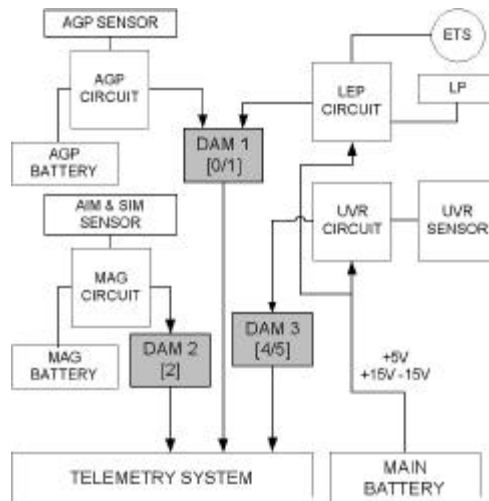
SIM AC

2.

2.1

1

Acquisition Module) DAM(Data
LEP DAM1 AGP
DAM2 UVR DAM3 MAG



1.

LEP UVR

AGP MAG

DAM

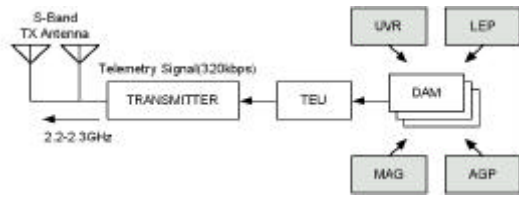
(telemetry system)

2

TEU(Telemetry Encoder Unit)
(transmitter)

S-band FM
PLL(Phase Locked Loop)

2.2GHz FM
320kbps PCM .[1]

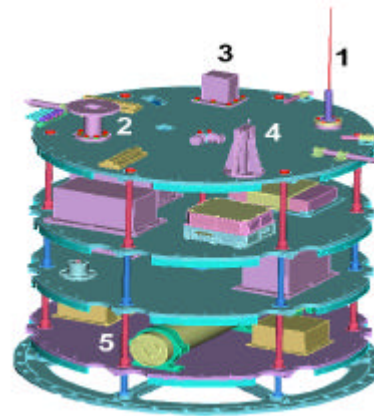


2.

8 bit

1.

1.



3.

Payload	Assigned channel #	
	analog	Digital
UVR	16	0
LEP	8	0
AGP	10	4
MAG	3	2

1

) (4)가 3

(1) . 2

3 fluxgate (3
1 search-coil

(2)가

UVR LEP
MAG AGP
. MAG AGP

16 bit

8 bit

8 bit 8 bit

. MAG

AGP 10 8
, 1 ,

1

AGP

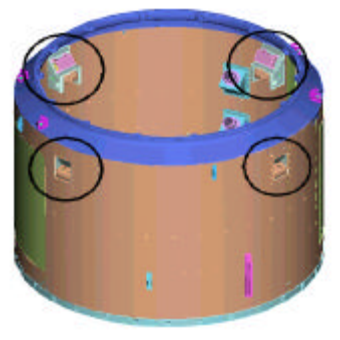
. [2]

3

DAM1

. 3
DAM2가

4



4.

1 2

4
가
4
2

2.5V

가 1

0.5V

8

6

2

2.2 (UVR)

4 (PCB)

[3]

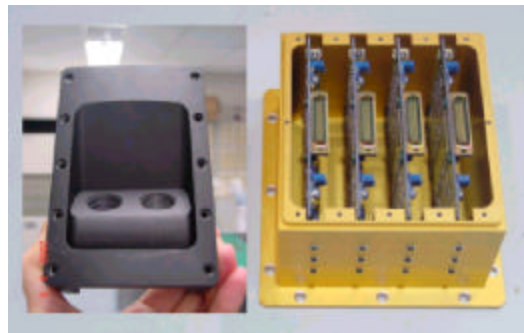
Hamamatsu

R840

8

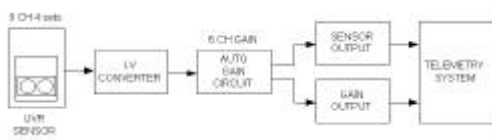
.4

255nm 1
310nm 4
가
290nm 2 가
450nm 가



6.

가



5.

2.3 (LEP)

2

5 UVR

2 (+가

7

(Langmuir Probe, LP)

collector 1Hz

가 가

collector guard

가

(I-V converter)

1, 4, 16, 64, 256, 1024 6

가 1024 0V

가

(saturation region)

(Electron Temperature Probe, ETP)

7

PCB

가

800mV

0, 400,
가 20KHz

가

가
가

2.4

(AGP)

(Air Glow Photometer, AGP)

(floating potential)

가

가

가

0, 400mV, 800mV

0V 400mV

0V

가

800mV

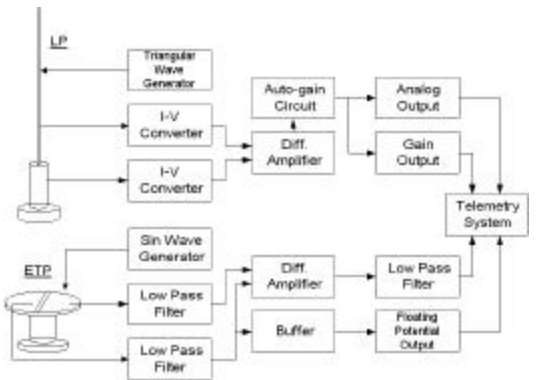
[4]

(far ultraviolet)

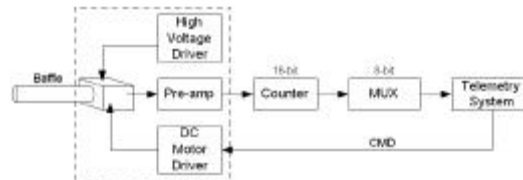
(extreme ultraviolet)

가

(middle ultraviolet)



7.



9.

9

8

(baffle)

가

(collimator)

(Photo Multiplier Tube)

1 2

VK N2 10
 9924QFLNA EMI 4
 OI 2972 4
 Hamamatsu R2078
 1500V DC 가
 DC 가 4 가
 16-bit MUX
 1 .[5]

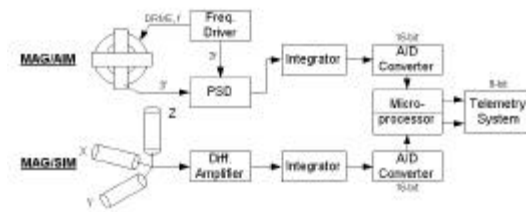
(pre-amp)
 TTL 16-bit
 (counter) MUX
 8-bit
 N2 O
 1 4
 400



10.

2.5 (MAG)

가
 fluxgate (AIM)
 search-coil
 (SIM) AIM DC
 SIM AC



11.

11 AIM SIM
 AIM
 1 2 2
 가
 3 가
 1 가 f
 가 2
 1 가 even
 harmonics 가 2f 2
 PSD(Phase Sensitive

Detector)

DC
16-bit A/D

.[6][7]

8-bit

3.

SIM 11 1
3 3 AC
search-coil

KSR-III

가

AC

AIM 가 16-bit A/D

8-bit

sporadic-E



12.

가
N2 OI

N2 O

AIM 1
600 X, Y, Z 가

MUX

SIM 1
800 X, Y, Z

가 MUX

12

KSR-III

AIM SIM 가 3 3

1. , , , "3
RF ,
 , 29 , 8 , 2001, pp. 134-141.
2. , , , "KSR-III
" , KSR-III
 , KARI-RSID-TM-002, 2000.
3. , , , , ,
" 3
" , 17 ,
2 , 2000, pp277-284.
4. , 7 , "KSR-3
" , 18 ,
3 , 2001, pp249-256.
5. , 3 (V)
" ,
" , 2002.4.
6. H. M. Kim, et al, "Preliminary Report:
Design and Test Results of KSR-3 Rocket
Magnetometers", J. of A&SS, Vol. 17, No.
2, 2000, pp317-328.
7. , 3 (V)
" ,
" ,
 , 2002.4.