

## GPS

### GPS

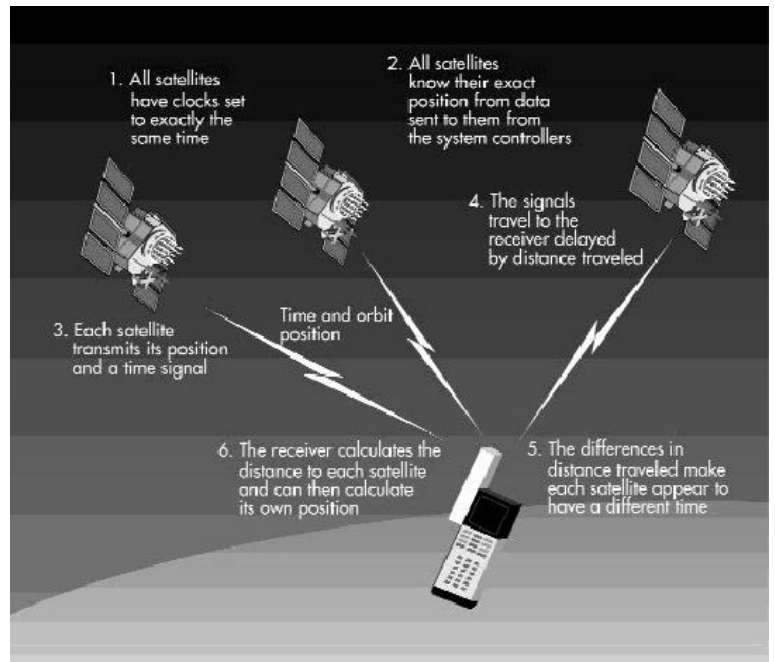
가

GPS 50 bps(1 50 bit  
)

가  
(Carrier)

GPS L  
L1(1575.42 MHz), L2(1227.6 MHz)

가



가

ID 가 CDMA(Code Division Multi Access)

가

ID

가

. GPS ID Gold Code 1023bit 0 1

ID 1.023Mbps

ID 가 가 가 ID ID

가

가

가 100%

가

가

가 (300 Km/sec)

가

(Pseudorange)

3

X, Y, Z

T

가 4

4

가

4

## GPS

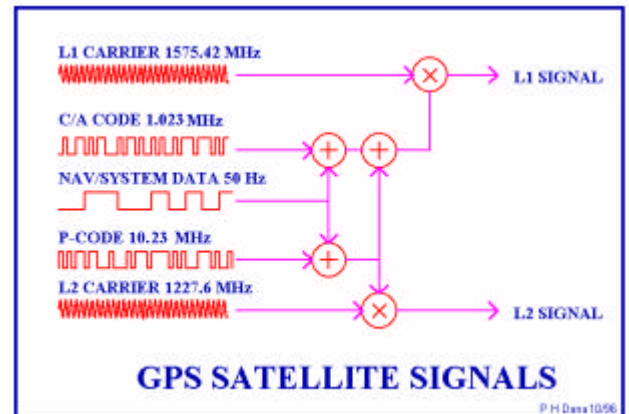
가

L1 1.57542 GHz

L2 1.2276 GHz

PRN (Pseudo-Random Noise)  
(Navigation Message)

PRN



PRN

(Random Noise)

PRN

C/A

P

Coarse Acquisition

C/A

P (Precise code)

가

가가

L1

C/A

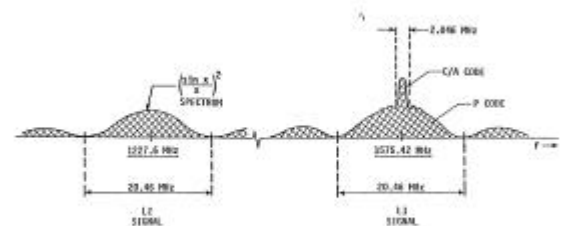
P

가

L2

P

가



가

15,000

50bps

50bps

(Sub frame)

30

10

3

4

5

(Almanac,

)

가 25

1,2,3

가

25

25

가

## GPS

## C/A (Coarse Acquisition-Code)

GPS PRN  
 가 1,023 chips 1.023MB  
 1/1,000 . C/A Gold PRN ,  
 . C/A L1 , L1  
 .  
 1MHz PRN , PRN Noise ,  
 1MHz .  
 PRN Code No. 가 .  
 C/A L1 SPS(Standard Positioning System) .

## P (Precision -Code)

GPS PRN 2.35? 1,014 chip ,  
 10.23MB 266 ,  
 ,  
 P L1 L2 가 7 10MHz PRN .  
 AS(Anti -Spoofing) Y .  
 Y AS ,  
 PPS(Precise Positioning System) .

Code	Frequency	Chip Rate	Period	Type	Applications
C/A (Coarse/ Acquisition)	L1	1.023Mb/s	1ms	Gold	Moderate Accuracy Benign Environment P-code Acquisition
P (Precise)	L1 and L2	1.023Mb/s	About 1 week	PRN	High Accuracy ECM Environment Secure

## GPS

GPS / , / /  
 , / , , 2000 5 1  
 (Selective Availability: SA)

/

/

가

100%

가

가

가

/

/

GPS

가

GPS

( )  
 gas)

50km

1,000km

(Ionized

가

가

가

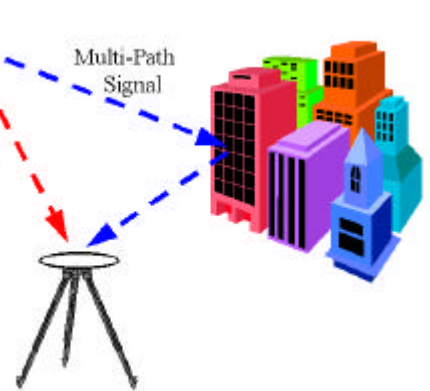
가

가

가

가

가 가



L1, L2

(Dual Frequency Receiver)

가

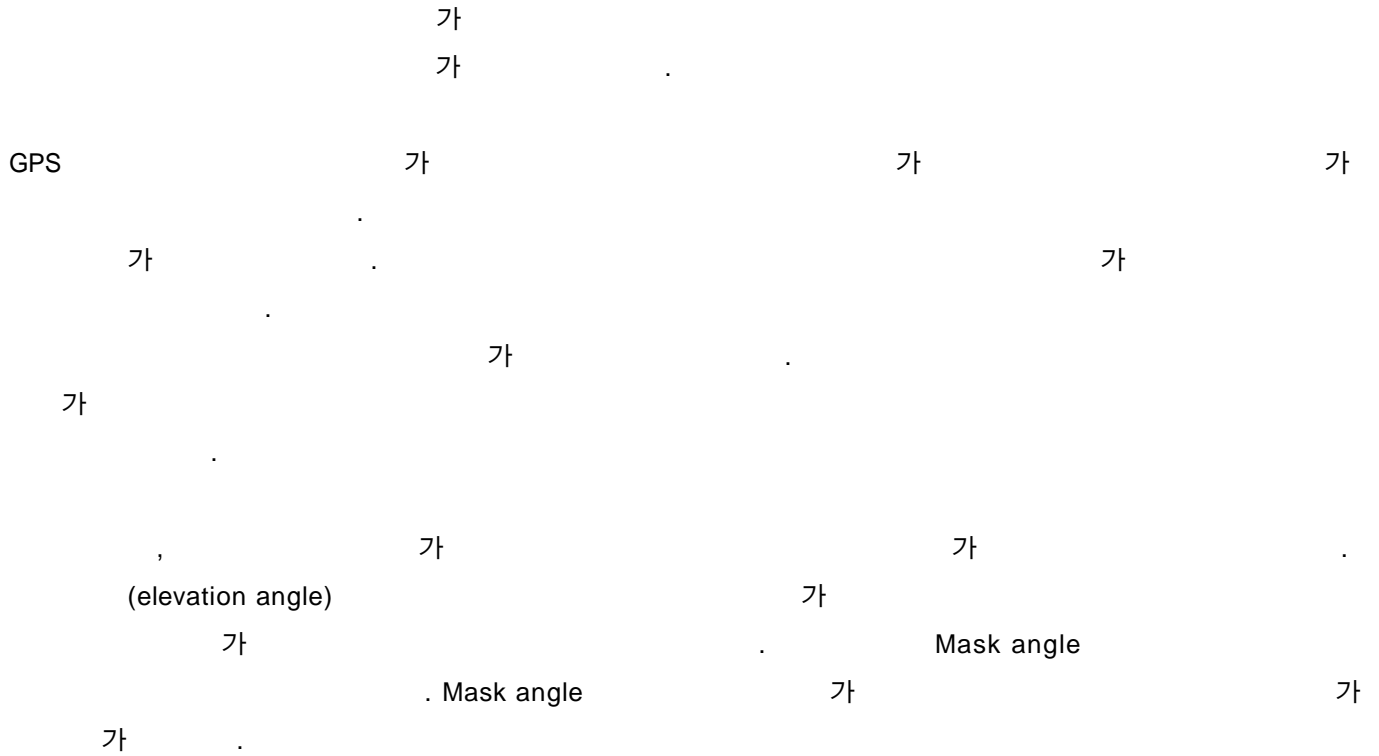
가

가

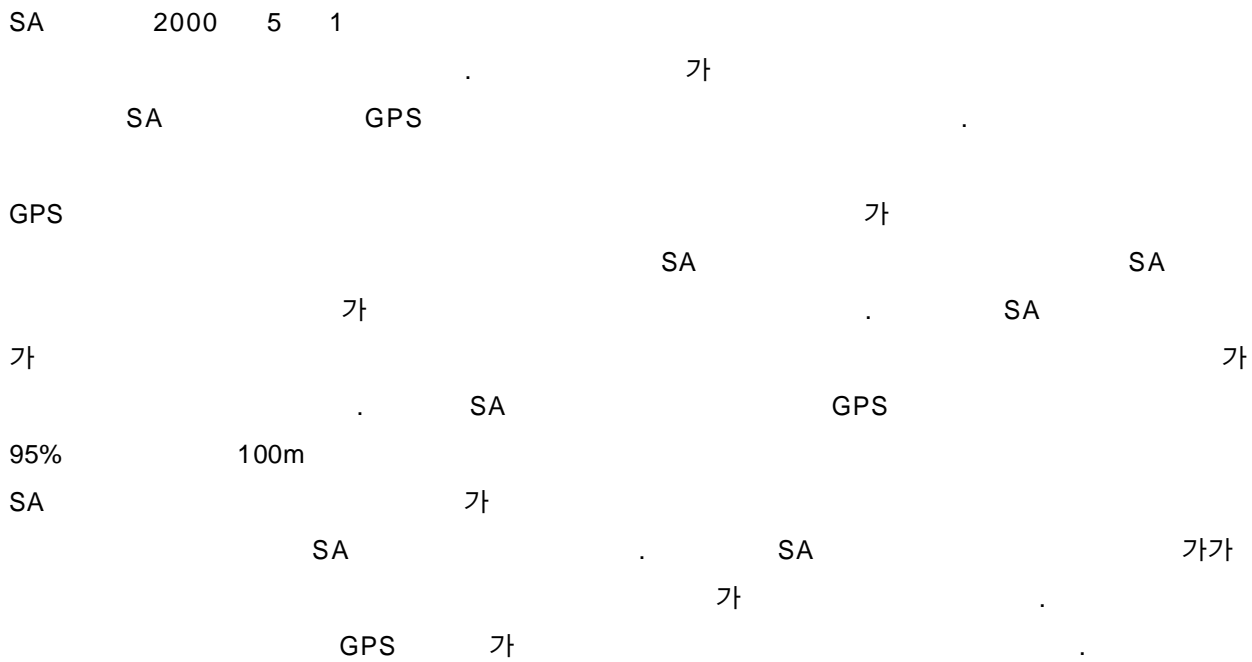
가

## GPS

Dual Frequency Receiver



## SA(Selective Availability)



## GPS

/ (Noise)

가

가

가

가

가

PRN

GPS

가

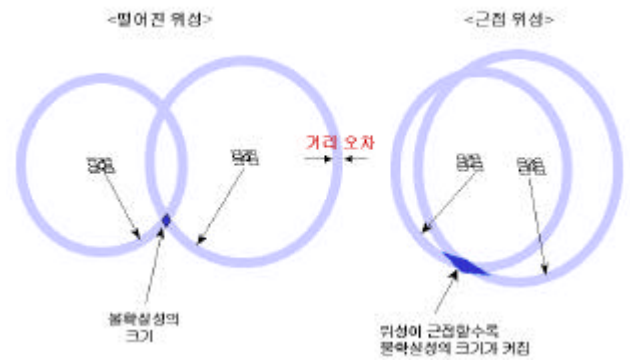
가

가

가

가

가



가

DOP(Dilution of Precision)

DOP

2

2-3

가

4-5

가

6

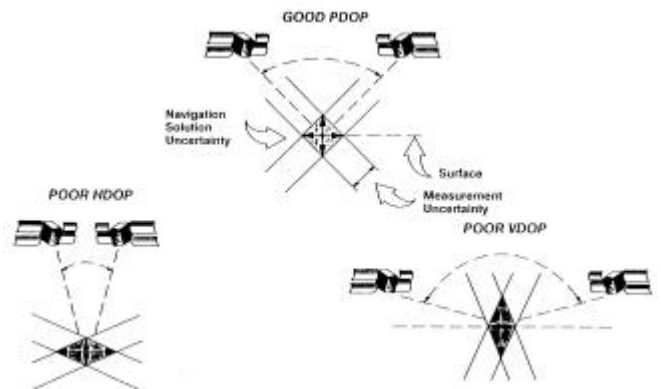
가 가

. DOP

가

가 가

가



DOP

가

가

PDOP(Positional DOP)

, GPS

PDOP

가

## GPS

, ( ; Range Error) x (PDOP) = ( )가 . PDOP