D108-P001 **Room: Poster Session Hall** **Time: May 18**

Positionings based on accordance of current frequency ratios to base frequency ratios between C1 wave and P2 wave.

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(Abstract)

For example,in case a typical crystal oscillator for time gage gaining 20 seconds in a month is ued,positioning is generally unstable. So,we have clarified the causes and have discovered the method to remove the causes. The metod is as follows.

We need to apply the principle the current frequency ratio of c1 wave to p2 wave coincides with base frequency ratio of c1 wave to p2 wave even if we use a normal quarz.We have showed the application of the principle is the very useful methods logically and practically.

(Causes of unstable positioning).

A pseudo range gained by measurements is constituted with the sum of the following times multiplied by the speed of light.

1.The propagation times of micro wave between a satellite and a station.

2.An error of quarz equipped at a station.

3.An error generated in reading what time epoch reach

4.The others.

Accordingly we have to remove clouse 2 and 3 for some accurate positionings. So,we need to apply the following principle for removing clause 2 and 3.

(Principle)

Each epochs of c1 wave and p2 wave are both issued from an satellite at the same time.The base frequency of c1 is different from the base frequency of p2.So,even if both wave are issued from a satellite at the same time,the time to arrive at a station is slightly different.The time difference is 2X10-008 seconds at the most. During the interval,the distance for a satellite to advance is 6X10-005m,assumed a satellite runs at 3 km/s on the average. Therefore,the range difference of the position of a satellite between the time when p2 wave has arrived at a station and the time when c1 wave has arrived at a station is 6X10-005 m at the most. As a result of that,the angle formed between the satellite orbit and the straight line to link a satellite to a station is the same amount.

Now,the current frequency of c1 wave and p2 wave show fcc1 and fcp2.And the base frequency of c1 wave and p2 wave show fbc1 add fbp2.Next,at the time when c1 wave and p2 wave have arrived at a station the angle formed between a satellite orbit and a straight line to link a satellite to a station shows A.And the speed of a satellite shows V. the following formulas get to come into existence.

About c1 wave,

(fbc1/fcc1)ˆ2+(V/U)ˆ2-2(fbc1/fcc1)(V/U)

cosA=1 1

About p2 wave,

(fbp2/fcp2)ˆ2+(V/U)ˆ2-2(fbp2/fcp2)(V/U)cosA=1 2

Only,U shows the speed of light.

Acordingly,the current frequency ratio of c1 wave to p2 wave equals to the base frequency ratio of c1 wave to p2 wave.