

PASSIVE HYDROGEN MASER

Delivery items:

Passive Hydrogen Maser (PHM) with supporting accessories.

Table: Specifications of Passive Hydrogen Maser Frequency Standard

S. No	Parameter	Value
1	Type of frequency standard	Passive hydrogen maser
2	Output Signal Frequency	10MHz, 5 MHz 1PPS
3	Output Signal at 10 MHz, 5MHz	Sine, > +7 dBm
4	Impedance	50 Ohm (nominal)
5	1 Hz pulse (1PPS) a. Voltage b. Pulse duration c. Rise time	a. Positive polarity pulse, TTL level in 50 Ω b. 1 μ sec to 20 μ sec (any fixed value in this range) c. <15 nsec
6	Frequency stability (Allan deviation) at ambient temperature (25 \pm 0.5 $^{\circ}$ C), excluding environmental effect	Averaging time Allan deviation 1 sec $\leq 6.0E-13$ 10 sec $\leq 3.0E-13$ 100 sec $\leq 6.0E-14$ 1 hour $\leq 1.0E-14$ 1 day $\leq 5.0E-15$
7	SSB Phase noise at 5 MHz output at offset from carrier	Offset from carrier Phase noise @1 Hz ≤ -105 dBc/Hz @10 Hz ≤ -130 dBc/Hz @100 Hz ≤ -145 dBc/Hz @1 kHz ≤ -155 dBc/Hz @10 kHz ≤ -155 dBc/Hz
8	Relative Frequency Accuracy due to factory calibration	$\pm 3.0E-13$
9	Frequency drift per day	$< 5.0E-15$
10	Output signal frequency corrector a. Resolution b. Retuning Range	a. $2.0E-15$ b. $2.0E-10$
11	Manual synchronization 1 PPS TTL signal accuracy	< 50 ns
12	Environmental temperature sensitivity	$< 3.0E-14$ / $^{\circ}$ C
13	Magnetic sensitivity	$< 2.0E-14$ /Oersted
14	Ambient operating temperature range	+10 $^{\circ}$ C to +35 $^{\circ}$ C
15	Power	AC 100-240V, 50-60 Hz Built-In internal battery, minimum 30 minutes backup
16	Warm-up time	24 hours (Max)
17	Control and monitoring	Control and monitoring of parameters through RS 232 or USB or LAN interface and

		front panel key Supporting software for control and monitoring to be provided
18	Dimensions (Max)	WxHxD: 480mmx210mmx540mm (Typical)
19	Warranty	4 years (one year standard warranty + extended warranty for 3 years) Extended warranty payment is on yearly basis
20	Weight	30 kg (Typical)

General terms and conditions

S. No	Statement	Compliance (Yes/No/Remarks)
1	Vendor should supply supporting accessories, warranty certificate, user manual and supporting software(s)	
2	Vendor shall submit compliance matrix and offered specifications, against each specification	
3	Vendor shall submit authorization letter from OEM	
4	Vendor should provide only new items	
5	The OEM of the product shall provide the address of support/service center in India, if available	
6	Vendor may provide necessary documents as proof if they have prior experience in supply, installation and maintenance of PHM organizations such as ISRO/DRDO or international space agencies	
7	Vendor should provide training on overview and operation of equipment without extra cost	
8	Vendor should provide test results document of the item along with the supply	