

## SPECIFICATIONS OF CLASS B AIS TRANSPONDER FA-50

### 1 GENERAL

1.1	Type	Class B AIS Transponder
1.2	RX capacity	2250 report/minute, 1 channel 4500 report/minute, 2 channel
1.3	RX system	CSTDMA dual wave simultaneous reception
1.4	Synchronous framing	Indirect synchronize from external oscillator
1.5	Operating mode	Autonomous, Assigned, polled/interrogation response
1.6	Frequency switching	Automatic
1.7	Prevention of abnormal TX	Auto-suspend for detecting TX more than 1 second
1.8	Regulations	IMO MSC.140 (76), IEC 62287-1, ITU-R M.1371-5, DSC ITU R M.825-3, IEC 60945 ed.4 adopted

### 2 TRANSMITTER

2.1	Frequency range	156.025 MHz to 162.025 MHz (F1D)
2.2	Output power	1W/2W
2.3	Channel interval	25 kHz
2.4	Frequency deviation	±3 ppm or less
2.5	Transmit speed	9600 bps ± 50 ppm
2.6	Spurious Emission	9 kHz to 1 GHz, -36 dBm or less 1 GHz to 4 GHz, -30 dBm or less
2.7	Transmission interval	30 s (SOG>2kt), 3 min. (SOG ≤2kt)

### 3 AIS RECEIVER

3.1	Frequency range	156.025 MHz to 162.025 MHz (DSC: 156.525 MHz)
3.2	Oscillator frequency	1 <sup>st</sup> local oscillator: f + (51.136/51.236 MHz) 2 <sup>nd</sup> local oscillator: 51.1/51.2 MHz
3.3	Intermediate frequency	1 <sup>st</sup> : 51.136/51.236 MHz, 2 <sup>nd</sup> : 36 kHz
3.4	Receiving system	Double-conversion superheterodyne
3.5	Sensitivity	-107 dBm (PER 20% or less)
3.6	Error at high input level	-7 dBm
3.7	Co-channel rejection	10 dB
3.8	Adjacent channel selectivity	70 dB
3.9	Spurious response	70 dB (50 MHz to 520 MHz)
3.10	Inter-modulation	65 dB
3.11	Sensitivity suppression	86 dB (±5 MHz, ±10 MHz)

### 4 DSC RECEIVER (TIMESHARING SYSTEM)

4.1	Frequency	156.525 MHz (CH70)
4.2	Sensitivity	-107 dBm or less
4.3	Error at high input level	-7 dBm
4.4	Co-channel rejection	10 dB
4.5	Adjacent channel selectivity	70 dB
4.6	Spurious response	70 dB

- 4.7 Inter-modulation 65 dB
- 4.8 Sensitivity suppression 84 dB

**4 GPS RECEIVER**

- 4.1 Receiving frequency 1575.42 MHz
- 4.2 Tracking code C/A code
- 4.3 Number of channel 12 channels parallel, 12 satellites
- 4.4 Position fixing method All in view, 8-state Kalman filter
- 4.5 Position accuracy 10 m approx., 95% of the time, (HDOP ≤ 4)  
DGPS: 5m approx., 95% of the time
- 4.6 Tracking velocity 900 kts
- 4.7 Position fixing time Warm start: 36 s typical, Cold start: 43 s typical
- 4.8 Geoids WGS84
- 4.9 Position update interval 1 s
- 4.10 DGPS data correcting By AIS information

**5 INTERFACE**

- 5.1 COM I/O
  - Input: RS-422 (38.4kbps) / IEC61162-1 Ed.4 (2010-11)  
ACK, BBM, DTM, GBS, GGA, GLL, GNS, HDT, OSD, RMC, SSD, THS, VBW, VSD, VTG, AIQ, DSC, DSE, PFEC
  - Output: RS-422 (38.4kbps)  
ABK, ACA, ACS, ALR, VDM, VDO, TXT, PFEC
- 5.2 NETWORK
  - Input: Ethernet 10BASE-T/100BASE-TX  
ACK, BBM, DTM, GBS, GGA, GLL, GNS, HDT, OSD, RMC, SSD, THS, VBW, VSD, VTG, AIQ, DSC, DSE, PFEC
  - Output: ABK, ACA, ACS, ALR, GGA, VDM, VDO, VTG, ZDA, TXT, PFEC
- 5.3 Function alarm LED indication, series data output

**6 POWER SUPPLY**

12-24 VDC: 2.0-1.0 A

**7 ENVIRONMENTAL CONDITIONS**

- 7.1 Ambient temperature
  - Antenna unit -30°C to +70°C
  - Transponder -15°C to +55°C
- 7.2 Relative humidity 93% or less at +40°C
- 7.3 Degree of protection
  - Antenna unit IPX6
  - Transponder IP20
- 7.4 Vibration IEC 60945

**8 COATING COLOR**

- 8.1 GPS antenna unit N9.5
- 8.2 Transponder N2.5