
TidalSense
Condition Monitoring for Tidal Stream Generator.

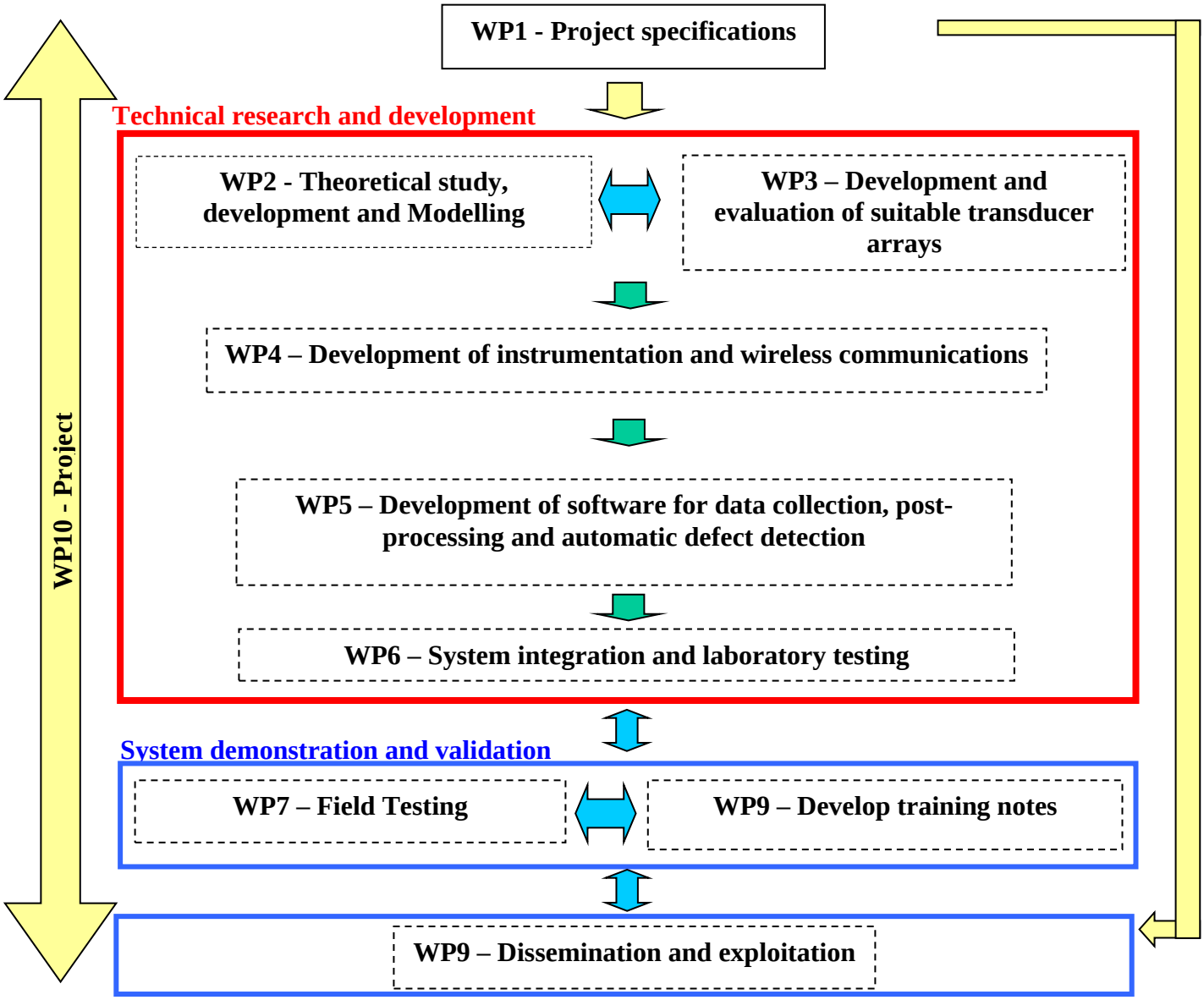

Figure 1: WP breakdown

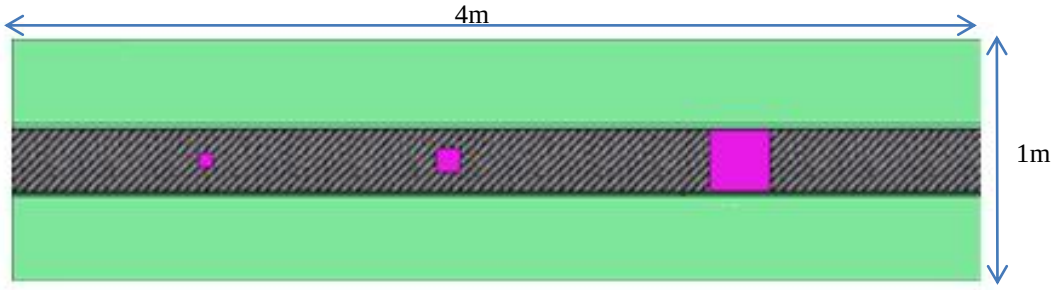

Figure 2: Plan view of blade mock-up sample showing three sizes of disbond defect in magenta

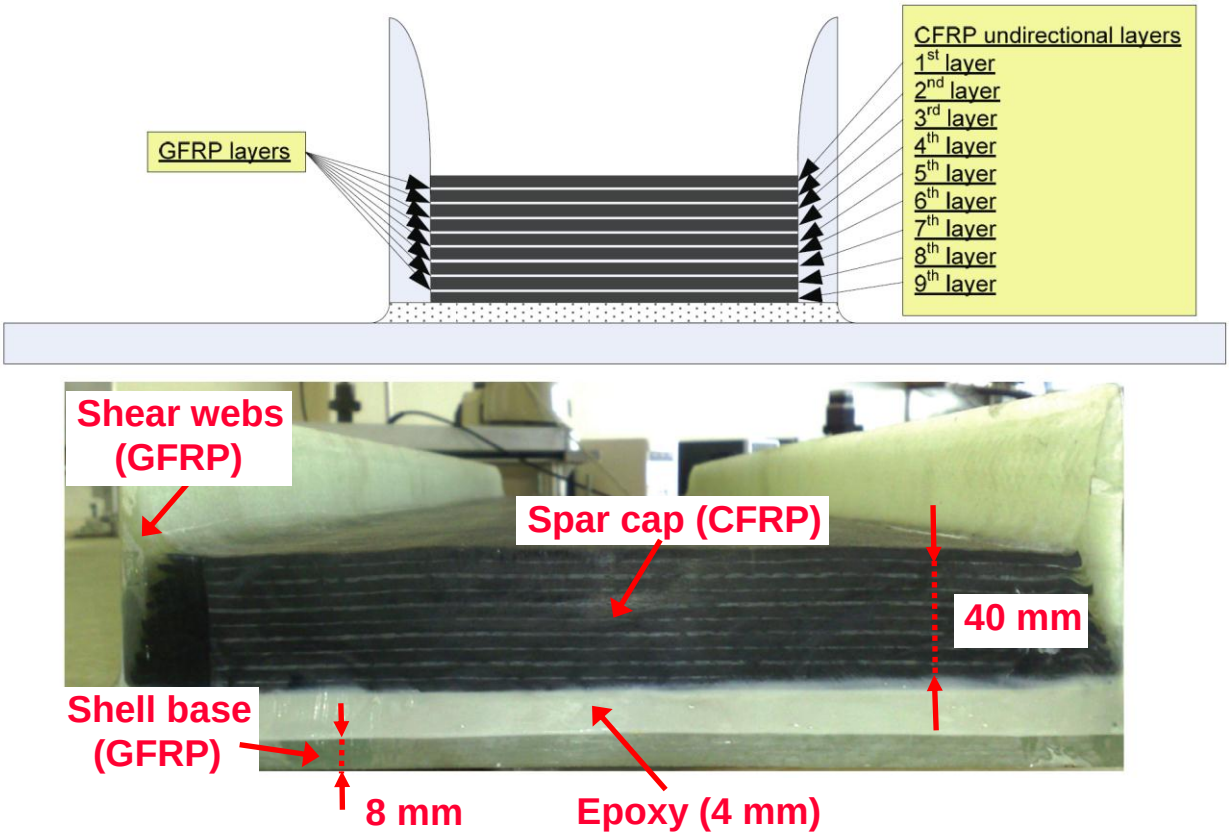

Figure 3: Profile view of blade mock-up sample showing details of spar cap and shear-webs

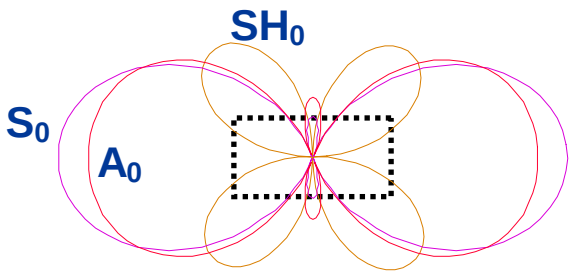

Figure 4: Field pattern of MFC sensors

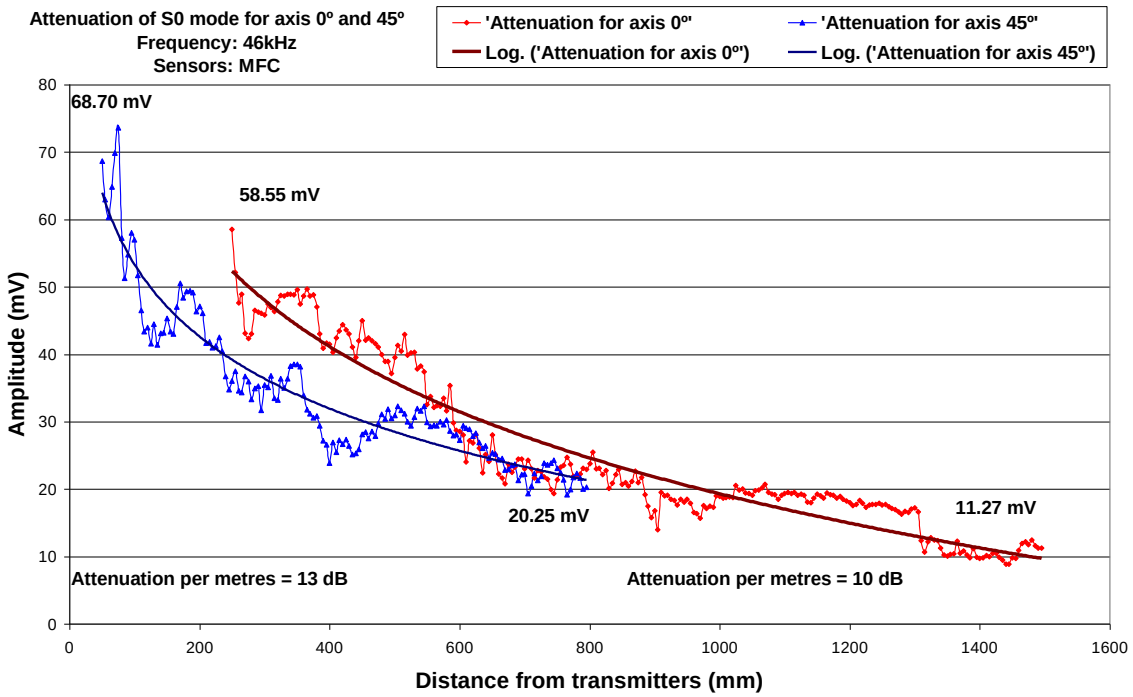

Figure 5: Attenuation rate on 0º and 45º fibre axis for S0 wave mode

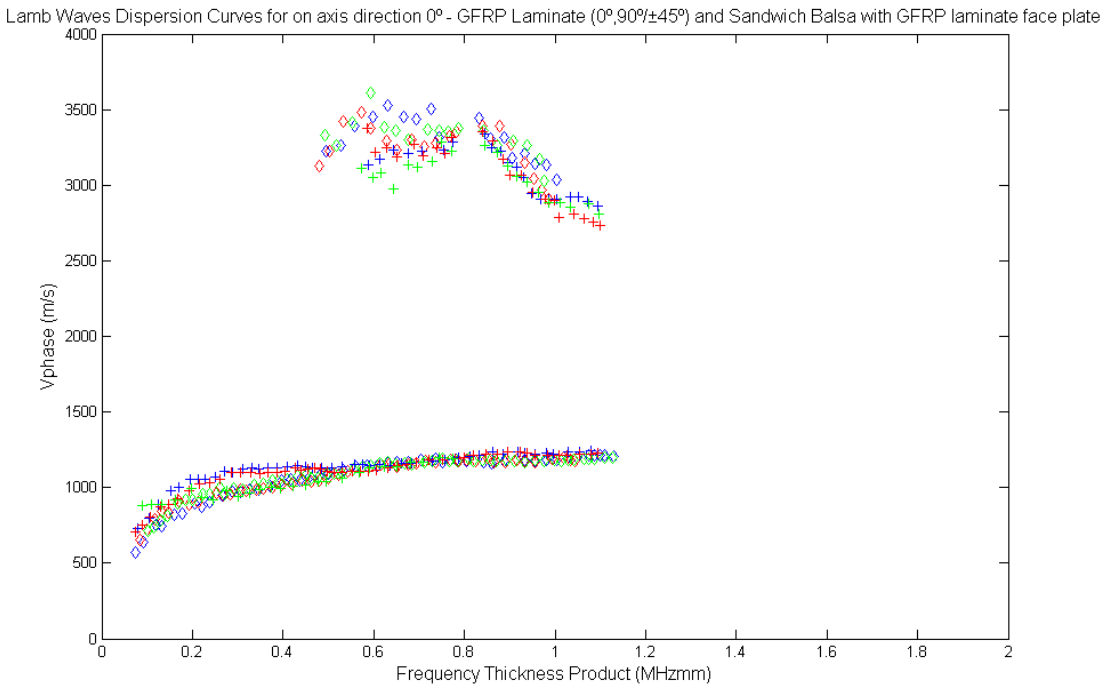

Figure 6: Comparison of S0 and A0 between their propagations in laminated and sandwich structures

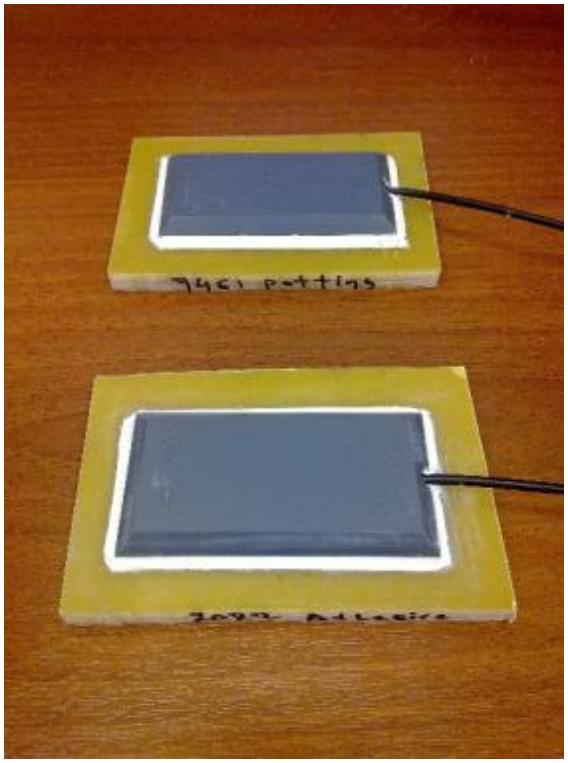

Figure 7: MFC sensors encapsulated using PVC caps

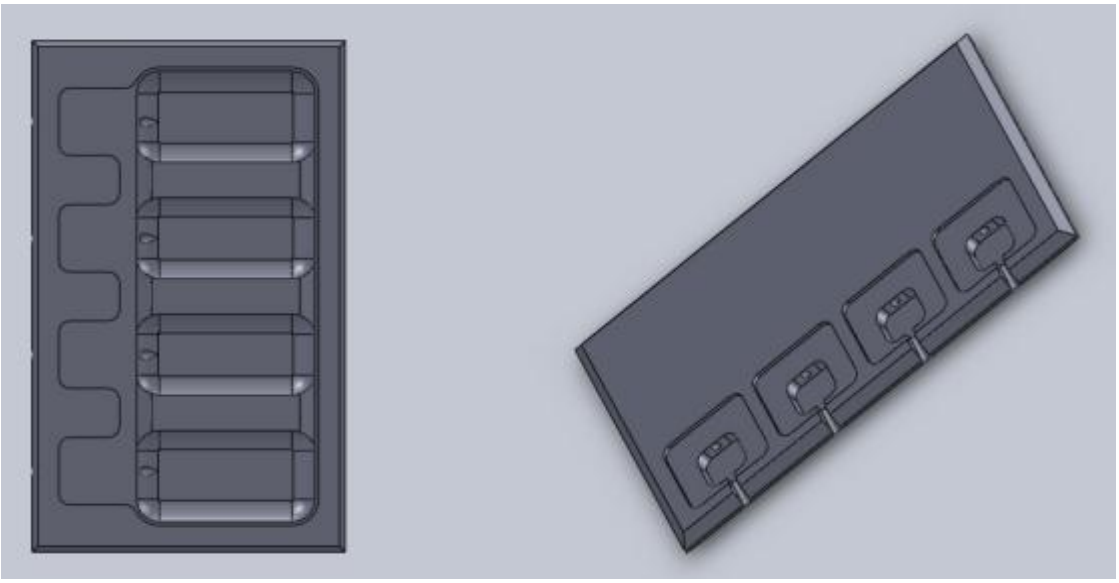

Figure 8: PVC caps suitable for 4-sensor array

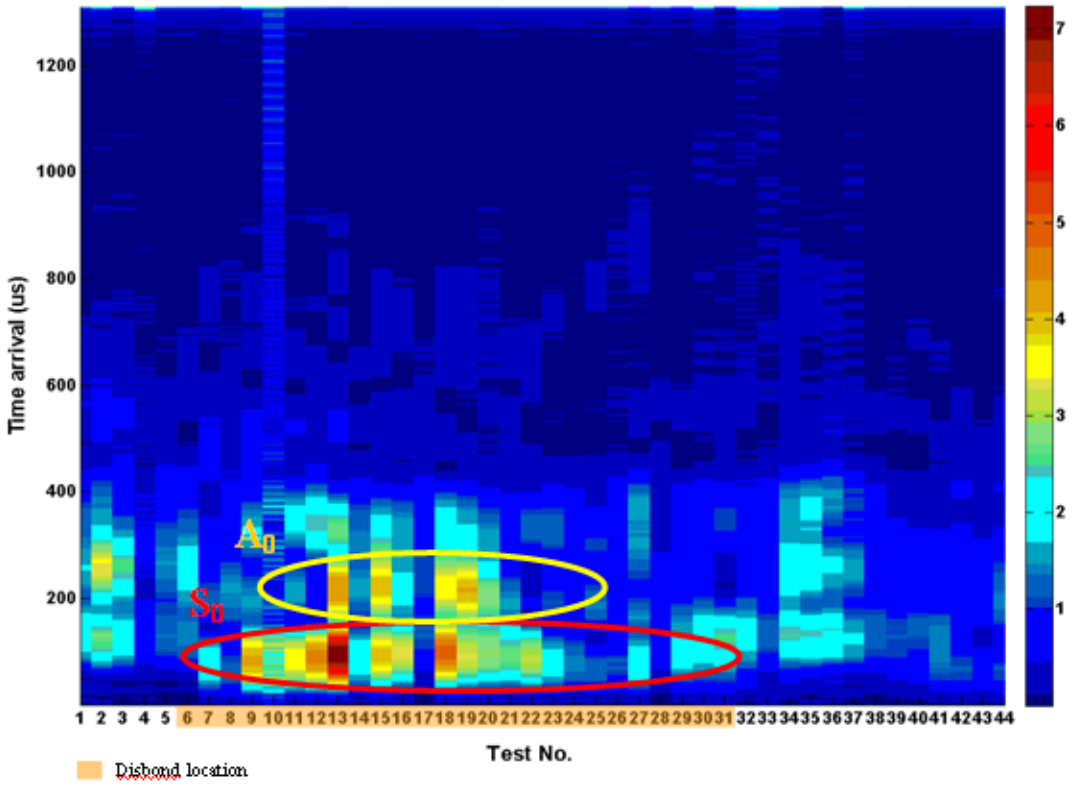

Figure 9: Image scan of large disbond defect

Table B2 Overview Table with Exploitable Foreground

Exploitable Foreground (description, reference)	**Exploitable product(s) or measure(s)**	**Sector(s) of application**	**Timetable, commercial use**	**Patents or other IPR exploitation (licences)**	**Owner & Other Beneficiary(s) involved ***
Pulser/receiver unit & Sensor hardware including Samples ("result 1")	Ability to detect defects using propagating Guided waves in composite materials and cables	Offshore renewable energy (in particular tidal) Other sectors (aerospace, surface transport)	From 2015	Patenting and/or design protection will be sought as appropriate; further licensing will be developed	Nardoni (owner); Innotec, IKnowHow, IT Power; Enerocean (licensee)
System	Successful integration of multi-parameter 'platform' for defect detection using Guided waves				Innotec (owner);IT Power, Nardoni, IKH;EnerOcean (licensee)
Guided Wave Sensors	Spatial sensor array optimised to detect defects using Guided waves in steel cables				Tidal Sails (owner); Innotec, Nardoni, IKH (co-SME beneficiaries);
Data Analysis Software	Successful prediction of the onset of defects based on past continuous monitoring analysis.				IknowHow (owner); ITPower, Innotec, Nardoni; EnerOcean (licensee)
Wireless Communication System	Successful transfer of Guided wave signals over a wireless link.				IT Power (owner); Innotec, IKH, Nardoni (co-SME beneficiaries); Enerocean (licensee)
Validation	Results from demos and trials for the purposes of promoting the state of the art technology.				Innotec (for composites), TidalSails (for steel cables)

Figure 10: TidalSense Foreground