HIPERDIAS

1st Consortium Meeting

Cité de la Photonique, 11 Av. de Canteranne, Bâtiment MEROPA, F-33600 PESSAC Bordeaux, France

ATTENDEES	
Organisation:	**Name :**
Universitaet of Stuttgart	Marwan Abdou-Ahmed
Robert Bosch GMBH	Andreas Mickalowski
Element Six Limited	William Scalbert Michael King
Amplitude Systemes SSA	Clemens Hoenninger Joshika Akhil Birgit Weichelt Martin Delaigue Franck Morin
Universite De Limoges	Fetah Benabid
Gesellschaft Fur Angewandte Mikro und Optoelekttronik Mit Beschrankterhaftung AMO GMBH	Michael Moller
Glophotonics	Jerome Alibert
Class 4 Laser Professionals AG (C4L)	Noemie Drury Stephan Von Wolff
Laser Engineering Applications SA	David Bruneel Jose Antonio Ramos de Campos
Kite Innovation Europe Limited	Deborah Trabut Julie Devall

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1. Hiperdias Agenda (as occurred on the day)

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3	Overall Presentation of the Project	Marwan Abdou-Ahmed
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5	E6	William Scalbert & Michael King
6	USTUTT	Marwan Abdou-Ahmed
7	AMP	Clemens Hoenninger
8	XLIM	Fetah Benabid
9	AMO	Michael Moller
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2. Hiperdias Kick-off Meeting Minutes – 10th February 2016

LOCATION	**Cité de la Photonique, 11 Av. de Canteranne, Bâtiment MEROPA, F-33600 PESSAC Bordeaux, France** **Start time : 9 :00 CET**
RECORDER	**Julie Devall**

	1. Welcome and Overview of the Agenda – Marwan Abdou Ahmed	**Risks / Issues**	**Actions / Decisions**
1.0	MAA opened the consortium and welcomed all partners		
1.1	MAA thanked all partners for their excellent work contributed so far		
1.2	MAA will be coordinating the project with strong support from Kite Innovation Europe Ltd		
1.3	MAA gave a brief overview of the Agenda		

	2. Partner Introductions – All	**Risks / Issues**	**Actions / Decisions**
2.0	MAA invited all partners from around the table to introduce themselves		

	3. Overview of the Project - Marwan Abdou Ahmed	**Risks / Issues**	**Actions / Decisions**
3.0	MAA reminds the consortium of what Hiperdias stands for: **"HIgh throughPut LasER processing of DIAmond and Silicon"**		
3.1	MAA explains to the Consortium how Hiperdias answered the call: Approximately 80% of the key words in the call were addressed representing a strong project proposal. The proposal clearly explained the current state of the art and how Hiperdias will transcend this for each principal component. As part of the call it is a prerequisite to demonstrate how the project is driven by strong industrial needs and the Hiperdias provided a strong justification for this We are 10 partners (2 institutes and 8 industry partners) representing a strong industry output	**Action** JD to check information relating to Hiperdias industry contribution and ensure JC (Kite's Dissemination Manager responsible for WP8) has this information for website content	
3.2	The project is **42 months duration**		
3.3	The overall budget is 4.4 million euros including the **3.6 million funded by EU**		
	The three applications are **diamond processing , 3D silicon and fine metal cutting** **The objectives of the project** **We try to be above state of the art and an example in terms of 3D Silicon Processing** 6 times faster and to increase the yield in diamond processing For fine metal cutting 500 millimetre, 2 to four times higher than state of the art 1st System - fibre based Laser part Delivered by amplitude systemes 2nd System – 500w We want to avoid loss of power 46 deliverables We want to address CPA Amplifiers		

	4. Bosch - Andreas Michalowski	**Risks / Issues**	**Actions / Decisions**
4.0	**Organisation Profile:**		

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	AM explains that the Hiperdias Project from BOSCH's part will be managed by the "Corporate Research Division". The Corporate Research Division is active in 11 locations in North America, Europe, Russia, Asia-Pacific and India.	
4.1	**Main activities**: Bosch have a multitude of different interests but in terms of this particular project Silicon processing will be the main focus	
4.2	**Role in the project:** Bosch is an End User WP Leader of WP1, and leading on particular tasks within WP2, WP6 and WP7	
4.3	**Tasks and Deliverables:** T1.1: Collection of end-user application specifications (M01-M04, Lead: BOSCH, Participants: C4L, E6) T1.2: Process and system specifications (M02-M12, Lead: BOSCH, Participants: All) T1.3: Assessment and validation of technical progress (M04-M12, Lead: BOSCH, Participants: C4L, E6) T2.1: Fundamental process development 3D Si processing (M04-M24, Lead: BOSCH, Participants, LASEA) T2.4: Upscaling of applications for high throughput (M22-M30, Lead: USTUTT, Participants: C4L, BOSCH, LASEA) T6.1: Definition of interfaces (M03 – M12, Lead: LASEA, Participants: AMP, C4L, BOSCH, E6) TASK 6.6: Test and evaluation (M12-M42, Lead: LASEA, Participants: USTUTT, AMP, C4L, BOSCH, E6) T7.4.1: Processes analysis on reference samples (M24-M36, Lead: BOSCH, Participants: USTUTT, LASEA) Bosch is responsible for delivery (report) D1.1 End-user application specifications, M04 D1.3 Prototypes and progress validation, M12 D2.1 Process limits 3D Si processing, M24 D2.4 Processing strategies for high power 3D Si processing, M30 D7.5 Report on the performance of the 500W demonstrator (3D-Si processing), M36	**Action** JD to check with AM how **end-user quality acceptance criteria** will be defined and the "format" and frequency of quality checks. How will Bosch know when all quality criteria have been satisfied? How will this be reported to rest of the consortium?
4.4	**MAIN STATEHOLDER EXPECTATION** **To ensure that a laser is produced that can process Silicon as defined by the End User Specifications**	
4.5	**Other Comments:** Bosch have assigned 5 members of staff which will be dedicated to the Hiperdias Project. Bosch are particularly concerned with ensuring that the demonstrator geometry and key performance indicators are appropriately defined at the start so that the demonstrator is delivered within expected quality criteria as specified in the End User Application Specifications. Bosch will be communicating with C4L and E6 especially at Month 1 to Month 4	**Action** JD to check with AM who should be included in future teleconference calls. Ensure that contact details are recorded

5. E6 - William Scalbert and Michael King	**Risks** / **Issues**	**Actions** / **Decisions**
5.0	**Organisation Profile:** WS explains that Element 6 are part of the De Beers Group a world leading supplier of industrial Diamond super materials They have processing and manufacturing facilities in Germany, Ireland, UK, Netherlands, Sweden, South Africa and China. MK explains that E6 are a materials company	
5.1	**Main Activities:** Polycrystalline Diamond cutters for Oil & Gas drilling. Precision grinding, Precision Machining, and Construction & Extraction applications of Diamond Carbide tools for the Road Restoration, Mining and Wear parts markets. Global leader in synthesis of higher quality Diamond exploiting the many other extreme properties beyond hardness	
5.2	**Role in the project:** E6 are an End User E6 are particularly interested in seeing the solution to a "technical problem" solved, in particular the mechanical processing of synthetic diamond.	

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5.3	**Tasks and Deliverables:** E6 will be a main participant on: T1.1: Collection of end-user application specifications (M01-M04, Lead: BOSCH, Participants: C4L, E6) T1.2: Process and system specifications (M02-M12, Lead: BOSCH, Participants: All) T2.3: Fundamental process development diamond ablation (Task Lead, Participant C4L)	**Action** JD to check with WS how **end-user quality acceptance criteria** will be defined and the "format" and frequency of quality checks. How will E6 know when all quality criteria have been satisfied? How will this be reported to rest of the consortium?
5.4	**MAIN STATEHOLDER EXPECTATION** **To eliminate manual processing in diamond production**	
5.5	**Other comments:** E6 will work closely with C4L during this process especially to map the surface of the disc E6 are looking for a mirror finish but this is a difficult process. The mechanical process has issues, it's costly and time consuming and there are different grain size in the wheel. Temperature can also be a problem. E6 are approaching the project from the perspective of trying to solve a technical problem.	

6. C4L - Noemie Drury		Risks / Issues	Actions / Decisions
6.0	**Organisation Profile** ND explains that C4L is 4 years old with 16 employees based in Switzerland C4L takes a "holistic" approach working with clients right through the design and delivery process The core business is laser processing which includes micro-drilling, micro-cutting, welding and structuring C4L work with very different and varied markets from the medical industry, aerospace, the watch industry, automotive and electronics. In terms of Hiperdias the work C4L do around "Tooling" will be of specific importance		
6.1	**Main Activities** Working with the client using a "holistic approach" from design to delivery		
6.2	**Role in the Project**		
6.3	**Tasks and Deliverables** C4L is WP Lead on: T6.1 Definition of Interfaces T6.2 Definition of Laser and Optics sizes; optics specifications (including fibre) T6.6 Test and Evaluation C4L are also WP Participants on: T1.1 Collection of end-user application specifications T1.3 Assessment and validation of technical progress T1.4 Interface requirements T2. 3 Fundamental process development diamond ablation T2.4 Upscaling of applications for high throughput		
6.4	**MAIN STAKEHOLDER EXPECTATIONS**		
6.5	**Other Comments**		

7. AMP – Clemens Hoenninger		Risks / Issues	Actions / Decisions
7.0	**Organisation Profile** Amplitude Systemes are the largest ultrafast laser company in the world There are over 300 employees It is ISO 9001 and 13485 certified		
7.1	**Main Activities**		

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	Providing high energy lasers for both the scientific and medical industries The technology is used for semiconductor wafer scribing and dicing, transparent material cutting or marking and metal engraving and cutting	
7.2	**Role in the Project** Amplitude Systemes are the provider of the laser technology which will be created during the project	
7.3	**Tasks and Deliverables** WP1: Definition of user requirements Participation in the definition of specifications and requirements of user interface WP3: Ultrafast laser Frontend development 50-W, 300-fs laser with >1MHz and spectrally tailored for injecting an Yb:YAG thin disk amplifier (T0+9) 200-W, ~500-fs laser at >1MHz (T)+21) A high power capable use interface including high speed modulation of the amplified pulse train WP4: Photonic components for pre- and post-pulse conditioning Compressor gratings (AMO): participation in specifications, testing under industrial conditions Kagome fibre transport (GLO/XLIM): participation in specifications, testing under industrial conditions WP5: Thin-disk multi-pass booster Provide seed lasers Participate in think-disk experiments and characterisation Participation in high power frequency conversion to green and UV WP6: system development Participation in interface definition and interface development WP7: Demonstrators Participation in 500-W demonstrator (fibre-based seed) integration Participation in 200-W demonstrator integration (high power seeder) Participation in optical fibre (transport) integration Participation in upgrade of 200-W demonstrator to 1kW demonstrator WP8 Dissemination Participant in all dissemination activities	
7.4	**MAIN STAKEHOLDER EXPECTATIONS** To ensure the development of the laser is created to end-user specifications	
7.5	**Other Comments**	

8. USTUTT – Marwan Abdou Ahmed		**Risks** / **Issues**	**Actions** / **Decisions**
8.0	**Organisation Profile**		
8.1	**Main Activities**		
8.2	**Role in the Project**		
8.3	**Tasks and Deliverables**		
8.4	**MAIN STAKEHOLDER EXPECTATIONS**		
8.5	**Other Comments**		

9. XLIM – Fetah Bendabid		**Risks** / **Issues**	**Actions** / **Decisions**
9.0	**Organisation Profile** Based at the University of Bath, UK and the University of Limoges Pioneer and world leader of gas-photonics and hollow core PCF There are 5 core staff members with 3 Post-Doctorate members and 6 PhD Students		
9.1	**Main Activities**		

	Development of photonic components for optical frequency generation, control and processing Expertise include: Fibre photonics, the design and fabrication of PCF – Fibre components Atom optics and laser metrology – atomic optical / microwave clocks – coherent, Gas nonlinear optics – frequency conversion – Utra-broad comb generation – pulse compression and high field photonics Plasma photonics – UV-DUV lasers – Micro-confined plasma dynamics	
9.2	**Role in the Project** Providers of the fibre which will be customised to specific specifications as stated by the end-uers	
9.3	**Tasks and Deliverables** Will have input on: WP1 Definition of User Requirements Work Package Leaders of WP4 and participants of; T4.4 Fabrication and characterization of photonic microcell (PMC) module T4.5 Design/Fabrication of photonic microcell module with integrated coupling optics	
9.4	**MAIN STAKEHOLDER EXPECTATIONS** To design and fabricate polarization for maintaining HC-PCF for USP beam delivery	
9.5	**Other Comments** XLIM will use IC guiding Kagome HC-PCF for high energy USP laser beam delivery	

10. AMO – Michael Moeller		**Risks** / **Issues**	**Actions** / **Decisions**
10.0	**Organisation Profile** AMO has been operating since 1997 It has 40 staff members It is currently involved in 9 EU Projects and 8 National Projects		
10.1	**Main Activities** Nanoelectronics Nanophotonics Sensor Technology Nanofabrication		
10.2	**Role in the Project**		
10.3	**Tasks and Deliverables**		
10.4	**MAIN STAKEHOLDER EXPECTATIONS**		
10.5	**Other Comments**		

11. GLO – Jerome Alibert		**Risks** / **Issues**	**Actions** / **Decisions**
11.0	**Organisation Profile**		
11.1	**Main Activities**		
11.2	**Role in the Project**		
11.3	**Tasks and Deliverables**		
11.4	**MAIN STAKEHOLDER EXPECTATIONS**		
11.5	**Other Comments**		

12. LASEA – David Bruneel		**Risks** / **Issues**	**Actions** / **Decisions**
12.0	**Organisation Profile**		

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	LASEA is a highly qualified team of 41 members with 28 engineers They offer Laser Machine manufacturing and Laser equipment installation and maintenance	
12.1	**Main Activities** Laser cutting including cutting of metal, sapphire, polymer, mother of pearl, metal and glass	
12.2	**Role in the Project**	
12.3	**Tasks and Deliverables** WP1: collection of all partners' requirements, end-users specifications WP2: Process development: high throuhput 3D silicon processing, diamond processing and fine cutting materials WP6: System development: definition of system's interfaces and features to integrate for proof of concept WP1 – Definition of user requirements Task 1.4 (Leader) : Interfaces requirements : Laser, Scanner, motion, opto-mechanics, software communication WP2 – Process development Task 2.1: 3D Si processing : Influence on system design Task 2.4 : upscaling 3D Si processing with BOSCH and USTUTT WP6 – System development Task 6.1 (Leader): Interfaces definition : protocols and connections to control : scanner (XYZ), axes (XYZ), laser, joystick, vacuum system, fume extraction Task 6.2: Defining optics specifications, laser beam delivery, systems mechanical limitations Task 6.3: Design and development of software interfaces, control combining laser, CNC and Scanner. Task 6.4: Design of the system and build up : Integration of XYZ axes, scanner, camera, fume extractor, sample vacuum system Task 6.5: Integration of beam delivery optics, scanner, laser, control units. Functionality checks. Task 6.6 (Leader): Evaluation of the system's properties • use of own low power laser, • characterisation of positioning tolerances of scanner and XYZ • Characterisation of laser-matter interaction • Guarantee of the sample vacuum fixture system, fume extraction system	
12.4	**MAIN STAKEHOLDER EXPECTATIONS**	
12.5	**Other Comments**	

13. Kite – Julie Devall	**Risks** / **Issues**	**Actions** / **Decisions**
13.0	**Organisation Profile** Formed in 2006 with offices in Scotland and Yorkshire 13 members of staff Over 10 years' experience of working with FP7 and now Horizon 2020	
13.1	**Main Activities** Proposal Writing Project Management Services Exploitation Planning and Commercialisation Services Strategy Development and Implementation Services We have approximately "40" FP7 and Horizon2020 projects under management in our current portfolio Sectors include; Health, ICT, Energy, Nanotechnologies, Environmental Science, Security and Transport	
13.2	**Role in the Project** To ensure that the project management and dissemination activities are executed correctly and satisfy the EU Commission contributing to project success	

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13.3	**Tasks and Deliverables** **T8.1 Web site** **T8.2 Dissemination** **T8.5 Management of Intellectual Property** **T9.1 Management and coordination of the project** **T9.2 Financial management of the project** **T9.3 Management of ethical and gender related issues** **T9.4 Establishment of consortium bodies, and of consortium meetings** **T9.5 Management of the consolidation of technical and financial reports** **T9.6 Monitoring and progress chasing and submission of deliverables and milestones** **T8.3 Exploitation** **T8.4 Intellectual property and supply chain** **T8.6 Training**	
13.4	**MAIN STAKEHOLDER EXPECTATIONS**	
13.5	**Other Comments**	

14. Scientific Technology Board		**Risks** / **Issues**	**Actions** / **Decisions**
14.0	Discussion takes place in regards to the Size and the Design as it is necessary to work out the dimensions <u>Size</u> MAA recommends 70 x 40 mm single substrates MAA 50 times 30? If CH MM – 100 x 25 MM 100 x 100 is easier and we would deliver it uncut Difficult to protect the surface of the grating Go on the small size which is already prepared. CH 25 = Which sizes of grating will be required Design MM remaining dust particles on the surface is the issue <u>Design Parameters</u> • **Line Density - 1600 / 40 lines per millimetre** • **Angle of incident- 51.4** • **Separation Angle –14 degrees** • **Spectral Bandwidth – 10,30** Application for the Laser - 50W mentioned by CH The 50W laser will come to Stuttgart and it will be boosted to 500W Will this laser be laser be ready for micro machining? AM MAA – We can plan for the Laser to be at Bosch The 500W Laser What will be the repetition rate of the 500W Laser? CH – Can we a The 200w at month 22 – it will go to C4L first ND –		
14.1			
14.2			

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14.3		
14.4		
14.5		

15. Kite Finances – Deborah Trabut		Risks / Issues	Actions / Decisions
15.0	• There are 3 Periodic Reports • 1 date • 2 date • 3 date • On month 9 there is a deliverable which will act as a dry run to go through with partners. We would treat this as if it was a real periodic report • Month 36 there is a financial audit which is an internal audit to which each individual organisation • Explains the Project pre-financing breakdown • The EU has given us approximately 1.5 Million Euros, from that they will retain what they call the "guarantee fund" The total amount transferrable will be the total amount minus the Guarentee Fund • MAA asked the question in regards to the bank details. • If you were to leave the project at any time the EU will ask you how much money you have spent up to that point. If you have spent more than what the EU allows (up to that point) you will be asked to pay that back • During the duration of the project the EU will not give you more than 90% of the maximum grant amount • We also have to subtract the pre-financing amount and any Amount received • The final payment corresponds to the 10% retention that they keep and the guarantee fund and that would be your maximum final payment • The guarantee fund is taken from the pre-financing and the 10% retention is taken from the total grant amount. • ND asks who she would claim to. • MAA we would need to keep an eye on the whole of the budget. • AM – Deviations – the EU will ask for an explanation • MAA – sometimes you use less than what you have asked for which will need an explanation. • DT – • CH – 1st Periodic Report at month 12 • MAA – explains the timings of the period Reporting • Budget Transfers – Any budget is not necessarily final and can be transferred to any other partner. The procedure is to represent to the consortium and they will make the decision. A case will made and a consortium will decide. • The Reporting - every 6 months there will be technical progress and management of resources • The periodic report - you have 60 days to provide all information • DT stated that each organisations personal accounts are not going to be validated by DT but instead DT will state whether certain financial information will be questioned by the EU. She will act as an advisory on such matters. • All rules and regulations are in the Grant agreement which contains the Core, Annex 1 – DoA (Part A & B) and other annexes • There is also the Consortium Agreement • There is also guidance on the Participant Portal		

	• Direct Costs / indirect Costs Direct costs are anything directly linked to the project. Under H2020 it is a flat rate of 25% Eligible Costs must be incurred during the project MAA – The Kick off Meeting people have paid money already. These are seen as "exceptions". MAA – PO has asked MAA to Brussels to represent the project with Photonic 21. To represent Hiperdias The commission can do an in-pronto audit at any time. Eligible costs include: Personal costs Travel costs and related subsistence allowances Deductible VAT is not an eligible cost Certificate on the financial statements A '**certificate on the financial statements**' (CFS) will have to be submitted at the end of the project if the request for total contribution **is EUR 325 000 or more**. It only effects USTUTT, AMP, AMO, BOSCH and LASEA Timesheets – recommends that these are accurately kept. Consortium Meetings are (travel) Under RTD. IP generated during the project and directly related to the project is an eligible cost. You can be audited on the project up to 5 years after the project. Keep track of all documents. All financial statements need to be done in Euros. Kite for example deal in pounds so therefore we have to use a single currency exchange rate. Average of the daily exchange rate. DT will provide this exchange rate to partners Have you a recommendation on the frequency and format? timesheets Each institutional needs to do provide in accordance with their organisation timesheets. DT – needs financial contact details of individual members dealing with the finances at each institution	
15.1		
15.2		
15.3		
15.4		
15.5		

16. Management Board Meeting		Risks / Issues	Actions / Decisions
16.0	• **Structure of the Consortium** Technology Transfer - MAA will need to check with Professor Graff. – it may be difficult for him to attend. Who else should be named for the Transfer Board • Communication – Monthly TC recommended by Coordinator • JD to do doodle poll to ascertain the monthly TC • MAA - the interdependencies of the project are better serviced by monthly TC's. • DT – • Next Consortium Meeting – 6 month basis - September next month first two weeks of September - **Bosch - to clarify details**		

	- **JD to send out the doodle poll**	
16.1		
16.2		
16.3		
16.4		
16.5		

17. Site Tour of Amplitude Systemes		Risks	Actions
		Issues	Decisions
17.0	Clemens Hoenninger gave a site tour of the facilities of Amplitude Systemes which included a tour of the laboratories where the lasers were situated. Clemens Hoenninger allowed members of the consortium to see where the Hiperdias laser will be housed whilst it is being developed		

END OF CONSORTIUM EVENT

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