Department of Engineering – Risk Assessment

Ref No. B973

Title of project/experiment/activity **Use of electronics laboratory**	
Location of activity EEDBA Annex, ground floor, room 80 (Electronics Lab)	**Start and end dates** 1/2/2016 - continuous

Brief description (or attach procedure/protocol)

Research activity performed in the electronics laboratory consists in the measurements of low-power electrical signals at DC, RF, MW and THz. All the equipment used is commercially available and operated according to manufacturers' instructions and legal regulations. DC and AC signals are generated and/or measured using the following equipment:

- Stand-alone SMUs
- Parameter analyzer
- Lock-in amplifiers
- Current/voltage preamplifiers
- Oscilloscopes
- Signal generator
- Spectrum analyzer
- Impedance analyzer
- Capacitance meter
- Power meter
- Vector network analyzer
- Frequency extenders
- 4-probe (sheet resistance)

Devices to be electrically tested are connected to the above instruments either by DC and AC probes and suitable cables or directly by specific connectors. In the first case, two probe stations are used

- Cascade probe station
- Lakeshore probe station

In the latter case, samples are bonded into suitable chip carriers using a wire bonder also located in the lab.

Local electrical properties of materials and devices are investigated by means of a scanning microwave microscope (SMM), consisting of an atomic force microscope (AFM) and a vector network analyser.

Hazard	Effect	Control measures	Residual risk
Electric shock	Shock to user	When voltage above 40V are used, compliance must be set below 100 uA to prevent any accidental electric shock. EQUIPMENT SHOULD BE PAT TESTED	Low risk
Pinch point	Skin damage, bruises	Care must be taken when moving the stage of SMM if enclosure door is open. The stage of wire bonder must be operated accordingly to manufacture's instructions.	Low risk

Lack of windows	An user in the need for help cannot be easily seen from outside the lab	Different activities (up to 5) are run in parallel in the lab, it is likely that at least two people will be working in the lab at the same time. When the lab is in use, an illuminated sign (located outside the lab above the door) should be activated to easy identify that someone is inside the lab.	Low risk
Magnetic fields	Interference with pacemaker	Users with pacemaker implant must consult occupational health prior to be allowed to use the lab. Warning sign is on the door.	Low risk

Personal Protective Equipment required [*eye/face protection, respiratory protection, gloves, lab coat etc*]

Safety eyewear must be worn when operating wire bonder.

Emergency Instructions & First Aid

The lab is equipped with safety switch located on the right hand side as one enters the lab. In the event of an emergency, press the red button. Equipment located in the service room are connected to a separate circuit breaker, which is also connected to an emergency switch. If safe, in an event of an emergency press the red buttons in both shielded and service room.

Fire:
In case of fire, the fire alarm should be sounded and fire service called.

Any special monitoring required [*e.g. hearing test, vibration monitoring, health surveillance*]

N/A

Further control measures required? If yes, list with actions.

N/A

Biological/Laser/Radiation Approval [*requires relevant Specialist Safety Officer signature and date*]

N/A

Out of hours/Lone working

Out of hours working must be authorized according to Engineering Department regulation.

Signature to confirm that this is a suitable and sufficient assessment of risk and that stated control measures are in place. This risk assessment should be reviewed if additional risks not covered in this assessment are identified or if there is any reason to indicate that the control measures are insufficient.

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Name of Assessor Dr Antonio Lombardo Email: al515@cam.ac.uk	Signature Electronic Signature	Date 29.01.2016
Name of Supervisor Prof. A.C. Ferrari Email: acf26@cam.ac.uk	Signature	Date

Local Safety Coordinator	Signature	Date
Departmental Safety Office IAN SLACK	Signature	Date 23 AUG 2017

Title of project/experiment/activity

Use of electronics laboratory

Additional Users	Signature	Date
MENGLIN CAO		01/02/2016
KAVEH DELFANAZARI		01/02/2016
Ruizhi Wang		01/02/2016
DOMENICO DEFAZIO		19/02/2016
YUE LIN		26/02/2016
Abdul-Rahman Raji		26/02/2016
YUAN LONG SHAO		26/02/2016
Vik Cientanni		26/02/2016
Cyan Williams		26/02/2016
Jeffrey Mc Hugh		26/02/2016
KAI YING		26/02/2016
UGO SASSI		26/2/16
YANG LI		26/2/16
Philippa Hooper		26/2/16
Tian Carey		26/2/16
Anna Ott		26.2.16
Jingbo Wu		26/02/16