

## Market analysis: Need for an open-source broadband field spectrometer. Draft 13.05.2019

Table 1: Non-comprehensive comparison of existing field spectrometer and ours

Product	Spectral range	Spectral resolution	AC power	DC power	Size	Weight	Portable	Stationary	Open-source
Spectral Evolution RS-3500	350- <b>2500</b> nm	3nm @ 700nm 8nm @ 1500nm 6nm @ 2100nm	<b>Yes</b>	External Li-ion	30x22x9 cm	3.3kg	<b>yes</b>	?	No
Spectral Evolution RS-6500	350- <b>2500</b> nm	<b>1.5nm @ 700nm</b> <b>3.0nm @ 1500nm</b> <b>3.8nm @ 2100nm</b>	<b>Yes</b>	External Li-ion	31x22x11 cm	5.0kg	<b>yes</b>	?	No
ASD FieldSpec 4	350- <b>2500</b> nm	3nm @ 700nm 6nm @ 1400nm 6nm @ 2100nm	<b>Yes</b>	12V in	37x29x13 cm	5.4kg	<b>yes</b>	?	No
ASD FieldSpec 3	350- <b>2500</b> nm	3nm @ 700nm 10nm @ 1400nm 10nm @ 2100nm	<b>Yes</b>	12V in	36x29x13 cm	5.6kg	<b>yes</b>	?	No
Bruker EM27	?	?	<b>Yes</b>	24V battery	40x36x27 cm	18kg	no	<b>yes</b>	No
Apogee SS-120	635-1100 nm	3nm (over range?)	No	USB, 1W	9x5x4 cm	0.3kg	<b>yes</b>	?	No
Ours	<b>200-1650</b> nm	<b>0.1-10nm</b>	No	Yes	TBD	TBD	<b>yes</b>	<b>yes</b>	<b>yes</b>

There are a variety of field spectrometers on the market, each with different specifications and corresponding advantages/disadvantages. However, none of the found products are open-source hardware and/or software. The spectrometer developed within this ARP course aims to occupy this exact niche. The hypothesis is that users (researchers) want to have more control over the system architecture and data flow than normally possible with available commercial solutions. Research into whether this crucial assumption is true is to be done in the course of the following weeks. The methods applied will be mainly reading papers, as well as blogs and forums on the topic, and interviewing current and potential users of field spectrometers.