Project Name:	Allegro Wireless OVERVIEW (WINS - 3/3 projects telcom)	**Start Date:**	2022-02-01
Project Number:	2200	**Completion Date:**	2022-12-08

Project Details:

Scientific or Technological Objectives:

Measurement	Current Performance	Objective	Has results?
Throttling mechanism (KB)	500	64	No
Concurrency (users)	200	1000	No
supported hand held devices (number)	450	500	No
supported printers (number)	250	300	No

The following example is based on the Tax Court of Canada judgement ALLEGRO WIRELESS CANADA INC., and HER MAJESTY THE QUEEN, March 31, 2021

FACTS:

50] During the relevant years, the Appellant filed claims in respect of SR&ED performed on five separate projects.

1] The Appellant filed appeals in respect of three projects carried out in 2010 and the remaining project carried out in 2011.

2] The CRA accepted portions of 2010 Project 1 and Project 2 as SR&ED.

3] For 2010, the Appellant claimed SR&ED “ITCs” of $279,420 in respect of three projects.

The Minister disallowed $244,208 (87%) of the corresponding ITCs in respect of two projects.

4] For 2011 Taxation Year, the Appellant claimed SR&ED ITCs of $215,567.

The Minister disallowed $162,190 (75%) of the corresponding ITCs.

[101] the Appellant’s core product was its platform (software), which it built and constantly improved to accommodate the different idiosyncrasies of various hand-held devices, servers and printers.

Mr. Rupel (the Principal Investigator) testified that the Appellant was trying to develop products that would address issues that arose when dealing with the interactions of numerous complex systems.

At the time, its clients were using numerous hand-held devices and printers that were in the early stages of development.

It also had to design systems that operated with the various servers of its clients and recognize the different environments that each of its clients operated in.

Field of Science/Technology:

Telecommunications (2.02.07)

Project Details:

Intended Results:	Develop new processes, Improve existing processes
Work locations:	Research Facility
Key Employees:	Wesley Rupel (Allegro PI) (Physics - PhD (1985) / President & CTO), Gerald Penn (Allegro Expert Witness) (Computer Science - PhD (1991) / Expert witness)
Evidence types:	Test protocols, test data, analysis of test results, conclusions; Records of resources allocated to the project, time sheets; Design, system architecture and source code; Project planning documents; Design of experiments; Records of trial runs

Scientific or Technological Advancement:

Uncertainty #1: Bug vs. Quirk vs. SR&ED

[28] The Appellant's core product was its platform (software), which it built to accommodate the different idiosyncrasies of the various hand-held devices used by its clients. The platform had to take into account the different operating systems and the frequent updates to the software controlling the low-level features of the devices. The Appellant's goal was to have one system that all the different applications used in the operation of the devices could be written to.

31] He noted that the Appellant did not have access to the source codes for the various underlying software that operated the hand-held devices. He referred to this software as a black box, something the Appellant could not see the "insides of". He noted that as the Appellant developed its various products, various bugs and quirks occurred.

BUGS:

32] Bugs arose when the underlying tools and software performed as expected and the Appellant made a mistake when writing its software, which it needed to fix.

QUIRKS:

33] Quirks arose when, after looking at the problem, the Appellant could not determine why the event was occurring. It did not make sense to the Appellant. In Mr. Rupel's words, there was something mysterious going on and it required a deeper investigation.

34] Mr. Rupel noted that a quirk may or may not end up on the Appellant's SR&ED claim.

The Appellant made the decision later, after it finished its investigation and hopefully found a solution to the quirk.

It would review the work it had done and determine whether it had conducted a significant amount of experimentation or whether the issue had been relatively straightforward and resolved in a direct manner.

In the latter instance, the work was not included in the Appellant's SR&ED claim.

The most significant underlying key variables are:

Bug vs Quirk, If Quirk - whether SR&ED?

Technology or Knowledge Base Level:

Activity #1-1: CRA approved doc system (Fiscal Year 2022)

Methods of experimentation:

DOCUMENTATION:

46] The Appellant also used bug/quirk tracking software: one called FogBugz and a second called Jira X. This allowed the Appellant to keep track of all bugs/quirks that were reported, when the bug/quirk was fixed and when a quality assurance team reviewed the fix.

47] With respect to determining when the work preformed with respect to quirks constituted SR&ED,

the Appellant, with the help of its Canada Revenue Agency ("CRA") SR&ED technical advisor, Mr. Paul Wong, had set up a system in the bugs/quirks tracking software (particularly Jira X).

This system allowed the Appellant to keep track of the problems it identified as quirks, the things that were not working the way the Appellant expected them to work. When the Appellant's developers were attempting to find a solution to a quirk, they would place information in the bug tracking software with respect to the work they were performing in an attempt to fix the identified quirk.

Results:

Conclusion:

208] On the basis of the evidence just discussed, I have concluded that when the Appellant conducted the projects at issue, it formulated hypotheses specifically aimed at reducing the identified technological uncertainty, followed appropriate procedures on testing, including the formulation, testing, and modification of hypotheses, and maintained a detailed record of

the hypotheses tested and results achieved as the work progressed.

209] For these reasons, the work performed by the Appellant on the projects identified by the CRA as

TA1/TO1 of 2010 Project 1 (SAMPLE PROJECT 2201, ACTIVITY #1),

TA1/TO1 of 2010 Project 2 (SAMPLE PROJECT 2202),

TA3/TO3 of 2010 Project 1 (SAMPLE PROJECT 2201, ACTIVITY #2) and

TA1/TO1 of 2011 Project 1 (SAMPLE PROJECT 2203)

constitutes SR&ED for purposes of the Income Tax Act.

The appeals from reassessments under the Income Tax Act with respect to the Appellant's 2010 and 2011 taxation years are allowed, with costs.

THE SPECIFIC DETAILS FOR EACH OF THESE PROJECTS IS PROVIDED IN PROJECTS 2201 THROUGH 2203.

Significant variables addressed: Bug vs Quirk, If Quirk - whether SR&ED?

Documentation:

- Offline Documents: Docs

Uncertainty #2: Backgrounds of Witnesses

During the six days of hearings, the Appellant (Allegro) called three fact witnesses, Mr. Wesley Rupel, Mr. Khalid Eidoo, and Mr. Russell Roberts, and one expert witness, Doctor Gerald Penn.

PRINCIPAL INVESTIGATOR (PI)

8] Mr. Rupel described the Appellant's business and the various research projects. During the relevant period, Mr. Rupel and his business partner controlled the Appellant.

9] Mr. Rupel holds an undergraduate degree in physics and mathematics. In 1981, he started a combined Masters and Ph.D. program in physics at the University of California, Santa Barbara. He completed the Masters portion of the program, however in 1985, while his professor was on sabbatical, he took a break from the program and joined Dynamical Systems Research ("Dynamical"), a software start- up company located in Berkeley, California.

10] A year later Microsoft acquired Dynamical. The acquisition allowed Microsoft access to Dynamical's software, which it used when creating the Windows operating system.

11] Mr. Rupel's work at Microsoft focused on increasing the speed of the Windows operating system, which was a significant issue since the first version of the operating system was extremely slow.

12] Mr. Rupel left Microsoft in 1992 and, in his own words, basically retired. He returned to Microsoft in 1998. He joined the Appellant in 2002 and became President and Chief Technology officer in 2004.

The Respondent (CRA) called one fact witness, Ms. Cathy Sporich, and two expert witnesses, Doctor Shrinavensen Keshav and Doctor Shirook Ali. I found all four fact witnesses to be credible.

EXPERT WITNESSES:

67] The test for admissibility of expert opinion evidence is a two-step test as set out by the Supreme Court of Canada in White Burgess Langille Inman v. Abbott and Haliburton Co., 2015 SCC 23 ("Inman"). Inman confirms and clarifies the common law principles previously described by the Supreme Court of Canada in R. v. Mohan, [1994] 2 SCR 9 ("Mohan").

68] The first step of the test requires the party putting the proposed expert forward to establish that the evidence satisfies the following four threshold requirements (the so-called Mohan factors):
- Relevance;
- Necessity in assisting the trier of fact;
- The absence of any exclusionary rule; and
- A properly qualified expert.

69] The second step requires the trial judge to conduct a cost-benefit analysis to determine if otherwise admissible expert

evidence should be excluded because its probative value is overborne by its prejudicial effect. This requires the trial judge to consider such things as consumption of time, prejudice and the risk of causing confusion.

The judge only relied on the expert evidence of Doctor Penn.

The most significant underlying key variables are:

Relevance, Necessity, Proper qualification, Cost vs. benefit, Exclusionary rules (unresolved)

Technology or Knowledge Base Level:

Activity #2-1: Roles of Expert witnesses (Fiscal Year 2022)

Methods of experimentation:

5] During the six days of hearings, the Appellant called three fact witnesses, Mr. Wesley Rupel, Mr. Khalid Eidoo, and Mr. Russell Roberts, and one expert witness, Doctor Gerald Penn.

The Respondent called one fact witness, Ms. Cathy Sporich, and two expert witnesses, Doctor Shrinavensen Keshav and Doctor Shirook Ali.

JUDGE COMMENTS:

[99] After reading each of the export reports and hearing from the two experts, ... neither of the two experts called by the Respondent (CRA) had a sufficient understanding of the Appellant's business, products or procedures that would allow them to give opinions that would help the Court.

Both Mr. Rupel and Doctor Penn testified that the difficult technological environment that the Appellant was attempting to operate in caused the various technological issues encountered by the Appellant.

Results:

6] I found all four fact witnesses to be credible. For reasons I will discuss, I have only relied on the expert evidence of Doctor Penn.

Conclusion:

JUDGE CONCLUDED:

[120] The Appellant was attempting to develop a new product (its platform) that would work seamlessly with a multitude of devices using different operating systems and operating on various client operating systems.

Neither Doctor Ali nor Doctor Keshav was aware of this difficult environment. As a result of this weak factual foundation, especially when compared to Doctor Penn's factual foundation for his opinion, I have given no weight to the expert reports of Doctor Ali and Doctor Keshav.

The only expert report that I have placed any reliance on is the expert report of Doctor Penn.

Significant variables addressed: Cost vs. benefit, Necessity, Proper qualification, Relevance