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Study on the Concordance Between C1 Advanced and IELTS Academic

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“Concordance studies aim to provide score correspondence between assessments and clear recommendations on how to interpret them, helping test users to make fair decisions.”

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Executive summary

Aim

Between November 2023 and December 2024, a concordance study was conducted to establish score correspondence between C1 Advanced and IELTS Academic for the purpose of migration to Australia. The aim of this report is to present the findings of this work in the form of concordance scores for recognition with clear recommendations to test users on how to interpret them. The report also details the methodology used for this purpose, providing evidence on the robustness of the findings and noting limitations for the conclusions that can be drawn from these findings.

Main findings

The main findings of this study are the concordance scores between C1 Advanced and IELTS Academic as outlined in Table 1 below by decision level: *Competent*, *Proficient* and *Superior* (as described by the Australian migration legislation).

Table 1. Concordant scores for the levels described by the Australian migration legislation (reproduction of Table 19)

Department's decision level	Component/skill	Scores currently recognised for IELTS	C1 Advanced score range
Competent	Listening	6	163 - 174
	Reading	6	163 - 178
	Writing	6	170 - 192
	Speaking	6	179 - 193
Proficient	Listening	7	175 - 185
	Reading	7	179 - 189
	Writing	7	193 - 210
	Speaking	7	194 - 207
Superior	Listening	8	186 - 210
	Reading	8	190 - 210
	Writing	8	210 - 210
	Speaking	8	208 - 210

The report also includes other relevant information, such as the Standard Error of Equating (SEE) and the range of C1 Advanced scores matched to an IELTS Academic score. A range of C1 Advanced scores is given, rather than a single concordant score, because several C1 Advanced scores match each IELTS Academic band score. These metrics represent uncertainty over whether a score concordance given in the table is, in fact, appropriate for a specific decision and should be carefully considered.

Methodology

The study links scores on C1 Advanced to IELTS Academic as the two exams have a similar construct that was deemed a suitable basis for conducting such analysis. The concordance relied on a sample of candidates taking both tests. Sampling was carefully controlled to ensure that test takers included in the study reflected the composition of the cohort of visa applicants who need to prove their proficiency in English, especially with respect to nationality. To reduce the risk of biasing the results, out of the 604 test takers involved in the study, half took IELTS Academic first and half took C1 Advanced first. The time lapse between the two tests was set to be no longer than 90 days to ensure test takers completed both tests whilst at the same ability level.

The linking was achieved through equipercentile equating, a statistical method used to align scores that have the same percentile rank on each test, essentially ensuring that a score on one test represents the same level of ability as a corresponding score (or scores) on another test. Among other advantages, this approach uses the original score scale for each test and results in very similar score distributions for both tests.

A range of statistical evidence was retrieved to support the approach taken and indicates that the results of this concordance study are suitable for the purpose for which they were intended.

Use and limitations

The prime use case for the concordance tables in this report is to determine the relationship between C1 Advanced and IELTS Academic results for the purposes of migration to Australia. The concordance tables in this report should only be used for this group of candidates and not for other populations (such as the global population of C1 Advanced and IELTS Academic test takers) because the sample is not representative of those populations.

We advise caution when interpreting the results of this study, particularly against using the concordance tables in isolation. As set out in the report, many factors can influence the outcomes of a concordance study. These include differences in how the tests assess and report language proficiency, the sample sizes at extreme score levels, differences in test taker populations, and methodological choices made during the analysis.

Score users, including institutions that rely on these scores for decision-making, are therefore advised to use and interpret the concordance tables with caution. It is recommended that supplementary evidence should be considered to support decisions.

Introduction

This report outlines a concordance study aimed at establishing score correspondence between C1 Advanced and IELTS Academic (henceforth also simply referred to as IELTS). The report is addressed to test users and presents score equivalences at both overall and skill/component levels, alongside clear recommendations on how to use and interpret them.

The study took place between November 2023 and December 2024 and was conducted for use in the migration visa process for Australia. It focusses on three *decision levels* (as described in the Australian migration legislation[1]): *Competent*, *Proficient* and *Superior*. IELTS scores currently recognised for these decision levels are contained in Table 2. The current study determined the C1 Advanced scores for each decision level, by linking scores on C1 Advanced to IELTS Academic.

Table 2. Ability levels prescribed in Australian migration legislation and currently recognised scores for IELTS

Department's decision level	Component/skill	Scores currently recognised for IELTS
Competent	Listening	6
	Reading	6
	Writing	6
	Speaking	6
Proficient	Listening	7
	Reading	7
	Writing	7
	Speaking	7
Superior	Listening	8
	Reading	8
	Writing	8
	Speaking	8

The sample of test takers used in the study was intentionally tailored to represent the population of visa applicants to Australia who need a recognised test result to prove their English language ability. In particular, effort was made to match the nationality of test takers in the sample to those found among visa applicants. This limits the applicability of the results presented here to the context of migration to Australia. Concordances for other populations may be different, and separate studies would need to be done.

Methodological details of the current study are based on previous literature in the field of test equating (see, among others, Kolen & Brennan, 2004; for a recent review, see Benton & Carroll, 2024) and practical decisions based on the specific case at hand. To support an evaluation of the robustness of the scores produced, technical detail on the methodology used and empirical evidence are also reported.

[1] See, among others, Australian Government (1994), Australian Government (2015), and Australian Government – Department of Home Affairs (2025).

C1 Advanced and IELTS Academic

C1 Advanced (also referred to simply as Advanced) is a long-established English language qualification targeted at C1 level of the CEFR (Common European Framework of Reference for Languages; Council of Europe, 2001), which describes the competency required for language use in contexts such as university study or demanding professional situations. The test also provides some coverage at the adjacent levels B2 and C2. The exam tests all four skills (Listening, Reading, Writing, and Speaking) as well as lexico-grammatical competence in the Use of English paper. For the purposes of the current study, Use of English will be excluded as a separate component, as it is not used in Australian visa applications. However, Use of English does contribute to the overall score.[2]

IELTS Academic is a standardised exam assessing non-native English speakers' proficiency in listening, reading, writing, and speaking, used primarily for study or migration to English-speaking countries. As a multilevel test, IELTS reports on a wider ability range than C1 Advanced, covering B1 to C1 in depth with some coverage also at A1, A2 and C2. Both IELTS Academic and C1 Advanced adopt a communicative approach to language and are widely used around the globe.

According to Kolen and Brennan (2004) there are four important aspects to consider when conducting and interpreting concordances: construct, reliability, target population, and inferences. For this particular study, the target population and inferences made on the basis of test results are the same: they are only those concerned with visa applicants to Australia and whether their ability level is high enough to be given a particular visa by the Australian Government. Below, IELTS Academic and C1 Advanced are compared with respect to construct and reliability.

Construct

A concordance between very different tests would, despite a resulting concordance table, not be useful. If the constructs are very different (i.e. as with a test of English for lawyers and a test of English for pilots), it would not be very meaningful to compare scores deemed to represent the same level of measurement if they are meant to measure different traits. Detailed information on test constructs is beyond the scope of this report, and a simple comparison of constructs, broad in nature and mainly based on freely accessible information published by each test provider on the Internet, is instead presented.

Information about the papers in each test, the ability levels the test covers, and the domains of language use are displayed in Table 3. It can be seen that each test covers all four skills and domains of use overlap, with each test including work, study and personal. Ability levels overlap but differ because IELTS is designed to measure ability across a wider range of levels than C1 Advanced.

C1 Advanced core ability range focusses on approximately the same ability range as IELTS 6.5 to 8.0 (Cambridge University Press and Assessment, 2025). The C1 Advanced range also extends upwards and downwards to some extent. These ability levels cover a large part of the range of levels required for Australian visas and confirm the suitability of matching C1 Advanced with IELTS Academic for this purpose.

[2] For more details about the test, see: Cambridge Assessment English (2021), and Cambridge University Press and Assessment (2022a, 2022b, 2023).

Based on similarity of construct, it is expected that the current study will provide useful information about their alignment.

Table 3. Test characteristics of C1 Advanced and IELTS Academic

	Papers	Domains
C1 Advanced	Listening Reading and Use of English Writing Speaking[3]	Overall general ability Social and tourist Work Study Personal[4]
IELTS Academic	Listening Reading Writing Speaking[5]	Study Work Personal[6]

Reliability

Table 4 shows reliability estimates for C1 Advanced. They are the mean values of the estimates for sessions between January and June 2022, which used Hanson's (1991) method to compute Cronbach's Alpha. Values can be seen to be high and broadly comparable to those of IELTS Academic, also provided in Table 4. Similar and high reliability in both tests is important to ensure the scores produced with this study depend on the ability being measured and not on construct-irrelevant factors (such as gender or nationality; see Dorans & Walker, 2007:10.3).

The reliability estimates provided suggest that it is reasonable to expect a concordance between the tests included to be informative. The estimates provided indicate that measurement error is relatively low and that, therefore, scores are likely to represent ability accurately.

Table 4. Reliability estimates for C1 Advanced and IELTS Academic

	Listening	Reading	Writing	Speaking	Overall
C1 Advanced	0.82	0.88	0.80	0.87	0.94
IELTS[7]	0.91	0.91	0.81-0.89	0.83-0.86	NA

[3] Cambridge University Press and Assessment (2022a).
[4] Cambridge Assessment English (2021).
[5] IELTS (ND-b).
[6] Extrapolated from IELTS (ND-a, ND-b).
[7] IELTS (ND-c).

Methodology

Study design

The concordance study relies on the analysis of the performance of a group of candidates who took both tests. To avoid a test-order effect, i.e. test takers being more prepared for the second test taken, that could bias the results, approximately equal numbers of test takers sat C1 Advanced first as sat IELTS Academic first. This is known as single group design with counterbalancing for test order.

All test takers took both tests in a short space of time, to avoid significant changes in underlying ability that could occur if there is a long-time lapse between tests. Candidates included in our study took the two exams within 90 days (13 weeks).

A key element of this design is that the test takers involved in the study should be similar to the population of interest in terms of performance on the test and demographic characteristics, especially in terms of nationality. This is to ensure that the sample is representative of applicants for Australian visas who require a language test for their application.

Data was gathered from two sources:

- Test takers who had already taken one of the tests of their own accord and were recruited to sit the other;
- Existing data of test takers who had already sat both tests of their own accord.

To recruit test takers, between November 2023 and December 2024, representatives of Cambridge University Press and Assessment worked closely with test centres to identify test takers who could take part in the study. Suitable test takers were offered the opportunity to take the other test for free within 90 days and, if deemed appropriate, offered an additional incentive (not more than GBP50 in value).

Test takers who had not already taken both tests of their own accord (and hence familiar with both tests) were given access to a bespoke online briefing session. This comprised a series of self-access lessons which introduced the task types to be encountered in C1 Advanced, provided practice opportunities and tips on how to prepare and exam day strategies. The briefing session was compulsory and test takers were asked to agree to access it when they were recruited. In addition, for their second test, all recruited test takers were directed to official preparation materials available online (Cambridge University Press and Assessment, 2023; IELTS, 2023).

Test taker responses and other data collected from candidates were subsequently processed in the standard way and data was extracted for the study after results were released to test takers. Numbers of participants were monitored throughout the recruitment phase, and every effort was made to compensate for low numbers in one country by finding suitable additional test takers elsewhere.

As for the sample size, a final number of 604 candidates were identified who met the requirements of the study, which was deemed sufficient for the range of decision levels to be covered by C1 Advanced (Competent, Proficient, Superior). All test takers involved sat standard live test sessions under normal (secure) test conditions, and data were extracted from the data systems for live test processing rather than it being self-reported.

Sample description

Table 5 summarises the data with respect to two features of the study design that were introduced to control for unwanted effects: counterbalancing and time lapse between tests. It is apparent that, between the 604 candidates involved in the study, there was an exactly equal split between those taking C1 Advanced first and IELTS Academic first. Table 5 also shows that in terms of the time lapse between the taking of each test, candidates were spread out within the 90 days (13 weeks), which was the threshold set. This shows that the intended study design was achieved. Table 6 displays the distribution of gender and age among the test takers involved in the study. It shows that male and female candidates were roughly equally represented.

Table 5. Summary of study design characteristics: counterbalancing and time lapse

		Frequency	%
Exam taken first	C1 Advanced	302	50.0
	IELTS Academic	302	50.0
Weeks	<1	28	4.6
	>=1 & <2	54	8.9
	>=2 & <3	49	8.1
	>=3 & <4	51	8.4
	>=4 & <5	44	7.3
	>=5 & <6	44	7.3
	>=6 & <7	57	9.4
	>=7 & <8	40	6.6
	>=8 & <9	49	8.1
	>=9 & <10	55	9.1
	>=10 & <11	53	8.8
	>=11 & <12	35	5.8
	>=12 & <13	45	7.5
Total		604	100.0

Table 6. Summary of gender and age group

		Frequency	%
Gender	Female	327	54.1
	Male	277	45.9
Age group	20 and below	362	59.9
	21 to 30	169	28.0
	31 to 40	50	8.3
	41 to 50	19	3.1
	51 and above	4	0.7
Total		604	100.0

Table 7 shows the distribution of nationality, a key variable that was used as a target in the sampling frame, based on immigration data made available by the Australian Bureau of Statistics (2022). All target nationalities feature in the sample, though several other countries also appear in the list.

Table 7. Summary of nationality

Country/territory of Nationality	Frequency	%
Argentina	17	2.8
Bangladesh	1	0.2
Brazil	55	9.1
Chile	6	1.0
China (People's Republic of)	103	17.1
Egypt	2	0.3
Hong Kong	25	4.1
India	100	16.6
Indonesia	11	1.8
Japan	53	8.8
Korea, Republic of	22	3.6
Lao People's Democratic Republic	17	2.8
Malaysia	42	7.0
Mexico	42	7.0
Mongolia	1	0.2
Myanmar	6	1.0
Pakistan	7	1.2
Philippines	2	0.3
Sri Lanka	5	0.8
Taiwan	9	1.5
Thailand	16	2.6
Turkey	31	5.1
Total	604	100.0

Table 8 and Table 9 summarise descriptive statistics for each test section and the overall scores for C1 Advanced and IELTS Academic, respectively. The tables include the median, 1st and 3rd quartile, mean, standard deviation (SD), and observed maximum and minimum scores for each test. The distributions of scores for Advanced and IELTS are represented visually in Figure 1. Advanced appeared to have a slightly wider spread of scores than IELTS, but this is possibly an artefact of the different scale used by the two tests.

Table 8. Summary statistics of C1 Advanced scores, by component and overall

	Minimum score	1st Quartile	Median	Mean	3rd Quartile	Maximum score	SD
Overall	160	176	185	184.4	194	210	12.0
Listening	115	174	186	183.8	196	210	17.3
Reading	105	167	182.5	180.2	193	210	18.7
Writing	152	175	180	182.3	190	210	11.4
Speaking	146	186	194	192.8	201	210	10.7

Table 9. Summary statistics of IELTS Academic scores, by component and overall

	Minimum score	1st Quartile	Median	Mean	3rd Quartile	Maximum score	SD
Overall	5.5	6.5	7	7.0	7.5	8.5	0.7
Listening	4.5	7	7.75	7.6	8.5	9	1.0
Reading	4.5	6.5	7	7.2	8	9	1.0
Writing	4.5	6	6.5	6.3	6.5	8.5	0.6
Speaking	4	6	6.5	6.7	7	9	0.8

Further evidence of the similarity of the two tests and their suitability for a concordance study is provided by a measure of the association between them. Correlations between each pair of components and at overall test level (after trimming to remove outliers) are provided in Table 10, together with 95% confidence intervals. Pearson correlation coefficients range from 0.65 to 0.87. These figures are similar to those found in other published concordance studies, for example, TOEFL iBT to IELTS (Educational Testing Service, 2010:7-8) and can be considered moderate to strong, suggesting they are testing similar constructs.

To summarise the description provided above, the sample composition in terms of study design features and basic demographic characteristics can be considered satisfactory. Furthermore, the analysis at both overall test- and component-level of the observed score ranges, the spread of the candidates' scores, the mean/medial scores of the two tests, and the correlation between the two tests, show that the sample can be considered a reasonable representation of the test-taker population of interest. This should be taken as further confirmation that the sample of candidates can be used for the concordance of C1 Advanced with IELTS Academic.

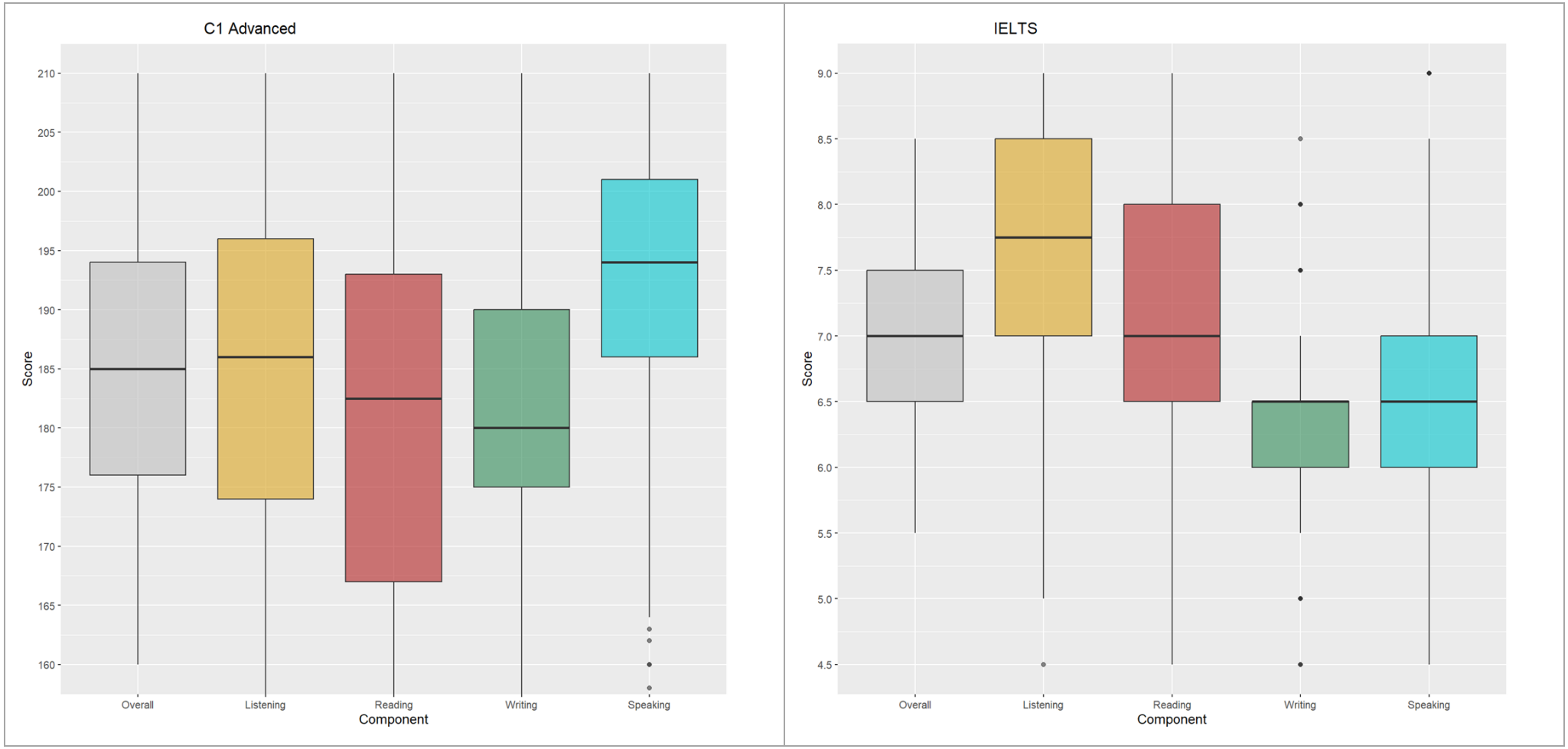

Figure 1. Distribution of C1 Advanced and IELTS Academic scores by component and overall

Table 10. Correlation between components

	Pearson correlation coefficient	2.5%.CI	97.5%.CI
Overall	0.871	0.848	0.890
Listening	0.776	0.739	0.808
Reading	0.778	0.741	0.810
Writing	0.647	0.594	0.694
Speaking	0.770	0.732	0.803

Analysis technique

Concordance of test scores

Concordance tables are the main output of this report. They show how scores of C1 Advanced relate to those of the IELTS Academic, both at component and overall level. Summary tables are reported in the Results section, whereas more detailed tables are available in the Appendix.

The equating carried out to produce each table was done using *equipercentile equating* – essentially by using the percentile rank of the scores as the means to match them across tests (Kolen & Brennan, 2004:2.5.2). This method results in very similar score distributions for both tests and uses the original score scale for each. Alternative methods (for an overview, see Benton & Carroll, 2024) which use the overall and summed component scores[8] cannot do this (Kolen, 2007:49) and so were thought less useful.

Loglinear presmoothing was also applied where possible[9]. Smoothing reduces random variation in the data, bringing data closer to that of the population and reducing error in the subsequent concordance (Kolen & Brennan, 2004:3.1). Furthermore, where there are few observations at some score points, the resulting concordance typically becomes more stable (Yin, Brennan & Kolen, 2004:288). The degrees of the polynomial used in the smoothing were determined in each case by applying many variations and accepting the one which fitted best. The trimmed data used to measure the association between test scores was also used for equating.

For concordance tables displaying the equating of C1 Advanced to IELTS Academic, the range of C1 Advanced scores corresponding to a single IELTS score was recorded because the IELTS reporting scale[10] is much shorter than that of C1 Advanced, and alignment in the concordance table is one-to-many, rather than one-to-one. To specify the range of C1 Advanced scores corresponding one IELTS band score, the approach taken was to start with the lower bound of each range and define the upper bound as the score just before the lower bound of the next range. In the case of abridged concordance tables which only included departmental decision points, IELTS scores were rounded to the nearest

[8] It would not have been possible to obtain a full set of item scores for each test for this study, so other item response methods of equating were also not possible.
[9] In some cases, smoothing was not possible, as the polynomial model did not converge.
[10] The term 'reporting scale' refers to the scores used to report results. This should not be confused with the ability range covered by the test. IELTS has a much shorter reporting scale (5.5 to 9 in half bands; eight points in total) than C1 Advanced (160 to 210; 51 points), but covers a wider range of ability levels. In the current report, a limited range of the reporting scale and ability ranges are referred to, even though each test measures more. Although the reporting range for each test has a different number of score points, the ability ranges referred to are roughly equivalent.

band of interest and ranges established in relation to these bands, rather than all half bands. This was done to provide clarity for decision-makers, where intermediate bands are not relevant.

A metric that is particularly suited to evaluating the success of the study and the utility of concordance tables is the Standard Error of Equating (SEE). This is because the SEE describes the level of uncertainty for concorded scores, which are the main outcome of a concordance study. The SEEs answer the question: 'how certain can I be about the concordance results?'. The SEE was estimated for each score point in each concordance table. This was done using the bootstrapping method suggested by Kolen and Brennan (2004:235-245) with 1,000 replications. Confidence intervals were constructed using the bias-corrected and accelerated method proposed by DiCiccio and Efron (1996).

As a result, two sets of concordance tables are available in the Results section and the Appendix: the first including the score ranges and the number of test takers in the group; the second containing the equated score, SEE and confidence intervals. Abridged tables and plots of the equating functions can be found in the Results section.

Presmoothing and equipercentile equating were all done using the R package *equate* (Albano, 2022), with scales 160 to 210 and 5.5 to 9 for C1 Advanced and IELTS, respectively. The SEE was calculated in R following the algorithm set out by Kolen and Brennan (2004:235).

Population invariance

Investigating population invariance is important because it helps to determine how well the concordance applies to subgroups within the population (e.g. males vs females). When there is variation due to subgroups, which is the expectation with concordances (Pommerich, 2007:207), using a subgroup-specific concordance table may be more appropriate[11]. *Root Expected Mean Square Difference* (REMSD) (Dorans & Holland, 2000) can be used to calculate an overall index for this purpose.

It is also possible for subgroups to diverge only at some score points and not others, which can be determined by *Root Mean Square Difference(x)*[12] (RMSD(x); see Dorans, 2004; Dorans & Holland, 2000). RMSD(x) represents the extent to which an equated score is sensitive to subgroups of the population and is expressed as the proportion of the standard deviation of the scores of the target test (in this case IELTS Academic). For example, for gender in the Listening component, if the RMSD(x) were 0.15 at a C1 Advanced score of 180, it would mean that the size of the effect is 15% of the standard deviation of the IELTS Listening scores.

An RMSD(x) of 0 means that there is no effect whatsoever detected at that score point. REMSD is interpreted in the same way, although there is a single figure for the whole of the component, rather than a figure for each score point. It is, in effect, a kind of average of the results for RMSD(x) on that component and is likely to be more robust because more data is used to compute the single figure.

An attendant limitation is, however, that the subgroups investigated must be substantial. Small subgroups would tend to include a large amount of variation at each score point due to idiosyncratic 'random' variation. As such, the results would not be informative. Consequently, it is possible to conduct the analysis using a variable like gender where there are only two groups, each of which is large. For variables like nationality, it was necessary to group several nationalities together to form composite

[11] However, producing a table for a specific subgroup would use less data than the overall table. As a result, SEE will be larger and concordances less robust. See Pommerich (2007:205) for a discussion of concordances with limited data.
[12] Often also known as Root Mean Square Difference(y)/RMSD(y), but otherwise identical.

groups. Nationality groupings were selected based on the countries it was thought would have the greatest cultural, educational, and linguistic similarities with each other and hence could form sub-regional groupings:

- China-related: China, Hong Kong, Mongolia, Taiwan
- India-related: India, Pakistan, Sri Lanka
- South-East Asia: Indonesia, Laos, Malaysia, Myanmar, The Philippines, Thailand, Viet Nam
- Latin America: Argentina, Brazil, Chile, Mexico

All of these groups contained at least 100 test takers, which is a rather small number of test takers considering that the method requires a separate concordance for each group before the index is calculated. For this reason, results should be taken as indicative, rather than conclusive.

All calculations were done using R (R Core Team, 2023).

Results

Concordance

Concordance scores were produced at overall test-level and for each relevant component (as explained above, C1 Advanced Use of English was not used as a separate component, though it contributed to the overall score). In this section we present graphical and rounded tabular summaries of the concordance scores. Complete concordance tables are available in the Appendix (both with score ranges and confidence intervals).

Figure 2 displays the concordance between overall scores for the population of visa applicants to Australia who require a test to prove their level of English. The C1 Advanced scores appear on the vertical axis and the IELTS Academic scores on the horizontal axis. The black line represents the concordance between each set of scores.

To interpret the graph in Figure 2 it may be helpful to consider an example. If an IELTS score of 6.5 is taken as the starting point, a line can be traced vertically from the horizontal axis until it reaches the black line (see the dark red dashed line). At this point, the trace should continue horizontally left until it reaches the vertical axis, where the reading is just below 175 (the exact figure, 174, is available in the corresponding table in Appendix). This means that, for the purposes of the defined use of this exercise, an overall C1 Advanced score of 174 can be treated as interchangeable with an overall IELTS score of 6.5.

The grey ribbon that accompanies the black line in Figure 2 represents the 95% confidence interval, to account for the margin of error that is due to this analysis being based on a sample rather than the entire population. To understand the 95% confidence interval, we can consider what we would expect to happen if we repeated this study 100 times (each time with a new sample): the black line would only fall outside the interval on five occasions. In other words, there is a high level of certainty that the concordance scores are within the ribbon. Furthermore, because such error variation is usually distributed as a bell curve, it would be more likely that the value is nearer the centre of the ribbon than its edges.

In other words, if we were to repeat the study but with a different sample, the black line represents the most likely value of concordance scores that we would find, and the ribbon provides an indication of other likely values of the concordance that we could find. Figure 3 contains four similar charts to the one found in Figure 2, but in this case, each one is for a different component.

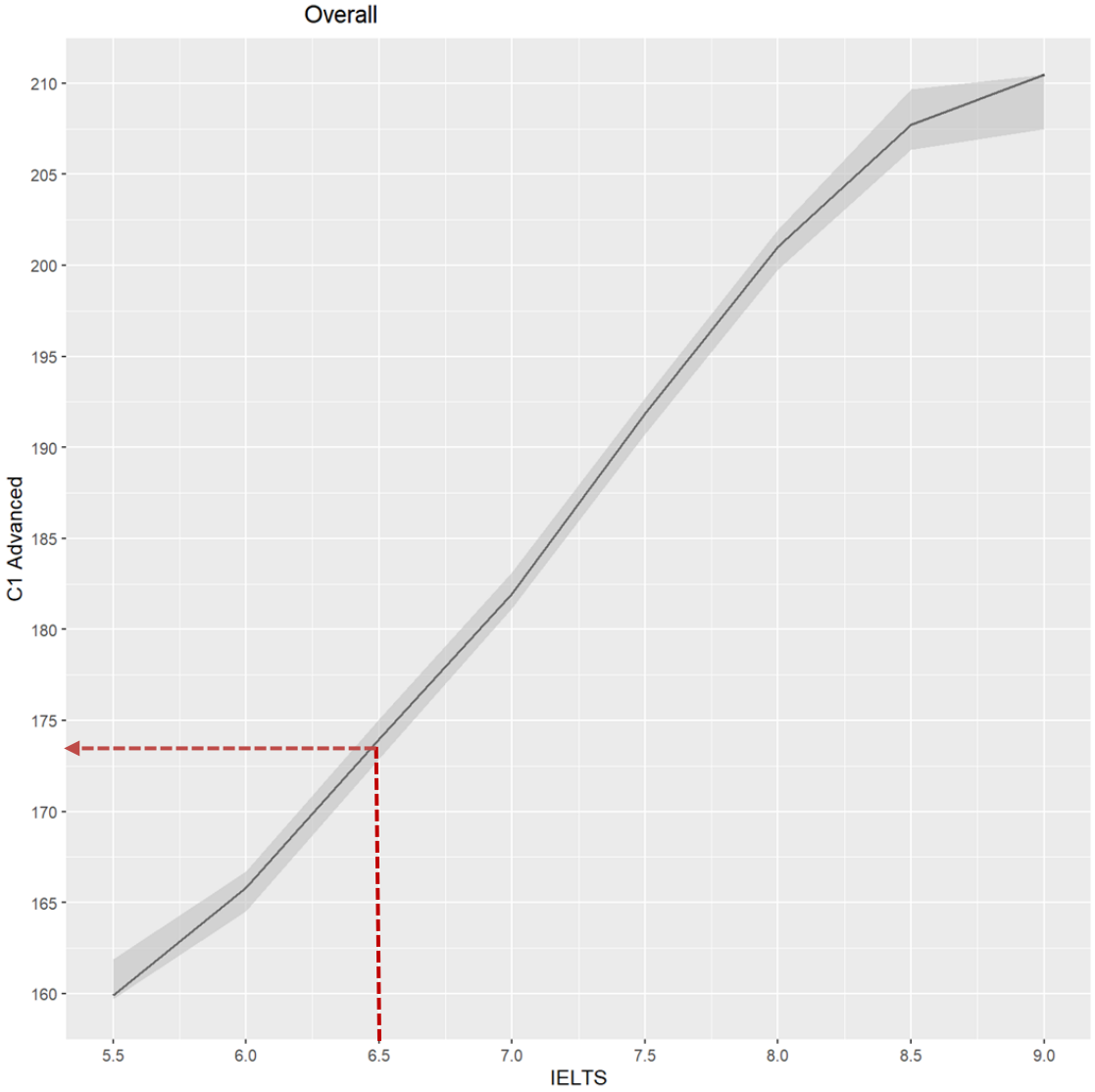

Figure 2. C1 Advanced/IELTS Academic concordance function for overall score

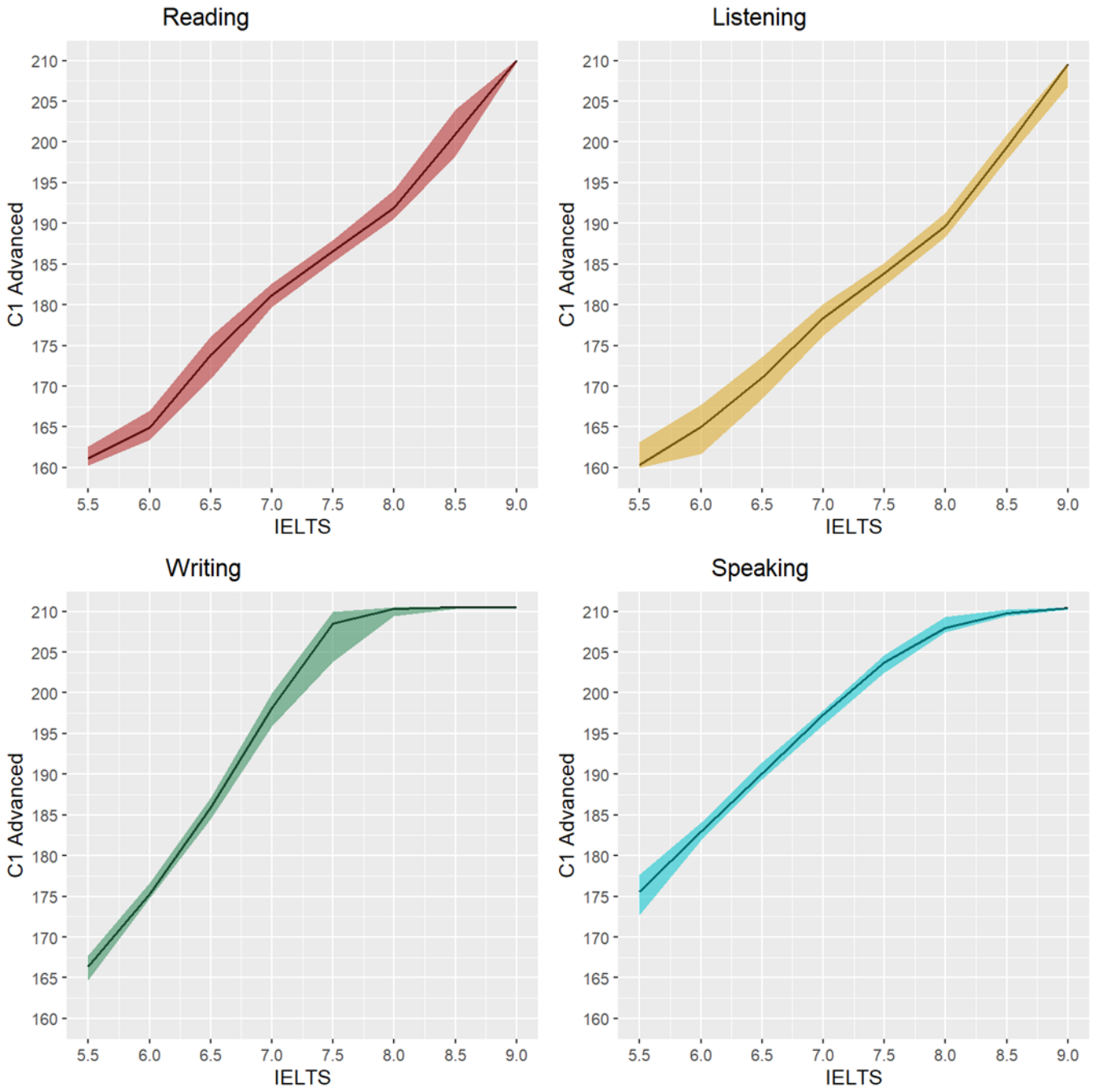

Figure 3. C1 Advanced/IELTS Academic concordance function for component scores

For the purposes of recognition, the range of C1 Advanced scores corresponding to IELTS Academic scores at the three decision levels (Competent, Proficient, and Superior) are available in Table 11 and Table 12, separately for each component. Table 11 (a-d) reports the Advanced score range and the number of test takers at that IELTS Academic score point. The range was constructed by first establishing the lower bound for each decision level and then extending the range up to the last score below the lower bound for the next decision point.

Table 11a. Abridged concordance table for C1 Advanced to IELTS Academic (with score range), listening

Department's decision level	IELTS score	Advanced score range	N	SE (mean)
Competent	6	163 - 174	23	2.633
Proficient	7	175 - 185	67	1.302
Superior	8	186 - 210	110	0.939

Table 11b. Abridged concordance table for C1 Advanced to IELTS Academic (with score range), reading

Department's decision level	IELTS score	Advanced score range	N	SE (mean)
Competent	6	163 - 178	46	1.811
Proficient	7	179 - 189	84	1.243
Superior	8	190 - 210	46	1.811

Table 11c. Abridged concordance table for C1 Advanced to IELTS Academic (with score range), writing

Department's decision level	IELTS score	Advanced score range	N	SE (mean)
Competent	6	170 - 192	193	0.559
Proficient	7	193 - 210	71	1.002
Superior	8	210 - 210	2	0.000

Table 11d. Abridged concordance table for C1 Advanced to IELTS Academic (with score range), speaking

Department's decision level	IELTS score	Advanced score range	N	SE (mean)
Competent	6	179 - 193	106	0.581
Proficient	7	194 - 207	122	0.609
Superior	8	208 - 210	31	0.85

For each IELTS Academic score at the three decisions' levels, Table 12 shows the equated score, the SEE, and the associated confidence intervals. A clear positive characteristic evident in Table 12 is that, within each component, the confidence intervals associated with each decision level do not overlap. For example, the upper bound for Listening at the Competent level is 168.032, and the lower bound for Listening at the Proficient level is 176.346. As a result, it is very unlikely that a test taker who is just Competent could be mistaken for one who is Proficient. If the full table for Listening (C1 Advanced to IELTS Academic) in the Appendix is consulted, it can also be seen that the confidence interval at the next half band (6.5: 169.2 to 173.7) does not overlap with those at Proficient, either.

For the purpose of determining which test results to accept for use in the immigration context, we believe the results are acceptable at all key decision levels because of the lack of overlap between confidence intervals discussed above. If the concordance tables are adopted for other legitimate uses, the confidence intervals available in Table 12 and in the Appendix should be used as a guide.

Table 12a. Abridged concordance table for C1 Advanced to IELTS Academic (with SEE), Listening

Department's decision level	IELTS	Advanced score	SEE	2.5%.CI	97.5%.CI
Competent	6	165.507	1.41	162.280	168.032
Proficient	7	178.214	0.885	176.346	179.869
Superior	8	189.355	0.752	188.227	191.066

Table 12b. Abridged concordance table for C1 Advanced to IELTS Academic (with SEE), Reading

Department's decision level	IELTS	Advanced score	SEE	2.5%.CI	97.5%.CI
Competent	6	164.674	0.819	163.228	166.579
Proficient	7	181.409	0.734	179.913	182.875
Superior	8	192.148	0.867	190.779	194.244

Table 12c. Abridged concordance table for C1 Advanced to IELTS Academic (with SEE), Writing

Department's decision level	IELTS	Advanced score	SEE	2.5%.CI	97.5%.CI
Competent	6	175.262	0.439	174.742	176.589
Proficient	7	196.596	0.976	195.113	199.566
Superior	8	210.255	0.321	207.759	210.419

Table 12d. Abridged concordance table for C1 Advanced to IELTS Academic (with SEE), Speaking

Department's decision level	IELTS	Advanced score	SEE	2.5%.CI	97.5%.CI
Competent	6	183.184	0.537	182.011	184.061
Proficient	7	197.243	0.481	196.164	198.037
Superior	8	209.239	0.442	207.974	209.729

Population invariance

Lack of population invariance is expressed as a proportion of the standard deviation on the target scale (here the C1 Advanced scale because C1 Advanced is being equated to IELTS Academic) to standardise results and allow them to be compared across components and tests. We use REMSD and RMSD(x) to calculate an overall index for this purpose. An REMSD/RMSD(x) of 0 would mean that the equating function treats subgroups (e.g. male and female) no differently from one another. A figure of 1, however, would mean that the difference is equal to one standard deviation of the target scale scores. Population sensitivity is to be expected with concordances, as they do not meet all the conditions of an equating, where different forms of the *same* test are linked (Pommerich, 2007:207). Furthermore, because the groupings used in the calculations are relatively small, results are, at best, indicative. For this reason, we do not see them as impacting the overall interpretation of the concordance for visa purposes.

The results in Table 13 show a small amount of sensitivity to the subgroups chosen, with the largest deviance for gender being around 20% of the standard deviation of C1 Advanced scores for Writing. Since the standard deviation in this case is 11.4 (Table 8), this represents around 3 marks. In other words, the equated scores for Writing could be around 3 points score out on average. This difference, however, is likely to be more pronounced at certain score points than at others. For this reason, reviewing the RMSD(x) results is useful.

Table 13. Root Expected Mean Square Difference (REMSD)

Grouping variable[13]	Overall	Listening	Reading	Writing	Speaking
Gender	0.150	0.140	0.095	0.201	0.144
China-related grouping	0.172	0.139	0.145	0.268	0.168
India-related grouping	0.224	0.110	0.152	0.211	0.183
South East Asia Grouping	0.163	0.162	0.136	0.274	0.233
Latin America Grouping	0.130	0.158	0.151	0.168	0.250

As discussed above, the RMSD(x) for each subgroup on each component is provided below (Table 14, Table 15, Table 16, Table 17, and Table 18), together with the number of test takers at each score point ('N') so that the population invariance at key scores can be viewed more easily. As with the example of Writing, given above, these tables may be understood in terms of the standard deviations contained in Table 8.

Table 15 (China-related group) shows larger discrepancies at some score points for Writing than for others (for example, at 6.5 the RMSD is 1.3). This suggests that the population sensitivity represented by the 0.268 figure for Writing overall in Table 13 is not evenly spread across the score scale. The RMSD(x) results are, however, less robust than the REMSD results, as the data are subdivided by score point, and this should be taken into account during interpretation. Users of the concordance tables will need to determine which parts of each table provide useful information for their uses, following the suggestion by Pommerich (2007:205) in cases where stability and generalisability are not adequate for particular uses[14].

[13] For the nationality groupings, the sizes of the focal groupings were as follows: China-related grouping: 137, India-related grouping: 127, Southeast Asia grouping: 115, Latin grouping: 121. The gender split is given in Table 6.

[14] The suggestion is that concordance tables are redacted before publishing but that presupposes a limited and well-demarcated use. For the current study, it has not been possible to limit the possible uses in this way.

Table 14. RMSD(x), gender

IELTS	Overall RMSD(x)	Overall N	Listening RMSD(x)	Listening N	Reading RMSD(x)	Reading N	Writing RMSD(x)	Writing N	Speaking RMSD(x)	Speaking N
5.5	0	6	0.293	13	0	17	0.38	48	0.786	30
6	0.397	43	0.469	23	0.407	46	0	193	0.562	106
6.5	0	107	0.222	49	0	99	0.929	184	0	130
7	0	129	0.367	67	0	84	0.859	71	0	122
7.5	0.717	139	0.338	86	0	86	0.261	15	0.409	81
8	0.538	79	0.379	110	0.507	68	0	2	0.219	31
8.5	0.058	8	0.487	119	0.545	75	0	0	0	7
9	0	0	0.209	47	0	37	0	0	0	3

Table 15 RMSD(x), China-related group

IELTS	Overall RMSD(x)	Overall N	Listening RMSD(x)	Listening N	Reading RMSD(x)	Reading N	Writing RMSD(x)	Writing N	Speaking RMSD(x)	Speaking N
5.5	0	6	0.043	13	0	17	0.548	48	0.396	30
6	0.572	43	0.03	23	0.135	46	0.661	193	0.233	106
6.5	0.792	107	0.109	49	0.705	99	1.334	184	0.206	130
7	0	129	0	67	0.414	84	0.681	71	0.431	122
7.5	0.725	139	0.131	86	0.416	86	0.311	15	0.978	81
8	0	79	0.53	110	0.096	68	0.092	2	0.088	31
8.5	0	8	0.814	119	0.898	75	0	0	0	7
9	0	0	0.286	47	0	37	0	0	0	3

Table 16. RMSD(x), India-related group

IELTS	Overall RMSD(x)	Overall N	Listening RMSD(x)	Listening N	Reading RMSD(x)	Reading N	Writing RMSD(x)	Writing N	Speaking RMSD(x)	Speaking N
5.5	0	6	0	13	0	17	0.555	48	0.396	30
6	0.564	43	0.22	23	0.35	46	0	193	0.233	106
6.5	1.067	107	0.09	49	0.464	99	1.119	184	0.206	130
7	0.871	129	0.072	67	0.086	84	0.642	71	0.431	122
7.5	0.321	139	0.086	86	0.46	86	0.175	15	0.978	81
8	0.717	79	0.555	110	0.854	68	0	2	0.088	31
8.5	0.207	8	0.121	119	1.01	75	0	0	0	7
9	0	0	0.381	47	0	37	0	0	0	3

Table 17. RMSD(x), SE Asia group

IELTS	Overall RMSD(x)	Overall N	Listening RMSD(x)	Listening N	Reading RMSD(x)	Reading N	Writing RMSD(x)	Writing N	Speaking RMSD(x)	Speaking N
5.5	0.039	6	0	13	0	17	0.276	48	0.473	30
6	0.067	43	0.122	23	0.139	46	1.136	193	0.191	106
6.5	0.174	107	0.409	49	0.603	99	1.018	184	0.525	130
7	0	129	0.687	67	0.474	84	0.723	71	1.173	122
7.5	0.796	139	0.555	86	0.567	86	0	15	0.744	81
8	0.68	79	0.592	110	0.115	68	0	2	0.472	31
8.5	0.194	8	0.508	119	0.412	75	0	0	0	7
9	0	0	0.222	47	0	37	0	0	0	3

Table 18. RMSD(x), Latin America group

IELTS	Overall RMSD(x)	Overall N	Listening RMSD(x)	Listening N	Reading RMSD(x)	Reading N	Writing RMSD(x)	Writing N	Speaking RMSD(x)	Speaking N
5.5	0	6	0.206	13	0.036	17	0.296	48	0	30
6	0.46	43	0.540	23	0.459	46	0.506	193	0.120	106
6.5	0.166	107	0.639	49	1.084	99	0	184	1.041	130
7	0.381	129	0.642	67	0.386	84	0.834	71	1.009	122
7.5	0	139	0.590	86	0.48	86	0.382	15	0.956	81
8	0.388	79	0.740	110	0.100	68	0	2	0.618	31
8.5	0.152	8	0.138	119	0.398	75	0	0	0.091	7
9	0	0	0	47	0	37	0	0	0	3

Conclusions

Summary of results

Interpreting concordance tables

The concordance between C1 Advanced and IELTS Academic scores Table 19. The concordance tables provided in the current report are intended to be applied to a particular population, i.e. the population of visa applicants to Australia who require a test to prove their level of English. This is because the sample was selected to represent that population and the analysis done to produce the concordance tables is designed to generalise from that particular sample to that particular population. Therefore, the concordance tables in this report should not be used for other populations (such as the global population of C1 Advanced and IELTS Academic test takers).

Table 19. Concordant scores for the levels described by the Australian migration legislation (reproduction of Table 1)

Department's decision level	Component/skill	Scores currently recognised for IELTS	C1 Advanced score range
Competent	Listening	6	163 - 174
	Reading	6	163 - 178
	Writing	6	170 - 192
	Speaking	6	179 - 193
Proficient	Listening	7	175 - 185
	Reading	7	179 - 189
	Writing	7	193 - 210
	Speaking	7	194 - 207
Superior	Listening	8	186 - 210
	Reading	8	190 - 210
	Writing	8	210 - 210
	Speaking	8	208 - 210

The prime use case for the concordance tables in this report is to determine the relationship between C1 Advanced and IELTS Academic results for the purposes of migration to Australia. In addition to score concordances, other relevant information, such as the Standard Error of Equating (SEE) and the range of C1 Advanced scores matched to an IELTS Academic score, is available to be used when making any decisions.

Information about population invariance (Table 13, Table 14, Table 16,Table 17 and Table 18) should also be considered. It shows whether and how much concordance results might differ for population subgroups. In this study, however, this should not be taken as any more than indicative due to the relatively small size of groupings. It shows whether and how much concordance results might differ for population subgroups.

Concordance tables with score ranges

In Table 19, the ranges given represent a continuum within each component because it is understood that test takers must fall into one of the three categories if they are at least competent. For example, Listening at the Competent, Proficient, and Superior levels corresponds to the following respective ranges: 163 - 174, 175 - 185, and 186 - 210. These ranges actually encompass IELTS half bands and the highest IELTS band (6.5, 7.5, 8.5, and 9) because they are not specific decision points. The full C1 Advanced to IELTS Academic concordance tables found in the Appendix are different from the abridged decision tables (Table 11 and Table 19) found in the main body of the current report. They contain all IELTS score points, and the range given for each row contains only the C1 Advanced scores that correspond to that specific score.

Concordance tables with SEE and confidence intervals

In Table 20, the Standard Error of Equating (SEE) represents the uncertainty of the equated score ('Advanced' in Table 20). A smaller number means more certainty that the equated score value given represents the actual value in the population (the 'true' value); a larger number represents greater uncertainty concerning the precision. Confidence intervals (95%) have also been constructed with the SEE. They represent the range within which the actual location can be known with a high degree of certainty.

For example, for Reading there is a 95% chance that the Advanced value, which corresponds to an IELTS score of 5.5, is between 160.2 and 162.4. The most likely value remains 160.9. For an IELTS score of 6.5, the confidence interval is 171.4 to 175.9. As both of these ranges do not overlap with that for an IELTS score of 5.5, we can have a very high degree of confidence that the equated score at each of these three points is distinct.

Table 20. Excerpt from full C1 Advanced to IELTS Academic Reading table

IELTS	Advanced	SEE	95% confidence interval
5.5	160.9	0.515	160.2 - 162.4
6	164.7	0.819	163.2 - 166.6
6.5	173.9	1.150	171.4 - 175.9

Limitations

Tests differ, sometimes significantly, in the ways information about English language ability is elicited and assessed. Score comparisons are only meaningful to the extent that the tests are measuring the same ability or skill. Tests can differ in the length of the reporting scales used. This study is based on the linking of two tests, C1 Advanced and IELTS Academic. A comparison of key aspects of these two tests has been presented, especially in terms of construct and reliability, but also in terms of scores. They were deemed to be sufficiently similar for a concordance exercise to be conducted. The use of the concordance of the two tests has, however, to be carefully considered, weighing the intended use and the similarities of the two tests.

The current study is based on a sample of test takers who represent the population of visa applicants to Australia requiring a test to prove their level of English. As with any sample, it is not a perfect representation of the population. One reason for this is that the practical task of recruiting suitable test takers is logistically difficult. This is made more difficult by the fact that the populations of each test and the population of migrants to Australia do not overlap exactly. In such circumstances, as in the current study, every effort was made to gather a sample which was as representative as possible of the population of interest, although limitations of representativeness are bound to be present. It should be noted, however, that the sample sizes used for comparing scores from different tests are generally small across all levels/ranges, especially at extreme ends of the scale. Score concordance results are generally more robust for proficiency levels with larger numbers of test takers.

In the current report, the importance of sample size has been mentioned previously. The larger the sample size, the smaller the error and the greater the certainty concerning results. If it were possible to include the entire population of interest in the study, the Standard Error of Equating (SEE) would be zero. However, since this is not feasible, the aim when selecting a target sample size is to gather enough test takers so that the error is sufficiently small for the purposes of the study. As far as is possible, this has been done for the current study, but this does not mean that replication studies would produce identical results. Small differences between parallel studies are normal when using a sample to represent a population. Nevertheless, relatively large standard errors show that score equivalences can be less precise at certain points on the ability scale.

It is not possible to conduct a population invariance study for every possible subgroup in the population. Those subgroups selected for analysis seemed to be a reasonable selection of subgroups of interest. In the case of nationality, the subgroups used comprised several nationalities. This was because having a small number of test takers at each score point means the results are more likely to be influenced by sample variation (individual differences within small samples are more noticeable). Even though grouping was used, there is still a possibility that, at some score points, the RMSD(x) is not very representative of the population. The figures for REMSD are likely to be more robust, as each is derived from the scores of a larger number of test takers. In addition, group sizes were rather small, and results should only be taken as indicative at best.

It is necessary for users to consider concordance scores in relation to the particular circumstances of the context of use. If, for example, population sensitivity or the Standard Error of Equating (SEE) were too large at a certain score point, it would be possible to say that the score correspondence at that point should not be used – for a particular subgroup of the population or for everyone. Setting a threshold for tolerance is not a technical question but a policy question. For the purposes of completing this report, clear separation between key decision points was adopted as a standard using the Standard Error of Equating to construct confidence intervals. Given that the confidence intervals at key decision points do not overlap, results presented in the report are considered acceptable.

Nevertheless, users of the concordance scores, are advised that score comparisons across tests, while based on empirical research, are estimates only and should be treated with caution. The choice of concordance study methodology may, in fact, produce variations in results. The populations of test takers may differ (e.g. with respect to ages, nationalities, and language backgrounds of test-takers) from the population used in the research that generated the score equivalences.

Because the score comparisons presented in the score comparison table are indicative only, score users are advised not to rely solely on published score equivalences in making their decisions. They should weigh evidence from additional sources where feasible.

In addition to the known uses of the concordance tables in this report, there is also the possibility that others may have different uses for the findings. Consequently, findings are given with as much supporting information as possible (including unrounded figures in the Appendices), and guidance on their use.

It should be noted that any reference to the Department of Home Affairs specific data has been sourced from publicly available information. Visa-specific scores are subject to change. Visa applicants need to check the Department of Home Affairs current English language requirements for the visa subclass they wish to apply for.

Recommendations for interpretation and use of concordance tables

With equating, except in specific cases where the full population is used to link the two tests, there will always be some uncertainty due to the use of a sample, rather than the full population to produce the concordance tables. Only users of the concordance tables can determine the level of uncertainty they are comfortable with, given their intended use. The role of those conducting the concordance is to provide users with adequate information so informed choices can be made. In this section, we will endeavour to summarise that information (which is mainly available elsewhere in the report) to facilitate their decision making at each of the Department's decision levels relevant to the current application. As group sizes in the population invariance study are relatively small, it is not suggested to use the results to determine how to use the concordance tables for visa applications.

Competent

IELTS Academic score: 6 for each component

Table 21. Advanced score ranges, equated scores, their SEEs and 95% confidence intervals for Competent

	Advanced score range	Equated score	SEE	95% confidence interval
Listening	163 - 174	165.5	1.379	162.6 - 167.9
Reading	163 - 178	164.7	0.827	163.2 - 166.5
Writing	170 - 192	175.3	0.461	174.6 - 176.6
Speaking	179 - 193	183.2	0.522	182.0 - 184.0

Table 21 shows that the SEE is larger at this level for Listening and Reading than it is for Writing and Speaking, resulting in wider confidence intervals for the equated score. However, this does not present a reason to interpret and use the tables differently.

Proficient

IELTS Academic score: 7 for each component

Table 22. Advanced score ranges, equated scores, their SEEs and 95% confidence intervals for Proficient

	Advanced score range	Equated score	SEE	95% confidence interval
Listening	175 - 185	178.2	0.938	176.1 - 179.9
Reading	179 - 189	181.4	0.710	180.1 - 182.8
Writing	193 - 210	196.6	0.938	195.1 - 199.6
Speaking	194 - 207	197.2	0.465	196.2 - 198.0

At the Proficient level, as shown in Table 22, Writing and Listening displays a higher level of SEE than the other components. However, this does not present a reason to interpret and use the tables differently.

Superior

IELTS Academic score: 8 for each component

Table 23. Advanced score ranges, equated scores, their SEEs and 95% confidence intervals for Superior

	Advanced score range	Equated score	SEE	95% confidence interval
Listening	186 - 210	189.4	0.764	188.2 - 191.2
Reading	190 - 210	192.1	0.883	190.8 - 194.2
Writing	210 - 210	210.3	0.243	208.9 - 210.4
Speaking	208 - 210	209.2	0.451	208.0 - 209.7

The level of error is highest for Listening and Reading for this decision point, as Table 23 shows. However, this does not present a reason to interpret and use the tables differently.

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Appendix

We recommend exercising caution when interpreting these findings, particularly avoiding reliance on the concordance tables in isolation. For guidance on how to use and interpret these tables, see section 'Recommendations for interpretation and use of results'.

Concordance tables by half-band increments of IELTS Academic scores are provided below at overall test-level and for the four components.

Overall

IELTS	Advanced		
	Score range	N	SE (of mean)
5.5	160 - 160	6	1.211
6	161 - 168	43	0.863
6.5	169 - 177	107	0.569
7	178 - 186	129	0.518
7.5	187 - 197	139	0.510
8	198 - 206	79	0.550
8.5	207 - 210	8	1.414
9	Na	Na	Na

Listening

IELTS	Advanced		
	Score range	N	SE (of mean)
5.5	160 - 162	13	2.461
6	163 - 167	23	2.632
6.5	169 - 174	49	1.792
7	175 - 180	67	1.302
7.5	181 - 185	86	1.042
8	186 - 193	110	0.939
8.5	194 - 206	119	0.857
9	207 - 210	47	1.146

Reading

IELTS	Advanced		
	Score range	N	SE (of mean)
5.5	160 - 162	17	2.370
6	163 - 167	46	1.811
6.5	168 - 178	99	1.225
7	179 - 184	84	1.243
7.5	185 - 189	86	1.213
8	190 - 195	68	1.197
8.5	196 - 209	75	1.097
9	210 - 210	37	1.343

Writing

IELTS	Advanced		
	Score range	N	SE (of mean)
5.5	160 - 169	48	0.823
6	170 - 179	193	0.559
6.5	180 - 192	184	0.644
7	193 - 202	71	1.002
7.5	203 - 210	15	1.434
8	Na	2	0.000
8.5	Na	Na	Na
9	Na	Na	Na

Speaking

IELTS	Advanced		
	Score range	N	SE (of mean)
5.5	160 - 178	30	1.113
6	179 - 186	106	0.581
6.5	187 - 193	130	0.585
7	194 - 200	122	0.609
7.5	201 - 207	81	0.618
8	208 - 210	31	0.850
8.5	Na	7	0.714
9	Na	3	0.000

Concordance tables reporting SEE and 95% confidence intervals (CI) by half-band increments of IELTS Academic scores are provided below at overall test-level and for the four components.

Overall

IELTS	Advanced	SEE	95% confidence interval
5.5	159.9	0.413	159.7 - 161.9
6	165.8	0.539	164.5 - 166.7
6.5	174.0	0.553	172.9 - 175.1
7	182.0	0.504	181.2 - 183.1
7.5	191.9	0.499	190.7 - 192.7
8	201.0	0.550	199.8 - 201.9
8.5	207.7	0.897	206.3 - 209.7
9	210.5	0.297	207.5 - 210.5

Listening

IELTS	Advanced	SEE	95% confidence interval
5.5	160.4	0.732	160.0 - 163.6
6	165.5	1.410	162.3 - 168.0
6.5	171.3	1.142	169.2 - 173.7
7	178.2	0.885	176.3 - 179.9
7.5	183.5	0.625	182.1 - 184.6
8	189.4	0.752	188.2 - 191.1
8.5	199.3	0.824	197.8 - 200.9
9	209.7	0.307	208.1 - 209.9

Reading

IELTS	Advanced	SEE	95% confidence interval
5.5	160.9	0.515	160.2 - 162.4
6	164.7	0.819	163.2 - 166.6
6.5	173.9	1.150	171.4 - 175.8
7	181.4	0.734	179.9 - 182.9
7.5	186.8	0.690	185.4 - 188.1
8	192.1	0.867	190.8 - 194.2
8.5	201.6	1.545	198.9 - 205.2
9	210.1	0.078	209.9 - 210.2

Writing

IELTS	Advanced	SEE	95% confidence interval
5.5	166.4	0.895	164.5 - 167.9
6	175.3	0.439	174.7 - 176.6
6.5	185.4	0.688	183.4 - 186.2
7	196.6	0.976	195.1 - 199.6
7.5	205.8	1.781	203.1 - 209.7
8	210.3	0.321	207.8 - 210.4
8.5	210.5	0.164	210.1 - 210.5
9	210.5	0.143	206.9 - 210.5

Speaking

IELTS	Advanced	SEE	95% confidence interval
5.5	175.1	1.364	171.3 - 177.3
6	183.2	0.537	182.0 - 184.1
6.5	190.2	0.532	189.2 - 191.3
7	197.2	0.481	196.2 - 198.0
7.5	203.6	0.641	202.6 - 205.1
8	209.2	0.442	208.0 - 209.7
8.5	210.2	0.101	209.9 - 210.4
9	210.4	0.036	210.3 - 210.5

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