

Production of a second edition of the ICAO Training Aid: *Rated Speech Samples*

Introduction

In almost all cases, human raters are required to assess the speech of pilots and air traffic controllers in language tests for license endorsement. Language rating is very high stakes, and raters carry a very significant responsibility in the effective implementation of the ICAO Language Proficiency Requirements (LPRs). To achieve minimum acceptable levels of comparability and reliability in test results, it is crucial for raters worldwide to standardise language proficiency assessment.

In order to assist states, operators, ANSPs and language testers, ICAO published the CD ROM Training Aid '*Rated Speech Samples*' in 2006. This training aid contains 13 spoken language performances rated at levels ranging from level 3 to level 5 of the ICAO Rating Scale. A training aid of this sort is potentially an effective tool contributing to the standardisation of language raters worldwide. However, for a number of reasons, the first edition of the training aid is problematic.

Firstly, ICAO began collecting samples of language performances for the first edition of the training aid in 2004, just one year after the adoption of the ICAO language proficiency requirements. Due to its early publication, the first edition of the training aid contains speech samples that were generated from language tests that hadn't had the benefit of extensive trialing and validation, and whose developers hadn't had ICAO guidance documentation to refer to¹. Therefore, the speech samples included in the first edition of the training aid reflect language tests in their early stages of development. Some of the speech samples included demonstrate test formats, test content and test delivery techniques which would appear, in hindsight, to be irrelevant and/or inappropriate. Other samples are simply recordings of interviews with controllers and pilots in non-test situations.

Secondly, the first edition contains a rather restricted range of language performances which serve to demonstrate proficiency at ICAO levels 3, 4 and 5. There are seven performances rated at level 3, five performances rated at level 4 and only one performance rated at level 5.

Thirdly, the first edition contains language performances by speakers of a rather limited range of first language backgrounds. There are South American Spanish, Mandarin Chinese, Japanese, French, Polish, Thai and Hungarian speakers of English, but some of the significant world language groups were not represented. This resulted in a training aid which was not adequately representative of the community it was designed to serve.

Fourthly, the raters participating in the production of the first edition were limited in number and range of first language (L1) backgrounds. This, again, resulted in ratings which are not adequately representative of the international aeronautical community.

Finally, the sound quality of some of the samples is poor.

¹ In 2004, ICAO published the *Manual of implementation of ICAO Language Proficiency Requirements* (Document 9835). Chapter 6 contains essential guidance for language test developers. The 2006 *Rated Speech Samples* training aid contained an ICAO policy statement on language testing. In 2008, ICAO published *Language Testing Criteria for Global Harmonization* (Cir 318-AN/180) which contains further detailed guidance to language test developers and language test users.

For the above reasons, a new, updated and improved Rated Speech Samples (RSS) training aid would be a very useful tool at this critical stage of LPR implementation.

Objective

To produce a second edition of the RSS training aid with the following features:

- language performances containing appropriate and relevant communicative exchanges selected on the basis of criteria pre-determined by an international panel of academic and operational experts;
- speech samples of some eight to ten language performances at each of ICAO levels 3,4 and 5;
- for reference purposes, two to three speech samples at both ICAO levels 2 and 6;
- language performances given by speakers of a wider range of first language backgrounds covering the most significant variants of the main geographical regions;
- ratings from an increased number of raters from a wider range of first language backgrounds;
- a procedure for data collection and analysis reflecting standard practice in language assessment;
- reference to ICAO guidance documentation on language assessment; and
- improved sound quality.

Proposed date for handover: Speech samples would be available incrementally on the ICAO website from the end of summer 2010, with a final handover date by December 2010.

The specifications and budget proposed below are based on the assumption that ICAEA Board members, academic and operational experts and raters will generously devote their time to this project **free of charge** (FOC) given the potential value of the resulting project for the aviation community.

The presence of at least one professional pilot and one air traffic controller familiar with Language Proficiency Requirements, preferably both non-native speakers of English, particularly with a view to the technical accuracy and relevance of scenarios and language exchanges taking place in the various performances and the operational validity of the rating, is a prerequisite.

The rated speech sample project has been approved by ICAO in order to make a revised second edition of the speech sample training aid available for downloading free of charge from the ICAO website with a view to facilitating as wide a distribution as possible, as soon as possible, in the period leading up to March 2011.

NOTE:

- The use of any sample will not constitute in any way an ICAO endorsement or acknowledgment of compliance of the test system from which it is taken. This will be made explicit in communications with providers of samples and with raters.
- Regular communications will be maintained between ICAEA and ICAO on the progress of the project.

Project specifications

Phase 1: Preparation

1) Establish a working group of ICAEA officers, language testing experts and experienced practitioners of aviation language testing:

- Henry Emery, VP, ICAEA (Project Chair)
- Philip Shawcross, President, ICAEA, (Project Secretary)
- Professor J Charles Alderson, University of Lancaster
- Angela French, ICAEA, Cambridge ESOL
- Bozena Slawinska, General Secretary, ICAEA, Polish Air Navigation Services Agency
- Gabor Sipos, ICAEA, HungaroControl
- Captain Sutas Dejkunjorn, Thai Airways International
- Captain Herbert Schwarz, Austrian Airways
- René Sanchez, ATM Inspector COCESNA, Costa Rica
- Dr Terence Gerighty, Treasurer, ICAEA
- Dr Ute Knoch, University of Melbourne (Statistical analysis in Phase 4)

In addition two further subject matter experts will support the panel:

- Captain Michel Menestrot, Air France, head of Airbus flight training India
- Ronald Vega Bolanos, Directorate General of Civil Aviation, Costa Rica

In Phase 1, the tasks of this working group will be to:

- Tighten up the project specifications;
- Review and, if necessary, develop:
 - a) rigorous criteria for selection of speech samples and suitable tasks;
 - b) identify good practice in testing
 - c) criteria for selection of raters;
 - d) guidance material for raters;
- Design the rating and data collection process.

Much of this work can be done via telephone, Skype and email.

2) In Phase 1, ICAEA will also need to:

- Approach ICAO to get firm commitment of partnership, particularly in terms of ICAO distributing the completed RSS Training Aid; and
- Approach sponsors for potential funding. ICAO's support in identifying potential sponsors would be appreciated.

Phase 1 Budget

Items	Detail	Amounts
Preparatory work	Enlisting participants, drafting specifications, drawing up budget by 2 ICAEA Board members	3 days

Working group preparation	Study of specifications, comments, feedback, modifications	5 days
1-day working group meeting: - attendance - travel expenses - accommodation - eating expenses - SME per diems Premises provided by one of the working group members	up to 9 working group members FOC (4 air fares, 3 rail fares)	9 days £600 £500 £300 £900
Writing up working group minutes and action plan	Working group secretary	1 day
Communication with ICAO and potential sponsors	Discussion with ICAO about the conditions of the collaboration, preparing communication and contacting potential sponsors by 2 ICAEA Board members	2 days
Telephone and postal expenses		£30
Total manpower		20 working days FOC
Total expenses		£2330(2563€)*

*On the assumption of £1 = 1.1 €

Timeline: July – 31st October 2009

Phase 2: Gathering speech samples

1) ICAEA project officers to:

- Approach test providers and ask for donation of speech samples and test materials compliant with written criteria established in phase 1.
- Pre-select speech samples on basis of basic criteria (sound quality, length, format etc)
- In Phase 2, the tasks of the working group will be to:
- Screen speech samples based on second stage criteria (probably best done remotely by email)
- Review the design of the rating and data collection process
- Meet to:
 - a) make final selection of speech samples
 - b) finalise guidance for raters
 - c) finalise procedures for managing rating and data collection

- 2) Develop a password-protected website through which raters can access samples and test materials, find guidelines and documentary support and submit ratings and comments on performances.

Phase 2 Budget

Items	Detail	Amounts
Liaising with test providers and other sources of speech sample material	2 ICAEA Board members	2 days
Pre-selection of speech samples submitted	2 ICAEA Board members	2 days
Development of speech sample website: <ul style="list-style-type: none"> - website architecture & provider selection - rental - IT and sound file expertise - drafting & posting of guidance and other documentation 	2 ICAEA Board members and outside expertise	1 day £100 £1,800 2 days
Screening of speech samples by working group	9 original working group	20 days
Administration of recordings and liaison with sample providers and IT (1/2)		£1,000
Full 3-day working group meeting <ul style="list-style-type: none"> - attendance - European travel expenses - 1 transatlantic travel expenses - accommodation - eating expenses - SME per diems Premises provided by one of the working group members	9 working group members	27 days £1600 £1,350 £1,300 £700 £1800
Writing up working group minutes & action plan and uploading identified selected speech samples onto website & documenting site and process	2 ICAEA Board members	2 days
Telephone and postal expenses		£30
Total manpower		56 working

		days FOC
Total expenses		£9680 (10,648€)

Timeline: November 2009 – March 2010

Phase 3 Data collection and analysis

- 1) The first action in Phase 3 is to generate interest in participating in the project among the rating community. This is important as the raters will not be paid for their work. ICAEA will need to publicise the project through the following channels and networks:
 - ICAO
 - ICAEA
 - IFATCA
 - Personal contacts
- 2) Once the project has generated interest, ICAEA officers will ask potential raters to
 - submit a completed CV pro-forma which
 - a) determines that the rater meets the criteria established in phase 1; and
 - b) allows ICAEA to gather generic information on the raters involved with the project.
- 3) Invite raters to rate a minimum number of specific samples and submit their ratings and comments via the website. Samples will be rated systematically by raters with different L1s and from different world regions.
- 4) Review the design of the rating and data collection process as required
- 5) The working group will review and annotate the ratings remotely

Phase 3 Budget

Items	Detail	Amounts
Communicating and liaising with raters worldwide	2 ICAEA Board members	4 days
Reviewing raters' CVs	2 ICAEA Board members	2 days
Producing rater guidelines (on line)	2 ICAEA Board members	1 day
Administration of recordings and liaison with raters and IT (2/2)		£1,000
Reviewing, selecting and annotating ratings by working group (remote)	Working group	30 days
Telephone and postal expenses		£30
Total manpower		37 working days FOC
Total expenses		£1030 (1133€)

Timeline: February – June 2010

Phase 4: Training aid production

- 1) Conduct statistical analysis (Dr Ute Knoch)
- 2) Selected samples will be transcribed for reference in rationales
- 3) Volunteer ICAEA Board members will write up rationale sheets to complete and illustrate the raters' rating sheets
- 4) Form a working group for Phase 4 to include
 - ICAEA officers
 - language testing experts
 - air traffic controllers
 - pilots
 The tasks of this group will be to:
 - Review FACETS results
 - Review speech sample rationales and edit introductory documentation to accompany the speech samples
- 5) Handover to ICAO for distribution from their website.

Phase 4 Budget

Items	Detail	Amounts
Statistical analysis	Dr. Ute Knoch	2 days
Transcription of selected samples		10 days
Writing up rationale sheets as per existing sheets in ICAO Speech Sample Training Aid CD and writing notes and referring to examples to substantiate rating	Volunteer ICAEA Board members	20 days
Interrogation of FACETS by rationale writers		5 days
Checking of rationales by an independent person		5 days
IT and sound file expertise		£1,000
Working group preparation	9 working group members (remotely)	9 days
Working group meeting (2 days) <ul style="list-style-type: none"> - attendance - travel expenses - accommodation - eating expenses - SME per diems Premises provided by one of the working group members	up to 9 working group members FOC	18 days £1600 £900 £500 £900
Writing up working group minutes, rectifying rationales & finalizing draft of	2 ICAEA Board members	3 days

introductory documentation		
Finalizing speech sample folder ready for delivery	1 ICAEA Board member	1 day
Telephone and postal expenses		£30
Total manpower		73 working days FOC
Total expenses		£4930 (3682€)

Timeline: June – December 2010

Overall budget Phases 1 to 4

Total Manpower: 186 working days (not including the considerable amount of time devoted by volunteer raters)

Total expenses: £17,970 (19,767 €)

For information:

Equivalent value of 186 days of pro bono work at 400 € per day: 74,400 € making an overall budget / value of 94,167 € (pro bono manpower plus direct expenses)