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Title: **AMR-WB Selection Test Plan (WB-8b) Version 1.0 (Final)**

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Changes from version 0.9:

- All pending points (previously marked in italics) were accepted by marking them in normal font.
- Missing map of practice numbers to main test numbers were added (see revision marks)
- Incorrect practice condition descriptions were corrected in a number of experiments (see revision marks)

This is the final issue of the AMR-WB Selection Test Plan.

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1 Introduction

This document is the permanent document WB-8b and contains the complete set of experimental designs for the selection phase of the Wideband Adaptive Multi-Rate speech codec (AMR-WB).

The selection tests are split in 6 experiment categories:

- Experiment 1: Input Level and tandeming performance for clean speech (ACR)
- Experiment 2: Clean Speech performance with static errors (ACR)
- Experiment 3: Car and Street noise performance for the GSM FR channel (DCR)
- Experiment 4: Car and Street noise performance for higher-rate channels (DCR)
- Experiment 5: Performance in Dynamic Conditions (ACR)
- Experiment 6: VAD/DTX in GSM FR channel for Application B (CCR)

All experiments are dimensioned for the simultaneous test of 5 different AMR candidates, and four applications are considered:

- Application A: GSM full-rate traffic channel (22.8 kbit/s gross bit-rate) with an additional constraint of 16 kbit/s A-ter sub-multiplexing
- Application B: GSM full-rate traffic channel (22.8 kbit/s gross bit-rate)
- Application C: EDGE phase II channels
- Application E: 3G UTRAN WCDMA channels

Five candidate codecs will participate in this exercise:

- Ericsson
- Motorola
- Nokia
- Texas Instruments
- FDNS (France Telecom; T-Nova Deutsche Telekom Berkom; Nortel Networks; Siemens)

All experiments but Experiment 6 are divided into sub-experiments, as shown in Table 1-1.

Table 1-1: Sub-experiments for the AMR-WB tests

Exp. No		Investigation Area	Noise	Method	Stimulus/	Talkers	Samples/	Total
New	Old						talker	
1A	3A	Input Level and Tandeming/Clean Speech/Applications A and B	C	ACR	SP	4	6	56
1B	3B	Input Level and Tandeming/Clean Speech/Applications C and E	C	ACR	SP	4	6	36
2A	1A’	Clean Speech and in Static Error for GSM FR Channel (Application A)	C	ACR	SP	4	6	36
2B	1A"	Clean Speech and in Static Error for GSM FR Channel (Application B)	C	ACR	SP	4	6	36
2C	1B’	Clean Speech and in Static Error for Higher-rate channels (Application C)	C	ACR	SP	4	6	40
2D	1B”	Clean Speech and in Static Error for Higher-rate channels (Application E)	C	ACR	SP	4	6	36
2E	1C	Clean Speech & Static Errors for GSM EFR and WB->NB tandeming	C	ACR	SP	4	6	56
3A	2A’	GSM FR channel (Application A) in Car noise	N	DCR	SP	4	6	36
3B	2B’	GSM FR channel (Application A) in Street noise	N	DCR	SP	4	6	36
3C	2A"	GSM FR channel (Application B) in Car noise	N	DCR	SP	4	6	36
3D	2B"	GSM FR channel (Application B) in Street noise	N	DCR	SP	4	6	36
3E	2E	GSM EFR performances in Car and Street noise	N	DCR	SP	4	6	24
4A	2C’	Higher-rate channels (Appl.C) in Car noise	N	DCR	SP	4	6	40
4B	2D’	Higher-rate channels (Appl. C) in Street noise	N	DCR	SP	4	6	40
4C	2C"	Higher-rate channels (Appl. E) in Car noise	N	DCR	SP	4	6	36
4D	2D"	Higher-rate channels (Appl. E) in Street noise	N	DCR	SP	4	6	36
5A	4A	Performance in Dynamic Conditions for AMR-WB (Application A)	C	ACR	SQ	4	6	48
5B	4B	Performance in Dynamic Conditions for EFR	C	ACR	SQ	4	6	36
6A	5A’	VAD/DTX in GSM FR channel for Application B	N	CCR	SP	4	3	40

Section 2 provides a list of reference documents and contact names for any question related to the test plans.

Section 4 gives an overview of the speech material required for this testing. The specification of the processing functions of the speech material is included in the permanent document WB-7b.

Sections 5 to 10 contain the test plans for each experiment.

Annex A contains English language examples of instructions for the listening subjects for the three test methodologies used in these experiments: ACR, Modified DCR and CCR.

Annex B presents the filename convention and Annex C contains the presentation tables for the experiments.

1.1 Responsibilities

The speech processing will be shared between the host laboratory and the candidates (processing and post-processing with their solution). The funding for the Selection tests will be equally shared between the proponents.

ARCON and COMSAT will perform as host laboratories. The host laboratories will have the following responsibilities:

- receive the raw speech material from listening laboratories and distribute to candidates for processing
- prepare the reference conditions for the different experiments
- receive the post-processed material from the candidates and assemble the final distribution to the listening laboratories, which includes blinding of the speech material

The candidate proponents are responsible for the pre-processing, processing, and post-processing (upto before separation of concatenated files) of the speech material through its own candidate codec as well as cross-checking of the processing performed by one other candidate proponent, as set forth in Table 1-2.

NOTE: The responsibilities of the host lab and candidate proponents are given in detail in Permanent Document WB-6b.

Table 1-2: Cross-check assignment for candidate proponent processing

Candidate	Will cross-check
Ericsson	Motorola
Motorola	Nokia
Nokia	Texas Instruments
Texas Instruments	FDNS
FDNS	Ericsson

The selection experiments will be performed by multiple test houses as shown in Table 1-3. The assignment of listening laboratories to host laboratories is shown in Table 1-4. Tests will be conducted in five languages: Chinese (Mandarin), French, Japanese, North American English,and Spanish.

Table 1-3: Allocation of Experiments to the Listening Laboratories

Exp.	ARCON	AT&T	COMSAT	Dynastat	FT	NTT-AT	Total	Size
LL ID	R	A	C	D	F	N	Per Exp.	
1A	NAE				FR		2	56
1B	NAE				FR		2	36
2A				NAE		JP	2	36
2B				NAE		JP	2	36
2C				NAE		JP	2	40
2D				NAE		JP	2	36
2E				NAE		JP	2	56
3A		SP	NAE				2	36
3B		SP	NAE				2	36
3C		CH	NAE				2	36
3D		CH	NAE				2	36
3E			NAE	SP			2	24
4A		NAE	SP				2	40
4B		NAE	SP				2	40
4C			SP	NAE			2	36
4D			SP	NAE			2	36
5A		NAE			FR		2	48
5B		NAE			FR		2	36
6A	NAE					JP	2	40
Totals:	3	8	9	8	4	6	38	

Note: NAE: North American English; CH: Mandarin/Chinese; SP: Spanish; FR: French; JP: Japanese

Table 1-4: Allocation of listening and host laboratories to experiments**.**

	Host Lab	
Exp.	**ARCON**	**COMSAT**
1A	ARCON	FT
1B	ARCON	FT
2A	Dynastat	NTT-AT
2B	Dynastat	NTT-AT
2C	Dynastat	NTT-AT
2D	Dynastat	NTT-AT
2E	Dynastat	NTT-AT
3A	AT&T	COMSAT
3B	AT&T	COMSAT
3C	AT&T	COMSAT
3D	AT&T	COMSAT
3E	Dynastat	COMSAT
4A	AT&T	COMSAT
4B	AT&T	COMSAT
4C	Dynastat	COMSAT
4D	Dynastat	COMSAT
5A	AT&T	FT
5B	AT&T	FT
6A	ARCON	NTT-AT

Each test house will be asked to provide a full report of the experiments performed as part of the AMR-WB selection phase. The test results will be included in spreadsheets prepared to that purpose. Any deviations from the specifications contained in this document will be documented along with the results.

The test results will then be combined by the Global Analysis Laboratory [TBD] and presented to SMG11 after computation of the Figure of Merit and selection criteria defined in WB-4. A new blind mapping will be prepared before the presentation of the results to 3GPP/SA4.

1.2 Contact Names

The following persons should be contacted for questions related to the test plan.

Section	Contact Person/Email	Organisation	Address	Telephone/Fax
General Editing	Simão F. Campos Neto simao.campos@comsat.com	COMSAT	22300 COMSAT Drive Clarksburg, MD 20871 USA	Tel: +1-301-428-4516 Fax: +1-301-428-9287
Processing of Speech Samples	Paul Barret paul.barret@bt-sys.bt.co.uk	BT Laboratories	Martlesham Heath Ipswich, Suffolk IP5 7RE United Kingdom	Tel: 44 (0)1473 645655 Fax: 44 (0)1473 645011
Global Analysis	John Tardelli jdt@arcon.com	ARCON	260 Bear Hill Road Waltham, MA 02451-1080 USA	Tel: +1-781-308-1414 or +1-781-890-3330 x225 Fax: 781 890 8706
AOB	Paolo Usai paolo.usai@etsi.fr	ETSI PT/SMG	650 Route des Lucioles 06921 Sophia Antipolis Cedex France	Tel: 33 (0)4 92 94 42 36 Fax: 33 (0)4 93 65 28 17

Any comment on the Test Plan should be forwarded through the TSG-S4 email exploder (`3GPP_TSG_SA_WG4@list.3gpp.org`). To subscribe to this reflector, send a message to `listserv@list.etsi.fr` with the following contents (anything on the subject field):

```
SUBSCRIBE 3GPP_TSG_SA_WG4
```

Follow the instructions in the subsequent emails from the list server to complete the subscription.

2 References and Conventions

2.1 Permanent Documents

The permanent documents listed in the following table provide additional information on the AMR project.

WB Perm.#	Subject	Editor	Last version
1	Overview	Imre Varga (Siemens)	S4-000320
2	Project plan	Imre Varga (Siemens)	#N/A
3	Performance requirements	Paul Barrett (BT)	S4-000321
4	Design constraints	Kari Järvinen (Nokia)	S4-000340
5	Selection Rules		
5a	*Selection rules for qualification phase*	Alain Ohana (GSM North America)	*S4-000183*
5b	*Selection rules for selection phase*	Alain Ohana (GSM North America)	*S4-000337*
6	Deliverables		
6a	*Deliverables for qualification phase*	Steve Aftelak (Motorola)	*S4-000189*
6b	*Deliverables for selection phase*	Steve Aftelak (Motorola)	*S4-000339*
7	Processing functions		
7a	*Processing functions for qualification phase*	Paul Barrett (BT)	*S4-000191*
7b	*Processing functions for selection phase*	Paul Barrett (BT)	*#N/A*
8	Test plans		
8a	*Test plans for qualification phase*	Janne Vainio (Nokia)	*S4-000162*
8b	*Test plans for selection phase*	Simão Campos (COMSAT)	*S4-000338*
9	Test reports		
9a	*Test results for qualification phase*	Alain Ohana (GSM North America)	*S4-000276*
9b	*Test results for selection phase*	[tbd by SQ]	*#N/A*

2.2 Reference Documents

[I] ITU-T P-800 Methods for Subjective Determination of Transmission Quality

[2] ITU-T P-830 Subjective performance assessment of telephone-band and wideband digital coders

2.3 Key Acronyms

ACR Absolute Category Rating

AMR see AMR-NB

AMR-NB AMR Narrowband Speech Codec (300Hz-3kHz)

AMR-WB AMR Wideband Speech Codec (50Hz-7kHz)

BER Bit Error Rate

C/I Carrier to Interference Ratio

CCR Category Comparison Rating

DCR Degradation Category Rating

DECi Dynamic Error Condition #i for Dynamic C/I conditions

ECx Error Condition for static C/I conditions with C/I = x dB

EFR GSM Enhanced Full Rate Speech codec

EP Error Pattern

FR GSM Full Rate channel or existing GSM Full Rate Speech Codec

HR GSM Half Rate channel or existing GSM Half Rate Speech Codec

MNRU Modulated Noise Reference Unit

MOS Mean Opinion Score

S/N Signal to Noise Ratio

3 Source Recordings

3.1 Input Material for Experiments 1, 2, 3, 4 and 6

The input material, including practice sentences, consists of different simple meaningful sentences as described in Annex B1.4 of ITU-T Rec. P.800 [2] grouped into *sentence-pairs*.

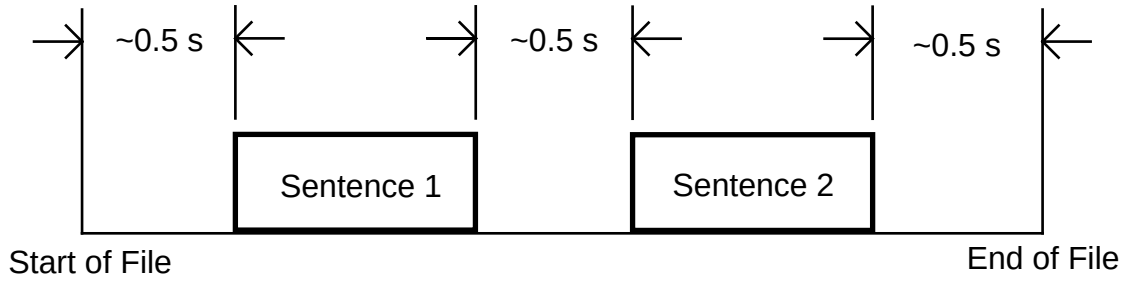

Figure 1: Example of sentence-pair speech file structure

A source speech file contains one pair of sentences lasting exactly 8 seconds, with a flexible time interval between sentences. An approximate 0.5 seconds period of silence precedes the first sentence in the file, and a similar period of silence follows the second sentence in the file. The speech files are organised as in the example shown in Figure 1.

It must be noted that the trailing silence of 0.5s after the end of the second sentence in the file is of extreme importance, since there are (for some conditions) a series of FIR filters with large number of coefficients. If the prescribed trailing silence is not present, there is a considerable risk that speech will be clipped at the end of the file.

Pre-recorded source speech material may be purchased as described in Section 3.3. Preferably, the test house should provide its own source speech material. It is then recommended to use the procedure contained in Section 3.4.

3.2 Input Material for Experiment 5

Each sample will contain 4 different sentences and will last nominally 16 seconds, with a time interval between sentences as described in Annex B1.4 of ITU-T Rec. P.800 [1]. All source speech files within an experiment will have exactly the same length. An approximate 0.3-0.5 seconds period of silence precedes the first sentence in the file, and a similar period of silence follows the last sentence in the file. The speech files are organized as in the example shown in Figure 2. The sentences will be simple meaningful sentences as described in Annex B1.4 of ITU-T Rec. P.800 [1]. Active speech in each source speech file should be present for not less than 9 seconds and not more than 12s. It should be noted that this last requirement might be hard to meet for some speech databases. The typical English Harvard Sentence is less that 2 seconds long. Four of these would be less than the required 9 seconds of active speech. Therefore a reasonable relaxation of this last requirement will be tolerated.

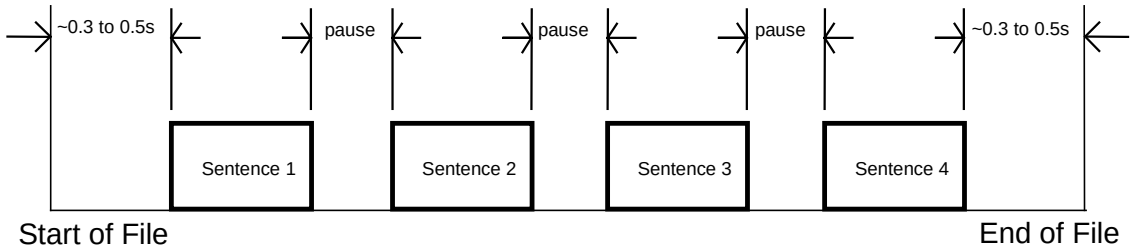

Figure 2: Example of Speech file structure for sentence-quadruples

3.3 Pre-recorded Input Material

A "Multi-lingual Speech Database for Telephonometry 1994", on 4 CD-ROM disks, used to be available from NTT-AT, No.7 Hakuei Buildg, 2-4-15 Naka-machi, Musashino-shi, 180 Japan (phone: +81-422-37-0823, fax: +81-422-60-4806; or in the WEB at `www.ntt-at.com`).

In this database, the speech samples consist of pairs of short sentences with a total length of 8-10 seconds. Each sentence lasts between 2 to 3 seconds. Four male and four female native speakers are assigned to each of the 21 languages and 96 speech samples are available for each language. The sampling rate is 16 kHz. Active speech level (as defined in ITU-T Rec. P.56) of every speech sample is adjusted to -26dB relative to the overload point of the 16-bit word length.

Each CD consists of two different areas: audio and data. Speech samples in the audio area are digitised by 44.1 kHz and 16 bits word length linear PCM and can be played back by a commercial CD player. All speech samples in the data area are recorded in standardised format in 16-bit, 2's complement, low-byte first (little endian) format and can be retrieved by an ordinary PC-DOS system and CD-ROM reader.

3.4 Recording Environment

When preparing the source material, it is recommended to follow the procedure described in this section. The speech recordings should be made in acoustical and electrical environments complying with the requirements given in Annex B.1.1 of ITU-T Rec. P.800 [2].

3.4.1 Recording System

The recommended method is to record the speech with a linear microphone and a low-noise amplifier with flat frequency response, digitise the speech, and then flat filter and level equalise. To achieve optimum SNR, the microphone should be positioned 15 to 20 cm from the talker's lips. A windscreen should be used if breath puffs from the talker are noticed.

The recordings should be made directly into a computer (A/D) or via a high quality recording system such as a DAT.

3.4.2 Equalisation of Speech and Noise Level

Each pre-recorded speech file should be measured with the P.56 algorithm and level adjusted with the gain/loss algorithm to the level required for each test condition as defined in the following sections. The pre-processing required for each experiment is provided in the Processing Plan (Permanent Document WB-7b). When the nominal level is required, this level should be set to -26 dBov (±1 dB) below the digital overload. Each pre-recorded noise file should be measured with the RMS computation algorithm and level adjusted with the gain/loss algorithm to the required level.

4 Information relevant to all Experiments

4.1 General Technical Notes

Any and all deviations from the specifications contained in this document and the Processing Functions document [WB-7b] must be documented and submitted to TSG-S4-SMG11 along with the experimental results.

In the selection phase, it will not be possible to test all codec modes included in each solution and draw the full family of curve for each candidate. This will be done as part of the characterisation phase for the selected AMR-WB solution. For Experiments 1, 2, 3, 4, and 6, the proponent must select which codec mode provides the best performance and should be tested for each test condition. For these experiments, the codec adaptation should be turned off. In Experiment 5, the codec adaptation must be turned on and all codec modes included in the AMR operation.

Where there is an asymmetry in the uplink and downlink in terms of allocation of bits for signaling, the link with the highest amount of signaling bits will be considered in determining the performance of the candidate. This requirement applies to Experiments TBD.

In Experiments 2, 3, and 4, the speech quality is evaluated with different levels of propagation errors corresponding to different static C/I conditions ranging from 4 dB C/I to 13 dB C/I; error-free conditions are also assessed. In static C/I conditions, the average C/I over the duration of the test condition is set to a fixed value.

In Experiment 5A all candidate codecs are tested in dynamic C/I conditions with the adaptation algorithm activated. The codec performance is compared to the performance of the EFR speech codec, which is performed in Experiment 5A. In dynamic C/I conditions, the average C/I is changing over the duration of the test condition, exploring a wide range of C/I levels. In these conditions the candidates are expected to switch between the codec modes to always provide the best possible quality. For dynamic WB test cases the MOS-reference is the highest bit-rate in application A (no errors case). The same mode will be also used in the static no error test case for application A. The candidate has to include this same mode into the mode set used in the dynamic testing. So the mode set would include maximum of four modes including the "14k-mode".

Experiment 1, 2, 3, 4, and 6 use speech samples organized in sentence-pairs (8-seconds long). Experiment 5 requires speech samples organized in sentence-quadruples (16-seconds long).

For all experiments, subjects should be seated in a quiet environment; 30dBA Hoth Spectrum (as defined by ITU-T, Recommendation P.800, Annex A, section A.1.1.2.2.1 Room Noise, with table A.1 and Figure A.1) measured at the head position of the subject. This will help ensure consistency between the different subjects in the same laboratory as well as across the different laboratories in which these experiments will be performed. Where the experiment design and listening environment allows for multiple subjects in each listening session, the requirements stated above apply to each of the positions the different subjects will occupy. In addition, where there are multiple simultaneous subjects, they should not be able to see the responses made by other subjects. Subjects should also be told not to discuss the experiment with subjects who are yet to participate. A test house performing multiple experiments must use different listening subjects for each experiment or each sub-experiment. The listening laboratory must provide the speech sample they plan to use for the testing.

The test stimuli will be presented to the subjects over headphones meeting one of the following requirements:

1) Monaural listening using a closed-back, supra-aural headphone with one earcup removed, for labs that are testing one or more subjects at a time;
2) Monaural listening using an open-back, circum-aural headphone in listening rooms equipped with adequately isolated voting booths while testing one or more subjects at a time;
3) Monaural listening using an open-back, circum-aural headphone in listening rooms **not** equipped with adequately isolated voting booths while testing **only one** subject at a time.

For the narrowband Experiments 2E, 3E, and 5B, the modified-IRS receive response will be applied to the processed files as part of the host laboratory function (see the Processing Plan). This way, the same basic circuitry can be used for all experiments.

4.2 Error Patterns and Error Conditions

For the purpose of the Qualification Tests, the candidate algorithms will be tested in Error Conditions corresponding to a number of these applications. To that purpose, a number of Error Patterns will be prepared and provided to the proponents for the processing of the speech material.

The introduction of radio propagation errors for the test under error conditions may be achieved using a conventional Error Insertion Device fed by dedicated Error Patterns, or using a full system simulation including the Radio Simulator developed by [TBD] for the AMR-WB project. The Error Patterns themselves are generated using the Radio Simulator with a dedicated set of random seeds and radio parameters.

Both procedures should give equivalent results providing that the same seeds are used for the configuration of the Radio Simulator as those used for the generation of the Error Patterns.

As a result, the test conditions included in Experiment 1 to 6 refer to Error Conditions rather than Error Patterns. Error Conditions correspond to dedicated radio settings of the Radio simulator. Multiple Error Patterns can be derived for the same Error Condition depending on the settings of the Radio Simulator. The set of Error Patterns to use for the selection phase (and the seeds used to derive them) is available on the ETSI Server as defined in the AMR permanent document AMR-13.

The following set of Error Conditions are used for the AMR-WB selection phase:

- EC4: Error Conditions for Static C/I Conditions at 4 dB (Applications A/B)
- EC7: Error Conditions for Static C/I Conditions at 7 dB (Applications A/B)
- EC10: Error Conditions for Static C/I Conditions at 10 dB (Applications A/B)
- EC13: Error Conditions for Static C/I Conditions at 13 dB (Applications A/B)
- EC16: Error Conditions for Static C/I Conditions at 16 dB (Applications A/B)
- EC19: Error Conditions for Static C/I Conditions at 19 dB (Applications A/B)
- DEC1: Dynamic Error Conditions for Dynamic C/I Scenario #1 (Applications A/B)
- DEC2: Dynamic Error Conditions for Dynamic C/I Scenario #2 (Applications A/B)
- DEC3: Dynamic Error Conditions for Dynamic C/I Scenario #3 (Applications A/B)
- DEC4: Dynamic Error Conditions for Dynamic C/I Scenario #4 (Applications A/B)
- DEC5: Dynamic Error Conditions for Dynamic C/I Scenario #5 (Applications A/B)
- EC-C-16 Error Conditions for Static C/I Conditions at 16 dB (Application C)
- EC-C-19 Error Conditions for Static C/I Conditions at 19 dB (Application C)
- EC-C-22 Error Conditions for Static C/I Conditions at 22 dB (Application C)
- EC-C-25 Error Conditions for Static C/I Conditions at 25 dB (Application C)
- EC-E-1 Error Conditions for Static C/I Conditions at [TBD] dB (Application E)
- EC-E-2 Error Conditions for Static C/I Conditions at [TBD] dB (Application E)
- EC-E-3 Error Conditions for Static C/I Conditions at [TBD] dB (Application E)
- EC-E-4 Error Conditions for Static C/I Conditions at [TBD] dB (Application E)

The dynamic error patterns DEC1 and DEC5 were created using unshifted version of profiles, and cover the C/I range from approximately 3 to 21 dB. The dynamic error patterns DEC2, DEC3, and DEC4 were created using profiles shifted by 6dB, covering a C/I range of approximately 9 to 30 dB.

Test conditions not requiring the introduction of propagation errors are called ’No Error’ condition.

The Error Patterns EP1, EP2, and EP3 used for the selection of the Half Rate and Enhanced Full Rate speech codecs correspond to specific cases of the Error Conditions EC10, EC7 and EC4 respectively. The error patterns are described in detail in the Processing Plan.

4.3 Codec Adaptation

The philosophy of the AMR system is that it is capable of dynamically altering the ratio of speech and channel coding to maximize speech performance as channel conditions change. Each of the combinations of speech and channel coding rates is known as a mode.

4.4 Input characteristic for the different experiments

For Experiments 1A-B, 2A-D, 3A-D, 4A-B, 5A, and 6, which are performed using the full wideband frequency range (50-7000 Hz), the input speech characteristic is P.341 weighting. Hence, Listening Laboratories need to provide input speech pre-processed with P.341 weighting for these Experiments.

In Experiments 2E and 5B, there are mixed narrow-band and wideband scenarios. For consistency of bandwidths of the signals listened to by the subjects, only P.341-weighted input speech will be used. In the cases where narrowband signals are necessary, appropriate 2:1 downsampling is performed using the HQ filter (See Section 4.3 of the Processing Plan).

In Experiment 3E, only narrow-band conditions exist, hence the Listening Laboratories need to provide input speech pre-processed with only GSM weighting.

5 Experiment 1: Input Level and tandeming performance for clean speech (ACR)

5.1 Introduction

This experiment is designed to evaluate the error-free, clean-speech performance of the candidate codecs in tandeming conditions and with a variety of input levels.

- Experiment 1A: Input Level and Tandeming/Clean Speech/Applications A and B (ACR)
- Experiment 1B: Input Level and Tandeming/Clean Speech/Applications C and E (ACR)

The details provided in this section are those that are specific to this particular experiment. Generic information, relevant to this and other experiments can be found in Section 4. Therefore Listening Laboratories should use the information in Section 4in conjunction with the information given in this section.

5.2 Test Conditions

Table 5-1 shows the conditions to be used in this experiment. Table 5-2 contains the full list of conditions and the practice conditions are given in Table 5-3.

Table 5-1(a): Conditions and factors for Experiment 1A

Main Codec Conditions		
Candidates	5	
Applications	2	A, B (highest bit-rate codec mode for each application)
Error Conditions	1	No errors
Input level	1	Tandeming: Nominal (-26dBov)
	3	Single encoding: Nominal ± 10 dB (-16, -26, -36 dBov)
Tandeming	2	single encoding and tandeming of the codec with the same (highest bit-rate) codec mode
Input characteristic	1	P.341
Background noise	0	No background noise
Codec references		
Codec references	3	G.722-64k, G.722-56k, G.722-48k (all: no errors, no background noise, P.341)
Tandeming	2	Single encoding and tandeming (nominal level only)
Other references		
Direct	1	Nominal input level, P.341
MNRU	9	Q=5,10,15,20,25,30,35,40,45 (all nominal input level, P.341)
Common Conditions		
Radio Channels	0	
Number of talkers	4	2 male and 2 female
Stimulus type		Sentence-pairs
Number of speech samples	8	6 + 2 (preliminaries) sentence pairs per talker.
Listening Level	1	79dB SPL
Listeners	24	Naïve Listeners
Groups	6	4 subjects/group
Repeated measures (sessions)	4	per group of subjects
Randomizations	24	One for each session
Rating Scale	1	ACR, Listening Quality Scale
Replications	1	
Languages	2	Two different realizations
Listening System	1	Monaural headphones (flat response in the audio bandwidth of interest: 50Hz-7kHz). The other ear is open.
Listening Environment		Room Noise: Hoth Spectrum at 30dBA (as defined by ITU-T, Recommendation P.800, Annex A, section A.1.1.2.2.1 Room Noise, with table A.1 and Figure A.1)

Table 5-1(b)*:* Conditions and factors for Experiment 1B

Main Codec Conditions		
Candidates	5	
Applications	2 in 1	C and E (highest bit-rate codec mode for each application)
Error Conditions	1	No errors
Input level	1	Tandeming: Nominal (-26dBov)
	3	Single encoding: Nominal ± 10 dB (-16, -26, -36 dBov)
Tandeming	2	single encoding and tandeming of the codec with the same (highest bit-rate) codec mode
Input characteristic	1	P.341
Background noise	0	No background noise
Codec references		
Codec references	3	G.722-64k, G.722-56k, G.722-48k (all: no errors, no background noise, P.341)
Tandeming	2	Single encoding and tandeming (nominal level only)
Other references		
Direct	1	Nominal input level, P.341
MNRU	9	Q=5,10,15,20,25,30,35,40,45 (all nominal input level, P.341)
Common Conditions		
Radio Channels	0	
Number of talkers	4	2 male and 2 female
Stimulus type		Sentence-pairs
Number of speech samples	8	6 + 2 (preliminaries) sentence pairs per talker.
Listening Level	1	79dB SPL
Listeners	24	Naïve Listeners
Groups	6	4 subjects/group
Repeated measures (sessions)	4	per group of subjects
Randomizations	24	One for each session
Rating Scale	1	ACR, Listening Quality Scale
Replications	1	
Languages	2	Two different realizations
Listening System	1	Monaural headphones (flat response in the audio bandwidth of interest: 50Hz-7kHz). The other ear is open.
Listening Environment		Room Noise: Hoth Spectrum at 30dBA (as defined by ITU-T, Recommendation P.800, Annex A, section A.1.1.2.2.1 Room Noise, with table A.1 and Figure A.1)

Table 5-2(a): **Test conditions for Experiment 1A**

Condition	Codec	Factor
1	Direct	-
2	MNRU	Q=45dB
3	MNRU	Q=40dB
4	MNRU	Q=35dB
5	MNRU	Q=30dB
6	MNRU	Q=25dB
7	MNRU	Q=20dB
8	MNRU	Q=15dB
9	MNRU	Q=10dB
10	MNRU	Q=05dB
11	G.722@64	Nom, 1x
12	G.722@56	Nom, 1x
13	G.722@48	Nom, 1x
14	G.722@64	Nom, 2x
15	G.722@56	Nom, 2x
16	G.722@48	Nom, 2x
17	Codec 1/Application A	Nom, 1x
18	Codec 1/Application A	Nom, 2x
19	Codec 1/Application A	High, 1x
20	Codec 1/Application A	Low, 1x
21	Codec 2/Application A	Nom, 1x
22	Codec 2/Application A	Nom, 2x
23	Codec 2/Application A	High, 1x
24	Codec 2/Application A	Low, 1x
25	Codec 3/Application A	Nom, 1x
26	Codec 3/Application A	Nom, 2x
27	Codec 3/Application A	High, 1x
28	Codec 3/Application A	Low, 1x
29	Codec 4/Application A	Nom, 1x
30	Codec 4/Application A	Nom, 2x
31	Codec 4/Application A	High, 1x
32	Codec 4/Application A	Low, 1x
33	Codec 5/Application A	Nom, 1x
34	Codec 5/Application A	Nom, 2x
35	Codec 5/Application A	High, 1x
36	Codec 5/Application A	Low, 1x
37	Codec 1/Application B	Nom, 1x
38	Codec 1/Application B	Nom, 2x
39	Codec 1/Application B	High, 1x
40	Codec 1/Application B	Low, 1x
41	Codec 2/Application B	Nom, 1x
42	Codec 2/Application B	Nom, 2x
43	Codec 2/Application B	High, 1x
44	Codec 2/Application B	Low, 1x
45	Codec 3/Application B	Nom, 1x
46	Codec 3/Application B	Nom, 2x
47	Codec 3/Application B	High, 1x
48	Codec 3/Application B	Low, 1x
49	Codec 4/Application B	Nom, 1x
50	Codec 4/Application B	Nom, 2x
51	Codec 4/Application B	High, 1x
52	Codec 4/Application B	Low, 1x
53	Codec 5/Application B	Nom, 1x
54	Codec 5/Application B	Nom, 2x
55	Codec 5/Application B	High, 1x
56	Codec 5/Application B	Low, 1x

Table 5-2(b) Test conditions for Experiment 1B

Condition	Codec	Factor
1	Direct	-
2	MNRU	Q=45dB
3	MNRU	Q=40dB
4	MNRU	Q=35dB
5	MNRU	Q=30dB
6	MNRU	Q=25dB
7	MNRU	Q=20dB
8	MNRU	Q=15dB
9	MNRU	Q=10dB
10	MNRU	Q=05dB
11	G.722@64	Nom, 1x
12	G.722@56	Nom, 1x
13	G.722@48	Nom, 1x
14	G.722@64	Nom, 2x
15	G.722@56	Nom, 2x
16	G.722@48	Nom, 2x
17	Codec 1/Applications C&E	Nom, 1x
18	Codec 1/Applications C&E	Nom, 2x
19	Codec 1/Applications C&E	High, 1x
20	Codec 1/Applications C&E	Low, 1x
21	Codec 2/Applications C&E	Nom, 1x
22	Codec 2/Applications C&E	Nom, 2x
23	Codec 2/Applications C&E	High, 1x
24	Codec 2/Applications C&E	Low, 1x
25	Codec 3/Applications C&E	Nom, 1x
26	Codec 3/Applications C&E	Nom, 2x
27	Codec 3/Applications C&E	High, 1x
28	Codec 3/Applications C&E	Low, 1x
29	Codec 4/Applications C&E	Nom, 1x
30	Codec 4/Applications C&E	Nom, 2x
31	Codec 4/Applications C&E	High, 1x
32	Codec 4/Applications C&E	Low, 1x
33	Codec 5/Applications C&E	Nom, 1x
34	Codec 5/Applications C&E	Nom, 2x
35	Codec 5/Applications C&E	High, 1x
36	Codec 5/Applications C&E	Low, 1x

Table 5-3: List of preliminary conditions for Experiments 1A and 1B

Condition		Codec and C/I or Q(dB)	Source Sample
Practice	Main		
P01	C11	G.722 64k	M01S07
P02	C10	MNRU, Q=5	F02S07
P03	C02	MNRU Q=45	F01S07
P04	C04	MNRU, Q=35	M02S07
P05	C01	Direct, No Errors	F02S08
P06	C06	MNRU, Q=25	M01S08
P07	C07	MNRU, Q=20	M02S08
P08	C13	G.722 48k	F01S08

5.3 Speech Material

The speech material should be as defined in Section 3. The speech material for this experiment comprises 8 speech samples for each talker (this includes 2 samples for the preliminary conditions in each sub-experiment). Each talker's samples must be unique so that the subjects do not hear any sentence more than once. All sub-experiments will use P.341-weighted speech.

5.4 Experimental Design

The experiment is split into 6 groups (with 4 listeners per group) such that each listener will hear all talkers (but not all sentence pairs) through each test condition. Across each experiment as a whole, however, all combinations of talker, sentence pair and condition will be equally covered. Each of the 6 groups of subjects will therefore hear different combinations of source material and condition.

Each processed file will be voted on 4 times; these votes coming from one group of listeners.

Each subject will hear each of the conditions 4 times, once with speech from each of the 4 talkers.

5.5 Opinion Scale

The question asked of the subject will be the ACR Listening Quality Scale. The subjects will listen to each sample and after it has completed they will be asked to give their opinion. Annex A.1 contains an example of the instructions for the subjects in English.

5.6 Processing

Every talker/sentence-pair is processed through every test condition in Table 5-2. Hence, special allocation of conditions to speech material is not necessary.

5.7 Duration of the Experiment

The number of stimuli per subject is:

- Experiment 1A: (56 conditions x 4 repeated measures) + 8 preliminaries = 232
- Experiment 1B: (36 conditions x 4 repeated measures) + 8 preliminaries = 152

Allowing 13 seconds in total for the presentation of the sample and score collection, this gives the following test length per subject for the experiment:

- Experiment 1A: 232 stimuli x 13 seconds = 51 minutes
- Experiment 1B: 152 stimuli x 13 seconds = 33 minutes

Accounting for breaks, etc, it should take each group approximately 1h15m to complete Experiment 1A, and approximately 50 minutes to complete one group for Experiment 1B. If four simultaneous subjects can be accommodated, the total time to complete the experiment is in the order of 7.5 hours for Experiment 1A, and 6 hours for Experiments 1B.

5.8 Votes Per Condition

In Experiment 1, every condition will be assessed 4 times by each subject and in each of the 6 groups there will be 4 subjects. Hence,

(4 sessions x 4 subjects/group x 6 groups) = 96 votes per condition in Experiment 1

From past experience of ACR tests, this is the minimum number of votes per condition needed to give enough statistical certainty to characterize the performance of the codec over the conditions and against the references.

5.9 Randomizations

Randomizations for each of the presentation orders are provided to minimize differences between the laboratories.

In Experiments 1A and 1B, a total of 24 randomisations will be used since there are 6 groups with 4 repeated measures (sessions) in each group. A given group of subjects will be exposed to 4 different randomisations of 56 elements in Experiment 1A and to 4 different randomisations of 36 elements in Experiment 1B. Presentation orders are presented in Annex C.

6 Experiment 2: Clean Speech performance with static errors (ACR)

6.1 Introduction

The purpose of this Experiment is to evaluate the performances of AMR-WB candidate algorithms in clean speech (free of background noise) and in the presence of static error conditions.

The Experiment is divided into five sub-experiments:

- Experiment 2A: Clean Speech and in Static Error for GSM FR Channel (Application A, ACR)
- Experiment 2B: Clean Speech and in Static Error for GSM FR Channel (Application B, ACR)
- Experiment 2C: Clean Speech and in Static Error for Higher-rate channels (Application C, ACR)
- Experiment 2D: Clean Speech and in Static Error for Higher-rate channels (Application E, ACR)
- Experiment 2E: Clean Speech & Static Errors for GSM EFR and WB->NB tandeming (ACR)

The details provided in this section are those that are specific to this particular experiment. Generic information, relevant to this and other experiments can be found in Section 4. Therefore Listening Laboratories should use the information in Section 4in conjunction with the information given in this section.

6.2 Test Conditions

Table 6-1 shows the conditions to be used in this experiment. Table 6-2 contains the full list of conditions and the practice conditions are given in Table 6-3.

Table 6-1(a): Conditions and factors for Experiment 2A

Main Codec Conditions		
Candidates	5	
Error Conditions for application A	5	No errors, C/I 13dB, C/I 10 dB, C/I 7 dB, C/I 4 dB (at maximum 4 different codec modes)
Input level	1	-26 dBov
Tandeming and noise	0	No tandeming or background noise
Input characteristic	1	P.341
Codec references		
Codec references	3	G.722-64k, G.722-56k, G.722-48k (all: no errors, nominal input level, P.341)
Other references		
Direct	1	Nominal input level, P.341
MNRU	7	Q=5,12,19,26,33,40,47 (all nominal input level, P.341)
Common Conditions		
Radio Channels	1	Application A
Number of talkers	4	2 male and 2 female
Stimulus type		Sentence-pairs
Number of speech samples	8	6 + 2 (preliminaries) sentence pairs per talker.
Listening Level	1	79dB SPL
Listeners	24	Naïve Listeners
Groups	6	4 subjects/group
Repeated measures (sessions)	4	per group of subjects
Randomizations	24	One for each session
Rating Scale	1	ACR
Replications	1	
Languages	2	Two different realizations
Listening System	1	Monaural headphones (flat response in the audio bandwidth of interest: 50Hz-7kHz). The other ear is open.
Listening Environment		Room Noise: Hoth Spectrum at 30dBA (as defined by ITU-T, Recommendation P.800, Annex A, section A.1.1.2.2.1 Room Noise, with table A.1 and Figure A.1)

Table 6-1(b): Conditions and factors for Experiment 2B

Main Codec Conditions		
Candidates	5	
Error Conditions for application B	5	No errors, C/I 19dB, C/I 16dB, C/I 13dB, C/I 10dB (same codec mode for no errors and C/I 19 dB)
Input level	1	-26 dBov
Tandeming and noise	0	No tandeming or background noise
Input characteristic	1	P.341
Codec references		
Codec references	3	G.722-64k, G.722-56k, G.722-48k (all: no errors, nominal input level, P.341)
Other references		
Direct	1	Nominal input level, P.341
MNRU	6	Q=5,12,19,26,33,40,47 (all nominal input level, P.341)
Common Conditions		
Radio Channels	1	Application B
Number of talkers	4	2 male and 2 female
Stimulus type		Sentence-pairs
Number of speech samples	8	6 + 2 (preliminaries) sentence pairs per talker.
Listening Level	1	79dB SPL
Listeners	24	Naïve Listeners
Groups	6	4 subjects/group
Repeated measures (sessions)	4	per group of subjects
Randomizations	24	One for each session
Rating Scale	1	ACR
Replications	1	
Languages	2	Two different realizations
Listening System	1	Monaural headphones (flat response in the audio bandwidth of interest: 50Hz-7kHz). The other ear is open.
Listening Environment		Room Noise: Hoth Spectrum at 30dBA (as defined by ITU-T, Recommendation P.800, Annex A, section A.1.1.2.2.1 Room Noise, with table A.1 and Figure A.1)

Table 6-1(c): Conditions and factors for Experiment 2C

Main Codec Conditions		
Candidates	5	
Error Conditions for application C	6	C/I 22 dB, 19 dB and 16 dB in FR C/I 25 dB, 22 dB, and C/I 19 dB in HR
Input level	1	-26 dBov
Tandeming and noise	0	No tandeming or background noise
Input characteristic	1	P.341
Codec references		
Codec references	3	G.722-64k, G.722-56k, G.722-48k (all: no errors, nominal input level, P.341)
Other references		
Direct	1	Nominal input level, P.341
MNRU	6	Q=5, 13, 21, 29, 37, 45 (all: nominal input level, P.341)
Common Conditions		
Radio Channels	1	Application C
Number of talkers	4	2 male and 2 female
Stimulus type		Sentence-pairs
Number of speech samples	8	6 + 2 (preliminaries) sentence pairs per talker.
Listening Level	1	79dB SPL
Listeners	24	Naïve Listeners
Groups	6	4 subjects/group
Repeated measures (sessions)	4	per group of subjects
Randomizations	24	One for each session
Rating Scale	1	ACR
Replications	1	
Languages	2	Two different realizations
Listening System	1	Monaural headphones (flat response in the audio bandwidth of interest: 50Hz-7kHz). The other ear is open.
Listening Environment		Room Noise: Hoth Spectrum at 30dBA (as defined by ITU-T, Recommendation P.800, Annex A, section A.1.1.2.2.1 Room Noise, with table A.1 and Figure A.1)

Table 6-1(d): Conditions and factors for Experiment 2D

Main Codec Conditions		
Candidates	5	
Error Conditions for application E	5	No errors, EC-E-1, EC-E-2, EC-E-3, EC-E-4 (No errors is tested with the same mode as at least one of the error conditions)
Input level	1	-26 dBov
Tandeming and noise	0	No tandeming or background noise
Input characteristic	1	P.341
Codec references		
Codec references	3	G.722-64k, G.722-56k, G.722-48k (all: no errors, nominal input level, P.341)
Other references		
Direct	1	Nominal input level, P.341
MNRU	6	Q=5,12,19,26,33,40,47 (all nominal input level, P.341)
Common Conditions		
Radio Channels	1	Application E
Number of talkers	4	2 male and 2 female
Stimulus type		Sentence-pairs
Number of speech samples	8	6 + 2 (preliminaries) sentence pairs per talker.
Listening Level	1	79dB SPL
Listeners	24	Naïve Listeners
Groups	6	4 subjects/group
Repeated measures (sessions)	4	per group of subjects
Randomizations	24	One for each session
Rating Scale	1	ACR
Replications	1	
Languages	2	Two different realizations
Listening System	1	Monaural headphones (flat response in the audio bandwidth of interest: 50Hz-7kHz). The other ear is open.
Listening Environment		Room Noise: Hoth Spectrum at 30dBA (as defined by ITU-T, Recommendation P.800, Annex A, section A.1.1.2.2.1 Room Noise, with table A.1 and Figure A.1)

Table 6-1(e): Conditions and factors for Experiment 2E

Main Codec Conditions		
Candidates	5	P.341 weighting for WB processing, HQ up-/ down-sampling as appropriate for WB<->NB simulation
Error conditions for Applications A&B	2	No errors for application A and B
Tandem	4	Tandem WB -> G.711, tandem WB -> EFR, tandem G.711 -> WB, tandem EFR -> WB
Codec references		
Codec references	1	GSM EFR, -26 dBov, P.341 filter characteristic, downsampled 2:1 with HQ
Error conditions for reference	5	No errors, C/I 13dB, C/I 10 dB, C/I 7 dB, C/I 4 dB
Tandem	1	2 x Codec, No errors, -26 dBov
	1	GSM FR (no errors, -26 dBov, GSM filter characteristic)
Other references		
Direct	1	Nominal input level, P.341 filter, downsampled 2:1 with HQ
MNRU	8	Q=5, 10, 15, 20, 25, 30, 35, 40 (nominal input level, P.341 Filter, downsampled 2:1 with HQ)
Common Conditions		
Radio Channels	1	Applications A/B
Number of talkers	4	2 male and 2 female
Stimulus type		Sentence-pairs
Number of speech samples	8	6 + 2 (preliminaries) sentence pairs per talker.
Listening Level	1	79dB SPL
Listeners	24	Naïve Listeners
Groups	6	4 subjects/group
Repeated measures (sessions)	4	per group of subjects
Randomizations	24	One for each session
Rating Scale	1	ACR
Replications	1	
Languages	2	Two different realizations
Listening System	1	Monaural headphone with Modified IRS receiving response (exclusive of the SRAEN filter) The other ear is open.
Listening Environment		Room Noise: Hoth Spectrum at 30dBA (as defined by ITU-T, Recommendation P.800, Annex A, section A.1.1.2.2.1 Room Noise, with table A.1 and Figure A.1)

Table 6-2(a): Test conditions for Experiment 2A

Condition	Codec	Application	Factor
1	Direct	-	-
2	MNRU	-	Q=47dB
3	MNRU	-	Q=40dB
4	MNRU	-	Q=33dB
5	MNRU	-	Q=26dB
6	MNRU	-	Q=19dB
7	MNRU	-	Q=12dB
8	MNRU	-	Q=05dB
9	G.722@64	-	Nom, 1x
10	G.722@56	-	Nom, 1x
11	G.722@48	-	Nom, 1x
12	Codec 1	A	Error-free
13	Codec 1	A	C/I 13dB
14	Codec 1	A	C/I 10dB
15	Codec 1	A	C/I 07dB
16	Codec 1	A	C/I 04dB
17	Codec 2	A	Error-free
18	Codec 2	A	C/I 13dB
19	Codec 2	A	C/I 10dB
20	Codec 2	A	C/I 07dB
21	Codec 2	A	C/I 04dB
22	Codec 3	A	Error-free
23	Codec 3	A	C/I 13dB
24	Codec 3	A	C/I 10dB
25	Codec 3	A	C/I 07dB
26	Codec 3	A	C/I 04dB
27	Codec 4	A	Error-free
28	Codec 4	A	C/I 13dB
29	Codec 4	A	C/I 10dB
30	Codec 4	A	C/I 07dB
31	Codec 4	A	C/I 04dB
32	Codec 5	A	Error-free
33	Codec 5	A	C/I 13dB
34	Codec 5	A	C/I 10dB
35	Codec 5	A	C/I 07dB
36	Codec 5	A	C/I 04dB

Table 6-2(b): Test conditions for Experiment 2B

Condition	Codec	Application	Factor
1	Direct	-	-
2	MNRU	-	Q=47dB
3	MNRU	-	Q=40dB
4	MNRU	-	Q=33dB
5	MNRU	-	Q=26dB
6	MNRU	-	Q=19dB
7	MNRU	-	Q=12dB
8	MNRU	-	Q=05dB
9	G.722@64	-	Nom, 1x
10	G.722@56	-	Nom, 1x
11	G.722@48	-	Nom, 1x
12	Codec 1	B	Error-free
13	Codec 1	B	C/I 19dB
14	Codec 1	B	C/I 16dB
15	Codec 1	B	C/I 13dB
16	Codec 1	B	C/I 10dB
17	Codec 2	B	Error-free
18	Codec 2	B	C/I 19dB
19	Codec 2	B	C/I 16dB
20	Codec 2	B	C/I 13dB
21	Codec 2	B	C/I 10dB
22	Codec 3	B	Error-free
23	Codec 3	B	C/I 19dB
24	Codec 3	B	C/I 16dB
25	Codec 3	B	C/I 13dB
26	Codec 3	B	C/I 10dB
27	Codec 4	B	Error-free
28	Codec 4	B	C/I 19dB
29	Codec 4	B	C/I 16dB
30	Codec 4	B	C/I 13dB
31	Codec 4	B	C/I 10dB
32	Codec 5	B	Error-free
33	Codec 5	B	C/I 19dB
34	Codec 5	B	C/I 16dB
35	Codec 5	B	C/I 13dB
36	Codec 5	B	C/I 10dB

Table 6-2(c): Test conditions for Experiment 2C

Condition	Codec	Application	Factor
1	Direct	-	-
2	MNRU	-	Q=45dB
3	MNRU	-	Q=37dB
4	MNRU	-	Q=29dB
5	MNRU	-	Q=21dB
6	MNRU	-	Q=13dB
7	MNRU	-	Q=05dB
8	G.722@64	-	Nom, 1x
9	G.722@56	-	Nom, 1x
10	G.722@48	-	Nom, 1x
11	Codec 1/FR	C	C/I 22dB
12	Codec 1/FR	C	C/I 19dB
13	Codec 1/FR	C	C/I 16dB
14	Codec 1/HR	C	C/I 25dB
15	Codec 1/HR	C	C/I 22dB
16	Codec 1/HR	C	C/I 19dB
17	Codec 2/FR	C	C/I 22dB
18	Codec 2/FR	C	C/I 19dB
19	Codec 2/FR	C	C/I 16dB
20	Codec 2/HR	C	C/I 25dB
21	Codec 2/HR	C	C/I 22dB
22	Codec 2/HR	C	C/I 19dB
23	Codec 3/FR	C	C/I 22dB
24	Codec 3/FR	C	C/I 19dB
25	Codec 3/FR	C	C/I 16dB
26	Codec 3/HR	C	C/I 25dB
27	Codec 3/HR	C	C/I 22dB
28	Codec 3/HR	C	C/I 19dB
29	Codec 4/FR	C	C/I 22dB
30	Codec 4/FR	C	C/I 19dB
31	Codec 4/FR	C	C/I 16dB
32	Codec 4/HR	C	C/I 25dB
33	Codec 4/HR	C	C/I 22dB
34	Codec 4/HR	C	C/I 19dB
35	Codec 5/FR	C	C/I 22dB
36	Codec 5/FR	C	C/I 19dB
37	Codec 5/FR	C	C/I 16dB
38	Codec 5/HR	C	C/I 25dB
39	Codec 5/HR	C	C/I 22dB
40	Codec 5/HR	C	C/I 19dB

Table 6-2(d): Test conditions for Experiment 2D

Condition	Codec	Application	Factor
1	Direct	-	-
2	MNRU	-	Q=47dB
3	MNRU	-	Q=40dB
4	MNRU	-	Q=33dB
5	MNRU	-	Q=26dB
6	MNRU	-	Q=19dB
7	MNRU	-	Q=12dB
8	MNRU	-	Q=05dB
9	G.722@64	-	Nom, 1x
10	G.722@56	-	Nom, 1x
11	G.722@48	-	Nom, 1x
12	Codec 1	E	Error-free
13	Codec 1	E	EP-E-1
14	Codec 1	E	EP-E-2
15	Codec 1	E	EP-E-3
16	Codec 1	E	EP-E-4
17	Codec 2	E	Error-free
18	Codec 2	E	EP-E-1
19	Codec 2	E	EP-E-2
20	Codec 2	E	EP-E-3
21	Codec 2	E	EP-E-4
22	Codec 3	E	Error-free
23	Codec 3	E	EP-E-1
24	Codec 3	E	EP-E-2
25	Codec 3	E	EP-E-3
26	Codec 3	E	EP-E-4
27	Codec 4	E	Error-free
28	Codec 4	E	EP-E-1
29	Codec 4	E	EP-E-2
30	Codec 4	E	EP-E-3
31	Codec 4	E	EP-E-4
32	Codec 5	E	Error-free
33	Codec 5	E	EP-E-1
34	Codec 5	E	EP-E-2
35	Codec 5	E	EP-E-3
36	Codec 5	E	EP-E-4

Table 6-2(e): Test conditions for Experiment 2E

Condition	Codec	Applications	Factor
1	Direct	-	-
2	MNRU	-	Q=40dB
3	MNRU	-	Q=35dB
4	MNRU	-	Q=30dB
5	MNRU	-	Q=25dB
6	MNRU	-	Q=20dB
7	MNRU	-	Q=15dB
8	MNRU	-	Q=10dB
9	MNRU	-	Q=5dB
10	GSM-FR	A&B	Error-free
11	GSM-EFR	A&B	Error-free
12	GSM-EFR	A&B	2X, error-free
13	GSM-EFR	A&B	C/I 13dB
14	GSM-EFR	A&B	C/I 10dB
15	GSM-EFR	A&B	C/I 07dB
16	GSM-EFR	A&B	C/I 04dB
17	Codec 1/G.711	A	Error-free
18	G.711/Codec 1	A	Error-free
19	Codec 1/EFR	A	Error-free
20	EFR/Codec 1	A	Error-free
21	Codec 2/G.711	A	Error-free
22	G.711/Codec 2	A	Error-free
23	Codec 2/EFR	A	Error-free
24	EFR/Codec 2	A	Error-free
25	Codec 3/G.711	A	Error-free
26	G.711/Codec 3	A	Error-free
27	Codec 3/EFR	A	Error-free
28	EFR/Codec 3	A	Error-free
29	Codec 4/G.711	A	Error-free
30	G.711/Codec 4	A	Error-free
31	Codec 4/EFR	A	Error-free
32	EFR/Codec 4	A	Error-free
33	Codec 5/G.711	A	Error-free
34	G.711/Codec 5	A	Error-free
35	Codec 5/EFR	A	Error-free
36	EFR/Codec 5	A	Error-free
37	Codec 1/G.711	B	Error-free
38	G.711/Codec 1	B	Error-free
39	Codec 1/EFR	B	Error-free
40	EFR/Codec 1	B	Error-free
41	Codec 2/G.711	B	Error-free
42	G.711/Codec 2	B	Error-free
43	Codec 2/EFR	B	Error-free
44	EFR/Codec 2	B	Error-free
45	Codec 3/G.711	B	Error-free
46	G.711/Codec 3	B	Error-free
47	Codec 3/EFR	B	Error-free
48	EFR/Codec 3	B	Error-free
49	Codec 4/G.711	B	Error-free
50	G.711/Codec 4	B	Error-free
51	Codec 4/EFR	B	Error-free
52	EFR/Codec 4	B	Error-free
53	Codec 5/G.711	B	Error-free
54	G.711/Codec 5	B	Error-free
55	Codec 5/EFR	B	Error-free
56	EFR/Codec 5	B	Error-free

Table 6-3(a): List of preliminary conditions for Experiments 2A, 2B, and 2D

Condition		Codec and	Source
Practice	Main	C/I or Q(dB)	Sample
P01	C09	G.722 64k	M01S07
P02	C08	MNRU, Q=5	F02S07
P03	C04	MNRU Q=33	F01S07
P04	C07	MNRU, Q=12	M02S07
P05	C01	Direct, No Errors	F02S08
P06	C06	MNRU, Q=19	M01S08
P07	C05	MNRU, Q=26	M02S08
P08	C11	G.722 48k	F01S08

Table 6-3(b): List of preliminary conditions for Experiment 2C

Condition		Codec and	Source
Practice	Main	C/I or Q(dB)	Sample
P01	C08	G.722 64k	M01S07
P02	C07	MNRU, Q=5	F02S07
P03	C02	MNRU Q=45	F01S07
P04	C03	MNRU, Q=37	M02S07
P05	C01	Direct, No Errors	F02S08
P06	C04	MNRU, Q=29	M01S08
P07	C05	MNRU, Q=21	M02S08
P08	C10	G.722 48k	F01S08

Table 6-3(c): List of preliminary conditions for Experiment 2E

Condition		Codec and	Source
Practice	Main	C/I or Q(dB)	Sample
P01	C10	GSM-FR, Error-free	M01S07
P02	C09	MNRU, Q=5	F02S07
P03	C02	MNRU Q=40	F01S07
P04	C04	MNRU, Q=30	M02S07
P05	C01	Direct, No Errors	F02S08
P06	C05	MNRU, Q=25	M01S08
P07	C06	MNRU, Q=20	M02S08
P08	C11	GSM-EFR, Error-free	F01S08

6.3 Speech Material

The speech material should be as defined in Section 3. The speech material for this experiment comprises 8 speech samples for each talker (this includes 2 samples for the preliminary conditions in each sub-experiment). Each talker's samples must be unique so that the subjects do not hear any sentence more than once. All sub-experiments will use P.341-weighted speech.

6.4 Experimental Design

The experiment is split into 6 groups (with 4 listeners per group) such that each listener will hear all talkers (but not all sentence pairs) through each test condition. Across each experiment as a whole, however, all combinations of talker, sentence pair and condition will be equally covered. Each of the 6 groups of subjects will therefore hear different combinations of source material and condition.

Each processed file will be voted on 4 times; these votes coming from one group of listeners.

Each subject will hear each of the conditions 4 times, once with speech from each of the 4 talkers.

6.5 Opinion Scale

The question asked of the subject will be the ACR Listening Quality Scale. The subjects will listen to each sample and after it has completed they will be asked to give their opinion. Annex A.1 contains an example of the instructions for the subjects in English.

6.6 Processing

Every talker/sentence-pair is processed through every test condition in Table 6-2. Hence, special allocation of conditions to speech material is not necessary.

6.7 Duration of the Experiment

The number of stimuli per subject is:

- Experiment 2A,B,D: (36 conditions x 4 repeated measures) + 8 preliminaries = 152
- Experiment 2C: (40 conditions x 4 repeated measures) + 8 preliminaries = 168
- Experiment 2E: (56 conditions x 4 repeated measures) + 8 preliminaries = 232

Allowing 13 seconds in total for the presentation of the sample and score collection, this gives the following test length per subject for the experiment:

- Experiment 2A,B,D: 152 stimuli x 13 seconds = 33 minutes
- Experiment 2C: 168 stimuli x 13 seconds = 37 minutes
- Experiment 2E: 232 stimuli x 13 seconds = 51 minutes

Accounting for breaks, etc, it should take each group approximately 50 minutes to complete one group for Experiments 2A, 2B, and 2D, approximately 55 minutes to complete Experiment 2C, and approximately 1h15m to complete Experiment 2E. If four simultaneous subjects can be accommodated, the total time to complete the experiment is in the order of 6 hours for Experiments 2A, 2B, 2C, and 2D, and 7.5 hours for Experiment 2E.

6.8 Votes Per Condition

In Experiment 2, every condition will be assessed 4 times by each subject and in each of the 6 groups there will be 4 subjects. Hence,

(4 sessions x 4 subjects/group x 6 groups) = 96 votes per condition in Experiment 2

From past experience of ACR tests, this is the minimum number of votes per condition needed to give enough statistical certainty to characterize the performance of the codec over the conditions and against the references.

6.9 Randomizations

Randomizations for each of the presentation orders are provided to minimize differences between the laboratories.

In Experiments 2A, 2B, 2C, 2D, and 2E, a total of 24 randomisations will be used since there are 6 groups with 4 repeated measures (sessions) in each group. A given group of subjects will be exposed to 4 different randomisations of 36 elements in Experiments 2A, 2B, and 2D, to 4 different randomisations of 40 elements in Experiment 2C, and to 4 different randomisations of 56 elements in Experiment 2E.

Presentation orders are presented in Annex C.

7 Experiment 3: Car and Street noise performance for the GSM FR channel (DCR)

7.1 Introduction

This Experiment is designed to evaluate the performances of the wideband candidate algorithms in the presence of background noise (Car and Street Noise types) for applications A and B. The last sub-experiment provides information on the performance of the EFR codec.

- Experiment 3A: GSM FR channel (Application A) in Car noise (DCR)
- Experiment 3B: GSM FR channel (Application A) in Street noise (DCR)
- Experiment 3C: GSM FR channel (Application B) in Car noise (DCR)
- Experiment 3D: GSM FR channel (Application B) in Street noise (DCR)
- Experiment 3E: GSM EFR performances in Car and Street noise (DCR)

The details provided in this section are those that are specific to this particular experiment. Generic information, relevant to this and other experiments can be found in Section 4. Therefore Listening Laboratories should use the information in Section 4in conjunction with the information given in this section.

7.2 Test Conditions

Table 7-1 shows the conditions to be used in this experiment. Table 7-2 contains the full list of conditions and the practice conditions are given in Table 7-3.

Table 7-1(a): Conditions and factors for Experiments 3A (Car Noise) and 3B (Street Noise)

Main Codec Conditions		
Candidates	5	
Error Conditions for application A	5	No errors, C/I 13dB, C/I 10 dB, C/I 7 dB, C/I 4 dB (at maximum 4 different codec modes)
Background Noise	2	Experiment 3a: 4 samples of Car Noise, 15 dB SNR Experiment 3b: 4 samples of Street Noise, 15 dB SNR
Input level	1	-26 dBov
Tandeming	0	No tandeming
Input characteristic	1	P.341
Codec references		
Codec references	3	G.722-64k, G.722-56k, G.722-48k (all: no errors, nominal input level, P.341)
Other references		
Direct	1	Nominal input level, P.341
MNRU	7	Q=5,12,19,26,33,40,47 (all nominal input level, P.341)
Common Conditions		
Radio Channels	1	Applications A/B
Number of talkers	4	2 male and 2 female
Stimulus type		Sentence-pairs
Number of speech samples	8	6 + 2 (preliminaries) sentence pairs per talker.
Listening Level	1	79dB SPL
Listeners	24	Naïve Listeners
Groups	6	4 subjects/group
Repeated measures (sessions)	4	per group of subjects
Randomizations	24	One for each session
Rating Scale	1	Modified DCR
Replications	1	
Languages	2	Two different realizations
Listening System	1	Monaural headphones (flat response in the audio bandwidth of interest: 50Hz-7kHz). The other ear is open.
Listening Environment		Room Noise: Hoth Spectrum at 30dBA (as defined by ITU-T, Recommendation P.800, Annex A, section A.1.1.2.2.1 Room Noise, with table A.1 and Figure A.1)

Table 7-1(b): Conditions and factors for Experiments 3C (Car Noise) and 3D (Street Noise)

Main Codec Conditions		
Candidates	5	
Error Conditions for application B	4	No errors, C/I 19dB, C/I 16dB, C/I 13dB, C/I 10dB (same codec mode for no errors and C/I 19 dB)
Background Noise	2	Experiment 3c: 4 samples of Car Noise, 15 dB SNR Experiment 3d: 4 samples of Street Noise, 15 dB SNR
Input level	1	-26 dBov
Tandeming	0	No tandeming
Input characteristic	1	P.341
Codec references		
Codec references	3	G.722-64k, G.722-56k, G.722-48k (all: no errors, nominal input level, P.341)
Other references		
Direct	1	Nominal input level, P.341
MNRU	7	Q=5,12,19,26,33,40,47 (all nominal input level, P.341)
Common Conditions		
Radio Channels	1	Applications A/B
Number of talkers	4	2 male and 2 female
Stimulus type		Sentence-pairs
Number of speech samples	8	6 + 2 (preliminaries) sentence pairs per talker.
Listening Level	1	79dB SPL
Listeners	24	Naïve Listeners
Groups	6	4 subjects/group
Repeated measures (sessions)	4	per group of subjects
Randomizations	24	One for each session
Rating Scale	1	Modified DCR
Replications	1	
Languages	2	Two different realizations
Listening System	1	Monaural headphones (flat response in the audio bandwidth of interest: 50Hz-7kHz). The other ear is open.
Listening Environment		Room Noise: Hoth Spectrum at 30dBA (as defined by ITU-T, Recommendation P.800, Annex A, section A.1.1.2.2.1 Room Noise, with table A.1 and Figure A.1)

Table 7-1(c): Conditions and factors for Experiment 3E (Car and Street noise)

Main Codec Conditions		
Candidates	0	
Codec references		
Codec references	5	GSM EFR (no errors, C/I 13dB, C/I 10 dB, C/I 7 dB, C/I 4 dB), -26 dBov, GSM filter characteristic
Background Noise	2	Car Noise, 15 dB SNR Street Noise, 15 dB SNR
Other references		
Direct	2	Nominal input level, GSM filter, Car and Street noise
MNRU	6	Q=5, 10, 15, 20, 25, 30 (all: nominal input level, GSM Filter) Car & Street noise, 15 dB SNR
Common Conditions		
Radio Channels	1	Applications A/B
Number of talkers	4	2 male and 2 female
Stimulus type		Sentence-pairs
Number of speech samples	8	6 + 2 (preliminaries) sentence pairs per talker.
Listening Level	1	79dB SPL
Listeners	24	Naïve Listeners
Groups	6	4 subjects/group
Repeated measures (sessions)	4	per group of subjects
Randomizations	24	One for each session
Rating Scale	1	Modified DCR
Replications	1	
Languages	2	Two different realizations
Listening System	1	Monaural headphone with Modified IRS receiving response (exclusive of the SRAEN filter)
Listening Environment		Room Noise: Hoth Spectrum at 30dBA (as defined by ITU-T, Recommendation P.800, Annex A, section A.1.1.2.2.1 Room Noise, with table A.1 and Figure A.1)

Table 7-2(a): **Test conditions for Experiment 3A**

Condition	Codec	Factor	Application	Noise
1	Direct	-	-	Car
2	MNRU	Q=47dB	-	Car
3	MNRU	Q=40dB	-	Car
4	MNRU	Q=33dB	-	Car
5	MNRU	Q=26dB	-	Car
6	MNRU	Q=19dB	-	Car
7	MNRU	Q=12dB	-	Car
8	MNRU	Q=05dB	-	Car
9	G.722@64	Nom, 1x	-	Car
10	G.722@56	Nom, 1x	-	Car
11	G.722@48	Nom, 1x	-	Car
12	Codec 1	Error-free	A	Car
13	Codec 1	C/I 13dB	A	Car
14	Codec 1	C/I 10dB	A	Car
15	Codec 1	C/I 07dB	A	Car
16	Codec 1	C/I 04dB	A	Car
17	Codec 2	Error-free	A	Car
18	Codec 2	C/I 13dB	A	Car
19	Codec 2	C/I 10dB	A	Car
20	Codec 2	C/I 07dB	A	Car
21	Codec 2	C/I 04dB	A	Car
22	Codec 3	Error-free	A	Car
23	Codec 3	C/I 13dB	A	Car
24	Codec 3	C/I 10dB	A	Car
25	Codec 3	C/I 07dB	A	Car
26	Codec 3	C/I 04dB	A	Car
27	Codec 4	Error-free	A	Car
28	Codec 4	C/I 13dB	A	Car
29	Codec 4	C/I 10dB	A	Car
30	Codec 4	C/I 07dB	A	Car
31	Codec 4	C/I 04dB	A	Car
32	Codec 5	Error-free	A	Car
33	Codec 5	C/I 13dB	A	Car
34	Codec 5	C/I 10dB	A	Car
35	Codec 5	C/I 07dB	A	Car
36	Codec 5	C/I 04dB	A	Car

Table 7-2(b): Test conditions for Experiment 3B

Condition	Codec	Factor	Application	Noise
1	Direct	-	-	Street
2	MNRU	Q=47dB	-	Street
3	MNRU	Q=40dB	-	Street
4	MNRU	Q=33dB	-	Street
5	MNRU	Q=26dB	-	Street
6	MNRU	Q=19dB	-	Street
7	MNRU	Q=12dB	-	Street
8	MNRU	Q=05dB	-	Street
9	G.722@64	Nom, 1x	-	Street
10	G.722@56	Nom, 1x	-	Street
11	G.722@48	Nom, 1x	-	Street
12	Codec 1	Error-free	A	Street
13	Codec 1	C/I 13dB	A	Street
14	Codec 1	C/I 10dB	A	Street
15	Codec 1	C/I 07dB	A	Street
16	Codec 1	C/I 04dB	A	Street
17	Codec 2	Error-free	A	Street
18	Codec 2	C/I 13dB	A	Street
19	Codec 2	C/I 10dB	A	Street
20	Codec 2	C/I 07dB	A	Street
21	Codec 2	C/I 04dB	A	Street
22	Codec 3	Error-free	A	Street
23	Codec 3	C/I 13dB	A	Street
24	Codec 3	C/I 10dB	A	Street
25	Codec 3	C/I 07dB	A	Street
26	Codec 3	C/I 04dB	A	Street
27	Codec 4	Error-free	A	Street
28	Codec 4	C/I 13dB	A	Street
29	Codec 4	C/I 10dB	A	Street
30	Codec 4	C/I 07dB	A	Street
31	Codec 4	C/I 04dB	A	Street
32	Codec 5	Error-free	A	Street
33	Codec 5	C/I 13dB	A	Street
34	Codec 5	C/I 10dB	A	Street
35	Codec 5	C/I 07dB	A	Street
36	Codec 5	C/I 04dB	A	Street

Table 7-2(c): Test conditions for Experiment 3C

Condition	Codec	Factor	Application	Noise
1	Direct	-	-	Car
2	MNRU	Q=47dB	-	Car
3	MNRU	Q=40dB	-	Car
4	MNRU	Q=33dB	-	Car
5	MNRU	Q=26dB	-	Car
6	MNRU	Q=19dB	-	Car
7	MNRU	Q=12dB	-	Car
8	MNRU	Q=05dB	-	Car
9	G.722@64	Nom, 1x	-	Car
10	G.722@56	Nom, 1x	-	Car
11	G.722@48	Nom, 1x	-	Car
12	Codec 1	Error-free	B	Car
13	Codec 1	C/I 19dB	B	Car
14	Codec 1	C/I 16dB	B	Car
15	Codec 1	C/I 13dB	B	Car
16	Codec 1	C/I 10dB	B	Car
17	Codec 2	Error-free	B	Car
18	Codec 2	C/I 19dB	B	Car
19	Codec 2	C/I 16dB	B	Car
20	Codec 2	C/I 13dB	B	Car
21	Codec 2	C/I 10dB	B	Car
22	Codec 3	Error-free	B	Car
23	Codec 3	C/I 19dB	B	Car
24	Codec 3	C/I 16dB	B	Car
25	Codec 3	C/I 13dB	B	Car
26	Codec 3	C/I 10dB	B	Car
27	Codec 4	Error-free	B	Car
28	Codec 4	C/I 19dB	B	Car
29	Codec 4	C/I 16dB	B	Car
30	Codec 4	C/I 13dB	B	Car
31	Codec 4	C/I 10dB	B	Car
32	Codec 5	Error-free	B	Car
33	Codec 5	C/I 19dB	B	Car
34	Codec 5	C/I 16dB	B	Car
35	Codec 5	C/I 13dB	B	Car
36	Codec 5	C/I 10dB	B	Car

Table 7-2(d): Test conditions for Experiment 3D

Condition	Codec	Factor	Application	Noise
1	Direct	-	-	Street
2	MNRU	Q=47dB	-	Street
3	MNRU	Q=40dB	-	Street
4	MNRU	Q=33dB	-	Street
5	MNRU	Q=26dB	-	Street
6	MNRU	Q=19dB	-	Street
7	MNRU	Q=12dB	-	Street
8	MNRU	Q=05dB	-	Street
9	G.722@64	Nom, 1x	-	Street
10	G.722@56	Nom, 1x	-	Street
11	G.722@48	Nom, 1x	-	Street
12	Codec 1	Error-free	B	Street
13	Codec 1	C/I 19dB	B	Street
14	Codec 1	C/I 16dB	B	Street
15	Codec 1	C/I 13dB	B	Street
16	Codec 1	C/I 10dB	B	Street
17	Codec 2	Error-free	B	Street
18	Codec 2	C/I 19dB	B	Street
19	Codec 2	C/I 16dB	B	Street
20	Codec 2	C/I 13dB	B	Street
21	Codec 2	C/I 10dB	B	Street
22	Codec 3	Error-free	B	Street
23	Codec 3	C/I 19dB	B	Street
24	Codec 3	C/I 16dB	B	Street
25	Codec 3	C/I 13dB	B	Street
26	Codec 3	C/I 10dB	B	Street
27	Codec 4	Error-free	B	Street
28	Codec 4	C/I 19dB	B	Street
29	Codec 4	C/I 16dB	B	Street
30	Codec 4	C/I 13dB	B	Street
31	Codec 4	C/I 10dB	B	Street
32	Codec 5	Error-free	B	Street
33	Codec 5	C/I 19dB	B	Street
34	Codec 5	C/I 16dB	B	Street
35	Codec 5	C/I 13dB	B	Street
36	Codec 5	C/I 10dB	B	Street

Table 7-2(e): Test conditions for Experiment 3E

Condition	Codec	Factor	Application	Noise	DCR Reference
1	Direct	-	-	Car	C01
2	Direct	-	-	Street	C02
3	MNRU	Q=30dB	-	Car	C01
4	MNRU	Q=25dB	-	Car	C01
5	MNRU	Q=20dB	-	Car	C01
6	MNRU	Q=15dB	-	Car	C01
7	MNRU	Q=10dB	-	Car	C01
8	MNRU	Q=5dB	-	Car	C01
9	MNRU	Q=30dB	-	Street	C02
10	MNRU	Q=25dB	-	Street	C02
11	MNRU	Q=20dB	-	Street	C02
12	MNRU	Q=15dB	-	Street	C02
13	MNRU	Q=10dB	-	Street	C02
14	MNRU	Q=5dB	-	Street	C02
15	GSM-EFR	Error-free	A&B	Car	C01
16	GSM-EFR	C/I 13dB	A&B	Car	C01
17	GSM-EFR	C/I 10dB	A&B	Car	C01
18	GSM-EFR	C/I 07dB	A&B	Car	C01
19	GSM-EFR	C/I 04dB	A&B	Car	C01
20	GSM-EFR	Error-free	A&B	Street	C02
21	GSM-EFR	C/I 13dB	A&B	Street	C02
22	GSM-EFR	C/I 10dB	A&B	Street	C02
23	GSM-EFR	C/I 07dB	A&B	Street	C02
24	GSM-EFR	C/I 04dB	A&B	Street	C02

Table 7-3(a): List of preliminary conditions for Experiments 3A-3D

Condition		Codec and C/I or Q(dB)	Noise Type (Experiment)	Source Sample
Practice	Main			
P01	C09	G.722 64k	Car/Street	M01S07
P02	C08	MNRU, Q=5	Car/Street	F02S07
P03	C02	MNRU Q=47	Car/Street	F01S07
P04	C04	MNRU, Q=33	Car/Street	M02S07
P05	C01	Direct, No Errors	Car/Street	F02S08
P06	C05	MNRU, Q=26	Car/Street	M01S08
P07	C06	MNRU, Q=19	Car/Street	M02S08
P08	C11	G.722 48k	Car/Street	F01S08

(b): List of preliminary conditions for Experiment 3E

Condition		Codec and C/I or Q(dB)	Noise Type	Source Sample
Practice	Main			
P01	C15	GSM-EFR, Error-free	Car	M01S07
P02	C14	MNRU, Q=5	Street	F02S07
P03	C03	MNRU Q=30	Car	F01S07
P04	C09	MNRU, Q=30	Street	M02S07
P05	C01	Direct, No Errors	Car	F02S08
P06	C10	MNRU, Q=25	Street	M01S08
P07	C05	MNRU, Q=20	Car	M02S08
P08	C20	GSM-EFR, Error-free	Street	F01S08

7.3 Speech Material

The speech material should be as defined in Section 3. The speech material for this experiment comprises 8 speech samples for each talker (this includes 2 samples for the preliminary conditions in

each sub-experiment). Each talker's samples must be unique so that the subjects do not hear any sentence more than once. Sub-experiments 3A, 3B, 3C, and 3D will use P.341-weighted speech, and Experiment 3E will use GSM-weighted speech.

7.4 Experimental Design

The instructions given to the subjects will depend on the method used to collect opinion data. An example of typical instructions is given in Table B.1. The instructions must be given prior to the commencement of the experiment. When the subject has understood the instructions, he or she should listen to the practice list and give their opinions. No suggestions should be made to the subjects that the preliminary samples include the best or worst in the range to be covered, or exhaust the range of conditions they can expect to hear. After the preliminary list, there should be sufficient time allowed for answering possible questions by the subjects. Questions about procedure or about the meaning of the instructions should be answered, but any technical questions must not be answered until the experiment is finished.

In the DCR procedure, listeners are presented with a pair of speech samples. A reference (unprocessed) sample is presented first, followed by the same speech sample under evaluation. Listeners must rate the amount by which the second sample is degraded relative to the unprocessed (first) sample. They should use the following scale to judge the quality of the second sample (degraded) relative to that of the first (reference sample):

- Degradation is inaudible
- Degradation is audible but not annoying
- Degradation is slightly annoying
- Degradation is annoying
- Degradation is very annoying

The DCR method is particularly useful for assessing the performance of telecommunications systems when the input has been corrupted by background noise.

The reference (unprocessed) sample (Direct connection) is presented before the processed signal. This reference and processed samples must use the same talker and speech material.

In the so-called Modified-DCR method, the references have also been corrupted by the same noise (if any) and processed through the same preliminary processes, such as transmitter characteristic, logarithmic compounding, etc. Thus, there will be a different reference for each of the test conditions.

Each sub-experiment is split into 6 groups (with 4 listeners per group) such that each listener will hear all talkers (but not all sentence pairs) through each test condition. Across each sub-experiment as a whole, however, all combinations of talker, sentence pair and condition will be equally covered. Each of the 6 groups of subjects will therefore hear different combinations of source material and condition.

Each processed file will be voted on 4 times; these votes coming from one group of listeners.

Each subject will hear each of the conditions 4 times, once with speech from each of the 4 talkers.

7.5 Opinion Scale

The question asked of the subject will be the modified DCR Degradation Scale. The subjects will listen to each pair of samples (reference and processed) and after playback is completed, subjects will be asked to give their opinion. Annex A.2 contains an example of the instructions for the subjects in English. The subjects must not commence the experiment until they have read and understood the instructions.

7.6 Processing

Every talker/sentence-pair is processed through every test condition in Table 7-3. Hence, special allocation of conditions to speech material is not necessary.

7.7 Duration of the Experiment

The number of stimuli per subject is:

- Experiment 3A,B,C,D: (36 conditions x 4 repeated measures) + 8 preliminaries = 152
- Experiment 3E: (24 conditions x 4 repeated measures) + 8 preliminaries = 104

Allowing 22 seconds in total for the presentation of the sample and score collection, this gives the following test length per subject for the experiment:

- Experiment 3A,B,C,D: 152 stimuli x 22 seconds = 56 minutes = 1h02m
- Experiment 3E: 104 stimuli x 22 seconds = 39 minutes

Accounting for breaks, etc, it should take each group approximately 1h30min to complete one group for Experiments 3A-D and approximately 1 hour to complete Experiment 3E. If four simultaneous subjects can be accommodated, the total time to complete the experiment is in the order of 9 hours for Experiments 3A-D, and 6 hours for Experiment 3E.

7.8 Votes Per Condition

In Experiment 3, every condition will be assessed 4 times by each subject and in each of the 6 groups there will be 4 subjects. Hence,

(4 sessions x 4 subjects/group x 6 groups) = 96 votes per condition in Experiment 3

From past experience of DCR tests, this is the minimum number of votes per condition needed to give enough statistical certainty to characterize the performance of the codec over the conditions and against the references.

7.9 Randomizations

Randomizations for each of the presentation orders are provided to minimize differences between the laboratories.

In Experiments 3A, 3B, 3C, 3D, and 3E, a total of 24 randomisations will be used since there are 6 groups with 4 repeated measures (sessions) in each group. A given group of subjects will be exposed to 4 different randomisations of 36 elements in Experiments 3A through 3D, and to 4 different randomisations of 24 elements in Experiment 3E.

Presentation orders are presented in Annex C.

8 Experiment 4: Car and Street noise performance for higher-rate channels (DCR)

8.1 Introduction

This Experiment is designed to evaluate the performances of the wideband candidate algorithms in the presence of background noise (Car and Street Noise types) for applications C and E.

- Experiment 4A: Higher-rate channels (Application C) in Car noise (DCR)
- Experiment 4B: Higher-rate channels (Application C) in Street noise (DCR)
- Experiment 4C: Higher-rate channels (Application E) in Car noise (DCR)
- Experiment 4D: Higher-rate channels (Application E) in Street noise (DCR)

The details provided in this section are those that are specific to this particular experiment. Generic information, relevant to this and other experiments can be found in Section 4. Therefore Listening Laboratories should use the information in Section 4in conjunction with the information given in this section.

8.2 Test Conditions

Table 8-1 shows the conditions to be used in this experiment. Table 8-2 contains the full list of conditions and the practice conditions are given in Table 8-3.

Table 8-1(a): Conditions and factors for Experiments 4A (Car Noise) and 4B (Street Noise)

Main Codec Conditions		
Candidates	5	
Error Conditions for application C	6	C/I 22 dB, 19 dB and 16 dB in FR C/I 25 dB, 22 dB, and C/I 19 dB in HR
Background Noise	2	Experiment 4a: 4 samples of Car Noise, 15 dB SNR Experiment 4b: 4 samples of Street Noise, 15 dB SNR
Input level	1	-26 dBov
Tandeming	0	No tandeming
Input characteristic	1	P.341
Codec references		
Codec references	3	G.722-64k, G.722-56k, G.722-48k (all: no errors, nominal input level, P.341)
Other references		
Direct	1	Nominal input level, P.341
MNRU	6	Q=5, 13, 21, 29, 37, 45 (all: nominal input level, P.341)
Common Conditions		
Radio Channels	2	Applications C and E
Number of talkers	4	2 male and 2 female
Stimulus type		Sentence-pairs
Number of speech samples	8	6 + 2 (preliminaries) sentence pairs per talker.
Listening Level	1	79dB SPL
Listeners	24	Naïve Listeners
Groups	6	4 subjects/group
Repeated measures (sessions)	4	per group of subjects
Randomizations	24	One for each session
Rating Scale	1	Modified DCR
Replications	1	
Languages	2	Two different realizations
Listening System	1	Monaural headphones (flat response in the audio bandwidth of interest: 50Hz-7kHz). The other ear is open.
Listening Environment		Room Noise: Hoth Spectrum at 30dBA (as defined by ITU-T, Recommendation P.800, Annex A, section A.1.1.2.2.1 Room Noise, with table A.1 and Figure A.1)

Table 8-1(b): Conditions and factors for Experiments 4C (Car Noise) and 4D (Street Noise)

Main Codec Conditions		
Candidates	5	
Error Conditions for application E	5	No errors, EP-E-1, EP-E-2, EP-E-3, EP-E-4 (No errors is tested with the same mode as at least one of the error conditions)
Background Noise	2	Experiment 2c: 4 samples of Car Noise, 15 dB SNR Experiment 2d: 4 samples of Street Noise, 15 dB SNR
Input level	1	-26 dBov
Tandeming	0	No tandeming
Input characteristic	1	P.341
Codec references		
Codec references	3	G.722-64k, G.722-56k, G.722-48k (all: no errors, nominal input level, P.341)
Other references		
Direct	1	Nominal input level, P.341
MNRU	7	Q=5,12,19,26,33,40,47 (all nominal input level, P.341)
Common Conditions		
Radio Channels	2	Applications C and E
Number of talkers	4	2 male and 2 female
Stimulus type		Sentence-pairs
Number of speech samples	8	6 + 2 (preliminaries) sentence pairs per talker.
Listening Level	1	79dB SPL
Listeners	24	Naïve Listeners
Groups	6	4 subjects/group
Repeated measures (sessions)	4	per group of subjects
Randomizations	24	One for each session
Rating Scale	1	Modified DCR
Replications	1	
Languages	2	Two different realizations
Listening System	1	Monaural headphones (flat response in the audio bandwidth of interest: 50Hz-7kHz). The other ear is open.
Listening Environment		Room Noise: Hoth Spectrum at 30dBA (as defined by ITU-T, Recommendation P.800, Annex A, section A.1.1.2.2.1 Room Noise, with table A.1 and Figure A.1)

Table 8-2(a): **Test conditions for Experiment 4A**

Condition	Codec	Factor	Application	Noise
1	Direct	-	-	Car
2	MNRU	Q=45dB	-	Car
3	MNRU	Q=37dB	-	Car
4	MNRU	Q=29dB	-	Car
5	MNRU	Q=21dB	-	Car
6	MNRU	Q=13dB	-	Car
7	MNRU	Q=05dB	-	Car
8	G.722@64	Nom, 1x	-	Car
9	G.722@56	Nom, 1x	-	Car
10	G.722@48	Nom, 1x	-	Car
11	Codec 1/FR	C/I 22dB	C	Car
12	Codec 1/FR	C/I 19dB	C	Car
13	Codec 1/FR	C/I 16dB	C	Car
14	Codec 1/HR	C/I 25dB	C	Car
15	Codec 1/HR	C/I 22dB	C	Car
16	Codec 1/HR	C/I 19dB	C	Car
17	Codec 2/FR	C/I 22dB	C	Car
18	Codec 2/FR	C/I 19dB	C	Car
19	Codec 2/FR	C/I 16dB	C	Car
20	Codec 2/HR	C/I 25dB	C	Car
21	Codec 2/HR	C/I 22dB	C	Car
22	Codec 2/HR	C/I 19dB	C	Car
23	Codec 3/FR	C/I 22dB	C	Car
24	Codec 3/FR	C/I 19dB	C	Car
25	Codec 3/FR	C/I 16dB	C	Car
26	Codec 3/HR	C/I 25dB	C	Car
27	Codec 3/HR	C/I 22dB	C	Car
28	Codec 3/HR	C/I 19dB	C	Car
29	Codec 4/FR	C/I 22dB	C	Car
30	Codec 4/FR	C/I 19dB	C	Car
31	Codec 4/FR	C/I 16dB	C	Car
32	Codec 4/HR	C/I 25dB	C	Car
33	Codec 4/HR	C/I 22dB	C	Car
34	Codec 4/HR	C/I 19dB	C	Car
35	Codec 5/FR	C/I 22dB	C	Car
36	Codec 5/FR	C/I 19dB	C	Car
37	Codec 5/FR	C/I 16dB	C	Car
38	Codec 5/HR	C/I 25dB	C	Car
39	Codec 5/HR	C/I 22dB	C	Car
40	Codec 5/HR	C/I 19dB	C	Car

Table 8-2(b): Test conditions for Experiment 4B

Condition	Codec	Factor	Application	Noise
1	Direct	-	-	Street
2	MNRU	Q=45dB	-	Street
3	MNRU	Q=37dB	-	Street
4	MNRU	Q=29dB	-	Street
5	MNRU	Q=21dB	-	Street
6	MNRU	Q=13dB	-	Street
7	MNRU	Q=05dB	-	Street
8	G.722@64	Nom, 1x	-	Street
9	G.722@56	Nom, 1x	-	Street
10	G.722@48	Nom, 1x	-	Street
11	Codec 1/FR	C/I 22dB	C	Street
12	Codec 1/FR	C/I 19dB	C	Street
13	Codec 1/FR	C/I 16dB	C	Street
14	Codec 1/HR	C/I 25dB	C	Street
15	Codec 1/HR	C/I 22dB	C	Street
16	Codec 1/HR	C/I 19dB	C	Street
17	Codec 2/FR	C/I 22dB	C	Street
18	Codec 2/FR	C/I 19dB	C	Street
19	Codec 2/FR	C/I 16dB	C	Street
20	Codec 2/HR	C/I 25dB	C	Street
21	Codec 2/HR	C/I 22dB	C	Street
22	Codec 2/HR	C/I 19dB	C	Street
23	Codec 3/FR	C/I 22dB	C	Street
24	Codec 3/FR	C/I 19dB	C	Street
25	Codec 3/FR	C/I 16dB	C	Street
26	Codec 3/HR	C/I 25dB	C	Street
27	Codec 3/HR	C/I 22dB	C	Street
28	Codec 3/HR	C/I 19dB	C	Street
29	Codec 4/FR	C/I 22dB	C	Street
30	Codec 4/FR	C/I 19dB	C	Street
31	Codec 4/FR	C/I 16dB	C	Street
32	Codec 4/HR	C/I 25dB	C	Street
33	Codec 4/HR	C/I 22dB	C	Street
34	Codec 4/HR	C/I 19dB	C	Street
35	Codec 5/FR	C/I 22dB	C	Street
36	Codec 5/FR	C/I 19dB	C	Street
37	Codec 5/FR	C/I 16dB	C	Street
38	Codec 5/HR	C/I 25dB	C	Street
39	Codec 5/HR	C/I 22dB	C	Street
40	Codec 5/HR	C/I 19dB	C	Street

Table 8-2(c): Test conditions for Experiment 4C

Condition	Codec	Factor	Application	Noise
1	Direct	-	-	Car
2	MNRU	Q=47dB	-	Car
3	MNRU	Q=40dB	-	Car
4	MNRU	Q=33dB	-	Car
5	MNRU	Q=26dB	-	Car
6	MNRU	Q=19dB	-	Car
7	MNRU	Q=12dB	-	Car
8	MNRU	Q=05dB	-	Car
9	G.722@64	Nom, 1x	-	Car
10	G.722@56	Nom, 1x	-	Car
11	G.722@48	Nom, 1x	-	Car
12	Codec 1	Error-free	E	Car
13	Codec 1	EP-E-1	E	Car
14	Codec 1	EP-E-2	E	Car
15	Codec 1	EP-E-3	E	Car
16	Codec 1	EP-E-4	E	Car
17	Codec 2	Error-free	E	Car
18	Codec 2	EP-E-1	E	Car
19	Codec 2	EP-E-2	E	Car
20	Codec 2	EP-E-3	E	Car
21	Codec 2	EP-E-4	E	Car
22	Codec 3	Error-free	E	Car
23	Codec 3	EP-E-1	E	Car
24	Codec 3	EP-E-2	E	Car
25	Codec 3	EP-E-3	E	Car
26	Codec 3	EP-E-4	E	Car
27	Codec 4	Error-free	E	Car
28	Codec 4	EP-E-1	E	Car
29	Codec 4	EP-E-2	E	Car
30	Codec 4	EP-E-3	E	Car
31	Codec 4	EP-E-4	E	Car
32	Codec 5	Error-free	E	Car
33	Codec 5	EP-E-1	E	Car
34	Codec 5	EP-E-2	E	Car
35	Codec 5	EP-E-3	E	Car
36	Codec 5	EP-E-4	E	Car

Table 8-2(d): Test conditions for Experiment 4D

Condition	Codec	Factor	Application	Noise
1	Direct	-	-	Street
2	MNRU	Q=47dB	-	Street
3	MNRU	Q=40dB	-	Street
4	MNRU	Q=33dB	-	Street
5	MNRU	Q=26dB	-	Street
6	MNRU	Q=19dB	-	Street
7	MNRU	Q=12dB	-	Street
8	MNRU	Q=05dB	-	Street
9	G.722@64	Nom, 1x	-	Street
10	G.722@56	Nom, 1x	-	Street
11	G.722@48	Nom, 1x	-	Street
12	Codec 1	Error-free	E	Street
13	Codec 1	EP-E-1	E	Street
14	Codec 1	EP-E-2	E	Street
15	Codec 1	EP-E-3	E	Street
16	Codec 1	EP-E-4	E	Street
17	Codec 2	Error-free	E	Street
18	Codec 2	EP-E-1	E	Street
19	Codec 2	EP-E-2	E	Street
20	Codec 2	EP-E-3	E	Street
21	Codec 2	EP-E-4	E	Street
22	Codec 3	Error-free	E	Street
23	Codec 3	EP-E-1	E	Street
24	Codec 3	EP-E-2	E	Street
25	Codec 3	EP-E-3	E	Street
26	Codec 3	EP-E-4	E	Street
27	Codec 4	Error-free	E	Street
28	Codec 4	EP-E-1	E	Street
29	Codec 4	EP-E-2	E	Street
30	Codec 4	EP-E-3	E	Street
31	Codec 4	EP-E-4	E	Street
32	Codec 5	Error-free	E	Street
33	Codec 5	EP-E-1	E	Street
34	Codec 5	EP-E-2	E	Street
35	Codec 5	EP-E-3	E	Street
36	Codec 5	EP-E-4	E	Street

Table 8-3(a): List of preliminary conditions for Experiments 4A and 4B

Condition		Codec and C/I or Q(dB)	Noise Type	Source Sample
Practice	Main			
P01	C08	G.722 64k	Car (4A) or Street (4B)	M01S07
P02	C07	MNRU, Q=5	Car (4A) or Street (4B)	F02S07
P03	C02	MNRU Q=45	Car (4A) or Street (4B)	F01S07
P04	C03	MNRU, Q=37	Car (4A) or Street (4B)	M02S07
P05	C01	Direct, No Errors	Car (4A) or Street (4B)	F02S08
P06	C04	MNRU, Q=29	Car (4A) or Street (4B)	M01S08
P07	C05	MNRU, Q=21	Car (4A) or Street (4B)	M02S08
P08	C10	G.722 48k	Car (4A) or Street (4B)	F01S08

Table 8-3(b): List of preliminary conditions for Experiment 4C and 4D

Condition		Codec and C/I or Q(dB)	Noise Type	Source Sample
Practice	Main			
P01	C09	G.722 64k	Car (4C) or Street (4D)	M01S07
P02	C08	MNRU, Q=5	Car (4C) or Street (4D)	F02S07
P03	C02	MNRU Q=47	Car (4C) or Street (4D)	F01S07
P04	C07	MNRU, Q=12	Car (4C) or Street (4D)	M02S07
P05	C01	Direct, No Errors	Car (4C) or Street (4D)	F02S08
P06	C06	MNRU, Q=19	Car (4C) or Street (4D)	M01S08
P07	C05	MNRU, Q=26	Car (4C) or Street (4D)	M02S08
P08	C11	G.722 48k	Car (4C) or Street (4D)	F01S08

8.3 Speech Material

The speech material should be as defined in Section 3. The speech material for this experiment comprises 8 speech samples for each talker (this includes 2 samples for the preliminary conditions in each sub-experiment). Each talker's samples must be unique so that the subjects do not hear any sentence more than once. All sub-experiments will use P.341-weighted speech.

8.4 Experimental Design

This experiment uses the modified DCR method. See Section 7.4 for more details.

Each sub-experiment is split into 6 groups (with 4 listeners per group) such that each listener will hear all talkers (but not all sentence pairs) through each test condition. Across each sub-experiment as a whole, however, all combinations of talker, sentence pair and condition will be equally covered. Each of the 6 groups of subjects will therefore hear different combinations of source material and condition.

Each processed file will be voted on 4 times; these votes coming from one group of listeners.

Each subject will hear each of the conditions 4 times, once with speech from each of the 4 talkers.

8.5 Opinion Scale

The question asked of the subject will be the modified DCR Degradation Scale. The subjects will listen to each sample and after it has completed they will be asked to give their opinion. Annex A contains an example of the instructions for the subjects in English.

8.6 Processing

Every talker/sentence-pair is processed through every test condition in Table 8-2. Hence, special allocation of conditions to speech material is not necessary.

8.7 Duration of the Experiment

The number of stimuli per subject is:

- Experiment 4A&4B: (40 conditions x 4 repeated measures) + 8 preliminaries = 168
- Experiment 4C&4D: (36 conditions x 4 repeated measures) + 8 preliminaries = 152

Allowing 22 seconds in total for the presentation of the sample and score collection, this gives the following test length per subject for the experiment:

- Experiment 4A&4B: 168 stimuli x 22 seconds = 62 minutes = 1h02m
- Experiment 4C&4D: 152 stimuli x 22 seconds = 56 minutes

Accounting for breaks, etc, it should take each group approximately 1h30min to complete one group for Experiment 4. If four simultaneous subjects can be accommodated, the total time to complete the experiment is in the order of 9 hours.

8.8 Votes Per Condition

In Experiment 4, every condition will be assessed 4 times by each subject and in each of the 6 groups there will be 4 subjects. Hence,

(4 sessions x 4 subjects/group x 6 groups) = 96 votes per condition in Experiment 4

From past experience of DCR tests, this is the minimum number of votes per condition needed to give enough statistical certainty to characterize the performance of the codec over the conditions and against the references.

8.9 Randomizations

Randomizations for each of the presentation orders are provided to minimize differences between the laboratories.

In Experiment 4, a total of 24 randomisations will be used since there are 6 groups with 4 repeated measures (sessions) in each group. A given group of subjects will be exposed to 4 different randomisations of 40 elements in Experiments 4A and 4B, and to 4 different randomisations of 36 elements in Experiments 4C and 4D.

Presentation orders are presented in Annex C.

9 Experiment 5: Performance in Dynamic Conditions (ACR)

9.1 Introduction

This experiment is designed to evaluate the performance of the candidate codecs under dynamic conditions for the GSM FR channel. Only application A is tested since it is more challenging than application B. (The performance requirements are same for applications A and B.) Adaptation should be turned on, so that the modes used are those selected by the adaptation algorithm.

The experiment is split into two sub-experiments (WB and NB):

- Experiment 5A: Performance in Dynamic Conditions for AMR-WB (Application A) (ACR)
- Experiment 5B: Performance in Dynamic Conditions for EFR (ACR)

The details provided in this section are those that are specific to this particular experiment. Generic information, relevant to this and other experiments can be found in Section 4. Therefore Listening Laboratories should use the information in Section 4in conjunction with the information given in this section.

9.2 Test Conditions

Table 9-1 shows the conditions to be used in this experiment. Table 9-2 contains the full list of conditions and the practice conditions are given in Table 9-3.

Table 9-1(a): Conditions and factors for Experiment 5A

Main Codec Conditions		
Candidates	5	
Dynamic Error Patterns	6	Error-free, DEC1, DEC2, DEC3, DEC4 & DEC5 (same profiles as for AMR-NB) (Adaptation on: one out of maximum 4 different codec modes is chosen by link adaptation throughout the experiment) DEC4 and DEC5 at low C/I
Applications	1	A
VAD/DTX conditions	2	VAD/DTX on and off on the **reverse link** for dynamic error patterns DEC3 and DEC5. Other error patterns tested with VAD/DTX off in the reverse link. VAD/DTX is always disabled in the forward speech path.
Input level	1	-26 dBov
Tandeming and noise	0	No tandeming or background noise
Input characteristic	1	P.341
Codec references		
Codec references	0	
Other references		
Direct	1	Nominal input level, P.341
MNRU	6	Q= 5, 13, 21, 29, 37, 45, 50 (all: nominal input level, P.341)
Common Conditions		
Radio Channels	1	Applications A/B
Number of talkers	4	2 male and 2 female
Stimulus type		Sentence-quads
Number of speech samples	8	6 + 2 (preliminaries) sentence quads per talker.
Listening Level	1	79dB SPL
Listeners	24	Naïve Listeners
Groups	6	4 subjects/group
Repeated measures (sessions)	4	per group of subjects
Randomizations	36	One for each session
Rating Scale	1	ACR
Replications	1	
Languages	2	Two different realizations
Listening System	1	Monaural headphones (flat response in the audio bandwidth of interest: 50Hz-7kHz). The other ear is open.
Listening Environment		Room Noise: Hoth Spectrum at 30dBA (as defined by ITU-T, Recommendation P.800, Annex A, section A.1.1.2.2.1 Room Noise, with table A.1 and Figure A.1)

Table 9-1(b): Conditions and factors for Experiment 5B

Main Codec Conditions		
Candidates	5	
Dynamic Error Patterns	3	Error-free, DEC1 & DEC5 (Adaptation on: one out of maximum 4 different codec modes is chosen by link adaptation throughout the experiment) DEC5 at low C/I
Applications	2	A/B
VAD/DTX conditions	0	VAD/DTX off for all dynamic error patterns
Input level	1	-26 dBov
Tandeming and noise	0	Bandwidth reduction
Input characteristic	1	P.341
Codec references		
Codec references	1	EFR
Dynamic Error Patterns	6	Error-free, DEC1, DEC2, DEC3, DEC4 & DEC5
VAD/DTX conditions	2	VAD/DTX off for all dynamic error patterns
Input level	1	-26 dBov
Tandeming and noise	0	No tandeming or background noise
Input characteristic	1	P.341
	1	GSM HR (errored with DEC4, VAD/DTX off)
Other references		
Direct	1	Nominal input level, P.341
MNRU	6	Q=0, 5, 13, 21, 29, 37, 45, 50 (all: nominal input level, P.341)
Common Conditions		
Radio Channels	1	Applications A/B
Number of talkers	4	2 male and 2 female
Stimulus type		Sentence-quads
Number of speech samples	8	6 + 2 (preliminaries) sentence quads per talker.
Listening Level	1	79dB SPL
Listeners	24	Naïve Listeners
Groups	6	4 subjects/group
Repeated measures (sessions)	4	per group of subjects
Randomizations	30	One for each session
Rating Scale	1	ACR
Replications	1	
Languages	2	Two different realizations
Listening System	1	Monaural headphone with Modified IRS receiving response (exclusive of the SRAEN filter) The other ear is open.
Listening Environment		Room Noise: Hoth Spectrum at 30dBA (as defined by ITU-T, Recommendation P.800, Annex A, section A.1.1.2.2.1 Room Noise, with table A.1 and Figure A.1)

Table 9-2(a): Test conditions for Experiment 5A

Condition	Codec	Factor	VAD	Application
1	Direct	-	-	-
2	MNRU	Q=50dB	-	-
3	MNRU	Q=45dB	-	-
4	MNRU	Q=37dB	-	-
5	MNRU	Q=29dB	-	-
6	MNRU	Q=21dB	-	-
7	MNRU	Q=13dB	-	-
8	MNRU	Q=05dB	-	-
9	Codec 1	Error-free	Off	A
10	Codec 1	DEC1	Off	A
11	Codec 1	DEC2	Off	A
12	Codec 1	DEC3	Off	A
13	Codec 1	DEC4	Off	A
14	Codec 1	DEC5	Off	A
15	Codec 1	DEC3	On, Rev.Link	A
16	Codec 1	DEC5	On, Rev.Link	A
17	Codec 2	Error-free	Off	A
18	Codec 2	DEC1	Off	A
19	Codec 2	DEC2	Off	A
20	Codec 2	DEC3	Off	A
21	Codec 2	DEC4	Off	A
22	Codec 2	DEC5	Off	A
23	Codec 2	DEC3	On, Rev.Link	A
24	Codec 2	DEC5	On, Rev.Link	A
25	Codec 3	Error-free	Off	A
26	Codec 3	DEC1	Off	A
27	Codec 3	DEC2	Off	A
28	Codec 3	DEC3	Off	A
29	Codec 3	DEC4	Off	A
30	Codec 3	DEC5	Off	A
31	Codec 3	DEC3	On, Rev.Link	A
32	Codec 3	DEC5	On, Rev.Link	A
33	Codec 4	Error-free	Off	A
34	Codec 4	DEC1	Off	A
35	Codec 4	DEC2	Off	A
36	Codec 4	DEC3	Off	A
37	Codec 4	DEC4	Off	A
38	Codec 4	DEC5	Off	A
39	Codec 4	DEC3	On, Rev.Link	A
40	Codec 4	DEC5	On, Rev.Link	A
41	Codec 5	Error-free	Off	A
42	Codec 5	DEC1	Off	A
43	Codec 5	DEC2	Off	A
44	Codec 5	DEC3	Off	A
45	Codec 5	DEC4	Off	A
46	Codec 5	DEC5	Off	A
47	Codec 5	DEC3	On, Rev.Link	A
48	Codec 5	DEC5	On, Rev.Link	A

Table 9-2(b): **Test conditions for Experiment 5B**

Condition	Codec	Factor	VAD	Application
1	Direct	-	-	-
2	MNRU	Q=50dB	-	-
3	MNRU	Q=45dB	-	-
4	MNRU	Q=37dB	-	-
5	MNRU	Q=29dB	-	-
6	MNRU	Q=21dB	-	-
7	MNRU	Q=13dB	-	-
8	MNRU	Q=05dB	-	-
9	MNRU	Q=00dB	-	-
10	GSM-HR	DEC4	-	A
11	GSM-EFR	Error-free	Off	A
12	GSM-EFR	DEC1	Off	A
13	GSM-EFR	DEC2	Off	A
14	GSM-EFR	DEC3	Off	A
15	GSM-EFR	DEC4	Off	A
16	GSM-EFR	DEC5	Off	A
17	Codec 1/G.711	Error-free	Off	A
18	Codec 1/G.711	DEC1	Off	A
19	Codec 1/G.711	DEC3	Off	A
20	Codec 1/G.711	DEC5	Off	A
21	Codec 2/G.711	Error-free	Off	A
22	Codec 2/G.711	DEC1	Off	A
23	Codec 2/G.711	DEC3	Off	A
24	Codec 2/G.711	DEC5	Off	A
25	Codec 3/G.711	Error-free	Off	A
26	Codec 3/G.711	DEC1	Off	A
27	Codec 3/G.711	DEC3	Off	A
28	Codec 3/G.711	DEC5	Off	A
29	Codec 4/G.711	Error-free	Off	A
30	Codec 4/G.711	DEC1	Off	A
31	Codec 4/G.711	DEC3	Off	A
32	Codec 4/G.711	DEC5	Off	A
33	Codec 5/G.711	Error-free	Off	A
34	Codec 5/G.711	DEC1	Off	A
35	Codec 5/G.711	DEC3	Off	A
36	Codec 5/G.711	DEC5	Off	A

Table 9-3: List of preliminary conditions for Experiment 5A

Condition		Codec and C/I or Q(dB)	Source Sample
Practice	Main		
P01	C02	~~G.722 64k~~MNRU, Q=50	M01S07
P02	C08	MNRU, Q=5	F02S07
P03	C03	MNRU Q=45	F01S07
P04	C05	MNRU, Q=~~25~~29	M02S07
P05	C01	Direct, No Errors	F02S08
P06	C04	MNRU, Q=~~35~~37	M01S08
P07	C07	MNRU, Q=~~15~~13	M02S08
P08	C06	~~G.722 48k~~ MNRU, Q=21	F01S08

(b): List of preliminary conditions for Experiment 5B

Condition		Codec and C/I or Q(dB)	Source Sample
Practice	Main		
P01	C11	GSM-EFR, Error-free	M01S07
P02	C08	MNRU, Q=5	F02S07
P03	C03	MNRU Q=~~40~~45	F01S07
P04	C05	MNRU, Q=~~30~~29	M02S07
P05	C01	Direct, No Errors	F02S08
P06	C04	MNRU, Q=~~25~~37	M01S08
P07	C07	MNRU, Q=~~20~~13	M02S08
P08	C10	GSM-HR, DEC4	F01S08

9.3 Speech Material

The speech material should be as defined in Section 3. The speech material for this experiment comprises 8 speech samples for each talker (this includes 2 samples for the preliminary conditions in each sub-experiment). Each talker's samples must be unique so that the subjects do not hear any sentence more than once. All sub-experiments will use P.341-weighted speech.

9.4 Experimental Design

The experiment is split into 6 groups (with 4 listeners per group) such that each listener will hear all talkers (but not all sentence pairs) through each test condition. Across each experiment as a whole, however, all combinations of talker, sentence pair and condition will be equally covered. Each of the 6 groups of subjects will therefore hear different combinations of source material and condition.

Each processed file will be voted on 6 times in Experiment 5A and 5 times in Experiment 5B; these votes coming from the same group of listeners in each experiment.

9.5 Opinion Scale

The question asked of the subject will be the ACR Listening Quality Scale. The subjects will listen to each sample and after it has completed they will be asked to give their opinion. Annex A.1 contains an example of the instructions for the subjects in English.

9.6 Processing

Every talker/sentence-pair is processed through every test condition in Table 9-2. Hence, special allocation of conditions to speech material is not necessary.

9.7 Duration of the Experiment

The number of stimuli per subject is:

- Experiment 5A: (48 conditions x 4 repeated measures) + 8 preliminaries = 200
- Experiment 5B: (36 conditions x 4 repeated measures) + 8 preliminaries = 152

Allowing 22 seconds in total for the presentation of the sample and score collection, this gives the following test length per subject for the experiment:

- Experiment 5A: 200 stimuli x 22 seconds = 74 minutes = 1h14m
- Experiment 5B: 152 stimuli x 22 seconds = 56 minutes

Accounting for breaks, etc, it should take each group approximately 1h45m to complete one group for Experiment 5A and 1h30m for Experiment 5B. If four simultaneous subjects can be accommodated, the total time to complete the experiment is in the order of 10.5 hours for Experiment 5A and 9 hours for Experiment 5B.

9.8 Votes Per Condition

In Experiment 5A, every condition will be assessed 4 times by each subject and in each of the 6 groups there will be 6 subjects. In Experiment 5B, every condition will be assessed 5 times by each subject, with the same number of groups and subjects per group. Hence,

(4 sessions x 4 subjects/group x 6 groups) = 96 votes per condition in Experiment 5A
(4 sessions x 4 subjects/group x 6 groups) = 96 votes per condition in Experiment 5B

9.9 Randomizations

Randomizations for each of the presentation orders are provided to minimize differences between the laboratories.

In Experiment 5A, a total of 36 randomisations will be used since there are 6 groups with 6 repeated measures (sessions) in each group. In Experiment 5B, a total of 30 randomisations will be used since there are 6 groups with 5 repeated measures (sessions) in each group. A given group of subjects will be exposed to 6 different randomisations of 42 elements in Experiment 5A, and to 5 different randomisations of 30 elements in Experiment 5B.

Presentation orders are presented in Annex C.

10 Experiment 6: VAD/DTX in GSM FR channel for Application B (CCR)

10.1 Introduction

This experiment is designed to evaluate the performance of the VAD/DTX solutions that the codec proponents provide for the selection phase. Since it is not necessary to test VAD/DTX for both applications A and B, VAD/DTX is tested only with Application B.

The details provided in this section are those that are specific to this particular experiment. Generic information, relevant to this and other experiments can be found in Section 4. Therefore Listening Laboratories should use the information in Section 4in conjunction with the information given in this section.

10.2 Test Conditions

Table 10-1 shows the conditions to be used in this experiment. Table 10-2 contains the full list of conditions and the practice conditions are given in Table 10-3.

Table 10-1: Conditions and factors for Experiment 6

Main Codec Conditions		
Candidates	5	
Error Conditions	0	No errors
Applications	1	B
VAD/DTX	2	With and without VAD/DTX
Input level	1	-26 dBov
Tandeming and noise	0	No tandeming
Background noise	4	Office noise at 20 dB, Street noise at S/N = 15 dB, Car noise at S/N = 15 dB.
Input characteristic	1	P.341
Codec references		
Codec references	3	codec comparison: G.722-64 X G.722–64, G.722-64 X G.722-56, and G.722-64 X G.722-48
Other references		
MNRU	5	Q=20,25,30,35,40,45,50 dBQ (compared to 35 dBQ), P.341
Common Conditions		
Radio Channels	1	Application B
Number of talkers	4	2 male and 2 female
Stimulus type		Sentence-pairs
Number of speech samples	5	3 + 2 (preliminaries) sentence pairs per talker.
Listening Level	1	79dB SPL
Listeners	24	Naïve Listeners
Groups	4	6 subjects/group
Repeated measures (sessions)	3	per group of subjects per direction
Directions	2	A/B and B/A presentation directions
Randomizations	24	(3x2x4) One per session per direction
Rating Scale	1	CCR
Replications	1	
Languages	2	Two different realizations
Listening System	1	Monaural headphones (flat response in the audio bandwidth of interest: 50Hz-7kHz). The other ear is open.
Listening Environment		Room Noise: Hoth Spectrum at 30dBA (as defined by ITU-T, Recommendation P.800, Annex A, section A.1.1.2.2.1 Room Noise, with table A.1 and Figure A.1)

Table 10-2: Test conditions for Experiment 6

Condition	Noise	A Stimulus		B Stimulus		
		Codec	Q/VAD	Codec	Q/VAD	Application
01	Car	MNRU	Q=35dB	MNRU	Q=50dB	-
02	Car	MNRU	Q=35dB	MNRU	Q=45dB	-
03	Car	MNRU	Q=35dB	MNRU	Q=40dB	-
04	Car	MNRU	Q=35dB	MNRU	Q=35dB	-
05	Car	MNRU	Q=35dB	MNRU	Q=30dB	-
06	Car	MNRU	Q=35dB	MNRU	Q=25dB	-
07	Car	MNRU	Q=35dB	MNRU	Q=20dB	-
08	Car	G.722@64	-	G.722@64	-	-
09	Car	G.722@64	-	G.722@56	-	-
10	Car	G.722@64	-	G.722@48	-	-
11	Car	Codec 1	Off	Codec 1	Off	B
12	Car	Codec 1	Off	Codec 1	On	B
13	Street	Codec 1	Off	Codec 1	Off	B
14	Street	Codec 1	Off	Codec 1	On	B
15	Office	Codec 1	Off	Codec 1	Off	B
16	Office	Codec 1	Off	Codec 1	On	B
17	Car	Codec 2	Off	Codec 2	Off	B
18	Car	Codec 2	Off	Codec 2	On	B
19	Street	Codec 2	Off	Codec 2	Off	B
20	Street	Codec 2	Off	Codec 2	On	B
21	Office	Codec 2	Off	Codec 2	Off	B
22	Office	Codec 2	Off	Codec 2	On	B
23	Car	Codec 3	Off	Codec 3	Off	B
24	Car	Codec 3	Off	Codec 3	On	B
25	Street	Codec 3	Off	Codec 3	Off	B
26	Street	Codec 3	Off	Codec 3	On	B
27	Office	Codec 3	Off	Codec 3	Off	B
28	Office	Codec 3	Off	Codec 3	On	B
29	Car	Codec 4	Off	Codec 4	Off	B
30	Car	Codec 4	Off	Codec 4	On	B
31	Street	Codec 4	Off	Codec 4	Off	B
32	Street	Codec 4	Off	Codec 4	On	B
33	Office	Codec 4	Off	Codec 4	Off	B
34	Office	Codec 4	Off	Codec 4	On	B
35	Car	Codec 5	Off	Codec 5	Off	B
36	Car	Codec 5	Off	Codec 5	On	B
37	Street	Codec 5	Off	Codec 5	Off	B
38	Street	Codec 5	Off	Codec 5	On	B
39	Office	Codec 5	Off	Codec 5	Off	B
40	Office	Codec 5	Off	Codec 5	On	B

Table 10-3: List of preliminary conditions for Experiment 6

Condition		Codec and C/I or Q(dB)		Noise	Source
Practice	Main	A stimulus	B stimulus		Sample
P01/Q01	R09/C09	G.722 64k	G.722 56k	Office	M01S07
P02/Q02	C07/R07	MNRU, Q=20	MNRU, Q=35	Street	F02S07
P03/Q03	R04/C04	MNRU, Q=35	MNRU, Q=35	Car	F01S07
P04/Q04	C09/R09	G.722 56k	G.722 64k	Street	M02S07
P05/Q05	R01/C01	MNRU, Q=35	MNRU, Q=50	Office	F02S08
P06/Q06	C10/R10	G.722 48k	G.722 64k	Car	M01S08
P07/Q07	R06/C06	MNRU, Q=35	MNRU, Q=25	Street	M02S08
P08/Q08	C02/R02	MNRU, Q=45	MNRU, Q=35	Car	F01S08

10.3 Speech Material

The speech material should be as defined in Section 3. The speech material for this experiment comprises 5 speech samples for each talker (this includes 2 samples for the preliminary conditions in the experiment). Each talker's samples must be unique so that the subjects do not hear any sentence more than once. All sub-experiments will use P.341-weighted speech.

10.4 Experimental Design

This experiment uses a modified version of the Category Comparison (CCR) method defined in [1], in which the reference signal, instead of being the unprocessed ("Direct") speech, is the speech processed through the candidate codec VAD/DTX turned off. This was done because the main parameter of interest in this experiment was the VAD/DTX performance, not the coding quality per se. The only exceptions were the MNRU conditions, whose Reference Signal was the MNRU with Q=35dB, and the G.722 codec, which was rated against itself at 64 kbit/s. The reference signal is denoted as stimulus "A" and the test signal is denoted as stimulus "B". In the data to be reported, a positive CMOS value will indicate preference towards the test sample, and a negative value will indicate preference towards the reference sample.

In order to account for test size and the large number of test conditions, only three samples per talker are used. Three repeated measures (sessions) are taken per group of subjects for each of the presentation directions, and 4 groups of 6 subjects each are used.

Each listener will hear all talkers (but not all sentence pairs) through each test condition. Across the experiment as a whole, however, all combinations of talker, sentence pair and condition will be equally covered. Each of the 4 groups of subjects will therefore hear different combinations of source material and condition.

10.5 Opinion Scale

The question asked of the subject will be the CCR Scale. Subjects are presented with pairs of speech samples, where one is a reference and one a processed sample. For each condition in the experiment each subject will hear a given reference and processed pair twice; once in each direction. They then have to make a judgement based on the comparative quality of the two samples. Annex A.3 contains an example of the instructions for the subjects in English on which the instructions should be based.

10.6 Processing

Every talker/sentence-pair is processed through every test condition in Table 10-2. Hence, special allocation of conditions to speech material is not necessary.

10.7 Duration of the Experiment

The number of stimuli per subject is:
(40 conditions x 3 repeated measures x 2 directions) + 8 preliminaries = 248

Allowing 22 seconds in total for the presentation of the sample and score collection, this gives the following test length per subject for the experiment:

248 stimuli x 22 seconds = 88 minutes = 1h28m

Accounting for breaks, etc, it should take each group approximately two hours to complete the test. If **six simultaneous subjects** can be accommodated, the **total time to complete the experiment** is in the order of 8 hours.

10.8 Votes Per Condition

Every condition will be assessed three times by each subject in each presentation direction. In each of the 4 groups there will be 6 subjects. Hence,

(3 sessions x 2 directions x 6 subjects/group x 4 groups) = 144 votes per condition

10.9 Randomizations

Randomizations for each of the presentation orders are provided to minimize differences between the laboratories. A total of 24 randomisations (3 repeated measures [sessions] x 2 directions x 4 groups) are used. A given group of subjects will be exposed to 6 different randomisations of 40 elements in Experiment 6 Presentation orders are presented in Annex C.

Annex A: Listeners Instructions

The instructions given to the subjects will to some extent depend on the method used to collect opinion data. In this section, example instructions are given for ACR, modified DCR and modified CCR experiments. To ensure consistency between the different laboratories, the actual instructions given to the subjects should be as close as possible to these examples, adapted for the number of speech files and length of the actual experiment, data collection method, and translated into the native language.

The instructions must be given prior to the commencement of the experiment, and the experimenter should ensure that the subject has understood them before starting the experiment. Questions asked by the subjects on procedural aspects of the experiment can, and should, be answered. However questions about the experiment design or what the experiment is investigating should not be answered until the subjects have completed the experiment. Subjects must be told not to give such information to subjects who are yet to participate in the experiment.

Subjects' responses may be collected by any convenient method: e.g. pencil and paper, press buttons controlling lamps recorded by the operator, or automatic data-logging equipment. Whichever method is used, care must be taken that subjects should not be able to observe other subjects' responses, nor should they be able to see the record of their own responses made in a previous session. Apart from the inevitable memory effects, each response should be independent of every other.

A.1 Sample instructions to subjects for ACR experiments

INSTRUCTIONS TO SUBJECTS

In this experiment we are evaluating systems that might be used for telecommunication service between distant places.

You are going to hear [m] samples of speech reproduced through the telephone handset. Each sample will consist of a sequence of 2 sentences. Please listen to the complete sample, then indicate your opinion of the overall sound quality using the following 5-point scale:

- Excellent
- Good
- Fair
- Poor
- Bad

After listening to a sample sequence, please write the appropriate response on the sheet provided (or alternatively press the appropriate button) which on this rating scale represents your opinion of the sound quality of the sample you just heard.

After you have given your opinion there will be a short pause before the next sample begins. For practice, you will first hear [n] samples and give an opinion on each; then there will be a break to make sure that everything is clear.

From then on you will have a break every [p] minutes. The test will last a total of [q] minutes.

Please do not discuss your opinions with other listeners participating in the experiment.

Figure A.1: Example of instructions to subjects for ACR test using a Quality scale.

A.2 Sample instructions to subjects for Modified DCR experiments

INSTRUCTIONS TO SUBJECTS
(Modified) Degradation category rating test
"Evaluation of the influence of various environmental noises on the quality of different telephone systems"

You are going to hear, through the handset which is in front of you, various pairs of speech samples recorded in different noise environments (for example inside a car or on the street).

Each pair is built up from two samples separated by a pause of about half a second.

Each sample is built up from two speech sentences separated by a small gap. All the samples have been recorded in the different noise environments.

The first sample you will hear is the reference and the second one, which has been treated by telephone system, has to be evaluated with regard to this reference.

You are kindly requested to listen carefully to each pair of samples. Then when the green light is on, please record your opinion of any degradation you can perceive on the second sample with regard to the first one (reference) using the following scale :

Degradation not perceived or even some improvement

Degradation perceived but not annoying

Degradation slightly annoying

Degradation annoying

Degradation very annoying

You will have 5 seconds to record your answer by pushing the button corresponding to your choice.

Then you will have a short pause before the presentation of next pair.

We will start by a short practice session to make you familiar with the test procedure. Then the actual tests will take place during [n] sessions of [m] minutes.

Figure A.2: Example of instructions to subjects for DCR and M-DCR test.

A.3 Sample instructions to subjects for Modified CCR experiments

INSTRUCTIONS TO SUBJECTS

In this experiment we are evaluating systems that might be used for telecommunication services.
You are going to hear through the handset pairs of speech samples, most of which have been recorded in different noisy environments (for example inside a car, in an office, or on the street). The first sample you will hear will be the reference sample. You will then hear the same sample again, but this time it will have passed through a telecommunications system. These samples will each consist of two short unconnected sentences.
You should listen carefully to each pair of samples. When they have finished, please record your opinion of the second sample with regard to the first one using the following scale :

Much better
Better
Slightly better
About the same
Slightly worse
Worse
Much worse

For practice, you will first hear [n] sample pairs and give an opinion on each. There will then be a short break to make sure that everything is clear.
From then on you will have a break approximately every [p] minutes. The test will last a total of approximately [q] minutes.
Please do not discuss your opinions with other listeners participating in the experiment.

Figure A.3: Example of instructions to subjects for M-CCR test.

Annex B: Filenaming conventions

In the course of preparations for these tests, speech samples will be exchanged between Listening Laboratories, Host Laboratories, and candidate proponents. A specific file naming convention is defined here for these files. It is mandatory for the Laboratories involved to follow this convention.

- The files prepared by the Listening Laboratories and provided to the Host Laboratory will be pre-processed and must have an extension `.341` for P.341-weighted speech and `.GSM` for GSM-weighted speech, in order to avoid confusion.
- Candidates will provide ARCON and COMSAT with files in the `.zcc` format (described in B.3)
- The files provided to the Listening Laboratories for the execution of the test must have an extension complying with section B.2.

File naming and directory structure details pertaining to the cross-checking activity are defined in the Processing Document [1].

B.1 Filenames for Pre-Processed Files

Table B.1a defines the naming convention for the pre-processed files, provided by the listening Laboratories to the Host Laboratories for processing.

Table B.1a: Filename convention for pre-processed files

`gy`[SQ]`ll.16K`		Filename format for pre-processed files (`.341` or `.GSM`)
where		
`gy`	–	Indicates the talker gender and index: M1 = male #1, F1 = female #1, M2 = male #2, F2 = female #2, etc.
[SQ]	–	The letter S for sentence-pairs or Q for sentence-quadruples
`ll`	–	Indicates the sample number

The test houses must deliver the samples to the Host Laboratories after pre-processing in a directory structure following the convention:

\Lab_x\Exp_ee\`gy`[SQ]`ll.{341,GSM}`,

where `x` is the code of the test house as shown in Table B.1b and `ee` is the experiment number.

Table B.1b: Naming convention for the directory structure

`x`	Identifier for each Listening Laboratory: a AT&T c COMSAT d Dynastat f FT n NTT-AT r ARCON
`ee`	Indicates the experiment identifier, e.g. 2A for experiment #2a

B.2 Filenames for Processed Files

After the processing, the speech samples must be returned to the Listening Laboratories by the Host Laboratory. Table B.2 defines the naming convention for the processed and output files.

Table B.2: Filename convention for the processed material

`xeegy[SQ]ll.Pcc` `xeegy[SQ]ll.[CR]cc`		processed output files used by listening labs (practice trials) processed output files used by listening labs (test trials). The designation C in the filename extension is used in all experiments, while the designation R is only used in Experiment 6(A) to label the reference conditions in the CCR experiment.
where		
x	–	Lab identifier a AT&T c COMSAT d Dynastat f FT n NTT-AT r ARCON
`ee`	–	Indicates the experiment identifier, e.g. 2A for experiment #2a. Where there is only the single experiment, the two characters 'ee' shall be made up of firstly the experiment number and secondly 'A' - so for experiment 6, all output files begin with 6A.
`gy`	–	Indicates the talker gender and index: M1 = male #1, F1 = female #1, M2 = male #2, F2 = female #2, etc.
`[SQ]`	–	The letter S for sentence-pairs and Q for sentence-quadruples
`ll`	–	Indicates the sample number
`C, R or P`	–	The letter C, R or P, as appropriate
`cc`	–	Indicates the condition number, i.e. 08 = condition 08

When delivered to the test houses by the host lab, the samples should be provided in a directory structure following the convention:

\Lab_x\Exp_ee\`xeegy[SQ]ll.Ccc`
\Lab_x\Exp_ee\`xeegy[SQ]ll.Rcc` (in Experiment 6 only)

with the same convention as before.

For the preliminaries, the condition number should represent the index of that preliminary (as defined in the sections of this document relevant to the individual tests) and should be provided in a dedicated directory:

\Lab_x\Exp_ee\`xeegy[SQ]ll.Pcc`

with the same convention as before.

B.3: Host Laboratory activity

The following instructions are provided to facilitate the host laboratory (including crosscheck) activity. The host laboratory activity will be performed by candidate proponents and ARCON and COMSAT. While ARCON and COMSAT will be primarily responsible for the pre-processing, processing, and post-processing of the reference conditions (with associated cross-checking), the candidate proponents are responsible for pre-processing, processing, and partial post-processing of the test codec conditions (with associated cross-checking),

Figure B.1 contains the directory structure for the Host laboratory activity. Figure B.2 shows the sequence of activities for the host laboratory activity for the Host Laboratory I. Figure B.3 illustrates the crosscheck process between Host laboratory I and II.

Listening laboratories are responsible for pre-processing of the 16 kHz weighted clean speech material and to deliver the 16 kHz, weighted, clean pre-processed (`.341` or `.gsm`) speech material to the host laboratory assigned to them.

The host laboratories will process and crosscheck the reference conditions using a pre-agreed, common platform, e.g. MS-DOS box under Windows 98/NT. The candidates will agree upon suitable platforms to process and crosscheck the test codec conditions. Byte-swapping of the pre-processed material may be necessary for some platforms.

The concatenated files will bear an extension indicating the noise type (see below).

Host laboratories and candidate proponents will perform file concatenation, noise summation, processing by the reference and test conditions (respectively), starting from the files as provided by the listening laboratories.

The candidate proponents are responsible to provide the host laboratories with the processed, concatenated files for Experiments 3 through 6, and the individual processed files for Experiments 1 and 2 (since concatenation is not used in these two experiments). The host laboratories will perform the stripping of the material processed through the reference and test codecs (Experiments 3-6) and will perform the blinding of the test codec material. The file name roots for the concatenated files will follow the pattern "`xeell`", where `x`, `ee`, and `ll` are defined as for the processed files:

Table B.3: Root filename convention for the concatenated material

`x`	–	Lab identifier
`ee`	–	Indicates the experiment identifier, e.g. 2A for experiment #2
`ll`	–	Indicates the sample number

NOTE: the processed file name root for Experiments 1 and 2 will follow the `xeegy[SQ]ll`.C`cc` convention in Table B.2.

Suitable associated file name extensions for the pre-processed speech material would be:

`.cl`	- clean speech
`.ofc`	- office noise
`.car`	- car noise

For the reference processed material, filename extensions will be the same as the condition number in the respective table of test conditions, e.g. `.c05`. For the candidate conditions, since the final mapping of the filename extensions for delivery to the listening labs is dependent upon the blinding process, the candidates shall use the lowest condition number `cc` appearing on the tables applicable to a given circuit. For example, all candidates would label as condition number 18 their codec processed for application A, 2 tandems, in Experiment 1A. However, in order to distinguish across candidates, the filename extension shall be of the form `.zcc` (`z` is defined below).

The host laboratories will deliver the blinded material to the listening laboratories, as specified in the section above.

For Experiments 1 and 2, the candidates will deliver the individual processed files to the host laboratories according to the following organization:

\prc\Lab_x\Exp_ee\cutz\xeegySll.zcc

For Experiments 3 through 6, the candidates will deliver the concatenated processed files to the host laboratories according to the following organization:

\prc\Lab_x\Exp_ee\cutz\xeell.zcc

The label z above is a candidate identifier, assigned as:

`e`	Ericsson
`f`	FDNS
`m`	Motorola
`n`	Nokia
`t`	Texas Instruments

```
                    +- lab_x -|- exp_1a
                    |         |- ...
                    |
        +-src------|- lab_y -|- exp_2a
        |           |         |- ...
        |           |
        |           +- lab_z -|- ...
        |
        |           +- lab_x -|- exp_1a
        |           |         |- ...
        |           |
        |-pre------|- lab_y -|- exp_2a
        |           |         |- ...
        |           |
|------|           +- lab_z -|- ...
        |
        |           +- lab_x -|- exp_1a
        |           |         |- ...     +- cuta
        |           |                    |- cutb
        |-prc------|- lab_y -|- exp_2a -|- cutc
        |           |         |- ...     |- cutd
        |           |                    +- cute
        |           +- lab_z -|- ...
        |
        |           +- lab_x -|- exp_1a
        |           |         |- ...
        |           |
        |-post-----|- lab_y -|- exp_2a
        |           |         |- ...
        |           |
        |           +- lab_z -|- ...
        |-ep
        |
        +-noise
```

Figure B.3:

Sample directory structure for host lab activities. Source material is located in `src`; pre-processed material in `pre`; processed material in `prc`; post-processed material (already blinded) is located in `post`. Candidate-processed material is provided to the host laboratories under `prc/lab_y/exp_ee/cutz`. Error patterns are located in `ep` and noise files are located in `noise`.

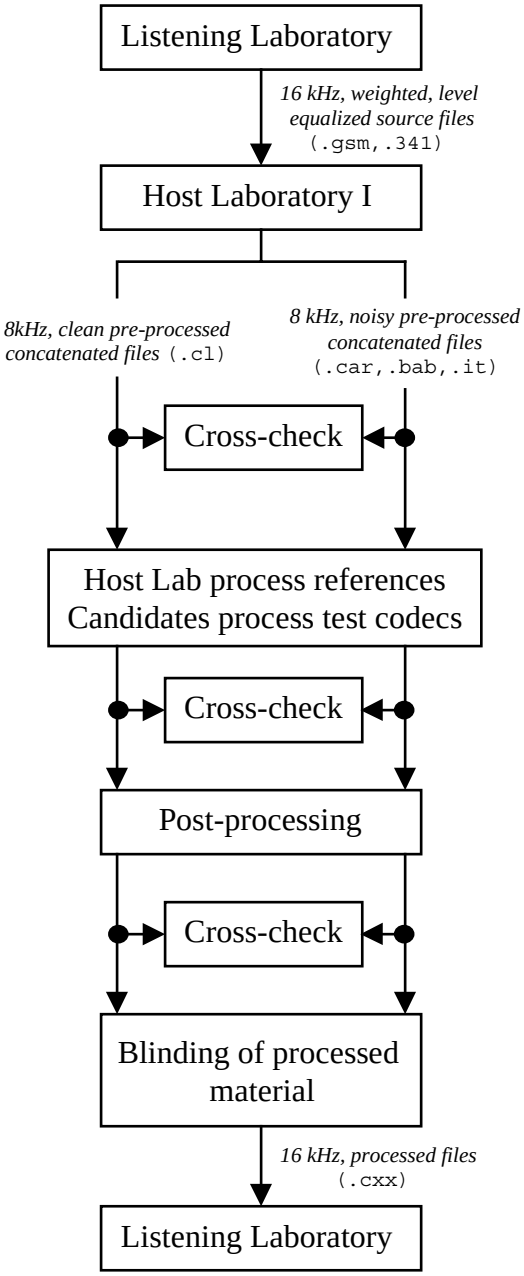

Figure B.2 - Macro view of Host lab activities

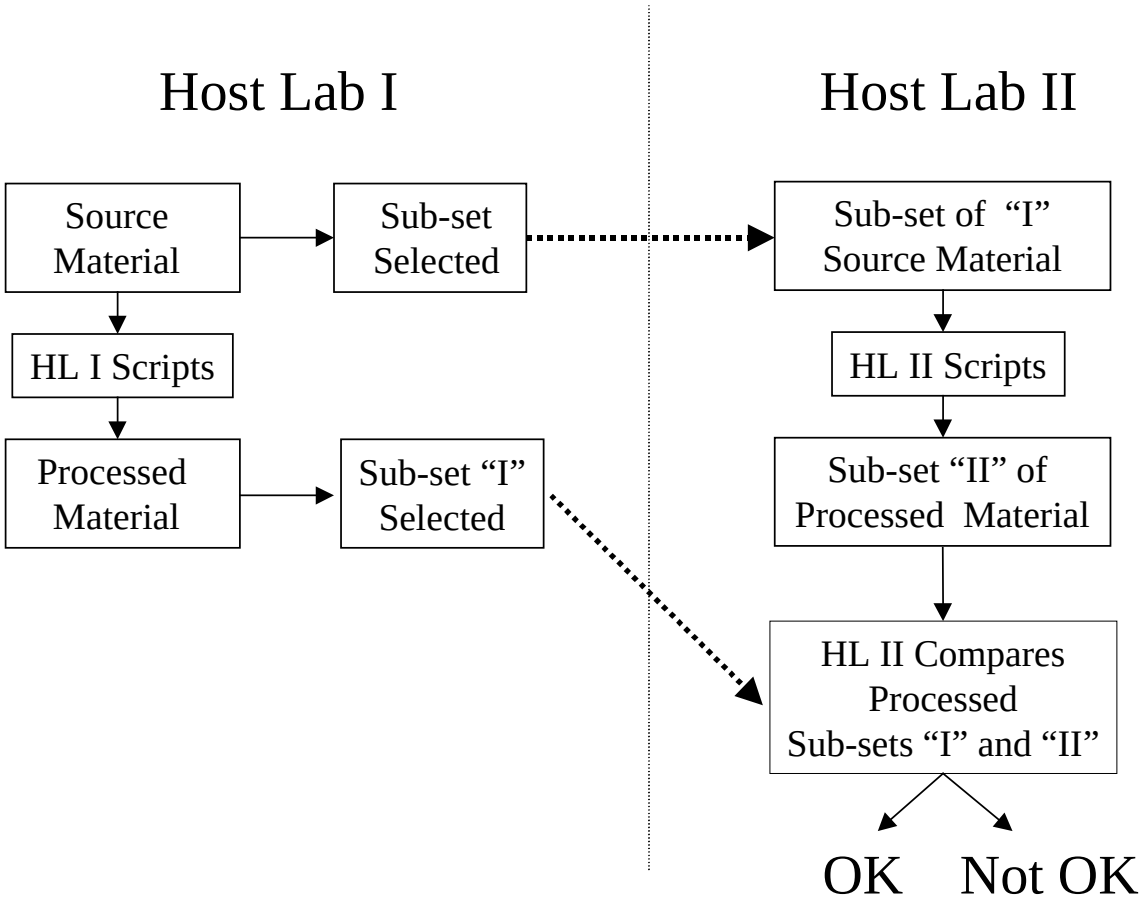

Figure B.3 - Diagram for cross-check activities. Host Lab indicates either the independent host labs or two of the proponents performing as processing lab.

Annex C: Randomized presentation tables

The tables that follow indicate the allocation of talker/sample/condition to be presented to each of group of subjects. They need to be edited to conform to the file naming convention of Annex B. The tables have had the presentation order randomized. Some experiments have the same structure in terms of number of conditions, number of sessions and number of groups, hence the tables are reused. The tables show generic filenames that designate the ACR stimulus in the ACR experiments, or the second file presented to the subjects in the DCR and CCR experiments. The first file presented in the DCR and CCR experiments is derived from the file in the tables. For DCR experiments, it is the Direct condition that refer to the same talker/sentence-pair combination with the same noise type. For all DCR experiments but Experiment 3E, the corresponding condition is C01. In Experiment 3E it will be C01 for the car noise conditions, and C02 for the street noise conditions. In the CCR Experiment 6, when the second stimulus is has a Cxx extension, the first stimulus is the same talker/sentence-pair combination with a Rxx extension; alternatively, when the second stimulus is has a Rxx extension, the first stimulus is the same talker/sentence-pair combination with a Cxx extension (examples are given below).

The contents of each table have to be adapted to each test, since the tables in this document use a generic file name. For each experiment, the notation gyySll.[CR]cc has to be converted to the `xeegy[SQ]ll`.[CR]`cc` notation in Annex B, which will be the actual file names delivered by the host laboratories to the listening laboratories.

The randomized presentation order in the tables is organized in sessions. Hence, stimuli are presented from row 1 though N for Session 1, then from row 1 though N for Session 2, and so on (where N is the number of test conditions in each experiment). A few examples follow:

- ACR Experiment 1A: For listener group 1, the first file after practice is F01S01.C26 (row 1, session 1); after a vote is collected, file M01S01.C49 is presented, and another vote is collected. After M01S02.C05 is presented (row 56, session 1) and a vote is collected, file F01S05.C41 (row 1, session 2) is presented and a vote collected. And so on.
- DCR Experiment 3A: For listener group 1, the first file after practice is in row 1, session 1, F01S02.C01 (the direct reference in the DCR stimulus) followed by F01S02.C06 (the test sample in the DCR stimulus); then a vote is collected. The next pair is M01S02.C01/M01S02.C29. After row 36, session 1 (files M02S04.C01/M02S04.C15), we go to row 1, session 2 (files F02S01.C01/ F02S01.C03). The presentation for listener group 1 continues until row 36, session 4.
- DCR Experiment 3E: For listener group 1, the first file after practice is in row 1, session 1, F02S03.C02 (the direct reference in the DCR stimulus for street noise) followed by F02S03.C12 (the test sample in the DCR stimulus); then a vote is collected. The next pair is M01S06.C02/M01S06.C21. After session 1, row 24 is presented and a vote collected (files M02S06.C02/M02S06.C23), the next stimulus is taken from row 1, session 2 (files F01S06.C02/ F01S06.C21). The presentation for listener group 1 continues until row 24, session 4.
- CCR Experiment 6(A): For listener group 1, after practice, we start with A/B presentation order. The first speech file presented is F01S02.R06 (the reference for C06), then F01S02.C06, then a vote is collected. The next stimulus is M02S03.R35 followed by M02S03.C35, then a new vote is collected. After the stimulus in row 40 is presented (M01S02.R17/M01S02.C17) and voted upon, we go back to row 1, now in B/A direction: first file M02S01.C15 is presented, then M02S01.R15 (the reference for C15), then a vote is collected, and so on.

C.1A Experiment 1A

		Session			
	Order	1	2	3	4
Group 01	1	F01S01.C26	F01S05.C41	F01S02.C04	F01S06.C43
	2	M01S01.C49	M02S02.C06	M01S02.C51	M02S02.C04
	3	F02S04.C16	F01S03.C33	F02S02.C54	F01S03.C31
	4	M01S03.C33	M01S02.C04	M02S05.C41	M01S03.C54
	5	F01S01.C02	F01S03.C09	F02S03.C10	F01S02.C27
	6	M01S01.C25	M02S05.C18	M01S03.C07	M01S06.C18
	7	F01S05.C18	F02S02.C31	F02S02.C30	F02S01.C01
	8	M02S05.C19	M01S03.C08	M02S02.C29	M01S03.C06
	9	F02S06.C24	F02S03.C11	F02S05.C18	F01S03.C55
	10	M02S06.C23	M02S03.C34	M01S06.C43	M02S04.C12
	11	F02S01.C04	F01S02.C05	F02S01.C50	F02S04.C37
	12	M02S03.C35	M02S03.C10	M02S06.C21	M01S01.C22
	13	F01S03.C34	F02S05.C19	F01S02.C28	F02S06.C21
	14	M02S02.C31	M02S02.C30	M01S04.C11	M02S05.C40
	15	F02S02.C08	F01S01.C49	F01S01.C24	F01S04.C35
	16	M02S01.C03	M01S05.C16	M01S01.C23	M02S01.C48
	17	F01S04.C14	F02S04.C15	F02S01.C26	F02S06.C45
	18	M01S03.C09	M02S01.C26	M02S03.C09	M01S04.C34
	19	F02S02.C56	F01S05.C17	F02S03.C34	F02S01.C49
	20	M02S04.C39	M02S04.C14	M01S05.C15	M02S04.C36
	21	F02S04.C40	F01S04.C13	F01S04.C12	F01S05.C15
	22	M01S02.C53	M02S04.C38	M02S01.C01	M01S02.C26
	23	F01S04.C38	F02S02.C55	F01S03.C56	F01S01.C47
	24	M01S05.C17	M01S06.C20	M02S01.C25	M02S06.C44
	25	F01S02.C30	F01S04.C37	F01S04.C36	F02S04.C13
	26	M01S04.C13	M02S05.C42	M01S03.C31	M01S02.C50
	27	F01S02.C54	F01S01.C25	F01S02.C52	F01S05.C39
	28	M02S02.C07	M02S06.C46	M02S02.C05	M02S05.C16
	29	F01S05.C42	F02S02.C07	F01S06.C20	F02S01.C25
	30	M01S06.C21	M01S03.C32	M01S02.C27	M02S01.C24
	31	F02S06.C48	F02S01.C27	F01S03.C08	F01S04.C11
	32	M02S06.C47	M01S04.C12	M02S02.C53	M02S02.C28
	33	F02S01.C52	F02S06.C23	F01S05.C40	F01S02.C51
	34	M01S01.C01	M01S06.C44	M02S04.C37	M02S06.C20
	35	F02S03.C12	F01S06.C45	F02S06.C22	F02S05.C17
	36	M02S01.C51	M02S01.C02	M02S01.C49	M01S05.C38
	37	F01S06.C22	F02S04.C39	F02S04.C38	F01S03.C07
	38	M02S05.C43	M01S02.C52	M01S03.C55	M01S06.C42
	39	F01S03.C10	F02S01.C51	F01S05.C16	F02S02.C53
	40	M01S04.C37	M02S02.C54	M02S06.C45	M02S03.C08
	41	F01S01.C50	F01S06.C21	F02S05.C42	F01S02.C03
	42	M01S06.C45	M01S01.C48	M01S02.C03	M01S05.C14
	43	F02S05.C20	F02S05.C43	F02S06.C46	F02S03.C33
	44	M01S05.C41	M01S02.C28	M01S04.C35	M02S02.C52
	45	F02S03.C36	F01S01.C01	F01S06.C44	F01S06.C19
	46	M02S04.C15	M02S06.C22	M02S03.C33	M01S01.C46
	47	F02S02.C32	F01S02.C29	F02S01.C02	F01S01.C23
	48	M02S02.C55	M01S03.C56	M01S06.C19	M01S02.C02
	49	F02S05.C44	F02S06.C47	F02S02.C06	F02S03.C09
	50	M02S01.C27	M01S05.C40	M01S01.C47	M02S03.C32
	51	F02S01.C28	F01S02.C53	F02S04.C14	F02S02.C05
	52	M01S02.C29	M01S04.C36	M02S05.C17	M01S04.C10
	53	F01S06.C46	F02S03.C35	F01S03.C32	F02S02.C29
	54	M02S03.C11	M02S01.C50	M02S04.C13	M02S03.C56
	55	F01S02.C06	F02S01.C03	F01S01.C48	F02S05.C41
	56	M01S02.C05	M01S01.C24	M01S05.C39	M01S03.C30

		Session			
	Order	1	2	3	4
Group 02	1	F02S01.C48	F02S05.C39	F02S03.C06	F01S03.C27
	2	M02S05.C39	M02S05.C14	M01S06.C15	M02S06.C16
	3	F01S02.C50	F02S05.C15	F02S04.C10	F02S06.C41
	4	M01S02.C49	M01S03.C04	M01S01.C19	M01S04.C30
	5	F01S01.C46	F02S01.C23	F02S04.C34	F01S01.C43
	6	M02S04.C11	M01S05.C36	M01S02.C23	M01S03.C50
	7	F01S03.C30	F02S04.C11	F01S03.C04	F02S05.C37
	8	M01S03.C29	M02S02.C50	M02S02.C01	M01S01.C18
	9	F02S01.C24	F01S01.C45	F02S03.C30	F02S04.C33
	10	M01S01.C45	M01S02.C48	M02S05.C13	M01S03.C02
	11	F01S05.C14	F01S03.C53	F01S03.C28	F01S01.C19
	12	M01S03.C53	M02S02.C02	M01S01.C43	M01S02.C22
	13	F02S03.C08	F01S02.C25	F01S02.C24	F02S03.C05
	14	M01S05.C13	M01S01.C20	M01S05.C11	M02S03.C28
	15	F01S04.C10	F02S02.C27	F01S04.C32	F01S03.C51
	16	M02S01.C23	M01S02.C24	M02S01.C21	M02S01.C44
	17	F01S05.C38	F02S06.C43	F02S05.C38	F01S05.C11
	18	M01S04.C09	M01S06.C40	M01S04.C07	M02S04.C08
	19	F02S02.C52	F01S05.C37	F02S02.C50	F02S01.C45
	20	M01S06.C41	M01S04.C32	M02S01.C45	M02S06.C40
	21	F02S06.C44	F01S05.C13	F02S01.C46	F02S02.C49
	22	M01S03.C05	M01S04.C56	M02S05.C37	M01S04.C54
	23	F02S03.C56	F02S03.C31	F01S04.C56	F01S03.C03
	24	M02S02.C51	M02S03.C06	M01S03.C03	M01S06.C38
	25	F01S01.C22	F01S03.C05	F01S05.C36	F02S03.C29
	26	M01S04.C33	M01S03.C28	M02S02.C49	M01S05.C10
	27	F02S04.C12	F02S06.C19	F01S01.C44	F01S05.C35
	28	M02S02.C03	M01S06.C16	M02S03.C53	M01S05.C34
	29	F02S02.C28	F01S04.C09	F01S06.C40	F02S04.C09
	30	M02S01.C47	M02S03.C30	M02S06.C17	M02S01.C20
	31	F01S02.C02	F01S03.C29	F02S02.C26	F02S02.C25
	32	M01S01.C21	M02S06.C18	M01S05.C35	M01S04.C06
	33	F01S03.C06	F01S06.C41	F01S06.C16	F01S04.C55
	34	M02S03.C07	M02S05.C38	M01S03.C51	M01S06.C14
	35	F01S06.C18	F01S04.C33	F02S05.C14	F02S06.C17
	36	M01S02.C01	M01S01.C44	M01S04.C55	M02S04.C56
	37	F01S06.C42	F02S01.C47	F02S03.C54	F01S02.C47
	38	M02S03.C55	M02S03.C54	M01S02.C47	M02S02.C24
	39	F02S05.C16	F02S02.C51	F01S04.C08	F01S06.C39
	40	M01S06.C17	M01S04.C08	M02S02.C25	M02S05.C12
	41	F01S04.C34	F01S06.C17	F01S05.C12	F02S05.C13
	42	M02S04.C35	M02S06.C42	M01S03.C27	M02S04.C32
	43	F02S03.C32	F02S02.C03	F01S02.C48	F02S02.C01
	44	M02S06.C19	M02S02.C26	M02S03.C05	M01S02.C46
	45	F02S06.C20	F02S03.C07	F02S01.C22	F01S04.C07
	46	M02S03.C31	M01S03.C52	M02S04.C09	M01S01.C42
	47	F02S05.C40	F01S02.C01	F02S06.C18	F02S03.C53
	48	M02S05.C15	M02S04.C34	M02S04.C33	M02S02.C48
	49	F02S02.C04	F02S03.C55	F01S01.C20	F01S02.C23
	50	M02S02.C27	M01S05.C12	M02S06.C41	M02S03.C52
	51	F01S03.C54	F01S01.C21	F01S03.C52	F01S04.C31
	52	M02S06.C43	M02S04.C10	M02S03.C29	M02S05.C36
	53	F02S04.C36	F01S02.C49	F02S06.C42	F01S06.C15
	54	M01S02.C25	M02S01.C46	M01S04.C31	M02S03.C04
	55	F01S02.C26	F02S04.C35	F02S02.C02	F02S01.C21
	56	M01S05.C37	M02S01.C22	M01S06.C39	M01S03.C26

		Session			
	Order	1	2	3	4
Group 03	1	F02S01.C44	F02S03.C51	F01S05.C08	F02S06.C37
	2	M01S03.C01	M02S04.C30	M02S04.C29	M02S06.C12
	3	F02S05.C12	F01S05.C09	F02S02.C22	F02S03.C49
	4	M01S02.C45	M01S04.C52	M02S06.C13	M01S03.C22
	5	F01S04.C54	F02S01.C19	F01S04.C28	F02S04.C05
	6	M02S01.C43	M01S04.C28	M01S03.C23	M02S02.C20
	7	F02S04.C08	F01S03.C49	F02S06.C14	F02S02.C21
	8	M02S03.C03	M02S01.C18	M01S06.C11	M01S01.C38
	9	F02S06.C16	F02S05.C35	F01S06.C36	F01S01.C39
	10	M01S06.C37	M02S01.C42	M01S01.C15	M02S01.C16
	11	F02S05.C36	F01S02.C21	F02S04.C30	F02S05.C09
	12	M02S05.C35	M01S05.C32	M01S04.C27	M02S02.C44
	13	F01S05.C34	F02S04.C55	F02S01.C18	F01S04.C03
	14	M01S03.C49	M01S04.C04	M01S05.C55	M02S05.C56
	15	F01S04.C06	F01S01.C41	F01S01.C40	F01S05.C07
	16	M01S04.C29	M02S04.C06	M01S03.C47	M01S02.C18
	17	F01S06.C14	F02S02.C23	F02S03.C26	F02S02.C45
	18	M02S03.C27	M02S05.C34	M02S05.C33	M01S06.C10
	19	F01S01.C42	F01S03.C25	F01S05.C56	F02S01.C41
	20	M01S02.C21	M01S01.C40	M02S04.C05	M02S03.C24
	21	F02S04.C32	F01S06.C37	F02S02.C46	F01S02.C43
	22	M02S01.C19	M02S06.C38	M02S03.C01	M02S04.C04
	23	F01S01.C18	F01S04.C29	F01S02.C20	F01S04.C51
	24	M02S05.C11	M01S06.C36	M01S06.C35	M01S05.C30
	25	F01S02.C22	F02S01.C43	F01S03.C48	F02S03.C25
	26	M02S02.C47	M02S05.C10	M02S01.C41	M02S04.C28
	27	F02S03.C52	F01S02.C45	F01S05.C32	F01S02.C19
	28	M02S04.C07	M01S03.C48	M01S05.C07	M01S05.C06
	29	F01S06.C38	F02S02.C47	F02S05.C34	F01S06.C11
	30	M01S05.C09	M02S03.C02	M01S04.C51	M01S01.C14
	31	F02S03.C28	F02S03.C03	F01S04.C52	F01S01.C15
	32	M01S01.C41	M01S05.C08	M02S03.C49	M01S04.C50
	33	F02S02.C24	F02S04.C31	F02S05.C10	F01S05.C55
	34	M01S04.C53	M02S03.C26	M01S02.C43	M02S01.C40
	35	F02S03.C04	F01S05.C33	F01S01.C16	F02S03.C01
	36	M02S04.C31	M01S03.C24	M01S04.C03	M01S05.C54
	37	F02S02.C48	F02S06.C15	F02S04.C06	F01S03.C47
	38	M02S03.C51	M02S02.C22	M02S01.C17	M01S02.C42
	39	F01S03.C02	F01S01.C17	F01S04.C04	F02S04.C29
	40	M02S04.C55	M01S02.C20	M01S01.C39	M02S06.C36
	41	F02S01.C20	F02S05.C11	F02S06.C38	F01S06.C35
	42	M02S02.C23	M01S02.C44	M02S06.C37	M02S05.C32
	43	F01S04.C30	F01S06.C13	F01S02.C44	F01S04.C27
	44	M01S01.C17	M01S06.C12	M01S02.C19	M01S06.C34
	45	F02S04.C56	F02S06.C39	F01S03.C24	F02S04.C53
	46	M02S06.C39	M02S03.C50	M02S02.C45	M01S03.C46
	47	F01S03.C50	F02S04.C07	F02S03.C02	F02S05.C33
	48	M01S05.C33	M02S04.C54	M02S02.C21	M01S04.C02
	49	F02S06.C40	F02S03.C27	F02S04.C54	F01S03.C23
	50	M01S04.C05	M02S06.C14	M01S05.C31	M02S04.C52
	51	F01S03.C26	F01S04.C53	F02S01.C42	F02S01.C17
	52	M01S03.C25	M01S05.C56	M02S05.C09	M01S04.C26
	53	F01S05.C10	F01S03.C01	F01S06.C12	F01S05.C31
	54	M01S06.C13	M01S01.C16	M02S04.C53	M02S05.C08
	55	F01S02.C46	F01S04.C05	F02S03.C50	F02S06.C13
	56	M02S06.C15	M02S02.C46	M02S03.C25	M02S03.C48

		Session			
	Order	1	2	3	4
Group 04	1	F02S04.C52	F02S01.C39	F01S02.C16	F02S05.C53
	2	M02S01.C15	M02S05.C54	M01S02.C15	M02S02.C40
	3	F02S06.C36	F02S06.C11	F02S03.C46	F02S01.C37
	4	M01S02.C41	M01S05.C52	M02S06.C09	M02S06.C08
	5	F02S04.C04	F02S03.C23	F01S01.C12	F01S01.C11
	6	M02S03.C23	M01S02.C16	M01S06.C55	M01S02.C38
	7	F02S03.C48	F01S05.C29	F02S01.C14	F01S02.C15
	8	M01S06.C09	M01S01.C12	M02S01.C13	M02S05.C52
	9	F02S04.C28	F01S01.C13	F01S05.C28	F02S02.C41
	10	M01S04.C25	M01S04.C24	M01S05.C51	M02S01.C12
	11	F01S06.C34	F01S02.C17	F01S02.C40	F01S04.C23
	12	M01S03.C45	M02S06.C10	M01S04.C23	M01S02.C14
	13	F01S04.C50	F01S01.C37	F02S06.C10	F02S01.C13
	14	M01S06.C33	M02S05.C30	M02S02.C41	M01S03.C18
	15	F02S02.C44	F01S02.C41	F02S02.C18	F01S05.C03
	16	M02S02.C19	M01S03.C44	M02S03.C45	M02S01.C36
	17	F02S03.C24	F01S04.C25	F01S05.C04	F02S06.C33
	18	M01S03.C21	M02S05.C06	M02S04.C25	M02S02.C16
	19	F01S01.C38	F01S03.C21	F01S06.C08	F02S04.C25
	20	M02S04.C51	M01S05.C28	M01S06.C07	M01S04.C22
	21	F01S01.C14	F01S04.C49	F01S06.C32	F01S05.C27
	22	M01S04.C01	M01S02.C40	M01S06.C31	M01S05.C02
	23	F01S02.C42	F02S05.C55	F02S05.C30	F02S03.C21
	24	M02S06.C11	M01S05.C04	M02S04.C01	M01S06.C54
	25	F01S05.C30	F01S05.C05	F01S04.C48	F01S06.C07
	26	M02S04.C27	M01S06.C56	M02S05.C05	M01S01.C10
	27	F01S03.C46	F01S03.C45	F01S05.C52	F01S03.C43
	28	M02S05.C31	M02S01.C38	M01S03.C43	M01S06.C30
	29	F02S01.C40	F01S06.C33	F02S04.C50	F01S02.C39
	30	M02S04.C03	M02S04.C02	M02S05.C29	M02S06.C32
	31	F01S03.C22	F02S05.C31	F01S01.C36	F02S05.C05
	32	M01S05.C53	M02S03.C46	M01S01.C11	M01S03.C42
	33	F01S02.C18	F02S06.C35	F02S02.C42	F01S04.C47
	34	M02S01.C39	M01S06.C32	M02S05.C53	M01S01.C34
	35	F01S05.C54	F02S04.C27	F02S05.C06	F02S04.C49
	36	M01S05.C29	M01S01.C36	M01S05.C27	M02S03.C20
	37	F02S05.C56	F02S04.C51	F01S03.C44	F02S02.C17
	38	M01S04.C49	M01S04.C48	M02S04.C49	M02S03.C44
	39	F01S05.C06	F01S05.C53	F02S05.C54	F01S06.C55
	40	M02S06.C35	M02S04.C50	M01S04.C47	M02S05.C28
	41	F02S05.C32	F01S06.C09	F02S04.C02	F02S06.C09
	42	M01S02.C17	M02S04.C26	M01S01.C35	M01S06.C06
	43	F01S06.C10	F01S04.C01	F02S03.C22	F01S01.C35
	44	M01S05.C05	M01S06.C08	M02S01.C37	M02S04.C24
	45	F02S06.C12	F02S03.C47	F02S01.C38	F02S04.C01
	46	M02S05.C55	M02S01.C14	M02S06.C33	M02S06.C56
	47	F01S04.C26	F02S02.C19	F01S04.C24	F02S03.C45
	48	M01S01.C37	M02S02.C42	M02S02.C17	M01S05.C50
	49	F02S01.C16	F02S01.C15	F02S04.C26	F01S05.C51
	50	M02S05.C07	M02S02.C18	M01S05.C03	M01S05.C26
	51	F02S02.C20	F02S04.C03	F02S06.C34	F01S06.C31
	52	M01S01.C13	M02S03.C22	M02S03.C21	M02S05.C04
	53	F01S04.C02	F02S05.C07	F01S03.C20	F01S03.C19
	54	M02S03.C47	M02S06.C34	M01S02.C39	M01S04.C46
	55	F02S05.C08	F02S02.C43	F01S06.C56	F02S05.C29
	56	M02S02.C43	M01S03.C20	M01S03.C19	M02S04.C48

		Session			
	Order	1	2	3	4
Group 05	1	F02S04.C24	F02S01.C35	F02S06.C30	F01S03.C15
	2	M01S01.C33	M01S06.C04	M02S04.C21	M01S01.C06
	3	F02S02.C16	F01S06.C05	F02S06.C06	F01S01.C07
	4	M01S06.C05	M01S01.C08	M02S03.C41	M01S05.C22
	5	F02S02.C40	F01S01.C33	F02S02.C14	F02S05.C01
	6	M02S01.C35	M02S06.C30	M02S04.C45	M02S03.C40
	7	F01S05.C26	F01S03.C17	F01S02.C36	F01S02.C11
	8	M02S06.C31	M02S01.C10	M01S04.C19	M01S06.C02
	9	F01S01.C34	F02S06.C55	F02S01.C34	F02S03.C41
	10	M02S03.C43	M02S05.C26	M02S02.C13	M01S02.C10
	11	F01S02.C38	F02S03.C19	F01S01.C32	F01S06.C51
	12	M01S06.C53	M01S03.C40	M01S06.C51	M02S02.C12
	13	F01S02.C14	F01S05.C49	F02S01.C10	F02S04.C21
	14	M01S06.C29	M02S05.C02	M01S05.C47	M02S05.C48
	15	F02S03.C44	F01S01.C09	F02S04.C46	F02S01.C09
	16	M01S04.C45	M02S06.C54	M01S01.C31	M02S06.C04
	17	F01S04.C46	F01S03.C41	F01S01.C56	F01S01.C31
	18	M01S04.C21	M01S05.C24	M02S01.C09	M02S01.C08
	19	F02S06.C32	F02S05.C27	F01S05.C24	F01S05.C47
	20	M02S02.C39	M02S03.C18	M01S06.C27	M01S01.C30
	21	F01S05.C02	F02S03.C43	F02S03.C18	F01S02.C35
	22	M02S04.C23	M01S04.C44	M02S02.C37	M02S01.C32
	23	F02S01.C36	F01S06.C29	F01S03.C40	F02S02.C13
	24	M01S05.C49	M01S05.C48	M01S02.C11	M01S03.C38
	25	F02S03.C20	F01S04.C45	F01S04.C44	F01S06.C27
	26	M01S03.C41	M02S02.C38	M02S05.C25	M01S01.C54
	27	F01S06.C06	F01S06.C53	F02S03.C42	F02S04.C45
	28	M02S03.C19	M02S05.C50	M02S05.C01	M02S02.C36
	29	F01S01.C10	F01S05.C01	F01S01.C08	F02S01.C33
	30	M02S02.C15	M02S04.C22	M01S03.C39	M01S04.C42
	31	F02S06.C56	F02S04.C23	F01S05.C48	F01S01.C55
	32	M02S05.C03	M02S04.C46	M02S05.C49	M01S03.C14
	33	F02S05.C52	F02S06.C07	F02S04.C22	F02S05.C49
	34	M01S01.C09	M01S06.C52	M01S05.C23	M01S06.C50
	35	F01S06.C30	F01S02.C37	F01S02.C12	F02S02.C37
	36	M01S02.C37	M01S01.C56	M02S06.C05	M01S06.C26
	37	F02S05.C04	F02S06.C31	F01S03.C16	F02S05.C25
	38	M01S05.C01	M01S03.C16	M02S06.C29	M01S02.C34
	39	F01S06.C54	F02S01.C11	F01S06.C28	F01S03.C39
	40	M01S03.C17	M02S06.C06	M01S04.C43	M02S05.C24
	41	F02S05.C28	F02S05.C51	F01S04.C20	F01S04.C19
	42	M02S05.C51	M01S04.C20	M01S02.C35	M02S06.C28
	43	F01S05.C50	F02S04.C47	F01S06.C52	F02S03.C17
	44	M02S01.C11	M01S02.C12	M01S01.C07	M01S05.C46
	45	F02S06.C08	F01S04.C21	F02S06.C54	F02S06.C53
	46	M02S05.C27	M01S02.C36	M02S06.C53	M02S01.C56
	47	F01S03.C18	F02S02.C39	F02S05.C26	F02S06.C29
	48	M01S05.C25	M02S03.C42	M01S01.C55	M01S04.C18
	49	F02S04.C48	F02S02.C15	F01S06.C04	F02S06.C05
	50	M02S06.C55	M02S01.C34	M01S06.C03	M02S06.C52
	51	F01S04.C22	F01S05.C25	F02S05.C50	F01S05.C23
	52	M01S02.C13	M02S02.C14	M02S03.C17	M02S04.C44
	53	F02S01.C12	F01S02.C13	F02S02.C38	F01S04.C43
	54	M02S06.C07	M01S06.C28	M01S03.C15	M02S03.C16
	55	F01S03.C42	F02S05.C03	F02S05.C02	F01S06.C03
	56	M02S04.C47	M01S01.C32	M02S01.C33	M02S04.C20

		Session			
	Order	1	2	3	4
Group 06	1	F01S06.C02	F01S02.C09	F01S01.C04	F01S02.C31
	2	M02S05.C47	M01S03.C12	M02S05.C21	M02S04.C16
	3	F02S02.C12	F02S04.C43	F02S01.C30	F01S01.C51
	4	M01S01.C53	M02S05.C22	M01S06.C47	M01S04.C14
	5	F02S06.C28	F02S02.C11	F02S06.C26	F02S05.C21
	6	M02S04.C43	M01S05.C20	M02S06.C25	M02S01.C28
	7	F02S01.C32	F01S04.C41	F02S06.C02	F02S01.C53
	8	M01S01.C05	M02S02.C34	M01S02.C55	M02S05.C20
	9	F02S03.C16	F02S06.C27	F02S04.C18	F02S06.C25
	10	M01S02.C09	M02S06.C50	M02S06.C49	M02S04.C40
	11	F01S04.C42	F01S03.C37	F01S02.C08	F02S05.C45
	12	M01S02.C33	M01S04.C16	M02S01.C05	M01S03.C34
	13	F02S04.C44	F01S02.C33	F01S06.C48	F01S05.C43
	14	M01S03.C37	M02S06.C02	M01S05.C43	M01S01.C02
	15	F01S01.C54	F02S03.C39	F02S05.C22	F02S02.C09
	16	M02S06.C27	M01S06.C24	M02S03.C13	M02S02.C56
	17	F02S02.C36	F01S01.C29	F01S05.C20	F01S03.C35
	18	M01S01.C29	M02S05.C46	M01S01.C03	M01S01.C26
	19	F02S03.C40	F02S05.C47	F02S01.C06	F02S03.C37
	20	M01S05.C21	M02S01.C54	M02S01.C29	M01S05.C18
	21	F02S06.C04	F01S05.C45	F01S06.C24	F01S02.C55
	22	M01S04.C17	M02S04.C18	M01S03.C35	M01S05.C42
	23	F01S02.C10	F01S06.C49	F01S03.C12	F02S01.C29
	24	M01S06.C25	M02S01.C06	M01S01.C27	M02S03.C36
	25	F01S02.C34	F02S03.C15	F02S02.C34	F01S01.C03
	26	M02S06.C03	M01S03.C36	M01S06.C23	M02S06.C24
	27	F01S01.C30	F02S06.C03	F02S02.C10	F02S02.C33
	28	M02S03.C15	M01S05.C44	M01S04.C15	M01S02.C30
	29	F01S06.C50	F02S02.C35	F02S01.C54	F01S02.C07
	30	M02S01.C31	M02S03.C14	M01S02.C31	M02S02.C32
	31	F02S06.C52	F01S05.C21	F01S02.C32	F01S06.C47
	32	M01S06.C49	M01S01.C28	M01S01.C51	M01S02.C54
	33	F01S03.C14	F02S01.C07	F01S02.C56	F02S06.C49
	34	M02S04.C19	M02S01.C30	M01S02.C07	M01S03.C10
	35	F02S01.C08	F01S01.C05	F01S04.C16	F01S01.C27
	36	M02S05.C23	M01S02.C32	M02S04.C41	M01S01.C50
	37	F02S04.C20	F01S04.C17	F01S03.C36	F02S01.C05
	38	M02S03.C39	M01S02.C08	M02S03.C37	M02S02.C08
	39	F02S01.C56	F01S01.C53	F02S04.C42	F02S06.C01
	40	M02S06.C51	M01S06.C48	M01S04.C39	M02S06.C48
	41	F01S05.C22	F01S06.C25	F01S01.C28	F01S06.C23
	42	M02S01.C55	M02S03.C38	M01S03.C11	M02S05.C44
	43	F01S06.C26	F01S03.C13	F02S03.C14	F02S03.C13
	44	M01S05.C45	M01S04.C40	M02S04.C17	M01S04.C38
	45	F02S05.C48	F02S05.C23	F02S06.C50	F02S04.C17
	46	M01S04.C41	M02S02.C10	M02S01.C53	M01S06.C46
	47	F01S05.C46	F01S06.C01	F01S05.C44	F01S03.C11
	48	M02S01.C07	M02S06.C26	M02S02.C09	M02S01.C04
	49	F01S01.C06	F02S06.C51	F02S03.C38	F01S04.C39
	50	M02S02.C11	M02S04.C42	M02S05.C45	M02S03.C12
	51	F01S03.C38	F02S01.C31	F02S05.C46	F01S05.C19
	52	M01S06.C01	M01S01.C04	M01S05.C19	M01S02.C06
	53	F01S04.C18	F02S01.C55	F01S01.C52	F02S04.C41
	54	M02S02.C35	M01S02.C56	M02S06.C01	M01S06.C22
	55	F02S05.C24	F02S04.C19	F01S04.C40	F01S04.C15
	56	M01S03.C13	M01S01.C52	M02S02.C33	M02S01.C52

C.1B Experiment 1B

		Session			
	Order	1	2	3	4
Group 01	1	F01S02.C06	F02S01.C03	F02S04.C14	F01S03.C07
	2	M01S02.C29	M01S05.C16	M02S02.C05	M01S05.C14
	3	F02S05.C20	F01S01.C01	F01S01.C24	F01S05.C15
	4	M01S01.C01	M02S06.C22	M02S02.C29	M01S04.C10
	5	F01S01.C26	F02S01.C27	F02S03.C10	F01S04.C11
	6	M01S03.C09	M02S01.C26	M02S04.C13	M02S06.C20
	7	F02S06.C24	F01S06.C21	F01S02.C28	F01S01.C23
	8	M02S05.C19	M02S02.C06	M01S04.C11	M02S03.C08
	9	F01S04.C14	F01S04.C13	F02S06.C22	F02S02.C29
	10	M02S06.C23	M01S06.C20	M02S03.C09	M02S01.C24
	11	F02S01.C04	F02S03.C11	F01S06.C20	F02S03.C33
	12	M01S05.C17	M01S03.C08	M02S01.C01	M01S02.C26
	13	F02S04.C16	F01S03.C09	F02S05.C18	F02S01.C01
	14	M01S04.C13	M02S04.C14	M02S06.C21	M02S05.C16
	15	F02S01.C28	F02S02.C07	F01S04.C12	F01S06.C19
	16	M02S01.C03	M01S02.C04	M01S01.C23	M02S02.C28
	17	F02S02.C08	F01S05.C17	F02S01.C26	F02S03.C09
	18	M02S02.C07	M01S01.C24	M01S05.C15	M02S03.C32
	19	F02S03.C36	F01S01.C25	F01S03.C08	F01S02.C27
	20	M02S03.C11	M02S05.C18	M02S01.C25	M01S03.C06
	21	F01S01.C02	F02S04.C15	F02S02.C30	F01S02.C03
	22	M01S06.C21	M01S04.C12	M01S03.C07	M01S02.C02
	23	F01S03.C10	F02S05.C19	F02S03.C34	F02S04.C13
	24	M02S03.C35	M02S03.C34	M01S06.C19	M01S01.C22
	25	F01S03.C34	F02S02.C31	F01S02.C04	F01S04.C35
	26	M01S03.C33	M01S02.C28	M01S04.C35	M02S02.C04
	27	F01S05.C18	F01S02.C29	F01S04.C36	F02S05.C17
	28	M02S02.C31	M02S01.C02	M02S03.C33	M01S06.C18
	29	F01S06.C22	F01S02.C05	F02S02.C06	F02S01.C25
	30	M02S01.C27	M01S04.C36	M01S02.C03	M01S03.C30
	31	F02S02.C32	F02S06.C23	F02S01.C02	F02S06.C21
	32	M01S02.C05	M01S03.C32	M01S03.C31	M02S04.C36
	33	F01S02.C30	F02S03.C35	F01S05.C16	F01S03.C31
	34	M01S01.C25	M02S02.C30	M01S02.C27	M02S04.C12
	35	F02S03.C12	F01S03.C33	F01S03.C32	F02S02.C05
	36	M02S04.C15	M02S03.C10	M02S05.C17	M01S04.C34

		Session			
	Order	1	2	3	4
Group 02	1	F01S06.C18	F01S04.C09	F01S03.C04	F02S01.C21
	2	M02S02.C27	M02S04.C34	M02S01.C21	M02S03.C04
	3	F01S02.C02	F01S06.C17	F02S03.C06	F01S06.C15
	4	M02S05.C15	M01S06.C16	M01S02.C23	M02S01.C20
	5	F01S03.C30	F01S02.C25	F02S06.C18	F02S03.C29
	6	M01S01.C21	M02S02.C26	M01S06.C15	M02S04.C08
	7	F01S03.C06	F02S06.C19	F02S05.C14	F02S02.C25
	8	M02S04.C35	M02S03.C30	M02S03.C29	M02S04.C32
	9	F01S02.C26	F01S05.C13	F02S03.C30	F02S06.C17
	10	M02S02.C03	M01S02.C24	M02S02.C25	M01S05.C10
	11	F02S04.C36	F02S02.C03	F01S03.C28	F01S03.C03
	12	M01S05.C13	M01S05.C36	M02S06.C17	M01S04.C30
	13	F02S03.C32	F02S03.C31	F01S01.C20	F02S02.C01
	14	M01S06.C17	M01S01.C20	M01S04.C31	M01S01.C18
	15	F02S03.C08	F02S05.C15	F02S02.C02	F01S05.C11
	16	M01S04.C33	M02S05.C14	M02S04.C09	M02S02.C24
	17	F02S04.C12	F01S04.C33	F01S02.C24	F01S04.C31
	18	M02S04.C11	M02S06.C18	M01S01.C19	M02S05.C36
	19	F01S05.C14	F01S02.C01	F01S04.C32	F01S05.C35
	20	M01S03.C05	M02S04.C10	M02S02.C01	M01S03.C02
	21	F01S01.C22	F02S01.C23	F02S04.C10	F01S03.C27
	22	M02S01.C23	M01S04.C32	M02S03.C05	M01S06.C14
	23	F02S01.C24	F02S02.C27	F02S01.C22	F02S04.C33
	24	M01S02.C25	M02S01.C22	M01S05.C35	M01S05.C34
	25	F02S02.C28	F02S04.C11	F02S02.C26	F02S04.C09
	26	M01S02.C01	M01S04.C08	M02S04.C33	M02S05.C12
	27	F02S05.C16	F02S04.C35	F01S05.C12	F01S04.C07
	28	M01S04.C09	M01S05.C12	M01S03.C27	M01S02.C22
	29	F02S02.C04	F01S01.C21	F01S05.C36	F01S02.C23
	30	M02S06.C19	M02S03.C06	M01S04.C07	M01S04.C06
	31	F01S04.C10	F01S03.C05	F01S04.C08	F01S01.C19
	32	M02S03.C07	M01S03.C28	M01S03.C03	M02S06.C16
	33	F02S06.C20	F01S03.C29	F02S04.C34	F02S05.C13
	34	M01S03.C29	M01S03.C04	M02S05.C13	M01S03.C26
	35	F01S04.C34	F02S03.C07	F01S06.C16	F02S03.C05
	36	M02S03.C31	M02S02.C02	M01S05.C11	M02S03.C28

		Session			
	Order	1	2	3	4
Group 03	1	F01S04.C06	F02S05.C11	F02S02.C22	F01S06.C35
	2	M02S03.C27	M02S04.C06	M01S04.C27	M01S06.C10
	3	F01S03.C26	F01S04.C05	F02S05.C34	F01S04.C03
	4	M02S05.C11	M01S02.C20	M02S01.C17	M02S06.C36
	5	F01S04.C30	F01S06.C13	F01S05.C08	F01S06.C11
	6	M02S04.C07	M01S05.C08	M02S05.C09	M01S02.C18
	7	F01S01.C18	F02S02.C23	F02S04.C06	F02S02.C21
	8	M01S04.C05	M01S06.C36	M01S05.C31	M01S01.C14
	9	F01S02.C22	F02S04.C31	F01S05.C32	F02S05.C33
	10	M02S05.C35	M01S03.C24	M02S04.C05	M02S05.C32
	11	F02S05.C36	F02S05.C35	F01S03.C24	F02S03.C01
	12	M01S01.C17	M01S06.C12	M02S05.C33	M01S05.C06
	13	F02S01.C20	F02S03.C03	F02S01.C18	F02S01.C17
	14	M01S03.C01	M02S06.C14	M02S06.C13	M02S01.C16
	15	F01S03.C02	F01S05.C33	F01S02.C20	F02S06.C13
	16	M02S06.C15	M02S04.C30	M02S03.C25	M02S04.C04
	17	F01S05.C10	F02S03.C27	F01S06.C36	F01S05.C07
	18	M01S06.C13	M01S04.C28	M02S03.C01	M02S03.C24
	19	F02S02.C24	F01S04.C29	F02S06.C14	F01S02.C19
	20	M01S02.C21	M02S01.C18	M02S04.C29	M01S06.C34
	21	F01S06.C14	F01S03.C01	F02S03.C26	F02S03.C25
	22	M02S02.C23	M01S05.C32	M02S02.C21	M02S02.C20
	23	F02S04.C32	F01S01.C17	F01S04.C28	F02S04.C29
	24	M01S05.C33	M02S05.C10	M01S06.C11	M02S05.C08
	25	F01S05.C34	F01S05.C09	F02S04.C30	F01S01.C15
	26	M02S03.C03	M02S03.C26	M01S04.C03	M02S06.C12
	27	F02S03.C04	F02S01.C19	F02S05.C10	F01S05.C31
	28	M01S04.C29	M01S01.C16	M01S01.C15	M01S03.C22
	29	F02S06.C16	F02S06.C15	F02S03.C02	F01S04.C27
	30	M01S05.C09	M02S02.C22	M01S03.C23	M01S04.C02
	31	F02S05.C12	F01S02.C21	F01S01.C16	F01S03.C23
	32	M02S01.C19	M02S05.C34	M01S06.C35	M01S05.C30
	33	F02S04.C08	F02S04.C07	F01S06.C12	F02S05.C09
	34	M01S03.C25	M01S04.C04	M01S05.C07	M02S04.C28
	35	F02S03.C28	F01S03.C25	F01S04.C04	F02S04.C05
	36	M02S04.C31	M02S03.C02	M01S02.C19	M01S04.C26

		Session			
	Order	1	2	3	4
Group 04	1	F02S01.C16	F02S02.C19	F02S02.C18	F02S06.C09
	2	M01S04.C25	M02S05.C06	M01S01.C35	M01S01.C10
	3	F02S04.C28	F02S01.C15	F01S06.C08	F01S01.C35
	4	M01S06.C09	M01S01.C12	M01S05.C03	M01S05.C26
	5	F01S05.C30	F02S05.C31	F02S04.C02	F02S04.C01
	6	M01S05.C05	M01S03.C20	M01S06.C31	M02S01.C12
	7	F01S06.C10	F02S06.C11	F02S01.C14	F02S05.C05
	8	M02S02.C19	M02S04.C02	M01S02.C15	M02S05.C04
	9	F02S05.C08	F02S05.C07	F02S06.C10	F01S01.C11
	10	M01S04.C01	M01S04.C24	M01S01.C11	M02S02.C16
	11	F02S06.C36	F01S01.C13	F02S05.C30	F01S05.C03
	12	M02S01.C15	M01S02.C16	M01S04.C23	M02S06.C08
	13	F02S06.C12	F01S04.C25	F01S03.C20	F01S02.C15
	14	M01S03.C21	M01S06.C08	M02S03.C21	M01S04.C22
	15	F01S05.C06	F01S02.C17	F01S01.C12	F02S04.C25
	16	M02S05.C31	M02S04.C26	M02S01.C13	M01S06.C30
	17	F02S03.C24	F02S06.C35	F01S05.C04	F02S02.C17
	18	M02S04.C27	M01S05.C04	M02S04.C25	M01S06.C06
	19	F02S02.C20	F01S03.C21	F01S05.C28	F01S05.C27
	20	M01S01.C13	M02S05.C30	M02S06.C09	M01S05.C02
	21	F01S04.C02	F02S03.C23	F02S06.C34	F02S06.C33
	22	M01S06.C33	M01S01.C36	M02S05.C29	M02S05.C28
	23	F01S03.C22	F01S04.C01	F01S02.C16	F01S04.C23
	24	M02S05.C07	M02S06.C34	M02S02.C17	M02S01.C36
	25	F01S02.C18	F01S06.C33	F01S01.C36	F02S01.C13
	26	M02S06.C11	M01S05.C28	M01S05.C27	M01S02.C14
	27	F01S01.C14	F02S04.C03	F01S04.C24	F01S03.C19
	28	M01S05.C29	M01S06.C32	M01S03.C19	M01S03.C18
	29	F02S05.C32	F01S05.C29	F01S06.C32	F02S05.C29
	30	M01S02.C17	M02S02.C18	M02S06.C33	M02S06.C32
	31	F01S04.C26	F01S05.C05	F02S04.C26	F01S06.C31
	32	M02S06.C35	M02S06.C10	M01S06.C07	M02S04.C24
	33	F02S04.C04	F01S06.C09	F02S03.C22	F01S06.C07
	34	M02S04.C03	M02S01.C14	M02S05.C05	M02S03.C20
	35	F01S06.C34	F02S04.C27	F02S05.C06	F02S03.C21
	36	M02S03.C23	M02S03.C22	M02S04.C01	M01S01.C34

		Session			
	Order	1	2	3	4
Group 05	1	F02S05.C04	F01S06.C29	F02S06.C06	F01S06.C03
	2	M01S02.C13	M02S04.C22	M02S04.C21	M02S05.C24
	3	F02S06.C32	F02S06.C07	F01S02.C12	F01S04.C19
	4	M02S05.C03	M02S05.C02	M02S05.C01	M02S03.C16
	5	F01S01.C10	F02S05.C03	F02S05.C26	F02S05.C01
	6	M02S04.C23	M02S05.C26	M02S02.C13	M01S01.C30
	7	F01S06.C06	F01S03.C17	F01S01.C32	F02S04.C21
	8	M02S02.C15	M02S01.C34	M01S02.C35	M01S02.C10
	9	F02S01.C12	F02S01.C35	F02S01.C34	F02S06.C29
	10	M01S01.C09	M01S01.C32	M02S06.C05	M01S06.C02
	11	F01S01.C34	F01S04.C21	F01S03.C16	F02S03.C17
	12	M02S06.C31	M01S05.C24	M01S05.C23	M01S01.C06
	13	F01S05.C26	F01S01.C33	F01S06.C04	F02S01.C33
	14	M01S04.C21	M01S03.C16	M01S03.C15	M02S04.C20
	15	F01S04.C22	F02S01.C11	F01S01.C08	F02S06.C05
	16	M02S01.C35	M02S06.C30	M02S01.C09	M02S01.C32
	17	F01S03.C18	F02S02.C15	F01S05.C24	F01S01.C31
	18	M01S03.C17	M01S02.C36	M01S01.C07	M01S03.C14
	19	F02S06.C08	F01S05.C25	F02S06.C30	F01S02.C11
	20	M01S01.C33	M02S02.C14	M01S06.C03	M02S06.C04
	21	F02S03.C20	F02S06.C31	F01S02.C36	F01S03.C15
	22	M01S05.C25	M01S02.C12	M02S06.C29	M02S02.C36
	23	F02S04.C24	F01S06.C05	F02S02.C14	F01S05.C23
	24	M02S01.C11	M02S03.C18	M01S02.C11	M01S05.C22
	25	F01S02.C14	F02S03.C19	F01S04.C20	F01S06.C27
	26	M02S05.C27	M01S04.C20	M02S01.C33	M02S01.C08
	27	F01S05.C02	F01S02.C13	F01S06.C28	F02S05.C25
	28	M01S06.C29	M02S01.C10	M01S01.C31	M02S06.C28
	29	F02S02.C16	F02S04.C23	F02S04.C22	F02S01.C09
	30	M02S03.C19	M02S06.C06	M02S05.C25	M02S02.C12
	31	F01S06.C30	F01S01.C09	F02S03.C18	F02S02.C13
	32	M01S06.C05	M01S01.C08	M01S06.C27	M01S02.C34
	33	F02S05.C28	F01S05.C01	F02S01.C10	F01S02.C35
	34	M01S05.C01	M01S06.C28	M01S04.C19	M01S04.C18
	35	F02S01.C36	F02S05.C27	F02S05.C02	F01S01.C07
	36	M02S06.C07	M01S06.C04	M02S03.C17	M01S06.C26

		Session			
	Order	1	2	3	4
Group 06	1	F01S01.C30	F01S04.C17	F01S04.C16	F02S01.C29
	2	M01S05.C21	M02S01.C06	M01S03.C11	M01S05.C18
	3	F01S01.C06	F02S01.C07	F02S02.C10	F01S01.C27
	4	M02S04.C19	M01S01.C28	M01S05.C19	M01S02.C06
	5	F01S03.C14	F01S01.C05	F02S01.C30	F02S04.C17
	6	M02S02.C11	M01S01.C04	M02S02.C09	M02S06.C24
	7	F01S02.C10	F02S06.C03	F01S02.C08	F01S02.C07
	8	M02S03.C15	M01S03.C12	M02S01.C29	M01S03.C34
	9	F02S06.C04	F01S02.C33	F02S06.C02	F01S03.C11
	10	M02S01.C31	M01S04.C16	M01S04.C15	M01S01.C02
	11	F02S03.C16	F02S03.C15	F02S05.C22	F01S03.C35
	12	M01S06.C01	M02S04.C18	M02S05.C21	M02S05.C20
	13	F01S04.C18	F02S05.C23	F01S03.C12	F02S03.C13
	14	M02S06.C27	M01S02.C32	M02S03.C13	M01S01.C26
	15	F02S01.C08	F02S01.C31	F01S05.C20	F01S01.C03
	16	M02S02.C35	M02S05.C22	M02S01.C05	M02S03.C36
	17	F02S01.C32	F02S02.C35	F02S06.C26	F02S01.C05
	18	M01S04.C17	M02S03.C14	M01S03.C35	M02S01.C28
	19	F02S05.C24	F01S06.C25	F01S03.C36	F02S05.C21
	20	M02S06.C03	M01S03.C36	M02S04.C17	M02S02.C32
	21	F02S04.C20	F01S03.C13	F01S02.C32	F02S02.C33
	22	M01S01.C29	M01S06.C24	M01S02.C07	M01S02.C30
	23	F01S06.C02	F01S02.C09	F02S02.C34	F01S05.C19
	24	M01S02.C09	M02S02.C34	M01S01.C27	M02S03.C12
	25	F02S02.C12	F02S04.C19	F01S06.C24	F02S06.C01
	26	M02S01.C07	M02S01.C30	M02S02.C33	M01S03.C10
	27	F02S06.C28	F02S06.C27	F02S04.C18	F02S06.C25
	28	M01S02.C33	M02S02.C10	M01S06.C23	M02S02.C08
	29	F02S02.C36	F01S06.C01	F02S03.C14	F01S06.C23
	30	M01S01.C05	M01S05.C20	M01S01.C03	M01S06.C22
	31	F01S05.C22	F01S01.C29	F01S01.C28	F01S02.C31
	32	M02S05.C23	M02S06.C26	M02S06.C01	M02S04.C16
	33	F01S02.C34	F01S05.C21	F02S01.C06	F02S02.C09
	34	M01S06.C25	M02S06.C02	M02S06.C25	M02S01.C04
	35	F01S06.C26	F02S02.C11	F01S01.C04	F01S04.C15
	36	M01S03.C13	M01S02.C08	M01S02.C31	M01S04.C14

C.2A Experiment 2A

See Section C.1B.

C.2B Experiment 2B

See Section C.1B.

C.2C Experiment 2C

		Session			
	Order	1	2	3	4
Group 01	1	F01S01.C02	F02S06.C23	F02S04.C14	F02S05.C17
	2	M01S05.C17	M02S04.C14	M01S03.C31	M02S06.C20
	3	F02S02.C08	F02S02.C31	F01S05.C40	F01S01.C23
	4	M01S02.C05	M01S04.C36	M02S05.C17	M01S03.C30
	5	F01S04.C38	F02S02.C07	F01S03.C08	F01S03.C31
	6	M01S03.C09	M01S05.C40	M01S05.C39	M02S05.C16
	7	F01S02.C30	F02S03.C35	F01S04.C36	F02S03.C09
	8	M02S03.C35	M01S06.C20	M01S04.C35	M01S03.C06
	9	F01S06.C22	F01S03.C09	F02S04.C38	F02S02.C29
	10	M02S04.C15	M02S02.C06	M02S01.C01	M02S01.C24
	11	F01S03.C34	F02S05.C19	F02S01.C02	F02S01.C01
	12	M02S06.C23	M01S02.C04	M02S02.C29	M01S02.C26
	13	F02S03.C12	F01S04.C13	F01S06.C20	F01S03.C07
	14	M01S06.C21	M01S03.C32	M02S04.C13	M01S05.C14
	15	F01S03.C10	F01S03.C33	F01S02.C04	F01S04.C35
	16	M02S05.C19	M01S05.C16	M01S02.C27	M01S04.C10
	17	F01S05.C18	F01S04.C37	F01S01.C24	F01S02.C03
	18	M02S04.C39	M01S01.C24	M02S01.C25	M02S02.C04
	19	F01S04.C14	F01S02.C29	F02S01.C26	F01S06.C19
	20	M01S01.C25	M02S04.C38	M02S03.C33	M02S02.C28
	21	F02S02.C32	F01S06.C21	F01S04.C12	F02S06.C21
	22	M02S01.C03	M02S01.C26	M02S06.C21	M01S04.C34
	23	F01S01.C26	F02S01.C27	F01S05.C16	F01S02.C27
	24	M01S02.C29	M01S02.C28	M01S05.C15	M02S04.C12
	25	F02S01.C28	F01S05.C17	F02S02.C30	F01S04.C11
	26	M02S03.C11	M02S05.C18	M01S02.C03	M01S02.C02
	27	F02S06.C24	F01S01.C01	F02S03.C34	F02S01.C25
	28	M01S04.C37	M01S04.C12	M01S06.C19	M01S01.C22
	29	F02S05.C20	F02S01.C03	F02S02.C06	F01S05.C15
	30	M01S03.C33	M02S03.C34	M02S04.C37	M02S03.C32
	31	F01S02.C06	F02S04.C39	F02S03.C10	F02S04.C13
	32	M02S01.C27	M02S02.C30	M02S02.C05	M02S04.C36
	33	F02S04.C16	F02S03.C11	F01S03.C32	F02S04.C37
	34	M02S02.C07	M02S06.C22	M01S03.C07	M02S05.C40
	35	F02S04.C40	F02S04.C15	F02S05.C18	F01S05.C39
	36	M01S04.C13	M02S01.C02	M02S03.C09	M02S03.C08
	37	F02S01.C04	F01S02.C05	F02S06.C22	F02S02.C05
	38	M01S01.C01	M02S03.C10	M01S04.C11	M01S06.C18
	39	F02S03.C36	F01S01.C25	F01S02.C28	F02S03.C33
	40	M02S02.C31	M01S03.C08	M01S01.C23	M01S05.C38

		Session			
	Order	1	2	3	4
Group 02	1	F01S01.C22	F02S04.C11	F01S05.C12	F01S04.C07
	2	M01S06.C17	M01S03.C04	M02S03.C05	M02S04.C08
	3	F02S04.C36	F02S03.C07	F02S02.C26	F02S03.C29
	4	M02S06.C19	M02S02.C02	M02S06.C17	M01S04.C30
	5	F02S03.C32	F02S01.C23	F01S03.C28	F02S01.C21
	6	M02S05.C39	M01S04.C08	M02S01.C21	M02S04.C32
	7	F02S05.C16	F02S02.C03	F02S02.C02	F02S05.C13
	8	M02S03.C31	M01S05.C36	M02S04.C09	M01S03.C26
	9	F02S01.C24	F01S04.C33	F01S03.C04	F02S02.C01
	10	M02S04.C11	M01S06.C16	M01S04.C31	M02S06.C40
	11	F02S02.C28	F01S04.C09	F01S04.C32	F01S03.C27
	12	M02S01.C23	M02S01.C22	M01S03.C03	M02S01.C20
	13	F02S02.C04	F02S02.C27	F02S01.C22	F01S02.C23
	14	M01S01.C21	M02S04.C10	M01S02.C23	M01S01.C18
	15	F01S04.C10	F01S05.C37	F01S06.C16	F02S03.C05
	16	M01S03.C05	M01S02.C24	M01S06.C15	M02S05.C12
	17	F01S05.C38	F01S02.C01	F01S04.C08	F02S05.C37
	18	M02S05.C15	M01S03.C28	M02S05.C13	M01S05.C34
	19	F02S06.C20	F01S03.C29	F02S05.C38	F01S03.C03
	20	M02S02.C27	M01S05.C12	M02S02.C01	M02S03.C04
	21	F02S05.C40	F02S06.C19	F01S01.C20	F01S06.C15
	22	M01S05.C37	M01S06.C40	M01S05.C35	M01S04.C06
	23	F01S03.C30	F01S06.C17	F02S05.C14	F01S05.C11
	24	M02S03.C07	M02S03.C06	M02S05.C37	M02S05.C36
	25	F01S04.C34	F02S03.C31	F01S02.C24	F02S02.C25
	26	M01S03.C29	M02S05.C14	M02S03.C29	M01S03.C02
	27	F01S02.C02	F02S05.C39	F02S04.C34	F01S05.C35
	28	M01S04.C33	M01S04.C32	M01S04.C07	M01S06.C14
	29	F01S05.C14	F01S05.C13	F01S06.C40	F01S04.C31
	30	M01S02.C01	M02S06.C18	M01S05.C11	M01S05.C10
	31	F01S02.C26	F02S04.C35	F02S04.C10	F02S04.C33
	32	M01S05.C13	M02S05.C38	M02S04.C33	M01S02.C22
	33	F01S03.C06	F01S01.C21	F01S05.C36	F02S04.C09
	34	M02S04.C35	M02S02.C26	M01S03.C27	M01S06.C38
	35	F01S06.C18	F01S02.C25	F02S03.C30	F01S01.C19
	36	M02S02.C03	M02S04.C34	M02S02.C25	M02S02.C24
	37	F02S04.C12	F01S03.C05	F02S03.C06	F01S06.C39
	38	M01S02.C25	M02S03.C30	M01S06.C39	M02S03.C28
	39	F02S03.C08	F02S05.C15	F02S06.C18	F02S06.C17
	40	M01S04.C09	M01S01.C20	M01S01.C19	M02S06.C16

		Session			
	Order	1	2	3	4
Group 03	1	F02S01.C20	F01S05.C09	F02S04.C06	F01S02.C19
	2	M02S03.C27	M01S01.C16	M01S04.C27	M01S04.C02
	3	F01S05.C10	F02S05.C35	F01S06.C12	F02S03.C01
	4	M02S05.C35	M02S02.C22	M02S06.C13	M02S01.C16
	5	F02S02.C24	F01S04.C05	F02S04.C30	F02S04.C05
	6	M02S05.C11	M01S01.C40	M02S02.C21	M02S05.C08
	7	F02S05.C36	F01S04.C29	F02S02.C22	F01S05.C07
	8	M01S04.C05	M02S03.C02	M02S01.C17	M01S05.C06
	9	F01S01.C18	F02S04.C31	F01S02.C20	F02S06.C13
	10	M01S06.C37	M01S04.C28	M01S06.C11	M01S02.C18
	11	F01S03.C02	F01S03.C25	F01S04.C28	F01S01.C15
	12	M01S05.C09	M02S05.C10	M01S01.C15	M01S04.C26
	13	F02S06.C16	F01S06.C37	F01S04.C04	F02S02.C21
	14	M02S03.C03	M02S06.C38	M01S05.C31	M01S06.C34
	15	F01S04.C06	F02S03.C27	F01S05.C08	F02S01.C17
	16	M01S02.C21	M01S04.C04	M01S04.C03	M01S03.C22
	17	F01S03.C26	F01S02.C21	F02S03.C26	F02S04.C29
	18	M01S01.C17	M01S03.C24	M02S05.C33	M02S06.C12
	19	F01S02.C22	F01S06.C13	F02S06.C14	F01S03.C23
	20	M01S05.C33	M01S02.C20	M02S03.C01	M02S02.C20
	21	F01S05.C34	F01S03.C01	F02S03.C02	F01S06.C11
	22	M02S06.C15	M02S01.C18	M01S02.C19	M01S05.C30
	23	F02S04.C08	F02S04.C07	F02S05.C10	F01S05.C31
	24	M02S02.C23	M02S04.C30	M01S05.C07	M02S01.C40
	25	F02S03.C04	F02S03.C03	F01S01.C16	F01S01.C39
	26	M02S01.C19	M01S06.C12	M02S04.C29	M01S06.C10
	27	F02S06.C40	F01S05.C33	F01S05.C32	F02S05.C33
	28	M02S04.C07	M01S05.C32	M01S03.C23	M01S01.C38
	29	F02S04.C32	F02S06.C39	F02S05.C34	F02S05.C09
	30	M02S06.C39	M01S05.C08	M02S03.C25	M02S03.C24
	31	F02S03.C28	F02S06.C15	F01S03.C24	F01S06.C35
	32	M02S04.C31	M01S06.C36	M01S06.C35	M02S04.C04
	33	F02S05.C12	F02S01.C19	F01S01.C40	F02S03.C25
	34	M01S03.C01	M02S06.C14	M02S06.C37	M01S01.C14
	35	F01S06.C14	F02S05.C11	F02S01.C18	F02S06.C37
	36	M01S06.C13	M02S03.C26	M02S04.C05	M02S04.C28
	37	F01S04.C30	F02S02.C23	F02S06.C38	F01S04.C27
	38	M01S04.C29	M02S04.C06	M01S01.C39	M02S05.C32
	39	F01S06.C38	F01S01.C17	F01S06.C36	F01S04.C03
	40	M01S03.C25	M02S05.C34	M02S05.C09	M02S06.C36

		Session			
	Order	1	2	3	4
Group 04	1	F01S01.C14	F02S06.C11	F02S06.C10	F01S01.C11
	2	M01S06.C33	M02S06.C10	M01S03.C19	M01S02.C14
	3	F02S05.C32	F02S01.C15	F02S02.C18	F01S02.C15
	4	M02S05.C07	M01S01.C12	M01S01.C35	M02S01.C36
	5	F02S06.C12	F02S03.C23	F02S04.C02	F01S01.C35
	6	M02S06.C35	M02S03.C22	M02S03.C21	M01S05.C02
	7	F01S05.C30	F01S03.C21	F01S05.C04	F02S05.C29
	8	M01S02.C17	M02S04.C26	M01S04.C23	M01S06.C06
	9	F01S01.C38	F02S04.C27	F01S05.C28	F02S04.C01
	10	M02S02.C19	M01S02.C16	M02S05.C05	M02S01.C12
	11	F02S04.C04	F01S06.C33	F01S01.C36	F01S02.C39
	12	M01S03.C21	M02S02.C18	M02S01.C13	M02S03.C20
	13	F02S01.C16	F01S01.C13	F01S06.C32	F02S05.C05
	14	M01S04.C01	M02S06.C34	M02S05.C29	M01S02.C38
	15	F01S06.C34	F01S02.C17	F01S03.C20	F01S06.C31
	16	M02S06.C11	M02S05.C30	M01S06.C31	M01S01.C10
	17	F02S04.C28	F02S05.C31	F02S05.C30	F02S03.C21
	18	M01S06.C09	M01S03.C20	M02S06.C09	M02S04.C24
	19	F02S06.C36	F01S05.C05	F02S01.C38	F01S04.C23
	20	M02S01.C39	M02S01.C14	M01S06.C07	M01S05.C26
	21	F02S05.C08	F02S02.C19	F01S02.C16	F01S03.C19
	22	M02S01.C15	M01S01.C36	M01S05.C03	M02S06.C32
	23	F02S02.C20	F01S04.C25	F01S02.C40	F02S04.C25
	24	M01S05.C05	M01S02.C40	M02S02.C17	M02S02.C40
	25	F02S03.C24	F01S06.C09	F02S04.C26	F02S01.C13
	26	M02S04.C03	M01S06.C08	M01S01.C11	M01S01.C34
	27	F01S05.C06	F01S05.C29	F01S01.C12	F02S06.C09
	28	M01S04.C25	M02S05.C06	M01S02.C15	M02S06.C08
	29	F01S04.C02	F02S04.C03	F01S04.C24	F01S05.C03
	30	M01S01.C13	M02S04.C02	M02S04.C01	M01S04.C22
	31	F01S03.C22	F01S01.C37	F01S06.C08	F01S05.C27
	32	M01S01.C37	M01S05.C04	M02S06.C33	M02S02.C16
	33	F01S06.C10	F02S06.C35	F02S03.C22	F02S06.C33
	34	M01S05.C29	M02S01.C38	M02S01.C37	M01S03.C18
	35	F01S02.C18	F02S05.C07	F02S01.C14	F01S06.C07
	36	M02S03.C23	M01S05.C28	M01S02.C39	M02S05.C28
	37	F01S04.C26	F02S01.C39	F02S05.C06	F02S02.C17
	38	M02S04.C27	M01S06.C32	M01S05.C27	M02S05.C04
	39	F02S01.C40	F01S04.C01	F02S06.C34	F02S01.C37
	40	M02S05.C31	M01S04.C24	M02S04.C25	M01S06.C30

		Session			
	Order	1	2	3	4
Group 05	1	F01S06.C06	F02S02.C15	F01S04.C20	F01S02.C11
	2	M02S06.C07	M01S06.C04	M01S03.C39	M02S04.C20
	3	F01S01.C34	F01S01.C09	F02S01.C10	F02S02.C37
	4	M02S02.C39	M02S06.C06	M02S01.C09	M02S02.C12
	5	F02S01.C36	F02S01.C35	F02S06.C06	F01S01.C07
	6	M02S01.C11	M02S02.C38	M01S05.C23	M02S01.C08
	7	F02S06.C08	F02S02.C39	F02S05.C26	F02S01.C09
	8	M02S03.C19	M02S06.C30	M01S06.C27	M01S02.C34
	9	F01S01.C10	F01S02.C13	F01S01.C08	F01S03.C15
	10	M01S01.C33	M02S01.C10	M01S06.C03	M01S02.C10
	11	F02S02.C40	F01S03.C17	F02S05.C02	F01S02.C35
	12	M02S02.C15	M01S03.C16	M02S06.C05	M01S03.C14
	13	F02S03.C20	F01S06.C05	F01S06.C28	F01S04.C19
	14	M01S02.C13	M01S06.C28	M02S01.C33	M02S06.C04
	15	F01S02.C38	F01S05.C25	F02S02.C14	F02S05.C01
	16	M01S05.C01	M01S03.C40	M01S04.C19	M01S05.C22
	17	F02S04.C24	F02S06.C07	F01S01.C32	F02S06.C05
	18	M01S02.C37	M02S01.C34	M01S01.C31	M02S06.C28
	19	F01S02.C14	F02S03.C19	F01S03.C40	F02S06.C29
	20	M01S01.C09	M01S02.C36	M02S05.C25	M01S06.C26
	21	F01S05.C26	F02S06.C31	F01S06.C04	F02S05.C25
	22	M02S05.C27	M01S04.C20	M02S05.C01	M01S03.C38
	23	F01S04.C22	F01S06.C29	F01S02.C12	F01S06.C27
	24	M01S06.C05	M02S04.C22	M01S03.C15	M01S04.C18
	25	F02S01.C12	F02S05.C03	F02S06.C30	F01S05.C23
	26	M01S06.C29	M01S01.C32	M02S04.C21	M01S06.C02
	27	F02S05.C28	F01S04.C21	F02S03.C18	F02S01.C33
	28	M02S06.C31	M01S01.C08	M02S02.C37	M02S03.C16
	29	F02S02.C16	F02S04.C23	F02S02.C38	F01S03.C39
	30	M02S01.C35	M02S02.C14	M01S02.C35	M01S01.C30
	31	F01S06.C30	F01S01.C33	F01S05.C24	F01S06.C03
	32	M01S04.C21	M02S03.C18	M02S02.C13	M02S03.C40
	33	F02S05.C04	F01S02.C37	F01S02.C36	F02S04.C21
	34	M02S05.C03	M02S05.C02	M02S03.C17	M02S05.C24
	35	F01S05.C02	F02S05.C27	F01S03.C16	F01S01.C31
	36	M01S03.C17	M01S02.C12	M01S01.C07	M02S01.C32
	37	F02S06.C32	F01S05.C01	F02S01.C34	F02S02.C13
	38	M02S04.C23	M01S05.C24	M02S06.C29	M01S01.C06
	39	F01S03.C18	F02S01.C11	F02S04.C22	F02S03.C17
	40	M01S05.C25	M02S05.C26	M01S02.C11	M02S02.C36

		Session			
	Order	1	2	3	4
Group 06	1	F02S03.C40	F01S03.C13	F02S04.C18	F01S05.C19
	2	M01S06.C25	M02S03.C14	M01S01.C03	M02S02.C08
	3	F02S01.C32	F02S04.C19	F02S05.C22	F01S02.C07
	4	M01S03.C13	M02S06.C02	M02S04.C17	M02S01.C28
	5	F01S06.C02	F01S06.C25	F02S01.C30	F02S05.C21
	6	M01S06.C01	M02S01.C06	M02S01.C05	M02S04.C40
	7	F02S05.C24	F02S03.C39	F02S03.C14	F02S01.C05
	8	M01S01.C29	M02S05.C22	M02S01.C29	M01S01.C02
	9	F01S06.C26	F02S06.C27	F01S05.C20	F02S02.C33
	10	M01S01.C05	M01S02.C32	M02S05.C21	M01S02.C30
	11	F01S01.C06	F01S04.C17	F01S02.C32	F02S01.C29
	12	M02S01.C31	M01S02.C08	M01S05.C19	M02S04.C16
	13	F02S06.C04	F02S06.C03	F01S06.C24	F01S04.C39
	14	M01S03.C37	M01S03.C12	M01S02.C31	M01S05.C18
	15	F02S01.C08	F02S01.C31	F01S03.C36	F02S03.C13
	16	M02S03.C39	M02S03.C38	M02S06.C01	M01S03.C10
	17	F02S06.C28	F01S02.C09	F02S01.C06	F01S02.C31
	18	M02S02.C11	M02S02.C34	M01S01.C27	M02S03.C12
	19	F01S04.C18	F01S01.C29	F01S04.C40	F01S01.C27
	20	M02S05.C23	M01S03.C36	M02S02.C09	M01S06.C22
	21	F02S03.C16	F01S06.C01	F01S03.C12	F01S01.C03
	22	M02S03.C15	M01S01.C28	M02S06.C25	M02S05.C20
	23	F02S02.C36	F01S05.C21	F01S01.C28	F02S06.C25
	24	M02S01.C07	M01S04.C40	M02S03.C37	M01S04.C14
	25	F01S03.C38	F02S02.C35	F02S02.C34	F01S06.C23
	26	M01S04.C17	M01S04.C16	M01S03.C11	M01S04.C38
	27	F01S03.C14	F01S01.C05	F02S06.C26	F01S03.C11
	28	M02S02.C35	M02S06.C26	M02S03.C13	M02S03.C36
	29	F01S05.C22	F01S02.C33	F02S02.C10	F02S04.C17
	30	M01S05.C21	M02S02.C10	M02S02.C33	M02S02.C32
	31	F01S02.C34	F02S01.C07	F02S06.C02	F01S03.C35
	32	M02S06.C27	M02S04.C18	M01S04.C39	M01S01.C26
	33	F01S02.C10	F02S03.C15	F02S03.C38	F02S03.C37
	34	M01S02.C33	M01S06.C24	M01S02.C07	M02S01.C04
	35	F01S01.C30	F01S03.C37	F01S01.C04	F02S06.C01
	36	M02S06.C03	M01S05.C20	M01S06.C23	M02S06.C24
	37	F02S02.C12	F02S05.C23	F01S02.C08	F01S04.C15
	38	M01S02.C09	M02S01.C30	M01S04.C15	M01S03.C34
	39	F02S04.C20	F02S02.C11	F01S04.C16	F02S02.C09
	40	M02S04.C19	M01S01.C04	M01S03.C35	M01S02.C06

C.2D Experiment 2D

See Section C.1B.

C.2E Experiment 2E

See Section C.1A.

C.3A Experiment 3A

See Section C.1B.

C.3B Experiment 3B

See Section C.1B.

C.3C Experiment 3C

See Section C.1B.

C.3D Experiment 3D

See Section C.1B.

C.3E Experiment 3E

		Session			
	Order	1	2	3	4
Group 01	1	F02S03.C12	F01S06.C21	F02S03.C10	F01S04.C11
	2	M01S06.C21	M01S05.C16	M02S02.C05	M01S06.C18
	3	F01S02.C06	F02S01.C03	F02S04.C14	F01S01.C23
	4	M01S05.C17	M02S03.C10	M02S04.C13	M01S05.C14
	5	F01S06.C22	F02S02.C07	F02S01.C02	F02S02.C05
	6	M01S04.C13	M02S05.C18	M02S05.C17	M01S03.C06
	7	F02S06.C24	F02S04.C15	F02S05.C18	F02S04.C13
	8	M01S03.C09	M02S01.C02	M01S03.C07	M01S01.C22
	9	F01S04.C14	F01S03.C09	F01S04.C12	F02S03.C09
	10	M01S02.C05	M01S04.C12	M02S01.C01	M02S05.C16
	11	F02S04.C16	F01S02.C05	F01S02.C04	F02S01.C01
	12	M02S05.C19	M01S03.C08	M02S06.C21	M02S04.C12
	13	F01S03.C10	F01S01.C01	F02S02.C06	F02S05.C17
	14	M02S02.C07	M01S02.C04	M01S06.C19	M01S02.C02
	15	F02S02.C08	F02S05.C19	F01S06.C20	F01S03.C07
	16	M02S04.C15	M02S04.C14	M02S03.C09	M02S03.C08
	17	F01S05.C18	F02S06.C23	F01S03.C08	F02S06.C21
	18	M02S03.C11	M01S06.C20	M01S05.C15	M02S06.C20
	19	F02S01.C04	F01S05.C17	F01S05.C16	F01S02.C03
	20	M01S01.C01	M01S01.C24	M01S02.C03	M01S04.C10
	21	F02S05.C20	F01S04.C13	F01S01.C24	F01S06.C19
	22	M02S01.C03	M02S06.C22	M01S04.C11	M02S02.C04
	23	F01S01.C02	F02S03.C11	F02S06.C22	F01S05.C15
	24	M02S06.C23	M02S02.C06	M01S01.C23	M02S01.C24

		Session			
	Order	1	2	3	4
Group 02	1	F01S06.C18	F02S06.C19	F01S05.C12	F02S06.C17
	2	M02S06.C19	M01S06.C16	M01S06.C15	M01S01.C18
	3	F02S01.C24	F01S05.C13	F01S06.C16	F02S02.C01
	4	M01S04.C09	M02S02.C02	M01S05.C11	M02S05.C12
	5	F02S03.C08	F02S05.C15	F01S03.C04	F01S03.C03
	6	M01S06.C17	M01S03.C04	M02S03.C05	M01S04.C06
	7	F01S02.C02	F02S02.C03	F01S04.C08	F02S01.C21
	8	M01S03.C05	M02S05.C14	M01S02.C23	M02S03.C04
	9	F02S02.C04	F02S04.C11	F02S01.C22	F02S04.C09
	10	M02S01.C23	M01S05.C12	M02S02.C01	M02S04.C08
	11	F02S06.C20	F01S04.C09	F02S02.C02	F01S04.C07
	12	M01S01.C21	M02S03.C06	M02S04.C09	M02S01.C20
	13	F02S04.C12	F02S03.C07	F02S04.C10	F01S05.C11
	14	M01S02.C01	M01S01.C20	M02S06.C17	M02S06.C16
	15	F02S05.C16	F01S03.C05	F02S05.C14	F02S03.C05
	16	M02S03.C07	M02S06.C18	M01S01.C19	M01S02.C22
	17	F01S05.C14	F01S06.C17	F02S06.C18	F01S01.C19
	18	M02S02.C03	M01S02.C24	M01S04.C07	M02S02.C24
	19	F01S01.C22	F01S02.C01	F02S03.C06	F01S06.C15
	20	M02S04.C11	M02S01.C22	M02S05.C13	M01S05.C10
	21	F01S03.C06	F02S01.C23	F01S02.C24	F01S02.C23
	22	M01S05.C13	M01S04.C08	M01S03.C03	M01S03.C02
	23	F01S04.C10	F01S01.C21	F01S01.C20	F02S05.C13
	24	M02S05.C15	M02S04.C10	M02S01.C21	M01S06.C14

		Session			
	Order	1	2	3	4
Group 03	1	F02S06.C16	F02S02.C23	F01S04.C04	F02S02.C21
	2	M01S02.C21	M01S03.C24	M01S01.C15	M02S02.C20
	3	F01S05.C10	F02S04.C07	F01S05.C08	F01S02.C19
	4	M02S04.C07	M01S01.C16	M02S05.C09	M02S05.C08
	5	F02S04.C08	F01S04.C05	F01S06.C12	F02S06.C13
	6	M01S03.C01	M01S04.C04	M02S01.C17	M01S02.C18
	7	F01S02.C22	F02S03.C03	F02S01.C18	F01S04.C03
	8	M02S01.C19	M02S04.C06	M01S02.C19	M01S01.C14
	9	F01S04.C06	F02S05.C11	F02S02.C22	F02S05.C09
	10	M01S01.C17	M01S05.C08	M02S06.C13	M02S04.C04
	11	F01S06.C14	F02S06.C15	F02S06.C14	F01S01.C15
	12	M02S03.C03	M02S02.C22	M01S03.C23	M01S05.C06
	13	F01S01.C18	F01S06.C13	F01S01.C16	F02S04.C05
	14	M01S04.C05	M01S06.C12	M02S02.C21	M02S03.C24
	15	F02S01.C20	F02S01.C19	F01S03.C24	F01S03.C23
	16	M01S05.C09	M01S02.C20	M01S06.C11	M01S06.C10
	17	F01S03.C02	F01S05.C09	F02S05.C10	F01S06.C11
	18	M02S06.C15	M02S03.C02	M02S04.C05	M02S01.C16
	19	F02S05.C12	F01S03.C01	F02S04.C06	F02S03.C01
	20	M01S06.C13	M02S06.C14	M01S05.C07	M02S06.C12
	21	F02S02.C24	F01S01.C17	F01S02.C20	F02S01.C17
	22	M02S02.C23	M02S01.C18	M01S04.C03	M01S03.C22
	23	F02S03.C04	F01S02.C21	F02S03.C02	F01S05.C07
	24	M02S05.C11	M02S05.C10	M02S03.C01	M01S04.C02

		Session			
	Order	1	2	3	4
Group 04	1	F01S06.C10	F01S03.C21	F01S05.C04	F01S01.C11
	2	M01S03.C21	M02S02.C18	M01S06.C07	M01S04.C22
	3	F01S01.C14	F02S03.C23	F01S02.C16	F01S06.C07
	4	M02S06.C11	M01S01.C12	M02S04.C01	M02S04.C24
	5	F01S03.C22	F01S01.C13	F01S01.C12	F01S04.C23
	6	M01S04.C01	M01S03.C20	M02S02.C17	M01S01.C10
	7	F02S06.C12	F01S02.C17	F02S05.C06	F01S03.C19
	8	M02S04.C03	M02S04.C02	M02S06.C09	M02S05.C04
	9	F02S03.C24	F02S02.C19	F02S03.C22	F01S02.C15
	10	M01S01.C13	M01S04.C24	M01S02.C15	M01S02.C14
	11	F02S04.C04	F02S01.C15	F01S03.C20	F01S05.C03
	12	M02S02.C19	M02S06.C10	M01S01.C11	M01S05.C02
	13	F02S05.C08	F02S05.C07	F02S02.C18	F02S03.C21
	14	M02S05.C07	M02S03.C22	M01S05.C03	M02S03.C20
	15	F01S05.C06	F02S06.C11	F01S06.C08	F02S05.C05
	16	M02S01.C15	M02S05.C06	M01S04.C23	M02S06.C08
	17	F01S04.C02	F02S04.C03	F02S06.C10	F02S04.C01
	18	M01S06.C09	M02S01.C14	M02S05.C05	M02S02.C16
	19	F01S02.C18	F01S05.C05	F02S04.C02	F02S06.C09
	20	M01S05.C05	M01S02.C16	M01S03.C19	M02S01.C12
	21	F02S02.C20	F01S04.C01	F02S01.C14	F02S01.C13
	22	M02S03.C23	M01S06.C08	M02S01.C13	M01S06.C06
	23	F02S01.C16	F01S06.C09	F01S04.C24	F02S02.C17
	24	M01S02.C17	M01S05.C04	M02S03.C21	M01S03.C18

		Session			
	Order	1	2	3	4
Group 05	1	F01S05.C02	F02S05.C03	F02S02.C14	F02S06.C05
	2	M02S06.C07	M02S06.C06	M01S06.C03	M02S02.C12
	3	F01S03.C18	F01S06.C05	F02S04.C22	F02S05.C01
	4	M02S01.C11	M02S05.C02	M02S05.C01	M01S01.C06
	5	F02S02.C16	F01S02.C13	F01S02.C12	F01S05.C23
	6	M02S03.C19	M02S03.C18	M01S01.C07	M01S04.C18
	7	F01S06.C06	F02S02.C15	F01S04.C20	F01S02.C11
	8	M01S02.C13	M02S01.C10	M01S02.C11	M02S05.C24
	9	F02S05.C04	F01S01.C09	F01S01.C08	F02S01.C09
	10	M01S01.C09	M01S03.C16	M02S01.C09	M02S01.C08
	11	F02S01.C12	F01S03.C17	F01S06.C04	F01S03.C15
	12	M01S06.C05	M02S04.C22	M02S02.C13	M02S06.C04
	13	F02S06.C08	F02S04.C23	F02S03.C18	F01S01.C07
	14	M01S03.C17	M02S02.C14	M01S03.C15	M01S02.C10
	15	F01S04.C22	F01S05.C01	F02S05.C02	F01S06.C03
	16	M01S04.C21	M01S02.C12	M02S06.C05	M02S04.C20
	17	F02S04.C24	F01S04.C21	F01S05.C24	F02S04.C21
	18	M02S05.C03	M01S04.C20	M02S04.C21	M02S03.C16
	19	F01S02.C14	F02S06.C07	F02S06.C06	F02S03.C17
	20	M01S05.C01	M01S05.C24	M01S04.C19	M01S05.C22
	21	F02S03.C20	F02S01.C11	F02S01.C10	F02S02.C13
	22	M02S02.C15	M01S01.C08	M02S03.C17	M01S06.C02
	23	F01S01.C10	F02S03.C19	F01S03.C16	F01S04.C19
	24	M02S04.C23	M01S06.C04	M01S05.C23	M01S03.C14

		Session			
	Order	1	2	3	4
Group 06	1	F02S05.C24	F02S04.C19	F02S02.C10	F02S01.C05
	2	M01S05.C21	M02S01.C06	M01S02.C07	M01S03.C10
	3	F01S04.C18	F01S04.C17	F01S02.C08	F01S02.C07
	4	M01S03.C13	M02S02.C10	M02S06.C01	M01S04.C14
	5	F01S02.C10	F01S03.C13	F02S04.C18	F01S01.C03
	6	M01S04.C17	M02S05.C22	M02S03.C13	M02S04.C16
	7	F02S04.C20	F02S02.C11	F01S05.C20	F02S02.C09
	8	M02S01.C07	M01S05.C20	M01S04.C15	M02S05.C20
	9	F02S06.C04	F01S05.C21	F02S05.C22	F01S06.C23
	10	M02S05.C23	M02S03.C14	M01S01.C03	M02S01.C04
	11	F02S01.C08	F01S01.C05	F02S01.C06	F02S03.C13
	12	M02S02.C11	M01S03.C12	M01S05.C19	M01S06.C22
	13	F01S06.C02	F01S02.C09	F01S06.C24	F02S06.C01
	14	M02S03.C15	M01S06.C24	M02S04.C17	M01S05.C18
	15	F01S01.C06	F02S01.C07	F01S01.C04	F01S05.C19
	16	M02S04.C19	M02S06.C02	M01S03.C11	M02S02.C08
	17	F01S03.C14	F02S06.C03	F02S03.C14	F02S04.C17
	18	M01S02.C09	M02S04.C18	M02S01.C05	M02S06.C24
	19	F02S03.C16	F01S06.C01	F01S03.C12	F02S05.C21
	20	M01S01.C05	M01S04.C16	M01S06.C23	M01S01.C02
	21	F01S05.C22	F02S03.C15	F02S06.C02	F01S04.C15
	22	M01S06.C01	M01S02.C08	M02S02.C09	M01S02.C06
	23	F02S02.C12	F02S05.C23	F01S04.C16	F01S03.C11
	24	M02S06.C03	M01S01.C04	M02S05.C21	M02S03.C12

C.4A Experiment 4A

See Section C.2C.

C.4B Experiment 4B

See Section C.2C.

C.4C Experiment 4C

See Section C.1B.

C.4D Experiment 4D

See Section C.1B.

C.5A Experiment 5A

		Session			
	Order	1	2	3	4
Group 01	1	F02S04.C16	F01S04.C37	F01S06.C44	F01S01.C23
	2	M02S02.C07	M01S01.C48	M01S04.C35	M01S02.C26
	3	F01S04.C38	F02S04.C39	F02S01.C26	F01S05.C39
	4	M01S05.C17	M01S05.C16	M02S05.C17	M01S03.C06
	5	F02S06.C48	F01S01.C01	F02S04.C38	F01S06.C43
	6	M02S02.C31	M02S06.C46	M02S03.C09	M01S02.C02
	7	F02S03.C12	F02S03.C11	F01S06.C20	F01S06.C19
	8	M02S04.C15	M01S03.C32	M02S04.C13	M02S02.C28
	9	F02S02.C08	F01S01.C25	F02S02.C30	F01S05.C15
	10	M02S03.C11	M01S02.C28	M01S04.C11	M01S05.C14
	11	F01S05.C18	F02S06.C47	F02S04.C14	F02S02.C29
	12	M02S03.C35	M02S01.C02	M02S02.C29	M02S05.C16
	13	F01S06.C22	F01S03.C09	F02S05.C42	F01S02.C03
	14	M01S05.C41	M02S05.C18	M01S06.C43	M02S02.C04
	15	F02S03.C36	F02S01.C03	F01S05.C16	F02S01.C25
	16	M01S02.C05	M01S06.C20	M01S02.C27	M01S03.C30
	17	F02S05.C44	F01S04.C13	F02S06.C46	F02S04.C13
	18	M01S04.C37	M01S05.C40	M02S06.C21	M02S01.C48
	19	F01S02.C30	F02S05.C19	F01S05.C40	F02S02.C05
	20	M02S01.C27	M01S03.C08	M01S05.C39	M01S04.C10
	21	F02S06.C24	F01S05.C17	F01S04.C36	F01S03.C31
	22	M01S06.C45	M02S01.C26	M01S05.C15	M02S01.C24
	23	F02S01.C04	F01S02.C05	F01S01.C48	F01S04.C35
	24	M01S03.C09	M02S02.C30	M02S03.C33	M01S05.C38
	25	F02S01.C28	F02S02.C31	F02S05.C18	F01S01.C47
	26	M01S03.C33	M01S01.C24	M02S04.C37	M02S05.C40
	27	F01S03.C10	F02S03.C35	F02S02.C06	F02S04.C37
	28	M01S01.C25	M02S06.C22	M02S05.C41	M02S06.C20
	29	F01S01.C26	F02S04.C15	F02S03.C34	F01S02.C27
	30	M02S06.C47	M02S03.C10	M02S02.C05	M02S04.C12
	31	F01S03.C34	F02S01.C27	F01S01.C24	F02S05.C41
	32	M01S06.C21	M01S02.C04	M02S01.C25	M02S04.C36
	33	F02S04.C40	F02S05.C43	F01S03.C08	F02S03.C09
	34	M02S06.C23	M02S04.C38	M01S01.C23	M01S04.C34
	35	F02S02.C32	F01S03.C33	F01S02.C04	F01S03.C07
	36	M01S01.C01	M02S05.C42	M02S06.C45	M02S03.C32
	37	F01S02.C06	F01S05.C41	F01S03.C32	F02S06.C45
	38	M02S04.C39	M02S03.C34	M01S01.C47	M01S01.C22
	39	F01S01.C02	F02S02.C07	F02S06.C22	F02S06.C21
	40	M01S04.C13	M01S04.C36	M01S02.C03	M02S03.C08
	41	F01S05.C42	F02S06.C23	F01S02.C28	F02S05.C17
	42	M02S05.C19	M01S04.C12	M01S03.C07	M01S06.C18
	43	F01S06.C46	F01S06.C45	F01S04.C12	F02S01.C01
	44	M01S02.C29	M02S02.C06	M01S03.C31	M01S01.C46
	45	F02S05.C20	F01S06.C21	F02S01.C02	F02S03.C33
	46	M02S05.C43	M02S04.C14	M02S01.C01	M01S06.C42
	47	F01S04.C14	F01S02.C29	F02S03.C10	F01S04.C11
	48	M02S01.C03	M01S06.C44	M01S06.C19	M02S06.C44

		Session			
	Order	1	2	3	4
Group 02	1	F01S06.C42	F01S02.C01	F01S01.C44	F01S05.C11
	2	M02S03.C31	M01S04.C32	M02S03.C29	M02S02.C48
	3	F01S05.C38	F02S02.C03	F02S03.C30	F01S01.C19
	4	M01S03.C29	M01S03.C28	M01S01.C19	M02S01.C20
	5	F02S03.C08	F01S01.C45	F01S02.C48	F02S06.C41
	6	M01S04.C09	M02S02.C02	M01S04.C07	M02S03.C28
	7	F02S06.C20	F01S04.C33	F01S01.C20	F01S03.C03
	8	M01S04.C33	M02S05.C38	M02S04.C09	M01S04.C30
	9	F02S02.C04	F01S04.C09	F01S02.C24	F01S04.C07
	10	M01S05.C37	M02S02.C26	M01S06.C15	M02S06.C16
	11	F02S05.C16	F01S03.C29	F01S03.C28	F01S03.C27
	12	M02S02.C27	M02S06.C18	M02S01.C21	M01S05.C34
	13	F01S06.C18	F02S06.C19	F01S04.C08	F01S06.C39
	14	M02S05.C15	M01S06.C16	M02S03.C05	M01S06.C14
	15	F01S03.C06	F02S03.C07	F02S01.C46	F02S06.C17
	16	M02S02.C03	M02S05.C14	M01S05.C11	M01S01.C18
	17	F01S02.C26	F01S01.C21	F01S05.C36	F01S04.C31
	18	M01S01.C21	M02S04.C34	M01S04.C31	M01S06.C38
	19	F01S03.C30	F02S02.C27	F02S02.C26	F02S02.C01
	20	M02S04.C11	M01S04.C08	M02S05.C13	M01S03.C02
	21	F02S01.C48	F02S05.C39	F02S05.C14	F02S05.C37
	22	M02S01.C23	M01S06.C40	M01S05.C35	M01S04.C06
	23	F01S01.C46	F01S05.C37	F01S03.C04	F02S05.C13
	24	M02S04.C35	M02S04.C10	M02S05.C37	M02S04.C32
	25	F02S06.C44	F02S06.C43	F02S06.C42	F01S05.C35
	26	M01S06.C41	M01S05.C12	M02S02.C25	M02S05.C36
	27	F02S03.C32	F01S06.C17	F02S03.C06	F02S01.C45
	28	M02S01.C47	M02S03.C06	M02S01.C45	M02S01.C44
	29	F01S05.C14	F02S04.C35	F01S04.C32	F01S02.C23
	30	M01S02.C01	M01S05.C36	M01S02.C47	M02S03.C04
	31	F02S01.C24	F02S01.C23	F01S05.C12	F02S01.C21
	32	M01S01.C45	M01S01.C44	M01S06.C39	M02S05.C12
	33	F02S04.C36	F01S03.C05	F02S02.C02	F02S02.C25
	34	M02S03.C07	M01S01.C20	M02S06.C17	M01S03.C26
	35	F01S01.C22	F02S05.C15	F02S04.C10	F01S02.C47
	36	M01S02.C25	M01S02.C48	M01S02.C23	M01S02.C22
	37	F01S02.C02	F02S04.C11	F02S05.C38	F02S04.C33
	38	M02S06.C43	M01S03.C04	M02S04.C33	M01S02.C46
	39	F01S04.C10	F01S06.C41	F02S01.C22	F02S03.C05
	40	M02S06.C19	M02S01.C22	M02S02.C01	M01S05.C10
	41	F02S02.C28	F02S01.C47	F01S06.C16	F01S01.C43
	42	M01S03.C05	M02S03.C30	M01S01.C43	M02S04.C08
	43	F02S04.C12	F01S02.C25	F02S04.C34	F02S04.C09
	44	M02S05.C39	M02S01.C46	M02S06.C41	M02S02.C24
	45	F01S04.C34	F02S03.C31	F01S06.C40	F02S03.C29
	46	M01S06.C17	M02S06.C42	M01S03.C03	M01S01.C42
	47	F02S05.C40	F01S05.C13	F02S06.C18	F01S06.C15
	48	M01S05.C13	M01S02.C24	M01S03.C27	M02S06.C40

		Session			
	Order	1	2	3	4
Group 03	1	F02S04.C32	F01S04.C05	F01S04.C28	F02S03.C25
	2	M02S01.C43	M02S06.C38	M01S01.C15	M02S06.C36
	3	F01S06.C14	F02S02.C47	F01S06.C12	F01S05.C07
	4	M02S04.C07	M02S03.C26	M01S01.C39	M02S05.C08
	5	F01S04.C30	F01S05.C09	F02S03.C02	F01S04.C03
	6	M01S06.C13	M02S04.C30	M02S03.C01	M02S05.C32
	7	F02S03.C28	F01S03.C25	F01S03.C24	F02S04.C29
	8	M02S03.C27	M02S02.C22	M02S06.C37	M01S04.C02
	9	F02S04.C08	F01S02.C21	F01S05.C32	F02S05.C33
	10	M01S02.C21	M01S04.C28	M01S03.C47	M02S03.C24
	11	F02S02.C48	F02S06.C39	F01S01.C40	F01S01.C15
	12	M02S02.C23	M01S04.C04	M02S02.C21	M02S02.C20
	13	F01S01.C18	F01S05.C33	F02S02.C22	F01S06.C35
	14	M01S04.C05	M02S06.C14	M01S02.C19	M02S04.C04
	15	F02S01.C20	F02S05.C35	F02S05.C10	F01S01.C39
	16	M01S02.C45	M02S03.C02	M01S05.C31	M01S06.C34
	17	F01S04.C06	F02S04.C31	F02S04.C30	F02S06.C37
	18	M02S01.C19	M01S05.C32	M01S06.C35	M01S06.C10
	19	F01S06.C38	F01S04.C29	F02S03.C26	F01S05.C31
	20	M02S03.C03	M01S01.C16	M02S01.C41	M02S04.C28
	21	F01S03.C26	F02S01.C19	F02S06.C14	F01S06.C11
	22	M02S05.C35	M01S06.C36	M01S04.C27	M01S03.C46
	23	F01S02.C22	F02S01.C43	F02S01.C18	F02S06.C13
	24	M01S06.C37	M01S03.C24	M02S03.C25	M02S02.C44
	25	F01S05.C34	F01S01.C17	F01S01.C16	F02S05.C09
	26	M01S05.C09	M01S03.C48	M02S05.C09	M01S02.C42
	27	F01S03.C02	F01S03.C01	F02S06.C38	F02S01.C17
	28	M02S06.C39	M01S02.C20	M01S06.C11	M01S01.C14
	29	F01S02.C46	F01S02.C45	F01S05.C08	F01S04.C27
	30	M01S05.C33	M02S01.C18	M01S05.C07	M02S01.C16
	31	F02S05.C36	F02S02.C23	F02S04.C06	F01S03.C23
	32	M01S01.C17	M01S06.C12	M01S02.C43	M01S03.C22
	33	F01S01.C42	F01S06.C13	F01S03.C48	F01S03.C47
	34	M02S06.C15	M02S05.C34	M02S05.C33	M01S05.C30
	35	F02S03.C04	F02S04.C07	F01S06.C36	F02S01.C41
	36	M02S02.C47	M01S02.C44	M01S04.C03	M02S06.C12
	37	F02S05.C12	F02S03.C27	F02S01.C42	F02S04.C05
	38	M01S03.C25	M02S02.C46	M01S03.C23	M01S05.C06
	39	F02S06.C16	F01S01.C41	F01S02.C20	F02S02.C45
	40	M02S04.C31	M01S05.C08	M02S04.C29	M01S04.C26
	41	F02S06.C40	F02S06.C15	F02S02.C46	F02S03.C01
	42	M01S03.C01	M02S01.C42	M02S02.C45	M01S01.C38
	43	F01S05.C10	F01S06.C37	F01S02.C44	F01S02.C43
	44	M01S01.C41	M01S01.C40	M02S01.C17	M02S01.C40
	45	F02S01.C44	F02S03.C03	F01S04.C04	F02S02.C21
	46	M01S04.C29	M02S05.C10	M02S04.C05	M02S03.C48
	47	F02S02.C24	F02S05.C11	F02S05.C34	F01S02.C19
	48	M02S05.C11	M02S04.C06	M02S06.C13	M01S02.C18

		Session			
	Order	1	2	3	4
Group 04	1	F01S04.C02	F01S05.C29	F02S04.C26	F02S02.C17
	2	M01S02.C17	M02S04.C02	M01S04.C23	M01S06.C06
	3	F01S02.C18	F02S04.C03	F01S04.C24	F02S04.C25
	4	M01S03.C21	M01S05.C04	M01S01.C11	M01S01.C10
	5	F02S02.C20	F02S06.C11	F02S05.C30	F02S01.C13
	6	M01S04.C25	M01S06.C08	M02S06.C09	M01S04.C46
	7	F02S06.C12	F01S03.C45	F02S01.C14	F02S02.C41
	8	M02S02.C43	M02S01.C14	M02S05.C05	M02S05.C04
	9	F02S06.C36	F02S04.C27	F02S06.C34	F01S01.C35
	10	M02S04.C27	M02S01.C38	M02S05.C29	M02S04.C48
	11	F02S01.C16	F02S05.C31	F02S05.C06	F02S05.C29
	12	M02S01.C39	M02S03.C22	M02S06.C33	M01S05.C02
	13	F02S05.C08	F02S02.C43	F01S05.C04	F01S01.C11
	14	M02S03.C23	M02S02.C42	M01S02.C15	M02S03.C20
	15	F01S04.C26	F01S03.C21	F01S05.C28	F02S06.C33
	16	M02S06.C11	M02S03.C46	M01S05.C27	M01S04.C22
	17	F02S03.C24	F02S01.C39	F02S01.C38	F02S04.C01
	18	M02S05.C07	M02S06.C10	M02S03.C45	M01S03.C18
	19	F01S05.C06	F01S05.C05	F01S03.C20	F02S06.C09
	20	M01S01.C13	M01S05.C28	M02S04.C25	M02S02.C40
	21	F02S04.C28	F02S02.C19	F01S01.C36	F02S03.C21
	22	M01S05.C05	M01S03.C20	M02S01.C13	M02S02.C16
	23	F01S01.C14	F02S05.C07	F01S03.C44	F01S06.C31
	24	M01S05.C29	M02S06.C34	M01S03.C19	M02S04.C24
	25	F01S05.C30	F02S03.C23	F02S06.C10	F02S03.C45
	26	M01S06.C09	M02S04.C26	M02S03.C21	M02S05.C28
	27	F01S06.C34	F01S01.C37	F02S03.C22	F01S05.C03
	28	M02S06.C35	M01S01.C12	M01S04.C47	M01S03.C42
	29	F01S01.C38	F01S04.C01	F02S02.C18	F01S03.C19
	30	M01S01.C37	M01S04.C24	M01S01.C35	M01S06.C30
	31	F02S04.C04	F01S04.C25	F01S02.C16	F01S02.C39
	32	M01S06.C33	M01S04.C48	M02S02.C41	M02S06.C32
	33	F01S03.C22	F01S01.C13	F02S04.C02	F01S05.C27
	34	M01S04.C01	M01S06.C32	M02S02.C17	M01S01.C34
	35	F02S02.C44	F01S02.C41	F02S02.C42	F01S06.C07
	36	M02S02.C19	M01S01.C36	M01S06.C07	M01S02.C14
	37	F01S02.C42	F01S06.C09	F02S03.C46	F02S01.C37
	38	M01S03.C45	M01S02.C16	M01S02.C39	M02S01.C12
	39	F01S06.C10	F02S06.C35	F01S04.C48	F01S04.C23
	40	M01S02.C41	M02S05.C30	M02S04.C01	M01S02.C38
	41	F01S03.C46	F02S03.C47	F01S06.C08	F01S02.C15
	42	M02S05.C31	M02S05.C06	M01S05.C03	M02S06.C08
	43	F02S05.C32	F01S06.C33	F01S02.C40	F02S05.C05
	44	M02S03.C47	M02S02.C18	M02S01.C37	M02S01.C36
	45	F02S03.C48	F02S01.C15	F01S01.C12	F01S03.C43
	46	M02S04.C03	M01S03.C44	M01S03.C43	M02S03.C44
	47	F02S01.C40	F01S02.C17	F01S06.C32	F01S04.C47
	48	M02S01.C15	M01S02.C40	M01S06.C31	M01S05.C26

		Session			
	Order	1	2	3	4
Group 05	1	F01S04.C22	F02S04.C23	F02S03.C18	F02S01.C09
	2	M01S01.C09	M01S01.C08	M02S05.C25	M01S04.C18
	3	F01S02.C14	F01S03.C17	F01S04.C44	F01S04.C43
	4	M02S04.C47	M02S05.C26	M02S02.C13	M01S03.C14
	5	F01S02.C38	F02S02.C39	F02S04.C46	F01S02.C35
	6	M01S06.C29	M02S05.C02	M01S01.C07	M01S02.C34
	7	F01S04.C46	F02S06.C31	F02S02.C38	F01S05.C23
	8	M01S04.C21	M02S02.C14	M02S05.C01	M02S02.C36
	9	F02S03.C20	F02S01.C11	F02S03.C42	F02S02.C13
	10	M02S03.C19	M01S04.C20	M01S03.C15	M01S02.C10
	11	F02S02.C16	F02S03.C19	F02S01.C10	F02S01.C33
	12	M02S05.C03	M02S02.C38	M02S04.C21	M02S02.C12
	13	F02S06.C08	F01S06.C05	F01S01.C32	F02S06.C29
	14	M02S03.C43	M01S03.C40	M01S05.C47	M01S03.C38
	15	F01S03.C18	F01S01.C33	F01S01.C08	F01S05.C47
	16	M01S03.C41	M02S04.C46	M02S04.C45	M01S04.C42
	17	F01S01.C34	F01S06.C29	F02S01.C34	F02S05.C01
	18	M01S03.C17	M02S04.C22	M02S06.C05	M02S01.C32
	19	F01S06.C06	F02S05.C27	F01S06.C28	F01S02.C11
	20	M01S02.C13	M01S06.C28	M01S02.C35	M01S05.C22
	21	F02S06.C32	F01S05.C25	F02S05.C26	F01S03.C39
	22	M01S02.C37	M02S06.C06	M01S05.C23	M02S01.C08
	23	F01S05.C26	F01S04.C21	F01S02.C36	F02S02.C37
	24	M02S06.C31	M02S06.C30	M02S03.C17	M02S05.C24
	25	F01S01.C10	F01S02.C13	F02S02.C14	F02S06.C05
	26	M01S05.C25	M01S05.C24	M01S02.C11	M02S06.C28
	27	F02S04.C24	F01S02.C37	F01S05.C24	F02S04.C45
	28	M02S02.C15	M02S01.C34	M02S02.C37	M02S03.C40
	29	F01S06.C30	F02S06.C07	F01S02.C12	F01S06.C03
	30	M01S04.C45	M01S03.C16	M01S04.C43	M01S01.C06
	31	F02S01.C36	F01S03.C41	F02S04.C22	F01S03.C15
	32	M02S05.C27	M02S03.C42	M01S06.C27	M02S04.C20
	33	F02S03.C44	F01S04.C45	F01S03.C40	F02S03.C17
	34	M02S02.C39	M01S05.C48	M01S01.C31	M02S06.C04
	35	F02S05.C04	F02S05.C03	F01S06.C04	F02S04.C21
	36	M01S05.C01	M01S02.C12	M01S03.C39	M01S01.C30
	37	F02S05.C28	F01S05.C01	F02S05.C02	F02S03.C41
	38	M02S01.C35	M01S06.C04	M02S06.C29	M01S05.C46
	39	F02S01.C12	F02S01.C35	F01S04.C20	F01S04.C19
	40	M01S01.C33	M02S03.C18	M02S03.C41	M02S03.C16
	41	F02S04.C48	F01S01.C09	F01S05.C48	F01S06.C27
	42	M02S01.C11	M01S02.C36	M01S04.C19	M02S05.C48
	43	F01S05.C02	F02S03.C43	F01S03.C16	F01S01.C31
	44	M02S04.C23	M01S04.C44	M02S01.C09	M01S06.C02
	45	F01S03.C42	F02S04.C47	F02S06.C30	F01S01.C07
	46	M01S06.C05	M01S01.C32	M01S06.C03	M02S04.C44
	47	F02S02.C40	F02S02.C15	F02S06.C06	F02S05.C25
	48	M02S06.C07	M02S01.C10	M02S01.C33	M01S06.C26

		Session			
	Order	1	2	3	4
Group 06	1	F02S04.C44	F01S06.C01	F02S05.C46	F02S03.C13
	2	M01S04.C41	M01S01.C04	M02S02.C33	M02S05.C20
	3	F02S01.C32	F01S04.C17	F02S06.C02	F02S04.C41
	4	M02S04.C19	M01S06.C24	M01S04.C15	M02S03.C12
	5	F01S05.C22	F01S01.C05	F02S02.C34	F01S05.C19
	6	M01S02.C09	M02S06.C26	M02S03.C13	M02S04.C16
	7	F02S06.C28	F02S02.C11	F02S04.C18	F02S05.C21
	8	M01S02.C33	M01S01.C28	M02S04.C41	M01S05.C42
	9	F02S05.C24	F02S03.C39	F01S03.C12	F01S01.C03
	10	M02S06.C27	M01S02.C08	M02S01.C29	M02S01.C28
	11	F02S02.C36	F01S01.C29	F02S02.C10	F01S03.C35
	12	M02S04.C43	M02S03.C38	M02S04.C17	M01S02.C06
	13	F01S02.C34	F02S03.C15	F01S01.C04	F02S03.C37
	14	M01S03.C37	M02S01.C30	M01S06.C23	M01S01.C02
	15	F01S02.C10	F02S01.C07	F02S05.C22	F02S01.C29
	16	M02S05.C47	M02S05.C46	M02S05.C45	M02S01.C04
	17	F02S03.C40	F01S02.C09	F01S05.C20	F01S03.C11
	18	M02S05.C23	M01S03.C12	M01S06.C47	M01S04.C14
	19	F01S06.C26	F01S04.C41	F01S04.C40	F02S06.C01
	20	M02S02.C35	M01S03.C36	M02S06.C01	M01S03.C10
	21	F01S01.C30	F01S05.C21	F02S06.C26	F02S04.C17
	22	M01S01.C29	M02S04.C42	M01S02.C07	M01S06.C22
	23	F01S05.C46	F01S03.C37	F02S01.C30	F02S01.C05
	24	M02S01.C31	M01S06.C48	M02S05.C21	M01S06.C46
	25	F01S03.C14	F02S04.C43	F01S04.C16	F02S02.C09
	26	M01S03.C13	M01S02.C32	M01S05.C43	M02S06.C24
	27	F02S05.C48	F02S02.C35	F02S03.C14	F02S05.C45
	28	M01S05.C45	M01S05.C20	M02S03.C37	M01S02.C30
	29	F01S04.C42	F02S05.C47	F02S04.C42	F01S02.C31
	30	M01S06.C01	M02S02.C34	M01S02.C31	M02S02.C32
	31	F01S03.C38	F01S02.C33	F01S05.C44	F01S06.C23
	32	M02S01.C07	M01S04.C40	M01S01.C03	M02S06.C48
	33	F02S01.C08	F01S05.C45	F02S03.C38	F01S04.C15
	34	M02S02.C11	M01S05.C44	M01S03.C11	M01S05.C18
	35	F01S06.C02	F01S03.C13	F02S01.C06	F01S05.C43
	36	M01S01.C05	M02S05.C22	M01S04.C39	M02S05.C44
	37	F01S04.C18	F02S05.C23	F01S06.C24	F02S06.C25
	38	M02S03.C39	M02S02.C10	M02S02.C09	M01S04.C38
	39	F02S04.C20	F02S04.C19	F01S06.C48	F02S02.C33
	40	M02S06.C03	M01S04.C16	M02S06.C25	M02S02.C08
	41	F02S06.C04	F02S06.C03	F01S02.C08	F01S02.C07
	42	M01S04.C17	M02S03.C14	M01S03.C35	M01S01.C26
	43	F02S03.C16	F02S06.C27	F01S02.C32	F01S04.C39
	44	M01S05.C21	M02S06.C02	M01S01.C27	M02S03.C36
	45	F02S02.C12	F01S06.C25	F01S03.C36	F01S06.C47
	46	M01S06.C25	M02S04.C18	M02S01.C05	M02S04.C40
	47	F01S01.C06	F02S01.C31	F01S01.C28	F01S01.C27
	48	M02S03.C15	M02S01.C06	M01S05.C19	M01S03.C34

C.5B Experiment 5B

See Section C.1B.

C.6A Experiment 6(A)

In the following tables, “C” in the file name extension represents the processed condition (the B stimulus), and “R” represents the reference condition. For example, F02S02.R32 represents a reference file for condition 32 and F02S02.C32 represents a processed file for condition 32. The presentation order for a given group of listeners follows is organized in 6 sessions of 40 stimuli. As an example for Group 1, after practice, we start with A/B presentation order. The first speech file presented is F01S02.R06 (the reference for C06), then F01S02.C06, then a vote is collected. The next stimulus is M02S03.R35 followed by M02S03.C35, then a new vote is collected. After the stimulus in row 40 is presented (M01S02.R17/M01S02.C17) and voted upon, we go back to row 1, now in B/A direction: first file M02S01.C15 is presented, then M02S01.R15 (the reference for C15), then a vote is collected, and so on.

Group 01

	Session					
Order	1		2		3	
	(A/B)	(B/A)	(A/B)	(B/A)	(A/B)	(B/A)
01	F01S02.C06	M02S01.R15	M02S03.C34	F01S02.R29	F02S01.C02	M02S03.R21
02	M02S03.C35	F02S02.R32	F01S03.C09	M01S01.R36	M02S02.C29	F02S01.R14
03	F02S02.C08	M01S01.R01	M02S03.C22	F02S02.R19	F02S02.C06	M01S02.R39
04	M01S01.C37	F02S01.R28	F01S01.C13	M02S01.R38	M01S02.C03	F02S03.R22
05	F01S01.C38	M02S03.R35	M01S01.C24	F02S03.R23	F01S03.C08	M01S03.R07
06	M02S02.C19	F01S02.R30	F02S02.C07	M01S01.R12	M01S01.C11	F01S01.R24
07	F02S01.C04	M02S01.R39	M01S02.C16	F02S02.R07	F01S01.C12	M02S01.R13
08	M01S02.C29	F02S01.R40	F02S01.C39	M01S02.R28	M01S02.C27	F01S03.R32
09	F01S03.C10	M01S02.R29	M02S02.C30	F01S03.R33	F02S03.C34	M01S01.R35
10	M02S01.C27	F01S03.R10	F02S01.C15	M02S02.R30	M01S02.C15	F02S01.R26
11	F02S02.C32	M02S03.R11	M02S01.C14	F02S01.R27	F02S02.C18	M01S03.R19
12	M01S03.C21	F01S02.R06	F01S03.C33	M02S02.R06	M02S02.C17	F01S02.R40
13	F02S01.C16	M02S02.R19	M01S03.C32	F01S02.R17	F01S02.C28	M02S03.R09
14	M02S02.C31	F02S01.R04	F01S01.C25	M01S02.R40	M01S01.C23	F02S02.R06
15	F02S03.C24	M02S02.R07	M01S02.C28	F02S01.R15	F01S01.C24	M01S02.R27
16	M02S01.C03	F02S03.R12	F01S02.C29	M01S03.R20	M02S02.C05	F02S01.R02
17	F02S02.C20	M01S03.R21	M01S02.C40	F02S03.R11	F01S02.C04	M01S03.R31
18	M01S03.C09	F02S02.R20	F02S03.C11	M02S01.R14	M02S01.C25	F01S01.R36
19	F01S01.C02	M02S02.R31	M02S01.C38	F02S02.R31	F02S03.C10	M02S01.R25
20	M01S01.C01	F01S01.R38	F02S02.C31	M02S03.R34	M01S03.C07	F01S02.R28
21	F01S02.C18	M02S01.R03	M01S03.C08	F01S01.R37	F01S02.C16	M02S03.R33
22	M02S01.C15	F02S03.R24	F02S01.C03	M01S02.R16	M02S03.C33	F01S01.R12
23	F01S01.C14	M01S01.R13	M01S01.C36	F02S01.R39	F02S01.C38	M01S02.R03
24	M02S02.C07	F02S02.R08	F02S03.C35	M02S02.R18	M01S03.C31	F02S02.R18
25	F02S03.C12	M01S03.R33	M02S02.C06	F01S03.R21	F01S03.C32	M02S02.R05
26	M02S01.C39	F02S03.R36	F01S02.C17	M01S03.R32	M02S01.C01	F01S02.R16
27	F02S01.C40	M01S03.R09	M02S02.C18	F01S01.R13	F02S02.C30	M01S02.R15
28	M02S03.C23	F02S01.R16	F02S01.C27	M01S01.R24	M02S01.C13	F02S02.R30
29	F01S03.C22	M02S03.R23	M02S03.C10	F01S01.R25	F02S01.C26	M02S02.R17
30	M01S01.C13	F01S03.R34	F01S01.C37	M01S02.R04	M02S03.C09	F02S03.R10
31	F01S02.C30	M01S01.R25	M01S03.C20	F02S03.R35	F01S02.C40	M02S01.R01
32	M01S02.C05	F01S02.R18	F02S03.C23	M01S03.R08	M02S03.C21	F01S02.R04
33	F01S03.C34	M01S01.R37	M01S01.C12	F02S01.R03	F01S03.C20	M01S01.R23
34	M02S03.C11	F01S01.R14	F01S02.C05	M02S03.R10	M01S01.C35	F02S01.R38
35	F02S01.C28	M01S02.R17	M02S01.C02	F01S02.R05	F01S01.C36	M02S01.R37
36	M01S01.C25	F01S03.R22	F01S01.C01	M02S01.R26	M01S02.C39	F01S03.R20
37	F02S03.C36	M01S02.R05	M01S02.C04	F01S03.R09	F02S01.C14	M01S01.R11
38	M01S03.C33	F01S01.R26	F02S02.C19	M02S01.R02	M01S03.C19	F02S03.R34
39	F01S01.C26	M02S01.R27	M02S01.C26	F01S01.R01	F02S03.C22	M02S02.R29
40	M01S02.C17	F01S01.R02	F01S03.C21	M02S03.R22	M02S01.C37	F01S03.R08

Group 02

	Session					
Order	1		2		3	
	(A/B)	(B/A)	(A/B)	(B/A)	(A/B)	(B/A)
01	M02S03.C32	F02S03.R09	F01S03.C06	M02S02.R27	M02S03.C06	F02S02.R15
02	F02S01.C25	M02S02.R28	M02S02.C03	F01S01.R10	F01S01.C09	M01S03.R16
03	M02S01.C36	F01S03.R19	F02S02.C04	M01S03.R05	M01S01.C08	F01S02.R13
04	F02S01.C13	M01S02.R14	M02S03.C19	F02S02.R16	F02S01.C35	M02S01.R34
05	M02S03.C20	F01S02.R15	F01S02.C14	M02S01.R35	M01S03.C40	F02S02.R39
06	F02S03.C21	M01S03.R30	M01S01.C21	F01S01.R34	F01S03.C29	M01S03.R40
07	M02S02.C04	F02S02.R17	F01S02.C02	M01S01.R09	M02S03.C30	F01S02.R01
08	F01S01.C35	M02S01.R12	M01S03.C29	F02S03.R08	F02S02.C27	M01S02.R36
09	M01S02.C38	F02S01.R25	F02S02.C16	M02S02.R15	M01S01.C20	F02S01.R11
10	F01S03.C07	M01S01.R22	M02S02.C27	F02S01.R12	F02S02.C39	M02S01.R22
11	M01S01.C10	F02S02.R05	F02S01.C24	M02S01.R23	M02S02.C26	F01S03.R05
12	F01S03.C31	M02S03.R20	M01S02.C13	F02S03.R20	F02S03.C19	M02S02.R02
13	M01S02.C26	F02S01.R37	F02S03.C08	M01S03.R29	M01S03.C28	F02S03.R07
14	F02S01.C37	M01S03.R06	M01S02.C25	F01S03.R18	F01S01.C21	M02S03.R18
15	M01S01.C34	F02S03.R21	F02S01.C36	M01S02.R01	M01S02.C36	F02S02.R03
16	F02S01.C01	M01S03.R18	M01S02.C37	F01S03.R30	F02S01.C23	M01S02.R24
17	M01S01.C22	F02S02.R29	F01S01.C10	M01S02.R13	M02S02.C02	F01S02.R25
18	F02S02.C29	M01S02.R26	M01S02.C01	F01S02.R38	F01S02.C37	M01S01.R20
19	M01S03.C18	F02S01.R13	F01S01.C22	M02S02.R03	M01S02.C24	F01S03.R17
20	F02S03.C33	M02S02.R40	M01S01.C09	F01S02.R26	F01S03.C05	M02S02.R14
21	M02S01.C24	F01S02.R03	F01S01.C34	M02S01.R11	M01S03.C04	F01S01.R33
22	F02S02.C05	M02S02.R16	M02S01.C23	F02S01.R24	F01S02.C13	M01S02.R12
23	M02S03.C08	F02S03.R33	F02S02.C28	M02S03.R07	M02S03.C18	F01S03.R29
24	F01S02.C27	M01S01.R34	M02S01.C11	F01S01.R22	F01S03.C17	M02S01.R10
25	M01S02.C02	F02S01.R01	F02S02.C40	M02S02.R39	M01S02.C12	F01S02.R37
26	F02S03.C09	M02S01.R24	M02S01.C35	F02S02.R04	F02S01.C11	M01S01.R08
27	M02S02.C16	F01S01.R11	F02S01.C12	M01S01.R33	M02S01.C34	F01S01.R09
28	F02S02.C17	M02S02.R04	M01S01.C33	F02S02.R28	F02S03.C31	M02S03.R30
29	M02S02.C28	F01S01.R23	F01S02.C38	M01S02.R37	M02S02.C14	F02S03.R31
30	F01S02.C03	M01S02.R38	M02S02.C15	F01S02.R02	F02S02.C03	M01S03.R04
31	M01S03.C06	F01S03.R31	F01S02.C26	M01S01.R21	M01S01.C32	F02S02.R27
32	F01S02.C39	M02S03.R08	M02S03.C07	F02S02.R40	F02S02.C15	M02S02.R38
33	M02S02.C40	F01S01.R35	F02S03.C32	M02S03.R31	M02S01.C10	F02S01.R35
34	F01S01.C11	M02S01.R36	M02S02.C39	F02S01.R36	F01S01.C33	M01S03.R28
35	M02S01.C12	F01S02.R27	F01S03.C30	M01S02.R25	M02S02.C38	F01S01.R21
36	F01S02.C15	M02S03.R32	M02S03.C31	F01S03.R06	F02S03.C07	M02S03.R06
37	M01S03.C30	F01S02.R39	F02S03.C20	M02S03.R19	M01S03.C16	F02S01.R23
38	F01S03.C19	M01S02.R02	M01S03.C17	F02S03.R32	F01S02.C01	M01S01.R32
39	M01S02.C14	F01S03.R07	F01S03.C18	M01S03.R17	M02S01.C22	F02S03.R19
40	F01S01.C23	M01S01.R10	M01S03.C05	F01S02.R14	F01S02.C25	M02S02.R26

Group 03

	Session					
Order	1		2		3	
	(A/B)	(B/A)	(A/B)	(B/A)	(A/B)	(B/A)
01	F02S03.C06	M01S01.R07	M01S01.C06	F02S02.R13	F01S02.C10	M02S03.R27
02	M02S03.C29	F01S01.R32	F01S02.C11	M02S03.R40	M01S01.C05	F02S02.R24
03	F01S01.C20	M02S01.R21	M02S03.C16	F02S03.R05	F02S01.C20	M02S02.R23
04	M02S03.C17	F01S03.R04	F02S03.C17	M01S01.R06	M02S02.C23	F01S01.R06
05	F02S03.C30	M02S03.R29	M02S01.C08	F01S03.R27	F01S03.C14	M02S03.R03
06	M01S01.C07	F02S01.R22	F01S03.C15	M01S03.R02	M02S03.C03	F01S03.R38
07	F02S02.C02	M02S02.R13	M01S03.C38	F02S01.R33	F01S03.C26	M01S03.R25
08	M01S01.C19	F02S03.R30	F02S01.C09	M02S02.R36	M01S02.C21	F02S02.R12
09	F02S01.C34	M02S02.R01	M02S01.C20	F02S02.R01	F02S01.C32	M02S02.R11
10	M01S03.C15	F02S02.R02	F02S01.C21	M02S02.R24	M01S01.C17	F02S03.R28
11	F01S02.C24	M01S03.R15	M01S02.C10	F01S03.R15	F02S03.C28	M02S03.R39
12	M01S02.C35	F02S02.R14	F02S03.C05	M01S02.R10	M01S03.C13	F02S03.R40
13	F01S01.C08	M01S02.R35	M02S01.C32	F01S01.R31	F01S03.C38	M01S01.R17
14	M01S02.C23	F02S02.R26	F01S03.C03	M01S03.R14	M01S01.C29	F01S03.R02
15	F01S02.C36	M02S01.R09	M01S02.C34	F02S02.R25	F02S03.C16	M01S02.R33
16	M01S03.C39	F01S02.R24	F01S01.C07	M01S01.R30	M01S02.C09	F02S01.R32
17	F02S01.C22	M02S03.R05	M02S02.C12	F02S01.R21	F02S02.C36	M02S01.R07
18	M01S02.C11	F02S01.R34	F01S01.C19	M02S03.R04	M02S03.C27	F02S03.R16
19	F01S03.C28	M01S02.R23	M01S03.C26	F01S02.R11	F01S02.C22	M02S01.R31
20	M02S01.C09	F02S01.R10	F01S02.C35	M01S03.R38	M02S03.C15	F01S01.R18
21	F02S02.C38	M02S01.R33	M01S01.C18	F01S01.R07	F01S01.C30	M01S02.R09
22	M02S02.C25	F01S03.R28	F02S02.C13	M02S03.R16	M02S02.C11	F02S02.R36
23	F01S02.C12	M02S03.R17	M02S03.C40	F02S03.R29	F02S01.C08	M01S02.R21
24	M02S01.C21	F01S01.R08	F02S02.C37	M01S03.R26	M01S03.C37	F01S02.R10
25	F01S03.C16	M01S02.R11	M02S02.C24	F01S02.R23	F01S02.C34	M02S03.R15
26	M02S03.C05	F01S01.R20	F02S03.C29	M02S01.R08	M02S03.C39	F01S02.R34
27	F02S02.C26	M01S01.R19	M01S03.C14	F01S03.R39	F02S03.C04	M01S03.R13
28	M01S01.C31	F01S02.R12	F01S02.C23	M02S01.R20	M01S03.C01	F01S03.R14
29	F01S03.C04	M01S01.R31	M01S01.C30	F01S02.R35	F02S02.C24	M01S03.R37
30	M02S01.C33	F02S03.R06	F01S03.C39	M02S01.R32	M02S01.C31	F01S01.R30
31	F01S03.C40	M01S03.R39	M02S02.C36	F02S02.R37	F02S02.C12	M01S01.R05
32	M01S03.C03	F01S02.R36	F01S01.C31	M01S01.R18	M01S03.C25	F02S01.R20
33	F02S02.C14	M01S03.R27	M01S02.C22	F02S03.R17	F01S01.C18	M02S02.R35
34	M02S02.C37	F01S03.R16	F01S03.C27	M02S03.R28	M02S02.C35	F02S03.R04
35	F02S03.C18	M02S02.R25	M01S03.C02	F01S01.R19	F01S01.C06	M02S01.R19
36	M02S02.C13	F02S02.R38	F02S01.C33	M01S02.R34	M02S01.C19	F01S03.R26
37	F01S01.C32	M02S02.R37	M02S03.C04	F01S03.R03	F02S03.C40	M01S03.R01
38	M01S03.C27	F01S03.R40	F02S02.C25	M01S02.R22	M02S01.C07	F01S02.R22
39	F02S01.C10	M01S03.R03	M02S03.C28	F02S01.R09	F01S03.C02	M01S01.R29
40	M02S02.C01	F02S03.R18	F02S02.C01	M02S02.R12	M01S02.C33	F02S01.R08

Group 04

	Session					
Order	1		2		3	
	(A/B)	(B/A)	(A/B)	(B/A)	(A/B)	(B/A)
01	M01S03.C12	F02S01.R19	F02S01.C18	M01S02.R07	M01S01.C38	F02S01.R29
02	F02S01.C07	M01S03.R36	M01S03.C23	F02S02.R34	F02S03.C37	M02S03.R36
03	M02S01.C30	F02S01.R07	F01S01.C04	M02S03.R13	M02S03.C24	F02S02.R21
04	F02S01.C19	M02S02.R34	M02S01.C29	F01S03.R12	F01S02.C07	M02S02.R08
05	M02S02.C34	F01S01.R29	F02S02.C22	M02S02.R21	M01S01.C26	F01S02.R31
06	F02S03.C15	M01S03.R12	M01S03.C11	F01S01.R16	F01S01.C15	M01S02.R06
07	M02S03.C14	F01S02.R21	F01S02.C20	M01S01.R15	M01S01.C14	F01S01.R27
08	F01S03.C25	M02S03.R14	M01S02.C07	F02S01.R30	F01S02.C19	M02S03.R12
09	M01S01.C40	F02S01.R31	F02S03.C38	M02S02.R09	M02S02.C08	F01S01.R39
10	F02S02.C35	M01S01.R40	M01S01.C15	F02S03.R14	F01S03.C11	M02S02.R20
11	M01S03.C24	F01S03.R01	F02S01.C30	M02S01.R29	M02S03.C12	F02S03.R13
12	F01S03.C37	M02S01.R06	M01S01.C39	F01S02.R20	F01S01.C39	M01S02.R18
13	M02S03.C02	F02S02.R11	F02S03.C02	M01S01.R03	M02S01.C16	F01S03.R23
14	F01S02.C09	M02S02.R10	M01S02.C19	F01S02.R08	F01S02.C31	M02S01.R16
15	M01S02.C08	F01S01.R17	F01S03.C24	M01S02.R19	M01S02.C30	F02S03.R25
16	F02S01.C31	M01S02.R32	M02S03.C37	F01S02.R32	F02S01.C05	M01S01.R14
17	M02S02.C10	F01S03.R37	F02S02.C34	M02S02.R33	M01S03.C22	F02S02.R09
18	F02S03.C27	M01S01.R04	M02S01.C17	F01S03.R24	F02S03.C25	M01S01.R26
19	M01S01.C28	F01S03.R13	F01S03.C12	M01S03.R35	M01S03.C10	F02S03.R01
20	F02S03.C39	M02S03.R26	M02S03.C25	F01S01.R28	F01S03.C35	M01S01.R02
21	M01S02.C20	F02S02.R35	F01S02.C08	M02S03.R37	M01S01.C02	F01S02.R19
22	F01S01.C29	M02S03.R38	M01S02.C31	F02S03.R38	F02S02.C33	M01S01.R38
23	M02S03.C26	F01S03.R25	F01S01.C16	M02S03.R25	M02S01.C28	F01S01.R03
24	F01S03.C01	M01S02.R20	M02S02.C21	F02S02.R22	F01S01.C03	M01S03.R22
25	M01S01.C16	F02S03.R15	F02S01.C06	M02S01.R17	M02S01.C04	F02S01.R05
26	F02S02.C11	M01S03.R24	M01S01.C27	F01S01.R04	F01S03.C23	M02S01.R40
27	M01S01.C04	F02S03.R27	F02S03.C26	M01S02.R31	M02S02.C32	F02S03.R37
28	F01S02.C21	M02S01.R18	M02S01.C05	F02S03.R26	F02S02.C09	M02S03.R24
29	M01S02.C32	F01S01.R05	F02S03.C14	M01S03.R23	M01S02.C06	F02S02.R33
30	F02S03.C03	M01S01.R16	M02S03.C13	F02S03.R02	F02S03.C01	M02S01.R28
31	M02S02.C22	F01S02.R33	F01S02.C32	M02S03.R01	M02S03.C36	F01S03.R11
32	F01S01.C05	M01S02.R08	M01S03.C35	F02S02.R10	F02S01.C29	M01S02.R30
33	M01S03.C36	F01S02.R09	F01S03.C36	M02S01.R05	M01S03.C34	F01S01.R15
34	F02S02.C23	M01S01.R28	M02S02.C09	F02S01.R06	F01S01.C27	M02S01.R04
35	M02S03.C38	F02S03.R39	F02S02.C10	M01S01.R27	M02S01.C40	F01S03.R35
36	F01S02.C33	M02S03.R02	M02S03.C01	F02S01.R18	F02S02.C21	M01S03.R34
37	M02S01.C18	F02S02.R23	F01S01.C40	M01S01.R39	M01S02.C18	F01S02.R07
38	F01S01.C17	M02S01.R30	M02S02.C33	F01S03.R36	F02S03.C13	M01S03.R10
39	M02S01.C06	F02S03.R03	F01S01.C28	M01S03.R11	M02S02.C20	F02S01.R17
40	F01S03.C13	M02S02.R22	M01S01.C03	F01S01.R40	F02S01.C17	M02S02.R32