

## Appendix 1

### CVR Transcript

#### FOREWORD

The following is the transcript of the elements which were understood from the work on the CVR recording. This transcript contains conversations between crew members, radiotelephonic messages and various noises corresponding, for example, to the movement of selectors or to alarms.

The reader's attention is drawn to the fact that the recording and transcript of a CVR are only a partial reflection of events and of the atmosphere in a cockpit. Consequently, the utmost care is required in the interpretation of this document.

The voices of crew members are mainly heard via the cockpit area microphone. They are placed in separate columns for reasons of clarity. The fifth column is reserved for communications with ATC, the voices of others, warnings, remarks and various noises also heard. The communications received on radio frequencies that were active but not followed by the crew are not transcribed. A note is placed in the corresponding column when a voice or noise is heard on only one track. The punctuation is only provided where there is no ambiguity in the interpretation of the words spoken.

#### GLOSSARY

UTC	UTC time obtained from FDR recording
Cricket	Aural sub-sequence of the stall warning made up of several multi-frequency impulses and lasting 700 ms. The end of a cricket sequence is indicated in the transcript when this sub-sequence is incomplete (e.g. end of warning)
[xxx]	xxx indicates the identity of the speaker when identified
CC	Cabin Crew
SV	Synthetic voice
→	Communications with ATC and the CC by interphone
?	Speaker not identified
()	Words or group of words whose meaning has not been identified with certainty. The " / " symbol gives various proposals.
(...)	Word or group of words with no bearing on the flight
(!)	Curse
(*)	Words or groups of words not understood

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
0 h 09 min 14	Start of the recording			
0 h 09 min 15				noise of paper shuffling
0 h 20 min 26				noise in cockpit
0 h 20 min 57				noise of seat being adjusted
0 h 22 min 48				noise of seat being adjusted
0 h 23 min 01				noise of seat being adjusted
0 h 24 min 01 to 0 h 24 min 16		(...)	(...)	
0 h 26 min 19				noise in cockpit
0 h 26 min 20 to 0 h 26 min 38		(...)	(...)	(...)
0 h 27 min 21 to 0 h 28 min 35		(...)	(...)	
0 h 28 min 36				high chime
0 h 28 min 37 to 0 h 30 min 30		(...)	(...)	
0 h 29 min 57				noise of seat being adjusted
0 h 30 min 57			(...)	
0 h 31 min 00		It's the Equator You understood I suppose	ok	
0 h 31 min 04			I thought so	
0 h 31 min 15		I like feeling where we're going	yeah	
0 h 32 min 05		What did he say?		
0 h 32 min 09			well	

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
0 h 32 min 24				[VHF] : Air France four five nine three five zero squawk ident under radar control
0 h 32 min 29		→ Squawk ident Air France four four seven	It's not ours	
0 h 32 min 33		yes	That was for us?	
0 h 32 min 35				[VHF] : Air France four four seven go-ahead
0 h 32 min 38			You see it was Air France three five nine	
0 h 32 min 41		→ er, Air France four four seven squawk ident		
0 h 32 min 46		We'll get there, we'll get there	ah forty five nine, four four seven, four five nine	[VHF] : ok Air France four four seven, copied squawk ident for Air France four five nine, maintain three five zero, under control Air France four five nine
0 h 32 min 57				[AF459] : control good evening, Air France four five nine, squawking ident
0 h 33 min 02				[VHF] : roger Air France four five nine, radar control
0 h 34 min 05				high chime
0 h 35 min 54				[VHF] : Air France four four seven Recife
0 h 35 min 58		→ go-ahead		
0 h 35 min 59				[VHF] : Air France four four seven call this frequency one two eight decimal seven and secondary one two, correction secondary one three four decimal eight

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
0 h 36 min 12		→ one two eight seven three four eight bye bye		
0 h 36 min 26		Who's that?		Start of perception of typical audio popping (an electrical phenomenon caused by static electric discharge). These audio events are noticed throughout the recording. They are not reported comprehensively.
0 h 36 min 28			Hum I wonder if it's him again	
0 h 36 min 32		→ Recife		
0 h 36 min 33		→ Recife Air France four four seven good evening level three five zero		
0 h 36 min 39				[VHF] : Air France four four seven good evening radar control maintain flight level three five zero over INTOL intersection contact (*) on HF on six five three five and secondary five five six five (*) good night
0 h 36 min 58		→ six five three five and secondary five five six five for HF frequency Air France four four seven		
0 h 37 min 10		Where there, at which point?		
0 h 37 min 14		overhead which point did he say ?	Oh that, don't know, I, I didn't understand, that	
0 h 37 min 22		(*)		
0 h 37 min 59				noise in cockpit
0 h 40 min 22		standard plus eleven, eh that's what they said		
0 h 40 min 29			What are you saying?	

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
0 h 40 min 30		standard plus eleven eh, that's what they'd planned	(yeah)	
0 h 40 min 35		Look, did you see that's gone up to seven two the petrol		
0 h 40 min 39		(*)	(*)	
0 h 40 min 42		Look at it... mach point eight (two) Look in the...	We'll be able to accelerate	
0 h 40 min 54		six six well well that's not bad six six	yeah I'd said six five	
0 h 40 min 58				noise in cockpit
0 h 41 min 00				noise in cockpit
0 h 41 min 01		I like that better below six I'm not too fond	No it's clear	
0 h 41 min 20		are you adding thrust you've got a flap blocking er (you've) half an hour to process eh	ah now it's getting complicated	
0 h 41 min 27		If it's really a big failure well if you've got flap two full flap two and you can't get out higher further it's not too serious really		
0 h 41 min 35				noise in cockpit
0 h 41 min 36		That may let you touch down without calculating too much With four thousand metres of runway	(*) And with less (*)	
0 h 41 min 45		And with less you'd better do it pronto eh to keep the ...		
0 h 41 min 50				Noise similar to tearing off an ACARS sheet
0 h 42 min 56				noises in cockpit
0 h 43 min 10				noise in cockpit

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
0 h 44 min 10				noise in cockpit
0 h 44 min 26		There's a bit of rumba in the air	Oh well	
0 h 44 min 36		Just to say that we're passing RUMBA		
0 h 44 min 45		We can see Natal ahead		
0 h 44 min 49		We weren't hassled by cumulonimbus eh		
0 h 46 min 07 to 0 h 50 min 06		(...)	(...)	(...)
0 h 50 min 33				high chime
0 h 50 min 36				high chime
0 h 51 min 12				Noises in cockpit
0 h 52 min 28 to 0 h 53 min 10		(...)	(...)	
0 h 53 min 29				noise in cockpit
0 h 54 min 20				noise in cockpit
0 h 54 min 21		I've er sent so they can change the alternate point	well right we can ask for the meteo for the dispatch now	
0 h 54 min 29		no no yeah yeah I asked them good I'll ask them to change the alternate	You asked them for the meteos? No?  ah right (number)	
0 h 54 min 37			You doing the message or you want me to do? You want me to do the first part or ...	
0 h 54 min 42		I'll put Sal closed at (four) thirty		high chime
0 h 54 min 53		SID what's that, is it Natal? tell me, is that it ?		
0 h 55 min 03			SID it's, it's... it's Sal	

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
0 h 55 min 18		(*)		
0 h 55 min 59			Yes that's it, SID is Sal	
0 h 56 min 43			You ask them for a alternate change outright	
0 h 56 min 50		oh... (*)... that's not going to change much for us eh		
0 h 57 min 03		or, or Notam		
0 h 57 min 41		Go on then I'm sending that, we'll see what they answer		
0 h 57 min 45			Oh (...), oh well yes that's allowed they're right, ah then well	
0 h 58 min 07		try maybe to sleep twenty minutes when he comes back or before if you want  yeah	yeah ok that's kind, for the moment I don't feel like it but if I do feel like it yeah	
0 h 58 min 17		It'll be a lot for you		
0 h 58 min 37		Where do you think we contact them in HF at INTOL that should happen, shouldn't it?		
0 h 58 min 42		That's not bad eh INTOL, FEMUR eh we'll contact them at FEMUR in HF		
0 h 58 min 53			FEMUR it's... the FIR?	
0 h 58 min 56		eh?	eh no the FIR is INTOL	
1 h 01 min 23				noise of seat being adjusted
1 h 01 min 33				noise in cockpit
1 h 02 min 50				high chime
1 h 02 min 54				Change in background noise
1 h 03 min 43				noise in cockpit

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
1 h 03 min 45 to 1 h 04 min 55		(...)	(...)	(...)
1 h 04 min 57		So what do they say?		Noise of paper being torn
1 h 05 min 05			The answer of a guy who doesn't want to be hassled	
1 h 05 min 09		runway (*) open only for emergency (*) if we only had one engine we'd be in an emergency, yeah right		
1 h 05 min 18 to 1 h 09 min 40		(...)	(...)	(...)
1 h 09 min 54			So we have to send him the ...	
1 h 09 min 56		yes yes we'll send him		
1 h 09 min 59		ok in fact it's for er... yes... we'll send him the...  I'm going to call them on HF	It's not that one incidentally, it's	
1 h 10 min 09			you... you took them, the Natal and SID weather?	
1 h 10 min 13		yes	Well because it's, it's not those there now	
1 h 10 min 15		I took...		
1 h 10 min 17			(*)	
1 h 10 min 35		(*)		
1 h 10 min 36			so er his answer are we going to settle with that?	
1 h 10 min 39		eh?		
1 h 10 min 41			We're going to settle for his answer?	
1 h 10 min 42		yes yes		
1 h 10 min 45		It doesn't worry me too much eh		



UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
1 h 10 min 47			yes right me neither so you ask him for a alternate change	
1 h 10 min 48 à 1 h 10 min 50		(...)		(...)
1 h 10 min 55			What's a bit of a shame is that you didn't ask his opinion you asked him to find another alternate	
1 h 11 min 01			And he answers well no it'll be like that even so	
1 h 11 min 05		It doesn't matter	Ah well... come on	
1 h 11 min 07		It doesn't bother me		
1 h 11 min 08			ok well we send him the things	
1 h 11 min 12		It's where the answer of...		
1 h 11 min 19		Oh you've entered it		
1 h 11 min 26			You could show it to (...) you could tell him that ...	
1 h 11 min 45 to 1 h 13 min 20		(...)	(...)	(...)
1 h 13 min 25		What could we request as an airport? Dakar?		
1 h 13 min 28			yes and the airports that are after that you're right yes Dakar	
1 h 13 min 32		What else is there	And just after there's Nouakchott or Nouadhibou	
1 h 13 min 35		What's the ...		
1 h 13 min 36			Nouakchott that's G Q N N	
1 h 13 min 41		G Q... N N?		
1 h 13 min 43			yeah	
1 h 14 min 07		I'm going to try the HF		

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
1 h 14 min 08			already SID we can go there... it's not like SAL we can go there no problem	
1 h 14 min 23		→ Air France four four seven		
1 h 14 min 28				[HF] : call
1 h 14 min 30		→ Air France four four seven we check FEMUR at zero one one three level three five zero we contact Atlantico with H F		
1 h 14 min 42				noise of seat being adjusted
1 h 14 min 44			(*) over INTOL	[VHF] : negative after over INTOL change frequency for Atlantico six six four nine
1 h 14 min 52		→ ok over INTOL Air France four four seven er... we keep the frequency with you		
1 h 15 min 43		One fifteen		
1 h 15 min 55 to 1 h 16 min 45		(...)	(...)	(...)
1 h 17 min 33			(*)	
1 h 17 min 46		yeah	Already the contact with dispatch we know we've had it	
1 h 17 min 53		We'll have to know how to swim now		
			There you are	
1 h 18 min 07			We don't even change in true north now	
1 h 18 min 09		eh?		
1 h 18 min 10			we're changing to true north?	
1 h 18 min 11		no		
1 h 18 min 21		That wouldn't change eh that wouldn't (*)		

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
1 h 18 min 24		That wouldn't change anything eh that doesn't hurt at all		
1 h 18 min 28			really doesn't even hurt?	
1 h 18 min 29		look		
1 h 18 min 31		ah there's still the variation eh		
1 h 18 min 34		Look at that we have twenty eight		
1 h 18 min 38		ah well look		
1 h 18 min 39			(*)	
1 h 18 min 43			Look you give me your example I'll note down the weather there	
1 h 18 min 46		ah yes alright		
1 h 18 min 48		ah well go on wait	Did we do this on the flight out, this?	
1 h 18 min 50		eh?		
1 h 18 min 51			We did this on the flight out, this?	
1 h 18 min 53		well I hope you did it		
1 h 18 min 54			It means nothing to me I didn't do it in any case	
1 h 18 min 56		Me neither		
1 h 18 min 57			no but give it I'll update the ranges again all this muck up that's all I do... thanks	
1 h 19 min 26		Well that one I'll keep it as sun visor later		
1 h 19 min 37		as er... thermal protection		Noise of paper being handled
1 h 20 min 22				noise in cockpit
1 h 20 min 25				noise in cockpit
1 h 20 min 52				noise in cockpit
1 h 20 min 54				noise in cockpit
1 h 21 min 50				noise in cockpit
1 h 23 min 34			look	

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
1 h 23 min 35		thanks		
1 h 23 min 43				Noise of paper being torn
1 h 23 min 50			Here are the new TAF	
1 h 23 min 53		eh?		
1 h 23 min 54			That's good	
1 h 27 min 56		How badly we see in this aeroplane with this lighting		
1 h 27 min 58		It's not a success	yeah	
1 h 31 min 34				[VHF] : Emirates correction Air France four four seven (* centre)
1 h 31 min 40			We're arriving at INTOL	
1 h 31 min 41		→ Air France four four seven go ahead		
1 h 31 min 45				[VHF] : Air France four four seven contact now Atlantic centre high frequency six six four niner backup five five six five and after TASIL frequency six five three five
1 h 32 min 01		→ I understood six six four niner and five five six five and six five three five		
1 h 32 min 09				[VHF] : six five three five only after TASIL with Dakar Air France four four seven
1 h 32 min 16		→ ok bye bye thank you		
1 h 32 min 27				Change of background noise
1 h 32 min 36		What's that it's Atlantico ?		
1 h 32 min 38			(*)	
1 h 32 min 42		ah well no		

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
1 h 32 min 48		→ Atlantico Atlantico Air France four four seven calling Atlantico on six six		
1 h 33 min 28		Did we log on in fact?		
1 h 33 min 30			(*) who with, with Dakar, you mean?	
1 h 33 min 34		yeah	(*)	
1 h 33 min 43		What's that Dakar?		
1 h 33 min 59			notification... fail	
1 h 34 min 00		eh		
1 h 34 min 02			It didn't work... as usual	
1 h 34 min 29		→ Atlantico Atlantico Air France four four seven calling Atlantico on six six		
1 h 34 min 35				[HF] : Air France four four seven Atlantico go ahead
1 h 34 min 38		→ Air France four four seven position INTOL zero one three three level three five zero SALPU zero one four eight next is ORARO zero two zero four request SELCAL check Charlie Papa Hotel Quebec		
1 h 35 min 03				signal SELCAL
1 h 35 min 05		→ SELCAL is OK Air France four four seven thank you		
1 h 35 min 08				[HF] : (*) maintain flight level (*) to maintain flight level three five zero
1 h 35 min 15			eh well there you are	
1 h 35 min 16		→ ok will do		
1 h 35 min 20			We'll soon be to ask to climb surely	
1 h 35 min 23		yeah		
1 h 35 min 24		And now he doesn't want to?		
1 h 35 min 28		He doesn't want to?		

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
1 h 35 min 29			no no he doesn't want to	
1 h 35 min 31			I've checked it's the right code	
1 h 35 min 45		He doesn't want to		
1 h 35 min 48			So we've got a thing straight ahead	
1 h 35 min 50		yes I saw that		
1 h 36 min 04				change of background noise
1 h 36 min 44		standard plus twelve		
1 h 36 min 47			yes yes still otherwise we'd we'd have a problem most probably higher up	
1 h 36 min 50		ah yes		
1 h 36 min 53		That went up slightly earlier it was at three forty eight		
1 h 36 min 58		the... the optimum		
1 h 37 min 01			yeah	
1 h 37 min 03		It's snowing		
1 h 37 min 04			Two hundred nine tons	
1 h 37 min 45			Well we'll be in s... we'll stay in overweight... until seven hours thirty four of flight four and a half more hours	
1 h 38 min 26		yeah	It would be good to put that back on NORM to see if it sticks the temperature	
1 h 38 min 50 to 1 h 39 min 03		(...)	(...)	
1 h 40 min 05 to 1 h 40 min 38		(...)	(...)	
1 h 42 min 10		Did you manage?		
1 h 42 min 11			It's playing up	

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
1 h 42 min 15		(*)		
1 h 42 min 17			there's another one behind	
1 h 42 min 48				noise in cockpit
1 h 43 min 40 to 1 h 43 min 48		(...)	(...)	
1 h 43 min 50				change in background noise
1 h 44 min 42		eh?	right we're going past the Equator, did you feel the bump?	
1 h 44 min 45		ah (...) no	You felt the bump?	
1 h 44 min 49			ah well there you are	
1 h 46 min 08		well right we'll take the step required		
1 h 46 min 12			I'm dimming the lighting a bit to see outside eh?	
1 h 46 min 14		yes yes		
1 h 46 min 15			That then we'll turn the lights on to see	noise like a selector movement
1 h 46 min 19			ah yes indeed	noise like a selector movement
1 h 46 min 21		Eh?		
1 h 46 min 23			It looks like we're entering the cloud cover	
1 h 46 min 26				change in background noise
1 h 46 min 28 to 1 h 46 min 34		(...)	(...)	(...)
1 h 46 min 35		ok		
1 h 46 min 45			It would've been good to climb now eh	
1 h 46 min 50		yeah if it's turbulence	yeah three hundred seventy it's going to be a bit hot	
1 h 46 min 55			Because it's going to be a bit cold but we'll be able to climb no problem	

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
1 h 47 min 00		It's going to change I think to the north no		
1 h 47 min 02			yeah	
1 h 47 min 03		To the north of the Equator there		
1 h 47 min 05			It should start to go down again	
1 h 47 min 12		(seen) Octave		
1 h 47 min 18		Well right we're arriving in the ETOPS zone then		
1 h 47 min 22		(...)		
1 h 47 min 24			yeah exactly	
1 h 47 min 26		at SALPU		
1 h 47 min 40		(*)		
1 h 49 min 06				change in background noise
1 h 49 min 17				Noise like a chair adjustment
1 h 50 min 13 to 1 h 50 min 33				The re-occurrence of audio popping described as being typical of static electric discharges increases.
1 h 50 min 21		ohhh	We're trying to ask the three six no standard because we're really at the limit, already the three six this would be good	
1 h 50 min 32		We'll wait a little (see if) that goes away		
1 h 50 min 46			To climb we'd have to practically wait an hour in fact	
1 h 50 min 52		(*)	(*)	
1 h 53 min 20				change in background noise
1 h 50 min 56		If we don't get out at three six we might be in trouble		



UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
1 h 51 min 03		yeah... three seven, it's going be a bit tight, three seven it's ...		
1 h 51 min 10		Well er that's all we needed, those	ah	
1 h 51 min 14			We're going to get one there or what	
1 h 51 min 21		All we needed was mister Saint-Elmo		
1 h 51 min 30			I didn't have the impression there was... (much) storm... (*) not much	
1 h 51 min 58		It's going to be turbulent when I go for my rest		
1 h 52 min 02			er no we're getting out	
1 h 52 min 05		(*)		
1 h 52 min 07			Until the next time	
1 h 52 min 17			plus ten, it's already warmed up by two degrees	
1 h 52 min 23			You see the REC MAX it's changed to three seventy five	
1 h 55 min 57		well right we just have to wake him up that's all eh		
1 h 56 min 00		I'll turn up the lights a bit		
1 h 56 min 01			(go on)	
1 h 56 min 04		er flight rest		
1 h 56 min 06				(Track 3) high low chime
1 h 56 min 10				Noise like a knock on the partition of the rest station
1 h 56 min 16		er who's doing the landing, is it you? well right he's going to take my place		
1 h 56 min 20		You're a PL, aren't you ?		change in background noise
1 h 56 min 21			yeah	

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
1 h 58 min 18				noise in cockpit
1 h 58 min 19				change in background noise
1 h 58 min 25				(Track 1) noises in cockpit
1 h 58 min 29 à 1 h 58 min 31		(...)		(...)
1 h 58 min 59		good		Noise like a chair adjustment
1 h 59 min 02				succession of various noises
1 h 59 min 26				Noise of cockpit door opening
1 h 59 min 32		ok?		
1 h 59 min 36			Did you sleep?	
1 h 59 min 38	So-so			
1 h 59 min 40		(?) (*)	(?) (*)	
1 h 59 min 44		You didn't sleep?		
1 h 59 min 47			He, he said so-so... so-so	
2 h 00 min 08		Well then I'm out of here		
2 h 00 min 19	I... I was dozing in fact			noise in cockpit
2 h 00 min 29	Are you ok?			
2 h 00 min 31			ok...	
2 h 00 min 33			well the little bit of turbulence that you just saw we should find the same ahead we're in the cloud layer unfortunately we can't climb much for the moment because the temperature is falling more slowly than forecast So what we have is some REC MAX a little too low to get to three seven	
2 h 00 min 44	yeah			
2 h 00 min 45				

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
2 h 00 min 52			That's a real shame	
2 h 00 min 54			Otherwise we're in HF contact with Atlantico	
2 h 00 min 59			Primary and backup	
2 h 01 min 02	Aha			approval
2 h 01 min 20			the logon with Dakar failed of course we tried to contact dispatch	
2 h 01 min 25			you, you want to remind us of the exact frequencies and the result please	
2 h 01 min 29		eh?		
2 h 01 min 30			The frequencies ... what's what?	
2 h 01 min 31		er sixty six forty nine fifty five sixty five and after it's sixty five thirty five		
2 h 01 min 39	from TASIL it's sixty five thirty five			
2 h 01 min 41		* with Atlantico		
2 h 01 min 43	alright thanks			
2 h 01 min 46				Noises in cockpit
2 h 02 min 00			Apparently it would in fact be POMAT oh no Dakar oceanic	
2 h 02 min 04			It goes as far as Dakar oceanic	
2 h 02 min 07			TASIL that's it, you're right	
2 h 02 min 10			One strike against me	
2 h 02 min 32			For the moment if we had a problem it would be a turn back to Natal it's... fine	
2 h 02 min 37	alright			
2 h 02 min 41	What was the er... SID er at level ...			
2 h 02 min 46			R C N I ?	

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
2 h 02 min 48	well you know there was access			
2 h 02 min 49			yeah	
2 h 02 min 50			Er well in fact (...) he sent a message requesting requesting a change of alternate he didn't request er... I (don't) know	
2 h 03 min 00	alright			
2 h 03 min 01			He said he request change of alternate thingy there you are the answer	
2 h 03 min 09	Ok, well right ok			
2 h 03 min 10			There you are	
2 h 03 min 12	That suits me			
2 h 03 min 15				Noises in cockpit
2 h 03 min 26			No new NOTAM TAF ditto we got a name maybe you know it	
2 h 03 min 32	(*)			
2 h 03 min 37	I have a bad memory for names			
2 h 03 min 38				noise of seat being adjusted
2 h 03 min 44			The inter-tropical convergence there well we're in it between SALPU and TASIL	
2 h 03 min 53				noise in cockpit
2 h 05 min 19	standard plus ten three seven zero in fact the REC MAX			
2 h 05 min 25			yeah... here according to Octave we should we should be at plus seven only it should continue to drop but...	
2 h 05 min 55			We'll call them in the back to tell them anyway because ...	
2 h 06 min 04				[CC]: yes (...)

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
2 h 06 min 05			→ yes (...) it's (...) in front tell me in two minutes there we ought to be in an area where it will start moving about a bit than now you'll have to watch out there	
2 h 06 min 13				[CC]: alright are we going to sit down?
2 h 06 min 15			→ well I think that it might be a good idea to tell your?	
2 h 06 min 17				[CC] : yeah okay I'll call the back thanks a lot
2 h 06 min 19			→ thanks I'll call you when we're out of it	
				[CC] : okay
2 h 06 min 40			standard plus thirteen (...) (@) lucky we're on a three thirty eh we wouldn't be so clever if we were on a full three forty	@ : laughs
2 h 06 min 50	That's for sure			
2 h 06 min 51			Minus forty-two we won't use the anti ice that's a plus	
2 h 07 min 01			See, we're really on the edge of the layer (and under the squall)	
2 h 07 min 03				Noises in cockpit
2 h 07 min 05			I mean I'm sure that with three six zero no standard would be good, we'd be ok eh	
2 h 08 min 03	Don't you maybe want to go to the left a bit?			
2 h 08 min 06			Excuse me?	
2 h 08 min 07	You can possibly go a bit to the left I agree that we're not in manual eh?			

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
2 h 08 min 12	well you see at twenty with the ...			
2 h 08 min 17				change in background noise
2 h 08 min 19	What I call manually ah no we're in computed			
2 h 08 min 23	It's...			
2 h 08 min 27	It's me who just changed to max eh			
2 h 08 min 36			ah (...) you did something to the A/C	
2 h 08 min 39			no but to the A/C	
2 h 08 min 40	I didn't touch it			
2 h 08 min 41			What's that smell, now?	
2 h 08 min 43	it's ... it's ozone			
2 h 08 min 44	It's ozone		it's ozone that's it we're alright	
2 h 08 min 46	That's why			
2 h 08 min 47			You can feel already that it's a lot hotter	
2 h 08 min 49	That's what's hot and ozony			
2 h 09 min 01			What's that is it specific to FIT?	
2 h 09 min 05	The ozone?		yeah	
2 h 09 min 05	no			
2 h 09 min 06			no?	
2 h 09 min 07	no it's er it's the air with an electrical charge			
2 h 09 min 10			Ah yes alright who...	
2 h 09 min 11	who...			
2 h 09 min 17			That's it there (go back down *)	
2 h 09 min 20	It's amazing how hot it is all of a sudden			
2 h 09 min 40				change in background noise

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
2 h 09 min 46				Background noise increases (typical noise of impact of ice crystals, identified by A330-340 pilots)
2 h 09 min 54			There I've taken it down a bit	
2 h 10 min 00			There you are	
2 h 10 min 01	It's free			
2 h 10 min 02	( ? ) go on		( ? ) go ahead	
2 h 10 min 03 2 h10 min 04,6			Do you us to put it on ignition start?	Cavalry charge (autopilot disconnection warning)
2 h 10 min 06,4			I have the controls	
2 h 10 min 06,8				End of Cavalry charge
2 h 10 min 07,5	alright			
2 h 10 min 08,0				Single chime
2 h 10 min 09,3			ignition start	
2 h 10 min 09,6				C-chord
2 h 10 min 10,2				End of C-chord
2 h 10 min 10,4				SV : stall
2 h 10 min 11,0				SV : stall
2 h 10 min 11,3	What is that?			Continuous C-chord
2 h 10 min 12,8				End of C-chord
2 h 10 min 13,0				SV : stall
2 h 10 min 13,5				SV : S
2 h 10 min 14,0			We haven't got a good ...	continuous C-chord
2 h 10 min 14,8				End of C-chord
2 h 10 min 15,1			We haven't got a good display...	
2 h 10 min 15,9 2 h 10 min 18,5	( ) We've lost the the the speeds so... engine thrust A T H R engine lever thrust		...of speed	single chime single chime
2 h 10 min 20,4				continuous C-chord
2 h 10 min 22,1	alternate law protections- (law/low/lo)		(engine lever?)	

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
2 h 10 min 24,4	Wait we're losing...			
2 h 10 min 25,5	wing anti-ice			
2 h 10 min 27,0	Watch your speed			
2 h 10 min 28,3	Watch your speed		Okay, okay okay I'm going back down	
2 h 10 min 30,0	Stabilise			
2 h 10 min 30,7			yeah	
2 h 10 min 31,2	Go back down			
2 h 10 min 32,2	According to that we're going up			
2 h 10 min 33,7	According to all three you're going up so go back down			
2 h 10 min 35,2			okay	
2 h 10 min 35,8	You're at...			
2 h 10 min 36,4	Go back down			
2 h 10 min 36,7			It's going we're going (back) down	
2 h 10 min 38,5	gently			
2 h 10 min 39,3	I'll put you in in A T T (*).			
2 h 10 min 41,0	What's that...			
2 h 10 min 41,6			We're in... yeah we're in climb	
2 h 10 min 49,8	(!) where is he er?			
2 h 10 min 51,2				End of C-chord
2 h 10 min 51,4				SV : stall
2 h 10 min 52,0				SV : stall
2 h 10 min 52,7				cricket
2 h 10 min 53,5				(track CAM et 3) high low chime
2 h 10 min 54,2				SV : stall
2 h 10 min 54,5				noise of vibration in cockpit
2 h 10 min 54,7				SV : stall
2 h 10 min 54,9	(!)			
2 h 10 min 55,6				cricket
2 h 10 min 55,9				(track 1) [feminine voice]: hello?
2 h 10 min 56,8			(TOGA)	SV : stall



UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
2 h 10 min 56,9				(track 1) high low chime
2 h 10 min 57,6				SV : stall
2 h 10 min 58,3				cricket
2 h 10 min 59,4				(track 1) [feminine voice] : yes
2 h 11 min 00,0				SV : stall
2 h 11 min 00,2 2 h 11 min 01,2	Above all try to touch the lateral controls as little as possible eh			SV : stall cricket
2 h 11 min 02,3				(track 1) [feminine voice]: hello?
2 h 11 min 02,6				SV : stall
2 h 11 min 03,1			I'm in TOGA eh	SV : Stall
2 h 11 min 03,9				cricket
2 h 11 min 05,3				SV : stall
2 h 11 min 05,9				SV : stall
2 h 11 min 06,3 2 h 11 min 06,8	(!) is he coming or not?			cricket
2 h 11 min 08,1				SV : stall
2 h 11 min 08,3				(track 1) noises like an interphone handset being replaced
2 h 11 min 08,8				SV : stall
2 h 11 min 09,6				cricket
2 h 11 min 09,8				(track 3) high low chime
2 h 11 min 10,9				SV : stall
2 h 11 min 11,5				SV : stall
2 h 11 min 12,3				cricket
2 h 11 min 13,5				(track 3) high low chime
2 h 11 min 13,7				SV : stall
2 h 11 min 14,3				SV : stall
2 h 11 min 15,1				cricket
2 h 11 min 16,5				SV : stall
2 h 11 min 17,2				SV : stall

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
2 h 11 min 17,3				(track 3) high low chime
2 h 11 min 17,9				cricket
2 h 11 min 18,2				Noises like two knocks on the rest station partition
2 h 11 min 19,3				SV : stall
2 h 11 min 19,8				Noises in cockpit
2 h 11 min 20,0				SV : stall
2 h 11 min 20,4				(track 3) high low chime
2 h 11 min 20,7	(?) (* quick)		(?) (* quick)	cricket
2 h 11 min 21,4 2 h 11 min 22,2	But we've got the engines what's happening (...)?			SV : stall
2 h 11 min 22,8				SV : stall
2 h 11 min 23,5				cricket
2 h 11 min 24,6 2 h 11 min 25,7	Do you understand what's happening or not			SV : stall SV : stall
2 h 11 min 24,9				(track 1) [feminine voice]: (...)?
2 h 11 min 26,3				cricket
2 h 11 min 27,0				(track 3) high low chime
2 h 11 min 27,7				SV : stall
2 h 11 min 28,4				SV : stall
2 h 11 min 29,1				cricket
2 h 11 min 30,0				(track 1) beep like the end of an interphone communication
2 h 11 min 30,5				SV : stall
2 h 11 min 31,2				SV : stall
2 h 11 min 31,9				cricket
2 h 11 min 32,6			(...) I don't have control of the airplane any more now	
2 h 11 min 33,4				SV : stall
2 h 11 min 34,1				SV : stall

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
2 h 11 min 34,7			I don't have control of the airplane at all	cricket
2 h 11 min 36,1				SV : stall
2 h 11 min 36,7				SV : stall
2 h 11 min 37,5	controls to the left			cricket
2 h 11 min 38,9				SV : stall
2 h 11 min 39,5				SV : stall
2 h 11 min 40,2				cricket
2 h 11 min 41,2	(...) what is that?			
2 h 11 min 41,8			I have the impression (we have) the speed	SV : stall
2 h 11 min 42,4				SV : stall
2 h 11 min 42,5		Er what are you (doing)?		Noise of cockpit door opening
2 h 11 min 43,0	What's happening? I don't know I don't know what's happening			cricket
2 h 11 min 44,5				SV : stall
2 h 11 min 45,5			We're losing control of the aeroplane there	
2 h 11 min 46,7 2 h 11 min 48,2	We lost all control of the aeroplane we don't understand anything we've tried everything			Noise similar to door closing continuous C-chord
2 h 11 min 50,5	er...			
2 h 11 min 52,6		So take that, take that		End of C-chord
2 h 11 min 52,8				SV : stall
2 h 11 min 53,4				SV : stall
2 h 11 min 54,2				cricket
2 h 11 min 54,3				End of cricket
2 h 11 min 54,4				continuous C-chord
2 h 11 min 55,0	Take that take that	(*)		
2 h 11 min 55,5				End of C-chord
2 h 11 min 55,7				SV : stall
2 h 11 min 56,3				SV : stall

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
2 h 11 min 57,0	Try to take that			cricket
2 h 11 min 58,0				End of cricket
2 h 11 min 58,2 2 h 11 min 58,6			I have a problem it's that I don't have vertical speed indication	continuous C-chord
2 h 12 min 01,0		alright	I have no more displays	
2 h 12 min 02,5	we have no more valid displays			
2 h 12 min 04,3			I have the impression that we have some crazy speed no what do you think?	
2 h 12 min 06,6	no			
2 h 12 min 07,2 2 h 12 min 07,6 2 h 12 min 07,7 2 h 12 min 08,3	No above all don't extend (the)		no?  okay	End of C-chord SV : stall SV : stall
2 h 12 min 09,0	Don't extend			SV : stall
2 h 12 min 09,3				C-chord
2 h 12 min 09,8				End of C-chord
2 h 12 min 10,0				SV : stall
2 h 12 min 10,6				SV : stall
2 h 12 min 11,3			So we're still going down	cricket
2 h 12 min 12,1				End of cricket
2 h 12 min 12,2				continuous C-chord
2 h 12 min 12,9	We're pulling			
2 h 12 min 14,4	What do you think about it what do you think what do we need to do?			
2 h 12 min 15,5		There I don't know there it's going down		
2 h 12 min 17,4				SV : priority right
2 h 12 min 19,6			There you are	End of C-chord
2 h 12 min 20,0				SV : stall

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
2 h 12 min 20,8			That's good we should be wings level, no it won't (not)	continuous C-chord
2 h 12 min 23,0		The wings to flat horizon the standby horizon		
2 h 12 min 25,5	The horizon ( <i>second</i> )			
2 h 12 min 26,6	speed?		okay	
2 h 12 min 27,2				End of C-chord
2 h 12 min 27,4	You're climbing			SV : stall
2 h 12 min 28,1				SV : stall
2 h 12 min 28,3	You're going down down down	(*) (going down)		continuous C-chord
2 h 12 min 30,0			Am I going down now?	
2 h 12 min 31,8	Go down			
2 h 12 min 32,4		No you climb there		
2 h 12 min 32,8 2 h 12 min 34,2		You're climbing	I'm climbing okay so we're going down	End of C-chord
2 h 12 min 34,4				SV : stall
2 h 12 min 35,0				SV : stall
2 h 12 min 35,8				cricket
2 h 12 min 35,9				End of cricket
2 h 12 min 36,0				continuous C-chord
2 h 12 min 39,2			okay we're in TOGA	
2 h 12 min 40,2				End of C-chord
2 h 12 min 40,5				SV : stall
2 h 12 min 41,2				SV : stall
2 h 12 min 41,5			What are we here?	
2 h 12 min 41,9			On alti what do we have here?	cricket
2 h 12 min 42,4				noise in cockpit
2 h 12 min 43,2				SV : stall and 2 noises in cockpit
2 h 12 min 43,8		(...) it's impossible		SV : Stall
2 h 12 min 44,7				cricket

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
2 h 12 min 45,0			in alti what do we have?	
2 h 12 min 46,2				SV : stall
2 h 12 min 46,5				continuous C-chord
2 h 12 min 47,5	What do you mean on altitude?			
2 h 12 min 48,8				End of C-chord
2 h 12 min 48,9 2 h 12 min 49,1			Yeah yeah yeah I'm going down, no?	SV : stall
2 h 12 min 49,8				SV : stall
2 h 12 min 50,3	You're going down yes			cricket
2 h 12 min 51,8				SV : stall
2 h 12 min 52,3		Hey you		SV : stall
2 h 12 min 53,0		You're in...		cricket
2 h 12 min 54,5 2 h 12 min 54,7		Get the wings horizontal		SV : stall
2 h 12 min 55,3				SV : stall
2 h 12 min 56,0	Get the wings horizontal		That's what I'm trying to do	cricket
2 h 12 min 57,0				End of cricket
2 h 12 min 57,2 2 h 12 min 57,4		Get the wings horizontal		continuous C-chord
2 h 12 min 58,6			I'm at the limit ... with the roll	
2 h 12 min 59,6				SV : dual input
2 h 13 min 00,0		The rudder bar		
2 h 13 min 05,9		Wings horizontal ...go ... gently gently		
2 h 13 min 11,3	We lost it all at (*) left	Hey er...		
2 h 13 min 14,4	I've got nothing there	(eh)		
2 h 13 min 15,8		What do you have?		
2 h 13 min 17,4		no wait		

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
2 h 13 min 18,1			We're there we're there we're passing level one hundred	
2 h 13 min 19,8	Wait me I have I have the controls eh			
2 h 13 min 22,9				SV : dual input
2 h 13 min 25,3			What is... how come we're continuing to go right down now?	
2 h 13 min 28,2	Try to find what you can do with your controls up there			
2 h 13 min 30,4	The primaries and so on	(* do anything)		
2 h 13 min 31,5		it (won't do) anything		
2 h 13 min 31,7			(* ) at level one hundred	
2 h 13 min 36,5			Nine thousand feet	
2 h 13 min 38,6		Careful with the rudder bar there		
2 h 13 min 39,7	Climb climb climb climb			
2 h 13 min 40,6 2 h 13 min 41,2			But I've been at maxi nose-up for a while	SV : dual input
2 h 13 min 42,7		no no no don't climb		
2 h 13 min 43,5	so go down			SV : dual input
2 h 13 min 45,0	So give me the controls the controls to me controls to me			
2 h 13 min 46,0			Go ahead you have the controls we are still in TOGA eh	SV : dual input
2 h 13 min 53,0		(so wait) AP OFF		Noise of selector
2 h 13 min 55,3				End of C-chord
2 h 13 min 55,4				SV : stall
2 h 13 min 56,0				SV : stall
2 h 13 min 56,7				cricket
2 h 13 min 58,2				SV : stall
2 h 13 min 58,8				SV : stall

UTC time	Co-pilot in the left seat	Captain	Co-pilot in the right seat	ATC, other voices, warnings, remarks and various noises.
2 h 13 min 59,5			(gentlemen)	cricket
2 h 14 min 00,0				noise in cockpit
2 h 14 min 01,1				SV : stall
2 h 14 min 01,7				SV : stall
2 h 14 min 02,3				cricket
2 h 14 min 02,6				End of cricket
2 h 14 min 02,8 2 h 14 min 03,2				continuous C-chord SV : dual input
2 h 14 min 05,3		Watch out you're pitching up there		
2 h 14 min 06,5	I'm pitching up	You're pitching up		
2 h 14 min 07,3	I'm pitching up		Well we need to we are at four thousand feet	
2 h 14 min 10,8		You're pitching up		
2 h 14 min 16,4				SV : sink rate
2 h 14 min 17,0				SV : pull up
2 h 14 min 18,0		Go on pull		
2 h 14 min 18,6				SV : pull up
2 h 14 min 19,2 2 h 14 min 19,7			Let's go pull up pull up pull up	SV : pull up
2 h 14 min 20,8				End of C-chord
2 h 14 min 20,9				SV : stall
2 h 14 min 21,5				SV : stall
2 h 14 min 21,9				continuous C-chord
2 h 14 min 22,2				SV : pull up
2 h 14 min 22,3				SV : priority right
2 h 14 min 23,7			(!) we're going to crash	SV : pull up
2 h 14 min 24,2			This can't be true	
2 h 14 min 25,1	(...)			SV : pull up
2 h 14 min 25,8			But what's happening	
2 h 14 min 26,8		(ten) degrees pitch attitude		SV : pull up
2 h 14 min 28,4	End of recording			