

090

**COMMUNICATIONS**

**AIRLINE TRANSPORT PILOTS LICENCE (A)  
(COMMUNICATIONS)**

JAR-FCL REF NO	LEARNING OBJECTIVES	REMARKS
091 00 00 00	<b><u>COMMUNICATIONS</u></b> <b><u>(VFR COMMUNICATIONS)</u></b>	
091 01 00 00	<b><u>DEFINITIONS</u></b>	
091 01 01 00	<b><u>Explain the meanings and significance of associated terms:</u></b> <ul style="list-style-type: none"> <li>– Stations</li> <li>– Communication methods</li> </ul>	Annex 10 V2 Ch 1 Doc 4444 Doc 9432 Ch 1
091 01 02 00	<b><u>Air traffic control abbreviations</u></b> <ul style="list-style-type: none"> <li>– Define commonly used Air Traffic Control abbreviations: <ul style="list-style-type: none"> <li>– Flight conditions</li> <li>– Airspace</li> <li>– Services</li> <li>– Time</li> <li>– Miscellaneous</li> </ul> </li> </ul>	Doc 9432 1.2
091 01 03 00	<b><u>Q-code groups commonly used in R/T air ground communications</u></b> <ul style="list-style-type: none"> <li>– Define the Q-code groups commonly used in RTF air to ground communications: <ul style="list-style-type: none"> <li>– Pressure settings</li> <li>– Directions and bearings</li> </ul> </li> <li>– State the procedure for obtaining bearing information in flight</li> </ul>	Annex 10 V2 Ch 6
091 01 04 00	<b><u>Categories of messages</u></b> <ul style="list-style-type: none"> <li>– List the categories of messages in order of priority:</li> </ul>	Annex 10 V2 5.1.8

**AIRLINE TRANSPORT PILOTS LICENCE (A)  
(COMMUNICATIONS)**

JAR-FCL REF NO	LEARNING OBJECTIVES	REMARKS
091 02 00 00	<ul style="list-style-type: none"> <li>- Identify the types of messages appropriate to each category:</li> <li>- List the priority of a message (given examples of messages to compare)</li> </ul> <p><b><u>GENERAL OPERATING PROCEDURES</u></b></p>	Annex10 V2
091 02 01 00	<p><b><u>Transmission of letters</u></b></p> <ul style="list-style-type: none"> <li>- State the phonetic alphabet used in radiotelephony:</li> <li>- Identify the occasions when words should be spelt</li> </ul>	Fig 5-1 5.2.1.2 5.2.1.4
091 02 02 00	<p><b><u>Transmission of numbers</u></b></p> <ul style="list-style-type: none"> <li>- Describe the method of transmission of numbers               <ul style="list-style-type: none"> <li>- Pronunciation:</li> <li>- Single digits, whole hundreds and whole thousands</li> </ul> </li> </ul>	5.2.1.3.1  5.2.1.3.3 5.2.1.3.1.4
091 02 03 00	<p><b><u>Transmission of time</u></b></p> <ul style="list-style-type: none"> <li>- Describe the ways of transmitting time               <ul style="list-style-type: none"> <li>- Standard time reference (UTC):</li> <li>- Minutes, minutes and hours, when required</li> </ul> </li> </ul>	Annex 10 V2 5.2.1.4 Doc 9432 Ch2.2
091 02 04 00	<p><b><u>Transmission technique</u></b></p> <ul style="list-style-type: none"> <li>- Explain the techniques used for making good R/T transmissions</li> </ul>	Recommend oral practice following typical flight
091 02 05 00	<p><b><u>Standard words and phrases (relevant R/T)</u></b></p> <ul style="list-style-type: none"> <li>- Define the meaning of standard words and phrases</li> <li>- Use correct phraseology for each phase of VFR flight</li> </ul>	Profiles (no JAA oral exam)  Annex 10 V2 5.2.1.4.8



**AIRLINE TRANSPORT PILOTS LICENCE (A)  
(COMMUNICATIONS)**

JAR-FCL REF NO	LEARNING OBJECTIVES	REMARKS
	<ul style="list-style-type: none"> <li>- Describe the procedure for transfer of communication               <ul style="list-style-type: none"> <li>- By ground station:</li> <li>- By aircraft</li> </ul> </li> </ul>	Doc 4444 pX 3.1.4 Principles explained in Annex 10 V2 5.2.2.5 5.2.2.6
<b>091 02 09 00</b>	<b><u>Test procedures including readability scale</u></b>	See examples in
	<ul style="list-style-type: none"> <li>- Explain how to test radio transmission and reception:</li> <li>- State the readability scale and explain its meaning</li> </ul>	Doc 9432 Ch2.8 Annex 10 V2 5.2.1.7
<b>091 02 10 00</b>	<b><u>Read back and acknowledgement requirements</u></b>	Doc 9432 Ch2.8.4
	<ul style="list-style-type: none"> <li>- State the requirement to read back ATC route clearances</li> <li>- State the requirement to read back clearances related to runway in use</li> <li>- State the requirement to read back 'other clearances' including conditional clearances</li> </ul>	Doc 4444 pIX 3.4 pX 2.5 – 2.8
	<ul style="list-style-type: none"> <li>- State the requirement to read back data such as runway, SSR codes etc</li> </ul>	Doc 9432 2.8.3 4.4 4.5
<b>091 02 11 00</b>	<b><u>Radar procedural phraseology</u></b>	Doc 9432 Ch 6
	<ul style="list-style-type: none"> <li>- Use the correct phraseology for an aircraft receiving a radar service               <ul style="list-style-type: none"> <li>- Radar identification:</li> <li>- Radar vectoring:</li> <li>- Traffic information and avoidance:</li> <li>- SSR procedures</li> </ul> </li> </ul>	Recommend oral practise for typical flight situations
<b>091 03 00 00</b>	<b><u>RELEVANT WEATHER INFORMATION TERMS</u></b>	
<b>091 03 01 00</b>	<b><u>Aerodrome weather</u></b>	
	<ul style="list-style-type: none"> <li>- List the contents of aerodrome weather reports and state the units of measurement used for each item</li> </ul>	Annex 3 4.13

**AIRLINE TRANSPORT PILOTS LICENCE (A)  
(COMMUNICATIONS)**

JAR-FCL REF NO	LEARNING OBJECTIVES	REMARKS
	<ul style="list-style-type: none"> <li>- Wind direction and speed</li> <li>- Variation of wind direction and speed</li> <li>- Visibility</li> <li>- Present weather</li> <li>- Cloud amount and type (including the meaning of CAVOK)</li> <li>- Air temperature and dewpoint</li> <li>- Pressure values (QNH, QFE)</li> <li>- Supplementary information (aerodrome warnings, landing runway, runway condition, restrictions, obstructions, windshear warnings, etc):</li> </ul>	4.5 -4.12
091 03 02 00	<p><b><u>Weather broadcast</u></b></p> <ul style="list-style-type: none"> <li>- List the sources of weather information available to aircraft in flight</li> <li>- Explain the meaning of the abbreviations:- ATIS,VOLMET</li> </ul>	Annex 3
091 04 00 00	<p><b><u>ACTION TO BE TAKEN IN CASE OF COMMUNICATION FAILURE</u></b></p> <p><b><u>State the action to be taken in case of communication failure on a controlled VFR flight</u></b></p> <ul style="list-style-type: none"> <li>- Identify the frequencies to be used in an attempt to establish communication</li> <li>- State the additional information that should be transmitted, in the event of receiver failure</li> <li>- Identify the SSR code that may be used to indicate communication failure</li> <li>- Explain the action to be taken by a pilot with Com failure in the aerodrome traffic pattern at controlled aerodromes</li> </ul>	Annex 10 V2 5.2.2.7 Annex 2 3
091 05 00 00	<p><b><u>DISTRESS AND URGENCY PROCEDURES</u></b></p>	Ref JAR-FCL 010 07 01 04
091 05 01 00	<p><b><u>State the DISTRESS procedures</u></b></p>	Annex 10 V2 5.3



**AIRLINE TRANSPORT PILOTS LICENCE (A)  
(COMMUNICATIONS)**

JAR-FCL REF NO	LEARNING OBJECTIVES	REMARKS
	<ul style="list-style-type: none"> <li>- Calculate the effective range of VHF transmissions assuming no attenuating factors</li> </ul>	Range = ( $\sqrt{\text{Flight Level}}$ ) x 12
<b>092 01 00 00</b>	<b><u>IFR COMMUNICATIONS</u></b>	
	<b><u>DEFINITIONS</u></b>	Ref JAR-FCL 091 01 00 00
<b>092 01 01 00</b>	<b><u>Meanings and significance of associated terms</u></b>	Doc 9432 1.1
	<ul style="list-style-type: none"> <li>- As for VFR Plus terms used in conjunction with approach and holding procedures:</li> </ul>	Doc 4444 Ch1
<b>092 01 02 00</b>	<b><u>Air traffic control abbreviations:</u></b>	Doc 9432 1.2
	<ul style="list-style-type: none"> <li>- As for VFR Plus additional IFR related terms:</li> </ul>	
<b>092 01 03 00</b>	<b><u>Q-code groups commonly used in R/T air ground communications</u></b>	
	<ul style="list-style-type: none"> <li>- Define the Q-code groups commonly used in RTF air to ground communications:               <ul style="list-style-type: none"> <li>- Pressure settings</li> <li>- Directions and bearings</li> </ul> </li> <li>- State the procedure for obtaining bearing information in flight</li> </ul>	Annex 10 V2 Ch 6
<b>092 01 04 00</b>	<b><u>Categories of messages</u></b>	Annex 10 V2 5.1.8
	<ul style="list-style-type: none"> <li>- List the categories of messages in order of priority:</li> <li>- Identify the types of messages appropriate to each category</li> <li>- List the priority of a message (given examples of messages to compare)</li> </ul>	
<b>090 02 00 00</b>	<b><u>GENERAL OPERATING PROCEDURES</u></b>	Annex 10 V2
<b>092 02 01 00</b>	<b><u>Transmission of letters</u></b>	
	<ul style="list-style-type: none"> <li>- State the phonetic alphabet used in radiotelephony</li> <li>- Identify the occasions when words should be spelt</li> </ul>	Fig 5-1 5.2.1.2

**AIRLINE TRANSPORT PILOTS LICENCE (A)  
(COMMUNICATIONS)**

JAR-FCL REF NO	LEARNING OBJECTIVES	REMARKS
092 02 02 00	<p><b><u>Transmission of numbers</u></b></p> <ul style="list-style-type: none"> <li>- Describe the method of transmission of numbers</li> <li>- Pronunciation</li> <li>- Single digits, whole hundreds and whole thousands</li> </ul>	5.2.1.4  5.2.1.3.1
092 02 03 00	<p><b><u>Transmission of time</u></b></p> <ul style="list-style-type: none"> <li>- Describe the ways of transmitting time</li> <li>- Standard time reference (UTC)</li> <li>- Minutes, minutes and hours, when required</li> </ul>	Annex 10 V2 5.2.1.4 Doc 9432 Ch 2.2
092 02 04 00	<p><b><u>Transmission technique</u></b></p> <ul style="list-style-type: none"> <li>- Explain the techniques used for making good R/T transmissions</li> </ul>	Recommend oral practice following typical flight Profiles (no JAA oral exam)
092 02 05 00	<p><b><u>Standard words and phrases (relevant R/T)</u></b></p> <ul style="list-style-type: none"> <li>- Define the meaning of standard words and phrases</li> <li>- Use correct phraseology for each phase of IFR flight               <ul style="list-style-type: none"> <li>- Pushback</li> <li>- IFR departure</li> <li>- Airways clearances</li> <li>- Position reporting</li> <li>- Approach procedures</li> <li>- IFR arrivals</li> </ul> </li> </ul>	Annex 10 v2 5.2.1.4.8 Doc 4444

**AIRLINE TRANSPORT PILOTS LICENCE (A)  
(COMMUNICATIONS)**

JAR-FCL REF NO	LEARNING OBJECTIVES	REMARKS
092 02 06 00	<p><b><u>Radiotelephony call signs for aeronautical (ground) stations including use of abbreviated call signs</u></b></p> <ul style="list-style-type: none"> <li>- As for VFR</li> <li>- Name the two parts of the call sign of an aeronautical station</li> <li>- Identify the call sign suffixes for aeronautical stations (for example: Approach control – CONTROL)</li> <li>- Explain when the call sign may be abbreviated to the use of the suffix only</li> </ul>	Ref: JAR-FCL 091 02 06 00
092 02 07 00	<p><b><u>Radiotelephony call signs for aircraft including use of abbreviated call signs</u></b></p> <ul style="list-style-type: none"> <li>- As for VFR</li> <li>- Explain when the suffix 'HEAVY' should be used with an aircraft call sign</li> <li>- Explain the use of the phrase 'Change your call sign to....'</li> <li>- Explain the use of the phrase 'Revert to flight plan call sign'</li> </ul>	Annes 10 v2 5.4.1.6.2.1 5.2.1.6.3.1 5.2.1.6.2.2 5.2.1.6.3.2.1 5.2.1.6.3.3.1 Doc 9432 .7.2.4 Doc 4444 3.1.4
092 02 08 00	<p><b><u>Transfer of communications</u></b></p> <ul style="list-style-type: none"> <li>- Describe the procedure for transfer of communication               <ul style="list-style-type: none"> <li>- By ground station:</li> <li>- By aircraft</li> </ul> </li> </ul>	Doc 9432 2.7.2.4 Doc 4444 pX 3.1.4 Principles explained in Annex 10 V2 5.2.2.5 5.2.2.6
092 02 09 00	<p><b><u>Test procedures including readability scale</u></b></p> <ul style="list-style-type: none"> <li>- Explain how to test radio transmission and reception:</li> <li>- State the readability scale and explain its meaning</li> </ul>	See examples in DOC 9432 Ch 2.8 Annex 10 V2 5.2.1.7

**AIRLINE TRANSPORT PILOTS LICENCE (A)  
(COMMUNICATIONS)**

JAR-FCL REF NO	LEARNING OBJECTIVES	REMARKS
092 02 10 00	<p><b><u>Read back and acknowledgement requirements</u></b></p> <ul style="list-style-type: none"> <li>- State the requirement to read back ATC route clearances</li> <li>- State the requirement to read back clearances related to runway in use</li> <li>- State the requirement to read back 'other clearances' including conditional clearances</li> <li>- State the requirement to read back data such as runway, SSR codes etc</li> </ul>	<p>Doc 4444 pX</p> <p>2.5</p> <p>2.6</p> <p>2.7</p> <p>2.8</p>
092 02 11 00	<p><b><u>Radar procedural phraseology</u></b></p> <ul style="list-style-type: none"> <li>- Use the correct phraseology for an aircraft receiving a radar service               <ul style="list-style-type: none"> <li>- Radar identification:</li> <li>- Radar vectoring:</li> <li>- Traffic information and avoidance:</li> <li>- SSR procedures</li> </ul> </li> </ul>	<p>Doc 9432      Ch 6</p> <p>Recommend oral practise for typical flight situations</p>
092 02 12 00	<p><b><u>Level changes and reports</u></b></p> <ul style="list-style-type: none"> <li>- Use the correct term to describe vertical position               <ul style="list-style-type: none"> <li>- In relation to flight level (standard pressure setting SPS)</li> <li>- In relation to Altitude (metres/feet on QNH)</li> <li>- In relation to Height (metres/feet on QFE)</li> </ul> </li> </ul>	<p>Doc 4444 px</p> <p>Doc 9432 2.4.3.2.3.3</p> <p>Annex 10 v2 5.2.1</p>
092 03 00 00	<p><b><u>ACTION REQUIRED TO BE TAKEN IN CASE OF COMMUNICATION FAILURE</u></b></p> <ul style="list-style-type: none"> <li>- Describe the action to be taken in case of communication failure on a IFR flight</li> <li>- Describe the action to be taken in case of communication failure on a IFR flight when flying in VMC and the the flight will be terminated in VMC</li> <li>- Describe the action to be taken in case of communication failure on a IFR flight when flying in IMC</li> </ul>	<p>Ref JAR-FCL 091 04 00 00</p> <p>Annex 2 3.6.5.2.1</p> <p>3.6.4.2.2</p> <p>Annex 10 v2 5</p> <p>Doc 4444 RAC</p>

**AIRLINE TRANSPORT PILOTS LICENCE (A)  
(COMMUNICATIONS)**

JAR-FCL REF NO	LEARNING OBJECTIVES	REMARKS
092 04 00 00	<b><u>DISTRESS AND URGENCY PROCEDURES</u></b>	Doc 7030/4 EUR
092 04 01 00	<b><u>State the PAN medical procedure</u></b> <ul style="list-style-type: none"> <li>– Describe the type of flights to which PAN MEDICAL applies</li> <li>– List the content of a PAN MEDICAL message in the correct sequence</li> </ul>	Annex 10 V2 5.3.3.4
092 04 02 00	<b><u>State the DISTRESS procedure</u></b> <ul style="list-style-type: none"> <li>– Define DISTRESS</li> <li>– Identify the frequencies that can be used by aircraft in DISTRESS</li> <li>– Describe the action to be taken by the station which receives a DISTRESS message</li> <li>– Describe the action by all other stations when a DISTRESS procedure is in progress</li> <li>– List the content of a DISTRESS signal/message in the correct sequence</li> </ul>	Ref JAR-FCL 091 05 01 00 Doc 4444 1 Annex 10 V2 5 Doc 9432 9.2
092 04 03 00	<b><u>State the URGENCY procedures</u></b> <ul style="list-style-type: none"> <li>– Define URGENCY</li> <li>– Identify the frequencies that should be used by aircraft in URGENCY</li> <li>– Describe the action to be taken by the station which receives a URGENCY message</li> <li>– Describe the action to be taken by the station which receives a URGENCY message</li> <li>– Describe the action by all other stations when a URGENCY procedure is in progress</li> <li>– List the content of a URGENCY signal/message in the correct sequence</li> </ul>	Ref JAR-FCL 091 05 02 00 Doc 4444 1 Annex 10 v2 5
020 05 00 00	<b><u>RELEVANT WEATHER INFORMATION TERMS</u></b>	
092 05 01 00	<b><u>Aerodrome weather</u></b> <ul style="list-style-type: none"> <li>– As for VFR</li> <li>– Runway visual range (RVR)</li> </ul>	Ref JAR-FCL 091 03 01 00

**AIRLINE TRANSPORT PILOTS LICENCE (A)  
(COMMUNICATIONS)**

JAR-FCL REF NO	LEARNING OBJECTIVES	REMARKS
092 05 02 00	<ul style="list-style-type: none"> <li>– Braking action (friction coefficient)</li> </ul> <p><b><u>Weather broadcast</u></b></p> <ul style="list-style-type: none"> <li>– As for VFR plus the following               <ul style="list-style-type: none"> <li>– Explain when aircraft routine meteorological observations should be made</li> <li>– Explain when aircraft Special meteorological observations should be made</li> </ul> </li> </ul>	<p>Ref JAR-FCL 091 03 02 00 Annex 3 5.5 5.6</p>
092 06 00 00	<p><b><u>GENERAL PRINCIPLES OF VHF PROPAGATION AND ALLOCATION OF FREQUENCIES</u></b></p> <p><b><u>Describe the radio frequency spectrum with particular reference to VHF</u></b></p> <ul style="list-style-type: none"> <li>– State the names of the bands into which the radio frequency spectrum is divided</li> <li>– Identify the frequency range of the VHF band</li> <li>– Name the band normally used for Aeronautical Mobile Service voice communications</li> <li>– State the frequency separation allocated between consecutive VHF frequencies</li> <li>– Describe the propagation characteristics of radio transmissions in the VHF band</li> <li>– Describe the factors which reduce the effective range and quality of radio transmissions</li> <li>– State which of these factors apply to the VHF band</li> <li>– Calculate the effective range of VHF transmissions assuming no attenuating factors</li> </ul>	<p>Ref JAR-FCL 062 00 00 00</p> <p>Using the simple formula: Range= (<math>\sqrt{\text{Flight Level}}</math>) x 12</p>
092 07 00 00	<p><b><u>MORSE CODE</u></b></p> <ul style="list-style-type: none"> <li>– Identify radio navigation aids (VOR, DME, NDB, ILS) from their morse code identifiers</li> <li>– SELCAL, TCAS, ACARS phraseology and procedures</li> </ul>	<p>Recommended training: given an aural test comprising groups of 3 letter codes sent at standard rates ( approx. 5 seconds per code group, annex 10 Vol1</p>

**AIRLINE TRANSPORT PILOTS LICENCE (A)  
(COMMUNICATIONS)**

<b>JAR-FCL REF NO</b>	<b>LEARNING OBJECTIVES</b>	<b>REMARKS</b>
		Ch3/3.5.3.6.3b describes typical values) Annex 10 V2 5.2.4 These procedures are not included in the JAR-FCL syllabus, however this subject is appropriate to the training required by professional pilots and may be included in future exams