

**JAA Administrative & Guidance Material  
Section Five: Licensing, Part Two: Procedures**

CHAPTER 17: DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES

Subject – 090 – Communications

See Appendix 1 to JAR-FCL 1.470 and JAR-FCL 2.470

Syllabus reference	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter		IR
		ATPL	CPL	ATPL/IR	ATPL	
<b>090 00 00 00</b>	<b>COMMUNICATIONS</b>					
<b>091 00 00 00</b>	<b>VFR COMMUNICATIONS</b>					
<b>091 01 00 00</b>	<b>DEFINITIONS</b>					
<b>091 01 01 00</b>	<b>Meanings and significance of associated terms</b>	X	X	X	X	X
	LO Stations					
	LO Communication methods					
<b>091 01 02 00</b>	<b>Air Traffic Services abbreviations</b>	X	X	X	X	X
	LO Define commonly used Air Traffic Control abbreviations: - Flight conditions - Airspace - Services - Time - Miscellaneous					
<b>091 01 03 00</b>	<b>Q-code groups commonly used in RTF air-ground communications</b>	X	X	X	X	X
	LO Define Q-code groups commonly used in RTF air to ground communications: - Pressure settings - Directions and bearings					
	LO State the procedure for obtaining bearing information in flight					
<b>091 01 04 00</b>	<b>Categories of messages</b>	X	X	X	X	X
	LO List the categories of messages in order of priority					

**JAA Administrative & Guidance Material  
Section Five: Licensing, Part Two: Procedures**

CHAPTER 17: DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES

Subject – 090 – Communications

See Appendix 1 to JAR-FCL 1.470 and JAR-FCL 2.470

Syllabus reference	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter		IR
		ATPL	CPL	ATPL/IR	ATPL	
	LO Identify the types of messages appropriate to each category					
	LO List the priority of a message (given examples of messages to compare)					
<b>091 02 00 00</b>	<b>GENERAL OPERATING PROCEDURES</b>					
<b>091 02 01 00</b>	<b>Transmission of letters</b>	X	X	X	X	X
	LO State the phonetic alphabet used in radiotelephony					
	LO Identify the occasions when words should be spelt					
<b>091 02 02 00</b>	<b>Transmission of numbers (including level information)</b>	X	X	X	X	X
	LO Describe the method of transmission of numbers: - Pronunciation - Single digits, whole hundreds and whole thousands					
<b>091 02 03 00</b>	<b>Transmission of time</b>	X	X	X	X	X
	LO Describe the ways of transmitting time - Standard time reference (UTC) - Minutes, minutes and hours, when required					
<b>091 02 04 00</b>	<b>Transmission technique</b>	X	X	X	X	X
	LO Explain the techniques used for making good R/T transmissions					
<b>091 02 05 00</b>	<b>Standard words and phrases (relevant RTF phraseology included)</b>	X	X	X	X	X
	LO Define the meaning of standard words and phrases					
	LO Use correct phraseology for each phase of VFR flight					

**JAA Administrative & Guidance Material**  
**Section Five: Licensing, Part Two: Procedures**

CHAPTER 17: DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES

Subject – 090 – Communications

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Syllabus reference	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter		IR	
		ATPL	CPL	ATPL/IR	ATPL		CPL
LO	Aerodrome procedures - Departure information - Taxi instructions - Aerodrome traffic and circuits - Final approach and landing - After landing - Essential aerodrome information						
LO	VFR Departure						
LO	VFR Arrival						
<b>091 02 06 00</b>	<b>Radiotelephony call signs for aeronautical stations including use of abbreviated call signs</b>	X	X	X	X	X	
LO	Name the two parts of the call sign of an aeronautical station						
LO	Identify the call sign suffixes for aeronautical stations						
LO	Explain when the call sign may be omitted or abbreviated to the use of suffix only						
<b>091 02 07 00</b>	<b>Radiotelephony call signs for aircraft including use of abbreviated call signs</b>	X	X	X	X	X	
LO	List the three different ways to compose an aircraft call sign						
LO	Describe the abbreviated forms for aircraft call signs						
LO	Explain when aircraft call signs may be abbreviated						
<b>091 02 08 00</b>	<b>Transfer of communication</b>	X	X	X	X	X	
LO	Describe the procedure for transfer of communication - By groundstation - By aircraft						

**JAA Administrative & Guidance Material  
Section Five: Licensing, Part Two: Procedures**

CHAPTER 17: DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES

Subject – 090 – Communications

See Appendix 1 to JAR-FCL 1.470 and JAR-FCL 2.470

Syllabus reference	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter		IR
		ATPL	CPL	ATPL/IR	ATPL	
<b>091 02 09 00</b>	<b>Test procedures including readability scale</b>	X	X	X	X	X
LO	Explain how to test radio transmission and reception					
LO	State the readability scale and explain its meaning					
<b>091 02 10 00</b>	<b>Read back and acknowledgement requirements</b>	X	X	X	X	X
LO	State the requirement to read back ATC route clearances					
LO	State the requirement to read back clearances related to in runway in use					
LO	State the requirement to read back other clearances including conditional clearances					
LO	State the the requirement to read back other data such as runway, SSR codes etc					
<b>091 02 11 00</b>	<b>Radar procedural phraseology</b>	X	X	X	X	X
LO	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>					
<b>091 03 00 00</b>	<b>RELEVANT WEATHER INFORMATION TERMS (VFR)</b>					
<b>091 03 01 00</b>	<b>Aerodrome weather</b>	X	X	X	X	X

**JAA Administrative & Guidance Material**  
**Section Five: Licensing, Part Two: Procedures**

CHAPTER 17: DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES

Subject – 090 – Communications

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Syllabus reference	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter		IR	
		ATPL	CPL	ATPL/IR	ATPL		CPL
LO	List the contents of aerodrome weather reports and state units of measurement used for each item <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 conditions, restrictions, obstructions, windshear warnings, etc)</li> </ul>						
<b>091 03 02 00</b>	<b>Weather broadcast</b>	X	X	X	X	X	
LO	List the sources of weather information available for aircraft in flight						
LO	Explain the meaning of the abbreviations: ATIS, VOLMET						
<b>091 04 00 00</b>	<b>ACTION REQUIRED TO BE TAKEN IN CASE OF COMMUNICATION FAILURE</b>	X	X	X	X	X	
LO	State the action to be taken in case of communication failure on a controlled VFR-flight						
LO	Identify the frequencies to be used in an attempt to establish communication						
LO	State the additional information that should be transmitted, in the event of receiver failure						
LO	Identify the SSR code that may be used to indicate communication failure						
LO	Explain the action to be taken by a pilot with Com failure in the aerodrome traffic pattern at controlled aerodromes						
<b>091 05 00 00</b>	<b>DISTRESS AND URGENCY PROCEDURES</b>	X	X	X	X	X	

**JAA Administrative & Guidance Material  
Section Five: Licensing, Part Two: Procedures**

CHAPTER 17: DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES

Subject – 090 – Communications

See Appendix 1 to JAR-FCL 1.470 and JAR-FCL 2.470

Syllabus reference	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter		IR
		ATPL	CPL	ATPL/IR	ATPL	
<b>091 05 01 00</b>	<b>Distress (definition – frequencies – watch of distress frequencies – distress signal – distress message)</b>	X	X	X	X	X
LO	State the DISTRESS procedures					
LO	Define DISTRESS					
LO	Identify the frequencies that should be used by aircraft in DISTRESS					
LO	Specify the emergency SSR codes that may be used by aircraft, and the meaning of the codes					
LO	Describe the action to be taken by the station which receives a DISTRESS message					
LO	Describe the action to be taken by all other stations when a DISTRESS procedure is in progress					
LO	List the content of a DISTRESS signal/message in the correct sequence					
<b>091 05 02 00</b>	<b>Urgency (definition – frequencies – urgency signal – urgency message)</b>	X	X	X	X	X
LO	State the URGENCY procedures					
LO	Define URGENCY					
LO	Identify the frequencies that should be used by aircraft in URGENCY					
LO	Describe the action to be taken by the station which receives an URGENCY message					
LO	<b>Describe the action to be taken by all other stations when an URGENCY procedure is in progress</b>					
LO	List the content of an URGENCY signal/message in the correct sequence					
<b>091 06 00 00</b>	<b>GENERAL PRINCIPLES OF VHF PROPAGATION AND ALLOCATION OF FREQUENCIES</b>	X	X	X	X	X

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**JAA Administrative & Guidance Material  
Section Five: Licensing, Part Two: Procedures**

CHAPTER 17: DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES

Subject – 090 – Communications

See Appendix 1 to JAR-FCL 1.470 and JAR-FCL 2.470

Syllabus reference	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter		IR
		ATPL	CPL	ATPL/IR	ATPL	
	LO Describe the radio frequency spectrum with particular reference to VHF					
	LO Describe the radio frequency spectrum of the bands into which the radio frequency spectrum is divided					
	LO Identify the frequency range of the VHF band					
	LO Name the band normally used for Aeronautical Mobile Service voice communication					
	LO State the frequency separation allocated between consecutive VHF frequencies					
	LO Describe the propagation characteristics of radio transmissions in the VHF band					
	LO Describe factors which reduce the effective range and quality of radio transmissions					
	LO State which of these factors apply to the VHF band					
	LO Calculate the effective range of VHF transmissions assuming no attenuating factors					
<b>092 00 00 00</b>	<b>IFR COMMUNICATIONS</b>					
<b>092 01 00 00</b>	<b>DEFINITIONS</b>					
<b>092 01 01 00</b>	<b>Meanings and significance of associated terms</b>	X		X		X
	LO As for VFR plus terms used in conjunction with approach and holding procedures					
<b>092 01 02 00</b>	<b>Air Traffic Control abbreviations</b>	X		X		X
	LO As for VFR plus additional IFR related terms					
<b>092 01 03 00</b>	<b>Q-code groups commonly used in RTF air-ground communications</b>	X		X		X
	LO Define Q-code groups commonly used in RTF air to ground communications: - Pressure settings - Directions and bearings					
	LO State the procedure for obtaining a bearing information in flight					

**JAA Administrative & Guidance Material**  
**Section Five: Licensing, Part Two: Procedures**

CHAPTER 17: DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES

Subject – 090 – Communications

See Appendix 1 to JAR-FCL 1.470 and JAR-FCL 2.470

Syllabus reference	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter		IR
		ATPL	CPL	ATPL/IR	ATPL	
<b>092 01 04 00</b>	<b>Categories of messages</b>	X		X		X
LO	List the categories of messages in order of priority					
LO	Identify the types of messages appropriate to each category					
LO	List the priority of a message (given examples of messages to compare)					
<b>092 02 00 00</b>	<b>GENERAL OPERATING PROCEDURES</b>					
<b>092 02 01 00</b>	<b>Transmission of letters</b>	X		X		X
LO	State the phonetic alphabet used in radiotelephony					
LO	Identify the occasions when words should be spelt					
<b>092 02 02 00</b>	<b>Transmission of numbers (including level information)</b>	X		X		X
LO	Describe the method of transmitting numbers					
	- Pronunciation					
	- Single digits, whole hundreds and whole thousands					
<b>092 02 03 00</b>	<b>Transmission of time</b>	X		X		X
LO	Describe the ways of transmitting time					
	- Standard time reference (UTC)					
	- Minutes, minutes and hours, when required					
<b>092 02 04 00</b>	<b>Transmission technique</b>	X		X		X
LO	Explain the techniques used for making good R/T transmissions					
<b>092 02 05 00</b>	<b>Standard words and phrases (relevant RTF phraseology included)</b>	X		X		X
LO	Define the meaning of standard words and phrases					



**JAA Administrative & Guidance Material**  
**Section Five: Licensing, Part Two: Procedures**

CHAPTER 17: DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES

Subject – 090 – Communications

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Syllabus reference	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter		IR	
		ATPL	CPL	ATPL/IR	ATPL		CPL
	LO Use correct standard 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>						
<b>092 02 06 00</b>	<b>Radiotelephony call signs for aeronautical stations including use of abbreviated call signs</b>	X		X			X
	LO As for VFR						
	LO Name the two parts of the call sign of an aeronautical station						
	LO Identify the call sign suffixes for aeronautical stations						
	LO Explain when the call sign may be abbreviated to the use of suffix only						
<b>092 02 07 00</b>	<b>Radiotelephony call signs for aircraft including use of abbreviated call signs</b>	X		X			X
	LO As for VFR						
	LO Explain when the suffix “HEAVY” should be used with an aircraft call sign						
	LO Explain the use of the phrase “Change your call sign to . . .”						
	LO Explain the use of of the phrase “Revert to flight plan call sign”						
<b>092 02 08 00</b>	<b>Transfer of communication</b>	X		X			X
	LO Describe the procedure for transfer of communication <ul style="list-style-type: none"> <li>- By ground station</li> <li>- By aircraft</li> </ul>						

**JAA Administrative & Guidance Material  
Section Five: Licensing, Part Two: Procedures**

CHAPTER 17: DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES

Subject – 090 – Communications

See Appendix 1 to JAR-FCL 1.470 and JAR-FCL 2.470

Syllabus reference	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter		IR
		ATPL	CPL	ATPL/IR	ATPL	
<b>092 02 09 00</b>	<b>Test procedures including readability scale; establishment of RTF communication</b>	X		X		X
LO	Explain how to test radio transmission and reception					
LO	State the readability scale and explain its meaning					
<b>092 02 10 00</b>	<b>Read back and acknowledgement requirements</b>	X		X		X
LO	State the requirement to read back ATC route clearances					
LO	State the requirement to read back clearances related to runway in use					
LO	State the requirement to read back other clearances including conditional clearances					
LO	State the requirement to read back data such as runway, SSR codes etc					
<b>092 02 11 00</b>	<b>Radar procedural phraseology</b>	X		X		X
LO	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>					
<b>092 02 12 00</b>	<b>Level changes and reports</b>	X		X		X
LO	Use the correct term to describe vertical position <ul style="list-style-type: none"> <li>- In relation to flight level (standard pressure setting)</li> <li>- In relation to Altitude (metres/feet on QNH)</li> <li>- In relation to Height (metres/feet on QFE)</li> </ul>					
<b>092 03 00 00</b>	<b>ACTION REQUIRED TO BE TAKEN IN CASE OF COMMUNICATION FAILURE</b>	X		X		X
LO	Describe the action to be taken in communication failure on a IFR flight					

**JAA Administrative & Guidance Material  
Section Five: Licensing, Part Two: Procedures**

CHAPTER 17: DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES

Subject – 090 – Communications

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Syllabus reference	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter		IR
		ATPL	CPL	ATPL/IR	ATPL	
LO	Describe the action to be taken in case of communication failure on a IFR flight when flying in VMC and the flight will be terminated in VMC					
LO	Describe the action to be taken in case of communication failure on a IFR flight when flying in IMC					
<b>092 04 00 00</b>	<b>DISTRESS AND URGENCY PROCEDURES</b>					
<b>092 04 01 00</b>	<b>PAN medical</b>	X		X		X
LO	Describe the type of flights to which PAN MEDICAL applies					
LO	List the content of a PAN MEDICAL message in correct sequence					
<b>092 04 02 00</b>	<b>Distress (definition – frequencies – watch of distress frequencies – distress signal – distress message)</b>	X		X		X
LO	State the DISTRESS procedures					
LO	Define DISTRESS					
LO	Identify the frequencies that should be used by aircraft in DISTRESS					
LO	Specify the emergency SSR codes that may be used by aircraft, and the meaning of the codes					
LO	Describe the action to be taken by the station which receives a DISTRESS message					
LO	Describe the action to be taken by all other stations when a DISTRESS procedure is in progress	X		X		X
LO	List the content of a DISTRESS message					
<b>092 04 03 00</b>	<b>Urgency (definition – frequencies – urgency signal – urgency message)</b>					
LO	State the URGENCY procedures					
LO	Define URGENCY					
LO	Identify the frequencies that should be used by aircraft in URGENCY					

**JAA Administrative & Guidance Material**  
**Section Five: Licensing, Part Two: Procedures**

CHAPTER 17: DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES

Subject – 090 – Communications

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Syllabus reference	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter		IR
		ATPL	CPL	ATPL/IR	ATPL	
LO	Describe the action to be taken by the station which receives an URGENCY message	X		X		X
LO	<b>Describe the action to be taken by all other stations when an DISTRESS procedure is in progress</b>					
LO	List the content of an URGENCY signal/message in the correct sequence					
<b>092 05 00 00</b>	<b>RELEVANT WEATHER INFORMATION TERM</b>					
<b>092 05 01 00</b>	<b>Aerodrome weather</b>	X		X		X
LO	As for VFR plus the following					
LO	Runway visual range					
LO	Braking action (friction coefficient)					
<b>092 05 02 00</b>	<b>Weather broadcast</b>	X		X		X
LO	As for VFR plus the following					
LO	Explain when aircraft routine meteorological observations should be made					
LO	Explain when aircraft Special meteorological observations should be made					
<b>092 06 00 00</b>	<b>GENERAL PRINCIPLES OF VHF PROPAGATION AND ALLOCATION OF FREQUENCIES</b>	X		X		X
LO	Describe the radio frequency spectrum with particular reference to VHF					
LO	State the names of the bands into which the radio frequency spectrum is divided					
LO	Identify the frequency range of the VHF band					
LO	Name the band normally used for Aeronautical Mobile Service voice communications					
LO	State the frequency separation allocated between consecutive VHF frequencies					
LO	Describe the propagation characteristics of radio transmissions in the VHF band					
LO	Describe the factors which reduce the effective range and quality of radio transmissions					

**JAA Administrative & Guidance Material**  
**Section Five: Licensing, Part Two: Procedures**

CHAPTER 17: DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES

Subject – 090 – Communications

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Syllabus reference	Syllabus details and associated Learning Objectives	Aeroplane		Helicopter			IR
		ATPL	CPL	ATPL/IR	ATPL	CPL	
	LO State which of these factors apply to the VHF band						
	LO Calculate the effective range of VHF transmissions assuming no attenuating factors						
<b>092 07 00 00</b>	<b>MORSE CODE</b>	X	X	X	X	X	X
	LO Identify radio navigation aids (VOR, DME, NDB, ILS) from their morse code identifiers						
	LO SELCAL, TCAS, ACARS phraseology and procedures						

**JAA Administrative & Guidance Material**  
**Section Five: Licensing, Part Two: Procedures**

CHAPTER 17: DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES

Subject – 090 – Communications

See Appendix 1 to JAR-FCL 1.470 and JAR-FCL 2.470