RADIO NETWORK PLANNING STEPS		
REQUIREMENTS	**DESIGN**	**IMPLEMENTATION**
1. Obtain Requirements. • Who are the users, and to which networks they belong. • Sources: IAP, COML, incident staff • Determine whether permission obtained to use any specified channels. • Document requirements in writing, at least as a narrative.	**4. Choose Channels.** • Choose a channel for each user group, including characteristics like "repeated". • Sources: ICS-217A, Cal-IFOG, local standards, MIGU channel lists, staff. • Must have correct equipment. • Channel must be usable in user location. • Must have permission for channel. • Think about interference, linking. • Enter each channel and its parameters for corresponding user group on ICS-205.	**7. Document Configuration.** • Begin Radio Network Worksheet. Fill in top section. • Copy types (bands) and channels from ICS-205. • Add any notes, typically derived from the ICS-205 user group notes; monitor-only, antenna requirements, etc.
2. Define User Groups. • Define groups of users who communicate with the network in the same way. • Look for the bands users operate on, and the channels in their equipment, and their locations; if different, they may be in different groups. • Other clues: Some users are monitor only; a user needs transmit priority. • List and describe the user groups in Radio Network Requirements.	**5. Check For And Resolve Interference.** • Same band: Transmit frequency within 5 MHz of a receive frequency in this or another network. • Also two receive frequencies close together, if the users will be collocated. • Option 1: Change one of the channels. • Option 2: Use an antenna solution for physical or electrical separation. • Although unlikely, also check for third-harmonic interference between VHF transmitter and UHF receiver (< 20 kHz).	**8. Choose Equipment.** • Choose radio (shelf and position) of correct type from MIGU-2 Radio Assignments. • If there are frequency conflicts, consider antenna roof position, using Roof Antenna Plan. • Enter information in Radio Network Worksheet. • If the design doesn't involve ACU and its radios, enter whatever data is helpful.

3. Formulate an Approach, Draw Area
• Based on what you know, formulate a proposed approach to serving all the users. Identify how users will be reached and how user groups will be linked.
• Draw a map of the proposed approach in the Radio Network Requirements. Include:
  ○ User group work areas
  ○ Possible interference sources
  ○ Repeaters, relays, other equipment
  ○ Natural and man-made features
	6. Choose Linking Methods.
	• If different channels must be used, they must be linked.
	• Typically done with an ACU or equivalent in MIGU-2 or elsewhere.
	• Human relay and other solutions are possible.
	• No guest radios.
	• No more than four channels in an ACU network; no more than one repeater unless expert on hand for tweaking.
		9. Determine Equipment Settings.
		• Zone and channel from MIGU Channel Plans.
		• Talkaround if using simplex on a channel programmed for a repeater.
		• Tone selection if "operator-specified tone".
		• Notes if required: Antenna specifics (type, mount, connection) ACU specifics ("monitor <shelf-pos>"), radio programming, anything else.
		• Enter all information on Radio Network Worksheet.

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