



NZLSAR FIXED REPEATER POLICY

1.0 PORTABLE REPEATERS

It is anticipated that portable repeaters should be the primary means of supporting VHF SAR communications. The NZ Police will provide and maintain a portable repeater resource for SAR use. These repeaters will operate on present ESB channels ESB 57 and 58.

The existing channel CD 12 is required by the MED to be relinquished by 31 March 2004. Police will apply to PSFMWG for at least one additional ESB channel to replace CD 12.

These channels will be used exclusively for portable repeaters and will be programmed into the National Channel Bank 1 of the Icom portable radios.

This fixed repeater policy will be applied when a permanent repeater is necessary and frequency resources available to NZLSAR are required for support.

2.0 CHANNELS AVAILABLE FOR FIXED REPEATERS

2.1 NZ Police Resource

Police will support fixed repeaters only to the extent of making available a limited number of VHF channels. At present these channels are MS 8 and MS 17, however these channels will be replaced by new 12.5 kHz allocations as soon as possible. The channels will be available on the following conditions:

- The repeater must be exclusively used for SAR
- The repeater must be owned by NZLSAR Incorporated or by a regional or district SAR group recognised by NZLSAR Inc.
- The repeater **MUST** be switched off via remote control between exercises or operations to minimise interference to other fixed repeaters
- The repeater must operate with no more than 5W EIRP

These channels will be programmed into the National Channel Bank 1 of the Icom portable radios.

2.2 Exclusive EE Band Resource

Two New Zealand wide exclusive channels have been made available for SAR under a three-year sponsorship offer. These channels are EE 196 and EE 122. The sponsor of these channels has committed to either renew

sponsorship or to transfer the licence to another sponsor at the end of each three-year period.

Each repeater proposed for these channels required a MED licence application that will be processed by the sponsor of these channels as the licence holder. These channels are available on the following conditions:

- The repeater must be exclusively used for SAR
- The repeater must be owned by NZLSAR Incorporated or by a regional or district SAR group recognised by NZLSAR Inc.
- The repeater MAY be required to be switched off by remote control between exercises or operations to minimise interference to other fixed repeaters
- The repeater must operate with no more than 5W EIRP
- The repeater MAY be required to have CTCSS access depending on geography and numbers

These channels will be programmed into the National Channel Bank 1 of the Icom portable radios.

3.0 COMMON REQUIREMENT FOR FIXED SAR REPEATERS

3.1 Approval

All applications for fixed repeaters will be considered by the NZLSAR Communication Subcommittee and its technical advisors.

The application should explain why the option of a self-funded low power EE band licence, as described in section 4.1, is not practical. The Subcommittee will, if appropriate, make an allocation from the national channel pool, which includes the Police MS (or replacement) channels and the sponsored EE channels.

Once approved by the Subcommittee the application will be passed to either the Police or the EE band channel sponsor for processing. The Subcommittee reserves the right to withdraw approval in exceptional circumstances or in the case of non-compliance with this policy.

The form of application for the frequency allocation that will be required is set out in Appendix B.

As part of the approval process the requirement for remote on/off switching or CTCSS will be specified. Any conditions set by the Subcommittee can be varied at any time. Equipment used for the repeater must comply with MED RSM requirements and must be able to support CTCSS access.

3.2 Site Access

Fixed repeaters require suitable sites for their operation. In some cases the Police, another crown entity, or private organization already have established sites. As part of any access agreement to an existing site the owner needs a commitment to maintain the repeater equipment in a competent manner, provide a clear point of contact, and documented ownership details.

3.3 Ongoing Commitment

As part of the establishment of a fixed repeater a solid commitment to maintenance is required. This issue is often overlooked in the enthusiasm to raise funds for the equipment. It is suggested that either maintenance costs are budgeted in the initial fund raising or a letter of commitment from a suitably qualified facility be obtained to cover an initial operating period of three years.

This commitment to be renewed every three years. This is to be achieved by requesting re-submission of the material required in Appendix B. This has the advantage of tracking contact detail and equipment changes. This is not an onerous requirement given the alternative of annual MED RSM radio licencing.

4.0 OTHER FIXED REPEATER OPTIONS

There are two other potential options available for groups seeking fixed repeaters for SAR:

4.1 Low Power EE Band

A single repeater with 5 watts EIRP or less output may be operated under a licenced gained from the MED's Radio Spectrum Management Group. The fee for each such repeater is \$100 per annum as of 1 July 2003. It is a MED condition of these licences that a CTCSS system is used and that all radios using such a repeater be set to operate at no more than 5 watts EIRP. This power limitation must be noted when mobile and base equipment is used.

These channels are non-exclusive and different channels will be available in different areas. Where low power allocations are sought from MED only EE band allocations should be requested for compatibility.

This option may be attractive to district SAR groups with specific coverage needs. For example it is noted that Wellington currently has three repeaters licenced in this manner.

Such channels should only be programmed into the Local Channel Bank 2 of the Icom portable radios.

4.2 DOC ESB Repeaters

DoC operates a network of repeaters on ESB channels allocated by PSFMWG on the understanding that their network can be used for SAR/emergency purposes when required. This option requires a Memorandum of Understanding between Police and DoC.

Where access to such channels is possible they should only be programmed into the Local Channel Bank 2 of the Icom portable radios.

APPENDIX A

ICOM HANDHELD CHANNEL PLANS

Bank 1 National Channels

	OLD	NEW
1	ESB simplex 1	ESB simplex 1
2	ESB simplex 2	ESB simplex 2
3	ESB repeater 2	ESB repeater 1
4	ESB repeater 1	ESB repeater 2
5	SAR VHF 1 simplex	ESB repeater 3 (replaces CD12)
6	SAR VHF 2 simplex	ESB repeater 4
7	SAR VHF 1 repeater	New repeater 5 (Old MS8)
8	SAR VHF 2 repeater	New repeater 6 (Old MS17)
9	CD 13 repeater	New repeater EE196
10	CD 12 simplex A	New repeater EE122
11	CD 12 repeater	FM Ground to Air
12	CD 12 simplex B	Marine ch 6 ship to ship
13	Marine ch 6 ship to ship	Marine ch 16 emergency
14	Marine ch16 emergency	Marine ch 67
15	Marine ch 68	Marine ch 68
16	Marine ch 71	Marine ch 71

Notes

1. The old repeater "simplex" modes are not required as the radios support talk around simplex on the repeater output frequency as a standard feature.

2. NZDF have all New Zealand allocations in and around MS8 and the EE Band. An alternative to Police maintaining a frequency for communications with Iroquois helicopters, use could be made of the existing defence W1 licence allocation for an Icom compatible FM Ground to Air channel. A candidate frequency is 162.2 MHz, above MM31 and below EE1. This frequency avoids any existing MED RSM civil allocations.

Bank 2 Local Channels - Wellington Region Example

	OLD	NEW
1	Marine ch 6 ship to ship	Marine ch14 Wgtn harbour
2	Marine ch14 Wgtn harbour	Marine ch 62 Port Nic
3	Marine ch 62 Port Nic	Marine ch 63 Marlborough
4	Marine ch 63 Marlborough	Marine ch 64 Wanganui
5	Marine ch 64 Wanganui	Marine ch 84 Kapiti
6	Marine ch 84 Kapiti	Kapiti CD repeater
7	Kapiti CD repeater	SAR Mt Climie EE121
8	IA simplex ESX 39	SAR Mt Baker EE105
9	IA repeater ESB 164	SAR Colonial Knob EE116
10	AREC Rangitumau	IA simplex ESX 39
11	AREC Castlepoint	IA repeater ESB 164
12	AREC Riversdale	AREC Rangitumau
13	AREC Palliser	AREC Castlepoint
14	AREC Holdsworth	AREC Riversdale
15	Masterton DC WW	Masterton DC WW
16	MRS repeater	MRS repeater

Notes

1. The present AREC repeaters at Palliser and Holdsworth are expected to change to SAR EE band exclusive channels using SAR channels available in the National bank.
2. The Kapiti CD repeater provides useful State Highway 1 coverage repeater whereas Mt Field will provide much better coverage to the East.

APPENDIX B

INFORMATION REQUIRED FOR APPROVAL OF FIXED SAR REPEATERS

Brief description of funding commitment arrangements provided for repeater operation over next three years.

Name and address of district SAR group
Name and full contact details of administrative contact
Name and full contact details of technical contact

Site Owner
Grid Reference
Site height ASL (metres)
Site access manager details

Antenna type
Antenna gain
Antenna height above ground
Azimuth of main lobe (E of due N)

Feeder cable type
Feeder cable loss
Transmit system filter losses
Receive system filter losses
Make and type of transmitter equipment
Make and type of receiver equipment
Maximum power output capability (dBm)