

MODERN CRYSTAL SET CONSTRUCTION PROJECT COMPETITION for AGM 2008

The NZVRS would like to hold a construction project competition for the best "Modern Crystal Set" radio built by members from recycled items less than 8 years old, ie materials made since the year 2000, to be judged at the 2008 AGM. The Crystal Set design is open but generally, the following criteria will be judged.

Design – 30% includes;	<ul style="list-style-type: none"> o Circuit design and techniques used o General look and eye appeal (eg simplicity and elegance) o Degree of innovation demonstrated.
Execution - 30% includes;	<ul style="list-style-type: none"> o Construction techniques employed o Execution skills o Interesting components and materials
Performance – 30% includes;	<ul style="list-style-type: none"> o Set performance (including set coverage range, sensitivity and selectivity). o Simplicity and ease of operation
Judges' discretion – 10%	Judges have 3 discretionary points each, 1 point tiebreaker is reserved.

Design:

- i. The set should be constructed of recycled materials, on a base less than 15 inches wide, 10 inches deep and a front panel less than 8 inches high. All items of the set should be contained within these dimensions.
- ii. The set should be made of "previously used elsewhere" (ie recycled) materials made since the year 2000. A short inventory of the source of the items used in the construction of the set will assist the judges in determining merit.
- iii. The set's back and top shall be open so all wiring, connections and components etc can be easily inspected.
- iv. The set should have a maximum of three adjustable controls or switches to normally operate the set. These controls should be on the front panel, be labeled and identified in the sketch of the circuit (see below) to indicate their affect on the operation of the set. Other fixed adjustments, ie not for the judges' use, can be located inside the set.
- v. Any tuning arrangements are permitted eg variable or switched; capacitors, inductors, resistors etc.
- vi. The "Aerial and Earth" and "Phones" connection terminal points should be clearly marked.
- vii. No active (powered) devices nor bias or other (eg battery) power supplies are to be used at all – the crystal set is to be an entirely passive device. Variation of this point may lead to disqualification.
- viii. Any type of detector may be used but fixed is suggested as any adjustable detector (eg rusty nail) it will be replaced by a germanium diode by the judge(s) for ease of consistent results during testing.
- ix. A simple sketch of the set's circuit and identification of the controls is requested to assist the judges. Other than providing a basic understanding of the design and control of the set, the draftsmanship quality of the sketch will not be judged.

Performance will be measured by:

- i. Sensitivity to a standard low impedance signal source (coupled by 400 ohms in series with 300 pF to simulate a long wire aerial), connected to the "aerial" input terminal of the set under test with the "earth" terminal used as return. The test frequency will be about 1 MHz (1,000 kHz) audio modulated at about 800 Hz.
- ii. A set level of the test signal will be then be varied above and below the initial test frequency, while monitoring the output, to determine the basic set selectivity.
- iii. A "standard" set of headphones (approximately 2,000 ohm dc resistance) to be used as the test termination will be provided by the judges and also used to check the audio quality of the set.
- iv. The set should be capable of receiving signals from 550 to 1500 kHz.
- v. Additional points may be awarded to sets that are simple and easy to operate.

General:

- i. Only the set, circuit and parts inventory are required for judging. Additional accessories will not be judged.
- ii. The entries shall be completed and delivered to the 2008 AGM before noon. Absentee entries are welcome and reasonable care will be taken of submitted items, however the nomination of a proxy caretaker is suggested to look after the exhibit and to ensure its safe return.
- iii. There shall be no maker's identification marks on the sets other than a code number to be allocated by the secretary's agent. This code shall be attached by a secure tie to a front or rear terminal and also written on the envelope containing the set's circuit diagram (or the diagram itself) and the component inventory. These codes shall be allocated and attached in a confidential manner so the judges have no indication of the makers.
- iv. Members are welcome to submit no more than two entries each.
- v. The entries will be judged by committee appointed judge(s) whose decision shall be final. The judges will strive to announce the results by the end of the AGM and these will be published in the next Bulletin.
- vi. The prize(s) may include a certificate of merit for any of the above three criteria however the **overall winner** receives a free NZVRS subscription for the following year.