CU 4

also PIB 4

SPEED CAMERAS

STANDARD FOR CERTIFICATION OF APPROVED VEHICLE SURVEILLANCE EQUIPMENT (AUTOPATROL PR-100NZ)

1st January 2003

Introduction

These standards relate to the provision of certificates of accuracy for the AutoPatrol PR-100NZ speed camera, which has been approved by the Minister of Police by notice in the *Gazette* [1993/335]. The certificates are issued under the authority of the Land Transport Act 1998 section 146 (4).

The statute gives one simple reason for certificates of accuracy. That is, to allow evidence to be adduced on the testing and accuracy of a speed measuring device without the need for the person conducting the test to appear as a witness in any proceedings.

The absence of a certificate issued under this statutory authority does not however jeopardise a prosecution, so long as a witness is available to give evidence that the testing was indeed carried out, and that the device was found accurate.

It is intended to rely upon the certificate provisions of the Land Transport Act 1998, and these standards provide a platform for the process, describing the necessary tests and standards of accuracy set after consultation with the Measurement Standards Laboratory of NZ (Crown Research Institute).

General

Any unit, which does not meet the following standards, is to be taken out of service and forwarded to the agents for repair and re-calibration.

Each device must have affixed a label indicating the next due date for calibration.

Following the completion of the testing outlined in these standards a certificate of accuracy may be issued.

Calibration of the approved vehicle surveillance equipment consists of a laboratory bench test and a road test as further outlined in these standards.

Commentary: The following standards set out the actual tests and accuracy requirements for the approved vehicle surveillance equipment AutoPatrol PR-100NZ.

Laboratory test procedure as agreed with MSLNZ

1. Check that the alignment of the laser 22.5 degrees beam is correct, by placing the unit on the test bench as certified by MSLNZ.

Commentary: The unit has mounted a laser device for setting up the angle of operation. This beam must be checked against the MSLNZ alignment table to ensure the laser is beaming at the correct angle.

Place the PR100NZ into the test chamber and conducted the tests as generated by the MSLNZ HP Vee program.

2. The program will simulate speeds at 50.9, 100.9, 150.9 and 200.9 km per hour into the PR-100NZ. Accuracy must be found to be within the allowable tolerance of minus 2 km per hour for speeds between 30 and 100 km per hour, and minus 4 km per hour between 101 and 210 km per hour; and no more than plus 1km per hour for all speed readings.

Commentary: The PR100NZ was designed to allow slight alignment deviations by the operator. Therefore the PR100NZ rounds speeds down.
A minimum of 10 speeds will be counted at each of the speeds specified above. Both approaching and receding speeds will be simulated.

3. The program will conduct tests of Channel A and Channel B (approaching and receding) to ensure each channel is properly functioning and that sensitivity levels are normal.

Commentary: The PR-100NZ has a dual receiver to discriminate between directions of travel. Each channel may be tested separately. Both channels must operate in a similar manner.

4. The program will automatically conduct interference testing for effects of external radio frequency and noise, the program will switch transmitters on at 76,86, 150 and 470 Mhz within 4 metres of the unit and its connecting cables. No external radio frequency source so introduced may result in a speed-reading alteration from that of the normal simulated speed-reading result. A non speed-reading on the device is permissible.

Commentary: Traffic radar operates on the basis of a radio frequency beam emitted and received. It must therefore be impervious to the effects of radio frequency sources that may be commonly found in a normal operating environment. If introduction of radio frequency energy or noise results in no speeds being displayed from the unit being calibrated, that is acceptable.

5. The program will conduct voltage stability testing under extremes of supply voltage levels. The acceptable operating range is 10.8 to 15 volts.

Commentary: The PR-100NZ is designed to operate properly at supply voltages varying between 10.8 and 15 volts. Speeds recorded must be unaffected by such variations.

6. The program will measure and record the microwave radio frequency transmitted from the PR100NZ. The operating frequency must be 34.6 Ghz plus or minus 150 Mhz.

Commentary: The operating frequency must remain within the tolerances specified, to maintain the levels of speed measurement accuracy specified in these standards.

7. The program requires the testing technician to strike the tuning fork and place it over the transducer to measure the audio frequency produced by the tuning fork issued to the PR-100NZ.

Commentary: The tuning fork serial number will be recorded. The frequency produced and its corresponding speed as indicated on the device being calibrated will also be recorded.

8. The program as hardcopy records the results of these tests, note the results of the internal self test on the worksheet also attach the hardcopy of the results to this file.

Commentary: The self-test is a routine procedure carried out by the PR-100NZ during set-up of a deployment, if an internal fault appears the unit will fail the deployment.

Road test

9. Set the PR 100NZ up for an actual road deployment.

Commentary: This test is a function test only, to ensure that the device operates correctly in a real situation. The speed-reading results must be within the allowable tolerance specified in the laboratory test above. The uncertainty of measurement as recorded on the certificate of accuracy does not apply to the practical road test result.

10. Set up to run a normal deployment.

Commentary: Use a calibration site number as a site reference and the following format for film number: "TESTxx" (where xx is the number of the radar unit) to identify the PR-100NZ unit being calibrated. Take photographs to show both the speed measured by the PR-100NZ unit being calibrated and also the speed independently measured and displayed on an external display panel by the calibration vehicle passing.

11. Photograph one or more vehicle passes at speeds of 50 km per hour and 100 km per hour using a vehicle fitted with a MSLNZ calibrated speedometer showing an external display.

Commentary: The speed displayed by the external display panel will be captured in the photograph as the vehicle passes and is measured by the device being calibrated. This photograph will provide clear evidence of correlation of speed values within the acceptable level specified in the laboratory test.

12. File the results of all calibration tests in the laboratory with any computerised print outs from the camera and photographs taken, certificates of accuracy are made from the documents; one copy is supplied to the District which operates the unit.