Australian Government

National Measurement Institute

CERTIFICATE OF TEST OF A SPEED MEASURING DEVICE IN ACCORDANCE WITH THE *ROAD TRANSPORT (SAFETY AND TRAFFIC MANAGEMENT) REGULATION 2000* (ACT) IN FORCE UNDER THE *ROAD TRANSPORT (SAFETY AND TRAFFIC MANAGEMENT) ACT 1999* (ACT)

Device description: Speed Measuring Instrument
Model: M4MPC

Manufacturer: [redacted]

Permanent distinguishing marks: Serial No: 00AU80PS

Date of test: 25 March 2011

Date of expiry of this certificate: 25 March 2012

Tested and sealed by: [redacted]

I hereby certify that:

(1) This laboratory is a testing authority as described in chapter 4 of the *Road Transport (Safety and Traffic Management) Regulation 2000* (ACT);

(2) The tests were conducted by an approved person employed within the testing authority to test and seal traffic offence detection devices in accordance with chapter 4 of the *Road Transport (Safety and Traffic Management) Regulation 2000* (ACT);

(3) This device was found to meet the manufacturer's specifications for speed measurement and all readings of speed were within plus or minus 2km/h of the nominal speed. Full details are given in National Measurement Institute Report RN110712.

Signature: [redacted] **Date:** 06/04/2011

Name of signatory:

Position of signatory: Time and Frequency Metrologist,
National Measurement Institute,
Port Melbourne, Victoria, 3207

Australian Government

National Measurement Institute

MEASUREMENT REPORT ON

A SPEED MEASURING INSTRUMENT

Serial Number 00AU80PS

This document is issued in accordance with NATA's accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Accreditation Number 1.

The National Measurement Institute is responsible for Australia's units and standards of measurement. The measurement results presented in this report are traceable to Australia's primary standards.

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Australia

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For further information contact: [redacted] *Telephone:* [redacted]
Email:

Ref.: **RN110712** *File:* **CB/06/2058** *Checked:* **SQ** *Date:* **6 April 2011**

For: ACT Traffic Camera Office
Dickson Motor Vehicle Registry
13-15 Challis Street
DICKSON ACT 2602

Reference: Quotation number Q110712 dated 15 March 2011

Description: A speed measuring instrument comprised of two electronic cards
Model Number M4MPC Serial Number 00AU80PS
Card A Serial Number 9969 Card B Serial Number 9967

Manufacturer: [redacted]

Date of Test: 25 March 2011

The speed measuring instrument was tested at the National Measurement Institute, Melbourne. Following satisfactory completion of the test, the instrument was sealed using tamper proof seals.

Test Method

A calibrator, based on a Stanford Research Systems model DG535 Digital Delay Pulse Generator, was used to produce programmable time delays. Its outputs designated as *Time Delay 1* (T1) and *Time Delay 2* (T2) are used to simulate speeds for verifying the performance of the M4MPC.

The time delays are calculated from the formula: $$TD = \frac{5{,}400}{V}$$

where: V is the nominal vehicle speed in km/h and
TD is the time delay in milliseconds, assuming a separation of 1.5 metres between piezoelectric in-road sensors.

Prior to testing each speed setting of the M4MPC, the calibrator's T1 and T2 delay settings were measured on the laboratory reference counter.

During the testing the laboratory temperature was (20 ± 1) °C.

The M4MPC was powered from a 12.5 V dc supply. The instrument was operated for a minimum of 30 minutes before testing commenced.

Results

Table 1 gives the results for testing at four speeds with the same speed simulated for each sensor pair. Table 2 records the results of tests to determine the response when different speeds were generated for the first and second sensor pairs. The frequency test results are reported in Table 3. Each measurement is the mean value of readings taken for each test configuration.

TABLE 1 Speed Measurement Test Results - Indicated speeds (km/h)

Nominal Simulated Speed	Card Serial No 9969	Card Serial No 9967
60	60	60
80	80	80
100	100	100
160	160	160

TABLE 2 Speed Measurement Variation Test Results - Indicated speeds (km/h)
The simulated speed for the first sensor pair measurement was 60 km/h or 100 km/h. The table shows the readings when the simulated speeds for the second sensor pair were as shown, where <> indicates "no output data".

Nominal Simulated Speed	Card Serial No 9969	Card Serial No 9967
57	<>	<>
58	<>	<>
59	59	59
61	61	61
62	<>	<>
63	<>	<>
97	<>	<>
98	<>	<>
99	99	99
101	101	101
102	<>	<>
103	<>	<>

TABLE 3 Frequency Results – at test points 5 (tp 5) and 6 (tp 6)

Test	Card Serial No 9969	Card Serial No 9967
tp 5 2.457 6 MHz	2.457 646 MHz	2.457 624 MHz
tp 6 1.0 Hz	1.000 001 Hz	1.000 001 Hz

Uncertainties

The uncertainty of the frequency values is estimated to be:-

$\pm$ 1 part in 10^6 with a coverage factor $\boldsymbol{k = 2.0}$

The uncertainty of simulated speeds is estimated to be:-

$\pm$ 0.006 km/h for speed with a coverage factor $\boldsymbol{k = 2.0}$

Indicated speed values for a simulated speed v are estimated to lie in the interval:-

$(v - 1.0, v + 0.1)$ km/h

This interval has been determined using a coverage factor $\boldsymbol{k = 2.0}$, and is estimated to have a level of confidence of 95%.

Notes

1. The uncertainties stated in this report have been calculated in accordance with principles in the ISO Guide to the Expression of Uncertainty in Measurement, and give an interval estimated to have a level of confidence of 95%. The uncertainties apply at the time of measurement only and take no account of any drift or other effects that may apply afterwards. When estimating the uncertainty at any later time, other relevant information should also be considered, including, where possible, the history of the performance of the instrument and the manufacturer's specifications.

2. The calibration was performed using Test Method HAFAM-60 *Calibration of Speed Measuring Instruments Using Piezoelectronic In-Road Sensors* Version 2 of the NMI Melbourne Physical Metrology project operations manual.

3. The calibration was conducted at NMI Melbourne Physical Metrology, Unit 1 – 153 Bertie Street, Port Melbourne, Victoria, 3207.

[redacted]

[redacted]

CERTIFICATE OF TEST OF A SPEED MEASURING DEVICE IN ACCORDANCE WITH THE *ACT ROAD TRANSPORT (SAFETY AND TRAFFIC MANAGEMENT) REGULATION 2000* IN FORCE UNDER THE ACT ROAD TRANSPORT (SAFETY AND TRAFFIC MANAGEMENT) ACT 1999

Device Description: Speed Measuring Instrument, [redacted]

Manufacturer: [redacted]

Permanent Distinguishing Marks: [redacted]

Date of test: 24/02/2012

Date of expiry of this certificate: 24/02/2013

I hereby certify that:

(1) this laboratory is a testing authority as described in chapter 4 of the *ACT Road Transport (Safety and Traffic Management) Regulation 2000*

(2) the tests were conducted by an approved person employed within the testing authority to test and seal traffic offence detection devices in accordance with chapter 4 of the *ACT Road Transport (Safety and Traffic Management) Regulation 2000*

(3) this device was found to operate in accordance with the manufacturer's specifications for speed measurement. All readings of speed or speeds of 100km/h and under were accurate within a tolerance of 2km/h; and for speeds over 100km/h were accurate within a tolerance of 2%. Full details are given in SGS Australia Report RN TS120283

Signature: [redacted] **Date:** 24/02/2012

Name of signatory: [redacted]

Position of signatory: Calibration Engineer, Traffic Systems

Testing Laboratory: SGS Australia Pty Ltd, 2/2-4 Clarice Road, Box Hill South, Victoria. NATA Accredited Laboratory No. 18628, Electrical Testing

CERTIFICATE OF TEST OF A SPEED MEASURING DEVICE IN ACCORDANCE WITH THE *ACT ROAD TRANSPORT (SAFETY AND TRAFFIC MANAGEMENT) REGULATION 2000* IN FORCE UNDER THE ACT ROAD TRANSPORT (SAFETY AND TRAFFIC MANAGEMENT) ACT 1999

Device Description: Speed Measuring Instrument, [redacted]

Manufacturer: [redacted]

Permanent Distinguishing Marks: [redacted]

Date of test: 18/02/2013

Date of expiry of this certificate: 18/02/2014

I hereby certify that:

(1) this laboratory is a testing authority as described in chapter 4 of the *ACT Road Transport (Safety and Traffic Management) Regulation 2000*

(2) the tests were conducted by an approved person employed within the testing authority to test and seal traffic offence detection devices in accordance with chapter 4 of the *ACT Road Transport (Safety and Traffic Management) Regulation 2000*

(3) this device was found to operate in accordance with the manufacturer's specifications for speed measurement. All readings of speed or speeds of 100km/h and under were accurate within a tolerance of 2km/h; and for speeds over 100km/h were accurate within a tolerance of 2%. Full details are given in SGS Australia Report RN TS130193

Signature: [redacted] **Date:** 18/02/2013

Name of signatory: [redacted]

[redacted]

Position of signatory: Senior Project Engineer, Traffic Systems

Testing Laboratory: SGS Australia Pty Ltd, 2/2-4 Clarice Road, Box Hill South, Victoria. NATA Accredited Laboratory No. 18628, Electrical Testing

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NATA
WORLD RECOGNISED ACCREDITATION

SGS Australia Pty Ltd

TEST REPORT

Report Reference No.:	TS130193
Compiled by (+signature):	[redacted]
Approved by (+signature):	
Date of issue:	Friday, 22 February 2013
Date of test:	Monday, 18 February 2013
Contents:	11 pages

Testing Laboratory:	SGS Australia Consumer Testing Services NATA Accredited Laboratory No. 18628, Electrical Testing
Address:	2/2-4 Clarice Road, Box Hill South, VIC 3128, Australia Telephone +61(03) 9896 0100 Facsimile +61(03) 9898 4563 **ee.australia@sgs.com**
Applicant's name:	ACT Traffic Camera Office
Address:	13-15 Challis Street, Dickson, ACT 2602
Test scope:	Certification of piezoelectric speed measurement device
Standard:	N/A
Test Procedure:	TSP0629

[redacted]

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Report TS130193

SUMMARY OF RESULTS

The [redacted] is compliant with the requirements of SGS calibration procedure TSP0629.

Comments:

- A compliant result indicates that the measurement results fall within specification by an amount at least equivalent to the uncertainty of measurement.
- No adjustments were performed on the device.

DEVICE UNDER TEST DESCRIPTION

Description:

Item	Model/Part No	Serial Number
Speed Measuring Device	[redacted]	[redacted]
Card 1	Lower	9967
Card 2	Upper	9969

Condition:

- The device under test was found to be in a satisfactory condition.

TEST EQUIPMENT

Item	ID No.	Calibration due date
Tektronix Arbitrary/Function Generator	1812	23/03/2013
SRS SR620 Time Interval Counter	1850	9/07/2013
Sub-surface impedance converter	1851/A	N/A
Digital Multimeter	1864	18/09/2013
Tektronix Arbitrary/Function Generator	1898	6/07/2013
Hygrometer	1944	9/07/2013

ENVIRONMENTAL CONDITIONS

The ambient temperature and humidity at the time of the test are shown below:

Ambient Temperature (°C) ±1°C	24.3
Relative Humidity (%) ±4%	43.3

[redacted]

TEST RESULTS

CARD 1

Pre-calibration

PCB Serial No.	9967
Software Version	V24

Parameter	Value
Power supply voltage (V)	12.0
TP1 voltage (V)	13.871
TP2 voltage (V)	5.018
TP3 voltage (V)	4.955
TP4 voltage (V)	2.496
TP5 frequency (MHz)	2.457625
TP6 frequency (Hz)	1.000001
Indicated Chip temperature	26
Indicated voltage (V)	11.9

Direction sensing test

Piezo configuration	Applied speed (km/h)	DUT indicated speed (km/h)
1-2-3	100.0	99
3-2-1	100.0	0

[redacted]

Speed simulation test

Applied Speed (km/h)	DUT indicated speed (km/h)
20.0	[redacted]
20.0	
20.0	
50.0	
50.0	
50.0	
100.0	
100.0	
100.0	
150.0	
150.0	
150.0	
200.0	
200.0	
200.0	
250.0	
250.0	
250.0	

[redacted]

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Speed difference test

Applied Speed - Piezo 1/2 (km/h)	Applied Speed - Piezo 2/3 (km/h)	DUT indicated speed (km/h)
20.0	[redacted]	[redacted]
20.0		
20.0		
20.0		
50.0		
50.0		
50.0		
50.0		
100.0		
100.0		
100.0		
100.0		
150.0		
150.0		
150.0		
150.0		
200.0		
200.0		
200.0		
200.0		
250.0		
250.0		
250.0		
250.0		

[redacted]

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CARD 2

Pre-calibration

PCB Serial No.	9969
Software Version	V24

Parameter	Value
Power supply voltage (V)	12.0
TP1 voltage (V)	13.767
TP2 voltage (V)	5.018
TP3 voltage (V)	4.971
TP4 voltage (V)	2.500
TP5 frequency (MHz)	2.457645
TP6 frequency (Hz)	1.000001
Indicated Chip temperature	26
Indicated voltage (V)	11.9

Direction sensing test

Piezo configuration	Applied speed (km/h)	DUT indicated speed (km/h)
1-2-3	100.0	99
3-2-1	100.0	0

[redacted]

Speed simulation test

Applied Speed (km/h)	DUT indicated speed (km/h)
20.0	[redacted]
20.0	
20.0	
50.0	
50.0	
50.0	
100.0	
100.0	
100.0	
150.0	
150.0	
150.0	
200.0	
200.0	
200.0	
250.0	
250.0	
250.0	

[redacted]

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Speed difference test

Applied Speed - Piezo 1/2 (km/h)	Applied Speed - Piezo 2/3 (km/h)	DUT indicated speed (km/h)
20.0	[redacted]	[redacted]
20.0		
20.0		
20.0		
50.0		
50.0		
50.0		
50.0		
100.0		
100.0		
100.0		
100.0		
150.0		
150.0		
150.0		
150.0		
200.0		
200.0		
200.0		
200.0		
250.0		
250.0		
250.0		
250.0		

[redacted]

TAMPER EVIDENT SEALS

The device under test was sealed with SGS tamper evident seals 4489, 4490,4491 and 4492 as shown below:

Photo #2

SGS

Report TS130193

[redacted]

[redacted]

SGS Australia Pty Ltd

TEST REPORT **Piezo Electric Speed Measuring Device** **Equipment Certification**	
Report Reference No.:	TS120283
Compiled by (+ signature):	[redacted]
Approved by (+ signature):	[redacted] Project Manager
Date of issue:	Monday, 27 February 2012
Date of test:	Friday, 24 February 2012
Contents:	12 Pages
Testing Laboratory: Address:	SGS Australia Consumer Testing Services NATA Accredited Laboratory No. 18628, Electrical Testing 2/2-4 Clarice Road, Box Hill South, VIC 3128, Australia Telephone +61(03) 9896 0100 Facsimile +61 (03) 9898 4563 ee.australia@sgs.com
Applicant's name: Address:	ACT Traffic Camera office 13-15 Challis Street Dickson ACT 2602
Test scope: Standard: Test Procedure Worksheet Number	Certification of Piezo Electric Speed Measurement Device TSP0629 120283
This document is issued in accordance with NATA's accreditation requirements.	
Conclusion:	Compliant

[redacted]

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Report TS120283

Summary of Results

The [redacted] is compliant with the requirements of the SGS Test Procedure TSP0629.

Equipment Description

Speed Measurement Device [redacted]

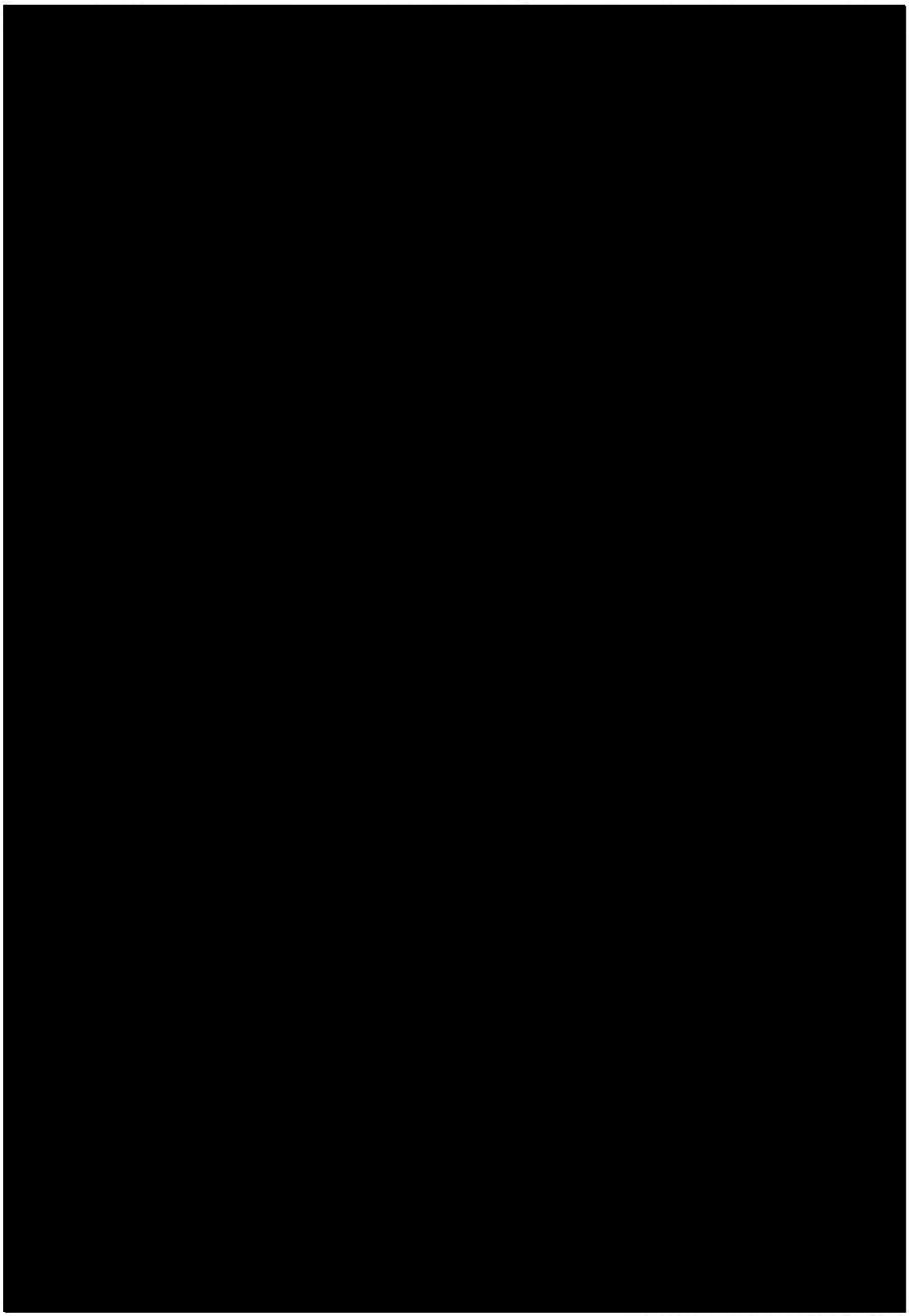
Equipment Description	Channel	Serial No
Card 1	Upper card	9969
Card 2	Lower card	9967

Test Equipment

Equipment	ID No	Calibration Date	Due Date
Testo 625 Hygrometer	ID1801	23/08/2011	23/08/2012
SRS SR620 Time Interval Counter	ID1928	13/02/2012	13/02/2013
SRS SR620 Time Interval Counter	ID1850	11/07/2011	11/07/2012
Agilent 34401A Multimeter	ID1864	14/09/2011	14/09/2012
SGS Calibrator	ID1851	Calibrate before Use	

Results

The piezo detector cards were found to be in a satisfactory electrical condition as shown below.



The ambient temperature and relative humidity at the time of the test are shown below:

Ambient Temperature (°C)	Relative Humidity (%)
23.4	50.2

[redacted]

Speed Measurement Device [redacted]

Pre-Calibration Card 9969

Parameter	Criteria	Value		Result
Power Supply	12.0 ±0.5V	11.51	V	Compliant
PCB S/N	N/A	9969		N/A
Software Version	N/A	V24		N/A
Voltage at TP1	13.7 ±0.25V	13.76	V	Compliant
Voltage at TP2	5.0 ±0.25V	5.01	V	Compliant
Voltage at TP3	5.0 ±0.25V	4.97	V	Compliant
Voltage at TP4	2.5 ±0.05V	2.50	V	Compliant
Frequency at TP5	2.457600MHz±100Hz	2.457645	MHz	Compliant
Frequency at TP6	1.000000±0.000010Hz	0.999999	Hz	Compliant
Temperature	±20% of Ambient	23	°C	Compliant
Voltage	±20% of Supply	11.4	V	Compliant

Confirmation of Direction Sensing Card 9969

Simulated Speed (km/h)	Piezo Configuration	Indicated Speed (km/h)
100	1-2-3	100
100	3-2-1	0

Speed Calibration Card 9969

The applied and indicated speeds are shown below:

Test 1

Applied Speed (km/h) Piezo 1 2	Applied Speed (km/h) Piezo 2 3	Indicated Speed (km/h)
20.00	[redacted]	[redacted]
50.00		
60.00		
70.00		
80.00		
100.00		
150.00		
199.99		
240.01		
250.00		

[redacted]

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Test 2

Applied Speed (km/h) Piezo 1 2	Applied Speed (km/h) Piezo 2 3	Indicated Speed (km/h)
20.00	[redacted]	[redacted]
50.00		
60.00		
70.00		
80.00		
100.00		
149.99		
199.98		
240.00		
250.00		

Test 3

Applied Speed (km/h) Piezo 1 2	Applied Speed (km/h) Piezo 2 3	Indicated Speed (km/h)
20.00	[redacted]	[redacted]
50.00		
60.00		
70.00		
80.00		
100.00		
149.99		
199.99		
240.01		
249.99		

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Speed Difference Test Card 9957

Applied Speed (km/h) Piezo 1 2	Applied Speed (km/h) Piezo 2 3	Indicated Speed (km/h)
20.00	[redacted]	[redacted]
20.00		
20.00		
20.00		
50.00		
50.00		
50.00		
50.00		
60.00		
60.00		
60.00		
60.00		
70.00		
70.00		
70.00		
70.00		
80.00		
80.00		
80.00		
80.00		
100.00		
100.00		
100.00		
100.00		
149.99		
149.99		
150.00		
150.00		
199.98		
199.99		
199.99		
199.99		
240.00		
240.00		
240.00		
240.00		
250.00		
250.00		
250.00		
249.99		

[redacted]

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Pre-Calibration Card 9967

Parameter	Criteria	Value		Result
Power Supply	12.0 ±0.5V	11.52	V	Compliant
PCB S/N	N/A	9967		N/A
Software Version	N/A	V24		N/A
Voltage at TP1	13.7 ±0.25V	13.87	V	Compliant
Voltage at TP2	5.0 ±0.25V	5.02	V	Compliant
Voltage at TP3	5.0 ±0.25V	4.96	V	Compliant
Voltage at TP4	2.5 ±0.05V	2.50	V	Compliant
Frequency at TP5	2.457600MHz±100Hz	2.457624	MHz	Compliant
Frequency at TP6	1.000000±0.000010Hz	0.999999	Hz	Compliant
Temperature	±20% of Ambient	23	°C	Compliant
Voltage	±20% of Supply	11.4	V	Compliant

Confirmation of Direction Sensing Card 9967

Simulated Speed (km/h)	Piezo Configuration	Indicated Speed (km/h)
100	1-2-3	99
100	3-2-1	0

Speed Calibration Card 9967

The applied and indicated speeds are shown below:

Test 1

Applied Speed (km/h) Piezo 1 2	Applied Speed (km/h) Piezo 2 3	Indicated Speed (km/h)
20.00	[redacted]	[redacted]
50.00		
60.00		
70.00		
80.00		
100.00		
149.99		
199.99		
240.01		
250.00		

[redacted]

Test 2

Applied Speed (km/h) Piezo 1 2	Applied Speed (km/h) Piezo 2 3	Indicated Speed (km/h)
20.00	[redacted]	[redacted]
50.00		
60.00		
70.00		
80.00		
100.00		
150.00		
199.99		
240.00		
250.00		

Test 3

Applied Speed (km/h) Piezo 1 2	Applied Speed (km/h) Piezo 2 3	Indicated Speed (km/h)
20.00	[redacted]	[redacted]
50.00		
60.00		
70.00		
80.00		
100.00		
149.99		
199.99		
240.01		
250.00		

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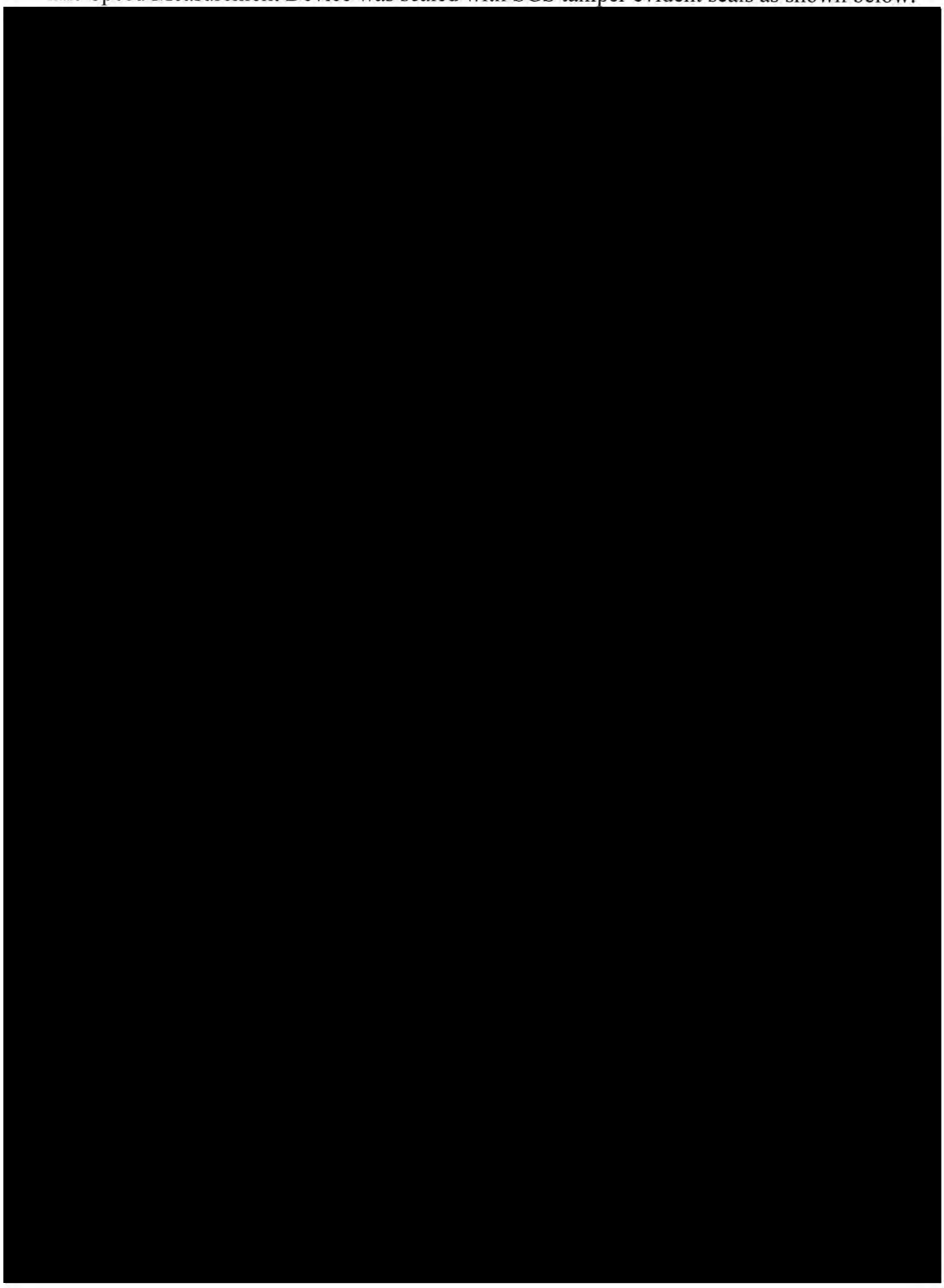
Speed Difference Test Card 9967

Applied Speed (km/h) Piezo 1 2	Applied Speed (km/h) Piezo 2 3	Indicated Speed (km/h)
20.00	[redacted]	[redacted]
20.00		
20.00		
20.00		
50.00		
50.00		
50.00		
50.00		
60.00		
60.00		
60.00		
60.00		
70.00		
70.00		
70.00		
70.00		
80.00		
80.00		
80.00		
80.00		
100.00		
100.00		
100.00		
100.00		
150.00		
150.00		
150.00		
150.00		
199.98		
199.98		
199.99		
199.99		
240.01		
240.01		
240.01		
240.01		
250.01		
250.00		
250.00		
250.00		

[redacted]

Tamper Evident Seals

The Speed Measurement Device was sealed with SGS tamper evident seals as shown below:



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Seal Number	Notes
3408	Front
3409	Front
3410	Rear
3411	Rear

CERTIFICATE OF TEST OF A SPEED MEASURING DEVICE IN ACCORDANCE WITH THE *ACT ROAD TRANSPORT (SAFETY AND TRAFFIC MANAGEMENT) REGULATION 2000* IN FORCE UNDER THE ACT ROAD TRANSPORT (SAFETY AND TRAFFIC MANAGEMENT) ACT 1999

Device Description: Loop Speed Measuring Instrument [redacted]

Manufacturer: GATSOMETER

Permanent Distinguishing Marks: [redacted]

Date of test: 23/11/2011

Date of expiry of this certificate: 23/11/2012

I hereby certify that:

(1) this laboratory is a testing authority as described in chapter 4 of the *ACT Road Transport (Safety and Traffic Management) Regulation 2000*

(2) the tests were conducted by an approved person employed within the testing authority to test and seal traffic offence detection devices in accordance with chapter 4 of the *ACT Road Transport (Safety and Traffic Management) Regulation 2000*

(3) this device was found to operate in accordance with the manufacturer's specifications for speed measurement. All readings of speed or speeds of 100km/h and under were accurate within a tolerance of 2km/h; and for speeds over 100km/h were accurate within a tolerance of 2%. Full details are given in SGS Australia Report RN TS111437

Signature [redacted] **Date:** 05/12/2011

Name of signatory: [redacted]

Position of signatory: Calibration Engineer

Testing Laboratory: SGS Australia Pty Ltd, 2/2-4 Clarice Road, Box Hill South, Victoria. NATA Accredited Laboratory No. 18628, Electrical Testing

CERTIFICATE OF TEST OF A SPEED MEASURING DEVICE IN ACCORDANCE WITH THE *ACT ROAD TRANSPORT (SAFETY AND TRAFFIC MANAGEMENT) REGULATION 2000* IN FORCE UNDER THE ACT ROAD TRANSPORT (SAFETY AND TRAFFIC MANAGEMENT) ACT 1999

Device Description: Loop Speed Measuring Instrument [redacted]

Manufacturer: GATSOMETER

Permanent Distinguishing Marks: [redacted]

Date of test: 23/11/2011

Date of expiry of this certificate: 23/11/2012

I hereby certify that:

(1) this laboratory is a testing authority as described in chapter 4 of the *ACT Road Transport (Safety and Traffic Management) Regulation 2000*

(2) the tests were conducted by an approved person employed within the testing authority to test and seal traffic offence detection devices in accordance with chapter 4 of the *ACT Road Transport (Safety and Traffic Management) Regulation 2000*

(3) this device was found to operate in accordance with the manufacturer's specifications for speed measurement. All readings of speed or speeds of 100km/h and under were accurate within a tolerance of 2km/h; and for speeds over 100km/h were accurate within a tolerance of 2%. Full details are given in SGS Australia Report RN TS111437

Signature [redacted] **Date:** 05/12/2011

Name of signatory: [redacted]

Position of signatory: Calibration Engineer

Testing Laboratory: SGS Australia Pty Ltd, 2/2-4 Clarice Road, Box Hill South, Victoria. NATA Accredited Laboratory No. 18628, Electrical Testing